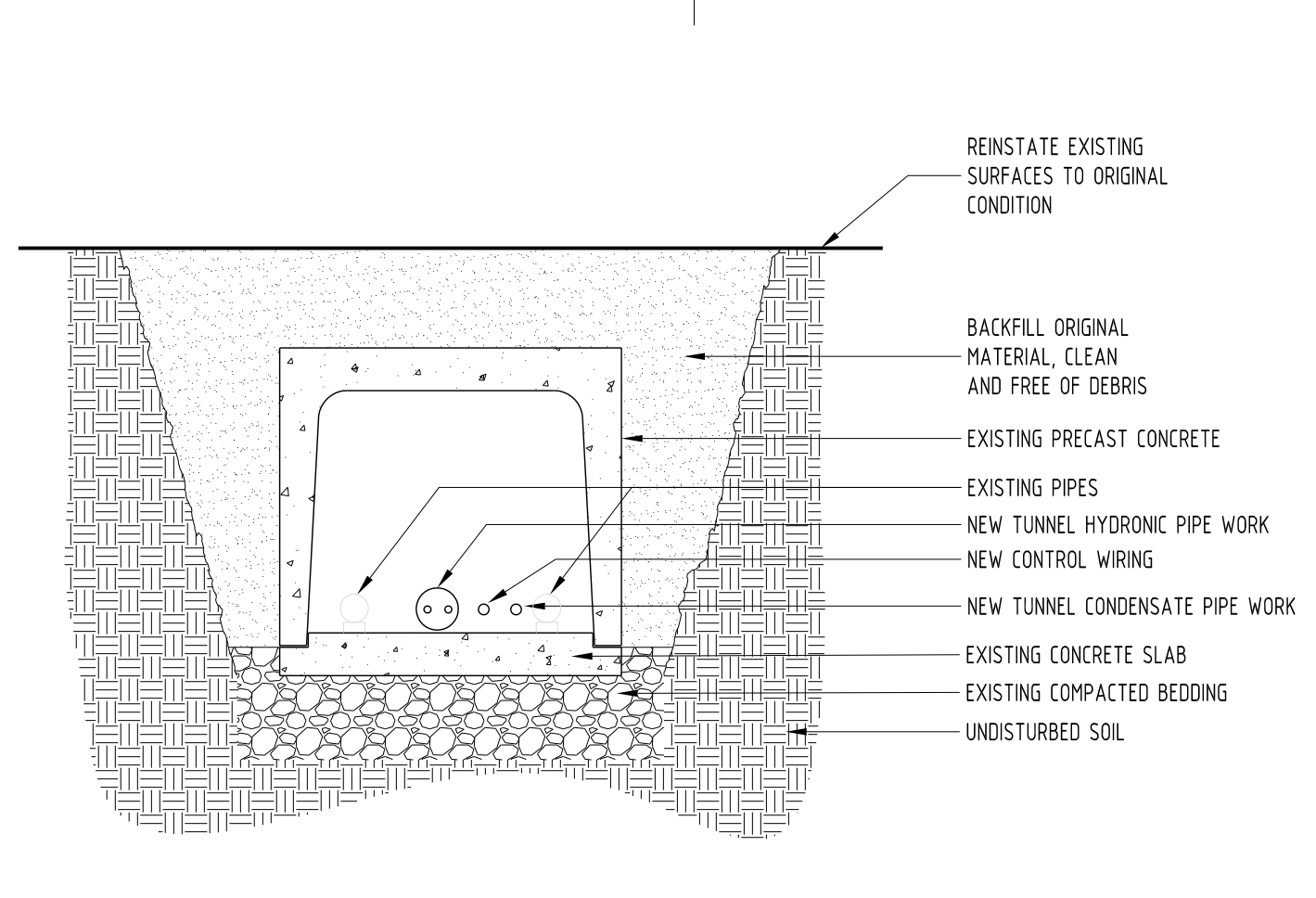


1 BOILER HOUSE LAYOUT
1:50



2 EXISTING CONCRETE SECTION
NTS

SCOPE OF WORK

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:
 A) GENERAL DRAWINGS 45350015 G1 AND G2
 B) SPECIFICATION PACKAGE 45350015, AND
 C) ALL APPLICABLE CODES, BYLAWS AND BEST-RECOMMENDED PRACTICES

FOR THE PURPOSES OF THIS PROJECT, 'PROVIDE' SHALL MEAN TO SUPPLY AND INSTALL.

FOR THE PURPOSES OF THIS PROJECT, 'DEMOLISH' SHALL MEAN MATERIALS AND EQUIPMENT ARE TO BE REMOVED FROM THEIR INSTALLED LOCATION AND DISPOSED OF. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF GARBAGE IN ACCORDANCE WITH CODES, STANDARDS AND REGULATIONS, AND PROVIDE HIS OWN WASTE REMOVAL SERVICES.

WHERE MATERIALS AND EQUIPMENT ARE IDENTIFIED AS 'SALVAGE', THEY SHALL BE REMOVED FROM THEIR INSTALLED LOCATION WITHOUT DAMAGE AND HANDED TO THE OWNER AT THE DESIGNATED DROP LOCATION WITHIN THE FACILITY.

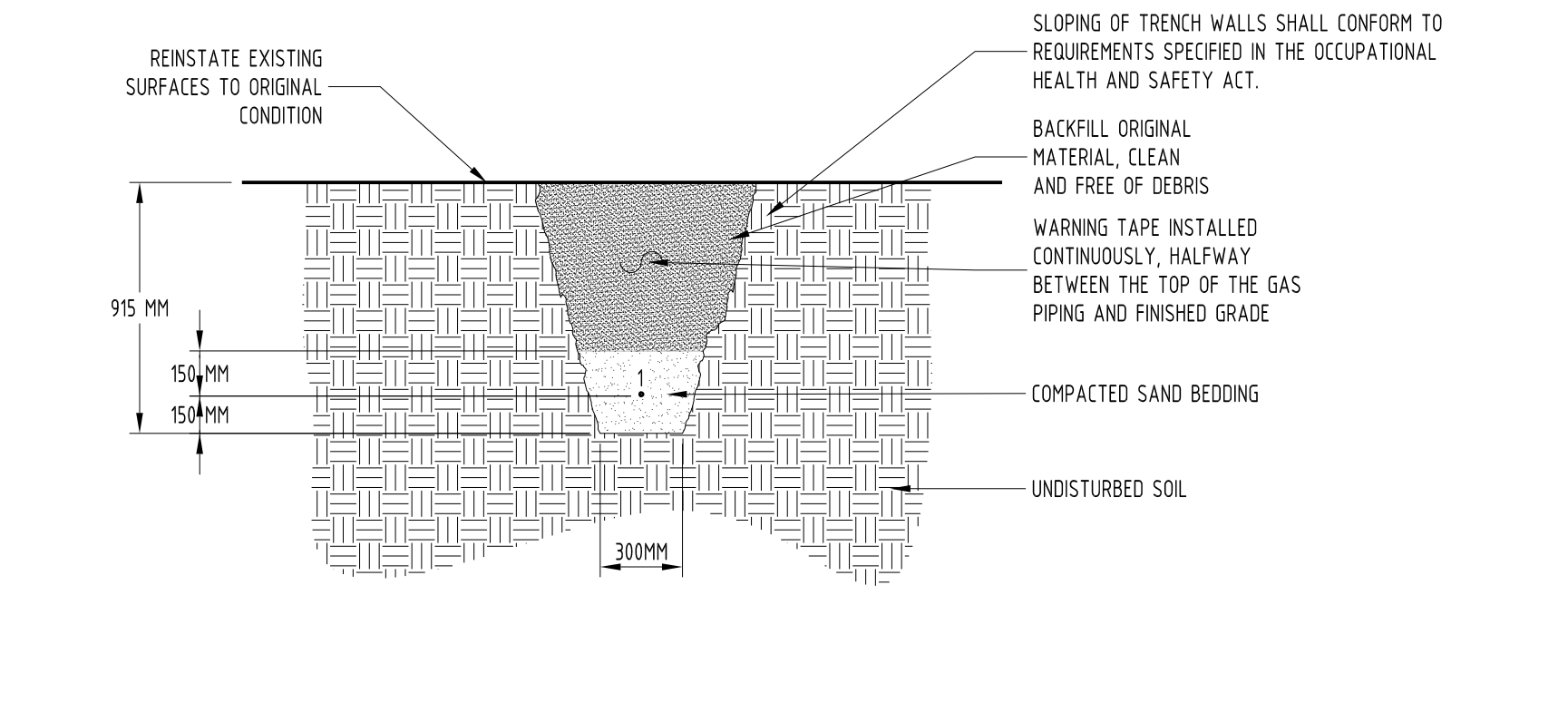
MAKE PRIOR ARRANGEMENTS AND CAREFULLY PLAN THE DISCONNECTING AND SHUT-DOWN OF ANY EQUIPMENT WITH OWNER'S FACILITIES DEPARTMENT. GIVE MINIMUM 48 HRS NOTICE OF ANY SHUT-DOWN.

CONTRACTOR TO:
 A. FAMILIARIZE HIMSELF WITH THE PROJECT SITE AND REPORT ANY DISCREPANCIES OR SITE CONDITIONS WHICH MAY AFFECT WORK TO CONSULTANT PRIOR TO COMMENCING WORK. IF DISCREPANCIES ARE NOT IDENTIFIED PRIOR TO COMMENCING WORK, CONTRACTOR RESPONSIBLE FOR IMPLEMENTING WORKS PER CONSULTANTS DIRECTION.
 B. VERIFY ALL DIMENSIONS PRIOR TO EQUIPMENT PURCHASE.
 C. PROTECT BUILDING STRUCTURE FROM DAMAGE.
 D. PROVIDE ANY HOARDING OR TEMPORARY WALLS REQUIRED TO ENSURE CONSTRUCTION WORK IS CONTAINED TO THE CONSTRUCTION AREA.
 E. ENSURE ADJACENT AREAS ARE NOT AFFECTED BY ANY WORK ON THIS PROJECT. ANY DAMAGE CAUSED BY WORK FROM GENERAL, MECHANICAL OR ELECTRICAL TRADES TO BE REPAIRED AS PART OF THIS PROJECT.
 F. SUBMIT HARD/SOFT COPIES OF PRODUCT CUT SHEETS FOR APPROVAL BY THE CONSULTANT PRIOR TO COMMENCING ANY WORK OR ORDERING OF ANY EQUIPMENT.
 G. OBTAIN RELATED PERMITS TO CARRY OUT THE WORK OF THIS PROJECT.

THE INTENT OF THIS PROJECT IS TO UPGRADE THE HVAC SYSTEMS IN THE BELLEVUE HOUSE AS WELL AS THE BELLEVUE HOUSE VISITOR CENTRE.

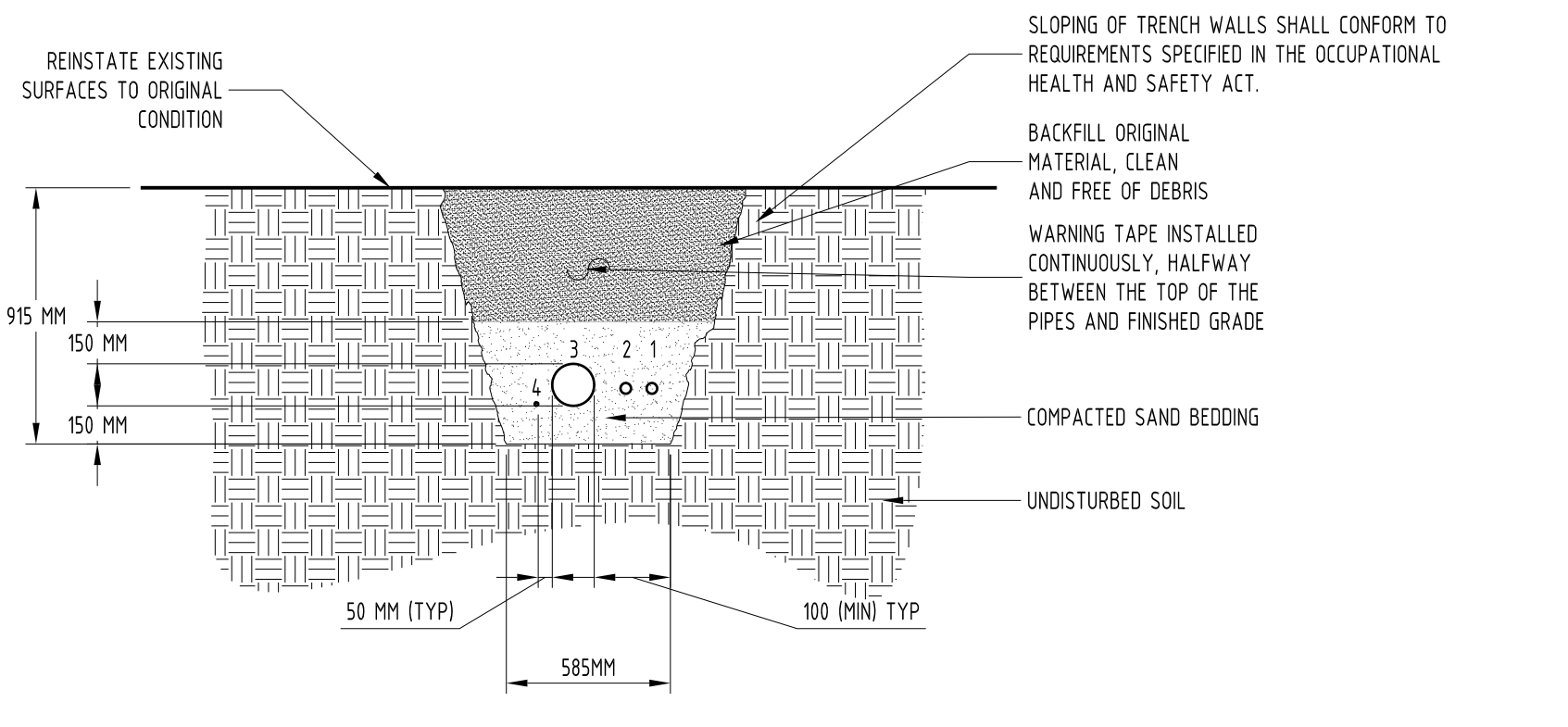
THE NUMBERS INSIDE HEXAGONS SHOWN ON THE PLANS REFER TO THE NUMBERED POINTS BELOW. NOT ALL POINTS ARE SHOWN ON THE PLANS.

- COORDINATE WITH OTHER TRADES PRIOR TO DEMOLITION. ENSURE ELECTRICAL EQUIPMENT IS LOCKED OUT AND TAGGED PRIOR TO COMMENCING WORK.
- PROVIDE EXCAVATING AND TRENCHING AS INDICATED.
- PROVIDE CONCRETE PAD FOR MECHANICAL BOILER HOUSE AS INDICATED, REFER TO MECHANICAL DRAWINGS FOR SIZE OF BOILER HOUSE. SEAL ENTIRE CONCRETE HOUSEKEEPING PAD PRIOR TO EQUIPMENT INSTALLATION. CONTRACTOR TO PROVIDE THE DESIGN SERVICES OF A STRUCTURAL ENGINEER IN CONFORMANCE WITH THE ONTARIO BUILDING CODE'S REQUIREMENTS. ENGAGE A LICENSED STRUCTURAL ENGINEER, WHO PRACTICES UNDER A VALID CERTIFICATE OF AUTHORIZATION ISSUED BY PEO, PROVIDE WRITTEN CONFIRMATION (SIGNED AND STAMPED) THAT NEW STRUCTURAL WORK HAS BEEN COMPLETED IN GENERAL COMPLIANCE WITH THE OBC'S REQUIREMENTS. EXACT LOCATION SHALL BE PROVIDED BY PARKS CANADA REPRESENTATIVE.
- REMOVE EXISTING CONCRETE TUNNEL COVER AS INDICATED ON DRAWINGS. PROVIDE CONCRETE COVER TO PATCH TUNNEL OPENING AND SEAL TIGHT. ONCE M&E WORK IS COMPLETE BACKFILL TUNNEL LOCATION AND FINISH SURFACE TO REPLACE WHAT WAS DEMOLISHED.
- DEMOLISH EXISTING FENCE AROUND CONDENSER OUTSIDE VISITOR CENTRE. PROVIDE NEW LATTICE FENCE AROUND CONDENSER ON ONE SIDE ONLY. LATTICE FENCE TO BE OPEN ON BOTTOM TO ALLOW AIRFLOW AND EASY DEBRIS REMOVAL. NEW FENCE POSTS ARE TO REMAIN IN THE SAME LOCATIONS AS EXISTING. SEE DETAIL.
- REMOVE, MODIFY AND RE-INSTALL ONE SECTION OF CABINETS ABOVE FRIDGE IN KITCHEN OF VISITOR CENTRE. MATERIALS AND FINISH TO MATCH EXISTING. COORDINATE WITH MECHANICAL DRAWINGS FOR EXACT LOCATION OF DUCTWORK GOING THROUGH CABINETS.
- CLEAN AREA OF ANY DEBRIS CREATED DURING THIS WORK.
- AFTER CONSTRUCTION COMPLETION, MARK UP DRAWINGS INDICATING ANY AND ALL DEVIATIONS FROM THE DRAWINGS AND PROVIDE TWO COPIES TO OWNER.



NOTES:
 1. 13MM Ø NATURAL GAS LINE

3 TRENCH DETAIL
NTS



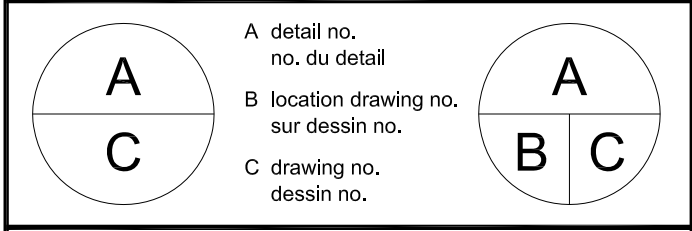
NOTES:
 1. CONTROL WIRE CONDUIT
 2. Ø125MM INSULATED CONDENSATE PIPING
 3. Ø150MM PRE-INSULATED HEATING AND CHILLED WATER PIPING
 4. Ø13MM NATURAL GAS LINE

4 TRENCH DETAIL
NTS



Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

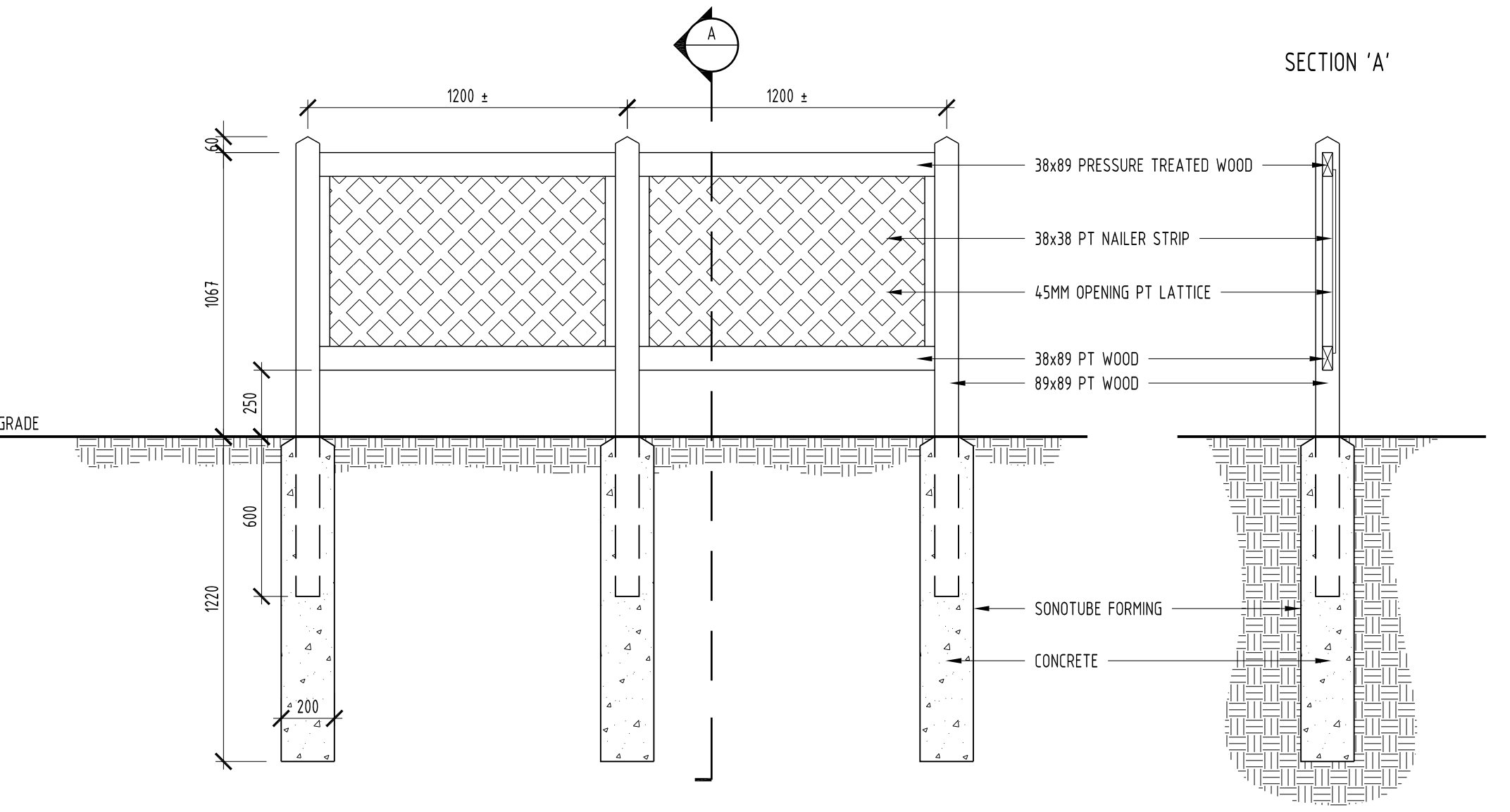
revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25



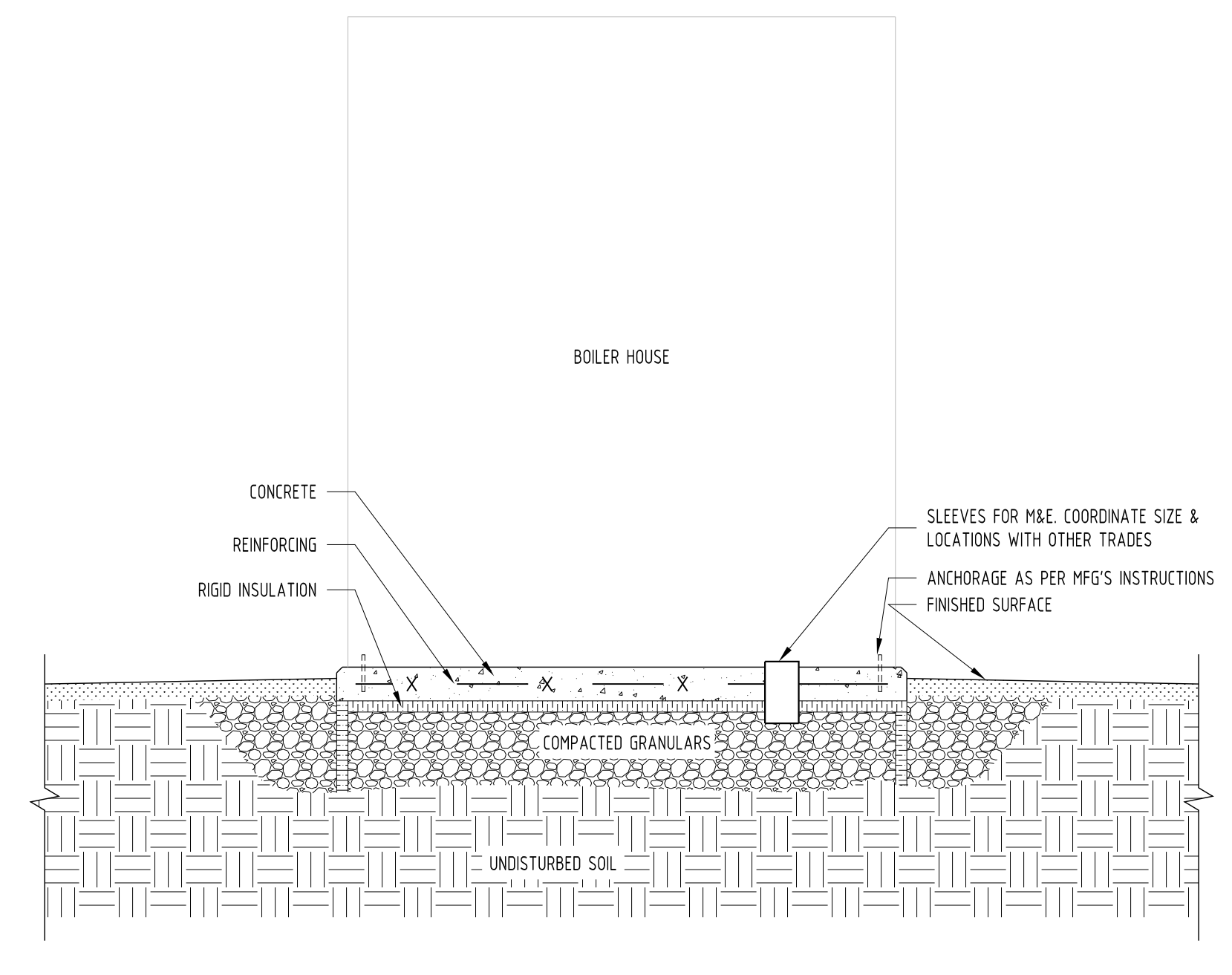
BELLEVUE HOUSE HVAC UPGRADE

GENERAL SCOPE OF WORK, PARTIAL PLAN AND SECTIONS

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	PJR	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.	45350015	No. du projet
Drawing no.	G1	No. du dessin



5 FENCE ELEVATION AND SECTION
1:20



6 CONCRETE PAD SECTION
1:25

Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A	B	C
detail no. no. du détail	location drawing no. sur dessin no.	drawing no. dessin no.

project projet

**BELLEVUE HOUSE
HVAC UPGRADE**

drawing dessin

**GENERAL
PARTIAL SITE PLAN**

Designed By MIRITON Conçu par

Date (yyyy/mm/dd)

Drawn By RR Dessiné par

Date (yyyy/mm/dd)

Reviewed By PJR Examiné par

Date (yyyy/mm/dd)

Approved By Approuvé par

Date (yyyy/mm/dd)

Tender Soumission

Project Manager MARIA OFFIN Administrateur de projets

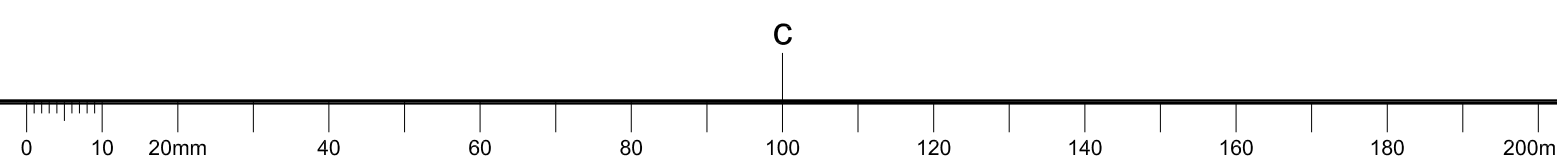
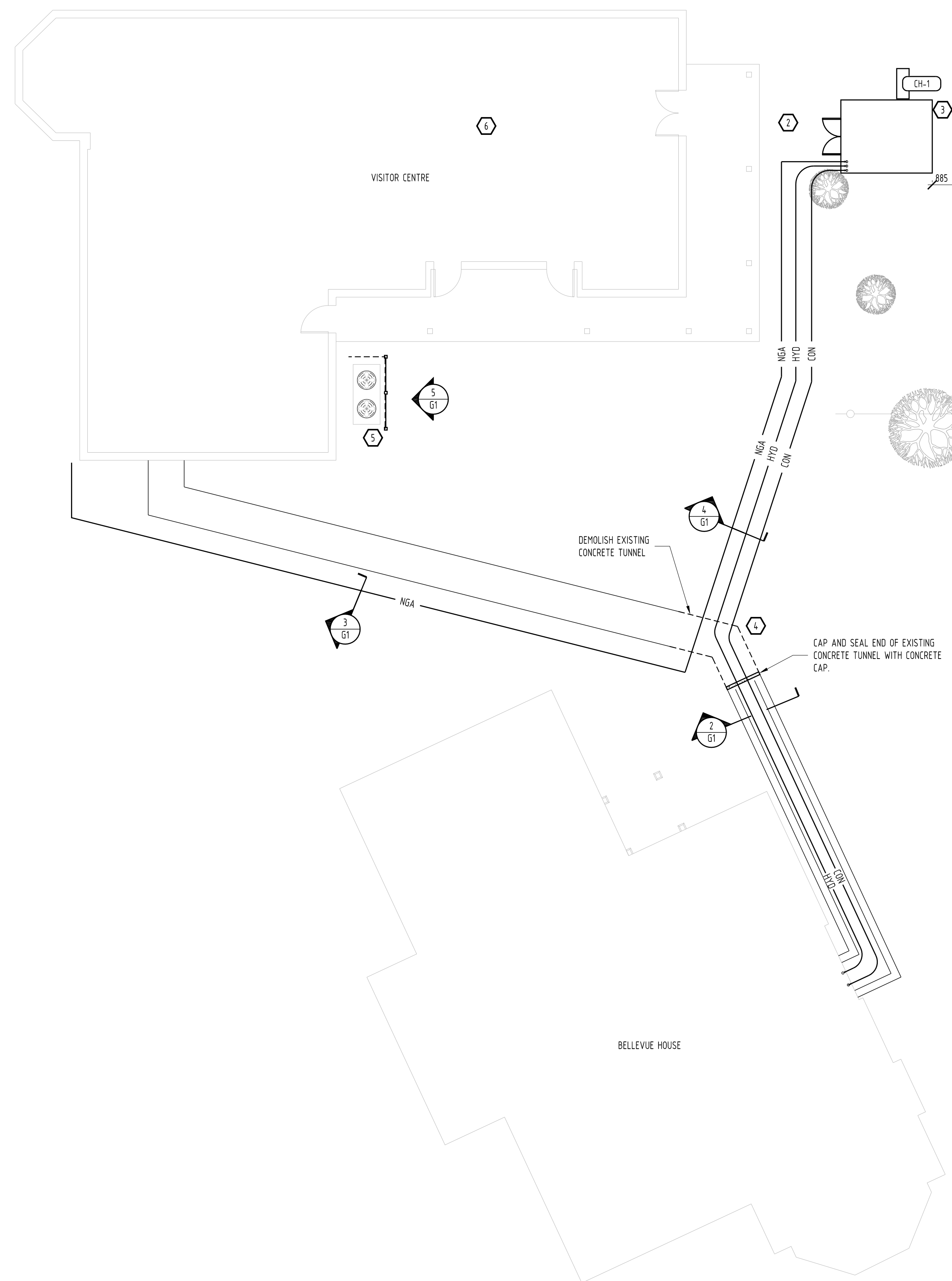
Project no. No. du projet

45350015

Drawing no. No. du dessin

G2

CENTRE STREET



MECHANICAL LEGEND

- HWS— HEATING WATER SUPPLY
- HWR— HEATING WATER RETURN
- PIPE DOWN
- PIPE UP
- () PIPE CONNECTION DOWN
- () PIPE CONNECTION UP
- ∩ PIPE - BREAK
- ∩ PIPE - REDUCER
- ⊥ DRAIN VALVE
- ∩ PIPE - UNION
- ∩ PIPE - CAP
- ▶ PIPE - FLOW DIRECTION
- ⊥ GATE VALVE
- ⊥ BALL VALVE
- ⊥ VALVE ON PIPE RISER
- ⊥ BP BACKFLOW PREVENTOR
- ⊥ CHECK VALVE
- ⊥ CBV CIRCUIT BALANCING VALVE (CBV)
- ⊥ 2-WAY VALVE - MOTORIZED - ELECTRICAL
- ⊥ ELECTRONIC ACTUATOR
- ⊥ PRESSURE REDUCING VALVE
- ⊥ PRESSURE RELIEF VALVE
- ⊥ PUMP OR COMPRESSOR
- ⊥ STRAINER
- ⊥ PRESSURE GAUGE
- ⊥ THERMOMETER
- ⊥ AUTOMATIC AIR VENT
- ⊥ TEMPERATURE SENSOR
- ⊥ AIR PURGER
- ∩ PIPE - FLEXIBLE
- ▬ RIGID DUCT
- ▬ THERMALLY INSULATED DUCT
- ▬ FLEXIBLE DUCT CONNECTOR
- ▬ RECTANGULAR SUPPLY DUCT UP / DOWN
- ▬ RECTANGULAR RETURN/EXHAUST DUCT UP/DOWN
- ROUND DUCT UP / DOWN
- ⊥ DUCT BOOT WITH DAMPER
- ⊥ ROUND DUCT DOWN - SINGLE LINE
- ⊥ DUCT CAP - SINGLE LINE
- ➔ AIRFLOW DIRECTION
- ▬ RECTANGULAR DIFFUSER/GRILLE
- ▬ SIDE MOUNTED AIR GRILLE
- ▬ FLOOR MOUNTED AIR GRILLE
- ▬ THERMOSTAT
- ▬ SENSOR
- ▬ TEMPERATURE SENSOR (WIRELESS)
- ▬ CONTROLLER (WIRELESS)
- SA SUPPLY AIR
- RA RETURN AIR
- MA MIXED AIR
- OA OUTDOOR AIR
- EA TYPICAL EXISTING
- FCU FAN COIL UNIT
- EXHAUST AIR
- - - TYPICAL DEMOLITION
- TYPICAL NEW
- ▬ DIFFUSER TAG
- A - TAG
- B - FLOW
- C - SIZE

MAJOR EQUIPMENT TABLE

EQUIP. REF	SPECIFICATIONS	NOTES
BP-1	BOILER PACKAGE COMPLETE BOILER SKID TO BE PRE-BUILT TO INCLUDE: HOT WATER CONDENSING BOILERS OUTPUT KW: 25KW FUEL: NATURAL GAS, 3.49 Kpa NOMINAL HEAT INPUT / OUTPUT: 212,000 / 194,000 BTU/HR ENTERING / LEAVING WATER TEMPERATURE: 140°C / 165°C HYDROIC FLOW: 8.97 LPS OPERATING WEIGHT: 72 Kg COMPLETE WITH: LOW WATER CUT-OFF, PRESSURE RELIEF VALVE, CIRCULATION PUMP, LOW-LOSS HEADER, CONDENSATE NEUTRALIZATION UNIT.	NEW PROVIDED BY CONTRACTOR
B-1 B-2	HOT WATER CONDENSING BOILERS OUTPUT KW: 25KW FUEL: NATURAL GAS, 3.49 Kpa NOMINAL HEAT INPUT / OUTPUT: 212,000 / 194,000 BTU/HR ENTERING / LEAVING WATER TEMPERATURE: 140°C / 165°C HYDROIC FLOW: 8.97 LPS OPERATING WEIGHT: 72 Kg	
P-1A P-1B	CIRCULATION PUMP SERVICE: CHILLED AND HEATING TYPE: IN-LINE LPS: 126 L/S (120 GPM) HEAD: 13.7 M (45 FT) W.C.	
HE-1	BRAZED PLATE HEAT EXCHANGER: COLD SIDE: LPS: 126 L/S (120 GPM) EWT: 11.3°C (56°F) LWT: 7.8°C (46°F) HOT SIDE: LPS: 0.57 L/S (0.9 GPM) EWT: 6.7°C (44°F) LWT: 12.2°C (54°F)	
GFS-1	GLYCOL FILL SYSTEM TANK CAPACITY: 94 LITRES COMPLETE WITH PUMP FLOW: 185 L/H RPM: 1725 RPM	
UH-1	ELECTRIC UNIT HEATER CAPACITY: 2 KW TOTAL AIR FLOW: 240 L/S TEMPERATURE RISE: 7°C BHP: 1/30 HP RPM: 1550 COMPLETE WITH LOW VOLTAGE THERMOSTAT	NEW PROVIDED BY CONTRACTOR
EF-1	WALL MOUNTED EXHAUST FAN DIRECT DRIVE FLOW: 142 L/s STATIC PRESSURE: 0.025 KPA (0.1" w.g.) BHP: 1/30 HP RPM: 1550 RPM SHUTTER BLADES WITH N-SWITCH COMPLETE WITH LOW VOLTAGE THERMOSTAT	NEW PROVIDED BY CONTRACTOR
ET-1	EXPANSION TANK ASME RATED FOR 862 KPa MAX STEEL TANK WITH FLEXIBLE DIAPHRAM CAPACITY 80 LITERS MINIMUM EXPANSION VOLUME	NEW PROVIDED BY CONTRACTOR
CH-1	TYPE: AIR-COOLED LIQUID CHILLER REFRIGERANT TYPE: R410C NOMINAL 18.92 KW (4.9 TONS) @ 35°C (95°F) AMBIENT GLYCOL SUPPLY / RETURN TEMPERATURE: 6.7°C / 12.2 °C (44°F / 54°F) FLUID: 50% PROPYLENE GLYCOL FLUID FLOW: 0.9 L/S (14.4 GPM) MAXIMUM PRESSURE DROP: 5.53 KPa (185 FT H2O) MAXIMUM CABINET DIMENSIONS LxWxH: 1010mm x 413mm x 1264 mm (39.75' x 16.25' x 39.75') MAXIMUM OPERATING WEIGHT: 142 kg (313 lbs) COMPLETE WITH 7.6 LITER EXPANSION TANK AND AIR SCOOP ASSEMBLY	NEW PROVIDED BY CONTRACTOR
ET-2	EXPANSION TANK ASME RATED FOR 862 KPa MAX STEEL TANK WITH FLEXIBLE DIAPHRAM CAPACITY 80 LITERS MINIMUM EXPANSION VOLUME	NEW PROVIDED BY CONTRACTOR
ET-3	EXPANSION TANK ASME RATED FOR 862 KPa MAX STEEL TANK WITH FLEXIBLE DIAPHRAM CAPACITY 80 LITERS MINIMUM EXPANSION VOLUME	NEW PROVIDED BY CONTRACTOR
AP-1	TYPE: AIR PURGER FLOW RATE: 252 LPS PIPE SIZE: 50mm SPIROTHERM SPIROVENT SERIES VJ SOLID BRASS CONSTRUCTION AND INTEGRAL AIR RELEASE	NEW PROVIDED BY CONTRACTOR
A1	TYPE: SIDE THROW SUPPLY AIR GRILLE ALL STEEL CONSTRUCTION, B12 FINISH, ADJUSTABLE INDIVIDUAL BLADES, DOUBLE DEFLECTION, FRONT BLADES RUNNING PARALLEL TO LONGEST DIMENSION, BORDERS AND VOLUME DAMPER.	NEW PROVIDED BY CONTRACTOR
B1	TYPE: FLOOR LINEAR BAR GRILLE HEAVY-DUTY ALUMINUM CONSTRUCTED GRILLE AND FRAME, 25mm BORDER, PENCIL-PROOF SPACING, 0° DEFLECTION AND BLACK FINISH.	NEW PROVIDED BY CONTRACTOR

SCOPE OF WORK

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:
A) MECHANICAL DRAWINGS 45350015 M1 THROUGH M7
B) SPECIFICATION PACKAGE 45350015, AND
C) ALL APPLICABLE CODES, BYLAWS AND BEST-RECOMMENDED PRACTICES

FOR THE PURPOSES OF THIS PROJECT, 'PROVIDE' SHALL MEAN TO SUPPLY AND INSTALL

FOR THE PURPOSES OF THIS PROJECT, 'DEMOLISH' SHALL MEAN MATERIALS AND EQUIPMENT ARE TO BE REMOVED FROM THEIR INSTALLED LOCATION AND DISPOSED OF. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF GARBAGE IN ACCORDANCE WITH CODES, STANDARDS AND REGULATIONS, AND PROVIDE HIS OWN WASTE REMOVAL SERVICES.

WHERE MATERIALS AND EQUIPMENT ARE IDENTIFIED AS 'SALVAGE', THEY SHALL BE REMOVED FROM THEIR INSTALLED LOCATION WITHOUT DAMAGE AND HANDED TO THE OWNER AT THE DESIGNATED DROP LOCATION WITHIN THE FACILITY.

MAKE PRIOR ARRANGEMENTS AND CAREFULLY PLAN THE DISCONNECTING AND SHUT-DOWN OF ANY EQUIPMENT WITH OWNER'S FACILITIES DEPARTMENT. GIVE MINIMUM 48 HRS NOTICE OF ANY SHUT-DOWN.

IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO CAREFULLY COORDINATE HIS WORK WITH THAT OF OWNER'S STAFF FOR THE BEST SUCCESS OF THIS PROJECT.

CONTRACTOR TO:
A. FAMILIARIZE THEMSELVES WITH THE PROJECT SITE AND REPORT ANY DISCREPANCIES OR SITE CONDITIONS WHICH MAY AFFECT WORK TO CONSULTANT PRIOR TO COMMENCING WORK. IF DISCREPANCIES ARE NOT IDENTIFIED PRIOR TO COMMENCING WORK, CONTRACTOR RESPONSIBLE FOR IMPLEMENTING WORKS PER CONSULTANT'S DIRECTION.
B. VERIFY EQUIPMENT ROUTING.
C. VERIFY ALL DIMENSIONS PRIOR TO EQUIPMENT PURCHASE.
D. VERIFY ALL EXISTING DAMPERS AND CONTROLS ARE IN PLACE.
E. PROTECT BUILDING STRUCTURE FROM DAMAGE.
F. ENSURE ADJACENT AREAS ARE NOT AFFECTED BY ANY WORK ON THIS PROJECT.
G. SUBMIT SHOP DRAWINGS OF EQUIPMENT FOR APPROVAL BY THE ENGINEER PRIOR TO COMMENCING ANY WORK OR ORDERING OF ANY EQUIPMENT.
H. OBTAIN RELATED PERMITS TO CARRY OUT THE WORK OF THIS PROJECT.

FURNISH SEISMIC RESTRAINT OF MECHANICAL SYSTEMS IN CONFORMANCE WITH THE ONTARIO BUILDING CODE'S (OBC'S) REQUIREMENTS. ENGAGE A LICENSED STRUCTURAL ENGINEER, WHO PRACTICES UNDER A VALID CERTIFICATE OF AUTHORIZATION ISSUED BY PROFESSIONAL ENGINEERS OF ONTARIO (PEO). PROVIDE WRITTEN CONFIRMATION (SIGNED AND STAMPED) THAT NEW MECHANICAL WORK HAS BEEN COMPLETED IN GENERAL COMPLIANCE WITH THE OBC'S SEISMIC REQUIREMENTS.

CONTRACTOR TO CREATE AND UPDATE A DAILY DETAILED PLAN OF THE AREAS OF WORK AND PROVIDE AHEAD OF CONSTRUCTION TO DEPARTMENTAL REPRESENTATIVE TO ALLOW FOR MOVEMENT OF HISTORICAL OBJECTS THROUGHOUT HOUSE.

THE INTENT OF THIS PROJECT IS TO UPGRADE THE HVAC SYSTEMS IN THE BELLEVUE HOUSE AS WELL AS THE BELLEVUE HOUSE VISITOR CENTRE.

THE NUMBERS INSIDE HEXAGONS SHOWN ON THE PLANS REFER TO THE NUMBERED POINTS BELOW. NOT ALL POINTS ARE SHOWN ON THE PLANS.

FORMS MUST BE FILLED OUT AND SUBMITTED FOR ANY EQUIPMENT REMOVED OR ADDED THAT CONTAINS HALOCARBONS.

- COORDINATE WITH OTHER TRADES PRIOR TO DEMOLITION. ENSURE ELECTRICAL EQUIPMENT IS LOCKED OUT AND TAGGED PRIOR TO COMMENCING WORK.
- DEMOLISH FAN COIL UNIT, FCU-E, IN BASEMENT CRAWL SPACE. DEMOLISH SUPPLY AND RETURN PIPEWORK BACK TO MAIN RUNS AND CAP. DEMOLISH ALL DUCTWORK TO GRILLE. CAP BACK OF GRILLE, CAP TO BE PAINTED MATTE BLACK.
- REFURBISH EXISTING FAN COIL UNITS AS FOLLOWS:
 - COORDINATE WITH ELECTRICAL CONTRACTOR FOR DISCONNECTION OF MOTORS.
 - REMOVE MOTORS AND REFURBISH. REPLACE ALL SEALS AND BEARINGS AND ANY COMPONENTS NOT FUNCTIONING AS INTENDED.
 - CLEAN AND BALANCE FAN SCROLLS. REPLACE ALL BEARINGS.
 - REMOVE COIL FROM UNIT. VACUUM AND BLOW OUT COIL.
 - SAND DOWN CONDENSATE PAN. RELINE CONDENSATE PAN AND REFINISH WITH TWO PART EPOXY PAINT.
 - REMOVE ALL INSULATION FROM PIPES. PROVIDE NEW ARMAFLEX INSULATION ON SUPPLY AND RETURN PIPEWORK.
 - CLEAN OUT CONDENSATE PIPEWORK AND ENSURE FREE OF OBSTRUCTIONS.
 - WHEN REINSTALLING COIL, PROVIDE NEW SILICONE CAULKING WHERE SUPPLY AND RETURN PIPING PASS THROUGH CONDENSATE PAN.
- CUT TOP SECTION OUT OF THE PLEXIGLAS COVERING DISPLAY AREA TO ALLOW FOR BETTER AIRFLOW. COORDINATE WITH PARKS CANADA FOR EXACT LOCATIONS TO CUT.
- PROVIDE NEW PIPEWORK INSULATION ON EXPOSED SECTIONS IN ELECTRICAL CLOSET AND CRAWL SPACE.
- PROVIDE PRE-FABRICATED BOILER HOUSE TO CONTAIN PRE-CONSTRUCTED BOILER PACKAGE, BP-1. COORDINATE WITH OTHER TRADES FOR PLACEMENT AND ALL REQUIREMENTS FOR BOILER HOUSE.
- PROVIDE PRE-CONSTRUCTED BOILER PACKAGE, BP-1, CONSISTING OF TWO BOILERS B-1 AND B-2 WITH INTEGRATED PUMPS, HEATING/COOLING LOOP CIRCULATING PUMPS P-1A AND P-1B, GLYCOL-TO-WATER HEAT EXCHANGER HE-1, GLYCOL FILL STATION, AND ALL PIPEWORK, CONTROLS AND WIRING REQUIRED. PROVIDE EXHAUST FAN EF-1 AND ELECTRIC HEATER EH-1 FOR BOILER HOUSE.
- PROVIDE NEW DIRECT VENTING EXHAUST PIPEWORK FOR B-1 AND B-2. PROVIDE SUPPORTS AND BRACING AS REQUIRED. TERMINATE VENT PIPING PER ALL CODES AND STANDARDS. PROVIDE ALL PIPE LENGTHS, REQUIRED OFFSETS, FLANGES, ADAPTERS AND TERMINATIONS, REQUIRED FOR COMPLETE INSTALLATION. PROVIDE WATERPROOF SEALANT AND ADEQUATELY SEAL AROUND ALL PENETRATIONS MADE FOR EXHAUST PIPEWORK.
- PROVIDE CHILLER, CH-1. PROVIDE ANCHORING OF CHILLER TO EXTERIOR OF BOILER HOUSE. PROVIDE WATERPROOF SEALANT AND ADEQUATELY SEAL AROUND ALL PENETRATIONS. ENSURE NO PENETRATIONS COMPROMISE THROUGH THERMAL BREAK. PROVIDE CONNECTIONS TO HEAT EXCHANGER, HX-1 IN BOILER HOUSE.
- PROVIDE ALL WIRING, CONDUIT AND PROGRAMMING REQUIRED TO SET-UP NEW DDC CONTROL SYSTEM IN BOILER HOUSE WITH ALL CONTROL POINTS, END DEVICES AND ALL OTHER CONTROLS EQUIPMENT LISTED ON DRAWINGS AND PER SEQUENCE OF OPERATIONS AND CONNECT TO NEW DDC CONTROLS SYSTEM.
- PROVIDE NEW WIRELESS CONTROLS FOR FAN COIL UNITS. WIRELESS TRANSMITTER IS TO BE INSTALLED IN LOCATION OF EXISTING LOW VOLTAGE THERMOSTAT. PROVIDE NEW CONTROLLER AND TRANSFORMER INSTALLED INSIDE THE EXISTING FAN COIL UNITS. PROVIDE RECERTIFICATION OF EXISTING FAN COIL UNITS AS REQUIRED. PROVIDE MAIN CONTROLLER, DDC. PROVIDE ALL WIRING, CONDUIT AND PROGRAMMING REQUIRED TO SET-UP NEW DDC CONTROL SYSTEM WITH ALL CONTROL POINTS, END DEVICES AND ALL OTHER CONTROLS EQUIPMENT LISTED ON DRAWINGS AND PER SEQUENCE OF OPERATIONS.
- PROVIDE NEW WIRELESS TEMPERATURE SENSORS AS SHOWN ON THE DRAWING.
- DUE TO TIGHT CLEARANCES AT EXISTING GATE ENTRANCE TO THE BELLEVUE HOUSE GROUNDS, PROVIDE CRANE SERVICES, TRAFFIC CONTROL, RIGGING AND MOVERS REQUIRED TO PLACE NEW BOILER PACKAGE BP-1 BOILER HOUSE, CHILLER CH-1 AND STORAGE BUILDING.
- PROVIDE NEW FLEXIBLE PRE-INSULATED DIRECT BURIED SUPPLY AND RETURN PIPEWORK FROM BOILER HOUSE TO BELLEVUE HOUSE. DEMOLISH EXISTING SUPPLY AND RETURN PIPEWORK AS REQUIRED TO PROVIDE CONNECTIONS TO NEW SUPPLY AND RETURN PIPING. CONNECT NEW PIPING TO EXISTING PIPEWORK IN THE HOUSE AT CONNECTIONS IN CRAWL SPACE. PROVIDE CONNECTIONS AT BOILER HOUSE TO BP-1.
- PROVIDE CONDENSATE NEUTRALIZER AND NEW CONDENSATE LINE TO TERMINATE AT BELLEVUE HOUSE
- UPON COMPLETION OF PROJECT, PROVIDE CHEMICAL TREATMENT AS FOLLOWS: PROVIDE THE SERVICES OF WATER TREATMENT PROFESSIONAL TO SET-UP AND INITIATE THE WATER TREATMENT FOR THIS SYSTEM. PROVIDE A WATER TREATMENT TECHNICIAN AFTER ONE WEEK OF OPERATION TO TEST SOLUTION AND ADJUST SYSTEM FOR BEST LONG-TERM PERFORMANCE
- PROVIDE NEW NATURAL GAS PIPEWORK. COORDINATE INSTALLATION OF NEW GAS PIPEWORK WITH OTHER TRADES AS PIPEWORK IS TO PASS THROUGH LOCATION OF DEMOLISHED TRENCH.
- PROVIDE NEW EXPANSION TANK ET-1 AND AIR PURGER IN BELLEVUE HOUSE CRAWL SPACE. PROVIDE NEW CONNECTION TO DOMESTIC COLD WATER LINE FOR COLD WATER MAKE-UP.
- FILL BOILER AND CHILLED WATER SYSTEMS. BALANCE AND PRESSURIZE SYSTEM. PROVIDE GLYCOL MIXTURE FOR CHILLER, CH-1, CIRCUIT.
- IN THE VISITOR CENTRE, RELOCATE EXISTING DUCTWORK RUN CLOSER TO AIR HANDLING UNIT TO ALLOW ROOM FOR NEW DUCTWORK CONNECTION. PROVIDE ALL DUCTWORK REQUIRED TO ALLOW SPACE FOR NEW DUCTWORK RUN.
- PROVIDE NEW SUPPLY AIR DUCTWORK AND DIFFUSERS IN BELLEVUE HOUSE VISITOR CENTRE AS INDICATED. BALANCE NEW SUPPLY AIR DUCT PER THE AIRFLOWS INDICATED. PENETRATIONS THROUGH KITCHEN CABINETS BY OWNER.
- DEMOLISH SUPPLY AND RETURN PIPEWORK IN VISITOR CENTRE GOING TO BELLEVUE HOUSE, INCLUDING CIRCULATING PUMP CP-E, PIPEWORK, GAUGES, VALVES AND OTHER SPECIALTIES AS INDICATED ON DETAIL. CAP PIPEWORK AT FLOOR LEVEL.
- PROVIDE NEW EXPANSION TANKS ET-2, ET-3 AND AIR PURGERS IN EXISTING BOILER AND CHILLER SYSTEM IN THE VISITOR CENTRE.
- REFILL BOILER AND CHILLER SYSTEM IN THE VISITOR CENTRE. PROVIDE PRESSURIZATION AND AIR REMOVAL OF EXISTING SYSTEM. ENSURE BOILER AND CHILLER ARE SET TO THE RECOMMENDED OPERATING TEMPERATURES.
- IF ANY OBJECT IS FOUND THAT APPEARS TO BE A CULTURAL RESOURCE, ALL WORK MUST BE HALTED IMMEDIATELY AND PARKS CANADA IS TO BE CONTACTED.
- PROVIDE THE SERVICES OF A BALANCING CONTRACTOR TO BALANCE AIR HANDLING UNIT. PROVIDE ALL BELTS AND SHEAVES REQUIRED TO DO SO. BALANCING SHALL OCCUR WITH ALL DAMPERS IN THE FULLY OPEN POSITION. MULTIPLE VISITS/READINGS MAY BE REQUIRED. PROVIDE WRITTEN REPORT(S) FOR EACH TESTING OF EQUIPMENT.
- UPON COMPLETION OF PROJECT, PROVIDE CHEMICAL TREATMENT AS FOLLOWS: PROVIDE THE SERVICES OF WATER TREATMENT PROFESSIONAL TO SET-UP AND INITIATE THE WATER TREATMENT FOR THIS SYSTEM. PROVIDE A WATER TREATMENT TECHNICIAN AFTER ONE WEEK OF OPERATION TO TEST SOLUTION AND ADJUST SYSTEM FOR BEST LONG-TERM PERFORMANCE.
- PROVIDE LAMACODIS FOR NEW EQUIPMENT FOR ALL NEW VALVES PER SPECIFICATIONS.
- CLEAN AREA OF ANY DEBRIS CREATED DURING THE WORK OF THIS PROJECT.
- PROVIDE MINIMUM 6 HOURS OF SITE INSTRUCTION TO OWNER'S STAFF ON OPERATION AND MAINTENANCE OF NEW AND ALTERED SYSTEMS.
- IMMEDIATELY FOLLOWING CONSTRUCTION COMPLETION (MINIMUM CONSTRUCTION COMPLETION LEVELS OUTLINED BELOW), PROVIDE ALL LABOUR AND MATERIALS REQUIRED TO COMMISSION ALL THE ALTERED AND NEW EQUIPMENT. COMMISSIONING SHALL ONLY BE CARRIED OUT IN THE PRESENCE OF PARKS CANADA'S FACILITIES DEPARTMENT.

THE INTENT OF THE COMMISSIONING PROCESS IS TO VERIFY THAT THE EQUIPMENT AND ASSOCIATED SYSTEMS MEET THE SPECIFIED CRITERIA. A DETAILED COMMISSIONING PLAN WILL BE ISSUED AS SUBSTANTIAL COMPLETION ARRIVES.

AFTER CONSTRUCTION COMPLETION, MARK UP DRAWINGS INDICATING ANY AND ALL DEVIATIONS FROM THE DRAWINGS AND PROVIDE TWO COPIES TO OWNER.

PROVIDE O&M MANUALS FOR ALL INSTALLED EQUIPMENT. PROVIDE AS INDICATED IN THE SPECIFICATIONS.



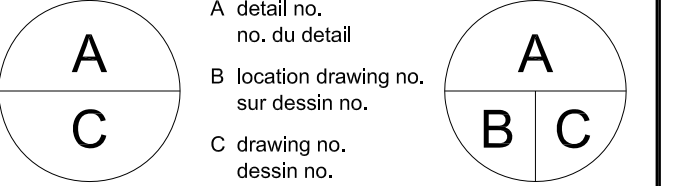
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Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

no.	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

revisions



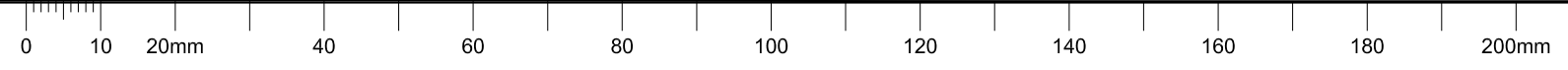
project

BELLEVUE HOUSE HVAC UPGRADE

drawing

MECHANICAL SCOPE OF WORK, MAJOR EQUIPMENT TABLE & LEGEND

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
	MARIA OFFIN	
Project Manager	Administrateur de projets	
Project no.	45350015	No. du projet
Drawing no.	M1	No. du dessin



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3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

revisions	description	date
A	detail no. du detail	A
B	location drawing no. sur dessin no.	B
C	drawing no. dessin no.	C

project projet

BELLEVUE HOUSE HVAC UPGRADE

drawing dessin

MECHANICAL BASEMENT PLAN

Designed By MIRITON Conçu par

Date (yyyy/mm/dd)

Drawn By RR Dessiné par

Date (yyyy/mm/dd)

Reviewed By RJS Examiné par

Date (yyyy/mm/dd)

Approved By Approuvé par

Date (yyyy/mm/dd)

Tender Soumission

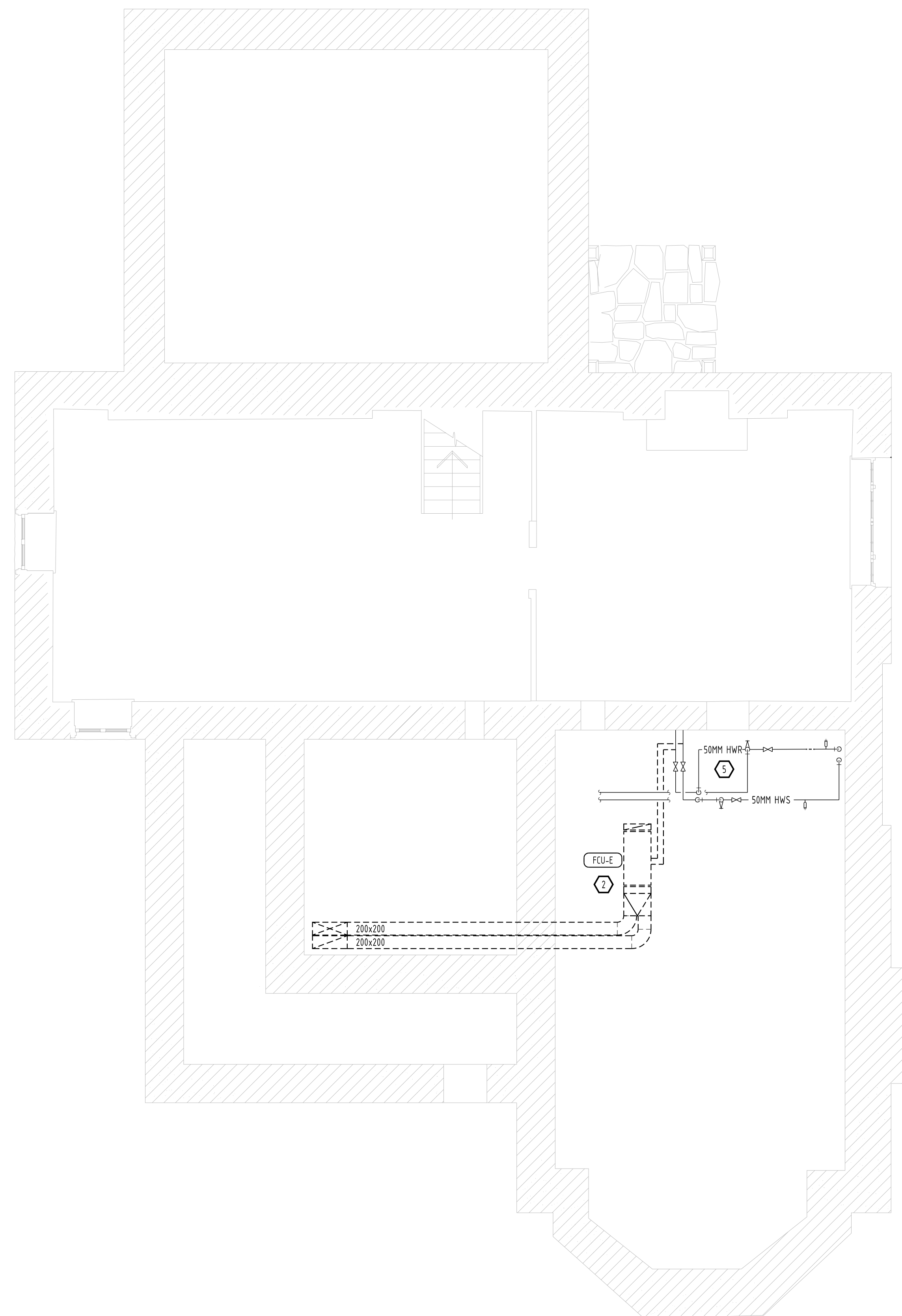
Project Manager MARIA OFFIN Administrateur de projets

Project no. No. du projet

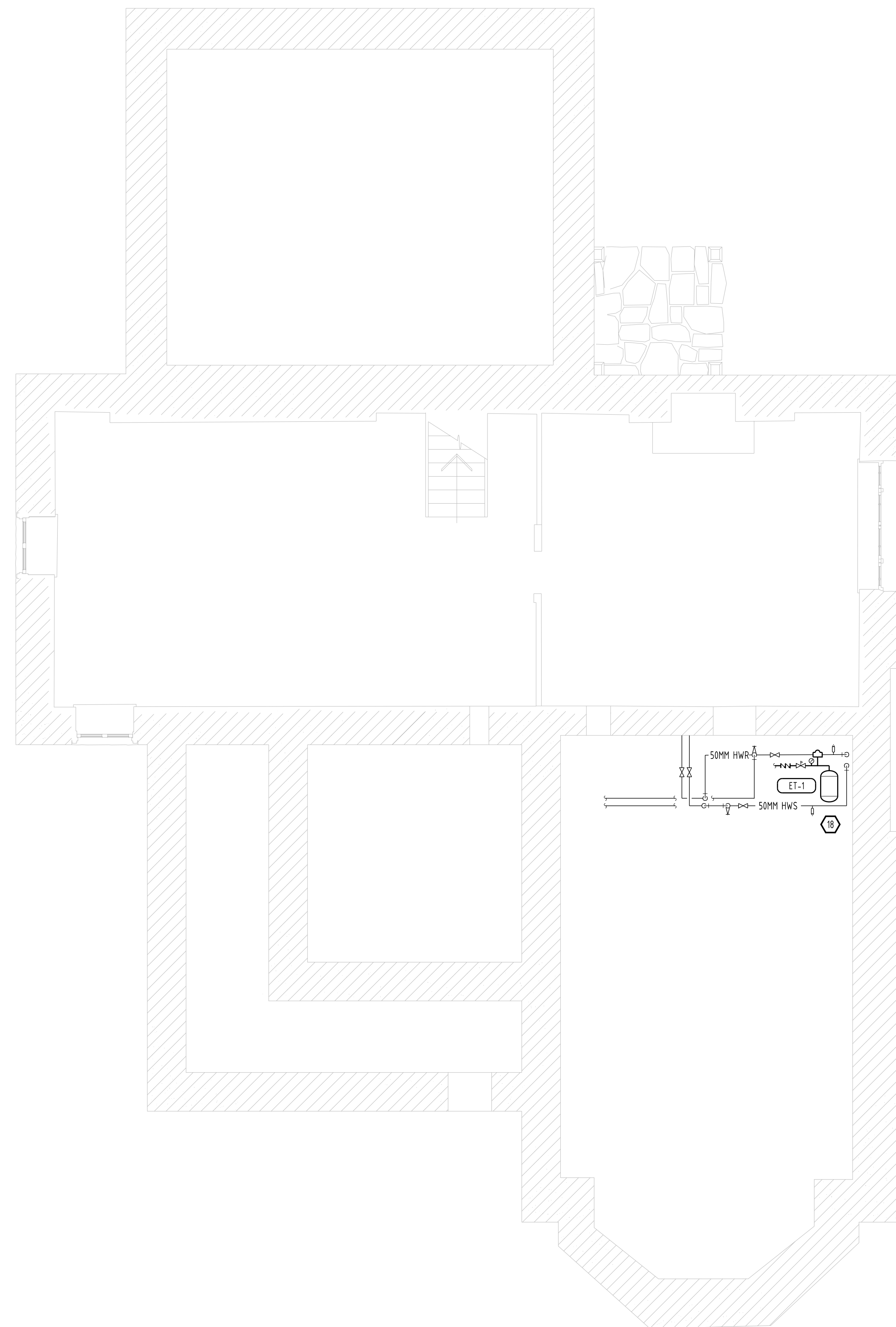
45350015

Drawing no. No. du dessin

M2



1 BASEMENT FLOOR PLAN - DEMOLITION
M2 1:50



2 BASEMENT FLOOR PLAN - NEW
M2 C1:50



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Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A C	A B C
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project / projet

**BELLEVUE HOUSE
HVAC UPGRADE**

drawing / dessin

**MECHANICAL
GROUND FLOOR PLAN**

Designed By / Conçu par

Date / (yyyy/mm/dd)

Drawn By / Dessiné par

Date / (yyyy/mm/dd)

Reviewed By / Examiné par

Date / (yyyy/mm/dd)

Approved By / Approuvé par

Date / (yyyy/mm/dd)

Tender / Soumission

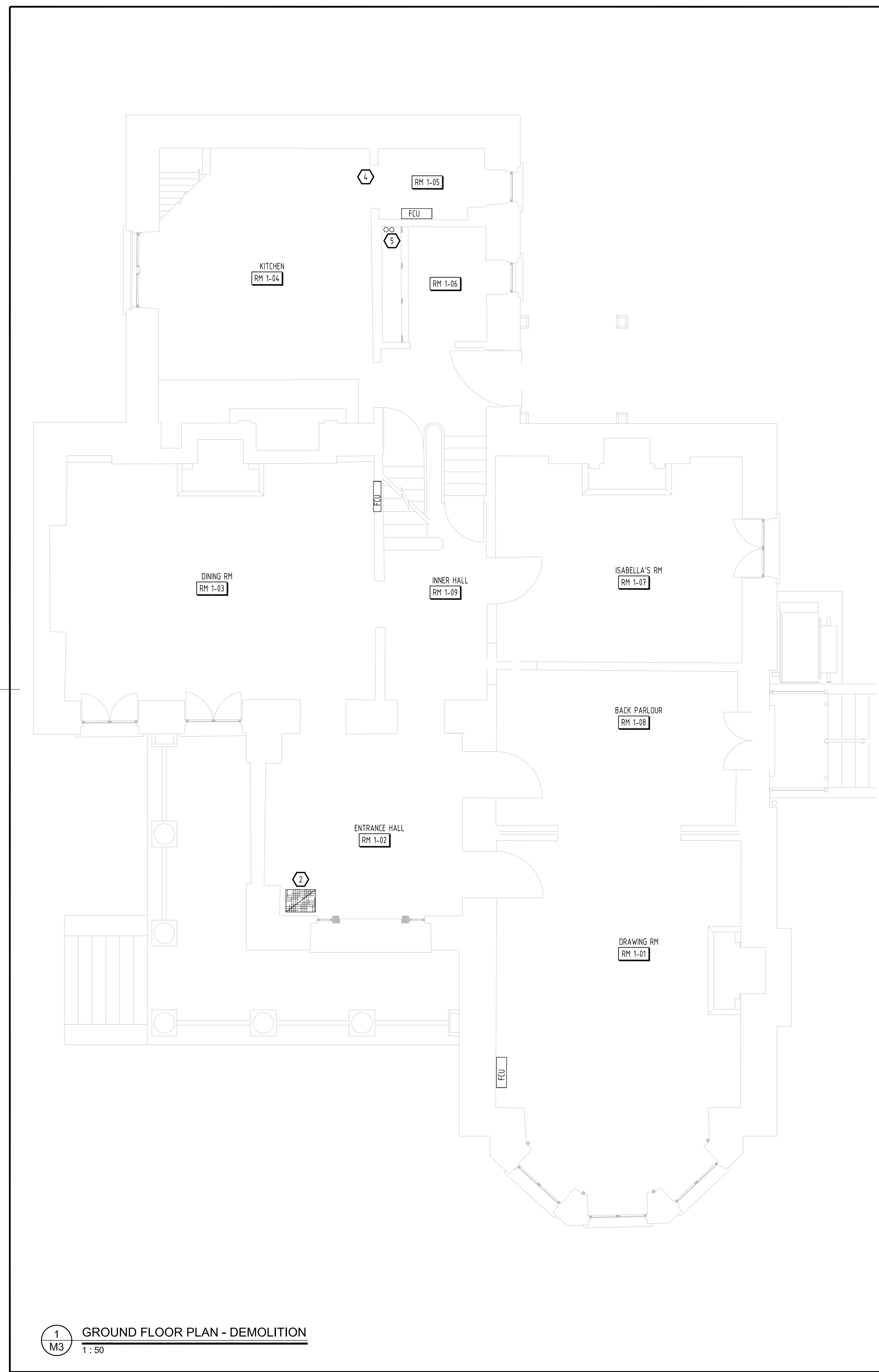
Project Manager / Administrateur de projets

Project no. / No. du projet

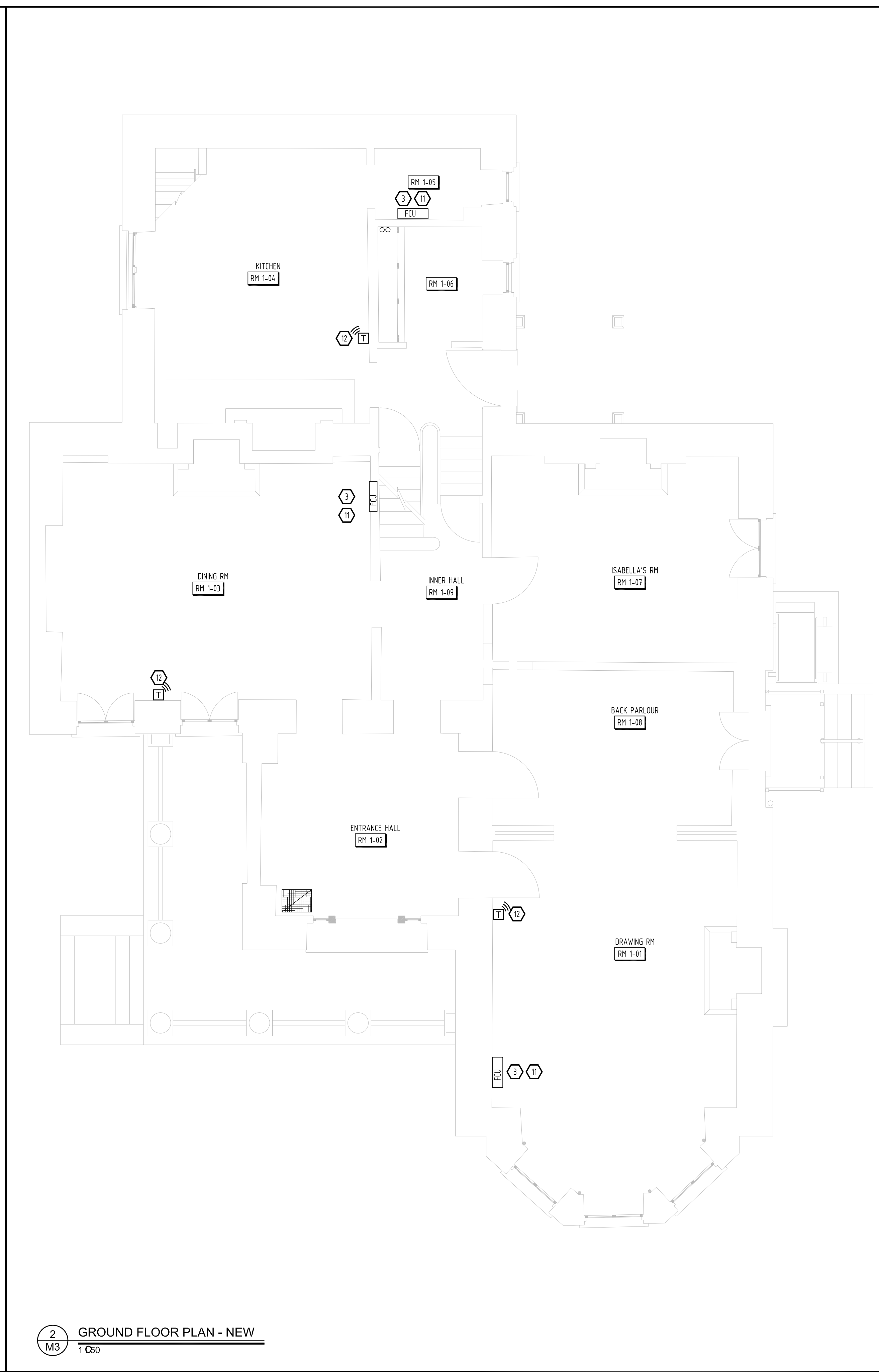
45350015

Drawing no. / No. du dessin

M3



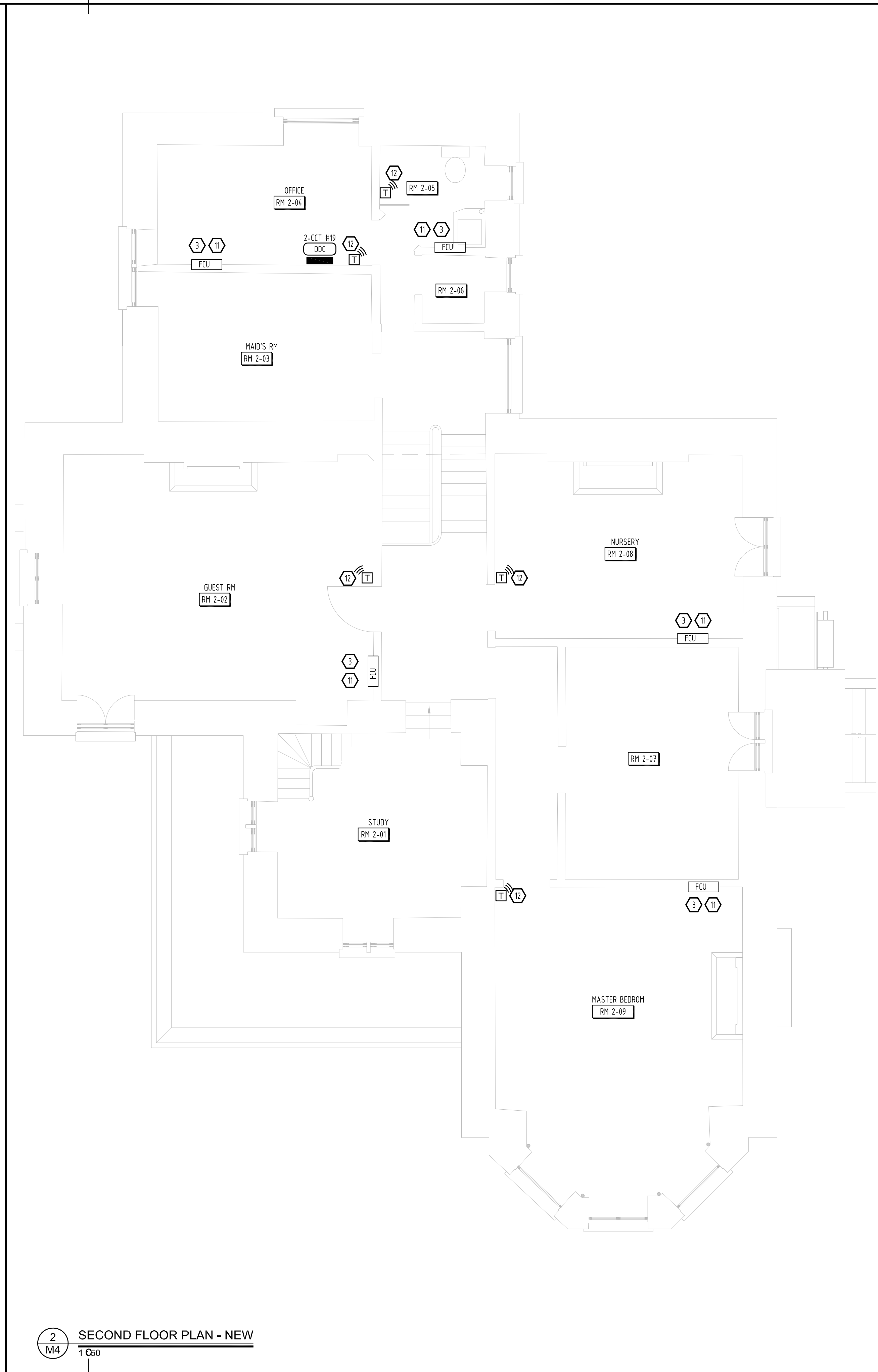
1 GROUND FLOOR PLAN - DEMOLITION
M3 1:50



2 GROUND FLOOR PLAN - NEW
M3 1:50



1 SECOND FLOOR PLAN - DEMOLITION
M4 1:50



2 SECOND FLOOR PLAN - NEW
M4 1:50

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revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A C	A B C
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project projet

**BELLEVUE HOUSE
HVAC UPGRADE**

drawing dessin

**MECHANICAL
SECOND FLOOR PLAN**

Designed By MIRITON Conçu par

Date (yyyy/mm/dd)

Drawn By RR Dessiné par

Date (yyyy/mm/dd)

Reviewed By RJS Examiné par

Date (yyyy/mm/dd)

Approved By Approuvé par

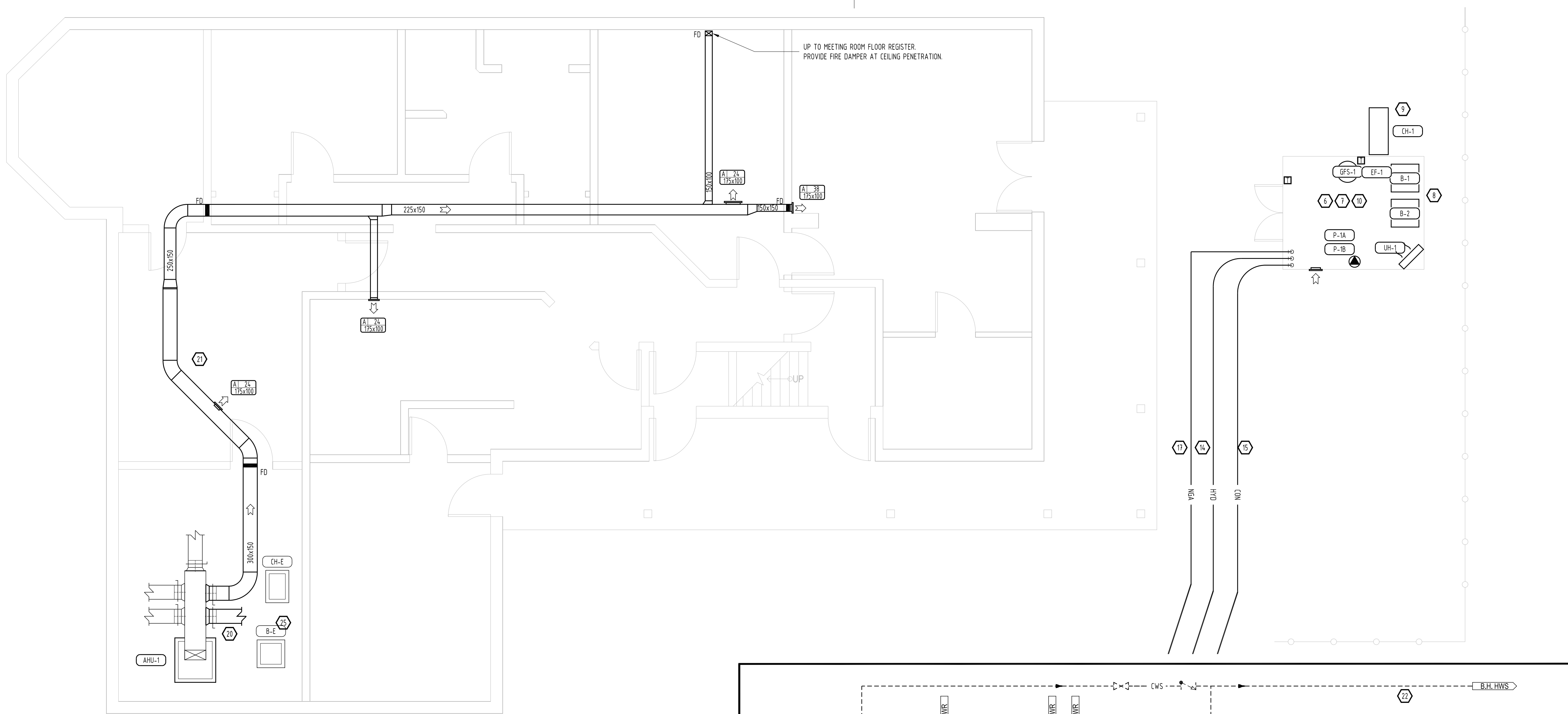
Date (yyyy/mm/dd)

Tender Soumission

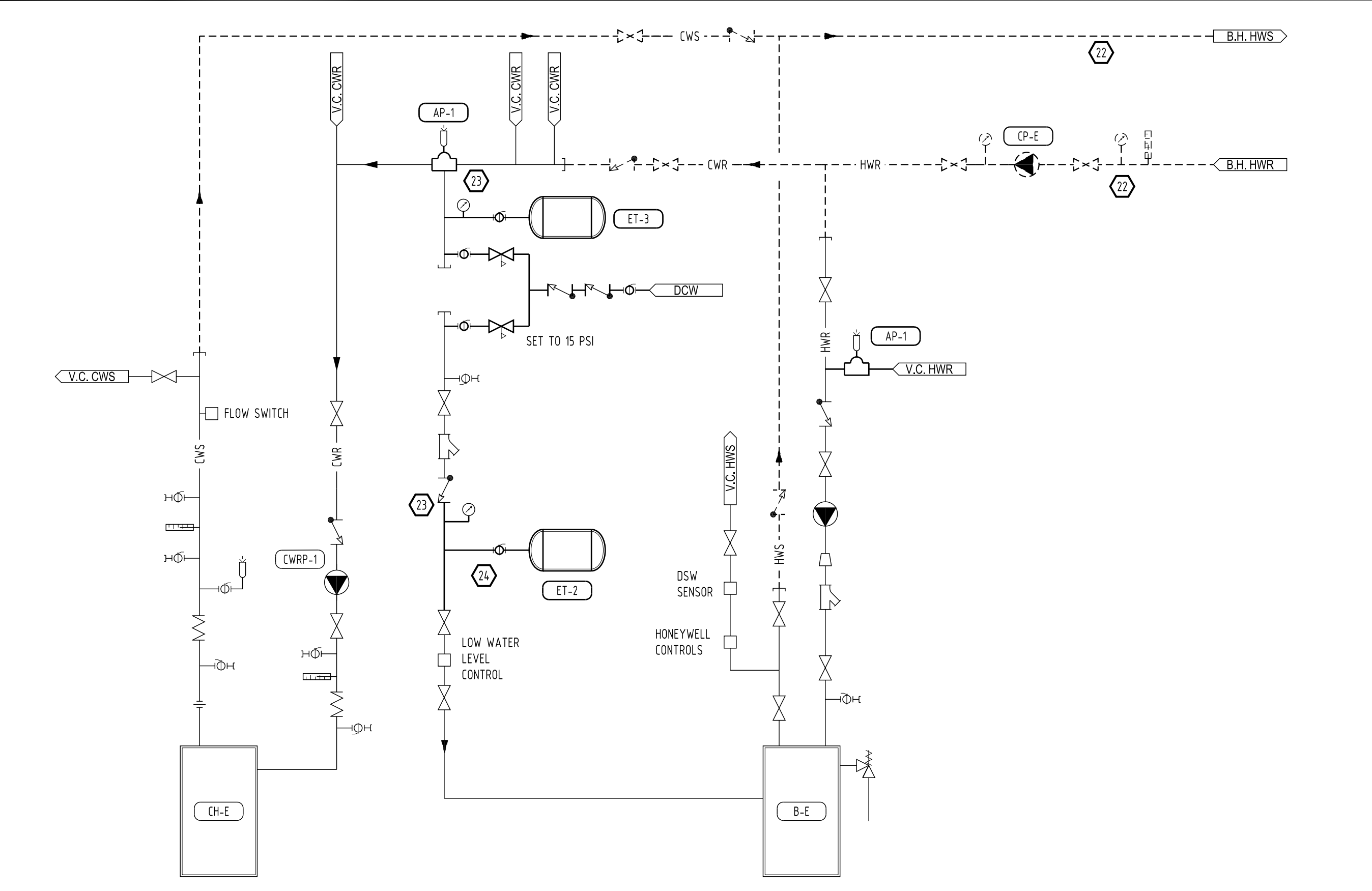
Project Manager MARIA OFFIN Administrateur de projets

Project no. 45350015 No. du projet

Drawing no. M4 No. du dessin



1 VISITOR CENTRE BASEMENT FLOOR PLAN - NEW
M5 1:50



2 SCHEMATIC - EXISTING HEATING AND COOLING SYSTEM
M5 NTS C



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Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A	A
C	B C

project projet

BELLEVUE HOUSE
HVAC UPGRADE

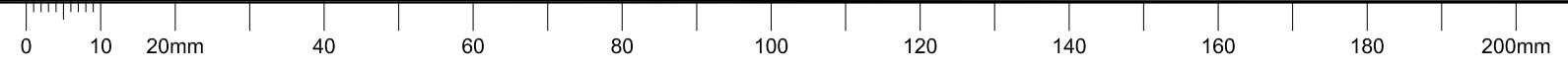
drawing dessin

MECHANICAL
VISITOR CENTRE
BASEMENT PLAN AND
SCHEMATIC

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.		No. du projet
	45350015	
Drawing no.		No. du dessin
	M5	



1 VISITOR CENTRE GROUND FLOOR PLAN - NEW
M6 1:50



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Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

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project projet

**BELLEVUE HOUSE
HVAC UPGRADE**

drawing dessin

**MECHANICAL
VISITOR CENTRE
GROUND FLOOR PLAN**

Designed By MIRITON Conçu par
Date (yyyy/mm/dd)

Drawn By RR Dessiné par
Date (yyyy/mm/dd)

Reviewed By RJS Examiné par
Date (yyyy/mm/dd)

Approved By Approuvé par
Date (yyyy/mm/dd)

Tender MARIA OFFIN Soumission
Project Manager Administrateur de projets

Project no. 45350015 No. du projet

Drawing no. M6 No. du dessin



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Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

revisions	description	date									
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A	A detail no. du détail	A									
C	B location drawing no. sur dessin no.	B									
	C drawing no. dessin no.	C									

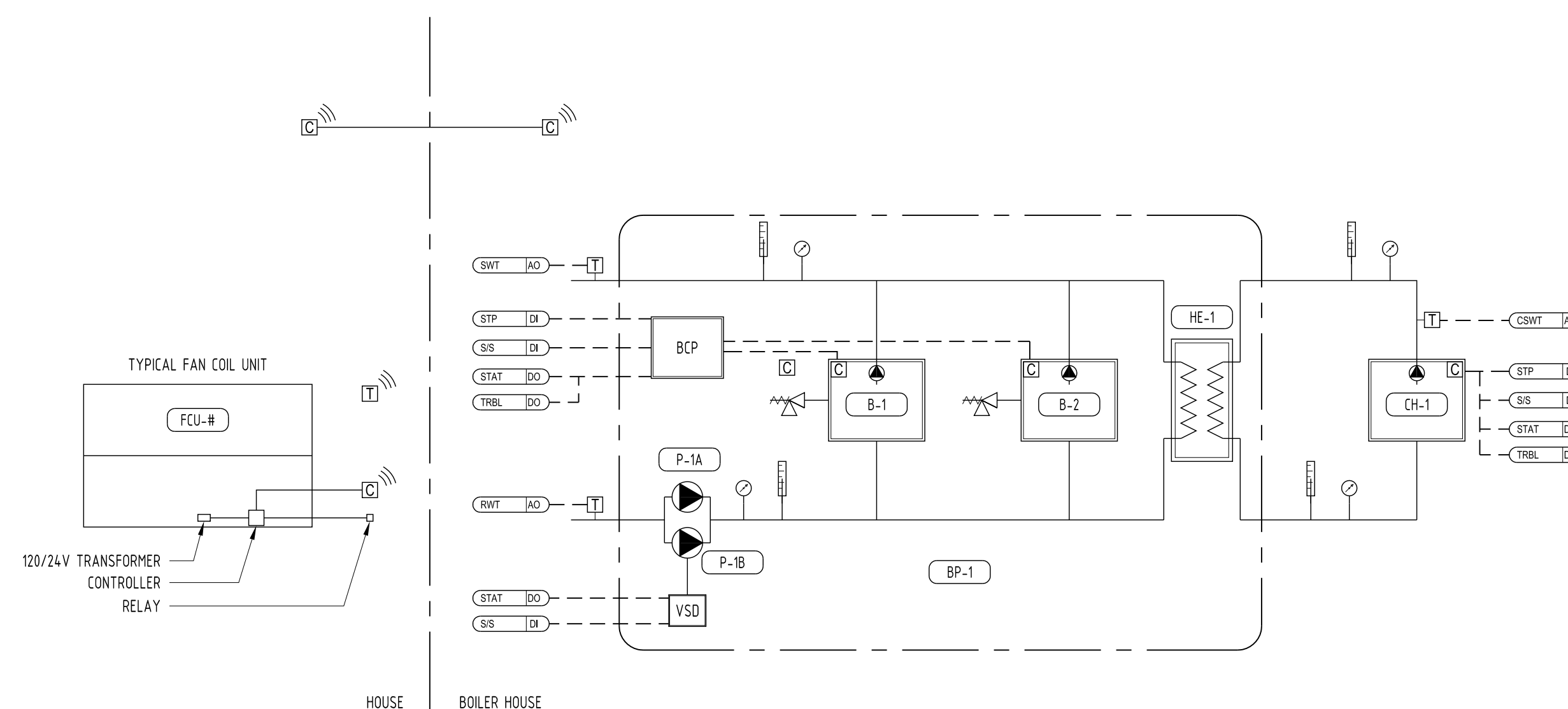
project projet

BELLEVUE HOUSE HVAC UPGRADE

drawing dessin

MECHANICAL SCHEMATIC AND CONTROL SEQUENCE OF OPERATION

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	RJS	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.		No. du projet
	45350015	
Drawing no.		No. du dessin
	M7	



1 SCHEMATIC - NEW HEATING AND COOLING SYSTEM M7 NTS

CONTROLS SEQUENCE OF OPERATION

THIS WORK TO BE PERFORMED BY SINGLE SOURCE CONTROLS CONTRACTOR AS DESCRIBED IN THE SCOPE OF WORK.

IT IS THE CONTROLS CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE CONTROLS SEQUENCE AND POINTS ARE PROVIDED AND OPERATE AS DESCRIBED HERE.

CONTROL STRATEGY

THE CONTROL SYSTEM FOR THIS PROJECT IS TO BE A STANDALONE DIRECT DIGITAL CONTROL (DDC) SYSTEM, ACCESSIBLE REMOTELY VIA INTERNET AND ABLE TO MONITOR, ADJUST SETPOINTS AND INITIATE SEQUENCES REMOTELY.

THE EXISTING 2-PIPE FAN COIL UNITS WILL BE PROVIDED HEATING WATER DURING HEATING SEASON AND CHILLED WATER DURING COOLING SEASON.

THE EXISTING FAN COIL UNITS SHALL BE CONTROLLED THROUGH THE DDC AND INTEGRATED INTO THE CONTROL SEQUENCES.

HYDRONIC CIRCUIT

UPON ACTIVATION OF EITHER HEATING OR COOLING SEQUENCE, CIRCULATING PUMP P-1H SHALL BE INITIATED. P-1A AND P-1B ARE IDENTICAL UNITS, ARRANGED IN A DUPLEX FASHION, WITH ONE UNIT IN OPERATION AND ONE UNIT IN STAND-BY. DUPLEX PUMP CONTROLLER SHALL COORDINATE PUMP OPERATION TO START STAND-BY PUMP UPON FAILURE SENSED AT ACTIVE PUMP AND ALTERNATE LEAD/LAG OF PUMPS TO SHARE DUTY. P-1H SHALL BE STARTED OR STOPPED FROM EITHER THE HAND/OFF/AUTO (H/O/A) SWITCH WHEN IN THE 'HAND' POSITION, OR FROM THE DDC CONTROL SYSTEM WHEN THE H/O/A SWITCH IS IN THE 'AUTO' POSITION.

HEATING SEQUENCE

BOILERS AND PUMPS

START/STOP

WHEN INITIATED BY THE DDC, OR FROM THE BOILER CONTROL PANEL BCP, HEATING SEQUENCE SHALL BEGIN.

THE LOCAL BCP SHALL START/STOP EACH OF THE BOILERS. EACH BOILER'S ASSOCIATED CIRCULATION PUMP (P-1A AND B-1B) SHALL BE COMMANDED TO RUN BY THE BOILER'S ON BOARD CONTROL SYSTEM.

EACH BOILER SHALL ONLY START (FIRE) IF ALL SAFETY DEVICES AT THAT BOILER ARE SATISFIED.

TEMPERATURE CONTROL

BOILER FIRING SHALL BE CONTROLLED BY THE BCP TO SATISFY THE HEATING WATER SUPPLY TEMPERATURE SETPOINT RECEIVED AND ADJUSTED BY DDC.

THE BCP SHALL MODULATE BOILER OUTPUTS AND OPERATION BASED ON AN OUTDOOR TEMPERATURE RESET SCHEDULE.

OUTDOOR AIR RESET SCHEDULE, INITIAL SETPOINTS (ADJUSTABLE)

OUTDOOR TEMP. (°C)	SUPPLY WATER TEMP.(°C)	NOTES
11	55	MIN. SUPPLY WATER TEMP
5	58	
7	62	
-18	70	MAX. SUPPLY WATER TEMP

BOILER SEQUENCING

SEQUENCING SHALL BE PERFORMED WITH THE ON BOARD MICROPROCESSOR CONTROL PANEL(S) SUPPLIED WITH THE BOILER.

SHOULD TEMPERATURE OF HEATING WATER SUPPLY, MEASURED AT SYSTEM SUPPLY TEMPERATURE SENSOR, SWT-1, FALL BELOW 30°C OR RISE TO ABOVE 80°C DURING HEATING OPERATION, THE DDC SYSTEM SHALL ANNUNCIATE THE OUT OF SPECIFICATION CONDITION.

CHILLER AND PUMP

START/STOP

WHEN INITIATED BY THE DDC, OR FROM THE CHILLER CONTROL PANEL CCP, COOLING SEQUENCE SHALL BEGIN.

CH-1 PUMP, CP-1, SHALL BE COMMANDED TO RUN BY CCP.

CH-1 SHALL ONLY START IF ALL SAFETY DEVICES C ARE SATISFIED.

TEMPERATURE CONTROL

THE CIRCUITS AND STAGES OF CH-1 SHALL BE CONTROLLED BY THE CCP TO SATISFY THE CHILLED WATER SUPPLY TEMPERATURE SETPOINT RECEIVED AND ADJUSTED BY DDC

SHOULD TEMPERATURE OF CHILLED WATER SUPPLY, MEASURED AT SYSTEM SUPPLY TEMPERATURE SENSOR, TS-1, FALL BELOW 4°C OR RISE TO ABOVE 12°C DURING OPERATION, THE DDC SYSTEM SHALL ANNUNCIATE THE OUT OF SPECIFICATION CONDITION.

FAN COIL UNITS (EXISTING)

THE EXISTING FAN COIL UNITS SHALL BE CONTROLLED BY NEW WIRELESS TO LINE VOLTAGE CONTROLS AT THE FAN COIL UNITS. NEW CONTROL SHALL START AND STOP THE FAN COIL UNIT FANS TO ACHIEVE ROOM SETPOINT AS SENSED AT RT AND ADJUSTABLE THROUGH DDC.

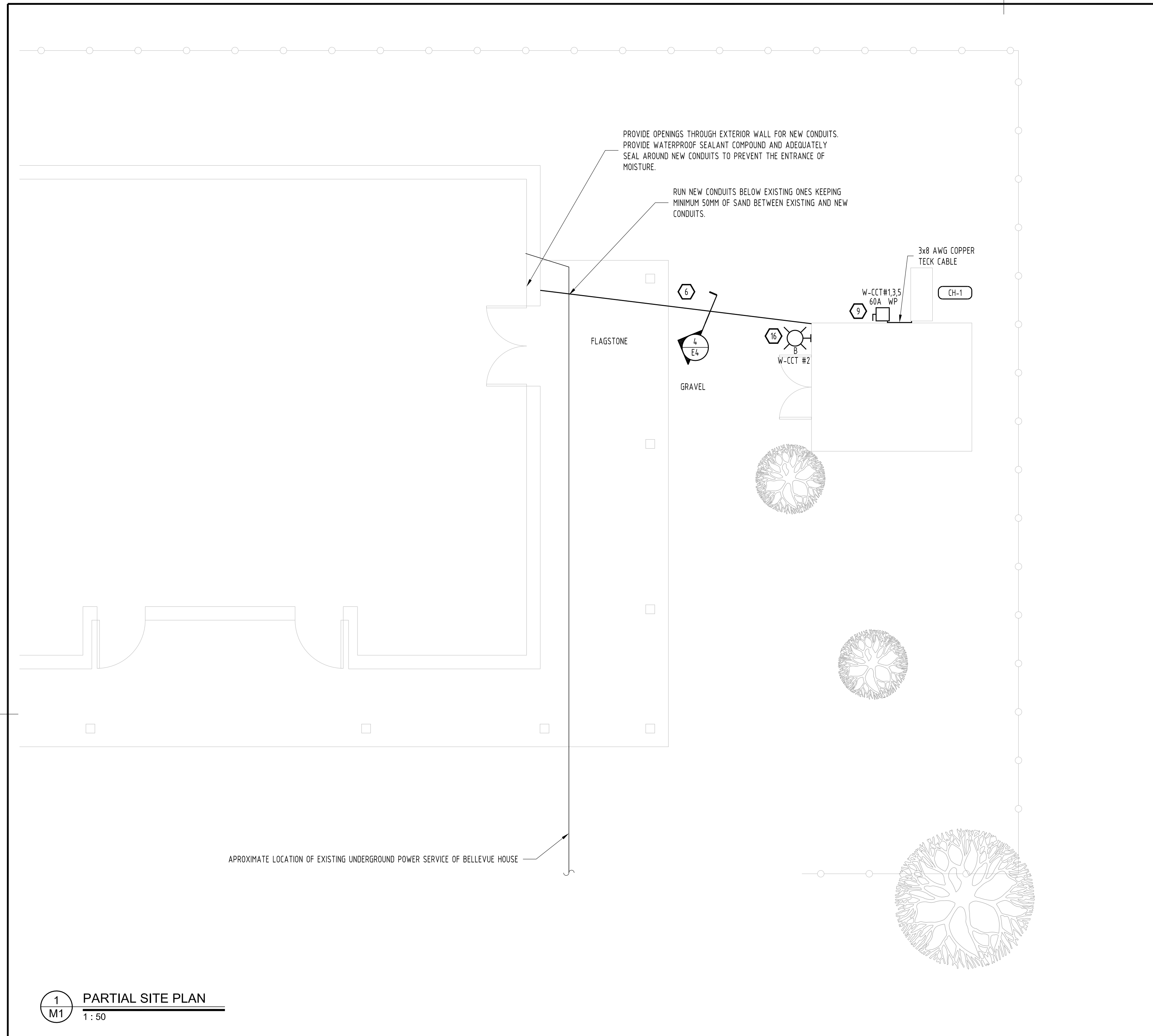
OCCUPANCY SCHEDULES AND SETBACK SCHEDULES SHALL BE DEVELOPED AND PROGRAMMED IN CONSULTATION WITH THE END-USER CLIENT.

THE TEMPERATURE AND ROOM HUMIDITY IN EACH ROOM SHALL BE SENSED AT EACH NEW ROOM SENSOR (WIRELESS). T. TEMPERATURE SENSORS INDICATED SHALL BE DUEL FUNCTION (TEMPERATURE AND HUMIDITY). PROVIDE TEMPERATURE AND HUMIDITY TRENDRING FOR EACH DEVICE.

SHOULD TEMPERATURE SENSED AT RT BE OUT OF SPECIFICATION THE DDC SYSTEM SHALL ANNUNCIATE THE OUT OF SPECIFICATION CONDITION. TEMPERATURE LOW AND HIGH LIMITS SHALL INITIALLY SET (ADJUSTABLE) TO:

WINTER OPERATION: LOW LIMIT = 10°C, HIGH LIMIT = 25°C

SUMMER OPERATION: LOW LIMIT = 15°C, HIGH LIMIT = 30°C



1 PARTIAL SITE PLAN
M1 1:50

SCHEDULE PANEL W									
VOLTAGE (L-N):		120	ENCLOSURE TYPE:		TYPE 1				
VOLTAGE (L-L):		208	MOUNTING:		SURFACE				
PHASES, WIRES:		3 φ 4W	MIN. AIC RATING (A):		14KA				
MINIMUM BUS CAPACITY (A):		100 A	LOCATION:		BOILER HOUSE				
MAIN CIRCUIT BREAKER (A):		100 A							
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASES A B C	POLE	TRIP AMPS	DESCRIPTION	CKT NO	
1,3,5	CHILLER CH-1	45	3		1	15	LIGHTING	2	
					1	20	20A RECEPTACLE	4	
					1	15	CONTROLS PANEL BCP-1	6	
7,9,11	MAIN LOOP PUMP P-1A	15	3		1	15	EXHAUST FAN EF-1	8	
					1	15	GLYCOL PUMP GFS-1	10	
13,15,17	MAIN LOOP PUMP P-1B	15	3		2	15	UNIT HEATER UH-1	12,14	
					1	15	BOILER 1	16	
					1	15	BOILER 2	18	
19	---SPARE---	15	1		1	20	---SPARE---	20	
21	---SPARE---	15	1		1	20	---SPARE---	22	
23	---SPARE---	15	1		1	20	---SPARE---	24	
25	---SPACE---						---SPACE---	26	
27	---SPACE---						---SPACE---	28	
29	---SPACE---						---SPACE---	30	

LUMINAIRE SCHEDULE				
TYPE	DESCRIPTION	MOUNTING	LAMPS	CONTROL
A	1X1 LINEAR LED FIXTURE 120V 44W INPUT DRIVER FROSTED POLYCARBONATE LENS MEDIUM DISTRIBUTION ENERGY EFFICIENCY CERTIFIED 5-YEAR WARRANTY	SURFACE	5000K 80CRI LED	LOCAL SWITCH
B	LED EXTERIOR WALL LUMINAIRE 120V 39W INPUT DRIVER DARK BRONZE FINISH MEDIUM DISTRIBUTION RATED AT -40C MINIMUM AMBIENT COMPLETE WITH PHOTOCELL ENERGY EFFICIENCY CERTIFIED 5-YEAR WARRANTY	WALL MOUNTED	5000K 65CRI LED	PHOTOCELL

SCOPE OF WORK

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH:
 A) ELECTRICAL DRAWINGS 45350015 E1 THROUGH E4, NOTES,
 B) SPECIFICATION PACKAGE 45350015 AND
 C) ALL APPLICABLE CODES, BYLAWS AND BEST-RECOMMENDED PRACTICES.

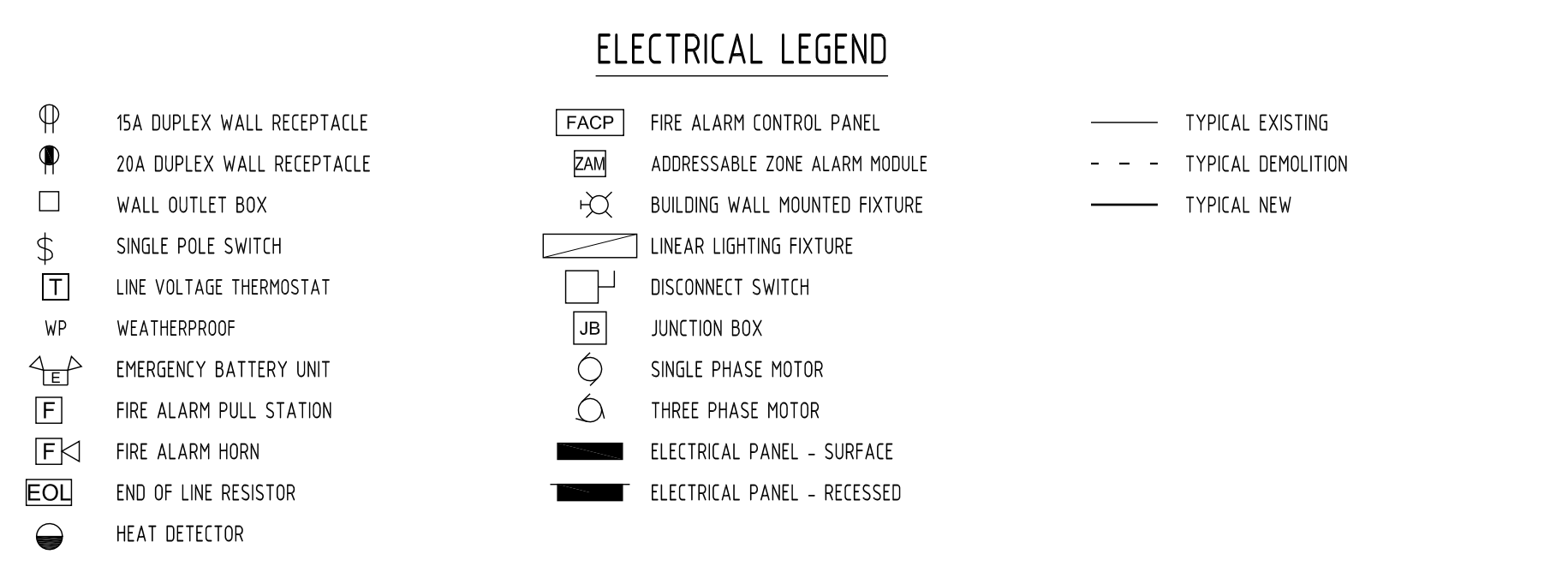
FOR THE PURPOSES OF THIS PROJECT, 'PROVIDE' SHALL MEAN TO SUPPLY, INSTALL, CONNECT AND TEST.
 FOR THE PURPOSES OF THIS PROJECT, 'DEMOLISH' SHALL MEAN MATERIALS AND EQUIPMENT ARE TO BE REMOVED FROM THEIR INSTALLED LOCATION AND DISPOSED OF. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF GARBAGE IN ACCORDANCE WITH CODES, STANDARDS AND REGULATIONS, AND PROVIDE HIS OWN WASTE REMOVAL SERVICES.

WHERE MATERIALS AND EQUIPMENT ARE IDENTIFIED AS 'SALVAGE', THEY SHALL BE REMOVED FROM THEIR INSTALLED LOCATION WITHOUT DAMAGE AND HANDED TO THE OWNER AT THE DESIGNATED DROP LOCATION WITHIN THE FACILITY.

- CONTRACTOR TO:
- DURING TENDER PHASE, FAMILIARIZE THEMSELVES WITH THE TENDER DRAWINGS AND THE PROJECT SITE, AND REPORT TO THE ENGINEER ANY CONFLICTS OR SITE CONDITIONS WHICH MAY AFFECT WORK. IF THIS PROCEDURE IS NOT FOLLOWED, THE CONTRACTOR WILL BE RESPONSIBLE TO COMPLETE WORK REQUIRED.
 - VERIFY EQUIPMENT ROUTING.
 - VERIFY ALL LIGHTING VOLTAGES BEFORE STARTING WORK.
 - DEMOLISH ALL ITEMS MARKED FOR DEMOLITION BACK TO SOURCE.
 - VERIFY ALL DIMENSIONS PRIOR TO EQUIPMENT PURCHASE.
 - PROTECT BUILDING STRUCTURE FROM DAMAGE.
 - ENSURE ADJACENT AREAS ARE NOT AFFECTED BY ANY WORK ON THIS PROJECT.
 - OBTAIN RELATED PERMITS TO CARRY OUT THE WORK OF THIS PROJECT.

THE INTENT OF THIS PROJECT IS TO UPGRADE THE HVAC SYSTEMS IN THE BELLEVUE HOUSE AS WELL AS THE BELLEVUE HOUSE VISITOR CENTRE.
 THE NUMBERS INSIDE HEXAGONS SHOWN ON THE PLANS REFER TO THE NUMBERED POINTS BELOW. NOT ALL POINTS ARE SHOWN ON THE PLANS.

- DEMOLISH POWER SUPPLY WIRING OF EXISTING FAN COIL UNIT, FCU-E, TO THEIR CLOSEST JUNCTION BOX WITHIN THE BASEMENT. INVESTIGATE AND DETERMINE THE WIRING'S SOURCE PANEL AND CIRCUIT NUMBER. MAKE SAFE THE ENDS OF THE WIRING CONDUCTORS WITHIN THE JUNCTION BOX AND MARK THEM AND THEIR CIRCUIT BREAKER AS SPARE.
- DEMOLISH POWER SUPPLY WIRING, ONE CONTROL CONTACTOR, AND ONE DISCONNECT SWITCH OF EXISTING PUMP, CP-E, BACK TO SOURCE PANEL, PANEL-Y. MARK THE REMOVED WIRING'S CIRCUIT BREAKER AS SPARE.
- RELOCATE ONE EXISTING LIGHTING FIXTURE AS INDICATED.
- DEMOLISH EXISTING LINE VOLTAGE THERMOSTATS OF EXISTING FAN COIL UNITS, MAKE SAFE EXISTING WIRING AND PROVIDE TEMPORARILY BLANK COVERS OVER THE EXISTING DEVICE BOXES. NEW CONTROL DEVICES AND THEIR REQUIRED WIRING WILL BE PROVIDED BY A LICENSED ELECTRICAL CONTRACTOR ENGAGED BY MECHANICAL.
- PROVIDE ONE 15A BRANCH CIRCUIT COMPLETE WITH NEW 15A CIRCUIT BREAKER FROM PANEL 2 CIRCUIT NUMBER 19 FOR POWER SUPPLY TO DDC CONTROL PANEL.
- FURNISH SERVICES OF A SERVICE LOCATOR FIRM PRIOR TO COMMENCING DIGGING WORK. HAND DIG WITHIN MINIMUM 1M AS MEASURED HORIZONTALLY FROM THE FIELD MARKING PROVIDED BY THE SERVICE LOCATOR FIRM. CONTRACTORS ARE RESPONSIBLE FOR REPAIRING COSTS OF ANY POTENTIAL DAMAGES TO EXISTING UNDERGROUND SYSTEMS. PROVIDE EXCAVATION, TRENCHING, BACKFILL, AND REINSTATEMENT OF ALL EXISTING SURFACES AS INDICATED AND IN DETAILS.
- PROVIDE ONE NEW BRANCH PANEL, PANEL-W, COMPLETE WITH CIRCUIT BREAKERS AS PER PANEL SCHEDULE AND ITS POWER FEEDER COMPLETE WITH NEW CIRCUIT BREAKER AS INDICATED AND IN SINGLE LINE DIAGRAM.
- PROVIDE TWO CONDUITS (ONE FOR MECHANICAL CONTROLS AND THE OTHER AS SPARE), BOXES, AND PULL STRINGS AS INDICATED. TERMINATE EACH CONDUIT END TO AN INDIVIDUAL BOX. LOCATE THE CONDUIT BOXES IN NEW BOILER HOUSE AND IN THE BASEMENT OF VISITOR CENTRE.
- PROVIDE POWER SUPPLY TO NEW CHILLER UNIT, CH-1, AS INDICATED AND IN PANEL-W SCHEDULE.
- PROVIDE POWER SUPPLY TO NEW UNIT HEATER, UH-1, AND INSTALL NEW LINE VOLTAGE THERMOSTAT AS INDICATED AND IN PANEL-W SCHEDULE. NEW UNIT HEATER AND THERMOSTAT WILL BE SUPPLIED BY MECHANICAL.
- PROVIDE POWER SUPPLY TO NEW EXHAUST FAN, EF-1, AND INSTALL NEW LINE VOLTAGE THERMOSTAT AS INDICATED AND IN PANEL-W SCHEDULE. NEW EXHAUST FAN AND THERMOSTAT WILL BE SUPPLIED BY MECHANICAL.
- PROVIDE POWER SUPPLY TO NEW BOILERS (B-1, B-2) AND CONTROL PANEL, BCP-1, AS INDICATED AND IN PANEL-W SCHEDULE.
- PROVIDE POWER SUPPLY TO MAIN LOOP CIRCULATING PUMPS (P-1A, P-1B) AS INDICATED AND IN PANEL-W SCHEDULE.
- PROVIDE POWER SUPPLY TO NEW GLYCOL PUMP, GFS-1, AS INDICATED AND IN PANEL-W SCHEDULE.
- PROVIDE ONE 20A RECEPTACLE AND ITS BRANCH WIRING AS INDICATED AND IN PANEL-W SCHEDULE.
- PROVIDE NEW LIGHTING FIXTURES AND THEIR CONTROLS AS INDICATED, AND IN LUMINAIRE AND PANEL-W SCHEDULES.
- PROVIDE EMERGENCY LIGHTING (ONE BATTERY UNIT COMPLETE WITH DOUBLE-HEAD), ONE 15A 120V RECEPTACLE DEDICATED FOR THE NEW BATTERY UNIT, AND THEIR WIRING AS INDICATED. CONNECT AC POWER SUPPLY OF NEW BATTERY UNITS RECEPTACLE TO UN-SWITCHED SIDE OF LIGHTING CIRCUIT.
- PROVIDE FIRE ALARM AUDIBLE DEVICES AND THEIR WIRING AS INDICATED. NEW AUDIBLE DEVICES SHALL MATCH EXISTING DEVICES AND SHALL BE CAPABLE TO INTEGRATE FULLY WITH THE BUILDING'S FIRE ALARM SYSTEM. CONNECT NEW AUDIBLE DEVICES TO THE EXISTING FIRE ALARM AUDIBLE CIRCUIT WITHIN THE BASEMENT OF VISITOR CENTRE. DO NOT EXCEED 80 PERCENT OF RATING OF THE EXISTING AUDIBLE CIRCUIT. PROVIDE AN ADDITIONAL AUDIBLE CIRCUIT ABOVE THOSE EXISTING CIRCUITS IF REQUIRED TO MEET THIS REQUIREMENT. PROVIDE UPDATED BATTERY CALCULATIONS AND ENSURE THAT THE EXISTING FIRE ALARM CONTROL PANEL'S BATTERY SET IS CAPABLE TO PROVIDE SUPERVISORY POWER FOR NOT LESS THAN 24 HOURS AND IMMEDIATELY FOLLOWING, EMERGENCY POWER UNDER FULL LOAD FOR NOT LESS THAN 30 MINUTES TO ITS EXISTING AND NEWLY ADDED LOADS.
- PROVIDE FIRE ALARM INITIATING DEVICES AND WIRING AS INDICATED AND IN PARTIAL FIRE ALARM DIAGRAM.
- PROVIDE FIRE WATCH PERSONNEL AS REQUIRED DURING ANY SHUT-DOWN OR NOT OPERATIONAL EQUIPMENT OF EXISTING OR NEW FIRE ALARM SYSTEM. MINIMIZE DURATIONS OF INTERRUPTIONS. ORGANIZE AND COMPLETE WORK IN SUCH A MANNER THAT EXISTING OR NEW FIRE ALARM SYSTEM IS ADEQUATELY AND FULLY OPERATIONAL WHENEVER FIRE WATCH IS NOT PROVIDED.
- FURNISH SEISMIC RESTRAINT OF ELECTRICAL SYSTEMS IN CONFORMANCE WITH THE ONTARIO BUILDING CODE'S REQUIREMENTS. ENGAGE A LICENSED STRUCTURAL ENGINEER, WHO PRACTICES UNDER A VALID CERTIFICATE OF AUTHORIZATION ISSUED BY PEO, PROVIDE WRITTEN CONFIRMATION (SIGNED AND STAMPED) THAT NEW ELECTRICAL WORK HAS BEEN COMPLETED IN GENERAL COMPLIANCE WITH THE OBC'S SEISMIC REQUIREMENTS.
- TRACE ALL CIRCUITS RELATED TO THIS PROJECT AND PROVIDE NEATLY TYPED, UPDATED CIRCUIT DIRECTORIES IN A PLASTIC HOLDER ON THE INSIDE DOORS OF THEIR PANELBOARDS, WITH A COPY IN MANUAL.
- PROVIDE FIRESTOPPING AROUND NEW CONDUITS AND CABLES AT FIRE RATED PENETRATIONS AND SEAL FLOORS, WALLS, CEILING OPENINGS WITH FIRESTOPPING COMPOUND AFTER REMOVAL OF EXISTING CONDUITS AND CABLES AS REQUIRED.
- IDENTIFY ALL PULL BOXES, JUNCTION BOXES, FIXTURES, CONTROL PANELS, MOTOR STARTERS, VFD AND DISCONNECT SWITCHES WITH TYPED IDENTIFICATION LABELS INDICATING PANEL AND CIRCUIT NUMBERS.
- PROVIDE ALL REQUIRED SCAFFOLDING, LADDERS, RIGGING, HOISTING AND ALL OTHER EQUIPMENT TO FULLY COMPLETE THE WORK REQUIRED UNDER THIS PROJECT.
- TEST AND CHECK THE ELECTRICAL SYSTEMS PERTAINING TO THIS PROJECT FOR THEIR CORRECT OPERATION. PROVIDE TESTING OF NEW EQUIPMENT, INCLUDING JOG OR PHASE ROTATION TEST AND OTHER TESTS AS RECOMMENDED BY EQUIPMENT MANUFACTURERS TO ENSURE ADEQUATE CONNECTION AND PROPER OPERATION.
- PROVIDE O&M MANUALS FOR ALL INSTALLED EQUIPMENT (TWO COPIES IN BINDERS).



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Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies. Drawings are to be read as a package and are not intended to be separated and viewed individually by discipline.

revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A	A
C	B C

project BELLEVUE HOUSE HVAC UPGRADE project

drawing dessin

ELECTRICAL SCOPE OF WORK, PARTIAL SITE PLAN, LEGEND, SCHEDULES AND DETAILS

Designed By MIRITON Conçu par
 Date (yyyy/mm/dd)
 Drawn By RR Dessiné par
 Date (yyyy/mm/dd)
 Reviewed By AB Examiné par
 Date (yyyy/mm/dd)
 Approved By Approuvé par
 Date (yyyy/mm/dd)
 Tender Soumission
 MARIA OFFIN
 Project Manager Administrateur de projets
 Project no. 45350015 No. du projet
 Drawing no. E1 No. du dessin

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revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

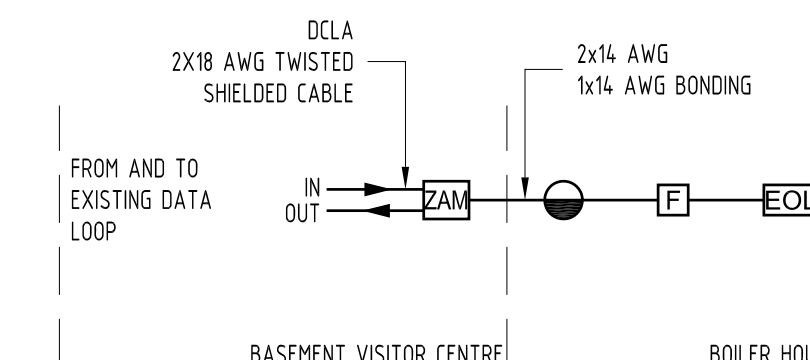
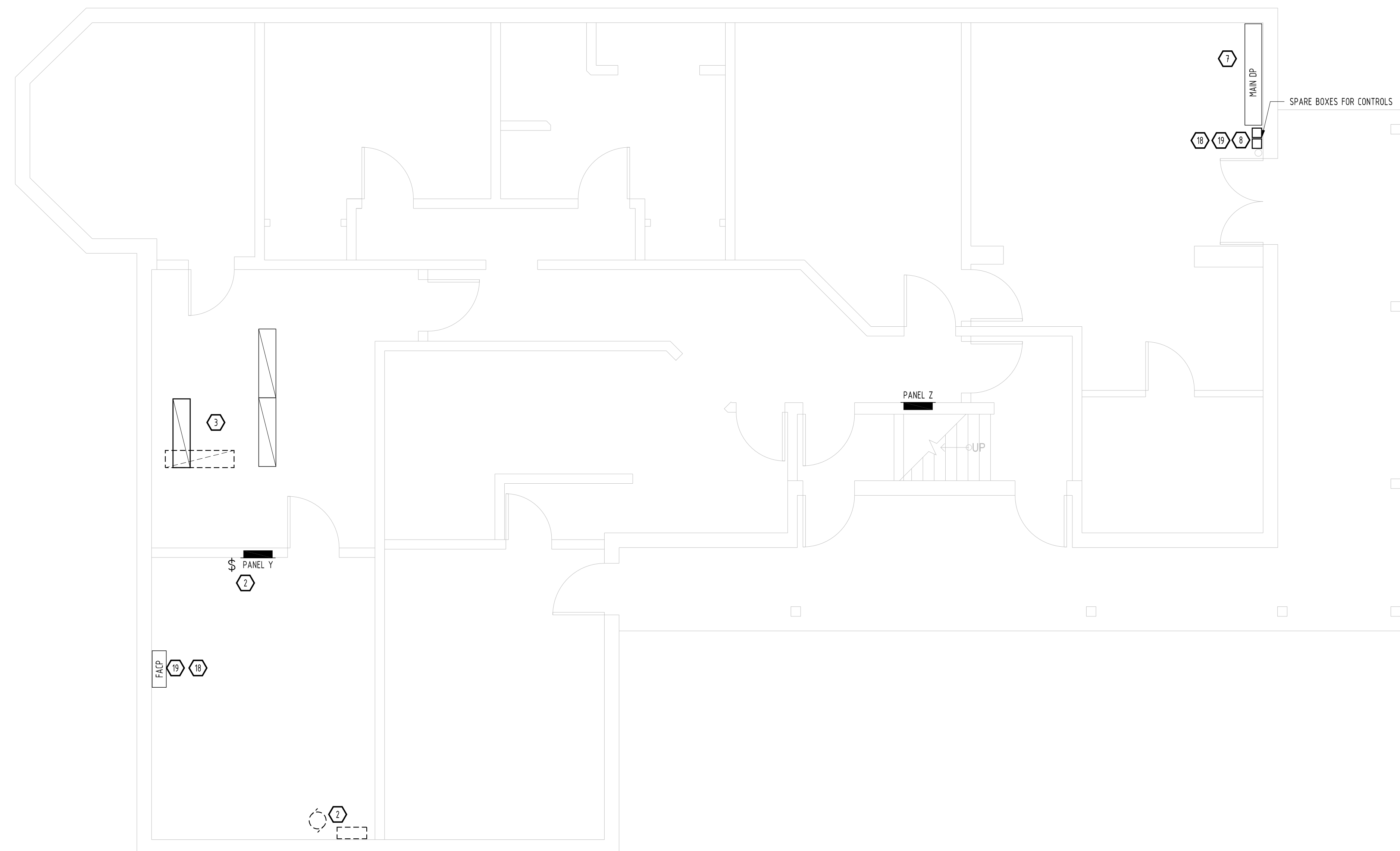
revisions	description	date
A	A detail no. no. du detail	A
B	B location drawing no. sur dessin no.	B C
C	C drawing no. dessin no.	

project BELLEVUE HOUSE HVAC UPGRADE

drawing E2
dessin
ELECTRICAL VISITOR CENTRE BASEMENT PLAN AND PARTIAL F.A. DIAGRAM

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	AB	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender	MARIA OFFIN	Soumission
Project Manager	Administrateur de projets	
Project no.	45350015	No. du projet

Drawing no. E2 No. du dessin

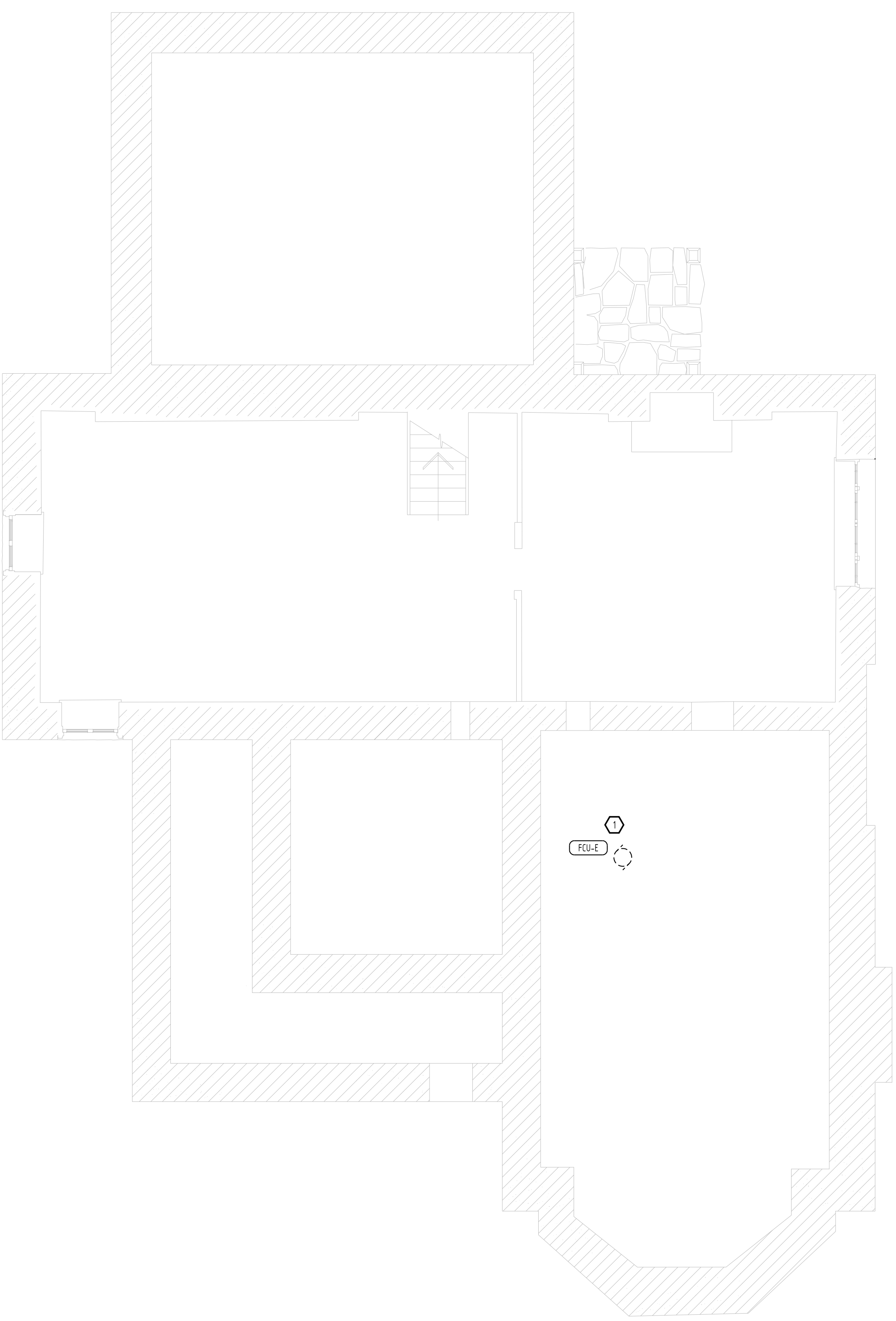


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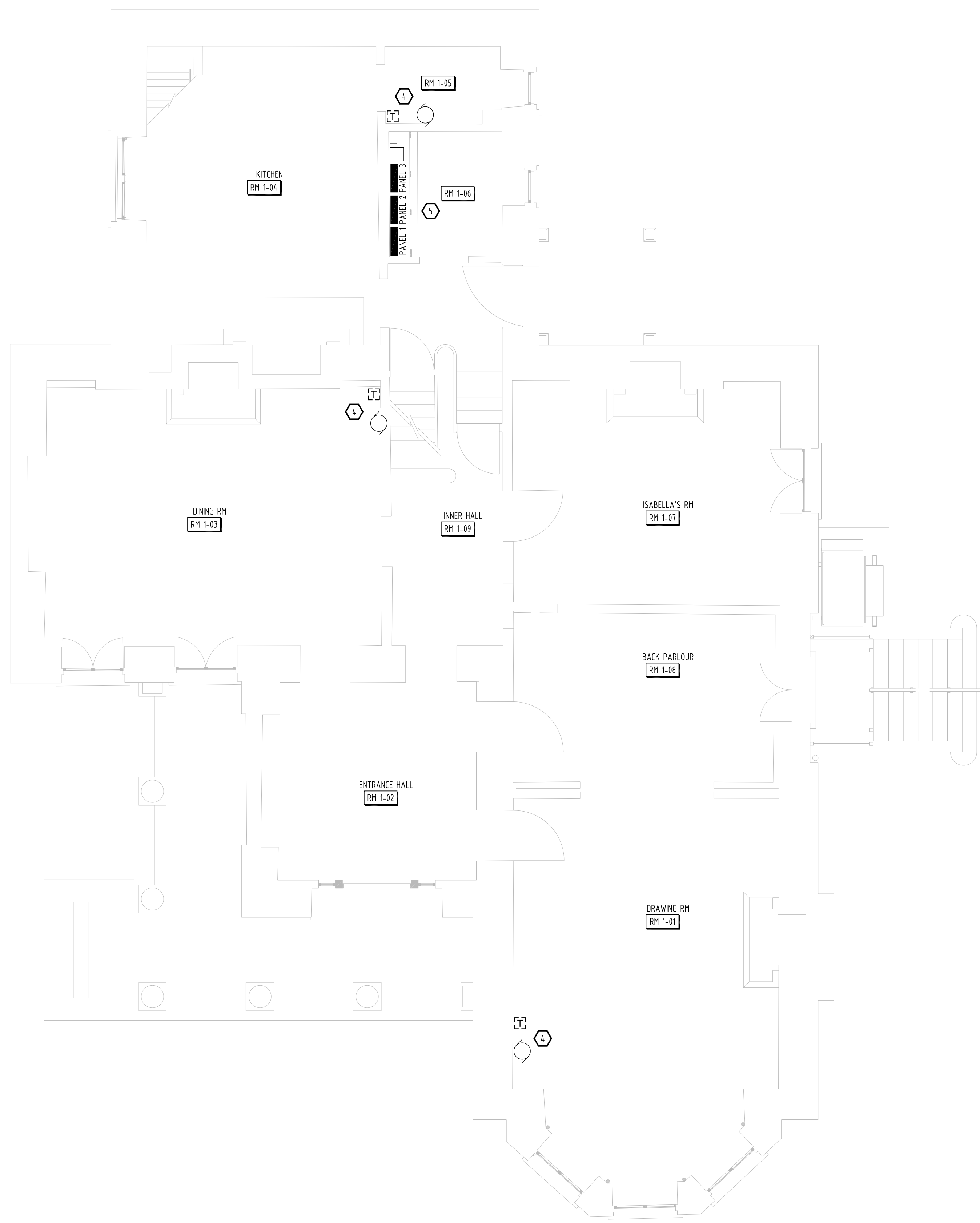
- ZAM: ADDRESSABLE ZONE ALARM MODULE SHALL BE FULLY COMPATIBLE WITH EXISTING FIRE ALARM CONTROL PANEL, SIEMENS MXL-10.
- CONNECT NEW DATA COMMUNICATION LOOP (DCLA) WIRING IN A CLASS A CONFIGURATION TO THE EXISTING DCLA WITHIN THE BASEMENT.

1 VISITOR CENTRE BASEMENT FLOOR PLAN
E2 1:50

2 PARTIAL INITIATING FIRE ALARM DIAGRAM
E2 NTS



1 BASEMENT FLOOR PLAN
E3 1:50



2 GROUND FLOOR PLAN
E3 1:50 C

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revisions	description	date
3	ISSUED FOR TENDER	2015/08/07
2	ISSUED FOR 90% REVIEW	2015/06/22
1	ISSUED FOR 66% REVIEW	2015/05/25

A C	A B C
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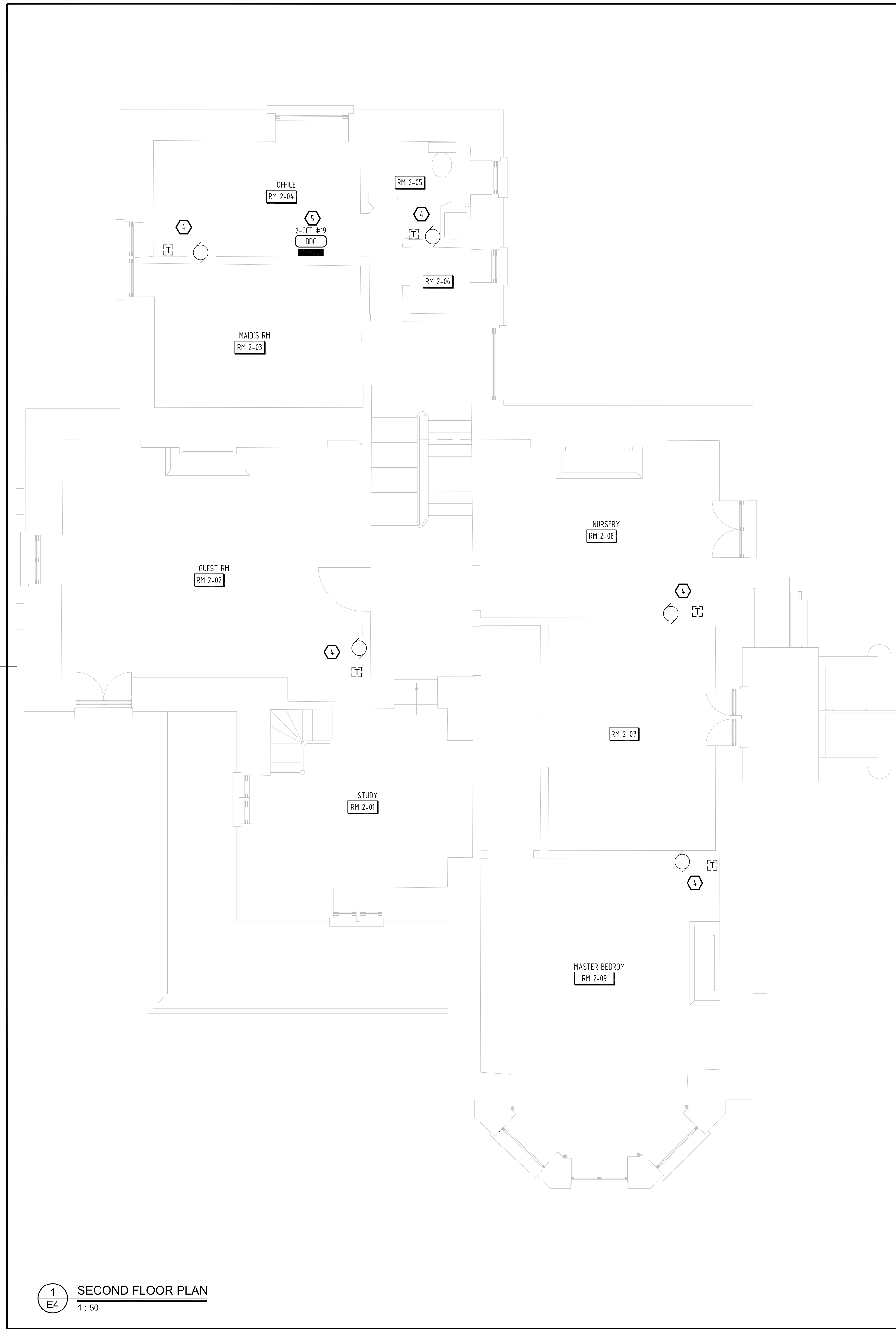
project BELLEVUE HOUSE HVAC UPGRADE

drawing E3
dessin ELECTRICAL FLOOR PLANS

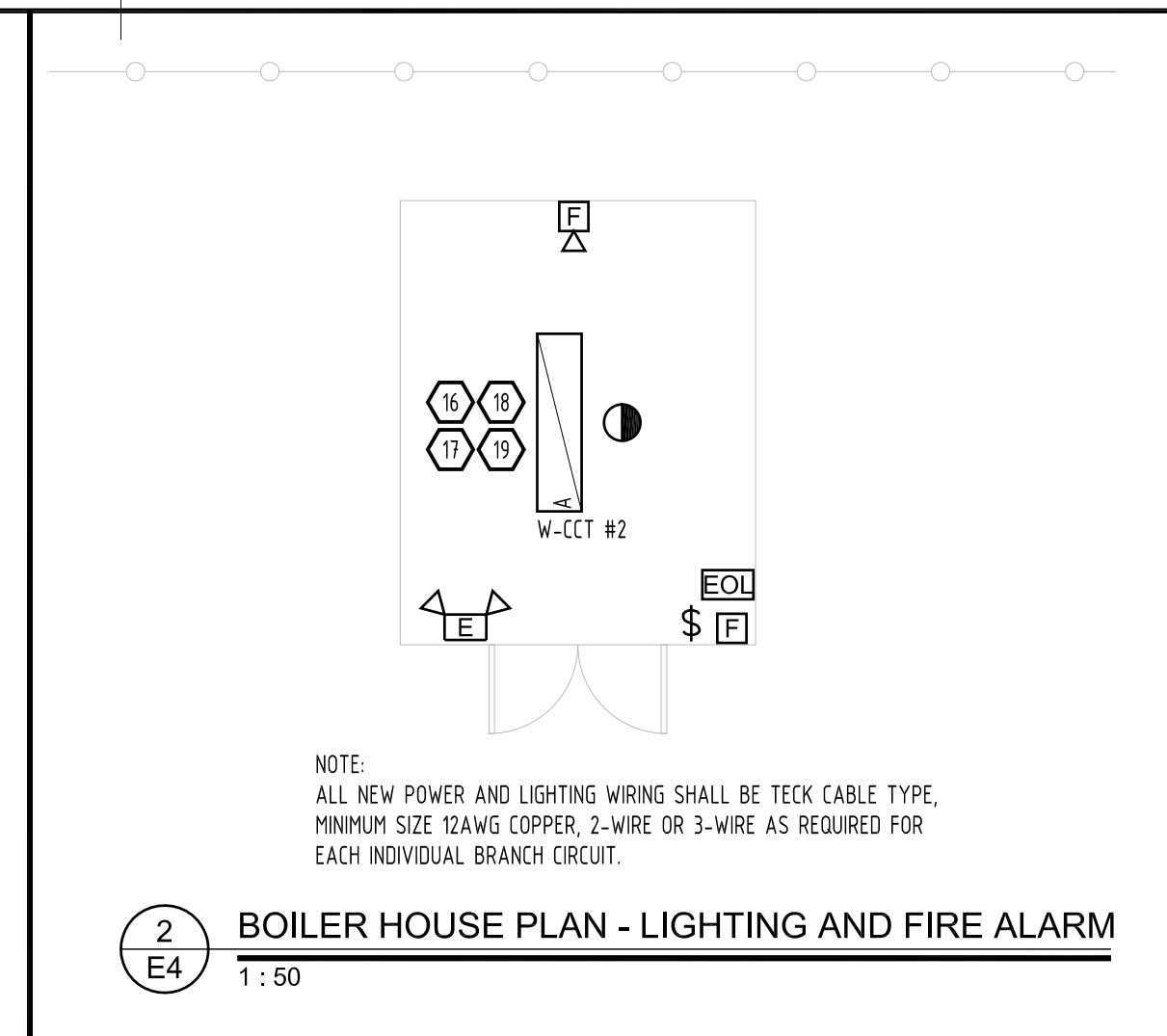
Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	AB	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission

Project Manager MARIA OFFIN
Administrateur de projets
Project no. 45350015
No. du projet

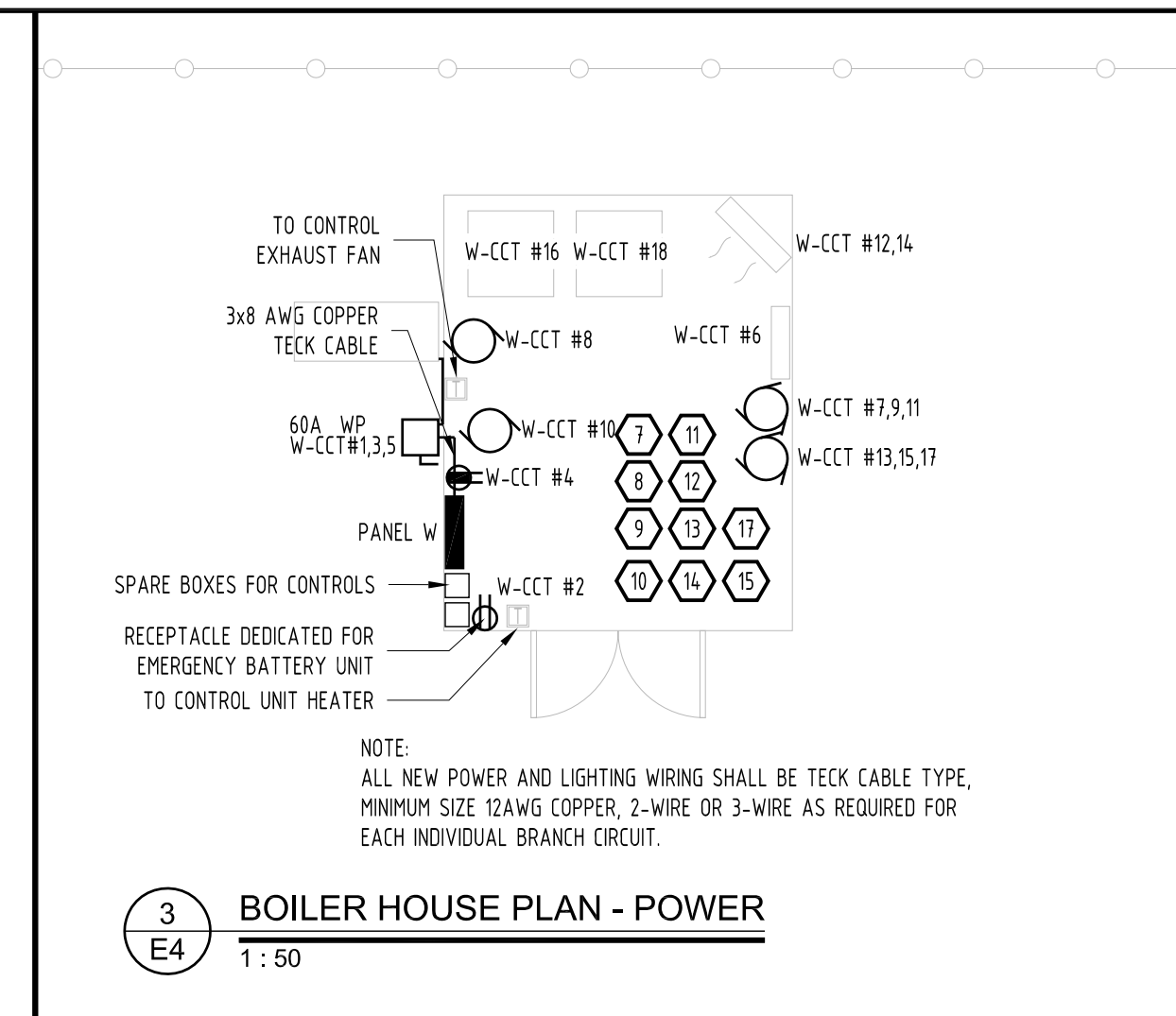
Drawing no. E3
No. du dessin



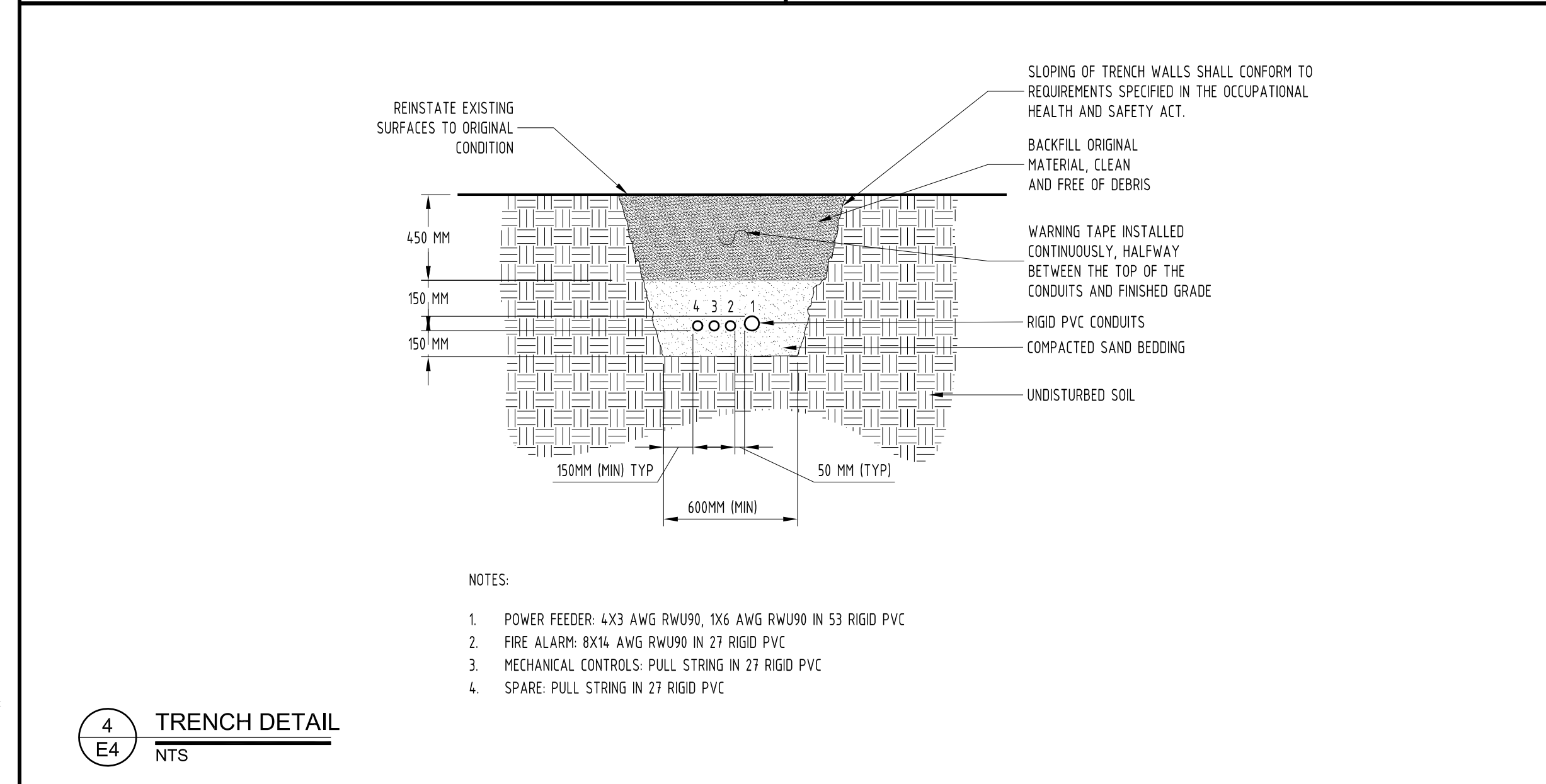
1 SECOND FLOOR PLAN
E4 1:50



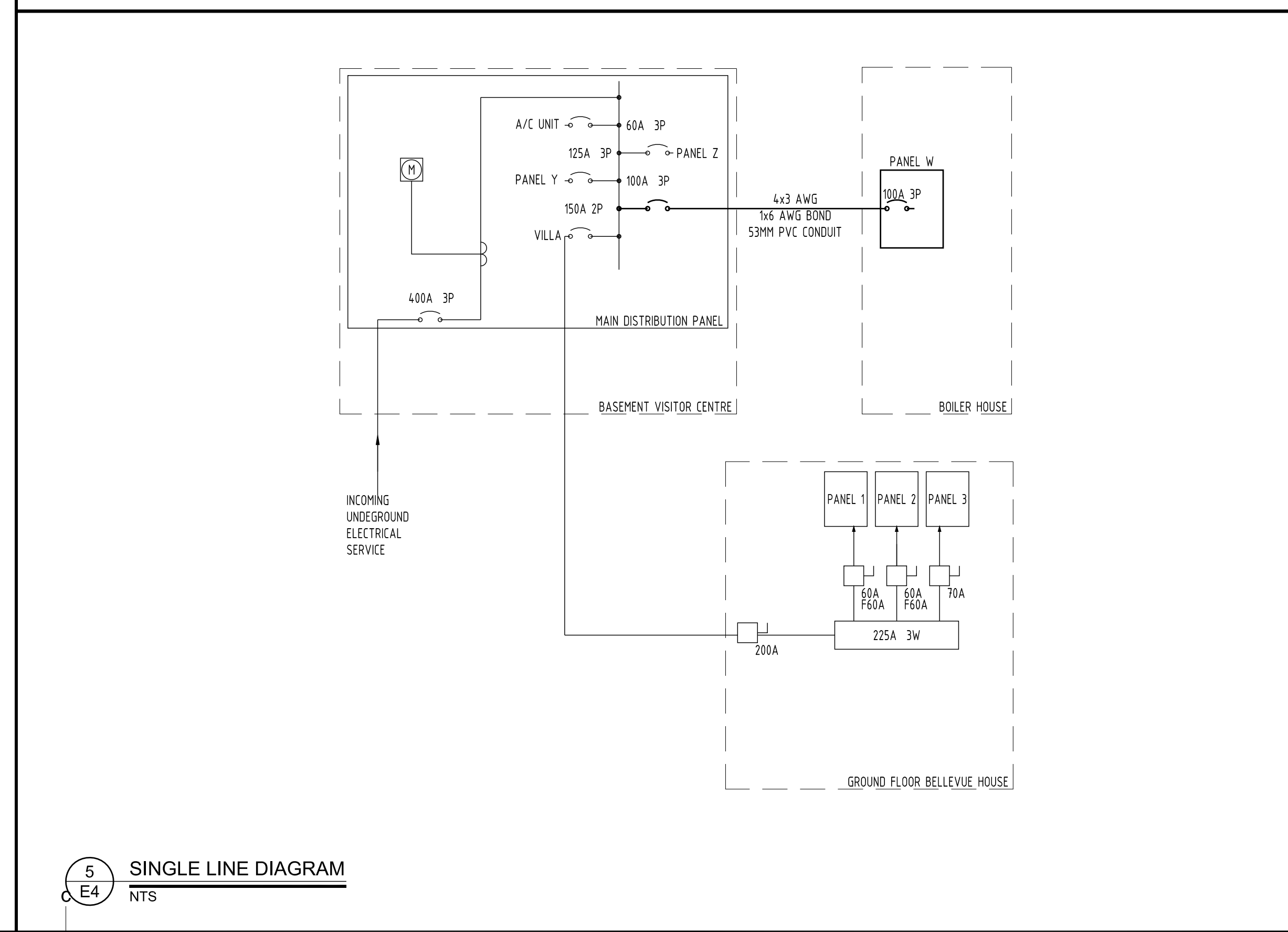
2 BOILER HOUSE PLAN - LIGHTING AND FIRE ALARM
E4 1:50



3 BOILER HOUSE PLAN - POWER
E4 1:50



4 TRENCH DETAIL
E4 NTS



5 SINGLE LINE DIAGRAM
E4 NTS

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revisions	description	date
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A	C	A	C
A detail no. no. du detail		A	
B location drawing no. sur dessin no.		B	
C drawing no. dessin no.		C	

project **BELLEVUE HOUSE HVAC UPGRADE** projet

drawing **ELECTRICAL FLOOR PLANS, DETAIL AND SINGLE LINE DIAGRAM** dessin

Designed By	MIRITON	Conçu par
Date		(yyyy/mm/dd)
Drawn By	RR	Dessiné par
Date		(yyyy/mm/dd)
Reviewed By	AB	Examiné par
Date		(yyyy/mm/dd)
Approved By		Approuvé par
Date		(yyyy/mm/dd)
Tender		Soumission
Project Manager	MARIA OFFIN	Administrateur de projets
Project no.	45350015	No. du projet
Drawing no.	E4	No. du dessin