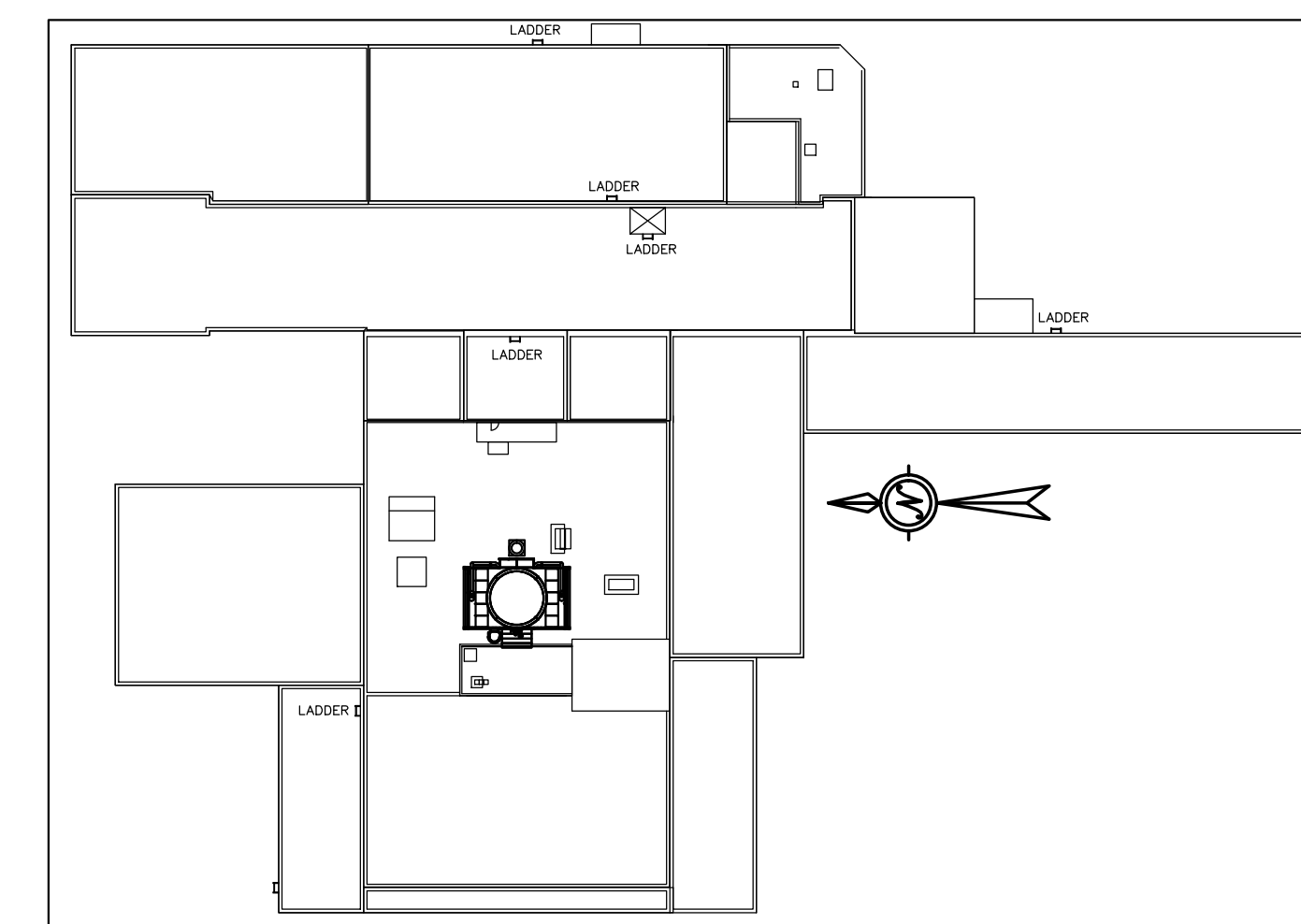


GENERAL NOTES

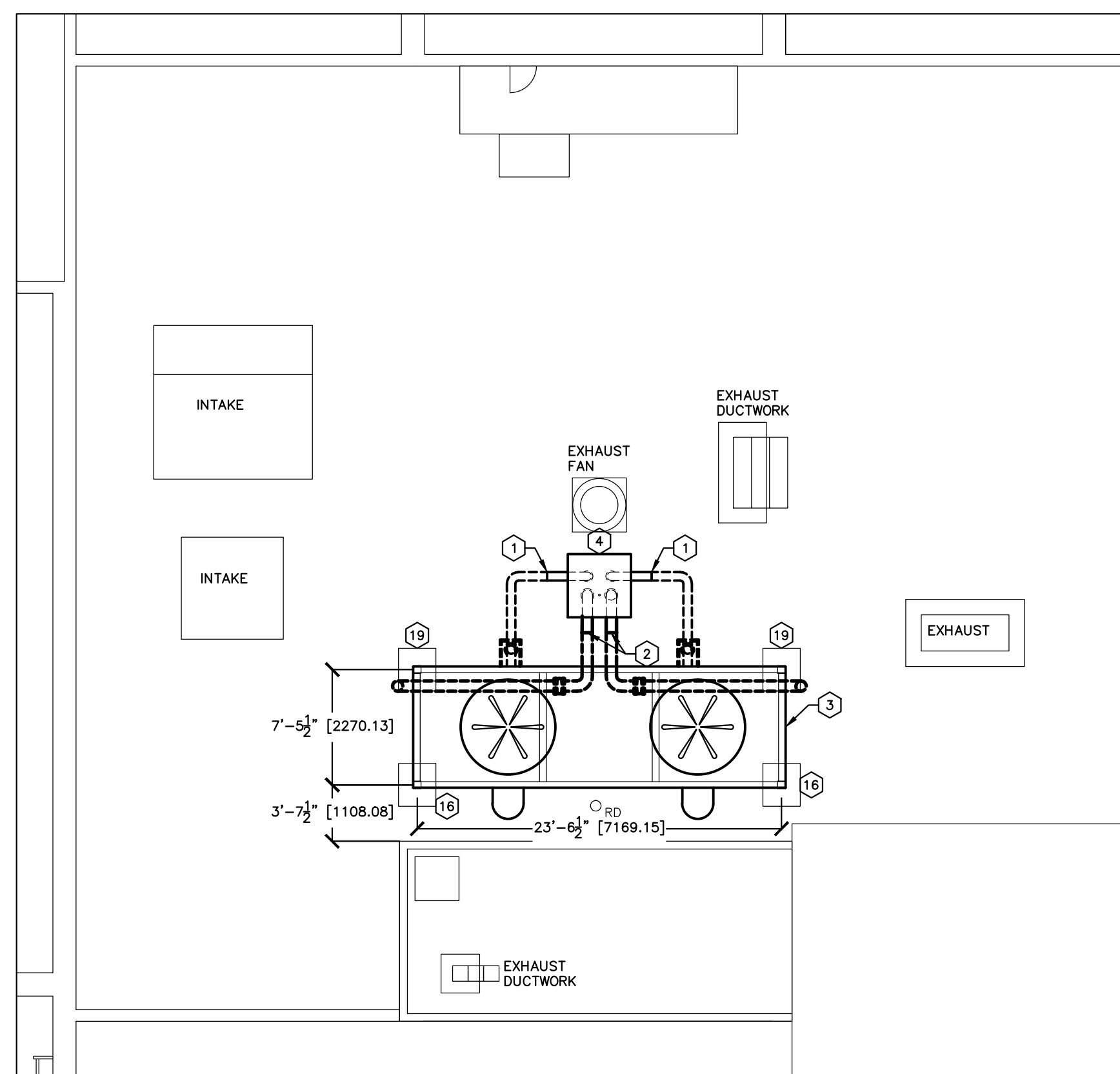
- CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO DEPARTMENTAL REPRESENTATIVE.
- CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- COORDINATE ALL SHUTDOWNS WITH THE DEPARTMENTAL REPRESENTATIVE.
- PROVIDE ALL LABOUR AND MATERIAL REQUIRED TO FORM A COMPLETE, FUNCTIONAL SYSTEM AS DESCRIBED ON DRAWINGS.
- ALL NEW PIPING, FLANGES AND FITTINGS TO BE PAINTED WITH A MINIMUM OF TWO LAYERS OF PAINT. PAINT TO BE APPLIED AS PER MANUFACTURER RECOMMENDATIONS. STANDARD OF ACCEPTANCE: MANF. SHERWIN WILLIAMS, PRODUCT: SILVER-BRITE HI HEAT RESISTING ALUMINUM PAINT
- PROCESS COOLING WATER SHUTDOWN. THE CONTRACTOR SHALL HAVE FROM MARCH 10 TO 21 (INCLUSIVE), 2014 TO COMPLETE ALL WORK FOR THIS PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL AFTER NORMAL WORKING HOURS RELATED COSTS.
- ALL WELDS TO THE NEW GALVANIZED STEEL STRUCTURE TO BE PAINTED WITH 2 LAYERS OF ZINC GALVANIZING PAINT (BRUSH ON ONLY).
- PRIOR TO BEGINNING WORK ON THE EXISTING COOLING TOWER THE CONTRACTOR SHALL CLEAN ROOF AREA IN THE AFFECTED CONSTRUCTION ZONE AND PROVIDE A CONTINUOUS LAYER 19mm (3/4") PLYWOOD SHEETING IN THE AREA AROUND THE NEW COOLING TOWER. THE CONTRACTOR IS RESPONSIBLE TO REPAIR ANY DAMAGES TO THE EXISTING ROOFING DUE TO THIS PROJECT. THE CONTRACTOR SHALL NOTIFY NRC OF ANY EXISTING DEFECTS TO THE ROOF PRIOR TO COMMENCEMENT OF WORK.
- DURING COOLING TOWER DEMOLITION, WE RECOMMEND THAT YOU WEAR RUBBER GLOVES AND PROTECTIVE MASKS USED TO CONTROL INFECTIOUS DISEASE THAT WILL CATCH ANY ARBORE BACTERIA. SEE SAFETY DATA SHEET FOR CHEMICAL USE IN COOLING TOWER TREATMENT IN APPENDIX OF SPECIFICATIONS.
- EXACT LOCATION OF ALL PIPE SUPPORTS TO BE COORDINATED ON SITE WITH NRC.



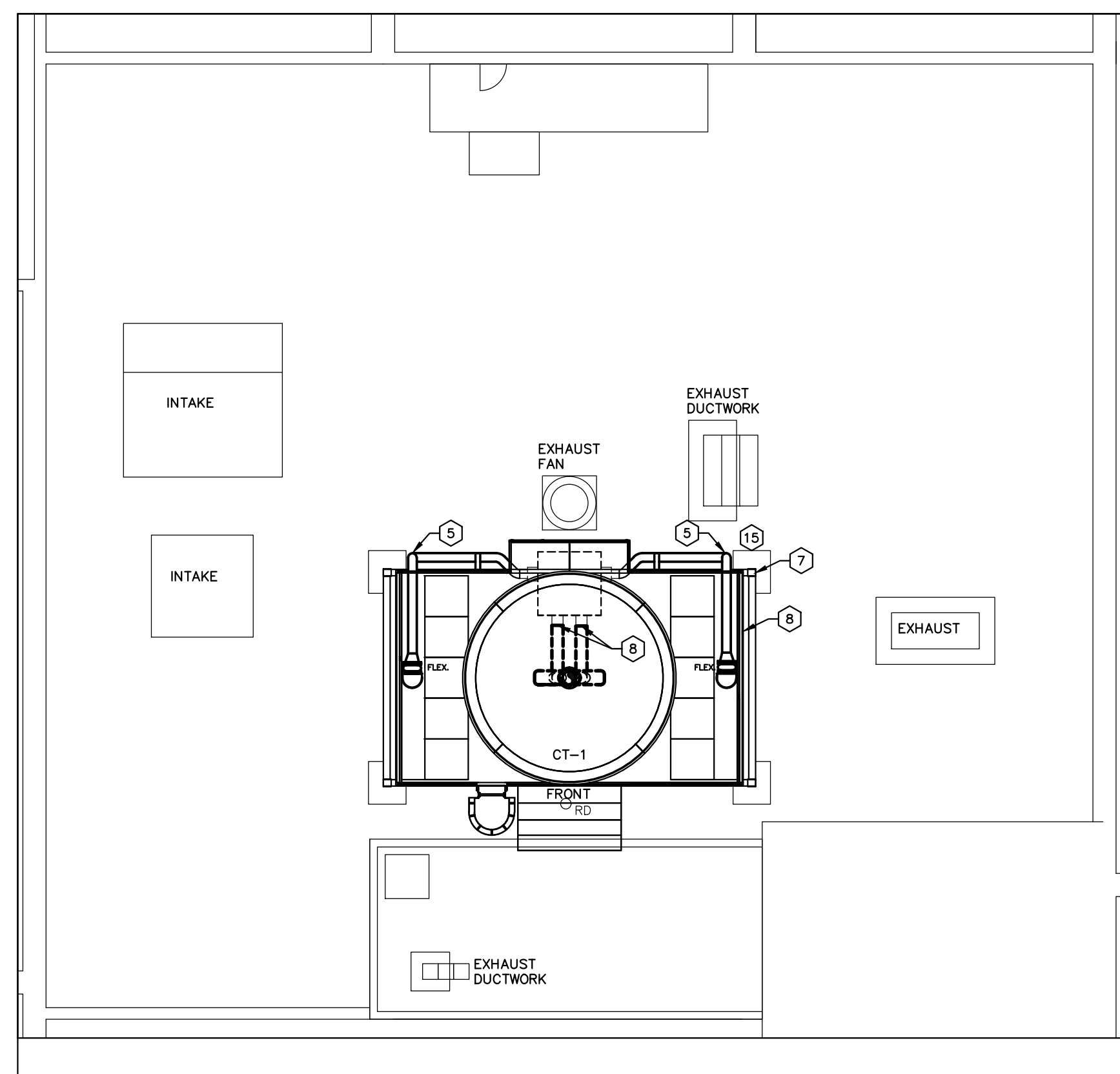
3 M7 ROOF LAYOUT
 M01 SCALE = NA

DRAWING NOTES:

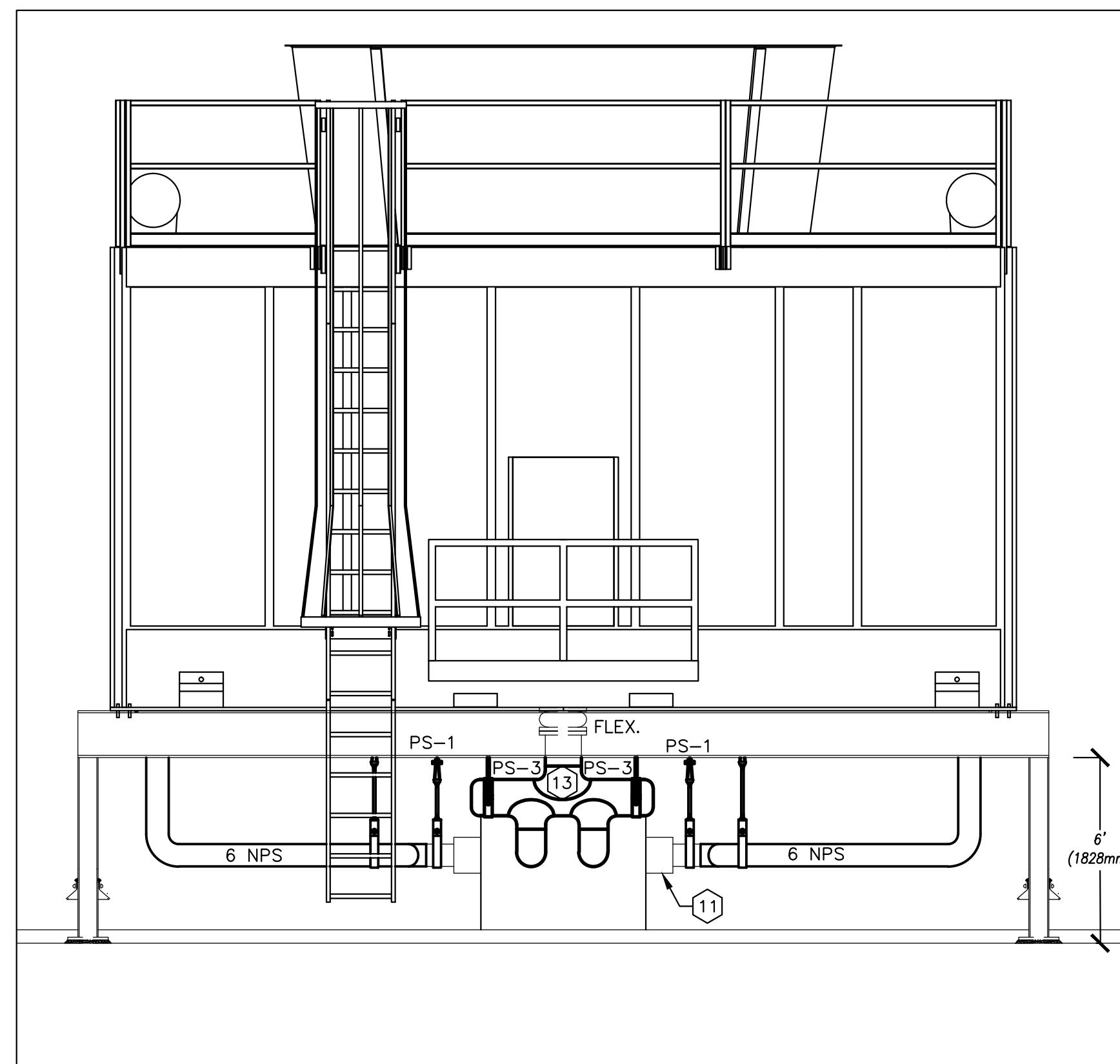
- CUT EXISTING 6 NPS INSULATED WATER PIPING AT 16" (400mm) FROM EXISTING ENCLOSURE AND REMOVE ALL FITTINGS, HANGERS, FLEXIBLE CONNECTIONS TO EXISTING COOLING TOWER. INSULATION TO BE CUT AND CAPPED AT 8" (150mm) FROM ENCLOSURE.
- CUT EXISTING 8 NPS WATER PIPING AT 12" (300mm) FROM EXISTING ENCLOSURE AND REMOVE ALL FITTINGS, HANGERS, FLEXIBLE CONNECTIONS TO EXISTING COOLING TOWER.
- EXISTING COOLING TOWER AND STEEL STRUCTURE TO BE REMOVED. SEE SHOP DRAWING OF EXISTING COOLING TOWER IN SPECIFICATIONS.
- EXISTING PIPE ENCLOSURE ON ROOF OF M7.
- PROVIDE A NEW 8 NPS PIPE FROM EXISTING CUT PIPING ON ROOF TO COOLING TOWER INLET. PROVIDE FLEXIBLE CONNECTION AND CONCENTRIC REDUCER TO SUIT COOLING TOWER INLET CONNECTION.
- NEW 8 NPS PIPING TO CONNECT TO EXISTING CUT PIPING AT THIS APPROXIMATE LOCATION, TYPICAL OF 2.
- NEW STRUCTURAL STEEL SUPPORT. SEE STRUCTURAL DRAWING.
- NEW COOLING TOWER. SEE DRAWING 3861-M02 AND SPECIFICATIONS.
- EXISTING PIPING.
- EXISTING STEEL STRUCTURE.
- EXISTING 2" (50mm) OF INSULATION TO BE CAPPED AT 8" (200mm) FROM EXISTING ENCLOSURE. TYPICAL OF 2.
- TYPICAL FLEXIBLE CONNECTION WHERE INDICATED. SIZE TO SUIT PIPING. STANDARD OF ACCEPTANCE, MANUFACTURER: SENIOR FLEXONICS, MODEL RJ-101-EP-128 C/W COMPRESSION SLEEVE.
- PROVIDE A 5' (1.5 METER) LONG 10 NPS HEADER, C/W CARBON STEEL SADDLES (ASTM A-234). SADDLES SIZE AND LOCATION TO SUIT COOLING TOWER DRAIN CONNECTING AND EXISTING TWO 8 NPS DRAIN PIPES LOCATED ON ROOF. CUT HOLE IN HEADER AS PER SADDLE REQUIREMENTS.
- ROUTING OF NEW PIPING.
- TYPICAL ROOFING SECTIONS AROUND ALL NEW STRUCTURAL SUPPORTS. ROOFING TO BE REMOVED/REINSTATED AS REQUIRED TO SUIT NEW STRUCTURAL SUPPORTS. REFER TO DETAIL 7/ M02.
- EXISTING STRUCTURAL STEEL ENCLOSURES AROUND EXISTING STRUCTURAL SUPPORTS TO BE REMOVED. SEE NEW COOLING TOWER FRAME FLASHING DETAIL ON DRAWING M02 FOR NEW STRUCTURAL SUPPORTS.
- NEW INSULATION CAP. SEE DETAIL.
- DIAGONAL 3" NPS BRACE TO BE WELDED TO PIPE. END TO BE CUT TO SUIT MAIN PIPE RADIUS. EXACT LOCATION TO BE COORDINATED ON SITE WITH NRC. TYPICAL OF 2.
- EXISTING STRUCTURAL STEEL ENCLOSURES AROUND EXISTING STRUCTURAL SUPPORTS TO BE REMOVED AND ROOFING REPAIRED TO SUIT EXISTING ROOFING. SEE DETAIL 8 ON DRAWING M02.



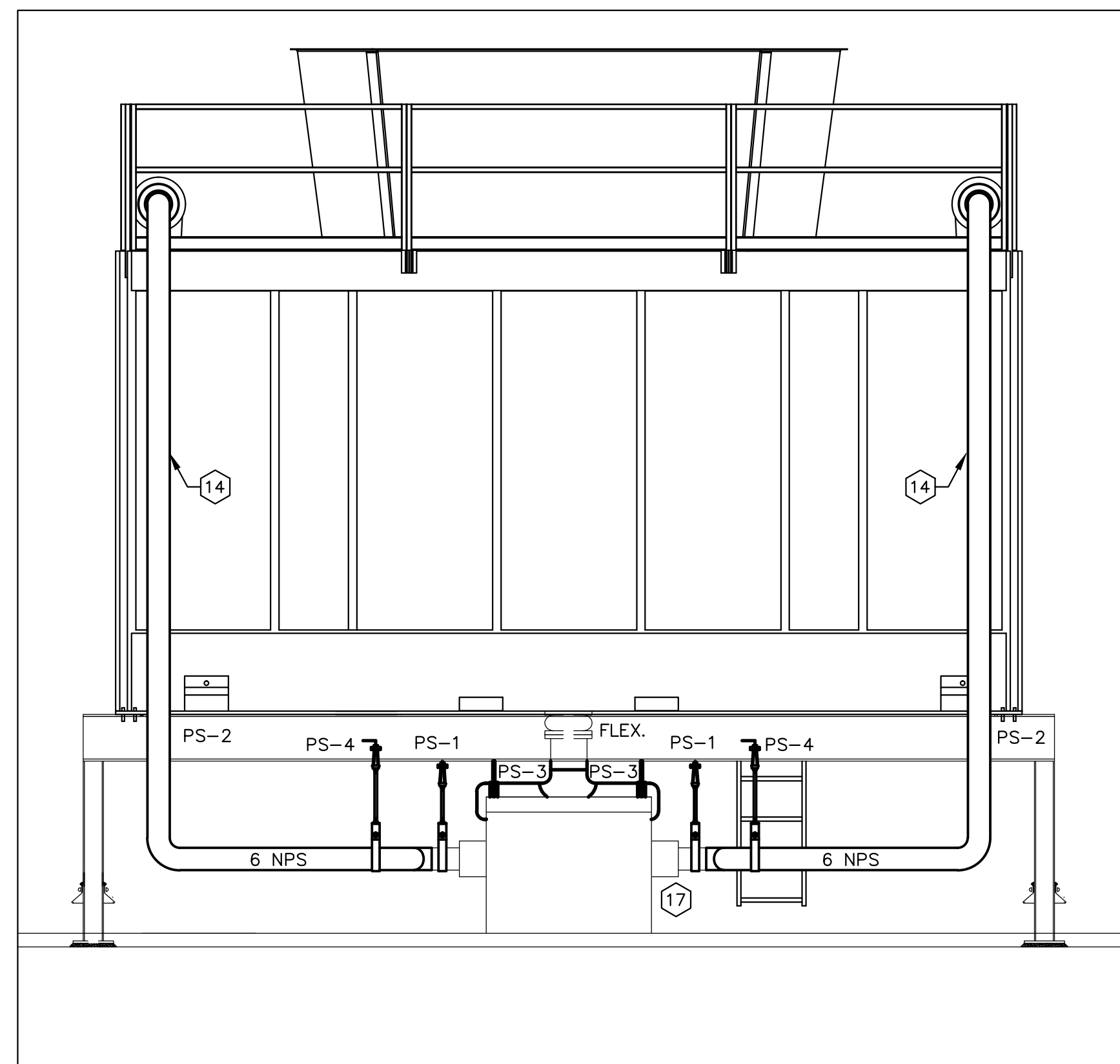
1 EXISTING TOWER LAYOUT
 M01 SCALE = NA



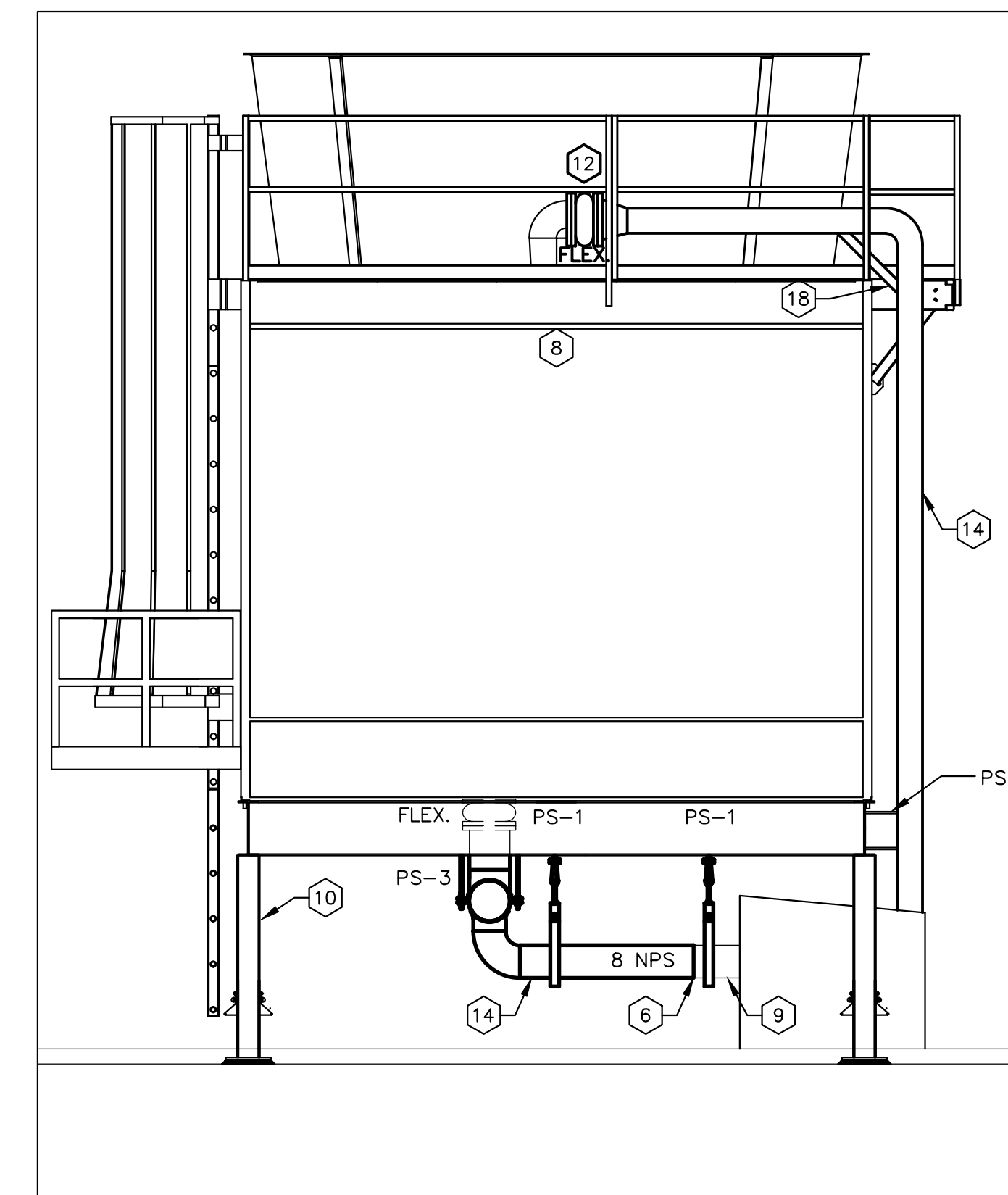
2 NEW COOLING TOWER LAYOUT
 M01 SCALE = NA



4 WEST ELEVATION VIEW OF COOLING TOWER
 M01 SCALE = NA



5 EAST ELEVATION VIEW OF COOLING TOWER
 M01 SCALE = NA

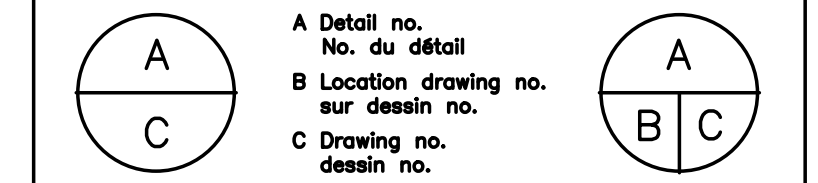


6 SOUTH ELEVATION VIEW OF COOLING TOWER
 M01 SCALE = NA

No.	Date	Revision	By:	R.G.C
0	22 11 2013	ISSUED FOR TENDER		

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- Verify all dimensions and site conditions and be responsible for same
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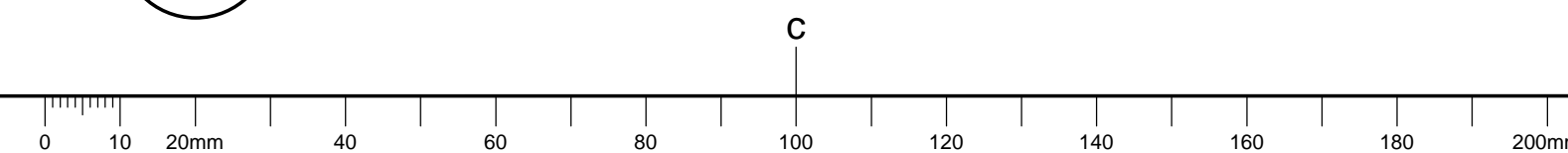


project: **M7 ROOF TOP COOLING TOWER REPLACEMENT** projet

MONTREAL ROAD CAMPUS
 drawing: **DEMOLITION AND NEW LAYOUT OF COOLING TOWER** dessin

designed	conçu	date	11/2013	date
R.Q.C				
drawn	dessiné	scale	-	échelle
R.Q.C				
checked	vérifié	sheet	1 of/de 2	feuille
BV				
approved	approuvé	W.O.no.	A1-004116-01-03-02	D.T.no.
BV				

dwg.no. **3861-M01** dessin no.



COOLING TOWER SCHEDULE

STANDARD OF ACCEPTANCE: MARLEY

REF	CT-1
MODEL	NCB407UAS 1 CELL
TYPE	CROSSFLOW
FLOW RATE	USGPM 1400
EAT Wb	°F 75
EWT	°F 125
LWT	°F 85
CAPACITY	BTUH 27,818,000
NOMINAL OPERATING WEIGHT	LBS 32,000
NOMINAL SIZE	20' L x 22.5' W x 18.5' H
INLET CONNECTIONS	2 - 8 NPS CLASS 125 ANSI B16.1 FLANGE CONNECTION C/W HORIZONTAL FLOW CONTROL VALVES
OUTLET CONNECTION	1 - 10 NPS CLASS 125 ANSI B16.1 FLANGE CONNECTION C/W TRASH SCREEN
HOT DECK	301L STAINLESS STEEL
COLD DECK	301L STAINLESS STEEL
ELECTRICAL :	
FANS	No. 1
MOTOR	50 H.P. TEC PREMIUM EFFICIENCY INVERTER DUTY
SERVICE FACTOR	1.15
FULL LOAD AMPS	45
MAXIMUM RPM	1770
SUPPLY	V/PH/Hz 575/3/60

VARIABLE FREQUENCY DRIVE
STANDARD OF ACCEPTANCE : MANUFACTURER : ABB, MODEL : ACH550, C/W CUL 50 H.P., NEMA 1 ENCLOSURE, BYPASS, INLET/OUTLET LINE REACTOR. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. VFD TO BE SUPPLIED BY DIV. 26.

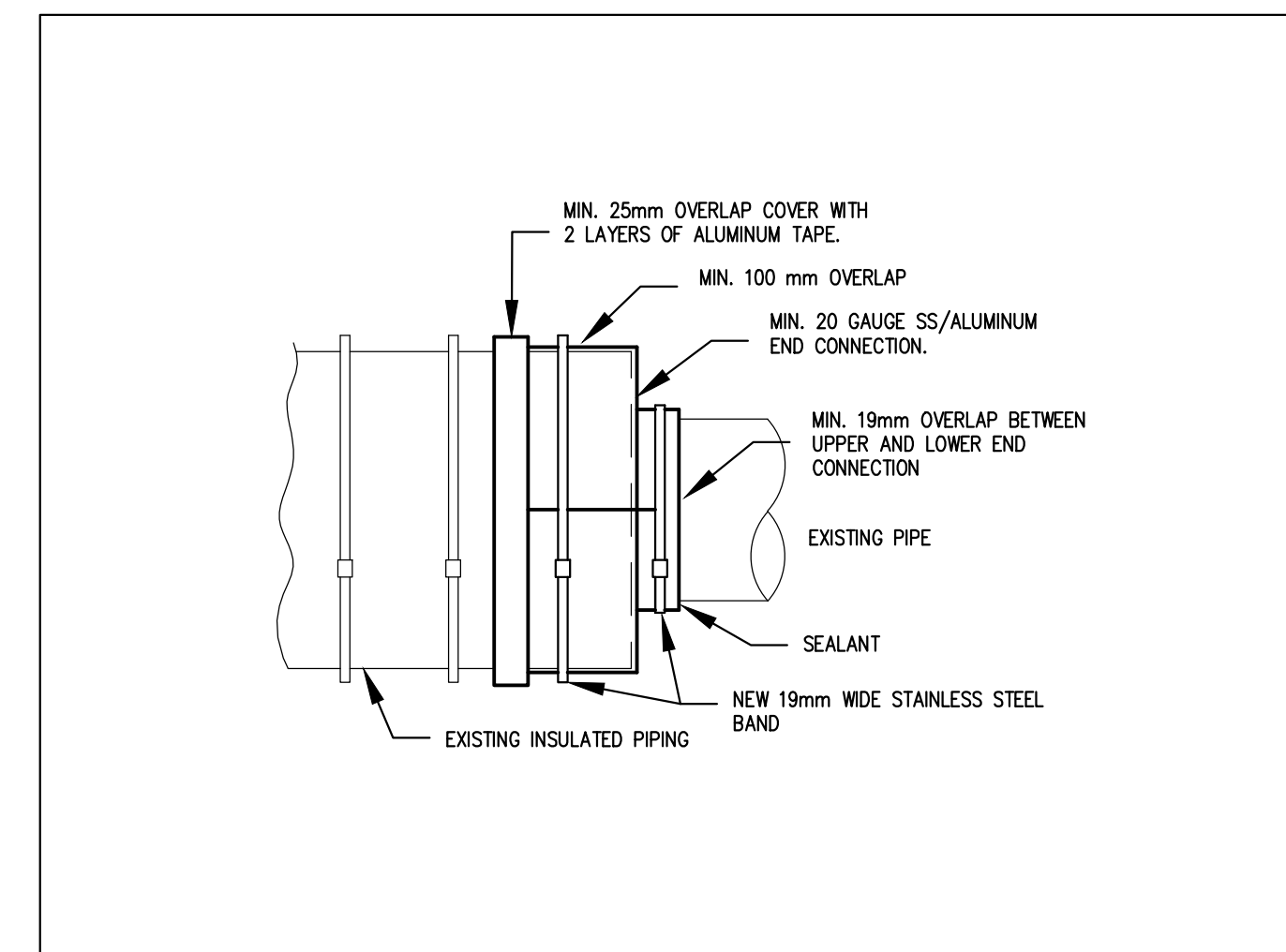
REMARKS:
- TOWER TO HAVE A CFI CERTIFICATION TO ST-201
- GALVANIZED HANDRAIL AND LADDER C/W 5' EXTENSION C/W SAFETY CAGE
- GALVANIZED PLENUM WALKWAY C/W INTERIOR MECHANICAL ACCESS PLATFORM
- STAINLESS HOT AND COLD WATER BASINS
- LOW SOUND FAN WITH ALUMINUM BLADES
- EXTERNAL LUBE LINES AND DIPSTICK
- MANUAL RESET VIBRATION VIBRATION CUTOFF SWITCH
- 6 WEEK DELIVERY FOR COOLING ONCE SHOP DRAWING HAVE BEEN REVIEWED BY NRC
- SOUND PRESSURE (dB) FOR EACH OF THE OCTAVE BANDS BELOW FROM THE TOWER AT 5 FEET SHALL NOT EXCEED THE SOUND POWER LEVELS SHOWN. SOUND POWER LEVELS ARE EXPRESSED IN DECIBELS REFERENCE 0.0002 MICROBAR.
OCTAVE BAND CENTER FREQUENCY 63 125 250 500 1K 2K 4K 8K dBA
AIR INLET 83 84 81 80 74 72 65 55 81
DISCHARGE 87 88 85 83 77 77 73 62 85



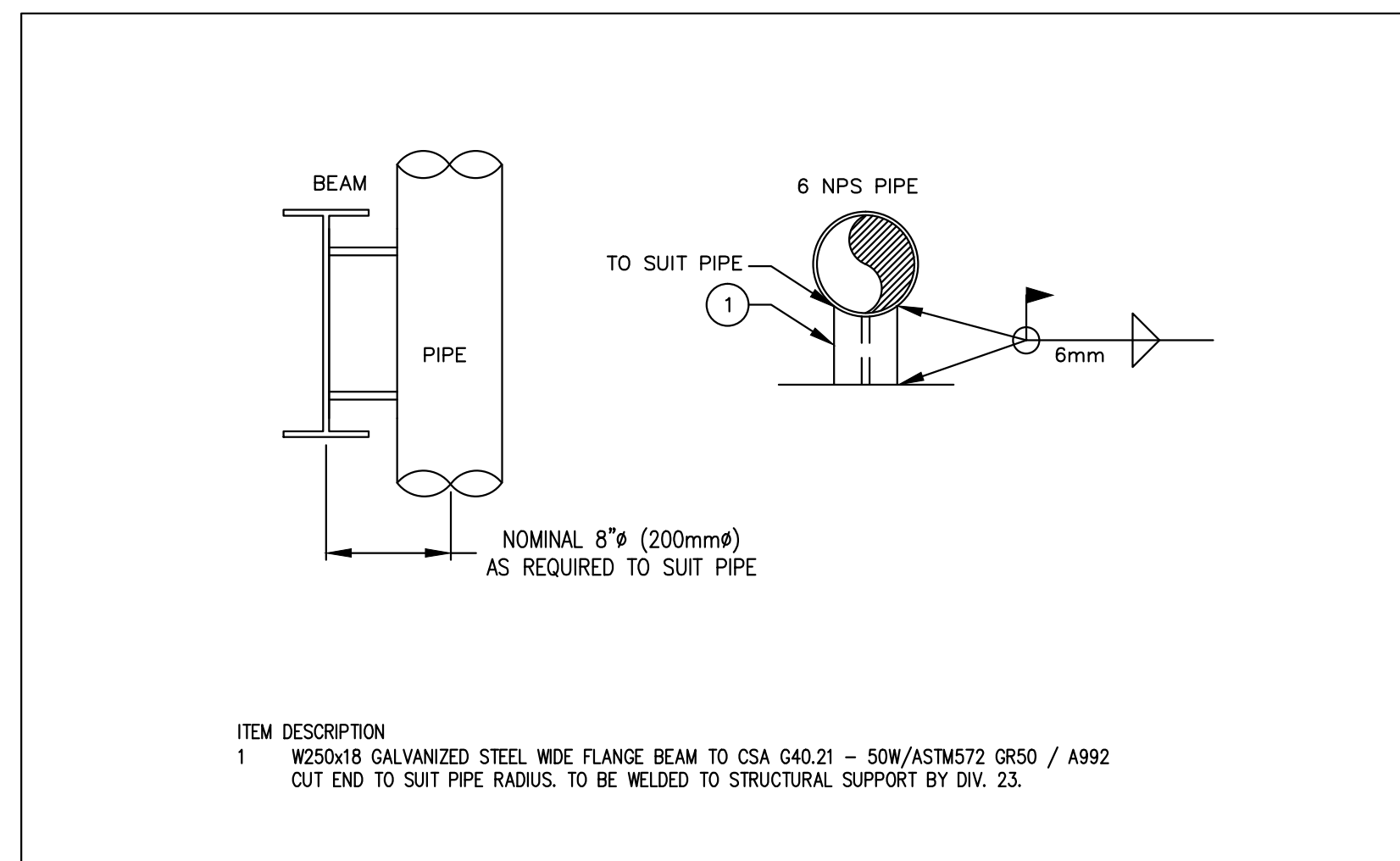
1 BACK VIEW OF EXISTING COOLING TOWER
M02 SCALE = NA



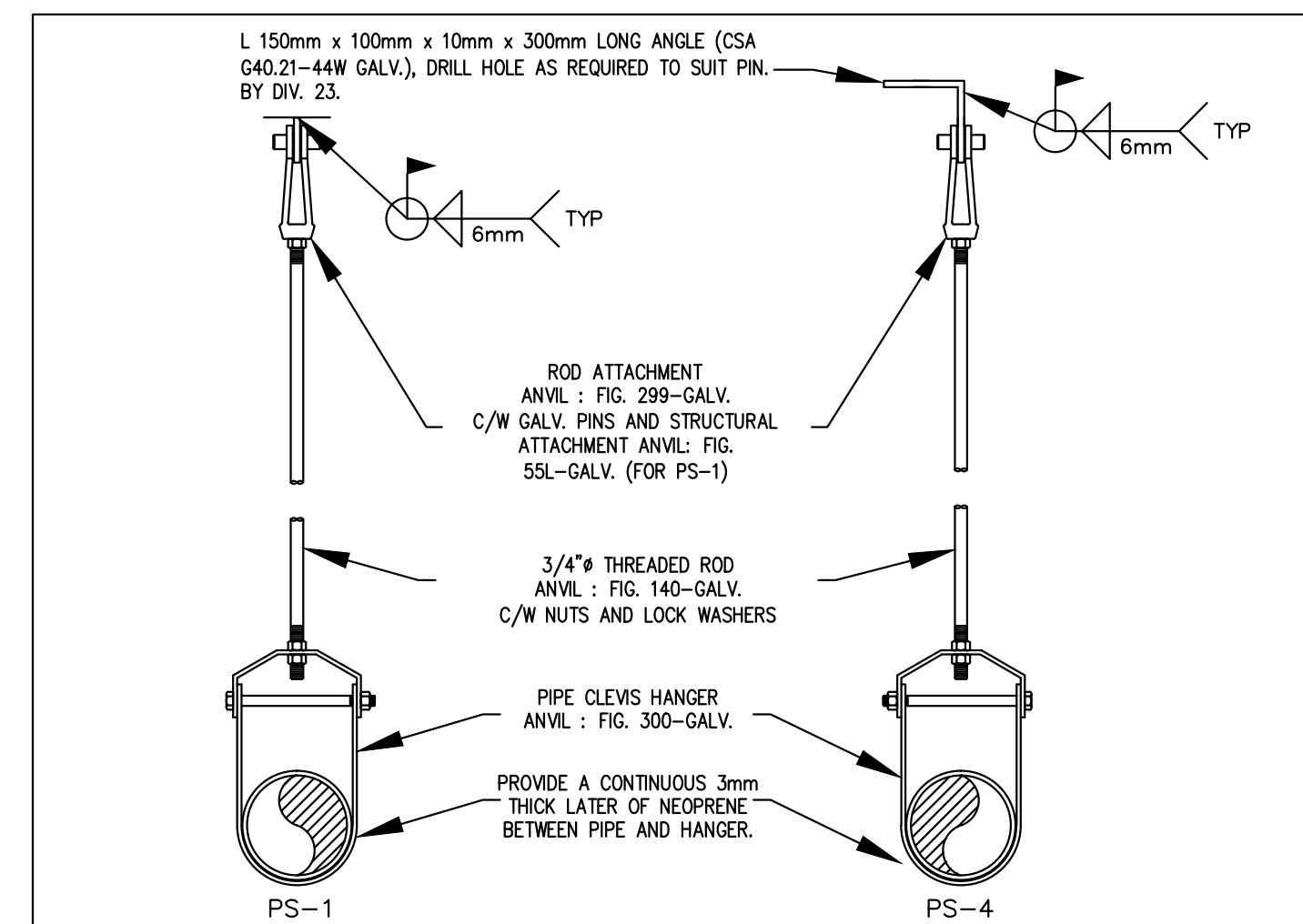
2 FRONT VIEW OF EXISTING COOLING TOWER
M02 SCALE = NA



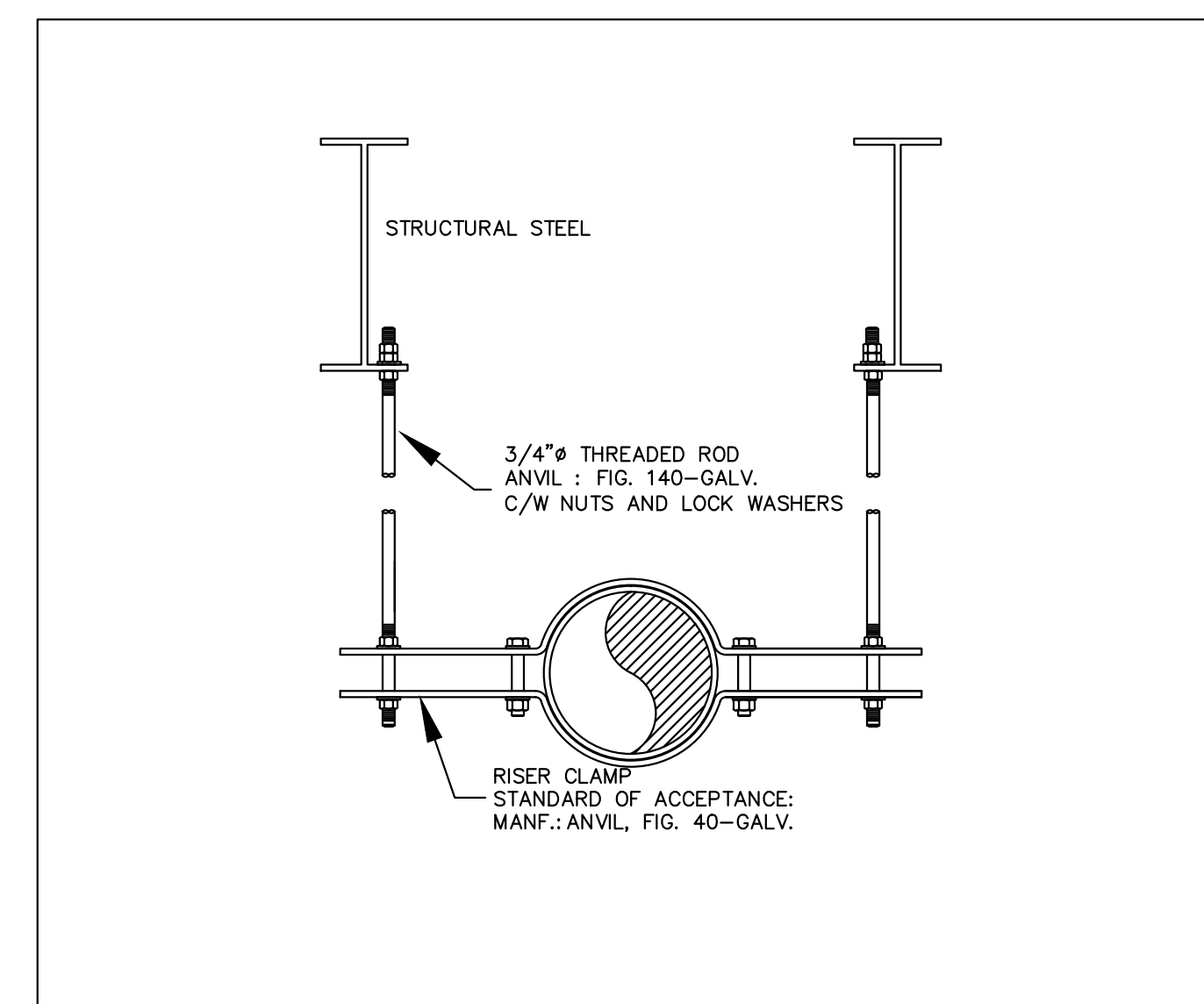
3 TYPICAL INSULATION CAP DETAIL
M02 SCALE = NA



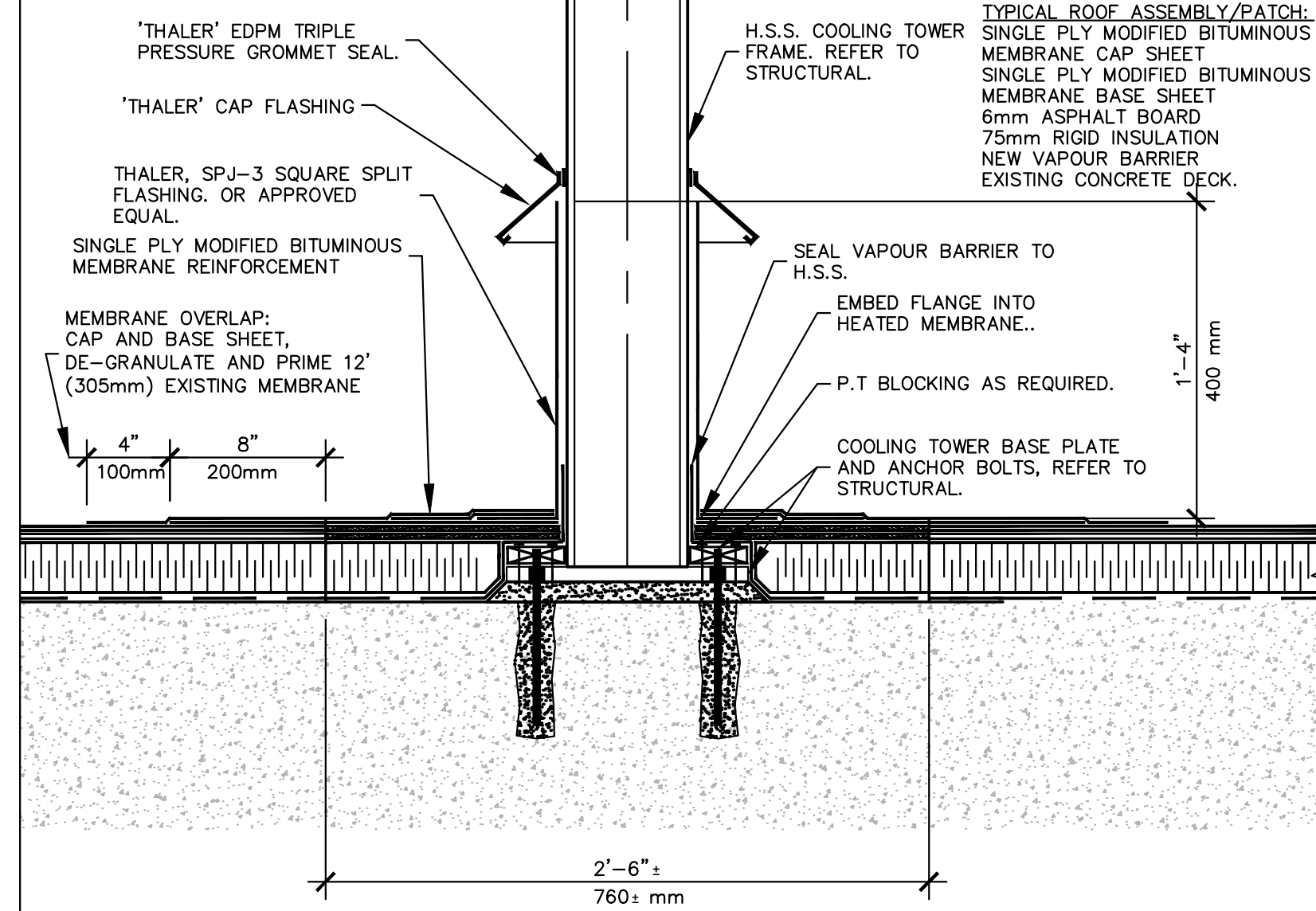
4 PIPE SUPPORT DETAIL (PS-2)
M02 SCALE = NA



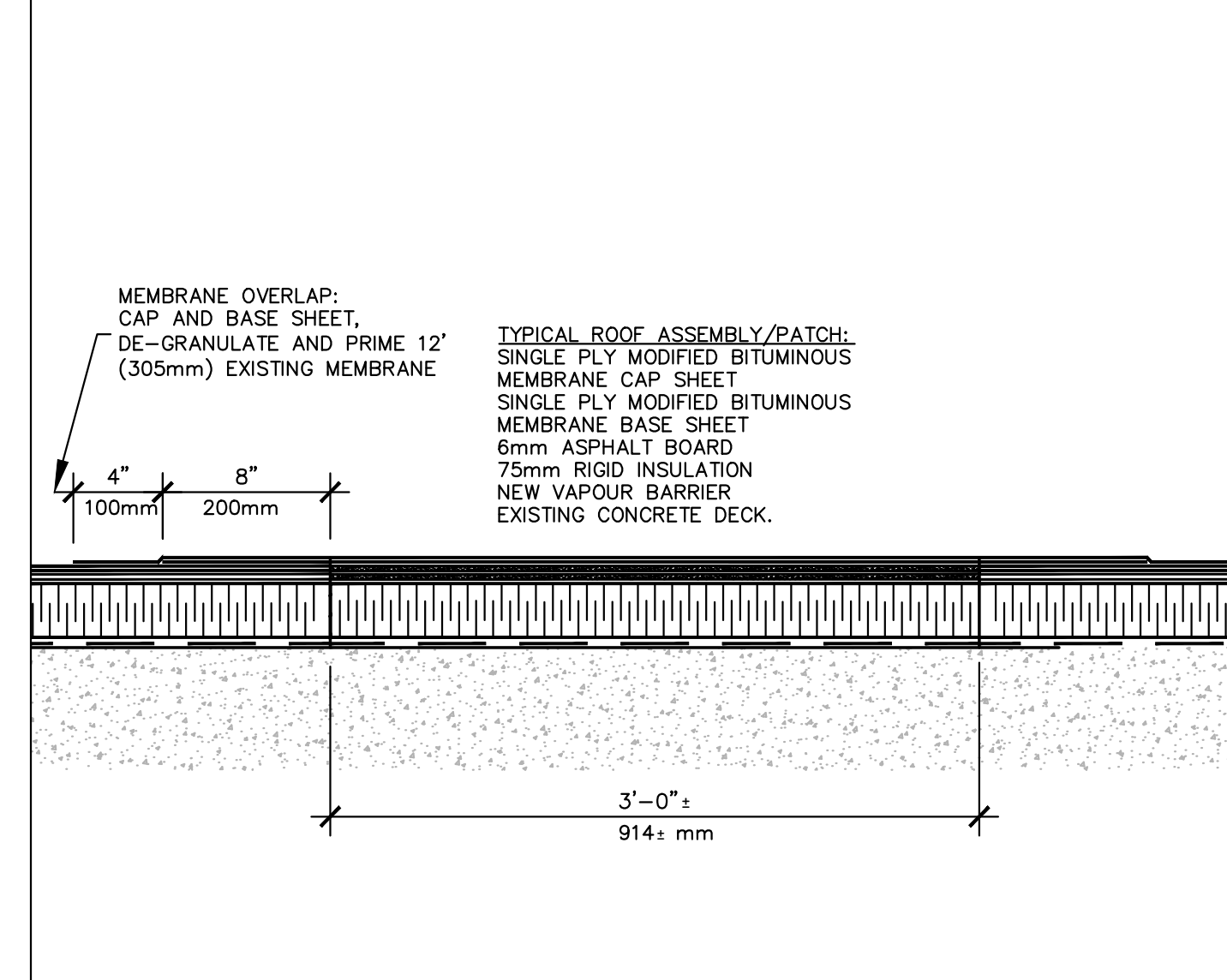
5 PIPE SUPPORT DETAIL (PS-1 AND 4)
M02 SCALE = NA



6 PIPE SUPPORT DETAIL (PS-3)
M02 SCALE = NA



7 COOLING TOWER FRAME FLASHING DETAIL
M02 SCALE = NA



8 ROOFING REPAIR DETAIL
M02 SCALE = NA

NEW PIPING REQUIREMENTS

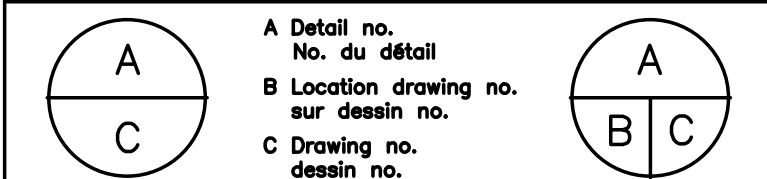
PIPING	COOLING TOWER WATER
DESIGN TEMPERATURE (°F)	-20 TO 180
PIPING SCHEDULE	40
DESIGN PRESSURE (PSIG)	100
PIPING CONNECTIONS	WELDED
TEST PRESSURE (PSIG)	100
TESTING FLUID	WATER
TEST DURATION (MIN.)	NA
RADIOGRAPHY	NA
SYSTEM DESIGN STANDARD:	ASME B31.1
WORKING FLUID/GAS	WATER
DESIGN CODE	B31.3
FITTINGS	B16.5
FLANGES	B16.1 - MATERIAL A105
NUTS	B18.2.2
BOLTS	B18.2.1
GASKETS	B16.20/B16.21
THREADS	B16.5/B16.11
PIPING MATERIAL	A106, A53 - Gr. B, SEAMLESS
VALVES	B16.34
FLANGE CLASS	ANSI CLASS 125

PIPE SUPPORT REQUIREMENTS BY MECHANICAL

- ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.20-04 AND CSA G40.21-04, GRADE 350W.
- ALL WELDING MATERIALS SHALL CONFORM TO CSA W48.06. WELDING SHALL CONFORM TO CSA W59-03 AND SHALL BE CARRIED OUT BY WELDERS QUALIFIED BY THE CANADIAN WELDING BUREAU.
- ALL BOLTS SHALL BE 3/4" DIAMETER GALVANIZED HIGH TENSILE BOLTS CONFORMING TO ASTM A325.
- ALL STRUCTURAL STEEL SHALL BE GALVANIZED.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON SITE BEFORE THE START OF FABRICATION.
- ALL STRUCTURAL STEEL WORK SHALL CONFORM TO CSA S16-01.

0	22 11 2013	ISSUED FOR TENDER	R.G.C
No.	Date	Revision	By: / Par:
Date Printed		Date imprimée	

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- Vérifier toutes les dimensions et l'état des lieux et en assumer la responsabilité



project

M7 ROOF TOP COOLING TOWER REPLACEMENT

MONTREAL ROAD CAMPUS

drawing SCHEDULES, SECTION AND DETAILS dessin

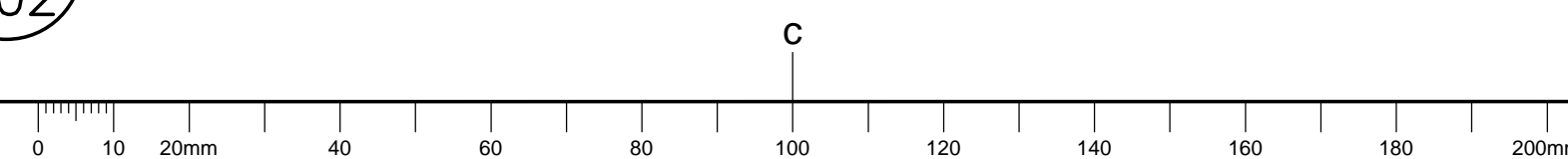
designed R.G.C conçu date 11/2013 date

drawn R.G.C dessiné scale SEE DRAWING échelle

checked BV vérifié sheet 2 of/de 2 feuille

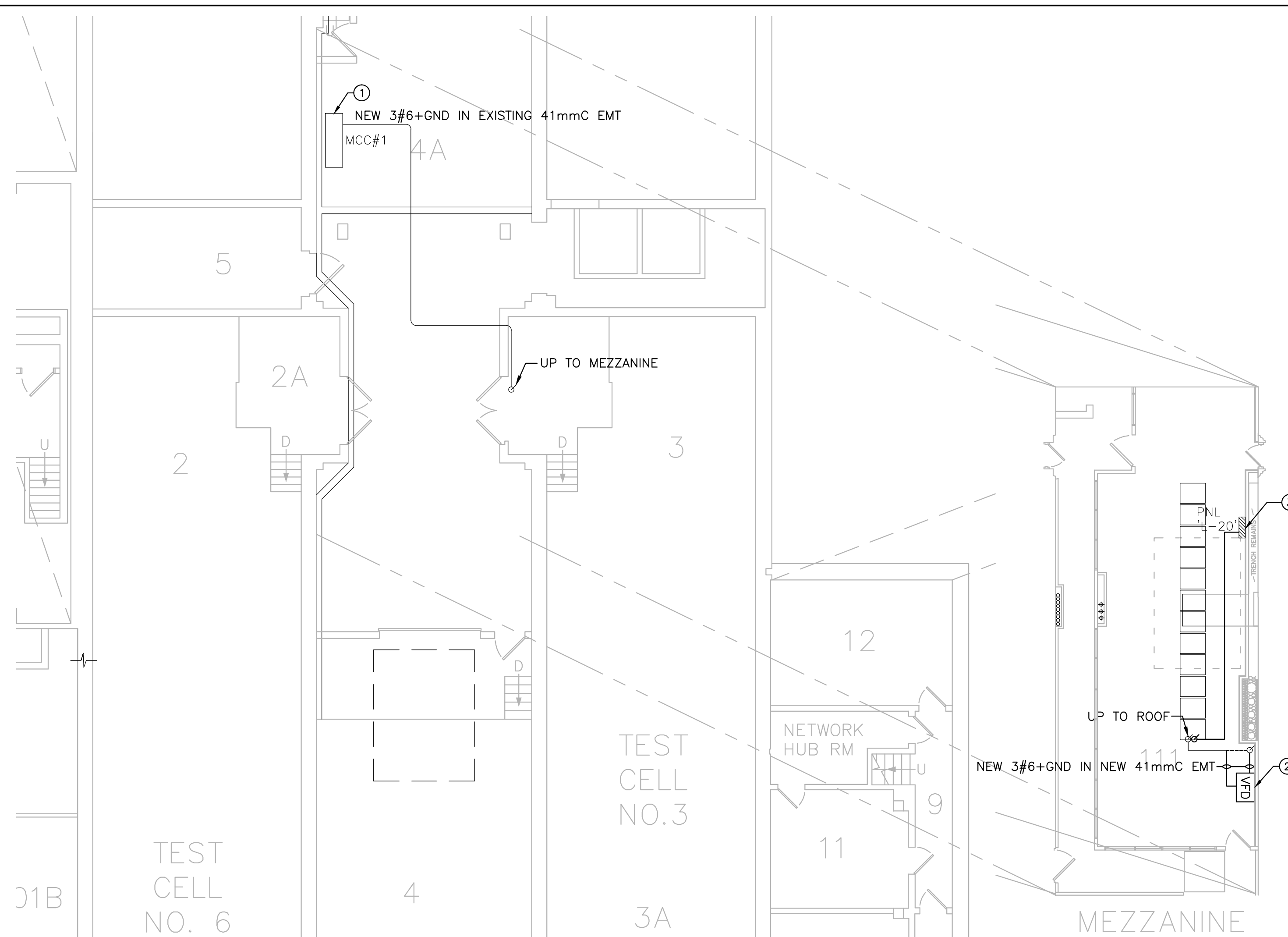
approved BV approuvé W.O.no. A1-004116-01-03-02 D.T.no.

dwg.no. 3861-M02 dessin no.

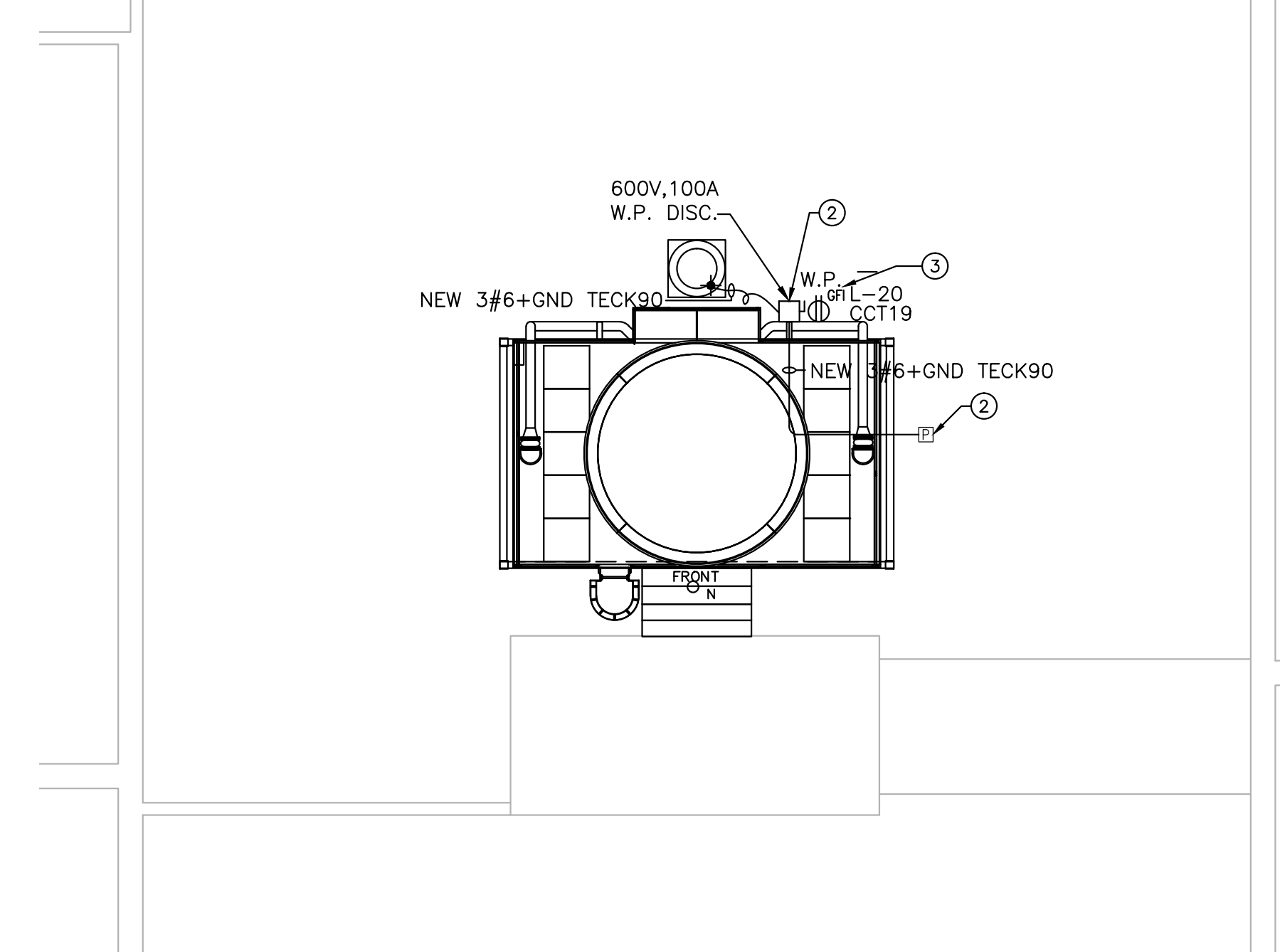


GENERAL NOTES

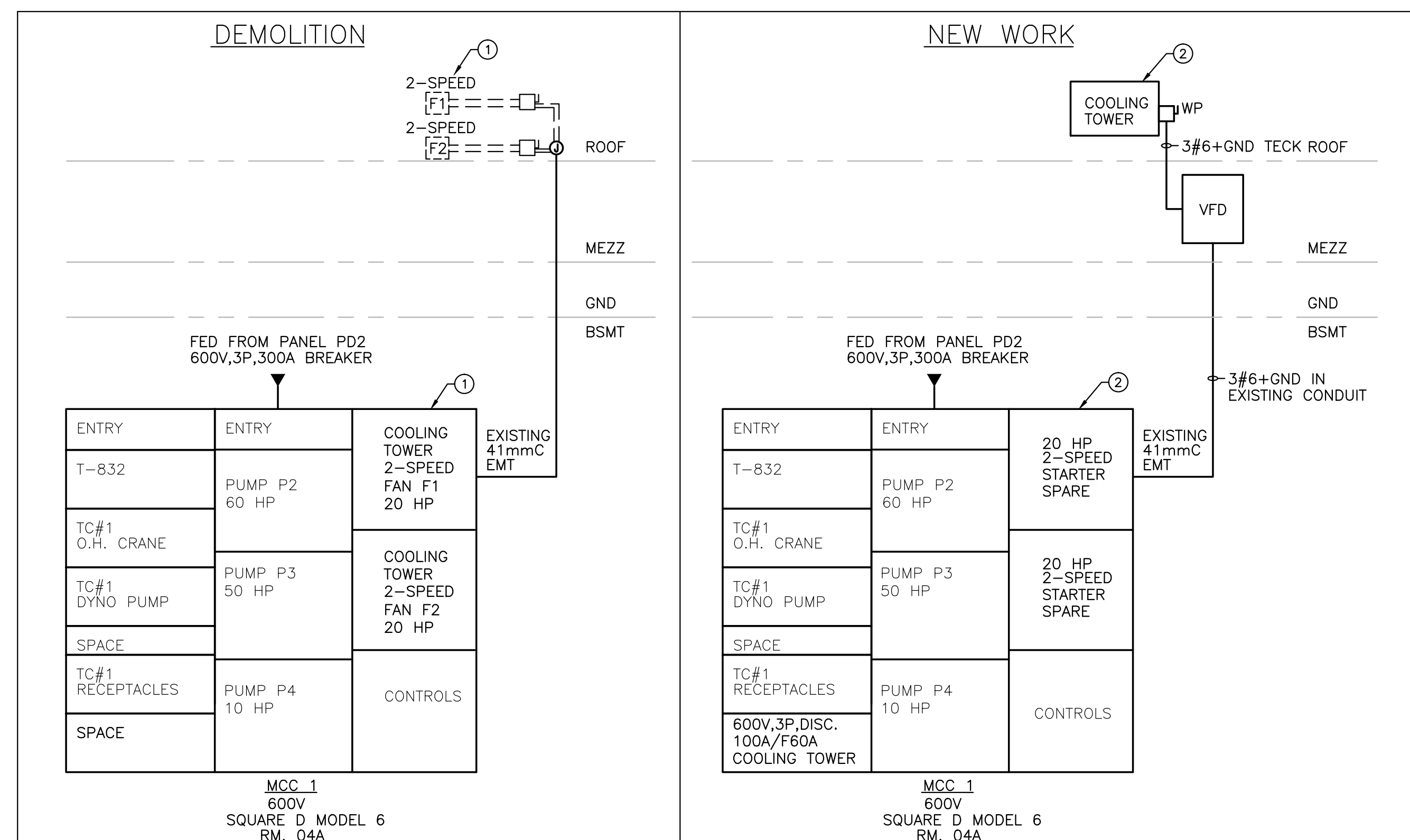
- A READ THIS DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
- B CONTRACTORS TO CHECK AND VERIFY ALL DIMENSIONS ON SITE PRIOR TO DEMOLITION OR CONSTRUCTION AND REPORT ANY ERRORS OR OMISSIONS TO NRC DEPARTMENTAL REPRESENTATIVE.
- C CONTRACTORS MUST VISIT THE SITE & FULLY FAMILIARIZE THEMSELVES WITH THE SCOPE OF THE WORK.
- D PREVENT THE SPREAD OF DUST & DEBRIS BEYOND THE WORK AREA AND CLEAN ALL SURFACES AT COMPLETION.
- E MAKE GOOD ALL SURFACES AFFECTED BY THIS WORK.
- F COORDINATE ALL SHUTDOWNS WITH THE NRC DEPARTMENTAL REPRESENTATIVE.
- G FILL ALL HOLES, PATCH & PAINT ALL SURFACES IN CONTRACT AREA. COLOUR SCHEME TO MATCH EXISTING.
- H REMOVE MEANS REMOVE AND DISPOSE OF OFF SITE UNLESS OTHERWISE NOTED.
- I PROVIDE LABELS TO NEW DEVICES TO INDICATE POWER SOURCE. UPDATE PANEL SCHEDULES AFTER JOB COMPLETION.
- J REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR FINAL PLACEMENT OF LIGHT FIXTURES.
- K ALL WIRE TO BE IN EMT UNLESS OTHERWISE NOTED.



1 ELECTRICAL LAYOUT – BASEMENT & MEZZANINE
 E01 SCALE: 1:100



2 ELECTRICAL LAYOUT – ROOF
 E01 SCALE: 1:100



3 MCC – DEMOLITION AND NEW WORK
 E01 SCALE: N.T.S

DRAWING NOTES

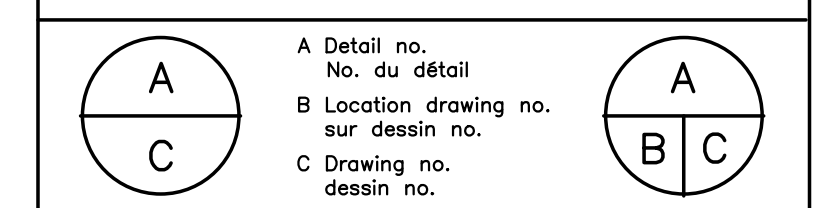
- EXISTING COOLING TOWER TO BE REMOVED BY DIV.23. DIV.26 TO DISCONNECT AND REMOVE WIRING FROM TWO TWO-SPEED FANS BACK TO MCC. DISCONNECT AND REMOVE TWO 30A DISCONNECT SWITCHES ON ROOF TOP AND RETURN TO NRC. RETAIN CONDUIT FOR NEW WIRING. COORDINATE WORK ON SITE WITH DIV.23.
- NEW COOLING TOWER TO BE SUPPLIED AND INSTALLED BY DIV.23. DIV.26 TO PROVIDE 600V, 100A, F60A, 3PH DISCONNECT SWITCH TO EXISTING SQUARE D MODEL 6 MCC. TYPE TO MATCH EXISTING. PROVIDE 600V, 100A, WEATHER PROOF DISCONNECT SWITCH AND MOUNT IT ON ROOF TOP BESIDE NEW COOLING TOWER. PROVIDE VFD ON MEZZANINE AND MAKE ALL FINAL CONNECTIONS. CONFIRM EXACT LOCATION ON SITE. RUN NEW WIRING IN EXISTING CONDUIT UP TO ROOF TOP JUNCTION BOX. MODIFY/EXTEND CONDUIT TO SUIT VFD CONNECTIONS. VFD TO COME WITH NEMA 1 ENCLOSURE, BYPASS SWITCH, INLET/OUTLET LINE REACTORS, AND SUITABLE FOR 50HP COOLING TOWER. STANDARD OF ACCEPTANCE: ABB ACH550.
- PROVIDE GFCI RECEPTACLE ON ROOF TOP AND CONNECT TO CIRCUIT AS SHOWN. RUN TECK CABLE FROM PANEL TO RECEPTACLE. USE EXISTING PIPE ENCLOSURE TO RUN THE CABLE UP AND SEAL HOLES UPON JOB COMPLETION.

LEGEND	
SYMBOL	DESCRIPTION
⊕	JUNCTION BOX
⊞	DISCONNECT SWITCH
⊗	CONDUIT DOWN
⊙	CONDUIT UP
+	HARDWARE CONNECTION
⊕	OUTDOOR GFCI RECEPTACLE
W.P.	WEATHER PROOF
—	DARK SOLID LINE DENOTES NEW OR RELOCATED
---	LIGHT SOLID LINE DENOTES EXISTING TO REMAIN
- - -	DARK DASHED LINE DENOTES DEMOLITION

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Date Printed DD MM YYYY Date imprimée

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project **M-7 ROOF TOP COOLING TOWER REPLACEMENT** projet

MONTREAL ROAD CAMPUS

drawing **ELECTRICAL LAYOUT** dessin

designed **C.Y.C** conçu **11/2013** date

drawn **C.Y.C** dessiné **AS NOTED** échelle

checked **K.X.L** vérifié **1** of/de **1** feuille

approved **B.V** approuvé **A1-004116-01-03-02** W.O.no. D.T.no.

dwg.no. **3861-E01** dessin no.

