

PROJECT LOCATION

THE CITY OF DAYTONA BEACH BETHUNE POINT WASTEWATER TREATMENT PLANT AHU REPLACEMENT

1 SHADY PL.
DAYTONA BEACH, FL 32114

NOVEMBER 6, 2018
BID AND CONSTRUCT

DRAWING INDEX

MECHANICAL:		STRUCTURAL:	
M001	SPECIFICATIONS, GENERAL NOTES AND LEGEND	S101	GENERAL NOTES
M101	DEMOLITION PLAN - MECHANICAL	S102	GENERAL NOTES
M201	RENOVATION PLANS - MECHANICAL	S201	SLAB FOUNDATION PLAN
M301	DETAILS AND SCHEDULES	S202	SCUPPER AND DUCTWORK SUPPORT PLAN
M401	CONTROL DIAGRAM AND SEQUENCES OF OPERATION	S501	DETAILS
		S502	DETAILS
ELECTRICAL:			
E001	SPECIFICATIONS, GENERAL NOTES AND LEGEND		
E201	RENOVATION PLANS - ELECTRICAL POWER		



**PENINSULA
ENGINEERING
INC.**

2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1664
http://www.peifa.com
E-Mail to: pei@peifa.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright
2016

REV#	DATE	DESCRIPTION
		BID AND CONSTRUCT

SEAL:
Digitally signed by Kyle Inge
Date: 2018.11.07 06:50:43 -05'00'

PROJECT TITLE
**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

SHEET TITLE
INDEX SHEET

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
CP
CHECKED BY:
KI
DATE
08/22/17
SCALE
SEE PLAN
JOB NO.
17198

SHEET
ID101

MECHANICAL SPECIFICATIONS

GENERAL MECHANICAL REQUIREMENTS

DIVISION 23

GENERAL

DRAWINGS AND GENERAL CONDITIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTAL CONDITIONS AND DIVISION 1 SPECIFICATIONS APPLY TO WORK SPECIFIED IN THIS SECTION.

SCOPE OF WORK

WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

PROVIDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT AND APPLIANCES REQUIRED FOR THE FABRICATION, INSTALLATION, AND/OR RENOVATION OF MECHANICAL SYSTEMS INCLUDING HEATING, VENTILATING, AIR CONDITIONING AND MISCELLANEOUS SYSTEMS AS INDICATED ON THE DESIGN DRAWINGS AND AS OUTLINED IN THESE SPECIFICATIONS.

RELATED WORK SPECIFIED ELSEWHERE

REFER TO ELECTRICAL SPECIFICATION (DIV. 26) FOR ELECTRICAL WORK TO BE DONE IN CONJUNCTION WITH THE MECHANICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT, WIRING, JUNCTION BOXES, ETC., REQUIRED FOR HVAC CONTROLS.

INSTALL DUCT SMOKE DETECTOR FURNISHED BY DIVISION 26 IN SUPPLY AIR DUCTS OF AIR HANDLING UNITS EXCEEDING 2000 CFM AND WHERE INDICATED ON DRAWINGS. DETECTOR TO SHUT UNIT DOWN WHEN ACTIVATED.

SUBSTITUTIONS

EQUIPMENT AND DESIGN OF SYSTEMS INDICATED ON THE DESIGN DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS SPECIFIED STANDARD OF QUALITY. NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.

ANY DEVIATION FROM SPECIFIED EQUIPMENT THAT AFFECTS THE ELECTRICAL REQUIREMENTS SHALL BE COORDINATED BY THE MECHANICAL CONTRACTOR AND EQUIPMENT VENDOR WITH THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING BIDS. FAILURE OF MECHANICAL CONTRACTOR AND VENDOR TO DO SO WILL NOT BE CAUSE FOR CHANGE OF BID AT A LATER TIME. IT WILL NOT BE THE RESPONSIBILITY OF THE ELECTRICIAN TO COORDINATE REVISED ELECTRICAL REQUIREMENTS DUE TO EQUIPMENT CHANGES INITIATED BY THE MECHANICAL CONTRACTOR AND VENDOR. IN ADDITION, THE MECHANICAL CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ANY AND ALL CHANGES TO ENGINEERING PLANS REQUIRED BY AUTHORITY HAVING JURISDICTION. ELECTRICAL POWER SERVING THE MECHANICAL EQUIPMENT IS LIMITED. ANY PROPOSED SUBSTITUTIONS SHALL HAVE THE EQUIVALENT MAXIMUM OVER-CURRENT PROTECTION SIZE OR LESS.

CODES AND STANDARDS

APPLICABLE CODES:

- 2017 FLORIDA BUILDING CODE (SIXTH EDITION) - MECHANICAL
- 2017 FLORIDA BUILDING CODE (SIXTH EDITION) - EXISTING BUILDING
- 2017 FLORIDA BUILDING CODE (SIXTH EDITION) - ENERGY CONSERVATION
- NFPA 90A, 2015 EDITION
- NFPA 72, 2013 EDITION (TO COVER THE AIR DUCT DETECTORS)
- NFPA 101, 2015 EDITION
- FLORIDA FIRE PREVENTION CODE (FFPC), SIXTH EDITION

THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL FEES.

ENVIRONMENTAL DESIGN CONDITIONS

OUTDOOR DESIGN CONDITIONS BASED ON ASHRAE DATA FOR DAYTONA BEACH, FLORIDA CONDITIONS OF 92F DB, 77F WB, WITH WINTER CONDITIONS OF 34F WINTER DRY BULB.

INDOOR DESIGN CONDITIONS BASED ON OWNER REQUIREMENTS OF 68-75F ±2F AND 50% ±10% RELATIVE HUMIDITY.

PRODUCTS

REFER TO PLANS FOR NEW AND REUSED EXISTING EQUIPMENT. ALL NEW EQUIPMENT, ETC., SHALL BE AS SPECIFIED, FREE OF DEFECTS, AS SHOWN ON THE DRAWINGS, AND AS INDICATED IN THESE SPECIFICATIONS. ALL ELECTRICALLY POWERED EQUIPMENT SHALL BE U.L. OR E.T.L. LISTED.

WORKMANSHIP

ALL MATERIALS SHALL BE FABRICATED AND INSTALLED IN A NEAT AND WORKMANLIKE MANNER WITH THE COORDINATION OF ALL INVOLVED TRADES TO AVOID INTERFERENCES AND DELAY DUE TO LACK OF COORDINATION. NO ALLOWANCES WILL BE MADE FOR REWORK DUE TO COORDINATION DIFFICULTIES OR INTERFERENCES BETWEEN INVOLVED TRADES.

MECHANICAL CONTRACTOR SHALL DAILY REMOVE REFUSE AND DEBRIS ACCUMULATING FROM MECHANICAL CONSTRUCTION AND PRIOR TO ACCEPTANCE OF THIS WORK. LEAVE THE PREMISES BROOM CLEAN INSOFAR AS AFFECTED BY MECHANICAL WORK.

ALL DUCTWORK AND PIPING NOT OPERATIONAL DURING CONSTRUCTION SHALL BE CAPPED UNTIL FINAL CONNECTIONS ARE MADE.

ALL RETURN GRILLES ON ALL HVAC SYSTEMS BEING OPERATED DURING CONSTRUCTION SHALL HAVE FILTER MEDIA COVERING RETURN AIR OPENINGS TO PRE-FILTER AIR. FILTER MEDIA TO BE REMOVED AT THE COMPLETION OF CONSTRUCTION.

SHOP DRAWINGS AND SUBMITTALS

SUBMIT FOR ENGINEER'S APPROVAL, A MINIMUM OF 2 PRINTED COPIES OF SHOP DRAWINGS AND MANUFACTURER'S DATA FOR ALL NEW EQUIPMENT AND ACCESSORIES PRIOR TO PURCHASE AND/OR FABRICATION.

SHOP DRAWINGS FOR EQUIPMENT REQUIRING ELECTRIC POWER OR CONTROL WIRING CONNECTIONS SHALL INCLUDE COMPLETE WIRING DIAGRAMS.

SUBMITTAL PACKAGE FOR HVAC EQUIPMENT SHALL INCLUDE A COPY OF THE CERTIFICATION OF PROPOSED TEST AND BALANCE SUBCONTRACTOR. THE TEST AND BALANCE CONTRACTOR SHALL BE CERTIFIED BY ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). HVAC SUBMITTALS WILL NOT BE REVIEWED WITHOUT TEST AND BALANCE CERTIFICATION DOCUMENTATION. QUALIFICATIONS OF MULTIPLE TEST AND BALANCE CONTRACTORS ARE ACCEPTABLE (TO ACCOMPLISH COMPETITIVE BIDDING WORK). CONTRACTOR SHALL SUBMIT FOR APPROVAL THE PROPOSED TEST AND BALANCE CONTRACTOR AT THE TIME OF BID.

WHEN PROVIDED, THE DUCTWORK SHOP DRAWINGS WILL ONLY BE REVIEWED FOR COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE DUCTWORK SHOP DRAWINGS WILL NOT BE CHECKED FOR COORDINATION WITH OTHER TRADES OR BUILDINGS STRUCTURE. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO COORDINATE AND VERIFY ROUTING AND EXACT LOCATION OF SYSTEM COMPONENTS.

RECORD DRAWINGS

CONTRACTOR SHALL PROVIDE THE ENGINEER TWO (2) SETS OF COMPLETE HVAC RECORD DRAWINGS AT THE TIME OF SUBSTANTIAL COMPLETION. RECORD DRAWINGS IN PDF FORMAT AND IN AUTOCAD [RELEASE 2010 OR NEWER] SHALL BE PROVIDED ON A CD. RECORD DRAWINGS SHALL CONSIST OF AN ACCURATE AS-BUILT RECORD OF THE INSTALLED WORK. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE RECORD DRAWINGS ARE DELIVERED.

EXECUTION

COORDINATE AND SCHEDULE THE WORK WITH THE OWNER TO MINIMIZE DISRUPTIONS TO THE NORMAL OPERATIONS AT THE BUILDING.

ALL LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC., INDICATED ON THE DRAWINGS IS DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE TO THE PLANS SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER TRADES. ALL WORK SHALL BE INSTALLED TO ENSURE MAXIMUM HEADROOM, BALANCED OPERATION AND SUITABLE AESTHETIC APPEARANCE. CONTRACTOR IS RESPONSIBLE FOR ANY FIELD MEASUREMENTS REQUIRED TO PROVIDE AN APPROVED AND FUNCTIONAL INSTALLATION.

COORDINATE WITH OTHER TRADES AND FIELD-VERIFY EXISTING CONDITIONS FOR EXACT LOCATION AND ROUTING OF SYSTEMS. PROVIDE OFFSETS, TRANSITIONS AND ADAPTORS AS REQUIRED.

NOT ALL COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION ARE SHOWN ON THESE DRAWINGS. REFER TO EQUIPMENT INSTALLATION INSTRUCTION, SCHEDULES AND APPLICABLE CODES FOR ADDITIONAL INFORMATION, INCLUDING REQUIRED CONNECTION LOCATIONS, TYPES AND SIZES.

PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION OF THE WORK. ALL HOLES, OPENINGS AND DAMAGED MATERIALS CREATED DURING CONSTRUCTION SHALL BE REPAIRED AND FINISHED BY EXPERIENCED WORKMEN.

PROVIDE ALL PENETRATIONS REQUIRED TO COMPLETE INSTALLATION AND REMOVAL OF WORK (MAINTAIN FIRE RATING OF EXISTING STRUCTURE). ALL PENETRATIONS SHALL BE PATCHED AND FINISHED TO MATCH SURROUNDING SURFACES AND FINISHES. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED SO AS TO BE WATER AND AIR TIGHT.

CLEANING, TESTING AND ADJUSTING:

THE MECHANICAL CONTRACTOR, AT HIS EXPENSE, SHALL CLEAN, REPAIR, ADJUST, CHECK, BALANCE, AND PLACE IN SERVICE THE VARIOUS SYSTEMS HEREIN SPECIFIED WITH THEIR RESPECTIVE EQUIPMENT, ACCESSORIES AND PIPING. HE SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND TOOLS REQUIRED FOR PERFORMANCE TESTS REQUIRED BY THESE SPECIFICATIONS AND BY THE GOVERNING AUTHORITIES. NO WORK SHALL BE COVERED OR CONCEALED UNTIL PROPERLY INSPECTED AND TESTED.

EXCAVATION AND BACKFILL:

PROVIDE ALL EXCAVATION AND TRENCHING TO THE CORRECT ELEVATIONS, FOR THE INSTALLATION OF ALL PIPING, VALVE, VALVE PITS AND FOUNDATIONS INCLUDED UNDER THIS DIVISION OF THE WORK.

PROVIDE ALL BACKFILL AND COMPACTION IN STRICT ACCORDANCE WITH THE EXCAVATION AND BACKFILL SECTION OF DIVISION 1 SPECIFICATIONS.

TESTING:

CONDENSATE DRAINS SHALL BE TESTED BY TEMPORARILY PLUGGING ALL OUTLETS AND FILLING THE SYSTEM WITH WATER TO THE LEVEL OF THE HIGHEST VENT STACK. THE SYSTEM MUST BE INSPECTED AND ALL LEAKS REPAIRED AND THE TEST REPEATED UNTIL THE WATER LEVEL DOES NOT DECREASE FOR A PERIOD OF 24 HOURS.

ADJUST THE AIR CONDITIONING SYSTEMS, VENTILATING SYSTEMS, FANS, ETC., TO DELIVER NOT LESS THAN THE REQUIRED AIR QUANTITY WITH QUANTITIES IN EXCESS TO BE SUBJECT TO THE APPROVAL OF THE ENGINEER IF FOUND TO NOT HAVE OBJECTIONABLE EFFECTS SUCH AS NOISE, DRAFTS, OR MOTOR OVERLOAD.

PRIOR APPROVAL BY THE ENGINEER OF TESTING AND BALANCING CONTRACTOR IS REQUIRED. REFER TO SHOP DRAWINGS AND SUBMITTAL SECTION. TEST AND BALANCE REPORTS BY NON-APPROVED CONTRACTORS WILL BE REJECTED.

THIS CONTRACTOR SHALL PROVIDE A MINIMUM OF THREE (3) COPIES OF A TEST AND BALANCE REPORT TO THE ENGINEER AT TIME OF SUBSTANTIAL COMPLETION INSPECTION. THE TEST AND BALANCE REPORT SHALL BE PREPARED BY A CONTRACTOR CERTIFIED BY ASSOCIATED AIR BALANCE COUNCIL OR NATIONAL ENVIRONMENTAL BALANCING BUREAU.

THE TEST AND BALANCE REPORT SHALL BE TYPEWRITTEN AND CONTAIN THE FOLLOWING DATA:

1. DATE, TIME, WEATHER, WHEN TEST TAKEN.
2. AIR CAPACITIES AT EACH UNIT INCLUDING OUTSIDE AIR. (ENTERING AND LEAVING DB/WB)
3. STATIC PRESSURE THROUGH UNITS AND UNIT COMPONENTS.
4. MOTOR OPERATING VOLTAGE AND AMPERAGE.
5. DRIVE TYPES, SIZES AND SPEED RANGE.
6. IDENTIFICATION OF ALL AIR TERMINAL DEVICES WITH DESIGN CFM AND ACTUAL CFM.

ADDITIONALLY, SYSTEMS DRAWINGS CLEARLY MARKED TO IDENTIFY LOCATION OF EQUIPMENT AND AIR DEVICES TESTED SHALL BE PROVIDED ALONG WITH THE WRITTEN TEST AND BALANCE REPORT.

MAINTENANCE MANUALS

PROVIDE COMPLETE MAINTENANCE MANUALS (3 REQUIRED) ON ALL NEW EQUIPMENT. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL, HEAVY-DUTY, 2-INCH, 3-RING VINYL-COVERED BINDERS WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION: THE INFORMATION WILL BE TURNED OVER TO THE OWNER AT TIME OF SUBSTANTIAL COMPLETION:

- OPERATING AND MAINTENANCE INSTRUCTIONS
- SPARE PARTS LIST
- COPIES OF WARRANTIES
- WIRING DIAGRAMS
- INSPECTION REPORTS & APPROVALS
- SHOP DRAWINGS AND PRODUCT DATA
- TEST AND BALANCE INFORMATION

TRAINING SERVICES

THOROUGHLY INSTRUCT THE OWNER'S REPRESENTATIVE IN THE OPERATION OF ALL EQUIPMENT FURNISHED AND LOCATION OF ALL VALVES AND CONTROL DEVICES.

TRAIN BUILDING OWNER'S PERSONNEL DURING NORMAL WORKING HOURS ON START-UP AND SHUTDOWN PROCEDURES, TROUBLESHOOTING PROCEDURES, SERVICING AND PREVENTATIVE MAINTENANCE SCHEDULE AND PROCEDURES. REVIEW WITH THE OWNER'S PERSONNEL THE DATA CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS. SCHEDULE TRAINING WITH OWNER, PROVIDE AT LEAST 7-DAYS PRIOR NOTICE TO ARCHITECT/ENGINEER.

SYSTEM IDENTIFICATION

EQUIPMENT TAGS ON DESIGN DRAWINGS DO NOT NECESSARILY REFLECT BUILDING EQUIPMENT TAGS. DRAWING TAGS ARE FOR THIS PROJECT ONLY AND ARE TO BE USED ONLY FOR REFERENCE. COORDINATE SPECIFIC EQUIPMENT TAG INDICATIONS WITH BUILDING ENGINEER AND ANY BUILDING AUTOMATION SOFTWARE FOR CORRECT AND ACCURATE REFERENCE TAGS.

PROVIDE IDENTIFICATION LABELS ON OR NEAR EACH PIECE OF MAJOR EQUIPMENT AND EACH OPERATIONAL DEVICE AND DISCONNECT. THE LABELS SHALL BE CONSTRUCTED OF ENGRAVED PLASTIC LAMINATE SIGN OR PLASTIC EQUIPMENT MARKER PERMANENTLY SECURED TO EQUIPMENT. THE LETTERING SHALL BE A MINIMUM OF 1/2 INCH HIGH FOR EQUIPMENT NAME AND 3/8" FOR EQUIPMENT INFORMATION.

HANGERS AND SUPPORTS

PROVIDE ALL NECESSARY DUCTWORK AND PIPE SUPPORTS, HANGERS, RODS, CLAMPS AND ATTACHMENTS TO PROPERLY INSTALL AND SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM THE BUILDING STRUCTURE. PROVIDE ANY ANGLE IRON OR UNISTRUT

AND SUSPENSION RODS REQUIRED TO INSTALL EQUIPMENT, PIPING AND DUCTWORK. ALL SUPPORTS EXPOSED TO OUTDOORS SHALL BE CLEANED, PRIMED AND PAINTED TO PREVENT RUSTING. FINISH COLOR AS SELECTED BY OWNER.

THE USE OF BALING WIRE, NATURAL OR SYNTHETIC FIBRIC STRAPS, OR PERFORATED METAL STRAPPING IS NOT ACCEPTABLE FOR SUPPORTS.

BASIS OF DESIGN FOR EXTERIOR DUCT SUPPORTS SHALL BE PORTABLE PIPE HANGER (PH) MODEL PH-P-D ENCLOSED DUCT SUPPORT. ALL SUPPORT MATERIAL AND FASTENERS SHALL BE STAINLESS STEEL OR GALVANIZED TO PREVENT LONG TERM CORROSION. COORDINATE SUPPORT HEIGHT AND WIDTH TO AVOID OBSTRUCTIONS AND ALLOW FOR FULL SUPPORT DOWN TO GROUND LEVEL. BASE OF SUPPORTS SHALL BE ANCHORED TO WITHSTAND 140 MPH WIND LOADING.

WARRANTY/GUARANTEE:

THE CONTRACTOR SHALL WARRANTY/GUARANTEE AND MAINTAIN THE STABILITY OF WORK AND MATERIALS AND KEEP SAME IN PERFECT REPAIR AND CONDITION OF THE PERIOD OF ONE (1) YEAR. DEFECTS OF ANY KIND DUE TO FAULTY WORK OR MATERIALS APPEARING DURING THE ABOVE MENTIONED PERIOD MUST BE IMMEDIATELY MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE TO THE ENTIRE SATISFACTION OF THE OWNER AND ARCHITECT AND ENGINEER. SUCH RECONSTRUCTION AND REPAIRS SHALL INCLUDE ALL DAMAGE TO THE FINISH OR FURNISHING OF THE BUILDING RESULTING FROM THE ORIGINAL DEFECT OR REPAIRS THERETO.

HEATING/VENTILATING/AIR CONDITIONING SPECIFICATIONS

SCOPE OF WORK

FURNISH AND INSTALL COMPLETE AIR CONDITIONING SYSTEMS AS INDICATED ON THE DESIGN DRAWINGS AND AS OUTLINED WITHIN THESE SPECIFICATIONS. WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FABRICATION AND/OR INSTALLATION OF THE SCHEDULED AIR CONDITIONING UNITS, AIR DISTRIBUTION AND DUCTWORK.

EQUIPMENT:

AIR CONDITIONING UNITS:

UNITS SHALL BE SINGLE PACKAGE AIR-TO-AIR ELECTRIC AIR CONDITIONING UNITS AS SCHEDULED ON THE DESIGN DRAWINGS. UNITS SHALL HAVE A SINGLE-POINT ELECTRIC CONNECTION.

TOTAL COOLING CAPACITY OF THE UNITS SHALL BE AS SCHEDULED ON DRAWINGS. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND COATED WITH BAKED ENAMEL. CABINET INSULATION SHALL COMPLY WITH FLORIDA ENERGY CODE. CABINET AND COILS SHALL BE PROVIDED WITH FACTORY APPLIED COATING TO WITHSTAND COASTAL CONDITIONS AND HELP MINIMIZE UNIT DEGRADATION IN SALT-AIR ENVIRONMENTS.

REFRIGERATION SYSTEM - THE UNITS SHALL CONTAIN HERMETIC COMPRESSORS WITH SERVICE VALVES AND VIBRATION ISOLATION. UNITS SHALL HAVE DUAL COMPRESSORS AND DUAL REFRIGERATION CIRCUITS OR CAPACITY REDUCTION STEPS WHERE INDICATED ON EQUIPMENT SCHEDULE.

FANS AND MOTORS - THE INDOOR AIR FANS SHALL BE OF THE FORWARD-CURVED CENTRIFUGAL CLASS 1 TYPE. THE OUTDOOR AIR FANS SHALL BE OF THE PROPELLER TYPE; EACH DIRECTLY DRIVEN BY AN INHERENTLY PROTECTED MOTOR. MOTOR AND DRIVE TO PROVIDE HIGHER FAN OUTPUT WHEN JOB REQUIREMENTS EXCEED STANDARD FAN CAPACITY SHALL BE PROVIDED.

SAFETY CONTROLS - COOLING SYSTEM SHALL BE PROTECTED BY: LOSS OF CHARGE PROTECTION, HIGH AND LOW PRESSURE STAT, COMPRESSOR MOTOR OVERLOADS, AND A TIMING DEVICE WHICH WILL PROHIBIT THE COMPRESSOR MOTOR FROM BEING SUBJECTED TO A STARTING CURRENT MORE THAN ONCE EVERY FIVE MINUTES.

CONTROLS - SEE CONTROLS DRAWING FOR CONTROL POINTS AND SEQUENCES OF OPERATIONS.

SINGLE PACKAGE UNITS SHALL BE PROVIDED WITH MOTORIZED, TWO-POSITION, OUTSIDE AIR INTAKE DAMPER WITH HOOD.

WARRANTY:

PROVIDE A ONE (1) YEAR WARRANTY ON THE COMPLETE SYSTEM AND AN ADDITIONAL FOUR (4) YEAR FACTORY WARRANTY ON ALL COMPRESSORS. LOSS OF REFRIGERANT WILL BE REPLACED AT NO COST TO OWNER FOR A PERIOD OF ONE (1) YEAR.

CONDENSATE DRAINS:

TYPE L COPPER OR PVC. ROUTE AS INDICATED ON PLANS AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PVC PIPING SHALL BE PAINTED WITH A U.V. INHIBITING PAINT/POLYMER TO PREVENT DEGRADATION DUE TO SUN EXPOSURE.

DUCTWORK:

DUCTWORK SHALL BE CONSTRUCTED TO CONFORM TO THE LATEST EDITION OF SMACNA STANDARDS BASED ON THE FOLLOWING PRESSURE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.

1. SUPPLY AIR: 2 IN. W.G. POSITIVE PRESSURE
2. RETURN AIR: 1 IN. W.G. NEGATIVE PRESSURE

ALL SUPPLY AND RETURN DUCTWORK ON EXTERIOR OF BUILDING SHALL BE CONSTRUCTED AS DOUBLE-WALLED DUCTWORK WITH 20 GA. GALVANIZED INTERIOR, 2" THICK CLOSED CELL INSULATION, AND 20 GA. EXTERIOR.

- EXTERIOR DUCTWORK JOINTS AND UNIONS SHALL BE MADE USING A WATERPROOF CONNECTION METHOD (DUCTMATE OR APPROVED EQUIVALENT).
- EXTERIOR METAL SURFACE OF DUCTWORK SHALL BE PAINTED WITH U.V RESISTANCE COATING TO FURTHER PREVENT CORROSION.

ALL DIMENSIONS ARE INSIDE NET FREE AREA.

ADJUSTABLE SPLITTERS AND DAMPERS SHALL BE INSTALLED IN EVERY SPLIT AND BRANCH DUCT AND SHALL BE PROVIDED WITH LOCKING QUADRANTS ON EXPOSED OR IN ACCESSIBLE AREAS OF THE DUCT FOR EASE OF OPERATION.

ELBOWS OR CHANGES IN DUCT DIRECTION GREATER THAN 45 DEGREES SHALL BE FITTED WITH AIR TURNS CONSISTING OF CURVED AIRFOIL BLADES OR VANES WHICH WILL PERMIT THE AIR TO MAKE ABRUPT TURNS WITHOUT APPRECIABLE TURBULENCE.

FIRE SAFETY CONTROLS:

AS A MINIMUM REQUIREMENT, DUCT SMOKE DETECTOR SHALL BE PROVIDED IN THE SUPPLY AIR DUCT OF EACH AIR HANDLING SYSTEM. DETECTORS LOCATED IN EXTERIOR DUCTWORK SHALL BE PROVIDED WITH ENCLOSURE TO PROTECT DEVICE FROM THE ELEMENTS. EACH DETECT SHALL BE CONNECTED TO FIRE ALARM SYSTEM BY DIVISION 26. DETECTOR TO SHUT UNIT OFF WHEN ACTIVATED.

VIBRATION ISOLATION:

ALL BLOWER UNITS AND VIBRATING TYPE EQUIPMENT SHALL BE PROPERLY FITTED WITH MASON INDUSTRIES VIBRATION ISOLATION EQUIPMENT SIZED IN ACCORDANCE WITH EQUIPMENT WEIGHT AND DUTY.

PROVIDE FLEXIBLE CONNECTORS AT ALL SUPPLY AND RETURN CONNECTIONS TO AIR HANDLING EQUIPMENT CONSISTING OF HEAVY CANVAS OR NEOPRENE FABRIC WITH AIR-TIGHT SEAMS AND CONNECTIONS TO THE EQUIPMENT.

AIR FILTERS:

FILTERS SHALL BE 2" FIBERGLASS MEDIA 30% THROW-AWAY TYPE IN A RIGID FRAME WITH A SUPPORTING MAZE ACROSS BOTH ENTERING AND LEAVING SURFACES. SUPPLY ONE COMPLETE SET OF EXTRA FILTERS AFTER OWNER'S FINAL ACCEPTANCE. FARR 30/30 OR EQUAL.

FIRE DAMPERS:

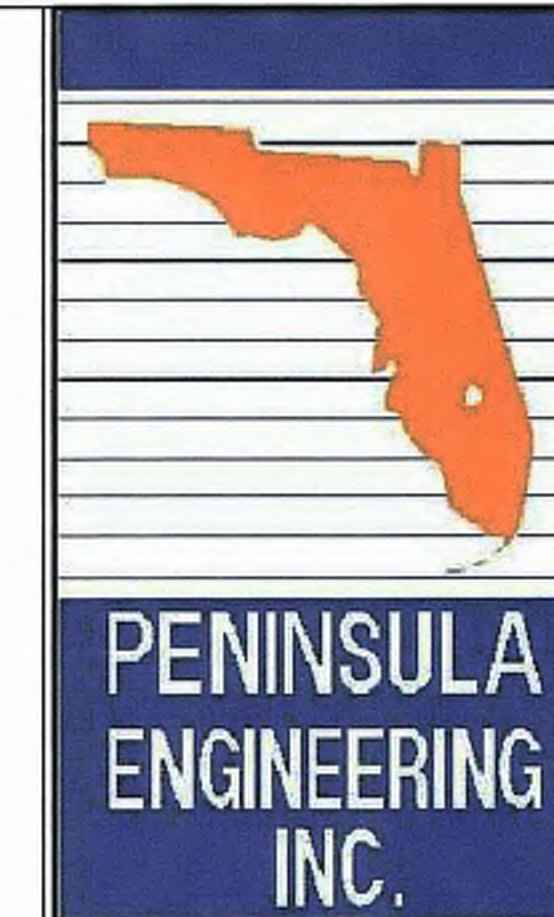
CONTRACTOR SHALL TEST EXISTING FIRE DAMPERS AT EXTERIOR WALLS TO VERIFY PROPER OPERATION. ANY BINDING, OR FAILURE TO CLOSE, SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER AND ENGINEER FOR CORRECTIVE ACTION DURING CONSTRUCTION.

DUCT ACCESS DOORS

FURNISH IN DUCTWORK AS INDICATED AND WHEREVER NECESSARY FOR PROPER ACCESS TO ALL INSTRUMENTS, CONTROLS, FIRE DAMPERS, MOTORIZED DAMPERS AND EQUIPMENT AND FOR CONVENIENT INSPECTION, MAINTENANCE AND REPLACEMENT OF SAME. SIZE SHALL BE AMPLE FOR USAGE. OPENINGS SHALL BE REINFORCED ON ALL SIDES WITH MATERIAL OR DUCTWORK IN WHICH DOORS ARE INSTALLED.

HARDWARE - USE VENT LOCK HARDWARE THROUGHOUT. ALL DOORS TO BE HINGED WITH BRASS PIN HINGES AND WITH QUICK OPENING LATCHES AS FOLLOWS:

1. REACH-IN DOORS TO 18 IN. HIGH.
2. TWO (2) #150 HINGES W/ONE #90 LATCH.



2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1664
http://www.peifa.com
E-Mail to: pei@peifa.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.
Copyright 2016

DATE	DESCRIPTION	BY	FOR
	REV		
	BID AND CONSTRUCT		

SEAL:

Digitally signed
by Kyle Inge
Date:
2018.11.07
06:50:01 -05'00'

Kyle Z. Inge, PE, FL Reg. No. 82362

PROJECT TITLE

**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

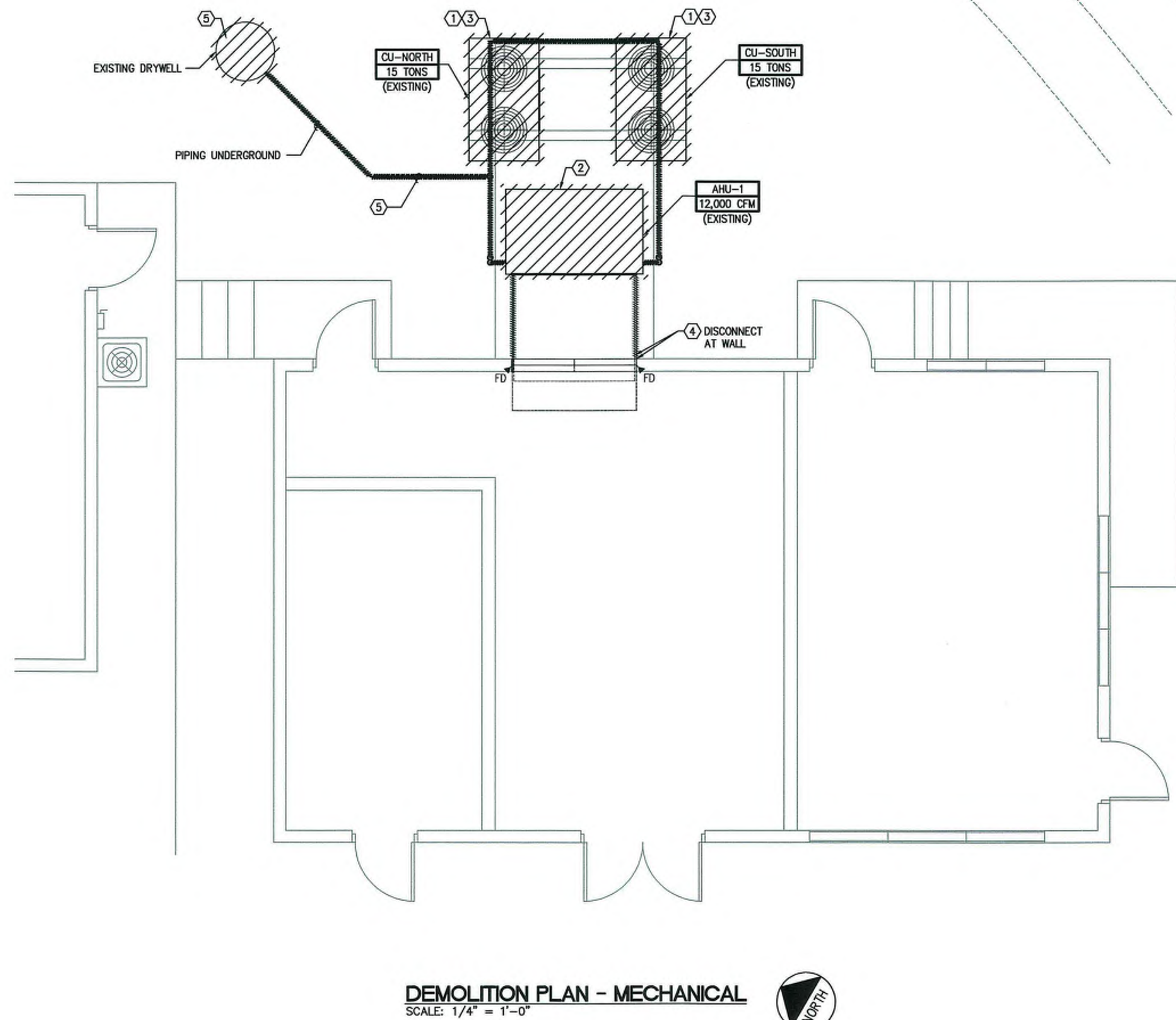
SHEET TITLE

**SPECIFICATIONS,
GENERAL NOTES
AND LEGEND**

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
KZI
CHECKED BY:
JCM
DATE
08/22/17
SCALE
SEE PLAN
JOB NO.
17198

SHEET
M001



DEMOLITION PLAN - MECHANICAL
SCALE: 1/4" = 1'-0"



KEY NOTES

- REMOVE EXISTING CONDENSING UNIT AND SUPPLEMENTAL STEEL FROM RAISED CONCRETE PAD.
- REMOVE EXISTING AIR HANDLING UNIT FROM RAISED CONCRETE PAD.
- REMOVE AND REFRIGERANT PIPING, SUPPORTS AND APPURTENANCES.
- DISCONNECT SUPPLY AND RETURN DUCTWORK AT EXTERIOR SIDE OF EXISTING FIRE DAMPER AND REMOVE ALL DUCTWORK ON EXTERIOR OF BUILDING.
- REMOVE EXISTING CONDENSATE DRAIN PIPING AND DRYWELL TO ACCOMMODATE NEW PADS TO BE INSTALLED DURING RENOVATION WORK.



DEMOLITION PHOTO #1
SCALE: NO SCALE

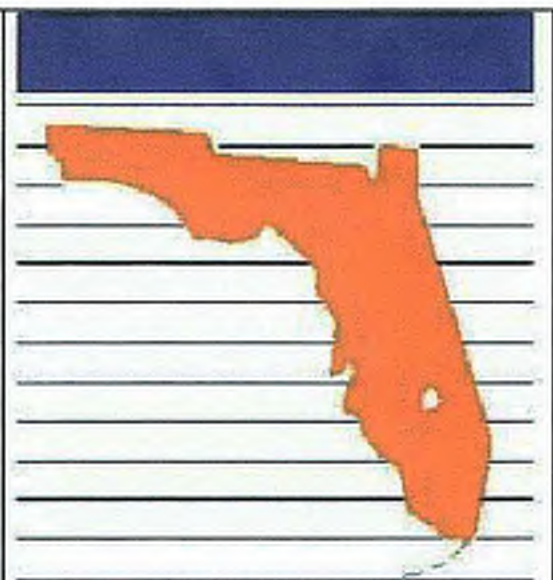
CONSTRUCTION PHASING NOTES:

- THE CONTRACTOR SHALL COORDINATE PHASING BETWEEN THE INSTALLATION OF NEW MECHANICAL EQUIPMENT AND THE REMOVAL OF ANY EXISTING/TEMPORARY MECHANICAL EQUIPMENT. IT IS IMPERATIVE THAT THE UPS ROOM BE PROVIDED AT ALL TIMES WITH 30-TONS OF COOLING, UNLESS SPECIFICALLY COORDINATED WITH OWNER.
- SEE SHEET M-201 FOR PROPOSED PHASING SEQUENCE.

NOTE TO MECHANICAL CONTRACTOR

TEMPORARY COOLING

CONTRACTOR SHALL PROVIDE A MINIMUM OF 30 TONS OF COOLING TO UPS ROOM AT ALL TIMES. PROVIDE TEMPORARY UNITS AS REQUIRED TO ASSURE THIS CONDITION IS MET.



PENINSULA ENGINEERING INC.

2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1664
http://www.peifa.com
E-Mail to: pei@peifa.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2016

REV#	DATE	DESCRIPTION
1	11.06.18	BID AND CONSTRUCT

SEAL:

Kyle Z. Inge, PE, FL Reg. No. 82362

PROJECT TITLE

**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

SHEET TITLE

**DEMOLITION PLAN
MECHANICAL**

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
KZI

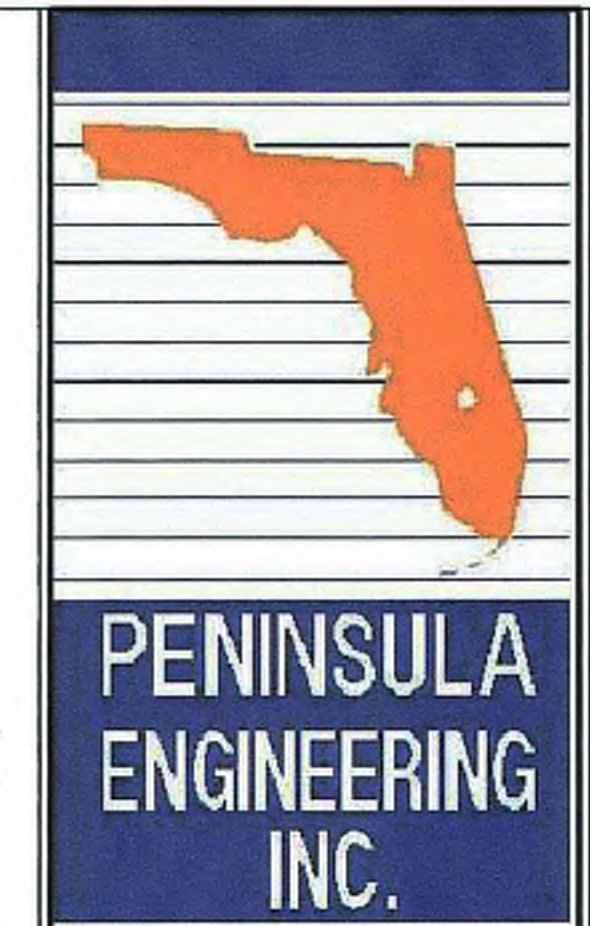
CHECKED BY:
JCM

DATE
08/22/17

SCALE
SEE PLAN

JOB NO.
17198

SHEET
M101



PENINSULA ENGINEERING INC.
 2016 ALDEN ROAD
 ORLANDO, FLORIDA 32803
 CA 3089
 VOICE 407.246.1688
 FAX 407.246.1664
 http://www.peifa.com
 E-Mail to: pei@peifa.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.
 Copyright 2016

DESCRIPTION
BID AND CONSTRUCT
DATE
11.08.18
REV
SEAL

Kyle Z. Inge, PE, FL Reg. No. 82362
 PROJECT TITLE

**THE CITY OF DAYTONA BEACH
 BETHUNE POINT
 WASTEWATER TREATMENT
 PLANT - AHU REPLACEMENT**

SHEET TITLE

**RENOVATION PLANS
 MECHANICAL**

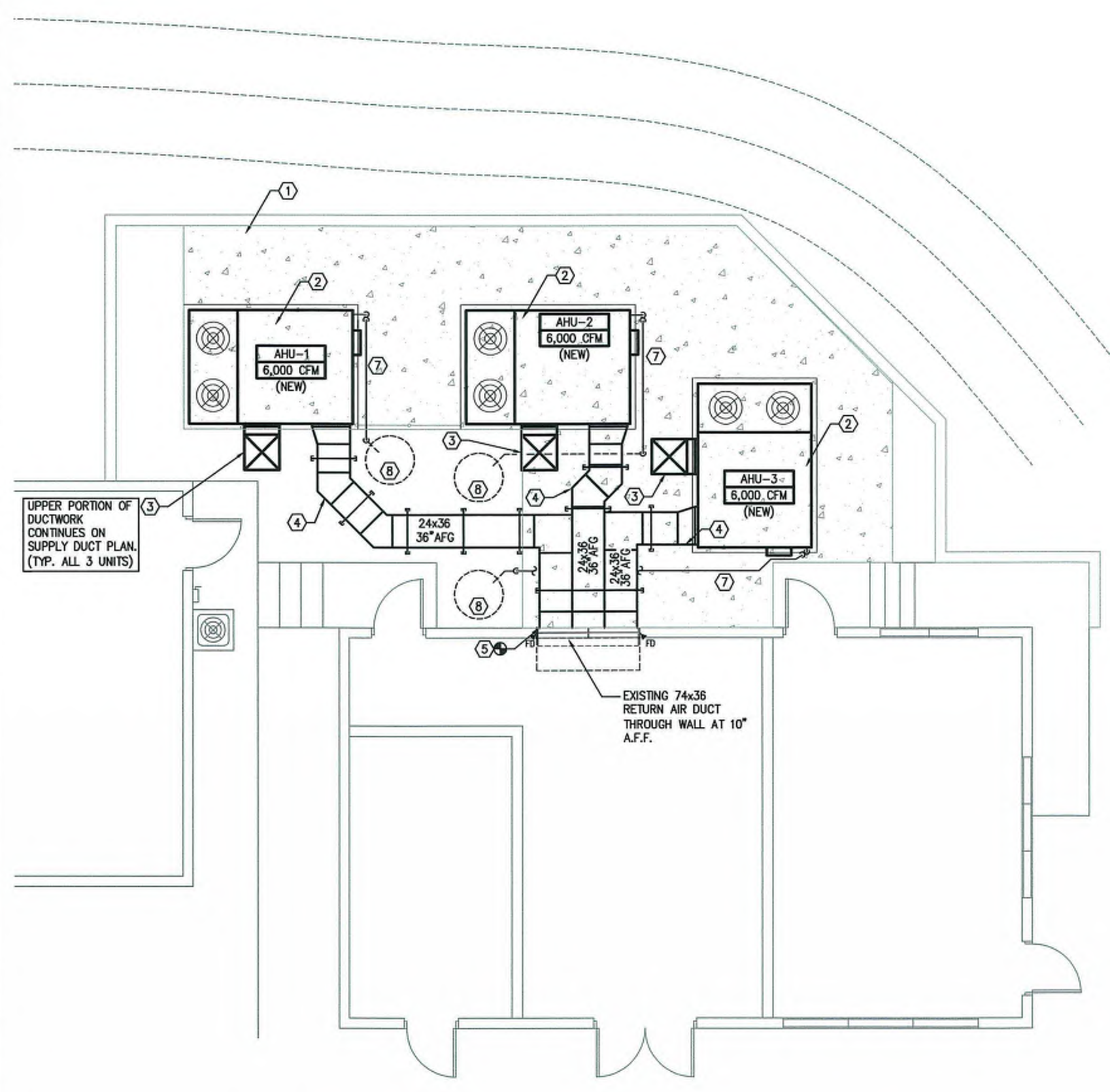
These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
KZ
 CHECKED BY:
JCM
 DATE
08/22/17
 SCALE
SEE PLAN
 JOB NO.
17198

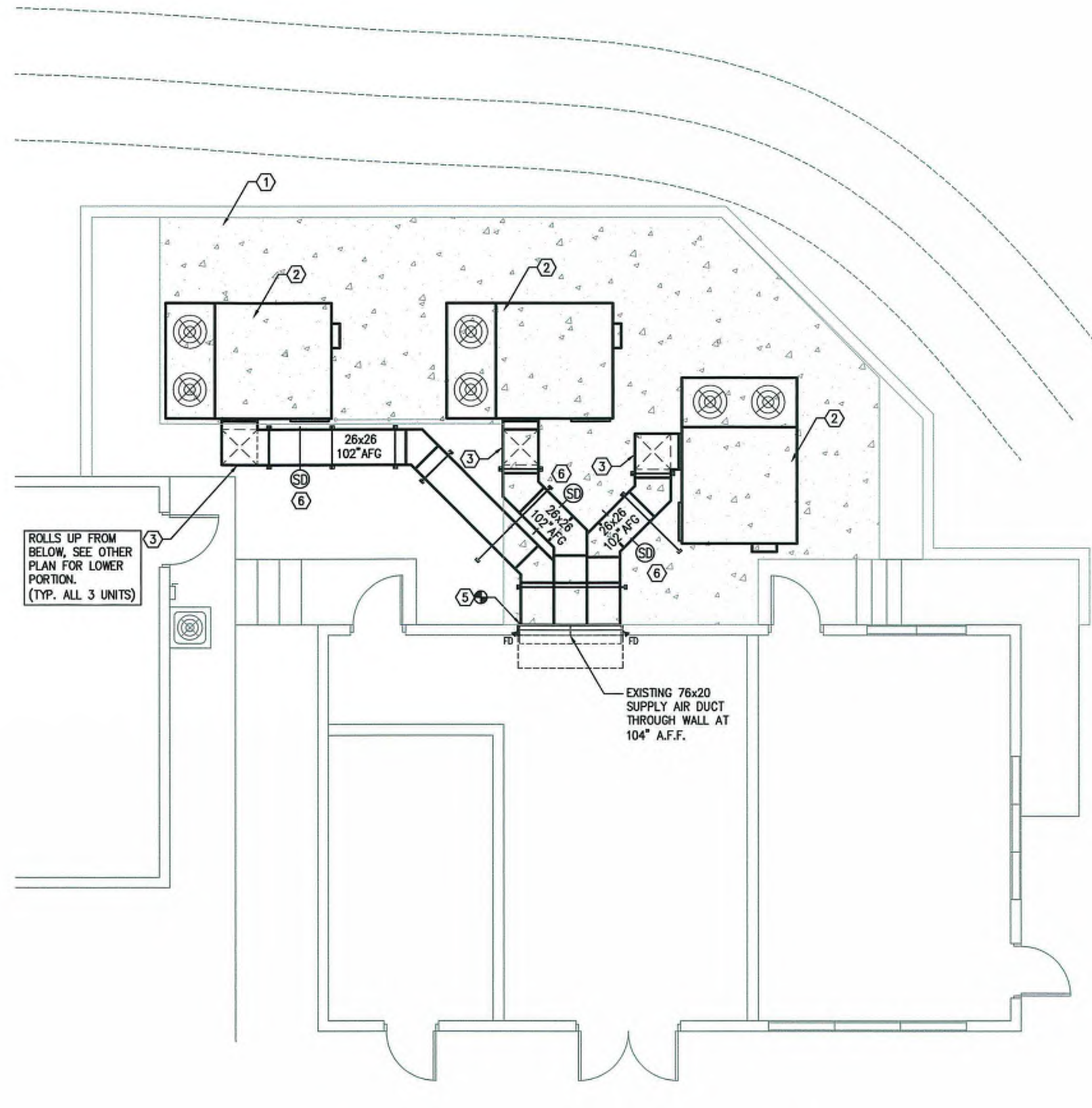
SHEET
M201

KEY NOTES

- HATCHED AREA INDICATES NEW STRUCTURAL CONCRETE PAD FLOURED TO MATCH HEIGHT OF EXISTING EQUIPMENT PAD. SEE STRUCTURAL ENGINEERING DRAWINGS FOR ADDITIONAL INFORMATION.
- PROVIDE NEW PACKAGED AIR HANDLING UNIT ON NEW RAISED CONCRETE PAD. UNIT SHALL BE ATTACHED TO PAD TO WITHSTAND THE REQUIRED 140 MPH WIND LOADING.
- ROUTE NEW SUPPLY AIR DUCTWORK LEAVING UNIT AND ROLL DUCTWORK UP TO OVERHEAD HEIGHT (APPROXIMATELY 102" ABOVE FINISHED GRADE [AFG]). PROVIDE SUPPORTS AT EACH CHANGE IN DIRECTION. BASIS OF DESIGN FOR SUPPORTS SHALL BE PORTABLE PIPE HANGER PHP-D ENCLOSED DUCT SUPPORT MOUNTED TO NEW SLAB, OR CONCRETE FOOTING, TO WITHSTAND 140 MPH WIND LOADING.
- ROUTE NEW RETURN AIR DUCTWORK OUT SIDE OF UNIT AND ROUTE HORIZONTALLY AS SHOWN (APPROXIMATELY 36" ABOVE FINISHED GRADE [AFG]). PROVIDE SUPPORTS AT EACH CHANGE IN DIRECTION. BASIS OF DESIGN FOR SUPPORTS SHALL BE PORTABLE PIPE HANGER PHP-D ENCLOSED DUCT SUPPORT MOUNTED TO NEW SLAB, OR CONCRETE FOOTING, TO WITHSTAND 140 MPH WIND LOADING.
- TRANSITION 3 INDIVIDUAL SUPPLY/RETURN DUCTS TO CONNECT TO EXISTING FIRE DAMPER AND DUCTWORK AT EXTERIOR WALL.
- PROVIDE NEW SMOKE DETECTOR IN SUPPLY AIR DUCTWORK FOR EACH UNIT. PROVIDE SMOKE DETECTOR WITH ENCLOSURE TO PROTECT FROM ELEMENTS.
- ROUTE NEW 1" CONDENSATE FROM EACH UNIT ABOVE SLAB TO NEW DRY WELL. EACH UNIT DRAIN SHALL BE PROVIDED WITH A P-TRAP AT UNIT OUTLET.
- NEW 36" DIAMETER DRY WELL. REFER TO DETAILS FOR ADDITIONAL INFORMATION.



RENOVATION PLAN - RETURN DUCTWORK
 SCALE: 3/16" = 1'-0"



RENOVATION PLAN - SUPPLY DUCTWORK
 SCALE: 3/16" = 1'-0"

NOTE TO MECHANICAL CONTRACTOR
TEMPORARY COOLING
 CONTRACTOR SHALL PROVIDE A MINIMUM OF 30 TONS OF COOLING TO UPS ROOM AT ALL TIMES. PROVIDE TEMPORARY UNITS AS REQUIRED TO ASSURE THIS CONDITION IS MET.

CONSTRUCTION PHASING NOTES:

1. THE CONTRACTOR SHALL COORDINATE PHASING BETWEEN THE INSTALLATION OF NEW MECHANICAL EQUIPMENT AND THE REMOVAL OF ANY EXISTING/TEMPORARY MECHANICAL EQUIPMENT. IT IS IMPERATIVE THAT THE UPS ROOM BE PROVIDED AT ALL TIMES WITH 30-TONS OF COOLING, UNLESS SPECIFICALLY COORDINATED WITH OWNER.

2. PENINSULA ENGINEERING PROPOSES THE FOLLOWING PHASING TO ENSURE THE SPACE IS PROPERLY SERVED.

PHASE ONE -
 COORDINATE WITH STRUCTURAL ENGINEERING DRAWINGS TO POUR LARGE CONCRETE PAD TO SUPPORT AHU-1, AHU-2 AND AHU-3. THE NEW PAD SHALL BE AT THE SAME HEIGHT AS THE EXISTING EQUIPMENT PAD. COORDINATE WITH STRUCTURAL FOR TIE-IN BETWEEN PADS.

CONTRACTOR SHALL SET IN PLACE AHU-3. INSTALL AS MUCH SUPPLY AND RETURN DUCTWORK AS POSSIBLE PRIOR TO THE DEMOLITION OF THE EXISTING AIR HANDLING UNIT. ONCE EXISTING UNIT AND CONDENSERS ARE REMOVED, PROVIDE TEMPORARY DUCTWORK FROM AHU-3 TO THE EXISTING DUCTWORK OPENING TO RESTORE 15-TONS OF COOLING PREVIOUSLY PROVIDED BY THE EXISTING AHU.

CONTRACTOR SHALL ALSO COORDINATE THE RELOCATION OF 15-TON TEMPORARY UNIT, CURRENTLY SITTING ON GRADE IN THE APPROXIMATE LOCATION OF THE NEW AHU-1, TO ALLOW FOR POURING OF THE NEW CONCRETE SUPPORT PAD.

AT THE COMPLETION OF THIS PHASE, THE EXISTING AIR HANDLING SYSTEM SHALL BE REMOVED AND COOLING WILL PROVIDED TO THE SPACE BY THE TEMPORARY UNIT AND AHU-3.

PHASE TWO -
 THE CONTRACTOR SHALL INSTALL AHU-2 ON THE NEW SUPPORT PAD.

CONTRACTOR SHALL FULLY DUCT AHU-2 AND AHU-3 TO THE EXISTING OPENING AT THE BUILDING EXTERIOR.

ONCE DUCTWORK IS COMPLETE, THE EXISTING 15-TON TEMPORARY UNIT CAN BE DISCONNECTED AND REMOVED FROM THE SITE.

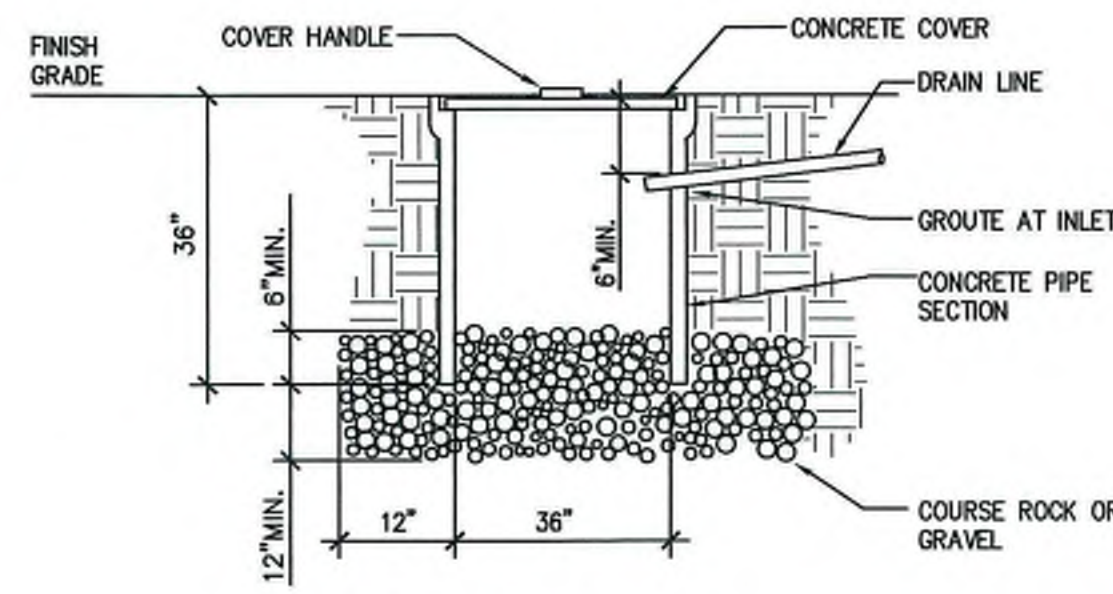
AT THE COMPLETION OF THIS PHASE, COOLING WILL PROVIDED TO THE SPACE BY AHU-2 AND AHU-3.

PHASE THREE -
 THE CONTRACTOR SHALL INSTALL AHU-1 ON THE NEW SUPPORT PAD.

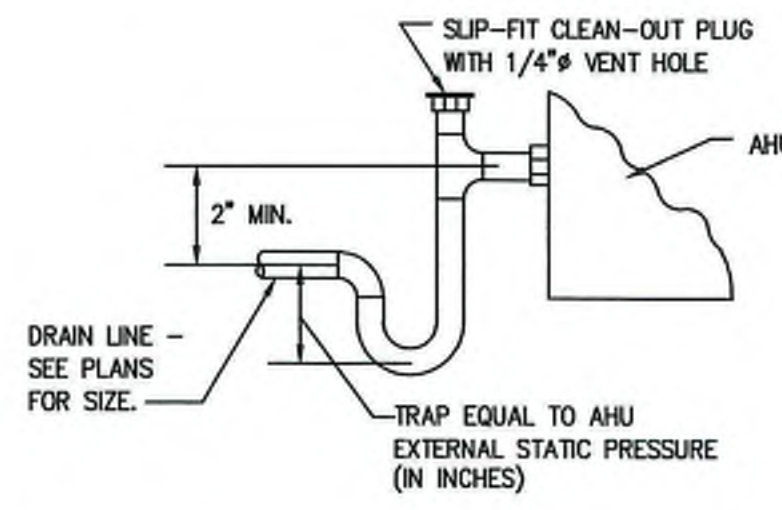
CONTRACTOR SHALL FULLY DUCT AHU-1 TO THE EXISTING OPENING AT THE BUILDING EXTERIOR.

AT THE COMPLETION OF THIS PHASE, ALL THREE NEW UNITS SHALL BE IN PLACE AND OPERATIONAL.

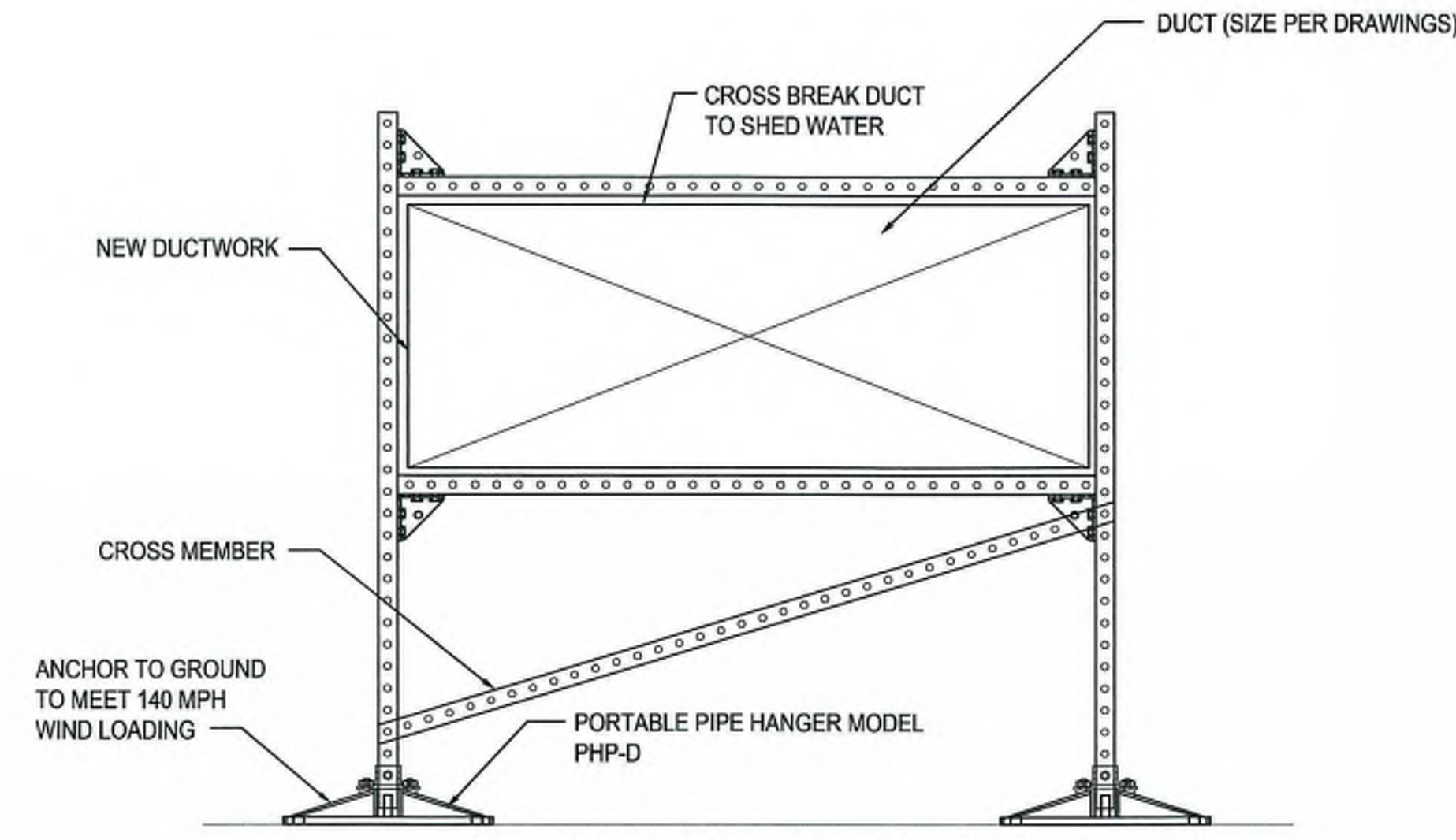
Document: Last Edited: Nov 07, 2018 - 6:40am Document Plotted By: Kinge
 PEI Document File Name: S:\proj\2017\17198\17198mech\17198_M201.dwg



DRYWELL DETAIL
NOT TO SCALE

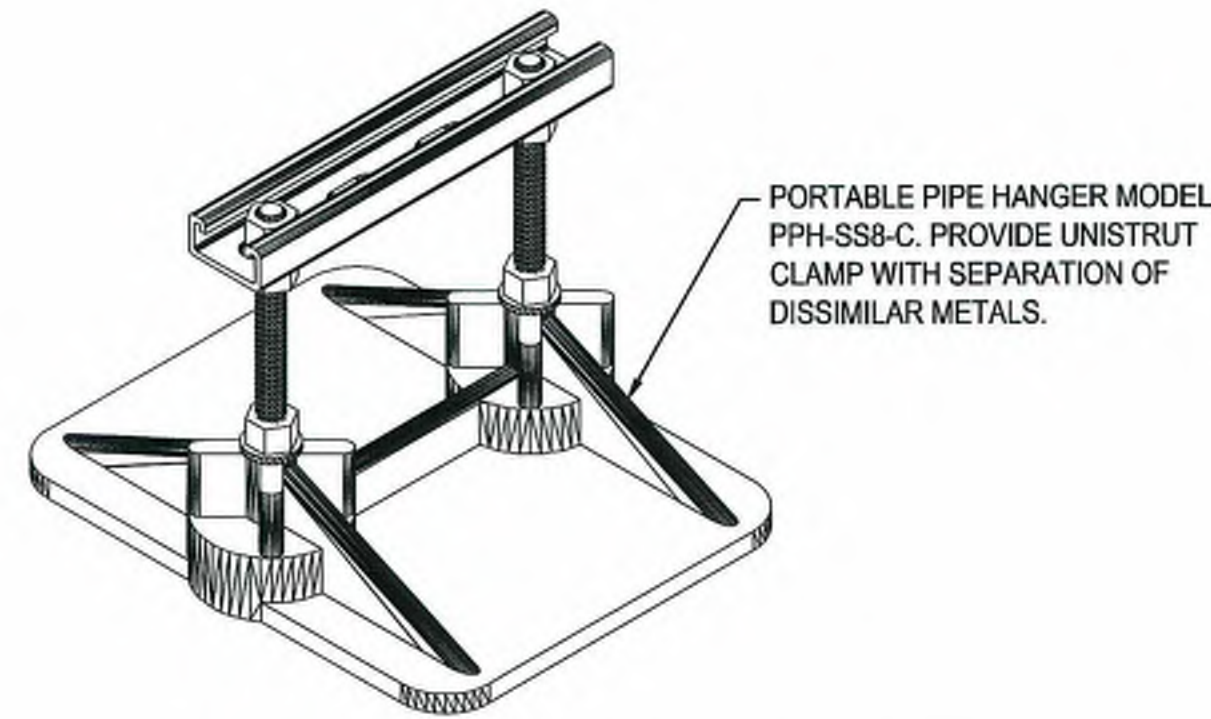


CONDENSATE DRAIN DETAIL
NOT TO SCALE



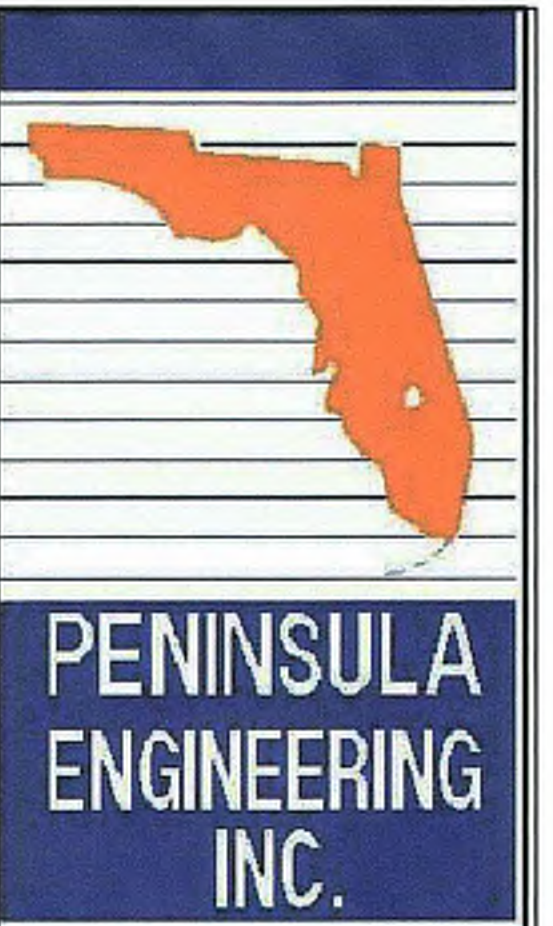
NOTE: SUPPORTS SHALL BE SPACED 6'-0" O.C. (MAX.)

DUCT SUPPORT DETAIL
NOT TO SCALE



CONDENSATE PIPING SUPPORT DETAIL
NOT TO SCALE

PACKAGE A/C UNIT SCHEDULE			
PLAN MARK	AHU-1	AHU-2	AHU-3
SYSTEM TYPE	PACKAGE DX	PACKAGE DX	PACKAGE DX
NOMINAL TONS	15.0	15.0	15.0
AREA SERVED	UPS BUILDING	UPS BUILDING	UPS BUILDING
SUPPLY AIR FLOW (CFM)	6,000	6,000	6,000
OUTSIDE AIR FLOW (CFM)	300	300	300
COIL:			
ENT. AIR TEMP (DB/WB)	71.3/63.1	71.3/63.1	71.3/63.1
LVC. AIR TEMP (DB/WB)	54.8/53.8	54.8/53.8	54.8/53.8
TOTAL GROSS CAP. (MBH)	169.15	169.15	169.15
SENSIBLE CAPACITY (MBH)	115.52	115.52	115.52
FACE AREA	26.0	26.0	26.0
ROWS/FPI	4/15	4/15	4/15
EVAP. FAN:			
DRIVE TYPE	FC	FC	FC
EXTERNAL/TOTAL S.P.	0.5/-	0.5/-	0.5/-
MOTOR (HP/RPM)	3.0/1740	3.0/1740	3.0/1740
HEATER:			
STAGES	-	-	-
KW	-	-	-
COMPRESSOR:			
STAGES/TYP	2/SCROLL	2/SCROLL	2/SCROLL
NO./RLA/LRA	2/(14.7+7.0)/(130+52)	2/(14.7+7.0)/(130+52)	2/(14.7+7.0)/(130+52)
UNIT POWER REQUIREMENTS:			
VOLTS/Φ	460/3Φ	460/3Φ	460/3Φ
MCA	33.0	33.0	33.0
MFS	45	45	45
IEER/EER/PLV	14.0/12.1/-	14.0/12.1/-	14.0/12.1/-
MANUFACTURER	TRANE	TRANE	TRANE
MODEL NUMBER	THH180	THH180	THH180
OPERATING WEIGHT	2,295	2,295	2,295
NOTES:			
1. PROVIDE ALL UNITS SINGLE POINT ELECTRICAL CONNECTION.			
2. PROVIDE 5 MINUTE ANTI-CYCLE TIMER.			
3. FILTERS SHALL BE MERV 8 PLEATED MEDIA, DISPOSABLE TYPE IN A RIGID FRAME WITH A SUPPORTING MAZE ACROSS BOTH ENTERING AND LEAVING SURFACES. SUPPLY ONE COMPLETE SET OF EXTRA FILTERS AFTER OWNER'S FINAL ACCEPTANCE.			
4. PROVIDE FLOAT SWITCH IN DRAIN PAN TO SHUT DOWN UNIT UPON DETECTION OF HIGH CONDENSATE LEVEL TO PROTECT FROM OVERFLOW.			
5. PROVIDE WITH TWO-POSITION MOTORIZED OUTSIDE AIR INTAKE DAMPER WITH HOOD.			
6. CONTRACTOR SHALL INSTALL EQUIPMENT TO COMPLY WITH REQUIRED ELECTRICAL CLEARANCES FOR THIS OR SURROUNDING EQUIPMENT. FIELD COORDINATE PRIOR TO INSTALLATION.			
7. PROVIDE EACH UNIT WITH BACKET COMMUNICATIONS CARD.			
8. PROVIDE EACH UNIT WITH PHASE LOSS MONITORING AND PROTECTION.			
9. PROVIDE EACH UNIT WITH S.S. DRAIN PAN.			
10. PROVIDE WITH HIGH EFFICIENCY BELT DRIVE MOTOR.			
11. PROVIDE WITH ANTI-CORROSION CONDENSER COIL AND CABINET COATING AND HAIL GUARDS.			
12. PROVIDE UNIT WITH FAN FAILURE AND DISCHARGE AIR MONITORING.			



PENINSULA ENGINEERING INC.

2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3069
VOICE 407.246.1688
FAX 407.246.1664
http://www.peiffa.com
E-Mail to: pei@peiffa.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2016

DATE	DESCRIPTION
11.06.18	BID AND CONSTRUCT

REV	DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	

SEAL:

Kyle Z. Inge, PE, FL Reg. No. 82362

PROJECT TITLE

**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

SHEET TITLE

DETAILS AND SCHEDULES

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
KZ

CHECKED BY:
JCM

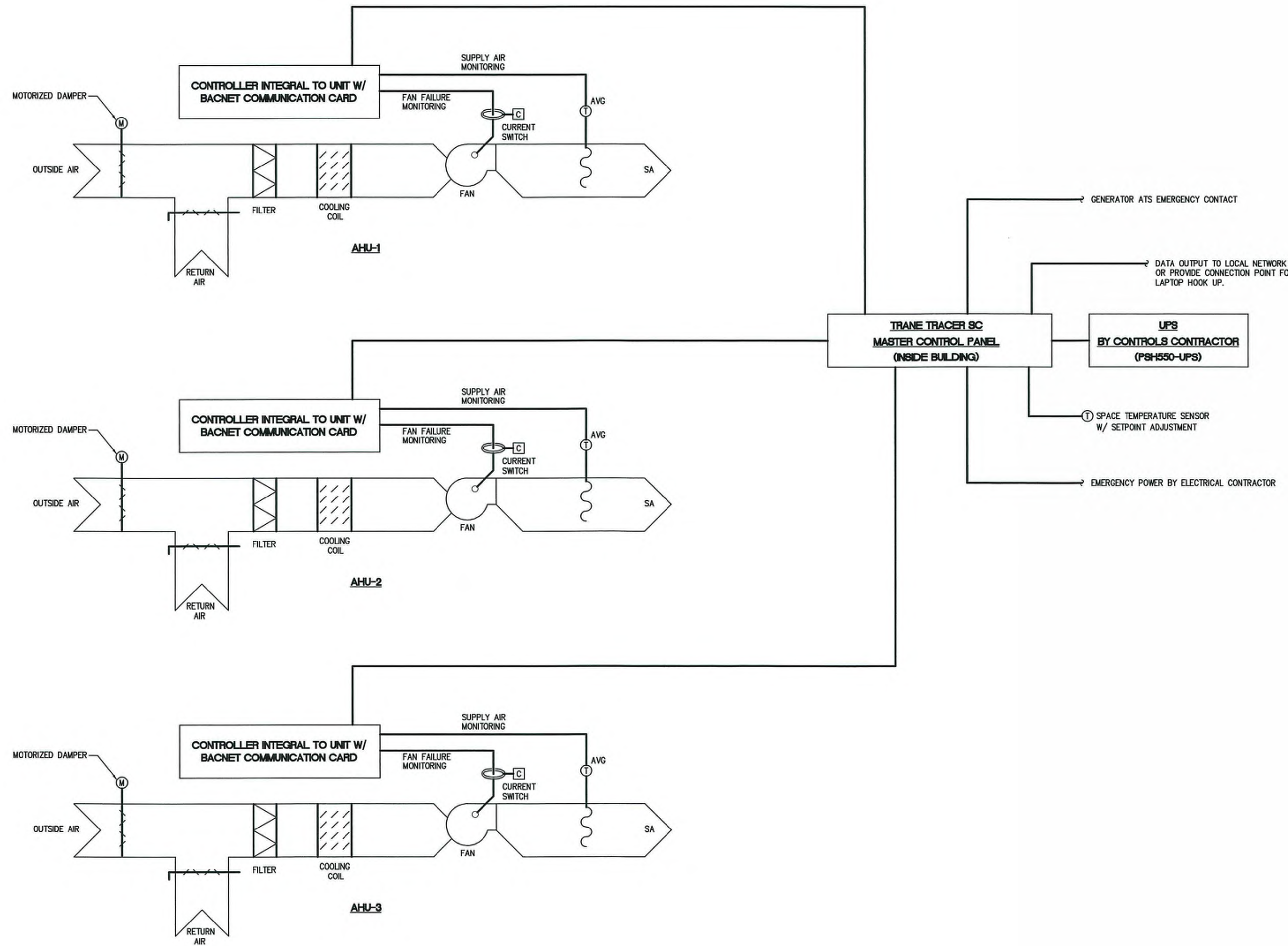
DATE:
08/22/17

SCALE:
SEE PLAN

JOB NO.
17198

SHEET

M301



SEQUENCE OF OPERATIONS:

IT IS THE INTENT OF THE CONTROLS SEQUENCES DESCRIBED BELOW TO PROVIDE REDUNDANCY FOR THE HVAC SERVICES TO THE UPS BUILDING. DUE TO ELECTRICAL POWER CONSTRAINTS, ONLY TWO UNITS CAN BE OPERATIONAL AT A TIME. BAS OCCUPANCY COMMANDS SHALL BE USED TO ENSURE POWER CAN ONLY BE SUPPLIED TO TWO UNITS AT ANY GIVEN TIME.

FOR THE SAKE OF CLARITY THE TWO UNITS CURRENTLY SUPPLIED WITH POWER UNDER NORMAL OPERATIONS WILL BE REFERRED TO AS THE 'PRIMARY UNITS'. THE UNIT WAITING TO BE SUPPLIED WITH POWER, SERVING AS THE BACKUP UNIT, SHALL BE REFERRED TO AS THE 'SECONDARY UNIT'.

UNDER NORMAL UNIT OPERATION, THE UNIT'S ON-BOARD CONTROLLER SHALL CONTROL THE UNIT'S INTERNAL FUNCTIONS (COMPRESSOR STAGING, VALVE POSITIONING, ETC.).

EACH UNIT SHALL BE SUPPLIED FROM FACTORY WITH THE FOLLOWING FAULT DETECTION CAPABILITY TO ALLOW FOR VERIFICATION THAT THE UNIT IS OPERATING PROPERLY:

- FAN FAULT DETECTION
- SUPPLY AIR FLOW/TEMPERATURE VERIFICATION

THESE COMPONENTS AND EACH UNIT'S BACNET COMMUNICATIONS MODULE SHALL BE CONNECTED TO A CENTRAL MASTER CONTROLLER. THE CENTRAL CONTROLLER SHALL MONITOR UNIT PERFORMANCE AND DETERMINE IF UNIT SWITCHOVER IS REQUIRED.

NORMAL OPERATION 'START':

THE SPACE TEMPERATURE WILL BE MONITORED VIA THE SPACE TEMPERATURE SENSOR. IF THE SPACE TEMPERATURE RISE ABOVE THE SPACE SETPOINT, THE MASTER CONTROLLER SHALL GIVE THE FOLLOWING COMMANDS:

- THE CONTROLLER SHALL COMMAND THE 'PRIMARY UNITS' TO 'START' BY SENDING AN OCCUPIED COMMAND TO THOSE TWO UNITS, THUS DELIVERING POWER TO THOSE UNITS.
- ONBOARD CONTROLS IN THE AIR HANDLING UNIT SHALL MAINTAIN UNIT OPERATION TO SATISFY SPACE COOLING REQUIREMENTS.

NORMAL OPERATION 'STOP':

THE SPACE TEMPERATURE WILL BE MONITORED VIA THE SPACE TEMPERATURE SENSOR. IF THE SPACE TEMPERATURE FALLS 5°F (ADJ.) BELOW THE SPACE SETPOINT, THE MASTER CONTROLLER SHALL COMMUNICATE TO THE 'PRIMARY UNITS' TO DEACTIVATE WITH THE FOLLOWING COMMANDS:

- THE CONTROLLER SHALL COMMAND THE ONE OF THE TWO 'PRIMARY UNITS' TO 'STOP' BY SENDING AN UNOCCUPIED COMMAND TO THE UNIT.
- IF THE SPACE TEMPERATURE CONTINUES TO FALL, THE CONTROLLER SHALL COMMAND THE REMAINING 'PRIMARY UNIT' TO 'STOP' BY SENDING AN UNOCCUPIED COMMAND TO THE UNIT.

PRIMARY UNIT SELECTION LEAD/LAG:

THE MASTER CONTROLLER SHALL BE PROGRAMMED TO CHANGE WHICH UNITS ARE DESIGNATED AS THE 'PRIMARY UNITS' ON A WEEKLY BASIS (ADJ.) IN A LEAD/LAG FUNCTION.

EACH UNIT SHALL OPERATE FOR TWO WEEKS (ADJ.) THEN SERVE AS THE BACK-UP 'SECONDARY UNIT' FOR A WEEK (ADJ.)

AFTER THE WEEKLY CHANGEOVER FOR THE 'PRIMARY UNITS' DESIGNATION, THE CONTROLLER SHALL SEND AN EMAIL TO THE FACILITY STAFF REPORTING THE CHANGEOVER AND DESIGNATING WHICH UNITS ARE THE CURRENT 'PRIMARY UNITS'.

UNIT FAULT/FAILURE CHANGEOVER:

IF THE SPACE TEMPERATURE SENSOR READING EXCEEDS THE SPACE SETPOINT BY 5°F (ADJ.) AND THE 'PRIMARY UNITS' ARE CURRENTLY RUNNING, THE MASTER CONTROLLER SHALL PERFORM THE FOLLOWING CHECKS:

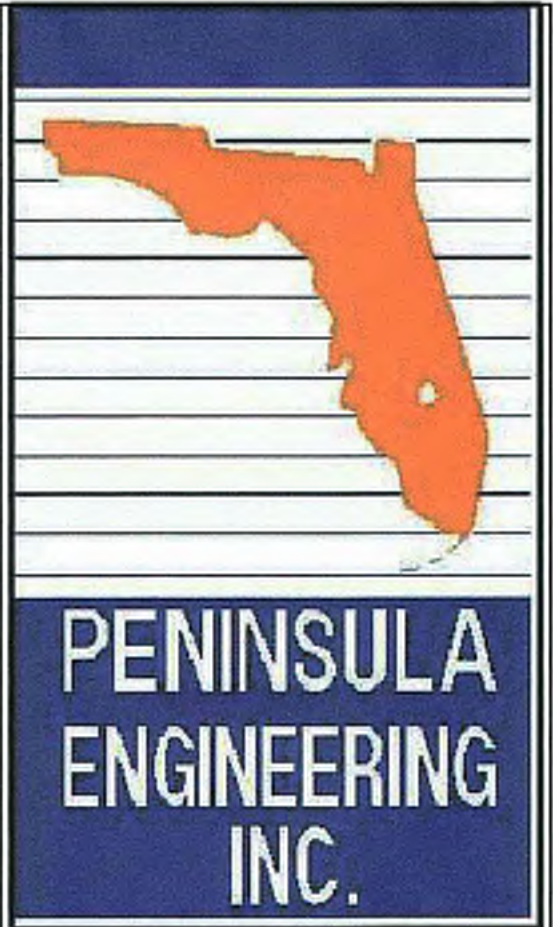
- READ THE OPERATING UNIT'S BACNET COMMUNICATIONS MODULE TO CHECK FOR REPORTED SYSTEM FAULTS (FAN FAILURE, SUPPLY AIR VERIFICATION, COMPRESSOR FAILURE, HIGH HEAD PRESSURE, ETC.)

AFTER PERFORMING THE CHECKS, IF ANY COMPONENT IS FOUND TO BE REPORTING OUT OF RANGE OR IN FAULT STATUS, THE MASTER CONTROLLER WILL UNDERTAKE THE FOLLOWING COMMANDS TO CHANGE HVAC SERVICE TO THE 'SECONDARY UNIT':

- THE CONTROLLER SHALL COMMAND THE 'PRIMARY UNIT' WITH A REPORTED FAULT TO 'STOP' BY SENDING AN UNOCCUPIED COMMAND TO THE UNIT.
- THE CONTROLLER SHALL WAIT 30 SECONDS TO ALLOW FOR ANY RESIDUAL POWER DRAW TO CEASE FOR THE FAULTY 'PRIMARY UNIT'
- THE CONTROLLER SHALL COMMAND THE 'SECONDARY UNIT' TO 'START' BY SENDING AN OCCUPIED COMMAND TO THE UNIT, THUS DELIVERING POWER TO THAT UNIT.
- THE CONTROLLER WILL SEND AN EMAIL TO THE FACILITY STAFF NOTIFYING THEM OF THE CHANGEOVER, WHICH UNIT WAS IN FAULT, AND WHICH UNITS ARE CURRENTLY SERVING THE SPACE.

INTERNAL UNIT FAULT REPORTED:

EVEN IF THE SPACE TEMPERATURE IS SATISFIED, IF THE ONBOARD CONTROLLER AND BACNET COMMUNICATIONS MODULE IN ANY 'PRIMARY UNIT' REPORTS AN INTERNAL FAILURE/FAULT STATUS, THE MASTER CONTROLLER WILL UNDERTAKE THE SWITCHOVER COMMANDS TO CHANGE HVAC SERVICE TO THE 'SECONDARY UNIT' AS DESCRIBED ABOVE.



PENINSULA ENGINEERING INC.

2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1664
http://www.peifl.com
E-Mail to: pe@peifl.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2016

DESCRIPTION	DATE	BY	APP'D
BID AND CONSTRUCT	11/08/18		

REV#	DATE	DESCRIPTION
1		

SEAL:

Kyle Z. Inge, PE, FL Reg. No. 82362
PROJECT TITLE

**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

SHEET TITLE

**CONTROL DIAGRAM
AND SEQUENCES
OF OPERATIONS**

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY: KZI
CHECKED BY: JCM
DATE 08/22/17
SCALE SEE PLAN
JOB NO. 17198

SHEET
M401

STRUCTURAL DESIGN CRITERIA

CODES:

Florida Building Code, 2014 Edition
ASCE 7-10, Minimum Design Loads for Buildings and other Structures
(for Wind Load Design Only).
Building Code Requirements for Reinforced Concrete (ACI 318-11)
Specifications for Structural Concrete for Buildings (ACI 301-10)
Building Code Requirements for Masonry Structures (ACI 530-05)
AISC Manual of Steel Construction, ASD, (Thirteenth Edition)
AISI Specification for the Design of Cold Formed Steel Structural Members, 2009 Edition.

LIVE LOADS:

Guardrail.....200 LBS or 50 PLF any direction
Mechanical Platform Upper Level Slab-On-Grade.....150 PSF
Lower Level Slab-On-Grade.....100 PSF

WIND LOADS (ASCE 7-10) CMU Wall Enclosure: Wind Velocity: Vult = 155 mph, Vasd = 120 mph
Category IV
Exposure = "C", Kd = 0.85
Internal Coefficient GC pi = ± 0.18, Enclosed Buildings.
Components & Cladding Design Wind Pressure (PSF):
Wind Pressure (ASD): 54 PSF

CONCRETE STRENGTH AT 28 DAYS:

All Concrete Unless Otherwise Indicated 3000 PSI
Pea Gravel Concrete for Masonry Cells Only 3000 PSI

REINFORCING:

Welded wire fabric shall conform to ASTM A185
All reinforcing bars ASTM A615-60 60,000 PSI
All stirrups and ties ASTM A615-60 60,000 PSI

CONCRETE MASONRY UNITS:

ASTM C90 or C129, regular strength standard weight units, fm = 1500 PSI
Mortar Type "S": 1800 PSI for regular strength block.
Concrete Grout: 3000 PSI
Continuous masonry inspection is required during construction.

STRUCTURAL STEEL:

All structural & miscellaneous steel A36 36,000 PSI, u.n.o.
Wide Flange Beams: ASTM A992, Grade 50, Fy = 50,000 PSI
Tube Steel : ASTM A500, Grade B, Fy = 46,000 PSI
Pipe Steel : ASTM A53, Type E or S, Fy = 35,000 PSI
Shop and Field welds: E70XX Electrodes
AISI A304 stainless steel
Stainless Steel: AISI Type A304/A304L dual specifications,
electrodes A308/A308L

SOIL BEARING VALUE:

Allowable soil bearing pressure after compaction: 2500 PSF
See Soils Report and Specifications for compaction requirements.

STRUCTURAL NOTES

SUBMITTALS:

Submit shop drawings for all prefabricated or field fabricated components, including reinforcing, structural steel, steel joist, metal decking, etc. Submit product data showing compliance for products and components, including concrete, masonry, structural steel, etc. Submit a reproducible copy plus three prints of all drawings, unless otherwise indicated. Submit six copies of product data. Submit drawings and calculations signed and sealed by a registered Professional Engineer for all manufacturer or contractor designed components.

TESTING:

The Owner will provide testing services for Earthwork, Concrete, Structural Steel, and others as may be required. General Contractor shall coordinate this work with the Testing Laboratory.

EARTHWORK FOR FOUNDATIONS:

All Earth work shall be performed in accordance with the Geotechnical Report and Project Specifications. Geotechnical report has been prepared by "Terracon Consultants Inc." located at 1675 Lee Road, Winter Park, Florida.

CONCRETE:

All concrete shall be poured in accordance with the ACI 318-02 Code, ACI 301 Specifications, and ACI 304-89 Proposed Revision and Recommended Practice for Measuring, Mixing, Transportation, and Placing Concrete.

All slabs on grade shall be 4" thick, reinforced with Fibermesh for all interior slabs u.n.o., and 6x6 / W1.4 x W1.4 WWF placed in upper third, for all exterior slabs, unless otherwise indicated. Provide control Joints at 20'-0" o.c. maximum in each direction, unless otherwise indicated.

Materials:

Portland Cement: ASTM C 150, Type I.

Aggregates: ASTM C33/Fine and coarse aggregates.

Water: Potable, clean and free from deleterious amounts of acids, alkalis, or organic materials.

Fly Ash and Pozzolans: ASTM C 618, except that loss on ignition of Class F fly ash shall not exceed 6%. Limit use of fly ash not to exceed 25% of cement content by weight. Provide fly ash from a single source for exposed concrete.

Water-Reducing Admixture: ASTM C494, Type A, type to density of concrete but containing no calcium chloride.

Air-Entraining Admixture: ASTM C260.

Curing Materials: ASTM C309, method as selected to keep concrete moist during curing period. In the case curing compounds are used in areas where waterproofing membrane is required, the compound must be type that is compatible with waterproofing membrane.

Expansion Joint Filler: Shall be non-extruded resilient type, conforming to ASTM D1751 (bituminous) for exterior use.

Non-Shrink Grout: CRD-C 588, factory pre-mixed grout.

Vapor Retarder: Provide vapor retarder cover over prepared base material where indicated below slabs on grade. Use only materials which are resistant to decay when tested in accordance with ASTM E 154, as follows:

Polyethylene sheet not less than 10 mils thick, with 6" minimum laps.

Classes of Concrete:

Standard Weight Concrete: 3000 psi strength at 28 days, 470 lbs. cement per cu. yd. minimum, w/c ratio, 0.58 maximum.

Standard Weight Concrete for 2" pump mix (if required): 3000 psi strength at 28 days, 470 lbs. cement per cu. yd. minimum, w/c ratio, 0.58 maximum, 900 lbs. minimum of 3/8" coarse aggregate.

Standard Weight Concrete for Masonry Fill Cells Only: 3000 psi strength at 28 days with coarse aggregate 3/8" minimum, w/c ratio .65 maximum. Note: This class of concrete not to be used for columns and tie beams. Test in accordance with ASTM C 1019.

Slump Limits:

Proportion and design mixes to result in concrete slump at point of placement as follows: Ramps and sloping surfaces: Not more than 3". Reinforced foundation systems: Not less than 3" and not more than 5".

Reinforced masonry filled cells: For pea gravel concrete, no less than 9" or more than 11". All other concrete: Not less than 3" and not more than 5". Addition of water at the site to increase slump is prohibited.

Air Entrainment: 2% to 4% air, all concrete

Ready-Mix Concrete: Concrete shall be transit-mixed concrete batched, mixed and supplied in accordance with ASTM C 94. Total mixing time shall not exceed 1 1/2 hours. Reduce mixing time in accordance with ASTM C 94.

PUMPED CONCRETE:

If the contractor uses a concrete pump, a concrete pump design mix and type of equipment to be used shall be submitted for review. All slumps and testing for pumped concrete shall be taken at the discharge end of the hose.

REINFORCING STEEL:

All reinforcing steel shall be new deformed bars free from rust, scale and oil and shall meet ASTM A-615. Reinforcing for footings shall be supported on precast concrete pads, top reinforcing shall be positively supported by temporary stringers. Dowels for columns and filled cells shall be secured in place by using additional cross-reinforcing tied to footing reinforcing. Splices in reinforcing where permitted shall be the following minimum, unless otherwise indicated on the drawings:

Footings, Walls, Columns, Beams, Slabs: 36 diameters or 2'-0 min., whichever is more.
Masonry Cell Reinforcing: #5 = 31", #6 = 57"
Temperature Reinforcing: 20 diameters or 1'-0 min., whichever is more.
Welded Wire Mesh: 8" lap

REINFORCING CONCRETE COVERAGES:

Footings: Top: 2" clear.
Bottom and unformed edges: 3" clear.
Beams, Columns, and Walls: 1 1/2" clear to ties or reinforcing.
Slabs: Top and bottom reinforcing: 3/4" clear.
Shop Drawings for bar placement shall be submitted for review prior to fabrication.

REINFORCING ACCESSORIES:

All accessories shall have upturned legs and be stainless steel, plastic dipped, or hot dipped galvanized after fabrication. Individual high chairs shall be provided under support bars, shall be of proper height for slab thickness, and shall not be over 4'-0" O.C. maximum, unless otherwise indicated. Support bars shall not extend over 1'-0" beyond outer chairs. Support bars shall be No.5 continuous, 4'-0" O.C. maximum, unless otherwise indicated.

EMBEDMENTS, SLEEVES, AND OPENINGS:

It is the responsibility of the Contractor to coordinate the location and installation of anchorage devices cast into the structural frame for the support of material and equipment that is furnished and installed by various trades. All embedded conduit shall not be thinner than standard schedule 40 steel pipe and shall be spaced not less than 4 diameters on center, and outside diameter shall not exceed 1/3 the slab thickness. Aluminum pipe or conduit shall not be embedded in concrete. All penetrations through beams and slabs must be sleeved.

Core drilling will not be permitted.

Sleeves or conduit not shown on the structural drawings and larger than 1 1/2" O.D. shall receive written approval prior to placement. Sleeves shall be located a minimum of 1'-0" from the face of any column. Sleeves shall be spaced a minimum of 3 diameters O.C.

Locate all sleeves or conduit passing horizontally through beams at mid depth. Sleeves or conduit not shown on the structural drawings and larger than 1 1/2" O.D. shall receive written approval prior to placement.

Pitch concrete slabs where required for drainage. Concrete shall not be less than the minimum slab or beam thickness shown.

All anchors, inserts, and plate embeds for the support of steel shall be placed in accordance with approved shop drawings in conjunction with these drawings.

MASONRY:

All masonry construction shall comply with the Florida Building Code and ACI 530.1-05 "Specifications for Masonry Structures", unless more stringent requirements are specified.

All block shall be regular strength units with type "S" mortar unless otherwise indicated.

All grout filled cells and columns shall be poured at least two (2) hours prior to pouring lintel block or tie beams.

Maximum construction height of masonry walls without grout filled cells or column pours is to be 4'-0 unless cleanout holes are provided. Provide cleanout holes at the base of filled cells which have grout heights in excess of 4'-0. The holes shall be kept open for inspection. High lift grouting shall not exceed 12'-0 maximum unless approved by the Engineer. The vibrator used to consolidate the grout for high lift grouting shall be at least as long as the grout pour height plus two feet. The concrete grout for filled cells shall be vibrated with a mechanical pencil vibrator during placement to insure complete filling of the block core, and re-consolidated with the vibrator before final set, approximately 10 to 30 minutes after initial placement depending on grout consistency and weather conditions.

Fill all cells with grout containing reinforcing steel, anchor bolts, wedge anchors, or other fasteners as shown. Hold all reinforcing in proper position within the cell prior to and during grouting using mechanical positioners at 4'-0 o.c. maximum, and at the top and base. Grout all cells where indicated.

Provide 8" deep masonry "U" lintels over all masonry wall openings as indicated on the Drawings. Reinforce lintel with as indicated and fill solid with concrete unless otherwise indicated. Cut out bottom of lintel at bearings for vertical reinforcing. Minimum end bearings shall be 8", unless otherwise indicated.

Horizontal Joint Reinforcement:

Galvanized truss type or Ladder type fabricated with single pair of 9 gage side rods and 9 gage continuous diagonal cross rods. Space reinforcing at 16" o.c. vertically, u.n.o. Provide pre-fabricated "tee" and "corner" units. Lap 8" minimum. Provide horizontal reinforcing for brick veneer ties where required.

Galvanize horizontal joint reinforcement after fabrication with 1.5 oz. zinc coating. Hot-dipped galvanized is required for reinforcing in all exterior walls.

Space all horizontal wall reinforcing 16" O.C. vertically.

Masonry Accessories:

Individual Wire Ties for Masonry: Fabricate from 3/16" cold-drawn steel wire, ASTM A82, unless otherwise indicated, of the length required for proper embedment in wythes of masonry.

Anchors and Ties: Provide straps, bars, bolts and rods fabricated from not less than 16 gage galvanized sheet metal or 3/8" diameter rod stock, unless otherwise indicated.

Dovetail Anchors: 16 gage, 1 1/2" wide, corrugated, galvanized anchors, length as required for 8 inch minimum embedment in mortar joints.

Masonry Control Joints:

Install vertical masonry control joints where shown on the drawings. If not shown, install vertical masonry control joints at a maximum horizontal spacing of two times the total wall height, but not exceeding 50 feet on centers maximum. Do not locate control joints within two feet of any wall openings, columns, or floor and roof supports. Coordinate placement with A/E prior to construction. Do not continue any horizontal masonry reinforcing through control joints. Control joint shall be used with standard sash block 6-7/8" depth, as manufactured by: Wire-Bond, Masonry Reinforcing Corporation of America; AA Wire Products Co. "Blok-Tite" AA 2003; Greenstreak Plastic Products 666; Williams Products, Inc. "Slot Seal Wide Flange" 2016-3 (6-1/2" depth); or approved equal.

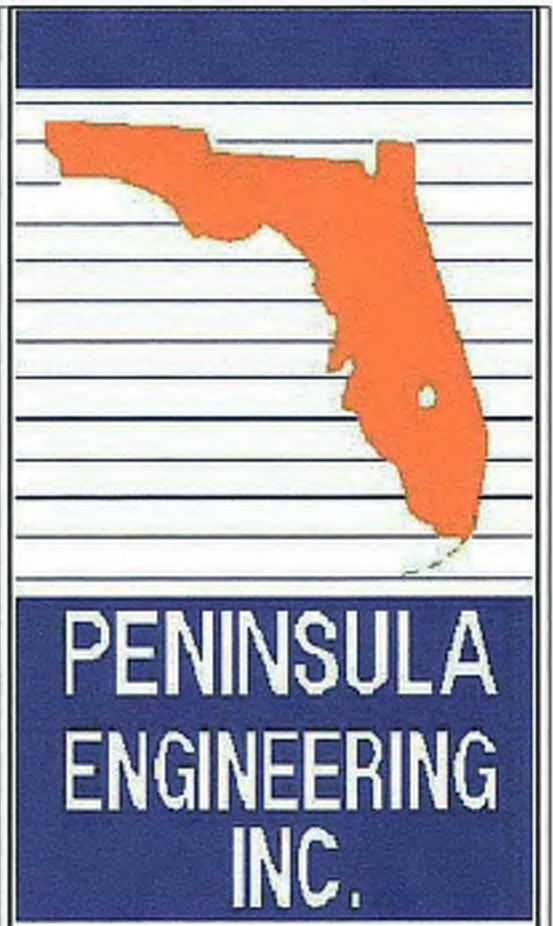
STRUCTURAL STEEL:

Fabrication and erection of structural steel shall be in accordance with AISC "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings", latest edition. All structural steel shall meet requirements of ASTM A36 unless otherwise indicated. Wide flange beams shall be ASTM A992, grade 50. All shop and field welding shall be performed by certified welders in accordance with AWS "Code for Arc and Gas Welding in Building Construction", latest edition. Use E70XX electrodes for all welding, including tack welds. All field welds and unpainted surfaces after bolted connections are completed shall be touched up.

Splices in main support members will not be permitted except as indicated on the drawings.

Shop paint all steel. De-slag and field touch-up paint all welds, connections, abraded or rusted areas, etc, typical.

fc Structural Engineers, Inc.
34 years of service
680 East SR 434 Winter Springs, Florida 32708
Eddie L. Cox, P.E. Phone (407) 327-5363 Florida P.E. #27499
Fax (407) 327-5366 email: fc@fcengineering.com



2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1664
http://www.peifla.com
E-Mail to: pei@peifla.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Table with columns for DESCRIPTION, DATE, and REVIEW. Includes a signature line for Eddie Cox dated 2018.11.06.



Eddie Cox
2018.11.06
15:23:53
-05'00'

PROJECT TITLE
THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT

SHEET TITLE
GENERAL NOTES

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.
DRAWN BY: R. PETERSON
CHECKED BY: E. COX
DATE: 08/22/17
SCALE: SEE PLAN
JOB NO. 17198

SHEET
S-101



PENINSULA ENGINEERING INC.

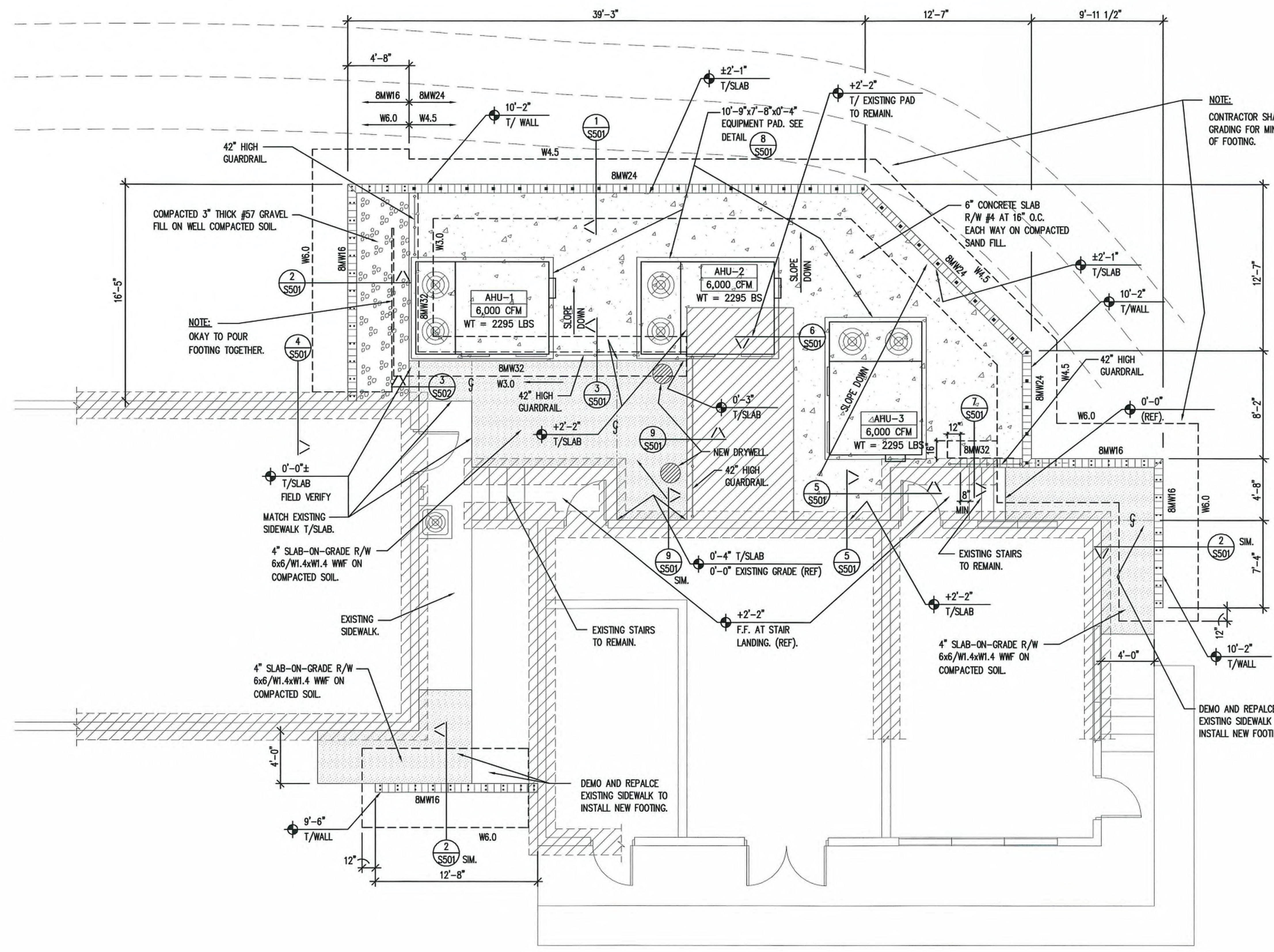
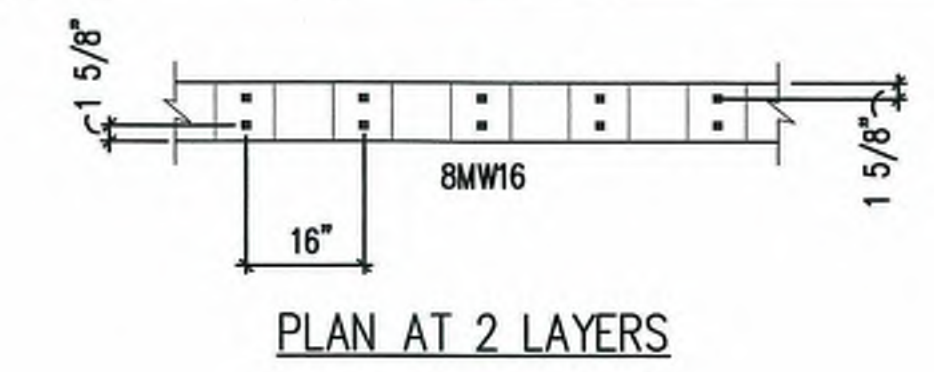
2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1684
http://www.peifla.com
E-Mail to: pei@peifla.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2016

- FOUNDATION NOTES:**
1. ASSUMED EXISTING GRADE ELEVATION AT FACE OF EXISTING BUILDING = \ominus 0'-0"
 2. ELEVATION T/WALL FTG. = \ominus -1'-10", U.N.O.
 3. ■ - INDICATES (1) VERT. BAR IN CONCRETE FILLED MASONRY CELL WITH MATCHING DWEL AT FOUNDATION. EXTEND TO T/WALL, U.N.O. SEE MASONRY WALL SCHEDULE. PROVIDE VERTICAL REINFORCING ABOVE AND BELOW ALL WALL OPENINGS SAME AS SHOWN FOR ADJACENT WALLS. PLACE REINFORCING IN CENTER OF WALL UNLESS OTHERWISE INDICATED. ALL CMU SHALL BE TYPE D2 (2 HOUR RATED).
 4. FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS THAT AFFECT NEW CONSTRUCTION.
 5. ALL MASONRY WALLS ARE 8", U.N.O.
 6. § - INDICATES SLAB CONSTRUCTION JOINT OR CONTROL JOINT, TYP. NOT TO EXCEED 20 FT. O.C., UNLESS OTHERWISE SHOWN.
 7. STEP FOOTINGS DOWN BELOW ALL MECHANICAL, ELECTRICAL, PLUMBING LINES OR EXISTING UTILITIES REQUIRED TO AVOID INTERFERENCE. SEE TYPICAL STEP FOOTING DETAIL. COORDINATE WITH OTHER TRADES. SEE (1) S502
 8. ALL STRUCTURES STAINLESS STEEL AISI A304, U.N.O., INCLUDING BOLTS.
 9. SEE S-202 FOR WALL SCUPPERS AND DUCT SUPPORTS.

- 8" MASONRY WALL SCHEDULE (ALL CELLS GROUTED SOLID):**
- 8MW16: 2 LAYERS #6 VERTICAL AT 16" O.C. MAX. (LAP = 54")
 - 8MW24: #6 VERTICAL AT 24" O.C. MAX. CENTERED (LAP = 54")
 - 8MW32: #6 VERTICAL AT 32" O.C. MAX. CENTERED (LAP = 54")



NOTE:
CONTRACTOR SHALL FIELD VERIFY SITE GRADING FOR MIN. 8" COVER ON TOP OF FOOTING.

NOTE:
OKAY TO POUR FOOTING TOGETHER.

NOTE:
FIELD VERIFY
MATCH EXISTING SIDEWALK T/SLAB.

DEMO AND REPLACE EXISTING SIDEWALK TO INSTALL NEW FOOTING.

SLAB / FOUNDATION PLAN

SCALE: 1/4" = 1'-0"



REVISION	DATE	DESCRIPTION
1	11.06.18	BID AND CONSTRUCT

Eddie L. Cox, PE, FL Reg. No. 27499
PROJECT TITLE
**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**
SHEET TITLE

SLAB / FOUNDATION PLAN

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
R. PETERSON
CHECKED BY:
E. COX
DATE:
08/22/17
SCALE:
SEE PLAN
JOB NO.
17198

S-201

fci STRUCTURAL ENGINEERS, INC.
34 years of service
680 East SR 434 Winter Springs, Florida 32708 Phone (407) 327-5363 Fax (407) 327-5366
Florida ED #3746 Eddie L. Cox, P.E. Florida P.E. #27499 email: fci@fciengineering.com

TO THE BEST OF MY KNOWLEDGE THE DRAWINGS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.
1729



PENINSULA ENGINEERING INC.

2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1664
http://www.peifa.com
E-Mail to: pei@peifa.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2016

REVISION	DATE	DESCRIPTION
1	11/08/18	BD AND CONSTRUCT

SEAL: _____
Eddie L. Cox, PE, FL Reg. No. 27499

PROJECT TITLE

**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

SHEET TITLE

**SCUPPER AND DUCT WORK
SUPPORT PLAN**

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
R. PETERSON

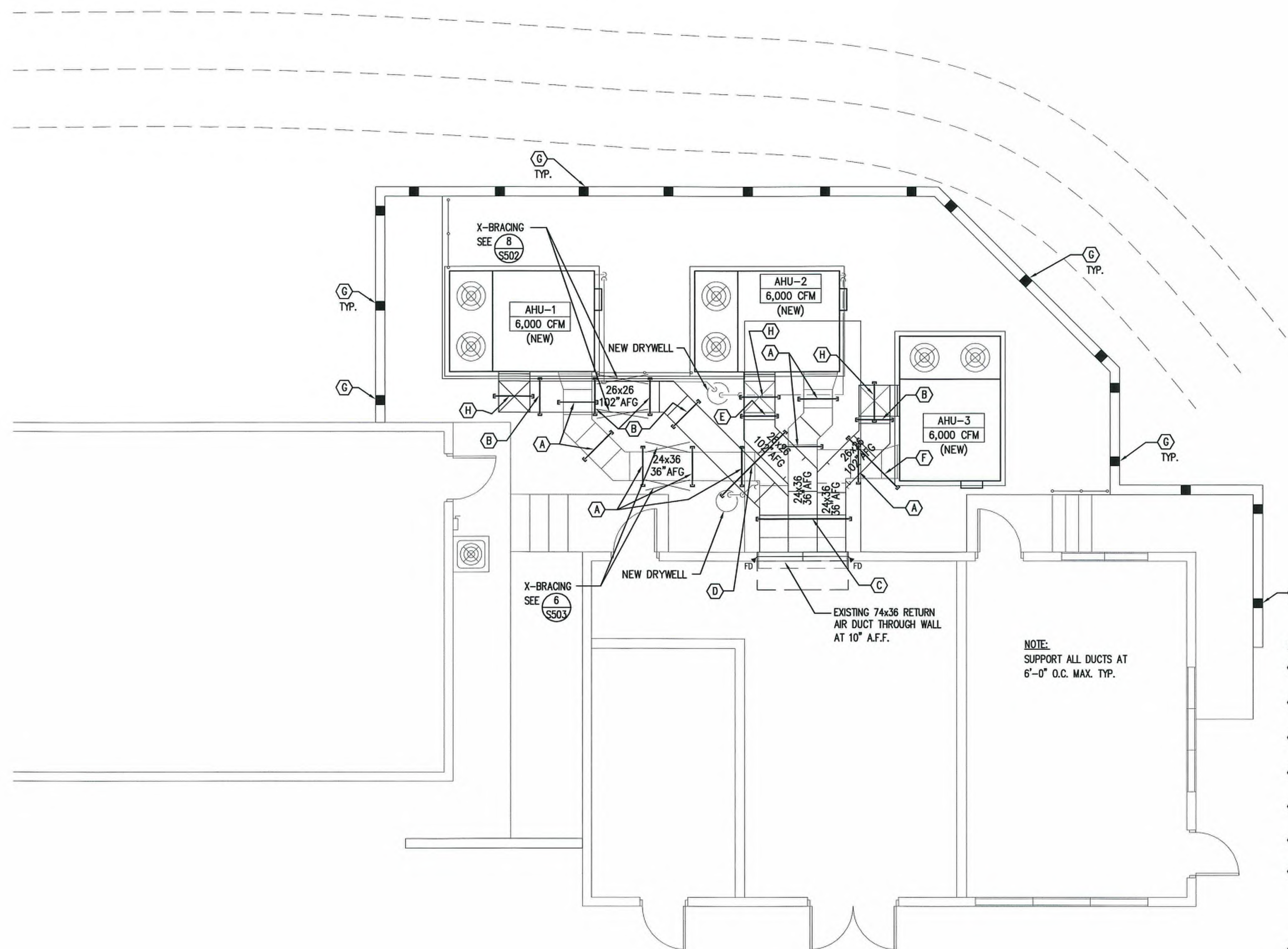
CHECKED BY:
E. COX

DATE:
08/22/17

SCALE:
SEE PLAN

JOB NO.
17198

SHEET
S-202



- KEYED NOTES:**
- (A) DUCT SUPPORT, SEE DETAIL $\frac{6}{SS02}$
 - (B) DUCT SUPPORT, SEE DETAIL $\frac{7}{SS02}$
 - (C) DUCT SUPPORT, SEE DETAIL $\frac{2}{SS03}$
 - (D) DUCT SUPPORT, SEE DETAIL $\frac{3}{SS03}$
 - (E) DUCT SUPPORT, SEE DETAIL $\frac{4}{SS03}$
 - (F) DUCT SUPPORT, SEE DETAIL $\frac{5}{SS03}$
 - (G) 8" WIDE SCUPPER BLOCKOUT IN CMU WALL AT 8'-0" MAX. SPACING AT T/SLAB FOR WATER DRAINAGE. SEE DETAIL $\frac{1}{SS01}$
 - (H) DUCT SUPPORT, SEE DETAIL $\frac{6}{SS03}$

NOTE:
SUPPORT ALL DUCTS AT 6'-0" O.C. MAX. TYP.

SEE S-201 FOR PLAN NOTES.

SCUPPER AND DUCT WORK SUPPORT PLAN

SCALE: 1/4" = 1'-0"



fci STRUCTURAL ENGINEERS, INC.
34 years of service

880 East SR 434
Winter Springs, Florida 32708
Phone (407) 327-5363
Fax (407) 327-5366

Florida EB #3746
Eddie L. Cox, P.E.
Florida P.E. #27499
email: fci@fcisengr.com

TO THE BEST OF MY KNOWLEDGE THE DRAWINGS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.
1729

Document: Last Edited: Nov 08, 2018 - 2:47pm Document Plotted By: Ron Peterson PEI Document File Name: L:\alwood Drawings\2017\1729 Bethune Beach WTP - PEI\1729-S-202.dwg

ELECTRICAL SPECIFICATIONS

GENERAL PROVISIONS

- A. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR A COMPLETE AND PROPERLY OPERATING ELECTRICAL SYSTEM. INCLUDE NECESSARY FEES AND PERMITS WITHIN BASE BID.
B. CODES AND STANDARDS: ALL ELECTRICAL WORK SHALL BE IN STRICT COMPLIANCE WITH THE PROVISIONS OF THE LOCAL GOVERNMENT AUTHORITY, THE NATIONAL ELECTRIC CODE 2014 EDITION, SIXTH EDITION (2017) FLORIDA BUILDING CODE, THE FLORIDA FIRE PREVENTION CODE 2017 EDITION, LIFE SAFETY CODE NFPA 101 2015 EDITION, NATIONAL FIRE ALARM CODE NFPA 72 2013 EDITION AND THE CODES AND STANDARDS REFERENCED THEREIN. ALL MATERIALS SHALL BE NEW AND FREE FROM DEFECTS, AND SHALL BEAR THE UNDERWRITER'S LABEL.
C. CONTRACTOR SHALL THOROUGHLY INVESTIGATE SITE BEFORE BIDDING. NO CHANGES WILL BE ALLOWED IN CONTRACT PRICE FOR WORK REQUIRED TO COMPLY WITH EXISTING CONDITIONS.
D. ALL ELECTRICAL WORK SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER.
E. PROVIDE PHENOLIC NAMEPLATES ON ALL PANELBOARDS, SWITCHBOARDS, DISCONNECTS, TRANSFORMERS, ETC. INDICATING DESIGNATION, VOLTAGE AND WHERE UNIT IS FED FROM. SECURE NAMEPLATES WITH AT LEAST TWO SCREWS OR RIVETS. CEMENTING AND ADHESIVE INSTALLATION NOT ACCEPTABLE. PROVIDE WITH 3/8" TEXT MINIMUM.
F. CONTRACTOR SHALL SCHEDULE ALL DOWN-TIME WITH THE OWNER PRIOR TO BEGINNING THE WORK. PREMIUM/OVERTIME RATES MAY BE REQUIRED AND MUST BE INCLUDED IN BASE BID.
G. CONTRACTOR SHALL THOROUGHLY REVIEW CONSTRUCTION DOCUMENTS AND WALK SITE. WHEN CONFLICTS ARISE WITHIN CONSTRUCTION DOCUMENTS, CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO SUBMITTING A BID. SUBMISSION OF A BID SHALL INDICATE THAT CONTRACTOR THOROUGHLY REVIEWED CONSTRUCTION DOCUMENTS AND WALKED THE SITE PRIOR TO BID SUBMISSION.
H. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING MANUFACTURERS, SUB-CONTRACTORS, VENDORS AND SUPPLIERS, WITH A COMPLETE SET OF THESE DOCUMENTS PRIOR TO SUBMITTING A BID.
I. GUARANTEE ALL ELECTRICAL SYSTEM MATERIALS AND WORKMANSHIP TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE AND PROPERLY CORRECT LATENT DEFECTS ARISING WITHIN THIS PERIOD UPON NOTIFICATION BY THE OWNER'S REPRESENTATIVE WITHOUT ADDITIONAL COMPENSATION.
J. DAILY REMOVE REFUSE AND DEBRIS ACCUMULATING FROM ELECTRICAL CONSTRUCTION AND PRIOR TO ACCEPTANCE OF THIS WORK, LEAVE THE PREMISES "BROOM CLEAN" INSOFAR AS AFFECTED BY ELECTRICAL WORK.
K. ELECTRICAL CONTRACTOR SHALL EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS FOR ESTIMATING AND CONSTRUCTION OF THIS PROJECT. SUBMISSION OF A PROPOSAL SHALL BE CONSIDERED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED FOR CONNECTING AND ENERGIZING EQUIPMENT SHOWN ON THOSE DRAWINGS WILL NOT BE RECOGNIZED. ELECTRICAL CONTRACTOR SHALL COMMUNICATE DISCREPANCIES TO ENGINEER PRIOR TO SUBMITTING A BID.
L. EQUIPMENT AND DESIGN OF SYSTEMS INDICATED ON THE DESIGN DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS "SPECIFIED STANDARD" OR QUALITY. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN APPROVAL OF THE ENGINEER AT LEAST 10 DAYS PRIOR TO BID DATE.
ANY DEVIATION FROM SPECIFIED EQUIPMENT THAT AFFECT THE INSTALLATION, OPERATION, PERFORMANCE, QUALITY OR LONGEVITY OF THE ELECTRICAL SYSTEMS AS DEFINED HEREIN, SHALL BE REPLACED BY THE ELECTRICAL CONTRACTOR WITH NO ADDITIONAL COST TO THE CLIENT. IN ADDITION, ELECTRICAL CONTRACTOR SHALL PROVIDE THE ENGINEERING WITH PHOTOMETRIC FLOOR PLANS FOR ANY LIGHTING FIXTURES CHANGES FOR APPROVAL AT LEAST 10 DAYS PRIOR TO BID DATE.

BASIC MATERIALS AND METHODS

- A. RACEWAYS AND FITTINGS: ALL RACEWAYS AND FITTINGS SHALL BE GALVANIZED RIGID STEEL OR INTERMEDIATE METAL CONDUIT WITH LOCKNUTS AND BUSHINGS, WITH THE EXCEPTION THAT WHERE SPECIFICALLY ALLOWED BY THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES, ELECTRICAL METALLIC TUBING (E.M.T.) MAY BE USED FOR ALL INTERIOR EXPOSED AND CONCEALED WORK WHERE IT IS NOT SUBJECT TO PHYSICAL DAMAGE OR CORROSION. FITTINGS SHALL BE STEEL SET SCREW TYPE. PVC SCHEDULE 40 WITH TAR COATED GALVANIZED RIGID STEEL ELBOWS SHALL BE USED FOR BELOW GRADE INSTALLATIONS. NO CABLE SHALL BE ALLOWED WHEN APPROVED BY TENANT AND LANDLORD AND IT SHALL BE INSTALLED AS PER ARTICLE 330 OF THE NEC, NO BX CABLE ALLOWED. INSTALL EXPANSION FITTINGS IN RACEWAYS EVERY 200' LINEAR RUN OR WHEREVER STRUCTURAL EXPANSION JOINTS ARE CROSSED.
B. FINAL CONNECTIONS TO MOTORS OR EQUIPMENT SUBJECT TO VIBRATION SHALL BE MADE UP WITH GREENFIELD IN DRY LOCATIONS AND WITH JACKETS, LIQUID-TIGHT, FLEXIBLE, GALVANIZED STEEL CONDUIT IN WET OR DAMP LOCATIONS.
C. CONDUCTORS: FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE THIN-2 COPPER (MINIMUM SIZE #12 UNLESS OTHERWISE NOTED). NO ALUMINUM SHALL BE PERMITTED UNLESS SPECIFICALLY NOTED OTHERWISE. INSTALL ALL WIRING IN CONDUIT OR APPROVED RACEWAYS UNLESS OTHERWISE INDICATED. PROVIDE #10 AND FOR BRANCH CIRCUITS OVER 100 FEET IN LENGTH TO ACCOUNT FOR VOLTAGE DROP. COLOR #10 GROUND TO CORRESPOND. ALL BRANCH CIRCUITS SHALL CARRY A GROUNDING EQUIPMENT CONDUCTOR, AND BE WIRED WITH COLOR-CODED WIRE WITH SAME COLOR USED FOR A PHASE THROUGHOUT. COLOR-CODE SHALL BE AS FOLLOWS:
120/208 VOLT: PHASE A - BLACK; PHASE B - RED; PHASE C - BLUE; NEUTRAL - WHITE; GROUND - GREEN.
277/480 VOLT: PHASE A - BROWN; PHASE B - ORANGE; PHASE C - YELLOW; NEUTRAL - LIGHT GREY; GROUND - GREEN.

EXISTING CONDITIONS GENERAL NOTES

- 1. VISIT AND CAREFULLY EXAMINE THOSE PORTIONS OF THE BUILDING AND SITE AFFECTED BY THIS WORK BEFORE SUBMITTING PROPOSALS, SO AS TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT EXECUTION OF THE WORK. SUBMISSION OF A PROPOSAL WILL BE CONSIDERED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE AND LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED.
UTILITIES AND SERVICES INDICATED ARE TAKEN FROM FIELD OBSERVATION AND/OR EXISTING RECORD DOCUMENTS. IT IS TO BE UNDERSTOOD THAT UNFORESEEN CONDITIONS PROBABLY EXIST AND NEW WORK MAY NOT BE FIELD LOCATED EXACTLY AS SHOWN ON THE DRAWINGS. COOPERATION WITH OTHER TRADES IN ROUTING AND/OR BURIAL DEPTHS, AS DETERMINED DURING CONSTRUCTION AND AS DIRECTED BY THE ARCHITECT/ENGINEER, MAY BE NECESSARY. IT IS ALSO UNDERSTOOD THAT THE PLANS ARE NOT COMPLETELY TO SCALE. THIS CONTRACTOR IS TO FIELD VERIFY DIMENSIONS OF ALL SITE UTILITIES, ETC., PRIOR TO BID.
2. ELECTRICAL CONTRACTOR SHALL TRACE LIGHTING AND POWER BRANCH CIRCUITS TO IDENTIFY CIRCUITS SERVING AREA WITHIN SCOPE OF WORK. PROVIDE UPDATED TYPED/WRITTEN PANEL SCHEDULES AT COMPLETION OF WORK.
3. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS AND CEILINGS TO BE REMOVED. REMOVE EXISTING POWER, LIGHTING, SYSTEMS, MATERIALS AND EQUIPMENT WHICH ARE MADE OBSOLETE OR WHICH INTERFERE WITH THE CONSTRUCTION OF THE PROJECT.
4. REINSTALL ANY SUCH POWER, LIGHTING, SYSTEMS, MATERIALS AND EQUIPMENT WHICH ARE REQUIRED TO REMAIN ACTIVE FOR THE FACILITY TO BE FULLY FUNCTIONAL.
4. EXISTING OUTLET BOXES AND CONDUIT WHICH ARE LOCATED PROPERLY FOR NEW WORK MAY BE REUSED FOR NEW DEVICES AND WIRE.
5. ALL CONDUIT AND WIRE REMOVED SHALL BE TAKEN BACK TO THE SOURCE OF SUPPLY.
6. INSTALL A BLANK COVER PLATE WHERE REQUIRED.
7. EXISTING LIGHT FIXTURES BEING REUSED SHALL BE REPAIRED, CLEANED AND RELAMPED.
8. ALL UNUSED RACEWAYS WITHIN ACCESSIBLE SPACES SHALL BE COMPLETELY REMOVED. REMOVE ALSO ASSOCIATED CONDUCTORS, JUNCTION BOXES, FASTENERS AND SUPPORTS.
9. REMOVE CONDUCTORS FROM EXISTING FLOOR BOXES BEING DEMOLISHED TO SOURCE OF SUPPLY. PATCH SURFACES AS DIRECTED BY GENERAL CONTRACTOR.
10. WHERE EXISTING EQUIPMENT OR MATERIALS ARE REMOVED OR CHANGED, ALL BRANCH CONDUITS, WHICH NO LONGER ARE IN SERVICE, SHALL BE REMOVED AS DIRECTED BY THE ARCHITECT. IF, IN THE COURSE OF THE WORK, OUTLETS ARE COVERED UP OR OTHERWISE RENDERED INACCESSIBLE, ALL WIRING TO SAME SHALL BE REMOVED TO THE SOURCE. IF A CIRCUIT THAT MUST REMAIN IN SERVICE IS INTERRUPTED THEREBY, IT SHALL BE RECONNECTED BY THE MOST INCONSPICUOUS MEANS SO AS TO REMAIN OPERATIONAL, WITH SAME CAPACITY AS BEFORE. ALL BUILDING SURFACES DAMAGED, AND OPENINGS LEFT BY REMOVAL OF BOXES, PIPING OR OTHER EQUIPMENT SHALL BE REPAIRED BY THE CONTRACTOR. ALL HOLES LEFT IN JUNCTION BOXES, SWITCHES, PANELS, ETC. SHALL BE CLOSED.
11. WHERE NEW OPENINGS ARE CUT AND CONCEALED CONDUITS, ETC., ARE DISCOVERED, THEY SHALL BE REMOVED OR RELOCATED AS REQUIRED. WHERE CONDUIT TO BE REMOVED STUBS THROUGH FLOORS, WALLS, AND CEILINGS, SUCH CONDUIT SHALL BE REMOVED TO THE POINT WHERE THE FINISH SURFACES CAN BE PATCHED ADEQUATELY SO THAT NO EVIDENCE OF THE FORMER INSTALLATION REMAINS.
12. ALL REUSABLE DEVICES, FIXTURES AND EQUIPMENT SHALL BECOME THE PROPERTY OF THE OWNER. ALL OTHER SALVAGE AND DEBRIS SHALL BE REMOVED FROM THE PREMISES DAILY.
13. ABANDONED LOW VOLTAGE CABLES WITHIN CEILING SPACES SHALL BE REMOVED AS PER ARTICLE 725.25 OF THE NFPA-70.
14. THIS CONTRACTOR SHALL FURNISH AND PROVIDE ALL DEMOLITION REQUIRED TO ACCOMMODATE THIS PROJECT WHETHER INDICATED ON DRAWINGS, OR DIRECTED IN THE FIELD.

ELECTRICAL OUTLETS AND BOXES NOTES

- 1. AN OUTLET BOX OF THE APPROPRIATE SIZE AND TYPE SHALL BE PROVIDED FOR ALL LIGHTING FIXTURES, SWITCHES, RECEPTACLES, ETC.
2. ALL SWITCHES AND RECEPTACLES SHALL BE SPECIFICATION GRADE 20A MINIMUM UNLESS OTHERWISE NOTED. COORDINATE COLOR WITH ARCHITECT PRIOR TO ORDERING.
3. ALL RECEPTACLES LOCATED OUTDOOR SHALL BE WEATHER RESISTANT. COVERS SHALL BE "WHILE-IN-USE" TYPE.
4. ALL JUNCTION BOX COVERS SHALL BE MARKED WITH PANEL, CIRCUIT NUMBER AND VOLTAGE WITH PERMANENT BLACK MARKER.

ENERGY CONSERVATION CODE COMPLIANCE

- 1. THIS DESIGN COMPLIES WITH F.B.C. ENERGY CONSERVATION FIFTH EDITION (2014) CHAPTER 4, SECTION C405 FOR ELECTRICAL POWER AND LIGHTING SYSTEMS.
2. THIS DESIGN COMPLIES WITH 5TH EDITION (2014) OF F.B.C. ENERGY CONSERVATION CHAPTER 4 ARTICLE C405.7.3.1 FOR FEEDER VOLTAGE DROP AND ARTICLE C405.7.3.2 FOR BRANCH CIRCUIT VOLTAGE DROP.
3. ELECTRICAL CONTRACTOR SHALL INSTRUCT OWNER REPRESENTATIVE REGARDING EQUIPMENT OPERATION AND MAINTENANCE AT COMPLETION OF WORK. PROVIDE OWNER WITH ALL MANUALS PERTAINING TO THE PROJECT.
4. MINIMUM EMERGENCY ILLUMINATION SHALL BE PROVIDED FOR A PERIOD OF 1 1/2 HOURS IN THE EVENT OF FAILURE OR NORMAL LIGHTING, WITHIN THE WORK AREAS. EMERGENCY LIGHTING FACILITIES SHALL BE ARRANGED TO PROVIDE INITIAL ILLUMINATION THAT IS AT LEAST AN AVERAGE OF 1 FOOTCANDLE (10 LUX) AND A MINIMUM AT ANY POINT OF 0.1 FOOTCANDLE (1 LUX) MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL.

WIRE SIZE REQUIRED FOR BRANCH CIRCUITS AT LESS THAN 3% VOLTAGE DROP

Table with columns for voltage (120V, 208V, 277V, 480V) and wire sizes (#12, #10, #8, #6, #4, #3, #2, #1) for various conductor types.

TABLE ABOVE FOR REFERENCE ASSUMING FULLY RATED CIRCUIT AT 80% OF AMPACITY. NO MORE THAN 2% VOLTAGE DROP MAXIMUM FOR FEEDERS. AS PER FBC ENERGY CONSERVATION, CHAPTER 4 ARTICLE C405.7.3.1. NO MORE THAN 3% VOLTAGE DROP MAXIMUM FOR BRANCH FEEDERS. AS PER FBC ENERGY CONSERVATION, CHAPTER 4 ARTICLE C405.7.3.2.

WIRE SIZE REQUIRED FOR BRANCH CIRCUITS AT LESS THAN 3% VOLTAGE DROP

Table with columns for voltage (277V, 480V) and wire sizes (#12, #10, #8, #6, #4, #3, #2, #1) for various conductor types.

CIRCUIT BREAKERS, DISCONNECT SWITCHES, FUSES OR MOTOR STARTERS FOR MECHANICAL EQUIPMENT ARE SHOWN FOR PRICING AND PERMITTING. CONTRACTOR SHALL REFER TO EQUIPMENT CUTSHEETS AND SUBMITTALS BY OTHER VENDORS AND COORDINATE EXACT REQUIREMENTS PRIOR TO PURCHASING. ADJUST CONDUCTORS SIZES ACCORDINGLY.

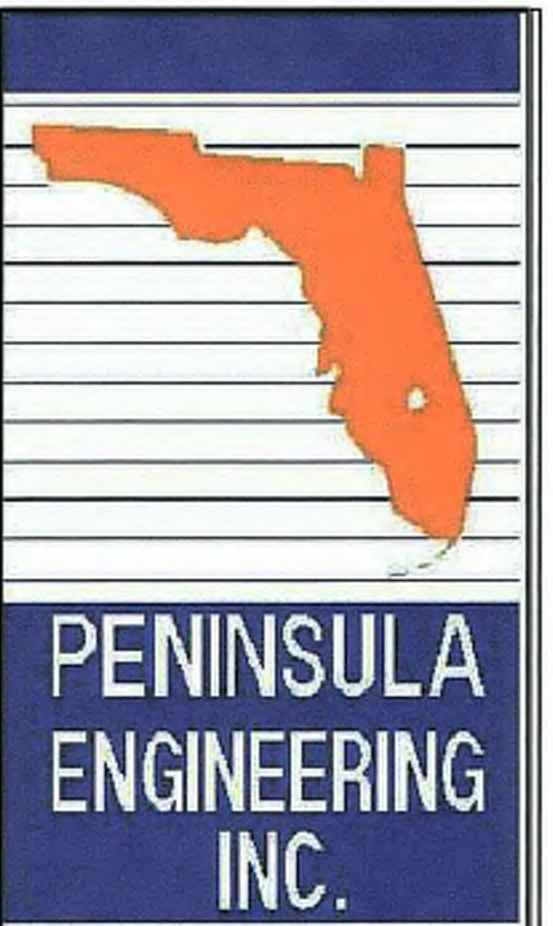
ELECTRICAL SYMBOL LEGEND

- (NOT ALL SYMBOLS USED ON THIS PROJECT)
WALLPAC LED
1-POLE, 2-POLE, 3-WAY, 4-WAY SWITCH
MANUAL MOTOR STARTER TOGGLE SWITCH AS NOTED; "P" INDICATES PILOT LIGHT; "WP" INDICATES WEATHERPROOF
DUPLX RECEPTACLE AT 18", ABOVE COUNTER AT 42", ISOLATED GROUND TYPE
GROUND FAULT TYPE SELF TESTING DUPLX RECEPTACLE
WEATHERPROOF RECEPTACLE. PROVIDE WEATHER RESISTANT WIRING DEVICE AND WHILE-IN-USE WEATHERPROOF RECEPTACLE COVER.
FINAL CONNECTION TO EQUIPMENT
JUNCTION BOX, MOTOR CONNECTION, TRANSFORMER
DISCONNECT SWITCH, STARTER OR CONTACTOR, COMBINATION STARTER/DISCONNECT
120/208V OR 120/240V PANELBOARD
277/480V PANELBOARD
DUCT MOUNTED SMOKE DETECTOR, IONIZATION TYPE WITH TUBES SIZED AS REQUIRED
AHU/EXHAUST FAN SHUTDOWN RELAY, 24V DC
CONTROL MODULE
THERMOSTAT PROVIDED BY DIVISION 15, PROVIDE OUTLET BOX AND 1/2" CONDUIT TO HVAC UNIT. SEE MECHANICAL DRAWINGS FOR EXACT LOCATIONS.

BRANCH CIRCUIT CONDUIT CONCEALED ABOVE CEILING OR IN WALL. SLASH MARKS INDICATE NUMBER OF CONDUCTOR. LONGER SLASH IS NEUTRAL, (GROUND WIRE NOT SHOWN); 2 #12 - 1 #12 GROUND MINIMUM (UNLESS OTHERWISE NOTED OR MARKED); LONGER SLASH WITH HATCH MARK INDICATES ISOLATED GROUND. ISOLATED GROUND CONDUCTOR SHALL BE GREEN WITH A YELLOW STRIPE. QUANTITY OF ARROWS INDICATE QUANTITY OF HOMERUNS TO PANELBOARD. PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL BRANCH CIRCUITS. CIRCUITS SHARING A COMMON NEUTRAL MUST HAVE A COMMON THE HANDLE ON THE CIRCUIT BREAKERS TO ALLOW ALL TO BE TURNED OFF SIMULTANEOUSLY. BRANCH CIRCUIT CONDUIT CONCEALED BELOW SLAB OR UNDERGROUND. CIRCUITS SHARING A COMMON NEUTRAL MUST HAVE A COMMON THE HANDLE ON THE CIRCUIT BREAKERS TO ALLOW ALL TO BE TURNED OFF SIMULTANEOUSLY.

SUBSCRIPT LEGEND:

- E EXISTING DEVICE/LIGHT AND ASSOCIATED CIRCUIT WIRING TO REMAIN. PROVIDE ALL NECESSARY EXTENSION OF CONDUIT AND WIRING AS REQUIRED, IN ORDER TO MAINTAIN CIRCUIT CONTINUITY TO EXISTING EQUIPMENT TO REMAIN.
ERL EXISTING DEVICE/LIGHT TO BE RELOCATED. JUNCTION AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION AS REQUIRED.
RL NEW LOCATION OF EXISTING DEVICE/LIGHT. PROVIDE EXTENSION OF EXISTING CONDUIT AND WIRING AS REQUIRED. (PROVIDE NEW SWITCHING AS INDICATED)
R EXISTING DEVICE/LIGHT TO BE REMOVED. WHERE EXISTING EQUIPMENT TO REMAIN IS FED VIA EXISTING EQUIPMENT TO BE REMOVED, PROVIDE ALL NECESSARY EXTENSION OF CONDUIT AND WIRING AS REQUIRED IN ORDER TO MAINTAIN CIRCUIT CONTINUITY TO EXISTING EQUIPMENT.
N DEVICE/LIGHT TO MATCH EXISTING BUILDING STANDARDS.



2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1684
http://www.peifla.com
E-Mail to: pei@peifla.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.
Copyright 2016

Table with columns: DESCRIPTION, BID AND CONSTRUCT, DATE, REV, and a revision list.

SEAL:
Digitally signed by Gerardo Solar
Date: 2018.11.07 14:14:53 -05'00'
Gerardo Solar, PE, Fl. Reg. No. 53259

PROJECT TITLE
THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT

SHEET TITLE
SPECIFICATIONS,
GENERAL NOTES
AND LEGEND

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.
DRAWN BY: KZI
CHECKED BY: JCM
DATE: 08/22/17
SCALE: SEE PLAN
JOB NO. 17198
SHEET
E001



PENINSULA ENGINEERING INC.

2016 ALDEN ROAD
ORLANDO, FLORIDA 32803
CA 3089
VOICE 407.246.1688
FAX 407.246.1684
http://www.peifla.com
E-Mail to: pei@peifla.com

Copyright - All ideas, designs, methods and plans indicated or represented by this drawing are owned by and the property of Peninsula Engineering, Inc. and were created, evolved and developed for use on and in connection with the specified project. None of the ideas, designs, arrangements, methods or plans shall be used by or disclosed to any person, firm or corporation for any purpose whatsoever without the written permission of Peninsula Engineering, Inc.

Copyright 2016

REV#	DATE	DESCRIPTION
1	11.05.16	BD AND CONSTRUCT

SEAL:

Gerardo Solar, PE, FL Reg. No. 53259
PROJECT TITLE

**THE CITY OF DAYTONA BEACH
BETHUNE POINT
WASTEWATER TREATMENT
PLANT - AHU REPLACEMENT**

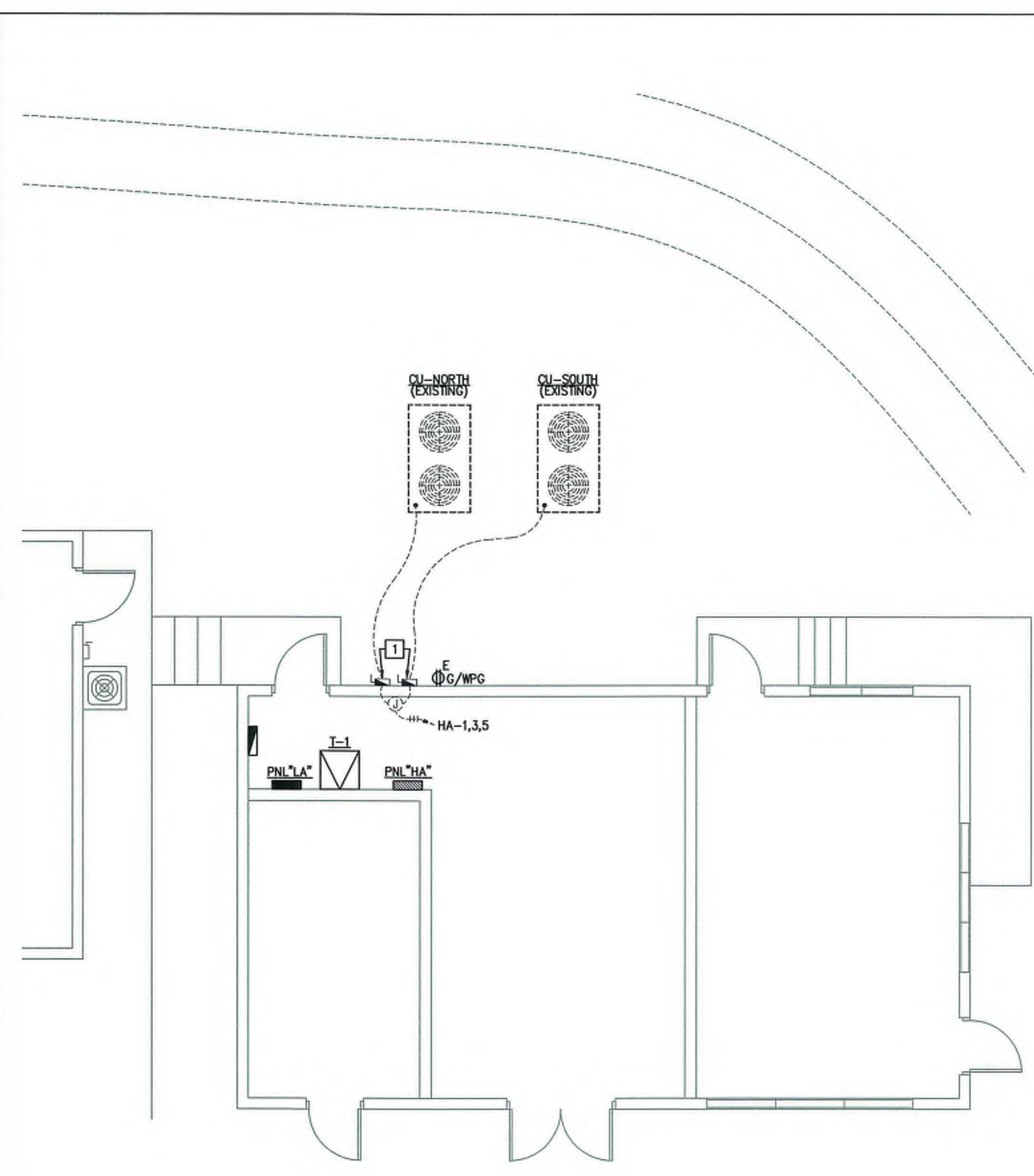
SHEET TITLE

**RENOVATION PLANS
ELECTRICAL POWER**

These documents are conceptual and are being submitted in order to receive Building Department review, comment, and interpretations, and are not completed construction documents.

DRAWN BY:
KZJ
CHECKED BY:
JS
DATE:
08/22/17
SCALE:
SEE PLAN
JOB NO.
17198

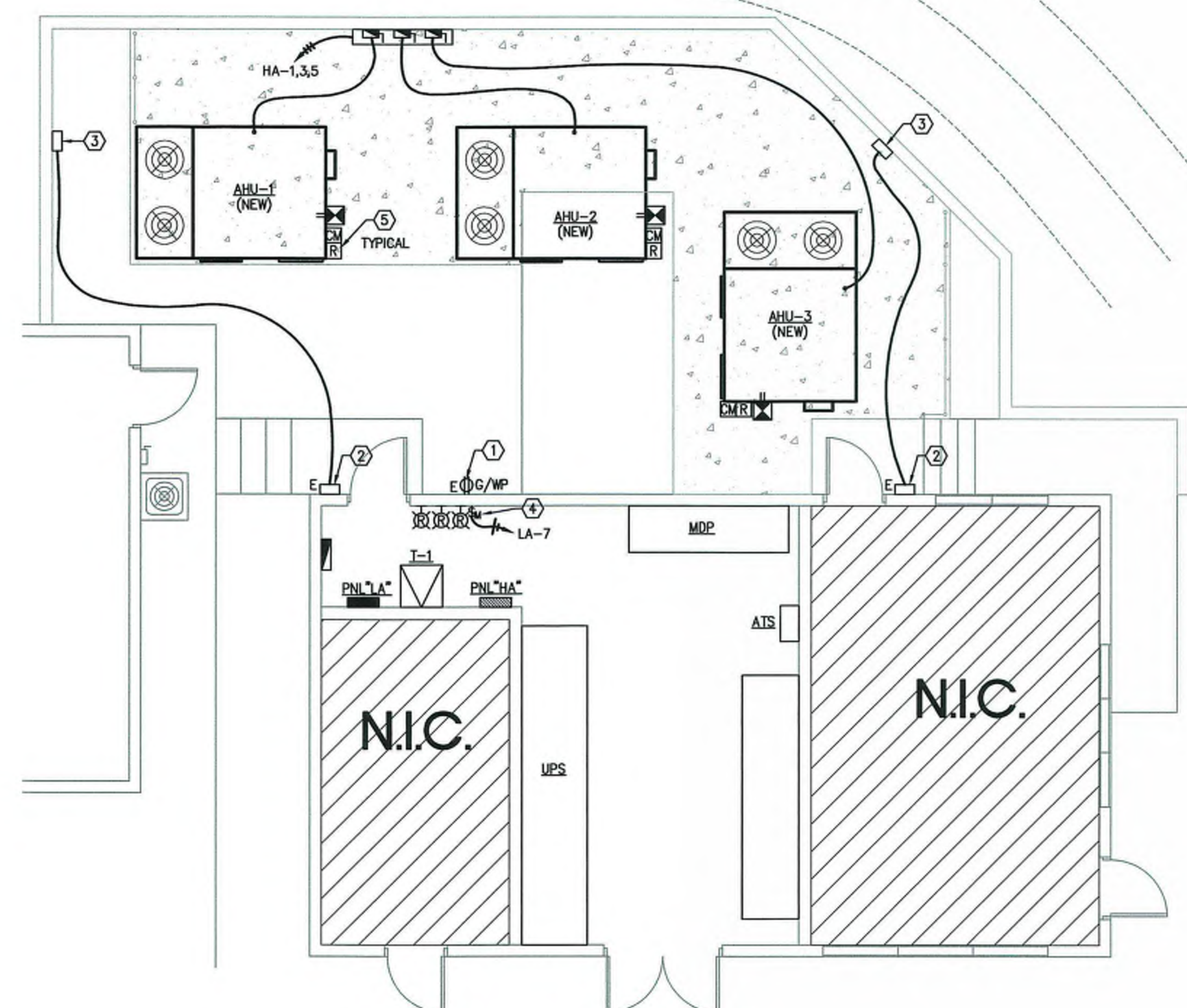
SHEET
E201



DEMOLITION PLAN - ELECTRICAL POWER
SCALE: 3/16" = 1'-0"

DEMOLITION NOTES

- 1 DISCONNECT EXISTING HVAC UNITS. REMOVE CONDUIT AND WIRE BACK TO PANEL "HA". RETAIN EXISTING 3P, 90A CIRCUIT BREAKER FOR REUSE.

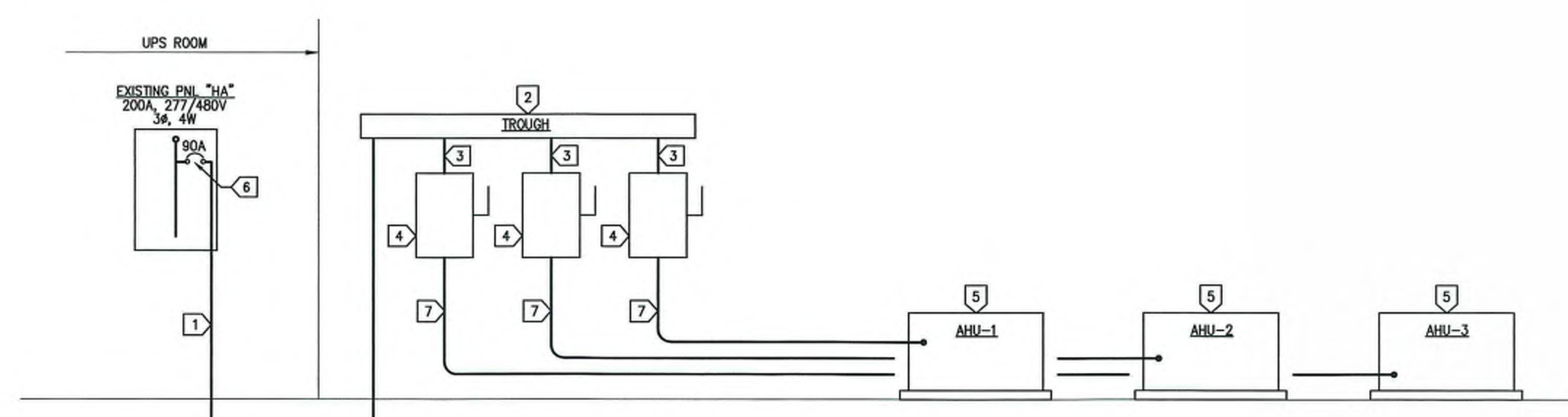


RENOVATION PLAN - ELECTRICAL POWER
SCALE: 3/16" = 1'-0"

GENERAL NOTES

- 1 REPLACE EXISTING RECEPTACLE WITH A NEW GFCI TYPE RECEPTACLE. PROVIDE NEW DIE CAST "WHILE IN USE" COVER PLATE.
- 2 REPLACE EXISTING WALL PACK WITH A NEW RAYON LIGHTING LED WALL PACK, CATALOG #T228LED-DL-30-UNIT2-35-T3-BZ-EM. CONNECT USING EXISTING CIRCUIT AND CONTROLS.
- 3 PROVIDE A NEW RAYON LIGHTING LED WALL PACK CATALOG #T228LED-DL-30-UNIT2-35-T3-BZ-EM. CONNECT USING EXISTING CIRCUIT AND CONTROLS. RUN 2 #10 - 1 #10 GND - 3/4"C.
- 4 CONNECT MECHANICAL CONTRACTOR PROVIDED HVAC CONTROLLER. RUN 2 #10 - 1 #10 GND - 3/4"C.
- 5 PROVIDE ALL CONTROL MODULES AND RELAYS TO INTERFACE DUCT SMOKE DETECTORS TO THE REMOTE TEST STATIONS LOCATED INSIDE BUILDING.

ONLY TWO AIR HANDLERS SHALL OPERATE ANY GIVEN TIME. THIRD AHU IS FOR REDUNDANCY.



EQUIPMENT CONNECTION RISER DIAGRAM
SCALE: NOT TO SCALE

EQUIPMENT CONNECTION RISER DIAGRAM NOTES

- 1 RUN 3 #2 - 1 #6 GND - 1 1/4"C.
- 2 PROVIDE A 6"x 6" x 4" NEMA 4X STAINLESS STEEL TROUGH. PROVIDE BONDING TO GROUND.
- 3 RUN 3 #6 - 1 #6 GND - 1"C.
- 4 PROVIDE A 3P, 100A, 600V, NEMA 4X, FUSED DISCONNECT SWITCH. FUSE WITH 45A, TIME DELAY FUSES.
- 5 CONNECT AHU WITH CONDUCTORS IDENTIFIED IN KEY NOTE 7. COORDINATE WITH MECHANICAL CONTRACTOR FOR LOW VOLTAGE CONTROL WIRING AND CONDUITS FROM PLC TO EACH AHU.
- 6 EXISTING 3P, 90A CIRCUIT BREAKER.
- 7 RUN 3 #6 - 1 #10 GND - 1"C.