

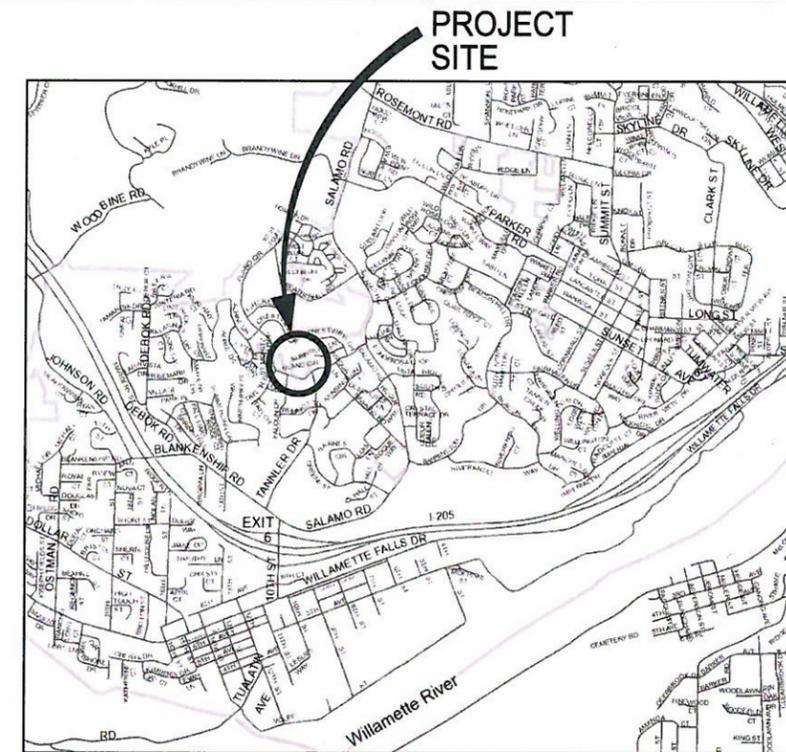


BLAND CIRCLE INTERTIE PUMP STATION

PROJECT NUMBER: PW1014
DECEMBER, 2013

DESIGN ENGINEER:
4B ENGINEERING
EDWARD BUTTS, PE
ADAM BUTTS, E.I.
BROOKE SALTARELLO
3700 RIVER ROAD N
SUITE 2
KEIZER, OREGON 97303

OWNER:
CITY OF WEST LINN
ERICH LAIS, P.E.
ASSISTANT CITY ENGINEER
22500 SALAMO ROAD
WEST LINN, OREGON 97068



WEST LINN, OREGON
VICINITY MAP
NOT TO SCALE

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
COVER SHEET

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 18, 2013

REVISIONS:		
No.	Date	By

SHEET: C-1



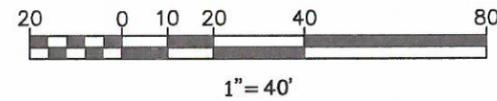
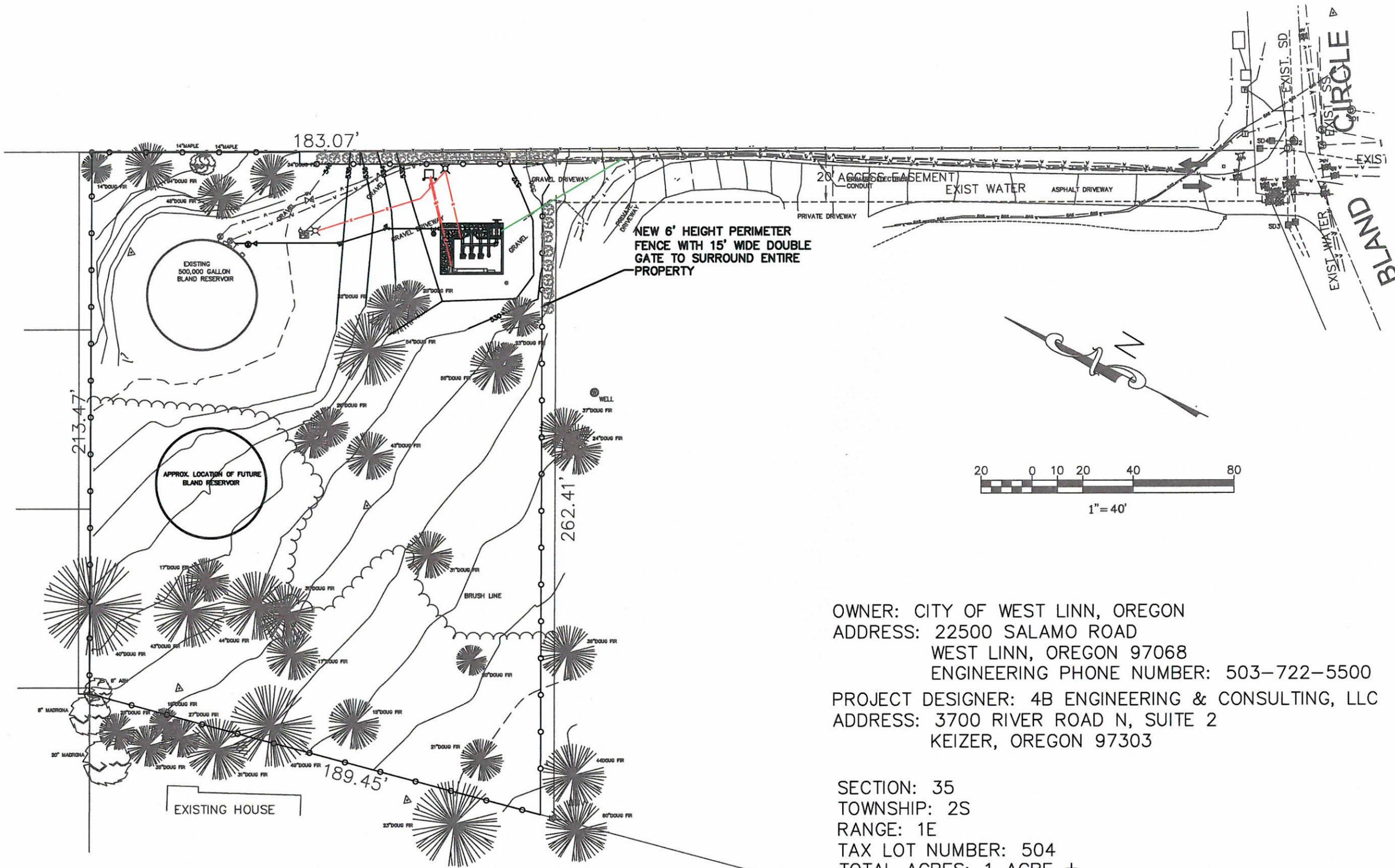
EXPIRES: 12-31-15

SHEET INDEX

- SHEET C-1: COVER SHEET AND DRAWING INDEX
- SHEET S-1A: SITE PLAN (1" = 20'-0" SCALE)
- SHEET S-1B: SITE PLAN (1" = 20'-0" SCALE)
- SHEET S-2: SITE DETAILS
- SHEET B-1: PUMP STATION ELEVATIONS
- SHEET B-2: PUMP STATION ROOF PLAN AND DETAILS
- SHEET B-3: PUMP STATION RIDGE AND SKYLIGHT DETAILS
- SHEET M-1: MECHANICAL PLAN VIEW
- SHEET M-2: MECHANICAL ELEVATION VIEW
- SHEET M-3: THRUST BLOCK DETAILS
- SHEET M-4: MECHANICAL DETAILS
- SHEET D-1: DRAIN DETAILS
- SHEET E-1: PUMP STATION ELECTRICAL PLAN VIEW
- SHEET E-2: PUMP STATION LIGHTING AND HEATING PLAN
- SHEET E-3: ELECTRICAL DETAILS
- SHEET E-4: ONE LINE POWER DIAGRAM
- SHEET 1C-1: BLOCK DIAGRAM PUMPING SYSTEMS
- SHEET 1C-2: BLOCK DIAGRAM ANCILLARY SYSTEMS
- SHEET 1C-3: NETWORK DIAGRAM-LOCAL AND WIDE AREA CONNECTIONS
- SHEET 1C-4: P&ID PROCESS CONTROLS
- SHEET 1C-5: PRESENTATION REMOTE TELEMETRY UNIT
- SHEET 1C-6: MOTOR CONTROL CENTER PRESENTATION AND ONE LINE DIAGRAM
- SHEET 1C-7: WIRING DIAGRAM MOTOR CONTROL LOGIC

DESIGN CRITERIA

TYPE OF FACILITY: POTABLE WATER BOOSTER PUMPING STATION
OCCUPANCY CATEGORY: IV
OCCUPANCY CLASS: F1
CONSTRUCTION TYPE: V-B (ACCEPTABLE FOR SINGLE STORY STRUCTURES UP TO 5,500 FT²)
BUILDING AREA: 352 SQUARE FEET (16' X 22')
< 5,500 FT² ALLOWED
NUMBER OF STORIES: 1
DESIGN CATEGORY: CATEGORY IV (ESSENTIAL FACILITIES)
WALL CONSTRUCTION FRAMING: 8" X 8" X 16" HOLLOW CORE MEDIUM WEIGHT CONCRETE MASONRY UNITS; COLOR: DARK GREEN
ROOF CONSTRUCTION: PREFABRICATED TRUSSES @ 24" O.C. SPACING WITH 3/4" EXTERIOR GRADE PLYWOOD SHEATHING, AND STANDING SEAM METAL ROOF.
FLOOR CONSTRUCTION: 6" CAST-IN-PLACE CONCRETE
SEISMIC SITE CLASS: CLASS "D"
NEAREST SETBACK TO PROPERTY LINE: 20' FROM SOUTH PROPERTY LINE



OWNER: CITY OF WEST LINN, OREGON
 ADDRESS: 22500 SALAMO ROAD
 WEST LINN, OREGON 97068
 ENGINEERING PHONE NUMBER: 503-722-5500

PROJECT DESIGNER: 4B ENGINEERING & CONSULTING, LLC
 ADDRESS: 3700 RIVER ROAD N, SUITE 2
 KEIZER, OREGON 97303

SECTION: 35
 TOWNSHIP: 2S
 RANGE: 1E
 TAX LOT NUMBER: 504
 TOTAL ACRES: 1 ACRE ±

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 3700 RIVER ROAD N, SUITE 2
 KEIZER, OREGON 97303
 (503) 589-1115

CITY OF WEST LINN
 BLAND CIRCLE INTERTIE P.S.
 SITE PLAN

PREPARED FOR:
 CITY OF WEST LINN
 22500 SALAMO ROAD
 WEST LINN, OREGON 97068
 (503) 657-0331

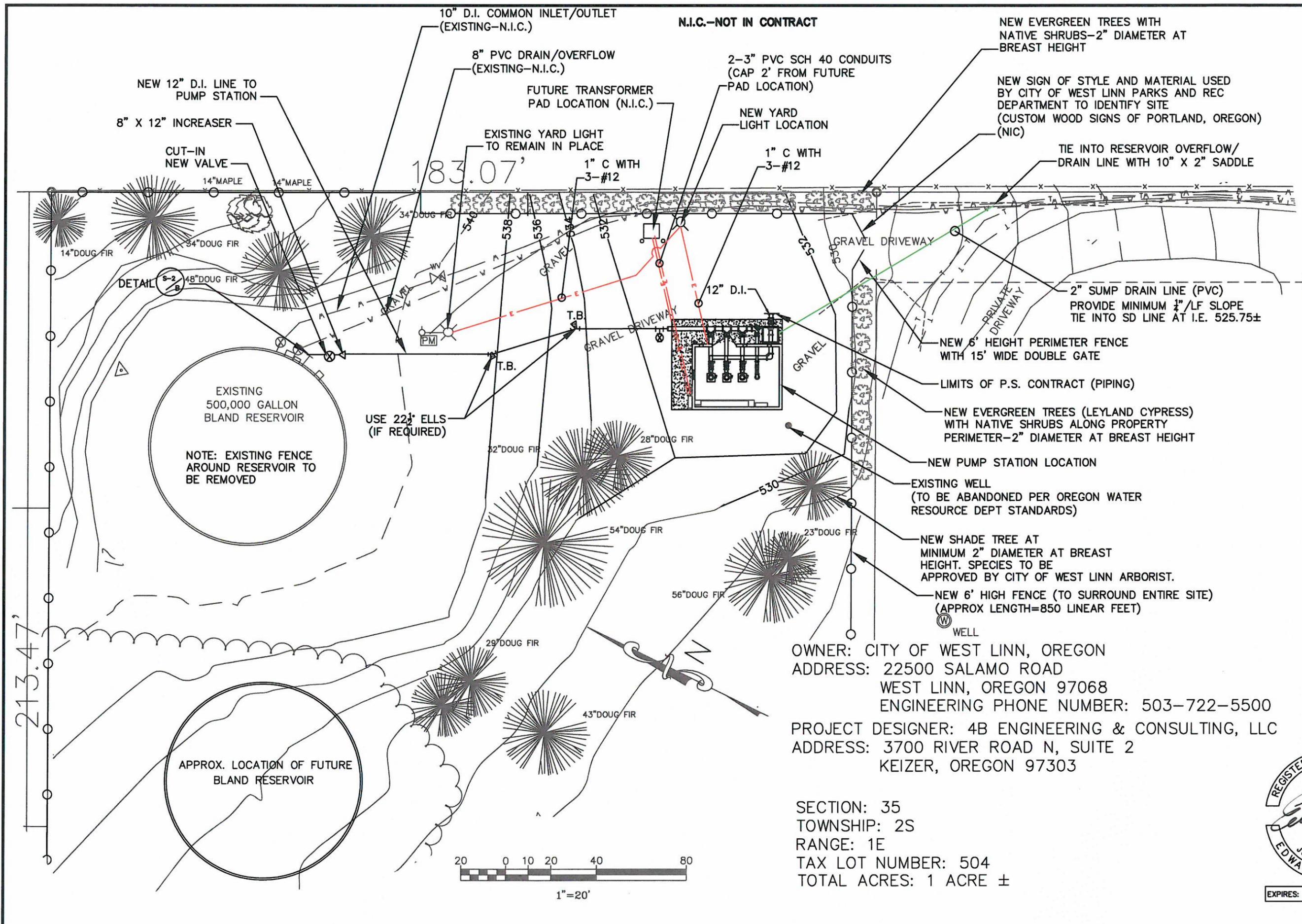
DESIGN: EDWARD P. BUTTS, P.E.
 ADAM E. BUTTS, E
 DRAWN: BROOKE SALTARELLO
 DATE: JUNE 4, 2013
 DRAWING:
 SCALE: AS SHOWN

REVISIONS:		
No.	Date	By

SHEET: S-1A



EXPIRES: 12-31-15



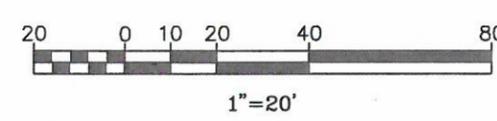
213.47'

183.07'

EXISTING
500,000 GALLON
BLAND RESERVOIR

NOTE: EXISTING FENCE
AROUND RESERVOIR TO
BE REMOVED

APPROX. LOCATION OF FUTURE
BLAND RESERVOIR



N.I.C.—NOT IN CONTRACT

NEW EVERGREEN TREES WITH
NATIVE SHRUBS—2" DIAMETER AT
BREAST HEIGHT

NEW SIGN OF STYLE AND MATERIAL USED
BY CITY OF WEST LINN PARKS AND REC
DEPARTMENT TO IDENTIFY SITE
(CUSTOM WOOD SIGNS OF PORTLAND, OREGON)
(NIC)

TIE INTO RESERVOIR OVERFLOW/
DRAIN LINE WITH 10" X 2" SADDLE

2-3" PVC SCH 40 CONDUITS
(CAP 2' FROM FUTURE
PAD LOCATION)

NEW YARD
LIGHT LOCATION

8" PVC DRAIN/OVERFLOW
(EXISTING—N.I.C.)

FUTURE TRANSFORMER
PAD LOCATION (N.I.C.)

EXISTING YARD LIGHT
TO REMAIN IN PLACE

NEW 12" D.I. LINE TO
PUMP STATION

8" X 12" INCREASER

CUT-IN
NEW VALVE

14" MAPLE

14" MAPLE

34" DOUG FIR

34" DOUG FIR

48" DOUG FIR

DETAIL S-2

1" C WITH
3-#12

1" C WITH
3-#12

12" D.I.

2" SUMP DRAIN LINE (PVC)
PROVIDE MINIMUM 1/8" / LF SLOPE
TIE INTO SD LINE AT I.E. 525.75±

NEW 6' HEIGHT PERIMETER FENCE
WITH 15' WIDE DOUBLE GATE

LIMITS OF P.S. CONTRACT (PIPING)

NEW EVERGREEN TREES (LEYLAND CYPRESS)
WITH NATIVE SHRUBS ALONG PROPERTY
PERIMETER—2" DIAMETER AT BREAST HEIGHT

NEW PUMP STATION LOCATION

EXISTING WELL
(TO BE ABANDONED PER OREGON WATER
RESOURCE DEPT STANDARDS)

NEW SHADE TREE AT
MINIMUM 2" DIAMETER AT BREAST
HEIGHT. SPECIES TO BE
APPROVED BY CITY OF WEST LINN ARBORIST.

NEW 6' HIGH FENCE (TO SURROUND ENTIRE SITE)
(APPROX LENGTH=850 LINEAR FEET)

WELL

OWNER: CITY OF WEST LINN, OREGON
ADDRESS: 22500 SALAMO ROAD
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ENGINEERING PHONE NUMBER: 503-722-5500

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ADDRESS: 3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303

SECTION: 35
TOWNSHIP: 2S
RANGE: 1E
TAX LOT NUMBER: 504
TOTAL ACRES: 1 ACRE ±

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CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
SITE PLAN

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

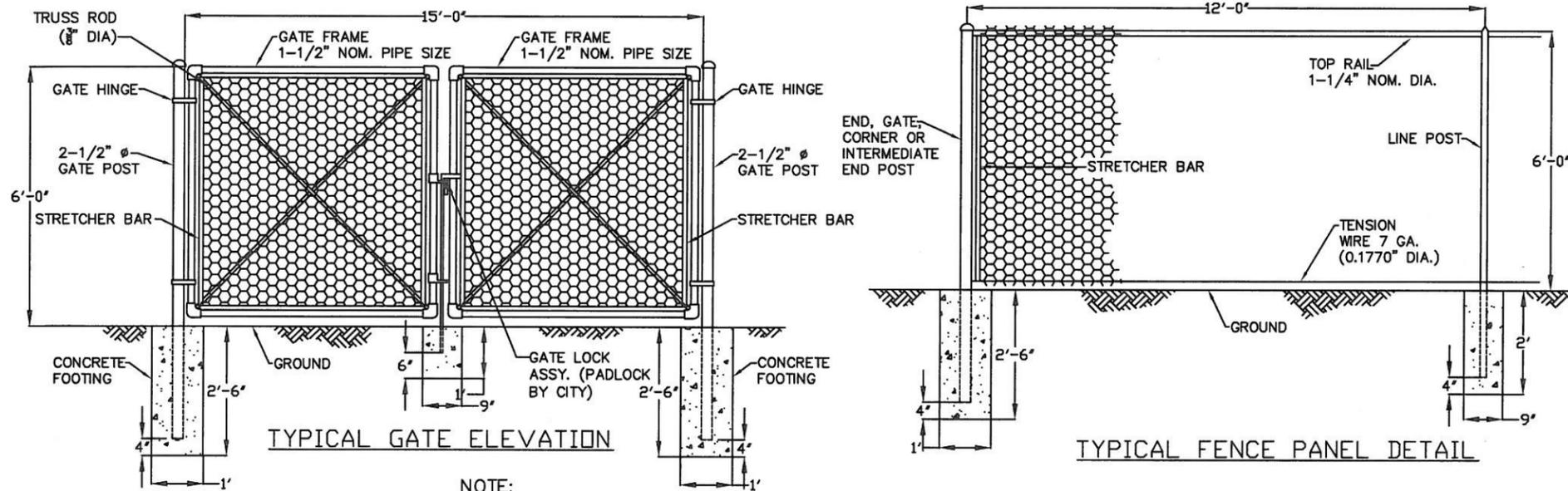
DESIGN: EDWARD P. BUTTS, P.E.
ADAM E. BUTTS, EIT
DRAWN: BROOKE SALTARELLO
DATE: JUNE 4, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:		
No.	Date	By

SHEET: S-1B

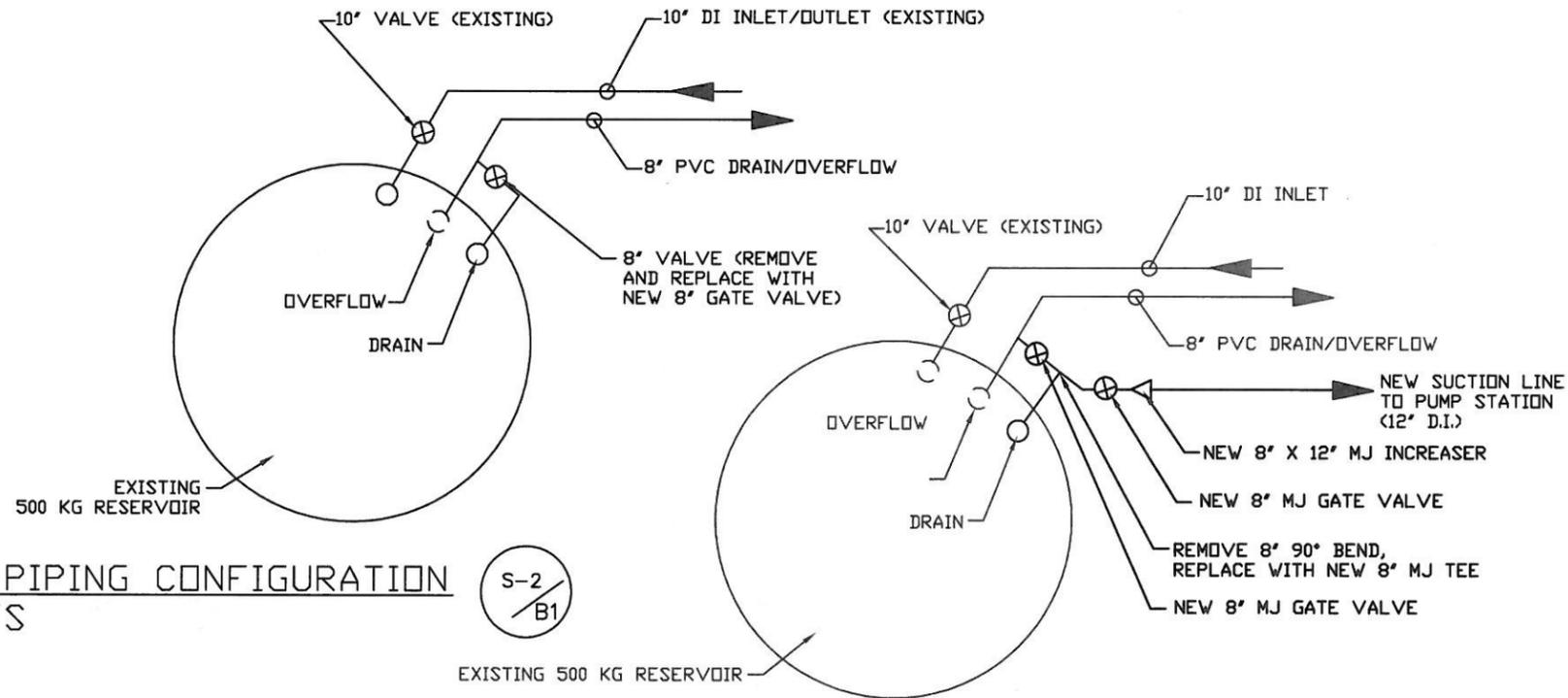


EXPIRES: 12-31-15



- NOTE:
1. BLACK POWDER COATING ON ALL HARDWARE AND ACCESSORIES IS REQUIRED.
 2. ALL MATERIAL AND WORKMANSHIP SHALL BE IN

TYPICAL FENCE DETAILS S-2/A
SCALE: NTS



EXISTING PIPING CONFIGURATION S-2/B1
SCALE: NTS

NEW REVISED PIPING LAYOUT S-2/B2
SCALE: NTS

PIPING CONNECTION SCHEMATIC AT RESERVOIR S-2/B
SCALE: NTS

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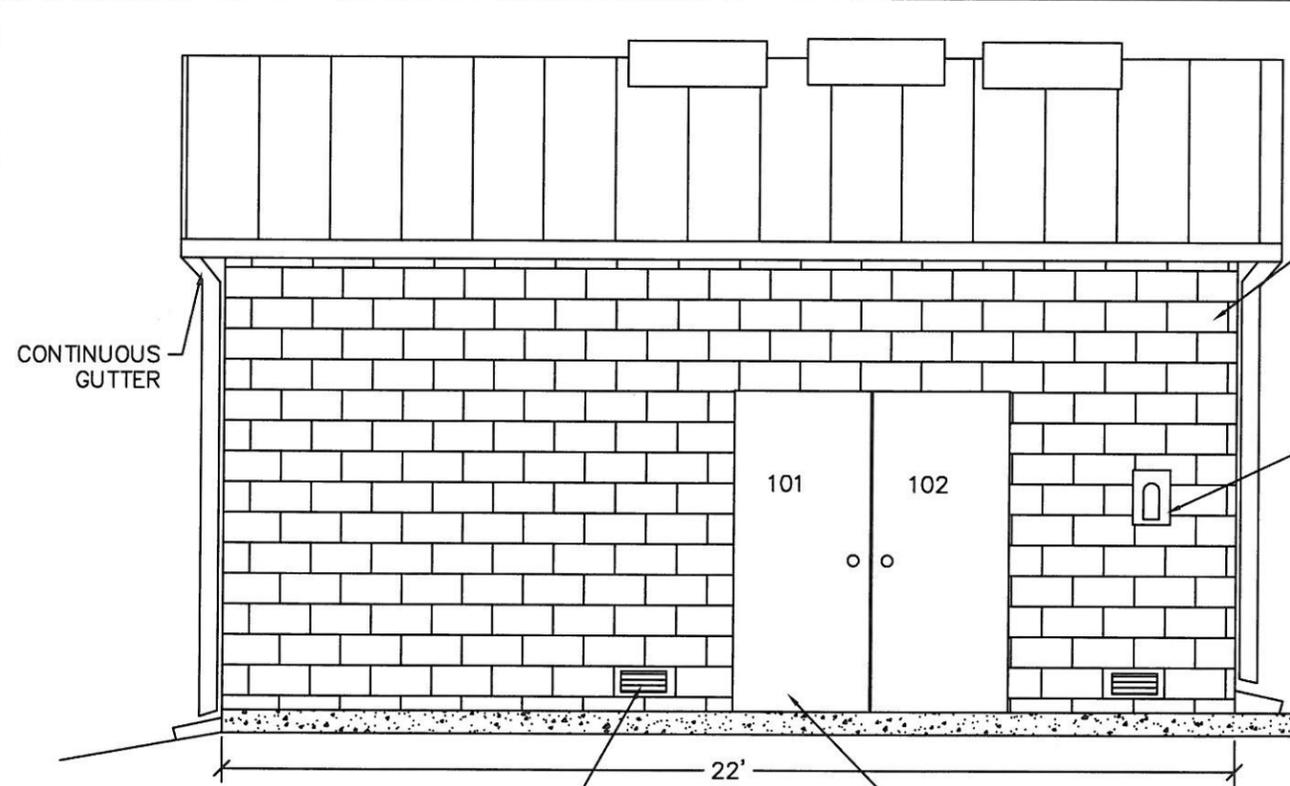
CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
SITE DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

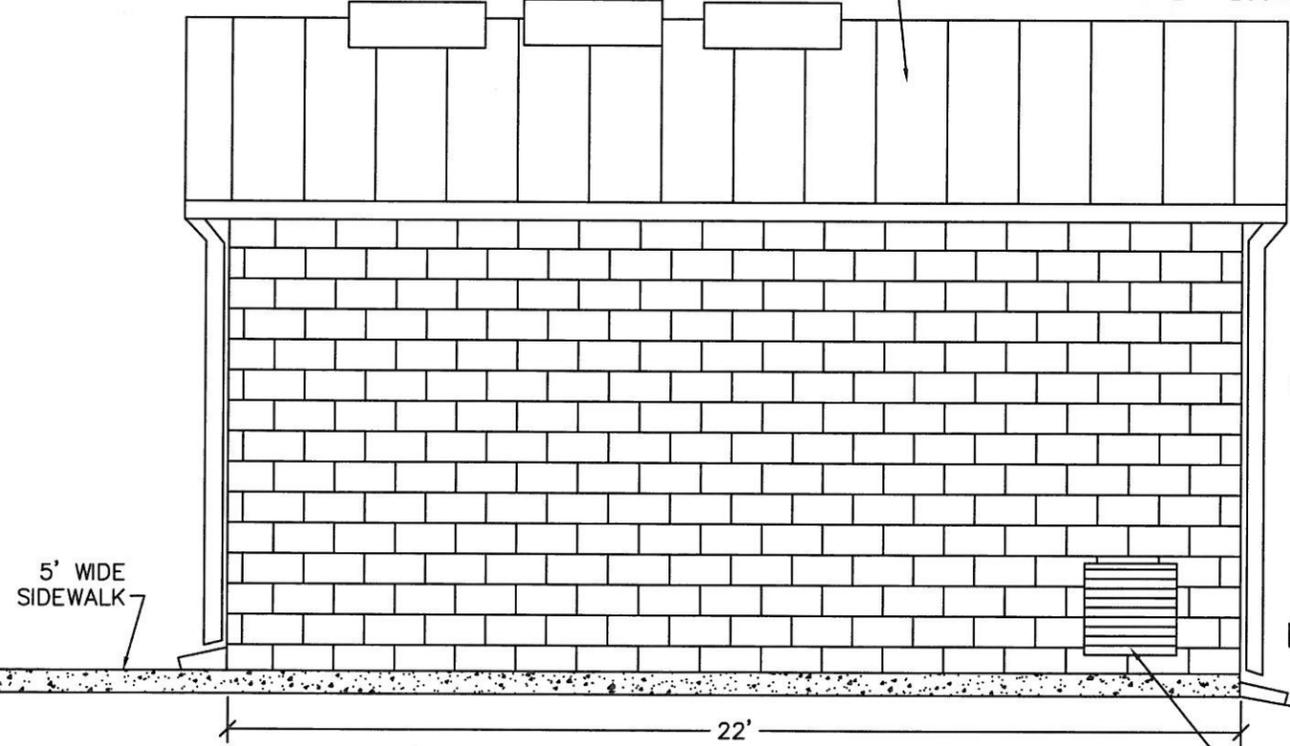
DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 16, 2013
DRAWING:
SCALE: AS SHOWN
REVISIONS:
No. Date By
SHEET: S-2



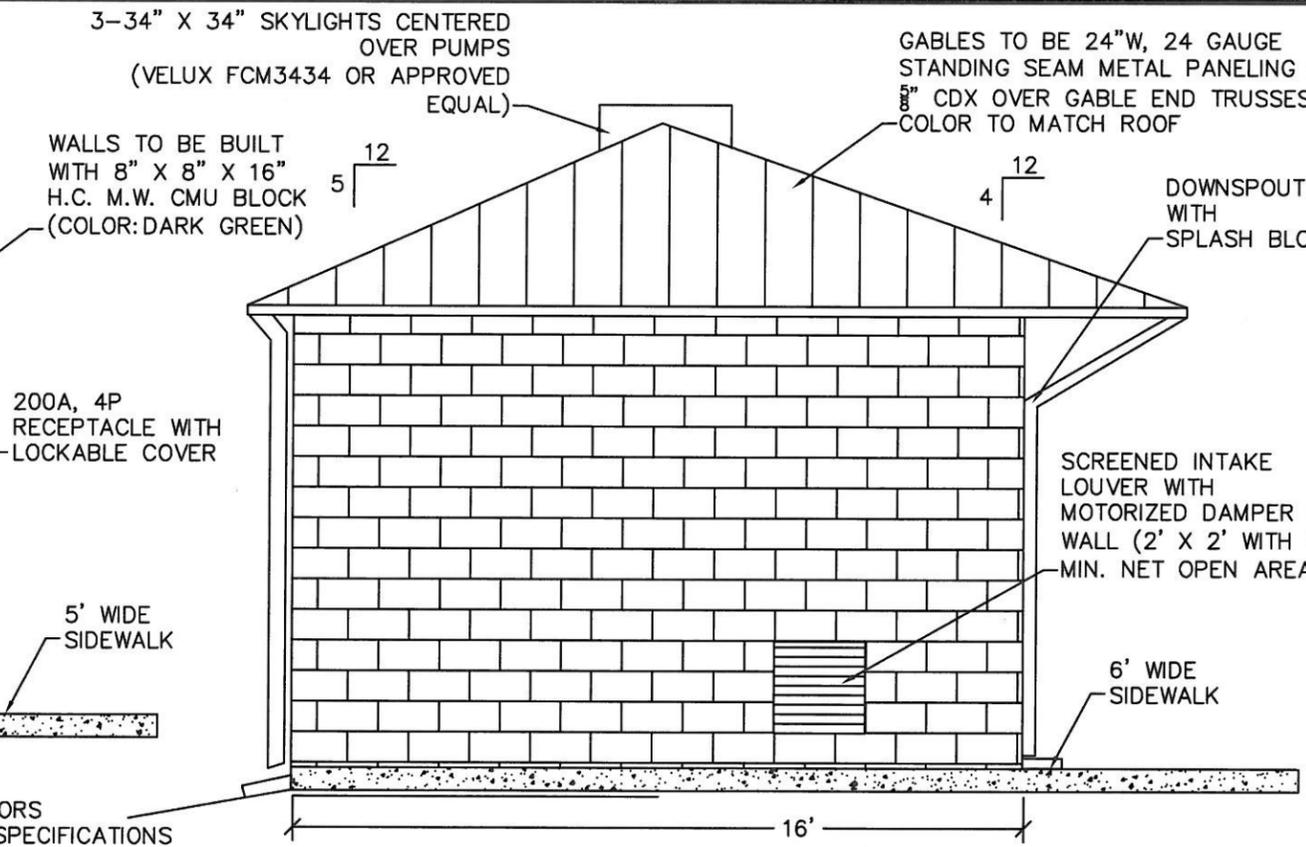
EXPIRES: 12-31-15



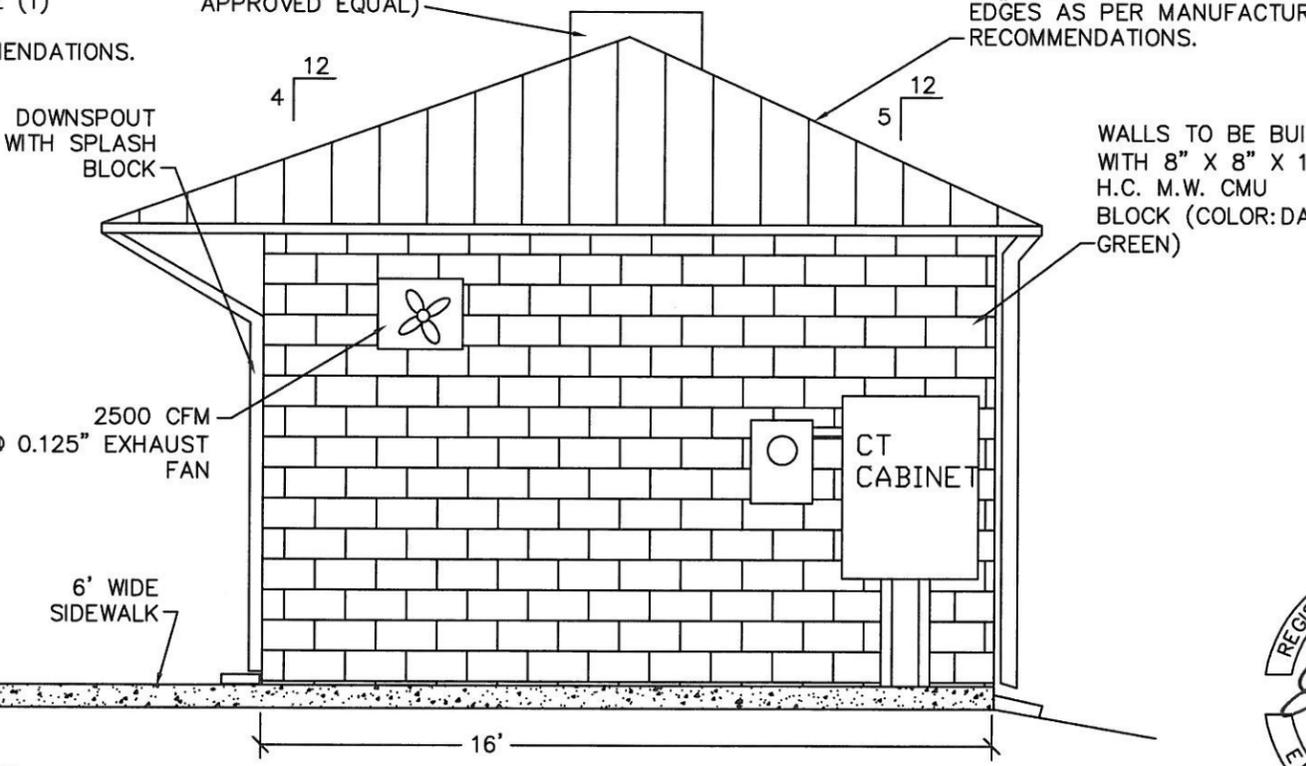
EAST ELEVATION
SCALE: 1" = 4'-0"



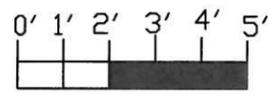
WEST ELEVATION
SCALE: 1" = 4'-0"



SOUTH ELEVATION
SCALE: 1" = 4'-0"



NORTH ELEVATION
SCALE: 1" = 4'-0"



3-34" X 34" SKYLIGHTS CENTERED OVER PUMPS (VELUX FCM3434 OR APPROVED EQUAL)
GABLES TO BE 24"W, 24 GAUGE STANDING SEAM METAL PANELING OVER 5/8" CDX OVER GABLE END TRUSSES. COLOR TO MATCH ROOF

WALLS TO BE BUILT WITH 8" X 8" X 16" H.C. M.W. CMU BLOCK (COLOR: DARK GREEN)

200A, 4P RECEPTACLE WITH LOCKABLE COVER

5' WIDE SIDEWALK

DOWNSPOUT WITH SPLASH BLOCK

SCREENED INTAKE LOUVER WITH MOTORIZED DAMPER IN WALL (2' X 2' WITH 50% MIN. NET OPEN AREA)

6' WIDE SIDEWALK

(2) 3' X 6'-8" STEEL ENTRY DOORS KEYED PER CITY OF WEST LINN SPECIFICATIONS WITH FLAT THRESHOLD AND WIPER SEAL ON BOTTOM

USE 24"W 24 GAUGE METAL ROOF PANELS OVER 3/4" CDX PLYWOOD AND ONE (1) LAYER 30# FELT. USE PLYCLIPS AS PER MANUFACTURER RECOMMENDATIONS.

3-34" X 34" SKYLIGHTS CENTERED OVER PUMPS (VELUX FCM3434 OR APPROVED EQUAL)

USE 24"W 24 GAUGE METAL ROOF PANELS OVER 3/4" CDX PLYWOOD AND ONE (1) LAYER 30# FELT. USE PLYCLIPS AT EDGES AS PER MANUFACTURER RECOMMENDATIONS.

DOWNSPOUT WITH SPLASH BLOCK

WALLS TO BE BUILT WITH 8" X 8" X 16" H.C. M.W. CMU BLOCK (COLOR: DARK GREEN)

2500 CFM @ 0.125" EXHAUST FAN

6' WIDE SIDEWALK

CT CABINET

SCREENED INTAKE LOUVER WITH MOTORIZED DAMPER IN WALL (2' X 2' WITH 50% MIN. NET OPEN AREA)

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KETZER, OREGON 97303
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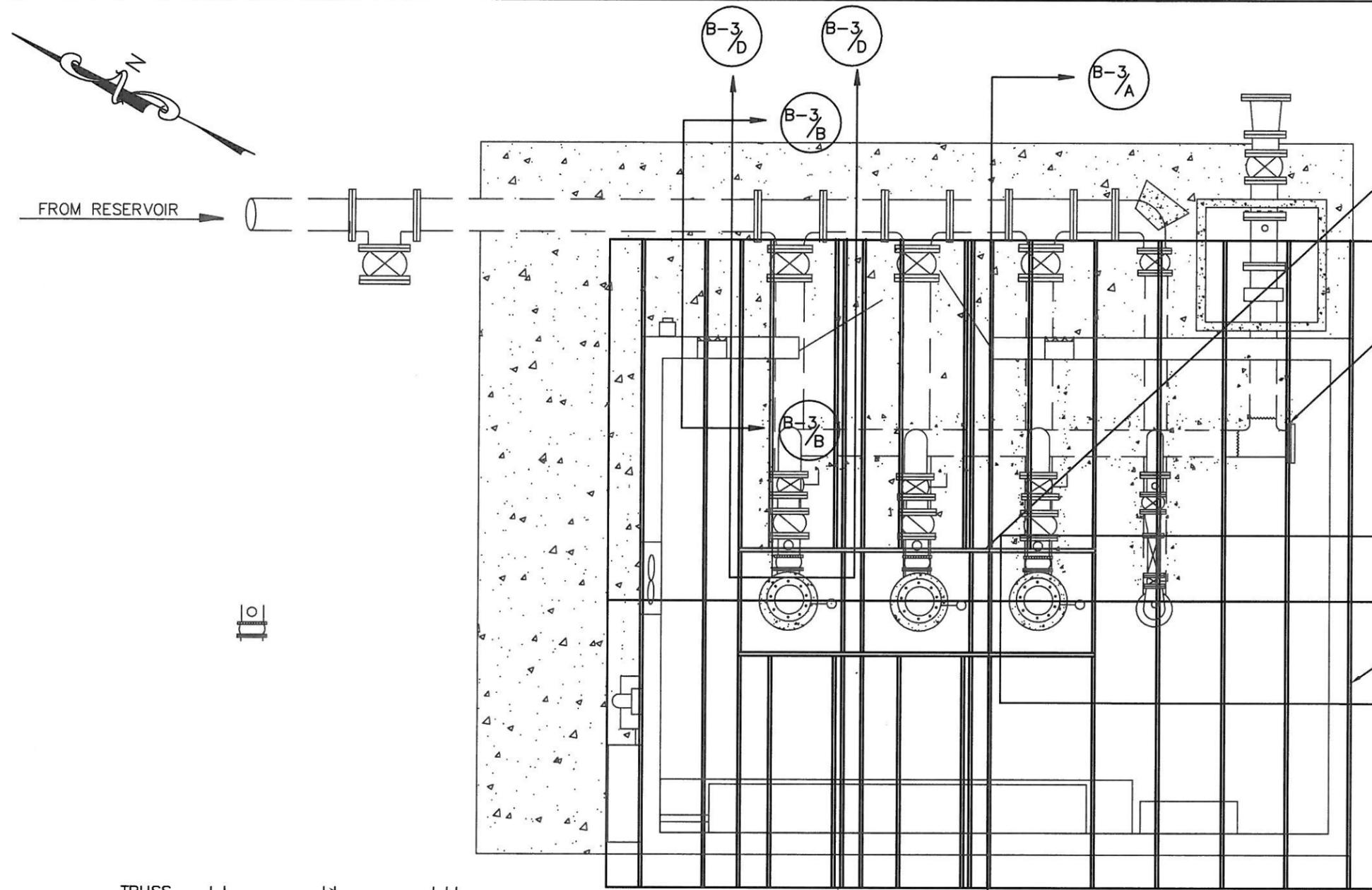
CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
EXTERIOR DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E. ADAM E. BUTTS, D
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013
DRAWING:
SCALE: AS SHOWN
REVISIONS:
No. Date By
SHEET: B-1



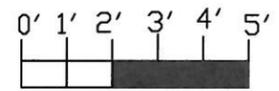
EXPIRES: 12-31-15



SEE DETAIL B-2/A
 PREFABRICATED ROOF TRUSSES OVER BUILDING @ 24" O.C.—VERIFY NUMBER REQUIRED FOR SPECIFIC TRUSS DESIGN AND SPACING

2" X 6" D.F. #2 OR BETTER FASCIA ALONG EXTERIOR EDGE OF BUILDING

GABLE TRUSS (2 REQUIRED—ONE AT EACH END OF BUILDING)

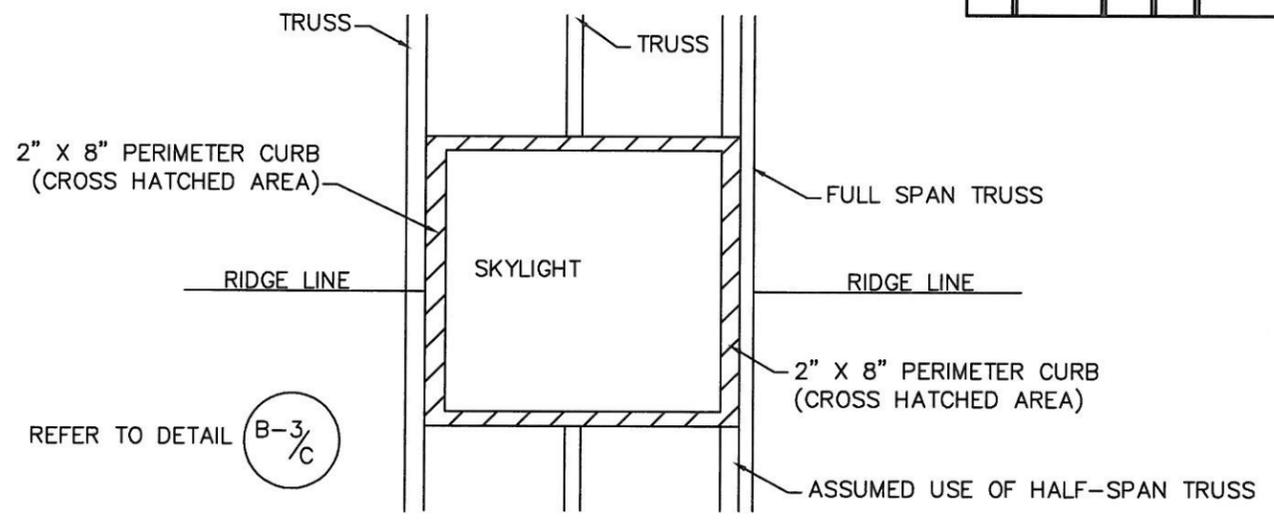


ASSUMED TRUSS LOADING CONDITIONS
 10 PSF DEAD LOAD
 35 PSF LIVE LOAD
 115 MPH WIND LOAD (LATERAL)

NOTE: TRUSS SUPPLIER SHALL VERIFY THE NUMBER AND DESIGN OF TRUSSES AND SUPPORTING MEMBERS REQUIRED TO FACILITATE THE BUILDING DIMENSIONS WITH SKYLIGHTS.

USE ADDITIONAL TRUSSES AS REQUIRED TO PROPERLY SUPPORT SKYLIGHTS (AS PER PREFAB TRUSS SUPPLIER)

ROOF FRAMING PLAN (TYPICAL)
 SCALE: 1" = 4'-0"



SKYLIGHT DETAIL (TYPICAL)
 SCALE: N.T.S.

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 KEIZER, OREGON 97303
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CITY OF WEST LINN
 BLAND CIRCLE INTERTIE P.S.
 ROOF PLAN AND DETAILS

PREPARED FOR:
 CITY OF WEST LINN
 22500 SALAMO ROAD
 WEST LINN, OREGON 97068
 (503) 657-0331

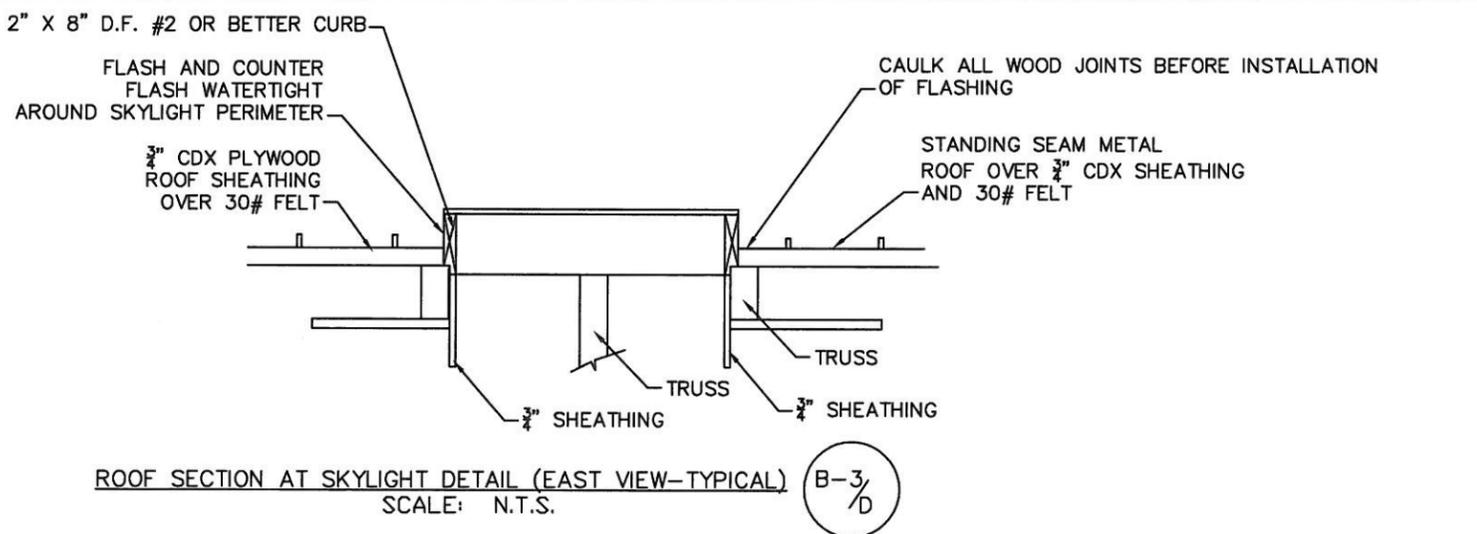
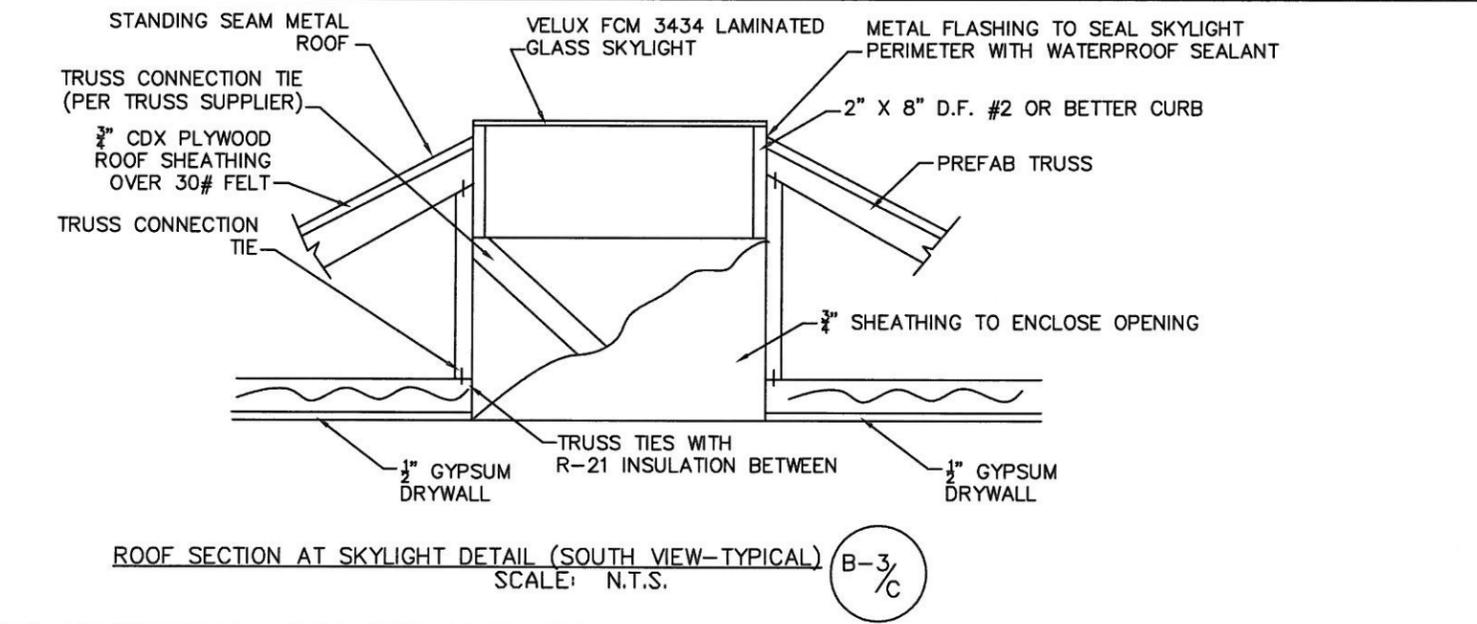
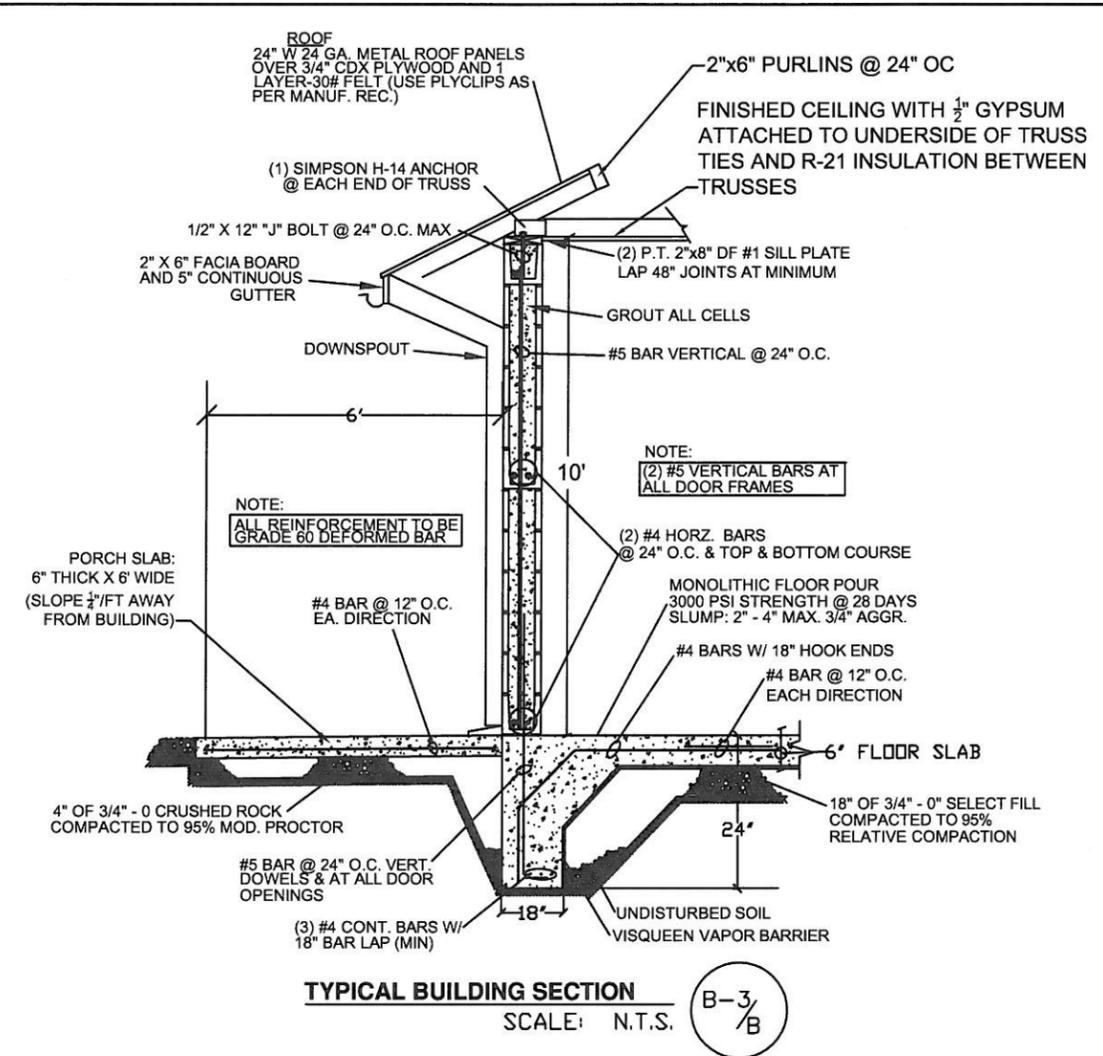
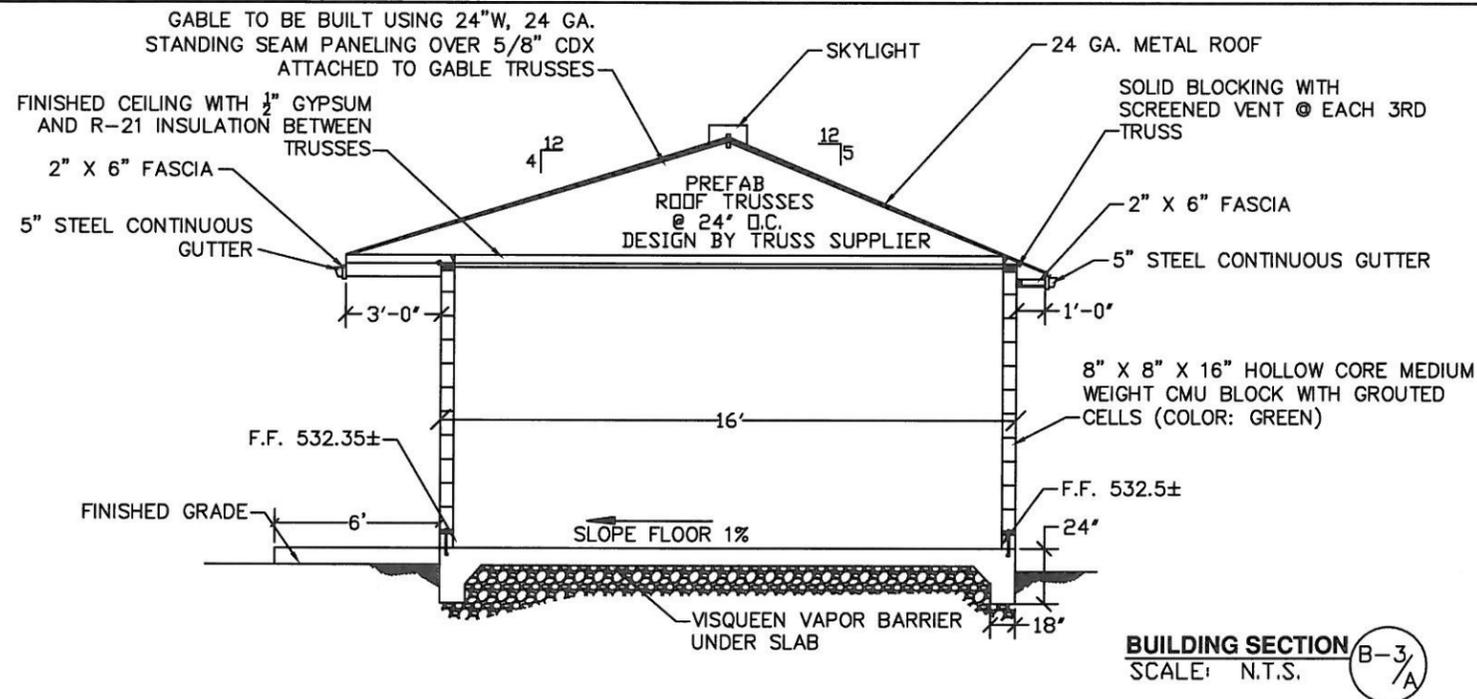
DESIGN: EDWARD P. BUTTS, P.E.
 DRAWN: BROOKE SALTARELLO
 DATE: AUGUST 18, 2013
 DRAWING:
 SCALE: AS SHOWN

REVISIONS:		
No.	Date	By

SHEET: B-2



EXPIRES: 12-31-15



- DOOR TYPES**
- 1 " " SHOWN ON SCHEDULE INDICATES TYPICAL
 2. DOOR TYPES
 3. CONSTRUCTION
TYPICAL - SOLID CORE
HC - HOLLOW CORE
HM - HOLLOW METAL
MC - MINERAL CORE
RU - ROLL UP/COIL
AL - ALUMINUM & GLASS
 4. MATERIAL/FINISH
TYPICAL - WOOD TRANSPARENT
WF - WOOD FACTORY
PL - PLASTIC LAMINATE
ME - METAL ENAMEL
WE - WOOD ENAMEL
FF - FACTORY FINISH
 5. GLASS
TYPICAL - CLEAR WIRE
TP - TEMPERED PLATE
SF - SAFETY GLASS
 6. 20, 45, 60, 90, INDICATES RATING IN MINUTES FOR OPENING
 7. TYPICAL FRAMES SHOWN " " NUMBER INDICATES DETAIL SHOWN ON SHEET.
 8. NUMBER REFERS TO HARDWARE GROUP OF HARDWARE SCHEDULE
1=LEVER HANDLE AND DEADBOLT
2=NONE (2ND DOOR OF PAIR)
3=DEADBOLT ONLY
- NOTE: LOCKS KEYED TO CITY OF WEST LINN STANDARD
NOTE: ALL DOORS TO HAVE LEVER TYPE HARDWARE

DOOR SCHEDULE

NO.	SIZE	TYPE	NOTE	1	2	3	4	5	6	7	8
101	3'-0" x 6'-8" x 13/4"	A	HMME	-	-	-	-	-	-	-	1
102	3'-0" x 6'-8" x 13/4"	A	HMME	-	-	-	-	-	-	-	2

DOOR SCHEDULE
SCALE: N.T.S.

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
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(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
RIDGE AND SKYLIGHT
DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 19, 2013

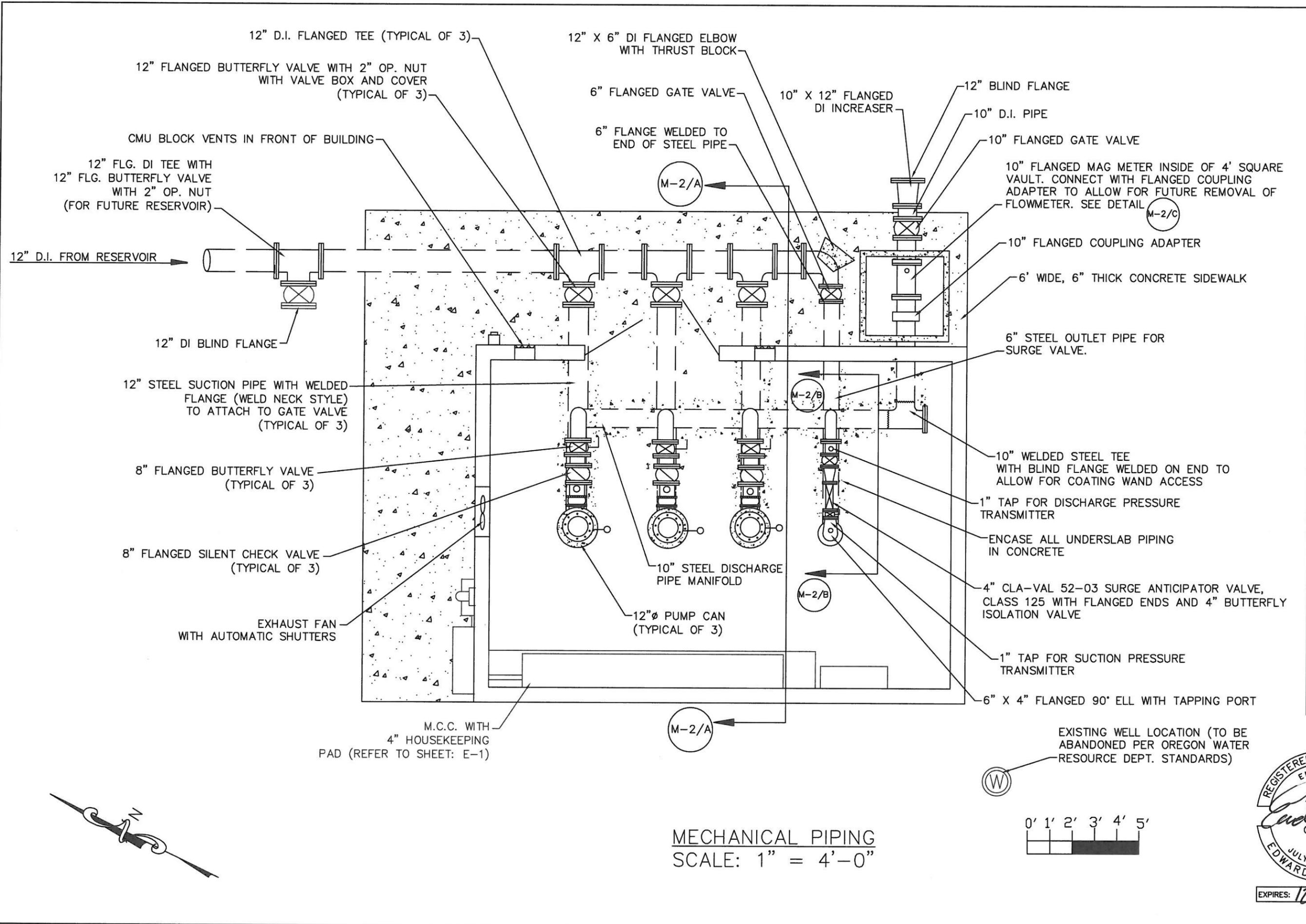
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By

SHEET: B-3

REGISTERED PROFESSIONAL ENGINEER
EDWARD P. BUTTS
JULY 17, 1986
OREGON
EXPIRES: 12-31-15

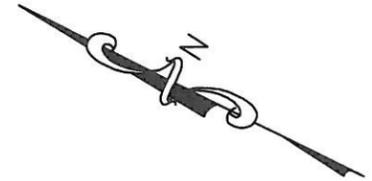


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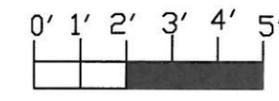
CITY OF WEST LINN
 BLAND CIRCLE INTERTIE P.S.
 MECHANICAL PLAN VIEW

PREPARED FOR:
 CITY OF WEST LINN
 22500 SALAMO ROAD
 WEST LINN, OREGON 97068
 (503) 657-0331

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DRAWN: BROOKE SALTARELLO
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DRAWING:
SCALE: AS SHOWN
REVISIONS:
No. Date By
SHEET: M-1



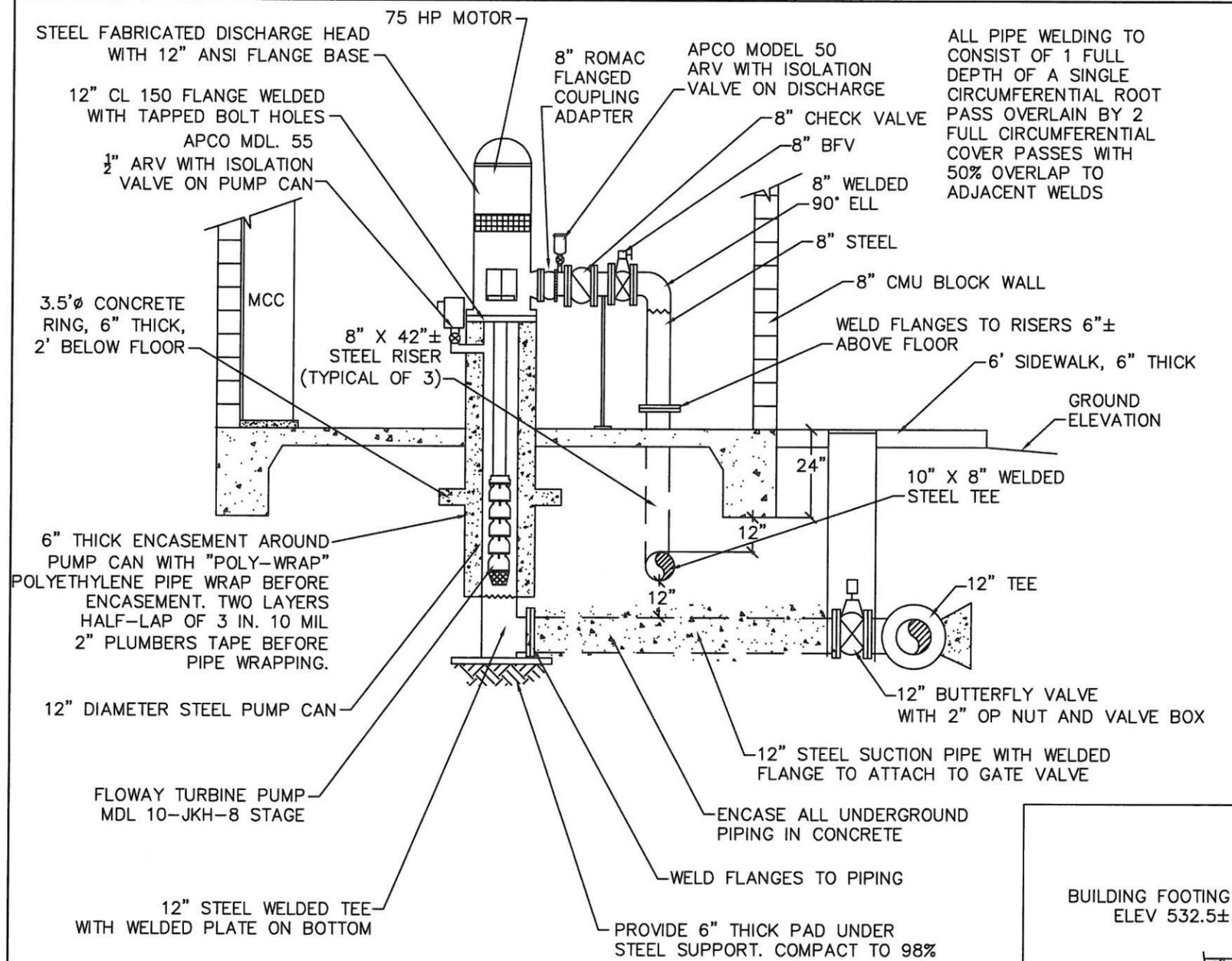
MECHANICAL PIPING
 SCALE: 1" = 4'-0"



EXISTING WELL LOCATION (TO BE
 ABANDONED PER OREGON WATER
 RESOURCE DEPT. STANDARDS)

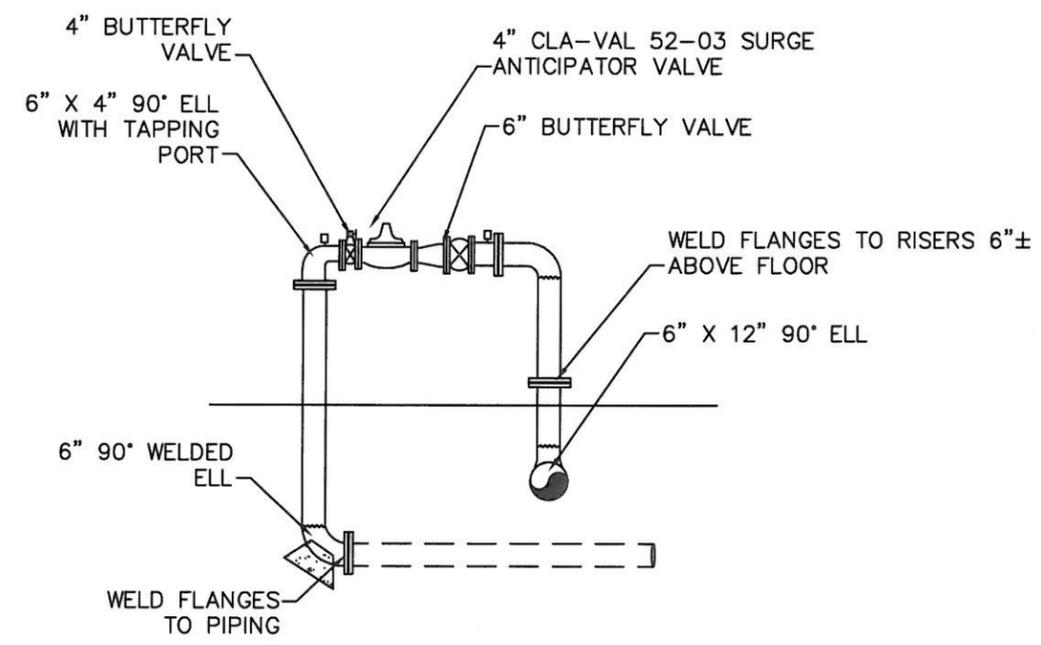


EXPIRES: 12-31-15



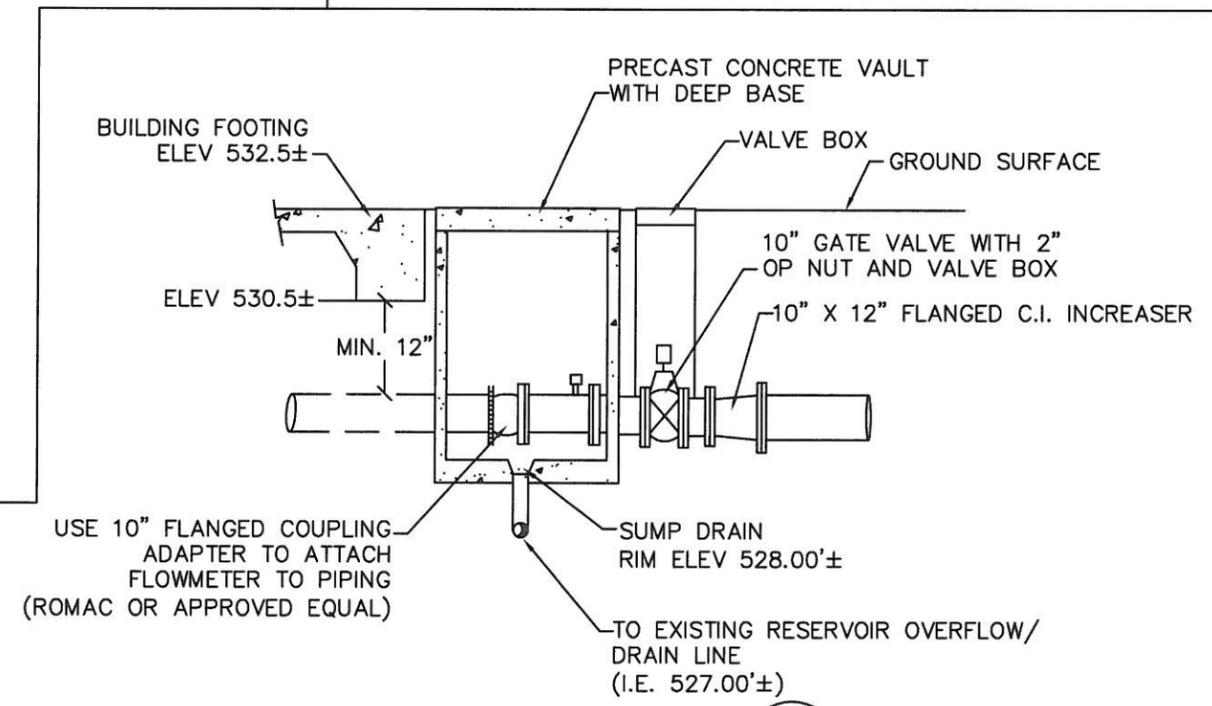
BOOSTER PUMP SECTION PIPING
SCALE: 1" = 4'-0"

M-2/A



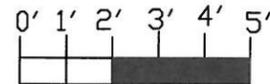
MECHANICAL PIPING
SCALE: 1" = 4'-0"

M-2/B



VAULT DETAIL
SCALE: 1" = 4'-0"

M-2/C



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CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
MECHANICAL ELEV. VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
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DESIGN: EDWARD P. BUTTS, P.E.
ADAM P. BUTTS, E
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 18, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By

SHEET: M-2

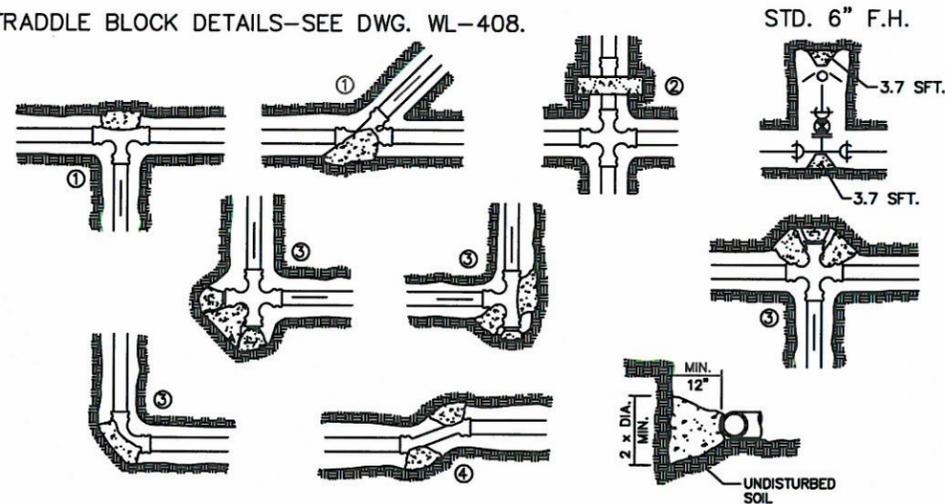


EXPIRES: 12-31-15

FITTING SIZE (Inches)	TEE, WYE, & HYDRANTS ①	STRADDLE BLOCK ②	90° BEND PLUGGED CROSS TEE PLUGGED-RUNS ③	45° BEND ④	22 1/2° BEND ④	11 1/2° BEND ④
2	*	*	*	*	*	*
4	1.7	2.1	2.4	1.3	*	*
6	3.7	4.9	5.3	2.9	1.5	*
8	6.7	8.7	9.5	5.1	2.7	1.3
10	10.5	13.6	14.8	8	4.1	2
12	15.1	19.6	21.3	11.6	5.9	2.9
14						
16	26.8	34.8	37.9	20.5	10.4	5.2
18	33.9	44	47.9	25.9	12.8	6.7
LARGER	**	**	**	**	**	**

BEARING AREA OF THRUST BLOCKS (sq. ft.)

- ALL VALUES ARE BASED ON THE FOLLOWING ASSUMPTIONS: AVG. PRESSURE = 100 PSI X 2 (safety factor); 1500 PSF SOIL BEARING CAPACITY; NORMAL DISTRIBUTION DESIGN VELOCITY NOT TO EXCEED 5 F/S.
- ALL FITTINGS SHALL BE WRAPPED IN 8 MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
- BEARING SURFACE OF THRUST BLOCKING SHALL BE AGAINST UNDISTURBED SOIL
- ALL CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3000 PSI.
- ALL PIPE ZONES SHALL BE GRAVEL FILLED AND COMPACTED.
- THRUST BLOCKS FOR PLUGGED CROSS AND PLUGGED TEE SHALL HAVE #4 REBAR LIFTING LOOPS INSTALLED AS SHOWN.
- VERTICAL THRUST DETAILS—SEE DWG. WL-407.
- STRADDLE BLOCK DETAILS—SEE DWG. WL-408.



* BLOCK TO UNDISTURBED TRENCH WALLS.

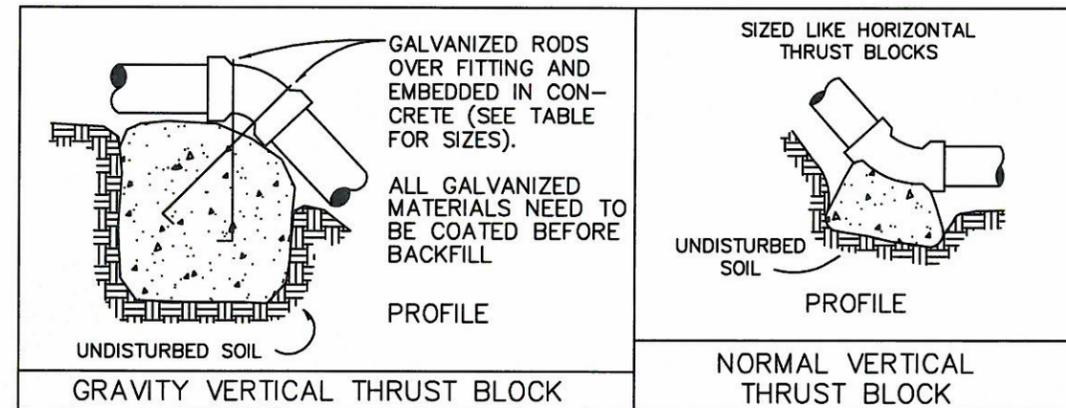
** THRUST BLOCKS FOR PIPES LARGER THAN 18" WILL BE INDIVIDUALLY DESIGNED BY THE ENGINEER.

VERTICAL THRUST BLOCK DETAIL
NTS

M-3
A

NOTE:

- GRAVITY VERTICAL THRUST BLOCKS SHALL BE DESIGNED BY THE ENGINEER.
- KEEP CONCRETE CLEAR OF JOINT AND JOINT ACCESSORIES. FITTINGS SHALL BE WRAPPED IN 8MM PLASTIC PRIOR TO PLACEMENT OF CONCRETE.
- CONCRETE THRUST BLOCKING SHALL BE POURED AGAINST UNDISTURBED EARTH.
- CONCRETE MIX SHALL HAVE A MIN. 28 DAY STRENGTH OF 3300 P.S.I.
- THRUST BLOCK VOLUMES FOR VERTICAL BENDS HAVING UPWARD RESULTANT THRUSTS SHALL BE BASED ON TEST PRESSURE OF 180 PSI AND THE WEIGHT OF CONCRETE = 4050 LBS./CU.YD.
- VERTICAL BENDS THAT REQUIRE A THRUST BLOCK VOLUME EXCEEDING 5 CUBIC YARDS REQUIRE SPECIAL BLOCKING DETAILS. SEE PLANS FOR VOLUMES SHOWN INSIDE HEAVY LINE IN TABLE BELOW.
- PAYMENT SHALL BE THE SAME AS FOR HORIZONTAL THRUST BLOCKS.
- ALL REBAR SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-123 (MIN. 3.4 MIL). REBAR SHALL BE BENT BEFORE GALVANIZATION, AND LAST 4" OF BAR SHALL BE BENT 90 DEGREES WITH A 1/2" RADIUS BEND. REBAR SHALL BE TIGHTLY FIT TO RESTRAINED FITTING.
- FOR HORIZONTAL THRUST BLOCK DETAILS SEE DWG NO. WL-406.



FITTING SIZE	VOLUME OF THRUST BLOCK IN CUBIC YARDS (VERTICAL BENDS)		
	BEND ANGLE		
	45°	22 1/2°	11 1/4°
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
10	6.0	2.3	0.9
12	8.5	3.2	1.3
14	11.5	4.3	1.8
16	14.8	5.6	2.3

FITTING SIZE	ROD SIZE	EMBEDMENT
12" AND LESS	#6	30"
14" - 16"	#8	36"

THRUST BLOCK DETAIL
NTS

M-3
B

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
THRUST BLOCK DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

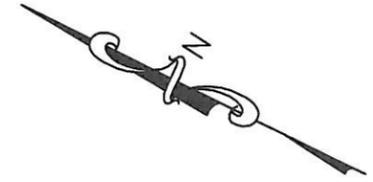
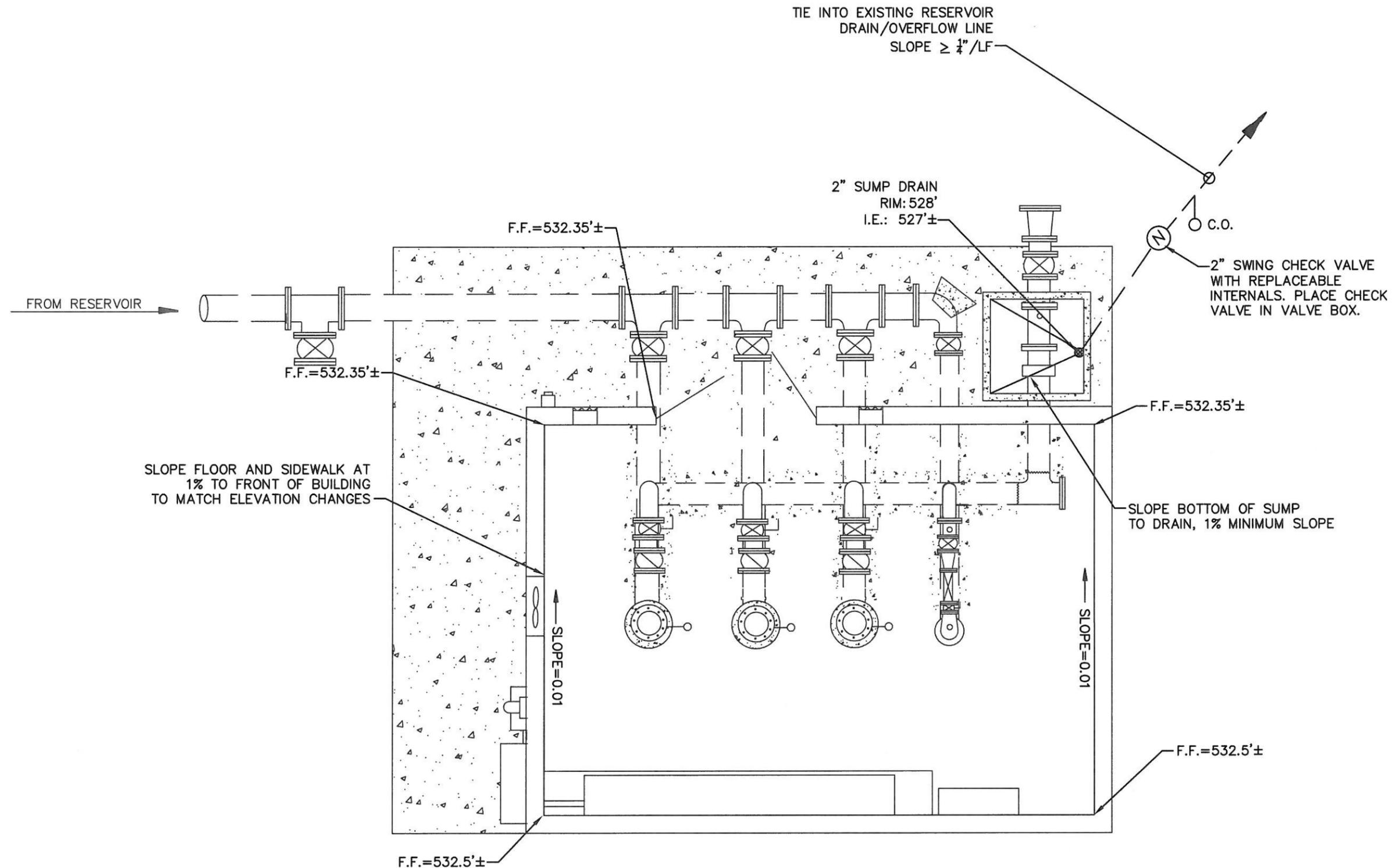
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DRAWN: BROOKE SALTARELLO
DATE: AUGUST 18, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:
No. Date By

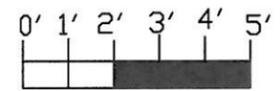
SHEET: M-3



EXPIRES: 12-31-15



DRAIN DETAILS
SCALE: 1" = 4'-0"



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KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
DRAIN PLAN VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: AUGUST 16, 2013
DRAWING:
SCALE: AS SHOWN

REVISIONS:

No.	Date	By

SHEET: D-1



EXPIRES: 12-31-15

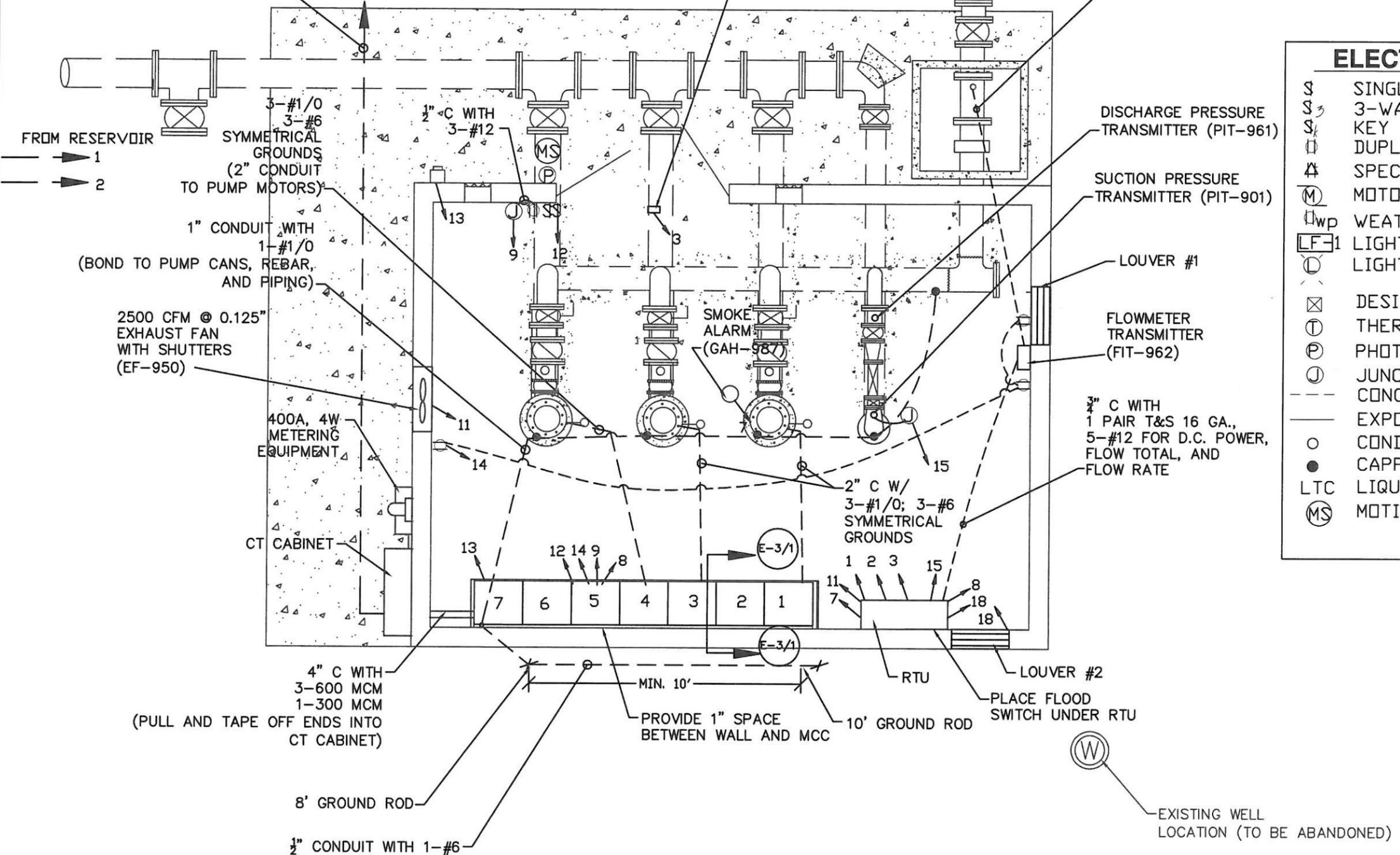
2-3" CONDUITS (EMPTY). PLACE AND CAP OFF 2' FROM FUTURE PGE XFMR PAD AREA

INTRUSION ALARM (MOUNT ABOVE DOOR) (ZS-981)

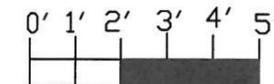
1" C WITH 2 FACTORY CABLES FOR FLOWMETER XMTR

ELECTRICAL LEGEND:

- \$ SINGLE POLE SWITCH
- \$ 3-WAY SWITCH
- \$ KEY OPER. SWITCH
- DUPLEX RECEPTACLE
- ⊠ SPECIAL RECEPTACLE
- (M) MOTOR
- ⊠wp WEATHERPROOF RECEPTACLE
- LF-1 LIGHTING FIXTURE
- LIGHT
- ⊠ DESIGNATES SEAL-OFF
- ⊠ THERMOSTAT
- ⊠ PHOTOCELL
- ⊠ JUNCTION BOX
- - - CONCEALED/UNDER SLAB COND.
- EXPOSED COND.
- CONDUIT UP INTO EQUIP.
- CAPPED CONDUIT END
- LTC LIQUITITE FLEXIBLE COND.
- (MS) MOTION SENSOR



ELECTRICAL DETAILS
SCALE: 1" = 4'-0"



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KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ELECTRICAL PLAN VIEW

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROCKE SALTARELLO
DATE: JANUARY 25, 2012
DRAWING:
SCALE: AS SHOWN

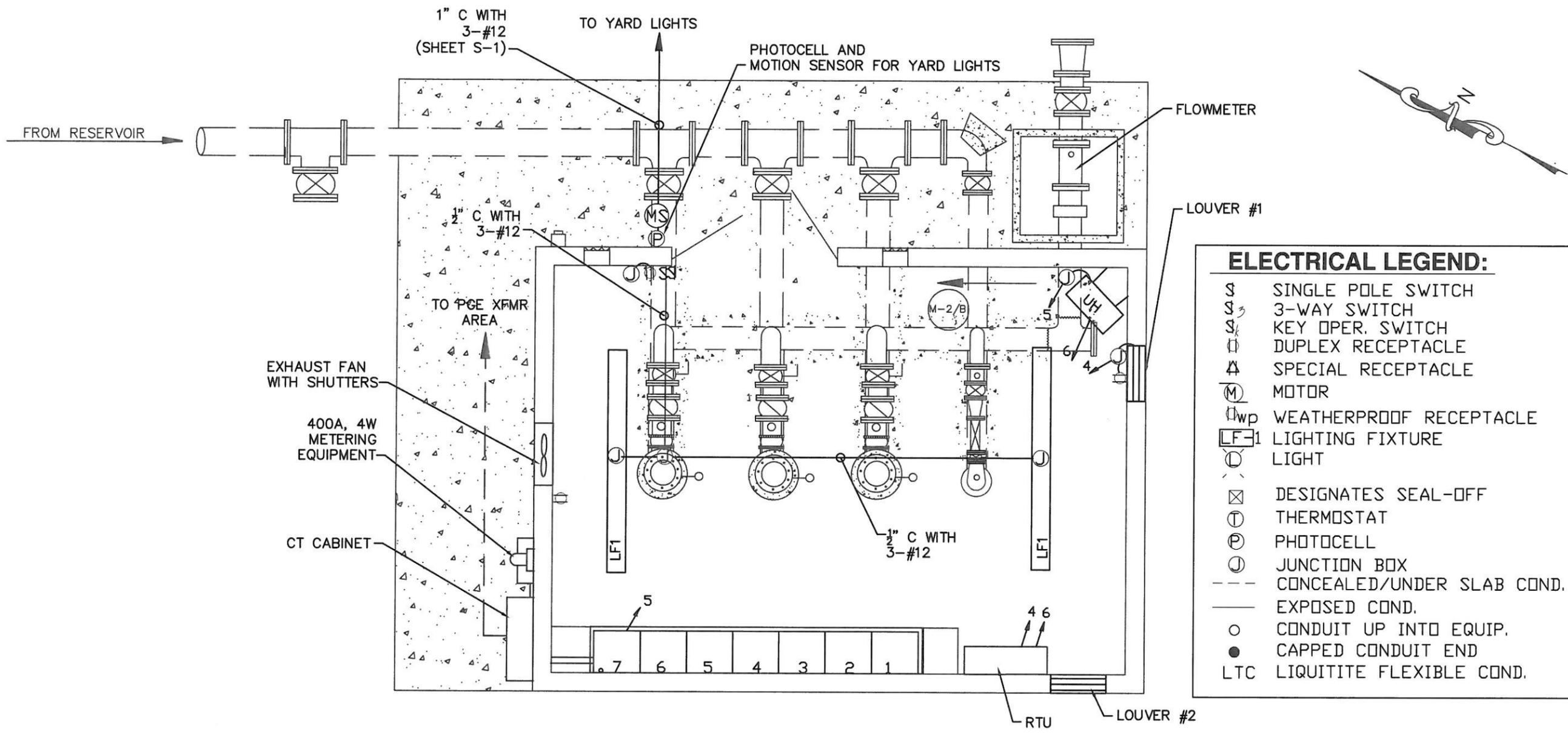
REVISIONS:

No.	Date	By

SHEET: E-1



EXPIRES: 12-31-15



ELECTRICAL LEGEND:

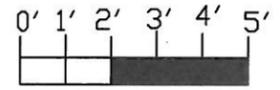
- S SINGLE POLE SWITCH
- S₃ 3-WAY SWITCH
- S_K KEY OPER. SWITCH
- DUPLEX RECEPTACLE
- △ SPECIAL RECEPTACLE
- M MOTOR
- _{WP} WEATHERPROOF RECEPTACLE
- LF LIGHTING FIXTURE
- LIGHT
- ⊗ DESIGNATES SEAL-OFF
- ⊕ THERMOSTAT
- ⊙ PHOTOCELL
- ⊚ JUNCTION BOX
- - - CONCEALED/UNDER SLAB COND.
- EXPOSED COND.
- CONDUIT UP INTO EQUIP.
- CAPPED CONDUIT END
- LTC LIQUITITE FLEXIBLE COND.

LF1: LITHONIA UND-2-96HO
TWO 110W, T12 FIXTURES
8' LINEAR FLUORESCENT

UH: 7.5KW, 3φ, 480 VAC RESISTANCE HEATER

NOTE: REFER TO SHEET E-3
FOR CONDUIT DESCRIPTIONS

LIGHTING DETAILS
SCALE: 1" = 4'-0"



EXPIRES: 12-31-15

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(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
LIGHTING PLAN

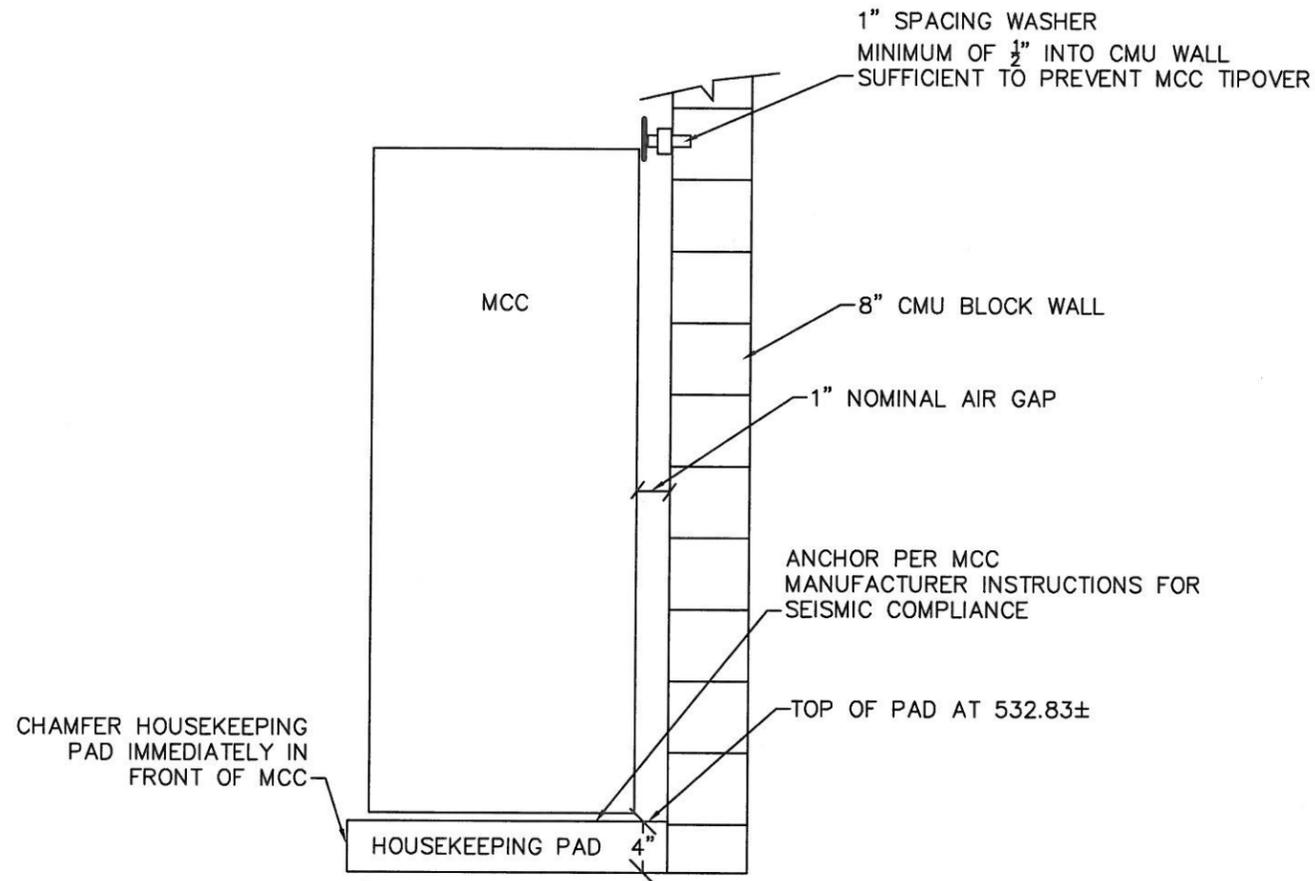
PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: JANUARY 25, 2012
DRAWING:
SCALE: AS SHOWN

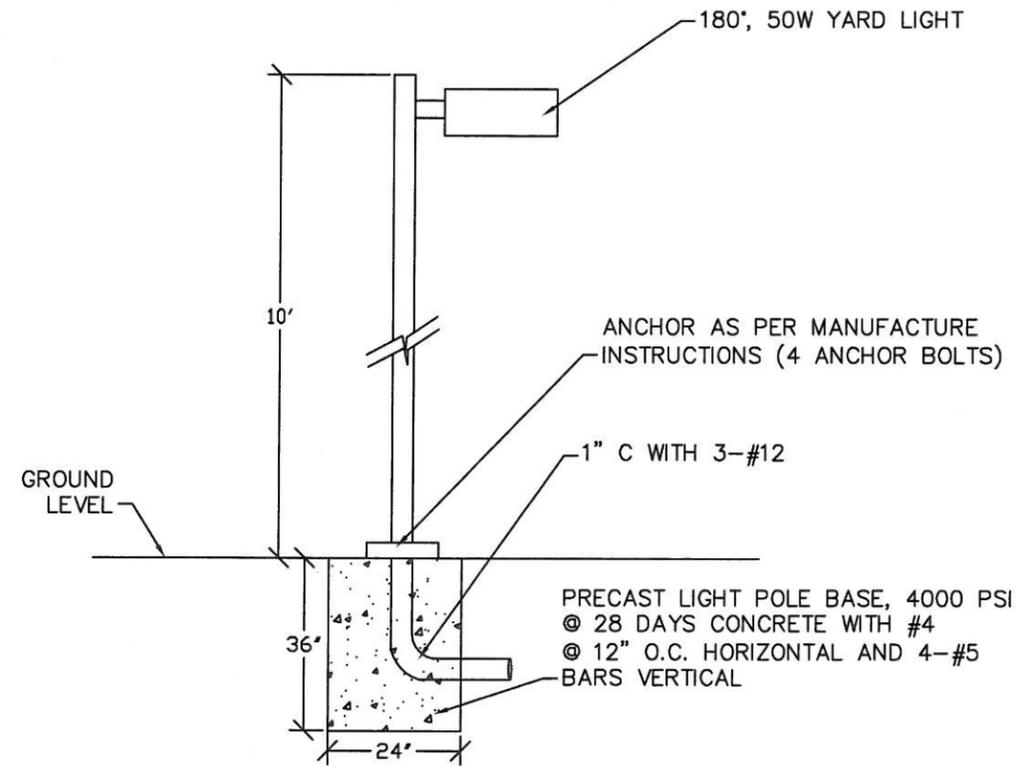
REVISIONS:

No.	Date	By

SHEET: E-2



PUMP STATION ELECTRICAL ELEVATIONS
SCALE: N.T.S. E-3/A



YARD LIGHT DETAIL
SCALE: N.T.S. E-3/B

RACEWAY NUMBER	ORIGIN	DESTINATION	CONDUIT SIZE	NO. & SIZE OF CONDUCTORS	LOAD DESCRIPTION
1	RTU	RESERVOIR	3/4"	4-#12; 2 PAIR CAT6	RESERVOIR OVERFLOW, HATCH, LEVEL
2	RTU	RESERVOIR	3/4"	SPARE	SPARE
3	RTU	FRONT DOOR INTRUSION	1/2"	1 PAIR 16 GA. T&S	INTRUSION ALARM
4	RTU	LOUVER 1	1/2"	3-#12	LOUVER POWER AND CONTROL
5	MCC SEC. 7 (CB)	JUNCTION BOX (UH)	1/2"	4-#12	HEATER POWER
6	UH	RTU	1/2"	3-#12	HEATING CONTROL
7	RTU	SMOKE ALARM	1/2"	3-#12	SMOKE ALARM
8	RTU	FIT-962 (FLOWMETER XMTR)	1/2"	1 PAIR 16 GA. T&S	DISCHARGE PRESSURE
9	MCC SEC 5 (PB)	JUNCTION BOX AT FRONT DOOR	1/2"	3-#12	LIGHTING SWITCH AND FRONT DOOR OUTLET
10	MCC SEC 5 (PB)	RTU	1/2"	5-#12	RTU POWER
11	RTU	FAN	1/2"	3-#12	FAN POWER AND CONTROL
12	MCC SEC 5 (PB)	SITE LIGHTING	1"	3-#12	SITE LIGHTING
13	GENERATOR RECPT.	MCC SECTION 7	2-1/2"	3-3/0, 1-#4 GRD, 1-#1 NEU	GENERATOR CONNECTION (200A)
14	MCC SEC 5 (PB)	OUTLETS	1/2"	3-#12	OUTLET POWER
15	RTU	PRESSURE GAUGES	1/2"	2 PAIR 16 GA. T&S	PRESSURE GAUGES
16	RTU	MCC CONTROL	3/4"	PROFIBUS	MCC CONTROL (FACTORY SUPPLIED CABLE)
17	RTU	FLOW SWITCH (LSH-982)	1/2"	2-#12	STATION FLOOD DETECTION
18	RTU	LOUVER 2	1/2"	3-#12	LOUVER POWER AND CONTROL

CONDUIT AND LOAD DESCRIPTIONS
SCALE: N.T.S. E-3/C

4B ENGINEERING & CONSULTING, LLC
3700 RIVER ROAD N, SUITE 2
KEIZER, OREGON 97303
(503) 589-1115

CITY OF WEST LINN
BLAND CIRCLE INTERTIE P.S.
ELECTRICAL DETAILS

PREPARED FOR:
CITY OF WEST LINN
22500 SALAMO ROAD
WEST LINN, OREGON 97068
(503) 657-0331

DESIGN: EDWARD P. BUTTS, P.E.
DRAWN: BROOKE SALTARELLO
DATE: JANUARY 23, 2012

DRAWING:
SCALE: AS SHOWN

REVISIONS:
No. Date By

SHEET: E-3



EXPIRES: 12-31-15

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 KEIZER, OREGON 97303
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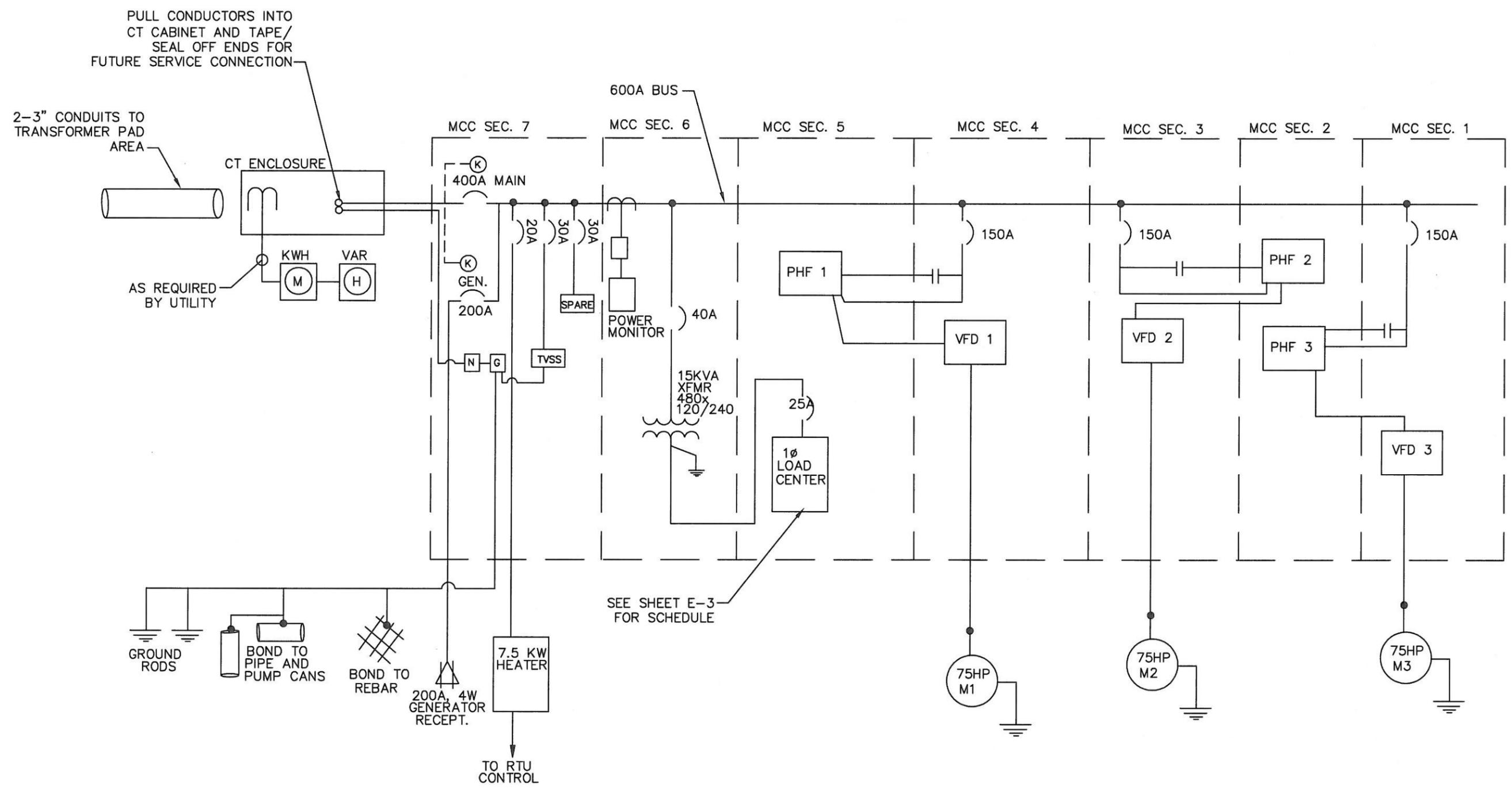
CITY OF WEST LINN
 BLAND CIRCLE INTERTIE P.S.
 ONE LINE POWER DIAGRAM

PREPARED FOR:
 CITY OF WEST LINN
 22500 SALAMO ROAD
 WEST LINN, OREGON 97068
 (503) 657-0331

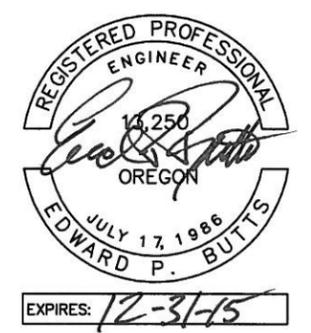
DESIGN: EDWARD E. BUTTS, P.E.
 DRAWN: BROOKE SALTARELLO
 DATE: JANUARY 25, 2012
 DRAWING:
 SCALE: AS SHOWN

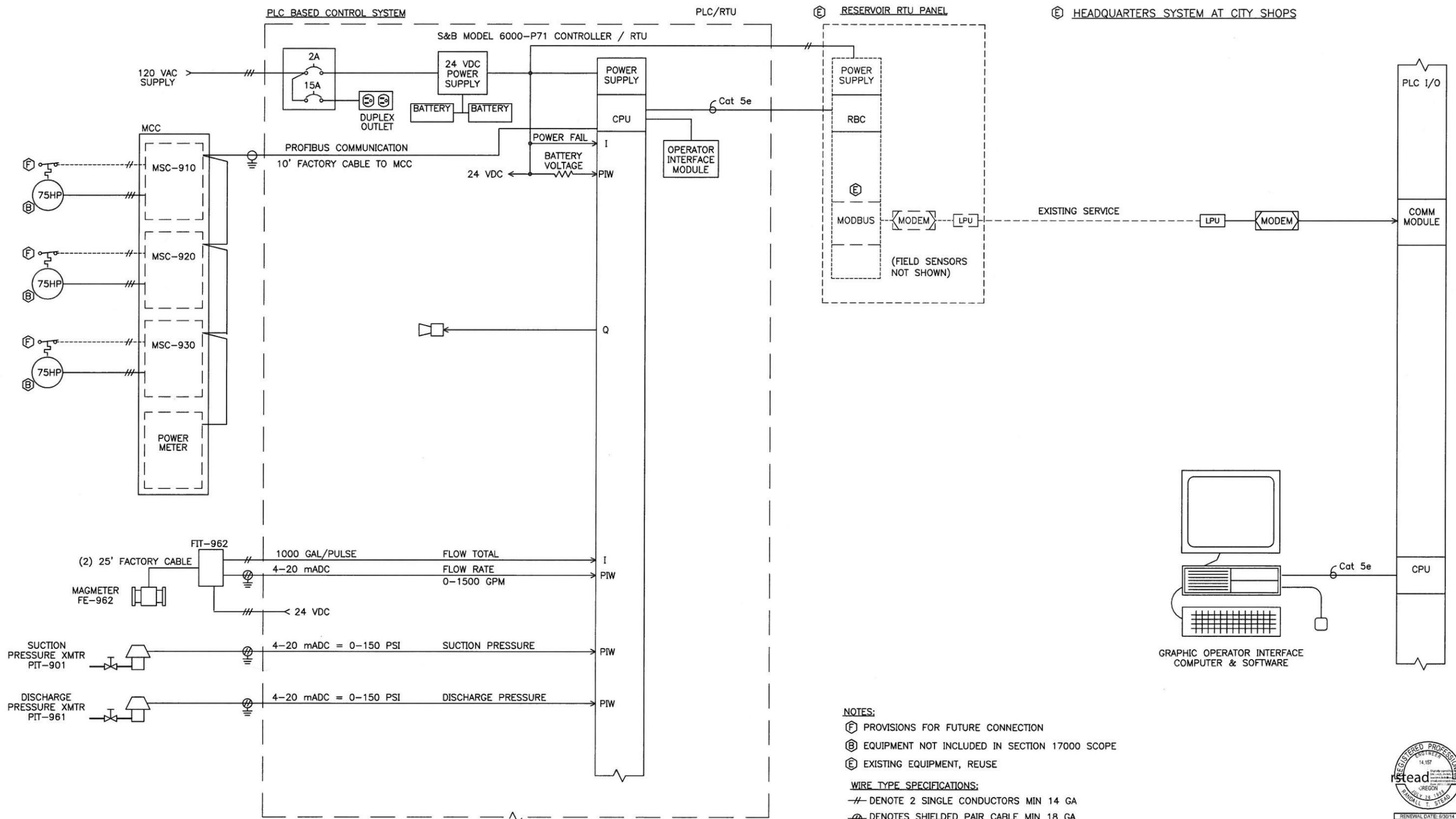
REVISIONS:		
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SHEET: E-4



ONE-LINE POWER DIAGRAM: 277/480VAC, 400A, 3 PHASE, 4W; 120/240VAC, 25A, 1 PHASE, 3W





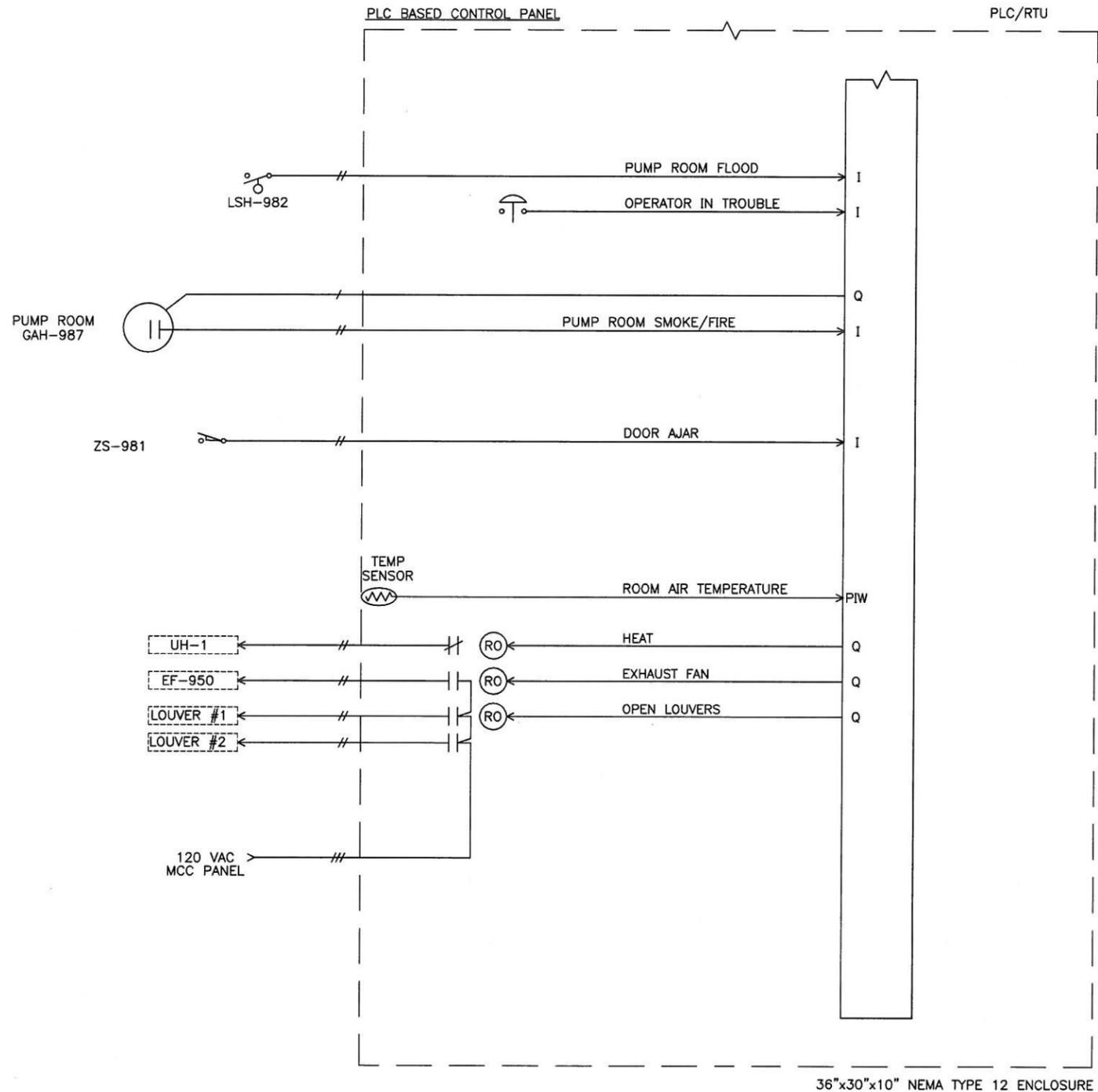
NOTES:
 (F) PROVISIONS FOR FUTURE CONNECTION
 (B) EQUIPMENT NOT INCLUDED IN SECTION 17000 SCOPE
 (E) EXISTING EQUIPMENT, REUSE

WIRE TYPE SPECIFICATIONS:
 # DENOTE 2 SINGLE CONDUCTORS MIN 14 GA
 ⊕ DENOTES SHIELDED PAIR CABLE MIN 18 GA
 ⊞ BELDON 8760 OR EQUAL



PROJECT SHEET:
 IC - 1

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	S&B System Specialists 13200 S.E. 30th St. Bellevue, Washington 98005 S&B inc. (425)844-1700 Fax: (425)746-9312		PROJECT CITY OF WEST LINN, OR BLAND CIRCLE BOOSTER STATION		
FILE: 12023-012-01	TITLE		DRAWING NUMBER		
LAST 12/08/13	BLOCK DIAGRAM		D	12023	012
MODIFIED: 1:20 PM	PUMPING SYSTEMS		SIZE	JOB NUMBER	KEY
				1 OF 7	



OPERATIONAL FEATURES:

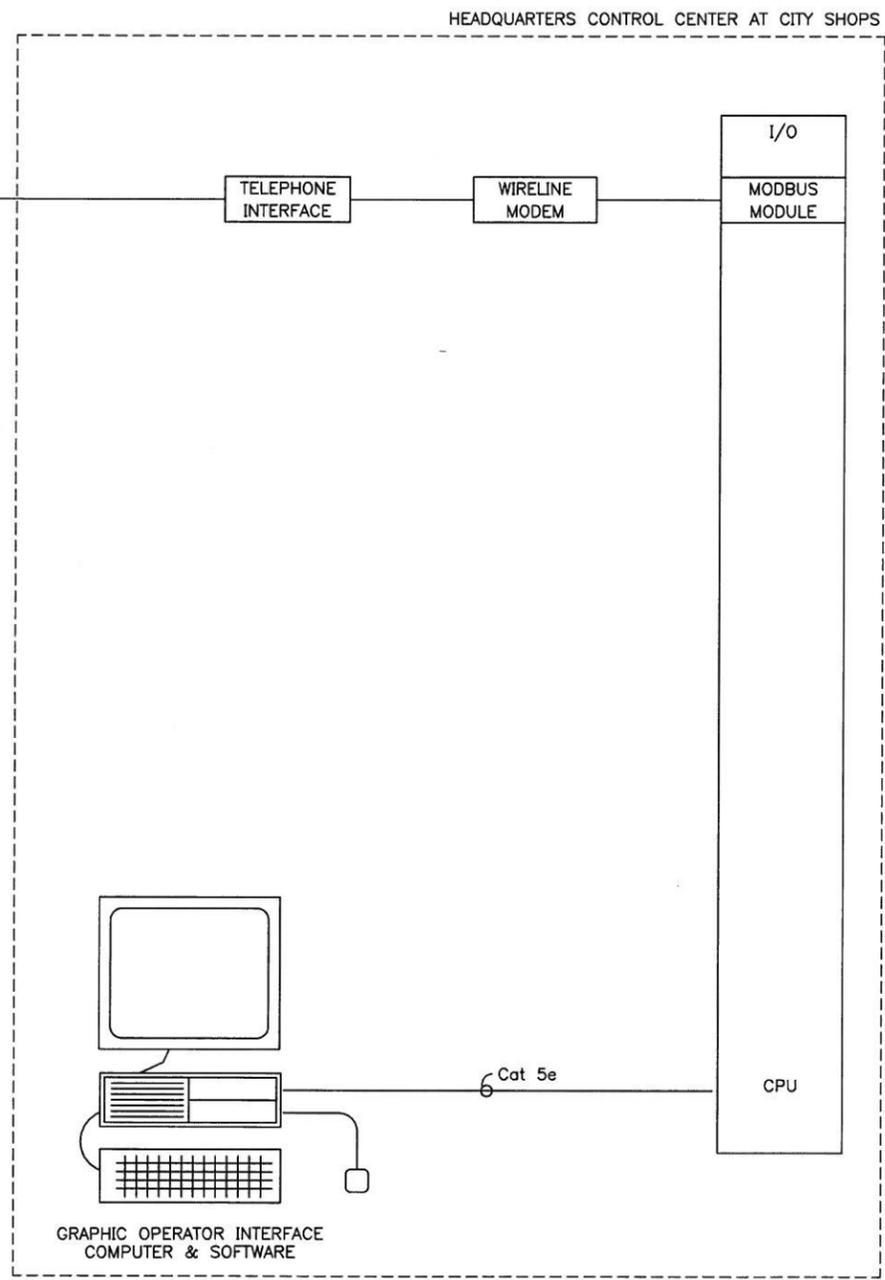
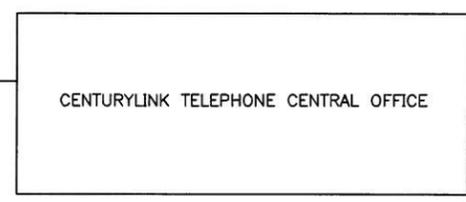
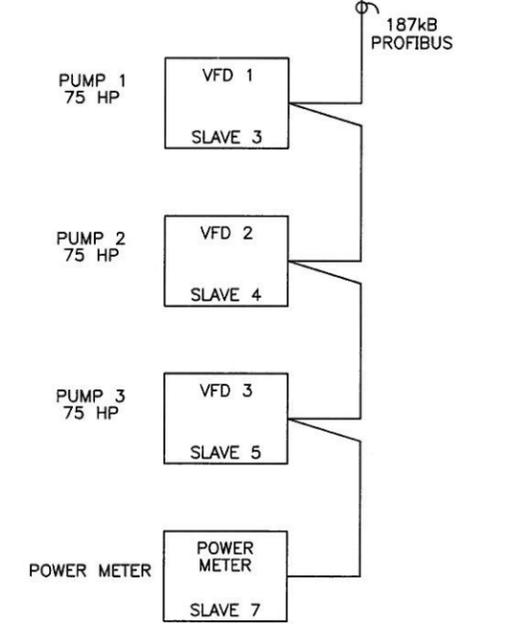
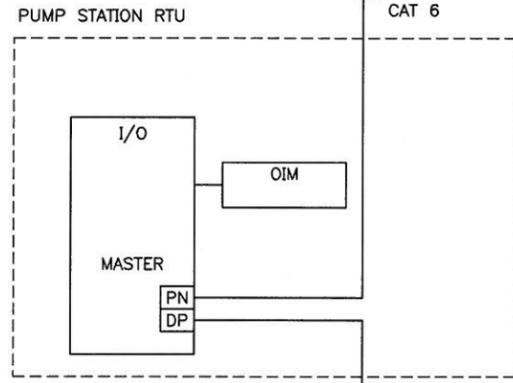
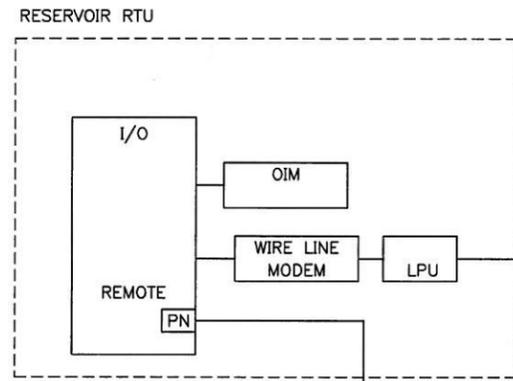
1. PUMP CONTROL AND MONITORING FEATURES: CONTROL PANEL DESIGNED FOR INTERFACE WITH NETWORK CONTROLLED VARIABLE FREQUENCY DRIVE MOTOR STARTERS, WITH MOTOR CONTROL PANEL HOA SWITCH IN AUTO POSITION, RTU CONTROL PANEL WILL COMMAND START AND STOP OF MOTOR / PUMP OPERATION. FAIL LOGIC IN PLC UNIT MONITORS TIME FROM COMMAND TO RUN REPORTBACK CONFIRMATION AND PROVIDES OPERATOR ADJUSTABLE TIME ENTRIES FOR FAIL TO START, FAIL TO STOP AND TOO MANY STARTS. SMART MOTOR CONTROLLERS WILL INCLUDE TRENDS FOR AC POWER INFORMATION FROM THE SIMOCODE MOTOR OVERLOAD DEVICE, PUMP EFFICIENCY AND TRENDRING. TRENDRING WINDOW INCLUDES 900 SAMPLES / SCREEN RESOLUTION OF AC POWER DATA (kW, VOLTS, AMPS), PUMP DATA (FLOW, DISCHARGE, SUCTION), EFFICIENCY (TDH, FLOW, HP, EFF%). ALARMS ARE DISPLAYED ON OPERATOR INTERFACE MODULE ON PANEL FACE AND TRANSMITTER TO MASTER SCADA SYSTEM.
2. SCADA CONTROL FROM MTU LOCATION, VIA EXISTING RESERVOIR RTU PANEL ADJACENT TO PUMP STATION, ALLOWS FOR OPERATOR TO SELECT LEAD PUMP STATION AND HAVE LEAD PUMP STATION ALTERNATE EACH PUMP CYCLE. PUMP STATIONS INCLUDED IN CYCLE INCLUDE HORTON, VIEW DRIVE AND BLAND CIRCLE.
3. 9" TOUCH PANEL INCLUDES SCREEN DEPICTION FOR STATION OVERVIEW, PUMP OPERATION, ALARM/EVENT, TRENDRING WINDOW INCLUDES VALUES RECORDED ON 10 SEC INCREMENTS WITH ONE MONTH OF DATA STORED ONBOARD SD MEMORY CARD. RTU STATUS (VOLTS DC, TEMPERATURE) MONITORED AND TRENDRING. FILTER CONTROL OVERVIEW, BACKWASH SUPERVISORY COMMAND AND ALARM STATUS FROM TREATMENT PANEL ARE SHOWN ON WELL ROOM TOUCH PANEL.
4. PRESSURES, FLOWS, AND DESTINATION RESERVOIR LEVEL ARE DISPLAYED AND TRENDRING. HIGH AND LOW SETTINGS FOR LEVEL PROVIDE ALARM NOTIFICATION, HIGH-HIGH ALARM ON FLOW DISCHARGE OR LOW-LOW SUCTION INITIATES PUMP SHUTDOWN SEQUENCE. SMOKE AND STATION FLOOD STOP AUTOMATIC CONTROL OF PUMPS AND REQUIRE RESET PRIOR TO SUBSEQUENT OPERATION.
5. FLOW TOTAL IS ACCUMULATED AND ARCHIVED DAILY AT THE MASTER SCADA UNIT.
6. LEASED PHONE LINE FROM CENTURYLINK COMMUNICATIONS FOR DEDICATED SCADA UTILIZATION. CONTRACTOR TO MOVE DEMARC LOCATION FROM EXISTING RESERVOIR RTU TO NEW PUMP STATION. PROVIDE CONDUIT SIZE REQUIRED BY CENTURYLINK, (2" PVC MINIMUM WITH PULL STRING.)
7. RTU BASED ON SIEMENS ET200S FORM FACTOR PLC AND I/O EQUIPMENT. SPACE PROVIDED IN RACK FOR 20% EXPANSION.
8. FIELD SENSORS ARE INCLUDED IN THE SCOPE OF WORK UNLESS LABELED WITH A 'B' FOR "EQUIPMENT NOT INCLUDED IN SECTION 17000 SCOPE". EQUIPMENT MARKED FUTURE IS NOT INCLUDED IN SCOPE OF DELIVERY OR PRICING.
9. PUMPS START AND STOP BASED ON RESERVOIR LEVEL AND SPEED CONTROLLED TO MAINTAIN SUCTION AND DISCHARGE PRESSURES WITHIN OPERATOR SELECTED BANDWIDTH. CONTROL REVERTS TO PRESSURE CONTROL AT TIME OF LOSS OF COMMUNICATION WITH MASTER SCADA SYSTEM.
10. RTU SENSED AIR TEMPERATURE USED FOR OCCUPIED / UNOCCUPIED CONTROL OF HEATING UNITS. TEMPERATURE SETPOINTS FOR OCCUPIED / UNOCCUPIED ARE PROVIDED FOR OPERATOR ENTRY VIA TOUCH PANEL. UNOCCUPIED TEMPERATURE SETPOINT ADJUSTED FOR FREEZE PROTECTION, INITIALLY SET FOR 40degF. OCCUPIED TIME PERIOD DEFINED BY INTRUSION SYSTEM IN DISARMED STATUS. RTU LOGIC ALLOWS FOR OPERATOR TO REQUEST OCCUPIED TEMPERATURE SETPOINT FROM MASTER TELEMETRY UNIT TO BRING STATION UP TO TEMPERATURE PRIOR TO THE OPERATOR ARRIVING. RTU RETURNS TO UNOCCUPIED TEMPERATURE SETPOINT ONE HOUR AFTER RECEIVING COMMAND OR FOLLOWING TRANSITION COMMAND FROM INTRUSION STATUS. RTU PROVIDES HIGH AND LOW ROOM TEMPERATURE ALARMS TO MTU FOR OPERATOR RESPONSE.
11. STATION LOUVERS OPEN UPON RISING TEMPERATURE WHEN PUMP IS RUNNING. LOUVERS ALSO OPEN WHEN INTERIOR TEMPERATURE RISES ABOVE SETTING AND CLOSE WHEN TEMPERATURE BELOW CLOSE SETPOINT.
12. STATION EXHAUST FAN STARTS ON RISING TEMPERATURE AND STOPS ON LOW TEMPERATURE OR AFTER MINIMUM RUNTIME AFTER PUMP STOPS AND TEMPERATURE BELOW START SETPOINT. LOUVERS ARE OPEN WHEN EXHAUST FAN IS IN OPERATION. EXHAUST FAN CONTACTOR IN RTU IS RATED FOR 1/2HP LOAD.



RENEWAL DATE: 8/30/14

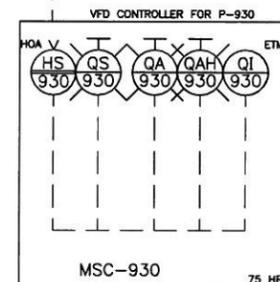
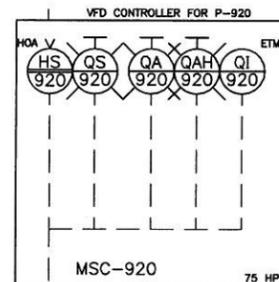
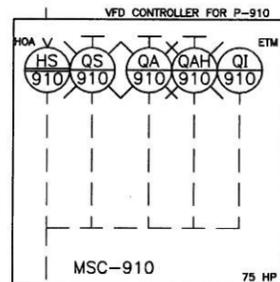
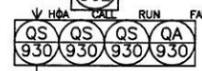
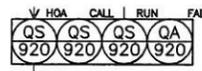
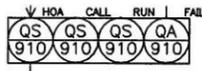
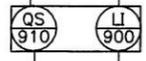
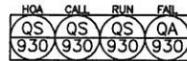
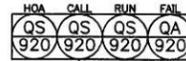
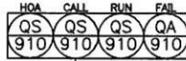
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	S&B System Specialists 13200 S.E. 30th St. Bellevue, Washington 98005 S&B inc. (425)644-1700 Fax: (425)746-9312		PROJECT CITY OF WEST LINN, OR BLAND CIRCLE BOOSTER STATION		
FILE: 12023-012-02	TITLE		DRAWING NUMBER		
LAST 12/08/13	BLOCK DIAGRAM		D	12023	012
MODIFIED: 1:20 PM	ANCILLARY SYSTEMS		SIZE	JOB NUMBER	KEY
			2	7	
			SHEET	REV	



PROJECT SHEET:
IC - 3

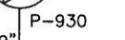
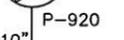
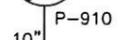
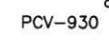
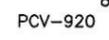
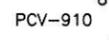
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	DRWN	RTS	1-24-13	ASMB	ENGR	SCALE NONE
	S&B System Specialists 13200 S.E. 30th St. Bellevue, Washington 98005 (425)644-1700 Fax: (425)746-9312			PROJECT CITY OF WEST LINN, OR BLAND CIRCLE BOOSTER STATION		
	TITLE NETWORK DIAGRAM LOCAL AND WIDE AREA CONNECTIONS			DRAWING NUMBER D 12023 012 3 OF 7		
SIZE	JOB NUMBER	KEY	SHEET	REV		



STAGE CONTROLLER



ROSEMONT 860' ZONE



BLAND CIRCLE 585' ZONE

- ASH ALARM SWITCH HIGH
- ASHH ALARM SWITCH HIGH HIGH
- HS HAND SWITCH
- LAHH LEVEL ALARM HIGH HIGH
- LCR LEVEL CONTROL RECORDER
- LIC LEVEL INDICATOR CONTROLLER
- LIR LEVEL INDICATOR RECORDER
- LSHH LEVEL SWITCH HIGH HIGH
- LT LEVEL TRANSMITTER
- MSC MOTOR STARTER CONTROL
- PAL PRESSURE ALARM LOW
- PAH PRESSURE ALARM HIGH
- PI PRESSURE INDICATION
- QA QUANTITY AMP
- QAH QUANTITY ALARM
- QI QUANTITY INDICATOR
- QS QUANTITY STATUS
- SV SOLENOID SWITCH
- TSH TEMPERATURE SWITCH HIGH
- ZS POSITION SWITCH



IN COMPUTER



AUXILIARY PANEL



LIGHT



FRONT OF PANEL

SCADA

RTU

MCC

FIELD

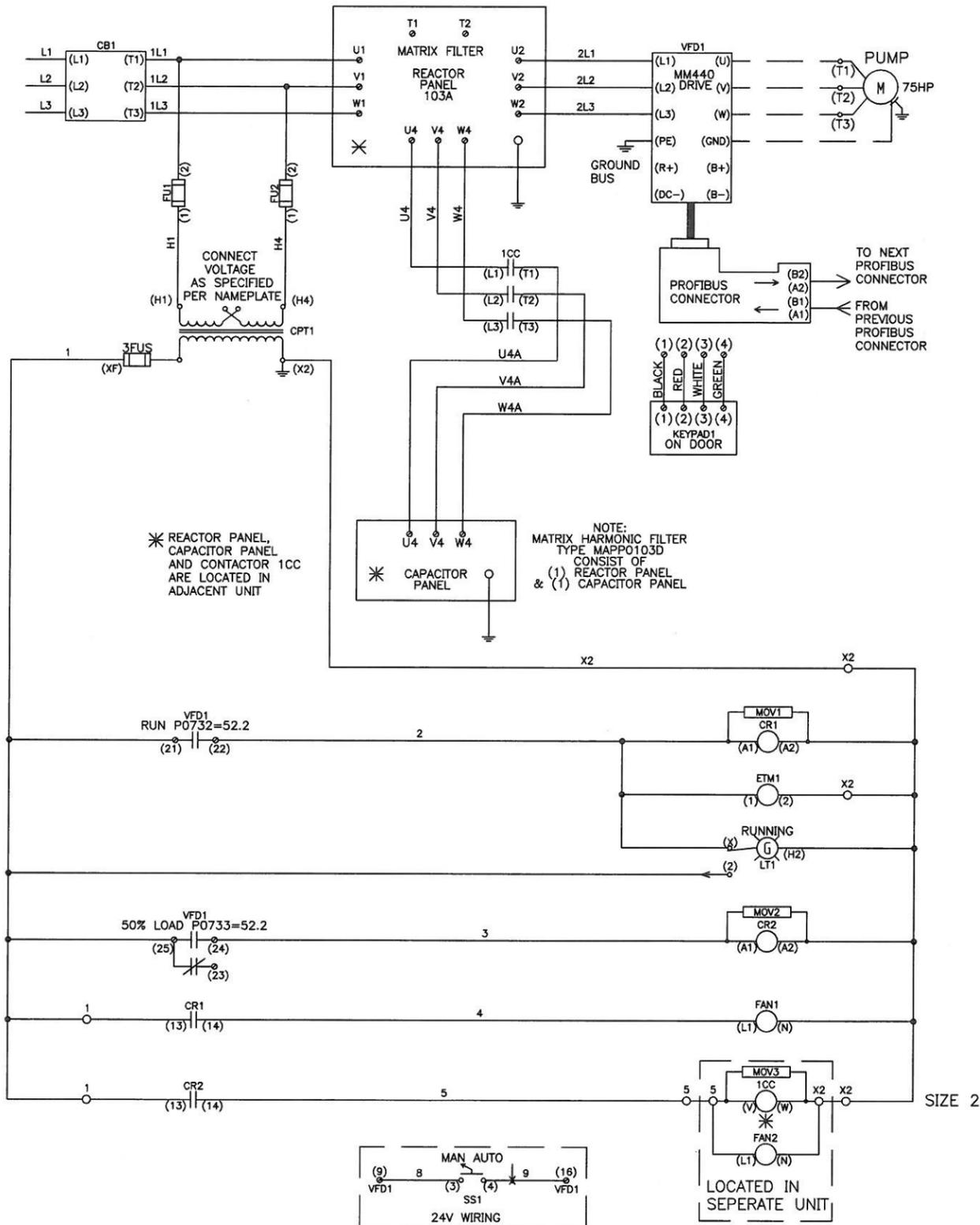
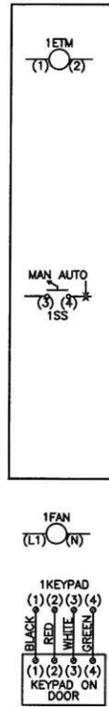


PROJECT SHEET:
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	ENGR	RTS	11-14-13	SCALE	NONE
S&B System Specialists 13200 S.E. 30th St. Bellevue, Washington 98005 S&B inc. (425)644-1700 Fax: (425)746-9312		PROJECT CITY OF WEST LINN, OR BLAND CIRCLE BOOSTER STATION			
TITLE					
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SIZE	JOB NUMBER	KEY	SHEET	REV	

ELEMENTARY DIAGRAM - VFD PUMP UNIT

DOOR MOUNTED DEVICES



PROJECT SHEET: IC - 7

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LAST	11/14/13		D 12023 012 7 of 7		
MODIFIED:	2:43 PM		TITLE WIRING DIAGRAM MOTOR CONTROL LOGIC		
SIZE	JOB NUMBER	KEY	SHEET	REV	