PROJECT DATA

AUTHORITY HAVING JURISDICTION:

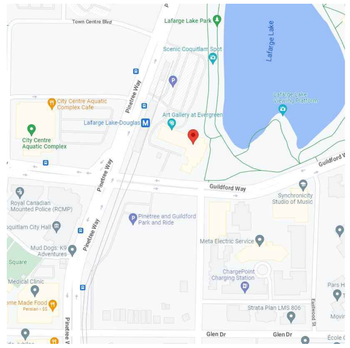
City of Coquitlam
3000 Guildford Way
Coquitlam, BC V3B 7N2

APPLICABLE CODES:

British Columbia Building Code 2018
ASHRAE 62.1-2001
ASHRAE 90.1-2016

LEGAL DESCRIPTION:

VICINITY MAP



CITY OF COQUITLAM - EVERGREEN CULTURAL CENTRE HVAC RETROFIT

1205 Pinetree Way, Coquitlam, BC

ISSUED FOR RFP
2023-12-01

DRAWING NOTATIONS

TAG	Equipment Tag
TAG / FLOW	Pump Tag
FLOW TAG / FLOW TAG / SYSTEM FLOW	Pump Tag (Parallel Application)
TAG / SIZE / FLOW	Diffuser / Grille Tag (L/s)
1	Keyed Note
1	Revision Tag
	New Work
	Existing
	Demolition
A / B	Detail call-out: A = detail ID B = drawing ID
A / B	Section call-out: A = section ID B = drawing ID
A / B	Photo call-out: A = photo ID B = drawing ID
	Single flow direction
	Bi-directional flow

HVAC PIPING

HWS	Heating Water Supply
HWR	Heating Water Return
CHWS	Chilled Water Supply
CHWR	Chilled Water Return
CWS	Condenser Water Supply
CWR	Condenser Water Return
CTWS	Cooling Tower Water Supply
CTWR	Cooling Tower Water Return
DTWS	Dual Temperature Supply
DTWR	Dual Temperature Return
HPCS	Heat pump condenser supply
HPCR	Heat pump condenser return
HPES	Heat pump evaporator supply
HPER	Heat pump evaporator return
GEOS	Geo-exchange supply
GEOR	Geo-exchanger return
GLYS	Glycol supply
GLYR	Glycol return
LPL	Refrig. low pressure liquid
LPV	Refrig. low pressure vapour
HPV	Refrig. high pressure vapour
HPL	Refrig. high pressure liquid
CD	A/C Condensate

PLUMBING PIPING

	Domestic Cold Water
	Domestic Hot Water
	Domestic Hot Water Recirc.
	Sanitary
	Sanitary, below grade
	Storm
	Storm, below grade
	Sanitary Vent
	Perforated footing drain
	Gas piping

STEAM PIPING

HPS	High Pressure Steam
MPS	Medium Pressure Steam
LPS	Low Pressure Steam
HPC	High Pressure Condensate
MPC	Medium Pressure Condensate
LPC	Low Pressure Condensate
PC	Pumped condensate
	Steam trap

PIPING SYMBOLS

	Elbow up
	Elbow down
	Tee up
	Tee down
	Pipe crossing
	Pipe Break
	Pipe sleeve
	Isolation valve (normally open)
	Isolation valve (normally closed)
	Globe valve
	Wye strainer
	Basket strainer
	Check valve
	Balancing valve w/ memory stop
AFLV	Automatic flow limiting valve (AFLV)
PRV	Pressure reducing valve (PRV)
PSV	Pressure sustaining valve (PSV)
RV	Pressure relief valve (RV)
	Temp & Press relief valve
	Union
	Flange
	Drain - pipe to nearest drain
	Pipe cap
	Electric heat trace
	Pump
	Control valve, 2-way
	Control valve, 3-way
	Control valve, 2-way PICV
EPICV	Control valve, 2-way ePICV
	Thermostatic mixing valve
	P/T port (pete's plug)
	Pressure gauge w/ pet cock
	Thermometer
AAV	Automatic air vent
MAV	Manual air vent
	Double check valve assembly (DCVA)
	Reduce pressure backflow assembly (RPBA)
	Plumbing pipe clean-out
	Flex connection
	Drain valve w/ cap & chain

DUCT SYMBOLS

	Supply diffuser
	Return/exhaust grille
	Supply grille
	Supply duct up
	Supply duct down
	Return / exhaust duct up
	Return / exhaust duct down
	Round duct up (all)
	Round duct down (all)
	Flex duct
	Turning vanes
	Acoustic duct lining, 25 mm (1") U.N.O.
	Flexible connection
	Balance damper
BDD	Backdraft damper
FD	Fire damper (vertical)
FD	Fire damper (horizontal)
SD	Smoke damper
FSD	Fire/Smoke damper
MD	Motorized damper
DG	Door grille
UC	Door undercut, 20 mm (3/4") U.N.O.

CONTROL SYMBOLS

T	Temperature sensor
T	Line voltage thermostat
T	Line voltage t'stat (reverse acting)
H	Humidity sensor
CO2	CO2 sensor
W	Window switch
O	Occupancy sensor
R	Refrigerant sensor
P	Wall switch
TE	Temperature sensor (immersion)
FS	Flow switch
LS	Level sensor
PT	Pressure sensor
DPT	Differential pressure transducer
T1 T1	Duct temperature sensor / averaging duct temperature sensor
FZ	Duct mounted freezestat
DP	Differential pressure sensor
VSD	Variable speed drive
EM	Thermal energy meter
DO	Digital output (BAS control point)
DI	Digital input (BAS control point)
AO	Analog output (BAS control point)
AI	Analog input (BAS control point)
NETWORK	BAS network interface
FM	Flow meter
WM	Water meter
D	Duct mounted CO2 sensor
S	Duct mounted smoke sensor
H	Duct mounted humidity sensor
AFT	Airflow measurement station
M M	Motorized dampers: Opposed blade / parallel blade

ABBREVIATIONS

AFF	Above finished floor
AAV	Automatic air vent
ABS	Absolute
ACH	Air changes per hour
AFMS	Airflow measurements station
AHU	Air handling unit
AMB	Ambient
APPROX.	Approximately
ATM	Atmosphere
AVG	Average
BAS	Building automation system
BMS	Building management system
CTE	Connect to existing
C/W	Complete with
CAV	Constant air volume
CCW	Counter clockwise
CLG	Ceiling
CO	Cleanout
CONN	Connection
CONT	Continuation
COP	Coefficient of performance
CTR	Centre
CW	Clockwise
DB	Decibel
DBT	Dry-bulb temperature
DDC	Direct digital control
DEG	Degrees
DIA	Diameter
DN	Down
DP	Deep or depth
DPT	Dew-point temperature
E/A	Exhaust air
EA	Each
EAT	Entering air temperature
EER	Energy efficiency ratio
EL	Elevation
ENT	Entering
EQ	Equal
ESP	External static pressure
EWT	Entering water temperature
EXH.	Exaust
EXIST.	Existing
(E)	Existing
EXP	Expansion
F.F.E.	Finished floor elevation
FD	Floor drain
FE	Fire extinguisher
FFD	Funnel floor drain
FLR	Floor
FS	Flow switch
G/L	Gridline
GA	Gauge
GALV.	Galvanized
GWB	Gypsum wall board
HB	Hose bibb
HD	Hub drain
HOA	Hand-off-automatic
I/O	Input / Output
ID	Inside diameter
INV.	Invert
INV. EL.	Invert elevation
LAT	Leaving air temperature
LWT	Leaving water temperature
M/A	Mixed air
MAD	Mixed air damper
MAT	Mixed air temperature
MAX	Maximum
MIN.	Minimum
MTD.	Mounted
N.C.	Normally closed
N.I.C.	Not in contact
N.O.	Normally open
N.T.S.	Not to scale
N/A	Not applicable
NG	Natural gas
NOM	Nominal
O/A	Outdoor air
O/C	On centre
OAD	Outdoor air damper
OBD	Opposed blade damper
OD	Outside diameter
PRV	Pressure reducing valve
R/A	Return air
RAD	Return air damper
RAT	Return air temperature
RD	Roof drain
REQ'D	Required
S.T.G.	Slab on grade
S.S.	Stainless steel
S/A	Supply air
SAT	Supply air temperature
SP	Static pressure
SPEC	Specification
SPEC'D	Specified
T/A	Transfer air
TBC	To be confirmed
TBD	To be determined
THRU	Through
TS	Tamper switch
TSP	Total static pressure
T'STAT	Thermostat
TYP.	Typical
U.N.O.	Unless noted otherwise
U/C	Under cut
V	Vent
VAV	Variable air volume
VEL	Velocity
VERT	Vertical
VFD	Variable frequency drive
VOL	Volume
VSD	Variable speed drive
VTR	Vent through roof
W/	With
WBT	Wet bulb temperature

PIPING

1. Isolation valves are to be full port ball valves for pipe sizes 2 NPS and smaller; and butterfly valves for pip sizes 2-1/2 NPS and larger.
2. Perform hydrostatic testing on all new piping systems at 1.5 times the maximum operating pressure for a minimum of 12 hours. All pressure tests shall be completed before any mechanical equipment connections or piping insulation is applied.
3. Provide air vents at the high point of each drop in the chilled water HVAC piping systems. All piping shall grade to low points. Provide hose end drain valves at the bottom of all risers and low points.
4. Install piping so that all valves, strainers, unions, traps, flanges, and other accessories requiring access are accessible.
5. All valves (except control valves) and strainers shall be full size of pipe before reducing size to make connections to equipment and controls.
6. All piping work shall be coordinated with all trades involved. Provide offsets in piping around obstructions at no additional cost to the owner.

INSULATION

1. Mechanical Contractor to carry an approved insulating contractor to provide all required insulation work associated with the scope of this project.
2. Repair piping insulation where damaged within the designated areas of work and provide insulation on all new piping as specified. Request clarification during bid period if scope of work is unclear.
3. Refer to specifications for insulation requirements.
4. All piping tests shall be completed before any mechanical equipment or piping insulation is applied.
5. Provide identification of all new piping within designated areas of work as specified.
6. Pipe insulation shall not be crushed or compressed through interference with systems installed by other trades or building construction.

CLEANING AND SYSTEM FLUSHING

1. Flush-out and chemically clean all existing piping systems connected to and all new piping systems installed as part of this project. Provide temporary equipment (pumps, etc.) as required to complete flushing.
2. All chemical treatment shall be completed by the base-building chemical treatment contractor:
   State Chemical
   Ron Torrant
   rontorrant@shaw.ca
3. See specifications for additional requirements.

CONSULTANT FIELD REVIEWS

1. All Work requires written review by the Consultant. Consultant review is for general compliance with design concepts only. Contractor remains solely responsible for building the Work in conformance with the Contract Documents.
2. The Contractor is responsible to give reasonable advance notice of when Work is ready for review by the Consultant, minimum 48 hours prior to concealment. The Contractor is responsible for reviewing their own work and the work of the subtrades prior to review by the Consultant.

DEMOLITION

1. Demolition scope of work shall include demolition of all existing system components that will be found to be redundant once the new work is installed. This included components such as, but not limited to, existing equipment, piping, ductwork, controls, etc.
2. During removal of existing piping, use caution to prevent damage to any equipment that has salvage value. All reusable salvaged material shall remain the property of the owner and be retained for their inspection. Only items agreed by the owner shall be disposed of by the contractor. This contractor shall have in their contract price the total removal and disposal of all equipment and materials.
3. If any existing deficiencies outside the scope of work are discovered, advise the prime consultant and await instructions before proceeding.
4. All systems that are cut-back or affected shall be capped for future connection. Do not leave any services open ended.
5. Protect all existing sprinkler heads during general renovation and demolition work.
6. Make good any floor penetrations to existing quality, meeting the fire rating requirements of the floor, provide consultant with fire stopping detail or intent of floor fill prior to completing work.
7. Patch and make good (to base building standards) mechanical components and finishes damaged during renovation.
8. Include for disposal (from site) of all removed equipment and services, ductwork, piping, plumbing, etc. including insulation and hangers.

GARBAGE REMOVAL

1. Garbage and construction debris generated as part of this project at the responsibility of the Prime Contractor.
2. Corridors, elevators, lobbies, and common areas are to be kept clear of debris at all times.
3. Debris and waste must be removed from site on a daily basis. Construction disposal bins are allowed to remain in designated areas upon approval of the Owner's designated representative. Upon removal of disposal bins, clean the area around the bins to a tidy swept condition with no materials left in the designated areas.

HAZARDOUS MATERIALS

1. Should any hazardous materials be discovered in the areas of work, immediately cease work in this area and notify the Consultant and Owner. All work in the effected area shall be stopped until abatement works are complete.

CIVIL WORKS

1. This project includes civil works to accommodate replacement of existing buried chilled water piping; including, but not limited to, excavation, shoring, bedding, backfill of trenching and replacing existing surface works. This scope of work is to be carried out as design-build by the Prime Contractor.
2. The Prime Contractor shall carry a licensed and qualified Civil Engineer to complete design and site review of the underground piping installation and associated works. Provide letters of assurance.
3. Allow for a GRP survey to coordinate pipe routing with existing services.
4. Obtain all permits and pay for fees applicable to scope of work.
5. The Prime Contractor shall carry a licensed and qualified Geotechnical Specialist to complete site review of the soil condition for the underground piping work. Provide geotech report.

SUBMITTALS & SHOP DRAWINGS

1. Allow 10 working days for review of submittals unless Consultant agrees to accelerated schedule.
2. See specification for submittal and shop drawing requirements.

SUMMARY SCOPE OF WORK

1. The project generally consists of the following scope:
   a. Replace existing underground chilled water piping.
2. Work Included: Furnish and install all equipment and systems specified in the Contract Documents as required for complete and fully functional systems, including but not limited to the following:
   a. Demolition and disposal of redundant piping and fittings
   b. Rigging
   c. Permits, fees, etc. required for completion of the scope of work.
   d. Supply and Installation of new piping and fittings.
   e. Floor and wall penetration repair and sealing. Include costs for all associated cutting, drilling, scanning and/or x-raying.
   f. Flushing and purging of piping systems affected by scope of work.
   g. Testing and balancing
   h. Commissioning
   i. Operator training
   j. Overtime, if required.
3. Work Excluded:
   a. Cost of repairing existing equipment that is specified to be reused, if required.
   b. Asbestos abatement. If asbestos is discovered during the course of the work, Contractor shall notify the Owner's designated representative who will retain abatement contractor.

PROJECT SCHEDULE

1. Construction work to be approved by Owner's designated representative prior to start.
   a. Expected start date (award of contract): 26-JAN-2024
   b. Desired end date: 31-MAY-2024
2. Schedule of Work Constraints:
   a. Refer to Specification Section 01 00 01 "General Requirements".

PRIME CONTRACTOR

1. The Mechanical Contractor shall be the Prime Contractor for this project and coordinate all work associated with this project including any structural, roofing, electrical, and controls work, and any other trades required for successful completion of the project.
2. No extra costs will be considered for any coordination or trade that was not considered by the prime contractor to be necessary to complete the scope of work.
3. All trades shall be specialized in the field of work that they are being retained to complete. In no case shall own forces be used for work that they are unfamiliar or unqualified to carry out.
4. Prior to the start of any work, the prime contractor shall thoroughly review the contract documents and arrange for a start-up meeting with the Consultant(s) and Client to review the phasing of work and construction methodology.

MANDATORY SITE VISIT

1. A mandatory site walkthrough will be conducted during the bid period. All bidding contractors including the prime contractor, mechanical contractor, and civil works contractor must attend the site walkthrough.
2. Ascertain and check all conditions and take all measurements that may affect the work. No allowance shall subsequently be made for any additional expenses or claims due to the failure or neglect to make such examination, including examination of restricted working conditions or such other difficulties that can be visually observed during the site visit.
3. During the site visit the contractor will be allowed to test isolation valves to determine if they function properly or if other provisions are required to complete the work within the Schedule of Work Constraints.

SHEET INDEX

PROJECT CONTACTS

CLIENT — CITY OF COQUITLAM
640 Poirier Street
Coquitlam, BC V3J 6B1
Contact: Brie-Anne Middler
Phone: 604.375.4955
Email: BMiddler@coquitlam.ca

PRIME & MECHANICAL — FIRST LIGHT ENERGY SOLUTIONS LTD.
1275 Venables, Suite 290
Vancouver, BC V6A 2C9
Contact: Mike Reimer, Principal-In-Charge
Phone: 604.671.4375
Email: mike@firstlightenergy.ca
Contact: Zoe Wong, Mechanical Designer
Phone: 778.668.5307
Email: zoe@firstlightenergy.ca

GENERAL NOTES

1. Provide all materials and equipment and perform all labour required to install complete and fully operational systems as indicated on the drawings, as specified, and as required by code.
2. All work shall be in accordance with requirements of the Authority Having Jurisdiction, the B.C. Building Code 2018, and the codes in effect at the time of the bid. Refer to book specification for further details.
3. Read the drawings in conjunction with all other Contract Documents including the Project Specifications and other drawing sets. In cases of difference between the documents with respect to the quantity, sizes, or scope of work, the greater shall apply.
4. All work shall comply with the latest adopted provincial and local codes, as well as federal, provincial, and municipal regulations.
5. The information indicated within these drawings is diagrammatic in nature, containing information to a degree of detail consistent with their scale, adequate to convey the design intent and therefore does not indicate every required offset, fitting or slope. Provide equipment, materials and methods not shown or specified by required to provide a complete and coordinated installation.
6. The locations of all items shown on the drawings or called for in the specifications that are not definitely fixed by dimensions are approximate only. The exact locations necessary to secure the best conditions and results must be determined by the project site conditions and shall have the approval of the Consultant before being installed. Do not scale drawings.
7. These documents are not to be used for construction unless specifically noted for such purpose.
8. This is an existing building with existing services and unknown conditions. Not all existing services and conditions have been identified on the drawings. The Contractor is to coordinate all new work with existing services and confirm exact routing on site.
9. Prior to commencement of Work, the Contractor shall compare all related Drawings, confirm all dimensions, and field measure and confirm all existing conditions. Report to the Consultant any discrepancies that will affect successful completion of the Work.
10. The location of existing underground utilities is shown in an approximate way only. The Contractor shall determine the exact location of all existing utilities before commencing work. The Contractor shall pay for and repair all damage caused by failure to exactly locate and preserve any and all underground utilities.
11. Coordinate with City of Coquitlam designated representative for storing on site of all new equipment and materials. No equipment or materials are allowed to be stored on site without approval by the client representative.
12. Any work generating noise or dust that could affect users will need to be performed after hours. No noise generation that could affect users and occupants is allowed during normal operating hours.
13. Any work requiring system shutdowns must be coordinated with the City of Coquitlam designated representative prior to shutdown.

PRICING INSTRUCTIONS

1. By submitting a price, Contractor guarantees that the proposal is complete and turn-key, except where specific exceptions are provided herein or clearly noted in the Contractor's

FirstLight Energy Solutions
290 - 1275 Venables St
Vancouver, BC V6A 2C9
T: 604.616.2158
W: firstlightenergy.ca
Consultant

ISSUED

	Date	Remarks
1	DEC 01/23	Issued for RFP

REVISIONS

#	Date	Remarks

Professional Engineer
Permit to Practice No: 1003633
PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA
M. J. REIMER # 36972

EVERGREEN CULTURAL CENTRE HVAC PIPING RETROFIT
1205 Pinetree Way, Coquitlam, BC

Drawn: Z.W. Designed: M.J.R.
Checked: M.J.R. Checked: M.D.A.
Project Number P02400223

PROJECT COVER PAGE, CONTACTS, GENERAL NOTES, CONTEXT PLAN & SYMBOL LEGENDS

M0.01

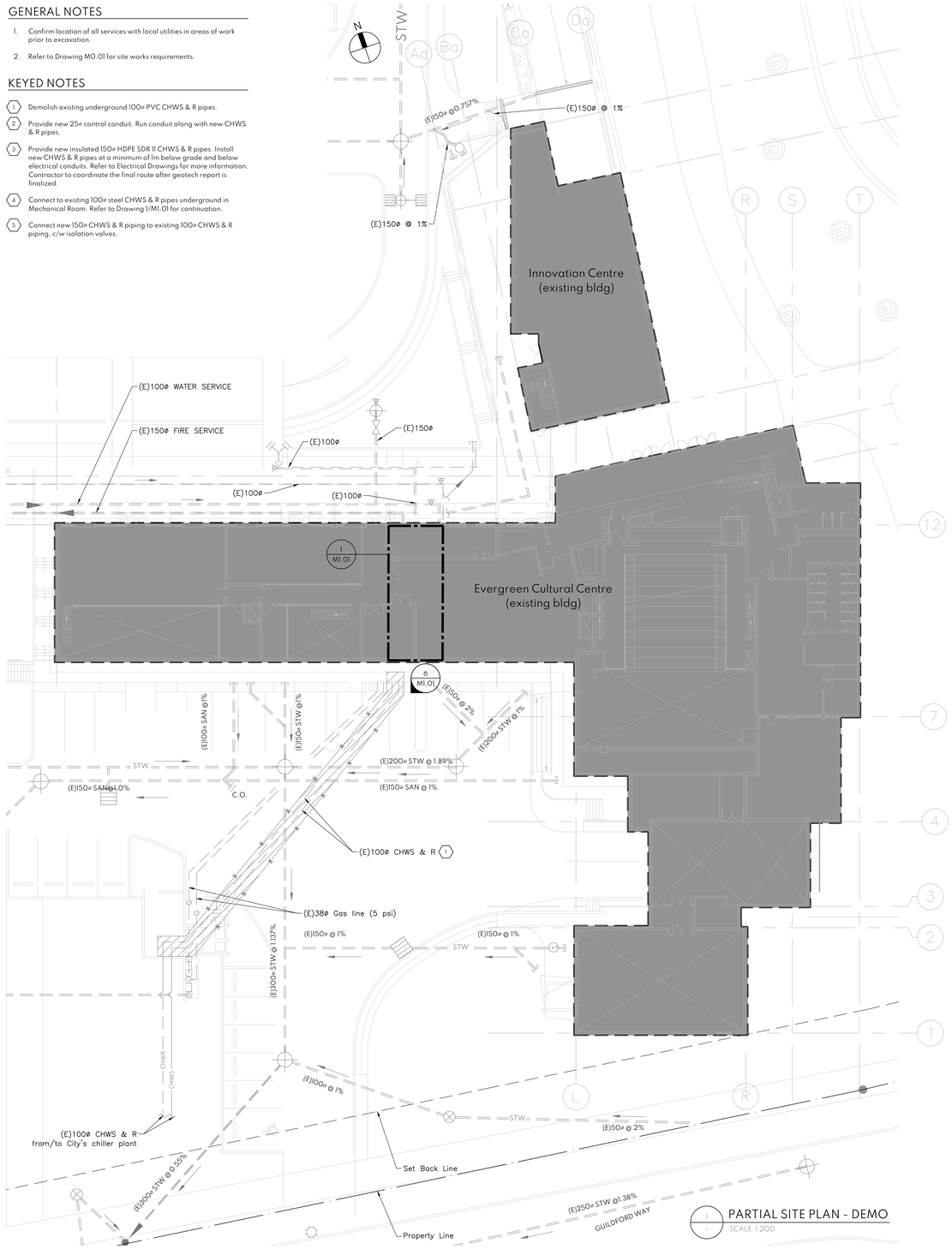
Wednesday, March 22, 2023 1:27:45 PM

GENERAL NOTES

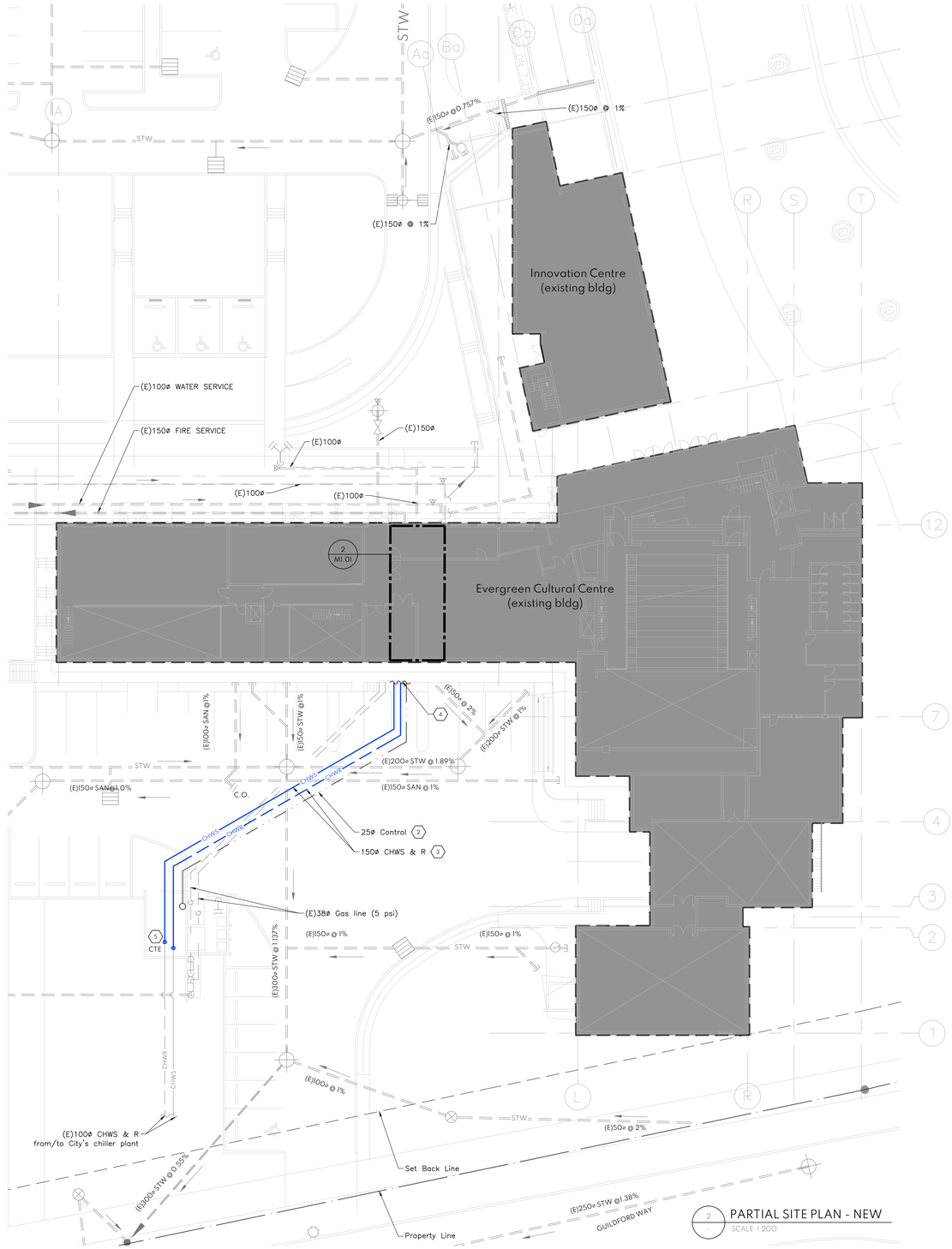
1. Confirm location of all services with local utilities in areas of work prior to excavation.
2. Refer to Drawing M0.01 for site works requirements.

KEYED NOTES

1. Demolish existing underground 100ø PVC CHWS & R pipes.
2. Provide new 25ø control conduit. Run conduit along with new CHWS & R pipes.
3. Provide new insulated 150ø HDPE SDR 11 CHWS & R pipes. Install new CHWS & R pipes at a minimum of 1m below grade and below electrical conduits. Refer to Electrical Drawings for more information. Contractor to coordinate the final route after geotech report is finalized.
4. Connect to existing 100ø steel CHWS & R pipes underground in Mechanical Room. Refer to Drawing I/M1.01 for continuation.
5. Connect new 150ø CHWS & R piping to existing 100ø CHWS & R piping, c/w isolation valves.



PARTIAL SITE PLAN - DEMO
SCALE: 1:200



PARTIAL SITE PLAN - NEW
SCALE: 1:200

FirstLight
Energy Solutions
290 - 1275 Venables St
Vancouver, BC V6A 2C9
T: 604.616.2158
W: firstlightenergy.ca

Consultant

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Professional Engineer
Permit to Practice No: 1003633

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
M. J. REIMER
35072

Coquitlam

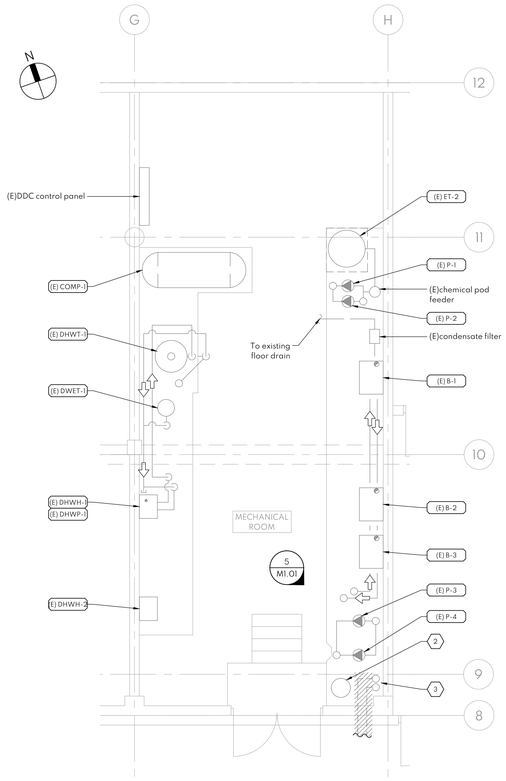
EVERGREEN CULTURAL CENTRE
HVAC PIPING RETROFIT
1205 Pinetree Way, Coquitlam, BC

Drawn:	Z.W.	Designed:	M.J.R.
Checked:	M.J.R.	Checked:	M.D.A.
Project Number	P02400223		

SITE PLAN

M0.02

Wednesday, Mar-22, 2023 2:37:45 PM



2 M0.02 MECHANICAL ROOM ENLARGED PLAN - LOW LEVEL DEMO

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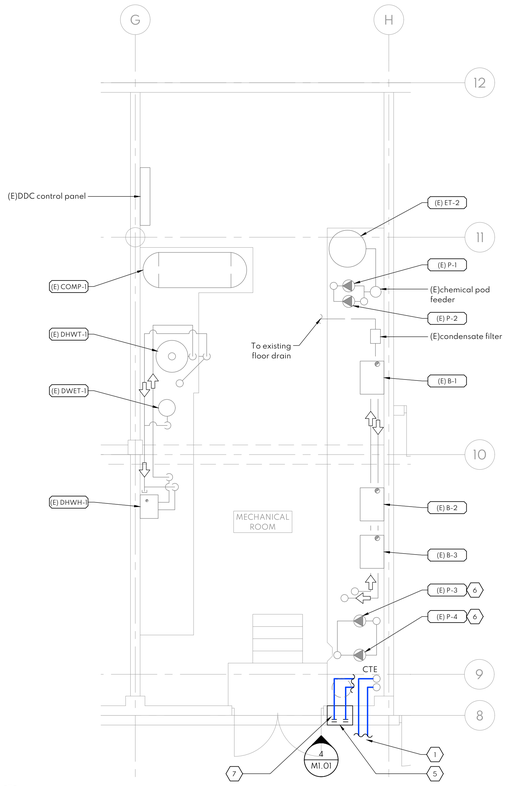


1 M0.02 MECHANICAL ROOM ENLARGED PLAN - LOW LEVEL NEW WORK

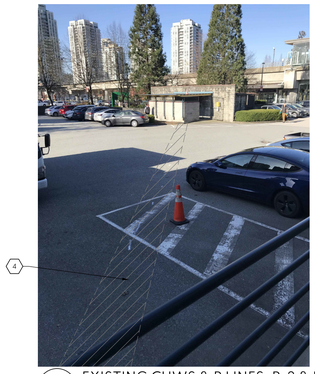
SCALE: 1:50

GENERAL NOTES

1. Refer to M0.01 for general and demolition notes.
2. Maintain manufacturer's minimum recommended service clearances for all equipment. This applies to new equipment and existing, where new work may impede existing equipment clearances.

KEYED NOTES

1. Provide new 150ø underground piping from exterior chiller enclosure to mechanical room; see drawing M0.02 for continuation. Transition from 150ø to 100ø at connection to existing steel piping.
2. Existing chilled water expansion tank to remain. Remove and reinstall as required to accommodate piping work.
3. Demolish existing underground chilled water supply & return piping. Retain existing above ground steel piping.
4. Demolish existing underground 100ø PVC CHWS & R pipes.
5. Blank off lower 300 mm of existing louvred opening and provide sheet metal enclosure with lockable cover at face of building for 100ø CHWS & R emergency cooling connections. Refer to detail 4 on this sheet.
6. Existing chilled water pumps to remain. Remove and reinstall as required to accommodate piping work.
7. Provide new 100ø male cam-locks for quick connect.

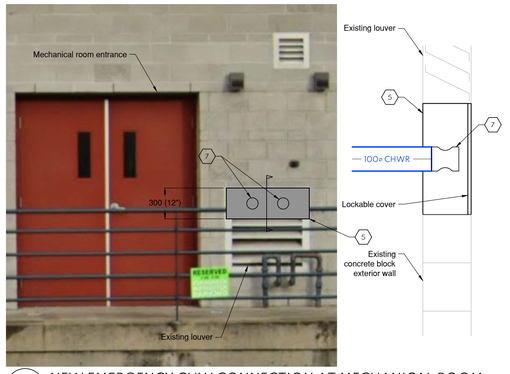


6 M0.02 EXISTING CHWS & R LINES, P-3 & P-4 IN MECHANICAL ROOM

SCALE: N.T.S.

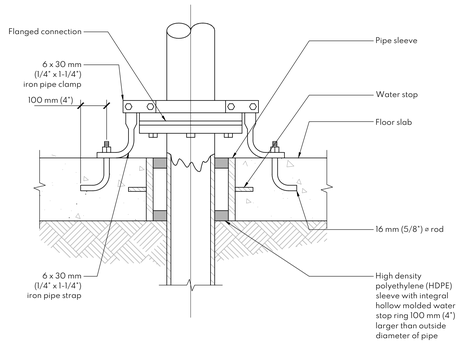
5 - EXISTING CHWS & R LINES, P-3 & P-4 IN MECHANICAL ROOM

SCALE: N.T.S.



4 - NEW EMERGENCY CHW CONNECTION AT MECHANICAL ROOM

SCALE: N.T.S.



3 - SUPPORT ANCHOR (CHILLED WATER)

SCALE: N.T.S.

FirstLight Energy Solutions

290 - 1275 Venables St
Vancouver, BC V6A 2C9
T: 604.616.2158
W: firstlightenergy.ca

Consultant

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#	Date	Remarks

Professional Seal

Permit to Practice No: 1003633

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA M. J. REIMER # 36272

Coquitlam

EVERGREEN CULTURAL CENTRE
HVAC PIPING RETROFIT

1205 Pinetree Way, Coquitlam, BC

Drawn:	Z.W.	Designed:	M.J.R.
Checked:	M.J.R.	Checked:	M.D.A.
Project Number	P02400223		

HVAC ENLARGED PLANS, DETAILS & PHOTOS

M1.01