

Brookhaven National Laboratory
Plant Engineering - E&CS Division
Engineering Change Notice Form

PROJECT: CCWF II

JOB No. 11705

ECN Title: Cooling Tower Site Plan

ECN No. 32A

Affected Documents: ES-401, E-607

Requested Change (Attach sketch if applicable): Bldg 600C – Revise Bldg 600C (existing bldg 829) power & lighting plan details to show circuit feeds and existing 120V receptacle. Remove existing 100 amp panel. Re-wire existing 120V receptacle, lights, & heaters to new MLC-2 panel.

Do not peel off 1 ½” conduits for future cooling tower fan motor disconnect switches at each future cooling tower as shown on cooling tower plan sketch attached to ECN 32. Stub-up all 3 conduits on Southeast end of pier for cooling tower 9 as shown on attached sketch.

Route 1” spare conduit from panel MLC-2 and 1 ½” spare conduit from panel DP-3 underground to conduit rack at northwest pier for cooling tower 5. Stub-up conduits approximately 12” above grade and cap for future use.

Requested by: E. Irwin

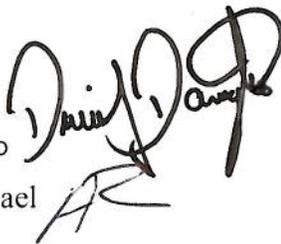
Date: 06/29/10

Resolution: See the attached sketch

Approvals: A/E or Proj. Eng.: D. Danseglio

Project Coordinator: A. Raphael

Manager:



Date: 2/1/10

Date: 7/8/10

Date:

Contractor shall take the following action:

- Await change order from P&PM
- Proceed with change as described
- Provide cost proposal for change as described

Distribution: E. W. Howell

E&U

O&M

NSLS II

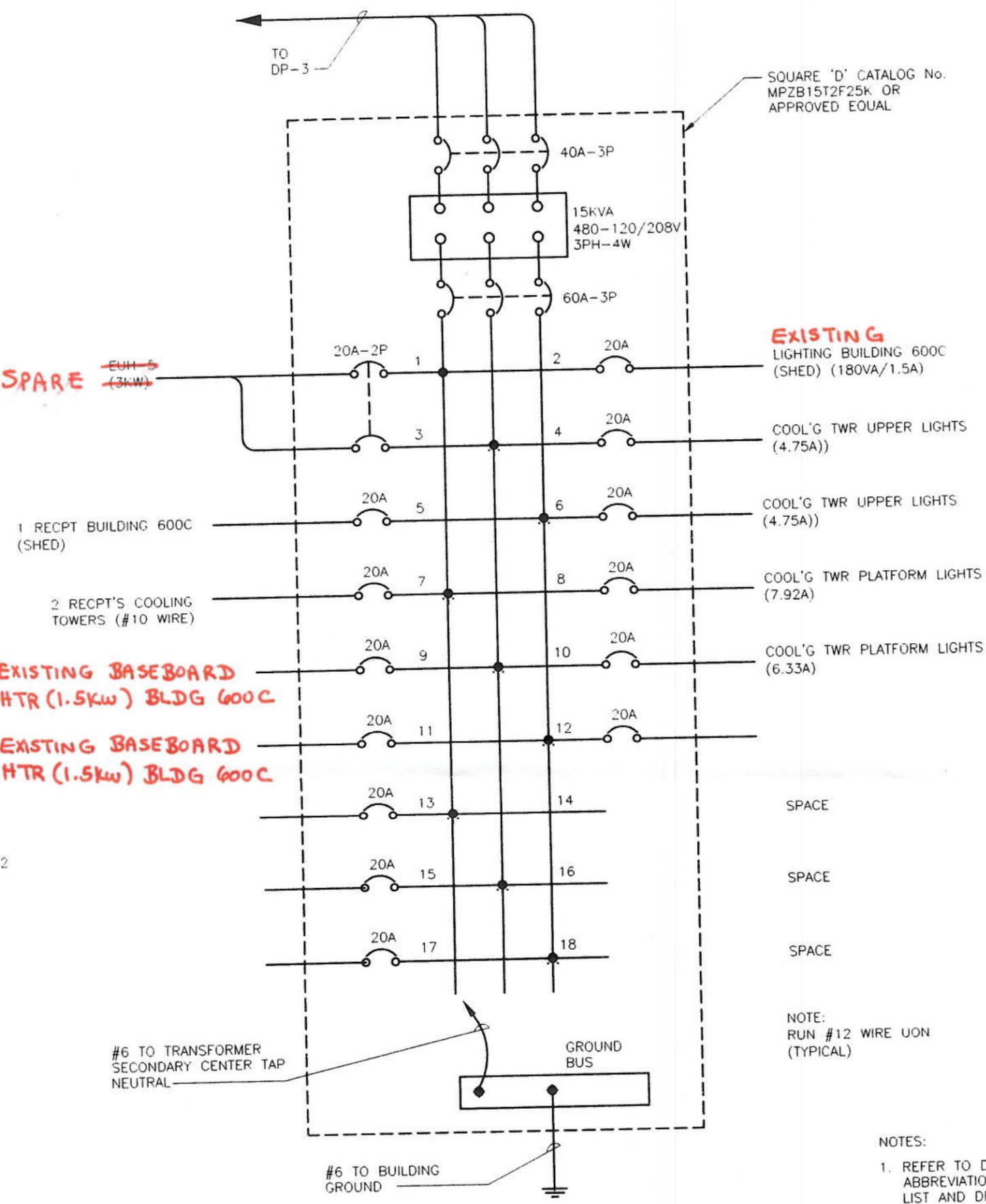
Giffels

MPO

DOE

ECN File

PPM



SQUARE 'D' CATALOG No.
MPZB15T2F25K OR
APPROVED EQUAL

EXISTING
LIGHTING BUILDING 600C
(SHED) (180VA/1.5A)

COOL'G TWR UPPER LIGHTS
(4.75A)

COOL'G TWR UPPER LIGHTS
(4.75A)

COOL'G TWR PLATFORM LIGHTS
(7.92A)

COOL'G TWR PLATFORM LIGHTS
(6.33A)

SPACE

SPACE

SPACE

NOTE:
RUN #12 WIRE UON
(TYPICAL)

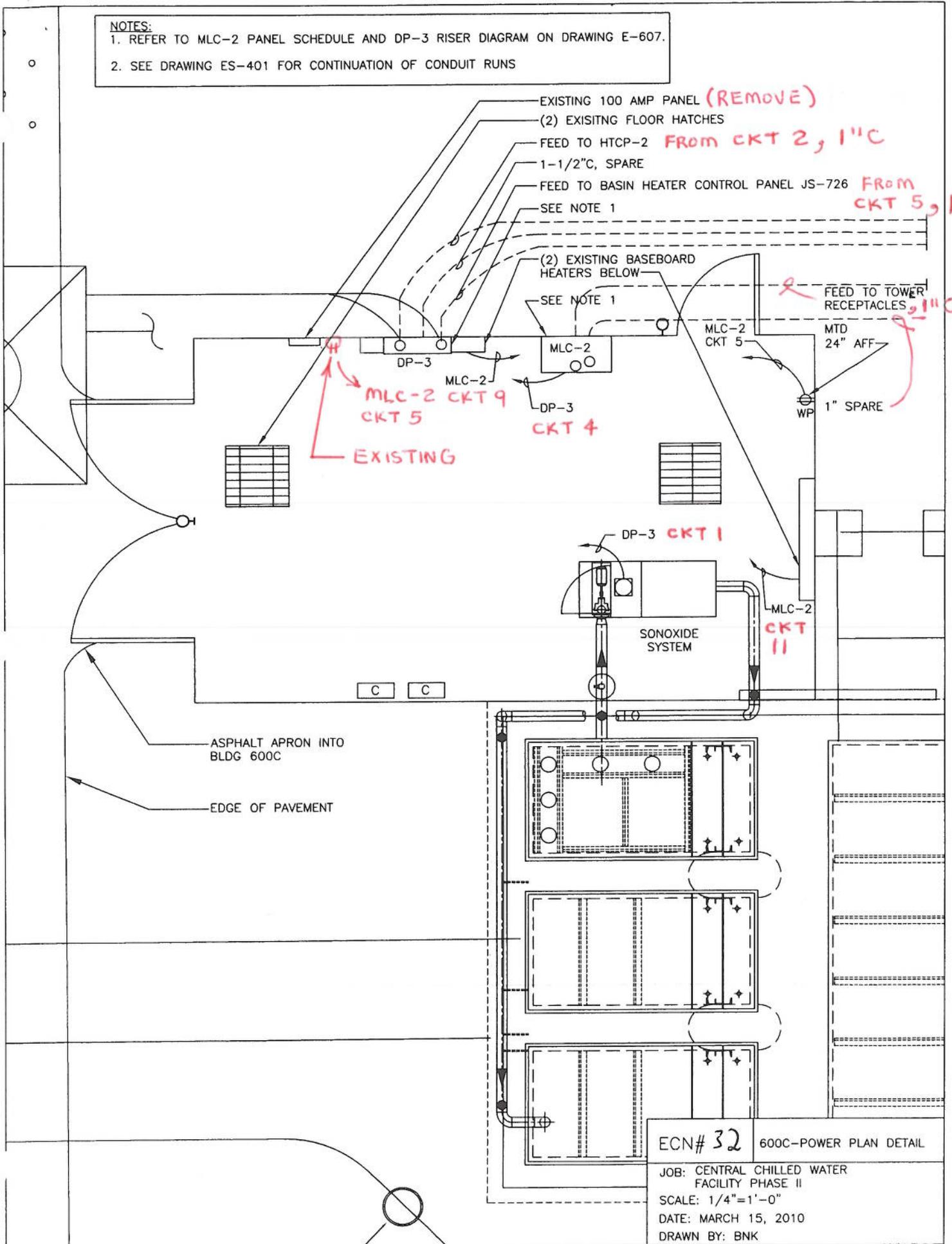
- NOTES:
1. REFER TO DRAWING ABBREVIATIONS, G LIST AND DRAWING SYMBOLS.
 2. SEE CONDUIT AND DRAWING E-603.
 3. BID ALTERNATE #
 4. FOR 120 VOLT PH BANK TO 15KV V #1 WIRE AND #1

15KVA MLC-2
480-208Y/120V, 3PH, 4W

PART OF DRAWING E-607

NOTES:

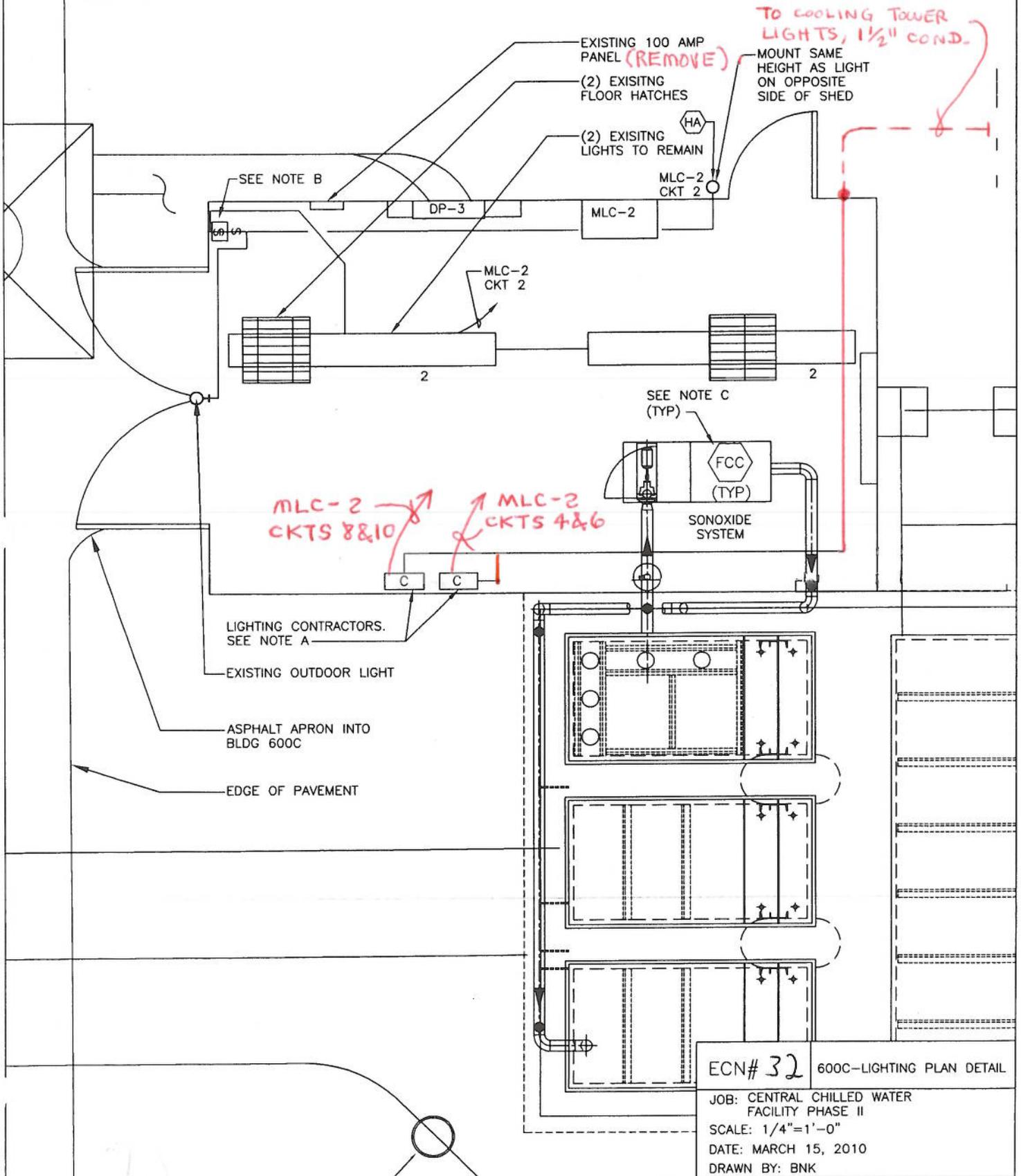
- 1. REFER TO MLC-2 PANEL SCHEDULE AND DP-3 RISER DIAGRAM ON DRAWING E-607.
- 2. SEE DRAWING ES-401 FOR CONTINUATION OF CONDUIT RUNS



PART OF DRAWING ES-401

NOTES:

- A. REFER TO TYPICAL COOLING TOWER LIGHTS CONTROL DIAGRAM "504C" ON DRAWING E-504.
- B. DIGITAL TIME SWITCH FOR BUILDING LIGHT CONTROL. SEE GENERAL NOTE 15 ON DRAWING E-001 FOR DIGITAL TIME SWITCH.
- C. LIGHTING FIXTURE TYPE - REFER TO LIGHTING FIXTURE SCHEDULE ON DRAWING E-501.
- D. SEE DRAWING ES-401 FOR CONTINUATION OF CONDUIT RUNS



TO COOLING TOWER LIGHTS, 1 1/2" COND.

EXISTING 100 AMP PANEL (REMOVE)

(2) EXISTING FLOOR HATCHES

(2) EXISTING LIGHTS TO REMAIN

MOUNT SAME HEIGHT AS LIGHT ON OPPOSITE SIDE OF SHED

SEE NOTE B

DP-3

MLC-2

MLC-2 CKT 2

MLC-2 CKT 2

2

2

SEE NOTE C (TYP)

FCC (TYP)

SONOXIDE SYSTEM

MLC-2 CKTS 8&10

MLC-2 CKTS 4&6

C

C

LIGHTING CONTRACTORS. SEE NOTE A

EXISTING OUTDOOR LIGHT

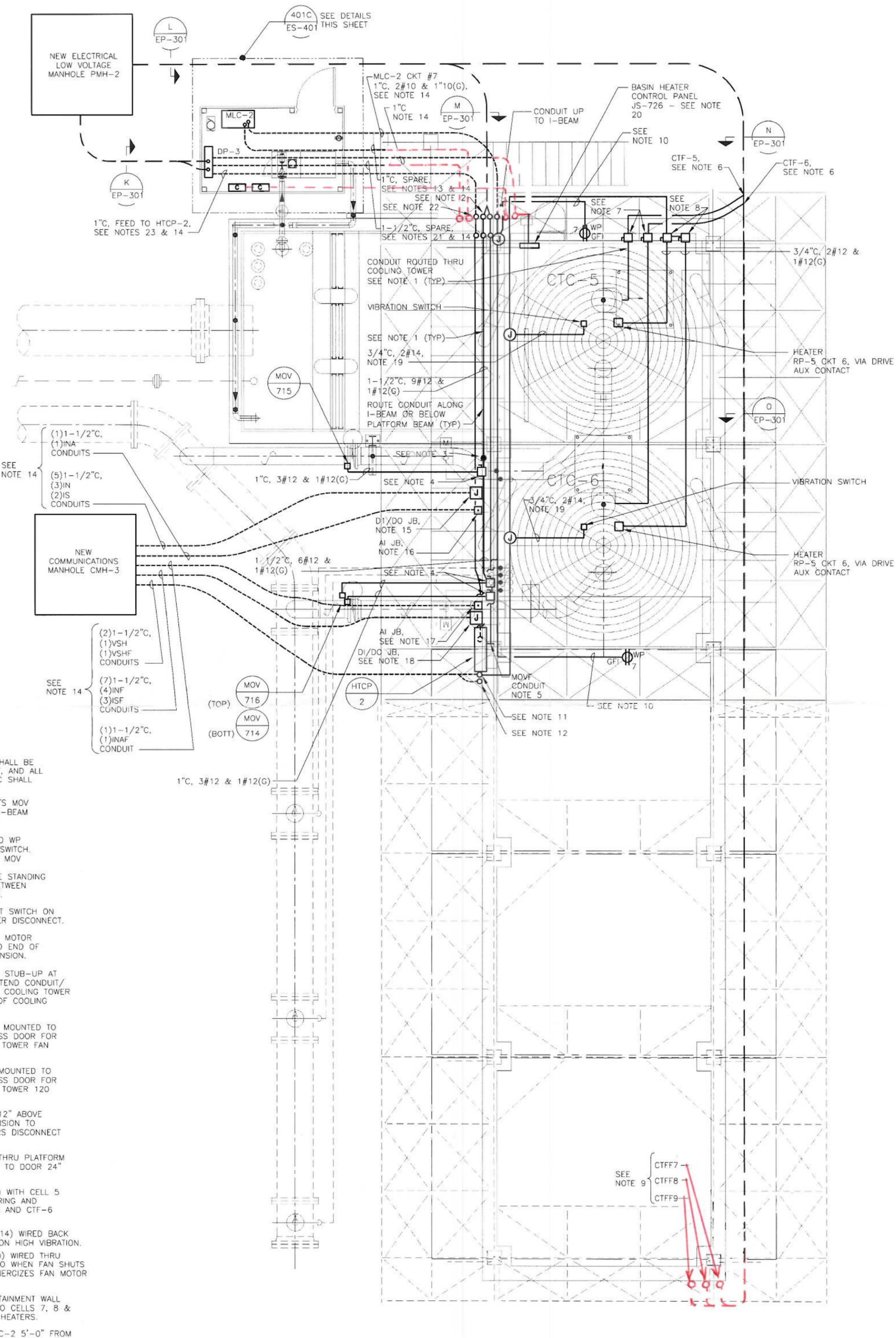
ASPHALT APRON INTO BLDG 600C

EDGE OF PAVEMENT

ECN# 32 600C-LIGHTING PLAN DETAIL

JOB: CENTRAL CHILLED WATER FACILITY PHASE II
SCALE: 1/4"=1'-0"
DATE: MARCH 15, 2010
DRAWN BY: BNK

PART OF DRAWING ES-401



- HALL BE
F, AND ALL
C SHALL
- TS MOV
I-BEAM
- O WP
SWITCH,
MOV
- E STANDING
BETWEEN
)
- IT SWITCH ON
ER DISCONNECT.
- MOTOR
O END OF
NSION.
- STUB-UP AT
TEND CONDUIT/
COOLING TOWER
OF COOLING
- MOUNTED TO
SS DOOR FOR
TOWER FAN
- MOUNTED TO
SS DOOR FOR
TOWER 120
- 12" ABOVE
VISION TO
RS DISCONNECT
- THRU PLATFORM
TO DOOR 24"
-) WITH CELL 5
RING AND
) AND CTF-6
- 14) WIRED BACK
ON HIGH VIBRATION.
-) WIRED THRU
O WHEN FAN SHUTS
VERGIZES FAN MOTOR
- AINMENT WALL
O CELLS 7, 8 &
HEATERS.
- C-2 5'-0" FROM
- "504A" ON

19. CONDUIT UP FROM JUNCTION BOX THRU PLATFORM INTO SIDE OF COOLING TOWER TO VIBRATION SWITCH.
20. FEED TO BASIN HEATER CONTROL PANEL FROM

401A COOLING TOWER POWER PLAN
ES-101 SCALE 1/4" = 1'-0"

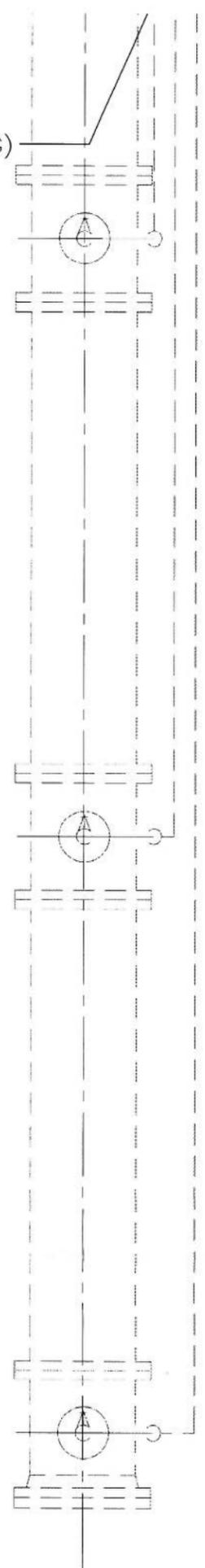
PART OF DRAWING ES-401

NOTES:

1. AT COOLING TOWER, ALL CONDUIT SHALL BE PVC JACKETED RIGID STEEL CONDUIT, AND ALL CONDUIT FITTINGS, ENCLOSURES, ETC SHALL BE PVC COATED OR NEMA 4X.
2. ROUTE 1-1/2" DUCT BANK CONDUITS MOV AND MOVF UP TO COOLING TOWER I-BEAM AND ROUTE ALONG I-BEAM.
3. DROP CONDUIT DOWN AND ROUTE TO WP JUNCTION BOX UNDER DISCONNECT SWITCH. FROM JUNCTION BOX TAKE FEED TO MOV DISCONNECT SWITCH AND TO NEXT DISCONNECT. PROVIDE CONDUIT FREE STANDING SUPPORT ON CONTAINMENT WALL BETWEEN DISCONNECT SWITCHES AS REQUIRED.
4. PROVIDE FREE STANDING DISCONNECT SWITCH ON CONTAINMENT WALL FOR MOV'S POWER DISCONNECT.
5. TAKE 1-1/2" CONDUIT FOR FUTURE MOTOR OPERATED VALVES ALONG I-BEAM TO END OF I-BEAM AND CAP FOR FUTURE EXTENSION.
6. PEEL CONDUIT OFF DUCT BANK AND STUB-UP AT COOLING TOWERS INDICATED AND EXTEND CONDUIT/WIRING TO DISCONNECT SWITCH FOR COOLING TOWER FAN MOTOR MOUNTED ON OUTSIDE OF COOLING TOWER ADJACENT TO ACCESS DOOR.
7. 200A NEMA 4X DISCONNECT SWITCH MOUNTED TO COOLING TOWER ADJACENT TO ACCESS DOOR FOR DISCONNECTING POWER TO COOLING TOWER FAN MOTOR.
8. 30A NEMA 4X DISCONNECT SWITCH MOUNTED TO COOLING TOWER ADJACENT TO ACCESS DOOR FOR DISCONNECTING POWER TO COOLING TOWER 120 VOLT HEATER.
9. STUB-UP CONDUIT APPROXIMATELY 12" ABOVE GRADE AND CAP FOR FUTURE EXTENSION TO FUTURE COOLING TOWER FAN MOTORS DISCONNECT SWITCH.
10. ROUTE UNDER PLATFORM THEN UP THRU PLATFORM TO RECEPTACLE MOUNTED ADJACENT TO DOOR 24" ABOVE PLATFORM.
11. 1-1/2"C, 4#14 & 4#12 & 1#12(G) WITH CELL 5 & 6 VIBRATION SWITCH CONTACT WIRING AND HEATER POWER WIRING FROM CTF-5 AND CTF-6 DRIVES ON ELECTRICAL MEZZANINE:
 - A. VIBRATION SWITCH CONTACT (2#14) WIRED BACK TO DRIVE TO SHUT DOWN FAN ON HIGH VIBRATION.
 - B. HEATER CIRCUIT (2#12, 1#12(G)) WIRED THRU AUXILIARY CONTACT ON DRIVE SO WHEN FAN SHUTS DOWN CONTACT CLOSES AND ENERGIZES FAN MOTOR HEATER.
12. STUB-UP 1-1/2" CONDUIT AT CONTAINMENT WALL AND CAP FOR FUTURE EXTENSION TO CELLS 7, 8 & 9 VIBRATION SWITCHES AND MOTOR HEATERS.
13. BRING 1" CONDUIT FROM PANEL MLC-2 TO CONDUIT RACK AT NW PIER FOR COOLING TOWER 5. STUB CONDUIT UP APPROXIMATELY 12" ABOVE GRADE AND CAP FOR FUTURE USE.
14. SEE DIRECT BURIED CONDUIT DETAIL "504A" ON DRAWING E-504.
15. DI/DO JUNCTION BOX MOUNTED ON CONTAINMENT WALL FOR DISCRETE I/O CABLES BETWEEN I/O PANELS 600-1N AND 600-IS IN PIPE TUNNEL AND COOLING TOWER CELLS 5 & 6. COORDINATE WITH I&C FOR BOX SIZE.
16. AI JUNCTION BOX MOUNTED ON CONTAINMENT WALL FOR ANALOG I/O CABLES BETWEEN I/O PANEL 600-1N IN PIPE TUNNEL AND COOLING TOWER CELLS 5 & 6. COORDINATE WITH I&C FOR BOX SIZE.
17. A1 JUNCTION BOX MOUNTED ON CONTAINMENT WALL FOR FUTURE ANALOG CABLES TO FUTURE COOLING TOWER CELLS 7, 8 & 9 FROM I/O PANEL 600-IN. COORDINATE WITH I&C FOR BOX SIZE.
18. DI/DO JUNCTION BOX MOUNTED ON CONTAINMENT WALL FOR FUTURE DISCRETE CABLES BETWEEN I/O PANELS 600-IN & 600-IS AND FUTURE COOLING TOWER CELLS 7, 8 & 9. COORDINATE WITH I&C FOR BOX SIZE.

(1)INAF
CONDUIT

1"C, 3#12 & 1#12(G)



19. CONDUIT UP FROM JUNCTION BOX THRU PLATFORM INTO SIDE OF COOLING TOWER TO VIBRATION SWITCH.
20. FEED TO BASIN HEATER CONTROL PANEL FROM DP-3. SEE RISER DIAGRAM ON DWG E-607. THE CONTRACTOR SHALL CONNECT THE BASIN HEATER ELEMENTS TO THE BASIN HEATER CONTROL PANEL.
21. BRING 1-1/2" CONDUIT FROM PANEL DP-3 TO CONDUIT RACK AT NW PIER FOR COOLING TOWER 5. STUB CONDUIT UP APPROXIMATELY 12" ABOVE GRADE AND CAP FOR FUTURE USE.
22. ROUTE CONDUIT/WIRING FOR FEED TO HTCP-2 FROM DP-3 BELOW GRADE TO COOLING TOWER THEN UP TO I-BEAM BELOW PLATFORM AND ALONG I-BEAM TO HTCP-2. THEN DROP DOWN FOR BOTTOM ENTRY INTO PANEL.
23. FEED TO HTCP-2 FROM DP-3, SEE RISER DIAGRAM ON DRAWING E-607.

PART OF DRAWING ES-401