DUCTWORK THICKNESS

LARGER DUCT DIMENSION (IN)	THICKNESS (US GA #)
UP TO 12	26
13 TO 29	24
30 TO 53	22
54 TO 82	20

COPPER & PEX/CPVC PIPE SIZE

NOMINAL PIPE SIZE (IN / MM)	COPPER PIPE TYPE "L" INSIDE DIA (IN / MM)	PEX/CPVC INSIDE DIA (IN / MM)
3/8 / 10	0.430 / 10.922	0.485 / 12.319
1/2 / 15	0.545 / 13.843	0.584 / 14.834
5/8 / 18	0.666 / 16.916	0.681 / 17.297
3/4 / 20	0.785 / 19.939	0.875 / 22.225
1 / 25	1.025 / 26.035	1.069 / 27.153
1-1/4 / 32	1.265 / 32.131	1.263 / 32.080
1-1/2 / 40	1.505 / 38.227	1.653 / 41.986
2 / 50	1.985 / 50.419	2.041 / 51.841
2-1/2 / 65	2.465 / 62.611	2.431 / 61.747
3 / 80	2.945 / 74.803	2.900 / 73.660
4 / 100	3.897 / 98.984	3.826 / 97.180
6 / 150	5.845 / 148.463	5.761 / 146.329

MECHANICAL LEGEND - PIPING

SCHEDULE (x = TYPE)	EXISTING	NEW	DESCRIPTION
PLUMBING SCHEDULES	-------------------		EXISTING PIPING TO BE DEMOLISHED
	— – — – —CW—	— – — – —CW—	COLD WATER SUPPLY LINE
	— – — – –NPWS—	— – — – –NPWS—	NONPOTABLE WATER SUPPLY LINE
	— – — – –PWS—	— – — – –PWS—	POTABLE WATER SUPPLY LINE
	— – — – —SW—	— – — – —SW—	SOFT WATER LINE
	— - - — -HWS—	— - - — -HWS—	HOT WATER SUPPLY LINE
	—— - - - -HWR—	—— - - - -HWR—	HOT WATER RETURN LINE
	————S—	————S—	SANITARY LINE
	————S (U)—	————S (U)—	SANITARY LINE UNDER SLAB
	————S (C)—	————S (C)—	SANITARY LINE IN CEILING
	— — — -V—	— — — -V—	VENT LINE
	————D—	————D—	DRAIN LINE
	————D (U)—	————D (U)—	DRAIN LINE UNDER SLAB
	————D (C)—	————D (C)—	DRAIN LINE IN CEILING
	—— – —SD—	—— – —SD—	STORM DRAIN LINE
	—— – SD (U)—	—— – SD (U)—	STORM DRAIN LINE UNDER SLAB
	—— – SD (C)—	—— – SD (C)—	STORM DRAIN LINE IN CEILING
MECHANICAL PIPING SCHEDULES	————G—	————G—	GAS LINE
	————CA—	————CA—	COMPRESSED AIR LINE
	— — — VA—	— — — VA—	VACUUM LINE
	— - - — HEWS—	— - - — HEWS—	HEATING WATER SUPPLY LINE
	—— - - -HEWR—	—— - - -HEWR—	HEATING WATER RETURN LINE
	— – — – –CHWS—	— – — – –CHWS—	CHILLED WATER SUPPLY LINE
	— - - — CHWR—	— - - — CHWR—	CHILLED WATER RETURN LINE
	— – — – –COWS—	— – — – –COWS—	CONDENSER WATER SUPPLY LINE
	— - - — COWR—	— - - — COWR—	CONDENSER WATER RETURN LINE
	— — — LPC—	— — — LPC—	LOW PRESSURE CONDENSATE LINE

Mechanical Sheet List

Sheet #	Sheet Name
M1	Mechanical Legend
M2	Mechanical Specification
M3.1	Plumbing Demolition Plan
M3.2	Main Domestic Water Demolition Plan
M4	Sanitary Plan
M5.1	Main Domestic Water Plan
M5.2	Domestic Water Plan
M6	HVAC Demolition Plan
M7	HVAC Plan
Total: 9	

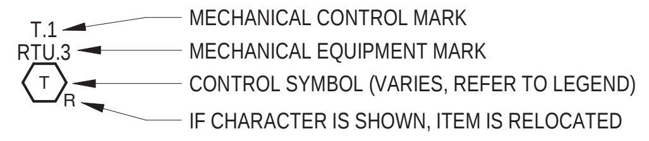
PLUMBING SYSTEM LEGEND

SCHEDULE (x = TYPE)	EXISTING	DEMO	NEW	DESCRIPTION
PIPE ACCESSORY SCHEDULES	GV ⋈	GV ⋈	GV ⋈	GATE VALVE
	○	○	○	BALL VALVE
	⊘	⊘	⊘	BUTTERFLY VALVE
	⧅	⧅	⧅	CHECK VALVE
	⋈	⋈	⋈	THREE-WAY VALVE
	□⋈	□⋈	□⋈	MOTORIZED VALVE
	□⋈	□⋈	□⋈	MOTORIZED THREE-WAY VALVE
	▷⋈	▷⋈	▷⋈	PRESSURE REDUCING VALVE
	⧅⧅	⧅⧅	⧅⧅	BACKFLOW PREVENTER
	–‖–	–‖–	–‖–	COUPLING
	▷|	▷|	▷|	REDUCER
	–‖	–‖	–‖	HOSE BIBB
	⊢⊣	⊢⊣	⊢⊣	STRAINER
	WM	WM	WM	WATER METER
	▶	▶	▶	PUMP

MECHANICAL LEGEND

SCHEDULE (x = TYPE)	EXISTING	DEMO	NEW	DESCRIPTION
HVAC SCHEDULES	☒ ⊗	☒ ⊗	☒ ⊗	SUPPLY OR OUTDOOR AIR DUCTWORK UP
	☒ ⊗	☒ ⊗	☒ ⊗	SUPPLY OR OUTDOOR AIR DUCTWORK DOWN
	◪ ⊘	◪ ⊘	◪ ⊘	RETURN AIR DUCTWORK UP
	⧄ ⊘	⧄ ⊘	⧄ ⊘	RETURN AIR DUCTWORK DOWN
	☒ ⊘	☒ ⊘	☒ ⊘	EXHAUST AIR DUCTWORK UP
	☒ ⊘	☒ ⊘	☒ ⊘	RETURN AIR DUCTWORK DOWN
	12Ø 16x12	12Ø 16x12	12Ø 16x12	ROUND (DIA) OR RECT (W x H) DUCT DIMENSIONS
	═══	═══	═══	DUCT WITH INSIDE LINER
	▨	▨	▨	DUCT WITH INSULATION
	┼┼┼┼┼	┼┼┼┼┼	┼┼┼┼┼	FLEXIBLE DUCT
	▭ ☒ ◎	▭ ☒ ◎	▭ ☒ ◎	SUPPLY AIR DIFFUSER (RECT OR ROUND NECK)
	▭ ☒ ◎	▭ ☒ ◎	▭ ☒ ◎	EXHAUST AIR GRILLE (RECT OR ROUND NECK)
	▭ ☒ ◎	▭ ☒ ◎	▭ ☒ ◎	RETURN AIR GRILLE (RECT OR ROUND NECK)
	T	T	T	THERMOSTAT
	H	H	H	HUMIDISTAT
	T	T	T	TEMPERATURE SENSOR
	P	P	P	PRESSURE SENSOR
	CO	CO	CO	CARBON MONOXIDE SENSOR
	CO2	CO2	CO2	CARBON DIOXIDE SENSOR
	S	S	S	SPEED CONTROLLER
	■▭	■▭	■▭	MOTORIZED DAMPER
	FD ●▭	FD ●▭	FD ●▭	FIRE DAMPER
	SD ●▭	SD ●▭	SD ●▭	SMOKE DAMPER
	CFSD ●▭	CFSD ●▭	CFSD ●▭	COMBINATION FIRE & SMOKE DAMPER

1 Tags - Air Terminals



2 Tags - Mechanical Control

MECHANICAL ABBREVIATIONS

AC	AIR CONDITIONER
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AH	ACCESS HATCH
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS
B/W	BETWEEN
BBH	ELECTRIC BASEBOARD HEATER
BFP	BACKFLOW PREVENTER
BT	BATHTUB
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
BV	BALL VALVE
C/W	COMPLETE WITH
CO	CLEANOUT
CTE	CONNECT TO EXISTING
DB	DRY BULB TEMPERATURE
DF	DRINKING FOUNTAIN
DG	DOOR GRILLE
DIA	DIAMETER
DN	DOWN
DPDT	DOUBLE POLE DOUBLE THROW
DTBS	DOWN TO BELOW SLAB
DTL	DETAIL
EAD	EXHAUST AIR DUCT
ECM	ELECTRICALLY COMMUTATED MOTOR
EDF	ELECTRIC DRINKING FOUNTAIN
EEW	EMERGENCY EYE WASH
EEWS	EMERGENCY EYE WASH AND SHOWER
EL	ELEVATION
EX	EXISTING
EXP	EXPANSION
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FFH	ELECTRIC FAN FORCED HEATER
FHC	FIRE HOSE CABINET
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HD	HUB DRAIN
HP	HORSEPOWER
HPF	HIGH PASS FILTER
HZ	HERTZ
ID	INSIDE DIAMETER
KS	KITCHEN SINK
KW	KILOWATT
L	LAVATORY
LB	LAUNDRY BOX
LPH	LITERS PER HOUR
LPS	LITERS PER SECOND
MBH	1000 BTUS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MFR	MANUFACTURER
NC	NORMALLY CLOSED
NFHB	NONFREEZE HOSE BIBB
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
O/H	OVERHEAD
OA	OUTSIDE AIR
OAD	OUTSIDE AIR DUCT
OBVD	OPPOSED BLADE VOLUME DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OER	OPEN ENDED RETURN
PH	PHASE
PPM	PARTS PER MILLION
PSI	POUNDS PER SQUARE INCH
RAD	RETURN AIR DUCT
RECT	RECTANGULAR
RH	ROOF HOPPER
RPM	REVOLUTIONS PER MINUTE
RV	RELIEF VENT
RWL	RAIN WATER LEADER
S	SINK
SAD	SUPPLY AIR DUCT
SH	SHOWER
SHD	SHOWER DRAIN
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
SS	SERVICE SINK
SYMBOL	MEANING
T&P	TEMPERATURE AND PRESSURE
T/D	TRANSFER DUCT
TR	TONS OF REFRIGERATION
TYP	TYPICAL
U	URINAL
U/C	UNDERCUT
UL	UNDERWRITERS LABORATORIES
ULC	UNDERWRITERS LABORATORIES CANADA
USG	US GALLONS
UV	ULTRAVIOLET
V	VOLTS
VTR	VENT THROUGH ROOF
VVT	VARIABLE VOLUME & TEMPERATURE
W/O	WITHOUT
WB	WASH BASIN
WC	WATER CLOSET
WH	WATER HEATER
WM	WATER METER
WT	WEIGHT

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER, BEFORE PROCEEDING WITH THE WORK.

DRAWINGS ARE NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
S. HOLDITCH
100108001
Feb 13, 2025
PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME
Oakwood Public School
357 Bartos Dr,
Oakville City, ON

DRAWING TITLE
Mechanical Legend

SCALE
1 : 1

SHEET SIZE
24"x36"

PROJECT NUMBER
24028

DRAWING NUMBER
M1

GENERAL MECHANICAL SPECIFICATION

GENERAL CONDITIONS

A. THE CANADIAN STANDARD FORM OF CONSTRUCTION CONTRACT AND GENERAL CONDITIONS GOVERNING THE SAME CCDC PARTS 1 TO 12 INCLUSIVE ARE HEREBY MADE PART OF THIS SPECIFICATION.
B. ALL MECHANICAL WORK SHALL CONFORM TO THE LATEST VERSION OF THE ONTARIO BUILDING CODE (OBC) AND THE LATEST GOVERNING VERSION OF THE APPLICABLE STANDARDS/REGULATIONS OF THE FOLLOWING AUTHORITIES AS REFERENCED AND REQUIRED BY THE OBC:
   a. CGA - CANADIAN GAS ASSOCIATION
   b. TSSA - TECHNICAL STANDARDS AND SAFETY AUTHORITY
   c. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
   d. CSA - CANADIAN STANDARDS ASSOCIATION
   e. OFC - ONTARIO FIRE CODE
   f. OESC - ONTARIO ELECTRICAL SAFETY CODE
   g. ASHRAE - AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS
   h. AND ALL REGULATIONS OF MUNICIPALITIES, AND ANY OTHER AUTHORITIES HAVING JURISDICTION (AHJ).
C. IN CASE OF COINCIDING GUIDELINES, THE STRICTER CRITERIA SHALL BE IMPLEMENTED, OR AS SPECIFIED OTHERWISE.
D. THE CONTRACTOR SHALL MAINTAIN LIABILITY INSURANCE AS REQUIRED.
E. THIS SET OF DRAWINGS AND SPECIFICATIONS SHALL BE READ IN COORDINATION WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. ANY DISCREPANCIES OR UNCERTAINTIES SHALL BE RAISED TO ARCHITECT AND/OR ENGINEER PRIOR TO CLOSING OF TENDERS, ANY WORK, OR PRE-WORK. ANY UNCOORDINATED WORK NOT SHOWN ON PLANS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
F. THE CONTRACTOR SHALL SUBMIT ONE SET OF ELECTRONIC PDF SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE 'OPERATION AND MAINTENANCE MANUAL' CONTAINING ALL DATA SHEETS, BROCHURES, OPERATING AND MAINTENANCE MANUAL, RECOMMENDED SPARE PARTS. MATERIALS SHALL NOT BE ORDERED UNTIL REVIEW HAS BEEN COMPLETED. APPROVAL IS FOR GENERAL DESIGN COMPLIANCE ONLY.
G. ALL QUESTIONS REGARDING TO THE WORK, AND OR THIS SET OF DRAWINGS AND SPECIFICATIONS SHALL BE RAISED TO THE CONSULTANT THROUGH A REQUEST FOR INFORMATION (RFI) SUBMISSION. THE CONTRACTOR SHALL ALLOW FOR UP TO TWO WEEKS FOR RESPONSES AND/OR APPROVALS FROM THE ENGINEER/CONSULTANT. CLAIMS FOR DELAY WITHIN THIS PERIOD WILL NOT BE ACCEPTED.
H. THE CONTRACTOR SHALL PERFORM SITE INSPECTION PRIOR TO BIDDING TO VERIFY ALL EXISTING CONDITIONS AND INSTALLATIONS. THE CONTRACTOR SHALL INCLUDE ALL NECESSARY COSTS FOR ANY ADJUSTMENT OF INSTALLATIONS SHOWN ON THIS SET OF DRAWINGS AND SPECIFICATIONS AGAINST ACTUAL EXISTING CONDITIONS FOR THE COMPLETION OF WORK.
I. THE CONTRACTOR SHALL ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS, AND OTHER DOCUMENTS/ACTIVITIES REQUIRED BY GOVERNING AUTHORITIES PRIOR TO CONSTRUCTION WORK AND THOSE REQUIRED AFTER SUBSTANTIAL COMPLETION OF PARTS AND SECTIONS OF THE CONTRACT. ALL APPLICABLE TAXES, AND ANY COSTS INCURRED BY RE-INSPECTION SHALL BE INCLUDED.
J. THE CONTRACTOR SHALL CLOSELY COORDINATE WITH ALL CONCERNED TRADES IN ORDER TO CARRY OUT THE DESIGN AS INTENDED BY THIS SET OF DRAWINGS AND SPECIFICATIONS WITHIN THE APPROVED PROJECT TIMELINE.
K. COPIES OF LATEST CONSTRUCTION DRAWINGS SHALL ALWAYS BE READILY AVAILABLE ON SITE. THE COPIES SHALL BE MARKED AND UPDATED REGULARLY TO SHOW PROGRESS OF CONSTRUCTION.
L. THE CONTRACTOR SHALL SHOULDER ANY COST IMPLICATIONS OF IMPLEMENTATION OF ALTERNATIVE PRODUCTS INCLUDING ALL COSTS INCURRED BY OTHER TRADES, UNLESS OTHERWISE APPROVED AND AGREED UPON UNDER A SIGNED DOCUMENT BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
M. THE CONTRACTOR SHALL PROVIDE COMPLETE COST BREAKDOWN FOR ALL ADDITIONAL WORK OR ANY REMOVED SCOPE FROM CONTRACT.
N. ALL WORK AFFECTING NORMAL OPERATION OF AREAS AND/OR UTILITIES OUTSIDE OF CONTRACT AND/OR OUTSIDE NORMAL WORKING HOURS SHALL BE COORDINATED WITH OWNER/LANDLORD FOR PROPER INSTRUCTION AND SCHEDULING. ALL COST IMPLICATIONS SHALL BE SHOULDERED BY THE CONTRACTOR.
O. THE CONTRACTOR SHALL PROVIDE ACCESS DOORS OR OTHER APPROVED MEANS OF ACCESS TO MECHANICAL AND PLUMBING EQUIPMENT AND ACCESSORIES (SUCH AS VOLUME AND FIRE DAMPERS) FOR SERVICING AS SHOWN ON PLANS AND/OR AS REQUIRED IN CEILINGS AND/OR WALLS. ALL ACCESS DOORS IN FIRE RATED ASSEMBLIES SHALL BE APPROVED FOR SUCH USE IN ITS ULC LISTING.
P. THIS SET OF PLANS INCLUDES SCHEDULES FOR MATERIAL LENGTHS AND FITTINGS. THE QUANTITIES SHOWN IN THESE SCHEDULES ARE **APPROXIMATE VALUES** OF THE REQUIREMENTS ONLY. THE CONTRACTOR SHALL VERIFY ACTUAL QUANTITY OF MATERIALS TO BE USED BASED ON EXISTING SITE CONDITIONS IN THE FIELD.
Q. APPROPRIATE SLEEVES AND COLLARS ON BOTH SIDES SHALL BE PROVIDED FOR PIPE AND DUCT PENETRATIONS AS APPLICABLE. PROVIDE FIRESTOPPING AND/OR WEATHER-TIGHT SYSTEMS AS REQUIRED.
R. ALL PIPING AND DUCTWORK PENETRATING THROUGH FIRE-RATED ASSEMBLIES SHALL BE NON-COMBUSTIBLE. ALL OPENINGS AND PENETRATIONS THROUGH FIRE-RATED ASSEMBLIES SHALL BE PROPERLY TREATED WITH AN APPROVED FIRESTOPPING MATERIAL AND METHOD. CONTRACTOR TO SUBMIT FIRESTOPPING LISTING CERTIFICATES AND RELATED DOCUMENTS TO ENGINEER PRIOR TO ANY COVERING WORKS, INCLUDING DRYWALL. EXISTING SYSTEMS (SUCH AS DUCTWORK AND PIPING) THAT WILL PENETRATE NEW FIRE-RATED ASSEMBLIES SHOULD ALSO BE PROVIDED WITH APPROVED FIRESTOPPING MATERIAL AND METHOD THAT IS COMPATIBLE WITH EXISTING MATERIAL.
S. APPROPRIATE SCANNING, SUCH AS USE OF GROUND PENETRATING RADAR EQUIPMENT, OF BUILDING ELEMENTS (WALLS, FLOORS, CEILINGS) IS REQUIRED PRIOR TO ANY RELATED WORK AND SHALL BE INCLUDED IN TENDER PRICE. SCANNING WORK SHALL BE COORDINATED WITH OWNER/LANDLORD. CUTTING, DRILLING, AND OTHER SIMILAR WORK ON BUILDING ELEMENTS (WALLS, FLOORS, CEILINGS) SHALL BE APPROVED BY OWNER/LANDLORD PRIOR TO RELATED WORK.
T. ALL EQUIPMENT, PLUMBING FIXTURES, PIPES, INSULATION AND RELATED ACCESSORIES SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, AND SHALL BE PROVIDED WITH APPROPRIATE SPACE FOR SERVICING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. ALL EQUIPMENT DRAINS SHALL BE PIPED TO FLOOR DRAINS UNLESS OTHERWISE SPECIFIED. EQUIPMENT SUPPORTS NOT SUPPLIED BY MANUFACTURER SHALL BE CONSTRUCTED USING STRUCTURAL-GRADE STEEL.
U. ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH ISOLATION VALVES AND/OR FITTINGS TO ALLOW REMOVAL OF EQUIPMENT FOR SERVICING.
V. ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH VIBRATION ISOLATORS OR OTHER SIMILAR MEANS TO ISOLATE EQUIPMENT VIBRATION FROM BUILDING STRUCTURE. ALL MECHANICAL EQUIPMENT SHALL BE CONNECTED TO PIPING AND/OR DUCTWORK BY MEANS OF A FLEXIBLE CONNECTION.

CUTTING, PATCHING & REFINISHING

A. ALL CUTTING, PATCHING, AND REFINISHING WORKS ON ARCHITECTURAL AND STRUCTURAL ASSEMBLIES NECESSARY TO CARRY OUT THE DESIGN INTENDED BY THIS SET OF DRAWINGS AND SPECIFICATIONS SHALL BE DONE BY THE GENERAL CONTRACTOR AT THIS CONTRACTOR'S EXPENSE.
B. PATCHING SHALL BE CARRIED OUT WHILE MAINTAINING THE INTEGRITY OF ANY FIRE-RATED MEMBRANES, NOISE MITIGATION SYSTEMS, VAPOR RETARDANT LAYERS, THERMAL INSULATION, AND ALL OTHER SYSTEMS AFFECTED BY THE WORK.

RENOVATION

A. THE CONTRACTOR SHALL PERFORM SITE INSPECTION PRIOR TO BIDDING TO VERIFY ALL EXISTING CONDITIONS AND INSTALLATIONS. THE CONTRACTOR SHALL INCLUDE ALL NECESSARY COSTS FOR ANY ADJUSTMENT OF EXISTING UTILITIES AND EQUIPMENT ON SITE, AND FOR ANY ADJUSTMENT OF INSTALLATIONS SHOWN ON THIS SET OF DRAWINGS AND SPECIFICATIONS AGAINST ACTUAL EXISTING CONDITIONS FOR THE COMPLETION OF WORK.
B. ALL ALTERATION AND DEMOLITION WORK OF EXISTING EQUIPMENT AND SERVICES SHALL BE COORDINATED WITH THE OWNER/LANDLORD TO MINIMIZE SYSTEM INTERRUPTIONS AND OPERATIONAL SETBACKS.
C. ALL REMOVED AND DEMOLISHED EXISTING EQUIPMENT AND MATERIALS SHALL BE THE OWNER'S PROPERTY. ALL ITEMS TAGGED AS 'FOR DISPOSAL' BY THE OWNER OR THE OWNER'S REPRESENTATIVE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
D. ITEMS INTENDED TO BE RELOCATED AND REINSTALLED SHALL BE REFURBISHED AS NECESSARY, SHALL BE PROVIDED WITH NEW MATERIALS AS REQUIRED TO SUIT NEW LOCATION, AND SHALL BE RECONNECTED TO ALL NEW AND/OR EXISTING RELATED SERVICES AS APPLICABLE.

INSPECTIONS BY CONSULTANT

A. CONTRACTOR SHALL NOTIFY CONSULTANTS WHEN INSPECTIONS ARE REQUIRED. ALLOW MINIMUM OF THREE (3) BUSINESS DAYS OF NOTICE PRIOR TO ACTUAL DATE OF INSPECTION.
B. THE CONTRACTOR SHALL ENSURE THAT ALL UPDATED DRAWINGS AND OTHER RELEVANT DOCUMENTS REQUIRED FOR PROPER ANALYSIS AND/OR RESOLUTION ARE PROVIDED ON THE DAY OF INSPECTION.
C. INSPECTIONS ARE REQUIRED AT THE FOLLOWING MILESTONES:
   a. MECHANICAL AND PLUMBING SYSTEM INSTALLATIONS PRIOR TO ENCLOSURE INCLUDING ROUGHINS PRIOR TO DRYWALL AND CONCRETE COVERING.
   b. FINAL INSPECTION.

CLOSE-OUT REQUIREMENTS

A. DOCUMENTS:
   a. TESTING, BALANCING, AND COMMISSIONING CERTIFICATES AND REPORTS (SIGNED AND IN CONTRACTOR'S COMPANY LETTERHEAD) OF ALL APPLICABLE MECHANICAL AND PLUMBING SYSTEMS UNDER CONTRACT APPROVED BY THE ENGINEER AND ALL GOVERNING AUTHORITIES INCLUDING BUT NOT LIMITED TO:
      - PIPE TEST REPORT AT THE ROUGH-IN STAGE STATING THAT UNDERGROUND PIPES ARE SLOPED PER OBC 7.4.8.1 AND TESTED AS PER OBC 7.3.6.4 OR 7.3.6.5 PRIOR TO CONCRETE POURING.
      - PRESSURE TEST REPORT USING AIR/WATER AT THE ROUGH-IN STAGE IN ACCORDANCE WITH OBC 7.3.6.1.(1) FOR DRAINS AND VENTS.
      - AIR BALANCING REPORT
      - FINAL TEST REPORT USING SMOKE OR AIR PRESSURE AFTER THE INSTALLATION OF ALL FIXTURES, IN ACCORDANCE WITH OBC 7.3.6.1.(2) FOR DRAINS AND VENTS
      - PRESSURE TEST REPORT USING AIR/WATER ON THE COMPLETE SYSTEM AFTER THE INSTALLATION OF ALL FIXTURES, IN ACCORDANCE WITH OBC 7.3.7.1.(1) FOR POTABLE WATER SYSTEMS
   b. TESTING REPORT OF SMOKE, FIRE, AND/OR COMBINATION FIRE/SMOKE DAMPERS INDICATING THAT THE DAMPER(S) CLOSED DURING ALARM TESTS SIGNED BY CONTRACTOR ON COMPANY LETTERHEAD.
   c. WRITTEN DOCUMENT AS WARRANTY FOR ALL INSTALLATIONS IN THIS CONTRACT FOR A PERIOD OF ONE YEAR FROM AN AGREED UPON DATE BY THE OWNER OR THE OWNER'S REPRESENTATIVE IN ACCEPTANCE OF CONSTRUCTION CONTRACT COMPLETION.
   d. THREE (3) SETS OF HARD-BOUND 'OPERATION AND MAINTENANCE MANUAL' CONTAINING ALL DATA SHEETS, BROCHURES, OPERATING AND MAINTENANCE MANUAL, RECOMMENDED SPARE PARTS, COMPLETE APPROVED SHOP DRAWINGS, AND OTHER RELEVANT DOCUMENTS, LABELED ACCORDINGLY, AND WITH MARKERS/DIVIDERS/INSERTS FOR LOGICAL ORGANIZATION, AND AN ELECTRONIC COPY (IN PDF) SAVED IN A USB FLASH DRIVE. A PRELIMINARY SET (IN PDF) SHALL BE SUBMITTED TO CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO REPRODUCTION. REVISE AND RESUBMIT AS REQUIRED UPON REVIEW.
B. TRAINING: THE CONTRACTOR SHALL CONDUCT ORIENTATION AND TRAINING SESSIONS TO THE OWNER AND/OR OWNER'S MAJOR PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF ALL INSTALLED MECHANICAL AND PLUMBING EQUIPMENT UNDER CONTRACT. THE TRAINING SHALL BE OUTLINED AND CARRIED OUT REFERENCING THE 'OPERATION AND MAINTENANCE MANUAL' PROVIDED AS PART OF CLOSE-OUT DOCUMENTS.
C. RECORD DRAWINGS:
   a. WITHIN THIRTY (30) DAYS OF COMPLETION OF CONTRACT WORK, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS FOR ALL COMPLETED DISCIPLINES UNDER SCOPE. THE AS-BUILT DRAWINGS SHALL REFLECT ALL ACTUAL CONSTRUCTION WORK, INCLUDING ALL DEVIATIONS FROM CONSTRUCTION DRAWINGS AND ALL APPROVED ALTERNATES IMPLEMENTED ON SITE. PROVIDE ONE (1) SET OF THE FINAL AS-BUILT DRAWINGS, CERTIFIED AND SIGNED, TO ENGINEER FOR REVIEW. THE ENGINEER'S REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY OF THE ACCURACY OF REFLECTED INFORMATION ON THE AS-BUILT DRAWINGS.
   b. IN THE EVENT OF ANY DISCREPANCIES AND ANOMALIES IN THE REFLECTED INFORMATION ON THE AS-BUILT DRAWINGS AND THE ACTUAL CONSTRUCTION ON SITE, THE CONTRACTOR SHALL SHOULDER ALL COST IMPLICATIONS OF RECTIFICATION OF ALL DEFICIENCIES AND PROBLEMS DISCOVERED WITHIN A PERIOD OF ONE (1) YEAR FROM AN AGREED UPON DATE BY THE OWNER OR THE OWNER'S REPRESENTATIVE.

MISCELLANEOUS

A. ALL MATERIALS WITHIN A FLOOR, CEILING, OR ROOF ASSEMBLY USED AS A RETURN AIR PLENUM SHALL HAVE A FLAME-SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED CLASSIFICATION OF NOT MORE THAN 50. EXPOSED WOOD AND WOOD FRAMING IS NOT PERMITTED WITHIN A RETURN AIR PLENUM.
B. SEPARATION BETWEEN DISSIMILAR METALS SHALL BE PROVIDED THROUGH GASKETS OR SHIMS OF APPROVED MATERIAL TO PREVENT ELECTROLYTIC ACTION. DIELECTRIC UNIONS OR FLANGES SHALL BE PROVIDED WHERE PIPING OF DISSIMILAR METALS ARE CONNECTED. IN CASE OF CONNECTIONS BETWEEN COPPER AND STEEL PIPING, A BRASS FITTING OR VALVE MAY BE USED. COPPER PIPING AND CONCRETE OR MASONRY CONSTRUCTION SHALL NOT BE PERMITTED TO HAVE DIRECT CONTACT.

MOUNTING HEIGHTS

A. ALL CONTROL DEVICES OF MECHANICAL SYSTEMS LOCATED IN A BARRIER-FREE PATH OF TRAVEL SHALL BE MOUNTED TO CENTRE OF DEVICE AT
   a. 1200MM AFF, IN CASE OF THERMOSTATS
   b. BETWEEN 900MM TO 1100MM AFF LEVEL FOR ALL OTHER CONTROLS
B. ALL CONTROL DEVICES OF MECHANICAL SYSTEMS NOT LOCATED IN A BARRIER-FREE PATH OF TRAVEL SHALL BE MOUNTED TO CENTRE OF DEVICE AT 1400MM AFF, OR OTHERWISE AS NOTED IN THIS SET OF PLANS AND AS RECOMMENDED BY THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
C. ALL CONTROL DEVICES SHALL BE INSTALLED IN THE IMMEDIATE VICINITY OF LIGHT SWITCHES IN THE ROOM/SPACE AS APPLICABLE OR AS OTHERWISE NOTED IN THIS SET OF PLANS.

THERMAL INSULATION

GENERAL CONDITIONS

A. ALL INSULATION SHALL CONFORM TO THE THERMAL INSULATION ASSOCIATION OF CANADA (TIAC) NATIONAL INSULATION STANDARDS MANUAL, THE MANUFACTURER'S PUBLISHED INSTRUCTION AND REQUIREMENT REFERENCES, AND THESE SPECIFICATIONS.
B. ALL ITEMS TO BE COVERED SHALL BE TESTED AGAINST LEAKAGE BEFORE COVERING APPLICATION.
C. INSULATION OVER EQUIPMENT WHICH MAY REQUIRE SERVICING, MAINTENANCE, OR REPLACEMENT SHALL BE INSTALLED IN A MANNER THAT ALLOWS EASY REMOVAL OR REPLACEMENT WITHOUT DAMAGE TO ADJACENT INSULATION (ONLY PREFABRICATED TYPE INSULATION SHALL BE USED).
D. ALL VALVES, UNIONS, AND OTHER FITTINGS WHICH ARE 25MM AND SMALLER IN POTABLE AND NON-POTABLE WATER SYSTEMS SHALL NOT BE REQUIRED TO BE INSULATED.
E. ALL EXISTING SYSTEMS REQUIRING INSULATION WITHIN AREA OF WORK WITH DILAPIDATED OR MISSING INSULATION SHALL BE REPAIRED AND/OR PROVIDED WITH APPROPRIATE INSULATION.

PIPE INSULATION

A. ALL DOMESTIC WATER PIPING SHALL BE PROVIDED WITH PRE-FORMED SECTIONAL FIBERGLASS PIPE INSULATION WITH VAPOR BARRIER JACKET. PIPES SHALL BE LABELED WITH CORRESPONDING SYSTEM (CWS, HWS, HWR, ETC.) WITH ARROW SHOWING DIRECTION OF FLOW. LABEL FONT SIZE SHALL BE 1" MINIMUM.
B. ALL HORIZONTAL SANITARY & STORM PIPING AND FITTINGS SHALL BE PROVIDED WITH FIBREGLASS DUAL TEMPERATURE INSULATION (88 KG/CU.M DENSITY) WITH FACTORY APPLIED FIRE RESISTIVE FIBREGLASS REINFORCED KRAFT PAPER AND ALUMINUM FOIL VAPOR BARRIER OR APPROVED EQUAL.
C. INSULATION THICKNESS SHALL BE AS FOLLOWS:
   a. 15MM FOR METAL POTABLE AND NON-POTABLE COLD WATER.
   b. FOR PLASTIC POTABLE AND NON-POTABLE COLD WATER, NO INSULATION SHALL BE REQUIRED EXCEPT FOR METAL PARTS IN COLD WATER PIPING SHALL BE PROVIDED WITH 15MM INSULATION.
   c. HOT WATER PIPING 32MM OR SMALLER SHALL BE PROVIDED WITH 25MM INSULATION.
   d. HOT WATER PIPING 38MM OR LARGER SHALL BE PROVIDED WITH 38MM INSULATION.
   e. 25MM FOR ABOVE GROUND PLASTIC AND METAL HORIZONTAL STORM WATER, AND 25MM FOR UNDERSIDE OF ROOF DRAIN ASSEMBLIES.
D. ALL FITTINGS, VALVES, AND ACCESSORIES CONNECTED TO HOT AND COLD WATER PIPING SYSTEMS SHALL BE PROVIDED WITH INSULATION CEMENT WITH THICKNESS AS OUTLINED ABOVE. COLD WATER FITTING INSULATION SHALL BE SEALED WITH VAPOUR BARRIER ADHESIVE, SHALL BE REINFORCED WITH GLASS OPEN WEAVE FIBRE TAPE AND SHALL BE SMOOTH-FINISHED WITH A COAT OF MASTIC.
E. ULC-LABELLED SELF ADHESIVE ALUMINUM TAPE SHALL BE USED. INSULATION AND VAPOR BAERRIER SHALL BE SEALED WITH SUITABLE LAP CEMENT.
F. ALL INTERIOR EXPOSED PIPE INSULATION SHALL BE PROVIDED WITH PVC JACKETING AND SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S REQUIREMENTS.

DUCT INSULATION

A. 15MM THICK ACOUSTIC LINING SHALL BE PROVIDED AS SHOWN ON PLANS AND ON THE FIRST 3 METERS OF SUPPLY AND RETURN DUCTWORK. WHERE ACOUSTIC LINING IS INSTALLED, SIZE OF DUCTWORK SHOWN SHALL BE THE ACTUAL INSIDE DUCT DIMENSION INCLUDING ACOUSTIC LINING THICKNESS.
B. DUCT INSULATION WITH VAPOR BARRIER SHALL BE PROVIDED FOR ALL DUCTWORK RUNNING IN UNCONDITIONED SPACE.
C. INSULATION THICKNESS FOR ALL DUCTWORK SHALL BE AS FOLLOWS:
   a. INDOOR SUPPLY AIR DUCTS FROM HEATING/COOLING SOURCES SHALL BE AT LEAST 15MM THICK AND VAPOR TIGHT.
   b. INDOOR OUTSIDE AIR INTAKE AND EXHAUST DUCTS SHALL BE AT LEAST 50MM THICK AND VAPOR TIGHT.
D. THE FIRST 3000MM DUCT RUN FROM A FAN OR FROM AN OUTSIDE AIR INTAKE TERMINAL, AND 2000MM EXHAUST DUCT RUN TO TERMINATION SHALL BE PROVIDED WITH DUCT INSULATION.

ELECTRICAL

GENERAL CONDITIONS

A. ALL POWER AND CONTROL WIRING OVER 50V SHALL BE BY ELECTRICAL CONTRACTOR. CONTROL CONDUIT & WIRING BELOW 50V BY MECHANICAL/CONTROLS CONTRACTOR.
B. ALL CONTROL DEVICES, CONDUIT & LOW VOLTAGE CONTROL WIRING (LESS THAN 50V), AND NECESSARY APPURTENANCES FOR COMPLETE AND OPERATIONAL SYSTEMS SHALL BE PROVIDED BY THE CONTRACTOR.
C. THE CONTRACTOR SHALL COORDINATE EQUIPMENT ELECTRICAL REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO ACQUISITION OF ANY EQUIPMENT.
D. ALL CONTROL WIRING AND TRANSFORMERS SHALL BE OF CLASS 1 OR 2 AS REQUIRED BY THE OESC FOR SYSTEM OPERATING VOLTAGES AND CURRENTS.
E. LOW VOLTAGE WIRING WITHIN FIRE RATED ASSEMBLIES SHALL BE RUN WITHIN METALLIC CONDUIT & METALLIC DEVICE BOXES. LOW VOLTAGE WIRING PENETRATING FIRE SEPARATIONS SHALL BE RUN WITHIN METAL CONDUIT AT THE PENETRATION.
F. CONTROL WIRING SIZES AND CONTROL TRANSFORMER CAPACITIES SHALL BE SIZED FOR ALL CONTROL EQUIPMENT SERVED.

PLUMBING

GENERAL CONDITIONS

A. PIPING SHOWN ON PLANS ARE SCHEMATIC AND ARE SHOWN TO EMPHASIZE CONNECTIONS TO FIXTURES AND EQUIPMENT. ALL ACTUAL PIPING, HANGERS, AND OTHER RELATED WORK SHALL BE CARRIED OUT IN THE BEST WORKMANSHIP AND MANNER IN ACCORDANCE TO THE BEST PRACTICES OF THE INDUSTRY.
B. ALL SANITARY, STORM AND WATER PIPING SHALL BE KEPT CLEAR OF OUTSIDE WALLS. THE RESPONSIBILITY OF ENSURING THAT FREEZING CONDITIONS WITHIN THE PLUMBING PIPING INSTALLED IS PREVENTED SHALL BE SHOULDERED BY THE CONTRACTOR.
C. ALL PIPING AND ITS COMPONENTS INSTALLED IN A BUILDING OF NONCOMBUSTIBLE CLASSIFICATION SHALL HAVE FLAME SPREAD RATING OF 25 OR LESS. REFER TO MANUFACTURER'S DOCUMENTATION FOR APPLICABILITY.
D. AT PENETRATIONS THROUGH FIRE SEPARATIONS: PROVIDE NON-COMBUSTIBLE PIPING OR FIRE STOP COLLAR WITH F-RATING EQUAL OR GREATER THAN THAT OF THE FIRE SEPARATION FOR 40mm PIPE OR LARGER. PROVIDE NON-COMBUSTIBLE PIPING THROUGH ALL FIRE SEPARATIONS FOR 32MM PIPE OR LESS.

DOMESTIC WATER

A. ALL DOMESTIC WATER PIPING SHALL BE TYPE 'L' COPPER WITH CAST BRASS OR WROUGHT COPPER FITTINGS, PEX OR CPVC CONFORMING TO THE ONTARIO BUILDING CODE. WATER PIPE SIZING SHOWN ON THIS PLAN IS BASED ON COPPER PIPING. FOR PEX OR CPVC, SIZES MUST BE ADJUSTED TO MEET REQUIRED MINIMUM INSIDE DIAMETER, REFERRING TO MANUFACTURER'S DATA AS NECESSARY. EXPANSION LOOPS FOR CPVC HOT WATER AND HOT WATER RECIRCULATION MAINS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATION.
B. PROVIDE ISOLATING VALVES ON MAIN AND/OR BRANCHES, AND FOR ALL EQUIPMENT SERVICED BY HOT AND COLD WATER LINES. ALL VALVES SHALL BE RATED FOR USE UNDER THE OPERATING PRESSURE OF THE SYSTEM IN WHICH THEY ARE INSTALLED.
C. PROVIDE BALL VALVE AT LOWEST POINT OF INSTALLATION TO ALLOW DRAINING AND PURGING OF SYSTEM.
D. ALL CLEANING AND FLUSHING OF THE DOMESTIC WATER SITE SERVICE PIPING SHALL BE BY THE SITE SERVICE CONTRACTOR. ALL ISOLATING VALVES SHALL BE MAINTAINED IN THE OPEN POSITION DURING FLUSHING AND CLEANING OPERATION.
E. SINKS AND LAVATORIES WITH ELECTRONIC FAUCETS SHALL BE PROVIDED WITH RECESSED CONTROL BOX WITH ACCESS PANEL AS APPLICABLE OR AS SPECIFIED.

SANITARY DRAIN & VENT

A. INSTALL PLUMBING VENT LINES IN COMPLIANCE WITH OBC PART 7. DISTRIBUTION AND SIZING SHALL BE BY PLUMBING CONTRACTOR.
B. FOR BELOW GROUND PIPING:
   a. FOR ALL SIZES INSIDE THE BUILDING: ABS DWV OR PVC SDR-35 PIPE WITH INJECTION-MOLDED SOCKET FITTINGS, OR
   b. FOR PIPES 50MM OR SMALLER: TYPE "L" HARD COPPER WITH CAST BRASS OR WROUGHT COPPER FITTINGS, OR
   c. FOR PIPES LARGER THAN 50MM: CAST IRON WITH "MJ" FITTINGS, OR
   d. FOR PIPES OUTSIDE THE BUILDING: PVC SDR-28 FOR PIPES 150MM OR SMALLER, COMPLETE WITH INJECTION-MOLDED GASKETED FITTINGS.
C. FOR ABOVE GROUND PIPING:
   a. FOR PIPES 50MM OR SMALLER: TYPE DWV HARD DRAWN COPPER TUBE WITH CAST BRASS ALLOY DRAINAGE FITTINGS, OR
   b. FOR PIPES LARGER THAN 50MM: CAST IRON PIPE WITH "MJ" FITTINGS OR DWV COPPER TUBING WITH CAST ALLOY DRAINAGE FITTINGS, OR
   c. FOR ALL SIZES: PVC DWV WITH INJECTION-MOLDED SOCKET FITTINGS. PIPE SHALL BE SUITABLE FOR USE IN NON-COMBUSTIBLE BUILDING CONSTRUCTION (IPEX SYSTEM 15 OR APPROVED EQUAL). FOR PIPING RUNNING THROUGH RETURN AIR CEILING PLENUMS, PIPING SHALL HAVE MAXIMUM SMOKE DEVELOPMENT RATING OF 50 (IPEX SYSTEM XFR 15-50 OR APPROVED EQUAL).
D. DISCONNECT AND TERMINATE ALL EXISTING DRAIN PIPES NOT USED IN THIS SET OF DRAWINGS AND SPECIFICATIONS AT CEILING, FLOOR, OR WALL. DEMOLISH ALL REDUNDANT PIPING TO THE FIRST TAKE OFF POINT.
E. TRAPS SHALL BE PROVIDED FOR ALL FIXTURE DRAINS. NO FIXTURE SHALL BE DOUBLE TRAPPED.
F. TRAPS COMPLETE WITH TRAP SEAL PRIMING SYSTEM SHALL BE PROVIDED FOR ALL FLOOR DRAINS AND HUB DRAINS SHOWN IN THIS SET OF DRAWINGS ACCORDING TO THE REQUIREMENTS OF THE OBC.
G. ALL EQUIPMENT PRIMARY DRAIN LINES AND DRAIN PANS SHALL INDIRECTLY TERMINATE TO THE DRAINAGE SYSTEM.

DOMESTIC WATER HEATER

A. DOMESTIC HOT WATER HEATERS SHALL BE PROVIDED WHERE SHOWN ON THIS SET OF DRAWINGS. THE HEATER SHALL BE SECURED IN PLACE, LEVEL, AND PLUMB. THE HEATER SHALL BE PROVIDED COMPLETE WITH AUXILIARY DRAIN PAN KIT WHERE HEATER IS NOT ON LOWEST FLOOR LEVEL. A THERMOSTATIC MIXING VALVE SHALL BE PROVIDED AND SET TO PRODUCE 43°C HOT WATER. HEAT TRAPS IN THE WATER PIPING FEED TO THE DOMESTIC HOT WATER SYSTEM SHALL BE PROVIDED. THE TRAP SHALL CONSIST OF AN ARRANGEMENT OF PIPE FITTINGS CONNECTED SO THAT THE PIPING MAKES VERTICALLY UPWARD RUNS (MINIMUM OF 6") JUST BEFORE TURNING DOWNWARD TO CONNECT TO THE DOMESTIC HOT WATER SYSTEM.
B. ELECTRIC HEATER POWER WIRING CONNECTION INSTALLATION SHALL BE COORDINATED WITH ELECTRICAL CONTRACTOR.
C. TEMPERATURE & PRESSURE RELIEF VALVE AND WATER HEATER DRAIN PAN SHALL TERMINATE INDIRECTLY TO A FLOOR DRAIN OR HUB DRAIN WITH AN AIR BREAK OF NOT MORE THAN 300MM OR NOT LESS THAN 150MM AND NOT MORE THAN 300MM FROM A FLOOR AND DISCHARGE VERTICALLY DOWN.

BARRIER FREE REQUIREMENTS

A. ALL FIXTURES NOTED FOR BARRIER-FREE USE SHALL BE INSTALLED ACCORDING TO OBC SECTION 3.8.
B. WATER CLOSETS:
   a. OBC 3.8.3.8.(2): WATER CLOSETS SHALL BE LOCATED SO THAT THE CENTER LINE IS 460-480MM FROM ONE SIDE WALL AND A CLEAR TRANSFER SPACE OF AT LEAST 900MM WIDE & 1500MM DEEP IS PROVIDED ON THE OTHER SIDE; OR A CLEAR TRANSFER SPACE OF AT LEAST 900MM WIDE & 1500MM DEEP IS PROVIDED ON EACH SIDE.
   b. OBC 3.7.4.14.: EXCEPT IN A DWELLING UNIT AND EXCEPT AS REQUIRED BY OBC SECTION 3.8, A MINIMUM CLEARANCE OF 380MM SHALL BE PROVIDED IN FRONT OF A WATER CLOSET.
C. LAVATORIES:
   a. OBC 3.8.3.11.(C): CLEARANCE BENEATH A LAVATORY SHALL NOT BE LESS THAN 920MM WIDE, 735MM HIGH AT THE FRONT EDGE, 685MM HIGH AT A POINT 200MM BACK FROM THE FRONT EDGE, AND 350MM HIGH OVER THE DISTANCE FROM A POINT 280MM TO A POINT 430MM BACK FROM THE BACK EDGE.

HEATING, VENTILATING & AIR CONDITIONING

GENERAL CONDITIONS

A. ALL DUCTWORK, HANGERS, AND OTHER RELATED WORK SHALL BE CARRIED OUT AND FABRICATED IN ACCORDANCE WITH THE LATEST ASHRAE AND SMACNA REGULATIONS. ALL WORK SHALL BE CARRIED OUT IN THE BEST WORKMANSHIP AND MANNER IN ACCORDANCE TO THE BEST PRACTICES OF THE INDUSTRY.

DUCTWORK

A. ALL DUCTWORK SHALL BE G-60 GALVANIZED STEEL UNLESS OTHERWISE SPECIFIED, IN ACCORDANCE WITH ASTM A-653 AND A-294. THICKNESS AND FABRICATION SHALL BE IN ACCORDANCE TO ASHRAE AND SMACNA STANDARDS.
B. EXPOSED DUCTWORK SHALL BE MADE WATERPROOF. ALL SEAMS, JOINTS AND CONNECTIONS SHALL BE MADE WATERTIGHT WITH SEALING COMPOUND.
C. ALL FINISHES OF AIR TERMINALS SHALL BE COORDINATED WITH AND APPROVED BY THE ARCHITECT.
D. VOLUME DAMPERS, OR VOLUME CONTROL DEVICES SHALL BE PROVIDED AS SHOWN ON PLANS.
E. PROVIDE COMBINATION SMOKE & FIRE DAMPERS, FIRE DAMPERS, AND/OR SMOKE DAMPERS, COMPLETE WITH APPROVED ACCESS DOORS, AS SHOWN ON PLANS. FIRE DAMPERS SHALL BE ULC APPROVED, LABELED, AND INSTALLED IN DUCT SLEEVE IN ACCORDANCE WITH NFPA 90A AND GOVERNING AUTHORITIES.
F. PROVIDE BALANCING DAMPERS, COMPLETE WITH APPROVED MEANS OF ACCESS, AS SHOWN ON PLANS.
G. ALL AIR TERMINALS SHALL BE EQUIPPED WITH CLOSE-OFF DAMPERS AND ADJUSTABLE DEFLECTION VANES WHERE INDICATED ON PLANS.
H. ALL DUCT SIZES SHOWN ON PLANS MAY BE MODIFIED TO ADAPT TO SITE CONDITIONS, AS LONG AS THE INSIDE CROSS-SECTIONAL FREE AREA IS MAINTAINED AND DUCT ASPECT RATIO DOES NOT EXCEED 4:1.

CONDENSATE DRAIN PIPING

A. CONDENSATE DRAIN LINE SHALL BE PROVIDED FOR EACH EQUIPMENT REQUIRING IT, ACCORDING TO EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS. DRAINS SHALL BE COPPER OR NON-KINKING PLASTIC, INSULATED IF FROM COOLING-TYPE EQUIPMENT, AND PUMPED OR GRAVITY DRAINED. TRAPS SHALL BE PROVIDED FOR CONDENSATE LINES. DRAINS SHALL RUN AT MINIMUM OF 1:80 SLOPE. PIPING SHALL BE SUITABLY SIZED FOR EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATION AND SHALL NOT BE LESS THAN 20MM, AND SHALL NOT DECREASE IN SIZE FROM THE DRAIN PAN CONNECTION TO THE TERMINATION. THE CONDENSATE DRAIN SHALL BE INDIRECTLY CONNECTED TO THE SANITARY DRAIN BY MEANS OF AN AIR GAP.
B. AFTER CONSTRUCTION, ALL INSTALLED CONDENSATE DRAINAGE PIPING SYSTEMS SHALL BE INSPECTED UNDER NORMAL OPERATING CONDITIONS FOR ANY WATER STAGNATION OR WATER DAMAGE POTENTIAL.

EXHAUST TERMINATION

A. EXHAUST THROUGH ROOF SHALL BE MINIMUM OF 12" ABOVE ROOF, SHALL DISCHARGE STRAIGHT UPWARDS, AND SHALL BE PROVIDED WITH 0.5IN GRILLE OR VERMIN GUARD. EXHAUST TERMINALS SHALL BE LOCATED AS FOLLOWS:
   a. MINIMUM OF 10FT ABOVE GRADE.
   b. MINIMUM OF 10FT HORIZONTALLY AWAY OR 2FT VERTICALLY ABOVE FROM ANY OPENINGS INTO THE BUILDING OR AIR INTAKE TERMINALS.
   c. MINIMUM OF 10FT AWAY FROM ANY VERTICAL WALLS EXTENDING ABOVE THE ROOF.
   d. MINIMUM OF 10FT AWAY FROM ANY OPENINGS INTO AN ADJACENT BUILDING.

PROJECT NOTES

GENERAL REQUIREMENTS

A. SCOPE OF WORK INCLUDES REPLACEMENT OF MAIN COLD WATER LINE AFTER EXISTING BACKFLOW PREVENTER AND EXPANSION TANK ASSEMBLIES AND MAIN HOT WATER SUPPLY AND RETURN LINES FROM EXISTING WATER HEATERS. NEW HOT & COLD WATER PIPES SHALL BE RECONNECTED TO THE EQUIPMENT AND OTHER ASSEMBLIES MENTIONED ABOVE.
B. ALL EXISTING FIXTURES TO BE DISCONNECTED FROM EXISTING CONNECTIONS AND RECONNECTED TO NEW HOT & COLD WATER LINES FROM CEILING LEVEL. NEW PIPE RUNS TO EXISTING FIXTURES TO ROUTE ON WALLS, COMPLETE WITH INSULATION AND VAPOR BARRIER JACKET, OR IN NEW FURRED OUT WALLS, AS APPLICABLE. VERIFY WITH ARCHITECTURAL PLANS AND WITH EXISTING CONDITIONS IN THE FIELD.

LICENSED PROFESSIONAL ENGINEER
S. HOLDITCH
100108001
Feb 13, 2025
PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME
Oakwood Public School
357 Bartos Dr,
Oakville City, ON

DRAWING TITLE
Mechanical Specification

SCALE: 1 : 1
SHEET SIZE: 24"x36"
PROJECT NUMBER: 24028
DRAWING NUMBER: **M2**

Removed Plumbing Fixture Schedule

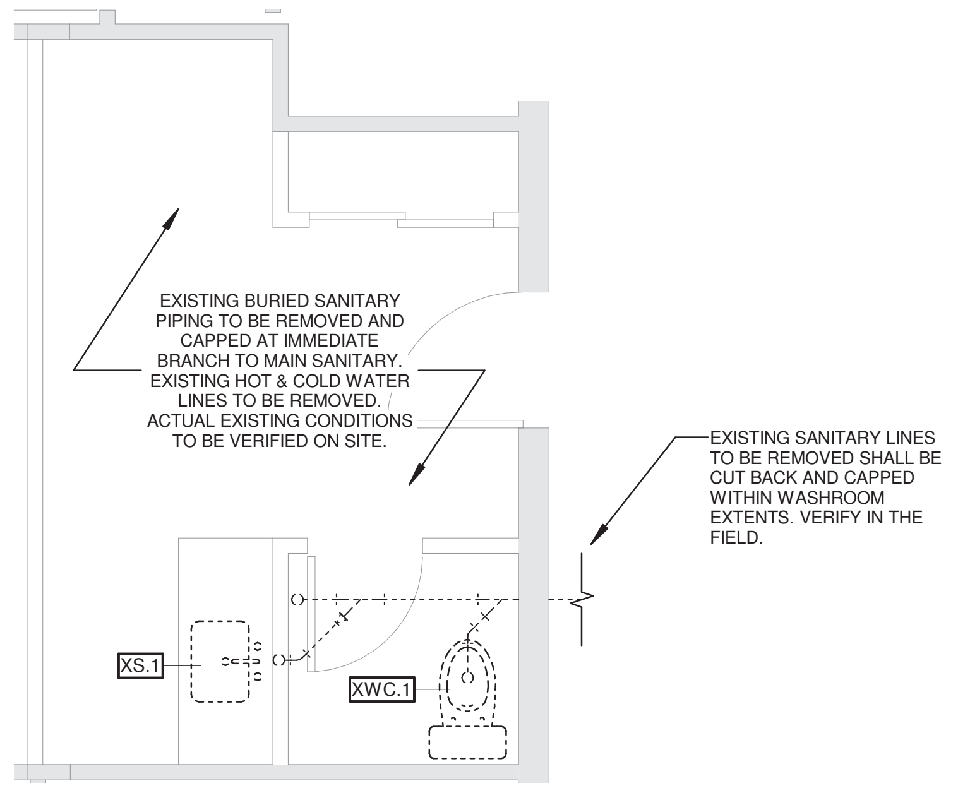
CURRENT PHASE: Permit CURRENT ITEMS: Show Demo Only

Mark	QTY	Description	Remarks	Phase Added	Phase Removed
XL.1	1	LAVATORY - WALL HUNG	Disconnect from water, sanitary and vent lines. Cut back and cap lines for reconnection to new fixtures. Verify actual conditions in the field.	EXISTING	Permit
XS.1	1	SINK		EXISTING	Permit
XUR.1	8	URINAL - FLOOR MOUNTED	Disconnect from water, sanitary and vent lines. Remove automatic flushing system including water lines, control, and accessories. Cut back and cap sanitary lines and main water supply for reconnection to new fixtures. Verify actual conditions in the field.	EXISTING	Permit
XWC.1	2	WATER CLOSET (TANK)	Disconnect from water, sanitary and vent lines. Cut back and cap lines for reconnection to new fixtures. Verify actual conditions in the field.	EXISTING	Permit
XWC.2	16	WATER CLOSET (FLUSHOMETER)	Disconnect from water, sanitary and vent lines. Cut back and cap lines for reconnection to new fixtures. Verify actual conditions in the field.	EXISTING	Permit
XWF.1	2	WASHFOUNTAIN	Disconnect from water, sanitary and vent lines. Cut back and cap lines for reconnection to new fixtures. Verify actual conditions in the field.	EXISTING	Permit

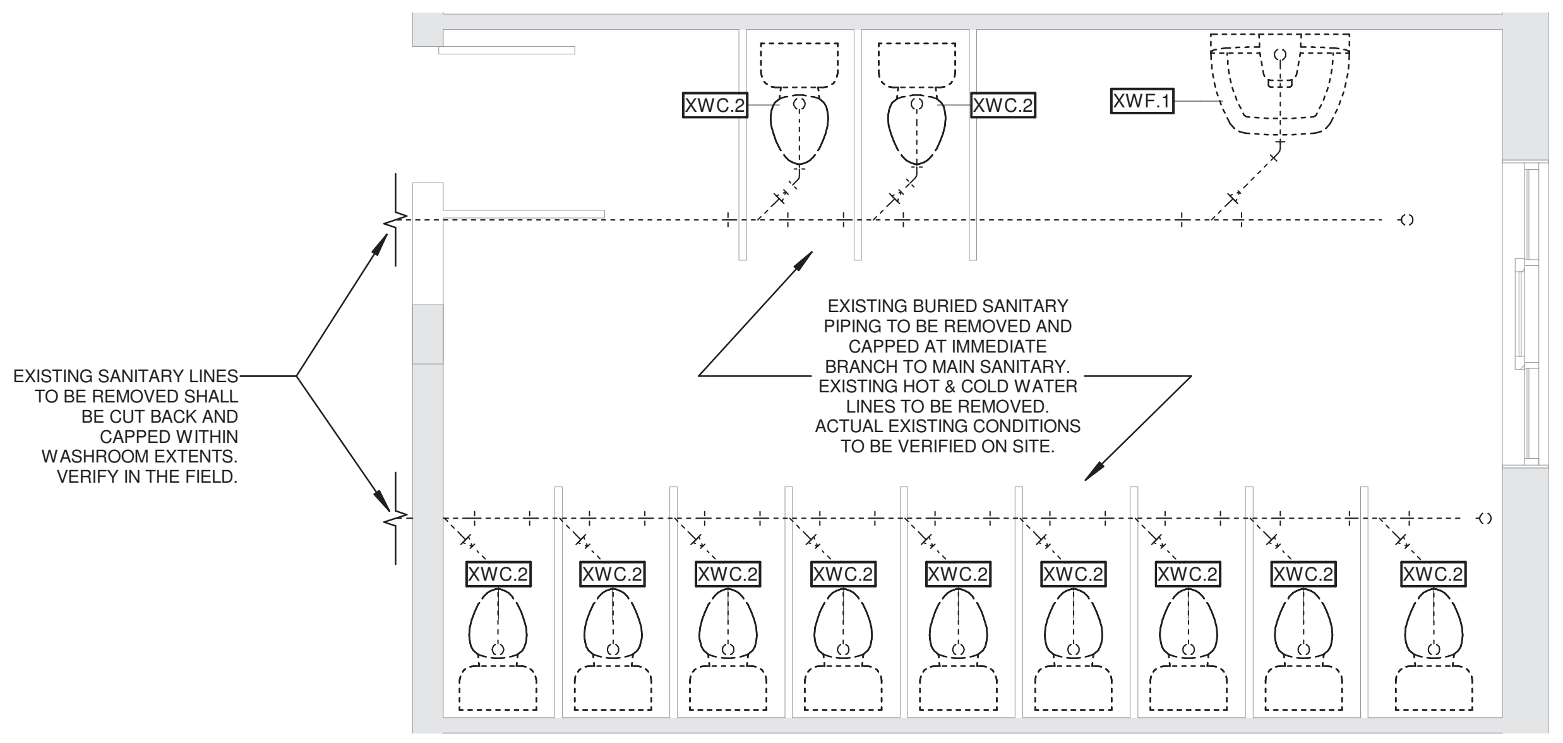
Removed Plumbing Equipment Schedule

CURRENT PHASE: Permit CURRENT ITEMS: Show Demo Only

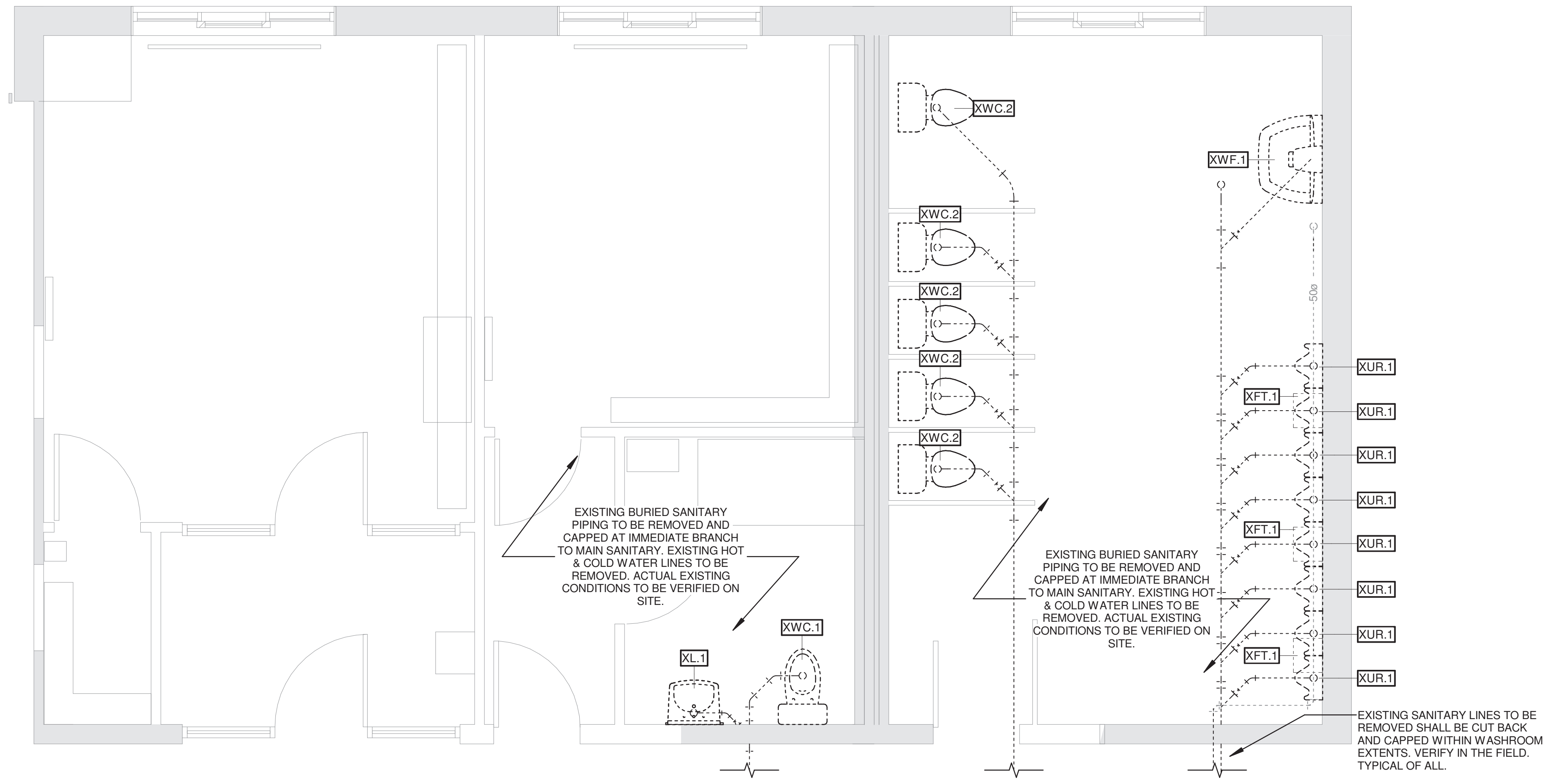
Mark	QTY	Description	Remarks	Phase Added	Phase Removed
XFT.1	3	FLUSH TANK	To be removed completely including piping and controls. Disconnect from existing cold water line overhead.	EXISTING	Permit



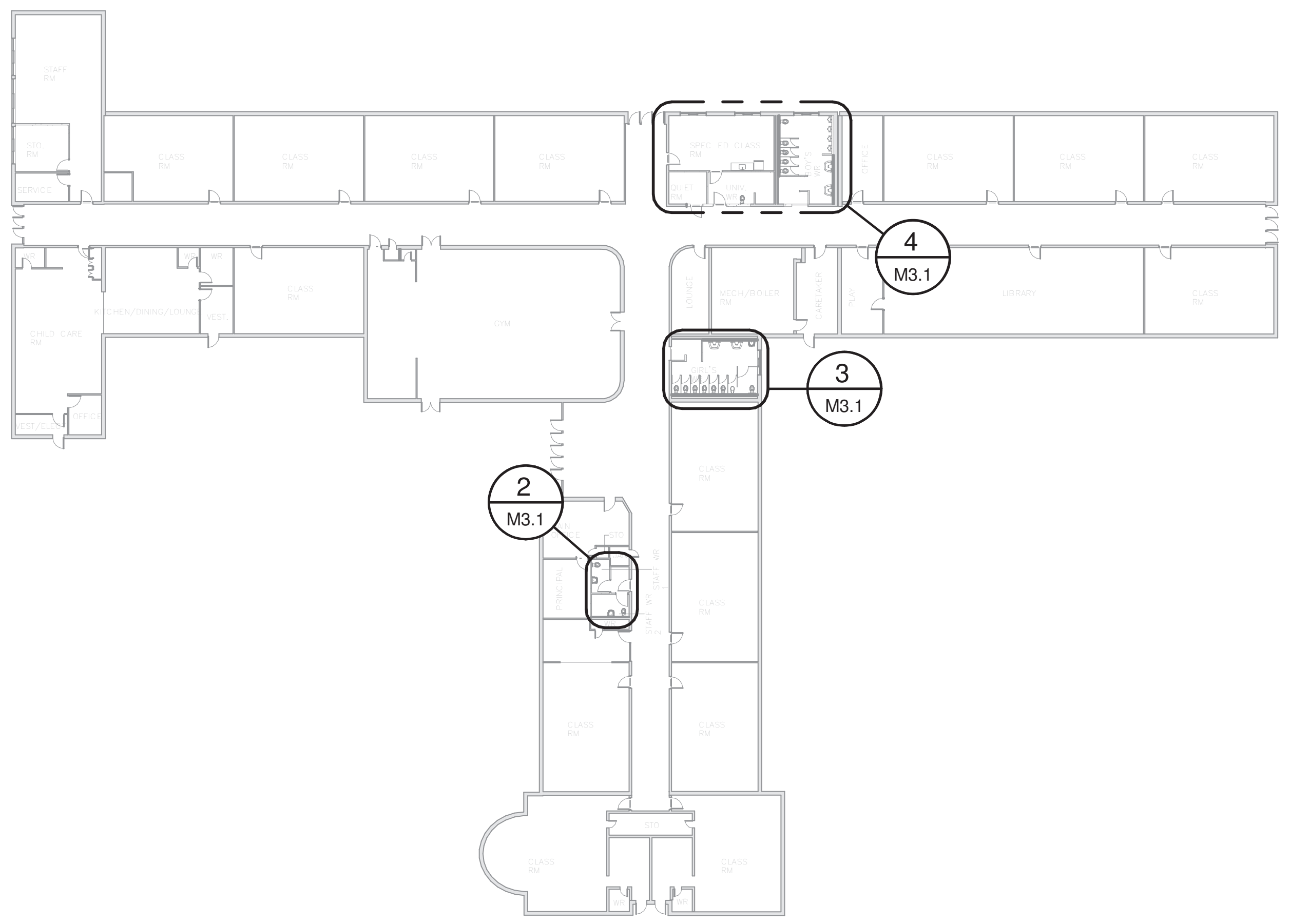
② Demolition - Staff WR Plumbing Plan
1 : 50



③ Demolition - Girl's WR Plumbing Plan
1 : 50



④ Demolition - Classroom & Boy's WR Plumbing Plan
1 : 50



① Demolition - Area Keymap Plumbing
1 : 500

S. HOLDITCH
100108001
Feb 13, 2025

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024
1	Issued For Review	Nov 06, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME
Oakwood Public School
357 Bartos Dr,
Oakville City, ON

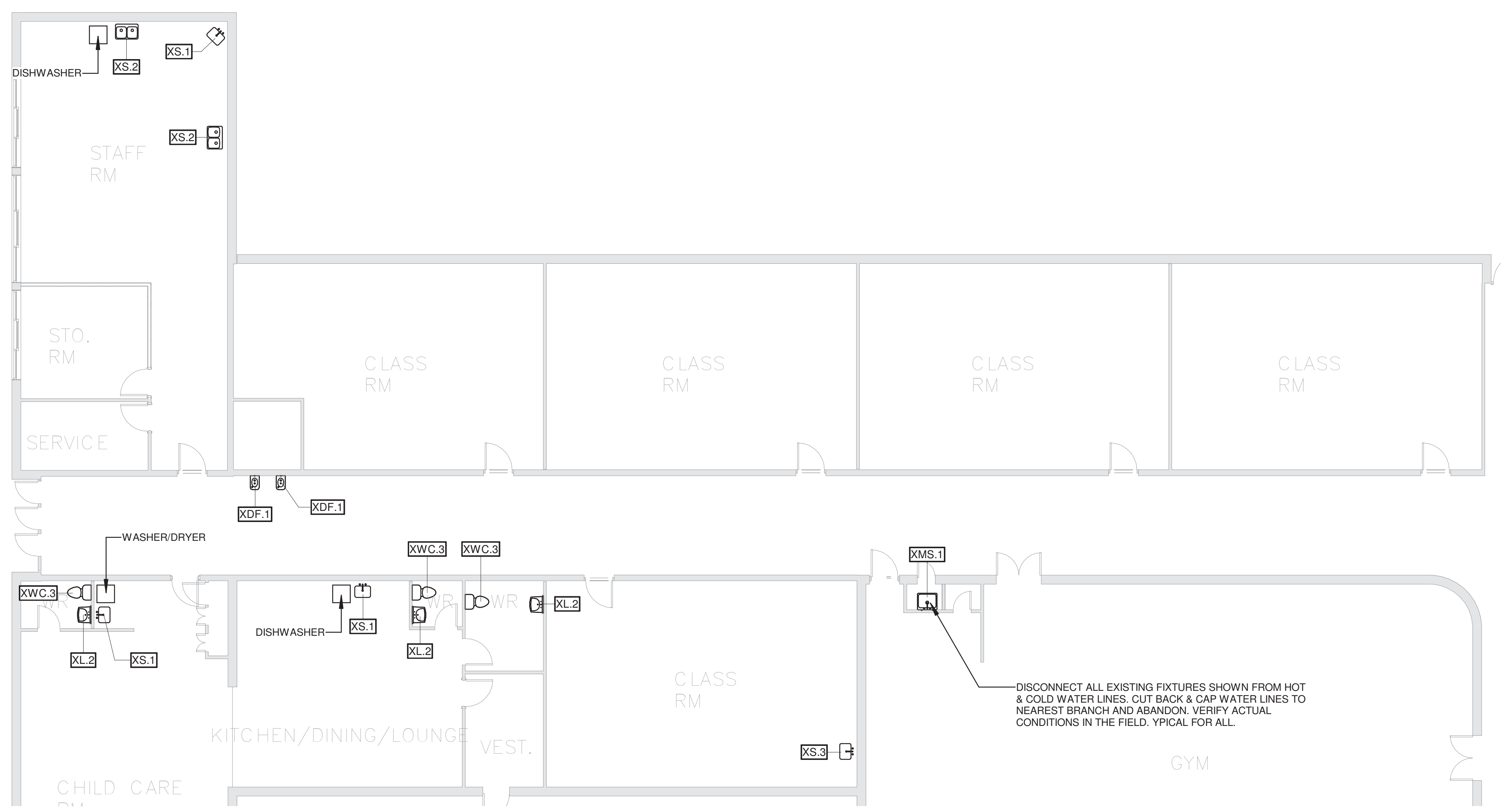
DRAWING TITLE
Plumbing Demolition Plan

SCALE
As indicated

SHEET SIZE
24"x36"

PROJECT NUMBER
24028

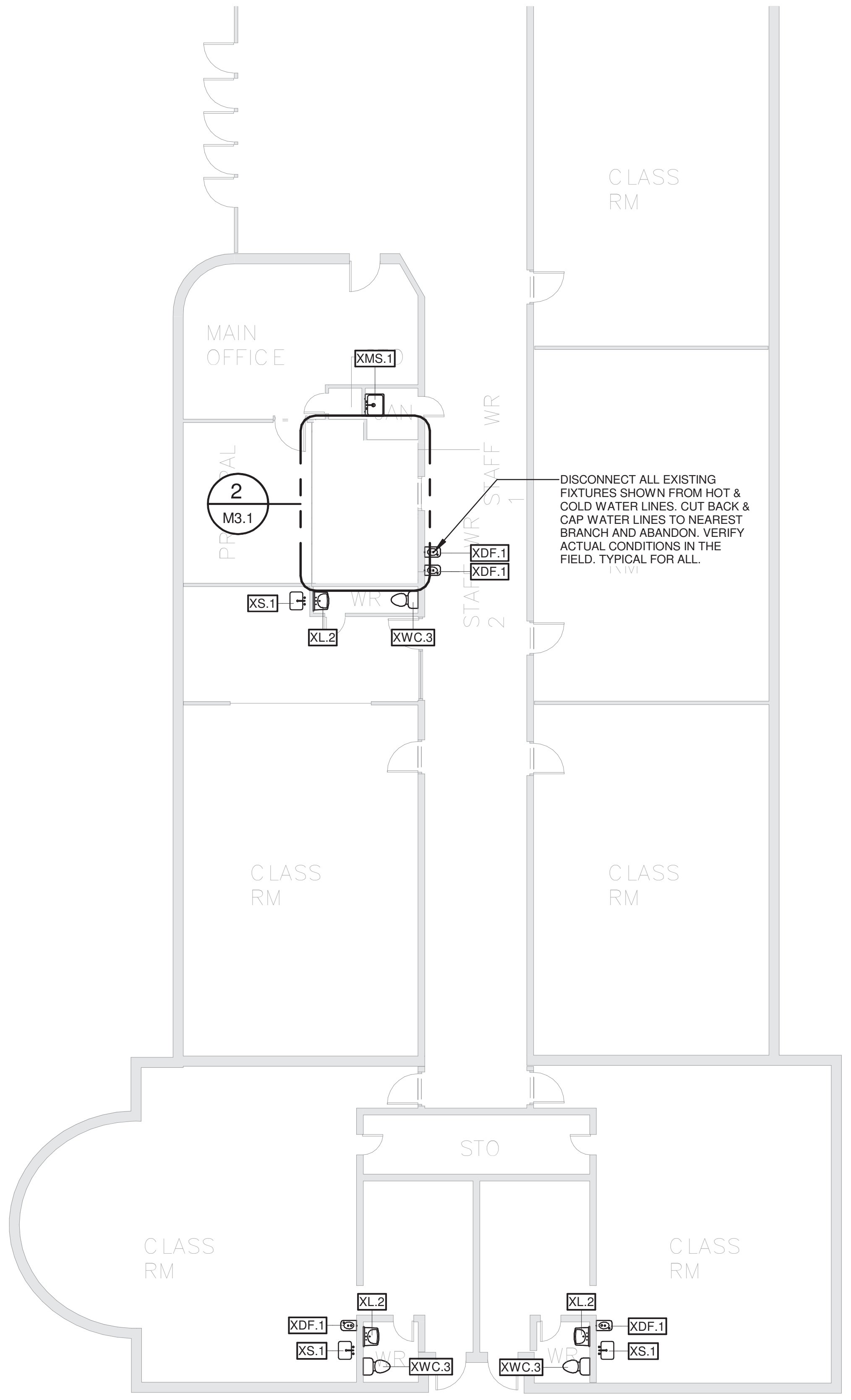
DRAWING NUMBER
M3.1



DISCONNECT ALL EXISTING FIXTURES SHOWN FROM HOT & COLD WATER LINES. CUT BACK & CAP WATER LINES TO NEAREST BRANCH AND ABANDON. VERIFY ACTUAL CONDITIONS IN THE FIELD. YPICAL FOR ALL.

1 Demolition - Main Domestic Water Plan - West

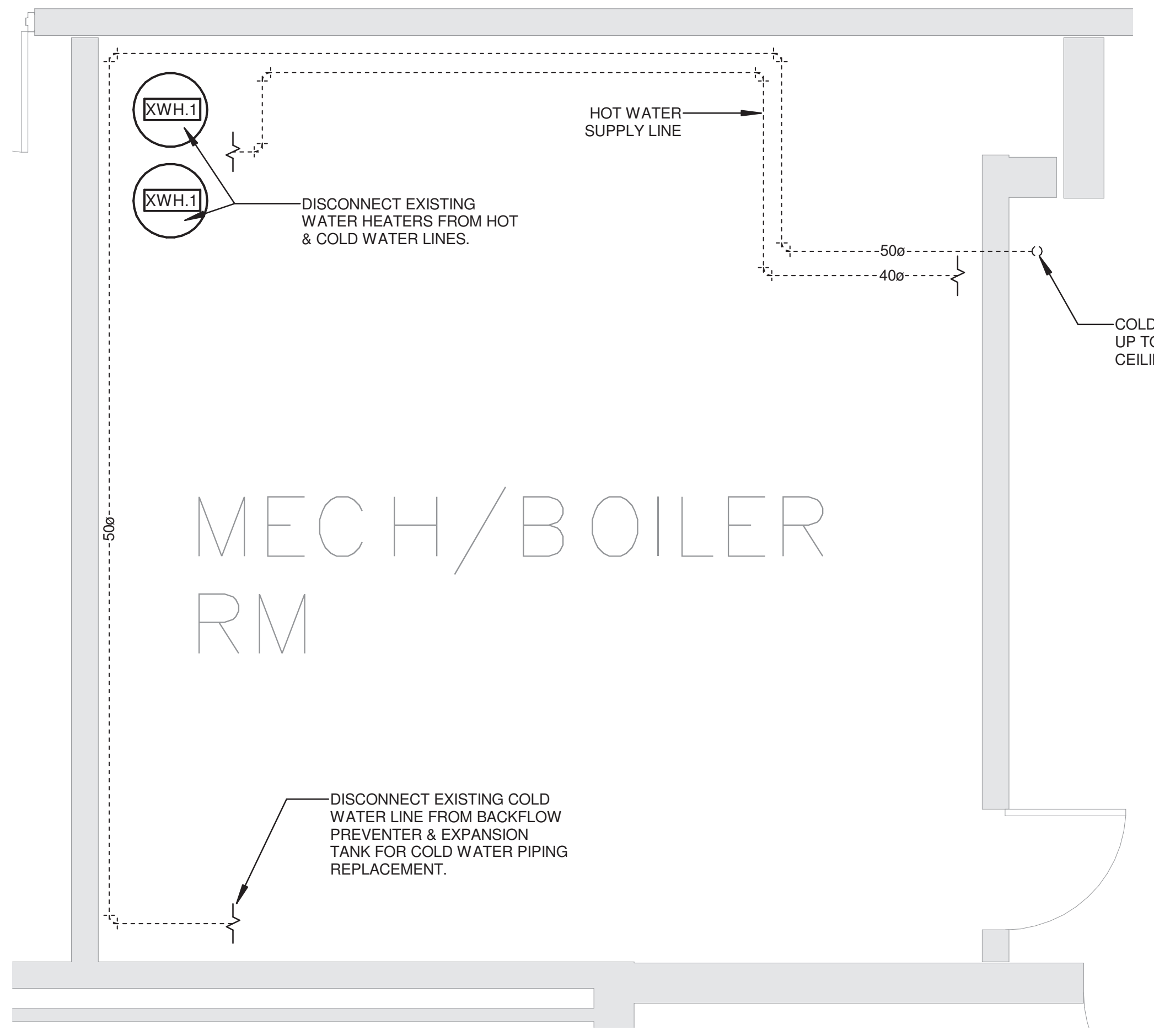
1 : 150



DISCONNECT ALL EXISTING FIXTURES SHOWN FROM HOT & COLD WATER LINES. CUT BACK & CAP WATER LINES TO NEAREST BRANCH AND ABANDON. VERIFY ACTUAL CONDITIONS IN THE FIELD. TYPICAL FOR ALL.

3 Demolition - Main Domestic Water Plan - South

1 : 150



HOT WATER SUPPLY LINE

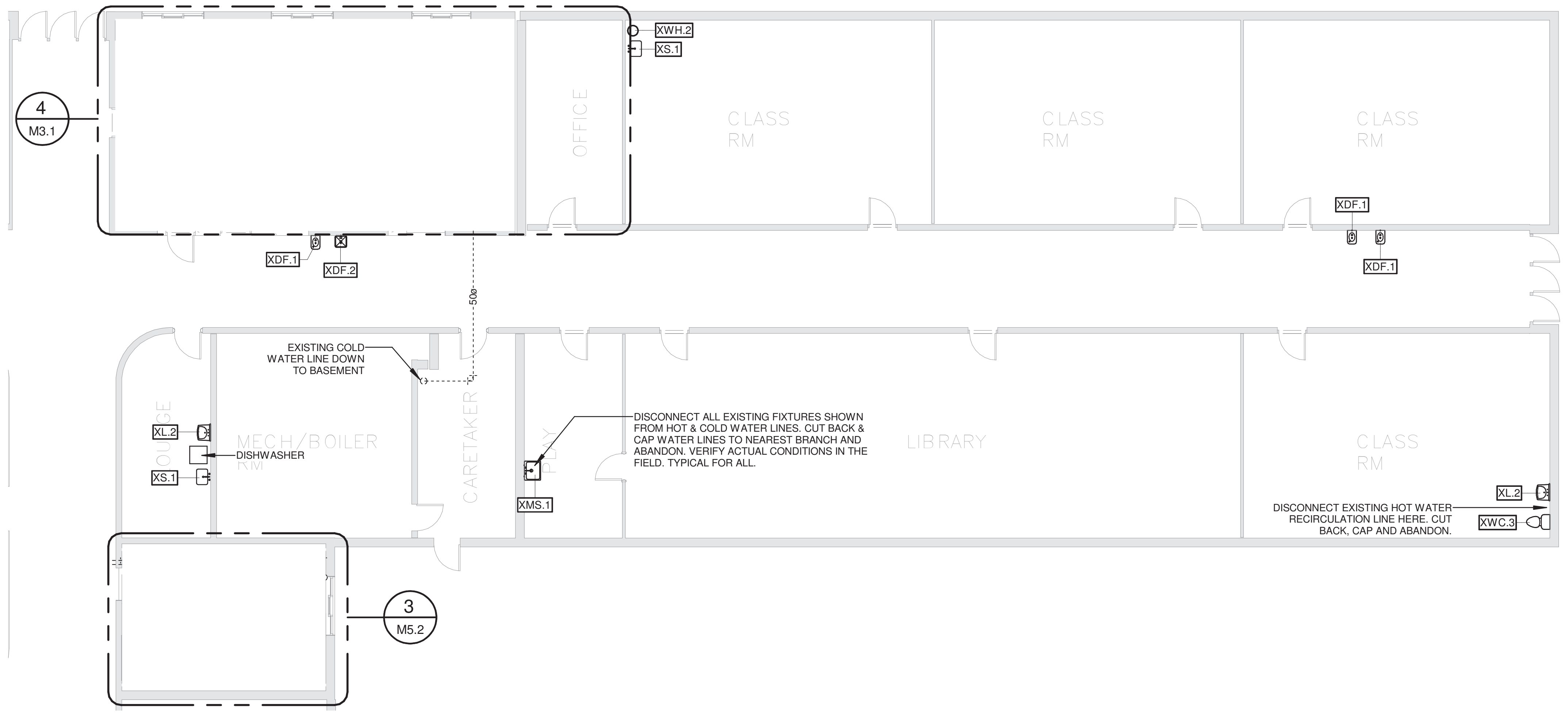
DISCONNECT EXISTING WATER HEATERS FROM HOT & COLD WATER LINES.

COLD WATER LINE UP TO MAIN LEVEL CEILING SPACE.

DISCONNECT EXISTING COLD WATER LINE FROM BACKFLOW PREVENTER & EXPANSION TANK FOR COLD WATER PIPING REPLACEMENT.

4 Demolition - Main Domestic Water Plan - Basement

1 : 50



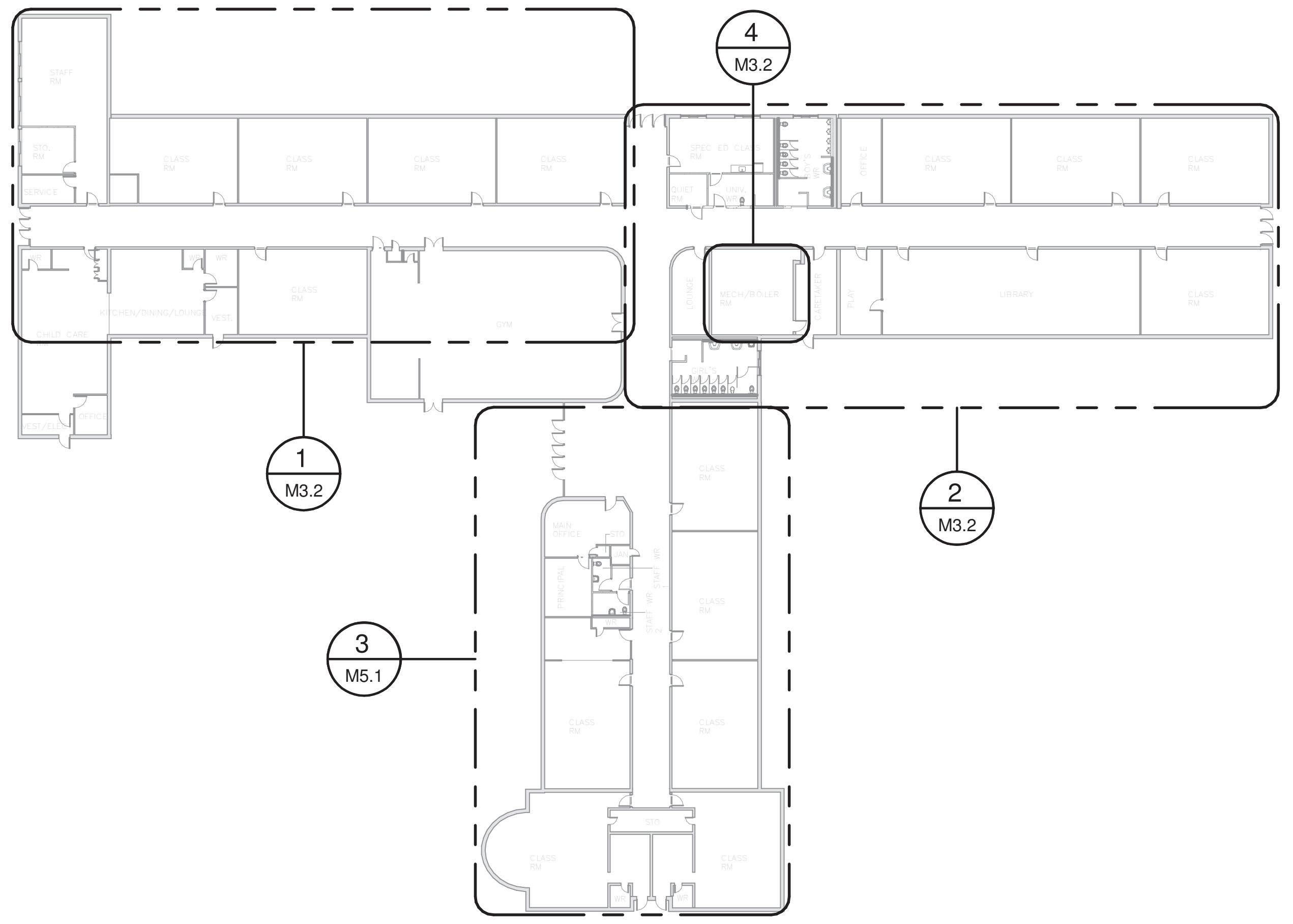
EXISTING COLD WATER LINE DOWN TO BASEMENT

DISCONNECT ALL EXISTING FIXTURES SHOWN FROM HOT & COLD WATER LINES. CUT BACK & CAP WATER LINES TO NEAREST BRANCH AND ABANDON. VERIFY ACTUAL CONDITIONS IN THE FIELD. TYPICAL FOR ALL.

DISCONNECT EXISTING HOT WATER RECIRCULATION LINE HERE. CUT BACK, CAP AND ABANDON.

2 Demolition - Main Domestic Water Plan - East

1 : 150



5 Demolition - Keymap - Main Domestic Water

1 : 500

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER, BEFORE PROCEEDING WITH THE WORK.

DRAWINGS ARE NOT TO BE SCALED.

S. HOLDITCH
100108001
Feb 13, 2025

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME
Oakwood Public School
357 Bartos Dr,
Oakville City, ON

DRAWING TITLE
Main Domestic Water Demolition Plan

SCALE
As indicated

SHEET SIZE
24"x36"

PROJECT NUMBER
24028

DRAWING NUMBER
M3.2

New Plumbing Fixture Schedule

CURRENT PHASE: Permit CURRENT ITEMS: Show New Only

Mark	QTY	Description	Connections (mm)				Remarks	Phase Added
			CW	HW	D	V		
FD.1	7	FLOOR DRAIN Model: JR Smith 2005Y02 Floor Drain	0	0	50	40	C/W 5" round chrome plated strainer.	Permit
L.1	4	LAVATORY - WALL HUNG - BARRIER FREE Model: American Standard Murro 0954-004EC, White Faucet: Chicago Faucets Model # V-317-XK/E2805, Polished Chrome Trap: McGuire 8872C CP 1-1/4” (32mm) cast “P” trap with cleanout Supplies: McGuire H165LKN3RB CP short rigid angle basin supply Carrier: Zurn ZX-1231 concealed fixture carrier with arms	15	15	40	32	Maximum 1.9 Liters/minute (0.5 GPM). C/W wall carrier, China shroud (Insulated HW supply and trap), vandal-resistant aerator, offset trap, thermostatic mixing valve, open grid strainer, flow restrictor supplies with stops, escutcheons. Installation shall meet the OBC requirements for barrier free access. Insulate supplies and drain as required by Code. Shall be mounted 610 mm AFF. Verify with Architectural plans.	Permit
S.1	1	SINGLE COMPARTMENT SINK Sink: Franke Commercial S6410PCB-1 Single compartment, 18 gauge stainless steel undermount Faucet: Delta Commercial 23C634-TI Chrome finish	15	15	50	40	Maximum 6.8 Liters/minute (1.8 GPM). C/W handle temperature indicators, trap, crumb cup strainer, supplies with stops, flow restrictor and escutcheons.	Permit
SD.1	1	SHOWER DRAIN Model: JR Smith 2005Y02 Floor Drain	0	0	50	40	C/W 5" round chrome plated strainer	Permit
SH.1	1	SHOWER - BARRIER FREE Model: Bradley HN300 ADA Compliant In-Wall Shower (Industrial Grade), Stainless Steel Finish	15	15	40	32	Maximum 9.5 Liters/minute (2.5 GPM). C/W Equa Flo pressure balancing valve, standard shower head, Allen key volume control, lockable ball joint, stops in each supply, 60” flexible hose, 24” ADA grab bar and vacuum breaker, anchor plate for shower head. Install according to barrier free requirements.	Permit
UR.1	4	URINAL - WALL HUNG Model: American Standard Washbrook 6501.010 vitreous china, flushing action, Integral flushing rim, integral trap 3/4” (19mm) top spud and 047068 stainless steel strainer. Flushometer: Sloan Royal 186-1 top spud, Polished chrome Cleanout: Zurn ZX-1446 with round stainless steel wall access plate Carrier: Zurn ZX-1222 with bottom bearing plate and special foot mounted entirely in pipe space	25	0	50	40	Maximum 1.9 Liters/flush (0.5GPM). C/W wall carrier, top spud flush valve, stainless steel strainer. Mounting height shall be confirmed with the Consultant and School Board priorto rough-in.	Permit

New Plumbing Fixture Schedule

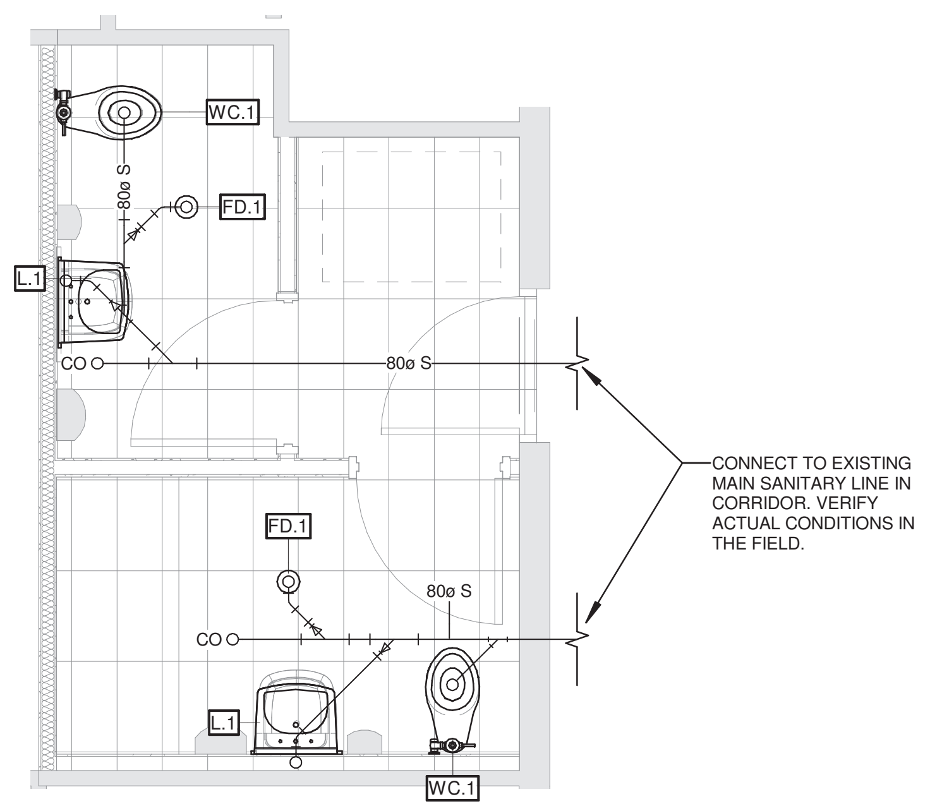
CURRENT PHASE: Permit CURRENT ITEMS: Show New Only

Mark	QTY	Description	Connections (mm)				Remarks	Phase Added
			CW	HW	D	V		
WC.1	5	WATER CLOSET (FLUSHOMETER) - BARRIER FREE Model: American Standard Madera 3461.128, floor-mounted, elongated siphon jet action bowl, white, 12" Rough-in, 16.5" rim height, top spud, bolt caps Flushometer: Sloan Royal Manual Flushometer 111-1.28-YG, 4.8 Liters/flush (1.28 GPF), polished chrome, quiet action diaphragm type with vacuum breaker, center seat bumper on valve, pressure loss check and non-hold open feature, top spud, angle stop extended bumper Seat: Centoco 820STS, white, elongated heavy duty solid plastic open front with cover, check hinges and chromated steel posts, washers and nuts.	25	0	80	40	Maximum 6 Liters/flush (1.6 GPF). C/W White open front seat with cover, flushometer valve assembly. Install according to barrier free requirements.	Permit
WC.2	10	WATER CLOSET (FLUSHOMETER) Model: American Standard Madera 3451.128, floor-mounted, elongated siphon jet action bowl, white, 12" Rough-in, 15" rim height, top spud, bolt caps Flushometer: Sloan Royal Manual Flushometer 111-1.28-YO, 4.8 Liters/flush (1.28 GPF), polished chrome, quiet action diaphragm type with vacuum breaker, seat bumper on angle stop, pressure loss check and non-hold open feature, top spud, angle stop bumper Seat: Centoco 500STSCC, white, elongated heavy duty solid plastic open front less cover with check hinges and chromated steel posts, washers and nuts.	25	0	100	50	Maximum 6 Liters/flush (1.6 GPF). C/W White open front seat less cover, flushometer valve assembly.	Permit
WC.3	1	WATER CLOSET (TANK) - CHILD HEIGHT Model: American Standard Baby Devoro FloWise 2315.228 10" high elongated toilet, white, insulated tank, chrome trip lever located on left side.	25	0	100	50	Maximum 6 Liters/flush (1.6 GPF). C/W white open front seat less cover, supply with stop.	Permit

New Plumbing Fixture Schedule

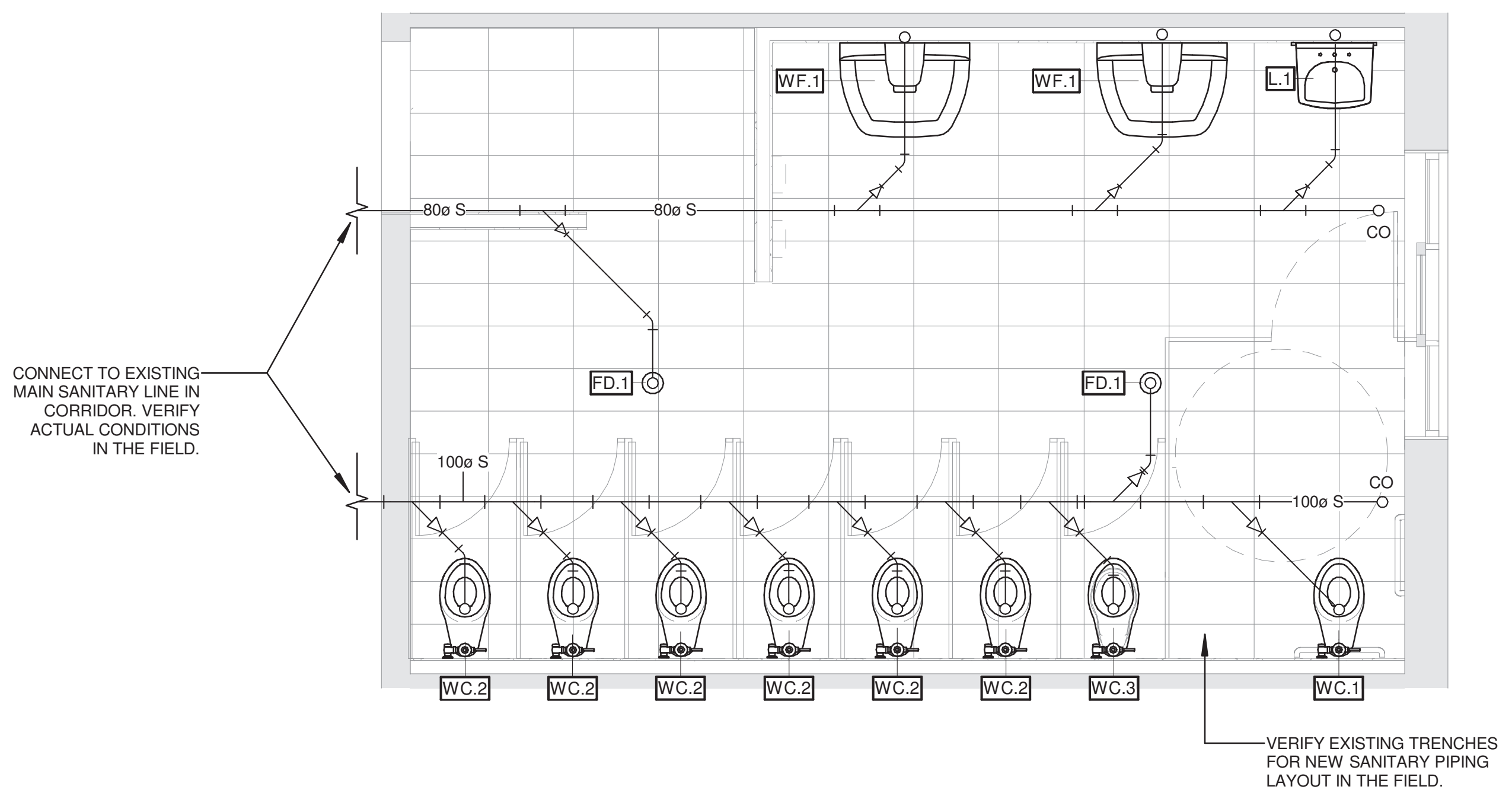
CURRENT PHASE: Permit CURRENT ITEMS: Show New Only

Mark	QTY	Description	Connections (mm)				Remarks	Phase Added
			CW	HW	D	V		
WF.1	4	WASHFOUNTAIN - BARRIER FREE Model: Bradley Terreon Tri-Fount Washfountain MF2933 Description: 3 Station “Tri-Fount Washfountain”, infrared control, 36” x 26” factory pre-assembled with individual sectional control. Bowl to be polyester resin construction and finished with a clear epoxy coating. Pedestal to have a front panel of heavy gauge stainless steel access plate, all exposed fasteners to be vandal-resistant. Spray nozzles to be vandal-resistant with 0.5 GPM flow controls. Fixture with splashback anchored to wall and housing framework anchored to floor. Thermostatic mixing valve with check stops and strainers in ½” (12.7mm) hot and cold water supplies and field set water temperature at 105 degrees F. Sensor operated non-hold open individual metering valves, timing cycle shall be field set for approximately 10 seconds and complete with liquid soap dispenser. Supplies and drain from wall. “P” trap cast brass, 1.½” (38mm). Unit shall be electronic “No-Touch” sensor operated with 110/24 VAC transformer, 12 amp.	15	15	40	32	Maximum 1.9 Liters/minute (0.5 GPM) per outlet. C/W 120VAC/12VDC plug-in adapter (Electrical to provide 120V 15A GFCI receptacle as per manufacturer’s installation instructions). Install according to manufacturer's instructions and barrier free requirements. Color to be selected by owner.	Permit



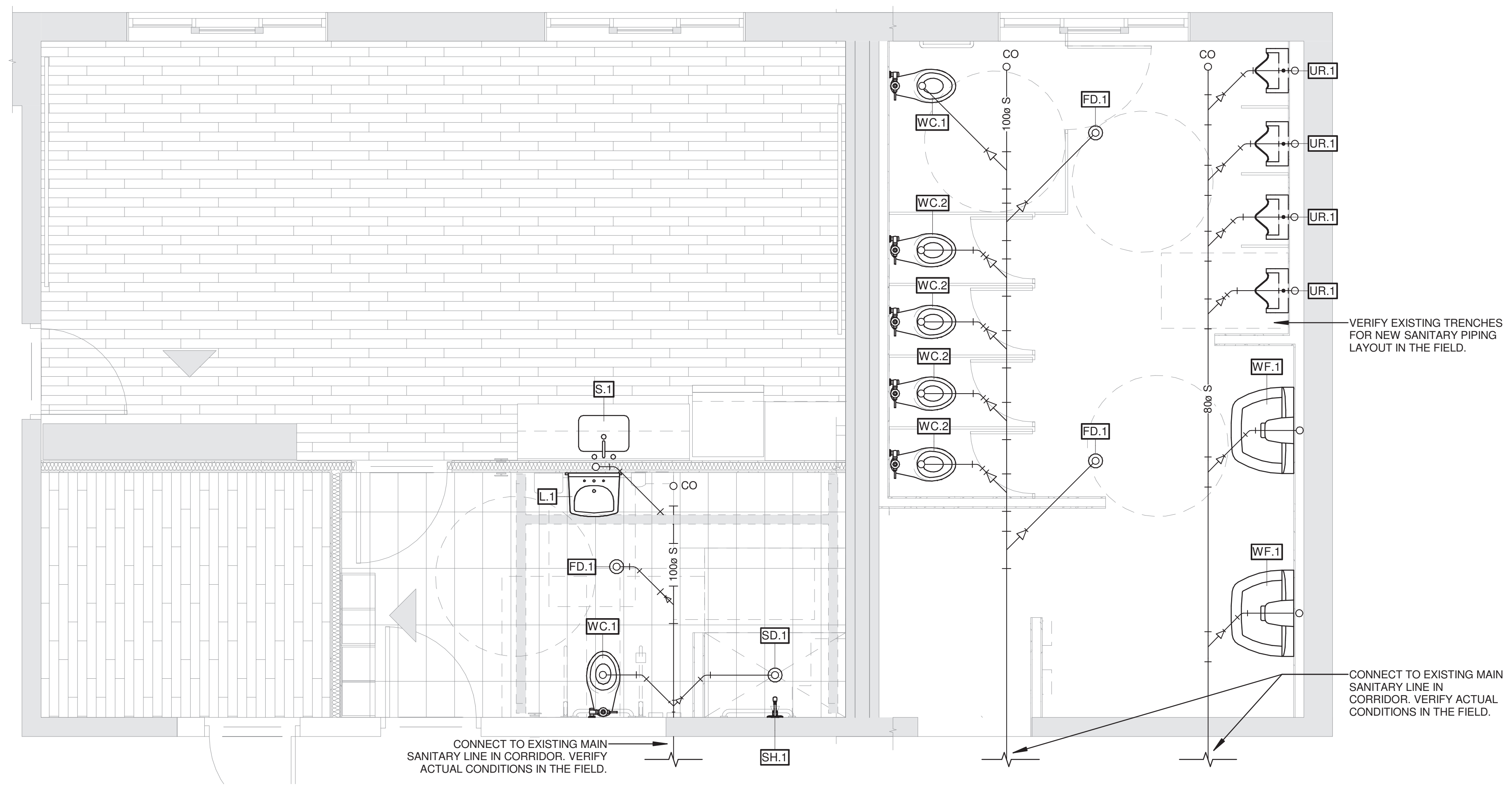
2 Proposed - Staff WR Sanitary Plan

1 : 50



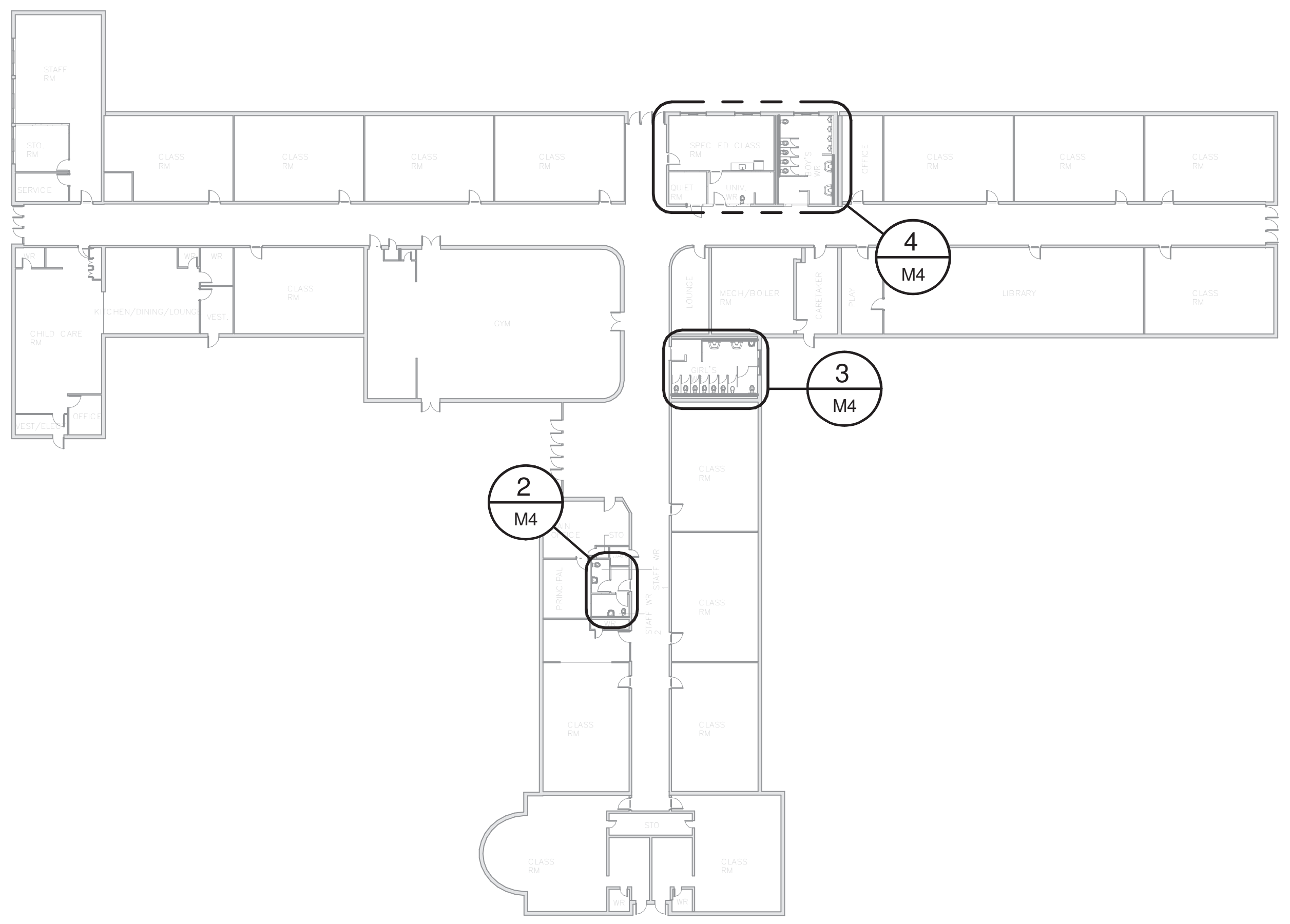
3 Proposed - Girl's WR Sanitary Plan

1 : 50



4 Proposed - Classroom & Boy's WR Sanitary Plan

1 : 50



1 Proposed - Area Keymap Sanitary

1 : 500

LICENSED PROFESSIONAL ENGINEER
S. HOLDITCH
100108001
Feb 13, 2025
PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024
1	Issued For Review	Nov 06, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME

Oakwood Public School

357 Bartos Dr,
Oakville City, ON

DRAWING TITLE

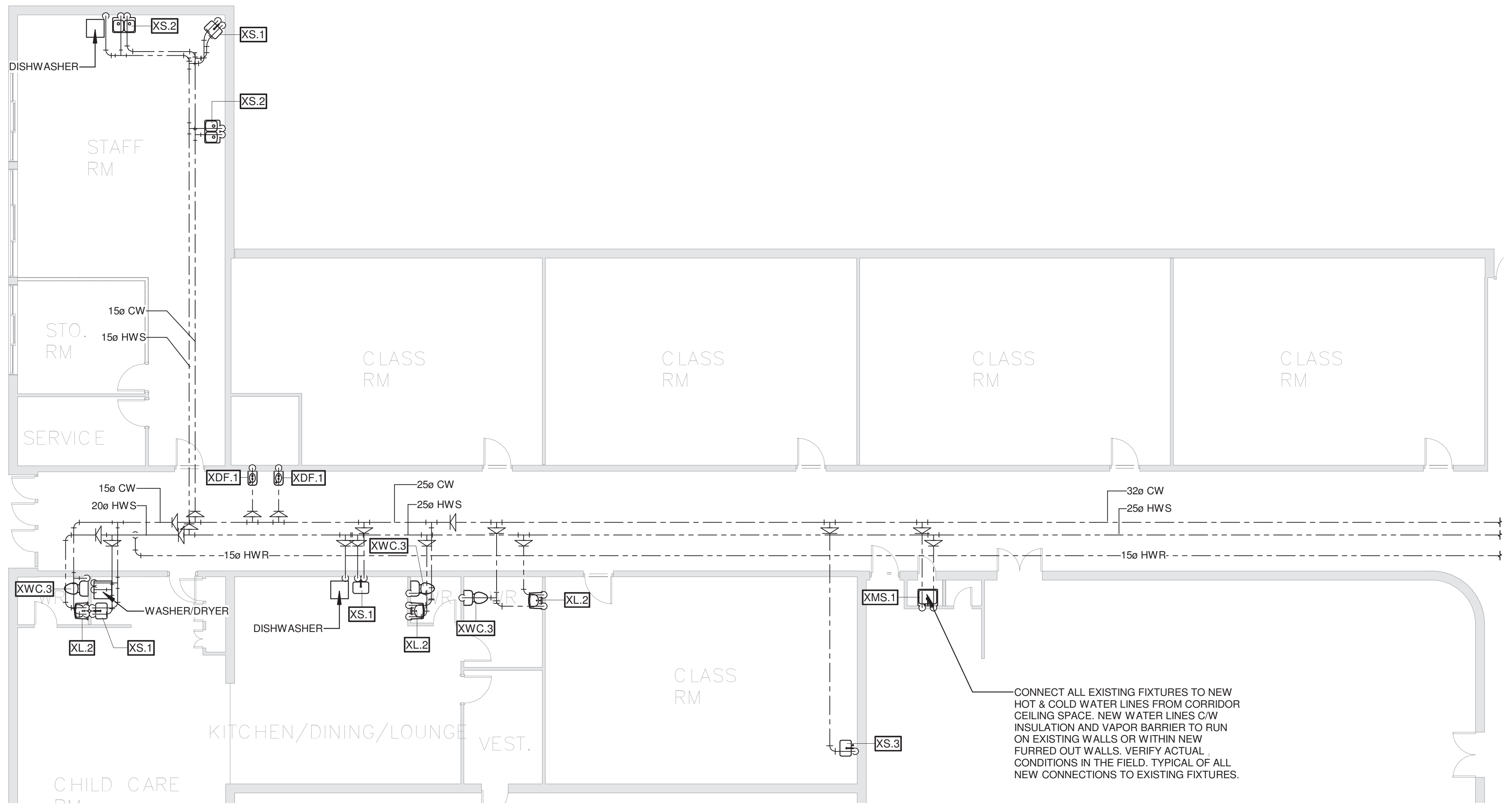
Sanitary Plan

SCALE
As indicated

SHEET SIZE
24"x36"

PROJECT NUMBER
24028

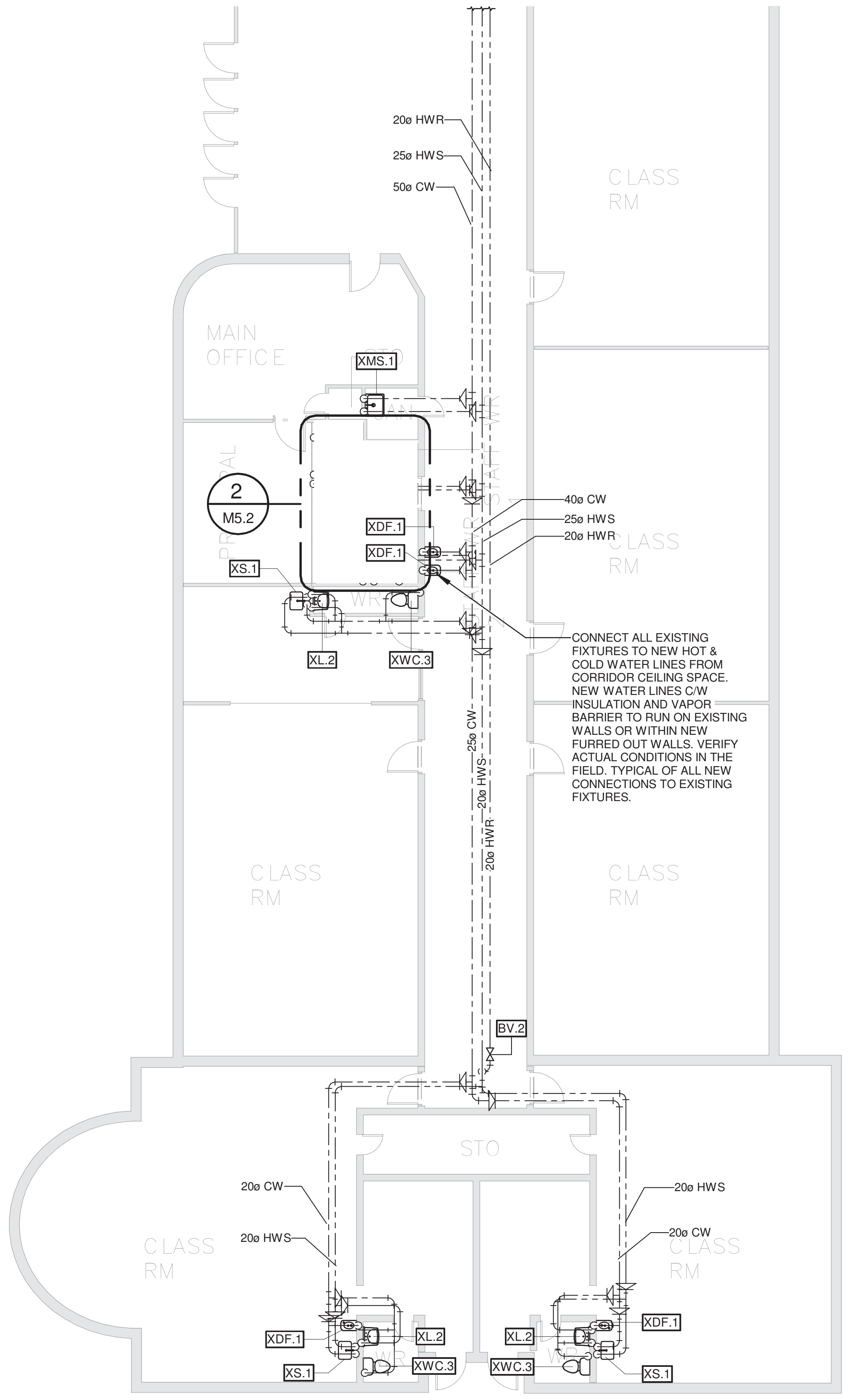
DRAWING NUMBER
M4



CONNECT ALL EXISTING FIXTURES TO NEW HOT & COLD WATER LINES FROM CORRIDOR CEILING SPACE. NEW WATER LINES C/W INSULATION AND VAPOR BARRIER TO RUN ON EXISTING WALLS OR WITHIN NEW FURRED OUT WALLS. VERIFY ACTUAL CONDITIONS IN THE FIELD. TYPICAL OF ALL NEW CONNECTIONS TO EXISTING FIXTURES.

1 Proposed - Main Domestic Water Plan - West

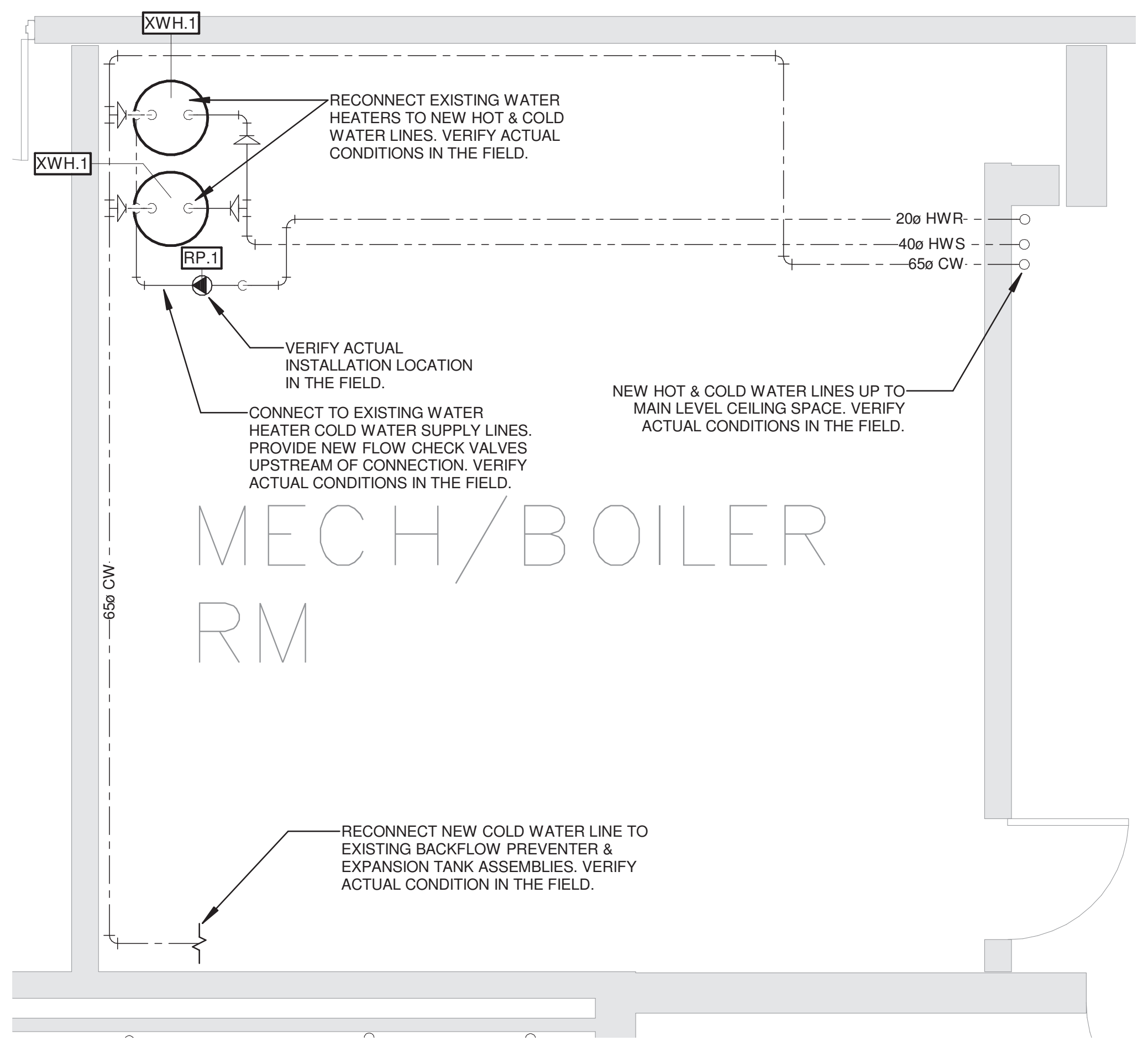
1 : 150



CONNECT ALL EXISTING FIXTURES TO NEW HOT & COLD WATER LINES FROM CORRIDOR CEILING SPACE. NEW WATER LINES C/W INSULATION AND VAPOR BARRIER TO RUN ON EXISTING WALLS OR WITHIN NEW FURRED OUT WALLS. VERIFY ACTUAL CONDITIONS IN THE FIELD. TYPICAL OF ALL NEW CONNECTIONS TO EXISTING FIXTURES.

3 Proposed - Main Domestic Water Plan - South

1 : 150



RECONNECT EXISTING WATER HEATERS TO NEW HOT & COLD WATER LINES. VERIFY ACTUAL CONDITIONS IN THE FIELD.

VERIFY ACTUAL INSTALLATION LOCATION IN THE FIELD.

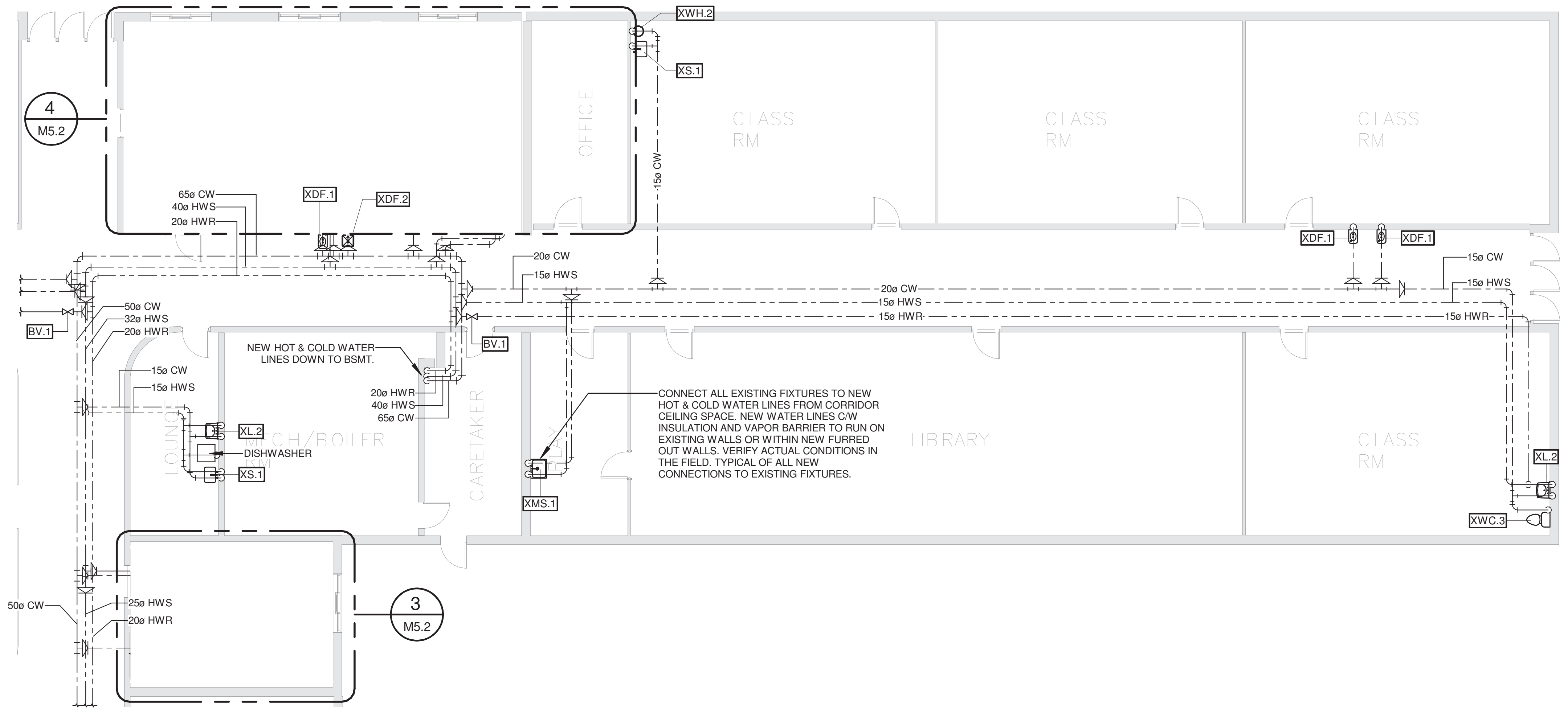
CONNECT TO EXISTING WATER HEATER COLD WATER SUPPLY LINES. PROVIDE NEW FLOW CHECK VALVES UPSTREAM OF CONNECTION. VERIFY ACTUAL CONDITIONS IN THE FIELD.

NEW HOT & COLD WATER LINES UP TO MAIN LEVEL CEILING SPACE. VERIFY ACTUAL CONDITIONS IN THE FIELD.

RECONNECT NEW COLD WATER LINE TO EXISTING BACKFLOW PREVENTER & EXPANSION TANK ASSEMBLIES. VERIFY ACTUAL CONDITION IN THE FIELD.

4 Proposed - Main Domestic Water Plan - Basement

1 : 50



CONNECT ALL EXISTING FIXTURES TO NEW HOT & COLD WATER LINES FROM CORRIDOR CEILING SPACE. NEW WATER LINES C/W INSULATION AND VAPOR BARRIER TO RUN ON EXISTING WALLS OR WITHIN NEW FURRED OUT WALLS. VERIFY ACTUAL CONDITIONS IN THE FIELD. TYPICAL OF ALL NEW CONNECTIONS TO EXISTING FIXTURES.

2 Proposed - Main Domestic Water Plan - East

1 : 150

Existing Plumbing Fixture Schedule

CURRENT PHASE: Permit CURRENT ITEMS: Show Previous Phase

Mark	QTY	Description	Connections (mm)				Remarks	Phase Added
			CW	HW	D	V		
XDF.1	9	DRINKING FOUNTAIN	15	0	32	32		EXISTING
XDF.2	1	DRINKING FOUNTAIN	15	0	32	32		EXISTING
XL.2	8	LAVATORY	15	15	32	32		EXISTING
XMS.1	3	MOP SINK	15	15	80	50		EXISTING
XS.1	8	SINK	15	15	50	40		EXISTING
XS.2	2	SINK	15	15	50	40		EXISTING
XS.3	1	SINK	15	0	50	40	Cold water supply only.	EXISTING
XWC.3	7	WATER CLOSET - TANK	15	0	80	40		EXISTING

Existing Plumbing Equipment Schedule

CURRENT PHASE: Permit CURRENT ITEMS: Show Previous Phase

Mark	QTY	Description	Remarks	Phase Added
XWH.1	2	WATER HEATER - ELECTRIC		EXISTING
XWH.2	1	WATER HEATER - ELECTRIC UNDERCOUNTER		EXISTING

New Plumbing Equipment Schedule

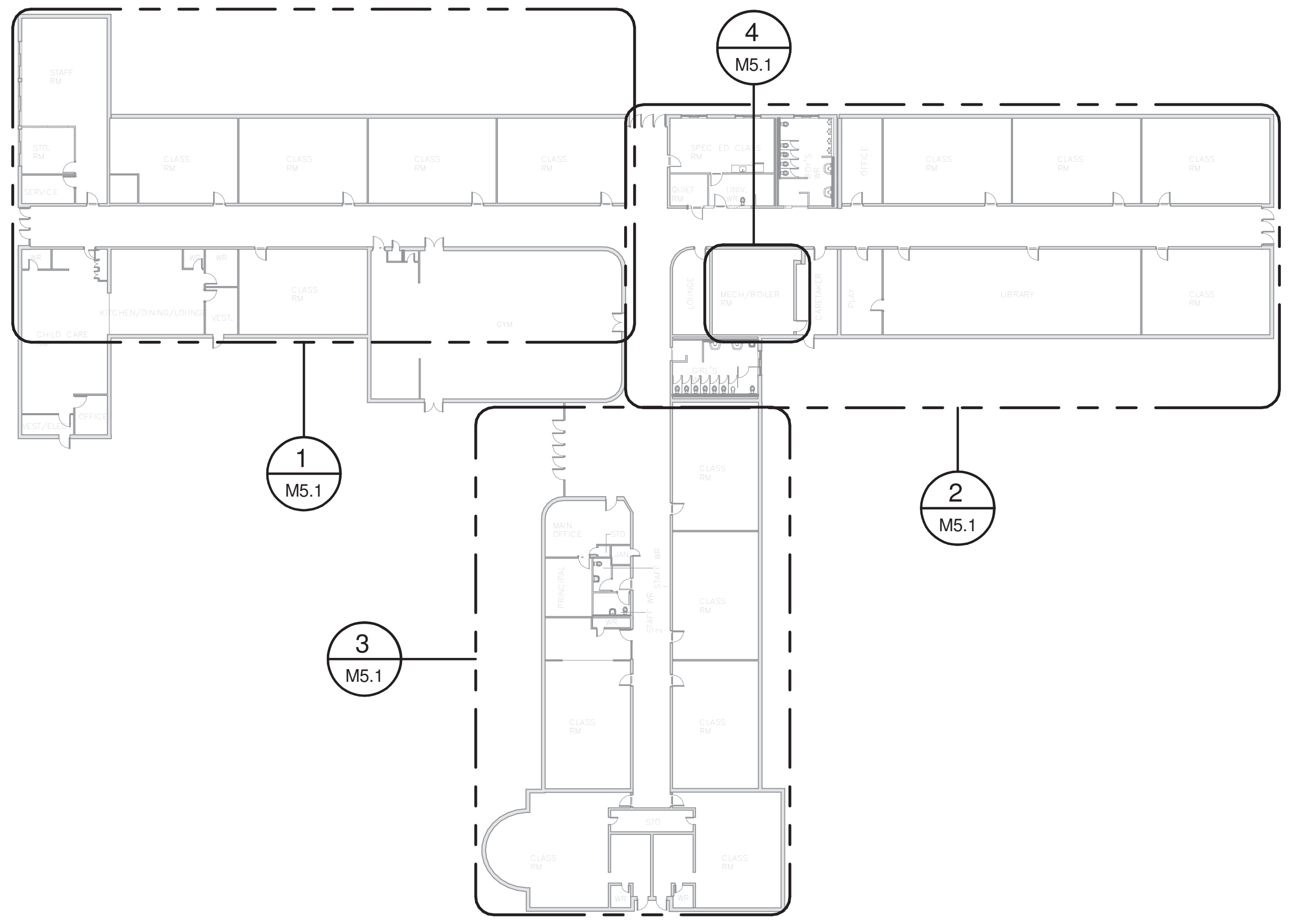
CURRENT PHASE: Permit CURRENT ITEMS: Show New Only

Mark	QTY	Description	Remarks	Phase Added
RP.1	1	HOT WATER RECIRCULATION PUMP Model: Taco 0026e-SF2 ECM High-Efficiency Circulator, stainless steel casing Capacity: 3 GPM @ 24 ft head Elec Data: 120V/1Ph/60Hz, 1.0A Max, 120 W	C/W unions, check valves, temperature aquastat, 7-day digital programmable timer, variable speed delta T controller with 2 strap-on temperature sensors, internal flow check, recirculation thermal balancing valves with integral check valve at branches. Install pump and sensors according to manufacturer's instructions, and interface pump operation with existing water heaters. Provide new materials to suit new installation. Verify actual conditions in the field.	Permit

New Pipe Accessory Schedule

CURRENT PHASE: Permit CURRENT ITEMS: Show New Only

Mark	QTY	Description	Size	Remarks	Phase Added
BV.1	2	RECIRCULATION BALANCING VALVE Model: Caleffi Thermoseter 116A Recirculation thermal balancing valve with integral check and isolation valves on both ends.	15ø-15ø	Install according to manufacturer's instructions.	Permit
BV.2	1	RECIRCULATION BALANCING VALVE Model: Caleffi Thermoseter 116A Recirculation thermal balancing valve with integral check and isolation valves on both ends.	20ø-20ø	Install according to manufacturer's instructions.	Permit



5 Proposed - Keymap - Main Domestic Water

1 : 500

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER, BEFORE PROCEEDING WITH THE WORK.

DRAWINGS ARE NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
S. HOLDITCH
100108001
Feb 13, 2025
PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME
Oakwood Public School
357 Bartos Dr,
Oakville City, ON

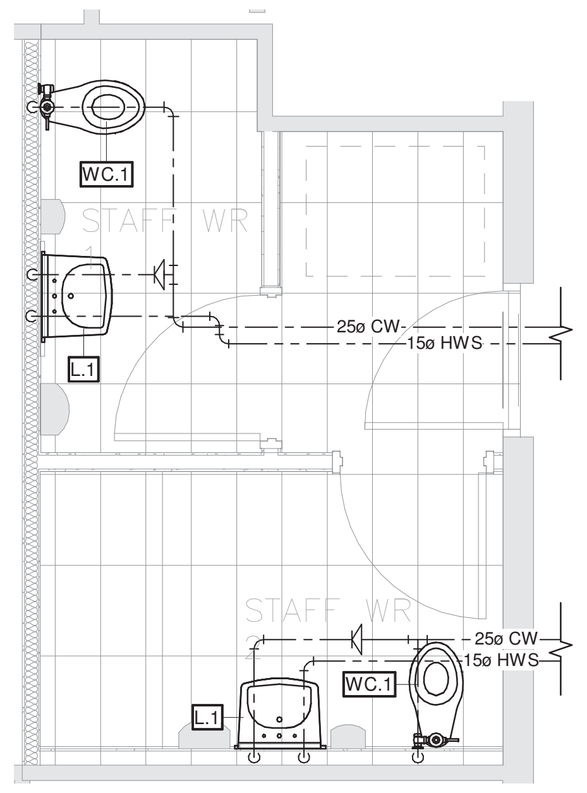
DRAWING TITLE
Main Domestic Water Plan

SCALE
As indicated

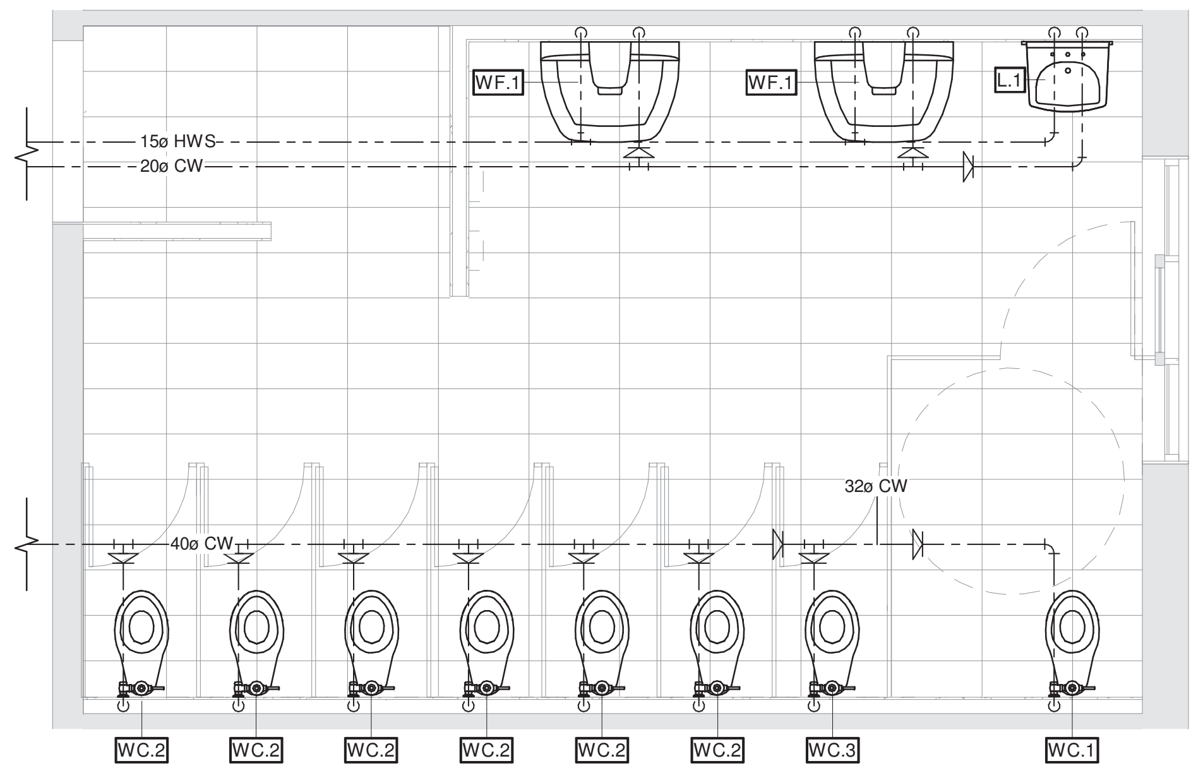
SHEET SIZE
24"x36"

PROJECT NUMBER
24028

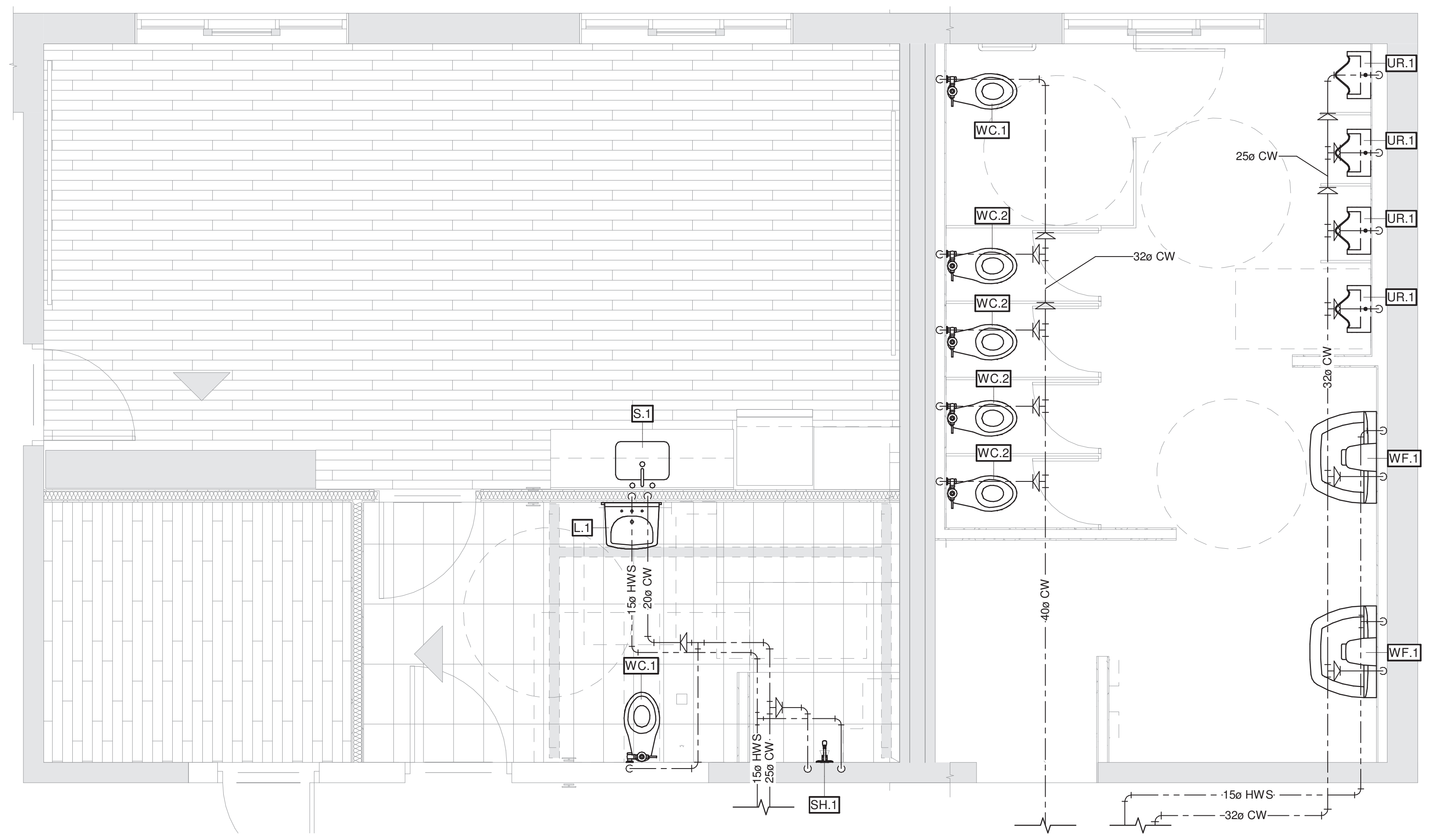
DRAWING NUMBER
M5.1



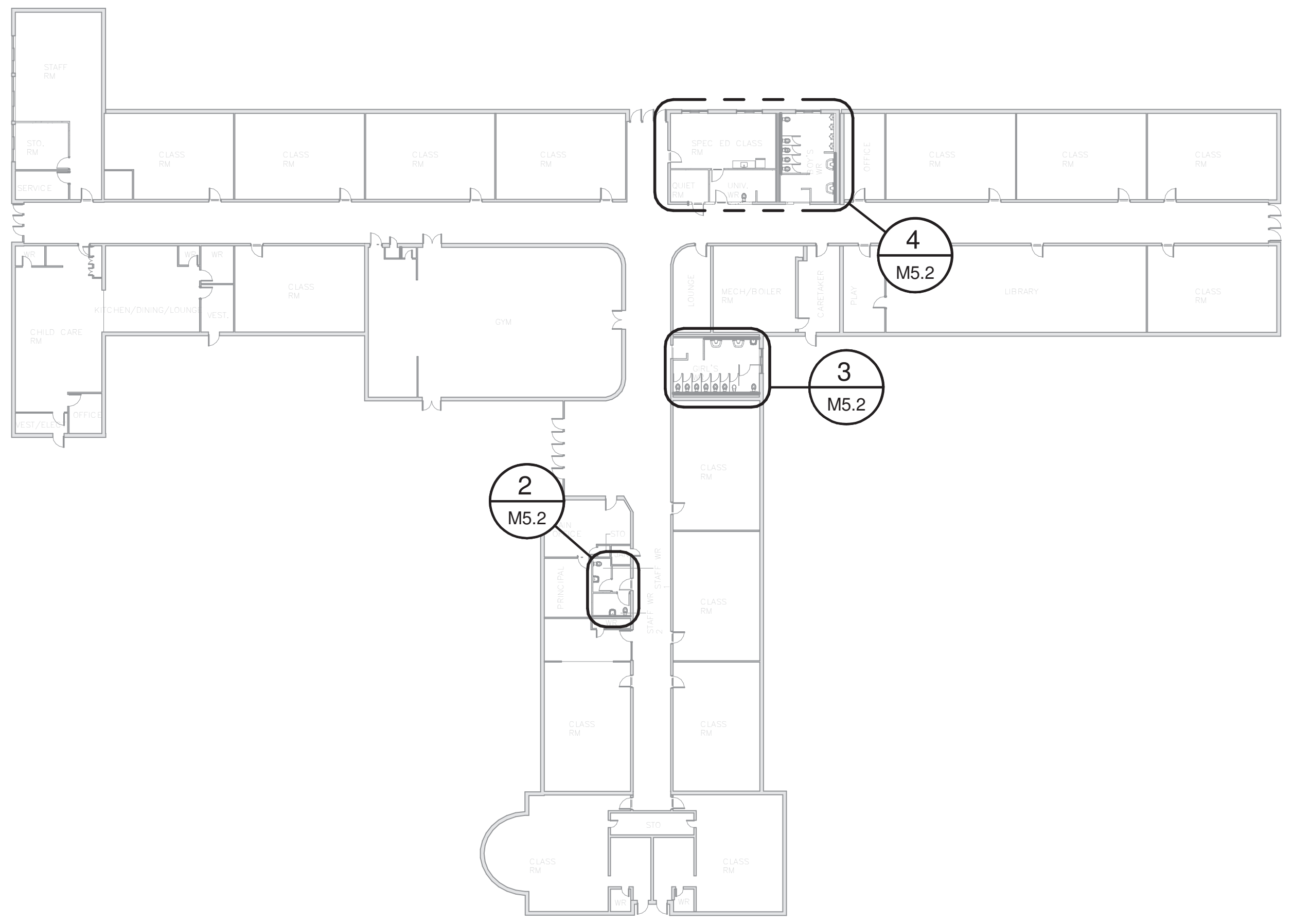
② Proposed - Staff WR Domestic Water Plan
1 : 50



③ Proposed - Girl's WR Domestic Water Plan
1 : 50



④ Proposed - Classroom & Boy's WR Domestic Water Plan
1 : 50



① Proposed - Area Keymap Domestic Water
1 : 500

S. HOLDITCH
100108001
Feb 13, 2025

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME

Oakwood Public School

357 Bartos Dr,
Oakville City, ON

DRAWING TITLE

Domestic Water Plan

SCALE
As indicated

SHEET SIZE
24"x36"

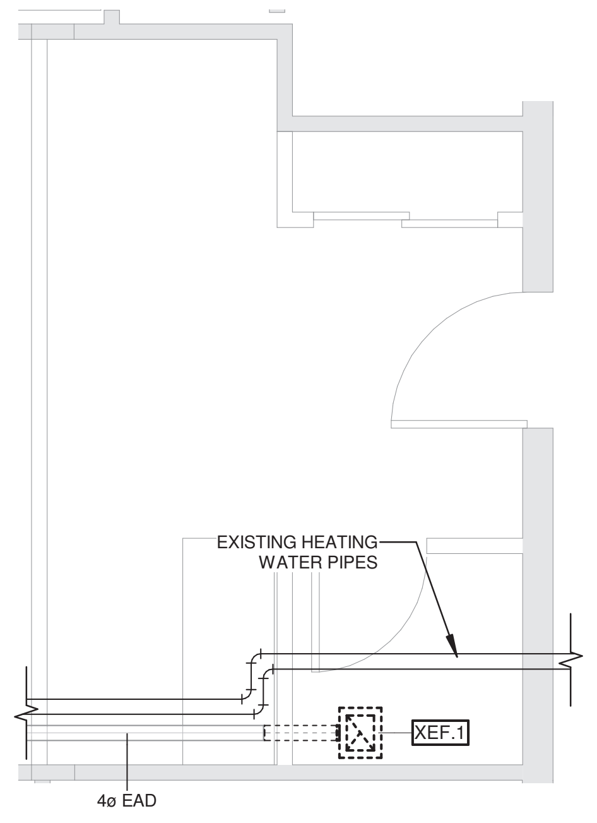
PROJECT NUMBER
24028

DRAWING NUMBER
M5.2

Removed Mechanical Equipment Schedule

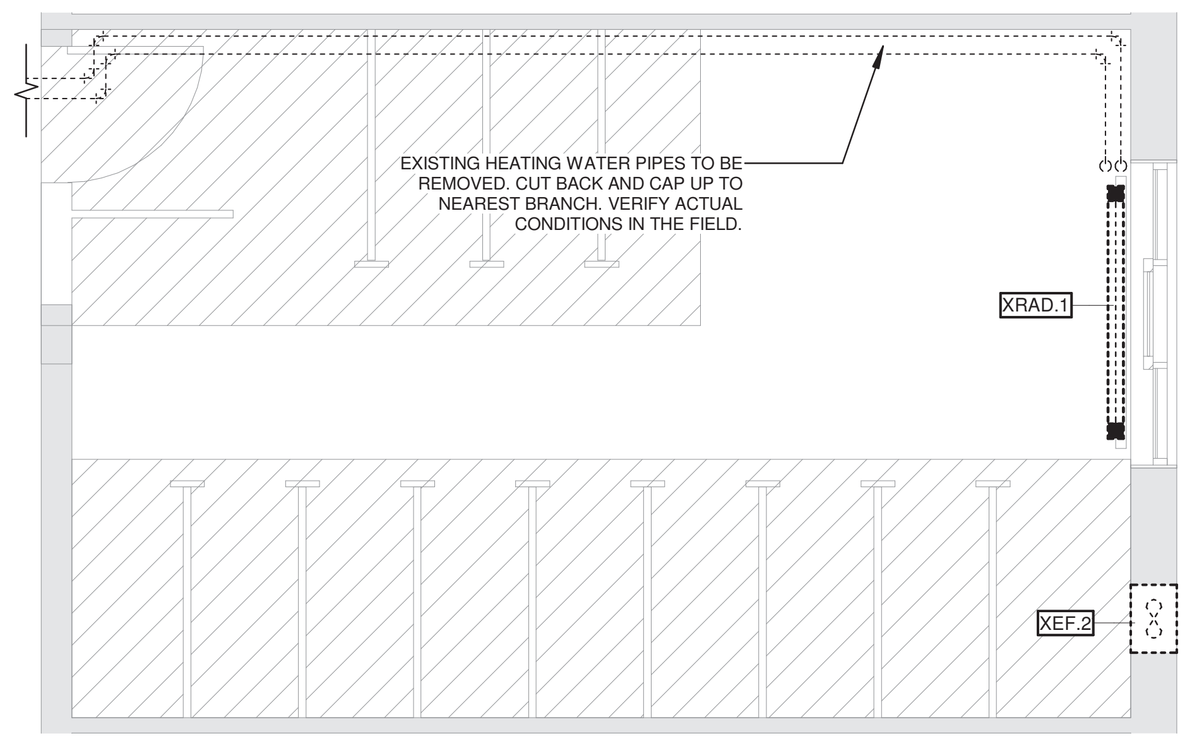
CURRENT PHASE: Permit — CURRENT ITEMS: Show Demo Only

Mark	QTY	Description	Remarks	Phase Added	Phase Removed
XEF.1	2	WASHROOM CEILING EXHAUST FAN	To be removed along with all connected ductwork, control and power supply system.	EXISTING	Permit
XEF.2	2	INLINE FAN	To be removed along with all connected control and power supply system. Wall shall be patched and repaired according to architectural design requirements. Verify actual conditions in the field.	EXISTING	Permit
XFCU.1	1	FAN COIL UNIT - WALL CASSETTE Model: Mitsubishi PKA-A24KA7	To be relocated as shown on proposed plans. Disconnect from power, control and refrigerant piping to XCU.1 for relocation. Verify actual requirements in the field.	EXISTING	Permit
XRAD.1	4	HYDRONIC RADIATOR		EXISTING	Permit



2 Demolition - Staff WR HVAC Plan

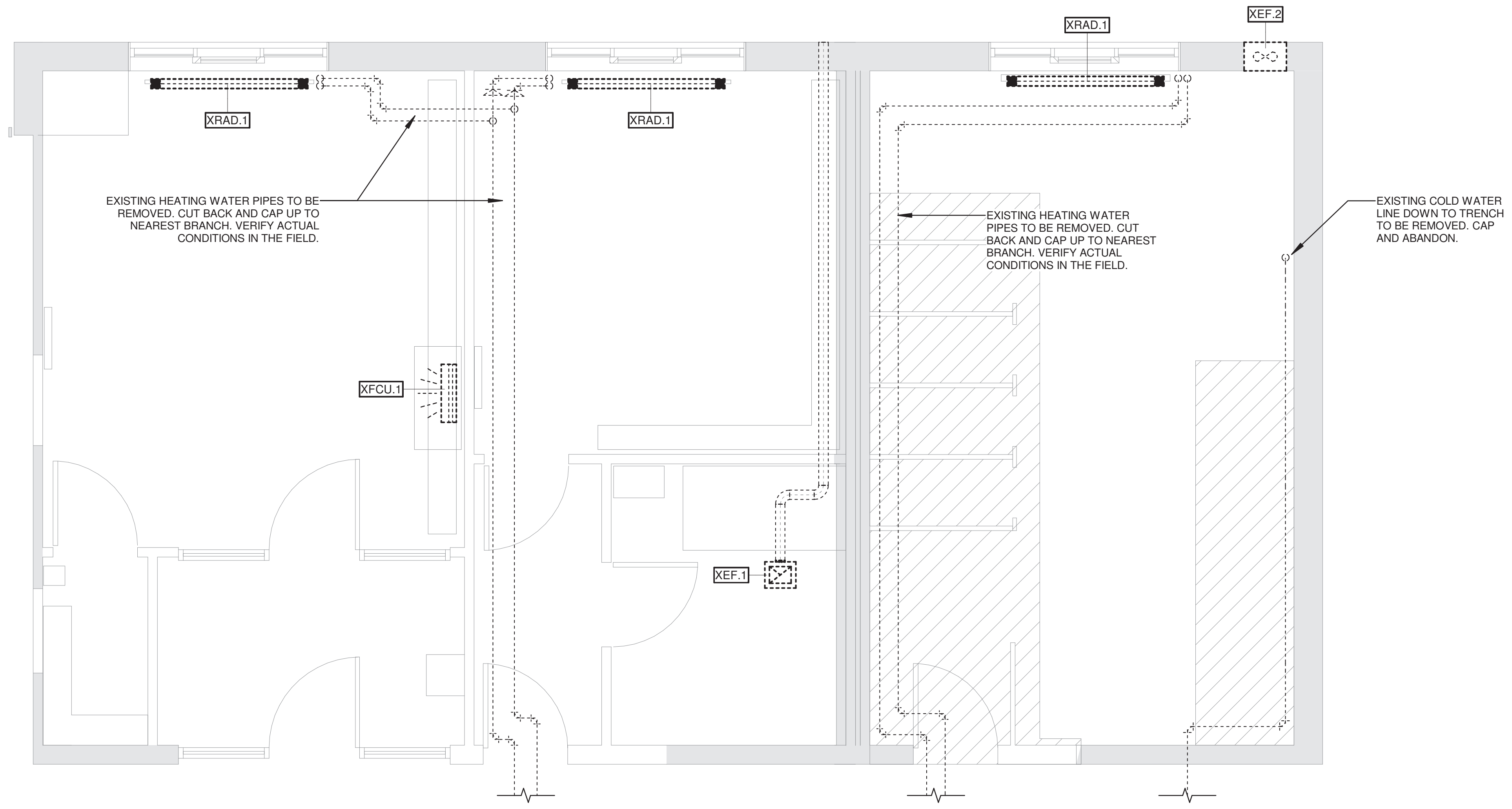
1 : 50



EXISTING HEATING WATER PIPES TO BE REMOVED. CUT BACK AND CAP UP TO NEAREST BRANCH. VERIFY ACTUAL CONDITIONS IN THE FIELD.

3 Demolition - Girl's WR HVAC Plan

1 : 50



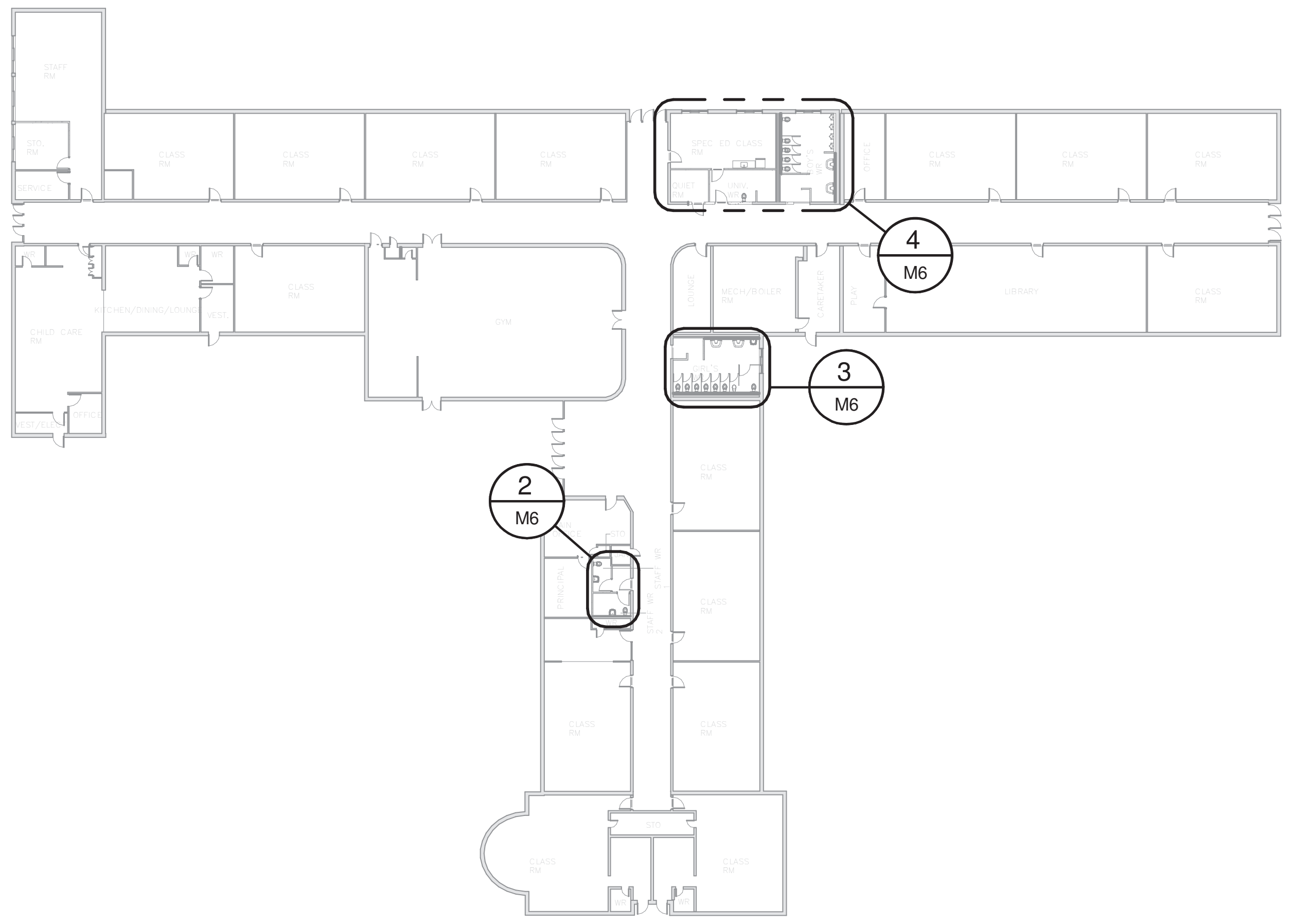
EXISTING HEATING WATER PIPES TO BE REMOVED. CUT BACK AND CAP UP TO NEAREST BRANCH. VERIFY ACTUAL CONDITIONS IN THE FIELD.

EXISTING HEATING WATER PIPES TO BE REMOVED. CUT BACK AND CAP UP TO NEAREST BRANCH. VERIFY ACTUAL CONDITIONS IN THE FIELD.

EXISTING COLD WATER LINE DOWN TO TRENCH TO BE REMOVED. CAP AND ABANDON.

4 Demolition - Classroom & Boy's WR HVAC Plan

1 : 50



1 Demolition - Area Keymap HVAC

1 : 500

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER, BEFORE PROCEEDING WITH THE WORK.

DRAWINGS ARE NOT TO BE SCALED.

LICENSED PROFESSIONAL ENGINEER
S. HOLDITCH
100108001
Feb 13, 2025
PROVINCE OF ONTARIO

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

REVISION SCHEDULE

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME

Oakwood Public School

357 Bartos Dr,
Oakville City, ON

DRAWING TITLE

HVAC Demolition Plan

SCALE
As indicated

SHEET SIZE
24"x36"

PROJECT NUMBER
24028

DRAWING NUMBER
M6

Existing Mechanical Equipment Schedule

CURRENT PHASE: Permit — CURRENT ITEMS: Show Previous Phase

Mark	QTY	Description	Remarks	Phase Added
XCU.1	1	AIR COOLED HEAT PUMP CONDENSING UNIT Model: Mitsubishi PUZ-A24NHA7 Capacity: 24 MBH Cooling, 28MBH Heating Elec Data: 208V/1Ph/60Hz, 19 MCA, 25 MOCP Serves: XFCU.1		EXISTING

Relocated Mechanical Equipment Schedule

CURRENT PHASE: Permit — CURRENT ITEMS: Show New Only

Mark	QTY	Description	Remarks	Phase Added
XFCU.1R	1	FAN COIL UNIT - WALL CASSETTE Model: Mitsubishi PKA-A24KA7	To be relocated as shown on proposed plans. Reconnect power, control and refrigerant piping to XCU.1, and provide new materials to suit relocation. Verify actual requirements in the field.	Permit

New Mechanical Equipment Schedule

CURRENT PHASE: Permit — CURRENT ITEMS: Show New Only

Mark	QTY	Description	Remarks	Phase Added
CFH.1	4	CEILING FAN HEATER Model: Ouellet OACP2000 Electrical Data: 1.5kW, 208V/1Ph/60Hz	C/W Integral thermostat. Coordinate w/ Electrical	Permit
EF.1	2	WASHROOM CEILING EXHAUST FAN Model: Greenheck SP-A90 Capacity: 70 CFM at 0.25" ESP Elec Data: 120V/1Ph/60Hz, 0.17 FLA, 0.2 MCA, 15 MOCP	C/W Backdraft Damper, mounting accessories. Shall be activated by lighting motion sensor provided by Electrical.	Permit
EF.2	2	INLINE EXHAUST FAN Model: Greenheck CSP-A700-VG Fan Data: 700 CFM, 0.25" ESP Elec Data: 115V/1Ph/60Hz, 4.1 FLA, 5.1 MCA, 15 MOCP	C/W Built-in thermal overload protection, mounting bracket, vibration isolators, manual override switch. To be controlled by a programmable time clock to ensure continuous operation during business hours. Coordinate with Electrical.	Permit
EF.3	1	WASHROOM CEILING EXHAUST FAN Model: Greenheck SP-A110 Capacity: 80 CFM at 0.25" ESP Elec Data: 120V/1Ph/60Hz, 1.8 FLA, 2.2 MCA, 15 MOCP	C/W Backdraft Damper, mounting accessories. Shall be activated by lighting motion sensor provided by Electrical.	Permit

New Mechanical Control Schedule

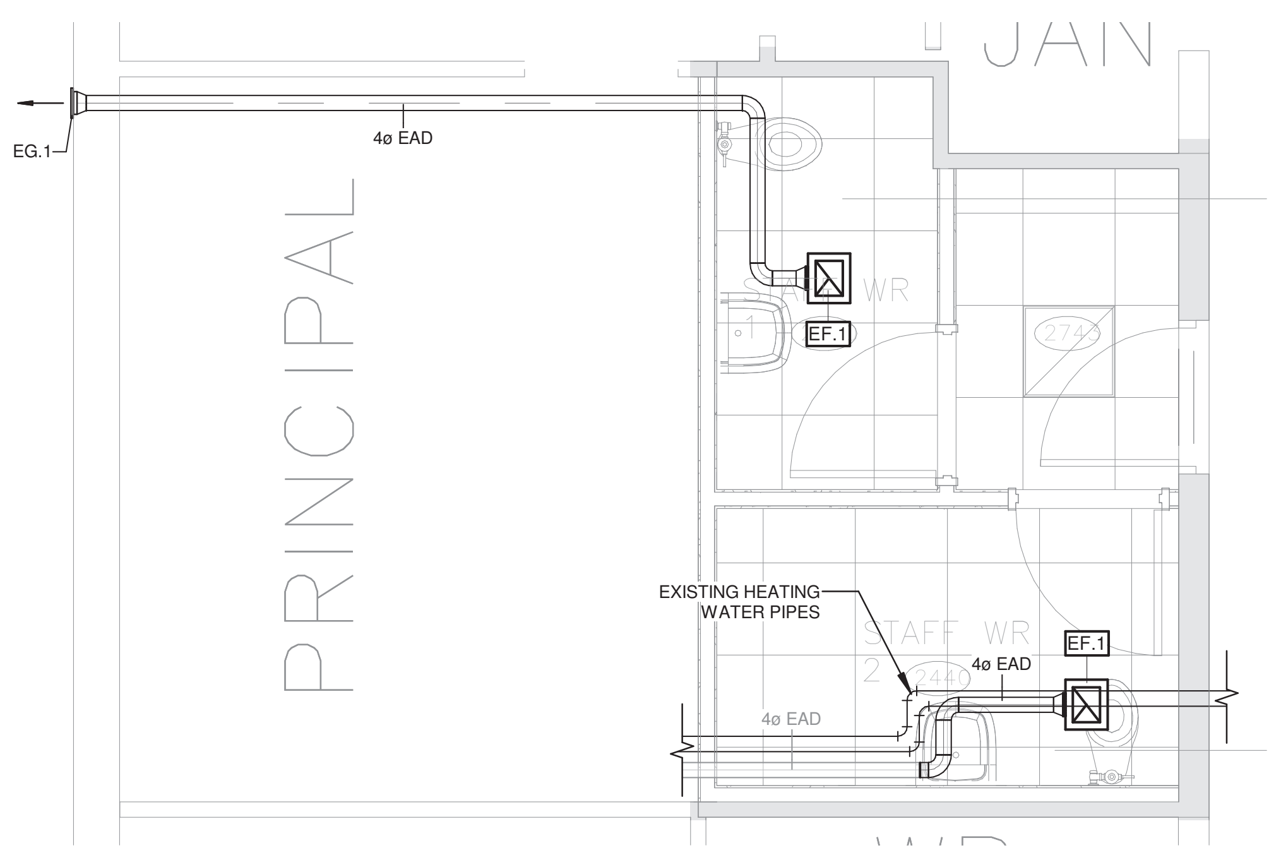
CURRENT PHASE: Permit — CURRENT ITEMS: Show New Only

Mark	QTY	Description	Remarks	Phase Added
T.1	1	WALL-MOUNTED THERMOSTAT	Existing third-party thermostat (by building management) to be re-used as relocated XFCU.1R thermostat. Provide Mitsubishi Thermostat Interface PAC-US444CN-1 to allow existing thermostat to control existing XFCU.1R fan coil unit. Verify actual requirements and compatibility of equipment in the field.	Permit

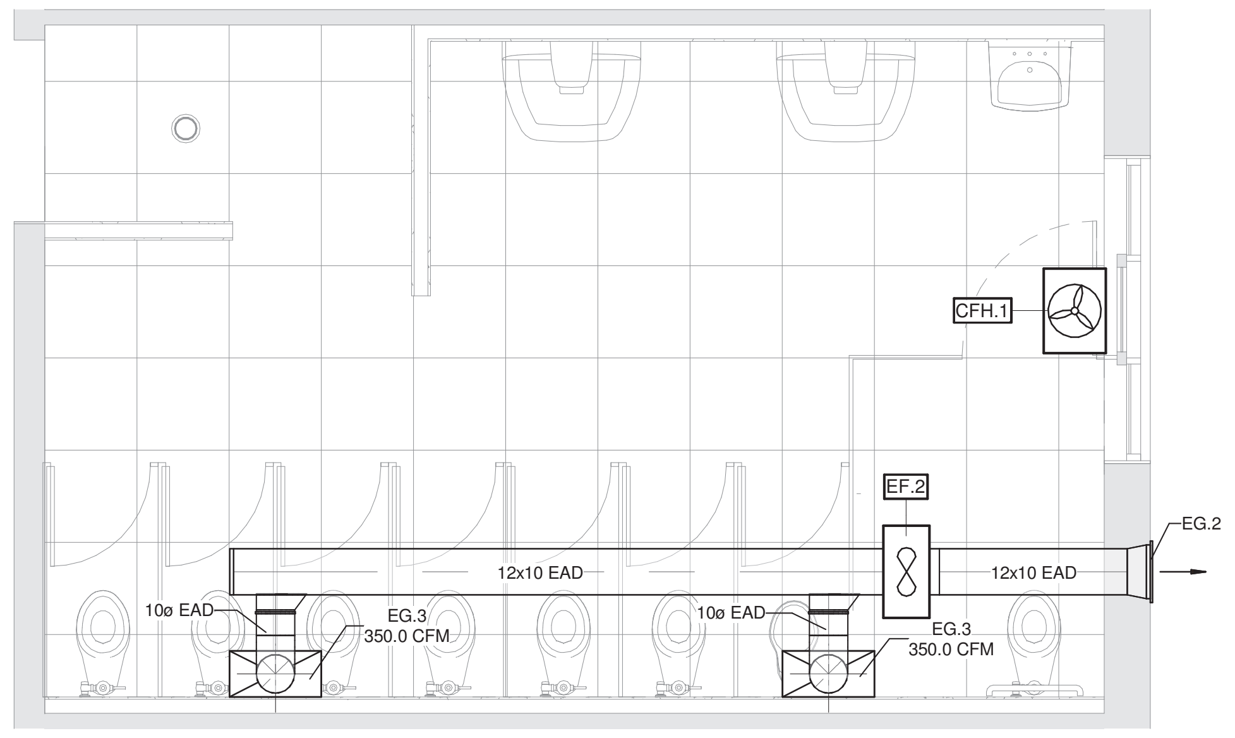
New Air Terminal Schedule

CURRENT PHASE: Permit — CURRENT ITEMS: Show New Only

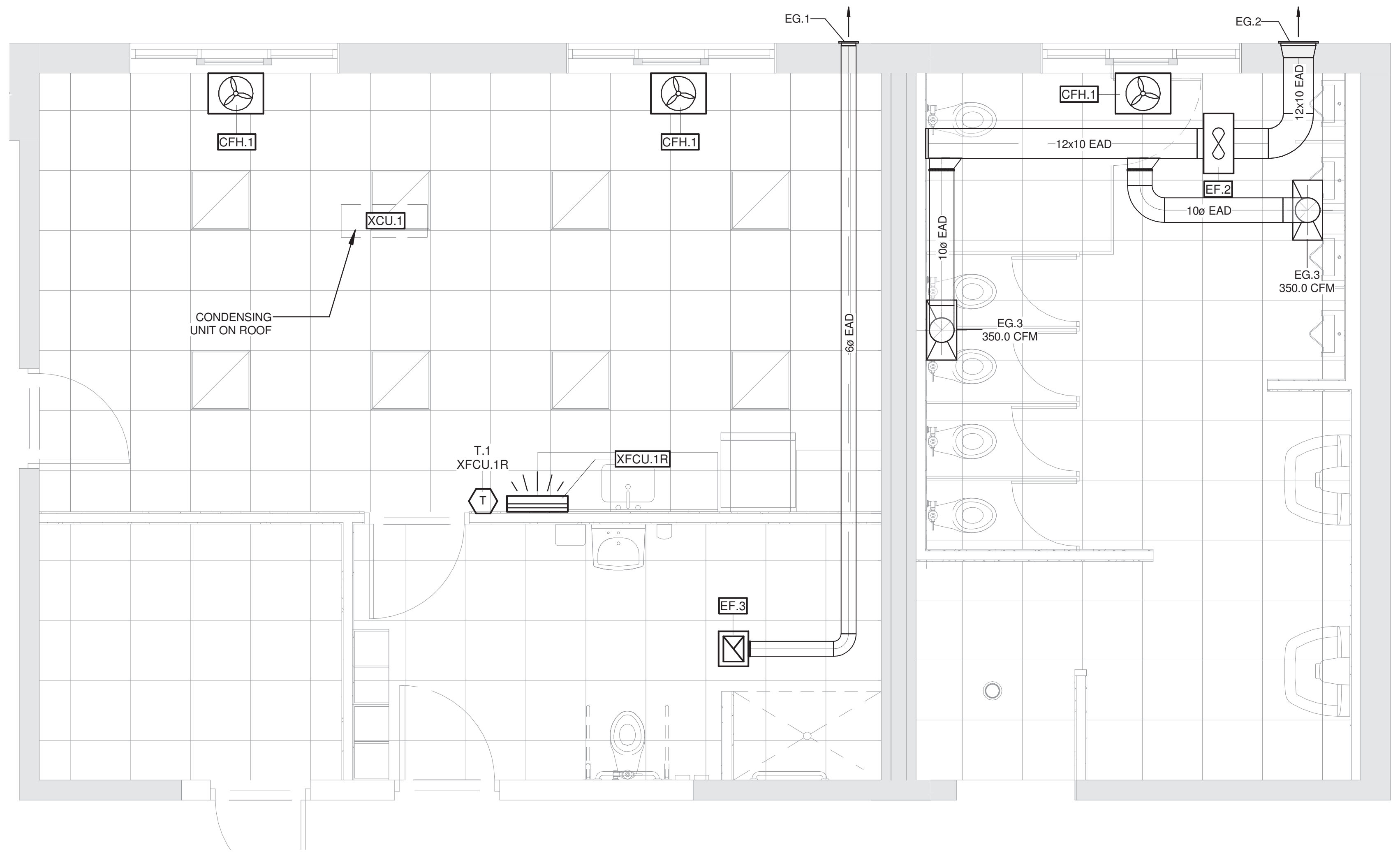
Mark	QTY	Type	Model	Face	Size	Remarks	Phase Added
EG.1	2	Wall Exhaust Hood	Fantech FML-8	9"x9"	6ø	White, pre-painted aluminum housing C/W bug screen. Verify actual finish with Architect.	Permit
EG.2	2	SUPPLY GRILLE WALL/CEILING	Ventex 2425	350x350	14x14	4" depth, 4-7/8" blade centers, 45 deg blade angle C/W birdscreen.	Permit
EG.3	4	Ceiling Exhaust Grille	Price 80	24"x12"	10ø	White, C/W balancing damper where airflow is specified.	Permit



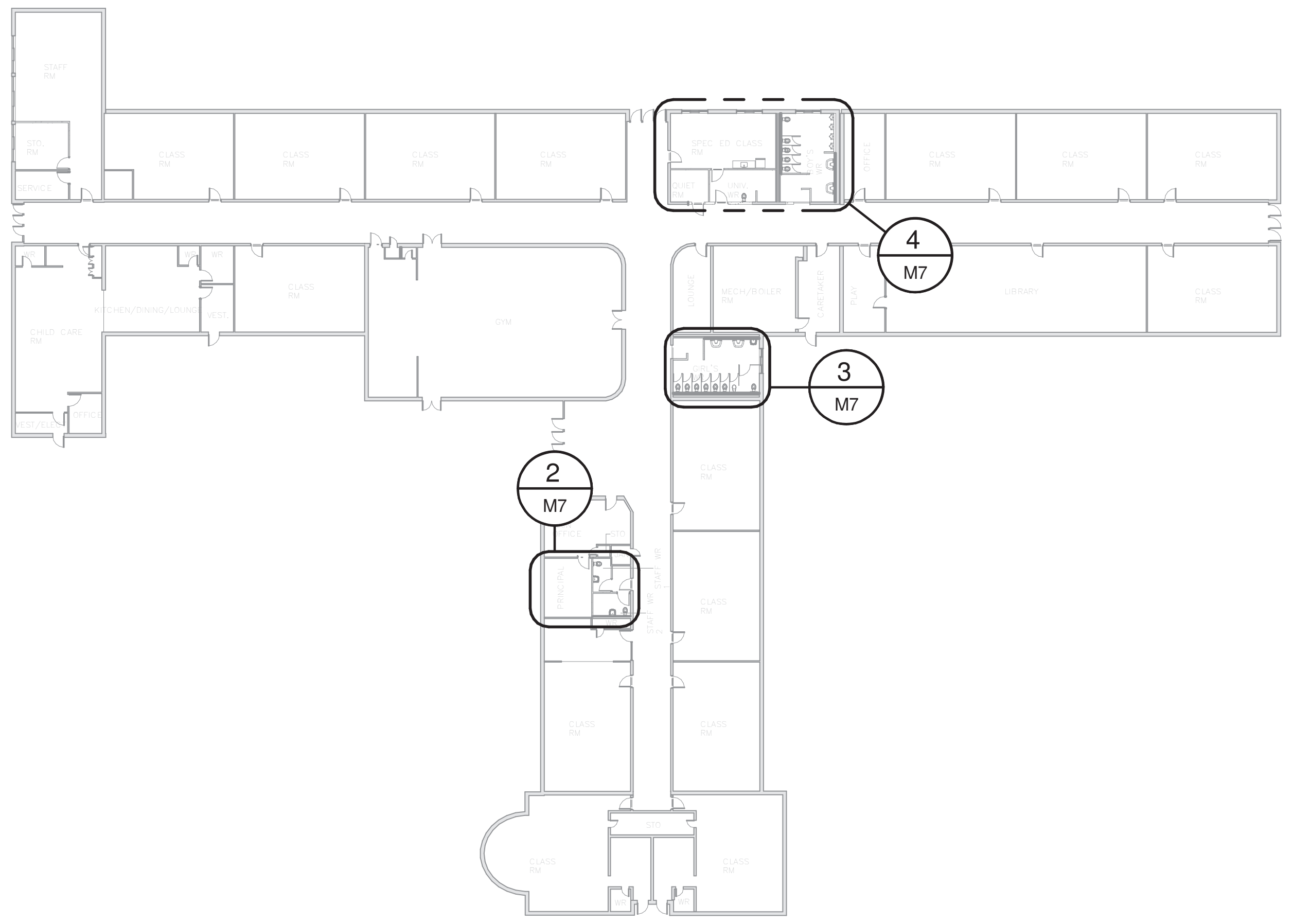
2 Proposed - Staff WR HVAC Plan
1 : 50



3 Proposed - Girl's WR HVAC Plan
1 : 50



4 Proposed - Classroom & Boy's WR HVAC Plan
1 : 50



1 Proposed - Area Keymap HVAC
1 : 500

LICENSED PROFESSIONAL ENGINEER
S. HOLDITCH
100108001
Feb 13, 2025
PROVINCE OF ONTARIO

REVISION SCHEDULE

NO.	DESCRIPTION	DATE
4	Issued For Tender	Feb 13, 2025
3	ReIssued For Permit	Feb 03, 2025
2	Issued For Permit	Dec 23, 2024

ROOT3 Engineering
1920 YONGE ST, SUITE 200
TORONTO, ON, M4S 3E2

PROJECT NAME
Oakwood Public School
357 Bartos Dr,
Oakville City, ON

DRAWING TITLE
HVAC Plan

SCALE
As indicated

SHEET SIZE
24"x36"

PROJECT NUMBER
24028

DRAWING NUMBER
M7