



BILL OF MATERIAL				BILL OF MATERIAL				
MARK	QTY	SIZE	DESCRIPTION	LENGTH				
1	1	1"	PIPE, API 5L, XH, GRADE B, SMLS, DRL, PE TBE	5'-3 15/16"	36	1	1 1/8" (20) STUD BOLTS FOR 14" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	6 1/4"
2	1	2"	PIPE, API 5L, XH, GRADE B, SMLS, DRL, PE	11 7/8"	37	6	8" GASKET, ANSI 300, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
3	1	2"	PIPE, API 5L, XH, GRADE B, SMLS, DRL, PE, FBE COATED 14-16 MILS	23'-8"				
4					38	2	4" GASKET, ANSI 300, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
5	1	8"	PIPE, API 5L, STD, GRADE B, SMLS, DRL, PE	6'-4"				
7	1	4"	PIPE, API 5L, STD, GRADE B, SMLS, DRL, PE, FBE COATED 14-16 MILS	10'-6"				
8	1	10"	PIPE, API 5L, STD, GRADE B, ERW, DRL, PE	8'-9"	39	4	2" GASKET, ANSI 300, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
9	1	8"	ELL, 90° LR, ASTM A-234, BUTT WELD, STD WALL, WPB					
10	2	4"	ELL, 90° LR, ASTM A-234, BUTT WELD, WPB		40	1	14" GASKET, ANSI 300, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
11	4	2"	ELL, 90° LR, ASTM A-234, BUTT WELD, WPB					
12	1	10"	ELL, 90° LR, ASTM A-234, BUTT WELD, WPB					
13	1	4"	TEE, ASTM A-234, BUTT WELD, WPB		41	1	12" GASKET, ANSI 300, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
14	2	10"	TEE, ASTM A-234, BUTT WELD, WPB					
15	1	8"x4"	TEE, REDUCING, ASTM A-234, BUTT WELD, WPB					
16	2	4"x2"	TEE, REDUCING, ASTM A-234, BUTT WELD, WPB		42	3	10" GASKET, ANSI 150, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
17	2	10"x8"	TEE, REDUCING, ASTM A-234, BUTT WELD, WPB					
18	1	14"x10"	REDUCER, CONC., ASTM A-234, BUTT WELD, WPB					
19	1	12"x8"	REDUCER, CONC., ASTM A-234, BUTT WELD, WPB		43	5	10" GASKET, ANSI 300, FLEXITALLIC SPIRAL WOUND, TYPE "CGI", 304/316 SS WINDINGS, FLEXITALLIC CGI CENTERING RING	
20	5	8"	FLG, ANSI 300 RFWN, ASTM A-105, WPB					
21	2	4"	FLG, ANSI 300 RFWN, ASTM A-105, WPB					
22	4	2"	FLG, ANSI 300 RFWN, ASTM A-105, WPB		44	6	3/4" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB TBE	3"
23	1	14"	FLG, ANSI 300 RFWN, ASTM A-105, WPB		45	4	2" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB TBE	6"
24	1	12"	FLG, ANSI 300 RFWN, ASTM A-105, WPB		48	2	1/4" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB	3"
25	4	10"	FLG, ANSI 150 RFWN, ASTM A-105, WPB		49	1	1/2" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB TBE	2"
26	5	10"	FLG, ANSI 300 RFWN, ASTM A-105, WPB		50	2	1/2" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB TBE	5"
27	3	7/8"	(12) STUD BOLTS FOR 10" 150LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	5"	51	2	1" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB TBE	6"
28	1	7/8"	(12) STUD BOLTS FOR 8" 300LB FLANGES WITH SPECTACLE BLIND, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	6 3/4"	52	6	1" NIPPLE, ASTM A-106, MNPT, SCH. 160, WPB TBE	6"
29	4	7/8"	(12) STUD BOLTS FOR 8" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	5 3/4"	53	4	2" 90° ELL, ASTM A-106, FNPT, 3000#, WPB	
30	1	1"	(16) STUD BOLTS FOR 10" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	6 1/2"	54	8	1" 90° ELL, ASTM A-106, FNPT, 3000#, WPB	
31	4	5/8"	(8) STUD BOLTS FOR 2" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	4 1/2"	55	1	8"x2" WELD-O-LET, ASTM A-105, BUTT WELD, 3000#, WPB	
32	2	3/4"	(8) STUD BOLTS FOR 4" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	4 3/4"	56	2	2" TEE, STR. ASTM A-106, FNPT, 3000#, WPB	
33	1	1"	(16) STUD BOLTS FOR 10" 300LB FLANGES WITH SPECTACLE BLIND, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	7 5/8"	57	2	3/4"x1/2" TEE, RED. ASTM A-106, FNPT, 3000#, WPB	
34	2	1"	(16) STUD BOLTS FOR 10" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	6 1/2"	58	2	1/2"x1/4" BUSHING, THRD 3000LB, HEXAGON HEAD (LADISH PART NO. 600),(LGT, THD, (LE)&THD. (SE PER ASME B16.11-2001)	
35	1	1 1/8"	(16) STUD BOLTS FOR 12" 300LB FLANGES, ASTM A-193, GR. B7 W/TWO (2) ASTM A-194, GR. 2H, HEAVY HEX NUTS EACH	7"	59	2	2" UNION, THRD, ASTM A-106, FNPT, 3000#, WPB	
					60	2	1" UNION, THRD, ASTM A-106, FNPT, 3000#, WPB	
					61	1	1/2" PLUG, ASTM A-106, MNPT, SCH. 160, WPB	
					62	1	8"x3/4" THRED-O-LET, ASTM A-105, FNPT, 3000#, WPB	
					63	1	8"x1/2" THRED-O-LET, ASTM A-105, FNPT, 3000#, WPB	
					64	1	10"x3/4" THRED-O-LET, ASTM A-105, FNPT, 3000#, WPB	
					65	1	10"x2" THRED-O-LET, ASTM A-105, FNPT, 3000#, WPB	
					66	2	2" BALL VALVE, ANSI 300, RFFE, FULL PORT, 316 SS BALL AND TRIM, PTFE SEATS, API 6D, FIRE SAFE DESIGN	11 1/2"
					67	2	3/4" BALL VALVE, SERIES 800 WOG 2000#, FNPT, REDUCED PORT, 316 SS BALL AND TRIM, SS BODY, PTFE SEATS, API 6D OR ASME B16.34, FIRE SAFE DESIGN	1 5/8"
					68	3	1/2" BALL VALVE, SERIES 800 WOG 2000#, FNPT, REDUCED PORT, 316 SS BALL AND TRIM, SS BODY, PTFE SEATS, API 6D OR ASME B16.34, FIRE SAFE DESIGN	1 7/16"
					69	1	8" CHECK VALVE, ANSI 300, RFFE, FULL CONDUIT W/BONNET COVER, API 6D, 13 CR TRIM, SWING TYPE, HF SEAT	1'-9"
					70	1	8" GATE VALVE, ANSI 300, RFFE, FULL PORT, SLAB GATE, FABRICATED STEEL BODY, C.S. ENP GATE, VITON SEATS, API-6D, FIRE SAFE DESIGN	1'-4 1/2"
					71	1	4" GATE VALVE, ANSI 300, RFFE, FULL PORT, SLAB GATE, FABRICATED STEEL BODY, C.S. ENP GATE, VITON SEATS, API-6D, FIRE SAFE DESIGN	6"
					72	1	10" GATE VALVE, ANSI 300, RFFE, FULL PORT, SLAB GATE, FABRICATED STEEL BODY, C.S. ENP GATE, VITON SEATS, API-6D, FIRE SAFE DESIGN	1'-6"
					73	2	3/4"x1" RELIEF VALVE, 800LB THRD	
					74	1	8" BLIND, SPECTACLE, 300LB, ASTM A-105	1"
					75	1	10" BLIND, SPECTACLE, 300LB, ASTM A-105	1"
					76	2	2"x1" COUPLING RED THRD, ASTM A-105	


Rooney Engineering, Inc.
 12201 E. Arapahoe Rd.
 Centennial, CO 80112
 (303) 792-5911

1	AS-BUILT	12/18/07	EK	ADJ
0	ISSUED FOR CONSTRUCTION	10/24/06	EK	ADJ
NO	REVISION	DATE	APPR	BY


BEAVER LODGE (ND) STATION
 PIPING PLAN
 BOOSTER PUMP ADDITION
 PROJECT: ENBRIDGE ND EXPANSION
 SCALE: 3/8"=1'-0" DATE: 04/20/06 DRAWN: ADJ
 CHECK: APPR: DATE:
DWG. NO. 2409-P-001