A1 SIZE – 594mm x 841mm

MECHANICAL LEGEND AND NOTES

GENERIC PIPING NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. CONTRACTOR SHALL DESIGN SUPPORTS AS SPECIFIED.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
7. ALL BURIED PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, OR SCREWED PIPING, SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS OTHERWISE NOTED.
8. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
9. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
10. COUPLINGS TO FACILITATE THE REMOVAL AND/OR MAINTENANCE OF VALVES, EQUIPMENT, AND INSTRUMENTS ARE NOT ALL SHOWN ON THE DRAWINGS. PROVIDE COUPLINGS, DISMANTLING JOINTS, ADAPTER FLANGES, UNIONS, OR OTHER SUITABLE FITTINGS AT EQUIPMENT INLET AND OUTLET CONNECTIONS, ON ONE OR BOTH SIDES OF VALVES AND OTHER INLINE DEVICES, AND AT INSTRUMENT CONNECTIONS, WHETHER OR NOT SHOWN ON DRAWINGS. COUPLINGS MUST BE PROVIDED AND SHOWN ON THE SHOP DRAWINGS FOR SPOOL PIPING.
11. PIPES AND VALVES THAT ARE 75mm AND SMALLER ARE NOT ALL SHOWN ON THE PROCESS GENERAL ARRANGEMENT (PGAD) DRAWINGS. SOME PIPES THAT ARE LARGER THAN 75mm ARE ALSO NOT SHOWN ON THE DRAWINGS. REFER TO THE PIPING AND INSTRUMENTATION (PPID) DRAWINGS FOR THE COMPLETE SCOPE OF WORKS AND FIELD ROUTE AS NECESSARY.
12. SOME PIPING EMBEDS WERE INSTALLED IN A PREVIOUS CONTRACT. THEY MAY NOT HAVE BEEN INSTALLED EXACTLY AT THE LOCATIONS SHOWN ON THE DRAWINGS. FIELD MEASURE ALL PIPING EMBEDS TO WHICH CONNECTIONS TO NEW PIPING UNDER THIS CONTRACT ARE REQUIRED PRIOR TO PREPARATION OF PIPING SPOOL SHOP DRAWINGS. MODIFY NEW PIPING TO FIT AS NECESSARY.
13. PIPING NOT SHOWN ON PGAD DRAWINGS SHALL BE FIELD-ROUTED TO SUIT EXISTING CONDITIONS. REFER TO PPID DRAWINGS FOR ROUTING REQUIREMENTS. REVIEW PROPOSED ROUTING WITH CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH WORK.
14. PROVIDE ALL REQUIRED INSTRUMENT CONNECTIONS, FLUSHING WATER CONNECTIONS, DRAIN POINTS, AND SIMILAR ITEMS SHOWN ON PPID DRAWINGS AND AS DETAILED, WHETHER OR NOT SHOWN ON PGAD DRAWINGS.
15. ITEMS SHOWN AS EXISTING ARE BASED ON AVAILABLE DOCUMENTATION AND MAY NOT ACTUALLY BE REPRESENTATIVE OF THE EXISTING INFRASTRUCTURE. THE DESIGN ENGINEER IS ONLY RESPONSIBLE FOR INFRASTRUCTURE THAT IS SHOWN AS A NEW INSTALLATION. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE STATE OF EXISTING INFRASTRUCTURE THAT MAY HAVE AN IMPACT ON THE INSTALLATION OF NEW EQUIPMENT.

PIPE SUPPORT SYMBOLS

DOUBLE LINE | SINGLE LINE

- HORIZONTAL PIPE ANCHOR
- HORIZONTAL PIPE GUIDE
- VERTICAL SUPPORT FOR HORIZONTAL PIPING (WITH OR WITHOUT SPRING HANGER)
- VERTICAL PIPE GUIDE

VALVE SYMBOLS

- REGULATED SIDE
- PRESSURE CONTROL (INTERNAL PILOT)
- REGULATED SIDE
- PRESSURE CONTROL (EXTERNAL PILOT)
- MULTI-PORT VALVE, ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- BACKPRESSURE REGULATOR SELF CONTAINED
- BACKPRESSURE REGULATOR WITH EXTERNAL PRESSURE TAP
- BACKFLOW PREVENTER
- ROTARY
- MULTI-PORT VALVE (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- ANGLE GATE
- MUD
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- EXPLOSION RELIEF
- THERMAL
- TELESCOPING SCUM VALVE
- SUCTION GUIDE C/W STRAINER
- FLOW CONTROL VALVE
- RELIEF VALVE (PRESSURE & TEMPERATURE)
- 'Y' STRAINER
- DRAIN VALVE C/W HOSE END CONNECTION
- PIPE TO NEAREST DRAIN
- SAMPLE
- CIRCUIT BALANCING VALVE

SINGLE LINE	DOUBLE LINE
GATE	
KNIFE GATE	
BUTTERFLY	
GLOBE	
BALL	
SEATING PORT	
ECCENTRIC PLUG	
PLUG OR COCK	
NEEDLE	
DIAPHRAGM	
PINCH	
SWING CHECK	
BALL CHECK	
VEE-BALL	
HOSE VALVE (HV- X) OR (V-X) X = NO. IN SPECS	

PIPE AND FITTING SYMBOLS

DOUBLE LINE | SINGLE LINE

- EXISTING PIPE
- EXISTING PIPE TO BE ABANDONED
- EXISTING PIPE TO BE REMOVED
- NEW PIPE
- SCREWED JOINT
- WELDED JOINT
- GROOVED END JOINT
- FLANGED JOINT
- BELL & SPIGOT JOINT
- BALL JOINT
- FLANGED COUPLING ADAPTER
- FLEXIBLE COUPLING
- FLANGED METAL BELLOWS EXP JOINT
- FLANGED ELASTOMER BELLOWS EXPANSION JOINT
- FLANGED ELBOW UP
- FLANGED ELBOW DOWN
- FLANGED TEE UP
- FLANGED TEE DOWN
- FLANGED LATERAL UP
- FLANGED LATERAL DOWN
- FLANGED CONCENTRIC REDUCER
- FLANGED ECCENTRIC REDUCER
- SCREWED REDUCING BUSHING
- SCREWED UNION

DOUBLE LINE	SINGLE LINE
	SCREWED CAP
	WELDED CAP
	FLANGED ELBOW, 90 DEGREE
	FLANGED CROSS
	FLANGED TEE
	FLANGED ELBOW, 45 DEGREE
	FLANGED WYE
	FLANGED TRUE WYE
	FUTURE PIPE
	FLEXIBLE COUPLING WITH THRUST TIES
	BELLOWS EXPANSION JOINT WITH THRUST TIES
	TRI-CLAMP FITTING
	FLANGED FLEXIBLE BRAIDED COUPLING
LR	FLANGED ELBOW, 90 DEGREE LONG RADIUS
RED	FLANGED ELBOW, 90 DEGREE REDUCING
	FLANGED CROSS, REDUCING
	FLANGED TEE, REDUCING

PIPING SYMBOLS

- PULSATION DAMPNER, WATER HAMMER ARRESTOR
- CALIBRATION COLUMN
- LEAK DETECTION
- REDUCER
- BLIND FLANGE
- D — DIELECTRIC UNION
- EXPANSION JOINT
- AIR/ VACUUM RELEASE
- AV — AUTOMATIC AIR VENT
- S — AIR SEPARATOR
- PIPE PLUG
- DOUBLE CONTAINMENT PIPING
- INSULATED PIPING
- DOUBLE CONTAINED AND INSULATED PIPING
- X" ET — INSULATED ELECTRIC TRACED PIPE X = INSULATION THICKNESS
- X" STM — INSULATED STEAM TRACED PIPE X = INSULATION THICKNESS
- DUST COLLECTION HOSE
- RS — REMOVABLE SPOOL

IN LINE DEVICE SYMBOLS

- STRAINER
- BLOW OFF STRAINER
- DUPLEX STRAINER
- SIGHT GLASS
- FLEXIBLE (ELASTOMER) PIPE CONNECTION
- CAPILLARY TUBE
- BASKET STRAINER
- BASKET STRAINER
- WAFER SIGHT GLASS
- T X — STEAM TRAP X = IDENTIFICATION NO.
- X — STEAM TRAP ASSEMBLY X = TRAP IDENTIFICATION NO.
- FILTER/ REGULATOR/ LUBRICATOR
- S — STERILE SAMPLE PORT (SP-)
- RESIN TRAP
- GRAVITY FLOW DRAINAGE PIPING WITH AIR GAP
- HOUSE VACUUM PORT (SHEMATIC)
- HOUSE VACUUM PORT (PLAN & ELEVATION)
- ORIFICE PLATE (PRESSURE REDUCING)
- LOAD CELL
- FILTER

- IN-LINE MIXER
- DAMPER
- EJECTOR/ EDUCTOR
- T-TYPE STRAINER
- CONE STRAINER
- TEMPORARY STRAINER
- DS — DESUPERHEATER
- ROTATING SPRAY BALL
- FIXED SPRAY BALL
- BASKET STRAINER W/ DRAIN VALVE
- AIR INLET FILTER
- LOOP SEAL
- D — DETONATION ARRESTOR
- F — FLAME ARRESTOR
- S — IN-LINE SILENCER
- S — VENT SILENCER
- VENT COVER
- BREATHER

APEGM
Certificate of Authorization
CH2M HILL Canada Ltd.
No. 1441

NO.	REVISIONS	DATE	DESIGN	CHECK
03	ISSUED FOR CONSTRUCTION – 976-2016	2017/04/05	B.C.	J.C.
02	ISSUED FOR CONSTRUCTION	10/2015	B.C.	J.C.
01	ISSUED FOR 60% PRELIMINARY REVIEW	09/2015	B.C.	J.C.
00	ISSUED FOR TENDER	08/2015	B.C.	J.C.

CH2MHILL. KGS GROUP SNC·LAVALIN

DESIGNED BY: F. ABSI
CHECKED BY: B. EDGAR
DRAWN BY: B. COOPER
APPROVED BY: H.T. FREIHAMMER
SCALE: NTS
ISSUED FOR CONSTRUCTION BY: J. SHUMKA DATE: 2017/04/05
DATE: 2017/04/05
CONSULTANT NO.: 474248

ENGINEER'S SEAL
PROVINCE OF MANITOBA — F. J. ABSI Member 36875 — REGISTERED PROFESSIONAL ENGINEER
April 5, 2017
F. J. Absi

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

SOUTH END WATER POLLUTION CONTROL CENTRE
SEWPCC UPGRADING/EXPANSION PROJECT
PROCESS
LEGEND AND GENERAL NOTES

CITY DRAWING NUMBER	SHEET	REV.	SIZE
1-0102-PAAA-A001		03	A1

PLOT DATE: 2017\03\30
FILE NAME: 1-0102-PAAA-A001.dgn

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