September 18, 2018
BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA
IFB Y19-705/ADDENDUM #1
ORANGE COUNTY CONVENTION CENTER – CHILLED WATER PRODUCTION PLANT PIPE SAMPLING

This addendum is intended to be incorporated into the bid documents of the project referenced above. The following items are clarifications, corrections, additions, deletions and/or revisions to and shall take precedence over the original documents. Underlining indicates additions, deletions are indicated by ~~strikethrough.~~

A. Revised Changes to Drawings and Specifications:

DRAWINGS Updated in response to received Bid RFIs, Owner & Permit Comments:

1. Sheet M-001 - HVAC Symbols Legend and General Notes
    a. Removed notes 4, 6, and 8.
    b. Modified notes 7, 9, and 11 to delete references to Phase 2.
2. Sheet M-101 – HVAC Plan – Phase 2 NEP
    a. Removed Samples 1 through 6 and pipe hatching.
3. Sheet M-102 – HVAC Plan – Phase 3 CEP
    a. Removed Samples 1 through 4 and pipe hatching.
4. Sheet M-103 – HVAC Plan – Phase 4 CEP
    a. Removed Samples 5 and 6 and pipe hatching.
5. Sheet M-201 – HVAC Schedules and Details
    a. Removed NEP Destructive Testing Location Schedule
    b. Removed CEP Destructive Testing Location Schedule

SPECIFICATIONS Updated in response to received Bid RFIs, Owner & Permit Comments:

1. Spec Section 011100 Summary of Work
    a. Removed “and Phase 2 direction”, added “by the owner” to section 1.3.A.
    b. Removed section 1.3.B – Phase 2 – Destructive Testing.
    c. Added Water Sample requirement to end of section 1.3.A – Ultrasonic Testing.

B. All other terms and conditions of the documents remain the same.

C. The Proposer shall acknowledge receipt of this addendum by completing the applicable section in the solicitation or by completion of the acknowledgement information on the addendum. Either form of acknowledgement must be completed and returned not later than the date and time for receipt of the proposal.

Receipt acknowledged by:

_____ _____
Authorized Signature **Date Signed**

_____
Title

_____
Name of Firm

HVAC SYMBOL LEGEND

SYMBOL	DESCRIPTION
1	-REVISION REFERENCE
1 / M-3##	-DETAIL REFERENCE: TOP-DETAIL#, BOTTOM-DRAWING# SHOWN ON
T	-THERMOSTAT/TEMPERATURE SENSOR
H	-HUMIDISTAT/HUMIDITY SENSOR
ES	-EMERGENCY SWITCH
CO_2	-CO2 SENSOR
	-DUCT SMOKE DETECTOR
	-CONNECT TO EXISTING
	-DEMOLISH TO POINT INDICATED
M	-MOTORIZED CONTROL DAMPER
TS	-TEMPERATURE SENSOR
P	-PRESSURE SENSOR
BD	-BACKDRAFT DAMPER
1	-SHEET NOTE CALLOUT
1	-SHEET NOTE CALLOUT
1	-SHEET NOTE CALLOUT
A 200	-AIR DISTRIBUTION TAG
	-CEILING MOUNTED ACCESS DOOR
	-CEILING DIFFUSER, ROUND OR RECTANGULAR NECK (CEILING DIFFUSERS ARE 4-WAY THROW UNO)
	-ROUND DIFFUSER
	-CEILING RETURN
	-CEILING EXHAUST
	-CEILING DIFFUSER, RECTANGULAR (CEILING DIFFUSERS ARE 4-WAY THROW UNO)
	-SUPPLY REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL)
	-RETURN/EXHAUST REGISTER OR GRILLE (VERTICAL MOUNT, SIDEWALL)
	-STEEL BARS AS REQUIRED BY AR-190-1
	-FIRE DAMPER (WITH ACCESS PANEL)
	-FIRE & SMOKE DAMPER (WITH ACCESS PANEL)
	-MANUAL BALANCING DAMPER

SYMBOL	DESCRIPTION
	-OUTSIDE AIR LOUVER
	-EXHAUST AIR LOUVER
	-DUCTWORK SOUND ATTENUATOR
	-DOOR GRILLE
UC	-UNDERCUT DOOR
	-ACCESS DOORS, VERTICAL OR HORIZONTAL
16/8	-FLAT OVAL DUCT
24x12	-NEW DUCTWORK, FIRST DIMENSION IS SIDE SHOWN
24x12 / DOWN / UP W/IN FLOOR	-DUCT ELBOW, POSITIVE PRESSURE (SUPPLY), FIRST
	-DUCT ELBOW, EXHAUST
	-DUCT ELBOW, NEGATIVE PRESSURE, RETURN
	-DUCT ELBOW UP THROUGH ROOF OR SLAB ABOVE
	-RECTANGULAR DUCT SECTION UP, POSITIVE PRESSURE, SUPPLY OR OUTSIDE AIR
	-RECTANGULAR DUCT SECTION UP, NEGATIVE PRESSURE, RETURN
	-RECTANGULAR DUCT SECTION UP, EXHAUST
	-ROUND DUCT SECTION UP
	-FLAT OVAL DUCT SECTION UP
	-EXHAUST DUCT UP THROUGH SLAB W/FAN ON ROOF ABOVE
	-EXHAUST FAN ON ROOF W/DUCT DOWN THROUGH ROOF
	-OUTSIDE AIR DUCT UP THROUGH SLAB W/FAN ON ROOF ABOVE
	-OUTSIDE AIR FAN ON ROOF W/DUCT DOWN THROUGH ROOF
	-TERMINAL UNIT, VARIABLE/CONSTANT AIR VOLUME
	-TERMINAL UNIT, VARIABLE/CONSTANT AIR VOLUME WITH HOT WATER HEAT

SYMBOL	DESCRIPTION
	-EXISTING DUCTWORK TO BE DEMOLISHED
	-EXISTING DUCTWORK TO REMAIN
	-HYDRONIC REHEAT COIL
	-INLINE CENTRIFUGAL FAN
UP	-CHANGE OF ELEVATION
	-FLEXIBLE DUCT
	-TRANSITION, CONCENTRIC
	-TRANSITION, ECCENTRIC
10x8 / 8/0	-TRANSITION, SQUARE TO ROUND
	-SQUARE THROAT ELBOW W/TURNING VANES
	-RADIUS ELBOW
	-RECTANGULAR/ROUND CONICAL TAKE-OFF OR ROUND/ROUND CONICAL TAKE-OFF
	-SQUARE THROAT TEE
12x8	-RADIUS TEE
	-RECTANGLE-TO-ROUND TAKE-OFF
	-STANDARD BRANCH TAKE-OFF
	-SPIN-IN TAKE-OFF W/VOLUME DAMPER & FLEXIBLE DUCT
	-SPIN-IN TAKE-OFF W/VOLUME DAMPER & ROUND DUCT

HVAC ABBREVIATIONS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
AFD	-ADJUSTABLE FREQUENCY DRIVE	MAU	-MAKE-UP AIR UNIT
AFF	-ABOVE FINISHED FLOOR	MBH	-THOUSAND BTUH PER HOUR
AFR	-ABOVE FINISHED ROOF	MCA	-MINIMUM CIRCUIT AMPS
AHU	-AIR HANDLING UNIT	MOCP	-MAXIMUM OVER CURRENT PROTECTION
AP	-ACCESS PANEL	MOD	-MOTOR OPERATED CONTROL DAMPER (MOD)
BOP	-BOTTOM OF PIPE	MTHW	-MEDIUM TEMP HOT WATER
BHP	-BRAKE HORSEPOWER	NC	-NORMALLY CLOSED
BHWP	-BUILDING HOT WATER PUMP	NO	-NORMALLY OPEN
BTU	-BRITISH THERMAL UNIT	NTS	-NOT TO SCALE
h	-CENTER LINE	OA	-OUTSIDE AIR
℄	-CFM (CUBIC FEET PER MINUTE)	OAL	-OUTSIDE AIR LOUVER
CD	-CEILING DIFFUSER	PRBP	-PRESSURE REDUCING BACKFLOW PREVENTER
CT	-COOLING TOWER	PRV	-PRESSURE REDUCING VALVE
CV	-CONSTANT AIR VOLUME	PRS	-PRESSURE REDUCING STATION
ΔP	-CHANGE IN PRESSURE	PSI	-POUNDS PER SQUARE INCH
Δt	-CHANGE IN TEMPERATURE	PSIG	-PSI GAUGE
CFM	-CUBIC FEET PER MINUTE	PTAC	-PACKAGED TERMINAL AIR CONDITIONER
CTU	-CONSTANT VOLUME TERMINAL UNIT	PVC	-POLYVINYL CHLORIDE PIPE
CU	-CONDENSING UNIT	RA	-RETURN AIR
DDC	-DIRECT DIGITAL CONTROLS	RHC	-REHEAT COIL
DN	-DOWN	RHP	-ROOFTOP HEAT PUMP
DS	-DUCT SOUND ATTENUATOR	RPM	-REVOLUTIONS PER MINUTE
EAT	-ENTERING AIR TEMPERATURE	RS/L	-REFRIGERANT SUCTION & LIQUID LINES
EDH	-ELECTRIC DUCT HEATER	RTU	-ROOFTOP AIR HANDLING UNIT
EF	-EXHAUST FAN	SA	-SUPPLY AIR
ERV	-ENERGY RECOVERY VENTILATOR	SF	-SUPPLY FAN
ESP	-EXTERNAL STATIC PRESSURE	SP	-STATIC PRESSURE
EWT	-ENTERING WATER TEMPERATURE	SS	-STAINLESS STEEL
FCU	-FAN COIL UNIT	TAB	-TEST AND BALANCE
FD	-FIRE DAMPER	TAD	-TRANSFER AIR DUCT
FF	-FINAL FILTERS	TSP	-TOTAL STATIC PRESSURE
FLA	-FULL LOAD AMPS	UH	-UNIT HEATER
FPM	-FEET PER MINUTE	UNO	-UNLESS NOTED OTHERWISE
GPM	-GALLONS PER MINUTE	V/PH	-VOLTS/PHASE
IH	-INFRARED GAS-FIRED HEATER	VAV	-VARIABLE AIR VOLUME
KW	-KILOWATT	VFD	-VARIABLE FREQUENCY DRIVE
LAT	-LEAVING AIR TEMPERATURE	VTU	-VARIABLE VOLUME TERMINAL UNIT
LWT	-LEAVING WATER TEMPERATURE		
LD	-LINEAR DIFFUSER		

HVAC GENERAL NOTES

1. PROVIDE ADDITIONAL SUPPORTS AS REQUIRED TO PROVIDE A VIBRATION-FREE, RIGID INSTALLATION.
2. ALL PIPING IS SHOWN SCHEMATICALLY.
3. CHILLED WATER PIPING ULTRASONIC TESTING LOCATIONS INDICATED AS NODES ON DRAWINGS ARE SCHEMATIC. CONTRACTOR TO FIELD VERIFY PIPE SIZE AND TESTING LOCATION PRIOR TO CONSTRUCTION. CONTRACTOR TO PROVIDE PHOTOGRAPHIC DOCUMENTION OF ALL NODE LOCATIONS BEFORE AND AFTER TESTING.
4. 1
5. CONTRACTOR SHALL REMOVE AT LEAST A 12 INCH PORTION OF PIPING INSULATION NECESSARY TO PERFORM ULTRASONIC TESTING AT EACH NODE. CLEAN AND PREPARE EXTERIOR OF PIPING PRIOR TO ULTRASONIC TESTING. PROVIDE NEW INSULATION AFTER TESTING IS COMPLETED. PATCH AND SEAL PER SPECIFICATIONS.
6. 1
7. PROVIDE ULTRASONIC TESTING IN ACCORDANCE WITH ASTM E797 FOR THICKNESS AND ASTM E164 FOR SHEARWAVE AT 64 LOCATIONS AS SHOWN ON DRAWINGS. PROVIDE TESTING RESULTS FOR REVIEW BY THE OWNER AND ENGINEER. 1
8. 1
9. PROVIDE TESTING RESULTS INCLUDING ANALYSIS OF FINDINGS AND CONCLUSION OF PIPE CONDITION. SUBMIT A FULL REPORT DOCUMENTING EXAMINATION PROCEDURE, TYPE OF INSTRUMENTATION USED, MAXIMUM AND MINIMUM THICKNESS MEASUREMENTS, LOCATION OF MEASUREMENTS AND PHOTOGRAPHIC DOCUMENTATION OF RESULTS. 1
10. THE ENERGY PLANTS SHALL REMAIN OPERATIONAL AND PROVIDE A MAXIMUM OF 42 DEGREE F CHILLED WATER. COORDINATE ANY INTERRUPTIONS OR EQUIPMENT SHUTDOWNS WITH THE OWNER AND OUC.
11. PROVIDE WATER CHEMISTRY TESTING FOR EACH PLANT. PROVIDE ONE WATER SAMPLE PER PLANT TO TESTING AGENCY FOR CORROSIVE INDEX TESTING AND SULFUR REDUCING BACTERIA (SRB) TESTING. PROVIDE WATER CHEMISTRY TEST RESULTS TO THE OWNER. 1

HVAC PIPING SYMBOL LEGEND

SYMBOL	DESCRIPTION
CWS	-CONDENSER WATER SUPPLY
CWR	-CONDENSER WATER RETURN
CHS	-CHILLED WATER SUPPLY
CHR	-CHILLED WATER RETURN
CD	-CONDENSATE
CR	-CONDENSATE RETURN
PC	-PUMPED CONDENSATE
HWS	-HOT WATER SUPPLY
HWR	-HOT WATER RETURN
BHWS	-BUILDING HOT WATER SUPPLY
BHWR	-BUILDING HOT WATER RETURN
MTWS	-MEDIUM TEMPERATURE WATER SUPPLY
MTWR	-MEDIUM TEMPERATURE WATER RETURN
HPS	-HIGH PRESSURE STEAM SUPPLY
HPR	-HIGH PRESSURE STEAM RETURN
MPS	-MEDIUM PRESSURE STEAM SUPPLY
MPR	-MEDIUM PRESSURE STEAM RETURN
LPS	-LOW PRESSURE STEAM SUPPLY
LPR	-LOW PRESSURE STEAM RETURN
RL	-REFRIGERANT LIQUID
RS	-REFRIGERANT SUCTION
	-FLOW DIRECTION
	-GATE VALVE
	-BALL VALVE
	-BUTTERFLY VALVE

SYMBOL	DESCRIPTION
	-CONTROL VALVE
	-CHECK VALVE
	-CALIBRATING BALANCING VALVE
	-GAS COCK
	-UNION
	-STRAINER
	-PSI REG.
	-FLOW SWITCH
	-SLOPE DIRECTION (DOWN)
	-FLEX CONNECTION
	-O.S.&Y. GATE VALVE
	-STEAM TRAP
	-THREE-WAY CONTROL VALVE
	-THERMOMETER
EQUIP.	- P-TRAP
	-TWO-WAY CHECK VALVE
	-MANUAL VENT
P	-PRESSURE GAUGE
	-RELIEF VALVE
FM	-FLOW METER
M	-WATER METER

SYMBOL	DESCRIPTION
	-INLINE PUMP
	-INLINE PUMP
	-VALVE ON RISER
	-CAP
	-CONNECTION, BOTTOM
	-CONNECTION, TOP
	-COUPLING
	-ELBOW, 90°
	-ELBOW, 45°
	-ELBOW, TURNED DOWN
	-ELBOW, TURNED UP
	-TEE, OUTLET DOWN
	-TEE, OUTLET UP
D	-45° PIPE RISE (R) / DROP (D)
	-PIPE ANCHORS
	-CONCENTRIC REDUCER
	-ECCENTRIC REDUCER
	-MODULATING CONTROL VALVE
	-DIFFERENTIAL PRESSURE TRANSMITTER
	-TEMPERATURE SENSOR
S	-ACTUATED TWO-WAY VALVE
	-PRESSURE/TEMPERATURE PORT
	-PRESSURE SENSOR

SYMBOL	DESCRIPTION
BI	BINARY / DIGITAL INPUT
BO	BINARY / DIGITAL OUTPUT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AI / DPT-	DIFFERENTIAL PRESSURE SWITCH (DPS) OR TRANSMITTER (DPT)
STATUS BI / START/STOP BO / SPEED REF AO / SPEED ADJUST AI / VFD / VFD / AI	VARIABLE FREQUENCY DRIVE
AI / FM-	FLOW METER (FM)
	PRESSURE / TEMPERATURE (PT) PORT
AI / TS-	TEMPERATURE SENSOR IN WELL
AI / HS-	DUCT MOUNTED HUMIDITY SENSOR
AI / TS-	DUCT MOUNTED TEMPERATURE SENSOR

SYMBOL	DESCRIPTION
AO / CV- / AI	MOTORIZED 2-POSITION, FLOATING OR MODULATING CONTROL VALVE AS INDICATED
AO / CV- / AI	MOTORIZED CONSTANT FLOW 3-WAY CONTROL VALVE
ACD- / NO	DAMPER AND ACTUATOR WITH END SWITCH
	STARTER DISCONNECT
AFMS- / 120 VAC / AO AI AO	AIR FLOW MONITORING STATION ALONE OR AIR FLOW MONITORING STATION WITH 2-POSITION OR MODULATING MOTORIZED DAMPER
CO2- / AI	CO2 SENSOR
TS- / CO2- / HS-	WALL-MOUNTED THERMOSTAT / TEMP. SENSOR, HUMIDITY SENSOR OR CO2 SENSOR
EV- / DO	EVAPORATIVE COOLER
	HIGH / LOW STATIC PRESSURE SWITCH

SYMBOL	DESCRIPTION
AI / PS-	PRESSURE SWITCH
	CENTRIFUGAL FAN OR PUMP
T	THERMOMETER GAUGE
P	PRESSURE GAUGE
ET-	CLOSED DIAPHRAM TYPE EXPANSION TANK (ET)
AS- / AS-	AIR SEPARATOR (AS)
DV	DRAIN VALVE WITH END PLUG
AVM	MANUAL AIR VENT
AAV	AUTOMATIC AIR VENT
	AUTOMATIC FLOW CONTROL VALVE (AFCV) CIRCUIT SETTER
PICV	PRESSURE INDEPENDENT CONTROL VALVE (PICV)
	FLEX CONNECTION

NOTE: SOME SYMBOLS SHOWN ON THIS LEGEND MAY NOT PERTAIN TO THIS PROJECT

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CONSULTANT:

CLIENT:

ORANGE COUNTY GOVERNMENT FLORIDA

PROJECT NAME:

ORANGE COUNTY CONVENTION CENTER CHILLED WATER PRODUCTION PLANT PIPE SAMPLING

9800 International Drive, Orlando, Fl 32819

100059859

No.	Date	Description
1	9/14/18	Addendum #1

ISSUE LOG

PROFESSIONAL SEALS:

KELLIE RAMOS, P.E.
FL REG NO. 76996

SHEET TITLE:

HVAC SYMBOLS LEGEND AND GENERAL NOTES

SHEET INFORMATION:

JOB No. 100059859		Date Issued:	07/20/18
Designed By:	KAR	Sheet Number:	M-001
Checked By:	DLH		
QC Review:	TJF		
Phase:	CD		

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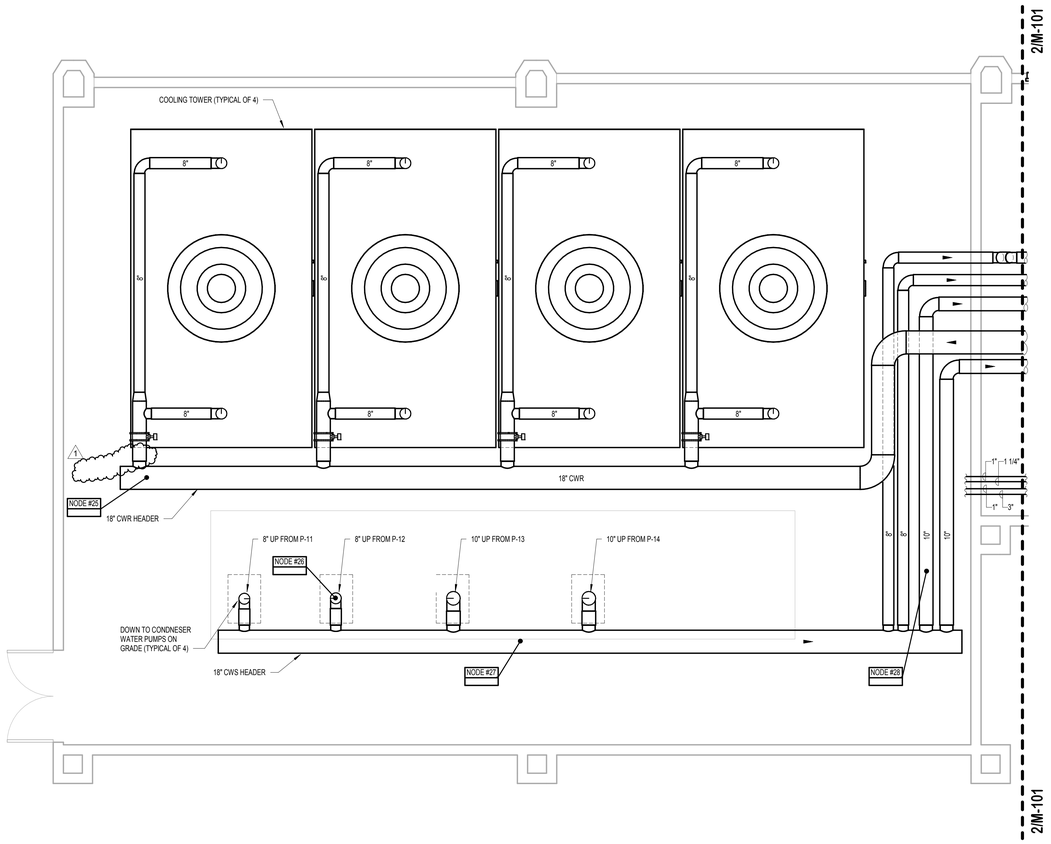
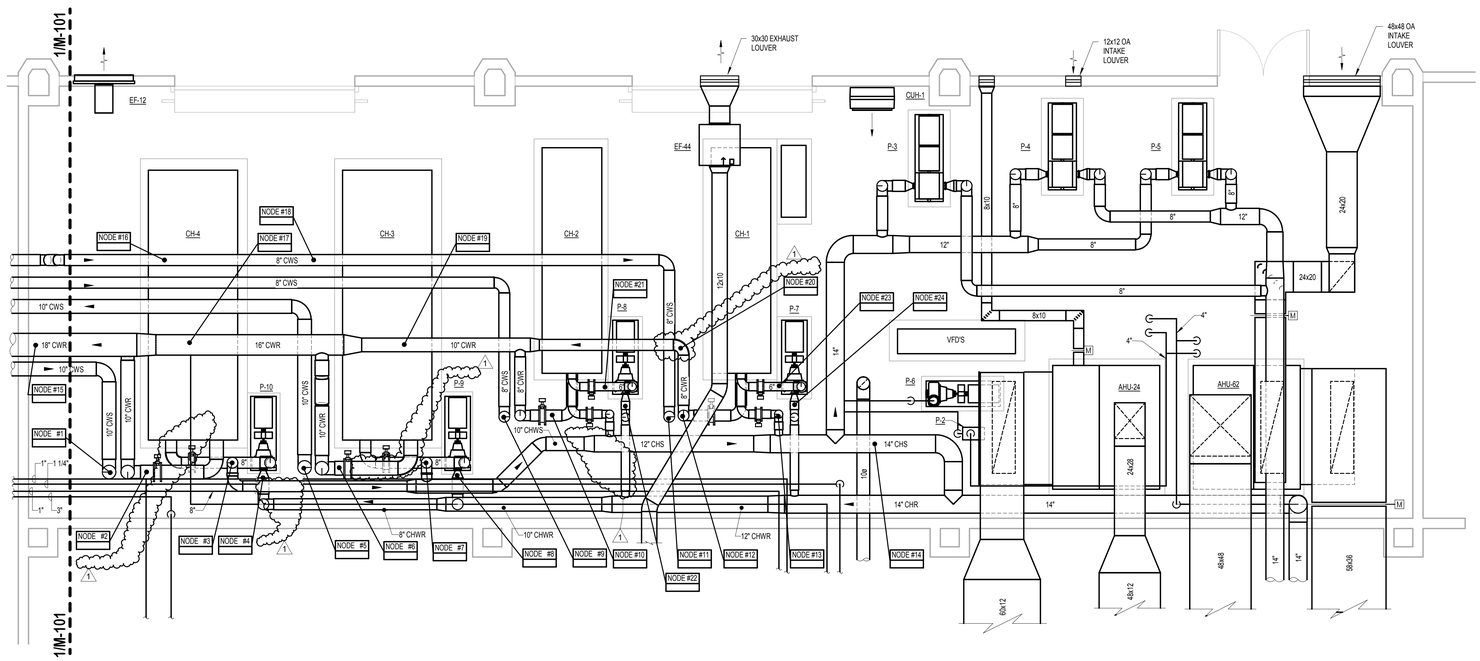


1 COOLING TOWER PLAN

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

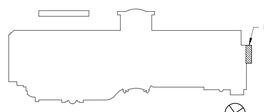
NORTH



2 NEP MECHANICAL ROOM PLAN

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

NORTH



KEY PLAN

PROJECT LOCATION: WEST CONCOURSE
PHASE II: NEP AND PHASE III & IV: CEP

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ORANGE COUNTY CONVENTION CENTER CHILLED WATER PRODUCTION PLANT PIPE SAMPLING

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No.	Date	Description
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PROFESSIONAL SEALS:

KELLIE RAMOS, P.E.
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SHEET TITLE:

HVAC PLAN – PHASE 2 NEP

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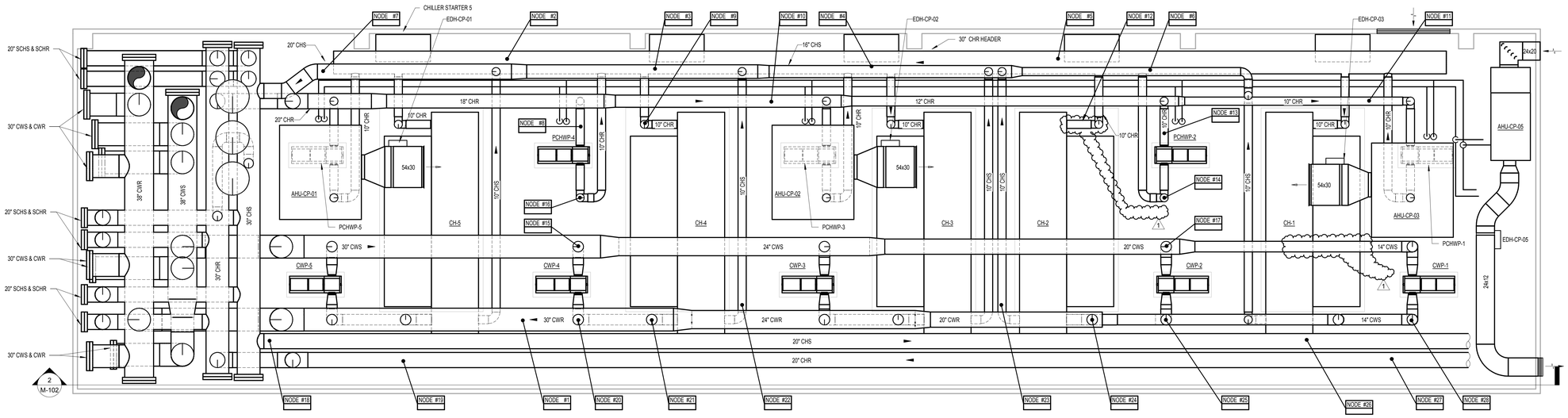
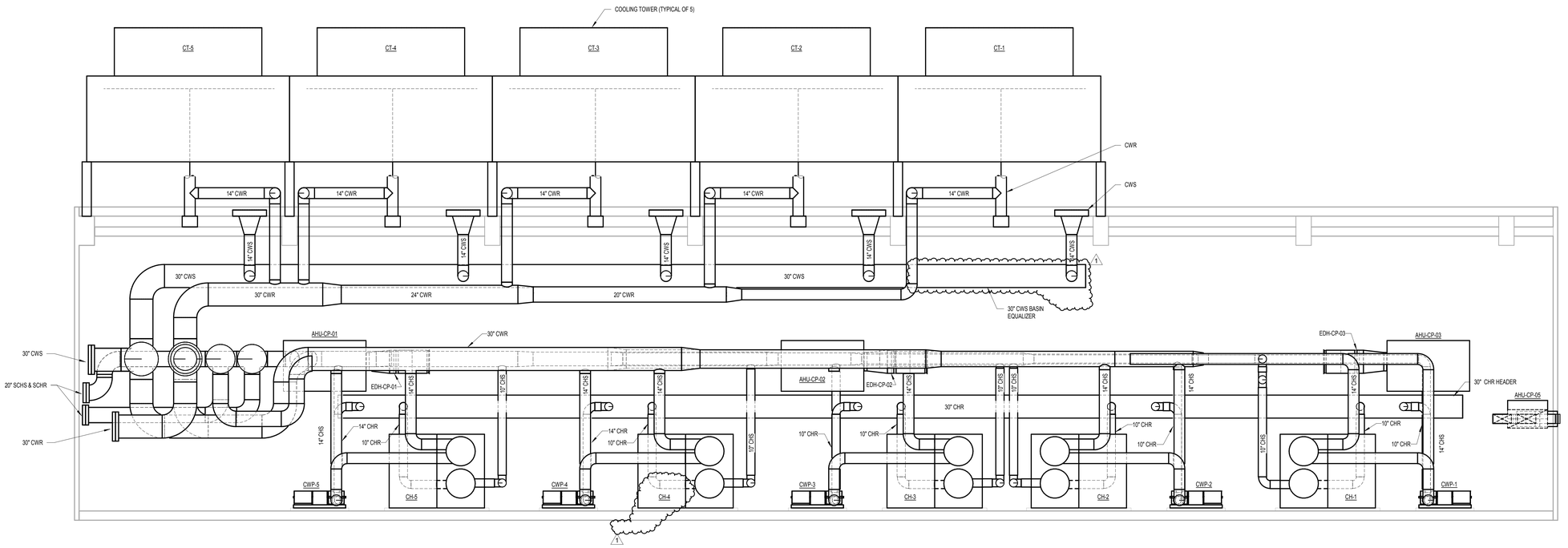


1 CEP MECHANICAL PLAN - PHASE 3

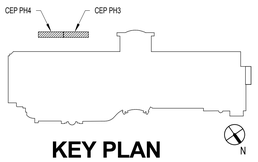
SCALE: 3/16" = 1'-0"

NORTH



2 COOLING TOWER SECTION

SCALE: 3/16" = 1'-0"



KEY PLAN

PROJECT LOCATION: WEST CONCOURSE
PHASE II: NEP AND PHASE III & IV: CEP

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ORANGE COUNTY GOVERNMENT FLORIDA

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PROFESSIONAL SEALS:

KELLIE RAMOS, P.E.
FL REG NO. 76996

SHEET TITLE:

HVAC PLAN – PHASE 3 CEP

SHEET INFORMATION:

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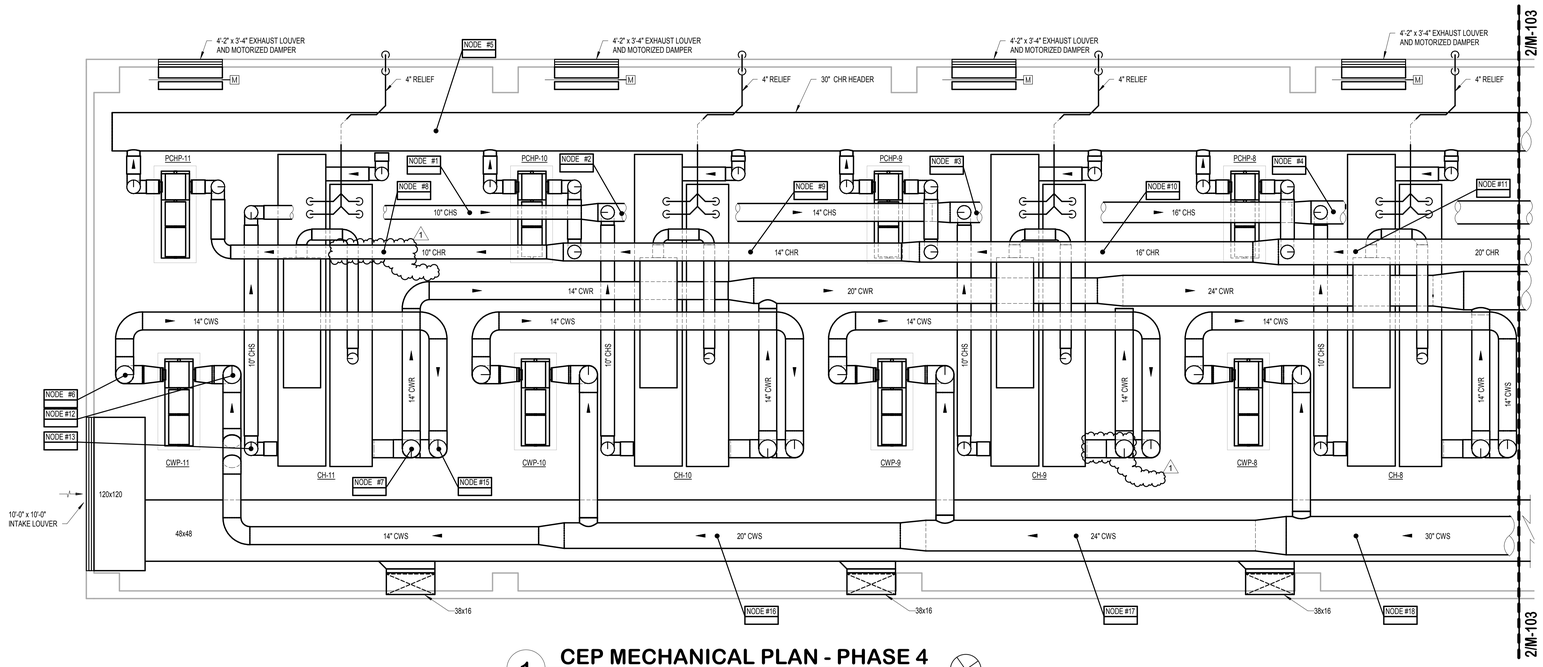
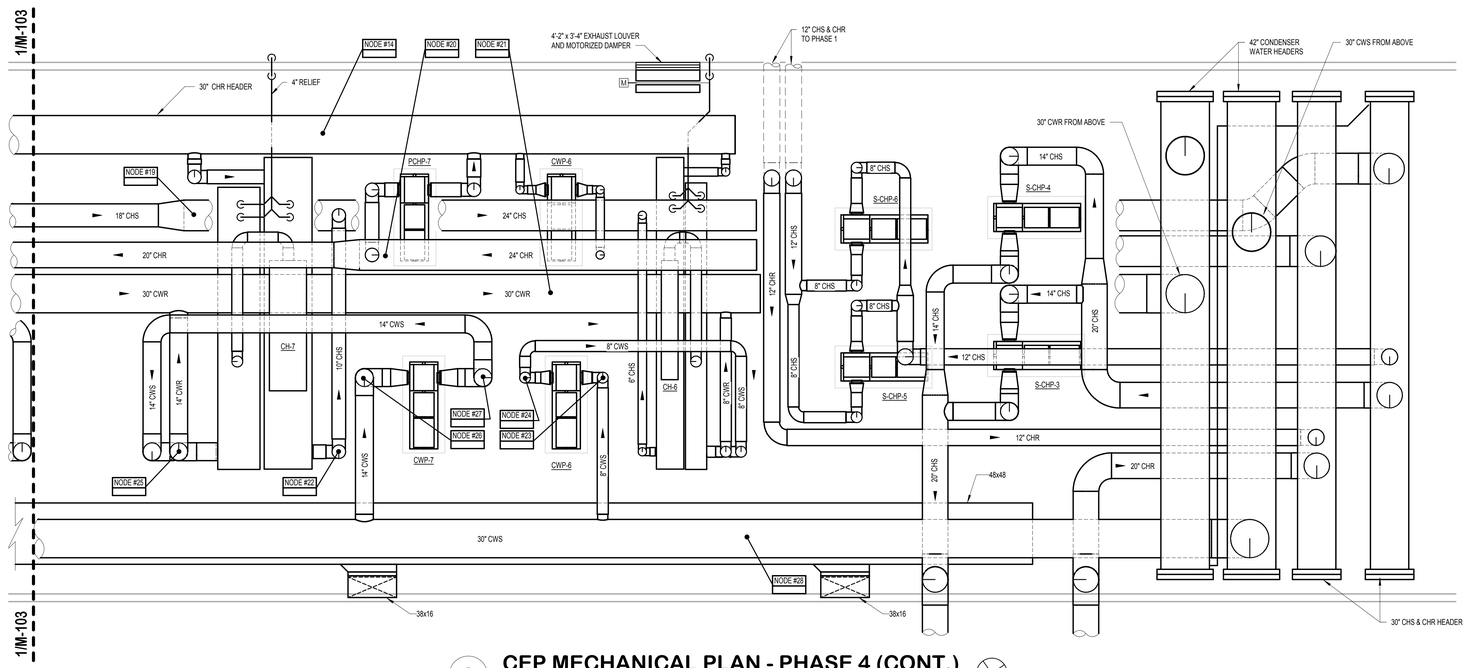


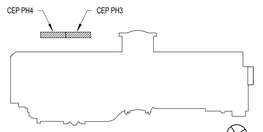
1 **CEP MECHANICAL PLAN - PHASE 4**
SCALE: 1/4" = 1'-0"

NORTH



2 **CEP MECHANICAL PLAN - PHASE 4 (CONT.)**
SCALE: 1/4" = 1'-0"

NORTH



KEY PLAN
PROJECT LOCATION: WEST CONCOURSE
PHASE II: NEP AND PHASE III & IV: CEP

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PROFESSIONAL SEALS:

KELLIE RAMOS, P.E.
FL REG NO. 76996

SHEET TITLE:

HVAC PLAN – PHASE 4 CEP

SHEET INFORMATION:

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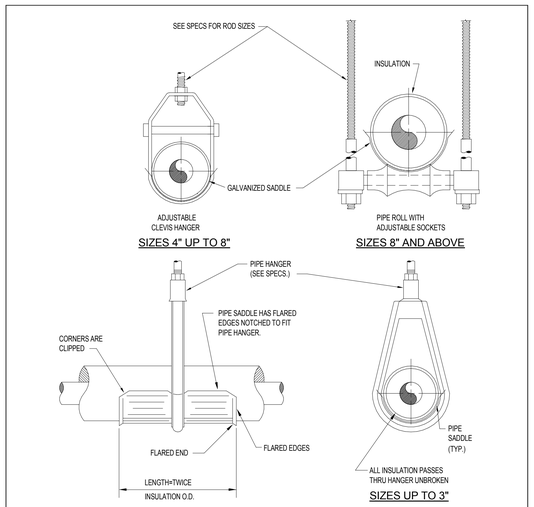
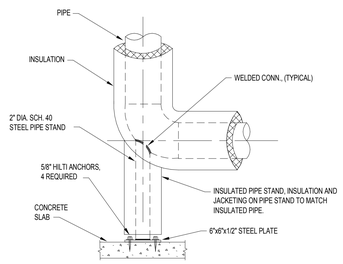
Phase 2 NEP Ultrasonic Testing Location Schedule				
Node #	Phase	Pipe Size	System	Location
1	2-NEP	10"	CWS	CH-4 condenser inlet
2	2-NEP	10"	CWR	CH-4 condenser outlet
3	2-NEP	8"	CHWS	CH-4 evaporator outlet
4	2-NEP	8"	CHWR	P-10 inlet
5	2-NEP	10"	CWS	CH-3 condenser inlet
6	2-NEP	10"	CWR	CH-3 condenser outlet
7	2-NEP	8"	CHWS	CH-3 evaporator outlet
8	2-NEP	8"	CHWR	P-9 inlet
9	2-NEP	8"	CWS	CH-2 condenser inlet
10	2-NEP	8"	CWR	CH-2 condenser outlet
11	2-NEP	8"	CWS	CH-1 condenser inlet
12	2-NEP	8"	CWR	CH-1 condenser outlet
13	2-NEP	6"	CHWS	CH-1 evaporator outlet
14	2-NEP	14"	CH	Bypass
15	2-NEP	18"	CWR	near CH-4
16	2-NEP	8"	CWS	near CH-4
17	2-NEP	16"	CWR	near CH-4
18	2-NEP	8"	CWS	near CH-3
19	2-NEP	10"	CHR	near CH-3
20	2-NEP	8"	CWR	elbow near CH-1
21	2-NEP	6"	CHWR	CH-2 evap inlet/P-8 outlet
22	2-NEP	6"	CHWR	P-8 inlet
23	2-NEP	6"	CHWR	CH-1 evap inlet/P-7 outlet
24	2-NEP	6"	CHWR	P-7 inlet
25	2-NEP	18"	CWR	Header near last tower
26	2-NEP	8"	CWS	P-12 outlet
27	2-NEP	18"	CWS	Header between P-13 & P-14
28	2-NEP	10"	CWS	to CH-3

Phase 3 CEP Ultrasonic Testing Location Schedule				
Node #	Phase	Pipe Size	System	Location
1	3-CEP	30"	CWR	near CH-5
2	3-CEP	30"	CHWR	Header near CH-5
3	3-CEP	18"	CHWS	near CH-4
4	3-CEP	16"	CHWS	near CH-3
5	3-CEP	30"	CHWR	Header near CH-2
6	3-CEP	10"	CHWS	near CH-1
7	3-CEP	20"	CHWS	near CH-5
8	3-CEP	10"	CHWR	PCHWP-4 inlet
9	3-CEP	10"	CHWR	CH-4 evaporator inlet
10	3-CEP	16"	CHWR	near CH-4
11	3-CEP	10"	CHWR	PCHWP-1 inlet
12	3-CEP	10"	CHWR	CH-2 evaporator inlet
13	3-CEP	10"	CHWR	PCHWP-2 inlet
14	3-CEP	10"	CHWR	PCHWP-2 outlet
15	3-CEP	14"	CWS	CWP-4 inlet
16	3-CEP	10"	CHWR	PCHWP-4 outlet
17	3-CEP	14"	CWS	CWP-2 inlet
18	3-CEP	20"	CHWS	near CH-5
19	3-CEP	20"	CHWR	near CH-5
20	3-CEP	14"	CWS	CWP-4 outlet
21	3-CEP	14"	CWR	CH-4 condenser outlet
22	3-CEP	10"	CHWS	CH-4 evaporator outlet
23	3-CEP	10"	CHWS	CH-2 evaporator outlet
24	3-CEP	14"	CWR	CH-2 condenser outlet
25	3-CEP	14"	CWS	CWP-2 outlet
26	3-CEP	20"	CHWS	near CH-1
27	3-CEP	20"	CHWR	near CH-1
28	3-CEP	14"	CWS	CWP-1 outlet

Phase 4 CEP Ultrasonic Testing Location Schedule				
Node #	Phase	Pipe Size	System	Location
1	4-CEP	10"	CHWS	near CH-11
2	4-CEP	14"	CHWS	near CH-10
3	4-CEP	16"	CHWS	near CH-9
4	4-CEP	18"	CHWS	near CH-8
5	4-CEP	30"	CHWR	Header near PCHP-10
6	4-CEP	14"	CWS	CWP-11 outlet
7	4-CEP	14"	CWR	CH-11 condenser outlet
8	4-CEP	10"	CHWR	PCHP-11 inlet
9	4-CEP	14"	CHWR	near CH-10
10	4-CEP	16"	CHWR	near CH-9
11	4-CEP	20"	CHWR	near CH-8
12	4-CEP	14"	CWS	CWP-11 inlet
13	4-CEP	10"	CHWS	CH-11 evaporator outlet
14	4-CEP	30"	CHWR	Header near CH-7
15	4-CEP	14"	CWR	CH-11 condenser inlet
16	4-CEP	20"	CWS	near CH-10
17	4-CEP	24"	CWS	near CH-9
18	4-CEP	30"	CWS	near CH-8
19	4-CEP	24"	CHWS	near CH-7
20	4-CEP	24"	CHWR	near PCHP-7
21	4-CEP	30"	CWR	near CH-6
22	4-CEP	10"	CHWS	CH-7 evaporator outlet
23	4-CEP	8"	CWS	CWP-6 inlet
24	4-CEP	8"	CWS	CWP-6 outlet
25	4-CEP	14"	CWR	CH-7 condenser outlet
26	4-CEP	14"	CWR	CWP-7 inlet
27	4-CEP	14"	CWR	CWP-7 outlet
28	4-CEP	30"	CWS	near CH-6



PIPE HANGERS INDOORS
NO SCALE
2
M-201



INSULATED VERTICAL PIPE SUPPORT
NO SCALE
1
M-201

ATKINS
482 SOUTH KELLER ROAD
ORLANDO, FL 32810
PHONE: 407.647.7275 FAX: 407.740.8958

CONSULTANT:

CLIENT:

ORANGE COUNTY GOVERNMENT FLORIDA

PROJECT NAME:

ORANGE COUNTY CONVENTION CENTER CHILLED WATER PRODUCTION PLANT PIPE SAMPLING
9800 International Drive, Orlando, Fl 32819
100059859

No.	Date	Description
1	9/14/18	Addendum #1

ISSUE LOG

PROFESSIONAL SEALS:

KELLIE RAMOS, P.E.
FL REG NO. 76996

SHEET TITLE:

HVAC SCHEDULES AND DETAILS

SHEET INFORMATION:

JOB No. **100059859**		Date Issued:	07/20/18
Designed By:	KAR	Sheet Number:	**M-201**
Checked By:	DLH		
QC Review:	TJF		
Phase:	**CD**		

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SECTION 011100 - SUMMARY OF WORK (OCCC)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

B. When the titles such as Engineer, Project Engineer, or Owner are used throughout this specification, this implies Orange County as property owner and/or an officially appointed County Representative.

C. The term "Engineer" shall also refer to the Architect of Record, or any other Designer/Consultant of Record on the Project.

1.2 PROJECT DESCRIPTION

A. Performance of all tasks specified in the contract documents shall be the responsibility of the contractor unless specified otherwise.

1.3 SCOPE OF WORK

A. ~~Phase 1 –~~ Ultrasonic Testing:

- Contractor shall perform ultrasonic thickness testing at each node shown on drawings. There are 56 locations in the Central Energy Plant (CEP) and 28 locations in the North Energy Plant (NEP).
- Testing shall be in accordance with ASTM E797 for thickness and ASTM E164 for shear wave. The entire circumference of the pipe shall be tested at each node.
- At least 12 inches of insulation shall be removed per node. The exterior of the pipe shall be cleaned and prepared prior to testing. New insulation of like kind shall be replaced after testing.
- Provide test results including nominal thickness, and high and low thickness measurements at each node for review ~~and Phase 2 direction~~ by the owner.

~~B. Phase 2 – Destructive Testing:~~

- ~~Perform destructive testing at 6 sample locations in each plant (NEP & CEP). Sections of piping shall be removed and new piping and insulation of like kind shall be replaced where instructed by the owner after review of Phase 1 results. Each pipe sample shall be at least 3 feet long.~~
- Perform water chemistry testing for each plant ~~prior to phase 2 samples being removed~~. Provide one water sample for the CEP and one for the NEP to the metallurgical testing agency for corrosive index testing and sulfur reducing bacteria (SRB) testing. Provide test results to the owner.
- ~~Piping and water samples shall be transported to a subcontracted testing agency for visual, stereomicroscopy, metallurgical, energy spectroscopy (EDS), scale analysis and full chemistry analysis in accordance with ASTM A53.~~
- ~~Testing includes removal and replacement of piping, insulation, valves and associated components in that section of piping.~~

1.4 CONTRACTOR RESPONSIBILITIES

A. The contractor shall have all submittals approved by the Engineer and accepted by the Owner prior to the start of active construction.

B. The contractor shall have all equipment and material onsite prior to the start of active construction.

C. The contractor shall have all measurement equipment calibrated prior to construction according to manufacturer's written instructions.

D. The contractor shall submit to the Owner prior to the project pre-construction meeting the following:

- Preliminary Schedule of Values
- Construction Schedule
- Submittal Schedule
- Emergency Telephone List including subcontractors and suppliers
- List of instruments used for procedures, along with instrument calibration reports, to include the following:
  - Instrument type and make
  - Serial number
  - Application
  - Dates of use
  - Dates of calibration

E. The contractor shall field verify existing conditions of construction prior to start of active construction.

F. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.

a. Construct dustproof partitions with two layers of 6-mil (0.14-mm) polyethylene sheet on each side. Cover floor with two layers of 6-mil (0.14-mm) polyethylene sheet, extending sheets 18 inches (460 mm) up the sidewalls. Overlap and tape full length of joints.

b. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.

c. Protect server racks from dust migration including exhaust fans for dust mitigation.

d. Protect flooring finishes, smoke detectors, light fixtures, diffusers and other ceiling devices from dust and debris during construction.

e. Protect air distribution system from dust and dirt. Return grilles serving the IDF room and adjacent construction area shall be sealed during construction.

f. Provide walk-off mats at each entrance through temporary partition.

G. Temporary cooling shall be provided as necessary to maintain space temperatures between 68 degrees F and 75 degrees F. Replace filters once construction is complete.

H. The contractor is responsible for moving furniture and/or equipment if necessary to

perform the work included in the contract. The contractor is responsible for placing the furniture and/or equipment back in its original location. The contractor is responsible for any damages to furniture, equipment, etc., which occur during construction. The contractor shall provide protection for floors, walls, furniture, equipment and any other items that may be subject to damage during the construction periods and will be required to repair or replace to original or better condition.

I. The contractor shall coordinate with the Owner on the operation of the security alarm system prior to the start of active construction. The contractor shall submit an action plan for operation of the security alarm system during construction to the Owner for acceptance prior to start of active construction. This active plan shall be in place prior to the start of active construction. Any false security alarms that occur during construction and deemed by the Owner to be the fault of the contractor, the contractor shall pay all cost incurred from the local police and or sheriff department for responding to a false alarm.

J. The contractor shall videotape or take pictures of pre-existing conditions of the building interior, exterior and site prior to the start of active construction. Failure to provide photographs or videotape prior to start of construction, places the responsibility on the Contractor to complete the necessary replacement, repairs, and or cleaning as determined by the Owner at no additional cost to the Owner. One set of photographs (in a three-ring binder) or videotape of the site existing conditions shall be submitted to the Owner.

K. The contractor shall at all times maintain daily cleanup of construction areas. The contractor shall insulate chilled water piping at the end of each work day. Work areas that are not cleaned by the contractor, and cleaned by the Owner, those costs shall be charged back to the contractor via change order.

L. The contractor shall provide a construction schedule to the Owner's Project Manager prior to the pre-construction meeting.

M. The contractor shall update the construction schedule weekly and submit it to the Owner's Project Manager for review.

N. The contractor shall discard all demolished material and equipment.

1.5 WORK UNDER OTHER CONTRACTS

A. Separate contracts may be issued to perform certain construction operations at the site. The contractor of this project will allow reasonable access and coordination to the other contractor/s.

1.6 WORK SEQUENCE

A. Portions of the facility shall remain occupied and operational while work is in progress. The facility shall remain occupied and operational while work is in progress. All work shall be fully coordinated in writing with Orange County Convention Center Project Manager prior to commencement of work. Material and equipment deliveries shall be made during normal business hours.

C. The contractor may work on the weekends at his or her discretion with prior written approval from Orange County Convention Center Project Manager. Weekend work shall not be an additional cost to the Owner. The contractor will coordinate with the Orange County Convention Center Project Manager for access to the building on weekends and

after hours work.

D. Orange County Convention Center Project Manager shall direct contractor on which days and hours are acceptable for work.

1.7 CONTRACTOR USE OF PREMISES

A. General: During the construction period, the Contractor shall have limited use of the premises for construction operations, including use of the site. The Contractor shall coordinate which areas are acceptable to Convention Center Staff for use during the life of the project. The Contractor's use of the premises is limited only by the Owner's right to perform construction operations with its own forces or to employ separate contractors on portion of the project.

B. General: Limited use of the premises to construction activities in areas indicated within the limit of the premises. The Contractor may use any portion(s) of the site for storage or work areas only with prior approval from Orange County Convention Center Project Manager.

1. Confine operations to areas within central and north energy plants indicated on the Drawings. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

2. Keep driveways and entrances serving the premises clear and available to the Owner and the Owners' employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

3. Burial of Waste Materials: Do not dispose of organic and hazardous material on site, either by burial or by burning.

4. Where appropriate, maintain the existing building in a watertight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and it's occupants during the construction period.

5. Confine construction operations to the areas permitted by the contract documents and other Owner directives.

6. Provide protection and safekeeping of material and equipment stored on premises.

7. Contractor will move any stored material and equipment, which interfere with operations of the Owner or other contractors at no additional cost to the Owner.

8. Comply with Owners' requirements for ingress and egress procedures, prohibitions against firearms, procedures for transportation of workers, safety and fire prevention requirements and pollution control requirements. Refer to the following reference requirements:

a) Orange County Safety and Health Manual
http://www.orangecountyfl.net/VendorServices/OrangeCountySafetyandHealthManual.aspx#.Wql6OU2oupo

b) Orange County Policy Manual page 100 regarding Firearms http://www.orangecountyfl.net/Portals/0/resource%20library/employment%20-%20volunteerism/Policy%20Manual.pdf

9. Contractor to require all employees and subcontractors to wear non-objectionable clothing; prohibit revealing clothing and articles of clothing with offensive writings displayed. The contractor shall require offending personnel to leave the premises until such clothing is changed.

10. Contractor employees and subcontractors will not fraternize with County employees or the general public during the entire construction period.

11. Use of sound equipment (such as boom boxes, stereos, radios, etc.) is not allowed.

12. Contractor and their personnel shall abide to Orange County Tobacco free policy while on any Orange County Convention Center property. This policy shall apply to building, parking lots, parks, break areas and worksites. Tobacco is defined as tobacco products, including but not limited to: Cigars, cigarettes, pipes, chewing tobacco and snuff. Failure to abide by the policy may result in civil penalties levied under Chapter 386, Florida Statutes and/or Contract enforcement remedies. Refer to the following documents:

    a) Orange County Smoking Policy: http://www.orangecountyfl.net/Portals/0/resource%20library/employment%20-%20volunteerism/Employee%20Handbook.pdf

13. Conduct that is disrespectful, abusive or otherwise objectionable to the Owners' employees or general public will not be allowed at any time during the construction period. Repetitive complaints and violations of the requirements listed above will be cause for dismissal and or permanent removal of offending personnel from the project.

14. Contractor to coordinate with the Owner the site location for storage of equipment, machinery, materials, tools and a construction waste dumpster.

15. Contractor shall at all times keep the premises free of all waste or surplus materials, rubbish and debris, which is caused by contractor employees or subcontractors resulting from their work. Contractor shall maintain a safe work environment to all building occupants during the construction period.

1.8 SECURITY AND IDENTIFICATION

A. All costs for background investigations will be Contractor's responsibility. The County shall have the right to request any additional investigative background information including, but limited to, the employment record, Right-To-Know records, E-Verify system records (if the Contractor uses this service as a means to determine employment eligibility, available through www.uscis.gov), training records, payroll records, position for which hired including site location of any personnel assigned to perform the services. The Contractor shall furnish, in writing, such information to the extent allowed by law, prior to commencement of services. The County reserves the right to conduct

its own investigation of any employee of the Contractor.

B. A Level 1 (5 years) Background Check for the contractor's staff must be approved by Orange County's Security team prior to working in any County facility. Contractors are responsible for obtaining the necessary forms for background checks for work at the Convention Center.

C. For security purposes and to maintain privacy when submitting FDLE Background Checks via e-mail the subject line of the email must contain the following **EXEMPT**

D. The Convention Center will inform the contractor of their Background Check results. Upon Background Check approval the contractor's staff shall arrange an appointment with the Convention Center staff to obtain an Orange County photo ID badge. An affidavit of Identity form (issued by the contractor) and a State of Florida ID or Drivers License will be required.

E. Contractor's employees will not be allowed in Orange County facilities without completed and approved background investigations.

1.9 OWNER OCCUPANCY

A. Owner Occupancy: The Owner will be occupying the building during construction. Normal occupancy hours are 7:00 a.m. to 6:00 p.m. Monday through Friday, however this may vary with show activity. The contractor is to coordinate with the Owner's representative for areas in the building where work may be performed during normal business hours. Work performed after normal business hours can be done provided the area where work is done is fully operational and back in original condition prior to beginning of the next business day. Such placing of equipment and partial occupancy shall not constitute acceptance of the total work.
   1. A Certificate of Substantial Completion will be executed for each specific portion of the Work to be occupied prior to Owner occupancy.
   2. Obtain a Certificate of Occupancy from local building officials prior to Owner occupancy.
   3. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy, the Owner will provide operation and maintenance of mechanical and electrical systems in occupied portions of the building.

1.10 DISTRIBUTION OF RELATED DOCUMENTS

A. The Contractor is solely responsible for the distribution of ALL related documents/drawings to ALL appropriate vendors/subcontractors to ensure proper coordination of all aspects of the project and its related parts during bidding and construction.

1.11 CONTRACT DOCUMENT FILE

A. Copies of the Contract Documents, Plans, Specifications, Addenda, Change Orders, Engineers Supplemental Instructions, approved Shop Drawings, Substitution Acceptances, etc. shall be placed and maintained at the project site by the Contractor throughout the entire contract period. These said documents shall be filed in a manner that allows for ease of retrieval. Documents shall be made available to the Engineer and the County's representatives throughout this same period.

PART 2 - PRODUCTS

2.1 ASBESTOS FREE MATERIAL

A. Contractor shall provide a written and notarized statement on company letterhead(s) to certify and warrant that ONLY ASBESTOS FREE MATERIALS AND PRODUCTS were provided as required by the Engineer. Such statement shall be submitted with the final payment request. Final payment shall not be made until such statement is submitted. Contractor agrees that if materials containing asbestos are subsequently discovered at any future time to have been included in the construction, the Contractor shall be liable for all costs related to the redesign or modification of the construction of the project so that materials containing asbestos are removed from the facility. If construction has begun or has been completed pursuant to a design that includes asbestos containing materials, the Contractor shall also be liable for all costs related to the abatement of such asbestos.

PART 3 - EXECUTION (Not applicable).

END OF SECTION