

1 SITE PLAN  
M000 1:400

CIVIC ADDRESS

1475 EDMONTON STREET,  
PRINCE GEORGE, B.C. V2M 1S2

DRAWING LIST

DWG. #	TITLE	SCALE
M000	SITE PLAN / SYMBOL SCHEDULE	1:400
M111	PLUMBING PLAN - PHASE 1 - LEVEL 0	1:100
M112	PLUMBING PLAN - PHASE 2 - LEVEL 0	1:100
M211	HVAC PLAN - PHASE 3 - LEVEL 0	1:100
M311	SPRINKLER PLAN - PHASE 1 & 2 - LEVEL 0	1:100
M312	SPRINKLER PLAN - PHASE 3 - LEVEL 0	1:100
M400	MECHANICAL SCHEDULES	N.T.S.
M500	MECHANICAL PHOTOS	N.T.S.
M501	MECHANICAL PHOTOS	N.T.S.
M600	MECHANICAL SPECIFICATIONS	N.T.S.

DRAWING NOTES

- 1 SCOPE OF AREA OF WORK.

GENERAL NOTES

- ALL WORK SHOWN IS NEW WORK UNLESS OTHERWISE NOTED AS EXISTING.
- DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INTENDED TO INDICATE THE SCOPE AND GENERAL ARRANGEMENT OF WORK AND ARE NOT DETAILED INSTALLATION INSTRUCTIONS. DO NOT SCALE THE DRAWINGS, OBTAIN ACCURATE MEASUREMENTS FROM SITE.
- TAKE FIELD MEASUREMENTS WHERE EQUIPMENT AND MATERIALS DIMENSIONS ARE DEPENDENT UPON BUILDING DIMENSIONS.
- CONTRACTOR SHALL ALLOW FOR ANY PIPING OFFSETS REQUIRED TO AVOID EXISTING CONDITIONS (STRUCTURAL/MECHANICAL/ELECTRICAL) ENCOUNTERED ON SITE.
- SHUT DOWN FOR MECHANICAL SERVICES WILL BE IN OFF HOURS. CONTRACTOR SHALL COORDINATE ALL SHUT DOWNS WITH N.H. PLANT OPERATIONS. CONTRACTOR SHALL ALLOW FOR PREMIUM TIME FOR ALL SHUT DOWNS.

PLUMBING FIXTURE CONNECTIONS

FIXTURE	DCW(mm)	DHW(mm)	SAN(mm)	VENT(mm)
ICU-1	20	20	50	40
ICU-2	30	30	50	40
SK-1	20	20	50	40
FLOOR DRAIN	12	-	100	40
ICE MACHINE	12	-	-	-

PIPE SIZE CONVERSION TABLE

DIAMETER NOMINAL DN (mm)	NOMINAL PIPE SIZE NPS (in)
6	1/8
8	1/4
10	3/8
12	1/2
20	3/4
25	1
32	1 1/4
40	1 1/2
50	2
65	2 1/2
75	3
100	4
150	6
200	8

SYMBOL SCHEDULE

	ELBOW DOWN
	ELBOW UP
	TEE DOWN
	TEE UP
	FLOW DIRECTION
	P-TRAP
	GATE VALVE
	BALL VALVE
	PLUG VALVE
	NORMALLY CLOSED VALVE
	CHECK VALVE
	BALANCING VALVE
	2-WAY CONTROL VALVE
	3-WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	STRAINER
	BACKFLOW DEVICE
	PIPE BREAK
	CLEANOUT AT GRADE
	PIPE CAP
	PIPE UNION
	SANITARY DRAIN
	STORM DRAIN
	SANITARY - BELOW GRADE
	STORM - BELOW GRADE
	SANITARY VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRC.
	HEATING WATER SUPPLY
	HEATING WATER RETURN
	NATURAL GAS
	SUPPLY AIR DUCT
	RETURN AIR DUCT
	EXHAUST AIR DUCT
	RECTANGULAR DUCT BREAK
	ROUND DUCT BREAK
	ROUND DUCT UP
	ROUND DUCT DOWN
	BALANCING DAMPER
	SUPPLY AIR DIFFUSER / GRILLE
	RETURN GRILLE
	EXHAUST GRILLE
	FIRE DAMPER IN VERTICAL DUCT
	FIRE DAMPER IN HORIZONTAL DUCT
	AIRFLOW DIRECTIONAL ARROW
	THERMOSTAT
	TEMPERATURE SENSOR
	HATCHING DENOTES REMOVAL OF EXISTING MECHANICAL ITEM
	NEW MECHANICAL ITEM (BOLD LINES)
	EXISTING MECHANICAL ITEM (FAINT LINES)
	DETAIL DESIGNATION
	DRAWING TO FIND DETAIL
	GRILLE TYPE - REFER TO EQUIPMENT SCHEDULES.
	INLET SIZE
	AIRFLOW (CFM)
	EQUIPMENT IDENTIFIER - REFER TO EQUIPMENT SCHEDULES FOR NEW EQUIPMENT.
	EQUIPMENT IDENTIFIER - EXISTING.
	NOTE
	CONNECT TO EXISTING

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Ray Wells, Architect ABC, AAA

Issued For

Issue Date YYYY-MM-DD

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GLOBAL REVISIONS LIST\*

NO.	DATE	DESCRIPTION
1	2023.12.20	ISSUED FOR 90% CD
2	2023.01.24	ISSUED FOR COORDINATION
3	2023.02.08	ISSUED FOR BID AND BP
4	2023.03.20	ISSUED FOR CONSTRUCTION

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Project Number	22306
Project	UHN TRAYLINE ASSEMBLY SYSTEM REPLACEMENT
Drawing	1475 EDMONTON STREET, PRINCE GEORGE, BC, V2M 1S2
Sheet Number	M000
	SITE PLAN / SYMBOL SCHEDULE





DEMOLITION NOTES

1

M500

2

M400

RENOVATION NOTES

2

a)

EXISTING DRAINAGE PUMP SHALL BE REUSED. PROVIDE ELECTRICAL CABLE AND PLUG TO CONNECT TO ELECTRICAL SERVICES PROVIDED BY DIV. 16 WITHIN THE MILLWORK.

b)

SUPPLY AND INSTALL NEW COPPER DRAINAGE PIPING C/W CHECK VALVE AND PIPE ABOVE EXISTING SUSPENDED CEILING BACK TO DRAINAGE PIPING IN SUSPENDED CEILING AREA OF DISH ROOM.

c)

SUPPLY AND INSTALL NEW INSULATED 12mm COPPER DOMESTIC COLD WATER PIPING WITH BACKFLOW PREVENTOR. EXISTING WATER FILTER SHALL BE INSTALLED WITHIN THE EXISTING MILLWORK AND PIPED TO RELOCATED EQUIPMENT. DOMESTIC WATER LINE SHALL BE INSTALLED ABOVE EXISTING TEE BAR CEILING AND CONNECTED TO EXISTING DOMESTIC COLD WATER PIPING MAIN ABOVE THE SUSPENDED CEILING IN THE DISHWASHER ROOM.

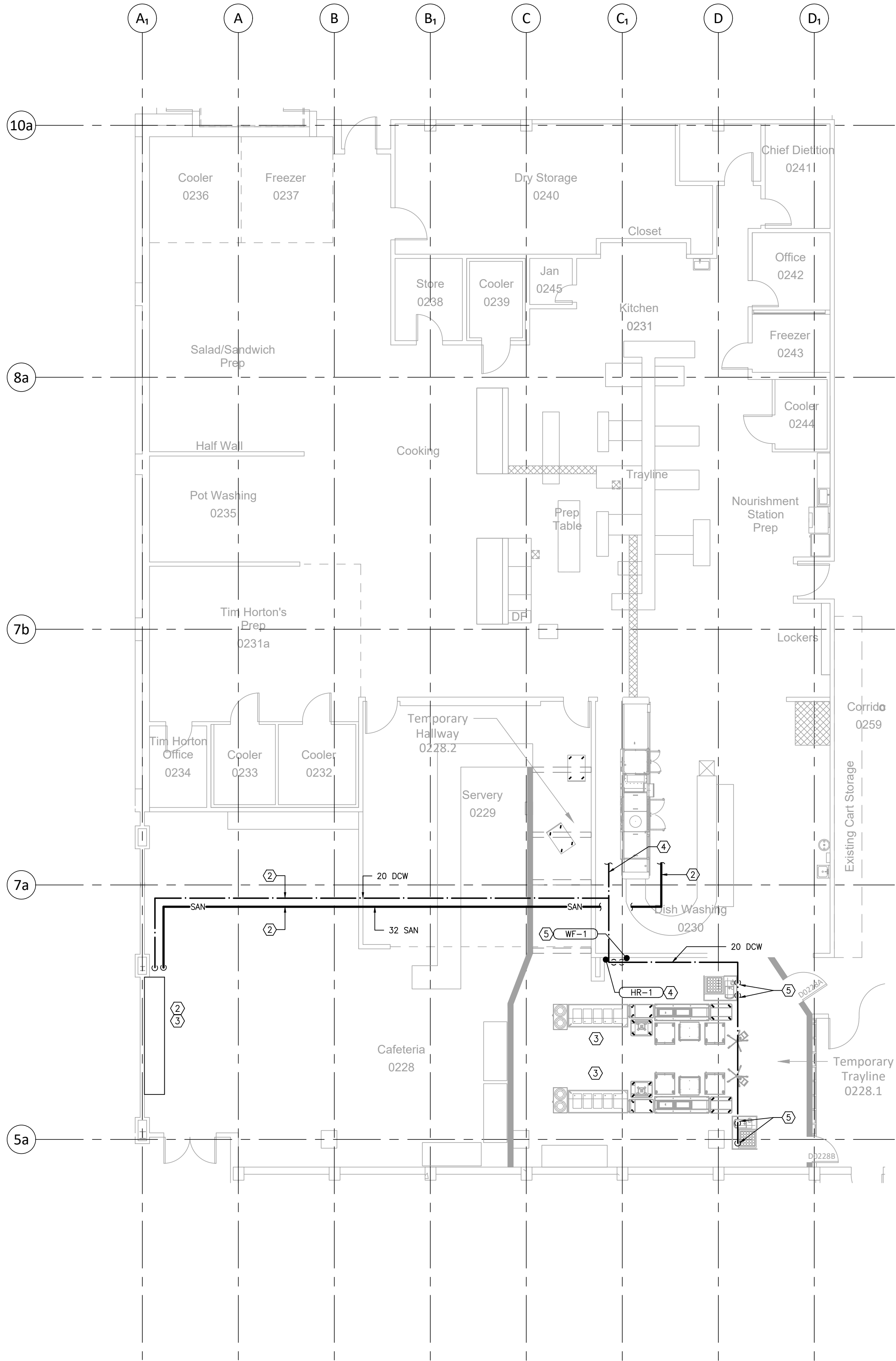
3

19

M501

4

5



1 M111 PLUMBING PLAN - DEMO PHASE 1 - LEVEL 0  
1:100



2 M111 PLUMBING PLAN - PHASE 1 - LEVEL 0  
1:100

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Project  
UHN TRAYLINE ASSEMBLY SYSTEM  
REPLACEMENT  
1475 EDMONTON STREET, PRINCE GEORGE, BC, V2M 1S2  
Drawing  
PLUMBING PLAN - PHASE 1 - LEVEL 0  
Sheet Number  
22306  
M111





1  
M112 PLUMBING PLAN - DEMO PHASE 2 - LEVEL 0  
1:100

#### GENERAL NOTES

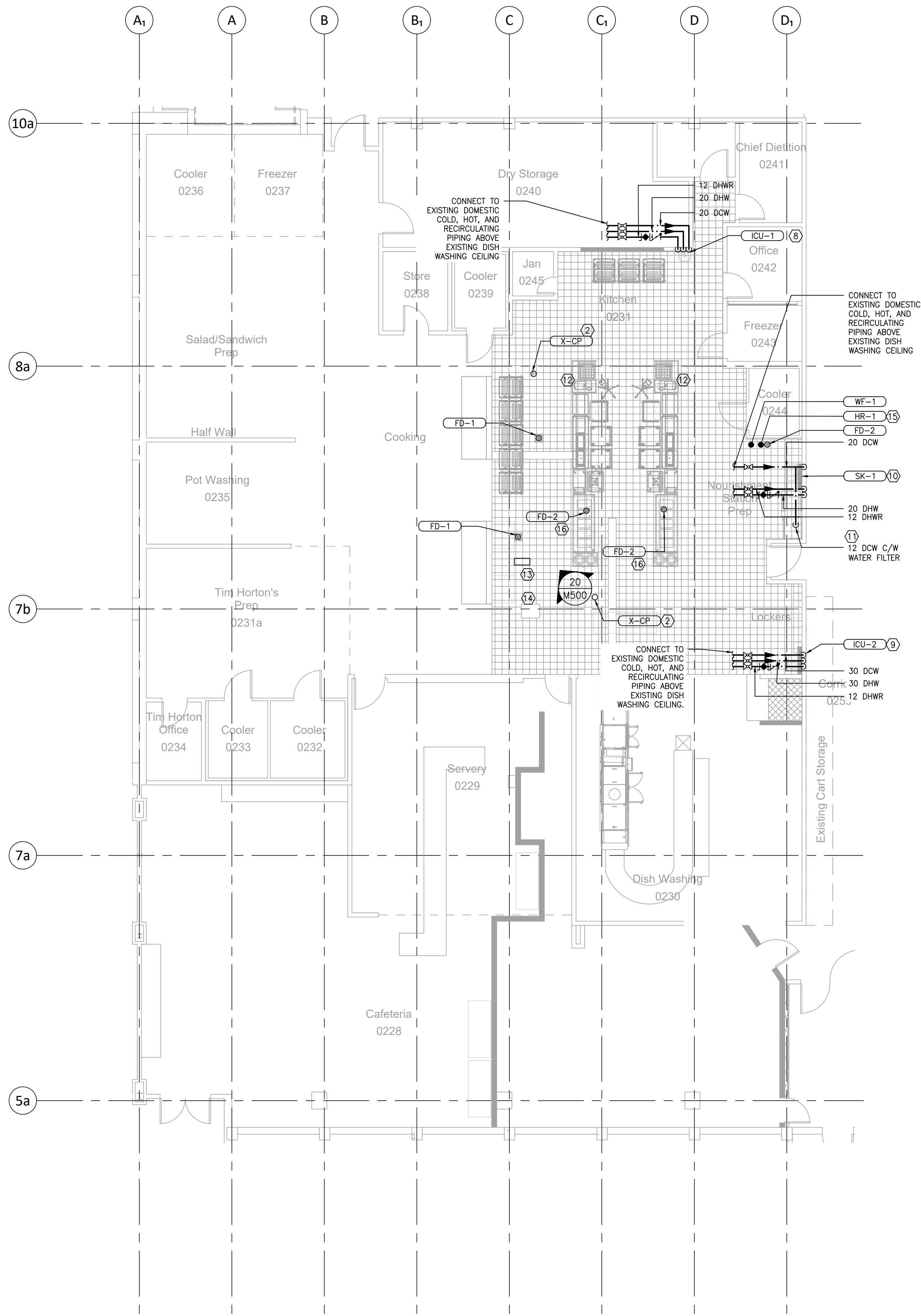
- A) ALL EXISTING FLOOR DRAINS IN TRAYLINE AREA SHALL BE ADJUSTED TO SUIT NEW FLOOR ELEVATIONS (REPLACE IF NECESSARY WITH NEW FLOOR DRAINS).
- B) IF ALTERNATE SHEET FLOORING IS USED NEW FLOOR DRAINS FD-1 SHALL BE INSTALLED. ALL EXISTING FLOOR DRAINS IN TRAYLINE AREA SHALL BE REMOVED FROM CONCRETE SLAB. INSTALL NEW DRAINAGE PIPING AND NEW FLOOR DRAINS TO SUIT NEW FLOORING MATERIAL (X-FD).
- 22  
M501
- 21  
M501
2. ALL EXISTING FLOOR COVER PLATES IN TRAYLINE AREA BEING RENOVATED SHALL BE REMOVED AND NEW COVER PLATE INSTALLED TO SUIT NEW FLOORING MATERIAL (X-CP).
- 20  
M501
3. PROVIDE FLEXIBLE HOSES C/W ISOLATION VALVES FROM THE CEILING TO EACH OF THE TRAYLINE OWNER SUPPLIED PIECES OF EQUIPMENT. (FLEXIBLE HOSE MATERIAL SHALL BE POTABLE WATER QUALITY. PROVIDE SHOP DRAWINGS PRIOR TO ORDERING MATERIAL.)
4. REMOVE TEMPORARY TRAYLINE PLUMBING SERVICES AND MAKE GOOD.

#### DEMOLITION NOTES

1. REMOVE EXISTING SINK AND PLUMBING TO ALLOW INSTALLATION OF NEW ICU SINK. (ICU-1)
- 15  
M500
2. REMOVE EXISTING SINK AND PLUMBING TO ALLOW INSTALLATION OF NEW MILLWORK. REMOVE EXISTING DRAINAGE AND WATER PIPING BELOW EXISTING COUNTER TO ALLOW INSTALLATION OF NEW FLOORING. INSTALL TEMPORARY DRAIN LINES FOR FREEZER AND COOLER DRAIN LINES.
- 12  
M500
3. REMOVE EXISTING SINK AND EYE WASH; CAP EXISTING PIPING. EXISTING EYEWASH AND SINK TO BE TURNED OVER TO NH - PLANT OPERATIONS.
- 4  
M500
- 5  
M500
4. REMOVE EXISTING PREP TABLE SINK PLUMBING AND CAP IN CEILING AND REMOVE PIPING FROM TRENCH AND CAP. REMOVE TRENCH DRAIN PIPING AND CAP.
- 2  
M500
- 6  
M500
- 7  
M500
- 8  
M500
5. REMOVE EXISTING FIRE EXTINGUISHER AND STORE FOR FUTURE INSTALLATION.
- 2  
M500
6. REMOVE EXISTING WATER LINE, WATER FILTER AND DRAIN LINES TO EXISTING ICE MACHINE TO ALLOW INSTALLATION OF WALL PROTECTION.
- 13  
M500
7. REMOVE EXISTING TRENCH DRAIN PIPING AND CAP.

#### RENOVATION NOTES

8. SUPPLY AND INSTALL NEW DOMESTIC HOT, COLD AND RECIRCULATING PIPING TO NEW INFECTIOUS CONTROL SINK (ICU-1). PROVIDE NEW PLUMBING DRAINAGE AND VENT PIPING FOR NEW INFECTIOUS CONTROL SINK (ICU-1).
9. SUPPLY AND INSTALL NEW DOMESTIC HOT, COLD AND RECIRCULATING PIPING TO NEW INFECTIOUS CONTROL SINK (ICU-2). DOMESTIC HOT AND COLD WATER SUPPLY PIPING TO ICU-2 SINK EYEWASH MIXING VALVE SHALL BE 30mm PROVIDE NEW PLUMBING DRAINAGE AND VENT PIPING FOR NEW INFECTIOUS CONTROL SINK (ICU-2). MECHANICAL CONTRACTOR TO PROVIDE CUSTOM RECESSED STAINLESS STEEL CABINET WITH HINGED ACCESS DOOR TO ACCOMMODATE THE EYEWASH MIXING VALVE ASSEMBLY. CONTRACTOR SHALL PROVIDE SHOP DRAWING FOR APPROVAL PRIOR TO MANUFACTURING.
10. PROVIDE NEW DOMESTIC HOT, COLD, AND RECIRCULATING PIPING TO NEW SINK IN MILLWORK. PROVIDE NEW PLUMBING DRAINAGE AND VENT PIPING FOR SINK AND CONNECT TO EXISTING. SEE DRAWING M400 FOR SINK AND TRIM SCHEDULE.
11. SUPPLY AND INSTALL NEW DOMESTIC COLD WATER PIPING TO ICE MACHINE. C/W NEW WATER FILTER WF-1.
12. PROVIDE NEW DOMESTIC COLD WATER SUPPLY PIPING C/W ISOLATION VALVE AT CEILING TO NEW HOT WATER DISPENSER AND NEW BEVERAGE STATION. (NEW PIPING TO EACH UNIT SHALL BE SUPPORTED FROM THE STRUCTURE AT CEILING WITH FLEXIBLE PIPING TO BEVERAGE UNIT AND HOT WATER DISPENSER C/W NEW WATER FILTER ASSEMBLY MOUNTED BESIDE NEW HOSE REEL HR-1 (EXACT LOCATION TO BE CONFIRMED ON SITE).
13. EXISTING STAINLESS STEEL DRAIN GRATE SHALL BE MODIFIED TO SUIT NEW FLOOR MATERIAL (CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ARCHITECT FOR APPROVAL PRIOR TO FABRICATION).
- 20  
M501
14. EXISTING FIRE EXTINGUISHER TO BE REINSTALLED (EXACT LOCATION TO BE DETERMINED ON SITE).
15. HOSE REEL (HR-1) TO BE REMOVED WHEN TEMPORARY TRAYLINE IS RELOCATED AND REINSTALLED IN TRAYLINE ROOM (EXACT LOCATION TO BE DETERMINED BY NORTHERN HEALTH ON SITE).
16. SUPPLY AND INSTALL NEW SANITARY PIPING AND CONNECT TO EXISTING BURIED BELOW GRADE SANITARY PIPING FOR NEW FLOOR DRAINS. PROVIDE VENT PIPING FROM FLOOR DRAIN PIPING BELOW GRADE TO NOURISHMENT STATION SINK VENT PIPING. SEE DRAWING 1/M400 FOR CONNECTIONS.



2  
M112 PLUMBING PLAN - PHASE 2 - LEVEL 0  
1:100

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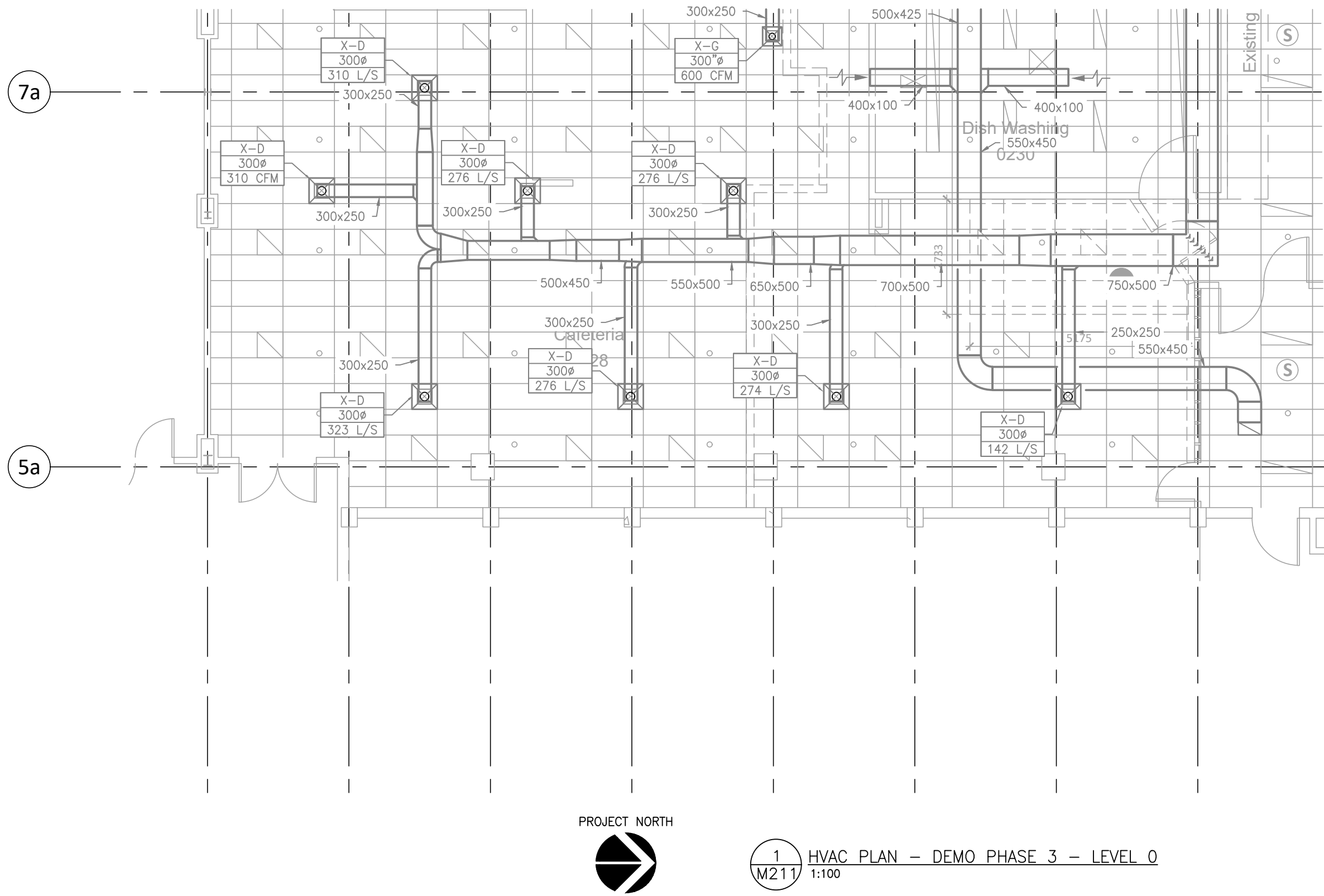
PROJECT STATE	
GLOBAL REVISIONS LIST*	
NO.	DATE
1	2023.12.20
2	2023.12.20
3	2023.02.08
4	2023.03.20

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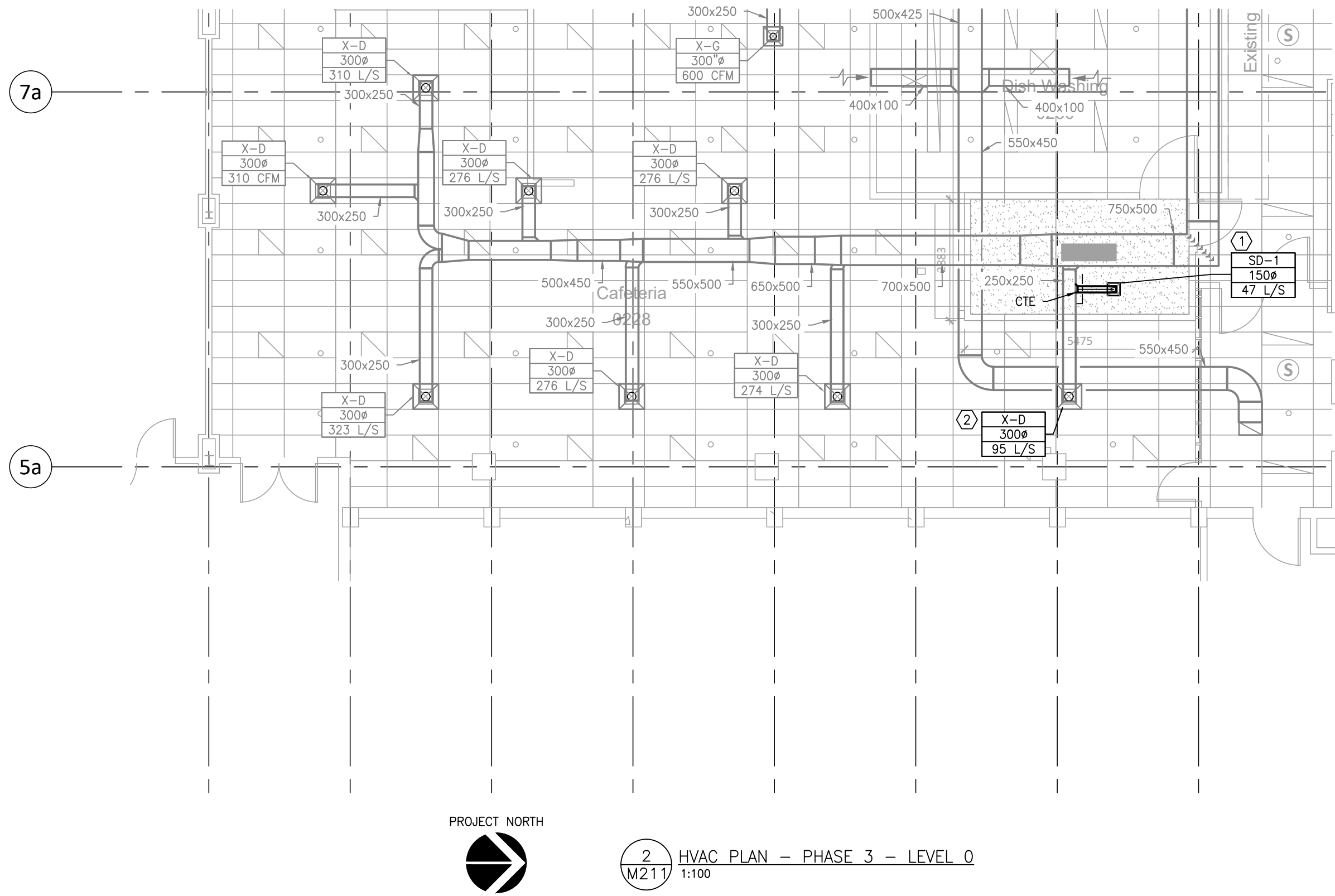
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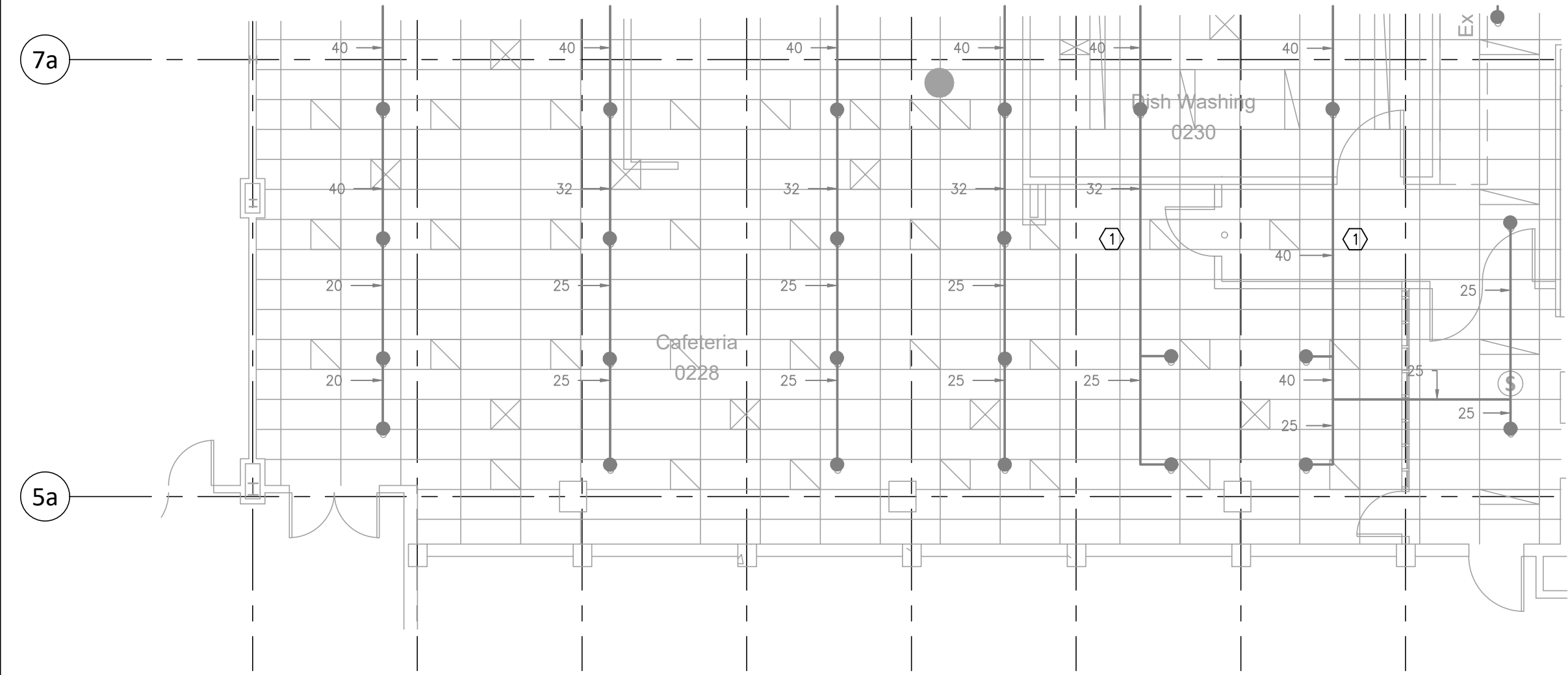
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Project Number	22306
Sheet Number	M112
Drawing	PLUMBING PLAN - PHASE 2 - LEVEL 0



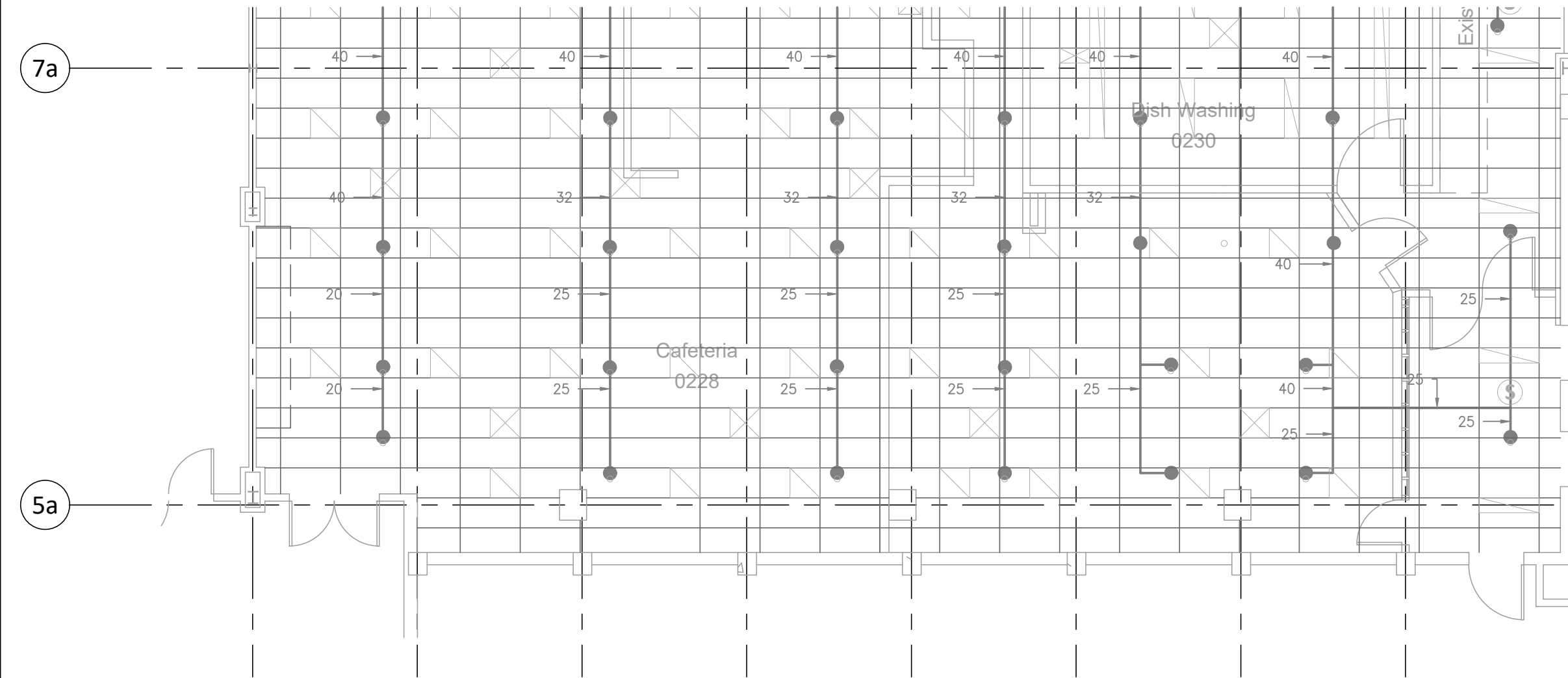


- RENOVATION NOTES
- 1 SUPPLY AND INSTALL NEW SUPPLY AIR BRANCH DUCT AND DIFFUSER TO SUPPLY AIR TO NEW CLEAN CART STORAGE AREA.
  - 2 BALANCE EXISTING SUPPLY DIFFUSER TO NEW AIRFLOW.



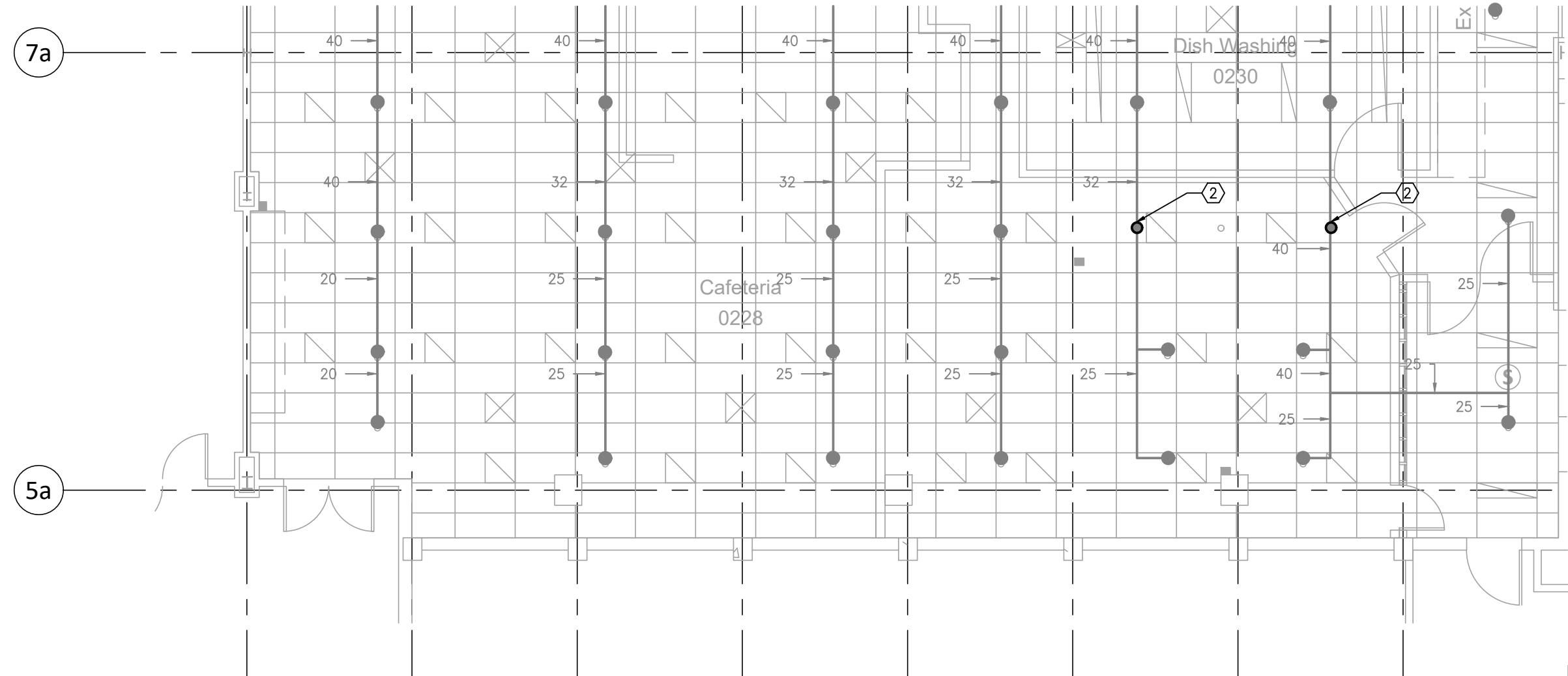


1 SPRINKLER PLAN - DEMO PHASE 1 - LEVEL 0  
M311 1:100

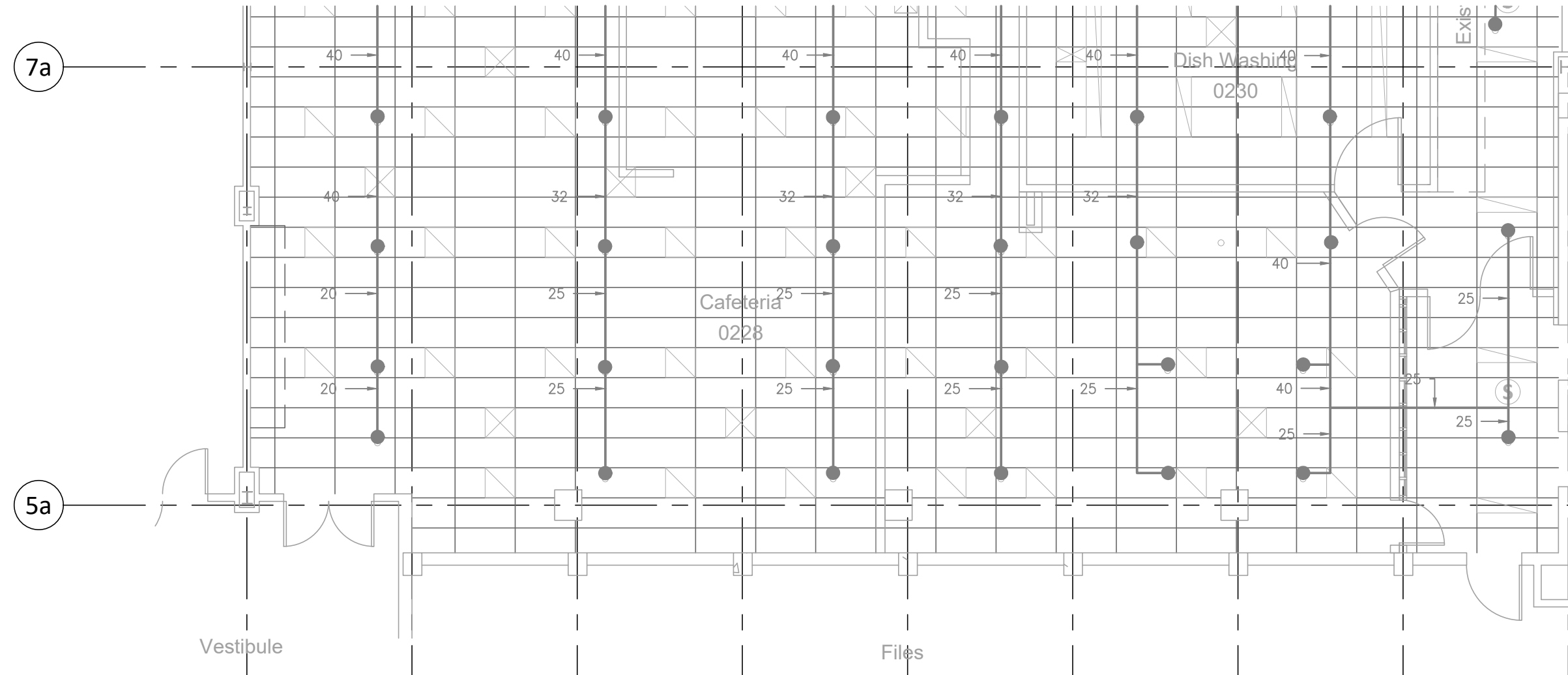


3 SPRINKLER PLAN - DEMO PHASE 2 - LEVEL 0  
M311 1:100

DEMOLITION NOTES	
1	ADJUST SPRINKLER PIPING TO ALLOW INSTALLATION OF NEW WELL AND DOOR.
RENOVATION NOTES	
2	SUPPLY AND INSTALL NEW SPRINKLER HEADS. CONNECT TO EXISTING PIPING.



2 SPRINKLER PLAN - PHASE 1 - LEVEL 0  
M311 1:100



4 SPRINKLER PLAN - PHASE 2 - LEVEL 0  
M311 1:100

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NO. DATE DESCRIPTION	
1 2021.12.20 ISSUED FOR 30% CD	1
2 2023.01.24 ISSUED FOR COORDINATION	2
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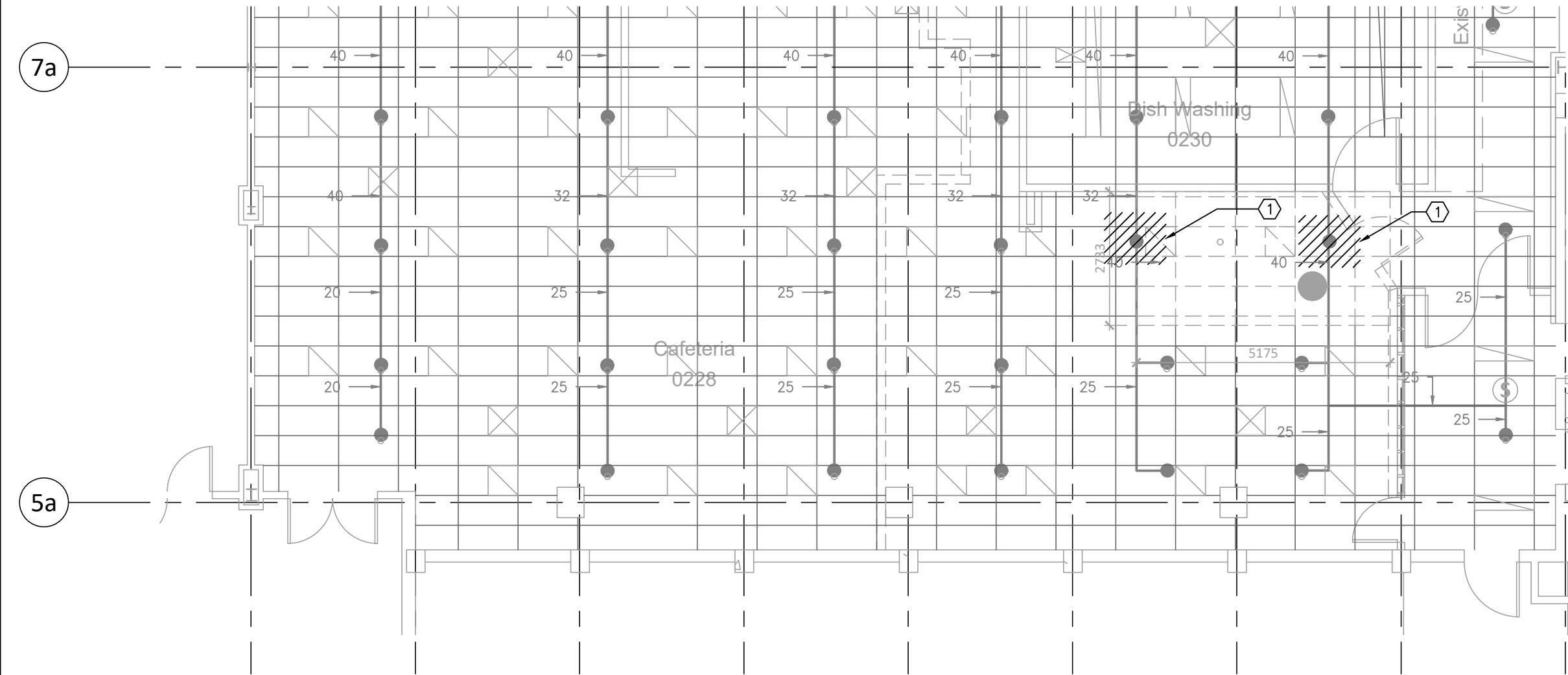
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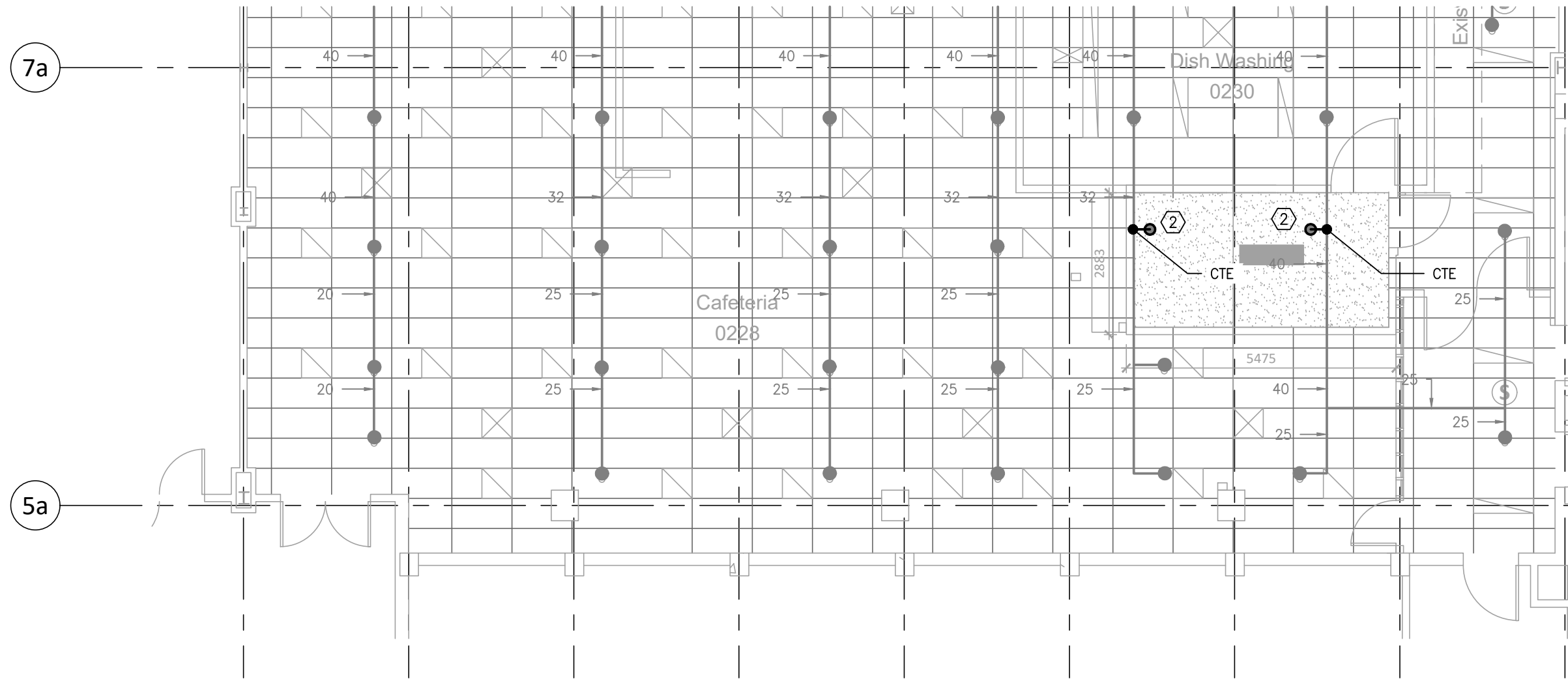
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Project Number	22306
Project	UHN TRAYLINE ASSEMBLY SYSTEM REPLACEMENT 1475 EDMONTON STREET, PRINCE GEORGE, BC, V2M 1S2
Drawing	SPRINKLER PLAN - PHASE 1 & 2 - LEVEL 0
Sheet Number	M311





DEMOLITION NOTES
1 EXISTING SPRINKLER HEADS WITHIN NEW CLEAN CART WASH SHALL BE REMOVED.
RENOVATION NOTES
2 SUPPLY AND INSTALL NEW FULLY RECESSED SPRINKLER HEADS. CONNECT TO EXISTING PIPING.



PROJECT NORTH

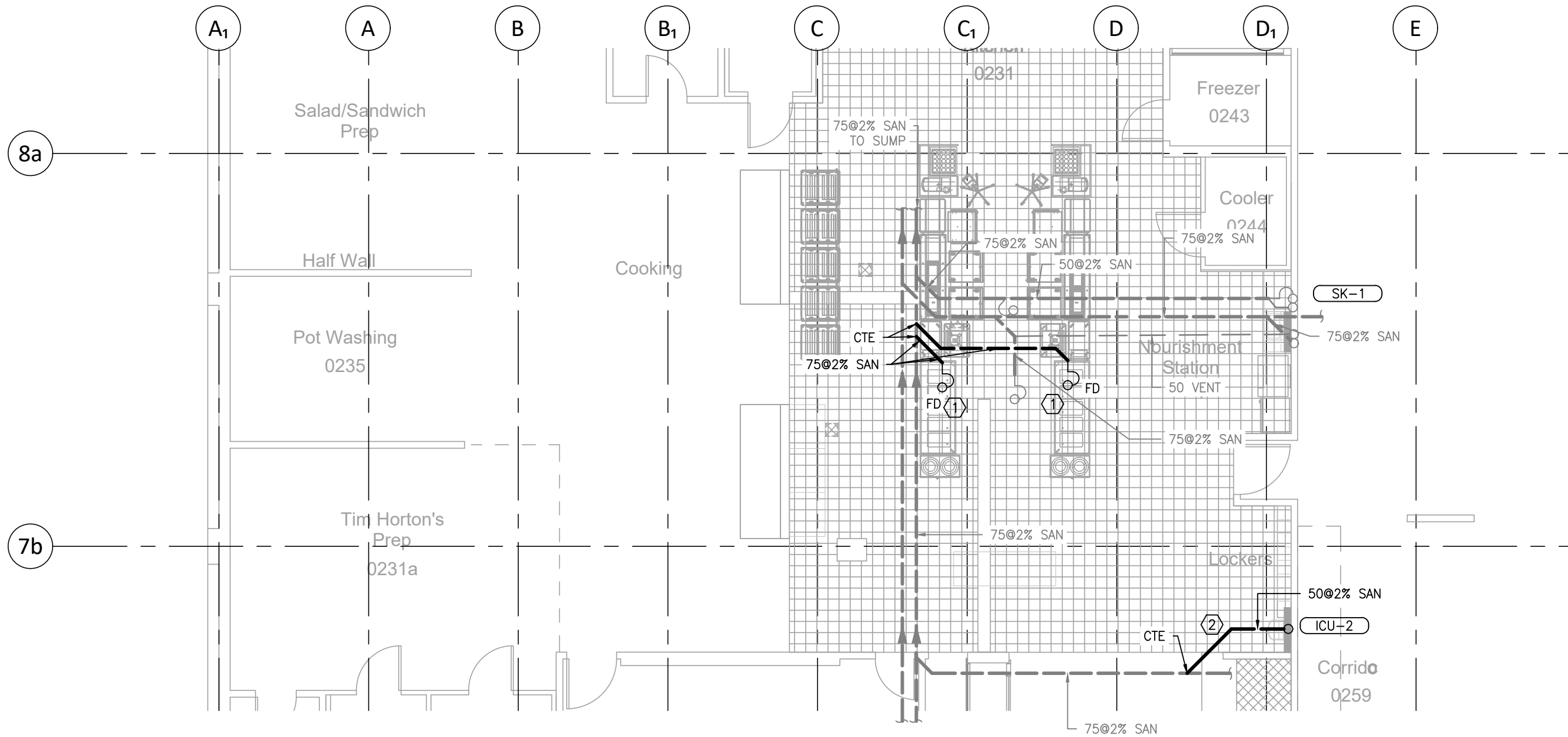


1 SPRINKLER PLAN - DEMO PHASE 3 - LEVEL 0  
M312 1:100

PROJECT NORTH



2 SPRINKLER PLAN - PHASE 3 - LEVEL 0  
M312 1:100



1  
M400  
PLUMBING PLAN - PHASE 2 - FOUNDATION  
1:100

PUMP SCHEDULE											
TAG No.	SERVICE	LOCATION	MANUFACTURER	MODEL No.	TYPE	FLUID	FLOW LPM [GPM]	MOTOR	RPM	ELECTRICAL (V/Ph/Hz)	REMARKS
SP-1	WATER DRAINAGE	IN MILLWORK BELOW WATER DISPENSER	LIBERTY PUMPS	-	-	WATER	-	-	-	-	EXISTING PUMP TO BE RE-USED. SEE PHOTO 2/M400 FOR EXISTING PUMP.



2  
M400  
EXISTING PUMP  
NTS

### GENERAL NOTES

- CONTRACTOR TO CONFIRM EXISTING BELOW GRADE PIPING LOCATIONS BEFORE CUTTING SLAB FOR NEW INSTALLATION OF SANITARY PIPING.

### DRAWING NOTES

- SUPPLY AND INSTALL 3" SANITARY PIPING FROM EACH OF THE FLOOR DRAINS TO SANITARY MAIN INDIVIDUALLY (REFER TO MECHANICAL PHOTOS 24/M501 AND 25/M501 FOR REFERENCE).
- SUPPLY AND INSTALL SANITARY PIPING FROM ICU-2 TO SANITARY MAIN.

### PLUMBING FIXTURE SCHEDULE

FIXTURE TAG	TYPE	DESCRIPTION
FD-1	FUNNEL FLOOR DRAIN	WATTS 'FD-204NH-FC9-G-1' FLOOR DRAIN, CAST IRON FLOOR BODY WITH 1/2" TRAP PRIMER CONNECTION, ANCHOR FLANGE, WEEPHOLES, REVERSIBLE CLAMPING COLLAR, 6" ADJUSTABLE NICKEL BRONZE FUNNEL STRAINER AND NO HUB OUTLET.
FD-2	FLOOR DRAIN	WATTS 'FD-204NH-FC7-1' FLOOR DRAIN, CAST IRON FLOOR BODY WITH 1/2" TRAP PRIMER CONNECTION, ANCHOR FLANGE, WEEPHOLES, REVERSIBLE CLAMPING COLLAR, 6" ADJUSTABLE NICKEL BRONZE STRAINER AND NO HUB OUTLET, C/W TRAP PRIMER & PIPING.
X-FD	FLOOR DRAIN	EXISTING FLOOR DRAIN
X-CP	PLUMBING CLEAN OUT	EXISTING PLUMBING CLEAN OUT COVER
ICU-1	INFECTION CONTROL SINK	<ul style="list-style-type: none"><li>FRANKE, HAND HYGIENE SINK MODEL: HWSS1518P-00. Z8000 COMPLIANT ANTIMICROBIAL HAND HYGIENE SINK. 1.2mm (18 GAUGE) TYPE 304 S.S. RIGHT REAR WASTE LOCATION. BACK SPLASH, NO OVERFLOW. BOWL FINISH: SATIN FINISH C/W MANUFACTURER WALL MOUNTING BRACKET.</li><li>C/W DELTA, ELECTRONIC FAUCETS MODEL: 1500T4678, POLISHED CHROME FINISH AND LAMINAR FLOW, WALL MOUNTED SINGLE HOLE GOOSE NECK SPOUT (RS) WITH INTEGRAL SENSOR IN BASE AND EBPS. THERMOSTAT MIXING VALVE.</li><li>C/W DELTA, HARDWARE CONVERTER WITH BATTERY BACKUP. PART #: 060704A.</li><li>C/W P-TRAP TRIM, FLEXIBLE S.S. SUPPLIES AND SHUT OFF VALVES, ESCUTCHEONS.</li><li>ELECTRICAL COORDINATION IS REQUIRED.</li><li>PROVIDE CHECK VALVES ON HOT AND COLD LINES TO ICU-2</li><li>CONTRACTOR SHALL ENSURE THAT THE PLUMBING MIXING VALVE AND ACCESSORIES ARE INSTALLED WITHIN THE SINK ENCLOSURE SO THEY ARE NOT EXPOSED WITHIN THE ROOM.</li></ul>
ICU-2	INFECTION CONTROL SINK	<ul style="list-style-type: none"><li>BASIN</li><li>FRANKE HWS1414P-00/1 STAINLESS STEEL INFECTIOUS CONTROL WASH BASIN</li><li>Z8000 COMPLIANT</li><li>SEALED OVERFLOW, CENTRE HOLE ONLY</li><li>18-3/4" X 15" X 181/2"(480MM X 380MM X 470MM) X 10" (250MM) DEEP BOWL, 8-1/2"(216MM) HIGH BACKSPLASH AND SIDE SPLASHES.</li><li>18GA. TYPE 304 STAINLESS STEEL POLISHED TO #4 SATIN FINISH BOWL WITH RADIUS COVED CORNERS AND INTEGRAL WELDED TAILPIECE</li><li>C/W CONCEALED ARM SUPPORT.</li><li>SUPPLIES, C.P., POLISHED, RIGID HORIZONTAL WITH V. P. LOOSE KEY ANGLE STOPS, ESCUTCHEONS AND FLEXIBLE RISERS. MCGUIRE #155A-LO DRAIN, C.P. OPEN GRID LESS OVERFLOW HOLES. MCGUIRE #8872C 'P' TRAP, C.P., POLISHED, CAST BRASS 1-1/4" (32MM) WITH CLEANOUT AND ESCUTCHEON.</li><li>SINK HOLE DRILLING TO SUIT FAUCET &amp; EYEWASH</li></ul> <ul style="list-style-type: none"><li>FAUCET</li><li>DELTA # 1500T4678, INFRARED GOOSENECK FAUCET</li><li>CHROME PLATED WALLMOUNT ONE PIECE CAST MAIN BODY WITH INTEGRAL SENSOR AND RIGID SPOUT</li><li>SPOUT: RS SMOOTH END GOOSENECK SPOUT, 12" HEIGHT, 6.0" RADIUS</li><li>OUTLET #7, SMOOTH SPOUT END WITH LAMINAR FLOW CONTROL IN SPOUT BASE</li><li>HARD WIRED WITH BATTERY BACKUP, INCLUDE DELTA # 060704A CLASS 2 TRANSFORMER</li><li>ADA COMPLIANT</li><li>C/W INTEGRAL THERMOSTATIC MIXING VALVE</li></ul> <ul style="list-style-type: none"><li>EYEWASH</li><li>GUARDIAN # GBF 1849 HANDICAPPED ACCESSIBLE EYEWASH, DECK MOUNTED, AUTOFLOW - 90° SWING-DOWN</li><li>ALL STAINLESS STEEL, TYPE 316</li><li>2, GS-PLUS SPRAY HEADS WITH FLIP TOP DUST COVERS</li><li>C/W GUARDIAN # C8600 THERMOSTATIC MIXING VALVE</li><li>6 GALLON FLOW CAPACITY</li><li>30-125 PSI SUPPLY PRESSURE</li><li>PROVIDE CHECK VALVES ON HOT AND COLD LINES TO ICU-2</li><li>CONTRACTOR SHALL ENSURE THAT THE PLUMBING MIXING VALVE AND ACCESSORIES ARE INSTALLED WITHIN THE SINK ENCLOSURE SO THEY ARE NOT EXPOSED WITHIN THE ROOM.</li><li>SINK SHALL HAVE SPECIAL TWO HOLE DRILLING TO ACCOMMODATE THE EYEWASH ASSEMBLY. CONTRACTOR SHALL HAVE THE SINK SUPPLIER INCLUDE THE SPECIAL HOLE DRILLING WHEN SUBMITTING THE SINK SHOP DRAWING.</li></ul>
SK-1	STAINLESS STEEL SINK	<ul style="list-style-type: none"><li>FRANKE MODEL 'LBS460BP-1/3' S.S. SINGLE COMPARTMENT SINK, 3X FAUCET HOLES, 4" CENTRES 8" CENTERSET, 18"x18"x8" DEEP, COUNTER MOUNTED, BACK LEDGE, 18GA. 304 S.S., S.S., CRUMB CUP WASTE ASSEMBLY, EXPOSED SURFACES W/ SATIN BOWL FINISH, FULLY UNDERCOATED, 1-1/2" TAILPIECE</li><li>C/W DELTA MODEL#: 100LF-HDF SINGLE HANDLE FAUCET, BRASS CONSTRUCTION WITH CHROME PLATED FINISH, VANDAL RESISTANT, 2.2 GPM AERATOR, 8" GOOSENECK SPOUT, MCGUIRE #H165N5 SUPPLIES, MCGUIRE #8912CB 'P' TRAP</li></ul>
WF-1	WATER FILTRATION	3M WATER FILTER (SIMILAR TO PHOTO 18/M500)
HR-1	HOSE REEL	COXREELS C/W HOSE, VALVE AND SPRAY NOZZLE. (SIMILAR TO PHOTO 17B/M500.)

### GRILLE & DIFFUSER SCHEDULE

GRILLE TAG	MANUFACTURER	MODEL	SERVICE	NOMINAL SIZE	CONNECTION SIZE	FINISH	MOUNTING	REMARKS
SD-1	E.H. PRICE	SCD	SUPPLY	300x300	150ø	B12	SURFACE MOUNTED	SQUARE CONE DIFFUSER C/W VCR8, SURFACE MOUNTED
<div>NOTES: NOTE 1: COLOURS SHALL BE AS SELECTED BY THE ARCHITECT. CONFIRM COLOUR SELECTIONS PRIOR TO ORDERING. NOTE 2: GRILLES, DIFFUSERS AND REGISTERS SHALL BE PROVIDED TO CONFORM TO ARCHITECTURAL AND STRUCTURAL DETAILING. CONFIRM. a) STRUCTURAL OPENING SIZES RELATIVE TO GRILLE REQUIREMENTS b) ARCHITECTURAL CEILING GRID MEASUREMENTS (i.e. HARD METRIC / IMPERIAL)</div> <div>GENERAL NOTE: ALL GRILLES, DIFFUSERS AND REGISTERS WHICH ARE DUCT CONNECTED ARE TO BE PROVIDED WITH MANUAL DAMPERS AT CONNECTION DUCTS EXCEPT WHERE MANUAL DAMPERS ARE SPECIFIED INTEGRAL TO GRILLES.</div>								

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David Durr, Architect ABC, AAA  
Ray Wells, Architect ABC, AAA

PROJECT STATE	
GLOBAL REVISIONS LIST*	
NO.	DATE
1	2022.12.20
2	2023.01.24
3	2023.02.08
4	2023.03.01
5	2023.03.20

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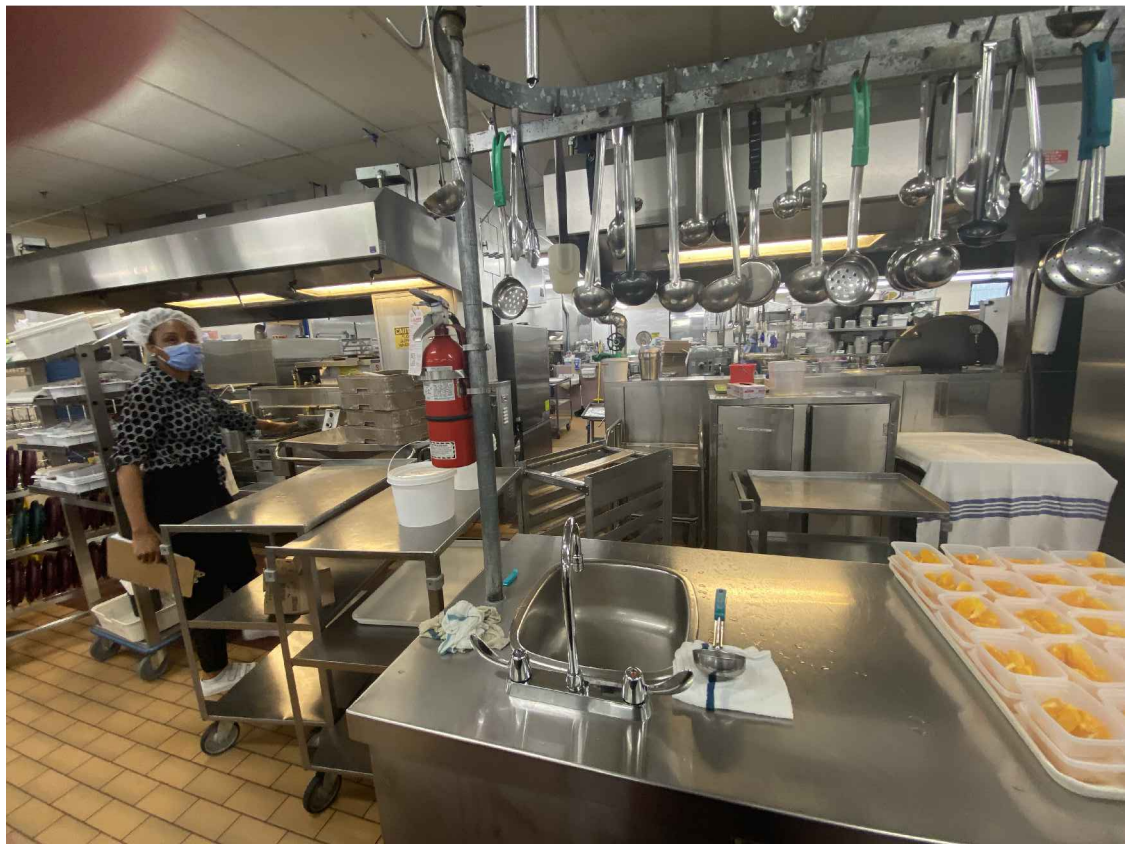
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Project  
UHN TRAYLINE ASSEMBLY SYSTEM  
REPLACEMENT  
1475 EDMONTON STREET, PRINCE GEORGE, BC, V2M 1S2  
Drawing  
MECHANICAL SCHEDULES  
Project Number  
22306  
Sheet Number  
M400





1  
M500  
EXISTING MICROWAVES/WATER STATION  
NTS



2  
M500  
EXISTING PREP SINK  
NTS



3  
M500  
EXISTING HOSE REEL  
NTS



4  
M500  
EXISTING SINK  
NTS



5  
M500  
EXISTING SHAFT  
NTS



6  
M500  
EXISTING TRENCH DRAIN  
NTS



7  
M500  
EXISTING SINK  
NTS



8  
M500  
EXISTING PIPING  
NTS



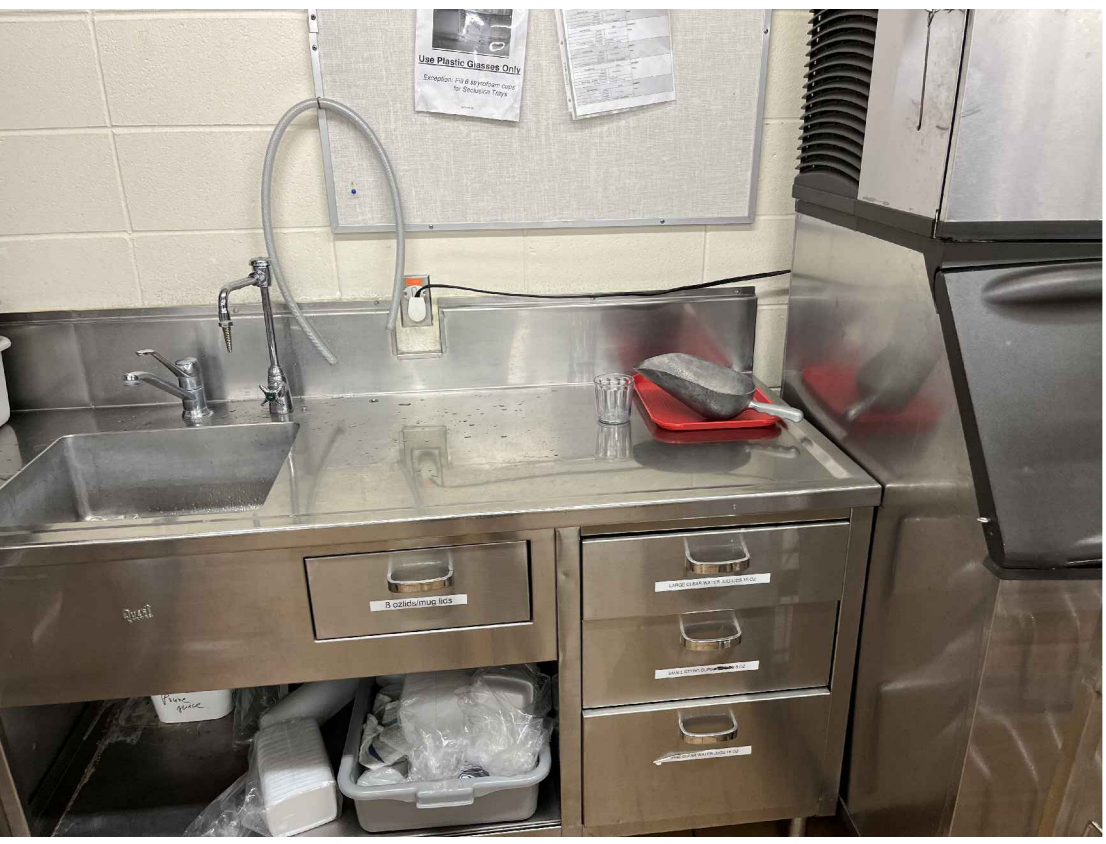
9  
M500  
EXISTING PIPING TO FIXTURE  
NTS



10  
M500  
EXISTING PIPING UNDER SINK  
NTS



11  
M500  
EXISTING PIPING TO FIXTURE  
NTS



12  
M500  
EXISTING SINK  
NTS



13  
M500  
EXISTING ICE MAKER  
NTS



14  
M500  
EXISTING SINK  
NTS



15  
M500  
EXISTING SINK  
NTS



16  
M500  
NEW ICU-2 SINK / EYEWASH (PHOTO FROM ANOTHER PROJECT FOR REFERENCE ONLY)  
NTS



17A  
M500  
HOSE REEL (PHOTO FROM ANOTHER PROJECT FOR REFERENCE ONLY)  
NTS



17B  
M500  
HOSE REEL (PHOTO FROM ANOTHER PROJECT FOR REFERENCE ONLY)  
NTS

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Ray Wells, Architect AIBC

Issued For		Issue Date YYYY-MM-DD	
PROJECT STATE			
GLOBAL REVISIONS LIST*			
NO.	DATE	DESCRIPTION	
1	2023.12.20	ISSUED FOR 90% CD	
2	2023.01.24	ISSUED FOR COORDINATION	
3	2023.02.08	ISSUED FOR BID AND BP	
4	2023.03.20	ISSUED FOR CONSTRUCTION	

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Project	UHN TRAYLINE ASSEMBLY SYSTEM REPLACEMENT
Project Number	22306
Sheet Number	M500
Drawing	MECHANICAL PHOTOS
Location	1475 EDMONTON STREET, PRINCE GEORGE, BC, V2M 1S2





18  
M501  
WATER FILTER (PHOTO FROM ANOTHER PROJECT FOR REFERENCE ONLY)  
NTS



19  
M501  
5 WELL HOT TABLE (PHOTO FROM ANOTHER PROJECT FOR REFERENCE ONLY)  
NTS



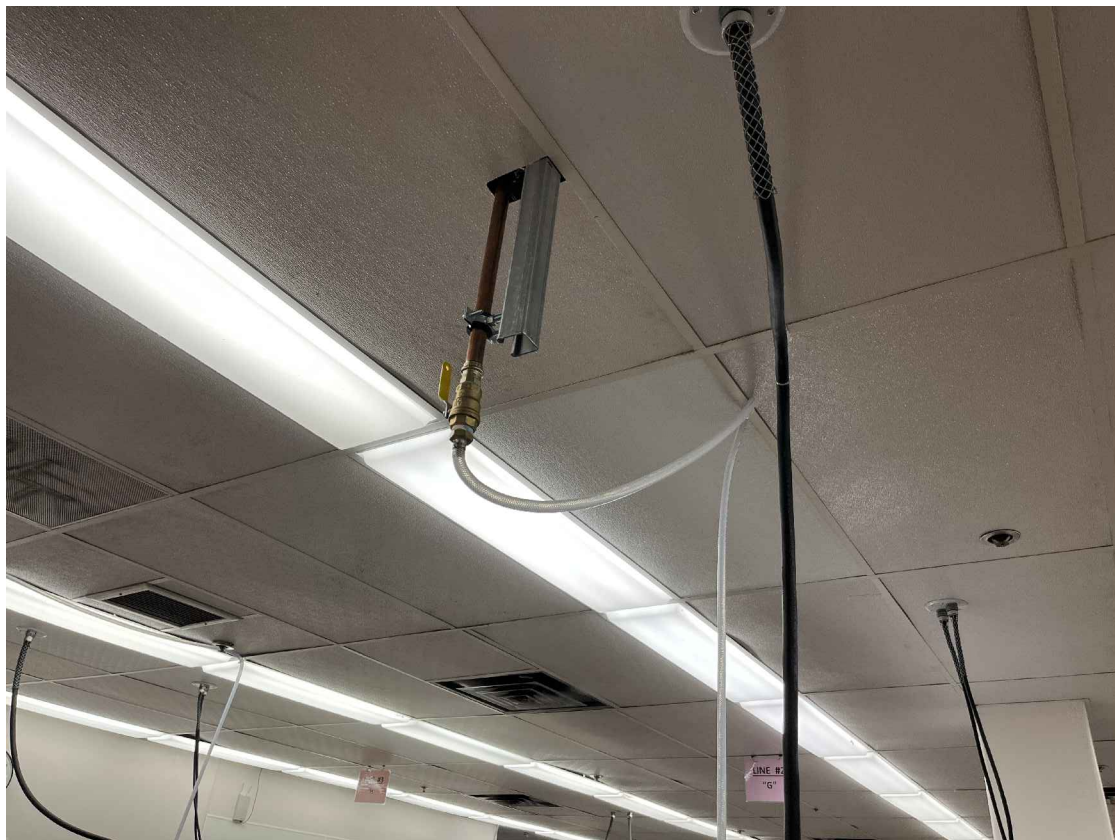
20  
M501  
EXISTING DRAIN GRATE  
NTS



21  
M501  
EXISTING COVER PLATE (TYPICAL)  
NTS



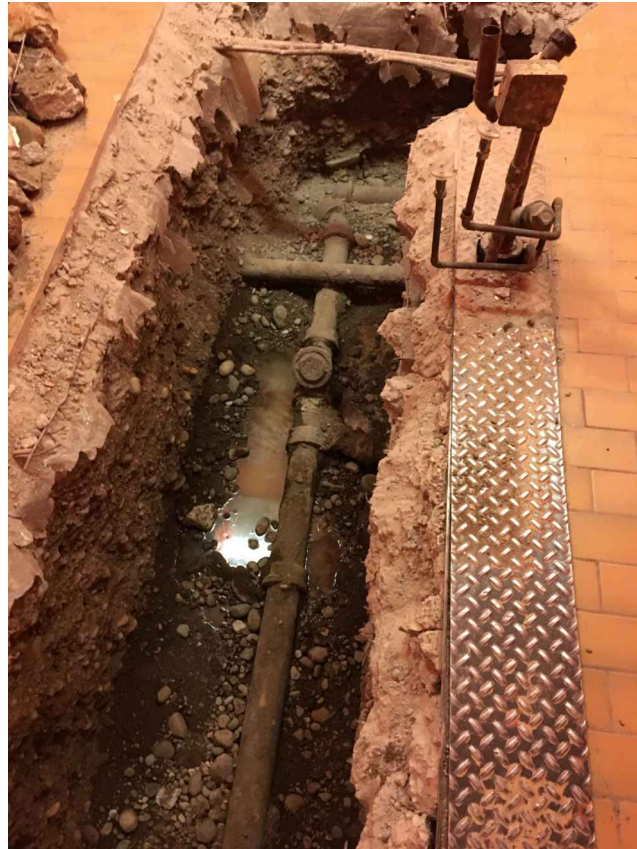
22  
M501  
EXISTING FLOOR DRAIN (TYPICAL)  
NTS



23  
M501  
HOT WATER DISPENSER SUPPLY (PHOTO FROM ANOTHER PROJECT FOR REFERENCE ONLY)  
NTS



24  
M501  
PREVIOUS PHOTO OF EXCAVATION FOR SANITARY PIPING REVISIONS (FOR INFO ONLY)  
NTS



25  
M501  
PREVIOUS PHOTO OF EXCAVATION FOR SANITARY PIPING REVISIONS (FOR INFO ONLY)  
NTS

Project Number  
**22306**

Project  
**UHN TRAYLINE ASSEMBLY SYSTEM REPLACEMENT**  
1475 EDMONTON STREET, PRINCE GEORGE, BC, V2M 1S2

Sheet Number  
**M501**

Drawing  
**MECHANICAL PHOTOS**

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NO.	DATE
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3	2023.02.08
4	2023.03.20

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Ray Wells, Architect AIBC

\*Sheet change clouded and tagged respectively.



15000

General Mechanical Provisions

1. General

1.1. This division shall conform to the terms and conditions of the General Contract Document.

2. Scope

2.1. Provide complete, fully tested and operational mechanical systems to meet the requirements described herein and in complete accordance with all applicable codes and ordinances.

2.2. Contract documents of this division and drawings are diagrammatic and approximately to scale unless detailed otherwise. They establish scope, material and installation quality and are not detailed installation instructions.

2.3. Follow manufacturer's recommended installation details and procedures for equipment, supplemented by the requirements of the contract documents.

2.4. Install equipment generally in locations and routes shown close to building structure with minimum interference with other services or free space. Remove and replace improperly installed equipment to satisfaction of the consultant at no extra cost. All mechanical services must be coordinate with others services being installed.

2.5. The drawings indicate the general location and route to be followed by the piping and ductwork. Where details are not shown on the drawings or only shown diagrammatically, the pipes and ductwork shall be installed in such a way as to conserve head room and interfere as little as possible with the free use of space through which they pass. Service lines shall run parallel to building lines. All duct and pipes at ceiling shall be kept as tight as possible to beams or other limiting members at high end. All pipes and ducts shall be coordinated in elevation to ensure that they are concealed in the ceiling space provided unless detailed and dimensioned otherwise on drawings and permitted otherwise by the consultant.

2.6. Connect to equipment specified in other sections and to equipment supplied and installed by other contractors or by the owner. Un-crane equipment, move in place and install completely; start-up and test.

2.7. Connect into existing systems with minimum disruption to the existing systems and only after work in this contract is been cleaned and approved by the Engineer for connection.

2.8. Provide seismic restraints for all equipment, piping and ductwork being installed in this project.

2.9. Field verify all building and site dimensions prior to any fabrication and installation of equipment or materials. No additional charge shall be entertained for failure to verify these dimensions on site.

2.10. Identify all opening and holes required for the passage of mechanical services through structures and dividing walls to the general contractor. Such identification shall be via marked up drawings showing opening locations, sizes, and levels. If required, the contractor is to clearly mark on site the intended openings for review by the structural engineer.

2.11. The work shall include but not limit to the following:

2.11.1. Complete plumbing installation for renovation in all areas

2.11.2. Complete HVAC installation for renovation in all areas

2.11.3. Complete automatic control and related wiring installation

2.11.4. Commissioning and balancing.

3. Materials

3.1. Materials and equipment installed shall be new, full weight and of quality specified. Use same brand or manufacturer for each specified application.

3.2. Each major component of equipment shall bear manufacturer's name, address, catalogue and serial number.

4. Cutting and Patching

4.1. Scan concrete structure for all structure for all structural opening and obtain written approval

4.2. Provide holes and sleeves, cutting and fitting required for mechanical work. Relocate improperly located holes and sleeves.

4.3. Drill for expansion bolts, hanger rods, brackets, and supports.

4.4. Obtain written approval from structural consultant before cutting or burning structural members. This work shall be carried out by the specialist trade only.

4.5. Repair building where damaged from the equipment installation, improperly located holes, etc., by this section of the work. This repair work shall be carried out by the specialist trade at the expense of this section of work. Use matching materials as specified in the respective sections.

5. Shop Drawings

5.1. Provide shop drawings as indicated in accordance with the MCA-BC standards for shop drawings.

5.2. Identify materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or catalogue material.

5.3. Clearly mark submittal material using arrows, underlining or circling to show differences from specified, eg. Ratings, capabilities and options being proposed. Cross out non-applicable material.

5.4. Include dimensional and technical data sufficient to check if equipment meets requirements. Include wiring, piping, and service connection data and motor sizes.

5.5. Installed materials and equipment shall meet specified requirements regardless of whether or not shop drawings are reviewed by the consultant.

5.6. Do not order equipment or material until the consultant has reviewed and returned approved shop drawings.

5.7. Shop drawings shall be endorsed by the Construction Manager, General Contractor and Mechanical Sub-contractor indicating that the shop drawings have been reviewed and submitted without qualifications.

5.8. Submit a digital copes of shop drawings in PDF format and obtain approval prior to ordering equipment.

5.9. Submit weights of all major equipment for review such that the loads can be reviewed by the appropriate consultant.

5.10. Submit list of all electrical motors and power requirements to Electrical Consultant and Contractor.

5.11. Contractor to provide complete list of all motors, voltage and phase required for mechanical equipment to the electrical contractor for coordination.

6. Standards of Materials, Equipment and Installation

6.1. Requests for changes to the specification in standards, materials, and equipment or installation techniques shall be submitted for review seven (7) working days prior to close of tenders, and if applicable will be incorporated in an addendum to the specification.

6.2. Equipment used shall not exceed space limitations in any dimension. Replace any equipment or apparatus which does not meet this specification at no cost. Assume full responsibility for the expense of redesign and adjustment to other parts of the building when proposing the use of approved equal or alternate equipment.

6.3. Submit samples, in addition to drawings, of all items which in the consultant's judgment, can be better examined for capacity, quality, finish or detail by sample rather than by drawings. Samples shall be submitted before equipment is ordered.

6.4. Provide equipment from the specified approved manufacturers. All mechanical equipment shall have the approved manufacturers name permanently affixed to it.

6.5. Equipment on alternate & approved manufacturers list must be equal in quality and performance to the model specified. Equipment which is not equal will be replaced with the specified equipment at no cost to the owner.

6.6. If shop drawings are rejected technically after 3 submissions. The contractor, at no additional expense to the owner, shall revert to the specified product and manufacturer for this project.

6.7. The equipment manufacturer shall ensure that the strength and anchorage of the internal components of the equipment exceeds the force level used to restrain and anchor the unit itself to the supporting structure.

6.8. Provide the following when required:

Item:Approved Manufacturers:

Access Doors – Clean Cart Storage drywall ceilingAcudor ADWT

Insulation – Duct/Piping FiberglasKnaut, Johns-Manville, Atlas, Ppg, Manson, Armstrong, Armatflex

Plumbing FixturesFranke

Infection Control Sink – ICU-1Franke

Infection Control Sink – ICU-2Franke

EyewashGuardian

Plumbing BrassAmerican Standard

Valves – BallRed & White, Grinnell, Watts

Hose reelCoxreels

Trayline owner supplied / general contractor to install and mechanical contractor to connect all mechanical services.

SK-1 Stainless steel sink supplied and installed by others and plumbing connections by mechanical contractor.

7. Testing, Balancing and Commissioning:

Trade:Inland Technician Services

CommissioningInland Technician Services

8. Performance Verification of Installed Equipment

8.1. Installed mechanical equipment whose performance is questioned by the consultant, may be subject to performance verification as specified herein.

8.2. When performance verification is requested, equipment shall be tested to determine compliance with specified performance requirements.

8.3. The consultant will determine by whom testing shall be carried out. When requested, the contractor shall arrange for services of an independent testing agency.

8.4. Testing procedures shall be approved by the consultant.

8.5. Maintain building comfort conditions when equipment is removed from service for testing purposes.

8.6. Promptly provide the consultant with all test reports.

8.7. Should test results reveal that originally installed equipment meets specified performance requirements, owner will pay all costs resulting from performance verification procedure.

8.8. Should test results reveal that equipment does not meet specified performance requirements, equipment will be rejected and the following shall apply:

8.8.1. Remove rejected equipment. Replace with equipment which meets requirements of contract documents including specified performance requirements.

8.8.2. Replacement equipment will be subject to performance verification as well, using same testing procedures on originally installed equipment.

8.8.3. Contractor shall pay all costs resulting from performance verification procedure.

9. Operating and Maintenance Data

9.1. Instruct the building operators in the operation and preventative maintenance of each piece of equipment and system supplied and installed. Complete and turn over documentation prior to substantial performance.

9.2. Submit O & M manuals in USB Stick to include the following:

9.2.1. A USB stick containing PDF versions of all the items below.

9.2.2. Name of engineer and mechanical contractor and phone number.

9.2.3. Description of operation of all mechanical systems.

9.2.4. Shop drawing of all equipment.

9.2.5. List of tagged valves.

9.2.6. Extended warranties.

9.2.7. Maintenance and operation instructions.

9.2.8. List of manufacturers source and trade names

9.2.9. Copy of record drawings.

9.2.10. List of inspection and test certificates.

9.2.11. Commissioning report (by this contractor)

10. Record drawings

10.1. Submit record drawings identifying location of all fire dampers, major control lines, access doors, tagged valves and actual room names.

10.2. The contractor shall be responsible for and keep one set of white prints, including revision drawings, in job site office.

10.3. The "record drawings" shall include all mechanical items.

10.4. Size, location, arrangement, route and extent of ductwork, piping, conduit, terminal units, equipment, fixtures, cleanouts, valves, rough-in, etc.

10.5. The as-built daily marked-up prints shall conform to the standards of the contract drawings and shall include all details from revision drawings, supplementary drawings, change orders, addenda and site revisions, etc.

10.6. At the end of construction, the record drawings shall be scanned at full size (to scale), and in color and the originals and PDF copies shall be turned over to the Consultant.

11. Painting and identification

11.1. Clean all exposed bare metal surfaces supplied by the mechanical and plumbing trade by removing all dirt, dust, grease and mill scale.

11.2. Repaint all marred factory finished equipment, which is not scheduled to be repainted, to match the original factory finish.

11.3. Pipe markers and direction arrows – in all exposed areas and in the mechanical room:

11.3.1. Provide commercially available pipe markers having standard sizes of lettering and colours. Standard colours designate classes of materials as follows, and are consistent with those specified by the CSA and the USASI.

11.3.1.1.1. Provide markers to all pipes provided under this contract.

11.3.1.1.2. YellowDangerous materials

11.3.1.1.3. BlueProtective materials

11.3.1.1.4. GreenSafe materials

11.3.1.1.5. RedFire protection equipment

11.4. Location of pipe markers and direction arrows:

11.4.1. Pipe marker and direction arrow shall be placed side by side in the bottom quarter of the pipe to be identified.

11.4.2. Adjacent to all major changes in direction and at connections to each piece of equipment.

11.4.3. At least once in each room that the pipe passes through.

11.4.4. Where piping passes through walls, partitions, or floors, identify piping on both sides of the section and at entry and exits to shafts.

11.5. Ceiling access panel identification the location of terminal units, valves, etc. Above ceiling panels shall have their location identified by means of a coloured adhesive dot.

11.6. Duct access panel identification identify the function of duct access panels by the following schedule:

Symbol

C.A.

11.6.1. Cleaning & service access

12. Equipment protection and clean-up

12.1. Protect equipment and material in storage on site and after installation until final acceptance. Leave factory covers in place. Take special precautions to prevent entry of foreign material into working parts of piping and duct systems.

12.2. Thoroughly clean piping, ducts and equipment of dirt, cuttings, and other foreign material.

12.3. Protect bearings and shafts during installation. Grease shafts and sheaves to prevent corrosion. Supply and install necessary extended nipples for lubrication purposes.

12.4. Ensure that existing equipment is carefully dismantled and not damaged or lost. Do not reuse existing materials and equipment unless specifically indicated.

13. Connection and interruption to existing systems

13.1. Coordinate any and all interruption of existing building systems with the owner's designated representative. This is an operating healthcare facility 24/7 and all work must be coordinated with the owners designated representative and approved prior to any work being carried out.

13.2. Kitchen, dish room, trayline and servery must be kept in operation for hospital use.

13.3. Coordinate and maintain liaison with the owner's designated representative as required to complete the upgrading of the associated areas.

13.4. Include premium time for connections to existing systems where required to complete the upgrading of Trayline assembly system renovations.

13.5. Scope of work:

13.5.1. In the absence of a description of responsibilities in the contract documents the Contractor shall assume they are to bare the complete cost of materials and labour required to connect to existing systems. This shall include but not be limited to:

13.5.1.1. The means and methods required to make the connections

13.5.1.2. Returning the system to its required operating condition

13.5.1.3. All material, labour and equipment to complete the required connections.

13.5.2. The contractor, at their discretion may request clarification for the scope of work required for connection to existing systems up to seven (7) working days prior to close of tenders, and if applicable a clarification to the scope will be issued by addendum.

14. Electrical motors

14.1. Provide motors to Nema and C.S.A. standards for hard, continuous service, designed to limit temperature rise to 40°C for open housing and 50°C for drip proof housing, and operate 1200 or 1800 R.P.M. unless otherwise specified. Do not use air over ratings.

5422. Motors shall have ball or roller type bearings with grease lubrication fittings.

14.3. All belt-driven devices shall have the motors mounted on adjustable bases with adjusting screws so that proper belt tension can be obtained.

14.4. Where equipment has been specified in division 15 to be complete with starters, disconnects, and/or control panels, this contractor shall provide any required wiring and conduit between the equipment and the above items.

14.5. Motors of 15 kw and greater shall have capacitor and thermostat over heat protection. Motor noise criteria shall not exceed NC-60.

15. Access doors and panels

15.1. Provide access panels required in building construction including in architectural walls and ceilings for access to any concealed mechanical equipment which, in the consultant's opinion, requires maintenance or adjustment. Access panel shall match wall/ ceiling finish. Obtain approval from architect prior to installation.

15.2. Such panels shall be manufactured panels, with fastening devices, appropriate to the construction involved, provide access panel (12"x 12" for hand access, otherwise 18"x 18" min.) in wall / ceiling to all mechanical system (such as valve, damper) requiring access. Dry wall surface: Milcor stainless steel flush panel access door.

15.3. Access doors for existing and new services for mechanical shall be stainless steel ACUDOR doors.

16. Access of equipment

16.1. Make all arrangements to ensure that adequate access is available for all mechanical equipment. Do all hoisting and rigging into place of all specified equipment and be responsible for any damages incurred there from.

16.2. Contractor to demonstrate reasonable access to all equipment service locations.

17. Liability

17.1. Assume full responsibility for laying out the work and for any damage caused to the owner or other trades by improper location, or carrying out of the work.

17.2. Be responsible for prompt installation of his work in advance of concrete pouring or similar work. Provide and set sleeves where required. Should any cutting or repairing of either unfinished or finished work be required, this contractor shall direct the particular sub-contractor whose work is involved to do such cutting and repairing without expense to the owner. Before being undertaken, such work shall be laid out for the consultant's review.

17.3. Examine the site and the local conditions affecting work under this contract. Examine carefully the mechanical, electrical, structural and architectural drawings and confirm that the work under this contract can be satisfactorily carried out without changes to the building as shown on these plans. Before commencing the work, examine the work of the other trades and report all once any defect or interference affecting the work of this section, of the guarantee of some. No extras will be subsequently allowed to cover any such error, omission or oversight on the thorough inspection of the grounds, building, conditions, etc.

17.4. Arrange work in co-operation with other trades so as not to interfere with other work being carried out in the building Co-operate with the other trades to get all the pipes, ducts, conduit, etc., installed to the best advantage. When open web structural joists are used, obtain structural shop drawings to ensure space is available for installation of pipes and ductwork.

17.5. Where any pipes, ducts and equipment must be built into the work of other trades such as masonry, structural, or plastering, be responsible for supplying the equipment to be built in or measurements to allow the necessary openings to be left. All pipes and ducts which are to be concealed shall be installed neatly and closely to the building structure so that the necessary furring can be kept as small as possible. Any pipes, ducts, or other work which are not, in the opinion of the Consultant, installed as they should be, shall be taken out and replaced without cost to the owner.

17.6. Protect finished and unfinished work from damage due to the carrying out of his work, giving special attention to the protection of building vapour barriers, waterproof membranes, etc. Cover floors and other parts of the building with tarpaulins, etc. And repair all damage to the satisfaction of the owner and the consultant. During freezing weather, protect all his materials in such a manner that no harm can be done to the installation already made and/or to materials and equipment on the job.

17.7. Be responsible for the condition of all materials and equipment supplied and provide all necessary protection for same.

17.8. Be responsible for the protection and maintenance of the work of this section until the building has been completed and accepted by the owner, and be responsible for the sorting of his material inside and out of the way, and to clean up all refuse caused by his work to meet consultant's review.

17.9. On completion of the work all tools, surplus and waste materials shall be removed and the work site left in a clean and perfect condition.

18. Liability insurance

18.1. This contractor shall maintain such insurance as per the general requirements to fully protect both the owner and himself from any and all claims, all as noted within the general conditions and supplementary general conditions

18.2. The contractor shall carry full employee's liability insurance for the whole of the work in accordance with the workers' compensation act.

19. Guarantee warranty

19.1. This contractor shall furnish a written warranty stating that all work executed under this division will be free from defects of material and workmanship for a period of one (1) year from the date of substantial performance, which shall include one (1) complete summer and one (1) complete winter of uninterrupted operation. Warranty shall include any part of equipment, units or structures furnished hereunder that show defects in the works under normal operating conditions and/or for the purpose of which they were intended.

19.2. The contractor shall at his own expense promptly investigate any mechanical or control malfunction, and repair or replace all such defective work, and all other damages thereby which becomes defective during the time of the guaranty-warranty.

20. Hoists and scaffolds

20.1. Provide interior movable or roller scaffolds for the installation of the mechanical work. All other hoists, scaffolds, temporary elevators, ladders, runways, etc., Shall be requested by this contractor and arranged with the general contractor.

21. Pipe chases and duct shafts

21.1. Unless otherwise indicated, conceal piping and ductwork in the construction of the walls and ceilings, and in pipe chases, duct shafts and furring. If it is necessary, move the location of pipes and ducts from those indicated and provided. Consult the consultant for review before installation of this work.

22. Inspection

22.1. The consultant or his representative may choose to inspect all work prior to it being concealed.

22.2. The contractor shall notify the consultant in writing for the following minimum, but not limited to, inspections: (Required to provide a Schedule 'C' for occupancy)

22.2.1. All HVAC and plumbing rough-in prior to wall and ceiling finish installation.

22.2.2. Fire stopping of all openings.

22.2.3. Pre-occupancy inspection.

22.2.4. Final occupancy inspection and verification of all equipment being fully operational.

22.3. All work shall be approved by any other regulatory body having jurisdiction where required.

22.4. The contractor is to provide copies of all permits, inspection reports and certificates for insertion into the maintenance manual.

22.5. The contractor is to provide the consultant reasonable notice prior to calling an inspection.

22.5.1. A minimum of three days notice is required.

22.6. After the pre-occupancy inspection for substantial performance all deficiencies shall be completed for the final inspection.

23. Substantial performance inspection

23.1. Prior to the contractor requesting an inspection for substantial performance all the following items must be completed.

23.1.1. Maintenance and operating manuals to be submitted. (if required)

23.1.2. As-built drawings submitted.

23.1.3. Balancing reports (air and water.)

23.1.4. Commissioning reports.

23.1.5. All systems shall be certified in writing by the contractor as complete and fully operational.

23.1.6. Instructions to the owner's operating personnel shall be provided in accordance with the specifications.

23.1.7. A complete list of all items which the contractor has not finished, or are deficient shall be provided. If, in the opinion of the consultant, this list indicates the project is excessively incomplete, a substantial completion inspection will not be performed.

23.1.8. The contractor shall be fully responsible to accumulate all necessary data from his sub-trades and suppliers and present same in the specified format for the approval by the consultant.

23.1.9. All life/safety items such as sprinkler systems, fire stopping, fire dampers, and ventilation fixtures and ventilation must be operational.

23.1.10. Completion of all controls.

24. Laws, Notices, Permits and Fees

24.1. Give all necessary notices, obtain all necessary permits and pay all fees in order that the work specified may be carried out, and furnish any certificates necessary as evidence that the work installed conforms with the law and regulations of all authorities having jurisdiction.

24.2. All work shall be in accordance with the regulations of the following authoritative bodies, the codes in effect at the time of tender, and any others having jurisdiction:

24.2.1. Fire Marshall

24.2.2. Canadian Electrical Code

24.2.3. B.C. Building code and local building by-laws

24.2.4. Worker's Compensation Board

24.2.5. Canadian Standards Association

24.2.6. Pollution Control Board

24.2.7. National Fire Protection Association

24.2.8. Underwriters' Laboratories of Canada

24.2.9. Latest gas CSA Code

25. Demonstration and Instruction to Owner

25.1. Demonstrate to and instruct the representative designated by the owner on the complete mechanical systems operating and maintenance procedures using the assistance of specialist sub-trades and manufacturer's representatives.

25.2. The following systems shall be demonstrated in regards to performance and safety features (to the fullest):

25.2.1. HVAC systems relating to this renovation.

25.2.2. Controls system

25.2.3. Fire protection systems

25.2.4. Plumbing systems

25.3. Obtain a signed statement from the owner certifying that the demonstration and instructions have been given to his satisfaction. Include this document in the mechanical maintenance manuals.

26. Testing

26.1. Perform all testing required by the authority having jurisdiction.

26.2. Obtain test certificates for all tests performed and include in operating manuals.

26.3. All tests shall be documented and witnessed by the owners designated representative.

27. Commissioning

27.7. Contractor is to provide the commission plan meeting all the design criteria and specification.

27.8. Performance Testing shall be provided to demonstrate operation performance of these renovated areas

28. Support, Anchors & Seals

28.1. Provide all necessary supports, and hangers to secure mechanical systems and equipment.

28.2. Provide fire stopping at all duct and piping penetrations through rated floors/walls and shafts (new and existing).

28.3. Provide oversize hangers on all cold pipes to fit over pipe insulation where required.

28.4. Provide isolation and prevent contact with dissimilar metals.

28.5. All sleeves for mechanical piping to extend 1" above the floor in all mechanical room, shafts and wet areas.

28.6. All ductwork to be supported as per SMACNA.

28.7. All exposed piping penetrations shall be provided with escutcheons at the penetration point.

29. Seismic requirements

29.1. Provide and install seismic restraints for all equipment, ductwork and piping installed by this division in accordance with the following codes and standards:

BC Building Code 2006

29.1.1. NFPA 13

29.1.2. NFPA 20

29.1.3. SMACNA "Guidelines for seismic restraints of mechanical systems and plumbing piping systems".

29.2. The installation of seismic restrains shall not compromise vibration isolation capabilities.

29.3. Prior to construction commencement, contractor shall organize a meeting with the general contractor, mechanical contractor, structural consultants and other appropriate parties. At that meeting, the contractor shall present in general the approaches/details used to provide seismic bracing for equipment, ductwork and piping highlighting attachments to structure and trade coordination.

29.4. Seismic restraints for hot water tanks to be Vibra-sonic Control model VS-100 for tanks larger than 50 gallons. Small tanks to be provided with steel strap secured to structure.

29.5. Contractor to provide professional certification for all items installed by this division prior to report for completion or occupancy inspection.

30. Insulation

30.1. Installation shall conform to the B.C.I.C.A. Quality Standards Manual for mechanical insulation.

30.2. Piping insulation:

30.2.1. Provide vapour barrier for all cold pipes.

30.2.2. Insulation to be provided for all domestic hot and cold and re-circulation piping.

30.2.3. Insulation to be provided for all heating water piping.

30.2.4. All exposed piping to be complete with PF-3 economy finish. No finish required on concealed piping.

30.2.5. Provide insulation thickness and type as follows: (where applicable)

Service

Size

Insulation Thickness

Type

Domestic hot & cold

up to 1"ø

1"

Mineral fibre

Domestic hot & cold

1 ½"ø & up

1 ½"

Mineral fibre

Steam piping

1 ½"ø & up

1 ½"

Mineral fibre

Condensate piping

1"ø

1 ½"

Mineral fibre

Tempered water

1"ø

1"

Mineral fibre

31. Pipes & Pipe Fittings

31.1. Ensure all pipe materials and fittings are acceptable to the authority having jurisdiction.

31.2. All type 'K' copper must be certified to ASTM B88. Provide written guarantee that lead free solder was used on all domestic water systems.

31.3. Approved pipe & fittings: (Non-combustible construction)

Service

Pipe

Fittings

Sanitary above grade

DWV copper

Wrought Copper or cast brass 95-5 solder gasket with stainless steel coupling

Domestic Water Above

Type 'K' Hard Copper

Wrought copper or brass with 95.5% solder (lead free)

32. Plumbing General

32.1. To comply with current BC Building Code and local municipality requirements.

32.2. Fire stop all penetrations through rated separations. Provide necessary thermal insulation and vapour barrier at penetrations. Contractor to provide professional certification from specialist fire-stopping trade prior to report for completion or occupancy inspection. fire stopping shall.

32.2.1. Refer to the owner's fire stop specification for additional requirements.

32.3. Supply and install cleanouts on all drains, changes in direction, at base of riser and on main sanitary and storm leaving building in addition to the BC Building Code

32.4. Where drains are located over an occupied area, membrane clamp is to be provided with drain for a waterproof installation.

32.5. Prior to commencing plumbing installation contractor to verify:

32.5.1. Inform the engineer immediately if any changes are required.

32.5.2. All floor drains shall have trap primer connection.

32.5.3. Water distribution pipe to be 3/4" minimum.

32.5.4. Provide installation of plumbing fixtures when supplied by others.

32.5.5. Lead free solder to be used for all potable water systems. Contractor to issue a letter of guarantee and include in the maintenance manuals.

32.6. Provide unions to all equipment and valve connections for 2-1/2" and below. Flanged connections for 3" and over.

32.7. Provide chrome escutcheon plate for all plumbing rough-in.

32.8. Provide non-conducting type connection for joining or supporting. Provide separation between dissimilar metals.

32.9. Provide stop valve to all equipment and plumbing fixture connection. Provide stop valve to base of water risers. Provide isolation valves for all fixture trim unless complete with integral stops.

33. Cleaning & Chemical Treatment

33.1. Provide for cleaning and disinfection of all new domestic hot & cold water systems.

33.2. During system flushing ensure that all control valves and other system valves are in the full open position.

33.3. All domestic water piping shall be thoroughly flushed and chlorinated so that it is free from all scale, sediment etc.