Department of Public Works - Division of Transportation

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI

ISSUED FOR: PERMIT

ISSUE DATE: 01/17/2025

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VICINITY MAP

PROJECT DIRECTORY

DESIGN ARCHITECT:

DESIGN DISTRICT, PLLC
2110 Company Street, Suite 15
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Email: designdistrictvi.com
Website:
www.designdistrictvi.com

MEP ENGINEER:

BARRETT, WOODYARD & ASSOCIATES, INC
3495 Holcomb Bridge Road
Norcross, GA, 30092
Tel: (770)-810-8800

CIVIL & STRUCTURAL ENGINEER:

Build Tec, LLC
St. Croix, USVI, 00820
Tel: (340)-513-6918

OWNER:

GOVERMENT OF THE UNITED STATES VIRGIN ISLANDS
DEPARTMENT OF PUBLIC WORKS
1105 King Street
Christiansted, VI, 00820

ISLAND MAP

REGISTERED ARCHITECT
CLARENCE F. BROWN
3114 A
VIRGIN ISLANDS

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
A	
ACC	ACCESSBILE
ACP	ACOUSTICAL CEILING PANEL
AD	AREA DRAIN
ADA	ADJACENT
ADDJ	ADMINISTRATION
ADMIN	AMERICANS W/ DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZE(D)
APPROX	APPROZIMATE
ARCH	ARCHITECT(URAL)
ASPH	ASPHALT
ASSY	ASSEMBLY
B	
BD	BOARD
BITUM	BITUMIN(OUS)
BLDG	BUILDING
BUR	BUILT-UP ROOFING
C	
CB	CATCH BASIN
CER	CERAMIC
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
D	
DBL	DOUBLE
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DR	DOWNSPOUT
DS	DOOR
DWG	DRAWING(S)
E	
EA	EACH
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EOS	EDGE OF SLAB
EPS	EXPANDED MOLDED POLYSTYRENE BOARD (INSULATION)
EQ	EQUAL
EQUIP	EQUIPMENT
ESCAL	ESCALATOR
EXH	EXHAUST
F	
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FACE
FHA	FAIR HOUSING ACT
FHC	FIRE HOSE CABINET
FIN FLR	FINISH FLOOR
FIXT	FIXTURE
FLG	FLOORING
FLR	FLOOR
FLUOR	FLUORESCENT

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
FOS	FACE OF STUD
FRT	FIRE RETARDANT TREATED
G	
GA	GAUGE
GALV	GALVANIZED
GFRC	GLASS FIBER REINFORCED CONCRETE
GFRG	GLASS FIBER REINFORCED GYPSUM
GFRP	GLASS FIBER REINFORCED PLASTIC
GWB	GYPSUM WALL BOARD
GYP BD	GYPSUM BOARD
H	
HB	HOSE BIBB
HC	HANDICAP
HM	HOLLOW METAL
HYD	HYDRANT
I	
ID	INSIDE DIAMETER
IIC	IMPACT ISOLATION CLASS
INFO	INFORMATION
INSUL	INSULATION
IRMA	INVERTED ROOF MEMBRANE ASSEMBLY
J	
JAN	JANITOR
L	
LAV	LAVATORY
LSD	LINEAR SLOT DIFFUSER
M	
MAX	MAXIMUM
MECH	MECHANICAL
MEZZ	MEZZANINE
MH	MANHOLE
MHO	MAGNETIC HOLD OPEN
MIN	MINIMUM
MISC	MISCELLANEOUS
N	
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
O	
OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE (HAND)
ORD	OVERFLOW ROOF DRAIN
OTS	OPEN TO STRUCTURE
P	
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLWD	PLYWOOD
POL	POLISHED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
Q	
QT	QUARRY TILE
R	
R VALUE	THERMAL RESISTANCE
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFERENCE
REQ(D)	REQUIRED
RM	ROOM
RO	ROUGH OPENING

ABBREVIATIONS	
ABBREVIATION	DESCRIPTION
S	
SAB	SOUND ATTENUATION BLANKET
SCHED	SCHEDULE
SD	STORM DRAIN
SHT	SHEET
SIM	SIMILAR
SPKLR	SPRINKLER
SPKR	SPEAKER
SQ	SUQARE
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUC(T)	STRUCTURE
SUSP	SUSPEND(ED)
SUSP. CLG	SUSPENDED CEILING
SV	SHEET VINYL
T	
T&G	TONGUE & GROOVE
T.O.P.	TOP OF PARAPET
TEL	TELEPHONE
THK	THICKNESS
THRU	THROUGH
TYP	TYPICAL
U	
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
V	
VCT	VINYL COMPOSITION TILE
VIF	VERIFY IN FIELD
VOL	VOLUME
VT	VINYL TILE
VWC	VINYL WALL COVERING
W	
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
X	
XPS	EXTRUDED POLYSTYRENE BOARD (INSULATION)

GENERAL NOTES

1.THE CONTRACT, ADDENDA, SUPPLEMENTAL CONDITIONS, GENERAL REQUIREMENTS, GENERAL CONDITIONS, AND TECHNICAL SPECIFICATIONS SHALL HAVE PRECEDENCE OVER THESE GENERAL NOTES. ANY CONFLICT BETWEEN THESE GENERAL NOTES AND LANGUAGE FOUND IN THE ABOVE DOCUMENTS OR IN THE DRAWINGS OR IN ANY OTHER CONTRACT DOCUMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT IMMEDIATELY FOR FURTHER CLARIFICATION.

2. REFERENCE CONDITIONS OF THE CONTRACT AND/OR GENERAL REQUIREMENTS FOR ANY OCCUPANCY RESTRICTIONS OR REQUIREMENTS DURING CONSTRUCTION.

3. REFERENCE CONDITIONS OF THE CONTRACT AND/OR GENERAL REQUIREMENTS REGARDING REQUIREMENTS FOR DOCUMENTATION AND REPORTING OF FIELD CONDITIONS BY THE CONTRACTOR AND COORDINATION WITH THE CONTRACT DOCUMENTS.

4. REFERENCE CONDITIONS OF THE CONTRACT AND/OR GENERAL REQUIREMENTS REGARDING COORDINATION OF THE WORK OR OTHER SPECIAL COORDINATION REQUIREMENTS.

HAZARDOUS MATERIALS

THE IDENTIFICATION, ENCAPSULATION AND/ OR ABATEMENT OF HAZARDOUS MATERIALS IS NOT PART OF THE SCOPE OF THIS WORK. IF ASBESTOS OR OTHER HAZARDOUS MATERIALS ARE ENCOUNTERED BY THE CONTRACTOR THROUGH THE COURSE OF CONSTRUCTION WORK, THE CONTRACTOR SHALL INFORM THE OWNER'S REPRESENTATIVE IMMEDIATELY PRIOR TO PROCEEDING WITH CONSTRUCTION.

MEANS & METHODS

1. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR AND HAS CONTROL OVER SAFETY AND CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATION OF ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

2. BASED ON THE CONTRACTOR'S RESPONSIBILITY FOR MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES FOR COORDINATION OF CONSTRUCTION, THE CONTRACTOR SHALL DETERMINE INTERMEDIATE STAGING AND SEQUENCING OF TEMPORARY WORK AND NEW WORK. THE CONTRACTOR IS REQUIRED TO SUBMIT A PHASING AND SEQUENCING PLAN TO THE OWNER, OPERATOR, AND ARCHITECT PRIOR TO THE START OF CONSTRUCTION.

3. THE CONTRACTOR IS TO PROVIDE ALL TEMPORARY CONSTRUCTION AND SHORING NECESSARY TO ACCOMPLISH THE WORK AND AVOID INTERRUPTION TO ANY AND ALL OTHER SERVICES THAT MAY BE AFFECTED BY CONSTRUCTION WORK. THE DESIGN OF ANY SHORING IS TO BE PROVIDED BY A STRUCTURAL ENGINEER CONTRACTED TO THE CONTRACTOR AND CERTIFIED BY THE AUTHORITY HAVING JURISDICTION.

4. THE CONTRACTOR SHALL PROVIDE ALL SUPPLEMENTAL MATERIALS REQUIRED TO PROPERLY INSTALL, SUPPORT AND BRACE ALL COMPONENTS OF THE WORK.

5. THE CONTRACTOR IS TO MAINTAIN PROTECTIVE MEANS TO PREVENT ANY WATER INFILTRATION IN ALL AREAS OF NEW CONSTRUCTION.

RENOVATION

1. THE DRAWINGS ILLUSTRATE THE LIMIT OF THE SCOPE OF WORK. ADDITIONAL CONSTRUCTION AND/OR DEMOLITION BEYOND THIS LIMIT MAY BE REQUIRED TO ADJUST EXISTING CONDITIONS AND/OR EXISTING BUILDING SYSTEMS IN ORDER FOR THE NEW CONSTRUCTION TO BE ACCOMPLISHED. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK IN AND OUTSIDE THE LIMIT OF THE SCOPE OF WORK NECESSARY TO PERFORM THE WORK DESCRIBED IN THESE DOCUMENTS.

2. UNLESS OTHERWISE NOTED, NUMERICAL DESIGNATIONS IN THE DRAWINGS ARE NOT INTENDED TO IMPLY SEQUENCE OF CONSTRUCTION.

3. ADDITIONAL CONSTRUCTION OR MAINTENANCE WORK MAY BE ONGOING IN ADJACENT LOTS OR PROPERTIES. THE CONTRACTOR IS TO COORDINATE THE WORK WITH THE OWNER'S REPRESENTATIVE AND OTHER CONSTRUCTION OR MAINTENANCE TEAMS SO AS TO AVOID CONSTRUCTION DELAYS.

EXISTING BUILDING AND EXISTING CONDITIONS

1. REVIEW UTILITY LOCATIONS WITH OWNER'S ENGINEERING STAFF PRIOR TO COMMENCEMENT OF SITE WORK.

2. THE ARCHITECT AND ENGINEERS HAVE UTILIZED AND RELIED UPON THE AVAILABLE CONSTRUCTION DRAWINGS PREPARED BY AND DATED IN THE CHART BELOW IN PREPARATION OF THESE CONSTRUCTION DRAWINGS. THE CONTRACTOR IS RESPONSIBLE TO BECOME FAMILIAR WITH ALL THE ARCHITECTURAL AND ENGINEERING DRAWINGS OF THE EXISTING PHYSICAL CONDITIONS, ON OR RELATING TO THE SITE, AND SHALL VERIFY THESE CONDITIONS FOR BIDDING AND CONSTRUCTION PURPOSES.

LOCATION	ARCHITECT	YEAR
XXXXXXX	XXXXXX	XXXXX

COORDINATION WITH OWNER

1. THE CONTRACTOR IS TO COORDINATE THIS WORK WITH NORTH AMERICAN PROPERTIES AND STORMONT HOSPITALITY GROUP FOR TIMING AND THE EXTENT OF WORK PRIOR TO COMMENCEMENT OF WORK.

2. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO THE COMMENCEMENT OF ALL ELECTRICAL AND PLUMBING WORK. OBTAIN OWNER'S AUTHORIZATION 72 HOURS IN ADVANCE FOR ANY DISRUPTION OF SERVICES. IN NO CASE SHALL DISRUPTION OF SERVICE OCCUR WITHOUT PRIOR WRITTEN APPROVAL FROM THE OWNER.

3. THE CONTRACTOR IS TO PROTECT AND MAINTAIN THE SECURITY OF THE SITE 24 HOURS A DAY FOR THE ENTIRE DURATION OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S SECURITY CONTRACTOR TO INTEGRATE PROCEDURES FOR ACCESS TO THE CONSTRUCTION SITE.

CODE

1. BARRICADES AND WALKWAYS ARE TO BE MAINTAINED DURING CONSTRUCTION TO PROTECT PUBLIC PATHS AND EXITING DURING THE WORK. OBTAIN APPROVAL FOR ALL TEMPORARY WALKWAYS/ EXITS FROM TECH LOCAL JURISDICTION OF CODE ENFORCEMENT.

2. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO COMPLY WITH ALL CODES AND ORDINANCES IN EFFECT AT THE TIME THE PERMIT IS ISSUED. NOTIFY ARCHITECT IMMEDIATELY UPON DISCOVERY OF SUSPECTED DEVIATION.

DRAWINGS

1. DRAWINGS SHALL NOT BE SCALED FOR DETERMINATION OF LENGTHS, FIT OR QUANTITIES OF MATERIALS, ETC. DIMENSIONS SHOWN ON THE DRAWINGS SHALL INDICATE THE REQUIRED SIZES, CLEARANCES, AND DIMENSIONAL RELATIONSHIPS BETWEEN PROJECT SYSTEMS, ASSEMBLIES AND COMPONENTS. DRAWINGS SHALL NOT BE SCALED FOR DETERMINATION OF LENGTHS, FIT OR QUANTITIES OF MATERIALS, ETC.

2. THE CONTRACT DOCUMENTS CONSIST OF THIS SET OF DRAWINGS, ADDENDA, BULLETINS, CONSTRUCTION CHANGE DIRECTIVES, CHANGE ORDERS, THE CONTRACT BETWEEN OWNER AND CONTRACTOR, CONDITION OF THE CONTRACT AND ANY OTHER INFORMATION WRITTEN AND MUTUALLY AGREED UPON BETWEEN THE OWNER AND CONTRACTOR.

3. THESE DRAWINGS ARE COMPLEMENTARY AND INTERRELATED; WORK OF ANY INDIVIDUAL TRADE IS NOT NECESSARILY CONFINED TO SPECIFIC DOCUMENTS, CHAPTERS OR LOCATIONS.

4. COORDINATE LOCATIONS AND/ OR ELEVATIONS OF FLOOR DRAWINGS, REGISTERS, GRILLES, LOUVERS, DUCTS, UNIT HEATERS, PANELS, ETC. WITH MECHANICAL AND ELECTRICAL CONTRACTORS AND ARCHITECTURAL DRAWINGS.

5. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY TO ALL LIKE OR SIMILAR CONDITIONS, EVEN THOUGH NOT SPECIFICALLY MARKED ON THE DRAWINGS.

6.DIMENSIONS ARE INDICATED TO THE CENTERLINE OF STRUCTURAL GRID, FACE OF CAST-IN-PLACE CONCRETE WALL, FACE OF UNIT MASONRY WALL, AND/OR TO THE FINISH FACE OF INTERIOR WALLS AND PARTITIONS AS SCHEDULED, UNLESS NOTED OTHERWISE.

7. FINISH FLOOR ELEVATIONS (0'-0") ARE INDICATED TO THE TOP SURFACE OF THE "STRUCTURAL" SLAB, UNLESS NOTED OTHERWISE.

8. CEILING HEIGHTS ARE INDICATED FROM FLOOR ELEVATIONS TO THE FINISH FACE OF SUSPENDED CEILING SYSTEMS OR FACE OF FINISH MATERIALS, AS INDICATED OR SCHEDULED.

9. WHERE EQUIPMENT OR COMPONENTS HAVE DIMENSIONAL VARIATION DEPENDENT ON THE SELECTED MANUFACTURER, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ADJOINING CONSTRUCTION TO ACCOMMODATE THE SELECTED MANUFACTURER 'S REQUIREMENTS.

10. INTERIOR DRAWINGS DETERMINE LOCATION OF LIGHTING WITHIN MILLWORK. REFER TO ELECTRICAL DRAWINGS FOR WIRING LAYOUT AND ADDITIONAL INFORMATION ON DETAILS. IN THE EVENT OF DISCREPANCIES BETWEEN THESE DRAWINGS, IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING BEFORE ORDERING MATERIALS OR PROCEEDING WITH WORK.

11. THE INTERIOR DRAWINGS INDICATE ALL APPLIED INTERIOR FINISHES AND NON-STRUCTURAL OR DECORATIVE MILLWORK COMPONENTS FOR THE PUBLIC AREA SCOPE INDICATED. SEE ARCHITECTURAL AND/ OR STRUCTURAL DRAWINGS FOR ALL ISSUES OF LIFE SAFETY, STRUCTURAL SUPPORT LOADS AND ADA REQUIREMENTS.

12. 3D PERSPECTIVE VIEWS ARE PROVIDED FOR REFERENCE TO ASSIST THE CONTRACTOR IN UNDERSTANDING THE DESIGN CONCEPT FOR ARCHITECTURAL COMPONENTS AND ARE NOT INTENDED TO SUPERSEDE INFORMATION CONTAINED IN OTHER CONTRACTOR DOCUMENTS RELATING TO THIS WORK. ISSUES REQUIRING CLARIFICATION AND/ OR INTERPRETATION OF THESE PERSPECTIVE VIEWS SHALL BE DIRECTED TO THE ARCHITECT IN WRITING.

13. REFERENCE DIVISION 01 OF THE PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS FOR COORDINATION OF DRAWINGS AND DIMENSIONS.

DEFINITIONS

1. "TYPICAL" OR "TYP." INDICATES IDENTICAL COMPLETE SYSTEM, ASSEMBLY OR COMPONENT SHALL BE PROVIDED FOR EACH OCCURRENCE OF THE CONDITION NOTED.

2. "SIMILAR" INDICATES COMPLETE SYSTEM, ASSEMBLY AND COMPONENTS SHALL BE PROVIDED, INCLUDING ANY ADJUSTMENTS REQUIRED DUE TO VARIATION AT A PARTICULAR CONDITION, RESULTING IN COMPARABLE CHARACTERISTICS FOR THE "SIMILAR" CONDITION NOTED. THE ARCHITECT SHALL BE THE SOLE JUDGE OF A SIMILAR CONDITION'S COMPLIANCE WITH THE DESIGN INTENT.

3. "AS REQUIRED" INDICATES ITEMS OF WORK REQUIRED TO PROVIDE FOR A COMPLETE SYSTEM, ASSEMBLY OR COMPONENT AS INDICATED IN THE CONTRACT DOCUMENTS. ALL COMPONENTS OF THE NOTED SYSTEM SHALL BE PROVIDED, INSTALLED, COMPLETE AND READY FOR THE INTENDED USE.

4. "ALIGN" INDICATES ACCURATELY PROVIDE FINISH FACES OF MATERIALS IN STRAIGHT, TRUE, LEVEL AND/OR PLUMB RELATION TO ADJACENT SURFACES WITHIN TOLERANCES DEFINED IN THE TECHNICAL SPECIFICATIONS.

5. REFERENCE DIVISION 01 OF THE PROJECT MANUAL FOR ADDITIONAL DEFINITIONS AND CLARIFICATIONS.

MISCELLANEOUS

1. ALL FASTENERS AND ATTACHMENTS IN PUBLIC AREAS SHALL BE FULLY CONCEALED FROM VIEW UNLESS NOTED OTHERWISE.

2. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL EXISTING CONDITIONS AND ALL DIMENSIONS BEFORE FABRICATION OF ANY WORK.

3. ALL FINISHES AND MATERIALS ARE AS INDICATED ON THE FINISH/ MATERIAL LEGEND. NO SUBSTITUTIONS OF FINISH MATERIALS, PRODUCTS, OR SYSTEM WILL BE ACCEPTED WITHOUT PRIOR APPROVAL OF THE ARCHITECT.

4. ALL PENETRATIONS IN RATED CONSTRUCTION ARE TO BE SEALED WITH APPROPRIATE MATERIALS AS INDICATED BY THESE DOCUMENTS OR OTHERWISE REQUIRED BY INSPECTORS OR APPLICABLE CODES AND ORDINANCES.

5. IT IS THE INTENT OF THE DOCUMENTS TO PROVIDE A COMPLETELY WATERPROOF BUILDING ENVELOPE. REPORT TO ARCHITECT IMMEDIATELY ANY CONDITION THAT WOULD PREVENT A COMPLETELY WATER-PROOF BUILDING ENVELOPE.

6. FOLLOW MANUFACTURER'S INSTRUCTIONS OR CONTRACT SPECIFICATIONS WHICHEVER IS MOST STRINGENT FOR CONSTRUCTION MATERIALS AND SYSTEMS. (I.E. EIFS, SIMULATED STONE, SHEATHING PRODUCTS, STOREFRONT, ETC.)

ACOUSTICS

1. SOUND TRANSMISSION CLASS (STC) RATING CRITERIA. ACOUSTICALLY RATED WALL AND/ OR FLOOR/ CEILING CONSTRUCTION IS REQUIRED AS NOTED TO ISOLATE AREAS.

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BW &A BUILDTEC

DPW

VITRAN

ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

GENERAL NOTES & ABBREVIATIONS

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE F. BROWNE
1114 A
VIRGIN ISLANDS

A0.01
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A0.01 - GENERAL NOTES & ABBREVIATIONS
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
1/21/2025 11:33:59 PM

CODE SUMMARY - CONCORDIA (WEST)

OCCUPANCY CLASSIFICATIONS

PRIMARY NON-SEPARATED OCCUPANCIES: **BUSINESS**

CLASSIFICATION (IBC - CHAPTER 3)	FUNCTION (IBC TABLE 1004.1.1)	OCCUPANT LOAD FACTOR (IBC TABLE 1004.1.1)
BUSINESS (B)	OFFICES/ PUBLIC ADMINISTRATION	150 SF PER PERSON - GROSS

BUILDING DATA

CONSTRUCTION TYPE: II-B - UNPROTECTED NON COMBUSTIBLE

SPRINKLERS: (IBC SECTION 903)	NO	-	-
STANDPIPES: (IBC SECTION 905)	NO	-	-
HIGH RISE: (IBC SECTION 403)	NO	-	-
MEZZANINE: (IBC SECTION 505)	NO	-	-
FIRE ALARM: (IBC SECTION 907)	NO	-	-

BUILDING AREAS

ACTUAL AREA: | ALLOWABLE AREA PER FLOOR: A + B + C + D

FLOOR NO.:	USE / OCC.:	ACTUAL AREA PROVIDED	(A) ALLOWABLE FLOOR AREA (TABLE 503)	(B) FRONTAGE INCREASE (IBC 506.2)	(C) SPRINKLER INCREASE (IBC 506.3)	(D) INCREASED ALLOWABLE AREA / FLR
1ST FLOOR	B	2,148	23,000	N/A	N/A	N/A

BUILDING HEIGHTS

ACTUAL HEIGHTS: | ALLOWABLE HEIGHTS:

	HEIGHT	ALLOWABLE HEIGHT (IBC TABLE 504.3 & 504.4) TYPE IA	INCREASE PER SPRINKLERS (IBC SECTION 504.2)	TOTAL ALLOWABLE HEIGHT
HEIGHT IN FEET:	15'-1 3/4"	55'-0"	-	55'-0"
NUMBER OF STORIES:	1	3	-	3

APPLICABLE CODES

BUILDING:	INTERNATIONAL BUILDING CODE, 2021
FIRE:	INTERNATIONAL BUILDING CODE, 2021
LIFE SAFETY:	INTERNATIONAL BUILDING CODE 2021 - REFERENCE TO ICC A117
MECHANICAL:	INTERNATIONAL MECHANICAL CODE, 2018
PLUMBING:	INTERNATIONAL PLUMBING CODE, 2018
ELECTRICAL:	NATIONAL ELECTRICAL CODE, 2017 EDITION WITH 2017 NC AMENDMENTS
ENERGY:	INTERNATIONAL ENERGY CONSERVATION CODE, 2018
ACCESSIBILITY:	ANSI 117.1-2009
FAIR HOUSING:	FEDERAL FAIR HOUSING ACT GUIDELINES 1990

ZONING AND PARKING

ZONING CLASSIFICATION: (PROJECT TYPE CLASSIFICATION HERE)

PARKING REQUIREMENTS:

PARKING TYPE	REQUIRED	PROVIDED
TOTAL PARKING SPACES	05	31
ACCESSIBLE PARKING SPACES	01	2
VAN ACCESSIBLE SPACES	0	0

REQUIRED INSPECTIONS

BUILDING	ELECTRICAL	PLUMBING
FOOTINGS/CISTERN BOTTOM	FLOOR SLAB	FLOOR SLAB
FOUNDATION/FOOTINGS/SLABS	ROUGH-IN (WALLS)	ROUGH-IN (WALLS)
WALLS	TEMPORARY POWER	SEWAGE SYSTEM/DISTRIBUTION LINE
COLUMNS	METER RELOCATION	METER RELOCATION
BEAMS		
ROOF		

NOTE: Pursuant to Title 29 Chapter 5 - 294 (b) of the VI Code, approved set of plans should be readily available to Inspectors and the permit shall be prominently displayed at the site of work.

FIRE RESISTANCE RATINGS

BUILDING ELEMENTS: (IBC TABLE 601) (NOTE: "HIGH RISE" PER IBC 403.2.1.1)

	RATING (HRS)	REMARKS
STRUCTURAL FRAME:	0	1HOUR TABLE 601 - EXCEPTION A - RATING CAN BE REDUCED FOR STRUCTURE SUPPORTING ROOF ONLY.
BEARING WALLS:		
EXTERIOR:	0	
INTERIOR:	0	
NON-BEARING WALLS:		
EXTERIOR:	0	FIRE SEPARATION > 30'
INTERIOR:	0	
FLOOR CONSTRUCTION: (INCLUDING SUPPORTING BEAMS AND JOISTS)	0	
ROOF CONSTRUCTION: (INCLUDING SUPPORTING BEAMS AND JOISTS)	0	NOT RATED TABLE 601 - EXCEPTION B FIRE PROTECTION OF STRUCTURAL MEMBERS IS NOT REQUIRED WHEN EVERY PART OF THE ROOF CONSTRUCTION IS 20' OR MORE ABOVE ANY FLOOR IMMEDIATELY BELOW.

FIRE SEPARATIONS:

	RATING (HRS)	REMARKS
VERTICAL SHAFTS: (IBC 712)	N/A	
WALLS & PENETRATIONS:		
FIRE WALLS: (IBC TABLE 706.4)	0	ASSEMBLY/RESIDENTIAL
TENANT SEPARATION: (IBC SECTION 708)	0	
EXITS:		
HORIZONTAL EXIT: (IBC SECTION 1025)	0	
EXIT ACCESS CORRIDORS: (IBC SECTION 1018)	0	
EXIT PASSAGEWAY: (IBC SECTION 1023)	0	

INCIDENTAL USE: (IBC TABLE 509)

	RATING (HRS)	REMARKS
STORAGE: (IBC SECTION 508.2)		
ELEVATOR MACHINE ROOM: (IBC SECTION 3006)	0	NO OPENING TO HOISWAY SHUNT TRIP REQUIRED
ELECTRICAL: (IBC TABLE 509)	0	
MECHANICAL: (IBC TABLE 509)	0	

MEANS OF EGRESS

BUSINESS

- TRAVEL DISTANCE (INSIDE GUESTROOM TO CORRIDOR DOOR) 200'
- TRAVEL DISTANCE (GUESTROOM DOOR TO EXIT) 200'
- COMMON PATH OF TRAVEL - 30'
- DEAD END CORRIDOR - 20'

DESIGN DISTRICT
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VI LICENSE # 1114A

BW &A BUILDTEC

DPW

VITRAN

ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

CODE SUMMARY

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE E. BROWNE
1114 A
VIRGIN ISLANDS

A0.02
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A0.02 - CODE SUMMARY
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
1/21/2025 11:34:00 PM

DIVISION I- GENERAL REQUIREMENTS AND COVENANTS

1. ONLY APPROVED MATERIALS SHALL BE USED
CONTRACTOR SHALL USE ONLY MATERIALS IN THE WORKS THAT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS, RELEVANT SECTIONS OF FLORIDA DEPARTMENT OF TRANSPORTATION PUBLICATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION 2000."

2. INSPECTION AND TESTS AT SOURCE OF SUPPLY
2.1 GENERAL: IF THE VOLUME, PROGRESS OF THE WORK, AND OTHER CONSIDERATIONS WARRANT, THE ENGINEER OF RECORDS(E.O.R.) MAY INSPECT THE MATERIALS AT THE SOURCE OF SUPPLY.
2.2 COOPERATION BY CONTRACTOR: THE CONTRACTOR SHALL PROVIDE THE E.O.R. WITH FREE ENTRY AT ALL TIMES TO SUCH PARTS OF THE PLANT THAT CONCERN THE MANUFACTURE OR PRODUCTION OF THE MATERIALS ORDERED.

3. CONTROL BY SAMPLES AND TESTS
3.1 PAVEMENT SAMPLES: FOR BOTH BASE COURSE AND SURFACE COURSE PAVEMENTS, THE CONTRACTOR SHALL FURNISH SAMPLES TAKEN FROM THE COMPLETED WORK FROM ANY LOCATION THAT THE E.O.R. INDICATES, AND IMMEDIATELY REPLACE THE AREAS SO REMOVED WITH MATERIALS AND CONSTRUCTION THAT MEET THE REQUIREMENTS OF THESE SPECIFICATIONS AND TO THE LINE AND GRADE OF THE IMMEDIATE SURROUNDING PAVEMENT SURFACE.
3.2 APPLICABLE STANDARDS: METHODS OF SAMPLING AND TESTING MATERIALS SHALL BE IN ACCORDANCE WITH STANDARDS OF AASHTO OR ASTM.
3.3 SIEVES: USE SIEVES MEETING THE REQUIREMENTS OF AASHTO M 92.
3.4 INSPECTION AT PLANTS: CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ACCESS TO ALL PARTS OF ALL PAVING OR OTHER PLANTS CONNECTED WITH THE WORK TO OBSERVE WEIGHTS OR PROPORTIONS OR CHARACTER OF MATERIALS AND TO DETERMINE TEMPERATURE USED IN PREPARING MATERIALS AND MIXTURES.
3.5 COMPACTION TESTS - PAVEMENT MATERIALS
3.5.1 WHEN REQUESTED BY THE ENGINEER OF RECORD (E.O.R.): NUCLEAR DENSITY OR OTHER APPROVED COMPACTION TESTS SHALL BE CARRIED OUT ON EACH LAYER OF COMPACTED BASE AND EMBANKMENTS. TWENTY-FOUR HOURS NOTICE OF ANY TEST SHALL BE GIVEN TO THE PROJECT ENGINEER AND COPIES OF THE TEST RESULT SHALL BE FORWARDED TO THE E.O.R. AS SOON AS POSSIBLE. THE CONTRACTOR SHALL KEEP COPIES OF THE TIME AND LOCATION OF ALL TESTS.
3.5.2 FIELD-TESTING: SHALL CONFORM TO ASTM STANDARDS OR APPROVED EQUIVALENT. MOISTURE DENSITY CURVES SHALL CONFORM TO ASTM D698-78; SIEVE ANALYSES TO ASTM C136-84A4, AND FIELD DENSITIES TO ASTM D2167-84 OR TO ASTM D2922-81.

4. STORAGE OF MATERIALS
4.1 METHOD OF STORAGE: MATERIALS SHALL BE STORED IN SUCH A MANNER AS TO PRESERVE THEIR QUALITY AND FITNESS FOR THE WORK TO FACILITATE PROMPT INSPECTION AND TO MINIMIZE THE NOISE IMPACTS ON SENSITIVE RECEIVERS.

5. DEFECTIVE MATERIALS
5.1 THE FOLLOWING MATERIALS SHALL BE CONSIDERED DEFECTIVE: ALL MATERIALS NOT MEETING THE REQUIREMENTS OF THESE SPECIFICATIONS; MATERIALS THAT ARE OR HAVE BEEN IMPROPERLY STORED; AND MATERIALS THAT ARE MIXED WITH EXCESS OF CLAY, COAL , STICKS, BURLAP, HAY, STRAW, LOAM OR EARTH, OR OTHER DEBRIS.

6. LEGAL REQUIREMENTS AND RESPONSIBILITY TO THE PUBLIC
6.1 OCCUPATIONAL SAFETY AND HEALTH REQUIREMENTS: THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY FOR THE PROTECTION OF LIFE, HEALTH AND GENERAL OCCUPATIONAL WELFARE OF ALL PERSONS INCLUDING THE CONTRACTORS EMPLOYEES AND AUTHORIZED VISITORS TO THE SITE.

7. SANITARY PROVISIONS
7.1 THE CONTRACTOR SHALL PROVIDE AND MAINTAIN, IN A NEAT AND SANITARY CONDITION, SUCH ACCOMMODATIONS FOR THE USE OF HIS EMPLOYEES AS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS AND REGULATIONS OF THE UNITED STATES VIRGIN ISLANDS (USVI).

8. CONTROL OF CONTRACTOR'S EQUIPMENT
8.1 PROTECTION FROM DAMAGE BY TRACTOR-TYPE EQUIPMENT: THE CONTRACTOR SHALL TAKE POSITIVE MEASURES TO ENSURE THAT TRACTOR-TYPE EQUIPMENT DOES NOT DAMAGE THE ROAD. IF SUCH DAMAGE SHOULD OCCUR, CONTRACTOR SHALL REPAIR IT WITHOUT DELAY, AT NO EXPENSE TO THE OWNER AND SUBJECT TO THE APPROVAL OF THE E.O.R.

9. PRESERVATION OF PROPERTY
9.1 UTILITIES: CONTRACTOR SHALL NOT COMMENCE WORK AT POINTS WHERE THE CONSTRUCTION OPERATIONS ARE ADJACENT TO UTILITY FACILITIES OR OTHER PROPERTY, UNTIL MAKING ARRANGEMENTS WITH THE UTILITY FACILITIES TO PROTECT AGAINST DAMAGE THAT MIGHT RESULT IN EXPENSE, LOSS, DISRUPTION IN SERVICE OR OTHER INCONVENIENCE TO THE PUBLIC OR THE OWNERS.

10. RECORD OF CONSTRUCTION MATERIALS
10.1 GENERAL: FOR ALL CONSTRUCTION MATERIALS USED IN CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL PRESERVE FOR THE E.O.R'S INSPECTION THE INVOICES AND RECORDS OF MATERIALS FOR A PERIOD OF THREE YEARS FROM THE DATE OF COMPLETION OF THE PROJECT. THIS ALSO APPLIES TO MATERIALS PURCHASED BY SUBCONTRACTORS.

DIVISION II- CONSTRUCTION DETAILS

1. CONSTRUCTION EQUIPMENT-GENERAL REQUIREMENTS
1.0 GENERAL: UNLESS RESTRICTED TO A SPECIFIC TYPE BY THE CONTRACT DOCUMENTS OR THE E.O.R., THE CONTRACTOR MAY PERFORM THE WORK USING EQUIPMENT, TOOLS, MACHINERY, ETC., OF HIS OWN CHOOSING. NOTE THAT FACILITIES TO BE CONSTRUCTED UNDER THE CONTRACT ARE ADEQUATE TO SUPPORT ONLY THEIR DESIGN LOADS IN THEIR COMPLETED CONSTRUCTION STAGE. IF THE CONTRACTOR'S EQUIPMENT OR PROCEDURES DURING CONSTRUCTION DAMAGE ANY PART OF THE FACILITY, THE CONTRACTOR SHALL REPLACE OR REPAIR IT AS DIRECTED BY THE E.O.R. AT NO EXPENSE TO THE OWNER.

2. MAINTENANCE OF TRAFFIC
2.1 DESCRIPTION: THE CONTRACTOR SHALL MAINTAIN TRAFFIC WITHIN THE LIMITS OF THE PROJECT FOR THE DURATION OF THE CONSTRUCTION PERIOD, INCLUDING ANY TEMPORARY SUSPENSIONS OF THE WORK. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ANY DETOUR FACILITIES, PROVIDE NECESSARY FACILITIES FOR ACCESS TO RESIDENCES, BUSINESSES, ETC., ALONG THE PROJECT. CONTRACTOR SHALL FURNISH AND APPLY CALCIUM CHLORIDE OR WATER ON THE SUBGRADE, UNSURFACED BASE, OR OTHER UNSURFACED TRAVELED WAYS IN ORDER TO CONTROL DUST DURING THE CONSTRUCTION OPERATIONS.

3. TRAFFIC CONTROL
3.1 STANDARDS: FHWA'S MUTCD PART VI IS THE MINIMUM STANDARDS FOR TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS. CONTRACTOR SHALL UNDERSTAND THE STANDARDS ESTABLISHED IN THE AFOREMENTIONED MANUAL CONSTITUTE THE MINIMUM REQUIREMENTS FOR NORMAL CONDITIONS. THE E.O.R. MAY REQUIRE ADDITIONAL TRAFFIC CONTROL DEVICES, WARNING DEVICES, BARRIERS, OR OTHER SAFETY DEVICES WHERE UNUSUAL, COMPLEX, OR PARTICULARLY HAZARDOUS CONDITIONS EXIST.
3.2 MAINTENANCE OF DEVICES AND BARRIERS P CONTRACTOR SHALL KEEP TRAFFIC CONTROL DEVICES, WARNING DEVICES, AND BARRIERS IN THE CORRECT POSITION PROPERLY DIRECTED, CLEARLY VISIBLE AND CLEAN AT ALL TIMES. CONTRACTOR SHALL IMMEDIATELY REPAIR, REPLACE OR CLEAN DAMAGED, DEFACED, OR DIRTY DEVICES OR BARRIERS AND HAVE THE E.O.R. APPROVE THEM FOR USE.

4. PREVENTION, CONTROL AND ABATEMENT OF EROSION AND WATER POLLUTION
4.1 DESCRIPTION: CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES ON THE PROJECT AND IN AREAS OUTSIDE THE RIGHT-OF-WAY AS THE WORK IS ACCOMPLISHED IN CONJUNCTION WITH THE PROJECT, SO AS TO PREVENT POLLUTION OF WATER, DETRIMENTAL EFFECTS TO PUBLIC OR PRIVATE PROPERTY ADJACENT TO THE PROJECT RIGHT-OF-WAY AND DAMAGE TO WORK ON THE PROJECT. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN TEMPORARY EROSION CONTROL FEATURES OR, WHERE PRACTICAL, CONSTRUCT AND MAINTAIN PERMANENT EROSION CONTROL FEATURES AS SHOWN IN THE PLANS OR AS MAY BE DIRECTED BY THE E.O.R.

5. CLEARING AND GRUBBING
5.1 DESCRIPTION: CONTRACTOR SHALL CLEAR AND GRUB WITHIN THE AREAS OF THE ROADWAY RIGHT-OF-WAY AND OF BORROW PITS, SAND-CLAY BASE MATERIAL PITS, LATERAL DITCHES AND ANY OTHER AREAS SHOWN IN THE PLANS TO BE CLEARED AND GRUBBED. REMOVE AND DISPOSE OF ALL TREES, STUMPS, ROOTS, AND OTHER SUCH PROTRUDING OBJECTS, AND BUILDINGS, STRUCTURES, APPURTENANCES, EXISTING FLEXIBLE ASPHALT PAVEMENT, AND OTHER FACILITIES NECESSARY TO PREPARE THE AREA FOR THE PROPOSED CONSTRUCTION, AND REMOVE AND DISPOSE OF ALL PRODUCT AND DEBRIS NOT REQUIRED TO BE SALVAGED OR NOT REQUIRED TO COMPLETE THE CONSTRUCTION.
CONTRACTOR SHALL ALSO PERFORM MISCELLANEOUS WORK THE E.O.R. CONSIDERS NECESSARY FOR THE COMPLETE PREPARATION OF THE OVERALL PROJECT SITE AS FOLLOWS:
(a) PLUG ANY WATER WELLS THAT ARE ENCOUNTERED WITHIN THE RIGHT-OF-WAY AND THAT ARE TO BE ABANDONED.
(b) LEVEL THE TERRAIN OUTSIDE THE LIMITS OF CONSTRUCTION FOR PURPOSES OF FACILITATING MAINTENANCE AND OTHER POST-CONSTRUCTION OPERATIONS.
(c) TRIM TREES AND SHRUBS WITHIN THE PROJECT RIGHT-OF-WAY THAT ARE IDENTIFIED IN THE PROJECT DOCUMENTS.

6. STABILIZING
6.1 DESCRIPTION: STABILIZE DESIGNATED PORTIONS OF THE ROADBED TO PROVIDE A FIRM AND UNYIELDING SUBGRADE, HAVING THE REQUIRED BEARING VALUE SPECIFIED IN THE PLANS. WHEN SPECIFIED IN THE PLANS, PROVIDE ADDITIONAL STRENGTHENING OF THE SUBBASE BY ADDITIONAL STABILIZING OF THE UPPER PORTION OF THE PREVIOUSLY STABILIZED SUBGRADE. WITHIN THE LIMITS SPECIFIED.
6.2 MAXIMUM PARTICLE SIZE OF MIXED MATERIALS: AT THE COMPLETION OF THE MIXING, ENSURE THAT THE GRADATION OF THE MATERIAL WITHIN THE LIMITS OF THE AREA BEING STABILIZED IS SUCH THAT 97% WILL PASS A 3 1/2" (90MM) SIEVE AND THAT THE MATERIAL DOES NOT HAVE A PLASTICITY INDEX GREATER THAN EIGHT OR LIQUID LIMIT GREATER THAN THIRTY.

6.3 DENSITY REQUIREMENTS: WITHIN THE ENTIRE LIMITS OF THE WIDTH AND DEPTH OF THE AREAS TO BE STABILIZED, OBTAIN A MAXIMUM DENSITY OF 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T180.

7. GRANULAR BASE
7.1 MATERIALS: MATERIALS SHALL MEET THE REQUIREMENTS OF THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) STANDARD. THE CONTRACTOR MAY USE MORE THAN ONE SOURCE OF GRANULAR BASE ON A SINGLE CONTRACT PROVIDED THAT A SINGLE SOURCE IS USED THROUGHOUT THE ENTIRE WIDTH AND DEPTH OF A SECTION OF BASE. OBTAIN APPROVAL FROM THE E.O.R. BEFORE PLACING MATERIAL FROM MORE THAN ONE SOURCE.
7.2 METHOD OF SPREADING: CONTRACTOR SHALL SPREAD THE ROCK UNIFORMLY. REMOVE ALL SEGREGATED AREAS OF FINE OR COURSE ROCK AND REPLACE THEM WITH PROPERLY GRADED ROCK.
7.3 GRANULAR BASE FOR SHOULDER PAVEMENT: UNLESS OTHERWISE PERMITTED, CONTRACTOR SHALL COMPLETE ALL GRANULAR BASE SHOULDER CONSTRUCTION AT ANY PARTICULAR LOCATION BEFORE PLACING THE FINAL COURSE OF PAVEMENT ON THE TRAVELED ROADWAY. WHEN DUMPING MATERIAL FOR THE CONSTRUCTION OF A GRANULAR BASE ON THE SHOULDERS, DO NOT ALLOW MATERIAL CAPABLE OF SCARRING OR CONTAMINATING THE PAVEMENT SURFACE ON THE ADJACENT PAVEMENT. IMMEDIATELY SWEEP OFF ANY GRANULAR MATERIAL THAT IS DEPOSITED ON THE SURFACE COURSE.
7.4 DENSITY REQUIREMENTS: WHEN PROPER MOISTURE CONDITIONS ARE OBTAINED, COMPACT MATERIAL TO NOT LESS THAN 98% OF MAXIMUM DENSITY DETERMINED BY AASHTO T180. COMPACT THE GRANULAR BASE FOR SHOULDER PAVEMENT TO NOT LESS THAN 95% OF MAXIMUM DENSITY DETERMINED BY AASHTO T180.
7.5 PRIMING: CONTRACTOR SHALL APPLY THE PRIME COAT ONLY WHEN THE BASE MEETS THE SPECIFIED DENSITY REQUIREMENTS AND WHEN THE MOISTURE CONTENT IN THE TOP HALF OF THE BASE DOES NOT EXCEED 90% OF THE OPTIMUM MOISTURE OF THE BASE MATERIAL. AT THE TIME OF PRIMING ENSURE THAT THE BASE IS FIRM, UNYIELDING AND IN SUCH CONDITION THAT NO UNDUE DISTORTION WILL OCCUR.
7.6 MAINTAINING: MAINTAIN THE TRUE CROWN AND TEMPLATE, WITH NO RUTTING OR OTHER DISTORTION WHEN APPLYING THE SURFACE COURSE.

8. PRIME AND TACK COATS FOR BASE COURSES
8.1 DESCRIPTION: CONTRACTOR SHALL APPLY PRIME COATS ON PREVIOUSLY PREPARED BASES, AND APPLY TACK COATS ON PREVIOUSLY PREPARED BASES AND ON EXISTING PAVEMENT SURFACES.
8.2 PRIME COAT: FOR PRIME COAT, CONTRACTOR SHALL USE CUTBACK ASPHALT GRADE RC-70 OR RC-250 MEETING REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS, SECTION 916-3.
8.3 COVER MATERIAL FOR PRIME COAT: UNIFORMLY COVER THE PRIME BASE BY A LIGHT APPLICATION OF COVER MATERIAL. THE CONTRACTOR MAY USE EITHER SAND OR SCREENINGS FOR COVER MATERIAL. FOR THE SAND, MEET THE REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS SECTION 902-2 OR 902-6; AND FOR THE SCREENINGS MEET THE REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS SECTION 902-5. IF EXPOSING THE PRIMED BASE COURSE TO GENERAL TRAFFIC, APPLY A COVER MATERIAL THAT HAS BEEN COATED WITH 2 TO 4% ASPHALT CEMENT, APPLY THE ASPHALT COATED MATERIAL AT APPROXIMATELY 10 LB /SQ.YD [5.5 KG/SQ. M], ROLL THE ENTIRE SURFACE OF ASPHALT COATED MATERIAL WITH A TRAFFIC ROLLER AS REQUIRED TO PRODUCE A REASONABLE DENSE MAT.
8.4 TACK COAT: UNLESS THE CONTRACT DOCUMENTS CALL FOR A SPECIFIC TYPE OR GRADE OF TACK COAT, USE UNDILUTED EMULSIFIED ASPHALT GRADES RS-1 OR RS-2 MEETING THE REQUIREMENTS OF FDOT STANDARD SPECIFICATIONS SECTION 916-4. HEAT RS-1 OR RS-2 TO A TEMPERATURE OF 140 TO 180° F [60 TO 82°C].
8.5 APPLICATION OF PRIME COAT
8.5.1 GENERAL: CONTRACTOR SHALL CLEAN THE SURFACE TO BE PRIMED AND ENSURE THAT THE MOISTURE CONTENT OF THE BASE DOES NOT EXCEED 90% OF THE OPTIMUM MOISTURE. ENSURE THAT THE TEMPERATURE OF THE PRIME MATERIAL IS BETWEEN 100 AND 150° F (40 AND 65° C). APPLY THE MATERIAL WITH A PRESSURE DISTRIBUTOR. DETERMINE THE APPLICATION AMOUNT BASED ON THE CHARACTER OF THE SURFACE. USE AN AMOUNT SUFFICIENT TO COAT THE SURFACE THOROUGHLY AND UNIFORMLY WITH NO EXCESS.
8.5.2 RATE OF APPLICATION: CONTRACTOR SHALL USE A RATE OF APPLICATION THAT IS NOT LESS THAN 0.1 GAL/SQ.YD [0.5 L/SQ.M], UNLESS A LOWER RATE IS DIRECTED BY THE E.O.R.
8.6 APPLICATION OF PRIME COAT
8.6.1 WHERE REQUIRED: IN GENERAL THE E.O.R. WILL NOT REQUIRE A TACK COAT ON PRIMED BASES EXCEPT IN AREAS THAT HAVE BECOME EXCESSIVELY DIRTY AND CANNOT BE CLEANED, OR IN AREAS WHERE THE PRIME HAS CURED TO AN EXTENT THAT IT HAS LOST ALL BONDING EFFECT. GENERALLY, THE E.O.R. WILL REQUIRE A TACK COAT ON HOT BITUMINOUS BASE COURSE BEFORE PLACING THE SURFACE COURSE.
8.6.2 METHOD OF APPLICATION: CONTRACTOR SHALL APPLY THE TACK COAT WITH A PRESSURE DISTRIBUTOR EXCEPT THAT ON SMALL JOBS, IF APPROVED BY THE E.O.R., IT MAY BE APPPLIED BY OTHER MECHANICAL DEVICES OR BY HAND METHODS. HEAT THE BITUMINOUS MATERIAL TO A SUITABLE TEMPERATURE AS DESIGNATED BY THE E.O.R., AND APPLY IT IN A THIN, UNIFORM LAYER.
8.6.3 RATE OF APPLICATION: CONTRACTOR SHALL USE A RATE OF APPLICATION BETWEEN 0.02 AND 0.08 GAL/SQ.YD [0.09 AND 0.36 L/SQ.M].

9. BITUMINOUS SURFACE TREATMENT (INCLUDING MINERAL SEAL COAT)
9.1 DESCRIPTION: CONTRACTOR SHALL CONSTRUCT A WEARING SURFACE OF SEPARATE APPLICATIONS OF BITUMINOUS MATERIAL COVEREED WITH AGGREGATE, EITHER IN SINGLE APPLICATIONS, DOUBLE (ALTERNATE) APPLICATIONS OR TRIPLE (ALTERNATE) APPLICATIONS
9.2 COMPOSITION AND PROPORTIONING: THE COMPOSITION AND PROPORTIONING FOR THE VARIOUS TYPES OF BITUMINOUS SURFACE TREATMENT AND FOR MINERAL SEAL COAT SHALL BE AS PER THE TABLES IN FDOT STANDARD SPECIFICATIONS SECTION 310-2.

9.3 EQUIPMENT:
9.3.1 PRESSURE DISTRIBUTOR: CONTRACTOR SHALL PROVIDE A PRESSURE DISTRIBUTOR THAT IS EQUIPPED WITH PNEUMATIC TIRES HAVING A SUFFICIENT WIDTH OF RUBBER IN CONTACT WITH THE ROAD SURFACE TO AVOID BREAKING THE BOND OR FORMING A RUT IN THE SURFACE. ENSURE THAT THE DISTANCES BETTWEEN THE CENTRES OF OPENINGS OF THE OUTSIDE NOZZLES OF THE SPRAY BAR IS EQUAL TO THE WIDTH OF THE APPLICATION REQUIRED, WITHIN A ALLOWABLE VARIATION OF 2 INCHES [50 MM]. ENSURE THAT THE OUTSIDE NOZZLE AT EACH END OF THE SPRAY BAR HAS AN AREA OF OPENING NOT LESS THAN 25% OR MORE THAN 75% IN EXCESS OF THE OTHER NOZZLES. ENSURE THAT ALL NOZZLES HAVE UNIFORM OPENINGS.
9.3.2 SPREADING EQUIPMENT: CONTRACTOR SHALL PROVIDE SUFFICIENT TRUCKS AD AGGREGATE SPREADERS AT THE SITE OF THE WORK TO ENSURE CONTINUOUS SPREADING OF THE AGGREGATE ON THE UNCOVERED BITUMINOUS MATERIAL. USE A SPREADER OF THE MECHANICAL TYPE THAT IS SELF-SUPPORTED (TOWED) OR SELF-PROPELLED THAT IS CAPABLE OF PRODUCING A SMOOTH, UNIFORM DISTRIBUTION OF THE COVER MATERIAL. DO NOT USE SPREADERS OF THE TYPE ATTACHED DIRECTLY TO THE BACK OF THE TRUCK BODY (TAIL GATE SPREADERS).

9.3.3 ROLLERS: CONTRACTOR SHALL PROVIDE ROLLERS THAT ARE 3 TO 5 TON [2.7 TO 4.5 METRIC TON] STEEL-TIRED OR COMBINATION STEEL AND RUBBER-TIRED, ROLLERS AND SELF-PROPELLED, PNEUMATIC-TIRED TRAFFIC TYPE ROLLERS THAT ARE EQUIPPED WITH AT LEAST SEVEN SMOOTH-TREAD, LOW-PRESSURE TIRES AND CAPABLE OF CARRYING A LOAD OF AT LEAST 8 TONS [7 METRIC TONS]. MAINTAIN THE INFLATION IN THE TIRES SUCH THAT IN NO TWO TIRES THE AIR PRESSURE VARIES MORE THAN 5 PSI [35 KPA]. LOAD THE TRAFFIC LOADED AS DIRECTED BY THE E.O.R.
9.4 APPLICATION OF BITUMINOUS MATERIAL:
9.4.1 DISTRIBUTOR PRESSURE: AFTER CLEANING THE SURFACE TO BE TREATED TO THE SATISFACTION OF THE E.O.R., THE CONTRACTOR SHALL UNIFORMLY SPRAY THE BITUMINOUS MATERIAL OVER THE SURFACE BY MEANS OF A PRESSURE DISTRIBUTOR, WHEN A SURFACE CONSTRUCTED UNDER THIS SECTION IS ON A PAVED SHOULDER, USE A STRINGLINE OR OTHER APPROVED METHOD TO PRODUCE A UNIFORM LINE ALONG THE EDGE OF THE APPLIED BITUMINOUS MATERIAL ADJACENT TO THE TRAFFIC LANES. USE A DISTRIBUTOR THAT MAINTAINS A PRESSURE OF AT LEAST 20 PSI [140 KPA] AND 75 PSI [520 KPA].
9.4.2 APPLICATION TEMPERATURES: FOR ASPHALT CEMENT, MAINTAIN AN APPLICATION TEMPERATURE BETWEEN 300 AND 350° F [150 AND 175° C], FOR EMULSIFIED ASPHALT MAINTAIN AN APPLICATION TEMPERATURE BETWEEN 100 AND 170° F [38 AND 75° C], FOR CUT-BACK ASPHALT, MAINTAIN AN APPLICATION TEMPERATURE BETWEEN 175 AND 275° F [80 AND 135° C].
9.4.3 UNIFORMITY OF DISTRIBUTION: CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS TO OBTAIN AN EVEN AND UNIFORM DISTRIBUTIOIN OF BITUMINOUS MATERIAL, AND ADJUST AND OPERATE THE DISTRIBUTOR SO AS TO MAINTAIN UNIFORM, EVEN DISTRIBUTION OF THE MATERIAL BEING APPLIED. IMMEDIATELY REMOVE EXCESSIVE DEPOSITS OF BITUMINOUS MATERIAL UPON THE ROAD SURFACE CAUSED BY STOPPING AND STARTING THE DISTRIBUTOR, BY LEAKAGE OR OTHERWISE.
9.5 SPREADING COVER MATERIAL
9.5.1 SPREADING: SPREAD THE COVER MATERIAL IMMEDIATELY FOLLOWING EACH APPLICATION OF BITUMINOUS MATERIAL. UNIFORMLY DISTRIBUTE THE COVER MATERIAL OVER THE BITUMINOUS SURFACE IN ONE, TWO, OR THREE COURSES AS SPECIFIED. PERFORM SPREADING USING APPROVED MECHANICAL SPREADERS. USING ONLY DRIVERS EXPERIENCED IN THIS TYPE OF WORK FOR DRIVING THE SPREADERS. DO NOT DRIVE TRUCKS OR SPREADERS ON THE UNCOVERED BITUMINOUS MATERIAL.
9.5.2 BROOMING AND DRESSING: IMMEDIATELY AFTER EACH APPLICATION OF COVER MATERIAL, BROOM THE SURFACE IN ORDER TO SECURE A UNIFORM DISTRIBUTION OF COVER MATERIAL AND A SMOOTH SURFACE. PLACE ADDITIONAL AGGREGATE BY HAND ON ANY AREAS NOT PROPERLY COVERED.
9.6 ROLLING AND CURING
9.6.1 GENERAL REQUIREMENTS: IMMEDIATELY AFTER THE SPREADING AND DRAGGING OF EACH APPLICATION OF COVER MATERIAL, ROLL THE ENTIRE SURFACE. BEGIN ROLLING WITHIN 30 MINUTES AFTER SPREADING OF THE COVER MATERIAL. BEGIN ROLLING AT THE EDGES AND PROGRESS TO THE CENTRE OF THE SURFACE. UNIFORMLY LAPPING EACH PRECEDING PASS AND THOROUGHLY COVERING THE ENTIRE SURFACE. DURING ROLLING, PERFORM ADDITIONAL DRAGGING AND HANDBROOMING AS SPECIFIED ABOVE. FIRST ROLL THE ENTIRE SURFACE WITH A TRAFFIC ROLLER, FOLLOWED IMMEDIATELY WITH A STEEL-WHEELED ROLLER. COVER THE ENTIRE SURFACE WITH A STEEL-WHEELED ROLLER. THEN, ROLL THE COVER MATERIAL AGAIN WITH THE TRAFFIC ROLLER. CONTINUE THE ROLLING AS LONG AS IS NECESSARY TO ENSURE THE THOROUGH KEYING OF THE COVER MATERIAL AND TO SECURE A UNIFORMLY CLOSED SURFACE.
9.6.2 SHOULDER PAVEMENT: FOR BITUMINOUS SURFACE-TREATED SHOULDER PAVEMENT, THE E.O.R. MAY REQUIRE ADDITIONAL ROLLING AS HE DEEMS NECESSARY TO COMPENSATE FOR THE LACK OF SUBSEQUENT ROLLING BY HIGHWAY TRAFFIC.
9.7 SURFACE REQUIREMENTS: CONTRACTOR SHALL PROVIDE A FINISHED SURFACE THAT IS UNIFORM AND CONFORMS TO THE LINES, GRADES AND CROSS SECTIONS SHOWN IN THE PLANS. REMOVE ALL PORTIONS OF THE COMPLETED SURFACE THAT ARE DEFECTIVE, ARE NOT PROPERLY FINISHED, HAVE FAT JOINTS, OR ARE NOT IN REASONABLY CLOSE CONFORMANCE WITH THESE SPECIFICATIONS, AND REPLACE THEM WITH A SATISFACTORY SURFACE.
9.8 PROTECTION: AFTER APPLYING THE BITUMINOUS MATERIAL, THE CONTRACTOR SHALL PREVENT TRAFFIC FROM USING THE ROAD UNTIL PLACING AND THOROUGHLY ROLLING THE COVER MATERIAL. IF POSSIBLE COMPLETE THE TRAFFIC OFF THE FINISHED SURFACE FOR AT LEAST 48 HOURS AFTER COMPLETING FINISHING

10. HOT BITUMINOUS MIXTURES
10.1 TRANSPORTATION OF THE MIXTURE: TRANSPORT THE MIXTURE IN TIGHT VEHICLES PREVIOUSLY CLEANED OF ALL FOREIGN MATERIAL. AFTER CLEANING, THINLY COAT THE INSIDE OF THE TRUCK BODIES WITH SOAPY WATER OR AN APPROVED EMULSION CONTAINING NOT MORE THAN 5% OIL. APPLY THE COATING PRIOR TO THE FIRST LOADING EACH DAY AND REPEAT AS NECESSARY THROUGHOUT THE DAY'S OPERATIONS. AFTER THE TRUCK BODIES ARE COATED AND BEFORE ANY MIXTURE IS PLACED THEREIN, RAISE THEM TO DRAIN OUT ANY EXCESS LIQUIDS. COVER EACH LOAD DURING COOL AND CLOUDY WEATHER AND AT ANY TIME THERE IS A PROBABILITY OF RAIN.
10.2 PREPARATION OF APPLICATION SURFACES
10.2.1 CLEANING: PRIOR TO THE LAYING OF THE MIXTURE, CLEAN THE SURFACE OF THE BASE OR THE PAVEMENT TO BE COVERED OF ALL LOOSE OR DELETERIOUS MATERIAL BY THE USE OF POWER BROOMS OR BLOWERS, SUPPPLEMENTED BY HAND BROOMING WHERE NECESSARY.
10.2.2 PATCHING AND LEVELING COURSES: WHEN AN ASPHALT MIX IS TO BE PLACED ON AN EXISTING PAVEMENT OR OLD BASE WHICH IS IRREGULAR, AND WHEREVER THE PLANS INDICATE, BRING THE EXISTING SURFACE TO PROPER GRADE AND CROSS SECTION BY THE APPLICATION OF PATCHING AND LEVELING COURSES.
10.2.3 APPLICATION OVER SURFACE TREATMENT: WHERE AN ASPHALT MIX IS TO BE PLACED OVER NEWLY CONSTRUCTED SURFACE TREATMENT, SWEEP AND DISPOSE OF ALL LOOSE MATERIAL FROM THE PAVING AREA.
10.2.4 COATING SURFACES OF CONTACTING STRUCTURES: PAINT ALL STRUCTURES WHICH WILL BE IN ACTUAL CONTACT WITH THE ASPHALT MIXTURE, WITH THE EXCEPTION OF THE VERTICAL FACES OF THE EXISTING PAVEMENTS AND CURBS OR CURB AND GUTTER, WITH A UNIFORM COATING OF ASPHALT CEMENT TO PROVIDE A CLOSELY BONDED, WATER-TIGHT JOINT.

10.3 PLACING MIXTURE
10.3.1 ALIGNMENT OF EDGES: LAY ALL ASPHALTIC CONCRETE MIXTURES, INCLUDING LEVELING COURSES OTHER THAN ADJACENT TO CURB AND GUTTER AND OTHER TRUE EDGES, BY THE STRINGLINE METHOD TO OBTAIN AN ACCURATE, UNIFORM ALIGNMENT OF THE PAVEMENT EDGE.
10.3.2 TEMPERATURE OF SPREADING: THE CONTRACTOR SHALL MAINTAIN THE TEMPERATURE OF THE MIX AT THE TIME OF SPREADING TO WITHIN +/- 24° F [+/- 14° C] OF THE ESTABLISHED MIX TEMPERATURE ESTABLISHED BY THE CONTRACTOR, AS A MINIMUM, THE ENGINEER WILL TAKE MIX TEMPERATURES OF THE MIX ON THE ROAD IN AN AVERAGE FREQUENCY OF ONE PER FIVE TRUCKS. IF THE TEMPERATURE FAILS TO FALL WITHIN SPECIFIED TOLERANCE CORRECTIVE ACTION MAY NEED TO BE TAKEN.
10.3.3 RAIN AND SURFACE CONDITIONS: IMMEDIATELY CEASE TRANSPORTATION OF ASPHALT MIXTURES FROM THE PLANT WHEN RAIN BEGINS AT THE ROADWAY. DO NOT PLACE ASPHALT MIXES WHILE RAIN IS FALLING, OR WHEN THERE IS WATER ON THE SURFACE TO BE COVERED. AS AN EXCEPTION, THE CONTRACTOR MAY PLACE MIXTURES CAUGHT IN TRANSIT AT THE CONTRACTOR'S RISK IF THE ONLY OPTION IS TO WASTE THE MIXTURE AND PROVIDED THE SURFACE HAS BEEN TACKED AS REQUIRED PRIOR TO THE RAIN AND THE SURFACE IS BROOMED IN FRONT OF THE SPREADING OPERATION.
10.4 COMPACTING MIXTURE
10.4.1 STANDARD ROLLING PROCEDURE: CONTRACTOR SHALL MEET THE FOLLOWING EQUIPMENT, SEQUENCE , AND COVERAGE REQUIREMENTS:
1. SEAL ROLLING: PROVIDE TWO COVERAGES WITH A TANDEM STEEL-WHEELED ROLLER (EITHER VIBRATORY OR STATIC), WEIGHING 5 TO 12 TONS [4.5 TO 11 METRIC TONS], FLOOLWING AS CLOSE BEHIND THE SPREADER AS POSSIBLEWITHOUT PICKUP, UNDUE DISPLACEMENT OR BLISTERING OF THE MATERIAL. USE VIBRATORY ROLLERS IN THE STATIC MODE FOR LAYERS OF 1 INCH [25MM] OR LESS IN THICKNESS.

2. INTERMEDIATE ROLLING: PROVIDE FIVE COVERAGES WITH A SEFL-PROPELLED PNEUMATIC-TIRED ROLLER, FOLLOWING AS CLOSE BEHIND THE SEAL ROLLING OPERATION AS THE MIX WILL PERMIT.

3. FINAL ROLLING: PROVIDE ONE COVERAGE WITH A TANDUM STEEL-WHEELED ROLLER (STATIC MODE ONLY), WEIGHING 5 TO 12 TONS [4.5 TO 11 METRIC TONS], AFTER COMPLETING THE SEAL ROLLING AND INTERMEDIATE ROLLING, BUT BEFORE THE SURFACE PAVEMENT TEMPERATURE DROPS BELOW 160° F [70°C].
10.4.2 ROLLING PROCEDURES: ENSURE THAT THE INITIAL ROLL

Plot No. 24–B
Dwg. No. 5394

S17° 28' 34"E 200.00'

Plot No. 24–F
Dwg. No. 5394

Plot No. 24-D
0.9182 U.S. Ac.
(39,995 s.f.)

DPNR Zone: P

N72° 05' 26"E 95.23'

Maintained Field

Plot No. 24–I
Dwg. No. D9–6290–C012

120'

Remainder of Plot No. 24
Dwg. No. 5879

S72° 05' 26"W 200.00'

Wooden Building

118'

Plot No. 24–E
Dwg. No. 5394

N72° 05' 26"E 104.77'

Electrical Riser on pole

Shanty | Office | Shanty

Asphalt Pavement

122'

S17° 28' 34"E 200.00'

R O U T E 7 5
Road Plot No. 4
48' Right–of–Way

ROUTE 75

24' Wide Asphalt Roadway

0 5 10 20

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DPW

VITRAN

BUILDTEC

ISSUANCES		
No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

EXISTING CONDITION PLAN

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

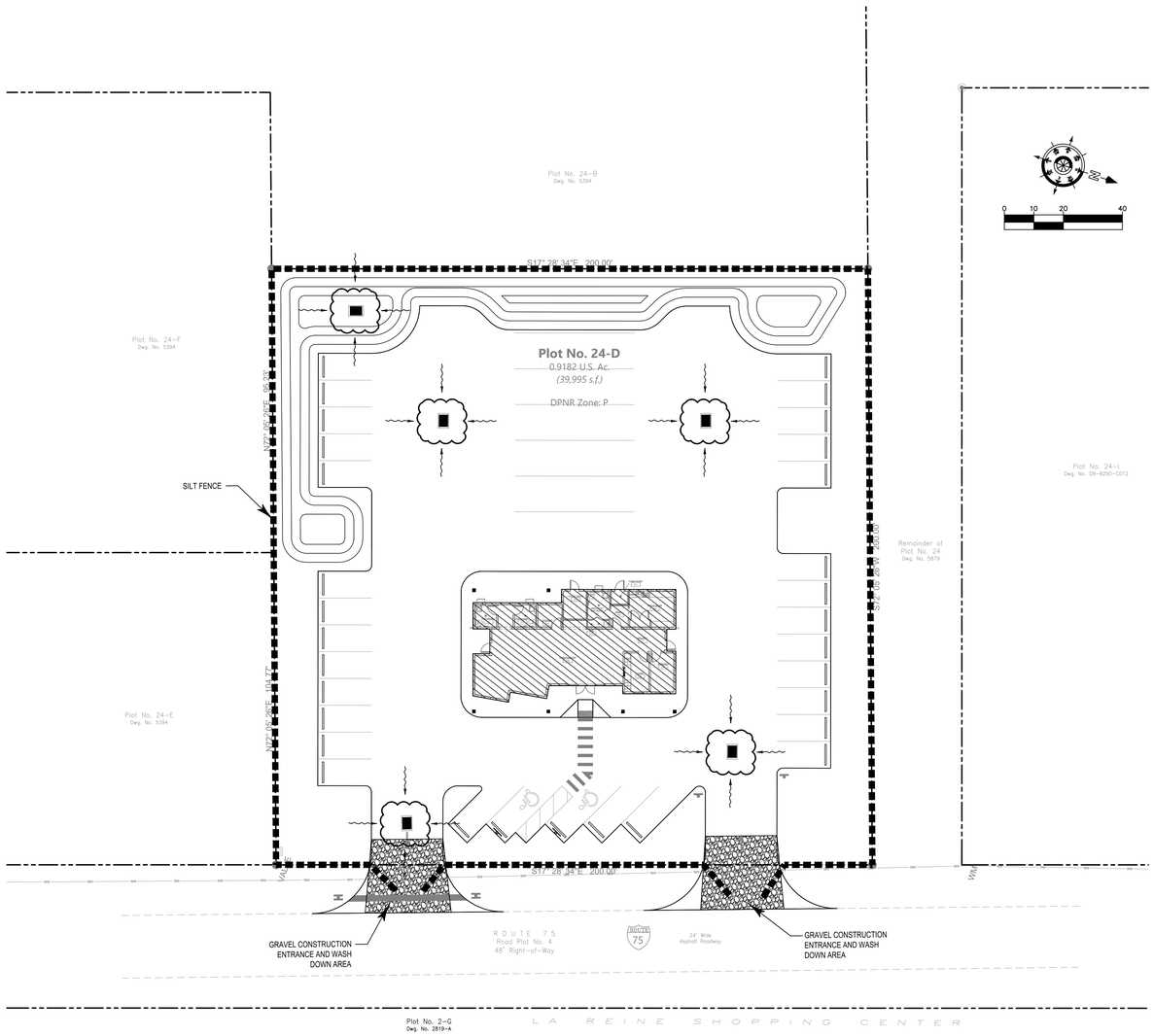
2024-009
Project No.

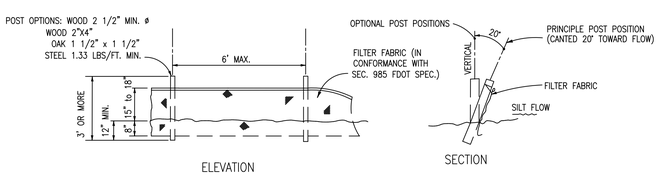
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
20801–19
U.S. VIRGIN ISLANDS

C002
Drawing No.

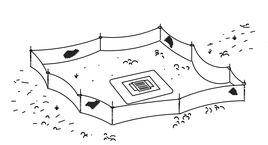
NOT ISSUED FOR CONSTRUCTION



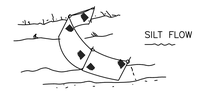


NOTE: SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE (LF).

TYPE III SILT FENCE

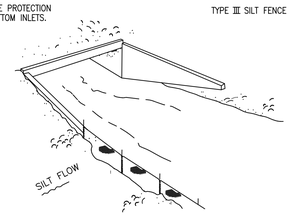


TYPE III SILT FENCE PROTECTION
AROUND DITCH BOTTOM INLETS.



NOTE: SPACING FOR TYPE III FENCE TO BE IN ACCORDANCE WITH CHART I., SHEET 1 OF 3 AND DITCH INSTALLATIONS AT DRAINAGE STRUCTURES SHEET 2 OF 3.

TYPE III SILT FENCE



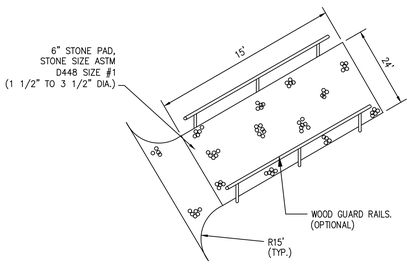
TYPE III SILT FENCE

DO NOT DEPLOY IN A MANNER THAT SILT FENCES WILL ACT AS A DAM ACROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE USED AT UPLAND LOCATIONS AND TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.

SILT FENCE APPLICATIONS

TYPE III SILT FENCE
AS PER FDOT STANDARD INDEX #102

DETAIL
SCALE
1



CONSTRUCTION ENTRANCE

DETAIL
SCALE
2

LEGEND

- PROPERTY LINE
- SILT FENCE
- DRAINAGE FLOW
- GRAVEL CONSTRUCTION ENTRANCE AND WASH DOWN AREA
- PLACE FILTER FABRIC BENEATH RIM OF NEW DRAINAGE INLETS AND HAY BALES AROUND PERIMETER OF NEW DRAINAGE INLETS

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VITRAN

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ISSUANCES		
No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

STORMWATER POLLUTION PREVENTION PLAN & DETAILS

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.

06.14.2022
Date

DAMIAN CARTWRIGHT 28851-1B

C003
Drawing No.

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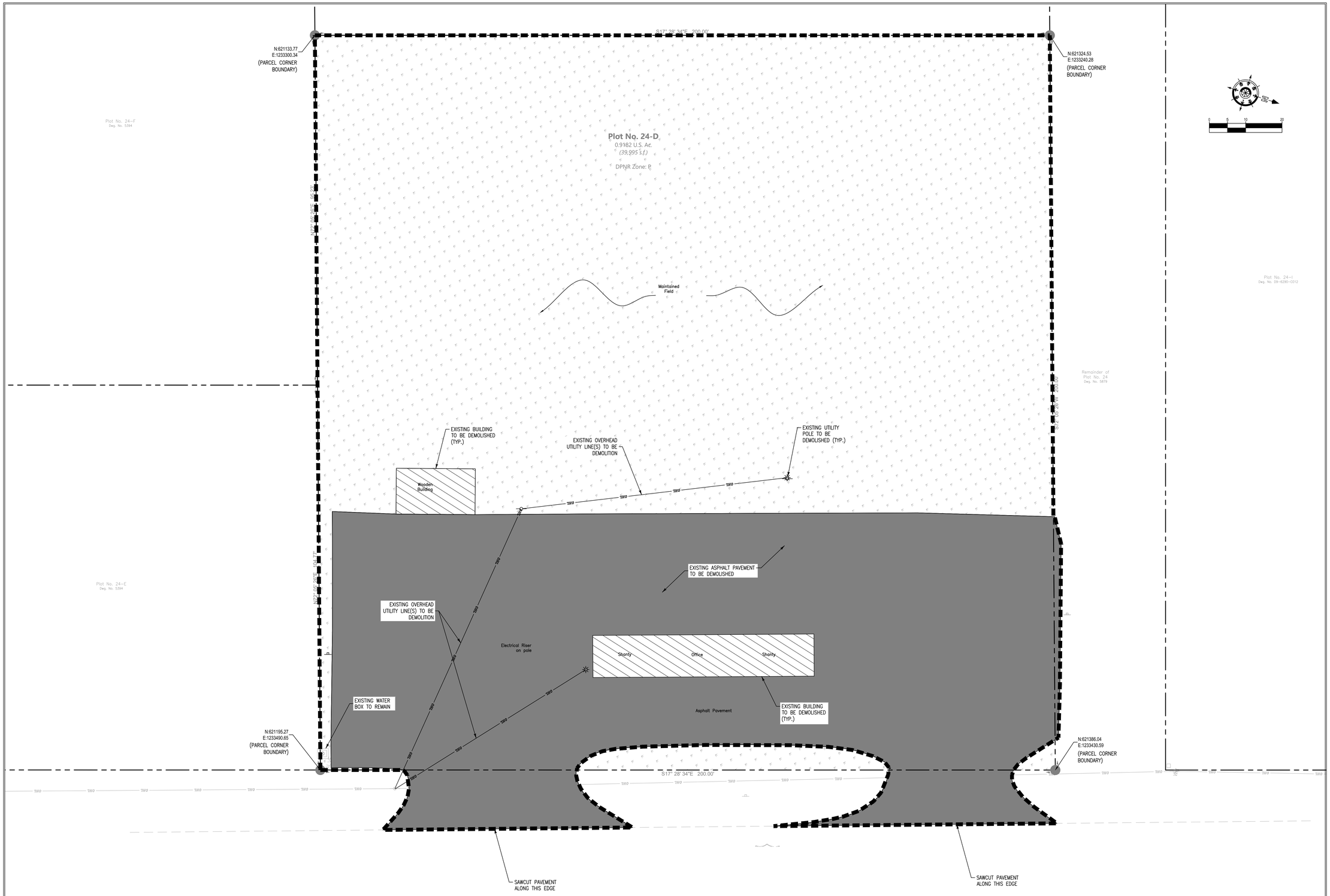

DEMOLITION LEGEND

- BUILDING DEMOLITION
- ASPHALTIC CONCRETE PAVEMENT DEMOLITION
- CLEARING & GRUBBING
- UTILITY POLE DEMOLITION
- DISTURBED SITE / DEMOLITION LIMITS

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No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

DEMOLITION PLAN

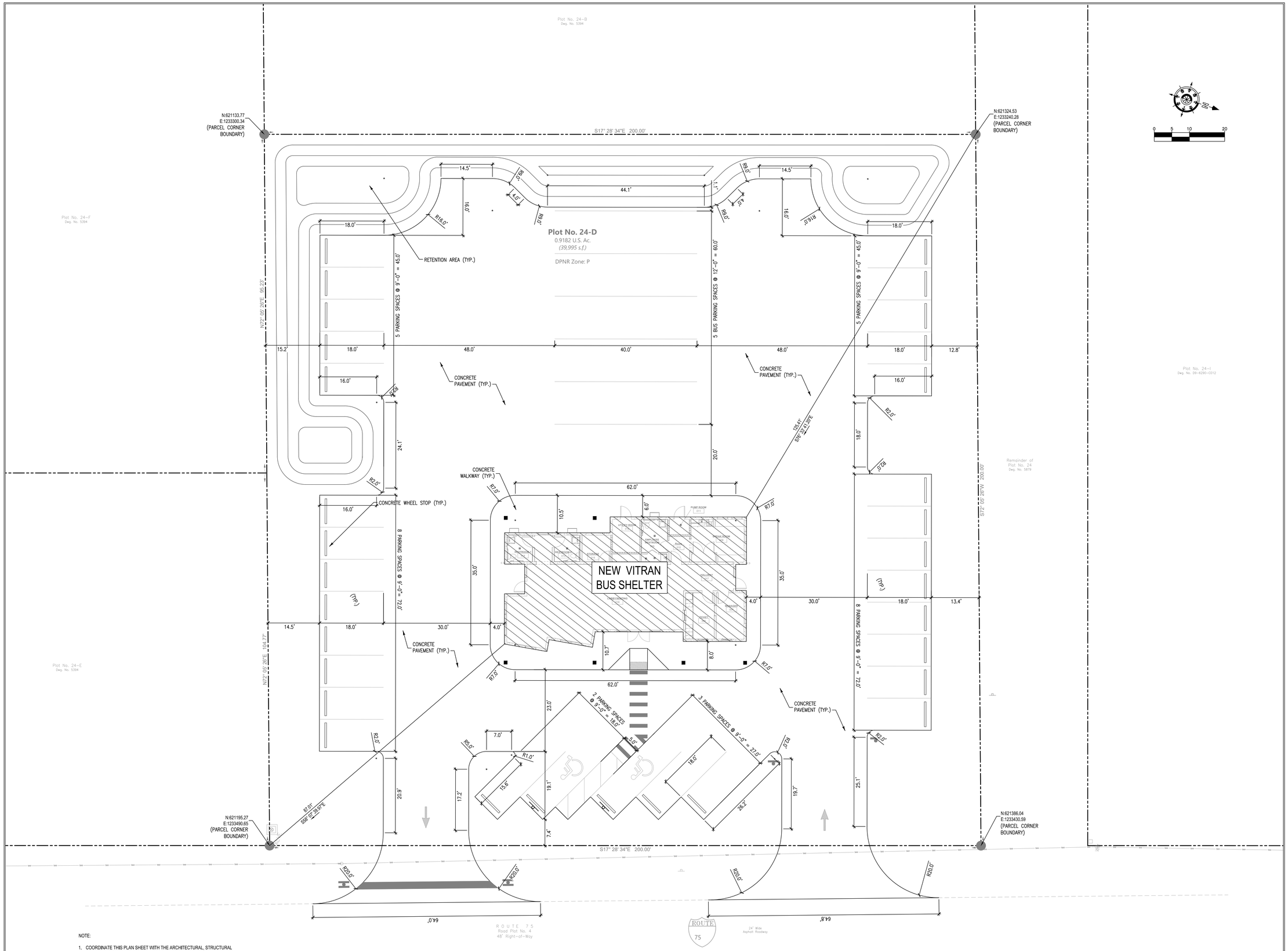
BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
28851-1B
U.S. VIRGIN ISLANDS

C004
Drawing No.

NOT ISSUED FOR CONSTRUCTION



NOTE:

1. COORDINATE THIS PLAN SHEET WITH THE ARCHITECTURAL, STRUCTURAL AND M.E.P. DRAWINGS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORKS SHOWN ON THESE PLANS

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ISSUANCES		
No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY
SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

SITE & GEOMETRY PLAN

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

Project No. 2024-009
Date 06.14.2022

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
28851-19
U.S. VIRGIN ISLANDS

Drawing No. C005

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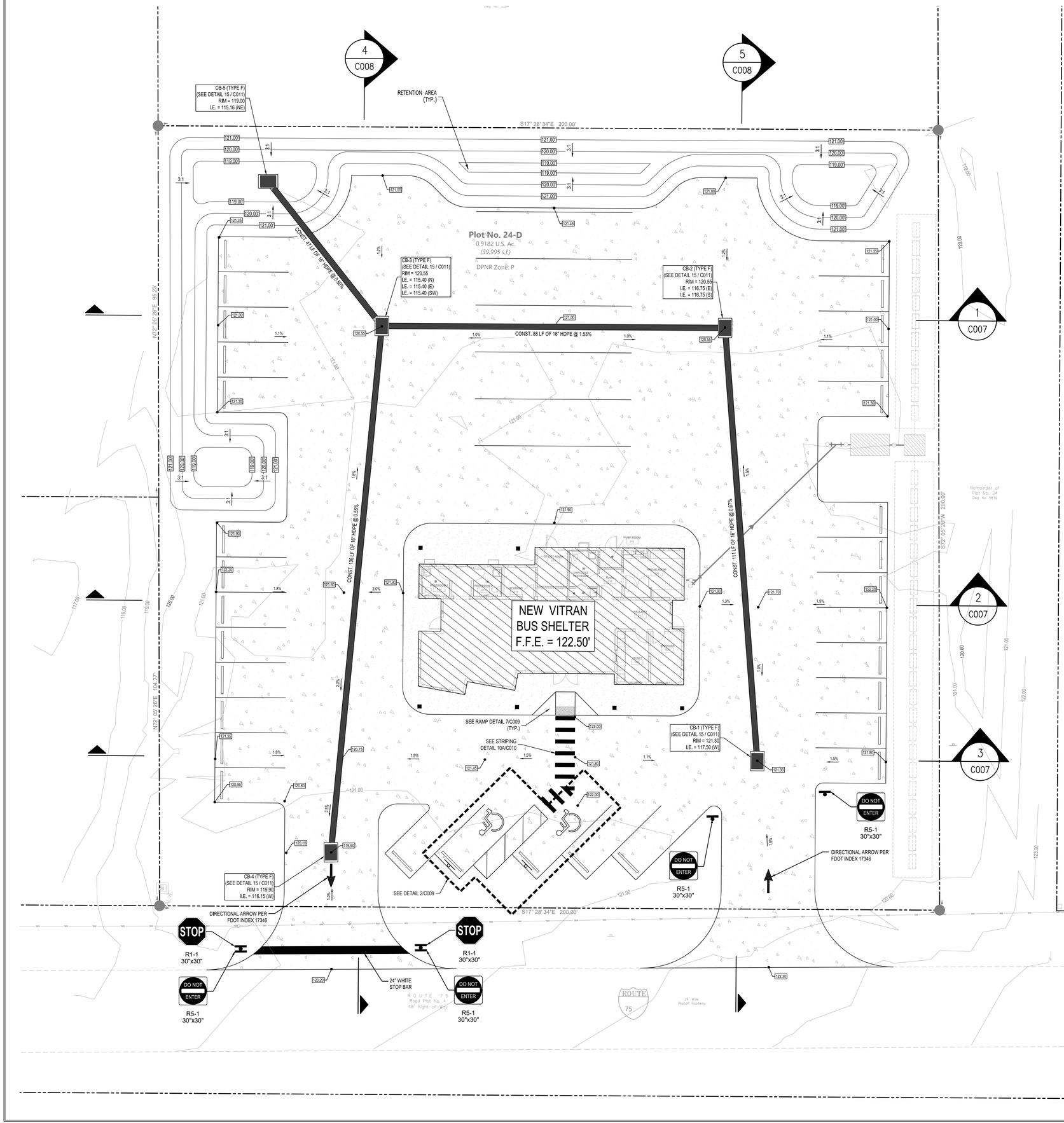

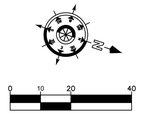

LEGEND

- 8" 4000 PSI CONCRETE PAVEMENT REINFORCED WITH #4 @ 8" O.C. EACH WAY (SEE JOINT PLAN AND DETAILS, AND REINFORCEMENT DETAILS ON SHEETS C012 & C013)
- 6" 3000 PSI CONCRETE SIDEWALK REINFORCED WITH 6"X6" W1.4XW1.4 WELDED WIRE FABRIC (SEE DETAIL D/C010)
- RIGHT-OF-WAY / PROPERTY LINE
- NEW STORM SEWER SYSTEM
- NEW SANITARY SEWER LATERAL
- NEW ELECTRICAL CONDUITS (REFER TO ELECTRICAL PLANS)
- NEW TELECOM CONDUITS (REFER TO ELECTRICAL PLANS)
- EXISTING WATER SERVICE (FIELD VERIFY)
- EXISTING SANITARY SEWER MAIN
- EXISTING OVERHEAD ELECTRIC
- PROPOSED CONTOUR
- EXISTING CONTOUR

NOTES:

1. COORDINATE THIS PLAN SHEET WITH THE ARCHITECTURAL, STRUCTURAL AND M.E.P. DRAWINGS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORKS SHOWN ON THESE PLANS
2. COORDINATE THIS SHEET WITH DEMOLITION PLAN SHEET C004, SITE & GEOMETRY PLAN SHEET C005, & UTILITY PLAN SHEET C013
3. COORDINATE THIS PLAN SHEET WITH THE ELECTRICAL / TELECOM DRAWINGS & SPECIFICATIONS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORKS SHOWN ON THESE PLANS
4. ELECTRICAL CONDUIT(S) TO CROSS ABOVE OR BELOW STORM SEWER LINE WITH MINIMUM 6" CLEAR SEPARATION
5. STORM SEWER TO CROSS BELOW WATER LINE WITH MINIMUM 6" CLEAR SEPARATION
6. ALL DIRT/GREEN AREAS TO REMAIN THAT WERE DISTURBED AS A RESULT OF PROPOSED IMPROVEMENTS SHALL BE HYDRO-SEEDED AT THE END OF THE PROJECT AND WATERED ON A REGULAR BASIS FOR A MINIMUM OF 1 MONTH THEREAFTER OR UNTIL THE GRASS HAS CAUGHT

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No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY
SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

PAVING, GRADING & DRAINAGE PLAN

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

DAMIAN CARTWRIGHT 28851-1B

C006
Drawing No.

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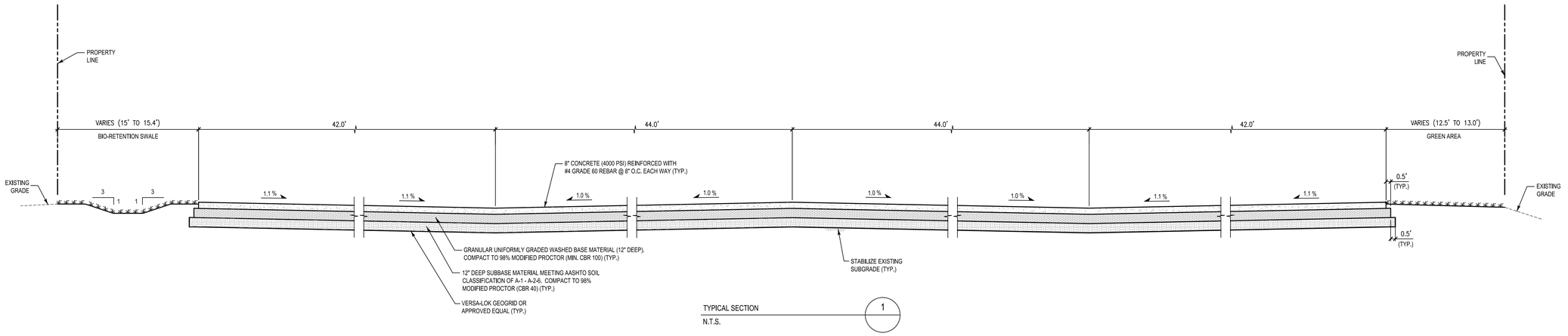

TYPICAL SECTION 1
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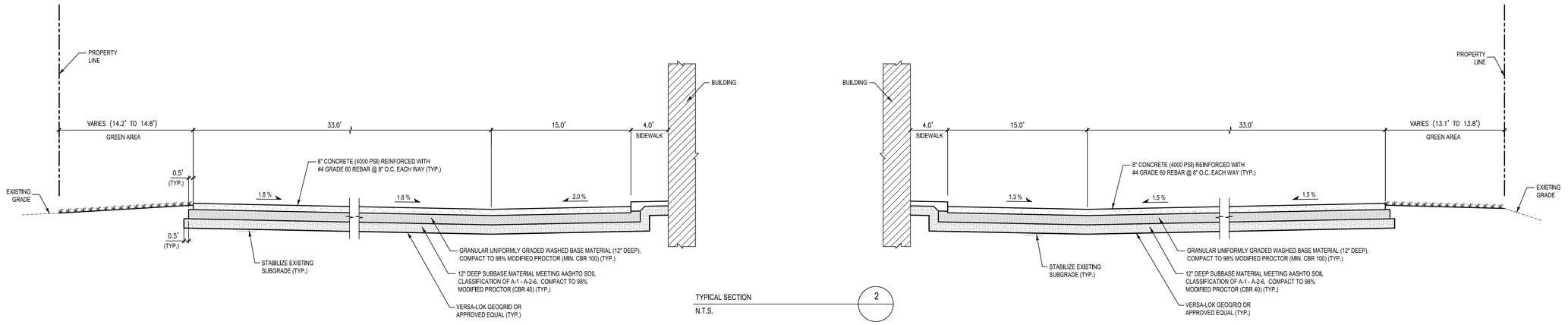
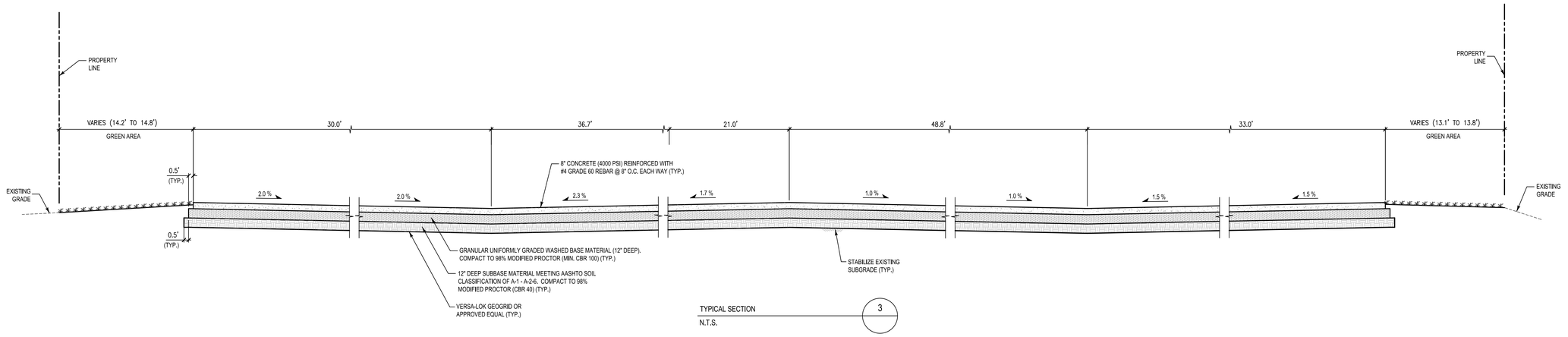


TYPICAL SECTION 2
N.T.S.



TYPICAL SECTION 3
N.T.S.

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY
SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

TYPICAL SECTION

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
20001 - 19
ACTIVE - NIGERIA

C007
Drawing No.

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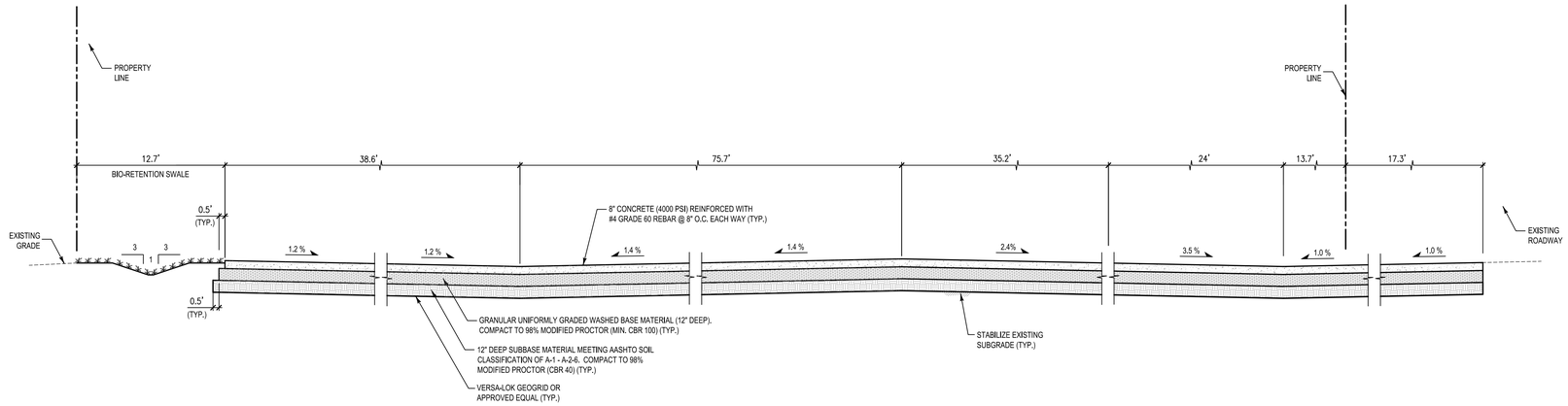

TYPICAL SECTION 4

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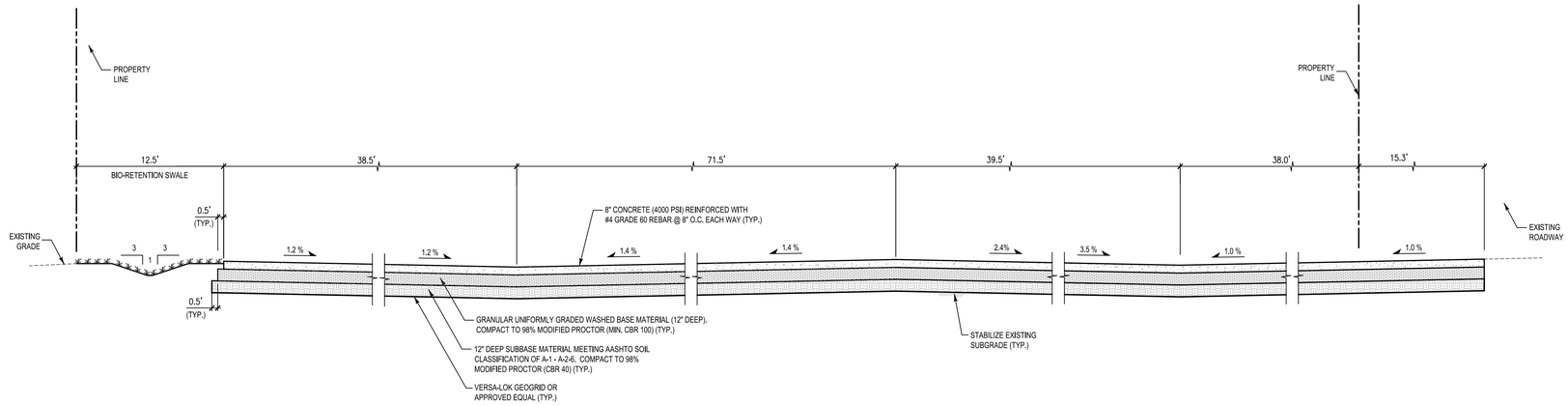

TYPICAL SECTION 5

N.T.S.

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ISSUANCES		
No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

TYPICAL SECTION

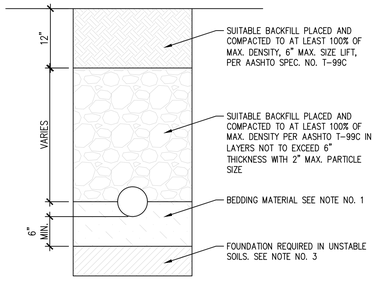
BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
28851-1B
SAINTE NIGHT, U.S.

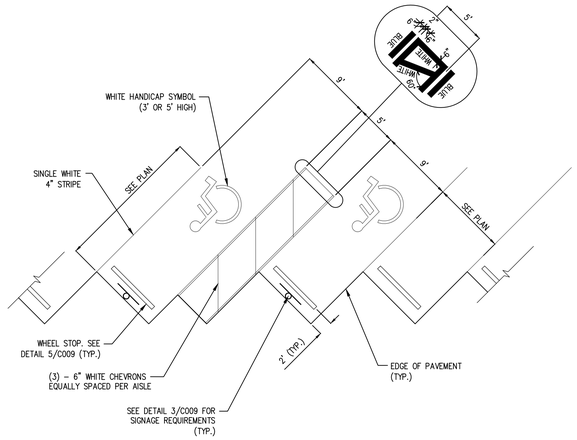
C008
Drawing No.

NOT ISSUED FOR CONSTRUCTION



NOTES:
1. UNLESS OTHERWISE SPECIFIED, BEDDING MATERIAL SHALL CONSIST OF SELECT BACKFILL MATERIAL 2" MAXIMUM PARTICLE SIZE, COMPACTED TO AT LEAST 100% OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. NO. T-99C
2. WHERE REQUIRED, SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.
3. WHERE UNSTABLE SOILS ARE ENCOUNTERED, INCLUDING PEAT, MUCK OR OTHER ORGANIC SOILS, ELASTIC SILT AND CLAYS, A FOUNDATION IS REQUIRED AS DETERMINED BY THE ENGINEER.

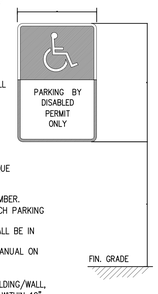
1 TYPICAL TRENCH BACKFILL
NOT TO SCALE



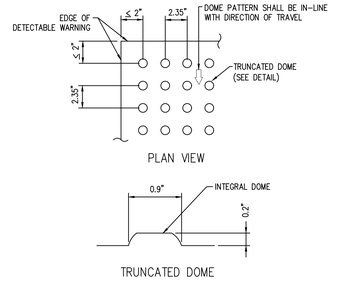
NOTE: FINISHED GRADES OF PAVEMENT IN HC PARKING AND ACCESSIBILITY AISLE SHALL NOT EXCEED 1:50 SLOPE IN ANY DIRECTION.
SEE PLAN FOR STYLE OF HANDICAP RAMP
HANDICAP STRIPING SHALL CONFORM TO FDOT INDEX 17346 (LATEST EDITION)

2 HANDICAP STRIPING
N.T.S.

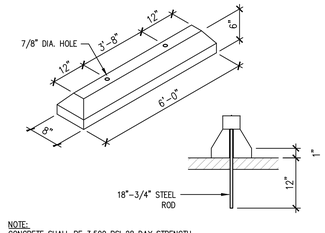
NOTES:
1. ALL LETTERS ARE 1" SERIES "C" PER MUTCD.
2. TOP PORTION OF SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) BLUE BACKGROUND WITH WHITE REFLECTORIZED LEGEND AND BORDER.
3. BOTTOM PORTION OF SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) WHITE BACKGROUND WITH BLACK OPAQUE LEGEND AND BORDER.
4. FINE NOTIFICATION SIGN SHALL HAVE A REFLECTORIZED (ENGINEERING GRADE) WHITE BACKGROUND WITH BLACK OPAQUE LEGEND & BORDER. CONTRACTOR SHALL VERIFY FINE AMOUNT & ORDINANCE NUMBER.
5. ONE(1) SIGN REQUIRED FOR EACH PARKING SPACE.
6. INSTALLED HEIGHT OF SIGN SHALL BE IN ACCORDANCE WITH SECTION 24-23 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
7. SIGN MAY BE MOUNTED ON BUILDING/WALL, AT PROPER HEIGHT, IF ALIGNED WITHIN 12" OF CENTER OF PARKING SPACE.



3 HANDICAP SIGN
N.T.S.

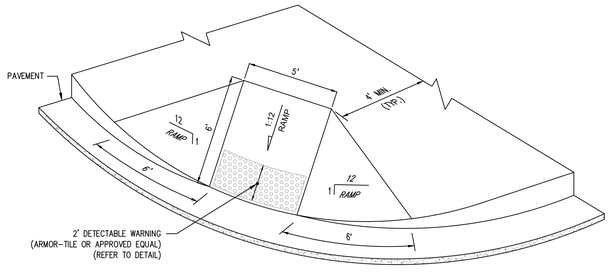


4 DETECTABLE WARNING
N.T.S.



NOTE:
CONCRETE SHALL BE 3,500 PSI 28 DAY STRENGTH

5 WHEEL STOP
N.T.S.



NOTE 1:
REFERENCE FDOT INDEX 304, PAGE 1, GENERAL AND DESIGN NOTES FOR RAMPS IN R.O.W.

NOTE 2:
CONSTRUCT RAMP TO LEAST POSSIBLE SLOPE (MAX = 1:12). CROSS SLOPE OF RAMP AND LANDING SHALL NOT EXCEED 1:50.

NOTE 3:
RAMP GREATER THAN A 6" RISE REQUIRES HANDRAILS.

NOTE:

1. CURB RAMP RUNNING SLOPES SHALL NOT BE STEEPER THAN 1:12 AND CROSS SLOPE SHALL BE 0.02 OR FLATTER.

2. DETECTABLE WARNING SURFACES SHALL BE CONSTRUCTED BY TEXTURING OR APPLYING A TRUNCATED DOME MATERIAL IN CONFORMANCE WITH THE U.S. DEPARTMENT OF JUSTICE A.D.A. STANDARDS FOR ACCESSIBLE DESIGN, A.D.A. ACCESSIBILITY GUIDELINES, SECTION 4.29.2. TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS.

3. WHERE A CURB RAMP IS CONSTRUCTED WITHIN AN EXISTING CURB, CURB AND GUTTER AND/OR SIDEWALK, THE EXISTING CURB OR CURB AND GUTTER SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE CURB TRANSITIONS OR TO THE EXTENT THAT NO REMAINING SECTION OF CURB OR CURB AND GUTTER IS LESS THAN 5' LONG. THE EXISTING SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT BEYOND THE TRANSITION SLOPE WALK AROUND OR TO THE EXTENT THAT NO REMAINING SECTION OF SIDEWALK IS LESS THAN 5'.

4. WHERE ADJACENT WALKING SURFACES ARE COLORED OR ARE CONSTRUCTED WITH MATERIALS OTHER THAN STANDARD CLASS I PORTLAND CEMENT CONCRETE IN ACCORDANCE WITH SECTION 522 OF THE SPECIFICATIONS, THE PLAN MUST PROVIDE FOR DETECTABLE WARNING SURFACE COLORS OR MATERIALS THAT PROVIDE THE NECESSARY CONTRAST, EITHER DARK-ON-LIGHT OR LIGHT-ON-DARK. (SAFETY YELLOW OR BRICK RED)

5. RECOMMENDED MANUFACTURER: ENGINEERED PLASTICS, INC. (ARMOR TILE) OLYMPIC TOWERS, 300 PEARL STREET, SUITE 200, BUFFALO, NY 14202. PHONE: (800) 682-2525

6 HANDICAP RAMP
N.T.S.

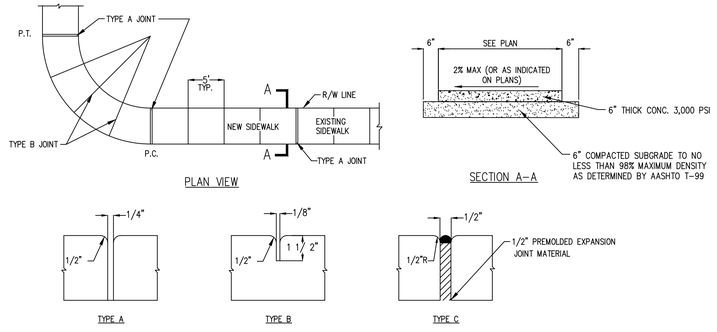
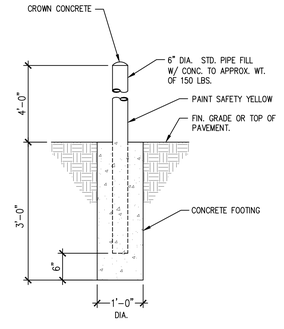


TABLE OF SIDEWALK THICKNESS – T	
LOCATION	
STANDARD SIDEWALK	6"

TABLE OF SIDEWALK JOINTS	
	LOCATION
A	P.C. AND P.T. OF CURVES. JUNCTION OF EXISTING AND NEW SIDEWALK.
B	5'-0" CENTER TO CENTER ON SIDEWALK.
C	WHERE SIDEWALK ABUTS CONCRETE CURBS, DRIVEWAYS, AND SIMILAR STRUCTURES

NOTES:
1. PLACE WI.4XWI.4 6"x6" WIRE MESH IN THE SIDEWALK
2. STANDARD SIDEWALK TO BE 4000 PSI @ 28 DAYS
3. CURE ALL CONCRETE WITH CLEAN SAND, PLASTIC MEMBRANE, OR OTHER APPROVED METHOD.
4. TOOLED JOINTS TO OCCUR AT INTERVALS EQUAL TO WIDTH OF SIDEWALK
5. SIDEWALK TO HAVE BROOM FINISH PERPENDICULAR TO PATH OF TRAVEL.
6. CONTRACTOR SHALL REPAIR AND RESTORE ALL AREAS WITHIN THE ABUTTING R/W DISTURBED DURING CONSTRUCTION TO A CONDITION EQUAL TO OR BETTER THAN EXISTING AT NO ADDITIONAL COST TO THE OWNER.
7. ALL DEMOLISHED SIDEWALKS AND ADDITIONS ARE TO BE REPLACED WITH CONCRETE SIDEWALK TO MATCH EXISTING AT NO ADDITIONAL COST TO THE OWNER.
8. ALL DEMOLISHED SIDEWALK RAMPS ARE TO BE REPLACED AS PER ADA STANDARDS AND INCLUDE ADA COMPLIANT DETECTABLE WARNINGS AT NO ADDITIONAL COST TO THE OWNER.

7 SIDEWALK DETAIL
N.T.S.



8 BOLLARD
N.T.S.

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BUILDTEC

ISSUANCES		
No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY BARNES - LA REINE BUS TERMINAL
PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

PAVING, GRADING AND DRAINAGE DETAILS

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
20001-19
VIRGIN ISLANDS

C009
Drawing No.

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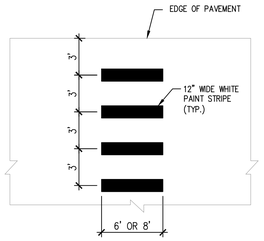

9 SPECIAL EMPHASIS CROSSWALK MARKING DETAIL
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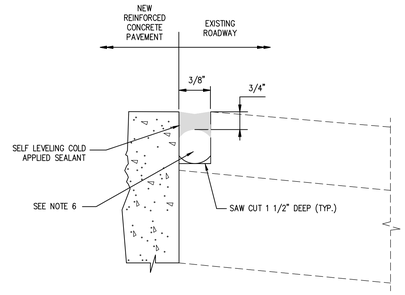
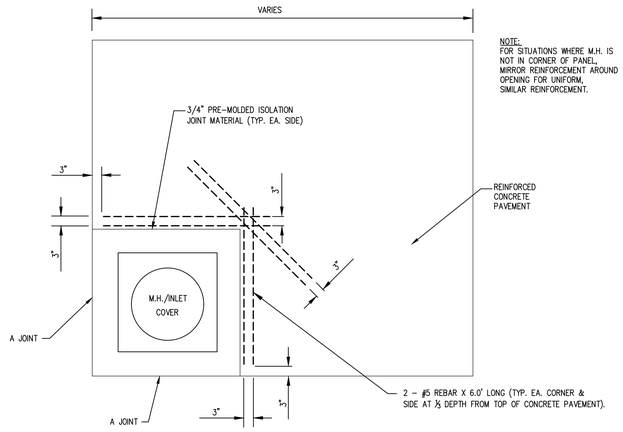
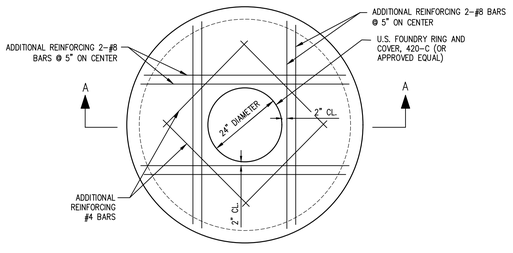


10 ASPHALT/CONCRETE PAVEMENT JOINT DETAIL
N.T.S.

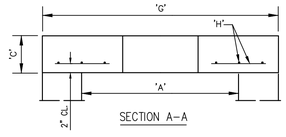


11 REINFORCING STEEL LAYOUT IN PAVEMENT SURROUNDING INLETS DETAIL
N.T.S.



PLAN

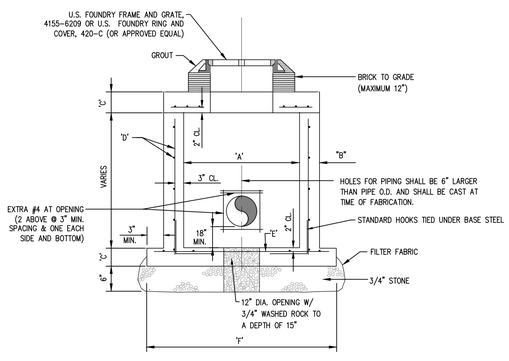
CONCRETE=4000 PSI @ 28 DAYS, TYPE II CEMENT



SECTION A–A

"A"	"C"	"G"	"H"
4'–0"	8"	5'–4"	#4 @ 6" C.C.E.W.
5'–0"	8"	6'–4"	#4 @ 6" C.C.E.W.
6'–0"	10"	7'–4"	#5 @ 6" C.C.E.W.
7'–0"	10"	8'–4"	#5 @ 6" C.C.E.W.
8'–0"	10"	9'–8"	#5 @ 6" C.C.E.W.
10'–0"	12"	11'–8"	#6 @ 5" C.C.E.W.

12 PRECAST CONCRETE MANHOLE TOP SLAB
NOT TO SCALE
REINFORCEMENT SHALL BE ASTM A615/A615M GRADE 60 STEEL

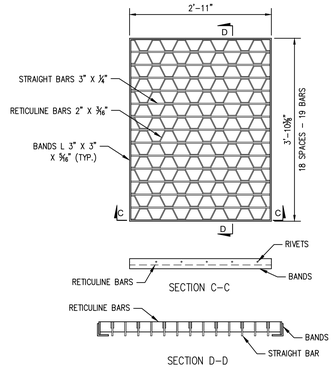


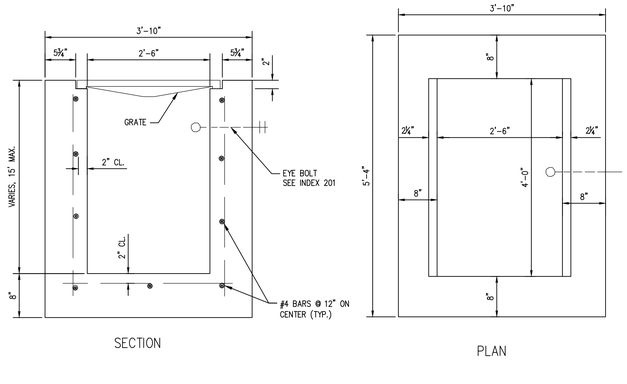
SECTION A–A

CONCRETE=4000 PSI @ 28 DAYS, TYPE II CEMENT

TYPE		"B"	"C"	"D"	"E"	"F"
P	3'–8" ø	6"	8"	#4 @ 12" C.C.E.W.	#4 @ 12" C.C.E.W.	4'–10" ø
C–4	4'–0" ø	8"	8"	#4 @ 12" C.C.E.W.	#4 @ 12" C.C.E.W.	6'–4" ø
C–5	5'–0" ø	8"	8"	#5 @ 12" C.C.E.W.	#5 @ 12" C.C.E.W.	7'–4" ø
C–6	6'–0" ø	8"	10"	#5 @ 12" C.C.E.W.	#5 @ 6" C.C.E.W.	8'–4" ø
C–7	7'–0" ø	8"	10"	#5 @ 12" C.C.E.W.	#5 @ 6" C.C.E.W.	9'–4" ø
C–8	8'–0" ø	10"	10"	#5 @ 12" C.C.E.W.	#5 @ 6" C.C.E.W.	10'–8" ø
C–10	10'–0" ø	10"	10"	#5 @ 12" C.C.E.W.	#5 @ 6" C.C.E.W.	12'–8" ø

13 PRECAST CIRCULAR DRAINAGE STRUCTURES
NOT TO SCALE
REINFORCEMENT SHALL BE ASTM A615/A615M GRADE 60 STEEL





RECOMMENDED MAXIMUM PIPE SIZE:
2'–6" WALL 18" PIPE
4'–0" WALL 30" PIPE

14 TYPE F INLET
NOT TO SCALE

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PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

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DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.

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PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
20001–19
U.S. VIRGIN ISLANDS

C010
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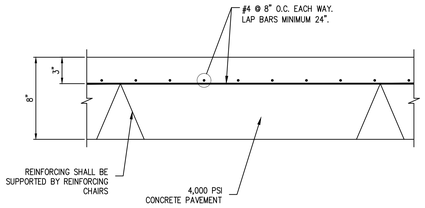
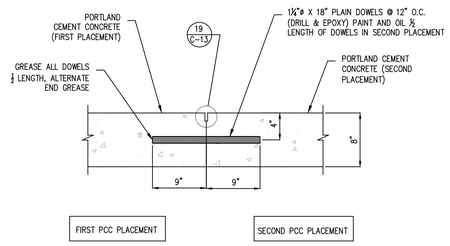
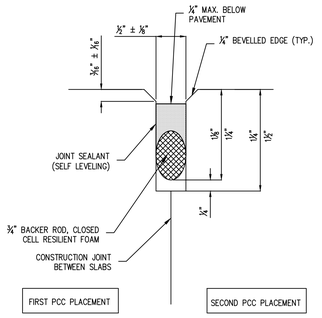


MATERIAL SCHEDULE			
ITEM	SIZE	STANDARD	REMARKS
DOWELS	1 1/4 INCH DIA x 18 INCHES LONG @ 12 INCHES O.C.	ASTM A 615 GRADE 60	EPOXY COATED, INCLUDING ENDS, AASHTO M254
REINFORCED SLABS	#4 REBAR @ 8" O.C. EACH WAY	ASTM A 615 GRADE 60	USE 24 INCH OVERLAP
EXPANSION BOARD	1 INCH WIDTH x DEPTH REQUIRED	ASTM D 1751	USE REMOVABLE CAP FOR JOINT SEAL
DOWEL EPOXY	AS REQUIRED	ASTM C 881, TYPE IV, GRADE 3	CLASS C FOR INSTALLATION ABOVE 60 F CLASS B FOR INSTALLATION 40 F TO 60 F CLASS A FOR INSTALLATION BELOW 40 F
SILICONE SEALANT	SEE DETAILS	ASTM D 5893	TOOLED

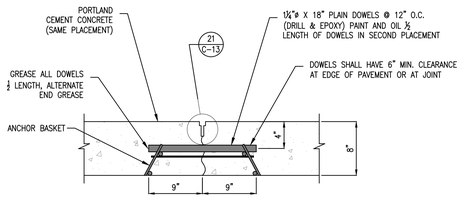
15 REINFORCED CONCRETE PAVEMENT SECTION
N.T.S.



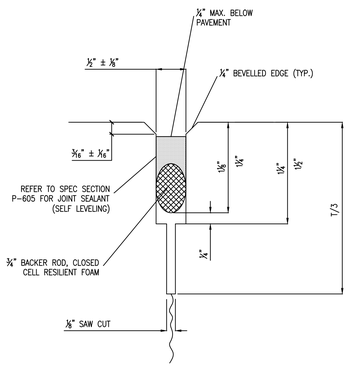
16 TYPE 1 – CONTRACTION JOINT (DOWELED)
N.T.S.



17 TYPE 1 – CONTRACTION JOINT
N.T.S.



18 TYPE 2 – CONTRACTION JOINT (DOWELED)
N.T.S.



19 TYPE 2 – CONTRACTION JOINT
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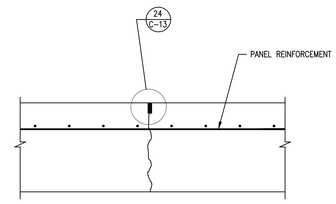
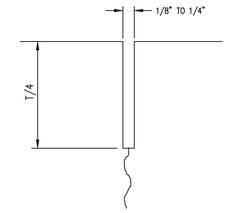
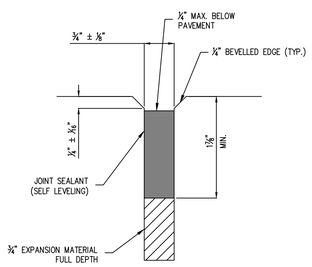


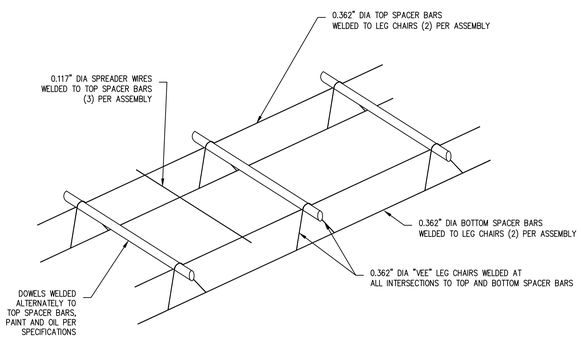
20 TYPE D – DUMMY TRANSVERSE CONTRACTION JOINT
N.T.S.



21 INITIAL SAWCUT DETAIL FOR CONTRACTION JOINTS
N.T.S.



22 EXPANSION/ISOLATION JOINT
N.T.S.



23 TYPICAL DOWEL AND TIE BAR BASKET
N.T.S.

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PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
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PAVING, GRADING AND DRAINAGE DETAILS

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

INTERNATIONAL ENGINEER
DAMIAN CARTWRIGHT
28851-1B
U.S. VIRGIN ISLANDS

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Drawing No.

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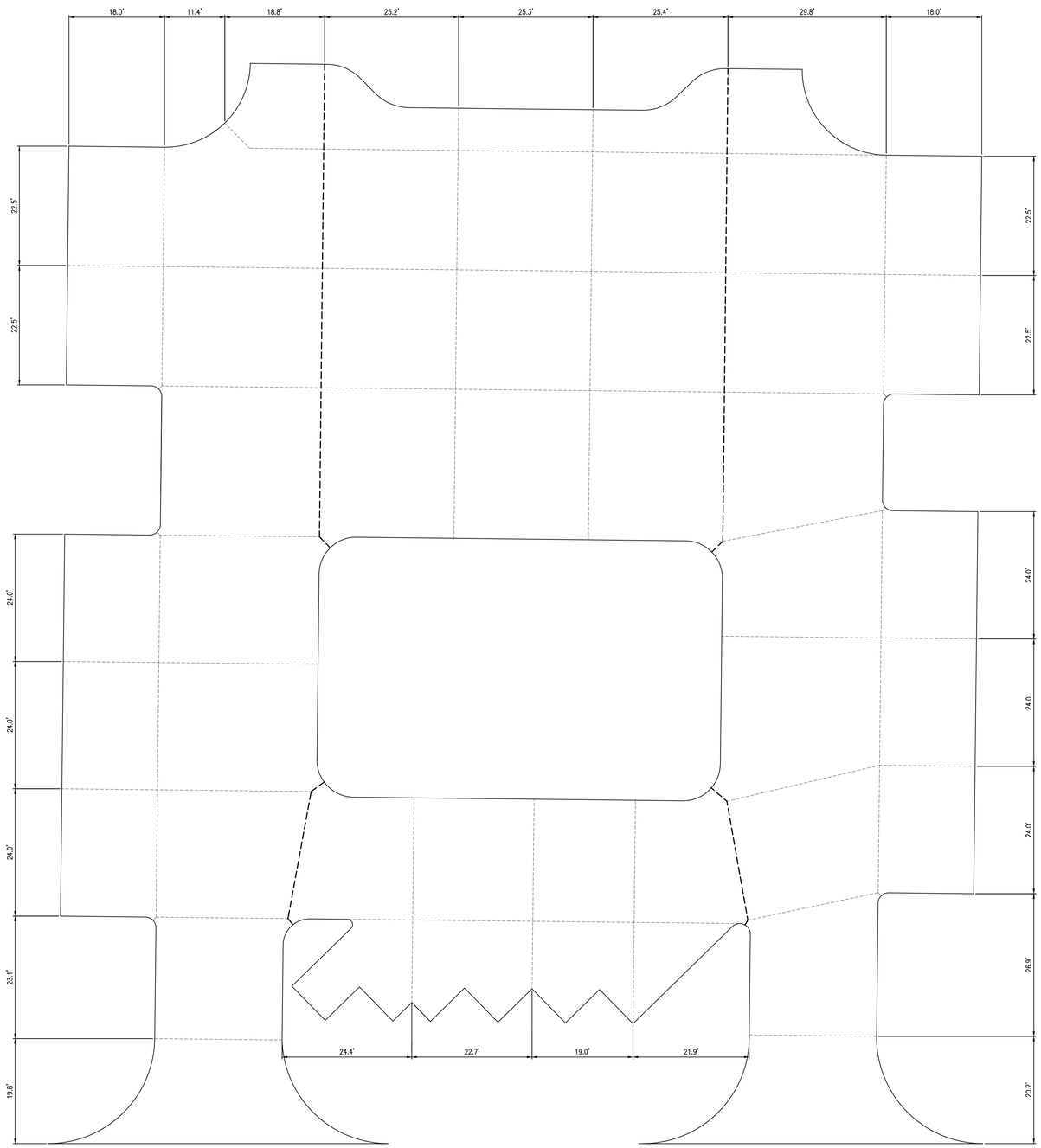

24 CONCRETE PAVEMENT JOINTING PLAN
N.T.S.

JOINT SEALING

1. ALL CONCRETE SURFACES AND JOINTS SHALL BE FLUSHED CLEAN WITH WATER AFTER BOTH INITIAL AND FINAL SAW- CUTS, PRIOR TO SAWCUT SLURRY DRYING.
2. AFTER SECOND SAWCUT, JOINT FACES SHALL BE SAND BLASTED AND AIR-BLOWN.
3. SEAL RESERVOIR SHALL BE FORMED USING SECOND SAWCUT. SHOULDERED BLADE SHALL NOT BE USED WITH INITIAL SAWCUT.
4. INSERT TEMPORARY BACKER ROD AFTER INITIAL SAWCUT TO PREVENT DEBRIS INTRUSION.
5. FOR ALL JOINTS THE BACKER ROD MATERIAL SHALL BE COMPATIBLE WITH THE COLD POURED SEALANT AND SLIGHTLY OVERSIZED TO PREVENT MOVEMENT DURING THE JOINT SEALANT OPERATION.
6. TRANSVERSE CONSTRUCTION JOINTS SHALL BE USED ONLY WHEN APPROVED BY THE ENGINEER.

DOWEL AND TIE BAR NOTES

1. DOWEL OR TIE BAR INSERTERS SHALL NOT BE USED.
2. DRILLING METHOD SHALL MAINTAIN DRILL HOLES PARALLEL TO CONCRETE SURFACE AND NORMAL TO JOINT LINE WITHIN 1/4" ± AT END OF DOWEL BAR. USE GANG DRILL WITH 3 OR MORE DRILLS. DRILL HOLE MAXIMUM DEVIATION SHALL NOT EXCEED 1" HORIZONTAL HOLE DIAMETER TO BE APPROXIMATELY 1/8" – 1/4" LARGER THAN DOWEL. MINIMUM THREE DAYS CURE TIME AND 300 PSI FLEXURAL STRENGTH REQUIRED FOR DRILLING NEW CONCRETE.
3. AFTER DRILLING IS COMPLETE, AND PRIOR TO INSTALLATION OF DOWELS, THOROUGHLY CLEAN HOLES BY FLUSHING. ALLOW TO DRY. AIR BLOW TO REMOVE DRILLING DUST, CONCRETE CHIPS, AND ANY MATERIAL DETRIMENTAL TO DEVELOPING BOND.
4. INSERT EPOXY INTO BACK OF DOWEL HOLE BY INJECTION NOZZLE WITH SUFFICIENT EPOXY PLACED SO SLIGHT AMOUNT FORCED OUT WHEN DOWEL INSERTED AND TAPPED TO CORRECT POSITION. DOWEL SHALL BE TURNED WHEN INSERTED AND EPOXY SHALL BE SOLID AROUND BARS WITH NO VOIDS. INSTALL PLASTIC DOWEL RINGS TO RETAIN EPOXY. SMALL WEDGES MAY BE USED TO SUPPORT DOWEL IN CORRECT ALIGNMENT UNTIL EPOXY HARDENS. SUBMIT PROPOSED EPOXY INFORMATION FOR APPROVAL PRIOR TO STARTING WORK.
5. "T" = THICKNESS OF NEW CONCRETE PAVEMENT
6. "d" = DOWEL OR TIE-BAR DIAMETER

LEGEND

- – – – – – TYPE 1 / TYPE 2 CONTRACTION JOINT
- - - - - - - - - - TYPE D DUMMY TRANSVERSE CONTRACTION JOINT

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DAMIAN CARTWRIGHT
20851-12D
U.S. VIRGIN ISLANDS

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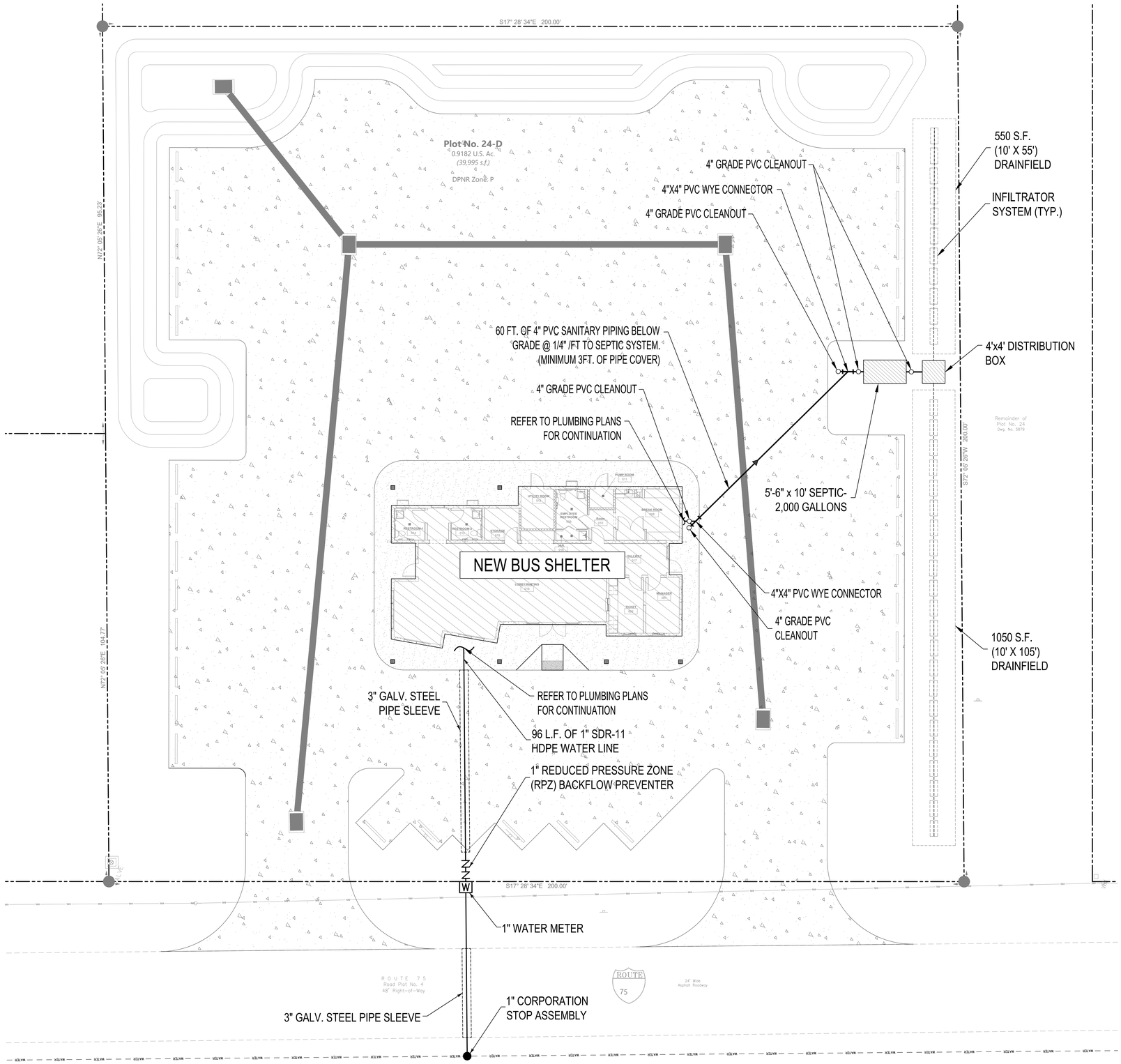

LEGEND

- RIGHT-OF-WAY / PROPERTY LINE
- NEW SANITARY SEWER LATERAL
- NEW TELECOM CONDUITS (REFER TO ELECTRICAL PLANS)
- NEW ELECTRICAL CONDUITS (REFER TO ELECTRICAL PLANS)
- EXISTING OVERHEAD ELECTRIC
- NEW OVERHEAD ELECTRIC

NOTES:

1. COORDINATE THIS PLAN SHEET WITH THE ARCHITECTURAL, STRUCTURAL AND M.E.P. DRAWINGS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORKS SHOWN ON THESE PLANS
2. COORDINATE THIS SHEET WITH DEMOLITION PLAN SHEET C005, SITE & GEOMETRY PLAN SHEET C006, & PAVING, GRADING & DRAINAGE PLAN SHEET C007
3. COORDINATE THIS PLAN SHEET WITH THE ELECTRICAL / TELECOM DRAWINGS & SPECIFICATIONS. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORKS SHOWN ON THESE PLANS

GRAPHIC SCALE IN FEET
0 5 10 20

GENERAL NOTES:

1. ALL PAVED SURFACES, INCLUDING DRIVEWAYS CROSSED BY THE PROPOSED UTILITIES SHALL BE SAW CUT TO PROVIDE A CLEAN TRUE EDGE FOR PAVEMENT REPLACEMENT.
2. THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION ACTIVITIES TO THE AREA WITHIN THE PROPERTY AND CONSTRUCTION LIMITS UNLESS OTHERWISE APPROVED BY THE OWNER.
3. ROOF DRAINS, FOUNDATION DRAINS, SUMP PUMP DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED. NO BUILDING SHALL BE CONNECTED TO A SEWER LATERAL UNTIL THE BUILDING IS UNDER ROOF.
4. ALL MATERIAL, CONSTRUCTION METHODS AND TESTING PROCEDURES SHALL BE IN CONFORMANCE WITH THE WRITTEN SPECIFICATIONS OF THE V.I. WATER & POWER AUTHORITY (VIWAPA) FOR ALL WATER LINE WORK, AND THE V.I. WASTE MANAGEMENT AUTHORITY FOR ALL SANITARY SEWER LINE WORK (VIWMA).
5. THE SOIL TYPES IN THE AREAS OF THE PROPOSED SEWER LINES WERE VISUALLY OBSERVED FOR THE PRESENCE OF CORROSIVE SOILS. THERE WERE NO CORROSIVE SOILS DETECTED. SHOULD IRON PIPES BE PROPOSED IN AN AREA AND CORROSIVE SOILS ENCOUNTERED, THE PIPE SHALL BE PROTECTED BY AN 8 MIL THICK POLYETHYLENE ENCASEMENT MEETING THE REQUIREMENTS OF ANSI A21.5.
6. ALL WATER AND SEWAGE FACILITIES DESIGNED HEREIN SHALL CONFORM TO THE MATERIALS, SPECIFICATIONS, CONSTRUCTION METHODS AND STANDARD DETAILS SPECIFIED BY VIWAPA AND VIWMA, RESPECTIVELY. IN CASE OF CONFLICTS WITH THE PROJECT'S WRITTEN SPECIFICATIONS OR STANDARD DETAILS, THE MORE STRINGENT SHALL APPLY. THE VIWAPA AND VIWMA SHALL MAKE THE FINAL DECISION IN EACH CASE.
7. ALL SERVICES HAVE BEEN DESIGNED AND DRAWN IN ACCORDANCE WITH BASE SITE LAYOUT PLANS AND LAND SURVEY DRAWINGS PROVIDED BY THE OWNER'S REPRESENTATIVE. THE ENGINEER ACCEPTS NO RESPONSIBILITY FOR FIELD ERRORS RESULTING FROM INACCURACIES IN OWNER-PROVIDED SITE PLANS.
8. CONTRACTOR SHALL BEAR RESPONSIBILITY FOR ACCURATE LOCATION OF WATER AND SEWER LINES AND APPURTENANCES. CONTRACTOR SHALL MAINTAIN ACCURATE RECORDS OF LOCATIONS OF ALL SEWER AND WATER DISTRIBUTION LINES, APPURTENANCES, HYDRANTS, CLEANOUTS, JUNCTIONS AND BRANCHES.
9. ELECTRICAL CONDUIT(S) TO CROSS BELOW SANITARY SEWER LATERAL WITH MINIMUM 12" CLEAR SEPARATION.
10. ELECTRICAL CONDUIT(S) TO CROSS BELOW ANY WATER LINES WITH MINIMUM 12" CLEAR SEPARATION.
11. ELECTRICAL CONDUIT(S) TO CROSS ABOVE OR BELOW STORM SEWER LINE WITH MINIMUM 12" CLEAR SEPARATION.

SANITARY SEWER SYSTEM:

1. BUILDING SEWERS SHALL CONNECT TO MAIN GRAVITY SEWER LINES ONLY. BUILDING LINE CONNECTIONS DIRECTLY TO MANHOLES ARE NOT PERMITTED.
2. CONTRACTOR IS RESPONSIBLE FOR LOCATION, REMOVAL AND OR COORDINATION OF EXISTING UTILITIES. THE ENGINEER OF RECORD SHALL BE APPRAISED OF ANY CONFLICTS BETWEEN EXISTING UTILITIES AND THE NEW DESIGN PRIOR TO ANY SITE CORRECTION OF NEW DESIGN BY THE CONTRACTOR.
3. CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS. FINAL INSPECTION AND APPROVALS WILL NOT BE GRANTED WITHOUT THE SAME.
4. ALL CONSTRUCTION WORKS SHALL BE CARRIED OUT BY COMPETENT CONTRACTORS EXPERIENCED IN THE CONSTRUCTION OF SANITARY SEWAGE WORKS AND ALL MACHINERY INSTALLATION SHALL BE SUPERVISED, TESTED AND/OR CERTIFIED BY THE MANUFACTURER'S REPRESENTATIVE.
5. ALL WORKS SHALL BE OPEN TO INSPECTION BY THE OWNER'S REPRESENTATIVE THROUGHOUT CONSTRUCTION.
6. ALL GRAVITY SANITARY SEWER LINES SHALL BE ASTM D3034 PVC PIPE WITH STANDARD DIMENSION RATIO (SDR) OF 35. SEWER PIPES AND FITTINGS SHALL HAVE BONDED, RESILIENT JOINTS WHICH SHALL RETAIN WATER TIGHTNESS BY COMPRESSION OF THE GASKET MATERIAL AROUND THE ENTIRE PERIPHERY OF THE PIPE.
7. LEAKAGE FOR NEW CONSTRUCTION, OR SYSTEMS THAT HAVE NEVER BEEN COMMISIONED, SHALL BE ZERO. LEAKAGE INWARD OR OUTWARD FROM EXISTING SEWERS SHALL NOT EXCEED 300 GALLONS PER INCH DIAMETER PER MILE PER DAY.
8. THE MINIMUM ALLOWABLE SIZE OF SEWERS OTHER THAN BUILDING CONNECTIONS SHALL BE EIGHT (8) INCHES DIAMETER.
9. THE FOLLOWING MINIMUM GRADES SHALL BE PROVIDED :

4" & 6" DIAMETER SEWER SERVICE LATERALS	2.0%
8" DIAMETER SEWERS	0.40%
10" DIAMETER SEWERS	0.28%
12" DIAMETER SEWERS	0.22%
15" DIAMETER SEWERS	0.15%
18" DIAMETER SEWERS	0.12%
21" DIAMETER SEWERS	0.10%
24" DIAMETER SEWERS	0.08%

10. SEWERS SHALL BE LAID WITH UNIFORM SLOPES.

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No.	Drawing Issue Description	Date

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY
SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

POTABLE WATER AND SANITARY SEWER PLAN, POTABLE WATER & SANITARY SEWER NOTES

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
28851-1B
VIRGIN ISLANDS, U.S.

C013
Drawing No.

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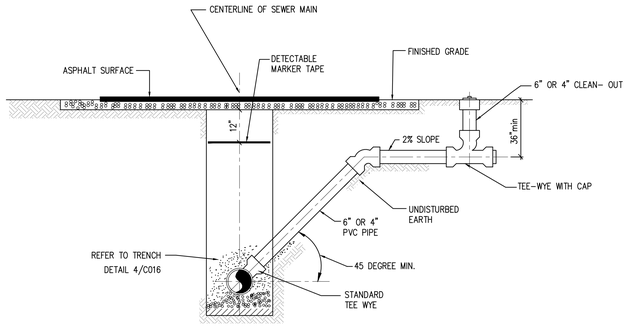
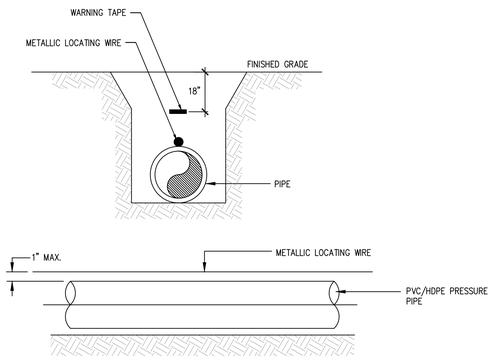


THROUGHLY COMPACT PEA GRAVEL AGAINST UNDISTURBED EARTH,GRAVEL OR CONCRETE ENCASED TO PREVENT MOVEMENT.

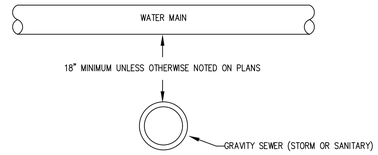
1 SANITARY SEWER LATERAL
NOT TO SCALE



NOTES:

1. PVC/HDPE PRESSURE PIPE SHALL REQUIRE INSULATED METALLIC LOCATING WIRE (14 GAUGE COPPER) CAPABLE OF DETECTION BY A CABLE LOCATOR AND SHALL BE TAPED TO CENTERLINE OF THE PIPE.
2. LOCATING WIRE SHALL TERMINATE AT THE TOP OF EACH VALVE BOX AND BE CAPABLE OF EXTENDING 3" ABOVE TOP OF BOX IN SUCH A MANNER SO AS NOT TO INTERFERE WITH VALVE OPERATION.
3. USE DUCT TAPE OR PLASTIC TIES AS NECESSARY TO HOLD WIRE DIRECTLY ON THE TOP OF THE PIPE.
4. EXTEND METALLIC LOCATING WIRE ALONG STUBBED OUT SERVICE CONNECTIONS
5. WARNING/MARKING TAPE SHALL BE DIRECTLY ABOVE ALL PRESSURE PIPE. TAPE SHALL HAVE 18" COVER

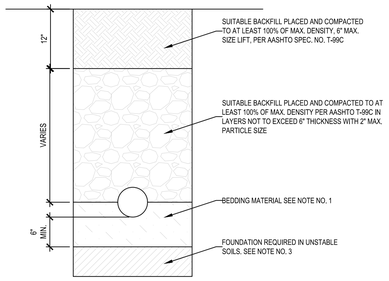
2 PIPE LOCATING WIRE
NOT TO SCALE



NOTES:

1. A VERTICAL SEPERATION DISTANCE OF A MINIMUM OF 18" MUST BE MAINTAINED.
2. IF MINIMUM VERTICAL SEPERATION IS NOT POSSIBLE THEN THE SEWER MAIN MUST BE ENCASED FOR A DISTANCE 20'-0" CENTERED ON THE POINT OF CROSSING AND SEWER MAIN MUST BE OF WATER QUALITY (i.e. DR. 18 AWWA C900).

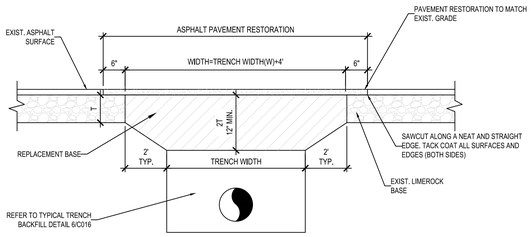
3 WATERMAIN CROSSING
NOT TO SCALE



NOTES:

1. UNLESS OTHERWISE SPECIFIED, BEDDING MATERIAL SHALL CONSIST OF SELECT BACKFILL MATERIAL 2" MAXIMUM PARTICLE SIZE, COMPACTED TO AT LEAST 100% OF MAX. DENSITY, 6" LIFTS, PER AASHTO SPEC. NO. T-99C
2. WHERE REQUIRED, SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.
3. WHERE UNSTABLE SOILS ARE ENCOUNTERED, INCLUDING PEAT, MUCK OR OTHER ORGANIC SOILS, ELASTIC SILT AND CLAYS, A FOUNDATION IS REQUIRED AS DETERMINED BY THE ENGINEER.

4 TYPICAL TRENCH BACKFILL
NOT TO SCALE



GENERAL NOTES:

1. REPLACED BASE MATERIAL OVER DITCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE. BUT NOT LESS THAN 12".
2. BASE MATERIAL SHALL BE PLACED IN 6 INCH MAXIMUM LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98% OF MAXIMUM DENSITY, PER AASHTO T-180. BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100.
3. ASPHALTIC CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED.
4. SURFACE TREATED PAVEMENT JOINTS SHALL BE LAPPED AND FEATHERED. PAVEMENT MATERIAL SHALL BE FDOT TYPE SP-9.5 (FINE MIX) ASPHALTIC CONCRETE STRUCTURAL COURSE (1" THICK), MATCH EXISTING GRADES AT LIMIT OF SAWCUT.
5. UPON COMPLETION OF TRENCHING AND TRENCH/PAVEMENT RESTORATION FOR THE ENTIRE PROJECT, RESURFACE ENTIRE ROADWAY WIDTH WITH FDOT TYPE SP-9.5 (FINE MIX) ASPHALTIC CONCRETE SURFACE COURSE OVERLAY (1" MINIMUM THICKNESS).
6. BID PRICES FOR PIPE AND/OR FRENCH DRAIN SHALL INCLUDE PAVEMENT RESTORATION TO MATCH EXISTING GRADES. CONTRACTOR SHALL NOT LEAVE MORE THAN 1,000-FEET OF EXPOSED LIMEROCK BASE AT ANY TIME DURING THE TRENCH/PAVEMENT RESTORATION PROCESS. ONLY THE FDOT TYPE SP-9.5 (FINE MIX) ASPHALTIC CONCRETE SURFACE COURSE OVERLAY WILL BE PAID SEPARATELY.
7. WHEN TRENCHING OUTSIDE THE PAVEMENT AREA, ASPHALT AND BASE MATERIAL REFERENCED IN GENERAL NOTES 1-5 ARE NOT REQUIRED. RESTORE OR REPLACE ALL PUBLIC OR PRIVATE PROPERTY TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL IMPACTED AREAS SHALL BE COMPACTED TO 95% DENSITY IN 6-INCH MAXIMUM LIFTS.
8. CONTRACTOR SHALL REFER TO GEOTECHNICAL REPORT FOR ADDITIONAL SOILS INFORMATION TO UNDERSTAND EXISTING CONDITIONS.

5 PAVEMENT RESTORATION
NOT TO SCALE

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

POTABLE WATER AND SANITARY SEWER DETAILS

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

2024-009
Project No.
06.14.2022
Date

PROFESSIONAL ENGINEER
DAMIAN CARTWRIGHT
20001--19
VIRGIN ISLANDS

C014
Drawing No.

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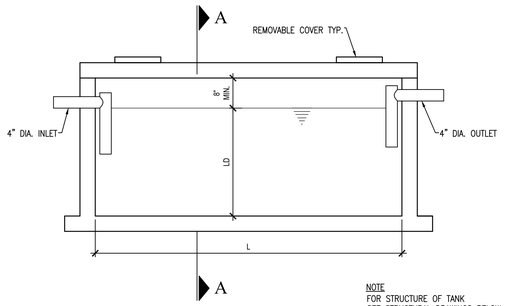
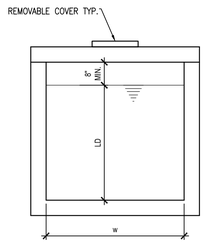


6 SEPTIC TANK DETAILS
NOT TO SCALE



7 SECTION A-A
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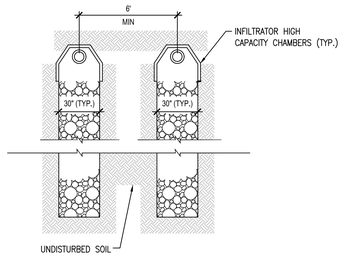

8 DRAIN FIELD SECTION
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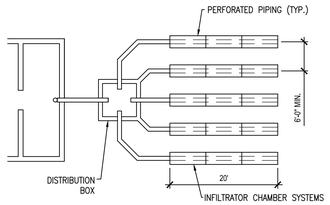
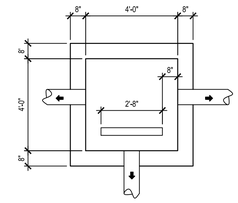


9 DRAIN FIELD PLAN
NOT TO SCALE

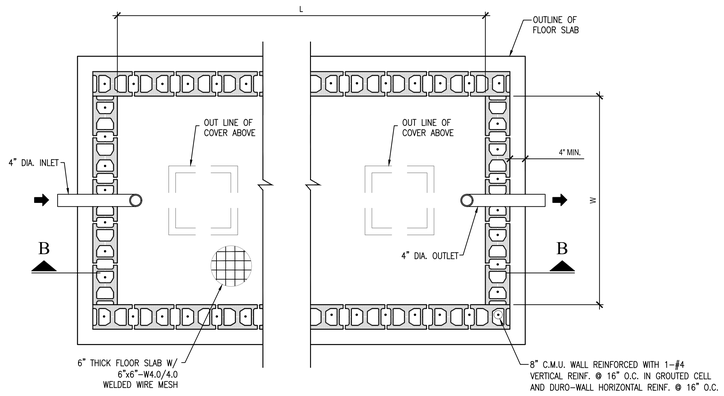


10 DISTRIBUTION BOX PLAN
NOT TO SCALE

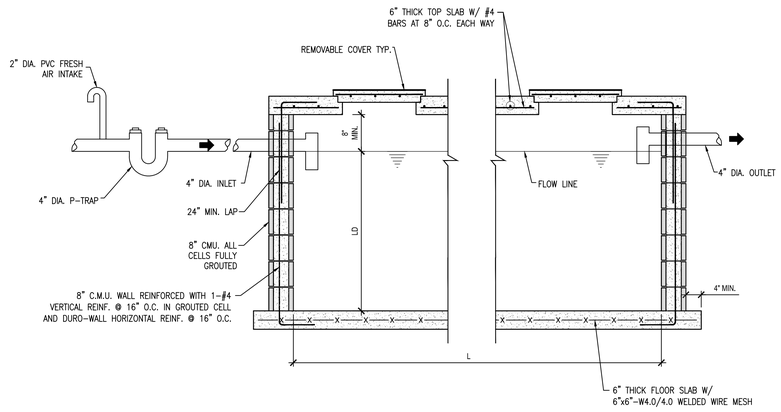
SEPTIC TANK SCHEDULE				
NUMBER OF BEDROOMS	CAPACITY (GALLONS)	WIDTH "W"	LENGHT "L"	LIQUID DEPTH "LD"
2 OR LESS	1,000	4'–0"	7'–0"	5'–0"
3	1,200	4'–0"	8'–0"	5'–0"
4	1,500	4'–6"	9'–0"	5'–0"
5	2,000	5'–6"	10'–0"	5'–0"
6	2,500	7'–0"	10'–0"	5'–0"

NOTES:

Extra bedroom 150 gallons each. Extra dwelling units over 10,250 gallon each Extra fixture unit over 10,026 gals. per fixture unit. The normal desired depth below the surface for a septic tank is between 12" to 18". It is extremely important that any septic tank that is located below 3'–0" in depth shall have sufficient structural strength to withstand the loads superimposed above.



11 SEPTIC TANK PLAN
NOT TO SCALE



12 SECTION B-B - THRU SEPTIC TANK
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

POTABLE WATER AND SANITARY SEWER DETAILS

BUILDTEC, LLC
DAMIAN CARTWRIGHT, P.E.
Civil Engineer

Project No. 2024-009
Date 06.14.2022

DAMIAN CARTWRIGHT 20001–15 PROFESSIONAL ENGINEER VIRGIN ISLANDS

Drawing No. C015

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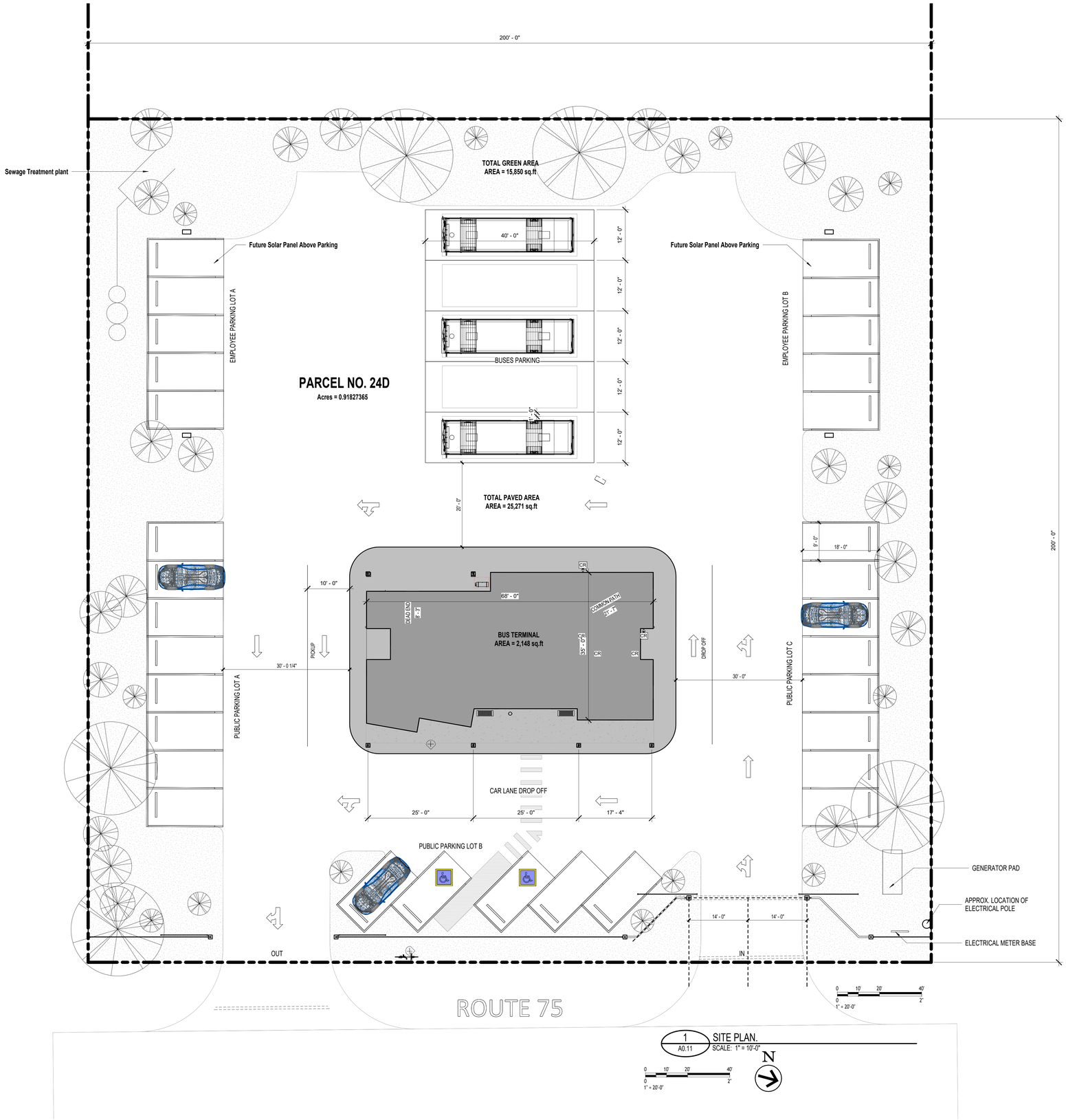

1 A0.11 SITE PLAN.
SCALE: 1" = 10'-0"

N

0 10' 20' 40'
0 2'
1" = 20'-0"

PUBLIC PARKING SPACES
LOT A PARKING SPACES = 8
LOT B PARKING SPACES = 8
LOT C PARKING SPACES = 5
TOTAL PARKING SPACES = 21
EMPLOYEE PARKING SPACES
LOT A PARKING SPACES = 5
LOT B PARKING SPACES = 5
TOTAL PARKING SPACES = 10
BUSES PARKING SPACES
TOTAL PARKING SPACES = 5

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

SITE PLAN - PROPOSED

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
C. ALFREDO E. BROWNE
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A0.11
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A0.11 - SITE PLAN - PROPOSED
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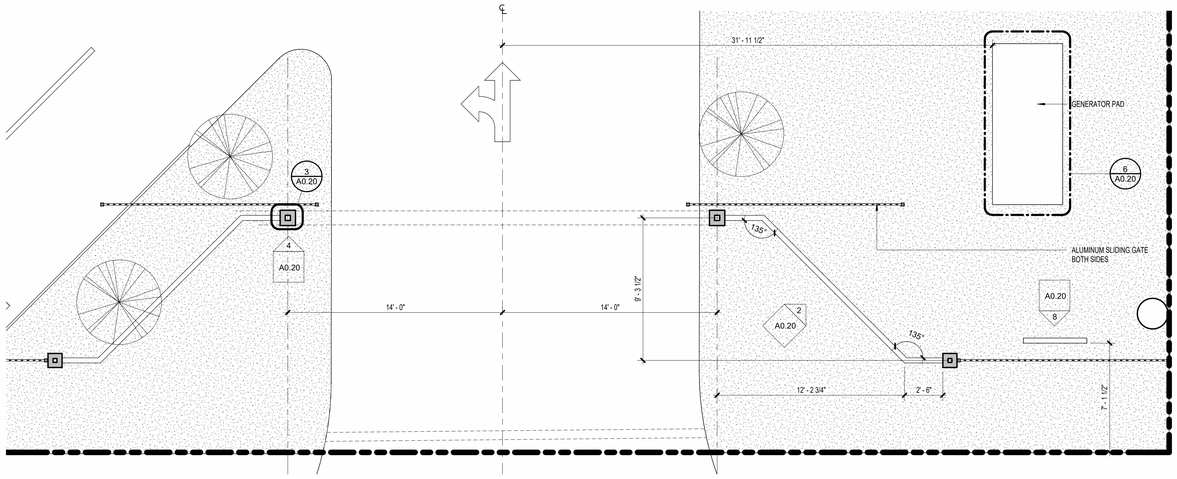
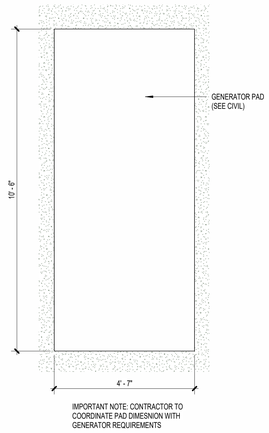
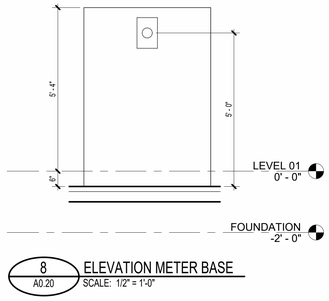


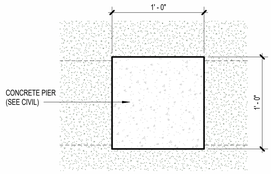
1 A0.20 ENLARGED PLAN - ENTRY GATE
SCALE: 1/4" = 1'-0"



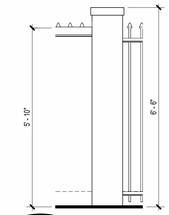
6 A0.20 ENLARGED PLAN - GENERATOR PAD
SCALE: 1/2" = 1'-0"



8 A0.20 ELEVATION METER BASE
SCALE: 1/2" = 1'-0"



3 A0.20 ENLARGED PLAN - TYPICAL POST
SCALE: 1 1/2" = 1'-0"



4 A0.20 ENLAEGED ELEVATION - TYPICAL POST
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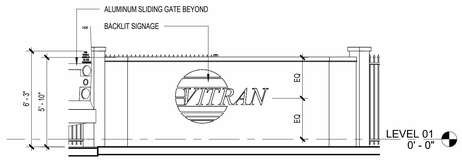
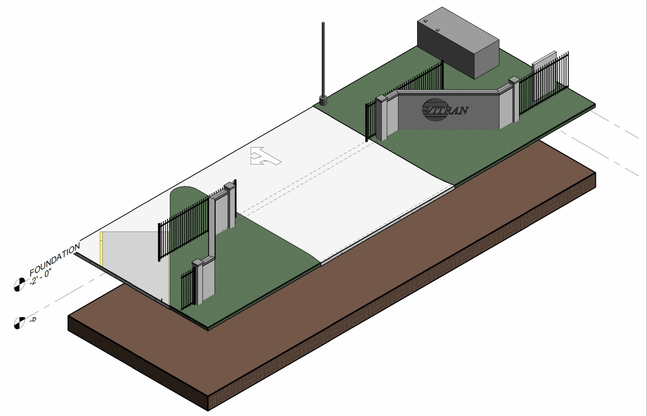


2 A0.20 NORTH ENTRY WALL
SCALE: 1/4" = 1'-0"



5 A0.20 AXON - ENTRY
SCALE:

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

SITE DETAILS

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE F. BROWNE
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VIRGIN ISLANDS

A0.20
Drawing No.

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PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A0.20 - SITE DETAILS
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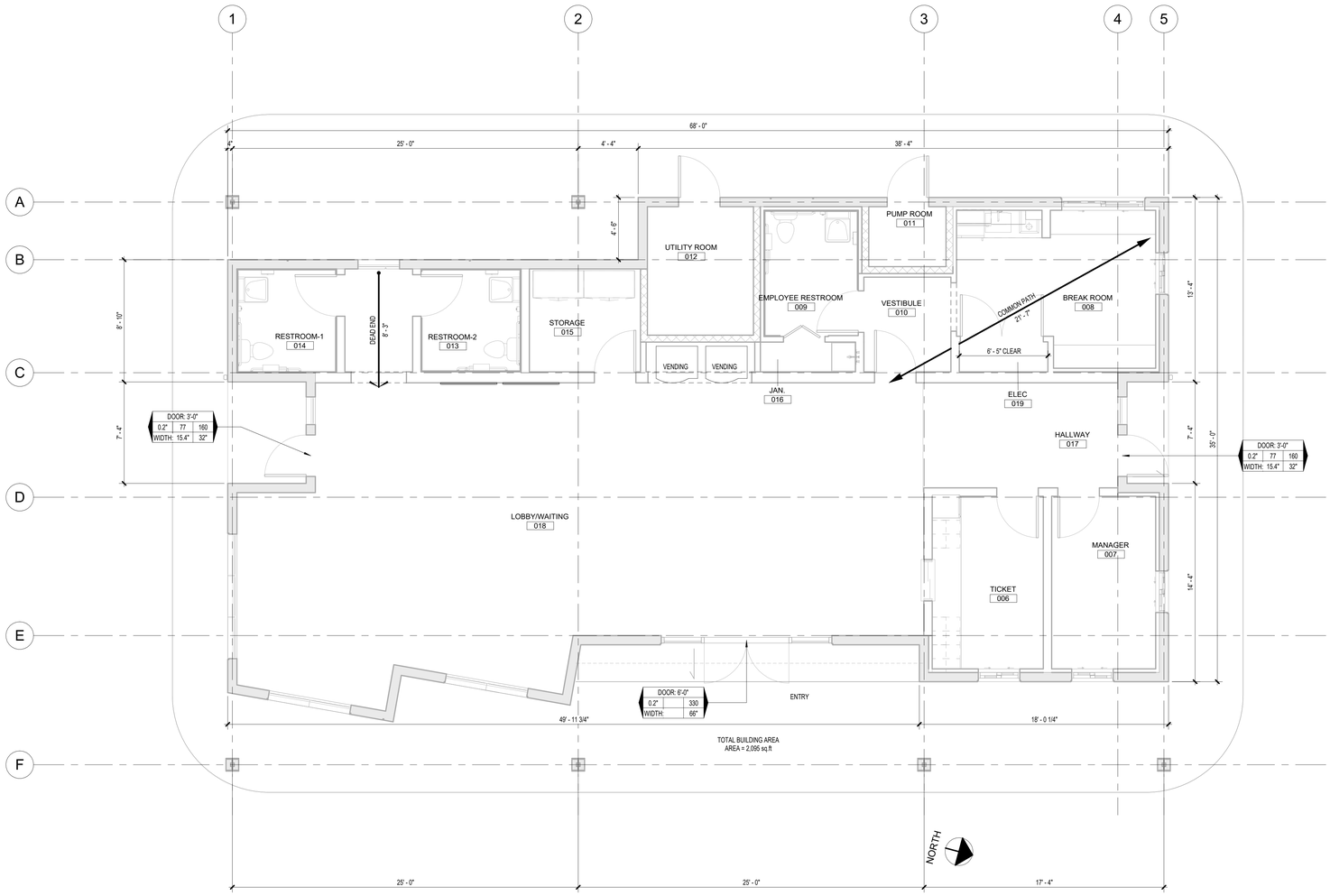

1 A0.21 LEVEL 01 - LIFE SAFETY PLAN
SCALE: 1/4" = 1'-0"

DOOR EGRESS

DOOR EGRESS CAPACITIES @ .2"/PERSON

SIZE	SUBTRACT	CLEAR WIDTH	CAPACITY
3' - 0" SINGLE	4"	32"	160
3' - 0" PAIR	6"	66"	330
3' - 0" PAIR W/ MULLION	8"	64"	320
3' - 4" PAIR W/ MULLION	8"	72"	360
3' - 6" SINGLE	4"	38"	190
3' - 6" PAIR	6"	78"	390
3' - 6" PAIR W/ MULLION	8"	76"	380
3' - 8" SINGLE	4"	40"	200
4' - 0" SINGLE	4"	44"	220
4' - 0" PAIR	6"	90"	450
4' - 0" PAIR W/ MULLION	8"	88"	440

MEANS OF EGRESS LEGEND

WALL RATINGS

- 1 HOUR SEPARATION ASSEMBLY OR FIRE PARTITION
- 2 HOUR SEPARATION ASSEMBLY OR FIRE PARTITION
- 3 HOUR SEPARATION ASSEMBLY OR FIRE PARTITION
- 4 HOUR SEPARATION ASSEMBLY OR FIRE PARTITION
- SMOKE SEPARATION ASSEMBLY

OCCUPANCY AREA LABELS

ROOM NUMBER
SF PER PERSON REQ. ("FIXED" WHERE CAPACITY IS FIXED)
OCCUPANCY CLASSIFICATION
NAME
XXXX XX,XXX SF
FIXED XXX CAP
A-3 OCCUPANC Y
AREA NAME
AREA
CALCULATED ROOM CAPACITY

EGRESS COMPONENT LABELS - STAIRS AND DOORS

EGRESS COMPONENT TYPE AND SIZE
EGRESS WIDTH PER PERSON REQUIRED
DOOR: 3'-0" PAIR
X.XX" XXXX" XXX
WIDTH: XXX" XXX"
OCCUPANTS PER COMPONENT
MAX COMPONENT CAPACITY
EGRESS WIDTH PROVIDED BY COMPONENT
EGRESS WIDTH REQUIRED FOR OCCUPANTS

DISTANCES

- COMMON PATH OF TRAVEL (XX FT. MAX) — 0' - 3" COMMON PATH
- DEAD END CORRIDOR (XX FT. MAX) — 0' - 3" DEAD END
- TRAVEL DISTANCE — 45' SEGMENT LENGTH
- MAX DIAGONAL DISTANCE — 0' - 3" MAX. DIAGONAL
- EXIT SEPARATION — 0' - 3" EXIT SEPARATION
- OCCUPANT NUMBER & EGRESS DIRECTION — 360

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No.	Drawing Issue Description	Date
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

LIFE SAFETY PLAN

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT CLAYTHORNE E. BROWNE 1114 A VIRGIN ISLANDS

A0.21 — Drawing No.

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SHEET NUMBER: A0.21 - LIFE SAFETY PLAN
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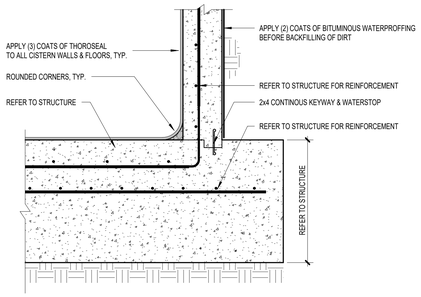

5 A1.00 CISTERN WALL & FOOTING DETAIL Copy 1
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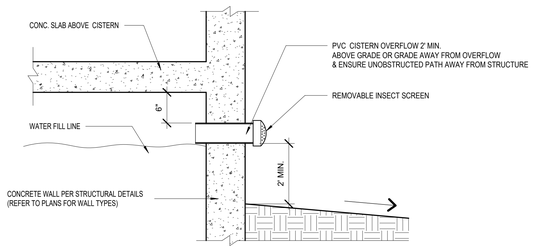

4 A1.00 TYPICAL CISTERN OVERFLOW DETAIL Copy 1
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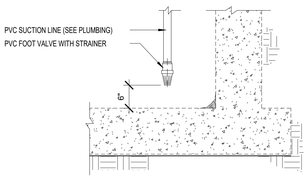
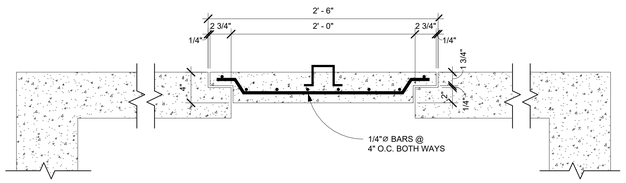
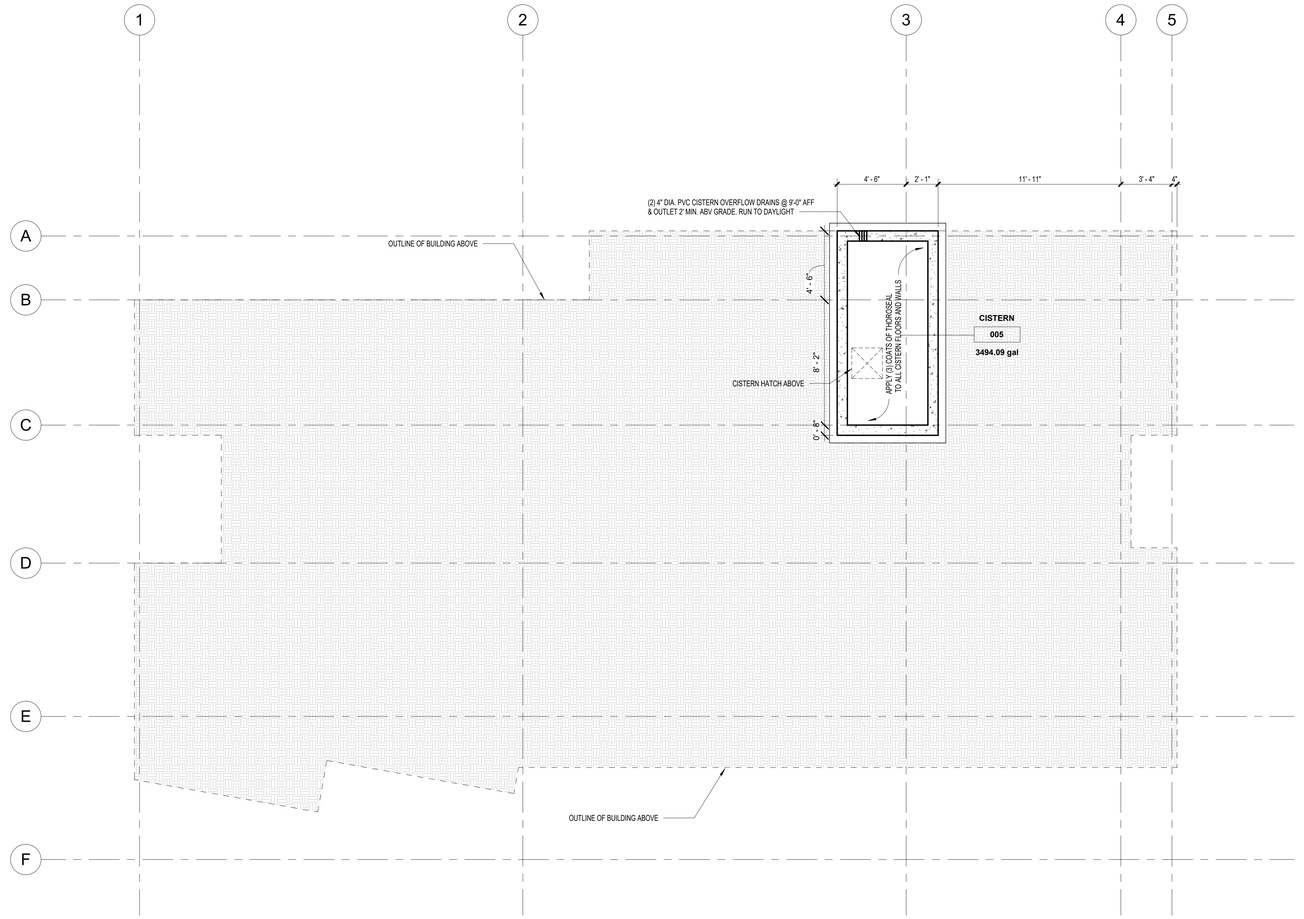


3 A1.00 FOOT VALVE DETAIL Copy 1
SCALE: 3/4" = 1'-0"



2 A1.00 CISTERN MANHOLE DETAIL Copy 1
SCALE: 1 1/2" = 1'-0"



1 A1.00 CISTERN LEVEL PLAN
SCALE: 1/4" = 1'-0"

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

CISTERN LEVEL - FLOOR PLAN

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE F. BROWNE
1114 A
VIRGIN ISLANDS

A1.00
Drawing No.

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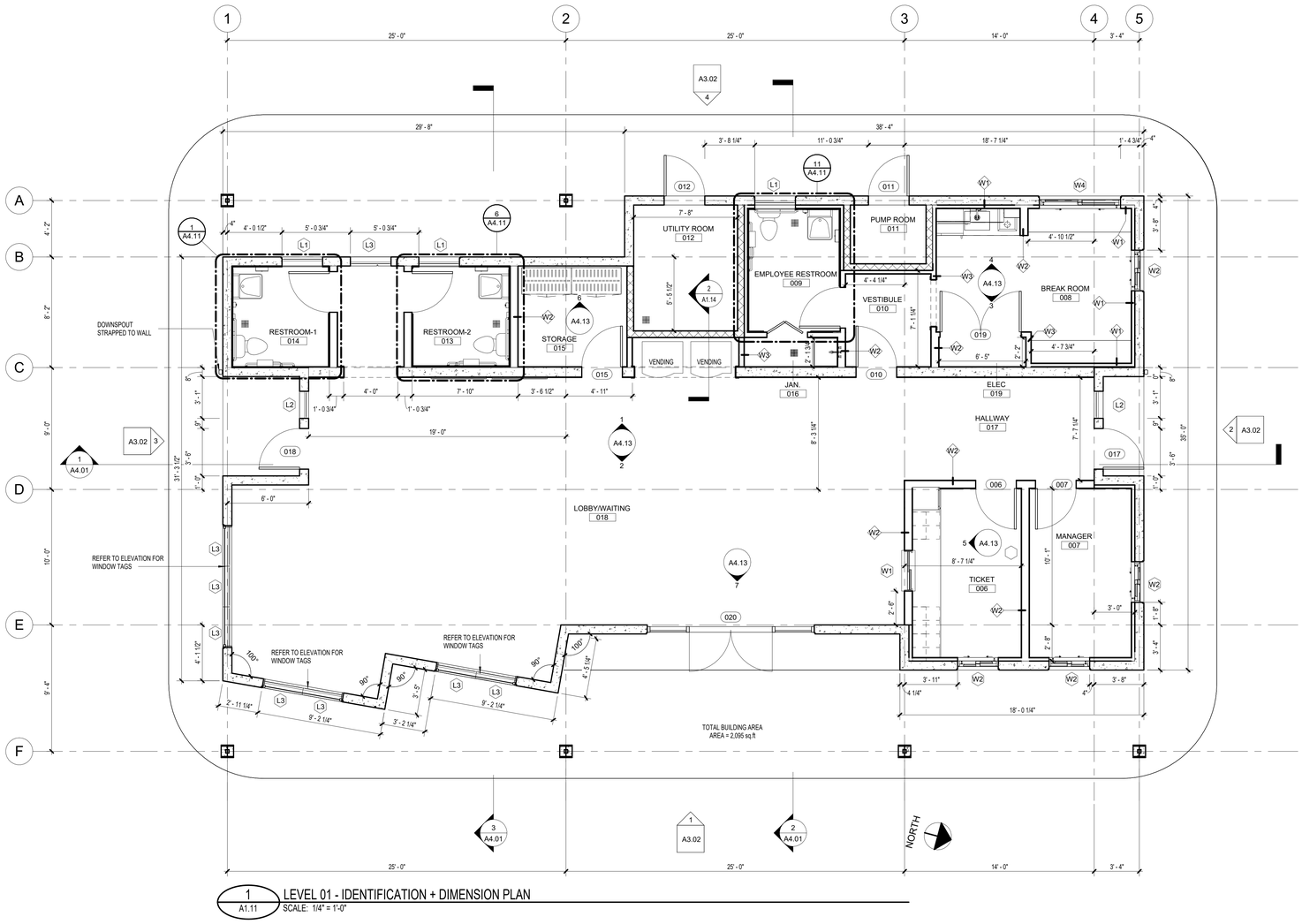
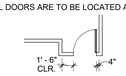


1 A1.11 — LEVEL 01 - IDENTIFICATION + DIMENSION PLAN
SCALE: 1/4" = 1'-0"

SYMBOL	DESCRIPTION	REMARKS
	EXISTING PARTITION TO REMAIN	
1	WALL TYPE TAG	
	NEW PARTITION	
	NEW PARTITION TO STRUCTURE	
FEC	FIRE EXTINGUISHER CABINET - ***INSERT MANUFACTURER***, SOLID DOOR, FLAT TRIM FULLY RECESSED, ALUMINUM CABINET, COLOR IN WHITE	FIRE EXTINGUISHER - DRY CHEMICAL TYPE, CLASS A, SIZE 10
FEC	SURFACE MOUNT FIRE EXTINGUISHER	FIRE EXTINGUISHER - DRY CHEMICAL TYPE, CLASS A, SIZE 10
	INDICATES MILLWORK PROVIDED AND INSTALLED BY G.C.	
0000 / 1 A	DOOR AND HARDWARE, REFER TO DOOR SCHEDULE SHEET A8.01	

7 CONSTRUCTION PLAN LEGEND

1. ALL DOORS ARE TO BE LOCATED AS SHOWN U.N.O.



2.

6 GENERAL CONSTRUCTION PLAN TYPICALS:

5 CONSTRUCTION PLAN CODED NOTES

(1) CODED NOTE

4 CONSTRUCTION PLAN ALTERNATES:

A0.01 ALTERNATE NOTE

3 MILLWORK NOTES

1 MILLWORK NOTE

2 CONSTRUCTION PLAN GENERAL NOTES

1.0 GENERAL REQUIREMENTS:

1.0.2 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHOP DRAWINGS AND SUBMITTALS REQUIRED BY JURISDICTION FOR PERMITTING AND FINAL INSPECTIONS. THESE MAY INCLUDE BUT ARE LIMITED TO FIRE ALARM, SPRINKLER, LOW VOLTAGE WORK ETC. ALL LIGHT FIXTURES AND FINISH MATERIALS WILL REQUIRE FULL PRODUCT SUBMITTALS.
1.0.3 INSTALLATION, SUBMITTAL REQUIREMENTS AND ADMINISTRATIVE REQUIREMENTS ARE TO BE PROVIDED PER SPECIFICATIONS SHEET OR MANUAL. IF NEITHER IS PROVIDED, PLEASE CONTACT ARCHITECT IMMEDIATELY FOR VERIFICATION.
1.0.4 CONTRACTOR TO THOROUGHLY FIELD VERIFY CONDITIONS PRIOR TO PRICING TO ENSURE FIELD CONDITIONS, DIMENSIONS AND QUANTITIES ARE CONSIDERED IN PREPARATION OF FINAL COSTS.
1.0.5 CONTRACTOR TO VERIFY PENETRATIONS THROUGH PARTITIONS (SUCH AS DUCTWORK ETC.) TO ENSURE THAT ADEQUATE BRACING AND REINFORCEMENT ARE PROVIDED.
1.0.6 CONTRACTOR SHALL PROVIDE LABOR + MATERIAL AS REQUIRED FOR WORK WHICH MAY NOT FALL INTO JURISDICTION OF A SPECIFIC TRADE BUT IS REQUIRED FOR PROPER JOB EXECUTION AND COMPLETION OF CONSTRUCTION.
1.0.7 CONTRACTOR AND VENDORS SHALL DETERMINE AVAILABILITY OF ALL MATERIALS. ANY DELIVERY SCHEDULE THAT POTENTIALLY MAY CAUSE COORDINATION PROBLEMS DURING THE CONSTRUCTION / INSTALLATION SCHEDULE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT EARLY ON, FOR POSSIBLE REEVALUATION OF MATERIAL DESIGNATION.
1.0.8 - PROVIDE PORTABLE 10# ABC FIRE EXTINGUISHERS (IN RECESSED CABINET) IN ALL CORRIDORS. MAXIMUM 75' TRAVEL TO AN EXTINGUISHER. PROVIDE ONE SURFACE MOUNTED FE IN ALL MECHANICAL PENTHOUSE SPACES AND PLUMBING ROOM, SEE PLANS.
1.0.9- SEE PLUMBING FOR FLOOR DRAIN LOCATIONS IN MECHANICAL ROOMS
1.0.10 - STAINLESS STEEL CORNER GUARDS ARE REQUIRED ON ALL EXTERIOR CORNERS IN BOH AREAS
1.0.11 - PROVIDE ACCESS PANELS PER INDUSTRY STANDARDS AS REQUIRED FOR EQUIP. RELATED TO BUILDING SYSTEMS
1.0.12 -SEE DOOR SCHEDULE FOR TRANSOMS, SIDELIGHTS, BORROWED LIGHTS AND WINDOWS WHEN THE WINDOW FRAME IS PART OF THE DOOR FRAME.
1.0.13 - REFER TO ELECTRICAL & AV DRAWINGS FOR DATA & POWER OUTLETS
1.0.14 - ACCESS CONTROL TO BE PROVIDED AT ALL ENTRY POINTS AND AT SOME STORAGE ROOMS; REFER TO ELECTRICAL AND DOOR SCHEDULE FOR LOCATIONS.
1.0.15 - MULLION SIZES ARE INDICATED FOR DETAILING PURPOSES. WINDOW MFR. TO ENGINEER MULLION SIZES TO MEET MULLION SPACING AND DESIGN INTENT.

1.1 GENERAL PARTITION NOTES:

1.1.1 REFER TO GENERAL PARTITION PLAN TYPICALS FOR TYPICAL INFORMATION.
1.1.2 THE PARTITION ABOVE DOORS SHALL BE OF SAME CONSTRUCTION AS THE ADJACENT PARTITION.
1.1.3 CAULK GAPS WHERE INTERSECTIONS OF CONSTRUCTION ELEMENTS ARE NOT CRISP AND CONSISTENT. COORDINATE CAULKING & SEALING WITH SPECIFICATIONS SHEET OR MANUAL, INSTALL PER MANUFACTURERS INSTRUCTIONS.
1.1.4 FLOOR LEVEL AT DOORWAYS SHALL BE PROVIDED TO INSURE TOLERANCES IN DOOR DETAILS. GC SHOULD ORDER DOORS AND FRAMES FOR SCRIBE TO INSURE THAT UNDERCUT CLEARANCE PER DETAILS.
1.1.5 CONTRACTOR SHALL VERIFY EXISTING WALL / DEMISING WALL / CORE WALLS TO INFILL AND PATCH ANY OPENING TO MEET REQUIRED FIRE RATINGS.
1.1.6 DIMENSIONS:
A. SCALES AS STATED ARE VALID ON THE ORIGINAL DRAWING ONLY. DO NOT SCALE FROM THESE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER GRAPHIC PRESENTATION. DETAIL DIMENSIONS TAKE PRECEDENCE OVER PLAN DIMENSIONS.

B. NOTIFY ARCHITECT OF ANY DIMENSIONAL DISCREPANCIES. ANY MODIFICATIONS OR DEVIATION TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR REVIEW AND APPROVAL.
C. ALL VERTICAL DIMENSIONS SHALL BE TAKEN FROM A "BENCH MARK" OR OTHER SIMILAR GUIDE ESTABLISHED PRIOR TO THE START OF CONSTRUCTION. HIGH POINTS, LOW POINTS, IRREGULARITIES IN FLOOR SLAB WHICH COULD AFFECT FABRICATION / INSTALLATION, WORK OF OTHER TRADES OR VENDORS SHALL BE BROUGHT TO THE ATTENTION OF ARCHITECT.
1.1.7 MATERIALS:
A. INSTALL MOISTURE RESISTANT GWB AT AREAS EXPOSED TO MOISTURE INCLUDED BUT NOT LIMITED TO TOILETS, BREAKROOM COUNTERS AND OTHER SINK LOCATIONS U.N.O.
B. ALL NECESSARY WOOD BLOCKING / GROUNDS ETC. ARE TO BE FIRE RETARDANT TREATED GC SHALL FULLY COORDINATE SETTING AND PLACEMENT TO THESE ELEMENTS AND INSURE THAT LOCAL CODE / BUILDING REQUIREMENTS ARE MET.
C. GROUNDS / BLOCKING MAY NOT BE WHOLLY SHOWN ON DRAWING. GOOD CONSTRUCTION PRACTICE SHALL GOVERN / DETERMINE SAID USE.
D. INTERNAL WOOD BLOCKING SHALL BE PROVIDED FOR STURDY ANCHORAGE AT INTERSECTIONS OF WOOD / GLASS BORROWED LIGHT PARTITIONS AND ADJACENT DRYWALL CONSTRUCTION.

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

LEVEL 01 - IDENTIFICATION + DIMENSION PLAN

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT — CLAUDIO E. BROWNE — 1114 A — VIRGIN ISLANDS

A1.11 — Drawing No.

NOT ISSUED FOR CONSTRUCTION

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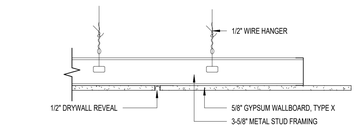
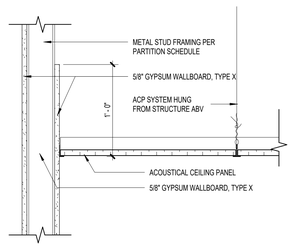
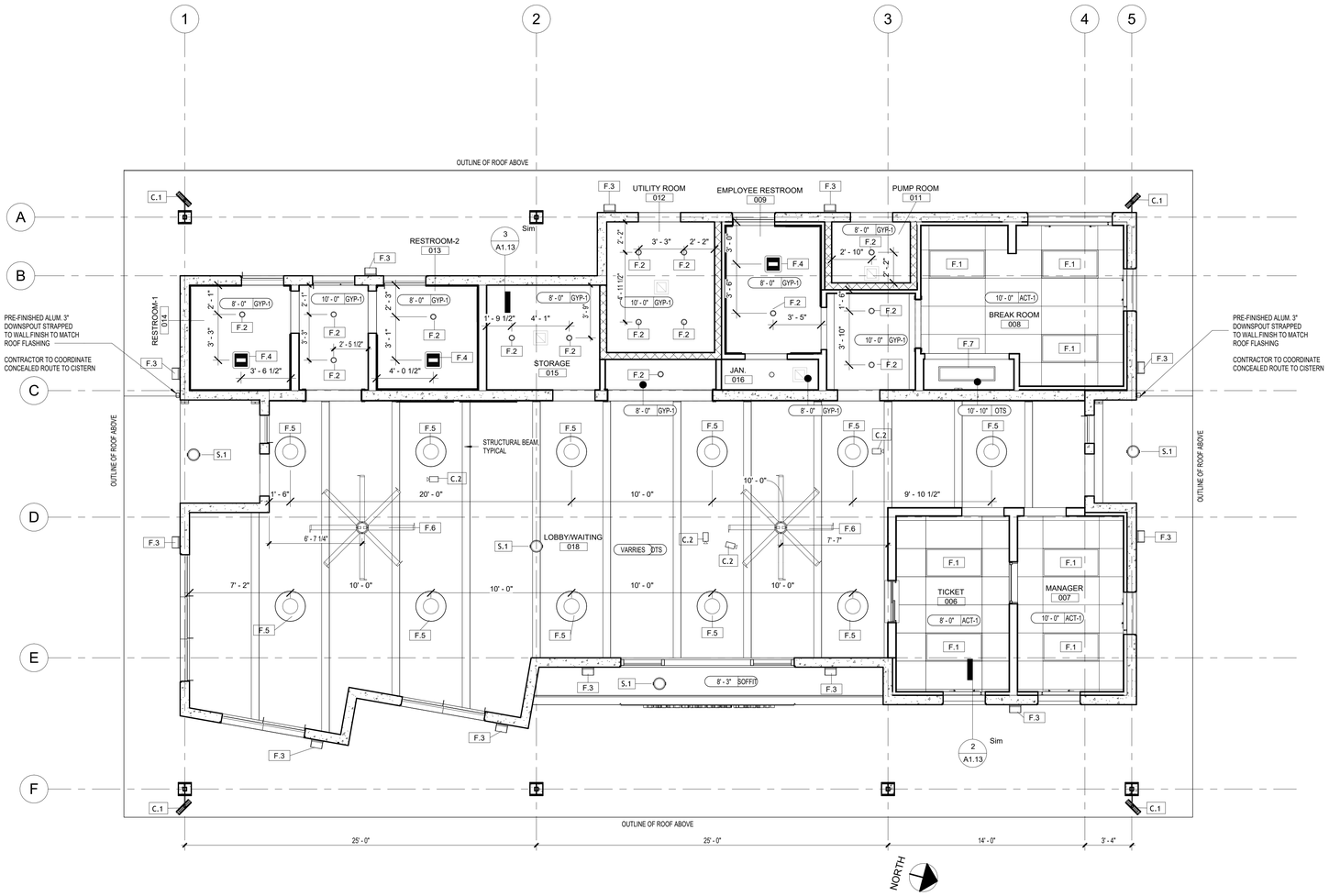


3 A1.13 GYP CEILING, TYPICAL
SCALE: 1 1/2" = 1'-0"



2 A1.13 ACOUSTIC CEILING, TYPICAL
SCALE: 1 1/2" = 1'-0"



1 A1.13 LEVEL 01 - RCP
SCALE: 1/4" = 1'-0"

LIGHTING FIXTURE SCHEDULE				
TYPE	**DESCRIPTION**	**MANUFACTURER**	**MODEL**	**COMMENTS**
F.1	**2' X 4' LED RECESSED LIGHT**	**LUMENWERX**	**NOVA**	**WHITE**
F.2	**4" RECESSED DOWNLIGHT**	**GOTHAM**	**EVO6 30/15 AR LSS MWD MVOLT GZ10**	**BLACK**
F.3	**Outdoor Wall Pack Light**	**WARELIGHT**	**WLWP-45W-40K-MV-10D-G2**	**WHITE**
F.4	**Delta Breez low noise BreezSmart Ventilation Fan with LED Light & Night-light.**	**Delta Electronics (Americas) Ltd.**	**SMT150LED**	**BLACK**
F.5	**CHROMA LED PENDANT.**	**LUMENS**	**PD1709**	**BLACK**
F.6	**Big-Ass-Fans-8-Ft-Isis-8-Blade**	**Big Ass Fans**	**IS08**	**BLACK**
F.7	**LINEAR PENDANT LED LIGHT**	**LUMENWERX**	**REVEN**	**WHITE**
F.8	**Chamberlin LED Vanity Light**	**LUMENS**	**HUXE**	**BLACK**

Communication Device Schedule				
Type Mark	Description	Manufacturer	Model	Comments
S.1	ESP-82CDTW: 8 inch Coaxial Compression Pendant Speaker	Lowell Manufacturing	ESP-82CDTW	

Security Device Schedule				
Type Mark	Description	Manufacturer	Model	Comments
C.1	Wall Mount Wyze Cam Pan V3	Gresur	B0C2YLMZWZ	WHITE
C.2	Security Camera Dome			WHITE

7 REFLECTED CEILING PLAN FIXTURE & DEVICE SCHEDULES

Ceiling Schedule			
Type Mark	Description	Manufacturer	Comments
ACT-1	2X2 ACOUSTIC CEILING TILE, BASIS OF DESIGN: ARMOSTRONG, CORTEGA		
GYP-1	GYPSUM BOARD CEILING		
OTS	OPEN TO STRUCTURE		

CEILING SYMBOL — 0'-0" (CEILING HEIGHT FROM A.F.F.) / A (CEILING TYPE)

6 CEILING TYPE SCHEDULE

5 REFLECTED CEILING PLAN CODED NOTES — 1 CODED NOTE

1. ALL CEILING ARE 9'-0" HIGH U.N.O.

2. ALL ACCESS PANELS SHALL BE LOCATED BY ARCHITECT. ANY AREAS REQUIRING ACCESS IN GWB CEILING SHALL BE NOTED TO ARCHITECT PRIOR TO FINAL PRICING.

3. SPRINKLER HEADS ARE AS FOLLOWS:
GWB CEILING - FLUSH CONCEALED TYPE
ACT CEILING - SEMI-RECESSED OR BUILDING STANDARD

4 REFLECTED CEILING PLAN TYPICALS

3 RCP ALTERNATES — A0.01 ALTERNATE NOTE

2.0 GENERAL REQUIREMENTS
2.0.1 REFER TO PARTITION PLAN FOR TYPICAL GENERAL REQUIREMENTS INCLUDING SUBMITTAL REQUIREMENTS.

2.1 GENERAL CEILING NOTES:
2.1.1 REFER TO GENERAL REFLECTED CEILING STANDARDS FOR TYPICAL INFORMATION.
2.1.2 INSPECTIONS AS REQUIRED BY LOCAL AUTHORITIES SHALL BE COMPLETED PRIOR TO CLOSING OF CEILING.
2.1.3 CEILING PLANE SHALL BE LEVEL AND TRUE AND ALIGN WITH ALL LIGHTS, SPRINKLER, HVAC AND OTHER ELEMENTS INCORPORATED IN ITS CONSTRUCTION.
2.1.4 FASCIAS / SOFFITS SHALL BE LEVEL AND TRUE, FREE OF SURFACE DISTORTION AND DIMENSIONED ACCORDING TO DETAILS SHOWN.
2.1.5 MECHANICAL, HVAC AND PLUMBING ELEMENTS SHALL AT NO TIME COME IN CONTACT WITH CEILING CONSTRUCTION EXCEPT AS NECESSARY PENETRATIONS MAY REQUIRE.
2.1.6 DIMENSIONS:
A. SCALES AS STATED ARE VALID ON THE ORIGINAL DRAWING ONLY. DO NOT SCALE FROM THESE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER GRAPHIC PRESENTATION. DETAIL DIMENSIONS TAKE PRECEDENCE OVER PLAN DIMENSIONS.
B. NOTIFY ARCHITECT OF ANY DIMENSIONAL DISCREPANCIES. ANY MODIFICATIONS OR DEVIATION TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR REVIEW AND APPROVAL.
C. LIGHTS SHOWN IN 2x2 CEILING TILES SHALL BE CENTERED U.N.O.
D. CONTRACTOR TO COORDINATE WITH ARCHITECT IF ANY LOCATION OF LIGHT FIXTURES OR DEVICES ARE NOT SHOWN DIMENSIONALLY PRIOR TO INSTALLATION.

2.1.7 PROVIDE SEMI-RIGID SOUND ATTENUATION BLANKETS WHERE INDICATED ON DETAILS OR PLAN.
2.1.8 CONTRACTOR SHALL VERIFY WITH BUILDING MANAGEMENT IF ENERGY MANAGEMENT SYSTEM IS IN USE AND IF TENANT SYSTEMS ARE REQUIRED TO BE TIED INTO SAID MANAGEMENT SYSTEM. THIS WORK SHALL BE PART OF THE OVERALL CONTRACT IF REQUIRED.

2.2 COORDINATION ACCESS:
2.2.1 ACCESS SHALL BE PROVIDED BY GC AS REQUIRED FOR INSTALLATION AND MAINTENANCE OF MECHANICAL, ELECTRICAL, DATA AND OTHER ELEMENTS WITHIN CEILING PLENUM AND AS REQUIRED BY CODE. THIS ACCESS SHALL BE REVIEWED WITH THE BASE BUILDING ENGINEER TO CONFIRM SUITABILITY FOR GENERAL MAINTENANCE.
2.2.2 LOCATIONS FOR SPECIAL ACCESS DOORS. HATCHES SHALL BE COORDINATED WITH OTHER TRADES AND APPROVED BY THE ARCHITECT. ELECTRICAL, MECHANICAL SYSTEMS AND VALVES ETC., REQUIRING ACCESS ABOVE GWB OR HARD CEILINGS SHALL BE MOVED TO A SUITABLE LOCATION IDENTIFIED BY THE ARCHITECT SO THAT ACCESS HATCHES ARE NOT REQUIRED.

2.2.3 PROVIDE LINED "Z" BOOTS AT ALL TRANSFER DUCTS AND WHERE RETURN VENTILATION IS REQUIRED AT FULL HEIGHT PARTITIONS.
2.2.4 MECHANICAL AND ELECTRICAL CONTRACTOR SHALL COORDINATE WORK BETWEEN THE ENGINEERING AND THE ARCHITECTURAL DRAWINGS:
ARCHITECTURAL CEILING PLAN SHALL GOVERN WITH RESPECT TO AESTHETIC CONSIDERATIONS, QUANTITY, LOCATIONS FOR FIXTURES, DEVICES ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES (NEW OR EXISTING) INDICATED ON PLANS.
MECHANICAL AND ELECTRICAL CEILING PLAN SHALL GOVERN WITH RESPECT TO FUNCTIONAL CONSIDERATIONS AND OVERALL SCOPE OF WORK.

2.3 LAMPING / SWITCHING:
2.3.1 WHEN ENGINEERING DOCUMENTS DO NOT EXIST:
ALL DOWNLIGHTS (INCANDESCENT OR LOW VOLTAGE) SHALL BE ON A SINGLE DIMMER RESPECTIVELY.
ALL WALL WASHERS SHALL BE ON DIMMERS PER ARCHITECT'S INSTRUCTION.
CONSULT WITH ARCHITECT FOR QUANTITY IN A GIVEN ROOM.
ALL OFFICES SHALL BE SWITCHED INDEPENDENTLY.
ALL CORRIDOR SHALL BE ON A TIMED SWITCH BANK PER QUADRANT IN A LOCATION COORDINATED BY THE ARCHITECT.

2 REFLECTED CEILING PLAN GENERAL NOTES

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LEVEL 01 - REFLECTED CEILING PLAN

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT — CLARENCE E. BROWNE — 1114 A — VIRGIN ISLANDS

A1.13 — Drawing No.

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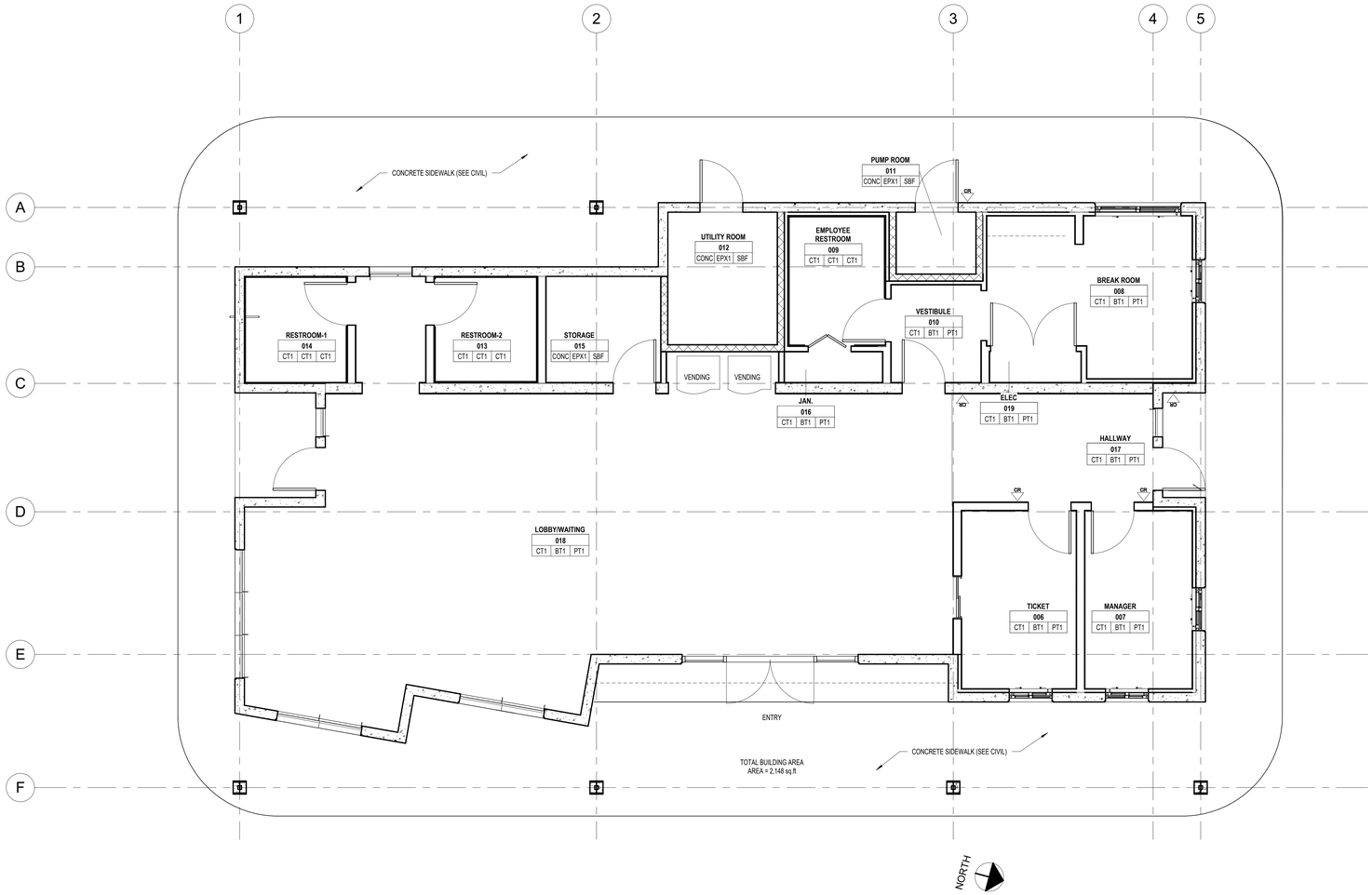
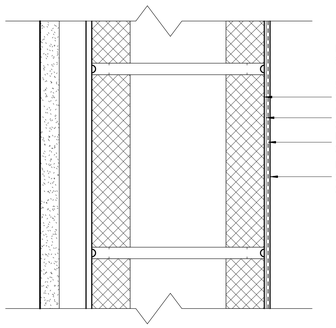


1 A1.14 FINISH PLAN
SCALE: 1/4" = 1'-0"



2 A1.14 STANDARD BLOCK FINISH DETAIL
SCALE: 1/2" = 1'-0"

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FINISHES FLOOR	BASE	WALL	ACCENT WALL	COMMENTS
005	CISTERN					
006	TICKET	CT1	BT1	PT1		
007	MANAGER	CT1	BT1	PT1		
008	BREAK ROOM	CT1	BT1	PT1		
009	EMPLOYEE RESTROOM	CT1	CT1	CT1		
010	VESTIBULE	CT1	BT1	PT1		
011	PUMP ROOM	CONC	EPX1	SBF		
012	UTILITY ROOM	CONC	EPX1	SBF		
013	RESTROOM-2	CT1	CT1	CT1		
014	RESTROOM-1	CT1	CT1	CT1		
015	STORAGE	CONC	EPX1	SBF		
016	JAN.	CT1	BT1	PT1		
017	HALLWAY	CT1	BT1	PT1		
018	LOBBY/WAITING	CT1	BT1	PT1		
019	ELEC	CT1	BT1	PT1		

MATERIAL FINISH SCHEDULE - INTERIOR

NO.	DESCRIPTION
ACOUSITC CEILING TILE	
ACT-1	2X2 ACOUSTIC CEILING TILE, BASIS OF DESIGN: ARMOSTRONG, CORTEGA
ACT-2	2X2 WASHABLE ACOUSTIC CEILING TILE, BASIS OF DESIGN: ARMOSTRONG, CERAMAGUARD (UNPERFORATED)
CERAMIC TILE	
CT1	DALTILE, AMBASSADOR, COLOR: GLOBAL GREY AM35 LIGHT POLISHED; SIZE 24X24, STACK BOND, GROUT: ARDEX DOVE GRAY 18
CT2	
CONCRETE	
CON-1	POLISHED CONCRETE
EPOXY	
EPX1	ARMORLITRA INDUSTRIAL EPOXY FLOOR COATING (OR EQUAL)
MISCELLANEOUS	
BT1	RUBBER BASE, 6" JOHNSONITE TRADITIONAL WALL BASE, COLOR: 20 CHARCOLA WG
PAINT	
PT1	PRIMARY WALL, SW 6231, ROCK CANDY, SEMI-GLOSS FINISH
PT2	ACCENT WALL, SW 7608, ADRIFT, SEMI-GLOSS FINISH
PT3	CEILING, SW 7007, CEILING BRIGHT WHITE, SATIN FINISH
BLOCK FILLER	
SBF	STANDARD BLOCK FINISH

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VI LICENSE # 1114A

ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

LEVEL 01 - FINISH PLAN

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE E. BROWNE
1114 A
VIRGIN ISLANDS

A1.14
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A1.14 - LEVEL 01 - FINISH PLAN
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
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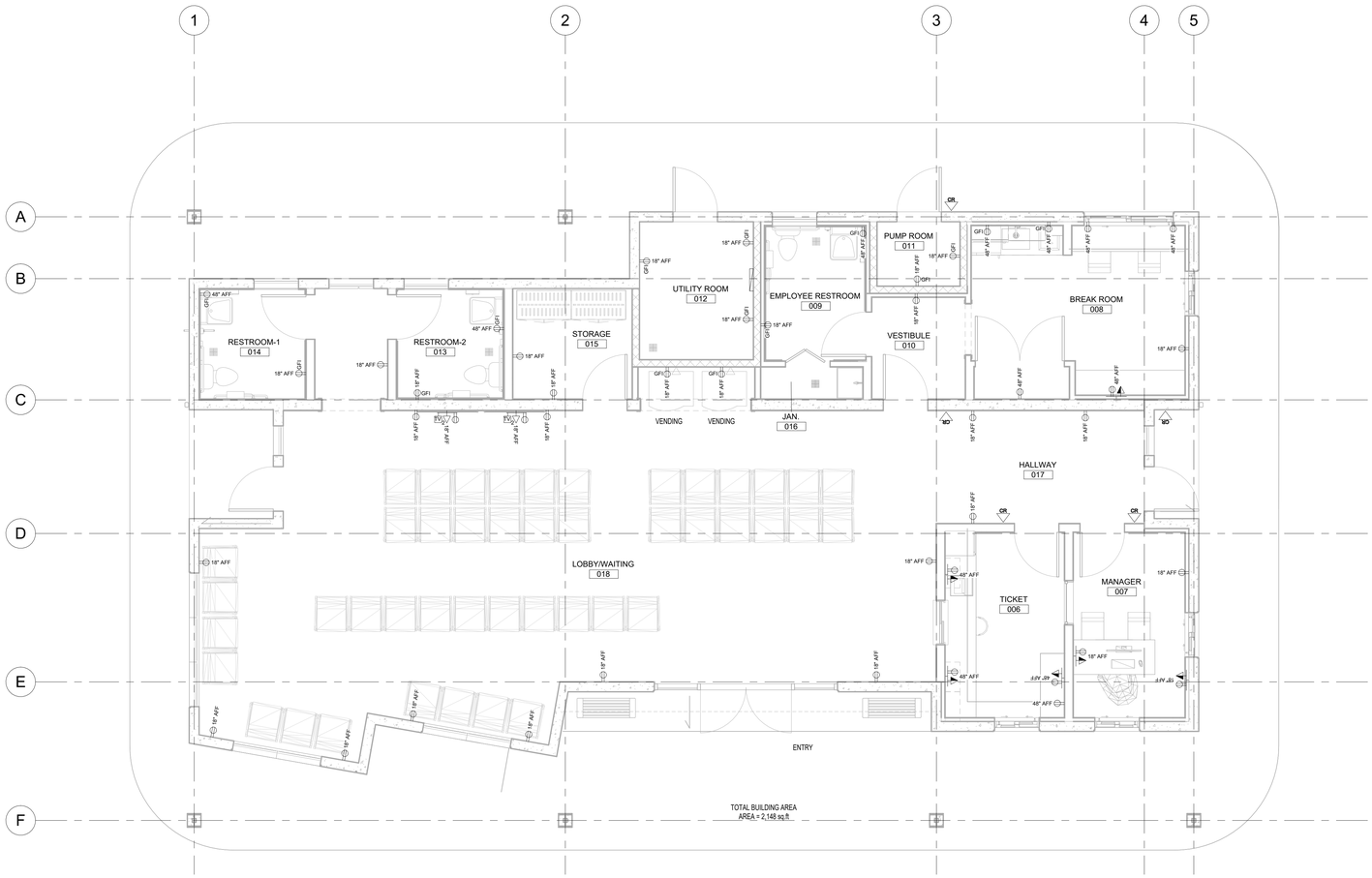

1 / A1.16 LEVEL 01 - PCOMM PLAN.
SCALE: 1/4" = 1'-0"

POWER & DATA LEGENDS	
	DATA OUTLET
2	DUAL DATA OUTLET
T	TELEPHONE OUTLET
T/D	TELEPHONE/DATA OUTLET
	FLOOR DUPLEX OUTLET
	FLOOR QUADRUPLEX OUTLET
GFI	GROUND FAULT DUPLEX OUTLET
	DUPLEX OUTLET
USB	USB OUTLET
CR	CARD READER

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0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

LEVEL 01 - PCOMM PLAN

C. BROWNE
Project Architect

2024-009
Project No.

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Date

REGISTERED ARCHITECT
CLARENCE F. BROWNE
1114 A
VIRGIN ISLANDS

A1.16
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A1.16 - LEVEL 01 - PCOMM PLAN
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
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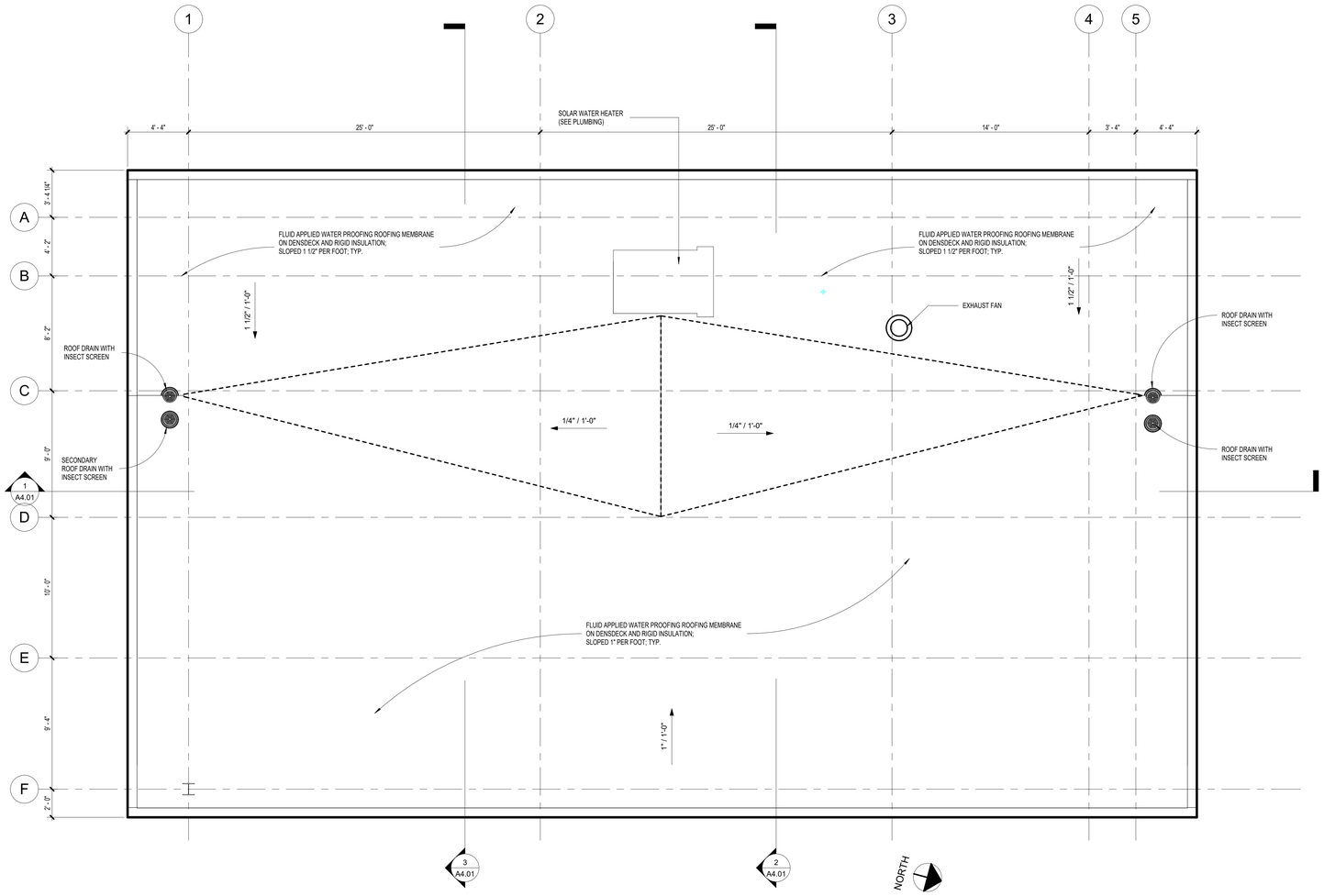
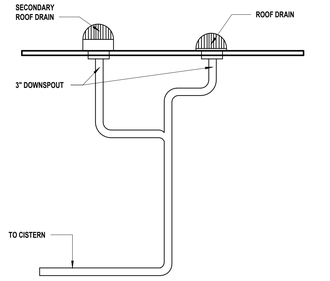


1 A2.10 ROOF PLAN.
SCALE: 1/4" = 1'-0"



2 A2.10 COMBINED ROOF DRAINAGE SYSTEM
SCALE: 3/8" = 1'-0"

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
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Department of Public Works - Division of Transportation

ROOF PLAN

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE T. BROWNE
1114 A
VIRGIN ISLANDS

A2.10
Drawing No.

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PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A2.10 - ROOF PLAN
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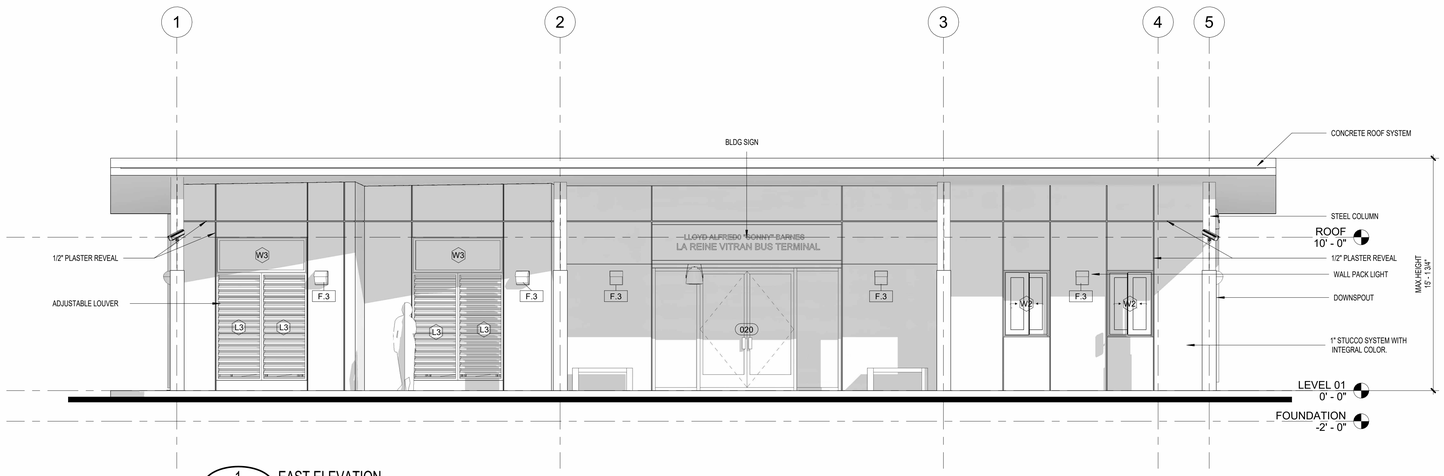
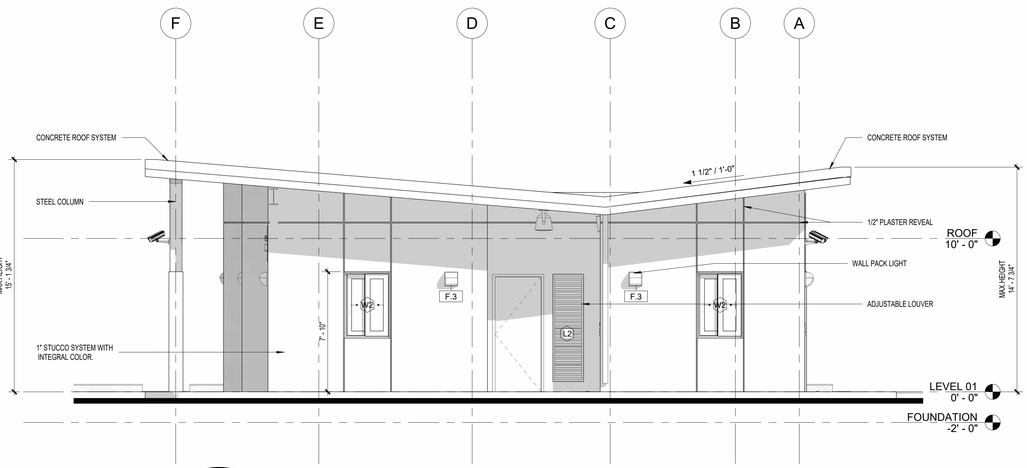


1 A3.02 **EAST ELEVATION**
SCALE: 1/4" = 1'-0"



2 A3.02 **NORTH ELEVATION**
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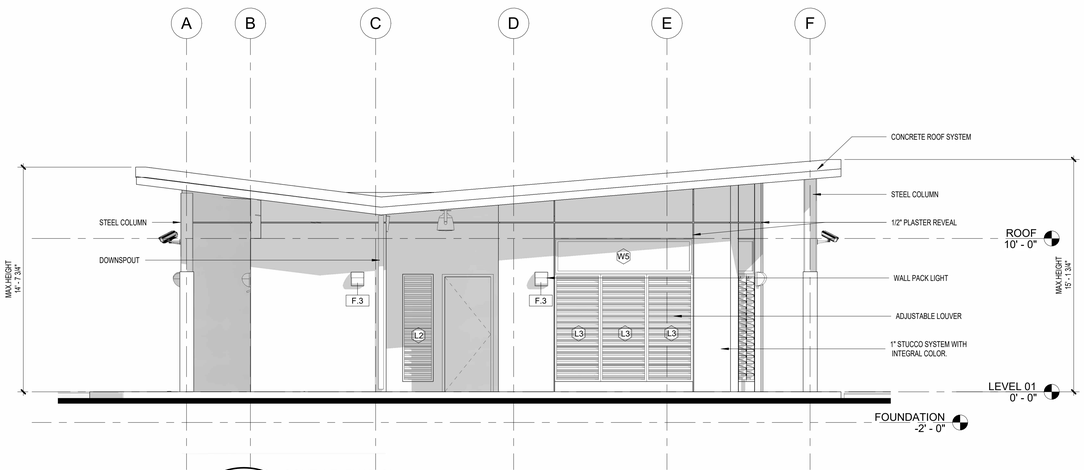

3 A3.02 **SOUTH ELEVATION**
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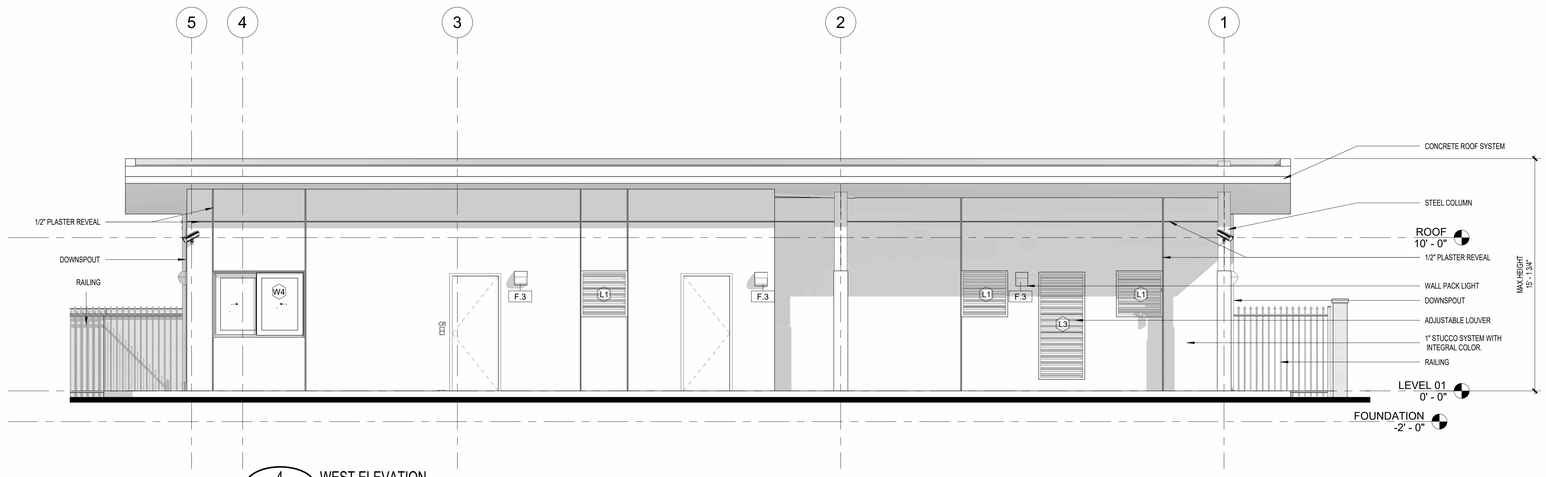

4 A3.02 **WEST ELEVATION**
SCALE: 1/4" = 1'-0"

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
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Department of Public Works - Division of Transportation

BUILDING ELEVATIONS

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
D. ALFONSO E. BROWNE
VI LICENSE # 1114 A
VIRGIN ISLANDS

A3.02
Drawing No.

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PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A3.02 - BUILDING ELEVATIONS
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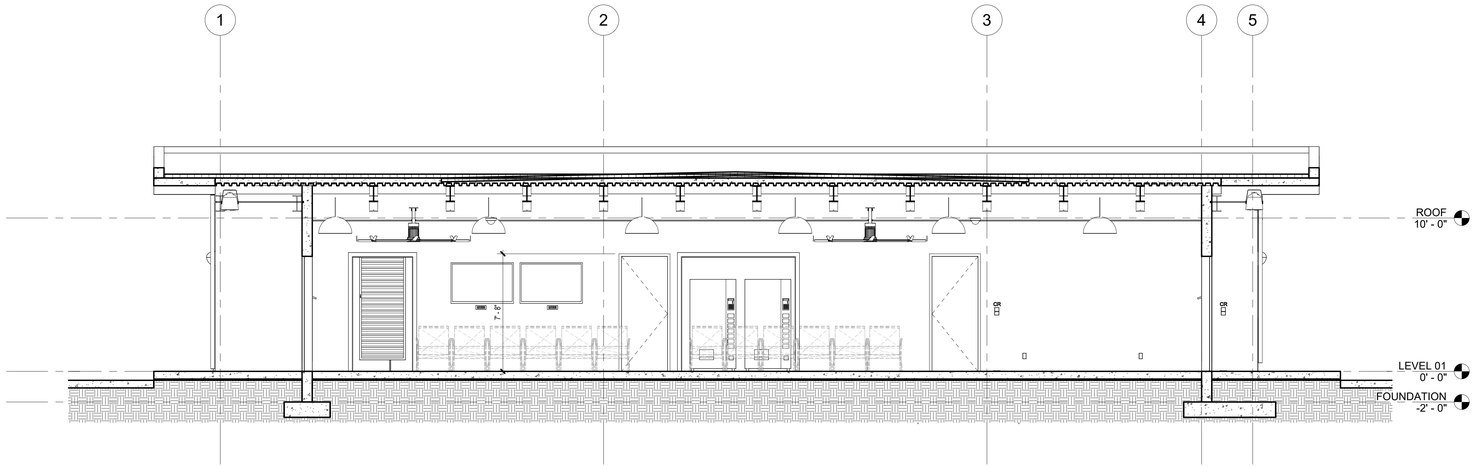
1/21/2025 11:34:51 PM



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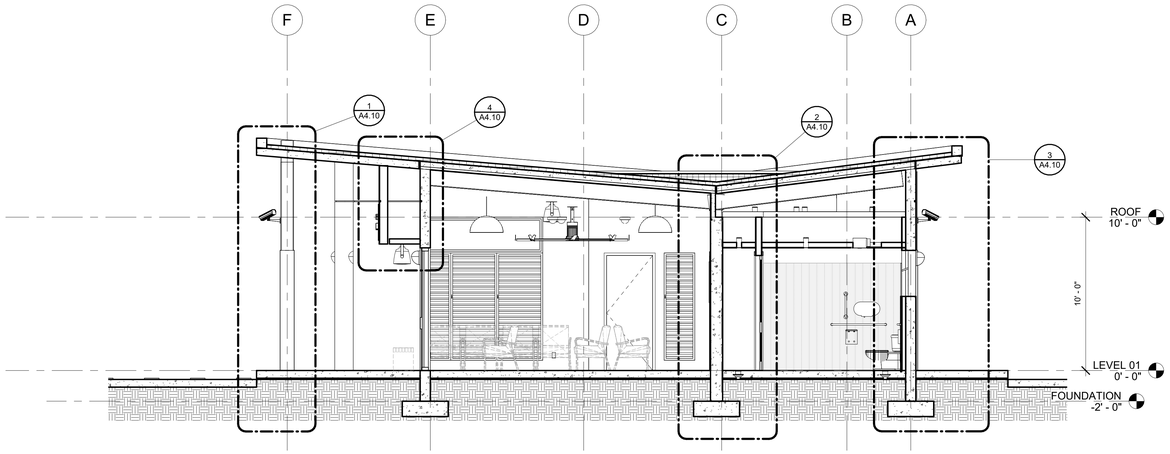

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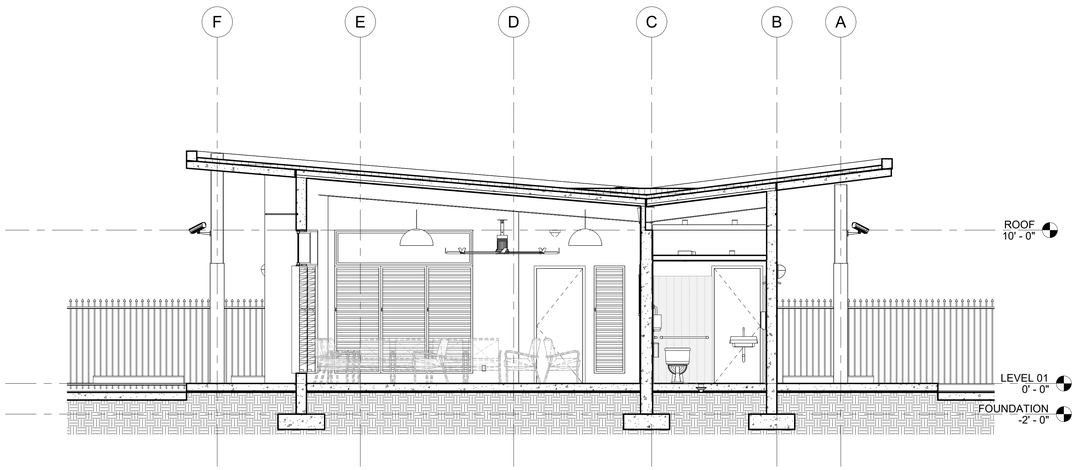

3 A4.01 BUILDING SECTION-NS 1
SCALE: 1/4" = 1'-0"

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

BUILDING SECTIONS

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT — CLARENCE E. BROWNE — 1114 A — VIRGIN ISLANDS

A4.01 — Drawing No.

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PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A4.01 - BUILDING SECTIONS
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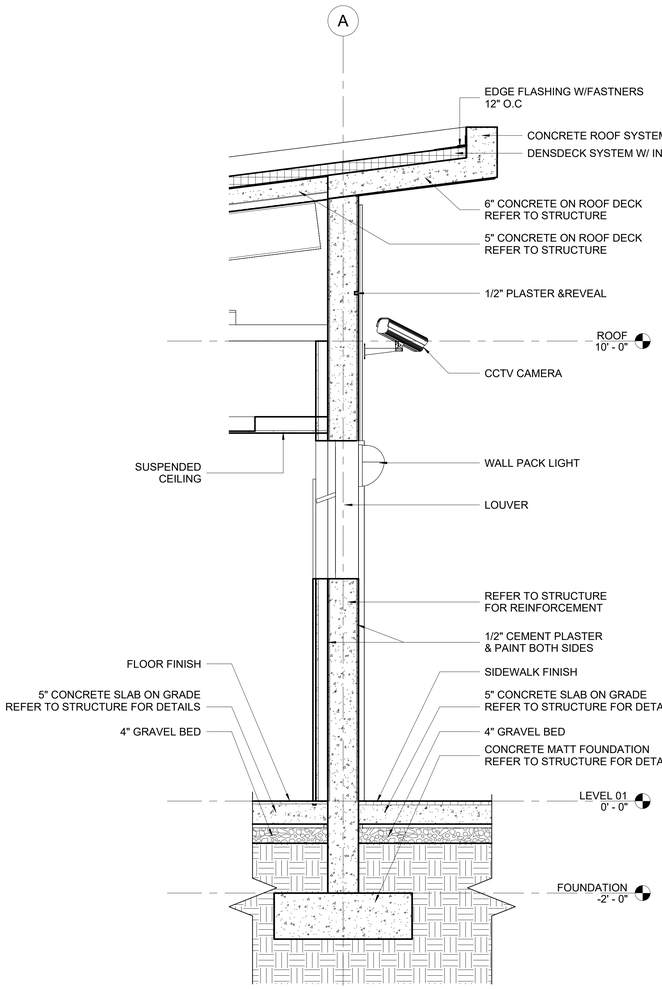

3 A4.10 WALL SECTION-3
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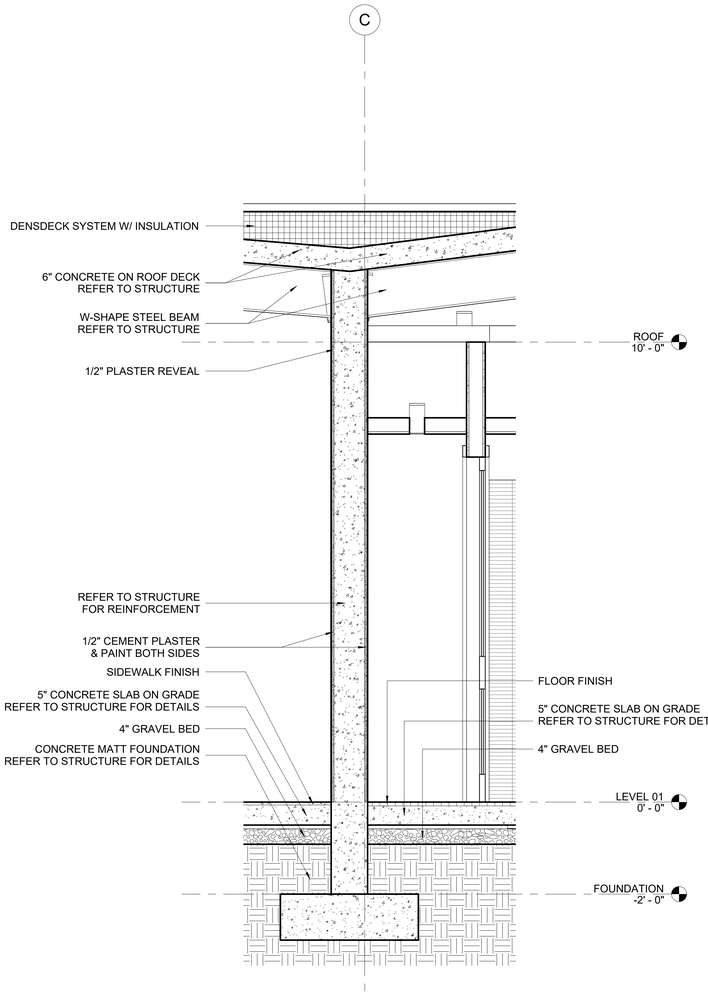

2 A4.10 WALL SECTION-2
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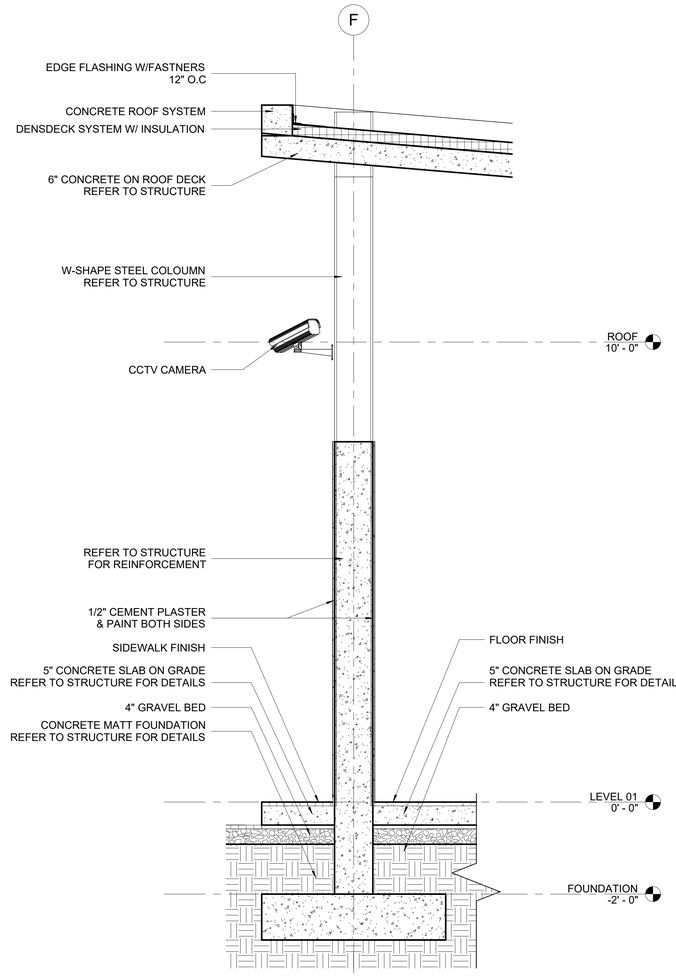

1 A4.10 WALL SECTION-1
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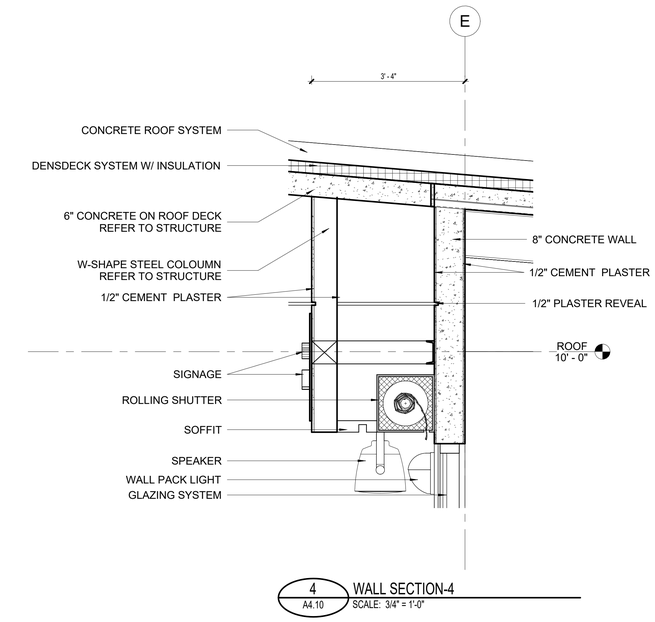

4 A4.10 WALL SECTION-4
SCALE: 3/4" = 1'-0"

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
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Department of Public Works - Division of Transportation

WALL SECTIONS

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLAYTON E. BROWNE
1114 A
VIRGIN ISLANDS

A4.10
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A4.10 - WALL SECTIONS
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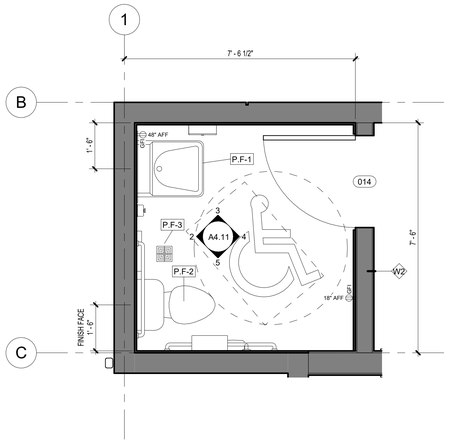
1/21/2025 11:35:12 PM

Restroom Accessories

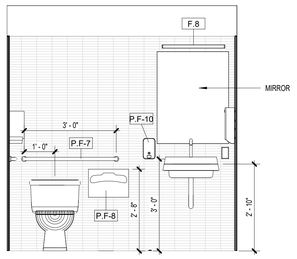
Type Mark	Description	Manufacturer	Model	Type Comments	Type
	<varies>	<varies>	<varies>		<varies>
P.F-1	Commercial Wall-Mount Lavatory	TOTO USA, Inc.	LT307#01		22" x 27"
P.F-2	Toilet_Elongated-Wall_WH_PE	TOTO USA, Inc.	MS614124CUF	Bathroom	Toilet-Domestic-3D
P.F-3	9" Extra-Heavy-Duty Drain	Zurn Industries, LLC	Z508		6"x6" Strainer - 3" Drain
P.F-4	Toilet Tissue Dispenser	Bradley Corporation	5425		Toilet Tissue Dispenser
P.F-5	Sanitary Napkin Disposal	BOBRICK	B-4353		wall mounted sanitary napkin disposal
P.F-6	ADA STALL GRAB BARS STAINLESS STEEL	Bobrick	B-6806		GRAB BAR 18" VERTICAL
P.F-7	ADA STALL GRAB BARS	BOBRICK	(1) B-5806x42, (1) B-5806x36		Grab Bar
P.F-8	Seat Cover Dispenser	Bradley Corporation	5831		Seat_Cover_Dispenser
P.F-9	Bobrick B-262 Classic Series Surface Mounted Paper Towel Dispenser	Bobrick Washroom Equipment, Inc.	B-262		Paper-Towel Dospenser
P.F-10	ClassicSeries® Surface-Mounted Soap Dispenser	Bobrick	B-2111		Soap Dispenser
P.F-11	Purist(R) pull-out kitchen sink faucet with 8inch spout reach	Kohler	K-7505	Stainless Steel	Kitchen Faucet_PE
P.F-12	24inch x 18-2/7inch x 6inch under-mount single-bowl kitchen sink	KOHLER Co.	K-3894-NA	Stainless Steel	Under-Mount, NA-Stainless Steel

GENERAL NOTES

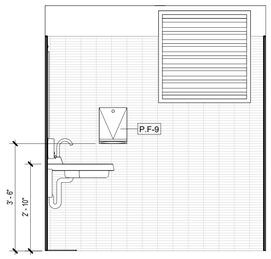
1. ALL RESTROOMS TO HAVE TILE AT WET WALLS, PAINT AT ALL OTHER WALLS, & 4" TILE BASE THROUGHOUT.
2. ALL RESTROOMS TO HAVE 1 TOILET PAPER HOLDER PER STALL & 1 TOILET SEAT COVER DISPENSER PER STALL.
3. ALL RESTROOMS TO HAVE PAPER TOWEL DISPENSER AND/OR ELECTRIC HANDRYER.



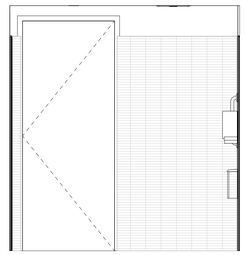
1 A4.11 RESTROOM-1 ENLARGED PLAN
SCALE: 1/2" = 1'-0"



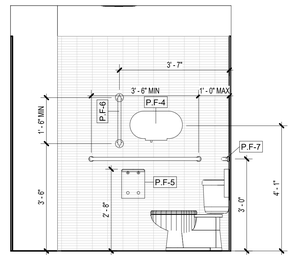
2 A4.11 RESTROOM-1 NORTH ELEVATION
SCALE: 1/2" = 1'-0"



3 A4.11 RESTROOM-1 EAST ELEVATION
SCALE: 1/2" = 1'-0"



4 A4.11 RESTROOM-1 SOUTH ELEVATION
SCALE: 1/2" = 1'-0"



5 A4.11 RESTROOM-1 WEST ELEVATION
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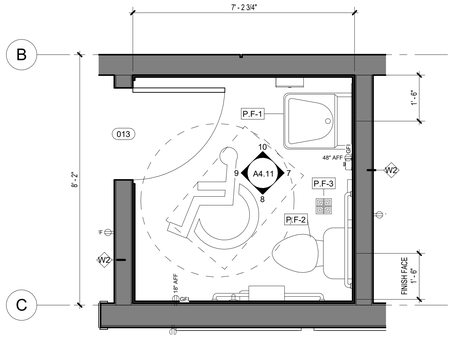
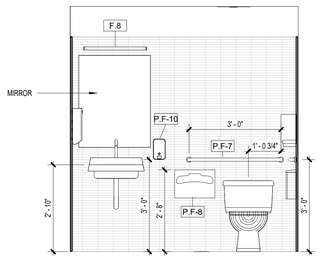


6 A4.11 RESTROOM-2 ENLARGED PLAN
SCALE: 1/2" = 1'-0"



7 A4.11 RESTROOM-2 SOUTH ELEVATION
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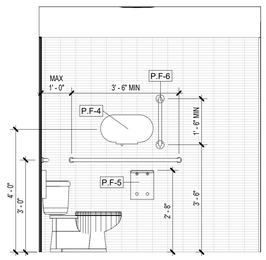

8 A4.11 RESTROOM-2 EAST ELEVATION
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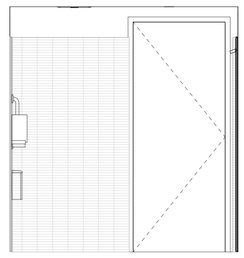

9 A4.11 RESTROOM-2 NORTH ELEVATION
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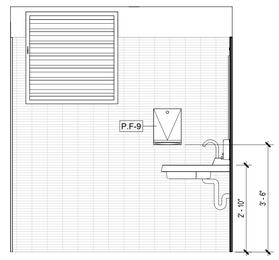

10 A4.11 RESTROOM-2 WEST ELEVATION
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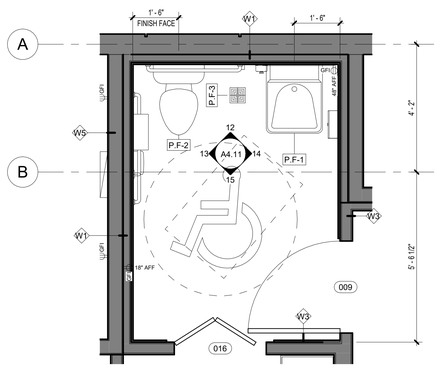

11 A4.11 EMPLOYEE RESTROOM ENLARGED PLAN
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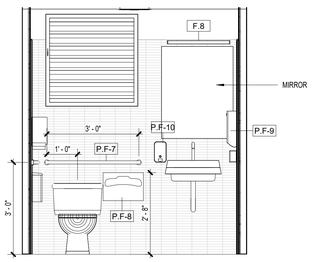

12 A4.11 EMPLOYEE RESTROOM EAST ELEVATION
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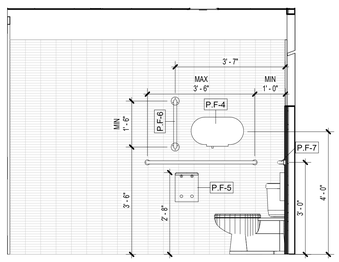
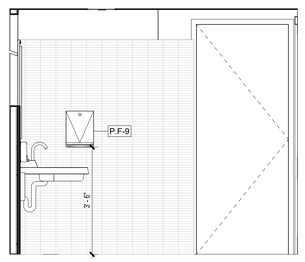
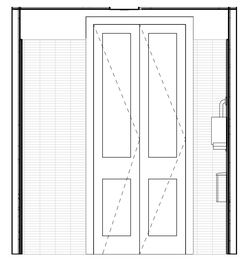


13 A4.11 EMPLOYEE RESTROOM NORTH ELEVATION
SCALE: 1/2" = 1'-0"



14 A4.11 EMPLOYEE RESTROOM SOUTH ELEVATION
SCALE: 1/2" = 1'-0"



15 A4.11 EMPLOYEE RESTROOM WEST ELEVATION
SCALE: 1/2" = 1'-0"

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Website: www.designdistrictvi.com

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ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

RESTROOM ENLARGED PLANS & INTERIOR ELEVATIONS

C. BROWNE
Project Architect

2024-009
Project No.

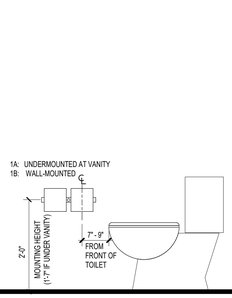
01/17/25
Date

REGISTERED ARCHITECT
CLARENCE E. BROWNE
1114 A
VIRGIN ISLANDS

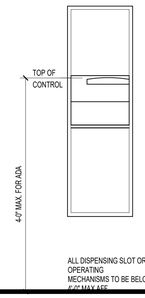
A4.11
Drawing No.

NOT ISSUED FOR CONSTRUCTION

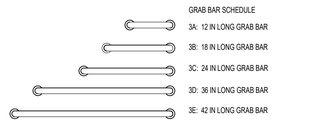
PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A4.11 - RESTROOM ENLARGED PLANS & INTERIOR ELEVATIONS
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
1/21/2025 11:35:34 PM

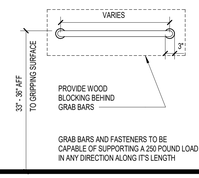


1A & 1B: TOILET TISSUE HOLDER

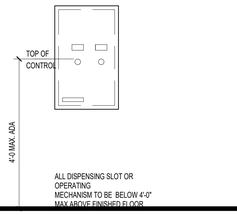


2: PAPER TOWEL DISPENSER & TRASH COMBO UNIT

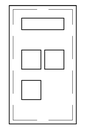




3: GRAB BARS

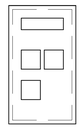


4: SANITARY NAPKIN VENDOR



USED FROM BOTH SIDES;
MOUNTS CENTERED THROUGH
1/2" - 2" TOILET PARTITIONS

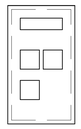
5A: PARTITION-MOUNTED UNIT:
SEAT-COVER DISPENSER,
SANITARY NAPKIN DISPOSAL AND
TOILET TISSUE DISPENSER
(WOMEN/UNISEX RESTROOMS)



USED FROM BOTH SIDES;
MOUNTS CENTERED THROUGH
1/2" - 2" TOILET PARTITIONS

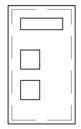
LOCATED CENTERLINE OF DISPENSER
AT 7" - 9" FROM FRONT LIP OF WATER CLOSET.
VERIFY WATER CLOSET DEPTH (APPROX 27")

5B: PARTITION-MOUNTED UNIT/ADA:
SEAT-COVER DISPENSER,
SANITARY NAPKIN DISPOSAL AND
TOILET TISSUE DISPENSER
(WOMEN/UNISEX RESTROOMS)



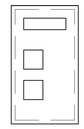
FULLY RECESSED

5C: FULLY RECESSED
SEAT-COVER DISPENSER,
SANITARY NAPKIN DISPOSAL AND
TOILET TISSUE DISPENSER
(WOMEN/UNISEX RESTROOMS)



USED FROM BOTH SIDES;
MOUNTS CENTERED THROUGH
1/2" - 2" TOILET PARTITIONS

6A: PARTITION-MOUNTED UNIT:
SEAT-COVER DISPENSER,
SANITARY NAPKIN DISPOSAL AND
TOILET TISSUE DISPENSER
(MEN'S RESTROOMS)

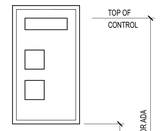


USED FROM BOTH SIDES,
MOUNTS FLUSH ON ADA
SIDE TO ALLOW CLEARANCE

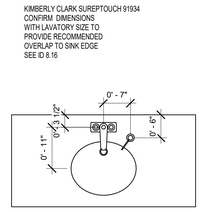
DO NOT MOUNT BEHIND GRAB BARS

LOCATE CENTERLINE OF DISPENSER
7" - 9" FROM FRONT LIP OF WATER CLOSET.
VERIFY WATER CLOSET DEPTH (APPROX 27")

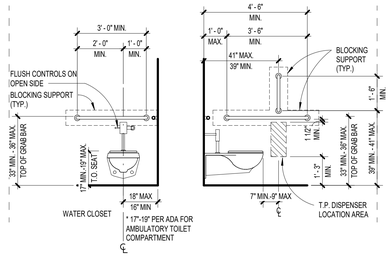
6B: PARTITION-MOUNTED UNIT/ADA:
SEAT-COVER DISPENSER,
SANITARY NAPKIN DISPOSAL AND
TOILET TISSUE DISPENSER
(MEN'S RESTROOMS)



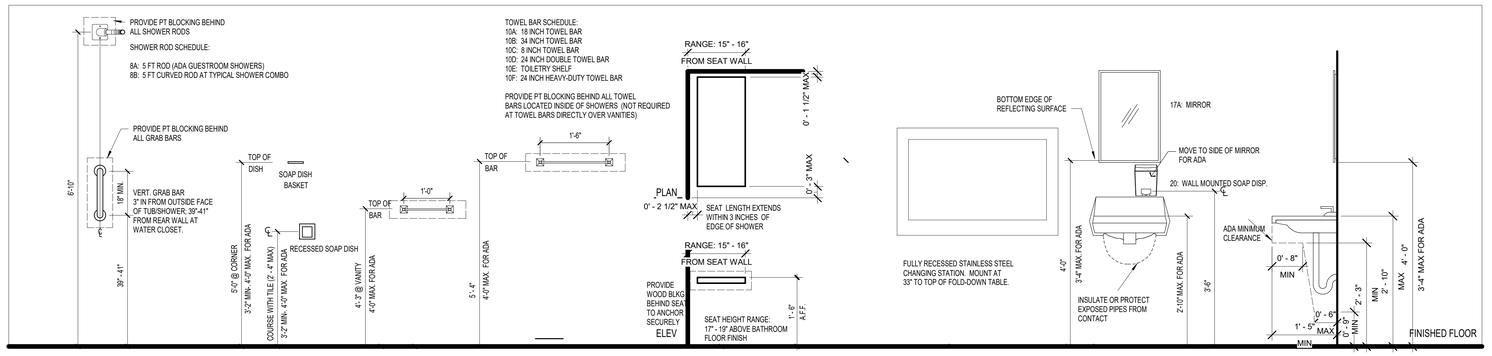
6C: FULLY RECESSED
SEAT-COVER DISPENSER,
SANITARY NAPKIN DISPOSAL AND
TOILET TISSUE DISPENSER
(MEN'S RESTROOMS)



7: DECK MOUNTED SOAP DISPENSER



2 / A4.12 ADA TOILET & GRAB BARS - WALL MTD.1
SCALE: 3/8" = 1'-0"



8A: SHOWER ROD
8B: VERTICAL GRAB BAR

9A: SOAP DISH BASKET
9B: RECESSED SOAP DISH

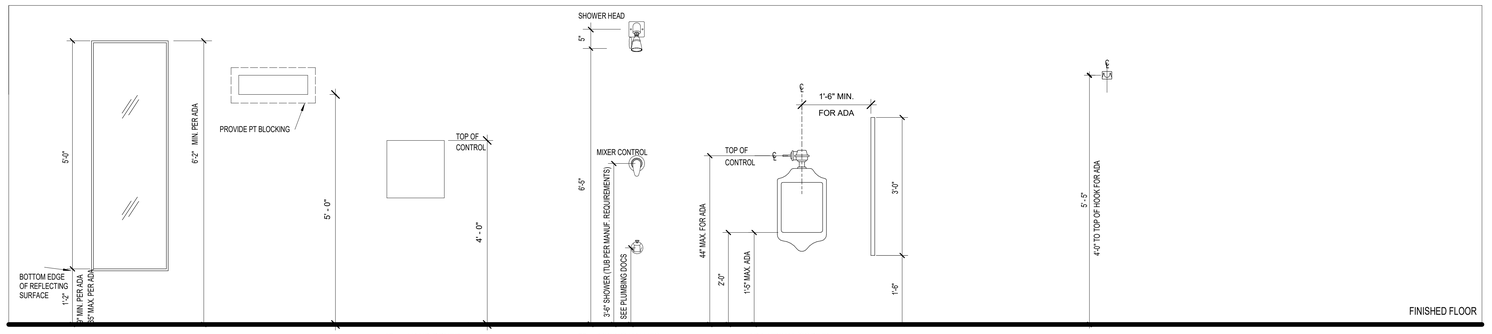
10: TOILETRY SHELF

11: TOWEL BARS

11: FOLDING SHOWER SEAT

16: FOLD-DOWN CHANGING TABLE

17A: MIRROR
20: WALL-MOUNTED SOAP DISPENSER



17B: FULL-LENGTH MIRROR

18: MOP RACK

19: HAND DRYER

20: MIXING VALVES

ADA URINAL/SCREEN

21: DOUBLE ROBE HOOK

1 / A4.12 ACCESSIBLE ACCESSORIES MOUTING HEIGHTS
SCALE: 3/4" = 1'-0"

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No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works - Division of Transportation

TOILET ACCESSORIES MOUNTING HEIGHTS

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT — CLARENCE F. BROWNE — 1114 A — VIRGIN ISLANDS

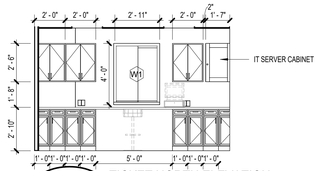
A4.12
Drawing No.

NOT ISSUED FOR CONSTRUCTION

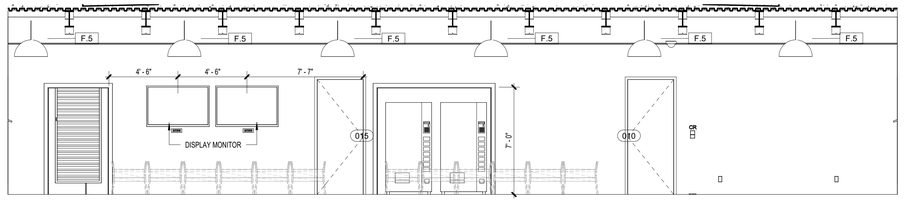
PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A4.12 - TOILET ACCESSORIES MOUNTING HEIGHTS
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
1/22/2025 10:14:07 AM

KITCHEN EQUIPMENT SCHEDULE (EQ)				
Mark	Description	MFR	Model	Comments
KE-1	15" Electric Cooktop with 2 Radiant Elements	KitchenAid	KECC056RBL	
KE-2	30" 1000-Watt Microwave Hood Combination	KitchenAid	KMHS120ESS	
KE-3	Undercounter Refrigerator	KitchenAid	KURR314KSS	

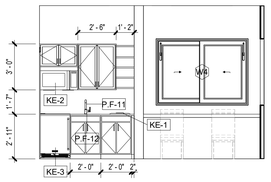
6 A4.13 STORAGE EAST ELEVATION
SCALE: 1/4" = 1'-0"



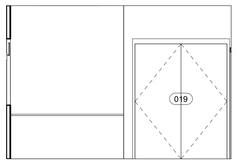
5 A4.13 TICKET NORTH ELEVATION
SCALE: 1/4" = 1'-0"



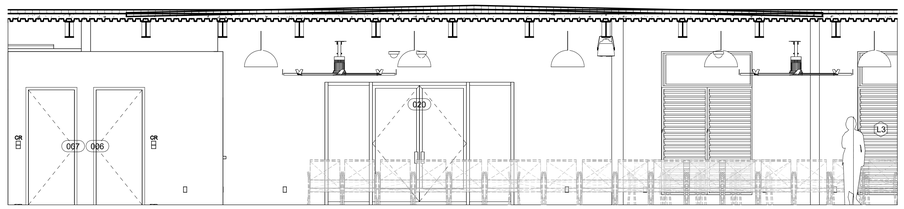
1 A4.13 LOBBY/WAITING EAST ELEVATION
SCALE: 1/4" = 1'-0"



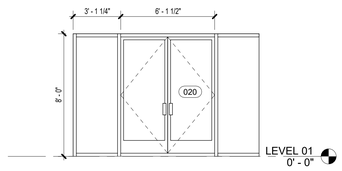
4 A4.13 BREAK ROOM EAST ELEVATION
SCALE: 1/4" = 1'-0"



3 A4.13 BREAK ROOM WEST ELEVATION
SCALE: 1/4" = 1'-0"



2 A4.13 LOBBY/WAITING WEST ELEVATION
SCALE: 1/4" = 1'-0"



7 A4.13 WEST STOREFRONT ELEVATIONTION
SCALE: 1/4" = 1'-0"

IMPORTANT NOTE: SEATING SHOWN FOR REFERENCE ONLY.
LOBBY SEATING TO BE PROVIDED BY OWNER

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No.	Drawing Issue Description	Date
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

INTERIOR ELEVATIONS

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

CLAYTON E. BROWNE 1114 A REGISTERED ARCHITECT VIRGIN ISLANDS

A4.13
Drawing No.

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PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A4.13 - INTERIOR ELEVATIONS
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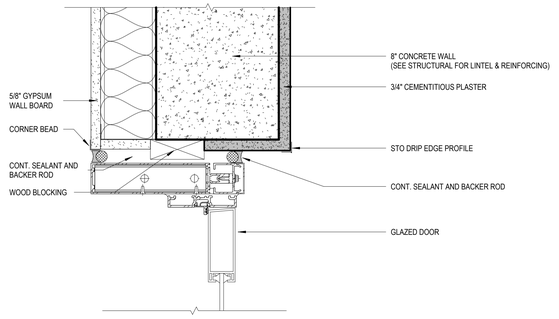
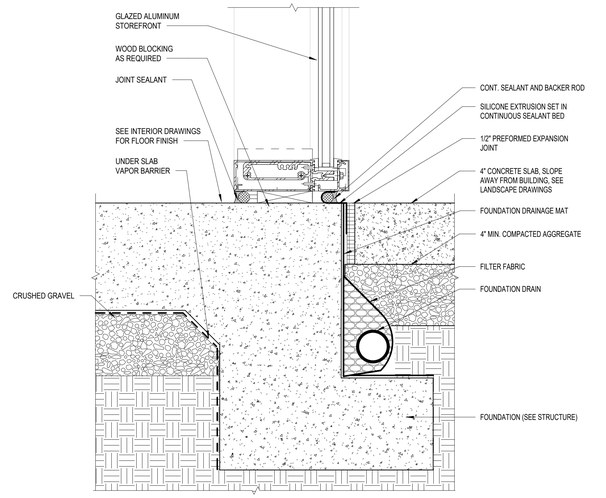
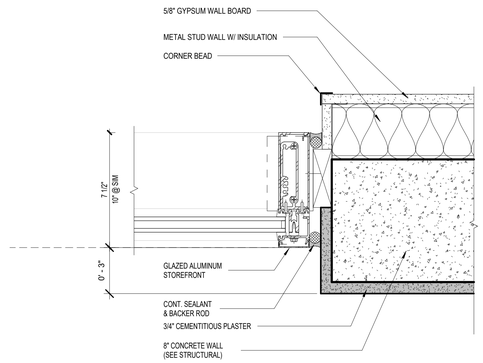


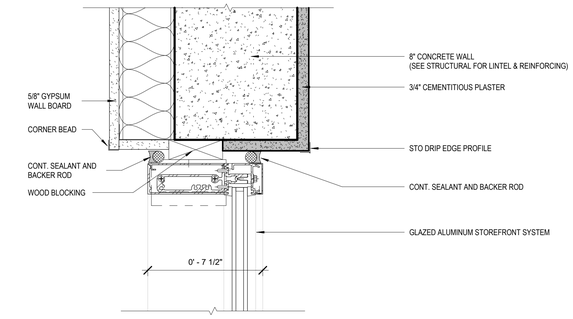
6 A4.21 STOREFRONT DOOR - HEAD DETAIL
SCALE: 3" = 1'-0"



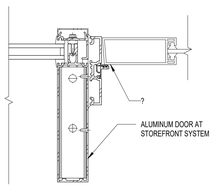
5 A4.21 STOREFRONT - SILL DETAIL
SCALE: 3" = 1'-0"



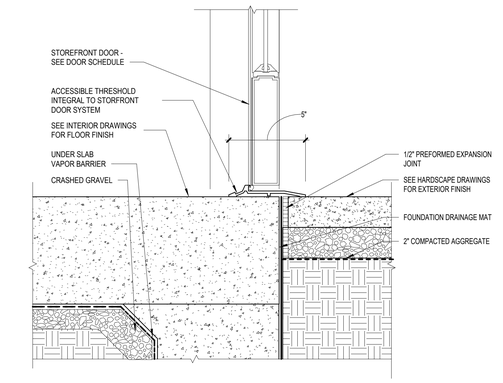
4 A4.21 STOREFRONT - JAMB DETAIL
SCALE: 3" = 1'-0"



3 A4.21 STOREFRONT - HEAD DETAIL
SCALE: 3" = 1'-0"



2 A4.21 STOREFRONT DOOR - JAMB DETAIL
SCALE: 3" = 1'-0"



1 A4.21 STOREFRONT DOOR - SILL DETAIL
SCALE: 3" = 1'-0"

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

BUILDING DETAILS

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
D. ALFONSO E. BROWNE
1114 A
VIRGIN ISLANDS

A4.21
Drawing No.

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SHEET NUMBER: A4.21 - BUILDING DETAILS
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ISSUANCES		
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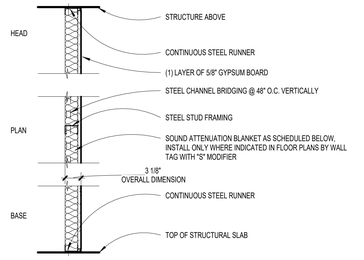
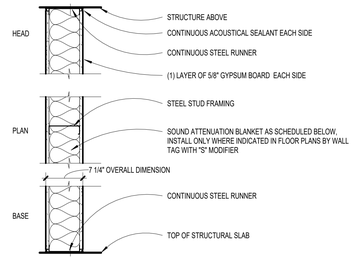
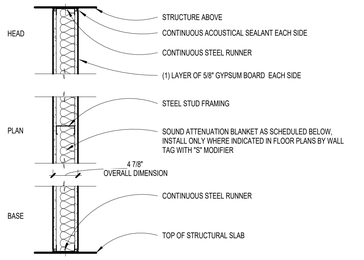


1 A5.00 WALL TYPE 1 - 2 1/2" STEEL FURRING
SCALE: 1" = 1'-0"



2 A5.00 WALL TYPE 2 - 6" STEEL STUD
SCALE: 1" = 1'-0"



3 A5.00 WALL TYPE 3 - 3 5/8" STEEL STUD
SCALE: 1" = 1'-0"

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

PARTITION TYPES

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

REGISTERED ARCHITECT
CLARENCE E. BROWNE
1114 A
VIRGIN ISLANDS

A5.00
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A5.00 - PARTITION TYPES
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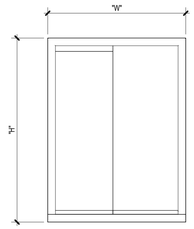
1/21/2025 11:35:53 PM

WINDOW DETAILS

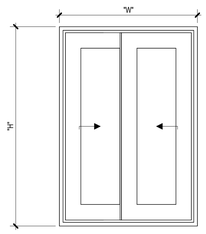
LOUVER DETAILS

WINDOW TYPES



W1

SLIDING WINDOW

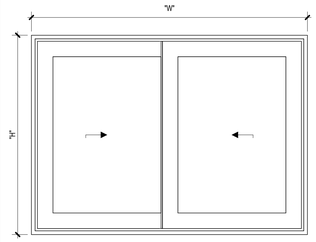


W2

SLIDING WINDOW

W3

FIXED WINDOW



W4

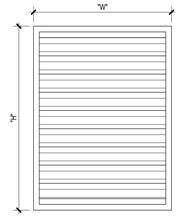
SLIDING WINDOW

W5

FIXED WINDOW

WINDOW SCHEDULE					
Type Mark	Width	Height	Count	Sill Height	Comments
W1	3' - 0"	3' - 10"	1	3' - 0"	
W2	3' - 0"	4' - 4"	4	3' - 6"	
W3	6' - 0"	2' - 4"	2	7' - 8"	
W4	6' - 0"	4' - 4"	1	3' - 6"	
W5	9' - 0"	2' - 4"	1	7' - 8"	

LOUVER TYPES



Louver Schedule							
Type Mark	Description	Width	Height	Sill Height	Manufacturer	Model	Comments
L1	Adjustable Louver.J-Style 70° angle. Extruded Aluminium	3' - 0"	3' - 0"	4' - 10"	Ruskin	ELM90	
L2	Adjustable Louver.J-Style 70° angle. Extruded Aluminium	2' - 0"	7' - 0"	0' - 8"	Ruskin	ELM90	
L3	Adjustable Louver.J-Style 70° angle. Extruded Aluminium	3' - 0"	7' - 0"	0' - 8"	Ruskin	ELM90	

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VI LICENSE # 1114A

ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

WINDOW SCHEDULE

C. BROWNE
Project Architect

2024-009
Project No.

01/17/25
Date

CLARENCE F. BROWNE
1114 A
REGISTERED ARCHITECT
VIRGIN ISLANDS

A5.02
Drawing No.

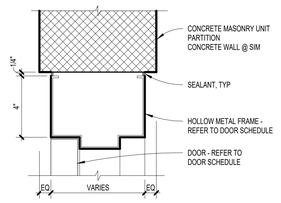
NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A5.02 - WINDOW SCHEDULE
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
1/21/2025 11:35:55 PM

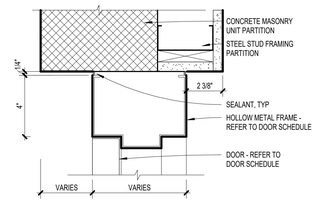
DOOR SCHEDULE

NO.	ROOM NAME	PANEL TYPE	PANEL WIDTH	PANEL HEIGHT	PANEL THICKNESS	PANEL MATERIAL	PANEL FINISH	HARDWARE SET	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FIRE RATING	COMMENTS
006	TICKET	N	3' - 0"	7' - 6"	0' - 1 3/4"	SCW	STAIN	HS-10	01	HM	PAINT		ACCESS CONTROL DOOR
007	MANAGER	N	3' - 0"	7' - 6"	0' - 1 3/4"	SCW	STAIN	HS-10	01	HM	PAINT		ACCESS CONTROL DOOR
009	EMPLOYEE RESTROOM	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-13	01	HM	PAINT		
010	VESTIBULE	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-4	01	HM	PAINT		ACCESS CONTROL DOOR
011	PUMP ROOM	FL	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-4	01	HM	PAINT		DOOR CUT SHOULD BE 3/4"
012	UTILITY ROOM	FL	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-4	01	HM	PAINT		
013	RESTROOM-2	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-13	01	HM	PAINT		
014	RESTROOM-1	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-13	01	HM	PAINT		
015	STORAGE	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-11	01	HM	PAINT		
016	EMPLOYEE RESTROOM	F	3' - 0"	7' - 6"	0' - 1 1/2"	HM	PAINT	HS-13	01	HM	PAINT		
017	HALLWAY	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-14	01	HM	PAINT		ACCESS CONTROL DOOR
018	LOBBY/WAITING	F	3' - 0"	7' - 6"	0' - 1 3/4"	HM	PAINT	HS-14	01	HM	PAINT		
019	BREAK ROOM	N	6' - 0"	7' - 6"	0' - 1 3/4"	SCW	STAIN	HS-12	01	HM	PAINT		
020	LOBBY/WAITING	FGD	6' - 1 1/2"	7' - 7"		ALUM/GLASS	FACTORY	HS-1	ALUM	ALUM	FACTORY		

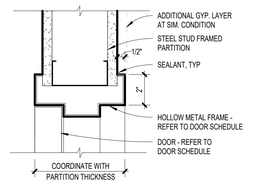
DOOR HEAD DETAILS



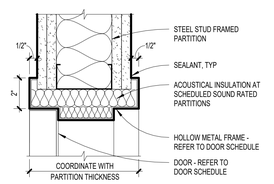
7 A5.03 DOOR HEAD DTL - CMU / CONCRETE
SCALE: 3" = 1'-0"



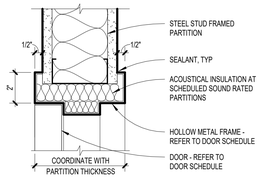
8 A5.03 DOOR HEAD DTL - CMU / MTL STUD
SCALE: 3" = 1'-0"



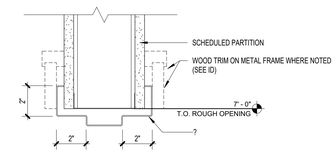
9 A5.03 DOOR HEAD DTL - MTL STUD
SCALE: 3" = 1'-0"



10 A5.03 DOOR HEAD DTL - MTL STUD SOUND RATED
SCALE: 3" = 1'-0"

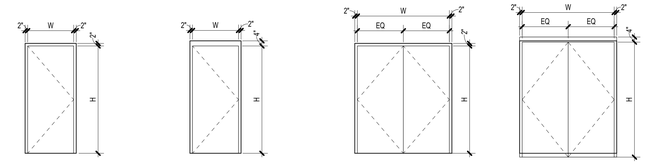


11 A5.03 DOOR HEAD DTL - MTL STUD SOUND RATED
SCALE: 3" = 1'-0"



12 A5.03 RESTROOM DOOR - HEAD
SCALE: 3" = 1'-0"

DOOR TYPES AND DOOR FRAME TYPES



NOTE: COORDINATE FRAME SIZES WITH SCHEDULED DOOR PANEL SIZES

01 SINGLE DOOR FRAME
HOLLOW METAL

02 SINGLE DOOR FRAME
HOLLOW METAL, WITH 4" HEAD

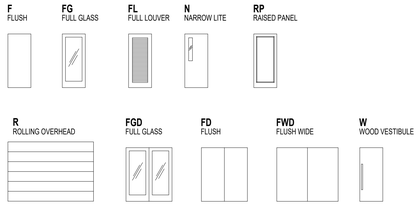
FOR ALL DOORS IN A CONCRETE WALL,CMU WALL, OR ANY WALL TYPE WITH BRICK VENEER.

03 DOUBLE DOOR FRAME
HOLLOW METAL

04 DOUBLE DOOR FRAME
HOLLOW METAL, WITH 4" HEAD

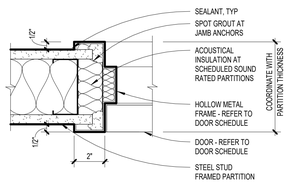
DOOR FRAME TYPES LEGEND

DOOR TYPES LEGEND KEY: NOTE: ADD "S" PREFIX FOR SINGLE DOOR; ADD "D" PREFIX FOR DOUBLE DOORS; ALL DOOR TO BE MEDIUM STILE DOOR

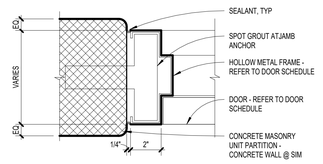


DOOR TYPES LEGEND

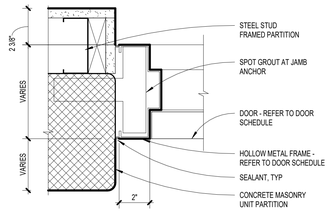
DOOR JAMB DETAILS



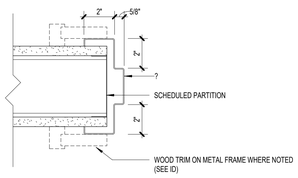
5 A5.03 DOOR JAMB DTL - MTL STUD SOUND RATED
SCALE: 3" = 1'-0"



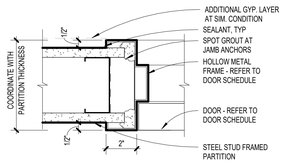
1 A5.03 DOOR JAMB DTL - CMU / CONCRETE
SCALE: 3" = 1'-0"



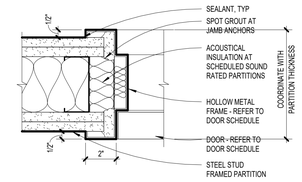
2 A5.03 DOOR JAMB DTL - CMU / MTL STUD
SCALE: 3" = 1'-0"



6 A5.03 RESTROOM DOOR - JAMB
SCALE: 3" = 1'-0"



3 A5.03 DOOR JAMB DTL - MTL STUD
SCALE: 3" = 1'-0"



4 A5.03 DOOR JAMB DTL - MTL STUD SOUND RATED
SCALE: 3" = 1'-0"

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BW&A BUILDTEC

DPW

VITRAN

ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

DOOR SCHEDULE & DETAILS

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT C. ALFREDO E. BROWNE A-1114 A VIRGIN ISLANDS

A5.03 — Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A5.03 - DOOR SCHEDULE & DETAILS
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
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VI LICENSE # 1114A

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ISSUANCES		
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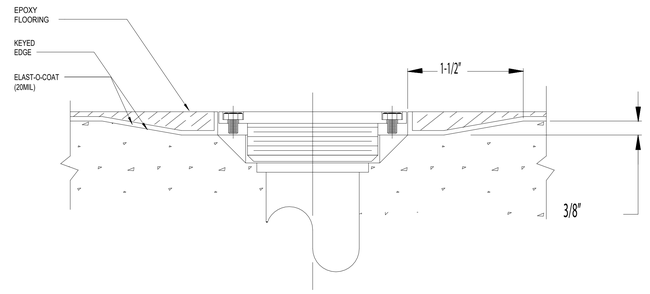
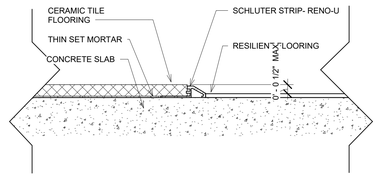
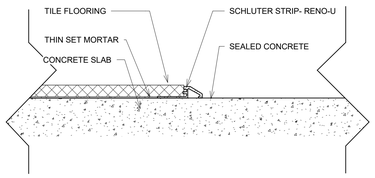
0	FOR PERMIT	01/17/2025



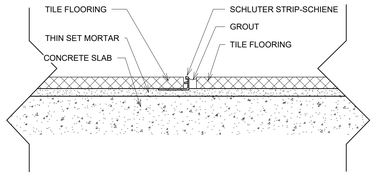
5 A8.01 EPOXY FLOORING DRAIN DETAIL
SCALE: 1 1/2" = 1'-0"



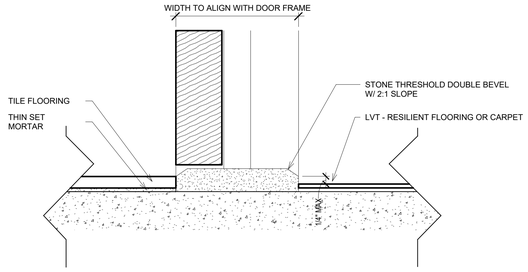
4 A8.01 THRESHOLD - CERAMIC TILE TO RESILIENT FLOORING - SCHLUTER STRIP
SCALE: 6" = 1'-0"



3 A8.01 THRESHOLD - CERAMIC TILE TO CONCRETE
SCALE: 6" = 1'-0"



2 A8.01 THRESHOLD - CERAMIC TILE TO CERAMIC TILE - SCHLUTER STRIP
SCALE: 6" = 1'-0"



1 A8.01 THRESHOLD - BATHROOM TILE TO CARPET OR LVT
SCALE: 6" = 1'-0"

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

TYPICAL THRESHOLD DETAILS

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT — CLARENCE F. BROWNE — 1114 A — VIRGIN ISLANDS

A8.01 — Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A8.01 - TYPICAL THRESHOLD DETAILS
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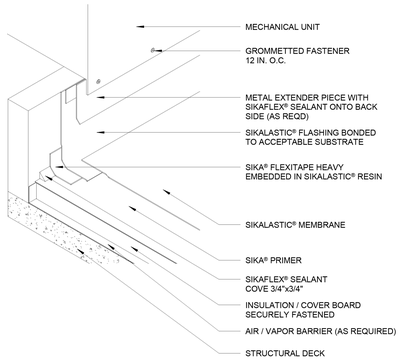
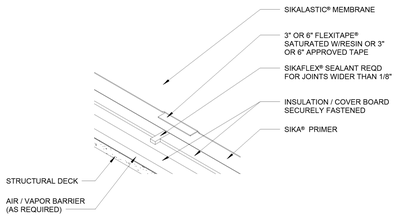


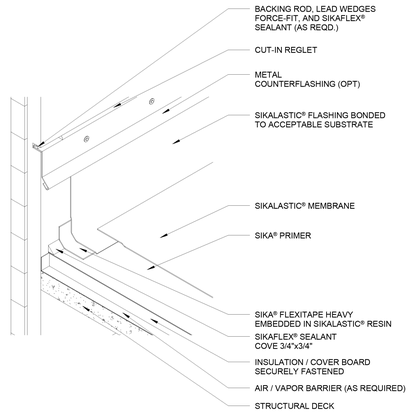
NOTES:
1) METAL EXTENDER IS REQUIRED IF COUNTER FLASHING FASCIA IS LESS THAN 4 INCH WIDE. FASTENED 12 INCHES O.C. WITH GROMMETTED FASTENER.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

4 A9.13 CURB FLASHING
SCALE: 1" = 1'-0"



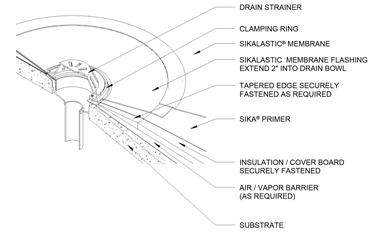
NOTES:
1. STAGGER ALL COVER BOARD AND INSULATION JOINTS BY MIN. 12"
2. VAPOR BARRIER SHALL BE SEALED AT EDGES.

3 A9.13 COVER BOARD JOINT DETAIL
SCALE: 1" = 1'-0"



NOTES:
1) RAKE OUT EXISTING SEALANT AT REGLET. ADD NEW LEAD-WEDGES IF NEEDED, AND RECAULK AS REQUIRED.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

2 A9.13 BASE FLASHING
SCALE: 1" = 1'-0"



NOTES:
1. EXISTING DRAIN BOWL, CLAMPING RING AND DRAIN ACCESSORIES ARE TO BE CLEANED FREE OF ALL CONTAMINATES.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

1 A9.13 DRAIN FLASHING
SCALE: 1" = 1'-0"

NOTES:
1) VAPOR BARRIER SHALL BE SEALED AT EDGES.

8 A9.13 PIPE CONDUIT FLASHING
SCALE: 1" = 1'-0"

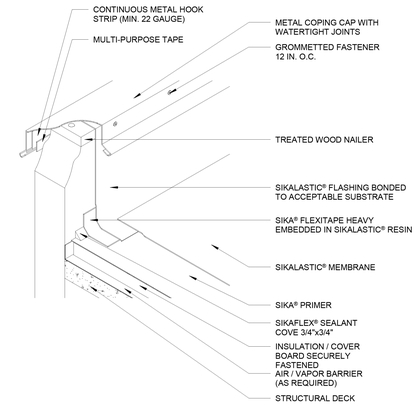
NOTES:
1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A MINIMUM FORCE OF 300 POUNDS PER LINEAR FOOT. FOLLOW FACTORY MUTUAL LOSS PREVENTION DATA SHEET 1-49 RECOMMENDATIONS.
2) THE THICKNESS OF THE NAILER SHALL MATCH THE HEIGHT OF THE INSULATION OR SURFACE TO WHICH THE MEMBRANE IS TO BE APPLIED.
3) VAPOR BARRIER SHALL BE SEALED AT EDGES.
4) ADHERE THE SIKALASTIC MEMBRANE OVER THE ROOF EDGE AND DOWN OUTSIDE FACE OF WALL, COVERING TREATED WOOD NAILER(S) COMPLETELY.

7 A9.13 METAL EDGE
SCALE: 1" = 1'-0"

6 A9.13 IRREGULAR PENETRATION FLASHING
SCALE: 1" = 1'-0"

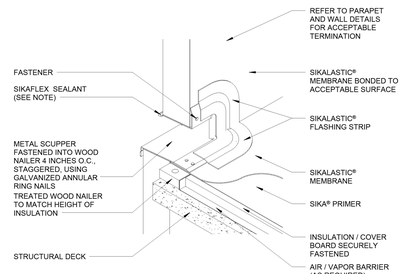
NOTES:
1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A FORCE OF 300 POUNDS PER LINEAL FOOT IN ANY DIRECTION.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.
3) FOAM ROD TO EXTEND EQUALLY ABOVE & BELOW ROOF MEMBRANE LEVEL

5 A9.13 HORIZONTAL TO VERTICAL EXPANSION JOINT
SCALE: 1" = 1'-0"



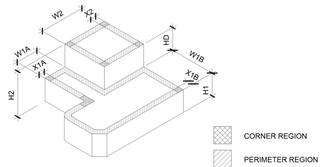
NOTES:
1) NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A MINIMUM FORCE OF 300 POUNDS PER LINEAR FOOT. REFER TO FACTORY MUTUAL DATA SHEET 1-49.
2) VAPOR BARRIER SHALL BE SEALED AT EDGES.

11 A9.13 WALL FLASHING w METAL CAP
SCALE: 1" = 1'-0"



NOTES:
1. NAILERS SHALL BE SECURELY ANCHORED TO THE DECK TO RESIST A FORCE OF 300 POUNDS PER LINEAL FOOT IN ANY DIRECTION.
2. SEALANT IS A MAINTENANCE ITEM. NOT COVERED UNDER WARRANTY.
3. VAPOR BARRIER SHALL BE SEALED AT EDGES.

10 A9.13 THRU-WALL SCUPPER
SCALE: 1" = 1'-0"



NOTES:
1. THE USE OF THIS ROOF ZONE LAYOUT IS MANDATORY FOR ALL APPLICATIONS FOR WHICH AN EXTENDED WIND SPEED WARRANTY IS REQUIRED.
2. ADDITIONAL SECUREMENT IS REQUIRED IN CORNER AND PERIMETER REGIONS, TYPICALLY PROVIDED BY AN INCREASED DENSITY OF URETHANE ADHESIVE RIBBONS (SEE DRAWING BU.8.08) OR MECHANICAL FASTENERS/PLATES (SEE DRAWING BU.8.06).
3. CORNER/PERIMETER REGIONS: DIMENSION X=(0.1)(W) OR (0.4)(H), WHICHEVER IS LESS, WITH A 4' MINIMUM.
4. HEIGHT DIFFERENCE BETWEEN ADJACENT ROOF LEVELS MUST EQUAL OR EXCEED 3' FOR HIGHER LEVEL TO BE CONSIDERED A SEPARATE LEVEL.
5. REFERENCE FACTORY MUTUAL DATA SHEET 1-28 AND CONTACT SIKA TECHNICAL SERVICE FOR SUPPLEMENTAL REQUIREMENTS REGARDING OVERHANGS, CANOPIES, HANGER BUILDINGS, MULTI-BAY LOADING DOCKS, WAREHOUSES, INTERNALLY PRESSURIZED BUILDINGS, AND OTHER SIMILAR APPLICATION CONDITIONS WHERE AIR PRESSURE FORCES COULD ACT ON THE UNDERSIDE OF THE ROOF DECK.

9 A9.13 ROOF ZONE LAYOUT
SCALE: 1" = 1'-0"

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DPW

VITRAN

ISSUANCES		
No.	Drawing Issue Description	Date
0	FOR PERMIT	01/17/2025

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works - Division of Transportation

ROOF TYPICAL DETAILS

C. BROWNE — Project Architect
2024-009 — Project No.
01/17/25 — Date

REGISTERED ARCHITECT — C. ALBERT E. BROWNE — 1114 A — VIRGIN ISLANDS

A9.13 — Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: A9.13 - ROOF TYPICAL DETAILS
Autodesk Docs://Vitran Terminal/Vitran Termial_Arch_r24.rvt
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STRUCTURAL NOTES

GENERAL:
STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND SITE DRAWINGS. CONSULT THESE DRAWINGS FOR DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.

DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.

THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO INSURE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS.

CONTRACTOR PROPOSED CHANGES AND SUBSTITUTIONS:
PROPOSED CHANGES OR SUBSTITUTIONS TO STRUCTURAL DETAILS OR PLANS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD (EOR) FOR REVIEW AND APPROVAL. SUBMITTALS SHALL CONTAIN FULL DOCUMENTATION OF CHANGES OR SUBSTITUTIONS.

DESIGN LOADS:
THE STRUCTURAL SYSTEM FOR THIS BUILDING HAS BEEN DESIGNED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE(IBC) 2021
FOLLOWING SUPERIMPOSED LOADINGS HAVE BEEN UTILIZED:

ROOF LIVE LOAD: 20 PSF
FLOOR LIVE LOAD: 50 PSF
CISTERN TOP SLAB LIVE LOAD: 100 PSF

WIND: ASCE 7-16
165 MPH REGION
EXPOSURE C
CATEGORY II
IMPORTANCE FACTOR, I = 1.00

EARTHQUAKE LOAD IS BASED ON THE FOLLOWING CRITERIA FROM THE GEOTECHNICAL REPORT FOR AUTOZONE PROJECT BY DELTA OAKS GROUP AND DATED MARCH 25, 2022:

Sds	- 0.646
Sd1	- 0.406
SITE CLASS	- D
OCCUPANCY CATEGORY	- II
SEISMIC DESIGN CATEGORY	- D
RESPONSE MODIFICATION COEF.	- S
IMPORTANCE FACTOR	- 1.0

SHOP DRAWING REVIEW:
SHOP DRAWINGS WILL BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN INTENT OF THE CONTRACT DOCUMENTS ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS AS TO QUANTITY, LENGTH, ELEVATIONS, DIMENSIONS, ETC.

SHOP DRAWING SUBMITTALS SHALL INCLUDE ONE GOOD QUALITY REPRODUCIBLE AND THREE SETS OF BLUEPRINTS. ONE SET OF PRINTS WILL BE RETAINED BY THE ENGINEER, ONE BY THE LOCAL BUILDING DEPARTMENT (WHERE REQUIRED) AND THE CONTRACTOR SHALL MAKE PRINTS FROM THE REPRODUCIBLES AS REQUIRED FOR DISTRIBUTION. ENGINEER'S REVIEW STAMP WILL BE PROVIDED TO CONTRACTOR IN ELECTRONIC FORMAT AND SHALL BE APPLIED TO ALL DRAWINGS PRIOR TO SUBMITTAL.

THE CONTRACT DOCUMENTS WILL GOVERN OVER THE SHOP DRAWINGS UNLESS OTHERWISE SPECIFIED IN WRITING BY THE ENGINEER.

CHANGES AND ADDITIONS MADE ON RE-SUBMITTALS SHALL BE CLEARLY FLAGGED AND NOTED. THE PURPOSE OF THE RE-SUBMITTALS SHALL BE CLEARLY NOTED ON THE LETTER OF TRANSMITTAL. ARCHITECT/ENGINEER REVIEW WILL BE LIMITED TO THOSE ITEMS CAUSING THE RE-SUBMITTAL.

SHOP DRAWING SUBMITTALS ARE REQUIRED FOR ALL FRAMING SHOWN ON THESE DRAWINGS INCLUDING, BUT NOT LIMITED TO: CONCRETE MIXES, CONCRETE AND MASONRY REINFORCING, STRUCTURAL STEEL AND CONNECTIONS, STEEL DECK, LIGHT GAGE FRAMING, WOOD ROOF TRUSS/RAFTER FRAMING

FOUNDATIONS:
FOUNDATION DESIGN IS BASED ON A SOIL BEARING PRESSURE OF 2,200 PSF AS PER GEOTECH REPORT

FORMWORK AND SHORING:
NO STRUCTURAL CONCRETE SHALL BE STRIPPED UNTIL IT HAS REACHED AT LEAST TWO THIRDS OF THE 28 DAY DESIGN STRENGTH. DESIGN, ERECTION AND REMOVAL OF ALL FORMWORK, SHORES AND RESHORES SHALL MEET REQUIREMENTS SET FORTH IN ACI STANDARDS 347 AND 301.

REINFORCING STEEL:
SHALL BE ASTM A615 GRADE 60 DEFORMED BARS, FREE FROM OIL, SCALE AND RUST AND PLACED IN ACCORDANCE WITH THE TYPICAL BENDING DIAGRAM AND PLACING DETAILS OF ACI STANDARDS AND SPECIFICATIONS. SECURE APPROVAL OF SHOP DRAWINGS PRIOR TO COMMENCING FABRICATION.

AT CORNERS OF CONCRETE WALLS, BEAMS AND CONTINUOUS WALL FOOTINGS, PROVIDE MATCHING HORIZONTAL BARS X 5'-0" BENT BAR FOR EACH HORIZONTAL BAR SCHEDULED AT EACH FACE.

WHERE COLUMNS ARE AN INTEGRAL PART OF CONCRETE WALLS, WALL REINFORCEMENT SHALL BE CONTINUOUS THRU THE COLUMNS.

ALL HOOKS SHOWN IN REINFORCEMENT SHALL BE ACI RECOMMENDED HOOKS UNLESS OTHERWISE NOTED.

FOR BALCONIES, SLABS AND WALKWAYS EXPOSED TO WEATHER ALL REINFORCING STEEL (TOP AND BOTTOM) AS WELL AS SPACERS AND OTHER DEVICES FOR SPACING, SUPPORTING AND FASTENING REINFORCING SHALL BE GALVANIZED CONFORMING TO ASTM A767. BOLSTERS AND CHAIRS TO BE PLASTIC. CONCRETE PLACED IN THESE AREAS TO HAVE .40 W/C RATIO MAXIMUM AND CONTAIN 2.5 GALLONS OF CALCIUM NITRATE PER CUBIC YARD. REBAR COVER TO BE 1.5" MINIMUM.
ALL DIMENSIONS SHOWING THE LOCATION OF REINFORCING STEEL NOT NOTED AS "CLEAR' OR "CLR." ARE TO CENTER OF STEEL. CLEAR COVER FOR NON-PRESTRESSED CONCRETE REINFORCING SHALL BE AS NOTED BELOW, U.N.O. ON PLANS OR DETAILS.

EXPOSURE CONDITION:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH

EXPOSED TO EARTH OR WEATHER (INCLUDES SLABS ON GRADE)
NO. 5 AND SMALLER
NO. 6 AND LARGER

NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
STRUCTURAL SLABS, WALLS, JOISTS
NO. 11 AND SMALLER
BEAMS, COLUMNS (PRIMARY REINFORCEMENT, TIES, STIRRUPS, SPIRALS)

WELDED WIRE FABRIC:
TO CONFORM TO ASTM A 185, FREE FROM OIL, SCALE AND RUST AND PLACED IN ACCORDANCE WITH THE TYPICAL PLACING DETAILS OF ACI STANDARDS AND SPECIFICATIONS. MINIMUM LAP SHALL BE ONE SPACE PLUS TWO INCHES. USE OF FLAT MANUFACTURED SHEETS IS RECOMMENDED.

CONCRETE:
SHALL BE PER AN APPROVED MIX DESIGN PROPORTIONED TO ACHIEVE A STRENGTH AT 28 DAYS AS LISTED BELOW WITH A PLASTIC AND WORKABLE MIX:

3000 PSI FOR FOUNDATIONS AND SLABS ON GRADE, TIE-BEAMS AND TIE COLUMNS.
4000 PSI FOR STRUCTURAL BEAMS AND COLUMNS AS INDICATED.

CONCRETE SHALL BE PLACED AND CURED ACCORDING TO ACI STANDARDS AND SPECIFICATIONS.

SUBMIT PROPOSED MIX DESIGN WITH RECENT FIELD CYLINDER OR LAB TESTS FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. MIX SHALL MEET THE REQUIREMENTS OF ASTM C33 FOR COARSE AGGREGATE. CONCRETE SHALL COMPLY WITH THE REQUIREMENTS OF ASTM STANDARD C94 FOR MEASURING, MIXING, TRANSPORTING, ETC. CONCRETE TESTS SHALL BE TIME STAMPED WHEN CONCRETE IS BATCHED. THE MAXIMUM TIME ALLOWED FROM THE TIME THE MIXING WATER IS ADDED UNTIL IT IS DEPOSITED IN ITS FINAL POSITION SHALL NOT EXCEED ONE AND ONE HALF (1 1/2) HOURS. IF FOR ANY REASON THERE IS A LONGER DELAY THAN THAT STATED ABOVE, THE CONCRETE SHALL BE DISCARDED. SLABS SHALL BE CURED USING A DISSIPATING CURING COMPOUND MEETING ASTM STANDARD C309 TYPE 1-D AND SHALL HAVE A FUGITIVE DYE. THE COMPOUND SHALL BE PLACED AS SOON AS THE FINISHING IS COMPLETED OR AS SOON AS THE WATER HAS LEFT THE UNFINISHED CONCRETE. SCUFFED OR BROKEN AREAS IN THE CURING MEMBRANE SHALL BE RECOATED DAILY. CALCIUM CHLORIDES SHALL NOT BE UTILIZED; OTHER ADMIXTURES MAY BE USED ONLY WITH THE APPROVAL OF THE ENGINEER.

AND BEAM POURS LESS THAN 60 LINEAL FEET PER POUR.

CONCRETE DESIGN MIX SUBMITTALS SHALL INCLUDE TESTED, STATISTICAL BACK UP DATA AS PER CHAPTER 5 OF ACI 318.
ALL CONCRETE SHALL BE NORMAL WEIGHT OF 145 POUNDS PER CUBIC FOOT USING HARD ROCK AGGREGATES CONFORMING TO ASTM C33 U.N.O. LARGEST NOMINAL AGGREGATE SIZE SHALL BE 1-1/2" OR GREATER FOR SLABS ON GRADE AND 3/4"
OR GREATER FOR ALL OTHER CONCRETE U.N.O.
PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE V CEMENT SHALL BE USED FOR CONCRETE IN CONTACT WITH EARTH. TYPE II CEMENT MAY BE USED ELSEWHERE.
MAX. SLUMP SHALL BE 5 INCHES. MIX WATER SHALL BE CLEAN AND POTABLE.

POST-INSTALLED ANCHORS:
1. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE DRAWINGS.

2. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER OF RECORD PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.

3. CARE SHALL BE GIVEN TO AVOID CONFLICTS WITH EXISTING REBAR WHEN DRILLING HOLES. HOLES SHALL BE DRILLED AND CLEANED PER THE MANUFACTURER'S INSTRUCTIONS.

4. UNLESS SPECIFIED OTHERWISE, ANCHORS SHALL BE EMBEDDED IN THE APPROPRIATE SUBSTRATE WITH A MINIMUM EMBEDMENT OF 8 TIMES THE NOMINAL ANCHOR DIAMETER OR THE EMBEDMENT REQUIRED TO SUPPORT THE INTENDED LOAD. ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCE AND/OR SPACINGS INDICATED IN THE MANUFACTURER'S LITERATURE.

5. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE LISTED BELOW, SHALL BE SUBMITTED TO THE ENGINEER WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER SHOWING THAT THE SUBSTITUTED PRODUCT WILL ACHIEVE AN EQUIVALENT CAPACITY USING THE APPROPRIATE DESIGN PROCEDURE REQUIRED BY THE BUILDING CODE.

6. ACCEPTABLE PRODUCTS ARE:
   A. EXPANSION ANCHORS FOR NON-CRACKED CONCRETE ONLY:
      - WEDGE-ALL (WA), BY SIMPSON STRONG-TIE
      - KWIK BOLT 3, BY HILTI
   B. CRACKED CONCRETE MECHANICAL ANCHORS:
      - STRONG-BOLT (STB), BY SIMPSON STRONG-TIE
      - KWIK BOLT (TZ), BY HILTI
   C. SCREW ANCHORS:
      - TITEN HD (TND), BY SIMPSON STRONG-TIE
      - HUS-H, BY HILTI
   D. ADHESIVE ANCHORS:
      a) FOR ANCHORING INTO SOLID BASE MATERIAL (CONCRETE AND GROUT-FILLED CMU):
         - ACRYLIC-TIE (AT)
         - SET EPOXY-TIE (SET) WITH RETROFIT BOLTS (RFB), BY SIMPSON STRONG-TIE
         - HIT RE 500, BY HILTI
      b) FOR ANCHORING INTO HOLLOW BASE MATERIAL (HOLLOW CMU):
         - CONTACT ENGINEER OF RECORD

MASONRY WALLS:
PROVIDE HOT DIPPED GALVANIZED LADDER TYPE HORIZONTAL JOINT REINFORCEMENT (9 GA.) AT 16" ON CENTER VERTICAL IN ALL MASONRY WALLS.
PROVIDE DOVE TAIL SLOT ANCHORS AT CONCRETE COLUMNS.

BLOCK CELLS SHALL BE GROUT FILLED WITH VERTICAL REINFORCING BARS AT CORNERS, INTERSECTIONS, WALL ENDS, EACH SIDE OF OPENINGS, AND AS SHOWN ON THE PLANS. DOWELS SHALL BE USED TO PROVIDE CONTINUITY INTO THE STRUCTURE ABOVE AND/OR BELOW, UNLESS NOTED OTHERWISE. USE METAL LATH, MORTAR, OR SPECIAL UNITS TO CONFINE CONCRETE AND GROUT TO AREA REQUIRED. MASONRY SHALL BE LAID IN RUNNING BOND PATTERN UNLESS NOTED OTHERWISE. INTERSECTING WALLS SHALL BE INTERLOCKED WITH THE COLUMNS "TC" OR STRUCTURAL COLUMNS "C" AS NOTED ON THE PLANS.

PSI). MORTAR SHALL BE TYPE 'M' OR 'S' AND MEET ASTM C 270. GROUT SHALL BE 2000 PSI MINIMUM COMPRESSIVE STRENGTH AND MEET ASTM C 476. PROVIDE HOOKED DOWELS IN FOOTINGS FOR VERTICAL REINFORCING ABOVE. LAP SPLICES 48 BAR DIAMETERS.

SUBMIT PROPOSED GROUT MIX DESIGN FOR REVIEW PRIOR TO USE. MIX SHALL BE UNIQUELY IDENTIFIED BY MIX NUMBER OR OTHER POSITIVE IDENTIFICATION. GROUT SLUMP SHALL BE BETWEEN 8 AND 11 INCHES. USE OF SUPERPLASTICIZER IS PROHIBITED.

MASONRY WALLS (CONT'D):
CELLS TO BE GROUT FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR, UNOBSTRUCTED, CONTINUOUS VERTICAL GROUT SPACE. CLEANOUT OPENINGS SHALL BE PROVIDED AT THE BOTTOM OF CELLS TO BE GROUT FILLED IN EACH POUR IN EXCESS OF 5 FEET IN HEIGHT. ANY OVERHANGING MORTAR OR OTHER OBSTRUCTION OR DEBRIS SHALL BE REMOVED FROM THE INSIDES OF SUCH CELL WALLS. THE CLEANOUTS SHALL BE SEALED BEFORE GROUTING, AFTER INSPECTION.

FOR JOINT REINFORCEMENT, WALL TIES, ANCHORS AND INSERTS, APPLY A MINIMUM COAT OF 1.5 OUNCES PER SQUARE FOOT (PSF) (458/G/#2) COMPLY WITH THE REQUIREMENTS OF ASTM A153, CLASS B.
VERTICAL REINFORCEMENT SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 192 BAR DIAMETERS. CELLS CONTAINING REINFORCEMENT SHALL BE FILLED SOLIDLY WITH GROUT. GROUT SHALL BE POURED IN LIFTS OF 4 FEET MAXIMUM HEIGHT. GROUT SHALL BE CONSOLIDATED AT TIME OF PLACING BY VIBRATING AND RECONSOLIDATED LATER BY VIBRATING BEFORE PLASTICITY IS LOST.
PLACED IN 4 FOOT LIFTS. MINIMUM CELL DIMENSION SHALL BE IN ACCORDANCE WITH TABLE 5 OF ACI 530.1 (3" X 3" FOR COARSE GROUT, 12 FT. MAXIMUM POUR HEIGHT).

WHEN THE GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE MADE BY STOPPING THE POUR OF GROUT NOT LESS THAN 1-1/2 INCH BELOW THE TOP OF THE UPPERMOST UNIT GROUTED.

MINIMUM LAP SPLICES FOR REINFORCED CMU PER 2007 FBC WITH 2009 SUPPLEMENTS SECTION 2107:

LAP SPLICES THAT OCCUR AT CANTILEVERED WALLS SUCH AS: PARAPETS, RETAINING WALLS, ETC. SHALL HAVE LAP SPLICE LENGTHS INCREASED BY 50% TO 72 BAR DIAMETERS.

TIE BEAMS:
BEAMS WITH THE PREFIX 'TB' AND/OR '*' SHALL BE OF CONCRETE, POURED AFTER THE BLOCK WALLS BELOW ARE PLACED. REINFORCING SHALL BE CONTINUOUS THROUGH TIE BEAMS WITH MINIMUM LAP SPLICES OF 48 BAR DIAMETERS AND BENT BARS AT CORNERS. USE METAL LATH, MORTAR, OR SPECIAL UNITS TO CONFINE CONCRETE TO AREA REQUIRED, IN ACCORDANCE WITH ACI 530.1 (SOLID METAL OR FELT CAVITY CAPS ARE PROHIBITED).

LINTELS & SILLS:
MASONRY OPENINGS LESS THAN 12 FEET SHALL BE SPANNED WITH 16" DEEP CONCRETE LINTELS WITH 2#5 REINFORCING BARS TOP AND BOTTOM. MASONRY OPENINGS LESS THAN 8 FEET SHALL BE SPANNED WITH 12" DEEP CONCRETE LINTELS WITH 2#5 REINFORCING BARS TOP AND BOTTOM. MASONRY OPENINGS LESS THAN 6 FEET SHALL BE SPANNED WITH 8" DEEP CONCRETE LINTELS WITH 2#5 REINFORCING BARS BOTTOM. LINTELS SHALL BEAR A MINIMUM OF 8" AT EACH END.

PROVIDE 8" X 8" MASONRY BEAM WITH 2 #5 CONT. AT EVERY WINDOW SILL. EXTEND REAM 8" BEYOND EDGE OF OPENING.

STRUCTURAL STEEL:
ROLLED SHAPES SHALL CONFORM TO ASTM A-572 OR A-992 GRADE 50 AND "THE SPECIFICATION FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC. SHOP CONNECTIONS TO BE WELDED (UTILIZING E70XX ELECTRODES) AND FIELD CONNECTIONS TO BE BOLTED, UNLESS OTHERWISE NOTED ON STRUCTURAL DRAWINGS. STEEL SHALL RECEIVE ONE SHOP COAT AND ONE FIELD TOUCH UP COAT OF APPROVED RUST INHIBITIVE PAINT, EXCEPT WHERE GALVANIZING IS INDICATED ON THE DRAWINGS.
STRUCTURAL TUBING SHALL CONFORM TO ASTM A 500, GRADE B, Fy = 46 KSI.
STRUCTURAL PIPE SHALL CONFORM TO ASTM A 53 GRADE B, TYPE E OR S, Fy = 35 KSI. BEAM CONNECTIONS TO TUBE COLUMNS SHALL BE A.I.S.C. THRU-PLATE TYPE UNLESS SHOWN OTHERWISE.

BOLTED CONNECTIONS SHALL CONSIST OF MINIMUM 3/4 INCH DIAMETER ASTM A 325-N HIGH STRENGTH BOLTS. CONNECTIONS SHALL NOT HAVE LESS THAN 2 ROWS OF BOLTS. ANCHOR BOLTS SHALL CONFORM TO ASTM A 307 OR A 36 (THREADED ROD). ALL BOLTED CONNECTIONS SHALL BE VISUALLY INSPECTED. TWENTY FIVE PERCENT OF ALL SLIP CRITICAL BOLTED CONNECTIONS SHALL BE TESTED.
ASTM SPECIFICATION A 36 FOR MISCELLANEOUS STEEL SHAPES (ANGLES, PLATES, ETC.).

STEEL BEAMS SHALL HAVE THE FOLLOWING CAMBERS UNDER THEIR OWN WEIGHTS:

40' SPAN OR LESS - CAMBER =

STRUCTURAL STEEL BOLTS, ANCHORS, ETC., SHALL CONFORM TO THE FOLLOWING STANDARDS AND MATERIAL PROPERTIES U.N.O:

COMPONENT:	STANDARD:
BOLTS	ASTM A325 OR ASTM A490 WHERE NOTED
NUTS	ASTM A563
WASHERS	ASTM F436
ANCHOR RODS	ASTM F1554, GRADE 36 OR GRADE 55 WHERE NOTED (GRADE 55 RODS SHALL COMPLY WITH WELDABILITY SUPPLEMENT S1)
WASHERS (AT ANCHOR RODS)	ASTM A36 OR ASTM F844 (USS STANDARD) (F844 WASHERS PERMITTED ONLY FOR 3/4" DIA. RODS AT 1 1/16" MAX. DIA. HOLES IN BASE PLATE WHERE NO WELD REQD. BETWEEN WASHER AND BASE PLATE)

ALL BOLTS SHALL BE INSTALLED AS BEARING-TYPE CONNECTIONS WITH THREADS EXCLUDED FROM SHEAR PLANE (TYPE "X" CONNECTION) U.N.O. HIGH-STRENGTH BOLT ASSEMBLIES SHALL BE IN ACCORDANCE WITH THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" AND SHALL BE SNUG TIGHTENED USING ANY AISC APPROVED METHOD U.N.O. ALL BOLTS IN SLOTTED OR OVERSIZED HOLES AND ALL HIGH-STRENGTH BOLTS SHALL BE INSTALLED WITH HARDENED WASHERS.
ALL CONNECTIONS INVOLVING WOOD MEMBERS, INCLUDING THOSE WITH THREADED ROD, THREADED STUDS, FOUNDATION ANCHOR BOLTS, THRU-BOLTS, ETC., SHALL USE ASTM A307 MATERIAL U.N.O. ALL BOLTS, ANCHOR BOLTS, EXPANSION BOLTS, ETC., SHALL BE INSTALLED WITH STEEL WASHERS AT FACE OF WOOD.

SHEAR STUD CONNECTORS:
SHEAR STUD CONNECTORS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE', SECTION 7 STUD WELDING.
WHERE STUDS ARE PART OF A COMPOSITE FLOOR SYSTEM, STUD WELDING SHALL BE BY AUTOMATIC WELDING EQUIPMENT ONLY. HAND WELDING OF STUDS IS NOT ALLOWED. STUDS SHALL BE TYPE 'B', HEADED STUDS HAVING A MINIMUM TENSILE STRENGTH OF 60,000 PSI., AND SHALL BE OF LENGTH AND DIAMETER SHOWN ON STRUCTURAL DRAWINGS.
HEADED STUDS AND AUTOMATIC WELDED DOWELS SHOWN ON PLANS OR DETAILS SHALL BE BY NELSON STUD WELDING, INC., PER ICC ER-2614 AND ICC ER-5217, RESPECTIVELY. STUDS SHALL HAVE FLUXED ENDS AND BE AUTOMATICALLY END-WELDED WITH SUITABLE EQUIPMENT (NO FILLET WELDING OF STUDS PERMITTED U.N.O.) AT SPACINGS INDICATED ON THE PLANS OR DETAILS. WELDING OF STUDS SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1 AND AWS C5.4. HEADED STUDS AND AUTOMATIC WELDED DOWELS BY OTHER MANUFACTURERS MAY BE SUBSTITUTED PROVIDED THEY ARE OF EQUIVALENT CAPACITY FOR THE INTENDED APPLICATION AND HAVE CURRENT ICC APPROVAL

WELDING:
WELDING SHALL BE DONE BY WELDERS WITH CURRENT CERTIFICATION USING ASTM E70 SERIES ELECTRODE FOR SHOP WELDING A36 STEEL, AND E70 SERIES LOW FIELD WELDING.
HYDROGEN ELECTRODES FOR ALL WELDING OF HIGH STRENGTH STEELS AND FOR WELDS SHOWN ON STRUCTURAL DRAWINGS ARE MINIMUM DESIGN REQUIREMENTS. THE FABRICATORS SHOP DRAWINGS SHALL REFLECT WELDS IN ACCORDANCE WITH AWS REQUIREMENTS.

WELDS SHALL BE VISUALLY INSPECTED WITH 25% ULTRASONIC TESTED UNLESS NOTED OTHERWISE.
PROVIDE FILLET WELDS AT CONTACT POINTS BETWEEN STEEL MEMBERS SUFFICIENT TO DEVELOP THE ALLOWABLE TENSILE STRENGTH OF THE SMALLER MEMBER AT THE JOINT UNLESS DETAILED OTHERWISE ON THE DRAWINGS.

STEEL DECK:
1.5", 20 GA. TYPE VL METAL DECK GALVANIZED AS SHOWN ON ROOF PLAN AS MANUFACTURED BY VULCRAFT/NUCOR OR APPROVED EQUAL. MANUFACTURER SHALL BE A MEMBER OF THE STEEL DECK INSTITUTE. ROOF DECK MUST COMPLY WITH STEEL DECK INSTITUTE STANDARDS. ALL ROOF DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS.

2" METAL DECK IS TO BE ATTACHED TO STRUCTURAL STEEL SUPPORTS WITH 5/8" DIAMETER PUDDLE WELDS (MINIMUM OF 5 WELDS PER SHEET PER BEAM). SIDE JOINTS SHALL BE FASTENED TOGETHER WITH #10 SELF DRILLING SCREWS AT MID SPAN BETWEEN SUPPORTS MINIMUM OF 3 PER SPAN), UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

SUBMITTALS:
SHOP DRAWINGS OR REPORTS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD PRIOR TO FABRICATION OR CONSTRUCTION (AS APPLICABLE) U.N.O.

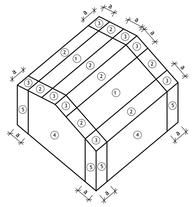
REINFORCING STEEL
MASONRY GROUT AND MORTAR MIX DESIGNS
CONCRETE MIX DESIGNS
ROOF FRAMING PLAN

CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS PRIOR TO SUBMITTING. CONTRACTORS REVIEW SHALL CHECK FOR COMPLETENESS/COMPLIANCE WITH CONTRACT DOCUMENTS.

SHOP DRAWINGS ARE REVIEWED BY ENGINEER ONLY FOR GENERAL COMPLIANCE WITH THE STRUCTURAL DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR. SHOP DRAWINGS DO NOT SUPERSEDE OR REPLACE THE CONTRACT DRAWINGS OR SPECIFICATIONS. CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DRAWINGS AND/OR SPECIFICATIONS WILL NOT BE ACCEPTED VIA SHOP DRAWING REVIEW. ALL SUCH MODIFICATIONS SHALL BE SUBMITTED SEPARATELY FOR ENGINEER'S REVIEW.
FOR ALL SUBMITTALS, ANY CORRECTIONS NOTED WILL BE MARKED ON ONE (1) COPY SET ONLY AND RETURNED. ADDITIONAL COPIES OF ANY SUBMITTAL WILL BE RETURNED UNMARKED. CONTRACTOR SHALL BE RESPONSIBLE FOR REPRODUCING ENGINEER'S CORRECTIONS ON ADDITIONAL COPIES REQD. ONE COPY SET MAY BE RETAINED FOR THE ENGINEERS RECORDS. ALLOW FIVE (5) TO TEN (10) WORKING DAYS FOR THE ENGINEER'S REVIEW.

ABBREVIATIONS

AB	- ANCHOR BOLT	K	- KIP(s)
ALT	- ALTERNATE	KIP(s)	- 1000 POUNDS
APPROX	- APPROXIMATELY	KLF	- KIPS PER LINEAR FOOT
ARCH	- ARCHITECT	KJ	- CONSTRUCTION JOINT
ARCHTL	- ARCHITECTURAL	L	- ANGLE
B/	- BOTTOM OF	LG	- LONG
BC	- BOTTOM CHORD	LLH	- LONG LEG HORIZONTAL
BLDG	- BUILDING	LLV	- LONG LEG VERTICAL
BM	- BEAM	LP	- LOW POINT
BOTT	- BOTTOM	LW	- LONG WAY
BRG	- BEARING	MFR	- MANUFACTURER
C/C	- CENTER TO CENTER	MAS	- MASONRY
CIP	- CAST IN PLACE	MO	- MASONRY OPENING
CJ	- CONTRACTION JOINT	MATL	- MATERIAL
CL	- CENTERLINE	MAX	- MAXIMUM
CLR	- CLEAR	MECHL	- MECHANICAL
CMU	- CONCRETE MASONRY UNIT	MTL	- METAL
COL	- COLUMN	MIN	- MINIMUM
CONC	- CONCRETE	MISC	- MISCELLANEOUS
CONFIG	- CONFIGURATION	NS	- NEAR SIDE
CONT	- CONTINUOUS	NIC	- NOT IN CONTRACT
CONTR	- CONTRACTOR	NTS	- NOT TO SCALE
CTR	- CENTER	OC	- ON CENTER
DBL	- DOUBLE	OH	- OPPOSITE HAND
DET	- DETAIL	OPNG	- OPENING
DIA	- DIAMETER	PAF	- POWDER ACTUATED FASTENERS
DIM	- DIMENSION	PART	- PARTITION
DN	- DOWN	PARTL	- PARTIAL
DR	- DOOR/DRAIN	PL	- PLATE
DWG	- DRAWING	PLF	- POUNDS PER LINEAR FOOT
EA	- EACH	PSF	- POUNDS PER SQUARE FOOT
EE	- EACH END	PSI	- POUNDS PER SQUARE INCH
EF	- EACH FACE	PT	- PRESSURE TREATED
EJ	- EXPANSION JOINT	R	- RISER/RADIUS
EL	- ELEVATION	REG	- REGULAR
ELEV	- ELEVATION	REINF	- REINFORCING
ENGR	- ENGINEER	REM	- REMAINDER
EOR	- ENGINEER OF RECORD	REQD	- REQUIRED
EOS	- EDGE OF SLAB	REV	- REVISED/REVISION
EQ	- EQUAL	RM	- ROOM
EW	- EACH WAY	RO	- ROUGH OPENING
EXIST	- EXISTING	RQMTS	- REQUIREMENTS
EXP	- EXPANSION	SCHED	- SCHEDULE
EXT	- EXTERIOR	SECT	- SECTION
FIN	- FINISH	SIM	- SIMILAR
FLR	- FLOOR	SL	- SLOPE
FND	- FOUNDATION	SOG	- SLAB-ON-GRADE
FOM	- FACE OF MASONRY	SP	- SPIRAL
FS	- FAR SIDE	SQ	- SQUARE
FT	- FOOT	SS	- STAINLESS STEEL
FTG	- FOOTING	STD	- STANDARD
GA	- GAGE	STL	- STEEL
GALV	- GALVANIZED	STRUCTL	- STRUCTURAL
GC	- GENERAL CONTRACTOR	SW	- SHEARWALL/SHORT WAY
HDG	- HOT DIPPED GALVANIZED	T/	- TOP OF
HG	- HIP GIRDER	TB	- TIE BEAM
HK	- HOOK	TC	- TIE COLUMN
HORIZ	- HORIZONTAL	TEMP	- TEMPERATURE
HP	- HIGH POINT	CC	- CONCRETE COLUMN
HS	- HIGH STRENGTH	T/O	- THRU OUT
IJ	- ISOLATION JOINT	TR	- TREAD/TRUSS
INFO	- INFORMATION	TYP	- TYPICAL
INT	- INTERIOR	UNO	- UNLESS NOTED OTHERWISE
IRR	- IRREGULAR	VERT	- VERTICAL
JB	- JAMB REINFORCING	W/	- WITH
JT	- JOINT	W/O	- WITHOUT
		WD	- WOOD
		WP	- WORK POINT
		WWF	- WELDED WIRE FABRIC



WIND DESIGN CRITERIA

DESIGN WIND SPEED	165 MPH
BUILDING CLASSIFICATION	II
IMPORTANCE FACTOR	1.00
EXPOSURE CATEGORY	C
ENCLOSURE CLASSIFICATION	ENCLOSED BUILDING
INTERNAL PRESSURE COEFFICIENT	± 0.18

COMPONENT AND CLADDING WIND PRESSURES

a = 6.00 FT.

ROOF	NET SURFACE DESIGN PRESSURE (PSF)		
AREA	10 SF.	50 SF.	100 SF.
NEGATIVE ZONE 1	-106.4	-90.1	-83.1
NEGATIVE ZONE 2	-140.3	-119.4	-110.3
NEGATIVE ZONE 3	-191.2	-149.3	-131.3
POSITIVE FOR ALL ZONES	27.2	23.2	21.5

WALLS	NET SURFACE DESIGN PRESSURE (PSF)		
AREA	10 SF.	50 SF.	100 SF.
NEGATIVE ZONE 4	-66.2	-59.9	-57.2
NEGATIVE ZONE 5	-81.5	-68.9	-63.5
POSITIVE ZONES 4 & 5	61.1	54.8	52.1

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ISSUANCES		
No.	Drawing Issue Description	Date
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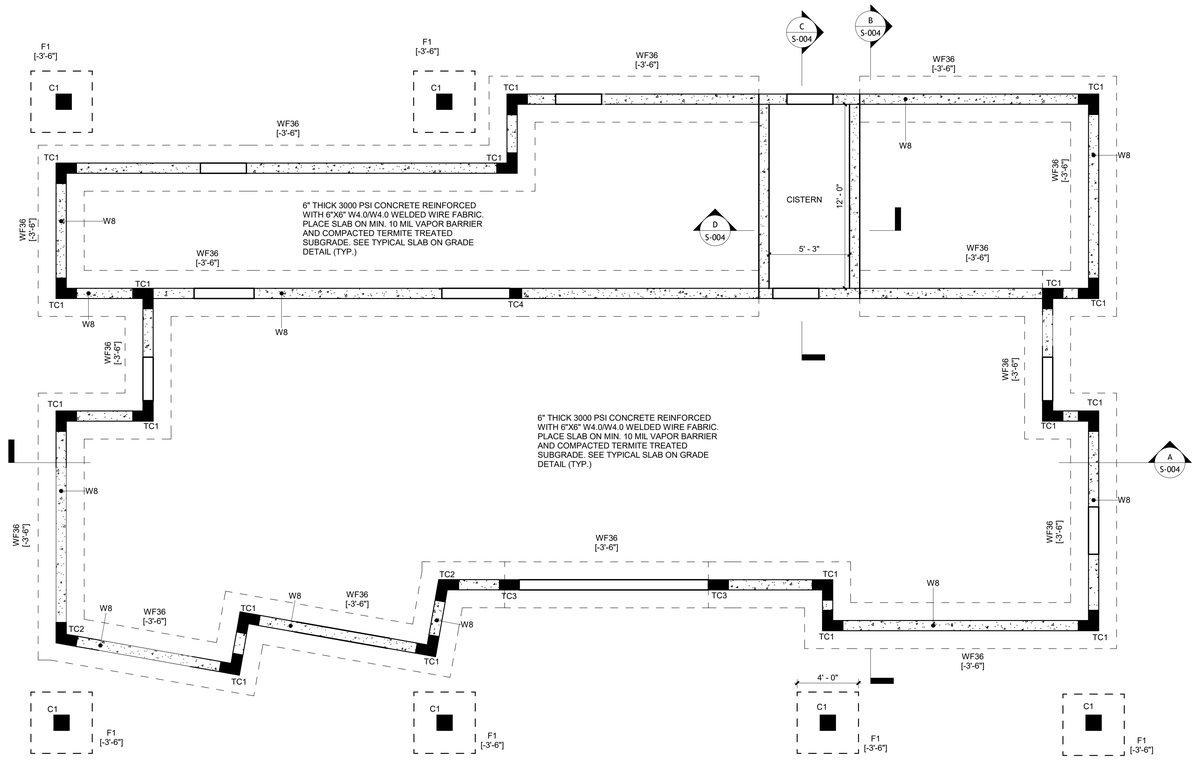
LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works- Division of Transpotation

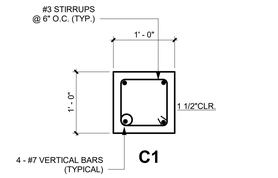
STRUCTURAL NOTES

Checker
Project Architect



1 FOUNDATION PLAN

1/4" = 1'-0"



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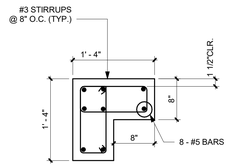

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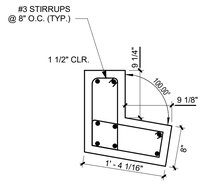

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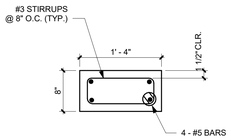

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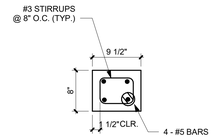

TC4

COLUMN SCHEDULE

SCALE: NTS

FOOTING SCHEDULE			
MARK	SIZE	REINFORCEMENT	REMARKS
WF36	3'-0"XCONT.X 18" DEEP	(6)-#5 BOTTOM CONTINOUS AND #5@12".O.C TRANSVERSE	
F1	4'-0"X4'-0"X 24" DEEP	(8)-#6 HOOKED BARS EACH WAY, BOTTOM, EQUALLY SPACED	12" MIN HOOK LENGTH @ ENDS

WALL SCHEDULE			
MARK	SIZE	REINFORCEMENT	REMARKS
W8	8" THICK	#5 @ 8" O.C.EACH WAY	

FOUNDATION PLAN NOTES

1. DATUM ELEVATION 0'-0" REFERENCES TOP OF FIRST LEVEL SLAB ELEVATION 122'-6".
2. REFER TO S-001 FOR GENERAL NOTES.
3. COORDINATE ALL SLAB OPENINGS, SLEEVES, SLOPES, DEPRESSIONS, EDGE DIMENSIONS AND CURBS WITH ARCHITECT, CIVIL, M.E.P. AND ALL OTHER PRIME CONTRACTORS.
4. COORDINATE ALL DIMENSIONS, LOCATIONS AND WALL OPENING WITH ARCHITECT, CIVIL, MEP, AND ALL OTHER PRIME CONTRACTORS.
5. REFER TO SHEET S-003 FOR BEAM SCHEDULE.
6. [-X'-X"] DENOTES BOTTOM OF FOOTING ELEVATION.

LEGEND

POURED CONCRETE WALL W8 (REFER TO WALL SCHEDULE)

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LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works- Division of Transpotation

FOUNDATION PLAN

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Project Architect

Project Number
Project No.
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Date

S-002
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: Project Number PROJECT NAME: LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL
SHEET NUMBER: S-002 - FOUNDATION PLAN
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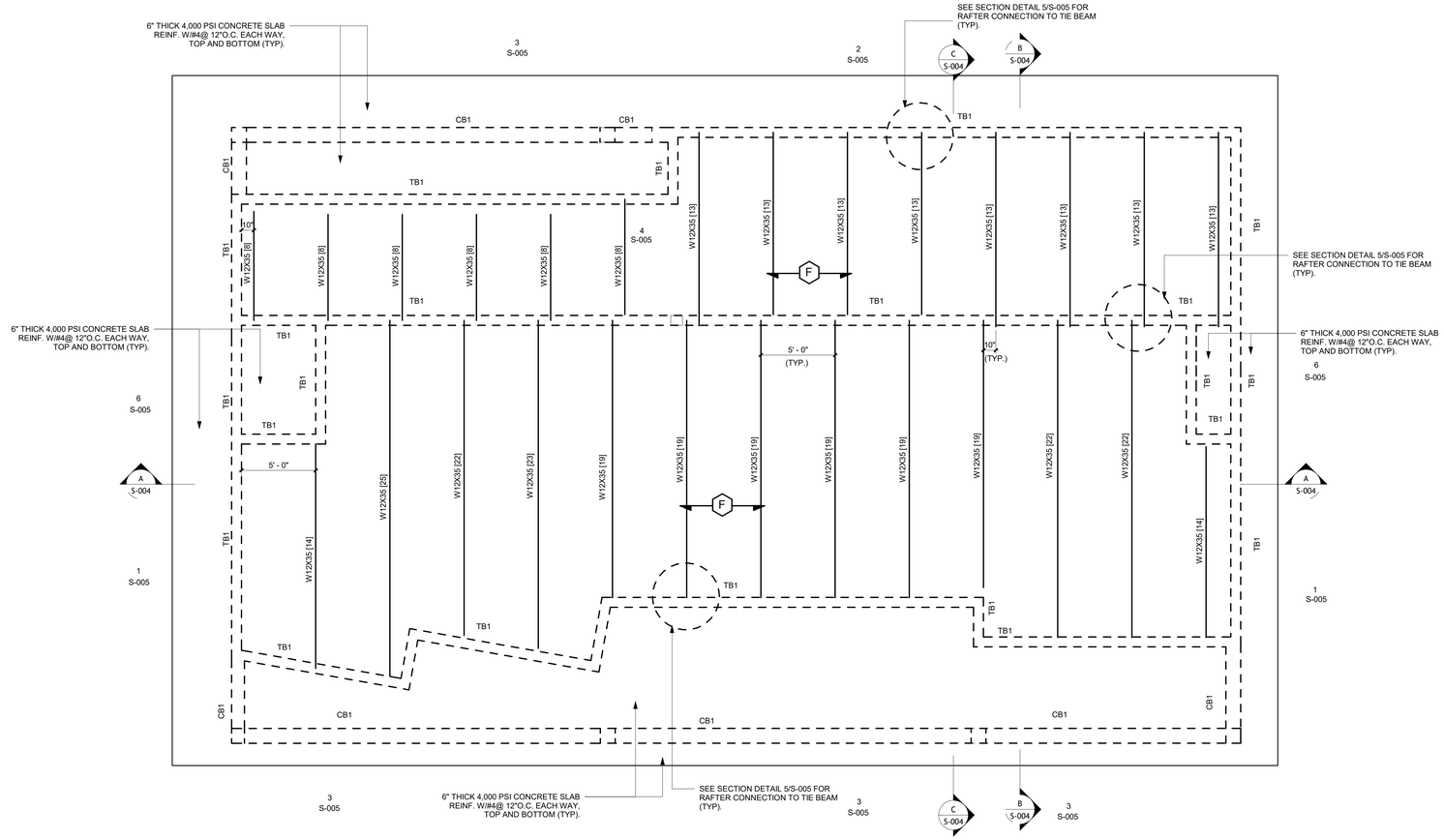

1 ROOF FRAMING PLAN

1/4" = 1'-0"

NOTES:

1. SUBMIT SHOP DRAWING FOR LAYOUT OF STEEL FRAMING AND PLACEMENT OF SHEAR CONNECTORS FOR APPROVAL.
2. F — DENOTES SPAN OF 3 1/2" NORMAL WEIGHT CONCRETE OVER 1 1/2" DEEP 20 GA. COMPOSITE GALVANIZED STEEL FLOOR DECK. REINFORCE WITH 6"X6" W2.9/W2.9 WELDED WIRE FABRIC. TOTAL SLAB DEPTH = 5"
3. [ ] DENOTES NUMBER OF 3/4"Ø X 4" LONG SHEAR STUDS.
4. ALL STRUCTURAL STEEL SHALL BE ASTM A-572 GRADE 50 (50 KSI YIELD).
5. ALL REBAR SHALL BE GRADE 60.
6. COORDINATE THIS SHEET WITH ARCHITECTURAL AND M.E.P.
7. REFER TO ARCHITECTURAL PLANS FOR ROOF SLOPE REQUIREMENTS.

BEAM SHCEDULE

BEAM MARK	SIZE WXH [INCH]	REINFORCING				STIRRUPS	REMARKS
		BOTT.	TOP.	'C'	'E'		
TB1	8"X 24"	2#6	2#5	2#5	2#5	#3@6" O.C.	PLACE 2-#5 BARS @ EACH FACE EQUALLY SPACED
CB1	12"X 22"	2#8	2#6	2#6	2#6	#3@6" O.C.	PLACE 2-#5 BARS @ EACH FACE EQUALLY SPACED

NOTES

1. START STIRRUP SPACING 3" FROM FACE OF SUPPORT.
2. FOR SINGLE SPAN BEAMS "C" BARS IF ANY TO BE PROVIDED AT BOTH ENDS UNO.
3. SHCEDULES DEPTHS FOR ALL TIE BEAMS ARE MINIMUM DEPTHS.CONTRACTORS MAY INCREASE DEPTHS TO ACCOMODATE OPENING LINTELS PROVIDE (2) #5 CONTINOUS HORIZONTAL EACH FACE FOR EACH 8" INCREMENTAL INCREASE IN DEPTH.
4. PLACE REINFORCEMENT AT (INNER/OUTER) LAYER AT INTERSECTING BEAMS.

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LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works- Division of Transpotation

ROOF FRAMING PLAN

Checker
Project Architect

Project Number
Project No.
01/17/25
Date

S-003
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER: Project Number PROJECT NAME: LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL
SHEET NUMBER: S-003 : ROOF FRAMING PLAN
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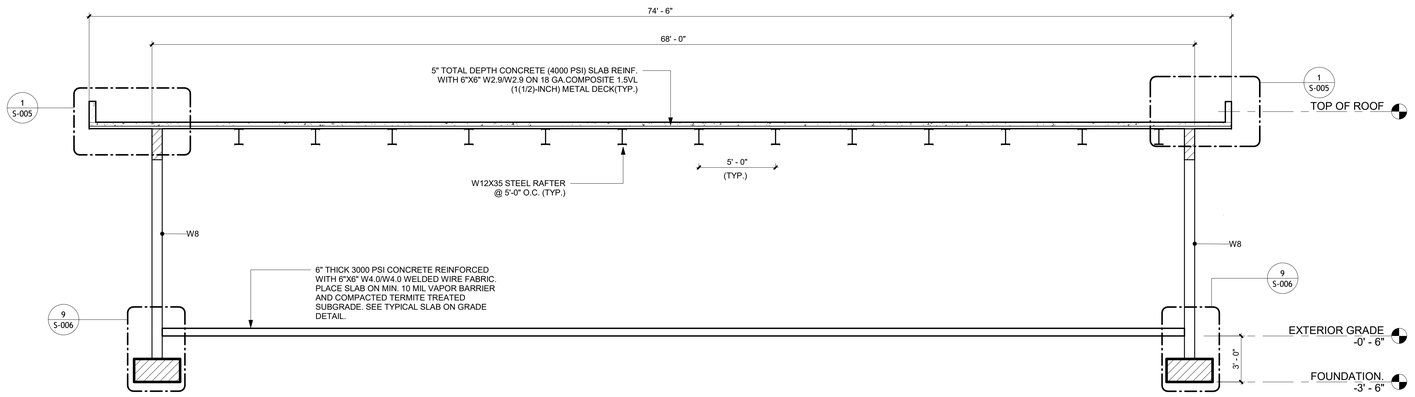
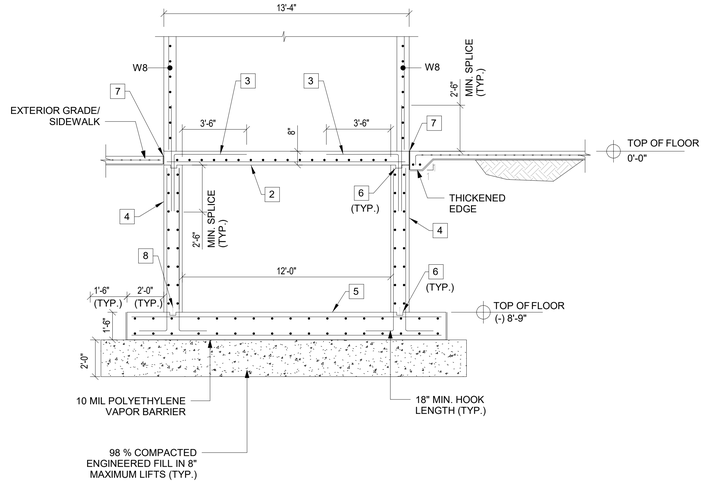


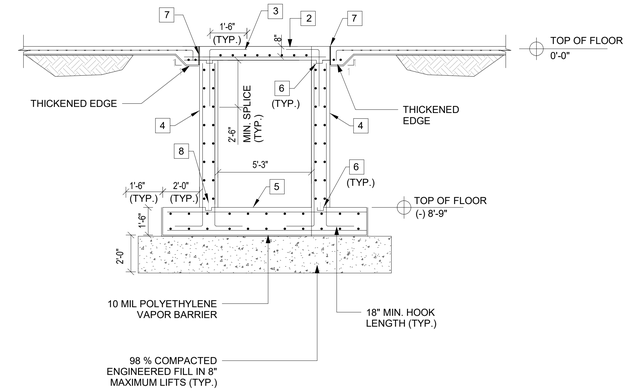
A WALL SECTION

1/4" = 1'-0"



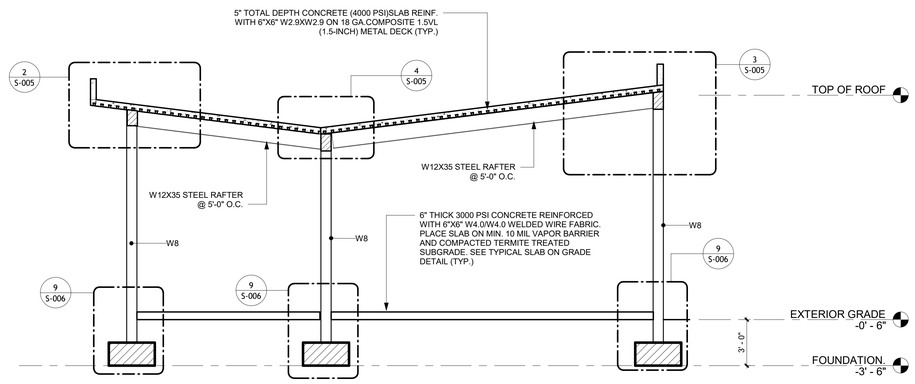
C CISTERN WALL SECTION

1/4"-1'-0"



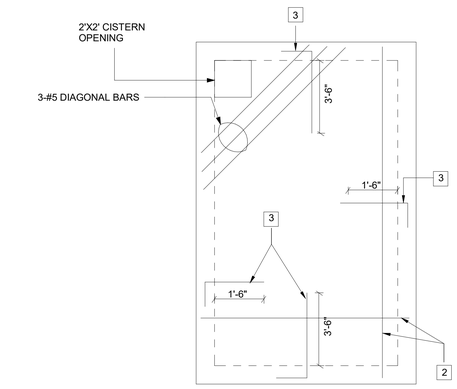
D CISTERN WALL SECTION

1/4"-1'-0"



B WALL SECTION

1/4" = 1'-0"



CISTERN TOP SLAB DETAIL

SCALE N.T.S

LEGEND

1. 6" THICK 3000 PSI CONCRETE REINFORCED WITH 6"X6" W4.0/W4.0 WELDED WIRE FABRIC. PLACE SLAB ON MIN. 10 MIL VAPOR BARRIER AND COMPACTED TERMITE TREATED SUBGRADE. SEE TYPICAL SLAB ON GRADE DETAIL
2. 8" THICK 4,000 PSI CONCRETE SLAB REINFORCED WITH #5 @ 8" O.C. BOTTOM, EACH WAY
3. #5 @ 8" O.C. TOP, ALL AROUND, WITH ACI STANDARD 90° HOOK AT DISCONTINUOUS END
4. 12" THICK 4,000 PSI CONCRETE WALL REINFORCED WITH #5 @ 8" O.C. VERTICAL, AND #5 @ 8" O.C. HORIZONTAL, EACH FACE.
5. 18" THICK 4,000 PSI CONCRETE SLAB REINFORCED WITH #5 @ 8" O.C. TOP & BOTTOM, EACH WAY
6. 2"X4" SHEAR KEY
7. 1/2" PRE-MOLDED EXPANSION JOINT
8. WATER STOP CONTINUOUS AT PERIMETER

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LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works- Division of Transpotation

WALL SECTIONS

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Project Architect

Project Number
Project No. 01/17/25
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S-004
Drawing No.

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SHEET NUMBER: S-004 - WALL SECTIONS
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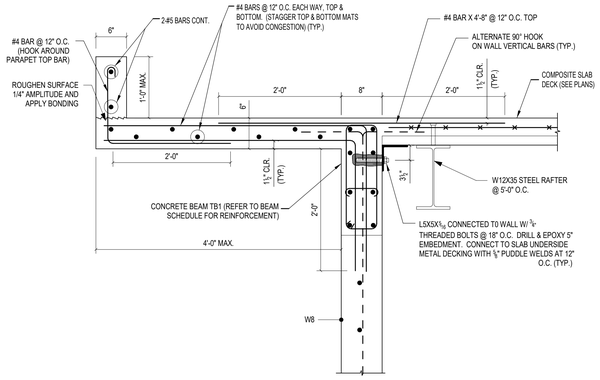
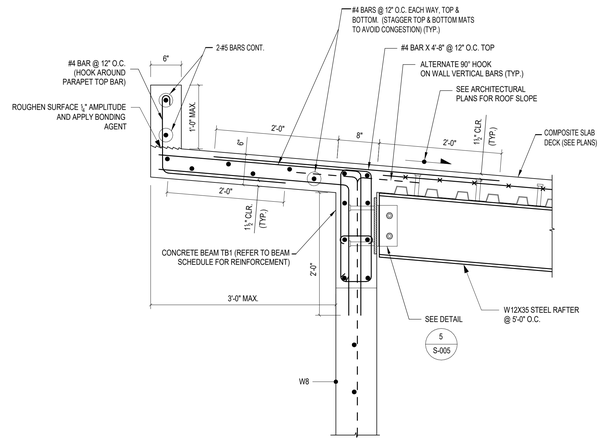


1 S-005 ROOF SECTION DETAIL
SCALE: N.T.S.



2 S-005 ROOF SECTION DETAIL
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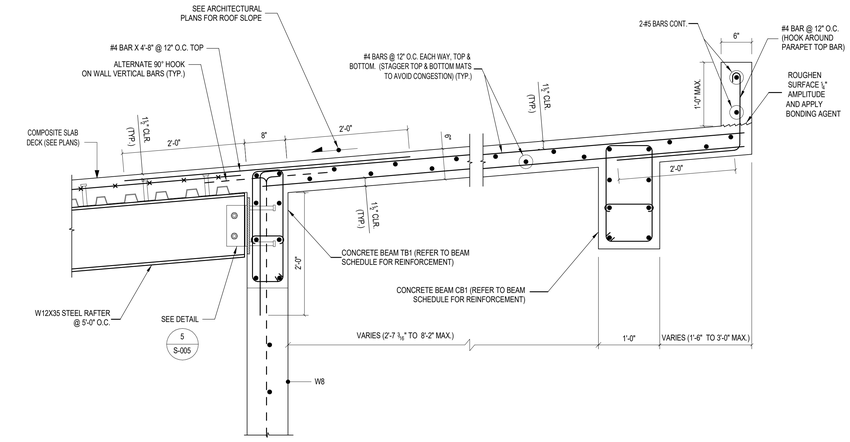

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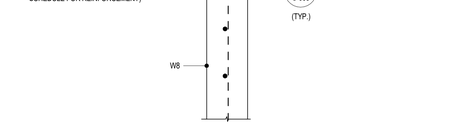
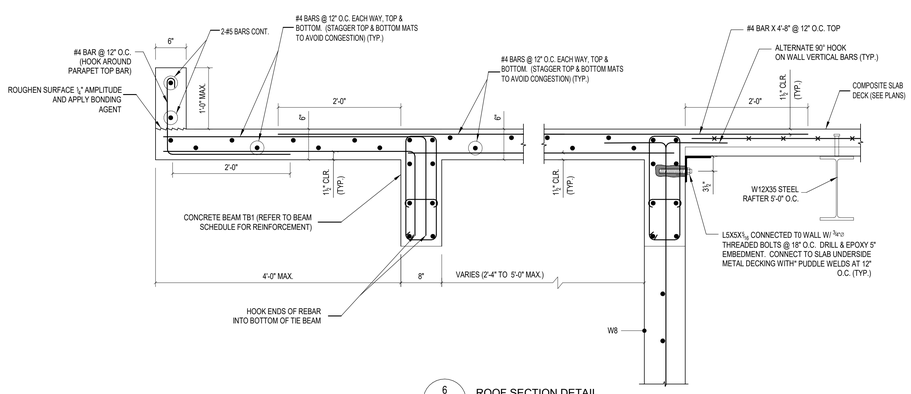


4 S-005 ROOF SECTION DETAIL
SCALE: N.T.S.

A-A SECTION
SCALE: N.T.S.

5 S-005 ROOF SECTION DETAIL
SCALE: N.T.S.

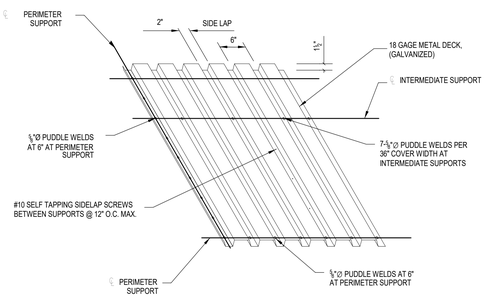


6 S-005 ROOF SECTION DETAIL
SCALE: N.T.S.

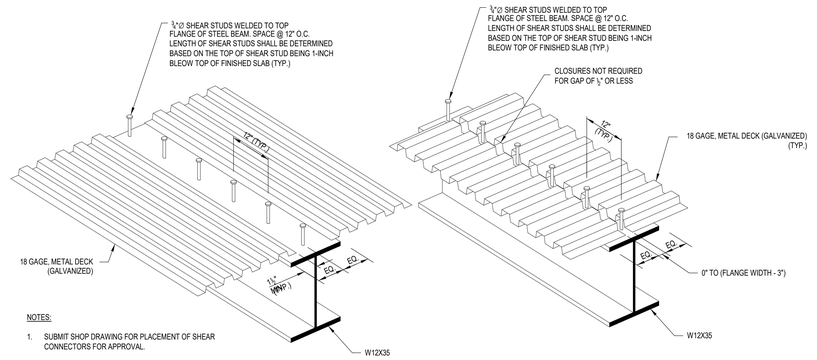
MINIMUM DECK PROPERTIES (VULCRAFT OR APPROVED EQUAL)						
DECK TYPE	DESIGN THICKNESS (in)	Ip (in⁴/ft)	Sp (in³/ft)	In (in⁴/ft)	Sn (in³/ft)	Fy (kpsi/in²)
1.5VL18	0.0474	0.272	0.311	0.295	0.324	50

NOTES:

1. DECK SHALL BE FURNISHED IN MODULAR PANEL WIDTHS. ANY CUTTING THAT IS REQUIRED SHALL BE DONE BY THE DECK ERECTOR.
2. INSTALL DECK ENDS OVER SUPPORTS WITH A MINIMUM 1½" BEARING.
3. FASTEN POUR STOPS AND FILLERS TO SUPPORTING STRUCTURE ACCORDING TO MFR'S RECOMMENDATIONS.
4. FASTEN COLUMN CLOSURES, CELL CLOSURES & Z CLOSURES TO DECK TO PROVIDE TIGHT FITTING CLOSURES AT OPEN ENDS OF RIBS AND SIDES OF DECKING. FASTEN CELL CLOSURES AT CHANGE IN DIRECTIONS.
5. GALVANIZING SHALL CONFORM TO ASTM A653, AND STRUCTURAL QUALITY AND FEDERAL SPEC QQ-S-775 TO PROVIDE A MINIMUM COATING PROTECTION OF G90.



7 S-005 METAL DECK CONNECTION
SCALE: N.T.S.



NOTES:

1. SUBMIT SHOP DRAWING FOR PLACEMENT OF SHEAR CONNECTORS FOR APPROVAL.
2. MINIMUM SPACING OF SHEAR CONNECTORS SHALL BE AS FOLLOWS:
   A. BEAMS PERPENDICULAR TO DECK SPAN = 3"
   B. BEAMS PARALLEL TO DECK SPAN - 4
4. MAXIMUM SPACING OF SHEAR CONNECTORS = 12"

8 S-005 TYPICAL METAL DECK/SHEAR CONNECTOR DETAIL
SCALE: N.T.S.

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LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX, USVI
Department of Public Works- Division of Transpotation

TYPICAL DETAIL

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Project Architect

Project Number
Project No.
01/17/25
Date

S-005
Drawing No.

NOT ISSUED FOR CONSTRUCTION

PROJECT NUMBER Project Number PROJECT NAME: LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL
SHEET NUMBER S-005 : TYPICAL DETAIL
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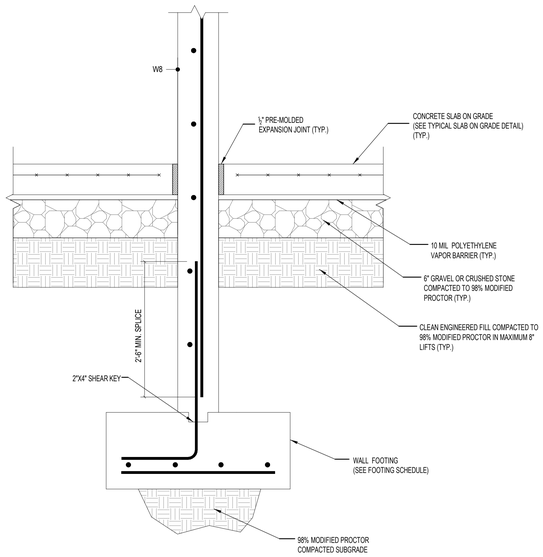
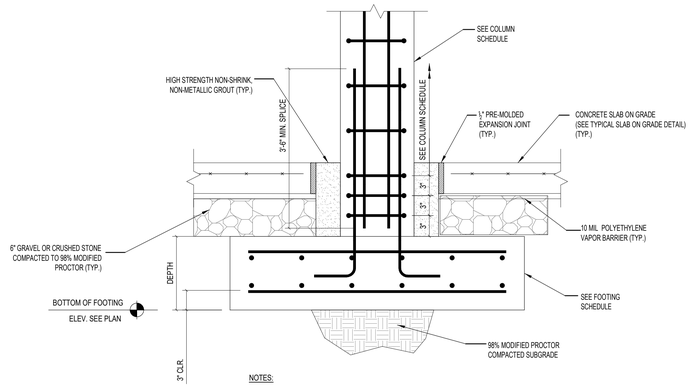


9 S-006 SLAB-ON-GRADE & WALL FOOTING INTERFACE

SCALE: N.T.S.

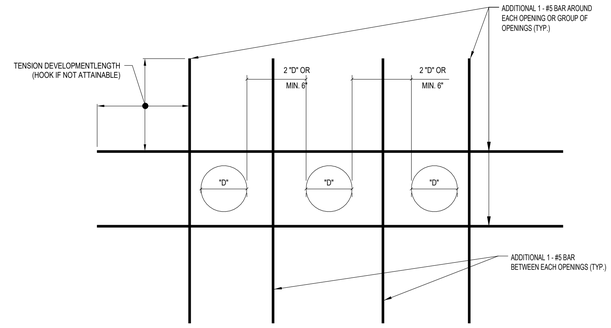


NOTES:

1. FOOTINGS SHALL BEAR ON FIRM UNDISTURBED SOIL WITH A MINIMUM BEARING CAPACITY AS SPECIFIED IN THE GENERAL NOTES.
2. FOR SIZE, DEPTH AND REINFORCING SEE FOOTING SCHEDULE.
3. FOR TIES, VERTICAL BAR SPLICE AND DEVELOPMENT AND ADDITIONAL INFORMATION SEE "TYPICAL DETAIL CONCRETE COLUMN".

10 S-006 SLAB-ON-GRADE & COLUMN FOOTING INTERFACE

SCALE: N.T.S.

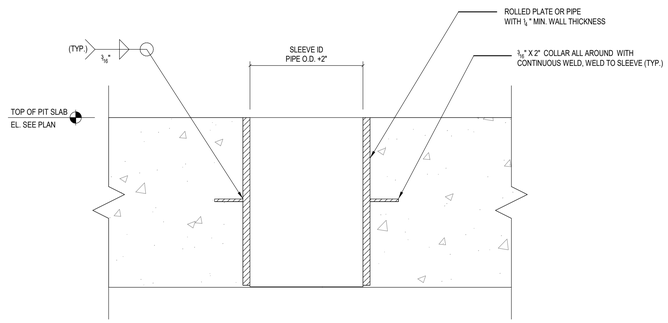


NOTES:

1. LIMIT 3 PENETRATIONS IN A ROW IN ANY DIRECTION.
2. COORDINATE WITH TYPICAL DETAIL FOR FORMED CONCRETE SLAB PIPE SLEEVE.
3. SHOULD PENETRATIONS BE CUT AFTER CONCRETE IS POURED, CONTRACTOR TO SUBMIT PLAN SHOWING ALL PROPOSED CORE DRILLING LOCATIONS TO E.O.R. FOR APPROVAL. CONTRACTOR TO USE NDE METHODS TO LOCATE REBAR PRIOR TO CUTTING SLAB.

11 S-006 TYPICAL SLAB PENETRATION WITH SLEEVE DIAMETER LESS THAN 6"

SCALE: N.T.S.

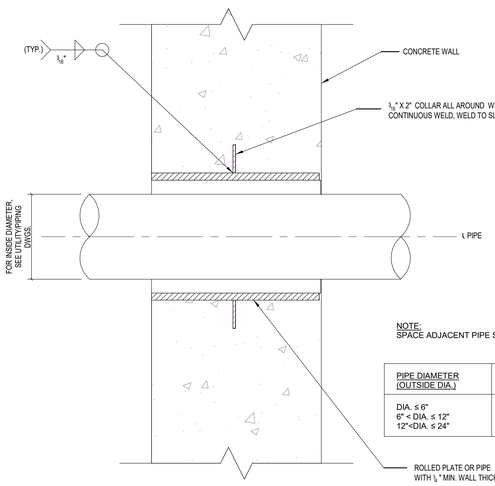


NOTE: PROVIDE CLEAR SPACE BETWEEN PIPE AND/ OR OPENINGS A MINIMUM 6" OR PIPE SLEEVE DIAMETER APART (WHICHEVER IS GREATER.)

TYPICAL SLAB PENETRATION WITH SLEEVE DIAMETER LESS THAN 6"

12 S-006 TYPICAL PIPE SLEEVE IN CONCRETE SLAB

SCALE: N.T.S.

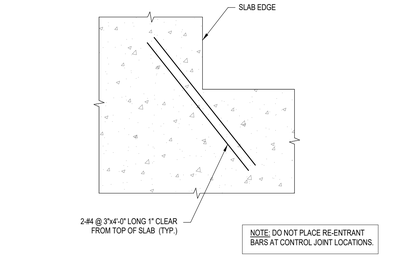


NOTE:
SPACE ADJACENT PIPE SLEEVES AS FOLLOWS:

PIPE DIAMETER (OUTSIDE DIA.)	CLEAR DISTANCE BETWEEN EDGES OF PIPE OPENINGS
DIA. ≤ 6"	CLEAR DIST. = PIPE DIA.
6" < DIA. ≤ 12"	CLEAR DIST. = 6"
12"<DIA. ≤ 24"	CLEAR DIST. = WALL THICKNESS

13 S-006 TYPICAL PIPE SLEEVE IN CONCRETE WALL

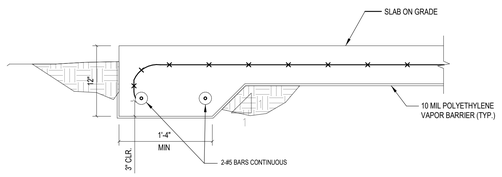
SCALE: N.T.S.



NOTE: DO NOT PLACE RE-ENTRANT BARS AT CONTROL JOINT LOCATIONS.

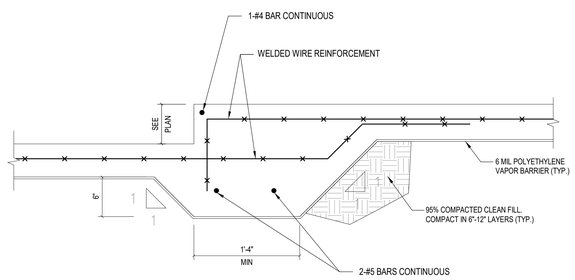
14 S-006 ADDITIONAL REINFORCEMENT AT ALL RE-ENTRANT CORNERS

SCALE: N.T.S.



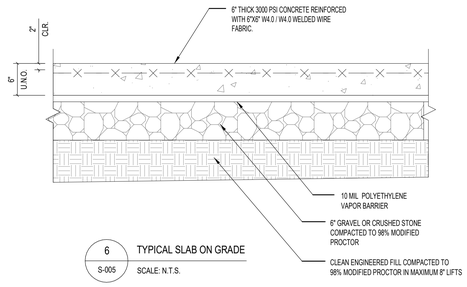
15 S-006 TYPICAL SECTION THRU THICKENED CONCRETE EDGE

SCALE: N.T.S.



16 S-006 TYPICAL SINGLE STEPPED SLAB DETAIL

SCALE: N.T.S.



6 S-005 TYPICAL SLAB ON GRADE

SCALE: N.T.S.

NOTES:

1. SLAB ON GRADE SHALL BE PLACED IN ALTERNATING STRIPS WHERE EACH SINGLE STRIP DOES NO EXCEED 36 TIMES SLAB THICKNESS WIDTH IN INCHES. ALTERNATIVELY, LARGE BLOCK PLACEMENTS WITH INTERIOR CONTRACTION JOINTS ARE ACCEPTABLE IF THE CONTRACTION JOINTS ARE MADE IN BOTH DIRECTIONS AT SPECIFIED INTERVALS IN A TIMELY MANNER.
2. SAWED CONTRACTION JOINTS SHALL BE LOCATED AT A MAXIMUM SPACING IN INCHES OF 36 TIMES THE SLAB THICKNESS. JOINTS SHALL BE SAWED NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED.
3. GRAVEL OR CRUSHED STONE BASE SHALL BE COMPACTED TO 98% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.

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LLOYED ALFREDO "SONNY"BARNES-LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX, USVI
Department of Public Works- Division of Transpotation

TYPICAL DETAIL

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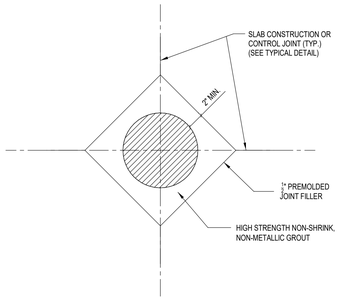
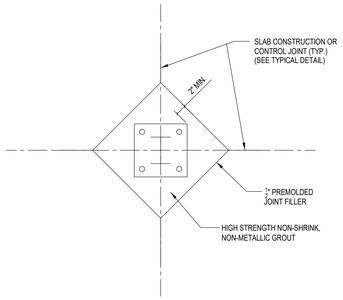
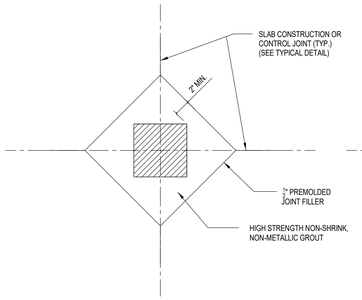


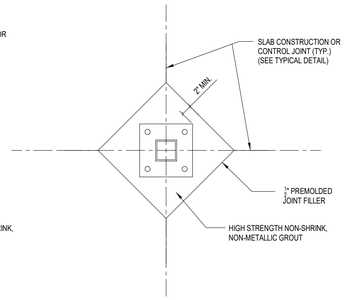
AT ROUND CONCRETE COLUMN



AT STEEL COLUMN

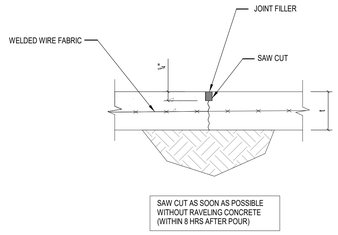


AT SQUARE / RECTANGULAR CONCRETE COLUMN

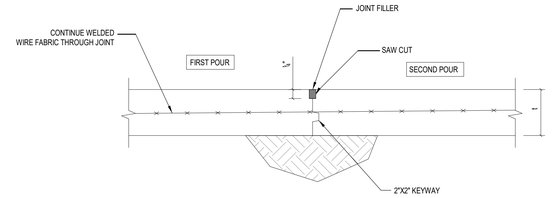


AT STEEL HSS COLUMN

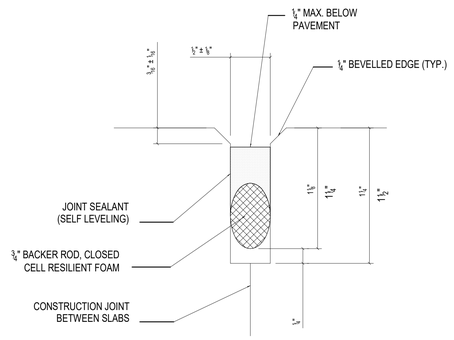
17 / S-007 TYPICAL ISOLATION JOINTS AT COLUMNS
SCALE: N.T.S.



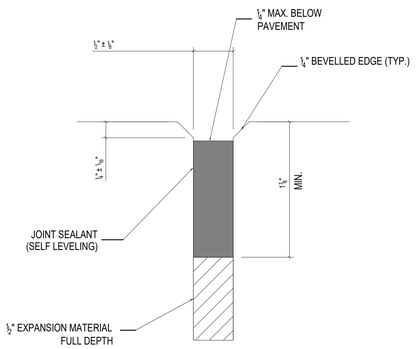
18 / S-007 TYPICAL CONTROL JOINT DETAIL
SCALE: N.T.S.



19 / S-007 TYPICAL CONSTRUCTION JOINT DETAIL
SCALE: N.T.S.



20 / S-007 TYPICAL CONSTRUCTION / CONTROL JOINT SEALANT
SCALE: N.T.S.



21 / S-007 TYPICALEXPANSION / ISOLATION JOINT SEALANT
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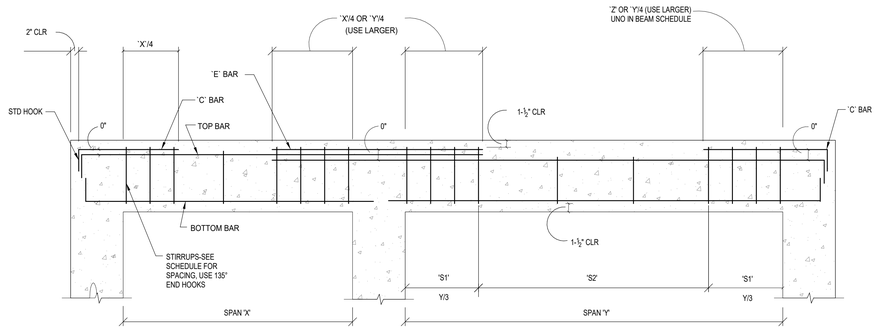
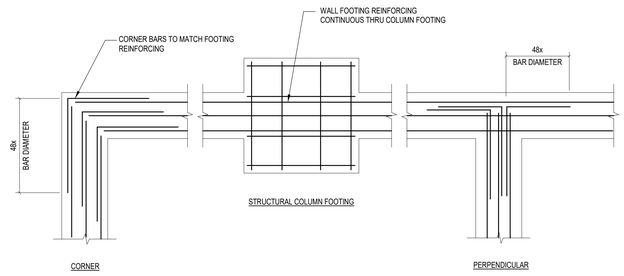
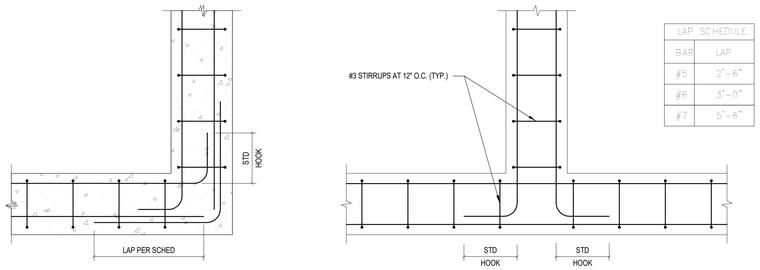


22 S-008 TYPICAL BENDING DIAGRAM FOR BEAMS & SLABS
SCALE: N.T.S.

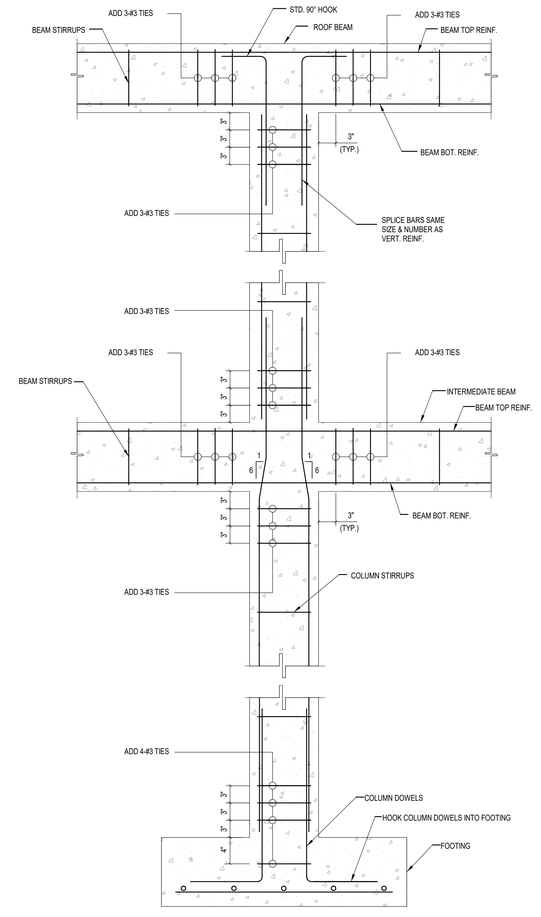


23 S-014 TYPICAL FOOTING INTERSECTION DETAIL
SCALE: N.T.S.

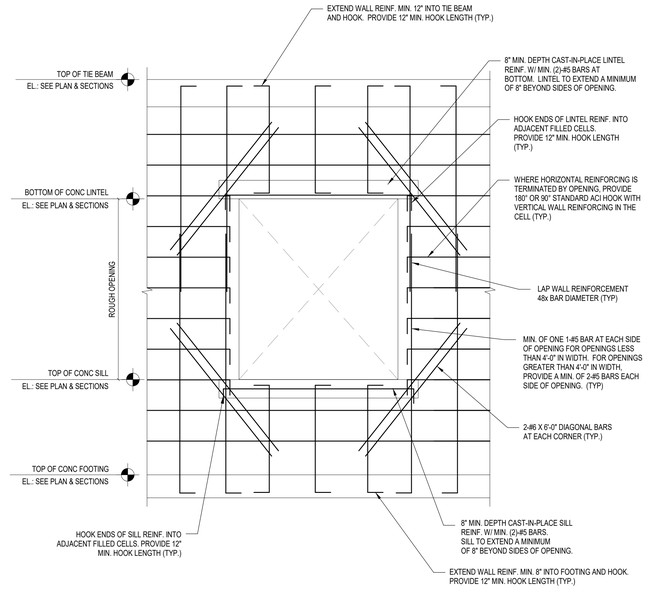


LAP SCHEDULE	
BAR	LAP
#5	2'-6"
#6	3'-0"
#7	5'-6"

44 S-014 TIE BEAM CORNER DETAILS (PLAN VIEW)
SCALE: N.T.S.



45 S-014 TYPICAL FOOTING/COLUMN/BEAM INTERFACE
SCALE: N.T.S.



46 S-014 TYPICAL WALL OPENING REINFORCEMENT
SCALE: N.T.S.

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ABBREVIATIONS

A/C	ABOVE CEILING
AD	ACCESS DOOR
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AUTO	AUTOMATIC
AC	AIR CONDITIONING
AHU	AIR HANDLING UNIT
ALSD	ARCHITECTURAL LINEAR SLOT DIFFUSER
ALRS	ARCHITECTURAL LINEAR RETURN SLOT
ALES	ARCHITECTURAL LINEAR EXHAUST SLOT
BAL	BALANCING
BDD	BACKDRAFT DAMPER
B/F	BELOW FLOOR
B/G	BELOW GRADE
BFLY	BUTTERFLY
BHP	BRAKE HORSEPOWER
BCO	BASE CLEANOUT
CFM	CUBIC FEET PER MINUTE
CBCR	CURVED BLADE CEILING REGISTER
CD	CEILING DIFFUSER
CU	CONDENSING UNIT
CW	COLD WATER (DOMESTIC)
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
CON	CONCENTRIC
CO	CLEANOUT
COND	CONDENSATE
db	DRY BULB
DN	DOWN
DR	DRAIN
do	DITTO
dB	DECIBELS
DWG	DRAWING
EA	EACH
EAT	ENTERING AIR TEMPERATURE
ECC	ECCENTRIC
EF	EXHAUST FAN
EOD	EMERGENCY OVERFLOW DRAIN
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EFF	EFFICIENCY
F	FAHRENHEIT
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FSD	FIRE/SMOKE DAMPER
FD	FIRE DAMPER OR FLOOR DRAIN
FL DR	FLOOR DRAIN (only)
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
G	GATE
GA	GAUGE
GPM	GALLONS PER MINUTE
GL	GLOBE
GCO	GRADE CLEANOUT
HD	HUB DRAIN
HP	HORSEPOWER
HTG	HEATING
HW	HOT WATER (DOMESTIC)
HWR	HOT WATER RETURN
HWRR	HOT WATER REVERSE RETURN
HWS	HOT WATER SUPPLY
Hz	HERTZ
ID	INSIDE DIMENSION
IN	INCHES
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LB	POUNDS
LG	LINEAR GRILLE
LRG	LINEAR RETURN GRILLE
LWR	LOOP WATER RETURN
LWS	LOOP WATER SUPPLY
MIN	MINIMUM
MAX	MAXIMUM
MD	MANUAL DAMPER
MOD	MOTOR OPERATED DAMPER
MFR	MANUFACTURER
NC	NORMALLY CLOSED
NG	NATURAL GAS
NFWH	NON-FREEZE WALL HYDRANT
NO	NORMALLY OPEN
NOM	NOMINAL
OA	OUTSIDE AIR
OD	OUTSIDE DIMENSION
OBD	OPPOSED BLADE DAMPER
PIU	POWERED INDUCTION UNIT
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RAD	RADIUS
RAG	RETURN AIR GRILLE
RED	REDUCER
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
RAR	RETURN AIR REGISTER
SP	STATIC PRESSURE
SPS	STATIC PRESSURE SENSOR
SA	SUPPLY AIR
SAN	SANITARY
SD	SMOKE DAMPER
SEN	SENSIBLE
SQ	SQUARE
SR	SUPPLY REGISTER
ST	STORM
SS	SPLIT SYSTEM
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VENT
VA	VALVE
VTR	VENT THRU ROOF
VAV	VARIABLE AIR VOLUME
wb	WET BULB
WC	WATER COLUMN
WHA	WATER HAMMER ARRESTOR
WT	WEIGHT
W	WASTE

LEGEND

	CEILING DIFFUSER
	CEILING RETURN AIR GRILLE or EXHAUST GRILLE
	SIDE-WALL or DUCT MOUNTED REGISTER
	SLOT DIFFUSER
	MANUAL VOLUME DAMPER
	FIRE DAMPER
	TRANSITION
T	THERMOSTAT
H	HUMIDISTAT
CO	CO2 SENSOR
N	NIGHT SET-BACK
M	MOTOR OPERATED DAMPER
J	ELECTRICAL J-BOX
	ACCESS PANEL
	EXISTING WORK
	NEW WORK
	WORK TO BE REMOVED

FAN SCHEDULE

I.D. TAG	CAPACITY (CFM)	S.P. (IN. W.G.)	MOTOR H.P.	DRIVE	MAX. FAN RPM	MAX. NOISE	VOLTS/ PHASE	TYPE OF FAN	WEIGHT (LBS).	BASIS OF DESIGN	REMARKS
EF-1	500	0.5	1/8	D	1,466	8.4 SONES	120/1	ROOF CENTRIFUGAL	75	GREENHECK G-095-D	(1) (2)

(1) ROOF MOUNTED FAN. PROVIDE WITH 12" HIGH ROOF CURB, BIRD SCREEN, PREMIUM EFFICIENCY MOTOR, AND GRAVITY BACKDRAFT DAMPER.
(2) FAN SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS. INTERLOCK TO TIMER AS NEEDED.

VRF INDOOR UNIT SCHEDULE

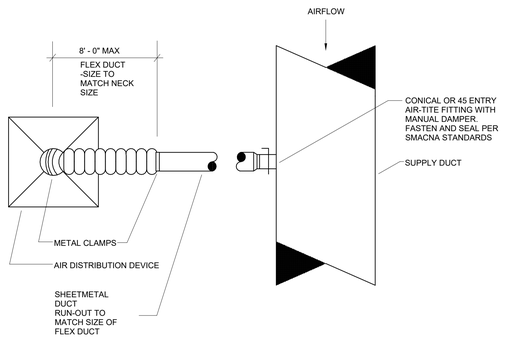
			FAN COIL UNIT DATA									
I.D. TAG	NOMINAL COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	AIRFLOW (CFM)	EXT. S.P. (IN. W.C.) (1)	OUTSIDE AIR (CFM)	COIL EAT °F db	COIL EAT °F wb	VOLTS/ PHASE	TYPE OF UNIT	OUTDOOR UNIT	BASIS OF DESIGN	REMARKS
FCU-1	9,100	10,000	330	-	-	80.0	67.0	208/1	CEILING CASSETTE	CU-1	DAIKIN FFQ09W2VJU9	(3)
FCU-2	9,100	10,000	330	-	-	80.0	67.0	208/1	CEILING CASSETTE	CU-1	DAIKIN FFQ09W2VJU9	(3)
FCU-3	10,800	13,500	400	-	-	80.0	67.0	208/1	CEILING CASSETTE	CU-1	DAIKIN FFQ12W2VJU9	(3)
FCU-4	7,000	7,000	275	-	-	80.0	67.0	208/1	WALL MOUNT	CU-1	DAIKIN CTXS07WVJU9	(3)

(1) THIS IS THE S.P. EXTERNAL TO THE ENTIRE FAN COIL UNIT ASSEMBLY (WET COIL, CASING, CLEAN FILTERS, AND FURNACE LOSSES ARE NOT INCLUDED IN THIS EXT. S.P.).
(2) RATINGS BASED ON AHRI STANDARDS 210 / 240.
(3) PROVIDE THE FOLLOWING ACCESSORIES FOR THE FAN COIL UNIT: VIBRATION ISOLATORS AND/OR SUPPORT BRACKET, CONDENSATE PUMP (DIVERSITECH MODEL CVMINI OR APPROVED EQUAL), AND PROGRAMMABLE ELECTRONIC THERMOSTAT.

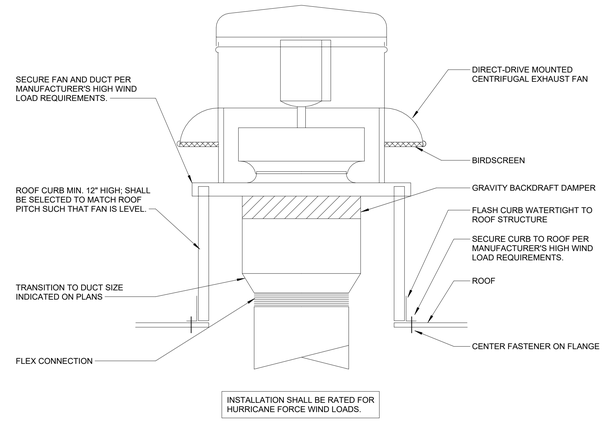
VRF CONDENSING UNIT SCHEDULE

	COOLING CAPACITY		HEATING CAPACITY				
I.D. TAG	BTU/H	AMBIENT TEMP (°F DB)	BTU/H	AMBIENT TEMP (°F DB)	VOLTS/ PHASE	BASIS OF DESIGN	REMARKS
CU-1	36,000	95	36,000	50	208/1	DAIKIN 4MXS36RMVJUA	(1)

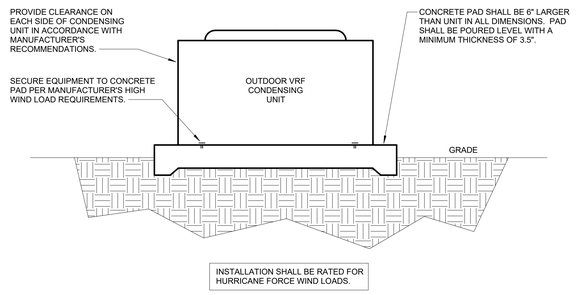
(1) ACCEPTABLE ALTERNATE VRF MANUFACTURERS: MITSUBISHI, CARRIER AND HITACHI.



3 M0 DIFFUSER CONNECTION DETAIL
12" = 1'-0"



1 M0 ROOF MOUNTED FAN DETAIL
NOT TO SCALE



2 M0 CONDENSING UNIT DETAIL
12" = 1'-0"

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CHRISTOPHER A. YLES
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX USVI
Department of Public Works - Division of Transportation

MECHANICAL SCHEDULES & DETAILS

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ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: M0 - MECHANICAL SCHEDULES & DETAILS
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SECTION 23 05 00

COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Division 23 and the accompanying drawings cover the provision of all labor, equipment, appliances, and materials and performing all operations in connection with the construction of the air conditioning, ventilating, heating, fire suppression and plumbing systems as specified herein and as shown.

B. The General Provisions and Division 01, including the general, supplementary and other conditions and other Divisions, as appropriate, apply to work specified in this Division.

1.2 INTENT OF DRAWINGS AND SPECIFICATIONS

A. The implied and stated intent of the drawings and specifications is to establish minimum acceptable standards for materials, equipment and workmanship, and to provide operable mechanical systems complete in every respect.

B. The engineering drawings are diagrammatic, intended to show general arrangement and sizes of system components, and shall not be scaled. Rather, the architectural and structural drawings shall govern space constraints, dimensions and finishes. All offsets and fittings which will be necessary to accomplish the finished installation shall be provided at no additional cost or increase in the Contract.

1.3 SPACE PRIORITY

A. Ensure optimum use of available space for materials and equipment installed above ceilings. Allocate space in the order of priority as listed below except as otherwise detailed. Items are listed in the order of priority, with items of equal importance listed under a single priority number.

1. Gravity flow piping systems
2. Vent piping systems
3. Recessed lighting fixtures
4. Concealed HVAC terminals and equipment
5. Air duct systems
6. Sprinkler piping systems
7. Pressurized piping systems
8. Electrical conduit, wiring, control air tubing

B. Order of space priority does not dictate installation sequence. Installation sequence shall be as required to install all affected trades.

C. The work of this Division 23 shall not obstruct access for installation, operation and maintenance of the work of any other Division.

D. All major items of equipment shall be arranged so as to provide a minimum of 28" clear aisle space. Additional space shall be provided between and around equipment for maintenance and proper operation as shown in the Equipment Manufacturer's literature.

1.4 COORDINATION

A. Coordinate all work under this Division 23 with work under all other Divisions, providing adjustment as necessary.

B. Coordination of space requirements with respect to Division 26 shall be performed such that:

1. No equipment, piping or ductwork, other than electrical, shall be installed within 42" of switchboards or panelboards.
2. No piping or ductwork which ever operates at a temperature in excess of 120°F shall be installed within 3" of any electrical conductor.

C. All items mounted in or below the ceiling, and all items penetrating the ceiling, shall be coordinated with the architectural reflected ceiling plans. If any items are not shown on these plans, or any items need to be relocated for coordination purposes, prepare a reflected ceiling plan and submit it to the Architect for approval.

D. Variable-Frequency Drives shall be provided under Division 23 and installed by Division 26. See specification 26 29 23 Variable - Frequency Motor Controllers.

E. Fused disconnects shall be provided under this Division 23 for all equipment connected directly to bus duct, and rating shall match bus duct rating. Coordinate with Division 26.

1.5 CODE COMPLIANCE

A. All workmanship and materials provided under this Division 23 shall comply with all laws, ordinances, codes and regulations of all Federal, State and Local Authorities Having Jurisdiction.

B. All fire suppression, plumbing, heating, ventilating, and air conditioning materials and workmanship shall comply with all local, state and federal codes.

C. Secure and pay all fees associated with all permits and licenses required for execution of the Contract. Arrange for all inspections required by City, County, State and other Authorities Having Jurisdiction, and deliver certificates of approval to the Architect.

D. The code requirements are strictly a minimum and shall be met without incurring additions to the Contract. Where requirements of the drawings or specifications exceed the code requirements, the work shall be provided in accordance with these drawings or specifications. In the event of conflict or ambiguity between the various codes, the most stringent requirement shall govern.

1.6 ELECTRICAL REQUIREMENTS AND INTERFACE

A. All electrical equipment and wiring provided under this Division 23 shall comply with the electrical system characteristics indicated on the electrical drawings and specified in Division 26.

B. Electric controls, contactors, starters, pilot lights, push buttons, etc., shall be provided complete as part of the motor, heater or other equipment which it operates. All electrical components shall be in conformance with the requirements of the National Electrical Code and Division 26. Starters shall be wye-delta, closed transition type. Reference Division 26 and the electrical engineering drawings for those motor starters provided under that Division 26. All starters not shown shall be provided under this Division 23. Unless specified otherwise under other individual equipment Sections, motor starters shall conform to the following minimum requirements:

1. Starters for motors 1/3 horsepower or smaller shall be manual unless remote or automatic starting is required, in which case the starters shall be magnetic, full voltage, non-reversing, single-speed, unless otherwise indicated. All other starters shall be magnetic.
2. Each starter for a three-phase motor shall be furnished with three (3) overload relays sized for the full load running current of the motor actually provided. Provide an external "HAND-OFF-AUTO" selector switch with red "RUNNING" light. Provide a green pilot light to indicate motor "STOPPED". Each pilot light shall have a legend plate indicating reason for signal.
3. Each overload relay shall have a normally open alarm contact which will close only when actuated by an overload (not to be confused with N.O. or N.C. auxiliary contacts). These contacts shall be properly wired to their respective blue pilot light provided on the starter front cover and having a "TRIPPED" legend plate.
4. Individually mounted motor starters shall be in a NEMA Type 1 general purpose enclosure in unfinished areas and shall be flush mounted in all finished areas. All starters mounted in exterior areas shall have a NEMA 3R enclosure. Each starter shall have a nameplate to indicate equipment unit number, function and circuit number.
5. All motor starters, push buttons and pilot lights shall be of the same Manufacturer as the switchboard and shall be General Electric, Square D, Siemens I.T.E., or Westinghouse.

C. Motor starters for the following equipment shall be provided under this Division 23 by the Manufacturer of the equipment:

1. Packaged air conditioning equipment
2. Water chillers
3. Other equipment hereinafter specified in other Sections to be provided with integral starters

D. Unless otherwise noted or specified in individual Sections, all 3-phase motors shall be standard NEMA continuous duty "B" type, with Class B insulation, open drip-proof frame for indoor service, TEFC for outdoor service and a service factor of 1.15. All motors 5 HP and larger shall be U.S. Motors Hi-Efficiency Model or Reliance XE Hi-Efficiency Model.

E. All power wiring and final connections to equipment shall be provided under Division 26.

F. Control components, all interlocks, (VAVs, actuators, smoke dampers, fire/smoke dampers, motor-operated dampers, fire alarm motors, etc.) and control wiring (277 volt, single phase and less) shall be provided under this Division 23 as required to achieve the specified control sequences. All electrical connections shall be specifically coordinated with Division 26 and any necessary scope included as part of Division 23.

G. All control wiring over 30 volts shall be installed by a licensed Electrician working under this Division 23.

1.7 SLEEVES, SEALS AND ESCUTCHEONS

A. Sleeves shall be provided through all pipe and ductwork penetrations of concrete or masonry walls, elevated floors and roofs, except those piping penetrations for equipment, etc.

B. Sleeves shall be fabricated from Schedule 40 steel pipe through 10" and Standard Wall steel pipe for sleeve sizes 12" and larger. All sleeves penetrating exterior walls, underground walls, pit or vault walls shall be provided with a 3" x 3/8" thick waterstop ring welded completely to the midpoint of the sleeve.

C. All sleeves penetrating exterior walls, underground walls, pit or vault walls and elevated floors shall be packed and sealed watertight.

D. Sleeves through roofs shall extend above the roof surface and be flashed watertight.

E. Sleeves through walls shall be cut and finished flush with each surface of the wall in which they are installed.

F. Sleeves through floors in mechanical rooms or other back of house spaces shall be installed with the top no less than 1/2" above the finished floor to allow for leak protection. Space between the top of the fire-stopping and top of the sleeve shall be packed with mineral wool and caulked to not allow water ponding within the sleeve.

G. Sleeves shall be sized to provide a minimum of 1/2" clearance between the inside surface of the sleeve and the outside finished surface of the pipe plus any insulation specified.

H. Fire-stops shall be provided as specified herein. All annular spaces between piping and sleeves, which do not require fire-stops, shall be packed with mineral wool and caulked.

I. Provide round, chrome-plated escutcheons on all exposed piping and ductwork penetrations passing through walls, floors, partitions and ceilings. Escutcheons shall be painted and caulked in coordination with Architect. Note that escutcheons should be only attached to the wall as piping and ductwork may move slightly during operation.

1.8 FIRESTOPS

A. Where piping, conduit, etc. pass through fire partitions, fire walls and floors, a firestop shall be provided that will ensure an effective barrier against the spread of fire, smoke and gases. Firestop material shall be packed tight and completely fill gaps between the ductwork, piping, conduit, etc. and the perimeter of their rough openings.

B. All penetrations shall be in accordance with UL 1479 or ASTM E 814 listed systems, and products used shall be specifically applicable for the appropriate installation conditions. Assemblies shall provide a minimum rating equal to the construction penetrated. Products shall be by HILTI, 3M, or ProSet.

C. Installation shall be by a Qualified Installer. Installer shall be certified, licensed, or otherwise qualified by the Firestopping Manufacturer as having the necessary training to install the Manufacturer's specific product. A Manufacturer or Vendor's willingness to sell the firestopping product to the Contractor or Installer does not in itself confer qualification.

D. Installer shall have at least one of the following qualifications:

1. FM 4991 Approved Contractor
2. UL Approved Contractor
3. HILTI, 3M, or ProSet Accredited Fire Stop Specialty Contractor

E. Installing Firm shall have no less than 3 years of experience with firestop installation.

F. A Manufacturer's direct Representative (not Distributor or Agent) shall be on site during initial installation of firestop systems to train appropriate Contractor personnel in proper selection and installation procedures.

G. The firestop Contractor or Installer shall supply As-Built documentation of each individual penetration location on the project. Documentation shall include a sequential location number, detailed description of the penetration location, size, and type, tested system number, type of assembly penetrated, and rating to be achieved. As-Built documentation shall be included with the close-out materials.

H. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach label permanently on both sides of penetrated construction in a visible location. The label shall include the following:

1. The words "Warning - Through Penetration Firestop System-Do Not Disturb"
2. Through Penetration firestop system designation and Manufacturer
3. Date of Installation

PART 2 - PRODUCTS

2.1 BID BASIS AND SUBSTITUTION PROCEDURES

A. Manufacturer names, series and model numbers, as noted or specified, are for the purpose of describing type, capacity, and quality of equipment, materials and products to be used. Unless "or equal" is specifically stated, bids shall be based only on the specified "basis of design" Manufacturer. The listing of a particular manufacturer as an "equal" or "acceptable substitute" manufacturer shall not be misconstrued as approving nor allowing the substitution of that Manufacturer's standard product in place of the basis of design. No consideration will be given to a product, which would require dimensional, spatial or aesthetic changes to the project. "Acceptable substitute" and "equal" manufacturers shall only bid those products, which exactly match the size and other characteristics of the specified basis of design. Any changes to other disciplines and trades of work required by an "or equal" or "substitute" product shall be duly considered and priced accordingly prior to bidding or pricing. The decision as to whether or not a proposed substitute or "equal" product is actually equal to that specified shall rest solely with the Architect.

B. Requests to provide "equal" products in lieu of those specified shall be submitted to the Architect in writing at least ten (10) days prior to final pricing and execution of the Contract. No consideration will be given to substitute products after final pricing and execution of the Contract.

C. Any "or equal" product or proposed product substitution which will cause a change in the appearance, dimensions or design of any part of the building, it structure, electrical system or any other engineered systems shall be accompanied by a scaled drawing and written description of the required change(s) for approval by the Architect. If deemed necessary by the Architect, Owner, or AHJ, design changes shall be signed and sealed by a registered Professional Engineer, currently licensed in this State. This shall be performed under the Contractor's scope who selects the substitution.

D. Any and all changes due to a substitution of basis of design equipment including but not limited to electrical connection, physical size, access, duct or piping connections, controls, etc. shall be solely the responsibility of substituting Contractor.

2.2 MINIMUM STANDARDS

A. Every piece of energy consuming equipment, all fire suppression products and life safety equipment shall comply with the following standards as applicable; especially in regard to prevailing codes:

1. Factory Mutual Laboratories (FM)
2. Industrial Risk Insurers (IRI)
3. Underwriters Laboratories, Inc. (UL)
4. ADC: Air Diffusion Council
5. AGA: American Gas Association
6. AMCA: Air Moving and Conditioning Association, Inc.
7. ANSI: American National Standards Institute
8. API: American Petroleum Institute
9. AHRI: Air Conditioning, Heating, and Refrigeration Institute
10. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers
11. ASME: American Society of Mechanical Engineers
12. ASTM: American Society of Testing and Materials
13. AWWA: American Water Works Association
14. IBR: Institute of Boiler and Radiator Manufacturers
15. MSS: Manufacturers Standardization Society
16. NBBPVI: National Board of Boiler and Pressure Vessel Inspectors
17. NEMA: National Electrical Manufacturer's Association
18. OSHA: Occupational Safety & Health Administration
19. PDI: Plumbing Drainage Institute
20. PPI: Plastic Pipe Institute
21. SMACNA: Sheet Metal and Air Conditioning Contractors National Association, Inc.

PART 3 - EXECUTION

3.1 SUBMITTALS

A. Before preparing submittals, study all Contract Drawings and specifications in detail, obtain manufacturer's recommended instructions, and have submittals prepared based on specific equipment and material proposed for installation. An officer of the Contracting Firm shall sign all shop drawings (certifying conformance with plans and specifications) before submitting to the Architect or releasing to the field.

B. The submittal process should not be utilized as an avenue to substitute products after the execution of the contract. Should an unspecified or unequal product be submitted, it will be rejected. If a second attempt at substitution is made during the resubmittal of the same product, then no more reviews of that product will be performed without direct compensation to the Engineer being paid for the additional services required for the third review and any further reviews.

C. All submittals shall be submitted and returned electronically.

D. Submittals will not be accepted for review unless they:

1. Comply with the requirements of Division 1
2. Include complete information pertaining to all appurtenances and accessories
3. Are submitted as complete packages which pertain to all related items in Division 23. Separate packages shall be submitted as follows:
   a. All HVAC equipment and components
   b. The automatic controls and EMS
4. Are properly marked with equipment, service, or function identification as related to the project and are marked with pertinent specification paragraph number

E. Submit catalog information, factory assembly drawings, field installation drawings and certifications as required for complete explanation and description of all items of equipment. The submittal data shall provide ample, unquestionable compliance with the Contract Documents.

F. Review of submittals shall not be construed as authorizing any deviations from the plans and specifications unless such deviations are clearly identified and separately submitted in the form of a letter that is enclosed with the submittals.

G. Submittals are required on all manufactured equipment, especially energy consuming equipment. Submittals shall include, but are not limited to, the following items of equipment:

1. Piping and Piping Specialties
2. Ductwork and Piping Insulation
3. Split Systems
4. Air Distribution Devices
5. Ductwork Accessories (Including All Dampers)
6. Fans
7. T&B Company Certifications and Final Report
8. Control Diagrams, System, and Components
9. Ductwork and Piping Shop Drawings
10. Firestopping Products and Applicable UL Firestop Details

3.2 EXCAVATION, TRENCHING AND BACKFILLING

A. Perform all excavation, trenching and backfilling for underground work under this Division 23. During excavation, the excavated material shall be piled back from the banks of the trench to avoid overloading, slides or cave-ins. Do not exceed the angle of repose unless written approval is obtained in advance from the Architect for shoring, bracing or other alternate excavation methods. All excavated material not used for backfilling shall be removed from the building and disposed of as indicated or directed by the Architect. Take measures to prevent surface water from flowing into trenches and other excavations and any water accumulating therein shall be removed by pumping. All excavation shall be made by open cut. Tunneling shall not be allowed.

B. The bottom of all trenches shall be evenly graded to provide firm support and an even bearing surface. Pipe shall be laid on firm soil, laid in straight lines and on uniform grades. Provide bell holes so that the barrel of the pipe rests evenly on the bottom of the trench along the entire length of the pipe.

C. Pipe shall be inspected and tested prior to backfilling. Trench shall be handfilled to a minimum of 12" above the top of pipe with suitable earth (free of rocks, trash, large clods and organic material) and compacted to a minimum 95% proctor. After the first layer is completed, subsequent layers shall be filled and compacted the same as the first layer. Setting the backfill with water shall not be permitted.

3.3 INSTALLATION REQUIREMENTS

A. All equipment shall be installed in strict conformance with the recommendations of the Equipment Manufacturer, as indicated on the Drawings and as specified.

B. Provide installation manuals for each piece of equipment. Submit in separately bound volumes after review of submittals.

C. Provide supplementary steel framing and welded steel equipment support stands as required for proper hanging and support of the mechanical systems. Steel angles, channels and tubing utilized for such framing shall be selected for a maximum deflection of 1/360th of the span.

D. All roof curbs shall be a minimum of 12" high and selected for the various roof pitches. Curbs installed on roofs having pitches of not more than 1/4" per foot may be standard curbs shimmed level with steel channels or 2s to provide suitable support and flashing surfaces.

3.4 CLEANING, LUBRICATION AND ADJUSTMENT

A. The exterior surfaces of all mechanical equipment, piping, ductwork, conduit, etc., shall be cleaned and free of all dirt, grease, oil, paint splatter, and other construction debris.

B. Ducts, plenums, and air unit casings shall be cleaned of all debris and either vacuumed or blown free of all rubbish, dirt, and dust before installing grilles, registers or diffusers.

C. Bearings that require lubrication shall be lubricated in strict accordance with the manufacturer's recommendations.

D. All control equipment shall be adjusted to the settings required for the performance specified.

E. Fans shall be adjusted to the speed indicated by the Manufacturer to meet the installed final system pressure at the airflows indicated. Any additional sheaves and belts required for final adjustments shall be provided with no increase in the Contract amount.

F. Any fans operated during construction shall have temporary filters. Temporary filters shall be changed regularly to minimize contamination of the equipment and duct systems. Permanent filters shall be installed prior to final inspection.

G. All coils shall be thoroughly cleaned and combed prior to final inspection.

H. All materials, equipment, etc. subject to weather, corrosion, dust, debris, water etc. to be installed or utilized for the project shall be fully protected. This is inclusive of piping and duct openings and internal fan ventilation intakes and discharges. This Division's scope includes protection and remediation of any and all Division materials, etc. including cleaning, vacuuming, dusting, etc. required for a clean system and operation. Insulation and equipment with electrical connections subject to water shall be replaced in their entirety. Coordinate with all other trades and schedules.

3.5 PAINTING

A. All uncoated and uninsulated steel surfaces exposed to sight inside the building, such as piping, equipment hangers and supports which are not provided with factory prime coat or galvanizing, shall be cleaned and painted with one coat of rust inhibiting primer. In addition, all surfaces in finished spaces shall also be painted with two coats of finish paint in a color selected by the Architect.

B. All ductwork surfaces, piping, supports, etc. visible through grilles, registers and diffusers in finished areas shall be painted flat black. All ductwork, equipment, piping, supports, air distribution, etc. visible in exposed finished areas shall be painted a colour selected by the Architect, except that nameplates shall not be painted.

C. Steel items exposed outside the building, such as equipment supports, uninsulated piping and hangers, which are not factory painted or galvanized, shall be cleaned and painted with one coat of rust inhibiting primer and two coats of asphaltic base aluminum paint. Insulated steel pipes outside the building shall be cleaned and painted with one coat of rust inhibiting primer before installing insulation.

D. Factory painted equipment that has been scratched or marred shall be repainted to match the original factory color.

3.6 DUCTWORK AND PIPING LEAK TESTING

A. Insulated, underground, and concealed ductwork and piping shall be tested for leaks in place before backfilling, concealing or covering. Tests shall be conducted in the presence of the Architect or their designated Representative.

B. All low pressure ductwork (design operating pressure of 1.0" WC ESP or less) shall be tested by the operation of the system to which it is connected.

C. All medium and high pressure ductwork (operating pressure of more than 1.0" WC ESP) shall be tested at 1.5 times the design operating pressure of the system to which it is connected, or at the total fan pressure at shut-off, whichever is greater, up to the maximum pressure classification of the associated ductwork system.

D. All visible and audible air leaks from the ductwork systems shall be repaired.

E. All refrigerant piping shall be 100% tested with the applicable ASHRAE standard - latest version.

F. All leaks shall be repaired by tightening, remaking joints, or replacing pipe and fittings. Caulking of joints shall not be permitted.

3.7 RECORD (AS-BUILT) DRAWINGS

A. At the completion of the project, provide a set of reproducible prints to the Architect which reflects all changes, deviations and revisions made to the original design documents. Locations of all underground piping and utilities shall be clearly shown and dimensioned from permanent reference points such as building column lines. Record drawings shall be produced in electronic format compatible with AUTOCAD. Furnish electronic copies of all drawings in dwg. format, and two (2) bond copies of all drawing sheets.

3.8 OPERATING AND MAINTENANCE MANUALS AND INSTRUCTIONS

A. Complete operating and maintenance manuals shall be provided to the Owner. Four copies shall be provided. Each copy shall be bound in a separate 3-ring, loose-leaf notebook. Operating instructions shall be provided for each mechanical system, and shall each include a brief system description, a simple schematic and a sequence of operation. Operating and maintenance instructions shall be provided for each piece of equipment. A control system wiring diagram shall be included in each operating and maintenance manual.

B. Prior to final acceptance or beneficial occupancy, provide the services of a Competent Technician for not less than one (1) day to instruct the Owner in the operation of the mechanical systems.

3.9 TESTING AND BALANCING

A. Testing and balancing of the HVAC system shall be performed as specified in Section 23 05 93. Note that this work is to be performed under a separate Contract directly under the General Contractor. Submit four (4) copies of the test and balance report directly to the Architect.

3.10 PIPING SUPPORTS

A. Pipe hangers or supports shall be provided within 18" of each horizontal fitting, equipment connection, valve, etc. and within 18" of the centerline of horizontal or vertical changes in direction summing to 90° or more. Specific attention is called to vertical turns into risers.

B. Piping supports shall be provided, at a minimum, in accordance with the greater of the below or at code minimum. Where the below or code does not address support for specific piping, supports shall be in accordance with manufacturer's requirements.

Piping Material	Max. Horz. Spacing	Max. Vert. Spacing
Cast-iron pipe	5'	15'
Copper pipe	12'	10'
Copper tubing ≤ 1-1/4" dia.	6'	10'
Copper tubing ≥ 1-1/2" dia.	10'	10'
PVC pipe	4'	10"*

*Midstory guide required for piping 2" diameter and smaller

C. Riser clamps shall be provided at each floor penetration. For pressurized piping systems except refrigerant suction and liquid service, provide vibration isolation at all riser clamps with two (2) pad-type mountings consisting of a minimum 3/8" thick ribbed or waffled elastomeric pads bonded between minimum 16-gauge galvanized steel separator plates. Pads shall be sized for a deflection of 0.12" to 0.16". Pads shall be minimum 3" x 3" square.

3.11 WARRANTY

A. All work provided under this Division 23 shall be subject to a minimum one year warranty. The warranty shall include prompt repair or replacement of equipment or system failures and shall include all parts, refrigerant, and labor. In addition, all compressors shall carry an additional five year parts-only warranty. Extended warranties shall be provided on all other equipment so specified in other Sections.

3.12 SHOP DRAWINGS

A. Shop drawings per the submittal requirements shall be submit to the Design Team with adequate time for multiple rounds of review. Shop drawings shall show "As-Built" conditions including elevations, offsets, transitions, and accessories. Shop drawings shall indicate all code and manufacturer's recommended clearances, access, and coordinate the clearance and access requirements with all other trades.

B. Shop drawings that use keynotes direct from the Design Documents shall not be acceptable as they do not demonstrate coordination with all other trades, necessary transitions, etc.

C. Shop drawings shall be provided as complete packages in parallel with all trades to document coordination. Floor-by-floor or otherwise piecemeal shop drawings are generally not acceptable.

3.13 BID REQUIREMENTS

A. The Contractor shall include all systems, equipment and accessories shown on the plans and specifications.

B. The Contractor is responsible for providing all design documents to all SubContractors. All systems, equipment and accessories shall be included in the bid, whether shown on the SubContractor applicable plans or other design documents.

C. Should any discrepancy occur in the Design Documents, the Contractor shall provide a request for clarification prior to bid or note the discrepancy in the bid and provide an appropriate cost allowance in the bid.

D. The Contractor shall acknowledge that the Design Documents are diagrammatic and shall provide all systems, equipment and accessories required for a complete facility. Any areas that appear to be void of systems or inappropriate systems shall be noted in the bid. No post bid change order shall be considered for areas or discrepancies not noted in the bid.

E. All installation coordination and means and methods and labor and materials required for proper system installation shall be included.

F. These requirements are in addition to bid procedures and requirements of the RFP or general specifications.

END OF SECTION

SECTION 23 05 93

TESTING, ADJUSTING AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for HVAC Section 23 05 00.

B. This Section 23 05 93 and the accompanying drawings cover the provision of all labor, equipment, appliances, and materials and performing all operations in connection with the testing and balancing (T&B) of the heating, ventilating and air conditioning (HVAC) systems as specified herein and as shown. These systems include, but are not limited to, the following:

1. Supply distribution systems
2. Return and exhaust air systems
3. Heating, ventilating and air conditioning equipment (all scheduled equipment as a minimum)

1.2 INTENT

A. It is the intent of this Section of the specifications to provide a complete operable and balanced HVAC system as shown and specified which is reasonably airtight, comfortable and free of objectionable noise and vibration.

1.3 SCOPE OF WORK

A. HVAC test and balance shall be performed by an Independent Agency certified by the Associated Air Balance Council (AABC) or National Environmental Balancing Bureau (NEBB) under direct contract to the General Contractor. All work performed by this Agency shall be performed by qualified Technicians under the direct supervision of an AABC or NEBB Certified Test and Balance Engineer. The Agency shall be independent and shall not be associated in any way with the installing HVAC SubContractor.

B. HVAC Test and Balance shall be performed in accordance with the 7th edition of the AABC National Standards, 2016 for Total System Balance or the NEBB Procedural Standards for TAB of Environmental Systems, 8th Edition, 2015 together with the NEBB TAB Manual for Technicians, 2nd Edition.

C. The final Test and Balance report shall serve to substantiate compliance with the intent of the Contract Documents, specifically the HVAC systems.

D. HVAC Test and Balance shall not begin until the systems are substantially complete.

E. Upon the completion of the Test and Balance work, the Agency shall submit four (4) copies of the complete HVAC Test and Balance Report directly to the Architect.

F. The Agency, as a part of its contract with the General Contractor, shall act as an Authorized Inspection Agency, responsible to the General Contractor and the Architect and shall, during the test and balance, list those items which require correction or have not been installed in accordance with the Contract Documents.

G. The Agency shall plainly mark the settings of all valves, dampers and other adjustable devices. If a balancing device is provided with a memory stop, it shall be set, locked and marked.

H. The Agency shall record all of the final set points on all variable speed drives.

1.4 SUBMITTALS

A. The name and certification of the Agency, along with the name and certification of the Certified Test and Balance Engineer, shall be submitted to the Architect for review within 30 days after the award of the General Contract.

B. The selected Agency shall submit to the Owner:

1. Procedural Manual
2. Report Forms
3. AABC or NEBB Performance Guaranty
4. Instrument List and Calibration Dates
5. Schedule
6. Floorplans as Needed to Uniquely Identify Device Locations

C. A reviewed copy of each of the above shall be returned to the Agency before the HVAC Test and Balance begins.

D. If a complete submittal in accordance with these requirements is not received within 60 days from award of the General Contract, then the Architect reserves the right to select the Agency.

PART 2 - PRODUCTS

2.1 (Not applicable).

PART 3 - EXECUTION

3.1 GENERAL CONTRACTOR'S DUTIES

A. The General Contractor shall provide the following, within 10 days after his receipt, to the Agency:

1. Contract Drawings
2. Contract applicable specification Division 23 (others as applicable)
3. Addenda
4. Change orders
5. Reviewed submittals

B. The General Contractor shall start-up and maintain the HVAC systems and shall continue the operation of the HVAC systems during each day of testing and balancing. Start-up and operation shall include, as a minimum, the following:

1. All equipment operable and in safe condition.
2. Temperature control system complete.
3. Proper thermal overload protection in place for electrical equipment.
4. Ductwork leakage rates not exceeding those specified and all duct systems clean of debris.
5. Air transfer systems shall have:
   a. Correct fan rotation and RPM.
   b. Coil fins cleaned and combed.
   c. Filters clean and in place.
   d. Access doors closed.
   e. All dampers in place and open.
   f. All grilles, registers and diffusers installed.

C. Provide sufficient time before final completion date so that testing and balancing can be accomplished. Coordinate the submitted T&B schedule.

D. Provide immediate labor and tools to make required corrections and repairs without undue delay.

E. The General Contractor and his SubContractors shall cooperate fully with the Agency to provide the following:

1. Access to HVAC system components.
2. The right to adjust the systems.

F. Any conditions which prevent a proper HVAC Test and Balance shall be reported by the Agency to the General Contractor and Architect within 7 days of their discovery.

G. If it is determined by the Agency and confirmed by the Architect that drive changes or additional balancing dampers are required, the Contractor shall obtain and install all necessary components.

H. The Agency shall cooperate with the Architect and the Contractor and all his SubContractors to perform the work in such a manner as to meet the job schedule.

I. The Agency shall verify that all system components are in place and in proper working order prior to leaving the project.

J. All reported and recorded data shall represent true measured conditions.

K. Where equipment uses variable speed drives, and where feasible, VFDs shall be used as the primary balancing method prior to adjustment or balancing of valves, dampers, etc.

END OF SECTION

SECTION 23 07 13

DUCT INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for HVAC Section 23 05 00.

B. This Section 23 07 13 and the accompanying drawings cover the provisions of all labor, equipment, appliances, and materials and performing all operations in connection with the construction of the ductwork systems as specified herein and as shown. These systems include, but are not limited to, the following:

1. Insulation for typical ductwork
2. Duct liner
3. Insulation for ductwork outside

1.2 INTENT

A. It is the intent of this Section of the specifications to provide a complete operable duct system as shown and specified which is reasonably airtight, free of noise, vibration and sweating, and fabricated so as to fit into the space allotted and to exhibit a minimum resistance to airflow.

PART 2 - PRODUCTS

2.1 DUCT LINER

A. Duct liner shall be one inch thick, 1 ½ lb. density (3 lb. density on medium- and high-pressure supply air systems except that 1 lb. density is acceptable if the liner is at least R ≥ 4.2 and NRC ≥ 0.65) fibrous glass with one face coated with a black fire retardant compound. The permanent composite fire and smoke hazard rating of the liner shall be stenciled on the liner face and shall be:

1. Maximum Flame Spread 25
2. Maximum Smoke Developed 50

2.2 TYPICAL DUCT INSULATION

A. Duct insulation shall be 2.2" thick, minimum 3/4 lb. density fiberglass, installed R ≥ 6.0, with an FSK1, 0.00035" thick aluminum foil jacket, reinforced with fiberglass scrim. Thermal conductivity shall be a maximum of K = 0.29 at 75°F mean temperature, or a maximum of K=0.27 at 25% compression.

B. Insulation adhesive shall be Benjamin Foster 85-20. Tape shall be aluminum foil and shall be SMACNA listed and labeled.

C. The composite NFPA 90A and 90B, ASTM E84, UL rating of the installed insulation shall not exceed 25/50.

D. The grease exhaust ductwork shall have zero-clearance to combustibles wrap from the hood connection to discharge termination. Coordinate the insulation with all required access panels, drains, etc. as required by NFPA 96.

2.3 INSULATION FOR DUCTWORK OUTSIDE

A. See specification 23 31 00 for duct construction installed outside the building and exposed to weather. Note requirement for soldered or welded duct. Ductwork installed outside shall be shall be provided with a cover as noted below with water-proof coating and seams. Seams shall be located so as to not be subject to water flow. Cover shall be painted a light colour as selected by the Owner. All ductwork installed outside shall be constructed with sloped top "watershed" design with a slope of not less than 2% to avoid ponding water. Any ductwork supports connected directly to the ductwork shall also abide by the insulation requirements below.

1. Ductwork conveying conditioned air shall, in addition, have minimum R-12 insulation of one of following options:
   a. 3" thick, 3 PCF density rigid fiberglass board insulation, finished with waterproof mastic and glass fiber with aluminum jacket. Jacket shall have waterproof silicone caulk joints and seams. Seam opening shall be installed facing downward.
   b. 3" thick, 3 PCF density rigid fiberglass board insulation with foil-kraft facing with Polyguard, or equal, finished with waterproof mastic and glass fiber with aluminum jacket. Jacket shall have waterproof silicone caulk joints and seams. Seam opening shall be installed facing downward.
   c. 2" thick polyisocyanurate board insulation finished with waterproof mastic and glass fiber with aluminum jacket. Jacket shall have waterproof silicone caulk joints and seams. Seam opening shall be installed facing downward.
2. As an alternate to single wall duct and exterior insulation, ductwork installed outside may be double-walled meeting SMACNA requirements, R-12 insulation between walls, and the exterior wall shall be corrosion-coated for outside installation. Ductwork shall be weathertight.
3. Ductwork installed outside but not exposed to weather, such as in covered loading docks and parking decks more than 15' from exterior openings, and conveying unconditioned air, shall not be required to be covered or insulated. See Section 23 31 00 for coating required for seacoast area installations.
4. Access into ductwork installed outside shall be located inside the building where feasible. Where outside access is required, access shall be through removable cover and insulation to match the above requirements. Removable areas shall be permanently labeled on the outside and shall be insulated to minimize exposure to water infiltration.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Ductwork shall be installed in strict accordance with SMACNA, UL, and NFPA standards.

B. Duct liner shall be provided throughout all return air, transfer, and plenums. Duct liner shall also be provided for the following minimum distances, through the first elbow(s), or as otherwise indicated on the drawings, whichever is greater, downstream of each unit indicated below:

1. Packaged rooftop unit - 25 ft
2. Self-contained air conditioning unit - 25 ft
3. Split system air handling unit - 5 ft

C. Straight runs only shall be factored into the above distance requirements. Elbows, etc. within the length shall be lined but shall not count towards the length requirement.

D. Duct liner shall not be installed within six inches of a damper, including fire and/or smoke dampers. Metal nosings are required on the upstream side of the exposed insulation. Where lining has been interrupted, external insulation is required.

E. Duct liner shall be cut to provide overlapped and compressed longitudinal corner joints. Liner shall be installed with the coated surface facing the air stream. Duct liner shall be adhered to the ductwork with a 100% coverage of the sheet metal surfaces using a fire-retardant adhesive applied by spraying. Coat all exposed leading edges and all transverse joints with fire retardant adhesive. The liner shall be additionally secured using metal pins welded to the duct and speed washers. All leading edges shall be secured with sheet metal airfoils.

F. Inside the vapor barrier of the building all supply air ductwork which is not lined shall be insulated. All outside air ductwork shall be insulated. Insulation shall be cut slightly longer than circumference of duct to insure full thickness at corners. All insulation shall be applied with edges tightly banded. Insulation shall be adhered to duct with fire resistant adhesive. Adhesive shall be applied so that insulation conforms to duct surfaces uniformly and firmly. In addition to the adhesive, the insulation shall be additionally secured to the bottom of all ducts 18" or wider by means of welded pins and speed clips. The protruding end of the pins shall be cut off flush after the speed clips have been applied. The vapor barrier facing shall be thoroughly sealed with tape where the pins have pierced through. All joints shall be sealed with 2" wide SMACNA tape. Any cuts or tears shall be sealed with SMACNA tape.

G. All outside air ductwork located in conditioned or semi-conditioned spaces shall be externally insulated similar to supply ductwork.

H. All conditioned air ductwork, including partially conditioned energy recovery ventilator outside air supply to the building and exhaust ductwork, installed in spaces that are ventilated only, i.e. penthouses, shall be insulated.

END OF SECTION

SECTION 23 23 00

REFRIGERANT PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for HVAC 230500.

B. This Section 23 23 00 and the accompanying drawings cover the provisions of all labor, equipment, appliances, and materials and performing all operations in connection with the construction of the piping systems as specified herein and as shown for the heating, ventilating and air conditioning (HVAC) systems. These piping systems include, but are not limited to, the following:

1. Refrigerant suction and liquid piping (R8&RL)
2. Condensate drains (DR)
3. Refrigerant suction and liquid piping insulation

C. All insulation products installed indoors shall meet ASTM E 84, UL 723, NFPA 90A, and 90B requirements for Flame Spread Rating 25 and Smoke Developed Rating 50.

D. Insulation products in air plenum spaces shall be listed and labeled and have a fire hazard rating not more than 25 for flame developed and not more than 50 for smoke developed.

1.2 INTENT

A. It is the intent of this Section of the specifications to provide complete and operable piping systems as shown and specified which are free of leaks, properly vented, free of noise, vibration, and sweating, and fabricated so as to fit the space allotted and to exhibit a minimum resistance to fluid flow. It is also the intent of this Section of the specifications to provide a complete piping insulation system which is free of gaps and tears, properly fitted and finished, free of sweating, and fabricated so as to fit the space allotted and to exhibit a negligible heat transfer.

B. The word "piping" is defined to mean all piping, fittings, joints, hangers, coatings, valves, test and sensor wells and accessories necessary for the refrigerant piping systems described, shown, and specified.

1.3 GENERAL REQUIREMENTS

A. Provide all reducing fittings, flanges, couplings and unions of the size and type of material to match the piping to each piece of equipment, valve, and accessory.

B. Union joints, couplings or flanges shall be provided in each pipeline connected to each piece of equipment and elsewhere as indicated and specified. Unions shall match the piping system in which they are installed.

1. Unions or flanges shall be provided between all copper to steel connections in water-carrying piping. These unions shall be dielectric

H. All other ductwork shall be constructed for standard 1" WC static pressure class at 2500 FPM with Class C seals and is herein defined as "low pressure ductwork".

I. Provide the following types of ductwork material for the services indicated:

1. Galvanized sheetmetal: supply, return, exhaust, and relief of conditioned and outside air

PART 2 - PRODUCTS

2.1 GALVANIZED SHEETMETAL

A. Galvanized sheetmetal shall be lock-forming grade G90-ASTM A 653 hot dip galvanized steel sheets. Sheetmetal shall be galvanized on each side with not less than 1.25 ounces of zinc per square foot.

B. Galvanized sheetmetal installed outside the building and subject to weather shall be soldered or welded. See Section 23 07 13 for additional information about covering and insulation.

C. Galvanized sheetmetal installed outside the building and not exposed to weather, such as in covered loading docks and parking decks, may match the construction of ductwork inside the building.

D. Galvanized sheetmetal ductwork outside the building within 20 miles of the seacoast shall have corrosion coating appropriate to the installation location.

2.2 SPIRAL DUCT

A. Spiral duct shall be utilized for all flat-oval and round ductwork in medium and high-pressure systems.

B. Spiral duct shall be the product of United McGill Corporation, R.V. Money, Eastern Sheet Metal, or an approved equal.

C. Spiral duct with internal ribs is not acceptable.

D. Spiral duct shall conform to SMACNA 2005 Standards. Lighter gauges, etc. due to standing ribs are not acceptable.

E. Spiral duct in exposed ceiling applications shall have slip fittings, minimum Class 3 for 2" WG negative pressure to 10" WG positive pressure, with EPDM gaskets. Coordinate assembly with ductwork insulation.

2.3 DAMPERS

A. Manual Volume Dampers

1. Single blade butterfly dampers are acceptable up to 12" round or 12" x 12" square. Dampers larger than these dimensions shall be multi-blade type. Single blade dampers shall be constructed of 16 gauge or heavier galvanized sheetmetal.
2. No multi-blade damper blade shall exceed 8" in width. All multiple blade dampers shall be constructed of 16 gauge galvanized steel or heavier. The damper frame shall be 16 gauge or heavier. The damper action shall be opposed-blade type.
3. Each blade shall pivot on a 1/2" cadmium plated, cold-rolled steel axle which pivots within self-lubricating, Oilite bronze bearings.
4. The top and bottom edges of each rectangular damper blade shall be crimped for stiffness.
5. The operating rod for all dampers shall be extended outside the damper frame for attachment of an operator. Each operator shall have a position indicator and locking quadrant.
6. All dampers utilized for introduction of outside air shall have flexible, gasketed edge and end seals. The leakage rate shall be less than 4 CFM per SF of face area against a 1" WC differential pressure, based on a nominal 48" x 48" damper size.
7. All dampers utilized for exhaust or relief air shall have flexible, gasketed edge and end seals. The leakage rate shall be less than 4 CFM per SF of face area against a 1" WC differential pressure, based on a nominal 48" x 48" damper size.
8. Dampers to be installed in insulated ductwork shall have standoffs sufficient to allow for insulation and vapor barrier integrity.
9. Manual volume dampers shall be as manufactured by Louvers & Dampers, Inc., Pottorff, Greenheck, Nailor, Ruskin, or an approved equal.

B. Control Dampers

1. Control dampers shall be of the same construction as manual volume dampers, except that no manual operator and quadrant is required. The operating rod shall be suitable for operation by an automatic pneumatic or electric operator.

C. Fire Dampers

1. Fire dampers shall be UL-listed and labeled for 1 1/2 or 3 hours, in accordance with the installation location, and shall be provided with 160°F links or linkages appropriate for the service. Dampers installed within ducts shall be Type B or Type C with the blades out of the air stream. Areas indicated shall be net, clear, open areas.
2. Fire dampers shall be appropriate for the installation location and application. All fire dampers in supply, return, exhaust, etc. shall be dynamic-type.
3. Fire dampers shall be as manufactured by Louvers & Dampers, Inc., Pottorff, Greenheck, Nailor, Ruskin, or an approved equal.

D. Smoke Dampers

1. Smoke dampers shall be UL-listed as Class 1 low-leakage smoke dampers. Smoke dampers shall be 24V and wired under this Division.
2. Smoke dampers shall be appropriate for the installation location and application. All fire dampers in supply, return, exhaust, etc. shall be dynamic-type.
3. Smoke dampers shall be as manufactured by Prefco, Louvers & Dampers, Inc., Pottorff, Greenheck, Nailor, Ruskin, or an approved equal.

E. Fire/Smoke Dampers

1. Fire/smoke dampers may be combined into a combination fire/smoke dampers. All provisions of the above shall apply. Fire/smoke dampers shall be UL-listed.

F. Backdraft Dampers

1. Backdraft dampers shall be sized according to their installation location and noted pressure setting. Damper pressure setting shall be adjustable and shall be accessible from outside ductwork or via access hatch, as applicable.

2.4 LOW-PRESSURE DUCT BRANCHES

A. Splitter dampers shall be provided at all low-pressure ductwork branches. All low-pressure ductwork branches shall be radiused or 45 degree take-offs; straight taps are unacceptable. The length of the damper blade shall be the same as the width of the widest duct section at the split; but in no case shall blade length be less than 12". Each operator rod shall have a locking swivel joint.

2.5 FLEXIBLE DUCT

A. Flexible ductwork shall be Class 1, UL 181 air duct and meet NFPA 90A and 90B Standards.

B. The internal duct surface shall be acoustically rated, black CPE bonded to a coated steel wire helix. The external jacket shall be a fiberglass, bi-directionally reinforced, metallized vapor barrier with a standing, triple ply seam. Fiberglass insulation shall be provided between the duct surface and the jacket to achieve a maximum thermal conductance of 0.24 BTU/Hr./sq. ft./°F at 75°F mean.

C. Flexible ductwork shall be suitable for 10" WG positive pressure and 1" WG negative pressure in sizes 4" through 12" ID, and 6" WG positive pressure and 0.5" WG negative pressure in sizes 14-16" ID.

D. Flexible ductwork, insulation and insulation cover shall be suitable for ceiling return air plenum installation and shall comply with all applicable codes and standards regarding such ceiling plenum installations.

E. Flexible duct shall be Thermaflex M-KE or an approved equal.

F. The maximum allowable installed length of flexible ductwork shall be as follows:

1. 6'-0" on low-pressure supply air systems limited to short runouts and end of runs connected to round neck supply diffusers and registers.
2. 4'-0" on medium and high-pressure supply air systems limited to the runouts from the sheetmetal ductwork to each terminal unit.
3. 2'-0" on connections from round neck grilles to sheetmetal ductwork on return, exhaust and transfer ductwork.

G. Provide a spin-in fitting with integral scoop and volume damper at all flexible run-out connections in low-pressure supply air ductwork only, except locations where spin-in fittings would project more than 50% into the projecting ductwork dimension. Adhesive fittings are acceptable provided they are also screwed to the ductwork and sealed with mastic.

H. Flexible ductwork shall not pass through wall, floors, or ceilings.

2.6 TERMINAL UNIT RUNOUTS

A. Medium and high-pressure runouts to terminal units shall be connected to the trunk duct with factory-welded laterals, conical tees or bellmouth fittings; abrupt round to rectangular taps are strictly prohibited and shall be rejected.

B. Terminal unit runouts shall be the larger of the associated terminal unit inlet size or the size noted on the drawings.

2.7 FLEXIBLE CONNECTIONS

A. Provide flexible duct connections at the inlet and outlet of each belt-driven fan, indoor unit, fan coil unit, air handling unit, etc., and at all other locations indicated. Flexible connections shall be fabricated from a glass fabric coated on both sides with neoprene. Minimum weight shall be 30 oz. per sq. yard. Flexible connections shall be used for vibration isolation only and shall not be used to correct connection misalignment.

2.8 DUCT HARDWARE

A. Duct hardware shall be as manufactured by Young Regulator or an approved equal.

2.9 ACCESS DOORS

A. A duct access door shall be provided at each fire and smoke damper. Access doors shall be designed for 1.5 times the pressure of the duct in which they are mounted. Access doors shall be of sufficient size to provide access to the dampers for resetting the blades and replacing the links. Access doors in medium and high-pressure ductwork shall be installed downstream of fire dampers and shall be implosion type. Where access is provided through gypsum board walls or ceilings, furnish access door for installation under Division 09. Coordinate with Division 09 and Architect. Each door shall match the fire-rating of the wall or ceiling indicated.

B. Access shall be provided to duct-mounted smoke detector locations. Access shall allow inspection and maintenance of all aspects of the detector. Access doors shall meet the requirements of A, above, as needed.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Ductwork shall be installed in strict accordance with SMACNA, UL, and NFPA standards.

B. All ductwork installed outside the building shall be secured to the structure. Coordinate with the Structural Engineer as needed. It is the Contractor's responsibility to design and coordinate all supports. All supports shall be designed to withstand all code-required wind and seismic loads.

C. Flexible ducts utilized in the low-pressure ductwork systems shall be installed without kinks or bends which are less than a centerline radius equal to or greater than twice the diameter of the flexible duct being installed. Also, in the runouts from the medium or high-pressure ductwork to the terminal units, the flexible ducts shall be installed with a variance of no more than 1" per foot of installed length off a straight and level line from the centerline of the sheetmetal ductwork runout or tap to the centerline of the terminal unit inlet. The size of the flexible ductwork connected to each terminal unit shall be the equivalent size of the larger of the following:

1. The inlet size of the terminal unit valve
2. The runout size indicated on the drawings

Should the runout size indicated on the drawings differ from the inlet size of the terminal unit valve, or where the inlet to the terminal unit is rectangular, the transition shall be made with sheetmetal and shall occur at the inlet to the terminal unit.

D. All low pressure ductwork downstream of VAV units shall be left uncapped for balancing until tenant fit-up affects the units.

E. All intersections (crossing) of low-pressure and medium-pressure ductwork shall be made with offsets in the low-pressure ductwork only. The medium pressure ductwork shall be ran straight and level.

F. Electric duct heaters shall be installed as indicated and in conformance with the manufacturer's recommendations. Coordinate the actual units to be provided with all trades. The heater shall be tested and adjusted after installation to provide the capacities indicated.

G. Ductwork labels, including factory labels, tags, etc. except equipment nameplates shall be removed to the satisfaction of the Architect in all exposed areas.

H. Dampers shall be adjustable. Where dampers are not or will not be accessible without access panels, provide and install remote balancing cable control system, Young Regulator or equal. Adjustment shall be from a nearby accessible area.

END OF SECTION

SECTION 23 34 00

HVAC FANS

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for HVAC Section 23 05 00.

B. This Section 23 34 00 and the accompanying drawings cover the provision of all labor, equipment, appliances and materials, and performing all operations in connection with the construction and installation of the fans as specified herein and as shown. These fans include, but are not limited to the following:

1. Roof-mounted centrifugal exhaust fans

1.2 INTENT

A. It is the intent of this Section of the specifications to provide complete, operable, adjusted fans as shown and specified which are free of excessive noise, vibration and airflow fluctuations.

1.3 BASIS OF DESIGN

A. The basis of design is as scheduled. Any proposed substitutions shall be proven equal in all aspects to the equipment specified as the basis of design. Particular attention is called to the requirements of Section 23 05 00.

1.4 ACCEPTABLE SUBSTITUTE MANUFACTURERS

A. Acceptable substitute manufacturers are Carnes, Cook, Acme, PennBarry, Twin City, Price, and Greenheck. Acceptable manufacturers for kitchen grease exhaust fans are Captive-Aire, Viking, and Greenheck.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. All non-filtered fans shall be factory tested, rated and certified in accordance with the requirements of AMCA Standard No. 210 and shall be labeled accordingly. Filtered fans may be non-labeled but must be rated in an AMCA approved laboratory in accordance with 210.

B. All roof-mounted fans shall be constructed such that water cannot enter the building through the fan regardless of whether or not the fan is operating. Fans shall be provided with drain connection and piped to the nearest roof drain as applicable.

C. Fans installed outside or otherwise subject to weather shall have a weatherproof enclosure over the motor compartment. All components, including VFDs, shall have enclosures and be appropriate for the installation locations.

D. All exhaust fans shall be provided complete with gravity-type backdraft dampers.

E. All belt-drive assemblies shall be mounted on vibration isolators.

F. All motors on belt-drive assemblies shall be mounted on slide bases to provide adjustment of belt tension.

G. All belts in belt drives shall be rated for not less than 150% of the connected motor horsepower.

H. All belt-drives driven by a 5 HP or larger motor shall be multiple belt arrangements.

I. All belt-drives shall be adjustable to a minimum speed variation of plus or minus 20% of the design RPM.

J. All centrifugal fan wheels shall be statically and dynamically balanced.

K. All electric motors and equipment shall be UL labeled.

L. Refer to Division 26 of these specifications and to the electrical Contract Drawings for electrical characteristics and connections to all equipment. Coordinate all electric motors and other equipment with these electrical documents.

M. Fans with variable-frequency drives (VFDs) shall have shaft grounding ring and appropriate insulation class.

N. All exposed motors and belts shall be protected with enclosures or guards in accordance with OSHA requirements.

O. Life safety fans (i.e. stair pressurization, elevator hoistway pressurization, smoke control, etc. shall have 1.5 times the number of belts necessary for the scheduled performance with no less than two (2) belts.

2.2 ROOF-MOUNTED CENTRIFUGAL EXHAUST FANS

A. Roof-mounted centrifugal exhaust fans shall be Greenheck Model G for direct drive fans and Greenheck Model GB for belt-drive fans, or an approved equal, as scheduled.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fans shall be installed as indicated and in conformance with the manufacturer's recommendations. Coordinate the actual units to be provided with all trades.

3.2 ADJUSTMENT

A. The fans shall be tested and adjusted after installation to provide the capacities indicated.

END OF SECTION

SECTION 23 37 13

DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for HVAC Section 23 05 00.

B. This Section 23 37 13 and the accompanying drawings cover the provisions of all labor, equipment, appliances and materials, and performing all operations in connection with the construction and installation of air distribution devices as specified herein and as shown. These units include, but are not limited to the following:

1. Exhaust Diffusers (ED)
2. Exhaust Registers (ER)

1.2 INTENT

A. It is the intent of this Section of the specifications to provide complete, operable, adjusted air distribution devices as shown and specified which are free of excessive noise, vibration and airflow fluctuations.

1.3 SELECTION CRITERIA

A. All air distribution devices shall be selected in accordance with the following minimum criteria unless otherwise noted below or on the drawings:

1. Method of mounting shall be compatible with the ceiling, wall or duct surface which it mounts on or in; i.e. lay-in, surface mounting, plaster frame, duct collar, etc. The architectural drawings shall be referenced to determine the mounting method for each device. All flanges on surface mounted devices shall be provided with a gasket.
2. Finish of all ceiling mounted devices shall be selected to match the color of the adjacent ceiling. Finish of all wall mounted devices shall be primer which is compatible with the finish coating specified for the adjacent wall; finish coat will be applied under Division 9.

1.4 BASIS OF DESIGN

A. The basis of design is Titus. Any proposed substitutions shall be proven equal in all respects to the equipment specified as the basis of design. Any modifications to ductwork, controls, ceilings, building structure, etc., that result from any substitution shall be coordinated with all trades. This coordination shall occur before delivery of equipment and any modifications shall be performed without incurring additions to the Contract.

1.5 ACCEPTABLE MANUFACTURERS

A. Acceptable manufacturers are Price, Carnes, Metal Aire, Krueger, Nailor, and Titus UON, provided that their units, performance, appearance and physical characteristics are equal in all respects for this specific project.

PART 2 - PRODUCTS

2.1 DESCRIPTION

A. Exhaust Diffusers (ED)

1. Exhaust diffusers shall be hollow core, perforated face, lay-in type, with the neck size as indicated; Titus PAR. Performance data shall be in accordance with ADC 162R4.

B. Exhaust Registers (ER)

1. Exhaust registers shall be surface mounted, aluminum registers with curved hemmed edge blades with an opposed blade damper. Damper blades shall be gang operated by means of a key which can be removed after balancing. ERs shall be Titus 350ZFL, sized as indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Air distribution devices shall be installed as indicated and in conformance with the manufacturer's recommendations. The color, frame, and border types shall be coordinated with Architectural requirements and shall be selected to install in the finished surface indicated.

B. All air distributions devices to be reused shall be installed the same way as indicated for new devices. All existing color, frame, and border types shall modified as required to match new device requirements.

C. All air distribution devices with blade orientations shall be coordinated with Architect. Specific attention is called to devices in exposed ceiling areas, including wall-mounted.

3.2 ADJUSTMENT

A. Grilles, registers, diffusers, etc. shall be tested and adjusted to provide the scheduled air flow capacities.

B. All devices shall have adjustable and accessible volume dampers. Where dampers are not or will not be accessible without access panels, provide and install remote balancing cable control system, Young Regulator or equal. Adjustment shall be from the face of the air distribution device, coordinated with the Air Distribution Manufacturer. Coordinate the location and size of the damper with the installation.

C. In all slot diffuser applications, the inactive sections of the slot shall be finished with perforated steel, painted flat black, selected to match the SDs. These sections shall be open to the plenum as a return air path. Inactive sections shall have an insulated light shield.

END OF SECTION

SECTION 23 81 29

VARIABLE REFRIGERANT FLOW HVAC SYSTEMS

PART 1 - GENERAL

1.1 SYSTEM DESCRIPTION

A. The VRF (Variable Refrigerant Flow) system shall be simultaneous cooling and heating heat pump. The VRF system shall consist of an outdoor unit, high efficiency heat recovery units designed for minimum piping and maximum design flexibility, indoor units, and controls by the Equipment Manufacturer. Every indoor unit shall be independently capable of operating in either heating or cooling mode regardless of the mode of other indoor units. The system shall be capable of changing mode of individual indoor units (cooling to heating or heating to cooling) within a maximum time of 5 minutes to ensure indoor temperature can be properly maintained.

1.2 QUALITY INSURANCE

A. The units shall be manufactured in a facility registered to ISO 9001 and ISO 14001 which is a set of standards applying to environmental protection set by the International Standard Organization (ISO).

B. All wiring shall be in accordance with the National Electrical Code (NEC).

C. The units shall be listed by Electrical Testing Laboratories (ETL) and bear the ETL label.

D. All units must meet or exceed the efficiency requirements per ASHRAE 90.1-2010 efficiency requirements for VRF systems. Efficiency shall be published in accordance with the DOE alternative test procedure, which is based on the AHRI Standards 340/360-2007, 1230 and ISO Standard 13256-1.

E. A full charge of R-410A for the condensing unit only shall be provided in the condensing unit. The total system charge shall be provided under this scope for the installed system conditions.

1.3 STORAGE AND HANDLING

A. All VRF equipment shall be stored protected from weather, extreme temperature, etc. as suggested by the Manufacturer. All VRF equipment shall be moved, lifted, etc. as suggested by the Manufacturer.

1.4 BASIS OF DESIGN

A. The basis of design shall be as scheduled. Similar products by LG, Mitsubishi, and Daikin are acceptable.

B. Substitute manufacturer consideration must be submitted and approved to the Owner and Engineer prior to equipment procurement. Substitutions shall match the BOD in all respects. Substitution documentation shall include:

1. Full submittal data
2. A list of authorized area installers, complete with references and similar jobs
3. Complete warranty information

PART 2 - PRODUCTS

2.1 Simultaneous Heating and Cooling Outdoor Unit

A. General:

1. The outdoor unit shall be used with VRF components of the same Manufacturer consisting of the outdoor unit, high efficiency heat recovery units, indoor units, factory designed and supplied Y-branches, and controls.
2. System components shall be of the same Manufacturer or as recommended by the Manufacturer of the VRF equipment.
3. Unit control boards shall perform all functions required to effectively and efficiently operate the VRF system and communicate in a daisy chain configuration from outdoor unit to heat recovery and indoor units via RS485.
4. The outdoor unit shall be completely factory-assembled, piped and wired. Dual and triple frame outdoor units will be field piped with factory designed and supplied Y-branch kits to manifold them together into a single refrigerant circuit.
5. Each outdoor unit shall be run tested at the factory.
6. The sum of connected nominal capacity of all indoor air handlers shall range from 50% to 130% of outdoor unit nominal capacity to ensure the VRF system will have sufficient capacity to handle the building space loads at peak design.
7. Outdoor unit shall have a tested sound rating no higher than 58 dB(A) per outdoor unit frame tested per KSA0701. The outdoor unit frame shall include three quiet/nighttime operation settings of 47, 44, and 41 dBA.
8. All refrigerant lines from the outdoor unit to the heat recovery unit and from the heat recovery unit to the indoor units shall be field-insulated.
9. The outdoor unit shall have an accumulator.
10. The outdoor unit shall have a high pressure safety switch.
11. The outdoor unit shall have over-current protection.
12. The outdoor unit shall use a brazed plate subcooling heat exchanger.
13. The outdoor unit shall have the ability to operate with an elevation difference of up to 328 feet above or below the indoor units.
14. The outdoor unit shall allow up to a total equivalent refrigerant piping length of 3,280 feet.
15. The maximum length from outdoor unit to indoor unit shall be up to 656 feet without traps.
16. The outdoor unit shall be capable of operating in heating only mode down to -4F and up to 61F ambient wet bulb without additional low ambient controls.
17. The outdoor unit shall be capable of operating in cooling only mode down to 21F and up to 110F ambient dry bulb.
18. The outdoor unit shall be capable of operating in simultaneous heating and cooling mode down to 14F and up to 86F ambient dry bulb.
19. The outdoor unit shall have an oil separator for each compressor and controls to ensure sufficient oil supply is maintained for the compressor.
20. The system shall use R-410A refrigerant.
21. Each outdoor unit frame shall have a removable inspection panel no greater than 6 inches tall or 12 inches wide to allow access to service tool connection, DIP switches, auto addressing and error codes.
22. All units requiring factory-supplied twinning kits shall be piped together in the field, without the need for equalizing line(s). If an alternate manufacturer is selected, any additional material, cost, and labor to install additional lines shall be incurred by the Contractor.
23. The outdoor unit shall not cease operation in any mode based solely on outdoor ambient temperature.

B. Frame:

1. Shall be constructed with galvanized steel, bonderized and be finished with powder coat baked enamel paint.

C. Compressor:

1. All 208/230V 3-phase outdoor unit frames shall be equipped with one hermetic digitally controlled inverter driven scroll compressor and one hermetic constant speed scroll compressor.
2. All 460V 3-phase outdoor unit frames greater than 80 MBH nominal capacity shall be equipped with one hermetic digitally controlled inverter driven scroll compressor and one hermetic constant speed scroll compressor.
3. A crankcase heater shall be factory-mounted on all compressors.
4. The outdoor unit compressor shall have an inverter to modulate capacity. The frequency of the inverter compressor shall be completely variable from 25 to 105 Hz.
5. The compressor shall be equipped with an internal thermal overload.
6. The compressor shall be mounted to avoid the transmission of vibration.
7. Field-installed oil equalization lines between modules are not allowed. Prior to bidding, Manufacturers requiring equalization must submit oil line sizing calculations specific to each system and module placement for this project.

D. Fan:

1. All outdoor unit frames shall be furnished with two direct drive, variable speed propeller type fans.
2. All fan motors shall have inherent protection, have permanently lubricated bearings, and be variable speed with a maximum speed up to 950 RPM.
3. All fans shall be provided with a raised guard to limit contact with moving parts.

E. Coil:

1. The outdoor coil shall be of nonferrous construction with louvered fins on copper tubing.
2. The coil fins shall have a factory-applied corrosion resistant material with hydrophilic coating.
3. The coil shall be protected with an integral metal guard.
4. Refrigerant flow from the outdoor unit shall be controlled by means of a digitally controlled inverter driven scroll compressor.

E. Filter:

1. Return air shall be filtered with a removable, washable filter.

F. Fan:

1. The indoor fan shall be an assembly with one turbo fan direct driven by a single motor.
2. The indoor fan shall be statically and dynamically balanced.
3. Motor shall have permanently lubricated bearings.
4. In cooling mode, the indoor fan shall have the following settings; Super Low, Low, Med, High, Power Cool, and Auto.
5. In heating mode, the indoor fan shall have the following settings; Super Low, Low, Med, High, and Auto.
6. The fan shall have a selectable Auto fan setting that will adjust the fan speed based on the difference between controller set-point and space temperature.
7. The indoor unit shall have DIP switches that can be set to provide optimum airflow based on ceiling height.

G. Coil:

1. The indoor unit coil shall be nonferrous with louvered fins on copper tubing for maximum efficiency.
2. The tubing shall have inner grooves for high efficiency heat exchange.
3. The coils shall be pressure tested at the factory.
4. A condensate drain pan shall be factory-installed below the coil.
5. All refrigerant lines to the indoor units shall be field-insulated.

H. Condensate Pump:

1. The unit shall include a factory-installed condensate pump that will be able to raise drain water 27 inches above the ceiling cassette face. The condensate pump shall be internally powered from the unit.

I. Electrical:

1. The unit electrical connection shall be as scheduled.
2. The indoor unit shall be capable of operation within voltage limits of +/-10% rated voltage.

J. Controls:

1. Unit shall use controls provided by the Manufacturer to perform all functions necessary to operate the system effectively and efficiently.

PART 3 - EXECUTION

3.1 WARRANTY

A. General:

1. The units shall be covered by the Manufacturer's limited warranty for a period of one (1) year from date of installation. The additional Manufacturer's limited warranty for a period of seven (7) years from the date of install shall apply to the compressor shall apply as the system is to be.
2. If, during this period, any part should fail to function properly due to defects in workmanship or material, it shall be replaced or repaired at the discretion of the Manufacturer.
3. This warranty shall not include labor.
4. If a substitute manufacturer is used, the warranty provided shall abide by these requirements.

B. Manufacturer shall have a minimum of five years of HVAC experience in the U.S. market.

C. All manufacturer technical and service manuals must be readily available for download by any local Contractor should emergency service be required. Registering and sign-in requirements which may delay emergency service reference are not allowed.

D. The VRF system shall be installed by a Licensed Mechanical Contractor trained by the VRF Equipment Manufacturer or Certified Manufacturer's Agent.

E. Commissioning shall be performed by the Manufacturer or Certified Manufacturer's Agent.

END OF SECTION

2.2 Branch CIRCUIT (BC) controllers

A. General:

1. The BC (Branch Circuit) Controllers shall be specifically used with the system selected. These units shall be equipped with a circuit board that interfaces to the Manufacturer's controls system and shall perform all functions necessary for operation. The unit shall have a galvanized steel finish. The BC Controller shall be completely factory-assembled, piped and wired. Each unit shall be run tested at the factory. This unit shall be mounted indoors, with access and service clearance provided for each controller.

B. BC Unit Cabinet:

1. The casing shall be fabricated of galvanized steel.
2. Each cabinet shall house a liquid-gas separator and multiple refrigeration control valves.
3. The unit shall house two tube-in-tube heat exchangers.

C. Refrigerant

1. R-410A refrigerant shall be required.

D. Refrigerant valves:

1. The unit shall be furnished with multiple branch circuits which can individually accommodate up to 54,000 BTUh and up to three indoor units, as required by the design. Branches may be twinned to allow more than 54,000 BTUh.
2. Each branch shall have multiple two-position valves to control refrigerant flow.
3. Service shut-off valves shall be field-provided/installed for each branch to allow service to any indoor unit without field interruption to overall system operation.
4. Linear electronic expansion valves shall be used to control the variable refrigerant flow.

E. Integral Drain Pan:

1. An integral condensate pan and drain shall be provided as recommended by the Manufacturer. The integral condensate pan shall be provided with a water sensor, interlocked to shut down the unit upon detection of water. Alternatively, an external drain pan and sensor may be provided.

F. Electrical:

1. The electrical power shall be 208/230 volts, 1-phase, 60 Hz.
2. The unit shall be capable of satisfactory operation within voltage limits of 198-218 volts (208V/60Hz) or 207-253V (230V/60Hz).
3. The BC Controller shall be controlled by integral microprocessors.
4. The control circuit between the indoor units and the outdoor unit shall be 24VDC completed using a 2-conductor, twisted pair shielded cable to provide total integration of the system.

2.3 4-WAY CEILING CASSETTE INDOOR UNIT

A. General:

1. Four-way ceiling cassette indoor units shall recess into the ceiling and mount flush.
2. Shall be installed with heat pump or simultaneous heating and cooling heat pump VRF systems of the same Manufacturer.
3. Shall be rigidly constructed using a decawell base plate.

B. Indoor Unit:

1. The indoor unit shall be factory-assembled, wired and run tested.
2. The indoor unit shall be factory-wired and piped with its own electronic expansion device, control circuit board, fan and motor.
3. The indoor unit shall have:
   a. Self-diagnostic function
   b. Auto restart function
4. Indoor unit refrigerant circuit shall be filled with a dry nitrogen gas charge from the factory.

C. Unit Cabinet:

1. The four-way ceiling cassette cabinet shall be designed to recess into the ceiling.
2. The cabinet panel shall have provisions for a field-installed, pressurized and filtered outside air intake.
3. Branch ducting shall be allowed from cabinet following manufacturer recommendations.

D. Grille:

1. Four-way grille shall be fixed to bottom of the cabinet and allow two, three or four-way air flow.
2. Grille vane angles shall be individually adjustable from the wired remote controller to customize the airflow pattern for the conditioned space.
3. The indoor unit vanes shall have 6 fixed positions.
4. The indoor unit vanes shall be capable of automatically swinging the vanes up and down for uniform air distribution. Vanes shall also be capable of being stopped at any position during swing operation.
5. The indoor unit shall have a setting in the heating or cooling mode that shall cycle the vanes up and down to evenly heat or cool the space.
6. Four-way ceiling cassette grille shall have integral sensor to read wireless handheld remote controller as standard from the factory.

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BW&A BUILDTEC

DPW

VITRAN

PROFESSIONAL ENGINEER
CHRISTOPHER LYLES
17841-E
U.S. VIRGIN ISLANDS

ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

MECHANICAL SPECIFICATIONS

C. LYLES — Project Engineer
2024-009 — Project No.
01/17/25 — Date

M0.2

Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: M0.2 MECHANICAL SPECIFICATIONS
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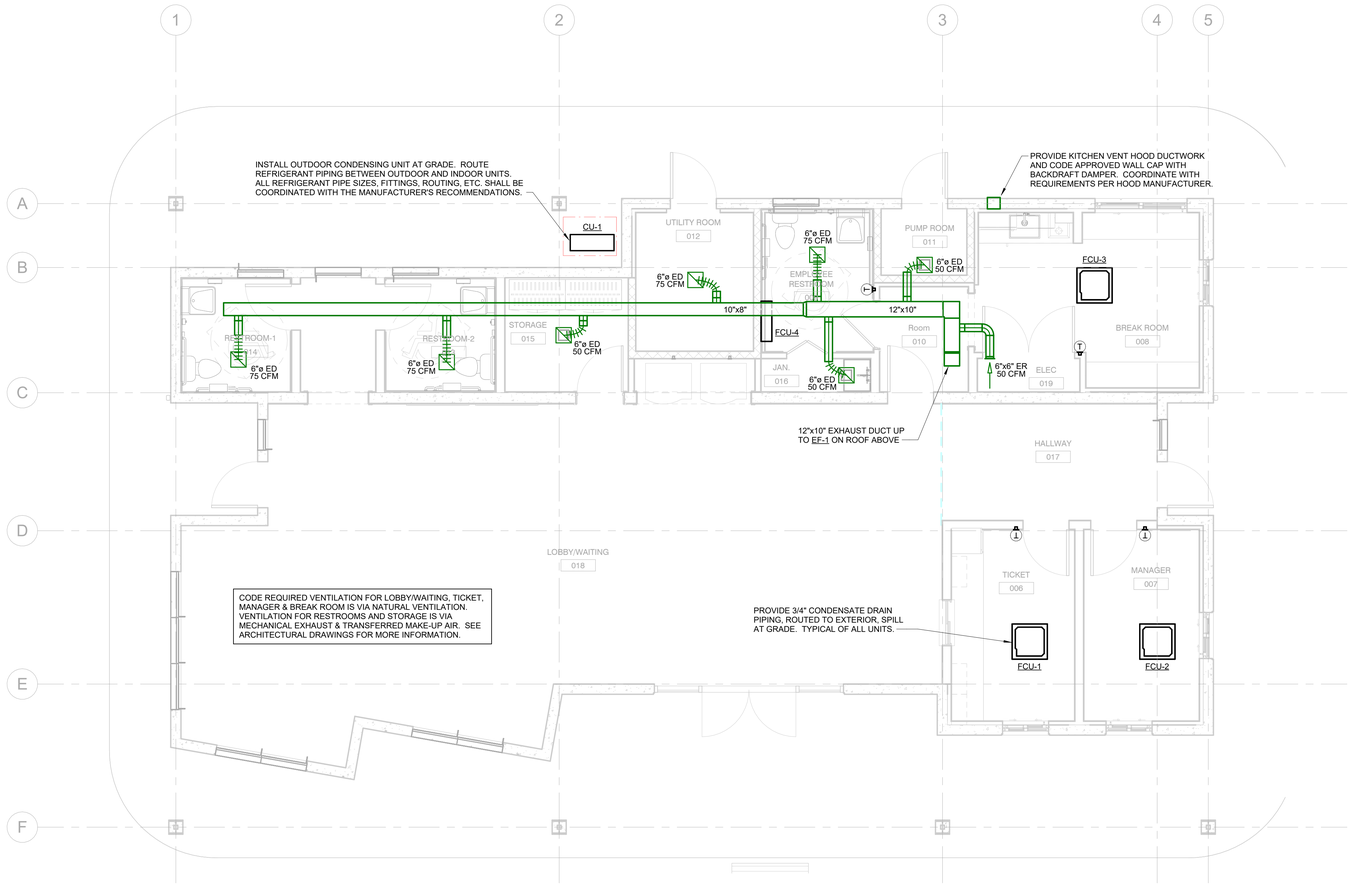

1 / M1 LEVEL 01 FLOOR PLAN - MECHANICAL
1/4" = 1'-0"

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

LEVEL 01 FLOOR PLAN - MECHANICAL

C. LYLES	2024-009
Project Engineer	Project No.
	01/06/25
	Date

M1
Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: M1 - LEVEL 01 FLOOR PLAN - MECHANICAL
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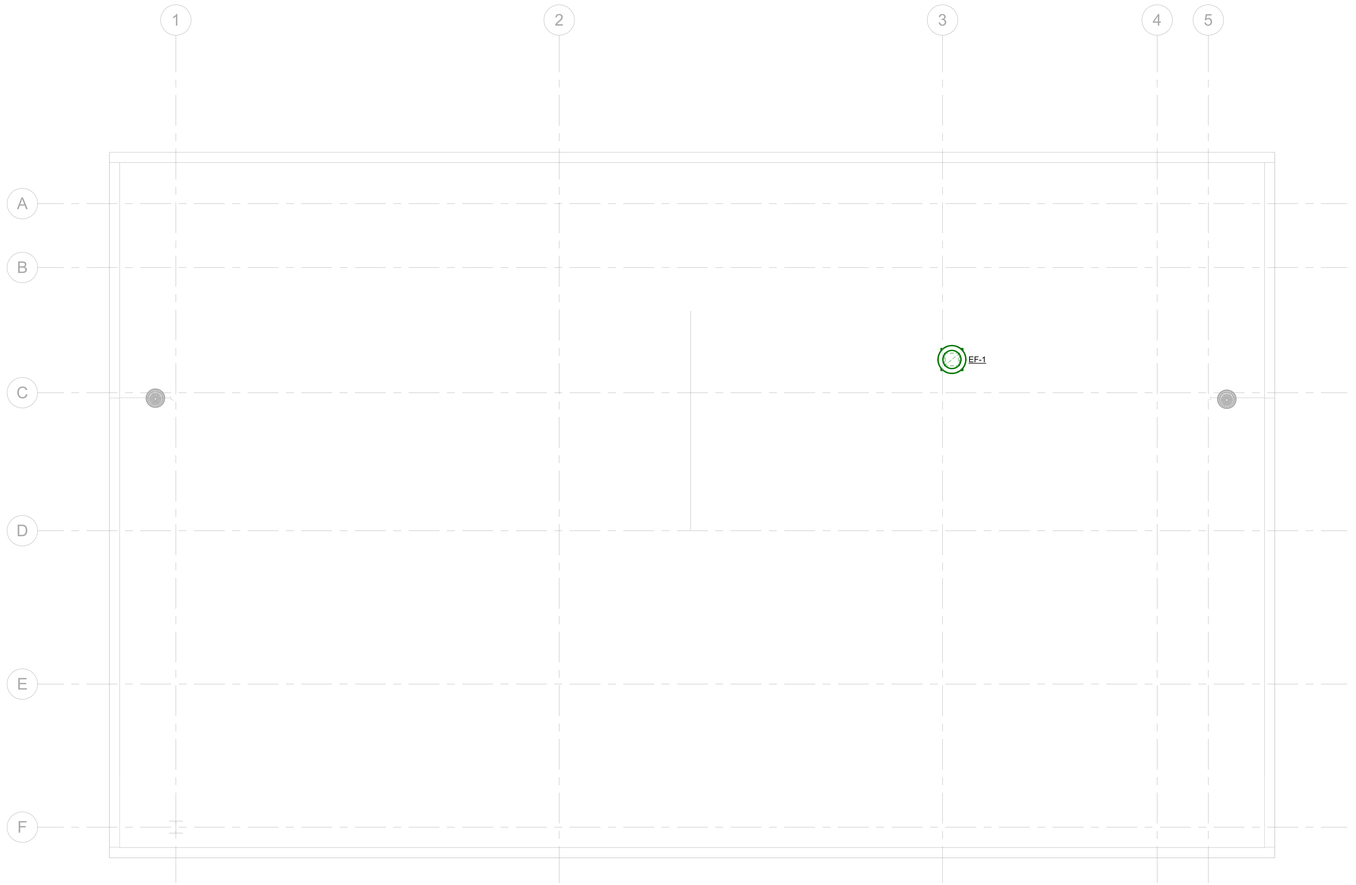

1 M2 ROOF PLAN - MECHANICAL
1/4" = 1'-0"

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ROOF PLAN - MECHANICAL

Checker
Project Engineer

2024-009
Project No.

01/06/25
Date

M2
Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: M2 - ROOF PLAN - MECHANICAL
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LIGHTING FIXTURE SCHEDULE
(SPECIFIED BY ENGINEER)

TYPE	DESCRIPTION
F.1	2'X4' LED TROFFER. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 3600 LUMENS. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 26.5W LED MANUF: COOPER LIGHTING 24RLN SERIES
F.1E	SAME AS TYPE 'F.1' BUT WITH 90–MINUTE BATTERY BACKUP.
F.2	2'X4' LED TROFFER. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 4200 LUMENS. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 31.2W LED MANUF: COOPER LIGHTING 24RLN SERIES
F.3	4" LED DOWNLIGHT. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 1500 LUMENS. 90 CRI. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 15.8W LED MANUF: COOPER LIGHTING LX4C SERIES
F.3E	SAME AS TYPE 'F.3' BUT WITH 90–MINUTE BATTERY BACKUP.
F.4	4" LED DOWNLIGHT. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 2000 LUMENS. 90 CRI. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 21.8W LED MANUF: COOPER LIGHTING LX4C SERIES
F.4E	SAME AS TYPE 'F.4' BUT WITH 90–MINUTE BATTERY BACKUP.
F.5	4" LED DOWNLIGHT. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 3000 LUMENS. 90 CRI. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 31.6W LED MANUF: COOPER LIGHTING LX4C SERIES
F.6	4" LED DOWNLIGHT. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 3500 LUMENS. 90 CRI. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 40.4W LED MANUF: COOPER LIGHTING LX4C SERIES
F.7	PENDANT–MOUNTED DOME LIGHT FIXTURE. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE WITH 0–10V DIMMING DRIVER. 3500K. 5500 LUMENS. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 39W LED MANUF: SPECTRUM LIGHTING EG1210GV SERIES
F.7E	SAME AS TYPE 'F.7' BUT WITH 90–MINUTE BATTERY BACKUP.
F.8	EXTERIOR WALL PACK FIXTURE. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. SELECTABLE LUMENS. SELECTABLE COLOR TEMPERATURE. COORDINATE MOUNTING, FINISH, AND ALL OTHER OPTIONS WITH ARCHITECT. LAMPS: 40.4W LED MANUF: SPITZER LIGHTING WPSC SERIES
F.8E	SAME AS TYPE 'F.8' BUT WITH 90–MINUTE BATTERY BACKUP.
F.9	POLE MOUNTED LED FIXTURE WITH ONE HEAD. PROVIDE WITH 30' POLE. POLE SHALL BE RATED FOR HURRICANE FORCE WINDS. COORDINATE POLE BASE WITH ARCHITECT. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. 4000K. 70 CRI. TYPE IV WIDE DISTRIBUTION. LAMPS: 74W LED MANUF: COOPER LIGHTING PRV SERIES
F.10	4' LED UTILITY STRIP. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. COORDINATE COLOR TEMPERATURE, FINISH, MOUNTING, AND ALL OTHER OPTIONS WITH ARCHITECT. PROVIDE WITH 90–MINUTE BATTERY BACKUP. LAMPS: 38W LED MANUF: COOPER LIGHTING 4SNLED SERIES
X	LED EDGE–LIT EXIT SIGN WITH CONTINUOUS ILLUMINATION. PROVIDE WITH UNIVERSAL VOLTAGE DRIVER. PROVIDE MIRRORED BACKING FOR SINGLE FACED. PROVIDE DIRECTIONAL ARROWS, DOUBLE OR SINGLE FACE AS INDICATED ON DRAWINGS. PROVIDE WITH 90–MINUTE BATTERY BACKUP. LAMPS: COOPER ES SERIES

ELECTRICAL GENERAL NOTES

1. ALL WORK IN THIS DIVISION SHALL COMPLY WITH ALL LOCAL BUILDING CODES, LAWS, REGULATIONS, ORDINANCES, AND THE REQUIREMENTS OF THE 2020 NATIONAL ELECTRICAL CODE. ALL WORK SHALL COMPLY WITH BASE BUILDING SPECIFICATIONS.
2. THE CONTRACTOR SHALL KEEP A RECORD OF THE CHANGES WHICH ARE IN CONFLICT WITH THESE DRAWINGS AND SPECIFICATIONS. AT THE COMPLETION OF HIS WORK HE SHALL SUBMIT "AS BUILT" PRINTS TO THE OWNER.
3. DRAWINGS ARE GENERALLY DIAGRAMMATIC AND DO NOT NECESSARILY SHOW EVERY FITTING AND DETAIL. ALL WORK SHALL BE INSTALLED SO THAT JUNCTION BOXES AND COMPONENTS WILL BE ACCESSIBLE FOR SERVICE.
4. ALL SYSTEMS, EQUIPMENT, COMPONENTS, WORK, ETC. PROVIDED UNDER THIS DIVISION SHALL BE COVERED BY A ONE YEAR GUARANTEE STARTING AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. ANY DEFECTS IN THE WORK, SYSTEMS, EQUIPMENT, OR COMPONENTS FOUND DURING THIS YEAR SHALL BE CORRECTED AT NO CHARGE. THE GUARANTEE SHALL INCLUDE PROVIDING ALL NECESSARY CUTTING, PATCHWORK, REPAINTING, ETC. TO MAKE THE WORK COMPLETE AND NEW.
5. ALL WORK MUST BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER ACCORDING TO GENERALLY ACCEPTED PRINCIPALS OF FIRST CLASS WORKMANSHIP.
6. ALL ROOF PENETRATIONS SHALL BE AS AUTHORIZED BY ARCHITECT AND OWNER. MAINTAIN ROOF WATERTIGHT INTEGRITY.
7. ALL PENETRATIONS THRU RATED WALLS, FLOORS AND CEILINGS SHALL BE FIRE STOPPED PER NEC.
9. DEVICE BOXES IN RATED WALLS SHALL MEET INTERNATIONAL BUILDING CODE SECTION 706.4.
10. COORDINATE ALL FLOOR CORES AND FLOOR BOXES WITH ARCHITECT AND OWNER.
11. ARC–FLASH HAZARD WARNING SHALL BE PROVIDED ON ALL EQUIPMENT IN AFFECTED ELECTRICAL ROOMS PER NEC 110.16.
12. ALL CONDUCTORS SHALL BE COPPER WITH TYPE "THW" OR "THHN" INSULATION AND THE MINIMUM WIRE SIZE SHALL BE #12 AWG WITH A 167 DEGREE TEMPERATURE RATING.
13. MULTI–WIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS PER N.E.C. 210.4(B).
14. NEUTRAL CONDUCTORS FOR CONNECTION TO ALL FURNITURE SYSTEMS TO BE #10AWG.
15. PROVIDE ALL GROUNDING AS REQUIRED BY N.E.C.
16. PROVIDE A SEPARATE GREEN, INSULATED, #12 AWG EQUIPMENT GROUNDING CONDUCTOR ROUTED WITH THE BRANCH CIRCUIT HOMERUN CONDUCTORS.
17. PROVIDE #12 AWG GND FOR ALL MECHANICAL EQUIPMENT UNLESS SHOWN OTHERWISE. ALL EQUIPMENT SHALL BE GROUNDED AT THE PANEL WHICH FEEDS THE EQUIPMENT.
18. ALL CONDUIT MUST BE CONCEALED IN THE WALLS OR ABOVE THE CEILING UNLESS OTHERWISE NOTED. MINIMUM CONDUIT SIZE IS 3/4".
19. ALL CABLE USED IN PLENUM SHALL BE PLENUM–RATED.
20. ARMORED CABLE MAY BE USED IN WALLS AND MILLWORK ONLY AND MUST BE MC TYPE (WITH GROUND). ALL CONDUIT TO AND ABOVE THE CEILING SHALL BE EMT.
21. ARMORED CABLE MAY BE USED FOR LIGHTING CIRCUITING ABOVE CEILINGS AND MUST BE MC TYPE (WITH GROUND). PROVIDE EMT FOR CIRCUIT HOMERUNS.
22. PROVIDE A JUNCTION BOX WITH A 1" CONDUIT STUBBED UP 6" ABOVE ACCESSIBLE CEILING OR TO TELEPHONE BACKBOARD FOR ALL NEW DATA AND TELEPHONE OUTLETS. PROVIDE PULL STRING AND BUSHING AT THE TERMINATION ABOVE ACCESSIBLE CEILING. EXISTING DATA CABLES ARE TO BE REMOVED WHERE NOT BEING UTILIZED. COORDINATE WITH TENANT.
23. DUPLEX RECEPTACLES SHALL BE PLASTIC, TWO–POLE, THREE WIRE, SELF–GROUNDING, SIDE–WIRED, 125 VOLTS AND 20A RATED, AND MATCH EXISTING IF POSSIBLE.
24. DEDICATED RECEPTACLES TO RECEIVE VISUAL DESIGNATION.
25. COORDINATE RECEPTACLE NEMA TYPE AND VOLTAGE WITH COPIERS AND EQUIPMENT PRIOR TO INSTALLATION.
26. DEVICE MOUNTING HEIGHTS ARE TO BE MEASURED TO THE DEVICE CENTERLINE UNLESS NOTED OTHERWISE.
27. PROVIDE A LAMINATED LABEL ON COVERPLATE FOR ALL OUTLETS IDENTIFYING PANEL AND BREAKER NUMBER FROM WHICH IT IS FED.
28. BLANK FACEPLATES ARE NOT ALLOWED, U.N.O. ANY EXISTING OUTLET OR TELE/DATA LOCATION NOT USED OR SHOWN WITHIN THE SCOPE OF WORK IN THESE PLANS SHOULD BE REMOVED, PATCHED, AND REPAIRED.
29. ALL SWITCHES FOR FANS, LIGHTS, ETC. WHICH ARE SHOWN TO BE MOUNTED IN THE SAME GENERAL AREA SHALL SHARE A MULTI–GANG COVER PLATE AS REQUIRED.
30. ALL DIMMERS SHALL BE LUTRON NOVA T–STAR SERIES UNLESS NOTED OTHERWISE. DIMMER SWITCH SHALL BE FULLy COMPATIBLE WITH THE LIGHT FIXTURES IT CONTROLS. COORDINATE DIMMING PROTOCOL (0–10V, ELV, ETC.) WITH LIGHT FIXTURE MANUFACTURER. COORDINATE FINISH WITH ARCHITECT.
31. FASTEN ALL RECESSED LIGHTING FIXTURES TO STRUCTURE OR GRID PER NEC.
32. PROVIDE A NEUTRAL CONDUCTOR FOR SWITCHES CONTROLLING LIGHTING LOADS PER NEC 404.2(C). CAP NEUTRAL CONDUCTOR WHERE NOT REQUIRED BY MANUFACTURER.
33. LIGHTING CONTROL SYSTEMS SHALL MEET 2009 IECC.
34. PROVIDE ENGRAVED NAMEPLATE ON ALL NEW PANELS INDICATING PANEL NAME AND SOURCE PER NEC 408.4(B).
35. PROVIDE A PRINTED PANEL SCHEDULE FOR ALL PANELS WITHIN SCOPE OF WORK. CORRECTLY LABEL ALL NEW CIRCUITS, SPARES AND SPACES IN ACCORDANCE WITH NEC 408.4.
36. CONTRACTOR SHALL CLEAN SITE AT END OF PROJECT. ALL DUST, DEBRIS, OILS, SPRAYS, FINGERPRINTS, AND LABELS SHALL BE REMOVED FROM ALL EXPOSED FINISHED SURFACES. FLOORS ARE TO BE SWEPT AND MOPPED.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	ON CENTER MTG. HT.
	CONCEALED CONDUIT IN CEILING OR WALL	
	CONCEALED CONDUIT IN FLOOR OR UNDERGROUND	
	CIRCUIT HOMERUN TO PANEL; EACH ARROWHEAD = 1 CIRCUIT 2#12,1#12G.,1/2"C. UNLESS NOTED OTHERWISE	
	NO. OF CONDUCTORS IN CONDUIT; EACH CROSSHATCH = 1 WIRE	
	CONDUIT STUBBED UP OR TURNED DOWN	
	MULTI OUTLET SURFACE MOUNTED RACEWAY	
	PLYWOOD BACKBOARD	
	WALL MOUNTED DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED G.F.C.I. DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED DEDICATED DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED DOUBLE DUPLEX RECEPTACLE OUTLET	18"
	WALL MOUNTED SPECIAL RECEPTACLE OUTLET	18"
J	JUNCTION BOX – SIZE AND MOUNTING AS REQUIRED	AS REQ'D.
JCP	JUNCTION BOX FOR CONNECTION OF CONDENSATE PUMP. COORDINATE WITH DIVISION 23.	AS REQ'D.
	WALL MOUNTED DATA/TELEPHONE OUTLET	18"
	120/208 VOLT PANELBOARD	
F	FIRE ALARM PULL STATION	42"
FD	FIRE ALARM ADA APPROVED AUDIO/VISUAL ALARM	84" A.F.F. or 6" BELOW CEILING, WHICHEVER IS LOWER
F	FIRE ALARM ADA APPROVED VISUAL ALARM – WALL MOUNTED	
M	MOTOR RATED TOGGLE SWITCH	AS REQ'D.
30/3	DISCONNECT SWITCH (FRAME/POLES/FUSE–IF REQUIRED)	
	EXIT SIGN – CEILING,WALL MT.	
AFF/AFG	ABOVE FINISHED FLOOR/ABOVE FINISHED GRADE	
BC	BELOW CEILING	
AC	ABOVE COUNTER	
WP	WEATHER PROOF	
EX/R/N	EXISTING/RELOCATED/NEW	
M	MOTORIZED DAMPER. COORDINATE FINAL LOCATION AND CONNECTION REQUIREMENTS WITH DIVISION 23.	

LIGHTING SYMBOL LEGEND – ACUITY

SYMBOL	DESCRIPTION	ON CENTER MTG. HT.
OS	WALL MOUNTED OCCUPANCY SENSOR SWITCH (ACUITY WSXA–PDT)	48"
V	WALL MOUNTED VACANCY SENSOR SWITCH (ACUITY WSXA–PDT–SA)	48"
LV	WALL MOUNTED LOW VOLTAGE MOMENTARY SWITCH. INTERFACE WITH LOCAL SWITCHPACK SERVING THE AREA. (ACUITY nLIGHT nPODMA SERIES)	48"
OV	LOW VOLTAGE OVERRIDE SWITCH FOR TIMECLOCK (ACUITY nPODM)	48"
PP	ON/OFF SWITCHPACK. INTERFACE WITH LOCAL MOTION SENSORS. (ACUITY nPP16 SERIES)	
T	POWER/RELAY PACK ROUTED TO LIGHT FIXTURES AND CONTROLLED BY A PREPROGRAMMED TIME SETTING – AUTO ON / AUTO OFF (ACUITY nPP16 SERIES)	
VS	CEILING MOUNTED VACANCY SENSOR. INTERFACE WITH LOCAL POWERPACK SERVING THE AREA. (ACUITY nLIGHT nCM–PDT–10 SERIES)	
DN	DIGITAL LIGHTING NETWORK SYSTEM CONTROLLER FOR PROGRAMMING OF CONTROL DEVICES. PROVIDE WITH PLENUM–RATED ENCLOSURE. COORDINATE EXACT QUANTITIES AND LOCATION WITH MANUFACTURER. (ACUITY nECY–MVOLT SERIES)	
BC	DIGITAL LIGHTING NETWORK BRIDGE FOR INCREASE IN LIGHTING ZONES. COORDINATE CONNECTION REQUIREMENTS WITH MANUFACTURER. COORDINATE EXACT QUANTITIES AND LOCATION WITH MANUFACTURER. (ACUITY nBRG–8 SERIES)	

(NEW) **PANEL L**

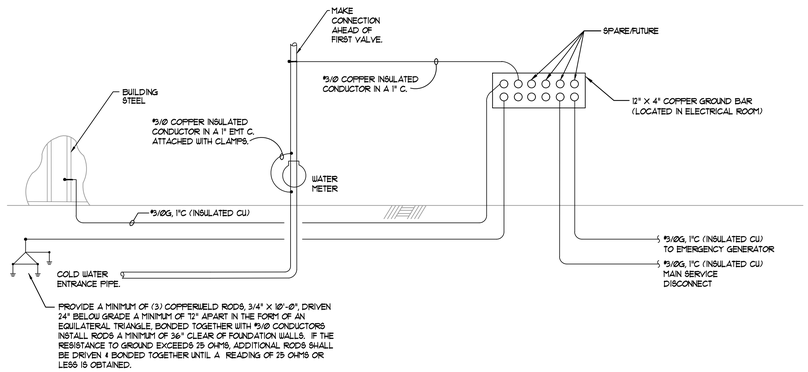
VOLTAGE: 208 / 120 **AMP:** 150
PHASE: 3 **MAIN:** MLO

DESCRIPTION	KW	BKR	CK	PH	CK	BKR	KW	DESCRIPTION
BREAK ROOM VT-08 REC	1.3	20/1	1	A	2	25/2	2.5	CU-1
# BR. RM. ELECTRIC COOK.	1.0	20/2	3	B	4	---	2.5	-----
-----	1.0	---	5	C	6	15/2	0.8	FCU-1
# BREAK RM. UNDER. FRIDGE	0.5	20/1	7	A	8	---	0.8	-----
# BREAK ROOM MICRO.	1.0	20/1	9	B	10	15/2	0.8	FCU-2
ROOM VT-10 REC	1.4	20/1	11	C	12	---	0.8	-----
UTL RM.. VT-12 DED REC	0.4	20/1	13	A	14	15/2	0.8	FCU-3
VENDING MACH. REC	1.0	20/1	15	B	16	---	0.8	-----
VENDING MACH. REC	1.0	20/1	17	C	18	15/2	0.3	FCU-4
STORAGE VT-15 REC	1.1	20/1	19	A	20	---	0.3	-----
LOBBY VT-18 REC	1.4	20/1	21	B	22	15/1	0.3	HWRP-1
LOBBY VT-18 FAN	1.2	20/1	23	C	24	40/1	1.9	BP-1
LOBBY VT-18 FAN	1.2	20/1	25	A	26	15/1	0.4	EF-1
TICKET VT-06 REC	1.3	20/1	27	B	28	20/1	0.2	OUTDOOR REC
HALLWAY VT-17 REC	1.4	20/1	29	C	30	20/1	0.5	COND. PUMP REC
SITE POLE LTS	0.4	20/1	31	A	32	20/1	0.2	ROOF REC
EXT. MOTORIZED GATE	1.0	20/1	33	B	34	20/1		SPARE
EXTERIOR SIGNAGE	0.5	20/1	35	C	36	20/2	1.2	WH-1
OPEN AREA LTS	0.5	20/1	37	A	38	---	1.2	-----
EXTERIOR BUILDING LTS	0.5	20/1	39	B	40	20/1		SPARE
ENCLOSED ROOM LTS	0.5	20/1	41	C	42	20/1		SPARE
SPACE			43	A	44	20/1		SPARE
SPACE			45	B	46	20/1		SPARE
SPACE			47	C	48	20/1		SPARE
SPACE			49	A	50	20/1		SPARE
SPACE			51	B	52	20/1		SPARE
SPACE			53	C	54	20/1		SPARE

* - PROVIDE CONNECTION TO EXISTING CIRCUIT BREAKER ** - PROVIDE CONNECTION TO NEW CIRCUIT BREAKER
# - PROVIDE CONNECTION TO NEW GFCI CIRCUIT BREAKER

Phase A Load (kVA)	11.5	Connected kVA	35.8	98% A-B Balance	
Phase B Load (kVA)	11.7	Dem. kVA	35.1	93% B-C Balance	
Phase C Load (kVA)	12.6	Dem. Amps	97.3	91% C-A Balance	

Load Classification	Connected kVA	Demand Factor	Demand kVA
Receptacles			
First 10kVA or less	12.6	100%	10.0
Remainder over 10kVA		50%	1.3
Lighting	2.3	125%	2.9
Air Conditioning	0.0	100% of Largest Load: Heating & A/C	0.0
Heating	0.0		
Largest Motor	0.0	125%	0.0
All other Motors	0.0	100%	0.0
Non-continuous Equip. Load	20.8	100%	20.8
Kitchen Equipment	0.0	100%	0.0
Elevators	0.0	100%	0.0



1 E0.0 ELECTRICAL GROUND BAR DETAIL
NOT TO SCALE

GENERAL NOTES:
(APPLY TO THIS DETAIL ONLY)

1. ALL GROUNDING CONDUCTORS SHALL BE INSULATED COPPER UNLESS NOTED OTHERWISE.
2. SEE ELECTRICAL RISER DIAGRAM FOR MORE INFORMATION REGARDING EQUIPMENT.
3. GROUND PER ARTICLE 250 OF THE NEC.
4. DRAWING IS DESIGN INTENT ONLY. FIELD COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF GROUND BAR.

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BW &A BUILDTEC

DPW

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U.S. VIRGIN ISLANDS

ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ELECTRICAL LEGEND, SCHEDULES & GENERAL NOTES

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E0.0 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E5 - ROOF PLAN - HVAC CONNECTIONS
Autodesk Docs://Vitran Terminal/2024-1455 Vitran Bus Terminal MEP R24.rvt
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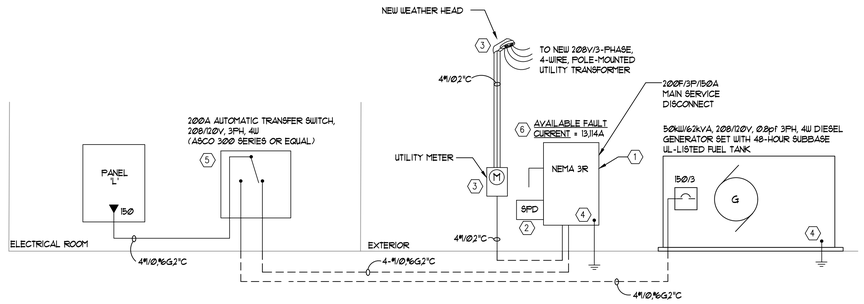

1 / E0.1 ELECTRICAL RISER DIAGRAM

NO SCALE

GENERAL NOTES:
(APPLY TO THIS SHEET ONLY)

1. WIRE SIZES ARE FOR COPPER CONDUCTORS.
2. CONTRACTOR TO VERIFY EQUIPMENT WILL FIT IN LOCATIONS AS SHOWN TO INSTALLATION.
3. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.
4. PROVIDE ARC-FLASH RATINGS ON ALL PANELBOARDS.
5. AVAILABLE FAULT CURRENTS ARE INDICATED ADJACENT TO EACH PANELBOARD. WHERE NO VALUE IS SHOWN, THE CALCULATED VALUE IS LESS THAN THE MINIMUM RATING. PROVIDE FULLY RATED PANELS/BREAKERS THAT EQUAL OR EXCEED VALUES INDICATED FOR ALL PANELS RATED 800 AMPS AND ABOVE. ALL PANELS RATED LESS THAN 800 AMPS SHALL BE U.L. SERIES RATED TO MEET OR EXCEED VALUES INDICATED. SHOP DRAWINGS SHALL INCLUDE ALL RATINGS.
6. PROVIDE ENGRAVED NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT INCLUDING TRANSFER SWITCH, PANELBOARDS, DISCONNECTS, ETC.

LEGEND NOTES:
(APPLY TO THIS SHEET ONLY)

(1) PROVIDE NEMA 3R SERVICE-RATED FUSIBLE MAIN DISCONNECT SWITCH.

(2) PROVIDE WITH TYPE 1 SURGE PROTECTION DEVICE EXTERNAL TO DISCONNECT. MAXIMUM FEEDER LENGTH SHALL BE 2', MINIMIZE BENDING OF CONNECTION. DEVICE SHALL BE CURRENT TECHNOLOGY SEL3 OR EQUAL BY EATON, ABB, OR SCHNEIDER ELECTRIC. PROVIDE WITH NEMA 3R ENCLOSURE.

(3) COORDINATE ALL METERING REQUIREMENTS WITH POWER COMPANY. PROVIDE WEATHERHEAD AND CONDUIT WITH PIGTAIL AS SHOWN. PROVIDE AND INSTALL CURRENT TRANSFORMERS (CT'S) AND ALL ADDITIONAL MATERIAL AND/OR EQUIPMENT AS REQUIRED.

(4) PROVIDE CONNECTION BETWEEN ALL SYSTEM GROUNDS (MAIN DISCONNECT AND GENERATOR) TO MAKE ONE GROUNDING SYSTEM.

(5) PROVIDE START CONTACT MONITORING SOLUTION THAT CHECKS THE INTEGRITY OF THE GENERATOR REMOTE START CIRCUIT. THE CIRCUIT SHOULD BE MONITORED FOR BROKEN, DISCONNECTED, OR SHORTED WIRES. LOSS OF INTEGRITY SHALL ANNUNCIATE AN ALARM AT THE GENERATOR CONTROLLER AND SHALL START THE GENERATOR.

(6) COORDINATE EXACT FAULT CURRENT WITH UTILITY COMPANY PRIOR TO RUNNING STUDIES AS REQUIRED BY SPECIFICATIONS.

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ELECTRICAL RISER DIAGRAM

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E0.1 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E5 - ROOF PLAN - HVAC CONNECTIONS
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SECTION 260100
ELECTRICAL GENERAL

1.0 GENERAL

1.01 SCOPE

A. Division 26 includes all Specifications in the 260000 series and the accompanying Electrical Drawings. Provide all labor, materials and equipment, and all necessary operations to provide the compete the complete scope of the electrical systems intended under this Division. Division 26 is not a stand alone document, but a part of the complete Project Documents.

B. Attention is called to the fact that there are many interfaces between the work required in this Division and the work required in other Divisions. Provide the necessary interface and coordination with other Divisions to provide a complete project.

1.02 CODES AND REGULATIONS

A. All work under this Division shall comply with all local building codes, laws, regulations, ordinances and the requirements of the 2020 National Electrical Code.

B. Where conflicts of installation requirements occur between the aforementioned codes, regulations or the Contract Documents, the most restrictive shall govern.

C. Obtain all permits and licenses and pay all fees required by local authorities. Arrange for all necessary inspections required by the authorities having jurisdiction and provide written certificates of approval to the project Owner or his designated representative.

1.03 DEFINITIONS

A. Contract Documents: The complete set of project Drawings and Specifications.

B. Provide: Furnish, install and connect.

C. Work: All materials installed, including all labor to provide complete system.

D. Wiring or Wired: All wire or cable installed in conduit from panelboard to equipment and connected at both ends with all required boxes, connectors, couplings, etc.

E. Conduit: Rigid steel conduit intermediate metal conduit (I.M.C.), electrical metallic tubing (EMT), plastic conduit (PVC), or flexible steel conduit.

1.04 DRAWINGS AND SPECIFICATIONS

A. The Drawings and Specifications together are to be considered as the Contract Documents. Any work shown in one and not shown in the other, or implied by either, shall be provided to give a complete project.

B. Should any conflicts exist between the Drawings and Specifications or there is an item shown/called for which is not clearly defined, immediately submit a request for clarification. No additional monies will be granted later when a conflict is resolved or an item is more clearly defined.

C. The Drawings are schematic and are not intended to show the exact location outlets, etc. or the routing of conduit.

D. The exact location of equipment requiring electrical connections (mechanical equipment, elevators, lights, etc.) shall be as located by other Divisions of the Contract Documents. Refer to the Architectural, Structural and Mechanical Documents for dimensions and details of building construction and provide work described in this Division so that it conforms to the details of the project. The right is reserved to relocate any receptacle, switch or other outlet a maximum of 10'–0" before it is permanently installed without incurring additions to the Contract amount.

1.06 SITE VISIT

A. Visit the site and become familiar with all aspects of the site and existing conditions before submitting Contract price. No allowance will be made for lack of knowledge of existing conditions.

1.06 DEVIATIONS

A. No deviations from the Contract Documents shall be made without the full knowledge and written consent of the Architect.

B. If the existing conditions make it desirable to modify the Contract Documents in regard to any item, provide a written request to the Architect.

2.0 PRODUCTS

2.01 STANDARDS FOR MATERIALS AND WORKMANSHIP

A. All materials used shall be new and shall be stamped with the label of Underwriters Laboratories, Inc. (UL).

B. All materials shall meet the standards of the following associations and institutes where applicable:

1. National Fire Protection Association (NFPA)
2. American Society of Testing Materials (ASTM)
3. American National Standards Institute (ANSI)
4. National Electrical Manufacturer's Association (NEMA)
5. Institute of Electrical and Electronic Engineers (IEEE)

C. Manufacturer's names and catalog numbers specified herein are intended to describe the material and set the standard of quality. All buds shall be based on materials specified. Requests for approval of material not specified shall be considered if the request is in written form and submitted to the Architect no later than fourteen (14) days before bid date. All requests shall conform with the provisions of the general and supplementary conditions.

D. Samples of materials requested to be substituted shall be furnished upon the request of the Architect.

2.02 SHOP DRAWINGS AND SUBMITTAL

A. The Engineer's review of shop drawings or submittals is a cursory review to check for general compliance of submittals with the design intent of the Contract Documents. The Engineer's review does not relieve the Contractor of his responsibility of complying with the Contract Documents. All coordination of the work in strict compliance with the Contract Documents is the sole responsibility of the Contractor.

B. The following items shall be submitted for review:

1. Conduit and wire
2. Grounding System
3. Devices
4. Coverplates
5. Metering equipment
6. Panelboards
7. Fuses
8. Overcurrent Devices
9. Disconnect Switches
10. Lighting Fixtures
11. Life Safety Systems
12. Emergency system

C. All shop drawings and submittals shall be submitted in compliance with the requirements of the general and supplemental conditions. No more than four (4) copies of submittal data will be reviewed, Any additional copies will be returned unmarked. The responsibility of copying review comments on any additional copies will rest solely with the contractor.

D. All submittals shall bear the name of the manufacturer to be used.

E. All shop drawings and submittals shall include a stamped indication signifying that the submittal has been reviewed for compliance with the Contract Documents by the Contractor. The Stamped indication also represents the fact that the Contractor has checked this submital for its interaction with all other Divisions and certifies by his signature or initials that all coordination has taken place. The stamp shall include the date, name of the Contracting Firm, the signature of the Contractor, certification of compliance and approval. The stamp shall be on the submittal before the Engineer will review it.

F. The Engineer will review an individual submittal not more than twice. If the submittal is rejected again on the second review, the contractor will bare all responsibility for paying for the Engineer's time for additional reviews. Such payments to the Engineer shall be withheld from the next monthly pay application.

2.03 RECORD (AS–BUILT) DRAWINGS AND MAINTENANCE MANUALS

A. At job completion, submit to the Architect, a set of prints (PDF and DWG) showing all deviations from the Contract Documents. The Drawings shall also have dimensions locating all underground conduits.

B. At job completion, submit to the Architect, three (3) sets of maintenance and instruction manuals for all equipment furnished on the project.

3.0 EXECUTION

3.01 COORDINATION

A. Coordinate all space requirements with all other Divisions before installing any work. Install work such that adequate space will be allotted for all other work from other Divisions to be installed and also will allow room for future access for repair and maintenance.

B. Any work installed without proper coordination shall be relocated at the Architect's direction without increasing the Contract price.

C. During the bidding process or the pricing for a guaranteed maximum price, coordinate with all other Divisions for the total amount of work required in Division 26. Any work shown or implied in another Division requiring work in Division 26 shall be included in the Contract price regardless of whether or not it is addressed in Division 26.

3.02 PROTECTION OF MATERIALS

A. All equipment shall have the original finish when the building is turned over to the Owner.

B. Protect equipment during construction from dirt, water, chemical, mechanical damage, etc. Protect all conduit openings so that no foreign materials will enter the conduit.

3.03 TEST, DEMONSTRATIONS AND INSTRUCTIONS

A. Test all systems described in this Division in the presence of the Owner or a designated representative upon completion of the work. Demonstrate that the installation is in accordance with Contract Documents.

B. Any work found not to be in compliance with the Contract Documents shall be repaired or replaced without incurring any additions to the Contract price.

C. Provide to the Owner, all instruction on maintenance and operations of all systems and equipment provided under this Division. Provide all necessary tools and personnel to thoroughly present these instructions.

3.02 GUARANTEE

A. All systems, equipment, components, work, etc. provided under this Division shall be covered by a one year guarantee starting at the time of final acceptance of the work by the Owner. Any defects in the work, systems, equipment or components found during this year shall be corrected at no charge. The guarantee shall include providing all necessary cutting, patchwork, repainting, etc. to make the work complete and new.

B. Present this guarantee and any additional warranties or guarantees on furnished equipment or systems to the Architect. All equipment or system guarantees are in addition to the general guarantee.

– END OF SECTION –

SECTION 261000
ELECTRICAL BASIC MATERIALS & METHODS

1.0 GENERAL

1.01 DESCRIPTION

A. All work specified in the Section shall comply with the provisions of Section 260100.

B. The Section describes the basic electrical materials and installation methods that are acceptable and applicable to Division 26.

2.0 PRODUCTS

2.01 CONDUIT

A. Galvanized rigid steel conduit shall be low carbon, hot–dipped galvanized both inside and out with threaded joints.

B. Intermediate metal conduit (IMC) shall be steel, galvanized both inside and out with threaded joints.

C. Electrical metallic tubing (EMT) shall be steel, galvanized both inside and out.

D. Plastic conduit (PVC) shall be schedule 40 PVC heavy wall type. A grounding conductor shall be provided.

E. Flexible metal conduit shall be flexible steel conduit tubing and shall meet Underwriters Laboratories Standard for Flexible Steel Conduit.

F. Liquid–tight flexible metal conduit and liquid–tight non–metallic conduits shall be liquid–tight and sunlight resistant.

G. Steel conduit approved manufacturers are Allied, Triangle and Republic.

H. PVC conduit approved manufacturers are Carlon and Tiangle.

2.02 CONDUIT FITTINGS

A. Rigid conduit and IMC conduit fittings shall be zinc–coated, ferrous metal and taper threaded type.

B. EMT fittings shall be zinc–coated steel and hexnut compression or set–screw type. EMT connectors shall have insulated throats.

C. PVC fittings, elbow and cement shall be produced by the same manufacturer. All joints shall be solvent welded in accordance with the manufacturer's recommendations.

D. Conduit connections to transformers, panel cabinets, and pull boxes shall have grounding wedge lugs between the bushing and the box or locknuts designed to bite into the metal.

E. Each conduit end shall be provided with either an insulated throat connector or separate locknut and insulated bushing. Bushing shall be installed before any wire is pulled.

F. Conduit fittings approved manufacturers are Raco, Steel City, O.Z. Gedney, Thomas & Betts and Appleton.

G. Expansion fittings shall be provided in all conduit which crosses an expansion joint.

2.03 CONDUCTORS

A. Conductors shall be copper of 98% conductivity, 600 volt insulation. Sizes specified are AWG gauge for No. 4/0 and smaller and circular mils (MCM) for all sizes larger than no. 4/0. Conductors No. 10 and smaller shall be solid and type "THHN" or "THWN" insulation. No. 8 and larger shall be stranded and type "THW" or "XHHW" insulation.

2.04 OUTLETS

A. Outlet boxes and covers shall be of such form and dimensions as to be adapted to their specified usage, locations, size and quantity of conduit, and size and quantity of conductors entering the boxes. In special "Fire Rated" partitions, outlets shall comply with ASTM No. E119.

B. Flush ceiling outlets for surface or pendant mounted lighting fixtures shall be one–piece 4" square or octagonal pressed steel boxes. Boxes for devices in unfinished masonry walls or stud walls shall be pressed steel, square corner, sectional switch boxes, or shall be 4" square box with a square cornered tile wall cover, set flush with masonry construction. Boxes in concrete ceiling slab shall be octagonal, shallow concrete boxes. Welded boxes are not acceptable.

C. All outlet boxes in plaster or masonry walls or ceiling shall be provided with plaster rings.

D. Junction boxes and all outlets not indicated as containing wiring devices or lighting fixtures shall have covers. Covers for outlets in walls shall be as specified for wall switches and receptacles.

E. Outlet boxes exposed to the weather shall be of cast iron corrosion resistant type.

F. Outlet box approved manufacturers are Appleton, Raco, Steel City or Crouse–Hinds.

2.05 DISCONNECT SWITCHES

A. Disconnect switches shall be "heavy–duty" type, enclosed switches of quick–make, quick–break construction. Switches shall be horsepower rated for 600 volts AC as required. Lugs shall be UL listed for copper and aluminum.

B. Padlocking provisions shall be provided for padlocking in the OFF position.

C. Switches shall be furnished in NEMA 1 General purpose enclosure unless noted otherwise. Switches located on the exterior of the building or in "wet" locations shall have NEMA 3R enclosures.

D. Disconnect switches shall be mounted to structure. Disconnect switches shall not be mounted to mechanical equipment or ductwork.

E. Fused disconnect switches shall have rejection type fuse clips with dual element, current limiting fuses of rating shown.

2.06 NAMEPLATES

A. Nameplates shall have 3/8" high engraved letters.

B. 120, 208, or 240 volts: white core laminated bakelite with black finish.

C. Nameplate shall indicate the panel name and the name of the device or equipment where the power supply/feeder originates.

2.07 WALL SWITCHES

A. Wall switches shall be plastic, totally enclosed, quiet type, self–grounding, 120 volt and 20A rating and shall match existing.

B. Color shall be as selected by architect.

2.08 RECEPTACLES

A. Duplex receptacles shall be Decora style, two–pole, three wire, self–grounding, side wired, 125 volts and 15A rating and shall match existing.

B. Dedicated receptacles shall be Decora style, two–pole, three wire, self–grounding, side wired, 125 volts and 20A rating and shall match existing.

C. Ground fault circuit interrupt (GFCI) receptacles shall be provided in accordance with NEC 210.8(B).

D. Color of all other receptacles shall be as selected by the Architect.

2.09 COVERPLATES

A. Coverplates for flush mounted devices shall be brushed finished stainless steel standard size, Hubbell "P" Series or equal by Leviton, P&S, or Cooper.

B. Coverplates for exterior devices shall be self–closing, die–cast aluminum Hubbell WP8M or equal by Leviton, P&S, or Cooper.

2.10 SMOKE AND FIRE STOP FITTINGS

A. Smoke and Fire Stop Fittings shall be UL listed for that purpose. The fittings used to seal conduit either on the outside of the conduit, busway or cable or internally shall have heat activated intumescent material, which expands to fill all voids. Smoke and fire stop fittings shall be 0.2./Gedney "FIRE–SEAL" or Dow Corning silicone RTV foam with an hourly fire–rating equal to or higher than the rating of the floor, ceiling or wall through which the cable or conduit passes. The seals for conduit shall be of the flanged type.

2.11 FUSES

A. Provide all fuses. All fuses shall be of the same manufacturer. All fuses shall be of the high interrupting rating (200,000 Amps), current limiting type and manufactured by Bussmann. Fuses shall be provided for each fuse cutout and the specified quantity of fuses shall be furnished for spares.

B. Circuits 0 to 600 ampere shall be protected by rejection type, current limiting BUSSMANN LOWPEAK Dual Element Fuses LPN–RK (250 volts). All dual–element fuses shall have separate overload and short–circuit clearing chamber. The fuse must hold 500% of rated current for a minimum of 10 seconds and be listed by Underwriter's Laboratories, Inc., with an interrupting rating of 200,000 amperes RMS symmetrical. The fuses shall be UL Class RK–1.

C. Furnish and turn over to the Owner/Tenatn a minimum of one (1) set of spare fuses (set consisting of three fuses) for each type and rating of fuse used. When the number of fuse sets of the same type and rating actually installed exceeds five (5) sets, furnish an additional spare set of fuses for each five (5) or fraction thereof.

D. Acceptable manufacturers are Bussman or equal by Littlefuse.

3.0 EXECUTION

3.01 CONDUIT

A. Rigid steel (or IMC) shall be used for service entrance and all feeders and branch circuit where exposed to damage.

B. EMT shall be used for branch circuits, fire alarm and telephone when not underground or in concrete in contact with the earth.

C. Schedule 40 PVC may be used for all underground feeders, service entrance conductors when encased in 4" of concrete on all sides, or under the lowest floor slab.

D. Conduit shall be continuous from outlet to outlet, from outlet to cabinet, junction box and pull box. Conduit shall enter and be secured to all boxes, etc., in such a manner that each system will be electrically continuous from service to all outlets such that a good ground is provided. All conduit from cabinets and junction boxes or conduit fittings. Conduit connections to any box with has no threaded hub shall be doubled locknutted.

E. Provide junction boxes or pull boxes where shown and where necessary to avoid excessive runs or too many bends between outlets. The conduit sizes shown may increase if desired to facilitate the pulling of cables.

F. All conduit shall be concealed unless indicated otherwise. Install exposed conduit parallel with or at right angles to the building walls and support from walls or ceilings at intervals required by Code with approved galvanized iron clamps or hangers. Concealed conduit above the ceiling shall be supported independent of ceiling construction. Where ceilings of lay–in type are used, conduit must be installed high enough to permit removal of ceiling panels and lighting fixtures. Use threaded roads and hangers for supporting single conduit. Use trapeze hangers consisting of double–nutted threaded rods and "Unistrut" channels or angles of 12 gauge minimum steel for supporting multiple conduit.

G. Minimum size conduit for branch circuits shall not be smaller than 1/2". Home runs sahll extend from outlets shown to panel designated. Home runs shown shall not be combined. Home run conduit shall not be smaller than 3/4" conduit.

H. At couplings, conduit ends shall be threaded so that they meet in the coupling. Right and left hand couplings shall not be used; conduit couplings of the Erikson Type shall be used at locations requiring such joints.

I. All conduits for future use, for telephone wire, or for data communication cable, shall be left with No. 16 gauge wire pulled in them or a pull line as manufactured by Ideal, and the ends securely corked or capped.

J. Expansion fitting shall be installed in all conduit which pass through the cross–sectional area of expansion joints.

K. Provide non–hardening elastic type duct seal compound, Neer No. DC., 3M Co. "Scotchfil", or Gardner Bender duct seal, for each conduit entering the building from outside and for each conduit passing through one space into another which is normally at a lower temperature.

L. Space in sleeves or around conduit that pass through fire resistive or fire rated walls, partitions, floors, or ceiling shall be closed by packing with an unlabelled fire resistive material that will maintain the fire rating of the barrier penetrated.

3.02 FLEXIBLE CONDUIT

A. PVS extruded flexible conduit shall be used in making short flexible connections to rotating or vibrating machinery or equipment. The flexible conduit at these locations shall be as short as possible, but shall have a minimum length of 12".

B. A green stranded bonding jumper shall be installed outside of all flexible conduit that extends directly from a non–flex conduit to a rotating or vibrating machine. Where a junction box is used, the green stranded bonding jumper shall be installed inside the flexible conduit and attached to the junction box and to the machine. When the bonding jumper is installed outside of the flexible conduit, plastic wire straps shall be used 6" o.c. to secure the jumper to the flexible conduit.

3.03 CONDUIT PROTECTION

A. Conduit shall be secured in place and protected where necessary to prevent damage to work during construction. The ends of all conduit shall be plugged to avoid filling with any foreign matter. All conduit shall be blown out and swabbed clear of water and trash prior to pulling wire.

3.04 WIRING

A. All conductors shall be installed in conduit. No conductors shall be pulled into the conduit until the conduit system is complete and plaster had dried. Wire pulling lubricants shall be Gardner–Bender "Wireaide" or Ideal "Yellow 77".

B. Conductors shall be continuous from outlet to outlet and from outlet to junction box or pull box. All splices and joints shall be carefully and securely made to be mechanically and electrically solid with pressure type connectors, Gardner Bender "Winggard" or Ideal "Wingnut". Tape shall be "Scotch" No. 33 for indoor and No. 88 for outdoor or Gardner Bender No. 95–661. Where connection is made to any terminals of more than 30 amperes capacity and where conductors larger than No. 10 are connected to any terminal, copper terminal lugs shall be bolted to the conductors. Where multiple connections are made to the same terminal, individual lugs for each conductor shall be used.

C. Each conduit shall have a minimum of two (2) conductors, plus ground, pulled in unless that particular conduit is noted as being for systems other than electrical circuitry and/or future use or unless noted otherwise.

D. Conductors for lighting and receptacle circuits shall have color coded jackets. The wiring shall be color coded with the same color used with its respective phase through the entire job as follows:

208/120 Volt System
Phase A – Black
Phase B – Red
Phase C – Blue
Neutral – White
Ground – Green

E. The feeder and service entrance conductors shall be color coded by the use of colored plastic tape applied within 6" of each conductor end.

F. Branch circuit conductors shall not be smaller than No. 12 and where the home run from center of load exceeds 100'–0", the conductors from home run outlet to panel shall be No. 10 minimum.

G. For branch circuits terminating in outlet without device, leave minimum of 12" of slack wire coiled for connection of equipment. All conductors shall be identified with proper circuit numbers at terminals, junction boxes at panelboards within 6" of conductor ends.

3.05 OUTLETS

A. Provide galvanized steel or cast type boxes for all outlets.

B. Where outlet boxes are used to support lighting fixtures, the outlet box shall be anchored to the structural members of the building per NEC 370.13.

C. Outlet boxes shall be flush mounted unless they are specifically shown as being used with exposed conduit or are located above a ceiling.

D. Where outlets are supplied from conduit run in or below floor slabs, the conduit shall be stubbed up at the location shown and the wall built up around the conduit.

E. Cuts for outlet boxes in masonry walls shall be made so that the coverplate will completely cover the cut. The mounting height of switch, receptacle and other outlets may be varied slightly, with the Architect's approvals, so that the outlet box, top or bottom, will occur at a masonry joint.

F. The edge of all outlet boxes shall be flush with the surface in which they are recessed. The devices that fit into the outlet boxes shall be screwed tight before the coverplate is installed and the coverplate shall not be used as a means of tightening the devices in place.

G. Where outlets are shown as being adjacent and different mounting heights are specified for each, they shall be mounted one directly over the other, on the centerline of the group.

3.06 NAMEPLATES

A. Provide specified nameplates on the panelboards, disconnect switches, and motor switches.

B. Nameplates for surface mounted equipment shall be installed on the exterior of equipment with sheetmetal screws. Nameplates for flush or recessed mounted equipment shall be installed on the inside of the panel door or cover with epoxy cement.

3.07 WALL SWITCHES AND RECEPTACLES

A. Where more than one device is indicated at a location, the devices shall be gang–mounted in combined multi–gang boxes and covered jointly by a common coverplate. Provide barriers as required by the devices and voltages being used.

3.08 COVERPLATES

A. All junction boxes, outlet boxes, multi–gang switch boxes, utility boxes, etc., shall be covered with a coverplate. The coverplate shall be a finished plate as specified unless designated otherwise.

B. Coverplates shall be mounted vertically unless designated otherwise

3.09 GROUNDING

A. Ground connections shall be in accordance with the 2020 National Electrical Code. All ground connections in the building system ground shall be done with Cadweld.

B. Provide a minimum of three (3) copperweld ground rods, 3/4" x 10'–0", driven 24" below grade a minimum of 72" apart in the form on an equilateral triangle, bonded together with No. 3/0 conductors. Install rods a minimum of 36" clear of foundation walls to effect the building ground. If the resistance to ground exceeds 25 ohms, additional rods shall be driven and bonded together until a reading of 25 ohms or less is obtained. After completion of the grounding system, measure the system ground resistance with a "Megger Earth Tester". Submit directly to the Architect two (2) copies of each test report certified by the testing technician and the Owner's representative.

C. All steel conduit entering the main service disconnect shall have threaded conduit insulated grounding bushings. All bushings shall be bonded together and bonded to the main ground bus with a No. 4 bare conductor.

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ELECTRICAL SPECIFICATIONS

J. CLARK	2024-009
Project Engineer	Project No.
	01/17/25
	Date

E0.2

Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E5 - ROOF PLAN - HVAC CONNECTIONS
Autodesk Docs://Vitran Terminal/2024-1455 Vitran Bus Terminal MEP R24.rvt
1/16/2025 1:44:12 PM

D. Provide an insulated green bonding jumper from the grounding lug of all receptacles to Steel City "GEE" clip or sheet metal screw in the outlet box. The grounding wire installed behind the device mounting screw will not be acceptable

3.10 CONNECTION TO EQUIPMENT

F. Equipment furnished by the Owner or under other Sections, such as mechanical equipment, elevators, escalators, signs, kitchen equipment, etc., will be installed by others. Provide electrical service and make the electrical circuit connection to this equipment.

G. Provide PVC insulated flexible cord sets for all cord and plug connected building appliances and equipment. Cords shall be sized in accordance with electrical circuits indicated. Multiple conductor cords shall be "SO" cable with PVC jacket and green insulated ground conductor.

3.11 CORING, CUTTING AND PATCHING

A. Set sleeves for conduit accurately before the concrete floors are poured, or set boxes on the forms so as to leave openings in the floors in which the required sleeves can be subsequently located. Fill in the voids around the sleeves with concrete.

B. Should the performance of this preliminary work be neglected and should cutting be required in order to install conduit, then the expense of the cutting and restoring of surfaces to their original conditions shall be accomplished without incurring additions to the Contract.

3.12 EQUIPMENT ANCHORING

A. All items of electrical equipment, such as switchboards, motor control centers, transformers, standby generator, etc., shall be securely anchored to the building structure. The anchoring shall be accomplished by utilizing a minimum size of 3/8" steel anchor bolts in the structure and to the item of equipment. A minimum of two (2) anchor bolts shall be provided on each side of each item of equipment with the following exceptions:

Exception No. 1: If the equipment manufacturer includes more than two (2) anchor holes per side in the base or base frame of the equipment item, then there shall be one anchor for each anchor hole.

Exception No. 2: If the equipment manufacturer recommends a particular quantity greater than two (2) per side, then that quantity of anchors shall be provided.

– END OF SECTION –

SECTION 262000
SERVICE AND DISTRIBUTION

1.0 GENERAL

1.01 DESCRIPTION

A. All work specified in this Section shall comply with the provisions of Section 26 01 00.

B. Provide a complete electrical distribution system. The system shall include the service entrance, automatic transfer switch, feeders, transformers, distribution panels, panelboards, remote control switches, contactors, etc., to provide a complete system.

C. All distribution switchgear (branch circuit panelboards, automatic transfer switch, distribution panelboards, transformers, etc.) shall be the unit responsibility of one manufacturer. All component parts of the above listed items shall be of the same manufacturer except where a written request for deviation from this requirement has been approved prior to bid date.

D. Shop drawings for equipment specified in this Section shall show that all specified requirements have been incorporated.

E. Coordination studies shall be done prior to shop drawing submittals. Shop drawings shall include all breakers that meet the coordination study. If study is performed after the shop drawings are submitted, any revisions to breakers or panels shall be at no additional cost to the project.

F. All floor mounted distribution equipment shall be mounted on a 4" high concrete pad.

1.01 ELECTRICAL SERVICE

A. Make all arrangements with the power company and pay all charges made by the power company for permanent electric service. In the event that the power company's charges are not available at the time the project is bid, the bids shall be qualified to notify the Owner that such charges are not included.

B. The secondary service to the building shall be 120/208 volts, 3 phase, 4 wire, 60 Hertz AC.

1.02 METERING

A. Provide a 1.5" conduit between utility transformer and meter base.

B. When required by Power Company, provide the current transformers cabinet and a 1.5" conduit with fish-wire to the meter base. Install all equipment as directed by the Power Company.

C. Coordinate exact requirements with Power Company prior to installation.

2.0 PRODUCTS

2.01 BRANCH CIRCUIT PANELBOARDS

A. Panelboards (panels) shall be general purpose enclosures and shall be surface or flush mounted as indicated. Panels shall be of the automatic circuit breaker type, factory assembled by the manufacturer of the circuit breakers. Panels shall be for the voltage indicated with the quantity of poles and ampacity of circuit breakers shown.

B. Boxes and trim shall be made from code gauge steel. Boxes shall be sufficient size to provide a minimum gutter space of 4" on all sides. Boxes shall be minimum 20" width and 5 3/4" depth.

C. Hinged door covering all device handles shall be included in all panel trim. Doors shall have flush-type cylinder lock and catch, except that doors over 48" in height shall have auxiliary fasteners at top and bottom of door in addition to flush-type cylinder lock and catch. Door hinges shall be concealed. All locks shall be keyed alike. Directory frame and card having a transparent cover shall be furnished each panel door.

D. Trims for flush panels shall overlap the box by at least 3/4" all around. Surface trims shall have the same width and height as the box. Trims shall be mountable by a screwdriver without the need for special tools. After installation, trim mounting mechanism or hardware shall not be accessible when panel door is closed and locked.

E. All exterior and interior steel surfaces of the trim shall be cleaned and finished with gray paint over a rust-inhibiting phosphatized coating.

F. All interiors shall be completely factory assembled with protective devices, wire connectors, etc. All wire connectors, except screw terminals, shall be of the anti-turn solderless type and all shall be suitable for copper or aluminum wire.

G. Interiors shall be so designed that devices can be replaced without disturbing adjacent units and without removing the main bus connectors, and shall be so designed that devices may be changed without machining, drilling or tapping.

H. Bus bars for the mains shall be of copper sized in accordance with U.L. standards. Full size bars shall be included. Bus bar taps for panels with single pole branches shall be arranged for sequence phasing of the branch circuit devices.

I. Phase bussing shall be full height without reduction. Cross and center connectors shall be of the same material as the bus.

J. The neutral bus shall utilize setscrews to bond the neutral wire to the neutral bus through holes drilled in the neutral bar. A sheet copper neutral bus utilizing flathead screws to hold the neutral wires will not be acceptable.

K. Spaces for future devices shall be included as indicated and shall be bussed for the maximum rated device that can be fitted into them.

L. All circuit breakers shall be manually operated, thermal-magnetic, automatic, of the ampacity and poles as indicated. They shall be quick-make, quick-break, both on manual and automatic operation. Breakers shall be over-the-center toggle operating type, with the handle going to a position between ON and OFF to indicate automatic tripping. All multi-pole breakers shall have internal common trip. The minimum interrupting capacity of the breakers furnished shall be 10,000 amperes RMS symmetrical for 120/208 volt and 14,000 amperes RMS symmetrical for 480/277 volt unless indicated otherwise on the riser diagram. The breakers furnished shall be determined by the specifications and by the minimum U.L. labeled RMS symmetrical amperes interrupting capacity at circuit voltage. All circuit breakers shall be bolted on and rigidly braced.

M. Panels having sub-feed lugs for feeding through shall have 8" minimum extra gutter space at the lug end and on one side.

N. Each panel as a complete unit shall have a short-circuit current rating equal to or greater than the equipment rating indicated.

O. All circuit breakers serving the fire alarm system shall include red marking and a listed locking mechanism per NFPA 72.

P. Panels shall match existing.

3.0 EXECUTION

3.01 INSTALLATION

A. Provide a typewritten directory under plastic for all panelboards with spares marked in pencil. Circuit identification shall include sufficient detail to allow each circuit to be distinguished from all others. Include specific tenant suite numbers in multi-tenant buildings in the circuit description. Provide a label on each breaker in a switchboard or distribution panelboard with the same level of circuit identification details.

B. Provide all necessary hardware to level and secure the switchgear as required by the manufacturer's instructions. Make all electrical connections for supply and load circuits and leave in operating condition.

C. Clean enclosure of all switchgear of all foreign matter, including dust.

D. Remove all rust marks and repaint to leave switchgear in new condition.

3.02 STUDIES

A. As a requirement for the project documents to be delivered by the contractor, provide a complete short circuit and selective coordination study from the service entrance to all end devices. The study shall be provided by the switchgear manufacturer or their vendor and shall utilize time current curves that are developed by the gear manufacturer selected for use in the building. The study shall be made available for review by the engineer and local code enforcement authorities no later than at the times they deem necessary for certificates of occupancy to be issued. Obtain critical dates from the inspections department of the local code enforcement department during the inspection process to determine when presentation of the selective coordination study to the inspections department is necessary for timely issuance of the certificate of occupancy.

B. The minimum project requirement described in A. above shall not be scaled back to the minimum NEC code requirement unless agreed to by all parties associated with the construction of the project including, but not limited to, the owner, architect, engineer, developer, etc.

– END OF SECTION –

SECTION 266100
EMERGENCY SYSTEM

1.0 GENERAL

1.01 DESCRIPTION

A. Provide all labor and materials necessary to install a standby-rated diesel engine-generator set onto a concrete generator pad.

B. Additional major equipment such as the automatic transfer switch, shall be provided.

C. The engine-generator set shall be suitable for outdoor use.

D. Codes and Standards:
1. The generator set shall be listed to UL 2200 or submitted to an independent third party certification process to verify compliance as installed.
2. The generator set shall conform to the requirements of the following codes and standards:
   a. CSA C22.2, No. 14-M91 Industrial Control Equipment.
   b. EN50082-2, Electromagnetic Compatibility-Generic Immunity Requirements, Part 2: Industrial.
   c. EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.
   d. IEC8528 part 4, Control Systems for Generator Sets.
   e. IEC Std 61000-2 and 61000-3 for susceptibility, 61000-6 radiated and conducted electromagnetic emissions.
   f. IEEE446 Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.
   g. NFPA 70, National Electrical Code, Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.
   h. NFPA 99, Essential Electrical Systems for Health Care Facilities.
   i. NFPA 110, Emergency and Standby Power Systems.

1.02 SUBMITTALS

A. Furnish information showing manufacturers' model numbers, dimensions and weights for the engine, generator and major auxiliary equipment.

B. Submit copies of pertinent drawings and schematic diagrams for approval and include the following:
1. Engine generator set including plans and elevations clearly indicating entrance points for each of the interconnections required.
2. Engine generator/exciter control cubicle.
3. Fuel consumption rate at various loads, ventilation and combustion CFM requirements.
4. Exhaust mufflers
5. Battery charger, battery and battery racks.
6. Automatic load transfer control switch.
7. Actual electrical diagrams including schematic diagrams and inter-connection wiring diagrams for all equipment to be provided.
8. Legends for all devices on all diagrams.
9. Vibration isolators with minimum 95% efficiency (provide calculations)
10. Fuel connection points
11. Automatic regen power absorption control
12. Generator control panel and remote annunciator panel

C. The specified Standby / Prime KW shall be for continuous electrical service during interruption of the normal utility source and shall be certified by the manufacturer for the actual unit supplied.

2.0 PRODUCTS

2.01 MANUFACTURER

A. The basis of design shall be by Kohler. Provide as specified or equal by Cummins, Caterpillar.

B. Motor starting performance and voltage dip determinations shall be based on the complete generator set. With a maximum instantaneous voltage dip of 35%, as measured by a digital RMS transient recorder in accordance with IEEE standard 115. Motor starting performance and voltage dip determination that does not account for all components affecting total voltage dip i.e. engine, alternator, voltage regulator and governor will not be acceptable. As such, the generator set shall be prototype tested to optimize and determine performance as a generator set system.

2.02 ENGINE

A. The engine shall be governed at a speed of 1800 rpm, and shall be equipped with the following:
1. Electronic isochronous governor capable of 0.25% steady-state frequency regulation.
2. 24-volt positive-engagement solenoid shift-starting motor.
3. 30-ampere automatic battery charging alternator with a solid-state voltage regulation.
4. Positive displacement, full-pressure lubrication oil pump, cartridge oil filters, dipstick, and oil drain.
5. Dry-type replaceable air cleaner elements for normal applications.
6. Engine-driven or electric fuel-transfer pump including fuel filter and electric solenoid fuel shutoff valve capable of lifting fuel.

B. The turbocharged engine shall be fueled by diesel.

C. The engine shall be liquid-cooled by Unit Mounted Radiator 122°F/50°C.

D. The engine shall be EPA certified from the factory.

2.03 ALTERNATOR

A. The alternator shall be salient-pole, brushless, 2/3-pitch, 10 lead, self-ventilated with drip-proof construction and amortisseur rotor windings and skewed for smooth voltage waveform. The ratings shall meet the NEMA standard (MG1-32.40) temperature rise limits. The insulation shall be class H per UL1446 and the varnish shall be a fungus resistant epoxy. Temperature rise of the rotor and stator shall be limited to Standby 130°C. The excitation system shall be of brushless construction controlled by a solid-state voltage regulator capable of maintaining voltage within ±.25RX at any constant load from 0% to 100% of rating. The AVR shall be capable of proper operation under severe nonlinear loads and provide individual adjustments for voltage range, stability and volts-per-hertz operations. The AVR shall be protected from the environment by conformal coating. The waveform harmonic distortion shall not exceed 5% total RMS measured line-to-line at full rated load. The TIF factor shall not exceed 50.

B. The alternator shall have a single maintenance-free bearing, designed for 40000 hour B10 life. The alternator shall be directly connected to the flywheel housing with a semi-flexible coupling between the rotor and the flywheel.

C. The generator shall be inherently capable of sustaining at least 300% of rated current for at least 10 seconds under a 3-phase symmetrical short circuit without the addition of separate current-support devices.

2.04 GENERATOR

A. The generator shall be as follows:

1. The generator shall be rated for continuous standby as indicated on drawings with a 0.8 power factor, 208/120 volts, three-phase, four wire, 60 hertz, 1800 RPM.
2. The generator shall be a three phase, 60 hertz, single bearing, rotating field, synchronous type built to NEMA standards. A voltage regulator shall be provided to match the characteristics of the generator and engine. Voltage regulation shall be +/- 2% from no load to full rated load. Readily accessible voltage-droop, voltage level and voltage gain controls shall be provided. Voltage level adjustment shall be a minimum of +/- 5%. Generator and exciter shall be inherently capable of parallel operation with other power sources of equivalent electrical characteristics, and stator shall include a twelve lead, reconnectable bus system for each load reconnection. Generator shall be brushless permanent magnet, and shall sustain short circuit current at 300% of rated current up to 10 seconds. The generator must accept rated load in one-step. Generator performance shall comply with ISO-8528-5, Class G3.

2.05 COOLING SYSTEM

A. A radiator with blower type fan shall be provided to maintain safe operation at 110 degrees F. ambient temperature. Radiator shall allow an additional 0.5" H2O restriction without any derating. Provide ductwork with flexible connecting section between radiator and discharge louver frame. Provide an engine coolant heater with thermostat to maintain coolant temperature at not lower than 60 degrees F. Heater shall operate at a variable voltage range between 120-240 VAC. Heater shall have an oil pressure disconnect to turn heater off when engine is operating.

B. The engine cooling system shall be pretreated by the system supplier for the inhibition of internal corrosion and freezing.

2.06 DOUBLE WALL SECONDARY CONTAINMENT SUB BASE FUEL TANK

A. A sub-base fuel tank used in conjunction with a diesel powered generator set will support the generator set for a period of 24 hours at 100% rated load. Fuel tank shall be installed to maintain a minimum 3 feet of clearance on all sides per NFPA 110 and to maintain all equipment clearances per NEC 110.26. Clearance must account for any other equipment in the room. Adjust the exact location as required.

B. The sub-base fuel system is listed under UL 142, subsection entitled Special Purpose Tanks EFVT category, and will bear their mark of UL Approval according to their particular classification.

C. The above ground steel secondary containment rectangular tank for use as a sub base for diesel generators is manufactured and intended to be installed in accordance with the Flammable and Combustible Liquids Code--NFPA 30, the Standard for Installation and Use of Stationary Combustible Engine and Gas Turbines--NFPA 37, and Emergency and Standby Power Systems--NFPA 110.

D. Primary Tank. It will be rectangular in shape and constructed in clam shell fashion to ensure maximum structural integrity and allow the use of a full throat fillet weld.

1. Steel Channel Support System. Reinforced steel box channel for generator support, with a load rating of 5,000 lbs. per generator mounting hole location. Full height gussets at either end of channel and at generator mounting holes shall be utilized.
2. Exterior Finish. The exterior coating has been tested to withstand continuous salt spray testing for 1000 hours per ASTM B-117 and tested for chemical resistance per ASTM D 5402.

E. Venting. Normal venting shall be sized in accordance with the American Petroleum Institute Standard No 2000, Venting Atmospheric and Low Pressure Storage Tanks not less than 1-1/4" (3 cm.) nominal inside diameter.

F. Emergency Venting. The emergency vent opening shall be sized to accommodate the total capacity of both normal and emergency venting and shall be not less than that derived from NFPA 30, table 2-8, and based on the wetted surface area of the tank. The wetted area of the tank shall be calculated on the basis of 100 percent of the primary tank. The vent is spring-pressure operated: opening pressure is 0.5/psig and full opening pressure is 2.5 psig. The emergency relief vent is sized to accommodate the total venting capacity of both normal and emergency vents.

G. Fuel Fill. There shall be a 2" NPT opening within the primary tank and lockable manual fill cap. Provide with static fill tube and spill containment bucket.

H. Fuel Level. A direct reading, UL listed, magnetic fuel level gauge with a hermetically sealed vacuum tested dial shall be provided to eliminate fogging. Provide with high fuel level alarm set at 90% with annunciation at the generator and remote annunciator panel. Provide overfill prevention valve (OPV) set at 95%.

I. Low Fuel Level Switch. Consists of a 30 watt float switch for remote or local annunciation of a (50% standard) low fuel level condition.

J. Provide any provisions required for remote fuel station and its associated piping.

2.07 SOUND-ATTENUATED ENCLOSURE

A. Enclosure and all other items to be designed and built by manufacturer as an integral part of the entire generator set and be designed to perform without overheating in the ambient temperature of the area installed. Enclosures are to be constructed from high strength, low alloy steel, aluminum or galvanized steel.

B. The enclosure shall be finish coated with powder baked paint for superior finish, durability and appearance. All fasteners to be rust resistant. Enclosures will be finished in the manufacturer's standard color.

C. The enclosures shall allow the generator set to operate at full load in an ambient of 40°C - 45°C with no additional derating of the electrical output. Under no circumstance shall the sound level exceed 75dBA at 23 feet.

D. Enclosures shall be equipped with sufficient side and end doors to allow access for operation, inspection, and service of the unit and all options. Minimum requirements are two doors per side. When the generator set controller faces the rear of the generator set, an additional rear facing door is required. Access to the controller and main line circuit breaker must meet the requirements of the National Electric Code.

E. Doors must be hinged with stainless steel hinges and hardware and be removable. Unit shall have sufficient guards to prevent entrance by small animals. Batteries to fit inside enclosure and alongside the engine. Batteries under the generator are not acceptable. Doors shall be equipped with lockable latches. Locks must be keyed alike.

F. The enclosure roof shall be pitched to prevent accumulation of water.

G. A duct between the radiator and air outlet shall be provided to prevent re-circulation of hot air.

H. The complete exhaust system shall be internal to the enclosure or optional with external mounted silencer.

I. All acoustical insulation shall be fixed to the mounting surface with pressure sensitive adhesive or mechanically fastened. In addition, all acoustical insulation mounted on a horizontal plane shall be mechanically fastened. The acoustical insulation shall be flame retardant.

J. The enclosures shall include an exhaust scoop to direct the cooling air in a vertical direction.

2.08 AUTOMATIC STARTING SYSTEM

A. A DC electric starting system with positive engagement shall be provided. The motor voltage shall be as recommended by the engine manufacturer.

B. Fully automatic generator set start-stop controls in the generator control panel shall be provided. Controls shall provide shutdown for low oil pressure, high water temperature, over-speed and over-crank. Controls shall allow for 3 cranking cycles before over-crank alarm or lockout. Each cycle should engage the crank for 15 seconds and allow for 15 second cool-down before reattempting next cranking cycle.

C. A belt driven battery charging alternator shall be provided with transistorized voltage regulator. Voltage shall match the electric starting system.

D. A lead-acid storage battery set of the heavy duty starting type shall be provided. Battery voltage shall be compatible with the starting system. The battery set shall be rated as required by generator manufacturer in amp hours. Necessary cables and clamps shall be provided. Batteries, starting system, and charger should be sized in accordance with NFPA Level 1 requirements listed in NFPA 110 5.6.4".

E. Battery racks shall be provided for each battery and shall conform to NEC 480-7.a,1. They shall be constructed of metal and so treated as to be resistant to deteriorating action by battery electrolyte. Further, construction shall be such that non-conducting insulation material directly supports the cells.

F. A current limiting battery charger shall be provided to automatically recharge batteries. It shall include overload protection, silicon diode full wave rectifiers, voltage surge suppressor, DC ammeter, DC voltmeter, equalize timer and fused AC input. AC input voltage shall be 120 volts, single phase. Amperage output shall be no less than 10 amperes. Alarm shall be provided for low-battery voltage and battery charger fault in the charger. Control circuit shall be wired from charger to generator control panel by electrical contractor for indication on control panel. Obtain power for battery charger from base building panel in core (HM or L as necessitated by voltage required).

2.09 GENERATOR CONTROL PANEL

A. The generator set controller shall be a microprocessor based control system that will provide automatic starting, system monitoring, and protection. The controller system shall also provide local monitoring and remote monitoring. The control system shall be capable of PC based updating of all necessary parameters, firmware, and software. The controller shall be mounted on the generator set and shall have integral vibration isolation. The controller shall be prototype and reliability tested to ensure operation in the conditions encountered.

Controller shall meet NFPA 110 Level 1 requirements and include an integral alarms per NFPA. The controller should meet NFPA 99 and NEC requirements. The controller should be UL 508 certified.The controller shall functionally allow for adjusting start time delays, provide output for load shedding, programmable exercise settings, integral alternator overload protection, voltage and frequency adjustment, integral microprocessor based three phase RMS sensing and voltage regulation. All settings shall be adjustable via PC. Provide outputs for remote alarm monitoring per NFPA 110 Level 1. The controller registries should be accessible via Modbus RTU. The controller shall provide common failure relays to signal fault/and or shutdown conditions.

Control panel function shall include, but shall not be limited to, the following:
1. Frequency Meter
2. Voltmeter, 2% accuracy.
3. Ammeter, 2% accuracy.
4. Ammeter/Voltmeter phase selector switch.
5. Automatic starting controls as specified.
6. Voltage level adjustment.
7. Contacts for remote alarms wired to terminal strips.
8. Individual fault indicator lights for low oil pressure, high water temperature, over-speed, over-crank and low water temperature.
9. Three position function switch marked, RUN-STOP and REMOTE.
10. Running time meter, oil pressure, battery charging ammeter and water temperature gauges.

B. Remote Annunciator Panel. A remote annunciator shall be in the generator room and shall meet all NFPA 110, Level 1 requirements and enable remote viewing of the generator status and include automatic transfer switch control. The panel shall be connected to the generator controller via either network communication wires or via hard wired connections. Options shall be available to provide ATS source position, loaded test, and retransfer. The panel shall have the capability to be either flush- mounted or surface-mounted. The annunciator shall meet UL508 requirements.

automatically during overload and short-circuit conditions.

B. The trip unit for each pole shall have elements providing inverse time delay during overload conditions and instantaneous magnetic tripping for short circuit protection. The circuit breaker shall meet standards as established by U.L., NEMA and the N.E.C.

2.11 AUTOMATIC LOAD TRANSFER SWITCH

A. Furnish and install automatic transfer switches system(s) with 4 Pole - Switched Neutral 208 volt, amperage as shown. The Automatic transfer shall consist of an inherently double throw power transfer switch mechanism and a microprocessor controller to provide automatic operation. The transfer switch and controllers shall be the products of the same manufacturer.

2.12 CODES AND STANDARDS - The automatic transfer switches and controls shall conform to the requirements of:

A. UL 1008 - Standard for Transfer Switch Equipment

B. IEC 947-6-1 Low-voltage Switchgear and Control gear; Multifunction equipment; Automatic Transfer Switching Equipment

C. NFPA 70 - National Electrical Code

D. NFPA 99 - Essential Electrical Systems for Health Care Facilities

E. NFPA 110 - Emergency and Standby Power Systems

F. IEEE Standard 446 - IEEE Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications

G. NEMA Standard ICS10-1993 (formerly ICS2-447) - AC Automatic Transfer Switches

H. UL 508 Industrial Control Equipment

I. CSA C22.2 No. 178 certification

2.13 ACCEPTABLE MANUFACTURERS

A. Automatic transfer switches shall be by the generator manufacturer or by ASCO.

2.14 MECHANICALLY HELD TRANSFER SWITCH

A. The transfer switch shall be electrically operated and mechanically held with double throw construction, and operated by a momentarily energized solenoid-driven mechanism. Main operators shall include overcurrent disconnect devices; linear motors or gears shall not be acceptable.

B. All transfer switch sizes shall use only one type of main operator for ease of maintenance and commonality of parts.

C. The switch shall be positively locked and unaffected by momentary outages, so that contact pressure is maintained at a constant value and contact temperature rise is minimized for maximum reliability and operating life.

D. All main contacts shall be silver composition. Switches rated 600 amperes and above shall have segmented, blow-on construction for high withstand and close-on capability and be protected by separate arcing contacts.

E. Inspection of all contacts shall be possible from the front of the switch without disassembly of operating linkages and without disconnection of power conductors. Switches rated 600 amps and higher shall have front removable and replaceable contacts. All stationary and moveable contacts shall be replaceable without removing power conductors and/or bus bars.

F. Designs utilizing components of molded-case circuit breakers, contactors, or parts thereof, which are not intended for continuous duty, repetitive switching or transfer between two active power sources, are not acceptable.

G. Where neutral conductors are to be solidly connected as shown on the plans, a neutral conductor plate with fully rated AL-CU pressure connectors shall be provided.

2.15 TRANSFER SWITCH ENCLOSURE

A. The ATS shall be furnished in a NEMA 1 (A) enclosure.

B. All standard door mounted switches and long life super bright type indicating LEDs described in section 3 shall be integrated into a flush-mounted, interface membrane or equivalent in the enclosure door for easy viewing & replacement. The panel shall be capable of having manual locking feature to allow the user to lockout all membrane mounted control switches to prevent unauthorized tampering. This cover shall be mounted with hinges and have a latch that may be padlocked. The membrane panel shall be suitable for mounting by others when furnished on open type units.

2.16 CONTROLLER DISPLAY AND KEYPAD

A. A four line, 20 character LCD display and dynamic 4 button keypad shall be an integral part of the controller for viewing all available data and setting desired operational parameters. Operational parameters shall also be available for viewing and limited control through the communications interface port. The following parameters shall only be adjustable via a password protected programming on the controller (dip switches shall not be acceptable):

1. Nominal line voltage and frequency
2. Single or three phase sensing
3. Operating parameter protection
4. Transfer operating mode configuration (Open transition, Closed transition, or Delayed transition)

All instructions and controller settings shall be easily accessible, readable and accomplished without the use of codes, calculations, or instruction manuals.

2.17 VOLTAGE, FREQUENCY AND PHASE ROTATION SENSING:

A. Voltage (all phases) and frequency on both the normal and emergency sources shall be continuously monitored, with the following pickup, dropout, and trip setting capabilities (values shown as % of nominal unless otherwise specified):

Parameter Dropout/Trip Pickup/Reset Under voltage 75 to 98% 85 to 100% Over voltage 105 to 135% 95 to 100% of trip Under frequency 85 to 99% 95 to 99% Over frequency 105 to 120% 101 to 105% Voltage unbalance 5 to 20% 3% to 18%

B. Repetitive accuracy of all settings shall be within ± 0.5% over an operating temperature range of -20°C to 70°C.

C. An adjustable dropout time for transient voltage and frequency excursions shall be provided. The time delays shall be 0.1 to 9.9 seconds for voltage and 0.1 to 15 seconds for frequency.

D. Voltage and frequency settings shall be field adjustable in 1% increments either locally with the display and keypad or remotely via the communications interface port.

E. The controller shall be capable of sensing the phase rotation of both the normal and emergency sources. The source shall be considered unacceptable if the phase rotation is not the preferred rotation selected (ABC or BAC). Unacceptable phase rotation shall be indicated on the LCD; the service required LED and the annunciation through communication protocol and dry contacts. In addition, the phase rotation sensing shall be capable of being defeated, if required.

F. The controller shall be capable of detecting a single phasing condition of a source, even though a voltage may be regenerated by the load. This condition shall be considered a failed source.

G. Source status screens shall be provided for both normal & emergency to provide digital readout of voltage on all 3 phases (phase to phase and phase to neutral), frequency, and phase rotation.

2.18 TIME DELAYS

A. An adjustable time delay of 0 to 10 seconds shall be provided to override momentary normal source outages and delay all transfer and engine starting signals. Capability shall be provided to extend this time delay to 60 minutes by providing an external 12 or 24 VDC power supply.

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX USVI
Department of Public Works - Division of Transportation

ELECTRICAL SPECIFICATIONS

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E0.3 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER E5 - ROOF PLAN - HVAC CONNECTIONS
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B. A time delay shall be provided on transfer to the emergency source, adjustable from 0 to 60 minutes, for controlled timing of transfer of loads to emergency.

C. A time delay shall be provided on re-transfer to normal. The time delays shall be adjustable from 0 to 60 minutes. Time delay shall be automatically bypassed if the emergency source fails and the normal source is acceptable.

D. A time delay shall be provided on shut down of engine generator for cool down, adjustable from 0 to 60 minutes.

E. A time delay activated output signal shall also be provided to drive external relay(s) for selective load disconnect control. The controller shall be capable of controlling a maximum of 9 individual output time delays to step loads on after a transfer occurs. Each output may be individually programmed for their own time delay of up to 60 minutes. Each sequence shall be independently programmed for transferring from normal to emergency and transferring from emergency to normal.

The controller shall also include the following built-in time delays for the following operations:

1. 0 to 60 minute time delay on failure to acquire the acceptable electrical parameters from the emergency source.
2. 0 to 60 minute time delay for a failure to synchronize on an in-phase operation.
3. 60 minute time delay for the load disconnect position for delayed transition operation.

F. All time delays shall be adjustable in 1 second increments.

G. All time delays shall be adjustable by using the display and keypad or with a remote device connected to the communications interface port through a security-password system.

H. All time delays shall be adjustable by using the display and keypad or with a remote device connected to the communications interface port through a security-password system.

I. Each time delay shall be identified and a dynamic countdown shall be shown on the display.

2.19 ADDITIONAL FEATURES

A. The controller shall have 3 levels of security. Level 1 shall allow monitoring of settings and parameters only. The Level 1 shall be capable of restricted with the use of a lockable cover. Level 2 shall allow test functions to be performed and Level 3 shall allow setting of all parameters.

B. Membrane-type switches shall be provided for the test functions and be maintained until the end test function is activated. The test function shall be allowed through password security. It shall be possible to defeat the password requirement by way of a circuit board mounted dip switch setting. The test function shall be load, no load or auto test. The auto test function shall request an elapsed time for test. At the completion of this time delay the test shall be automatically ended and a retransfer sequence shall commence. All loaded tests shall be immediately ended and retransfer shall occur if the emergency source fails and the normal source is acceptable.

C. A SPDT contact, rated 5 amps at 30 VDC, shall be provided for a low-voltage engine start signal. The start signal shall prevent dry cranking of the engine by requiring the generator set to reach proper output, and run for the duration of the cool down setting, regardless of whether the normal source restores before the load is transferred.

D. Auxiliary contacts, rated 10 amps, 250 VAC shall be provided consisting of two contacts, closed when the ATS is connected to the normal source and two contacts closed, when the ATS is connected to the emergency source.

E. LED indicating lights shall be provided; one to indicate when the ATS is connected to the normal source (green) and one to indicate when the ATS is connected to the emergency source (red).

F. LED indicating lights shall be provided and energized by controller outputs. The lights shall provide true source availability of the normal (green) and emergency sources (red), as determined by the voltage, frequency and phase rotation sensing trip and reset settings for each source.

G. A membrane switch shall be provided on the membrane panel to test all indicating lights and display when pressed.

H. Provide the ability to select "commit/no commit to transfer" to determine whether the load should be transferred to the emergency generator if the normal source restores before the generator is ready to accept the load.

I. Terminals shall be provided for a remote contact which opens to signal the ATS to transfer to emergency and for remote contacts which closes to inhibit transfer to emergency and/or retransfer to normal. Both of these inhibit signals can be activated through the keypad or the communications interface port. A "not-in-auto" LED shall indicate anytime the controller is inhibiting transfer from occurring.

J. An in-phase monitor shall be a standard feature in the controller. The monitor shall control transfer so that motor load inrush currents do not exceed normal starting currents, and shall not require external control of power sources. The in-phase monitor shall be specifically designed for and be the product of the ATS manufacturer. The in-phase monitor shall be capable of being enabled or disabled for the user interface.

K. Engine Exerciser – The controller shall provide an internal engine exerciser. The engine exerciser shall allow the user to program up to 21 different exercise routines based on a calendar mode. For each routine, the user shall be able to:

1. Enable or disable the routine.
2. Enable or disable transfer of the load during routine.
3. Set the start time:
   - time of day
   - day of week
   - week of month (1st, 2nd, 3rd, 4th, alternate or every)
4. Set the duration of the run.
5. At the end of the specified loaded exercise duration, the switch shall transfer the load back to normal and run the generator for the specified cool down period. All loaded exercises shall be immediately ended and retransfer shall occur if standby source fails. The next exercise period shall be displayed on the main screen with the type of exercise, time and date. The type of exercise and the time remaining shall be displayed when the exercise is active. It shall be possible of ending the exercise event with a single-button push.

L. Date and time – The date shall automatically adjust for leap year and the time shall have the capability of automatically adjusting for daylight saving and standard times.

M. System Status – The controller shall have a default display the following on:

1. System status
2. Date, time and type of the next exercise event
3. Average voltage of the preferred and standby sources

Scrolling through the displays shall indicate the following:

1. Line to line and line to neutral voltages for both sources
2. Frequency of each source
3. Load current for each phase
4. Single or three phase operation
5. Type of transition
6. Preferred source
7. Commit or no commit modes of operation
8. Source/source mode (Utility/Gen; Gen/Gen; Utility/Utility)
9. In phase monitor enable/disable
10. Phase rotation
11. Date and time

N. Controllers that require multiple screens to determine system status or display "coded" system status messages, which must be explained by references in the operator's manual, are not permissible.

O. Self-Diagnostics – The controller shall contain a diagnostic screen for the purpose of detecting system errors. This screen shall provide information on the status input signals to the controller which may be preventing load transfer commands from being completed.

P. Communications Interface – The controller shall be capable of interfacing, through a standard communications with a network of transfer switches and generators. It shall be able to be connected via an RS-485 serial communication (up to 4000 ft. direct connect or multi-drop configuration), an Ethernet connectivity (over standard 10baseT Ethernet networks utilizing a RJ-45 port or remotely utilizing a dial-up modem). This module shall allow for seamless integration of existing or new communication transfer devices and generators. Monitoring software shall allow for the viewing, control and setup of parameters of the genset and transfer switch network through a standard personal computer utilizing current Microsoft operating systems. Separate and specific transfer switch software interfaces shall not be acceptable.

Q. The transfer switch shall also be able to interface to 3rd party applications using Modbus RTU and Modbus TCP/IP open standard protocols utilizing Modbus register maps. Proprietary protocols shall not be acceptable.

R. The controller shall contain a USB port for downloading the controller's parameters and settings; exercise event schedules; maintenance records and event history. The file designator shall be the unique serial number of the transfer switch.

S. Data Logging – The controller shall have the ability to log data and to maintain the last 2000 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in a non-volatile memory. The controller shall be able to display up to the last 99 events. The remaining events shall be downloadable to be displayed on a computer.

1. Event Logging
   Data, date and time indication of any event
2. Statistical Data
   Total number of transfers*
   Total number of fail to transfer*
   Total number of transfers due to preferred source failure*
   Total number of minutes of operation*
   Total number of minutes in the standby source*
   Total number of minutes not in the preferred source*
   Normal to emergency transfer time
   Emergency to normal transfer time
   System start date
   Last maintenance date

* The statistical data shall be held in two registers. One register shall contain data, since startup and the second register shall contain data from the last maintenance reset.

T. External DC Power Supply – An optional provision shall be available to connect up to two external 12/24 VDC power supply to allow the LCD and the door mounted control indicators to remain functional when both power sources are dead for extended periods of time. This module shall contain reverse battery connection indication and circuit protection.

2.20 ACCESSORIES

A. Supervised Transfer Control Switch. The supervised transfer control switch shall provide a door mounted, three position, selector switch with Auto, Manual and Transfer positions.

The alarm module shall be required in order to activate this option.

1. With the controller set to the automatic mode and the selector switch in the auto position, the user transfer switch shall operate normally.
2. With the controller set to the automatic mode and the selector switch in the manual position, the user shall be required to toggle the selector switch to initiate a transfer from the emergency to the normal position.
3. With the controller set to the non-automatic mode and the selector switch in the manual position, the user shall be required to toggle the selector switch to the transfer position to initiate a transfer either direction. In this mode, the ATS shall not automatically transfer to an acceptable source in the case of source failure, without the user toggling the selector switch to the transfer position.

2.21 TESTS AND CERTIFICATION

A. Upon request, the manufacturer shall provide a notarized letter certifying compliance with all of the requirements of this specification including compliance with the above codes and standards. The certification shall identify, by serial number(s), the equipment involved. No exceptions to the specifications, other than those stipulated at the time of the submittal, shall be included in the certification.

B. The ATS manufacturer shall be certified to ISO 9001 International Quality Standards and the manufacturer shall have third party certification verifying quality assurance in design/development, production, and installation and servicing in accordance with ISO 9001.

2.22 SERVICE REPRESENTATIVE

A. The manufacturer shall maintain a national service organization of employing personnel located throughout the contiguous United States. The service center's personnel must be factory trained and must be on call 24 hours a day, 365 days a year.

B. The manufacturer shall maintain records of each switch, by serial number, for a minimum of 20 years.

3.0 EXECUTION

3.1 INSTALLATION

A. Mount generator on a re-enforced concrete pad. Concrete shall be 1 foot larger in all directions than footprint of generator. Mounting pad composition should follow standard practice for the required loading. Provide 3000 psi concrete reinforced with eight-gauge wire mesh or No. 6 reinforcing bars on 305 mm (12 in.) centers. The top surface of the mounting pad on which the generator set mounts should be within a flatness of 3 mm (1/8 in.). The weight of the single mounting pad or combined weight of multiple mounting pads should exceed the combined weight of the generator set and attached accessories.

3.2 MANUFACTURING

A. The unit shall be shipped to the job by the manufacturer's authorized dealer having a parts and service facility within a 120 mile radius of the job. In addition, and in order not to penalize the Owner for unnecessary or prolonged periods of time for service or repairs to the emergency system, the bidding generator set supplier must have replacement parts in stock at all times. Certified proof of this requirement shall be available from the dealer and a personal inspection of the dealer's facilities may be made by the Architect or his appointed representative to substantiate claims made by the generator set supplier.

3.3 TESTING

A. Prior to acceptance of the installation, equipment shall be tested to show it is free of any defects and will start automatically and be subjected to full load test through the use of portable, dry-type load banks supplied for this purpose at the job by the generator set supplier. Generator set shall be tested under varying loads with guards and exhaust system in place at factory before leaving manufacturer facility. Tests shall include single-step load pickup, shutdown device testing, and rated power at 0.8 PF. Provide copy of certified test record prior to shipment.

B. The load bank shall be capable of definite and precise incremental loading and shall not be dependent on the generator control instrumentation to read amperage and voltage of each phase. Rather, the test instrumentation will serve as a check of the generator set meters.

C. Saltwater brine tanks or those load banks requiring water as a source for cooling are not acceptable for this purpose and are disallowed and shall not be utilized for this test.

D. Load bank testing shall be done in the presence of the Owner or his appointed representative only after the unit is permanently installed in accordance with the Contract Documents. Testing shall be for a period of eight (8) hours under full load.

3.4 START UP AND INSTRUCTIONS

A. After mounting generator on pad, provide necessary protection against debris and moisture. Implement manufacturer recommended storage practices/guidelines necessary for optimal storage.

B. On completion of the installation, start-up shall be performed by the engine manufacturers' trained dealer service representative.

C. Operating and maintenance instruction manual shall be furnished and procedures explained to operating personnel.

3.5 SYSTEM SERVICE CONTRACT

A. The supplier of the standby power system must furnish a copy of, and make available to the Owner, his standard service contract which, at the Owner's option, may be accepted or refused. This contract will accompany any documents, drawings, catalog cuts, specification sheets, wiring or outline drawings, etc. submitted for approval. This contract shall be for the complete power system.

3.6 GUARANTEE

A. Equipment provided under this Section shall be guaranteed against defective parts and workmanship under terms of the manufacturer's and dealer's standard warranty. But in no event shall it be for a period of less than five (5) years from date of initial startup of the system and shall include labor and travel time for necessary repairs at the job. Warranty period shall not begin until the tenant's move-in date.

– END OF SECTION –

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ISSUANCES		
No.	Drawing Issue Description	Date
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ELECTRICAL SPECIFICATIONS

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E0.4

Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E5 - ROOF PLAN - HVAC CONNECTIONS
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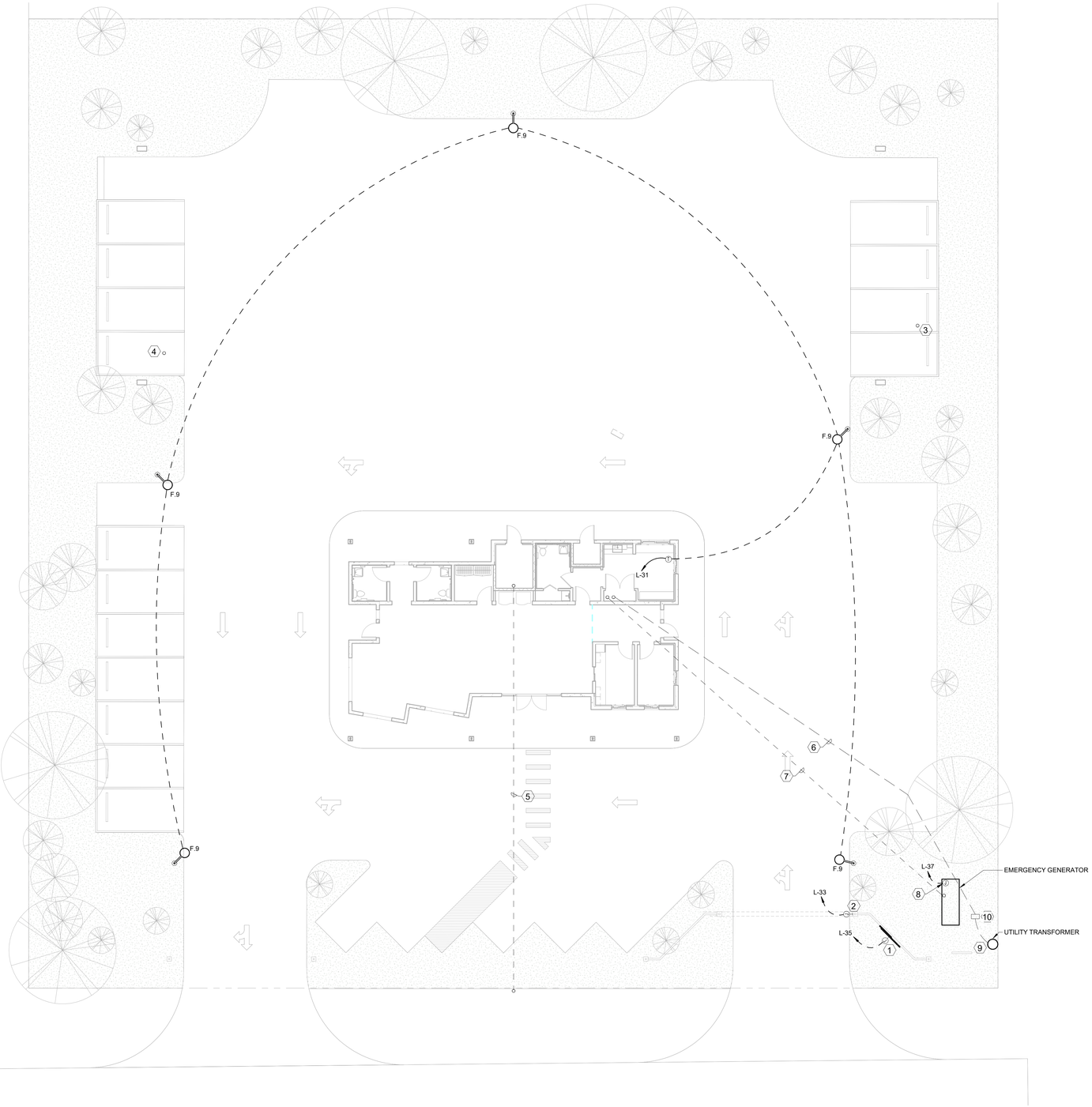

1 / E1 ENLARGED SITE PLAN - ELECTRICAL
1" = 10'-0"

GENERAL NOTES:
(APPLY TO THIS SHEET ONLY)

1. DRAWINGS ARE FOR DESIGN INTENT ONLY. COORDINATE EXACT TERMINATION POINTS AND LOCATIONS OF ALL CONDUITS IN THE FIELD. COORDINATE EXACT CONDUIT ROUTING AND STUB-UP LOCATIONS WITH ARCHITECT AND CIVIL ENGINEER.
2. PROVIDE ALL EMPTY CONDUITS WITH PULLSTRINGS.
3. PROVIDE CONDUITS NECESSARY FOR SYSTEM GROUNDING AS REQUIRED. REFER TO GROUNDING DETAILS AND ELECTRICAL RISER DIAGRAM FOR ADDITIONAL DETAILS.

LEGEND NOTES:
(APPLY TO THIS SHEET ONLY)

1. PROVIDE JUNCTION BOX FOR 120V CONNECTION TO SIGNAGE ELEMENT OR LIGHTING ELEMENT AT THIS LOCATION. ROUTE CIRCUIT THROUGH ACUITY nPP16 RELAY FOR TIME SCHEDULE CONTROL. COORDINATE EXACT LOCATION AND FINAL CONNECTION REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.
2. PROVIDE JUNCTION BOX FOR 120V CONNECTION TO POWERED GATE AT THIS LOCATION. COORDINATE EXACT LOCATION AND FINAL CONNECTION REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ROUGH-IN.
3. PROVIDE 1.5" SPARE CONDUIT WITH PULLSTRING FROM ELECTRICAL PANEL TO THIS LOCATION FOR FUTURE EV CHARGERS. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
4. PROVIDE 2" SPARE CONDUIT WITH PULLSTRING FROM ELECTRICAL CLOSET TO THIS LOCATION FOR FUTURE SOLAR PANEL ARRAY. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
5. PROVIDE (2) 2" CONDUITS BETWEEN UTILITY ROOM AND NEAREST TELEPHONE POLE FOR LOW VOLTAGE SERVICE INTO BUILDING. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OWNER, ARCHITECT, AND CIVIL ENGINEER.
6. PROVIDE CONDUIT BETWEEN MAIN SERVICE DISCONNECT AND AUTOMATIC TRANSFER SWITCH. REFER TO ELECTRICAL RISER DIAGRAM FOR FURTHER DETAILS.
7. PROVIDE CONDUIT BETWEEN EMERGENCY GENERATOR AND AUTOMATIC TRANSFER SWITCH. REFER TO ELECTRICAL RISER DIAGRAM FOR FURTHER DETAILS.
8. PROVIDE WEATHERPROOF JUNCTION BOX FOR POWER CONNECTIONS TO GENERATOR BATTERY CHARGER. COORDINATE WITH GENERATOR MANUFACTURER FOR FURTHER DETAILS.
9. COORDINATE WITH UTILITY COMPANY FOR EXACT REQUIREMENTS AND LOCATION OF UTILITY POLE/TRANSFORMER.
10. PROVIDE METERBASE FOR UTILITY COMPANY METERING. MOUNT TO UNI-STRUT AS REQUIRED. COORDINATE EXACT LOCATION AND MOUNTING REQUIREMENTS WITH ARCHITECT AND UTILITY COMPANY.

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ELECTRICAL SITE PLAN

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E1 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E1 - ELECTRICAL SITE PLAN
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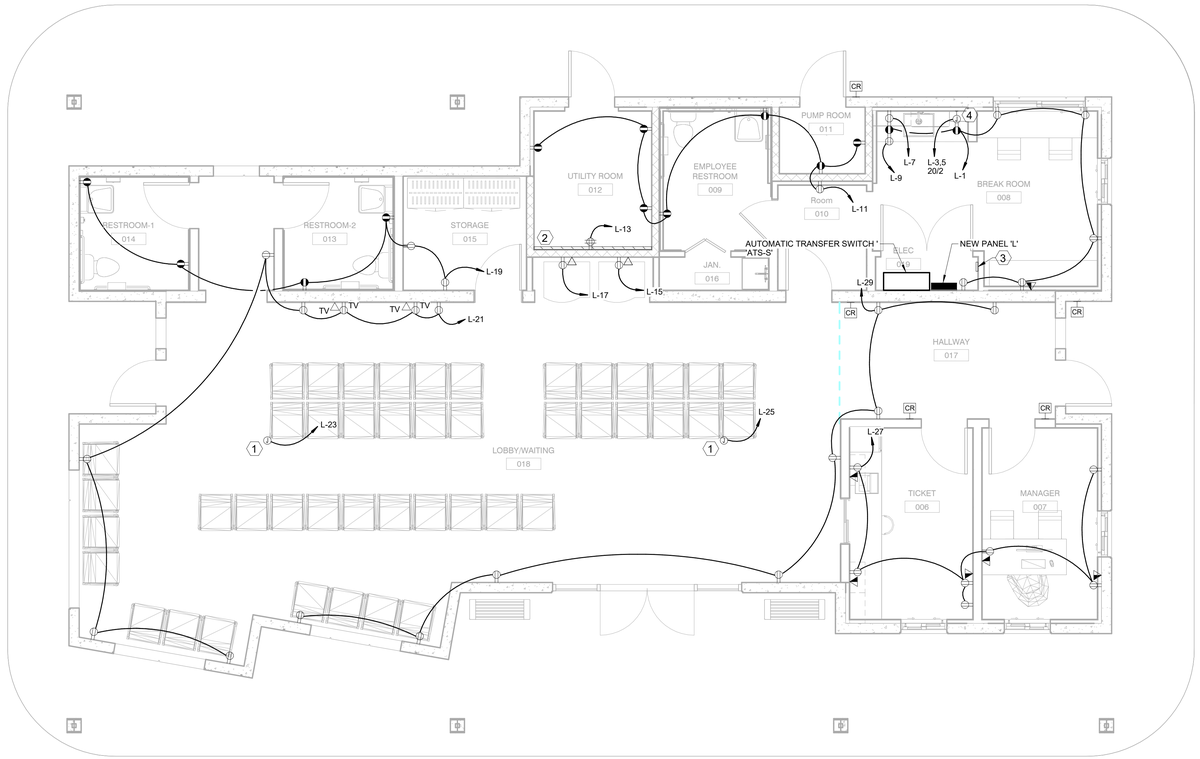

1 LEVEL 01 FLOOR PLAN - ELECTRICAL
E2 1/4" = 1'-0"

GENERAL NOTES:
(APPLY TO THIS SHEET ONLY)

1. REFER TO DRAWING E0.0 FOR SYMBOLS LEGEND.
2. DRAWING IS FOR DESIGN INTENT ONLY. CONTRACTOR SHALL DETERMINE EXACT CONDUIT ROUTING IN THE FIELD WITH ALL OTHER TRADES.
3. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES WITH ARCHITECT. DEVICE AND COVERPLATE FINISHES TO BE SELECTED BY ARCHITECT.
4. COORDINATE EXACT LOCATION AND REQUIREMENTS OF LOW VOLTAGE AND SECURITY SYSTEMS WITH RESPECTIVE CONSULTANT AND ARCHITECT. PROVIDE ALL CONDUITS, JUNCTION BOXES, PULL BOXES, ETC. INDICATED ON CONSULTANT'S PLANS.
5. COORDINATE ALL THROUGH FLOOR STUB-UP LOCATIONS WITH STRUCTURE AND ARCHITECT. FLOOR PENETRATIONS SHALL BE FIRE SEALED AS REQUIRED.
6. VERIFY ELECTRICAL REQUIREMENTS AND RECEPTACLE NEMA TYPES FOR EQUIPMENT WITH EQUIPMENT SUPPLIER/SUBMITTAL PRIOR TO INSTALLATION.
7. COORDINATE EXACT ELECTRICAL REQUIREMENTS AND LOCATIONS FOR ALL PLUMBING AND MECHANICAL EQUIPMENT WITH DIVISION 22 AND 23, RESPECTIVELY. PROVIDE FUSED DISCONNECTS AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS. PROVIDE NEUTRAL CONDUCTORS IF REQUIRED BY MANUFACTURER.
8. PROVIDE PULLSTRING IN ALL EMPTY CONDUITS.
9. MAINTAIN FIRE RESISTANCE RATING OF WALLS WITH PENETRATIONS AND RECESSED OUTLET BOXES. MAINTAIN SPACING PER IBC AND MANUFACTURER. PROVIDE UL FIRE STOPPING AS REQUIRED.

LEGEND NOTES:
(APPLY TO THIS SHEET ONLY)

1. PROVIDE FAN-RATED JUNCTION BOX FOR POWER CONNECTIONS TO CEILING FAN. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER. COORDINATE EXACT CONTROL REQUIREMENTS WITH MANUFACTURER/OWNER. PROVIDE WALL MOUNTED JUNCTION BOX WITH FAN CONTROL SWITCH AT LOCATION COORDINATED WITH OWNER/ARCHITECT AS REQUIRED.
2. PROVIDE A 3/4" THICK, 8' HIGH PLYWOOD TELEPHONE BACKBOARD ACROSS WALL AS SHOWN. PROVIDE WITH (1) 12"X4" GROUNDING BUS BAR CONNECTED VIA A #2 GROUND WIRE TO BUILDING GROUND. PROVIDE GROUND CONNECTIONS TO IT EQUIPMENT, ANTI-STATIC FLOOR, AND ALL EQUIPMENT IN ROOM (AS APPLICABLE). PAINT BACKBOARD WITH (2) COATS OF FLAME RETARDANT SEALANT TO MATCH WALL COLOR.
3. PROVIDE REMOTE GENERATOR CONTROL PANEL WITH EMERGENCY STOP BUTTON AT THIS LOCATION SHOWN.
4. PROVIDE JUNCTION BOX FOR 208V HARDWIRED CONNECTION TO ELECTRIC COOKTOP AT THIS LOCATION. COORDINATE EXACT LOCATION AND FINAL CONNECTION REQUIREMENTS WITH ARCHITECT/MANUFACTURER PRIOR TO ROUGH-IN.

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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
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Department of Public Works - Division of Transportation

LEVEL 01 FLOOR PLAN - ELECTRICAL

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E2 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E2 - LEVEL 01 FLOOR PLAN - ELECTRICAL
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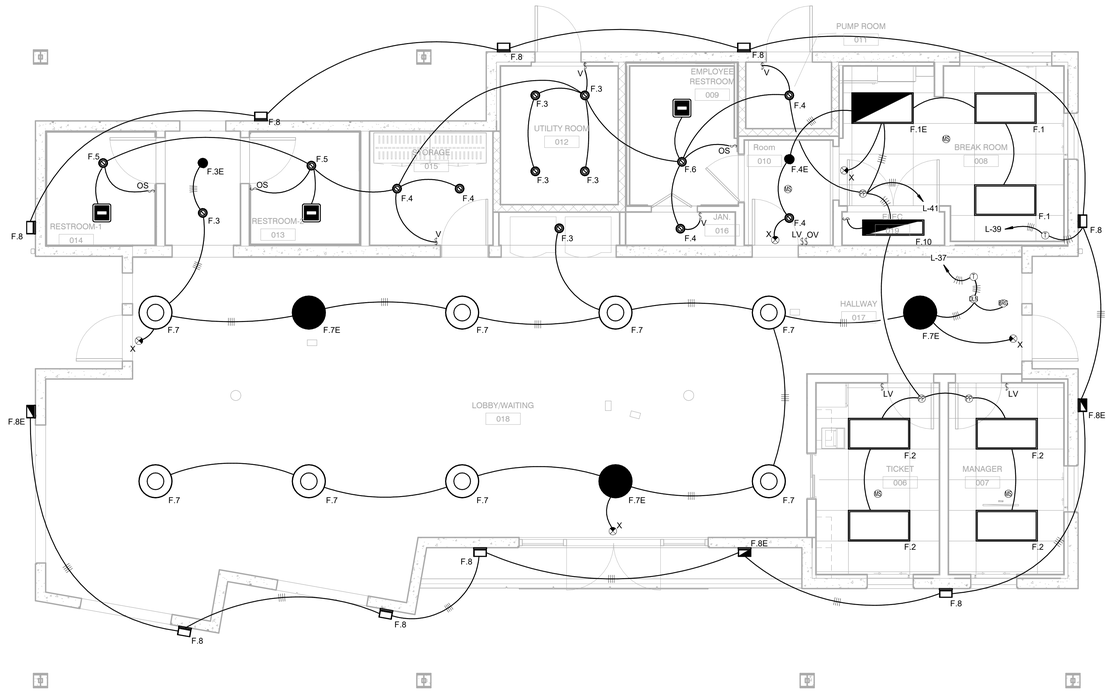

1 E3 LEVEL 01 FLOOR PLAN - LIGHTING
1/4" = 1'-0"

GENERAL NOTES:
(APPLY TO THIS SHEET ONLY)

1. REFER TO DRAWING E0.0 FOR SYMBOLS LEGEND AND LIGHTING FIXTURE SCHEDULE.
2. DRAWING IS FOR DESIGN INTENT ONLY. CONTRACTOR SHALL DETERMINE EXACT CONDUIT ROUTING IN THE FIELD.
3. MAINTAIN FIRE RESISTANCE RATING OF WALLS WITH PENETRATIONS AND RECESSED OUTLET BOXES. MAINTAIN SPACING PER IBC AND MANUFACTURER. PROVIDE UL FIRE STOPPING AS REQUIRED.
4. COORDINATE COLOR/FINISH OF FIXTURES AND COVERPLATES WITH ARCHITECT.

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No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

LEVEL 01 FLOOR PLAN - LIGHTING

J. CLARK — Project Engineer
2024-009 — Project No.
01/17/25 — Date

E3 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E3 - LEVEL 01 FLOOR PLAN - LIGHTING
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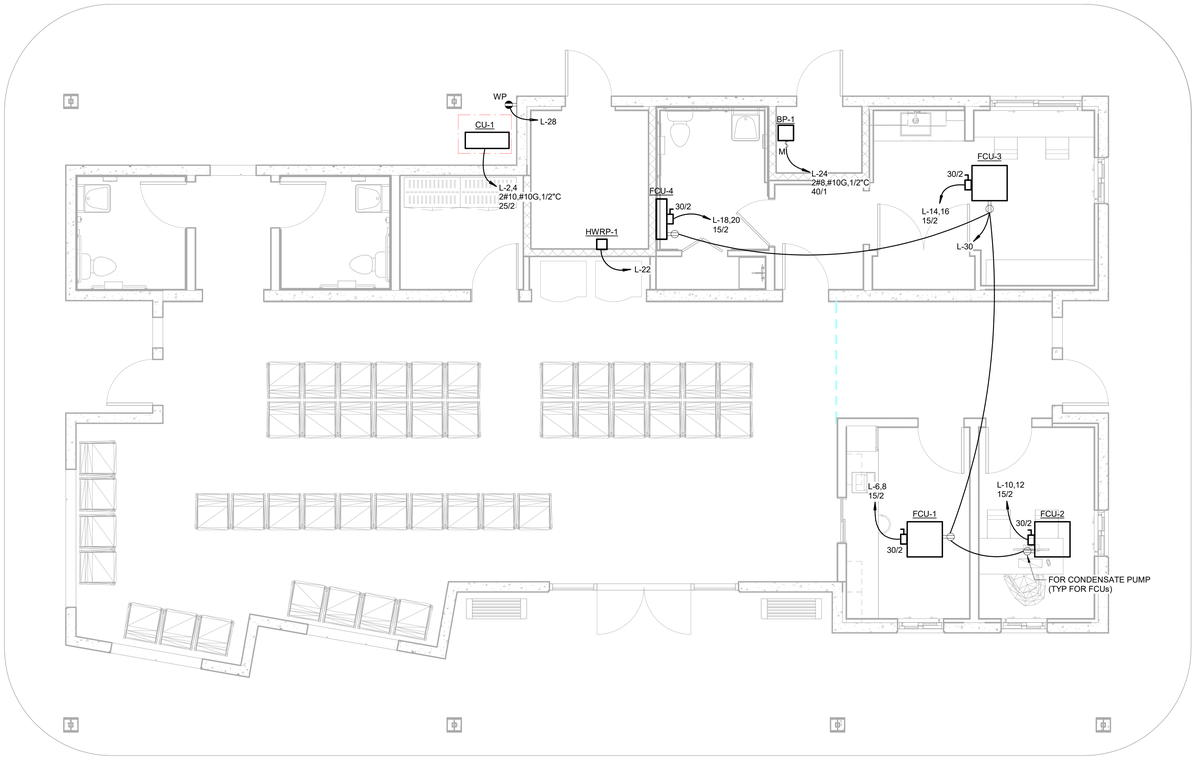

1 E4 LEVEL 01 FLOOR PLAN - HVAC CONNECTIONS
1/4" = 1'-0"

GENERAL NOTES:
(APPLY TO THIS SHEET ONLY)

1. REFER TO DRAWING E0.0 FOR SYMBOLS LEGEND.
2. DRAWING IS FOR DESIGN INTENT ONLY. CONTRACTOR SHALL DETERMINE EXACT CONDUIT ROUTING IN THE FIELD WITH ALL OTHER TRADES.
3. ALL HVAC DISCONNECTS ARE PROVIDED BY DIVISION 23 UNLESS NOTED OTHERWISE OR IDENTIFIED ON PLANS. PROVIDE FUSES PER MANUFACTURER'S RECOMMENDATIONS AS REQUIRED.
4. MAINTAIN FIRE RESISTANCE RATING OF WALLS WITH PENETRATIONS AND RECESSED OUTLET BOXES. MAINTAIN SPACING PER IBC AND MANUFACTURER. PROVIDE UL FIRE STOPPING AS REQUIRED.

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ISSUANCES		
No.	Drawing Issue Description	Date
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

LEVEL 01 FLOOR PLAN - HVAC CONNECTIONS

J. CLARK
Project Engineer

2024-009
Project No.

01/17/25
Date

E4
Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E4 - LEVEL 01 FLOOR PLAN - HVAC CONNECTIONS
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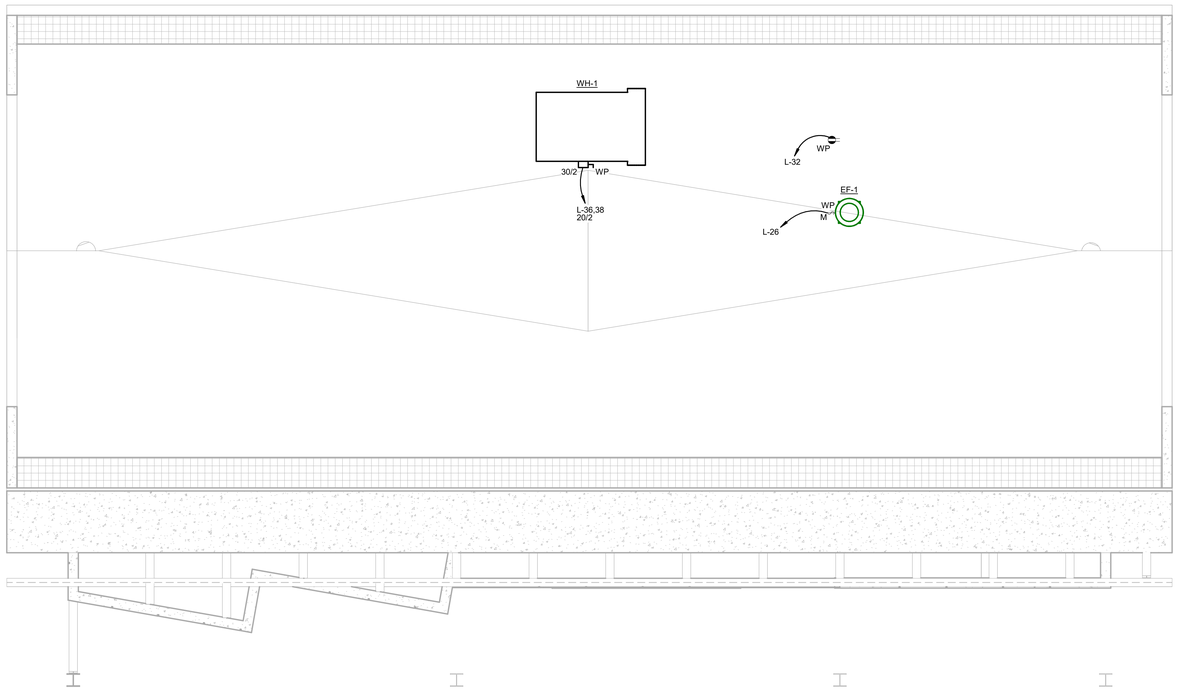

1 / E5 ROOF PLAN - HVAC CONNECTIONS
1/4" = 1'-0"

GENERAL NOTES:
(APPLY TO THIS SHEET ONLY)

1. REFER TO DRAWING E0.0 FOR SYMBOLS LEGEND.
2. DRAWING IS FOR DESIGN INTENT ONLY. CONTRACTOR SHALL DETERMINE EXACT CONDUIT ROUTING IN THE FIELD WITH ALL OTHER TRADES.
3. ALL HVAC DISCONNECTS ARE PROVIDED BY DIVISION 23 UNLESS NOTED OTHERWISE OR IDENTIFIED ON PLANS. PROVIDE FUSES PER MANUFACTURER'S RECOMMENDATIONS AS REQUIRED.
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ISSUANCES		
No.	Drawing Issue Description	Date
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LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

ROOF PLAN - HVAC CONNECTIONS

J. CLARK
Project Engineer

2024-009
Project No.

01/17/25
Date

E5
Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: E5 - ROOF PLAN - HVAC CONNECTIONS
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ABBREVIATIONS

A/C	ABOVE CEILING
AD	ACCESS DOOR
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AUTO	AUTOMATIC
AC	AIR CONDITIONING
AHU	AIR HANDLING UNIT
BAL	BALANCING
BDD	BACKDRAFT DAMPER
B/F	BELOW FLOOR
B/G	BELOW GRADE
B'FLY	BUTTERFLY
BHP	BRAKE HORSEPOWER
BCO	BASE CLEANOUT
CFM	CUBIC FEET PER MINUTE
CBCR	CURVED BLADE CEILING REGISTER
CD	CEILING DIFFUSER
CU	CONDENSING UNIT
CW	COLD WATER (DOMESTIC)
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
CON	CONCENTRIC
CO	CLEANOUT
COND	CONDENSATE
db	DRY BULB
DN	DOWN
DR	DRAIN
do	DITTO
dB	DECIBELS
DWG	DRAWING
EA	EACH
EAT	ENTERING AIR TEMPERATURE
ECC	ECCENTRIC
EF	EXHAUST FAN
EOD	EMERGENCY OVERFLOW DRAIN
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EFF	EFFICIENCY
F	FAHRENHEIT
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FSD	FIRE/SMOKE DAMPER
FD	FIRE DAMPER OR FLOOR DRAIN
FL DR	FLOOR DRAIN (only)
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
G	GATE
GA	GAUGE
GPM	GALLONS PER MINUTE
GL	GLOBE
GCO	GRADE CLEANOUT
HD	HUB DRAIN
HP	HORSEPOWER
HTG	HEATING
HW	HOT WATER (DOMESTIC)
HWR	HOT WATER RETURN
HWRR	HOT WATER REVERSE RETURN
HWS	HOT WATER SUPPLY
Hz	HERTZ
ID	INSIDE DIMENSION
IN	INCHES
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LB	POUNDS
LG	LINEAR GRILLE
LRG	LINEAR RETURN GRILLE
LWR	LOOP WATER RETURN
LWS	LOOP WATER SUPPLY
MIN	MINIMUM
MAX	MAXIMUM
MD	MANUAL DAMPER
MOD	MOTOR OPERATED DAMPER
MFR	MANUFACTURER
NC	NORMALLY CLOSED
NG	NATURAL GAS
NFWH	NON-FREEZE WALL HYDRANT
NO	NORMALLY OPEN
NOM	NOMINAL
OA	OUTSIDE AIR
OD	OUTSIDE DIMENSION
OBD	OPPOSED BLADE DAMPER
PIU	POWERED INDUCTION UNIT
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RAD	RADIUS
RAG	RETURN AIR GRILLE
RED	REDUCER
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
RAR	RETURN AIR REGISTER
SP	STATIC PRESSURE
SPS	STATIC PRESSURE SENSOR
SA	SUPPLY AIR
SAN	SANITARY
SD	SMOKE DAMPER
SEN	SENSIBLE
SQ	SQUARE
SR	SUPPLY REGISTER
ST	STORM
SS	SPLIT SYSTEM
TEMP	TEMPERATURE
TG	TRANSFER GRILLE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VENT
VA	VALVE
VTR	VENT THRU ROOF
VAV	VARIABLE AIR VOLUME
wb	WET BULB
WC	WATER COLUMN
WHA	WATER HAMMER ARRESTOR
WT	WEIGHT
W	WASTE

PLUMBING LEGEND

	COLD WATER
	HOT WATER
	HOT WATER RECIRCULATION
	VENT
	SANITARY WASTE
	GAS
	WORK TO BE REMOVED
	FLOOR DRAIN
	HOSE BIBB
	FLOOR CLEAN-OUT
	WALL CLEAN-OUT
	GATE VALVE
	BALL VALVE

PUMP SCHEDULE

I.D. TAG	FLUID	TYPE OF PUMP	FLOW (GPM)	HEAD (FT.)	MAX. NPSHR (FT.)	MAX. RPM	MOTOR H.P.	VOLTS/ PHASE	MINIMUM EFFICIENCY (%)	BASIS OF DESIGN	REMARKS
BP-1	WATER	WELL PUMP	20	70	-	-	1	120/1	-	GRUNDFOS JP PS 16 10 187	(1)
HWRP-1	WATER	RECIRC.	5	20	-	-	1/12	120/1	-	B&G SERIES PL	(2)

(1) SELF-PRIMING, BASE-MOUNTED WELL PUMP WITH INTEGRAL PRESSURE SWITCH. PROVIDE WITH BLADDER TYPE PRESSURE TANK.
(2) PROVIDE WITH STARTER, DISCONNECT, TIMER AND AQUASTAT.

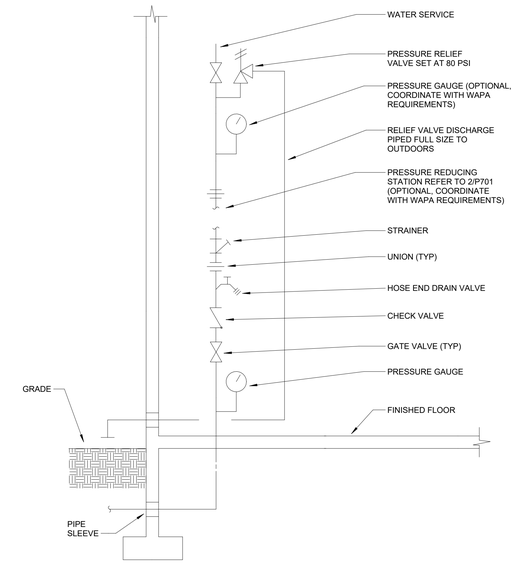
SOLAR WATER HEATER SCHEDULE

I.D. TAG	TYPE OF WATER HEATER	TANK CAPACITY (GALLONS)	RECOVERY @ 80°F (GPH)	POWER INPUT (KW)	VOLTS/ PHASE	BASIS OF DESIGN	REMARKS
WH-1	GLASS TUBE SOLAR	15	-	2.4	208/1	SUNBANK SB-40G	(1)

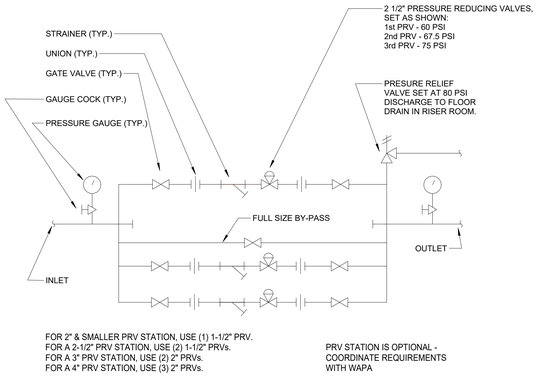
(1) PROVIDE EXPANSION TANK ON CW INLET; WATTS SERIES PLT OR EQUAL SIZED PER MANUFACTURER'S RECOMMENDATIONS.

PLUMBING FIXTURE SCHEDULE

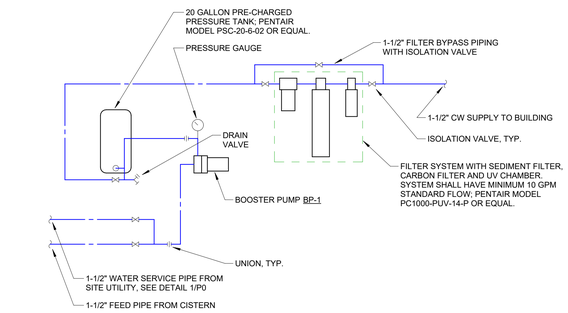
TAG	FIXTURE	CW	HW	SAN/ WASTE	VENT	REMARKS
P-1	WATER CLOSET, FLOOR-MOUNT	1/2"	-	4"	2"	
BASIS OF DESIGN: Kohler Kingston Comfort Height K-25077-SS. Fixture shall be vitreous china, elongated bowl, 1.28 gpf, floor-mounted, tank-type water closet. Fixture shall be two-piece, have Class Five flushing system, and shall include chrome trip level, open-front contoured toilet seat Kohler Stronghold K-4731-SA or approved equal, chrome-plate supply stops and level, tank attachment kit, tank cover, flush valve unit, anti-siphon float valve, bolt cap covers, etc. as needed for a full and complete system.						
P-2	LAVATORY, WALL-MOUNT	1/2"	1/2"	2"	2"	
BASIS OF DESIGN: Kohler Soho K-2084. Fixture shall be white vitreous china, wall-mount lavatory with concealed carrier and anchoring screws; single hole punch, and 1 1/4" drain. Faucet shall be Symmons S6350B Dia ActivSense battery powered, sensor faucet with 0.5 gpm aerator. Provide with chrome plated tailpieces, chrome grid drain, P-trap, loose key supply stops and all other trim. Fixture shall be installed to meet all ADA requirements. Provide and install point of use mixing valve rated in accordance with ASSE 1070 on the hot water connection.						
P-3	BREAK SINK	1/2"	1/2"	2"	2"	
BASIS OF DESIGN: Elkay Model LR2521. Break sinks shall be single compartment, 18 gauge stainless steel with sound-deadening, 25" x 21-1/4" outside dimensions, 21" x 15-3/4" inside dimensions with an 8" depth. Faucet punching shall be 3 hole and shall be complete with Kohler Model K-15173, single handle faucet with 10" swing spout, and hand spray. Provide stainless steel removable crumb cup strainers and drains complete with service stops, tailpieces, P-trap and all trim.						
P-4	JANITOR'S SINK	1/2"	1/2"	3"	2"	
BASIS OF DESIGN: Stern-Williams Cornaro Model SBC-1500. Fixture shall be a Terrazzo floor service sink, 24" x 24" x 12" high, complete with one-piece stainless steel cap all-around top edge, cast brass 3" caulked drain with stainless steel strainer. Faucet set shall be Stern-Williams T-10-VB sink fitting complete with wall brace, hose end, vacuum breaker and chrome finish. Provide and install 24" tall stainless steel splash guards on all adjacent walls.						
FD	FLOOR DRAIN	1/2" TP	--	3" U.O.N.	2"	



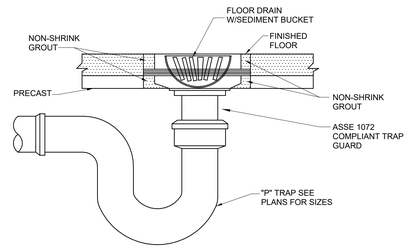
1 P0 WATER ENTRANCE DETAIL
12" = 1'-0"



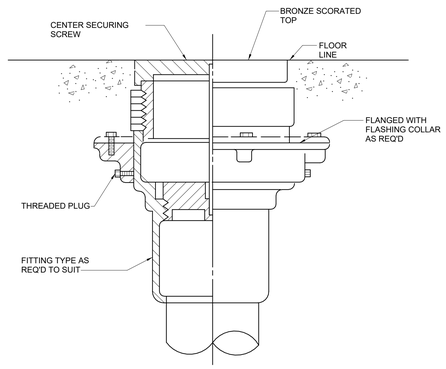
2 P0 PRESSURE REDUCING STATION DETAIL
NOT TO SCALE



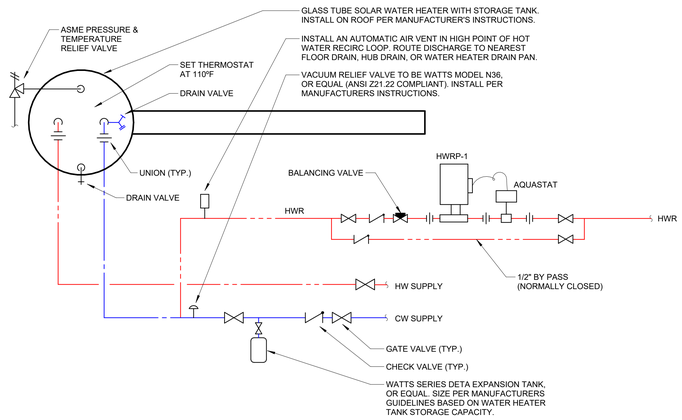
3 P0 BOOSTER PUMP AND FILTER DETAIL
3/8" = 1'-0"



4 P0 FLOOR DRAIN DETAIL
NOT TO SCALE



5 P0 FLOOR CLEANOUT DETAIL
NOT TO SCALE



6 P0 SOLAR WATER HEATER WITH RECIRC DETAIL
12" = 1'-0"

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VITRAN

PROFESSIONAL ENGINEER CHRISTOPHER A. YATES 1784-E U.S. VIRGIN ISLANDS

ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB, ST. CROIX USVI
Department of Public Works - Division of Transportation

PLUMBING SCHEDULES & DETAILS

Checker — Project Engineer
2024-009 — Project No.
01/06/25 — Date

P0 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: P0.- PLUMBING SCHEDULES & DETAILS
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SECTION 22 05 00
COMMON WORK RESULTS FOR PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. This Division 22 and the accompanying drawings cover the provision of all labor, equipment, appliances, and materials and performing all operations in connection with the construction of the plumbing systems as specified herein and as shown.

B. All work specified in this Section is governed by the Common Work Results for Plumbing 22 05 00.

C. The General Provisions and Division 1, including the general, supplementary and other conditions and other Divisions, as appropriate, apply to work specified in this Division.

1.2 INTENT OF DRAWINGS AND SPECIFICATIONS

A. The implied and stated intent of the drawings and specifications is to establish minimum acceptable standards for materials, equipment and workmanship, and to provide operable plumbing systems complete in every respect.

B. The engineering drawings are diagrammatic, intended to show general arrangement and sizes of system components, and shall not be scaled. Rather, the architectural and structural drawings shall govern space constraints, dimensions and finishes. All offsets and fittings which will be necessary to accomplish the finished installation shall be provided at no additional cost or increase in the Contract.

1.3 SPACE PRIORITY

A. Ensure optimum use of available space for materials and equipment installed above ceilings. Allocate space in the order of priority as listed below except as otherwise detailed. Items are listed in the order of priority with 1 of equal importance listed under a single priority number.
1. Gravity flow piping systems
2. Vent piping systems
3. Recessed lighting fixtures
4. Concealed HVAC terminals and equipment
5. Air duct systems
6. Sprinkler piping systems
7. Pressurized piping systems
8. Electrical conduit, wiring, control air tubing

B. Order of space priority does not dictate installation sequence. Installation sequence shall be as required to install all affected trades.

C. The work of this Division 22 shall not obstruct access for installation, operation and maintenance of the work of any other Division.

D. All major items of equipment shall be arranged so as to provide a minimum of 28" clear aisle space. Additional space shall be provided between and around equipment for maintenance and proper operation as shown in the Equipment Manufacturer's literature.

1.4 COORDINATION

A. Coordinate all work under this Division 22 with work under all other Divisions, providing adjustment as necessary.

B. Coordination of space requirements with respect to Division 26 shall be performed such that:
1. No equipment, piping or ductwork, other than electrical, shall be installed within 42" of switchboards or panelboards.
2. No piping or ductwork which ever operates at a temperature in excess of 120°F shall be installed within 3" of any electrical conductor.

C. All items mounted in or below the ceiling, and all items penetrating the ceiling, shall be coordinated with the architectural reflected ceiling plans. If any items are not shown on these plans, or any items need to be relocated for coordination purposes, prepare a reflected ceiling plan and submit it to the Architect for approval.

1.5 CODE COMPLIANCE

A. All workmanship and materials provided under this Division 22 shall comply with all laws, ordinances, codes and regulations of all Federal, State and Local Authorities Having Jurisdiction.

B. All fire suppression, plumbing, heating, ventilating, and air conditioning materials and workmanship shall comply with all local, state, and federal codes.

C. Secure and pay all fees associated with all permits and licenses required for execution of the Contract. Arrange for all inspections required by City, County, State and other Authorities Having Jurisdiction, and deliver certificates of approval to the Architect.

D. The code requirements are strictly a minimum and shall be met without incurring additions to the Contract. Where requirements of the drawings or specifications exceed the code requirements, the work shall be provided in accordance with these drawings or specifications. In the event of conflict or ambiguity between the various codes, the most stringent requirement shall govern.

1.6 ELECTRICAL REQUIREMENTS AND INTERFACE

A. All electrical equipment and wiring provided under this Division 22 shall comply with the electrical system characteristics indicated on the electrical drawings and specified in Division 26.

B. Electric controls, contactors, starters, pilot lights, push buttons, etc., shall be provided complete as part of the motor, heater or other equipment which it operates. All electrical components shall be in conformance with the requirements of the National Electrical Code and Division 26. Starters shall be wye-delta, closed transition type. Reference Division 26 and the electrical engineering drawings for those motor starters provided under that Division 26. All starters not shown shall be provided under this Division 22. Unless specified otherwise under other individual equipment Sections, motor starters shall conform to the following minimum requirements:
1. Starters for motors 1/3 horsepower or smaller shall be manual unless remote or automatic starting is required, in which case the starters shall be magnetic, full voltage, non-reversing, single-speed, unless otherwise indicated. All other starters shall be magnetic.
2. Each starter for a three-phase motor shall be furnished with three (3) overload relays sized for the full load running current of the motor actually provided. Provide an external "HAND-OFF-AUTO" selector switch with red "RUNNING" light. Provide a green pilot light to indicate motor "STOPPED". Each pilot light shall have a legend plate indicating reason for signal.
3. Each overload relay shall have a normally open alarm contact which will close only when actuated by an overload (not to be confused with N.O. or N.C. auxiliary contacts). These contacts shall be properly wired to their respective blue pilot light provided on the starter front cover and having a "TRIPPED" legend plate.
4. Individually mounted motor starters shall be in a NEMA Type 1 general purpose enclosure in unfinished areas and shall be flush mounted in all finished areas. All starters mounted in exterior areas shall have a NEMA 3R enclosure. Each starter shall have a laminated nameplate to indicate equipment unit number, function and circuit number.
5. All motor starters, push buttons and pilot lights shall be of the same manufacturer as the switchboard and shall be General Electric, Square D, Siemens I.T.E., or Westinghouse.

C. Motor starters for the following equipment shall be provided under this Division 22 by the Manufacturer of the equipment:
1. Packaged booster pump systems
2. Other equipment hereinafter specified in other Sections to be provided with integral starters

D. Unless otherwise noted or specified in individual Sections, all 3-phase motors shall be standard NEMA continuous duty "B" type, with Class B insulation, open drip-proof frame for indoor service, TEFC for outdoor service and a service factor of 1.15. All motors 5 HP and larger shall be U.S. Motors Hi-Efficiency Model or Reliance XE Hi-Efficiency Model.

E. All power wiring and final connections to equipment shall be provided under Division 26.

F. Control components, all interlocks (control valves, leak sensors, etc.) and control wiring (120 volt, single phase and less) shall be provided under this Division 22 as required to achieve the specified control sequences.

G. All control wiring over 30 volts shall be installed by a Licensed Electrician working under this Division 22.

1.7 SLEEVES, SEALS AND ESCUTCHEONS

A. Sleeves shall be provided through all pipe penetrations of concrete or masonry walls, elevated floors and roofs, except those plumbing piping penetrations for fixtures, vents, etc.

B. Sleeves shall be fabricated from Schedule 40 steel pipe through 10" and Standard Wall steel pipe for sleeve sizes 12" and larger. All sleeves penetrating exterior walls, underground walls, pit or vault walls shall be provided with a 3" x 3/8" thick waterstop ring welded completely to the midpoint of the sleeve.

C. All sleeves penetrating exterior walls, underground walls, pit or vault walls and elevated floors shall be packed and sealed watertight.

D. Sleeves through roofs shall extend above the roof surface and be flashed watertight.

E. Sleeves through walls shall be cut and finished flush with each surface of the wall in which they are installed.

F. Sleeves through elevated floors shall extend at least ½" above the finished floor and be sealed waterproof between the sleeve and slab.

G. Sleeves shall be sized to provide a minimum of 1/2" clearance between the inside surface of the sleeve and the outside finished surface of the pipe plus any insulation specified.

H. Fire-stops shall be provided as specified herein. All annular spaces between piping and sleeves which do not require fire-stops shall be packed with mineral wool and caulked.

I. Fire-stopping or packing at elevated floor penetrations shall be level with or above the elevation of the top of sleeve to prevent any water ponding on top of the sleeve.

J. Provide round, chrome-plated escutcheons on all exposed piping penetrations passing through walls, floors, partitions and ceilings.

K. All penetrations through rated slabs, walls, etc. shall be in accordance with UL listed systems. Provide rated box-out, fire caulking, etc. as needed to ensure fire rating is maintained in compliance with UL listed systems.

1.8 FIRESTOPS

A. Where piping, conduit, etc. pass through fire partitions, fire walls and floors, a firestop shall be provided that will ensure an effective barrier against the spread of fire, smoke and gases. Firestop material shall be packed tight and completely fill gaps between the ductwork, piping, conduit, etc. and the perimeter of their rough openings.

B. All penetrations shall be in accordance with UL 1479 or ASTM E 814 listed systems, and products used shall be specifically applicable for the appropriate installation conditions. Assemblies shall provide a minimum rating equal to the construction penetrated. Products shall be by HILTI, 3M, or ProSet.

C. Installation shall be by a Qualified Installer. Installer shall be certified, licensed, or otherwise qualified by the Firestopping Manufacturer as having the necessary training to install the Manufacturer's specific product. A Manufacturer or Vendor's willingness to sell the firestopping product to the Contractor or Installer does not in itself confer qualification.

D. Installer shall have at least one of the following qualifications:
1. FM 4991 Approved Contractor
2. UL Approved Contractor
3. HILTI, 3M, or ProSet Accredited Fire Stop Specialty Contractor

E. Installing Firm shall have no less than 3 years of experience with firestop installation.

F. A Manufacturer's direct Representative (not Distributor or Agent) shall be on site during initial installation of firestop systems to train appropriate Contractor personnel in proper selection and installation procedures.

G. The firestop Contractor or Installer shall supply As-Built documentation of each individual penetration location on the project. Documentation shall include a sequential location number, detailed description of the penetration location, size, and type, tested system number, type of assembly penetrated, and rating to be achieved. As-Built documentation shall be included with the close-out materials.

H. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach label permanently on both sides of penetrated construction in a visible location. The label shall include the following:
1. The words "Warning - Through-Penetration Firestop System-Do Not Disturb"
2. Through Penetration firestop system designation and Manufacturer
3. Date of Installation

1.9 CORE DRILLING

A. Cutting of holes through concrete and masonry shall be by diamond core or concrete saw. Pneumatic hammer, impact electric and hand or manual hammer type drills will not be allowed, except as permitted by the Architect where required by limited working space. Locate holes such that they will not affect structural sections such as ribs or beams. Holes shall be laid out well in advance of the installation. These layout locations shall be approved by the Architect prior to drilling.

1.10IDENTIFICATION OF PIPING

A. All aboveground plumbing systems piping and valves sized 3/4" and larger which are installed in accessible locations (including piping above removable ceilings and behind access panels) shall be identified in strict conformance with the "Scheme for the Identification of Piping Systems" (ANSI A13.1-2015)

B. Piping labels in exposed areas shall be oriented and located in coordination with the Architect.

C. System names shall, at minimum, uniquely identify the system and performance category - i.e. 140°F Hot Water Supply, High Pressure Cold Water, etc.

D. Specialized piping (grease waste, acid waste, fuel piping, etc.) installed underground shall be labeled. The label shall be corrosion resistant or shall be permanently marked.

E. Each identification marker shall include the following:
1. Proper color-coded background
2. Proper color of legend in relation to background color
3. Proper legend letter size
4. Proper marker length
5. Direction of flow arrow shall be included on each marker

F. Locations for pipe markers shall be as follows:
1. Adjacent to each valve and fitting
2. At each branch and riser take off
3. At each pipe passage through walls, floors and ceilings
4. On all straight pipe runs every 25 feet except that piping underground required to be labeled shall be labeled every 10 feet or more often as required by the AHJ

G. Identification markers may be stenciled or shall be Setmark Pipe Markers, as manufactured by Seton Name Plate Corporation.

H. All valves shall be identified with the appropriate service designation and valve number brass valve tags. Each valve tag shall be 19 gauge brass with 1/4" black-filled letters over 1/2" black-filled numbers. Tags shall be fastened to valves with brass "S" hooks or brass jack chain. Brass tags and chains shall be as manufactured by Seton Name Plate Corporation.

I. Provide charts of all valves. Valve charts shall include the following items:
1. Valve identification Number
2. Location
3. Purpose/Material

PART 2 - PRODUCTS

2.1 BID BASIS AND SUBSTITUTION PROCEDURES

A. Manufacturer names, series and model numbers, as noted or specified, are for the purpose of describing type, capacity, and quality of equipment, materials and products to be used. Unless "or equal" is specifically stated, bids shall be based only on the specified "basis of design" Manufacturer. The listing of a particular manufacturer as an "equal" or "acceptable substitute" manufacturer shall not be misconstrued as approving, nor allowing the substitution of, that Manufacturer's standard product in place of the basis of design. No consideration will be given to a product which would require dimensional, spatial or aesthetic changes to the project. "Acceptable substitute" and "equal" manufacturers shall only bid those products which exactly match the size and other characteristics of the specified basis of design. Any changes to other disciplines and trades of work required by an "or equal" or "substitute" product shall be duly considered and priced accordingly prior to bidding or pricing. The decision as to whether or not a proposed substitute or "equal" product is actually equal to that specified shall rest solely with the Architect.

B. Requests to provide "equal" products in lieu of those specified shall be submitted to the Architect in writing at least ten (10) days prior to final pricing and execution of the Contract. No consideration will be given to substitute products after final pricing and execution of the Contract.

C. Any "or equal" product or proposed product substitution which will cause a change in the appearance, dimensions or design of any part of the building, electrical system, or any other engineered systems shall be accompanied by a scaled drawing and written description of the required change(s) for approval by the Architect. If deemed necessary by the Architect, design changes shall be signed and sealed by a registered Professional Engineer, currently licensed in this State. This shall be performed under the Contractor selecting the substitution's scope.

D. Any and all changes due to a substitution of basis of design equipment including but not limited to electrical connection, physical size, access, piping connections, controls, etc. shall be solely the responsibility of Contractor selecting the substitution.

2.2 MINIMUM STANDARDS

A. Every piece of energy consuming equipment, all fire suppression products and life safety equipment shall comply with the following standards as applicable; especially in regard to prevailing codes:
1. Factory Mutual Laboratories (FM)
2. Industrial Risk Insurers (IRI)
3. Underwriters Laboratories, Inc. (UL)
4. ADC: Air Diffusion Council
5. AGA: American Gas Association
6. AMCA: Air Moving and Conditioning Association, Inc.
7. ANSI: American National Standards Institute
8. API: American Petroleum Institute
9. AHRI: Air Conditioning, Heating, and Refrigeration Institute
10. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers
11. ASME: American Society of Mechanical Engineers
12. ASTM: American Society of Testing and Materials
13. AWWA: American Water Works Association
14. IBR: Institute of Boiler and Radiator Manufacturers
15. MSS: Manufacturers Standardization Society
16. NBSPVI: National Board of Boiler and Pressure Vessel Inspectors
17. NEMA: National Electrical Manufacturer's Association
18. OSHA: Occupational Safety & Health Administration
19. PDI: Plumbing Drainage Institute
20. PPI: Plastic Pipe Institute
21. CISPI: Cast Iron Soil Piping Institute

2.3 PIPE HANGERS AND SUPPORTS

A. Pipe hangers, hanger rods, trapeze type hangers, upper attachments and other supports shall be selected based on pipe size (plus insulation of pipes specified to be insulated) and the weight of the medium being transported or the medium used for testing, whichever is greater. Provide all hangers and rods, turnbuckles, angles, channels, and other structural supports to support the piping systems. Rods for pipe hangers shall be full size of the Hanger Manufacturer's catalog listed rod size for each type hanger specified. Hangers and supports shall be Michigan, ITT Grinnell or B-Line.

B. All material utilized for the hanging and support of the piping systems shall be manufactured products which are specifically intended for the purpose of hanging piping systems. The use of wire, steel straps, plastic ties, etc. is strictly prohibited.

C. Pipe hangers selected for supporting horizontal insulated piping shall be sized to fit around the outside of the pipe insulation. Insulated piping shall be supported on galvanized shields.
1. Shields shall be as follows:
   a. Pipes 2" and smaller: 18 gauge x 12" long
   b. Pipes 2 1/2" and larger: 16 gauge x 18" long
2. Shields shall be 180 degrees around the lower half of the pipe at all pipe hangers, except that on trapeze hangers, pipe racks and floor supported horizontal pipes, shields shall be 360 degrees around the entire pipe.

D. Pipe hangers touching copper piping shall be copper plated or the piping shall be dielectrically isolated from any steel hangers or clamps that are used. Note the requirement for domestic water piping requires the hangers to be installed over the insulation.

E. Steel rods, framing and clamps shall be plated or primed to prevent rust formation.

PART 3 - EXECUTION

3.1 GENERAL

A. All piping, valves, and fittings shall be products of a domestic Manufacturer and made in the USA.

B. Flexible piping connections shall be provided and installed at all suction and discharge connections of packaged booster pumps and at any pump 2.0 HP and above. Flexible piping connections shall be suitable for 150 psi working pressure or the system pressure at the installation location, whichever is greater, and be suitable for the temperature of the system. Flexible connections shall be stainless steel braided hose type, with a length not less than their pipe diameter. Provide and install restraining rods if recommended by the Manufacturer for the installation location and application.

C. Provide and install shut-off valves at any and all equipment including water heaters, domestic booster pumps, recirculation pumps, storage and pressure tanks, etc. and at any locations required by code, such as branch lines from risers serving more than one fixture. Shut-offs shall be in addition to those specifically shown or noted in the Contract Documents.

3.2 SUBMITTALS

A. Before preparing submittals, study all Contract Drawings and specifications in detail, obtain manufacturer's recommended instructions, and have submittals prepared based on specific equipment and material proposed for installation. An officer of the contracting firm shall sign all shop drawings (certifying conformance with plans and specifications) before submitting to the Architect or releasing to the field.

B. The submittal process shall not be utilized as an avenue to substitute products after the execution of the contract. Should an unspecified or unequal product be submitted, it will be rejected. If a second attempt at substitution is made during the resubmittal of the same product, then no more reviews of that product will be performed without direct compensation to the Engineer being paid for the additional services required for the third review and any further reviews.

C. All submittals shall be submitted and returned electronically.

D. Submittals will not be accepted for review unless they:
1. Comply with the requirements of Division 1.
2. Include complete information pertaining to all appurtenances and accessories.
3. Are submitted as complete packages which pertain to all related items in Division 22. Separate packages shall be submitted as follows:
   a. All plumbing equipment, piping, specialties, and components
   b. All plumbing fixtures
4. Are properly marked with equipment, service or function identification as related to the project and are marked with pertinent specification paragraph number.

E. Submit catalog information, factory assembly drawings, field installation drawings and certifications as required for complete explanation and description of all items of equipment. The submittal data shall provide ample, unquestionable compliance with the Contract Documents.

F. Review of submittals shall not be construed as authorizing any deviations from the plans and specifications unless such deviations are clearly identified and separately submitted in the form of a letter that is enclosed with the submittals.

G. Submittals are required on all manufactured equipment, especially energy consuming equipment. Submittals shall include, but are not limited to, the following items of equipment:
1. Piping and Piping Specialties
2. Insulation
3. Water Heaters
4. Pumps
5. Plumbing Fixtures
6. Firestopping Products and Applicable UL Firestop Details

3.3 EXCAVATION, TRENCHING AND BACKFILLING

A. Perform all excavation, trenching and backfilling for underground work under this Division 22. During excavation, the excavated material shall be piled back from the banks of the trench to avoid overloading, slides or cave-ins. Do not exceed the angle of repose unless written approval is obtained in advance from the Architect for shoring, bracing or other alternative excavation methods. All excavated material not used for backfilling shall be removed from the building and disposed of as indicated or directed by the Architect. Take measures to prevent surface water from flowing into trenches and other excavations and any water accumulating therein shall be removed by pumping. All excavation shall be made by open cut. Tunneling shall not be allowed.

B. The bottom of all trenches shall be evenly graded to provide firm support and an even bearing surface. Pipe shall be laid on firm soil, laid in straight lines and on uniform grades. Provide bell holes so that the barrel of the pipe rests evenly on the bottom of the trench along the entire length of the pipe.

C. Pipe shall be inspected and tested prior to backfilling. Trench shall be handfilled to a minimum of 12" above the top of pipe with suitable earth (free of rocks, trash, large clods and organic material) and compacted to a minimum 95% proctor. After the first layer is completed, subsequent layers shall be filled and compacted the same as the first layer. Setting the backfill with water shall not be permitted.

3.4 INSTALLATION REQUIREMENTS

A. All equipment shall be installed in strict conformance with the recommendations of the Equipment Manufacturer, as indicated on the Drawings, and as specified.

B. Provide installation manuals for each piece of equipment. Submit in separately bound volumes after review of submittals.

C. Provide supplementary steel framing and welded steel equipment support stands as required for proper hanging and support of the plumbing systems. Steel angles, channels and tubing utilized for such framing shall be selected for a maximum deflection of 1/360th of the span.

D. All roof curbs shall be a minimum of 12" high and selected for the various roof pitches. Curbs installed on roofs having pitches of not more than 1/4" per foot may be standard curbs shimmed level with steel channels or Zs to provide suitable support and flashing surfaces.

3.5 CLEANING, LUBRICATION AND ADJUSTMENT

A. The exterior surfaces of all plumbing equipment, piping, conduit, etc., shall be cleaned and free of all dirt, grease, oil, paint splatter, and other construction debris.

B. Bearings that require lubrication shall be lubricated in strict accordance with the manufacturer's recommendations.

C. All control equipment, valves, equipment settings, pressure tanks, etc. shall be adjusted to the settings required for the performance specified.

D. All materials, equipment, etc. subject to weather, corrosion, dust, debris, water etc. to be installed or utilized for the project shall be fully protected. This is inclusive of piping and duct openings and internal fan ventilation intakes and discharges. This Division's scope includes protection and remediation of any and all Division materials, etc. including cleaning, vacuuming, dusting, etc. required for a clean system and operation. Insulation and equipment with electrical connections subject to water shall be replaced in their entirety. Coordinate with all other trades and schedules.

3.6 PAINTING

A. All uncoated and uninsulated steel surfaces exposed to sight inside the building, such as piping, equipment hangers and supports, which are not provided with factory prime coat or galvanizing, shall be cleaned and painted with one coat of rust inhibiting primer. In addition, all surfaces in finished spaces shall also be painted with two coats of finish paint in a color selected by the Architect.

B. Steel items exposed outside the building, such as equipment supports, uninsulated piping and hangers which are not factory painted or galvanized shall be cleaned and painted with one coat of rust inhibiting primer and two coats of asphaltic base aluminum paint. Insulated steel pipes outside the building shall be cleaned and painted with one coat of rust inhibiting primer before installing insulation.

C. Factory painted equipment that has been scratched or marred shall be repainted to match the original factory color.

3.7 PIPING LEAK TESTING

A. Sanitary, waste, storm, and vent piping shall be tested with water before installing fixtures. Water test shall be applied to the system either in its entirety or to the individual sections. Each opening except the highest opening of the section under test shall be plugged, and the section shall be filled with water and tested with a head of water of at least ten (10) feet above the highest point in the system. The water shall be kept in the portion under test, for at least thirty (30) minutes; no drop in the water level will be acceptable.

B. The water piping systems shall be tested at a minimum pressure of 125 psi, or 1.5 times the system operating conditions, whichever is greater, and proved tight at this pressure for not less than thirty (30) minutes or longer if required to permit inspection of all joints. No loss in pressure will be permitted.

C. All compressed air piping shall be tested pneumatically and proved tight at a pressure of not less than 100 psi for a period of not less than two (2) hours. No loss in pressure will be permitted.

D. All leaks shall be repaired by tightening, remaking joints, or replacing pipe and fittings. Caulking of joints shall not be permitted.

E. See specification section 23 11 23 for testing requirements of natural gas and liquid propane gas piping. System shall be part of Division 22 scope unless otherwise arranged within the Contract. Coordinate with Division 23.

3.8 RECORD (AS-BUILT) DRAWINGS

A. At the completion of the project, provide a set of reproducible prints to the Architect which reflects all changes, deviations and revisions made to the original design documents. Locations of all underground piping and utilities shall be clearly shown and dimensioned from permanent reference points such as building column lines. Record drawings shall be produced in electronic format compatible with AUTOCAD. Furnish electronic copies of all drawings in dwg. format, and two (2) bond copies of all drawing sheets. As-Builts for electronic incorporation by the Design Team, as applicable, shall be redline mark-ups of the Construction Documents.

3.9 OPERATING AND MAINTENANCE MANUALS AND INSTRUCTIONS

A. Complete operating and maintenance manuals shall be provided to the Owner. Four copies shall be provided. Each copy shall be bound in a separate 3-ring, loose leaf notebook. Operating instructions shall be provided for each plumbing system, and shall each include a brief system description, a simple schematic and a sequence of operation. Operating and maintenance instructions shall be provided for each piece of equipment. A control system wiring diagram shall be included in each operating and maintenance manual.

B. Prior to final acceptance or beneficial occupancy, provide the services of a Competent Technician for not less than one (1) day to instruct the Owner in the operation of the plumbing systems.

3.10 MINIMUM HANGER SPACING

A. Pipe hangers or supports shall be provided within 18" of each horizontal fitting, equipment connection, valve, etc. and within 18" of the centerline of horizontal or vertical changes in direction summing to 90° or more. Specific attention is called to turns into vertical risers.

B. Piping supports shall be provided, at a minimum, in accordance with the greater of the below or code minimum. Where the below or code does not address support for specific piping, supports shall be in accordance with manufacturer's requirements.

Piping Material	Max. Horz. Spacing	Max. Vert. Spacing
Cast-iron pipe	5'	15'
Copper pipe	12'	10'
Copper tubing ≤ 1-1/4" dia.	6'	10'
Copper tubing ≥ 1-1/2" dia.	10'	10'
CPVC pipe ≤ 1" diameter	3'	10"*
CPVC pipe ≥ 1-1/4" dia.	4'	10"*
PVC pipe	4'	10"*
PEX	32"	10"*

*Midstory guide required for piping 2" diameter and smaller

C. Riser clamps shall be provided at each floor penetration. For pressurized piping systems, provide vibration isolation at all riser clamps with two (2) pad-type mountings consisting of a minimum 3/8" thick ribbed or waffled elastomeric pads bonded between minimum 16-gauge galvanized steel separator plates. Pads shall be sized for a deflection of 0.12" to 0.18". Pads shall be minimum 3"x3" square.

3.11 WARRANTY

A. All work provided under this Division 22 shall be subject to a minimum one year warranty. The warranty shall include prompt repair or replacement of equipment or system failures and shall include all parts and labor. In addition, all compressors shall carry an additional four year parts-only warranty. Extended warranties shall be provided on all other equipment so specified in other Sections.

3.12 SHOP DRAWINGS

A. Shop drawings per the submittal requirements shall be submit to the Design Team with adequate time for multiple rounds of review. Shop drawings shall show "as-built" conditions including elevations, offsets, transitions, and accessories. Shop drawings shall indicate all code and manufacturer's recommended clearances, access, and coordinate the clearance and access requirements with all other trades.

B. Shop drawings that use keynotes direct from the Design Documents shall not be acceptable as they do not demonstrate coordination with all other trades, necessary transitions, etc.

C. Shop drawings shall be provided as complete packages in parallel with all trades to document coordination. Floor-by-floor or otherwise piecemeal shop drawings are generally not acceptable.

3.13 OWNER TRAINING

A. Owner training shall be provided for all systems and equipment and shall include the following:
1. 8-hours of training for each type of equipment
2. 16-hours for overall system operational training

B. A training summary and schedule shall be submitted to the Architect for approval within ninety (90) days of the date of substantial completion.

C. Training timing will vary and shall be assumed to include multiple sessions as required by the Owner.

3.14 BID REQUIREMENTS

A. The Contractor shall include all systems, equipment and accessories shown on the plans and specifications.

B. The Contractor is responsible for providing all Contract Documents to all SubContractors. All systems, equipment and accessories shall be included in the bid, whether shown on the SubContractor applicable plans or other design documents.

C. Should any discrepancy occur in the Contract Documents, the Contractor shall provide a request for clarification prior to bid or note the discrepancy in the bid and provide an appropriate cost allowance in the bid.

D. The Contractor shall acknowledge that the Contract Documents are diagrammatic and shall provide all systems, equipment and accessories required for a complete facility. Any areas that appear to be void of systems or inappropriate systems shall be noted in the bid. No post bid change order shall be considered for areas or discrepancies not noted in the bid.

E. All installation coordination and means and methods and labor and materials required for proper system installation shall be included.

F. These requirements are in addition to bid procedures and requirements of the RFP or general specifications.

END OF SECTION

SECTION 22 07 00
PLUMBING INSULATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for Plumbing Section 22 05 00.

B. This Section 22 07 00 and the accompanying drawings cover the provision of all labor, equipment, appliances, and materials and performing all operations in connection with the insulation of the plumbing systems as specified herein and as shown. These systems include, but are not limited to, the following:
1. Sanitary waste and vent systems
2. Domestic water systems
3. Storm drainage systems

1.2 INTENT

A. It is the intent of this Section of the specifications to provide complete and operable plumbing systems complete with insulation, which are free of unreasonable noise, vibration and sweating, and fabricated so as to fit the space allotted.

B. The word "piping" is defined to mean all piping, fittings, joints, hangers, coatings, valves, cocks, insulation and accessories necessary for the plumbing systems described, shown and specified.

1.3 ACCEPTABLE MANUFACTURERS

A. Insulation products shall be as manufactured by Owens Corning, Knauf, Manville, Certainteed, Dow, Armacell, or Armstrong.

PART 2 - PRODUCTS

2.1PLUMBING INSULATION

A. All pipe insulation products shall have a permanent composite insulation, jacket and adhesive fire and smoke hazard rating as tested by procedure ASTM-84, NFPA 255 and UL 723 not exceeding Flame Spread 25 or Smoke Developed 50.

B. Preformed insulation for all domestic hot water piping shall be minimum 1-1/2" thick for piping less than or equal to 1-1/2" diameter, 2" thick for piping above 1-1/2" in diameter, preformed fiberglass pipe insulation with white all-service jacket. All longitudinal joints shall be lapped, self-sticking type with all butt joints, tears, etc. sealed with a matching white vapor barrier tape. Elbows shall be mitered or may be Zeston covers filled with equivalent fiberglass insulation. The maximum conductivity (k-value) of the insulation shall be 0.23 BTU per inch/h·ft^2·°F at 75°F.

C. Preformed insulation for all domestic cold water piping, except trap primer piping underground, shall be minimum 1" thick, preformed fiberglass pipe insulation with white all-service jacket. All longitudinal joints shall be lapped, self-sticking type with all butt joints, tears, etc. sealed with a matching white vapor barrier tape. Elbows shall be mitered or may be Zeston covers filled with equivalent fiberglass insulation. The maximum conductivity (k-value) of the insulation shall be 0.23 BTU per inch/h·ft^2·°F at 75°F.

D. Insulation shall be continuous over all valve bodies, fittings, and wall and floor penetrations. Do not insulate unions on hot water piping; nor instruments, gauges, valve handwheels, etc. on any piping.

E. Closed-cell insulation shall be provided over all piping called to have insulation that is installed below ground. Closed-cell piping insulation shall match the thicknesses for above ground piping, 25/50 Armaflex or Rubatex. All glues and coatings shall be products of the same manufacturer as the insulation. The insulation shall be installed by the slip-on method; slitting of the insulation is prohibited and shall be cause for rejection.

PART 3 - EXECUTION

3.1 ARRANGEMENT

A. Follow the general piping layout, arrangement, schematics and details. Provide all offsets, vents, drains and connections necessary to accomplish the installation. Fabricate piping accurately to measurements established at the project site to avoid interference with ductwork, other piping, equipment, openings, electrical conduits and light fixtures. Make suitable provision for expansion and contraction with expansion loops and offsets.

3.2 INSULATION INSTALLATION

A. Provide blanket insulation over all horizontal roof drain piping which is within the building and including the vertical risers to the roof drains and the underbody of the roof drains.
1. Blanket insulation shall be wrapped around the piping and underbodies of roof drains. Ends of insulation shall overlap at least 2" and bottom of insulation shall overlap pipe insulation at pipe connection to roof drain at least 3". Adhere insulation to roof drain underbodies with 100% coverage of fire retardant adhesive and tape all joints with 3" wide foil reinforced kraft tape.

B. Provide insulation over all above ground hot and cold water piping, except that no insulation is required on cold water lines installed inside interior plumbing chases (those chases with no exterior wall). In addition, no insulation is required for cold water piping outside the building vapor barrier and designed to be drained down for freeze-protection, such as parking deck hose bibbs for washdown.
1. All joints and tears shall be sealed with matching white vapor barrier tape

C. See specification 23 07 19 for HVAC piping insulation requirements.

END OF SECTION

SECTION 22 10 00
PLUMBING PIPING

PART 1 - GENERAL

1.1 DESCRIPTION

A. All work specified in this Section is governed by the Common Work Results for Plumbing Section 22 05 00.

B. This Section 22 10 00 and the accompanying drawings cover the provision of all labor, equipment, appliances, and materials and performing all operations in connection with the construction and installation of the plumbing systems as specified herein and as shown. These systems include, but are not limited to, the following:
1. Sanitary, waste, and vent systems
2. Domestic water systems
3. Storm drainage systems

C. Provide all final plumbing connections to all equipment furnished by Owner.

D. Provide isolation valve and reduced pressure backflow preventer or vacuum breaker at the service entrance and at those connections (especially to kitchen equipment) required by local plumbing code.

1.2 INTENT

A. It is the intent of this Section of the specifications to provide complete and operable plumbing systems as shown and specified which are free of leaks, properly vented, free of unreasonable noise, vibration and sweating, and fabricated so as to fit the space allotted and to exhibit a minimum resistance to fluid flow.

B. The word "piping" is defined to mean all piping, fittings, joints, hangers, coatings, valves, cocks, insulation and accessories necessary for the plumbing systems described, shown and specified.

1.3 GENERAL REQUIREMENTS

A. Provide all reducing fittings, flanges, couplings and unions of the size and type of material to match the piping connections at each fixture, piece of equipment, valve and accessory.

B. Union joints, couplings or flanges shall be provided in each pipe connected to each piece of equipment, fixture and elsewhere as indicated and specified. Unions shall match the piping system in which they are installed.

C. Unions or flanges shall be provided between all copper to steel connections. These unions shall be dielectric, insulating type.

D. All changes in direction and branches shall be made with manufactured fittings.

E. The use of offset-type reducers is strictly prohibited in any piping system.

F. In all water piping systems, changes in horizontal pipe sizes shall be made with eccentric reducers installed flat on top for proper air venting. Reducing tees, reducing elbows and concentric reducers shall only be allowed in water piping systems for changing pipe sizes in vertical risers and for making connections to equipment and accessories from vertical risers.

G. All pipe joints shall be cut square and all burrs shall be removed.

H. Open ends of pipes not currently being handled shall be plugged during installation to keep dirt, water, and foreign material out of the system.

I. Sanitary, waste, vent, and storm drainage piping shall slope down in the direction of flow as shown on the drawings or as prescribed by Code, but not less than 1 percent.

J. All vents through roof (VTRs) shall be offset just below the roof such that their termination points are at least 15 ft from any outside air intake of any HVAC unit; special attention is called to packaged rooftop and dedicated make-up air units.

K. Trap primers shall be provided at all floor drains, floor sinks, trench drains, and hub drains except trap primers may be omitted where drain routes to the storm system. Route water piping from nearest cold-water line and as allowed by code.

L. All piping, valves, and fittings shall be provided by a domestic Manufacturer and manufactured in the USA.

PART 2 - PRODUCTS

2.1SANITARY WASTE AND VENT SYSTEMS

A. All underground sanitary waste and vent piping shall be PVC, DWV Solid Wall Schedule 40 with socket-type, solvent welded joints in sizes up to 12", "14" and larger piping shall be PVC, DWV Solid Wall Schedule 80 with socket-type, solvent welded joints. All PVC piping shall be installed in accordance to ASTM D2321.

B. All aboveground sanitary, waste, and vent piping shall be PVC except that sanitary, waste and vent piping located within return air plenums, including throughout future tenant space, shall be hubless cast iron soil pipe. Piping shall be DWV Solid Wall Schedule 40 with socket-type, solvent welded joints in sizes up to 12".
1. Above ground installation of PVC piping shall be specifically indicated on the shop drawings or submitted in a confirming RFI, as applicable.
2. Piping aboveground shall match the requirements for the underground piping as above.
3. Sanitary, waste, and vent piping less than or equal to 2.5" may be copper DWV. Piping shall meet ASTM B 75, B 88, B 251, and B 306.

C. Joints on hubless cast iron soil pipe shall be made with neoprene couplings and stainless-steel clamps. Gaskets shall conform to ASTM C 564. Couplings and gaskets shall be produced by the same manufacturer and shall be installed in accordance with the manufacturer's recommendations, including band tightening sequence and torque. All couplings shall be manufactured to the CISPI 310 standard, ASTM C 1277, ASTM C 150, FM Standard 1680 Class I and certified by NSF International. Coupling shall be as follows:
1. 1 ½" to 3" - Two (2) stainless steel bands
2. 4" to 8" - Four (4) stainless steel bands
3. 10" to 15" - Heavy duty coupling with six (6) stainless steel bands. Heavy duty couplings shall conform to ASTM C 1540.

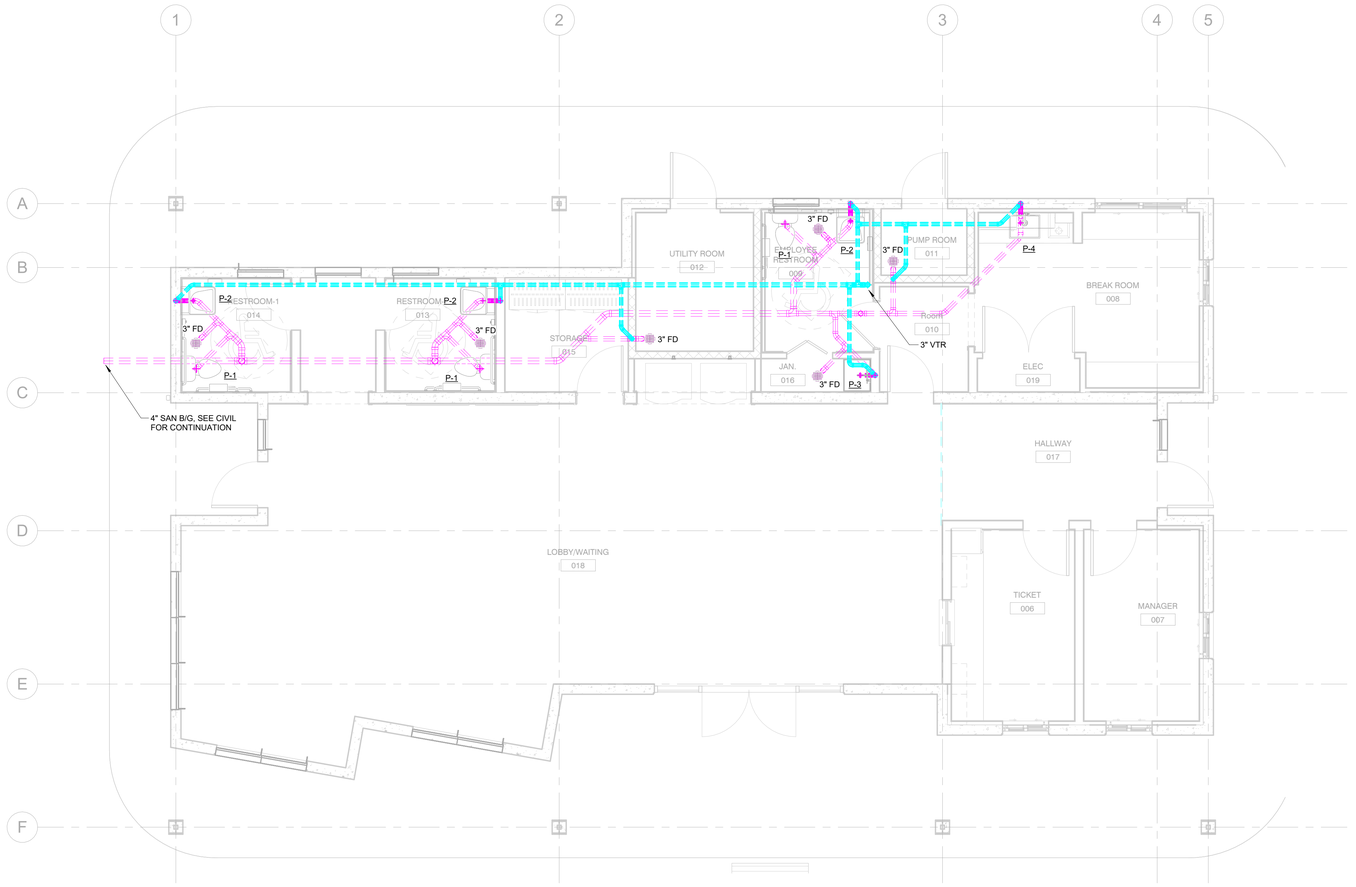
D. All offsets on 8" pipe and larger shall have metal restraining straps by Holdrite or approved equal.

E. Cleanouts shall be provided at the locations indicated and, as a minimum, where required by Code. Floor cleanouts shall be a minimum of 4" and shall be complete with a flush plug and removable, ioniated bronze floor plate. Provide carpet buttons in carpeted areas. Wall cleanouts shall be provided with cleanout tees and plugs with polished stainless steel coverplate with centerset screw.

F. Floor drains in toilets and finished areas shall be JR Smith 2000 Series with 6" Type B square adjustable strainers finished in satin nickel bronze or equal products by Josam or Zurn. Provide vandalproof secured tops.

G. Floor drains in mechanical rooms and unfinished concrete floors shall be JR Smith 2131 Series with round 11 3/4" cast iron grate, sediment bucket and deep-seal P-trap; or equal products by Josam or Zurn. Provide vandalproof secured tops.

H. Hub drains (HD) shall be made with a reducer fitting with opening at least one nominal size larger than the connected piping as schedu



1 / P1 LEVEL 01 FLOOR PLAN - WASTE & VENT PLUMBING
1/4" = 1'-0"

DESIGN DISTRICT
ARCHITECTS
2110 Company Street, Suite 15
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DESIGN DISTRICT, PLLC
VI LICENSE # 1114A

BW &A
BUILDTEC
DPW
VITRAN

PROFESSIONAL ENGINEER
CHRISTOPHER AYLES
1784-E
U.S. VIRGIN ISLANDS

ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

LEVEL 01 FLOOR PLAN - WASTE & VENT PLUMBING

Checker
Project Engineer

2024-009
Project No.

01/06/25
Date

P1
Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: P1 - LEVEL 01 FLOOR PLAN - WASTE & VENT PLUMBING
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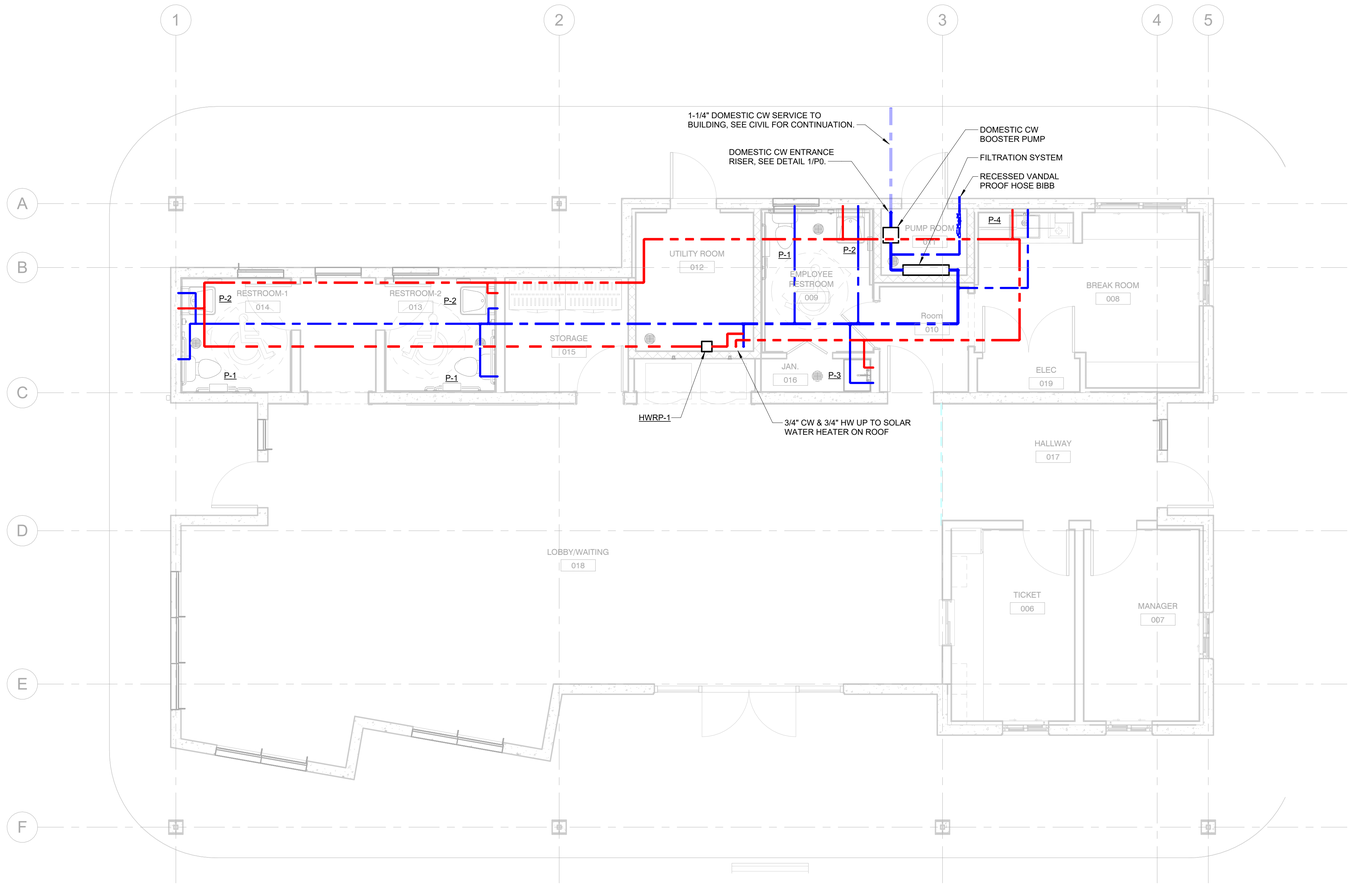

1 / P2 LEVEL 01 FLOOR PLAN - DOMESTIC WATER PLUMBING
1/4" = 1'-0"

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BUILDTEC
DPW
VITRAN

PROFESSIONAL ENGINEER
CHRISTOPHER AYLES
1784-E
U.S. VIRGIN ISLANDS

ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

LEVEL 01 FLOOR PLAN - DOMESTIC WATER PLUMBING

Checker
Project Engineer

2024-009
Project No.

01/06/25
Date

P2
Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: P2 - LEVEL 01 FLOOR PLAN - DOMESTIC WATER PLUMBING
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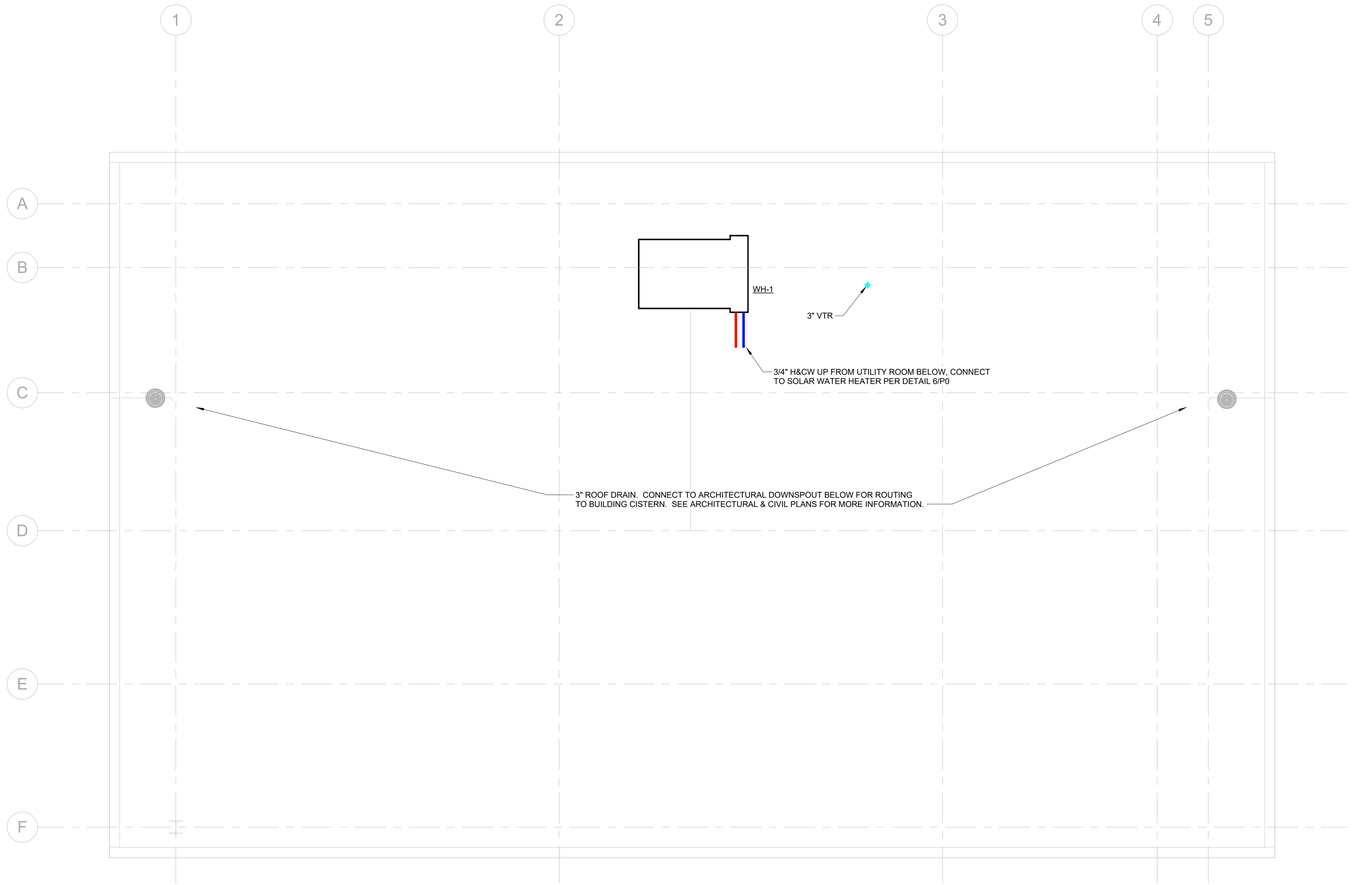

1 / P3 ROOF PLAN - PLUMBING
1/4" = 1'-0"

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
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ROOF PLAN - PLUMBING

Checker — Project Engineer
2024-009 — Project No.
01/06/25 — Date

P3 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: P3 - ROOF PLAN - PLUMBING
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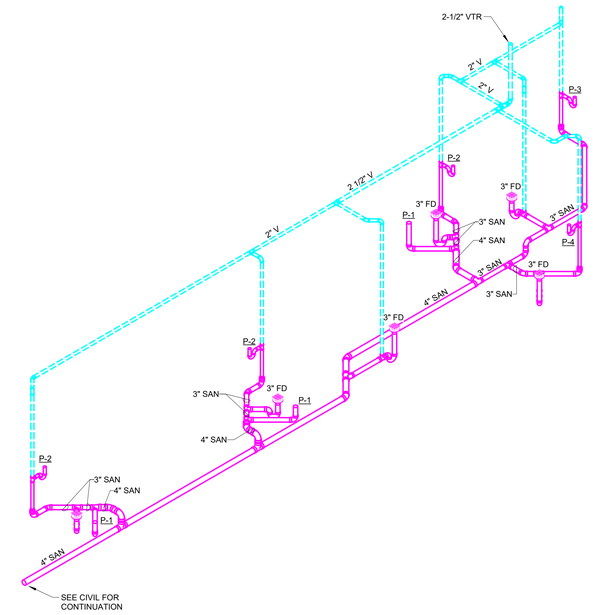
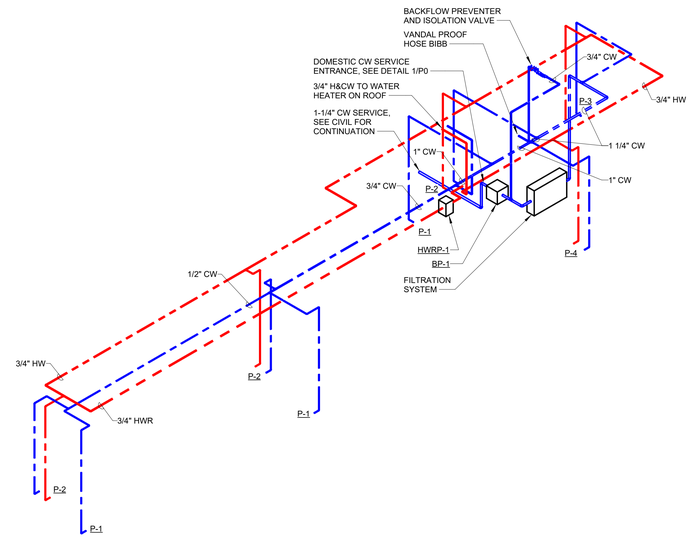


1 P4 WASTE & VENT RISER DIAGRAM



2 P4 DOMESTIC WATER RISER DIAGRAM

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ISSUANCES		
No.	Drawing Issue Description	Date
	BID & PERMIT DOCUMENTS	01/17/25

LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL

PLOT 24D ESTATE BODY SLOB,
ST. CROIX USVI
Department of Public Works - Division of Transportation

PLUMBING RISER DIAGRAMS

C. LYLES — Project Engineer
2024-009 — Project No.
01/17/25 — Date

P4 — Drawing No.

ISSUED FOR CONSTRUCTION

PROJECT NUMBER: 2024-009 PROJECT NAME: LLOYD ALFREDO "SONNY" BARNES - LA REINE BUS TERMINAL
SHEET NUMBER: P4 - PLUMBING RISER DIAGRAMS
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