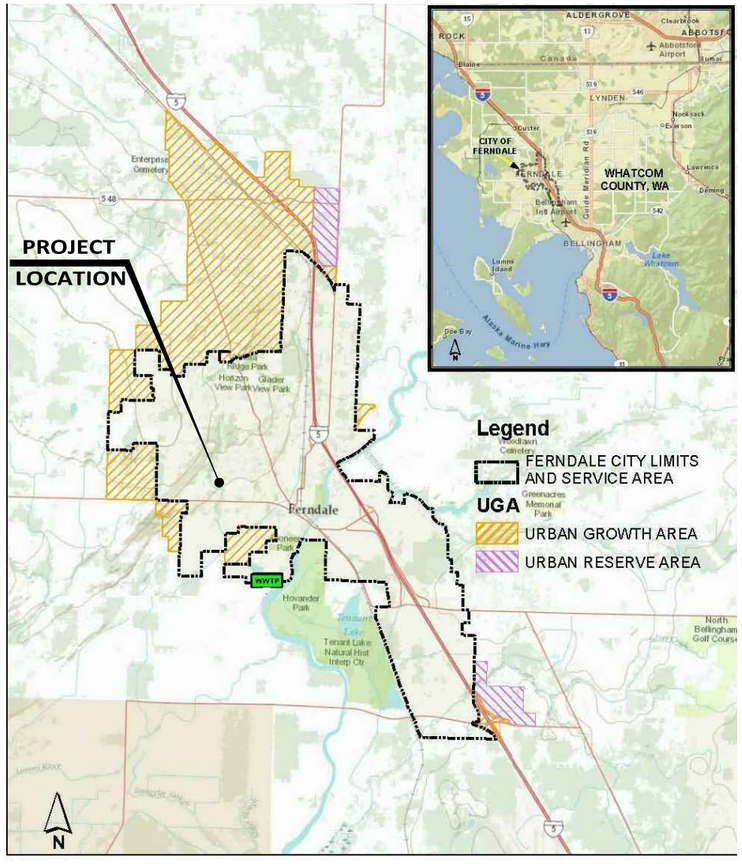
NO.	REVISIONS	BY	DATE

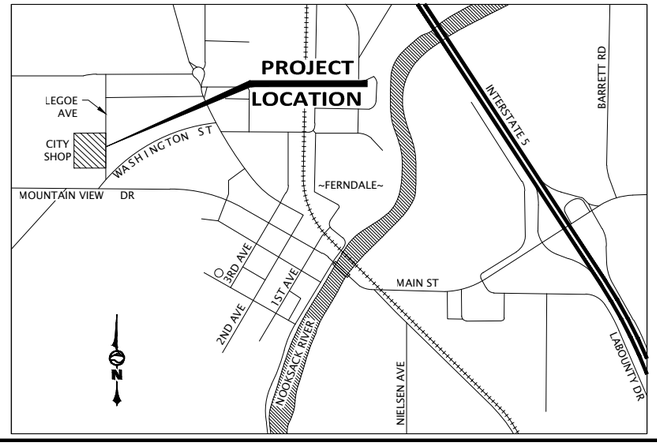
CITY OF FERNDALE, WA

SHOP WELL #2 – WELLHOUSE PROJECT

VICINITY MAP - NOT TO SCALE



LOCATION MAP - NOT TO SCALE



GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF FERNDALE STANDARDS AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA).
2. ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF FERNDALE SHALL BE OBTAINED PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-332-2344 A MINIMUM OF 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION.
4. ALL NEW PLASTIC PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 8" TO 12" UNDER THE PROPOSED FINISHED SURFACE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE OR BACKING MARKED WATER WHICH CAN BE DETECTED BY A STANDARD METAL DETECTOR.
5. EROSION CONTROL MEASURES SHALL BE TAKEN BY THE CONTRACTOR DURING CONSTRUCTION TO PREVENT SILTATION TO EXISTING STORM DRAINAGE FACILITIES AND ROADWAYS.
6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE A COPY OF THESE APPROVED PLANS ON CONSTRUCTION SITE AT ALL TIMES.
7. ANY CHANGES TO THE DESIGN SHALL FIRST BE REVIEWED AND APPROVED BY THE PROJECT ENGINEER.
8. PRIOR TO BACKFILL ALL MAINS AND APPURTENANCES SHALL BE INSPECTED AND APPROVED BY THE CITY OF FERNDALE CONSTRUCTION INSPECTOR. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FROM CORRECTION OF ANY DEFICIENCIES AND/OR FAILURES AS DETERMINED BY SUBSEQUENT TESTING AND INSPECTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE INSPECTOR FOR THE REQUIRED INSPECTIONS.
9. ALL WORK AND MATERIALS SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER FINAL ACCEPTANCE.
10. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND NOT ALL ARE SHOWN. THE CONTRACTOR IS RESPONSIBLE TO VERIFY AND PROTECT ALL UTILITIES.
11. ALL RESTORATION AND LANDSCAPING WITHIN PUBLIC OR PRIVATE PROPERTY SHALL OCCUR WITHIN THREE WEEKS OF DISTURBANCE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL LAWNS, LANDSCAPING, FENCES, GRAVEL, ASPHALT AND CONCRETE.
12. THE CONTRACTOR SHALL KEEP A RECORD OF AS-BUILT INFORMATION THROUGHOUT THE ENTIRE PROJECT. THIS INFORMATION SHALL INCLUDE ALL DEVIATIONS FROM THE PLANS AND ANY OTHER INFORMATION NOT SHOWN ON THE PLANS AND THE LOCATION OF ALL SIDE SEWER CONNECTIONS TO THE MAIN LINE.
13. THE CONTRACTOR SHALL REPLACE ALL MONUMENTS, RIGHT-OF-WAY MARKERS, PROPERTY STAKES, ETC. THAT ARE DISTURBED DURING CONSTRUCTION. THE CONTRACTOR SHALL USE A SURVEYOR REGISTERED IN THE STATE OF WASHINGTON TO COMPLETE ALL SURVEY WORK.

EROSION AND SEDIMENTATION CONTROL

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT POLLUTION AND EROSION IN ACCORDANCE WITH WSDOT SECTION 1.07.15. EROSION CONTROL BEST MANAGEMENT PRACTICES SHALL CONFORM TO THE CURRENT WASHINGTON DEPARTMENT OF ECOLOGY STORMWATER MANAGEMENT MANUAL.

EXISTING UTILITIES

1. CONTRACTOR IS ADVISED THAT UNDERGROUND WATER, SEWER, STORM, TELEPHONE, FIBER OPTIC, AND GAS MAY BE LOCATED IN THE VICINITY OF THIS PROJECT. NO ATTEMPT WAS MADE TO SHOW ALL UTILITIES ON THE PLAN. LOCATIONS SHOWN FOR EXISTING UTILITIES ARE APPROXIMATE. OTHER UTILITIES MAY EXIST WHICH ARE NOT SHOWN ON THE PLANS.
2. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE TRUE AND CORRECT LOCATIONS OF EXISTING UTILITIES THAT MAY IMPACT THE WORK. CONTRACTOR SHALL NOTIFY ENGINEER PRIOR TO COMMENCING CONSTRUCTION IF MARKED UTILITIES APPEAR TO CONFLICT WITH PROPOSED IMPROVEMENTS. THE COST OF LOCATING, PROTECTING AND ACCOMMODATING EXISTING UTILITIES SHALL BE INCIDENTAL TO THE COST OF THE PROJECT. IF AN ACTUAL CONFLICT REQUIRES RELOCATION OF AN EXISTING UTILITY OR THE REDESIGN OF THE PROPOSED IMPROVEMENT, THE ENGINEER WILL DETERMINE IF EXTRA PAY IS WARRANTED TO ACCOMMODATE THE CHANGED OR UNFORESEEN CONDITION. MINOR HORIZONTAL OR VERTICAL ADJUSTMENTS OF THE PROPOSED IMPROVEMENTS TO AVOID CONFLICTS SHALL NOT ENTITLE THE CONTRACTOR TO EXTRA PAY.

TRAFFIC CONTROL

1. CONTRACTOR IS NOT ALLOWED TO COMPLETELY CLOSE ANY STREET TO TRAFFIC. THE NUMBER OF OPEN LANES OF TRAFFIC TO BE MAINTAINED IN EACH AREA IS ONE LANE. TRAFFIC SHALL BE MAINTAINED ACCORDING TO WSDOT SECTION 1-07.23, AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

CONTACT INFORMATION

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INDEX TO DRAWINGS

BID SET

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING
WILSONENGINEERING.COM

1-8-2020

DESIGNED BY	DRAWN BY	CHECKED BY
KWF	JRF	AWL

CITY OF FERNDALE, WA
FERNDALE WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
COVER SHEET

DATE	SCALE	JOB NUMBER
1-08-2020	AS SHOWN	2018-141

SHEET	PAGE
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LEGEND & ABBREVIATIONS– SIZE & SCALE MAY VARY

EXISTING HATCH PATTERNS

DESCRIPTION
EXIST. CONCRETE
EXIST. BUILDING
EXIST. EARTH
EXIST. GRAVEL
EXIST. SAND

PROPOSED HATCH PATTERNS

DESCRIPTION
PROP. CONCRETE
PROP. TOP COURSE GRAVEL
PROP. GRAVEL
PROP. SAND
PROP. QUARRY SPALLS
WETLAND HATCH

SURFACE FEATURES EXISTING PLAN LINETYPES

LINETYPE	DESCRIPTION
	BRIDGE
	BUILDING LINE
	BUILDING COLUMN
	BUILDING OVERHANG
	BULKHEAD
	CONCRETE EDGE
	CREEK EDGE
	CROWN OF ROAD
	CURB
	DITCH CENTERLINE
	DECK
	DOCK
	EDGE OF SAWCUT
	EDGE OF PAVEMENT
X X	FENCE
	GATE
	GRADE
	GRAVEL
	GUARDRAIL
	JERSEY BARRIER
	LAKE/POND WATER EDGE
	LIP OF CURB
	MISC SURFACE FEATURE
	MISC TRAFFIC
	PLANTER
	PATH
	RAILROAD
	RAMP (WOOD)
	HANDRAIL
	RETAINING WALL
	ROAD STRIPING
	ROCKERY
	RIVERBANK/SHORELINE
THW THW	THALWAG LINE
	TOP OF BANK/SLOPE
	TOE OF BANK/SLOPE
	VEGETATION/SHRUB LINE
	WETLAND/SWAMP PERIMETER
	WETLAND BUFFER

SURFACE FEATURES PROPOSED PLAN LINETYPES

LINETYPE	DESCRIPTION
	BRIDGE
	BUILDING LINE
	CONCRETE
	CURB
	DITCH CENTERLINE
	EDGE OF BIKE LANE
	EDGE OF PAVEMENT
X X	FENCE
	GATE
	GRAVEL
	GUARDRAIL
	JERSEY BARRIER
	LIP OF CURB
	REBAR
	RETAINING WALL
	ROCKERY
	ROAD STRIPING
	HANDRAIL
	EDGE OF SAWCUT

UTILITIES EXISTING PLAN LINETYPES

LINETYPE	DESCRIPTION
TV TV	CABLE TELEVISION (AERIAL)
TV TV	CABLE TELEVISION (BURIED)
C	SURVEILLANCE CAMERA (BURIED
FO FO	FIBER OPTIC/COMMUNICATIONS LINE (AERIAL)
FO FO	FIBER OPTIC/COMMUNICATIONS LINE (BURIED)
OHT OHT	TELEPHONE/COMMUNICATIONS (AERIAL)
T T	TELEPHONE/COMMUNICATIONS (BURIED)
SC SC	TRAFFIC SIGNAL CONDUIT LINE
OHP OHP	POWER (AERIAL)
P P	POWER (BURIED)
UT UT	UTILITY (AERIAL)
UT UT	UTILITY (BURIED)
PDB PDB	POWER DUCT BANK (BURIED)
DF DF	DRAIN FIELD
S S	SANITARY SEWER
S S S S S	APPROXIMATE SANITARY SEWER
FM FM	SANITARY SEWER (FORCE MAIN)
FM FM FM FM FM	APPROXIMATE SANITARY SEWER (FORCE MAIN)
SD SD	STORM DRAINAGE
SD SD SD SD SD	APPROXIMATE STORM DRAINAGE
	CULVERT (@ WIDTH)
	CULVERT
RW RW	RECLAIMED WATER
IRR IRR	IRRIGATION
W W	WATER
W W W W W	APPROXIMATE WATER
8W 8W	8" WATER
OF OF OF	OVERFLOW
STE STE	STEAM
G G	GAS
	GAS TANK/STRUCTURE
O O	OIL
AIR AIR	AIR LINE
	BURIED UTILITY APPROX. EXTENTS
	MISC UTILITY (BURIED)

PROPOSED PLAN UTILITY LINETYPES

WATER	DESCRIPTION
W W	WATER
8W 8W	8" WATER
IRR IRR	IRRIGATION
RW RW RW RW	RECLAIMED WATER
PW PW PW PW	POTABLE WATER
W W W W W	WATER SERVICE
	WATER STRUCTURE
FDC FDC	FIRE DEPARTMENT CONNECTION
FP FP	FIRE PROTECTION LINE

SANITARY SEWER	
S S	SEWER
8S 8S	8" SEWER
FM FM	FORCE MAIN
DF DF	DRAIN FIELD
S S S S	SEWER SERVICE
	SEWER STRUCTURE

STORM DRAIN	
D D	STORM DRAIN
SD SD	STORM DRAIN
	STORM DRAIN
D D D D D	STORM SERVICE
FD FD FD FD FD	FOOTING DRAIN
	STORM STRUCTURE

MISC. UTILITIES	
G G	GAS
P P	POWER
T T	TELEPHONE/COMMUNICATIONS

EROSION CONTROL

LINETYPE	DESCRIPTION
TSD TSD	EROSION TRIANGULAR SILT DIKE
CB CB	EROSION CONTROL COMPOST BERM
	EROSION CONTROL MINOR CONTOUR
100	EROSION CONTROL MAJOR CONTOUR
OB OB	ORANGE BARRIER FENCE
SF SF	SILT FENCE
SW SW	STRAW WATTLE
> >	EROSION CONTROL FLOWLINE
SB	STRAW BALE
IP	INLET PROTECTION
CD	CHECK DAM

Call 811 two business days before you dig

BID SET

SURVEY PLAN LINETYPES

LINETYPE	DESCRIPTION
	CENTERLINE (EXISTING)
	CENTERLINE (CONSTRUCTION)
	CENTERLINE (PROPOSED)
	CONTOUR (EXISTING MINOR)
100	CONTOUR (EXISTING INDEX)
100	HYDRO CONTOUR (EXISTING INDEX)
	CONTOUR (PROPOSED INDEX)
	CONTOUR (PROPOSED MINOR)
	DONATION LAND CLAIM (EXIST.)
	EASEMENT (PROPOSED)
	EASEMENT (EXISTING)
	MEANDER LINE
OHW OHW	ORDINARY HIGH WATER LINE
MLW MLW	MEAN LOW LEVEL WATER LINE
	OWNERSHIP LINE
	PROPERTY LINE (RECORD OR ADJACENT)
	PROPERTY LINE
	QUARTER SECTION LINE
	RANGE/TOWNSHIP LINE
	RESERVATION/PARK/FOREST (EX)
(RIGHT OF WAY & CONSTRUCTION PLANS)	RIGHT–OF–WAY ℄ (EXISTING)
(RIGHT OF WAY & CONSTRUCTION PLANS)	RIGHT–OF–WAY (EXISTING)
(RIGHT OF WAY PLANS)	RIGHT–OF–WAY (EXISTING USED)
(RIGHT OF WAY PLANS)	RIGHT–OF–WAY (PROPOSED)
(RIGHT OF WAY PLANS)	RIGHT–OF–WAY (EX. RECORD) (RECORD OR ADJACENT)
	RIGHT–OF–WAY (LIMITED ACCESS)
	RIGHT–OF–WAY (LIMITED ACCESS)
	SECTION LINE
	SETBACK LINE (EXISTING)
	SIXTEENTH SECTION LINE
	STATE/COUNTY/CORPORATE LIMIT
	VACATED RIGHT–OF–WAY
	EASEMENT (RECORD)
	RIGHT–OF–WAY CENTER (RECORD)
	DONATION LAND CLAIM (RECORD)
	MEANDER LINE (RECORD)
	PARK LINE (RECORD)
	SECTION LINE (RECORD)
	QUARTER SECTION LINE (RECORD)
	SIXTEENTH SECTION LINE (RECORD)
	STATE LINE (RECORD)
	RANGE LINE (RECORD)

PROFILE LINETYPES

DESCRIPTION
PROFILE EX. GRND ℄
PROFILE FINISH GRND ℄
PROFILE GRID
PROFILE VERTICAL GRID
PROFILE EX. GROUND LEFT
PROFILE EXISTING GROUND RIGHT
FIBER OPTIC PROFILE (EXISTING)
GAS PROFILE (EXISTING)
POWER PROFILE (EXISTING)
RAILROAD PROFILE (EXISTING)
SANITARY PROFILE (EXISTING)
SANITARY PROFILE (PROPOSED)
STORM PROFILE (EXISTING)
TELEPHONE PROFILE (EXISTING)
STORM PROFILE (PROPOSED)
TV PROFILE (EXISTING)
UTILITY PROFILE (EXISTING)
WATER PROFILE (EXISTING)
WATER PROFILE (PROPOSED)

DEMOLITION

LINETYPE	DESCRIPTION
	SURFACE FEATURE OR UTILITY TO BE REMOVED
	SAWCUT
CLR CLR	CLEARING LIMIT
	TREE OR BUSH TO BE REMOVED

GRADING

LINETYPE	DESCRIPTION
GB GB GB	GRADE BREAK
CAT CAT CAT	CATCHLINE
Cut Cut	CUT LINE
Fill Fill	FILL LINE
or	SLOPE ARROWS

SECTION/DETAIL CALL–OUTS

B(A) CX.XC(B) — **SECTION CALL–OUTS**: (A) REPRESENTS THE SECTION LABEL, (B) INDICATES THE SHEET ON WHICH THE SECTION APPEARS.

1(A) CX.XC(B) — **DETAIL CALL–OUTS**: (A) REPRESENTS THE DETAIL LABEL, (B) INDICATES THE SHEET ON WHICH THE DETAIL APPEARS.

B(A) CX.XC(B) — **SECTION SHEET LABELS**: (A) REPRESENTS THE SECTION LABEL, (B) INDICATES THE SHEET ON WHICH THE SECTION IS CALLED OUT.

1(A) CX.XC(B) CX.XC(B) — **DETAIL SHEET LABELS**: (A) REPRESENTS THE DETAIL LABEL, (B) INDICATES THE SHEET(S) ON WHICH THE DETAIL IS CALLED OUT.

MISC. SYMBOLS

DESCRIPTION
SOIL BORING
MONITORING WELL
TEST WELL
TEST PIT
EMBANKMENT
MAIL BOX
SIGN
RIP RAP
BOULDER
SHRUB
TREE (Conifer)*
TREE (Deciduous)*
STUMP–PLAN VIEW
YARD LIGHT
WELL
PILE
ROCKERY
WHEEL STOP
SPLASH BLOCK
GAS METER
GAS VALVE
PAD MOUNTED TRANSFORMER
POWER VAULT
TRANSMISSION TOWER
POWER METER
GUY POLE
UTILITY POLE
UTILITY POLE ANCHOR
TELE RISER
CABLE RISER
FIBER OPTIC RISER
FIBER OPTIC MANHOLE
TELEPHONE MANHOLE
TELEPHONE VAULT
STEAM MANHOLE
PARKING METER
POST
PUMP

SANITARY SEWER SYMBOLS

DESCRIPTION
SAN. SEWER CLEAN OUT
SAN. SEWER MANHOLE

STORM DRAIN SYMBOLS

DESCRIPTION
STORM DRAIN CB TYPE 1
STORM DRAIN CB TYPE 2
STORM DRAIN CB TYPE 2 W/CB LID
STORM DRAIN WITH OVERFLOW GRATE
STORM DRAIN CLEAN–OUT
STORM DOWNSPOUTS

PIPE CALL–OUT

(A) (B) 36–SS XXXLF (C)

PIPE CALL–OUTS: (A) REPRESENTS THE PIPE SIZE IN INCHES, (B) INDICATES THE UTILITY TYPE (C) REPRESENTS THE PIPE LENGTH IN LINEAL FEET

SYMBOLS

°	=DEGREES
±	=PLUS/MINUS
⌀	=DIAMETER
Δ	=DELTA
℄	=CENTERLINE
FL	=FLOWLINE
PL	=PROPERTY LINE

SPOT ELEVATIONS

190.00① TBC②

① = ELEVATION
② = DESCRIPTION– SEE DEFINED ABBREVIATIONS ABOVE

WATER SYMBOLS

DESCRIPTION
ARV VALVE
GLOBE VALVE, FL
BALL CHECK VALVE, FL
BLOW–OFF VALVE
SWING CHECK VALVE, FL
BUTTERFLY VALVE, FL
HOSE BIB/SPIGOT
DOUBLE LEAF CHECK VALVE
PLUG VALVE
BALL VALVE
FLOAT VALVE
PINCH VALVE
PRESSURE & VACUUM RELIEF VALVE
VACUUM RELIEF VALVE
PRESSURE RELIEF VALVE
PRESSURE REGULATING VALVE (SELF CONTAINED)
BACK PRESSURE REGULATING VALVE (SELF CONTAINED)
IN–LINE SPRING LOADED RELIEF VALVE
CAP/PLUG
GUARD POST
THRUST BLOCK
WATER METER
FIRE DEPARTMENT CONNECTION
WATER VALVE
FIRE HYDRANT
WATER MANHOLE
POST INDICATOR VALVE
11–1/4 BEND, MJ–FL
22–1/2 BEND, MJ–FL
45 BEND, MJ–FL
90 BEND, MJ–FL
FLXMJ ADAPTER
COUPLER
BLIND FLANGE
GATE VALVE, FLxMJ
GATE VALVE, MJ
REDUCER, MJxFL
REDUCER, MJ
TEE, FL
TEE, MJ
TEE, MJxFL
TEE, FLxMJ
CROSS, FL
CROSS, MJ

SURVEY SYMBOLS

DESCRIPTION
BRASS SURFACE MONUMENT
CONCRETE MONUMENT
FOUND REBAR
SET REBAR
MONUMENT IN CASE
TRAVERSE POINT

DIRECTIONAL ABBREVIATIONS

N	=NORTH
NE	=NORTHEAST
E	=EAST
SE	=SOUTHEAST
S	=SOUTH
SW	=SOUTHWEST
W	=WEST
NW	=NORTHWEST

ABBREVIATIONS

AB	=AS–BUILT (RECORD)
AC	=ASBESTOS CEMENT
AL	=ALIGNMENT
APPROX	=APPROXIMATE
ASPH or AC	=ASPHALT
ASS'Y	=ASSEMBLY
ASTM	=AMERICAN SOCIETY FOR TESTING & MATERIALS
BLDG	=BUILDING
BMP	=BEST MANAGEMENT PRACTICE
BVCS	=BEGIN VERTICAL CURVE STATION
BVCE	=BEGIN VERTICAL CURVE ELEVATION
CB	=CATCH BASIN
CK	=CHECK VALVE
C/L, ℄	=CENTERLINE
CESCL	=CERTIFIED EROSION SEDIMENT CONTROL LEAD
COL	=COLUMN
CMP	=CORRUGATED METAL PIPE
C.O. or CO	=CLEAN OUT
CONC, C	=CONCRETE
COR	=CORNER
CPP	=CORRUGATED POLYETHYLENE PIPE
CSBC	=CRUSHED SURFACING BASE COURSE
CSTC	=CRUSHED SURFACING TOP COURSE
DCVA	=DOUBLE CHECK VALVE ASSEMBLY
DI	=DUCTILE IRON
DIAM	=DIAMETER
DO	=DISSOLVED OXYGEN
DR	=DIAMETER RATIO
DS	=DOWNSPOUT
EB	=EXPLORATION BORING
EFFL	=EFFLUENT
EG	=EXISTING GRADE
ELEV, EL	=ELEVATION
EOG	=EDGE OF GRAVEL
EOP	=EDGE OF PAVEMENT
EP	=EXPLORATION PIT
EXIST, EX	=EXISTING
EVCS	=END VERTICAL CURVE STATION
EVCE	=END VERTICAL CURVE ELEVATION
FDC	=FIRE DEPARTMENT CONNECTION
FF	=FINISH FLOOR
FG	=FINISH GRADE
FL	=FLOWLINE OR FLANGE (CONNECTION)
℄	=FLOWLINE
FLC	=FLOWLINE OF CURB
FM	=FORCEMAIN
FNC	=FENCE
FRP	=FIBERGLASS REINFORCED PIPE
GB	=GRADE BREAK
GMET	=GAS METER
GP	=GUY POLE
GPM	=GALLONS PER MINUTE
GRVL, G	=GRAVEL
GV	=GATE VALVE
HB	=HOSE BIB
HDG	=HOT–DIP GALVANIZED
HDPE	=HIGH DENSITY POLYETHYLENE
HSS	=HOLLOW STRUCTURAL SECTION
H:V	=HORIZONTAL:VERTICAL
HWL	=HIGH WATER LEVEL
HYD	=HYDRANT
IBC	=INTERNATIONAL BUILDING CODE
IE	=INVERT ELEVATION
INFO	=INFORMATION
INV	=INVERT
LF	=LINEAR FEET
LUM	=LUMINAIRE
LT	=LEFT
MAX	=MAXIMUM
MB	=MAIL BOX
MBR	=MEMBRANE BIO–REACTOR
MC	=MAINTENANCE CLEANING
MFEM	=MEMBRANE FILTRATION EQUIPMENT MANUFACTURER
MFR	=MANUFACTURER
MH	=MANHOLE
MIN	=MINIMUM
MISC	=MISCELLANEOUS
MJ	=MECHANICAL JOINT
MLSS	=MIXED LIQUOR SUSPENDED SOLIDS
MW	=MONITORING WELL
NPDES	=NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
O.C.	=ON CENTER
O.C.E.W	=ON CENTER EACH WAY
OD	=OUTSIDE DIAMETER
OHP	=OVERHEAD POWER
OHT	=OVERHEAD TELEPHONE
OSHA	=OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PC	=POINT OF CURVATURE
PCC	=POINT OF CONTINUING CURVATURE
PE	=POLYETHYLENE or PLAIN END
PIV	=POST INDICATOR VALVE
P/L, ℞	=PROPERTY LINE
PLC	=PROGRAMMABLE LOGIC CONTROLLER
PLTR	=PLANTER
POL	=POINT ON LINE
PROP	=PROPOSED
PS	=PUMP STATION
PSI	=POUNDS PER SQUARE INCH
PT	=POINT OF TANGENCY
PVC	=POLYVINYL CHLORIDE
PVI	=POINT OF VERTICAL INTERSECTION
PW	=POTABLE WATER
R	=RADIUS
RCK	=ROCK/BOULDER
RET	=RETAINING
REC	=RECORD
REINF	=REINFORCEMENT
REQ'D	=REQUIRED
RI	=RAPID INFILTRATION
RPBA	=REUSE PRESSURE BACKFLOW ASSEMBLY
RR	=RAILROAD
RT	=RIGHT
R/W or ROW	=RIGHT–OF–WAY
RW	=REUSE WATER
SCADA	=SUPERVISORY CONTROL AND DATA ACQUISITION
SCH	=SCHEDULE
SDCB	=STORM DRAIN CATCH BASIN
SD	=STORM DRAIN
SDMH	=STORM DRAIN MANHOLE
SFH	=SINGLE FAMILY HOUSING
SN	=SIGN
SPD	=STANDARD PROCTOR DENSITY
SPK	=SPIKE
SS	=SANITARY SEWER
SSCO	=SANITARY SEWER CLEAN–OUT
SSMH	=SANITARY SEWER MANHOLE
STA	=STATION
STEP	=SEPTIC TANK EFFLUENT PUMP
S/W	=SIDEWALK
SYMM	=SYMMETRY/SYMMETRICAL
TBC	=TOP BACK OF CURB
TBD	=TO BE DETERMINED
TBM	=TEMPORARY BENCH MARK
T.O.W.	=TOP OF WALL
TYP	=TYPICAL
UP	=UTILITY POLE
VAC	=VACATED
VC	=VERTICAL CURVE
VEG	=VEGETATION
WA	=WATER
WAS	=WASTE ACTIVATED SLUDGE
WL	=WATERLINE
WM	=WATER METER
WS	=WATER SURFACE
WSDOT	=WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WV	=WATER VALVE
WWTP	=WASTE WATER TREATMENT PLANT
YD	=YARD DRAIN
YL	=YARD LIGHT

NO.	REVISIONS	BY	DATE

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING
WILSONENGINEERING.COM

1-8-2020

DESIGNED BY KWF | DRAWN BY JRF | CHECKED BY AWL

CITY OF FERNDALE, WA
WASHINGTON FERNDALE

SHOP WELL #2 – WELLHOUSE PROJECT
LEGEND & ABBREVIATIONS

SHEET G1.2 | DATE 1-08-2020 | SCALE AS SHOWN | JOB NUMBER 2018-141 | PAGE 2 OF 35

PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_UNSCREENED.ctb
W:\2018\2018–141 FERNDALE SHOP WELL 2 BLDG – DESIGN PHASE\DWG\V2019_2018–141 G1.2 LEGEND & ABBREVIATIONS.DWG – 1/8/2020 11:32 AM – Ria Nickerson

NO.	REVISIONS	BY	DATE

CITY OF FERNDALE: SHOP WELL #2

WAC 332-130 COMPLIANCE EXHIBIT

NOTICE TO USER

EFFECTIVE JANUARY 13, 2019, ALL TOPOGRAPHIC MAPS PREPARED BY A LICENSED SURVEYOR IN THE STATE OF WASHINGTON, AND SUBJECT TO THE LICENSURE AND PRACTICE REQUIREMENTS ESTABLISHED BY THE WASHINGTON STATE BOARD OF REGISTRATION FOR ENGINEERS AND LAND SURVEYORS, MUST INCLUDE THE DESCRIPTIVE NOTES AND METADATA ENUMERATED UNDER W.A.C 332-130-145 AND ITS APPURTENANT SECTIONS OF 332-130. THIS EXHIBIT IS INTENDED TO ADDRESS THE STATUTORY REQUIREMENTS STIPULATED BY THIS W.A.C DIRECTIVE.

W.A.C. 332-130-145 REQUIRED DATA

1.E: THIS SURVEY WAS PREPARED UNDER THE DIRECT SUPERVISION OF:

J. THOMAS BREWSTER, WA PLS #44335
SURVEY MANAGER / PRINCIPAL
WILSON ENGINEERING LLC
805 DUPONT STREET, SUITE 7
BELLINGHAM, WA 98225
360-733-6100 (EXT. 231)
tbrewster@wilsonengineering.com

2.A: BASIS OF ELEVATIONS: ELEVATION VALUES AND CONTOURS DEPICTED ON THIS SURVEY ARE BASED UPON HOLDING AS FIXED THE CITY OF FERNDALE NGVD29 DATUM, PER BENCHMARK FERN-08, ACCORDING TO THE CITY OF FERNDALE PUBLISHED NETWORK VALUES FOR SAME.

2.B: PURPOSE OF SURVEY: WILSON ENGINEERING PERFORMED THIS SURVEY DURING OCTOBER OF 2018, AT THE REQUEST OF THE CITY OF FERNDALE, WA, PURSUANT TO DESIGN OF A MUNICIPAL WELL AND BUILDING. THIS SURVEY WAS NOT PREPARED WITH THE BENEFIT OF A TITLE REPORT, AND EASEMENTS OF RECORD, OR OTHER ENCUMBRANCES MAY EXIST THAT MIGHT HAVE BEEN DISCLOSED BY SAID REPORT. MONUMENTS CONTROLLING THE RIGHT-OF-WAY OF LEGOE ROAD WERE RECOVERED, ALONG WITH SOME MONUMENTS DEFINIG THE AFFECTED PARCEL; THE DEPICTED BOUNDARY SHOULD BE CONSIDERED AUTHORITATIVE PROXIMATE TO THE PROPOSED IMPROVEMENTS.

2.C: SOURCE OF CONTOURS: THE CONTOURS, IF ANY, DEPICTED ON THIS SURVEY ARE THE RESULT OF DIRECT FIELD SURVEY USING CONVENTIONAL/OPTICAL SURVEY EQUIPMENT. OBSERVATIONS ARE GROUND-VALUE MEASUREMENTS OF THE SUBJECT AREA, AND ARE EXPECTED TO BE WITHIN STANDARD MAP-ACCURACY TOLERANCES FOR A 1-FOOT CONTOUR MODEL.

2.D: CONTOUR INTERVAL LABELING: 5-FOOT MAJOR-CONTOUR INTERVALS HAVE BEEN EXPLICITLY LABELED; MINOR INTERVAL CONTOURS ARE ON 1-FOOT INCREMENTS, BUT ARE NOT GENERALLY LEABELED.

2.E: DESCRIPTION OF BENCHMARKS SET PURSUANT TO THIS SURVEY: REFER TO THE ACCOMPANYING "CONTROL TABLE" FOR COORDINATES, ELEVATION, AND DESCRIPTION OF ON-SITE CONTROL SET PURSUANT TO THIS SURVEY.

2.F: ELEVATION AND/OR CONTOUR ACCURACY: IF CONTOURS HAVE BEEN DEPICTED ON THE FACE OF THIS SURVEY, IT IS ANTICIPATED THAT 90% OF ANY MEASURED ELEVATION VALUE, IF OBSERVED RELATIVE TO THE CONTROL POINTS SPECIFICALLY ENUMERATED IN THE ACCOMPANYING CONTROL TABLE, WILL BE, IN FACT, WITHIN ONE-HALF OF THE MINOR-CONTOUR INTERVAL DEPICTED HEREON. SPECIFIC ELEVATIONS DEPICTED HEREON, IF ANY, ARE EXPECTED TO BE WITHIN ONE INTEGRAL VALUE OF THE FINAL DEPICTED SIGNIFICANT FIGURE. THAT IS, 90% OF ELEVATIONS EXPRESSED TO THE TENTH-FOOT, SHOULD BE WITHIN 0.1 FEET OF THAT VALUE, IF OBSERVED RELATIVE TO THE SURVEY CONTROL SPECIFICALLY ENUMERATED IN THE ACCOMPANYING CONTROL TABLE. IF OFF-SITE CONTROL IS EMPLOYED, EVEN CONTROL PURPORTING TO BE ON THE SAME DATUM OR BASED ON THE SAME OFF-SITE BENCHMARK, THEN NO ABSOLUTE STATEMENT REGARDING THE ACCURACY OF THE DEPICTED POINTS CAN BE MADE, AND VALUES SO OBSERVED ARE OUTSIDE OF THIS SURVEY'S AUTHORITY OR INTEREST.

2.G: STATEMENT OF USE: AS NOTED IN SECTION 2.B, THIS SURVEY WAS PREPARED FOR THE SPECIFIC PURPOSE OF PROVIDING SITE CONDITION INFORMATION PURSUANT TO THE DESIGN OF A MUNICIPAL WELL AND BUILDING ENTIRELY, AND WELL, WITHIN CITY OF FERNDALE-OWNED PROPERTY. IN THE COURSE OF PREPARING THIS SURVEY, PURSUANT TO THIS PURPOSE, ANCILLARY DATA NECESSARY TO ACCOMPLISH THIS SURVEYS INTENDED PURPOSE MAY HAVE BEEN CAPTURED. IN THE CASE OF THIS SURVEY BOUNDARY INFORMATION BEYOND THE CITY'S PARCEL WAS ACQUIRED, BUT THE DEPICTION OF SAME SHOULD NOT BE CONSIDERED AUTHORITATIVE.

2.H: SOURCE OF CONTROLLING BOUNDARY INFORMATION: THE OWNERSHIP BOUNDARIES DEPICTED ON THIS SURVEY ARE BASED UPON SOME, OR ALL, OF THE DOCUMENTS ENUMERATED IN THE ACCOMPANYING "REFERENCE DOCUMENTS" AS THEREIN CHARACTERIZED. BEARINGS HAVE BEEN TRANSLATED AND/OR ROTATED FROM THE RECORD VALUES TO COINCIDE THE THE BASES OF COORDINATES AND ELEVATIONS NOTED ELSEHWERE IN THIS EXHIBIT.

3.A: SOURCE OF DEPICTED UTILITY INFORMATION: UTILITY LINES DEPICTED ON THIS SURVEY ARE BASED UPON OBSERVED PHYSICAL STRUCTURES AND PAINT MARKS SET BY UTILITY-LOCATE PROFESSIONALS . NO UNVERIFIED THIRD-PARTY RECORD DATA, SUCH AS GIS DATA, WAS INCORPORATED INTO THIS DRAWING.

3.B: ACCURACY OF DEPICTED UTILITY INFORMATION: WILSON ENGINEERING DOES NOT PROVIDE FOR-HIRE UTILITY LOCATION AND/OR MARKING SERVICES, AND CAN NOT INDEPENDENTLY ASCERTAIN THE ACCURACY OF ANY DEPICTED UTILITY THAT WAS NOT DIRECTLY OBSERVED IN THE COURSE OF THIS SURVEY.

3.C: STATEMENT OF LIMITATIONS REGARDING UTILITY-DEPICTION ACCURACY: THE CITY OF FERNDALE HAS BEEN NOTIFIED THAT WILSON CAN NOT, AND DOES NOT, GUARANTEE THE ACCURACY, AT ANY LEVEL, OF DEPICTED UTILITIES BASED ON THIRD-PARTY PAINT MARKS OR RECORD INFORMATION.

CONTROL NOTES

HORIZONTAL DATUM:
NAD83(1991) PER THE CITY OF FERNDALE PUBLISHED MONUMENT NETWORK.

BASIS OF COORDINATES: COORDINATION AND MENSURATION ARE LOCAL GROUND VALUES, BASED UPON LOCALLY-CALIBRATED GPS/RTK CONTROL DERIVED FROM HOLDING THE PUBLISHED NAD83(1991) POSITION FOR THE CITY OF FERNDALE MONUMENT AT THE CITY OF FERNDALE ANNEX BUILDING NEAR THE SOUTHEAST QUADRANT OF SECOND STREET AND VISTA DRIVE IN FERNDALE, SAID MONUMENT BEING PUBLISHED AS CITY OF FERNDALE CONTROL POINT FERN-08. SAID MONUMENT HAS THE FOLLOWING PUBLISHED POSITION:

NORTHING = 678,623.10 USFT
EASTING = 1,217,288.97 USFT

BASIS OF BEARINGS: BEARINGS ARE GROUND-VALUE APPROXIMATIONS OF NAD83(1991) WASHINGTON STATE-PLANE GRID BEARINGS, BASED UPON HOLDING THE PUBLISHED POSITIONS MONUMENTED BY CITY OF FERNDALE CONTROL POINTS FERN-08 AND FERN-07, SAID LATTER BEING A BRASS-DISK MONUMENT NORTH OF THE INTERSECTION OF MAIN STREET AND CHURCH ROAD.

THE DERIVED INVERSE BETWEEN SAID MONUMENTS FERN-08 AND FERN-07 IS:
NORTH 82° 23' 26" WEST, AT A DISTANCE OF **6313.43 USFT**. THE PUBLISHED POSITION FOR THE CITY OF FERNDALE MONUMENT FERN-07 IS:

NORTHING = 679,459.13 USFT
EASTING = 1,211,031.14 USFT

VERTICAL DATUM:
CITY OF FERNDALE APPROXIMATION OF NGVD29, PER PUBLISHED NETWORK VALUES.

BASIS OF ELEVATIONS: ELEVATIONS ARE PURPORTED TO BE NGVD29 VALUES, BASED UPON HOLDING THE PUBLISHED ELEVATION FOR FERN-08, BEING A BRASS-DISK MONUMENT AT THE AT THE CITY ANNEX BUILDING SOUTHEAST OF THE INTERSECTION OF SECOND STREET AND VISTA DRIVE. SAID MONUMENT HAS THE FOLLOWING PUBLISHED NGVD-29 ELEVATION:
ELEVATION = 29.16 FEET

ON-SITE SURVEY CONTROL TABLE

POINT #	NORTHING	EASTING	ELEV.	DESCRIPTION
100	679542.62	1214744.21	56.80	SET 1/2" REBAR WITH CONTROL CAP
101	679623.64	1214411.22	68.17	SET MAG NAIL AND WSHR
102	679589.03	1214586.71	67.47	SET 1/2" REBAR WITH CONTROL CAP

REFERENCE DOCUMENTS / SOURCES OF LEGAL BOUNDARY DATA

DOC. #1: RECORD OF SURVEY FOR THE CITY OF FERNDALE, WHATCOM CO. AFN. 1352588
DOC #2: RECORD OF SURVEY FOR THE CITY OF FERNDALE, WHATCOM CO. AFN. 1524555
DOC #3: RECORD OF SURVEY FOR PETE TORKILD, WHATCOM CO. AFN. 2051005994
DOC #4: PLAT OF WOODSIDE VILLAS, WHATCOM CO. AFN. 2051006000
DOC #5: RECORD OF SURVEY FOR ROYCE GROUP, INC., WHAT. CO. AFN. 2080902738

SURVEYOR'S CERTIFICATE

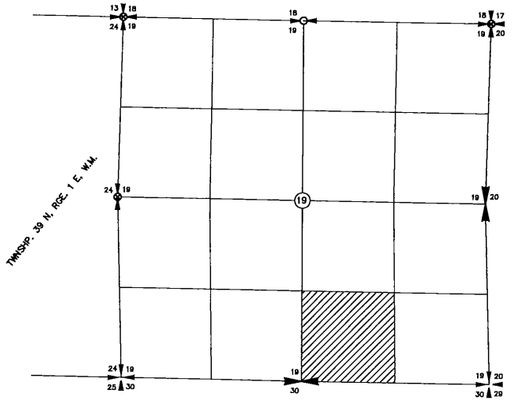
I HEREBY CERTIFY THAT I AM A LICENSED LAND SURVEYOR IN THE STATE OF WASHINGTON, THAT THIS MAP IS BASED ON AN ACTUAL FIELD SURVEY DONE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL DATA SHOWN HEREON ACTUALLY EXISTS IN THE LOCATIONS SHOWN AT THE TIME OF THIS SURVEY. THIS TOPOGRAPHIC MAP WAS DONE AT THE REQUEST OF THE CITY OF FERNDALE IN 2018.

J. THOMAS BREWSTER, P.L.S. NO. 44335 — DATE 12-29-2019

ABBREVIATIONS USED

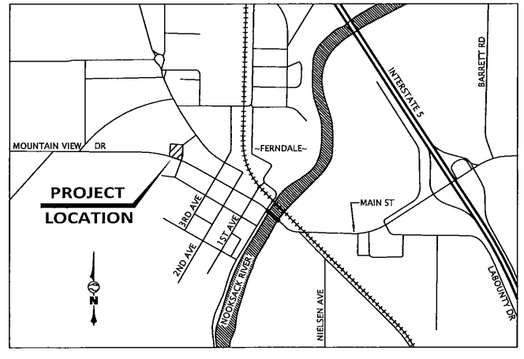
AF	=	AUDITOR'S FILE
AFN	=	AUDITOR'S FILE NUMBER
ASM	=	ALUMINUM SURFACE MONUMENT
℄	=	CENTERLINE
CONC	=	CONCRETE
CPP	=	CORRUGATED POLYETHYLENE PIPE
DLC	=	DONATION LAND CLAIM
E	=	EAST
ELEV	=	ELEVATION
FND	=	FOUND
INT	=	INTERSECTION
INV	=	INVERT
L	=	LENGTH
MON	=	MONUMENT
N	=	NORTH
NE	=	NORTHEAST
NW	=	NORTHWEST
R	=	RADIUS
R/W	=	RIGHT-OF-WAY
S	=	SOUTH
SE	=	SOUTHEAST
SW	=	SOUTHWEST
TYP	=	TYPICAL
W	=	WEST
WAC	=	WASHINGTON CODE
WSE	=	WILSON SURVEY/ENGINEERING

SECTIONAL INDEX DATA



SW QTR - SE QTR, SEC. 19, TWNSHP 39 NORTH, R 02 EAST, W.M.

VICINITY MAP



INDEX TO DRAWINGS

BID SET

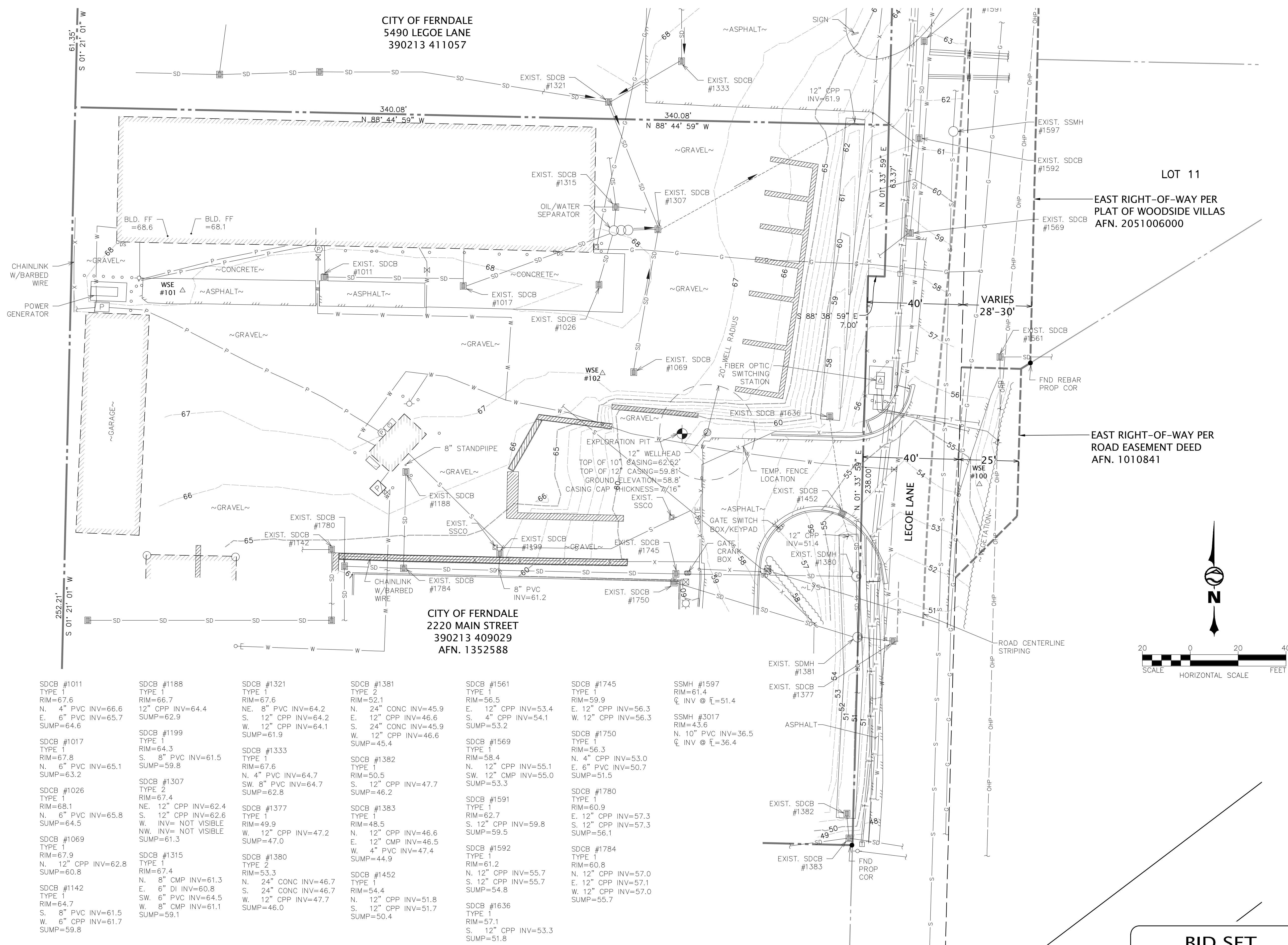
WILSON ENGINEERING
CIVIL STRUCTURAL SURVEY
WILSONENGINEERING.COM

DESIGNED BY JTB | DRAWN BY JTB | CHECKED BY AWL

CITY OF FERNDALE, WA
FERNDALE WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
WAC 332-130 COMPLIANCE EXHIBIT

DATE 12-20-2019 | SCALE AS SHOWN | JOB NUMBER 2018-141

SHEET G1.3 | PAGE 3 OF 31



SDCB #1011
TYPE 1
RIM=67.6
N. 4" PVC INV=66.6
E. 6" PVC INV=65.7
SUMP=64.6

SDCB #1017
TYPE 1
RIM=67.8
N. 6" PVC INV=65.1
SUMP=63.2

SDCB #1026
TYPE 1
RIM=68.1
N. 6" PVC INV=65.8
SUMP=64.5

SDCB #1069
TYPE 1
RIM=67.9
N. 12" CPP INV=62.8
SUMP=60.8

SDCB #1142
TYPE 1
RIM=64.7
S. 8" PVC INV=61.5
W. 6" CPP INV=61.7
SUMP=59.8

SDCB #1188
TYPE 1
RIM=66.7
12" CPP INV=64.4
SUMP=62.9

SDCB #1199
TYPE 1
RIM=64.3
S. 8" PVC INV=61.5
SUMP=59.8

SDCB #1307
TYPE 2
RIM=67.4
NE. 12" CPP INV=62.4
S. 12" CPP INV=62.6
W. INV= NOT VISIBLE
NW. INV= NOT VISIBLE
SUMP=61.3

SDCB #1315
TYPE 1
RIM=67.4
N. 8" CMP INV=61.3
E. 6" DI INV=60.8
SW. 6" PVC INV=64.5
W. 8" CMP INV=61.1
SUMP=59.1

SDCB #1321
TYPE 1
RIM=67.6
NE. 8" PVC INV=64.2
S. 12" CPP INV=64.2
W. 12" CPP INV=64.1
SUMP=61.9

SDCB #1333
TYPE 1
RIM=67.6
N. 4" PVC INV=64.7
SW. 8" PVC INV=64.7
SUMP=62.8

SDCB #1377
TYPE 1
RIM=49.9
W. 12" CPP INV=47.2
SUMP=47.0

SDCB #1380
TYPE 2
RIM=53.3
N. 24" CONC INV=46.7
S. 24" CONC INV=46.7
W. 12" CPP INV=47.7
SUMP=46.0

SDCB #1381
TYPE 2
RIM=52.1
N. 24" CONC INV=45.9
E. 12" CPP INV=46.6
S. 24" CONC INV=45.9
W. 12" CPP INV=46.6
SUMP=45.4

SDCB #1382
TYPE 1
RIM=50.5
S. 12" CPP INV=47.7
SUMP=46.2

SDCB #1383
TYPE 1
RIM=48.5
N. 12" CPP INV=46.6
E. 12" CMP INV=46.5
W. 4" PVC INV=47.4
SUMP=44.9

SDCB #1452
TYPE 1
RIM=54.4
N. 12" CPP INV=51.8
S. 12" CPP INV=51.7
SUMP=50.4

SDCB #1561
TYPE 1
RIM=56.5
E. 12" CPP INV=53.4
S. 4" CPP INV=54.1
SUMP=53.2

SDCB #1569
TYPE 1
RIM=58.4
N. 12" CPP INV=55.1
SW. 12" CMP INV=55.0
SUMP=53.3

SDCB #1591
TYPE 1
RIM=62.7
S. 12" CPP INV=59.8
SUMP=59.5

SDCB #1592
TYPE 1
RIM=61.2
N. 12" CPP INV=55.7
S. 12" CPP INV=55.7
SUMP=54.8

SDCB #1636
TYPE 1
RIM=57.1
S. 12" CPP INV=53.3
SUMP=51.8

SDCB #1745
TYPE 1
RIM=59.9
E. 12" CPP INV=56.3
W. 12" CPP INV=56.3

SDCB #1750
TYPE 1
RIM=56.3
N. 4" CPP INV=53.0
E. 6" PVC INV=50.7
SUMP=51.5

SDCB #1780
TYPE 1
RIM=60.9
E. 12" CPP INV=57.3
S. 12" CPP INV=57.3
SUMP=56.1

SDCB #1784
TYPE 1
RIM=60.8
N. 12" CPP INV=57.0
E. 12" CPP INV=57.1
W. 12" CPP INV=57.0
SUMP=55.7

SSMH #1597
RIM=61.4
℄ INV @ ℄=51.4

SSMH #3017
RIM=43.6
N. 10" PVC INV=36.5
℄ INV @ ℄=36.4

NO.	REVISIONS	BY	DATE

CIVIL
STRUCTURAL
SURVEY

WILSON ENGINEERING
WILSONENGINEERING.COM

CITY OF FERNDALE, WA
FERNDALE WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
EXISTING CONDITIONS – OVERALL SITE MAP

DESIGNED BY KWF
DRAWN BY JRF
CHECKED BY AWL

DATE 1-08-2020
SCALE AS SHOWN
JOB NUMBER 2018-141

SHEET C1.1
PAGE 4 OF 35

BID SET

PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_UNSCREENED.ctb
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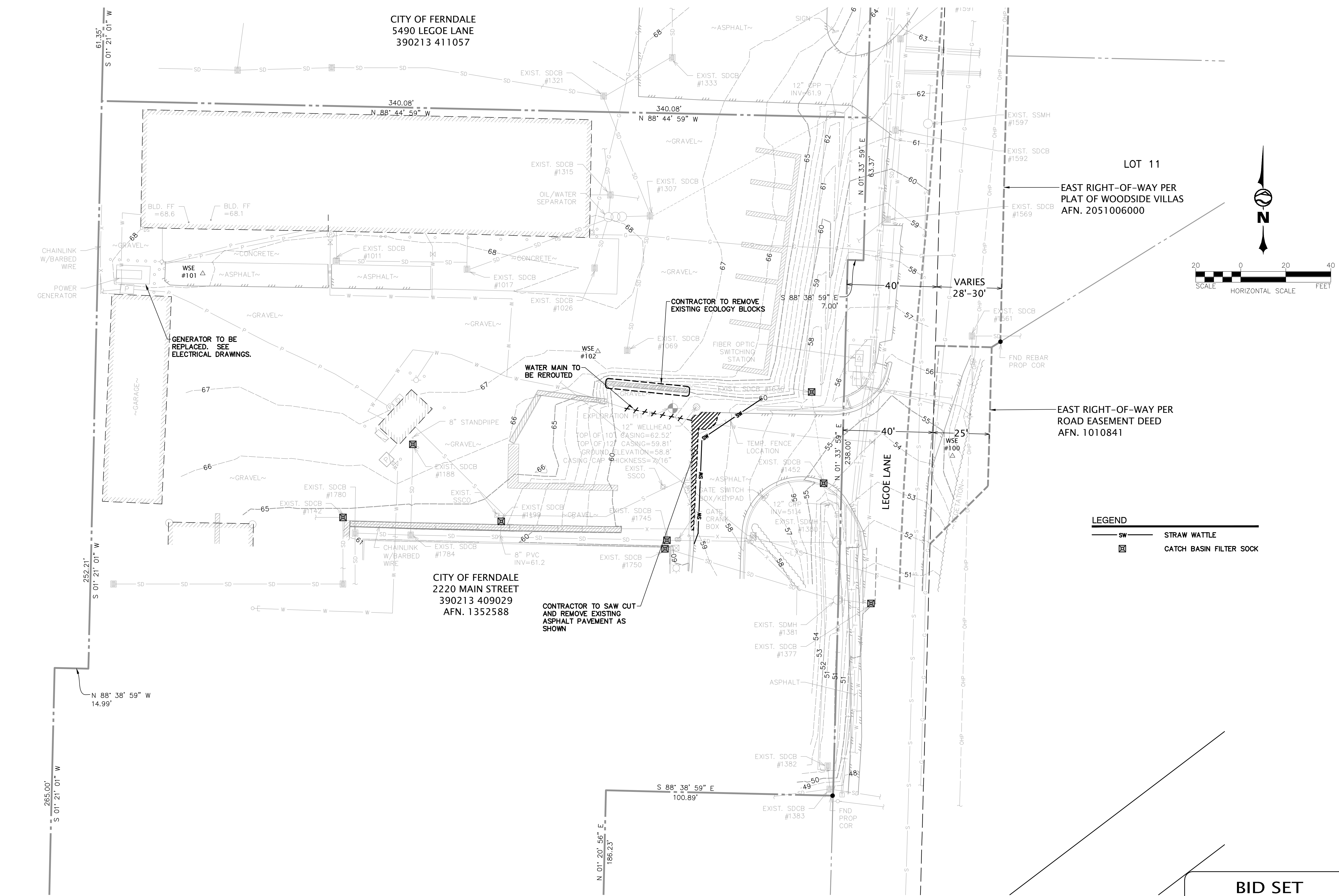

NO.	REVISIONS	BY	DATE

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

WILSONENGINEERING.COM

DESIGNED BY KWF

DRAWN BY JRF

CHECKED BY AWL

CITY OF FERNDALE, WA

FERNDALE WASHINGTON

SHOP WELL #2 – WELLHOUSE PROJECT

TESC & DEMO PLAN

DATE 1-08-2020

SCALE AS SHOWN

JOB NUMBER 2018-141

SHEET C1.2

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BID SET

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STANDARD TESC NOTES

APPROVAL OF THIS EROSION/SEDIMENTATION CONTROL (TESC) PLAN DOE NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF PIPES, ROADS, RESTRICTORS, CHANNELS, UTILITIES, ETC.)

THE IMPLEMENTATION OF THESE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND FINAL, STABILIZED SURFACES ARE ESTABLISHED.

THE TESC FACILITIES SHOWN ON THESE PLANS MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DOES NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER QUALITY STANDARDS.

THE TESC FACILITIES SHOWN ON THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.

THE TESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

THE TESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT.

AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A TRAPPED CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.

SINCE STABILIZED CONSTRUCTION ENTRANCES WILL NOT BE PRACTICAL, REGULAR SWEEPING WILL NEED TO OCCUR FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

CONSTRUCTION STORMWATER POLLUTION PREVENTION 12 ELEMENTS

I. ELEMENT 1 – PRESERVE VEGETATION/MARK CLEARING LIMITS. PRIOR TO BEGINNING LAND-DISTURBING ACTIVITIES, INCLUDING CLEARING AND GRADING, ALL CLEARING LIMITS SHOULD BE CLEARLY MARKED, BOTH IN THE FIELD AND ON THE PLANS, TO PREVENT DAMAGE AND OFF-SITE IMPACTS. PLASTIC, METAL, OR STAKE WIRE FENCE MAY BE USED TO MARK THE CLEARING LIMITS.

II. ELEMENT 2 – ESTABLISH CONSTRUCTION ACCESS.
(A) CONSTRUCTION VEHICLE ACCESS AND EXIT SHALL BE LIMITED TO ONE ROUTE IF POSSIBLE.
(B) ACCESS POINTS SHALL BE STABILIZED WITH QUARRY SPALL, CRUSHED ROCK, OR A RUMBLE PLATE TO MINIMIZE THE TRACKING OF SEDIMENT ONTO PUBLIC ROADS.
(C) N/A
(D) PUBLIC ROADS SHALL AT A MINIMUM BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM ROADS BY SHOVELING OR PICKUP SWEEPING AND SHALL BE TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA. STREET WASHING WILL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER.
(E) CONTROL STREET WASH WASTEWATER BY DISPOSAL INTO WASTEWATER TREATMENT SYSTEM (NEED APPROVAL FROM SEWER AUTHORITY BEFORE DISCHARGE), OR OTHERWISE PREVENT IT FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.

III. ELEMENT 3 – CONTROL FLOW RATES.
(A) PROTECT PROPERTIES AND WATERWAYS DOWNSTREAM OF DEVELOPMENT SITE FROM EROSION AND THE ASSOCIATED DISCHARGE OF TURBID WATERS DUE TO INCREASES IN THE VELOCITY AND PEAK VOLUMETRIC FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.
(B) PROPERTIES SUBJECT TO MINIMUM REQUIREMENT NO. 5 AND/OR NO. 7 SHALL IMPLEMENT CONTROLS AS EARLY IN THE DEVELOPMENT AS IS PRACTICABLE TO MITIGATE FOR FLOW RATES.

IV. ELEMENT 4 – INSTALL SEDIMENT CONTROLS.
(A) DESIGN, INSTALL, AND MAINTAIN EFFECTIVE EROSION CONTROLS AND SEDIMENT CONTROLS TO MINIMIZE THE DISCHARGE OF POLLUTANTS.
(B) CONSTRUCT SEDIMENT CONTROL BMPS (SEDIMENT PONDS, TRAPS, FILTERS, ETC.) AS ONE OF THE FIRST STEPS IN GRADING. THESE BMPS SHALL BE FUNCTIONAL BEFORE OTHER LAND-DISTURBING ACTIVITIES TAKE PLACE.
(C) MINIMIZE SEDIMENT DISCHARGES FROM THE SITE. THE DESIGN, INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS MUST ADDRESS FACTORS SUCH AS THE AMOUNT, FREQUENCY, INTENSITY AND DURATION OF PRECIPITATION, THE NATURE OF RESULTING STORMWATER RUNOFF, AND SOIL CHARACTERISTICS, INCLUDING THE RANGE OF SOIL PARTICLE SIZES EXPECTED TO BE PRESENT ON THE SITE.
(D) DIRECT STORMWATER RUNOFF FROM DISTURBED AREAS THROUGH A SEDIMENT POND OR OTHER APPROPRIATE SEDIMENT REMOVAL BMP, BEFORE THE RUNOFF LEAVES A CONSTRUCTION SITE OR BEFORE DISCHARGE TO AN INFILTRATION FACILITY. RUNOFF FROM FULLY STABILIZED AREAS MAY BE DISCHARGED WITHOUT A SEDIMENT REMOVAL BMP, BUT MUST MEET THE FLOW CONTROL PERFORMANCE STANDARD IN SUBSECTION (III)(A) OF THIS SECTION.
(E) N/A
(F) WHERE FEASIBLE, DESIGN OUTLET STRUCTURES THAT WITHDRAW IMPOUNDED STORMWATER FROM THE SURFACE TO AVOID DISCHARGING SEDIMENT THAT IS STILL SUSPENDED LOWER IN THE WATER COLUMN.

V. ELEMENT 5 – STABILIZE SOILS.
(A) ALL EXPOSED AND UNWORKED SOILS SHALL BE STABILIZED BY APPLICATION OF EFFECTIVE BMPS THAT PROTECT THE SOIL FROM THE EROSIVE FORCES OF RAINDROP IMPACT AND FLOWING WATER, AND WIND EROSION. APPLICABLE BMPS INCLUDE, BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EROSION CONTROL FABRICS AND MATTING, THE EARLY APPLICATION OF GRAVEL BASE EARLY ON AREAS TO BE PAVED, AND DUST CONTROL.
(B) CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION.
(C) CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND TO MINIMIZE DOWNSTREAM CHANNEL AND STREAM BANK EROSION.
(D) FROM OCTOBER 1ST THROUGH APRIL 30TH OF EACH YEAR, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN TWO DAYS. FROM MAY 1ST TO SEPTEMBER 30TH OF EACH YEAR, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN SEVEN DAYS. THIS CONDITION APPLIES TO ALL SOILS ON SITE, WHETHER AT FINAL GRADE OR NOT.
(E) STABILIZE SOILS AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST.
(F) MINIMIZE THE AMOUNT OF SOIL EXPOSED DURING CONSTRUCTION ACTIVITY.
(G) MINIMIZE THE DISTURBANCE OF STEEP SLOPES.
(H) MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
(I) APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, TEMPORARY AND PERMANENT SEEDING, SODDING, MULCHING, PLASTIC COVERING, EARLY APPLICATION OF GRAVEL BASE ON AREAS TO BE PAVED, AND DUST CONTROL.
(J) SOIL STABILIZATION MEASURES SELECTED SHOULD BE APPROPRIATE FOR THE TIME OF YEAR, SITE CONDITIONS, ESTIMATED DURATION OF USE, AND POTENTIAL WATER QUALITY IMPACTS THAT STABILIZATION AGENTS MAY HAVE ON DOWNSTREAM WATERS OR GROUND WATER.
(K) SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES AND, WHERE POSSIBLE, LOCATE AWAY FROM STORM DRAIN INLETS, WATERWAYS AND DRAINAGE CHANNELS.
(L) WORK ON LINEAR CONSTRUCTION SITES AND ACTIVITIES, INCLUDING RIGHT-OF-WAY AND EASEMENT CLEARING, ROADWAY DEVELOPMENT, PIPELINES, AND TRENCHING FOR UTILITIES, SHALL NOT EXCEED THE CAPABILITY OF THE INDIVIDUAL CONTRACTOR FOR HIS PORTION OF THE PROJECT TO INSTALL THE BEDDING MATERIALS, ROADBEDS, STRUCTURES, PIPELINES, AND/OR UTILITIES, AND TO RESTABILIZE THE DISTURBED SOILS, MEETING THE TIMING CONDITIONS LISTED ABOVE.
(M) IN ADDITION, AT THE DISCRETION OF THE PUBLIC WORKS DIRECTOR AND/OR ENGINEER, THOSE SITES UNABLE TO MAINTAIN THE QUALITY OF THEIR STORMWATER DISCHARGE MAY BE REQUIRED TO PROVIDE SOIL STABILIZATION TO ALL EXPOSED SOIL AREAS REGARDLESS OF THE WORKING STATUS OF THE AREA. UPON WRITTEN NOTIFICATION, THE CONTRACTOR SHALL PROVIDE FULL STABILIZATION OF ALL EXPOSED SOIL AREAS WITHIN 24 HOURS.

VI. ELEMENT 6 – PROTECT SLOPES.
(A) CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. APPLICABLE PRACTICES INCLUDE, BUT ARE NOT LIMITED TO, REDUCING CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCING SLOPE STEEPNESS, AND ROUGHENING SLOPE SURFACES (FOR EXAMPLE, TRACK WALKING).
(B) CONSIDER SOIL TYPE AND ITS POTENTIAL FOR EROSION.
(C) REDUCE SLOPE RUNOFF VELOCITIES BY REDUCING THE CONTINUOUS LENGTH OF SLOPE WITH TERRACING AND DIVERSIONS, REDUCE SLOPE STEEPNESS, AND ROUGHEN SLOPE SURFACE.
(D) DIVERT UPSLOPE DRAINAGE AND RUN-ON WATERS FROM OFF SITE WITH INTERCEPTORS AT TOP OF SLOPE. OFF-SITE STORMWATER SHOULD BE HANDLED SEPARATELY FROM STORMWATER GENERATED ON THE SITE. DIVERSION OF OFF-SITE STORMWATER AROUND THE SITE MAY BE A VIABLE OPTION. DIVERTED FLOWS SHALL BE REDIRECTED TO THE NATURAL DRAINAGE LOCATION AT OR BEFORE THE PROPERTY BOUNDARY.
(E) CONTAIN DOWN SLOPE COLLECTED FLOWS IN PIPES, SLOPE DRAINS, OR PROTECTED CHANNELS TO PREVENT EROSION. TEMPORARY PIPE SLOPE DRAINS MUST HANDLE THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YEAR ONE-HOUR FLOW RATE PREDICTED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDROLOGY MODEL TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED AREA."
(F) PROVIDE DRAINAGE TO REMOVE GROUND WATER INTERSECTING THE SLOPE SURFACE OF EXPOSED SOIL AREAS.
(G) EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES, CONSISTENT WITH SAFETY AND SPACE CONSIDERATIONS.
(H) CHECK DAMS SHALL BE PLACED AT REGULAR INTERVALS WITHIN TRENCHES THAT ARE CUT DOWN A SLOPE.
(I) STABILIZE SOILS ON SLOPES, AS SPECIFIED IN ELEMENT NO. 5.

VII. ELEMENT 7 – PROTECT DRAIN INLETS.
(A) ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT STORMWATER RUNOFF SHALL NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR TREATED TO REMOVE SEDIMENT.
(B) ALL APPROACH ROADS SHALL BE KEPT CLEAN, AND ALL SEDIMENT AND STREET WASH WATER SHALL NOT BE ALLOWED TO ENTER STORM DRAINS WITHOUT PRIOR AND ADEQUATE TREATMENT UNLESS TREATMENT IS PROVIDED BEFORE THE STORM DRAIN DISCHARGES TO WATERS OF THE STATE.

VIII. ELEMENT 8 – STABILIZE CHANNELS AND OUTLETS.
(A) ALL TEMPORARY ON-SITE CONVEYANCE CHANNELS SHALL BE DESIGNED, CONSTRUCTED AND STABILIZED TO PREVENT EROSION FROM EXPECTED PEAK FLOWS. CHANNELS MUST HANDLE THE PEAK VOLUMETRIC FLOW RATE CALCULATED USING A 10-MINUTE TIME STEP FROM A TYPE 1A, 10-YEAR, 24-HOUR FREQUENCY STORM FOR THE DEVELOPED CONDITION. ALTERNATIVELY, THE 10-YEAR, ONE-HOUR FLOW RATE INDICATED BY AN APPROVED CONTINUOUS RUNOFF MODEL, INCREASED BY A FACTOR OF 1.6, MAY BE USED. THE HYDROLOGIC ANALYSIS MUST USE THE EXISTING LAND COVER CONDITION FOR PREDICTING FLOW RATES FROM TRIBUTARY AREAS OUTSIDE THE PROJECT LIMITS. FOR TRIBUTARY AREAS ON THE PROJECT SITE, THE ANALYSIS MUST USE THE TEMPORARY OR PERMANENT PROJECT LAND COVER CONDITION, WHICHEVER WILL PRODUCE THE HIGHEST FLOW RATES. IF USING THE WESTERN WASHINGTON HYDROLOGY MODEL TO PREDICT FLOWS, BARE SOIL AREAS SHOULD BE MODELED AS "LANDSCAPED AREA."
(B) STABILIZATION, INCLUDING ARMORING MATERIAL, ADEQUATE TO PREVENT EROSION OF OUTLETS, ADJACENT STREAM BANKS, SLOPES AND DOWNSTREAM REACHES SHALL BE PROVIDED AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.

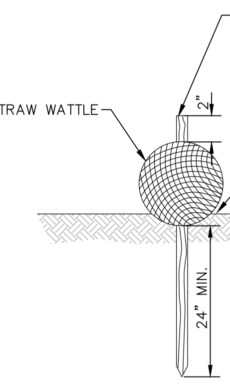
IX. ELEMENT 9 – CONTROL POLLUTANTS.
(A) DESIGN, INSTALL, IMPLEMENT AND MAINTAIN EFFECTIVE POLLUTION PREVENTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS.
(B) ALL POLLUTANTS, INCLUDING WASTE MATERIALS AND DEMOLITION DEBRIS, THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER.
(C) COVER, CONTAINMENT, AND PROTECTION FROM VANDALISM SHALL BE PROVIDED FOR ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCTS, AND NONINERT WASTES PRESENT ON THE SITE (SEE CHAPTER 173-304 WAC, AS CURRENTLY ENACTED OR HEREAFTER MODIFIED, FOR THE DEFINITION OF INERT WASTE, WHICH IS INCORPORATED HEREIN BY THIS REFERENCE).
(D) MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM DRAIN DOWN, SOLVENT AND DE-GREASING CLEANING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES WHICH MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF MUST BE CONDUCTED USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CONTAMINATED SURFACES SHALL BE CLEANED IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. EMERGENCY REPAIRS MAY BE PERFORMED ON SITE USING TEMPORARY PLASTIC PLACED BENEATH AND, IF RAINING, OVER THE VEHICLE.
(E) WHEEL WASH, OR TIRE BATH WASTEWATER, SHALL BE DISCHARGED TO A SEPARATE ON-SITE TREATMENT SYSTEM OR TO THE SANITARY SEWER.
(F) APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, SHALL BE CONDUCTED IN A MANNER AND AT APPLICATION RATES THAT WILL NOT RESULT IN LOSS OF CHEMICAL TO STORMWATER RUNOFF. MANUFACTURERS' RECOMMENDATIONS SHALL BE FOLLOWED FOR APPLICATION RATES AND PROCEDURES.
(G) MANAGEMENT OF PH-MODIFYING SOURCES SHALL PREVENT CONTAMINATION OF RUNOFF AND STORMWATER COLLECTED ON THE SITE. THESE SOURCES INCLUDE, BUT ARE NOT LIMITED TO, BULK CEMENT, CEMENT KILN DUST, FLY ASH, NEW CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, AND CONCRETE PUMPING AND MIXER WASHOUT WATERS.
(H) ADJUST THE PH OF STORMWATER IF NECESSARY TO PREVENT VIOLATIONS OF WATER QUALITY STANDARDS.
(I) ASSURE THAT WASHOUT OF CONCRETE TRUCKS IS PERFORMED OFF SITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCKS ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. CONCRETE SPILLAGE OR CONCRETE DISCHARGE TO SURFACE WATERS OF THE STATE IS PROHIBITED.
(J) OBTAIN WRITTEN APPROVAL FROM ECOLOGY BEFORE USING CHEMICAL TREATMENT OTHER THAN CO2 OR DRY ICE TO ADJUST PH.

X. ELEMENT 10 – CONTROL DEWATERING.
(A) ALL FOUNDATION, VAULT, AND TRENCH DEWATERING WATER, WHICH HAVE SIMILAR CHARACTERISTICS TO STORMWATER RUNOFF AT THE SITE, SHALL BE DISCHARGED INTO A CONTROLLED CONVEYANCE SYSTEM, PRIOR TO DISCHARGE TO A SEDIMENT TRAP OR SEDIMENT POND. CHANNELS MUST BE STABILIZED, AS SPECIFIED IN ELEMENT NO. 8.
(B) CLEAN, NONTURBID DEWATERING WATER, SUCH AS WELL-POINT GROUND WATER, CAN BE DISCHARGED TO SYSTEMS TRIBUTARY TO STATE SURFACE WATERS, AS SPECIFIED IN ELEMENT NO. 8, PROVIDED THE DEWATERING FLOW DOES NOT CAUSE EROSION OR FLOODING OF THE RECEIVING WATERS. THESE CLEAN WATERS SHOULD NOT BE ROUTED THROUGH SEDIMENT PONDS WITH STORMWATER.
(C) HIGHLY TURBID OR OTHERWISE CONTAMINATED DEWATERING WATER, SUCH AS FROM CONSTRUCTION EQUIPMENT OPERATION, CLAMSHELL DIGGING, CONCRETE TREMIE POUR, OR WORK INSIDE A COFFERDAM, SHALL BE HANDLED SEPARATELY FROM STORMWATER AT THE SITE.
(D) OTHER DISPOSAL OPTIONS, DEPENDING ON SITE CONSTRAINTS, MAY INCLUDE, BY WAY OF EXAMPLE: (1) INFILTRATION, (2) TRANSPORT OFF SITE IN VEHICLE, SUCH AS A VACUUM FLUSH TRUCK, FOR LEGAL DISPOSAL IN A MANNER THAT DOES NOT POLLUTE STATE WATERS, (3) ON-SITE TREATMENT USING ECOLOGY APPROVED CHEMICAL TREATMENT OR OTHER SUITABLE TREATMENT TECHNOLOGIES, (4) SANITARY OR COMBINED SEWER DISCHARGE WITH LOCAL SEWER DISTRICT APPROVAL, OR THERE IS NO OTHER OPTION, (5) USE OF A SEDIMENTATION BAG THAT DISCHARGES TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

XI. ELEMENT 11 – MAINTAIN BMPS.
(A) ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPS SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL MAINTENANCE AND REPAIR SHALL BE CONDUCTED IN ACCORDANCE WITH BMPS.
(B) SEDIMENT CONTROL BMPS SHALL BE INSPECTED WEEKLY OR AFTER A RUNOFF-PRODUCING STORM EVENT DURING THE DRY SEASON AND DAILY DURING THE WET SEASON. ALL PROJECTS THAT DISTURB AN AREA GREATER THAN ONE ACRE SHALL HAVE A CERTIFIED EROSION CONTROL LEAD AVAILABLE TO THE SITE. THIS EROSION CONTROL LEAD SHALL BE RESPONSIBLE TO PROVIDE OVERVIEW OF ONGOING DAY-TO-DAY EROSION CONTROL REQUIREMENTS. THE EROSION CONTROL LEAD SHALL (WITHIN 24 HOURS) REPORT TO THE CITY AND DEPARTMENT OF ECOLOGY ANY SITE DISCHARGES THAT EXCEED STATE WATER QUALITY STANDARDS THAT HAVE OR ARE LIKELY TO HAVE ENTERED WATERS OF THE STATE.
(C) ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPS SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL OF BMPS OR VEGETATION SHALL BE PERMANENTLY STABILIZED.

XII. ELEMENT 12 – MANAGE THE PROJECT.
(A) PHASING OF CONSTRUCTION. DEVELOPMENT PROJECTS SHALL BE PHASED WHERE FEASIBLE IN ORDER TO PREVENT, TO THE MAXIMUM EXTENT PRACTICABLE, THE TRANSPORT OF SEDIMENT FROM THE DEVELOPMENT SITE DURING CONSTRUCTION. REVEGETATION OF EXPOSED AREAS AND MAINTENANCE OF THAT VEGETATION SHALL BE AN INTEGRAL PART OF THE CLEARING ACTIVITIES FOR ANY PHASE.
(B) WHEN ESTABLISHING THESE PERMITTED CLEARING AND GRADING AREAS, CONSIDERATION SHOULD BE GIVEN TO MINIMIZING REMOVAL OF EXISTING TREES AND MINIMIZING DISTURBANCE/COMPACTION OF NATIVE SOILS EXCEPT AS NEEDED FOR BUILDING PURPOSES. PERMITTED CLEARING AND GRADING AREAS AND ANY OTHER AREAS REQUIRED TO PRESERVE CRITICAL OR SENSITIVE AREAS, BUFFERS, NATIVE GROWTH PROTECTION EASEMENTS, OR TREE RETENTION AREAS, SHALL BE DELINEATED ON THE SITE PLANS AND THE DEVELOPMENT SITE.
(C) COORDINATION WITH UTILITIES AND OTHER CONTRACTORS. THE PRIMARY PROJECT PROPONENT SHALL EVALUATE, WITH INPUT FROM UTILITIES AND OTHER CONTRACTORS, THE STORMWATER MANAGEMENT REQUIREMENTS FOR THE ENTIRE PROJECT, INCLUDING THE UTILITIES, WHEN PREPARING THE CONSTRUCTION SWPPP.
(D) INSPECTION AND MONITORING. ALL BMPS SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION.
(E) N/A
(F) WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPS IDENTIFIED IN THE CONSTRUCTION SWPPP ARE INADEQUATE, DUE TO THE ACTUAL DISCHARGE OF OR POTENTIAL TO DISCHARGE A SIGNIFICANT AMOUNT OF ANY POLLUTANT, THE SWPPP SHALL BE MODIFIED, AS APPROPRIATE, IN A TIMELY MANNER.
(G) MAINTENANCE OF THE CONSTRUCTION SWPPP. THE CONSTRUCTION SWPPP SHALL BE RETAINED ON SITE. THE CONSTRUCTION SWPPP SHALL BE MODIFIED WHENEVER THERE IS A SIGNIFICANT CHANGE IN THE DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE OF ANY BMP.

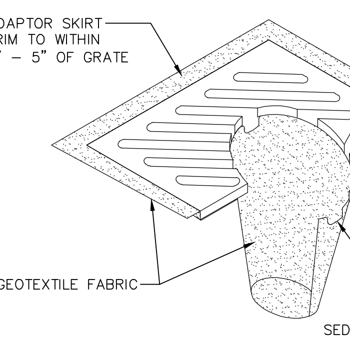
XIII. ELEMENT 13 – PROTECT LOW IMPACT DEVELOPMENT BMPS.
(A) N/A
(B) N/A
(C) N/A
(D) N/A
(E) N/A



NOTES:

1. ENDS OF WATTLES SHALL BE TURNED SLIGHTLY UP SLOPE.
2. WHERE 2" TRENCH IS NOT PRACTICAL, CONTRACTOR SHALL REPLACE STAKE WITH SANDBAG.

1 STRAW WATTLE
NOT TO SCALE



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.

2 CATCH BASIN INSERT
NOT TO SCALE

NO.	REVISIONS	BY	DATE

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CIVIL STRUCTURAL SURVEY
WILSONENGINEERING.COM

DESIGNED BY KWF
DRAWN BY JRF
CHECKED BY AWL

CITY OF FERNDALE, WA
SHOP WELL #2 – WELLHOUSE PROJECT
TESC DETAILS
FERNDALE WASHINGTON

DATE 1-08-2020
SCALE AS SHOWN
JOB NUMBER 2018-141
SHEET C1.3
PAGE 6 OF 35

BID SET

NO.	REVISIONS	BY	DATE

NOTES:

1. BOLLARDS PER 4/C4.1
2. CURB AND GUTTER PER 3/C4.1
3. HMA PER 5/C4.1 AND 6/C4.1
4. FENCE AND GATES PER SPECIFICATIONS.

EXISTING POWER POLE

NEW GENERATOR & PAD PER 3/S1.2

CHAINLINK W/BARBED WIRE

POWER GENERATOR

WSE #101

WSE #102

WSE #100

AS NEEDED (12'±)

BOLLARDS

CURB & GUTTER

HMA SURFACING

BOLLARDS

TEMP. FENCE LOCATION

CURB & GUTTER TO CONNECT TO EXISTING CURB & GUTTER

PROPOSED CHAIN LINK FENCE AND TWO 20' WIDE GATES (DOUBLE LEAF)

PROPOSED TRANSFORMER

LEGOE LANE

61.35' S 01° 21' 01" W

340.08' N 88° 44' 59" W

340.08' N 88° 44' 59" W

N 01° 33' 59" E 633.37'

S 88° 38' 59" E 7.00'

238.00' N 01° 33' 59" E

252.21' S 01° 21' 01" W

N 88° 38' 59" W 14.99'

265.00' S 01° 21' 01" W

S 88° 38' 59" E 100.89'

N 01° 20' 56" E 186.23'

EXIST. SDCB #1315

EXIST. SDCB #1011

EXIST. SDCB #1017

EXIST. SDCB #1333

EXIST. SSMH #1597

EXIST. SDCB #1592

EXIST. SDCB #1569

EXIST. SDCB #1561

FND REBAR PROP COR

EXIST. SDCB #1638

EXIST. SDCB #1452

EXIST. SDCB #1745

EXIST. SDCB #1784

EXIST. SDCB #1750

EXIST. SDMH #1381

EXIST. SDCB #1377

EXIST. SDCB #1382

EXIST. SDCB #1383

FND PROP COR

OIL/WATER SEPARATOR

12" CPP INV=61.9

8" PVC INV=61.2

12" CPP INV=59.14

SURFACING LEGEND

- PROPOSED HMA
- EXISTING HMA
- PROPOSED GRAVEL
- EXISTING GRAVEL
- EXISTING CONCRETE
- PROPOSED CONCRETE

SCALE HORIZONTAL SCALE: 20 0 20 40 FEET

N

BID SET

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

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1-8-2020

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CITY OF FERNDALE, WA

WASHINGTON

FERNDALE

SHOP WELL #2 – WELLHOUSE PROJECT

OVERALL DIMENSIONAL & SURFACING PLAN

DATE	SCALE	JOB NUMBER
1-08-2020	AS SHOWN	2018-141

SHEET C2.1

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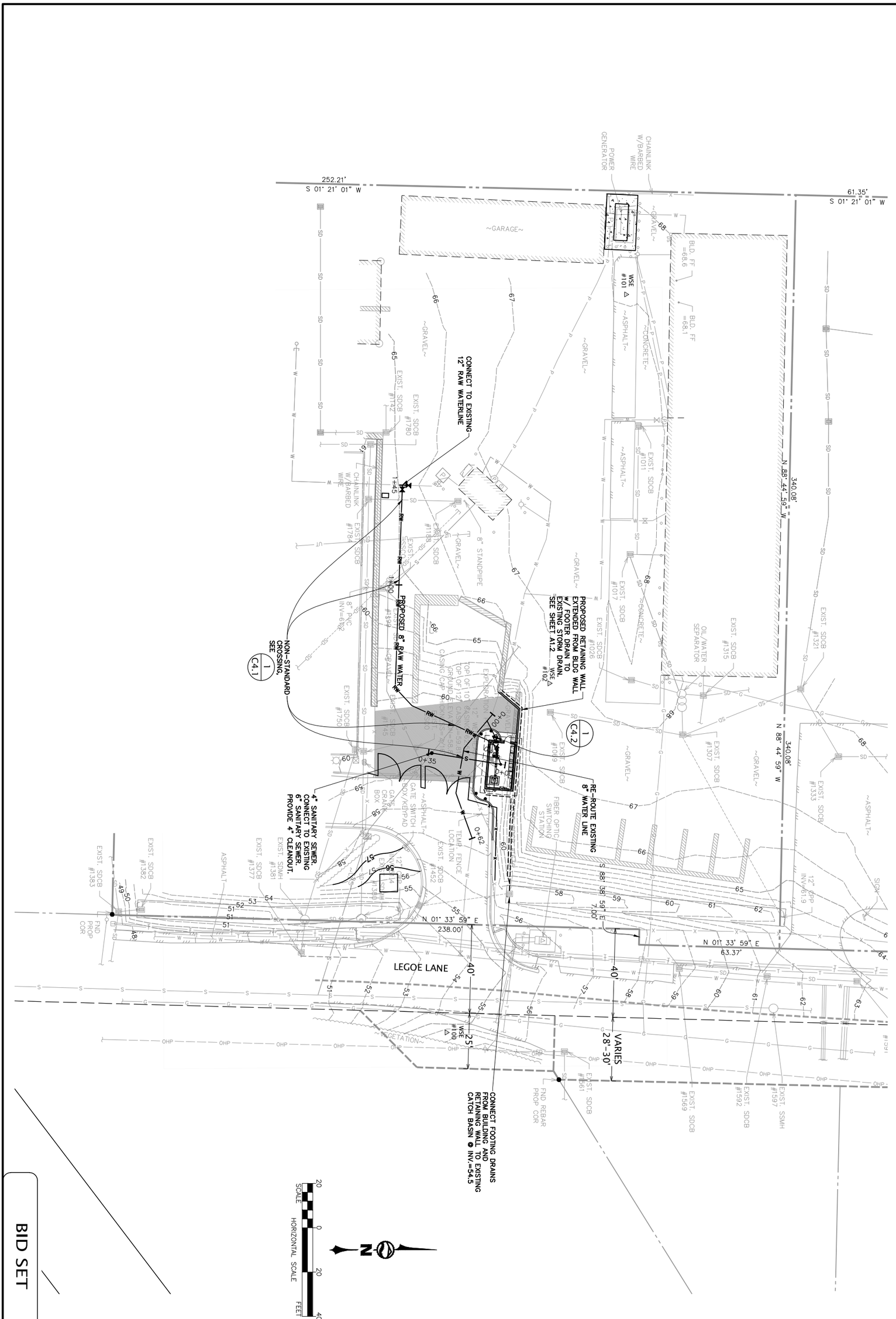
PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_LINSCREENED.ctb
W:\2018\2018-141 FERNDALE SHOP WELL 2 BLDG – DESIGN PHASE\DWG\2019_2018-141 C2.1 OVERALL DIMENSIONAL & SURFACING PLAN.DWG – 1/8/2020 11:34 AM – Rio Nickerson



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NO.	REVISIONS	BY	DATE

SHEET	DATE	CITY OF FERNDALE, WA	DESIGNED BY	
C2.2	1-08-2020		KWF	
PAGE	SCALE	FERNDALE WASHINGTON	DRAWN BY	
8 OF 35	AS SHOWN	SHOP WELL #2 - WELLHOUSE PROJECT	JRF	
	JOB NUMBER	OVERALL PIPING PLAN	CHECKED BY	
	2018-141		AWL	

STATE OF WASHINGTON · JEFFREY G. CHELSAK · 36886 · REGISTERED PROFESSIONAL ENGINEER
1-8-2020

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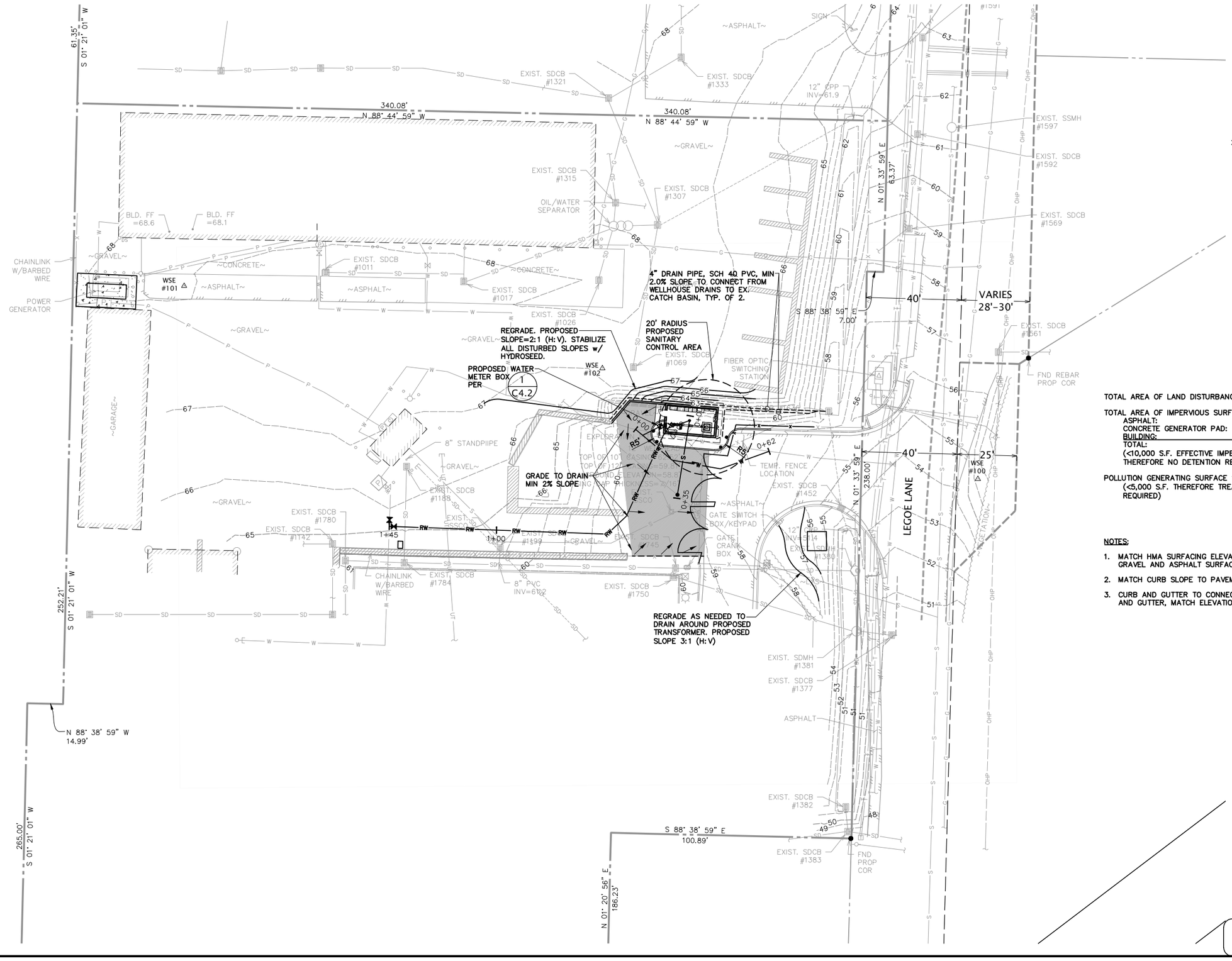
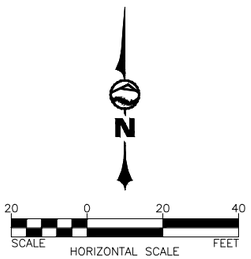
CIVIL
STRUCTURAL
SURVEY

NO.	REVISIONS	BY	DATE





TOTAL AREA OF LAND DISTURBANCE

TOTAL AREA OF IMPERVIOUS SURFACE:

ASPHALT:	1826.4 S.F.
CONCRETE GENERATOR PAD:	250.0 S.F.
BUILDING:	433.3 S.F.
TOTAL:	2509.7 S.F.

(<10,000 S.F. EFFECTIVE IMPERVIOUS SURFACE THEREFORE NO DETENTION REQUIRED)

POLLUTION GENERATING SURFACE 1826.4 S.F. (<5,000 S.F. THEREFORE TREATMENT NOT REQUIRED)

NOTES:

1. MATCH HMA SURFACING ELEVATION TO EXISTING GRAVEL AND ASPHALT SURFACING ELEVATIONS.
2. MATCH CURB SLOPE TO PAVEMENT SLOPE.
3. CURB AND GUTTER TO CONNECT TO EXISTING CURB AND GUTTER, MATCH ELEVATIONS.

BID SET

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STRUCTURAL
SURVEY

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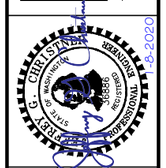

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KWF	JRF	AWL

CITY OF FERNDALE, WA

FERNDALE WASHINGTON

SHOP WELL #2 – WELLHOUSE PROJECT

OVERALL GRADING & DRAINAGE PLAN

DATE	SCALE	JOB NUMBER
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SHEET C2.3

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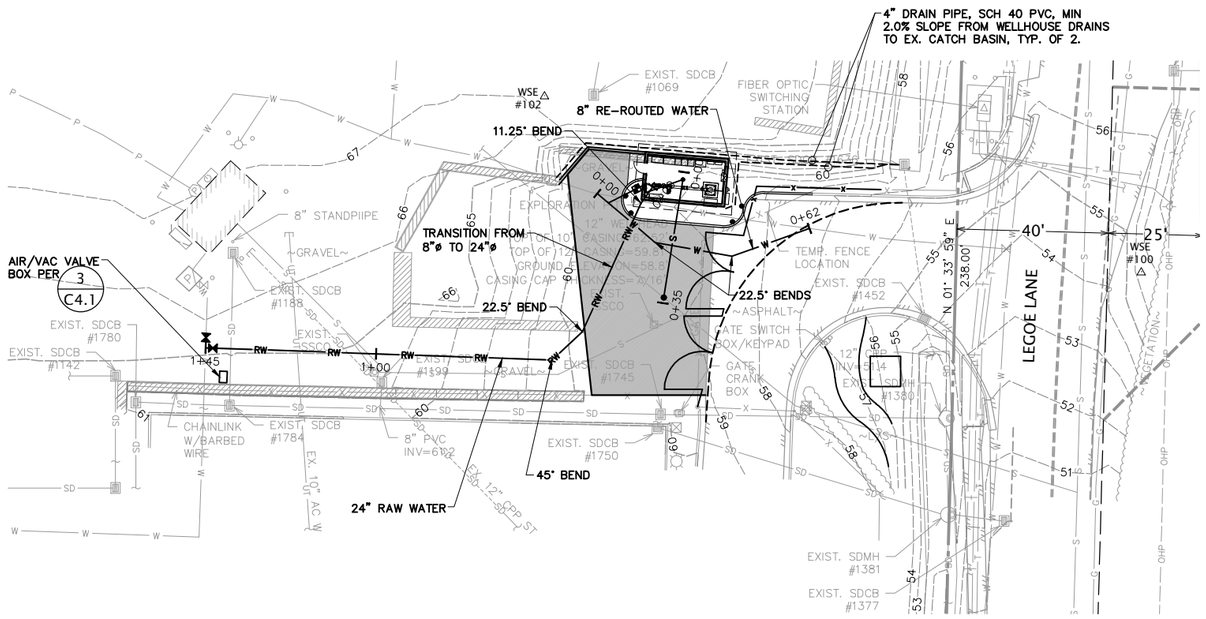
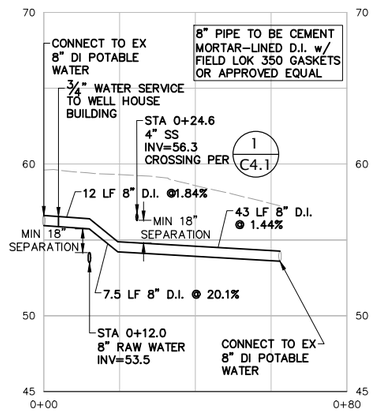
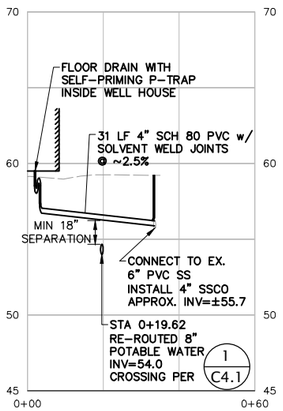
NO.	REVISIONS	BY	DATE

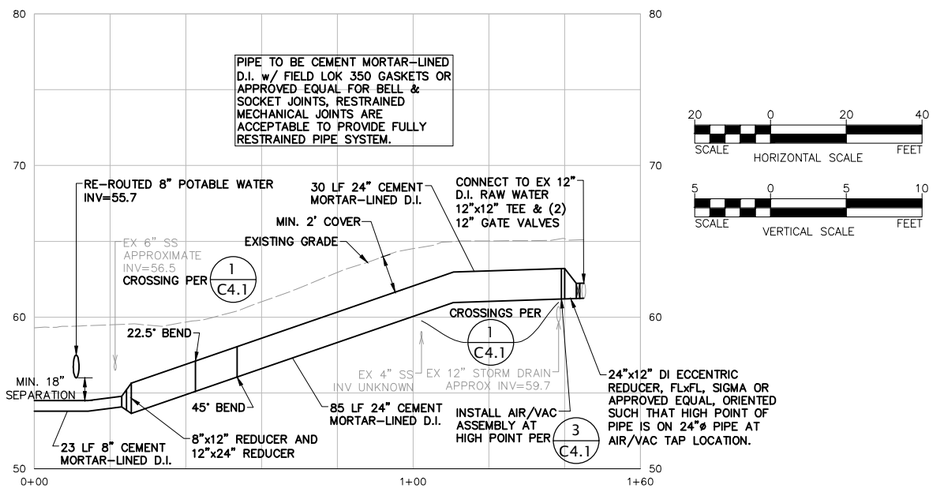




8" RE-ROUTED D.I. POTABLE WATER PROFILE



4" SANITARY SEWER CONNECTION PROFILE



RAW WATER PROFILE

BID SET

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STRUCTURAL
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WASHINGTON
FERNDALE

SHOP WELL #2 – WELLHOUSE PROJECT
PIPING PLAN & PROFILES

DATE	SCALE	JOB NUMBER
1-08-2020	AS SHOWN	2018-141

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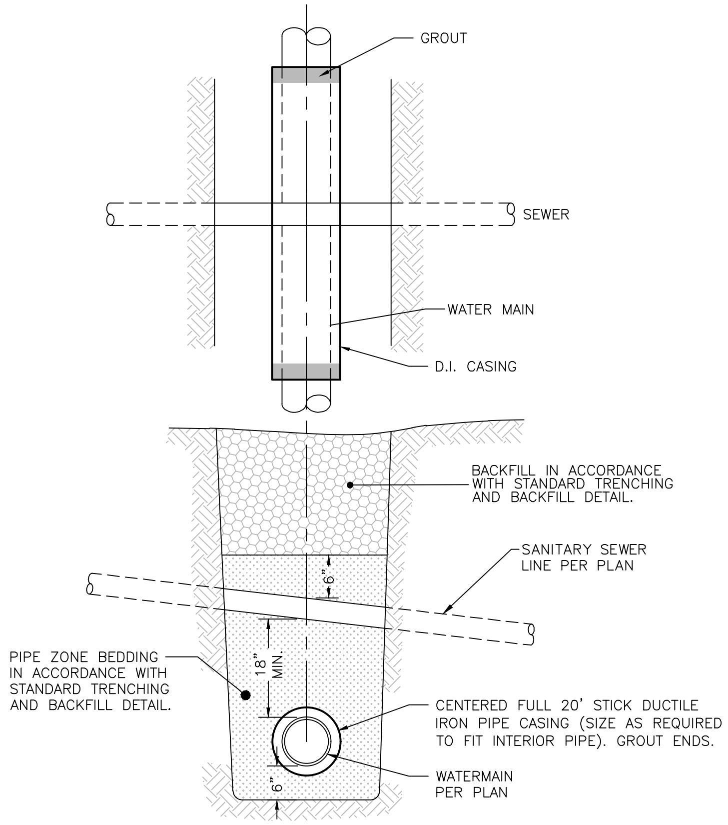
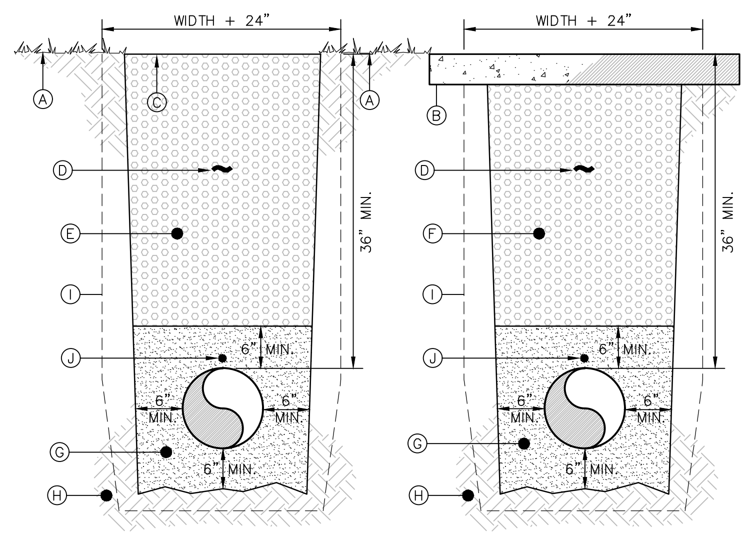
C3.1	10 OF 35



NOTES:
1. Minimum required distance from center of sewer to water main joint is 5'.
2. Minimum required distance from center of water main to sewer joint is 5'. Contractor to verify in the field.

1 / C2.2 WATER MAIN/ SEWER SERVICE NON-STANDARD CROSSING

NOT TO SCALE



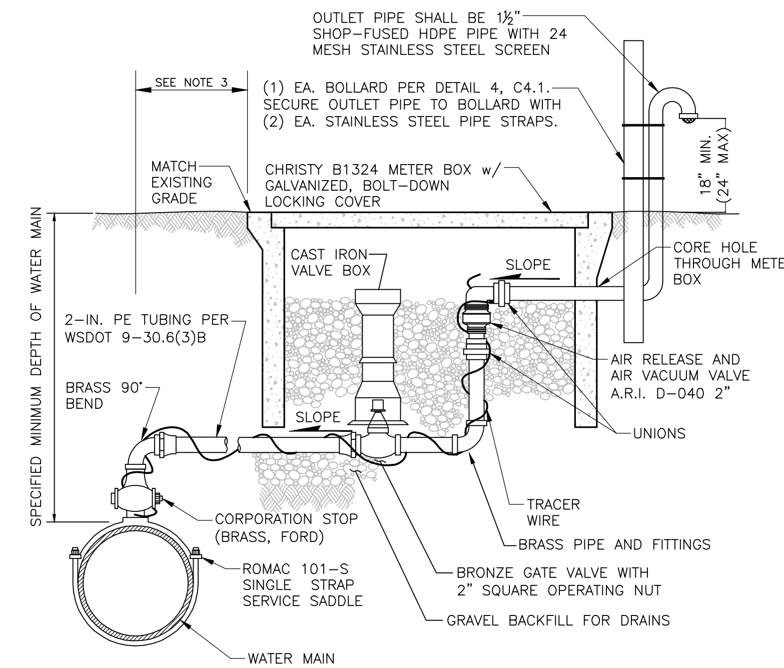
KEYED NOTES:

- (A) HYDROSEED EXPOSED AREAS.
- (B) NEW SIDEWALK OR PAVEMENT
- (C) NEW LANDSCAPED SURFACE.
- (D) 2" METALLIC DETECTOR TAPE 8" TO 12" BELOW FINISH GRADE.
- (E) BANK RUN GRAVEL BACKFILL PER WSDOT 9-03.19 COMPACTED TO 90% MAX. DENSITY INSIDE RIGHT-OF-WAY.

  NATIVE BACKFILL MATERIAL (8" MAX.) COMPACTED TO 90% MAX. DENSITY PERMITTED OUTSIDE OF RIGHT-OF-WAY.
- (F) BANK RUN GRAVEL BACKFILL PER WSDOT 9-03.19 COMPACTED TO 95% MAX. DENSITY
- (G) PIPE ZONE GRAVEL BEDDING PER WSDOT 9-03.12(3) COMPACTED TO 95% MAX. DENSITY
- (H) UNDISTURBED NATIVE MATERIAL
- (I) ROCK EXCAVATION PAY LIMITS COMPACTED TO 90% MAX. DENSITY
- (J) #10 AWG INSULATED TRACER WIRE STUBBED TO GROUND LEVEL EVERY 1000 FEET.

2 TYPICAL TRENCHING & BACKFILL

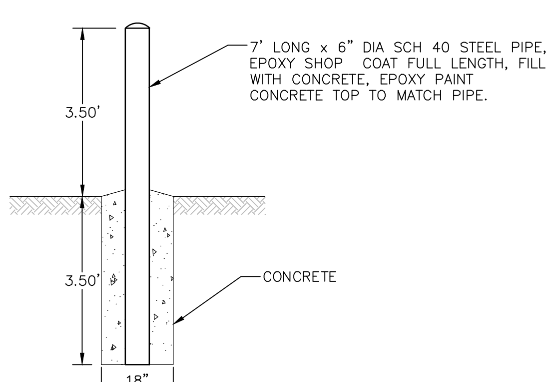
NOT TO SCALE



NOTES:
1. THE AIR/VACUUM RELEASE VALVES SHALL BE 2" A.R.I. MODEL D-040.
2. LOCATE AT THE HIGH POINT OF THE MAIN, TAP TOP OF MAIN.
3. AIR/VACUUM RELEASE ASSEMBLY SHALL BE INSTALLED ALONG THE RIGHT-OF-WAY AT LOCATION STAKED BY ENGINEER.

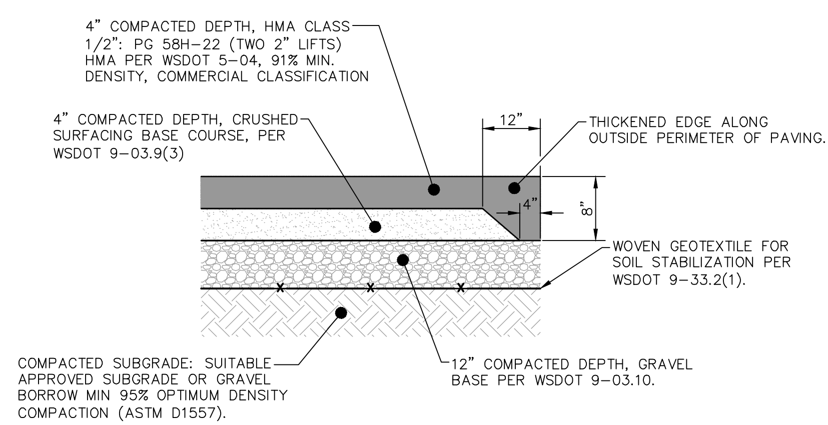
3 AIR/ VAC VALVE

NOT TO SCALE



4 / C2.1 BOLLARD DETAIL

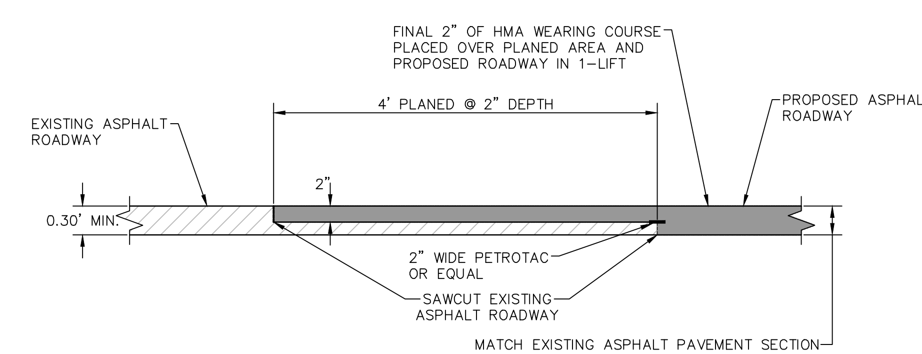
NOT TO SCALE



STANDARD ASPHALT SECTION-FOR AREAS WITH NO CURB

5 / C2.1 ASPHALT CONCRETE PAVEMENT WITH THICKENED EDGE

NOT TO SCALE



6 / C2.1 PLANING OF EXISTING AND/OR EXTENDING/REPLACING PAVEMENT SECTIONS

NOT TO SCALE

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CITY OF FERNDALE, WA

SHOP WELL #2 - WELLHOUSE PROJECT

DETAILS

FERNDALE WASHINGTON

DATE 1-08-2020 | SCALE AS SHOWN | JOB NUMBER 2018-141

SHEET C4.1

PAGE 11 OF 35

BID SET

PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_UNSCREENED.ctb
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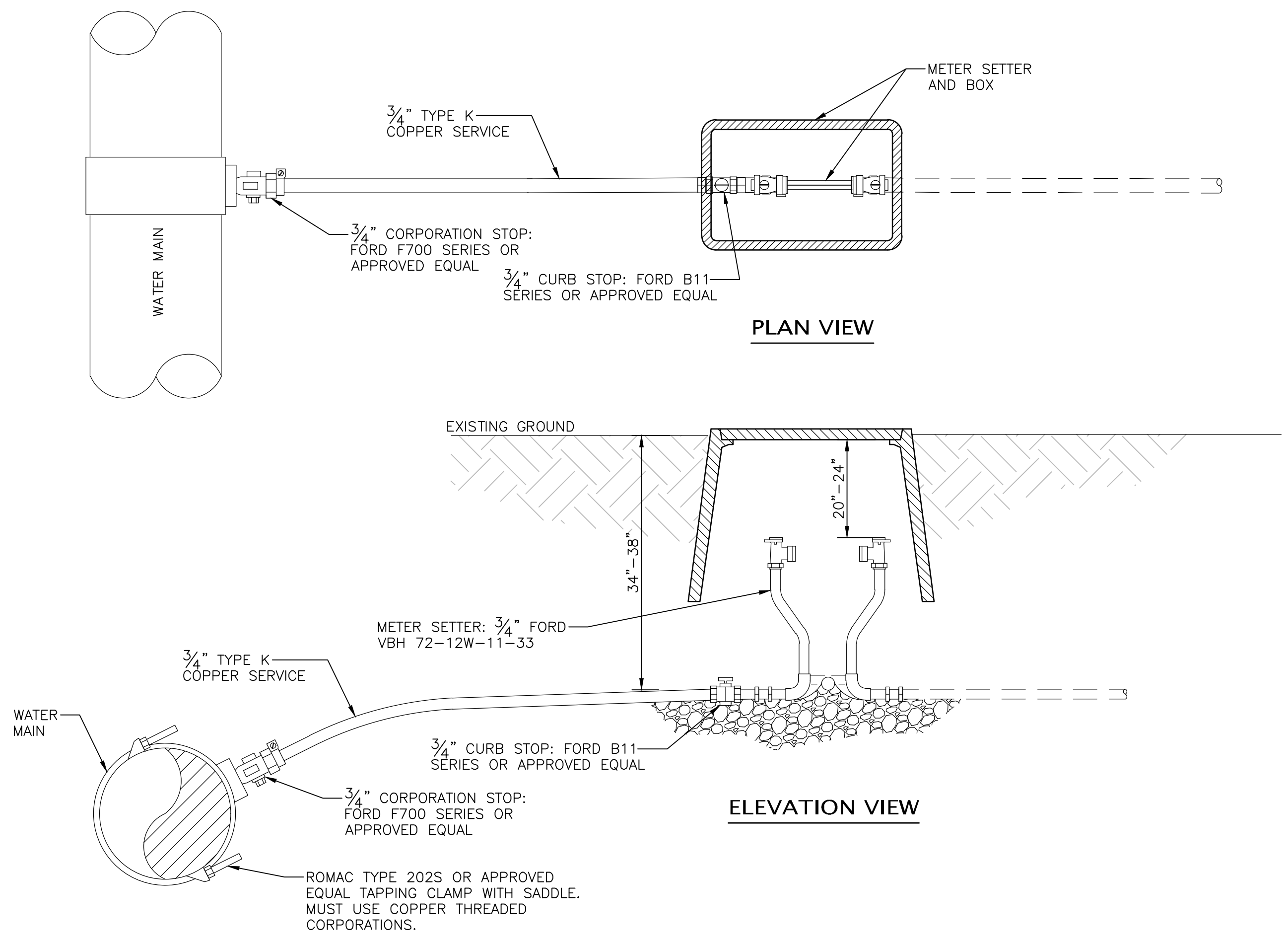
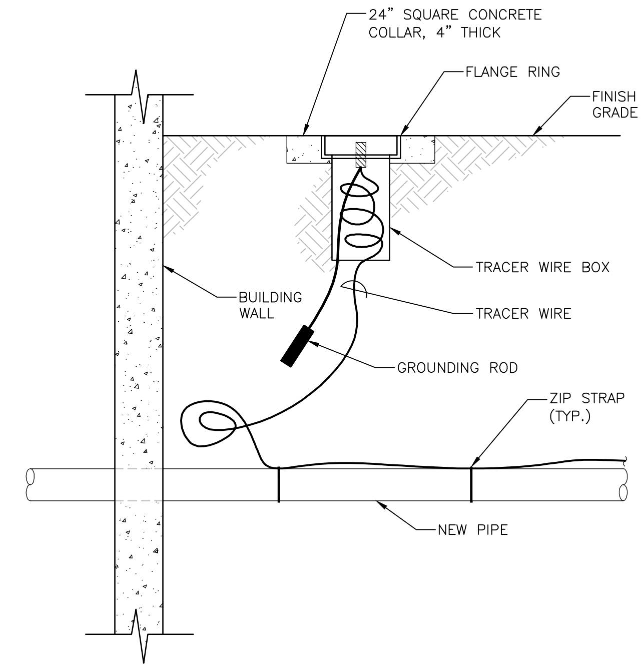


1 / C2.2

TYPICAL ¾" WATER SERVICE

NOT TO SCALE

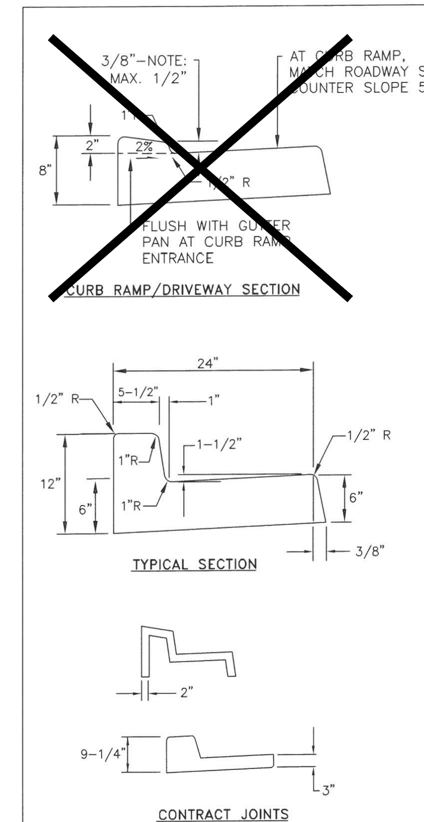


1. TRACER WIRE SHALL BE ZIP-STRAPPED TO THE PIPE AT 6-FOOT INTERVALS.
2. TRACER WIRE SHALL BE CONTINUOUS WITH NO SPLICES UNLESS AUTHORIZED BY THE ENGINEER. IF WIRE REQUIRES SPLICING, SPLICES SHALL BE WITH A SPLICE CONNECTOR FILLED WITH MOISTURE DISPLACING SILICONE FOR CORROSION RESISTANCE PROTECTION.
3. TRACER WIRE CONNECTIONS AT THE TRACER WIRE BOX SHALL BE WRAPPED WITH CORROSION RESISTANT TAPE.
4. LOOP 18"–24" OF EXTRA TRACER WIRE AT BOTH THE WATER LINE AND THE TRACER WIRE BOX.
5. CONTRACTOR SHALL PERFORM A CONDUCTIVITY/LOCATE UPON COMPLETION OF THE INSTALLATION.
6. TRACER WIRE TO BE PROVIDED FOR ALL NEW PIPING AS SHOWN ON PLANS. BOXES TO BE LOCATED NEXT TO ALL BUILDINGS WHERE PIPE ENTERS. LOCATIONS TO BE SUBMITTED TO THE ENGINEER.
7. TRACER WIRE SHALL BE SOLID COPPER WITH POLYETHYLENE JACKET EXPLICITLY MANUFACTURED FOR USE IN DIRECT BURIAL APPLICATIONS. JACKET COLOR GREEN FOR WASTEWATER, BLUE FOR WATER.

2

TRACER WIRE LOCATER BOX DETAIL

NOT TO SCALE



GENERAL NOTES

1. CONTRACTION JOINTS OF ONE OF THE TYPES SHOWN ABOVE TO BE PLACED 10'C/C. JOINTS MUST COMPLETELY SEVER THE STRUCTURE TO THE POINTS SHOWN. JOINTS MAY BE MADE BY INSERTING MINIMUM 3/16" BITUMINOUS FILLER DUMMY JOINTS. JOINTS SHALL BE CLEANED AND EDGED.
2. 2" WEEP HOLES TO BE PLACED ON EACH SIDE OF DRIVEWAY SECTION & A MAXIMUM 60' C/C IN CUT SECTIONS WHERE SIDEWALK DRAIN NOT REQUIRED BY PUBLIC WORKS DIRECTOR.
3. 3/8" EXPANSION JOINTS TO BE PLACED AT DRIVEWAY SECTIONS, CURB RETURNS, CURB RAMPS, & COLD JOINTS OR A MAXIMUM OF 80' C/C. EXPANSION JOINTS SHALL PROTRUDE 1" BELOW THE BOTTOM OF GUTTER.
4. CONCRETE SHALL BE CEMENT CONCRETE "CLASS 3000".
5. FINISHED WORK SHALL NOT VARY MORE THAN 1/8" IN GRADE AND 1/4" IN ALIGNMENT WHEN CHECKED WITH A 10' STRAIGHT EDGE.
6. EXPOSED SURFACES SHALL BE BRUSHED WITH A FIBER HAIR BRUSH.
7. WHITE PIGMENTED OR TRANSPARENT CURING COMPOUND SHALL BE APPLIED AS OUTLINED IN THE STANDARD SPECIFICATIONS.
8. FURTHER REQUIREMENTS SHALL BE AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

NOVEMBER 25, 2016

CITY OF FERNDALE WASHINGTON — APPROVED — Public Works Director — 8/11/17 — Date

CURB AND GUTTER INSTALLATION
STANDARD DETAIL R-9
NOT TO SCALE

3 / C2.1

CURB & GUTTER DETAIL

NOT TO SCALE

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FERNDALE — WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
DETAILS

DATE 1-08-2020 — SCALE AS SHOWN — JOB NUMBER 2018-141

SHEET C4.2 — PAGE 12 OF 35

PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_UNSCREENED.ctb
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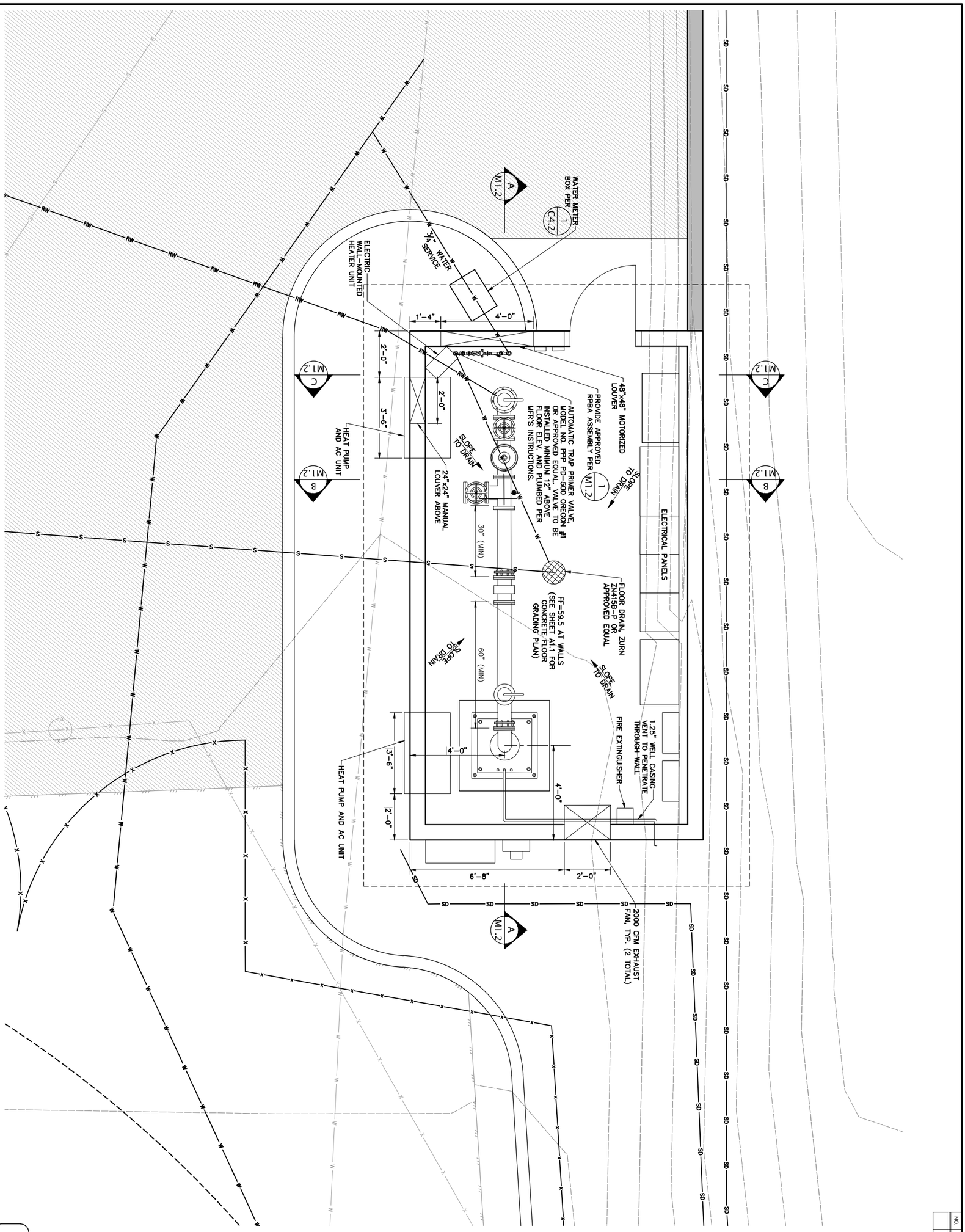

BID SET

SCALE HORIZONTAL SCALE FEET 2 0 2 4

NO.	REVISIONS	BY	DATE

SHEET	DATE	CITY OF FERNDALE, WA	DESIGNED BY
M1.1	1-08-2020	FERNDALE WASHINGTON	KWF
PAGE	SCALE	SHOP WELL #2 - WELLHOUSE PROJECT	DRAWN BY
13 OF 35	AS SHOWN	WELL HOUSE MECHANICAL PLAN	JRF
	JOB NUMBER 2018-141		CHECKED BY AWL

STEVEN G. CHELSTAD, 36886, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER
1-8-2020

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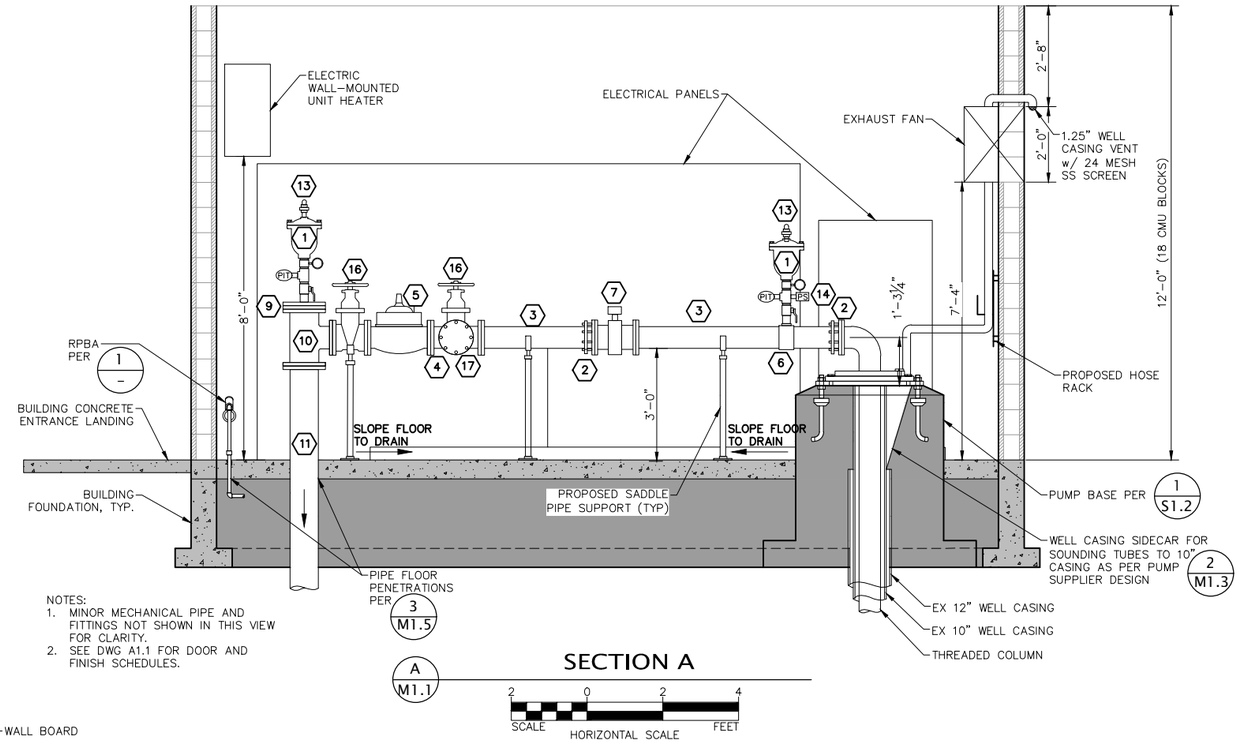
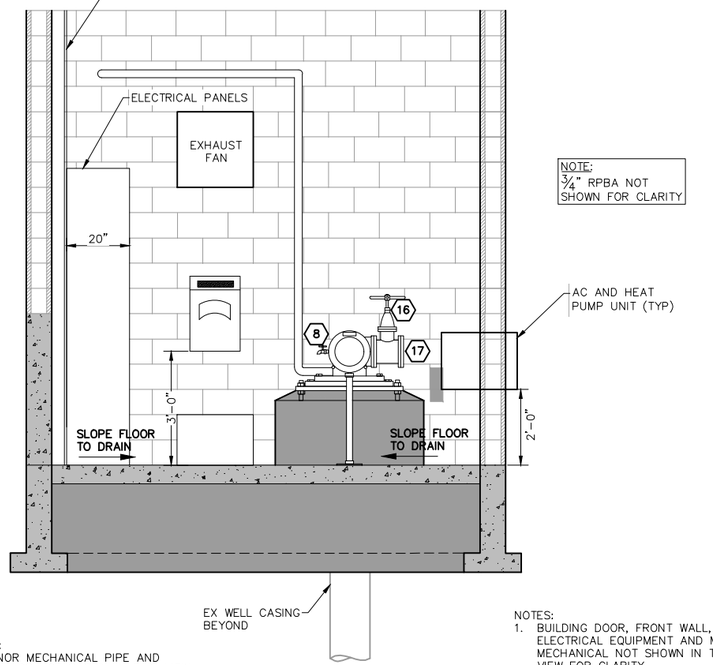


NOTES:
1. MINOR MECHANICAL PIPE AND FITTINGS NOT SHOWN IN THIS VIEW FOR CLARITY.
2. SEE DWG A1.1 FOR DOOR AND FINISH SCHEDULES.

SECTION A

A / M1.1

SCALE 2 0 2 4 FEET — HORIZONTAL SCALE



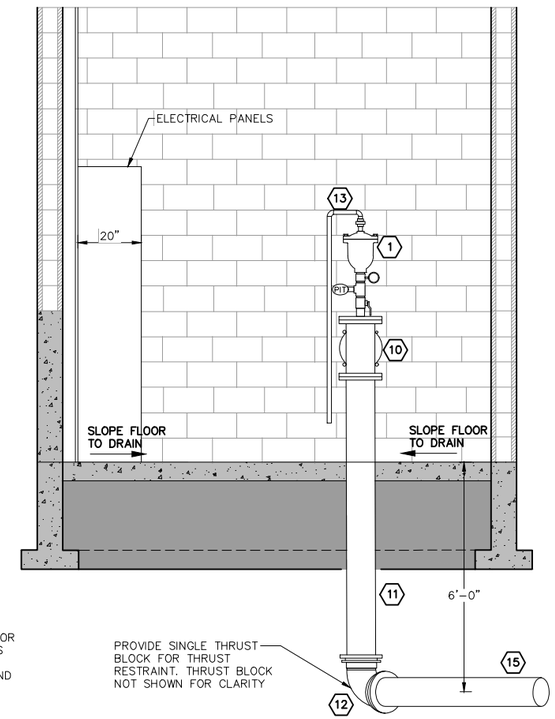
NOTE:
¾" RPBA NOT SHOWN FOR CLARITY

NOTES:
1. MINOR MECHANICAL PIPE AND FITTINGS NOT SHOWN IN THIS VIEW FOR CLARITY.
2. SEE DWG. A1.1 FOR DOOR AND FINISH SCHEDULES.

SECTION B

B / M1.1

SCALE 2 0 2 4 FEET — HORIZONTAL SCALE



NOTES:
1. BUILDING DOOR, FRONT WALL, ELECTRICAL EQUIPMENT AND MINOR MECHANICAL NOT SHOWN IN THIS VIEW FOR CLARITY
2. SEE DWG NO. A1.1 FOR DOOR AND FINISH SCHEDULES.

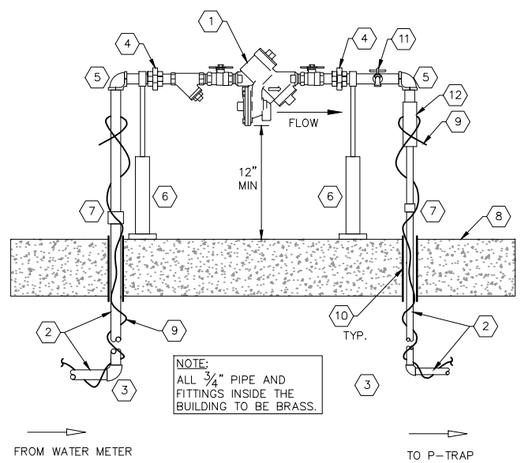
SECTION C

C / M1.1

SCALE 2 0 2 4 FEET — HORIZONTAL SCALE

KEYED NOTES

1. = 2" AIR RELEASE VALVE w/ BRONZE BALL VALVE TO ISOLATE, WATTS LFB6080G2-SS OR APPROVED EQUAL, PRESSURE INDICATING TRANSDUCER AND PRESSURE GAUGE. ANY REQUIRED FITTINGS SHALL BE BRONZE.
2. = 6" DI FCA WITH SHACKLE RODS
3. = 6" CEMENT MORTAR-LINED DI SPOOL (PExFL)
4. = 6"x6" CEMENT MORTAR-LINED DI TEE (FLxFL) TAP TEE TO ACCOMMODATE 8
5. = 6" PRESSURE SUSTAINING VALVE WITH CHECK FEATURE, CLA-VAL 50G-01BDPSVKC OR APPROVED EQUAL
6. = ROMAC 202S TAPPING SADDLE w/ 2" NPT THREAD
7. = 6" MAGNETIC FLOW METER (FLxFL)
8. = ¾" STAINLESS STEEL SMOOTH-NOSED SAMPLE TAP
9. = 8" CEMENT MORTAR-LINED DI BLIND FLANGE w/ 2" TAP TO 2" TEE.
10. = 6"x8" CEMENT MORTAR-LINED DI TEE (FLxFL)
11. = 8" CEMENT MORTAR-LINED DI SPOOL (FLxPE)
12. = 8" 90° CEMENT MORTAR-LINED DI BEND (MJxMJ) WITH THRUST BLOCK AND MEGA-LUG RESTRAINTS
13. = BRONZE PIPE w/ BRONZE UNION AND FITTINGS AS REQUIRED TO FIT AIR RELEASE VALVE OUTLET
14. = PRESSURE SWITCH. SEE ELECTRICAL.
15. = 8" CEMENT MORTAR-LINED DI PIPE
16. = 6" CEMENT MORTAR-LINED DI GATE VALVE (FLxFL) WITH HANDWHEEL OPERATOR
17. = 6" CEMENT MORTAR-LINED DI BLIND FLANGE



NOTE:
ALL ¾" PIPE AND FITTINGS INSIDE THE BUILDING TO BE BRASS.

KEYED NOTES

1. = ¾" REDUCED PRESSURE BACKFLOW ASSEMBLY w/ STRAINER, ZURN WILKINS 975XL2US.
2. = ¾" HDPE PIPE
3. = ¾" 90° BEND
4. = ¾" UNION
5. = ¾" BRASS 90° BEND
6. = PIPE SUPPORT
7. = ¾" HDPE TO ¾" BRASS PIPE TRANSITION FITTING(S)
8. = CONCRETE BUILDING FLOOR
9. = TRACER WIRE
10. = PIPE FLOOR PENETRATION PER 3/M1.5
11. = ¾" HOSE BIB
12. = TRAP PRIMER VALVE, MODEL NO. PPP PO-500 OREGON #1 OR APPROVED EQUAL WITH SERVICE VALVE AND FITTINGS AS NEEDED

¾-INCH RPBA

1 / M1.1

NOT TO SCALE

BID SET

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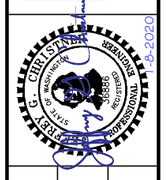

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KWF	JRF	AWL

CITY OF FERNDALE, WA

WASHINGTON

FERNDALE

SHOP WELL #2 – WELLHOUSE PROJECT

WELL HOUSE MECHANICAL SECTIONS

DATE	SCALE	JOB NUMBER
1-08-2020	AS SHOWN	2018-141

SHEET M1.2

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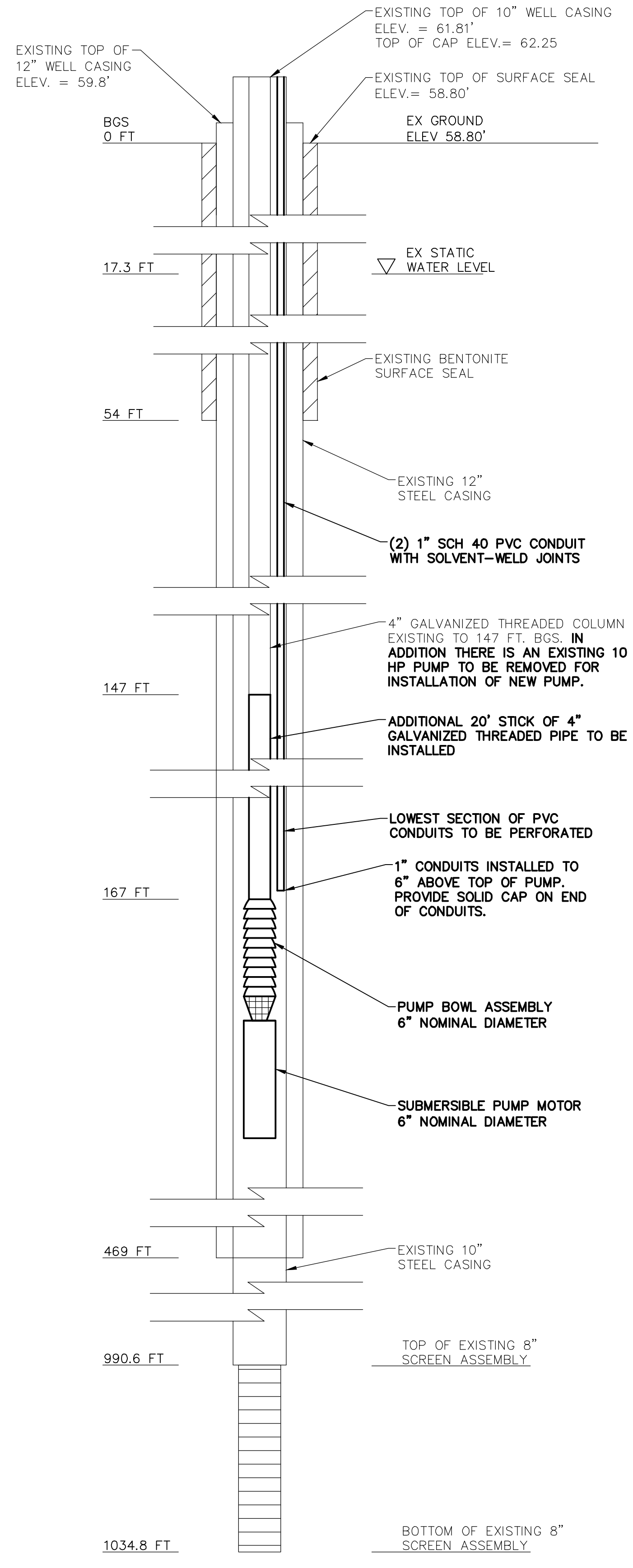
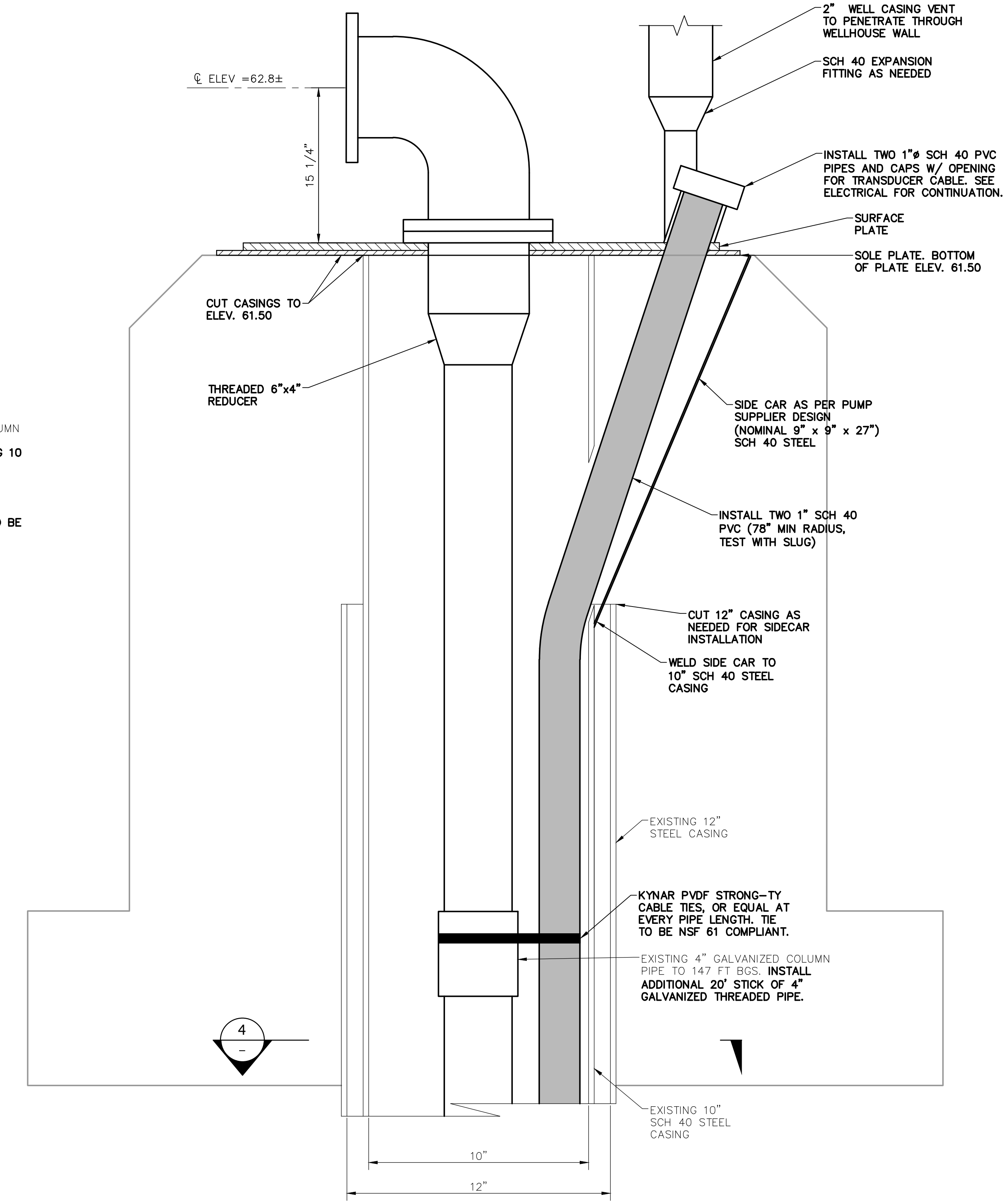
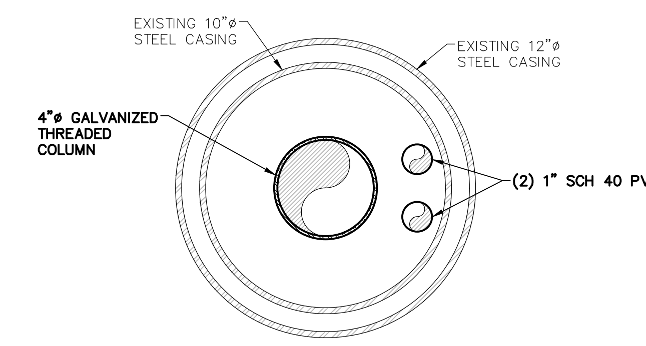


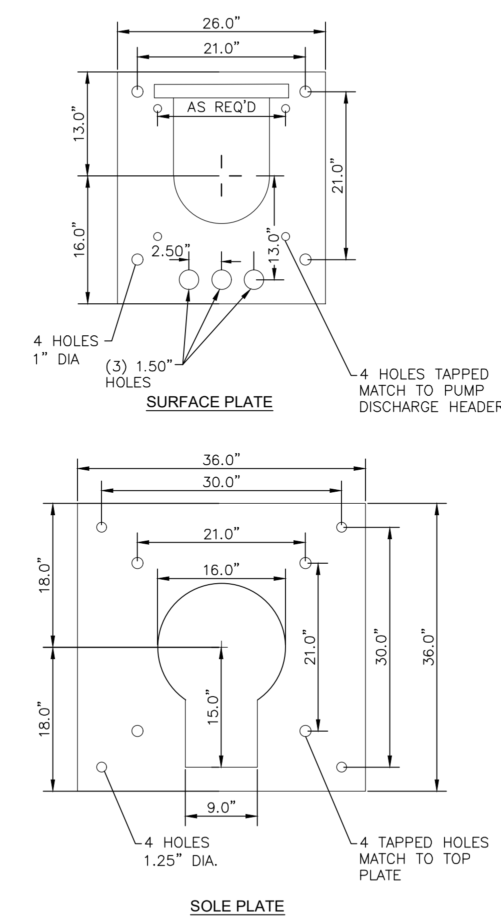
1 EXISTING SHOP WELL #2
PROFILE & PROPOSED WELL PUMP SETTINGS
NOT TO SCALE



2 MONITORING PORT DETAIL
NOT TO SCALE



4 WELL CASING SECTION
NOT TO SCALE



3 SHOP WELL #2 MOUNTING PLATES DETAIL
NOT TO SCALE

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CIVIL STRUCTURAL SURVEY

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FERNDALE WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
MECHANICAL DETAILS – TEMPORARY WELL PUMP INFO

DATE 1-08-2020
SCALE AS SHOWN
JOB NUMBER 2018-141
SHEET M1.3
PAGE 15 OF 35

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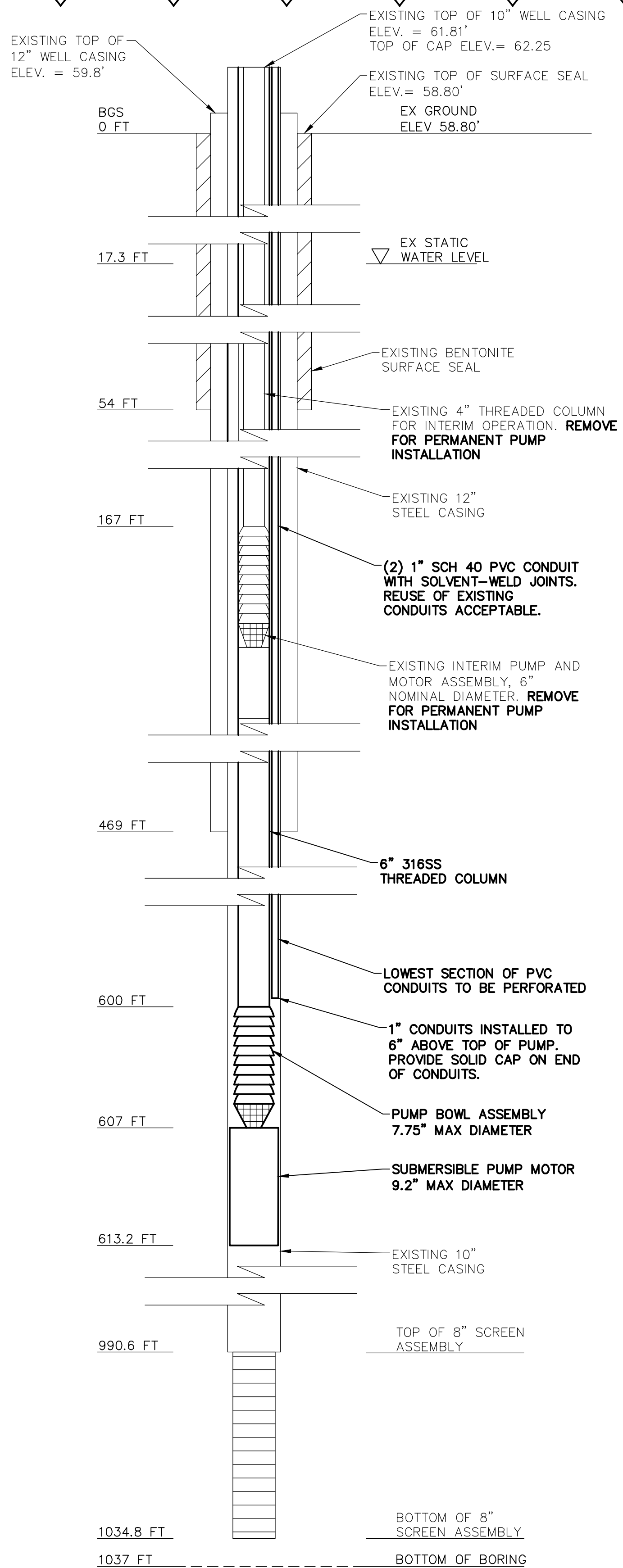
NO.	REVISIONS	BY	DATE

CLOUDED MATERIAL AND LABOR TO BE PROVIDED BY OWNER (SPRING 2021)



1 EXISTING SHOP WELL #2 PROFILE & PROPOSED WELL PUMP SETTINGS
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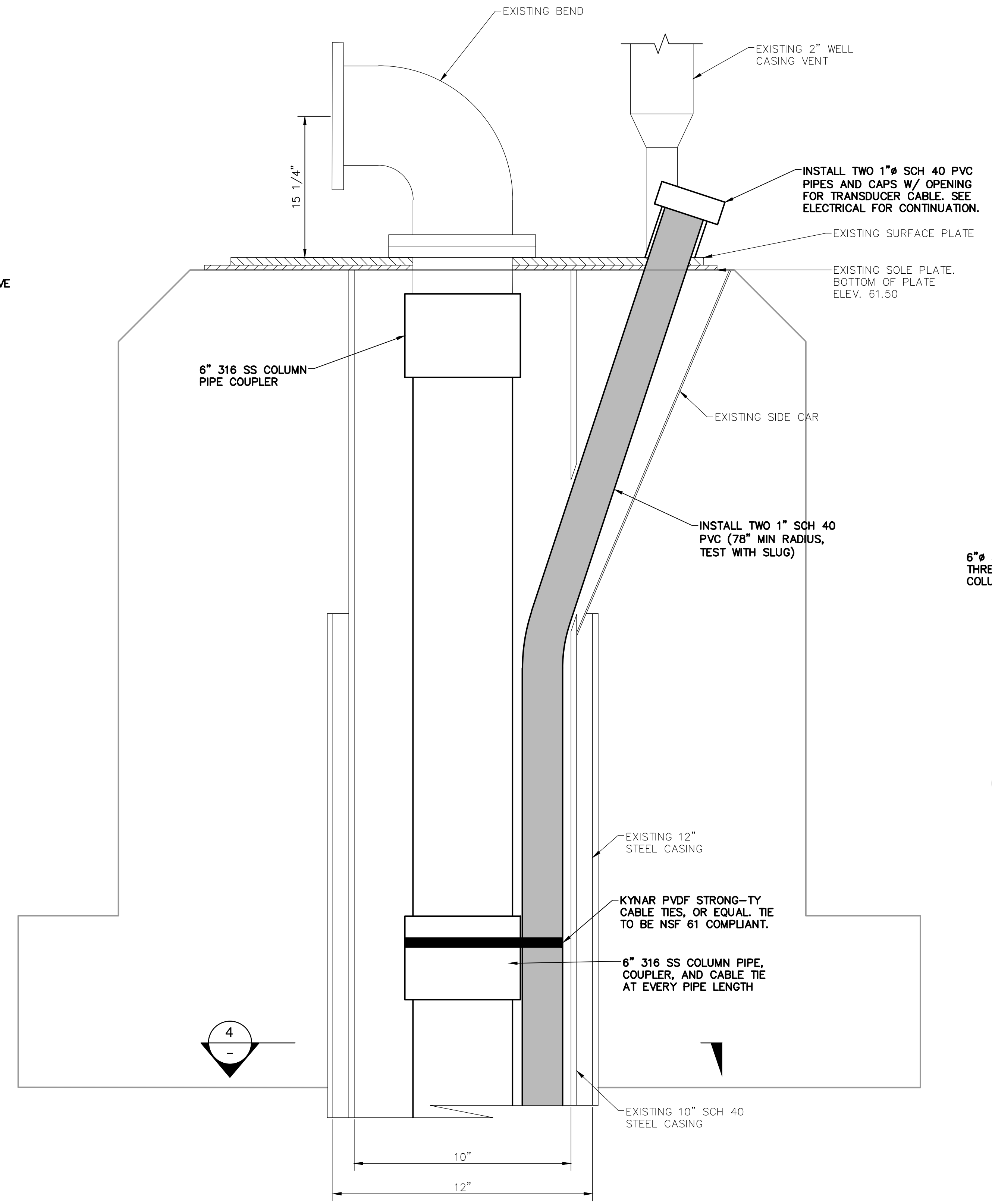

2 MONITORING PORT DETAIL
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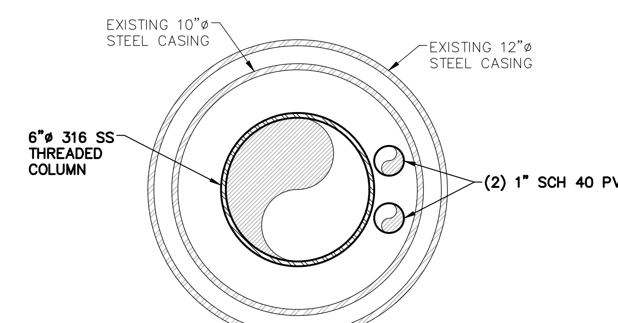

4 WELL CASING SECTION
NOT TO SCALE

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SHOP WELL #2 – WELLHOUSE PROJECT
MECHANICAL DETAILS – PERMANENT PUMP INFO

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SHEET M1.4

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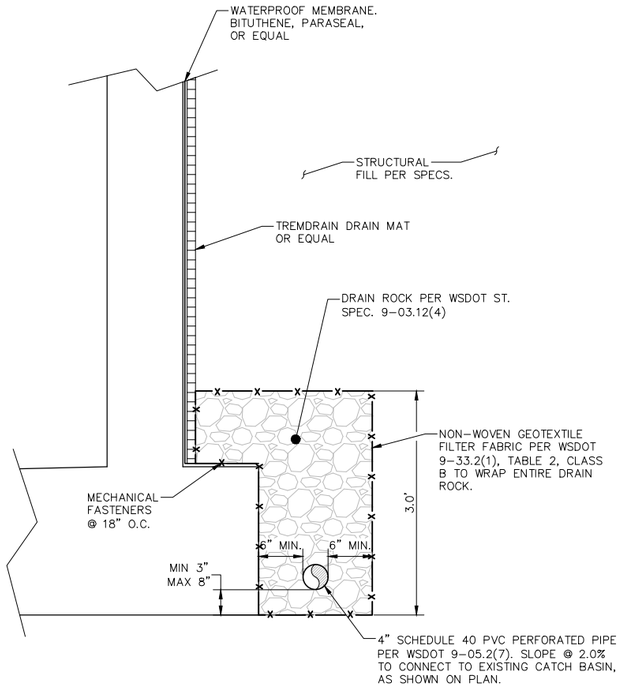
NO.	REVISIONS	BY	DATE



1 / A1.2 FOOTING DRAIN DETAIL

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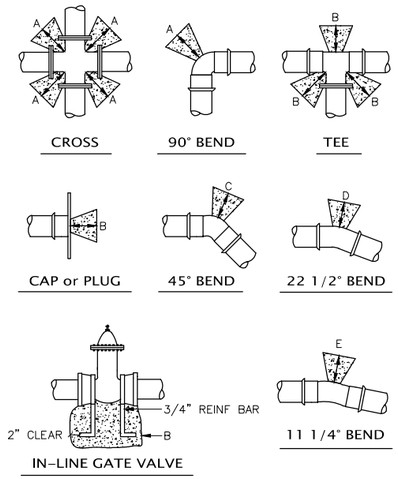
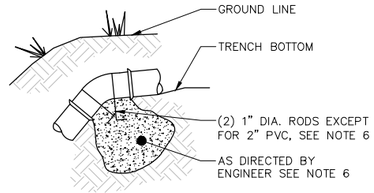


(PARTIAL RESTRAINT MUST BE PROVIDED BY PIPELINE BEYOND VALVE)

THRUST BLOCK TABLE					
MINIMUM BEARING AREA AGAINST UNDISTURBED SOIL IN SQUARE FEET					
PIPE SIZE	A	B	C	D	E
4"	2	2	2	2	2
6"	4	3	2	2	2
8"	7	5	4	2	2
10"	11	8	6	3	2
12"	16	12	9	5	3
16"	29	20	16	8	4
20"	45	32	24	13	6
24"	65	46	35	18	9



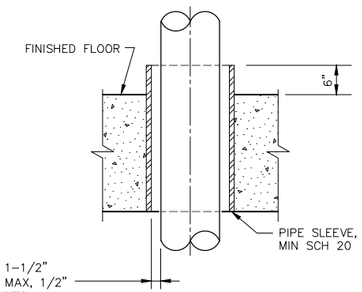
VERTICAL BEND

NOTES:

1. SQUARE FEET OF CONCRETE THRUST BLOCK AREA IS BASED ON 200 P.S.I. INTERNAL PRESSURE, A SOIL SAFE BEARING OF 3000 POUNDS PER SQUARE FOOT AND A FACTOR OF SAFETY OF 1.5.
2. BEARING AREA MUST BE ADJUSTED FOR INTERNAL PRESSURES AND LOWER SOIL BEARING VALUES.
3. CONCRETE BLOCKING SHALL BE CAST IN PLACE AND HAVE A MINIMUM OF 1/4 SQUARE FOOT BEARING AGAINST THE FITTING.
4. BLOCK SHALL BEAR AGAINST FITTINGS ONLY AND SHALL BE CLEAR OF JOINTS TO PERMIT TAKING UP OR DISMANTLING JOINT.
5. THE CONTRACTOR SHALL INSTALL BLOCKING WHICH IS ADEQUATE TO WITHSTAND FULL TEST PRESSURE AS WELL AS TO CONTINUOUSLY WITHSTAND OPERATING PRESSURE UNDER ALL CONDITIONS OF SERVICE.
6. STAINLESS STEEL BANDING SHALL BE USED AT 2" PVC VERTICAL BENDS INSTEAD OF 1" RODS. CONTACT ENGINEER FOR SIZING OF THRUST BLOCK AND DETAILS.

2 THRUST BLOCKING DETAIL

NOT TO SCALE



3 / M1.2 PIPE PENETRATION FOR INTERIOR FLOORS

NOT TO SCALE

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SHOP WELL #2 - WELLHOUSE PROJECT

MECHANICAL DETAILS

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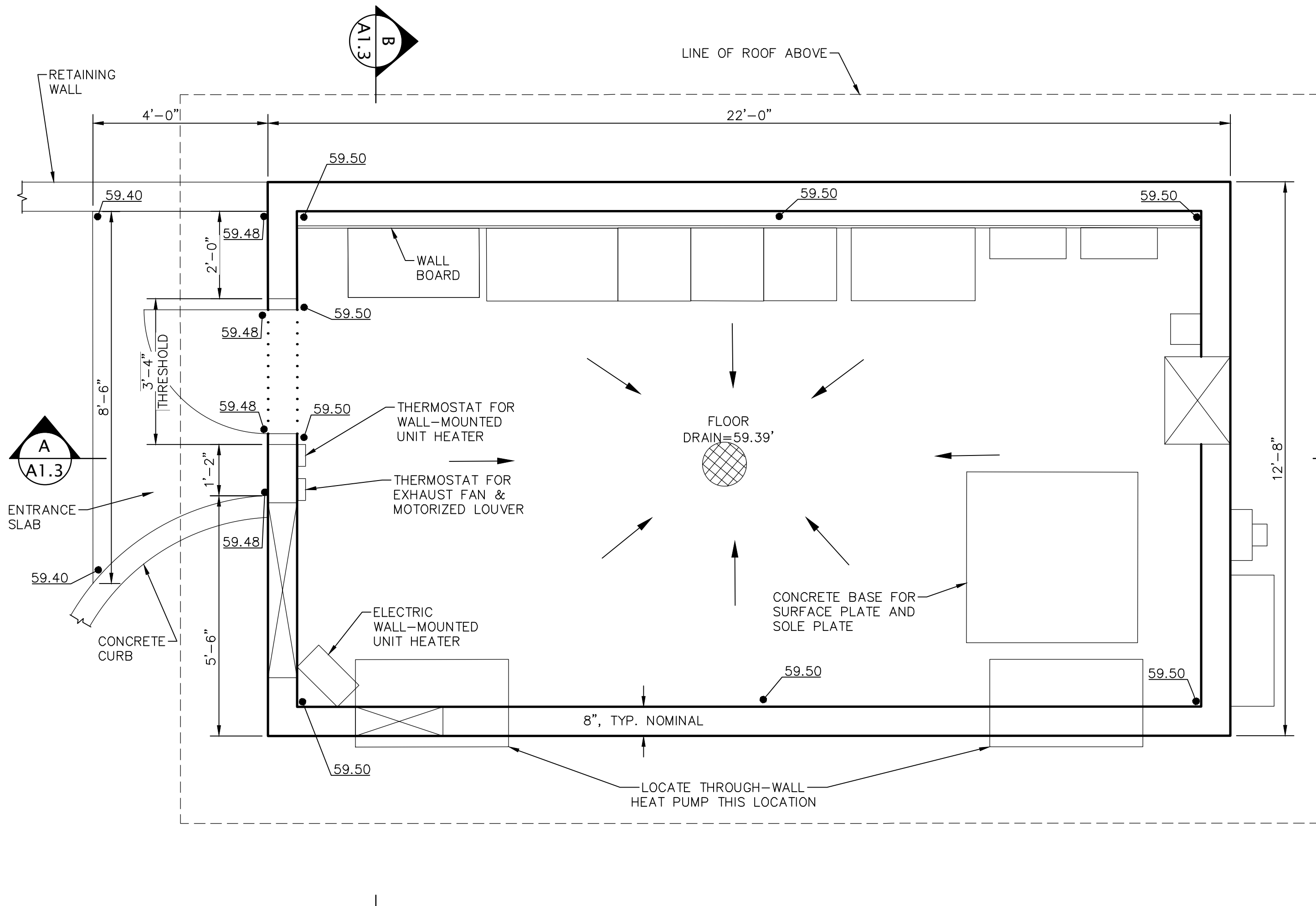
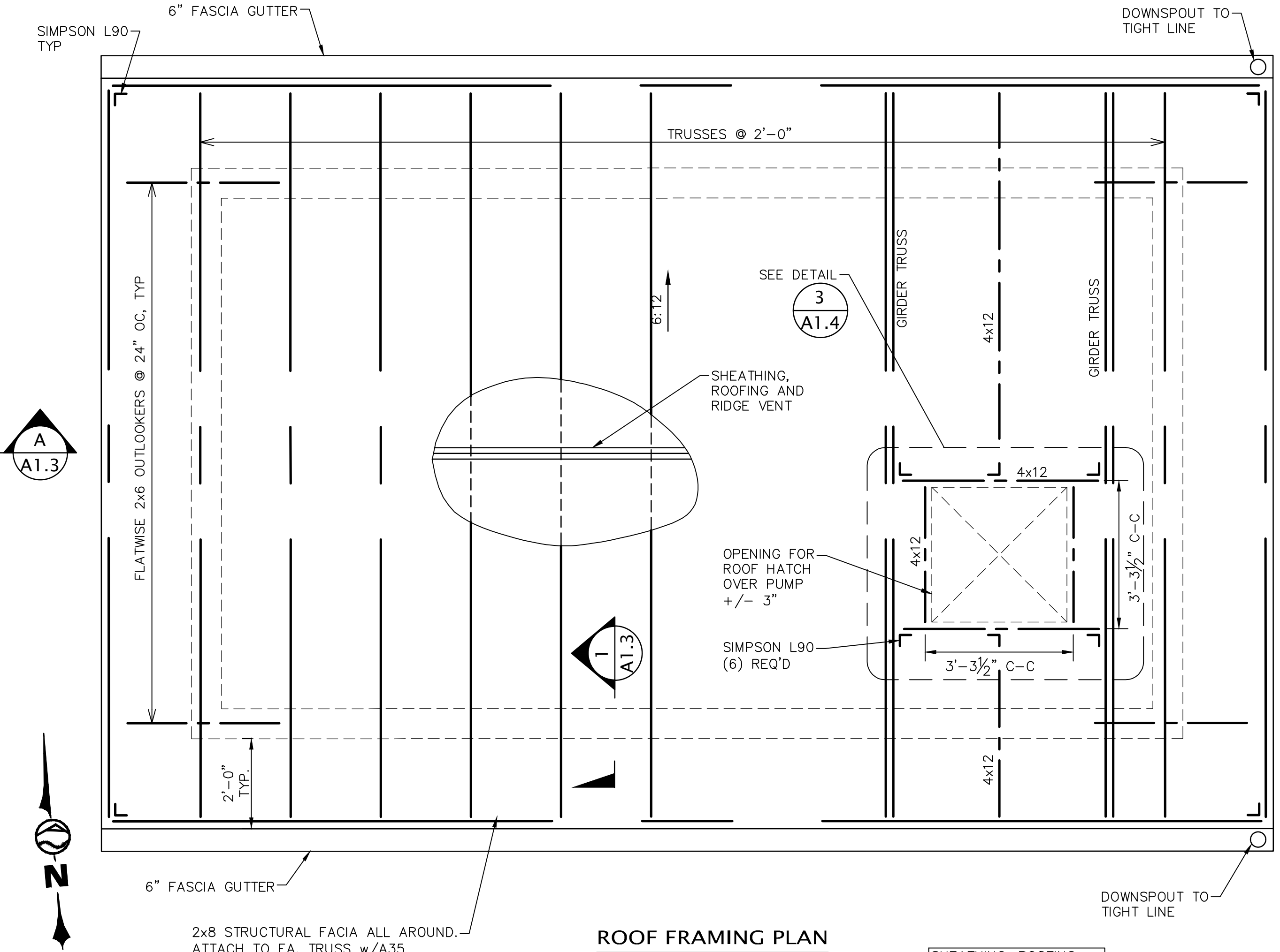
SHEET M1.5 | PAGE 17 OF 35



FLOOR PLAN

2 0 2 4
SCALE HORIZONTAL SCALE FEET



ROOF FRAMING PLAN

2 0 2 4
SCALE HORIZONTAL SCALE FEET

SHEATHING, ROOFING AND RIDGE VENT SHOWN CUTAWAY FOR CLARITY

FINISH SCHEDULE

ABBREVIATIONS
R.B. = RUBBER BASE
EXP STR = EXPOSED STRUCTURE
GWB = GYPSUM WALL BOARD
AC = ACOUSTICAL WALL BOARD
FCS = FIBER CEMENT SIDING
TILE = SUSPENDED CEILING TILE
PLY = 1/2" PLYWOOD

ROOM NAME	ROOM NO.	FLOOR MAT'L	FLOOR FINISH	BASE MAT'L	WALL MAT'L	WALL FINISH	CEILING MAT'L	CEILING FINISH	CEILING HEIGHT
PUMP ROOM	101	CONCRETE	SEALER	6" R.B.*	NORTH INT WALL-FCS LOWER 8' GWB 8' AND ABOVE SOUTH INT WALL-EXP STR WEST INT WALL- EXP STR EAST INT WALL- EXP STR	PAINT	GWB	PAINT	12'-0"

DOOR SCHEDULE

DOOR SIZE WxHxT	TYPE	MATERIAL	FINISH	HARDWARE GROUP #
3'-0"x6'-8"x1 3/4"	A	HM	PT	3

TYPE A
FLUSH PANEL

NOTE: DOOR FRAMES = H. MET. (GROUT SOLID @ CMU) U.N.O.

ABBREVIATIONS
INS HM = INSULATED HOLLOW METAL
ACOUS = ACOUSTICAL DOOR, SEE SPEC'S
PT = PAINT
SC = SOLID CORE

NO.	REVISIONS	BY	DATE

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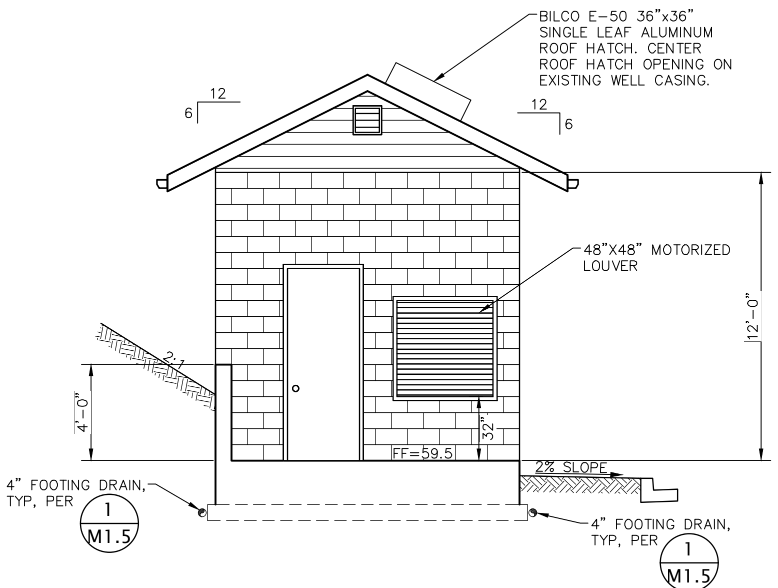
CITY OF FERNDALE, WA
SHOP WELL #2 - WELLHOUSE PROJECT
WELL HOUSE BUILDING PLAN
FERNDALE WASHINGTON

DATE 1-08-2020 | SCALE AS SHOWN | JOB NUMBER 2018-141

SHEET A1.1 | PAGE 18 OF 35

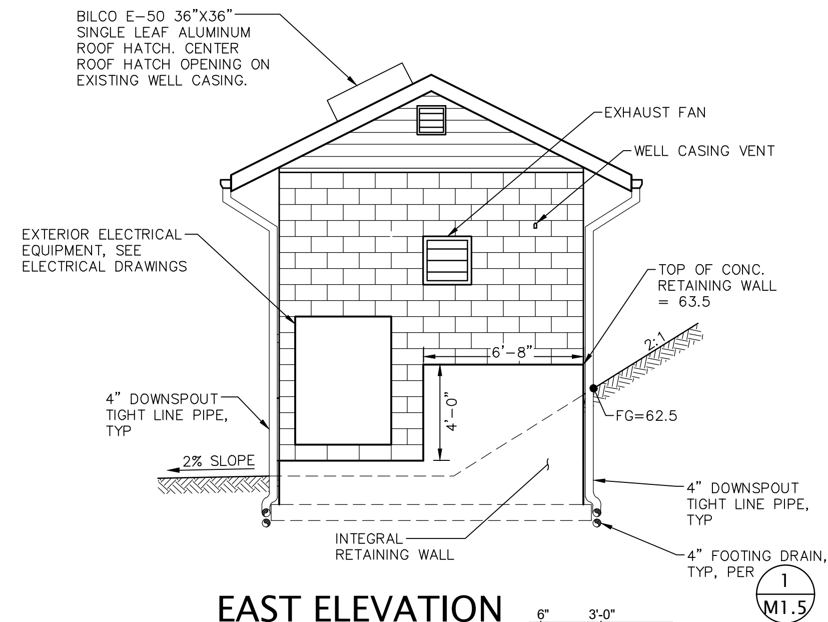
BID SET

PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_UNSCREENED.ctb
W:\2018\2018-141 FERNDALE SHOP WELL 2 BLDG - DESIGN PHASE\DWG\V2019_2018-141 A1.1 WELL HOUSE BUILDING PLAN.DWG - 1/8/2020 11:37 AM - Ria Nickerson



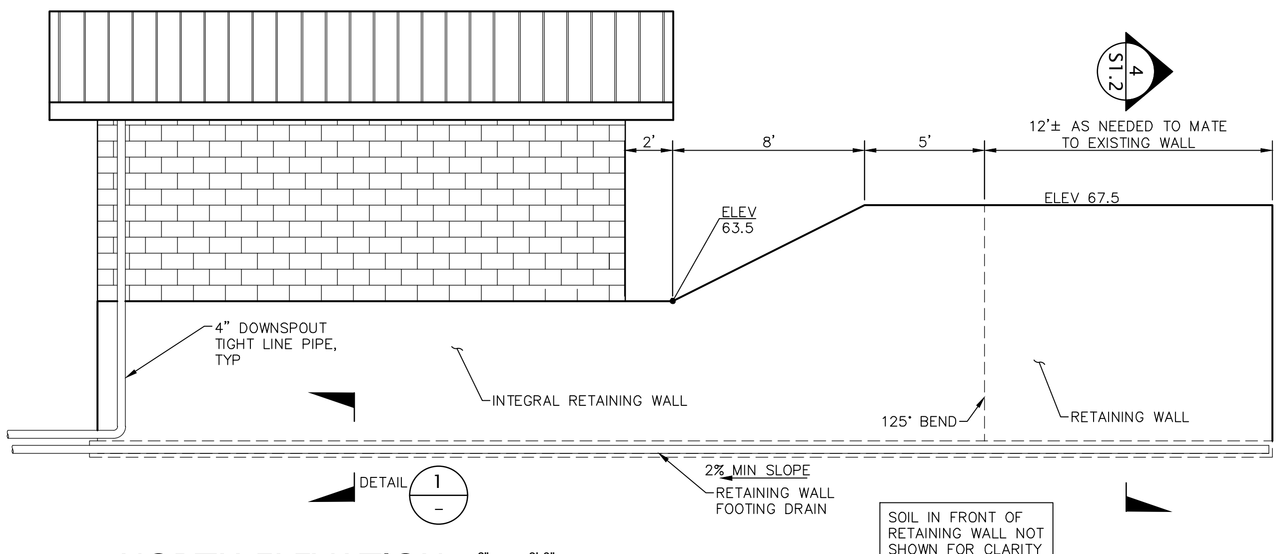
WEST ELEVATION

6" 3'-0" 0 1'-0" 6'-0"



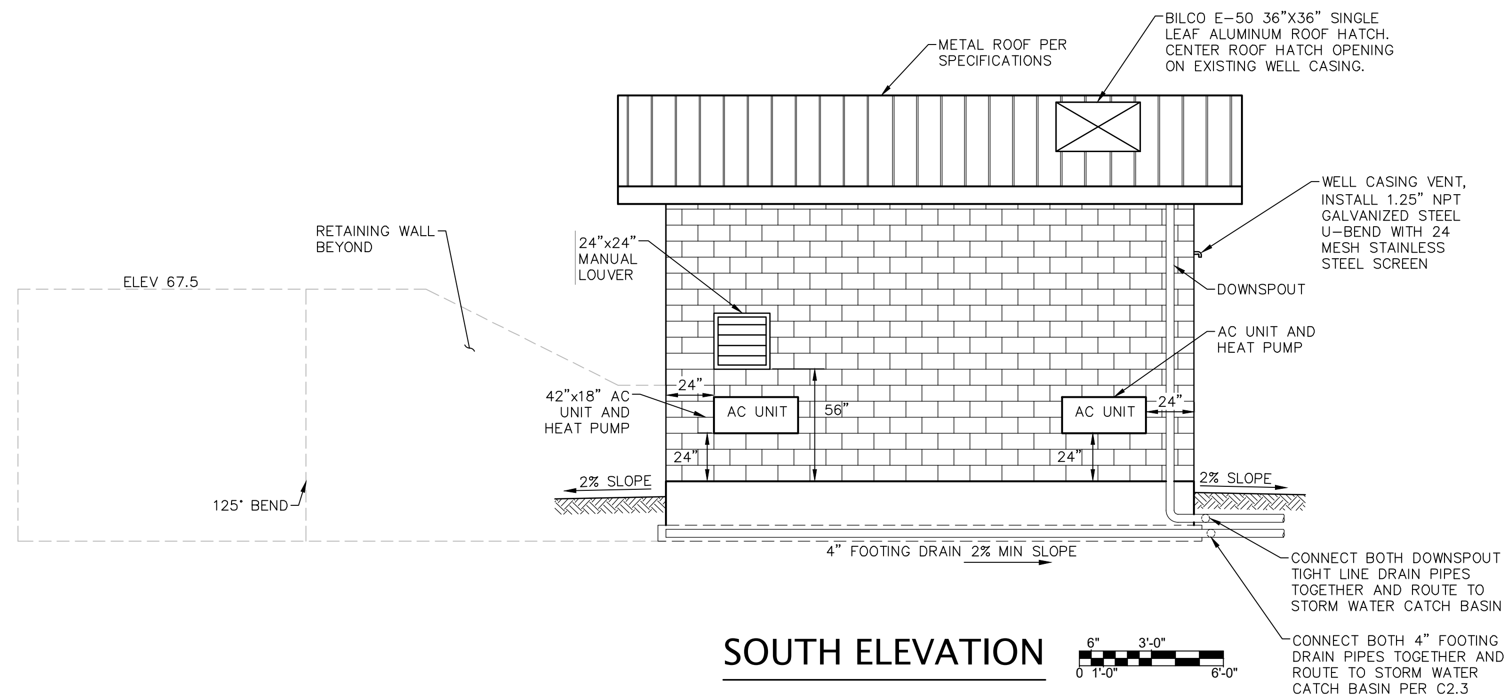
EAST ELEVATION

6" 3'-0" 0 1'-0" 6'-0"



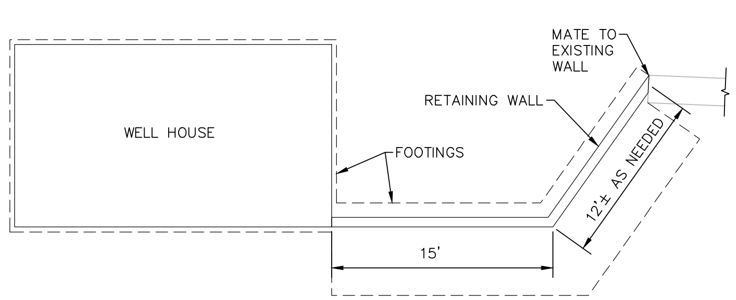
NORTH ELEVATION

6" 3'-0" 0 1'-0" 6'-0"



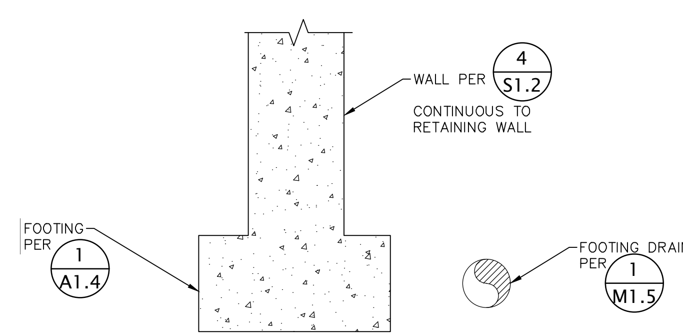
SOUTH ELEVATION

6" 3'-0" 0 1'-0" 6'-0"



RETAINING WALL DIMENSIONS PLAN VIEW

NOT TO SCALE



1 INTEGRAL RETAINING WALL DETAIL

NOT TO SCALE

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CHECKED BY AWL

CITY OF FERNDALE, WA

FERNDALE WASHINGTON

SHOP WELL #2 – WELLHOUSE PROJECT
WELL HOUSE BUILDING ELEVATIONS

DATE 1-08-2020
SCALE AS SHOWN
JOB NUMBER 2018-141

SHEET A1.2

BID SET

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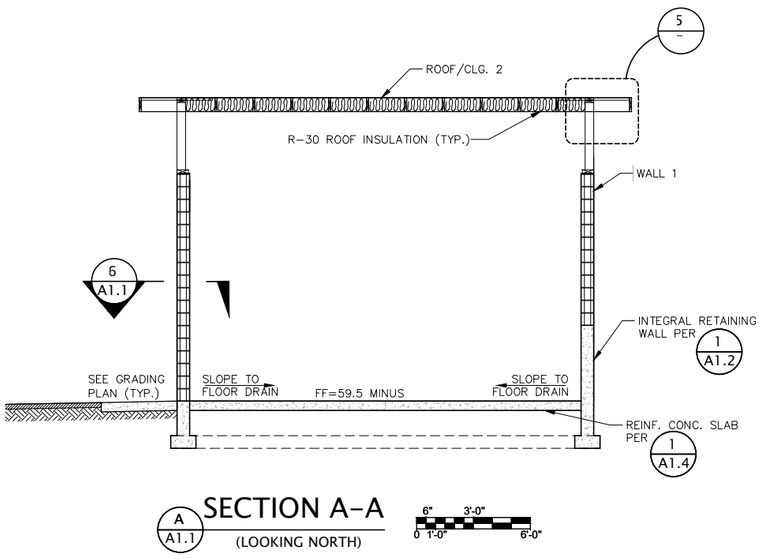
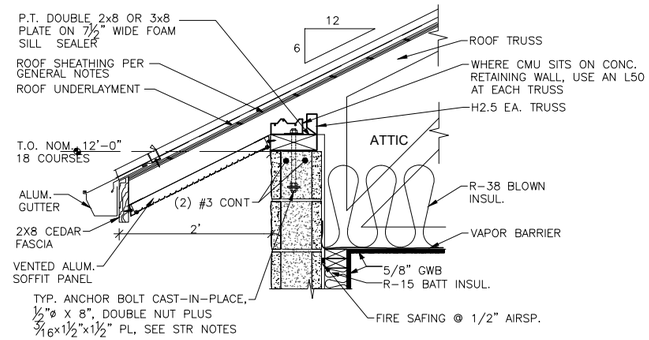


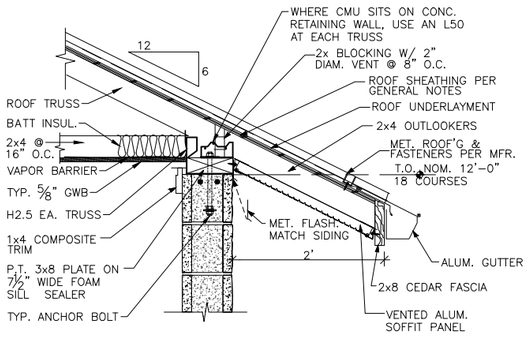
A A1.1 SECTION A-A (LOOKING NORTH)

6" 3'-0"
0 1'-0" 6'-0"



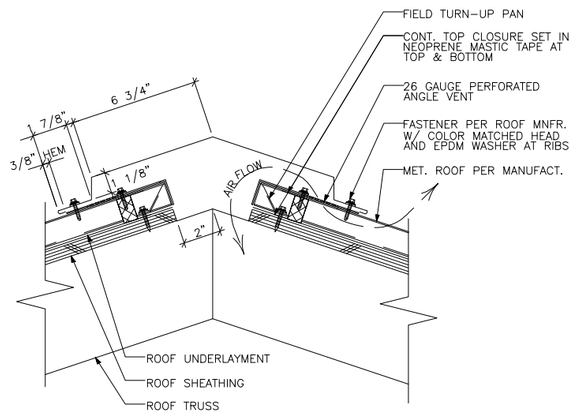
1 TYP EAVES @ TRUSSES

3" 9"
0 6" 1'-0"



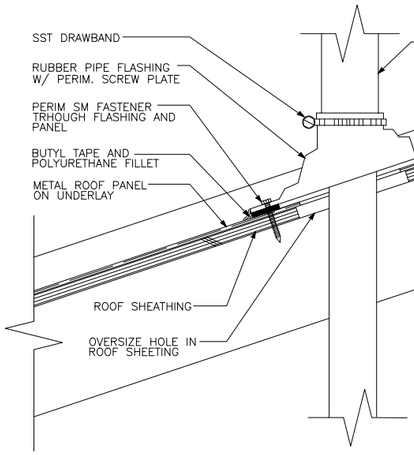
2 TYP EAVES @ RAFTERS

3" 9"
0 6" 1'-0"



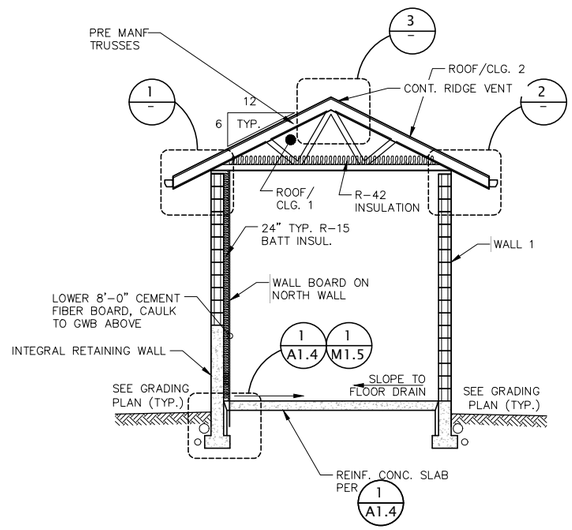
3 TYP RIDGE VENT

3" 9"
0 6" 1'-0"



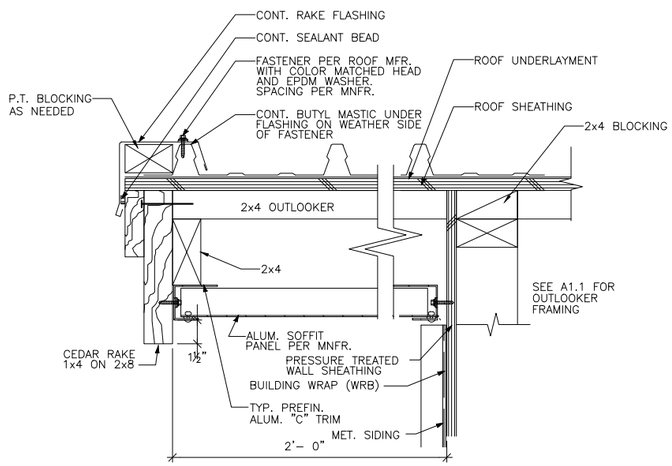
4 TYP STACK VENT

3" 9"
0 6" 1'-0"



B A1.1 SECTION B-B (LOOKING EAST)

6" 3'-0"
0 1'-0" 6'-0"



5 TYP RAKE

3" 9"
0 6" 1'-0"

BID SET

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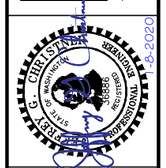

DESIGNED BY	DRAWN BY	CHECKED BY
JGC	JRF	AWL

CITY OF FERNDALE, WA

FERNDALE WASHINGTON

SHOP WELL #2 - WELLHOUSE PROJECT
WELL HOUSE ARCHITECTURAL
SECTIONS & DETAILS

DATE	SCALE	JOB NUMBER
1-08-2020	AS SHOWN	2018-141

SHEET A1.3

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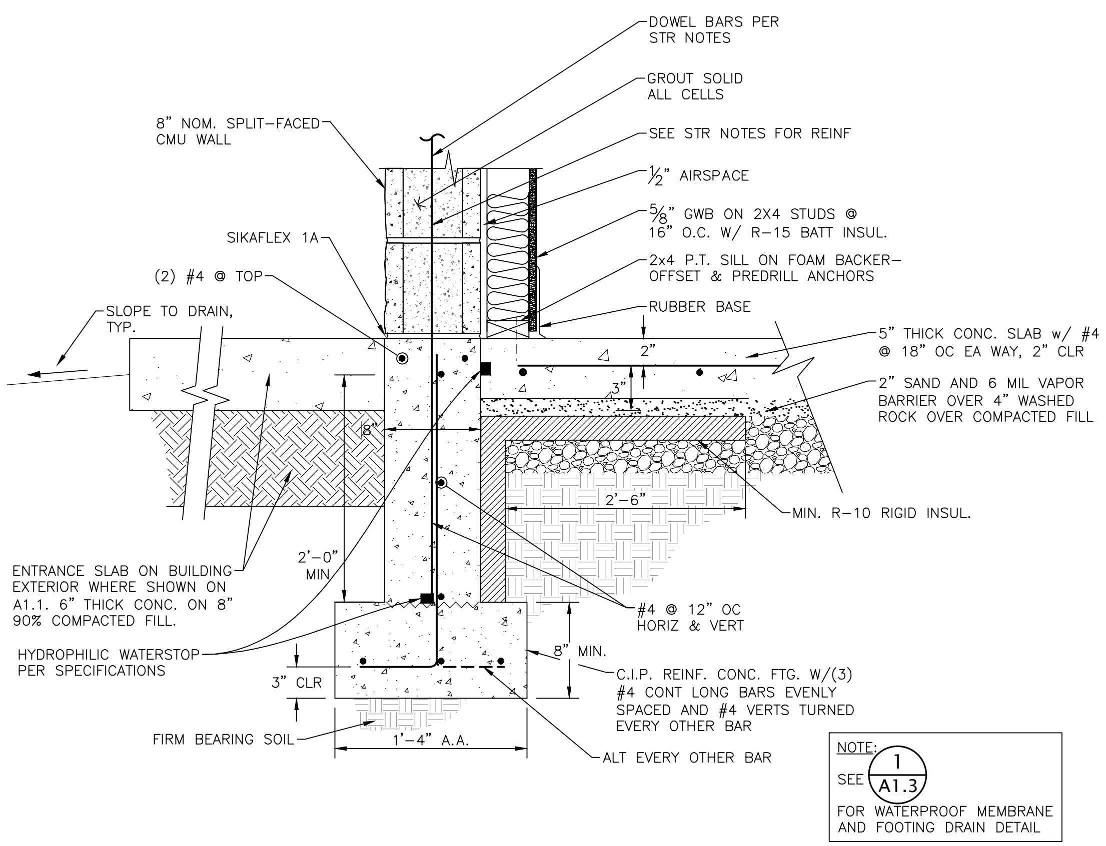
W:\2018\2018-141 FERNDALE SHOP WELL 2 BLDG - DESIGN PHASE\DWG\V2019_2018-141 A1.2 WELL HOUSE BUILDING ELEVATIONS.DWG - 1/8/2020 11:38 AM - Ria Nickerson

NO.	REVISIONS	BY	DATE



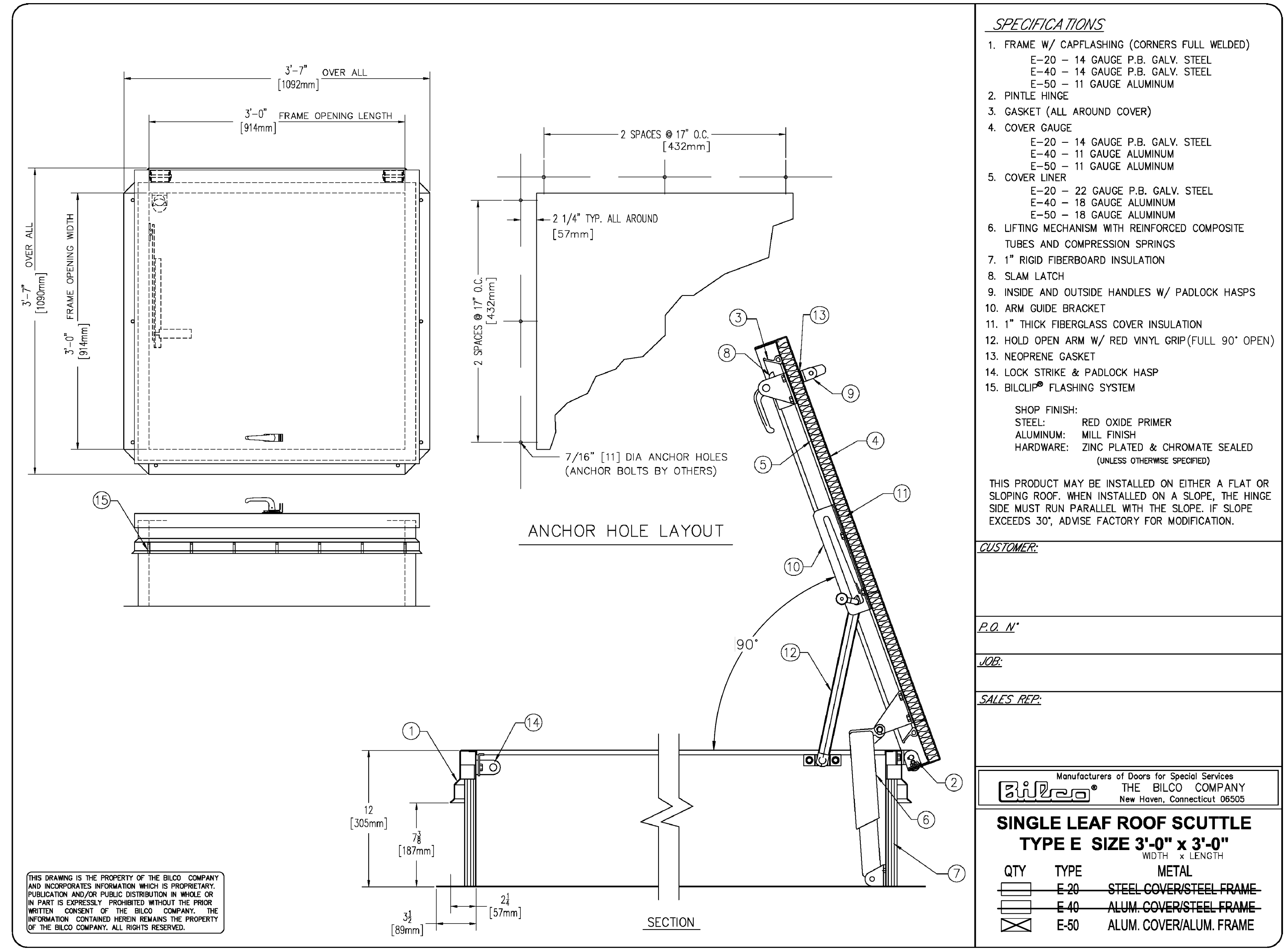
DOWEL BARS PER STR NOTES
GROUT SOLID ALL CELLS
SEE STR NOTES FOR REINF
1/2" AIRSPACE
5/8" GWB ON 2X4 STUDS @ 16" O.C. W/ R-15 BATT INSUL.
2x4 P.T. SILL ON FOAM BACKER-OFFSET & PREDRILL ANCHORS
RUBBER BASE
5" THICK CONC. SLAB w/ #4 @ 18" OC EA WAY, 2" CLR
2" SAND AND 6 MIL VAPOR BARRIER OVER 4" WASHED ROCK OVER COMPACTED FILL
MIN. R-10 RIGID INSUL.
#4 @ 12" OC HORIZ & VERT
8" MIN.
C.I.P. REINF. CONC. FTG. W/(3) #4 CONT LONG BARS EVENLY SPACED AND #4 VERTS TURNED EVERY OTHER BAR
ALT EVERY OTHER BAR
8" NOM. SPLIT-FACED CMU WALL
SIKAFLEX 1A
(2) #4 @ TOP
SLOPE TO DRAIN, TYP.
ENTRANCE SLAB ON BUILDING EXTERIOR WHERE SHOWN ON A1.1. 6" THICK CONC. ON 8" 90% COMPACTED FILL.
HYDROPHILIC WATERSTOP PER SPECIFICATIONS
2'-0" MIN.
3" CLR
FIRM BEARING SOIL
1'-4" A.A.
2'-6"
2"
3"
8"

NOTE: SEE 1/A1.3 FOR WATERPROOF MEMBRANE AND FOOTING DRAIN DETAIL

1/A1.3 FOOTING @ FURRED WALL AND BUILDING SLAB

A1.1

3" 9" — 0 6" 1'-0"



3'-7" [1092mm] OVER ALL
3'-0" [914mm] FRAME OPENING LENGTH
3'-7" [1090mm] OVER ALL
3'-0" [914mm] FRAME OPENING WIDTH
2 SPACES @ 17" O.C. [432mm]
2 1/4" TYP. ALL AROUND [57mm]
7/16" [11] DIA ANCHOR HOLES (ANCHOR BOLTS BY OTHERS)
ANCHOR HOLE LAYOUT
90°
12 [305mm]
7 3/8 [187mm]
2 1/4 [57mm]
3 1/2 [89mm]
SECTION
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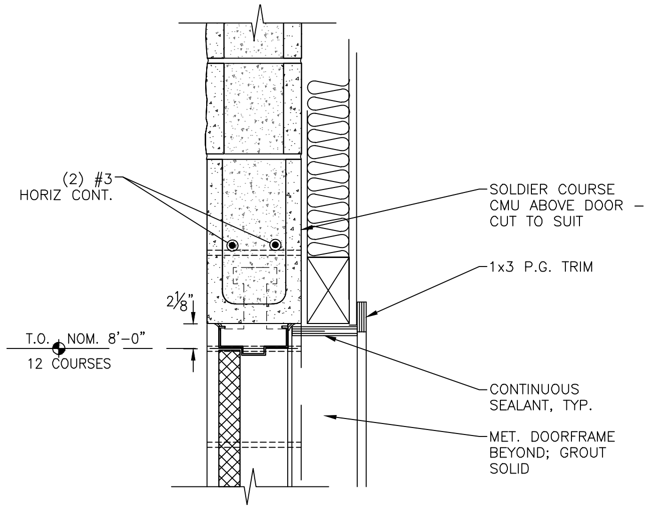
SPECIFICATIONS
1. FRAME W/ CAPFLASHING (CORNERS FULL WELDED)
E-20 – 14 GAUGE P.B. GALV. STEEL
E-40 – 14 GAUGE P.B. GALV. STEEL
E-50 – 11 GAUGE ALUMINUM
2. PINTLE HINGE
3. GASKET (ALL AROUND COVER)
4. COVER GAUGE
E-20 – 14 GAUGE P.B. GALV. STEEL
E-40 – 11 GAUGE ALUMINUM
E-50 – 11 GAUGE ALUMINUM
5. COVER LINER
E-20 – 22 GAUGE P.B. GALV. STEEL
E-40 – 18 GAUGE ALUMINUM
E-50 – 18 GAUGE ALUMINUM
6. LIFTING MECHANISM WITH REINFORCED COMPOSITE TUBES AND COMPRESSION SPRINGS
7. 1" RIGID FIBERBOARD INSULATION
8. SLAM LATCH
9. INSIDE AND OUTSIDE HANDLES W/ PADLOCK HASPS
10. ARM GUIDE BRACKET
11. 1" THICK FIBERGLASS COVER INSULATION
12. HOLD OPEN ARM W/ RED VINYL GRIP(FULL 90° OPEN)
13. NEOPRENE GASKET
14. LOCK STRIKE & PADLOCK HASP
15. BILCLIP® FLASHING SYSTEM
SHOP FINISH:
STEEL: RED OXIDE PRIMER
ALUMINUM: MILL FINISH
HARDWARE: ZINC PLATED & CHROMATE SEALED (UNLESS OTHERWISE SPECIFIED)
THIS PRODUCT MAY BE INSTALLED ON EITHER A FLAT OR SLOPING ROOF. WHEN INSTALLED ON A SLOPE, THE HINGE SIDE MUST RUN PARALLEL WITH THE SLOPE. IF SLOPE EXCEEDS 30°, ADVISE FACTORY FOR MODIFICATION.
CUSTOMER:
P.O. N°
JOB:
SALES REP:
Manufacturers of Doors for Special Services
Bilco® THE BILCO COMPANY New Haven, Connecticut 06505
SINGLE LEAF ROOF SCUTTLE
TYPE E SIZE 3'-0" x 3'-0"
WIDTH x LENGTH
QTY TYPE METAL
E-20 STEEL COVER/STEEL FRAME
E-40 ALUM. COVER/STEEL FRAME
E-50 ALUM. COVER/ALUM. FRAME

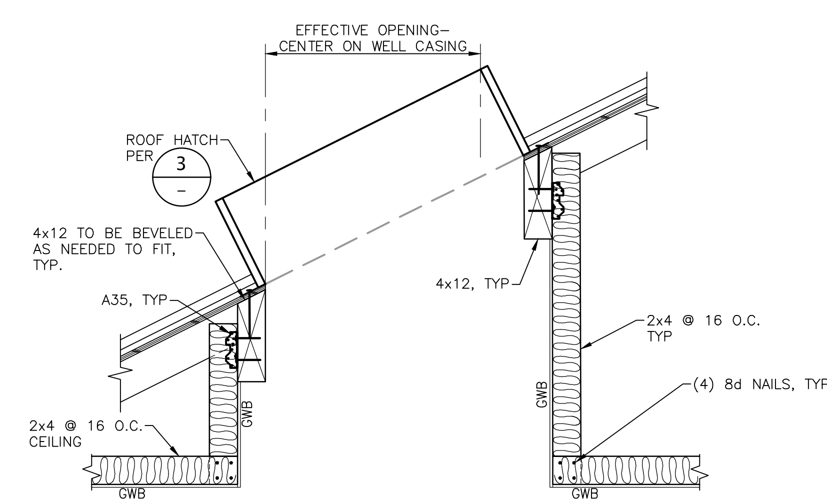
3/A1.1 ROOF HATCH DETAIL

NOT TO SCALE



2/– DOOR HEAD @ FURRING

3" 9" — 0 6" 1'-0"



4/– CEILING DETAIL @ ROOF HATCH

3" 9" — 0 6" 1'-0"

BID SET

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DESIGNED BY JCC
DRAWN BY JRF
CHECKED BY AWL

CITY OF FERNDALE, WA
SHOP WELL #2 – WELLHOUSE PROJECT
WELL HOUSE BUILDING DETAILS
FERNDALE
WASHINGTON

DATE 1-08-2020
SCALE AS SHOWN
JOB NUMBER 2018-141
SHEET A1.4
PAGE 21 OF 35

PLOT SETTINGS: RICOH 8X11– B&W.pc3, Letter, Portrait, 1:1.0488, WE APWA_UNSCREENED.ctb
W:\2018\2018-141 FERNDALE SHOP WELL 2 BLDG – DESIGN PHASE\DWG\V2019_2018-141 A1.2 WELL HOUSE BUILDING ELEVATIONS.DWG – 1/8/2020 11:41 AM – Ria Nickerson

STRUCTURAL NOTES

BUILDING CODE CRITERIA

1 ALL CONSTRUCTION IS TO BE IN ACCORDANCE WITH THE MINIMUM PROVISIONS OF THE 2016 INTERNATIONAL BUILDING CODE (IBC). WHERE THESE PLANS AND SPECIFICATIONS DO NOT STATE SPECIFICALLY OTHERWISE THE PROVISIONS OF THE IBC SHALL APPLY.

2 DESIGN LOADS:

ROOF SNOW LOAD: 25 PSF

LATERAL LOADS:

EARTHQUAKE: S_S = 0.959, S_1= 0.377, SDC = "D", I_E = 1.5

WIND: WIND SPEED 115 MPH, DIRECTIONAL METHOD PER ASCE 7-10
SECTIONS 26.7.3 AND 26.7.4 EXPOSURE "C"

3 SPECIAL INSPECTIONS

THESE SPECIAL INSPECTIONS ARE REQUIRED, TO BE PERFORMED BY THE OWNER'S TESTING AGENCY. SPECIAL INSPECTION IS ALSO REQUIRED WHERE NOTED ON THE DRAWINGS. COOPERATE FULLY WITH THE INSPECTOR, INCLUDING ADEQUATE NOTICE FOR INSPECTION.

A FOUNDATION AND EARTHWORK:

OPTIMUM DENSITY, MOISTURE LEVEL, DENSITY AND COMPACTION OF FILL UNDER FOOTINGS AND SLABS IMMEDIATELY PRIOR TO CONCRETE PLACEMENT.

B CONCRETE WORK:

NO TESTING IS REQUIRED FOR ANY CONCRETE FULLY SUPPORTED ON GRADE. OTHER CONCRETE WORK, SUCH AS THE CONCRETE WALL OF THE BUILDING AND THE EXTENDED RETAINING WALL, SHALL BE INSPECTED AND TESTED AS FOLLOWS:

1 CONCRETE AIR CONTENT, PLACEMENT, AND STRENGTH PER IBC.

2 INSPECT REINFORCING COVER, SIZE, QUANTITY, LAPS, BENDS, AND GRADES.

C ANCHOR BOLTS

1 INSPECT BOLT SIZE, WASHER SIZE, INSTALLATION AND PLACEMENT OF CONCRETE AROUND CAST-IN-PLACE BOLTS

2 INSPECT INSTALLATION OF POST-INSTALLED ANCHOR BOLT, INCLUDING HOLE PREPARATION, CLEANING, AND MANUFACTURER / TYPE OF ADHESIVE USED.

D MASONRY

1 PLACING OF MASONRY, REINFORCING, AND GROUT, SAMPLING OF MATERIALS AND INSPECTION OF GROUT SPACE. SEE IBC FOR DETAILED REQUIREMENTS.

2 TEST MASONRY UNIT, GROUT, AND MORTAR STRENGTH PER IBC REQUIREMENTS.

4 STRUCTURAL OBSERVATION

THE STRUCTURAL ENGINEER OF RECORD WILL PERFORM STRUCTURAL OBSERVATIONS AS DEFINED IN IBC CHAPTER 17. NOTE THAT STRUCTURAL OBSERVATION DOES NOT CONSTITUTE SPECIAL INSPECTION.

01000 GENERAL

1 EMPLOY GOOD STANDARDS OF WORKMANSHIP THROUGHOUT.

2 SEE THE SPECIFICATIONS FOR DETAILED MATERIAL AND METHODS NOT CALLED OUT HERE. IN CASE OF CONFLICT BETWEEN APPLICABLE CODES, THESE NOTES, THE SPECIFICATIONS, AND THE DRAWINGS, THE MOST SPECIFIC WILL GOVERN. IN CASES WHERE CONFLICTS EXIST BETWEEN EQUALLY SPECIFIC PROVISIONS, THE MOST STRINGENT WILL GOVERN.

3 DO NOT SCALE DRAWINGS.

4 USE TYPICAL DETAILS AND SCHEDULES WHEREVER APPLICABLE..

5 THE DRAWINGS DO NOT INDICATE THE METHOD OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFETY PROGRAMS, METHODS, AND PROCEDURES OF OPERATION FOR THE CONSTRUCTION OF THE DESIGN.

02220 FOUNDATIONS AND EARTHWORK

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 PLACE FOOTINGS IN THE MANNER DESCRIBED IN THE SOILS REPORT PREPARED BY GEOENGINEERS.

4 CENTER FOOTINGS UNDER COLUMNS OR WALLS, UNLESS NOTED OTHERWISE.

03100 FORMWORK

1 CHAMFER ALL ABOVE GRADE EDGES 3/4" X 3/4".

2 DO NOT STRIP FORMS FOR WALLS ABOVE 2'-0" TALL UNTIL THE CONCRETE HAS REACHED 75% OF DESIGN F'C.

3 BUILD FORMWORK SO AS TO MINIMIZE FINS OR BULGES.

03150 ANCHOR BOLTS

1 POST-INSTALLED ADHESIVE ANCHORS BOLTS SHALL BE OF STEEL CONFORMING TO THE REQUIREMENTS OF THE APPLICABLE ICC-ES REPORT FOR THE ADHESIVE SYSTEM. MAKE AND CLEAN HOLES WITH EQUIPMENT PER THE ICC-ES REPORT. DO NOT PLACE ANY ANCHOR WITHIN 3 ½ INCHES OF A FREE EDGE OF CONCRETE. SEE THE DRAWINGS FOR EMBEDMENT.

ACCEPTED ADHESIVE PRODUCTS INCLUDE:

A. ITW-RAMSET COMPANY: EPCON G5 SYSTEM

B. HILTI INC: RE-500 SD SYSTEM

C. SIMPSON STRONG-TIE COMPANY: SET-XP EPOXY

D. OTHER SYSTEMS WITH WRITTEN APPROVAL OF THE ENGINEER OF RECORD

NOTE THAT FOR ANY PRODUCT TO BE ACCEPTED, IT MUST HAVE A CURRENTLY VALID ICC-ES REPORT WITH TEST RESULTS INDICATING THAT IT IS SUITABLE FOR USE IN CRACKED CONCRETE.

2 CAST-IN-PLACE ANCHOR BOLTS SET IN CONCRETE OR MASONRY SHALL CONFORM TO ASTM GRADE 55, AND SHALL BE EITHER HEADED STEEL BOLTS WITH ROLLED OR CUT THREADS AND A STANDARD WASHER, OR THREADED STEEL ROD WITH A STANDARD NUT AND WASHER AT THE EMBEDDED END.

03200 REINFORCING

1 REINFORCING BARS SHALL BE ASTM A615, GRADE 60

2 BAR DETAILING NOT SHOWN OTHERWISE, AND SUPPORT OF REINFORCING BARS, SHALL CONFORM TO THE CRSI MANUAL OF STANDARD PRACTICE. REINFORCING MARKED "CONTINUOUS" ON DRAWINGS SHALL EXTEND AS FAR AS POSSIBLE AND TERMINATE IN A 12-DIAMETER BEND OR PER TYPICAL DETAILS, AS APPROPRIATE. SHOP-FABRICATE ALL BENDS.

3 WELDING OF REINFORCING IS NOT PERMITTED.

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"
INTERIOR WALL FACES, SLABS AND JOISTS	3/4"

03300 CONCRETE

1 MATERIALS

AGGREGATE: STONE AGGREGATE PER ASTM C33

CEMENT: TYPE I OR II PER ASTM C150

ADMIXTURES: AIR: ASTM C260 HRWDA: ASTM C494 TYPE A

ALL CONCRETE SHALL BE READY-MIX PER ASTM C 94

2 PROPERTIES INCLUDING 28-DAY STRENGTHS SHALL BE AS FOLLOWS:

APPLICATION	F'C (PSI)	W/C (MAX)	AGG (MAX)	AIR %
A. BUILDING FOUNDATIONS	2500	0.60	1"	6.0
B. SLABS IN BUILDINGS	4000	0.45	1"	6.0
C. WALLS	4000	0.55	1"	6.0

3 DRYPACK FOR SACKING: PORTLAND CEMENT, ASTM C150, TYPE I, AND CLEAN, NATURAL SAND, ASTM C404. MIX AT RATIO OF 1.0 PART CEMENT TO 3.0 PARTS SAND, BY VOLUME, WITH MINIMUM WATER REQUIRED FOR PLACEMENT AND HYDRATION. MINIMUM STRENGTH OF GROUT, 5000 PSI AT 28 DAYS.

4 ALL CONSTRUCTION JOINTS SHALL BE CLEAN AND FREE FROM FOREIGN SUBSTANCES, LOOSE MATERIAL OR LAITANCE. WHERE NOTED ON DRAWINGS AS "ROUGHENED," MECHANICALLY ROUGHEN TO FRACTURE COARSE AGGREGATE ON THE ENTIRE SURFACE TO AT LEAST 1/4" AMPLITUDE AND REMOVE ALL LOOSE MATERIAL. DAMPEN JOINTS FOR AT LEAST ONE-HALF HOUR PRIOR TO CONCRETE PLACEMENT BUT LEAVE NO STANDING WATER.

5 HOLD ALL BOLTS, ANCHORS, DOWELS, REINFORCING BARS AND METAL INSERTS FIRMLY AND ACCURATELY IN PLACE BEFORE CONCRETE IS POURED; DO NOT INSERT ("STAB") AFTER POURING CONCRETE.

6 PROVIDE SLEEVES FOR PENETRATIONS AND APPURTENANCES CAST INTO CONCRETE BEFORE PLACING BEGINS. REINFORCE AROUND OPENINGS PER DETAILS. CORING OF CONCRETE OTHER THAN NON-STRUCTURAL SLABS-ON-GRADE IS NOT PERMITTED. CORING WITHOUT PRIOR WRITTEN APPROVAL MAY RESULT IN REJECTION OF THE WORK, TO BE REPLACED AT NO COST TO THE OWNER.

04200 MASONRY

1 MATERIALS (EXCEPT AS NOTED IN DRAWINGS):

HOLLOW CONCRETE MASONRY UNITS (CMU): NOMINAL 12" X 16" FACE UNITS WITH MINIMUM COMPRESSIVE STRENGTH F'C = 1900 PSI BASED ON NET AREA.

MORTAR: TYPE N PER ASTM 270. MINIMUM COMPRESSIVE STRENGTH = 1800.

GROUT: MINIMUM F'C = 2000 PSI PEA-GRAVEL GROUT, MAXIMUM SLUMP =8".

2 OBSERVE IBC REQUIREMENTS FOR HOT- AND COLD- WEATHER WORK. MAINTAIN MOISTURE LEVEL IN MASONRY UNITS APPROPRIATE TO CONDITIONS.

3 ALL WALLS SHALL BE SOLID GROUTED, WITH VERTICAL REINFORCING OF #5 @ 32" O.C. AND HORIZONTAL REINFORCING OF #3 @ 24" O.C.

4 LAY WALLS AND PILASTERS IN A RUNNING BOND OR SIMILAR INTERLOCKING PATTERN, WITH CORES ALIGNED. KEEP CELLS CLEAR OF MORTAR AND DEBRIS.

5 DOWEL ALL REINFORCING BARS INTO ADJACENT CONCRETE CONSTRUCTION WITH BARS OF THE SAME SIZE AND STRENGTH, MINIMUM 30 DIA. EMBEDMENT INTO CONCRETE. SPLICE REINFORCING IN MASONRY CORES WITH CONTACT LAPS A MINIMUM OF 48 DIAMETERS.

05120 STRUCTURAL STEEL

1 FABRICATE, DETAIL, AND ERECT ALL STRUCTURAL STEEL IN ACCORDANCE WITH AISC STANDARD PRACTICE

2 MATERIALS SHALL BE PER BELOW (EXCEPT AS NOTED IN DRAWINGS). ALL MATERIALS ARE NEW STOCK:

WIDE FLANGE SHAPES:	ASTM A992	
OTHER SHAPES OR PLATE:	ASTM A36	
STRUCTURAL TUBING:	ASTM A500, GRADE B (ROUND, SQUARE, RECTANGULAR)	
STEEL PIPE:	ASTM A53, GRADE B	
BOLTS, REGULAR:	ASTM A307	
WELD ELECTRODE:	AWS D1.1-2010, E70 SERIES, LOW HYDROGEN	
GALVANIZING:	SHAPES AND WELDMENTS	ASTM A123
	BOLTS AND HARDWARE	ASTM A153

3 WELDS NOT SPECIFIED SHALL BE 3/16" CONTINUOUS FILLET WELDS, OR MINIMUM SIZE PER AISC, WHICHEVER IS GREATER. ALL WELDED CONNECTIONS EXPOSED TO THE EXTERIOR ENVIRONMENT SHALL HAVE CONTINUOUS FILLET FILLER WELD (MINIMUM 1/8") ALL AROUND, EXCEPT FOR MEMBERS TO BE HOT-DIPPED GALVANIZED. ALL WELD SIZES ARE EFFECTIVE SIZES; INCREASE AS REQUIRED IF GAPS EXIST AT MEETING SURFACES. GROOVE WELDS NOT OTHERWISE NOTED SHALL BE COMPLETE PENETRATION.

4 ALL WELDING SHALL BE MADE BY AWS AND WABO CERTIFIED WELDERS. FIELD WELDING IS NOT PERMITTED, EXCEPT AS SPECIFICALLY DETAILED.

5 STEEL LINTELS SUPPORTING EXTERIOR MASONRY SHALL BE HOT-DIPPED GALVANIZED.

06100 ROUGH CARPENTRY

2 MATERIALS (EXCEPT AS NOTED IN DRAWINGS); ALL ARE KILN-DRIED, MOISTURE CONTENT NOT TO EXCEED 19%:

STUDS, SILLS AND PLATES:	HEM/FIR #2
SAWN JOISTS:	HEM/FIR #1
BLOCKING AND BRIDGING:	HEM/FIR CONSTRUCTION GRADE
COMMERCIAL CLIPS:	PER THE SIMPSON STRONG-TIE COMPANY AS CALLED OUT ON PLANS. PROVIDE FULL CATALOG ATTACHMENT TO WOOD.
FABRICATED CONNECTORS:	AS DETAILED ON PLANS
PRESSURE TREATMENT:	WATER-BORNE SALTS PER AWPA LP-2

3 USE PRESSURE TREATED MATERIALS AS FOLLOWS AND WHERE INDICATED ON PLAN:

A LUMBER EXPOSED TO WEATHER:	AWPA C2
B LUMBER EXPOSED TO OR WITHIN 6" OF SOIL:	AWPA C2
C LUMBER AGAINST CONCRETE OR MASONRY WALLS AND SLABS EXPOSED TO WEATHER OR SOIL:	AWPA C31

4 PROVIDE TYPICAL NAILING PER THE IBC WHERE NOT CALLED OUT IN PLANS. UNLESS NOTED OTHERWISE, ALL NAILS ARE COMMON WIRE NAILS.

5 AT ALL EXTERIOR APPLICATIONS, USE GALVANIZED FASTENERS, AND GALVANIZED OR SIMILARLY PROTECTED HARDWARE AND FITTINGS.

6 MACHINE BOLTS SHALL BE ASTM 307 BOLTS, UNLESS OTHERWISE NOTED. USE WASHERS UNDER HEAD AND NUT.

06160 SHEATHING AND STRUCTURAL PANELS

1 MATERIALS (EXCEPT AS NOTED IN DRAWINGS):

ALL STRUCTURAL PANEL SHEATHING WILL BE APA RATED SHEATHING EXP. 1

A ROOF SHEATHING:	T&G EDGES OR PLYCLIPS @ 8"O/C, EXCEPT WHERE BLOCKED;
SUPPORTS @ 48" :	23/32" MIN, SPAN RATING 48/24, BLOCKED
SUPPORTS @ 32" :	19/32" MIN, SPAN RATING 40/20, UNBLOCKED
SUPPORTS @ 24" OR LESS:	15/32" MIN, SPAN RATING 32/16, UNBLOCKED
B FLOOR SHEATHING:	T&G EDGES, GLUE PER APA SPECIFICATIONS, NAIL PER TABLE.
SUPPORTS @ 24" OR LESS:	23/32" MIN, SPAN RATING 48/24, (ALTERNATE: APA STURDIFLOOR, 24" SPAN)
C WALL SHEATHING:	15/32" MIN., SPAN 24/0
D PANEL ADHESIVE:	PER APA AFG-01

2 NAIL SHEATHING PER THE FOLLOWING MINIMUMS, EXCEPT AS SHOWN AT SHEAR WALLS OR DIAPHRAGMS:

	AT PANEL EDGES	AT INTERMEDIATE SUPPORT
ROOF SHEATHING	8D @ 6" O/C	8D @ 12" O/C

NAIL ROOF SHEATHING AT EAVES WITHOUT SOFFITS 6" AT ALL SUPPORTS.

3 PLACE ALL ROOF SHEATHING WITH FACE GRAIN IN DIRECTION OF SPAN.

4 SHEATHING NAILS INTO MANUFACTURED TRUSS CHORDS SHALL NOT BE CLOSER THAN 6" IN ANY ROW OF NAILS; SEPARATE ROWS BY 1/2".

5 WHERE ROOF SHEATHING PANELS ARE LESS THAN 24" WIDE, BUT GREATER THAN 12", EDGES MUST BE BLOCKED. ADJUST PANEL CUTTING TO AVOID PIECES LESS THAN 12".

06190 MANUFACTURED WOOD TRUSSES

1 DESIGN, SUPPLY AND INSTALL A COMPLETE MANUFACTURED TRUSS ROOF FRAMING SYSTEM AS SHOWN ON THE DRAWINGS, INCLUDING, BUT NOT LIMITED TO:

-TYPICAL TRUSSES

-COLLECTOR, GABLE, AND HEADER TRUSSES

-CONNECTORS BETWEEN TRUSSES

-ALL ERECTION HARDWARE, BRACES, AND BLOCKING

2 DESIGN FOR ALL LIVE LOADS AND DEAD LOADS SHOWN ON DRAWINGS, IN CONFORMANCE WITH THE IBC AND THE APPROPRIATE STANDARDS OF THE TRUSS PLATE INSTITUTE. THE IBC GOVERNS OVER TRUSS PLATE INSTITUTE STANDARDS IN THE CASE OF ANY CONFLICTS.

3 SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS SEALED BY A WASHINGTON STATE REGISTERED STRUCTURAL ENGINEER.

4 WHERE SIZES OF SUPPORTING WOOD PLATES ARE SHOWN ON THE DRAWINGS, THEY GOVERN AND SHALL NOT BE CHANGED BY THE TRUSS DESIGN ENGINEER IN ORDER TO ACCOMMODATE THE BEARING REQUIREMENTS FOR THE TRUSS(ES). SUBMITTAL THAT SHOW NOTATIONS INDICATING THAT PLATE SIZES NEED TO BE CHANGED SHALL BE REJECTED, AND THE TRUSS MANUFACTURER SHALL RESUBMIT IN ACCORDANCE WITH THE DESIGN.

5 TRUSS NAIL-PLATES SHALL BE GALVANIZED OR OF CORROSION RESISTANT MATERIAL NOT LESS THAN 36 MIL COATED THICKNESS. DESIGN OF TRUSS NAIL-PLATE CONNECTIONS SHALL CONFORM TO THE DESIGN SPECIFICATION FOR METAL PLATE CONNECTED WOOD TRUSSES, BY THE TRUSS PLATE INSTITUTE.

4 TRUSS PROFILES SHOWN ON PLAN ARE FOR OUTLINE CONFIGURATION ONLY. DETERMINE DIFFERENCES IN VERTICAL LOADING AND SUPPORT CONDITIONS AT VARIOUS LOCATIONS, BASED ON INFORMATION GIVEN ON PLANS, AND DESIGN THE STRUCTURE OF EACH TRUSS ACCORDINGLY.

5 PROVIDE ALL TEMPORARY AND PERMANENT BRACING AS REQUIRED FOR SAFE ERECTION AND PERFORMANCE OF THE TRUSSES. TRUSS PLATE INSTITUTE GUIDELINES "COMMENTARY AND RECOMMENDATIONS FOR HANDLING, INSTALLING AND BRACING METAL PLATE CONNECTED WOOD TRUSSES SHALL BE A MINIMUM STANDARD. REPLACE OR REPAIR ANY TRUSSES DAMAGED BY MISHANDLING OR TEMPORARY LATERAL BUCKLING.

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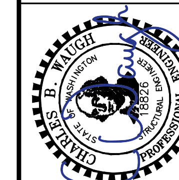

DESIGNED BY CBW | DRAWN BY JRF | CHECKED BY AWL

CITY OF FERNDALE, WA

SHOP WELL #2 - WELLHOUSE PROJECT

STRUCTURAL NOTES

FERNDALE WASHINGTON

DATE 1-08-2020 | SCALE AS SHOWN | JOB NUMBER 2018-141

SHEET S1.1 | PAGE 22 OF 35

BID SET

PLOT SETTINGS: DWG To PDF.pc3, Previous paper size (17.00 x 11.00 Inches), Portrait, 1:2, WE APWA_UNSCREENED.ctb
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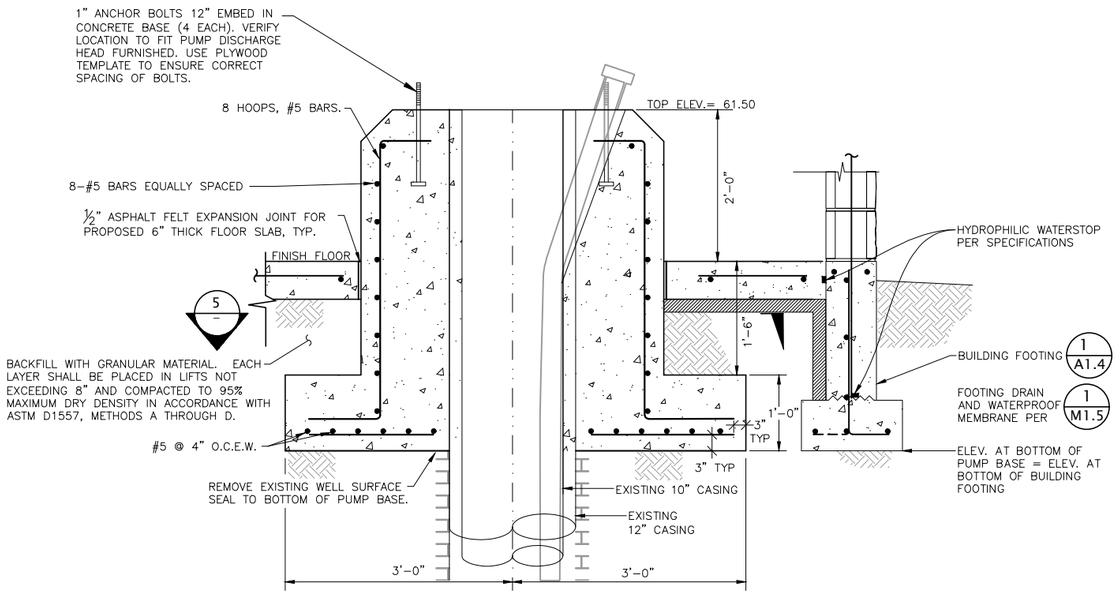
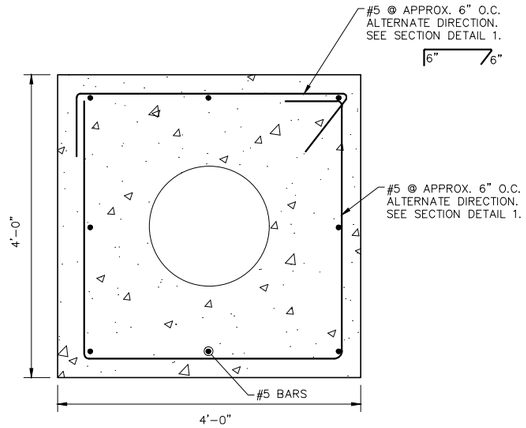


1 / M1.2 PUMP BASE DETAIL, SECTION VIEW

3" 9" 0 6" 1'-0"



2 / – PUMP BASE DETAIL, SECTION 5

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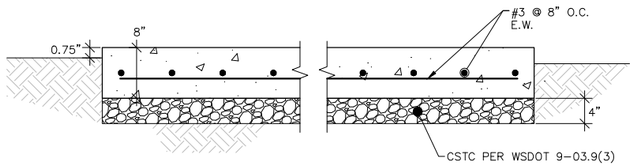
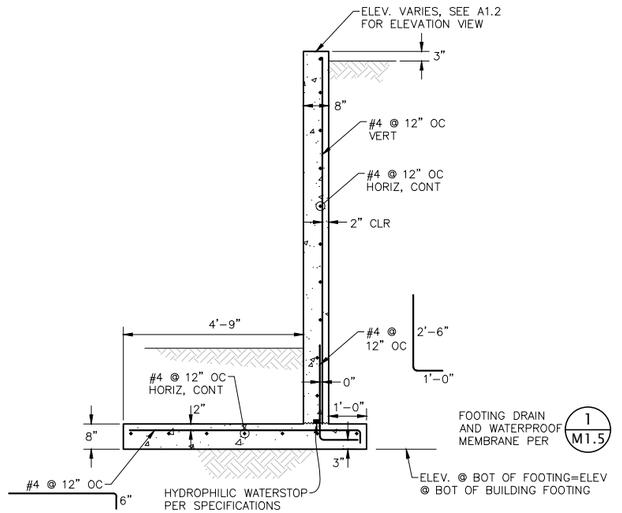


3 / C2.1 GENERATOR PAD DETAIL

NOT TO SCALE



4 / A1.2 RETAINING WALL ATTACHED TO WELL HOUSE

6" 1'-6" 0 1'-0" 2'-0"

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CHARLES B. WAIGH — STATE OF WASHINGTON — 18826 — REGISTERED PROFESSIONAL ENGINEER — 1-8-2020

DESIGNED BY	DRAWN BY	CHECKED BY
CBW	JRF	AWL

CITY OF FERNDALE, WA

WASHINGTON

FERNDALE

SHOP WELL #2 – WELLHOUSE PROJECT

WELL HOUSE BUILDING STRUCTURALDETAILS

DATE	SCALE	JOB NUMBER
1-08-2020	AS SHOWN	2018-141

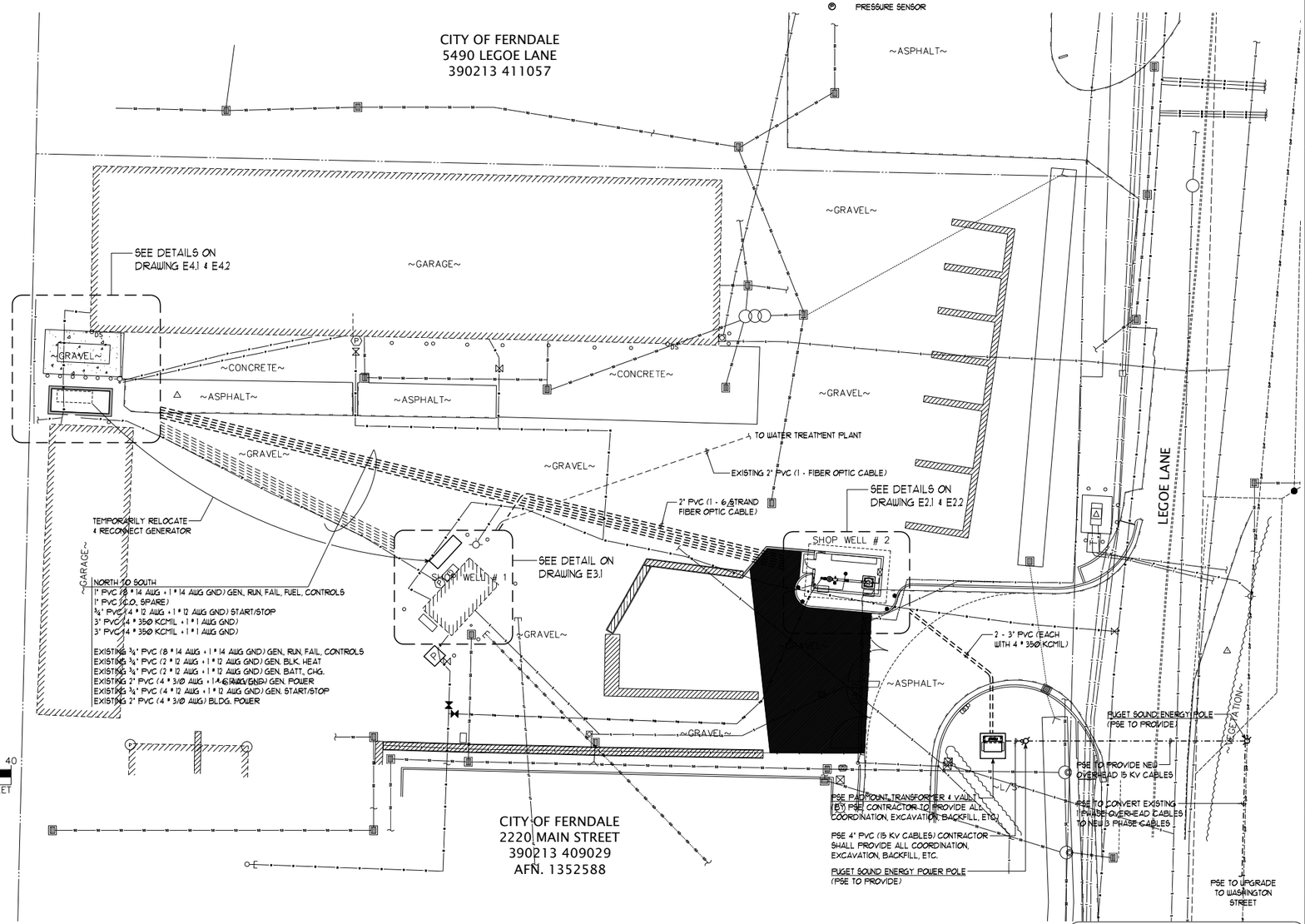
SHEET	PAGE
S1.2	23 OF 35

NOTES (APPLICABLE TO ALL ELECTRICAL DRAWINGS):

1. ALL SYSTEMS, EQUIPMENT, DEVICES, RACEWAYS, CABLES, ETC. INDICATED ARE NEW UNLESS SPECIFICALLY NOTED AS EXISTING.
2. THE ELECTRICAL WORK SHALL INCLUDE ALL WORK SHOWN ON THE DRAWINGS, DETAILS, DIAGRAMS, SCHEDULES, ETC., AND AS DESCRIBED IN THE SPECIFICATIONS.
3. OBTAIN APPROVAL FROM ENGINEER PRIOR TO PROCEEDING WITH ALTERNATE CONDUIT ROUTES.
4. RACEWAYS AND CABLES THROUGHOUT THE FACILITY SHALL BE RUN CONCEALED IN THE WALLS, ABOVE THE CEILING OR BELOW THE FLOOR WHERE POSSIBLE, EXCEPT, WHERE DUE TO THE BUILDINGS CONSTRUCTION, IT IS NOT POSSIBLE TO ROUTE RACEWAYS & CABLES CONCEALED, RACEWAYS MAY BE RUN EXPOSED. (EXPOSED CABLES ARE NOT ALLOWED.) EXPOSED RACEWAYS SHALL BE RUN AS NEATLY & UNOBTRUSIVELY AS POSSIBLE, SUPPORTED AS REQUIRED, PARALLEL OR AT RIGHT ANGLES TO CEILINGS, WALLS & STRUCTURAL MEMBERS.
5. RACEWAYS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   A. INTERIOR - ELECTRICAL METALLIC TUBING (EMT) WITH LIQUIDTIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO EQUIPMENT.
   B. EXTERIOR ABOVE GRADE - GALVANIZED RIGID STEEL CONDUIT (GRS).
   C. EXTERIOR BELOW GRADE - POLYVINYL CHLORIDE CONDUIT (PVC), EXCEPT CONDUIT ELBOWS FOR SIZE 2 INCH AND LARGER SHALL BE TYPE RTRC (FIBERGLASS) or GRS.
6. RACEWAYS SHALL BE SIZED SO THAT THE CABLE FILL DOES NOT EXCEED 40%, EXCEPT, MINIMUM CONDUIT SIZES SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:
   A. 3/4" - BRANCH CIRCUITS AND SYSTEM RACEWAYS, EXCEPT AS NOTED BELOW.
   B. 1" - UNDERGROUND CONDUITS.
7. DEVICE MOUNTING HEIGHTS SHALL BE AS FOLLOWS, UNLESS SPECIFICALLY NOTED OTHERWISE. MOUNTING HEIGHTS SHOWN ON THE DRAWINGS ARE TO THE CENTER OF THE BACK BOX FROM THE INTERIOR FINISHED FLOOR.
   A. POWER, TELECOMMUNICATIONS, ETC. RECEPTACLES - 18"
   B. LIGHTING SWITCHES, CONTROL STATIONS, ETC. - 46"
8. TELECOMMUNICATIONS CONDUITS SHALL BE PROVIDED WITH PULL ROPES BELOW GRADE AND PULL STRINGS ABOVE GRADE. EXISTING CONDUITS TO BE USED SHALL BE FISHED AND CLEANED PRIOR TO INSTALLATION OF CABLES.
9. BELOW GRADE SERVICE & FEEDER CABLE SHALL BE 1/C COPPER, UNLESS NOTED OTHERWISE, WITH 600V TYPE XHHW INSULATION.
10. BRANCH CIRCUIT CABLES, EQUIPMENT GROUND CABLES AND ABOVE GRADE FEEDER CABLES SHALL BE 1/C COPPER, #12 AWG, UNLESS NOTED OTHERWISE, WITH 600V TYPE XHHW OR THHN/THWN INSULATION.
11. 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 CIRCUIT CONDUCTORS.
12. ALL WIRING SHALL BE ENCLOSED WITHIN THE RACEWAY SYSTEM.
13. VERIFY ALL EQUIPMENT, DEVICE, ETC. LOCATIONS WITH THE ENGINEER PRIOR TO ROUGH-IN. THE OWNER RESERVES THE RIGHT TO RELOCATE OUTLETS, ETC. WITHIN 10' OF THE LOCATION INDICATED, PRIOR TO INSTALLATION, WITHOUT INCREASE IN COST.
14. CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE FIRE RATINGS OF WALLS, PARTITIONS AND OTHER BUILDING STRUCTURES. INSTALLATION OF SYSTEM COMPONENTS AND RACEWAYS MUST MAINTAIN THE FIRE RESISTIVE RATING OF THE BUILDING.
15. POWER, CONTROLS, SECURITY & TELECOMMUNICATIONS SYSTEMS INTERRUPTIONS (WHETHER TO THE ENTIRE SYSTEM OR TO INDIVIDUAL PANELS, EQUIPMENT, ROOMS, DEVICES, ETC.) SHALL BE KEPT TO AN ABSOLUTE MINIMUM, AND SHALL NOT BE DONE WITHOUT PRIOR APPROVAL & SCHEDULING WITH THE OWNER & ENGINEER A MINIMUM OF 14 DAYS IN ADVANCE AND CONFIRMED 48 HOURS IN ADVANCE.
16. LABELING & NAMEPLATES:
   A. OUTLETS SHALL BE LABELED WITH THE PANEL AND CIRCUIT NUMBER FROM WHICH ITS FED. LABELS SHALL BE HEAVY DUTY ADHESIVE TYPE, CLEAR TAPE WITH BLACK LETTERING, MADE WITH A LABEL PRINTING DEVICE.
   B. JUNCTION BOXES SHALL BE LABELED WITH THE PANEL AND CIRCUIT NUMBER CONTAINED WITHIN. MARKING SHALL BE LEGIBLY HAND-WRITTEN WITH BLACK INDELIBLE MARKER.
   C. REFER TO SPECIFICATIONS FOR PANELS, DISCONNECT SWITCHES, STARTERS, ETC. NAMEPLATES AND LABELING.

LEGEND

- A_a — FLUORESCENT STRIP, SURFACE MTD. (Aa = FIXTURE TYPE A CONTROLLED BY SWITCH S^a, TYPICAL)
- INCANDESCENT OR SIMILAR, WALL MTD.
- S — SINGLE-POLE SWITCH
- S_K — KEYED SWITCH
- S_T — TIMER SWITCH
- DUPLEX OUTLET
- $_{GFI}$ — DUPLEX OUTLET, GROUND FAULT INTERRUPTING
- $_{WP}$ — DUPLEX OUTLET, WEATHERPROOF
- EXPLOSION PROOF SEAL
- BRANCH CIRCUIT, ABOVE GRADE CONCEALED (SLASHES = NO. OF CIRCUIT CONDUCTORS)
- BRANCH CIRCUIT, ABOVE GRADE EXPOSED (SLASHES = NO. OF CIRCUIT CONDUCTORS)
- BELOW GRADE CONDUIT
- GROUND CABLE
- HOMERUN TO LOCATION INDICATED, CONCEALED (TYPICAL)
- HOMERUN TO LOCATION INDICATED, EXPOSED (TYPICAL)
- JUNCTION BOX
- M — MOTOR
- R — FIRE ALARM RATE OF RISE HEAT DETECTOR
- T — THERMOSTAT
- DOOR CONTACT
- F — FIRE ALARM MANUAL PULL STATION
- FIRE ALARM BELL WITH STROBE LIGHT
- HANDHOLE
- MOTORIZED DAMPER ACTUATOR
- ML — MOTORIZED LOUVER
- LS — LIMIT SWITCH
- PS — PRESSURE SWITCH
- FLOW METER
- PRESSURE SENSOR



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ELECTRICAL - SITE PLAN
SCALE: 1" = 20'-0"

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STV	KL	

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WASHINGTON
BELLINGHAM
SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL – SITE PLAN

DATE	SCALE	JOB NUMBER
1-08-2020	1" = 20'-0"	1941

SHEET E1.1
PAGE 24 OF 35

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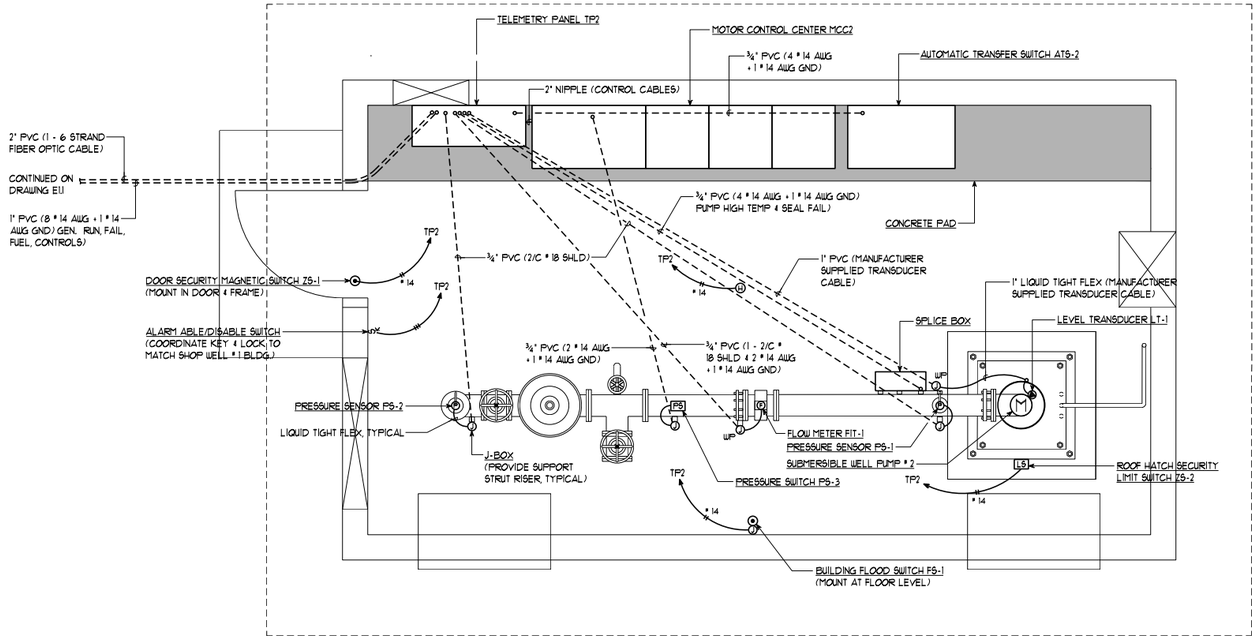
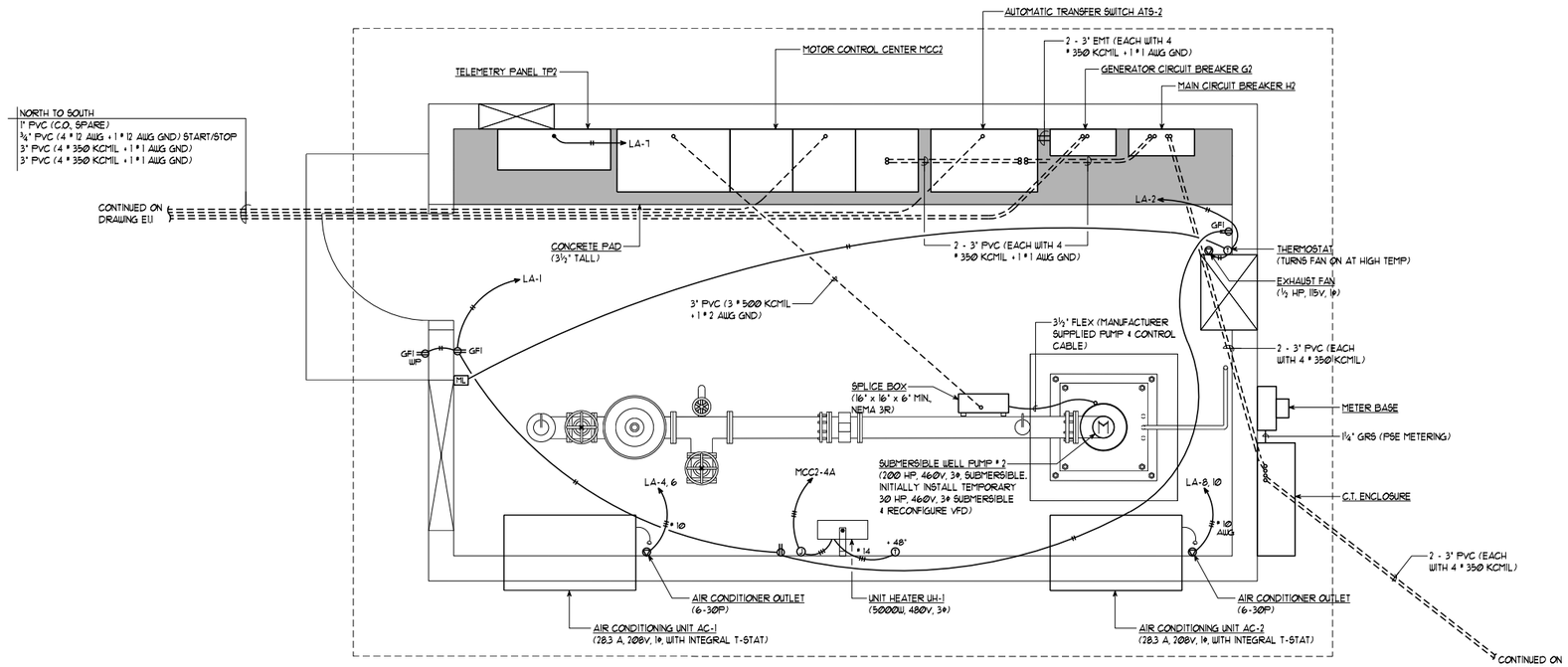


ELECTRICAL - SHOP WELL # 2 CONTROL & ANCILLARIES PLAN

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



ELECTRICAL - SHOP WELL # 2 POWER PLAN

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

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SCALE HORIZONTAL SCALE FEET

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SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL – SHOP WELL # 2 POWER, CONTROL & ANCILLARIES PLANS

DATE	SCALE	JOB NUMBER
1-08-2020	1/2" = 1'-0"	1941

SHEET E2.1

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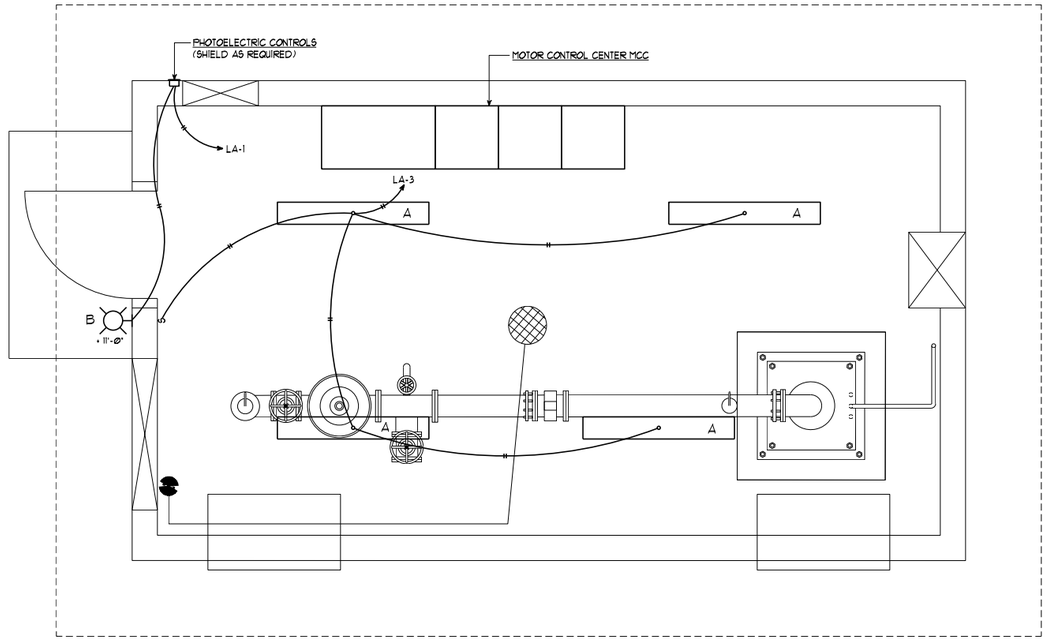
NO.	REVISIONS	BY	DATE

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTS	MANUFACTURER & CAT. NO. (OR APPROVED EQUAL)	LAMP(S)	LOADS	
					WATTS	VA
A	LED ENCLOSED & GASKETED, 4' LONG, SURFACE MTD. UNLESS NOTED OTHERWISE), SUITABLE FOR WET LOCATIONS, 6000 (MIN.) LUMEN OUTPUT, 3500K COLOR TEMPERATURE WITH HIGH EFFICIENCY DRIVER.	120	COLUMBIA LXEM-4-35-HL-E LITHONIA FEM4 LED-6L-IMAFL WILLIAMS 96-4'-L62/835-HIAFR DAYBRITE DWAE7'L835-4	LED 3500K (INTEGRAL)	60	63
B	EXTERIOR TRAPEZOIDAL MINI SCONCE, LED, 40W MAX, 2900 LUMENS, 12" x 5.5" x 7"D. SUITABLE FOR WET LOCATIONS, INTEGRAL ALUMINUM HEAT SINK, DIECAST ALUMINUM HOUSING (BRONZE), CLEAR IMPACT RESISTANT ACRYLIC LENS, SPECULAR ALUMINUM REFLECTOR WITH TYPE 4 FORWARD THROW DISTRIBUTION AND CUTOFF OPTICS.	120	GARDCO 111L-16L-550-NW-G2-4-BZ	LED 4000K (INTEGRAL)	29	31
C						

NOTES:

1. 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.
2. CONTRACTOR & LIGHTING FIXTURE SUPPLIER SHALL VERIFY DESCRIPTION, MOUNTING REQUIREMENTS, CATALOG NUMBERS, ETC. MATCH. ADVISE ENGINEER OF ANY CONFLICTS OR DISCREPANCIES.
3. ALL LED 0-10V DIMMING DRIVERS SHALL BE COMPATIBLE WITH MOTION CONTROLLERS, PHOTO-CONTROLLERS, DIMMER SWITCHES, ETC.



ELECTRICAL - SHOP WELL # 2 LIGHTING PLAN
SCALE: 1/2" = 1'-0"

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2 0 2 4
SCALE HORIZONTAL SCALE FEET

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DATE 1-08-2020	SCALE 1/2" = 1'-0"	JOB NUMBER 1941	
SHEET E2.2	PAGE 26 OF 35		

CITY OF FERNDALE

SHOP WELL #2 – WELLHOUSE PROJECT

BELLINGHAM WASHINGTON

ELECTRICAL – SHOP WELL # 2 LIGHTING PLAN & FIXTURE SCHEDULE

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STATE OF WASHINGTON
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PROFESSIONAL ENGINEER
1/8/2020

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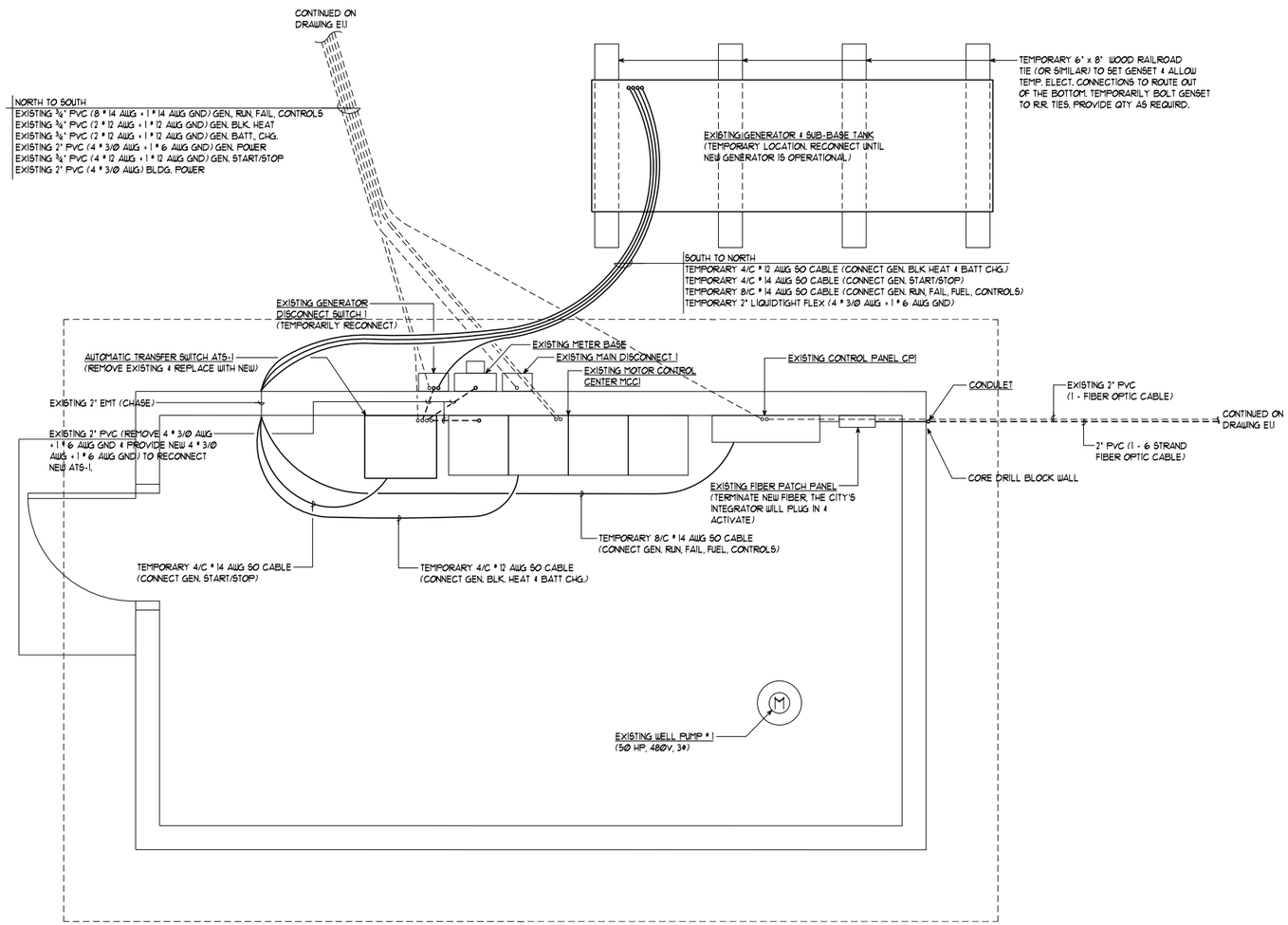

ELECTRICAL - SHOP WELL # 1 POWER & CONTROLS PLAN

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

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SCALE HORIZONTAL SCALE FEET

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DRAWN BY	KL
CHECKED BY	

CITY OF FERNDALE
BELLINGHAM WASHINGTON
SHOP WELL #2 WELLHOUSE PROJECT
ELECTRICAL – SHOP WELL # 1
POWER & CONTROLS PLAN

DATE	1-08-2020	SCALE	NONE
JOB NUMBER	1941	SHEET	E3.1
PAGE	27 OF 35		

PLOT SETTINGS: RICOH 8X11- B&W.pc3, Letter, Portrait, 1:1.0488432, WE APWA_UNSCREENED.ctb
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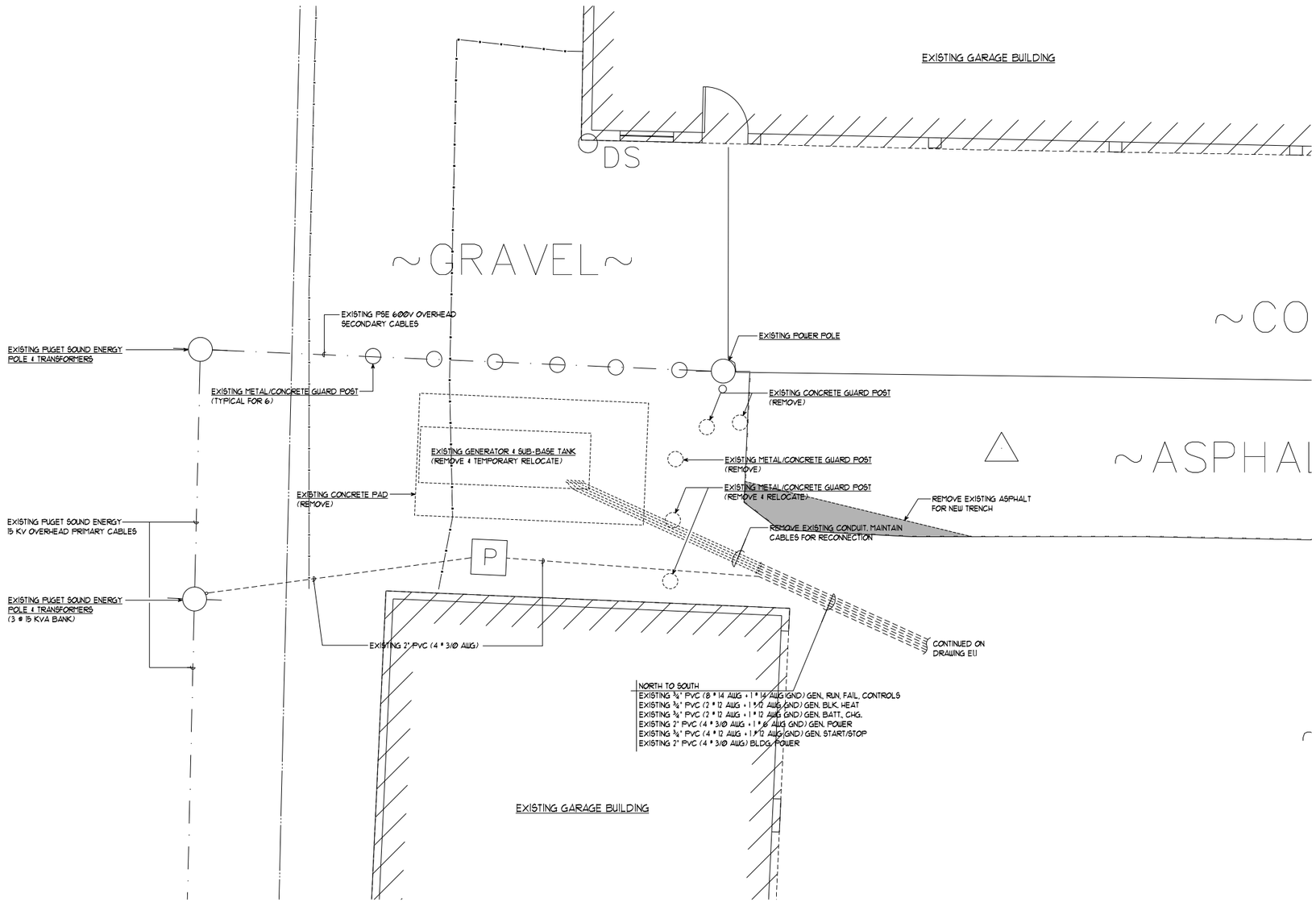

ELECTRICAL - DEMOLITION PLAN

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

N

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SCALE HORIZONTAL SCALE FEET

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WASHINGTON
BELLINGHAM
SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL – GENERATOR DEMOLITION PLAN

DESIGNED BY	DRAWN BY	CHECKED BY
STV	KL	

DATE	SCALE	JOB NUMBER
1-08-2020	1/4" = 1'-0"	1941

SHEET	PAGE
E4.1	28 OF 35

PLOT SETTINGS: RICOH 8X11- B&W.pc3, Letter, Portrait, 1:1.0488432, WE APWA_UNSCREENED.ctb
K:\JOBS 1900-1999\1941 CITY OF FERNDALE - SW WELL PUMP HOUSE # 2\E4.1.DWG - 1/8/2020 11:38 AM - Kim Lance

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

STEVEN B. TRUMAN — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER — 1/8/2020

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING

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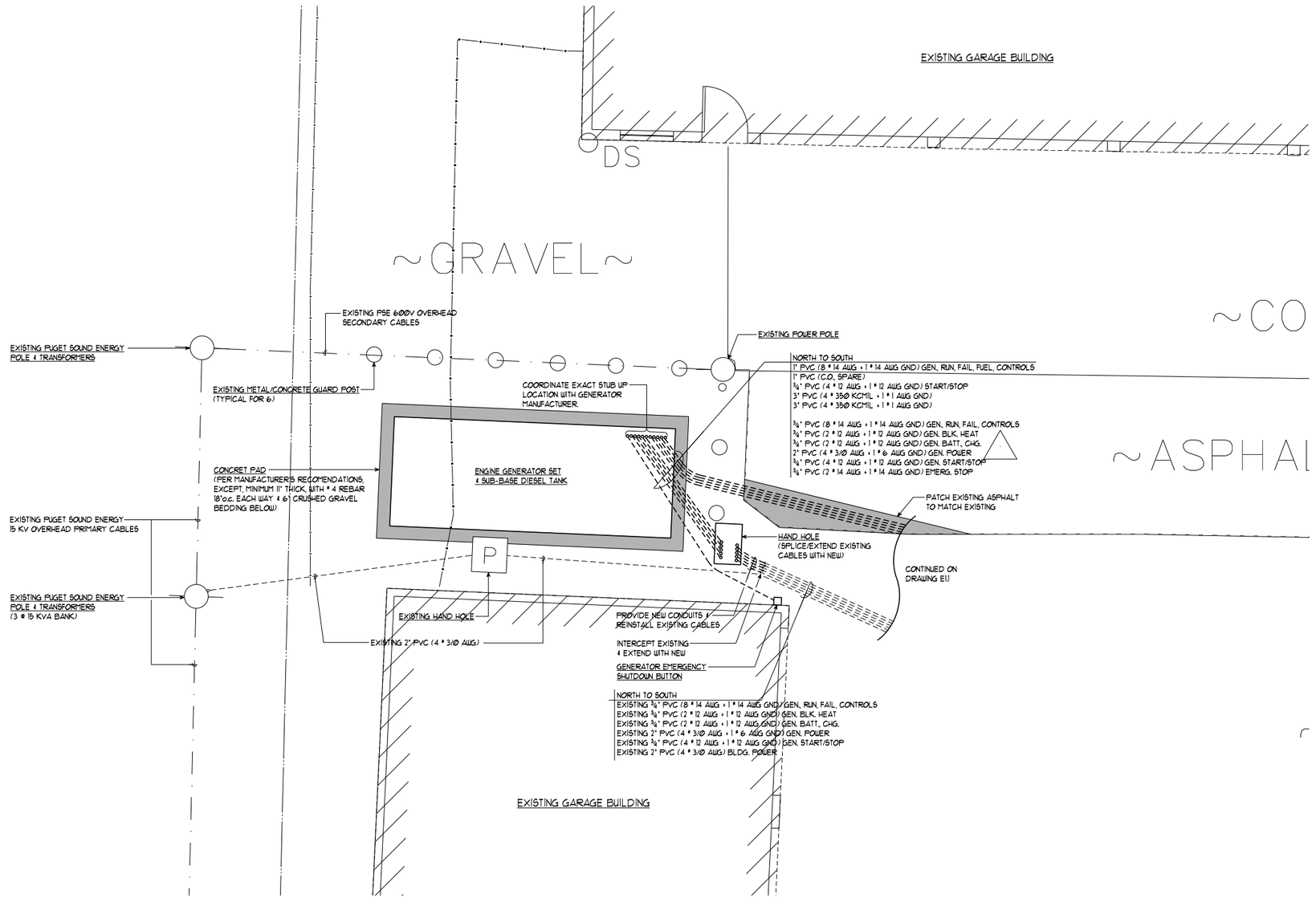

ELECTRICAL - PLAN

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

N

4 0 4 8
SCALE HORIZONTAL SCALE FEET

811 Call 811 two business days before you dig

BID SET

DESIGNED BY	STV
DRAWN BY	KL
CHECKED BY	
DATE	1-08-2020
SCALE	1/4" = 1'-0"
JOB NUMBER	1941
SHEET	E4.2
PAGE	29 OF 35

CITY OF FERNDALE
BELLINGHAM WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL – GENERATOR POWER & CONTROLS PLAN

PLOT SETTINGS: RICOH 8X11- B&W.pc3, Letter, Portrait, 1:1.0488432, WE APWA_LINSCREENED.ctb
K:\JOBS 1900-1999\1941 CITY OF FERNDALE - SW WELL PUMP HOUSE # 2\E4.2.DWG - 1/8/2020 11:38 AM - Kim Lance

NO.	REVISIONS	BY	DATE

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CIVIL STRUCTURAL SURVEY

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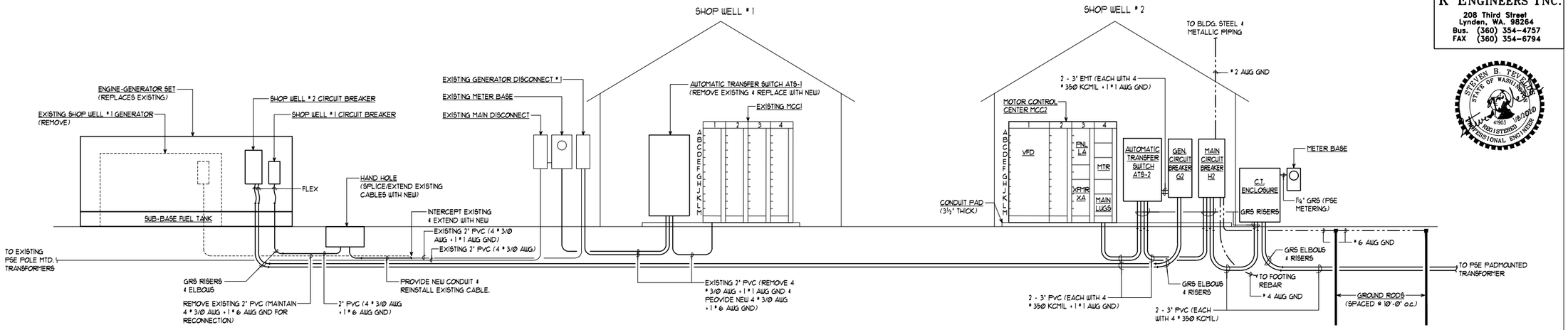
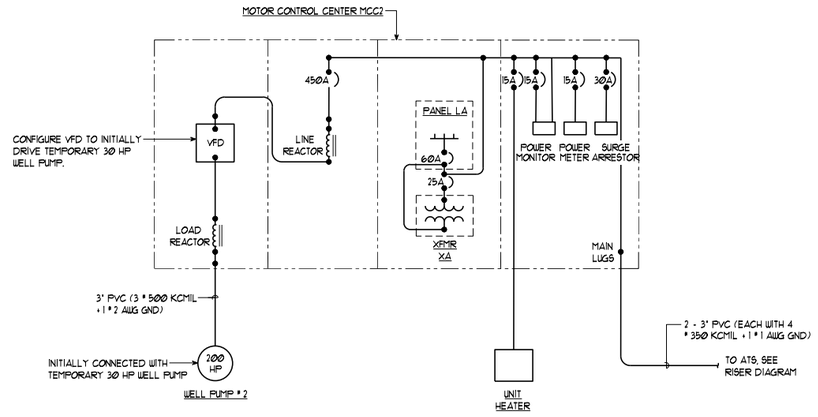


ELECTRICAL - POWER SYSTEM RISER DIAGRAM

NO SCALE



ELECTRICAL - MCC2 ONE-LINE DIAGRAM

NO SCALE

BID SET

DESIGNED BY STV	DRAWN BY KL	CHECKED BY	

CITY OF FERNDALE

BELLINGHAM WASHINGTON

SHOP WELL #2 – WELLHOUSE PROJECT

ELECTRICAL – POWER SYSTEM RISER DIAGRAM

SHEET	DATE	SCALE	JOB NUMBER
E6.1	1-08-2020	NONE	1941

PAGE 30 OF 35

NO.	REVISIONS	BY	DATE

K ENGINEERS INC.
208 Third Street
Lyndon, WA. 98264
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CIVIL
STRUCTURAL
SURVEY

WILSON ENGINEERING
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41903 REGISTERED PROFESSIONAL ENGINEER 1/8/2020

NEW C.T. ENCLOSURE — SHOP WELL #2 BUILDING

VOLTAGE: 480Y/277V, 3 PH, 4 W
RATING: 600 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	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	17895.0	17895.0	1.00	17895.0
Process Equipment	0.0	191218.4	191218.4	1.00	191218.4
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					12947.1
TOTAL LOAD	0.0	210716.4	210716.4		223734.2
TOTAL AMPS	0.0	253.5	253.5		269.1

NEW MAIN CIRCUIT BREAKER H2 — SHOP WELL #2 BUILDING

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

CONTINUOUS RATING: 600 A
FULL AIC RATING: 14,000 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	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	17895.0	17895.0	1.00	17895.0
Process Equipment	0.0	191218.4	191218.4	1.00	191218.4
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					12947.1
TOTAL LOAD	0.0	210716.4	210716.4		223734.2
TOTAL AMPS	0.0	253.5	253.5		269.1

NEW ENGINE GENERATOR SET — SHOP WELL #2 BUILDING

VOLTAGE: 480Y/277 V, 3 PH, 4 W
RATING: 450 KW, 562 KVA
TYPE: DIESEL

ENCLOSURE: OUTDOOR WEATHERPROOF
SKID MOUNTED
SOUND ATTENUATED

HEATER: ENGINE COOLANT (120V)

FUEL TANK: SUB-BASE, DOUBLE WALL
24 HOUR FULL LOAD OPERATION (MIN.)
FUEL GAUGE
FUEL BY OWNER
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

2 CIRCUIT BREAKERS AS FOLLOWS:
1 @ 600A, 3 POLE
1 @ 200A, 3 POLE

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	17895.0	17895.0	1.00	17895.0
Process Equipment	0.0	191218.4	191218.4	1.00	191218.4
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					12947.1
TOTAL LOAD	0.0	210716.4	210716.4		223734.2
TOTAL AMPS	0.0	253.5	253.5		269.1

NEW GENERATOR CIRCUIT BREAKER G2 — SHOP WELL #2 BUILDING

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

CONTINUOUS RATING: 600 A
FULL AIC RATING: 14,000 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	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	17895.0	17895.0	1.00	17895.0
Process Equipment	0.0	191218.4	191218.4	1.00	191218.4
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					12947.1
TOTAL LOAD	0.0	210716.4	210716.4		223734.2
TOTAL AMPS	0.0	253.5	253.5		269.1

NEW AUTOMATIC TRANSFER SWITCH ATS-1 (REPLACES EXISTING) — SHOP WELL #1 BUILDING

VOLTAGE: 480Y/277 V, 3 PH, 4 W
RATING: 200 AMPS, 4 POLE, 4 WIRE
APPLICATION: UTILITY TO GENERATOR

ENCLOSURE: NEMA 1
MOUNTING: SURFACE

TIMED DELAY BREAK BEFORE MAKE

EXERCISER CLOCK

MASTER NAMEPLATE

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	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	0.0	0.0	1.00	0.0
Miscellaneous	0.0	0.0	0.0	1.00	0.0
25% Largest Motor					0.0
TOTAL LOAD	0.0	0.0	0.0		0.0
TOTAL AMPS	0.0	0.0	0.0		0.0

NEW AUTOMATIC TRANSFER SWITCH ATS-2 — SHOP WELL #2 BUILDING

VOLTAGE: 480Y/277 V, 3 PH, 4 W
RATING: 600 AMPS, 4 POLE, 4 WIRE
APPLICATION: UTILITY TO GENERATOR

ENCLOSURE: NEMA 1
MOUNTING: SURFACE

TIMED DELAY BREAK BEFORE MAKE

EXERCISER CLOCK

MASTER NAMEPLATE

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	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	17895.0	17895.0	1.00	17895.0
Process Equipment	0.0	191218.4	191218.4	1.00	191218.4
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					12947.1
TOTAL LOAD	0.0	210716.4	210716.4		223734.2
TOTAL AMPS	0.0	253.5	253.5		269.1

NEW MOTOR CONTROL CENTER MCC2 — SHOP WELL #2 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: 14,000A

MAIN: 600A, LUGS ONLY
LOCATION: BOTTOM, RIGHT

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

INTERRUPTING CAP: 14,000A
CONTROL VOLTAGE: 24VDC
CONTROL XFMR: NONE
CONTROL CIRCUIT FUSE: YES
AUXILIARY CONTACTS: 2 N.O.
O/L RELAYS: THERMAL MAG
HEATERS BY: MANUFACTURER
DEVICES: "RUN" PILOT LIGHT
VFD LINE AND LOAD REACTORS
VFD INPUT CONTACTORS

SPECIAL PROVISIONS:
MASTER NAMEPLATE
UNIT NAMEPLATES

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	17895.0	17895.0	1.00	17895.0
Kitchen Equipment & Appliances	0.0	191218.4	191218.4	1.00	191218.4
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					12947.1
TOTAL LOAD	0.0	210716.4	210716.4		223734.2
TOTAL AMPS	0.0	253.5	253.5		269.1

MCC SPACE	FEEDER/BRANCH CIRCUIT DESCRIPTION	MOTOR HP	SF	FLA	LOAD KVA	CONN. LOAD (VA)	STARTER SIZE	TYPE	DISC. MEANS RATING	TYPE
1A 1B 1C 1D 1E 1F 1G 1H 1J 1K 1L M	SHOP WELL 2 PUMP VFD & LOAD REACTOR	200		240.0	191	191218.4	5	VFD	450/3	NONE
2A 2B 2C 2D 2E 2F	SHOP WELL PUMP 2 CIRCUIT BREAKER	200		240.0	191	191218.4	NONE	NONE	450/3	BREAKER
2G 2H 2J 2K 2L 2M	SHOP WELL PUMP 2 INPUT CONTACTOR AND LINE REACTOR	200		240.0	191	191218.4	NONE	NONE	450/3	NONE
3A 3B 3C 3D 3E	PANEL LA (LOCATED INSIDE MCC2, VIA XFMR XA, SEE PANEL SCHEDULE)					14498.0	NONE	NONE	100/3	BREAKER
3F 3G	TRANSFORMER XA CIRCUIT BREAKER						NONE	NONE	50/3	BREAKER
3H 3J 3K 3L 3M	TRANSFORMER XA (LOCATED INSIDE MCC2, SEE PANEL SCHEDULE)						NONE	NONE	NONE	NONE
4A 4B	UNIT HEATER UH-1				5	5000.0	NONE	NONE	20/3	BREAKER
4C 4D	PHASE MONITOR				0	0.0	NONE	NONE	15/3	BREAKER
4E 4F 4G	POWER METER				0	0.0	NONE	NONE	15/3	BREAKER
4H 4J	SURGE ARRESTOR					0.0	0	NONE	30/3	BREAKER
4K 4L 4M	MAIN LUGS									

NEW TRANSFORMER XA — INSIDE MCC2 - SHOP WELL #2 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, MOUNTED INSIDE MCCA

WINDINGS:
MANUFACTURER'S STANDARD

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	12895.0	12895.0	1.00	12895.0
Kitchen Equipment & Appliances	0.0	0.0	0.0	1.00	0.0
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					281.8
TOTAL LOAD	0.0	14498.0	14498.0		14850.5
TOTAL AMPS (PRIMARY)	0.0	17.4	17.4		17.9
TOTAL AMPS (SECONDARY)	0.0	40.2	40.2		41.2

NEW PANEL LA — INSIDE MCC2 - SHOP WELL #2 BUILDING

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

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
GROUND BAR

ELECTRICAL LOAD CALCULATION	CONN. LOAD (VA) EXIST.	NEW	TOTAL	DEMAND FACTOR	DEMAND LOAD (VA)
Lighting	0.0	283.0	283.0	1.25	353.8
Gen. Purpose Outlets (First 10 KVA)	0.0	720.0	720.0	1.00	720.0
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	12895.0	12895.0	1.00	12895.0
Process Equipment	0.0	0.0	0.0	1.00	0.0
Miscellaneous	0.0	600.0	600.0	1.00	600.0
25% Largest Motor					281.8
TOTAL LOAD	0.0	14498.0	14498.0		14850.5
TOTAL AMPS	0.0	40.2	40.2		41.2

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		20/1	1	A	2	20/1	EXHAUST FAN & LOUVER - CONTROL RM (VIA T-STAT)		1247.0
252.0	LIGHTING - INTERIOR		20/1	3	B	4	30/2	AIR CONDITIONING UNIT AC-1		2912.0
31.0	LIGHTING - EXTERIOR		20/1	5	C	6	|			2912.0
600.0	TELEMETRY PANEL TP2		20/1	7	A	8	30/2	AIR CONDITIONING UNIT AC-2		2912.0
0.0	SPARE		20/1	9	B	10	|			2912.0
0.0	SPARE		20/2	11	C	12	20/1	SPARE		0.0
0.0			|	13	A	14	20/1	SPARE		0.0
0.0	SPARE		20/1	15	B	16	20/1	SPARE		0.0
0.0	SPARE		20/1	17	C	18	20/1	SPARE		0.0
0.0	SPARE		15/1	19	A	20	20/1	SPARE		0.0
			MAIN CIRCUIT BREAKER							

BID SET

DESIGNED BY	STV
DRAWN BY	KL
CHECKED BY	

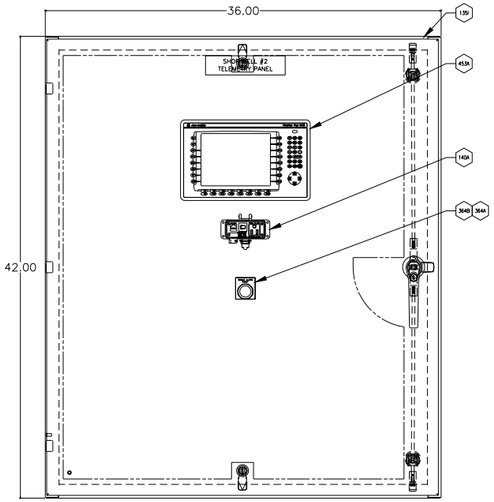
CITY OF FERNDALE

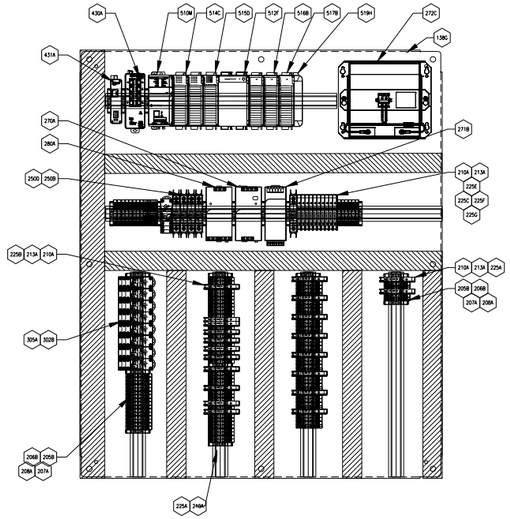
BELLINGHAM WASHINGTON

SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL –
PANEL SCHEDULES

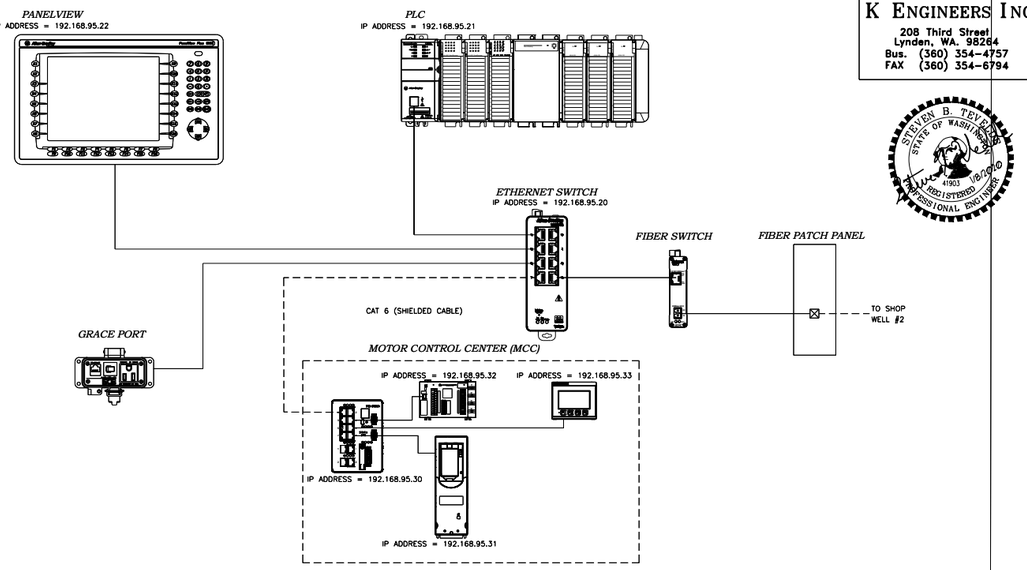
DATE	1-08-2020
SCALE	NONE
JOB NUMBER	1941
SHEET	E6.2
PAGE	31 OF 35

NO.	REVISIONS	BY	DATE





TELEMETRY PANEL TP2 - LAYOUT



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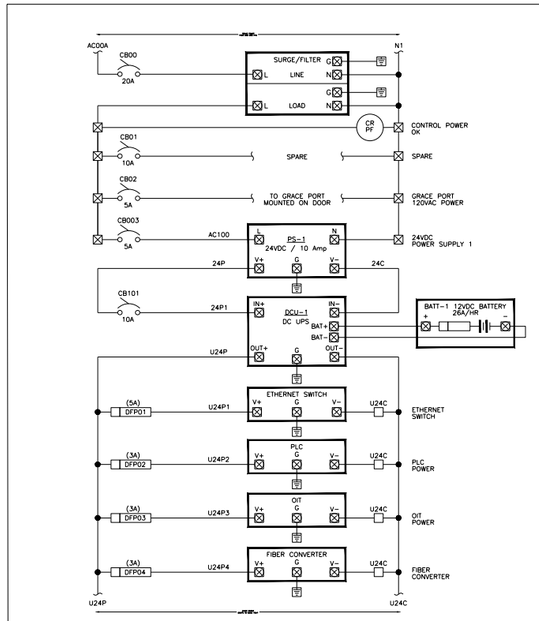
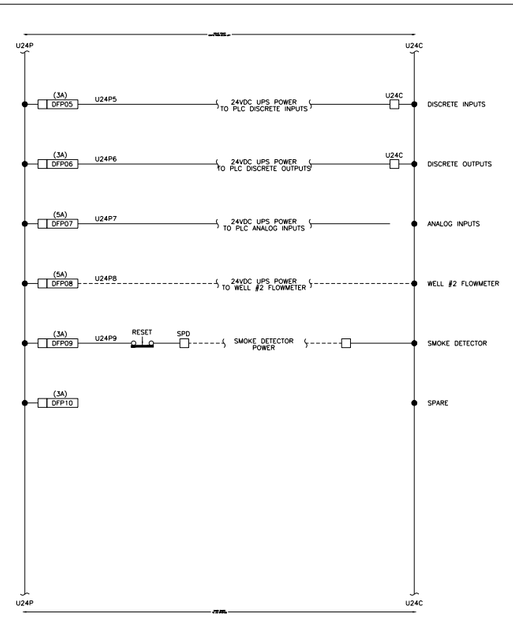
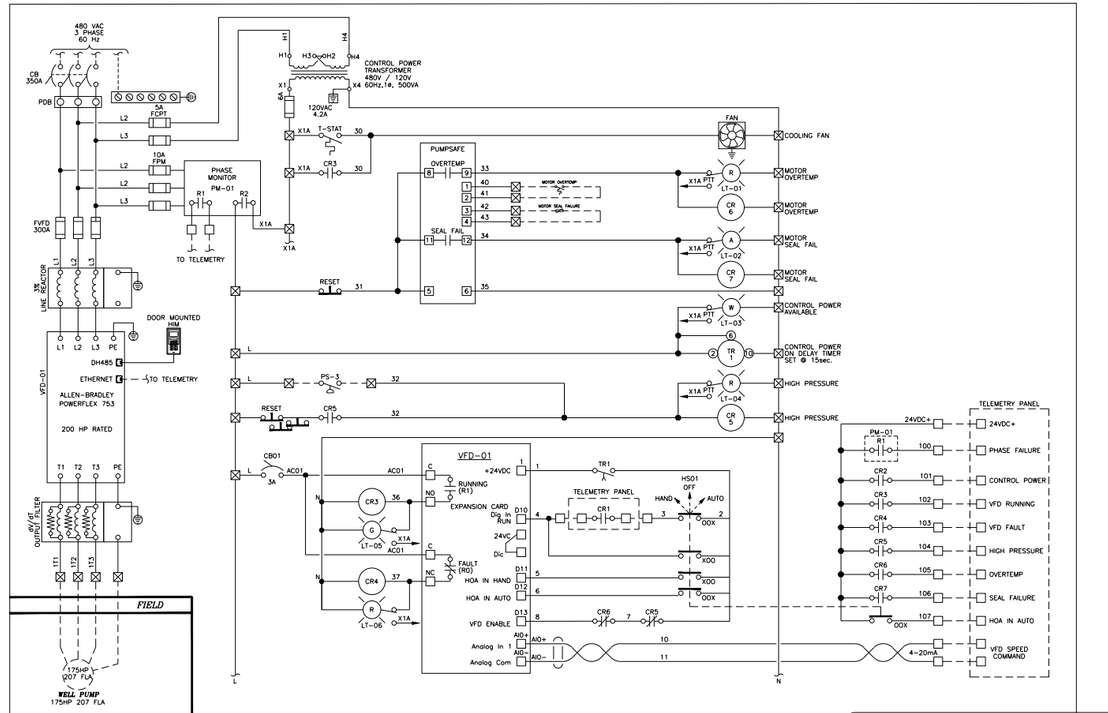
STEVEN B. TRUJILLO — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER — 1/8/2020

TELEMETRY PANEL TP2 - NETWORK BLOCK DIAGRAM





TELEMETRY PANEL TP2 - 120V-240V POWER DISTRIBUTION DIAGRAM



MCC2 - VFD POWER & CONTROLS DISTRIBUTION DIAGRAM

BID SET

PLOT SETTINGS: RICOH 8X11- B&W.pc3, Letter, Portrait, 1:1.0488432, WE APWA_UNSCREENED.ctb
K:\JOBS 1900-1999\1941 CITY OF FERNDALE - SW WELL PUMP HOUSE # 2\E7.1.DWG - 1/8/2020 12:44 PM - Kim Lance

WILSON ENGINEERING
CIVIL STRUCTURAL SURVEY
WILSONENGINEERING.COM

DESIGNED BY	DRAWN BY	CHECKED BY
STV	KL	

CITY OF FERNDALE
BELLINGHAM WASHINGTON
SHOP WELL #2 - WELLHOUSE PROJECT
ELECTRICAL - CONTROLS & INSTRUMENTATION TELEMETRY PANEL TP2

DATE	SCALE	JOB NUMBER
1-08-2020	NONE	1941

SHEET	PAGE
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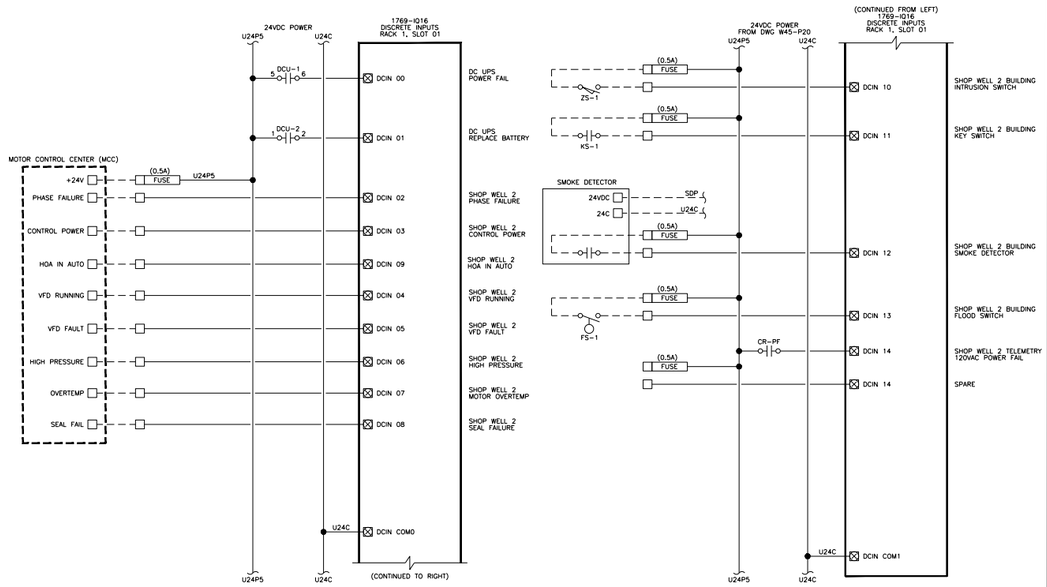
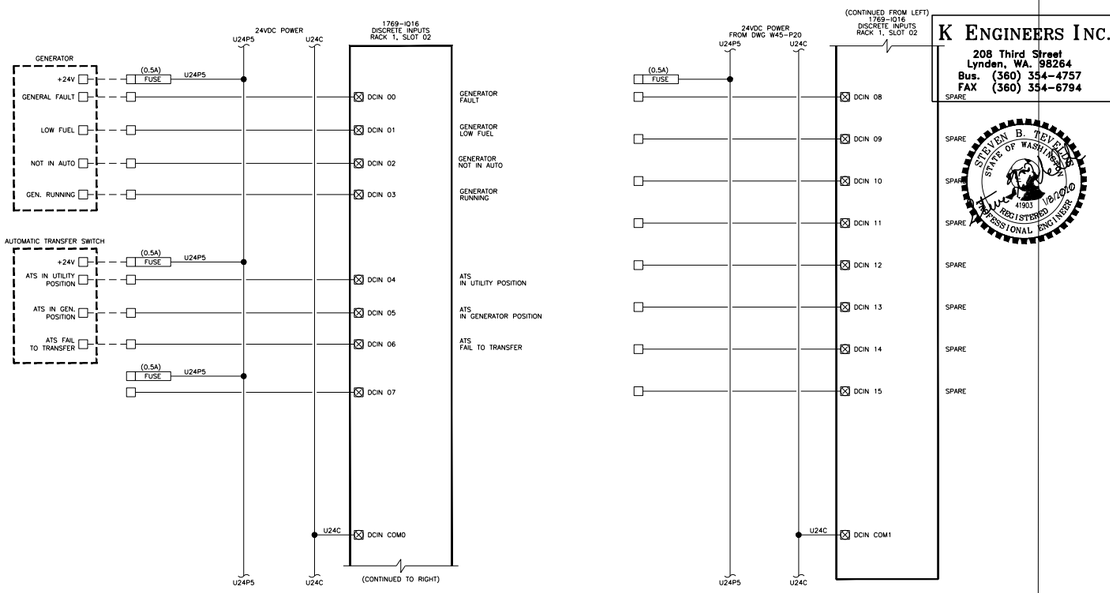
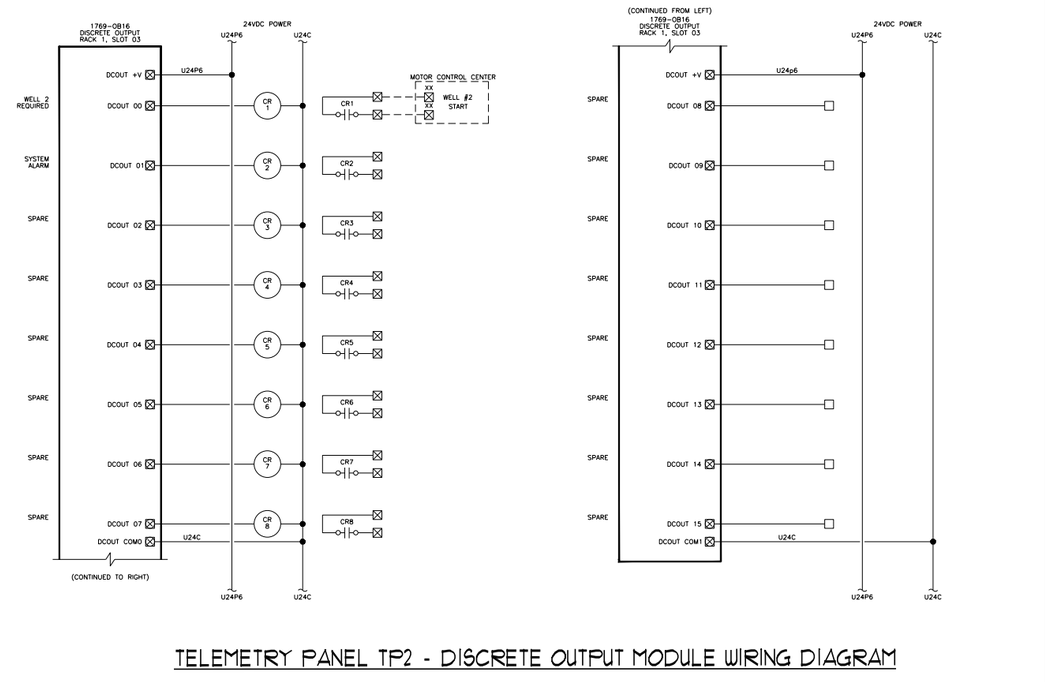
NO.	REVISIONS	BY	DATE



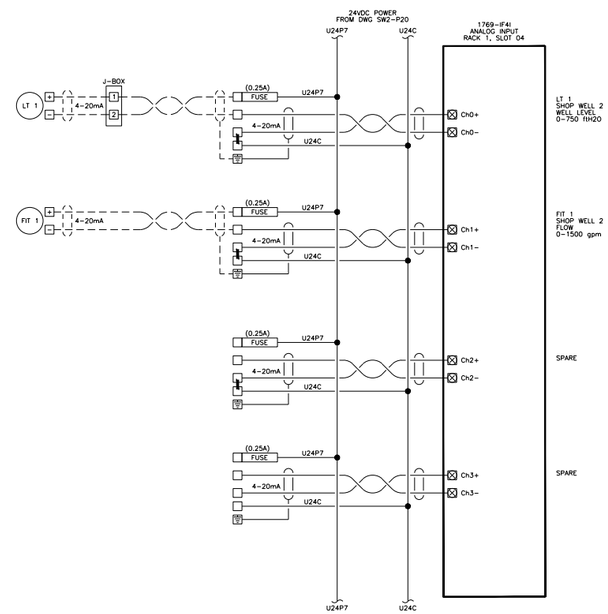
TELEMETRY PANEL TP2 - DISCRETE INPUT MODULE WIRING DIAGRAM



TELEMETRY PANEL TP2 - DISCRETE INPUT MODULE WIRING DIAGRAM



TELEMETRY PANEL TP2 - DISCRETE OUTPUT MODULE WIRING DIAGRAM



TELEMETRY PANEL TP2 - ANALOG INPUT MODULE WIRING DIAGRAM

BID SET

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

STEVEN B. TREVATHAN — STATE OF WASHINGTON — 41903 — REGISTERED PROFESSIONAL ENGINEER — 8/6/2020

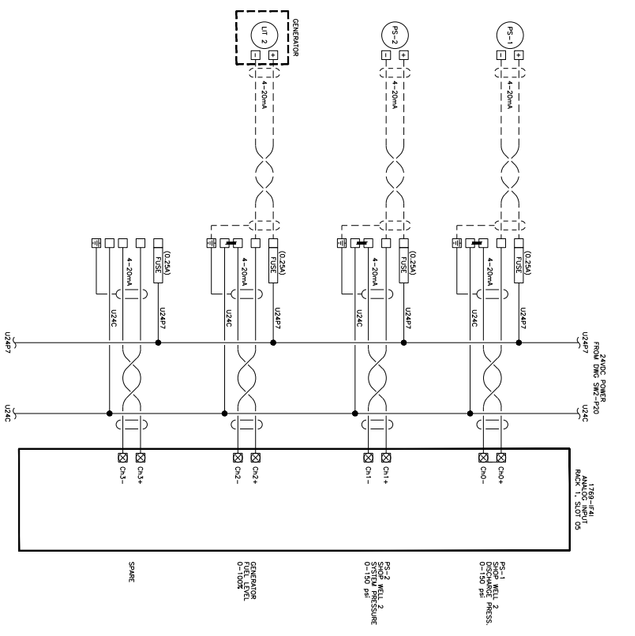
CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING
WILSONENGINEERING.COM

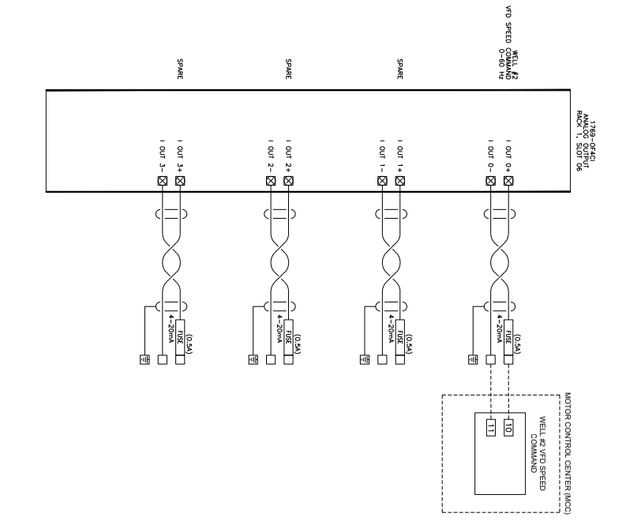
DESIGNED BY STV	DRAWN BY KL	CHECKED BY	
DATE 1-08-2020	SCALE NONE	JOB NUMBER 1941	
SHEET E7.2	PAGE 33 OF 35		

CITY OF FERNDALE
BELLINGHAM WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL – CONTROLS & INSTRUMENTATION TELEMETRY PANEL TP2

TELEMETRY PANEL TP2 - ANALOG INPUT MODULE WIRING DIAGRAM



TELEMETRY PANEL TP2 - ANALOG OUTPUT MODULE WIRING DIAGRAM



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NO.	REVISIONS	BY	DATE

BID SET

SHEET	DATE	CITY OF FERNDALE	DESIGNED BY
E7.3	1-08-2020	BELLINGHAM WASHINGTON	STV
PAGE	SCALE	SHOP WELL #2 - WELLHOUSE PROJECT	DRAWN BY
34 OF 35	NONE	ELECTRICAL - CONTROLS &	KL
	JOB NUMBER	INSTRUMENTATION TELEMETRY PANEL TP2	CHECKED BY
	1941		

WILSON ENGINEERING
WILSONENGINEERING.COM

CIVIL
STRUCTURAL
SURVEY

NO.	REVISIONS	BY	DATE

K ENGINEERS INC.
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Lynden, WA. 98264
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STEVEN B. TRUJILLO
STATE OF WASHINGTON
41903
REGISTERED
PROFESSIONAL ENGINEER

CIVIL STRUCTURAL SURVEY

WILSON ENGINEERING
WILSONENGINEERING.COM

Technical Systems Inc
Control Panel BOM

City of Ferndale
Shop Well #2

Customer - Wilson Engineering, LLC
Job Number - 7857

Part ID	Qty	Manufacturer Part Number	Description	Manufacturer
			Telemetry Control Panel	
135I	1	SCE-42EL3612SS6LPPL	Wall Mount Enclosure, NEMA 4X, Single Door, Padlockable Handle, 42.00" x 36.00" x 12.00", 316SS	Saginaw
138G	1	SCE-42P36	Enclosure Backpan, Painted Mild Steel, 39.00" x 33.00"	Saginaw
140A	1	P-B15-F3R3-U450	Programming Port, Ethernet, Simplex 120VAC Outlet w/3 Amp Breaker, Polycarbonite Cover	Saginaw
205B	As Req.	1492-J4	Terminal Block, Gray, 22-10 AWG, 600V, 35A	Allen-Bradley
206B	As Req.	1492-JG4	Terminal Block, Grounded, Gray, 22-10 AWG, 600V, 35A	Allen-Bradley
207A	As Req.	1492-EBJ3	Terminal Block End Barrier, 1492-J3/10 Terminals	Allen-Bradley
208A	As Req.	1492-EAJ35	Terminal Block End Clamp, 9.5mm Wide	Allen-Bradley
210A	As Req.	1492-H5	Single Circuit Fuse Block, Code 5,LED Blown Fuse Indicator, #30 - #12 AWG, Black	Allen-Bradley
213A	As Req.	1492-N37	Fuse Terminal Block End Barrier	Allen-Bradley
225A	As Req.	ABC-1/4-R	Fuse, 250 mA, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225B	As Req.	ABC-1/2-R	Fuse, 500 mA, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225C	As Req.	ABC-1-R	Fuse, 1 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225E	As Req.	ABC-3-R	Fuse, 3 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225F	As Req.	ABC-5-R	Fuse, 5 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225G	As Req.	ABC-10-R	Fuse, 10 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
250B	As Req.	1489-M1C150	Circuit Breaker, AC, 1 Pole Configuration, Trip Curve C, UL/CSA Max. Voltage: 277V AC, 48V DC ; IEC/EN Max. Voltage: 230V AC,15 A	Allen-Bradley
250D	As Req.	1489-M1C050	Circuit Breaker, AC, 1 Pole Configuration, Trip Curve C, UL/CSA Max. Voltage: 277V AC, 48V DC ; IEC/EN Max. Voltage: 230V AC,5 A	Allen-Bradley
270A	1	1606-XLE240EN	Power Supply, 24-28V DC, 240 W, 120V AC Input Voltage	Allen-Bradley
271B	1	1606-XLS240-UPS	DC UPS, 22.5-30V DC, 240W, 22.5-30V DC Input Voltage	Allen-Bradley
272C	1	1606-XLSBATASSY2	26Ah Battery Assembly w/ Mounting Bracket	Allen-Bradley
280A	1	4983-DC120-20	Surge and Filter Protection, Din Rail Mount, Combo UL 1449/UL 1283, 120V, 20A, No Pole Configuration	Allen-Bradley
302B	8	RXM2AB3BD	Control relay, DPDT 12 A Contacts,24 VDC coil, LED Indicator	Square D
305A	8	RXZE2S108M	RXM Relay Socket, DPDT	Square D
364A	1	800T-XA	Contact Block, Shallow Block, 1 N.O. - 1 N.C.	Allen-Bradley
364B	1	800H-AR2	30.5mm Type 4/4X/13 Mom. Contact PB, Non-Illum., Black, Flush Hd, No Contacts	Allen-Bradley
430A	1	1783-LMS8	Ethernet Switch, 8-Port 10/100 Copper, 12-48VDC Supply, Light Managed	Allen-Bradley
431A	1	1002MC-SX	Media Converter, 10/100/1000BaseT to 1000BaseSX/LX, multimode fiber	N-TRON
453A	1	2711P-B10C22D9P	PanelView Plus 7 Performance Terminal, Keypad/TouchScreen,10 SVGA, TFT Color, Ethernet DLR, 24V DC, Windows CE, Performance Model	Allen-Bradley
510M	1	1769-L30ER	CompactLogix Controller, Dual Ethernet w/DLR capability, 1MB Memory, 8 Local Modules, 256 I/O Expansion Modules, 32 Tasks Supported (Controllers are shipped with 1GB SD card and can support up to 2GB SD card)	Allen-Bradley
512F	1	1769-PB4	PLC Power Supply, 24VDC, 4 amps @ 5VDC	Allen-Bradley
514C	2	1769-IQ16	Discrete Input Module, 16 Points, 10-30VDC, Sink or Source	Allen-Bradley
515D	1	1769-OB16	Discrete Output Module, 16 Points,24VDC, Source	Allen-Bradley
516B	2	1769-IF4I	Analog Input Module, 4 Channel Isolated, Voltage or Current	Allen-Bradley
517B	1	1769-OF4CI	Analog Output Module, 4 Channel, Current, Isolated	Allen-Bradley
519H	1	1769-ECR	End Cap Terminator, Right	Allen-Bradley
			Spare Parts	
225A	5	ABC-1/4-R	Fuse, 250 mA, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225B	5	ABC-1/2-R	Fuse, 500 mA, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225C	5	ABC-1-R	Fuse, 1 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225E	5	ABC-3-R	Fuse, 3 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225F	5	ABC-5-R	Fuse, 5 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
225G	5	ABC-10-R	Fuse, 10 A, Glass Body, 1/4" x 1-1/4", Fast Acting, 250VAC	Bussmann
270A	1	1606-XLE240EN	Power Supply, 24-28V DC, 240 W, 120V AC Input Voltage	Allen-Bradley
271B	1	1606-XLS240-UPS	DC UPS, 22.5-30V DC, 240W, 22.5-30V DC Input Voltage	Allen-Bradley
272C	1	1606-XLSBATASSY2	26Ah Battery Assembly w/ Mounting Bracket	Allen-Bradley
280A	1	4983-DC120-20	Surge and Filter Protection, Din Rail Mount, Combo UL 1449/UL 1283, 120V, 20A, No Pole Configuration	Allen-Bradley
431A	1	1002MC-SX	Media Converter, 10/100/1000BaseT to 1000BaseSX/LX, multimode fiber	N-TRON
430A	1	1783-LMS8	Ethernet Switch, 8-Port 10/100 Copper, 12-48VDC Supply, Light Managed	Allen-Bradley
510M	1	1769-L30ER	CompactLogix Controller, Dual Ethernet w/DLR capability, 1MB Memory, 8 Local Modules, 256 I/O Expansion Modules, 32 Tasks Supported (Controllers are shipped with 1GB SD card and can support up to 2GB SD card)	Allen-Bradley
514C	1	1769-IQ16	Discrete Input Module, 16 Points, 10-30VDC, Sink or Source	Allen-Bradley
515D	1	1769-OB16	Discrete Output Module, 16 Points,24VDC, Source	Allen-Bradley
516B	1	1769-IF4I	Analog Input Module, 4 Channel Isolated, Voltage or Current	Allen-Bradley
517B	1	1769-OF4CI	Analog Output Module, 4 Channel, Current, Isolated	Allen-Bradley

Technical Systems Inc
Instrumentation BOM

City of Ferndale
Shop Well #2

Customer - Wilson Engineering, LLC
Job Number - 7857

Part ID	Qty	Tag Number	Manufacturer Part Number	Description	Low EU	High EU	Units	Cable Length	Manufacturer
F-011B	1		5W4C1F-C6ALHP5DUA1KGA+AACBEAL4	Magnetic Flowmeter, 6", Flanged Mount, 24VDC power, 4-20mA HART, CSA C/US NI Cl.I Div2 approval, 316 Electrodes IP68 Sensor, Remote Display	0	1200	gpm	80	Endress-Hauser
F-012B	1		DK5GD-1FAUL	Gounding Rings, 316SS, 6"					Endress-Hauser
LT-010B	1		PTX1835-700ftH2O-G-760ftCable	Submersible Level Transmitter, ±0.1% FS or ±0.25% FS accuracy, 4-20mA, 2-Wire, Welded Titanium Casing, Integral Lightning Protection, 760ft Cable	0	700	ftH2O	760	GE Druck
PS-10A	1		H400-164-M201	Pressure Switch, 0 to 200 psi, 1/4" NPT, deadband is 0.3-2psi, Brass bellows	0	200	psi		United Electric
S-100A	1		W4TARB	Heat and Smoke Detector, 18to 30 VDC, 4-Wire Photoelectric Smoke Detector, Sounder, Auxiliary Relay, Heat Sensor					System Sensor
S-101A	1		2807TM	Intrusion Switch, die-cast aluminum housing, triple-biased, SPDT switche w/external magnet tamper interlock, pry tamper plate, front faceplate integrated actuation.					Sentrol
E-101A	1		TE-11	Termination Enclosure, Polycarbonate enclosure with clear cover, Terminals, moisture protection, vented					PMC
S-103A	1		F7-SB	Vertical Float Switch, Buna-N & epoxy float, 316SS stem, 220°F (105°C), 150 psig (10 bar), electrical rating 25 VA: 1A @ 220 VAC, 22 AWG 18" (45 cm) wire leads, 1/8" male NPT mounting, UL listed, weight 2 oz (58 g).					Dwyer
PT-100A	2		IGP10-A22D1F	Pressure Transmitter, 0-150PSI, 0-300MWP, Analog; 4-20 mA DC Output, 9-30VDC, 316LSS Process, 316LSS Sensor	0	150	psi		Foxboro

CITY OF FERNDALE
BELLINGHAM WASHINGTON
SHOP WELL #2 – WELLHOUSE PROJECT
ELECTRICAL – CONTROLS &
INSTRUMENTATION BILL OF MATERIALS

DESIGNED BY STV | DRAWN BY KL | CHECKED BY

DATE 1-08-2020 | SCALE NONE | JOB NUMBER 1941

SHEET E7.4 | PAGE 35 OF 35

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