PROJECT

CHARLOTTE AMALIE UNDERGROUND ELECTRICAL CONSTRUCTION PROJECT (FEEDER 9A PHASE 1 & 2) ST. THOMAS, USVI

DRAWINGS INCLUDED IN THIS PACKAGE

DRAWING #	DRAWING NAME	ISSUE A: 06.24.2022 ISSUE FOR EHP REVIEW	ISSUE B: 12.02.2022 ISSUE FOR FEMA REVIEW (75%)	ISSUE C: 04.21.2022 ISSUE FOR 100% REVIEW	ISSUE D: 06.07.2022 ISSUE FOR CZM APPLICATION	
GENERAL						
ST-20131-9A-G-100	GENERAL CONSTRUCTION NOTES & ABBREVIATIONS	○	○	○	●	
ST-20131-9A-G-101	GENERAL CONSTRUCTION DETAILS	○	○	○	●	
ELECTRICAL						
STT-20131-9A-E-100	ELECTRICAL DETAILS AND SCHEDULES	○	○	○	●	
STT-20131-9A-E-101	STANDARD MANHOLE DETAILS		○	○	●	
STT-20131-9A-E-102	TRANSFORMER DETAILS		○	○	●	
STT-20131-9A-E-103	SWITCHGEAR / SECTIONALIZING CABINET PAD DETAILS & HANDHOLE DETAILS		○	○	●	
STT-20131-9A-E-103	DUCT BANK DETAILS		○	○	●	
STT-20131-9A-E-104	GROUNDING DETAILS	○	○	○	●	
ST-20131-9A-E-200	ONE LINE DIAGRAM (PHASE 1)	○	○	○	●	
ST-20131-9A-E-201	ONE LINE DIAGRAM (PHASE 2)	○	○	○	●	
ST-20131-9A-E-300	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-301	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-302	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-303	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-304	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-305	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-306	FEEDER 9A DUCT BANK PLAN	○	○	○	●	
ST-20131-9A-E-400	ELECTRICAL EQUIPMENT SCHEDULES	○			●	
ST-20131-9A-E-500	ENLARGED PLANS FEEDER 9A	○				
ST-20131-9A-E-501	ENLARGED PLANS FEEDER 9A	○	○	○		
ST-20131-9A-E-502	ENLARGED PLANS FEEDER 9A			○		
ST-20131-9A-E-503	ENLARGED PLANS FEEDER 9A			○		
ST-20131-9A-E-504	ENLARGED PLANS FEEDER 9A			○		
ST-20131-9A-E-504	DUCT BANK PROFILES				●	
TRAFFIC CONTROL						
ST-20131-9A-TC-100	TRAFFIC CONTROL DETAILS	○	○			
ST-20131-9A-TC-101	TRAFFIC CONTROL SYMBOLS & DETAILS	○	○			

ENGINEER:

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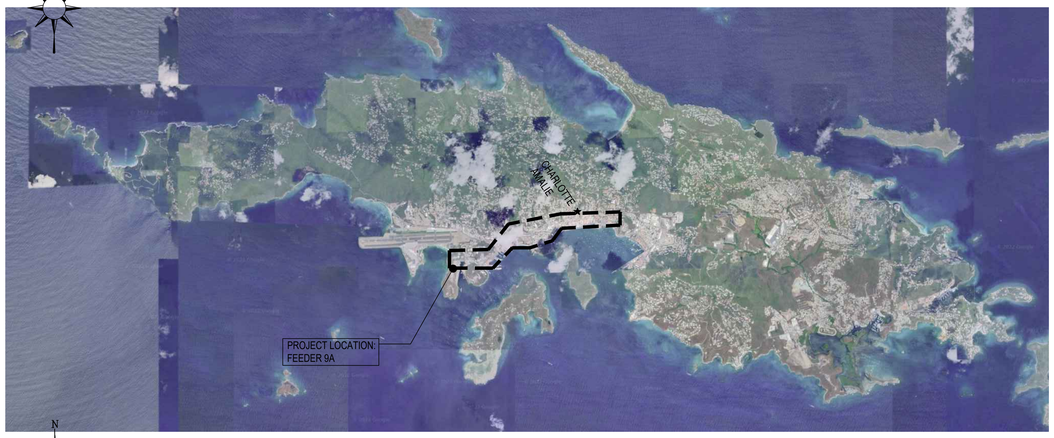
OWNER:

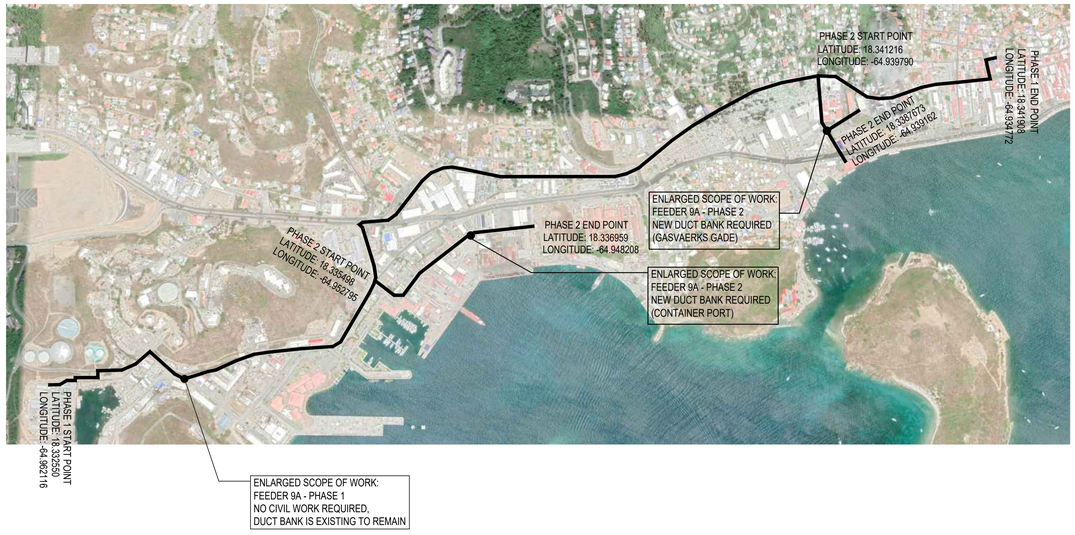
Virgin Islands Water & Power Authority St. Thomas U.S. Virgin Islands

VIRGIN ISLANDS WATER AND POWER AUTHORITY

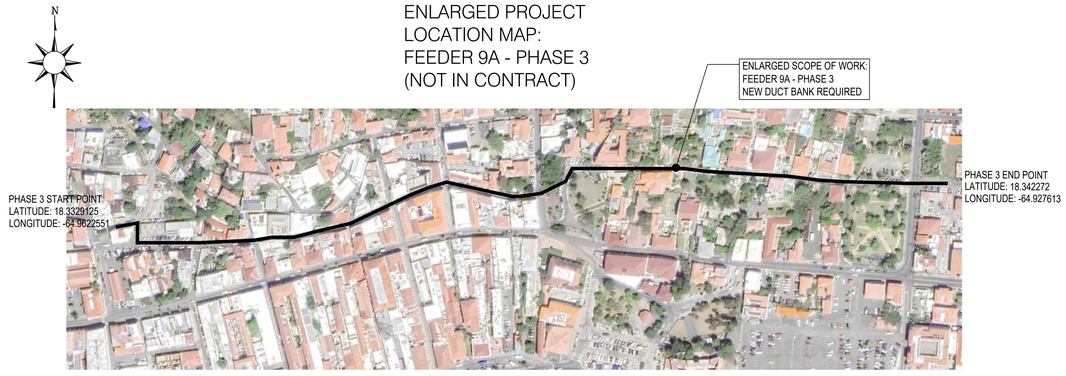
PROJECT LOCATION MAP:
FEEDER 9A



ENLARGED PROJECT
LOCATION MAP:
FEEDER 9A - PHASE 1 & 2



ENLARGED PROJECT
LOCATION MAP:
FEEDER 9A - PHASE 3
(NOT IN CONTRACT)



ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A	AMPERES	MCB	MAIN CIRCUIT BREAKER
AFF	ABOVE FINISH FLOOR	MCC	MOTOR CONTROL CENTER
AFG	ABOVE FINISH GRADE	KCMIL	THOUSAND CIRCULAR MILS
AHU	AIR HANDLING UNIT	MCP	MOTOR CIRCUIT PROTECTOR
AL	ALUMINUM	MISC	MISCELLANEOUS
ARCH	ARCHITECT	MLO	MAIN LUGS ONLY
ATC	AIR TERMINAL CHAMBER	(N)	NEW
ATS	AUTOMATIC TRANSFER SWITCH	N.C.	NORMALLY CLOSED
AWG	AMERICAN WIRE GAUGE	N.O.	NORMALLY OPEN
BIL	BASIC IMPULSE LEVEL	NEC	NATIONAL ELECTRICAL CODE
BLDG	BUILDING	NFSS	NON-FUSED SAFETY SWITCH
C	CONDUIT - RACEWAY	NGR	NEUTRAL GROUNDING RESISTOR
CC1	CLOSE COIL 1	NL	NIGHT LIGHT
CKT	CIRCUIT	NTS	NOT TO SCALE
C/L	CENTERLINE	P	POLE
COL	COLUMN	(PH1)	PHASE 1
CU	COPPER	(PH2)	PHASE 2
C/B	CIRCUIT BREAKER	PNL	PANEL OR PANELBOARD
CT	CURRENT TRANSFORMER	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	PWR	POWER
DN	DOWN	PT	POTENTIAL TRANSFORMER
EC	ELECTRICAL CONTRACTOR	PRIM	PRIMARY
ECB	ENCLOSED CIRCUIT BREAKER	(R)	TO BE REMOVED
EM	EMERGENCY	RTU	ROOF TOP UNIT
(EX)	EXISTING TO REMAIN	SA	SURGE ARRESTER
F	FUSE	SEC	SECONDARY
FA	FIRE ALARM	SP	SPARE
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SW	SWITCH
FACP	FIRE ALARM CONTROL PANEL	TC1	TRIP COIL 1
FBO	FURNISHED BY OTHERS	TC2	TRIP COIL 2
F/S	FUSED SWITCH	TEL	TELEPHONE
FT	FEET	V	VOLT
FU.	FUSES	W	WIRE
G	GROUND OR GROUNDING	WP	WEATHERPROOF
GRD	GROUND OR GROUNDING	WG	WITH WIREGUARD
KVA	KILOVOLT AMPERES	TRANSF	TRANSFORMER
KW	KILOWATTS	Ø	PHASE
LTG	LIGHTING	%Z	PERCENT IMPEDANCE
		VB	VISIBLE BREAK
		VFI	VACUUM FAULT INTERRUPTER

METHOD OF PROCEDURE ("M.O.P.")

WHERE CALLED FOR THROUGHOUT THE CONSTRUCTION DOCUMENTS, OR AS REQUESTED THROUGH THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL SUBMIT A M.O.P. FOR ANY ACTIVITY DEEMED BY THE OWNER/ENGINEER TO POTENTIALLY IMPACT UTILITY CUSTOMERS. CONTRACTOR TO RELEASE M.O.P. TO THE ENGINEER FOR REVIEW AND COMMENT A MINIMUM OF TWO WEEKS PRIOR TO THE SCHEDULED ACTIVITY. THE M.O.P. SHALL INCLUDE ITEMS SUCH AS, BUT NOT LIMITED TO:

1. SHORT DESCRIPTION OF ACTIVITY
2. PROPOSED SCHEDULE/ CALENDAR DAY(S) OF ACTIVITY
3. ESTIMATED START AND END TIME
4. IDENTIFICATION AND REQUIRED ACTION FOR CRITICAL PATH MILESTONES, INCLUDING OWNER DEPENDENCIES
5. LENGTH OF ANY PLANNED DOWNTIME OF LIVE POWER SYSTEMS
6. STEP BY STEP PROCEDURE WITH ITEMIZED TIME ESTIMATE FOR EACH MAJOR STEP
7. EMERGENCY BACK OUT PROCEDURE WHERE APPLICABLE
8. SAFETY EQUIPMENT AND/OR ANY OTHER SPECIAL SAFETY MEASURES TO BE TAKEN
9. IDENTIFY LEAD PERSONNEL INVOLVED, INCLUDING 24 HR. CONTACT INFORMATION
10. IDENTIFY REQUIRED TRADES TO PARTICIPATE AND TASKS TO BE PERFORMED

ELECTRICAL TESTING REQUIREMENTS

CONTRACTOR SHALL RETAIN THE SERVICES OF A NETA CERTIFIED TESTING AGENCY TO PERFORM THE FOLLOWING ELECTRICAL ACCEPTANCE TESTING:

ACCEPTANCE TESTING RESPONSIBILITIES

* SWITCHGEAR (REFERENCE: ANSI/NETA ATS-2021 SECTION 7.1)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.1.A
  2. PROVIDE STANDARD ELECTRICAL TESTS IN ACCORDANCE WITH 7.1.B.
* MEDIUM VOLTAGE CABLES & ACCESSORIES (REFERENCE: ANSI/NETA ATS-2021 SECTION 7.3.3)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.3.3.A
  2. PERFORM STANDRD ELECTRICAL TESTS IN ACCORDANCE WITH ANSI/NETA ATS-2009 SECTION 7.3.3.B AND IEEE STANDARD 400.2
* TRANSFORMERS, LIQUID FILLED (REFERENCE: ANSI/NETA ATS-2021 SECTION 7.2.2)
  1. PROVIDE VISUAL AND MECHANICAL INSPECTION IN ACCORDANCE WITH 7.2.2.A
  2. PERFORM STANDARD ELECTRICAL TESTS IN ACCORDANCE WITH ANSI/NETA ATS-2013 SECTION 7.2.2.B AND IEEE STANDARD 400.2
  3. REFER TO SPECIFICATION 260800.01 "ELECTRICAL INSPECTION & TESTING" FOR ADDITIONAL INFORMATION.

OWNER FURNISHED EQUIPMENT:

THIS PROJECT INCLUDES OWNER FURNISHED EQUIPMENT. REFER TO ELECTRICAL EQUIPMENT SCHEDULE ON DRAWING #E400. FOR ALL OWNER FURNISHED EQUIPMENT THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING:

1. RECEIVE EQUIPMENT AT THE RANDOLPH HARLEY POWER PLANT SITE IN ST. THOMAS UNLESS SPECIFICALLY NOTED OTHERWISE.
2. TRANSPORT EQUIPMENT, AS NEEDED, TO THE JOB SITE.
2. OFFLOAD EQUIPMENT AND SET IN PLACE IN ITS FINAL LOCATION
3. ANCHOR EQUIPMENT IN PLACE IN ACCORDANCE WITH DRAWINGS & MANUFACTURERS INSTALLATION INSTRUCTIONS/SHOP DWGS.
4. INSTALL ANY COMPONENTS THAT SHIPPED LOOSE IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS.
5. PROVIDE VISUAL INSPECTION AND TESTS IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
6. PROVIDE SUPPORT DURING START UP & TESTING SUCH AS RE-TORQUING, PHASE ROTATION CHECK, OPEN TRANSFORMER & SWITCHGEAR DOORS, ETC.

GENERAL CONSTRUCTION NOTES:

GENERAL CONSTRUCTION NOTES:

1. ALL CONSTRUCTION WORK SHALL COMPLY WITH THE LATEST ADOPTED VERSION OF ALL RELEVANT CODES, REGULATIONS AND REQUIREMENTS INCLUDING FEMA, HUD, IBC, OSHA, NESC, NFPA 70, DPW, VISHPO, DPNR, CZM, FISH & WILDLIFE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ON SITE SAFETY AND SECURITY OF EMPLOYEES, SUBCONTRACTORS, OUTSIDE CONSULTANTS, OWNERS REPRESENTATIVE AND THE PUBLIC, FROM MOBILIZATION THRU CONTRACT CLOSEOUT. ALL WORK SHALL BE IN COMPLETE COMPLIANCE WITH THE LATEST OSHA REQUIREMENTS, AND ALL LOCAL AND FEDERAL AGENCIES.
3. THE CONTRACTOR MUST MAINTAIN A FULL SIZE SET OF THE LATEST SET OF WORKING DRAWINGS, AND SPECIFICATION, ON THE PROJECT JOBSITE AT ALL TIMES.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES, AND DEVICES AND ROAD CLOSURE PERMITS (WHERE REQUIRED) AND ASSOCIATED COSTS. THE CONTRACTOR SHALL REFER TO THE TRAFFIC CONTROL DRAWINGS AND SPECIFICATIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.

COORDINATION/PROTECTION OF EXISTING UTLITIES AND STRUCTURES:

1. THE CONTRACT DRAWINGS INDICATE GENERAL LOCATIONS OF EXISTING UTILITIES BASED ON AVAILABLE DRAWINGS AND NON-INVASIVE FIELD SURVEYS. HOWEVER, PRECISE LOCATIONS, SIZES AND TYPES OF UTILITIES HAVE NOT BEEN CONFIRMED. THIS INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR BY MEANS OF GROUND PENETRATING RADAR (GPR), TEST PITS, AND CLOSE COORDINATION WITH DPW, VINGN AND OTHER COMMUNICATIONS CARRIERS, VIWAPA'S WATER DEPARTMENT, THE DEPARTMENT OF PUBLIC WORKS, AND WASTE MANAGEMENT.
2. THE CONTRACTOR SHALL AVOID INTERFERENCE WITH EXISTING UTILITIES TO THE EXTENT THAT IS PRACTICAL. IF IT IS DETERMINED BY THE CONTRACTOR THAT AN EXISTING UTILITY MUST BE REWORKED/REROUTED IN ORDER TO ACCOMMODATE THE NEW WORK, WRITTEN APPROVAL FROM VIWAPA, THE PROJECT MANAGEMENT COMPANY, AND THE OWNER OF THE EXISTING UTILITY IS REQUIRED, PRIOR TO PERFORMING ANY OF THE RELOCATION WORK. ALL REROUTED UTLITIES MUST BE RECONNECTED AND PLACED BACK INTO SERVICE.
3. THE CONTRACTOR IS RESPONSIBLE TO PROTECT EXISTING UTILITIES, AND STRUCTURES, PRIOR TO PERFORMING EXCAVATION. WHERE NEWLY PROPOSED DUCT BANKS ARE TO CROSS BELOW EXISTING WATER, SANITARY, COMMUNICATIONS DUCTS, ELECTRIC DUCTS, OR STORM SEWER PIPING OR DRAINAGE, THE EXISTING UTILITY MUST BE PROPERLY PROTECTED AND SUPPORTED AS REQUIRED TO MAINTAIN THE INTEGRITY OF THE UTILITY, AND UTILIZING MEANS AND METHODS AS APPROVED BY THE PROJECT MANAGEMENT TEAM.
4. WHERE POSSIBLE AND PRACTICAL, ALL NEW ELECTRICAL DUCT BANKS RUNS SHALL MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 5'-0" AND VERTICAL SEPARATION OF 18" FROM FROM POTABLE WATER LINES. MAINTAIN A MINIMUM HORIZONTAL SEPARATION OF 2'-0" AND VERTICAL SEPARATIION OF 12" FROM ALL OTHER UTILITIES. WHERE A MIMUM OF 12" VERTICAL SEPARATION CANNOT BE MAINTAINED, CONCRETE ENCASEMENT OF THE PROPOSED DUCT BANK IS REQUIRED AND WRITTEN APPROVAL OF THE PROJECT MANAGER IS REQUIRED.
5. WHERE NECESSARY, THE CONTRACTOR SHALL UTILIZE TEMPORARY RETAINING STRUCTURES TO PROTECT ADJACENT STRUCTURES, AND UTILITIES DURING CONSTRUCTION.
6. ALL EXCAVATION IN CLOSE PROXIMITY TO EXISTING UTLITIES SHALL BE PERFORMED BY HAND IN ORDER TO DETERMINE THE PRECISE UTILITY LOCATION, PRIOR TO MACHINE EXCAVATION.
7. ANY EXISTING UTILITIES THAT ARE DAMAGED BY THE CONTRACTOR DURING THE CONSTRUCTION PROCESS SHALL BE REPAIRED AND FULLY RESTORED AND PLACED BACK INTO SERVICE, AT THE CONTRACTORS EXPENSE. ALL REPAIRS SHALL BE CLOSELY COORDINATED WITH THE APPROPRIATE UTILITY COMPANY AND THE PROJECT MANAGEMENT TEAM. ALL DAMAGED UTILITIES MUST BE RESTORED AND PLACED BACK INTO SERVICE AS QUICKLY AS POSSIBLE IN ORDER TO MITIGATE THE DURATION OF THE INTERRUPTION.

GENERAL ELECTRICAL NOTES

1. ALL ELECTRICAL EQUIPMENT AND MATERIAL SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
2. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH LATEST VERSION OF THE NESC, NEC AND VIWAPA STANDARDS.
3. ALL ELECTRICAL EQUIPMENT, INCLUDING, BUT NOT LIMITED TO CONDUIT, WIRE, BOXES, AND FITTINGS, SHALL BE NEW AND FREE OF DEFECTS, SHALL BEAR THE THE UL LABEL, AND SHALL MEET NEMA AND ANSI STANDARDS.
4. ALL WORK AND MATERIALS SHALL BE GUARANTEED FREE FROM DEFECTS FOR A MINIMUM PERIOD OF ONE YEAR UNLESS NOTED OTHERWISE. THE WARRANTY PERIOD SHALL BEGIN AT THE DATE OF SUBSTANTIAL COMPLETION OF WORK UNLESS NOTED OTHERWISE IN THE PROJECT SPECIFICATIONS.
5. ELECTRICAL CONTRACTOR MUST SUBMIT A METHOD OF PROCEDURE "MOP" FOR ALL POWER TRANSITIONS AND SHUTDOWNS. MOPS WILL BE REVIEWED & APPROVED BY THE ENGINEER AND VIWAPA. REFER TO "MOP" REQUIREMENTS ON THIS DRAWING.
6. CONTRACTOR SHALL LOCATE ALL HANDHOLES, SWITCHGEARS, AND TRANSFORMERS VIA GPS COORDINATES ON RECORD DRAWINGS.
7. CONTRACTOR SHALL PROVIDE AUTOCAD GENERATED AS BUILT PLANS TO SHOW ACTUAL DUCT BANK AND HANDHOLE LOCATIONS. CONTRACTOR SHALL PROVIDE GPS LOCATIONS OF DUCT BANKS ON AS BUILT PLANS. GPS LOCATIONS SHALL BE INDICATED EVERY 25'-0" ON PLANS. USE THE CENTER OF THE DUCT BANK TO INDICATE THE GPS LOCATIONS.

EARTHWORK

1. THE CONTRACTOR SHALL ENSURE THAT ALL TEMPORARY EROSION & SEDIMENT CONTROL, DUST CONTROL MEASURES, AND POLLUTION CONTROL MEASURES ARE IN PLACE PRIOR TO PERFORMING ANY EXCAVATION WORK. ALL TEMPORARY CONTROLS MEANS AND METHODS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND ALL LOCAL AND FEDERAL AGENCY REQUIREMENTS.
2. THE CONTRACTOR SHALL ENSURE THAT ALL TEMPORARY TREE AND PLANT PROTECTION MEASURES ARE IN PLACE PRIOR TO PERFORMING ANY EXCAVATION WORK. THE CONTRACTOR SHALL SUBMIT A TREE PROTECTION PLAN IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, AND EHP REQUIREMENTS, FOR REVIEW AND APPROVAL.
3. THE CONTRACTOR SHALL LOCATE AND MARK OUT ALL PROPOSED MANHOLES & HANDHOLES, AND MARK OUT ALL PROPOSED DUCT BANK STATION NUMBERS (EVERY 50'-0") PRIOR TO PERFORMING ANY EXCAVATION WORK. THE MARKED LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE PROJECT MANAGEMENT TEAM PRIOR TO EXCAVATION.
4. THE CONTRACTOR SHALL EMPLOY DEWATERING METHODS WHERE NECESSARY, AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGEMENT TEAM WHEN DEWATERING METHODS ARE REQUIRED. ALL GROUND WATER REMOVED FROM EXCAVATED TRENCHES, MANHOLES AND HANDHOLES MUST BE DISCHARGED IN ACCORDANCE WITH LOCAL AND FEDERAL REGULATORY AGENCIES. DISCHARGES TO STORM DRAINS MUST BE PROPERLY FILTERED.
5. THE CONTRACTOR SHALL NOTIFY THE PROJECT MANAGEMENT TEAM WHEN "ROCK" IS ENCOUNTERED DURIGN THE EXCAVATION PROCESS. REFER TO THE CONTRACT DOCUMENTS FOR THE DEFINITION OF "ROCK" AS IT RELATES TO THIS PROJECT.
6. AN ONSITE "PRE-EXCAVATION" CONFERENCE IS REQUIRED, AS DESCRIBED IN THE PROJECT SPECIFICATIONS PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
7. THE CONTRACTOR SHALL PREPARE "PRE-EXCAVATION" PHTOGRAPHS, AND/OR VIDEO TAPES, AS DESCRIBED IN THE PROJECT SPECIFICATIONS.
8. EXCEPT WHERE OTHERWISE INDICATED IN THE CONTRACT BOOK SPECIFICATIONS, BACKFILL SHALL BE COMPACTED IN 6" MAXIMUM LIFTS. BACKFILL SHALL BE VOID OF ALL FOREIGN DEBRIS. COMPACTION SHALL BE TO 95% DENSITY OF THEORETICAL DRY DENSITY.
9. TRENCH PROTECTION: THE CONTRACTOR SHALL INSTALL AND MAINTAIN SUITABLE TRENCH PROTECTION, INCLUDING BUT NOT LIMITED TO SHEETING AND BRACING, TO ENSURE SAFETY OF PERSONNEL OR THE PUBLIC, AND TO PREVENT EROSION, CAVING, OR LOSS OF GROUND. WHERE STRUCTURAL TRENCH PROTECTION IS NECESSARY, DETAILS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL, SIGNED & SEALED BY A USVI LICENSED CIVIL, STRUCTURAL OR GEOTECHNICAL ENGINEER.
10. ALL EXPOSED TRENCHES, MANHOLES, AND HANDHOLES MUST BE COMPLETETY COVERED WITH SOLID STEEL PLATING AT THE END OF EACH CONSTRUCTION DAY, IN ORDER TO ENSURE PROTECTIONS TO THE PUBIC AND TO PREVENT UNAUTHORIZED ACCESS.
11. PRIOR TO EXCAVATION, EXISTING PAVED ROADWAYS & DRIVEWAYS, SHALL BE NEATLY SAW CUT. THE USE OF JACK HAMMERS IS PROHIBITED FOR THIS PURPOSE.
12. THE CONTRACTOR SHALL REMOVE AND REPLACE, OR COMPLETELY REPAIR, ALL CURBS, SIDEWALKS, PAVED AREAS, TREES, PLANTS, GRASS AREAS, ETC. THAT ARE AFFECTED DURING THE EXCAVATION PROCESS. REFER TO CONTRACT SPECIFICATIONS AND DETAILS ON THE CONTRACT DRAWINGS FOR SPECIFIC REQUIREMENTS.

SCHEDULE OF SPECIAL INSPECTIONS:
SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE TABLE BELOW.

SPECIAL INSPECTION	FREQUENCY	STANDARD
SOILS:		GEOTECHNICAL ENGINEERING REPORT; IBC 1705.6
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	PERIODIC	
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIAIS.	PERIODIC	
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	CONTINUOUS	
5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	PERIODIC	
CONCRETE:		
1. INSPECTION OF REINFORCING STEEL AND PLACEMENT.	PERIODIC	ACI 318: 3.5, 7.1-7.7
2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1704.3, ITEM 5B.		AWS D1.4; ACI 318: 3.5.2
3. INSPECT BOLTS TO BE INSTALLED IN CONCRETE, PRIOR TO AND DURING PLACEMENT OF CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	CONTINUOUS	ACI 318: 8. 1.3, 21.2.8; IBC 1908.4, 1908.S
4. INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE.	PERIODIC	ACI 318: 3.8.6, 8.1.3, 21.2.8; IBC 1908.S
5. VERIFYING USE OF REQUIRED DESIGN MIX.	PERIODIC	ACI 318: CH. 4, 5.2-5.4; IBC 1905
6. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	CONTINUOUS	ASTM C172; ASTM C31; ACI 318: 5.6, 5.8
7. INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	CONTINUOUS	ACI 318: 5.9, 5.10:
8. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	PERIODIC	ACI 318: 5.11-5.13
9. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	PERIODIC	ACI 318: 6.1.1
ADHESIVE ANCHORS:		
1. DURING PLACEMENT OF ADHESIVE ANCIORS EMBEDDED WITH ADHESIVE (AS SPECIFIED ON THE CONSTRUCTION DOCUMENTS) IN CONCRETE:		
a. SIZE AND EMBEDMENT OF ANCHORS.	CONTINUOUS	
b. ANCHORS INSTAIJID PER MANUFACTURERS RECOMMENDATIONS.	CONTINUOUS	

ELECTRICAL SYMBOLS

ONE LINE DIAGRAM	
	TRANSFORMER
	SWITCH, AIR INSULATED UNLESS NOTED OTHERWISE
	FUSED CUTOUT
	FUSE
	SURGE ARRESTER
600:5A	CURRENT TRANSFORMER; 3 INDICATES QUANTITY; 600:5A INDICATES PRIMARY/SECONDARY RATINGS
7E2:120V	POTENTIAL TRANSFORMER; 2 INDICATES QUANTITY; 13,200:120V INDICATES PRIMARY/SECONDARY RATINGS
	LIVE LINE INDICATOR
M	METER OR MOTOR OPERATOR
	GROUND
	DELTA -CONNECTED WINDING
	WYE-CONNECTED WINDING
	GROUNDED WYE-CONNECTED WINDING
	DEAD FRONT CABLE TERMINATION/CONNECTION
	PREPARED DEAD FRONT CONNECTION
	LIVE FRONT CABLE TERMINATION/CONNECTION
	PREPARED LIVE FRONT CONNECTION
A	ELECTRICAL EQUIPMENT TAG. IDENTIFIED ON EQUIPMENT SCHEDULE
1	RACEWAY TAG FOR MEDIUM VOLTAGE FEEDER; IDENTIFIED ON MEDIUM VOLTAGE RACEWAY SCHEDULE
	COLD SHRINK MEDIUM VOLTAGE SPLICE
	GROUNDED DELTA-CONNECTED WINDING
VFI	VACUUM FAULT INTERRUPTER

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Client:
Virgin Islands Water and Power Authority
U.S. Virgin Islands

Project Name:
Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

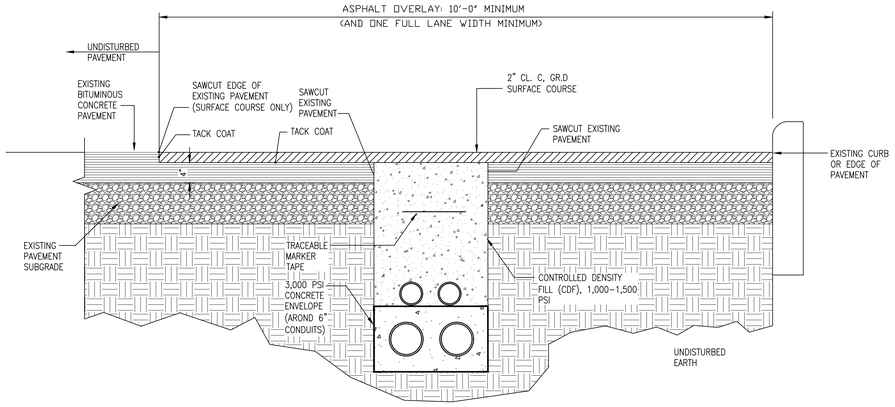
Issue / Revisions:

#	Date	Description
A	06/24/22	Issue for EHP Review
B	12/02/22	Issue for FEMA Review (75%)
C	04/21/23	Issue for 100% Review
D	06/07/23	Issue for CZM Application

Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:
GENERAL CONSTRUCTION NOTES & ABBREVIATIONS

Drawing Number:
STT-20131-9A-G-100

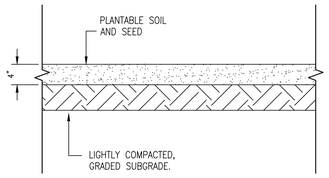


BITUMINOUS PAVEMENT RESTORATION DETAIL

SCALE: 1"=1'-0"

NOTES:

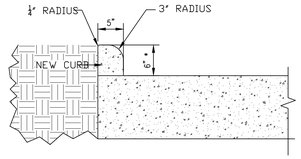
1. TACK COAT SHALL BE USED BETWEEN ALL ASPHALT LAYERS AT APPLICATION RATE OF 0.05 GAL./SY.
2. RE-STRIPE ALL PAVEMENT MARKINGS WITHIN OVERLAY WIDTH.
3. IF FORMS ARE REQUIRED DUE TO EXISTING SOIL CONDITIONS, THE EXTENT OF EXCAVATION SHALL BE WIDER THAN THE DUCT BANK.



LOAN & SEED DETAIL

NTS

NOTE:
1. LOAM SHALL BE FRIABLE TOPSOIL STRIPPED FROM ON-SITE.
2. LOAM SHALL BE FREE FROM REFUSE, STONES LARGER THAN 2 INCH AND ROOTS LARGER THAN 1 INCH.



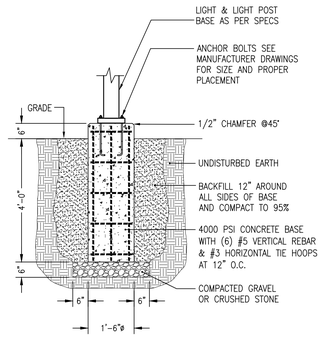
CONCRETE CURB REPLACEMENT

NTS

NOTE:
1. REPLACE CONCRETE CURB WITH A MINIMUM OF 48" SECTIONS.
2. CURB DIMENSIONS ARE INDICATED AS 5" WIDE AND 6" HIGH FOR REFERENCE. CONTRACTOR SHALL MATCH THE EXISTING CURB SIZE.

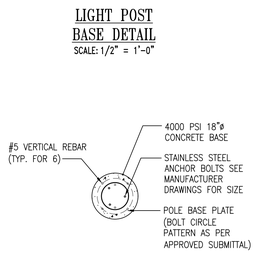
EXCAVATION AND ROAD RESTORATION NOTES

1. ALL UTILITIES MUST BE IDENTIFIED AND MARKED PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
2. ALL KNOWN UTILITY COMPANIES MUST BE CONTACTED, AND COORDINATED WITH, PRIOR TO COMMENCEMENT OF EXCAVATION WORK.
3. ALL DRAINAGE CROSSINGS MUST BE IDENTIFIED / COMFIRMED PRIOR TO EXCAVATION. KNOWN DRAINAGE LOCATIONS ARE INDICATED ON THE DRAWINGS.
4. BITUMINOUS PAVEMENT RESTORATIONS SHALL BE FULL LANE WIDTH, AND 10'-0" MINIMUM WIDTH.
5. CONTRACTOR SHALL ENSURE THAT THERE IS ADEQUATE SPACE BETWEEN CONDUITS AND TRENCH WALL SUCH THAT THE CONCRETE WILL COMPLETELY ENCASE THE CONDUIT WITHOUT ANY VOIDS. USE CONCRETE VIBRATORS AS REQUIRED.



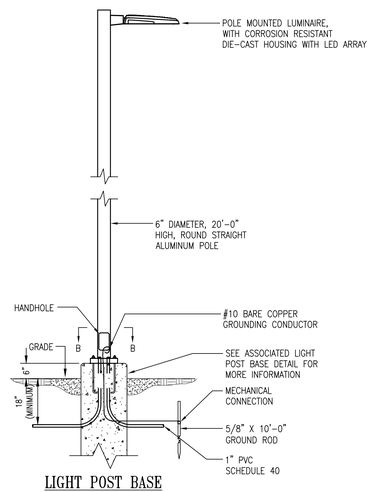
LIGHT POST BASE DETAIL

SCALE: 1/2" = 1'-0"



SECTION B-B

SCALE: 1/2" = 1'-0"



LIGHT POST BASE DETAIL "SL2"

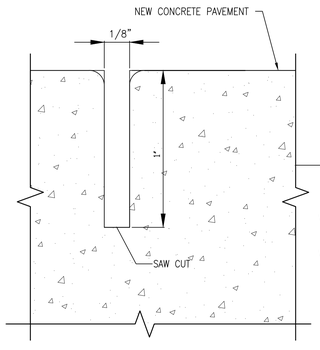
SCALE: 1/2" = 1'-0"

CONCRETE / ASPHALT ROADWAY REPLACEMENT DETAIL SECTION VIEW

SCALE: 1"=1'-0"

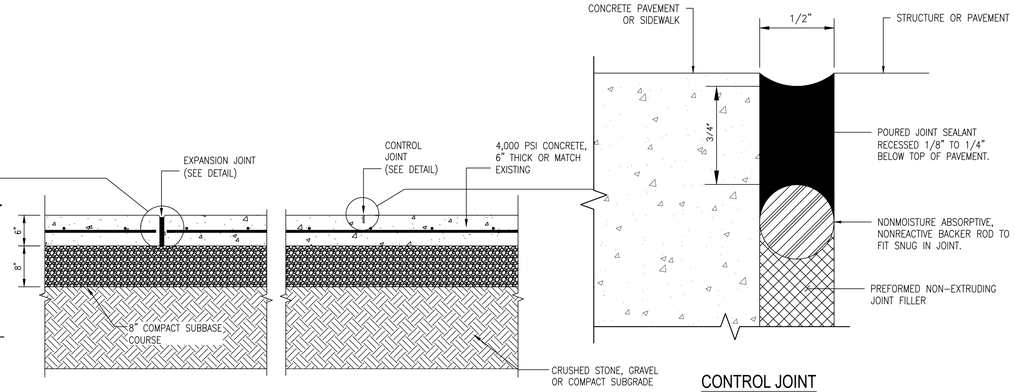
NOTE:

1. IF FORMS ARE REQUIRED DUE TO EXISTING SOIL CONDITIONS, THE EXTENT OF EXCAVATION SHALL BE WIDER THAN THE DUCT BANK.



EXPANSION JOINT

NTS



CONCRETE ROADWAY REPLACEMENT DETAIL LONGITUDINAL VIEW

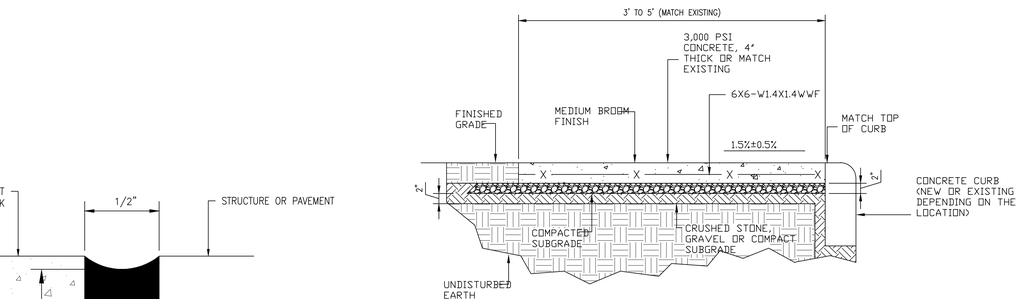
SCALE: 1"=1'-0"

NOTES:

1. PROVIDE CONTROL JOINTS AT 5' O.C. (6' MAX) UNLESS SHOWN OTHERWISE.
2. CONSTRUCT FULL-DEPTH EXPANSION JOINTS AT 25' O.C. (30' MAX).
3. JOINTS SHALL BE SAW CUT 4 TO 12 HOURS AFTER CONCRETE HAS BEEN FINISHED.

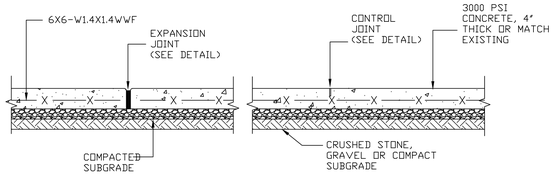
CONTROL JOINT

NTS



CONCRETE SIDEWALK REPLACEMENT DETAIL

SCALE: 1"=1'-0"

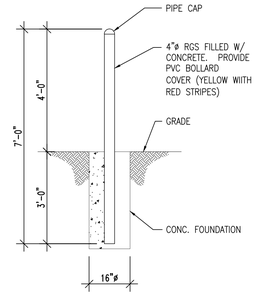


CONCRETE SIDEWALK REPLACEMENT DETAIL LONGITUDINAL VIEW

SCALE: 1"=1'-0"

NOTES:

1. PROVIDE CONTROL JOINTS AT 5' O.C. (6' MAX) UNLESS SHOWN OTHERWISE.
2. CONSTRUCT FULL-DEPTH EXPANSION JOINTS AT 25' O.C. (30' MAX).
3. JOINTS SHALL BE SAW CUT 4 TO 12 HOURS AFTER CONCRETE HAS BEEN FINISHED.



BOLLARD DETAIL

SCALE: 1/2"=1'-0"

Engineer:
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Chadds Ford, PA 19317
610.558.3464 office
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Engineering Excellence Since 1968

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Client:
Virgin Islands Water and Power Authority
U.S. Virgin Islands

Project Name:
Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/24/22	Issue for EHP Review
B	12/02/22	Issue for FEMA Review (75%)
C	04/21/23	Issue for 100% Review
D	06/07/23	Issue for CZM Application

Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:
GENERAL CONSTRUCTION DETAILS

Drawing Number:
STT-20131-9A-G-101

TYPICAL MANHOLE ACCESSORY BILL OF MATERIAL (PER MANHOLE)				
ITEM NUMBER	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	QTY. REQ. (PER MANHOLE)
1	UNDERGROUND DEVICES	FSRM-12	1/2"-13 DROP-IN ANCHOR MATERIAL: 18-8 STAINLESS STEEL	80
2	UNDERGROUND DEVICES	FFW316-18-40	FLAT WASHER I.D.=.562 O.D.=1.25, THK.=.078 MATERIAL: 316 STAINLESS STEEL	80
3	UNDERGROUND DEVICES	FHC316-16-044	1/2"-13 X 1 -3/8" LG. HEX HEAD CAP SCREW MATERIAL: 316 STAINLESS STEEL	80
4	UNDERGROUND DEVICES	CR36-B	36" LONG X 4" WIDE STANCHION MATERIAL: 50% GLASS REINFORCED NYLON	16
5	UNDERGROUND DEVICES	RA20	RA20 ARM (20" LONG) MATERIAL: 50% GLASS REINFORCED NYLON	32
6	UNDERGROUND DEVICES	HDL	HDL LOCK MATERIAL: POLYCARBONATE	32
NOT SHOWN	UNDERGROUND DEVICES	FRT-112	SETTING TOOL TO INSTALL DROP-IN ANCHORS	1

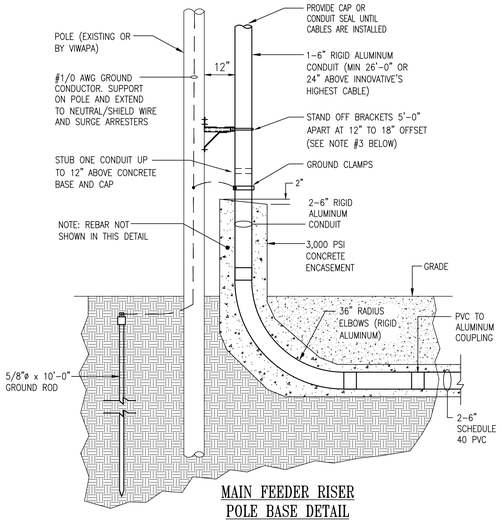
NOTES:

1. ALL MATERIAL LISTED ABOVE SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR.
2. ALL MATERIAL LISTED ABOVE SHALL BE AS SPECIFIED, OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR REVIEW AND APPROVAL.

TYPICAL HANDHOLE ACCESSORY BILL OF MATERIAL (PER HANDHOLE)				
ITEM NUMBER	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	QTY.
1	UNDERGROUND DEVICES	FSRM-12	1/2"-13 DROP-IN ANCHOR MATERIAL: 303 STAINLESS STEEL	12
2	UNDERGROUND DEVICES	FFW316-18-40	FLAT WASHER I.D.=.562 O.D.=1.250, THK.=.078 MATERIAL: 316 STAINLESS STEEL	12
3	UNDERGROUND DEVICES	FHC316-16-044	HEX HEAD CAP SCREW 1/2"-13 X 1-3/8" LG. MATERIAL: 316 STAINLESS STEEL	12
4	UNDERGROUND DEVICES	CR24-B	24"STANCHION MATERIAL: 50% GLASS FILLED NYLON	4
5	UNDERGROUND DEVICES	3HDS	3HDS SADDLE ARM MATERIAL: 50% GLASS FILLED NYLON	8

NOTES:

1. ALL MATERIAL LISTED ABOVE SHALL BE FURNISHED & INSTALLED BY THE CONTRACTOR.
2. ALL MATERIAL LISTED ABOVE SHALL BE AS SPECIFIED, OR APPROVED EQUAL. THE CONTRACTOR SHALL PROVIDE SUBMITTALS FOR REVIEW AND APPROVAL.

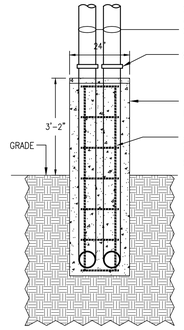


MAIN FEEDER RISER POLE BASE DETAIL (#750 KCMIL CABLE)

SCALE: NONE

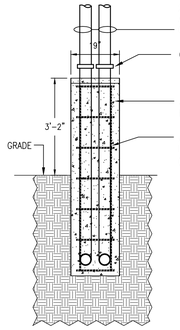
NOTES:

1. ASCENDING PVC CONDUIT SHALL BE INSTALLED PARALLEL TO THE STREET.
2. CONTRACTOR SHALL WRAP RIGID ALUMINUM CONDUIT THAT IS ENCASED IN CONCRETE WITH 2" WIDE ELECTRICAL TAPE, HALF LAPPED.
3. THE STANDOFF BRACKETS MUST BE MODIFIED FOR COMPOSITE POLES.



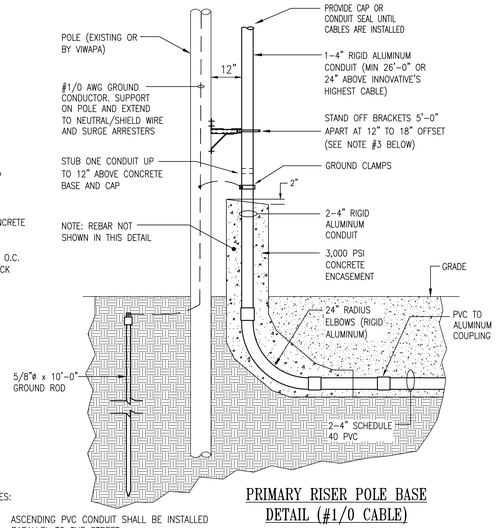
MAIN FEEDER RISER POLE BASE DETAIL - FRONT VIEW (#750 KCMIL CABLE)

SCALE: NONE



PRIMARY RISER POLE BASE DETAIL - FRONT VIEW (#1/0 CABLE)

SCALE: NONE

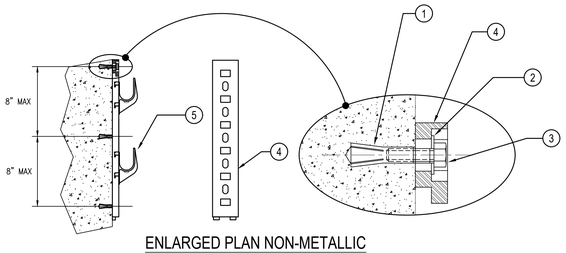


NOTES:

1. ASCENDING PVC CONDUIT SHALL BE INSTALLED PARALLEL TO THE STREET.
2. CONTRACTOR SHALL WRAP RIGID ALUMINUM CONDUIT THAT IS ENCASED IN CONCRETE WITH 2" WIDE ELECTRICAL TAPE, HALF LAPPED.
3. THE STANDOFF BRACKETS MUST BE MODIFIED FOR COMPOSITE POLES.

PRIMARY RISER POLE BASE DETAIL (#1/0 CABLE)

SCALE: NONE

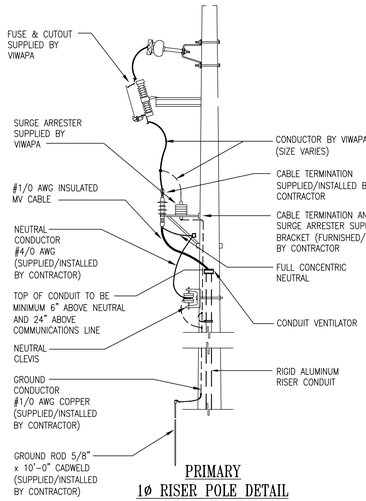


ENLARGED PLAN NON-METALLIC CABLE RACK - COMMUNICATIONS

SCALE: NONE

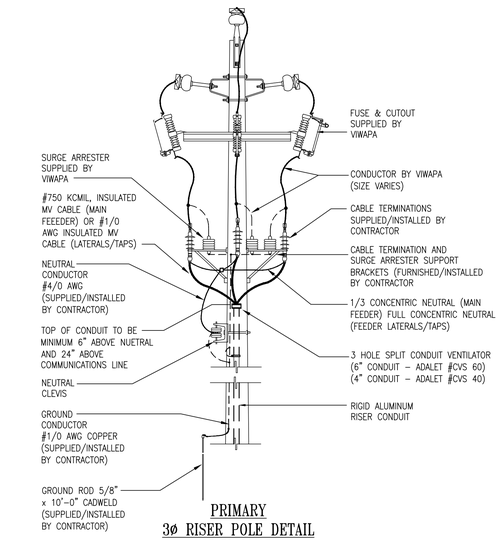
NOTE:

1. SEE HANDHOLE BILL OF MATERIALS SHEET E-100.



PRIMARY 1Ø RISER POLE DETAIL

NOT TO SCALE

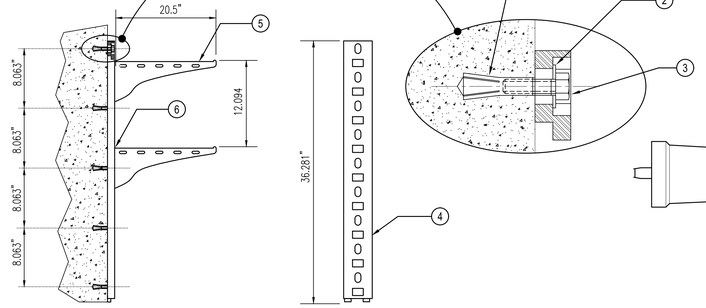


PRIMARY 3Ø RISER POLE DETAIL

NOT TO SCALE

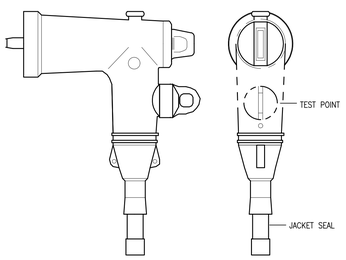
PRIMARY RISER POLE DETAIL NOTES:

1. CONTRACTOR TO RUN #1/0 AWG INSULATED COPPER GROUND CONDUCTOR TO SURGE ARRESTERS, AND TO METAL CONDUIT RISER, AND BOND TO SYSTEM NEUTRAL.
2. CONTRACTOR TO CONNECT MV CABLE CONCENTIRC NEUTRALS TO SYSTEM NEUTRAL WITH #4/0 AWG BARE COPPER CONDUCTOR.



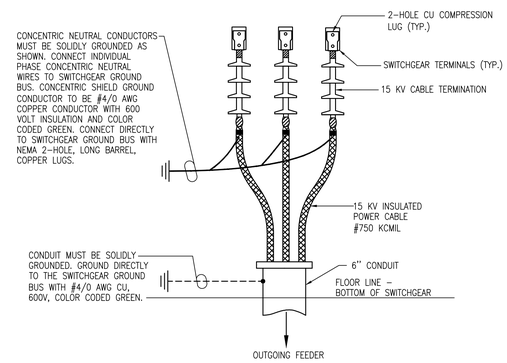
ENLARGED PLAN NON-METALLIC CABLE RACK

SCALE: NONE



15kV LOADBREAK ELBOW W/JACKET SEAL

SCALE: NO SCALE

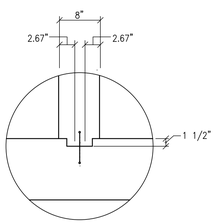


FEEDER TERMINATION DETAIL

SCALE: NO SCALE

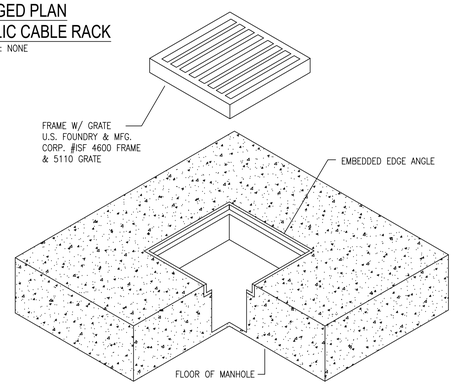
CABLE TERMINATION NOTES

1. USE 2-HOLE, LONG BARREL COPPER COMPRESSION LUGS FOR PHASE CONNECTIONS. ALL 15 KV CABLE TERMINATIONS AT SWITCHGEAR SHALL HAVE STRESS RELIEF TERMINATIONS APPLIED. PROPERLY GROUND ALL CONDUITS AND SHIELDS.
2. TAPE JOINTS AFTER CONNECTIONS ARE MADE UP. USE DUCT SEAL OR SUITABLE FILLER PADS AROUND BOLT HARDWARE PRIOR TO TAPING. USE SCOTCH 130C HIGH VOLTAGE TAPE. FOR 15 KV TERMINATIONS, APPLY A MINIMUM OF FOUR HALF-LAPPED LAYERS. APPLY ALL LAYERS WITH APPROXIMATELY 20% STRETCH. APPLY ONE LAYER OF HALF-LAPPED SCOTCH 33+ TAPE OVER FINAL LAYER OF SCOTCH 130C TAPE. STRETCH SCOTCH 33+ TO APPROXIMATELY 20%.
3. CONNECT CONCENTRIC CABLE SHIELDS TO GROUND USING #4/0 AWG CU CONDUCTOR WITH 600 VOLT INSULATION, COLOR CODED GREEN.
4. "MOP" REQUIRED FOR PULLING CABLE IN EXISTING SWITCHGEAR AND FOR TERMINATION OF CABLE AT EXISTING FEEDER BREAKER. "MOPS" MUST BE APPROVED TWO WEEKS PRIOR TO SHUTDOWN OF SWITCHGEAR BUS.



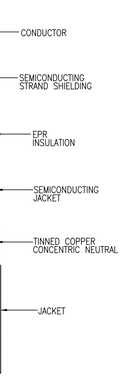
WATER STOP DETAIL

SCALE: "=1'-0"



SUMP DETAIL

NTS



CONCENTRIC NEUTRAL CABLE DETAIL

(PRIMARY CABLE IS FURNISHED BY VIWAPA)

SCALE: NO SCALE

Engineer:

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Client:

Virgin Islands Water and Power Authority U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/24/22	Issue for EHP Review
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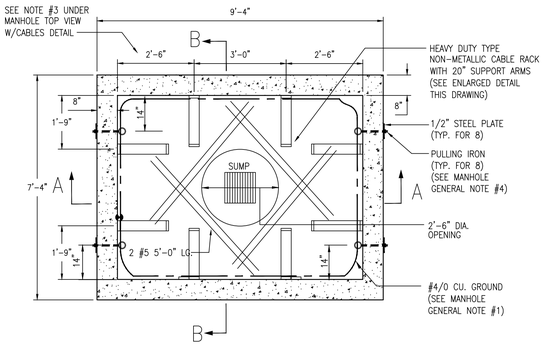
Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

ELECTRICAL DETAILS AND SCHEDULES

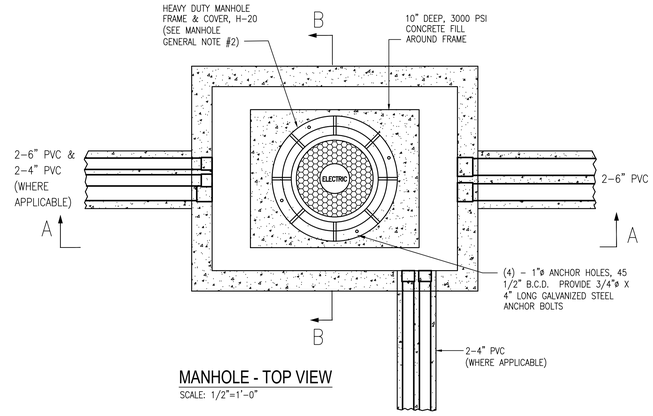
Drawing Number:

STT-20131-9A-E-100



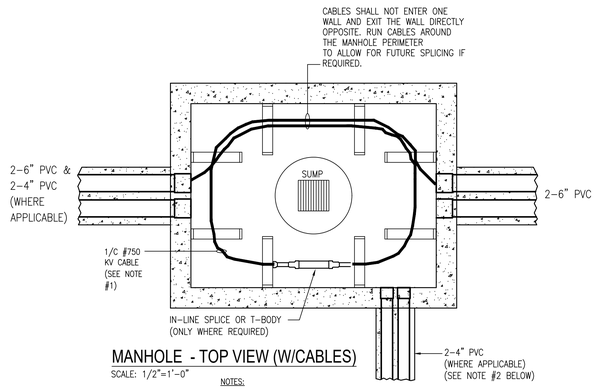
MANHOLE - TOP VIEW (COVER REMOVED) (ALONG GASVAERKS GADE)

SCALE: 1/2"=1'-0"



MANHOLE - TOP VIEW

SCALE: 1/2"=1'-0"

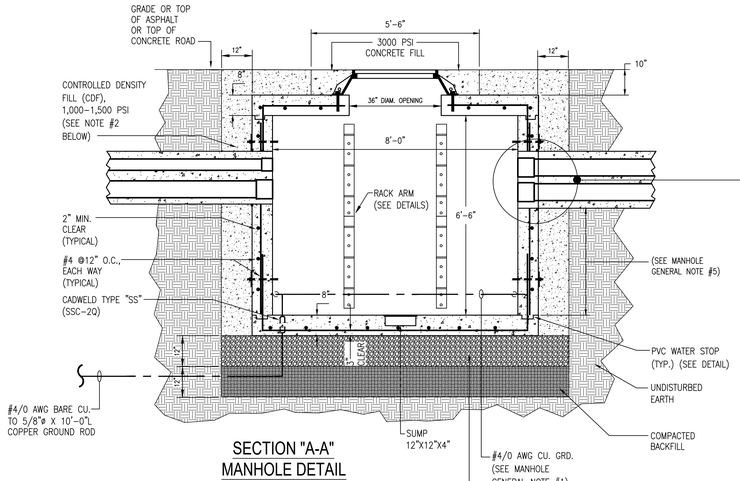


MANHOLE - TOP VIEW (W/CABLES)

SCALE: 1/2"=1'-0"

NOTES:

1. CABLE SHOWN IS 1/C #750 KCMIL – XX KV UNLESS OTHERWISE NOTED. ONLY ONE CABLE IS SHOWN FOR CLARITY.
2. #1/0 CABLE (WHERE APPLICABLE) IS NOT SHOWN.
3. THE CABLE SPLICER IS RESPONSIBLE TO LOCATE ALL OF THE STANCHIONS IN THE MANHOLE IN THE MOST PRACTICAL LOCATIONS IN ORDER TO PROPERLY COORDINATE WITH THE LOCATIONS OF THE DUCT BANK ENTRANCES. IN MANHOLES WITH LIMITED DUCT BANK ENTRANCES, THE DIMENSIONS INDICATED ON THE DRAWINGS SHALL BE ADHERED TO.

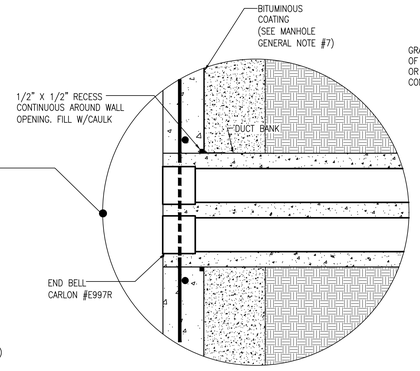


SECTION "A-A" MANHOLE DETAIL

SCALE: 1/2"=1'-0"

NOTES:

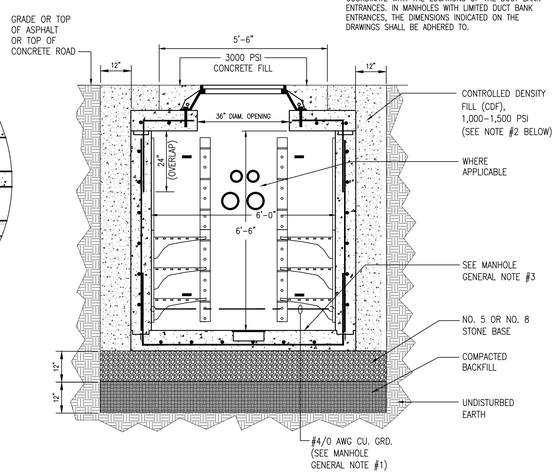
1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.



DUCT BANK TO MANHOLE INTERFACE DETAIL

NTS

(TYPICAL AT DUCT BANK ENTRANCE)



CROSS SECTION "B-B" MANHOLE DETAIL

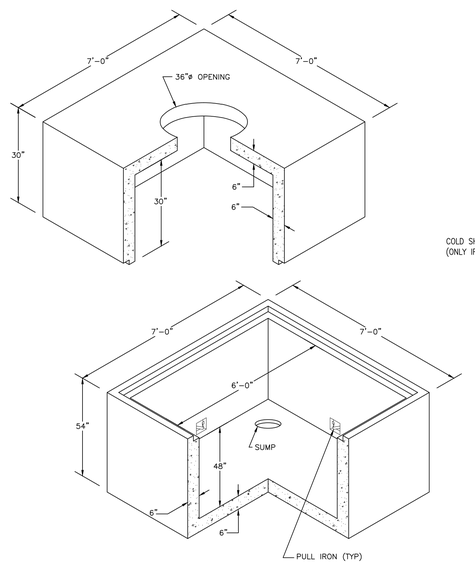
SCALE: 1/2"=1'-0"

NOTES:

1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.

MANHOLE GENERAL NOTES

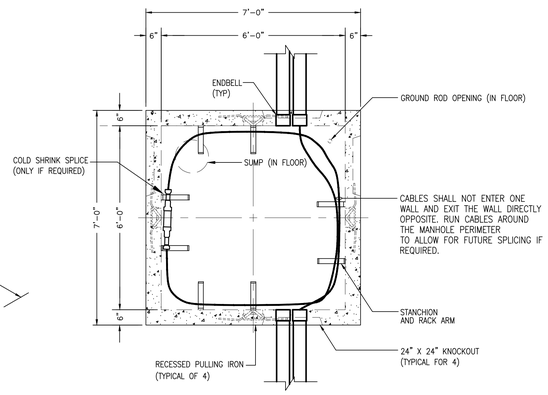
1. #4/0 AWG COPPER GROUND RING AROUND ENTIRE INTERIOR. STRAP @ 2 FT. INTERVALS.
2. MANHOLE FRAME & COVER TO BE HEAVY DUTY TYPE FOR H-20 HIGHWAY LOADING, MARKED "ELECTRIC", U.S. FOUNDRY & MFG. CORP. #USF 648 RING & 'Y' COVER, OR APPROVED EQUAL
3. SLOPE MANHOLE FLOORS 1/8" PER FOOT TO SUMP.
4. PULLING IRONS TO BE 3/4"ø STAINLESS STEEL EYE BOLTS, LENGTH AS REQUIRED, THROUGH BOLTED, WITH 1/2" THICK STEEL PLATE & STAINLESS STEEL HARDWARE, OR AS OTHERWISE APPROVED.
5. CONDUIT LOCATIONS ENTERING MANHOLE SHALL BE ADJUSTED FOR EACH MANHOLE AS REQUIRED TO COORDINATE WITH DUCT BANK ELEVATIONS..
6. EXCAVATION SHALL PROCEED WITH EXTREME CARE TO PREVENT ANY DAMAGE TO ANY UNDERGROUND UTILITY LINES OR OTHER UNDERGROUND ITEMS NOT SHOWN ON DRAWINGS. EXCAVATION IN CAUTION AREAS SHALL BE PERFORMED BY HAND.
7. ALL EXTERIOR SURFACES OF MANHOLES TO BE SEALED WITH TWO COATS OF WATERPROOFING TREATMENT. CONTRACTOR SHALL SUBMIT PRODUCT FOR APPROVAL.
8. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
9. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
10. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS SHOWN ON THE DRAWINGS.
11. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE AND ALL FORMWORK IS INSPECTED AND APPROVED BY VIWAPA.
12. MANHOLES ARE DETAILED AS CAST-IN-PLACE. PRE-CAST MANHOLES ARE ALSO ACCEPTABLE WITH APPROVED SUBMITTAL.
13. ALL CONCRETE MUST INCLUDE A CORROSION-INHIBITING ADMIXTURE. CONTRACTOR MUST SUBMIT MIX DESIGN FOR APPROVAL.
14. SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:
    - MANHOLE FRAME & COVER
    - PULLING IRONS
    - MANHOLE SUMP FRAME & GRATING
    - MANHOLE STANCHIONS, RACK ARMS AND ACCESSORIES
    - END BELLS
    - WATERPROOFING TREATMENT
    - CYLINDER BREAK
    - CONCRETE DESIGN MIX
    - MANHOLE SECTIONS, PLAN VIEW & ISOMETRIC IF PRE-CAST MANHOLES ARE USED.



ISOMETRIC VIEW-ELECTRIC MANHOLE (ALONG SUBBASE ROAD)

NTS

OLDCASTLE PRECAST MODEL #MH-660-EL OR EQUAL

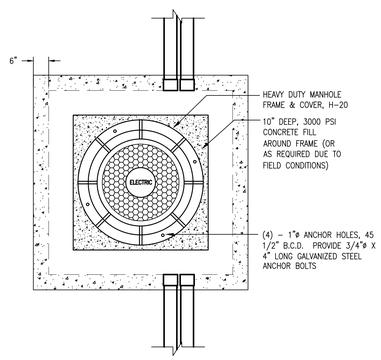


ELECTRIC MANHOLE (ALONMG SUBBASE ROAD) PLAN VIEW - STRAIGHT PULL TOP REMOVED

SCALE: 1/2" = 1'-0"

NOTES:

1. CABLE SHOWN IS 1/C #1/0 AWG – 15KV UNLESS OTHERWISE NOTED. ONLY ONE CABLE IS SHOWN FOR CLARITY.
2. 1.QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND WILL VARY WITH EACH MANHOLE.
3. SEE MANHOLE DETAILS & BILL OF MATERIALS DRAWING..

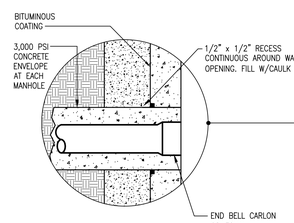


ELECTRIC MANHOLE TOP VIEW - STRAIGHT PULL

NTS

NOTES:

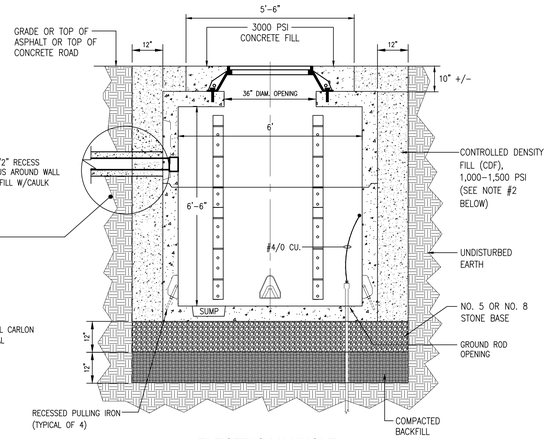
1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND WILL VARY WITH EACH MANHOLE.



DUCT BANK TO MANHOLE INTERFACE DETAIL

NTS

TYPICAL AT DUCT BANK ENTRANCE TO ALL NEW MANHOLES



ELECTRIC MANHOLE SECTION

SCALE: 1/2" = 1'-0"

NOTES:

1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND WILL VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.

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Client:

Virgin Islands Water and Power Authority U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

Issue / Revisions:

#	Date	Description
A	06/24/22	Issue for EHP Review
B	12/02/22	Issue for FEMA Review (75%)
C	04/21/23	Issue for 100% Review
D	06/07/23	Issue for CZM Application

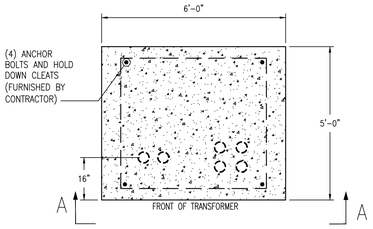
Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

STANDARD MANHOLE DETAILS

Drawing Number:

STT-20131-9A-E-101

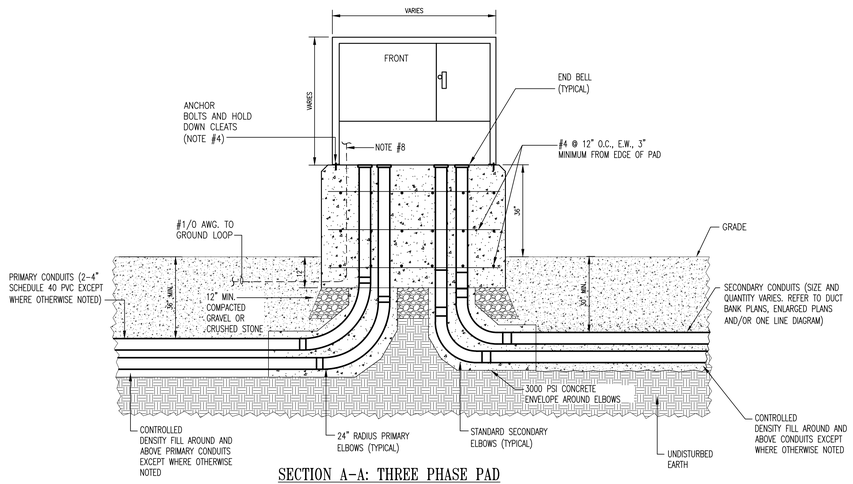


3Ø TRANSFORMER PAD: PLAN VIEW

SCALE: ½" = 1'-0"

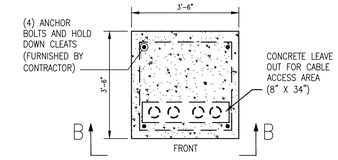
NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT TRANSFORMER TO CONCRETE PAD WITH 'HOLD DOWN' CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND I INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL PRIMARY AND SECONDARY CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. TRANSFORMER SECONDARY LUGS SHALL BE COMPRESSION TYPE AND SHALL BE FURNISHED BY THE CONTRACTOR.
8. CONNECT #1/0 BARE COPPER WIRE TO XO OF TRANSFORMER & TO CONCENTRIC NEUTRAL CABLES.



SECTION A-A: THREE PHASE PAD MOUNTED TRANSFORMER

SCALE: ½" = 1'-0"

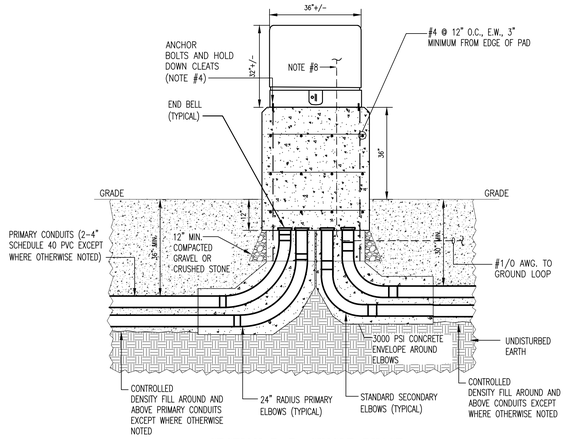


SINGLE PHASE TRANSFORMER POURED PAD PLAN VIEW

SCALE: ½" = 1'-0"

NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT TRANSFORMER TO CONCRETE PAD WITH 'HOLD DOWN' CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL PRIMARY AND SECONDARY CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. TRANSFORMER SCONDARY LUGS SHALL BE COMPRESSION TYPE AND SHALL BE FURNISHED BY THE CONTRACTOR.
8. CONNECT #1/0 BARE COPPER WIRE TO HO & XO OF TRANSFORMER & TO CONCENTRIC NEUTRAL CABLES.

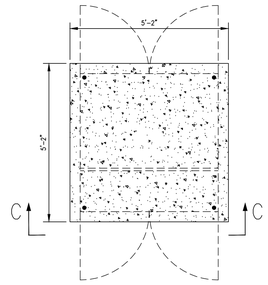


SECTION B-B: SINGLE PHASE PAD MOUNTED TRANSFORMER

SCALE: ½" = 1'-0"

CONCRETE PAD NOTES

1. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
2. CONTRACTOR SHALL VERIFY SUB-SURFACE CONDITIONS BEFORE ANY FOUNDATIONS ARE PLACED. ASSUMED SOIL BEARING CAPACITY 3000 P.S.F.
3. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
4. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS INDICATED ON THE DRAWINGS (AFTER CONFIRMING DIMENSIONS WITH MANUFACTURERS APPROVED EQUIPMENT SUBMITTALS.
5. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE.
6. ALL CONCRETE TO DEVELOP 3500 P.S.I. IN 28 DAYS.
7. ALL DETAILING, FABRICATION & PLACEMENT OF REINFORCING BARS SHALL FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES A.C.I. 315. HIGH CHAIRS WILL BE REQUIRED UNDER ALL TOP REINFORCING.
8. REINFORCING BARS TO BE GRADE 60 DEFORMED NEW BILLET STEEL MEETING ASTM SPECS A-615 AND HAVING DEFORMATION MEETING ASTM A-305.
9. PROVIDE 3/4" CHAMFER ON EXPOSED EDGES OF ALL CONCRETE PADS.
10. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR CONCRETE MIX DESIGN FOR REVIEW AND APPROVAL.
11. FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28 DAY COMPRESSIVE STRENGTH.
12. THE FINISH TOLERANCE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 301, TYPE A.

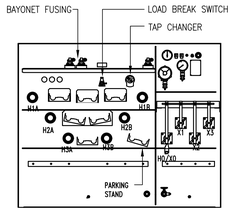


PRIMARY METERING CABINET POURED PAD PLAN VIEW

SCALE: ½" = 1'-0"

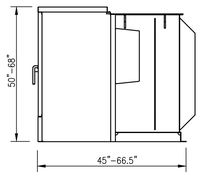
NOTES:

1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT PRIMARY METERING SWITCHGEAR TO CONCRETE PAD WITH ANCHOR BOLTS AND 'HOLD DOWN' CLEATS, OR STAINLESS STEEL HARDWARE, IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY METERING CABINET DIMENSIONS WITH APPROVED SUBMITTALS FROM SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. CONNECT #1/0 BARE COPPER WIRE TO SWITCHGEAR GROUND PAD & TO CONCENTRIC NEUTRAL CABLES.



TYPICAL THREE PHASE TRANSFORMER FRONT ELEVATION (COVER REMOVED)

SCALE: NO SCALE

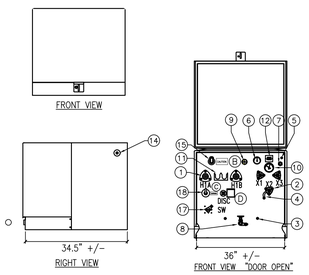


THREE PHASE TRANSFORMER SIDE ELEVATION

SCALE: NO SCALE

NOTES:

1. PAD NOT SHOWN.
2. DIMENSIONS ARE SHOWN FOR REFERENCE ONLY AND CANNOT BE VERIFIED UNTIL TRANSFORMER APPROVED SUBMITTALS ARE RECEIVED.



1. 200 AMP HV LOAD-BREAK ONE PIECE BUSHINGS
2. LV BUSHING 1" STUD WITH SPADE 4-HOLE (AL)
3. GROUND PAD
4. LV GROUND STRAP
5. PRESSURE RELIEF VALVE
6. PRESSURE-VACUUM GAUGE
7. OIL FILL
8. OIL DRAIN WITH SAMPLING DEVICE
9. OIL LEVEL GAUGE
10. THERMOMETER WITHOUT ALARM CONTACT GAUGE
11. HV STANDOFF BRACKET (SS)
12. NAMEPLATE
13. PENTHEAD DOOR BOLT (SS)
14. .625" -11 LIFTING BOSS PROVISION (SS)
15. BAYONET FUSE IN SERIES WITH CURRENT LIMITING FUSES
16. NOT USED
17. FOUR POSITION T-BLADE SWITCH
18. TAP CHANGER W/ HANDLE

B - BAYONET OPERATION CAUTION DECAL
C - TC WARNING DECAL
D - DISCONNECT CAUTION DECAL

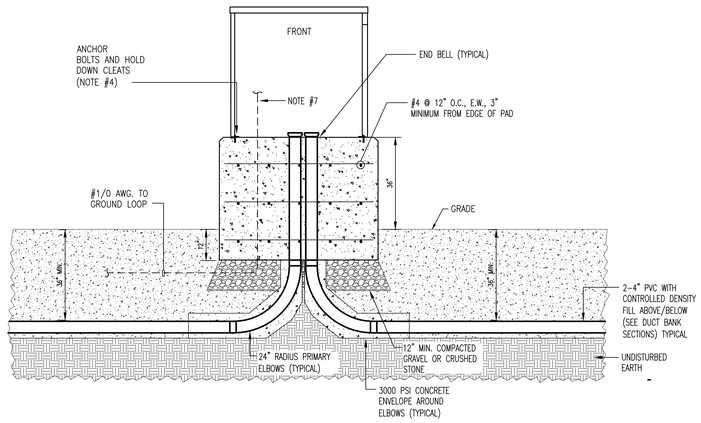
KVA - SEE SCHEDULE
HV - 13,200GY/7620
LV - 240/120
FLUID TYPE - EDIBLE SEED OIL

TYPICAL SINGLE PHASE TRANSFORMER

SCALE: NO SCALE

NOTES:

1. THIS DETAIL IS FOR REFERENCE ONLY AND WILL CHANGE BASED ON TRANSFORMER KVA RATING, FINAL OPTIONS SELECTED AND MANUFACTURER.
2. CONTRACTOR MUST REFER TO THE APPROVED TRANSFORMER SUBMITTALS FOR ACTUAL DETAILS PRIOR TO PURCHASING BOX PADS.
3. DIMENSIONS INDICATED MUST NOT BE CONSIDERED ACCURATE. REFER TO APPROVED SUBMITTALS FOR ACTUAL DIMENSIONS.



SECTION C-C: PRIMARY METERING CABINET PAD DETAIL

SCALE: ½" = 1'-0"

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Client:

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Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

Issue / Revisions:

#	Date	Description
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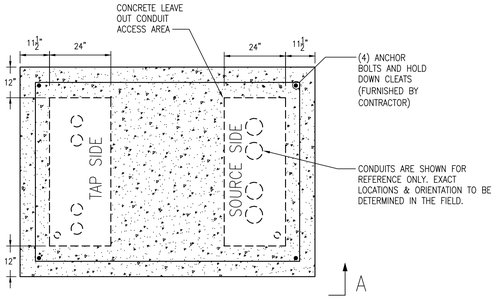
Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

TRANSFORMER DETAILS

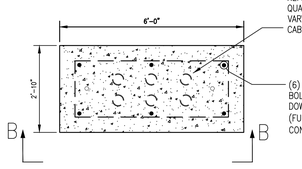
Drawing Number:

STT-20131-9A-E-102



4 WAY PAD MOUNTED SWITCHGEAR: PLAN VIEW

SCALE: ½" = 1'-0"



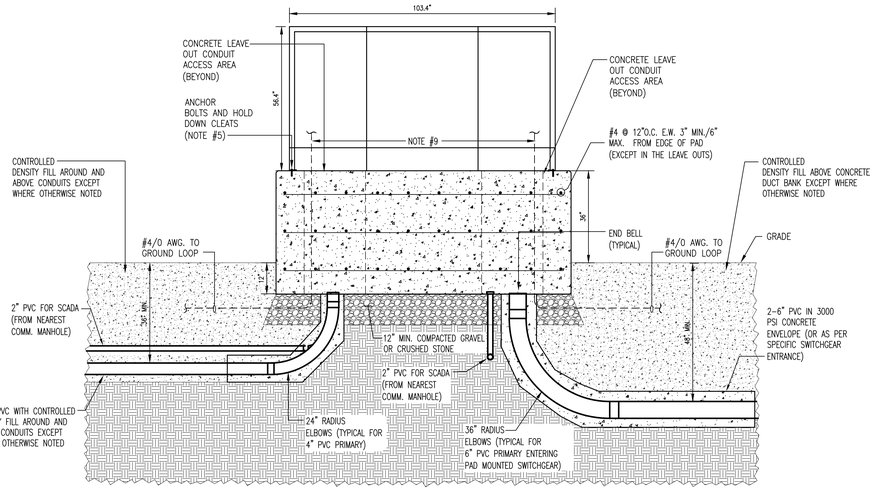
SECTIONALIZING CABINET - PLAN VIEW

SCALE: ½" = 1'-0"

NOTES:
1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
4. BOLT SECTIONALIZING CABINETS TO CONCRETE PAD WITH ANCHOR BOLTS AND 'HOLD DOWN' CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
5. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND INSTALLING CONDUITS AND POURING CONCRETE.
6. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
7. PRIMARY ELBOWS ARE FURNISHED BY VIWAPA.
8. CONNECT #1/0 BARE COPPER WIRE TO GROUND BAR/BUS & TO CONCENTRIC NEUTRAL CABLES. NOTE: INSTALL #4/0 AWG FOR SECTIONALIZING CABINET USED FOR #750 KCMIL CABLE.

CONCRETE PAD NOTES

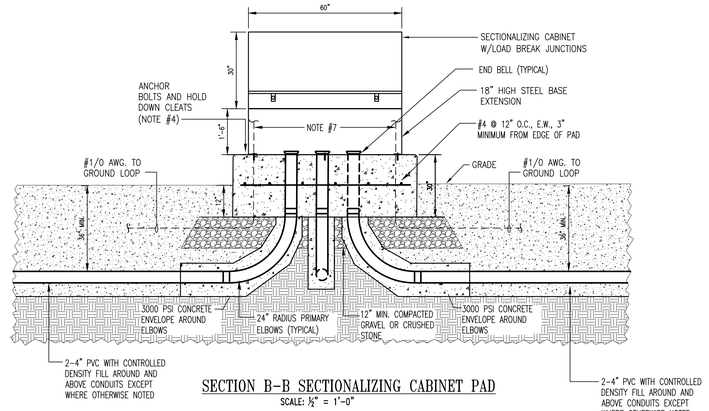
1. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
2. CONTRACTOR SHALL VERIFY SUB-SURFACE CONDITIONS BEFORE ANY FOUNDATIONS ARE PLACED. ASSUMED SOIL BEARING CAPACITY 3000 P.S.F.
3. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
4. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS INDICATED ON THE DRAWINGS (AFTER CONFIRMING DIMENSIONS WITH MANUFACTURERS APPROVED EQUIPMENT SUBMITTALS.
5. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE.
6. ALL CONCRETE TO DEVELOP 3500 P.S.I. IN 28 DAYS.
7. ALL DETAILING, FABRICATION & PLACEMENT OF REINFORCING BARS SHALL FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES A.C.I. 315. HIGH CHAIRS WILL BE REQUIRED UNDER ALL TOP REINFORCING.
8. REINFORCING BARS TO BE GRADE 60 DEFORMED NEW BILLET STEEL MEETING ASTM SPECS A-615 AND HAVING DEFORMATION MEETING ASTM A-305.
9. PROVIDE 3/4" CHAMFER ON EXPOSED EDGES OF ALL CONCRETE PADS.
10. CONTRACTOR SHALL PROVIDE SUBMITTALS FOR CONCRETE MIX DESIGN FOR REVIEW AND APPROVAL.
11. FORMWORK SHALL REMAIN IN PLACE UNTIL CONCRETE HAS OBTAINED AT LEAST 90% OF ITS 28 DAY COMPRESSIVE STRENGTH.
12. THE FINISH TOLERANCE OF ALL SLABS SHALL BE IN ACCORDANCE WITH ACI 301, TYPE A.



SECTION A-A: PAD MOUNTED SWITCHGEAR

SCALE: ½" = 1'-0"

NOTES:
1. TAMP DIRT BEFORE POURING CONCRETE.
2. CHAMFER ALL EDGES OF EXPOSED CONCRETE.
3. DO NOT POUR CONCRETE IN CABLE ACCESS AREA.
4. PROVIDE END CAPS FOR ALL SPARE CONDUITS.
5. BOLT SWITCHGEAR TO CONCRETE PAD WITH 'HOLD DOWN' CLEATS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
6. VERIFY EQUIPMENT DIMENSIONS WITH APPROVED EQUIPMENT SUBMITTALS FROM EQUIPMENT SUPPLIER PRIOR TO FORMING PAD, PLACING REBAR AND I INSTALLING CONDUITS AND POURING CONCRETE.
7. ALL CONDUITS SHALL BE SEALED WITH "DUCT SEAL" OR "SPRAY FOAM" AFTER CABLES ARE PULLED AND TERMINATED.
8. CONNECT #4/0 BARE COPPER WIRE TO SWITCHGEAR GROUND & TO CONCENTRIC NEUTRAL CABLES.



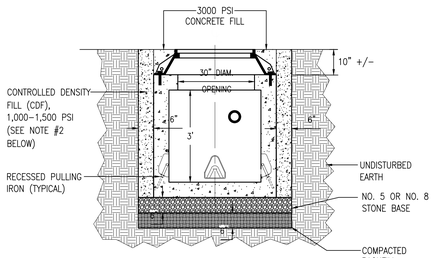
SECTION B-B SECTIONALIZING CABINET PAD

SCALE: ½" = 1'-0"

NOTE: THIS DETAIL INDICATES A SECTIONALIZING THAT IS UTILIZED FOR #1/0 CABLE (LATERALS) AND 4" PVC CONDUITS. ADJUST AS REQUIRED FOR #750 KCMIL CABLES AND 6" PVC CONDUITS.

COMMUNICATIONS HANDHOLE GENERAL NOTES

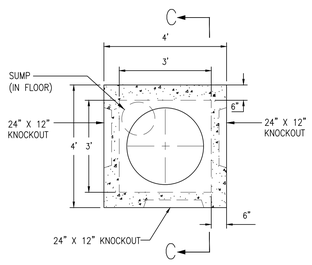
1. HANDHOLE FRAME & COVER TO BE HEAVY DUTY TYPE FOR H-20 HIGHWAY LOADING, MARKED "COMMUNICATIONS", U.S. FOUNDRY & MFG. CORP. #USF 648 RING & Y COVER, OR APPROVED EQUAL
2. CONDUIT LOCATIONS ENTERING HANDHOLES SHALL BE ADJUSTED FOR EACH HANDHOLE AS REQUIRED TO COORDINATE WITH DUCT BANK ELEVATIONS.
3. EXCAVATION SHALL PROCEED WITH EXTREME CARE TO PREVENT ANY DAMAGE TO ANY UNDERGROUND UTILITY LINES OR OTHER UNDERGROUND ITEMS NOT SHOWN ON DRAWINGS. EXCAVATION IN CAUTION AREAS SHALL BE PERFORMED BY HAND.
4. ALL EXTERIOR SURFACES OF HANDHOLES TO BE SEALED WITH TWO COATS OF WATERPROOFING TREATMENT. CONTRACTOR SHALL SUBMIT PRODUCT FOR APPROVAL.
5. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK.
6. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318-) WILL BE APPLICABLE UNLESS NOTED.
7. ALL CONCRETE SHALL BE POURED IN FORMS CONFORMING TO THE DIMENSIONS SHOWN ON THE DRAWINGS.
8. NO CONCRETE SHALL BE POURED UNTIL ALL REINFORCING STEEL IS IN PLACE AND ALL FORMWORK IS INSPECTED AND APPROVED BY VIWAPA.
9. HANDHOLES ARE DETAILED AS PRE-CAST. CAST IN PLACE HANDHOLES ARE ALSO ACCEPTABLE WITH APPROVED SUBMITTAL.
10. ALL CONCRETE MUST INCLUDE A CORROSION-INHIBITING ADMIXTURE. CONTRACTOR MUST SUBMIT MIX DESIGN FOR APPROVAL.
11. SUBMITTALS ARE REQUIRED FOR THE FOLLOWING:
    - HANDHOLE FRAME & COVER
    - PULLING IRONS
    - HANDHOLE SUMP FRAME & GRATING
    - END BELLS
    - WATERPROOFING TREATMENT
    - CYLINDER BREAK (FOR CAST IN PLACE HANDHOLES)
    - CONCRETE DESIGN MIX (FOR CAST IN PLACE HANDHOLES)
    - HANDHOLE SECTIONS, PLAN VIEW & ISOMETRIC VIEWS.



COMMUNICATIONS HANDHOLE SECTION C-C

SCALE: 1/2" = 1'-0"

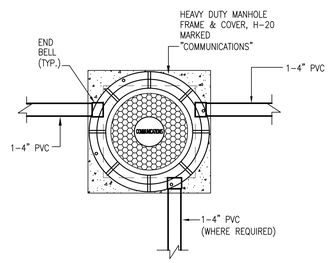
NOTES:
1. QTY. AND ORIENTATION OF CONDUITS ARE SHOWN FOR REFERENCE ONLY AND MAY VARY WITH EACH MANHOLE.
2. OVEREXCAVATE BY 12" ON ALL SIDES OF MANHOLE (WHERE POSSIBLE) TO ACCOMMODATE CONTROLLED DENSITY FILL.
3. IN LIEU OF CONTROLLED DENSITY FILL, CONTRACTOR MAY USE APPROVED BACKFILL COMPACTED IN 12" LIFTS AROUND THE PERIMETER OF THE MANHOLE.



TYPICAL COMMUNICATIONS HANDHOLE PLAN VIEW

SCALE: 1/2" = 1'-0"

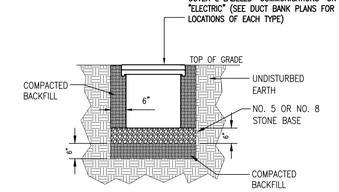
NOTE: PROVIDE PULLING IRONS AS REQUIRED (NOT SHOWN)



COMMUNICATIONS HANDHOLE TOP VIEW

NTS

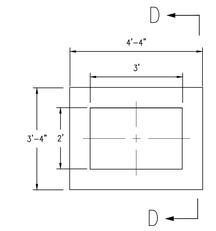
1.3"X24" POLYMER CONCRETE HANDHOLE, UL LISTED, WITH OPEN BOTTOM & TIER 22 BOLTED COVER L LABELED "COMMUNICATIONS" OR "ELECTRIC" (SEE DUCT BANK PLANS FOR LOCATIONS OF EACH TYPE)



POLYMER HANDHOLE INSTALLATION DETAIL

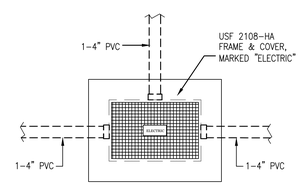
SCALE: NONE

NOTE: DO NOT LOCATE HANDHOLES DIRECTLY IN THE MAIN ROADWAY. THE BOXES AND COVERS ARE RATED FOR OFF-ROADWAY APPLICATIONS SUBJECT TO OCCASIONAL NON-DELIBERATE HEAVY VEHICLE TRAFFIC (ANSI/SCTE 77 TIER 22 RATING)



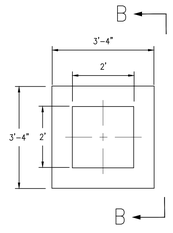
TYPICAL ELECTRIC PRIMARY HANDHOLE PLAN VIEW

SCALE: 1/2" = 1'-0"



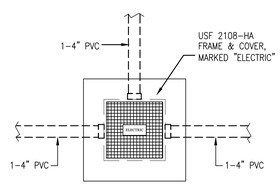
ELECTRIC PRIMARY HANDHOLE TOP VIEW

NTS



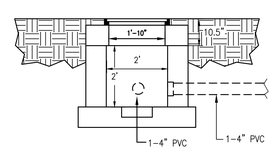
TYPICAL ELECTRIC SECONDARY HANDHOLE PLAN VIEW

SCALE: 1/2" = 1'-0"



ELECTRIC SECONDARY HANDHOLE TOP VIEW

NTS



ELECTRIC HANDHOLE SECTION D-D

SCALE: 1/2" = 1'-0"

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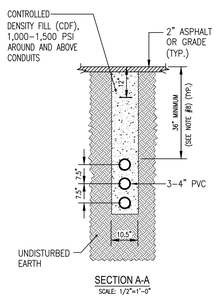
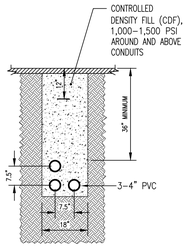
Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:
SWITCHGEAR / SECTIONALIZING CABINET PAD DETAILS & HANDHOLE DETAILS

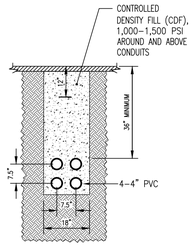
Drawing Number:
STT-20131-9A-E-103



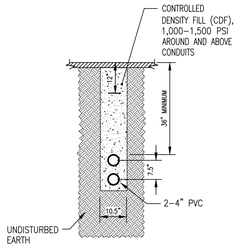
SECTION A-A
SCALE: 1/2"=1'-0"



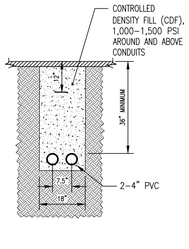
SECTION A-A (ALT)
SCALE: 1/2"=1'-0"



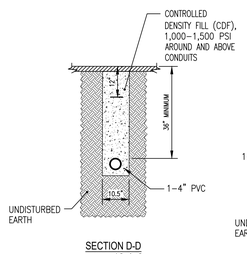
SECTION B-B
SCALE: 1/2"=1'-0"



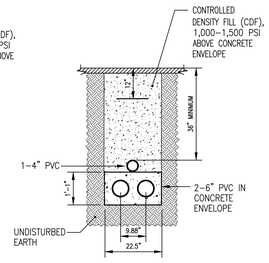
SECTION C-C
SCALE: 1/2"=1'-0"



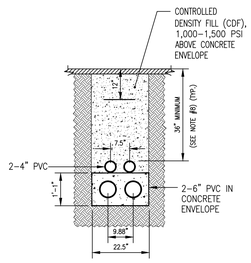
SECTION C-C (ALT)
SCALE: 1/2"=1'-0"



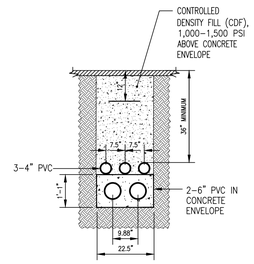
SECTION D-D
SCALE: 1/2"=1'-0"



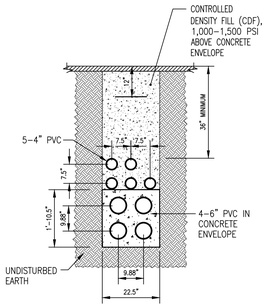
SECTION E-E
SCALE: 1/2"=1'-0"



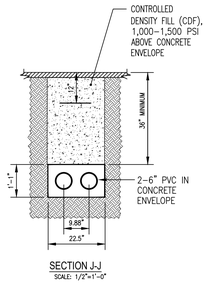
SECTION F-F
SCALE: 1/2"=1'-0"



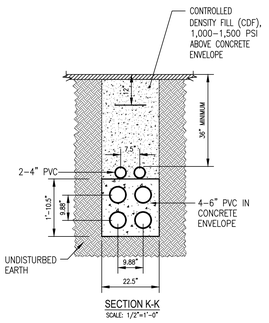
SECTION G-G
SCALE: 1/2"=1'-0"



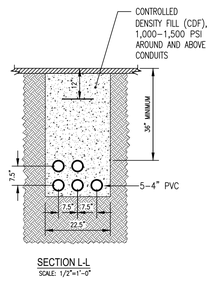
SECTION H-H
SCALE: 1/2"=1'-0"



SECTION J-J
SCALE: 1/2"=1'-0"



SECTION K-K
SCALE: 1/2"=1'-0"



SECTION L-L
SCALE: 1/2"=1'-0"

DUCT BANK NOTES

1. CONTRACTOR TO VERIFY ALL CONDITIONS AND DIMENSIONS BEFORE STARTING WORK. THE CONTRACTOR IS RESPONSIBLE TO CALL ALL UTILITIES BEFORE THEY DIG, AND PROVIDE WRITTEN DOCUMENTATION OF UTILITY CORRESPONDENCE.
2. UNDERGROUND DUCTS SHALL CLEAR ALL EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR IS RESPONSIBLE TO UTILIZE GROUND PENETRATING RADAR EQUIPMENT TO LOCATE ALL EXISTING UTILITIES IN THE VICINITY OF NEW DUCT BANKS, MANHOLES AND HANDHOLES.
3. PROVIDE TRACEABLE UNDERGROUND HAZARD TAPE, 6" WIDE CONTINUOUS BLACK WITH YELLOW BACKGROUND TO READ 'CAUTION–CAUTION–CAUTION ELECTRIC LINE BURIED BELOW.' TYPICAL FOR ALL NEW DUCT BANK RUNS AND AS SHOWN ON DRAWINGS.
4. THE ENTIRE PATH OF THE PROPOSED DUCT BANK ROUTING SHALL BE MARKED OUT "WITH RED PAINT", ALONG THE STREETS. THE CONTRACTOR SHALL INCLUDE STATION NUMBERS AT EVERY 50'–0".
5. PROVIDE HIGH IMPACT SPACES AT 5 FOOT INTERVALS (CARLON OR EQUAL). TYPICAL FOR ALL CONDUITS IN DUCT BANKS.
6. IF EXCAVATED TRENCH WALLS ARE SUITABLE TO ACCOMMODATE THE TRENCH MATERIAL (SAND, COMPACT SUBGRADE, TAMPED BACKFILL, ETC.) THAN FORMS SHALL NOT BE REQUIRED. THE CONTRACTOR SHALL UTILIZE FORMS WHERE THE TRENCH WALLS ARE UNSTABLE.
7. ALL PVC SHALL BE SCHEDULE 40 UNLESS OTHERWISE NOTED.
8. CONDUITS CONTAINING PRIMARY CABLE SHALL BE LOCATED A MINIMUM OF 36" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE. CONDUITS CONTAINING SECONDARY OR COMMUNICATION CABLES SHALL BE LOCATED A MINIMUM OF 30" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE. CONCRETE ENVELOPE CONTAINING PRIMARY CONDUITS SHALL BE LOCATED A MINIMUM OF 36" BELOW FINISHED GRADE UNLESS NOTED OTHERWISE.

ADDITIONAL NOTES FOR CONCRETE DUCT BANKS

A. FOR ALL CONCRETE WORK A.C.I. STANDARD BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (A.C.I. 318–) WILL BE APPLICABLE UNLESS NOTED.

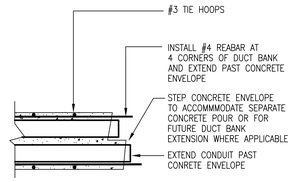
B. IF EXCAVATED TRENCH WALLS ARE SUITABLE FOR A CLEAN CONCRETE POUR, FORMS SHALL NOT BE REQUIRED. THE CONTRACTOR SHALL UTILIZE FORMS WHERE TRENCH WALLS ARE UNSTABLE.

C. WHERE REINFORCEMENT IS REQUIRED, OR SPECIFICALLY INDICATED, NO CONCRETE SHALL BE PORED UNTIL ALL REINFORCING STEEL IS IN PLACE.

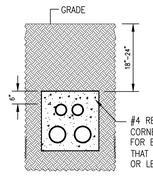
D. ALL CONCRETE TO DEVELOP 3,000 P.S.I. IN 28 DAYS, EXCEPT UNDER SPECIFIC CONDITIONS WHERE CONTROLLED DENSITY FILL (CDF) IS SPECIFIED.

E. ALL DETAILING, FABRICATION & PLACEMENT OF REINFORCING BARS SHALL FOLLOW THE A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES A.C.I. 315. HIGH CHAIRS WILL BE REQUIRED UNDER ALL TOP REINFORCING.

F. REINFORCING BARS TO BE GRADE 60 DEFORMED NEW BILLET STEEL MEETING ASTM SPECS A–615 AND HAVING DEFORMATION MEETING ASTM A–305.



STEPPED CONCRETE ENVELOPE DETAIL
NOT TO SCALE



DUCT BANK DETAIL W/ 24" OR LESS FROM GRADE TO TOP OF CONCRETE
NOT TO SCALE

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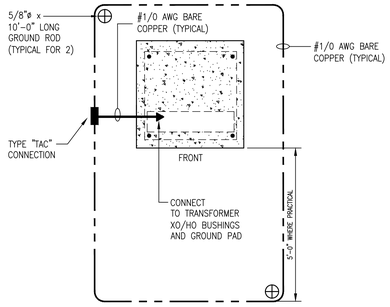
Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

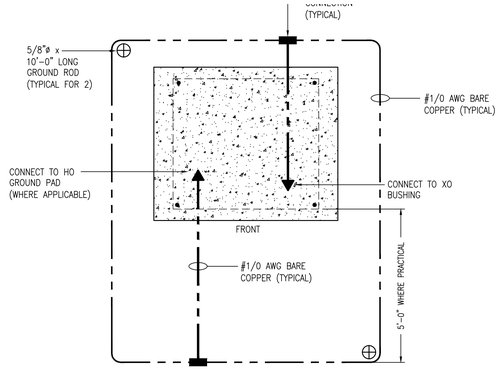
DUCT BANK DETAILS

Drawing Number:

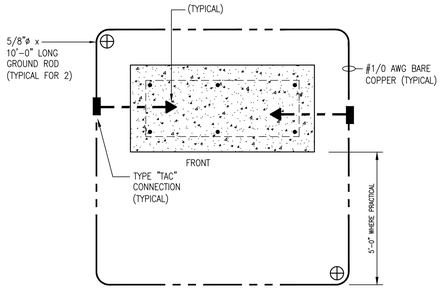
STT-20131-9A-E-104



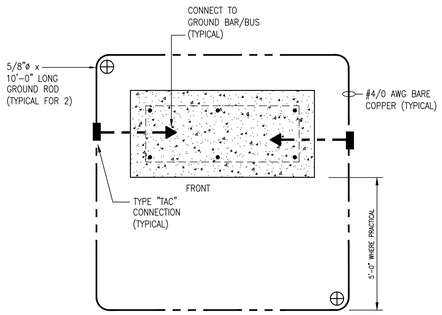
1ø PAD MOUNTED TRANSFORMER
GROUNDING PLAN
SCALE: NONE



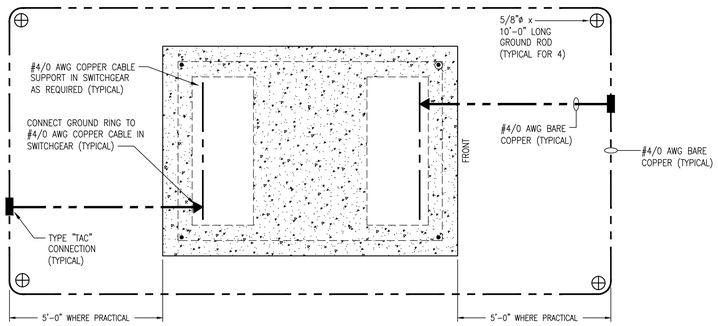
3ø PAD MOUNTED TRANSFORMER
GROUNDING PLAN
SCALE: NONE



PAD MOUNTED SECTIONALIZING CABINET
(FOR #1/0 LATERALS)
GROUNDING PLAN
SCALE: NONE

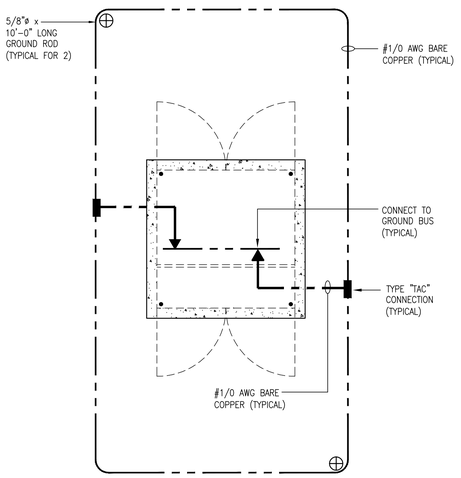


PAD MOUNTED SECTIONALIZING CABINET
(FOR #750 KCMIL FEEDER)
GROUNDING PLAN
SCALE: NONE



PAD MOUNTED SWITCHGEAR
GROUNDING PLAN
SCALE: NONE

PAD MOUNTED SWITCHGEAR
GROUNDING DETAIL
SCALE: NONE



PAD MOUNTED PRIMARY METERING CABINET
GROUNDING PLAN
SCALE: NONE

BILL OF MATERIAL FOR GROUNDING SYSTEM

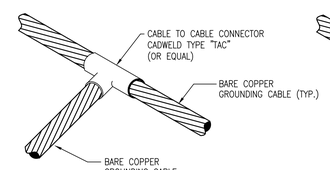
ITEM NO.	QUANTITY	DESCRIPTION
1	TBD	#4/0 19 STRAND BARE SOFT DRAWN COPPER, CLASS B STRANDING, ASTMB8
2	TBD	#1/0 7 STRAND BARE SOFT DRAWN COPPER, CLASS A STRANDING, ASTMB8
3	TBD	COPPER BONDED GROUND ROD, 5/8" DIA. X 10'-0" LONG, ERITECH #615800 (OR EQUAL)
4	TBD	CADWELD MOLD #GTC-162Q (OR EQUAL) CONNECTOR, 5/8" DIA. COPPER OR COPPER CLAD GROUND ROD TO #4/0 BARE COPPER
5	TBD	CADWELD MOLD #GTC-162C (OR EQUAL) CONNECTOR, 5/8" DIA. COPPER OR COPPER CLAD GROUND ROD TO #1/0 BARE COPPER
6	TBD	CADWELD MOLD #TAC-202Q (OR EQUAL) TEE CONNECTOR, THERMOWELD, #4/0 COPPER
7	TBD	CADWELD MOLD #TAC-2C2C (OR EQUAL) TEE CONNECTOR, THERMOWELD, #1/0 COPPER
8	TBD	CABLE RUN TO #4/0 COPPER CABLE TAP
9	TBD	CABLE RUN TO #1/0 COPPER CABLE TAP
10	TBD	TWO HOLE COMPRESSION LUG FOR #4/0 CU.
11	TBD	TWO HOLE COMPRESSION LUG FOR #1/0 CU.
12	TBD	MECHANICAL TEE CONNECTOR, #4/0 COPPER CABLE RUN TO #4/0 COPPER TAP
13	TBD	MECHANICAL TEE CONNECTOR, #1/0 COPPER CABLE RUN TO #1/0 COPPER TAP
14	TBD	CADWELD PLUS WELDING MATERIAL #150PLUSF20 (OR EQUAL) (FOR #4/0 RUN TO #4/0 TAP)
15	TBD	CADWELD PLUS WELDING MATERIAL #90PLUSF20 (OR EQUAL) (FOR #1/0 RUN TO #1/0 TAP)
16	TBD	CADWELD PLUS WELDING MATERIAL #115PLUSF20 (OR EQUAL) (FOR #4/0 TO GROUND ROD)
17	TBD	CADWELD PLUS WELDING MATERIAL #90PLUSF20 (OR EQUAL) (FOR #1/0 TO GROUND ROD)
18	TBD	CLEANING BRUSH, CADWELD CAT. NO. T394. (OR EQUAL)
19	TBD	CADWELD PLUS CONTROL UNIT PLUSCU (OR EQUAL)

NOTES:

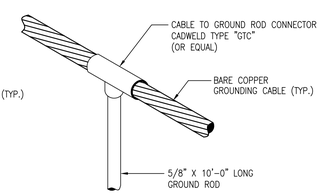
1. GROUNDING MATERIALS SHALL BE AS SPECIFIED, OR APPROVED EQUAL.
2. CONTRACTOR SHALL PROVIDE A SUBMITTAL FOR REVIEW AND APPROVAL BY ENGINEER FOR ALL GROUNDING MATERIALS PRIOR TO ORDERING.
3. ALL QUANTITIES SHALL BE DETERMINED BY THE CONTRACTOR.

GROUNDING NOTES

1. ALL BURIED GROUNDING CONDUCTORS AND CONNECTED RISERS SHALL HAVE A MINIMUM BURIAL DEPTH OF 18" BELOW GRADE AND SHALL BE TINNED BARE, STRANDED COPPER UNLESS OTHERWISE NOTED.
2. ALL UNDERGROUND GROUNDING SYSTEM CONNECTIONS SHALL BE EXOTHERMICALLY WELDED, INCLUDING ALL CABLE CONNECTIONS, GROUND ROD CONNECTIONS AND SPLICES AND CABLE TO STEEL CONNECTIONS. ALL WELDING MATERIALS USED SHALL BE CADWELD MATERIALS AS MANUFACTURED BY ERICO PRODUCTS, INC. OR APPROVED EQUAL.
3. ALL ABOVE GROUND CONNECTIONS SHALL BE BOLTED CONNECTORS. (BURNDY OR APPROVED EQUAL).
4. TOP OF GROUND RODS SHALL BE 8" MINIMUM BELOW GRADE.
5. ALL BURIED GROUND CONDUCTORS SHALL BE LAID SLACK IN TRENCHES TO PREVENT STRESS AND BREAKAGE.
6. ALL GROUND CONNECTION AREAS SHALL BE PREPARED BY GRINDING OR WIRE BRUSH CLEANING. ALL SURFACES AFFECTED SHALL BE PAINTED WITH RUST INHIBITING PAINT, AFTER WELDING IS COMPLETED.
7. GROUND BED RESISTANCE TO EARTH SHALL BE TESTED UNDER DRY SOIL CONDITIONS AT GROUND TEST WELL. THE THREE-POINT FALL METHOD SHALL BE USED FOR TESTING TO BE DONE USING A BIDDLE "MEGGER" EARTH RESISTANCE TESTER (OR EQUIVALENT) IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. PROVIDE WRITTEN TEST REPORT TO ENGINEER.



CABLE TO CABLE
GROUND CONNECTION
SCALE: NONE



CONTINUOUS CABLE TO
GROUND ROD CONNECTION
SCALE: NONE

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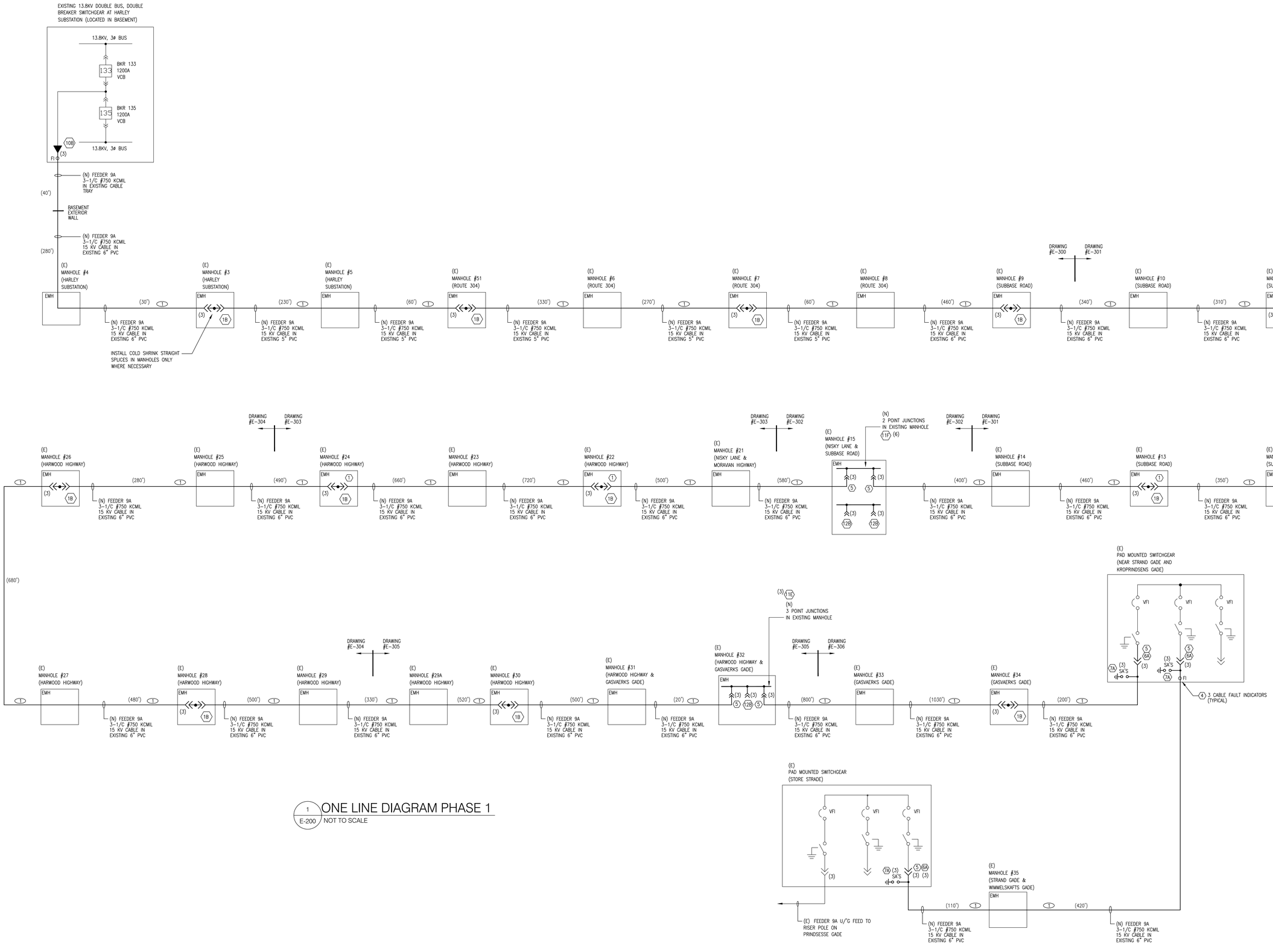
Project Number:	VIT 20131

Drawing Title:
GROUNDING DETAILS

Drawing Number:
STT-20131-9A-E-105



1 E-200 ONE LINE DIAGRAM PHASE 1
NOT TO SCALE

Engineer:

FXB PARTNERSHIPS THROUGH ENGINEERING

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Chadds Ford, PA 19317
610.558.3464 office
www.fxbinc.com

Engineering Excellence Since 1968

Engineers Seal

Client:

Virgin Islands Water and Power Authority
U.S. Virgin Islands

Project Name:

Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

Issue / Revisions:

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A	06/24/22	Issue for EHP Review
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C	04/21/23	Issue for 100% Review
D	06/07/23	Issue for CZM Application

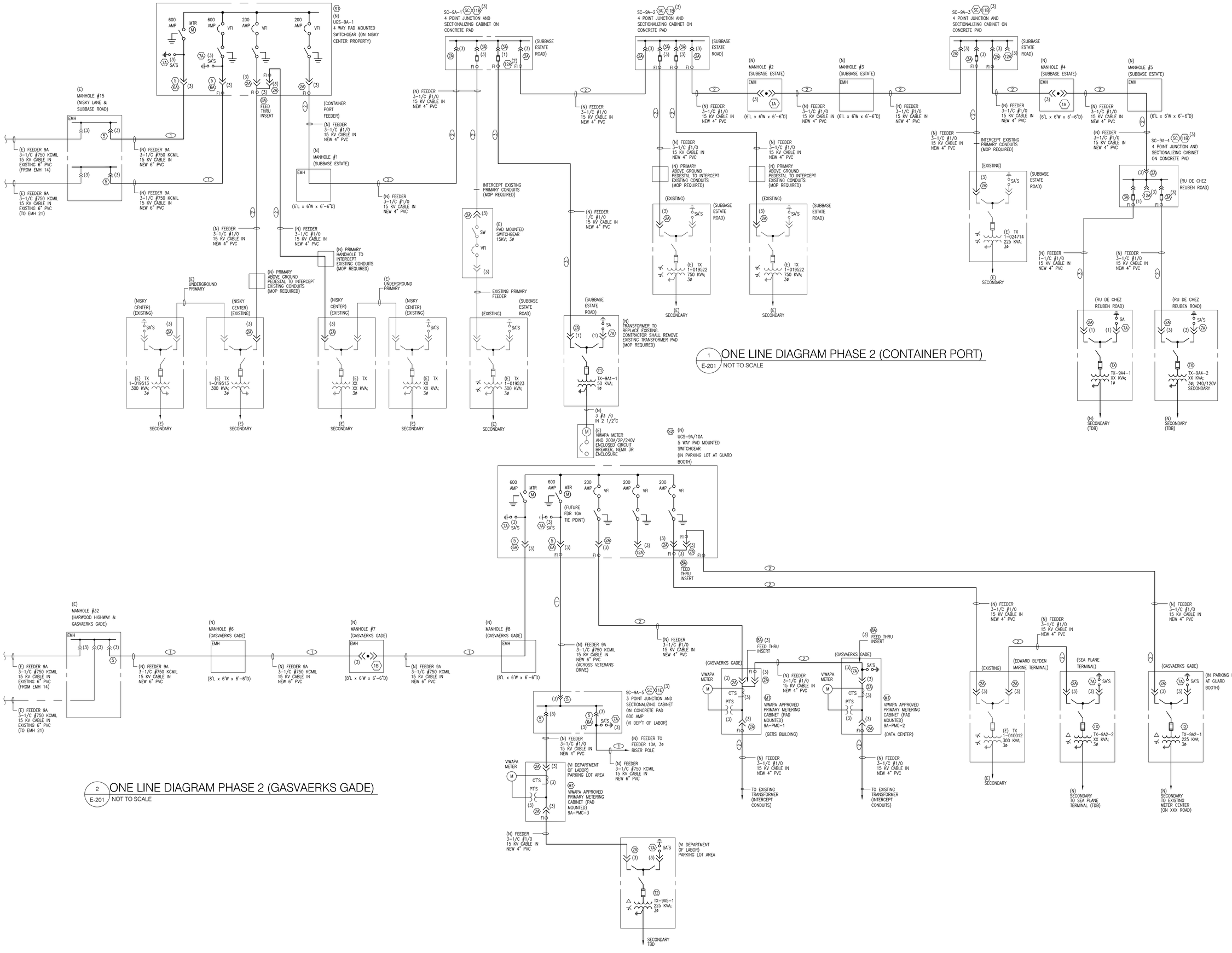
Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

ONE LINE DIAGRAM (PHASE 1)

Drawing Number:

STT-20131-9A-E-200



1 E-201 ONE LINE DIAGRAM PHASE 2 (CONTAINER PORT)
NOT TO SCALE

2 E-201 ONE LINE DIAGRAM PHASE 2 (GASVAERKS GADE)
NOT TO SCALE

Engineer:

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Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

ONE LINE DIAGRAM (PHASE 2)

Drawing Number:

STT-20131-9A-E-201

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

Engineer:

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Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A
DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-300

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

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Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

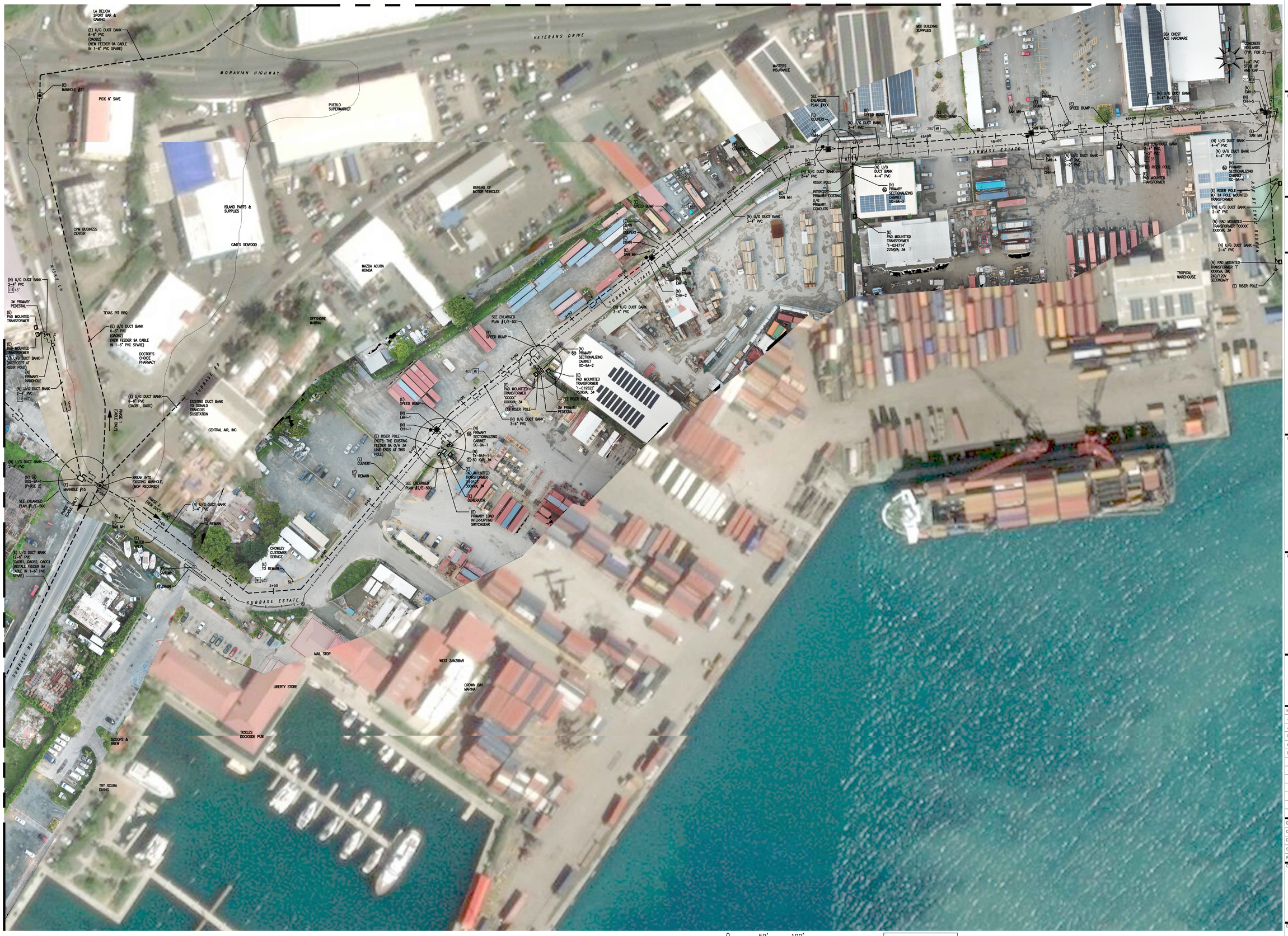
FEEDER 9A
DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-301

MATCH LINE - DRAWING ST-20131-9A-E-303

MATCH LINE - DRAWING ST-20131-9A-E-301



DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

Engineer:

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Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-302

MATCH LINE - DRAWING ST-20131-9A-E-302

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

Engineer:

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Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-303

MATCH LINE - DRAWING ST-20131-9A-E-303

MATCH LINE - DRAWING ST-20131-9A-E-305

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

Engineer:

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Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A
DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-304

MATCH LINE - DRAWING ST-20131-9A-E-304

MATCH LINE - DRAWING ST-20131-9A-E-306

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

Engineer:

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Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A
DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-305

MATCH LINE - DRAWING ST-20131-9A-E-305

DUCT BANK PLAN

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

LEGEND

FLOOD ZONE AREA

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Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

FEEDER 9A
DUCT BANK PLAN

Drawing Number:

STT-20131-9A-E-306

FEEDER 9A - MEDIUM VOLTAGE CABLE ACCESSORY SCHEDULE

ITEM TAG (X)	QUANTITY	DETAILS	BASIS OF DESIGN	MODEL #	DESCRIPTION	INSTALLED BY	FURNISHED BY
1A	6	15KV, COLD SHRINK CABLE SPLICE FOR #1/0 AWG CABLE, WITH 100% CONCENTRIC NEUTRAL, 100% INSULATION (EXACT MODEL # TO BE SELECTED BASED ON APPROVED CABLE DATA SHEET) WITH SHEAR BOLT OR COMPRESSION CONNECTOR	TE CONNECTIVITY	CSJA-1521 (M0 OR M4)	EPDM STRAIGHT THROUGH COLD SHRINK CABLE SPLICE KIT FOR IN LINE SPLICES IN MANHOLE	E.C.	E.C.
			3M	QS-III 5415A			
			ELASTIMOLD	SFJ15CX240			
1B	39	15KV, COLD SHRINK CABLE SPLICE FOR #750 KCMIL CABLE, WITH 1/3 CONCENTRIC NEUTRAL, 100% INSULATION (EXACT MODEL # TO BE SELECTED BASED ON APPROVED CABLE DATA SHEET) WITH SHEAR BOLT OR COMPRESSION CONNECTOR	TE CONNECTIVITY	CSJA-1524 (M3 OR M9)	EPDM STRAIGHT THROUGH COLD SHRINK CABLE SPLICE KIT FOR IN LINE SPLICES IN MANHOLE	E.C.	E.C.
			3M	QS-III 5418A			
			ELASTIMOLD	SFJ415CX380			
2A	94	15KV, 200 AMP LOADBREAK ELBOW CONNECTOR, WITH JACKET SEAL AND TEST POINT FOR #1/0 AWG, 100% INSULATION, CONCENTRIC NEUTRAL CABLE (EXACT MODEL # TO BE SELECTED BASED ON APPROVED CABLE DATA SHEET), 10 KAIC SYMMETRICAL, WITH TEST POINT CAP	ELASTIMOLD	162LRIS-WSX W/156-7	200A LOADBREAK ELBOW CONNECTOR	E.C.	E.C.
			HUBBELL	215LE35PTJ			
			COOPER	LE215 CR1 CC1 T CSX			
3A	13	15KV, 200 AMP FUSED LOADBREAK ELBOW CONNECTOR, WITH TEST POINT FOR #1/0 AWG, 100% INSULATION, CONCENTRIC NEUTRAL CABLE (EXACT MODEL # TO BE SELECTED BASED ON APPROVED CABLE DATA SHEET), PROVIDE JACKET SEAL AND MATCHING FUSE SIZED PER ONE LINE DIAGRAM	ELASTIMOLD	168 FLR 1 X Ø 240	200A FUSED LOADBREAK ELBOW W/ FUSES	E.C.	E.C.
			HUBBELL	215FEHB5J			
			COOPER	LFEP215TFEC CR3 CC2 AT			
4	52	CABLE FAULT INDICATOR, SELF POWERED, LOCAL LED INDICATION WITH 8 HOUR AUTOMATIC RESET, AND DETACHABLE 6' REMOTE FIBER-OPTIC DISPLAY LEAD	SEL	ARU 1BARUZR8GY2	FAULT INDICATOR	E.C.	E.C.
			POWER DELIVERY PRODUCTS	29-6-1-14-3F0			
5	39	15/25KV, 600 AMP DEADBREAK ELBOW CONNECTOR FOR #750 KCMIL, WITH 1/3 CONCENTRIC NEUTRAL, 100% INSULATION, (EXACT MODEL # TO BE SELECTED BASED ON APPROVED CABLE DATA SHEET), WITH INSULATING PLUG, STUD, VOLTAGE DETECTION CAP, COMPRESSION LUG AND CAPLE ADAPTER AND JACKET SEAL KIT	ELASTIMOLD	K656LR W7 5 380 S	600A DEADBREAK ELBOW (T BODY) CONNECTOR AT JUNCTION	E.C.	E.C.
			HUBBELL	625BTN38TJ			
			COOPER	TP615 CR5 CC4 T CS			
6A	21	15KV, REDUCING TAP PLUG WITH STUD	ELASTIMOLD	K650RTP-S W/6005W	REDUCING TAP PLUG	E.C.	E.C.
			HUBBELL	615LRTP			
7A	31	12KV/10.2KV MCOV METAL OXIDE VARISTOR ELBOW TYPE SURGE ARRESTER	ELASTIMOLD	167ESA-12	MOV ELBOW ARRESTER	E.C.	E.C.
			HUBBELL	215555_LA12			
			COOPER	3238018C12M			
8A	12	15KV LOAD BREAK FEED-THRU INSERT	ELASTIMOLD	1602A3R	15KV FEED THRU INSERT	E.C.	E.C.
			HUBBELL	215FTI			
			COOPER	LFI215			
10B	3	15kV CABLE TERMINATION KIT, CABLE SIZE #750 KCMIL, 1/3 CONCENTRIC NEUTRAL CABLE, 100% INSULATION (EXACT MODEL # TO BE SELECTED BASED ON APPROVED CABLE DATA SHEET), WITH JACKET SEAL, 2 HOLE SPADE CONNECTOR, MOUNTING BRACKET	ELASTIMOLD	R2T 15 J 4 NO 380 B4	LIVE FRONT SWITCHGEAR CABLE TERMINATION AND CABLE TERMINATION AT RISER POLE	E.C.	E.C.
			TE CONNECTIVITY	CSTO-154J-3E-CL8			
			HUBBELL	15TZ_J SERIES			
			3M	QTIII 7640-5 SERIES			
			BURNDY	CSUD055001500J W/ YA39A5			
11A	0	15kV, 3 POINT, 200A JUNCTION LOCATED IN MANHOLE OR SECTIONALIZING CABINET, W/ MOUNTING BRAKET & PARKING STAND	ELASTIMOLD	J3-222-15-L-R	200A, 3 POINT JUNCTION	E.C.	E.C.
			HUBBELL	215J3B			
			COOPER	LJ215C-3-B			
11B	12	15kV, 4 POINT, 200A JUNCTION LOCATED IN MANHOLE OR SECTIONALIZING CABINET, W/ SS MOUNTING BRAKET & PARKING STAND	ELASTIMOLD	J4-2222-15-L-R	200A, 4 POINT JUNCTION	E.C.	E.C.
			HUBBELL	215J4B			
			COOPER	LJ215C-4-B			
11E	6	15kV, 600A, 3 POINT, VARIABLE JUNCTION LOCATED IN MANHOLE OR SECTIONALIZING CABINET, W/ SS MOUNTING BRAKET & PARKING STAND	ELASTIMOLD	J4-666-15-L-R	600A, 3 POINT JUNCTION WITH 1-600A TAP	E.C.	E.C.
11F	6	15kV, 600A, 2 POINT, VARIABLE JUNCTION LOCATED IN MANHOLE OR SECTIONALIZING CABINET, W/ SS MOUNTING BRAKET & PARKING STAND	ELASTIMOLD	J4-66-15-L-R	600A, 2 POINT JUNCTION	E.C.	E.C.
12A	11	15kV, INSULATING CAP FOR 200A BUSHING	ELASTIMOLD	167DRG	INSULATING CAP	E.C.	E.C.
			HUBBELL	215ICI			
			COOPER	LPC215			
12B	21	15kV, INSULATING CAP FOR 600A BUSHING	ELASTIMOLD	x	INSULATING CAP	E.C.	E.C.
			HUBBELL	x			
			COOPER	x			

NOTES:
1. ALL EQUIPMENT IS TO BE FURNISHED & INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ALL EQUIPMENT SHALL BE AS SPECIFIED, OR APPROVED EQUAL. SUBMITTALS ARE REQUIRED FOR ALL EQUIPMENT LISTED ABOVE.

FEEDER 9A - MEDIUM VOLTAGE EQUIPMENT SCHEDULE

ITEM TAG (X)	QUANTITY	DETAILS	BASIS OF DESIGN	MODEL #	DESCRIPTION	INSTALLED BY	FURNISHED BY
SC	4	STAINLESS STEEL SECTIONALIZING CABINET, 30"H X 84"W X 22"D TO ACCOMMODATE 3Ø JUNCTIONS UP TO 4 POINT, 15KV OR 25KV, 200 AMP LOAD BREAK JUNCTIONS OR 600A DEAD BREAK JUNCTIONS, WITH 18" HIGH BASE EXTENSION	HUBBELL/TRINETICS	CC384-22TH(R)-SS W/ BASE		E.C.	E.C.
			COOPER	SEC38423F00050 W/SBE188422			
			ABB	MEH308423SSSN000 W/BASE			
M1	2	PAD MOUNTED, 15kV, 95kV BIL. METERING CABINET, DEAD FRONT, RADIAL FEED, POWDER FINISH ENCLOSURE, MUNSEL GREE, WITH VIWAPA APPROVED CT'S (3) AND PT'S (3) INSTALLED, AND WITH VIWAPA METER SOCKET INSTALLED, WITH STAINLESS STEEL HARDWARE	FEDERAL PACIFIC	PMDF-315-R6-200	PRIMARY METERING CABINET	E.C.	E.C.
			TRINETICS	ME311122XXXXGM			

NOTES:
1. ALL EQUIPMENT IS TO BE FURNISHED & INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ALL EQUIPMENT SHALL BE AS SPECIFIED, OR APPROVED EQUAL. SUBMITTALS ARE REQUIRED FOR ALL EQUIPMENT LISTED ABOVE.

FEEDER 9A - PAD MOUNTED TRANSFORMER SCHEDULE

ITEM TAG (X)	LABEL	RATING	PRIMARY	SECONDARY	QUANTITY	DESCRIPTION	MANUFACTURER	DIMENSIONS	WEIGHT	ACCESS REQUIRED	INSTALLED BY	CABLE ENTRY/EXIT	FURNISHED BY
T1	TX-9A1-1	50kVA; 1Ø TRANSFORMER	13.8/7.98kV	120/240V	1	1Ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, STAINLESS STEEL TANK, COPPER WINDINGS, CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, 125KV BIL	TBD	TBD	TBD	6' FRONT 3' REAR/SIDES	E.C.	BOTTOM	VIWAPA
T2	TX-8A1-1, TX-8A1-2	225kVA; 3Ø TRANSFORMER	13.8kV △	208/120V	2	3Ø PAD MOUNTED TRANSFORMER, 65°C RISE, CLASS KNAN, DEAD FRONT, LOOP FEED, UL LISTED, DOE 2016 EFFICIENCY, STAINLESS STEEL TANK, COPPER WINDINGS, BAY-O-NET FUSES AND CURRENT LIMITING FUSES, DE-ENERGIZED TAP CHANGER (1 ABOVE, 3 BELOW) 2 POSITION LOAD BREAK SWITCH, INSETS, XX% IMPEDANCE, 125KV BIL		TBD	TBD	6' FRONT 3' REAR/SIDES	E.C.	BOTTOM	VIWAPA

NOTES:
1. TRANSFORMERS ARE SUPPLIED BY VIWAPA AND RECIEVED, TRANSPORTED, INSTALLED & TESTED BY CONTRACTOR.

FEEDER 9A - PAD MOUNTED SWITCHGEAR SCHEDULE

ITEM TAG (X)	LABEL	NAME	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL/TYPE	SC RATING	DIMENSIONS	WEIGHT	ACCESS REQUIRED	INSTALLED BY	CABLE ENTRY/EXIT	FURNISHED BY
S1	UGS-9A-1	PAD MOUNTED DISTRIBUTION SWITCHGEAR	1	PAD MOUNTED OUTDOOR DISTRIBUTION SWITCHGEAR, 4WAY, 600A; 15kV; 95kV BIL; 25KA SYMMETRICAL, 1 600A SOURCE WAY & 3 TAP WAYS, MOTOR OPERATED SOURCE SWITCH, VFI TAP SWITCHES, WITH INTERNAL PT, ELECTRONIC TRIP CONTROL & SCADA/ACCESSORY BOARD AND STAINLESS STEEL ENCLOSURE	REFER TO SPECIFICATIONS	REFER TO SPECIFICATIONS	25kA SYM.	TBD	TBD	6' FRONT 3' REAR/SIDES	E.C.	BOTTOM	E.C.
S2	UGS-9A-2	PAD MOUNTED DISTRIBUTION SWITCHGEAR	1	PAD MOUNTED OUTDOOR DISTRIBUTION SWITCHGEAR, 5WAY, 600A; 15kV; 95kV BIL; 25KA SYMMETRICAL, 2 SOURCE WAYS & 3 TAP WAYS, MOTOR OPERATED SOURCE SWITCH, VFI TAP SWITCHES, WITH INTERNAL PT, ELECTRONIC TRIP CONTROL & SCADA/ACCESSORY BOARD AND STAINLESS STEEL ENCLOSURE	REFER TO SPECIFICATIONS	REFER TO SPECIFICATIONS	25kA SYM.	TBD	TBD	6' FRONT 3' REAR/SIDES	E.C.	BOTTOM	E.C.

NOTES:
1. ALL SWITCHGEAR IS TO BE FURNISHED & INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
2. ALL SWITCHGEAR SHALL BE AS SPECIFIED, OR APPROVED EQUAL. SUBMITTALS ARE REQUIRED FOR ALL SWITCHGEAR LISTED ABOVE.

FEEDER 9A - MEDIUM VOLTAGE RACEWAY SCHEDULE

ITEM TAG (X)	FROM	TO	CABLES/CONDUCTORS PER CONDUIT						CONDUIT			PURPOSE
			VOLTAGE	PHASE	NEUTRAL	GROUND	INSULATION	TEMP/RATING	QUANTITY	SIZE	TYPE	
1	MANHOLE	MANHOLE, SWITCHGEAR OR SECTIONALIZER	15kV	3-1/C #750 KCMIL	1/3 CONCENTRIC	N/A	100% EPR	MV105	1	6"	SCHEDULE 40 PVC	MAIN FEEDER
2	SWITCHGEAR, SECTIONALIZER OR TRANSFORMER	3Ø TRANSFORMER OR METERING CABINET	15kV	3-1/C #1/0 AWG	FULL NEUTRAL	N/A	100% EPR	MV105	1	4"	SCHEDULE 40 PVC	3Ø FEEDER TO SECTIONALIZER, TRANSFORMER OR METERING CABINET
3	SWITCHGEAR, SECTIONALIZER OR TRANSFORMER	1Ø TRANSFORMER	15kV	1-1/C #1/0 AWG	FULL NEUTRAL	N/A	100% EPR	MV105	1	4"	SCHEDULE 40 PVC	1Ø PHASE FEEDER TO TRANSFORMER

NOTES:
1. ALL CONDUIT LENGTHS INDICATED ON DUCT BANK AND CABLE SCHEDULES ARE ESTIMATED. CONTRACTOR SHALL VERIFY ALL CONDUIT LENGTHS, ADJUSTMENTS TTO CONDUIT LENGTHS WILL REQUIRE CORRESPONDING ADJUSTMENTS TO CABLE LENGTHS.

FEEDER 9A - MV CABLE SCHEDULE (1/C #1/0 CU, 15kV, MV 105 CABLE) (3-PHASE)

TAG	FROM	TO	CABLE LENGTH (FEET)
MVL1	UGS-9A-1	SC-9A-1	2382
MVL2	SC-9A-1	EXISTING SWITCHGEAR	78
MVL4	SC-9A-1	SC-9A-2	855
MVL5	SC-9A-2	EXISTING TRANSFORMER #1-019522	78
MVL6	SC-9A-2	SC-9A-3	2097
MVL7	SC-9A-3	EXISTING TRANSFORMER #1-024714	74
MVL8	SC-9A-3	EXISTING RISER POLE	1983
MVL9	UGS-9A-2	9A-PMC-1	1533
MVL10	9A-PMC-1	EXISTING PAD MOUNTED TRANSFORMER	315
MVL11	9A-PMC-1	9A-PMC-2	855
MVL12	9A-PMC-2	EXISTING PAD MOUNTED TRANSFORMER	213
MVL13	UGS-9A-2	9A-PMC-3	1215
MVL14	9A-PMC-3	TX-8A1-1	78
MVL15	UGS-9A-2	EXISTING TRANSFORMER #1-010012	1458
MVL16	UGS-9A-1	EXISTING TRANSFORMER	678
MVL17	UGS-9A-1	EXISTING TRANSFORMER	807
		TOTAL LENGTH (FEET)	14699

FEEDER 9A - MV CABLE SCHEDULE (1/C #750 KCMIL CU, 15kV, MV 105 CABLE) (3-PHASE)

TAG	FROM	TO	CABLE LENGTH (FEET)
MVM1	EXISTING MAIN SWITCHGEAR	EXISTING MANHOLE #15	13860
MVM2	EXISTING MANHOLE #15	EXISTING MANHOLE #32	19302
MVM3	EXISTING MANHOLE #32	EXISTING PAD MOUNTED SWITCHGEAR	6447
MVM4	EXISTING PAD MOUNTED SWITCHGEAR	EXISTING PAD MOUNTED SWITCHGEAR UGS-9A-6B-10A-SQUARE-B	1677
MVM5	EXISTING MANHOLE #15	UGS-9A-1	288
MVM6	UGS-9A-1	EXISTING MANHOLE #15	288
MVM7	EXISTING MANHOLE #32	UGS-9A-2	2523
MVM8	UGS-9A-2	EMH-9	1191
		TOTAL LENGTH (FEET)	45576

FEEDER 9A - MV CABLE SCHEDULE (1/C #1/0 CU, 15kV, MV 105 CABLE) (1-PHASE)

TAG	FROM	TO	CABLE LENGTH (FEET)
MVL3	SC-9A-1	TX-9A1-1	25
		TOTAL LENGTH (FEET)	25

FEEDER 9A - MAIN DUCT BANK SCHEDULE (6" OR 4" PRIMARY)

TAG	FROM	TO	LENGTH OF DUCT BANK (FEET)	DUCT BANK PVC QUANTITY	SECTION TAG
M1	(E) MANHOLE #15	EMH-1	635	3-4" PVC	A-A
M2	EMH-1	EMH-2	405	3-4" PVC	A-A
M3	EMH-2	EMH-3	302	3-4" PVC	A-A
M4	EMH-3	EMH-4	290	3-4" PVC	A-A
M5	EMH-4	EMH-5	123	3-4" PVC	A-A
			208	5-4" PVC	L-L
M6	(E) MANHOLE #32	EMH-6	146	2-6", 1-4" PVC	E-E
M7	EMH-6	EMH-7	140	2-6", 3-4" PVC	G-G
M8	EMH-7	EMH-8	358	2-6", 3-4" PVC	G-G
M9	EMH-8	(E) EMH	324	2-6", 2-4" PVC	F-F
M10	(E) MANHOLE #15	UGS-9A-1	55	4-6", 2-4" PVC	K-K
M11	EMH-1	SC-9A-1	25	4-4" PVC	B-B
M12	STA 8+25	SC-9A-2	30	4-4" PVC	B-B
M13	STA 13+90	SC-9A-3	40	4-4" PVC	B-B
M14	EMH-5	SC-9A-4	21	4-4" PVC	B-B
M15	EMH-8	UGS-9A-2	30	4-6", 5-4" PVC	H-H
M16	UGS-9A-2	SC-9A-5	385	2-6", 1-4" PVC	E-E
M17	SC-9A-5	(E) RISER POLE	170	2-6", 1-4" PVC	E-E
		TOTAL LENGTH (FEET)	3687		

FEEDER 9A - LATERAL DUCT BANK SCHEDULE (4" PRIMARY)

TAG	FROM	TO	LENGTH OF DUCT BANK (FEET)	DUCT BANK PVC QUANTITY	SECTION TAG
L1	SC-9A-1	EXISTING SWITCHGEAR	16	2-4" PVC	C-C
L2	SC-9A-1	TX-9A1-1	15	2-4" PVC	C-C
L3	SC-9A-2	TRANSFORMER 1-019522	15	2-4" PVC	C-C
L4	SC-9A-3	TRANSFORMER 1-024714	60	2-4" PVC	C-C
L5	EMH-7	METERING CABINET	20	2-4" PVC	C-C
L6	METERING CABINET	EXISTING DUCT BANK	12	2-4" PVC	C-C
L7	EMH-7	9A-PMC-1	23	4-4" PVC	B-B
L8	METERING CABINET	EXSTING DUCT BANK	45	2-4" PVC	C-C
L9	UGS-9A-2	TX-8A1-2	15	2-4" PVC	C-C
L10	SC-9A-5	9A-PMC-3	15	2-4" PVC	C-C
L11	9A-PMC-3	TX-8A1-1	12	2-4" PVC	C-C
L12	EMH-8	(E) RISER POLE	58	2-4" PVC	C-C
L13	EMH-9	(E) TRANSFORMER	86	2-4" PVC	C-C
L14	UGS-9A1-1	(E) TRANSFORMER	216	2-4" PVC	C-C
L15	UGS-9A1-1	PRIMARY HANDHOLE	190	2-4" PVC	C-C
L16	PRIMARY HANDHOLE	(E) TRANSFORMER	45	2-4" PVC	C-C
L17	STA 17+77	(E) TRANSFORMER	35	2-4" PVC	C-C
		TOTAL LENGTH (FEET)	878		

FEEDER 9A - SECONDARY ONLY DUCT BANK SCHEDULE (4" OR 2" PVC)

TAG	FROM	TO	LENGTH OF DUCT BANK (FEET)	DUCT BANK PVC QUANTITY	SECTION TAG
S1	TX-8A1-1	SECONDARY METER	74	2-4" PVC	C-C
S2	(E) TRANSFORMER	SECONDARY MANHOLE	10	4-4" PVC	B-B
S3	SECONDARY MANHOLE	SECONDARY METER	70	2-4" PVC	C-C
S4	SECONDARY MANHOLE	SECONDARY METER	60	2-4" PVC	C-C
S5	TX-8A1-2	(E) METERING CENTER	192	2-4" PVC	C-C
		TOTAL LENGTH (FEET)	406		

TOTAL DB LENGTHS

SECTION TAG	TOTAL LENGTH PER SECTION (FEET)
A-A	1755
B-B	149
C-C	1251
D-D	0
E-E	701
F-F	324
G-G	498
H-H	30
J-J	0
K-K	55
L-L	208
TOTAL LENGTH	4971

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Client:
Virgin Islands Water and Power Authority
U.S. Virgin Islands

Project Name:
Charlotte Amalie Underground Electrical Construction Project (Feeder 9A Phase 1 & 2), St Thomas, USVI

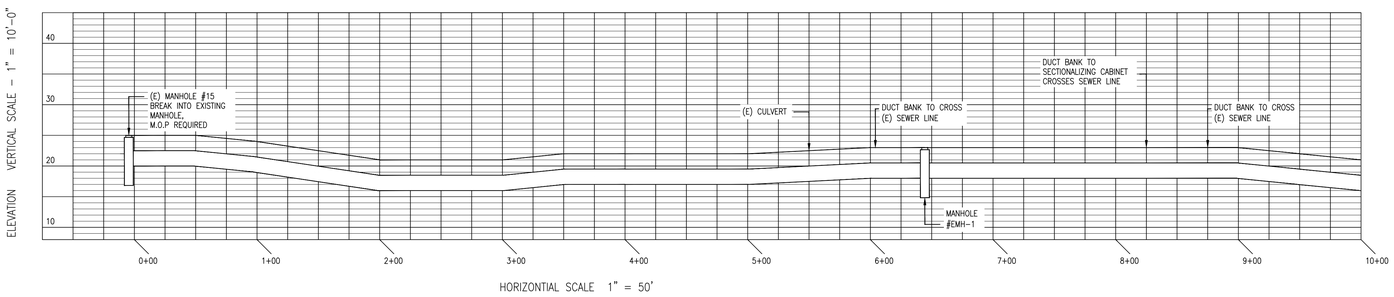
Issue / Revisions:

#	Date	Description
A	06/24/22	Issue for EHP Review
B	12/02/22	Issue for FEMA Review (75%)
C	04/21/23	Issue for 100% Review
D	06/07/23	Issue for CZM Application

Drawn By:	NS/BM/CM/CC/PJB
Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

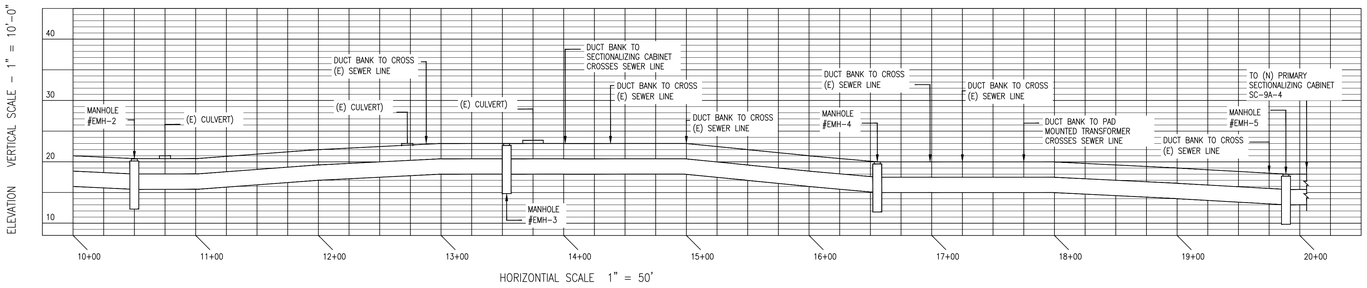
Drawing Title:
ELECTRICAL EQUIPMENT AND DUCT BANK SCHEDULES

Drawing Number:
STT-20131-9A-E-400



DUCT BANK PROFILE 1.1 (CONTAINER PORT)

SCALE: 1" = 50' - 0"

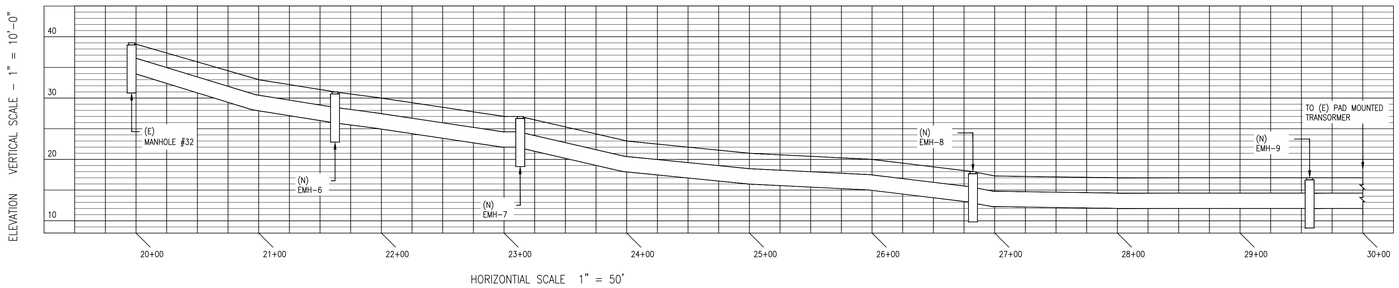


DUCT BANK PROFILE 1.2 (CONTAINER PORT)

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"



DUCT BANK PROFILE 2 (GASVAERKS GADE)

SCALE: 1" = 50' - 0"

0 50' 100'

GRAPHIC SCALE: 1" = 50'-0"

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Chkd By:	PJB
Date:	06.07.2023
Scale:	As Noted
Project Number:	VIT 20131

Drawing Title:

DUCT BANK ROFILES

Drawing Number:

STT-20131-9A-E-600