

PUBLIC SERVICES AND PROCUREMENT CANADA

CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT



237 - 4 Avenue SW, Suite 3300
Calgary, Alberta Canada T2P 4K3
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PERMIT TO PRACTICE
WSP CANADA INC.

RM SIGNATURE: _____
RM APEGA ID #: 63127

DATE: 2021-05-13

PERMIT NUMBER: P007641
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Revision	Description	Date
H	ISSUED FOR TENDER REV2	2021-05-13
G	ISSUED FOR TENDER REV1	2021-04-06
F	ISSUED FOR TENDER	2019-07-30
E	100% REVIEW SET	2019-06-10
D	99.5% REVIEW SET	2019-05-07
C	99% REVIEW SET	2019-03-18
B	50% REVIEW SET	2018-12-19

Client: client

CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION

DRUMHELLER, ALBERTA

Project title: Project

**CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT**

Designed by: Conçu par

SG

Drawn by: Dessiné par

JM

Approved by: Approuvé par

DC

PWGSC Project Manager / Administrateur de Projets TPSGC

SHAWN LUMSDEN

Drawing title: Titre du dessin

COVER SHEET

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.060837.001	0.0	H

ISSUE FOR TENDER PACKAGE

PSPC Job #: R.060837.001 – 530–3204

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Public Services and Procurement Canada

Services publics et Approvisionnement Canada



PUBLIC SERVICES AND PROCUREMENT CANADA

CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT

GENERAL

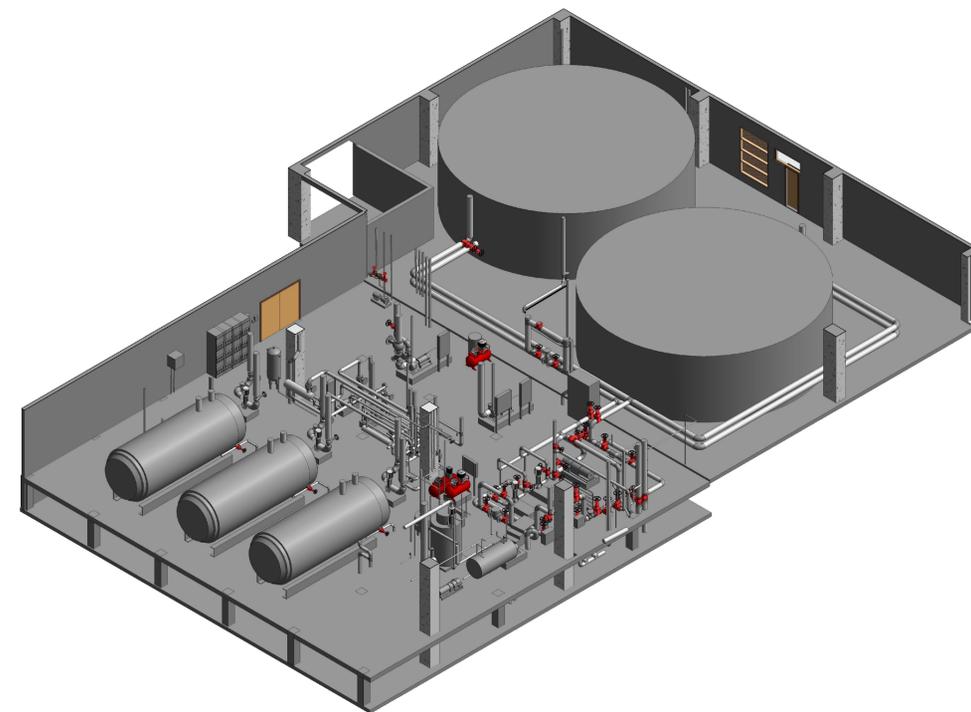
- 0.0 COVER SHEET
- 0.1 DRAWING LIST

MECHANICAL

- M1.0 SCHEDULES, LEGEND & DETAILS
- M1.1 OVERALL SITE PLAN
- M2.0 CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT PHASE 1
- M2.1 CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT PHASE 2
- M2.2 CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT PHASE 3
- M2.3 CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT PHASE 4
- M3.0 CENTRAL HEATING PLANT WATER DISTRIBUTION SCHEMATICS – FIRE PUMP REPLACEMENT PH1, PH2, PH3 & PH4
- M3.1 CENTRAL HEATING PLANT WATER DISTRIBUTION SCHEMATICS – FIRE PUMP REPLACEMENT PH5

ELECTRICAL

- E0.0 COVER SHEET
- E1.0 SITE POWER & SYSTEMS LAYOUT
- ED2.0 HEATING PLANT POWER & SYSTEMS DEMOLITION LAYOUT
- E2.0 ALTERATIONS & NEW HEATING PLANT POWER & SYSTEMS LAYOUT
- ED3.0 SINGLE LINE DIAGRAM DEMOLITION
- E3.0 SINGLE LINE DIAGRAM
- E4.0 ELECTRICAL DETAILS
- E5.0 FIRE ALARM & FIRE PUMP CONTROLLER RISER SCHEMATIC DIAGRAM



SITE WALKTHROUGH ATTENDANCE FOR CONTRACTORS IS MANDATORY. BE PREPARED TO INSPECT WATER TOWER. FULL PPE IS REQUIRED FOR WALKTHROUGH.



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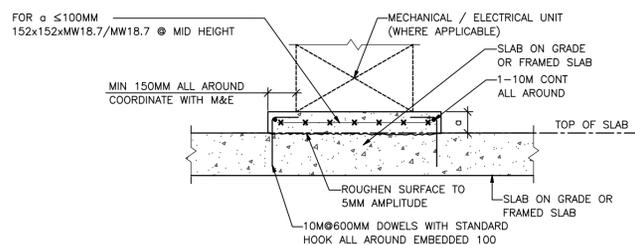
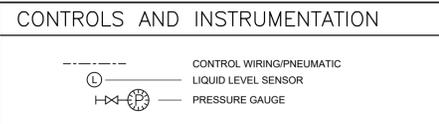
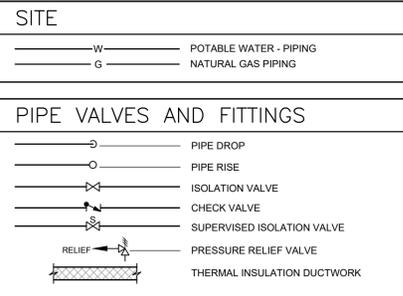
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DRAWING LIST

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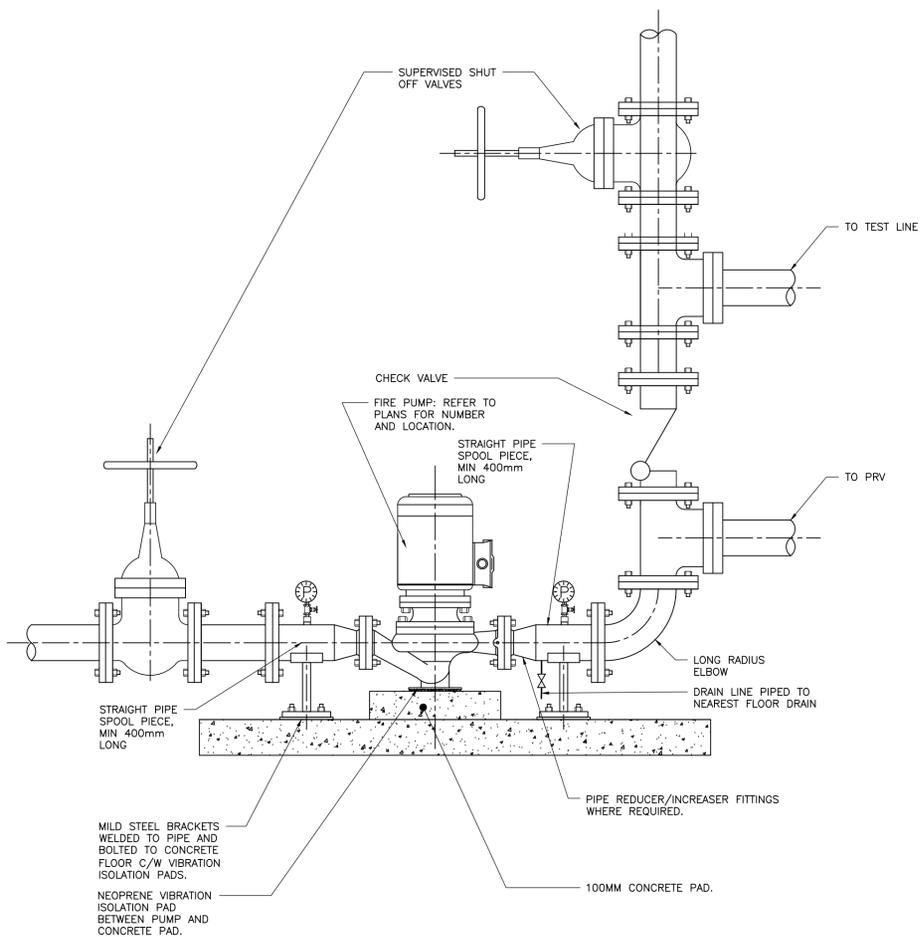


MECHANICAL LEGEND



- NOTES:**
- FOR PAD SIZES AND LOCATIONS, SEE MECHANICAL AND ELECTRICAL DRAWINGS.
 - CONCRETE MIX CLASS "N" MINIMUM 28 DAY COMPRESSIVE STRENGTH 25MPa

1 HOUSEKEEPING PAD/BUILT UP SLAB DETAIL
M1.0 NTS



2 FIRE PUMP INSTALLATION DETAIL
M1.0 NTS

PUMP SCHEDULE

TAG No.	DESCRIPTION	LOCATION	FLUID	FLOW L/s	HEAD kPa	SUCTION PRESSURE kPa	MOTOR kW	RPM	ELECTRICAL (V/Ph/Hz)	REMARKS
P-13A	FIRE PUMP	CENTRAL HEATING PLANT	WATER	63.1	689	13.8	75	3,550	575/3/60	ULC MOTOR, VSS ODP UL LISTED. c/w ODP CONTROLLER, CASING RELIEF VALVE, SUCTION & DISCHARGE GAUGES, TORNA-TECH VPA-VPU VARIABLE SPEED CONTROLLER CABINET, 4" 150# MRV /w 4"x8" WASTE CONE, MAIN RELIEF VALVE c/w ULC LISTED PRESSURE GAUGES BOURDON TUBE PRESSURE GAUGE.
P-13B	FIRE PUMP	CENTRAL HEATING PLANT	WATER	63.1	689	13.8	75	3,550	575/3/60	ULC MOTOR, VSS ODP UL LISTED. c/w ODP CONTROLLER, CASING RELIEF VALVE, SUCTION & DISCHARGE GAUGES, TORNA-TECH VPA-VPU VARIABLE SPEED CONTROLLER CABINET, 4" 150# MRV /w 4"x8" WASTE CONE, MAIN RELIEF VALVE c/w ULC LISTED PRESSURE GAUGES BOURDON TUBE PRESSURE GAUGE.

NOTE: CONTRACTOR MUST PROVIDE 2 YEAR EXTENDED WARRANTY FOR BOTH PUMPS

SENSOR SCHEDULE

TAG No.	DESCRIPTION	LOCATION	FLUID	REMARKS
L-1	RADAR LEVEL GAUGE	EAST STORAGE TANK	WATER	TO BE COMPATIBLE WITH EXISTING CONTROL CABINET, CONTRACTOR RESPONSIBLE FOR HIRING CONTROLS CONTRACTOR THAT WILL REMOVE EXISTING SENSOR, INSTALL NEW SENSOR, AND INTEGRATE NEW SENSOR INTO EXISTING PLC CONTROL SCHEMES, AND SEND ANOTHER SIGNAL TO NEW BMS SYSTEM.
L-2	RADAR LEVEL GAUGE	WEST STORAGE TANK	WATER	TO BE COMPATIBLE WITH EXISTING CONTROL CABINET, CONTRACTOR RESPONSIBLE FOR HIRING CONTROLS CONTRACTOR THAT WILL REMOVE EXISTING SENSOR, INSTALL NEW SENSOR, AND INTEGRATE NEW SENSOR INTO EXISTING PLC CONTROL SCHEMES, AND SEND ANOTHER SIGNAL TO NEW BMS SYSTEM.
L-3	RADAR LEVEL GAUGE	WATER TOWER	WATER	TO BE COMPATIBLE WITH EXISTING CONTROL CABINET, CONTRACTOR RESPONSIBLE FOR HIRING CONTROLS CONTRACTOR THAT WILL REMOVE EXISTING SENSOR, INSTALL NEW SENSOR, AND INTEGRATE NEW SENSOR INTO EXISTING PLC CONTROL SCHEMES, AND SEND ANOTHER SIGNAL TO NEW BMS SYSTEM.

FIRE HYDRANT SCHEDULE

TAG No.	DESCRIPTION	LOCATION	FLUID	REMARKS
FH-3	CLOW M67 BRIGADIER	A39	POTABLE WATER	CONTRACTOR IS RESPONSIBLE FOR THE REPLACEMENT OF THE LISTED FIRE HYDRANTS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SHUT DOWNS WITH CSC, ALL EXCAVATION, DRAIN DOWNS OF EXISTING LINES, REMOVAL OF EXISTING HYDRANTS, INSTALLATION OF NEW HYDRANTS. CONTRACTOR TO MATCH EXISTING HYDRANTS ALREADY REPLACED ON SITE.
FH-6	CLOW M67 BRIGADIER	B05	POTABLE WATER	
FH-7	CLOW M67 BRIGADIER	B06	POTABLE WATER	
FH-9	CLOW M67 BRIGADIER	B30	POTABLE WATER	
FH-12A	CLOW M67 BRIGADIER	B08	POTABLE WATER	
FH-15	CLOW M67 BRIGADIER	B10	POTABLE WATER	
FH-16	CLOW M67 BRIGADIER	B09	POTABLE WATER	
FH-19	CLOW M67 BRIGADIER	A42	POTABLE WATER	
FH-20	CLOW M67 BRIGADIER	A24	POTABLE WATER	

CONTRACTOR TO NOTE "B" PREFIX TO LOCATION NAME INDICATES HYDRANT IS INSIDE FENCE LINE

VALVE SCHEDULE

TAG NO.	SERVICE	DESCRIPTION	SIZE mm	VALVE TYPE	FLUID	REMARKS
V-1	SUPERVISED PUMP ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	ULC LISTED, HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE c/w TAMPER SWITCH.
V-2	SUPERVISED PUMP ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	ULC LISTED, HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE c/w TAMPER SWITCH.
V-3	PRESSURE RELIEF VALVE	LEAD FREE	200	GLOBE VALVE	POTABLE WATER	ULC LISTED, FULL PORT DUCTILE IRON SINGLE CHAMBER
V-4	CHECK VALVE	LEAD FREE	200	DOUBLE DOOR WAFER	POTABLE WATER	DUCTILE IRON BODY, STAINLESS STEEL DUAL DISC, STAINLESS STEEL SPRING LOADED, EPOXY COATED BODY, LEAD FREE
V-5	OVERFLOW ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	ULC LISTED, HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-6	SUPERVISED PUMP ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	ULC LISTED, HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE c/w TAMPER SWITCH.
V-7	SUPERVISED PUMP ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	ULC LISTED, HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE c/w TAMPER SWITCH.
V-8	PRESSURE RELIEF VALVE	LEAD FREE	200	GLOBE VALVE	POTABLE WATER	ULC LISTED, FULL PORT DUCTILE IRON SINGLE CHAMBER
V-9	CHECK VALVE	LEAD FREE	200	DOUBLE DOOR WAFER	POTABLE WATER	DUCTILE IRON BODY, STAINLESS STEEL DUAL DISC, STAINLESS STEEL SPRING LOADED, EPOXY COATED BODY, LEAD FREE
V-10	OVERFLOW ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	ULC LISTED, HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-X1	ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-X2	ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-X3	ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-X4	ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-X5	ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE
V-X6	ISOLATION VALVE	LEAD FREE, OUTSIDE STEM AND YOKE, RESILIENT WEDGED, EXPOXY COATED	200	FLANGED GATE VALVE	POTABLE WATER	HAND OPERATED, ASTM A128 CLASS B CAST IRON, FULL PORT FLOW, LOW HEAD LOSS, FUSION BONDED COATING INTERNAL AND EXTERNAL, ENCAPSULATED RESILIENT WEDGE, REPLACEABLE DISC, BOSS TAPPED AND PLUGGED, MSS-SP570 CONFORMANCE

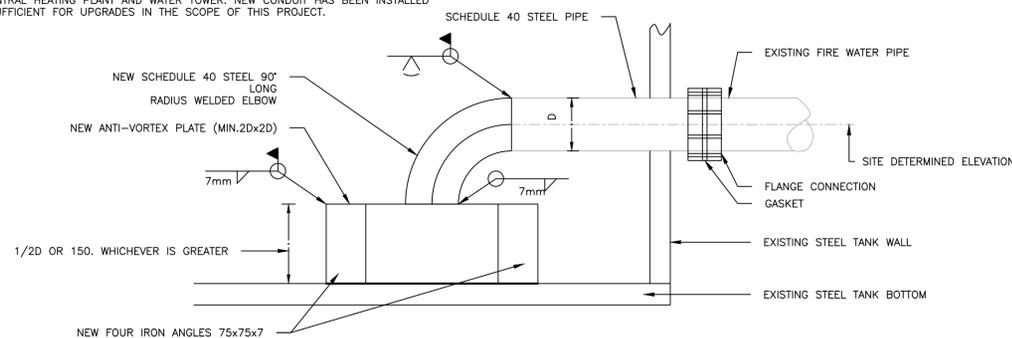
VALVES 25mm AND UNDER ARE NOT LISTED IN VALVE SCHEDULE. REFER TO DRAWINGS AND SCHEMATICS FOR LOCATIONS AND NUMBER.

CONTROL WIRING & CONDUIT

CONTRACTOR IS REQUIRED TO BE FAMILIAR WITH VARIOUS SITE CONDUIT UPGRADES PROJECTS COMPLETED AND IN PROGRESS.

CONTRACTOR IS REQUIRED TO RUN CONTROL AND DATA WIRE BETWEEN CENTRAL HEATING PLANT AND PIDS. NEW CONDUIT HAS BEEN INSTALLED BETWEEN CENTRAL HEATING PLANT AND PIDS, AND SHOULD BE SUFFICIENT FOR UPGRADES IN THE SCOPE OF THIS PROJECT.

CONTRACTOR IS REQUIRED TO RUN CONTROL AND DATA WIRE BETWEEN CENTRAL HEATING PLANT AND WATER TOWER. NEW CONDUIT HAS BEEN INSTALLED BETWEEN CENTRAL HEATING PLANT AND WATER TOWER, AND SHOULD BE SUFFICIENT FOR UPGRADES IN THE SCOPE OF THIS PROJECT.



3 SUCTION NOZZLE WITH ANTI-VORTEX PLATE DETAIL
M1.0 NTS



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14 May 2021
ID# 83935

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CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

Project title: [Blank] Project: [Blank]

CENTRAL HEATING PLANT CSC DRUMHELLER FIRE PUMP REPLACEMENT

Designed by	Conçu par
SG	
Drawn by	Dessiné par
JM	
Approved by	Approuvé par
DC	
PWGSC Project Manager SHAWN LUMSDEN	Administrateur de Projets TPSGC

Drawing title: [Blank] Titre du dessin: [Blank]

SCHEDULES, LEGEND, & DETAILS

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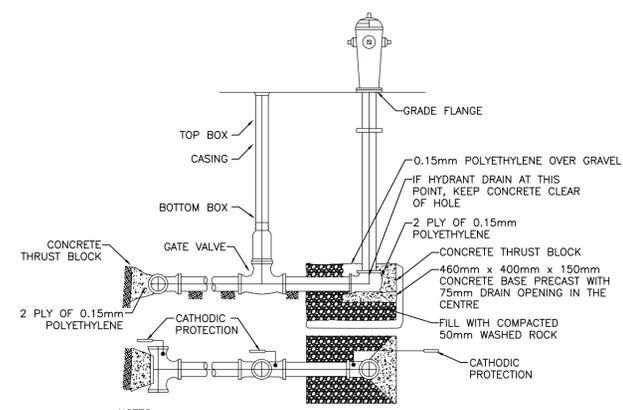
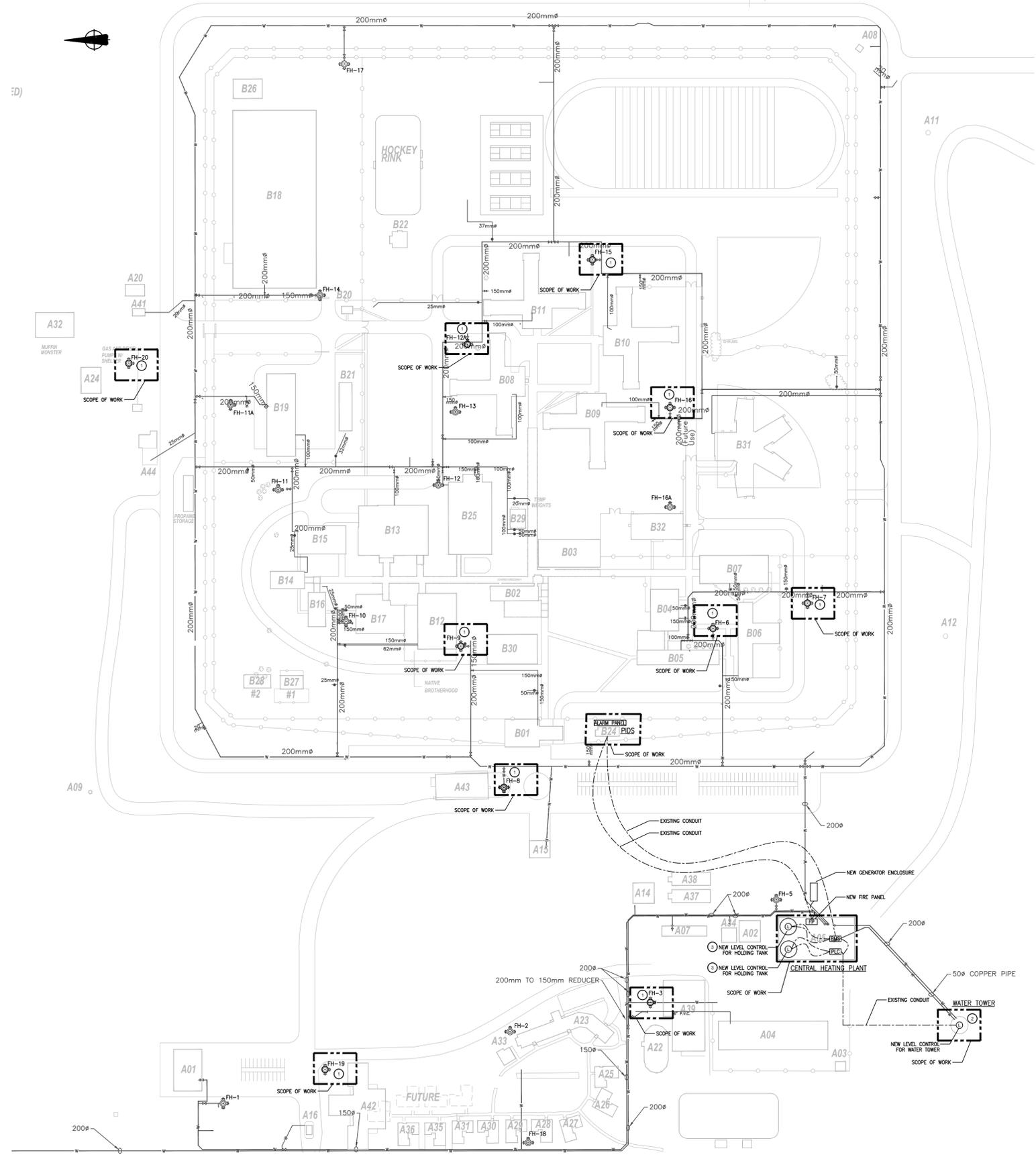
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- GENERAL NOTES**
- CONTRACTOR TO COMPLY WITH ALL NFPA CODES WITH RESPECT TO THE INSTALLATION OF FIRE HYDRANTS.
 - CONTRACTOR TO REPLACE TEN (10) EXISTING FIRE HYDRANTS FH-3, FH-4, FH-7, FH-8, FH-9, FH-12A, FH-15, FH-16, FH-19 AND FH-20. CONTRACTOR RESPONSIBLE FOR ALL SHUT DOWNS AND COORDINATION WITH OWNER.
 - CONTRACTOR TO ALLOW FOR TEN (10) SHUT DOWNS FOR EACH FIRE OF THE TEN (10) FIRE HYDRANTS TO BE REPLACED. OTHER SHUT DOWNS WILL BE NECESSARY FOR FIRE PUMP REPLACEMENT.
 - CONTRACTOR SHALL CONFIRM ALL EXISTING CONDITIONS ON SITE PRIOR TO START OF CONSTRUCTION.
 - ALL SITE WORK EXCAVATION MUST BE DONE BY HYDROLOGIC. THERE ARE NUMEROUS UNDOCUMENTED SERVICES AND UTILITIES ON SITE THAT ARE ASSESS AND EASILY DAMAGED.
 - PANEL LOCATIONS AND CONDUIT LOCATIONS ARE SCHEMATIC IN NATURE. REFER TO ELECTRICAL DRAWINGS FOR PANEL LOCATIONS.
- KEY NOTES:**
- CONTRACTOR TO REPLACE EXISTING FIRE HYDRANT WITH NEW. COORDINATE SHUT DOWNS WITH FACILITY.
 - CONTRACTOR TO REMOVE OLD LEVEL DETECTION SYSTEM IN WATER TOWER AND REPLACE WITH NEW. CONTRACTOR TO REMOVE ALL EXISTING PANELS AND REPLACE WITH NEW.
 - CONTRACTOR TO REMOVE OLD LEVEL DETECTION SYSTEM IN TWO (2) HOLDING TANKS IN CENTRAL HEATING PLANT OR BOILER HOUSE.



- NOTES:**
- HYDRANTS WILL BE CLOW BRIGADIER M-67.
 - SACRIFICIAL ANODES TO BE PLACED AS PER CONTRACT SPECIFICATIONS.
 - THE END OF THE DITCH AT THE REAR OF THE HYDRANT SHALL BE FILLED WITH CONCRETE TO THE LEVEL OF THE TOP OF PIPE, AND CLEAR OF HYDRANTS DRAIN HOLE TO ANCHOR THE HYDRANT. A PIT FOR DRAINAGE 760mm WIDE, 1000mm LONG, & 600mm DEEP SHALL BE DUG AT THE FOOT OF THE HYDRANT AND FILLED WITH STONES. MINIMUM SIZE 50mm DIA AS SPECIFIED. THE SPACE ABOUT THE BARREL & 150mm ABOVE DRIP HOLE SHALL ALSO BE FILLED.
 - A 0.15mm POLYETHYLENE SHEET SHALL BE PLACED OVER THE TOP OF THE STONES TO PREVENT THE SPACES BETWEEN THE STONES FROM BEING FILLED WITH CLAY.
 - THE EXTERIOR OF THE HYDRANTS BARREL BELOW THE GRADE FLANGE & INCLUDING ANY SPLIT RING & SUP-BREAK AWAY FLANGE SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

2 FIRE HYDRANT DETAIL
M1.1 N.T.S.

1 OVERALL SITE PLAN
M1.1 1:1500

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Drawn by JM	Dessiné par
Approved by DC	Approuvé par
PWGSC Project Manager SHAWN LUMSDEN	Administrateur de Projets TPWGC

OVERALL SITE PLAN

Project no./No. du projet R.060837.001	Drawing no./No. du dessin M1.1	Revision no. H
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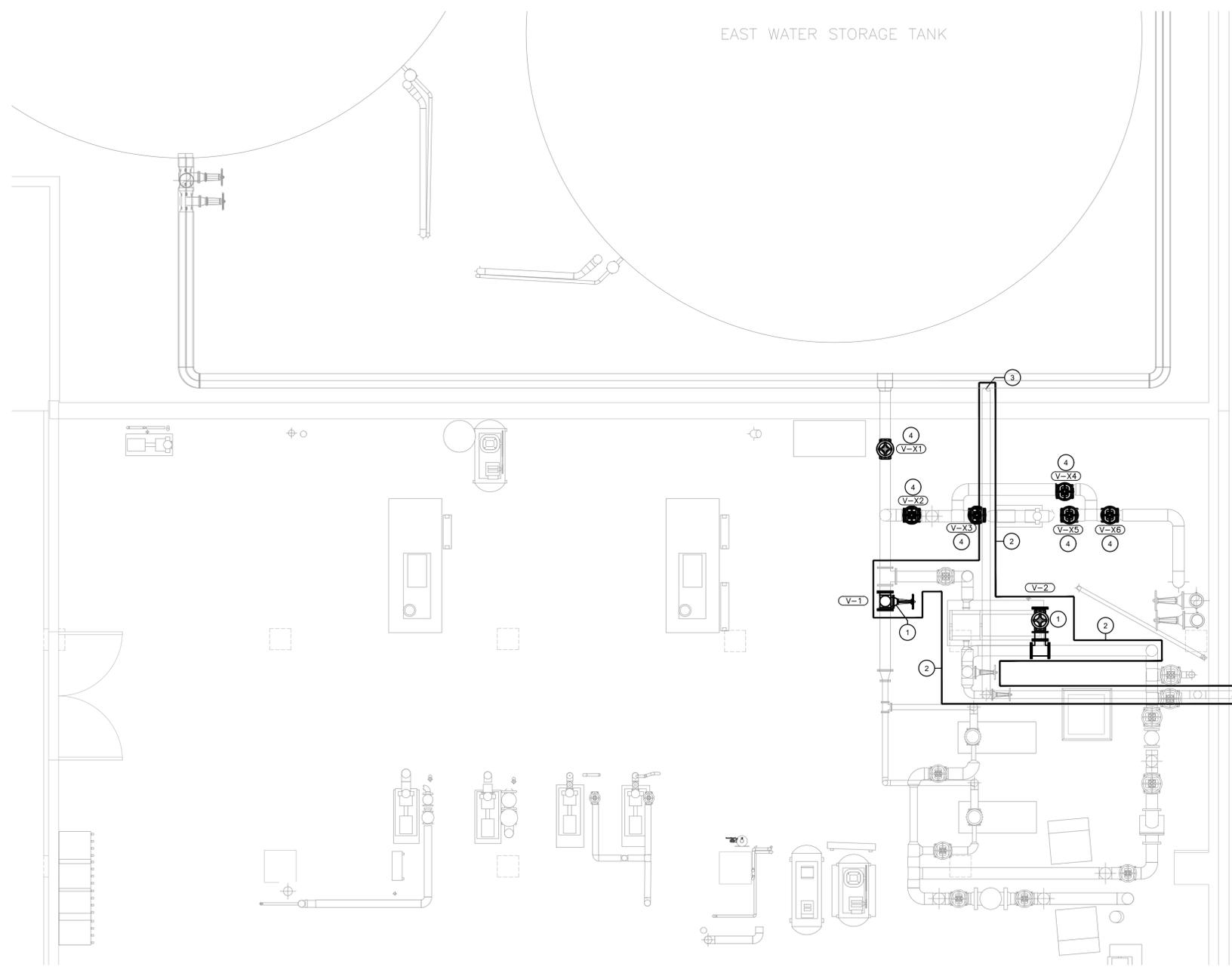
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PROFESSIONAL ENGINEER ALBERTA
STEPHEN GUNDY

 14 May 2021
 ID# 83935

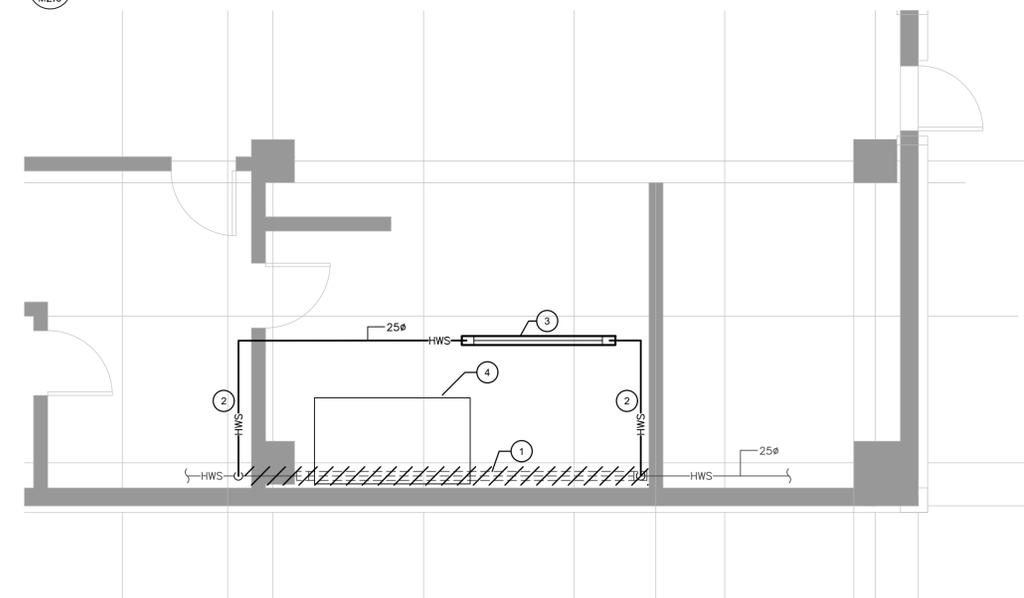
- GENERAL NOTES:**
- CONTRACTOR SHALL CONFIRM ALL EXISTING CONDITIONS ON SITE PRIOR TO START OF CONSTRUCTION.
 - CO-ORDINATE SHUT-DOWN AND INTERRUPTION TO EXISTING MECHANICAL SYSTEMS WITH OWNER.
 - REFER TO SCHEMATIC DRAWINGS M3.0 AND M3.1 FOR FURTHER DETAILS.

- KEY NOTES:**
- INSTALL NEW 200mm TEE INTO EXISTING WATER LINE. CONTRACTOR TO INSTALL NEW 200mm SHUT-OFF VALVE ON BRANCH OF TEE FITTING AND TEMPORARILY CAP END OF PIPE.
 - REMEDIATION AREA. CONTRACTOR TO REFER TO ASBESTOS AND LEAD TESTING ASSESSMENT REPORT. PERFORM REMEDIATION BEFORE INSTALLATION OF SHUT-OFF VALVES.
 - CONTRACTOR TO CONTINUE ABATEMENT FOR ENTIRE LENGTH OF OVERFLOW PIPE INTO WATER STORAGE TANK. OVERFLOW PIPE IS AT HIGH LEVEL TIGHT TO CEILING.
 - REPLACE EXISTING POTABLE WATER 200mm GATE VALVE.



1 PARTIAL CENTRAL HEATING PLANT FLOOR PLAN - PHASE 1
 M2.0 1:50

- KEY NOTES:**
- CONTRACTOR TO REMOVE EXISTING BASEBOARD RADIATION IN AREA INDICATED.
 - CONTRACTOR TO ROUTE HOT WATER SUPPLY LINE AT HIGH LEVEL AROUND AND AWAY FROM NEW ELECTRICAL EQUIPMENT.
 - INSTALL BARE-FIN RADIATION AT HIGH LEVEL. BARE-FIN TO BE 100mm X 100mm ALUMINUM FIN, 50 FINS/300mm.
 - NEW ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR DETAILS.



2 PARTIAL CENTRAL HEATING PLANT TOOL ROOM FLOOR PLAN
 M2.0 1:50

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H	ISSUED FOR TENDER REV2	2021-05-13
G	ISSUED FOR TENDER REV1	2021-04-08
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E	100% REVIEW SET	2019-06-10
D	99.5% REVIEW SET	2019-05-07
C	99% REVIEW SET	2019-03-18
B	50% REVIEW SET	2018-12-19

Client: client
CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
 DRUMHELLER, ALBERTA

Project title: Project
CENTRAL HEATING PLANT CSC DRUMHELLER FIRE PUMP REPLACEMENT

Designed by: Conçu par SG
 Drawn by: Dessiné par JM
 Approved by: Approuvé par DC
 PWGSC Project Manager: Administrateur de Projets TPSGC
 SHAWN LUMSDEN

Drawing title: Titre du dessin
CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT - PHASE 1

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.060837.001	M2.0	H

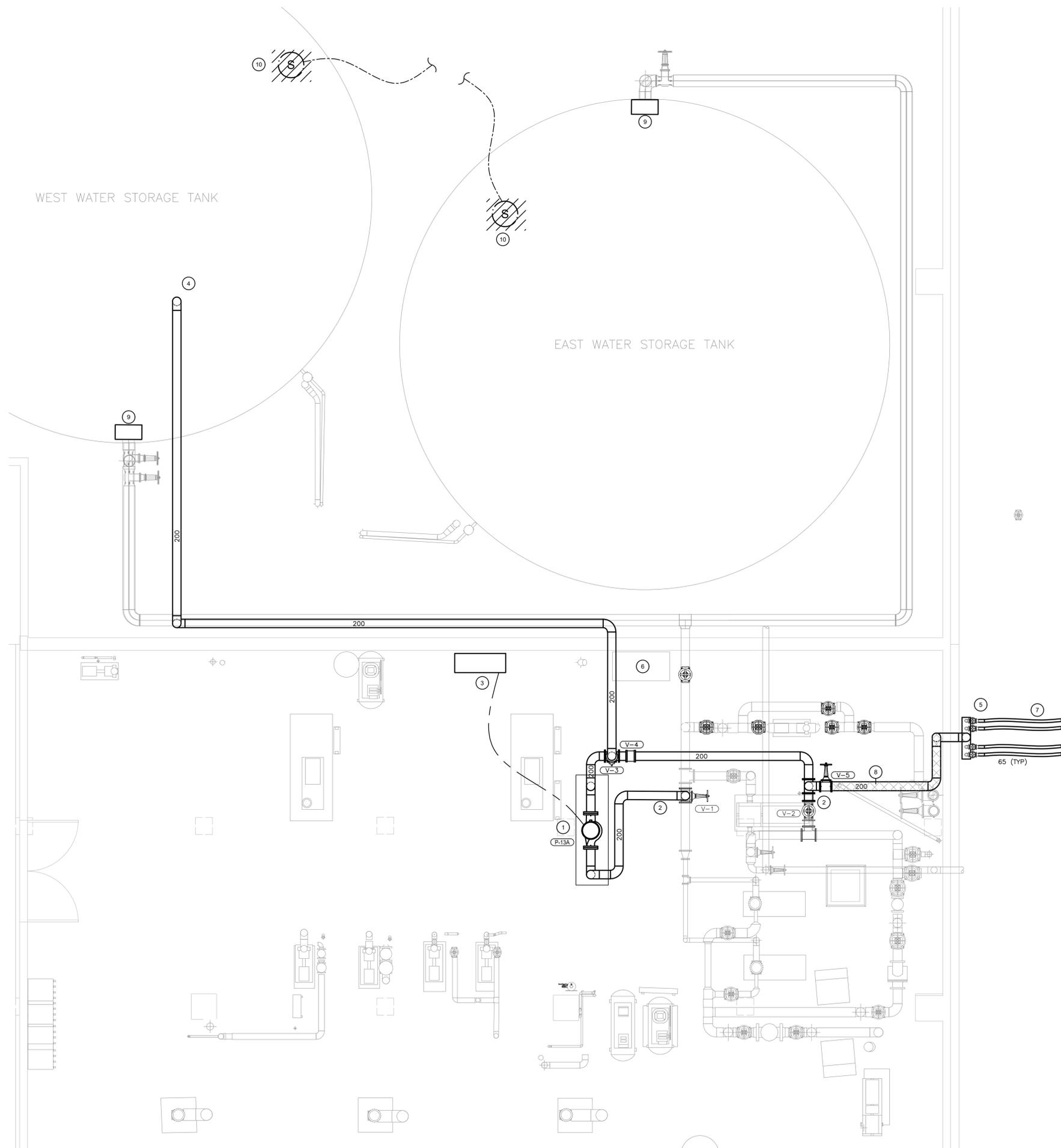


GENERAL NOTES:

1. CONTRACTOR SHALL CONFIRM ALL EXISTING CONDITIONS ON SITE PRIOR TO START OF CONSTRUCTION.
2. CO-ORDINATE SHUT-DOWN AND INTERRUPTION TO EXISTING MECHANICAL SYSTEMS WITH OWNER.
3. REFER TO SCHEMATIC DRAWINGS M3.0 AND M3.1 FOR FURTHER DETAILS.

KEY NOTES:

1. NEW INLINE FIRE PUMP MOUNTED ON 100mm HOUSEKEEPING PAD. PUMP TO BE EQUIPPED WITH LONG RADIUS ELBOWS & 400mm SPOOLS ON INCOMING AND OUTGOING.
2. NEW 200mm DOMESTIC WATER PIPING, RUN AT HIGH LEVEL TO NEW SUPERVISED SHUT-OFF VALVE INSTALLED IN PHASE 1.
3. LOCATION OF NEW FIRE PUMP CONTROLLER.
4. 200mm RELIEF PIPING FROM P-13A TO TERMINATE IN WEST STORAGE TANK.
5. 200mm TEST LINE TO EXTERIOR. PIPE TO EXIT BUILDING AT SAME ELEVATION OF EXISTING. LINE TO BE TERMINATED WITH FOUR-WAY FLUSH FIRE PUMP TEST CONNECTION. FIELD CONSTRUCTED. FOUR (4) BRASS NRS HOSE GATE VALVES TO BE INCLUDED. BRASS PLATE LETTERED "PUMP TEST CONNECTION". 200mm INLET, 65mm MALE HOSE THREAD OUTLET WITH CAPS AND CHAINS. EXTERNALLY SUPPORTED TO GROUND.
6. EXISTING FIRE PUMP CONTROLLER TO REMAIN FOR THIS PHASE.
7. CONTRACTOR TO INCLUDE ALL HOSES AND SPRAY NOZZLES NECESSARY FOR TESTING. FOUR (4) HOSES AND FOUR (4) SPRAY NOZZLES FOR EACH PUMP.
8. PIPE INSULATION.
9. CONTRACTOR TO INSTALL ANTI-VORTEX PLATE ON PIPE INLET. CONTRACTOR RESPONSIBLE FOR SHUT DOWN OF DOMESTIC WATER SYSTEM AND DRAINAGE OF TANKS & DISINFECTION. REFER TO DETAIL 3-M1.0.
10. CONTRACTOR TO REMOVE TWO (2) EXISTING LEVEL SENSORS AND REPLACE WITH TWO (2) NEW RADAR STYLE LEVEL DETECTORS. CONTRACTOR TO TIE NEW SENSORS INTO EXISTING PLC BASED CONTROL SYSTEM AND SEND ADDITIONAL SIGNAL TO NEW BMS.



1 PARTIAL CENTRAL HEATING PLANT FLOOR PLAN - PHASE 2
M2.1 1/50



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RM APEGA ID #: 63127

DATE: 2021-05-13
PERMIT NUMBER: P007641
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Revision	Description	Date
H	ISSUED FOR TENDER REV2	2021-05-13
G	ISSUED FOR TENDER REV1	2021-04-06
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B	50% REVIEW SET	2018-12-19

Client: **CORRECTIONAL SERVICES CANADA**
DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

Project title: **CENTRAL HEATING PLANT CSC DRUMHELLER FIRE PUMP REPLACEMENT**

Designed by SG	Conçu par
Drawn by JM	Dessiné par
Approved by DC	Approuvé par
PWGSC Project Manager SHAWN LUMSDEN	Administrateur de Projets TPSGC

Drawing title: **CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT - PHASE 2**

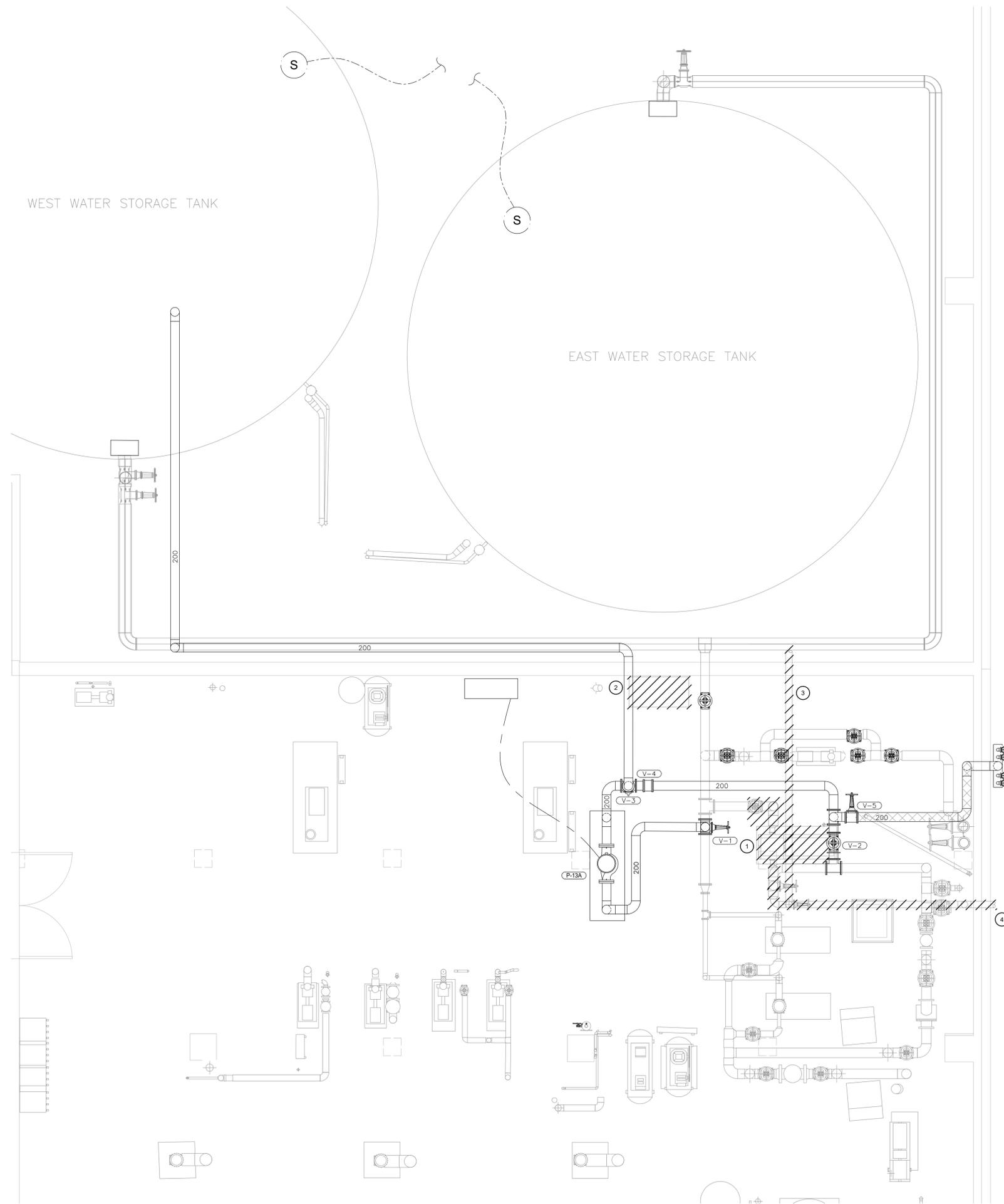
Project no./No. du projet R.060837.001	Drawing no./No. du dessin M2.1	Revision no. H
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GENERAL NOTES:

1. CONTRACTOR SHALL CONFIRM ALL EXISTING CONDITIONS ON SITE PRIOR TO START OF CONSTRUCTION.
2. CO-ORDINATE SHUT-DOWN AND INTERRUPTION TO EXISTING MECHANICAL SYSTEMS WITH OWNER.
3. REFER TO SCHEMATIC DRAWINGS M3.0 AND M3.1 FOR FURTHER DETAILS.

KEY NOTES:

- ① CONTRACTOR TO REMOVE EXISTING FIRE PUMP, PIPING BACK TO AND INCLUDING ISOLATION VALVES AND HOUSEKEEPING PAD, TEMPORARILY CAP PIPING TO PREPARE FOR INSTALLATION OF NEW PUMP
- ② CONTRACTOR TO REMOVE EXISTING FIRE PUMP CONTROLLER.
- ③ DEMOLISH EXISTING PRESSURE RELIEF LINE TO EAST TANK, PATCH ALL WALLS TO MATCH EXISTING. CONTRACTOR TO CONFIRM ROUTING ON SITE.
- ④ DEMOLISH EXISTING TESTING LINE TO EXTERIOR. EXTERIOR WALL OPENING TO BE PREPPED FOR LARGER TEST LINE (OLD LINE 150mm NEW LINE 200mm), AND CAPPED/COVERED UNTIL THE INSTALLATION OF THE NEW PIPE IN PHASE 4.



1 PARTIAL CENTRAL HEATING PLANT FLOOR PLAN - PHASE 3
M2.2 1:50



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Revision	Description	Date
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B	50% REVIEW SET	2018-12-19

Client: **CORRECTIONAL SERVICES CANADA**
DRUMHELLER INSTITUTION
 DRUMHELLER, ALBERTA

Project title: **CENTRAL HEATING PLANT CSC DRUMHELLER FIRE PUMP REPLACEMENT**

Designed by: **SG**
 Drawn by: **JM**
 Approved by: **DC**
 PWGSC Project Manager: **SHAWN LUMSDEN**

Drawing title: **CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT - PHASE 3**

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.060837.001	M2.2	H

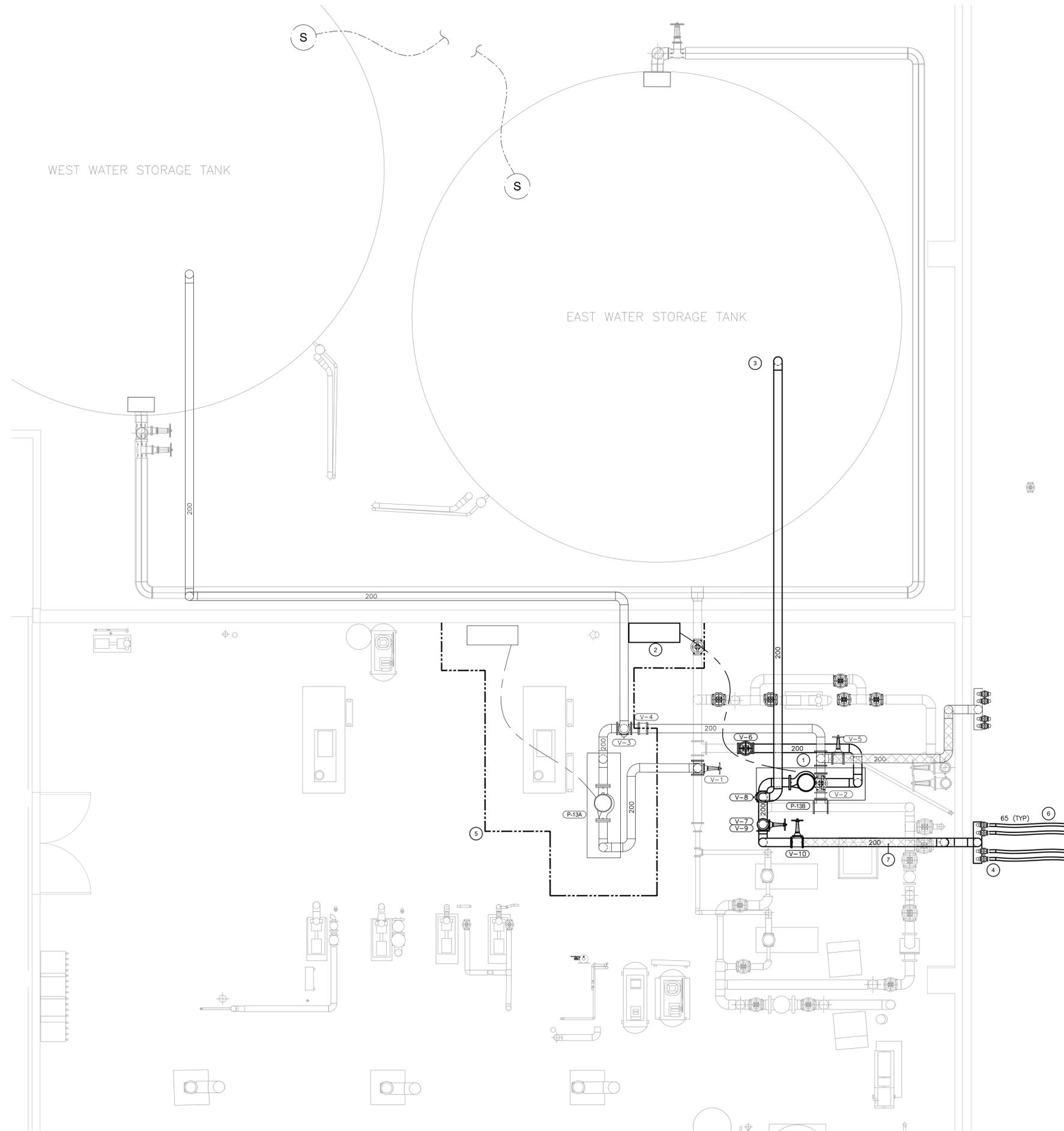


GENERAL NOTES:

1. CONTRACTOR SHALL CONFIRM ALL EXISTING CONDITIONS ON SITE PRIOR TO START OF CONSTRUCTION.
2. CO-ORDINATE SHUT-DOWN AND INTERRUPTION TO EXISTING MECHANICAL SYSTEMS WITH OWNER.
3. REFER TO SCHEMATIC DRAWINGS M3.0 AND M3.1 FOR FURTHER DETAILS.

KEY NOTES:

1. NEW INLINE FIRE PUMP MOUNTED ON 100mm HOUSEKEEPING PAD. PUMP TO BE EQUIPPED WITH LONG RADIUS ELBOWS & 400mm SPOOLS ON INCOMING AND OUTGOING.
2. LOCATION OF NEW FIRE PUMP CONTROLLER. CONTRACTOR TO ENSURE CABINET WIDTH DOES NOT EXCEED EXISTING SPACE CONSTRAINTS. CABINET CAN NOT BE WIDER THAN 1372mm.
3. 200mm RELIEF PIPING FROM P-13B TO TERMINATE IN EAST STORAGE TANK.
4. 200mm TEST LINE TO EXTERIOR. PIPE TO EXIT BUILDING AT SAME ELEVATION OF EXISTING LINE TO BE TERMINATED WITH FOUR-WAY FLUSH FIRE PUMP TEST CONNECTION. FIELD CONSTRUCTED. FOUR (4) BRASS NRS HOSE GATE VALVES TO BE INCLUDED. BRASS PLATE LETTERED "PUMP TEST CONNECTION". 200mm INLET, 85mm MALE HOSE THREAD OUTLET WITH CAPS AND CHAINS. EXTERNALLY SUPPORTED TO GROUND.
5. INDICATED AREA SHALL BE USED FOR MAINTENANCE ACCESS ONLY AND SHALL BE CLEAR OF ANY OTHER EQUIPMENT. STRUCTURAL REVIEW SHALL BE REQUIRED FOR ANY ADDITIONAL EQUIPMENT GENERALLY LOCATED WITHIN 600mm OF THE PUMP CONTROLLERS AND 900mm OF THE NEW AND EXISTING PUMP.
6. CONTRACTOR TO INCLUDE ALL HOSES AND SPRAY NOZZLES NECESSARY FOR TESTING. FOUR (4) HOSES AND FOUR (4) SPRAY NOZZLES FOR EACH PUMP.
7. PIPE INSULATION



1 PARTIAL CENTRAL HEATING PLANT FLOOR PLAN - PHASE 4
M2.2 1/30



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E	100% REVIEW SET	2019-06-10
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C	99% REVIEW SET	2019-03-18
B	50% REVIEW SET	2018-12-19

Client: **CORRECTIONAL SERVICES CANADA**
DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

Project title: **CENTRAL HEATING PLANT CSC DRUMHELLER FIRE PUMP REPLACEMENT**

Designed by: **SG** / Conçu par
 Drawn by: **JM** / Dessiné par
 Approved by: **DC** / Approuvé par
 PWGSC Project Manager: **SHAWN LUMSDEN** / Administrateur de Projets TPSGC

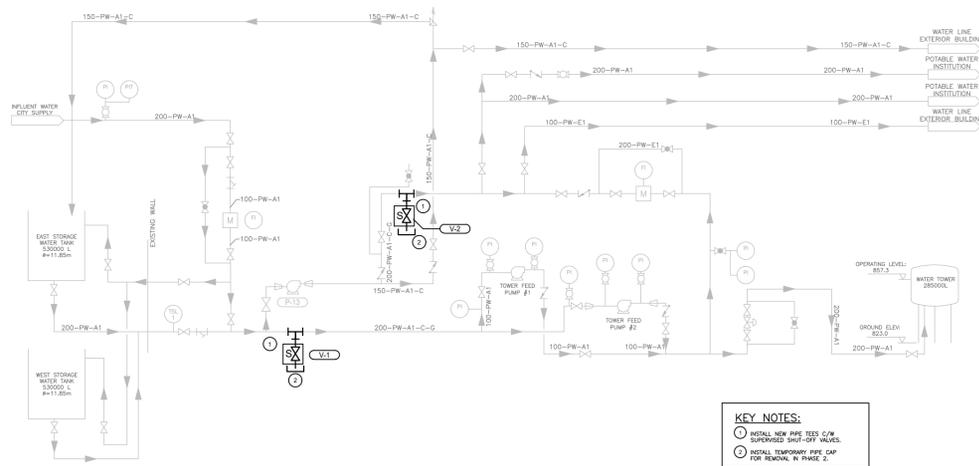
Drawing title: **CENTRAL HEATING PLANT FIRE PUMP REPLACEMENT - PHASE 4**

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.060837.001	M2.3	H



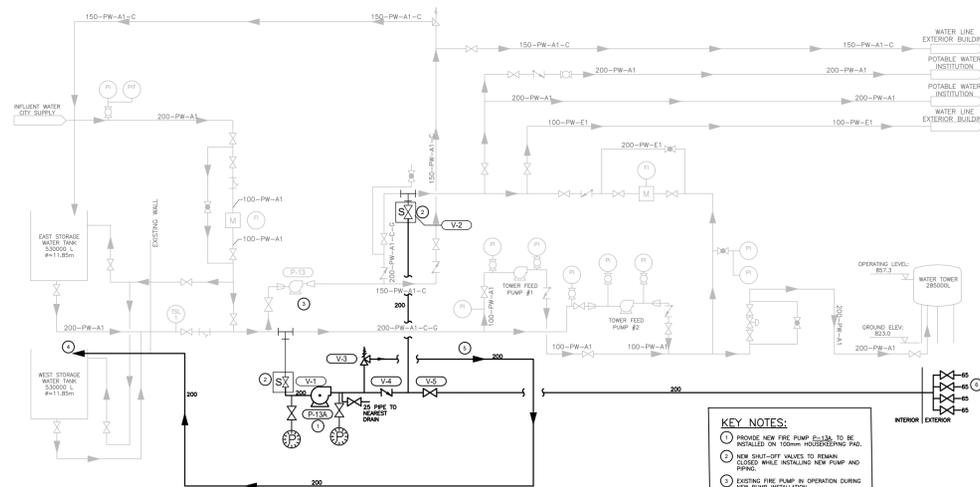
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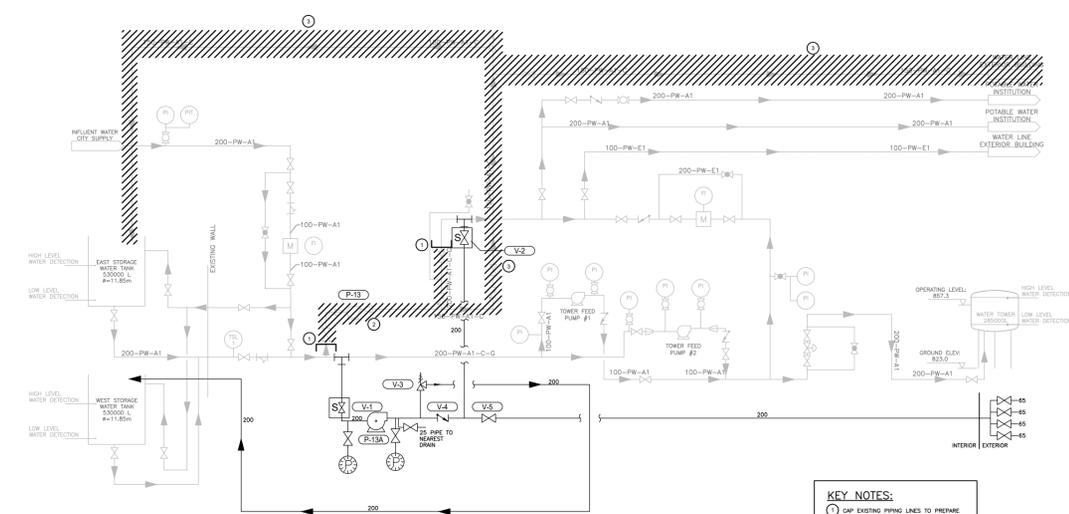
KEY NOTES:
 1. INSTALL NEW PIPE TEES OR W/ SUPERVISED SHUT-OFF VALVES.
 2. INSTALL TEMPORARY PIPE CAP FOR REMOVAL IN PHASE 2.

1 EXISTING DOMESTIC WATER SCHEMATIC - PHASE 1
M3.0 N.T.S.



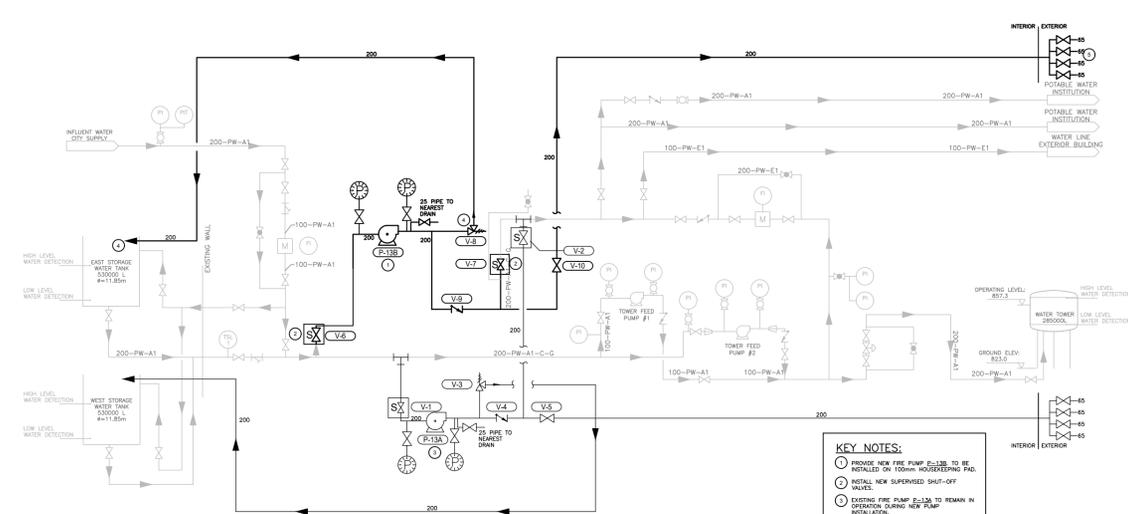
KEY NOTES:
 1. PROVIDE NEW FIRE PUMP ELLS TO BE INSTALLED ON 100MM HOISTING PIPE.
 2. NEW SHUT-OFF VALVES TO REMAIN CLOSED WHILE INSTALLING NEW PUMP AND PIPING.
 3. EXISTING FIRE PUMP IN OPERATION DURING NEW PUMP INSTALLATION.
 4. PIV OVERFLOW TO HOLDING TANK.
 5. RELIEF PIV RELIEF PRESSURE TO 689kPa (ADJUSTABLE).
 6. FOUR-WAY FLUSH FIRE PUMP TEST CONNECTION FIELD CONSTRUCTED FOUR (4) BRASS SHUT GATE VALVES TO BE INCLUDED BRASS PLATE LETTERED "PUMP TEST CONNECTION". 200mm DIA. 100mm DIA. HOSE THREADED OUTLET WITH CAPS AND CHAINS. EXTERNALLY SUPPORTED TO GROUND. CONTRACTOR TO INCLUDE ALL HOSES AND SPRAY NOZZLES NECESSARY FOR TESTING. FOUR (4) HOSES AND FOUR (4) SPRAY NOZZLES (2E EACH PUMP).

2 EXISTING DOMESTIC WATER SCHEMATIC - PHASE 2
M3.0 N.T.S.



KEY NOTES:
 1. CAP EXISTING PIPING LINES TO PREPARE FOR INSTALLATION OF NEW PUMP.
 2. REMOVE EXISTING FIRE PUMP ELLS, CHECK VALVE AND RELIEF VALVE AS INDICATED.
 3. REMOVE EXISTING PRESSURE RELIEF LINE AND TEST LINE TO EXTERIOR.

3 EXISTING DOMESTIC WATER SCHEMATIC - PHASE 3
M3.0 N.T.S.



KEY NOTES:
 1. PROVIDE NEW FIRE PUMP ELLS TO BE INSTALLED ON 100MM HOISTING PIPE.
 2. INSTALL NEW SUPERVISED SHUT-OFF VALVES.
 3. EXISTING FIRE PUMP ELLS TO REMAIN IN OPERATION DURING NEW PUMP INSTALLATION.
 4. PIV OVERFLOW TO HOLDING TANK. ADJUST PIV RELIEF PRESSURE TO 689kPa (ADJUSTABLE).
 5. FOUR-WAY FLUSH FIRE PUMP TEST CONNECTION FIELD CONSTRUCTED FOUR (4) BRASS SHUT GATE VALVES TO BE INCLUDED BRASS PLATE LETTERED "PUMP TEST CONNECTION". 200mm DIA. 100mm DIA. HOSE THREADED OUTLET WITH CAPS AND CHAINS. EXTERNALLY SUPPORTED TO GROUND. CONTRACTOR TO INCLUDE ALL HOSES AND SPRAY NOZZLES NECESSARY FOR TESTING. FOUR (4) HOSES AND FOUR (4) SPRAY NOZZLES (2E EACH PUMP).

4 EXISTING DOMESTIC WATER SCHEMATIC - PHASE 4
M3.0 N.T.S.

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G	ISSUED FOR TENDER REV1	2021-04-06
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C	99% REVIEW SET	2019-03-18
B	50% REVIEW SET	2018-12-19
Revision	Description	Date
Client		client

CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

Project title: Drumheller Institution

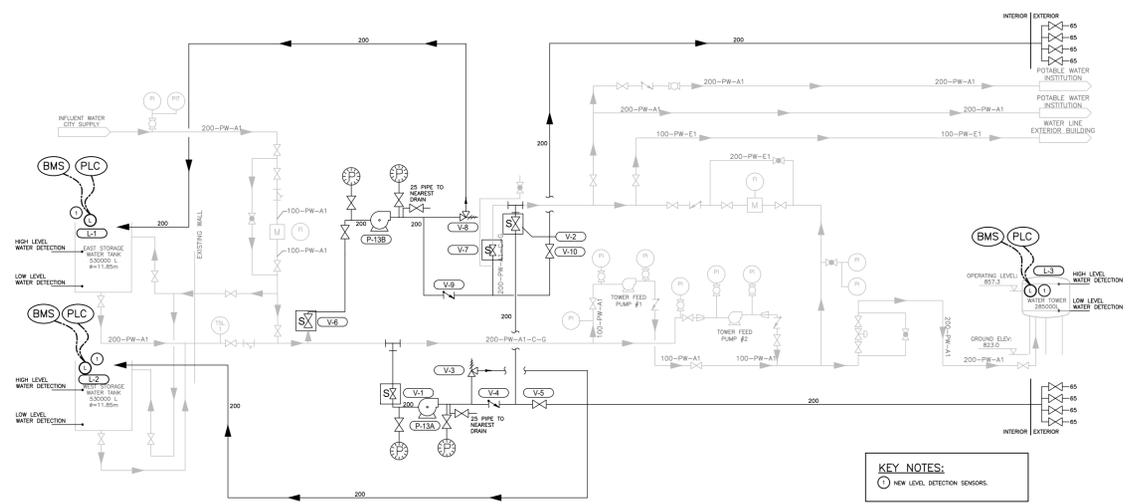
CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

Designed by: Conqu par SG
 Drawn by: Dessiné par JM
 Approved by: Approuvé par DC
 PWGSC Project Manager: Administrateur de Projets TPSGC
SHAWN LUMSDEN

Drawing title: Titre du dessin
CENTRAL HEATING PLANT
WATER DISTRIBUTION
SCHEMATICS
FIRE PUMP REPLACEMENT -
Ph 1, Ph2, Ph3 & Ph4

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.060837.001	M3.0	H
	7 OF 8	





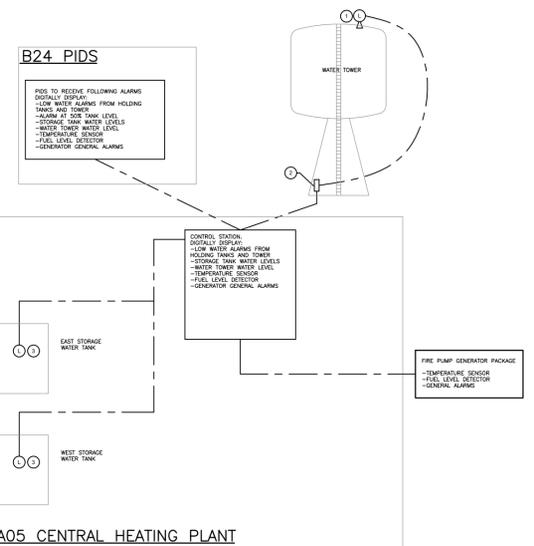
1 DOMESTIC WATER SCHEMATIC - CONTROLS UPGRADES
M3.1 N.T.S.

KEY NOTES:
① NEW LEVEL DETECTION SENSORS.

BMS CONTROL SCOPE OF WORK:

- CONTRACTOR TO INSTALL INNET COMPATIBLE CONTROL CABINET COMPLETE WITH DISPLAY SCREEN IN A05 CENTRAL HEATING PLANT.
- CONTRACTOR TO INSTALL INNET COMPATIBLE REMOTE CABINET COMPLETE WITH DISPLAY SCREEN IN B24 PIDS.
- FIELD WIRE BETWEEN A05 CENTRAL HEATING PLANT AND B24 PIDS.
- CONTRACTOR TO INSTALL WOODCOCK POINTS FOR OUTDOOR GENERATOR PACKAGE.
- CONTRACTOR TO MONITOR THROUGH MANHOLES HOLDING TANK LEVEL FOR BOTH TANKS, TOWER WATER PRESSURE.
- EXISTING LEVEL SENSORS IN HOLDING TANKS AND WATER TOWER TIE INTO STAND-ALONE PLC CONTROL PANELS.

ONLY NEW SENSORS WILL REPORT TO THE SAME CONTROL PANELS AND THE NEW BMS SYSTEM.



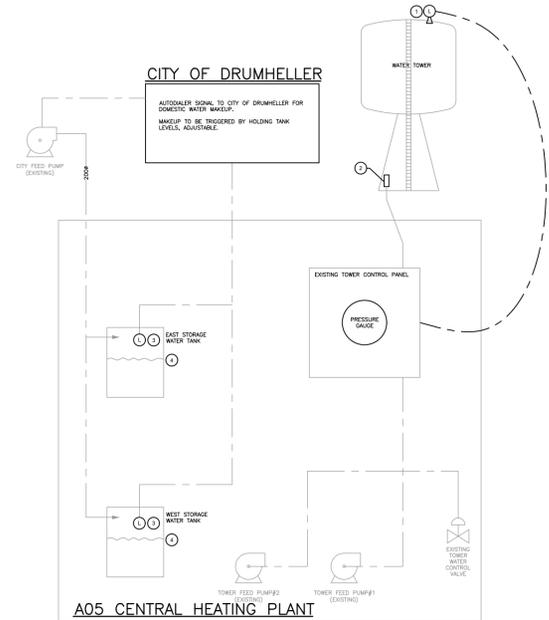
KEY NOTES:

- EXISTING ROOF MOUNTED SENSOR WILL HAVE TO BE REMOVED AND REPLACED WITH NEW.
- EXISTING TOWER CONTROL PANEL TO BE REMOVED AND REPLACED WITH NEW.
- EXISTING WATER STORAGE TANK LEVEL SENSORS TO BE REMOVED AND REPLACED.

2 PROJECT BMS UPGRADES SCHEMATIC
M3.1 N.T.S.

PLC CONTROL SCOPE OF WORK:

- CONTRACTOR TO KEEP EXISTING CONTROL CABINET FOR TOWER WATER SYSTEM AND HOLDING TANKS.
- INSTALL NEW SENSORS BY MANHOLES TO EXISTING SENSORS TO MONITOR CONTROLS.
- EXISTING LEVEL SENSORS IN HOLDING TANKS AND WATER TOWER TIE INTO STAND-ALONE PLC CONTROL PANELS.
- ONLY NEW SENSORS WILL REPORT TO THE SAME CONTROL PANELS AND THE NEW BMS SYSTEM.



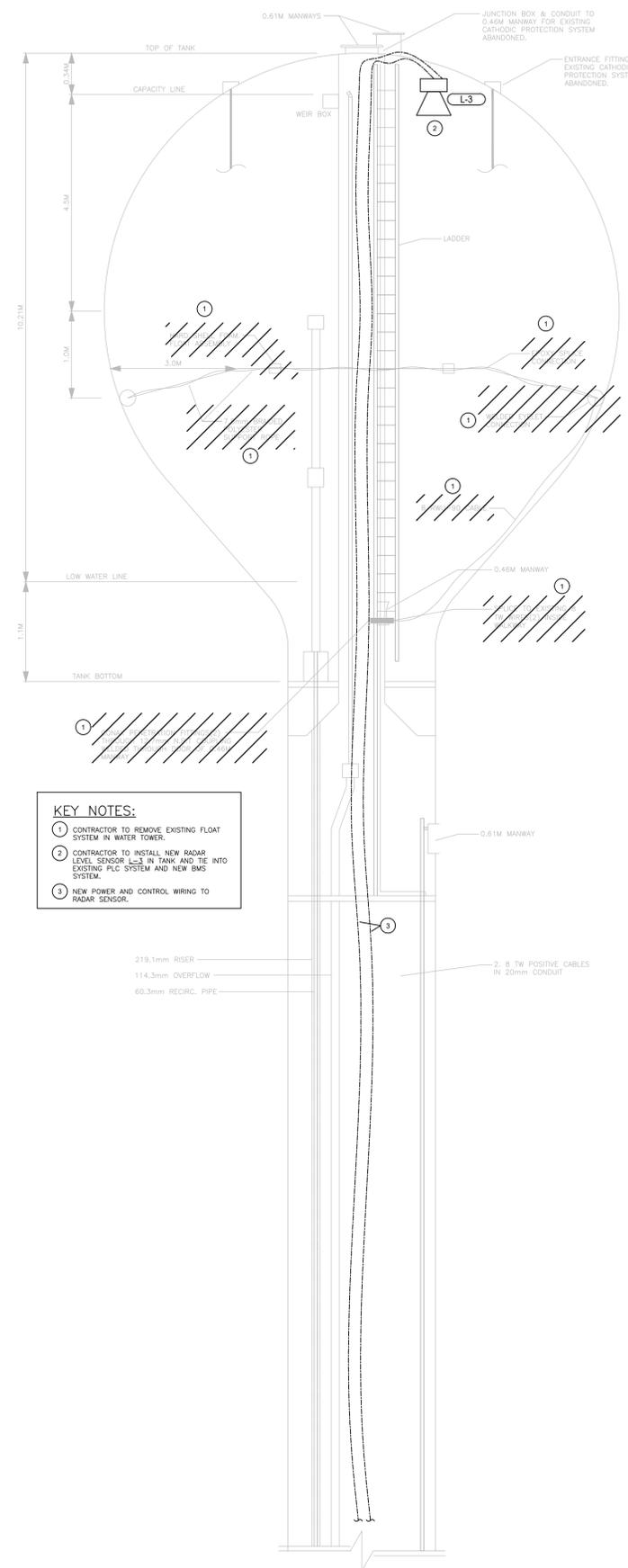
KEY NOTES:

- EXISTING ROOF MOUNTED SENSOR WILL HAVE TO BE REMOVED AND REPLACED WITH NEW.
- EXISTING TOWER CONTROL PANEL TO BE REMOVED AND REPLACED WITH NEW.
- EXISTING WATER STORAGE TANK LEVEL SENSORS TO BE REMOVED AND REPLACED.
- EXISTING HOLDING TANK CITY WATER MAKEUP TO BE TRIGGERED WHEN TANK LEVEL IS AT FIRE.

3 PROJECT FIRE ALARM UPGRADES SCHEMATIC
M3.1 N.T.S.

KEY NOTES:

- CONTRACTOR TO REMOVE EXISTING FLOAT SYSTEM IN WATER TOWER.
- CONTRACTOR TO INSTALL NEW RADAR LEVEL SENSOR L-3 IN TANK AND TIE INTO EXISTING PLC SYSTEM AND NEW BMS SYSTEM.
- NEW POWER AND CONTROL WIRING TO RADAR SENSOR.



5 WATER TOWER DETAIL
M3.1 N.T.S.



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B	50% REVIEW SET	2018-12-19

Client: client

**CORRECTIONAL SERVICES
CANADA
DRUMHELLER INSTITUTION**

DRUMHELLER, ALBERTA

Project title: Project

**CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT**

Designed by: Conqu par SG
Drawn by: Dessiné par JM
Approved by: Approuvé par DC
PWGSC Project Manager: SHAWN LUMSDEN
Administrateur de Projets TPSGC

Drawing title: Titre du dessin

**CENTRAL HEATING PLANT
WATER DISTRIBUTION
SCHEMATICS
FIRE PUMP REPLACEMENT -
Ph5**

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
R.060837.001	M3.1	H



SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
POWER		COMMUNICATION		FIRE ALARM		SINGLE LINE DIAGRAM SYMBOLS	
	DUPLEX RECEPTACLE		TELEPHONE OUTLET		MANUAL FIRE ALARM PULL STATION		FUSED DISCONNECT
	QUAD RECEPTACLE		DATA OUTLET		SMOKE DETECTOR		LOAD BREAK SWITCH
	SPECIAL RECEPTACLE		COMMUNICATION OUTLET		SMOKE ALARM		AUTOMATIC TRANSFER SWITCH
	SINGLE RECEPTACLE	PANELBOARDS AND DISTRIBUTION			DUCT DETECTOR		AUTOMATIC TRANSFER SWITCH (DETAILED)
	5-20RA (Tslot) DUPLEX RECEPTACLE		PANELBOARD - SURFACE MOUNTED		HEAT DETECTOR - FIXED TEMPERATURE		POWER TRANSFORMER
	EMERGENCY POWER DUPLEX RECEPTACLE		TELEPHONE PANEL - SURFACE MOUNTED		HEAT DETECTOR - RATE OF RISE		ISOLATION TRANSFORMER
	MODULAR JUNCTION BOX - # INDICATES MODULES		LOW VOLTAGE RELAY CABINET - SURFACE MOUNTED		END OF LINE RESISTOR		INSTRUMENT VOLTAGE TRANSFORMER
	DIRECT CONNECTION TO EQUIPMENT		POWER TRANSFORMER		FIRE ALARM BELL		INSTRUMENT CURRENT TRANSFORMER
NOTES, LINES, AND ABBREVIATIONS			MOTOR CONTROL CENTRE DIGITAL METERING SYSTEM		FIRE ALARM BELL WITH VISUAL ALARM		3 WINDING TRANSFORMER
	DRAWING REVISION KEYNOTE		PLYWOOD BACKBOARD		FIRE ALARM HORN		NORMAL POWER PANELBOARD
	DRAWING DESCRIPTION/INSTRUCTION KEYNOTE		GROUND BUS/BAR		FIRE ALARM HORN WITH VISUAL ALARM		EMERGENCY POWER PANELBOARD
	DRAWING EQUIPMENT/DEVICE KEYNOTE	CONDUIT AND JUNCTION BOXES			VISUAL ALARM - WALL MOUNTED		TRANSIENT VOLTAGE SURGE SUPPRESSOR
	DRAWING KEYNOTE		ALTERNATE JUNCTION BOX		VISUAL ALARM - CEILING MOUNTED		DIGITAL METERING SYSTEM
	LINE TYPE AND WEIGHT INDICATE CONSTRUCTION		JUNCTION BOX - WALL		FIRE SPEAKER - WALL MOUNTED		AMMETER
	LINE TYPE AND WEIGHT INDICATE EXISTING		JUNCTION BOX - FLOOR		FIRE SPEAKER WITH VISUAL ALARM - WALL MOUNTED		VOLTMETER
	LINE TYPE AND WEIGHT INDICATE DEMOLITION		CONDUIT		FIRE SPEAKER - CEILING MOUNTED		WATTMETER
	IG ISOLATED GROUND		UNDERGROUND CONDUIT		FIRE SPEAKER WITH VISUAL ALARM - CEILING MOUNTED		TEMPERATURE METER
	GFI GROUND FAULT INTERRUPTING		HOME RUN		FIRE ALARM EXTERIOR BEACON		DRAW OUT
	BO BLANK OFF EXISTING DEVICE		CONDUIT STUB UP		FIRE ALARM MONITORING ELEMENT		LIGHTNING ARRESTOR
	HK HOUSEKEEPING RECEPTACLE		CONDUIT STUB DOWN		FIRE ALARM CONTROL ELEMENT		MOLDED CASE CIRCUIT BREAKER
	WP WEATHER PROOF		CABLE TRAY		FIRE ALARM CONTROL PANEL		STAND ALONE MOLDED CASE CIRCUIT BREAKER
	TL TWISTLOCK		BUS DUCT		FIRE ALARM ACTIVE GRAPHIC		TRANSFORMER
	SH SAFETY SHUTTER		CAPPED CONDUIT		FIRE ALARM PASSIVE GRAPHIC		BATTERY
	P PILOT LIGHT		WIRE IN CONDUIT		VESDA SMOKE ASPIRATION DETECTOR		NORMALLY CLOSED PUSH BUTTON
	K KEYED		UNDERGROUND POWER CONDUIT/CONDUCTOR		ISOLATION MODULE		NORMALLY OPEN PUSH BUTTON
	SS SURGE SUPPRESSION		UNDERGROUND DATA CONDUIT/CONDUCTOR		CONTROL MODULE		FUSIBLE LINK
	ER EXISTING TO REMAIN		UNDERGROUND LOW VOLTAGE CONDUIT/CONDUCTOR		MAGNETIC DOOR HOLDER		RED INDICATOR LIGHT
	R TO BE REMOVED				ADDRESSABLE ACTUATION MODULE		GREEN INDICATOR LIGHT
	FL EXISTING TO BE RELOCATED				ADDRESSABLE MONITORING MODULE		CONTACTOR
	F FUTURE DEVICE						MOTOR RELAY
	DEVICE MOUNTED ABOVE COUNTER OR MILLWORK						CONTROL RELAY
							AUX RELAY
							FUSE
							RESISTOR
							CONNECTION POINT
							EQUIPMENT TERMINAL
							GENERATOR
							HAND OFF AUTO DISCONNECT SWITCH

DRAWING LIST:

E0.0	COVER SHEET
E1.0	SITE POWER & SYSTEMS LAYOUT
ED2.0	HEATING PLANT POWER & SYSTEMS DEMOLITION LAYOUT
E2.0	ALTERATIONS & NEW HEATING PLANT POWER & SYSTEMS LAYOUT
ED3.0	SINGLE LINE DIAGRAM DEMOLITION
E3.0	SINGLE LINE DIAGRAM
E4.0	ELECTRICAL DETAILS
E5.0	FIRE ALARM & FIRE PUMP CONTROLLER RISER SCHEMATIC DIAGRAM



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H	ISSUED FOR TENDER REV2	2021-05-13
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Client: **CORRECTIONAL SERVICES CANADA**

DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

Project title: **CENTRAL HEATING PLANT CSC DRUMHELLER FIRE PUMP REPLACEMENT**

Designed by: **K. ROGERS**
Drawn by: **C. MAK**
Approved by: **D. CARGILL**
Project Manager: **S. LUMSDEN**

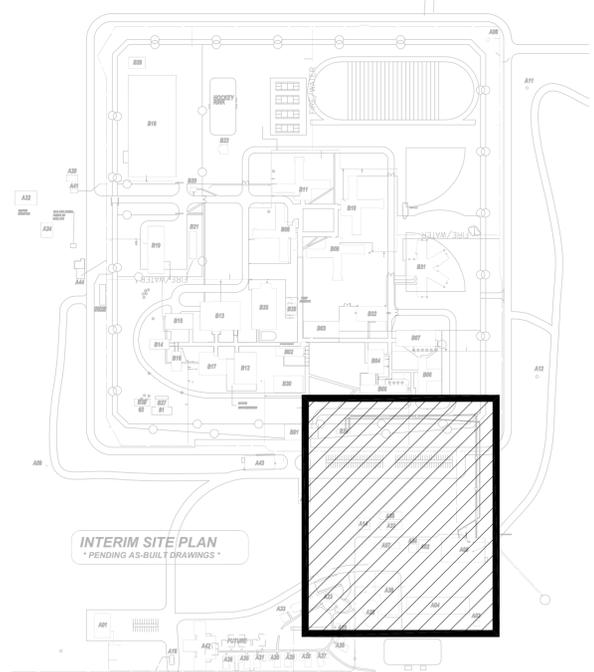
Drawing title: **COVER SHEET**

Project No. / No. du projet	Drawing No. / No. du dessin	Revision
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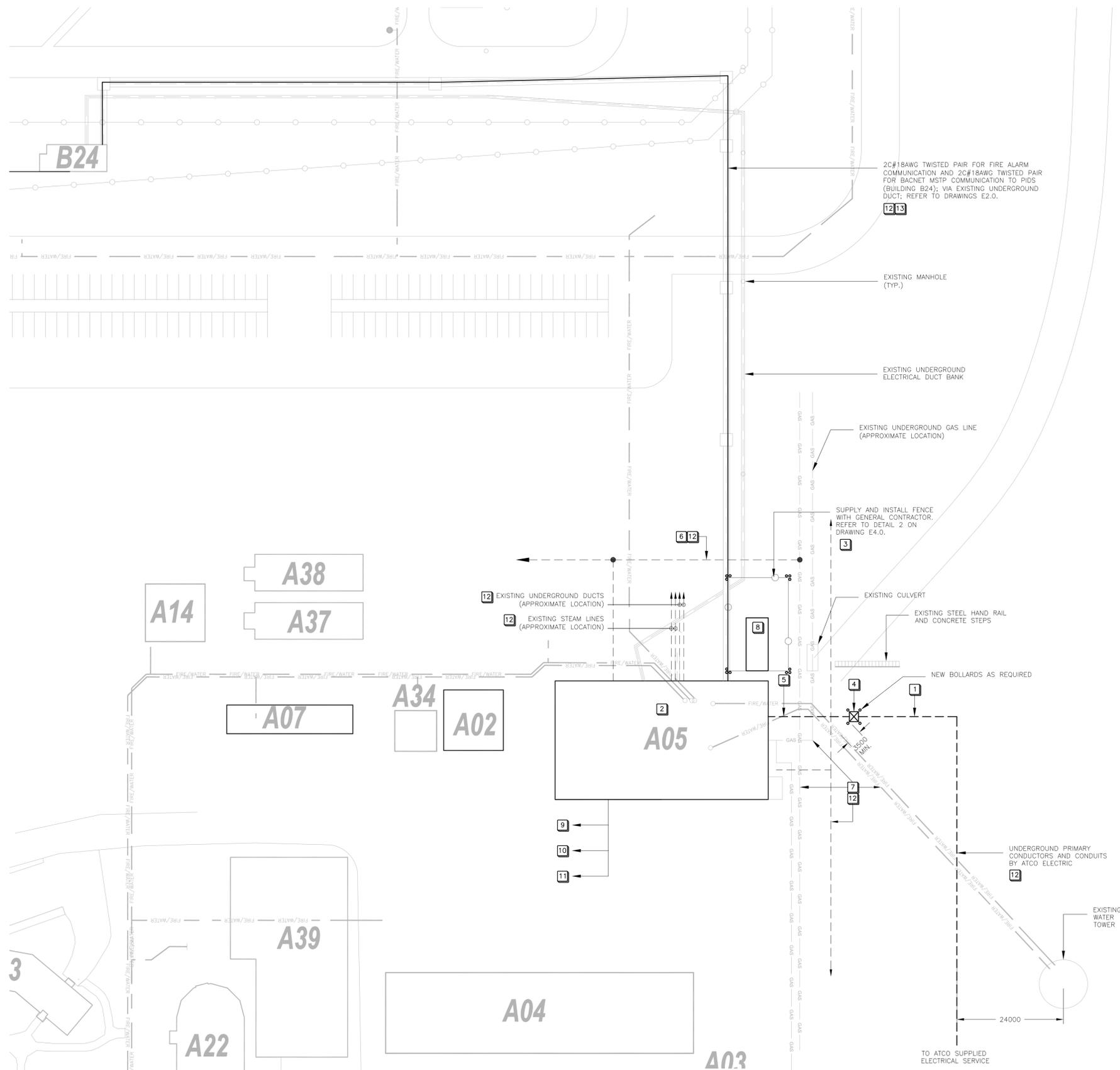
2 KEYPLAN
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KEYNOTES:

- 1 NOT IN CONTRACT: ATCO ELECTRIC SHALL PROVIDE UNDERGROUND PRIMARY HIGH VOLTAGE ELECTRICAL UTILITY LINES FROM PROPERTY LINE TO ATCO SUPPLIED 750KVA UTILITY TRANSFORMER.
- 2 REFER TO DRAWING E2.0 FOR INTERIOR BUILDING ELECTRICAL AND UTILITY LAYOUT.
- 3 CONTRACTOR TO HYDROVAC ALL FENCE POST HOLES.
- 4 NEW 750KVA TRANSFORMER BY ATCO ELECTRIC. ATCO ELECTRIC SHALL TO ADJUST SLOPE TO ACCOMMODATE NEW TRANSFORMER PAD AND GROUND LOOP. ATCO TO MAINTAIN MINIMUM 3M CLEARANCE FROM DEEP UTILITIES.
- 5 SECONDARY UNDERGROUND BY CONTRACTOR. REFER TO E2.0 AND SINGLE LINE DIAGRAM ON DWG E3.0. CONTRACTOR SHALL HYDROVAC FROM TRANSFORMER PAD TO BUILDING A05 FOR SECONDARY UNDERGROUND CONDUITS. SECONDARY CONDUITS ENCASED IN CONCRETE WILL BE REQUIRED TO PASS UNDER EXISTING SHALLOW UNDERGROUND GAS LINES. CONCRETE ENCASED CONDUITS SHALL PASS OVER DEEP UNDERGROUND WATERLINES. CARRY COST TO REPAIR CATHODIC PROTECTION SYSTEM (ROUTE ABOVE NEW CONCRETE DUCT), UPON COMPLETION OF ELECTRICAL SERVICE WORK.
- 6 APPROXIMATE (ESTIMATED) LOCATION OF #6 SPCP WHITE NEGATIVE CABLE FOR CATHODIC PROTECTION SYSTEM. CONTRACTOR TO CARRY COST FOR LOCATING AND REPLACING THE CABLE. SELECTION FROM UNDERGROUND SPLICE AT TEE POINT TO GAS LINE TO ACCOMMODATE NEW GENERATOR BUILDING ON SITE. CREDIT BACK TO PSPC IF DEEMED NOT REQUIRED.
- 7 CONTRACTOR TO SURVEY LOCATION OF EXISTING GAS LINES, FIRE WATER LINES AND ALL OTHER POSSIBLE UNDERGROUND LINES PRIOR TO INSTALLATION OF NEW PAD MOUNT UTILITY TRANSFORMER.
- 8 NEW GENERATOR BUILDING: REFER TO DRAWING E2.0 FOR COORDINATING EXACT LOCATION OF GENERATOR BUILDING ON SITE.
- 9 CABLE IS DIAGRAMMATIC ONLY. EXISTING UNDERGROUND TO BUILDING A01 (NOT SHOWN ON DRAWING, BUILDING A01 IS LOCATED AT NORTHWEST CORNER OF PROPERTY) FROM BUILDING A05 TO REMAIN. DISCONNECT FEED FROM PANEL EN-602 AND TERMINATE TO NEW CIRCUIT BREAKER ON PANEL N-602. REFER TO DRAWINGS ED3.0 AND E3.0 FOR FURTHER INSTRUCTION ON SINGLE LINE DIAGRAM.
- 10 CABLE IS DIAGRAMMATIC ONLY. EXISTING UNDERGROUND TO BUILDING A02 FROM BUILDING A05 TO REMAIN. DISCONNECT FEED FROM PANEL EN-602 AND RE-TERMINATE TO NEW CIRCUIT BREAKER ON PANEL N-602. REFER TO DRAWINGS ED3.0 AND E3.0 FOR FURTHER INSTRUCTION ON SINGLE LINE DIAGRAM.
- 11 CABLE IS DIAGRAMMATIC ONLY. EXISTING UNDERGROUND TO BUILDING A07 FROM BUILDING A05 TO REMAIN. DISCONNECT FEED FROM PANEL EN-602 AND RE-TERMINATE TO NEW CIRCUIT BREAKER ON PANEL N-602. REFER TO DRAWINGS ED3.0 AND E3.0 FOR FURTHER INSTRUCTION ON SINGLE LINE DIAGRAM.
- 12 CONFIRM EXACT LOCATION OF CATHODIC PROTECTION SYSTEM PRIOR TO START OF WORK.
- 13 CONTRACTOR SHALL COORDINATE WORK WITH OTHER GENERAL CONTRACTOR ON-SITE THAT IS PRESENTLY INSTALLING A NEW NETWORK OF UNDERGROUND DUCT BANKS. DUCT BANK SHALL BE USED TO ROUTE NEW COMMUNICATION CONTROL AND FIRE ALARM NETWORK CABLING BETWEEN BUILDING A05 AND B24.

GENERAL NOTES:

1. REFER TO SPECIFICATIONS AND RELATED DRAWINGS FOR ASSOCIATED REQUIREMENTS.
2. INSTALL ELECTRICAL SYSTEMS, AS PER CSC TECH. CRIT. 2015.
3. CONTRACTOR SHALL WORK WITH ATCO ELECTRIC AND CARRY COSTS FOR ENERGIZATION OF SITE WITH ATCO ELECTRIC.
4. CONTRACTOR SHALL CARRY ALL COSTS FOR PERMITS AND MEETING ANY REQUIREMENTS AS DEFINED BY THE AHJ.



1 BUILDING POWER AND SYSTEMS LAYOUT
 E1.0 1:500

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CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
 DRUMHELLER, ALBERTA

CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

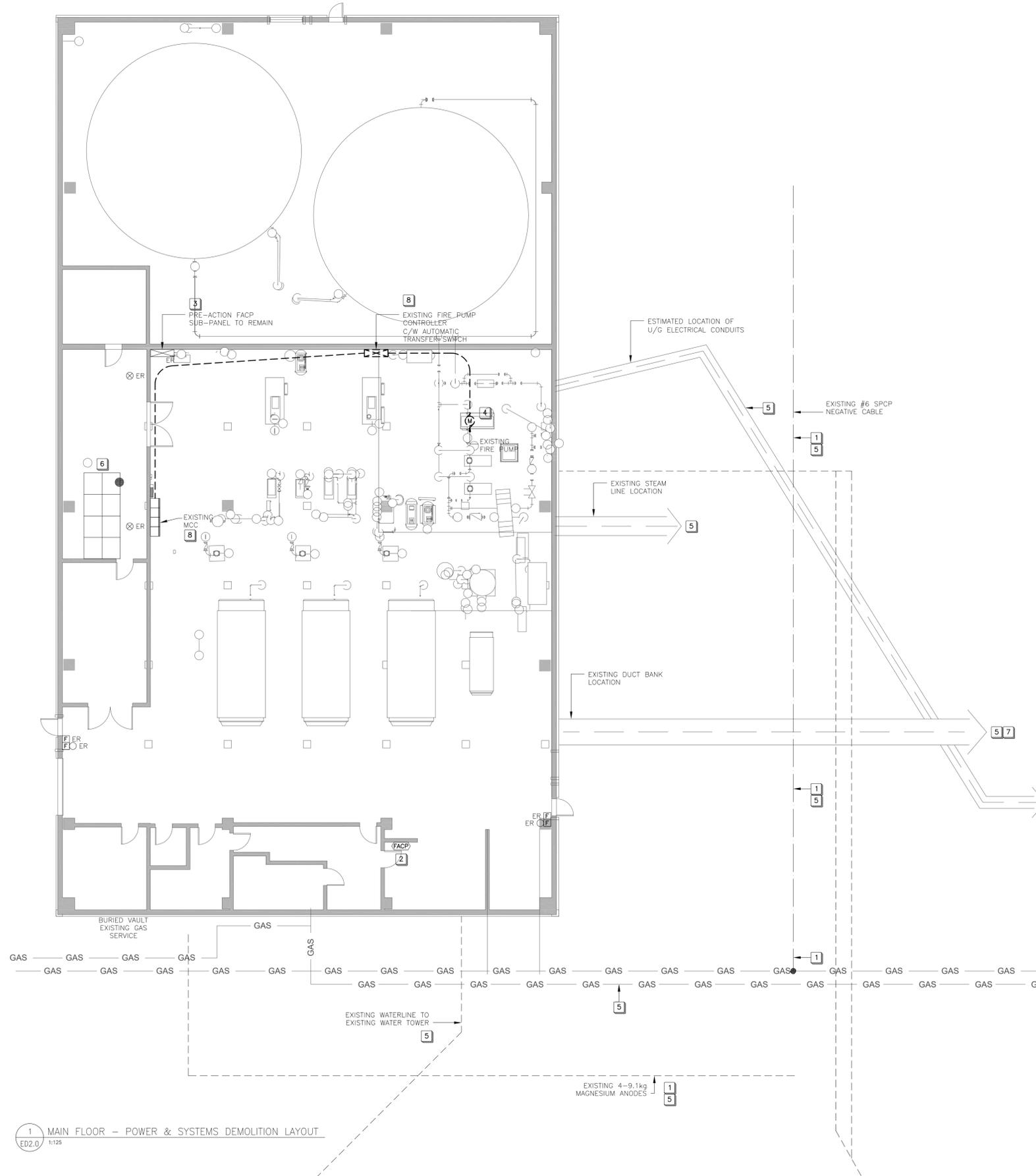
Designed by	Conçu par
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Approved by	Approuvé par
D. CARGILL	
Project Manager	Administrateur de Projets TPSGC
S. LUMSDEN	
Drawing title	Titre du dessin

SITE POWER & SYSTEMS LAYOUT

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1 MAIN FLOOR - POWER & SYSTEMS DEMOLITION LAYOUT
ED2.0 1/125

KEYNOTES:

- 1 APPROXIMATE LOCATION OF CATHODIC PROTECTION SYSTEM. CONTRACTOR TO CARRY COST TO VERIFY LOCATION AND RELOCATE SECTION IN CONFLICT WITH GENERATOR BUILDING FOUNDATION REFER TO DRAWINGS E2.0 FOR GENERATOR BUILDING LOCATION.
- 2 EXISTING FIRE ALARM CONTROL PANEL TO BE REMOVED ONCE FIRE ALARM CIRCUITS ARE MIGRATED TO NEW SIEMENS XLS PANEL.
- 3 RETAIN FACP PREACTION SUBPANEL AND TIE INTO NEW SIEMENS XLS FACP SHOWN ON DRAWINGS E2.0.
- 4 COORDINATE DEMOLITION OF EXISTING FIRE PUMP ELECTRICAL SYSTEM WITH DEMOLITION OF FIRE PUMP MECHANICAL SYSTEM, INSTALLATION/COMMISSIONING OF NEW FIRE PUMP SYSTEM.
- 5 LOCATE AND VERIFY ROUTE OF EXISTING DEEP AND SHALLOW UTILITIES ON-SITE.
- 6 EXISTING SCHIENEDER DISTRIBUTION PANEL N-602/EN-602 SERIAL NUMBER: 27268195-004; CARRY COST TO MODIFY PANELBOARD TO ACCOMMODATE SEPARATE SERVICE ENTRANCE TO PANEL N-602. REFER TO SINGLE LINE DIAGRAM ED3.0 AND E3.0 FOR ADDITIONAL DETAILS.
- 7 CONTRACTOR SHALL COORDINATE WORK WITH OTHER GENERAL CONTRACTOR ONSITE THAT IS PRESENTLY INSTALLING A NEW NETWORK OF UNDERGROUND DUCT BANKS. DUCT BANK SHALL BE USED TO ROUTE NEW COMMUNICATION CONTROL AND FIRE ALARM NETWORK CABLING BETWEEN BUILDING A05 AND B24.
- 8 AFTER NEW FIRE PUMP SYSTEM IS OPERATIONAL, DISCONNECT AND REMOVE ORIGINAL FIRE PUMP WIRING AND CONDUIT FROM MCC TO ORIGINAL FIRE PUMP AND MARK MCC BUCKET AS 'SPARE' WITH NEW LAMACOID, REMOVE AND DISPOSE ORIGINAL FIRE PUMP CONTROLLER ABANDON AND CONDUIT IN SLAB. PUT BREAKER IN 'OFF' POSITION.

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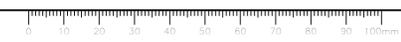
CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

Designed by: **K. ROGERS**
Drawn by: **C. MAK**
Approved by: **D. CARGILL**
Project Manager: **S. LUMSDEN**

HEATING PLANT
POWER & SYSTEMS
DEMOLITION LAYOUT

Project No./No. du projet	Drawing No./No. du dessin	Revision No.
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KEYNOTES:

- PRIMARY CONDUCTORS FED FROM PAD MOUNT ATCO TRANSFORMER. GROUND GRID BY ATCO (NOT IN CONTRACT).
- CONTRACTOR TO CORE PENETRATIONS BENEATH BUILDING FLOOR TO CRAWL SPACE. ROUTE CONDUITS WITHIN CRAWLSPACE TO RESPECTIVE LOCATIONS SHOWN ON DRAWINGS AND AS PER SPECIFICATIONS. CONTRACTOR TO COORDINATE CABLE TRAY AND CONDUCTORS ROUTING AROUND THE CRAWL SPACE ACCESS PANEL (1613mm x1613mm).
- ELECTRICAL CONTRACTOR TO PROVIDE NEW FIRE ALARM MONITORING ELEMENTS (ADDRESSABLE MODULES) AND TERMINATE TO THE FIRE PUMP RUN CONTACTS, ALARM SIGNAL FOR 'PUMP RUNNING AND SUPERVISORY SIGNALS FOR 'LOSS OF PHASE POWER', 'PHASE REVERSAL' AND 'ALTERNATE SOURCE OF POWER (GENERATOR) CONNECTED'.
- ELECTRICAL CONTRACTOR TO PROVIDE NEW FIRE ALARM MONITORING ELEMENTS AND TERMINATE TO THE FIRE PUMP RUN TROUBLE CONTACTS.
- ELECTRICAL CONTRACTOR TO COIL THE CABLE DURING CONSTRUCTION AND PROVIDE 2m OF EXTRA CABLE FOR FUTURE TERMINATIONS.
- GENERATOR SKID PACKED TO INCLUDE ELECTRIC-HEAT UNIT HEATERS. REFER TO GENERATOR DESIGN SPECIFICATIONS.
- REFER TO SPECIFIC DESIGN PERFORMANCE REQUIREMENTS FOR GENERATOR PACKAGE IN SPECIFICATIONS.
- APPROXIMATE LOCATION OF ENTRANCE TO BUILDING, DOOR AND WINDOW APPROXIMATELY 1800mm WIDTH.
- APPROXIMATE LOCATION OF CATHODIC PROTECTION SYSTEM. CONTRACTOR TO CARRY COST TO VERIFY LOCATION VIA HYDROVAC.
- CONDUIT IN CRAWL SPACE TO KEYNOTE #8.
- EXISTING CONVENTIONAL PRE-ACTION FACP LINK; CONTRACTOR TO TIE LINK INTO SIEMENS XLS PANEL REFER TO DRAWING E3.0.
- CONTRACTOR SHALL COORDINATE WORK WITH OTHER GENERAL CONTRACTOR ON SITE WHO IS PRESENTLY INSTALLING A NEW NETWORK OF UNDERGROUND DUCT BANKS. DUCT BANK SHALL BE USED TO ROUTE NEW COMMUNICATION CONTROL AND FIRE ALARM NETWORK CABLING BETWEEN BUILDING A05 AND B24.
- FIRE PUMP DISCONNECTS SHALL BE CLEARLY IDENTIFIED; LOCKABLE AND SHALL HAVE MECHANICAL CONTACTS FOR TIE INTO BACNET BMS FOR REMOTE MONITORING OF SWITCHES IN THE CLOSED POSITION. PROVIDE CONDUIT AND WIRE FROM DISCONNECTS TO BACNET BMS PANEL.
- ALLOW FOR MINIMUM 1M DISTANCE BETWEEN DISCONNECT PROTECTING FEED TO PANEL N602 AND THE FIRE PUMP DISCONNECTS.
- ALLOW FOR 12X BENDING RADIUS FOR PULLING FIRE RATED CABLES AND TECK CABLES THROUGH CONCRETE ENCASED PVC DUCT.
- NEW BACNET MSTP CAPABLE BMS CONTROL PANEL FOR COMMUNICATION LINK WITH MATCHING PANEL IN PIDS. PANEL SHALL BE EQUIPPED WITH SUFFICIENT I/O FOR ALL POINTS PLUS 20%.
- PROVIDE 2-21mm CONDUITS FROM WATER TANKS AND PANEL AS WELL AS 2-21mm CONDUITS FROM PANELS TO BACNET BMS PANEL FOR CONTROL SIGNALS. COORDINATE WIRING INSTALLATION WITH CONTROLS CONTRACTOR. REFER TO MECHANICAL DESIGN FOR INSTRUMENTATION REQUIREMENTS.
- ALL CONTROL AND MONITORING WIRE FOR FIRE PUMP CONTROL SHALL BE 2 HOUR RATED.
- PROVIDE 2-103mm EMPTY CONDUITS COMPLETE WITH PULL STRINGS FOR FUTURE LOADS OR CONTROLS.
- REPLACE EXISTING FIRE ALARM PANEL WITH NEW SIEMENS XLS PANEL. REFER TO DWG E5.0 FOR WIRING DETAILS.
- GROUND ROD: BOND GENERATOR SKID AND GROUND BAR TO GROUND RODS WITH #1/0 AWG BARE BRAIDED COPPER CONNECTION.
- CORE TWO (2) EXTERIOR WALL PENETRATIONS AND ROUTE 2x103C EMPTY CONDUITS THROUGH PENETRATIONS BETWEEN TWO (2) 600x600mm JUNCTION BOXES FOR FUTURE TIE IN. SEAL PENETRATIONS. LEAVE PULLROPPES IN CONDUITS AND SEAL CONDUITS.
- ALLOW FOR CORING OF WALL AND FLOOR FOR CABLE ROUTING. PROVIDE VERTICAL STRUT ASSEMBLY TO SUPPORT CABLES AND CONDUITS FROM JUNCTION BOXES TO FLOOR.

GENERAL NOTES:

- REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR PROCUREMENT CONSTRUCTION FOR FULLY FUNCTIONING ELECTRICAL POWER, LIFE SAFETY AND COMMUNICATIONS SYSTEMS.
- CONTRACTOR IS TO PERFORM DETAILED SITE INVESTIGATION PRIOR TO SUBMISSION OF BID. DATE TO BE COORDINATED WITH DEPARTMENT REPRESENTATIVE. INCLUDE FOR ALL COSTS ASSOCIATED WITH RELOCATION WORK AND EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL TAKE EXACT MEASUREMENTS ON SITE TO ENSURE COORDINATION WITH EXISTING CONDITIONS, AND THE LOCATIONS OF EXISTING ELECTRICAL AND MECHANICAL SERVICES.
- THE CENTRAL HEATING PLANT IS A FUNCTIONING FACILITY, NOTIFY DEPARTMENT REPRESENTATIVE AND OPERATORS OF WORK SCHEDULED ON A DAILY BASIS. COORDINATE THESE DAILY NOTIFICATIONS WITH THE GENERAL CONTRACTOR AND MECHANICAL CONTRACTOR.
- WHERE WORK INVOLVES INTERRUPTION TO EXISTING SERVICES, INCLUDE FOR ALL COSTS TO TEMPORARILY OR PERMANENTLY RELOCATE/RE-ROUTE (AS REQUIRED) EXISTING ELECTRICAL AND/OR AFFECTED MECHANICAL SERVICES ON EXISTING WALLS/Ceilings THAT MAY INTERFERE WITH NEW WORK. THIS MAY ALSO INCLUDE CERTAIN ITEMS NOT INDICATED ON DRAWINGS, AS TO BE CONFIRMED AND NOTED BY CONTRACTORS FIRE-BID SITE WALK-THROUGHS. BOTH TEMPORARY AND RE-INSTALLATION WORK SHALL BE MEET CURRENT CODES AND STANDARDS. PRIOR TO START OF ANY RELOCATION WORK, INFORM DEPARTMENT REPRESENTATIVE/CONSULTANT IN WRITING AND OBTAIN APPROVAL.
- CAREFULLY REVIEW EXISTING CONDITIONS IN ALL AREAS WHERE ADDITIONAL EQUIPMENT AND DEVICES ARE PLANNED TO BE INSTALLED. NOTE ALL EXISTING ELECTRICAL EQUIPMENT AND SERVICES IN THESE AREAS PRIOR TO SUBMITTING THE BID. INCLUDE ALL COSTS ASSOCIATED WITH THIS WORK IN YOUR BID PRICE. THE CONTRACTOR SHALL REVIEW THE EXISTING SITE CONDITIONS AND INCLUDE ALL COSTS ASSOCIATED WITH RELOCATION WORK IN THE BID PRICE.
- ALL ROUTING OF SERVICES SHOWN ON DRAWINGS ARE APPROXIMATE. CONTRACTOR IS RESPONSIBLE FOR COMPLETING A SITE SURVEY FOR DETERMINING FINAL ROUTING OF SERVICES PRIOR TO SUBMITTING THE BID.
- CONTRACTOR SHALL IDENTIFY AND LABEL CLEARLY ALL CIRCUITS, WIRING, SERVICES, CONDUITS, JUNCTION BOXES, PULLBOXES, DEVICES AND EQUIPMENT INSTALLED AND CONNECTED UNDER SCOPE OF WORK OF THIS PROJECT. IDENTIFICATION SHALL BE AS PER OWNER'S REQUIREMENTS AND MATCH EXISTING SITE STANDARDS. COORDINATE ALL LABELING WITH THE DEPARTMENT REPRESENTATIVE AND CONSULTANT PRIOR TO INSTALLATION.
- PROVIDE WALL AND FLOOR PENETRATIONS AS REQUIRED TO SUIT PROJECT SCOPE OF WORK. INCLUDE ALL COSTS FOR X-RAYING, SCANNING, CUTTING, PATCHING, AND REPAIRS. STRUCTURAL MEMBERS AND SUPPORTS SHALL NOT BE CUT OR CORED WITHOUT REVIEW AND PERMISSION TO PROCEED BY THE STRUCTURAL ENGINEER. MATCH EXISTING CONDITIONS WHERE WORK INVOLVES MODIFICATIONS AND WORK IN EXISTING AREAS. REFINISH SURFACES AND TOUCH-UP PAINT TO MATCH EXISTING STANDARDS AND FINISHES ON EXISTING WALLS AND Ceilings AROUND OPENINGS AND NEW SERVICES. SMOKE SEAL AND FIRE STOP ALL OPENINGS CREATED UNDER SCOPE OF WORK OF THIS PROJECT. REFER TO SPECIFICATIONS FOR FURTHER REQUIREMENTS.
- CONTRACTOR SHALL INCLUDE FOR ALL COSTS REQUIRED TO PROTECT EXISTING AREAS FROM DUST AND DAMAGE DURING EXECUTION OF WORK. IF NECESSARY, PROVIDE DUST-PROOF PARTITIONS FROM CeILING TO FLOOR AND SEAL ALL EDGES TO PREVENT MIGRATION OF DUST AND DEBRIS DURING EXECUTION OF WORK. EXACT PARTITION LAYOUTS SHALL BE COORDINATED ON SITE WITH THE DEPARTMENT REPRESENTATIVE TO SUIT OWNER'S REQUIREMENTS.
- CONTRACTOR SHALL PHASE ALL WORK SUCH THAT EXISTING FIRE ALARM DEVICES AND FIRE ALARM SYSTEM ARE NOT AFFECTED OR INTERRUPTED AT ANY TIME DURING CONSTRUCTION, AND SUCH THAT EXISTING FIRE ALARM SYSTEM AND FIRE ALARM DETECTORS IN EXISTING AREAS REMAIN IN UNINTERRUPTED OPERATION AND SERVICE.
- UNLESS SPECIFICALLY REQUIRED WHERE INDICATED ON DRAWINGS, NOTE THAT JUNCTION BOXES AND PULL BOXES ARE GENERALLY NOT INDICATED ON DRAWINGS. PROVIDE JUNCTION BOXES AND PULLBOXES AS NECESSARY AND AS LATER DIRECTED BY THE CONSULTANT. INCLUDE FOR ALL ASSOCIATED COSTS FOR THIS WORK IN THE BID PRICE. WALL-MOUNTED AND CeILING-MOUNTED INSTALLATIONS ARE ACCEPTABLE, PROVIDED THAT THEY DO NOT INTERFERE WITH EXISTING/FUTURE EQUIPMENT AND SPACE ALLOCATED FOR FUTURE MECHANICAL AND ELECTRICAL SERVICES AND MEET REQUIREMENTS AS NOTED IN THE CSC TECHNICAL CRITERIA 2015. CONFIRM LOCATIONS WITH DEPARTMENT REPRESENTATIVE/CONSULTANT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND RE-INSTALLATION OF ANY EXISTING APPARATUS TO ACCOMMODATE SCOPE OF WORK. REPAIR ANY DAMAGED ITEMS UNDER SCOPE OF THIS PROJECT WITH NEW PRODUCTS THAT SHALL MATCH EXISTING.
- UPON COMPLETION OF WORK, CONTRACTOR SHALL PRODUCE AN ACCURATE SET OF AS-BUILT DOCUMENTS, COMPLETE WITH DRAWINGS, OPERATION AND MAINTENANCE DOCUMENTS WARRANTY INFORMATION ETC. REFER TO SPECIFICATIONS FOR FURTHER DETAILS.
- ELECTRICAL POWER DISTRIBUTION SYSTEM AND SIZING OF BREAKERS, WIRING AND CONDUITS SHALL BE IN ACCORDANCE WITH CURRENT CANADIAN ELECTRICAL CODE (CEC), ALL APPLICABLE CODES AND STANDARDS, AND SPECIFICATIONS. METHODS OF INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF ALL LATEST CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO, ALBERTA BUILDING CODE (ABC), CANADIAN ELECTRICAL CODE (CEC), AND ALL OTHER APPLICABLE LOCAL CODES, STANDARDS AND REGULATIONS.
- THE INFORMATION PRESENTED ON THIS DRAWING IS A PROPOSED ROUTING OF SERVICES AND IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY. THESE DRAWINGS ARE INTENDED TO CONVEY A SCOPE OF WORK AND PROPOSE A METHOD OF PERFORMANCE OF THE WORK, INCLUDING EXISTING CONDITIONS AND COORDINATION REQUIREMENTS, AND DO NOT INCLUDE ALL THAT MAY BE NECESSARY TO PERFORM THE WORK. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR OBTAINING ALL NECESSARY SITE VERIFICATIONS OF ALL WORK REQUIRED TO ACHIEVE INTENDED INSTALLATION. CONTRACTOR MUST REVIEW DOCUMENTS AND MAY PROPOSE HIS OWN ROUTINGS, SUCH THAT THEY SHALL PROTECT THE INTENT AS CONVEYED IN THIS SPECIFICATION AND DRAWINGS.
- REVIEW EXISTING SERVICES, DEVICES, AND EQUIPMENT WITH THE FACILITY SURROUNDING THE PROPOSED FEEDERS ROUTED ON SITE. NOTE ANY POTENTIAL INTERFERENCES AND INCLUDE ALL COSTS REQUIRED FOR TEMPORARY/PERMANENT RELOCATION OF EXISTING PROVISIONS TO SUIT NEW WORK. ADJUST MOUNTING HEIGHT OF EXISTING LIGHTS, AND/OR RELOCATED EXISTING MECHANICAL AND/OR ELECTRICAL SYSTEMS AND DEVICES AS REQUIRED, TO SUIT NEW WORK. RUN FEEDERS IN COORDINATION WITH EXISTING SITE CONDITIONS. NO EXTRAS TO THE CONTRACT SHALL BE APPROVED BY THE DEPARTMENT REPRESENTATIVE FOR ANY TEMPORARY AND/OR PERMANENT RELOCATION, RE-INSTALLATION, RECONNECTION, EXTENSION OF EXISTING WIRING/CONDUIT, PROVISION OF NEW AND/OR ALTERATIONS TO EXISTING SUPPORT/MOUNTING PROVISIONS FOR THE EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT, DEVICES, AND/OR SERVICES, INCLUDING BUT NOT LIMITED TO: LIGHTS, EXIT SIGNS, CONDUITS, MECHANICAL PIPING, SUPPORT HANGERS, DUCTWORK, ETCETERA.
- WHERE CONTRACTOR WISHES TO PROVIDE ALTERNATIVE RUNS, QUANTITIES, AND/OR TYPE OF FEEDERS IN LIEU OF THOSE INDICATED, THE AMPACITY OF SUCH FEEDERS SHALL NOT BE LESS THAN AMPACITY OF FEEDERS SPECIFIED ON THE DRAWINGS. PRIOR TO IMPLEMENTATION, OBTAIN APPROVALS FROM DEPARTMENT REPRESENTATIVE SHOULD ANY ALTERNATE PROPOSALS BE ACCEPTED. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CABLE TRAYS, UNISTRUT, SUPPORTS, AND CONDUITS SIZED TO ACCOMMODATE THE ACCEPTED ALTERNATE PROPOSALS, AND ALL REQUIRED ROUTING, CONNECTION REQUIREMENTS, ETCETERA. AT NO EXTRA COST. ENSURE THAT CABLE TRAYS, UNISTRUTS AND SUPPORTING PROVISIONS ARE SIZE TO ACCOMMODATE FREE-AIR RATING OF FEEDERS, AS APPLICABLE, AND AS PER THE CANADIAN ELECTRICAL CODE (CEC).
- REFER TO SINGLE LINE DIAGRAM FOR CONDUCTOR/CONDUIT SIZING SCHEDULE.
- FIRE ALARM VERIFICATION PROCEDURES, TESTING REQUIREMENTS AND DOCUMENTATION SHALL BE IN ACCORDANCE WITH CAN-ULC/5537.
- THE 3 FIRE ALARM MONITORING ELEMENTS (RUN, TROUBLE, FLOW) ON FIRE PUMP SYSTEM SHALL BE SUPERVISORY AT THE NEW SIEMENS XLS-FIRE FINDER PANEL.
- ELECTRICAL CONTRACTOR TO CARRY A FIRE ALARM CONTRACTOR WHO IS CERTIFIED BY THE FIRE ALARM VENDOR TO PROGRAM, TEST, AND COMMISSION NEW FIRE ALARM ELEMENTS. IN THE PRESENCE OF THE VENDOR AS PER LATEST CAN-ULC/5537, THE FIRE ALARM TECHNICIAN PERFORMING WORK SHALL BE TRAINED AND HAVE EXPERIENCE WITH SIEMENS FIRE ALARM SYSTEMS, BE FAMILIAR WITH FIRE PUMP CONTROL TIE-IN AND SHALL HOLD A VALID LICENCE # WITH THE CANADIAN FIRE ALARM ASSOCIATION (CFAA).
- PROVIDE GROUNDING IN ACCORDANCE WITH SPECIFICATIONS AND CEC SECTION 8.



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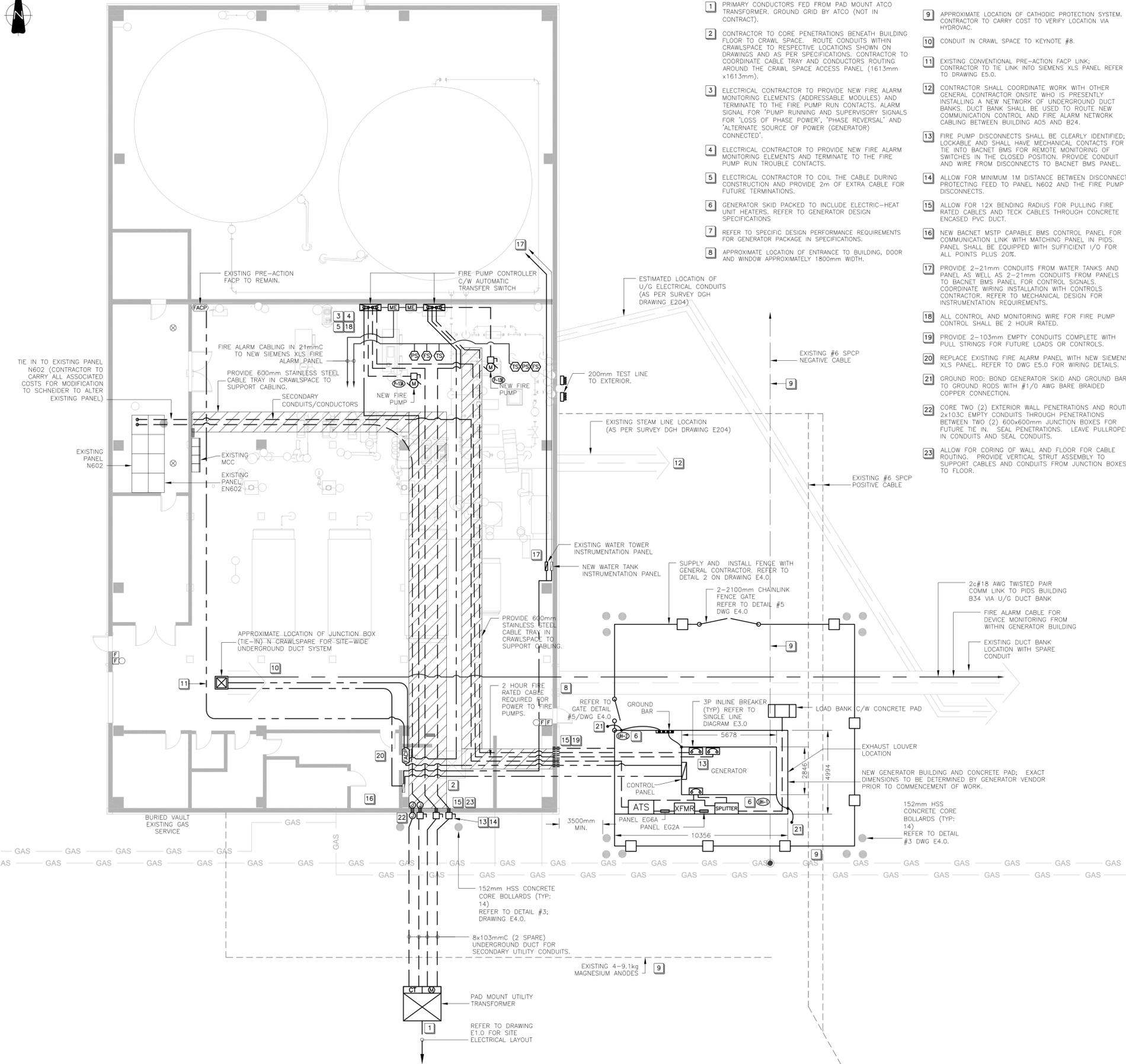
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CENTRAL HEATING PLANT
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FIRE PUMP REPLACEMENT

Designed by K. ROGERS	Conçu par
Drawn by C. MAK	Dessiné par
Approved by D. CARGILL	Approuvé par
WSPS Project Manager S. LUMSDEN	Administrateur de Projets TPSOC
Drawing title	Titre du dessin

ALTERATIONS & NEW HEATING PLANT POWER & SYSTEMS LAYOUT

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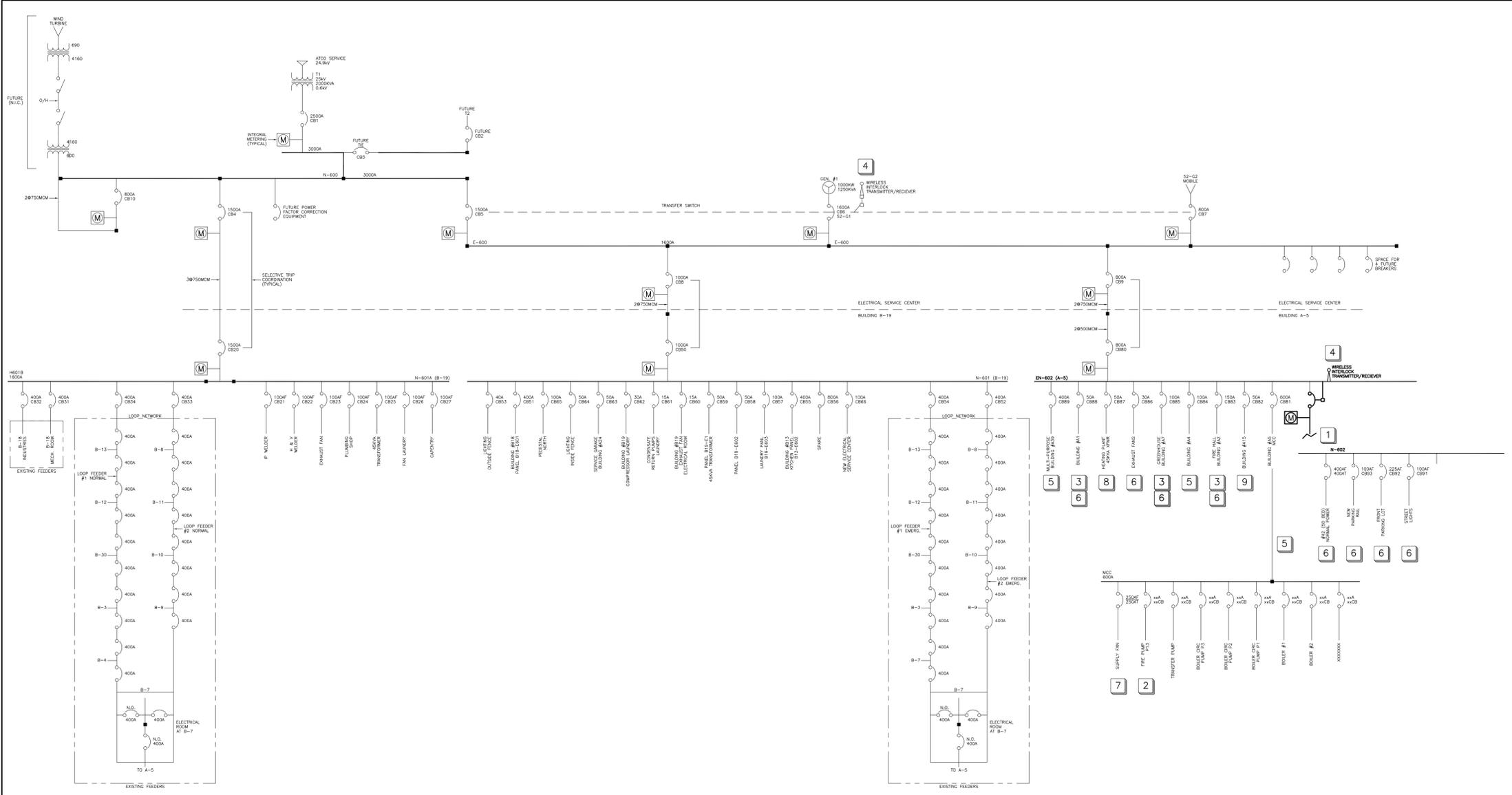


ALTERATIONS & NEW MAIN FLOOR - POWER & SYSTEMS LAYOUT
E2.0 1/125



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GENERAL NOTES:

- THIS DEMOLITION SCOPE OF WORK SHALL BE COORDINATED WITH NEW CONSTRUCTION AND PHASING REQUIREMENTS. REFER TO BOTH ELECTRICAL AND MECHANICAL SPECIFICATIONS, DRAWINGS AND OTHER BID DOCUMENTS IN ORDER TO DERIVE THE DEMOLITION SCHEDULE. NOTIFY THE OWNER IN WRITING PRIOR TO THE REMOVAL OF APPARATUS.
- CONTRACTOR'S SCHEDULE AND ASSOCIATED COSTS SHALL BE BASED ON MINIMIZED DOWN TIME AND SHALL ACCOMMODATE ALL NECESSARY STAGES AND PRE-WORK OF REPLACEMENT AND DEMOLITION WORK WITH AN OPTIMIZED MINIMAL DOWNTIME.
- MINIMUM 5 DAYS ADVANCED NOTICE REQUIRED PRIOR TO COMMENCE OF REPLACEMENT WORK.
- PROVIDE SCHEDULE AND PHASING OF REPLACEMENT WORK AT CONSTRUCTION MEETINGS TO ENSURE ADEQUATE PLANNING AND SCHEDULING WITH THIS OPERATING, INCLUDE DURATION OF POWER OUTAGES IN SCHEDULE.
- PROVIDE FOUR (4) 150KW GENERATORS, ONE (1) 30KW GENERATOR AND ADEQUATE FUEL FOR DURATION OF REPLACEMENT WORK.
- PROVIDE COST FOR ADDITIONAL FIRE WATCH MAN POWER FOR DURATION WHILE EXISTING FIRE PUMP HAS NO POWER.
- REFER TO SECTION 01 11 00 'SUMMARY OF WORK' FOR ADDITIONAL PHASING REQUIREMENTS.

KEYNOTES:

- EXISTING SCHNEIDER DISTRIBUTION PANEL N-602/EN-602 SERIAL NUMBER: 27268195-004; CARRY COST TO ALTER HEATING PLANT'S EXISTING MAIN DISTRIBUTION PANEL (MDP) EN-602/AB02. SCHNEIDER SHALL DEMOLISH CIRCUIT BREAKER FEEDING N602 AND PREPARE BUSSING FOR FUTURE TIE IN OF N602 INTO NEW SERVICE ENTRANCE FOR NON-EMERGENCY LOADS. WIRELESS INTERLOCK SHALL BE REVISED AS DEFINED IN KEYNOTE #4 FROM SERVICE AND RE-VERIFICATION OF THE MAIN GENERATOR TRANSFER SYSTEM SHALL BE PERFORMED. BREAKER AND METERING DEVICE SHALL BE RETAINED AND TIED INTO NEW SERVICE AS SHOWN ON DRAWINGS E3.0.
- REFER TO DRAWING E3.0. ONCE NEW FIRE PUMP SYSTEM IS COMMISSIONED, DEMOLISH ALL EXISTING FIRE PUMP APPARATUS UP TO CIRCUIT IN MCC CELL. FABRICATE NEW LAMACOID IN ACCORDANCE WITH SPECIFICATIONS; LABEL CELL AS 'SPARE'.
- COORDINATE MIGRATION OF LOADS TO PANEL N602 (REFER TO DWG E3.0) AND LABEL BREAKERS AS 'SPARE'.
- REPROGRAM AND REWIRE WIRELESS COMMUNICATION TO ELIMINATE MOTORIZED BREAKER OPERATION THAT PRESENTLY OPERATES WHEN SITE IS POWERED BY GENERATOR #1.
- PROVIDE 150KW GENERATOR CONNECTION FOR BUILDING POWER FOR REPLACEMENT PERIODS.
- POWER WILL BE UNAVAILABLE TO THESE LOADS WHILE MIGRATION WORK IS PERFORMED.
- COORDINATE STARTING OF SUPPLY FAN WITH OTHER LOADS.
- MIGRATE TRANSFORMER LOAD TO GENERATOR ASSIGNED TO CENTRAL HEATING PLANT.
- PROVIDE 30KW GENERATOR AT BUILDING A15 FOR DURATION OF REPLACEMENT WORK.

Revision	Description	Date
H	ISSUED FOR TENDER REV2	2021-05-13
G	ISSUED FOR TENDER REV1	2021-04-06
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C	99% REVIEW SET	2019-03-18
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CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
 DRUMHELLER, ALBERTA

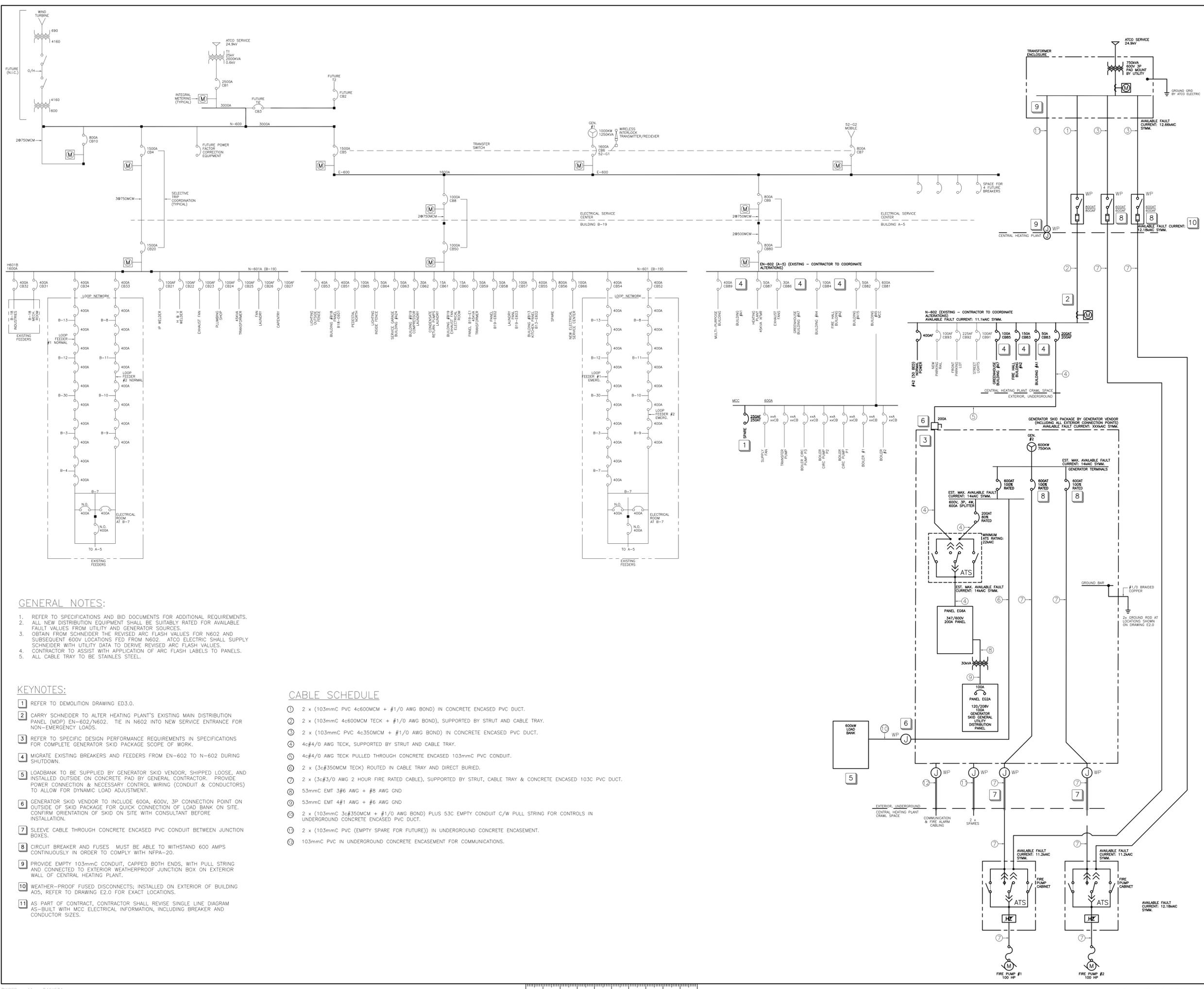
CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

Designed by: **K. ROGERS**
 Drawn by: **C. MAK**
 Approved by: **D. CARGILL**
 Project Manager: **S. LUMSDEN**

SINGLE LINE DIAGRAM
DEMOLITION



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DATE: 2021-05-14
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- GENERAL NOTES:**
- REFER TO SPECIFICATIONS AND BID DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
 - ALL NEW DISTRIBUTION EQUIPMENT SHALL BE SUITABLY RATED FOR AVAILABLE FAULT VALUES FROM UTILITY AND GENERATOR SOURCES.
 - OBTAIN FROM SCHNEIDER THE REVISED ARC FLASH VALUES FOR N602 AND SUBSEQUENT 600V LOCATIONS FED FROM N602. ATCO ELECTRIC SHALL SUPPLY SCHNEIDER WITH UTILITY DATA TO DERIVE REVISED ARC FLASH VALUES.
 - CONTRACTOR TO ASSIST WITH APPLICATION OF ARC FLASH LABELS TO PANELS.
 - ALL CABLE TRAY TO BE STAINLESS STEEL.

- KEYNOTES:**
- REFER TO DEMOLITION DRAWING ED3.0.
 - CARRY SCHNEIDER TO ALTER HEATING PLANT'S EXISTING MAIN DISTRIBUTION PANEL (MDP) EN-602/N602. TIE IN N602 INTO NEW SERVICE ENTRANCE FOR NON-EMERGENCY LOADS.
 - REFER TO SPECIFIC DESIGN PERFORMANCE REQUIREMENTS IN SPECIFICATIONS FOR COMPLETE GENERATOR SKID PACKAGE SCOPE OF WORK.
 - MIGRATE EXISTING BREAKERS AND FEEDERS FROM EN-602 TO N-602 DURING SHUTDOWN.
 - LOADBANK TO BE SUPPLIED BY GENERATOR SKID VENDOR, SHIPPED LOOSE, AND INSTALLED OUTSIDE ON CONCRETE PAD BY GENERAL CONTRACTOR. PROVIDE POWER CONNECTION & NECESSARY CONTROL WIRING (CONDUIT & CONDUCTORS) TO ALLOW FOR DYNAMIC LOAD ADJUSTMENT.
 - GENERATOR SKID VENDOR TO INCLUDE 600A, 600V, 3P CONNECTION POINT ON OUTSIDE OF SKID PACKAGE FOR QUICK CONNECTION OF LOAD BANK ON SITE. CONFIRM ORIENTATION OF SKID ON SITE WITH CONSULTANT BEFORE INSTALLATION.
 - SLEEVE CABLE THROUGH CONCRETE ENCASED PVC CONDUIT BETWEEN JUNCTION BOXES.
 - CIRCUIT BREAKER AND FUSES MUST BE ABLE TO WITHSTAND 600 AMPS CONTINUOUSLY IN ORDER TO COMPLY WITH NFPA-20.
 - PROVIDE EMPTY 103mmC CONDUIT, CAPPED BOTH ENDS, WITH PULL STRING AND CONNECTED TO EXTERIOR WEATHERPROOF JUNCTION BOX ON EXTERIOR WALL OF CENTRAL HEATING PLANT.
 - WEATHER-PROOF FUSED DISCONNECTS; INSTALLED ON EXTERIOR OF BUILDING A05. REFER TO DRAWING E2.0 FOR EXACT LOCATIONS.
 - AS PART OF CONTRACT, CONTRACTOR SHALL REVISE SINGLE LINE DIAGRAM AS-BUILT WITH MCC ELECTRICAL INFORMATION, INCLUDING BREAKER AND CONDUCTOR SIZES.

- CABLE SCHEDULE**
- 2 x (103mmC PVC 4c600MCM + #1/0 AWG BOND) IN CONCRETE ENCASED PVC DUCT.
 - 2 x (103mmC 4c600MCM TECK + #1/0 AWG BOND), SUPPORTED BY STRUT AND CABLE TRAY.
 - 2 x (103mmC PVC 4c350MCM + #1/0 AWG BOND) IN CONCRETE ENCASED PVC DUCT.
 - 4c#4/0 AWG TECK, SUPPORTED BY STRUT AND CABLE TRAY.
 - 4c#4/0 AWG TECK PULLED THROUGH CONCRETE ENCASED 103mmC PVC CONDUIT.
 - 2 x (3c#350MCM TECK) ROUTED IN CABLE TRAY AND DIRECT BURIED.
 - 2 x (3c#3/0 AWG 2 HOUR FIRE RATED CABLE), SUPPORTED BY STRUT, CABLE TRAY & CONCRETE ENCASED 103C PVC DUCT.
 - 53mmC EMT 3#6 AWG + #8 AWG GND
 - 53mmC EMT #1 AWG + #6 AWG GND
 - 2 x (103mmC 3c#350MCM + #1/0 AWG BOND) PLUS 53C EMPTY CONDUIT C/W PULL STRING FOR CONTROLS IN UNDERGROUND CONCRETE ENCASED PVC DUCT.
 - 2 x (103mmC PVC (EMPTY SPARE FOR FUTURE)) IN UNDERGROUND CONCRETE ENCASEMENT.
 - 103mmC PVC IN UNDERGROUND CONCRETE ENCASEMENT FOR COMMUNICATIONS.

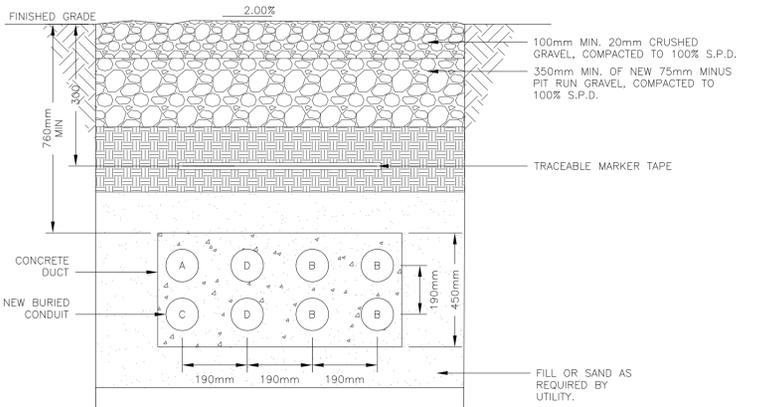
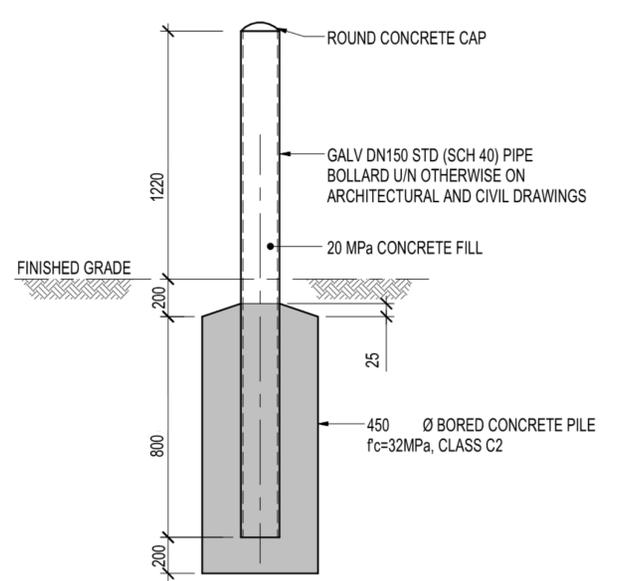
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CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
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CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

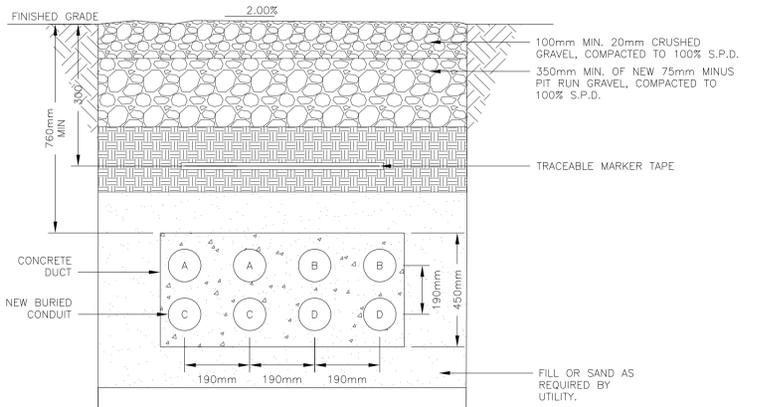
Designed by: **K. ROGERS**
Drawn by: **C. MAK**
Approved by: **D. CARGILL**
Project Manager: **S. LUMSDEN**

SINGLE LINE DIAGRAM



A	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR GENERATOR BUILDING
B	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR FIRE PUMPS
C	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR COMMUNICATIONS
D	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR SPARE

- NOTE:**
- REFER TO SPECIFICATIONS AND DRAWINGS FOR TYPE OF CONDUITS.
 - INFORMATION SHALL GUIDE INSTALLATION FOR BOTH COMBINED TRENCHES AND ALSO STANDALONE SECONDARY AND UTILITY INSTALLATION.
 - SCARIFY 300mm DEEP AND COMPACT SUBGRADE.
 - BLEND TOPSOIL TO SHOULDERS OF ROADS.
 - DISPOSE OF SURPLUS TOPSOIL & EXCAVATE MATERIAL WHERE DESIGNATED BY DEPARTMENTAL REPRESENTATIVE.
 - CONCRETE TO BE MINIMUM 25MPa CONCRETE.
 - REPAIR ROADWAYS AND OTHER PAVED SURFACES TO ORIGINAL CONDITION.
 - SPARE CONDUIT RUN FROM GENERATOR BUILDING TO CENTRAL HEATING PLANT (CAP AT BOTH ENDS WIT PULL ROPE SLACK INSIDE CONDUIT)



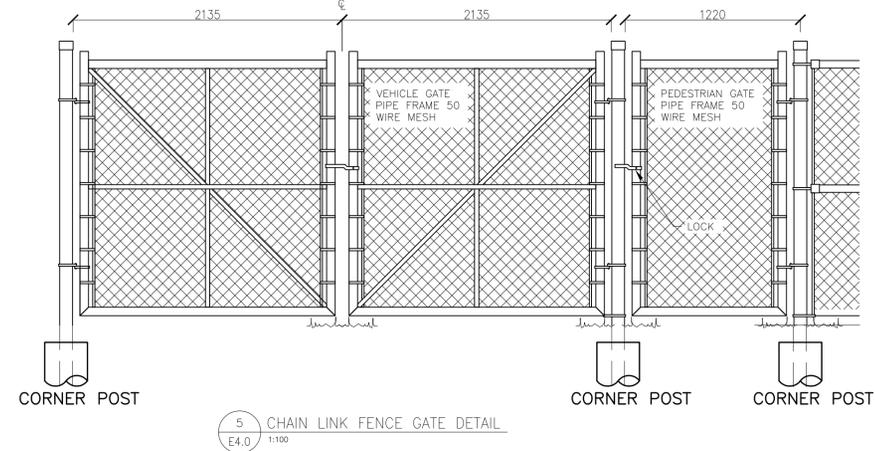
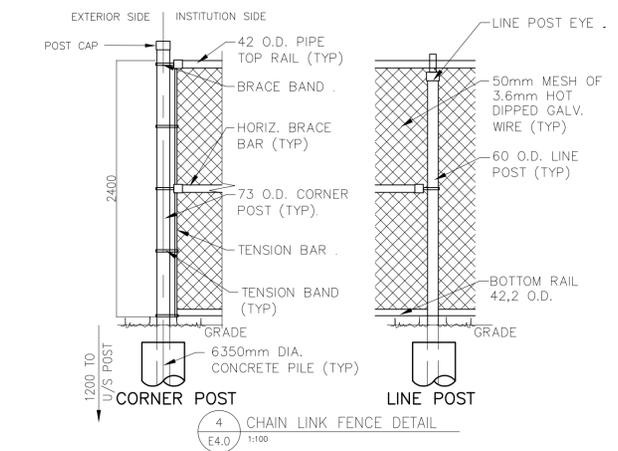
A	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR N-602
B	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR FIRE PUMP F-13A
C	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR FIRE PUMP F-13B
D	ONE PULL ROPE IN 103mm RIGID P.V.C. DUCT FOR SPARE (NOTE 8)

- NOTE:**
- REFER TO SPECIFICATIONS AND DRAWINGS FOR TYPE OF CONDUITS.
 - INFORMATION SHALL GUIDE INSTALLATION FOR BOTH COMBINED TRENCHES AND ALSO STANDALONE SECONDARY AND UTILITY INSTALLATION.
 - SCARIFY 300mm DEEP AND COMPACT SUBGRADE.
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3 BOLLARD DETAIL
E4.0 NTS

1 UNDERGROUND GENERATOR TO CHP DUCT BANK DETAIL
E4.0 1:100

2 UNDERGROUND UTILITY SOURCED DUCT BANK DETAIL
E4.0 1:100



4 CHAIN LINK FENCE DETAIL
E4.0 1:100

5 CHAIN LINK FENCE GATE DETAIL
E4.0 1:100

GENERAL NOTES

- UNITS TOTAL WEIGHT INCLUDING FUEL NOT TO EXCEED 130 kN (30,000 lbs). TOTAL WEIGHT OVER FOOTPRINT NOT TO EXCEED 7.5 kPa (155 psf)
- REFER TO UNITS SUPPLIER FOR DIMENSIONS AND WEIGHT OF THE UNIT AND NOTIFY WSP IF WEIGHT EXCEEDS THE ABOVE VALUES.
- CONSTRUCTION LOADS ON COMPLETED STRUCTURE NOT TO EXCEED DESIGN LOADS INDICATED ON DRAWINGS. FULL DESIGN LOADS MAY ONLY BE APPLIED AFTER THE CONCRETE REACHES ITS DESIGN STRENGTH.
- STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2014 ALBERTA BUILDING CODE (ABC), SUPPLEMENTED BY THE 2010 NATIONAL BUILDING CODE OF CANADA STRUCTURAL COMMENTARY.
- SUBMIT SHOP DRAWINGS FOR REVIEW BEFORE START OF WORK FOR THE FOLLOWING ITEMS. ALLOW A MINIMUM OF 10 WORKING DAYS FOR REVIEW OF EACH SUBMISSION OF SHOP DRAWINGS IN THE STRUCTURAL CONSULTANT'S OFFICE.
 - CONCRETE MIX DESIGN
 - STEEL REINFORCING
- STRUCTURAL CONSULTANT WILL PROVIDE PERIODIC FIELD REVIEW OF A REPRESENTATIVE SAMPLE OF THE STRUCTURAL WORKS DETAILED ON THESE DRAWINGS FOR GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THESE REVIEWS DO NOT REPLACE THE CONTRACTOR'S RESPONSIBILITY TO IMPLEMENT AND MAINTAIN A QUALITY CONTROL PROGRAM, AND DO NOT MAKE WSP A GUARANTOR OF THE CONTRACTOR'S WORK.
- NOTIFY THE CONSULTANT 48 HOURS PRIOR TO CONCRETE POURS, BACKFILLING, AND COVERING UP THE STRUCTURE WITH FINISHES.

EXCAVATION & BACKFILL

- VERIFY GEOTECHNICAL CONDITIONS ON SITE. ENGAGE A GEOTECHNICAL ENGINEER TO OBTAIN SITE SPECIFIC INFORMATION AND PROVIDE RECOMMENDATIONS AND SPECIFICATIONS FOR EXCAVATION, BACKFILL, SUBGRADE PREPARATION AND COMPACTION REQUIREMENTS. ALTERNATIVELY, CARRY OUT EXCAVATION AND SUBGRADE PREPARATION AS DESCRIBED BELOW.
- PRIOR TO COMMENCING EXCAVATION, LOCATE AND IDENTIFY ALL EXISTING UNDERGROUND STRUCTURES AND SERVICES. DESIGN AND PROVIDE PROTECTION FOR EXISTING SERVICES TO REMAIN.
- EXCAVATE TO EXPOSE NATIVE UNDISTURBED SOIL AND TO ALLOW FOR MINIMUM COMPACTED BACKFILL AND CONSTRUCTION CLEARANCES AS REQUIRED. REMOVE ALL TOPSOIL, LOOSE FILL, DEBRIS, SOFT SPOTS AND ORGANIC MATERIALS.

CONCRETE PAD FOR EXTERIOR ENCLOSED DIESEL GENERATOR

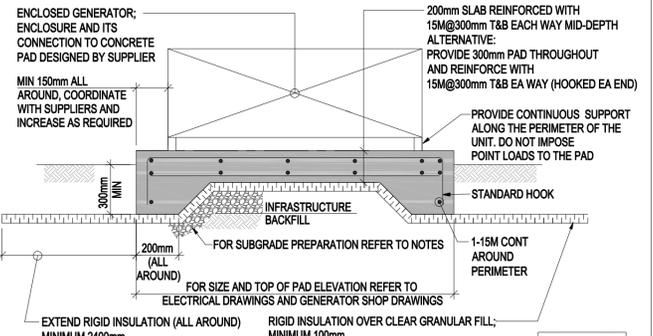
- CEMENT TO BE PORTLAND CEMENT TYPE GU, UNLESS NOTED OTHERWISE OR REQUIRED BY EXPOSURE CLASS. CEMENT TO CONFORM TO CSA A3000.
- AGGREGATE TO CONFORM TO CSA A23.1 / A23.2. DO NOT USE RECYCLED CONCRETE AS AGGREGATE.
- CONCRETE ADMIXTURES SHALL NOT CONTAIN CHLORIDES.
- CONCRETE SPECIFICATIONS:
 - EXPOSURE CLASS: C1
 - MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 35 MPa
 - NOMINAL SIZE OF COARSE AGGREGATE: 20mm
 - NORMAL DENSITY (MIN. 2300 kg/m³)
- PROTECT CONCRETE FROM EXCESSIVE HEAT AND DRYING. USE HOT WEATHER CONCRETING METHODS IN ACCORDANCE WITH CAN/CSA-A23.1 WHENEVER THE OUTDOOR TEMPERATURE IS GREATER THAN 27°C.
- PROTECT CONCRETE FROM FREEZING. USE COLD WEATHER CONCRETING METHODS IN ACCORDANCE WITH CAN/CSA-A23.1 WHENEVER OUTDOOR TEMPERATURE IS LESS THAN +5°C. ALL INSULATED COVERS, HEATERS, AND OTHER MATERIALS NEEDED TO PROTECT CONCRETE TO BE ON HAND PRIOR TO POUR. DELIVER CONCRETE AT A TEMPERATURE BETWEEN +15°C AND +27°C. ENSURE A MINIMUM CONCRETE TEMPERATURE OF 10° IS MAINTAINED THROUGHOUT THE CURING PERIOD (MINIMUM 3 DAYS).
- DO NOT POUR CONCRETE AGAINST FROZEN EARTH. DO NOT PLACE CONCRETE IN WATER OR ON FROZEN SOIL.
- PROVIDE 25mm CHAMFER STRIPS ON ALL CORNERS.
- SUPPLY AND INSTALL RIGID INSULATION AS SHOWN ON DRAWING. RIGID INSULATION TO BE EXTRUDED POLYSTYRENE BOARD CONFORMING TO ASTM C587, STRUCTURAL GRADE, WITH A COMPRESSIVE STRENGTH OF 275 kPa (40 psi). ALTERNATIVE FROST HEAVE PROTECTION OR USE OF NON-FROST SUSCEPTIBLE SUBGRADE MATERIAL MAY BE ACCEPTABLE IF SPECIFIED BY A GEOTECHNICAL ENGINEER LICENCED TO PRACTICE IN ALBERTA, AT NO EXTRA COST TO OWNER.
- CONVEY CONCRETE FROM TRUCK TO FINAL LOCATION BY METHODS WHICH WILL PREVENT SEPARATION OR LOSS OF MATERIAL. MAXIMUM FREE FALL NOT TO EXCEED 1.5m. CONSOLIDATE CONCRETE USING MECHANICAL VIBRATORS.
- REINFORCEMENT - DEFORMED BAR REINFORCEMENT CONFORMING TO CSA G30.18 GRADE 40R. USE 40W ONLY WHERE NOTED ON DRAWINGS.
- EPOXY-COATED BARS - CONFORM TO ASTM A775/A775M AND ASTM D3963/D3963M. PROVIDE EPOXY-COATED CHAIR-BARS AND BOLSTERS AND PLASTIC-COATED TIE WIRES FOR EPOXY-COATED REINFORCEMENT.
- ACCESSORIES, BAR SUPPORTS, AND TIES TO CONFORM TO REINFORCING STEEL INSTITUTE OF CANADA (RSIC) MANUAL OF STANDARD PRACTICE AND CSA A23.1 / A23.2.

CONCRETE PAD FOR EXTERIOR ENCLOSED DIESEL GENERATOR

- ALL REBAR HOOKS TO BE STANDARD LENGTH 90° OR 180° HOOKS. REBAR LENGTHS LISTED ON DRAWINGS DO NOT INCLUDE THE HOOK LENGTH.
- FIELD BENDING OF BARS IS NOT PERMITTED UNLESS INDICATED OR APPROVED BY WSP'S APPROVED FIELD BENDING TO BE DONE WITHOUT THE USE OF HEAT, THROUGH APPLICATION OF SLOW AND STEADY PRESSURE. REPLACE BARS WITH CRACKS OR SPLITS.
- ALL REINFORCING TO BE CLEAN, FREE OF LOOSE SCALE, OIL, DIRT, RUST, AND ANY OTHER FOREIGN COATING THAT AFFECT BONDING CAPACITY.
- CONCRETE COVER TO REINFORCING BARS CLOSEST TO THE CONCRETE SURFACE TO BE 60mm FOR TOP AND BOTTOM BARS. ENSURE COVER TO REINFORCEMENT IS MAINTAINED DURING CONCRETE POUR.
- DO NOT USE STEEL TROWEL TO FINISH AIR-ENTRAINED CONCRETE. WOOD FLOAT AND BROOM FINISH TOP OF CONCRETE PAD.

INSPECTION AND TESTING

- PROVIDE INSPECTION REPORTS PREPARED BY AN INDEPENDENT INSPECTION AND TESTING AGENCY FOR THE SCOPES LISTED BELOW. THE COST OF THE INSPECTION WILL BE BORNE BY THE OWNER.
- MAKE ONE STANDARD TEST FOR EACH 50 CUBIC METRES OF CONCRETE, BUT NOT LESS THAN ONE TEST FOR CONCRETE CAST EACH DAY. PROVIDE A GROUP OF THREE CONCRETE CYLINDERS FOR EACH STANDARD CONCRETE TEST IN ACCORDANCE WITH CSA A23.1 AND 2.



6 STRUCTURAL PAD REQUIREMENTS FOR GENERATOR PACKAGE / LOADBANK
E4.0 1:100



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CORRECTIONAL SERVICES CANADA
DRUMHELLER INSTITUTION
DRUMHELLER, ALBERTA

Project Title: _____ Proj. #: _____

CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

Designed by: K. ROGERS
Drawn by: C. MAK
Approved by: D. CARGILL
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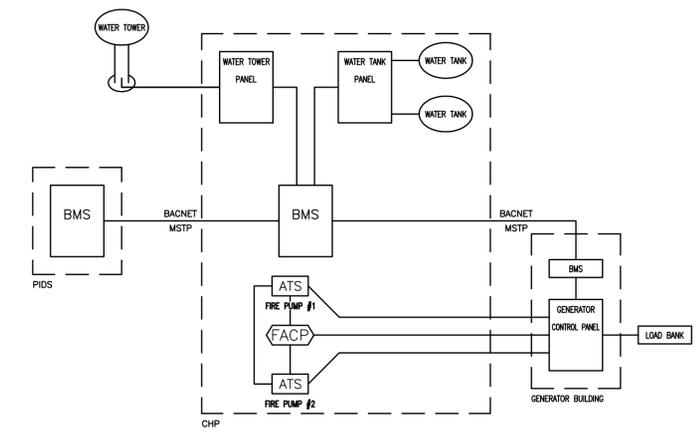
Drawing Title: _____ Titre du dessin: _____

ELECTRICAL DETAILS

Project No. or Code	Revision No. or Code	Date
R.060837.001	E4.0	H



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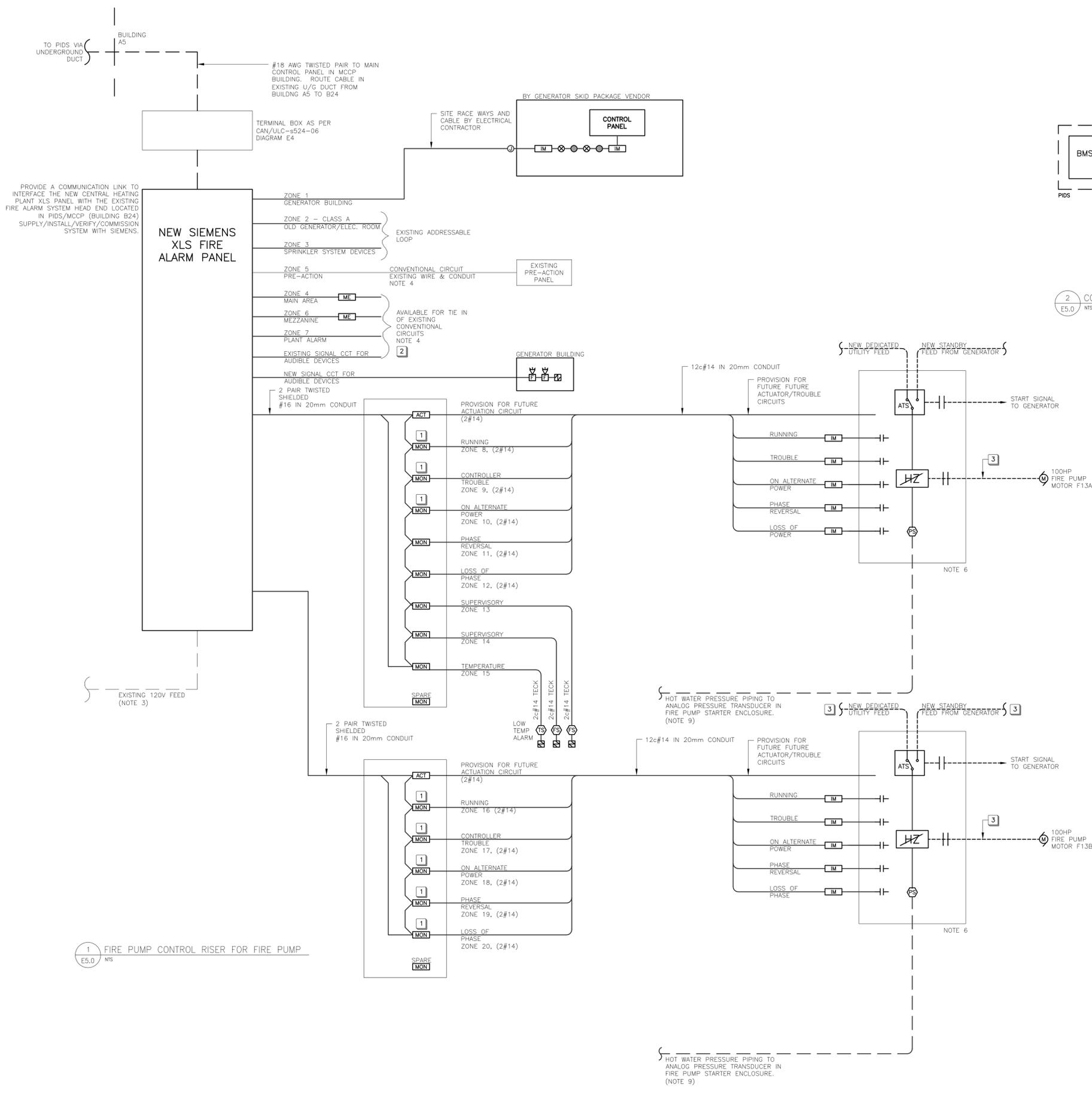


2 COMMUNICATION SCHEMATIC
E5.0 NTS

ZONE	DESCRIPTION	AUDIBLE	TROUBLE	STATUS	EXISTING/NEW
1	GENERATOR BUILDING	X			NEW
2	OLD GENERATOR/ELECTRICAL ROOM	X			EXISTING
3	EXISTING WET - LOW PRESSURE/TAMPER		X		EXISTING
4	MAIN AREA	X			EXISTING
5	EXISTING PRE-ACTION SYSTEM	X			EXISTING
6	MEZZANINE	X			EXISTING
7	PLANT ALARM	X			EXISTING
8	FIRE PUMP F13A, RUNNING	X			NEW
9	FIRE PUMP F13A, TROUBLE		X		NEW
10	FIRE PUMP F13A, ON EMERGENCY POWER		X		NEW
11	FIRE PUMP F13A, PHASE REVERSAL		X		NEW
12	FIRE PUMP F13A, PHASE LOSS		X		NEW
13	Z50 #13 VALVE SUPERVISORY VIA F13A		X		NEW
14	Z50 #12 VALVE SUPERVISORY VIA F13A		X		NEW
15	TSL #12 LOW TEMP ALARM VIA F13A		X		NEW
16	FIRE PUMP F13B, RUNNING	X			NEW
17	FIRE PUMP F13B, TROUBLE		X		NEW
18	FIRE PUMP F13B, ON EMERGENCY POWER		X		NEW
19	FIRE PUMP F13B, PHASE REVERSAL		X		NEW
20	FIRE PUMP F13B, PHASE LOSS		X		NEW
21	SPARE		X		
22	SPARE		X		

- NOTES:**
- ALL INITIATING CIRCUITS SHALL BE CLASS 'A'. CONTRACTOR SHALL TRACE EXISTING CIRCUITS AND PROVIDE AN UPDATED RISER DIAGRAM. CONTRACTOR SHALL REPLACE ANY EXISTING SMOKE DETECTORS. REPLACE WITH SIEMENS FIRE ALARM DEVICES AS SHOWN - DEVICES SHALL BE COMPATIBLE WITH SIEMENS PANEL.
 - PROVIDE POWER FROM EXISTING CIRCUIT BREAKERS. ENSURE CIRCUIT BREAKER IS RED AND HAS A LOCK-ON DEVICE. CONTRACTOR TO LABEL CIRCUIT BREAKER ON PANEL DIRECTORY AS "FIRE ALARM."
 - PANEL SHALL BE CAPABLE OF ACCEPTING THE NUMBER OF ADDRESSES SHOWN ON SCHEMATIC DIAGRAM, PLUS 20%.
 - COORDINATE WITH MECHANICAL CONTRACTOR FOR DURATION OF PROJECT.
 - SUPPLY AND INSTALL NEMA 2 ENCLOSURE - LOCATE NEAR FIRE PUMP STARTER. INSTALL NEW WIRE FOR ADDRESSABLE MONITORING AND CONTROL MODULES. SUPPLY AND INSTALL RED LAMACOID FIRE ALARM SYSTEM.
 - TIE-IN GENERATOR GENERAL ALARM TO SUPERVISORY SIGNAL ON FIRE ALARM SYSTEM.
 - ATTEND ALL REQUIRED FIRE ALARM VERIFICATIONS, FIRE PUMP TESTING AND COMMISSIONING.
 - THE CONTRACTOR SHALL CARRY A CFAA LICENCED SUB-CONTRACTOR WITH EXPERIENCE AND TRAINING ON SIEMENS FIRE ALARM SYSTEMS FOR INSTALLATION OF THE NEW FIRE ALARM SYSTEM, INTERFACING WITH EXISTING CIRCUITS AND DEVICES WITHIN THE FACILITY AND TIE-IN TO THE EXISTING FIRE ALARM NETWORK AT PIDS.
 - CHANGE OUT END-OF-LINE DEVICES.

- KEYNOTE:**
- PROVIDE 5 FIRE ALARM MONITORING MODULES (ADDRESSABLE MODULES), ONE (1) FOR "PUMP RUN", ONE (1) FOR "TROUBLE", ONE (1) FOR "LOSS OF PHASE", ONE (1) FOR "PHASE REVERSAL", AND ONE (1) "ALTERNATE SOURCE OF POWER". TERMINATE TO THE ASSOCIATED FIRE PUMP CONTACTS. CONNECT TO NEAREST FIRE ALARM INITIATING LOOP. MODULES MUST BE COMPATIBLE WITH SIEMENS FIRE ALARM SYSTEM. "PUMP RUN" SHALL BE ALARM SIGNAL, "TROUBLE", "LOSS OF PHASE" AND "PHASE REVERSAL", "ALTERNATE SOURCE OF POWER" SHALL BE SUPERVISORY SIGNALS.
 - ALLOW FOR PROGRAMMING OF 10 EXISTING ADDRESSABLE DEVICES ON NEW FIRE ALARM PANEL.
 - 2 HOUR FIRE RATE CABLE REQUIRED FOR ANY CONNECTION TO THE FIRE PUMP CONTROLLER AND FIRE PUMP (POWER AND CONTROLS).



1 FIRE PUMP CONTROL RISER FOR FIRE PUMP
E5.0 NTS

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CENTRAL HEATING PLANT
CSC DRUMHELLER
FIRE PUMP REPLACEMENT

Designed by: **K. ROGERS**
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FIRE ALARM & FIRE PUMP CONTROLLER RISER SCHEMATIC DIAGRAM

Project No./No. du projet: **R.060837.001**
Drawing No./No. du dessin: **E5.0**
Revision: **H**