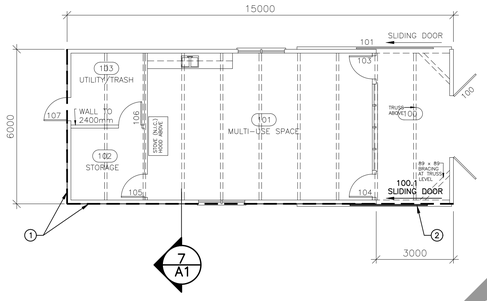
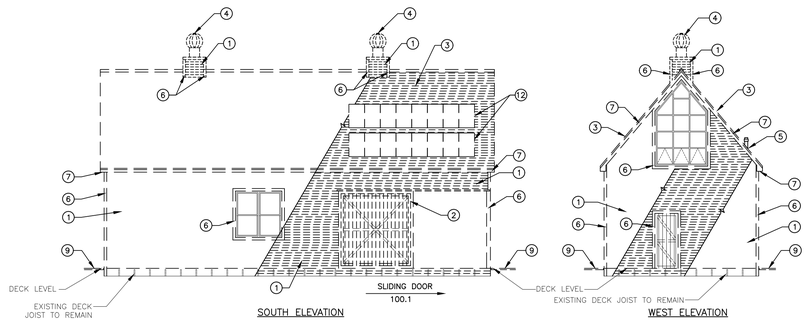


FOOD BARN FLOOR PLAN – DEMOLITION 1 A1

SCALE : 1:100

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

PROJECT NORTH



FOOD BARN ELEVATION – DEMOLITION 2 A1

SCALE : 1:100

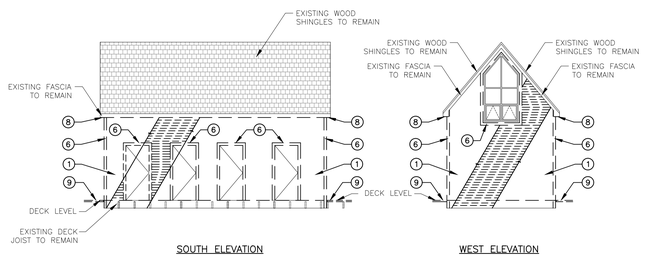
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

CHANGE ROOM FLOOR PLAN – DEMOLITION 3 A1

SCALE : 1:100

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

PROJECT NORTH



CHANGE ROOM ELEVATION – DEMOLITION 4 A1

SCALE : 1:100

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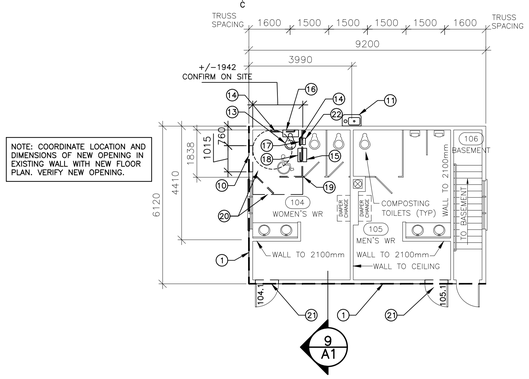

WASHROOM FLOOR PLAN – DEMOLITION 5 A1

SCALE : 1:100

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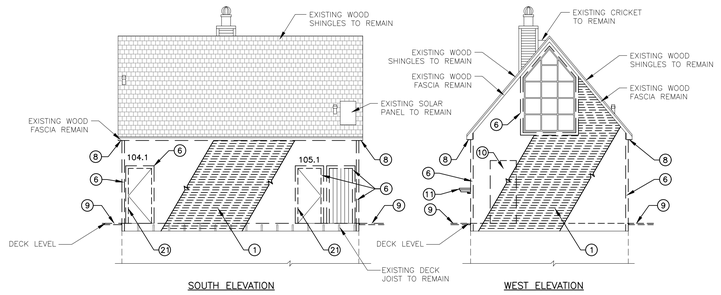
PROJECT NORTH



WASHROOM ELEVATION – DEMOLITION 6 A1

SCALE : 1:100

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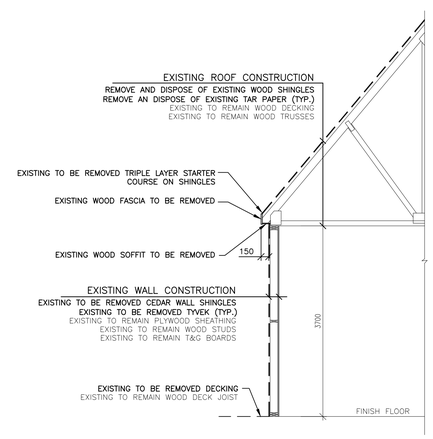
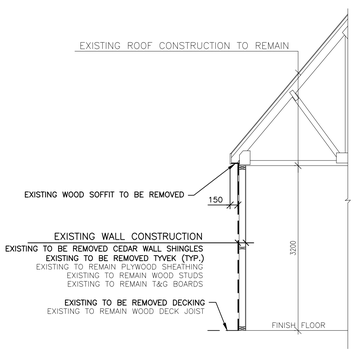


FOOD BARN – EXISTING WALL SECTION 7 A1

SCALE : 1:50

0m 1m 2m 3m 4m 5m



CHANGE ROOM – EXISTING WALL SECTION 8 A1

SCALE : 1:50

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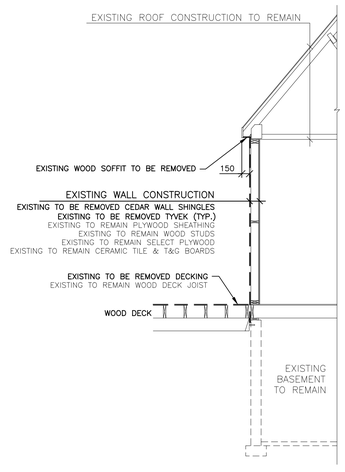

WASHROOM – EXISTING WALL SECTION 9 A1

SCALE : 1:50

0m 1m 2m 3m 4m 5m

GENERAL NOTES:

1. CONTRACTOR TO REMOVE AND DISPOSE OF ANY ROTTEN TRIM BOARDS, CORNER BOARDS AND ROOF WOOD DECKING.

LEGEND

- NEW WALL
- EXISTING TO REMAIN
- DEMOLITION
- (101) ROOM NAME AND NUMBER
- 101 DOOR NUMBER
- EWI EXTERIOR WALL TYPE (REFER TO SCHEDULE)
- PI INTERIOR PARTITION TYPE (REFER TO SCHEDULE)

DEMOLITION NOTES	
ITEM	DESCRIPTION
1	REMOVE AND DISPOSE OF EXISTING CEDAR WALL SHINGLES ON SOUTH AND WEST WALL.
2	REMOVE AND DISPOSE EXISTING WOODEN SLIDING DOOR AND TRACK ON SOUTH SIDE.
3	REMOVE AND DISPOSE OF EXISTING CEDAR ROOF SHINGLES AND TAR PAPER.
4	REMOVE AND DISPOSE OF EXISTING ROOF VENTILATORS.
5	REPLACE RUBBER BOOT ON SOIL STACK.
6	REMOVE AND DISPOSE EXISTING TRIM & OR CORNER BOARD.
7	REMOVE AND DISPOSE EXISTING FASCIA BOARD AND SOFFIT. REMOVE EXISTING GUTTER. EXISTING GUTTER TO BE RE-INSTALLED ONCE NEW FASCIA BOARD HAS BEEN INSTALLED.
8	REMOVE AND DISPOSE OF EXISTING SOFFIT
9	REMOVE AND DISPOSE ALL EXISTING DECKING, RAMPS, STEPS AND RAILING.
10	CUT OPENING INTO EXISTING WALL TO FACILITATE NEW DOOR W/TRANSOM. COORDINATE EXACT LOCATION OF OPENING WITH NEW FLOOR PLAN LAYOUT.
11	REMOVE AND DISPOSE EXISTING DRINKING WATER FOUNTAIN.
12	REMOVE EXISTING SOLAR PANELS. SOLAR PANELS TO BE RE-INSTALLED AND PUT BACK IN SAME LOCATION ONCE NEW ROOFING HAS BEEN INSTALLED.
13	EXISTING COMPOSTING TOILET TO BE REMOVED AND REUSED. COORDINATE NEW LOCATION WITH NEW FLOOR PLAN.
14	REMOVE EXISTING GRAB BAR, RETURN TO OWNER.
15	REMOVE EXISTING TOILET TISSUE DISPENSER. TOILET TISSUE DISPENSER TO BE RE-INSTALLED. COORDINATE NEW LOCATION WITH NEW FLOOR PLAN.
16	REMOVE EXISTING WOODEN SHELF. SHELF TO BE RE-INSTALLED. COORDINATE NEW LOCATION WITH NEW FLOOR PLAN.
17	REMOVE EXISTING SANITARY NAPKIN DISPOSAL, RETURN TO OWNER.
18	REMOVE EXISTING TOILET TISSUE DISPENSER, RETURN TO OWNER.
19	REMOVE AND DISPOSE OF EXISTING TOILET PARTITION WALL AND DOOR.
20	REMOVE AND DISPOSE OF EXISTING TILE FLOORING. COORDINATE EXACT AMOUNT OF FLOORING TO BE REMOVED WITH NEW FLOOR PLAN LAYOUT.
21	REMOVE AND DISPOSE EXISTING WOODEN JAMB ON MEN'S AND WOMEN'S WASHROOM DOORS.
22	REMOVE EXISTING SANITARY NAPKIN DISPOSAL. SANITARY NAPKIN DISPOSAL TO BE RE-INSTALLED. COORDINATE NEW LOCATION WITH NEW FLOOR PLAN.

Parks Canada Agency / Agence Parcs Canada

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Architecture + Engineering + Project Management

Suite 201, 85 Fitzroy Street
Charlottetown, PEI, Canada, C1A 1R6
Phone (902) 368-2300
www.colesassociates.com

SEP. 25, 2019
ARCHITECTS ASSOCIATION 19-12 CERTIFICATE of PRACTICE
Scott Daniel MacNeill
Coles Associates Ltd.
AAPEI OF PRINCE EDWARD ISLAND
#191146

revisions		date
0	ISSUED FOR TENDER	09/25/2019

project / projet

GREENWICH BEACH COMPLEX REHABILITATION
GREENWICH,
PEI NATIONAL PARK

drawing / dessin

DEMOLITION PLANS & ELEVATIONS FOOD BARN, CHANGE ROOM, WASHROOM & NOTES

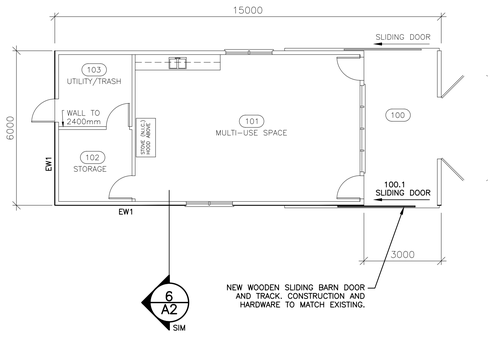
designed	Coles Associates Ltd.	concu
date	Aug. 2019	
drawn	Coles Associates Ltd.	dessiné
date	Aug. 2019	
approved		approuvé
date		
Tender		Soumission
PWGSC Project Manager		Administrateur de projets TPSGC

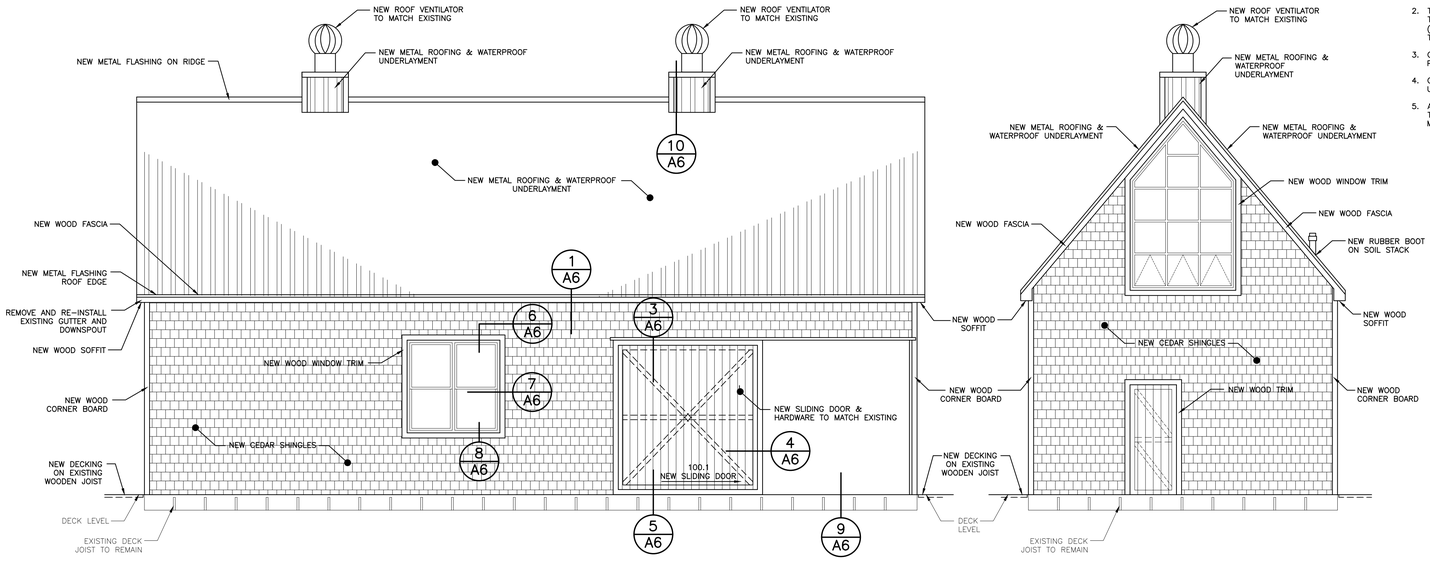
project number / no. du projet: 191146

drawing no. / no. du dessin: A1 of A6

PWGSC B1 (2004)

E-DRM/GDD-E:





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3. COMPLY WITH ALL LOCAL, MUNICIPAL, AND PROVINCIAL BY-LAWS AND REGULATIONS.
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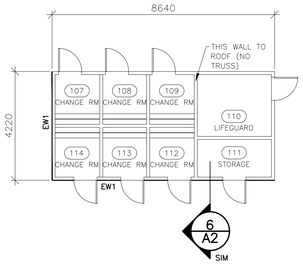
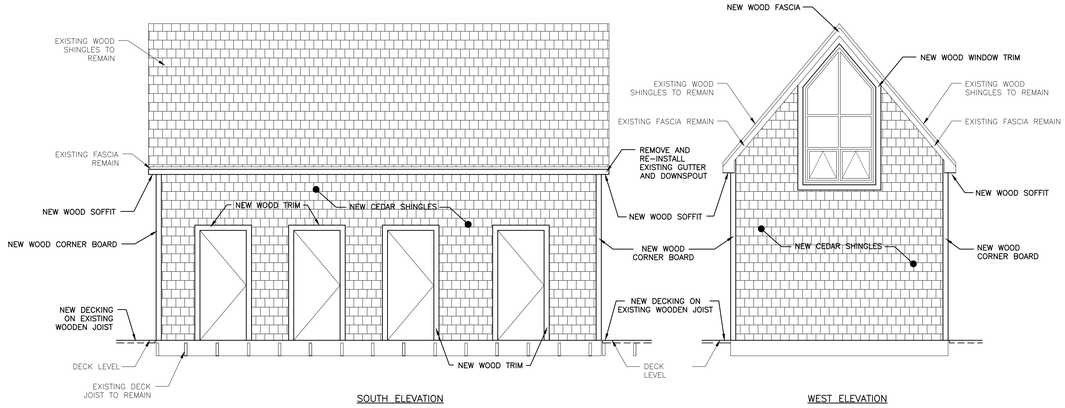
5. ALL NEW FASCIA BOARDS, SOFFIT, WINDOW TRIM, DOOR TRIM AND CORNER BOARDS TO MATCH EXISTING DIMENSION AND COLOUR.

FOOD BARN FLOOR PLAN – NEW 1/A2
SCALE : 1:100
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

PROJECT NORTH

FOOD BARN – NEW ELEVATION 2/A2
SCALE : 1:50
0m 1m 2m 3m 4m 5m

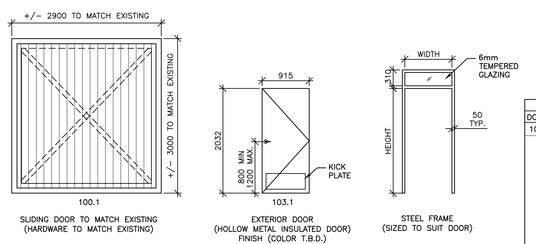




CHANGE ROOM FLOOR PLAN – NEW 3/A2
SCALE : 1:100
0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

PROJECT NORTH

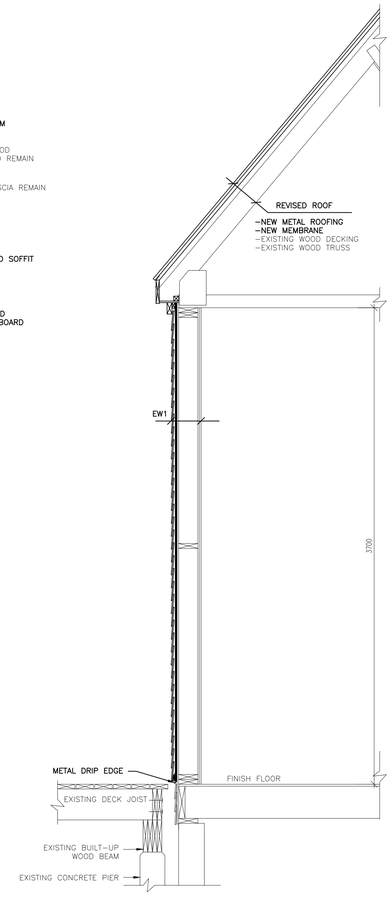
CHANGE ROOM – NEW ELEVATION 4/A2
SCALE : 1:50
0m 1m 2m 3m 4m 5m



DOOR SCHEDULE		
DOOR #	QTY	HARDWARE
103.1	3	114 mm STAINLESS STEEL BALL BEARING HINGES
	1	DOOR CLOSURE MOUNTED ON INSIDE
	1	WEATHER SEALS (HEAD & JAMBS)
	1	DEAD BOLT KEYED FROM OUTSIDE ONLY
	1	LEVER TYPE CYLINDRICAL LOCKSET, STANDARD OF ACCEPTANCE: SCHLAGE ND SERIES, ATHENS LEVER, 626 FINISH, PRIVACY LOCK FUNCTION
	2	305mm x 762mm STAINLESS STEEL KICK PLATE (BOTH SIDES OF DOOR)
	1	DOOR SWEEP
	1	ALUMINUM THRESHOLD (NO MORE THAN 13mm HIGH)

DOOR FRAME/ELEVATION – NEW 5/A2
SCALE : 1:50
0m 1m 2m 3m 4m 5m

WALL TYPES	
TYPE	DESCRIPTION
EW1	–NEW CEDAR SHINGLES –NEW RAIN SCREEN MESH (6mm) –NEW AIR BARRIER –EXISTING PLYWOOD SHEATHING –EXISTING WOOD STUDS –EXISTING T&G BOARDS
EW2	–NEW CEDAR SHINGLES –NEW RAIN SCREEN MESH (6mm) –NEW AIR BARRIER –EXISTING PLYWOOD SHEATHING –EXISTING WOOD STUDS –EXISTING PLYWOOD SHEATHING UP TO 2100mm AFF –EXISTING CERAMIC TILE UP TO 2100mm AFF –EXISTING T&G BOARDS ABOVE EXISTING TILE –NEW FRP PANEL ADHERED TO EXISTING CERAMIC TILE (FULL HEIGHT OF WALL)
EW3	–EXISTING CEDAR SHINGLES –EXISTING TYVEK –EXISTING PLYWOOD SHEATHING –EXISTING WOOD STUDS –EXISTING PLYWOOD SHEATHING UP TO 2100mm AFF –EXISTING CERAMIC TILE UP TO 2100mm AFF –EXISTING T&G BOARDS ABOVE EXISTING TILE –NEW FRP PANEL ADHERED TO EXISTING CERAMIC TILE (FULL HEIGHT OF WALL)
P1	–FRP PANEL –12mm PLYWOOD –38x89 WOOD STUDS @ 406mm O.C. –12mm PLYWOOD –FRP PANEL (FULL HEIGHT OF WALL)



WALL SECTION – EW1 6/A2
SCALE : 1:20
0mm 500mm 1000mm 1500mm 2000mm 2500mm

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Suite 201, 85 Fitzroy Street
Charlottetown, PEI, Canada, C1A 1R6
Phone (902) 368-2300
www.colesassociates.com

SEP. 25, 2019
ARCHITECTS ASSOCIATION 19-12 CERTIFICATE OF PRACTICE Scott Daniel MacNeill Coles Associates Ltd. AAPEI OF PRINCE EDWARD ISLAND
#191146

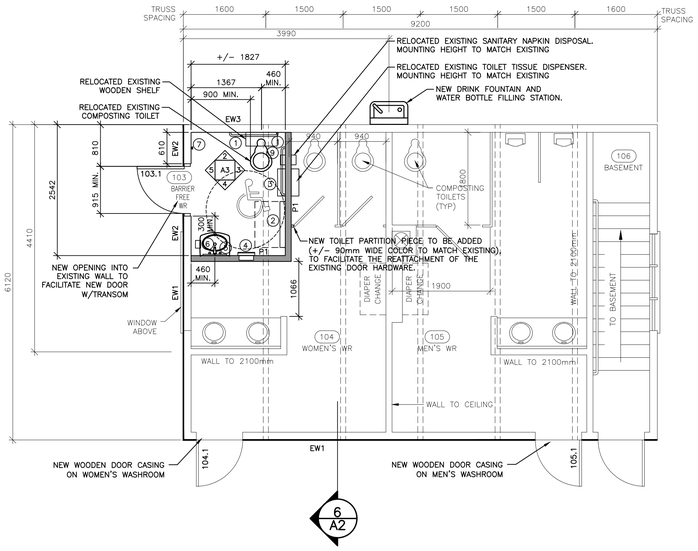
revisions		date
0	ISSUED FOR TENDER	09/25/2019

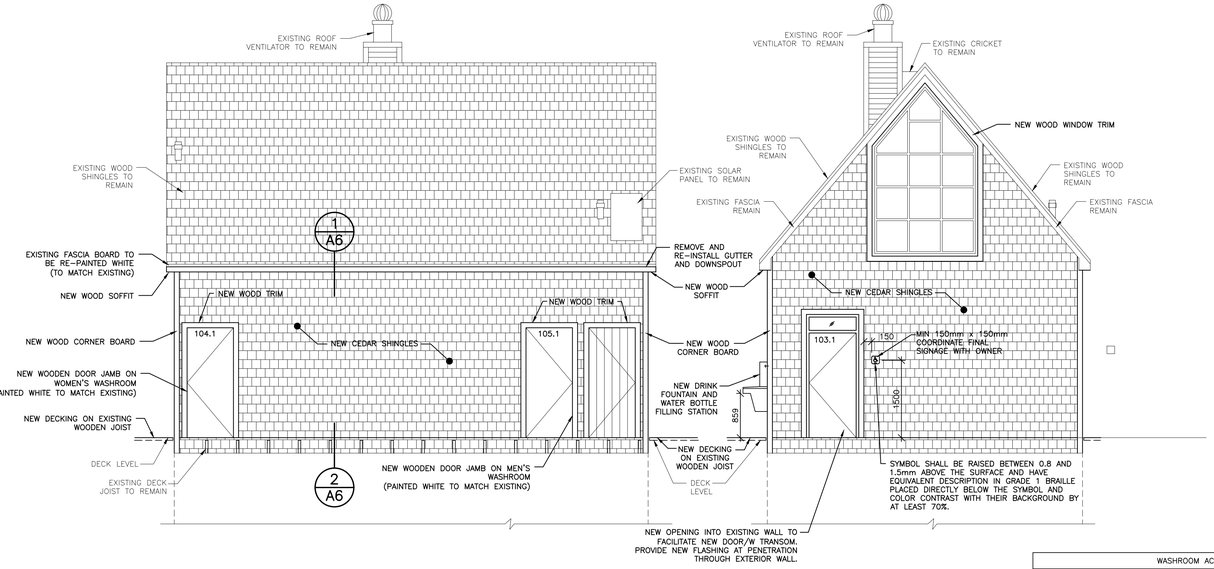
project / projet
GREENWICH BEACH COMPLEX REHABILITATION GREENWICH, PEI NATIONAL PARK

drawing / dessin
NEW PLANS & ELEVATIONS FOOD BARN & CHANGE ROOM

designed Coles Associates Ltd. / conçu
date Aug. 2019
drawn Coles Associates Ltd. / dessiné
date Aug. 2019
approved / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet
191146
drawing no. / no. du dessin
A2 of A6

PWGSC B1 (2004)
E-DRM/GDD-E:





SOUTH ELEVATION

WEST ELEVATION

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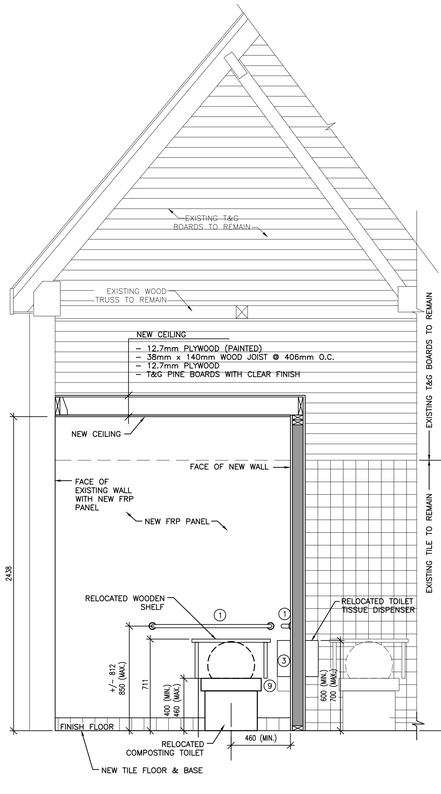
WASHROOM FLOOR PLAN – NEW 1 A3
SCALE : 1:50
0m 1m 2m 3m 4m 5m

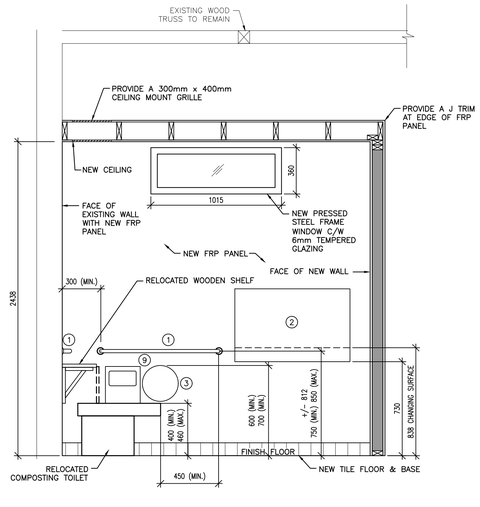
PROJECT NORTH

WASHROOM ELEVATION – NEW 6 A2
SCALE : 1:50
0m 1m 2m 3m 4m 5m

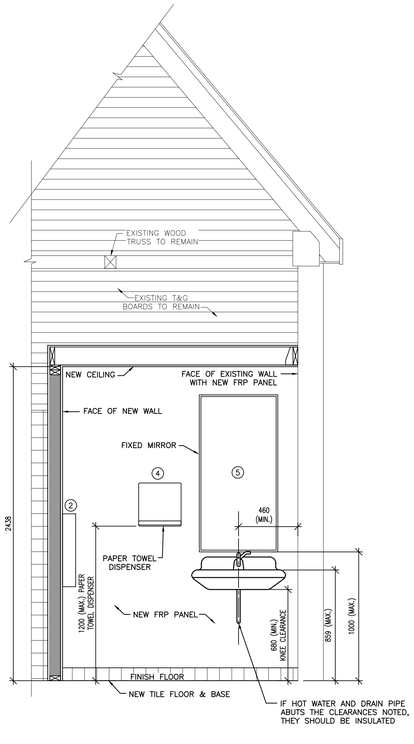
WASHROOM ACCESSORIES SCHEDULE		
ITEM	DESCRIPTION	MODEL NUMBER
①	NEW GRAB BAR	BOBRICK: B-5806 SERIES, B-5806.99 x 36 SATIN FINISH, (13mm DIA. x 915mm)
②	NEW BABY CHANGING STATION	BOBRICK KB200-00 HORIZONTAL, WALL MOUNTED BABY CHANGING STATION. CREAM (893mm x 565mm x 102mm D)
③	NEW SURFACE-MOUNTED JUMBO TOILET TISSUE DISPENSER	KIMBERLY-CLARK 09603
④	NEW SURFACE MOUNTED PAPER TOWEL DISPENSER	KIMBERLY-CLARK 09996-40
⑤	NEW FIXED MIRROR	BOBRICK: B-290 SERIES, FIXED MIRROR B-290 2448 (610mm x 1220mm)
⑥	NEW SURFACE-MOUNTED SOAP DISPENSER	AVMOR BIOMAXX FOAM EP71
⑦	NEW ROBE HOOK	BOBRICK: B-233 STAINLESS STEEL, SATIN FINISH (MOUNTED 1200mm ABOVE FINISH FLOOR TO CENTER OF HOOK)
⑧	EXISTING WOODEN SHELF	EXISTING WOODEN SHELF TO BE RELOCATED AS INDICATED IN ELEVATION
⑨	NEW SURFACE MOUNTED SANITARY NAPKIN DISPOSAL	BOBRICK: B-254 CLASSIC SERIES, SATIN FINISH STAINLESS STEEL (270mm x 385mm x 105mm)
⑩	WASTE RECEPTACLE	OWNER SUPPLIED / OWNER INSTALLED



BF WASHROOM ELEVATION 2 A3
SCALE : 1:20
0mm 500mm 1000mm 1500mm 2000mm 2500mm



BF WASHROOM ELEVATION 3 A3
SCALE : 1:20
0mm 500mm 1000mm 1500mm 2000mm 2500mm



BF WASHROOM ELEVATION 4 A3
SCALE : 1:20
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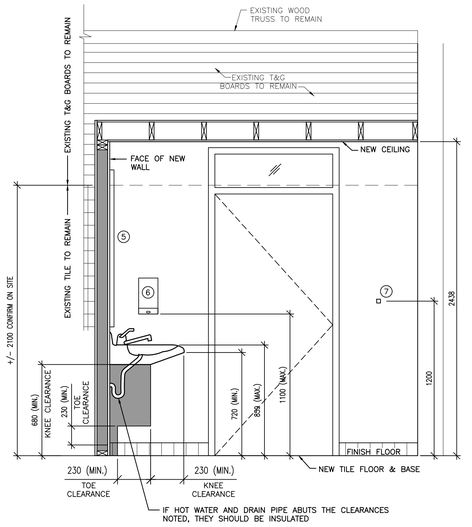

BF WASHROOM ELEVATION 5 A3
SCALE : 1:20
0mm 500mm 1000mm 1500mm 2000mm 2500mm

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Suite 201, 85 Fitzroy Street
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Phone (902) 368-2300
www.colesassociates.com

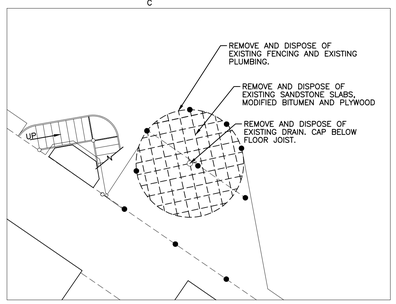
SEP. 25, 2019
ARCHITECTS ASSOCIATION OF PRINCE EDWARD ISLAND
19-12
CERTIFICATE of PRACTICE
Scott Daniel MacNeill
Coles Associates Ltd.
AAPEI
#191146.

revisions		date
0	ISSUED FOR TENDER	09/25/2019

project / projet
GREENWICH BEACH COMPLEX REHABILITATION
GREENWICH,
PEI NATIONAL PARK

drawing / dessin
WASHROOM NEW FLOOR PLAN, ELEVATIONS & INTERIOR WASHROOM ELEVATIONS

designed / conçu: Coles Associates Ltd.
date: Aug. 2019
drawn / dessiné: Coles Associates Ltd.
date: Aug. 2019
approved / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet: 191146
drawing no. / no. du dessin: A3 of A6



EXISTING DECK SHOWER — 2/A4

SCALE : 1:100

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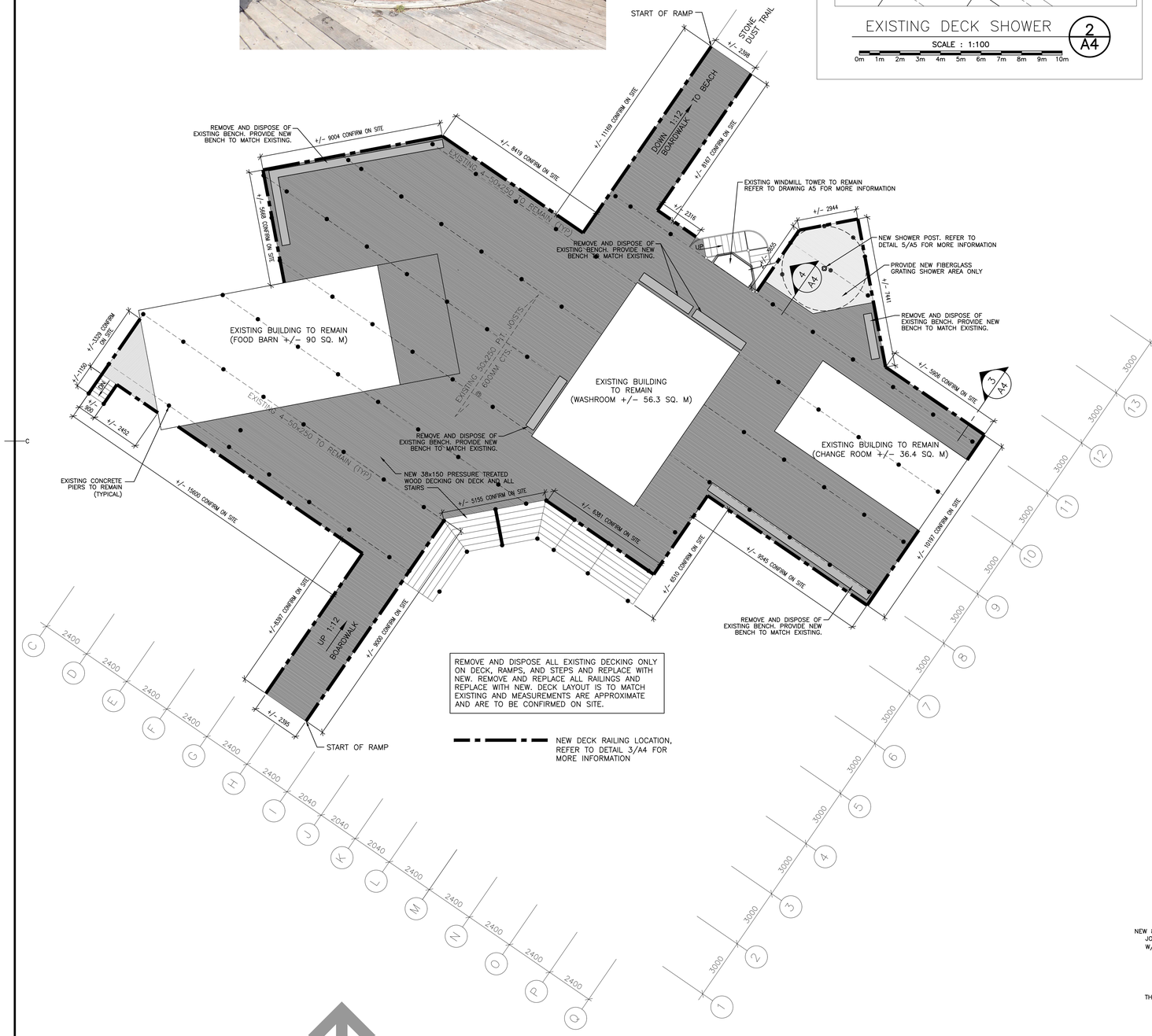

DECK PLAN — 1/A4

SCALE : 1:100

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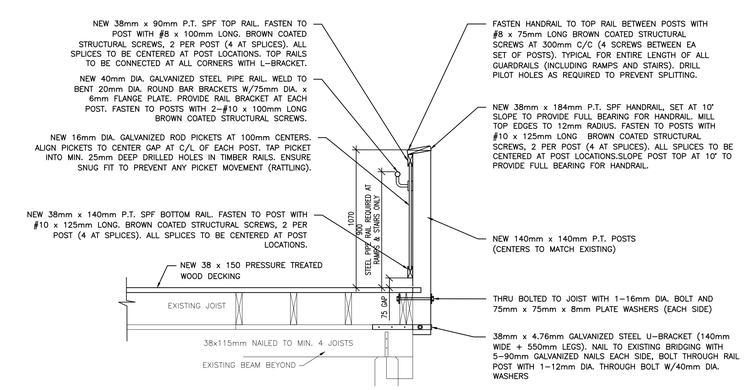
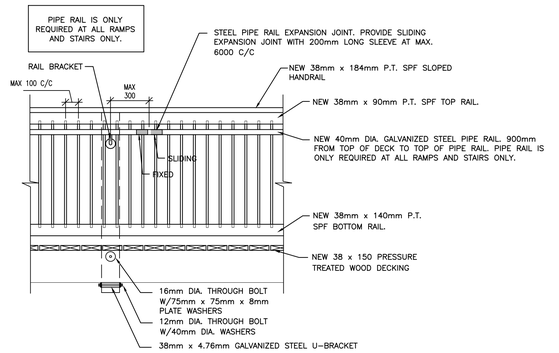


SECTION

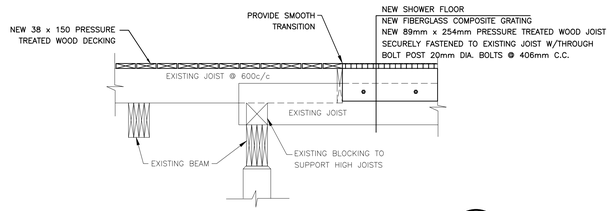


ELEVATION

NEW DECK RAILING — 3/A4

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm



SECTION AT DECK/SHOWER TRANSITION — 4/A4

SCALE : 1:20

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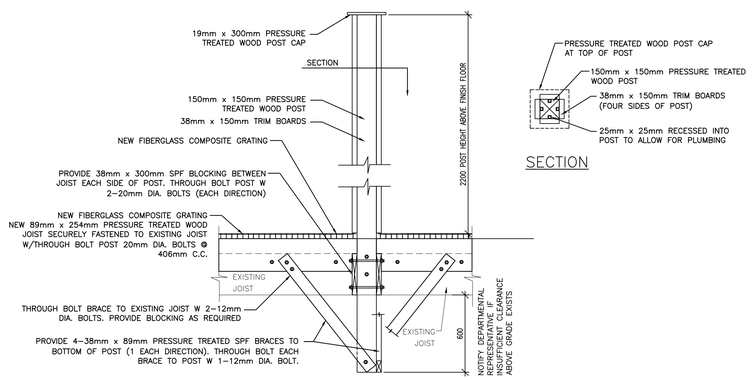

SECTION

SECTION AT SHOWER POST — 5/A4

SCALE : 1:20

0mm 500mm 1000mm 1500mm 2000mm 2500mm

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ENGINEERS ASSOCIATION
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#191146

revisions		date
0	ISSUED FOR TENDER	09/25/2019

project / projet

GREENWICH BEACH COMPLEX REHABILITATION GREENWICH, PEI NATIONAL PARK

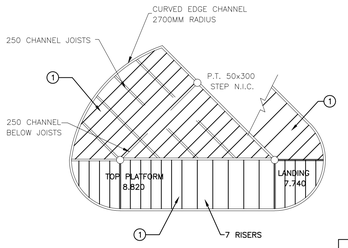
drawing / dessin

DECK PLAN, EXISTING SHOWER AREA & DETAILS

designed Coles Associates Ltd. — conçu
date Aug. 2019
drawn Coles Associates Ltd. — dessiné
date Aug. 2019
approved — approuvé
date
Tender — Soumission
PWGSC Project Manager — Administrateur de projets TPSGC
project number / no. du projet: 191146
drawing no. / no. du dessin: A4 of A6

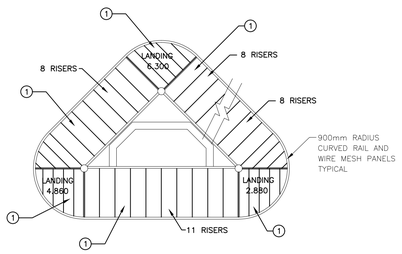
PWGSC B1 (2004)

E-DRM/GDD-E:

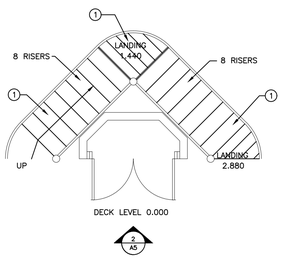


THIRD LEVEL

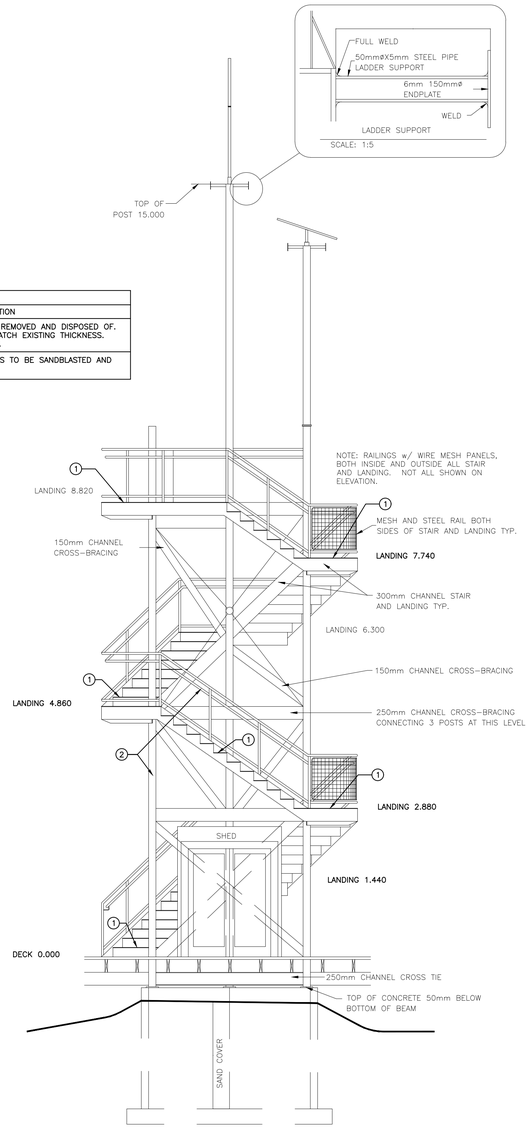
NOTES	
ITEM	DESCRIPTION
1	ALL EXISTING STAIR TREADS TO BE REMOVED AND DISPOSED OF. PROVIDE NEW CEDAR PLANKS TO MATCH EXISTING THICKNESS. TYPICAL ALL TREADS AND LANDINGS.
2	ALL METAL STRUCTURE AND RAILINGS TO BE SANDBLASTED AND PAINTED. (TYPICAL, COLOUR TBD)



SECOND LEVEL



DECK LEVEL



OBSERVATION TOWER – PLAN 1/A5

SCALE : 1:50

0m 1m 2m 3m 4m 5m

OBSERVATION TOWER – ELEVATION 2/A5

SCALE : 1:50

0m 1m 2m 3m 4m 5m

Parks Canada Agency / Agence Parcs Canada

COLES
Architecture + Engineering + Project Management
Suite 201, 85 Fitzroy Street
Charlottetown, PEI, Canada, C1A 1R6
Phone (902) 368-2300
www.colesassociates.com

Sep. 25, 2019
ARCHITECTS ASSOCIATION 19-12 CERTIFICATE OF PRACTICE Scott Daniel MacNeill Coles Associates Ltd. AAPEI OF PRINCE EDWARD ISLAND
#191146.

revisions		date
0	ISSUED FOR TENDER	09/25/2019

project / projet

GREENWICH BEACH COMPLEX REHABILITATION GREENWICH, PEI NATIONAL PARK

drawing / dessin

OBSERVATION TOWER

designed / conçu: Coles Associates Ltd. — date: Aug. 2019

drawn / dessiné: Coles Associates Ltd. — date: Aug. 2019

approved / approuvé — date

Tender / Soumission

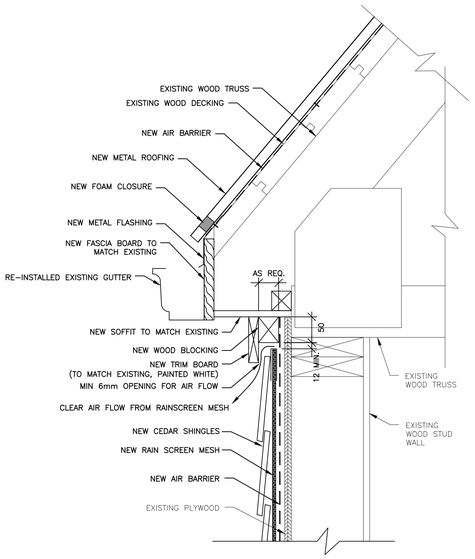
PWGSC Project Manager / Administrateur de projets TPSGC

project number / no. du projet: 191146

drawing no. / no. du dessin: A5 of A6

PWGSC B1 (2004)

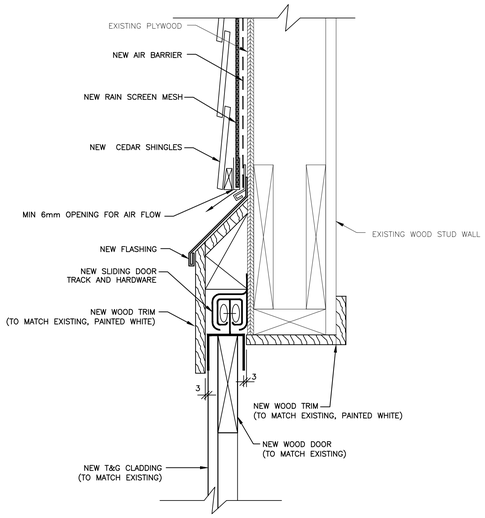
E-DRM/GDD-E:



TOP OF WALL DETAIL — 1 / A6

SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm



SLIDING DOOR HEAD DETAIL — 3 / A6

SCALE : 1:5

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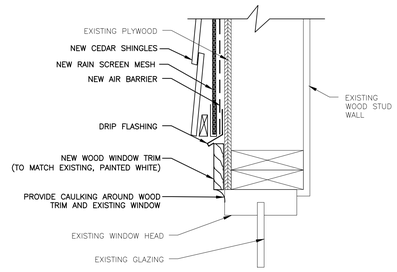

WINDOW HEAD DETAIL — 6 / A6

SCALE : 1:5

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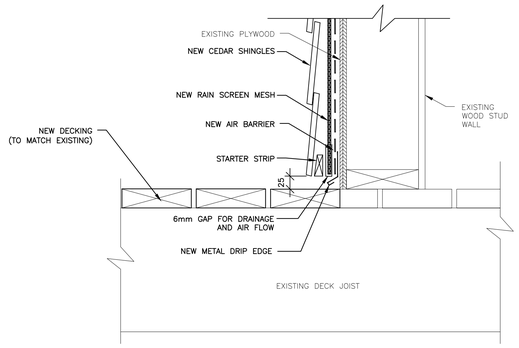


BOTTOM OF WALL DETAIL — 9 / A6

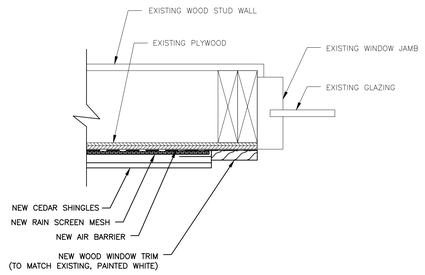
SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm

SLIDING DOOR JAMB DETAIL — 4 / A6

SCALE : 1:5

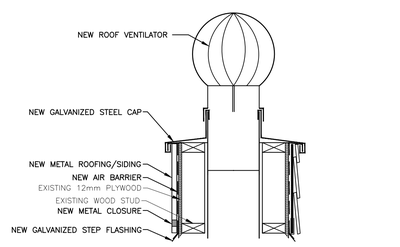
0mm 100mm 200mm 300mm 400mm 500mm



WINDOW JAMB DETAIL — 7 / A6

SCALE : 1:5

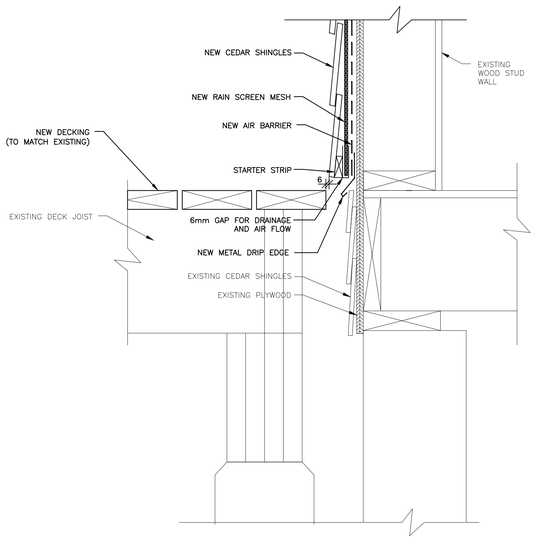
0mm 100mm 200mm 300mm 400mm 500mm



SECTION — 10 / A6

SCALE : 1:10

0mm 100 200 300 400 500 600 700 800 900 1000mm



BOTTOM OF WALL DETAIL — 2 / A6

SCALE : 1:5

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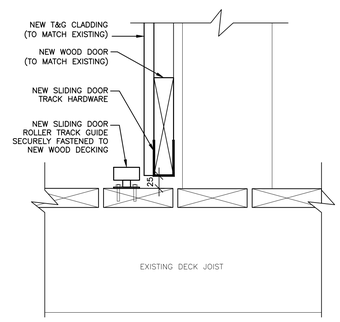
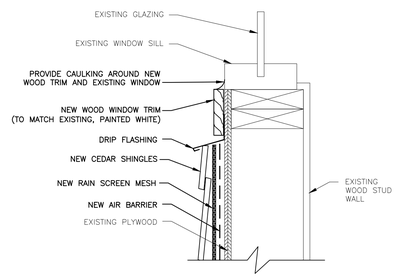


SLIDING DOOR SILL DETAIL — 5 / A6

SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm



WINDOW SILL DETAIL — 8 / A6

SCALE : 1:5

0mm 100mm 200mm 300mm 400mm 500mm

C

0 10 20mm 40 60 80 100 120 140 160 180 200mm

PWGSC B1 (2004)

E-DRM/GDD-E:

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COLES

Architecture + Engineering + Project Management

Suite 201, 85 Fitzroy Street
Charlottetown, PEI, Canada, C1A 1R6
Phone (902) 368-2300
www.colesassociates.com

SEP. 25, 2019
ARCHITECTS ASSOCIATION
19-12
CERTIFICATE OF PRACTICE
Scott Daniel MacNeill
Coles Associates Ltd.
AAPEI
PROVINCE EDWARD ISLAND
#191146

revisions		date
0	ISSUED FOR TENDER	09/25/2019

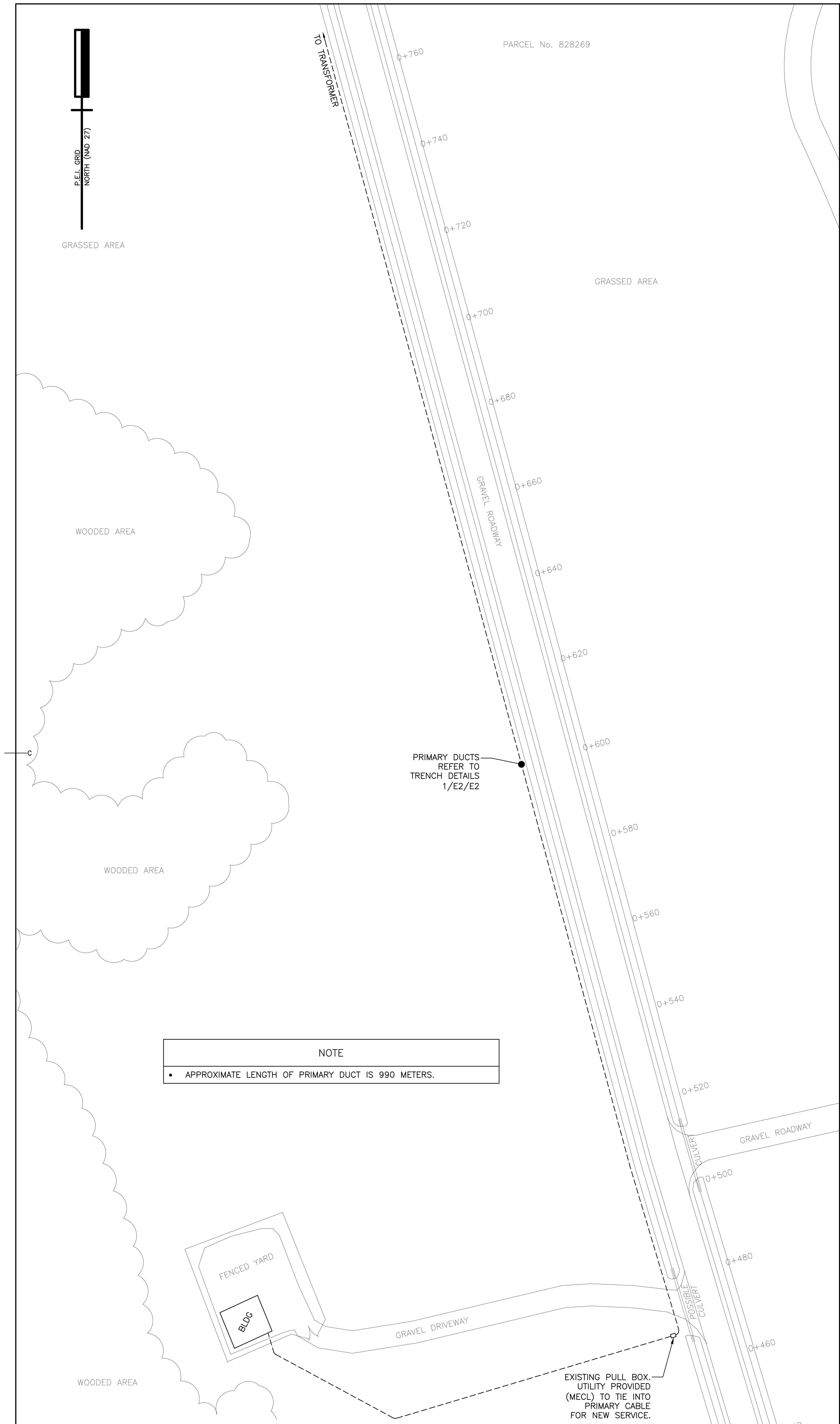
project / projet

GREENWICH BEACH COMPLEX REHABILITATION
GREENWICH,
PEI NATIONAL PARK

drawing / dessin

DETAILS

designed / conçu: Coles Associates Ltd.
date: Aug. 2019
drawn / dessiné: Coles Associates Ltd.
date: Aug. 2019
approved / approuvé
date
Tender / Soumission
PWGSC Project Manager / Administrateur de projets TPSGC
project number / no. du projet: 191146
drawing no. / no. du dessin: A6 of A6



PARTIAL SITE PLAN – ELECTRICAL 1 E1 E1

SCALE : 1:500

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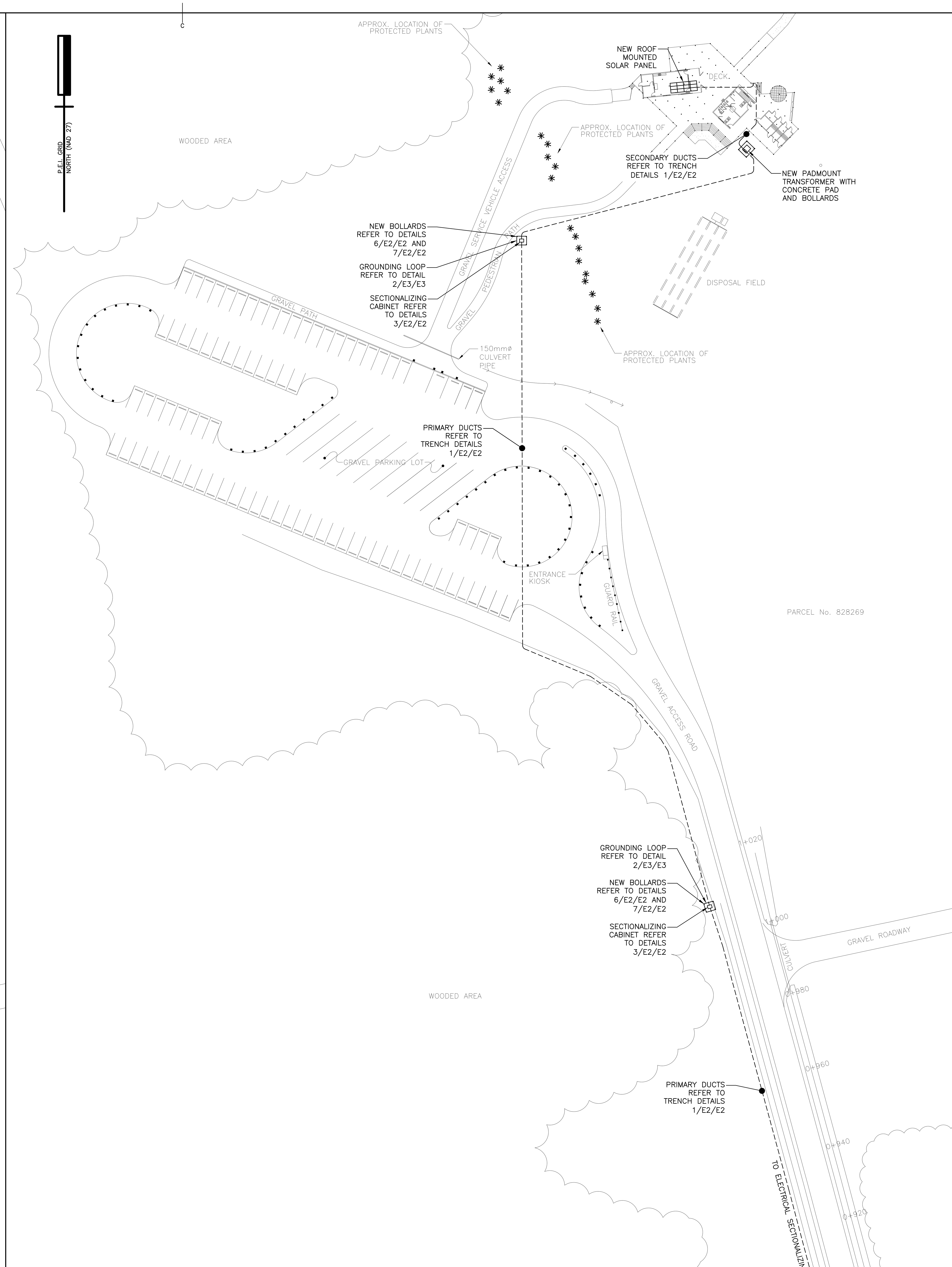


PARTIAL SITE PLAN – ELECTRICAL 2 E1 E1

SCALE : 1:500

0m 10m 20m 30m 40m 50m

Parks Canada Parcs Canada

WSP Canada Inc.
195 MacEwen Road
Summerside, Prince Edward Island, Canada

PROFESSIONAL ENGINEER
THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF PRINCE EDWARD ISLAND
[illegible]
Manjusha [illegible]aidu
1604
14/8/2019
DATE
PROVINCE OF PRINCE EDWARD ISLAND

0	ISSUED FOR TENDER	AUG 14 2019
revisions		date

project projet

PRINCE EDWARD ISLAND
NATIONAL PARK
GREENWICH

drawing dessin

ELECTRICAL SITE PLAN

designed	M.N.	conçu
date	APRIL 2019	
drawn	M.K.	dessiné
date	APRIL 2019	
approved	M.N.	approuvé
date	APRIL 2019	

Tender Soumission

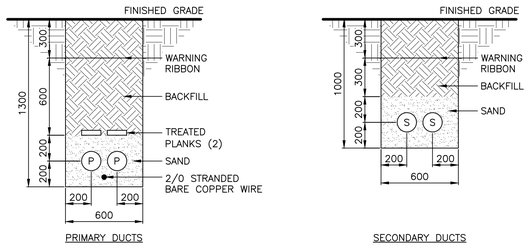
PWGSC Project Manager Administrateur de projets TPSGC

project number no. du projet

191–03492–00

drawing no. no. du dessin

E1



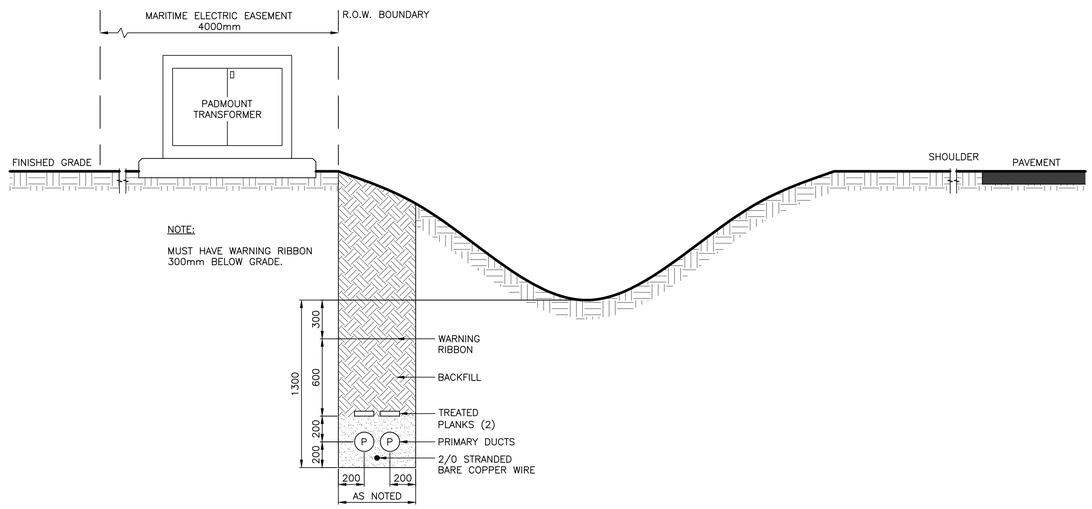
PRIMARY DUCTS

SECONDARY DUCTS

NOTES:

1. P = PRIMARY VOLTAGE DUCT, 125mm (5") RIGID PVC (1 & 3 PHASE) QUANTITY TO BE DETERMINED BY MARITIME ELECTRIC. A MINIMUM OF TWO (2) DUCTS TO BE INSTALLED ALWAYS.
2. S = SECONDARY VOLTAGE DUCTS, 100mm (4") RIGID PVC OR DB2 FOR SECONDARY BUS BETWEEN TRANSFORMERS AND SECONDARY PEDESTALS AND FROM SECONDARY PEDESTAL. A MINIMUM OF TWO (2) DUCTS TO BE INSTALLED ALWAYS.
3. 6mm DIA. NYLON ROPE INSTALLED IN ALL DUCTS.
4. BACKFILLING OF TRENCH IN LAYERS (MECHANICALLY TAMPED.)
5. EXCAVATED SOIL MAY BE USED FOR BACKFILL, ABOVE SAND LEVEL IF FREE FROM LARGE ROCKS AND DEBRIS.
6. HIGH VOLTAGE WARNING RIBBON TO BE BURIED AT 300mm.
7. PRESSURE TREATED PLANKS – TWO (2) 50mm X 150mm TO BE BURIED 200mm ABOVE TOP OF CONDUITS IN PRIMARY VOLTAGE TRENCHES.
8. FOR ANY TRENCHING REQUIRED TO CROSS THE ROAD R.O.W. REFER TO DRAWING 2/E2/E2.
9. IF SITE CONDITIONS PROHIBIT TRENCH DEPTH AS PER THIS DRAWING CONSULT MECL.
10. ALL DUCTS TO BE LABELED WITH WEATHERPROOF TAGS INDICATING THE DESTINATION OF THE CONDUITS. IN THE CASE OF RESIDENCES, CIVIC NUMBERS ARE TO BE INSTALLED.
11. CONTRACTOR TO PROVIDE A MINIMUM OF 48 HOURS NOTICE TO MECL PRIOR TO SCHEDULING BACKFILLING OF WORKS. BACKFILLING NOT PERMITTED UNTIL APPROVED BY MECL.

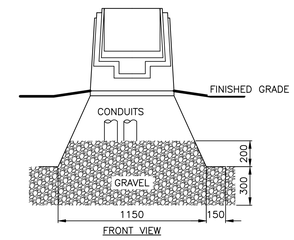
TRENCHING DETAILS 1
SCALE : N.T.S.



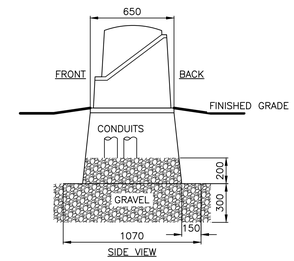
NOTES:

1. TRENCH WIDTH TO BE IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS. REFER TO DRAWING 1/E2/E2.
2. A 3000mm WORKING SPACE MUST BE PROVIDED IN FRONT OF TRANSFORMER PAD.
3. A 1200mm OF FLAT SPACE MUST BE PROVIDED IN FRONT OF TRANSFORMER PAD IN LOCATIONS WHERE SLOPE EXISTS.
4. ALL DIMENSIONS AS IN MILLIMETERS UNLESS INDICATED.
5. EASEMENT APPLIES TO PADMOUNT EQUIPMENT AND SECONDARY PEDESTALS.

UNDERGROUND CLEARANCES AT DITCHES IN R.O.W. 2
SCALE : N.T.S.



FRONT VIEW



SIDE VIEW

NOTES:

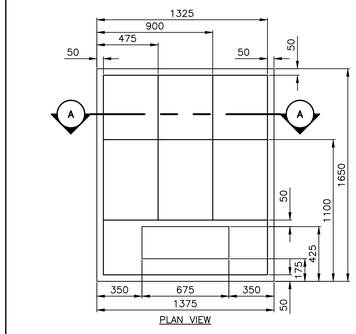
1. ALL APPROPRIATE PRIMARY CONDUITS TO BE INSTALLED IN EXCAVATED AREA.
2. BACKFILL MATERIAL TO BE MECHANICALLY TAMPED FROM THE BOTTOM OF THE EXCAVATION TO THE GRAVEL LEVEL.
3. NO LESS THAN 300mm OF DRAINAGE GRAVEL EXTENDING 150mm BEYOND THE OUTSIDE EDGE OR CABINET TO BE INSTALLED AND COMPACTED.
4. 200mm OF DRAINAGE GRAVEL TO BE INSTALLED INSIDE CABINET AFTER IT HAS BEEN PLACED.
5. CABINET IS TO BE SQUARELY POSITIONED AND LEVELED. THE CABINET IS TO BE GRADED AWAY WITH TOP SOIL.
6. ALL CONDUITS ATE TO BE LABELED WITH WATERPROOF TAGS INDICATING CONDUIT DIRECTION.
7. CONDUITS ARE TO BE CUT HALFWAY BETWEEN GRAVEL AND TOP OF BASE.
8. REFER TO GROUNDING DETAIL DRAWING 2/E3/E3.
9. REFER TO VEHICLE PROTECTION DETAIL DRAWING 6/E2/E2.

SINGLE PHASE PRIMARY SECTIONALIZING CABINET 3
SCALE : N.T.S.

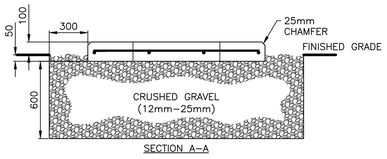
Parks Canada Parcs Canada

wsp

WSP Canada Inc.
195 MacEwen Road
Summerside, Prince Edward Island, Canada C1N 5[illegible]
T 902-436-2669 F 902-436-8601 www.wsp.com



PLAN VIEW



SECTION A–A

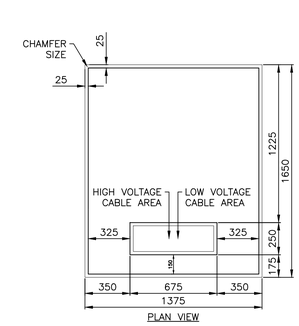
NOTES:

1. ALL BARS 15M
   STEEL fy = 350MPa
   CONCRETE fc = 25 MPa AT 28 DAYS
   CONCRETE 1.6 CU. METERS
2. MAXIMUM AGGREGATE – 25mm.
3. ALL DIMENSIONS IN MILLIMETERS.
4. MINIMUM COVER = 50mm TYPICAL.
5. IF THE PADMOUNT TRANSFORMER REQUIRES A BLAST WALL, PLEASE CONTACT UTILITY FOR INCREASED SIZE OR TRANSFORMER PAD.

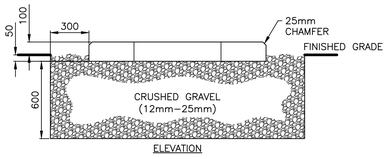
BAR LIST:

SIZE	LENGTH	PCS.
15	1550	2
15	1275	4
15	1125	2
	LEFT HOOK	1

CONCRETE PAD REINFORCEMENT DETAIL SINGLE PHASE UP TO 167kVA 4
SCALE : N.T.S.



PLAN VIEW

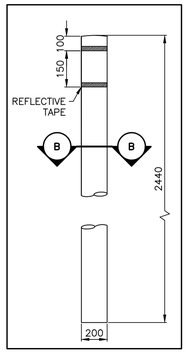


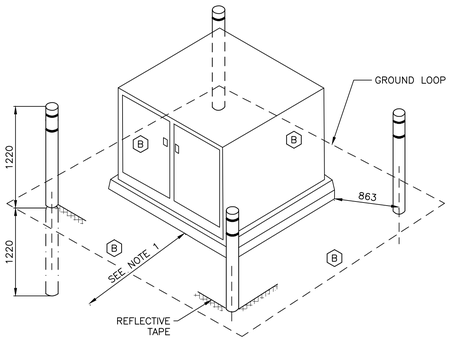
ELEVATION

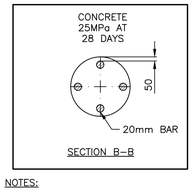
NOTES:

1. CONCRETE = 25 MPa AT 28 DAYS.
2. CONCRETE 1.6 CU. METERS.
3. REFER TO DRAWING 4/E2/E2 FOR REINFORCING DETAILS.
4. REFER TO DRAWING 1/E3/E3 FOR GROUNDING DETAILS.
5. REFER TO DRAWING 6/E2/E2 FOR BOLLARD DETAILS.
6. REFER TO DRAWING 4/E3/E3 FOR PADMOUNT EQUIPMENT LOCATION DETAIL.
7. IF THE PADMOUNT TRANSFORMER REQUIRES A BLAST WALL, PLEASE CONTACT UTILITY FOR INCREASE SIZE OF TRANSFORMER PAD.
8. A 300mm FLAT AREA MUST BE PROVIDED IN FRONT AND 600mm ON EACH SIDE OF TRANSFORMER.
9. ALL SECONDARY DUCTS TO BE LABELED WITH WEATHERPROOF TAG INDICATING THE CIVIC NUMBERS OR TAP BOX THEY FEED.
10. GRAVEL TO BE NO GREATER THAT 35mm OR NO LESS THAT 15mm.
11. CONDUITS TO BE FLUSH WITH THE SURFACE OF THE CONCRETE TRANSFORMER PAD.
12. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

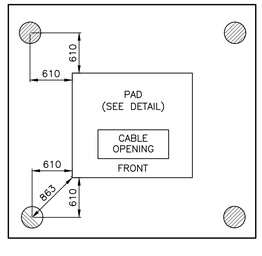
CONCRETE PAD DETAIL SINGLE PHASE UP TO 167kVA 5
SCALE : N.T.S.







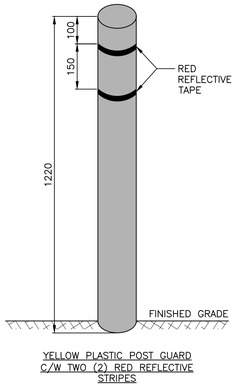
SECTION B–B



NOTES:

1. ORIENTATION OF PAD OR SECTIONALIZING CABINET MUST ALLOW 3000mm OF WORK SPACE IN FRONT OF PAD FOR OPERATION.
2. THE TRANSFORMER OR SECTIONALIZING CABINET SHALL BE INSTALLED AT LEAST 3000mm FROM ANY COMBUSTIBLE SURFACE OR MATERIAL ON A BUILDING AND SHALL BE INSTALLED AT LEAST 6000mm FROM ANY WINDOW, DOOR OR VENTILATION OPENING ON A BUILDING. IF THESE CLEARANCES CANNOT BE MET AN APPROVED CONCRETE RETAILING WALL MUST BE PROVIDED.
3. ALL DIMENSIONS AS IN MILLIMETERS UNLESS NOTED OTHERWISE.
4. IF THE PADMOUNT TRANSFORMER REQUIRES A BLAST WALL, PLEASE CONTACT MECL FOR INCREASED SIZE OF TRANSFORMER PAD.
5. BOLLARDS MUST HAVE PLASTIC COVER WITH REFLECTIVE TAPE. YELLOW COVERS ARE REQUIRED FOR AREAS INTENDED FOR VEHICLE TRAFFIC/PARKING.
6. REFER TO GROUNDING DETAIL DRAWING 1/E3/E3 AND 2/E3/E3.
7. MECL REPRESENTATIVE WILL INFORM YOU IF MORE THAN FOUR (4) BOLLARDS ARE REQUIRED.
8. REINFORCING STEEL SET 1220mm IN GROUND. USE SONO TUBE TO FORM. NO METAL ON BOLLARD EXTERIOR UNLESS GROUNDED.
9. FOR MECL APPROVED BOLLARD COVERS DETAILS, REFER TO DRAWING 7/E2/E2.

PADMOUNT TRANSFORMER & SECTIONALIZING CABENIT CONCRETE PROTECTIVE BOLLARDS 6
SCALE : N.T.S.



YELLOW PLASTIC POST GUARD C/W TWO (2) RED REFLECTIVE STRIPES

NOTES:

1. ONLY MECL APPROVED PLASTIC BOLLARD COVERS TO BE INSTALLED.
2. HDPE POST GUARD / SURE GUARD YELLOW C/W TWO (2) REFLECTIVE RED STRIPES.
3. THE WIDTH OF THE PLASTIC BOLLARD COVER IS 225mm (8–7/8") AND HEIGHT IS 1320mm (52").
4. BOLLARDS SHALL BE PLACED SO AT NOT TO OBSTRUCT ANY DOORS NOR RESTRICT THE OPERATION OF THE EQUIPMENT.
5. REFER TO DRAWINGS 6/E2/E2, 1/E3/E3 AND 2/E3/E3 FOR MORE DETAIL.

CONCRETE PAD DETAIL SINGLE PHASE UP TO 167kVA 7
SCALE : N.T.S.

PROFESSIONAL ENGINEER
Province of Prince Edward Island
Manjusha aidu
1604
14/8/2019
Date

0	ISSUED FOR TENDER	AUG 14 2019
revisions		date

project / projet

PRINCE EDWARD ISLAND NATIONAL PARK GREENWICH

drawing / dessin

ELECTRICAL SITE DETAILS MECL SPECIFICATIONS

designed	M.N.	concu
date	APRIL 2019	
drawn	M.K.	dessine
date	APRIL 2019	
approved	M.N.	approuvé
date	APRIL 2019	

Tender / Soumission

PWGSC Project Manager / Administrateur de projets TPSGC

project number / no. du projet

191–03492–00

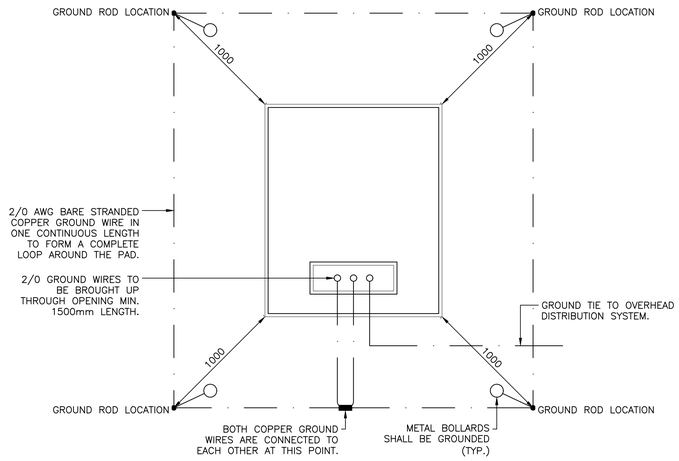
drawing no. / no. du dessin

E2

PWGSC B1 (2004)

0 10 20mm 40 60 80 100 120 140 160 180 200mm

E–DRM/GDD–E:

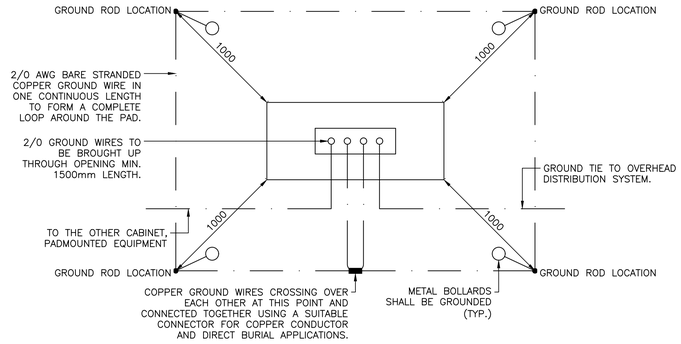


NOTES:

1. ENDS OF GROUND WIRE SHALL BE CONNECTED TO GROUNDING BAR IN THE TRANSFORMER CUBICLE. LEAVE 300mm OF GROUND WIRE ABOVE CONCRETE PAD.
2. GROUND WIRES SHALL NOT PASS OVER THE PAD, BUT UP THROUGH THE OPENING.

GROUND DETAILS FOR PADMOUNT TRANSFORMER 1
E3 | E3

SCALE : N.T.S.

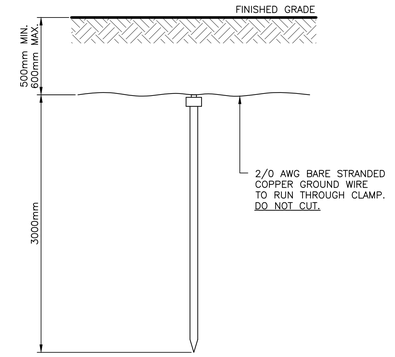


NOTES:

1. ENDS OF GROUND WIRE SHALL BE CONNECTED TO GROUNDING BAR IN THE CABINET. LEAVE 300mm OF GROUND WIRE INSIDE THE CABINET.

GROUND DETAILS FOR SECTIONALIZING CABINET 2
E3 | E3

SCALE : N.T.S.

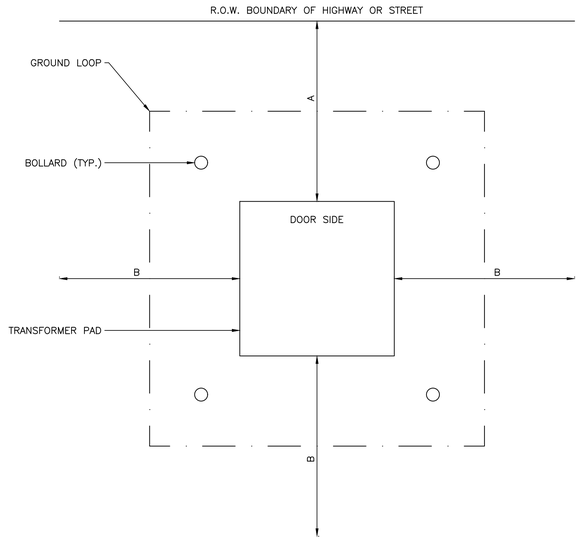


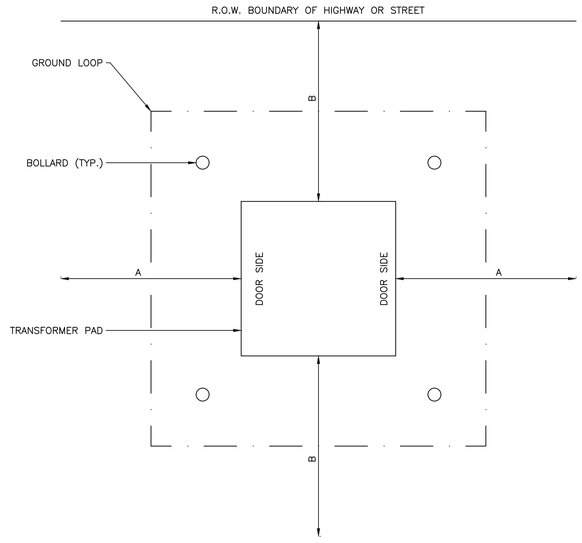
NOTES:

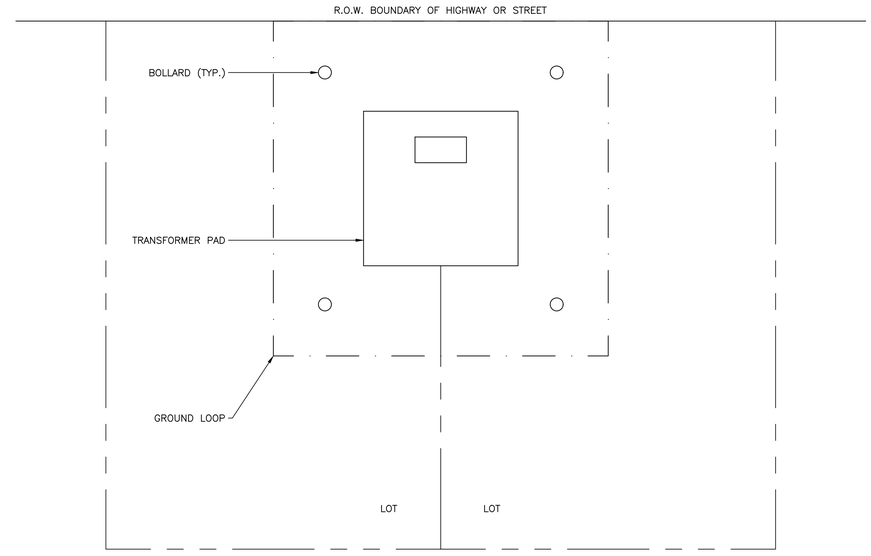
1. GROUNDING SHALL BE IN ACCORDANCE WITH SECTION 10 OF THE LATEST CANADIAN ELECTRICAL CODE PART 1.
2. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.
3. A ROD ELECTRODE OR PLATE ELECTRODE MAYBE USED FOR GROUNDING.
4. PLATE ELECTRODE SHALL BE IN DIRECT CONTACT WITH EXTERIOR SOIL AT LESS THAN 600mm BELOW GRADE.
5. DEPTH OF GROUNDING SYSTEM TO BE BETWEEN 300mm AND 600mm.

GROUND ROD AND CONNECTOR DETAIL 3
E3 | E3

SCALE : N.T.S.







NOTES:

1. ALL FACILITIES MUST BE LOCATED OFF ROAD R.O.W. INCLUDING CONCRETE PAD, PROTECTIVE BOLLARDS AND GROUND GRID.
2. SOME EQUIPMENT HAVE MORE THAN ONE ACCESS SIDES, LIKE SWITCH GEARS AND METERING CABINET. PLEASE CONSULT MECL.
3. AN EASEMENT IS REQUIRED WHEN MECL FACILITIES ARE LOCATED ON PRIVATE PROPERTY. MECL SHOULD BE CONTACTED TO CONFIRM PROPER AREA REQUIRED FOR HIGH VOLTAGE PADMOUNT EQUIPMENT.
4. THE WORKING SPACE SHALL BE OBSTRUCTION FREE INCLUDING LANDSCAPING.
5. A MINIMUM SEPARATION IS REQUIRED FOR THE FOLLOWING SCENARIOS:
   - 5.1. 3000mm BETWEEN BUILDING AND PADMOUNTED EQUIPMENT.
   - 5.2. 3000mm FROM ANY COMBUSTIBLE DEVICE.
   - 5.3. 6000mm FROM ANY DOOR OR WINDOW.
   - 5.4. 6000mm FROM ANY VENTILATION INLET/OUTLET.

MINIMUM WORKING SPACE

PHASE	DIMENSION 'A'	DIMENSION 'B'
SINGLE	3000mm	600mm
THREE	3000mm	1000mm

PADMOUNT EQUIPMENT LOCATION DETAILS 4
E3 | E3

SCALE : N.T.S.

Parks Canada Parcs Canada

WSP Canada Inc.
195 MacEwen Road
Summerside, Prince Edward Island, Canada C1N 5K6
T 902-436-2669 F 902-436-8601 www.wsp.com

PROFESSIONAL ENGINEER
THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF PRINCE EDWARD ISLAND
Manjusha Naidu
1604
7/8/2019
DATE
PROVINCE OF PRINCE EDWARD ISLAND

revisions		date
0	ISSUED FOR TENDER	AUG 14 2019

project / projet

PRINCE EDWARD ISLAND NATIONAL PARK GREENWICH

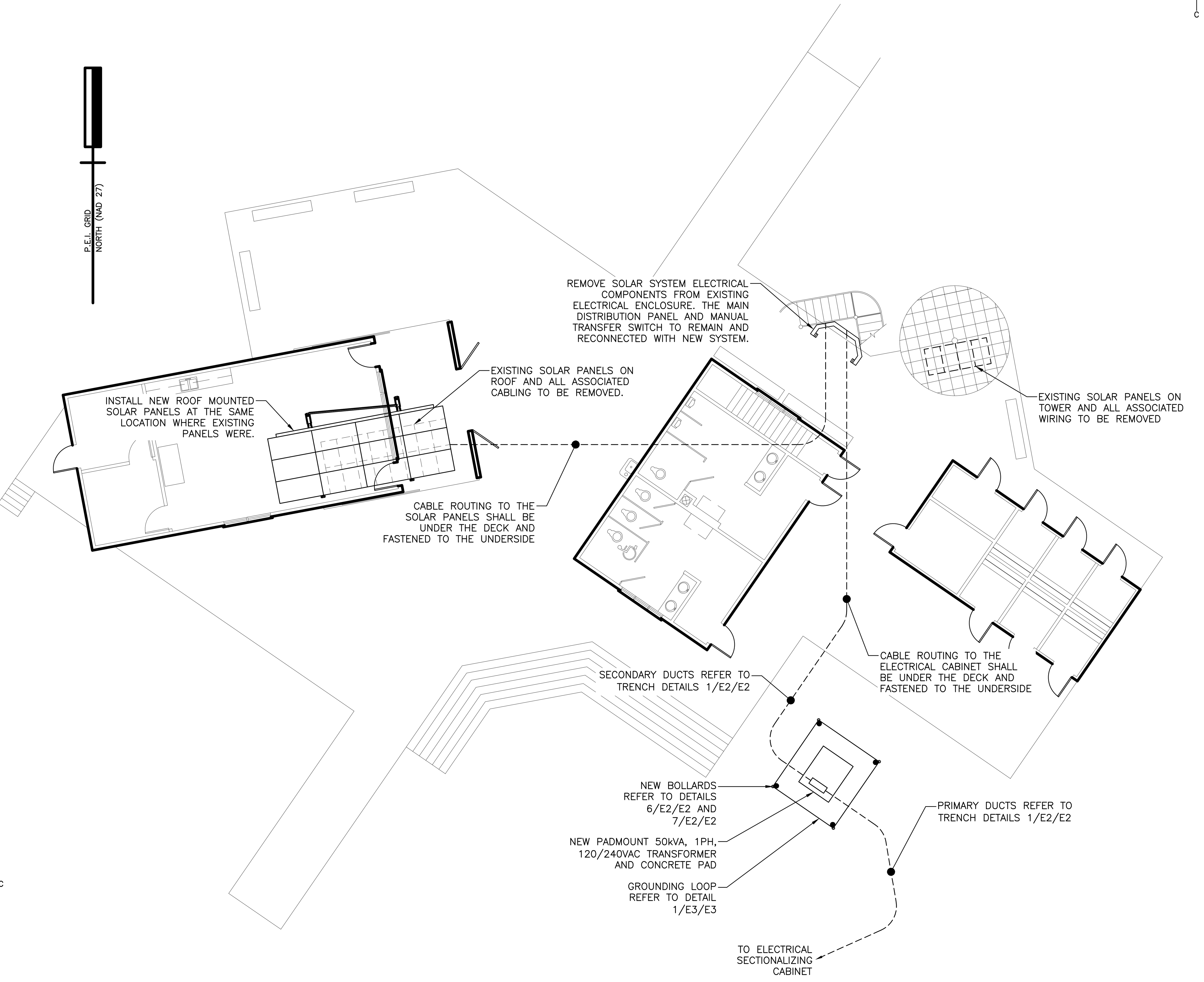
drawing / dessin

ELECTRICAL SITE DETAILS MECL SPECIFICATIONS

designed / conçu	M.N.	
date	APRIL 2019	
drawn / dessiné	M.K.	
date	APRIL 2019	
approved / approuvé	M.N.	
date	APRIL 2019	
Tender		Soumission
PWGSC Project Manager		Administrateur de projets TPSGC

project number / no. du projet: 191-03492-00

drawing no. / no. du dessin: E3



PLAN VIEW
1 E4 E4

SCALE : 1:100

0m 1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

GENERAL NOTES

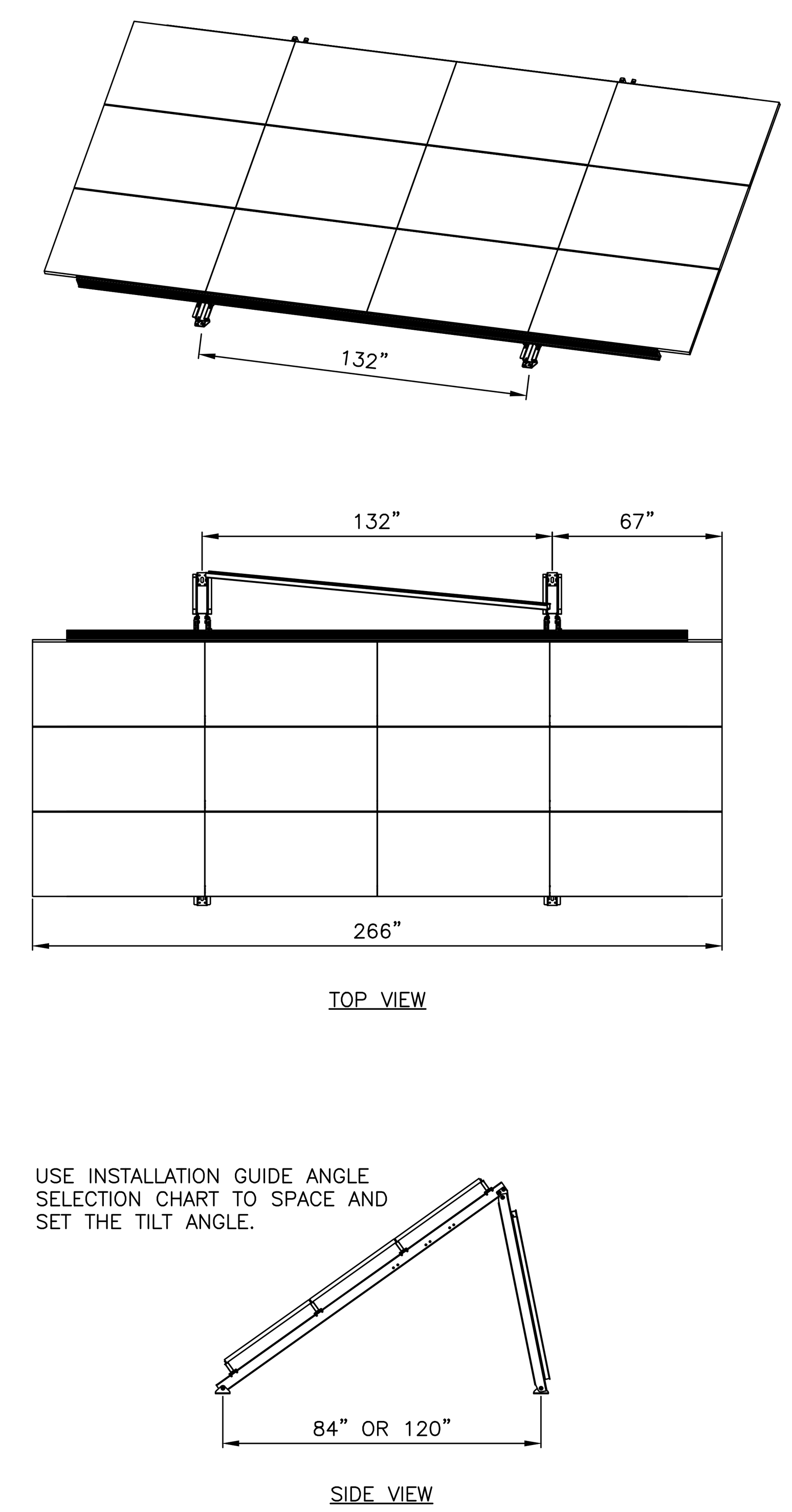
- UNLESS OTHERWISE NOTED, MATERIALS FOR REMOVAL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE TAKEN FROM SITE AND DISPOSED IN ACCORDANCE WITH STANDARDS.
- MAINTAIN EXISTING REMAINING CIRCUITS AND ALL SYSTEMS WHICH PASS THROUGH ALL AREAS OF CONSTRUCTION. PROVIDE NECESSARY MATERIALS AND MAINTAIN SYSTEMS THAT ARE REMAINING. ENSURE ALL MATERIALS ARE CONCEALED WHEN CONSTRUCTION IS COMPLETE.
- ELECTRICAL CONTRACTOR SHALL REMOVE ALL REDUNDANT WIRING AND CONDUITS, EXISTING REDUNDANT CONDUIT FEEDERS AND CONTROL CONDUITS AS REQUIRED UP TO OUTSIDE OF DEMOLITION AREA. ELECTRICAL CONTRACTOR SHALL DISPOSE OF THE EXISTING REDUNDANT WIRING AND CONDUITS.
- THESE DRAWINGS INDICATE KNOWN CONDITIONS AND MAY NOT INDICATE ALL DEMOLITION REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE DURING THE TENDER PERIOD TO BECOME FAMILIAR WITH THE SITE.
- PROVIDE ALL TEMPORARY SERVICES THROUGHOUT DEMOLITION AND CONSTRUCTION OF CONTRACTED AREA.
- ALL EXISTING WIRING TO REMAIN.
- USE EXISTING BREAKERS.
- REMOVE EXISTING SOLAR PANELS AND ALL ASSOCIATED CABLING.
- REMOVE SOLAR SYSTEM ELECTRICAL COMPONENTS FROM THE ELECTRICAL ENCLOSURE.
- THE MAIN DISTRIBUTION PANEL AND MANUAL TRANSFER SWITCH TO REMAIN AND RECONNECTED WITH NEW SYSTEM.

SCOPE OF PROJECT

- PROVIDE AND INSTALL NEW UTILITY SERVICE (MECL) TO SITE WITH NET METERING.
- PROVIDE AND INSTALL SOLAR SYSTEM FOR NET.
- REMOVE AND DECOMMISSION EXISTING SOLAR PANELS AND ASSOCIATED EQUIPMENT.
- EXISTING GENERATOR TO REMAIN AS EMERGENCY POWER TO SITE.
- CABLE ROUTING TO THE ELECTRICAL CABINET AND SOLAR PANELS SHALL BE UNDER THE DECK FASTENED TO THE UNDERSIDE.

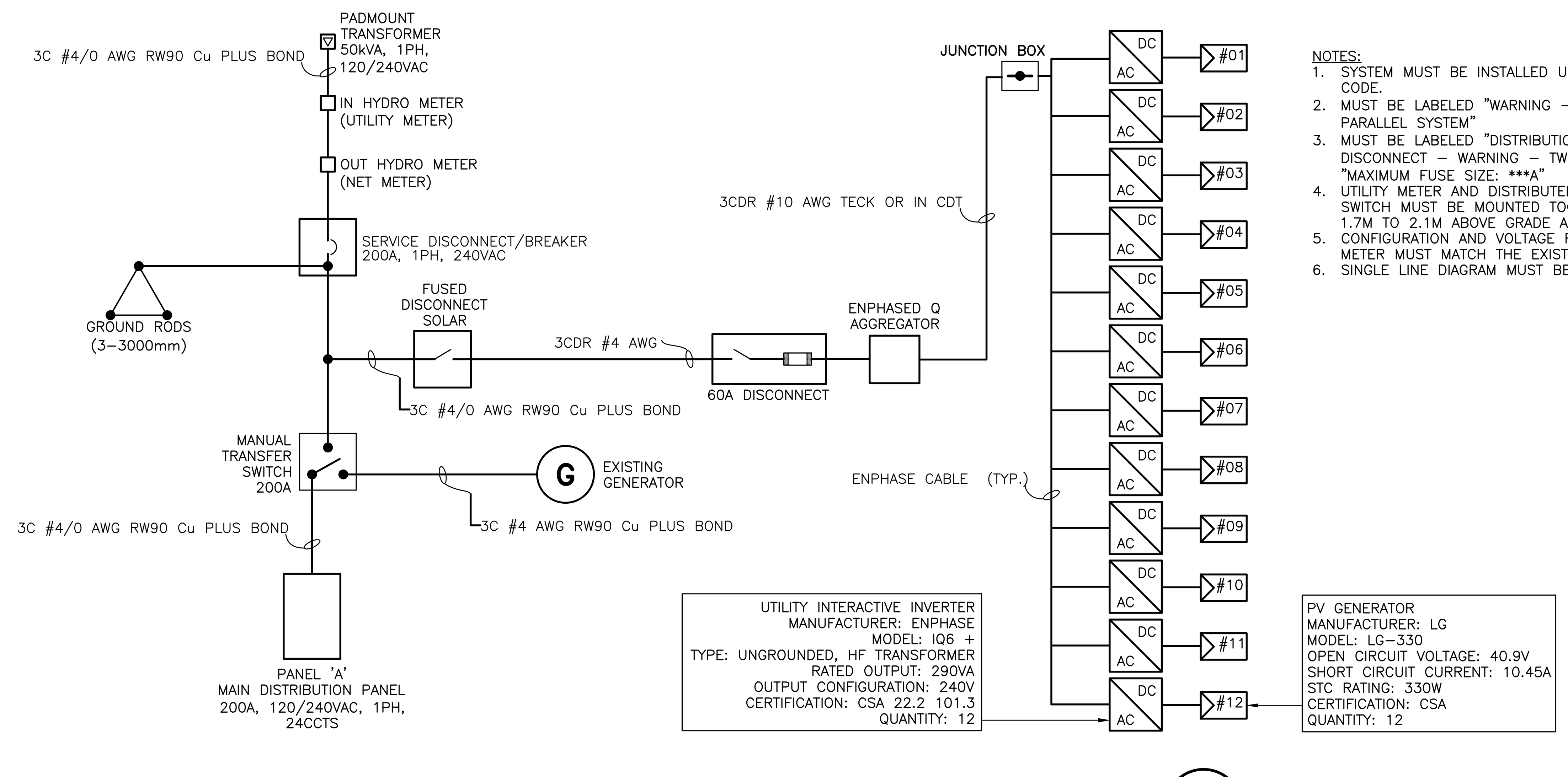
RACKING LAYOUT DETAIL

- RACKING: TITAN LITE 2L60 (1)
- MODULES: LG–330 (12)
- MODULE DIMENSIONS: 66.38" x 40" (INSTALLER TO VERIFY)
- RACKING FOUNDATION REQUIREMENTS TO BE PROVIDED BY SOLAR SYSTEM MANUFACTURER.
- SOLAR PANELS TO BE INSTALLED ON ROOF AT THE SAME LOCATION WHERE EXISTING PANELS WERE.



SOLAR RACKING LAYOUT
2 E4 E4

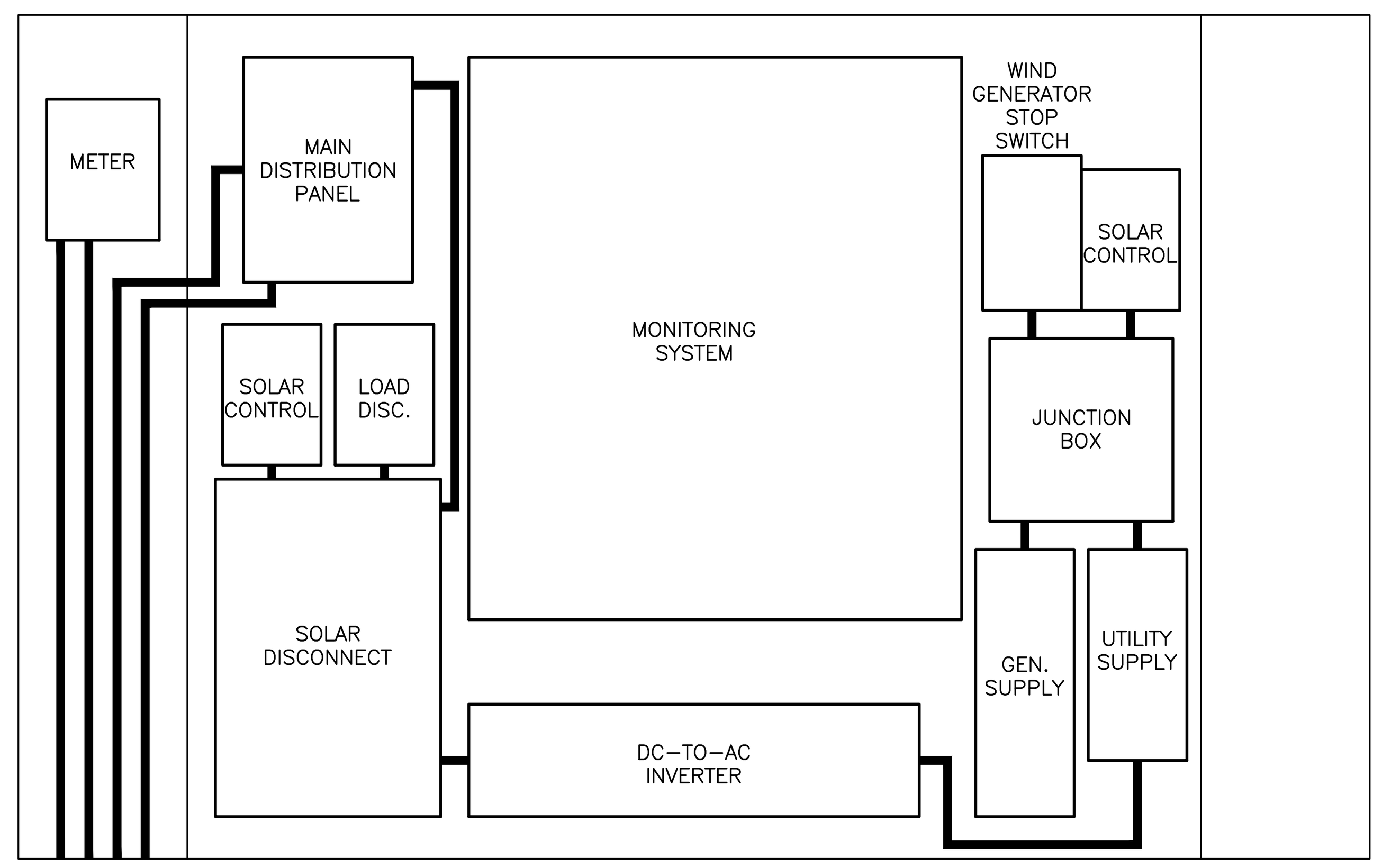
SCALE : N.T.S.



NOTES:
1. SYSTEM MUST BE INSTALLED UP TO CURRENT ELECTRICAL CODE.
2. MUST BE LABELED "WARNING – TWO POWER SOURCES PARALLEL SYSTEM"
3. MUST BE LABELED "DISTRIBUTION GENERATION SYSTEM DISCONNECT – WARNING – TWO POWER SOURCES" AND "MAXIMUM FUSE SIZE: ***A"
4. UTILITY METER AND DISTRIBUTED GENERATION DISCONNECT SWITCH MUST BE MOUNTED TOGETHER ON EXTERIOR WALL 1.7M TO 2.1M ABOVE GRADE AS PER EHM STANDARD.
5. CONFIGURATION AND VOLTAGE RATING OF THE PROPOSED METER MUST MATCH THE EXISTING METERING EQUIPMENT.
6. SINGLE LINE DIAGRAM MUST BE POSTED AT METER.

POWER DISTRIBUTION SINGLE LINE DIAGRAM
3 E4 E4

SCALE : N.T.S.



NOTES:

1. DISCONNECT AND REMOVE ALL SOLAR ELECTRICAL PANELS, DISCONNECTS, METERS, ETC.
2. EXISTING DISTRIBUTION PANEL TO REMAIN AND RECONNECT TO NEW FEEDS.
3. EXISTING MANUAL TRANSFER SWITCH TO REMAIN.
4. INSTALL ALL NEW EQUIPMENT AS PER SINGLE LINE DIAGRAM DRAWING IN ENCLOSURE AND CONNECT TO LOAD.
5. EXISTING ELECTRICAL ENCLOSURE APPROXIMATE SIZE: 1500mm (6'–0") WIDTH X 1800mm (5'–0") HEIGHT

EXISTING ELECTRICAL ENCLOSURE
4 E4 E4

SCALE : N.T.S.

Parks Canada Parcs Canada

WSP Canada Inc.
195 MacEwen Road
Summerside, Prince Edward Island, Canada C1 5
902-36-2669 F 902-36-8601 www.ws.com

PROFESSIONAL ENGINEER
THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF PRINCE EDWARD ISLAND
[illegible]
Manjusha aidu
1604
14/8/2019
DATE
PROVINCE OF PRINCE EDWARD ISLAND

0	ISSUED FOR TENDER	AUG 14 2019
revisions		date

project / projet

PRINCE EDWARD ISLAND NATIONAL PARK GREENWICH

drawing / dessin

PLAN VIEW AND SINGLE LINE DIAGRAMS

designed	M.N.	conçu
date	APRIL 2019	
drawn	M.K.	dessiné
date	APRIL 2019	
approved	M.N.	approuvé
date	APRIL 2019	
Tender		Soumission
PWGSC Project Manager		Administrateur de projets TPSGC
project number	191–03492–00	no. du projet
drawing no.	E4	no. du dessin

26 05 00 – COMMON WORK RESULTS ELECTRICAL

EXAMINATION OF SITE AND CONDITIONS
1) EXAMINE THE SITE AND LOCAL CONDITIONS AFFECTING THE WORK WITH ALL TENDER DOCUMENTS, TO ENSURE THE WORK CAN BE SATISFACTORILY PERFORMED AS SHOWN. PRIOR TO COMMENCING WORK, EXAMINE THE WORK OF OTHER DIVISIONS AND REPORT AT ONCE ANY DEFECT OR INTERFERENCE AFFECTING THE WORK OF THIS CONTRACTOR. NO ALLOWANCE WILL BE MADE LATER FOR ANY EXPENSES INCURRED THROUGH FAILURE TO MAKE THIS EXAMINATION OR TO REPORT ANY DISCREPANCIES IN WRITING.
2) THIS CONTRACTOR IS TO ATTEND ALL SITE MEETINGS PRIOR TO CLOSE OF TENDER TO CONFIRM SCOPE OF WORK.

BY–LAW AND REGULATIONS
1) CONFORM WITH LATEST RULES, REGULATIONS AND DEFINITIONS OF THE CANADIAN ELECTRICAL CODE, APPLICABLE MUNICIPAL AND PROVINCIAL CODES AND REGULATIONS AND WITH REQUIREMENTS OF OTHER AUTHORITIES HAVING JURISDICTION IN THE AREA WHERE WORK IS TO BE PERFORMED.
2) STANDARDS ESTABLISHED BY DRAWINGS AND SPECIFICATIONS SHALL NOT BE REDUCED BY ANY CODES REFERRED TO ABOVE AND MINOR CHANGES REQUIRED BY AN AUTHORITY HAVING JURISDICTION SHALL BE PERFORMED WITHOUT CHANGE TO THE CONTRACT AMOUNT.

SAFETY REQUIREMENTS
1) CLEAN SITE AT REGULARLY SCHEDULED TIMES. LEAVE WORK CLEAN BEFORE INSPECTION PROCESS COMMENCES.
2) DO NOT LEAVE THE SITE IN DANGEROUS CONDITIONS, UNDER ANY CIRCUMSTANCES, DURING THE PROGRESS OF WORK.

CO–OPERATION AND RESPONSIBILITY
1) INCLUDE FULL RESPONSIBILITY FOR LAYOUT OF ELECTRICAL WORK, FOR DAMAGE CAUSED TO OTHER DIVISIONS OF WORK BY REASON OF IMPROPER LOCATION OR INSTALLATION OF WORK IN ADVANCE OF CONCRETE POURING OR SIMILAR WORK, FOR CONDITIONS OF ALL MATERIAL AND EQUIPMENT SUPPLIED UNDER THIS DIVISION AND FOR PROTECTION AND MAINTENANCE OF WORK COMPLETED AND ACCEPTED UNTIL TERMINATION OF CONTRACT.
2) CO–OPERATE WITH OTHER DIVISIONS TO ENSURE THAT ITEMS INSTALLED UNDER THIS DIVISION ARE LOCATED IN PROPER RELATION WITH BUILDING CONSTRUCTION, ARCHITECTURAL FINISHES AND WITH OTHER EQUIPMENT OR APPARATUS.

GUARANTEE
1) GUARANTEE MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY ENGINEER, EXCEPT FOR INCANDESCENT LAMPS WHICH SHALL BE GUARANTEED FOR A PERIOD OF 90 DAYS FROM DATE OF FINAL ACCEPTANCE. ALL DEFECTS SHALL BE CORRECTED AND MADE GOOD DURING THIS PERIOD EXCEPT DEFECTS OCCURRING FROM MISUSE BY OWNER.

PERMITS FEES AND CERTIFICATES
1) FILE CONTRACT DRAWINGS WITH PROPER AUTHORITIES AND OBTAIN APPROVAL OF INSTALLATION AND PERMITS FOR THE WORK. PREPARE AND SUBMIT NECESSARY DETAIL SHOP DRAWINGS AS REQUIRED BY AUTHORITIES.
2) PAY ALL FEES IN CONNECTION WITH EXAMINATION OF DRAWINGS, FOR PERMITS, INSPECTIONS AND FINAL CERTIFICATES OF APPROVAL.
3) SUPPLY NECESSARY CERTIFICATES AS EVIDENCE THAT WORK AS INSTALLED CONFORMS WITH LAWS AND REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION.

EQUIPMENT SHOP DRAWINGS
1) PREPARE AND SUBMIT A MINIMUM OF SIX SHOP DRAWINGS OF ALL MAJOR ITEMS OF EQUIPMENT PRIOR TO EQUIPMENT FABRICATION, DELIVERY OR INSTALLATION. SHOP DRAWINGS SHALL INDICATE MANUFACTURER, CATALOGUE NUMBER, DIMENSIONS, SPECIAL FEATURES OR FINISHES.
2) SUBMIT SHOP DRAWING WITHIN (7) DAYS OF AWARD OF CONTRACT.
3) THE OWNER RESERVES THE RIGHT TO WAIVE APPROVAL DRAWINGS AND ACCEPT RECORD DRAWINGS, THIS IN NO WAY RELIEVES THE CONTRACTOR FROM SUPPLYING THE SPECIFIC EQUIPMENT.
4) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ALL SHOP DRAWINGS FOR ERRORS OR OMISSIONS TO CONFORM WITH ACCURACY REQUIREMENTS OF DIMENSIONS TO CONFORM WITH SITE CONDITIONS AND FOR INFORMATION THAT PERTAINS SOLELY TO EQUIPMENT FABRICATION PROCESSES.

AS BUILT DRAWINGS
1) THE CONTRACTOR SHALL MAINTAIN ON SITE ONE SET OF UP TO DATE AS BUILT DRAWINGS FOR REVIEW AT ALL TIMES. AT THE END OF THIS CONTRACT THE CONTRACTOR SHALL SUPPLY THE OWNER A COMPLETE SET OF AS BUILT DRAWINGS FOR HIS REVIEW AND ACCEPTANCE.
2) PROVIDE THREE (3) OPERATIONS AND MAINTENANCE MANUALS IN 3 POST BACK BINDER AT COMPLETION OF THE PROJECT. MANUALS SHALL CONTAIN A LIST OF SUPPLIERS INCLUDING TELEPHONE NUMBERS, SHOP DRAWINGS, FINAL ELECTRICAL INSPECTION CERTIFICATE, FIRE ALARM VERIFICATION, RECORD DRAWINGS, AND TEST REPORTS. EACH SECTION SHALL BE SEPARATELY TABBED. EACH PIECE OF EQUIPMENT REQUIRING ADJUSTMENT OR REGULAR MAINTENANCE SHALL HAVE CLEAR INSTRUCTIONS TO HOSE REQUIREMENTS.

COMPLETION
1) LEAVE ALL NEW AND RELOCATED EQUIPMENT CLEAN, FREE OF CONSTRUCTION DEBRIS AND OTHER FOREIGN MATTER. REMOVE ANY TEMPORARY OR PROTECTIVE COATINGS.
2) UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL PROVIDE IN A TIMELY FASHION "AS BUILT" DRAWINGS, LETTER OF WARRANTY, OWNERS MANUAL AND WORKERS COMPENSATION CLEARANCE CERTIFICATE.

EQUIPMENT LOCATIONS
1) THE RIGHT IS RESERVED TO ALTER THE LOCATION OF EQUIPMENT AND OUTLETS AT DISTANCE OF UP TO TEN FEET (3 METERS) WITHOUT INVOLVING A CHANGE TO THE CONTRACT AMOUNT, PROVIDED NOTICE IS GIVEN PRIOR TO INSTALLATION OF SAME.

CONTRACT DRAWINGS
1) THESE DRAWINGS ARE INTENDED TO SERVE AS A GUIDE SHOWING QUANTITIES AND GENERAL ARRANGEMENTS AND ARE NOT NECESSARILY WORKING DRAWINGS FROM WHICH MEASUREMENTS CAN BE TAKEN, EXCEPT WHERE DIMENSION FIGURES ARE SPECIFICALLY SHOWN. INFORMATION INVOLVING ACCURATE MEASUREMENTS OF BUILDING SHALL BE TAKEN FROM BUILDING DRAWING OR FROM THE SITE.

MATERIAL
1) MATERIALS SUPPLIED BY THIS CONTRACTOR SHALL BE NEW, OF CANADIAN MANUFACTURE WHERE AVAILABLE AND OF FIRST QUALITY AND UNIFORM THROUGHOUT.
2) ALL ELECTRICAL MATERIALS SHALL BE CSA APPROVED AND LABELED AND ALL MATERIALS NOT APPROVED SHALL RECEIVE ACCEPTANCE FOR INSTALLATION BY SPECIAL APPLICATION TO CSA. MATERIAL SHALL NOT BE INSTALLED OR CONNECTED TO A SOURCE OF ELECTRICAL POWER UNTIL APPROVAL IS OBTAINED.

RETURN OF DRAWINGS
1) AT THE COMPLETION OF THE JOB, ALL DRAWINGS SHALL BE RETURNED, REGARDLESS OF THEIR CONDITION.

PLANS FOR RECORDING CHANGES
1) OBTAIN ONE SET OF WHITE PRINTS AND RECORD ON ANY ALTERATIONS OF THE ROUTING OF CONDUIT, WIRING AND ETC., OR SHOW ON THE CONTRACT DRAWINGS. THESE DRAWINGS TO BE KEPT UP TO DATE AND TURNED OVER AT THE COMPLETION OF THE PROJECT.

CLEANING UP
1) ALL REFUSE AND DEBRIS CAUSED BY THIS CONTRACTOR SHALL BE REMOVED FROM THE SITE AT FREQUENT INTERVALS. BEFORE THE WORK IS FINALLY ACCEPTED BY THE OWNER, THIS CONTRACTOR SHALL THOROUGHLY CLEAN ALL EQUIPMENT, APPARATUS AND FIXTURES AND LEAVE THEM IN PERFECT NEW CONDITION.

INSTRUCTIONS TO OPERATORS
1) INSTRUCT THE OWNER'S OPERATOR IN THE CARE AND MAINTENANCE AND OPERATION OF ALL ELECTRICAL SYSTEMS AND EQUIPMENT INSTALLED UNDER THE SPECIFICATION.
2) PREPARE THREE COPIES OF OPERATIONS AND MAINTENANCE INSTRUCTIONS, SHOP DRAWINGS, WIRING DIAGRAMS, DESCRIPTIVE LITERATURE FOR EACH ITEM OF EQUIPMENT SUPPLIED. COMBINE THESE TOGETHER IN LOOSE LEAF BINDERS.
3) THESE LOOSE LEAF BINDERS SHALL BE PRESENTED UPON COMPLETION OF THE PROJECT.

NAMEPLATES
1) ALL APPARATUS SHALL HAVE PROPER NAME PLATES AFFIXED THERETO, SHOWING SERIAL NUMBER, SIZE, NAME OF EQUIPMENT AND ALL INFORMATION USUALLY SUPPLIED, INCLUDING VOLTAGE, PHASE, HERTZ AND HORSEPOWER OF MOTORS AND THE NAME OF THE MANUFACTURER AND THEIR ADDRESS.

INSPECTIONS AND TESTING
1) ALL WORK SHALL BE LEFT OPEN FOR INSPECTION SO THAT INSPECTION MAY BE MADE BEFORE THE WORK IS COVERED.

LOAD BALANCE
1) MEASURE PHASE CURRENT TO PANEL BOARDS WITH NORMAL LOADS OPERATING AT THE TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES.

FIRESTOPPING AND SMOKE SEALS
1) ALL FIRE STOPPING AND SMOKE SEALS REQUIRED TO PROPERLY ACCOMMODATE THE WORK OF THIS DIVISION SHALL BE THE FINANCIAL RESPONSIBILITY OF THIS THIS DIVISION, AND CARRIED OUT BY TRADES TO THE APPLICABLE ULC APPROVED SYSTEM OF ONE OF THE APPROVED MANUFACTURERS PROVIDED IN THIS DOCUMENT. TRADES PERSONNEL MUST BE TRAINED BY THE MANUFACTURER AND PROVIDE DOCUMENTATION STATING SAME.
2) WHERE MATERIALS PASS THROUGH FIRE RATED WALLS, FLOOR AND PARTITIONS, A ULC APPROVED FIRE STOPPING AND SMOKE SEAL SYSTEM SHALL BE USED TO MAINTAIN OR EXCEED THE FIRE SEPARATIONS RATING.
3) PROVIDE ULC DRAWINGS FOR EACH SITE SPECIFIC PENETRATION.
4) WORK MUST BE PERFORMED BY A COMPANY WITH EXPERIENCE IN THE APPLICATION OF FIRE STOPPING AND SMOKE SEALS TO ULC REQUIREMENTS.
4) STANDARD OF ACCEPTANCE HILTI AND TREMCO.

SHOP DRAWINGS
1) PROVIDE SHOP DRAWINGS ON ALL ELECTRICAL EQUIPMENT.
2) PROJECT NAME AND ELECTRICAL CONTRACTOR'S STAMP AND SIGNATURE TO APPEAR ON ALL COPIES OF ALL SHOP DRAWINGS SUBMITTED FOR APPROVAL.
3) THE CONTRACT SHALL REVIEW EACH SHOP DRAWING BEFORE SUBMITTING IT TO DETERMINE THAT IT IS ACCEPTABLE IN THE TERMS OF THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND OPERATIONS OF CONSTRUCTION, SAFETY PRECAUTIONS AND PROGRAMS INCIDENTAL THERETO, ALL OF WHICH ARE THE CONTRACTOR'S RESPONSIBILITY.

MOUNTING HEIGHTS
1) SWITCHES: 1200MM
2) RECEPTACLES:
   1. GENERAL: 300MM
   2. ABOVE COUNTERS: 150MM
   3. ABOVE BASEBOARD HEATERS: 200MM
   4. UTILITY ROOMS: 1200MM
3) DATA/VOICE OUTLETS:
   1. GENERAL 300MM
   2. WALL MOUNTED TELEPHONE: 1400MM
4) FIRE ALARM:
   1. MANUAL BREAKGLASS STATIONS: 1400MM
   2. ALARM BELLS OR HORNS: 2100MM
   3. END OF LINE RESISTORS: 1800MM
   4. TELEVISION OUTLETS: 300MM

UTILITY SERVICES
1) THIS CONTRACTOR IS FINANCIALLY RESPONSIBLE TO PROVIDE COMPLETE ELECTRICAL, SYSTEMS. THIS CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH AND PAY FOR ALL UTILITY FEES.

26 05 20 – WIRE AND BOX CONNECTORS

PRODUCTS

1. ALL CONNECTIONS SHALL BE MADE ELECTRICALLY AND MECHANICALLY SECURE. SIZES OF CONNECTORS SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR EACH SIZE AND COMBINATION OF WIRES.

2. JOINTS REQUIRED IN BRANCH WIRING #10 AWG AND SMALLER SHALL BE MADE USING FIXTURE TWIST–ON TYPE CONNECTORS WITH CURRENT CARRYING PARTS MADE OF COPPER.
   2.1. STANDARD OF ACCEPTANCE: MARRETTE #31, #33 OR #35 AS REQUIRED.

3. JOINTS FOR WIRING #8 AWG AND LARGER SHALL BE MADE USING PRESSURE TYPE COLOUR KEYED COMPRESSION CONNECTORS WITH CURRENT CARRYING PARTS MADE OF COPPER USING COMPRESSION TOOLS. A FIRST LAYER OF TAPE SHALL BE COMPOUND TYPE FOLLOWED BY A LAYER OF SCOTCH #3 VINYL TYPE.
   3.1. STANDARD OF ACCEPTANCE: 54000 SERIES.

4. BUSHING STUD CONNECTORS: AS REQUIRED TO SUIT CONDUCTORS

5. CLAMPS OR CONNECTORS FOR ARMOURED CABLE AND FLEXIBLE CONDUIT AS REQUIRE

EXECUTION

6. REMOVE INSULATION CAREFULLY FROM ENDS OF CONDUCTORS AND:
   6.1. INSTALL MECHANICAL PRESSURE TYPE CONNECTORS AND TIGHTEN SCREWS WITH APPROPRIATE COMPRESSION TOOL RECOMMENDED BY MANUFACTURER. INSTALLATION SHALL MEET SECURENESS TESTS IN ACCORDANCE WITH CSA C22.2 NO. 65.
   6.2. INSTALL FIXTURE TYPE CONNECTORS AND TIGHTEN. REPLACE INSULATING CAP.

7. ALL CONNECTIONS SHALL BE MADE ELECTRICALLY AND MECHANICALLY SECURE. SIZES OF CONNECTORS SHALL BE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR EACH WIRE SIZE AND COMBINATION OF WIRES. TWIST WIRES TOGETHER BEFORE INSTALLING CONNECTORS. ALL STRANDED CONDUCTORS SHALL BE TWISTED TOGETHER PRIOR TO CONNECTION AROUND TERMINAL.

26 05 21 – WIRE AND CABLES (0–1000V)

PRODUCTS

1. BUILDING WIRES
   CONDUCTORS: COPPER, SOFT DRAWN STRANDED, AT LEAST 98% CONDUCTIVITY FOR #10 AWG AND LARGER. INSULATION SHALL BE CHEMICALLY CROSS–LINKED THERMOSETTING POLYETHYLENE RATED 600 VOLTS ON ALL RW90 CONDUCTORS AND 1000 VOLTS FOR RWU–90 FOR INCOMING SERVICE. SIZE AS INDICATED ON DRAWINGS AND SCHEDULES. CONDUCTOR INSULATION SHALL BE COLOUR CODED AS FOLLOWS:

   PHASE A – RED
   PHASE B – BLACK
   PHASE C – BLUE
   NEUTRAL – WHITE
   GROUND – GREEN
   ISOLATED POWER – AS INDICATED HEREAFTER

   WHERE EXTRA COLORS ARE REQUIRED FOR THREE–WAY SWITCHES, ETC, THEY SHALL BE YELLOW.

   APPROVED COLOR CODED TAPE IS ACCEPTABLE FOR COLOR CODING PHASE CONDUCTORS #1 AWG AND LARGER AND FOR NEUTRAL AND GROUND CONDUCTORS #4/0 AND LARGER.

2. CONTROL CABLES
   TYPE LVT: 2 SOFT ANNEALED COPPER CONDUCTORS, SIZED AS INDICATED, WITH THERMOPLASTIC INSULATION, OUTER COVERING OF THERMOPLASTIC JACKET.LOW ENERGY 300 V CONTROL CABLE: STRANDED ANNEALED COPPER CONDUCTORS SIZED AS INDICATED, WITH PVC INSULATION TYPE TW –40EC POLYETHYLENE INSULATION WITH SHIELDING OF TAPE COATED WITH PARAMAGNETIC MATERIAL WIRE BRAID OVER EACH CONDUCTOR AND OVERALL COVERING OF PVC JACKET.

3. ARMOURED CABLE
   3.1. CONDUCTORS: INSULATED, COPPER, SIZE AS INDICATED.
   3.2. TYPE: AC90.
   3.3. ARMOUR: INTERLOCKING TYPE FABRICATED FROM ALUMINUM STRIP.
   3.4. CONNECTORS: STANDARD AS REQUIRED, COMPLETE WITH DOUBLE SPLIT RINGS.

4. TECK CABLE
   4.1. CABLE: TO CAN/CSA–C22.2 NO. 131.
   4.2. CONDUCTORS:
      4.2.1. GROUNDING CONDUCTOR: COPPER.
      4.2.2. CIRCUIT CONDUCTORS: COPPER AND ACM ALLOY, SIZE AS INDICATED.
   4.3. INSULATION:
      4.3.1. CROSS–LINKED POLYETHYLENE XLPE, RATING – 600 V.INNER JACKET: POLYVINYL CHLORIDE MATERIAL.ARMOUR: INTERLOCKING ALUMINUM, COMPLIANT TO APPLICABLE BUILDING CODE CLASSIFICATION FOR THIS PROJECT. OVERALL COVERING: THERMOPLASTIC POLYVINYL CHLORIDE MATERIAL.FASTENINGS:ONE HOLE STEEL STRAPS TO SECURE SURFACE CABLES 50 MM AND SMALLER. TWO HOLE STEEL STRAPS FOR CABLES LARGER THAN 50 MM. CHANNEL TYPE SUPPORTS FOR TWO OR MORE CABLES AT 1500 MM CENTERS. THREADED RODS: 6 MM DIA. TO SUPPORT SUSPENDED CHANNELS. CONNECTORS:WATERTIGHT AND/OR TYPE APPROVED FOR TECK CABLE, AS INDICATED.

5. ACM CABLES
   5.1. ANNEALED, COMPACTED ALUMINUM ALLOY CONDUCTOR MATERIAL (ACM) FOR CIRCUITS 60 AMPS OR MORE, SINGLE OR MULTI–CONDUCTOR, 600 VOLT INSULATION.
   5.2. TYPE: AC90, ACWU90 AND TECK90.
   5.3. ARMOUR: INTERLOCKED ALUMINUM STRIP.
   5.4. CONDUCTIVITY: 61% IACS TO THAT OF COPPER.
   5.5. OUTER JACKET: ACWU90 PVC JACKET, FT–4 RATED SUITABLE FOR DIRECT BURIED AND DIV. 1 AND DIV. 2 HAZARDOUS LOCATIONS.

EXECUTION

6. FIELD QUALITY CONTROL
   6.1. PERFORM TESTS IN ACCORDANCE WITH SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL.
   6.2. PERFORM TESTS USING METHOD APPROPRIATE TO SITE CONDITIONS AND TO APPROVAL OF OWNER'S REPRESENTATIVE AND LOCAL AUTHORITY HAVING JURISDICTION OVER INSTALLATION.
   6.3. PERFORM TESTS BEFORE ENERGIZING ELECTRICAL SYSTEM.

7. GENERAL CABLE INSTALLATION
   7.1. INSTALL CABLE IN TRENCHES IN ACCORDANCE WITH SECTION 33 71 73.02 – UNDERGROUND ELECTRICAL SERVICE.
   7.2. LAY CABLE IN CABLE TRAYS IN ACCORDANCE WITH SECTION 26 05 36 – CABLE TRAYS FOR ELECTRICAL SYSTEMS.
   7.3. TERMINATE CABLES IN ACCORDANCE WITH SECTION 26 05 20 – WIRE AND BOX CONNECTORS – (0–1000 V).
   7.4. CABLE COLOUR CODING: TO SECTION 26 05 00 COMMON WORK RESULTS FOR ELECTRICAL.
   7.5. CONDUCTOR LENGTH FOR PARALLEL FEEDERS TO BE IDENTICAL.
   7.6. LACE OR CLIP GROUPS OF FEEDER CABLES AT DISTRIBUTION CENTRES, PULL BOXES, AND TERMINATION POINTS.
   7.7. WIRING IN WALLS: TYPICALLY DROP OR LOOP VERTICALLY FROM ABOVE TO BETTER FACILITATE FUTURE RENOVATIONS. GENERALLY WIRING FROM BELOW AND HORIZONTAL WIRING IN WALLS TO BE AVOIDED UNLESS INDICATED.
   7.8. BRANCH CIRCUIT WIRING FOR SURGE SUPPRESSION RECEPTACLES AND PERMANENTLY WIRED COMPUTER AND ELECTRONIC EQUIPMENT TO BE 2–WIRE CIRCUITS ONLY, I.E. COMMON NEUTRALS NOT PERMITTED.
   7.9. PROVIDE NUMBERED WIRE COLLARS FOR CONTROL WIRING. NUMBERS TO CORRESPOND TO CONTROL SHOP DRAWING LEGEND. OBTAIN WIRING DIAGRAM FOR CONTROL WIRING.

8. INSTALLATION OF BUILDING WIRES
   8.1. IN CONDUIT SYSTEMS IN ACCORDANCE WITH SECTION 26 05 34– CONDUITS, FASTENINGS AND FITTINGS.
   8.2. IN CABLE TROUGHS IN ACCORDANCE WITH SECTION 26 05 33.01– CABLE TRAYS FOR ELECTRICAL SYSTEMS.
   8.3. IN UNDERGROUND DUCTS IN ACCORDANCE WITH SECTION 26 05 43.01– INSTALLATION OF CABLES IN DUCTS.
   8.4. IN TRENCHES IN ACCORDANCE WITH SECTION 26 05 43.01– INSTALLATION OF CABLES IN TRENCHES.
   8.5. IN UNDERFLOOR DISTRIBUTION SYSTEM IN ACCORDANCE WITH SECTION 26 05 39– UNDERFLOOR RACEWAYS FOR ELECTRICAL SYSTEMS
   8.6. IN CELLULAR FLOOR RACEWAYS IN ACCORDANCE WITH SECTION 26 05 38 – CELLULAR METAL FLOOR RACEWAY FITTINGS.
   8.7. IN SURFACE AND LIGHTING FIXTURE RACEWAYS IN ACCORDANCE WITH SECTION 26 50 00– LIGHTING.
   8.8. IN WIREWAYS AND AUXILIARY GUTTERS IN ACCORDANCE WITH SECTION 26 05 37 – WIREWAYS AND AUXILIARY GUTTERS.
   8.9. OVERHEAD SERVICE CONDUCTORS IN ACCORDANCE WITH SECTION 26 24 01 – SERVICE EQUIPMENT.

9. INSTALLATION OF ARMOURED CABLE
   9.1. GROUP CABLES WHEREVER POSSIBLE.
   9.2. FLEXIBLE TYPE CONDUIT C/W RW90 CONDUCTORS SIZED AS NOTED AND OR FLEXIBLE ARMOURED CABLE AC90 (BX) COMPLETE WITH SEPARATE GROUNDING CONDUCTOR SHALL BE USED FOR ALL BENCH OR COUNTER WIRING OF RECEPTACLES OR OTHER DEVICES.
   9.3. ALL FLEX C/W RW90 OR AC–90 CABLES USED FOR FIXTURE DROPS ARE TO BE SECURED WITHIN 300MM OF THE JUNCTION BOX.
   9.4. WHERE APPLICATION OF AC–90 CABLES AND/OR OTHER TYPES OF PLIABLE CABLES ARE TO BE USED, THEY SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO THE BUILDING LINES UNLESS OTHERWISE NOTED.
   9.5. SUPPORT AND SECURING OF TYPE AC–90 CABLES NOT TO BE DERIVED FROM EITHER SUSPENDED CEILING SUPPORT WIRES OR DIRECTLY LAYING ATOP OF THE CEILING GRID SYSTEM.

10. INSTALLATION OF TECK CABLES
   10.1. GROUP CABLES WHEREVER POSSIBLE ON CHANNELS
   10.2. INSTALL CABLE CONCEALED, SECURELY SUPPORTED BY STRAPS AND HANGERS

11. INSTALLATION OF ACM CABLES
   11.1. INSTALL ACM CABLES AS PER THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE AND MANUFACTURERS INSTALLATION REQUIREMENTS.
   11.2. DO NOT TERMINATE ACM CONDUCTORS WITH A COPPER BODIED CONNECTOR.
   11.3. APPLY OXIDE COATING ON BASE CABLES AS PER ELECTRICAL CODE REQUIREMENTS

26 05 28 – GROUNDING SECONDARY

PRODUCTS

1. EQUIPMENT
   1.1. CLAMPS FOR GROUNDING OF CONDUCTOR, SIZE AS REQUIRED TO ELECTRICALLY CONDUCTIVE GROUND RODS.
   1.2. SYSTEM AND CIRCUIT, EQUIPMENT, GROUNDING CONDUCTORS, BARE STRANDED COPPER, UN–TINNED, SOFT ANNEALED, UN–ARMOURED, SIZE AS INDICATED.
   1.3. NON–CORRODING ACCESSORIES NECESSARY FOR GROUNDING SYSTEM, TYPE, SIZE, MATERIAL AS INDICATED, INCLUDING BUT NOT NECESSARILY LIMITED TO:
      GROUNDING AND BONDING BUSHINGS.
      PROTECTIVE TYPE CLAMPS.
      BOLTED TYPE CONDUCTOR CONNECTORS.
      THERMIT WELDED TYPE CONDUCTOR CONNECTORS.
      BONDING JUMPERS, STRAPS.
      PRESSURE WIRE CONNECTORS.

2. MANUFACTURERS
   2.1. STANDARD OF ACCEPTANCE: THOMAS & BETTS.
   2.2. OTHER APPROVED MANUFACTURERS: BURNDY, MCGRAW EDISON.

EXECUTION

3. INSTALLATION GENERAL
   3.1. INSTALL COMPLETE PERMANENT, CONTINUOUS, SYSTEM AND CIRCUIT, EQUIPMENT, GROUNDING SYSTEMS INCLUDING, ELECTRODES, CONDUCTORS, CONNECTORS, ACCESSORIES, AS INDICATED, TO CONFORM TO REQUIREMENTS OF ENGINEER, AND LOCAL AUTHORITY HAVING JURISDICTION OVER INSTALLATION. WHERE EMT IS USED FOR PANELBOARD OR MOTOR CONTROL BOARD FEEDERS, RUN A SEPARATE GREEN GROUND WIRE IN CONDUIT.
   3.2. INSTALL CONNECTORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
   3.3. PROTECT EXPOSED GROUNDING CONDUCTORS FROM MECHANICAL INJURY.
   3.4. MAKE BURIED CONNECTIONS, AND CONNECTIONS TO ELECTRODES, USING COMPRESSION TYPE CONNECTORS.
   3.5. USE MECHANICAL CONNECTORS FOR GROUNDING CONNECTIONS TO EQUIPMENT PROVIDED WITH LUGS.
   3.6. SOLDERED JOINTS NOT PERMITTED.
   3.7. INSTALL BONDING WIRE FOR FLEXIBLE CONDUIT, CONNECTED AT BOTH ENDS TO GROUNDING BUSHING, SOLDERLESS LUG, CLAMP OR CUP WASHER AND SCREW. NEATLY CLEAT BONDING WIRE TO EXTERIOR OF FLEXIBLE CONDUIT.
   3.8. MAKE GROUNDING CONNECTIONS IN RADIAL CONFIGURATION ONLY, WITH CONNECTIONS TERMINATING AT SINGLE GROUNDING POINT. AVOID LOOP CONNECTIONS.
   3.9. BOND SINGLE CONDUCTOR, METALLIC ARMOURED CABLES TO CABINET AT SUPPLY END, AND PROVIDE NON–METALLIC ENTRY PLATE AT LOAD END.
   3.10. CONNECT BUILDING STRUCTURAL STEEL TO GROUND BY WELDING COPPER TO THE STEEL NEAR SERVICE ENTRANCE.
   3.11. CONNECT BOILER STACK, DIESEL GENERATOR STACK AND BOILER BLOW–OFF STACK TO GROUND BY WIRE BRAID.

4. SYSTEM AND CIRCUIT GROUND
   4.1. INSTALL SYSTEM AND CIRCUIT GROUNDING CONNECTIONS TO THE NEUTRAL OF THE 120/208V SYSTEMS AS REQUIRED.

5. EQUIPMENT GROUNDING
   5.1. INSTALL GROUNDING CONNECTIONS TO TYPICAL EQUIPMENT INCLUDED IN, BUT NOT NECESSARILY LIMITED TO FOLLOWING LIST: SERVICE EQUIPMENT, TRANSFORMERS, SWITCHGEAR, DUCT SYSTEMS, FRAMES OF MOTORS, MOTOR CONTROL CENTRES, STARTERS, CONTROL PANELS, BUILDING STEEL WORK, DISTRIBUTION PANELS, AND OUTDOOR LIGHTING.

6. COMMUNICATIONS SYSTEMS
   6.1. INSTALL GROUNDING CONNECTIONS FOR TELEPHONE, FIRE ALARM, INTERCOMMUNICATION SYSTEMS AS FOLLOWS:
      6.1.1. TELEPHONES: MAKE TELEPHONE GROUNDING SYSTEM IN ACCORDANCE WITH TELEPHONE COMPANY'S REQUIREMENTS.
      6.1.2. FIRE ALARM, INTERCOMMUNICATION SYSTEMS AS REQUIRED.

7. TESTS
   7.1. PERFORM TESTS IN ACCORDANCE WITH SECTION 26.
   7.2. PERFORM GROUND CONTINUITY AND RESISTANCE TESTS USING METHOD APPROPRIATE TO SITE CONDITIONS AND TO APPROVAL OF ENGINEER AND LOCAL AUTHORITY HAVING JURISDICTION OVER INSTALLATION.
   7.3. PERFORM TESTS BEFORE ENERGIZING ELECTRICAL SYSTEM.
   7.4. SUBMIT TEST RESULTS FOR ENGINEER'S REVIEW.

26 05 32 – OUTLET BOXES, CONDUIT BOXES AND FITTINGS

PRODUCTS
1. OUTLET BOXES GENERAL
   1.1. SIZE BOXES IN ACCORDANCE WITH CSA C22.1.
   1.2. 102 MM SQUARE OR LARGER OUTLET BOXES AS REQUIRED FOR SPECIAL DEVICES.
   1.3. GANG BOXES WHERE WIRING DEVICES ARE GROUPED.
   1.4. BLANK COVER PLATES FOR BOXES WITHOUT WIRING DEVICES.
   1.5. 347 V OUTLET BOXES FOR 347 V SWITCHING DEVICES.
   1.6. COMBINATION BOXES WITH BARRIERS WHERE OUTLETS FOR MORE THAN ONE SYSTEM ARE GROUPED.

2. SHEET STEEL OUTLET BOXES
   2.1. ELECTRO–GALVANIZED STEEL SINGLE AND MULTI GANG FLUSH DEVICE BOXES FOR FLUSH INSTALLATION, MINIMUM SIZE 76 X 50 X 38 MM OR AS INDICATED. 102 MM SQUARE OUTLET BOXES WHEN MORE THAN ONE CONDUIT ENTERS ONE SIDE WITH EXTENSION AND PLASTER RINGS AS REQUIRED.
   2.2. ELECTRO–GALVANIZED STEEL UTILITY BOXES FOR OUTLETS CONNECTED TO SURFACE–MOUNTED EMT CONDUIT, MINIMUM SIZE 102 X 54 X 48 MM.
   2.3. 102 MM SQUARE OR OCTAGONAL OUTLET BOXES FOR LIGHTING FIXTURE OUTLETS.
   2.4. 102 MM SQUARE OUTLET BOXES WITH EXTENSION AND PLASTER RINGS FOR FLUSH MOUNTING DEVICES IN FINISHED PLASTER WALLS.

3. MASONARY BOXES
   3.1. ELECTRO–GALVANIZED STEEL MASONARY SINGLE AND MULTI GANG BOXES FOR DEVICES FLUSH MOUNTED IN EXPOSED BLOCK WALL

4. CONCRETE BOXES
   4.1. ELECTRO–GALVANIZED SHEET STEEL CONCRETE TYPE BOXES FOR FLUSH MOUNT IN CONCRETE WITH MATCHING EXTENSION AND PLASTER RINGS AS REQUIRED.

5. FLOOR BOXES
   5.1. CONCRETE TIGHT ELECTRO–GALVANIZED SHEET STEEL FLOOR BOXES WITH ADJUSTABLE FINISHING RINGS TO SUIT FLOOR FINISH WITH BRASS FACEPLATE. DEVICE MOUNTING PLATE TO ACCOMMODATE SHORT OR LONG STRAP RECEPTACLES.

6. RIGID CONDUIT BOXES
   6.1. CAST FS OR FD FERALOY RIGID CONDUIT BOXES WITH FACTORY–THREADED HUBS AND MOUNTING FEET FOR SURFACE WIRING WHERE RIGID CONDUIT OTHER THAN "EMT" IS USED

7. MULTI OUTLET BOXES
   7.1. ELECTRO–GALVANIZED STEEL BARRIER PRE–GANGED MULTI–OUTLET BOXES FOR DEVICES WITH DIFFERENT SOURCES OF VOLTAGE IN THE SAME BOX.
   7.2. THE BARRIER OF SHEET STEEL SHALL NOT BE LESS THAN (NO. 16 MSG) THICK USED TO DIVIDE THE SPACE INTO SEPARATE COMPARTMENTS FOR THE CONDUCTORS OF EACH SYSTEM. THE BARRIER SHALL BE FASTENED RIGIDLY TO THE BOX.

8. FITTINGS – GENERAL
   8.1. BUSHING AND CONNECTORS WITH NYLON INSULATED THROATS.
   8.2. KNOCK–OUT FILLERS TO PREVENT ENTRY OF DEBRIS.
   8.3. CONDUIT OUTLET BODIES FOR CONDUIT UP TO 32 MM AND PULL BOXES FOR LARGER CONDUITS.
   8.4. DOUBLE LOCKNUTS AND INSULATED BUSHINGS ON SHEET METAL BOXES.
   8.5. DOUBLE SPLIT RINGS FOR AC–90 TERMINATIONS.

9. SERVICE FITTING
   9.1. 'HIGH TENSION' RECEPTACLE FITTING MADE OF 2 PIECE DIE–CAST ALUMINUM WITH BRUSHED ALUMINUM HOUSING FINISH FOR 1 DUPLEX RECEPTACLES. BOTTOM PLATE WITH TWO KNOCKOUTS FOR CENTERED OR OFFSET INSTALLATION.
   9.2. PEDESTAL TYPE 'LOW TENSION' FITTING MADE OF 2 PIECE DIE CAST ALUMINUM WITH BRUSHED ALUMINUM HOUSING FINISH TO ACCOMMODATE TWO AMPHENOL JACK CONNECTORS.

EXECUTION

10. INSTALLATION
   10.1. SUPPORT BOXES INDEPENDENTLY OF CONNECTING CONDUITS.
   10.2. FILL BOXES WITH PAPER, SPONGES OR FOAM OR SIMILAR APPROVED MATERIAL TO PREVENT ENTRY OF DEBRIS DURING CONSTRUCTION. REMOVE UPON COMPLETION OF WORK.
   10.3. FOR FLUSH INSTALLATIONS MOUNT OUTLETS FLUSH WITH FINISHED WALL USING PLASTER RINGS TO PERMIT WALL FINISH TO COME WITHIN 6 MM OF OPENING.
   10.4. PROVIDE CORRECT SIZE OF OPENINGS IN BOXES FOR CONDUIT, MINERAL INSULATED AND ARMOURED CABLE CONNECTIONS. REDUCING WASHERS ARE NOT ALLOWED.
   10.5. VACUUM CLEAN INTERIOR OF OUTLET BOXES BEFORE INSTALLATION OF WIRING DEVICES.
   10.6. IDENTIFY SYSTEMS FOR OUTLET BOXES AS REQUIRED.

26 05 34 – CONDUITS, CONDUIT FASTENINGS, AND CONDUIT FITTINGS

PRODUCTS

1. CONDUITS
   1.1. RIGID METAL CONDUIT: TO CSA C22.2 NO. 45, HOT DIPPED GALVANIZED STEEL THREADED.
   1.2. EPOXY COATED CONDUIT: TO CSA C22.2 NO. 45, WITH ZINC COATING AND CORROSION RESISTANT EPOXY FINISH INSIDE AND OUTSIDE.
   1.3. ELECTRICAL METALLIC TUBING (EMT): TO CSA C22.2 NO. 83, WITH COUPLINGS.
   1.4. RIGID PVC CONDUIT: TO CSA C22.2 NO. 211.2.
   1.5. FLEXIBLE METAL CONDUIT: TO CSA C22.2 NO. 56, ALUMINUM LIQUID–TIGHT FLEXIBLE METAL.
   1.6. FRE CONDUIT: TO CSA C22.2.
   1.7. FLEXIBLE PVC CONDUIT: TO CAN/CSA–C22.2 NO. 227.3,

2. CONDUIT FASTENINGS
   2.1. ONE HOLE STEEL STRAPS TO SECURE SURFACE CONDUITS 50 MM AND SMALLER. TWO HOLE STEEL STRAPS FOR CONDUITS LARGER THAN 50 MM.
   2.2. BEAM CLAMPS TO SECURE CONDUITS TO EXPOSED STEEL WORK.
   2.3. CHANNEL TYPE SUPPORTS FOR TWO OR MORE CONDUITS AT 1.5 M OC.
   2.4. THREADED RODS, 6 MM DIA., TO SUPPORT SUSPENDED CHANNELS.

3. CONDUIT FITTINGS
   3.1. FITTINGS: MANUFACTURED FOR USE WITH CONDUIT SPECIFIED. COATING: SAME AS CONDUIT.
   3.2. FACTORY "ELLS" WHERE 900, 45 O OR 22.5 O BENDS ARE REQUIRED FOR 25 MM AND LARGER CONDUITS.
   3.3. ENSURE CONDUIT BENDS OTHER THAN FACTORY "ELLS" ARE MADE WITH AN APPROVED BENDER. MAKING OFFSETS AND OTHER BENDS BY CUTTING AND REJOINING 90 DEGREE BENDS ARE NOT PERMITTED.
   3.4. CONNECTORS AND COUPLINGS FOR EMT. STEEL SET–SCREW TYPE, SIZE AS REQUIRED.

4. EXPANSION FITTINGS FOR RIGID CONDUIT
   4.1. WEATHERPROOF EXPANSION FITTINGS WITH INTERNAL BONDING ASSEMBLY SUITABLE FOR 100 MM LINEAR EXPANSION.
   4.2. WATERTIGHT EXPANSION FITTINGS WITH INTEGRAL BONDING JUMPER SUITABLE FOR LINEAR EXPANSION AND 19 MM DEFLECTION IN ALL DIRECTIONS.
   4.3. WEATHERPROOF EXPANSION FITTINGS FOR LINEAR EXPANSION AT ENTRY TO PANEL.

5. FISH CORD
   5.1. POLYPROPYLENE

EXECUTION

6. MANUFACTURERS INSTRUCTIONS
   6.1. COMPLIANCE: COMPLY WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS OR SPECIFICATIONS, INCLUDING PRODUCT TECHNICAL BULLETINS, HANDLING, STORAGE AND INSTALLATION INSTRUCTIONS, AND DATASHEETS.
7. INSTALLATION
   7.1. INSTALL ALL CONDUIT, CONDUIT FITTINGS AND ACCESSORIES IN ACCORDANCE WITH THE LATEST EDITION OF THE CANADIAN ELECTRICAL CODE IN A MANNER THAT DOES NOT ALTER, CHANGE OR VIOLATE ANY PART OF THE INSTALLED SYSTEM COMPONENTS OR THE CSA/UL CERTIFICATION OF THESE COMPONENTS.
   7.2. INSTALL CONDUITS TO CONSERVE HEADROOM IN EXPOSED LOCATIONS AND CAUSE MINIMUM INTERFERENCE IN SPACES THROUGH WHICH THEY PASS.
   7.3. CONCEAL CONDUITS EXCEPT IN MECHANICAL AND ELECTRICAL SERVICE ROOMS AND IN UNFINISHED AREAS.
   7.4. SURFACE MOUNT CONDUITS EXCEPT IN FINISHED AREAS OR AS INDICATED.
   7.5. USE RIGID HOT DIPPED GALVANIZED STEEL THREADED CONDUIT FOR EXPOSED WORK BELOW 2.4 M ABOVE FINISHED FLOOR.
   7.6. USE EPOXY COATED CONDUIT UNDERGROUND IN CORROSIVE AREAS AND WHERE EXPOSED TO EXTERIOR ELEMENTS. (IE: POLE MOUNTED SERVICE ENTRANCE CONDUITS)
   7.7. USE ELECTRICAL METALLIC TUBING (EMT) EXCEPT IN CAST CONCRETE AND ABOVE 2.4 M NOT SUBJECT TO MECHANICAL INJURY, AS WELL AS CONCEALED WORK IN MASONRY CONSTRUCTION.
   7.8. USE RIGID PVC CONDUIT UNDERGROUND AND BURIED IN OR UNDER CONCRETE SLAB ON GRADE.
   7.9. USE FRE CONDUIT FOR ENCASEMENT IN CONCRETE DUCT BANK FOR SERVICE ENTRANCE FEEDERS.
   7.10. USE FLEXIBLE METAL CONDUIT FOR CONNECTION TO MOTORS IN DRY AREAS CONNECTION TO RECESSED INCANDESCENT FIXTURES WITHOUT A PREWIRED OUTLET BOX CONNECTION TO SURFACE OR RECESSED FLUORESCENT FIXTURES WORK IN MOVABLE METAL PARTITIONS.
   7.11. USE LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR CONNECTION TO MOTORS OR VIBRATING EQUIPMENT IN DAMP, WET OR CORROSIVE LOCATIONS.
   7.12. USE AC–90 FOR VERTICAL POWER SUPPLY DROPS TO LIGHT FIXTURES.
   7.13. USE EXPLOSION PROOF FLEXIBLE CONNECTION FOR CONNECTION TO EXPLOSION PROOF MOTORS.
   7.14. INSTALL CONDUIT SEALING FITTINGS IN HAZARDOUS AREAS. FILL WITH COMPOUND.
   7.15. MINIMUM CONDUIT SIZE FOR LIGHTING AND POWER CIRCUITS: 19 MM. 12 MM CONDUIT IS ACCEPTABLE FOR SWITCH LEG DROPS ONLY WHERE ONE TWO–WIRE CIRCUIT AND GROUND IS REQUIRED.
   7.16. INSTALL EMT CONDUIT FROM COMPUTER ROOM BRANCH CIRCUIT PANEL TO OUTLET BOXES LOCATED IN SUB FLOOR.
   7.17. INSTALL EMT CONDUIT FROM COMPUTER ROOM BRANCH CIRCUIT PANEL TO JUNCTION BOX IN SUB–FLOOR IMMEDIATELY BELOW PANEL. RUN FLEXIBLE CONDUIT FROM JUNCTION BOX TO OUTLET BOXES FOR EACH COMPUTER IN SUB–FLOOR.
   7.18. BEND CONDUIT COLD. REPLACE CONDUIT IF KINKED OR FLATTENED MORE THAN 1/10TH OF ITS ORIGINAL DIAMETER.
   7.19. MECHANICALLY BEND STEEL CONDUIT OVER 19 MM DIA.
   7.20. FIELD THREADS ON RIGID CONDUIT MUST BE OF SUFFICIENT LENGTH TO DRAW CONDUITS UP TIGHT.
   7.21. INSTALL FISH CORD IN EMPTY CONDUITS.
   7.22. RUN 2 – 25 MM SPARE CONDUITS UP TO CEILING SPACE AND 2 – 25 MM SPARE CONDUITS DOWN TO CEILING SPACE FROM EACH FLUSH PANEL. TERMINATE THESE CONDUITS IN 152 X 152 X 102 MM JUNCTION BOXES IN CEILING SPACE OR IN CASE OF AN EXPOSED CONCRETE SLAB, TERMINATE EACH CONDUIT IN FLUSH CONCRETE TYPE BOX.
   7.23. REMOVE AND REPLACE BLOCKED CONDUIT SECTIONS. DO NOT USE LIQUIDS TO CLEAN OUT CONDUITS.
   7.24. DRY CONDUITS OUT BEFORE INSTALLING WIRE.

8. SURFACE CONDUIT
   8.1. RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
   8.2. LOCATE CONDUITS BEHIND INFRARED OR GAS FIRED HEATERS WITH 1.5 M CLEARANCE.
   8.3. RUN CONDUITS IN FLANGED PORTION OF STRUCTURAL STEEL.
   8.4. GROUP CONDUITS WHEREVER POSSIBLE ON SUSPENDED CHANNELS.
   8.5. DO NOT PASS CONDUITS THROUGH STRUCTURAL MEMBERS EXCEPT AS INDICATED.
   8.6. DO NOT LOCATE CONDUITS LESS THAN 75 MM PARALLEL TO STEAM OR HOT WATER LINES WITH MINIMUM OF 25 MM AT CROSSOVERS.

9. CONCEALED CONDUITS
   9.1. RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES.
   9.2. DO NOT INSTALL HORIZONTAL RUNS IN MASONRY WALLS.
   9.3. DO NOT INSTALL CONDUITS IN TERRAZZO OR CONCRETE TOPPINGS.

10. CONDUITS IN CAST IN PLACE CONCRETE
   10.1. LOCATE TO SUIT REINFORCING STEEL. INSTALL IN CENTRE ONE THIRD OF SLAB. USE RIGID PVC CONDUIT.
   10.2. PROTECT CONDUITS FROM DAMAGE WHERE THEY STUB OUT OF CONCRETE. USE RIGID STEEL CONDUIT FOR STUB–UP AND ADAPT TO IN FLOOR RIGID PVC CONDUIT.
   10.3. INSTALL SLEEVES WHERE CONDUITS PASS THROUGH SLAB OR WALL.
   10.4. PROVIDE OVERSIZED SLEEVE FOR CONDUITS PASSING THROUGH WATERPROOF MEMBRANE, BEFORE MEMBRANE IS INSTALLED. USE COLD MASTIC BETWEEN SLEEVE AND CONDUIT.
   10.5. DO NOT PLACE CONDUITS IS SLABS IN WHICH SLAB THICKNESS IS LESS THAN 4 TIMES CONDUIT DIAMETER.
   10.6. ENCASE CONDUITS COMPLETELY IN CONCRETE WITH MINIMUM 25 MM CONCRETE COVER.
   10.7. ORGANIZE CONDUITS IN SLAB TO MINIMIZE CROSS–OVERS.

11. CONDUITS IN CAST IN PLACE SLAB ON GRADE
   11.1. RUN CONDUITS 25 MM AND LARGER BELOW SLAB AND ENCASED IN 75 MM CONCRETE ENVELOPE. PROVIDE 50 MM OF SAND OVER CONCRETE ENVELOPE BELOW FLOOR SLAB.

12. CONDUITS UNDERGROUND
   12.1. SLOPE CONDUITS TO PROVIDE DRAINAGE.
   12.2. WATERPROOF JOINTS (PVC EXCEPTED) WITH HEAVY COAT OF BITUMINOUS PAINT

13. CLEANING
   13.1. PROCEED IN ACCORDANCE WITH SECTION 01 74 11 – CLEANING.
   13.2. ON COMPLETION AND VERIFICATION OF PERFORMANCE OF INSTALLATION, REMOVE SURPLUS MATERIALS, EXCESS MATERIALS RUBBISH, TOOLS AND EQUIPMENT.

26 05 43 – INSTALLATION OF CABLES IN DUCTS

EXECUTION

1. CABLE INSTALLATION IN DUCTS
   1.1. INSTALL CABLES AS INDICATED, IN DUCTS.
   1.2. DO NOT PULL SPLICED CABLES INSIDE DUCTS.
   1.3. INSTALL MULTIPLE CABLES IN DUCT SIMULTANEOUSLY.
   1.4. USE CSA APPROVED LUBRICANTS OF TYPE COMPATIBLE WITH CABLE JACKET TO REDUCE PULLING TENSION.
   1.5. TO FACILITATE MATCHING OF COLOUR CODED MULTI CONDUCTOR CONTROL CABLES REEL OFF IN SAME DIRECTION DURING INSTALLATION.
   1.6. BEFORE PULLING CABLE INTO DUCTS AND UNTIL CABLES ARE PROPERLY TERMINATED SEAL ENDS OF NON–LEADED CABLES WITH MOISTURE SEAL TAPE.
   1.7. AFTER INSTALLATION OF CABLES, SEAL DUCT ENDS WITH DUCT SEALING COMPOUND.

2. TESTING
   2.1. PERFORM TESTS IN ACCORDANCE WITH SECTION 26.
   2.2. PERFORM TESTS USING QUALIFIED PERSONNEL. PROVIDE NECESSARY INSTRUMENTS AND EQUIPMENT.
   2.3. CHECK PHASE ROTATION AND IDENTIFY EACH PHASE CONDUCTOR OF EACH FEEDER.
   2.4. CHECK EACH FEEDER FOR CONTINUITY, SHORT CIRCUITS AND GROUNDS. ENSURE RESISTANCE TO GROUND OF CIRCUITS IS NOT LESS THAN 50 MEGOHMS.
   2.5. PRE–ACCEPTANCE TESTS.
      2.5.1. AFTER INSTALLING CABLE BUT BEFORE SPLICING AND TERMINATING, PERFORM INSULATION RESISTANCE TEST WITH 600 V MEGGER ON EACH PHASE CONDUCTOR.
      2.5.2. CHECK INSULATION RESISTANCE AFTER EACH SPLICE AND/OR TERMINATION TO ENSURE THAT CABLE SYSTEM IS READY FOR ACCEPTANCE TESTING.
   2.6. ACCEPTANCE TESTS
      2.6.1. ENSURE THAT TERMINATIONS AND ACCESSORY EQUIPMENT ARE DISCONNECTED.
      2.6.2. GROUND SHIELDS, GROUND WIRES, METALLIC ARMOUR AND CONDUCTORS NOT UNDER TEST.
   2.7. PROVIDE ARCHITECT AND/OR ENGINEER WITH LIST OF TEST RESULTS SHOWING LOCATION AT WHICH EACH TEST WAS MADE, CIRCUIT TESTED AND RESULT OF EACH TEST.
   2.8. REMOVE AND REPLACE ENTIRE LENGTH OF CABLE IF CABLE FAILS TO MEET ANY OF THE TEST CRITERIA.
   2.9. FAILURE TO PROVIDE TEST RESULTS WILL DELAY PROGRESS BILLING.

26 05 44 – DIRECT BURIED UNDERGROUND CABLES

PRODUCTS
1. PVC DUCTS
   1.1. RIGID PVC CONDUITS: SIZE AS INDICATED, NOMINAL LENGTH OF 3 METRES.
   1.2. RIGID PVC COUPLINGS, REDUCERS, BELL END FITTINGS, PLUGS, CAPS, ADAPTORS AS REQUIRED TO MAKE COMPLETE INSTALLATION.
   1.3. RIGID PVC 90 AND 45 BENDS AS REQUIRED.
   1.4. RIGID PVC 5 ANGLE COUPLINGS AS REQUIRED.
   1.5. EXPANSION JOINTS AS REQUIRED.

2. SOLVENT
   2.1. SOLVENT WELD COMPOUND FOR PVC DUCT JOINTS

3. CABLE PULLING EQUIPMENT
   3.1. 6.5mm STRANDED NYLON PULL ROPE TENSILE 5kN.

4. MARKING TAPE
   4.1. 150mm WIDE, RED, POLYETHYLENE MARKED "BURIED ELECTRIC LINE"
      4.1.1. STANDARD OF ACCEPTANCE; THOMAS AND BETTS NA TYPE.

5. MANUFACTURERS
   5.1. STANDARD OF ACCEPTANCE: SCEPTER
   5.2. OTHER APPROVED MANUFACTURER: CANON

EXECUTION

6. INSTALLATION
   6.1. INSTALL PVC DUCT AS INDICATED AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
   6.2. EXCAVATION, TUNNELING, AND BACKFILLING TO THE REQUIREMENTS OF SECTION 02223.
   6.3. CLEAN INSIDE OF DUCTS BEFORE LAYING.
   6.4. ENSURE FULL, EVEN SUPPORT EVERY 1500MM THROUGHOUT DUCT LENGTH.
   6.5. SLOPE DUCTS AWAY FROM BUILDING AND POLE WITH 1 TO 400 MINIMUM SLOPE. PUNCH A SMALL HOLE IN BOTTOM OF DUCTS AT LOW POINT.
   6.6. PROVIDE SLEEVE FOR DUCTS PASSING THROUGH FOOTINGS.
   6.7. DURING CONSTRUCTION, CAP ENDS OF DUCTS TO PREVENT ENTRANCE OF FOREIGN MATERIALS.
   6.8. PULL THROUGH EACH DUCT A STEEL MANDREL NOT LESS THAN 300MM LONG AND OF A DIAMETER 65MM LESS THAN INTERNAL DIAMETER OF DUCT, FOLLOWED BY STIFF BRISTLE BRUSH TO REMOVE SAND, EARTH AND OTHER FOREIGN MATTER. PULL STIFF BRISTLE BRUSH THROUGH EACH DUCT IMMEDIATELY BEFORE PULLING–IN CABLES.
   6.9. IN EACH DUCT INSTALL PULL ROPE CONTINUOUS THROUGHOUT EACH DUCT RUN WITH 3 METRES OF SPARE ROPE AT EACH END.
   6.10. INSTALL MARKING TAPE 150MM BELOW FINISHED GRADE ALONG THE COMPLETE LENGTH OF BURIED DUCT AS INDICATED.

26 24 16 PANELBOARDS

7. PANEL BOARDS SHALL HAVE SURFACE TRIM AND DOORS FINISHED FOR SURFACE OR FLUSH MOUNTED AS SHOWN ON DRAWINGS, BOLT–ON CIRCUIT BREAKER TYPE, SIZED AND OF TYPES AND ELECTRICAL CHARACTERISTICS AS INDICATED ON DRAWINGS.
8. ALL 3 PHASE, 4 WIRE PANEL BOARDS RATED AT 225 AMPERES OR LESS TO HAVE GROUNDING TERMINAL STRIP SUPPLIED AND INSTALLED BY MANUFACTURER CAPABLE OF TERMINATING A MINIMUM OF 2–#2S, 4–#6S WITH BALANCE OF TERMINATIONS TO ACCEPT #12 CONDUCTORS.
9. SEQUENCE PHASE BUSSING WITH ODD NUMBERED BREAKERS ON LEFT AND EVEN ON RIGHT, WITH EACH BREAKER IDENTIFIED BY PERMANENT NUMBER IDENTIFICATION AS TO CIRCUIT NUMBER AND PHASE.
10. RATINGS: MAINS, NUMBER OF CIRCUITS, AND NUMBER AND SIZE OF MAIN AND BRANCH CIRCUIT BREAKERS AS INDICATED IN PANEL SCHEDULES.
11. UPON COMPLETION OF PROJECT, UPDATE ALL PANEL LEGENDS OF PANELS AFFECTED BY CONSTRUCTION (NEW AND EXISTING). UPDATED CIRCUIT DIRECTORIES SHALL CONSIST OF TYPEWRITTEN LEGENDS SHOWING LOCATION AND LOAD OF EACH CIRCUIT.
12. PANELBOARDS SHALL BE AS MANUFACTURED BY EATON, SIEMENS, SQUARE D OR APPROVED EQUAL.

26 28 16 MOLDED CASE CIRCUIT BREAKERS

1. BOLT ON MOULDED CASE CIRCUIT BREAKER, QUICK–MAKE, QUICK–BREAK TYPE, DE–IONIZING ARC CHAMBERS FOR MANUAL AND AUTOMATIC OPERATION WITH TEMPERATURE COMPENSATION FOR 40°C AMBIENT. BREAKERS TO BE TRIP FREE OF OPERATING HANDLES ON OVERLOADS WITH A DEFINITE INDICATION WHEN TRIPPING HAS TAKEN PLACE.
2. MULTI–POLE BREAKERS SHALL HAVE COMMON TRIP MECHANISMS, TIE HANDLES WILL NOT BE ACCEPTABLE.
3. MAGNETIC INSTANTANEOUS TRIP ELEMENTS IN CIRCUIT BREAKERS, TO OPERATE ONLY WHEN THE VALUE OF CURRENT REACHES SETTING. TRIP SETTINGS ON BREAKERS WITH ADJUSTABLE TRIPS TO RANGE FROM 10–12 TIMES CURRENT RATING.
4. CIRCUIT BREAKERS WITH INTERCHANGEABLE TRIPS AS INDICATED.
5. MINIMUM ACCEPTABLE CIRCUIT BREAKER INTERRUPTING RATING SHALL BE 14,000 RMS SYMMETRICAL AMPERES OR AS INDICATED ON THE DRAWINGS.
6. CIRCUIT BREAKERS SHALL BE AS MANUFACTURED BY EATON, SIEMENS, SQUARE D OR APPROVED EQUAL.

Parks Canada / Parcs Canada

WSP Canada Inc.
195 MacEwen Road
Summerside, Prince Edward Island, Canada C1□ 5□□
□ 902-□36-2669 F 902-□36-8601 www.ws□.com

PROFESSIONAL ENGINEER
THE ASSOCIATION OF PROFESSIONAL ENGINEERS OF THE PROVINCE OF PRINCE EDWARD ISLAND
Manjusha □aidu
1604
14/8/2019
DATE
PROVINCE OF PRINCE EDWARD ISLAND

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