

#### AHU-1 REPLACEMENT ADDITIONAL SCOPE:

- 1) DEMOLITION OF EXISTING AHU-1 AS SHOWN ON DRAWING M241. DEMOLITION IS TO THE INCLUDE ALL ITEMS REQUIRED FOR THE REMOVAL OF EXISTING AHU-1. THIS WILL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING ITEMS ASSOCIATED WITH THE DEMOLITION OF AHU-1: ELECTRICAL POWER CONNECTION (AS INDICATED ON ELECTRICAL IFT DRAWINGS), EXISTING CONTROL SYSTEMS (WIRING, TUBES,PANEL AND ALL CONTROL DEVICES), DUCTWORK AT CONNECTION POINTS OF UNIT, HEATING WATER BRANCH PIPING CONNECTED TO AHU-1. THIS DEMOLITION IS ALSO TO INCLUDE ALL OTHER HANGARS, SUPPORT AND ACCESSORIES ASSOCIATED WITH THE DEMOLITION OF EXISTING AHU-1.
- 2) PROVISION, WARRANTY AND INSTALL OF NEW AHU-1 AS SHOWN ON DRAWING M241 AND SCHEDULED ON DRAWING M400
- 3) POWER CONNECTION OF NEW AHU-1 AND ASSOCIATED COMPONENTS AS INDICATED ON ELECTRICAL IFT DRAWINGS
- 4) NEW DDC CONTROLS FOR AHU-1 AS INDICATED IN IFT SPECIFICATIONS. INCLUDING BUT NOT LIMITED TO: WIRING, PROGRAMMING, GRAPHICS, NEW AHU BUILDING CONTROLLER AND POINTS AS SCHEDULED IN SPECIFICATION SECTIONS 25 05 01, 25 90 01 & 25 90 02)
- 5) CONNECTION OF DUCTWORK BETWEEN NEW AHU AND EXISTING DUCTWORK AS SHOWN ON DRAWING M241
- 6) NEW HEATING WATER BRANCH PIPING FROM EXISTING HEATING WATER MAINS TO NEW AHU-1 SHOWN ON DRAWING M241. BRANCH PIPING TO INCLUDE NEW CONTROL VALVE, SHUT-OFF VALVES, INSULATION AND OTHER ACCESSORIES.
- 7) ALL CRAWLSPACE LEVEL CHILLED WATER BRANCH PIPING NORTH OF GRIDLINE 9 TO LOCATION OF NEW AHU-1 SHOWN ON DRAWINGS M201 AND M241. THIS IS TO INCLUDE CHILLED WATER PIPING THROUGH EXISTING CRAWLSPACE, BASEMENT AND MECHANICAL ROOM. BRANCH PIPING TO INCLUDE NEW CONTROL VALVE, SHUT-OFF VALVES, INSULATION AND OTHER ACCESSORIES

#### FOR GAS COMPANY

NEW EQUIPMENT	INPUT (KW)	MINIMUM DISTANCE BETWEEN GAS LINE AND UNDERGROUND SERVICES - 2m
BOILERS (B-1, B-2)	2@ 100 KW (3@ 341 CFH)	
EXISTING EQUIPMENT		
CAFE OVEN	XX KW (XXX CFH)	
TOTAL:	1,001 KW (3,421 CFH)	

#### FOR MECHANICAL CONTRACTOR

PRIOR TO COMMENCING INSTALLATION WITHIN THE BUILDING, THE MECHANICAL CONTRACTOR SHALL CHECK THE LOCATION AND INVERT ELEVATIONS OF ALL SERVICE LINES INCLUDING SANITARY SEWER, STORM SEWER, WATER MAINS, AND GAS MAINS WITH LOCAL AUTHORITIES TO ENSURE THAT THESE SERVICES CAN BE INSTALLED AS SHOWN. MINIMUM DISTANCE FROM METER VENTS TO OPERABLE WINDOWS, INTAKES OR DOORS SHALL BE 3 METERS (10 FEET). TEMPORARY GAS CONNECTION TO BE PROVIDED. DISCONNECT AND REMOVE TEMPORARY PIPE ONCE FINISHED.

#### STORM LOAD

BASED ON RAINFALL INTENSITY OF 13mm/15min

TERMINAL EXPANSION	SIZE	LITRES
	200ø	18,000 L

#### SANITARY LOAD

TERMINAL EXPANSION	SIZE	FU
	150ø	92FU

#### DOMESTIC WATER LOAD

TERMINAL EXPANSION	SIZE	FU	L/S
WASHROOM GROUPS AND OFFICE LOAD	75ø	270 FU	-
FIRE PROTECTION LOAD	150ø	-	24.6 L/S
TOTAL COMBINED LOAD	150ø	270 FU	31.2 L/S

#### MECHANICAL LEGEND

##### LIST OF ABBREVIATIONS AND CONTROLS

A.F.F	ABOVE FINISHED FLOOR	DIGITAL SENSOR	?
CW	COMPLETE WITH	LOCAL CONTROLS	?
E/A	EXHAUST AIR	CARBON DIOXIDE	CO2
F/A, T/A	FROM ABOVE, TO ABOVE	SMOKE DETECTOR	SD
F/B, T/B	FROM BELOW, TO BELOW	TEMPERATURE	T
N.T.S	NOT TO SCALE	HUMIDITY	H
O/A	OUTSIDE AIR	COMBUSTIBLE GAS	CG
R/A	RETURN AIR		
RWL	RAIN WATER LEADER		
S/A	SUPPLY AIR	METER	?
T.O.D	TOP OF DUCT	WATER METER	W
T.O.P	TOP OF PIPE	ENERGY METER	E
U.O.D	UNDERSIDE OF DUCT	GAS METER	G
U.O.P	UNDERSIDE OF PIPE		
U/S	UNDERSIDE		

##### LIST OF SYMBOLS AND SERVICES

EXISTING SERVICE		BOOSTED SERVICE	---XXXB---
REMOVED SERVICE	///	SERVICE BELOW	---XXXBLW---
SUPPLY LINE	---	RELOCATED ITEM	⌂
RETURN LINE	---	REMOVE ITEM	⌂
SANITARY DRAIN	---SAN---	CLEAN OUT - (END OF LINE)	---  CO
STORM DRAIN	---STW---	CLEAN OUT - (AT GRADE)	---  CO
VENT PIPE	---V---	FLOOR/ ROOF/ HUB/ AREA DRAIN	⌂ ?
DRAIN TILE	---X---	PLUMBING FIXTURE TAG	⌂ ?
DOMESTIC COLD WATER	---DCW---	HOSE BIBB	⌂ HB
DOMESTIC HOT WATER	---DHW---	P-TRAP	⌂
HEAT TRACED PIPING	---HTP---	VENT UP	⌂
		VENT THROUGH ROOF	⌂
GEOEXCHANGE GROUND LOOP	---GHX---		
HEAT PUMP LOAD SIDE	---HPL---		
HEAT PUMP SOURCE	---HPS---		
CHILLED WATER	---CHW---		
HEATING WATER	---HW---		
CONDENSATE	---COND---		
WALL MOUNTER FIRE EXTINGUISHER	⌂ FE		
SEMI-RECESSED FIRE EXTINGUISHER	⌂ FE-SR		
RECESSED FIRE EXTINGUISHER	⌂ FE-R		
PIPE ELBOW RISING / DROP	⌂		
PIPE TEE DOWN	⌂		
STACK UP/ DOWN	⌂		
SHUT OFF VALVE	⌂		
2-WAY CONTROL VALVE	⌂		
3-WAY CONTROL VALVE	⌂		
CHECK VALVE	⌂		
UNION OR FLANGE	⌂		
STRAINER - Y OR BASKET	⌂		
AUTOMATIC AIR VENT	⌂ AAV		
DOUBLE CHECK VALVE ASSEMBLY	⌂ DCVA		
PRESSURE GAUGE	⌂		
DUCTWORK	⌂		
ROUND DUCT UP	⌂		
ROUND DUCT DOWN	⌂		
S/A OR O/A DUCT TO OR FROM ABOVE	⌂		
S/A OR O/A DUCT TO OR FROM BELOW	⌂		
R/A OR E/A DUCT TO OR FROM ABOVE	⌂		
R/A OR E/A DUCT TO OR FROM BELOW	⌂		
BALANCING DAMPER	⌂		
MOTORIZED DAMPER (MODULATING)	⌂		
TURNING VANES	⌂		
AIR OUTLET OR INLET TAG	⌂		
	TYPE SIZE CAPACITY		

#### GENERAL DEMOLITION NOTES:

1. THESE NOTES ARE APPLICABLE TO ALL DRAWINGS
2. MECHANICAL TRADES BIDDING DEMOLITION WORK SHALL ALLOW FOR A FULL DAY ON SITE TO REVIEW EXISTING MECHANICAL SERVICES AND EQUIPMENT IN DEMOLITION AND RENOVATED AREAS. ACCESS WILL BE GIVEN TO ROOF AND EXISTING MECHANICAL AND ELECTRICAL ROOMS AS REQUIRED.
3. PRIOR TO COMMENCING THE STRIP OUT WORKS, VISIT SITE TO UNDERSTAND THE EXTENT OF THE WORKS.
4. PRIOR TO STARTING ANY WORK ON SITE, PROVIDE A METHOD STATEMENT DETAILING YOUR APPROACH TO THESE WORKS IDENTIFY AND PROTECT THOSE ELEMENTS OF THE WORKS THAT ARE TO BE RETAINED. UNDERTAKE ANY NECESSARY TEMPORARY OR ENABLING WORKS. PLEASE NOTE THAT THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE DESIGN OF ANY TEMPORARY WORKS.
5. PRIOR TO STARTING THE STRIPPING OUT AND DEMOLITION WORKS, MAKE SAFE ALL LIVE MECHANICAL SERVICES TO THE BUILDING
6. PLEASE NOTE THAT THE INFORMATION REPRESENTED ON DRAWINGS, IN PARTICULAR THE LOCATION AND EXTENT OF THE EXISTING SERVICES, MAY NOT BE ACCURATE. IT IS THE CONTRACTORS RESPONSIBILITY TO AMPLIFY AND CONFIRM THE INFORMATION PROVIDED PRIOR TO STARTING THE WORKS.
7. PATCH AND MAKE GOOD (TO BASE BUILDING STANDARDS) MECHANICAL COMPONENTS AND FINISHES DAMAGED DURING THE RENOVATION. PROVIDE INSULATED CAPPED CURBS EQUAL TO OR BETTER THAN ROOF R-VALUE FOR FANS, GOOSE NECK OPENINGS, VENTS AND ROOF TOP UNITS BEING REMOVED.
8. REMOVE ALL REDUNDANT VENTS (AIR AND PLUMBING) SHOWN WITHIN THE DEMOLITION AREA INCLUDING ROOF JACKS AND ROOF CURBS. PATCH AND MAKE GOOD OF ROOF BY OTHERS.
9. IT IS IMPORTANT:
  - 9.1. TO TEST ANY PIPELINE PRIOR TO STRIPPING TO ENSURE THE PIPELINE IS DEAD
  - 9.2. TO PROTECT ALL PIPELINES FROM ON-GOING WORKS.
  - 9.3. DRAIN DOWN ALL HEATING SYSTEMS AND STRIP OUT AS NECESSARY FOR DEMOLITIONS.
  - 9.4. ISOLATE ALL WATER MAINS, DRAIN DOWN ALL THE SYSTEMS AND STRIP OUT WITHIN SPACES TO BE DEMOLISHED.
10. INCLUDE FOR REMOVING AND CAPPING PLUMBING LINES ABOVE CEILING AND BELOW FLOOR AT THE NEAREST MAIN AND ASSOCIATED PLUMBING FIXTURES, DRAINS, ETC., WITHIN AREA OF DEMOLITION AND RENOVATION.
11. INCLUDE FOR DISPOSAL (FROM SITE) OF ALL REMOVED EQUIPMENT AND SERVICES. DUCTWORK, PIPING, PLUMBING, FIXTURES, SPRINKLERS, ETC. INCLUDING INSULATION AND HANGERS.
12. SUPPLY AIR DUCTWORK AND PIPING NOT SHOWN HATCHED IS TO BE RETAINED, ANY DAMAGE TO EXISTING INSULATION AND DUCTS TO BE REPAIRED TO MATCH EXISTING.
13. INSULATE NEW DUCT AND PIPE CAPS.
14. REFER TO ARCHITECTURAL DRAWINGS FOR EXTENT OF DEMOLITION.
15. DURING DEMOLITION WORK, ALL MECHANICAL SYSTEMS AND BUILDING SERVICES SERVING OCCUPIED AREAS SHALL BE MAINTAINED OPERATIONAL. WHERE SYSTEM OR SERVICE INTERRUPTIONS ARE REQUIRED, COORDINATE AFTER HOUR ACCESS REQUIREMENTS AND SECURITY WITH GENERAL CONTRACTOR.
16. LEAVE THE SITE IN A SAFE AND DOCUMENTED CONDITION.
17. THE HAZMAT CONTRACTOR WILL REMOVE ONLY THE MATERIALS CONTAINING HAZARDOUS SUBSTANCES. THE MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR REMOVING ALL MECHANICAL PIPING AND EQUIPMENT.

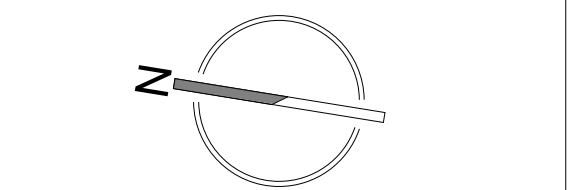
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## SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION

6421 AIRPORT ROAD  
SMITHERS, BC  
V0J 2N2



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SCALE 1 : 100 DATE 2017/08/09

FILE NAME

#### DRAWING TITLE MECHANICAL LEGEND AND DRAWING LIST

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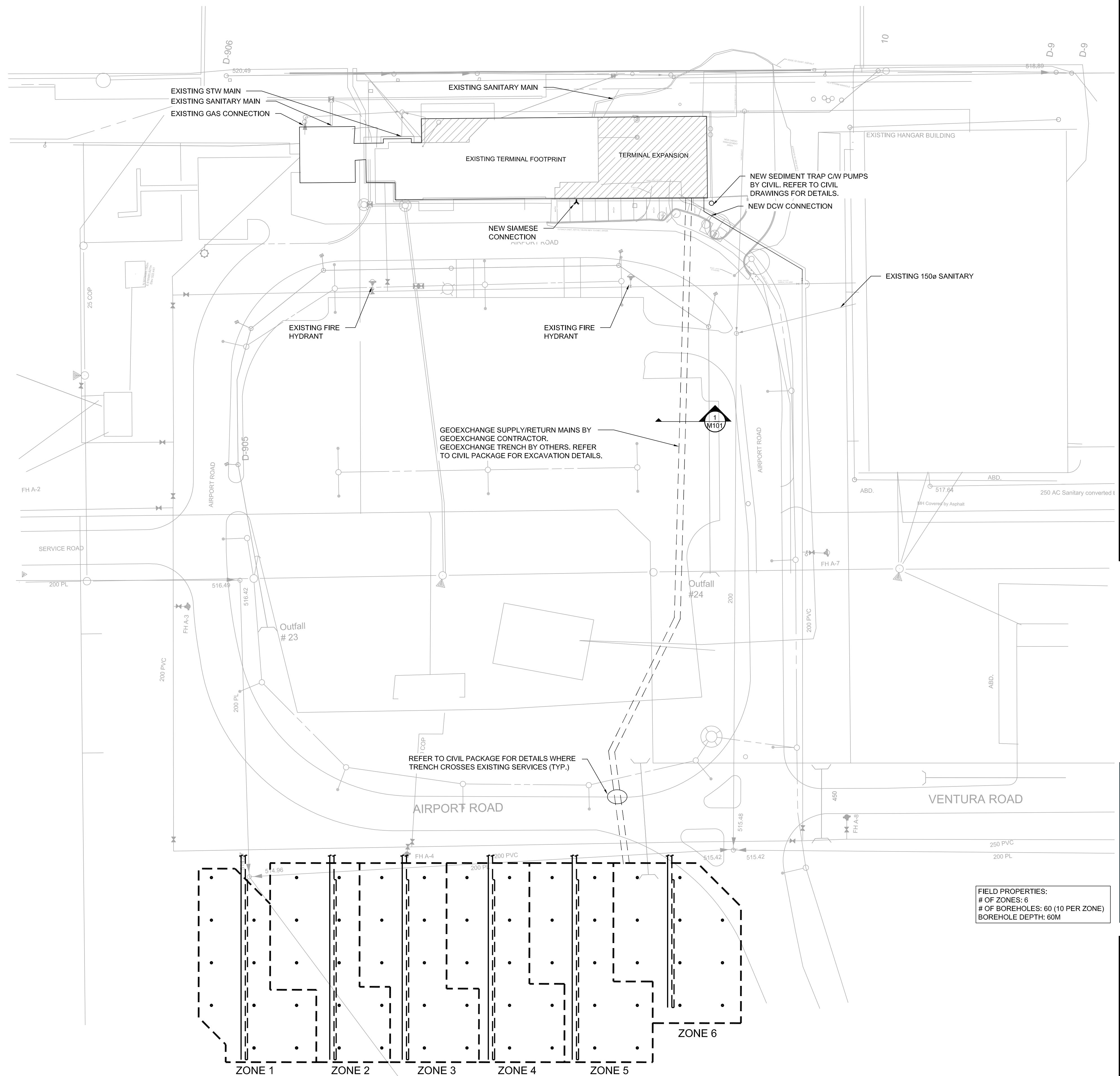
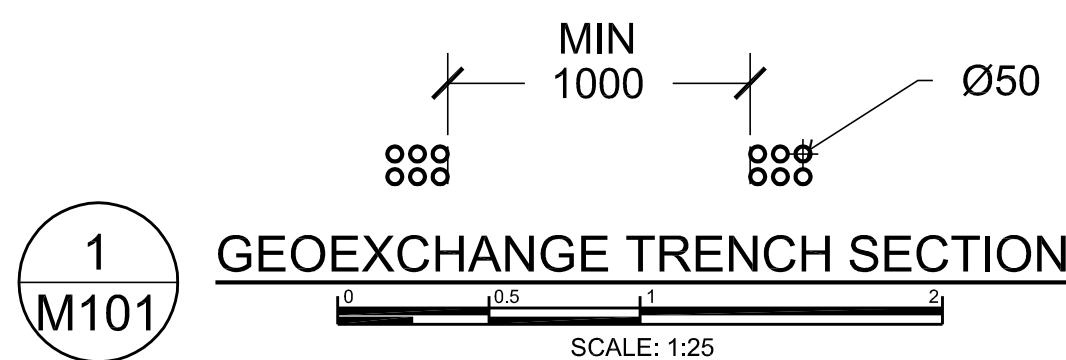
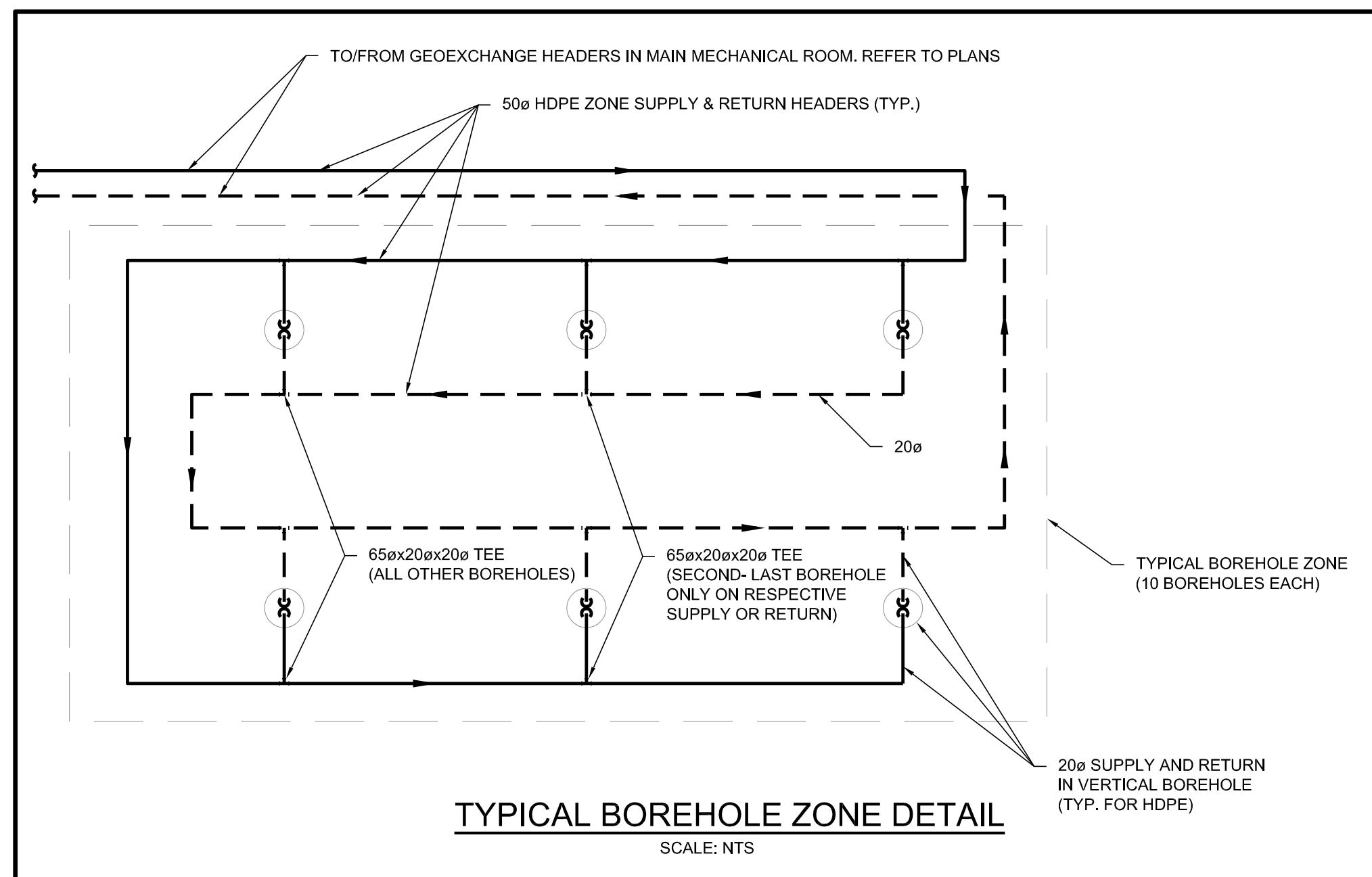
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1. ALL BOREHOLES SHALL BE 60m DEEP
2. GEOEXCHANGE BOREHOLE LOCATIONS ARE APPROXIMATE AND PIPE ROUTINGS ARE INDICATIVE. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO CONFIRM EXACT PIPING LAYOUT AND PROPOSED DEPTH OF BURY FOR ALL PIPING. SHOP DRAWINGS SHALL INCLUDING MAIN SUPPLY AND RETURN HEADERS FOR EACH ZONE, AND BRANCH PIPING TO EACH BOREHOLE WITHIN EACH ZONE. PIPED IN REVERSE-RETURN ARRANGEMENT (REFER TO DETAIL FOR TYPICAL PIPING).
3. COORDINATE WITH MECHANICAL CONTRACTOR TO ALIGN ZONE HEADER PIPING "STUB UPS" INTO MECHANICAL ROOM WITH ABOVE-GROUND GEOEXCHANGE SUPPLY AND RETURN MANIFOLDS. ZONE PIPING SHALL CONNECT TO MANIFOLDS IN NUMERICAL ORDER AS SHOWN ON PLANS (I.E. ZONE 1 THROUGH 6, IN NUMERICAL ORDER).
4. UNDERGROUND MECHANICAL SERVICES ARE INDICATED FOR REFERENCE. REFER TO CIVIL DRAWINGS FOR ADDITIONAL DETAIL. COORDINATE ON SITE WITH GENERAL, MECHANICAL, AND ELECTRICAL CONTRACTORS. IN GENERAL, INSTALLATION OF GRAVITY DRAINAGE SERVICES AT INVERTS CALLED FOR ON PLANS (STORM, SANITARY, ETC.) SHALL TAKE PRECEDENCE OVER GEOEXCHANGE PIPING.
5. SUPPLY ZONE HEADER PIPING SHALL BE GROUPED SEPARATELY FROM RETURN PIPING AS MUCH AS PRACTICAL, TO AVOID BYPASS HEAT TRANSFER BETWEEN SUPPLY AND RETURN. IN GENERAL MAINTAIN A MINIMUM OF 1m CLEAR BETWEEN SUPPLY AND RETURN ZONE HEADERS.
6. BOREHOLE SPACING SHALL MAINTAIN THE FOLLOWING MINIMUM CLEARANCES:
  - a. 0.5M FROM ALL FOUNDATIONS, FOOTINGS, CRANE BASES ETC.
  - b. 1.0M FROM UNDERGROUND MECHANICAL & ELECTRICAL SERVICES
  - c. 10.0M FROM ADJACENT BOREHOLES
7. DO NOT INSTALL PIPING OR BOREHOLES DIRECTLY BELOW MECHANICAL OR ELECTRICAL SERVICE SPACES.



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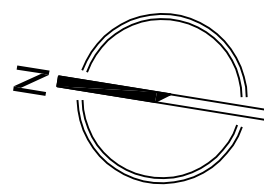
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# SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION



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DATE 09/08/2017

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# GEOEXCHANGE FIELD AND SITE PLAN

PROJECT  
No.

SHEET  
No

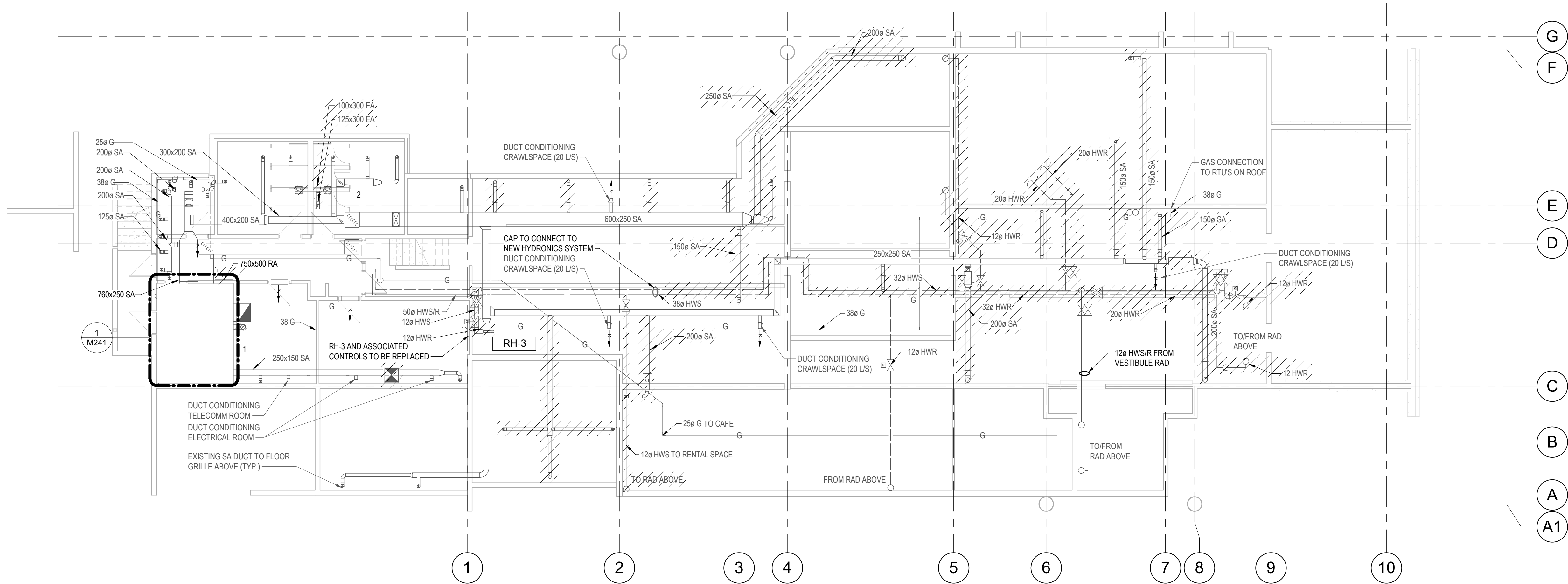
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1 M101 - CRAWL SPACE - DEMO HVAC  
1:100

#### GENERAL NOTES:

1. REFER TO GENERAL DEMO NOTES ON M001
2. ALL DEMOLISHED DUCTWORK PENETRATING THE FLOOR TO BE REMOVED AND THE FLOOR MADE GOOD

#### DRAWING NOTES:

1. EXISTING BOILER, EXPANSION TANK, HW BOILERS, AHU AND ANY ASSOCIATED CONTROLS TO BE DEMOLISHED. BOILER TO BE CUT UP ON SITE. ALL HW PIPEWORK TO BE DRAINED AND DEMOLISHED.
2. EXISTING BELOW GRADE WASHROOM E/A DUCTWORK AND FANS TO BE DEMOLISHED. ANY ASSOCIATED ROOF PENETRATIONS TO BE MADE GOOD.
3. EXISTING AHU REHEAT COILS AND ALL ASSOCIATED CONTROLS ARE TO BE DEMOLISHED. PRICE AS SEPERATE SCOPE OF WORK

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## SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION

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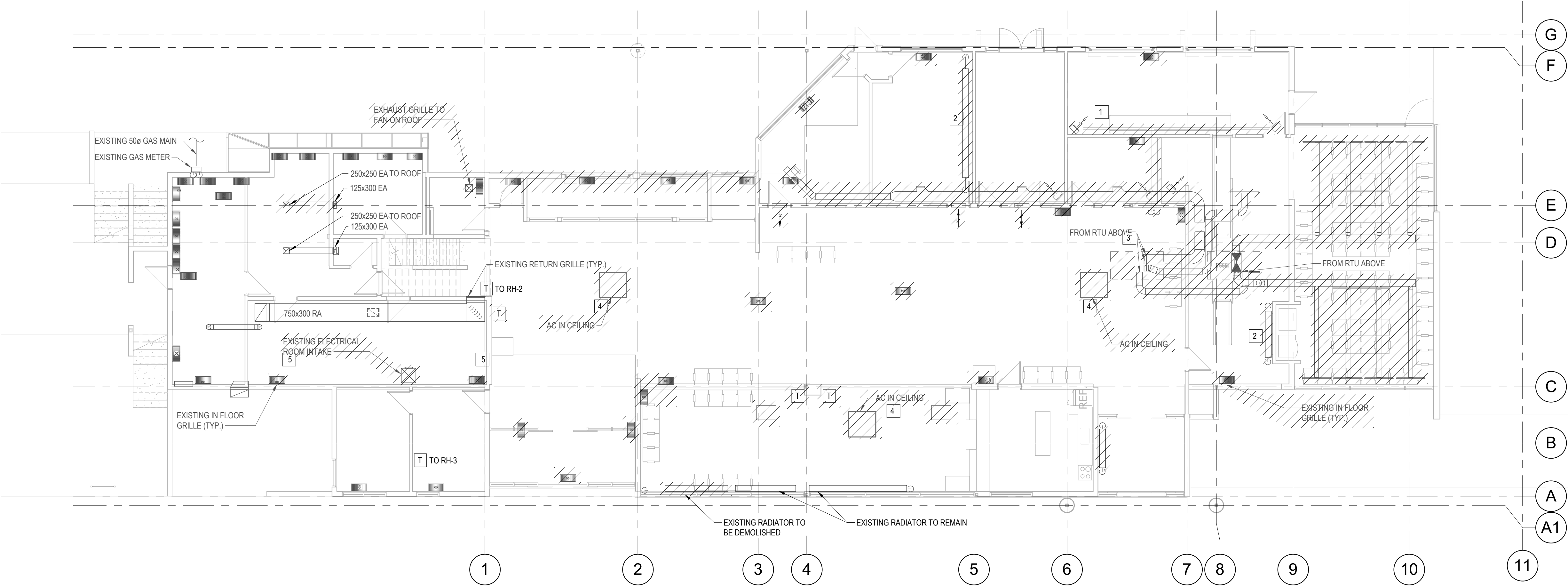
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**CRAWLSPACE -  
DEMO HVAC**

PROJECT SHEET

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1 M102 - LEVEL 1 - DEMO HVAC  
1 : 100

GENERAL NOTES:

1. REFER TO GENERAL DEMO NOTES ON M001
2. DEMOLISHED FLOOR GRILLES TO BE REMOVED AND FLOOR IS TO BE MADE GOOD

DRAWING NOTES:

- 1 EXISTING UNIT HEATERS, FORCED FLOW HEATERS AND ASSOCIATED HW PIPEWORK TO BE DRAINED AND DEMOLISHED. ASSOCAITED VALVES AND CONTROLS TO BE REMOVED FROM SITE.
- 2 EXISTING RADIATORS AND ASSOCIATED HW PIPEWORK TO BE DRAINED AND DEMOLISHED. ASSOCIATED VALVES AND CONTROLS TO BE REMOVED FROM SITE.
- 3 EXISTING RTU'S AND ASSOCIATED DUCTWORK TO BE DEMOLISHED
- 4 EXISTING ARRIVALS HALL FCU, REFRIGERANT PIPEWORK, ASSOCIATED CONDENSING UNIT AND ALL ASSOCIATED ACCESORIES POWER CONNECTIONS, CONTROLS, SUPPORTS, ETC. TO BE DEMOLISHED
- 5 AS A PART OF AHU-1 ADDITIONAL SCOPE OF WORK MECHANICAL CONTRACTOR IS TO CONFIRM THE EXISTENCE OF 2 FLOOR GRILLES IN THE EXISTING BOARD ROOM

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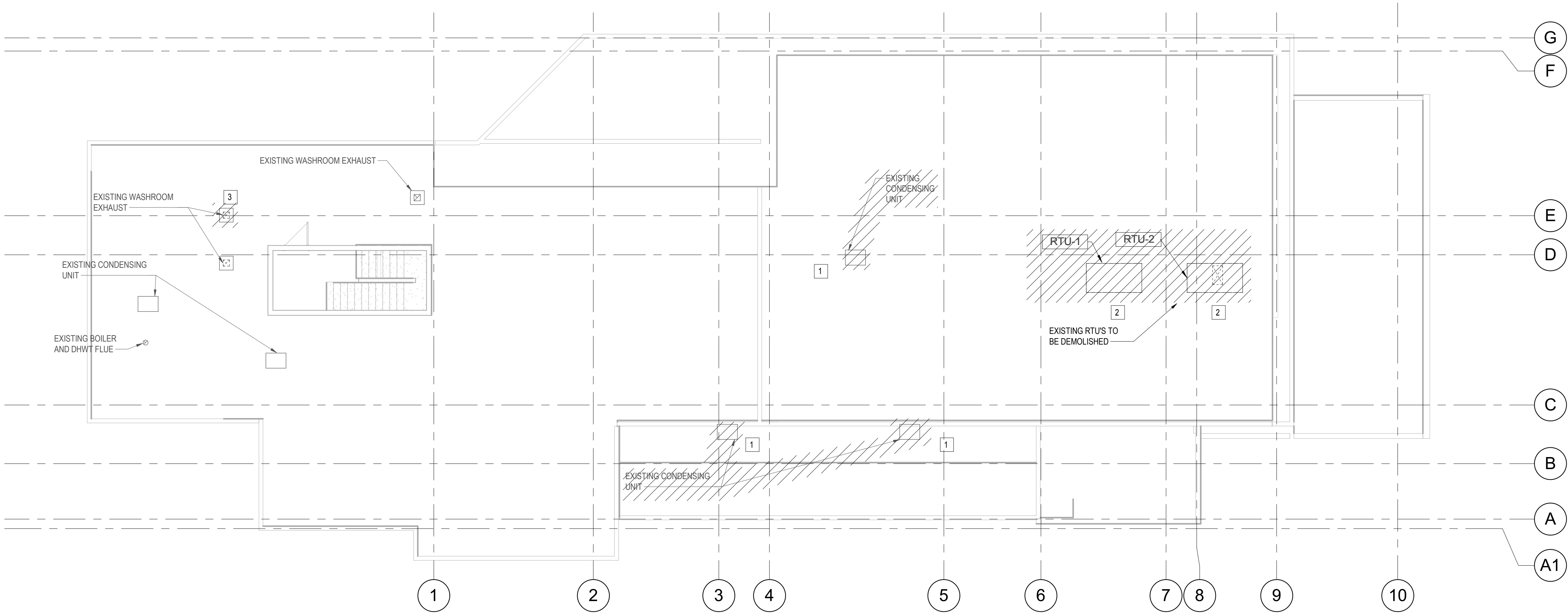
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<b>LEVEL 1 - DEMO HVAC</b>			
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1 M103 - ROOF - DEMO HVAC  
1 : 100

GENERAL NOTES:  
1. REFER TO GENERAL DEMO NOTES ON M001

DRAWING NOTES:  
1 REMOVE EXISTING CONDENSING UNITS CONNECTED TO EXISTING CEILING MOUNTED FAN COILS BELOW. REMOVE EXISTING PIPING SUPPORTS, POWER CONNECTIONS AND ALL ACCESSORIES  
2 REMOVE EXISTING ROOFTOP UNITS. REMOVE ASSOCAITED DUCTWORK, UNIT SUPPORTS, GAS PIPING, POWER CONNECTIONS, CONTROLS, AND ALL ACCESSORIES  
3 REMOVE EXISTING EXHAUST FAN INCLUDING DUCTWORK, ROOF CURB, POWER CONNECTIONS AND ACCESSORIES

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**ROOF - DEMO HVAC**

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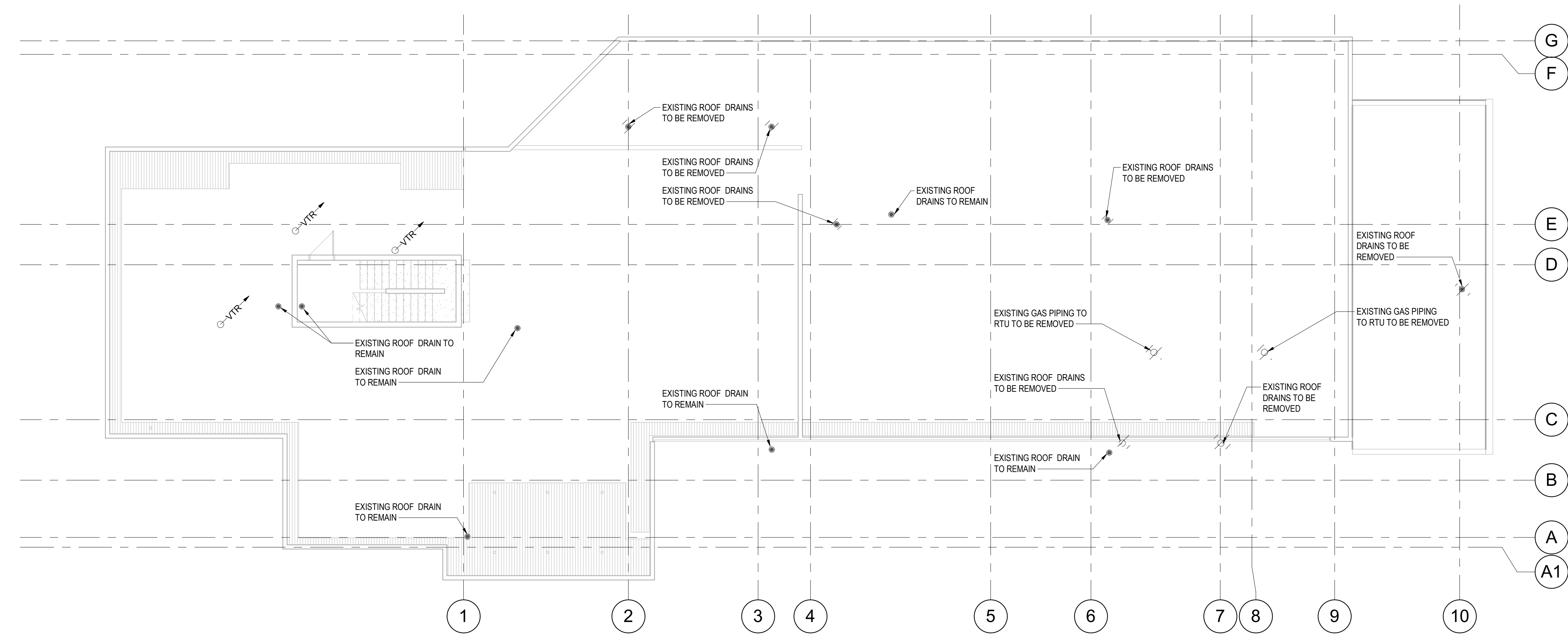
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**GENERAL NOTES:**

1. REFER TO GENERAL DEMO NOTES ON M001

2. EXISTING ROOF DRAINS TO BE REMOVED AND ROOF IS TO BE MADE GOOD

1 M106 - ROOF - DEMO PLUMBING  
1:100

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7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
12.	09/08/2017	ISSUED FOR CONSTRUCTION

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**SMITHERS  
REGIONAL  
AIRPORT  
TERMINAL  
EXPANSION**

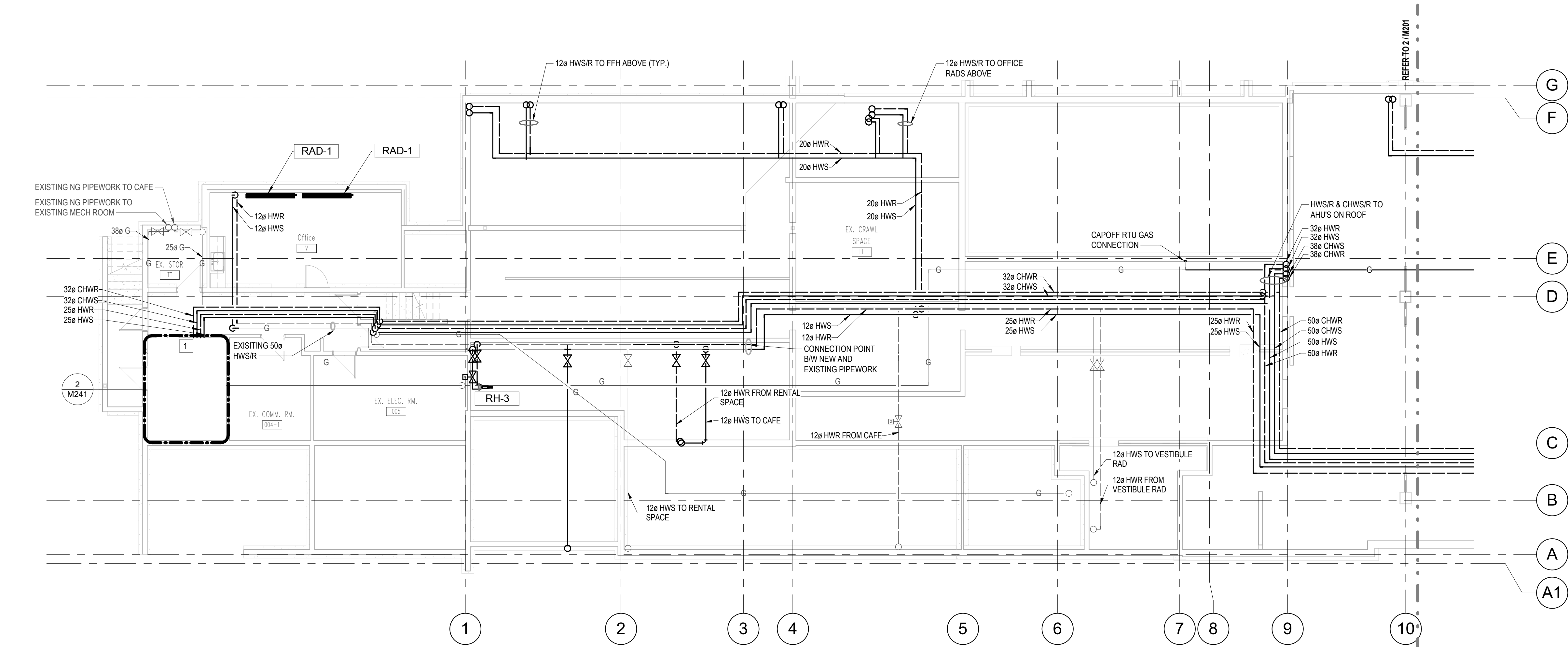
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SMITHERS, BC  
V0J 2N2



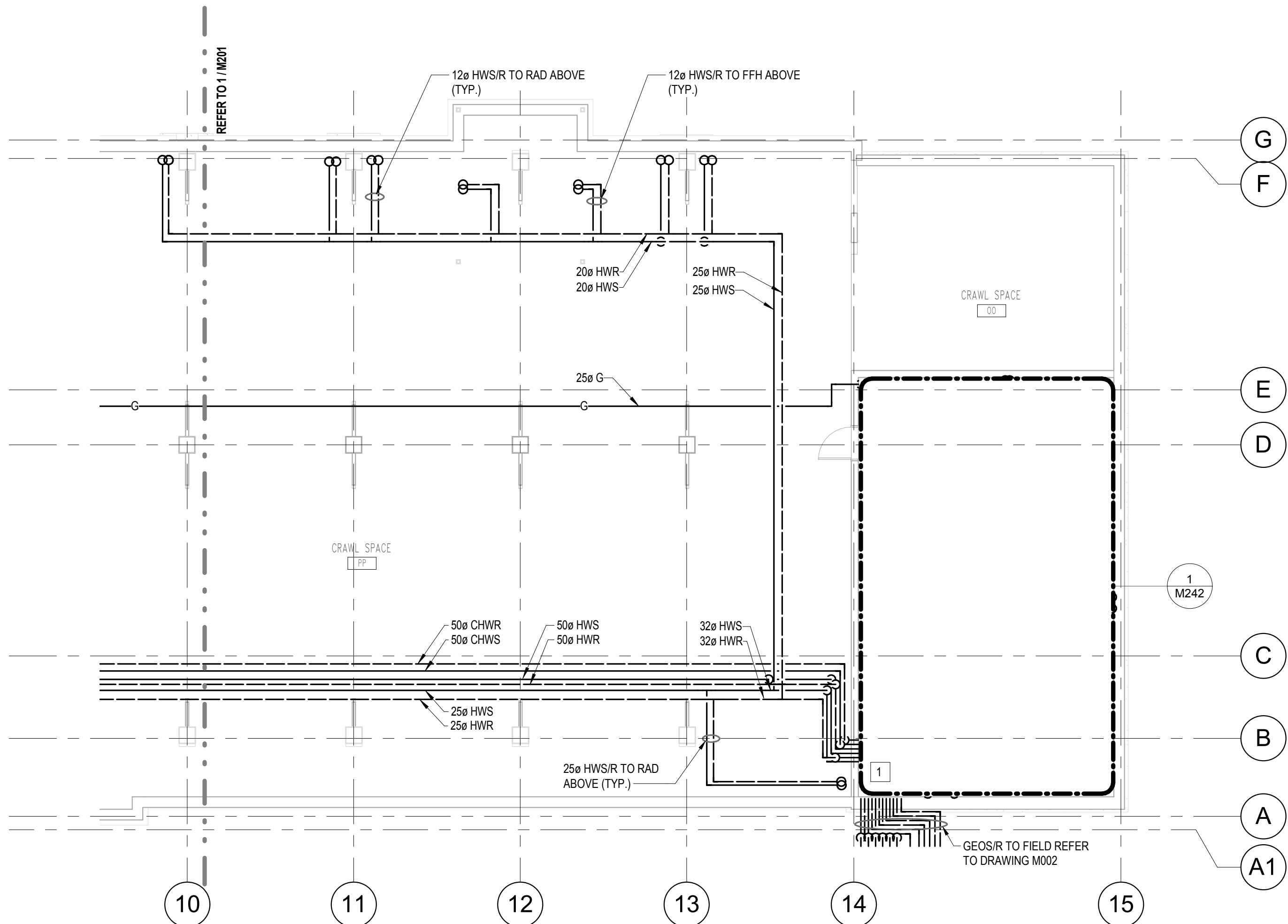
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SCALE FILE NAME	1 : 100 DATE	2017/08/09
DRAWING TITLE <b>ROOF - DEMO PLUMBING</b>		
PROJECT		SHEET
<b>151014.000 M106</b>		
REVISION No.		12.

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1 M201 - CRAWL SPACE - HYDRONICS - NORTH  
1:100



2 M201 - CRAWL SPACE - HYDRONICS - SOUTH  
1:100

DRAWING NOTES:

- 1 ALL PENETRATIONS THROUGH FIRE RATED WALLS TO BE FIRE RATED IN LINE WITH ARCHITECTS SPECIFICATIONS.

GENERAL NOTES:

1. SIZES OF EXISTING PIPEWORK INCLUDED ON M101.

REVISION No.	DATE	DESCRIPTION
1.	14/12/2016	ISSUED FOR DD
2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
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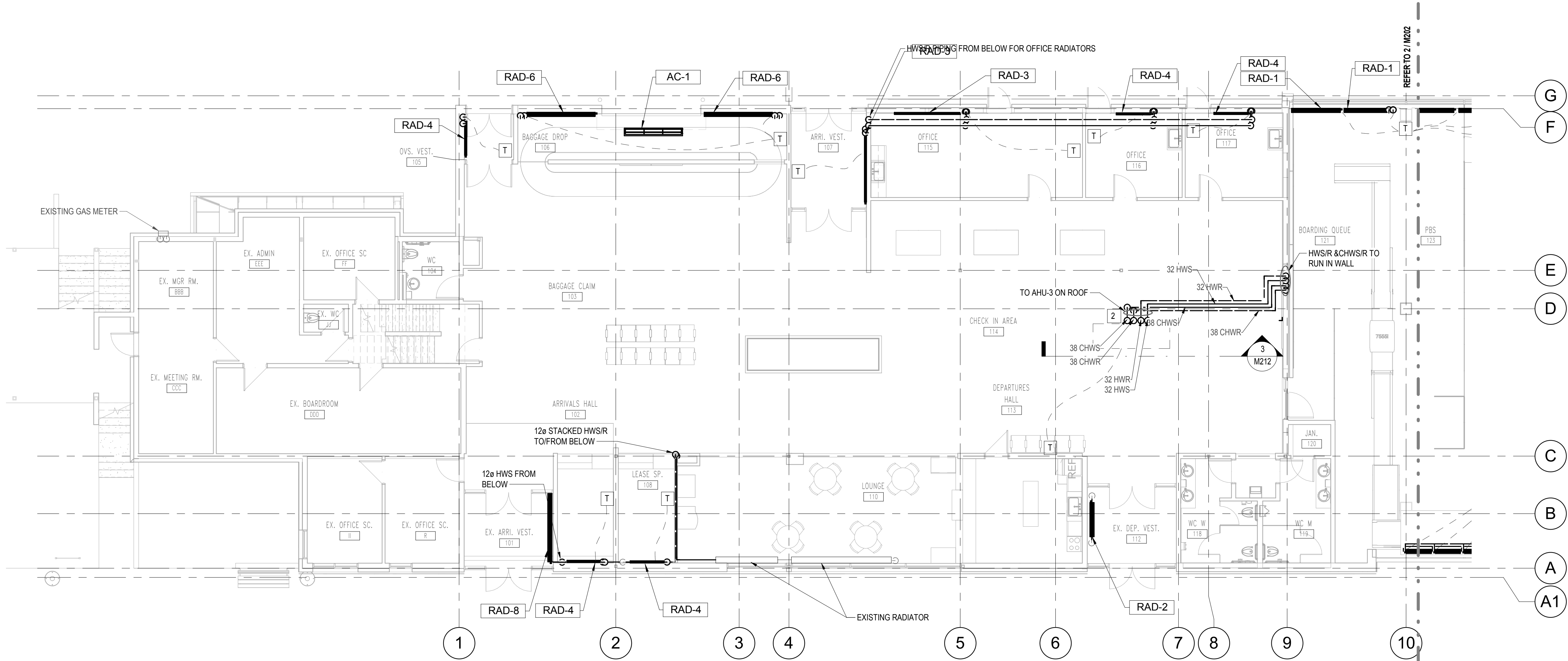
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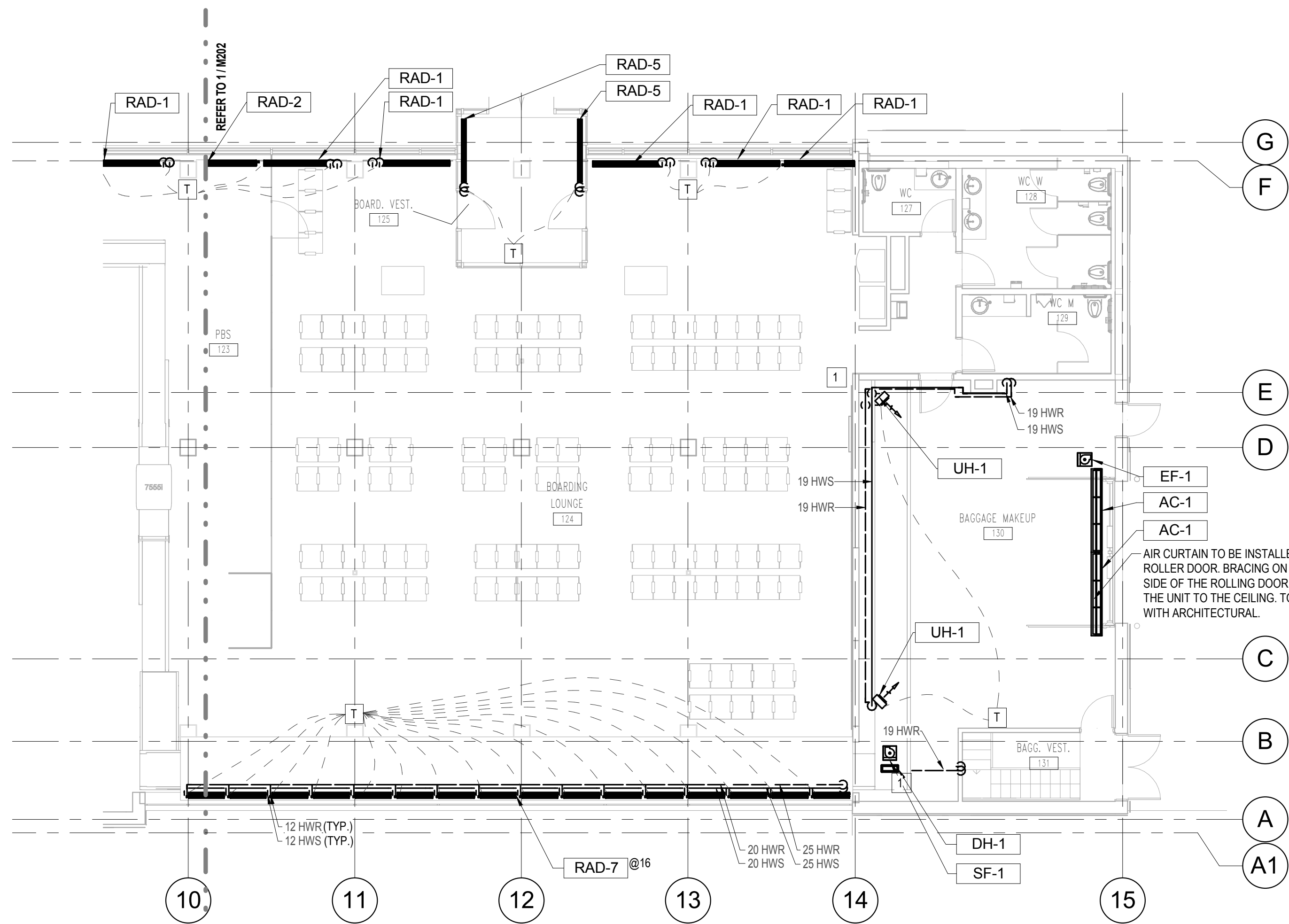
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DRAWING TITLE <b>CRAWLSPACE - HYDRONICS</b>		
PROJECT <b>151014.000 M201</b>		SHEET 12

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1 M202 - LEVEL 1 - HYDRONICS - NORTH  
1:100



2 M202 - LEVEL 1 - HYDRONICS - SOUTH  
1:100

#### GENERAL NOTES:

1. ALL RADIATORS TO BE C/W THERMOSTAT RADIATOR VALVE AND ISOLATION VALVE.
2. ALL FORCED FLOW HEATERS TO BE C/W ISOALTION VALVES AND THERMOSTAT CONTROL.
3. SIZES OF EXISTING PIPEWORK INCLUDED ON M102.
4. TEMPERATURE SENSOR TO BE INSTALLED AT 1500 AFFL.

#### DRAWING NOTES:

- 1 REFER TO MECHANICAL DETAIL M502 FOR UNIT HEATER INSTALATION DETAIL
- 2 CHW AND HW PIPING TO RISE UP INTO AHU-3 PIPING VESTIBULE. PROVIDE ISOLATION VALVES AND DRAIN CONNECTIONS ON PIPING DIRECTLY BELOW UNIT.

REVISION No.	DATE	DESCRIPTION
1.	14/12/2016	ISSUED FOR DO
2.	11/01/2017	ISSUED FOR REVISED DO
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
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FILE NAME

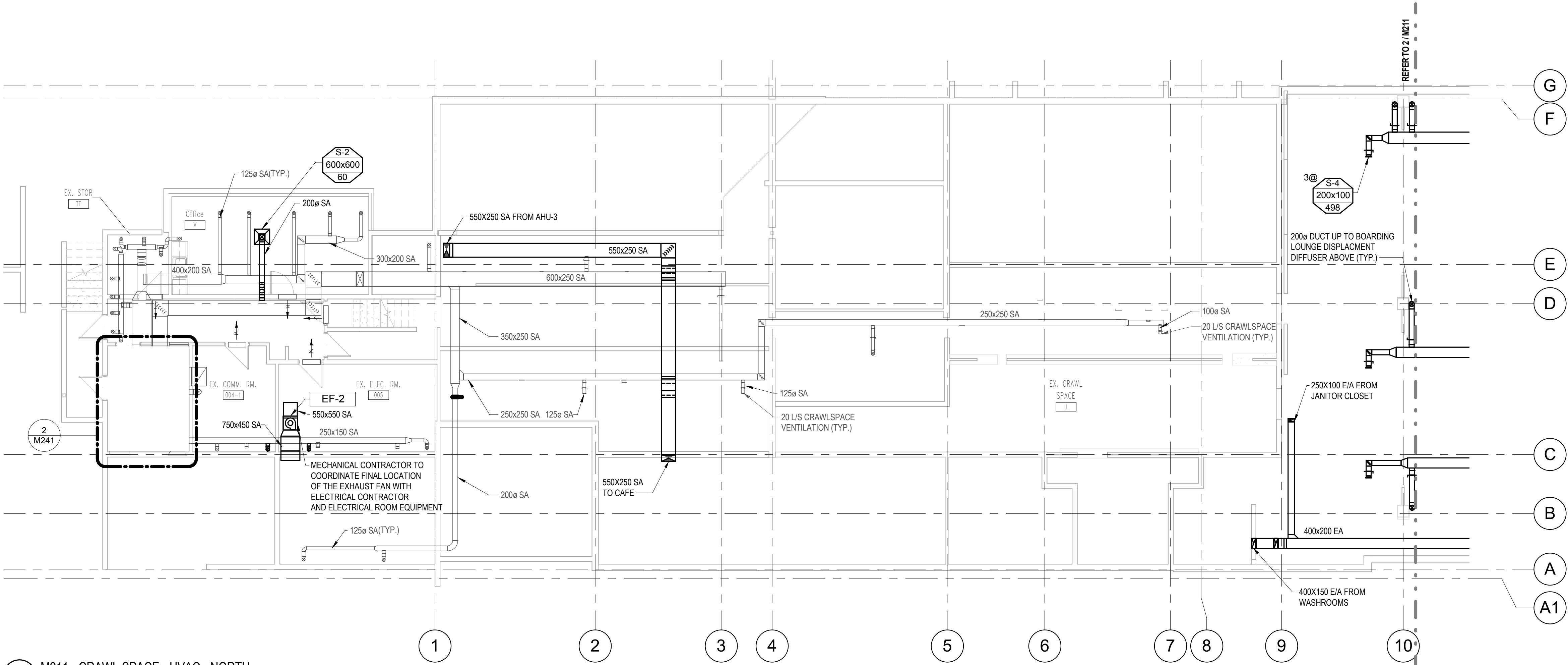
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**LEVEL 1 -  
HYDRONICS**

PROJECT SHEET

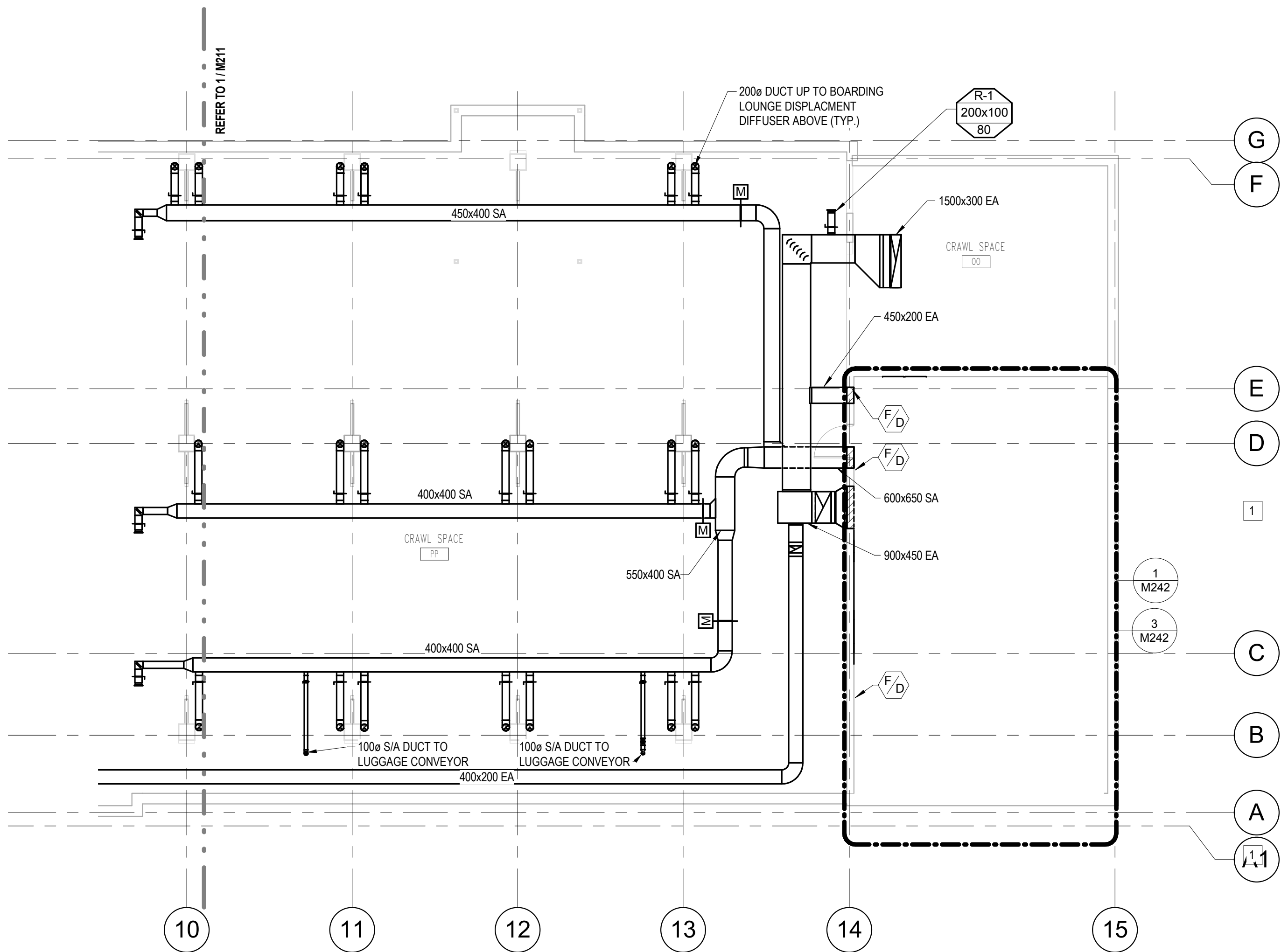
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1 M211 - CRAWL SPACE - HVAC - NORTH  
1:100



2 M211 - CRAWL SPACE - HVAC - SOUTH  
1:100

GENERAL NOTES:

1. ALL DUCTWORK PENETRATING FIRE RATED WALLS TO BE EQUIPPED WITH A FIRE DAMPER AND ALL OTHER SERVICES MUST BE FIRE STOPPED IN ACCORDANCE WITH THE FIRE ASSEMBLY RATING.

REVISION No.	DATE	DESCRIPTION
1.	14/12/2016	ISSUED FOR DD
2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
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10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
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SCALE 1:100  
DATE 2017/08/09

DRAWING TITLE

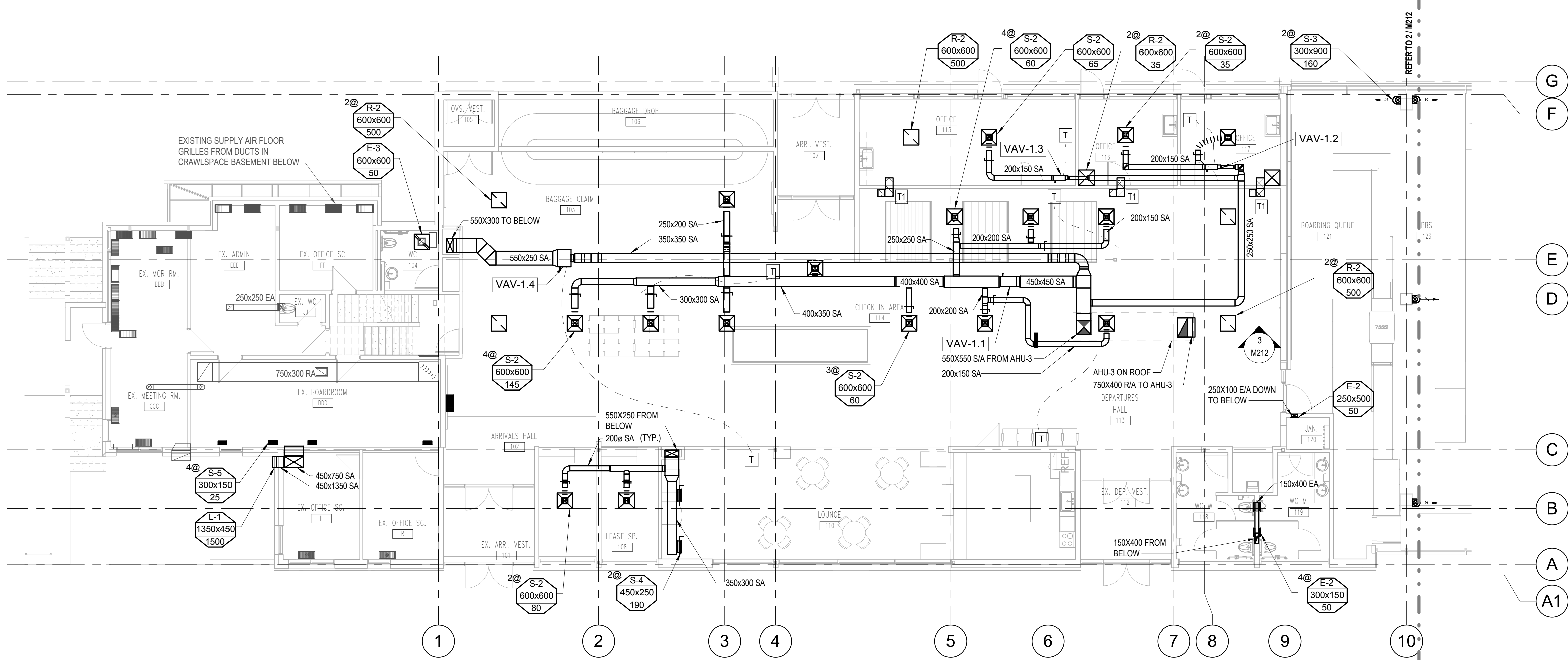
**CRAWLSPACE - HVAC**

PROJECT SHEET

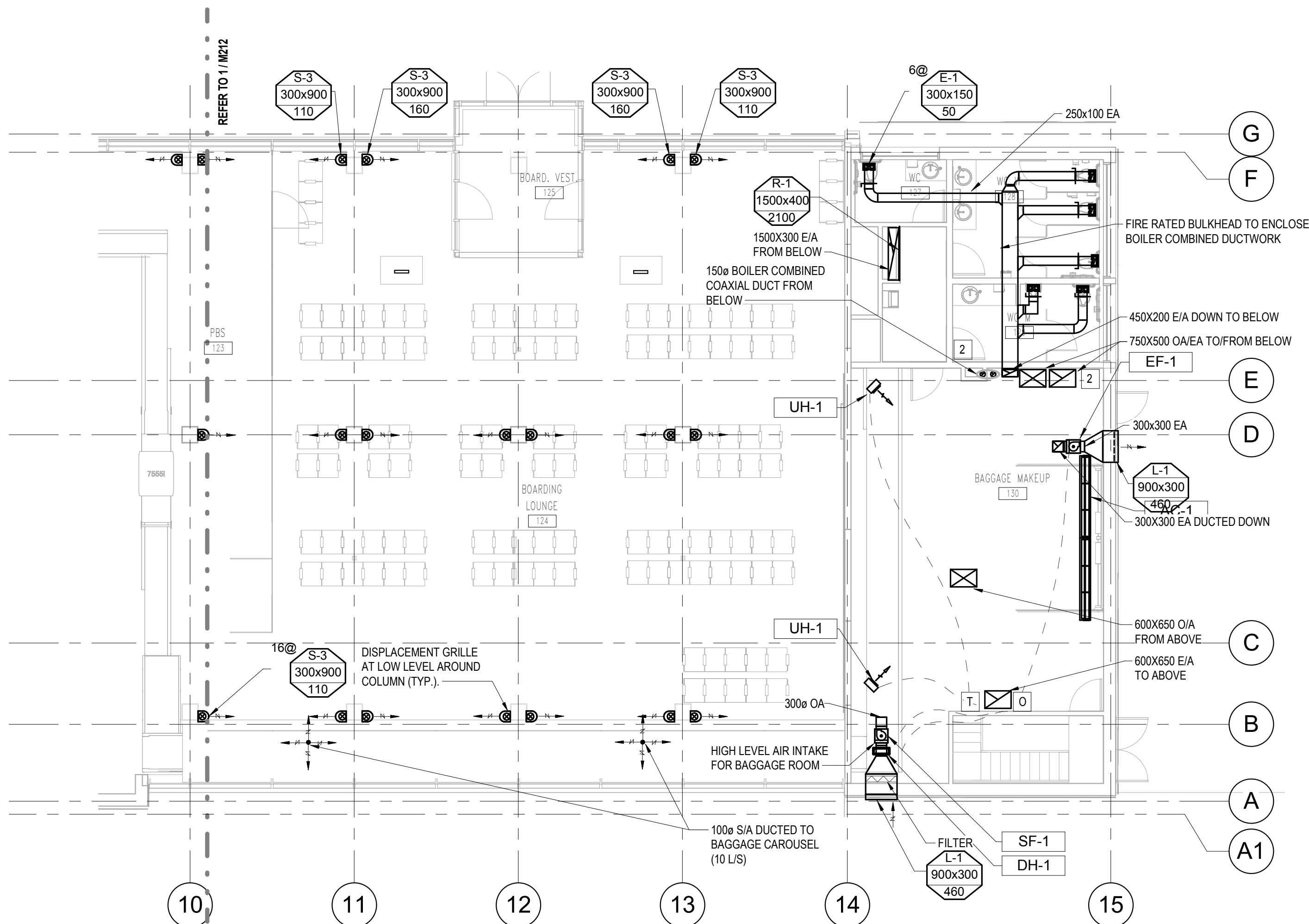
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1 M212 - LEVEL 1 - HVAC - NORTH  
1:100



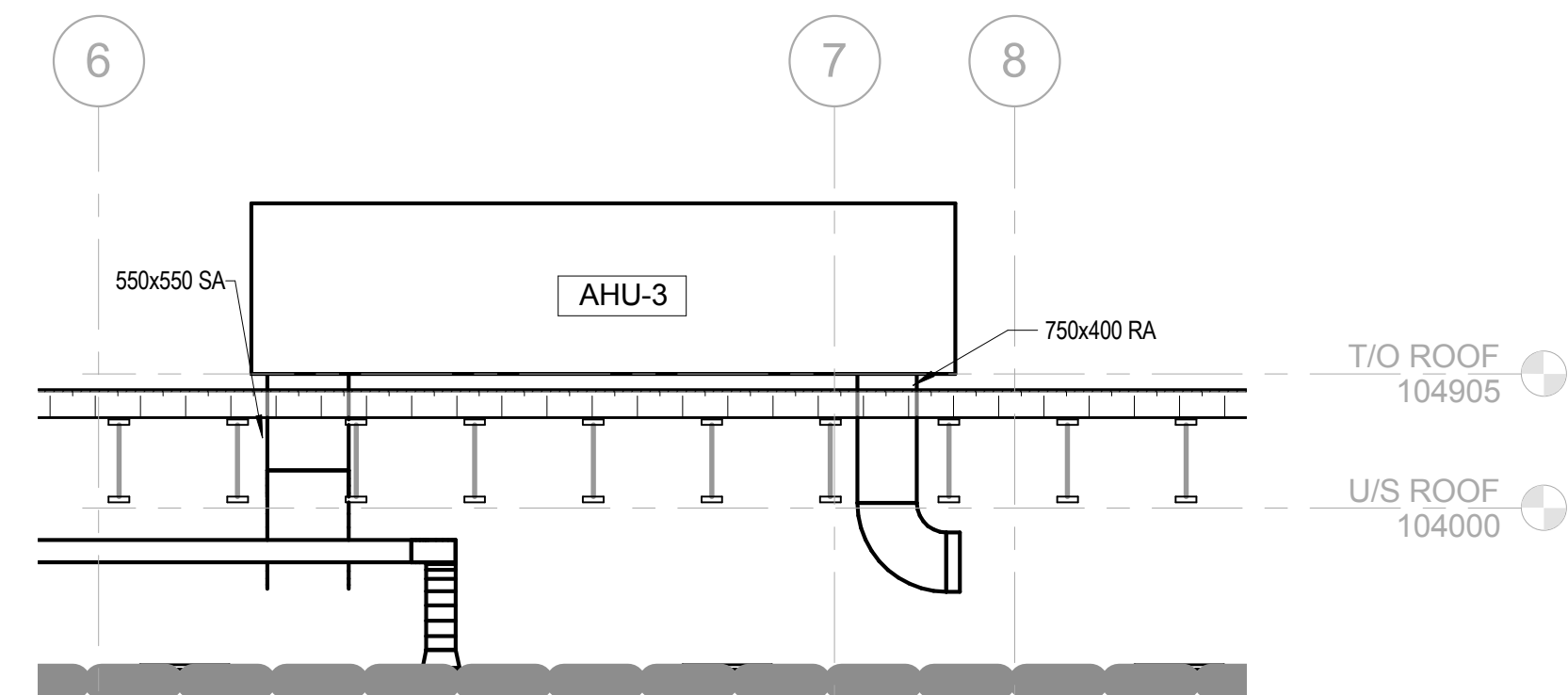
2 M212 - LEVEL 1 - HVAC - SOUTH  
1:100

#### DRAWING NOTES:

- 1 ALL PENETRATIONS THROUGH FIRE RATED WALLS MUST BE FIRE RATED IN LINE WITH ARCHITECTS SPECIFICATIONS.
- 2 PROVIDE FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FLOOR OF BAGGAGE MAKEUP ROOM / CEILING OF MECHANICAL ROOM

#### GENERAL NOTES:

1. SIZES OF EXISTING DUCTWORK INCLUDED ON M102.



3 AHU-3 SECTION  
1:48

REVISION No.	DATE	DESCRIPTION
1.	14/12/2016	ISSUED FOR DD
2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
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FILE NAME

DRAWING TITLE

### LEVEL 1 - HVAC

PROJECT SHEET

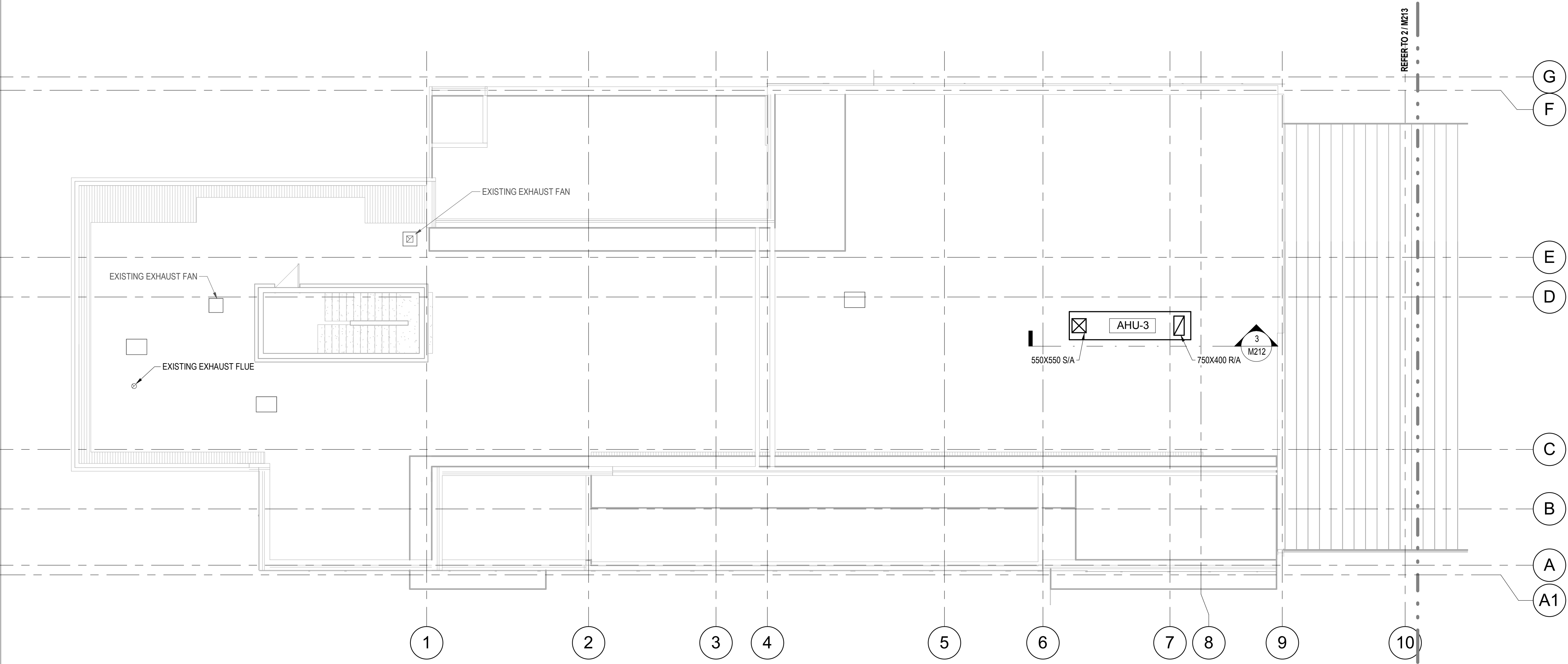
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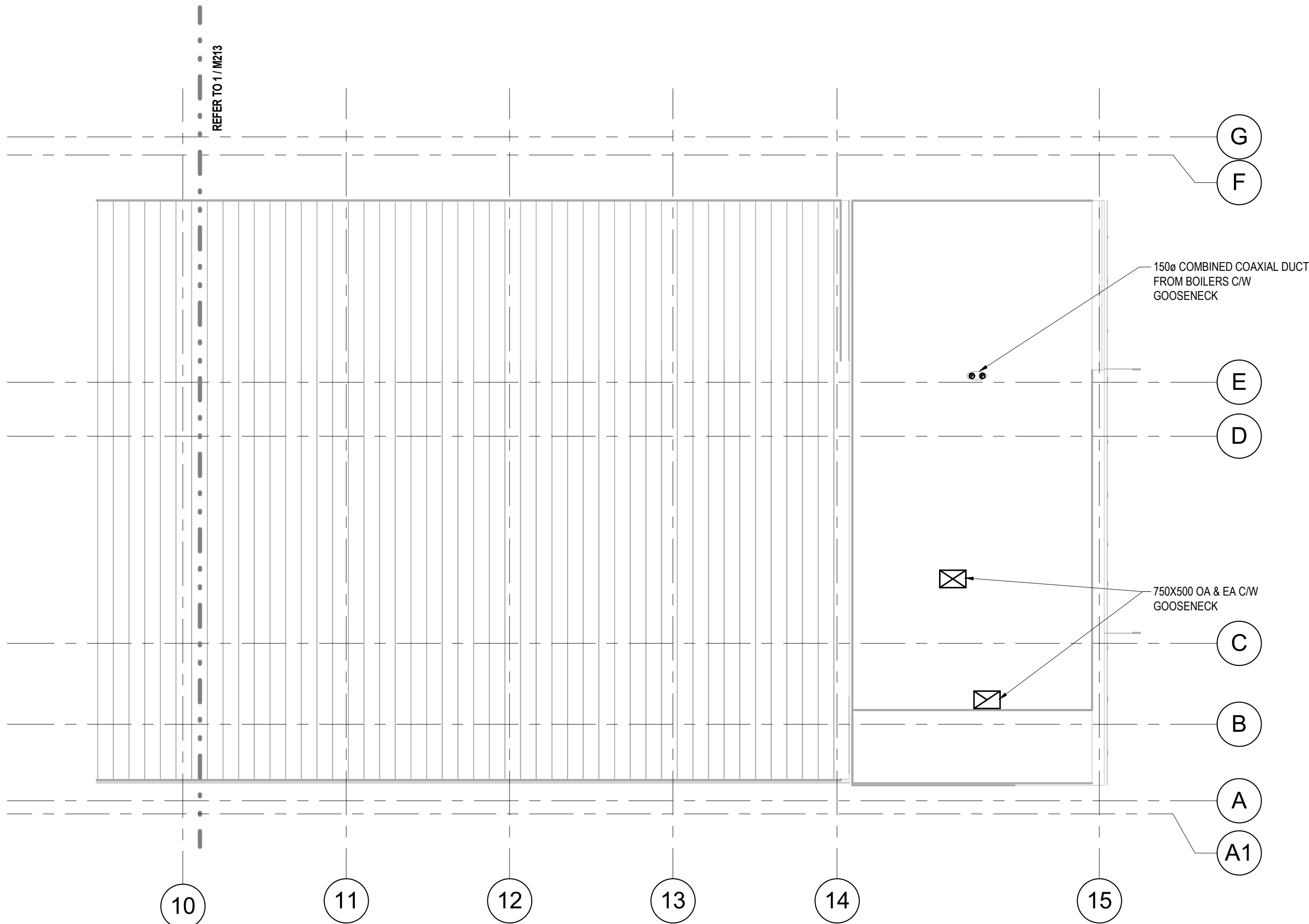
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1 M213 - ROOF - HVAC - NORTH  
1 : 100



2 M213 - ROOF - HVAC - SOUTH  
1 : 100

REVISION No.	DATE	DESCRIPTION
1.	14/12/2016	ISSUED FOR DD
2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
12.	09/08/2017	ISSUED FOR CONSTRUCTION

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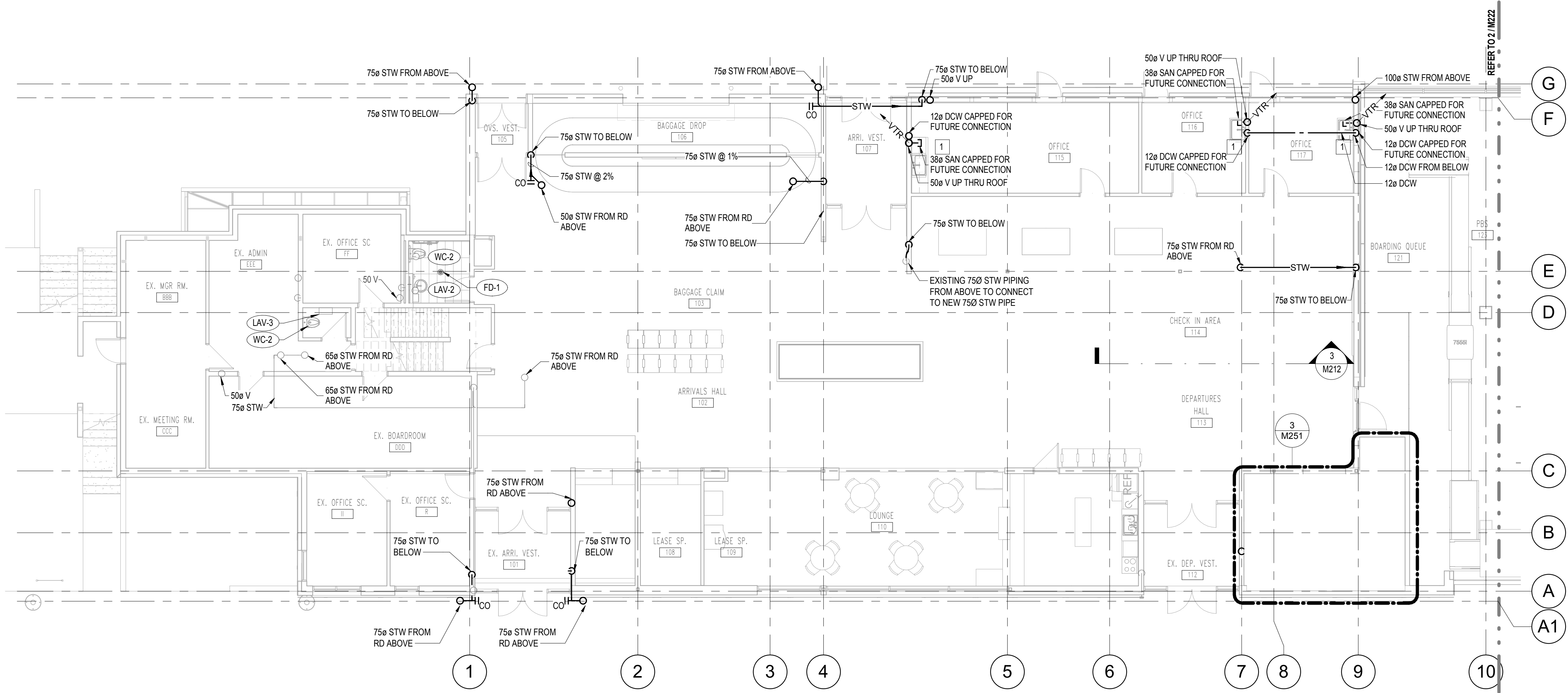
**SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION**

6421 AIRPORT ROAD  
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V0J 2N2

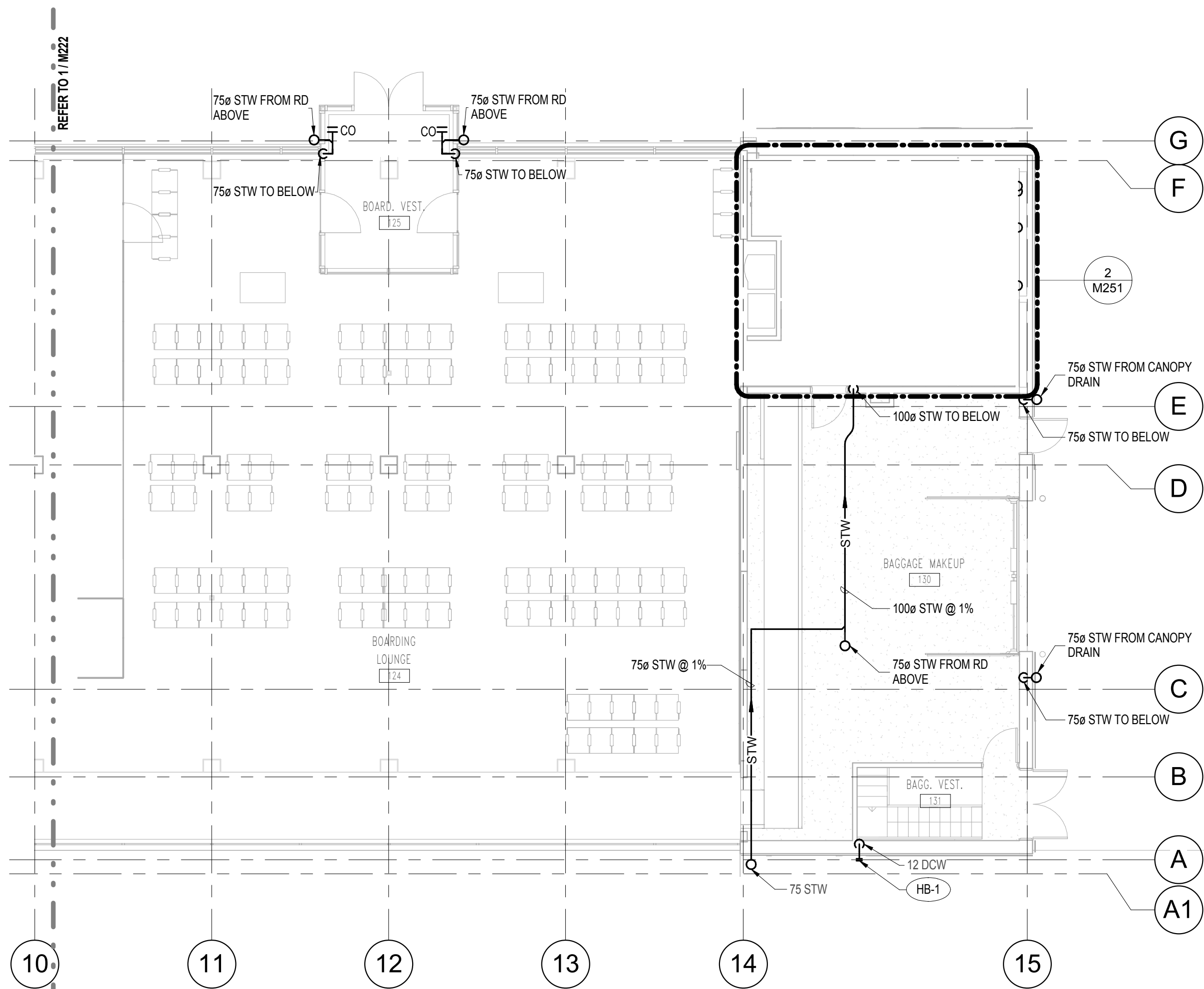
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DRAWING TITLE		
<b>ROOF - HVAC</b>		
PROJECT	SHEET	
<b>151014.000 M213</b>		
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1 M222 - LEVEL 1 - PLUMBING - NORTH  
1:100



2 M222 - LEVEL 1 - PLUMBING - SOUTH  
1:100

DRAWING NOTES:

- 1 UTILITIES TO TENANT SPACES TO BE CAPPED OFF FOR FUTURE CONNECTION

GENERAL NOTES:

1. SIZES OF EXISTING PIPEWORK INCLUDED ON M105.

REVISION No.	DATE	DESCRIPTION
1.	14/12/2016	ISSUED FOR DD
2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
12.	09/08/2017	ISSUED FOR CONSTRUCTION

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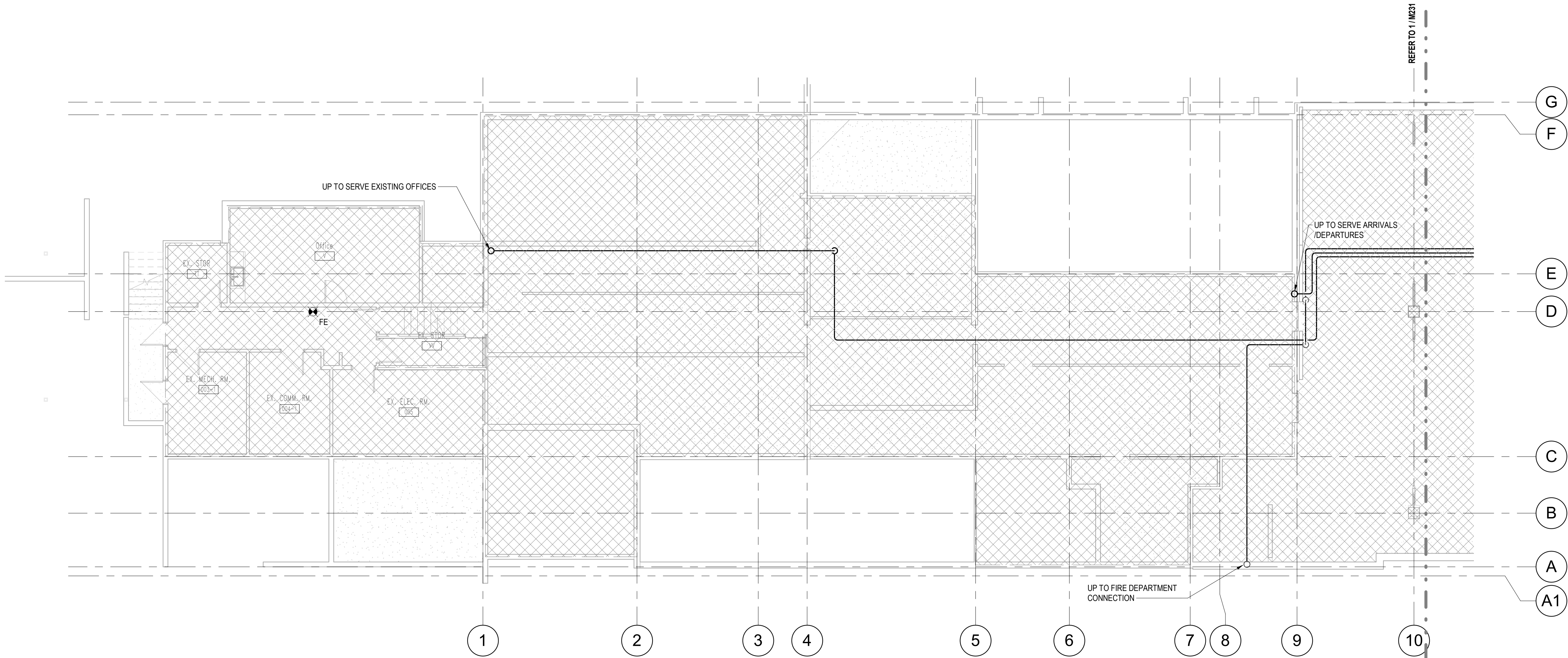
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DRAWING TITLE		
<b>LEVEL 1 - PLUMBING</b>		
PROJECT		SHEET
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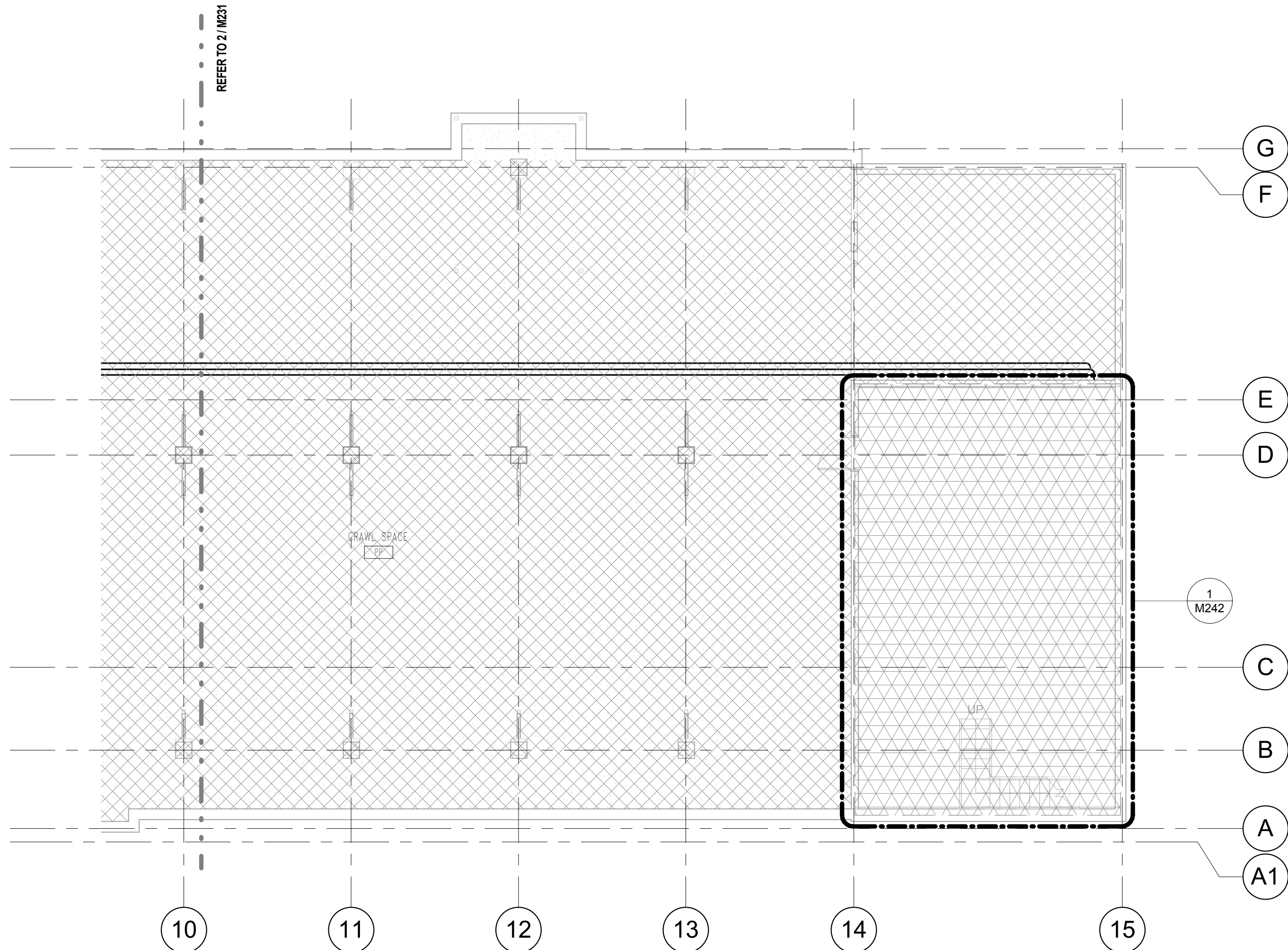




2 M231 - CRAWL SPACE - FIRE PROTECTION - NORTH  
1:100

**FIRE ZONING LEGEND**

- WET ZONE 1 LIGHT HAZARD GROUP 1
- WET ZONE 2 ORDINARY HAZARD GROUP 2



1 M231 - CRAWL SPACE - FIRE PROTECTION - SOUTH  
1:100

REVISION No.	DATE	DESCRIPTION
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2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
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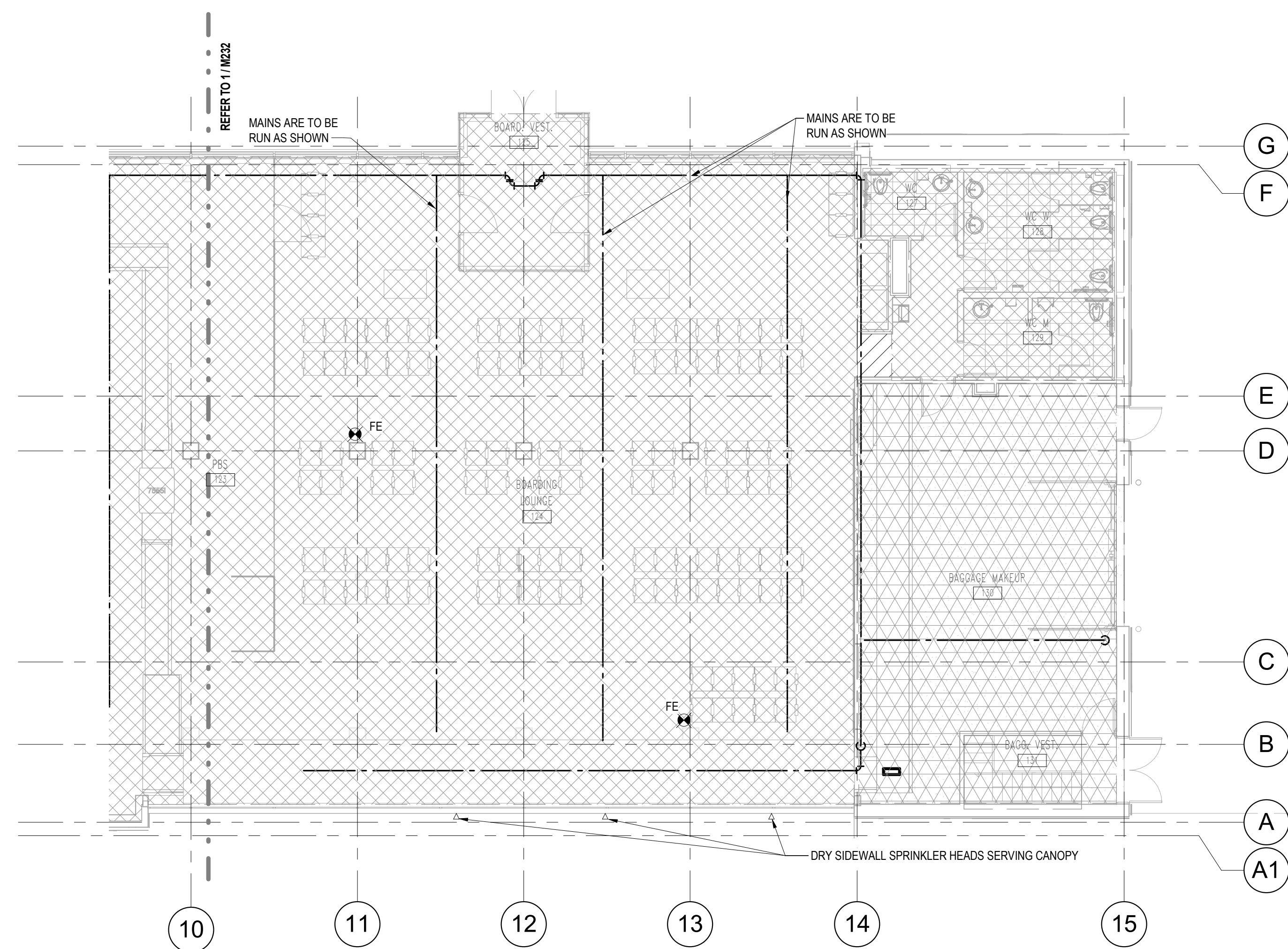
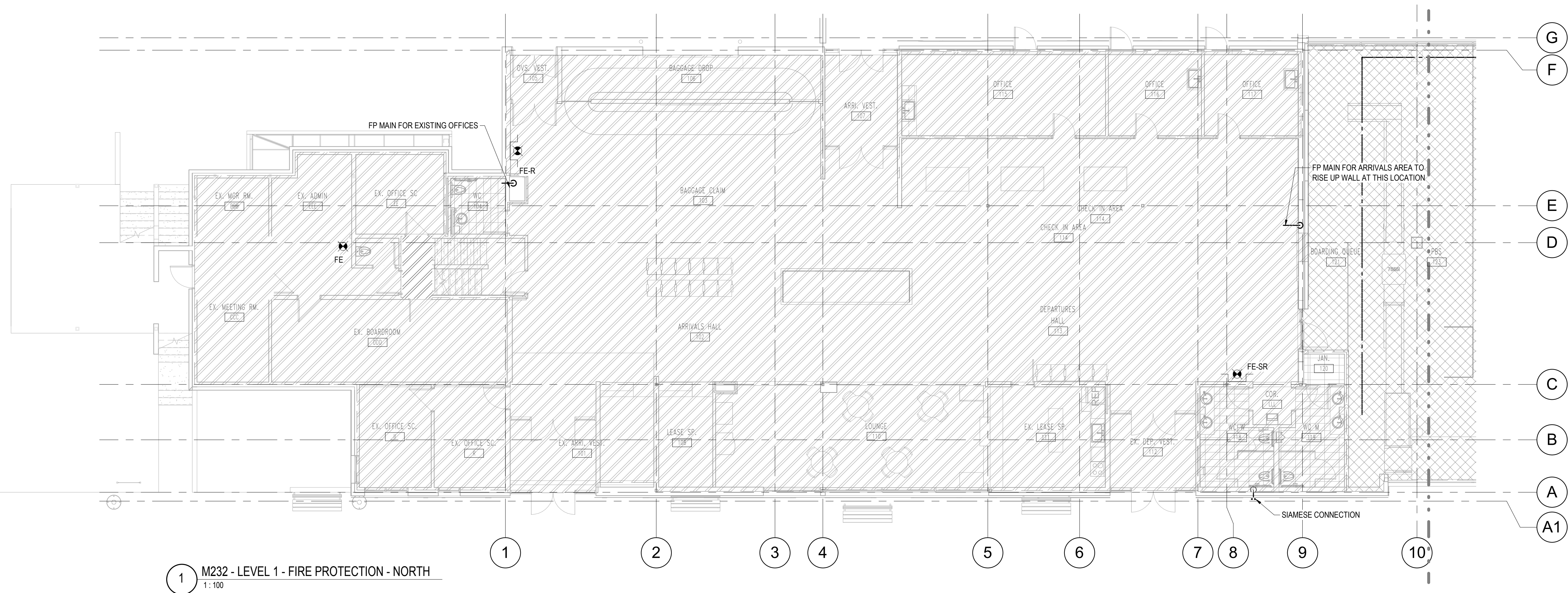
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**CRAWLSPACE - FIRE PROTECTION**

PROJECT SHEET

**151014.000 M231**

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11.	19/07/2017	POST TENDER ADDENDUM M-1
12.	09/09/2017	ISSUED FOR CONSTRUCTION

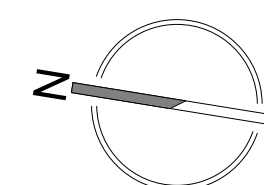
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## LEVEL 1 - FIRE PROTECTION

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**151014.000 M232**

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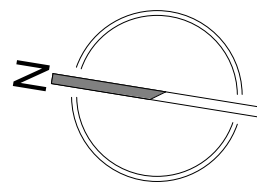
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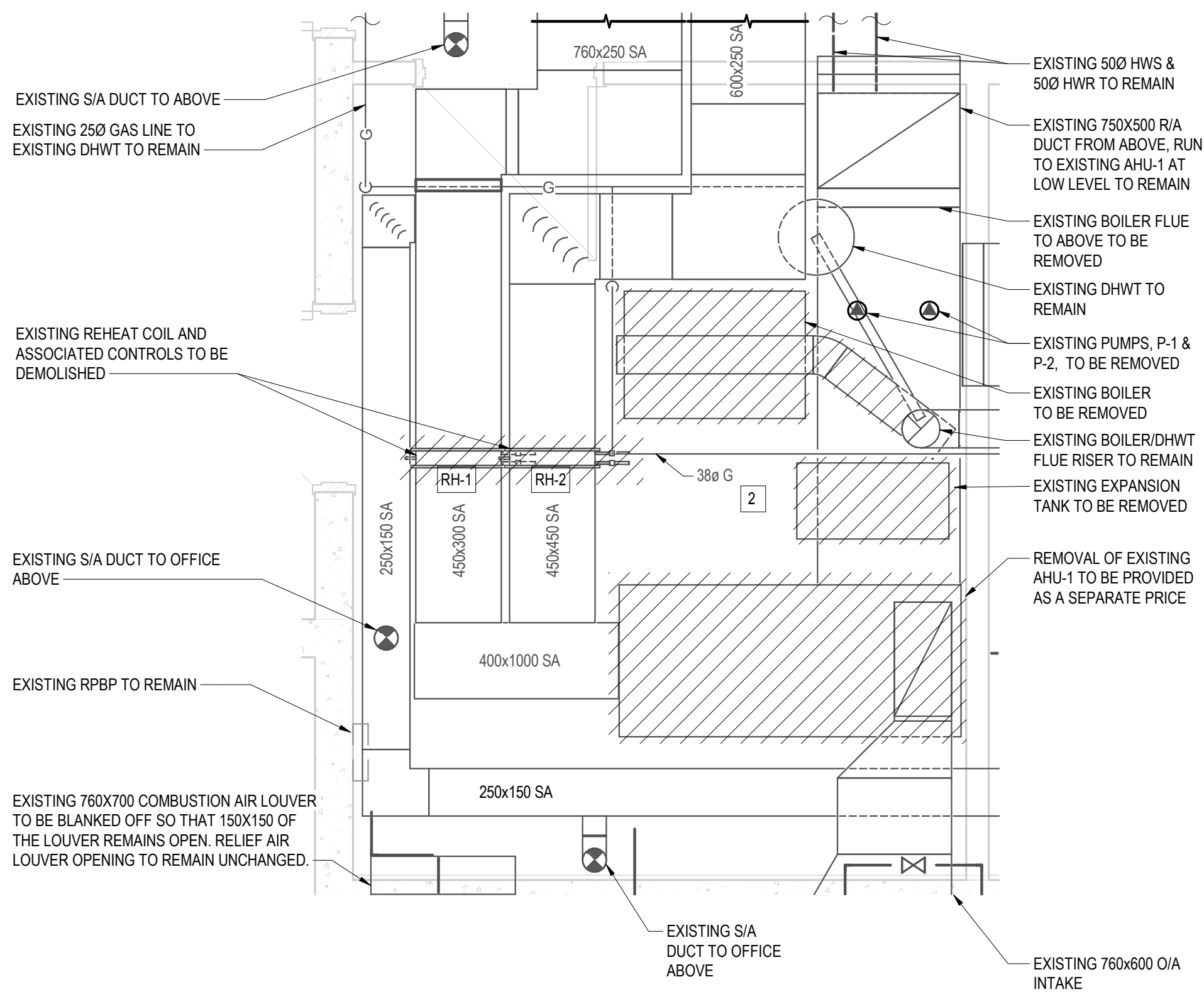
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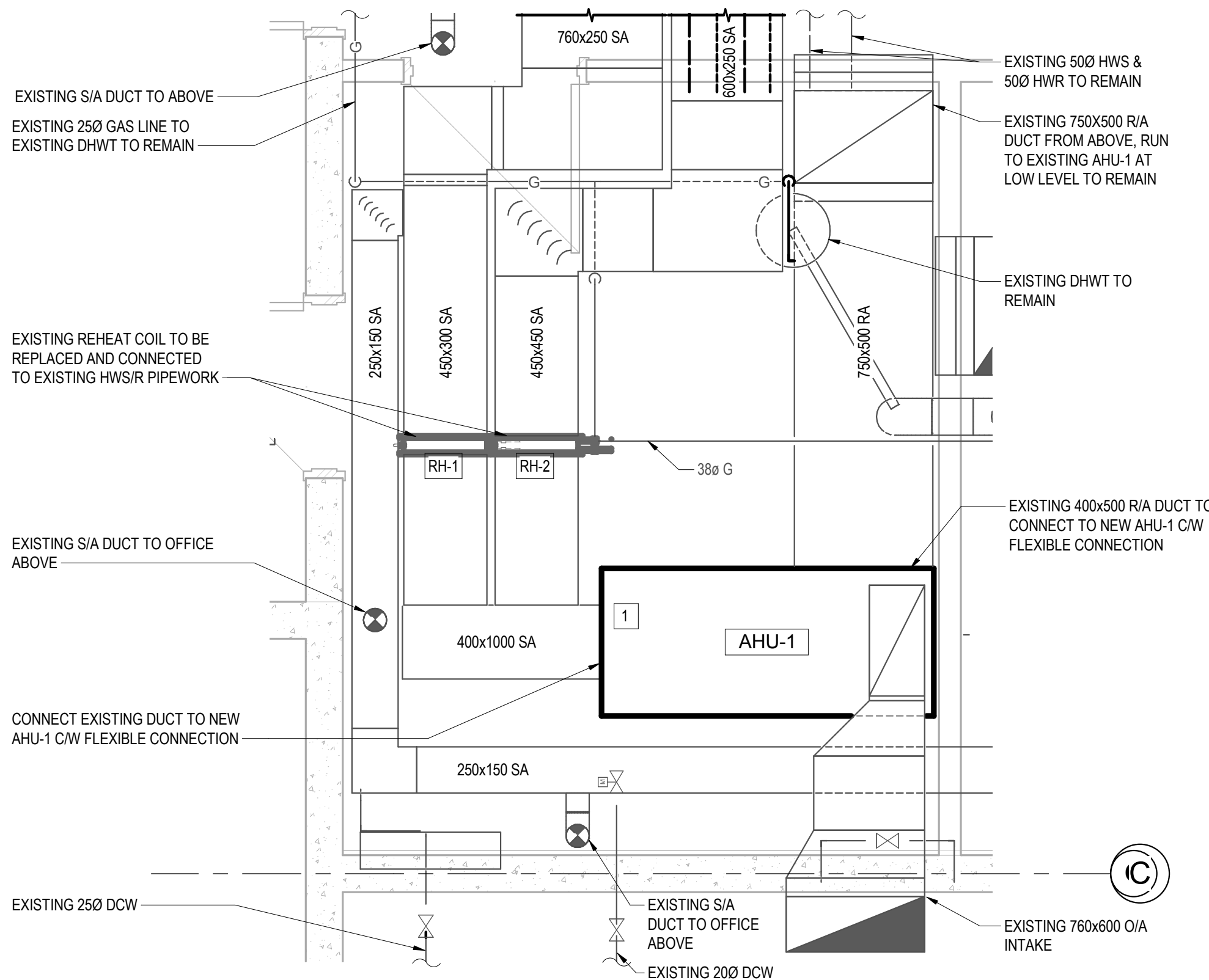
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### DRAWING NOTES:

- 1 SUPPLY AND INSTALL OF AHU-1 TO BE PROVIDED AS A SEPARATE PRICE. NEW AHU TO BE BROUGHT TO SITE IN PIECES AND ASSEMBLED ON SITE. NEW AHU TO CONNECT TO EXISTING DISTRIBUTION DUCTWORK. NEW AHU-1 AND EXISTING S/A DUCTWORK TO BE SUPPORTED ON RAISED FRAME.
- 2 EXISTING DHWT AND CONTROLS REMAIN.



1 EXISTING MECH ROOM (DEMOLITION)  
1 : 25



2 EXISTING MECH ROOM (NEW WORK)  
1 : 25

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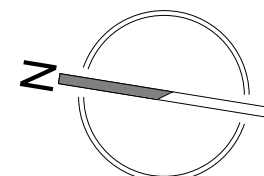
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2.	11/01/2017	ISSUED FOR REVISED DD
3.	27/01/2017	ISSUED FOR 30% WD
4.	23/02/2017	ISSUED FOR 60% WD
5.	17/03/2017	ISSUED FOR 90% WD
6.	11/04/2017	ISSUED FOR TENDER
7.	25/04/2017	ADDENDUM M-1
8.	28/04/2017	ADDENDUM M-2
10.	12/05/2017	ADDENDUM M-3
11.	19/07/2017	POST TENDER ADDENDUM M-1
12.	09/08/2017	ISSUED FOR CONSTRUCTION

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## SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION

6421 AIRPORT ROAD  
SMITHERS, BC  
V0J 2N2



DRAWN BY DF  
CHECKED NB  
P: 250-384-2131  
E: info@moorewilson.ca

SCALE As indicated  
DATE 2017/08/09  
FILE NAME

DRAWING TITLE

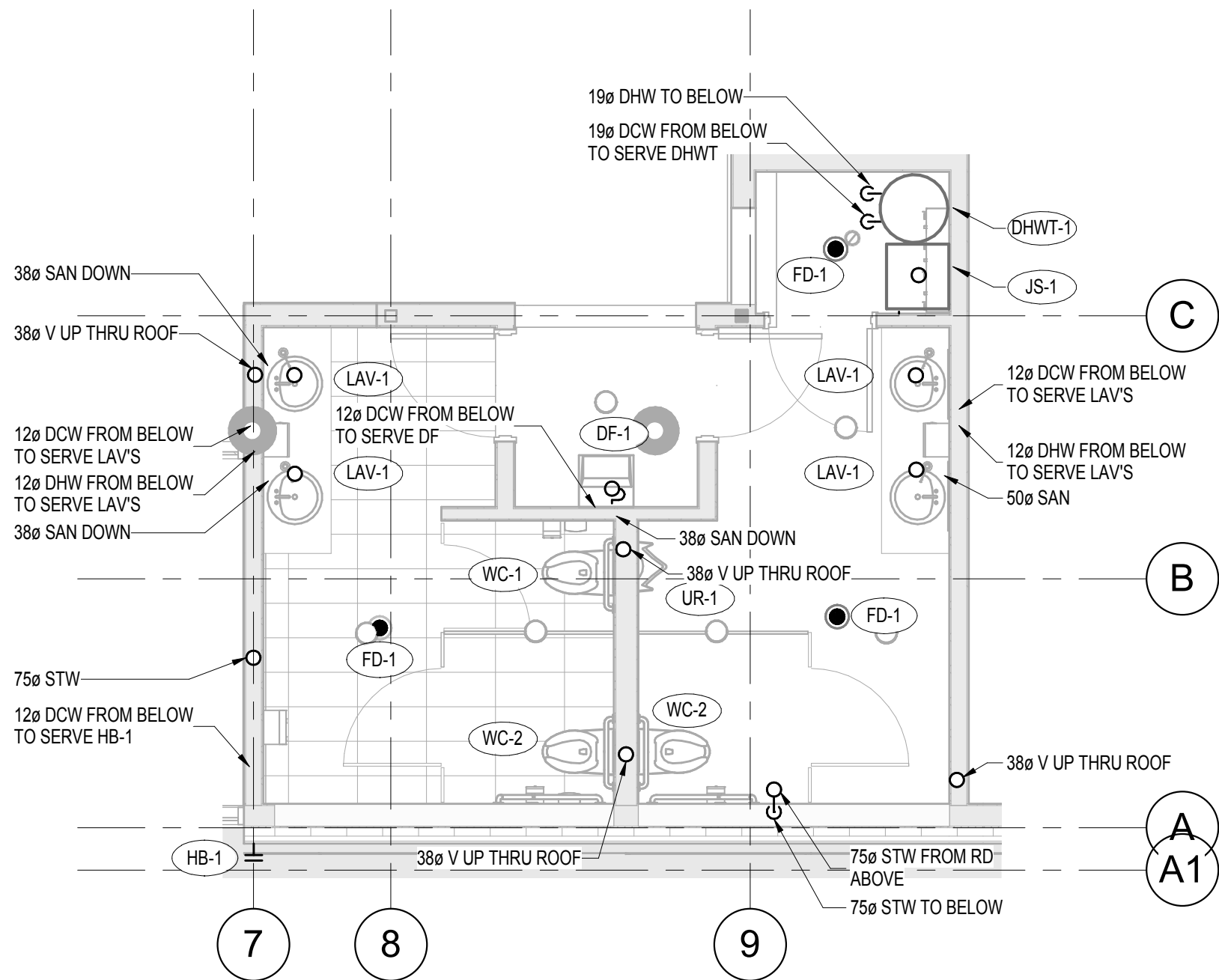
### WASHROOM LAYOUTS

PROJECT SHEET

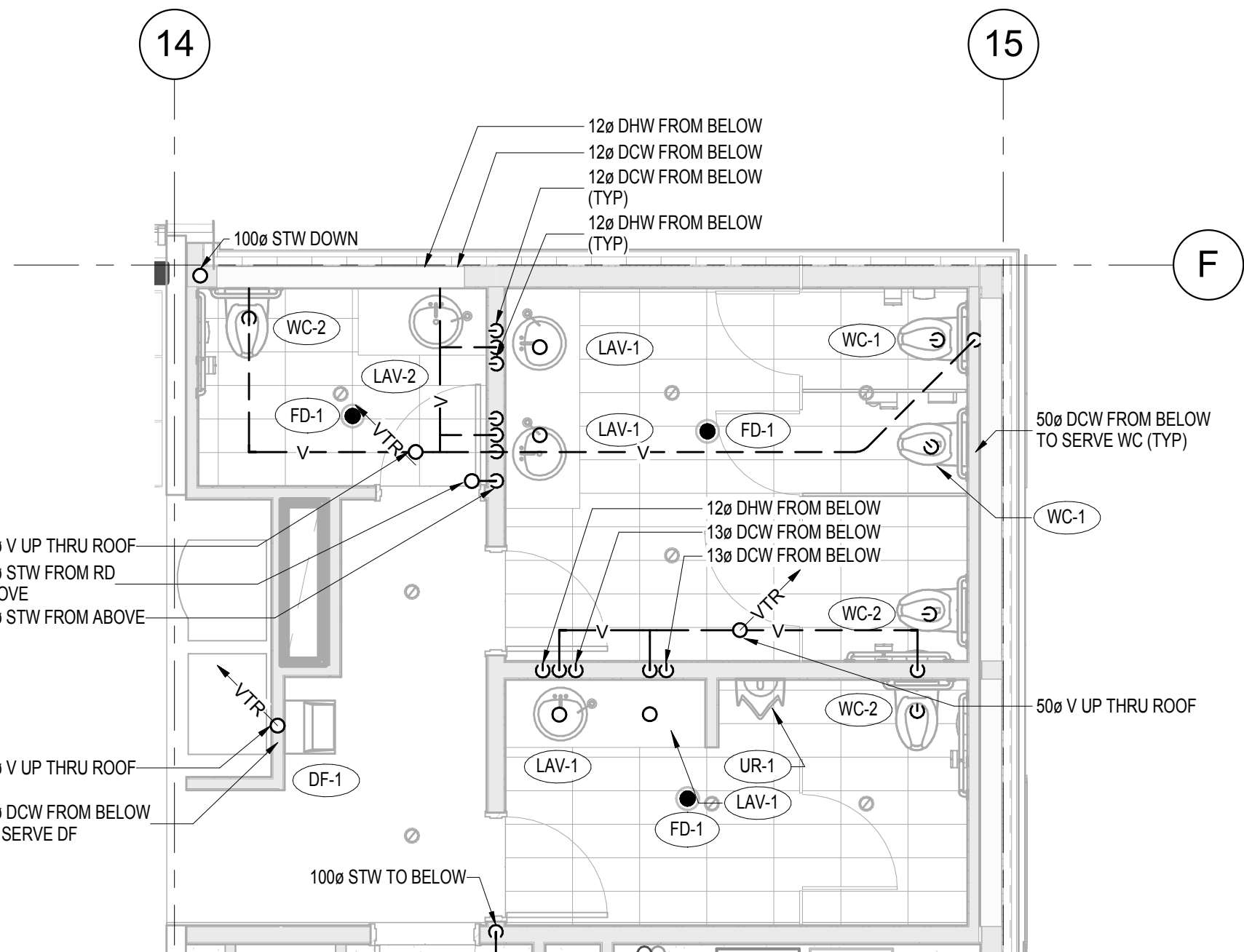
## 151014.000 M251

REVISION No. 12

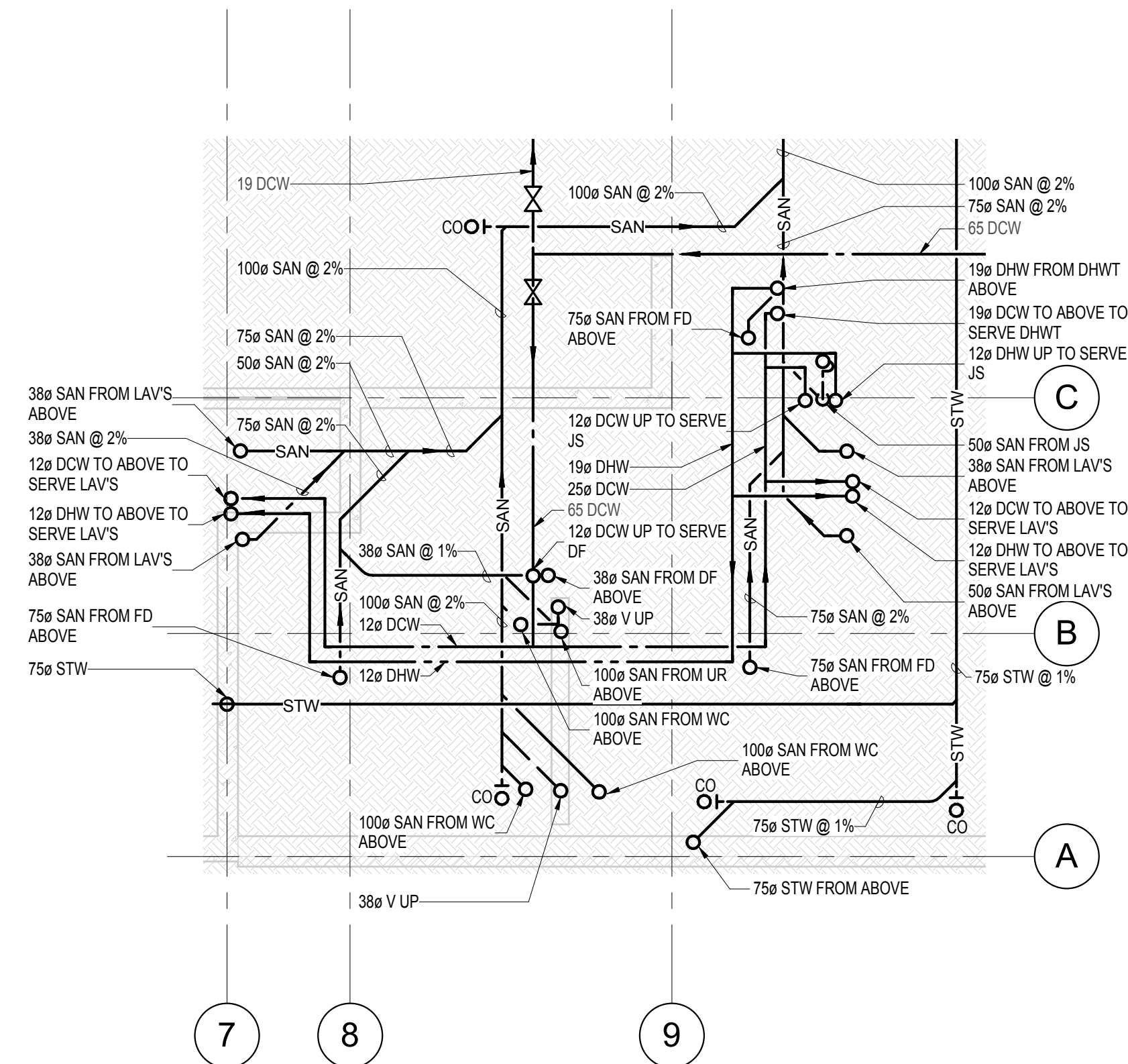
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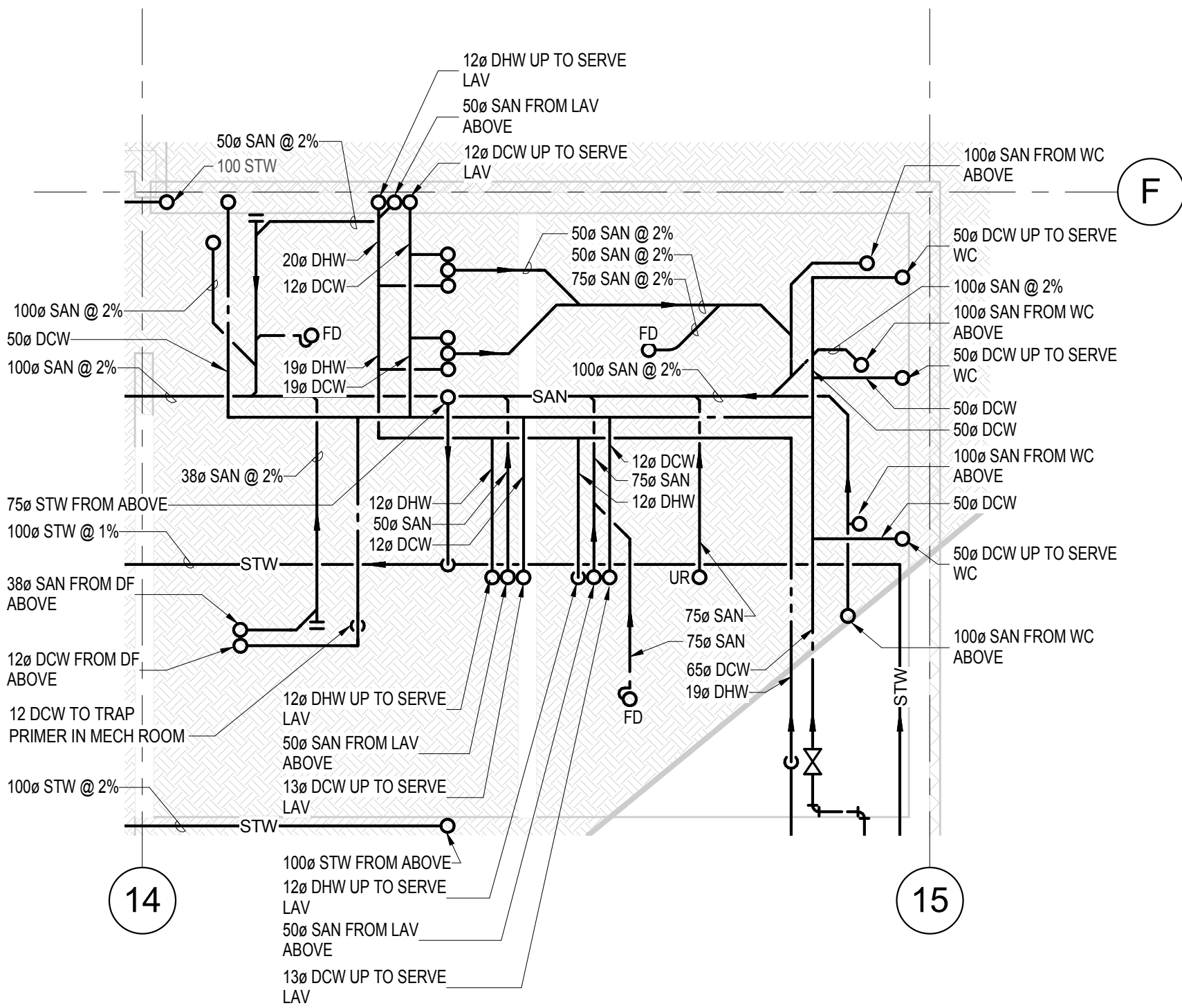
3 WASHROOM GROUP 1  
1:50



2 WASHROOM GROUP 2  
1:50



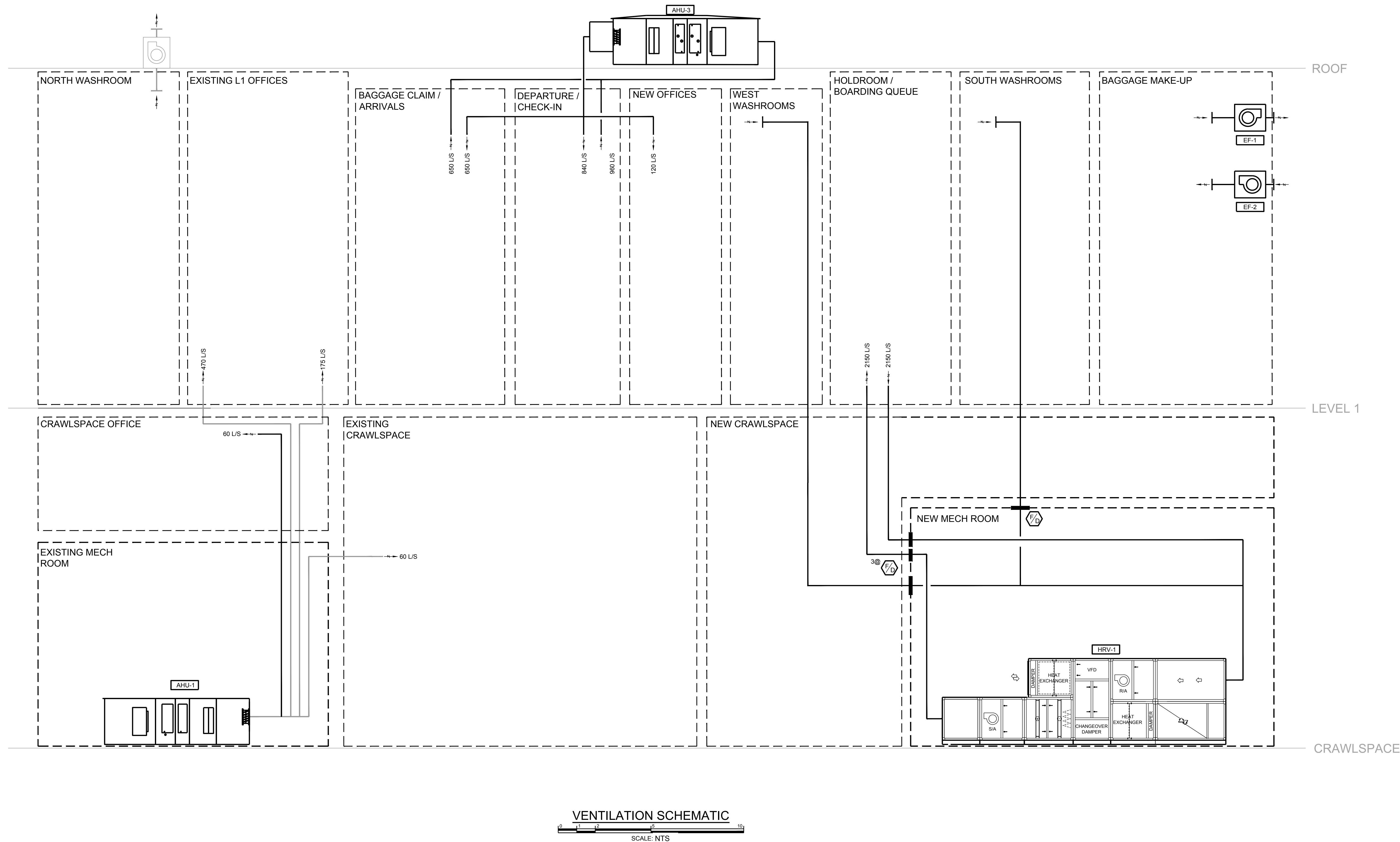
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1:50



4 M221 - CRAWL SPACE - PLUMBING SAN AND STW - WASHROOM GROUP 2  
1:50

#### PLUMBING FIXTURE SCHEDULE

FIXTURE	DCW	DHW	SAN	VENT
LAV-1	12	12	32	32
LAV-2	12	12	32	32
WC-1	-	-	100	-
WC-2	-	-	100	-
DF-1	12	DF-1	38	32
UR-1	25	UR-1	-	-
JS-1	12	12	75	-



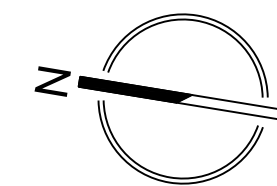
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8	28/04/2017	ADDENDUM M-2
10	12/05/2017	ADDENDUM M-3
11	19/07/2017	POST TENDER
12	09/08/2017	ADDENDUM M-1 ISSUED FOR CONSTRUCTION

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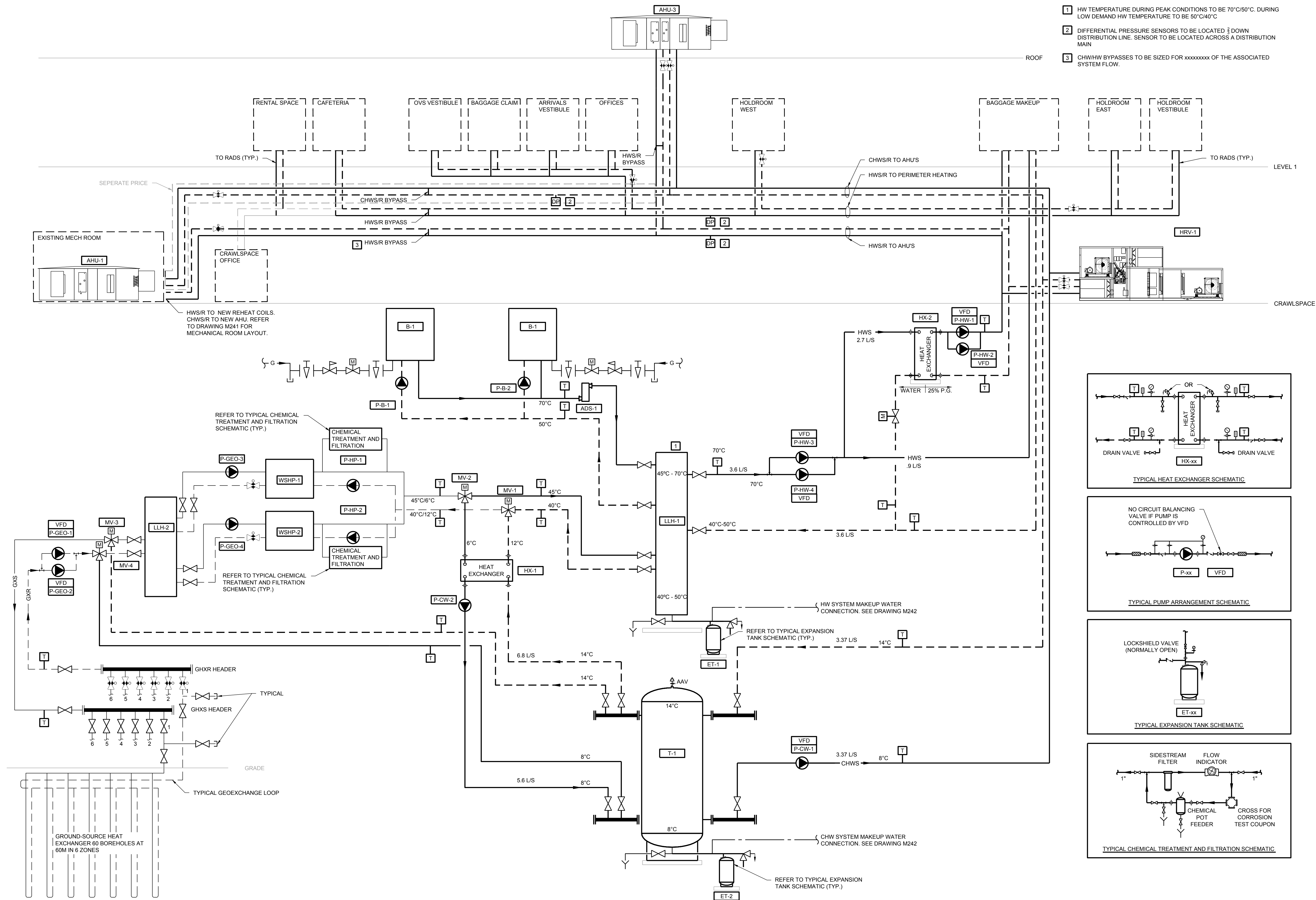


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# SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION



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BY	
SCALE NTS	DATE 09/08/2017
DRAWING TITLE	
<b>VENTILATION SCHEMATIC</b>	
PROJECT No.	SHEET No.
<b>151014</b>	<b>M300</b>
REVISION No.	12
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- 1 HW TEMPERATURE DURING PEAK CONDITIONS TO BE 70°C/50°C. DURING LOW DEMAND HW TEMPERATURE TO BE 50°C/40°C
- 2 DIFFERENTIAL PRESSURE SENSORS TO BE LOCATED 3" DOWN DISTRIBUTION LINE. SENSOR TO BE LOCATED ACROSS A DISTRIBUTION MAIN
- 3 CHW/HW BYPASSES TO BE SIZED FOR xxxxxxxx OF THE ASSOCIATED SYSTEM FLOW.

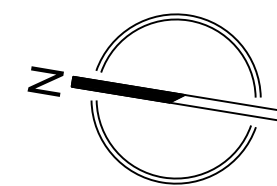
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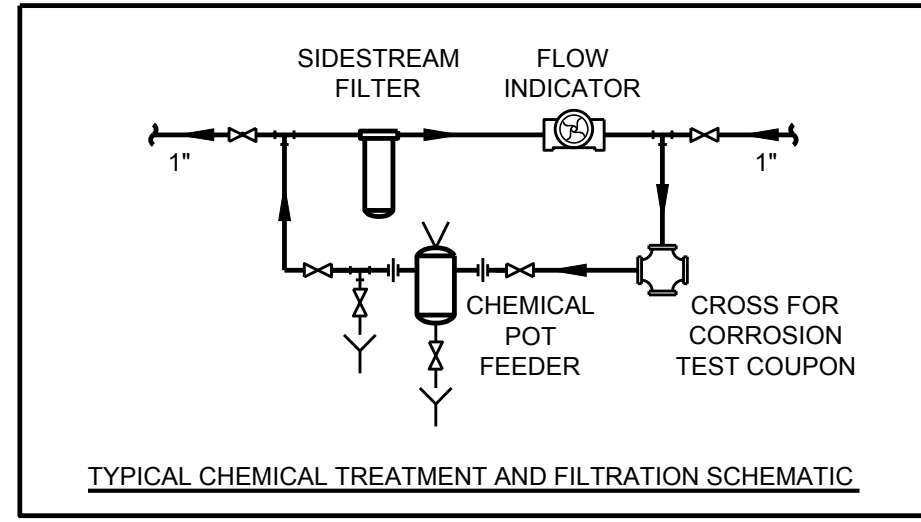
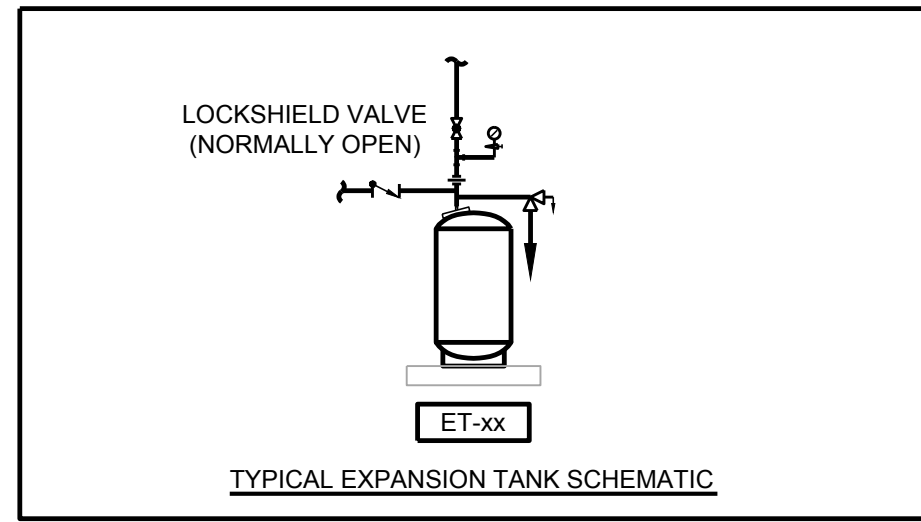
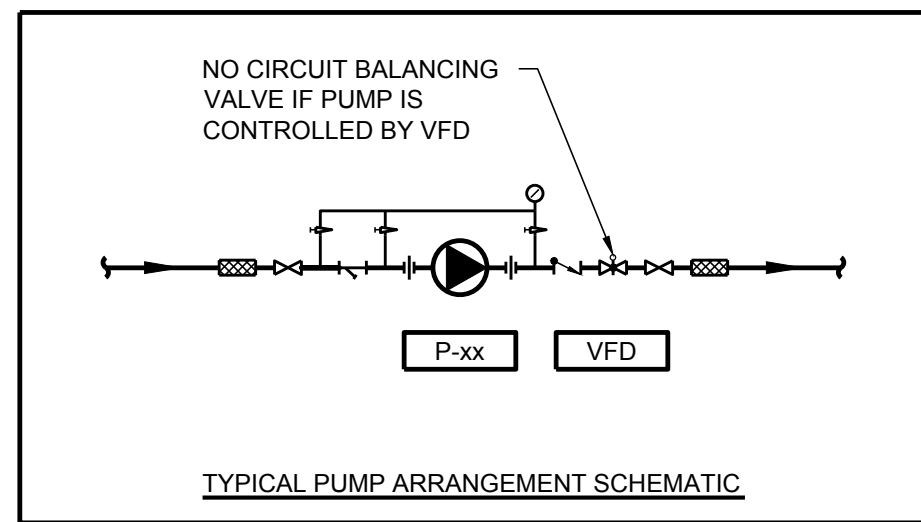
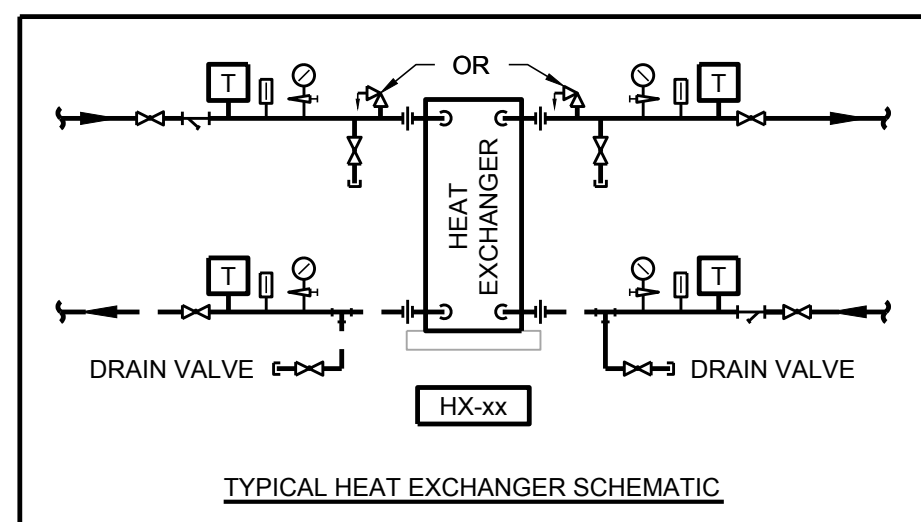
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## SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION



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BY	
SCALE NTS	DATE 09/08/2017

### DRAWING TITLE

## HYDRONICS SCHEMATIC

PROJECT No.	SHEET No.
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**151014 M301**

REVISION No.	12
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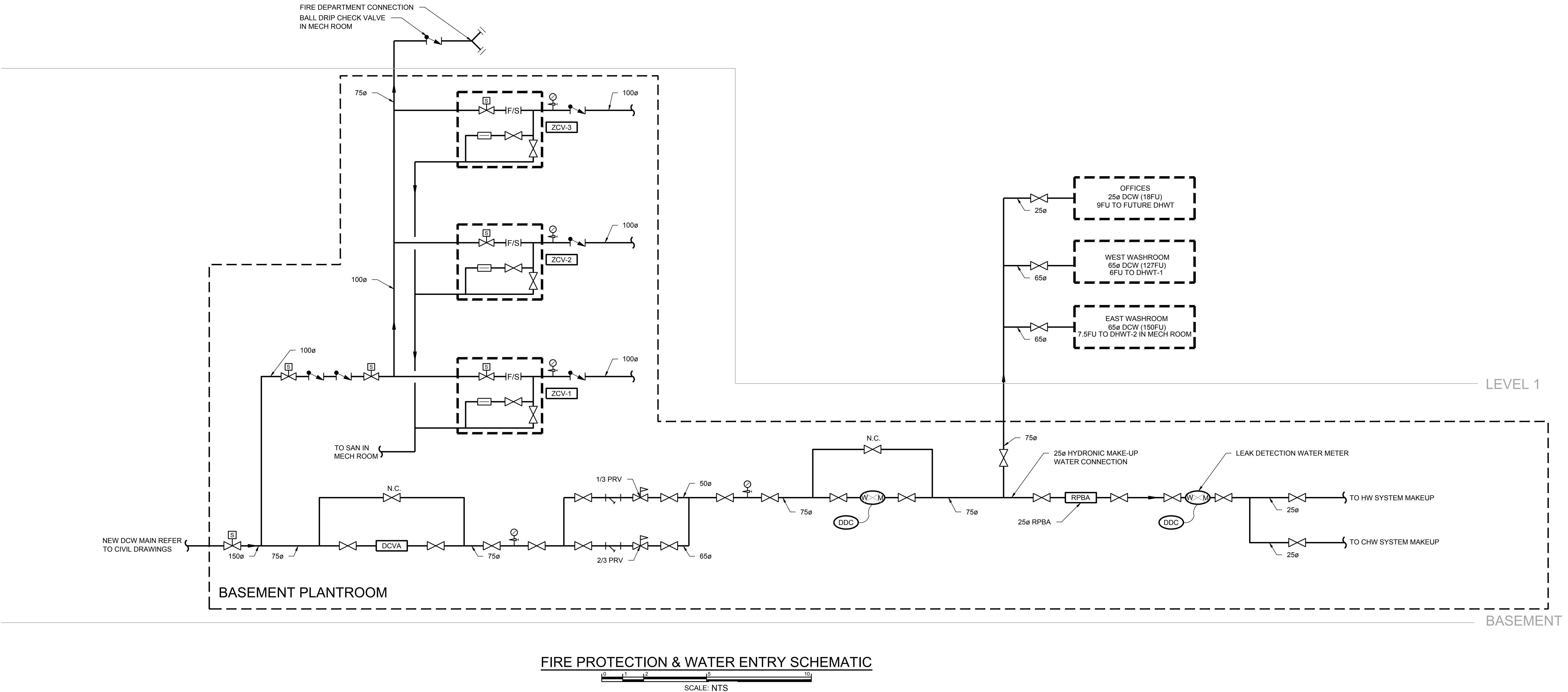
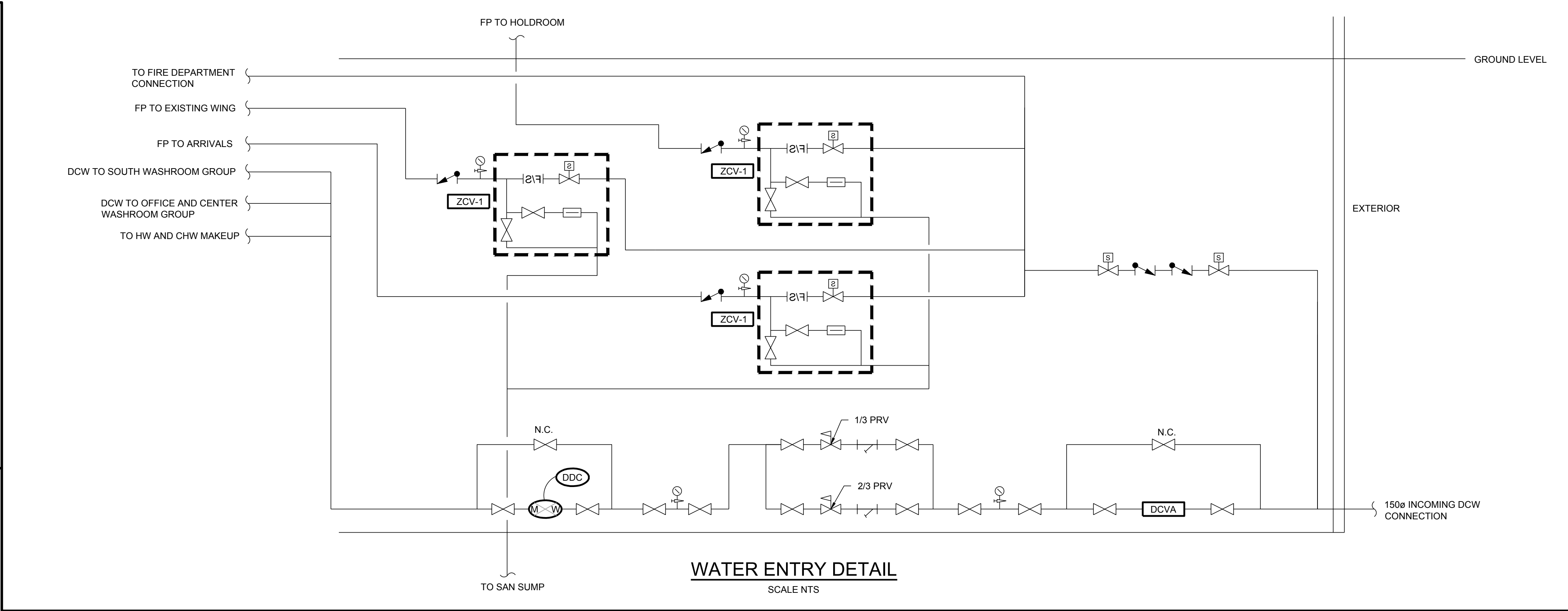
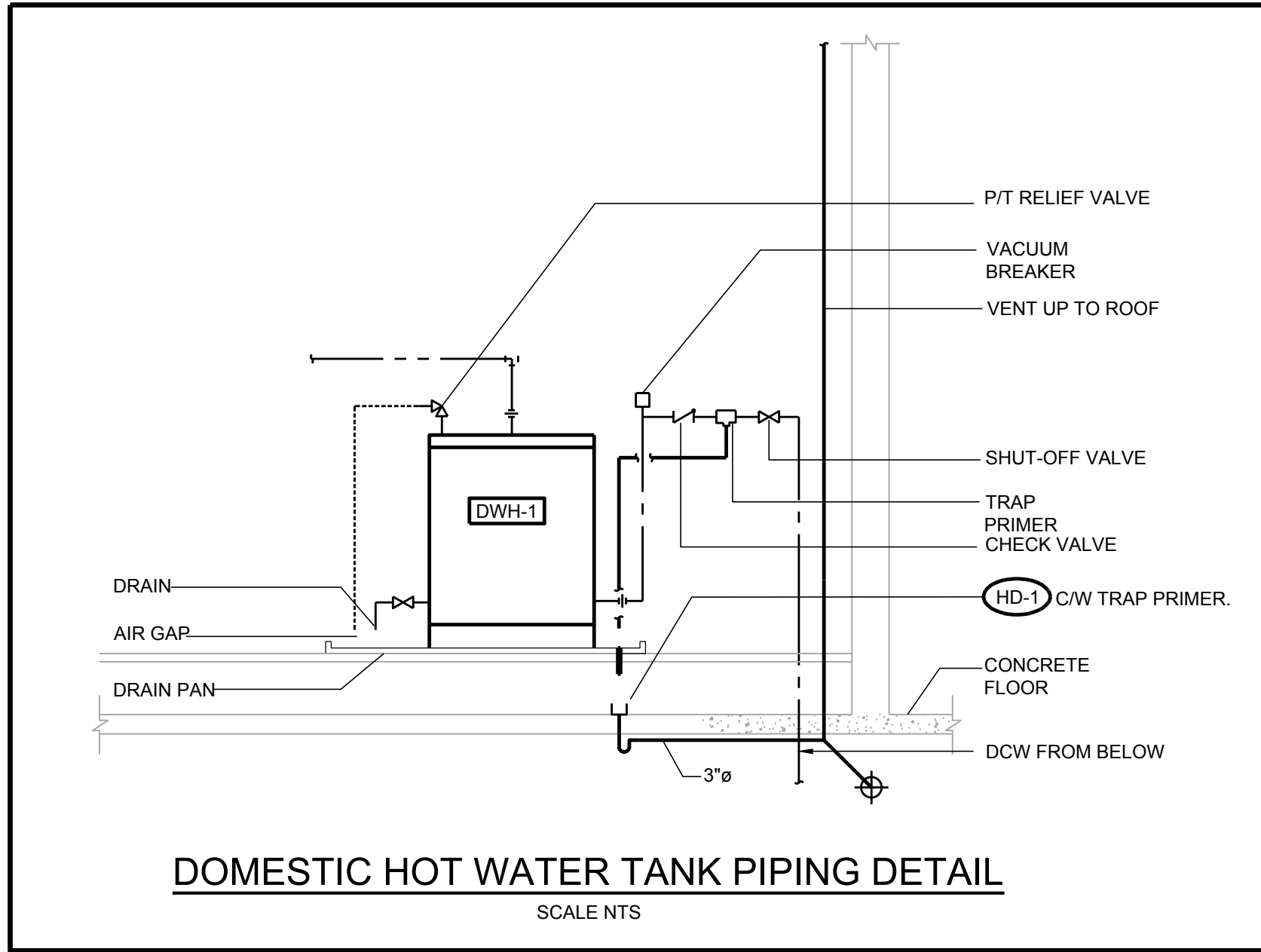
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HYDRONICS SCHEMATIC

0 1 2 5 10

SCALE: NTS





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**SMITHERS  
REGIONAL  
AIRPORT  
TERMINAL  
EXPANSION**



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SCALE NTS	DATE 09/08/2017		
DRAWING TITLE <b>FIRE PROTECTION AND WATER ENTRY SCHEMATIC</b>			
PROJECT No. <b>151014</b>	SHEET No. <b>M302</b>		
REVISION No.			12
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PLUMBING FIXTURE SCHEDULE					
SYMBOL	FIXTURE	DESCRIPTION	Material	ACCESSORIES	NOTES/COMMENTS
WC-1	Toilet	TOTO CT705ELN 'Floor mounted Flushometer Toilet', Toilet, white vitreous china, Floor Mounted, operates in the range of 4.8 L to 6 L (1.28 US Gal to 1.6 US Gal) per flush, elongated bowl.		TOTO CT708EV, heavy duty Toilet Seat, solid plastic with antimicrobial surface, open front less cover. TOTO TET2LA, 'EcoPower', Concealed Flushometer for Top Spud toilet,4.8 L (1.28 US Gal) flush factory set flow.	standard w/c
WC-2	Toilet	TOTO CT705ELN 'Floor mounted Flushometer Toilet', Toilet, white vitreous china, Floor Mounted, operates in the range of 4.8 L to 6 L (1.28 US Gal to 1.6 US Gal) per flush, elongated bowl.		TOTO CT708EV, heavy duty Toilet Seat, solid plastic with antimicrobial and fire retardant surface, open front with cover. TOTO TET2LA, 'EcoPower', Concealed Flushometer for Top Spud toilet,4.8 L (1.28 US Gal) flush factory set flow.	barrier-free w/c
UR-1	Urinal	TOTO UT445U, 'High Efficiency Washout Urinal', Urinal, vitreous china, operates at 0.5 L (0.125 US Gal) per flush Wall Hung.		TOTO TEU2UA 0.125, 'EcoPower', Concealed Flushometer for Top Spud urinal,0.5 L (0.125 US Gal) factory set flow.	barrier-free urinal
LAV-1	Basin	Elkay ELUH9 'Asana Stainless Steel Single Bowl' Undermount Bathroom Sink Basin, self-rimming - drop-in.		TOTO TEL10S Series, 'EcoPower', Electronic faucet, 1.9 LPM (0.5 GPM) aerator spray outlet. Lawler #TMM-1070, Point Of Use Mechanical Water Mixing Valve, integral checks. McGuire #155WCC, Offset Open Grid Drain. McGuire #LFH170BVRB, polished brass Faucet Supplies. McGuire #8872CBSAN, P-Trap. McGuire #PW2000WC, 'PROWRAP', Sanitary Covering.	barrier-free lavatory
LAV-2	Basin	TOTO LT307 (A) ' commercial wall hung lavatory' wall mounted bathroom sink basin		TOTO TEL10S Series, 'EcoPower', Electronic faucet, 1.9 LPM (0.5 GPM) aerator spray outlet. Lawler #TMM-1070, Point Of Use Mechanical Water Mixing Valve, integral checks. McGuire #8872CBSAN, P-Trap. McGuire #PW2000WC, 'PROWRAP', Sanitary Covering. Jay R. Smith 0700 (Concealed Arms) with 19" arms 0800 (Wall Support Plate).	barrier-free lavatory
LAV-3	Basin	Whitehaus WH1-114R vitreous china wall mounted bathroom sink basin. Single hole faucet drilled on the right side. Basin dimensions 19 3/4" W x 9 7/8"D x 5 1/4"H.		Basin, faucet and trap to be supplied as a packaged product. Product to be CSA compliant and available in Canada McGuire #8872CBSAN, P-Trap. McGuire #PW2000WC, 'PROWRAP', Sanitary Covering.	
JS-1	Sink	Stern Williams #MTB-2424, 'MTB series', Service / Mop sink.		Chicago Faucets #897-369VP-XK, Two Handle Manual faucet, wall mounted unrestricted hose end outlet. Stern Williams A-20 Bumper Guard anodized aluminum cap [Bumper Guard Size]  Quantity Description  Stern Williams T-35 Hose and Wall Hook hose 36" (914mm) long with 3/4" (19mm) chrome coupling, stainless steel wall bracket. Stern Williams T-40 Mop Hanger stainless steel #4 finish, 24" (610mm) long with 3 rubber spring loaded clips. Stern Williams BP Back Splash Panel 20 gauge type 304 stainless steel Stern Williams TC-3 Gasket 3" (76mm) for XHCl, plastic and steel pipe. Provide P-Trap.	janitor sink
SK-1	Sink	Franke Commercial #LBS6810/316-1/1, Countertop Mount Sink.		Chicago Faucets #50-ABCP-GN2A-E2805-5-317VP-XK, Two Handle Manual faucet. Lawler #TMM-1070, Point Of Use Mechanical Water Mixing Valve, integral checks. McGuire #LFH170BV, polished brass Faucet Supplies. Provide P-Trap.	G45 lunchroom sink
DF-1	Drinking Fountain	Elkay LMABF8W5 'EZH2O' Bottle Filling Station, 07-.1 l/s (1.1-1.5 GPM)		115V, F.L. AMPS: 4.0, RATED AMPS: 370	Drinking fountain w/ bottle fill station
HB-1	Hose bib	JAY R SMITH 5509QT-NB NON-FREEZE RECESSED WALL HYDRANT CAST NICKEL-BRONZE BOX AND VANDAL-RESISTANT COVER FOR FLUSH INSTALLATION IN EXTERIOR WALL. 1/4-TURN ANTI-SIPHON, AUTOMATIC DRAINING OPERATION. T-KEY FOR OPERATION SHALL INSERT PERPENDICULARLY INTO VALVE STEM. 20ø THREADED HOSE CONNECTION AT 50° WYE ANGLE FROM VERTICAL.		VANDAL-RESISTANT LOCKING COVER, INTEGRAL VACUUM BREAKER ASSEMBLY, ADJUSTABLE WALL CLAMP.	
FD-1	General Floor Drain	Watts FD-103NH-C-A5-1-6-15		125mm (5") nickel bronze strainer with extension, vandal proof	
FD-2	Heavy Duty Floor Drain	Watts FD-103NH-C-5-1-6-15		125mm (5") heavy duty strainer with extension, vandal proof	
RD-1	General Roof Drain	Wats RD-103NH-A-ADJ-BED		Adjustable flow control, sump receiver, adjustable extension, deck clamp	

AIR CURTAIN SCHEDULE		
Tag No.		AC-1
Location		BAGGAGE ARRIVALS
Service		Garage Door
Door Size (H x W)	mm x mm	3000 x 3800
Unit Length	mm	2350
Manufacturer		THERMOSCREENS
Model		HX2000A
Air Flow	L/s	820
Fan Speed	RPM	
Motor per unit	kW	
Voltage / Phase		208/3/60
Weight	kg	80
Notes:	c/w control package, door switch, supported with unitstrut bracing below rolling door to be coordinated w/ architecture.	

WATER SOURCE HEAT PUMP SCHEDULE	
TAG NO.	WWHP-1+2
MANUFACTURER	Multistack
MODEL NUMBER	MS20X6
NOMINAL KW	70
LOAD SIDE MEDIUM	WATER
SOURCE SIDE MEDIUM	25% GLYCOL
LOAD SIDE WATER FLOW RATE (L/S)	3.4
CONDENSER WATER FLOR RATE (l/s)	2.57
LOAD SIDE WATER PRESSURE (KPA)	9
SOURCE SIDE WATER PRESSURE (KPA)	92
VOLTAGE/PHASE	575/3
MCA/MOP	36/60
OPERATING WEIGHT (KG)	544 KG
REFRIGERANT TYPE	R410A/R134A
DIMENSION (L/W/H)	1600x1400x1700
COOLING PERFORMANCE	
LOAD ENTERING/LEAVING °C	10.6°C/5.6°C
SOURCE ENTERING/LEAVING °C	26.7°C/35°C
TOTAL CAPACITY (kW)	70kW
EER	14.8
HEATING PERFORMANCE	
HEATING CAPACITY (kW)	70kW
LOAD ENTERING/LEAVING °C	45°C/40°C
SOURCE ENTERING/LEAVING °C	5°C/0°C
COP	3.3
ACCESSORIES	

CHW BUFFER TANK/HEADER SCHEDULE	
TAG NO.	T-1
MANUFACTURER	TACO
MODEL NO.	5900 FLEXBALANCE PLUS (59025P)
LOCATION	MECHANICAL PLANTROOM
SERVICE	CHILLED WATER (25% PG)
PIPE SIZE	65mm
DIMENSIONS (DiaXh)	340mm X 840MM
OPTIMUM FLOW	3.97 L/s
WEIGHT (KG)	64
MAXIMUM OPERATING PRESSURE (PSI)	861 Kpa (125 PSI)
NOTES	

BOILER SCHEDULE	
TAG NO.	B-1, B-2
MANUFACTURER	VIESSMANN
MODEL NO.	VITODENS B2HA-150
LOCATION	MECHANICAL PLANTROOM
SERVICE	HEATING
CAPACITY	
NOMINAL INPUT	150 kW
NOMINAL OUTPUT	145 kW
NOMINAL EFFICIENCY (%)	93%
MINIMUM NATURAL GAS SUPPLY PRESSURE	1 kPa
MAXIMUM NATURAL GAS SUPPLY PRESSURE	3.5 kPa
BURNER MODEL	MODULATING MATRIX CYLINDER BURNER
BURNER MOTOR POWER (HP)	
VOLTAGE/PHASE	120 V / 1 PHASE
BOILER MODULATION RANGE	33 kW to 155kW (113 to 530 MBH)
WATER FLOW	1.8 L/s
WATER P.D.	28.1 kPa (9.4 ft)
MAX. OPERATING PRESSURE	500 kPa
BOILER CONTROL VOLTAGE/PHASE	120 V / 1 PH
OPERATING WEIGHT (kg)	135 KG
DIMENSIONS (mm)	600 W x 689 D x 1128 H
NOTES & ACCESSORIES	1. ACID NEUTRALISER KIT. 2. 55 PSI PRESSURE RELIEF VALVE. 3. ON BOARD DIGITAL CONTROL UNIT.

EQUIPMENT SCHEDULE

SCALE: NTS

AIR HANDLING UNIT SCHEDULE			
Tag No.		AHU-1	AHU-3
MANUFACTURER		TRANE	OLYMPIC
MODEL NUMBER		CSAA003UA	OAH008GDGM
LOCATION		EXISTING MECH ROOM	ROOF
SERVICE		EXISTING OFFICES	DEPARTURES/ARRIVALS
WEIGHT	KG	415	1550
DIMENSIONS (LXHXW)	MM	2200X825X800	4750X8251150X1100
VOLTAGE/PHASE	V/Ph	208/3	575/3
FAN SUPPLY AIR:			
FLOW	L/S	700	1700
EXTERNAL STATIC	PA	185	190
MOTOR	HP	3	5
MIN Q/A		200	1010
COOLING COIL:			
SENSIBLE	KW	8.2	26.5
LATENT	KW		
TOTAL	KW	10.5	34
WATER SIDE:			
GLYCOL CONTENT	%	25	25
EWI/LWT	°C	8/14	8/14
FLOW	L/S	0.44	1.4
AIR SIDE:			
EAT [WB/DB]	°C	22/17	24/18.5
LAT [WB/DB]			12.5/12.4
WATER PRESSURE DROP	KPA	6.6	30
AIR PRESSURE DROP	PA	250	112
HEATING COIL:			
TOTAL	KW		81.5
WATER SIDE:			
GLYCOL CONTENT	%		25
EWI/LWT	°C		70/50
FLOW	L/S		1
AIR SIDE:			
EAT/LAT	°C		-5/32
Notes:			
COOLING ONLY. FRONT SA DISCHARGE, BOTTOM RA INTAKE, TOP OA INTAKE (REFER TO DRAWINGS). ALL ACCESS PANELS ARE TO BE ON THE LEFT SIDE OF THE UNIT.		EXTERIOR AHU C/W PIPING VESTIBULE & VSD IN NEMA 3R ENCLOSURE. BOTTOM SA DISCHARGE, BOTTOM RA INTAKE, LEFT OA INTAKE, RIGHT RELIEF DISCHARGE (REFER TO DRAWINGS). ALL ACCESS PANELS ARE TO BE ON THE LEFT SIDE OF THE UNIT. COIL CONNECTIONS AND PIPING ENCLOSURE TO BE ON LEFT HAND SIDE OF UNIT. DIRECT DRIVE FAN.	

HEAT RECOVERY VENTILATOR SCHEDULE			
TAG NO.	HRV-1		
MANUFACTURER	TRANE		
MODEL	CLIMATE CHANGER		
DESCRIPTION	CUSTOM INDOOR PACKAGED AIR HANDLING UNIT WITH HEAT WHEEL-TYPE AIR-TO-AIR HEAT RECOVERY, HEATING/REHEAT COIL, AND COOLING/DEHUMIDIFICATION COIL		
LOCATION	MECHANICAL PLANTROOM		
SERVICE	BOARDING LOUNGE & PBS		
MAX OVERALL DIMENSIONS (MM)	5000 x 1540 x 1990		
VOLTAGE/PHASE	575 V / 3 PH		
MCA/MOP			
HEAT RECOVERY TOTAL TEMPERATURE EFFECTIVENESS (WINTER) (%)	MIN 71.5%		
HEAT RECOVERY TOTAL TEMPERATURE EFFECTIVENESS (SUMMER) (%)	MIN 70.5%		
WEIGHT			
SUPPLY FAN			
AIR FLOW PER FAN	2,500 L/S		
NUMBER OF FANS	1 x SUPPLY		
TOTAL AIR FLOW	2,500 L/S		
EXTERNAL STATIC PRESSURE	0.5 KPA		
MOTOR (HP)	1 @ 10 BHP		
MOTOR RPM			
FAN RPM	1800		
FILTER	FILTER: MERV 11	FINAL: CARBON FILTER	FILTER: MERV 15
TOTAL SOUND POWER			
EXHAUST FAN			
EXHAUST AIR FLOW PER FAN	2,500 L/S		
NUMBER OF FANS	1 EXHAUST		
TOTAL EXHAUST FLOW	2,500 L/S		
EXTERNAL STATIC PRESSURE	0.5 KPA		
MOTOR (HP)	1 @ 10 BHP		
MOTOR RPM			
FAN RPM	1800		
FILTER	FILTER: MERV 8		
TOTAL SOUND POWER			
COOLING COIL			
AIR FLOW	2,400 L/S		
EAT DB/WB	26°C / 20°C		
LAT DB/WB	18°C/17.3°C		
EWI	6°C		
LWT	11°C		
WATER FLOW	1.18 L/s		
WATER P.D.	1.1 kPa (12.28 ft w.c.)		
AIR P.D.	0.11 kPa (0.44" w.c.)		
TOTAL CAPACITY	24.8 KW		
SENSIBLE CAPACITY			
PREHEATING COIL			
AIR FLOW	2400		
EAT DB	-29°C		
LAT	-10°C		
EWI	70°C		
LWT	50°C		
WATER FLOW	0.71		
WATER P.D.	6 KPA		
AIR P.D.	.5 KPA		
TOTAL CAPACITY			
HEATING COIL (REHEAT OPERATION AT FULL DESIGN AIRFLOW)			
AIR FLOW	2400		
EAT DB	-10°C		
LAT	18°C		
EWI	70		
LWT	50		
WATER FLOW	1.05		
WATER P.D.	8.7 KPA		
AIR P.D.	.5 KPA		
TOTAL CAPACITY	81.5		
NOTES	ALL UNITS SHALL USE SINGLE-POINT POWER CONNECTION FOR SUPPLY FANS, EXHAUST FANS, VFDs AND CONTROLS. SUPPLY AND EXHAUST FANS ARE TO BE DIRECT DRIVE C/W VFD. REFER TO DRAWINGS FOR AIR OPENING AND WATER CONNECTION CONFIGURATIONS. REFER TO SPECIFICATION FOR ADDITIONAL REQUIREMENTS AND ACCESSORIES. COORDINATE INSTALLATION OF SLAB OPENINGS AND SITE-FABRICATED PLENUMS FOR OUTDOOR, SUPPLY, RETURN, AND EXHAUST AIR ON-SITE WITH FINAL SHOP DRAWING SUBMITTALS.		

UNIT HEATER SCHEDULE	
TAG NO	UH-1
LOCATION	BAGGAGE MAKEUP
MANUFACTURER	STERLING
MODEL	C-1180-02
CAPACITY (KW)	41
AIR FLOW (L/s)	110
ENTERING AIR TEMP. (°C)	-24
LEAVING AIR TEMP. (°C)	10
WATER FLOW (L/min)	6.4
ENTERING WATER TEMPERATURE (°C)	70
LEAVING WATER TEMP. (°C)	50
VOLTAGE/PHASE	120/1
WEIGHT (Kg)	
ACCESSORIES	-HIGH CAPACITY COIL

REHEAT COIL SCHEDULE				
Tag No.		RH-1	RH-2	RH-3
HEATING COIL:				
TOTAL	KW	27	12	3
WATER SIDE:				
GLYCOL CONTENT	%	50	50	50
EWI/LWT	°C	65/45	65/45	65/45
FLOW	L/S	0.32	0.14	0.04
AIR SIDE:				
EAT/LAT	°C	-29°C/18°C	-29°C/18°C	-29°C/18°C
FILTER STAGES				
MAX WATER PRESSURE DROP	KPA	30	30	30
MAX AIR PRESSURE DROP	PA	50	50	50
Notes:				

REVISION No. DATE DESCRIPTION

125/01/2017ISSUED FOR 30% WD

223/02/2017ISSUED FOR 60% WD

317/03/2017ISSUED FOR 90% WD

611/04/2017ISSUED FOR TENDER

724/04/2017ADDENDUM M-1

828/04/2017ADDENDUM M-2

1012/05/2017ADDENDUM M-3

1119/07/2017POST TENDER

1209/08/2017ISSUED FOR CONSTRUCTION

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EXPANSION

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SCALE NTS

DATE 09/08/2017

DRAWING TITLE

EQUIPMENT SCHEDULE

PROJECT No.

SHEET No.

151014

M400

REVISION No.

12

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PERIMETER RADIATION SCHEDULE								
Tag No.	RAD-1	RAD-2	RAD-3	RAD-4	RAD-5	RAD-6	RAD-7	RAD-8
Location	Holdroom	Holdroom	Various	Various	Boarding Vestibule	Arrivals Hall	Holdroom	Café
Manufacturer	Jaga	Jaga	Jaga	Jaga	Jaga	Jaga	Jaga	Jaga
Model	Strada	Strada	Strada	Strada	tempo Freestand	Strada	Build in Wall	Strada
Mounting	Wall Mounted	Wall Mounted	Wall Mounted	Wall Mounted	Floor Mounted	Wall Mounted	In Wall	Wall Mounted
Heat Output (kW)	2.8	2	2	1	1.3	4	1.3	2.3
Flow Rate (L/s)	0.034	0.024	0.024	0.012	0.016	0.047	0.016	0.044
Pressure Drop (kPa)								
Fluid Medium	Water	Water	Water	Water	Water	Water	Water	Water
EWI (°C)	70	70	70	70	70	70	70	70
LWT (°C)	50	50	50	50	50	50	50	50
Length (mm)	1975	1375	2750	1375	1775	2750	3050	2750
Width (mm)	165	165	83	83	125	165	350	165
Height (mm)	490	490	490	490	400	490	140	490
Weight (kg)								
Notes:	C/W manufacturer produced continuous joiners trim to conceal pipework/valving	C/W manufacturer produced continuous joiners trim to conceal pipework/valving	C/W manufacturer produced end caps trim to conceal pipework/valving	C/W manufacturer produced continuous joiners or end caps trim to conceal pipework/valving	C/W manufacturer produced end caps trim to conceal pipework/valving			C/W manufacturer produced continuous joiners, end cap trim and empty casing sections to conceal pipework/valving

DIFFUSER, GRILLE, & LOUVRE SCHEDULE											
TAG NO.	S-1	S-2	S-3	S-4	S-5	E-1	E-2	E-3	R-1	R-2	L-1
MANUFACTURER		EH PRICE	TROX	EH PRICE	EH PRICE	EH PRICE	EH PRICE	EH PRICE	EH PRICE	EH PRICE	GREENHECK
TYPE		SPD SERIES	QL-WH-RO-0	RCG SERIES	LFG SERIES	80	80	SPD SERIES	80	80	ESK-402RM SERIES
FINISH		WHITE POWDER COAT - B12	CLEAR ANNODIZED ALUMINUM	WHITE POWDER COAT - B12	CLEAR ANNODIZED ALUMINUM	WHITE POWDER COAT - B12	CLEAR ANNODIZED ALUMINUM	WHITE POWDER COAT - B12	WHITE POWDER COAT - B12	WHITE POWDER COAT - B12	WHITE POWDER COAT
DESCRIPTION	EXISTING IN FLOOR SUPPLY	CEILING DIFFUSER SUPPLY	SEMI-CIRCLE DISPLACEMENT SUPPLY	SIDEWALL SUPPLY	IN FLOOR SUPPLY	EGGCRATE FACE EXHAUST	EGGCRATE FACE EXHAUST	CEILING DIFFUSER EXHAUST	EGGCRATE FACE RETURN	EGGCRATE FACE RETURN	RECESSED MULLION LOUVER (300X900)
FRAMING/MOUNTING	DRYWALL / DUCT	WALL MOUNTED	WALL MOUNTED	FLOOR MOUNTED	CEILING MOUNTED	WALL MOUNTED	DRYWALL / DUCT	WALL MOUNTED	CEILING MOUNTED	WALL MOUNTED	WALL MOUNTED
NOTE											

PUMP SCHEDULE																	
Tag No.	P-B-1	P-B-2	P-HW-1	P-HW-2	P-HW-3	P-HW-4	P-CW-1	P-CW-2	P-HP-1	P-HP-2	P-GEO-1	P-GEO-2	P-GEO-3	P-GEO-4	P-S-1	P-S-2	
Location	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	BASEMENT MECH ROOM	
Service	BOILER HEATING CIRCULATION	BOILER HEATING CIRCULATION	AHU/HRV HEATING WATER RECIRCULATION	AHU/HRV HEATING WATER RECIRCULATION	HEATING WATER CIRCULATION (DUTY)	HEATING WATER CIRCULATION (STANDBY)	AHU/HRV CHILLED WATER RECIRCULATION	COOLING SIDE HEAT EXCHANGER CIRCULATION	HEAT PUMP CIRCULATION	HEAT PUMP CIRCULATION	GEO-EXCHANGE CIRCULATION (DUTY)	GEO-EXCHANGE CIRCULATION (STANDBY)	HEAT PUMP #1 CIRCULATION	HEAT PUMP #2 CIRCULATION	MECH ROOM SUMP PUMP	MECH ROOM SUMP PUMP	
Manufacturer	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ARMSTRONG	ZOELLER	ZOELLER	
Model	E8.2 182202-657	E8.2 182202-657	4380 1508-001.5	4380 1508-001.5	4380 0206-001.0	4380 0206-001.0	4380 0206-001.5	4380-2X2X6-1 HP	E22.2 CI 120v	E22.2 CI 120v	4300-0206-0070.5	4300-0206-0070.5	E19.2 ci 120V	E19.2 ci 120V	N-264	N-264	
Style	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	CIRCULATOR	SUMP PUMP	SUMP PUMP	
Min. Pump Efficiency	%																
Pump Capacity																	
Operation Flow	L/S	1.8	1.8	2.7	2.7	3.6	3.6	3.4	5.6	2.8	2.8	9.0	9.0	2.6	2.6	3.8	3.8
Operation Head	kPa	28.0	28.0	140.0	140.0	75.0	75.0	102.0	69.0	90.0	90.0	250.0	250.0	55.0	55.0	30.0	30.0
Medium		WATER	WATER	25% GLYCOL	25% GLYCOL	WATER	WATER	25% GLYCOL	25% GLYCOL	WATER	WATER	25% GLYCOL	25% GLYCOL	25% GLYCOL	25% GLYCOL	WASTE WATER	WASTE WATER
Pump Housing																	
Motor																	
Power	HP	1/6	1/6	1.5	1.5	1	1	1.5	1	.4	.4	7.5	7.5	0.4	0.4	0.4	0.4
Speed	RPM	3400	3400	1600	1600	1650	1650	1615	1760	3350	3350	3150	3150	3400	3400	1725	1725
Drive Control		CONSTANT SPEED	CONSTANT SPEED	VFD	VFD	VFD	VFD	VFD	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	VFD	VFD	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED	CONSTANT SPEED
Motor Efficiency	%																
Voltage / Phase		120/1	120/1	575/3	575/3	575/3	575/3	575/3	575/3	115/1	115/1	575/3	575/3	115/1	115/1	115/1	115/1
Dimensions																	
LxWxH	mm	164x107x180	164x107x180	506x461x690	506x461x690	505x432x696	505x432x696	381x274x562	381x274x562	216x107x261	216x107x261		216x107x261	216x107x261	334x288x375	334x288x375	
Weight	kg	6	6	110	110	96	96	87	78	11	11	80	80	11	11	18	18
Suction Size	mm			38	38	50	50	50	50	38	38	50	50	38	38	50	50
Discharge Size	mm			38	38	50	50	50	50	38	38	50	50	38	38	50	50
Impeller Size	mm			205	205	140	140	144	137	78	78	133	133	78	78		
Operation				PARALLEL	PARALLEL	PARALLEL	PARALLEL					PARALLEL	PARALLEL				
Notes		PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS	PREMIUM EFFICIENCY MOTORS

HYDRONIC DUCT HEATER

TAG NO.	DH-1
MANUFACTURER	TRANE
MODEL	DP2B12
LOCATION	CEILING
SERVICE	BAGGAGE MAKEUP
AIR FLOW (L/S)	310
EWI (°C)	70
LWT (°C)	50
CAPACITY (KW)	12.6
NOTES	

EXPANSION TANK SCHEDULE SCHEDULE

TAG NO.	ET-1	ET-2	ET-3
LOCATION	MECH ROOM	MECH ROOM	MECH ROOM
SERVICE	HEATING WATER AMTROL	CHILLED WATER AMTROL	HEATING WATER AMTROL
MANUFACTURER	AMTROL	AMTROL	AMTROL
MODEL	AX-40V	AX-80V	AX-40V
ACCEPTANCE VOLUME (L)	42	85	42
TANK VOLUME (L)	83	168	83
DIMENSIONS (øxh)(mm)	405mm D X 760mm H	600mm D X 740mm H	405mm D X 760mm H
MAXIMUM OPERATING PRESSURE (kPa)	861	1034	861
SHIPPING WEIGHT (KG)	34	70	34
NOTES	ASME RATED TANK. NONPOTABL E CLOSED LOOP SYSTEMS.	ASME RATED TANK. NONPOTABL E CLOSED LOOP SYSTEMS.	ASME RATED TANK. NONPOTABL E CLOSED LOOP SYSTEMS.

SPRINKLER HEAD FINISH SCHEDULE

AREA	DESCRIPTION
FIRST FLOOR - PAINTED GWB	CONCEALED PENDANT, WHITE
FIRST FLOOR - STAINED CLT	CONCEALED PENDANT, CUSTOM COLOUR CONFIRMED BY ARCH
FIRST FLOOR - 2' X 2' CEILING GRID	CONCEALED PENDANT, WHITE
FIRST FLOOR - 2' X 4' CEILING GRID	CONCEALED PENDANT, WHITE
CRAWLSPACE - EXPOSED	CONCEALED PENDANT, WHITE
BASEMENT - EXPOSED CONCRETE	BRASS, UPRIGHT, WIRE GUARD

VAV BOX SCHEDULE

TAG NO.	VAV-1.1	VAV-1.2	VAV-1.3	VAV-1.4
MANUFACTURER	EH PRICE	EH PRICE	EH PRICE	EH PRICE
DESCRIPTION	SDV5	SDV5	SDV5	SDV5
SERVICE	ARRIVALS/DEPARTURES	SMALL OFFICES	LARGE OFFICE	LEASE SPACE / LOUNGE
SIZE	12	5	5	12
MAX L/S	1000	65	65	700
MIN L/S	700	20	20	270
POWER (KW)	-	-	-	-
NOTE				

FAN SCHEDULE

TAG NO.	EF-1	EF-2	SF-1
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK
MODEL	SQ-95-G-VG	BSQ 140	SQ-95-D-VG
LOCATION	BAGGAGE HANDLING ROOM	ELECTRICAL ROOM COOLING	BAGGAGE HANDLING ROOM
SERVICE	EXHAUST	EXHAUST	SUPPLY
CAPACITY (L/S)	460	1500	460
STATIC PRESSURE (PA)	75	250	125
FAN RPM (RPM)	1300	1709	1725
MOTOR POWER (WATT)	1/4	1	1/4
VOLTAGE/PHASE	120/1	120/1	120/1
SONES/Db	6.4	23	9.8
WEIGHT (KG)	19	51	19
CONTROL	0-10 VDC	0-10 VDC	0-10 VDC
NOTES	- ISOLATION KIT	- ISOLATION KIT	- ISOLATION KIT

HEAT EXCHANGER SCHEDULE

TAG NO.	HX-1	HX-2
SERVICE	CHILLED WATER	HEATING WATER
MAXIMUM PRESSURE DROP (KPA)	35	35
MAXIMUM WORKING PRESSURE (KPA)	860	860
CAPACITY (KW)	158	276
SOURCE SIDE:		
FLUID	WATER	WATER
EWI (°C)	6	70
LWT (°C)	12	50
FLOW RATE	6.3	3.3
LOAD SIDE:		
FLUID	25% PROPYLENE GLYCOL	50% PROPYLENE GLYCOL
EWI (°C)	14	45
LWT (°C)	8	65
FLOW RATE	6.7	3.3

DOMESTIC HOT WATER TANKS

Tag No.	DHWT-1	DHWT-2
Location	Janitor Closet	Mech Room
Service	Mid Washroom Group + Janitor Closet	South Washroom Group
Type	Electric	Electric
Manufacturer	Bradford white	Bradford white
Model	LD-50L3-3	LD-20L3-3
Power	V/Ph	208/1
Size (Dia x height)	mm	600øx794
Total Capacity	kW	5
Tank Volume	L	178
Recovery	LPH	68
EWI	°C	4
LWT	°C	60
Notes:		

EQUIPMENT SCHEDULE

SCALE: NTS

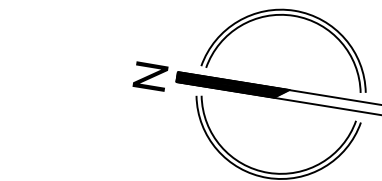
REVISION No.	DATE	DESCRIPTION
1	25/01/2017	ISSUED FOR 30% WD
2	23/02/2017	ISSUED FOR 60% WD
3	17/03/2017	ISSUED FOR 90% WD
6	11/04/2017	ISSUED FOR TENDER
7	24/04/2017	ADDENDUM M-1
8	28/04/2017	ADDENDUM M-2
10	12/05/2017	ADDENDUM M-3
11	19/07/2017	POST TENDER
12	09/08/2017	ADDENDUM M-1 ISSUED FOR CONSTRUCTION

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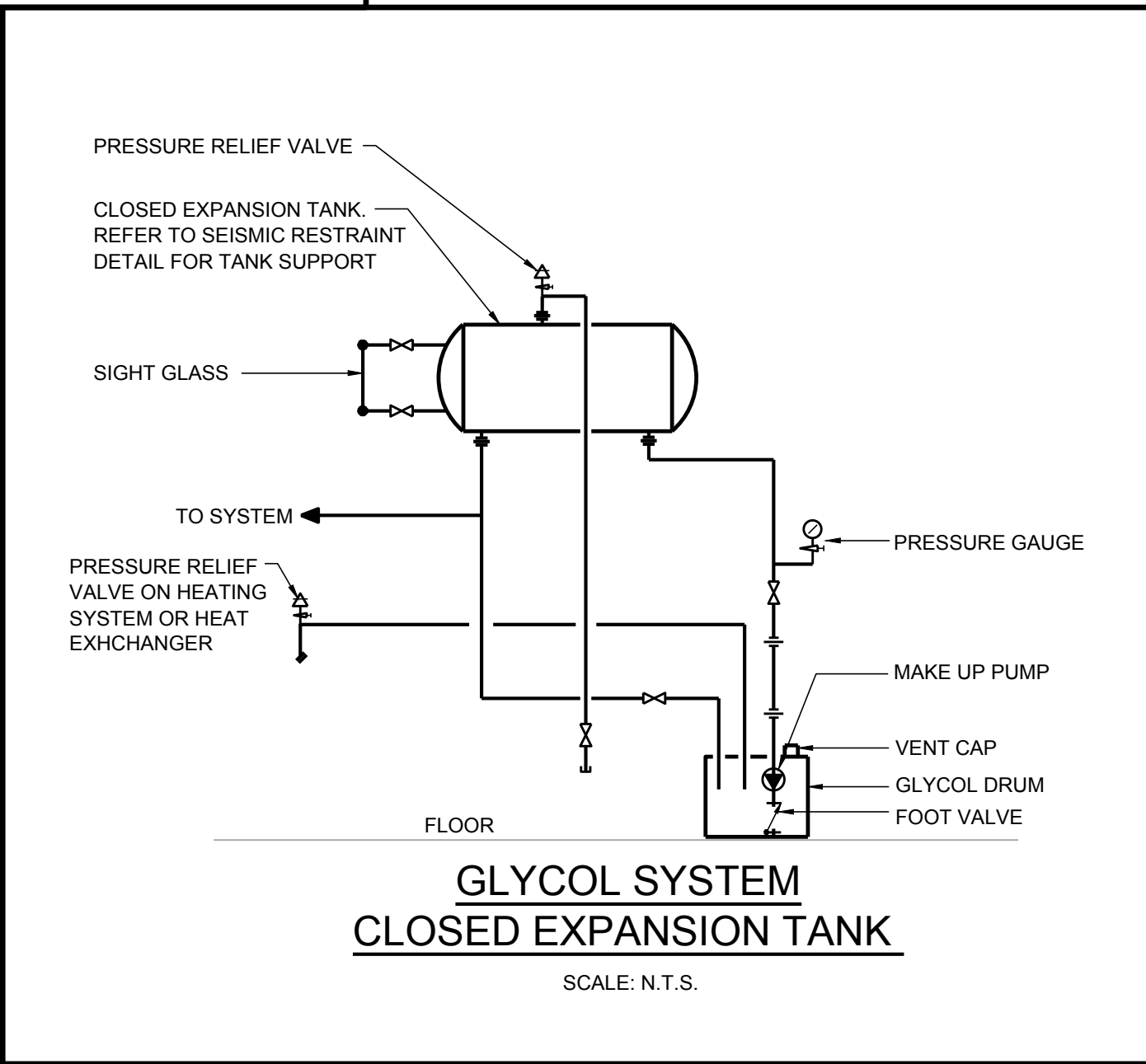
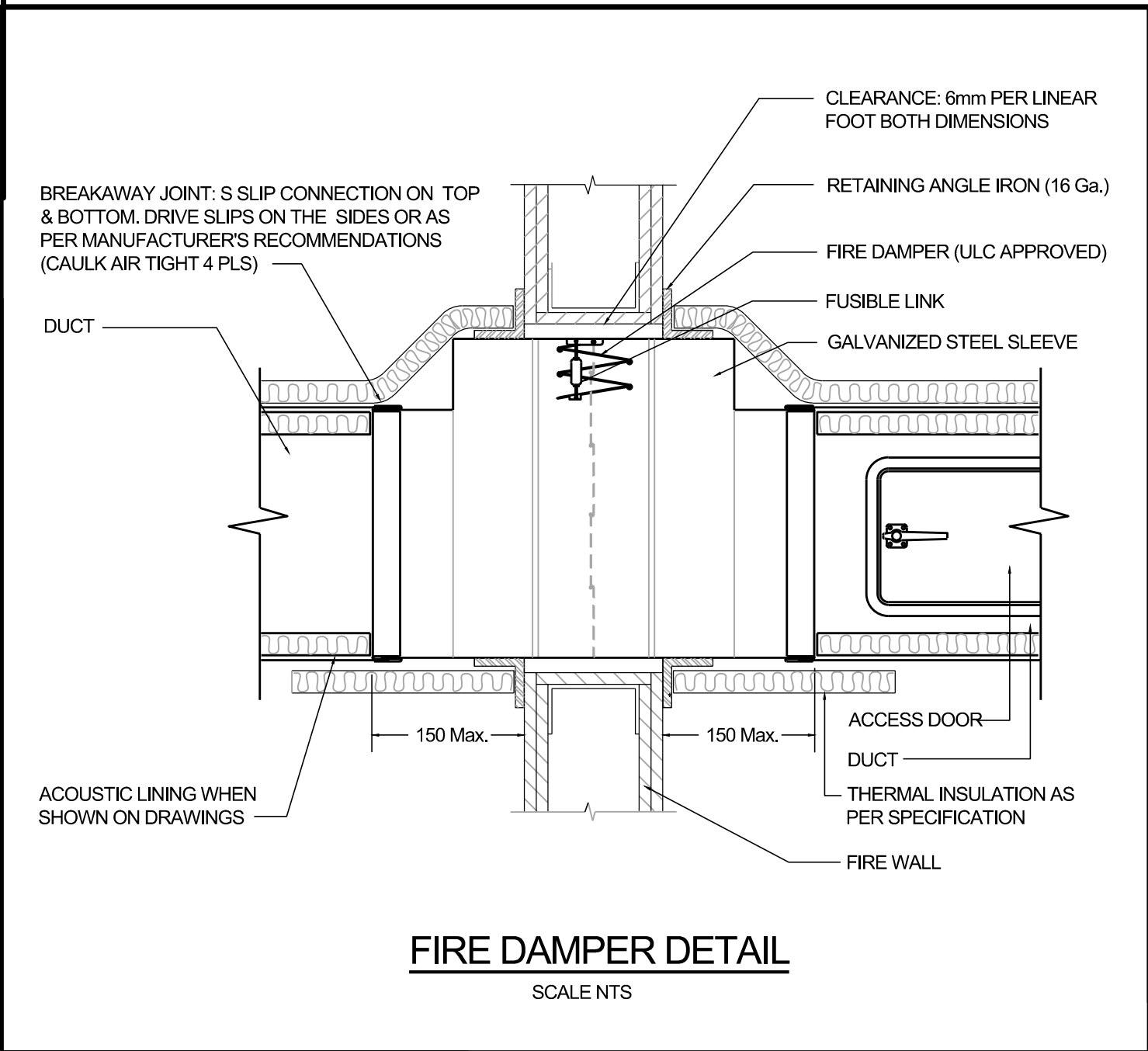
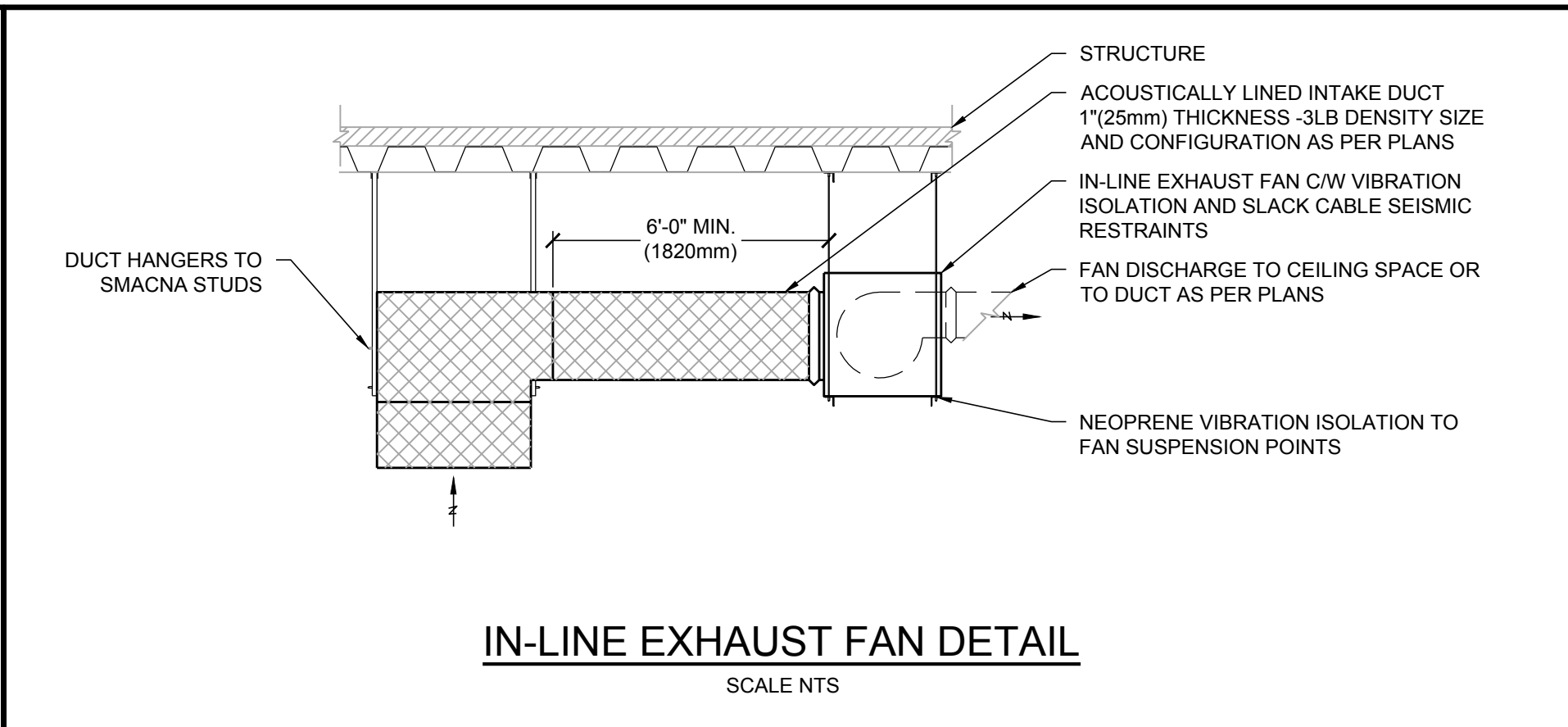
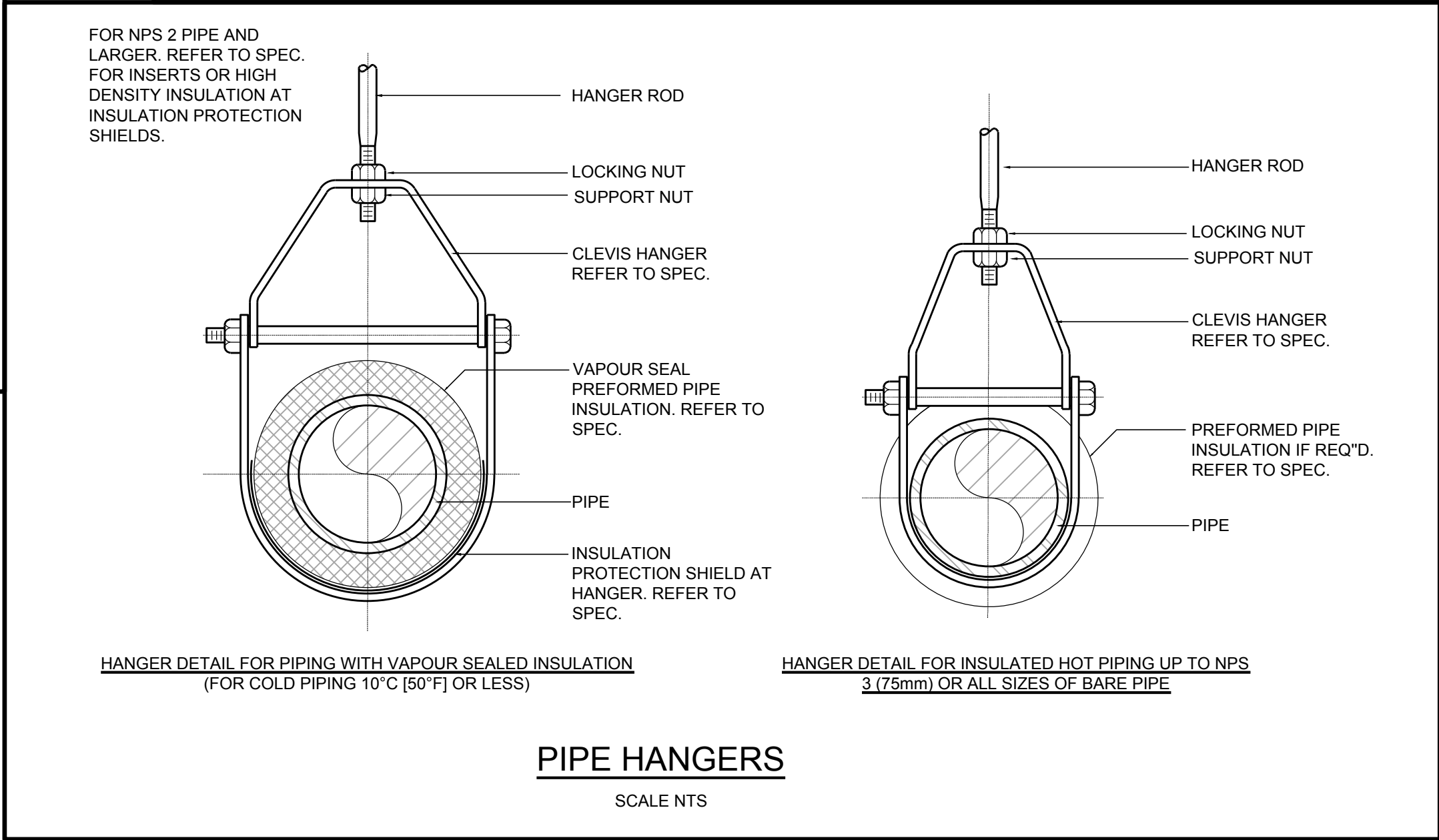
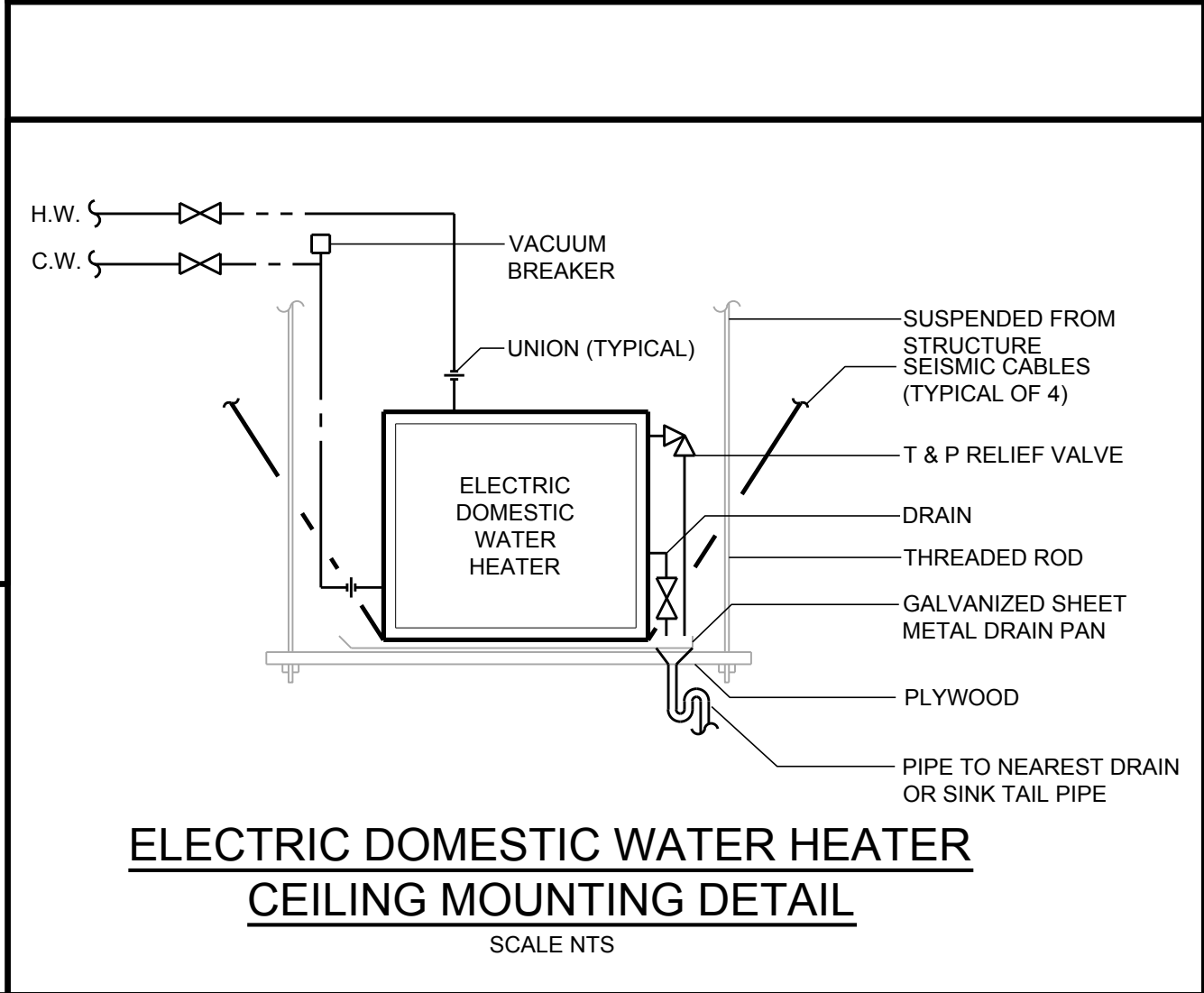
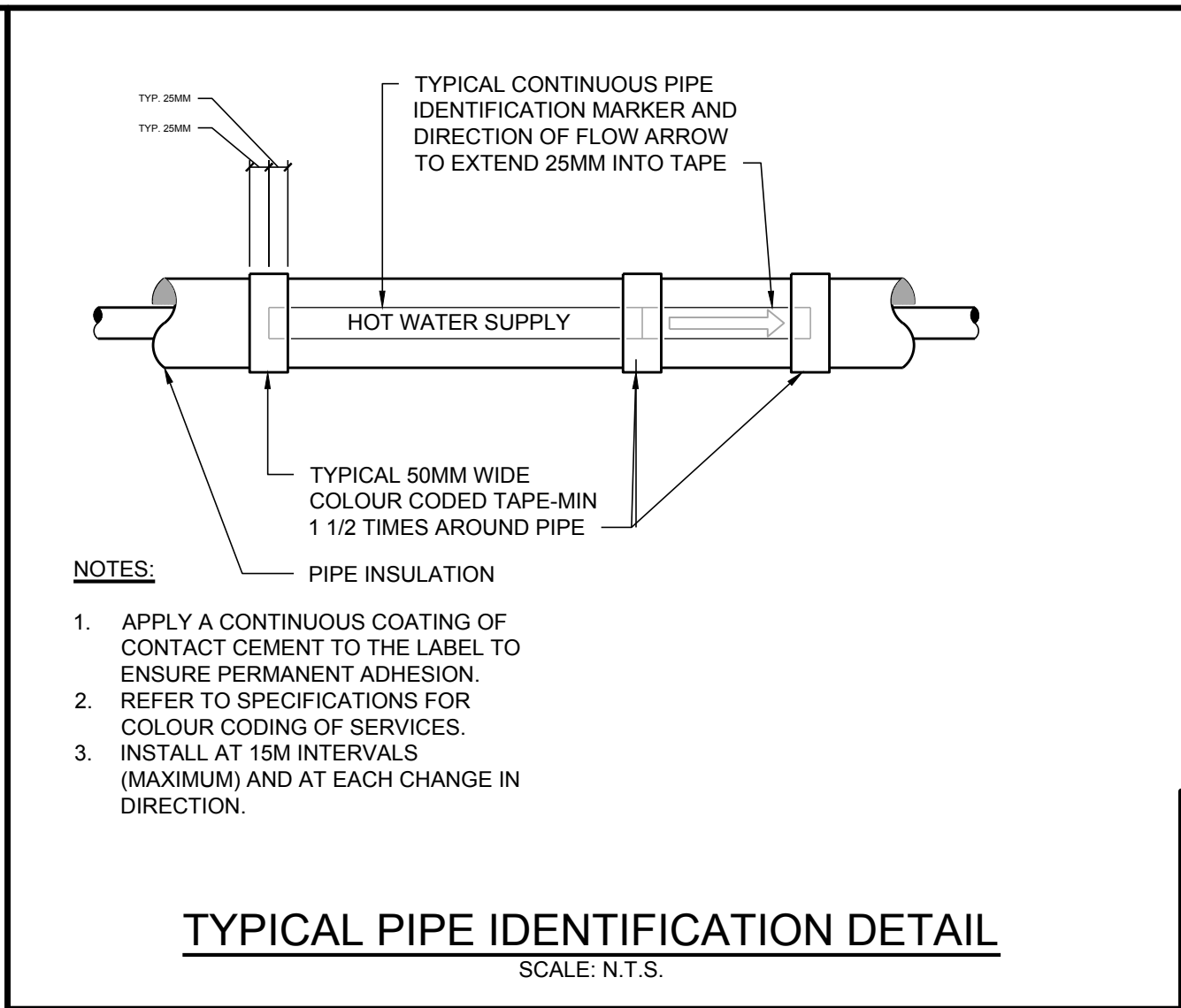
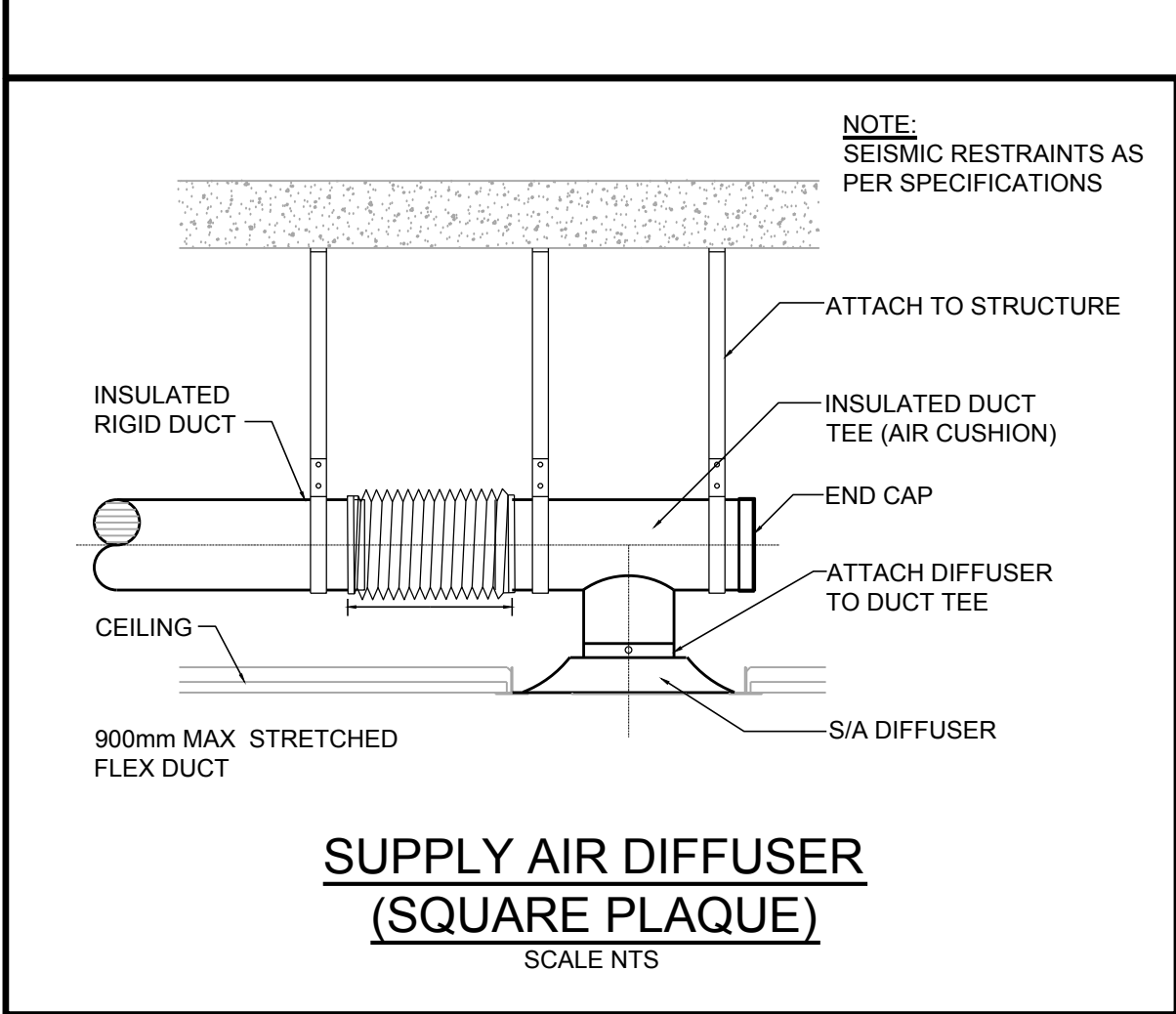
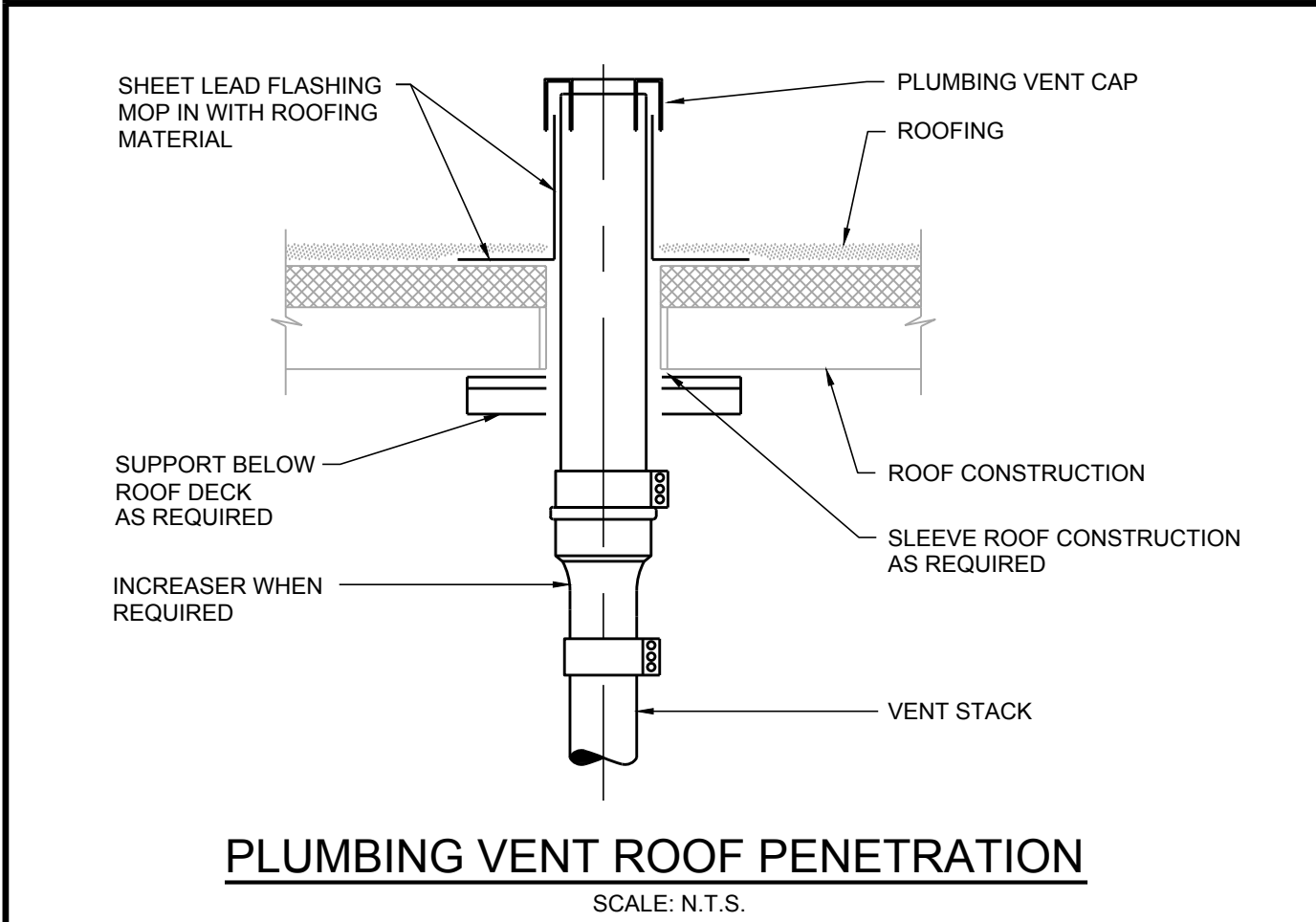
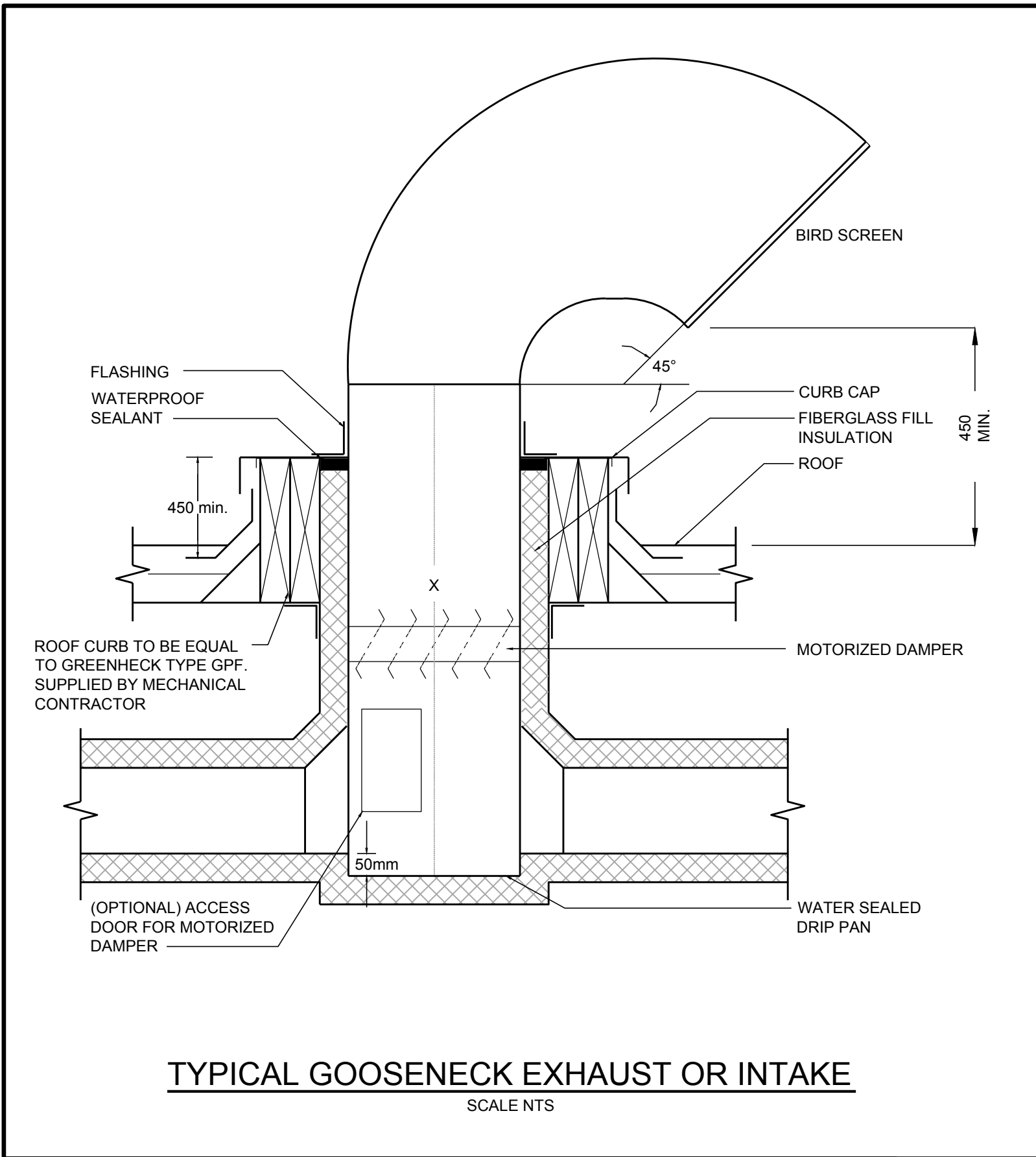
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DRAWING TITLE <b>EQUIPMENT SCHEDULE</b>	
PROJECT No. <b>151014</b>	SHEET No. <b>M401</b>
REVISION No.	12
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REVISION No.	DATE	DESCRIPTION
1	25/01/2017	ISSUED FOR 30% WD
2	23/02/2017	ISSUED FOR 60% WD
3	17/03/2017	ISSUED FOR 80% WD
6	11/04/2017	ISSUED FOR TENDER
7	24/04/2017	ADDENDUM M-1
8	28/04/2017	ADDENDUM M-2
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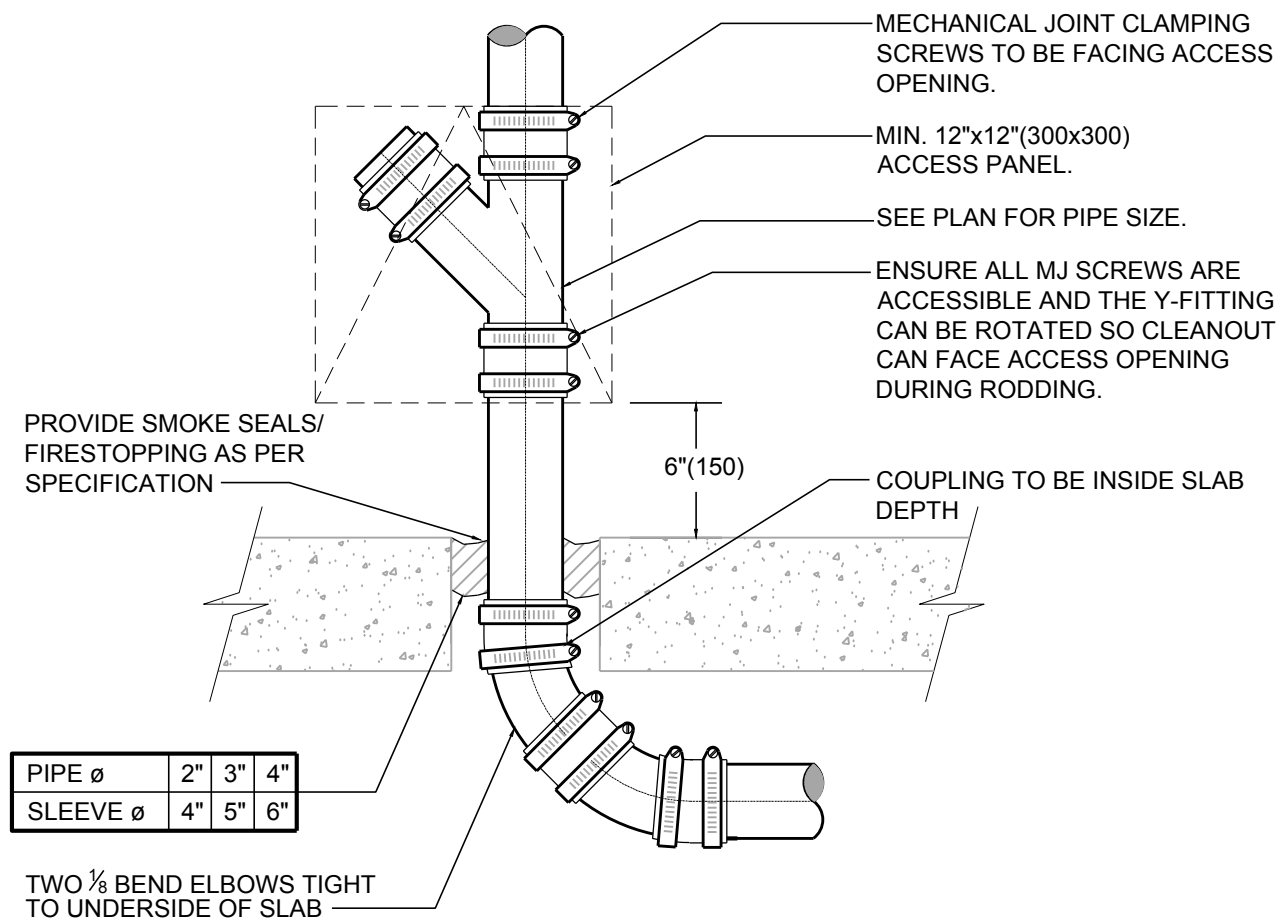
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**SMITHERS REGIONAL AIRPORT TERMINAL EXPANSION**

**MW Inc.**

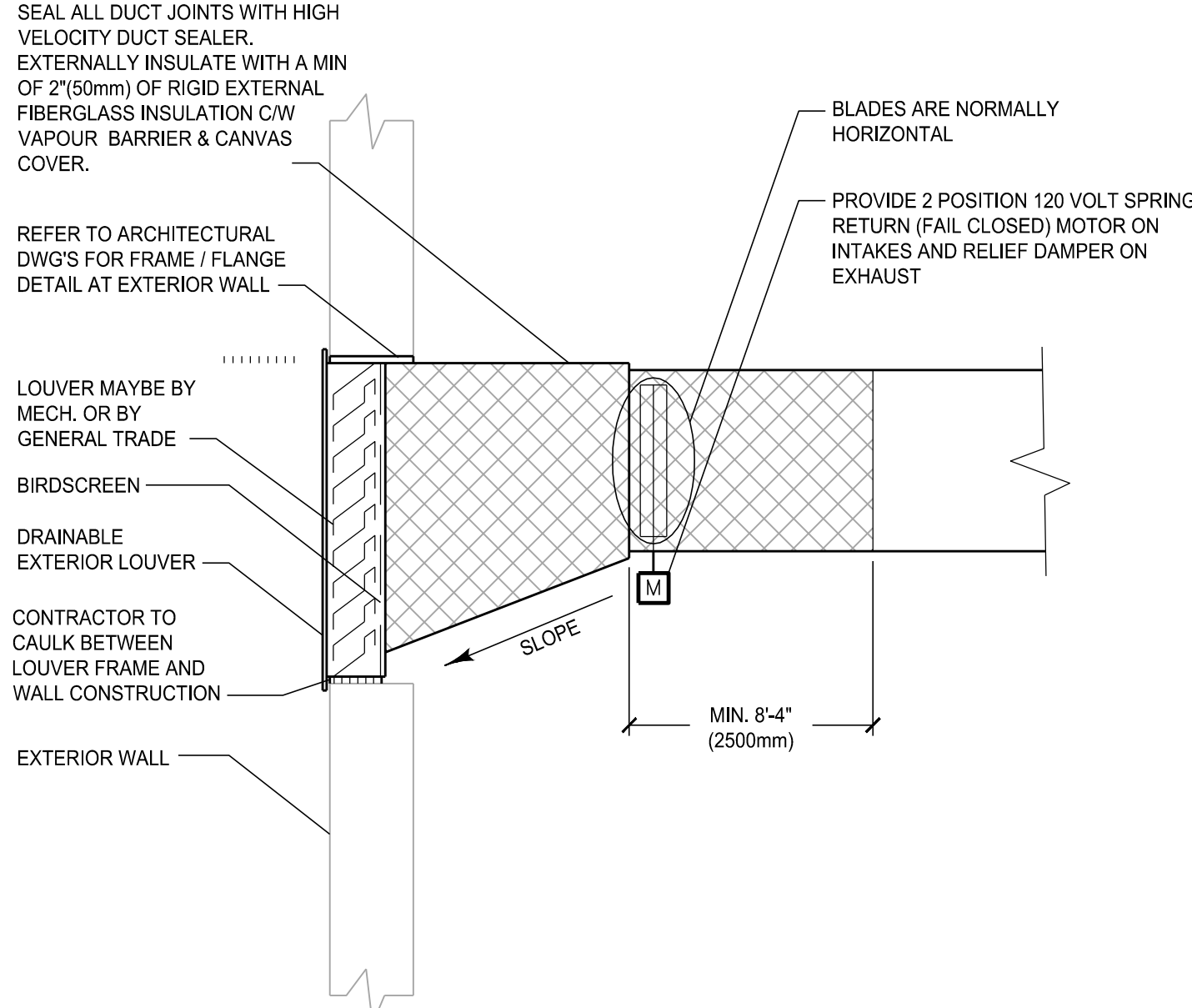
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REVISION No.			12

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TYPICAL SANITARY/STORM SLAB PENETRATION DETAIL

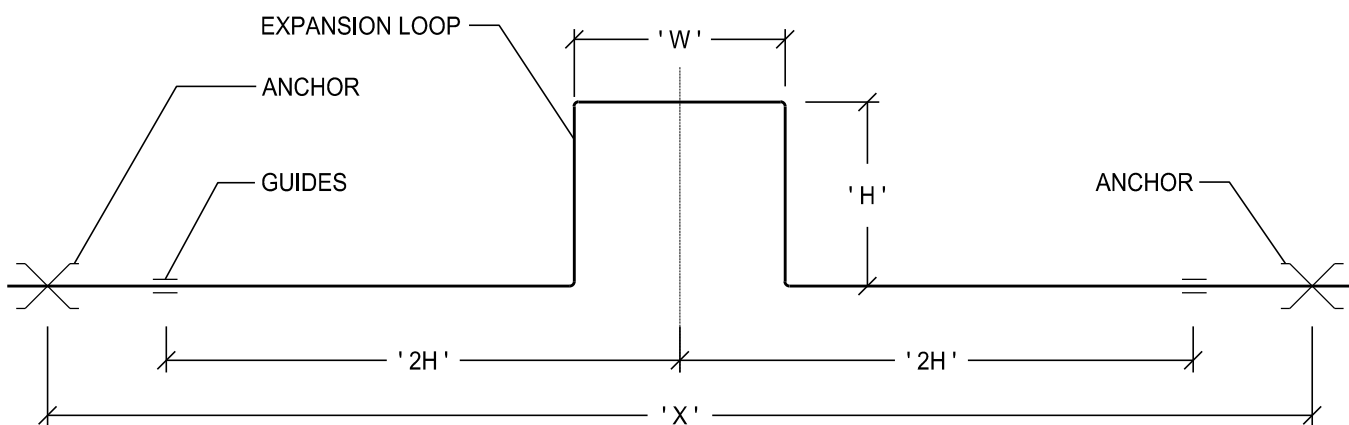
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EXTERIOR LOUVER CONNECTION

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- USE THESE FORMULAS FOR TEMPERATURE DIFFERENCES NOT EXCEEDING 230°F. FOR OTHER CONDITIONS USE THE ASHRAE GUIDE DATA BOOK.
- LENGTH OF PIPE LOOP IN INCHES: "L" INCHES = 2H + W.
- FOR LENGTH "L" USE FOLLOWING FORMULA:  $L = 6.225 \sqrt{DE}$
- D = DIAMETER IN INCHES.
- E = ANCHOR TO ANCHOR THERMAL EXPANSION IN INCHES.  
STEEL PIPE E = 0.0323X  
COPPER PIPE E = 0.0487X  
PVC PIPE E = 0.0456X
- X = ANCHOR TO ANCHOR DISTANCE IN FEET.

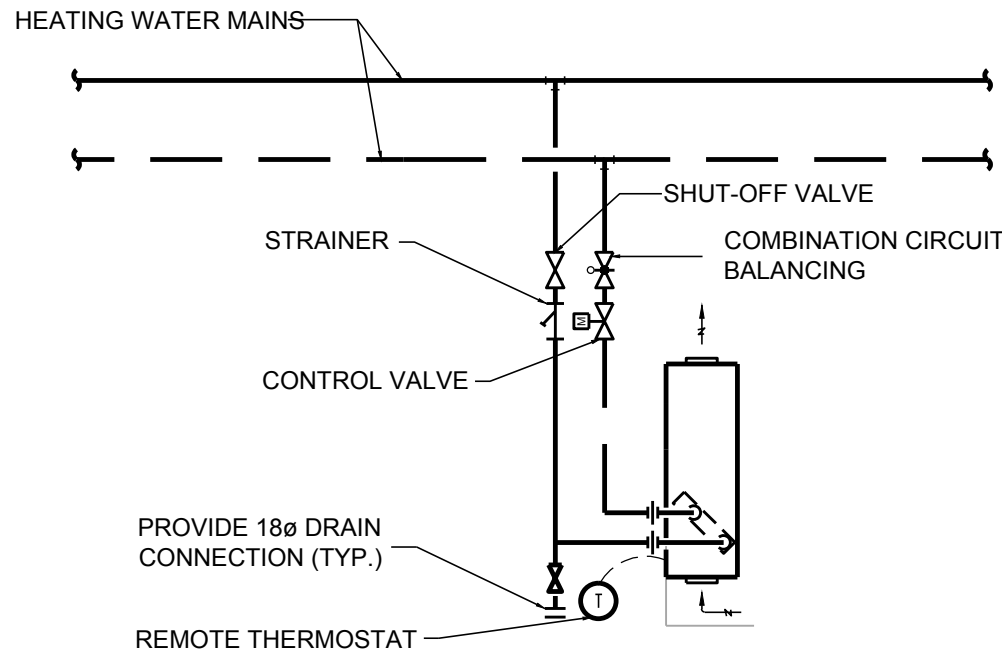


PIPE SIZE, IN.	ANCHOR TO ANCHOR EXPANSION 'E', IN.											
	2		4		6		8		10		12	
	W	H	W	H	W	H	W	H	W	H	W	H
1	2	4	3	6	3.5	7	4	8	4.5	9	5	10
2	3	6	4	8	5	10	5.5	11	6	12	7	14
3	3.5	7	5	10	6	12	6.5	13	7.5	15	8	16
4	4	8	5.5	11	6.5	13	7.5	15	8.5	17	9	18
6	5	10	6.5	13	8	16	9	18	10	20	11	22
8	5.5	11	7.5	15	9	18	10.5	21	12	24	13	26
10	6	12	8.5	17	10	20	11.5	23	13	26	14	28
12	6.5	13	9	18	11	22	12.5	25	14	28	15.5	31

NOTE: 'W' AND 'H' DIMENSIONS ARE IN FEET, W = L/5, H = 2W.

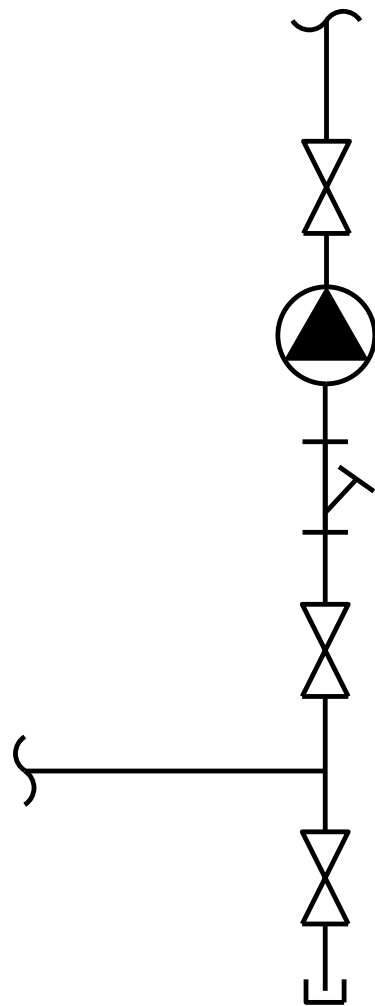
PIPE LOOP GUIDE

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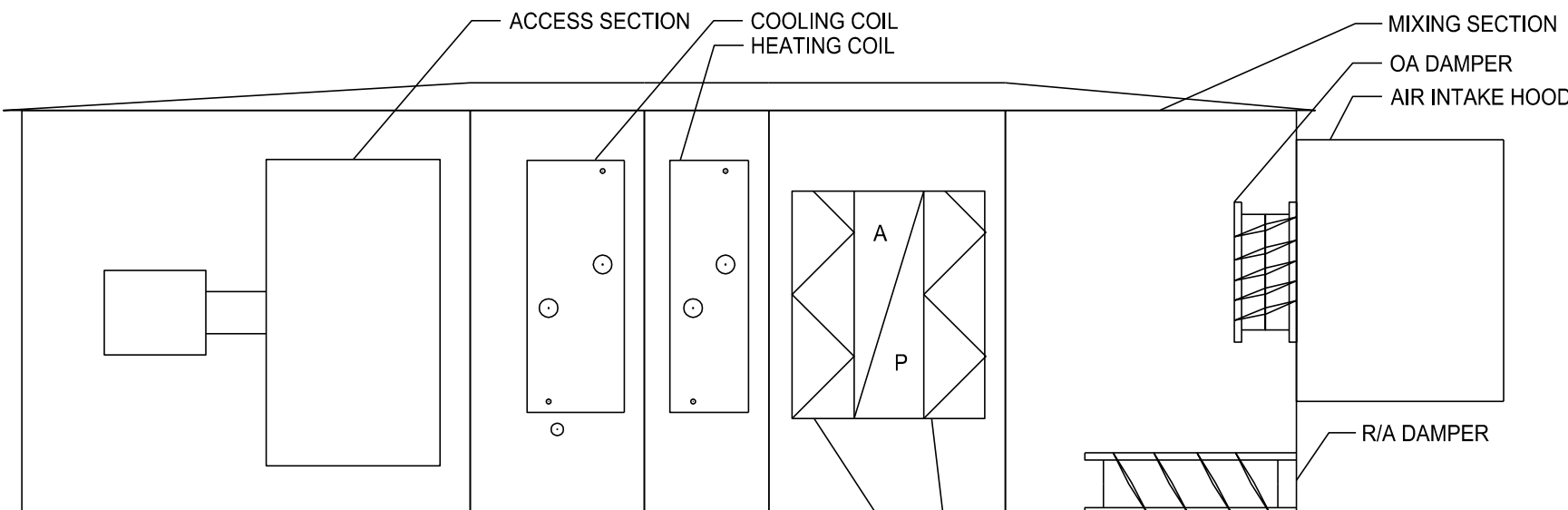
WALL MOUNTED RADIATOR PIPING DETAIL

SCALE NTS

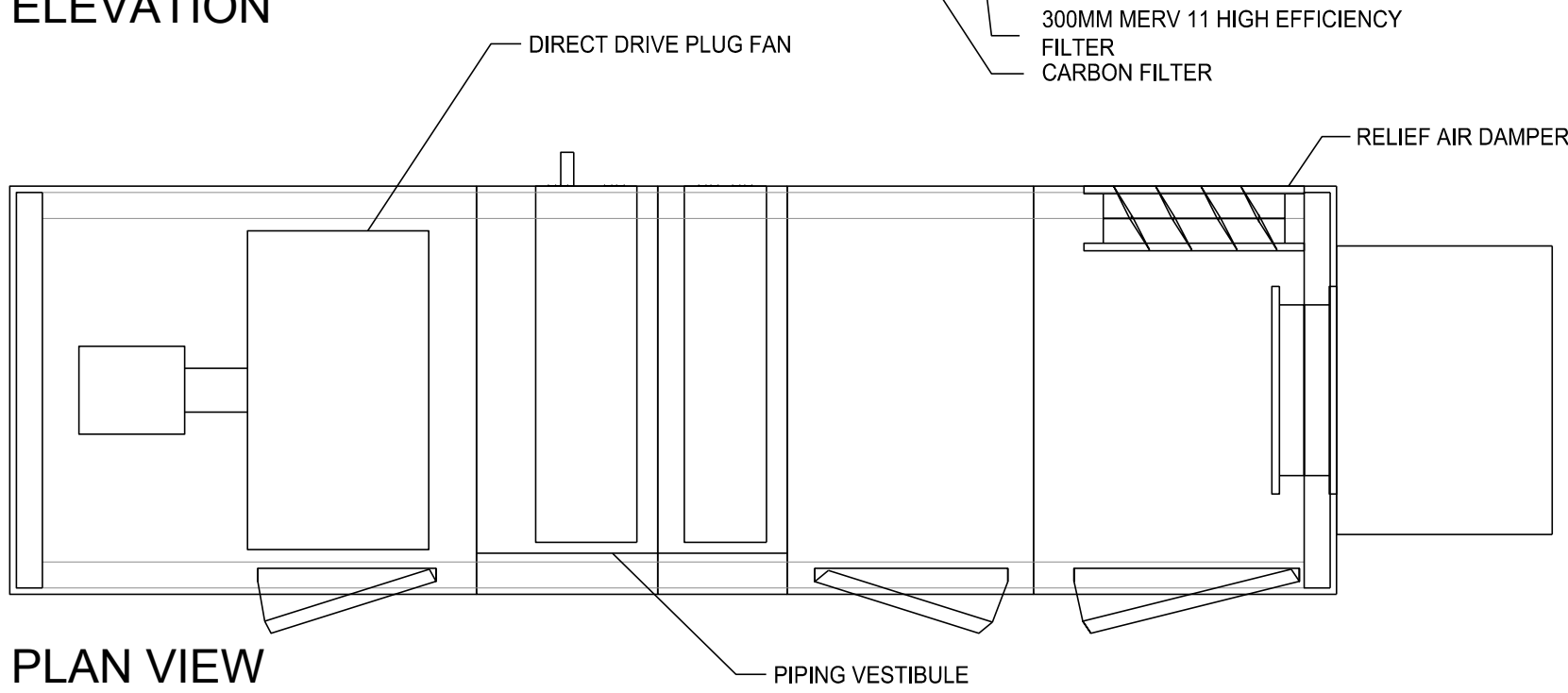


VERTICAL IN-LINE CIRCULATOR PUMP DETAIL

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ELEVATION



PLAN VIEW

AIR HANDLING UNIT 2 & 3 DETAIL

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DETAILS

SCALE: NTS

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11	19/07/2017	POST TENDER
12	09/08/2017	ISSUED FOR CONSTRUCTION

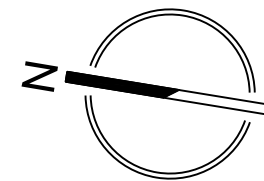
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SCALE NTS	DATE 09/08/2017

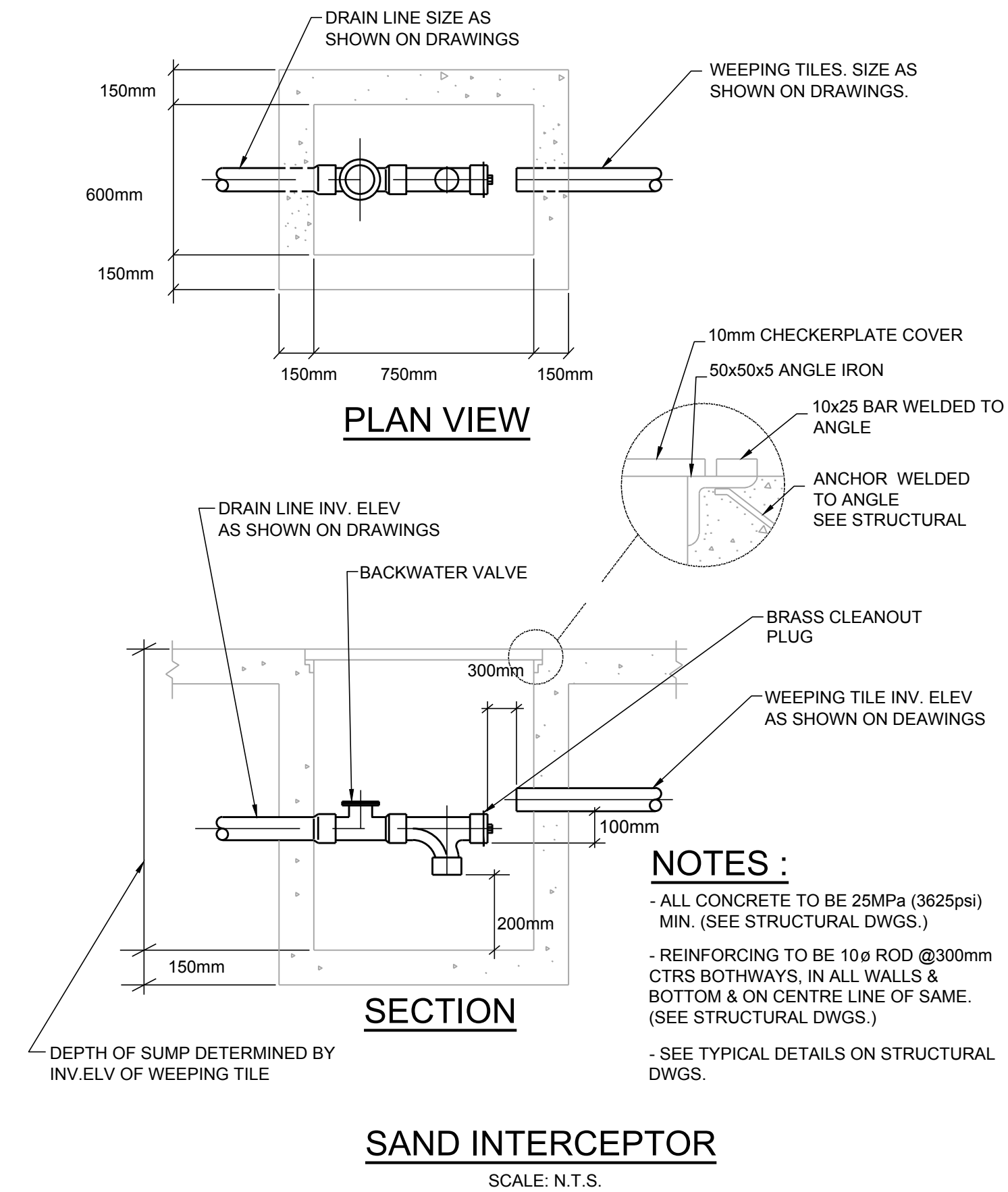
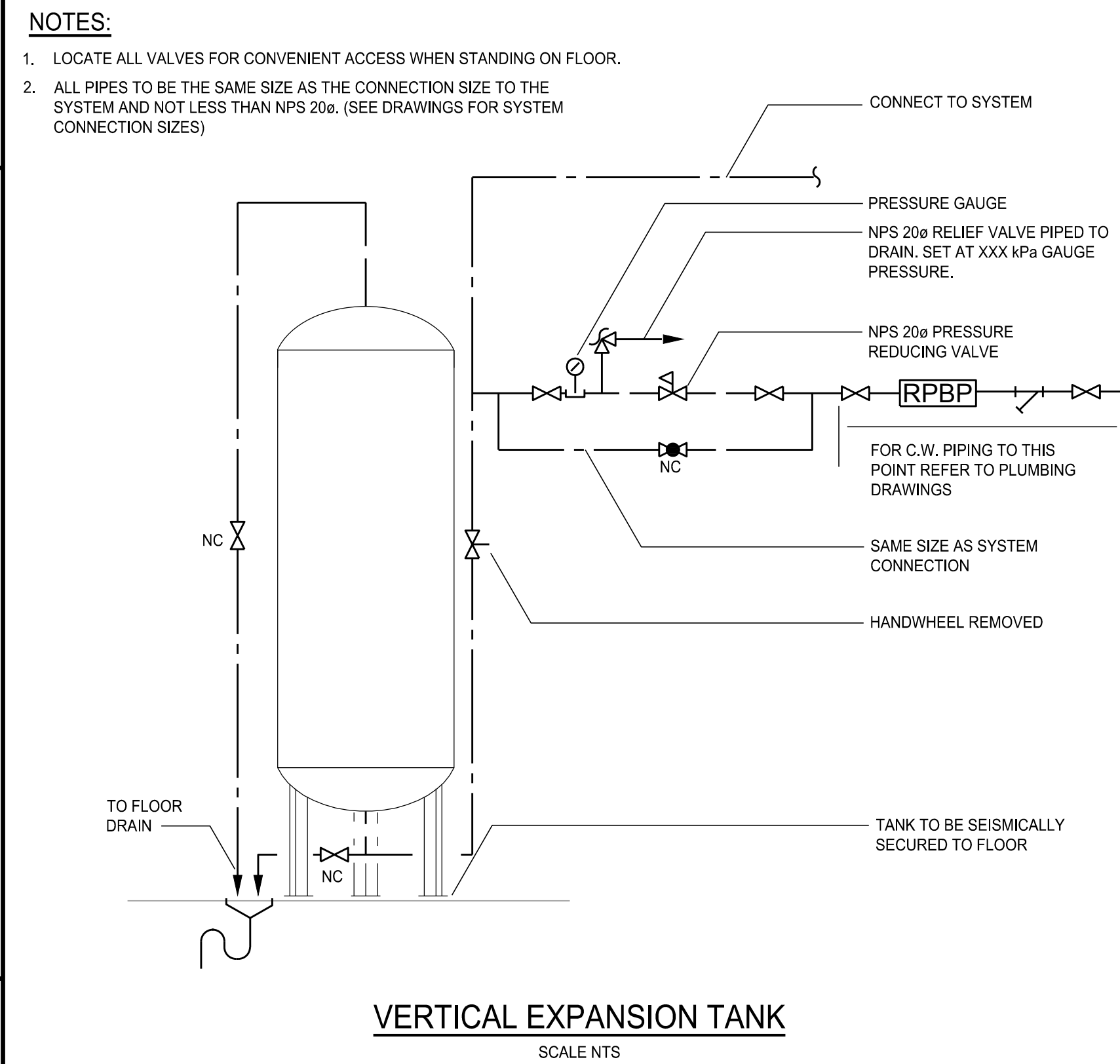
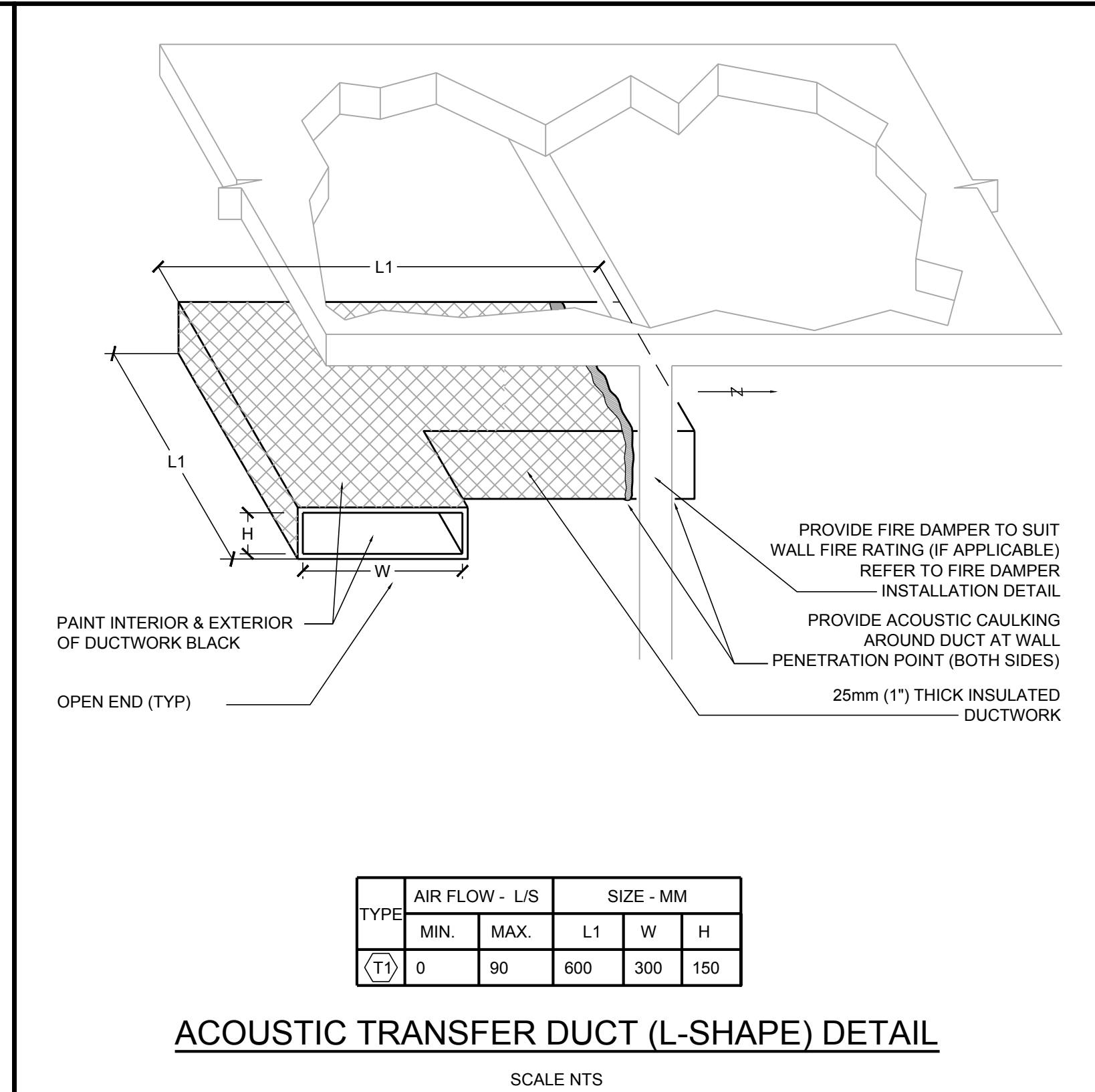
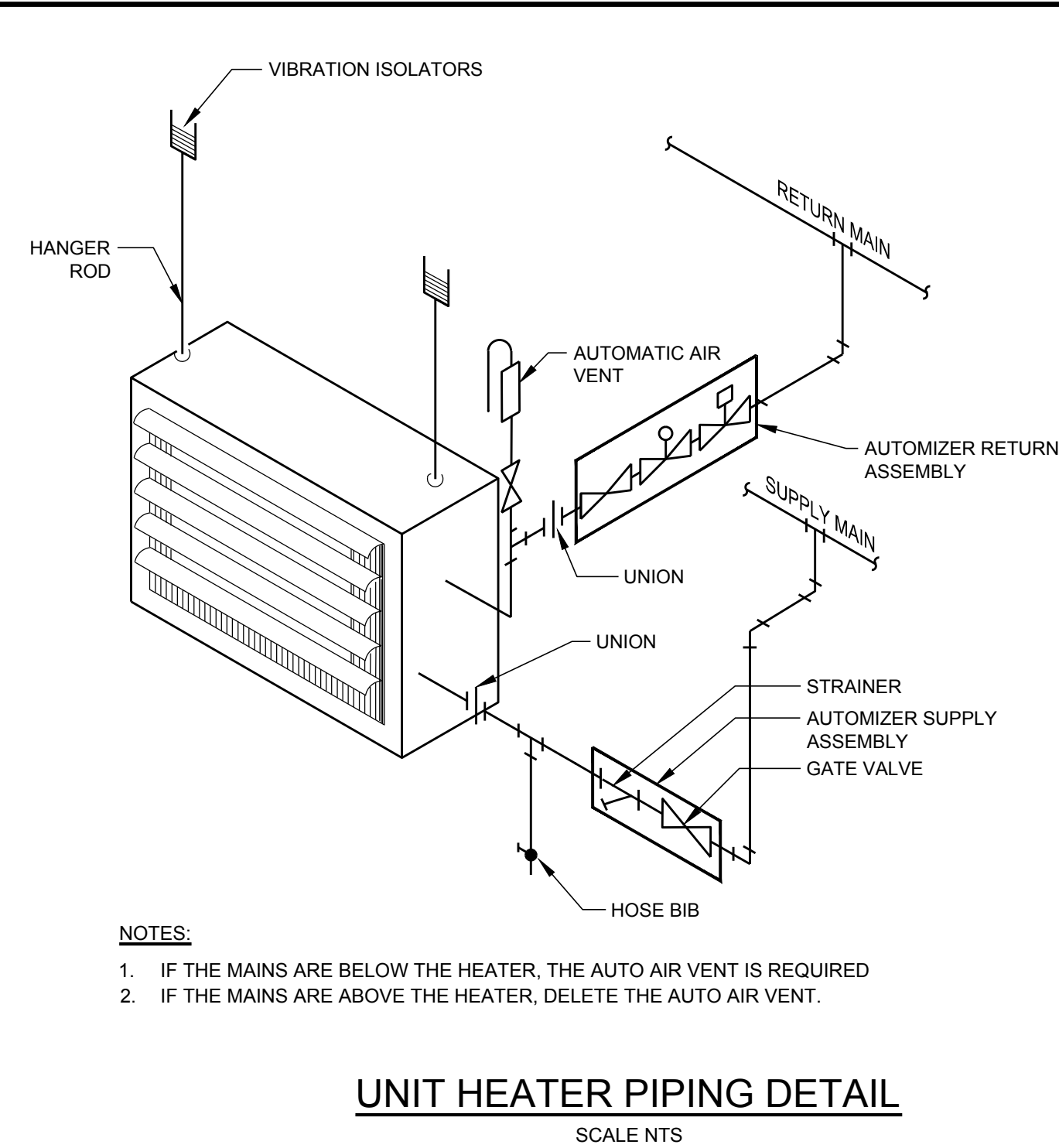
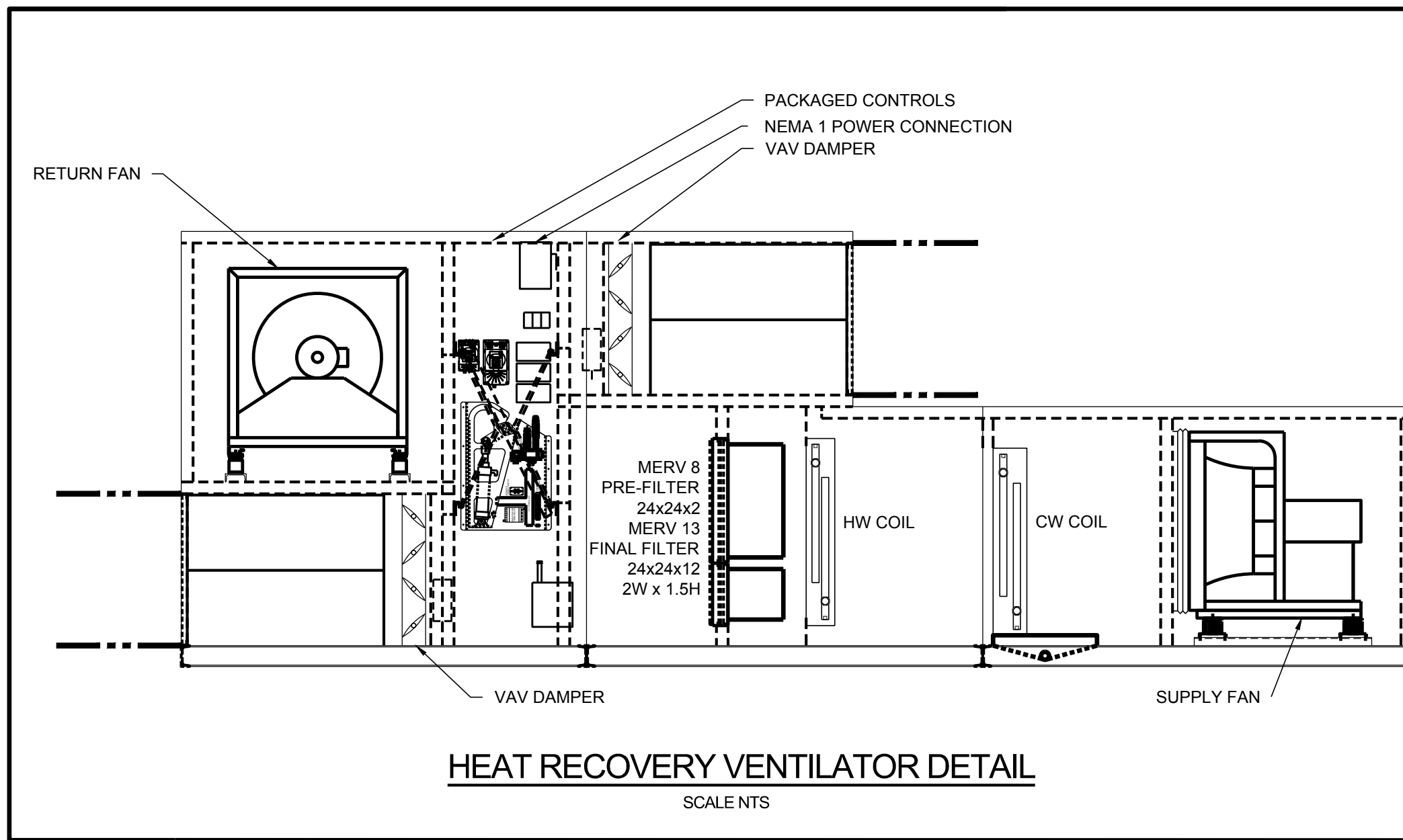
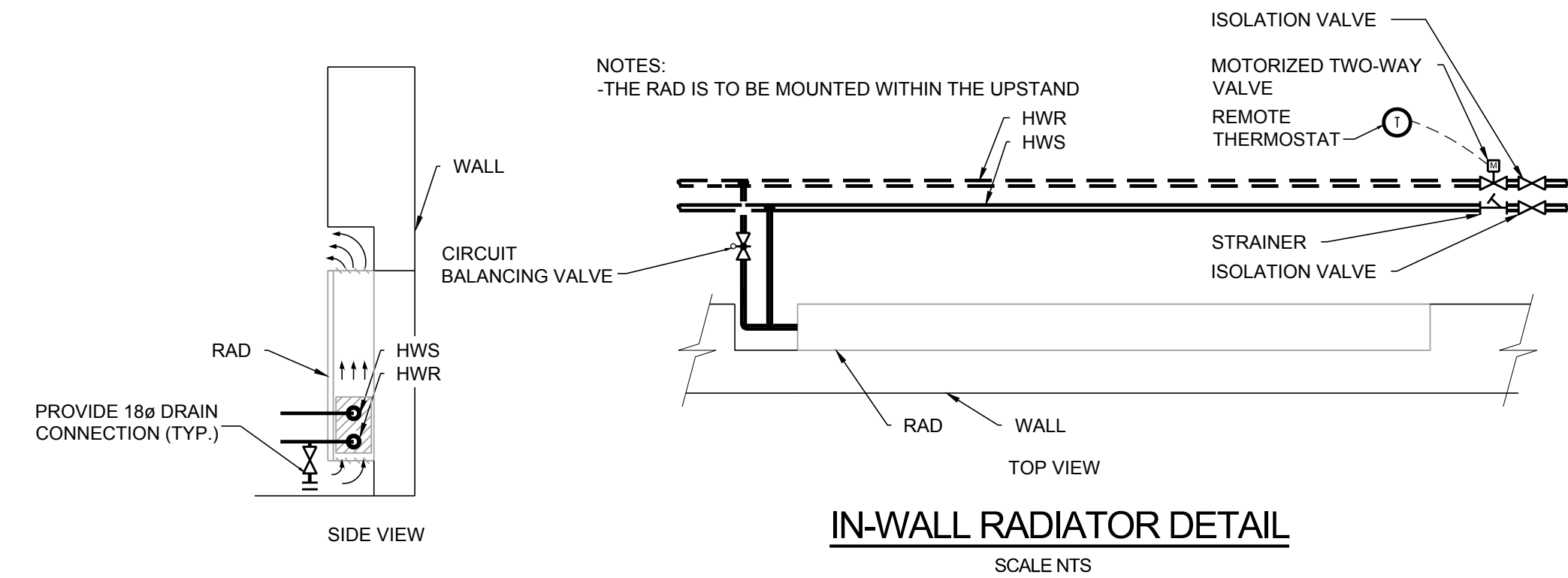
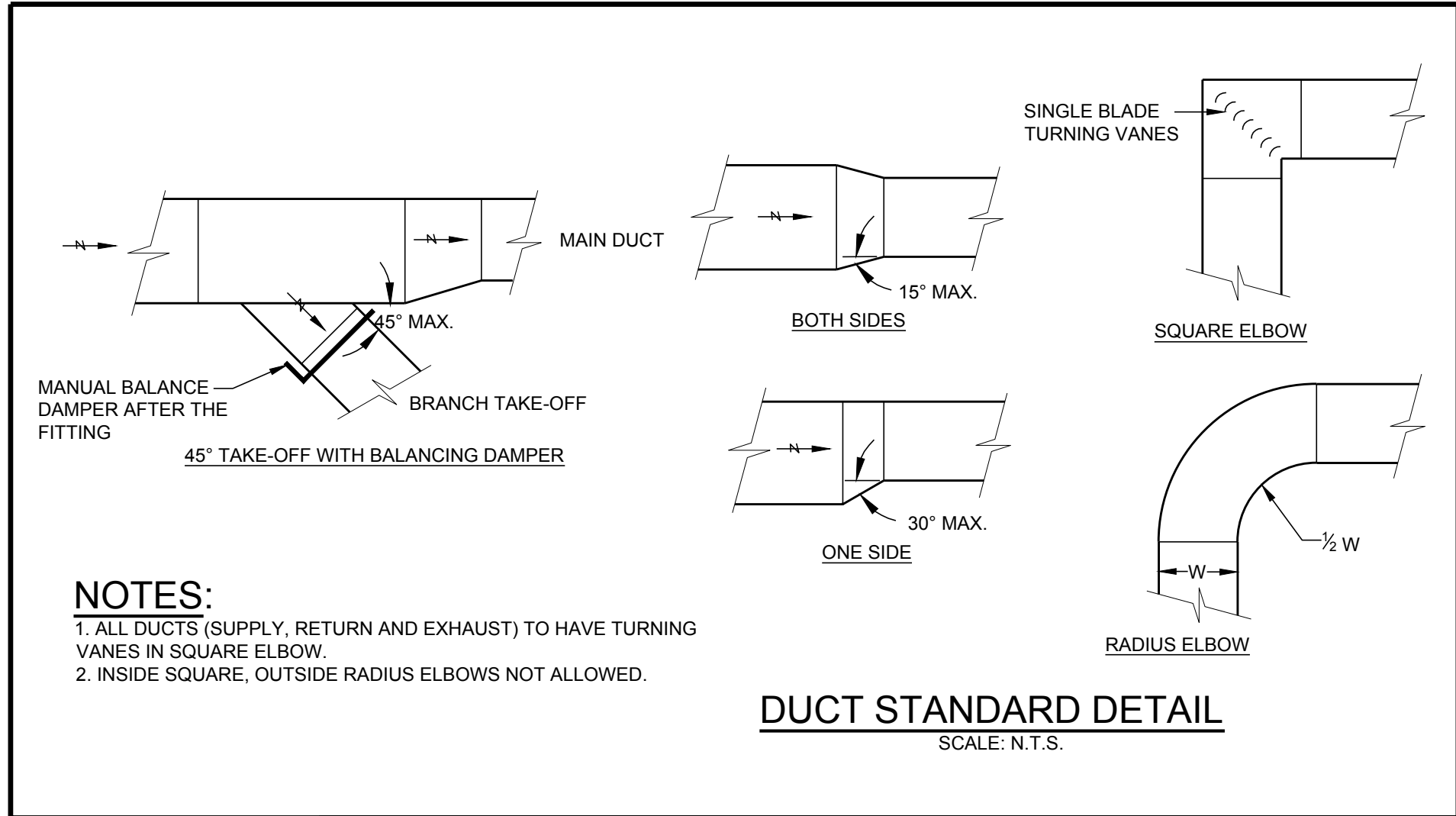
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**DETAILS - 2**

PROJECT No. **151014** SHEET No. **M501**

REVISION No. 12

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REVISION No.	DATE	DESCRIPTION
1	25/01/2017	ISSUED FOR 30% WD
2	23/02/2017	ISSUED FOR 60% WD
3	17/03/2017	ISSUED FOR 90% WD
6	11/04/2017	ISSUED FOR TENDER
7	24/04/2017	ADDENDUM M-1
8	28/04/2017	ADDENDUM M-2
10	12/05/2017	ADDENDUM M-3
11	19/07/2017	POST TENDER
12	09/08/2017	ISSUED FOR CONSTRUCTION

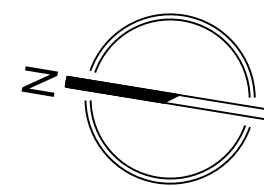
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**DETAILS - 3**

PROJECT No. **151014** SHEET No. **M502**

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