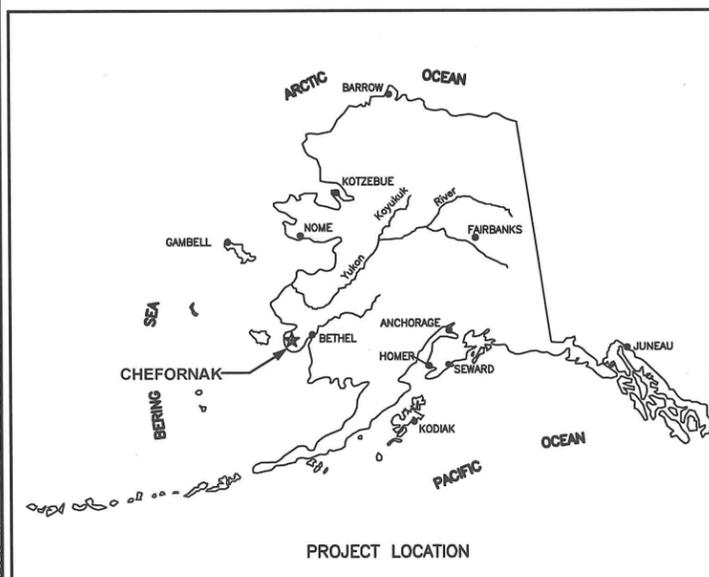


CITY OF CHEFORNAK, ALASKA

2013 WATER DISTRIBUTION AND WATERING POINTS UPGRADES

IN COOPERATION WITH STATE OF ALASKA
VILLAGE SAFE WATER AND THE CITY OF
CHEFORNAK, ALASKA

ISSUED FOR CONSTRUCTION - MAY 2013



Location Map



5-23-2013

Consultant

RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

NAME _____

DATE _____

Construction Foreman _____
FINAL DESIGN (Date) _____
ADEC APPROVAL (Date) _____
Construction Period (From) _____ (To) _____
As-Builts (Date) _____

SHEET INDEX

No.	Title
	COVER SHEET AND DRAWING INDEX
G1.0	GENERAL NOTES
C1.1	SITE PLAN
C1.2	UPGRADED WATERING POINT
C1.3	WATERING POINT ENCLOSURE CONSTRUCTION
C1.4	WATERING POINT ELEVATIONS
C2.1	JUNCTION BOX CONSTRUCTION DETAILS
C2.2	ARCTIC PIPE AND JUNCTION BOX DETAILS
E1	ELECTRICAL

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GENERAL NOTES

A. GENERAL

- THE PROJECT SUPERINTENDENT SHALL MAINTAIN A CLEAN SET OF 'AS-BUILT' RECORD DRAWINGS SHOWING THE LOCATIONS AND SWING TIES OF ANY CHANGES TO THE ORIGINAL PLANSET, AS WELL AS ANY BURIED OR HIDDEN BENDS. ALL ELEVATIONS SHALL BE MARKED ASB (AS-BUILT) WITH THE CORRECT VALUE INSERTED. DRAWINGS SHALL BE KEPT CURRENT IN RED PENCIL ON A DAILY BASIS IN A NEAT, LEGIBLE FASHION. A COPY OF THE AS-BUILT DRAWINGS SHALL BE SUBMITTED TO VILLAGE SAFE WATER AND THE CITY OF CHEFORNAK UPON COMPLETION OF CONSTRUCTION.
- EXISTING UTILITIES OF THE ENGINEER AT THE TIME OF DESIGN. RECORDS MAY NOT BE COMPLETELY ACCURATE. THE PROJECT SUPERINTENDENT SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES WITHIN EACH CONSTRUCTION REACH PRIOR TO BEGINNING WORK.
 WATER AND SEWER UTILITY: CITY OF CHEFORNAK (907) 867-8147
 ELECTRIC POWER PROVIDER: WATERKAQ ELECTRIC (907) 867-8213
 TELEPHONE UTILITY: GCI (800) 800-4800
- STATIONING IS ESTABLISHED ALONG THE PIPELINE AND UTILIDOR ROUTING AS SHOWN.
- THE CONSTRUCTION CREW SHALL AVOID EXISTING PROPERTY CORNER MARKERS AND SURVEY MONUMENTS TO THE EXTENT POSSIBLE. PROPERTY CORNERS DISTURBED DURING CONSTRUCTION ACTIVITIES SHALL BE RESET TO THEIR ORIGINAL POSITIONS BY A QUALIFIED SURVEYOR.

B. PIPE

- GENERAL:
 ALL PIPING AND FITTINGS SHALL BE NSF-61 COMPLIANT WHERE SUCH PIPING AND FITTINGS ARE IN CONTACT WITH RAW OR POTABLE WATER IN THE WATER TREATMENT OR DISTRIBUTION PROCESS. ALL PIPING SHALL BE LEAD FREE ALL PLUMBING USING SOLDERED JOINTS SHALL USE A SOLDER CERTIFIED TO NOT TO CONTAIN LEAD (BRIDGET OR EQUAL)
- HDPE MATERIAL:
 A) LISTED BY THE PPI WITH DESIGNATION OF PE-3408
 B) CELL CLASSIFICATION OF 345434C OR BETTER IN ACCORDANCE WITH ASTM D3350
 C) MUST EXCEED 1000 HOURS WHEN TESTED IN ACCORDANCE WITH ASTM F1248 RING ENVIRONMENTAL STRESS CRACK RESISTANCE TEST) WITH FEWER THAN 50 PERCENT FAILURES.
 D) APPROVED BY THE NATIONAL SANITATION FOUNDATION (NSF) FOR POTABLE WATER SERVICE.
 E) SHALL CONTAIN TWO PERCENT (2%) CARBON BLACK FOR ULTRAVIOLET (UV) PROTECTION AND SHALL BE HOMOGENEOUS THROUGHOUT.
- EXTRUDED PIPE:
 A) COMPLY WITH ASTM F714-90
 B) STANDARD IRON PIPE SIZE OUTSIDE DIMENSIONS
 C) STANDARD DIMENSION RATIO AS SHOWN BELOW WITH PRESSURE RATINGS (IN ACCORDANCE WITH ASTM D2837 AT 73° WITH A SERVICE FACTOR OF 0.5) AS FOLLOWS:

STANDARD DIMENSION RATIO	PRESSURE RATING (PSI)
SDR 11	160

 D) IMPACT STRENGTH MUST BE GREATER THAN 42 LB/IN BY ASTM D256 (ISOD IMPACT TEST)
- FITTINGS:
 A) UNLESS OTHERWISE NOTED HEREIN OR ON THE DRAWINGS, ALL FITTINGS SHALL BE CONSTRUCTED UTILIZING INNER CORE OF THE SAME MATERIAL, RESIN, AND DIMENSIONS AS THAT USED FOR THE INNER CORE PIPE OF THE STRAIGHT LENGTHS.
 B) IF THE INNER CORE OF A FITTING IS FABRICATED AS OPPOSED TO MOLDED THE FABRICATED FITTING SHALL BE ENCASED IN FIBERGLASS WRAP WITH A MINIMUM THICKNESS OF 1/4 INCH PRIOR TO FOAMING. THE FIBERGLASS ENCASEMENT IS REQUIRED TO GIVE THE FITTINGS ADDED STRENGTH.

C. PIPELINE TESTING

- GENERAL
 ALL TESTING SHALL BE IN CONFORMANCE WITH THE FOLLOWING REQUIREMENTS:

 ALL TESTS SHALL BE WITNESSED BY A REPRESENTATIVE DESIGNATED BY THE OWNER. UPON SUCCESSFUL COMPLETION OF A TEST, THE RESULTS OF THE TEST SHALL BE DOCUMENTED ON A TEST FORM AND ACKNOWLEDGED BY SIGNATURE OF THE COMMUNITY'S REPRESENTATIVE WITNESSING THE TEST AND BY THE PROJECT SUPERINTENDENT. THE SUPERINTENDENT'S RED LINED AS-BUILT DRAWINGS SHALL ALSO NOTE THE TIME AND DATE OF THE TEST, AS WELL AS THE NAME OF THE COMMUNITY'S WITNESS, FOR EACH PIPE SEGMENT TESTED.
- WATER MAIN TESTING
 ALL PIPE JOINTS SHALL BE VISUALLY INSPECTED FOR INTEGRITY PRIOR TO BACKFILLING THE TRENCH OR INSTALLING INSULATION HALF-SHELLS OR COUPLING BANDS. ALL NEWLY INSTALLED WATER MAINS SHALL BE OPEN BORE FLUSHED TO REMOVE ANY FOREIGN MATTER. OPEN BORE FLUSHING SHALL BE ACCOMPLISHED AT EACH EXTREMITY OF THE MAIN, PRIOR TO SERVICE LINE INSTALLATION, HYDROSTATIC (PRESSURE) TESTING AND DISINFECTION. PERFORM HYDROSTATIC TESTING OF WATERMANS. AFTER OPEN BORE FLUSHING AND BEFORE DISINFECTION (SEE ITEM E BELOW). FILL THE LINE WITH WATER AND REMOVE AIR POCKETS PRIOR TO STARTING THE TEST. PRESSURIZE TO 1.5 TIMES THE OPERATING PRESSURE = 105 PSI AND LEAVE FOR A MINIMUM OF 1 HOUR. AFTER THIS INITIAL PERIOD, ADD WATER TO BRING THE PRESSURE UP TO 105 PSI AND BEGIN A 1 HOUR TEST. FOR THE WATERLINE TO BE ACCEPTED, THE MAKE-UP WATER REQUIRED TO RETURN THE PRESSURE TO 105 PSI AT THE END OF THE TEST PERIOD SHALL NOT BE GREATER THAN 0.2 GALLONS PER 100 FT OF 3" WATERMAIN.

D. WATERMAIN DISINFECTION

- DISINFECTION SHALL BE ACCOMPLISHED AFTER COMPLETION OF OPEN BORE FLUSHING, SERVICE LINE INSTALLATION AND HYDROSTATIC TESTING OPERATIONS. CHLORINE SHALL BE USED FOR DISINFECTION. CHLORINE SHALL BE APPLIED BY THE CALCIUM HYPOCHLORITE AND WATER MIXTURE METHOD. CALCIUM HYPOCHLORITE SHALL BE COMPARABLE TO COMMERCIAL PRODUCTS KNOWN AS HTH, PERCHLOR OR MACHOCHLOR. THE CHLORINATING AGENT SHALL BE APPLIED AT THE BEGINNING OF THE SECTION, ENSURING TREATMENT OF THE ENTIRE LINE. WATER SHALL BE FED SLOWLY INTO THE NEW LINE WITH CHLORINE APPLIED IN AMOUNTS TO PRODUCE A DOSAGE OF FORTY (40) PPM TO FIFTY (50) PPM. A CHLORINATION DOSAGE OF 0.30 OZ OR 38 GRAMS PER 100 FEET SHALL BE USED FOR 3" DIAMETER PIPES. IF A DIFFERENT CHLORINATING AGENT IS USED, THE DOSAGE MUST BE ADJUSTED AND APPROVED BY THE ENGINEER. APPLICATION OF THE CHLORINE SOLUTION SHALL CONTINUE UNTIL THE REQUIRED DOSAGE IS EVIDENT AT ALL EXTREMITIES OF THE NEWLY INSTALLED LINE.
- DURING THE CHLORINATION PROCESS, ALL INTERMEDIATE VALVES AND ACCESSORIES SHALL BE OPERATED. VALVES SHALL BE MANIPULATED SO THAT THE STRONG CHLORINE SOLUTION IN THE LINE BEING TREATED WILL NOT FLOW BACK INTO THE LINE SUPPLYING THE WATER. HYDROSTATIC TESTING OF A WATER LINE CONTAINING THE CHLORINE MIXTURE WILL NOT BE ALLOWED.
- A RESIDUAL OF NOT LESS THAN FIVE (5) PPM CHLORINE SHALL BE PRODUCED IN ALL PARTS OF THE WATER SYSTEM (MAIN AND SERVICES) AND RETAINED FOR A MINIMUM PERIOD OF TWENTY-FOUR (24) HOURS. AFTER WHICH THE CHLORINATED WATER SHALL BE FLUSHED FROM THE LINE AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER TESTS ARE EQUAL CHEMICALLY TO THOSE OF THE PERMANENT SOURCE OF SUPPLY. EACH INDIVIDUAL SERVICE SHALL BE FLUSHED SEPARATELY TO REMOVE CHLORINE SOLUTION. IN NO INSTANCE SHALL A WATER MAIN BE CHLORINATED BEFORE "OPEN-BORE" FLUSHING. AFTER FLUSHING, DRAW A SAMPLE FROM THE EXTREMITY OF DISTRIBUTION SYSTEM FOR TOTAL COLIFORM TESTING AT A STATE CERTIFIED LABORATORY. DO NOT COMMISSION THE NEW CONSTRUCTION UNTIL A NEGATIVE BACTERIOLOGICAL REPORT IS OBTAINED FROM THE LABORATORY.
- HEAVILY CHLORINATED WATER SHALL BE NEUTRALIZED WITH A SOLUTION OF SODIUM BISULFITE OR SODIUM SULFITE AT A RATE TABULATED IN APPENDIX B OF AWWA C651. THE SUPERINTENDENT IN CHARGE OF THE DISINFECTION AND FLUSHING OF THE LINES SHALL HAVE A COPY OF AWWA C651-05 ON SITE FOR READY REFERENCE.

E. WATERING POINTS DISINFECTION

- DISINFECT WATERING POINTS PIPING WHEN DISINFECTING THE WATER MAINS BY DIRECTING SUPERCHLORINATED WATER IN THE MAINS TO WATERING POINT DELIVERY AND 1-1/2" HOSE OUTLET THROUGH VALVES.

F. JUNCTION BOXES ON WATER DISTRIBUTION PIPING

- JUNCTION BOX SHELLS SHALL BE CONSTRUCTED PER PLANS, MATERIAL SHALL BE 1/2" ASTM 5052-H32 ALUMINUM UNLESS OTHERWISE NOTED.
- JUNCTION BOX INSULATION SHALL BE RIGID POLYSTYRENE CLOSED CELL TYPE BOARD INSULATION, DOW HI-40 OR APPROVED EQUAL.
- JUNCTION BOXES SHALL BE FIELD LOCATED.

F. SERVICE INTERRUPTIONS

- CONSTRUCTION SUPERINTENDANT SHALL SCHEDULE WATER SERVICE INTERRUPTIONS WITH THE CITY OF CHEFORNAK.

DESIGN CRITERIA

DESIGN POPULATION	500 PERSONS
AVERAGE DESIGN WATER DEMAND	10,800 GPD (7.5 GPM AVE.)
PEAK FLOW RATE (4 x AVG.)	30 GPM
DESIGN SNOWLOAD Ps	40 PSF (2 MONTH DURATION)
WIND SPEED	130 MPH, EXPOSURE C
SEISMIC DATA:	SITE CLASS D, $S_{DS} = 0.15 - S_{D1} = 0.07$
DESIGN TEMP/WIND SPEED	-45° F, 25 MPH
SYSTEM WATER TEMP	45° F
HEATING INDEX	13,300 DEG (F) DAYS/YR.
DESIGN FREEZING INDEX	4,200 DEG (F) DAYS/YR.
DESIGN THAWING INDEX	2,700 DEG (F) DAYS/YR.
HEATING VALUE OF NO. 1 FUEL OIL	134,000 BTU/GAL. GROSS OUTPUT

SCOPE OF PROJECT

WATERING POINT UPGRADES

THIS PROJECT WILL PERFORM UPGRADES OF A TOTAL OF 12 WATERING POINTS BY REPLACING THE EXISTING WOOD FRAMED ENCLOSURES WITH WELDED AND BOLTED ALUMINUM ENCLOSURES WITH 4-IN THICK FOAM INSULATION, MAKING FOR A HIGHLY ENERGY EFFICIENT DISPENSING POINT. TWO OF THE 12 WATERING POINTS ARE BEING UPGRADED WITH PROTOTYPE ALUMINUM UNITS, WITH ONE ALREADY IN PLACE. ONE WATERING POINT EXISTS AT THE WATER TREATMENT PLANT AND WILL JUST HAVE HOSE AND INTERNALS UPGRADED.

WATER DISTRIBUTION UPGRADES

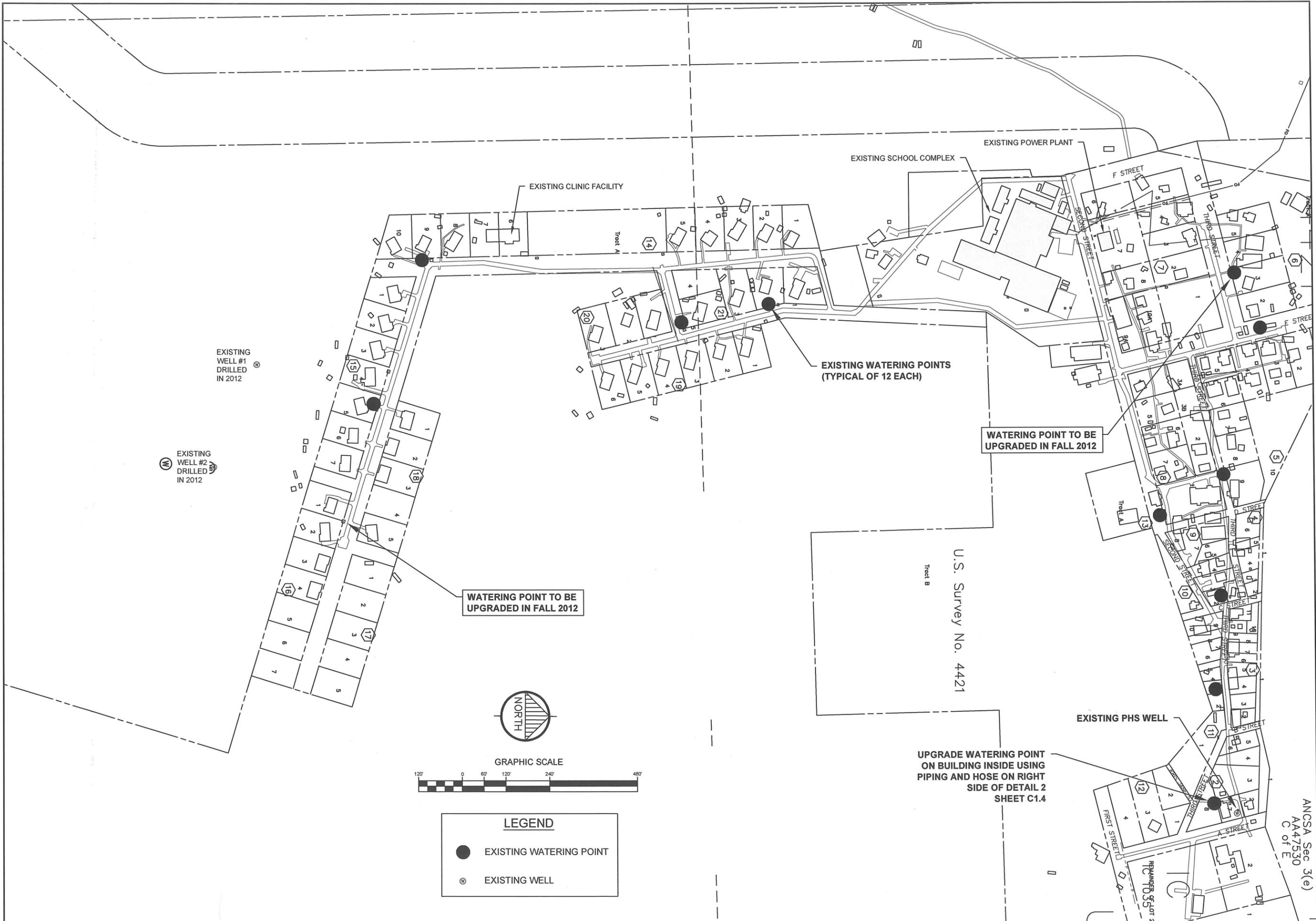
THE EXISTING WATER DISTRIBUTION SYSTEM TO THE WATERING POINTS AND THE SCHOOL WILL HAVE THE FOLLOWING UPGRADES:

- EXISTING WOOD FRAMED JUNCTION BOXES WILL BE UPGRADED TO ALUMINUM BOXES WITH 4-IN THICK FOAM INSULATION, MAKING THEM MUCH MORE ENERGY EFFICIENT.
- EXISTING EXPANSION HOSES WILL BE REPLACED BY NEW HOSES (NSF 61 CERTIFIED), BUT WITH MORE STREAMLINED JOINTS, WITH THE ABILITY TO BLEED AIR FROM EACH LINE.

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SCALE: 1" = 10' (SEE INCH OR ORIGINAL DRAWING) 0" = 0' (IF NOT ONE INCH ON SCALES ACCORDINGLY)																					
CONSTRUCTION RECORD FIELD BOOK _____ STAKING _____ FOREMAN _____ AS-BUILT _____ INSPECTOR _____																					
																					
2013 WATER DISTRIBUTION AND WATERING POINTS GENERAL NOTES AND DESIGN CRITERIA CHEFORNAK, ALASKA																					
																					
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LEGEND	
●	EXISTING WATERING POINT
⊙	EXISTING WELL

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CONSTRUCTION RECORD	
FIELD BOOK	
STAKING	
FOREMAN	
AS-BUILT	
INSPECTOR	



2013 WATER DISTRIBUTION AND WATERING POINTS
 SITE PLAN
 CHEFORNAK, ALASKA

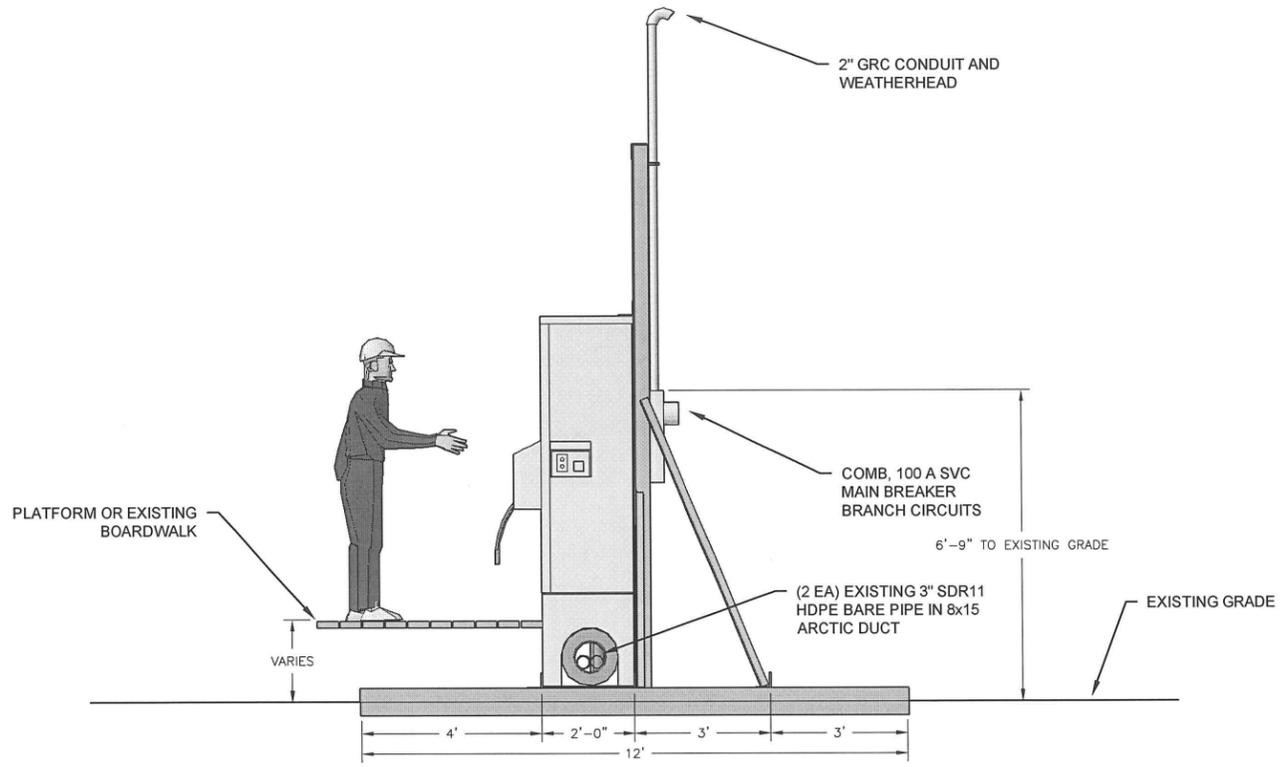


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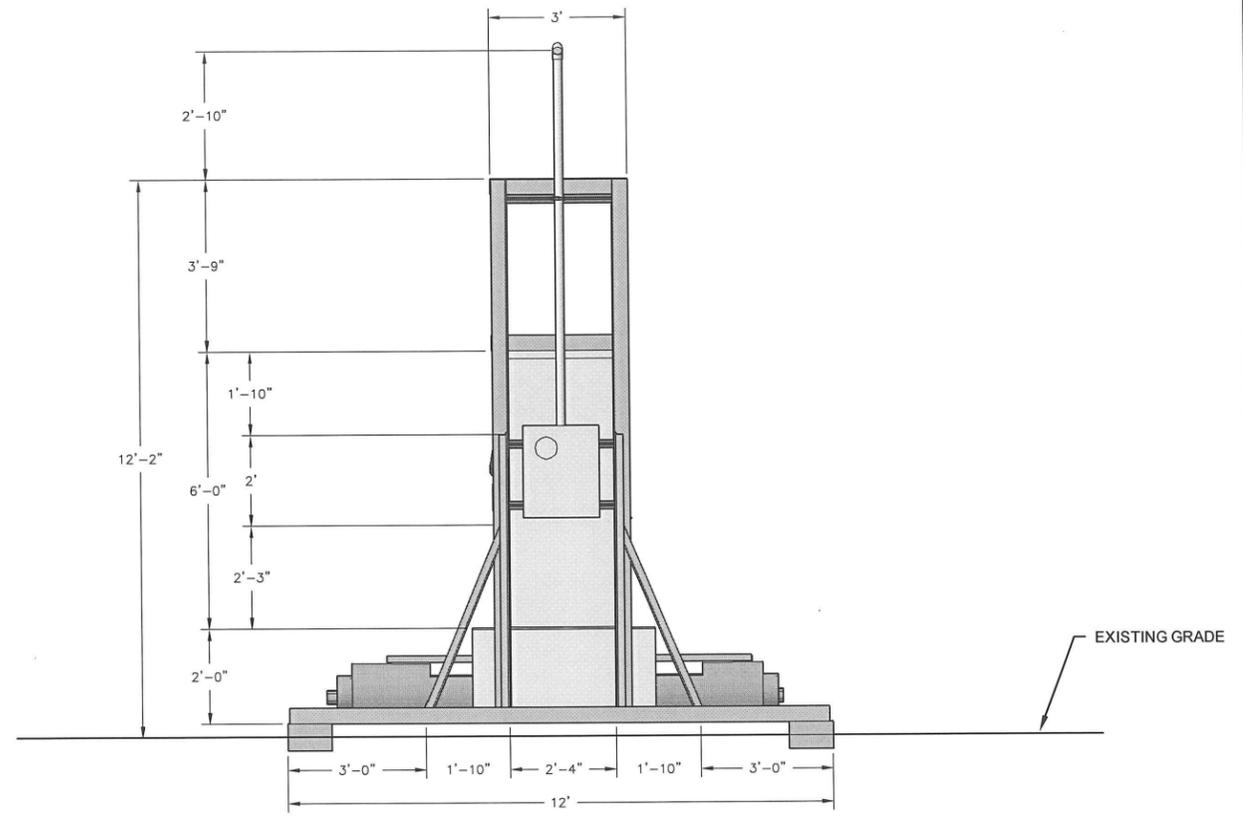
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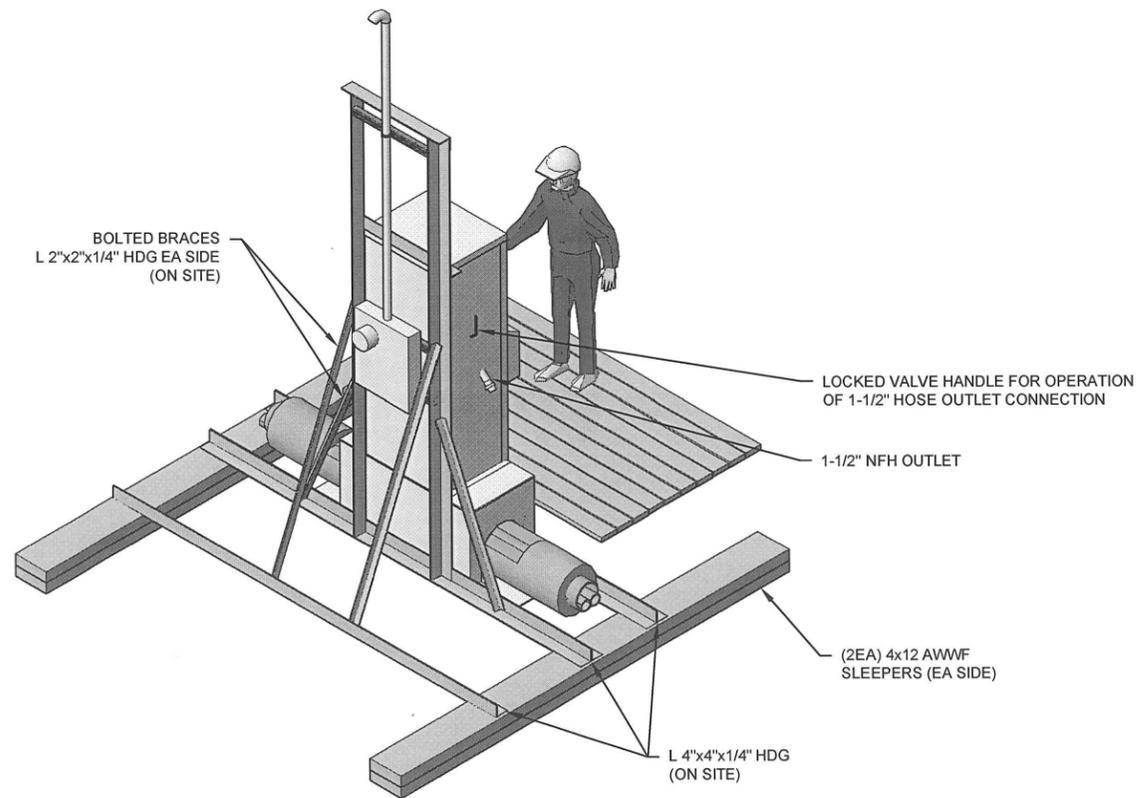
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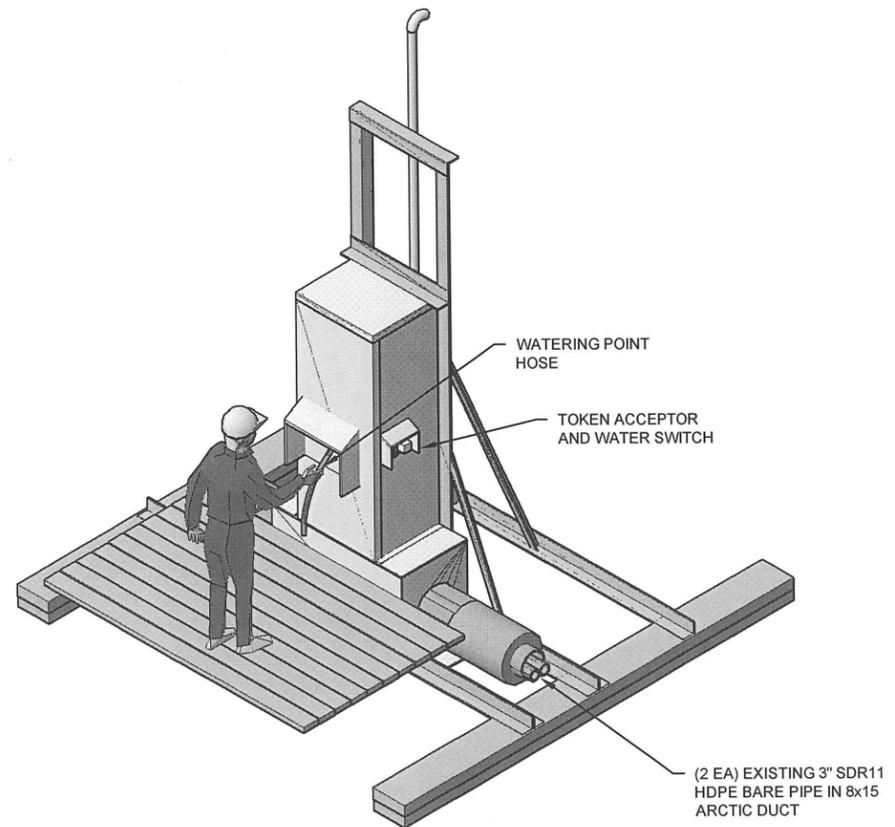
1 SIDE ELEVATION
 C1.2 SCALE: 1/2"=1'-0"



2 BACK ELEVATION
 C1.2 SCALE: 1/2"=1'-0"



3 BACK PERSPECTIVE VIEW
 C1.2 SCALE: 1/2"=1'-0"



4 FRONT PERSPECTIVE VIEW
 C1.2 SCALE: 1/2"=1'-0"

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CONSTRUCTION RECORD	FIELD BOOK
STARTING	FOREMAN
AS-BUILT	INSPECTOR



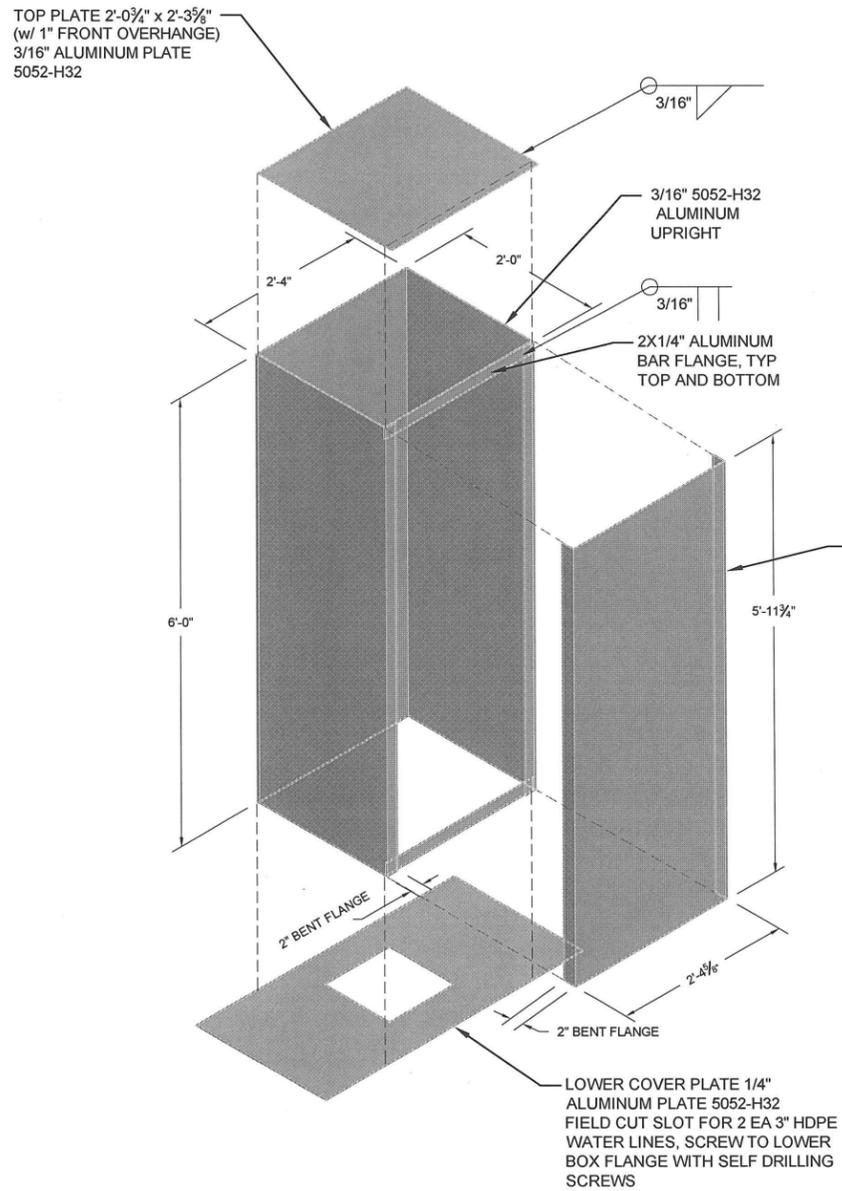
2013 WATER DISTRIBUTION AND WATERING POINTS
 UPGRADED WATERING POINTS
 CHEFORNAK, ALASKA



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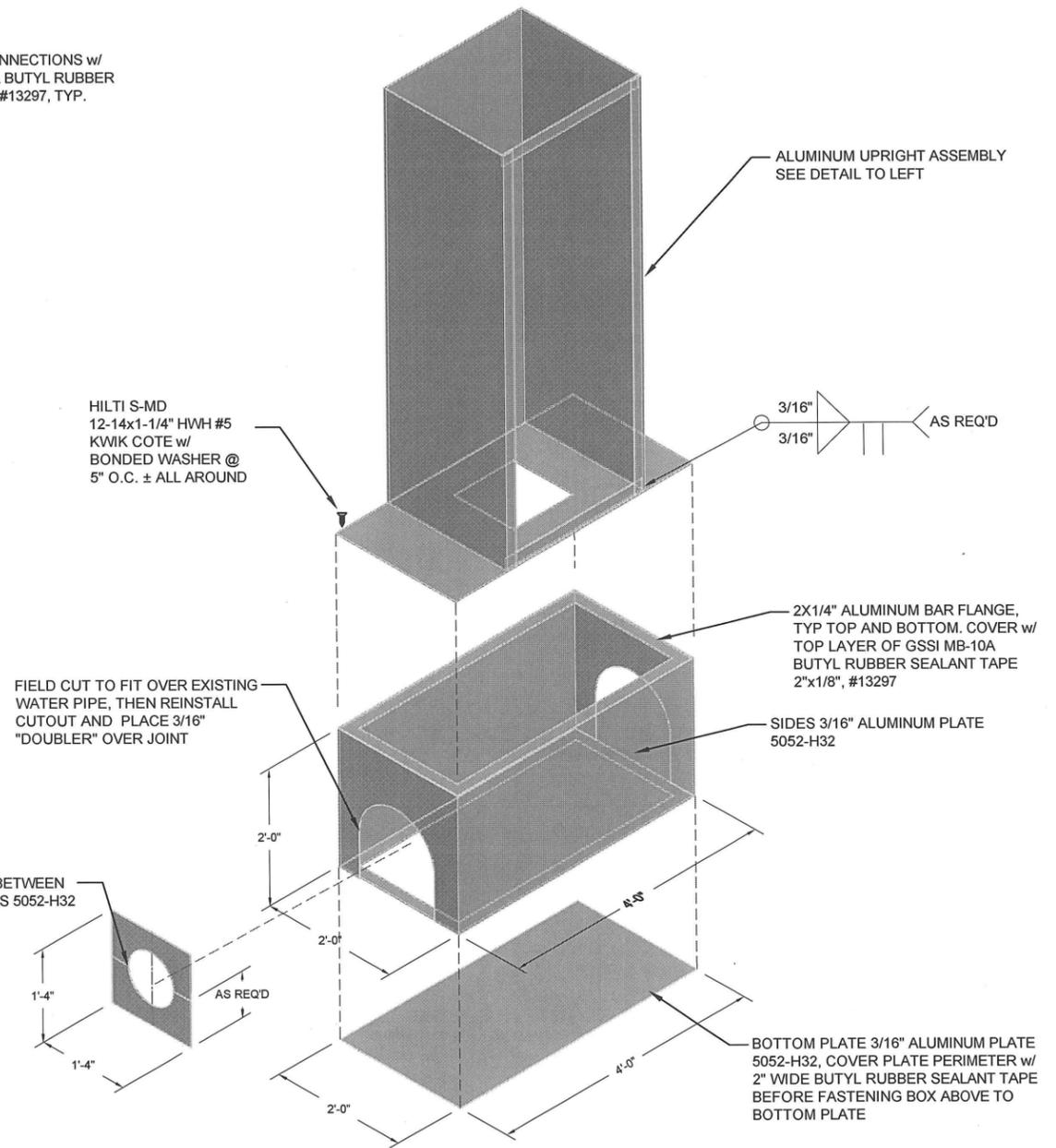
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Approved	

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NOTE:

- SEAL ALL FLANGED CONNECTIONS w/
LAYER OF GSSI MB-10A BUTYL RUBBER
SEALANT TAPE 2"x1/8", #13297, TYP.



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NAME: _____

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CONSTRUCTION RECORD

FIELD BOOK

STAKING

FOREMAN

AS-BUILT

INSPECTOR



2013 WATER DISTRIBUTION
AND WATERING POINTS

WATERING POINTS
ENCLOSURE
CONSTRUCTION

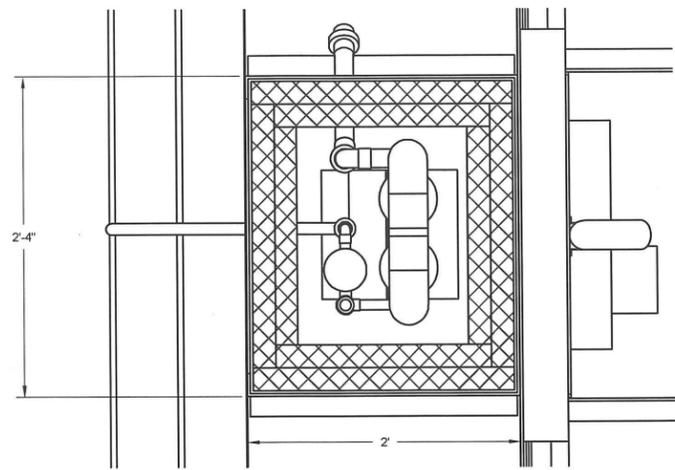
CHEFORNAK, ALASKA



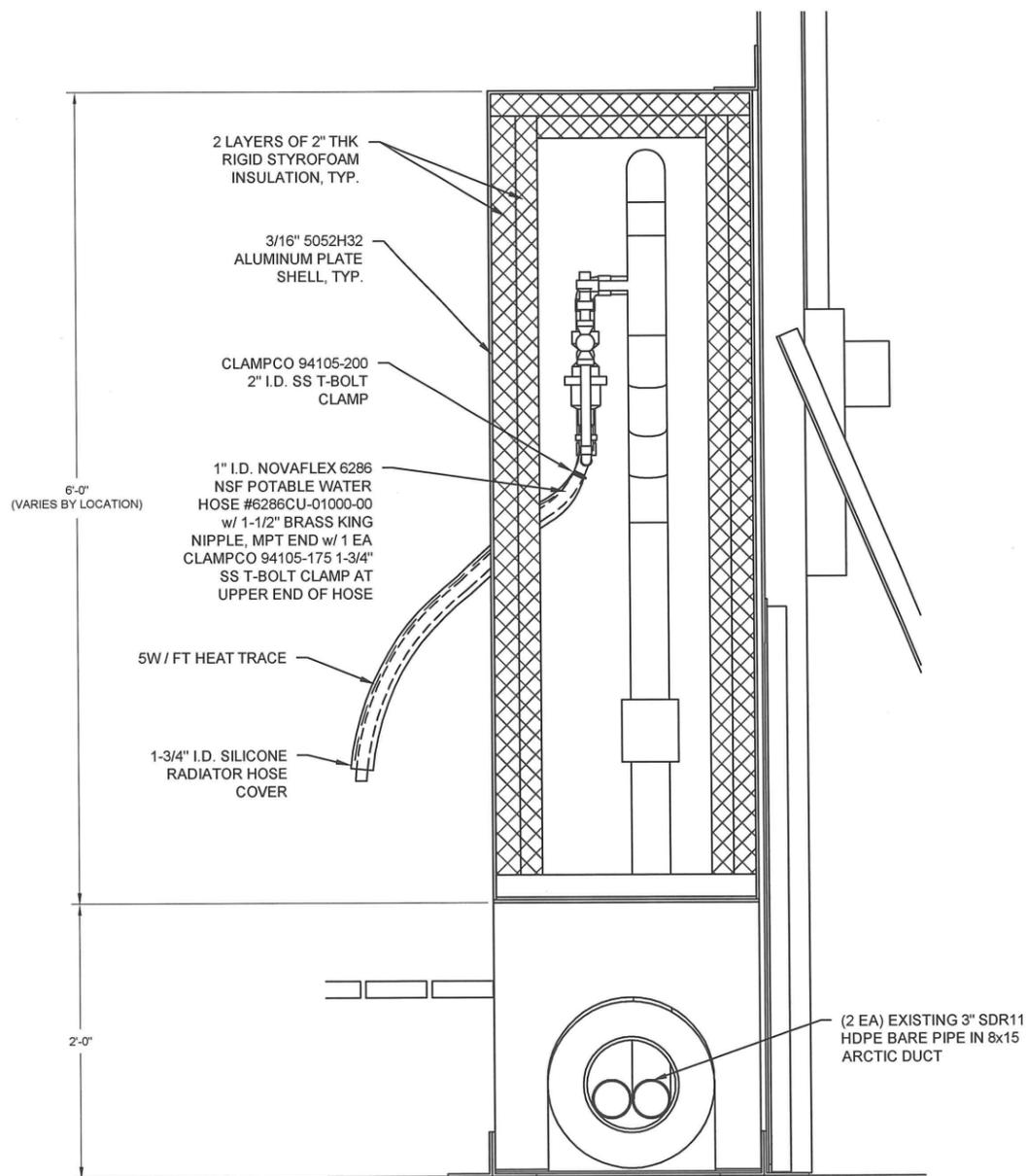
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Date APRIL 2013
Designed _____
Drawn _____
Approved _____

Sheet No. C1.3
SHEET OF



1 TOP VIEW
C1.3 SCALE: 1-1/2" = 1'-0"



2 SIDE ELEVATION
C1.3 SCALE: 1-1/2" = 1'-0"

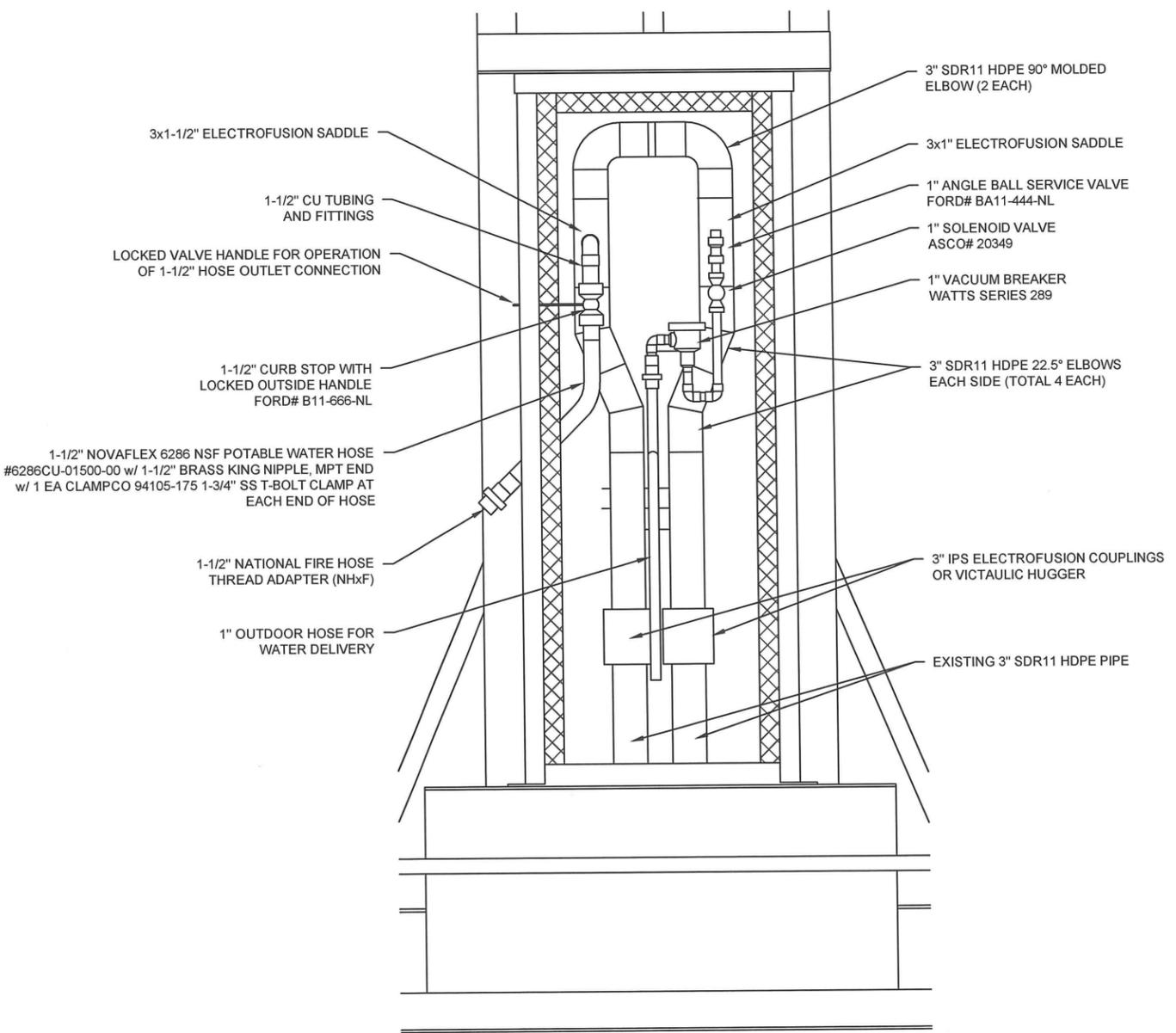
NOTES:

- HEAT IS SUPPLIED BY 2 EACH 30 FT LENGTHS OF 10w/FT HEAT TRACE INDIVIDUALLY THERMOSTATICALLY CONTROLLED FOR REDUNDANCY.
- WATER DELIVERY HOSE FITS IN A LOW TEMPERATURE RATED OUTSIDE HOSE WITH A THERMOSTATICALLY CONTROLLED 5w/FT HEAT TRACE THAT IS ACTUATED BY OUTSIDE TEMPERATURES BELOW 34°.
- A WEATHER PROOF GFCI RECEPTACLE OUTSIDE BELOW SERVICE METER BASE IS USED FOR MAINTENANCE.

OPERATIONAL NARRATIVE FOR WATERING POINT

THE WATERING POINTS ARE CONTINUATIONS OF THE 3-IN HDPE CIRCULATING WATER MAINS OF THE WATER DISTRIBUTION SYSTEM. SEE DETAIL 2 THIS SHEET BELOW.

- THE 3-IN MAIN FORMS AN UPRIGHT LOOP IN THE WATERING POINT ENCLOSURE.
- ON RIGHT SIDE OF THIS LOOP THERE IS A 1" ELECTROFUSION SADDLE OFF THE 3" PIPE THAT IS ISOLATED BY A SERVICE VALVE. DOWNSTREAM THERE IS A SOLENOID VALVE OPERATED BY A PUSH BUTTON OR TOKEN OPERATED TIMED SWITCH THAT ALLOWS WATER TO FLOW THROUGH A 1" VACUUM BREAKER, AND OUT THROUGH A 1" NSF 61 APPROVED HOSE TO THE CUSTOMER. THIS HOSE IS COVERED BY ANOTHER HOSE FOR PROTECTION. BETWEEN THE TWO HOSES IS A 5-WATT/FT HEAT TRACE TO PREVENT ICING UP OF THE WATER DELIVERY HOSE. THE HEAT TRACE IS CONTROLLED BY A REMOTE BULB THERMOSTAT THAT OPERATES WHEN THE OUTSIDE TEMPERATURE IS 34F.
- ON THE LEFT SIDE OF THE 3" LOOP IS A 1-1/2" ELECTROFUSION SADDLE. THIS BRANCH IS CONTROLLED BY A SERVICE-TYPE BALL VALVE WITH A LOCKING OPERATING HANDLE PENETRATING THROUGH THE ENCLOSURE. DOWNSTREAM FROM THIS VALVE IS A 1-1/2" NSF 61 CERTIFIED HOSE, WITH A 1-1/2" FIRE HOSE MALE THREAD FITTING. THIS WHOLE SYSTEM SERVES AS A PURGE POINT FOR THE WATER MAIN, AND FOR ANY HIGH FLOWS NEEDED IN THE SYSTEM NEAR THE WATERING POINT.



2 FRONT ELEVATION
C1.3 SCALE: 1-1/2" = 1'-0"

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CONSTRUCTION RECORD	INSPECTOR
FIELD BOOK	AS-BUILT
STAKING	FOREMAN



2013 WATER DISTRIBUTION AND WATERING POINTS
UPGRADED WATERING POINTS
CHEFORNAK, ALASKA

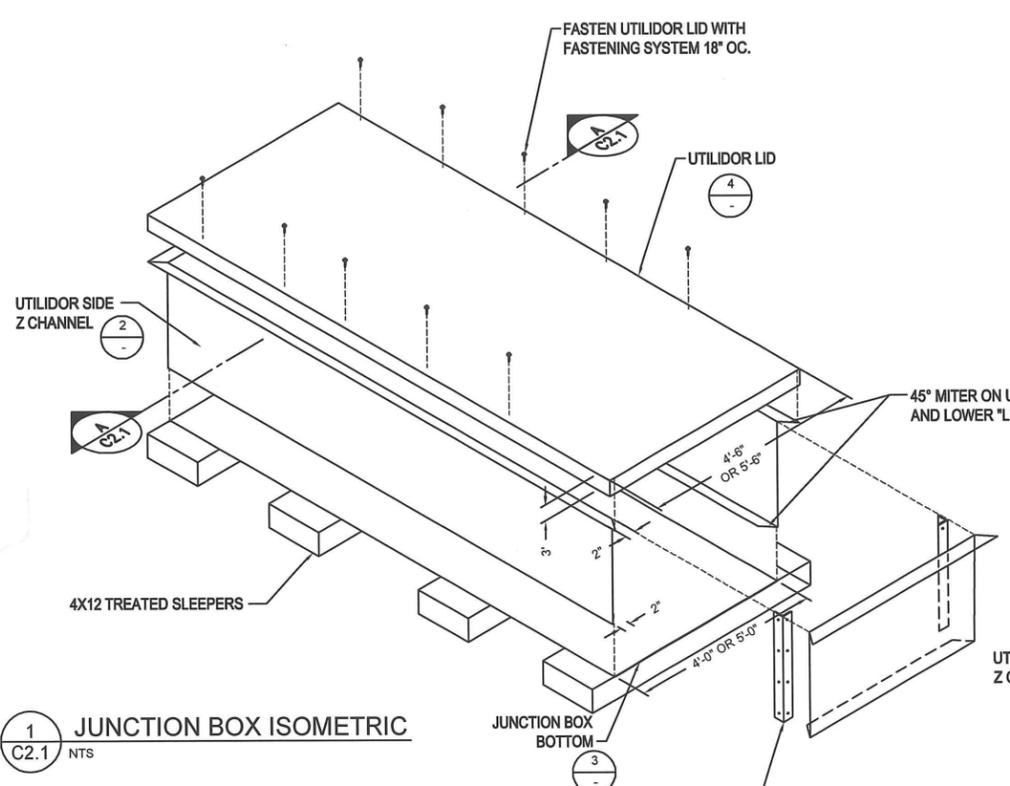


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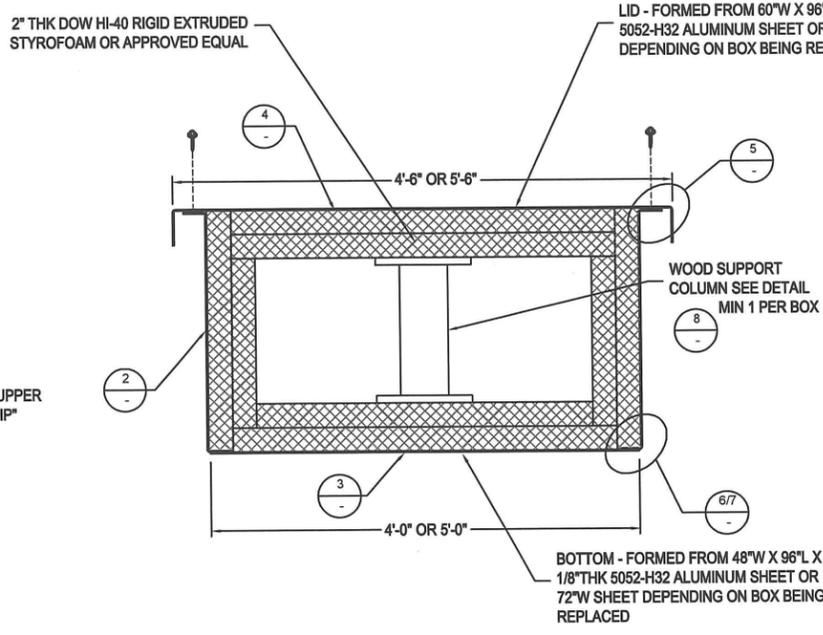
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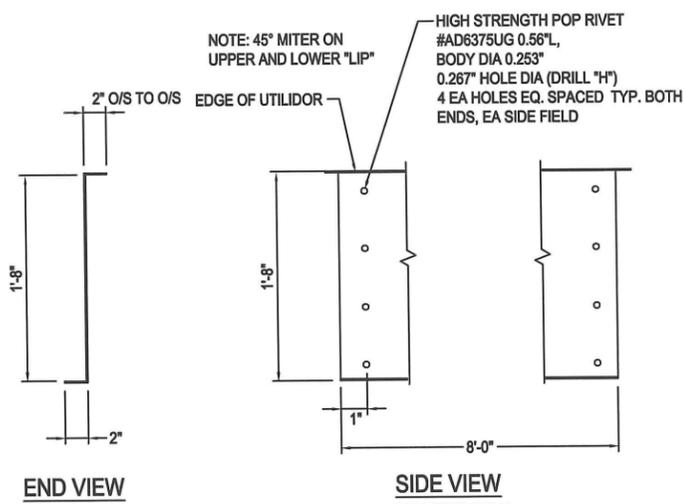
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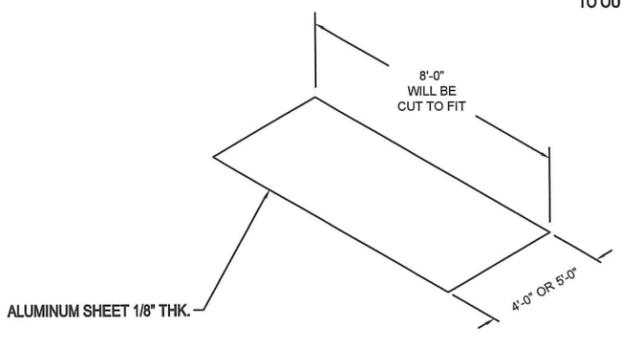
1 JUNCTION BOX ISOMETRIC
C2.1 NTS



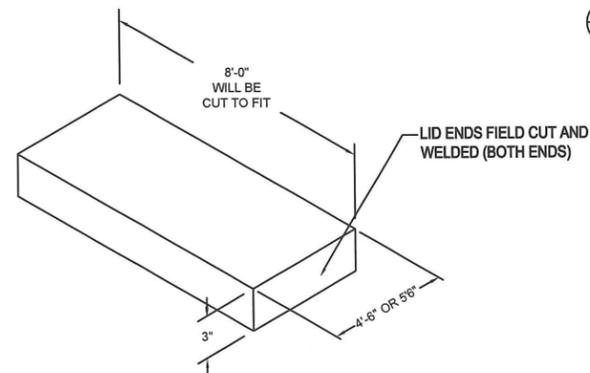
A UTILIDOR SECTION
C2.1 NTS



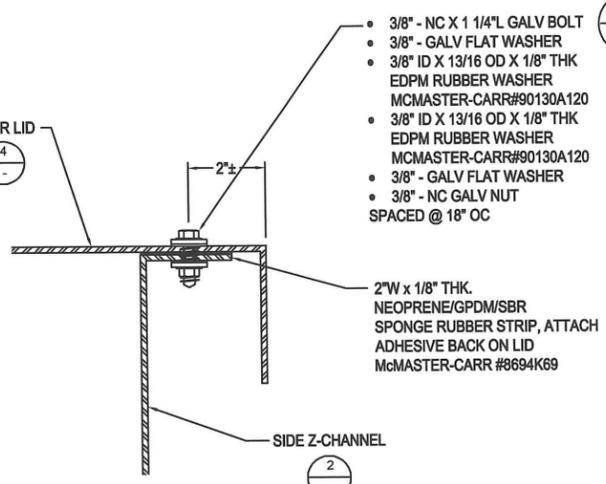
2 SIDE & END Z-CHANNEL DETAILS
C2.1 NTS



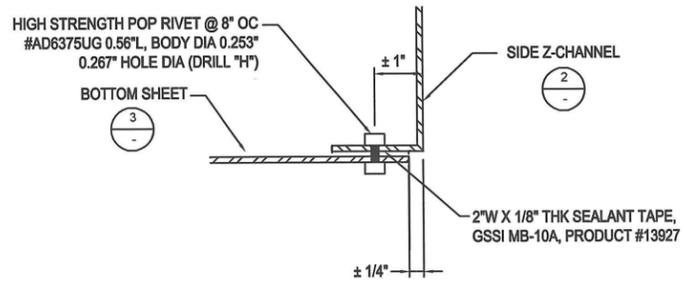
3 BOTTOM SHEET DETAIL
C2.1 NTS



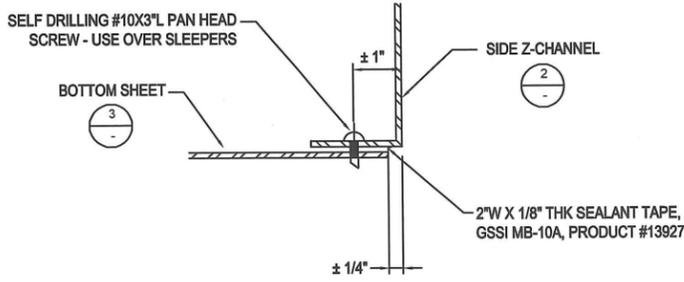
4 UTILIDOR LID DETAIL
C2.1 NTS



5 TOP BOLTED DETAIL
C2.1 NTS

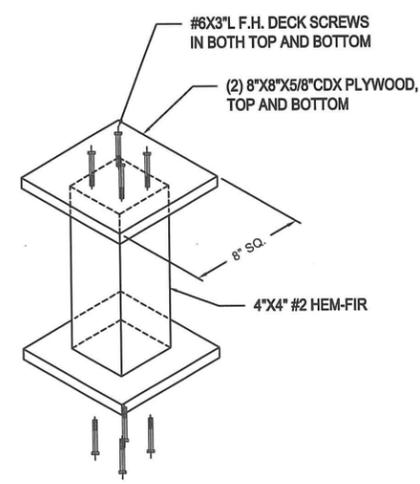


6 BASE SEAM DETAIL (EXCEPT AT SLEEPERS)
C2.1 NTS



7 BASE SEAM DETAIL (AT SLEEPERS)
C2.1 NTS

- NOTE:**
1. ALL ALUMINUM SHALL BE 5052-H32 1/8" THICK, UNLESS OTHERWISE NOTED.
 2. BOTTOM OF UTILIDOR WILL BE SEALED W/ 2"W X 1/8" THK SEALANT TAPE, GSSI MB-10A, PRODUCT #13927



8 WOOD SUPPORT COLUMN
C2.1 NTS

RECORD DRAWING CERTIFICATE
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SCALE: AS SHOWN
DATE: _____
NAME: _____

CONSTRUCTION RECORD
FIELD BOOK
STAKING
FOREMAN
AS-BUILT
INSPECTOR



2013 WATER DISTRIBUTION AND WATERING POINTS
UTILIDOR DETAILS
CHEFORNAK, ALASKA

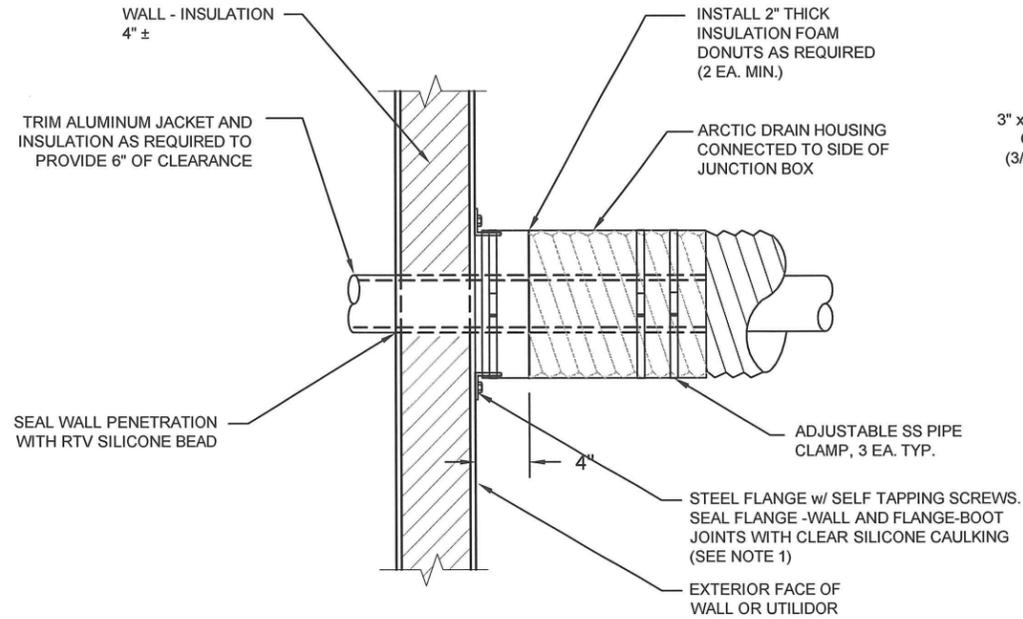


REVISION	DATE

Project No. APRIL 2013
Date APRIL 2013
Designed PCW
Drawn LAW
Approved PCW

Sheet No. C2.1
SHEET OF

G:\ACAD\CHEFORNAK\2013 WATER DIST _UPGRADES\C2.2.dwg, 5/23/2013 6:13:11 PM, cmerz, \\ce2main\LANIER_MP_C2050\LD520C_PCL 6



1
C2.2 NTS
ARCTIC PIPE SIDE WALL PENETRATION DETAILS

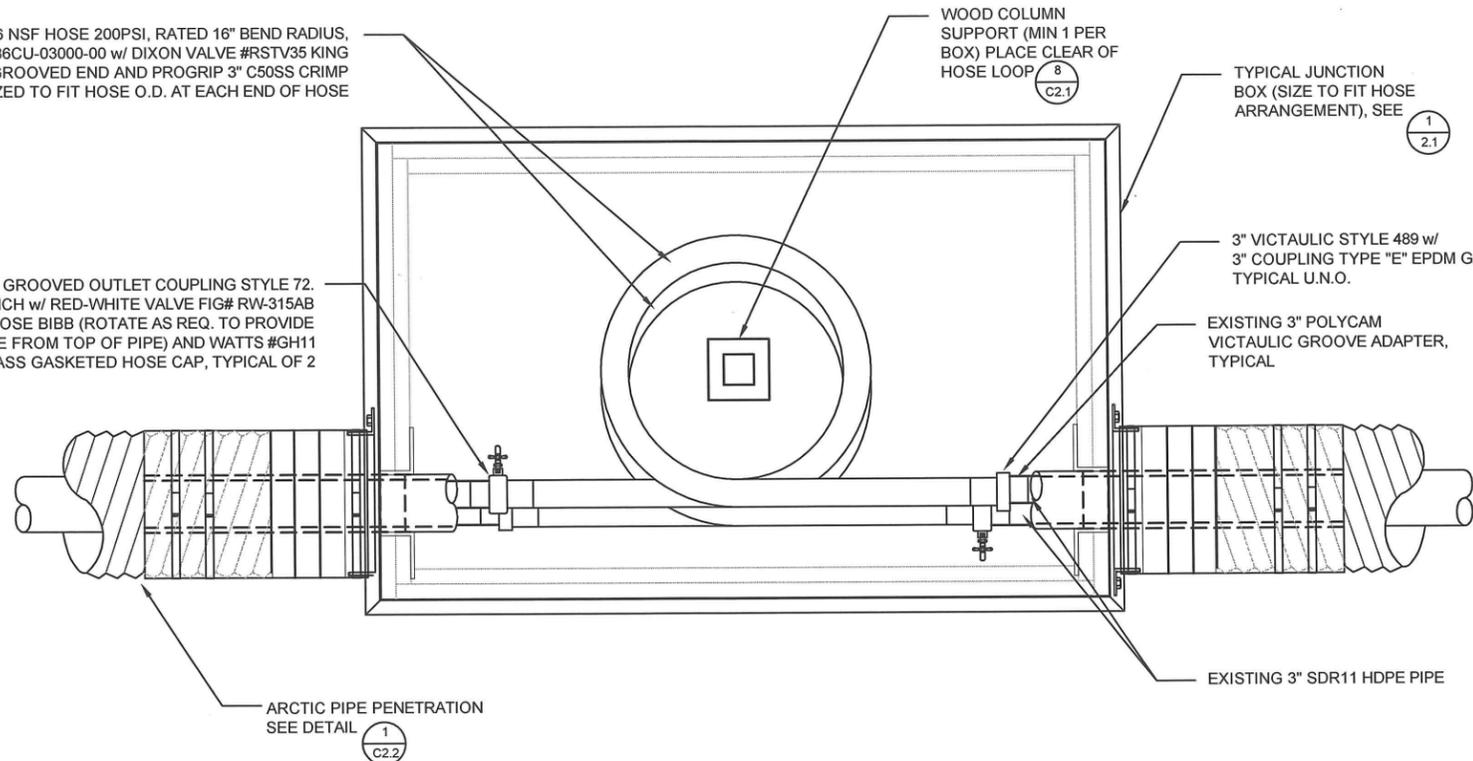
NOMINAL OUTER JACKET SIZE	FLANGE O.D.	FLANGE I.D.
12"	15"	12 7/8"
15"	18"	15 7/8"
18"	20"	18 7/8"

NOTES:

- STEEL FLANGES AT JUNCTION BOX PENETRATIONS MAY NEED TO BE FIELD TRIMMED.

NOVAFLEX 6286 NSF HOSE 200PSI, RATED 16" BEND RADIUS, PART NO. 6286CU-03000-00 w/ DIXON VALVE #RSTV35 KING COMB. NIPPLE, GROOVED END AND PROGRIP 3" C50SS CRIMP FERRULE SIZED TO FIT HOSE O.D. AT EACH END OF HOSE

3" x 3/4" VICTAULIC GROOVED OUTLET COUPLING STYLE 72. CONNECT BRANCH w/ RED-WHITE VALVE FIG# RW-315AB (3/4" MIPT) BALL HOSE BIBB (ROTATE AS REQ. TO PROVIDE AIR RELEASE FROM TOP OF PIPE) AND WATTS #GH11 BRASS GASKETED HOSE CAP, TYPICAL OF 2



2
C2.2 NTS
JUNCTION BOX HOSE DETAIL

RECORD DRAWING CERTIFICATE
 THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
 NAME _____ DATE _____

SCALE: AS SHOWN
 1" = 1'-0"
 IF NOT ONE INCH ON SCALE, ACCORDINGLY

CONSTRUCTION RECORD
 FIELD BOOK
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2013 WATER DISTRIBUTION AND WATERING POINTS
 ARCTIC PIPE PENETRATION & JUNCTION BOX DETAILS
 CHEFORNAK, ALASKA



REVISION	BY	DATE

Project No. _____
 Date APRIL 2013
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 Drawn LAW
 Approved PCW

VOLTAGE: 240/120V, 1PH, 3W BUS: 100 MAIN: LUGS ONLY - FED BY 100A OPD		LOAD CENTER SCHEDULE				MIN. A.I.C. RATING: SEE 1LINE ENCLOSURE: NEMA 3R MOUNTING: SURFACE							
LOAD DESCRIPTION		NOTE	KVA	LOAD	AMP	PKT	A B	PKT	AMP	LOAD DESCRIPTION	NOTE	KVA	LOAD
HEAT TRACE- WATER SUPPLY PIPE		1	0.60	C	20	1	-1	2-	1	- SPACE -			
HEAT TRACE- WATER DELIVERY HOSE		1	0.10	C	15	1	-3	4-	1	- SPACE -			
TOKEN DROP SOLENOID VALVE			0.50	N	20	1	-5	6-	1	- SPACE -			
MAINTENANCE RECEPTACLE			0.18	R	20	1	-7	8-	1	- SPACE -			
- SPACE -										- SPACE -			
- SPACE -										- SPACE -			
SUMMARY BY LOAD TYPE		CONNECTED KVA		TOTAL KVA	NEC %	NEC TOTAL	NOTES:						
PH A	PH B	FEED					1. PROVIDE 30mA GFPE CIRCUIT BREAKER.						
G GENERAL LOADS					N/A								
A APPLIANCE					0.75								
E ELECTRIC RANGE					1.00								
L LIGHTING					1.25								
R RECEPTACLES		0.2		0.2	10K+50%	0.2							
M MOTORS					1.00								
LM LARGEST MOTOR					1.25								
C CONTINUOUS	0.6	0.1		0.7	1.25	0.9							
N NON-CONTINUOUS	0.5			0.5	1.00	0.5							
S SPARE					1.00								
X NON-COINCIDENT					0.00								
K KITCHEN					1.00								
D DRYER					1.00								
O OTHER					1.00								
ETR EXIST'G TO REMAIN					1.25								
F FEEDER													
TOTAL KVA (PHASE)	1.1	0.3		1.4		1.6							
TOTAL AMPERES	9.2	2.3		5.8		6.5							
PHASE BALANCE, ABC													
PERCENT	118.8%												

- ### ELECTRICAL LEGEND
- (NOTE: THIS IS A STANDARD LEGEND AND NOT ALL SYMBOLS ARE NECESSARILY USED.)
- ⊞ SERVICE METER/MAIN
 - ⊞ MOTOR CONNECTION
 - ⊞ NON-FUSED SAFETY SWITCH
 - ⊞ FUSED SAFETY SWITCH
 - ⊞ ENCLOSED CIRCUIT BREAKER SWITCH
 - ⊞ MOTOR STARTER
 - ⊞ COMBINATION MOTOR STARTER SAFETY SWITCH
 - ⊞ JUNCTION BOX OR EQUIPMENT CONNECTION - FLEX OR RECEPTACLE AS REQUIRED
 - ⊞ DUPLEX RECEPTACLE
 - ⊞ DOUBLE DUPLEX RECEPTACLE
 - ⊞ DUPLEX RECEPTACLE - GFCI PROTECTED
 - ⊞ SPECIAL PURPOSE RECEPTACLE - NEMA CONFIGURATION AS NOTED
 - ⊞ X DENOTES AVAILABLE FAULT CURRENT

ABBREVIATIONS

A	AMPERES
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPS INTERRUPTING CAPACITY
C	CONDUIT
CO	CONDUIT ONLY
EGC	EQUIPMENT GROUNDING CONDUCTOR
FHP	FRACTIONAL HORSEPOWER
G	GROUND FAULT CIRCUIT INTERRUPTER
GEC	GROUNDING ELECTRODE CONDUCTOR
HP	HORSEPOWER
KVA	KILOVOLT-AMPERE
KW	KILOWATT
PH, #	PHASE
RIB	RELAY IN A BOX (MOTOR RATED)
SCCR	SHORT CIRCUIT CURRENT RATING
SE	SERVICE ENTRANCE RATED
V	VOLTS
VA	VOLT-AMPERES
W	WATTS
WP	WEATHERPROOF (NEMA 4 RATED)

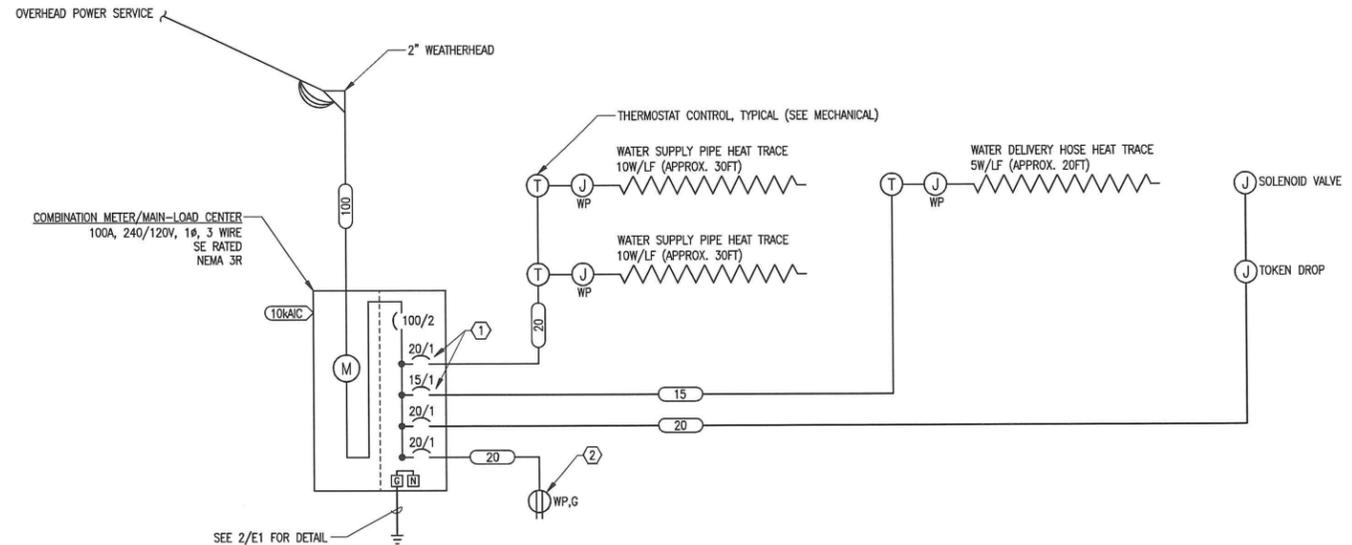
- ### GENERAL REQUIREMENTS
- ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, STATE, MUNICIPAL, AND FEDERAL LAWS, AMENDMENTS AND/OR ORDINANCES GOVERNING THE PROJECT. IF IN ANY INSTANCE THE PLANS AND SPECIFICATIONS ARE IN DIRECT CONFLICT WITH SUCH CODES, LAWS, AND/OR ORDINANCES, THE CODE, LAWS, AND/OR ORDINANCES SHALL HAVE JURISDICTION AND THE WORK IN QUESTION SHALL BE INSTALLED ACCORDING TO THE CODES, LAWS, AND/OR ORDINANCES. ALL WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A CERTIFIED ELECTRICIAN.
 - THE CONTRACTOR SHALL OBTAIN ALL REQUIRED CONSTRUCTION PERMITS AND PAY ALL ASSOCIATED FEES.
 - MATERIALS AND EQUIPMENT SHALL BE COMMERCIAL GRADE AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED. ALL ELECTRICAL EQUIPMENT SHALL INCLUDE THE SEAL OF A NATIONALLY RECOGNIZED TESTING LABORATORY FOR THE PURPOSE FOR WHICH IT IS INSTALLED. WHENEVER POSSIBLE, SIMILAR ITEMS SHALL BE SUPPLIED BY THE SAME MANUFACTURER THROUGHOUT THE PROJECT.
 - COORDINATE AND PROVIDE THE EQUIPMENT WITH THE SHORT CIRCUIT CURRENT RATING (SCCR) FOR THE AVAILABLE FAULT CURRENT AT THE POINT OF THE SYSTEM WHERE INSTALLED. SERIES RATING OF EQUIPMENT IS ACCEPTABLE. PROVIDE ARC FAULT WARNING LABELS ON ALL PANELBOARDS, MCC UNITS AND SIMILAR EQUIPMENT PER NEC REQUIREMENTS.
 - THE FOLLOWING WIRING METHODS SHALL BE ACCEPTABLE FOR INSTALLATION OF ELECTRICAL CIRCUITS: RIGID METAL CONDUIT, AND LIQUID TIGHT FLEXIBLE CONDUIT. ALL WIRING METHODS SHALL INCLUDE AN EQUIPMENT GROUNDING CONDUCTOR TO BE INSTALLED THEREIN AND SIZED FOR THE CIRCUITS SERVED.

ALL CONDUCTORS SHALL BE COPPER. ALL CONDUCTORS LOCATED OUTSIDE ARE REQUIRED TO HAVE TYPE XHHW 90 DEGREE C INSULATION. CONDUCTOR AMPACITY SHALL BE BASED ON TABLE 310-16 OF THE NEC. USE 60-DEGREE C RATING FOR CIRCUITS TERMINATING ON DEVICES RATED BELOW 100A. USE 75-DEGREE C RATING FOR CIRCUITS TERMINATING ON DEVICES AND IN ENCLOSURES RATED 100A AND OVER. DERATE CONDUCTORS PER NEC REQUIREMENTS.

MINIMUM SIZE CONDUCTORS FOR 15 AND 20 AMP BRANCH CIRCUITS MEASURED FROM THE PANELBOARD TO THE FURTHEST DEVICE ON THE CIRCUIT UNLESS OTHERWISE NOTED ON THE DRAWINGS:

 - 10 AWG CONDUCTORS FOR 120 VOLT BRANCH CIRCUITS 75 FEET TO 120 FEET.
 - 8 AWG CONDUCTORS FOR 120 VOLT BRANCH CIRCUITS GREATER THAN 120 FEET.

MINIMUM SIZE CONTROL CIRCUIT CONDUCTORS SHALL BE 14 AWG, UNLESS OTHERWISE NOTED.
 - PROVIDE ALL WIRING AND EQUIPMENT IN WET AND EXTERIOR LOCATIONS USING EQUIPMENT AND WIRING METHODS RATED FOR WET ENVIRONMENTS.
 - CONTRACTOR SHALL SUBMIT REQUEST FOR SUBSTITUTION IN WRITING TO THE ENGINEER.
 - THE ELECTRICAL CONTRACTOR SHALL CONTACT THE SERVING UTILITY CO. AND VERIFY EXACT SERVICE REQUIREMENTS FOR POWER. THE CONTRACTOR SHALL COORDINATE AND PROVIDE ALL REQUIREMENTS OF THE SERVING UTILITY AND ALL EQUIPMENT SHALL CONFORM TO THE SERVING UTILITY STANDARDS AND REQUIREMENTS.

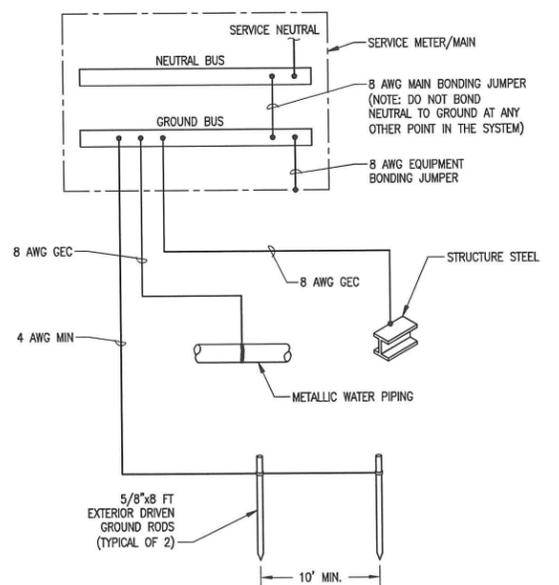


- ### DETAIL NOTES
- PROVIDE 30mA GFPE CIRCUIT BREAKER FOR HEAT TRACE.
 - MOUNT GFCI DUPLEX MAINTENANCE RECEPTACLE ADJACENT TO SERVICE METER/MAIN-LOAD CENTER.
 - CONTRACTOR TO COORDINATE POWER SERVICE CONNECTION AND REQUIREMENTS WITH UTILITY.

FEEDER SCHEDULE

15	(2)12 AWG, (1)12 AWG EGC, 1/2" C.
20	(2)12 AWG, (1)12 AWG EGC, 1/2" C.
100	(3)2 AWG, (1)8 AWG EGC, 2" C.

1 POWER ONE-LINE DIAGRAM
E1 SCALE: NONE



- ### DETAIL NOTES
- BOND ALL PIPING AND BUILDING DISCONTINUITIES TO PROVIDE ELECTRICALLY CONTINUOUS SYSTEM. PROVIDE BOND JUMPER EQUAL TO GROUNDING ELECTRODE CONDUCTOR FOR THAT SYSTEM.
 - PROVIDE RACEWAY FOR ALL CONDUCTORS. RACEWAY TO BE METALLIC IN PLENUM AIR SPACES. WHERE METALLIC RACEWAY IS USED BOND EACH END TO CONDUCTOR.
 - ALL CONDUCTOR SIZES SHOWN ARE COPPER.

2 GROUNDING SYSTEM DIAGRAM
E1 SCALE: NONE

EIC ENGINEERS, INC
ELECTRICAL ENGINEERS

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CONSTRUCTION RECORD

FIELD BOOK

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INSPECTOR

STATE OF ALASKA

REGISTERED PROFESSIONAL ENGINEER

NO. 11794

EXPIRES 06/23/13

2012 WATERING POINT UPGRADES ELECTRICAL

CHEFORNAK, ALASKA

BY DATE

REVISION

Project No. _____

Date MAY 2013

Designed BLS

Drawn BLS

Approved EDC

Sheet No. **E1**