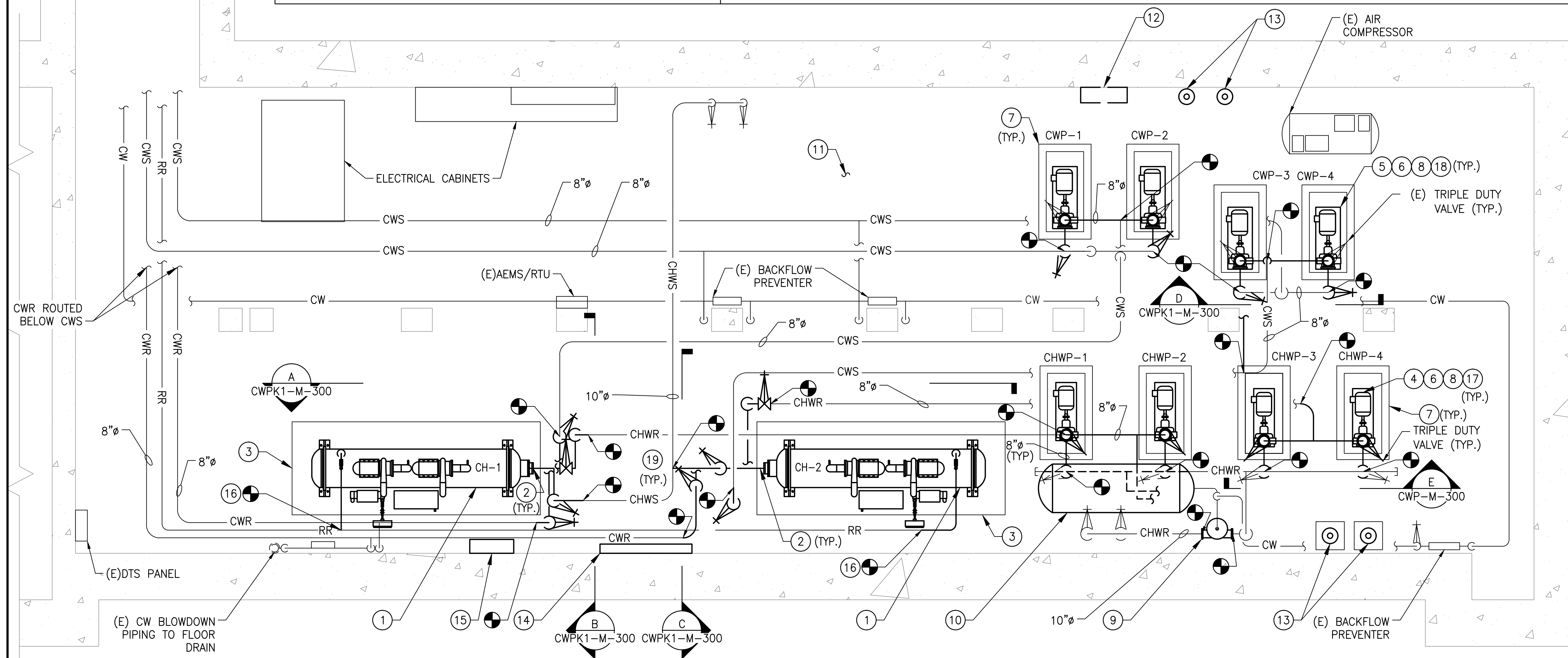


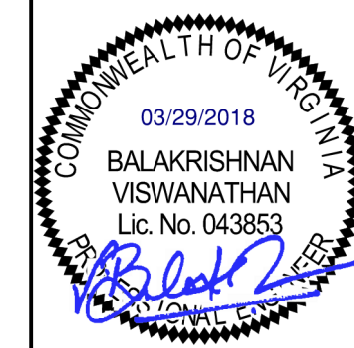
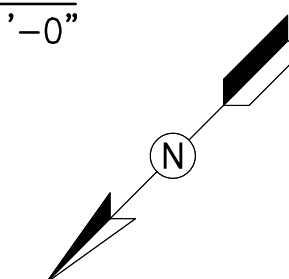
- A. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE LOCATION OF NEW EQUIPMENT, PIPING, VALVES, DUCTWORK, ELECTRICAL AND CONTROL WIRING WITH EXISTING PRIOR TO INSTALLATION. ITEMS SHOWN ON THIS PLAN ARE APPROXIMATE.
- B. REFER TO LEGEND SHEET FOR GENERAL ABBREVIATIONS AND SYMBOLS.
- C. REFER TO CHILLER PIPING SCHEMATIC FOR ALL VALVES. ALL VALVES MAY NOT BE SHOWN ON THIS DRAWING FOR CLARITY.
- D. INSTALL ALL EQUIPMENT AND COMPONENTS PER MANUFACTURERS RECOMMENDATION. PROVIDE ACCESS CLEARANCE AT ALL LOCATIONS OF VALVES, STRAINERS, INSTRUMENTATION, AND EQUIPMENT AS REQUIRED BY MANUFACTURER FOR EASE OF MAINTENANCE.

- 1 PROVIDE AND INSTALL CHILLER, CORRESPONDING VIBRATION ISOLATION, ANCHOR AND SUPPORT.
- 2 PROVIDE AND INSTALL ALL PIPING, FITTINGS, VALVES, PIPING INSULATION AND INSTRUMENTATION FOR CONNECTION TO CHILLER. PROVIDE A VICTAULIC COUPLING CONNECTION PIECE AT EACH PIPE CONNECTION TO CHILLER FOR EASE OF MAINTENANCE.
- 3 REUSE EXISTING EQUIPMENT PAD. REPAIR AND MODIFY AS REQUIRED TO FIT NEW INSTALLATION.
- 4 PROVIDE AND INSTALL CHILLED WATER PUMPS, CHWP-1, CHWP-2, CHWP-3 AND CHWP-4. INSTALLATION SHALL INCLUDE PUMP, INVERTER DUTY RATED MOTOR FOR VFD APPLICATION, VIBRATION SUPPORT, IMMEDIATE PIPING, ISOLATION VALVES, CHECK VALVES, SUCTION DIFFUSER WITH INTEGRAL STRAINER, FLEXIBLE CONNECTORS AND CORRESPONDING INSTRUMENTATION & CONTROLS. INSULATE PUMPS AND PIPING.

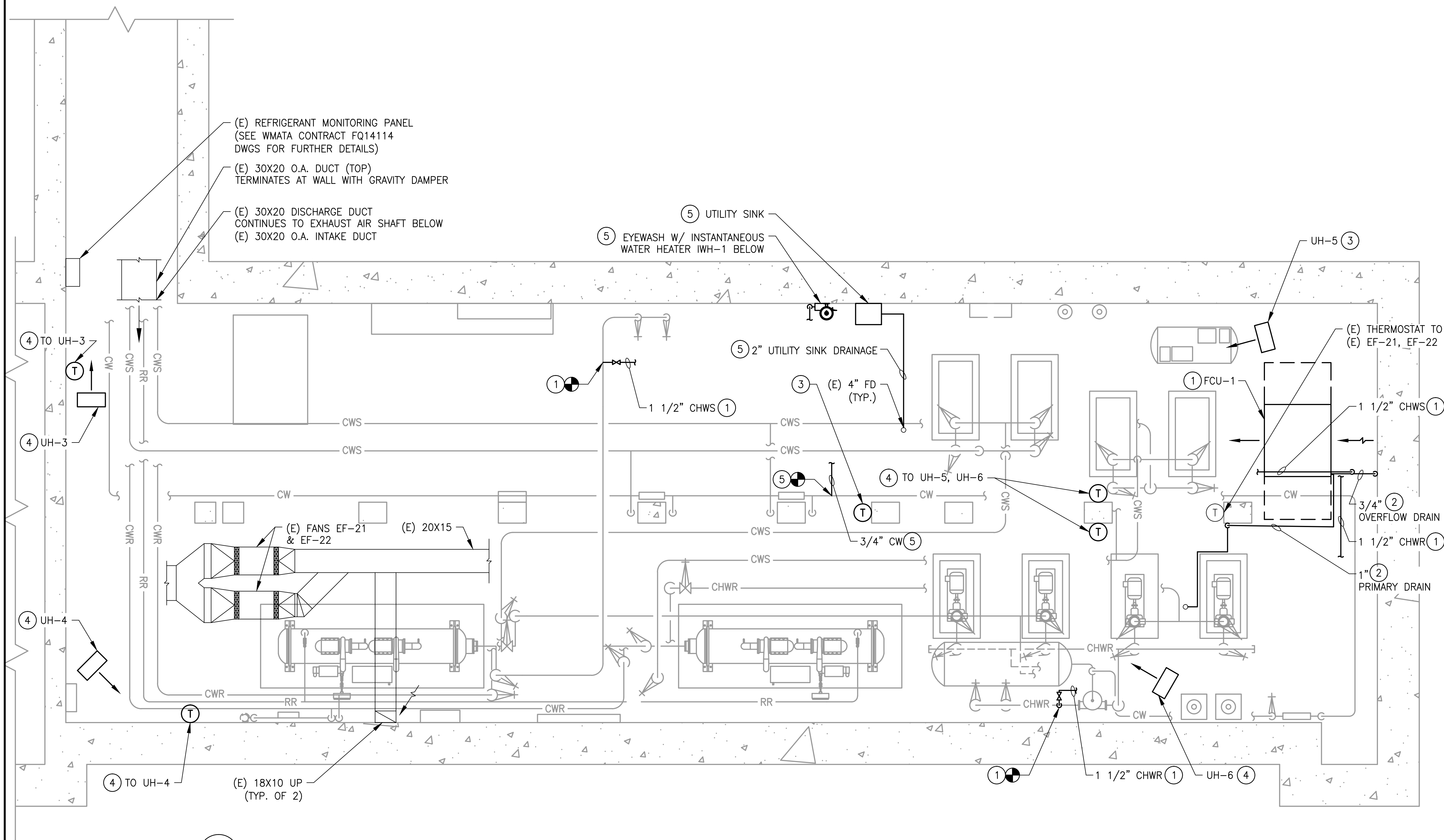
- 10 PROVIDE AND INSTALL EXPANSION TANK AND CORRESPONDING PIPING. REUSE EXISTING CEILING HUNG SUPPORT.
- 11 CONTRACTOR SHALL PAINT CHILLER PLANT FLOORS AND EQUIPMENT PADS WITH BATTLE SHIP GREY OR EQUAL. THE SAFETY LINES AND TRIPPING HAZARD SHALL BE PAINTED YELLOW OR RED.
- 12
 - A. COORDINATE WITH OTHER WMATA CONTRACT INSTALLING WATER TREATMENT SYSTEM.
 - B. PROVIDE AND INSTALL NEW WMATA CHILLED WATER SYSTEM LOOP. THE LOOP SHALL INCLUDE PIPING, VALVES, HACH INDUCTIVE CONDUCTIVITY SENSOR - 3725E2T, FLOW SWITCH GEM SENSORS FS-500 170231, AND CONVERTIBLE DIGITAL PH SENSOR HACH DDPC1R2A. REFER TO REFERENCE DRAWING DD-ME-HVAC-007.
 - C. PROVIDE AND INSTALL A NEW WMATA CONDENSER WATER SYSTEM LOOP. THE LOOP SHALL INCLUDE PIPING, VALVES, HACH INDUCTIVE CONDUCTIVITY SENSOR - 3725E2T, FLOW SWITCH GEM SENSORS FS-500 170231. REFER TO REFERENCE DRAWING DD-ME-HVAC-008.
- 13 PROVIDE AND INSTALL CHEMICAL POT FEEDER FOR CONDENSER WATER AND CHILLED WATER SYSTEM. CHEMICAL POT FEEDER SHALL BE NEPTUNE VTF-SHF.
- 14 PROVIDE AND INSTALL ONE CHILLER PLANT CONTROL PANEL (CPCP). REFER TO REFERENCE DRAWINGS DD-ME-HVAC-009 FOR CPCP DETAILS. PANEL SHALL BE INSTALLED 48" ABOVE FINISHED FLOOR.
- 15 PROVIDE AND INSTALL CHILLED WATER AND CONDENSER WATER FLOW MONITORING SYSTEM. PROVIDE AND INSTALL COMMUNICATIONS WIRING IN RIGID CONDUIT FROM FLOW MONITORING PANEL TO CHILLER PLANT CONTROL PANEL, UTILIZING BELDEN 89842 MULTI-CONDUCTOR; LOW CAPACITANCE TO COMPUTER POINT OF SERVICE (POS) CABLE OR EQUIVALENT. INSTALL 48" ABOVE FINISHED FLOOR. FLOW METER SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES. FLOW METERS AND SENSOR CABLES SHOULD NOT BE INSTALLED WITHIN EIGHT FEET OF VFDs OR FLORESCENT LIGHT FIXTURES.
- 16 PROVIDE AND INSTALL REFRIGERANT VENT/ RELIEF PIPING FROM CHILLER (AS PER CHILLER MANUFACTURER). FIELD VERIFY AND CONNECT NEW 2" REFRIGERANT RELIEF PIPING FROM CHILLER TO EXISTING REFRIGERANT RELIEF MAIN.
- 17 PROVIDE 8" TO 5" SUCTION GUIDE WITH INTEGRAL STRAINER, ANGLE FLANGE FOR 8" CHILLED PIPING INLET INTO CHILLED WATER PUMP. PROVIDE A 8" TO 6" FLANGE AT CHILLED WATER PUMP OUTLET FOR CONNECTION TO CHILLED WATER DISCHARGE PIPING.
- 18 PROVIDE 8" TO 6" SUCTION GUIDE WITH INTEGRAL STRAINER ANGLE FLANGE FOR 8" CONDENSER WATER PIPING INLET INTO CONDENSER WATER PUMP. PROVIDE A 5" TO 8" ANGLE FLANGE AT CONDENSER WATER PUMP OUTLET FOR CONNECTION TO CONDENSER WATER DISCHARGE PIPING.
- 19 PROVIDE FLOOR MOUNTED,PIPE SADDLE SUPPORT WITH BASE STAND AS NECESSARY FOR NEW PIPING. CHILLED WATER PIPING SUPPORTS SHALL BE PRE-INSULATED.



1 MECHANICAL PLAN - NEW WORK
CWPK1-M-102

$$1/4'' = 1'-0''$$


<div>DESIGNED <u>K. STOCKINGER</u> 07/20/17 DATE</div> <div>DRAWN <u>K. STOCKINGER</u> 08/24/17 DATE</div> <div>CHECKED <u>R. SILVA</u> 03/23/18 DATE</div>	REFERENCE DRAWINGS		REVISIONS			<div><div><div>M</div><div>metro</div></div><div>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</div><div>DEPARTMENT OF DESIGN AND CONSTRUCTION SERVICES</div><div>OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM GROUP</div><div><div>APPROVED <u>Mark H. Magnusson</u> 03/2018</div><div>MARK MAGNUSSON DATE</div><div>MANAGER, ENV. PLANNING AND COMP</div></div><div><div>APPROVED <u>Gabe Spiller</u> 03/2018</div><div>GRAHAM SPILLER DATE</div><div>GFP DEPUTY PROGRAM MANAGER</div></div></div>	REPLACEMENT OF CHILLERS AND COOLING TOWER ACCESSORIES AT EIGHT METRO-RAIL STATIONS CWPk1 - CLARENDON (K02) MECHANICAL PLAN - NEW WORK				
	NUMBER	TITLE	DATE	NUM	DESCRIPTION		<div>M NO. M1304</div> <div>CONTRACT NO. FQ-18102</div> <div>SCALE 1/4" = 1'-0"</div> <div>DRAWING NO. CWPk1-M-102</div> <div>SHEET NO. 133 of 173</div>				
			03/30/2018	0	FINAL CONTRACT DRAWINGS						



1 MECHANICAL PLAN - NEW WORK
CWPK1-M-103

1/4" = 1'-0"

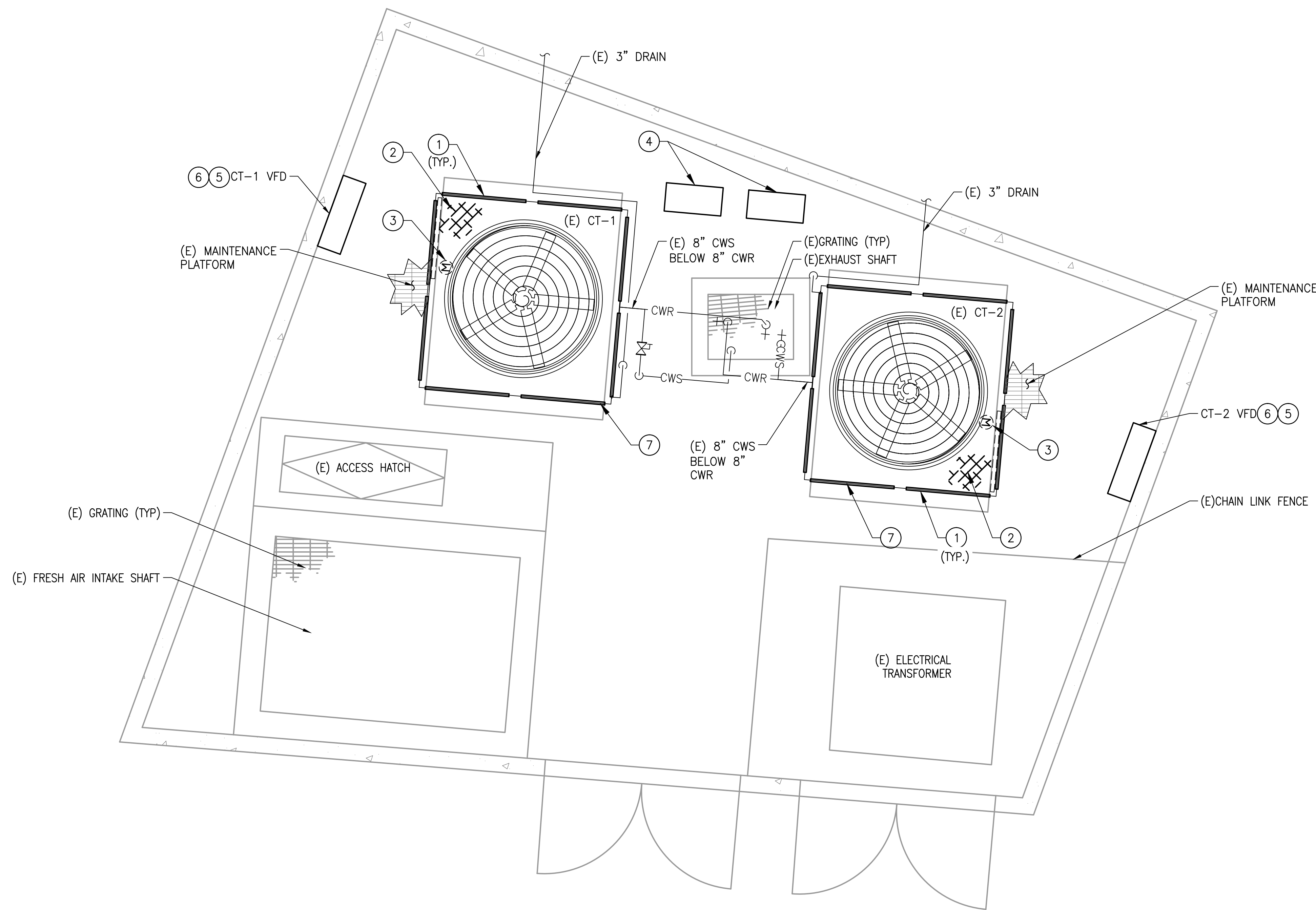
- GENERAL NOTES:
- A. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE LOCATION OF NEW EQUIPMENT, PIPING, VALVES, DUCTWORK, ELECTRICAL AND CONTROL WIRING WITH EXISTING PRIOR TO INSTALLATION. ITEMS SHOWN ON THIS PLAN ARE APPROXIMATE.
 - B. REFER TO LEGEND SHEET FOR GENERAL ABBREVIATIONS AND SYMBOLS.
 - C. REFER TO CHILLER PIPING SCHEMATIC FOR ALL VALVES. ALL VALVES MAY NOT BE SHOWN ON THIS DRAWING FOR CLARITY.
 - D. INSTALL ALL EQUIPMENT AND COMPONENTS PER MANUFACTURERS RECOMMENDATION.
 - E. PROVIDE ACCESS CLEARANCE AT ALL LOCATIONS OF VALVES, STRAINERS, INSTRUMENTATION, AND EQUIPMENT AS REQUIRED BY MANUFACTURER FOR EASE OF MAINTENANCE.

- KEYNOTES:
- 1 PROVIDE AND INSTALL NEW THERMOSTATICALLY CONTROLLED FAN COIL UNIT (FCU-1) INCLUDING PIPING, VALVES, WIRING, CONDUIT, AND SUPPORTS. CHWS TO THE UNIT SHALL BE TAPPED FROM THE CHWS MAIN AS INDICATED; CHWR SHALL BE TAPPED INTO THE CHWR MAIN AS INDICATED. CHWS AND CHWR PIPING SHALL BE FIELD ROUTED. UNIT SHALL BE MOUNTED AT A MINIMUM 7'-0" AFF. FIELD COORDINATE FINAL MOUNTING ELEVATION WITH OTHER TRADES.
 - 2 PRIMARY CONDENSATE DRAINAGE FROM FCU-1 SHALL BE FIELD ROUTED DOWN TO AND ALONG FLOOR SLAB TO A NEARBY FLOOR DRAIN AS SHOWN. OVERFLOW CONDENSATE DRAINAGE FROM FCU-1 SHALL BE FIELD ROUTED TO DISCHARGE AT VISIBLE LOCATION AS INDICATED. DRAINAGE RISERS DOWN TO FLOOR SHALL BE MOUNTED FLUSH WITH STRUCTURAL COLUMN(S). PROVIDE PIPING ALONG FLOOR SLAB WITH NON-SLIP PIPE COVER WHERE THERE IS A TRIP HAZARD.
 - 3 PROVIDE AND INSTALL NEW SPACE THERMOSTAT AND INTEGRATE WITH NEW FCU-1.
 - 4 PROVIDE AND INSTALL NEW UNIT HEATER INCLUDING WIRING, CONDUIT, SUPPORTS, AND WALL-MOUNTED THERMOSTAT.
 - 5 PROVIDE AND INSTALL NEW EYEWASH, UTILITY SINK, FAUCET, AND INSTANTANEOUS WATER HEATER, INCLUDING PIPING, WIRING, CONDUIT, AND SUPPORTS. WATER SUPPLY SHALL BE FIELD ROUTED TO CONNECT UPSTREAM OF THE EXISTING MAKE-UP WATER BACKFLOW PREVENTERS. PROVIDE INLINE ISOLATION VALVE, STRAINER, AND REDUCED PRESSURE TYPE BACKFLOW PREVENTER AT AN ACCESSIBLE LOCATION. FIELD ROUTE UTILITY SINK DRAINAGE PIPING ALONG FLOOR SLAB TO NEARBY FLOOR DRAIN. PROVIDE PIPING ALONG FLOOR SLAB WITH NON-SLIP PIPE COVER WHERE THERE IS A TRIP HAZARD. EYEWASH DRAINAGE SHALL BE STRAIGHT TO FLOOR. REFER TO DETAIL 1 ON DRAWING M-502.

GFP A Gannett Fleming/Parsons
JOINT VENTURE



DESIGNED <u>B. VISWANATHAN</u> 07/20/17 DATE	REFERENCE DRAWINGS		REVISIONS			<div><div><div>M</div><div>metro</div></div><div>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</div><div>DEPARTMENT OF DESIGN AND CONSTRUCTION SERVICES</div><div>OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM GROUP</div><div><div>APPROVED <i>Mark H. Magnusen</i> 03/2018</div><div>MARK MAGNUSSEN MANAGER, ENV. PLANNING AND COMP</div><div>DATE</div></div><div><div>APPROVED <i>Gabe Spiller</i> 03/2018</div><div>GRAHAM SPILLER GFP DEPUTY PROGRAM MANAGER</div><div>DATE</div></div></div> <td colspan="5">REPLACEMENT OF CHILLERS AND COOLING TOWER ACCESSORIES AT EIGHT METRO-RAIL STATIONS CWPK1 - CLARENDON (K02) MECHANICAL PLAN - NEW WORK</td>	REPLACEMENT OF CHILLERS AND COOLING TOWER ACCESSORIES AT EIGHT METRO-RAIL STATIONS CWPK1 - CLARENDON (K02) MECHANICAL PLAN - NEW WORK					
	DRAWN <u>K. STOCKINGER</u> 08/24/17 DATE	NUMBER	TITLE	DATE	NUM		DESCRIPTION	M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.
	CHECKED <u>R. SILVA</u> 03/23/18 DATE				0		FINAL CONTRACT DRAWINGS	M1304	FQ-18102	1/4" = 1'-0"	CWPK1-M-103	134 of 173



GENERAL NOTES:

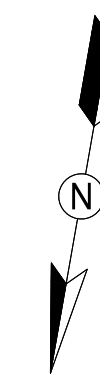
- CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION AND QUANTITIES OF EQUIPMENT, PIPING, VALVES, DUCTWORK, ELECTRICAL AND CONTROL WIRING PRIOR TO DEMOLITION. ITEMS SHOWN ON THIS PLAN ARE APPROXIMATE.
- REFER TO LEGEND SHEET FOR GENERAL ABBREVIATIONS AND SYMBOLS
- COOLING TOWERS LOCATED ON GRADE ABOVE THE CHILLER PLANT.

KEYNOTES:

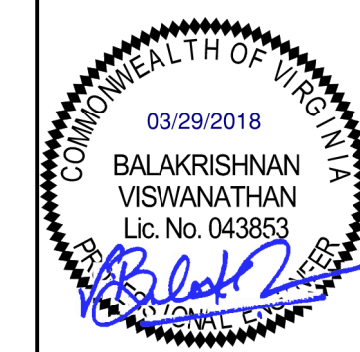
- PROVIDE AND INSTALL NEW LOUVER GRILLES ON COOLING TOWER. COORDINATE WITH COOLING TOWER MANUFACTURER FOR EXACT PART. THE LOUVER DIMENSION SHALL MATCH EXISTING.
- PROVIDE AND INSTALL NEW PLASTIC FILL IN THE COOLING TOWER. COORDINATE WITH COOLING TOWER MANUFACTURER FOR EXACT PART. THE NEW FILL DIMENSION AND TYPE SHALL MATCH EXISTING.
- PROVIDE AND INSTALL NEW DIRECT DRIVE FAN MOTOR, DRIVE ASSEMBLY, AND MOUNTING HARDWARE. FAN MOTOR SHALL BE INVERTER DUTY RATED. COORDINATE WITH COOLING TOWER MANUFACTURER FOR EXACT PARTS.
- PROVIDE AND INSTALL NEW DISCONNECT AND CONTROLS.
- PROVIDE AND INSTALL NEW VARIABLE FREQUENCY DRIVE CONTROLLER FOR COOLING TOWER FAN. VFD SHALL BE LOCATED INSIDE A NEMA 4X WEATHERPROOF ENCLOSURE.
- COOLING TOWER FAN MODULATION SHALL BE INTEGRATED WITH THE CHILLER CONTROL PANEL.
- PROVIDE NEW SUMP PUMP. FIELD COORDINATE EXACT LOCATION OF SUMP PUMP.

1 MECHANICAL PLAN - NEW WORK
CWPK1-M-104

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



GFP A Gannett Fleming/Parsons
JOINT VENTURE



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF DESIGN AND CONSTRUCTION SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM GROUP

APPROVED *Mark H. Magnusson* 03/2018
MARK MAGNUSSEN
MANAGER, ENV. PLANNING AND COMP

APPROVED *Gabe Spiller* 03/2018
GRAHAM SPILLER
GFP DEPUTY PROGRAM MANAGER

M NO.
M1304

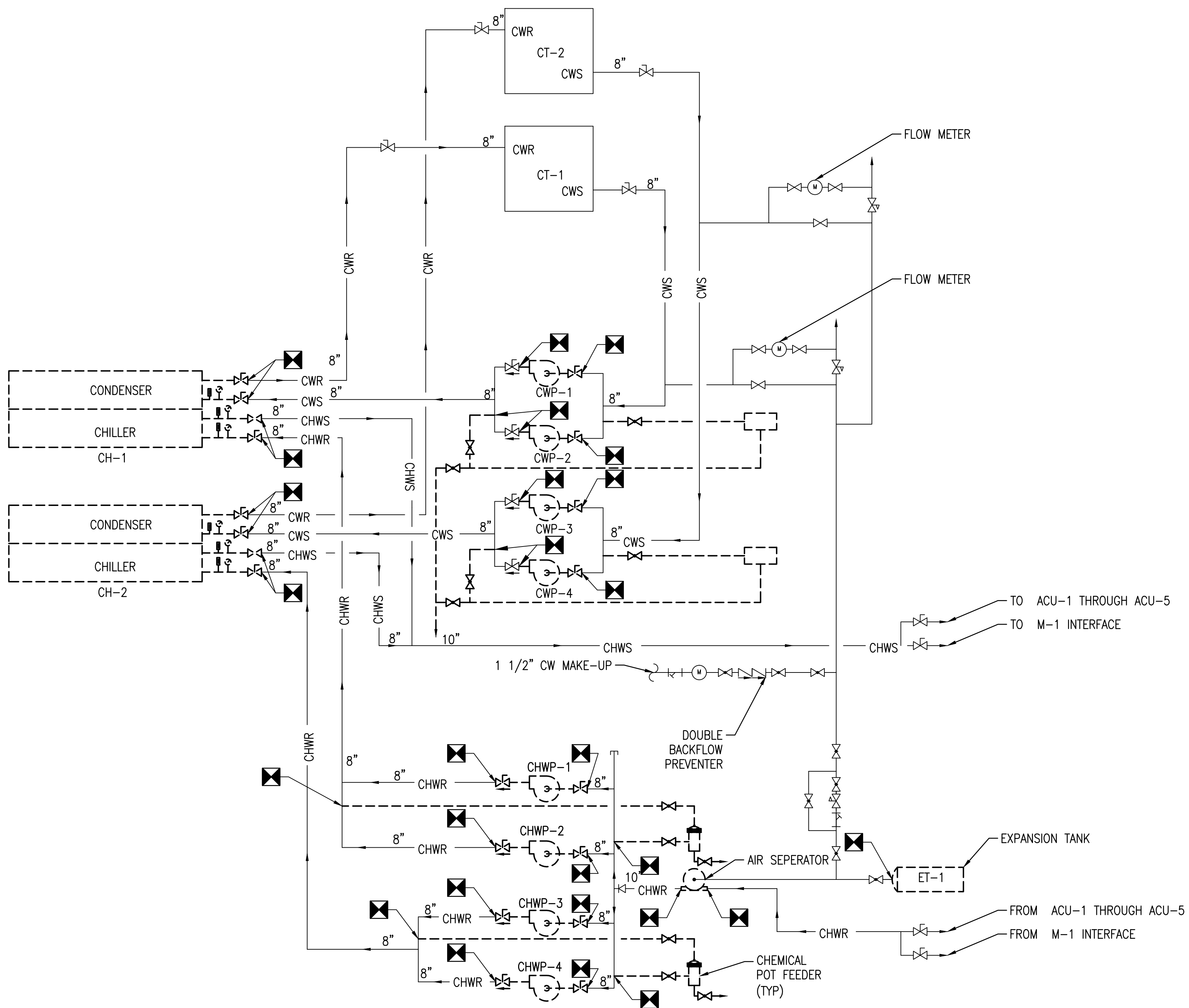
CONTRACT NO.
FQ-18102

SCALE
1/4" = 1'-0"

DRAWING NO.
CWPK1-M-104

SHEET NO.
135 of 173

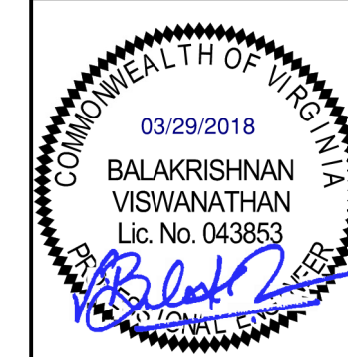
REPLACEMENT OF CHILLERS
AND COOLING TOWER ACCESSORIES AT EIGHT METRO-RAIL STATIONS
CWPK1 - CLARENDON (K02)
MECHANICAL PLAN - NEW WORK



1 MECHANICAL FLOW DIAGRAM - DEMOLITION
CWPK1-M-500

SCALE: NOT TO SCALE

GFP A Gannett Fleming/Parsons
JOINT VENTURE



WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

DEPARTMENT OF DESIGN AND CONSTRUCTION SERVICES
OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM GROUP

APPROVED *Mark H. Magnusson* 03/2018
MARK MAGNUSSEN
MANAGER, ENV. PLANNING AND COMP

APPROVED *Gabe Spiller* 03/2018
GRAHAM SPILLER
GFP DEPUTY PROGRAM MANAGER

REPLACEMENT OF CHILLERS
AND COOLING TOWER ACCESSORIES AT EIGHT METRO-RAIL STATIONS
CWPK1 - CLARENDON (K02)
MECHANICAL FLOW DIAGRAM - DEMOLITION

DESIGNED K. STOCKINGER 09/01/17
DATE
DRAWN K. STOCKINGER 09/12/17
DATE
CHECKED R. SILVA 03/23/18
DATE

REFERENCE DRAWINGS		REVISIONS		
NUMBER	TITLE	DATE	NUM	DESCRIPTION
		03/30/2018	0	FINAL CONTRACT DRAWINGS

M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.
M1304	FQ-18102	NOT TO SCALE	CWPK1-M-500	137 of 173

A. REFER TO REFERENCE DRAWING DD-ME-HVAC-007, 008, 009 FOR WATER TREATMENT CONNECTION TO SYSTEM LOOPS.

B. ALL GATE VALVES ARE SHOWN DIAGRAMMATICALLY. REFER TO SPECIFICATIONS FOR USE OF NON-RISING STEM AND OS&Y GATE VALVES.

[illegible]

CHILLER SCHEDULE																				
PLANT	DESIGNATION	CAPACITY (TONS)	EVAPORATOR					CONDENSER					COMPRESSOR/CHILLER ELECTRICAL						BASIS OF DESIGN	
			GPM	PASSES	EWT (°F)	LWT (°F)	PD FT H ₂ O	GPM	PASSES	EWT (°F)	LWT (°F)	PD FT H ₂ O	VOLT	PH	HZ	RLA	LRA	MOC _P		MCA
CWPK1	CH-1	330	607	2	55.0	42.0	12.0	990	2	85.0	94.3	19.0	460	3	60	298	164	450	335	DAINKIN WMC060DD
CWPK1	CH-2	330	607	2	55.0	42.0	12.0	990	2	85.0	94.3	19.0	460	3	60	298	164	450	335	DAINKIN WMC060DD

NOTES:

1. PROVIDE WITH SPRING TYPE VIBRATION ISOLATION.
2. PROVIDE WITH CHILLED WATER FLOW INDICATOR.
3. WATER-COOLED, SEMI-HERMETIC OIL-FREE CENTRIFUGAL COMPRESSOR WATER CHILLER.
4. TWO MAGNETIC BEARING, COMPLETELY OIL-FREE CENTRIFUGAL COMPRESSORS ON EACH CHILLER.
5. CHILLERS SHALL BE CHARGED WITH REFRIGERANT R-134A.
6. MOTORS SHALL BE LIQUID REFRIGERANT COOLED WITH INTERNAL THERMAL SENSING DEVICES IN THE STATOR WINDINGS.
7. THE CHILLER SHALL BE EQUIPPED WITH AN INTEGRATED VARIABLE FREQUENCY DRIVE (VFD) TO AUTOMATICALLY REGULATE COMPRESSOR SPEED IN RESPONSE TO COOLING LOAD AND THE COMPRESSOR PRESSURE LIFT REQUIREMENT, OPERATING CONTROLS AND EQUIPMENT PROTECTION CONTROLS.
8. CHILLER CONTROLS SHALL COORDINATE COMPRESSOR SPEED AND GUIDE VANE POSITION TO OPTIMIZE CHILLER EFFICIENCY.
9. CHILLER SHALL BE EQUIPPED WITH MICROTECH II CONTROLLER OR EQUIVALENT AND SHALL INCLUDE REMOTE COMMUNICATIONS CARDS WITH MODBUS RTU CAPABILITY, TO CONNECT THE I/O POINTS TO CHILLER PLANT MONITORING PANEL.
10. CHILLER CAPACITY BASED ON WATER.
11. CHILLER TOTAL OPERATING WEIGHT 13948 LB
12. CHILLER DIMENSIONS 178.19 IN X 55.17 IN (FOOT PRINT)
13. PROVIDE EACH CHILLER WITH SINGLE POINT POWER CONNECTION.

PUMP SCHEDULE															
ITEM NO.	SERVICE	TYPE	GPM	FT HEAD	INLET (IN)	OUTLET (IN)	IMPELLER DIA (IN)	OPERATING WEIGHT (LB)	FOOTPRINT (IN)	MOTOR					BASIS OF DESIGN
										RPM	HP	VOLTS	PH	HZ	
CWP-1	CONDENSER WATER	CENTRIFUGAL	990	78	6	5	10.12	731	48X19	1780	30	460	3	60	ARMSTRONG 4030-6X5X11.5
CWP-2	CONDENSER WATER	CENTRIFUGAL	990	78	6	5	10.12	731	48X19	1780	30	460	3	60	ARMSTRONG 4030-6X5X11.5
CWP-3	CONDENSER WATER	CENTRIFUGAL	990	78	6	5	10.12	731	48X19	1780	30	460	3	60	ARMSTRONG 4030-6X5X11.5
CWP-4	CONDENSER WATER	CENTRIFUGAL	990	78	6	5	10.12	731	48X19	1780	30	460	3	60	ARMSTRONG 4030-6X5X11.5
CHWP-1	CHILLED WATER	CENTRIFUGAL	607	75	5	4	9.21	564	45X16	1780	25	460	3	60	ARMSTRONG 4030-5X4X10
CHWP-2	CHILLED WATER	CENTRIFUGAL	607	75	5	4	9.21	564	45X16	1780	25	460	3	60	ARMSTRONG 4030-5X4X10
CHWP-3	CHILLED WATER	CENTRIFUGAL	607	75	5	4	9.21	564	45X16	1780	25	460	3	60	ARMSTRONG 4030-5X4X10
CHWP-4	CHILLED WATER	CENTRIFUGAL	607	75	5	4	9.21	564	45X16	1780	25	460	3	60	ARMSTRONG 4030-5X4X10

NOTES:

1. PROVIDE WITH INVERTER DUTY, VFD COMPATIBLE MOTOR.
2. PROVIDE WITH SPRING TYPE VIBRATION ISOLATION.

EXISTING COOLING TOWER SCHEDULE															
DESIGNATION	SERVICE	TYPE	GPM	EWT (°F)	LWT (°F)	AMB. AIR WET BULB TEMP	FAN							OPERATING WEIGHT (LBS)	BASIS OF DESIGN
							NO.	CFM (EACH)	NO. OF MOTORS	HP	V	PH	HZ		
(E) CT-1	CONDENSER WATER	AXIAL	990	95.0	85.0	78.0	1	89300	1	20	460	3	60	13700	EVAPCO USS 112-112
(E) CT-2	CONDENSER WATER	AXIAL	990	95.0	85.0	78.0	1	89300	1	20	460	3	60	13700	EVAPCO USS 112-112

NOTES:

1. SEPARATE STARTER PANELS FURNISHED FOR FIELD MOUNTING.
2. PROVIDE DIRECT DRIVE FAN WITH INVERTER DUTY MOTORS.
3. COOLING TOWER FAN MOTORS SHALL BE RATED VFD COMPATIBLE.
4. PROVIDE WITH NEW LOUVERS FOR EXISTING COOLING TOWERS.
5. PROVIDE WITH NEW PLASTIC FILL FOR EXISTING COOLING TOWERS.

VALVE SCHEDULE					
TYPE	SIZE (IN)	QUANTITY	SERVICE	MANUFACTURER	MODEL
GATE VALVE	8	8	CHILLED WATER	NIBCO	F-617-8
GATE VALVE	8	8	CONDENSER WATER	NIBCO	F-617-8
TRIPLE DUTY VALVE	8	4	CHILLED WATER	BELL & GOSSET	3DS-8S

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY ALL VALVE QUANTITIES AND SIZES IN FIELD PRIOR TO BEGINNING WORK.
2. PROVIDE WITH CHAIN ACTUATOR TO ALLOW ACCESS TO VALVES ABOVE FLOOR LEVEL.

LEAK DETECTION SYTEM

1. REFRIGERANT LEAK DETECTION SYSTEM INSTALLED AS PART OF WMATA CONTRACT FQ14114.
2. PROVIDE RS-485 ETHERNET CONNECTION TO CONNECT TO THE CHILLER PLANT CONTROL PANEL.

FLOW MONITORING SYSTEM

1. NON-INTRUSIVE CLAMP-ON FLOW SENSORS
2. MAINTENANCE-FREE
3. ACCURACY: 1% OF VELOCITY
4. NO DEPENDENCY ON CONDUCTIVITY
5. AUTOMATICALLY ADAPT TO PIPE MATERIAL AND LIQUID PROPERTY VARIATIONS
6. BUILT-IN FLOW TOTALIZERS
7. ISOLATED RS-485 INTERFACE WITH POWER SURGE PROTECTION. SUPPORTS THE MODBUS PROTOCOL - CONNECT TO PAC 3000 IN CHILLER PLANT MONITORING PANEL
8. ABUNDANT INPUT/OUTPUT, ISOLATED 4-20MA OUTPUT, RELAY, PULSE OUTPUT, ALARM OUTPUT
9. SELF-EXPLANATORY MENU-DRIVEN PROGRAMMING
10. PIPE SIZE RANGE, 8" ~ 10"
11. NEMA 4X (IP65) WEATHER-RESISTANT ENCLOSURE
12. SIEMENS SITRANS FUS 1010 (OR APPROVED EQUAL). PROVIDE CABLES OF SUFFICIENT LENGTH TO REACH ALL TERMINATION POINTS

DESIGNED <u>K. STOCKINGER</u> 08/11/17 DATE DRAWN <u>K. STOCKINGER</u> 08/11/17 DATE CHECKED <u>R. SILVA</u> 03/23/18 DATE	REFERENCE DRAWINGS		REVISIONS			<div><div><div>M</div><div>metro</div></div><div>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</div><div>DEPARTMENT OF DESIGN AND CONSTRUCTION SERVICES</div><div>OFFICE OF INFRASTRUCTURE RENEWAL PROGRAM GROUP</div><div><div>APPROVED <i>Mark H. Magnusen</i> 03/2018</div><div>MARK MAGNUSSEN MANAGER, ENV. PLANNING AND COMP</div><div>DATE</div></div><div><div>APPROVED <i>Gabe Spiller</i> 03/2018</div><div>GRAHAM SPILLER GFP DEPUTY PROGRAM MANAGER</div><div>DATE</div></div></div>	REPLACEMENT OF CHILLERS AND COOLING TOWER ACCESSORIES AT EIGHT METRO-RAIL STATIONS CWPK1 - CLARENDON (K02) MECHANICAL EQUIPMENT SCHEDULES - SHEET 1 OF 2				
	NUMBER	TITLE	DATE	NUM	DESCRIPTION		M NO.	CONTRACT NO.	SCALE	DRAWING NO.	SHEET NO.
			03/30/2018	0	FINAL CONTRACT DRAWINGS		M1304	FQ-18102	NONE	CWPK1-M-600	139 of 173

