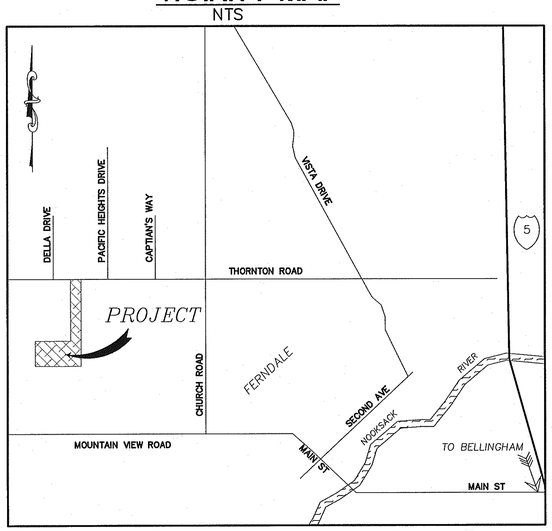
BAKERVIEW BOOSTER PUMP STATION

CITY OF FERNDALE

VICINITY MAP

NTS



SHEET INDEX

LEGEND

----------	= SAWCUT
(V)	= PROP VAULT
——W——	= PROP WATERMAIN
——P——P——P——	= PROP POWER
————	= PROP PAVEMENT
⋈ N	= PROP WATER VALVE
——G——G——G——	= EX GAS MAIN
——T——T——T——	= EX TELEPHONE LINE
——W——W——W——	= EX WATER MAIN
	= EX FIRE HYDRANT
	= EX WATER VALVE
	= EX JBOX
——SD——SD——	= EX STORM DRAIN
	= EX SD CATCH BASIN
—— X —— X ——	= EX FENCE
— — — — — —	= EX DITCH CL
- - - - - - - - - -	= EX EDGE OF PAVEMENT
——TB——TB——	= EX TOP OF BANK
——PR——PR——	= EX POWER LINE
——BB——BB——	= EX TOE OF BANK
————	= EX FLOWLINE
- - - - - - - - - -	= EX GRAVEL
————	= EX SIDEWALK

CARL F. REICHHARDT
STATE OF WASHINGTON
9748
REGISTERED PROFESSIONAL ENGINEER

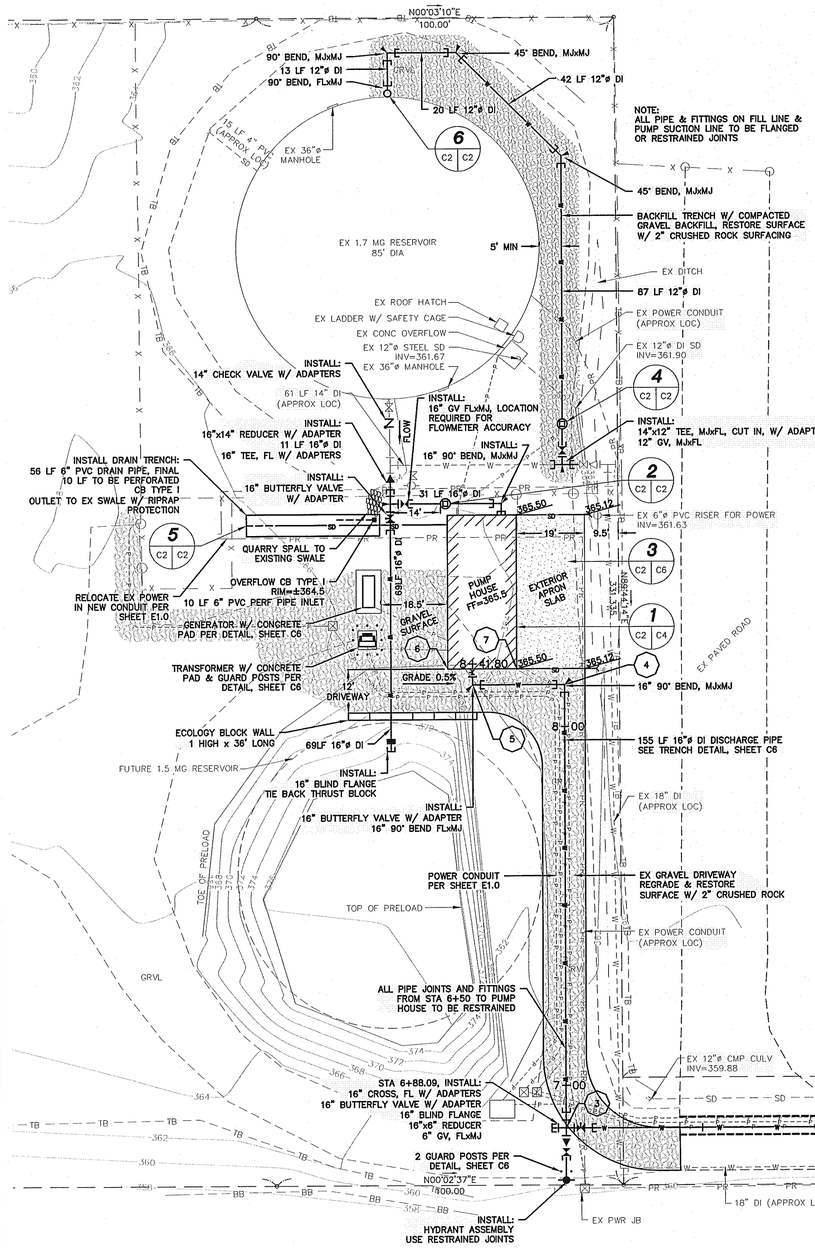
EXPIRES AUG 13,2009

BID SET

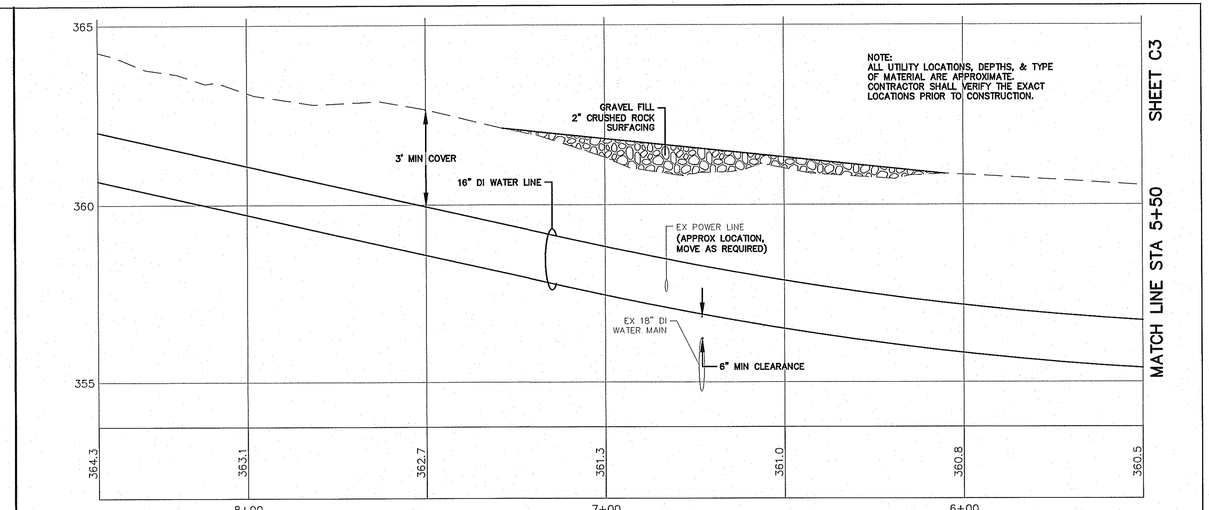
DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354–3687 Fax (360) 354–0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248

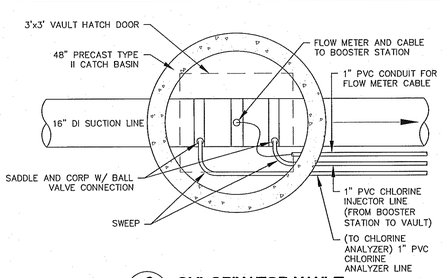
BAKERVIEW BOOSTER PUMP COVER SHEET	JOB# / DWG 07019 SP1	DATE 12/28/07
	SCALE H: n/a V: n/a	SHEET C1

GRAPHIC SCALE
0 10 20 40
(IN FEET)
1 inch = 20 ft.

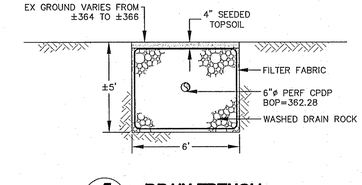


3	N: 9408.77	E: 13658.82
4	N: 9408.77	E: 13535.29
5	N: 9383.01	E: 13535.29
6	N: 9376.09	E: 13530.87
7	N: 9395.42	E: 13530.87

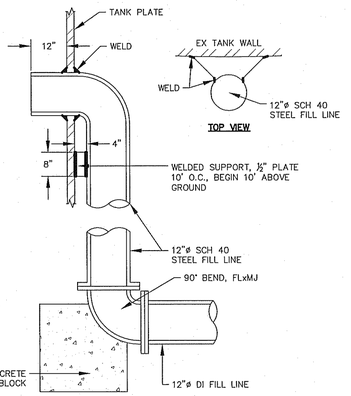




2 CHLORINATOR VAULT (C2 | C2) H: 1"=2' / V: N/A

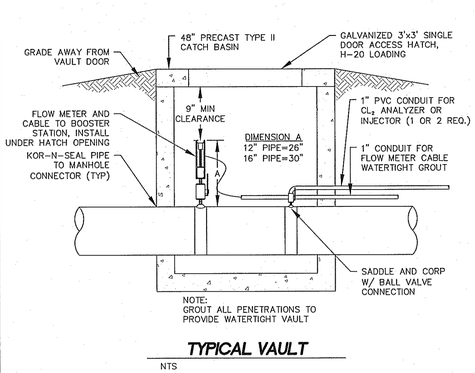


5 DRAIN TRENCH (C2 | C2) H: 1"=4' / V: N/A

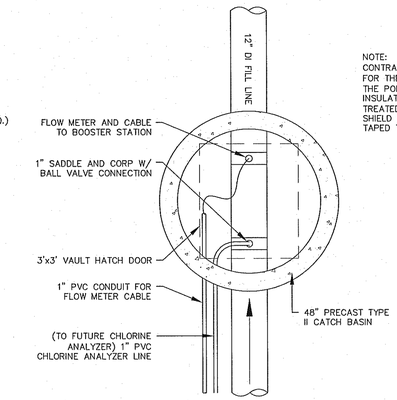


6 INLET DETAIL (C2 | C2) H: 1"=2' / V: N/A

NOTE:
CONTRACTOR SHALL PROVIDE SHIELD & INSULATION W/ VAPOR BARRIER FOR THE 12"ø TANK FILL LINE. THE INSULATION SHALL EXTEND FROM THE POINTS WHERE THE PIPE ENTERS THE TANK TO 6" BELOW GROUND. INSULATION SHALL BE ASBESTOS FREE, HYDROUS CALCIUM SILICATE, TREATED FOR WATER RESISTANCE; THICKNESS SHALL BE 3". METAL SHIELD SHALL BE MINIMUM 16 GAUGE, GALVANIZED. JOINTS SHALL BE TAPED TO ENSURE COMPLETE VAPOR BARRIER.



TYPICAL VAULT
NTS



4 FILL METER VAULT (C2 | C2) H: 1"=2' / V: N/A

BID SET

CARL F. REICHHARDT — STATE OF WASHINGTON — 9948 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES AUG 13,2009

DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
SITE PLAN

JOB# / DWG		DATE
07019	SP1	1/2/08
SCALE		SHEET
H: 1"=20' V: n/a		C2

GRAPHIC SCALE
0 10 20 40
(IN FEET)
1 inch = 20 ft.

DELLA DRIVE

THORNTON ROAD

EX SDMH
RIM=362.02
E INV=344.63/12"
S INV=344.81/12"
W INV=344.79/12"
N INV=344.81/12"

PWR SERVICE

TEL C PED

EX S/W

1 N: 9980.31 E: 13549.43 EX MON

2 N: 9981.79 E: 13658.82

NOTE:
CONTRACTOR TO POTHOLE TO LOCATE EXISTING UTILITIES IN THORNTON ROAD. VERIFY LOCATION, DEPTH, & TYPE OF PIPES & CONDUITS. INSTALL BENDS AS NECESSARY TO MATCH PREEXISTING PIPE GRADES OF 10" & 14" WATERMAINS. SEE DETAIL 10.

MATCH LINE STA 5+65

EX 18"ø CMP CULV INV=358.10

N00°02'37"E 534.205'

N00°02'37"E 537.255'

PROPOSED POWER LINES, SEE ELECTRICAL, SHEET E1.0

600 LF 16"ø DI

18"ø DI (APPROX LOC)

EX SDCB
RIM=358.14
S INV=355.89/18"/CPP
E INV=355.98/12"/CPP

WV

JBOX

REMOVE CONCRETE CURB & SIDEWALK PANELS, REPLACE PER DETAIL, SHEET C6

INSTALL WATER LINE UNDER STORM DRAIN & GAS LINE

SAWCUT EX ASPHALT & REPLACE PER DETAIL, SHEET C6

EX 6" BACK OF SIDEWALK DRAIN

REMOVE CONCRETE CURB & SIDEWALK PANELS REPLACE PER DETAIL, SHEET C6

INSTALL:
16" BUTTERFLY VALVE W/ ADAPTER (S)
16"x14" CROSS, FLxFL W/ ADAPTERS
14" BUTTERFLY VALVEW/ ADAPTER (W)
16"x10" REDUCER
10" TAPPING VALVE, FL
10" TAPPING TEE
(2) 10" ADAPTERS
(2) 14" ADAPTERS
(2) VERTICAL BENDS, 11.25° TO 45°
ALL FITTINGS & JOINTS TO BE FLANGED OR RESTRAINED

REPAIR & REPLACE FENCE AS REQUIRED

NORMALLY CLOSED

INSTALL:
BLIND FLANGE W/ THRUST BLOCK, ALT 1

EX 10'x20' PUMP STATION (APPROX LOC)
DEMOLISH, ALT 1

14"ø DI (APPROX LOC)

10"ø DI (APPROX LOC)

EX 10'x7' METER VAULT (APPROX LOC)
DEMOLISH, ALT 1

INSTALL:
BLIND FLANGE W/ THRUST BLOCK, ALT 1

SHEET C2

MATCH LINE STA 5+50

3' MIN COVER

EX 4" WATER MAIN THORNTON WATER ASSOC.

EX GAS LINE

EX 12" SD INV=355.61

EX 10" WATER MAIN INV=±352 (EST)

EX WATER LINE INV=±354.5 (EST)

16" DI WATER LINE

EX 6" PERF BACK OF S/W DRAIN

EX POWER LINE

EX TELEPHONE LINE

10 C3 | C3

EX 14" WATER MAIN INV=±350 (EST)

EX 12" SS INV=340.01

355
350
345

360.5 360.3 360.2 360.5 360.7 360.4 359.9 359.4 358.4 357.7 358.2

5+00 4+00 3+00 2+00 1+00

10" TAPPING TEE ON 10" WATER LINE

16"x10" REDUCER

16"x14" CROSS, FL W/ ADAPTERS

BEND AS REQUIRED

BEND AS REQUIRED

10" TAPPING VALVE

NOTE:
RELATIVE DEPTHS OF 14" & 10" PIPES UNKNOWN. CONTRACTOR TO VERIFY EXACT DEPTH, LOCATION, & TYPE OF MATERIAL OF EXISTING UTILITIES. CONTRACTOR SHALL USE APPROPRIATE FITTINGS TO MATCH FIELD CONDITIONS.

10 C3 | C3 **CONNECTION DETAIL**
H: 1"=2' / V: N/A

EX GROUND SURFACE

REMOVE

4"

FILL W/ COMPACTED GRAVEL TOP 12" SEEDED TOPSOIL

EX VAULT

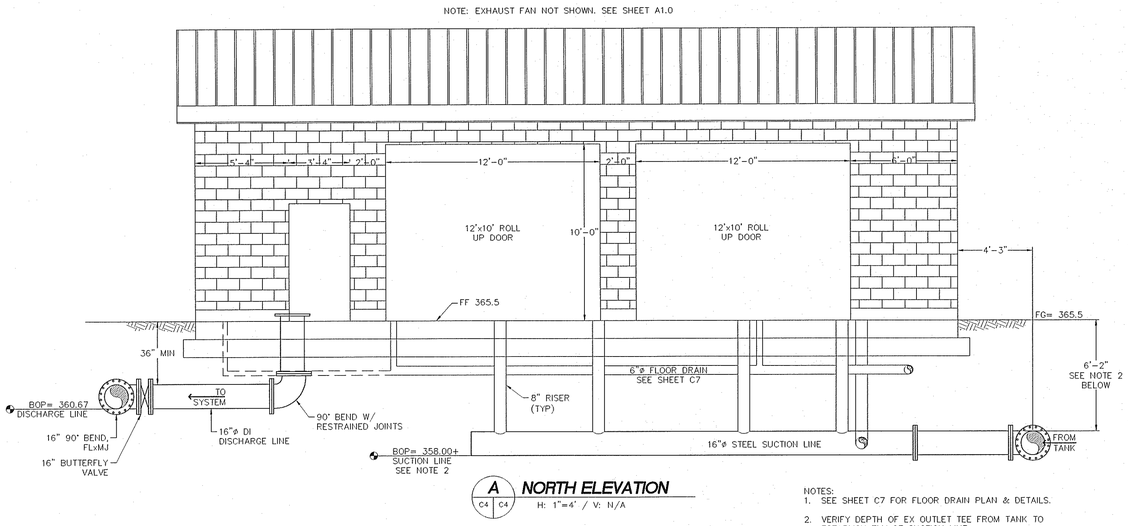
TYPICAL VAULT DEMOLITION
NTS

CARL F. REICHHARDT STATE OF WASHINGTON 9948 REGISTERED PROFESSIONAL ENGINEER
EXPIRES AUG 13, 2009

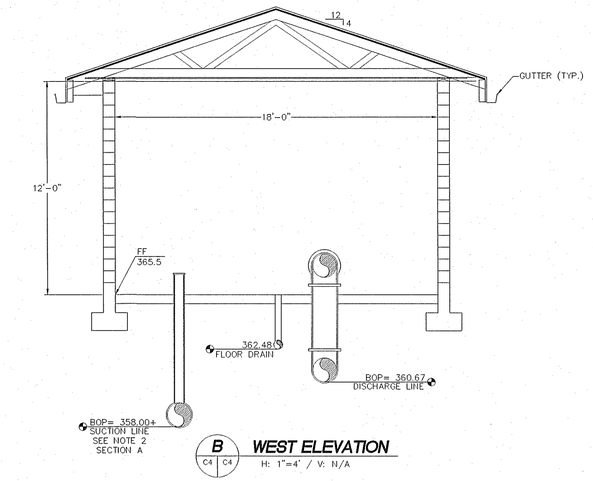
BID SET

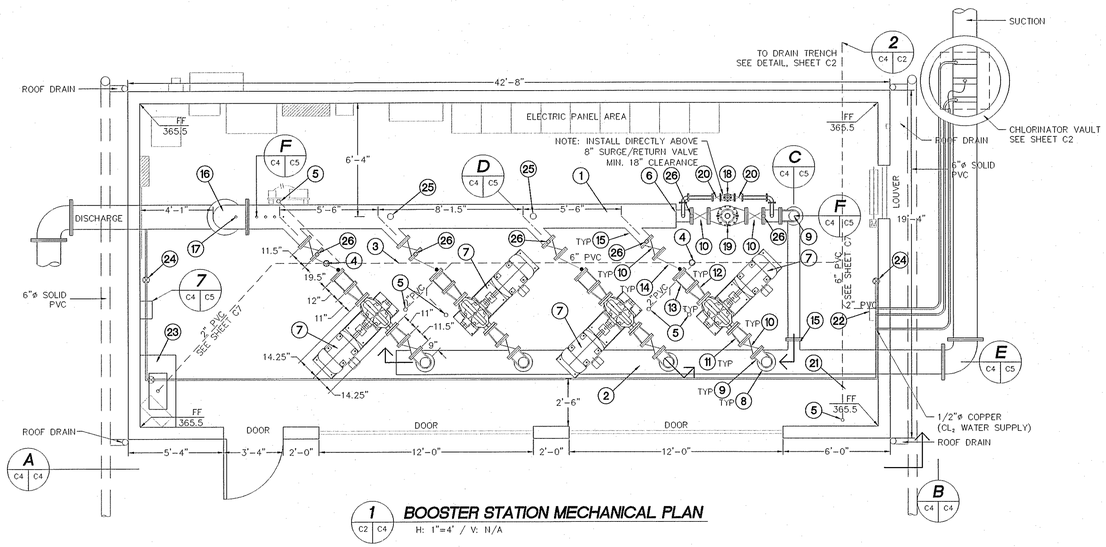
	DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP SITE PLAN

JOB# / DWG		DATE
07019	SP1	1/2/08
SCALE		SHEET
H:1"=20' V:n/a		C3



NOTES:
1. SEE SHEET C7 FOR FLOOR DRAIN PLAN & DETAILS.
2. VERIFY DEPTH OF EX OUTLET TEE FROM TANK TO ESTABLISH ELV OF SUCTION LINE.





◯ MECHANICAL EQUIPMENT

1. 16-INCH DISCHARGE MANIFOLD, ABOVE GRADE
2. 16-INCH SUCTION LINE, BELOW GRADE
3. 6-INCH FLOOR DRAIN, SEE SHEET C7
4. 4" FLOOR DRAIN INLET, GRATE ELV=365.35
5. 2" PRESSURE RELIEF VALVE DRAINS & CHLORINE ANALYZER DRAINS.
6. 16-INCH WELDED STL. END W/ 8"ø FLANGE PORT FOR 8' PRV.
7. 30 HP HORIZONTAL SPLIT CASE PUMP, MOTOR & AIR RELIEF VALVE. 2 PUMPS CLOCKWISE & 2 PUMPS COUNTER CLOCKWISE. DRAINS INTO FLOOR DRAIN AS SHOWN.
8. 8" VERT. RISERS W/ WELDED FLANGES (4 PLACES)
9. 8-INCH 90-DEGREE BEND (FL), 6 REQUIRED.
10. 8-INCH GATE VALVE (FL), 10 REQUIRED.
11. 8"x5" CONCENTRIC REDUCER (FL), 4 REQUIRED.
12. 8"x4" CONCENTRIC REDUCER, (FL), 4 REQUIRED.
13. 8" ADJ. ROMAC DJ 400 DISMANTLING JOINT (FL), 4 REQUIRED.
14. 8-INCH CHECK VALVE (FL), 4 REQUIRED.
15. 8-INCH TIE INTO DISCHARGE LINE (FL), 4 REQUIRED
16. 16-INCH 90-DEGREE BENDS (2 REQUIRED) & SPOOL (FL)
17. AIR RELIEF VALVE, PLUMB TO FLOOR DRAIN SYSTEM.
18. 2-INCH CLA-VAL ELECTRONIC CONTROL VALVE 131G-01BCSY.
19. 8-INCH PRV W/ RETURN FLOW, CLA-VAL 50G-4B, W/ LIMIT SWITCH.
20. 2-INCH GATE VALVE, 2 REQUIRED
21. LOCATION FOR FUTURE CHLORINATOR; PLUMB TO DISCHARGE LINE FOR INLET AND FOR OUTLET AS SHOWN, AND ON SHEET C2.
22. FUTURE CHLORINE ANALYZER
23. CONTRACTOR PROVIDED UTILITY SINK, ONE CHROME PLATED COLD WATER FAUCET, AND EYE WASH STATION.
24. 1-INCH RISER W/ BALL VALVE TO UTILITY STATION/SINK/FUTURE CHLORINATOR. LOCATE BALL VALVE 6" ABOVE FLOOR.
25. ADJUSTABLE PIPE SUPPORT W/ SADDLE & PAD, 4" SCH 40 PIPE & STANCHION (2 PLACES).
26. ADJUSTABLE PIPE FLANGE SUPPORT, 2½" SCH 40 PIP & STANCHION (6 PLACES).

NOTE: ALL DI PIPE WITHIN AND UNDER BUILDING TO BE CLASS 52.

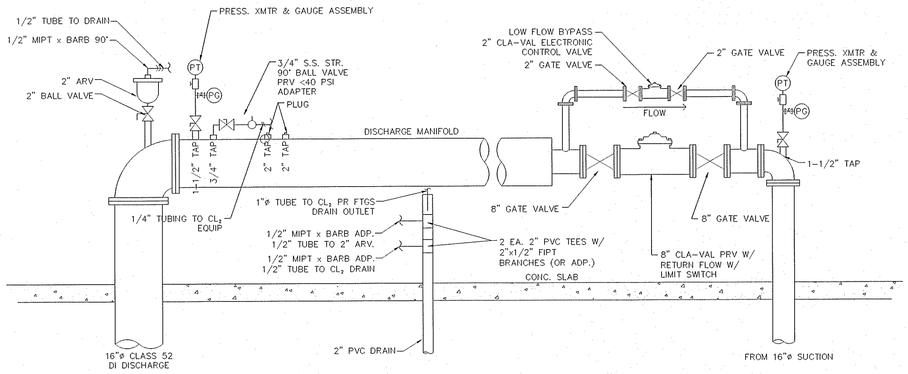
PUMP SPECIFICATIONS	
HORIZONTAL SPLIT CASE	
4 EA.	PACO MODEL 4015 7/8 30 HP, 1775 RPM, 460 V, 3 PHASE, 60 Hz, ODP, VFD 10.00 INCH IMPELLER, 2 CW & 2 CCW
ALTERNATE PUMPS	
4 EA.	AMERICAN MARSH 340 HSC 5x6-12HD 30 HP, 1760 RPM, 460 V, 3 PHASE, 60 Hz, ODP, VFD 9.75 INCH IMPELLER, 2 CW & 2 CCW

GRAPHIC SCALE
0 2 4 8
(IN FEET)
1 inch = 4 ft.

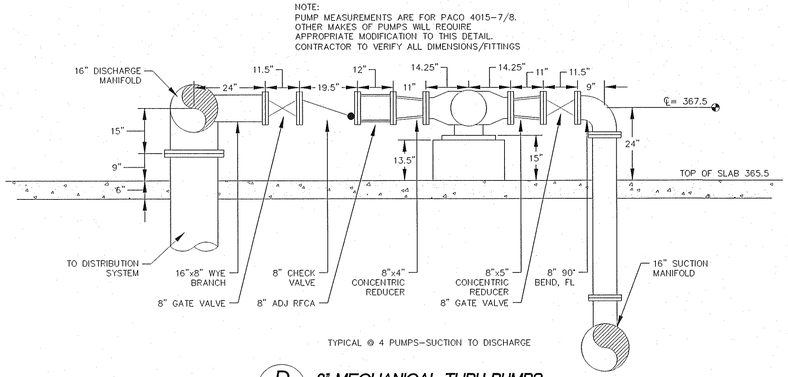
BID SET

CARL F. REICHHARDT — STATE OF WASHINGTON — 9748 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES AUG 13, 2009

DESIGNED BY CFR	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP MECHANICAL PLAN
DRAWN BY IDH	PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407		JOB# / DWG 07019 SP1
CHECKED BY CFR	NO. DATE REVISION BY		SCALE H:NOTED V: n/a
			DATE 12/28/07
			SHEET C4

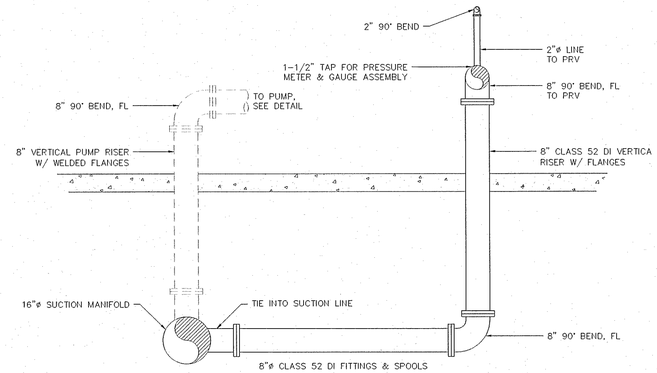


F TAPPING LAYOUT
C4 | C5 — H: 1"=2' / V: N/A

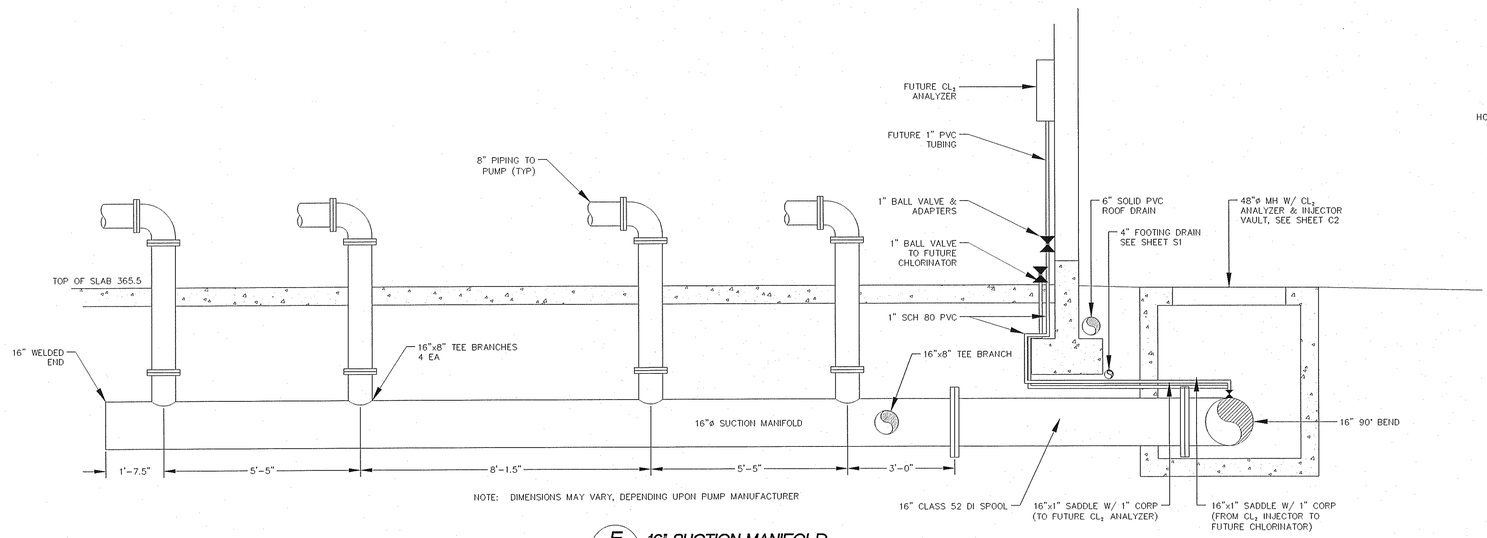


TYPICAL @ 4 PUMPS—SUCTION TO DISCHARGE

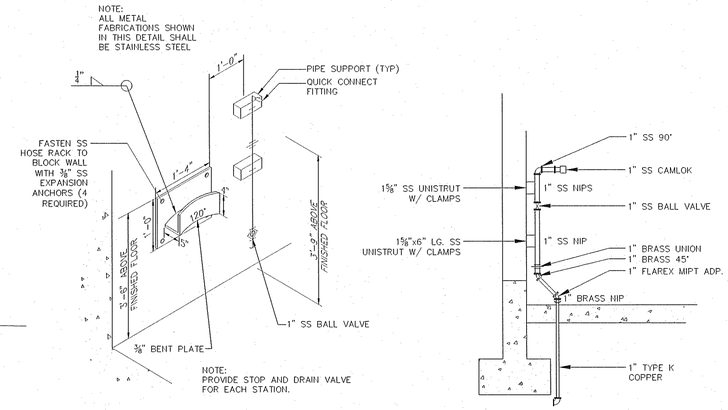
D 8" MECHANICAL THRU PUMPS
C4 | C5 — H: 1"=2' / V: N/A



C 8" LINE TO PRV
C4 | C5 — H: 1"=2' / V: N/A



E 16" SUCTION MANIFOLD
C4 | C5 — H: 1"=2' / V: N/A



7 WALL MOUNTED UTILITY STATION
C4 | C5 — NTS

CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OF UTILITY STATIONS INCL. PIPE SUPPORTS.

CARL F. REICHHARDT — STATE OF WASHINGTON — 9948 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES AUG 13, 2009

BID SET

DESIGNED BY	CFR
DRAWN BY	IDH
CHECKED BY	CFR

R&E REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

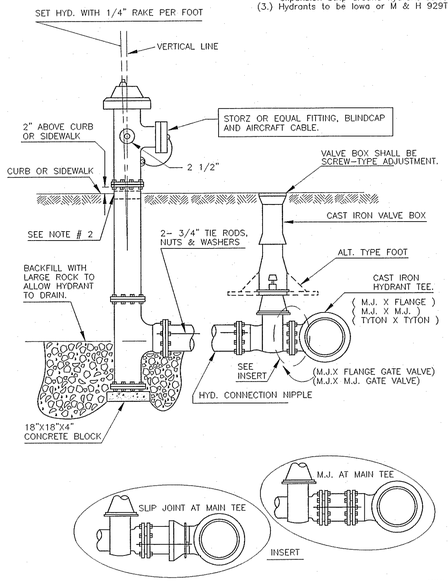
CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
DETAIL SHEET

JOB# / DWG		DATE
07019	SP1	12/28/07
SCALE		SHEET
H:NOTED	V:n/a	C5

NOTES

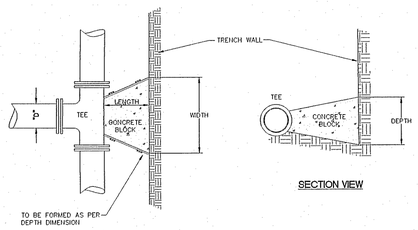
(1.) For close coupled hydrants use all flange type connections.
(2.) If hydrant rises through concrete use expansion strip around hydrant barrel.
(3.) Hydrants to be Iowa or M & H 929T.



NOT TO SCALE

APPROVED		CITY OF FERNDALE	DRAWING
Public Works Director	Date	FIRE HYDRANT ASSEMBLY	W-1

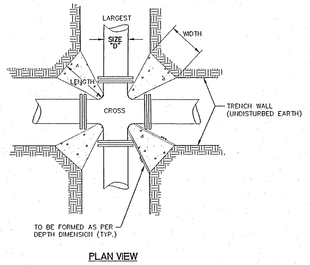
JULY 2001



PLAN VIEW — SECTION VIEW

"D"	WIDTH	DEPTH	LENGTH	VOL.
6"	1'-6"	1'-6"	12"	3.0
8"	2'-0"	2'-0"	12"	4.5
10"	2'-6"	2'-6"	12"	7.0
12"	3'-0"	3'-0"	18"	14.0
16"	4'-6"	3'-6"	24"	32.0

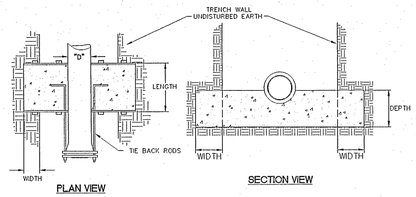
VOL. = Approx. Volume of Blocking Material Required in cu. ft.



PLAN VIEW

"D"	WIDTH	DEPTH	LENGTH	VOL.	X4 blocks/joint
6"	1'-0"	1'-0"	12"	0.63	2.50 cu ft
8"	1'-3"	1'-3"	12"	1.00	4.01 cu ft
10"	1'-6"	1'-6"	12"	1.63	6.50 cu ft
12"	1'-9"	1'-9"	18"	3.05	12.19 cu ft
16"	2'-3"	2'-6"	24"	11.50	46.00 cu ft

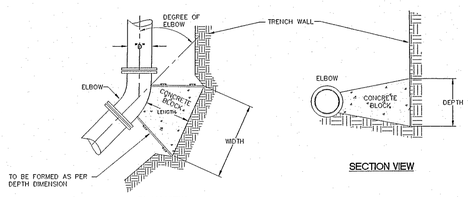
VOL. = Approx. Volume of Blocking Material Required in cu. ft.



PLAN VIEW — SECTION VIEW

"D"	WIDTH	DEPTH	LENGTH	*VOL.	# OF RODS	ROD DIA.
6"	1'-6"	1'-6"	12"	7.5	2	1/2"
8"	2'-0"	2'-0"	18"	20.0	2	5/8"
10"	2'-6"	2'-6"	24"	37.5	2	3/4"
12"	2'-9"	2'-9"	24"	44.0	4	3/4"
16"	3'-0"	3'-0"	24"	54.0	4	3/4"

*VOL. = Approx. Volume of Blocking Material Required in cu. ft.
RODS: A36 STEEL MINIMUM

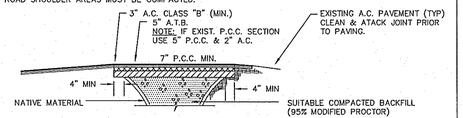


PLAN VIEW — SECTION VIEW

"D"	LENGTH	11 1/4"			22 1/2"			45°			90°		
		WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.
6"	12"	1'-0"	1'-0"	0.63	1'-0"	1'-0"	0.63	1'-6"	1'-6"	1.25	2'-3"	1'-6"	1.88
8"	12"	1'-3"	1'-3"	1.00	1'-3"	1'-3"	1.00	1'-9"	1'-9"	1.75	3'-0"	2'-0"	3.33
10"	12"	1'-9"	1'-6"	1.72	1'-9"	1'-6"	1.72	2'-3"	2'-3"	2.88	3'-6"	2'-5"	4.861
12"	18"	2'-0"	1'-9"	3.48	2'-0"	1'-9"	3.48	2'-9"	2'-6"	5.98	4'-0"	3'-0"	10.00
16	24"	2'-9"	2'-3"	6.20	2'-9"	2'-3"	6.20	4'-0"	3'-0"	12.00	6'-3"	3'-6"	21.90

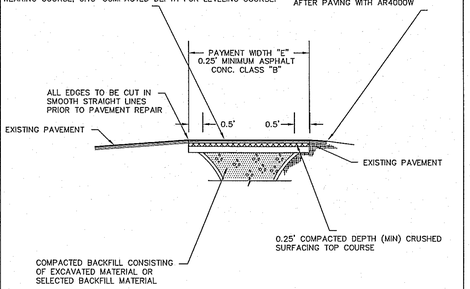
VOL. = Approx. Volume of Blocking Material Required in cu. ft.

NOTE:
IT SHALL BE THE P.W. DIRECTOR'S DECISION AS TO WHETHER A PAVEMENT OVERLAY IS REQUIRED FOR RESTORATION OF ROADWAYS.
ROAD SHOULDER AREAS MUST BE COMPACTED.



THICKNESS TO BE EQUAL TO OR GREATER THAN EXISTING ASPHALT SHALL BE CONSTRUCTED IN TWO(2) LIFTS – 0.1' COMPACTED DEPTH FOR WEARING COURSE, 0.15' COMPACTED DEPTH FOR LEVELING COURSE.

CLEAN AND TACK ALL ASPHALT EDGES PRIOR TO PAVING. SEAL ALL JOINTS AFTER PAVING WITH AR4000W



NOT TO SCALE

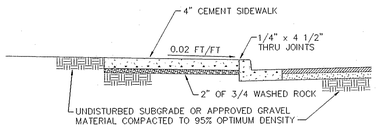
APPROVED		CITY OF FERNDALE EXISTING ROADWAY RESTORATION REPAIR	DRAWING
Public Works Director	Date		R-11

JUNE 1995

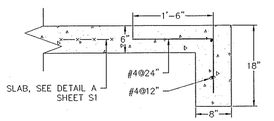
TYPICAL THRUST BLOCKING DETAILS

NTS

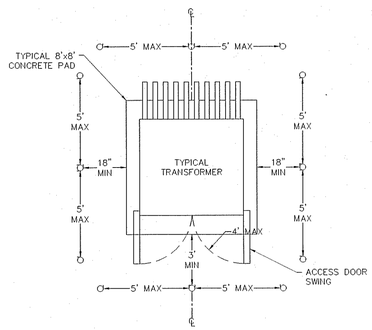
SOIL BEARING CAPACITY 1500 PSF MINIMUM
100 P.S.I. OPERATING PRESSURE



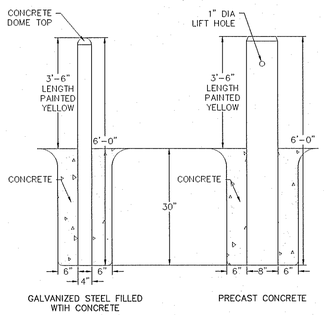
SIDEWALK DETAIL
NTS



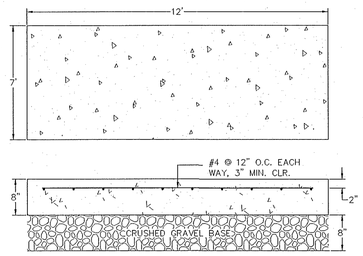
3 (C2 | C6) EXTERIOR APRON SLAB
NTS



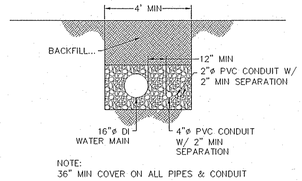
GUARD POST LOCATIONS
NTS



TYPICAL GUARD POSTS
NTS



GENERATOR PAD SECTION
NTS



NOTE:
36" MIN COVER ON ALL PIPES & CONDUIT

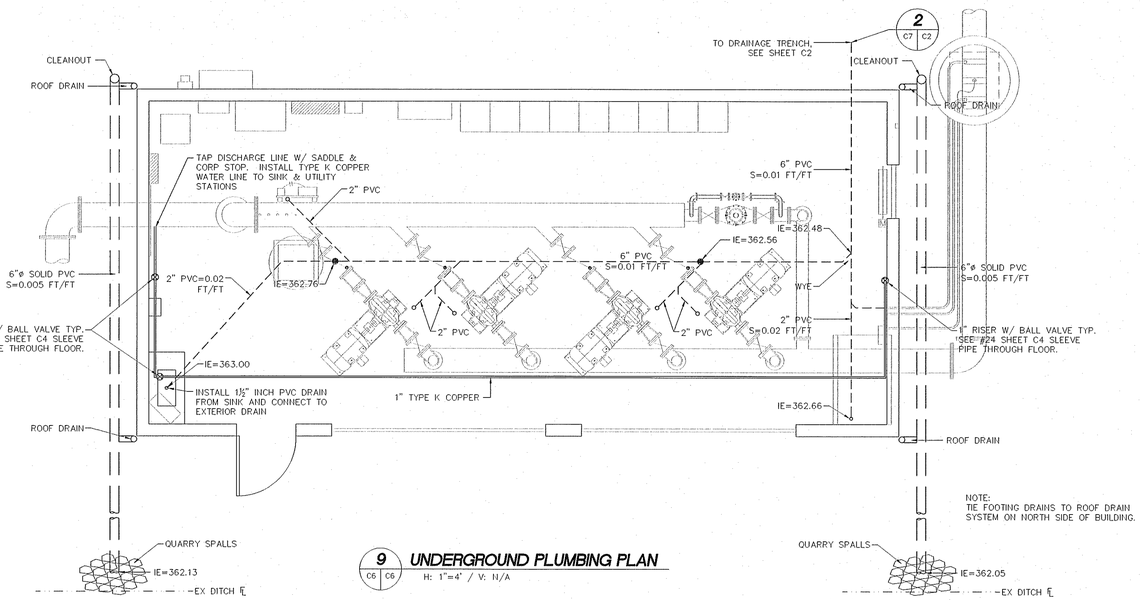
DISCHARGE PIPE TRENCH DETAIL
NTS

BID SET

CARL F. REICHHARDT — STATE OF WASHINGTON — 9948 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES AUG 13, 2009

DESIGNED BY	CFR	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP DETAIL SHEET	JOB# / DWG 07019 SP1	DATE 12/28/07
DRAWN BY	IDH								SCALE H:NOTED V: n/a	SHEET C6
CHECKED BY	CFR									



9 C6 | C6 **UNDERGROUND PLUMBING PLAN**
H: 1"=4' / V: N/A

BID SET

CARL F. REICHHARDT — STATE OF WASHINGTON — 9948 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES AUG 13, 2009

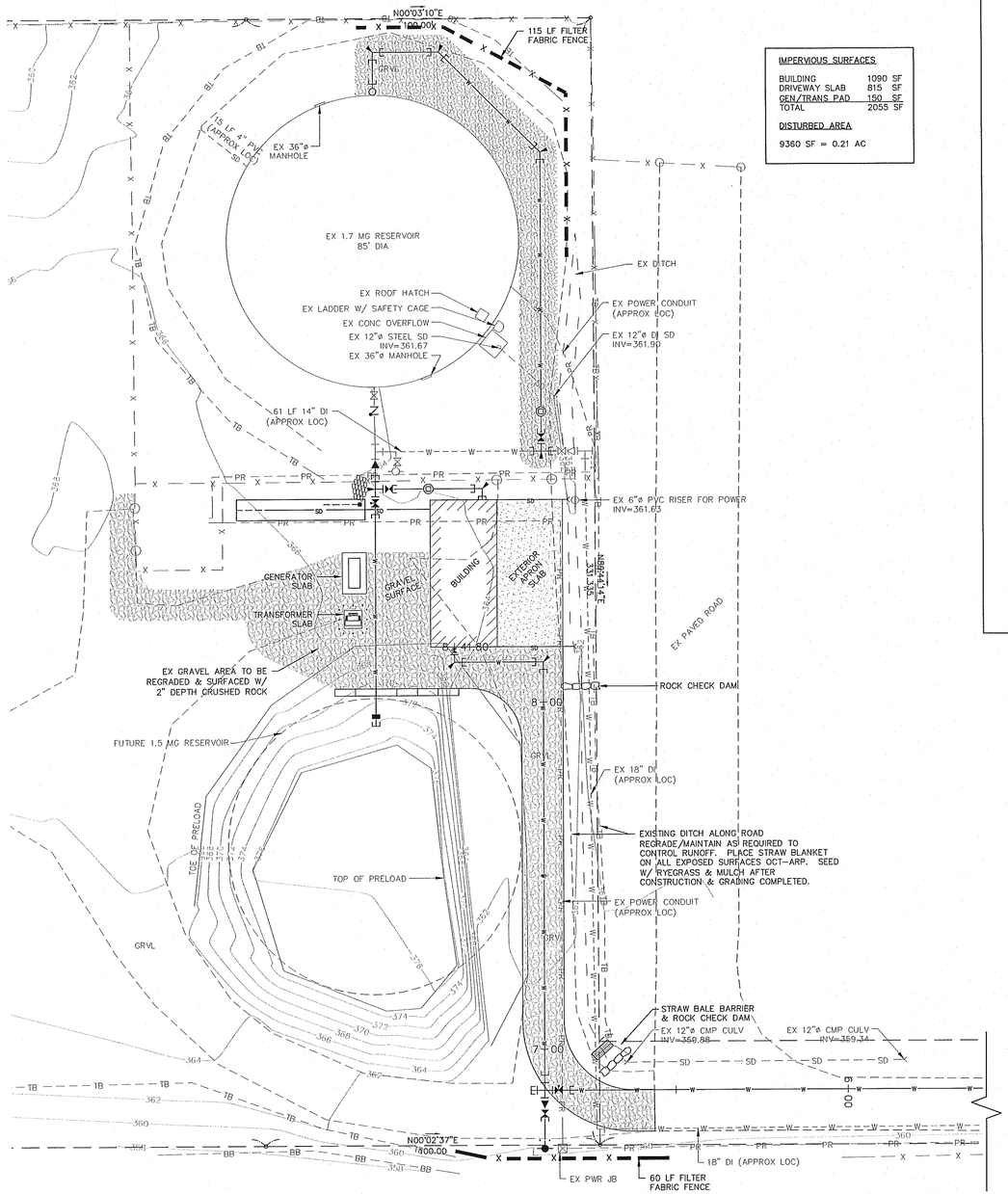
DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY
CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP UNDERGROUND PLUMBING PLAN	JOB# / DWG 07019 SP1	DATE 12/28/07	SCALE H: n/a V: n/a	SHEET C7

GRAPHIC SCALE

0 10 20 40

(IN FEET)

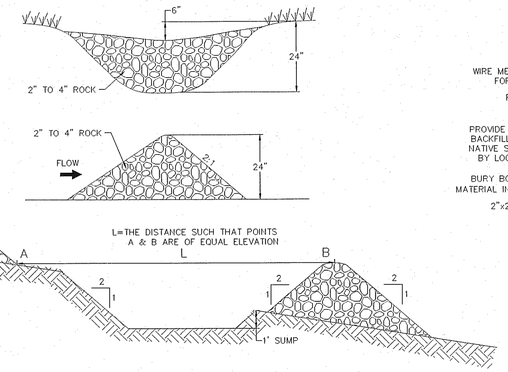
1 inch = 20 ft.



IMPERVIOUS SURFACES	
BUILDING	1090 SF
DRIVEWAY SLAB	815 SF
GEN/TRANS PAD	150 SF
TOTAL	2055 SF

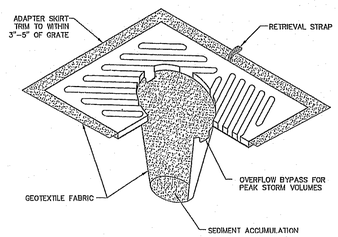
DISTURBED AREA

9360 SF = 0.21 AC



ROCK CHECK DAM

NTS

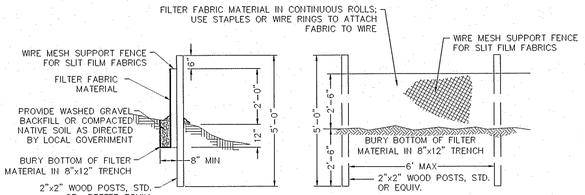


NOTES:

1. INSERT SHALL BE INSTALLED PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. SEDIMENT SHALL BE REMOVED FROM THE UNIT WHEN IT BECOMES HALF FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING, AND RE–INSERTING IT INTO THE CATCH BASIN.

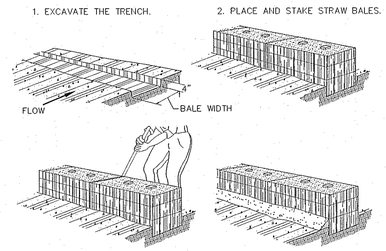
INLET PROTECTION

NTS

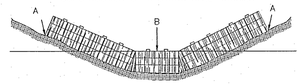


FILTER FABRIC FENCE DETAIL

NTS



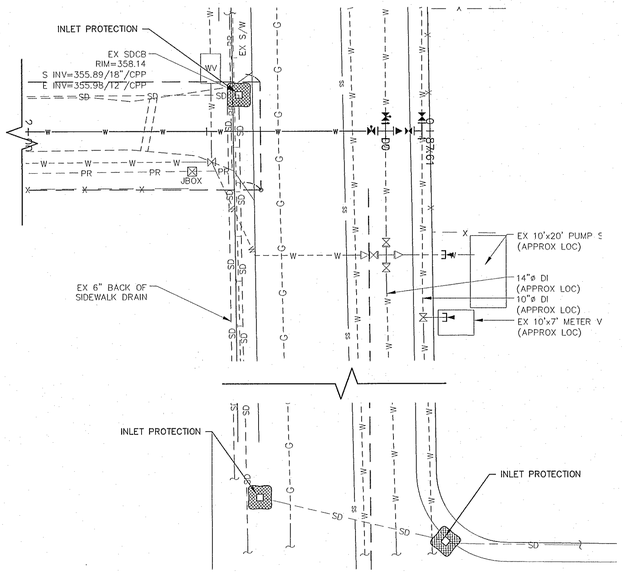
CONSTRUCTION OF A STRAW BALE BARRIER



POINTS A SHOULD BE HIGHER THAN POINT B

STRAW BALE DETAIL

NTS



NOTE:
CONTRACTOR SHALL COMPLY WITH SECTION 8–01, EROSION CONTROL AND WATER POLLUTION CONTROL OF THE WSDOT STANDARDS SPECIFICATIONS

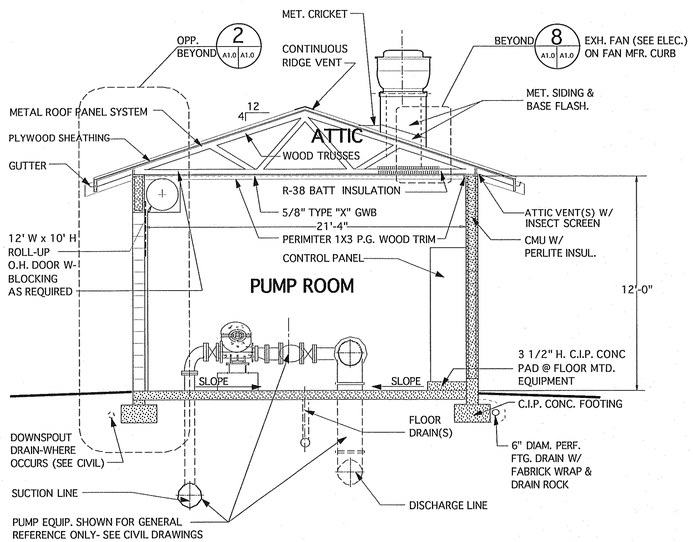
CIVIL F. REICHHARDT STATE OF WASHINGTON 9748 REGISTERED PROFESSIONAL ENGINEER

EXPIRES AUG 13, 2009

BID SET

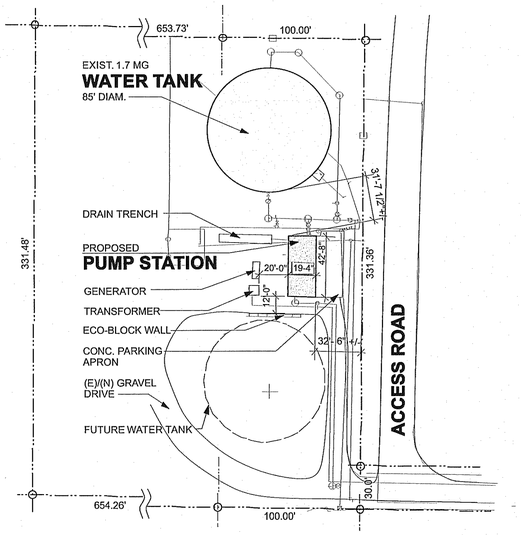
DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354–3687 Fax (360) 354–0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP EROSION CONTROL PLAN

JOB# / DWG		DATE
07019	SP1	12/28/07
SCALE		SHEET
H:1"=20'	V:n/a	C8



6 A1.0 A1.0 Building Section A-A

SCALE: 1/4"= 1'-0"



N 5 A1.0 Site- Key Plan

SCALE:1"= 50'-0"

FOR GENERAL REFERENCE ONLY- SEE CIVIL PLANS FOR SPECIFIC SITE INFORMATION.

Project Informaton

PROJECT/ADDRESS	BAKERVIEW BOOSTER PUMP STATION BUILDING
	FERNDALE, WA 98248
LEGAL/TAX ID NO.	SEE CIVIL DRAWINGS
ZONING	RS 8.5
CODE	2006 IBC
OCCUPANCY TYPE	S2
CONSTRUCTION TYPE	V-B
BUILDING AREA	GROUND FLOOR = 825.66 G.s.f.
BUILDING HEIGHT	(RIDGE) 16'-4"
HEAT SOURCE	ELECTRIC, SEMI-CONDITIONED

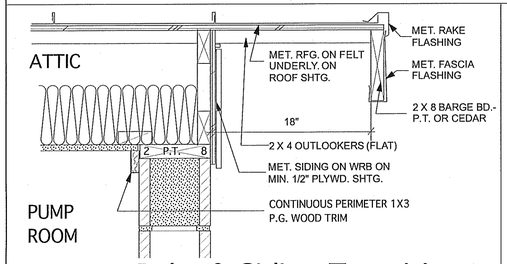
GENERAL NOTES

DIMENSIONS TO FACE OF STUD, FACE OF CONCRETE, EXISTING FINISH WHERE APPLICABLE OR AS NOTED. VERIFY ALL CONDITIONS DRAWN AND NOTED, AS WELL AS EXISTING CONDITIONS IN THE FIELD PRIOR TO CONSTRUCTION AND MAKE THE ARCHITECT AWARE OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
EQUIPMENT SIZES SHOWN ARE SUBJECT TO CHANGE- CONTRACTOR TO VERIFY/COORDINATE FINAL SIZES & AFFECTS (IF ANY) ON LAYOUT.

KGA
KERRY GARRETT ARCHITECT
3831 Silver Beach Avenue
Bellingham, WA 98226
P • 360 671- 9432
F • 656- 5792
E • kerrygarrett@hotmail.com

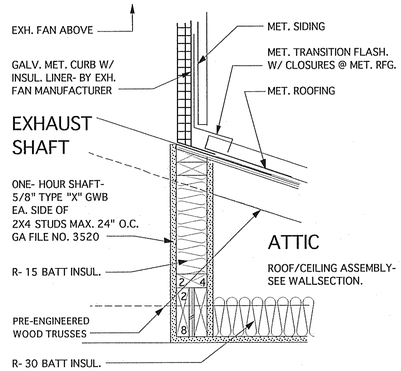
6689 REGISTERED ARCHITECT
KERRY C. GARRETT
STATE OF WASHINGTON

Proj. No. 0706
Drawn K Garrett
Checked K Garrett
Date 14 DEC. 2007
Issued for BID



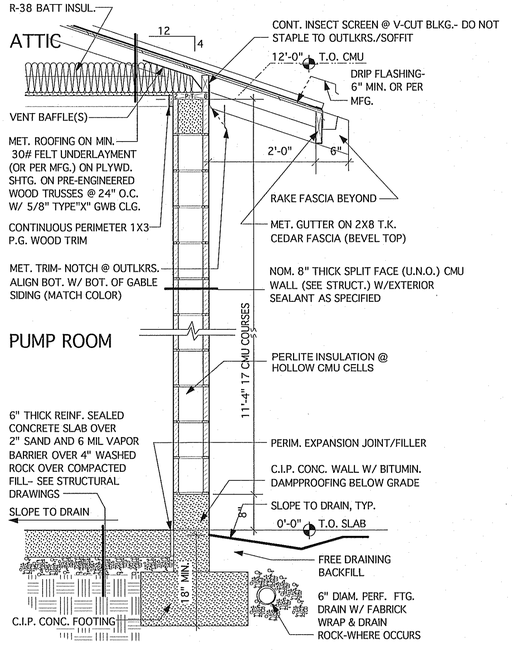
4 A2.0 A1.0 Rake & Siding Transition

SCALE: 1 1/2"= 1'-0"



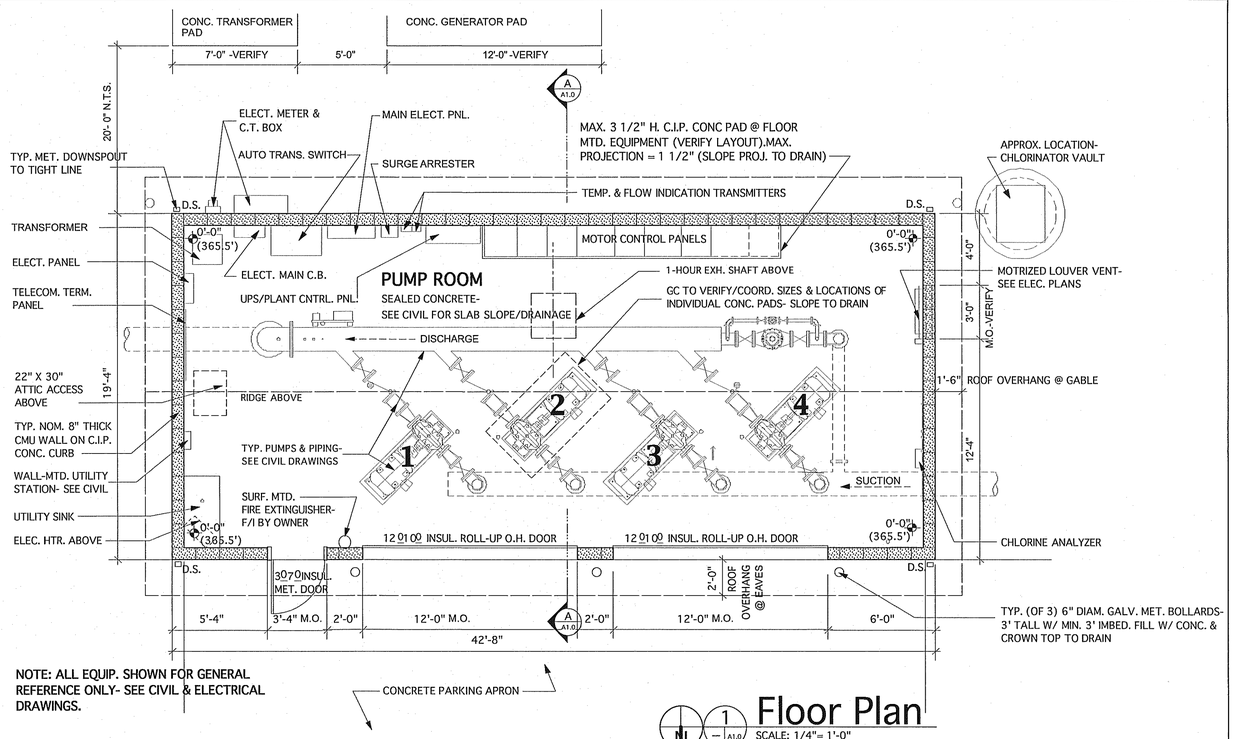
3 A1.0 A1.0 Exh. Fan Curb & Shaft

SCALE: 1 1/2"= 1'-0"



2 A1.0 A1.0 Typ.Wall Section

SCALE: 3/4"= 1'-0"



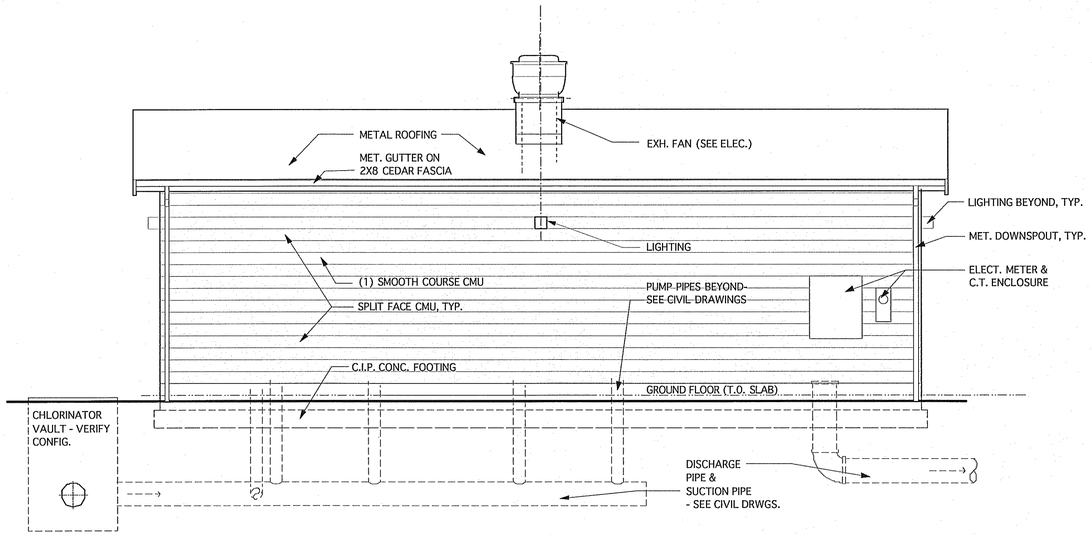
N 1 A1.0 Floor Plan

SCALE: 1/4"= 1'-0"

DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248

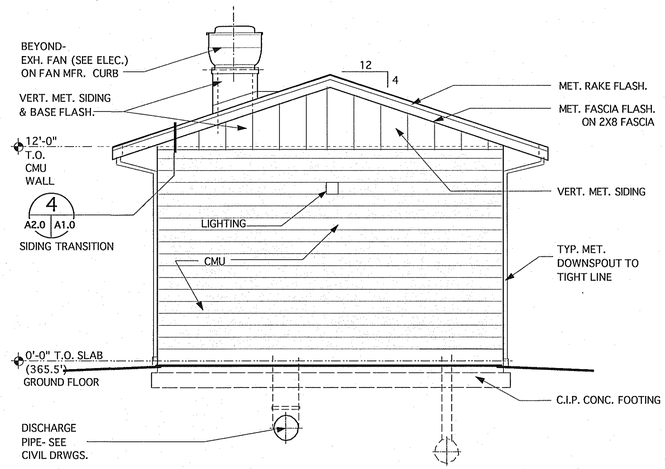
BAKERVIEW BOOSTER PUMP
SITE PLAN

JOB# / DWG		DATE
07019	SP1	10/31/07
SCALE		SHEET
1/4"= 1'-0" U.N.O.		A1.0



4 — A2.0 South Elevation

SCALE: 1/8"= 1'-0"



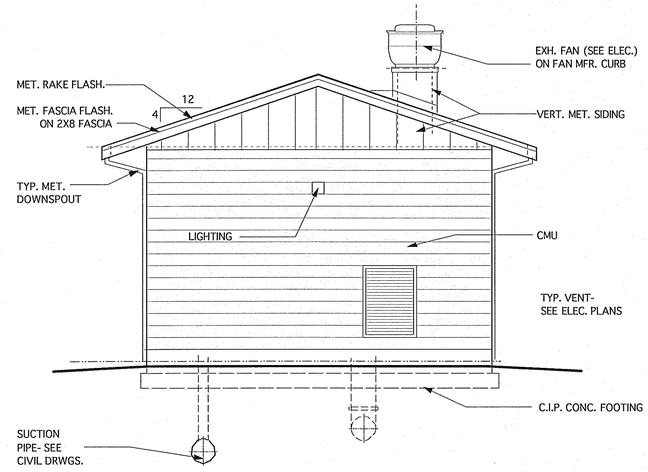
3 — A2.0 East Elevation

SCALE: 1/4"= 1'-0"

KGA
KERRY GARRETT
ARCHITECT
3831 Silver Beach Avenue
Bellingham, WA 98226
P • 360 671- 9432
F • 656- 5792
E • kerrygarrett@hotmail.com

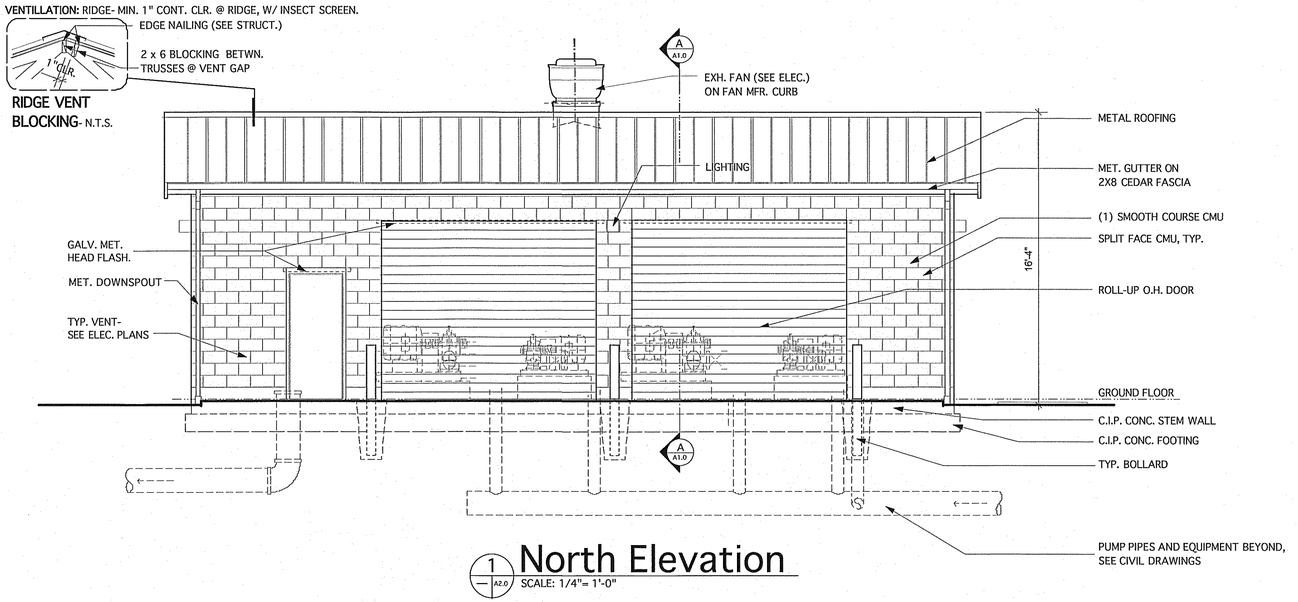
6689 REGISTERED ARCHITECT
KERRY C. GARRETT
STATE OF WASHINGTON

Proj. No. 0706
Drawn K Garrett
Checked K Garrett
Date 14 DEC. 2007
Issued for BID



2 — A2.0 West Elevation

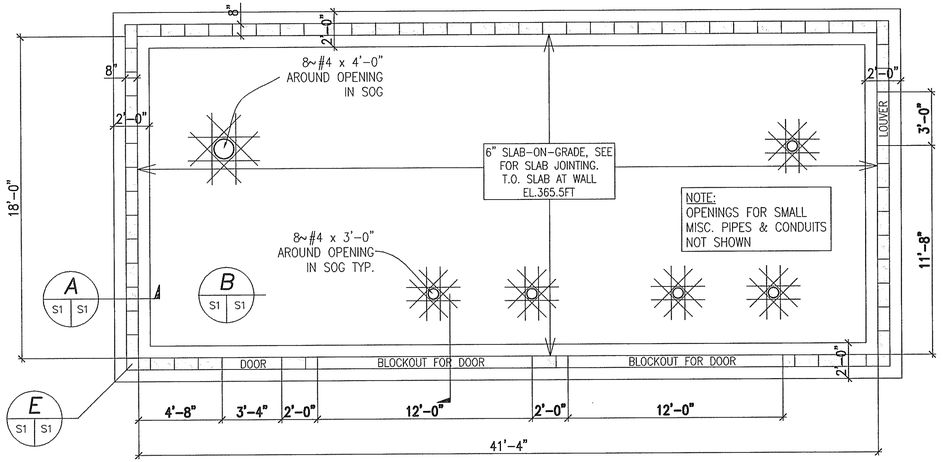
SCALE: 1/8"= 1'-0"



1 — A2.0 North Elevation

SCALE: 1/4"= 1'-0"

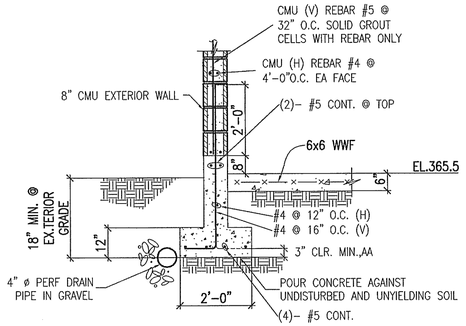
	DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP SITE PLAN	JOB# / DWG 07019 SP1 SCALE 1/4"= 1'-0" U.N.O.	DATE 10/31/07 SHEET A2.0



SOLID GROUT ALL PIERS AT FRONT WALL.
2 FOOT PIERS TO HAVE VERT.REBAR IN ALL CELLS
5'-4" & 6' TO HAVE #5 AT24" O/C VERT.REBAR

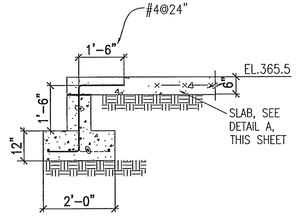
FOUNDATION PLAN

SCALE: 1/4" = 1'-0"



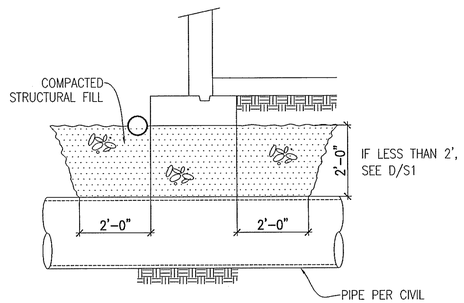
A TYP. EXTERIOR CMU WALL FOOTING

SCALE: N.T.S.



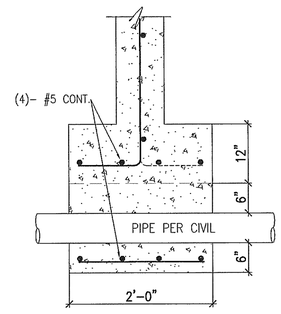
B SLAB AT DOOR (TYP.)

SCALE: N.T.S.



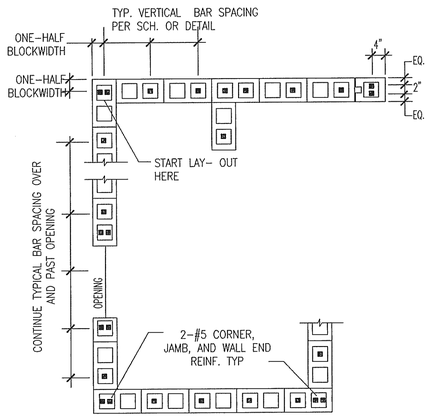
C TYP. FOOTING PREPARATION ABOVE PIPE

SCALE: N.T.S.



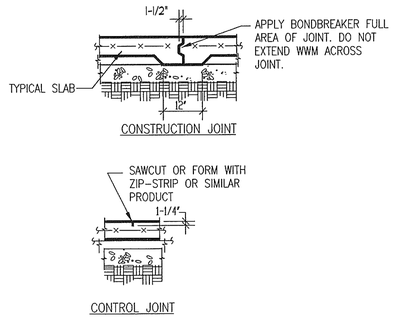
D TYP. CONCRETE ENCASEMENT

SCALE: N.T.S.



E TYP. REBAR LAYOUT FOR CMU WALL

SCALE: N.T.S.

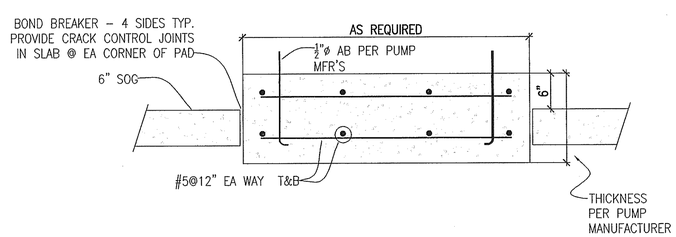


1. PLACE CONTROL JOINTS AT 15'-0" MAX., O.C.
2. CONTRACTOR SHALL PREPARE FULL SLAB JOINTING PLAN.
3. PLACE JOINTS IN NEAT, STRAIGHT LINES. PLACE UNDER PARTITIONS AS FAR AS POSSIBLE.
4. SAWCUT JOINTS AS SOON AS CONCRETE HAS HARDENED SUFFICIENTLY TO PERMIT CUTTING W/O CHIPPING, TEARING, OR SPALLING, BUT NOT MORE THAN 24 HOURS AFTER CASTING.
5. TOOL EDGES OF ALL JOINTS TO 1/8" RADIUS.

F SLAB JOINTING

SCALE: N.T.S.

NOTE: ALL ANCHOR BOLTS (AB) SHALL BE STAINLESS STEEL

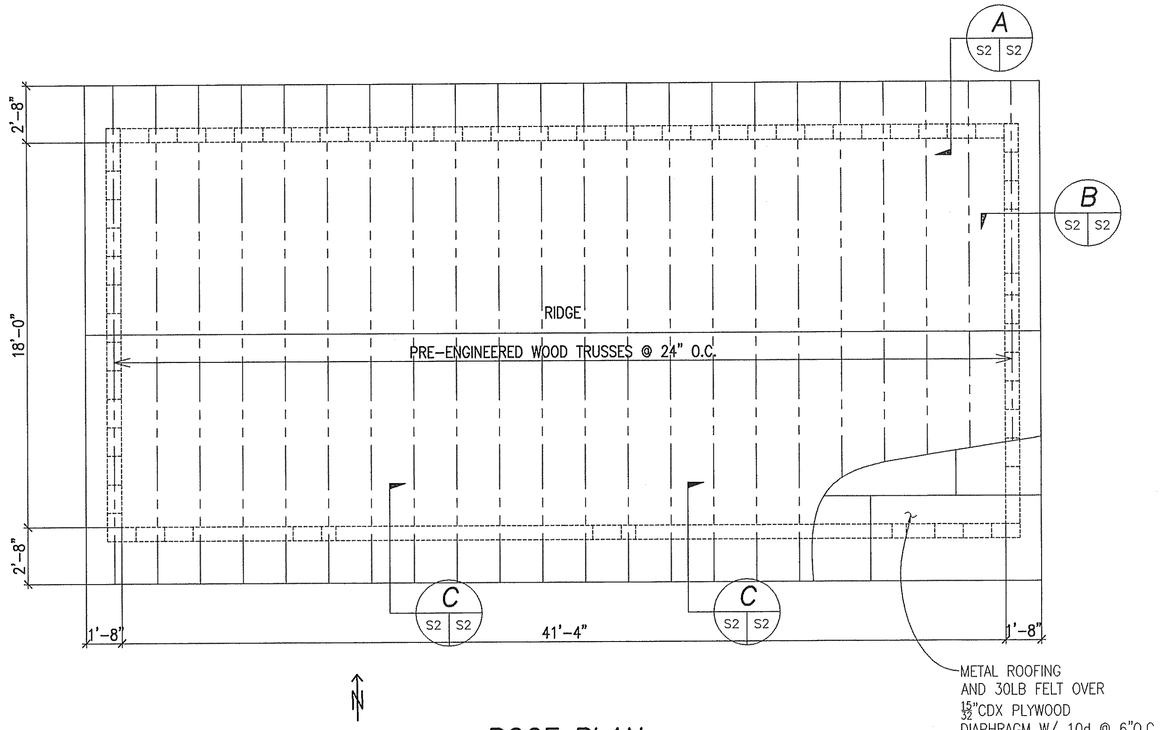


G PUMP FOOTING

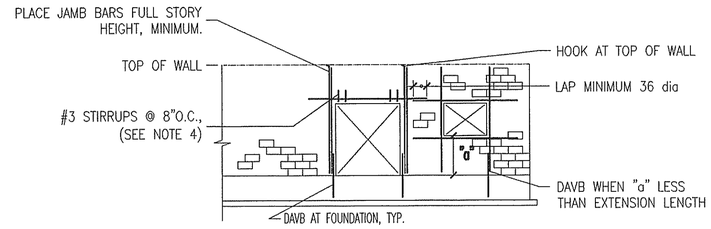
SCALE: 1" = 1'-0"

Expires: 11/19/08
01/22/08

R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	ISSUE NO.	10/16/2007 DATE	PERMIT REVISION	M.J.H. ENGINEERING P.S. P.O. BOX 29360 Bellingham, WA 98228 Phone: (360)715-3058 Fax: (425)984-9801 BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	PUMP STATION FOUNDATION PLAN & DETAILS	JOB# / DWG	DATE 10/30/2007
							SCALE VARIES	SHEET S1 0



ROOF PLAN
SCALE: 1/4" = 1'-0"

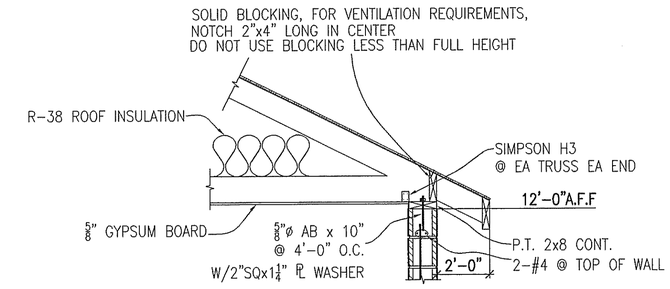


REINFORCING SCHEDULE

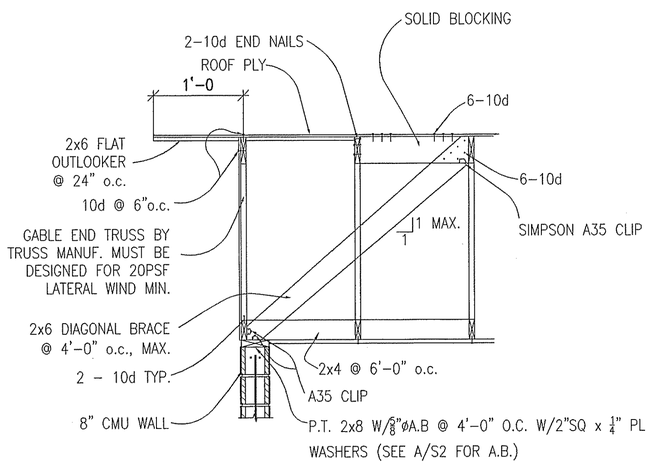
OPENING WIDTH	# OFJAMB BARS	# OF LINTEL BARS	MIN. LINTEL HEIGHT (1)
< 4'-0"	(1)#4	(2)#4	16"
12'-0"	(2)#5	(2)#5 TOP & BOT.	24"

NOTES:
1. GROUT LINTEL SOLID.
2. ARRANGE LINTEL BARS IN LAYERS OF TWO, ONE LAYER PER COURSE AS REQUIRED.
3. STIRRUPS ARE FULL HEIGHT OF LINTEL. USE SINGLE TIES C AT WALLS 8" OR LESS; USE FULL STIRRUPS [] AT WALLS 10" OR WIDER.

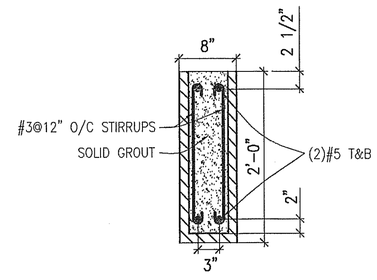
D TYP. REINF. AT OPENING IN CMU WALL
S2 | S2
SCALE: N.T.S.



A TRUSS AT EXTERIOR WALL
S2 | S2
SCALE: N.T.S.



B TYP. TRUSS BRACING DETAIL
S2 | S2
SCALE: N.T.S.



C LINTEL AT DOOR
S2 | S2
SCALE: N.T.S.

R&E REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

ISSUE NO.	DATE	PERMIT / REVISION	BY
	10/16/2007	PERMIT	

M.J.H. ENGINEERING P.S.
P.O. BOX 29360
Bellingham, WA 98228
Phone: (360)715-3058
Fax: (425)984-9901

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

PUMP STATION
ROOF PLAN & DETAILS

JOB# / DWG

SCALE VARIES

STRUCTURAL NOTES

1.All construction is to be in accordance with the minimum provisions of the 2006 International Building Code (IBC). Where these plans and specifications do not state specifically otherwise the provisions of the IBC shall apply.

2.Vertical Live Loads:
Roof Live Load 25 PSF

GENERAL NOTES:

1.Employ good standards of workmanship throughout. Provide all materials and perform all construction as indicated. Secure engineer's approval for substitutions.

2.See specifications for detailed material and methods. In case of conflict between applicable codes, these notes, and the drawings, the more stringent will govern.

3.Verify all dimensions in the field and with the engineer, and upon discovery of any discrepancy between the structural drawings and the architectural, mechanical, or other drawings, notify the engineer.

FOUNDATIONS NOTES:

1.Spread footings are designed for a maximum total pressure of 2000 PSF.

2.Remove all topsoil and organic material from building area, including exterior slabs and walks attached to building.

3.Pour footings against firm, undisturbed bearing soil.
Confirm soils types upon completion of excavation to footing elevation, and notify the engineer if any areas differ from his assumption.
Where required to establish grades or if over-excavation has occurred, fill with clean, approved structural fill, compacted to 95% Modified Proctor.

4.Place a minimum of 4" of compacted drainage fill on compacted bearing soil under all slabs on grade. Drainage fill shall consist of crushed rock, washed, uniformly graded 1" to 5/8".

5.Center footing under columns or walls, unless noted otherwise.

6.Bottom of exterior footings shall be a minimum of 1'-6" below grade, u.n.o.

CONCRETE ACCESORIES AND HARDWARE

1.Adhesive-installed anchor bolt manufacturers include:
A. ITW-Ramset Epcon system with 'Ceramic 6' polymer adhesive
B. Hilti HVA adhesive anchor system with HEA adhesive capsule
C. Hilti HAS threaded rods in Hilti C-100 adhesive

2.Expansion anchor-bolts shall be wedge-type bolts with hole-diameter equal to bolt diameter. Unless noted, steel shall meet ASTM A108 or A510, with zinc-plating or galvanizing. Accepted products include:
A. Hilti "Kwik-Bolt II"
B. ITW-Ramset "Tru-Bolt".

3.For any other anchor type, use only product identified on drawings.

4.Expansion or epoxy anchor bolts shall have minimum embedment of 12 bolt diameters, unless noted otherwise on drawings. Hole diameter per manufacturers instructions± thoroughly clean hole before installation.

5.Cast-in anchor bolts set in concrete or masonry shall be J-type ASTM A307 steel bolts with rolled threads, and will have a 3-diameter hook at the embedded end. Embedment shall be 8-diameters but not less than 7 inches.

REINFORCING:

1.Materials (except as noted in drawings):
Reinforcing bars: ASTM A615, Grade 60. Provide weldable bars conforming to ASTM A706 where welding is required by details.
Welded Wire Fabric: ASTM A185

2.Bar detailing not shown otherwise, and support of reinforcing bars in forms, shall conform to the CRSI Manual of Standard Practice. Reinforcing which is marked "continuous" in plans or details shall extend as far as possible in the concrete and terminate in a 12-diameter bend or per typical corner details, as appropriate. Shop fabricate all bends, except as noted.

3.Lap all continuous reinforcement 36 dia unless noted otherwise on plans. Lap welded wire fabric one-and-one-half mesh spaces. Wire tie all lap splices.

4.Provide the following minimum cover from face of bar to face of concrete, except as detailed± provide necessary accessories to maintain clearances:
Concrete cast against ground 3"
Concrete formed but exposed to weather or ground 2"
Concrete formed, exposed to ground, with moisture barrier 1-1/2"
Where none of above apply,
exterior face of walls with bars #5 or smaller, 1-1/2"

CONCRETE:

1.Materials (except as noted in drawings):
Aggregate: Stone aggregate per ASTM C33
Cement: Type I or II per ASTM C150
Admixtures: Air Entraining ASTM C260
Water-reducing ASTM C494 Type A

All concrete shall be ready-mix. Comply with requirements of ASTM C 94 and as specified.

2. 28-day strengths shall be as follow, except as noted:

Application	f'c (psi)	w/c (max)	aggregate (max)
A. Slab and Footings	2500	0.65	1"
B. Walls	2500	0.60	3/4"

CONCRETE MASONRY:

1.Materials (except as noted in drawings):
Holow Core masonry units Nominal 8"x 16" Type N-1
avg.compressive strength= 2000 psi
Mortar: fm = 2000 psi Type M
Grout: 2000 psi min pea gravel

2.Observe Hot/cold weather requirements per IBC.

3.Maintain moisture content in mortat according to weather.

4.Solid grout all vertical and horizontal cells containing rebar and anchors. 4 foot maximum lifts for grouting.

5.Solid grout all cells with grout 36" min below and 12" each side of beams or joists, unless called otherwise on plans.

PREENGINEERED WOOD TRUSSES

1.Roof design loads:
Top chord: 25 PSF Bott. chord: 10 PSF
2.Truss shop drawings shall be submitted to Mats Hareziak PE Engineering for review prior to fabrication. All truss design calculation and shop drawings shall be sealed by Washington State licensed PE
3.The truss calculation package shall be designed under the direct supervision of a professional engineer licensed in the state of Washington

Expires: 11/19/08
01/09/08

R&E
REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

ISSUE NO.	DATE	REVISION	BY
	10/16/2007	PERMIT	

M.J.H. ENGINEERING P.S.
P.O. BOX 29360
Bellingham, WA 98228
Phone: (360)715-3068
Fax: (425)984-9901

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

PUMP STATION
STRUCTURAL NOTES

JOB# / DWG

DATE 10/30/2007

SCALE D.N.A.

SHEET S3 0

GRAPHIC SCALE

0 15 30 60

(IN FEET)

1 inch = 30 ft.

LEGEND (APPLICABLE TO ALL ELECTRICAL DRAWINGS):

- A — FLUORESCENT LUMINAIRE, SURFACE MTD. ('A' = FIXTURE TYPE, TYPICAL)
- INCANDESCENT OR SIMILAR, WALL MTD.
- S — SINGLE-POLE SWITCH
- S_{3P} — THREE-POLE SWITCH
- S^{WP} — WEATHERPROOF SWITCH
- DUPLEX OUTLET
- Θ_{GFI} — DUPLEX OUTLET, GROUND FAULT INTERRUPTING
- Θ_{WP} — DUPLEX OUTLET, WEATHERPROOF
- J — JUNCTION BOX
- JB — JUNCTION BOX, SURFACE MTD.
- MOTORIZED DAMPER ACTUATOR
- FIRE ALARM RATE OF RISE HEAT DETECTOR
- T — THERMOSTAT
- SECURITY SYSTEM FLASHING BEACON (BLUE)
- DOOR CONTACT
- FIRE ALARM MANUAL PULL STATION
- FIRE ALARM BELL WITH STROBE LIGHT

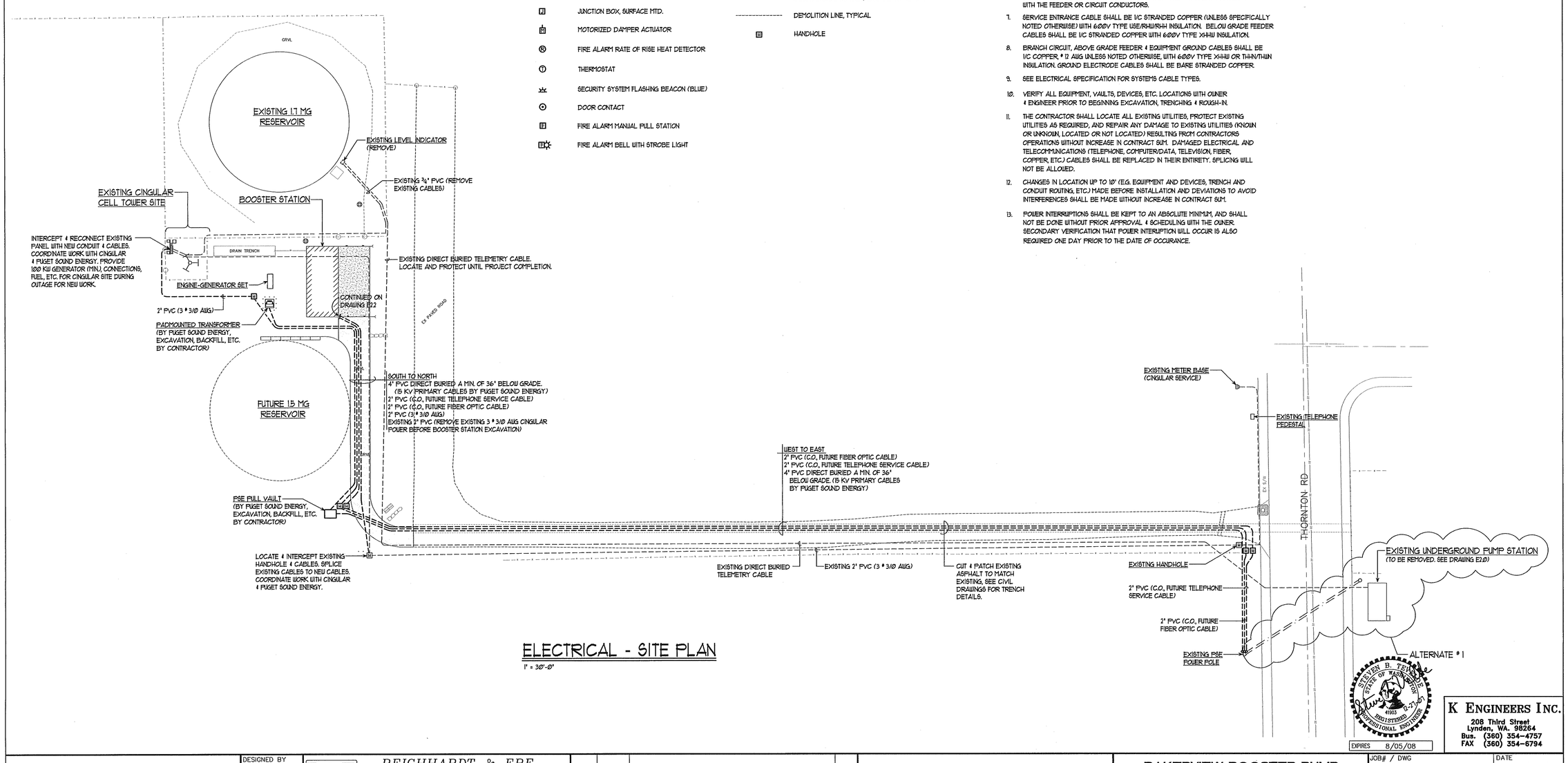
- CONDULET (SIDE VIEW)
- BRANCH CIRCUIT, ABOVE GRADE, CONCEALED (OR SIMILAR, SLASHES = NO. OF CIRCUIT CONDUCTORS WHERE APPLICABLE)
- HOMERUN TO LOCATION INDICATED (TYPICAL)
- BRANCH CIRCUIT, ABOVE GRADE, EXPOSED (OR SIMILAR, SLASHES = NO. OF CIRCUIT CONDUCTORS WHERE APPLICABLE)
- BELOW GRADE CONDUIT
- GROUND CABLE
- OVERHEAD CONDUCTORS, EXISTING
- ABOVE GRADE CONDUIT, EXISTING TO REMAIN
- BELOW GRADE CONDUIT, EXISTING TO REMAIN
- DEMOLITION LINE, TYPICAL
- HANDHOLE

NOTES (APPLICABLE TO ALL ELECTRICAL DRAWINGS):

1. ALL EQUIPMENT, CONDUITS, VAULTS, CABLES, ETC. SHOWN #/OR INDICATED ON THE ELECTRICAL DRAWINGS ARE NEW UNLESS SPECIFICALLY NOTED OTHERWISE.
2. BELOW GRADE CONDUIT SHALL BE SCHEDULE 40 PVC, BURIED A MINIMUM OF 36 INCHES BELOW GRADE FOR CONDUITS CONTAINING 15 KV CABLES, DIRECT BURIED 24 INCHES BELOW GRADE FOR CONDUITS CONTAINING 600V CABLES. WARNING TAPE SHALL BE BURIED ABOVE ALL CONDUITS.
3. THE MINIMUM CHANGE OF DIRECTION IN ANY PLANE BETWEEN SECTIONS OF STRAIGHT CONDUIT WITHOUT THE USE OF BENDS SHALL BE LIMITED TO 5 DEGREES.
4. BELOW GRADE CONDUIT BENDS & RISERS SHALL BE DONE WITH GALVANIZED RIGID STEEL (GRS).
5. ABOVE GRADE CONDUIT SHALL BE 3/4" EMT UNLESS NOTED OTHERWISE, EXCEPT, FLEX SHALL BE USED FOR FINAL CONNECTIONS TO VIBRATING EQUIPMENT & FOR FIXTURE WHIPS ONLY.
6. IN ADDITION TO THE CIRCUIT CONDUCTORS INDICATED, CONTRACTOR SHALL PROVIDE AN EQUIPMENT GROUND CABLE (SIZED THE SAME AS THE LARGEST CIRCUIT CONDUCTOR UNLESS SPECIFICALLY NOTED OTHERWISE) WITHIN EACH RACEWAY WITH THE FEEDER OR CIRCUIT CONDUCTORS.
7. SERVICE ENTRANCE CABLE SHALL BE I/C STRANDED COPPER (UNLESS SPECIFICALLY NOTED OTHERWISE) WITH 600V TYPE USE/RHW/RHH INSULATION. BELOW GRADE FEEDER CABLES SHALL BE I/C STRANDED COPPER WITH 600V TYPE XHHW INSULATION.
8. BRANCH CIRCUIT, ABOVE GRADE FEEDER & EQUIPMENT GROUND CABLES SHALL BE I/C COPPER, # 12 AWG UNLESS NOTED OTHERWISE, WITH 600V TYPE XHHW OR THHN/THWN INSULATION. GROUND ELECTRODE CABLES SHALL BE BARE STRANDED COPPER.
9. SEE ELECTRICAL SPECIFICATION FOR SYSTEMS CABLE TYPES.
10. VERIFY ALL EQUIPMENT, VAULTS, DEVICES, ETC. LOCATIONS WITH OWNER & ENGINEER PRIOR TO BEGINNING EXCAVATION, TRENCHING & ROUGH-IN.
11. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES, PROTECT EXISTING UTILITIES AS REQUIRED, AND REPAIR ANY DAMAGE TO EXISTING UTILITIES (KNOWN OR UNKNOWN, LOCATED OR NOT LOCATED) RESULTING FROM CONTRACTORS OPERATIONS WITHOUT INCREASE IN CONTRACT SUM. DAMAGED ELECTRICAL AND TELECOMMUNICATIONS (TELEPHONE, COMPUTER/DATA, TELEVISION, FIBER, COPPER, ETC.) CABLES SHALL BE REPLACED IN THEIR ENTIRETY. SPLICING WILL NOT BE ALLOWED.
12. CHANGES IN LOCATION UP TO 10' (E.G. EQUIPMENT AND DEVICES, TRENCH AND CONDUIT ROUTING, ETC.) MADE BEFORE INSTALLATION AND DEVIATIONS TO AVOID INTERFERENCES SHALL BE MADE WITHOUT INCREASE IN CONTRACT SUM.
13. POWER INTERRUPTIONS SHALL BE KEPT TO AN ABSOLUTE MINIMUM, AND SHALL NOT BE DONE WITHOUT PRIOR APPROVAL & SCHEDULING WITH THE OWNER. SECONDARY VERIFICATION THAT POWER INTERUPTION WILL OCCUR IS ALSO REQUIRED ONE DAY PRIOR TO THE DATE OF OCCURANCE.

DEMOLITION NOTES (APPLICABLE TO ALL ELECTRICAL DRAWINGS):

1. CONTRACTOR SHALL REMOVE EXISTING EQUIPMENT, DEVICES, ETC. AS INDICATED IN THE WORK AREA AND ALL ASSOCIATED CONDUIT, BOXES, CABLES, ETC. SHALL BE REMOVED TO THEIR POINT OF ORIGIN #/OR DESTINATION, EXCEPT:
   A. CONCEALED CONDUITS MAY BE ABANDONED IN PLACE. CABLES HOWEVER SHALL BE REMOVED WITH A PULL STRING ADDED.
2. EXISTING FEEDERS, CIRCUITS, CONDUITS, CABLES, ETC. INTERRUPTED DUE TO THE SYSTEM UPGRADE SHALL BE RE-CONNECTED AS REQUIRED TO MAINTAIN THE ORIGINAL FUNCTION.
3. ALL SURPLUS MATERIAL REMOVED DURING THE DEMOLITION SHALL BE INSPECTED BY THE OWNER, AND THOSE ITEMS SELECTED SHALL REMAIN THE PROPERTY OF THE OWNER. ALL REMAINING SURPLUS MATERIALS SHALL BE REMOVED FROM THE SITE & DISPOSED OF BY THE CONTRACTOR.



ELECTRICAL - SITE PLAN

1" = 30'-0"

STEVEN B. TERRELL — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER — 8-27-07

EXPIRES 8/05/08

K ENGINEERS INC.
208 Third Street
Lynden, WA. 98264
Bus. (360) 354-4757
FAX (360) 354-6794

DESIGNED BY: STV	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS			CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP ELECTRICAL - SITE PLAN, LEGEND + NOTES
DRAWN BY: KL	PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264	Ph (360) 354-3687 Fax (360) 354-0407			JOB# / DWG: 1257
CHECKED BY		NO.	DATE	REVISION	BY	SCALE: H:1"=30' V:	DATE: 12/27/07
							SHEET: E1.0

GRAPHIC SCALE

0 2 4 8

(IN FEET)
1/4 inch = 1 ft.

THORNTON RD

EXISTING SIDEWALK

EXISTING SIDEWALK

EXISTING DIRECT BURIED TELEMETRY CABLE.
LOCATE AND PROTECT UNTIL PROJECT COMPLETION.

EXISTING POLE
(REMOVE)

EXISTING UNDERGROUND
PUMP STATION VAULT
(TO REMAIN OPERATIONAL UNTIL
NEW PUMP STATION IS OPERATING)

EXISTING LIGHT
(REMOVE)

EXISTING PANEL L & TRANSFORMER ABOVE
(REMOVE & ALL ASSOCIATED)

EXISTING PANEL P
(REMOVE & ALL ASSOCIATED)

EXISTING RELAY PANEL
(REMOVE & ALL ASSOCIATED)

EXISTING PUMP CONTROL PANEL
(REMOVE & ALL ASSOCIATED)

REMOVE EXISTING DIRECT
BURIED TELEPHONE/CABLE
SERVICE CABLE

REMOVE EXISTING DIRECT
BURIED POWER CABLES

EXISTING LIGHT
(REMOVE)

EXISTING TELEMETRY PANEL
(REMOVE & ALL ASSOCIATED)

EXISTING MAIN DISCONNECT
(REMOVE & ALL ASSOCIATED)

EXISTING METER BASE
(REMOVE & ALL ASSOCIATED)

EXISTING FLOW METER
(REMOVE)

REMOVE EXISTING DIRECT BURIED
FLOW METER CABLE

EXISTING OVERHEAD PSE SERVICE
CABLE, TO BE REMOVED BY PSE.
CONTRACTOR TO COORDINATE.

EXISTING OVERHEAD TELEPHONE SERVICE
CABLESTO BE REMOVED, CONTRACTOR
TO COORDINATE.

EXISTING PSE POLE MTD.
TRANSFORMER
(TO BE REMOVED BY PSE)

EXISTING PSE
POWER POLE

ALTERNATE # 1 - ELECTRICAL - EXISTING PUMP STATION DEMOLITION PLAN

1/4" = 1'-0"

STEVEN B. TERHUNE
STATE OF WASHINGTON
11903
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES 8/05/08

K ENGINEERS INC.
208 Third Street
Lynden, WA. 98264
Bus. (360) 354-4757
FAX (360) 354-6794

DESIGNED BY	STV	JOB# / DWG	1257
DRAWN BY	KL	DATE	12/27/07
CHECKED BY		SCALE	H:1/4"=1' V:
		SHEET	E2.0

R&E REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
ALTERNATE # 1 - ELECTRICAL - EXISTING PUMP STATION DEMOLITION PLAN

GRAPHIC SCALE

0 2 4 8

(IN FEET)

1/4 inch = 1 ft.

FUTURE 1.5 MG RESERVOIR

ECOLOGY BLOCK WALL

PADMOUNTED TRANSFORMER (BY PUGET SOUND ENERGY)

ENGINE-GENERATOR SET

CONCRETE PAD (SEE CIVIL DRAWINGS)

DRAIN TRENCH

EAST TO WEST
2½" PVC (4 # 3/0 AWG + 1 # 6 AWG GND)
2½" PVC (C.O., SPARE)
1" PVC (5 # 12 AWG + 1 # 12 AWG GND)
1" PVC (2 # 12 & 2 # 10 AWG + 1 # 10 AWG GND)

3" PVC (4 # 3/0 AWG)

SURGE ARRESTOR (ANTENNA LIGHTNING ARRESTOR BELOW)

2½" EMT (3 # 250 KCMIL + 1 # 2 AWG GND)

C.T. ENCLOSURE

METER BASE

MAIN PANEL HA

PLANT CONTROL PANEL PCP-1 (UPS INSIDE)

EXHAUST FAN EF-1 (1 HP, 460V, 3ø, 5000 cfm ROOF MTD.)

MOTOR CONTROL CENTER MCC

CHLORINATOR VAULT

MAIN CIRCUIT BREAKER H

TRANSFORMER XA

AUTOMATIC TRANSFER SWITCH ATS

PANEL LA

1" PVC (C.O., FUTURE POWER)

STUB UP & CAP FOR FUTURE RESERVOIR

TELECOMMUNICATIONS TERMINAL BOARD

CHLORINE/PH/ TEMP. ANALYZER (AIT/TIT-103 & 108)

SUPPORT RACK (1⅝" SUPPORT STRUT, POSITION EQUIP. AT 4'6" AFF TO CENTER)

LA-2, 4

MCC-1E

LA-1 (VIA MCC-1E AUX CONTACT)

1¼" PVC (3 # 6 AWG + 1 # 8 AWG GND & 2 # 12 AWG)

PHOTOELECTRIC CONTROLS (WALL MOUNTED UNDER ROOF EDGE SHIELD AS REQUIRED)

MOTORIZED LOUVER (65A, 120V, 1ø, 36" x 48" WITH BOTTOM 16' AFF)

FUTURE CHLORINE ANALYZER (AIT-102)

LA-2

¾" EMT (C.O., FUTURE POWER)

FUTURE CHLORINATOR

HA

PUMP MOTOR 1 (30 HP, 460V, 3ø)

PUMP MOTOR 2 (30 HP, 460V, 3ø)

PUMP MOTOR 3 (30 HP, 460V, 3ø)

PUMP MOTOR 4 (30 HP, 460V, 3ø)

HA-13, 15, 17

UNIT HEATER W/THERMOSTAT (1500W, 480V, 3ø)

1" PVC (2 # 12 AWG + 1 # 12 AWG GND)

EXISTING 1.7 MG RESERVOIR

EXISTING WATER PIPE (ROUTED UP SIDE OF TANK)

ACCESS HATCH

LADDER

FILL METER VAULT

ELECTRICAL - POWER & LIGHTING PLAN

½" = 1'-0"

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTS	MANUFACTURER & CAT. NO. (OR APPROVED EQUAL)	LAMP(S)	LOADS	
					WATTS	VA
A						
B	FLUORESCENT, ENCLOSED & GASKETED, SURFACE MTD (UNLESS NOTED OTHERWISE), 2 LAMP, 4' LONG, SUITABLE FOR WET LOCATIONS, WITH 1 ELECTRONIC BALLAST & ACRYLIC PRISMATIC LENS	120	COLUMBIA LUN4-232-EB8 DAYBRITE V2WAE-232-1/2-EB10 LITHONIA DMW-232 METALUX VT2-2320R-EB81WL	(2) F32T8/SP35 (2) F032/735 (2) F32T8/TL735	59	61
C	EXTERIOR WALLPACK, 70W HPS, SUITABLE FOR WET LOCATIONS, WITH -20F HPF BALLAST, DIECAST ALUMINUM HOUSING (BRONZE), CLEAR IMPACT RESISTANT ACRYLIC LENS, SPECULAR ALUMINUM REFLECTOR & CUTOFF OPTICS	277	EXCELINE SAW073LXL-8 LITHONIA TWAC-70S LUMARK HPMN-070H	(1) LU70	93	108

NOTES:

1. FLUORESCENT ELECTRONIC BALLASTS TOTAL HARMONIC DISTORTION (THD) SHALL NOT EXCEED 10%.
2. CABLES IN FIXTURE WHIPS FURNISHED BY THE MANUFACTURER WITH THE FIXTURES SHALL NOT BE SMALLER THAN #14 AWG, AND SHALL INCLUDE A SEPARATE GROUND CONDUCTOR SIZED THE SAME AS THE CIRCUIT CONDUCTORS.
3. LAMPS, WHERE AVAILBLE, SHALL PASS THE FEDERAL (EPA) TCLP TEST FOR HAZARDOUS WASTE DETERMINATION.
4. CONTRACTOR & LIGHTING FIXTURE SUPPLIER SHALL VERIFY DESCRIPTION, MOUNTING REQUIREMENTS, CATALOG NUMBERS, ETC. MATCH. ADVISE ENGINEER OF ANY CONFLICTS OR DESCREPANCIES.

STATE OF WASHINGTON STEVEN B. VERSCHOOR 41901 REGISTERED PROFESSIONAL ENGINEER 11-27-07

EXPIRES 8/05/08

K ENGINEERS INC.
208 Third Street
Lynden, WA. 98264
Bus. (360) 354-4757
FAX (360) 354-6794

DESIGNED BY	DRAWN BY	CHECKED BY
STV	KL	

REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201
Lynden, Washington 98264
Ph (360) 354-3687
Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
ELECTRICAL - POWER + LIGHTING PLAN

JOB# / DWG	DATE
1257	12/27/07
SCALE	SHEET
H:1/4"=1' V:	E2.1

GRAPHIC SCALE
0 2 4 8
(IN FEET)
1/4 inch = 1 ft.

15 MG RESERVOIR

EXISTING 1.7 MG RESERVOIR

DRAIN TRENCH

PADMOUNTED TRANSFORMER (BY PUGET SOUND ENERGY)

ENGINE-GENERATOR SET

TO GENSET CONTROLLER

INTRUSION SWITCH (HS-109) (TYPICAL, FOR ALL DOORS)

1" PVC (16 #14 AWG +1 #14 AWG GND)

ECOLOGY BLOCK WALL

1 - 2/C #16 AWG TWISTED SHLD) TEMPERATURE TRANSMITTER (TT-116)

1½" EMT (1 - ANTENNA CABLE)

#2/0 AWG GND

1" EMT (10 #14 AWG +1 #14 AWG GND)

PANEL HA

FLOW INDICATION TRANSMITTER (FIT-101-1) (TRANSMITER FIT 101-2 BELOW)

2 - 1" EMT (1 - 2/C #16 AWG TWISTED SHLD, 2 #14 AWG & 1 - MANUF. SUPPLIED CABLE)

CONTROL PANEL PCP-1

1½" EMT (1 - DEVICENET CABLE, 12 #14 AWG)

MOTOR CONTROL CENTER MCC

1" PVC (1 MANUF. SUPPLIED CABLE, DO NOT CUT)

FLOW ELEMENT (FE-101-1)

CHLORINATOR VAULT

4X

AUTOMATIC TRANSFER SWITCH

ANTENNA LIGHTNING ARRESTOR

1" PVC (CO, FUTURE CONTROLS)

STUB UP & CAP FOR FUTURE RESERVOIR

¾" PVC (3 - 2/C #16 TWISTED SHLD)

½" LIQUID TIGHT (2 - 2/C #16 TWISTED SHLD)

CHLORINE/PH/TEMP. ANALYZER (AIT/TIT 105 & 108)

¾" PVC (1 - 2/C #16 AWG TWISTED SHLD)

2" CONTROL VALVE (SV-110 & ZS-110)

PRV VALVE LIMIT SWITCH (ZS-110)

MOTORIZED LOUVER

TELECOMMUNICATIONS TERMINAL BOARD (¾" PLYWOOD, PAINTED WHITE)

PCP-1

¾" PVC (6 #14 AWG +1 #14 AWG GND)

#16 SHLD

PRESSURE INDICATING TRANSMITTER (PIT-106)

SUPPORT RACK (1⅝" SUPPORT STRUT, POSITION EQUIP. AT 4'6" AFF TO CENTER)

TB-111-1

AA-115-1

PRESSURE INDICATING TRANSMITTER (PIT 106)

ANALYTICAL PH/TEMP. ELEMENT (AE/TE-105) (LOCATED INSIDE SAMPLE TANK)

½" LIQUID TIGHT (1 - MANUF. SUPPLIED CABLE, DO NOT CUT)

SUPPORT RACK (1⅝" SUPPORT STRUT)

¾" EMT (CO, FUTURE ANALYZER CONTROLS)

FUTURE CHLORINE ANALYZER (AIT-100)

1" EMT (CO, FUTURE CHLORINATOR CONTROLS)

FUTURE CHLORINATOR

SECURITY STROBE (AL-112-1)

HS-115-1

ZS-109-2

INTRUSION SWITCH

2" PVC (FUTURE TELEPHONE SERVICE CABLE)

2" PVC (CO, FUTURE FIBER OPTIC CABLE)

CONTINUED ON DRAWING, E10

1" PVC (1 - MANUF. SUPPLIED CABLE & 4 #14 AWG ½+1 #14 AWG GND)

1½" PVC (1 - ANTENNA CABLE)

1" PVC (1 - MANUF. SUPPLIED CABLE, DO NOT CUT)

PROVIDE NEW SUPPORT STRUT UP SIDE OF TANK & FASTEN TO EXISTING WATER PIPE SUPPORT.

ROUTE GRS UP SIDE OF TANK

DRILL HOLE IN TOP OF TANK. CATCH SHAVINGS FROM INSIDE TANK.

1" LIQUID TIGHT FLEX (1 MANUF. SUPPLIED CABLE & 4 #14 AWG +1 #14 AWG GND)

HIGH LEVEL FLOAT (ZS-110) (HANG FROM INSIDE TOP OF TANK)

INTRUSION SWITCH (ZS-109-1) (MOUNT FOR OPEN HATCH INDICATION)

LEVEL TRANSMITTER (LT-110) (HANG FROM INSIDE TOP OF TANK WITH CABLE GRIP)

1 - MANUF. SUPPLIED CABLE

ACCESS HATCH

EXISTING WATER PIPE (ROUTED UP SIDE OF TANK)

ANTENNA (MOUNT TO EXISTING HANDRAIL WITH NEW SUPPORT STRUT)

SUPPORT STRUT

LADDER

FLOW ELEMENT (FE-101-2)

4X

FILL METER VAULT

ELECTRICAL - CONTROL & ANCILLARIES PLAN

¼" = 1'-0"

STEVEN B. TERRELL — STATE OF WASHINGTON — 11903 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES 8/05/08

K ENGINEERS INC.
208 Third Street
Lynden, WA. 98264
Bus. (360) 354-4757
FAX (360) 354-6794

DESIGNED BY	STV
DRAWN BY	KL
CHECKED BY	

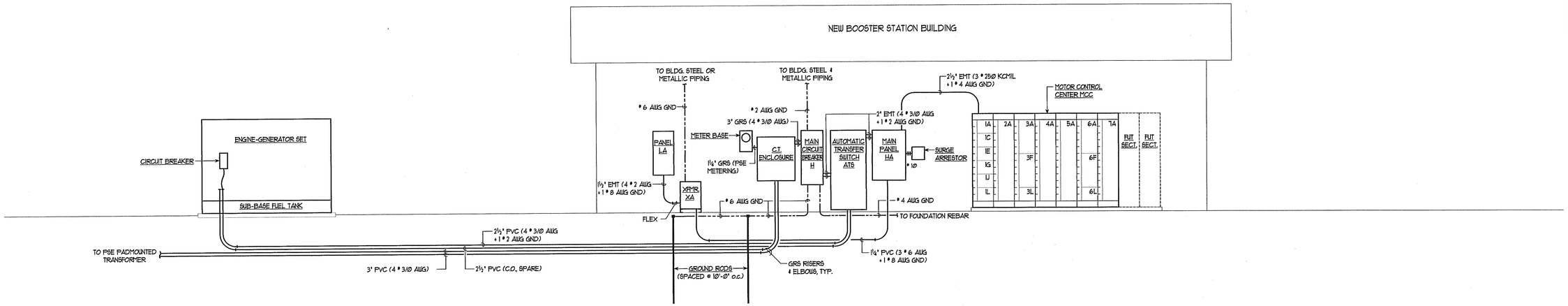
R&E REICHHARDT & EBE ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

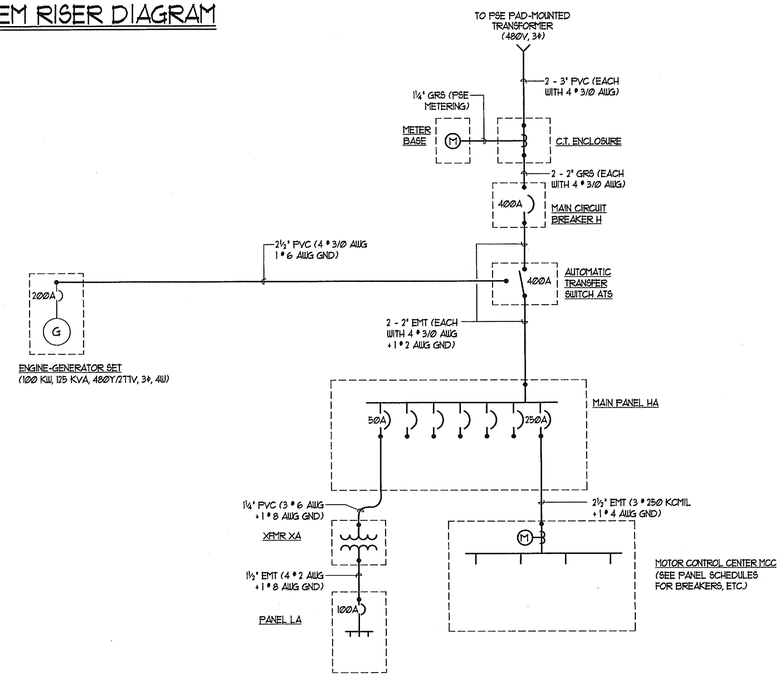
BAKERVIEW BOOSTER PUMP
ELECTRICAL - CONTROL + ANCILLARIES PLAN

JOB# / DWG	DATE
1257	12/27/07
SCALE	SHEET
H:1/4"=1' V:	E2.2



ELECTRICAL - POWER SYSTEM RISER DIAGRAM

NO SCALE



ELECTRICAL - POWER SYSTEM ONE-LINE DIAGRAM

NO SCALE

STEVEN B. TRENARY — STATE OF WASHINGTON — 41803 — REGISTERED PROFESSIONAL ENGINEER

EXPIRES 8/05/08

K ENGINEERS INC.
208 Third Street
Lynden, WA. 98264
Bus. (360) 354-4757
FAX (360) 354-6794

DESIGNED BY KK	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS	NO.	DATE	REVISION	BY
DRAWN BY KL	PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264				
CHECKED BY KK	Ph (360) 354-3687 Fax (360) 354-0407				

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
ELECTRICAL - POWER ONE-LINE AND RISER DIAGRAM

JOB# / DWG	DATE
1257	12/27/07
SCALE H:NONE V:N/A	SHEET E3.1

C.T. ENCLOSURE — PUMP BUILDING EXTERIOR

VOLTAGE: 480/277V, 3 PH, 4 W
RATING: 400 AMPS

ENCLOSURE: NEMA 3R
MOUNTING: SURFACE

PER PSE REQUIREMENTS

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	920.0	920.0	1.25	1150.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	7560.0	7560.0	1.00	7560.0
Process Equipment	0.0	129152.1	129152.1	1.00	129152.1
Miscellaneous	0.0	4532.5	4532.5	1.00	4532.5
25% Largest Motor					7967.4
TOTAL LOAD	0.0	144684.6	144684.6		152882.0
TOTAL AMPS	0.0	174.0	174.0		183.9

MAIN CIRCUIT BREAKER H — BOOSTER STATION BUILDING

VOLTAGE: 480Y/208 V, 3 PH, 4 W
TYPE: CIRCUIT BREAKER
ENCLOSURE: NEMA 1
MOUNTING: SURFACE

CONTINUOUS RATING: 400 A
FULL AIC RATING: 35,000 A
SERIES AIC RATING: NONE

SPECIAL PROVISIONS:
NAMEPLATE
GROUND BAR
SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	920.0	920.0	1.25	1150.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	7560.0	7560.0	1.00	7560.0
Process Equipment	0.0	129152.1	129152.1	1.00	129152.1
Miscellaneous	0.0	4532.5	4532.5	1.00	4532.5
25% Largest Motor					7967.4
TOTAL LOAD	0.0	144684.6	144684.6		152882.0
TOTAL AMPS	0.0	174.0	174.0		183.9

GENERATOR SET — BOOSTER STATION BUILDING EXTERIOR

VOLTAGE: 480Y/277 V, 3 PH, 3 W
RATING: 100 KW, 125 KVA
TYPE: DIESEL

ENCLOSURE: OUTDOOR WEATHERPROOF SKID MOUNTED SOUND ATTENUATED

HEATER: ENGINE COOLANT (120V)

FUEL TANK: SUB-BASE, DOUBLE WALL 180 GALLONS (MIN.) FUEL GAUGE

FUEL FOR INITIAL STARTUP AND TESTING BY CONTRACTOR

BATTERY CHARGER

CONTROLS:
RUN-STOP-REMOTE SWITCH
COOLANT TEMP. GAUGE
FIELD CIRCUIT BREAKER
DC VOLTMETER
RUNNING TIME METER
OIL PRESSURE GAUGE
FAULT RESET SWITCH
CYCLE CRANKING
ENGINE FAULT & PRE-FAULT INDICATION PER NFPA 110

MAIN CIRCUIT BREAKER:
1 @ 200A, 3 POLE

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	920.0	920.0	1.25	1150.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	7560.0	7560.0	1.00	7560.0
Process Equipment	0.0	129152.1	129152.1	1.00	129152.1
Miscellaneous	0.0	4532.5	4532.5	1.00	4532.5
25% Largest Motor					7967.4
TOTAL LOAD	0.0	144684.6	144684.6		152882.0
TOTAL AMPS	0.0	174.0	174.0		183.9

NOTES
(1) GENERATOR IS SIZED FOR BUILDING LOADS AND THREE 30HP PUMPS MAX, STARTED IN STAGES. PROGRAM CONTROL PANEL FOR STAGGERED START AND SO THAT THE 4TH PUMP WILL NOT BE ON GENERATOR POWER. SEE ALSO MCC NOTES.

AUTOMATIC TRANSFER SWITCH ATS — BOOSTER STATION BUILDING

VOLTAGE: 480Y/277 V, 3 PH, 4 W
RATING: 400 AMPS, 3 POLE, 4 WIRE
APPLICATION: UTILITY TO GENERATOR

ENCLOSURE: NEMA 1
MOUNTING: SURFACE

EXERCISER CLOCK
MASTER NAMEPLATE

LOCATE BATTERY CHARGER INSIDE GENERATOR ENCLOSURE

METERS (DOOR MOUNTED):
VOLTMETER
AMMETER
FREQUENCY METER
PHASE SELECTOR SWITCH

STATUS INDICATORS:
SOURCE 1 OK
SOURCE 2 OK
GENERATOR SET SIGNAL
TRANSFER TIMING
TRANSFER COMPLETE
RETRANSFER TIMING
TIMING FOR STOP

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	920.0	920.0	1.25	1150.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	7560.0	7560.0	1.00	7560.0
Process Equipment	0.0	129152.1	129152.1	1.00	129152.1
Miscellaneous	0.0	4532.5	4532.5	1.00	4532.5
25% Largest Motor					7967.4
TOTAL LOAD	0.0	144684.6	144684.6		152882.0
TOTAL AMPS	0.0	174.0	174.0		183.9

MAIN PANEL HA — BOOSTER STATION BUILDING

VOLTAGE: 480Y/277V, 3 PH, 4 W
TYPE: PANELBOARD
ENCLOSURE: NEMA 1
MOUNTING: SURFACE

BUSSING: MANUFACTURER'S STANDARD
CONTINUOUS RATING: 400 A
FULL AIC RATING: 35,000 A
SERIES AIC RATING: NONE

MAIN: LUGS ONLY
LOCATION: TOP

FEEDER/BRANCH CIRCUIT DEVICES:
BOLT-ON CIRCUIT BREAKERS
FULL AIC RATING: 35,000 A
SERIES AIC RATING: NONE

SPECIAL PROVISIONS:
SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT
MASTER NAMEPLATE
FEEDER NAMEPLATES
GROUND BAR

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	920.0	920.0	1.25	1150.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	7560.0	7560.0	1.00	7560.0
Process Equipment	0.0	129152.1	129152.1	1.00	129152.1
Miscellaneous	0.0	4532.5	4532.5	1.00	4532.5
25% Largest Motor					7967.4
TOTAL LOAD	0.0	144684.6	144684.6		152882.0
TOTAL AMPS	0.0	174.0	174.0		183.9

CONN. LOAD (VA)	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	BKR AMP/P	CKT NO	BUS (PHASE)	CKT NO	BKR AMP/P	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	CONN. LOAD (VA)
	MAIN LUGS									
488.0	LTG - BOOSTER STATION INTERIOR		20/1	1	A	2	30/3	SURGE ARRESTOR		0.0
432.0	LTG - BOOSTER STATION BLDG EXTERIOR (VIA PE)		20/1	3	B	4	|	|		0.0
0.0	SPARE		20/1	5	C	6	|	|		0.0
3060.0	PANEL LA - BOOSTER STATION BUILDING		50/3	7	A	8	250/3	MOTOR CONTROL CENTER 3MCCA - BOOSTER BUILDING		43050.7
1440.0	(VIA XFMR XA)		|	9	B	10	|	|		43050.7
780.0	|		|	11	C	12	|	|		43050.7
2500.0	UNIT HEATER - BOOSTER STATION BUILDING		15/3	13	A	14	15/3	SPARE (FUTURE CHLORINATOR)		610.8
2500.0	|		|	15	B	16	|	|		610.8
2500.0	|		|	17	C	18	|	|		610.8
0.0	SPACE FOR FUTURE USE (MINIMUM 225/3 BREAKER)			19	A	20		SPACE FOR FUTURE USE (MINIMUM 225/3 BREAKER)		0.0
0.0				21	B	22				0.0
0.0				23	C	24				0.0
0.0	SPACE FOR FUTURE USE (MINIMUM 225/3 BREAKER)			25	A	26		SPACE FOR FUTURE USE (MINIMUM 225/3 BREAKER)		0.0
0.0				27	B	28				0.0
0.0				29	C	30				0.0
0.0	SPACE FOR FUTURE USE (MINIMUM 400/3 BREAKER)			37	A	38		SPACE FOR FUTURE USE (MINIMUM 400/3 BREAKER)		0.0
0.0				39	B	40				0.0
0.0				41	C	42				0.0

MOTOR CONTROL CENTER MCC — BOOSTER STATION BUILDING

VOLTAGE: 480V, 3 PH, 3 W
TYPE: NEMA STANDARD
ENCLOSURE: NEMA 1
MOUNTING: SURFACE/FLOOR
REAR ACCESS: NONE

STRUCTURE:
DEPTH: 20" WIDTH: 20"
SEPARATE WIREWAY DOORS: YES
BOTTOM PLATES REQUIRED: NO
FINISH: MANUFACTURER'S STANDARD

BUSSING:
MATERIAL: COPPER
HORIZONTAL BUS RATING: 600A
VERTICAL BUSES RATING: 300A
NEUTRAL BUS RATING: NONE
HORIZONTAL GROUND BUS : 1"x 1/4"
VERTICAL GROUND BUS : NONE
SHORT CIRCUIT BRACING: 35,000A

UNITS:
WIRING: NEMA CLASS 1, TYPE B
TERM. BLOCKS TYPE: PULL-APART

FEEDERS: CIRCUIT BREAKERS

STARTERS & VFD'S: COMB. TYPE
STYLE: NEMA STANDARD
PROTECTION: CIRCUIT BREAKER
VFD LOAD REACTORS

INTERRUPTING CAP: 35,000A
CONTROL VOLTAGE: 24VDC
CONTROL XFMR: NONE
CONTROL CIRCUIT FUSE: YES
AUXILIARY CONTACTS: 2 N.O.
O/L RELAYS: THERMAL MAG
HEATERS BY: MANUFACTURER
DEVICES LOCATED ON FRONT:
"RUN" PILOT LIGHT
H-O-A SWITCH
VFD HIM

MAIN: 600A, LUGS ONLY
LOCATION: TOP, LEFT

SPECIAL PROVISIONS:
MASTER NAMEPLATE
UNIT NAMEPLATES

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	0.0	0.0	1.25	0.0
Gen. Purpose Outlets (First 10 KVA)	0.0	0.0	0.0	1.00	0.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	0.0	0.0	1.00	0.0
Mechanical Equipment	0.0	0.0	0.0	1.00	0.0
Process Equipment	0.0	129152.1	129152.1	1.00	129152.1
Miscellaneous	0.0	0.0	0.0	1.00	0.0
25% Largest Motor					7967.4
TOTAL LOAD	0.0	129152.1	129152.1		137119.5
TOTAL AMPS	0.0	155.3	155.3		164.9

MCC SPACE	FEEDER/BRANCH CIRCUIT DESCRIPTION	MOTOR HP	MOTOR FLA	MOTOR SF	STARTER SIZE	STARTER TYPE, DEVICES	DISCONNECT MEANS AMP/P	DISCONNECT MEANS TYPE	CONN. LOAD (VA)
1A	MAIN LUGS								0.0
1C	POWER AND DEMAND METER								0.0
1E	EXHAUST FAN EF-1	1	2.1		00	NEMA, H-O-A, PILOT LT	7/3	CKT. BRKR - ADJUST. INST. TRIP	1873.2
1G	SPACE FOR FUTURE USE								0.0
1J	SPACE FOR FUTURE USE								0.0
1L	SPACE FOR FUTURE USE								0.0
									0.0
2A	PUMP 1 - EAST PUMP VFD	30	40		3	VFD, HIM, PILOT LT (2)	100/3	CKT. BRKR - ADJUST. INST. TRIP	31869.7
									0.0
3A	PUMP 1 - EAST PUMP BYPASS CONTACTOR	30			3	NEMA, H-O-A, PILOT LT	100/3	CKT. BRKR - ADJUST. INST. TRIP	0.0
3F	PUMP 2 - EAST MIDDLE PUMP BYPASS CONTACTOR	30			3	NEMA, H-O-A, PILOT LT	100/3	CKT. BRKR - ADJUST. INST. TRIP	0.0
3L	SPACE FOR FUTURE USE								0.0
									0.0
4A	PUMP 2 - EAST MIDDLE PUMP VFD	30	40		3	VFD, HIM, PILOT LT (2)	100/3	CKT. BRKR - ADJUST. INST. TRIP	31869.7
									0.0
5A	PUMP 3 - WEST MIDDLE PUMP VFD	30	40		3	VFD, HIM, PILOT LT (2)	100/3	CKT. BRKR - ADJUST. INST. TRIP	31869.7
									0.0
6A	PUMP 3 - WEST MIDDLE PUMP BYPASS CONTACTOR	30			3	NEMA, H-O-A, PILOT LT	100/3	CKT. BRKR - ADJUST. INST. TRIP	0.0
6F	PUMP 4 - WEST PUMP BYPASS CONTACTOR	30			3	NEMA, H-O-A, PILOT LT	100/3	CKT. BRKR - ADJUST. INST. TRIP	0.0
6F	SPACE FOR FUTURE USE								0.0
									0.0
7A	PUMP 4 - WEST MIDDLE PUMP VFD	30	40		3	VFD, HIM, PILOT LT (2)	100/3	CKT. BRKR - ADJUST. INST. TRIP	31869.7
									0.0

NOTES
(1) PROGRAM CONTROL PANEL SO THAT 3 PUMPS WILL RUN AT ONE TIME MAX. THE 4TH PUMP IS BACKUP PUMP ONLY. SEE ALSO GENERATOR NOTES.
(2) PROVIDE VFD SELECTOR SWITCH WITH HAND-OFF-BYPASS-AUTO POSITIONS.

TRANSFORMER XA — BOOSTER STATION BUILDING

KVA: 30 PHASE: 3

PRIMARY: 480 DELTA
SECONDARY: 208Y/120
TAPS: 2 @ 2.5% FCAN
2 @ 2.5% FCBN

COOLING: OA

INSULATION : CLASS 220
TEMP. RISE: 150C (40C AMBIENT)

TYPE: DRY

ENCLOSURE:
NEMA 1, FLOOR MOUNTED

WINDINGS:
MANUFACTURER'S STANDARD

NEMA TP-1 STANDARD

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	0.0	0.0	1.25	0.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	60.0	60.0	1.00	60.0
Process Equipment	0.0	0.0	0.0	1.00	0.0
Miscellaneous	0.0	2700.0	2700.0	1.00	2700.0
25% Largest Motor					15.0
TOTAL LOAD	0.0	5280.0	5280.0		5295.0
TOTAL AMPS (PRIMARY)	0.0	6.4	6.4		6.4
TOTAL AMPS (SECONDARY)	0.0	14.7	14.7		14.7

PANEL LA — BOOSTER STATION BUILDING

VOLTAGE: 208Y/120V, 3 PH, 4 W
TYPE: PANELBOARD
ENCLOSURE: NEMA 1
MOUNTING: SURFACE

BUSSING: MANUFACTURER'S STANDARD
CONTINUOUS RATING: 100 A
FULL AIC RATING: 10,000 A
SERIES AIC RATING: NONE

MAIN: CIRCUIT BREAKER
CONTINUOUS RATING: 100 A
FULL AIC RATING: 10,000 A
SERIES AIC RATING: NONE
LOCATION: BOTTOM

FEEDER/BRANCH CIRCUIT DEVICES:
BOLT-ON CIRCUIT BREAKERS
FULL AIC RATING: 10,000 A
SERIES AIC RATING: NONE

SPECIAL PROVISIONS:
MASTER NAMEPLATE
FEEDER NAMEPLATES
GROUND BAR

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	0.0	0.0	1.25	0.0
Gen. Purpose Outlets (First 10 KVA)	0.0	1800.0	1800.0	1.00	1800.0
Gen. Purpose Outlets (Remainder)	0.0	0.0	0.0	0.50	0.0
Special Purpose Outlets	0.0	720.0	720.0	1.00	720.0
Mechanical Equipment	0.0	60.0	60.0	1.00	60.0
Process Equipment	0.0	0.0	0.0	1.00	0.0
Miscellaneous	0.0	2700.0	2700.0	1.00	2700.0
25% Largest Motor					15.0
TOTAL LOAD	0.0	5280.0	5280.0		5295.0
TOTAL AMPS	0.0	14.7	14.7		14.7

CONN. LOAD (VA)	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	BKR AMP/P	CKT NO	BUS (PHASE)	CKT NO	BKR AMP/P	FEEDER/BRANCH CIRCUIT DESCRIPTION	NOTE	CONN. LOAD (VA)
720.0	OUTLETS - BOOSTER STATION BUILDING EXTERIOR		20/1	1	A	2	20/1	CONTROL PANEL - BOOSTER STATION BUILDING		600.0
900.0	OUTLETS - BOOSTER STATION BUILDING INTERIOR		20/1	3	B	4	20/1	OUTLETS - INSIDE CONTROL PANEL		360.0
180.0	OUTLETS - WEST RESERVOIR, GROUND LEVEL		20/1	5	C	6	20/1	SPARE		0.0
60.0	LOUVER (VIA EF-FG STARTER AUX. CONTACTS IN MCCA)		20/1	7	A	8	20/1	OUTLETS - TELECOM TERMINAL BOARD		180.0
0.0	SPARE		20/1	9	B	10	20/1	OUTLETS - TELECOM TERMINAL BOARD		180.0
0.0	SPARE		20/1	11	C	12	20/1	SPARE		0.0
0.0	SPACE FOR FUTURE USE			13	A	14		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			15	B	16		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			17	C	18		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			19	A	20		SPACE FOR FUTURE USE		0.0
0.0	SPACE FOR FUTURE USE			21	B	22		SPACE FOR FUTURE USE		0.0
600.0	BATTERY CHARGER - GENERATOR		20/1	23	C	24		SPACE FOR FUTURE USE		0.0
1500.0	ENGINE BLOCK HEATER - GENERATOR		20/1	25	A	26	20/3	SPARE		0.0
0.0	SPARE		20/2	27	B	28	|	|		0.0
0.0	|		|	29	C	30	|	|		0.0
	MAIN CIRCUIT BREAKER									

EXPIRES 8/05/08

K ENGINEERS INC.
208 Third Street
Lynden, WA. 98264
Bus. (360) 354-4757
FAX (360) 354-6794

DESIGNED BY	DRAWN BY	CHECKED BY
KK	KL	KK

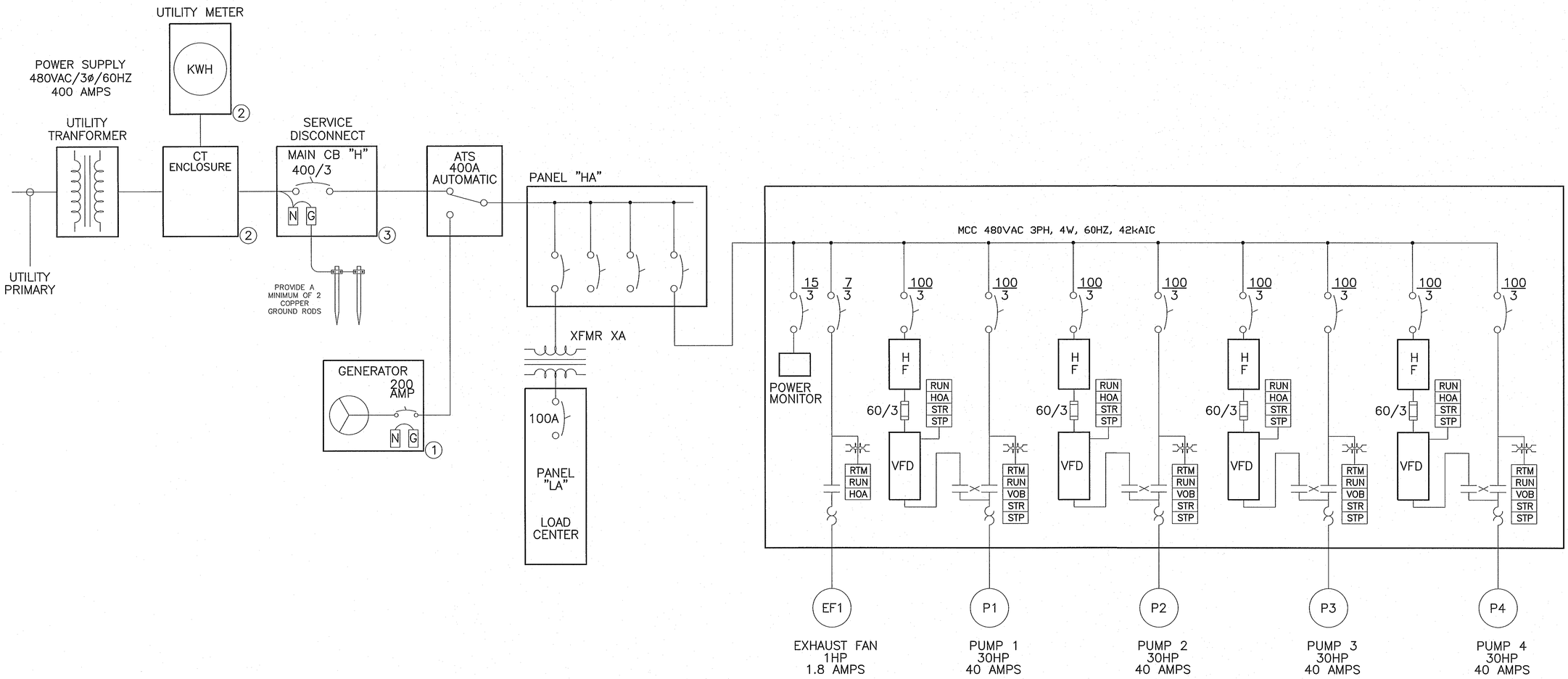
REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
ELECTRICAL - PANEL SCHEDULES

JOB# / DWG: 1257
DATE: 12/27/07
SCALE: H:NONE V: N/A
SHEET: E3.2

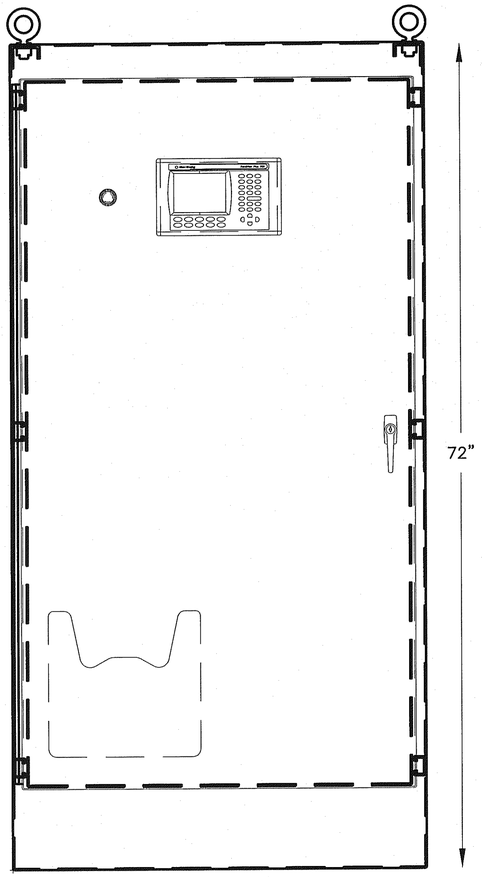


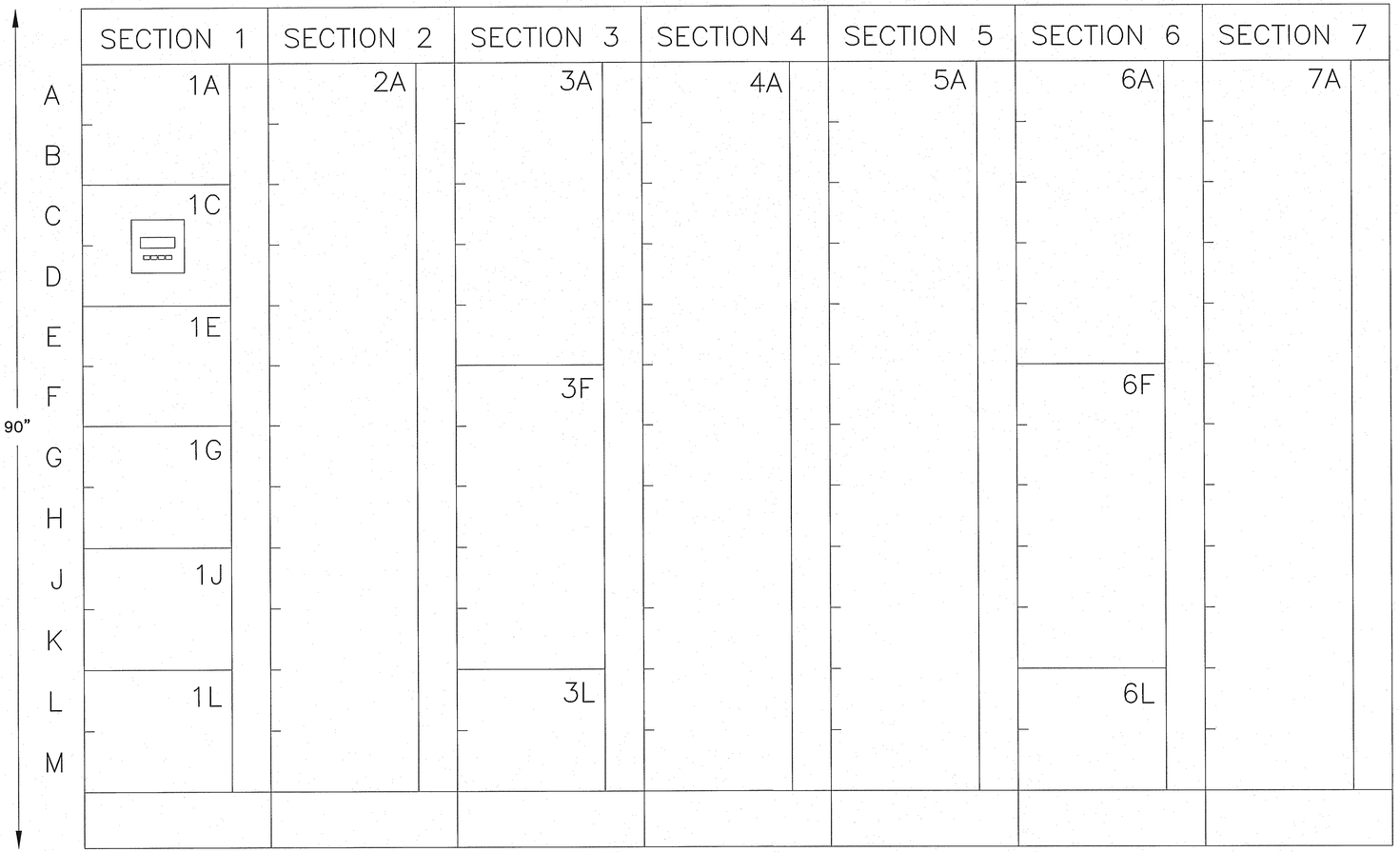
KEY NOTES:

1. GENERATOR SIZED PER XXX - VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION.
2. PROVIDE PER UTILITY REQUREMENTS - VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION.
3. PROVIDE METERING EQUIPMENT (DISCONNECT, CT CABINET, METER ETC.) AS REQUIRED BY THE SERVING UTILITY.

DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP ELECTRICAL ONE LINE

JOB# / DWG		DATE
07019	P & ID	9/20/07
SCALE		SHEET
H: n/a	V: n/a	11





MCC EQUIPMENT SCHEDULE

UNIT No.	DESCRIPTION	SIZE STARTER	CB/FUSE POLES	DEVICES	SELECTOR SWITCH	INDICATING LIGHTS	NAMEPLATE	REMARKS
1A	MLO						MAIN LUGS	
1C	METERING		15/3				POWER MONITOR	
1E	FVNR	1HP	7/3	RTM	H-O-A	GREEN	EXHAUST FAN	
1G	DOOR							
1J	DOOR							
1L	DOOR							
2A	VFD	30HP	100/3	HIM DISPLAY			PUMP 1 VFD	LOAD REACTOR
3A	FVR	30HP	100/3	RTM	H-O-A	RED, GREEN	PUMP 1 BYPASS	
3F	FVR	30HP	100/3	RTM	H-O-A	RED, GREEN	PUMP 2 BYPASS	
3L	DOOR							
4A	VFD	30HP	100/3	HIM DISPLAY			PUMP 2 VFD	LOAD REACTOR
5A	VFD	30HP	100/3	HIM DISPLAY			PUMP 3 VFD	LOAD REACTOR
6A	FVR	30HP	100/3	RTM	H-O-A	RED, GREEN	PUMP 3 BYPASS	
6F	FVR	30HP	100/3	RTM	H-O-A	RED, GREEN	PUMP 4 BYPASS	
6L	DOOR							
7A	VFD	30HP	100/3	HIM DISPLAY			PUMP 4 VFD	LOAD REACTOR

DESIGNED BY CFR
DRAWN BY IDH
CHECKED BY CFR

R&E
REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
2095 MAIN STREET
FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
CP + MCC LAYOUT

JOB# / DWG 07019 P & ID
DATE 12/28/07
SCALE H: n/a V: n/a
SHEET 12

RADIO ANTENNA

FERNDALE WTP

RADIO

ETHERNET

SCADA COMPUTER

BAKERVIEW BOOSTER PUMP STATION

AB MICROLOGIX 1100 CONTROLLER

NETWORK SWITCH

PowerFlex 400 'D' FRAME PUMP 1

PowerFlex 400 'D' FRAME PUMP 2

PowerFlex 400 'D' FRAME PUMP 3

PowerFlex 400 'D' FRAME PUMP 4

HACH 9184sc

RADIO ANTENNA

RADIO

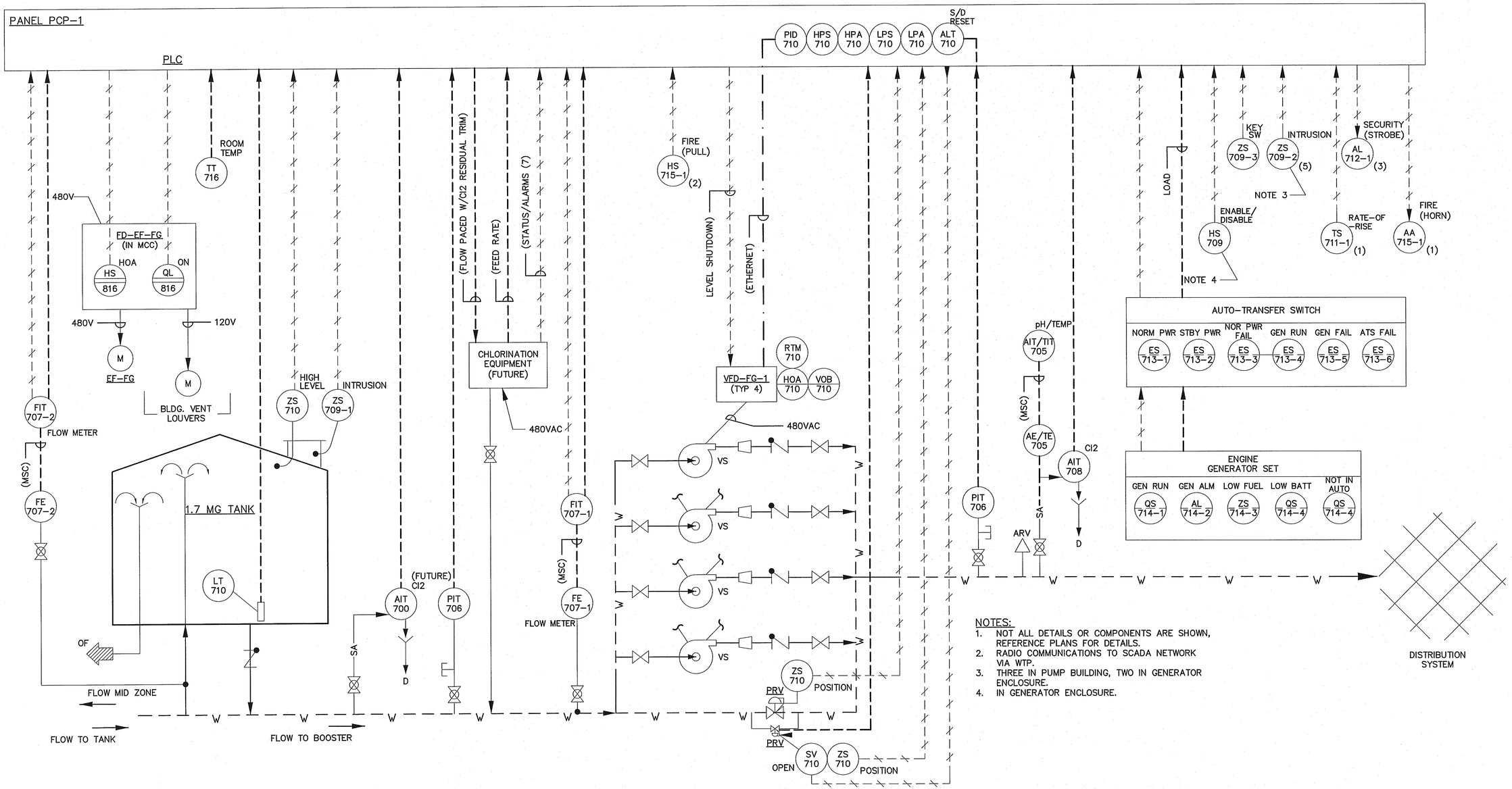
MOUNT NEAR WHERE THE ANTENNA CABLE ENTERS BUILDING RUN THE GROUND WIRE DIRECTLY TO EARTH

LIGHTINING ARRESTOR TYPE N CONNECTION

DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248

BAKERVIEW BOOSTER PUMP
NETWORK LAYOUT

JOB# / DWG		DATE
07019	P & ID	12/28/07
SCALE		SHEET
H: n/a	V: n/a	13



NOTES:

1. NOT ALL DETAILS OR COMPONENTS ARE SHOWN, REFERENCE PLANS FOR DETAILS.
2. RADIO COMMUNICATIONS TO SCADA NETWORK VIA WTP.
3. THREE IN PUMP BUILDING, TWO IN GENERATOR ENCLOSURE.
4. IN GENERATOR ENCLOSURE.

DESIGNED BY CFR DRAWN BY IDH CHECKED BY CFR	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE 2095 MAIN STREET FERNDALE, WA 98248	BAKERVIEW BOOSTER PUMP P + ID

JOB# / DWG		DATE
07019	P & ID	12/28/07
SCALE		SHEET
H: n/a	V: n/a	14