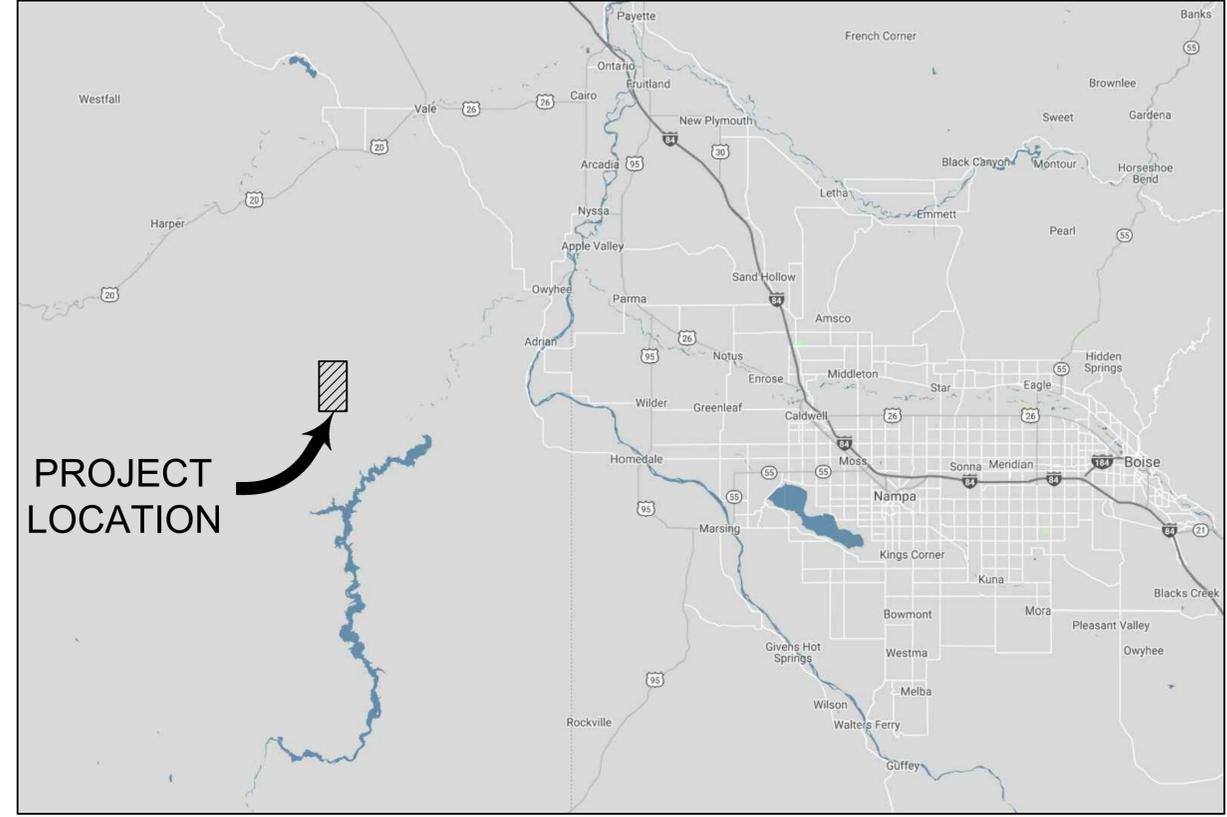
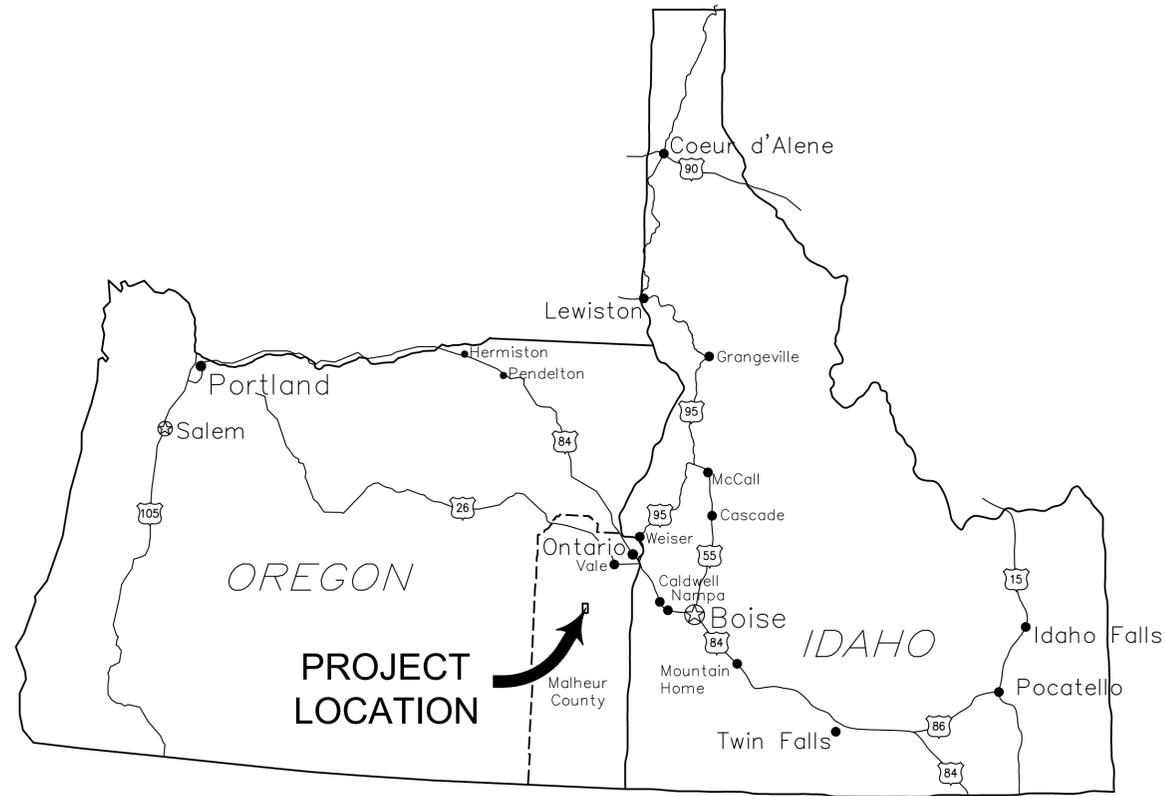


# GRASSY MOUNTAIN GOLD MINE

## WATER & WASTEWATER SYSTEM

### CALICO RESOURCES USA CORP.

### MALHEUR COUNTY, OREGON 2019



**PROJECT TEAM**

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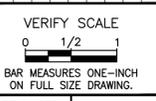
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REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET



PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C001

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## GENERAL CONSTRUCTION NOTES

- NO PUBLIC WATER SYSTEM FACILITIES SHALL BE CONSTRUCTED PRIOR TO RECEIPT OF OREGON HEALTH AUTHORITY APPROVAL.
- CONSTRUCTION SHALL BE PER STATE OR COUNTY STANDARDS FOR PUBLIC WORKS CONSTRUCTION OR PROJECT PLANS/SPECIFICATIONS, WHICHEVER IS MORE STRINGENT.
- CONTRACTOR SHALL FURNISH AND INSTALL EVERYTHING REQUIRED TO PROVIDE COMPLETE AND OPERABLE FACILITIES AS SHOWN HEREON. IF THERE IS AN OMISSION ON THE PLANS, SUCH OMISSION SHALL NOT BE CONSTRUED TO MEAN THAT THE CONTRACTOR IS NOT REQUIRED TO FURNISH OR PROVIDE EVERYTHING THAT IS NECESSARY TO PROVIDE COMPLETE AND OPERABLE FACILITIES.
- ANY CHANGES TO THE DESIGN AS SHOWN IN THESE CONSTRUCTION DRAWINGS MUST BE REVIEWED AND APPROVED BY THE ENGINEER AND OWNER BEFORE CHANGES ARE MADE. THIS INCLUDES CHANGES REQUESTED BY THE OWNER'S REPRESENTATIVE AND SUBCONTRACTORS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MONUMENTS, OTHER SURVEY MARKERS, STREET SIGNS, UTILITIES, IRRIGATION LINES, PAVEMENT, TREES, FENCES, AND ANY OTHER IMPORTANT OBJECTS ON OR ADJACENT TO THE JOB SITE AS DETERMINED BY THE OWNER'S REPRESENTATIVE OR ENGINEER.
- CONTRACTOR SHALL CONTACT OREGON DIG LINE 811 OR 1-(800) 332-2344 TO MARK AND IDENTIFY UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
- CONTRACTOR SHALL LEGALLY DISPOSE OF ALL EXCESS MATERIAL.
- ALL "OR EQUAL" ITEMS ARE SUBJECT TO REVIEW AND APPROVAL OF THE ENGINEER.
- CONTRACTOR SHALL PROVIDE, MAINTAIN, AND BE RESPONSIBLE FOR ALL EROSION AND SEDIMENT CONTROL STRUCTURES AND PRACTICES AND MEET THE REQUIREMENTS OF ANY AGENCY HAVING JURISDICTION.
- CONTRACTOR TO OBTAIN ALL APPLICABLE WATER & WASTEWATER PERMITS.
- UPON THE COMPLETION OF WORK, THE CONTRACTOR SHALL SUBMIT A SET OF "RED-LINED" RECORD DRAWINGS TO THE ENGINEER.
- CONTRACTOR SHALL NOTIFY AND COORDINATE WITH THE OWNER'S REPRESENTATIVE PRIOR TO, DURING, AND AT THE COMPLETION OF CONSTRUCTION ACTIVITY.
- IF WITHIN ONE (1) YEAR FROM THE DATE OF COMPLETION, THE WATER SYSTEM IMPROVEMENTS AND ALL APPURTENANCES OR ANY PART THEREOF INSTALLED AS NEW SHALL PROVE TO BE DEFECTIVE IN INSTALLATION, MATERIAL, OR WORKMANSHIP THE CONTRACTOR SHALL WARRANT REPLACEMENT OR REPAIR TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO EXPENSE TO THE OWNER.
- MATERIALS IN CONTACT WITH POTABLE WATER DISTRIBUTION AND RAW WATER SUPPLY SHALL CONFORM TO APPLICABLE AWWA STANDARDS AND BE CERTIFIED BY AN ACCREDITED ANSI CERTIFICATION BODY TO MEET APPLICABLE ANSI/NSF STANDARDS, INCLUDING BUT NOT LIMITED TO ANSI/NSF STANDARD 61 FOR DRINKING WATER SYSTEM COMPONENTS AND ANSI/NSF STANDARD 372 FOR LEAD CONTENT IN DRINKING WATER SYSTEM COMPONENTS.
- ALL WATER LINES SHALL BE FILLED, DISINFECTED, BACTERIA TESTED, HYDROSTATICALLY TESTED, AND FLUSHED IN ACCORDANCE WITH SECTION 01140 OF THE CURRENT EDITION OF THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- HYDROSTATIC TEST PRESSURE SHALL BE AT LEAST EQUAL TO 150 PSI OR 10% ABOVE THE WORKING PRESSURE OF THE PIPELINE, WHICHEVER IS GREATER. THE TEST PRESSURE SHALL NOT EXCEED THE PRESSURE RATING OF THE PIPE.
- ALL CONTRACTORS WORKING ON THE PROJECT ARE RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE SAFETY LAWS OF ALL JURISDICTIONAL BODIES.
- CONTRACTOR IS RESPONSIBLE FOR ALL PUMP SYSTEM TESTING AND START-UP, IN COORDINATION WITH PUMP CONTRACTOR.
- ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH UNIFORM PLUMBING CODE AND ALL APPLICABLE LOCAL AND STATE CODES.
- SEPARATION DISTANCE BETWEEN SEWER/NON-POTABLE WATER LINES AND POTABLE WATER LINES SHALL BE 10-FT HORIZONTALLY AND 18-IN VERTICALLY.

## OPERATIONAL DESCRIPTION

- THE WATER SUPPLY WELLS WILL FILL THE RAW WATER STORAGE TANK BASED OFF OF TANK LEVEL. EACH WELL WILL BE EQUIPPED WITH A VARIABLE FREQUENCY DRIVE (VFD) AND UL508 CONTROL PANEL. THE RAW WATER TANK WILL BE EQUIPPED WITH A LEVEL SENSOR AND HIGH-LEVEL AND LOW-LEVEL EMERGENCY FLOATS. UNDER NORMAL OPERATION THE LEVEL SENSOR WILL TRANSMIT A TANK LEVEL SIGNAL WIRELESSLY TO EACH WELL PUMP CONTROL PANEL VIA LINE-OF-SIGHT RADIO SIGNAL. THE CONTRACTOR SHALL PROVIDE EXTENDED ANTENNA MASTS AS NEEDED TO TRANSMIT SIGNAL TO THE WELL PUMP CONTROL PANELS.
- WELLS 4 AND 5 SHALL BE THE MAIN SUPPLY WELLS, OPERATING AS LEAD AND LAG PUMPS. THE PUMP CONTROL PANEL SHALL ALTERNATE LEAD AND LAG PUMP OPERATION BETWEEN WELLS 4 AND 5 BASED ON USER-ADJUSTABLE RUN TIME. THE DEFAULT RUN TIME SHALL BE ONE WEEK.
- THE LEAD PUMP SHALL START WHEN THE TANK LEVEL DROPS TO THE LEAD PUMP START SETPOINT OF 32 FEET (OPERATOR ADJUSTABLE). THE LEAD PUMP SHALL MAINTAIN THE TARGET SETPOINT OF 33 FEET (OPERATOR ADJUSTABLE) BY VARYING PUMP SPEED AS CONTROLLED BY A VFD. THE LEAD PUMP SHALL STOP AT THE LEAD PUMP STOP SETPOINT OF 34 FEET (OPERATOR ADJUSTABLE).
- THE LAG PUMP SHALL START WHEN THE TANK LEVEL DROPS TO THE LAG PUMP START SETPOINT OF 30 FEET (OPERATOR ADJUSTABLE). THE LAG PUMP SHALL MAINTAIN THE TARGET SETPOINT OF 33 FEET (OPERATOR ADJUSTABLE) BY VARYING PUMP SPEED AS CONTROLLED BY A VFD, WITH THE LEAD PUMP RUNNING AT FULL SPEED. THE LAG PUMP SHALL STOP AT THE LAG PUMP STOP SETPOINT OF 34 FEET (OPERATOR ADJUSTABLE).
- WELL 3 SHALL BE THE EMERGENCY BACKUP PUMP. THE BACKUP PUMP SHALL START IF THE MAIN SUPPLY WELLS (WELLS 4 AND 5) CANNOT MAINTAIN TANK LEVEL AND THE WATER LEVEL FALLS TO THE BACKUP PUMP START SETPOINT OF 12 FEET (OPERATOR ADJUSTABLE). THE BACKUP PUMP SHALL MAINTAIN THE TARGET SETPOINT OF 33 FEET (OPERATOR ADJUSTABLE) BY VARYING PUMP SPEED AS CONTROLLED BY A VFD, WITH THE MAIN SUPPLY PUMPS RUNNING AT FULL SPEED. THE BACKUP PUMP SHALL STOP AT THE BACKUP PUMP STOP SETPOINT OF 34 FEET (OPERATOR ADJUSTABLE).
- WELL PUMPS CAN BE CONTROLLED MANUALLY BY SELECTING "HAND" ON THE HOA SWITCH ON THE CONTROL PANEL.
- IF THE LEAD PUMP DOES NOT START AT THE LEAD PUMP START SETPOINT FOR ANY REASON INCLUDING LOW WATER LEVEL IN LEAD WELL DURING OPERATION, THE LAG WELL PUMP SHALL OPERATE AND AN ALARM AND FAULT SHALL BE NOTED AT THE LEAD WELL CONTROL PANEL. IF THE LAG PUMP DOES NOT START AT LAG PUMP START SETPOINT FOR ANY REASON INCLUDING LOW WATER LEVEL IN LAG WELL DURING OPERATION, THE BACKUP WELL PUMP SHALL OPERATE AND AN ALARM AND FAULT SHALL BE NOTED AT THE LAG WELL CONTROL PANEL.
- THE FLOATS IN THE TANK SHALL TRANSMIT A DIGITAL SIGNAL VIA LINE-OF-SIGHT RADIOS TO THE WELL PUMP CONTROL PANELS. ONE FLOAT SHALL SEND A LOW-LEVEL ALARM SIGNAL IF WATER LEVEL REACHES 1 FOOT (ADJUSTABLE) ABOVE THE TANK BOTTOM. THE SECOND FLOAT SHALL SEND A HIGH-LEVEL ALARM SIGNAL IF WATER LEVEL REACHES A HEIGHT OF 34.5 FEET (ADJUSTABLE) OR 0.5 FEET ABOVE THE PUMP STOP SETPOINT. THE LOW-LEVEL FLOAT SHALL START BOTH PUMPS UNTIL THE HIGH-LEVEL FLOAT IS TRIGGERED AND CONTINUE THIS OPERATIONAL CYCLE UNTIL THE LEVEL SENSOR IS OPERATING NORMALLY (REPAIRED OR REPLACED).

## PUMP CONTROL PANEL SPECIFICATION

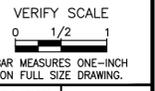
- EACH PUMP CONTROL PANEL SHALL BE DESIGNED, ASSEMBLED, PROGRAMMED, AND TESTED BY A SINGLE UL-CERTIFIED (UL508A) MANUFACTURING FACILITY, PRIOR TO DELIVERY TO THE JOB SITE. THE PANEL SHALL BE LABELED AS AN "ENCLOSED INDUSTRIAL CONTROL PANEL". THE PANEL MANUFACTURER SHALL HAVE LOCAL SERVICE PERSONNEL AVAILABLE WHO ARE TRAINED AND CERTIFIED TO SERVICE AND TROUBLESHOOT ALL COMPONENTS OF THE PUMP CONTROL PANEL. THE PUMP CONTROL PANEL SHALL BE MANUFACTURED BY PRECISION AUTOMATION OR APPROVED EQUAL.
- EACH PUMP CONTROL PANEL SHALL HAVE THE FOLLOWING EQUIPMENT:
  - A VARIABLE FREQUENCY DRIVE (VFD) MEETING THE FOLLOWING REQUIREMENTS:
    - THE VFD SHALL BE AN 18-PULSE TYPE.
    - THE VFD SHALL BE CAPABLE OF ACCEPTING START AND STOP SIGNALS EITHER MANUALLY AT THE CONTROL PANEL (HAND MODE) OR AUTOMATICALLY FROM A TANK LEVEL SENSOR AND FLOAT VIA LINE-OF-SIGHT RADIO SIGNAL. THE VFD SHALL VARY PUMP SPEED TO MAINTAIN THE TARGET TANK LEVEL SETPOINT. SETPOINTS SHALL BE EASILY ADJUSTABLE.
    - THE VFD SHALL PROVIDE SOFT START AND STOP, WITH ADJUSTABLE ACCELERATION/DECELERATION TIMES TO MINIMIZE HYDRAULIC SURGES.
    - THE VFD SHALL BE COMPATIBLE WITH THE EQUIPMENT IT SERVES AND ADEQUATELY SIZED FOR THE MOTOR MAXIMUM AMPS AND HORSEPOWER INCLUDING SERVICE FACTOR. THE VFD OUTPUT CURRENT MUST EXCEED THE MAXIMUM MOTOR OPERATING CURRENT AT FULL SPEED.
    - THE VFD SHALL BE SIZED AND RATED TO ACCEPT A 480-VOLT, 3-PHASE INCOMING POWER SUPPLY.
    - THE VFD SHALL INCLUDE AN INTEGRAL PID PROCESS CONTROLLER, WHICH SHALL CONTROL ALL SPEED AND SWITCHING OPERATIONS FOR THE PUMP. PROGRAMMED APPLICATIONS SHALL BE STORED IN A NON-VOLATILE PROM SO THAT, IN CASE OF A POWER FAILURE, THE PROGRAM SHALL NOT BE LOST. THE VFD SHALL BE FACTORY PROGRAMMED WITH SOFTWARE WRITTEN SPECIFICALLY FOR PUMPING APPLICATIONS, INCLUDING A PID "SLEEP" FUNCTION AS PART OF THE INTERNAL SOFTWARE WITHIN THE VFD. VFD FUNCTIONS SHALL BE CONTROLLED WITH AN INTEGRAL DIGITAL KEYPAD LOCATED EXTERNALLY ON THE ENCLOSURE DOOR.
    - THE PUMP MOTOR SHALL BE FULLY WARRANTABLE BY THE MOTOR MANUFACTURER WHEN USED WITH THE SUPPLIED VFD SYSTEM. VFD SHALL BE PROGRAMMED TO OPERATE THE MOTOR BETWEEN 67% (40 HZ) AND 100% (60 HZ) OF MAXIMUM SPEED. UNDER NO CIRCUMSTANCES SHALL MOTOR OPERATE OUTSIDE OF THIS RANGE.
    - THE VFD SHALL BE MANUFACTURED BY ABB ACS SERIES OR APPROVED EQUAL.
    - A PLC WITH AN HMI TOUCH SCREEN OPERATOR INTERFACE TO ALLOW THE USER TO LOCALLY MODIFY PROGRAMMING. THE SCREEN SHALL BE MINIMUM 4-INCH TFT LCD COLOR TOUCH-SCREEN. THE PLC AND HMI SHALL PROVIDE AT A MINIMUM THE FOLLOWING FUNCTIONS:
      - USER ADJUSTABLE REAL-TIME CLOCK DISPLAY.
      - DISPLAY AND RECORD RUN STATUS OF ALL PUMPS (STOPPED, RUNNING, ALARM/FAULT, IDLE) INCLUDING MOTOR SPEED.
      - DISPLAY AND RECORD SYSTEM PRESSURE FROM PRESSURE TRANSDUCER.
      - DISPLAY AND RECORD INSTANTANEOUS AND TOTALIZED FLOW FROM FLOW METER.
      - DISPLAY AND RECORD WELL WATER LEVEL FROM WELL LEVEL SENSOR.
      - DISPLAY AND RECORD STORAGE TANK WATER LEVEL FROM TANK LEVEL SENSOR.
      - DISPLAY AND RECORD VOLTAGE AND CURRENT.
      - DISPLAY AND RECORD FAULT AND/OR ALARM CONDITION AND LOG FAULT WITH TIME AND DATE STAMP, INCLUDING UP TO 256 EVENTS.
      - DISPLAY AND RECORD FAULT AND ALARM DIAGNOSTICS.
      - DISPLAY AND RECORD MOTOR RUN HOURS THAT ARE USER-RESETTABLE.
      - PRE-PROGRAMMED START-UP ROUTINES FOR INITIAL START-UP, MAINLINE FILL, POWER OUTAGES, FAULT RE-START. THE ROUTINES SHALL LIMIT AND/OR DELAY PUMP STARTING AND ACCELERATION TO PREVENT EXCESSIVE VELOCITY OR PRESSURE.
      - CONTROL LEAD/LAG PUMP OPERATION.
      - RESET BUTTON TO RESTART THE SYSTEM AFTER A SYSTEM SHUTDOWN.
      - ALLOW USER TO ADJUST OPERATING VARIABLES, TIMING, RESTART, AND SLEEP FUNCTIONS.
      - ALLOW USER ADJUSTMENT OF ALL SETTINGS RELATING TO THE OPERATION AND PREPROGRAMMED SAFETY FUNCTIONS OF THE PLC.
      - ALLOW FOR UPLOADING, DOWNLOADING, AND SAVING USER-SELECTED VALUES WITH USB FUNCTIONALITY.
      - ANY OTHER FUNCTIONS TO MEET THE INTENDED SYSTEM OPERATION.
  - A MAIN CIRCUIT BREAKER DISCONNECT SWITCH INTEGRATED INTO THE PANEL. THE DISCONNECT SHALL BE SERVICE ENTRANCE RATED AND SIZED APPROPRIATELY ACCORDING TO UL AND NEC GUIDELINES. THE SWITCH SHALL HAVE AN EXTERNALLY MOUNTED HANDLE THAT IS LOCKABLE IN THE OFF POSITION.
  - A GREEN ILLUMINATED HOA SELECTOR AND PUSH BUTTON START. IN "HAND" MODE THE RESPECTIVE PUMP WILL RUN CONTINUOUSLY AND IN "AUTO" MODE IT WILL BE CONTROLLED BY TANK LEVEL.
  - A MANUAL VFD SPEED CONTROL DIAL.
  - POWER STATUS, PUMP STATUS, AND SYSTEM ALARM/FAULT INDICATORS.
  - A MAGNETIC STARTER, WHICH CONSISTS OF A FULL VOLTAGE RATED LINE STARTING CONTACTOR AND THERMAL OVERLOAD RELAY, SO THAT THE MOTOR MAY BE OPERATED ACROSS-THE-LINE MANUALLY IN THE CASE OF VFD FAILURE.
  - A VOLTAGE MONITOR CAPABLE OF MONITORING OVERVOLTAGE, UNDERVOLTAGE, PHASE IMBALANCE, PHASE LOSS, PHASE REVERSAL AND INCLUDE USER-ADJUSTABLE THRESHOLDS TO PROTECT THE PUMPS FROM POWER QUALITY PROBLEMS BY DISCONNECTING POWER TO THE PUMP MOTORS. THE VOLTAGE MONITOR SHALL AUTOMATICALLY RESET AND RESUME OPERATION WHEN POWER QUALITY IS ACCEPTABLE.
  - OVER-CURRENT PROTECTION THROUGH APPROPRIATELY-SIZED FUSES OR BREAKERS AS RECOMMENDED BY THE MANUFACTURER.
  - AN INTERNALLY MOUNTED AC LINE REACTOR OR DC LINK CHOKE (SWINGING CHOKE DESIGN) TO REDUCE INPUT CURRENT HARMONIC CONTENT, PROVIDE PROTECTION FROM POWER LINE TRANSIENTS SUCH AS UTILITY POWER FACTOR CORRECTION CAPACITOR SWITCHING TRANSIENTS AND REDUCE RFI EMISSIONS.
  - A UL1449 SURGE PROTECTIVE DEVICE.
  - A SINE-WAVE FILTER OR EQUIVALENT TYPE RLC FILTER TO PROTECT THE SUBMERSIBLE MOTOR AND TO SATISFY SUBMERSIBLE MOTOR WARRANTY CONDITIONS.
  - HARMONIC FILTERING TO MEET OR EXCEED IEEE-519 RECOMMENDATIONS AS DEFINED AND ENFORCED BY THE POWER COMPANY PROVIDING SERVICE. IT IS THE RESPONSIBILITY OF THE CONTROL PANEL MANUFACTURER TO CORRECT ANY HARMONIC LEVELS THAT DO NOT SATISFY THE REQUIREMENTS OF IEEE-519.
  - INPUTS TO RECEIVE A TANK LEVEL SIGNAL WIRELESSLY VIA LINE-OF-SIGHT RADIO SIGNAL. WELL PUMP AUTOMATIC OPERATION SHALL BE BASED ON TANK LEVEL.
  - FIELD CONNECTIONS IN PLACE TO ACCEPT A SIGNAL FROM A FLOW METER, PRESSURE TRANSDUCER, WELL LEVEL SENSOR, AND TANK LEVEL SENSOR.
  - ETHERNET COMMUNICATIONS CAPABLE.
  - VENTILATION FANS AND/OR AIR-CONDITIONING TO PREVENT HIGH AMBIENT TEMPERATURES. THE COOLING SYSTEM SHALL PREVENT THE SOFT STARTER FROM REACHING HIGH AMBIENT TEMPERATURES, WHICH WILL CAUSE TEMPERATURE FAULTS OR WARNINGS AND SHALL BE RATED FOR A MAXIMUM AMBIENT TEMPERATURE OF 104°F. THE COOLING SYSTEM SHALL START AUTOMATICALLY WHENEVER THE SOFT STARTER IS IN OPERATION AND SHUT DOWN AUTOMATICALLY WHEN THE STARTER IS TURNED OFF. THE COOLING SYSTEM SHALL NOT ALLOW DUST OR WATER TO ENTER INSIDE THE PANEL.
  - FULL COLOR WIRING SCHEMATIC WITH THE WIRE COLORING REFLECTING THE ACTUAL WIRING COLOR.
  - WARNING LABELS TO WARN THE END-USER OF ELECTRICAL SHOCK, EQUIPMENT FREEZING, EXPLOSION HAZARDS, OR ANY OTHER SAFETY NOTICES AS REQUIRED BY UL AND THE NEC.
  - UL TYPE 12 ENCLOSURE FOR INDOOR INSTALLATION.
- EACH WELL PUMP FACILITY SHALL BE EQUIPPED WITH A HIGH FREQUENCY PULSE DISCHARGE FLOW METER. THE FLOW METER SIGNAL SHALL BE TRANSMITTED TO THE PUMP CONTROL PANEL TO DISPLAY FLOW RATE AND TOTALIZED VOLUME. THE TOTALIZER SHALL BE RESETTABLE WITH DATE OF LAST RESET. THE PUMP CONTROL PANEL SHALL DISPLAY ALL FAULTS, INCLUDING HIGH AND LOW FLOW ALARM/FAULTS AND RECORD IN A TREND FILE.
- THE MAIN SUPPLY WELLS SHALL BE EQUIPPED WITH A WATER LEVEL SENSOR THAT CAN TRANSMIT A 4-20 MA SIGNAL TO THE PUMP CONTROL PANEL. THE SENSOR SHALL BE INSTALLED 5 FEET ABOVE THE TOP OF THE PUMP IN 1-INCH PVC SOUNDING TUBE STRAPPED TO THE PUMP COLUMN PIPE. THE PANEL SHALL DISPLAY AND RECORD WATER LEVEL IN THE WELL AND HIGH/LOW LEVEL ALARMS AND FAULTS. IF A LOW WATER LEVEL IS REACHED DURING OPERATION, THE PUMP CONTROL PANEL SHALL DECLARE A FAULT AND ACTIVATE LAG (FOR LEAD PUMP) OR BACKUP (FOR LAG PUMP). WHEN WATER LEVEL RECOVERS TO 25 FEET (ADJUSTABLE) ABOVE THE TOP OF THE PUMP, THE PUMP CONTROL PANEL SHALL RESUME NORMAL OPERATION. EACH LOW WATER EVENT SHALL BE RECORDED IN A FAULT LOG WITH TIME STAMPS FOR BOTH FAULT AND RECOVERY. THE TREND FILE SHALL BE DOWNLOADABLE TO A FLASH DRIVE AND BE COMPATIBLE WITH EXCEL SPREADSHEET FOR THE END USER.
- DURING STARTUP, THE CONTRACTOR SHALL DEMONSTRATE THAT ALL EQUIPMENT MEETS THE SPECIFIED PERFORMANCE REQUIREMENTS. THE CONTRACTOR SHALL BE REQUIRED TO HAVE AN EXPERIENCED, COMPETENT, AND FACTORY AUTHORIZED SERVICE PROFESSIONAL FROM THE PUMP CONTROL PANEL MANUFACTURER PRESENT DURING STARTUP TO DEMONSTRATE THAT THE SYSTEM OPERATES AS INTENDED, TROUBLESHOOT ANY ISSUES ENCOUNTERED, AND TO TRAIN THE OWNER ON OPERATION OF THE SYSTEM.

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GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 GENERAL NOTES, OPERATIONAL DESCRIPTION & CP SPEC.



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET



PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

C002

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 Xref Filenome: | X-TITLE | X-TITLE (2) |

PROJECT DESIGN CRITERIA					
PARAMETER	UNIT	VALUE	PARAMETER	UNIT	VALUE
<b>CLASSIFICATION</b>			<b>WELL PUMPS</b>		
SYSTEM CLASSIFICATION	NON-TRANSIENT NON-COMMUNITY		MAIN WELL PUMP TYPE	SUBMERSIBLE	
PUBLIC WATER SYSTEM NUMBER	TBD		NUMBER OF MAIN WELL PUMPS	NO.	2
OPERATOR LEVEL	TBD		MAIN WELL PUMP DESIGN FLOW	GPM	200
<b>NON-POTABLE WATER DEMAND</b>			MAIN WELL PUMP DESIGN HEAD	FT	980
PLANT RAW WATER AVERAGE DAY SUMMER DEMAND	GPM	350	MAIN WELL PUMP POWER	HP	75
	MGD	0.5	MAIN WELL PUMP SETTING DEPTH	FT	378
PLANT RAW WATER AVERAGE DAY NON-SUMMER DEMAND	GPM	100	MAIN WELL PUMP MOTOR CONTROLS	SOFT STARTER	
	MGD	0.1	<b>BACKUP WELL PUMP TYPE</b>		
PLANT RAW WATER AVERAGE ANNUAL DAILY DEMAND	GPM	204	NUMBER OF BACKUP WELL PUMPS	NO.	1
	MGD	0.3	BACKUP WELL PUMP DESIGN FLOW	GPM	150
PLANT RAW WATER DEMAND DURATION	HR/DAY	12	BACKUP WELL PUMP DESIGN HEAD	FT	900
PROCESS WATER AVERAGE DAY DEMAND	GPM	229	BACKUP WELL PUMP POWER	HP	60
	MGD	0.3	BACKUP WELL PUMP SETTING DEPTH	FT	273
PROCESS WATER DEMAND DURATION	HR/DAY	22	BACKUP WELL PUMP MOTOR CONTROLS	SOFT STARTER	
FIRE WATER DEMAND	GAL	78,000	<b>TRANSMISSION MAIN</b>		
	GPM	1,000	MAIN DIAMETER	IN	8
<b>POTABLE WATER DEMAND</b>			PIPE MATERIAL	C900 PVC	
NO OF PERSONNEL	NO.	112	PRESSURE RATING	PSI	305 (DR-14), 235 (DR-18)
PER CAPITA AVERAGE DAY DEMAND	GPD	35	BURY DEPTH	FT	4
POTABLE WATER AVERAGE DAY DEMAND	GPD	3,920	<b>RAW WATER STORAGE TANK</b>		
	MGD	0.004	NUMBER	NO.	1
POTABLE WATER PEAK INSTANTANOUS DEMAND	GPM	100	CAPACITY, TOTAL	GAL	237,000
	MGD	0.14	CAPACITY, USABLE	GAL	227,000
<b>WATER SUPPLY WELLS</b>			DIAMETER	FT	33.85
NUMBER OF ACTIVE WELLS	NO.	3	SIDE WALL HEIGHT	FT	35.19
NUMBER OF MAIN SUPPLY WELLS	NO.	2	MAX OPERATING LEVEL	FT	34.19
NUMBER OF BACKUP SUPPLY WELLS	NO.	1	OVERFLOW LEVEL	FT	34.69
MAIN WELL NAME	NEW WELL 5 / NEW WELL 4		OVERFLOW ELEVATION	FT ASL	3914.69
MAIN WELL DEPTH	FT	500	MIN TANK WATER ELEVATION	FT ASL	3881.00
MAIN WELL CASING	IN	16 (+2-30 FT); 10 (0-300 FT)	MIN STATIC PRESSURE AT PROCESS PAD (3710 FT)	PSI	74
MAIN WELL SCREENED INTERVAL	FT	300-500 (NON-CONT)	CONSTRUCTION TYPE	BOLTED STEEL	
MAIN WELL STATIC WATER LEVEL	FT	70	<b>POTABLE WATER STORAGE TANK</b>		
MAIN WELL PRODUCTION	GPM	200	NUMBER	NO.	1
MAIN WELL PUMPING WATER LEVEL	FT	270	CAPACITY, TOTAL	GAL	13,500
MAIN WELL SPECIFIC CAPACITY	GPM/FT	1	CAPACITY, USABLE	GAL	12,400
BACKUP WELL NAME	EXISTING WELL 3 (PW-4)		DIAMETER	FT	12.0
BACKUP WELL DEPTH	FT	375	SIDE WALL HEIGHT	FT	16.0
BACKUP WELL CASING	IN	10 (0-40 FT); 6 (0-280 FT)	MAX OPERATING LEVEL	FT	15.4
BACKUP WELL SCREENED INTERVAL	FT	280-300; 340-360	OVERFLOW LEVEL	FT	15.5
BACKUP WELL STATIC WATER LEVEL	FT	80	CONSTRUCTION TYPE	WELDED STAINLESS STEEL	
BACKUP WELL PRODUCTION	GPM	200	<b>ARSENIC TREATMENT SYSTEM</b>		
BACKUP WELL PUMPING WATER LEVEL	FT	263	TYPE	ADSORPTIVE MEDIA	
BACKUP WELL SPECIFIC CAPACITY	GPM/FT	1	DESIGN FLOW	GPM	10
<b>POTABLE WATER BOOSTER PUMP STATION</b>			HEADLOSS	FT	5.0
TOTAL NUMBER OF PUMPS	NO.	2	BACKWASH FREQUENCY	WEEKS	4 TO 6
DESIGN PUMP CAPACITY (EA.)	GPM	100	BACKWASH FLOW	GPM	12
DESIGN TOTAL DYNAMIC HEAD	FT	185	BACKWASH DISPOSAL	SANITARY SEWER	
DESIGN DISCHARGE PRESSURE	PSI	80	<b>DISINFECTION SYSTEM</b>		
TOTAL CAPACITY	GPM	200	CHEMICAL	SODIUM HYPOCHLORITE	
TOTAL FIRM CAPACITY	GPM	100	CONCENTRATION	%WT	12.5
PUMP POWER (EA.)	HP	5	BULK STORAGE TANKS	NO.	2 (PRIMARY/BACKUP)
MOTOR CONTROLS	VARIABLE FREQUENCY		TANK VOLUME (EA.)	GAL	55
<b>WASTEWATER FACILITIES</b>			TYPICAL DOSE #1	MG/L	5.0
TYPE	LARGE SOIL ADSORPTION SYSTEM		TYPICAL DOSE #2	MG/L	3.0
DESIGN FLOW	GPM	4,320	TYPICAL USAGE #1	GPD	0.16
SOILS TYPE	CLASS	C	TYPICAL USAGE #1	GPD	0.10
DISPOSAL TRENCH LENGTH (NO PRETREATMENT)	FT	3,600	DAYS STORAGE #1	DAYS	210
DISPOSAL TRENCH LENGTH (W PRETREATMENT)	FT	1,440	METERING PUMPS	NO.	2

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

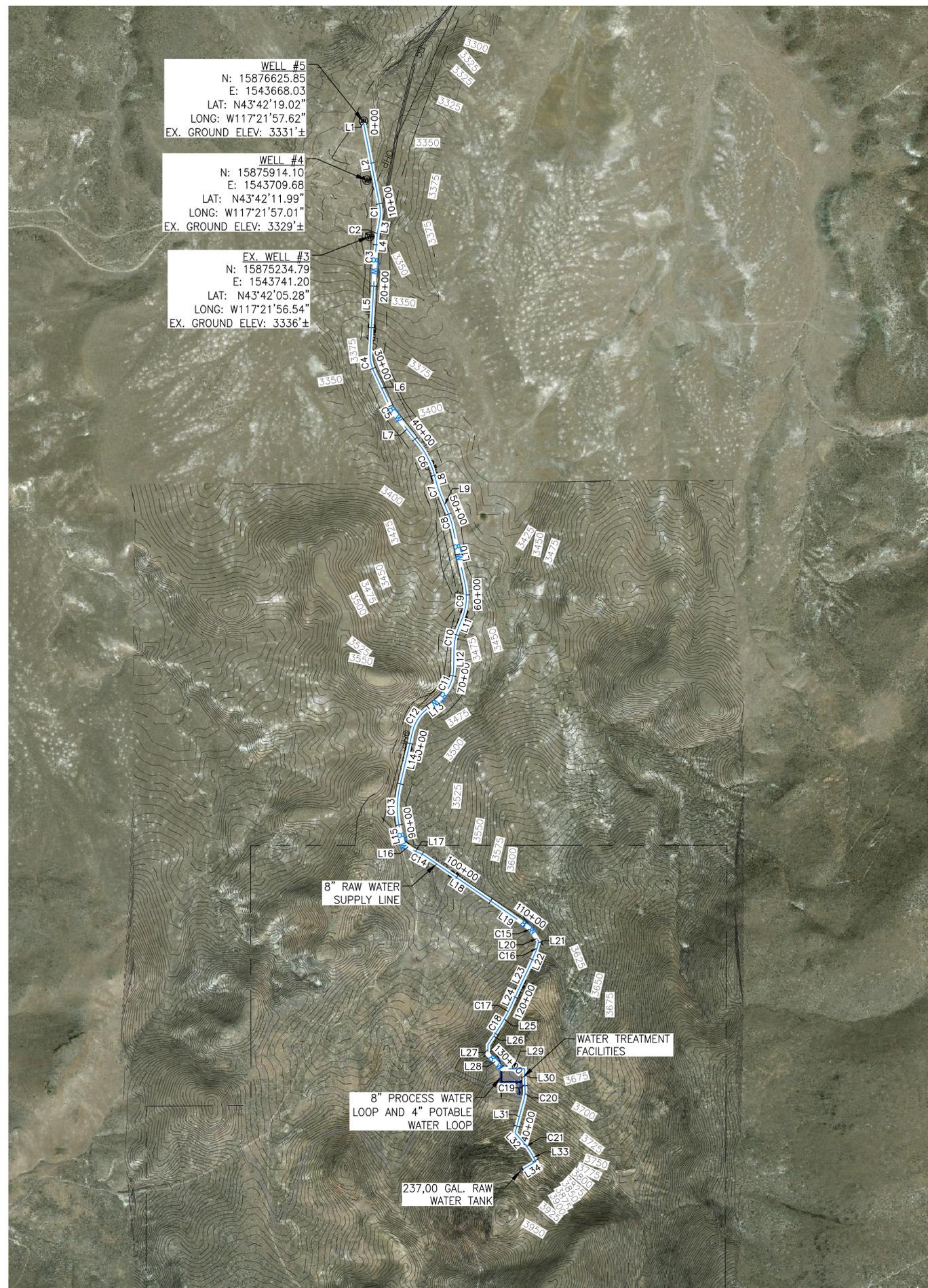
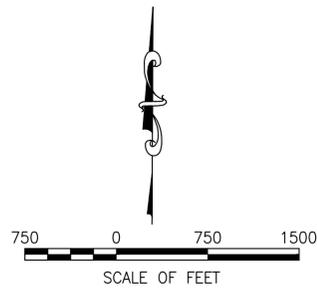
VERIFY SCALE	0 1/2 1
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

C003

**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

DESIGN CRITERIA

Path: S:\PROJECTS\M thru R Projects\Paramount Gold\_1294\0050\_Water and Wastewater Design\2018 A File\name: GRASSY MTN C100 & C101 OVERALL PP Plot date: Aug 22, 2019-01:29:37pm CAD User: HWhite.  
 Xref Filename: | X-TITLE | X-LINEWORK | X-PLANT SITE BASE\_7-23-19 | X-TITLE (2) |



RAW WATER SUPPLY LINE			
Number	Radius	Length	Line/Chord Direction
C1	500.00	185.01	S0° 31' 12.29"E
C2	300.00	26.84	S7° 31' 04.41"W
C3	500.00	15.31	S4° 04' 40.44"W
C4	500.00	245.09	S10° 50' 31.64"E
C5	500.00	118.25	S31° 39' 35.38"E
C6	1000.00	406.33	S26° 47' 39.33"E
C7	500.00	62.83	S18° 45' 12.99"E
C8	500.00	88.14	S17° 18' 12.10"E
C9	700.00	416.13	S4° 46' 38.46"W
C10	700.00	254.13	S11° 24' 26.13"W
C11	500.00	445.49	S26° 31' 52.19"W
C12	500.00	340.74	S32° 31' 57.45"W
C13	1100.00	475.16	S0° 38' 05.60"W
C14	500.00	108.17	S61° 47' 30.79"E
C15	500.00	196.35	S43° 57' 54.44"E
C16	500.00	92.60	S17° 35' 25.93"W
C17	500.00	42.90	S27° 05' 14.17"W
C18	500.00	31.12	S31° 19' 42.18"W
C19	500.00	50.75	S2° 54' 27.84"E
C20	500.00	181.65	S4° 35' 32.16"W
C21	1000.00	200.52	S36° 30' 20.37"E
L1		5.04	S0° 00' 00.00"E
L2		1007.02	S11° 07' 14.34"E
L3		153.75	S10° 04' 49.77"W
L4		268.14	S4° 57' 19.04"W
L5		1129.03	S3° 12' 01.84"W
L6		451.16	S24° 53' 05.12"E
L7		478.97	S38° 26' 05.63"E
L8		154.40	S15° 09' 13.03"E
L9		340.31	S22° 21' 12.94"E
L10		737.93	S12° 15' 11.27"E
L11		134.64	S21° 48' 28.18"W
L12		234.25	S1° 00' 24.09"W
L13		161.28	S52° 03' 20.28"W
L14		683.73	S13° 00' 34.62"W
L15		209.55	S11° 44' 23.42"E
L16		148.87	S56° 44' 23.42"E
L17		66.19	S67° 59' 23.42"E
L18		1017.39	S55° 35' 38.16"E
L19		420.43	S55° 12' 54.44"E
L20		79.99	S32° 42' 54.44"E
L21		38.82	S12° 17' 05.56"W
L22		194.17	S22° 53' 46.31"W
L23		304.74	S25° 32' 37.60"W
L24		274.58	S24° 37' 45.75"W
L25		162.88	S29° 32' 42.58"W
L26		257.12	S33° 06' 41.79"W
L27		113.54	S0° 08' 53.27"W
L28		245.06	S44° 51' 06.73"E
L29		271.37	N90° 00' 00.00"E
L30		157.07	S0° 00' 00.00"E
L31		401.05	S15° 00' 00.00"W
L32		114.26	S42° 15' 00.00"E
L33		112.87	S30° 45' 40.74"E
L34		176.66	S59° 14' 19.26"W

**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
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GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 WATER SYSTEM SITE OVERVIEW



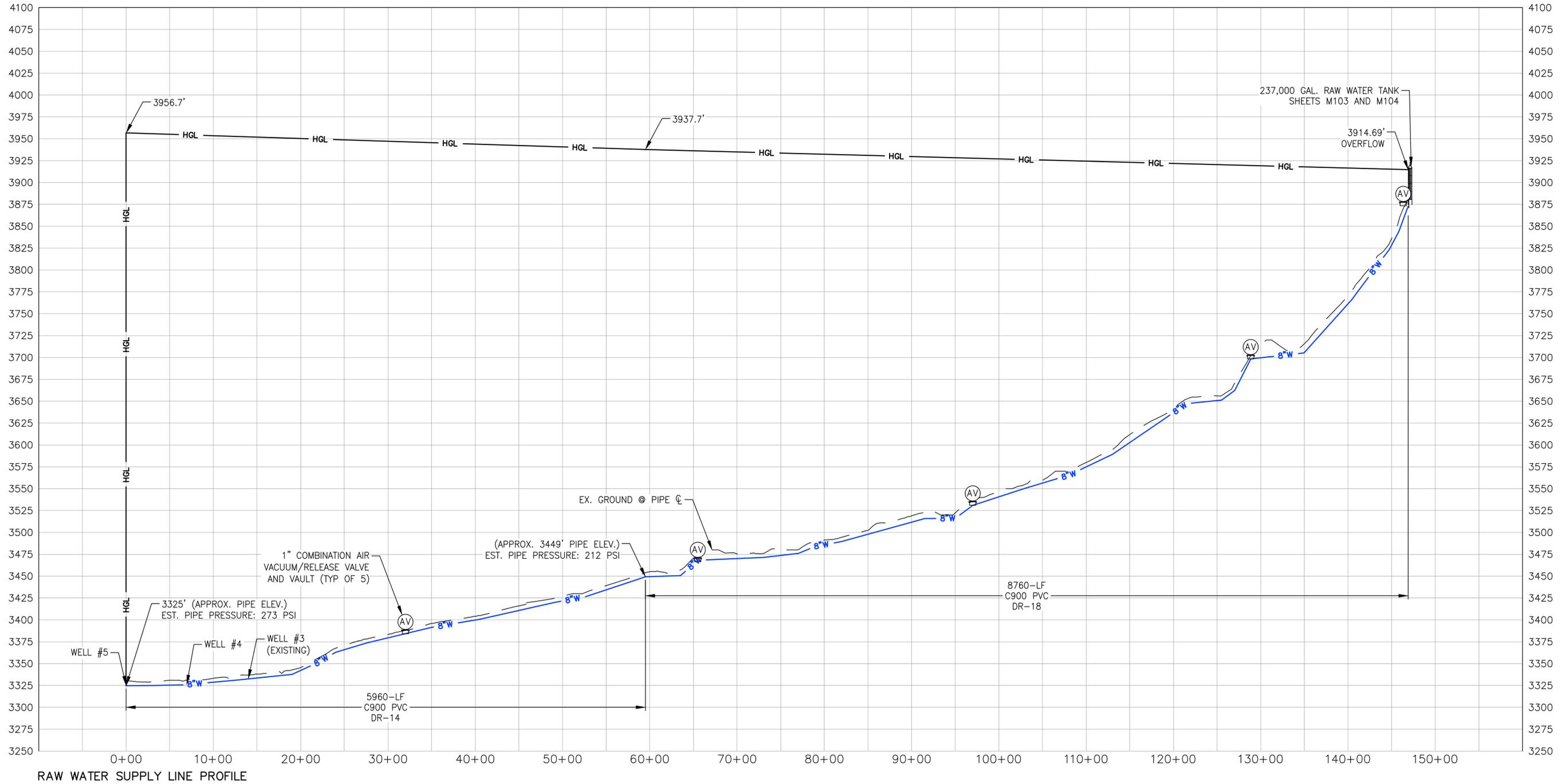
REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C100**

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 Xref File Name: | X-TITLE | X-LINEWORK | X-PLANT SITE BASE\_7-23-19 | X-TITLE (2) |



RAW WATER SUPPLY LINE PROFILE



GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 RAW WATER SUPPLY PROFILE OVERVIEW



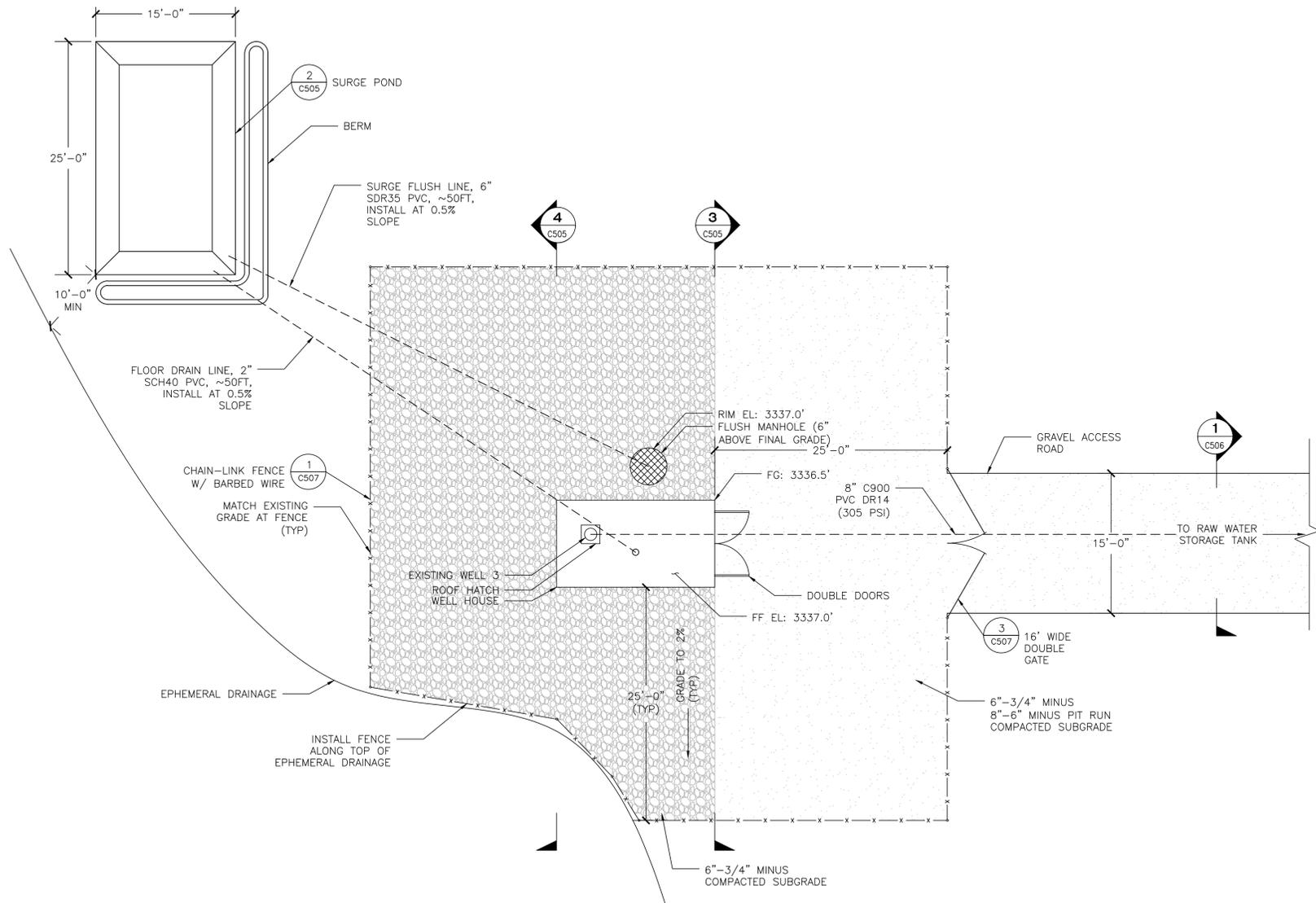
ITEM	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE	0 1/2 1
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

C101

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 Boise, Idaho 83706  
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Path: S:\PROJECTS\M thru R Projects\Paramount Gold\_1294.0050\_Water and Wastewater Design\2018 A File\1294.0050-SITE PLAN Plot date: Aug 22, 2019-03:17:47pm CAD User: knewson  
 Xref Filename: I X-TITLE (2) 1



**SITE PLAN**  
 SCALE: 1/8"=1'-0"

- NOTES:**
- CONTRACTOR SHALL PROVIDE A MINIMUM 4'-0" OF COVER FROM FINISHED GRADE TO TOP OF PIPE FOR ALL UNDERGROUND PRESSURE PIPING AND 2'-0" MINIMUM COVER FOR ALL GRAVITY PIPING.
  - INSTALL PIPE PER DETAIL 1 ON SHEET C-500.
  - THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE REQUIRED PIPELINE PRESSURE TESTING. ALL TESTING SHALL BE IN ACCORDANCE WITH AWWA C600 (DUCTILE IRON) AND C905 (PVC). CONTRACTOR TO NOTIFY THE ENGINEER 24 HOURS PRIOR TO CONDUCTING TESTING. HYDROSTATIC TEST PRESSURE SHALL BE AT LEAST EQUAL TO 150 PSI OR 10% ABOVE THE WORKING PRESSURE OF THE PIPELINE, WHICHEVER IS GREATER. THE TEST PRESSURE SHALL NOT EXCEED THE PRESSURE RATING OF THE PIPE.
  - INSTALL THRUST BLOCKS PER SHEETS C501 AND C502 FOR ALL PIPE FITTINGS AND ACCESSORIES.
  - FINISH FLOOR OF WELL HOUSE SHALL BE A MIN. OF 6" ABOVE FINAL GRADE. ELEVATIONS BASED ON EXISTING GROUND ELEVATION OF 3336.0 FEET AND FINAL GRADE OF 3336.5 FEET. IF EXISTING GROUND ELEVATION DIFFERS FROM ASSUMED ELEVATION BASED ON CONTRACTOR SURVEY, CONTRACTOR SHALL ADJUST FINAL GRADE AND FINISHED FLOOR ELEVATION ACCORDINGLY. GRADE AREA AROUND WELL HOUSE TO DIVERT SURFACE WATER AWAY.
  - RAW/POTABLE PIPE SHALL BE DISINFECTED AND TESTED FOR BACTERIA PER AWWA C651 THROUGH C654 AND OAR 333-061-0050 SECTION 10.
  - CONTRACTOR SHALL VERIFY EXISTING LOCATIONS, ELEVATIONS AND MATERIAL TYPES OF ALL UTILITIES AND FEATURES WHERE PROPOSED IMPROVEMENTS CONNECT. NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
  - THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER WITH A MINIMUM 24-HOUR NOTICE PRIOR TO REQUIRED INSPECTIONS. THE CONTRACTOR SHALL VERIFY INSPECTION REQUIREMENTS WITH THE OWNER AND THE ENGINEER.
  - MORTAR-LINED DUCTILE IRON PIPE SHALL CONFORM TO AWWA C151 AND C104 & SHALL HAVE A MINIMUM PRESSURE CLASS OF 350 PSI. BURIED DI PIPING SHALL BE INSTALLED PER AWWA C600. POLYETHYLENE ENCASE ALL BURIED DUCTILE IRON PIPING. POLYETHYLENE ENCASE AND TAPE ALL METAL BURIED JOINTS AND ASSOCIATED BOLTS AND RESTRAINING DEVICES. ALL BURIED FITTINGS TO BE DI MJ X MJ CONFORMING TO AWWA C110 AND RATED FOR 350 PSI AND BE MECHANICALLY RESTRAINED WITH MEGALUG JOINT RESTRAINTS (OR EQUAL) AND THRUST BLOCKS, UNLESS OTHERWISE INDICATED ON DRAWINGS.
  - BURIED WATER VALVES SHALL BE RESILIENT-SEAT GATE VALVES CONFORMING TO AWWA C-515. ALL BURIED WATER VALVES SHALL BE INSTALLED WITH A STANDARD 5-1/4 INCH DIAMETER, TWO PIECE ADJUSTABLE CAST IRON VALVE BOX, TYLER/UNION SERIES 6855 OR EQUAL. THE CAST IRON COVER SHALL BE MARKED WITH THE WORD "WATER" AS AN INTEGRAL PART OF THE COVER. CONCRETE COLLARS SHALL BE INSTALLED. VALVES SHALL BE RATED FOR A MAXIMUM WORKING PRESSURE OF 350 PSI.
  - THE HORIZONTAL AND VERTICAL SEPARATIONS BETWEEN WATER AND SEWER LINES SHALL COMPLY WITH OAR 333-061-0050, SECTION 9.
  - ALL PVC GRAVITY PIPE SHALL CONFORM TO ASTM D 3034 AND HAVE A MINIMUM WALL THICKNESS OF SDR35. PVC GRAVITY PIPE INSTALLATION SHALL BE PER MANUFACTURER RECOMMENDATIONS, AND THE PLANS WITH THE MORE STRINGENT REQUIREMENTS GOVERNING INSTALLATION. PVC GRAVITY PIPE FITTINGS SHALL BE OF EQUAL OR GREATER PRESSURE CLASS AS THE PIPE.
  - ALL BURIED PIPE SHALL BE INSTALLED WITH COPPER FINDER WIRE, BLUE NO. 12, SUITABLE FOR DIRECT BURIAL. SECURELY FASTEN WIRE TO PIPE EVERY 10' WITH DUCT TAPE. LOCATING WIRE SHALL BE TESTED BY CONTRACTOR IN PRESENCE OF ENGINEER. ALL BURIED PIPE SHALL BE INSTALLED WITH LOCATOR TAPE, 3-INCH WIDE, PLACED BETWEEN 18 INCHES AND 24 INCHES ABOVE THE PIPE. TAPE SHALL BE MARKED AS BEING WATER LINE LOCATOR TAPE.
  - ALL PVC PRESSURE PIPE SHALL BE MANUFACTURED AND TESTED TO AWWA C900 (4 TO 12 INCHES) AND C905 (>12 INCHES). PVC PRESSURE PIPE SHALL BE DR18 (PRESSURE CLASS 235 PSI) OR DR14 (PRESSURE CLASS 305 PSI) AS SHOWN ON THE PLANS. PVC PIPE INSTALLATION SHALL BE PER AWWA C605, AND THE PLANS WITH THE MORE STRINGENT REQUIREMENTS GOVERNING THE INSTALLATION. PVC PIPE FITTINGS SHALL BE OF EQUAL OR GREATER PRESSURE CLASS AS THE PIPE. CEMENT-MORTAR LINED DUCTILE IRON. FITTINGS SHALL BE FLANGED OR MECHANICAL JOINT AS INDICATED ON THE CONTRACT DRAWINGS. DUCTILE IRON FITTINGS SHALL BE POLYETHYLENE ENCASED.
  - INSTALL NO. 10 STAINLESS STEEL RODENT SCREEN ON END OF FLUSH PIPE.
  - CONTRACTOR SHALL VERIFY EXISTING AND PROPOSED ELEVATIONS PRIOR TO CONSTRUCTION.

**SPF WATER ENGINEERING**  
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GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 WELL 3 (PW-4) SITE PLAN

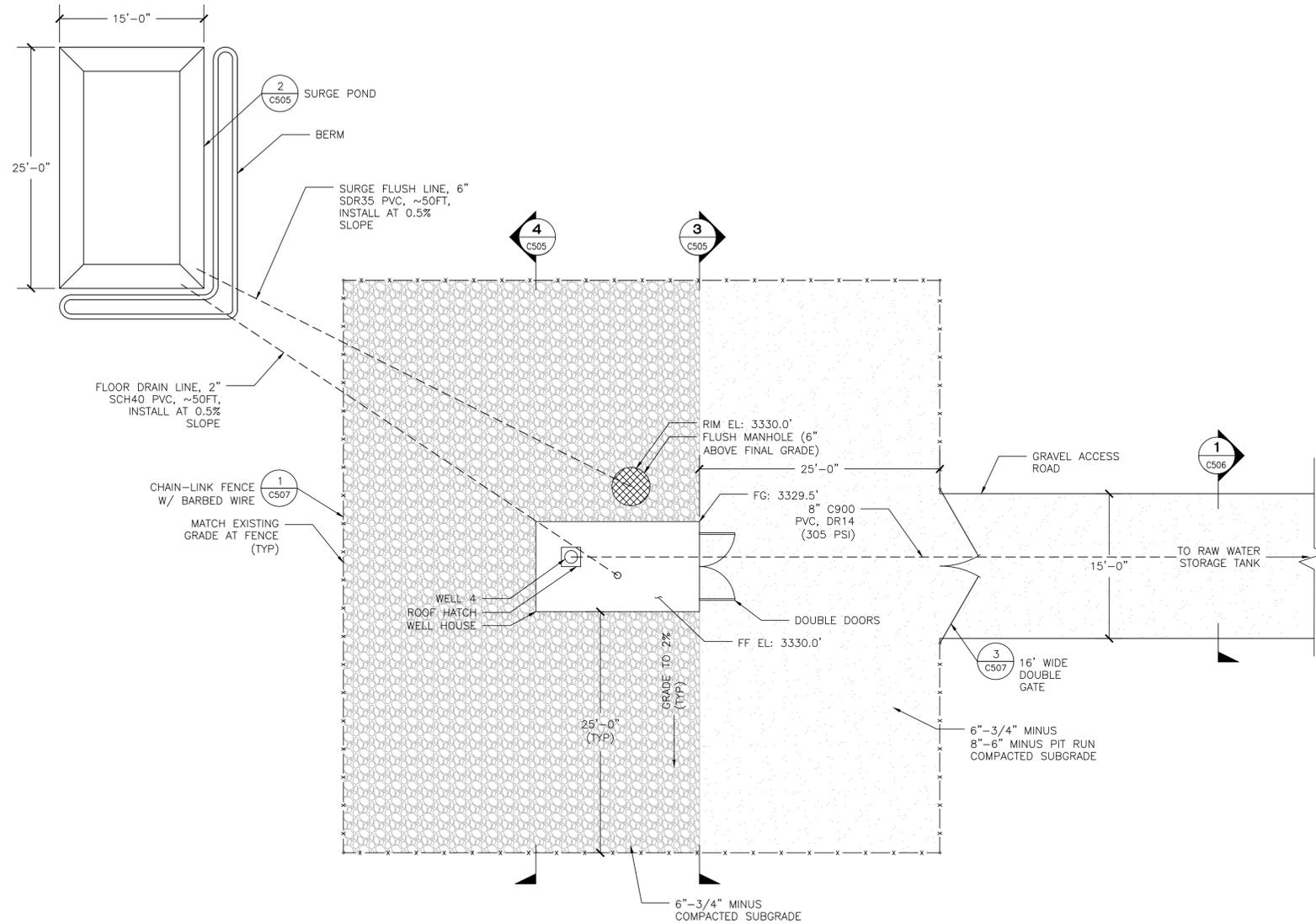


REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.  
 PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C102

P:\th S:\PROJECTS\M thru R Projects\Paramount Gold\_1294\0050\_Water and Wastewater Design\2018 A File\1294.0050-SITE PLAN Plot date: Aug 22, 2019-03:18:07pm CAD User: knewson  
 Xref FileName: I X-TITLE (2) 1



**SITE PLAN**  
 SCALE: 1/8"=1'-0"

**NOTES:**

- CONTRACTOR SHALL PROVIDE A MINIMUM 4'-0" OF COVER FROM FINISHED GRADE TO TOP OF PIPE FOR ALL UNDERGROUND PRESSURE PIPING AND 2'-0" MINIMUM COVER FOR ALL GRAVITY PIPING.
- INSTALL PIPE PER DETAIL 1 ON SHEET C500.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE REQUIRED PIPELINE PRESSURE TESTING. ALL TESTING SHALL BE IN ACCORDANCE WITH AWWA C600 (DUCTILE IRON) AND C905 (PVC). CONTRACTOR TO NOTIFY THE ENGINEER 24 HOURS PRIOR TO CONDUCTING TESTING. HYDROSTATIC TEST PRESSURE SHALL BE AT LEAST EQUAL TO 150 PSI OR 10% ABOVE THE WORKING PRESSURE OF THE PIPELINE, WHICHEVER IS GREATER. THE TEST PRESSURE SHALL NOT EXCEED THE PRESSURE RATING OF THE PIPE.
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- BURIED WATER VALVES SHALL BE RESILIENT-SEAT GATE VALVES CONFORMING TO AWWA C-515. ALL BURIED WATER VALVES SHALL BE INSTALLED WITH A STANDARD 5-1/4 INCH DIAMETER, TWO PIECE ADJUSTABLE CAST IRON VALVE BOX, TYLER/UNION SERIES 6855 OR EQUAL. THE CAST IRON COVER SHALL BE MARKED WITH THE WORD "WATER" AS AN INTEGRAL PART OF THE COVER. CONCRETE COLLARS SHALL BE INSTALLED. VALVES SHALL BE RATED FOR A MAXIMUM WORKING PRESSURE OF 350 PSI.
- THE HORIZONTAL AND VERTICAL SEPARATIONS BETWEEN WATER AND SEWER LINES SHALL COMPLY WITH OAR 333-061-0050, SECTION 9.
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- CONTRACTOR SHALL VERIFY EXISTING AND PROPOSED ELEVATIONS PRIOR TO CONSTRUCTION.

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET



VERIFY SCALE  
 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.  
 PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C103**

**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

WELL 4 SITE PLAN





P:\th S:\PROJECTS\M thru R Projects\Paramount Gold\1294.0050-Water and Wastewater Design\2018 A File\1294.0050-SITE PLAN Plot date: Aug 22, 2019-03:21:22pm CAD User: knewson  
 Xref Filename: I X-TITLE (2) 1



**WELL 4 INFORMATION:**  
 WATER SYSTEM ID NUMBER: TBD  
 WATER SYSTEM NAME: GRASSY MOUNTAIN GOLD MINE  
 LEGAL DESCRIPTION: T21S R44E, SECTION 32, SE NW  
 TAX LOT #100  
 LATITUDE: 43 DEG 42' 11.99" N  
 LONGITUDE: 117 DEG 21' 57.01" W

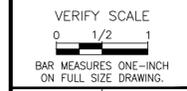
POTENTIAL CONTAMINATION WELL SITE PLAN **A**  
 SCALE: 1:600

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 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 WELL 4 POTENTIAL CONTAMINATION MAP



ITEM	DESCRIPTION	DATE
0	FINAL PERMIT SET	7/31/19



PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C106

Path: S:\PROJECTS\M thru R Projects\Paramount Gold\_1294.0050\_Water and Wastewater Design\2018 A File\1294.0050-SITE PLAN Plot date: Aug 22, 2019-03:21:11pm CAD User: knewson.  
 Xref Filename: I X-TITLE (2) 1



**WELL 5 INFORMATION:**  
 WATER SYSTEM ID NUMBER: TBD  
 WATER SYSTEM NAME: GRASSY MOUNTAIN GOLD MINE  
 LEGAL DESCRIPTION: T21S R44E, SECTION 32, NE NW  
 TAX LOT #100  
 LATITUDE: 43 DEG 42' 19.02" N  
 LONGITUDE: 117 DEG 21' 57.62" W

**POTENTIAL CONTAMINATION WELL SITE PLAN (A)**  
 SCALE: 1:600



  
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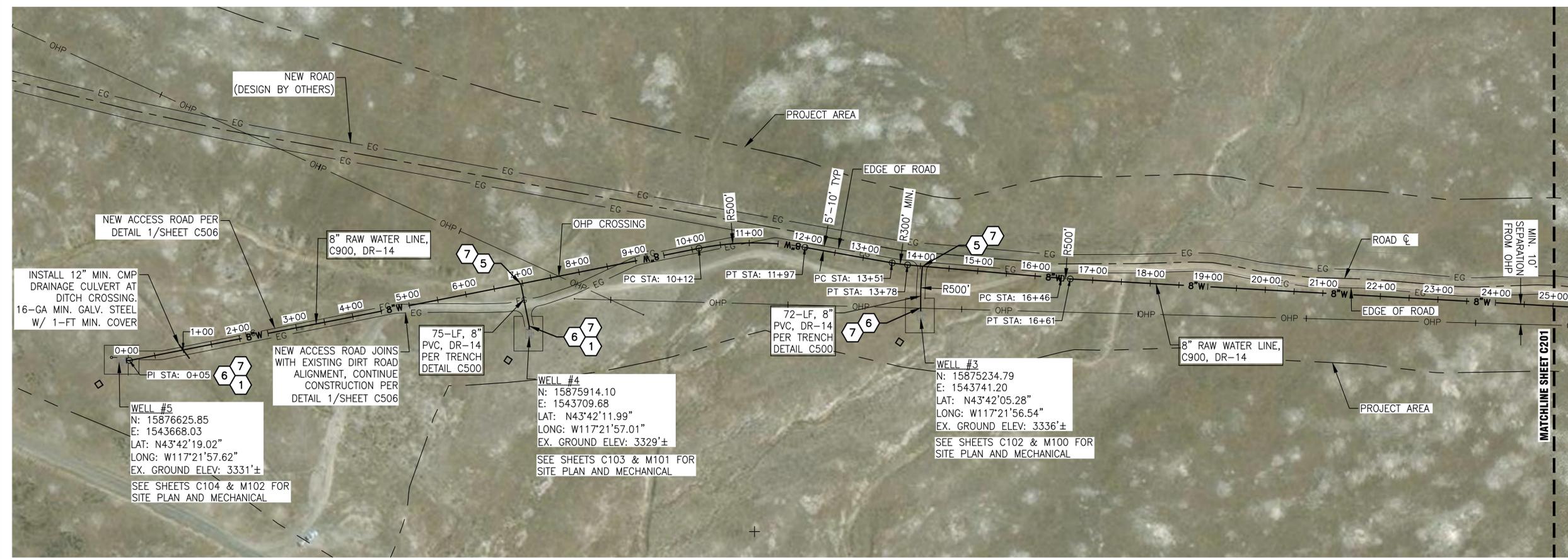
GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 WELL 5 POTENTIAL CONTAMINATION MAP



ITEM	REVISIONS	DESCRIPTION	DATE
0	FINAL PERMIT SET		7/31/19

VERIFY SCALE  
  
 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.  
 PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT  
**C107**

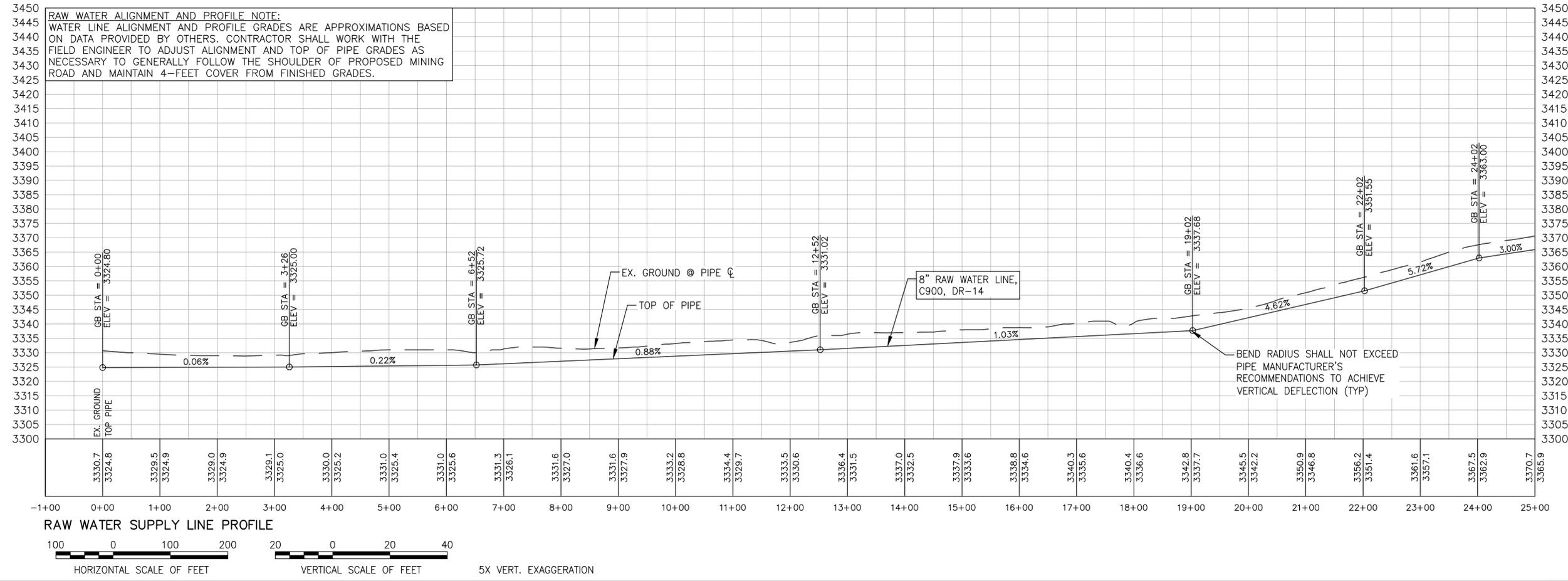
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 Xref File Name: | X-TITLE | X-LINEWORK | X-PLANT SITE BASE\_7-23-19 | X-TITLE (2) |



- FITTINGS**
- 8"-11.25' BEND
  - 8"-22.5' BEND
  - 8"-45' BEND
  - 8"-90' BEND
  - 8X8 TEE
  - 4X8 REDUCER, MECHANICALLY RESTRAINED
  - THRUST BLOCK-C501

**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

**GRASSY MOUNTAIN GOLD MINE WATER & SEWER**  
**CALICO RESOURCES USA CORP.**  
 RAW WATER PLAN & PROFILE 0+00 TO 25+00



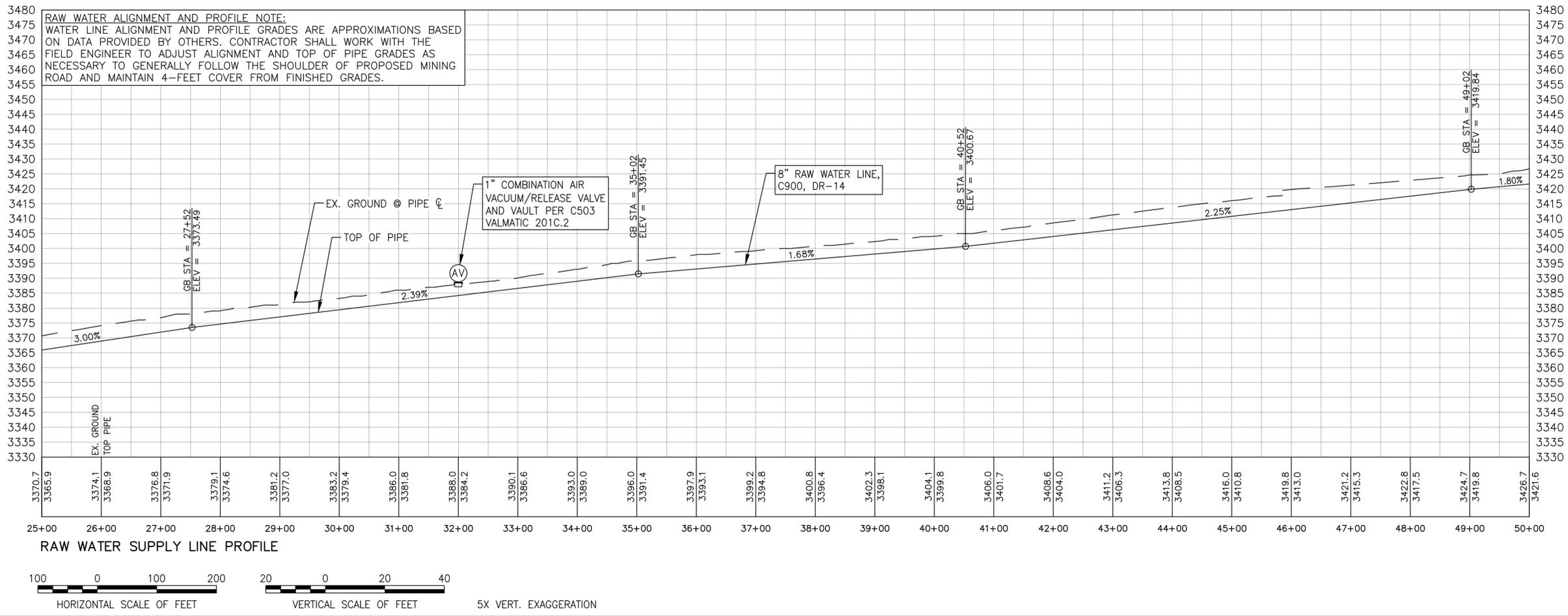
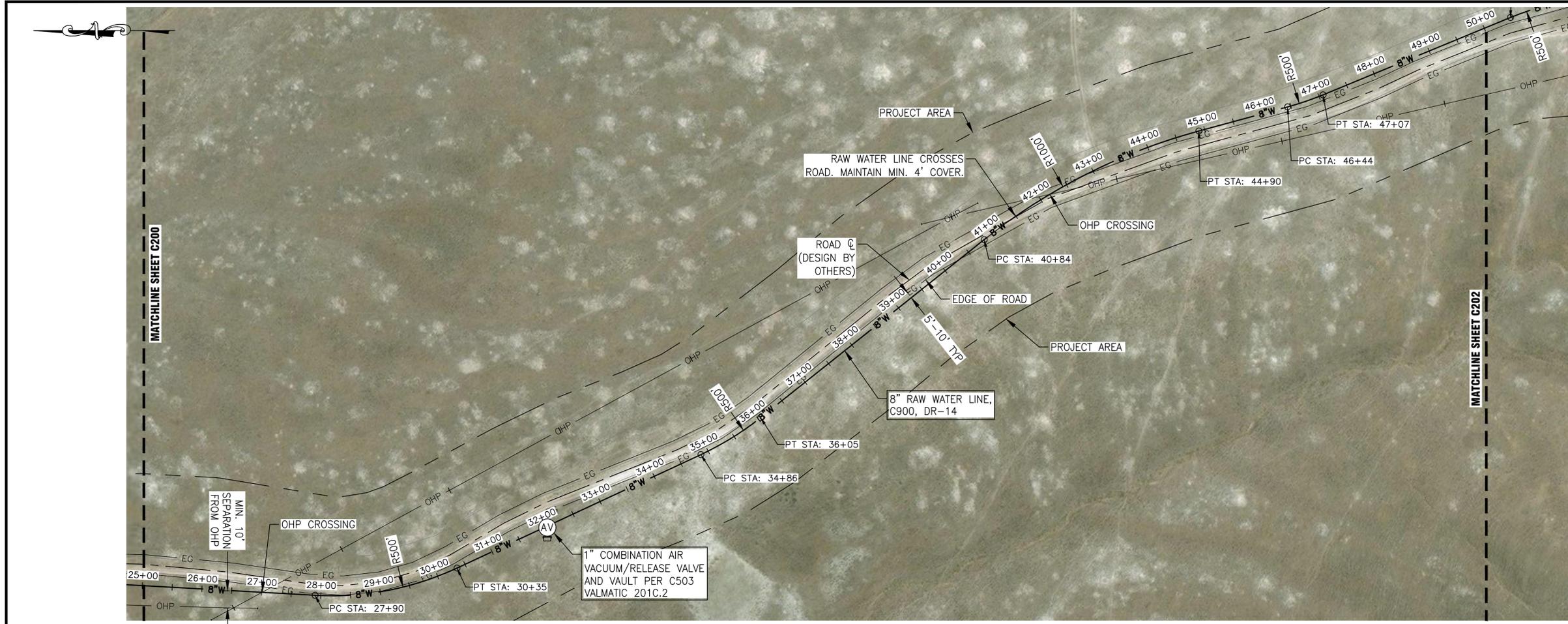
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0	7/31/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

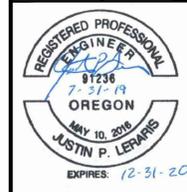
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 Xref File Name: | X-TITLE | X-LINEWORK | X-PLANT SITE BASE\_7-23-19 | X-TITLE (2) |



**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 RAW WATER PLAN & PROFILE 25+00 TO 50+00



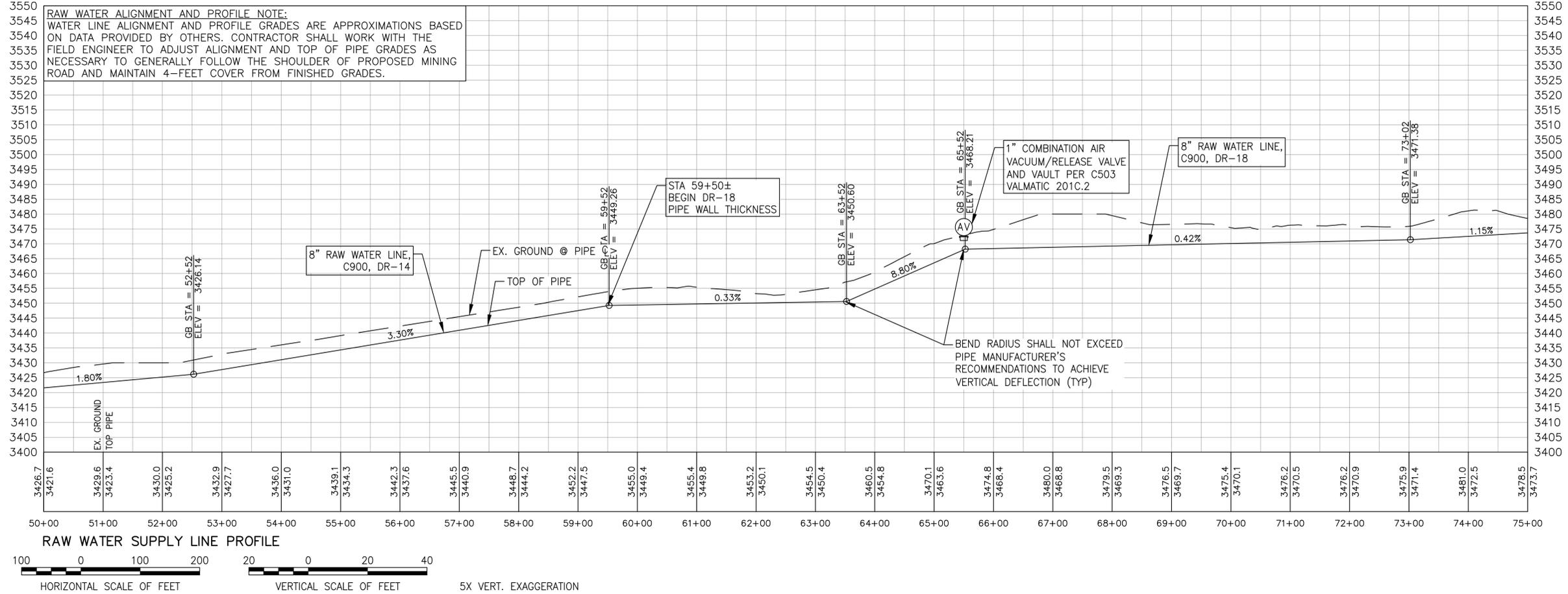
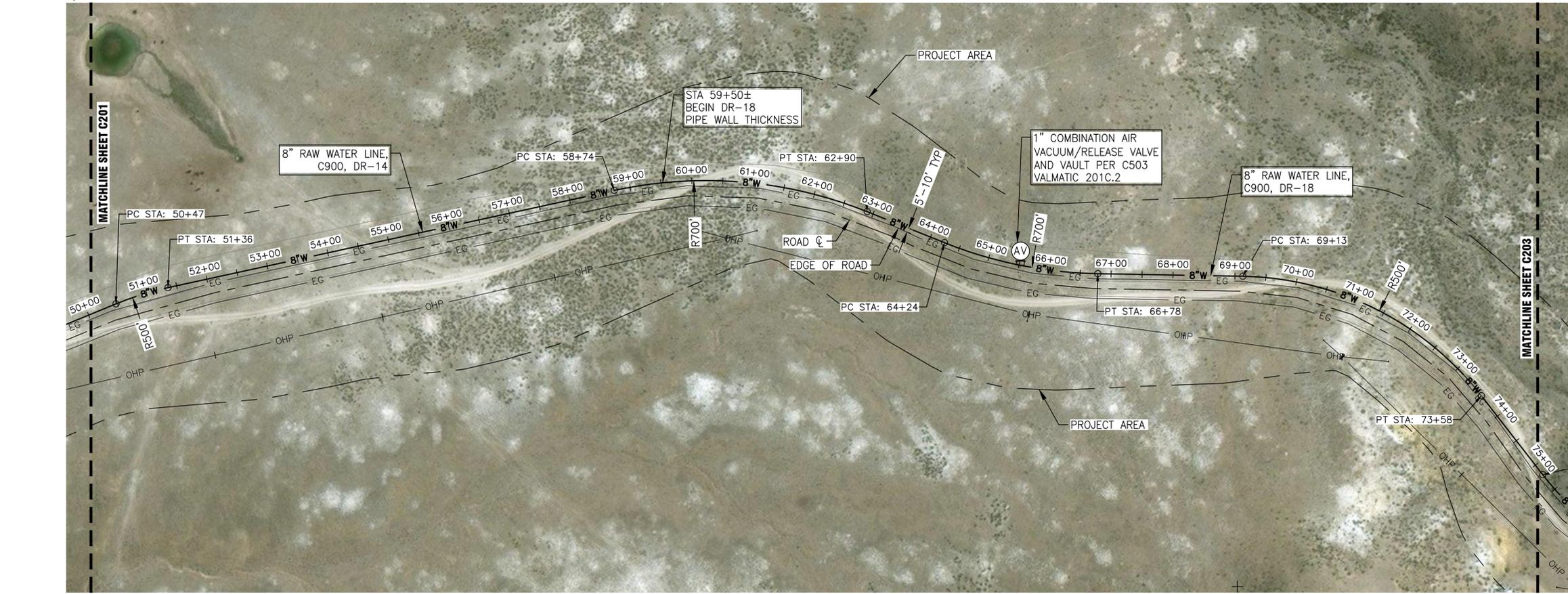
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VERIFY SCALE  
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PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C201**

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GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.

RAW WATER PLAN & PROFILE 50+00 TO 75+00



ITEM	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

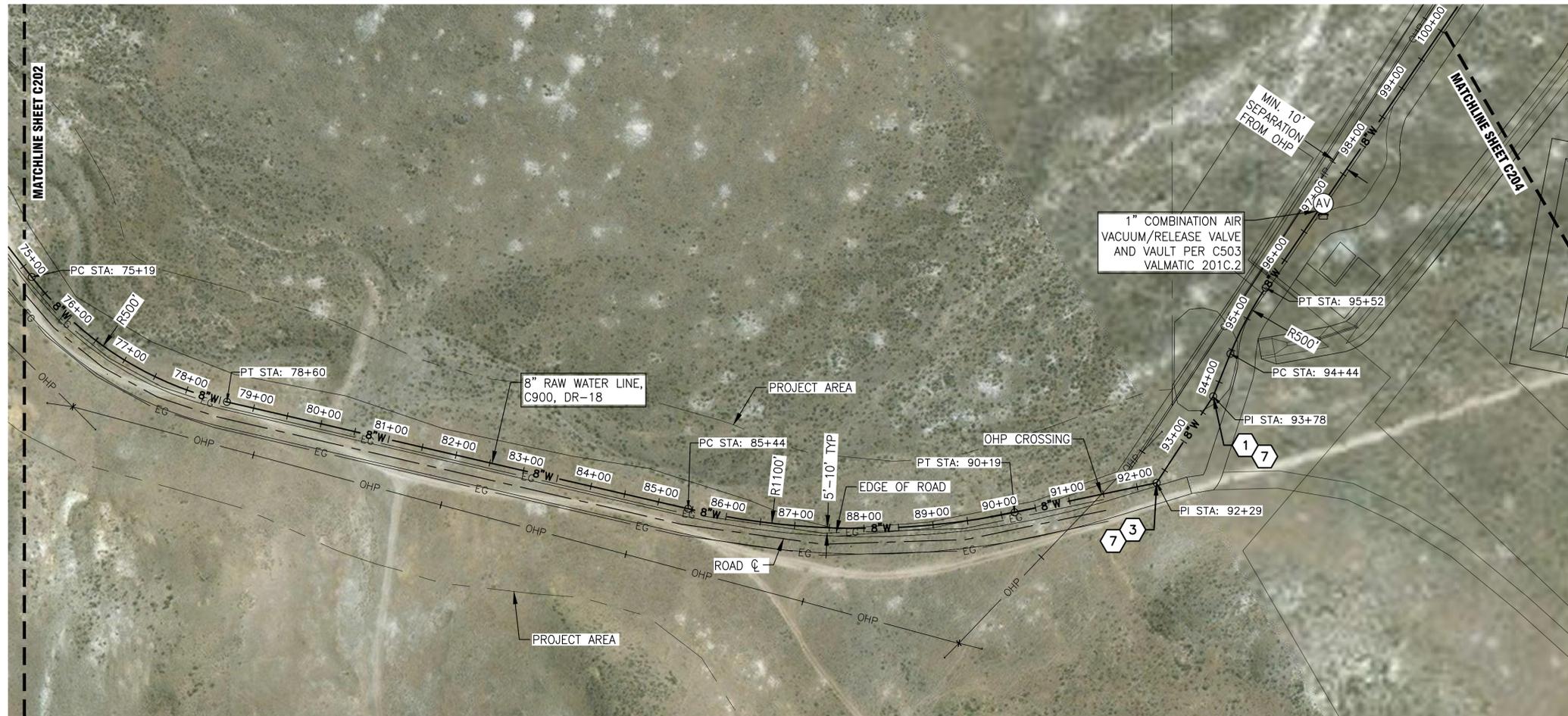
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PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C202

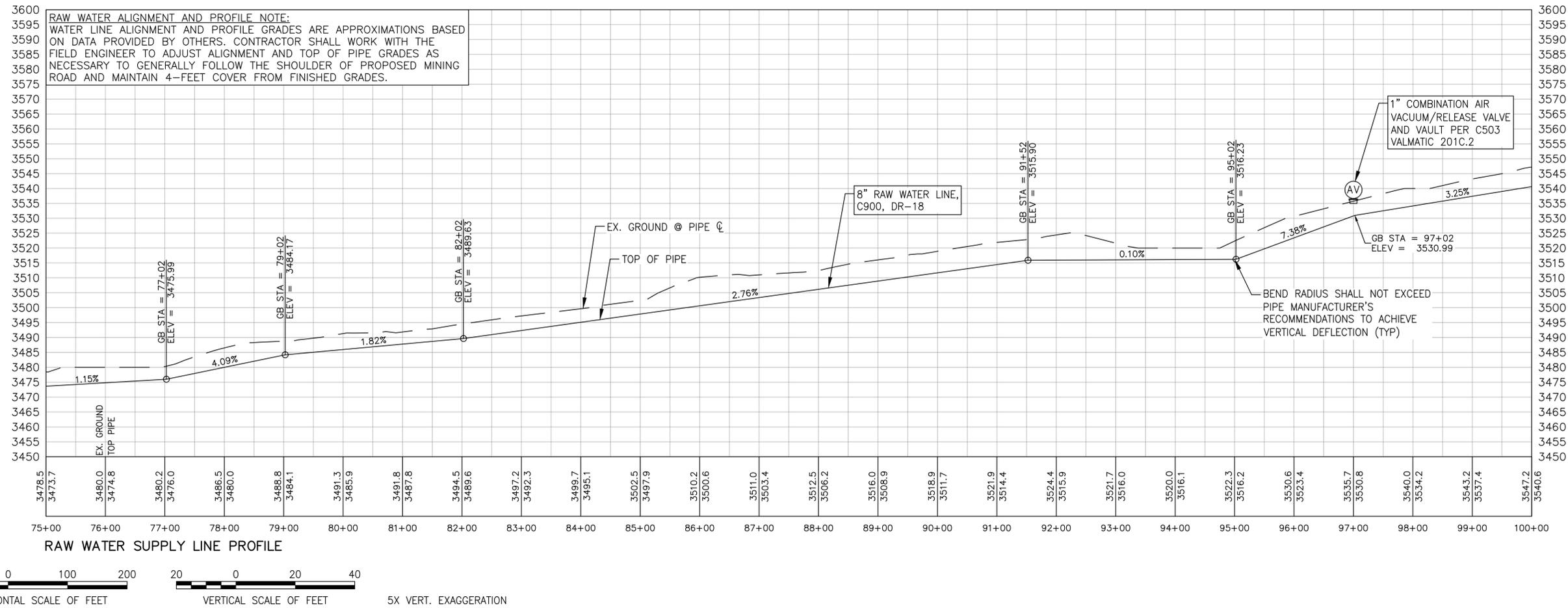
**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

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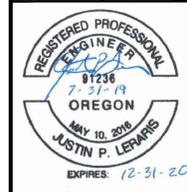
**FITTINGS**

1. 8"-11.25' BEND
2. 8"-22.5' BEND
3. 8"-45' BEND
4. 8"-90' BEND
5. 8X8 TEE
6. 4X8 REDUCER, MECHANICALLY RESTRAINED
7. THRUST BLOCK-C501



**RAW WATER ALIGNMENT AND PROFILE NOTE:**  
 WATER LINE ALIGNMENT AND PROFILE GRADES ARE APPROXIMATIONS BASED ON DATA PROVIDED BY OTHERS. CONTRACTOR SHALL WORK WITH THE FIELD ENGINEER TO ADJUST ALIGNMENT AND TOP OF PIPE GRADES AS NECESSARY TO GENERALLY FOLLOW THE SHOULDER OF PROPOSED MINING ROAD AND MAINTAIN 4-FOOT COVER FROM FINISHED GRADES.

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 RAW WATER PLAN & PROFILE 75+00 TO 100+00

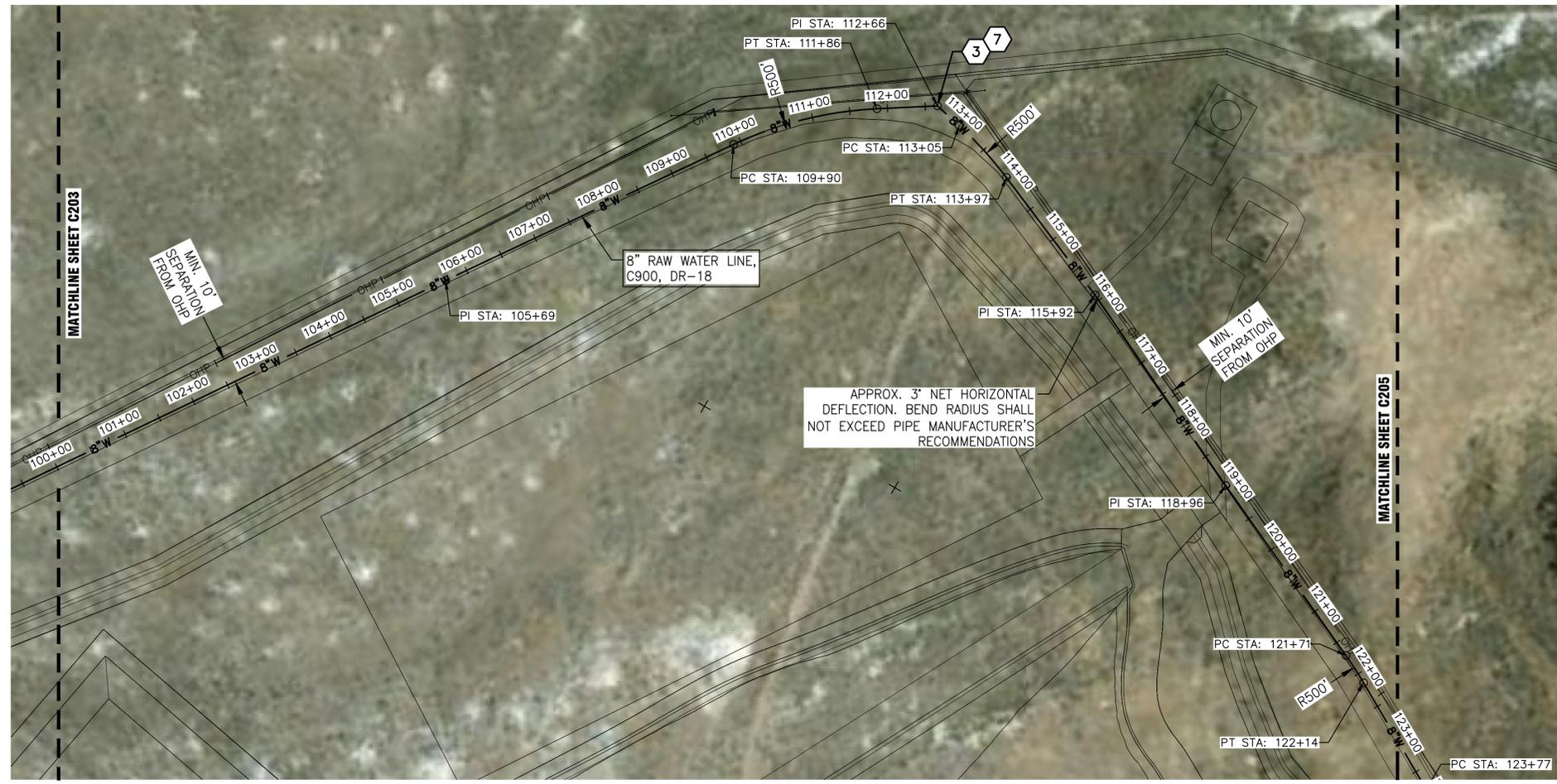


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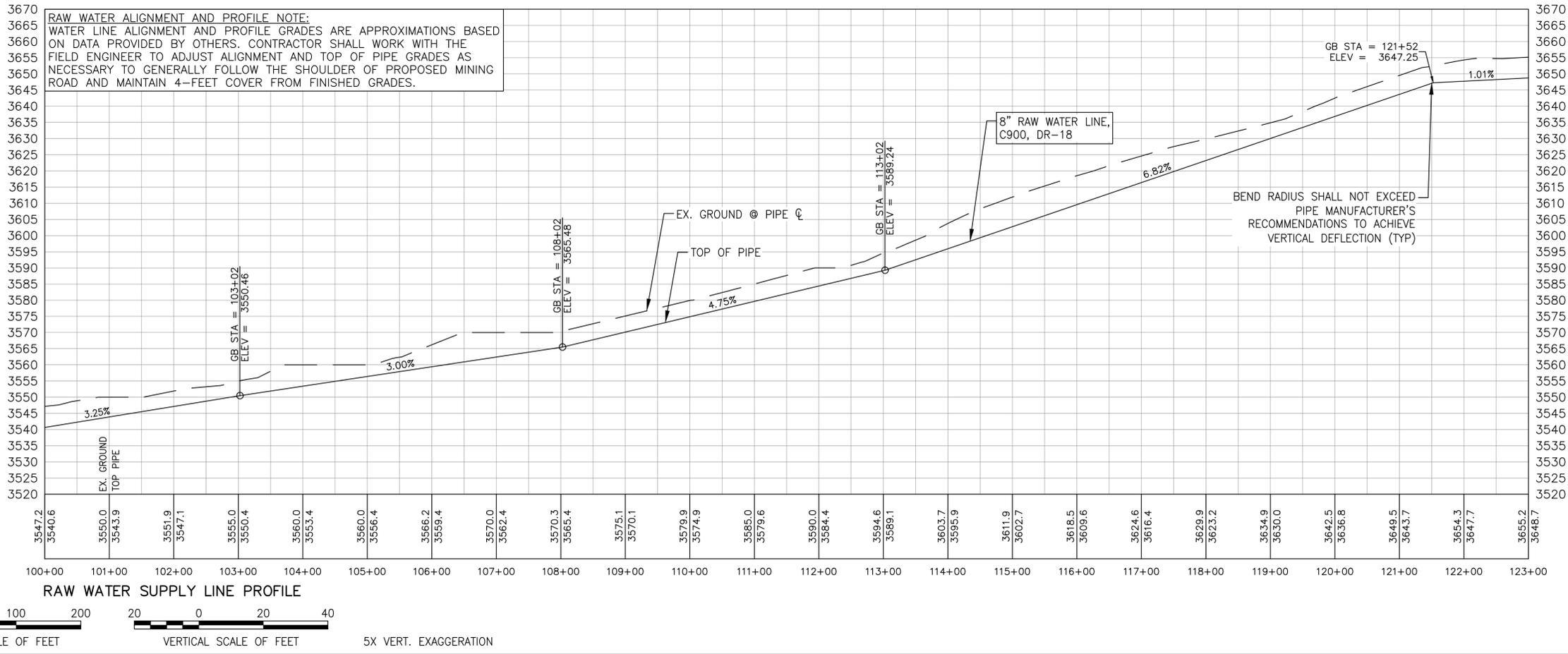
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DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT
<b>C203</b>	

**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

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- FITTINGS**
- 8"–11.25' BEND
  - 8"–22.5' BEND
  - 8"–45' BEND
  - 8"–90' BEND
  - 8X8 TEE
  - 4X8 REDUCER, MECHANICALLY RESTRAINED
  - THRUST BLOCK–C501



**RAW WATER ALIGNMENT AND PROFILE NOTE:**  
 WATER LINE ALIGNMENT AND PROFILE GRADES ARE APPROXIMATIONS BASED ON DATA PROVIDED BY OTHERS. CONTRACTOR SHALL WORK WITH THE FIELD ENGINEER TO ADJUST ALIGNMENT AND TOP OF PIPE GRADES AS NECESSARY TO GENERALLY FOLLOW THE SHOULDER OF PROPOSED MINING ROAD AND MAINTAIN 4- FEET COVER FROM FINISHED GRADES.

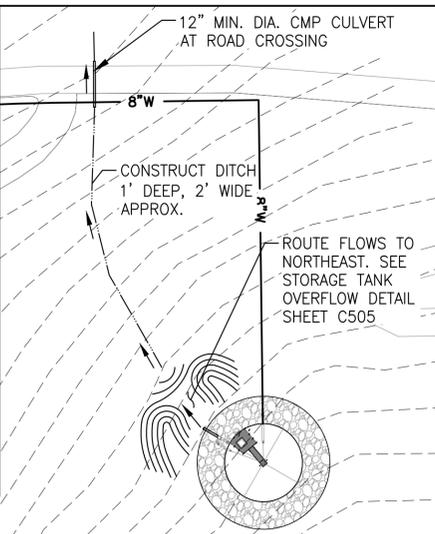
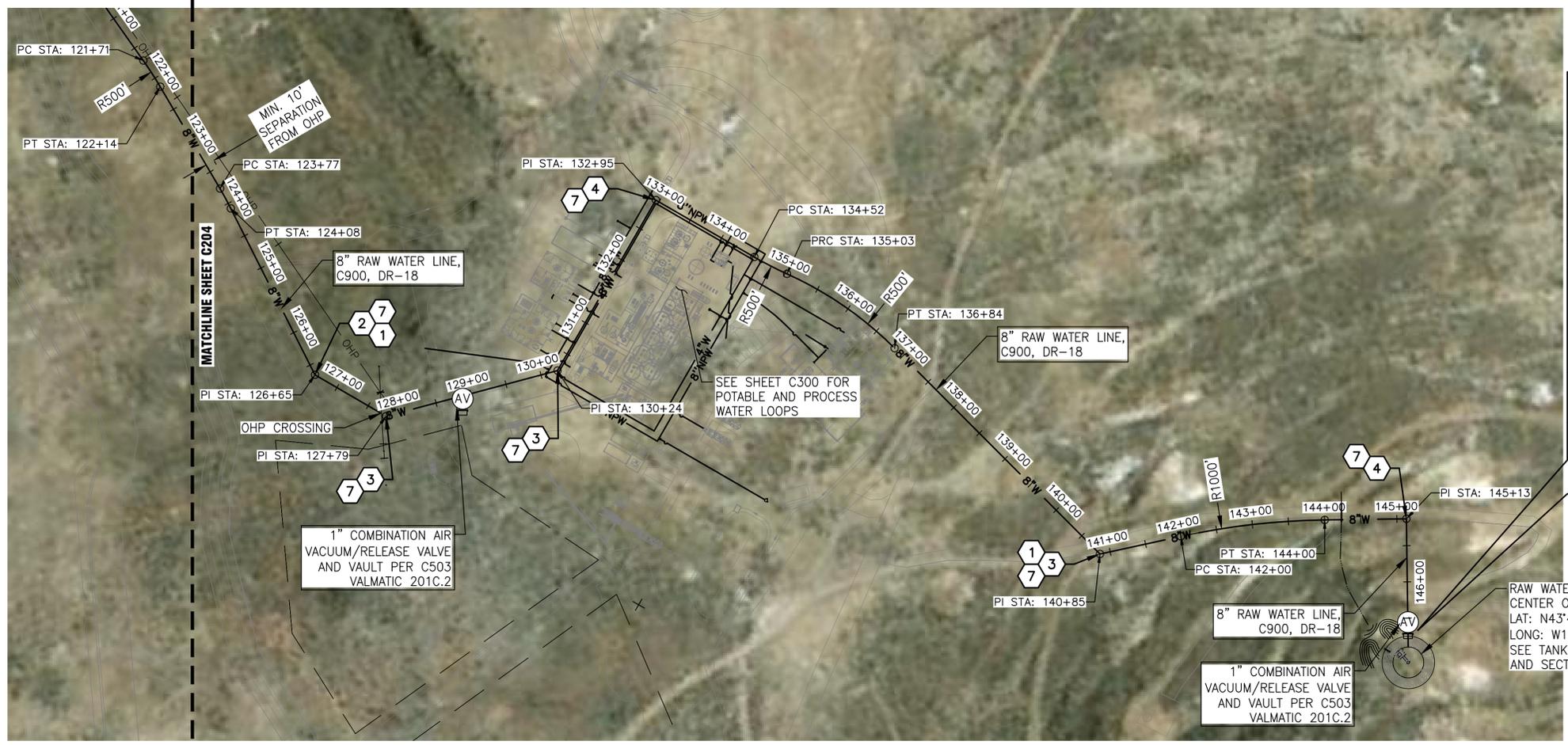


REVISIONS	DATE	DESCRIPTION
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PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT
<b>C204</b>	

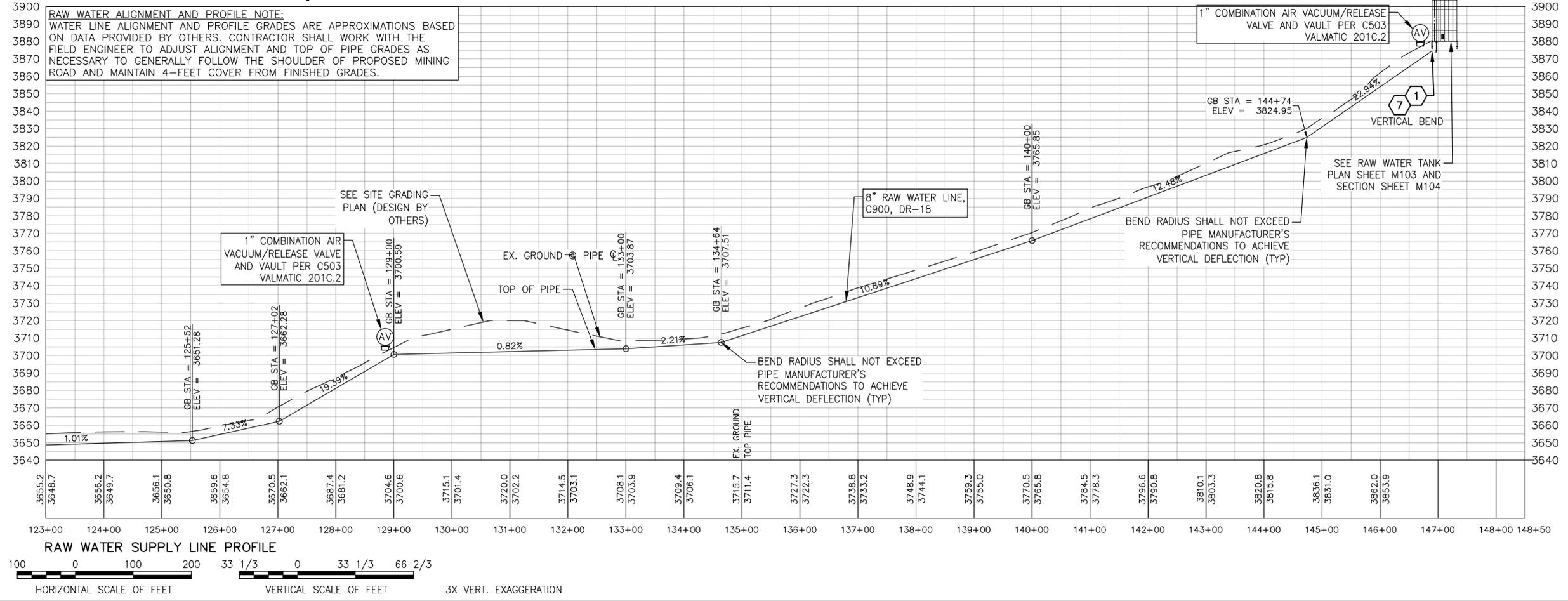
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- FITTINGS**
- 8"-11.25' BEND
  - 8"-22.5' BEND
  - 8"-45' BEND
  - 8"-90' BEND
  - 8X8 TEE
  - 4X8 REDUCER, MECHANICALLY RESTRAINED
  - THRUST BLOCK-C501



**PLAN DETAIL - STORAGE TANK OVERFLOW**  
 SCALE: 1" = 50'

RAW WATER TANK  
 CENTER OF TANK  
 LAT: N43°40'14.10"  
 LONG: W117°21'30.78"  
 SEE TANK PLAN SHEET M103  
 AND SECTION SHEET M104



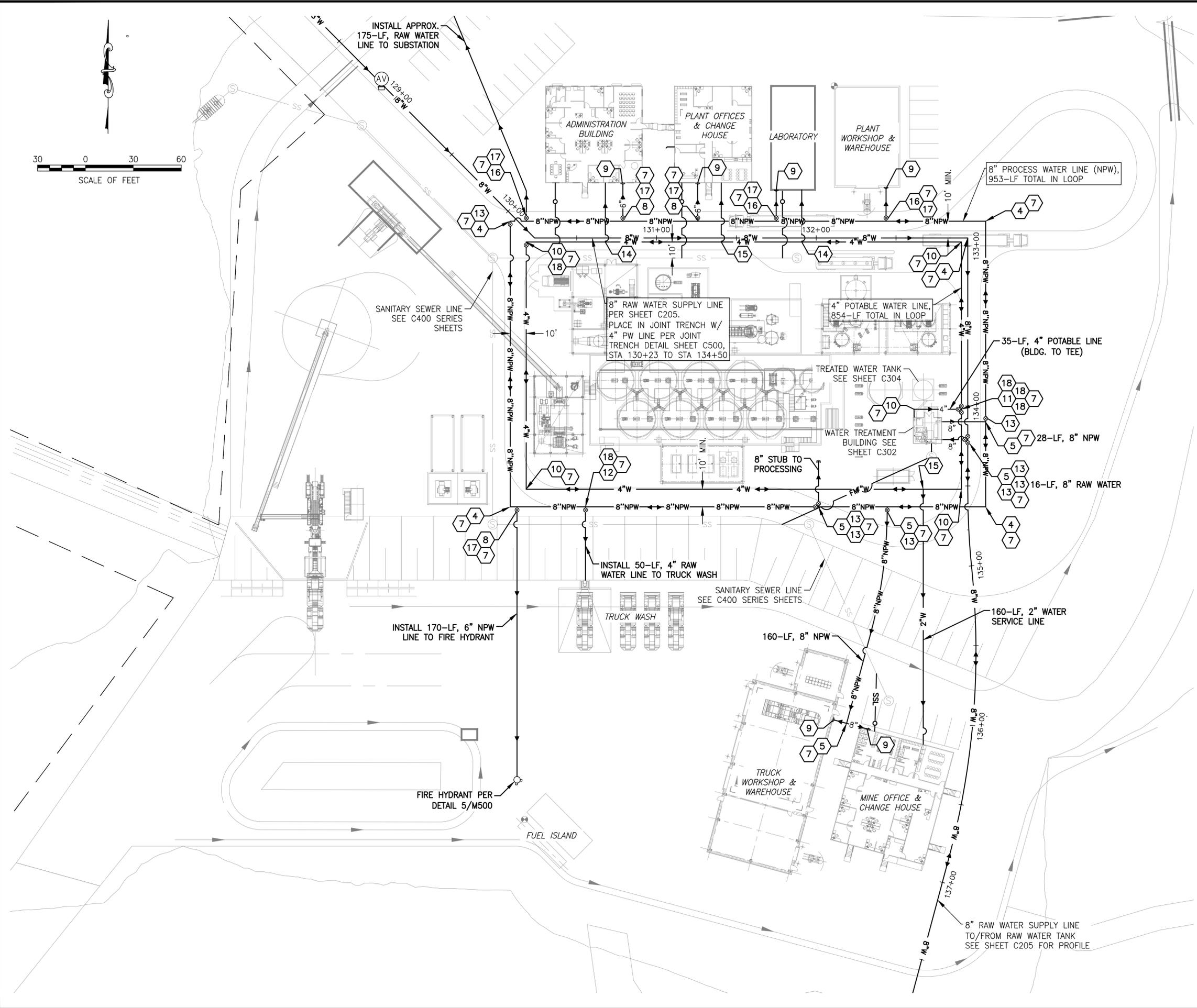
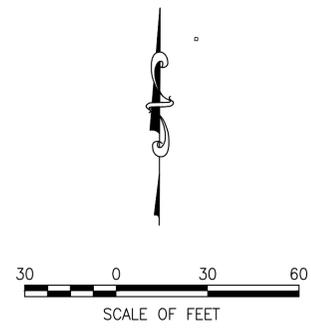
REVISIONS	DATE	DESCRIPTION
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VERIFY SCALE

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C205**

Path: S:\PROJECTS\M thru R Projects\Paramount\_Gold\_1294\0050\_Water and Wastewater Design\2018 A File\name: GRASSY MTN SITE--P&P Plot date: Aug 22, 2019--02:49:07pm CAD User: HWhite.  
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**KEYNOTES** #

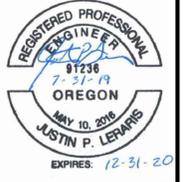
1. 8"-11.25' BEND
2. 8"-22.5' BEND
3. 8"-45' BEND (NOT USED THIS SHEET)
4. 8"-90' BEND
5. 8X8 TEE
6. 4X8 RED./INCREASER
7. THRUST BLOCK-C501
8. 8X6 TEE
9. WALL HYDRANT PER 4/M500
10. 4"-90' BEND
11. 4X4 TEE
12. 8X4 TEE
13. 8" GATE VALVE & VALVE BOX
14. 1" WATER SERVICE SADDLE, CORPORATION STOP AND SERVICE LINE.
15. 2" WATER SERVICE SADDLE, CORPORATION STOP AND SERVICE LINE.
16. FIRE SPRINKLER LINE, TEE & LINE SIZE PER FIRE SPRINKLER SYSTEM DESIGN, 6" MIN.
17. 6" MIN. GATE VALVE & VALVE BOX (SIZE PER FIRE SPRINKLER LINE)
18. 4" GATE VALVE & VALVE BOX

**NOTES**

- a. RAW WATER AND PROCESS WATER LINES THIS SHEET SHALL BE C900 PVC, DR-18 INSTALLED PER TRENCH DETAIL SHEET C500
- b. 4" POTABLE WATER (PW) LINE THIS SHEET SHALL BE C900 PVC, DR-18 INSTALLED PER TRENCH DETAIL SHEET C500
- c. WATER SERVICE LINES TO BE 4710 HDPE, SDR 11
- d. POTABLE/NON-POTABLE HORIZONTAL SEPARATION AND CROSSINGS SHALL BE PER OAR 333-061-0050 (9). "NON-POTABLE" SHALL INCLUDE PROCESS WATER LINES.

**SPF WATER ENGINEERING**  
 300 East Mallard Drive, Suite 350  
 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 POTABLE AND RAW WATER LOOPS

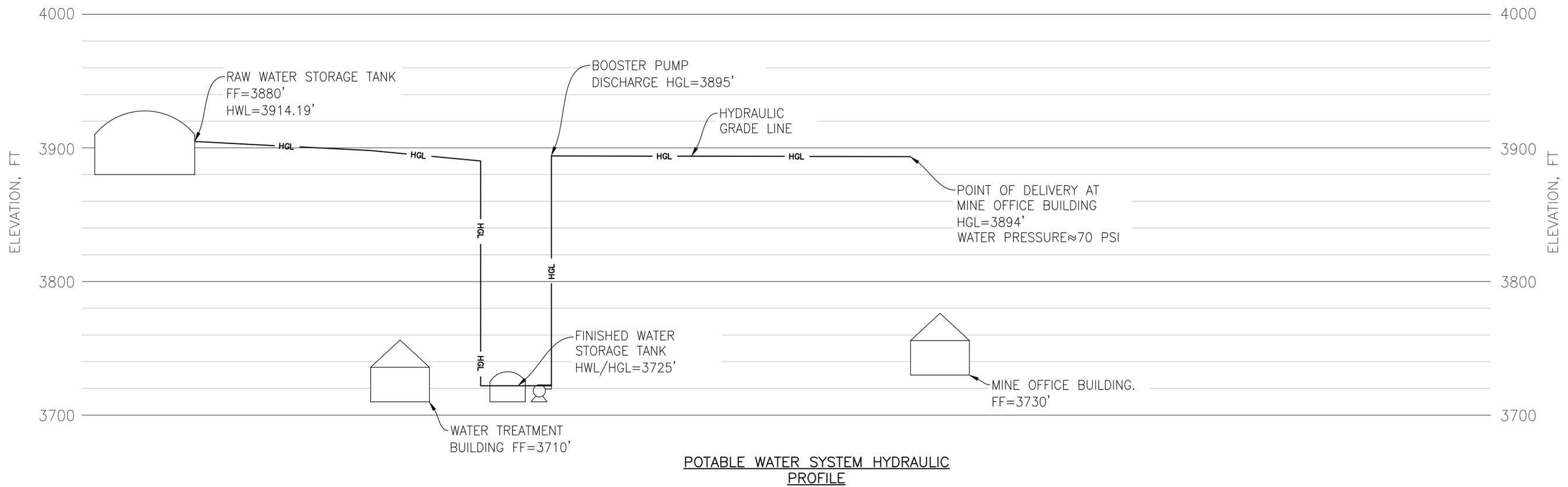


REVISIONS	DATE	DESCRIPTION
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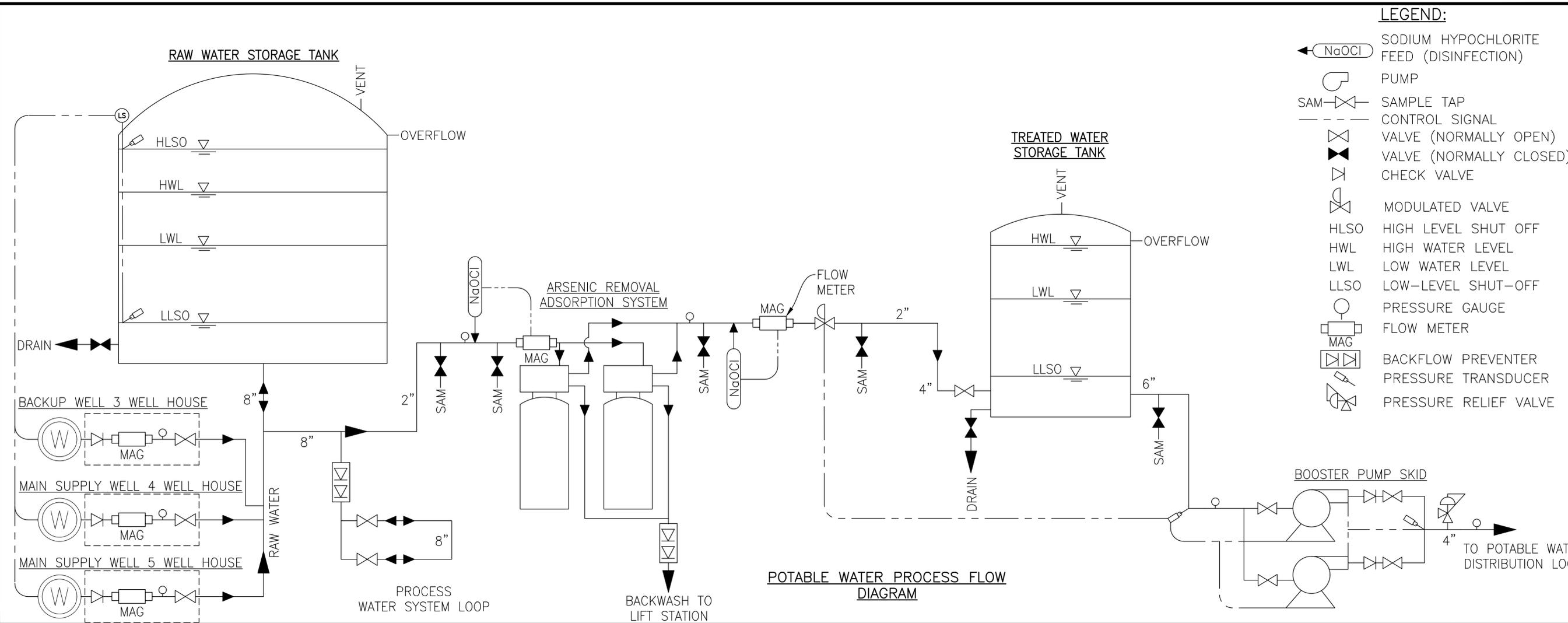
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BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

C300

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 Xref Filename: | XR-TITLE | X-TITLE (2) |



POTABLE WATER SYSTEM HYDRAULIC PROFILE



POTABLE WATER PROCESS FLOW DIAGRAM

- LEGEND:**
- NaOCl SODIUM HYPOCHLORITE FEED (DISINFECTION)
  - PUMP
  - SAM SAMPLE TAP
  - CONTROL SIGNAL
  - VALVE (NORMALLY OPEN)
  - VALVE (NORMALLY CLOSED)
  - CHECK VALVE
  - MODULATED VALVE
  - HLSO HIGH LEVEL SHUT OFF
  - HWL HIGH WATER LEVEL
  - LWL LOW WATER LEVEL
  - LLSO LOW-LEVEL SHUT-OFF
  - PRESSURE GAUGE
  - FLOW METER
  - MAG BACKFLOW PREVENTER
  - PRESSURE TRANSDUCER
  - PRESSURE RELIEF VALVE



GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 POTABLE WATER SYSTEM PFD & HGL



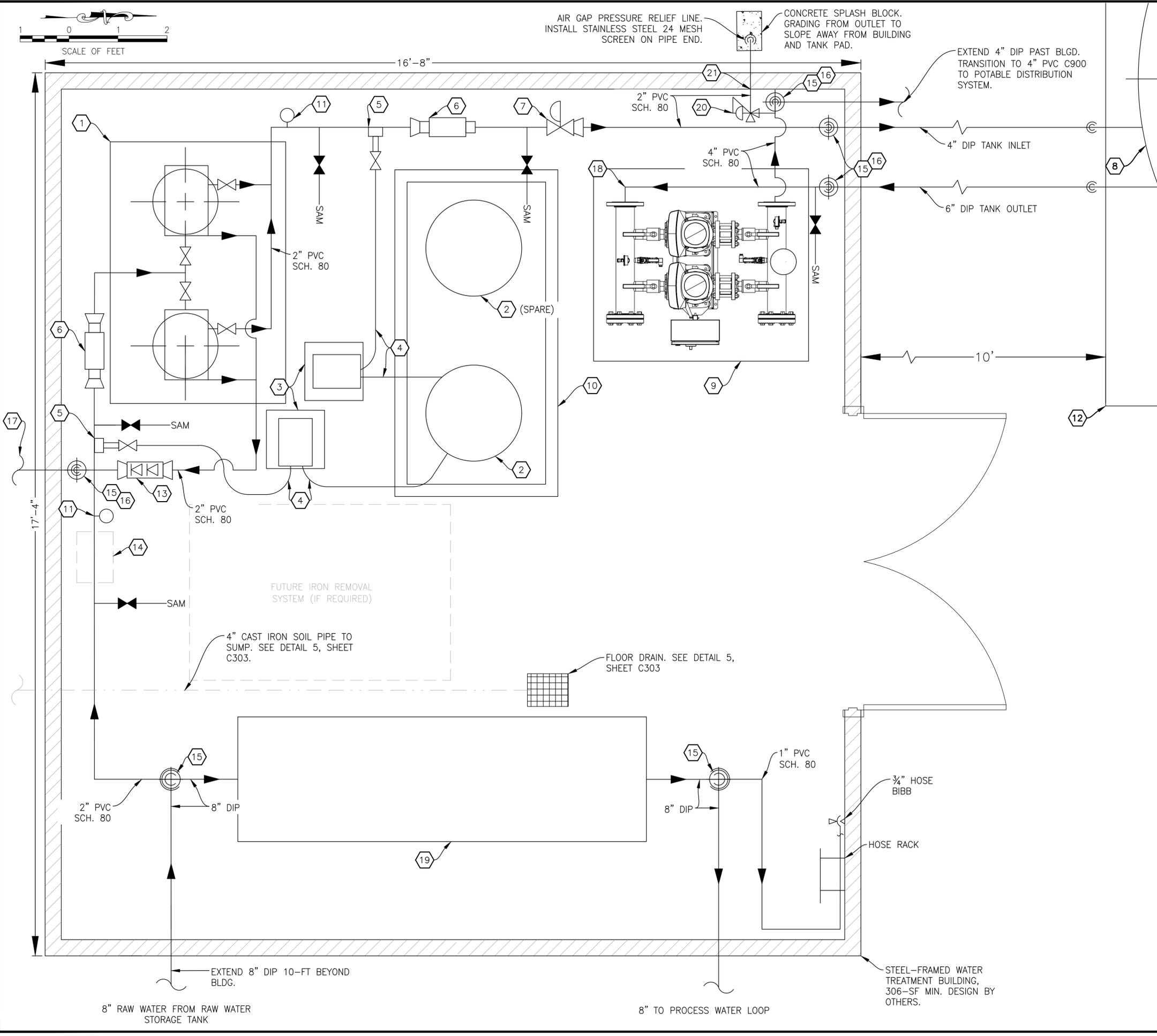
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C301**

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 Xref Filename: | XR-TITLE | X-TITLE (2) |



- GENERAL NOTES:**
- NO WATER FACILITIES SHALL BE CONSTRUCTED PRIOR TO RECEIPT OF OREGON HEALTH AUTHORITY APPROVAL.
  - MATERIALS IN CONTACT WITH POTABLE WATER MUST BE APPROVED BY THE NATIONAL SANITATION FOUNDATION (NSF), AMERICAN WATER WORKS ASSOCIATION (AWWA), AND STATE PLUMBING CODE.
  - ALL THREADED HOSE BIBBS SHALL BE FITTED WITH AN APPROVED BACKFLOW PREVENTION DEVICE.
  - ALL ABOVE-GRADE WATER SYSTEM PIPING SHALL BE PVC AND VALVES SHALL BE BRASS UNLESS OTHERWISE SPECIFIED.
  - SUPPORT MECHANICAL PIPING AS NECESSARY.
  - ALL PIPE SHALL BE PRESSURE TESTED AND DISINFECTED PER OAR 333-061-0050.
  - AVOID HIGH POINTS WHEN ROUTING SODIUM HYPOCHLORITE P.E. TUBING.
- KEYNOTES** #
- ARSENIC REMOVAL ADSORPTION SYSTEM, AEDGE APU26 WITH E33 ADSORPTION MEDIA, OR APPROVED EQUAL.
  - SODIUM HYPOCHLORITE STORAGE DRUMS (2X 55-GAL).
  - SODIUM HYPOCHLORITE METERING PUMP, PULSATRON MP SERIES LMA2TA-VTC1-500, OR APPROVED EQUAL. FLOW PACE FROM MAGNETIC FLOW METERS.
  - 1/4-IN PE TUBING.
  - SODIUM HYPOCHLORITE INJECTION QUILL; KOFLO PVC CERAMIC QUILL OR APPROVED EQUAL.
  - 1-INCH MAGNETIC FLOW METER, ENDRESS+HAUSER 10W, OR APPROVED EQUAL.
  - 1-INCH MODULATING CONTROL VALVE. ASSURED AUTOMATION 101 SERIES VALVE WITH S4 SERIES ACTUATOR, OR APPROVED EQUAL.
  - WELDED STAINLESS STEEL 13,000-GAL TREATED WATER STORAGE TANK, 12-FT DIA, SUPERIOR STEEL (208) 454-8000 OR APPROVED EQUAL, SEE SHEET C304.
  - DUPLEX BOOSTER PUMP SKID, GRUNDFOS HYDRO MULTI-E 2CRE15-3, WITH 7.5-HP MOTORS, WITH 3-GAL. PRESSURE TANK OR APPROVED EQUAL.
  - SECONDARY CONTAINMENT, ULTRATECH ULTRA-SPILL PALLET PLUS CONTAINMENT PALLET 9610 P2 2-DRUM WITH NO DRAIN, OR APPROVED EQUAL.
  - GLYCERINE FILLED PRESSURE GAUGE (RANGE 0 TO 160 PSI)
  - REINFORCED CONCRETE TANK FOUNDATION. SEE SHEET S1.0 AND S2.0.
  - 1-INCH REDUCED PRESSURE BACKFLOW PREVENTER, WATTS MODEL 007 OR APPROVED EQUAL.
  - FUTURE BAG FILTER, IF REQUIRED.
  - FLOOR PENETRATION PER DETAIL 1, SHEET C303.
  - TRANSITION FROM DIP (BELOW FINISHED FLOOR) TO PVC OR PE (ABOVE FINISHED FLOOR). PLACE ISOLATION VALVE AT TRANSITION.
  - 2" PVC BACKWASH TO LIFT STATION MANHOLE. SEE DETAIL 3, SHEET C303.
  - PRESSURE TRANSDUCER IN TEE FOR POTABLE WATER TANK, RANGE 0-15 PSI. CONNECT TO ACTUATED CONTROL VALVE ON TANK INLET LINE.
  - 8-INCH WATTS REDUCED PRESSURE BACKFLOW PREVENTER ASSEMBLY, SERIES LF909, OR APPROVED EQUAL. PROVIDE NRS GATE VALVES ON INLET AND OUTLET. PROVIDE STRAINER. INSTALL AIR GAP AT RELIEF VALVE OUTLET AND ROUTE TO NEAREST FLOOR DRAIN.
  - PRESSURE RELIEF VALVE 1". CLA-VAL 55B-60 OR APPROVED EQUAL.
  - WALL PENETRATION WITH WATER TIGHT SEAL. BRACE PIPE AS REQUIRED.

**SPF WATER ENGINEERING**  
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 Boise, Idaho 83706  
 Tel (208) 383-4140 Fax (208) 383-4156

**GRASSY MOUNTAIN GOLD MINE WATER & SEWER**  
**CALICO RESOURCES USA CORP.**  
**WATER TREATMENT MECHANICAL LAYOUT**

**REGISTERED PROFESSIONAL ENGINEER**  
 91236  
 7-31-19  
 OREGON  
 MAY 10, 2016  
 JUSTIN P. LERARS  
 EXPIRES: 12-31-20

REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

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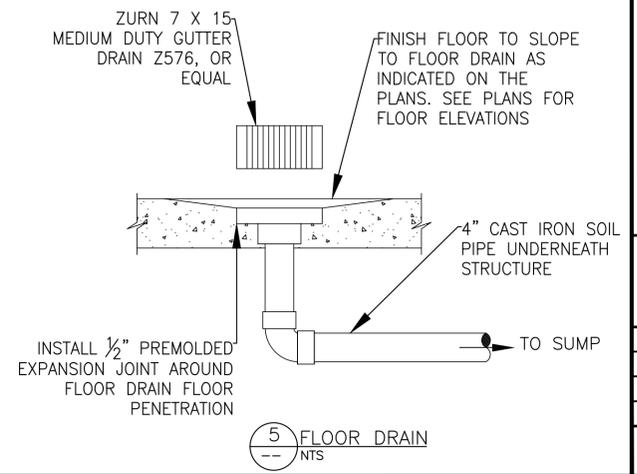
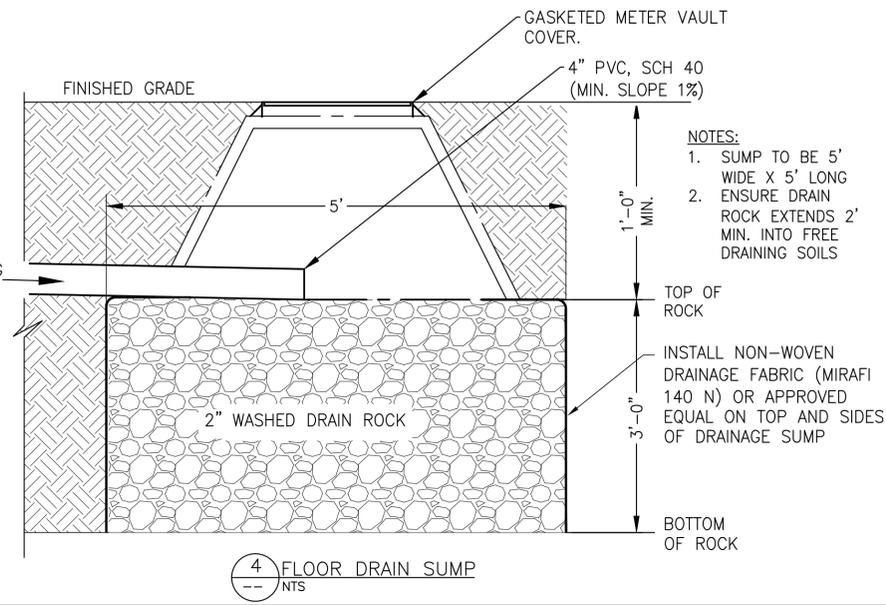
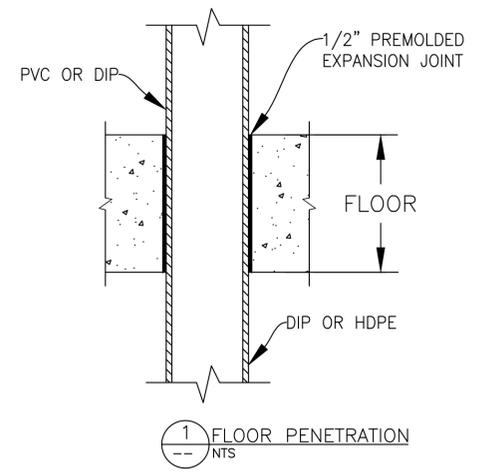
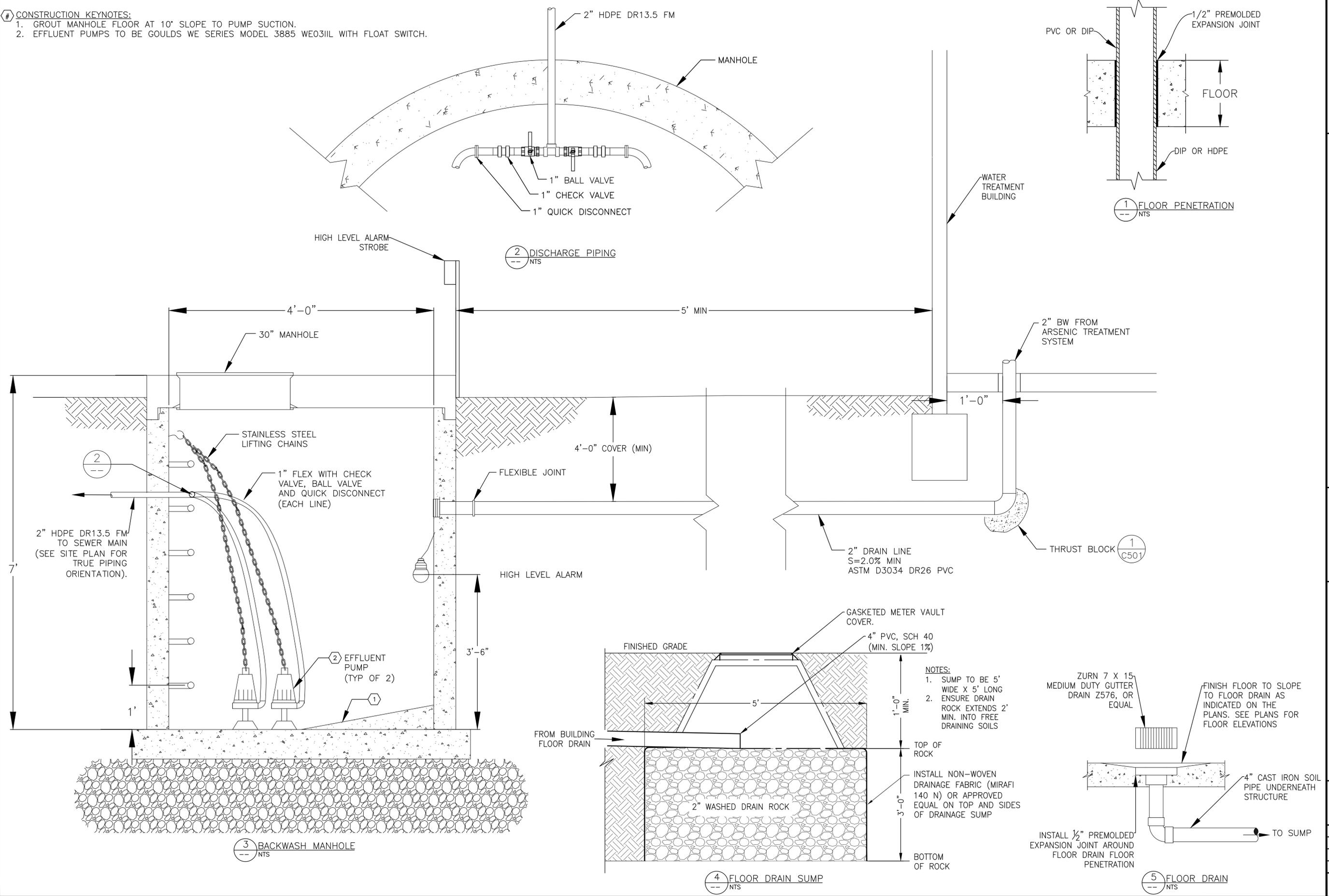
PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C302**

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 Xref Filename: | XR-TITLE | X-TITLE (2) |

**CONSTRUCTION KEYNOTES:**

1. GROUT MANHOLE FLOOR AT 10° SLOPE TO PUMP SUCTION.
2. EFFLUENT PUMPS TO BE GOULDS WE SERIES MODEL 3885 WE03IIL WITH FLOAT SWITCH.



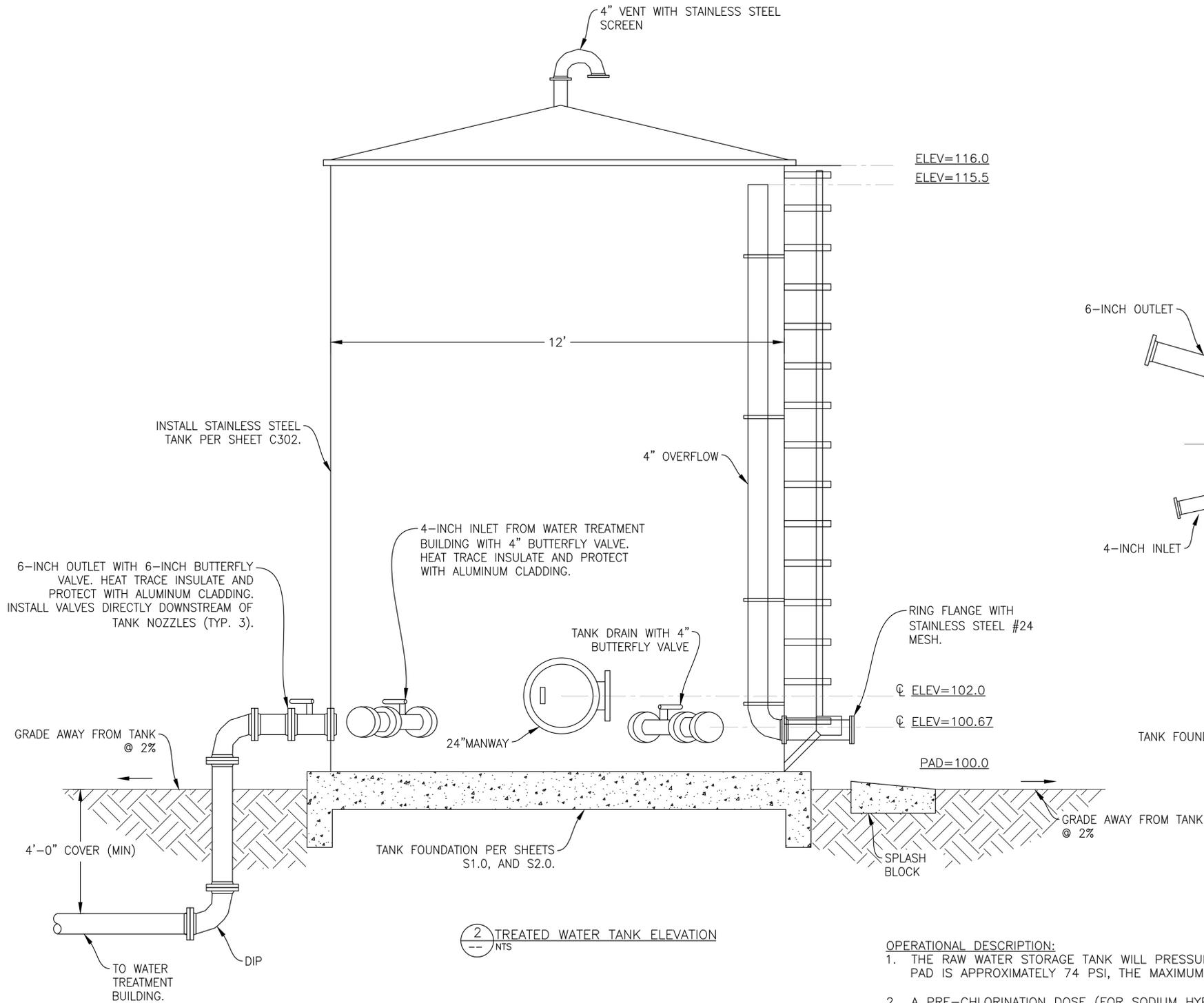
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

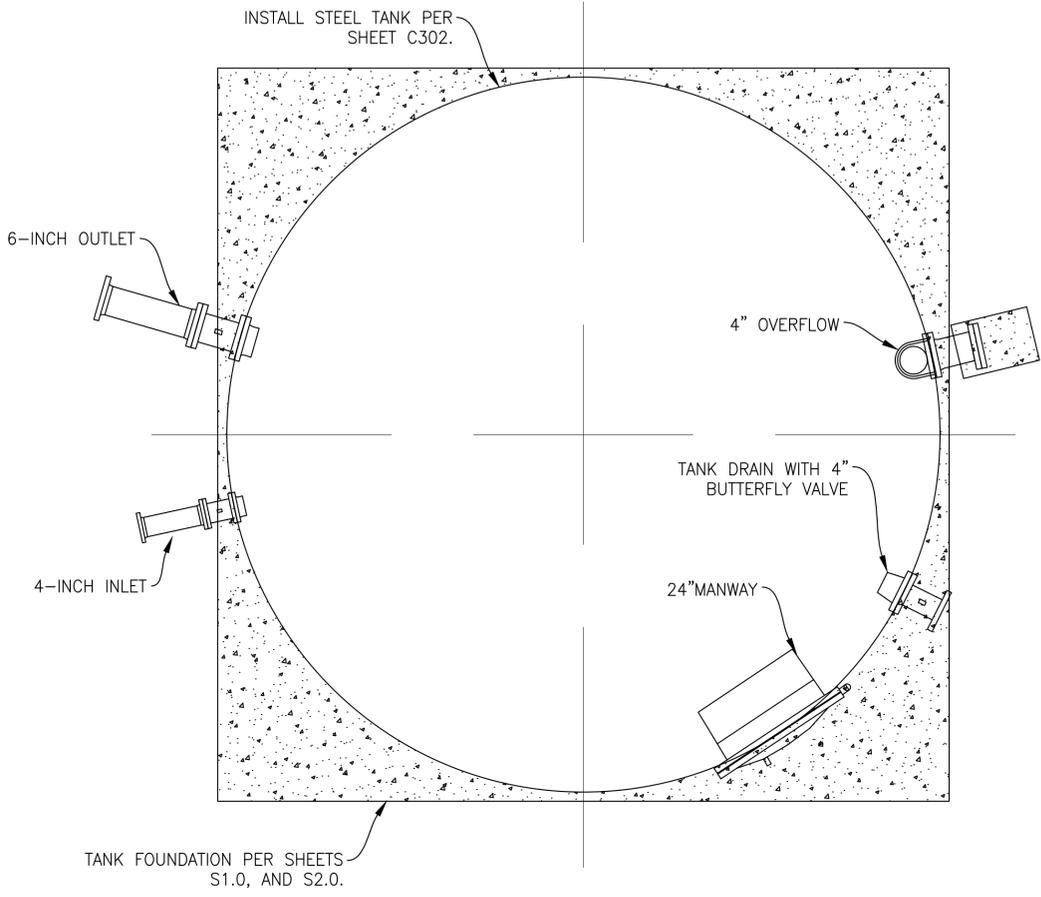
PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

**C303**

Path: S:\PROJECTS\thru R Projects\Paramount Gold\_1294\0050\_Water and Wastewater Design\2018 A File\Process Flow Diagram Plot date: Aug 22, 2019-03:14:32pm CAD User: HWhite.  
 Xref Filename: | XR-TITLE | X-TITLE (2) |



2 TREATED WATER TANK ELEVATION  
 --- NTS



1 TREATED WATER TANK PLAN  
 --- NTS

**NOTES:**

- INSULATION SHALL BE A ONE-PIECE MOLDED GLASS FIBER MATERIAL MANUFACTURED BY SCHULLER, KNAUF, OR OWENS CORNING. PROVIDE ALUMINUM JACKET AND VAPOR BARRIER. THE INSULATION SHALL CONFORM TO ASTM C547. INSULATION SHALL HAVE A THICKNESS OF 2 INCHES.
- ALUMINUM JACKET SHALL COMPLY WITH ASTM B209 AND SHALL BE A NOMINAL THICKNESS OF AT LEAST 0.020 INCH, WITH AN EMBOSSED FINISH. A FACTORY-APPLIED ASPHALT AND KRAFT PAPER VAPOR BARRIER OR POLYETHYLENE FILM AND KRAFT PAPER BARRIER SHALL EXTEND THE FULL WIDTH OF THE JACKET. JACKETING SHALL BE HELD IN PLACE WITH STAINLESS STEEL SECURING BANDS UNIFORMLY SPACED AT NOT MORE THAN 18 INCHES TO PRODUCE TIGHT JOINTS WITHOUT BULGING.
- EXTERIOR PIPING SHALL BE PROVIDED WITH 110 VOLT HEAT TRACE SYSTEM DESIGNED TO MAINTAIN TEMPERATURE OF 50°F WITH A ΔT OF 90°F. HEAT TRACE SYSTEM SHALL BE RAYCHEM CHEMELEX AUTO-TRACE, CHROMALOX SRF, OR EQUAL. INSTALLATION SHALL BE PER MANUFACTURER RECOMMENDATIONS AND SHALL CONFORM TO NEC.
- STEEL PIPE AND FITTINGS SHALL BE PROVIDED W/FLANGES CONFORMING TO ANSI B16.5, PRESSURE CLASS 150. FITTINGS TO BE HDPE OR DUCTILE IRON AS INDICATED ON DRAWINGS, ANSI/NSF APPROVED. HDPE FITTINGS SHALL BE RATED FOR 200 PSI.

**OPERATIONAL DESCRIPTION:**

- THE RAW WATER STORAGE TANK WILL PRESSURIZE THE ARSENIC TREATMENT UNIT VIA GRAVITY. THE MINIMUM STATIC PRESSURE AT THE TREATMENT PAD IS APPROXIMATELY 74 PSI, THE MAXIMUM IS 88 PSI.
- A PRE-CHLORINATION DOSE (FOR SODIUM HYPOCHLORITE) WILL BE INJECTED UPSTREAM OF THE ARSENIC TREATMENT UNIT BASED ON FLOW PACING FROM A MAGNETIC FLOW METER LOCATED ON THE INLET SIDE OF THE ARSENIC TREATMENT UNIT.
- A POST-CHLORINATION DOSE (FOR SODIUM HYPOCHLORITE) WILL BE INJECTED DOWNSTREAM OF THE ARSENIC TREATMENT UNIT BASED ON FLOW PACING FROM A MAGNETIC FLOW METER LOCATED ON THE OUTLET SIDE OF THE ARSENIC TREATMENT UNIT.
- TREATED WATER FROM THE ARSENIC TREATMENT UNIT WILL FLOW INTO THE TREATED WATER STORAGE TANK. THE TANK LEVEL WILL BE MODULATED BY A MODULATING CONTROL VALVE (MCV) LOCATED ON THE OUTLET LINE FROM THE ARSENIC TREATMENT UNIT. THE MCV WILL OPERATE BASED ON A PRESSURE TRANSDUCER LOCATED ON THE OUTLET LINE FROM THE TREATED WATER STORAGE TANK (UPSTREAM OF THE BOOSTER PUMP SKID). THE SYSTEM WILL OPERATE BASED ON THE FOLLOWING WATER LEVELS IN THE TREATED WATER TANK:
  - MCV CLOSED: 15-FT (HWL)
  - MCV OPEN: 13-FT (LWL)
  - BOOSTER PUMP SHUTOFF: 3-FT (LSSO)
- TREATED WATER FROM THE TREATED WATER STORAGE TANK WILL FLOW BY GRAVITY TO THE PRE-PACKAGED BOOSTER PUMP STATION, WHICH WILL PRESSURIZE A PRESSURE TANK AND THEN CONTINUE ON TO THE POTABLE WATER DISTRIBUTION SYSTEM.
- THE BOOSTER PUMP STATION WILL OPERATE BASED ON A PRESSURE SET POINT VIA A PRESSURE TRANSDUCER ON THE DISTRIBUTION SIDE OF THE BOOSTER PUMP SKID. EACH PUMP WILL BE CONTROLLED BY A VFD TO MAINTAIN CONSTANT PRESSURE WITH VARIABLE DEMAND.

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

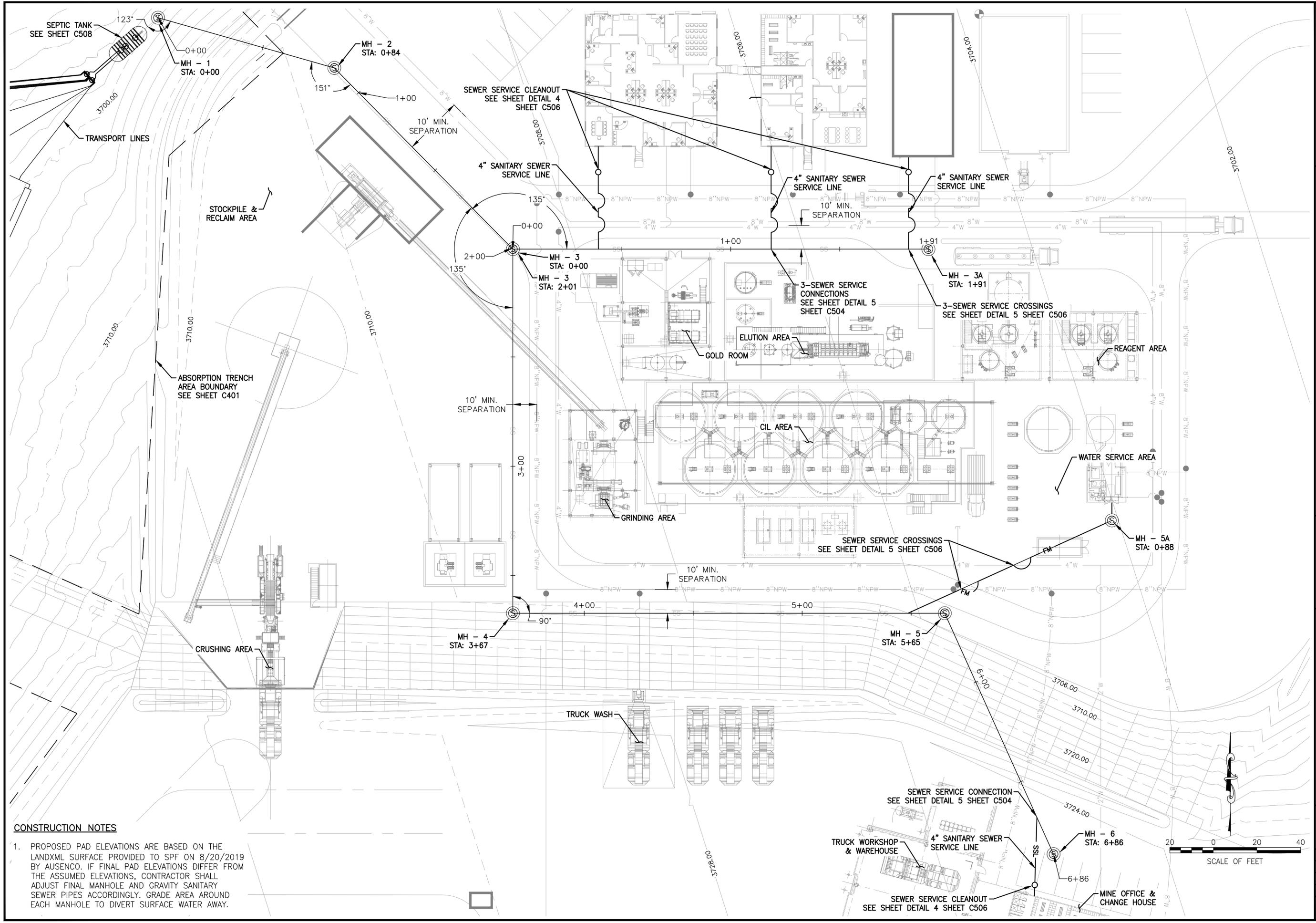
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C304

SPF WATER ENGINEERING  
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 Boise, Idaho 83706  
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Path: S:\PROJECTS\M thru R Projects\Paramount\_Gold\_1294\0050\_Water and Wastewater Design\2018 A File Name: GRASSY MTN\_SEWER C400-C404 Plot date: Aug 22, 2019-01:00:54pm CAD User: HWhite.  
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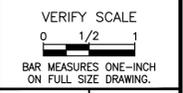


**CONSTRUCTION NOTES**

1. PROPOSED PAD ELEVATIONS ARE BASED ON THE LANDXML SURFACE PROVIDED TO SPF ON 8/20/2019 BY AUSENCO. IF FINAL PAD ELEVATIONS DIFFER FROM THE ASSUMED ELEVATIONS, CONTRACTOR SHALL ADJUST FINAL MANHOLE AND GRAVITY SANITARY SEWER PIPES ACCORDINGLY. GRADE AREA AROUND EACH MANHOLE TO DIVERT SURFACE WATER AWAY.



REVISIONS	DATE	DESCRIPTION
0	8/22/19	FINAL PERMIT SET



PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

**C400**

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 Xref Filename: | X-TITLE | X-LINEWORK | X-PLANT SITE BASE\_7-23-19 | X-TITLE (2)

**CONSTRUCTION NOTES**

1. CONTRACTOR SHALL FOLLOW OAR 340-071-0520 RULES AND REGULATIONS.
2. THIS SYSTEM SHALL BE INSTALLED UNDER DRY SOIL CONDITIONS TO REDUCE SMEARING. IF SMEARING OCCURS, THE SMEARED AREAS SHALL BE RAKED.
3. THE SITE OF DISTURBANCE MUST BE RE-SEEDED.
4. BOTH THE INITIAL AND REPLACEMENT ABSORPTION TRENCH AREAS ARE TO BE PROTECTED FROM TRAFFIC, COVER, DEVELOPMENT OR OTHER POTENTIAL DISTURBANCE OF NATURAL SOIL CONDITIONS.
5. THE ABSORPTION TRENCH AREAS MUST NOT BE SUBJECTED TO EXCESSIVE SATURATION DUE TO: BUT NOT LIMITED TO; ARTIFICIAL DRAINAGE OF GROUND SURFACES, ROADS, DRIVEWAYS AND BUILDING DOWN SPOUTS.
6. IF ROADS ARE CUT DOWNSLOPE OF THE ABSORPTION TRENCH AREAS THE CONTRACTOR SHALL PROVIDE A MINIMUM SETBACK OF 50-FT.
7. ABSORPTION TRENCHES SHALL NOT BE CONSTRUCTED WITHIN 100-FT OF A WELL.
8. ALL WORK IN ABSORPTION TRENCH AREAS SHALL BE DONE WITH TRACK MACHINERY. NO WHEELED MACHINERY SHALL BE ALLOWED IN THE ABSORPTION TRENCH AREAS.
9. NO STOCKPILING OF MATERIALS SHALL BE ALLOWED WITHIN THE ABSORPTION TRENCH AREAS.
10. ALL HOLES IN LATERALS SHALL BE ORIENTED DOWN.
11. PROPOSED PAD ELEVATIONS ARE BASED ON THE LANDXML SURFACE PROVIDED TO SPF ON 8/20/2019 BY AUSENCO. IF FINAL PAD ELEVATIONS DIFFER FROM THE ASSUMED ELEVATIONS, CONTRACTOR SHALL ADJUST FINAL MANHOLE AND GRAVITY SANITARY SEWER PIPES ACCORDINGLY. GRADE AREA AROUND EACH MANHOLE TO DIVERT SURFACE WATER AWAY.

**ABSORPTION TRENCHES**

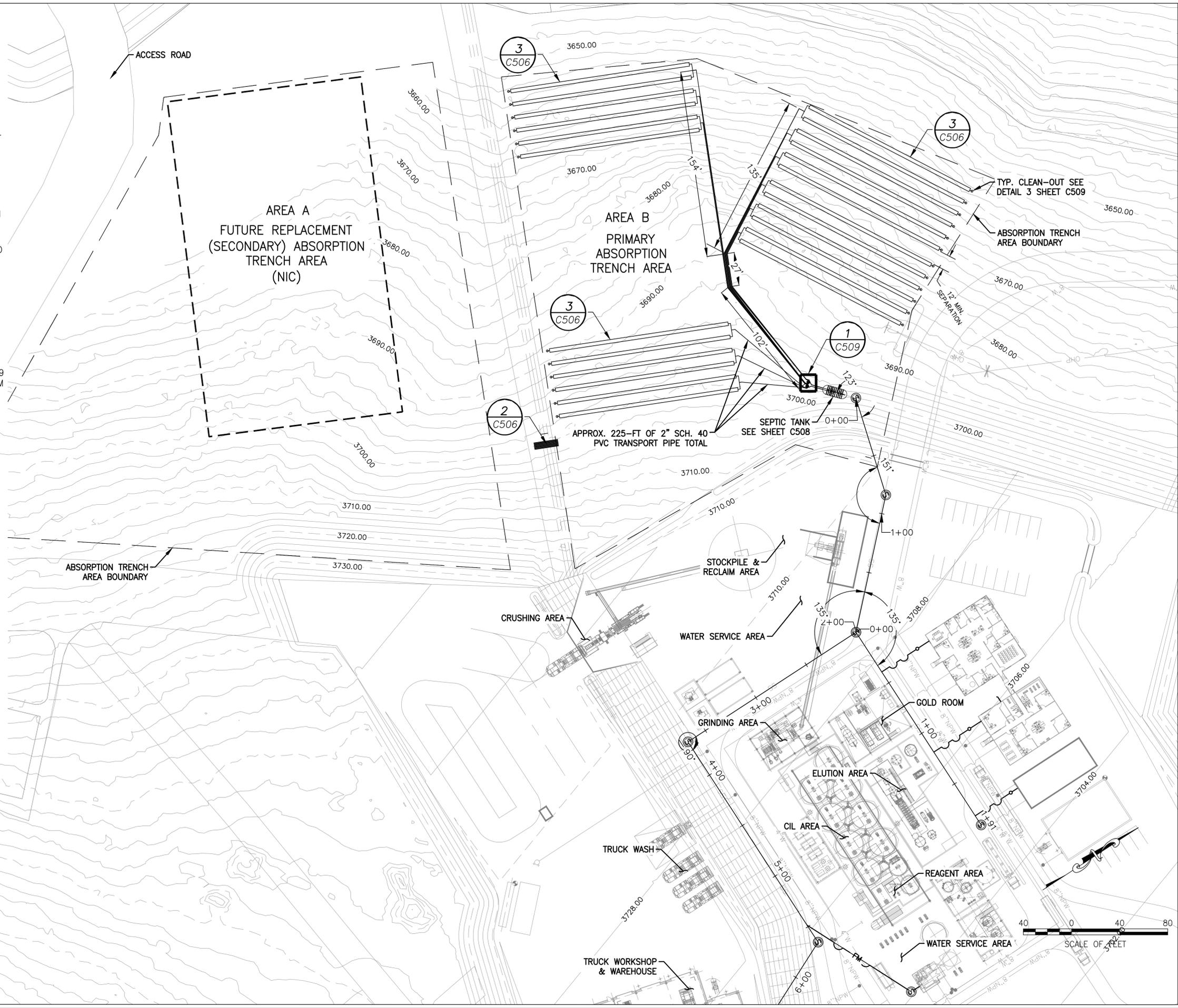
- 150'L X 3'W (24), 10,800 SF
- (4) ZONES PER AREA, 12-FT SPACING BETWEEN ZONES, 6 LATERALS PER ZONE, 2 LATERALS DISCHARGING PER DOSE, 11-FT SPACING BETWEEN LATERALS
- 1/8" DIA. ORIFICES, 4-FT SPACING, 38 ORIFICES PER LATERAL, 228 PER ZONE
- PLAN FOR 5-FT RESIDUAL HEAD AT END OF EACH LATERAL
- FLOW RATE PER ZONE = 60 GPM

**PIPING AND VALVES**

- TRANSPORT PIPING = 2" SCH. 40, 3168-FT
- MANIFOLD = 2" SCH. 40., 11-FT EACH, 132-FT
- LATERALS = 2" SCH. 40., 150-FT EACH, 3,600-FT

**DUPLEX EFFLUENT PUMPS**

- OPERATING POINT = 60 GPM @ 60-FT HEAD, APPROX.
- ALTERNATE BETWEEN DOSES
- AT LEVEL BETWEEN "PUMP OFF" AND HIGH LEVEL ALARM, BOTH PUMPS TURN ON
- DOSE ≈ 180 GALLONS, 6 TIMES PER DAY



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 CALICO RESOURCES USA CORP.  
 ABSORPTION TRENCH & REPLACEMENT AREAS SITE PLAN

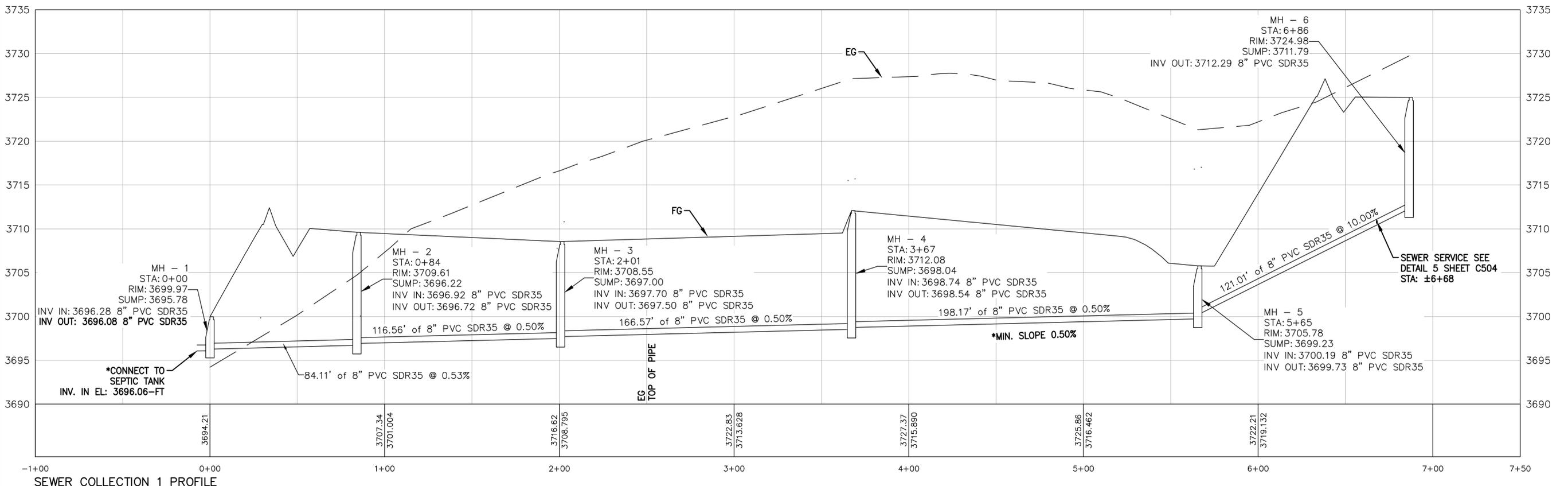
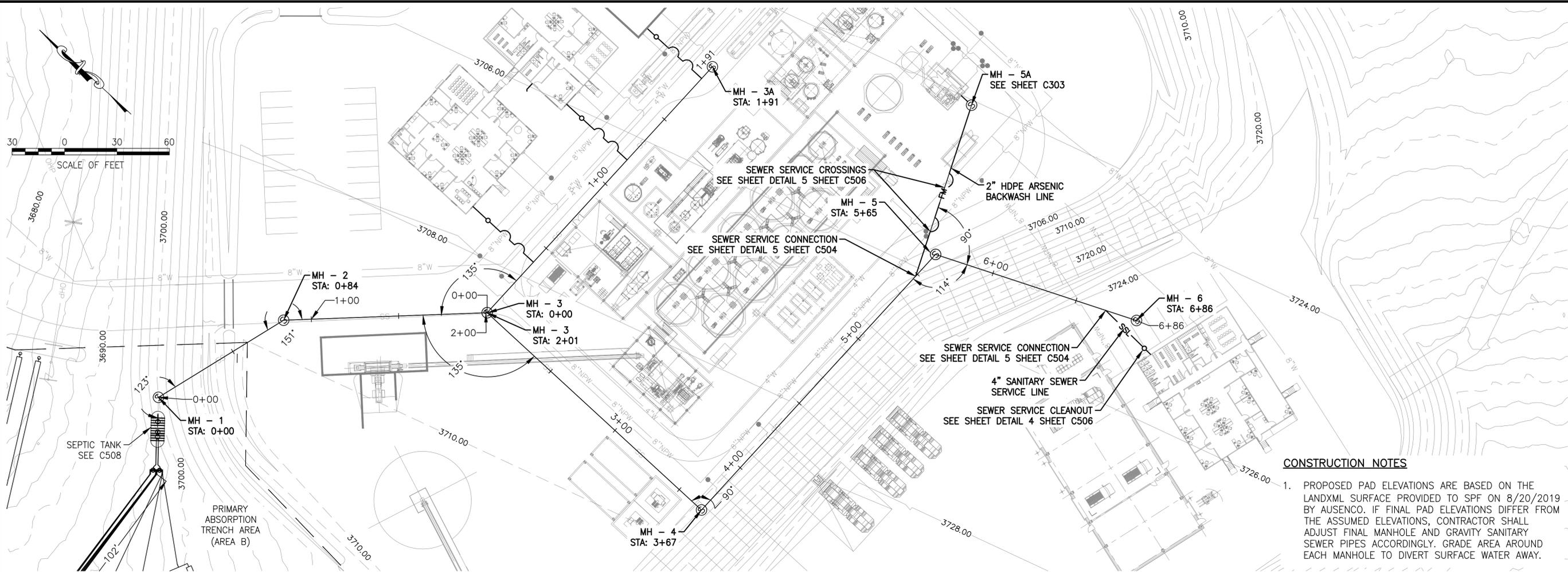
REGISTERED PROFESSIONAL ENGINEER  
 93707P  
 6/22/2019  
 OREGON  
 MAR 13, 2019  
 MATTHEW W. RASMUSSEN  
 RENEWS: 12/31/2020

REVISIONS	DATE	DESCRIPTION
0	8/22/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.  
 PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C401

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**GRASSY MOUNTAIN GOLD MINE WATER & SEWER**  
**CALICO RESOURCES USA CORP.**

**SEWER COLLECTION 1**

**REGISTERED PROFESSIONAL ENGINEER**  
 MATHIEU W. RASMUSSEN  
 93709  
 8/22/2019  
 OREGON  
 MAR 13, 2019  
 RENEWS: 12/31/2020

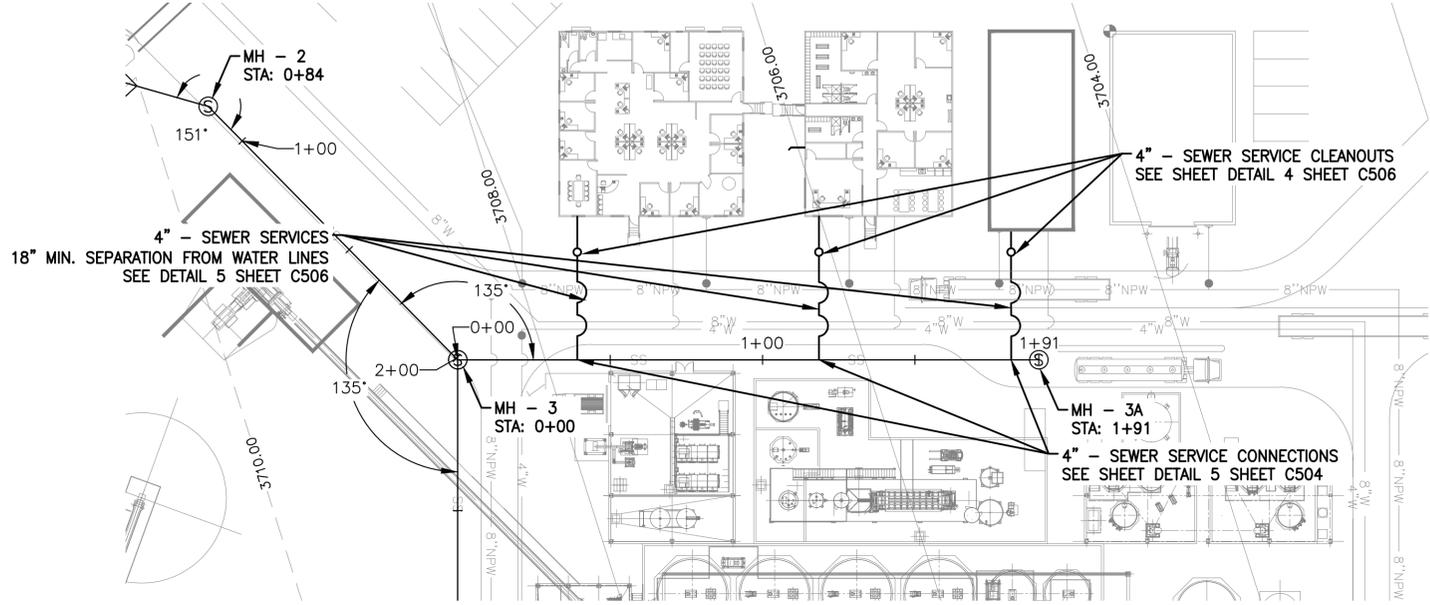
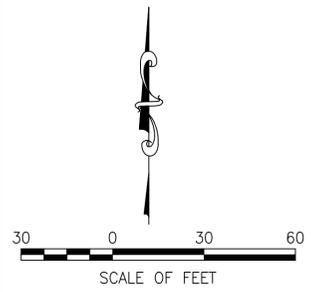
REVISIONS	DATE	DESCRIPTION
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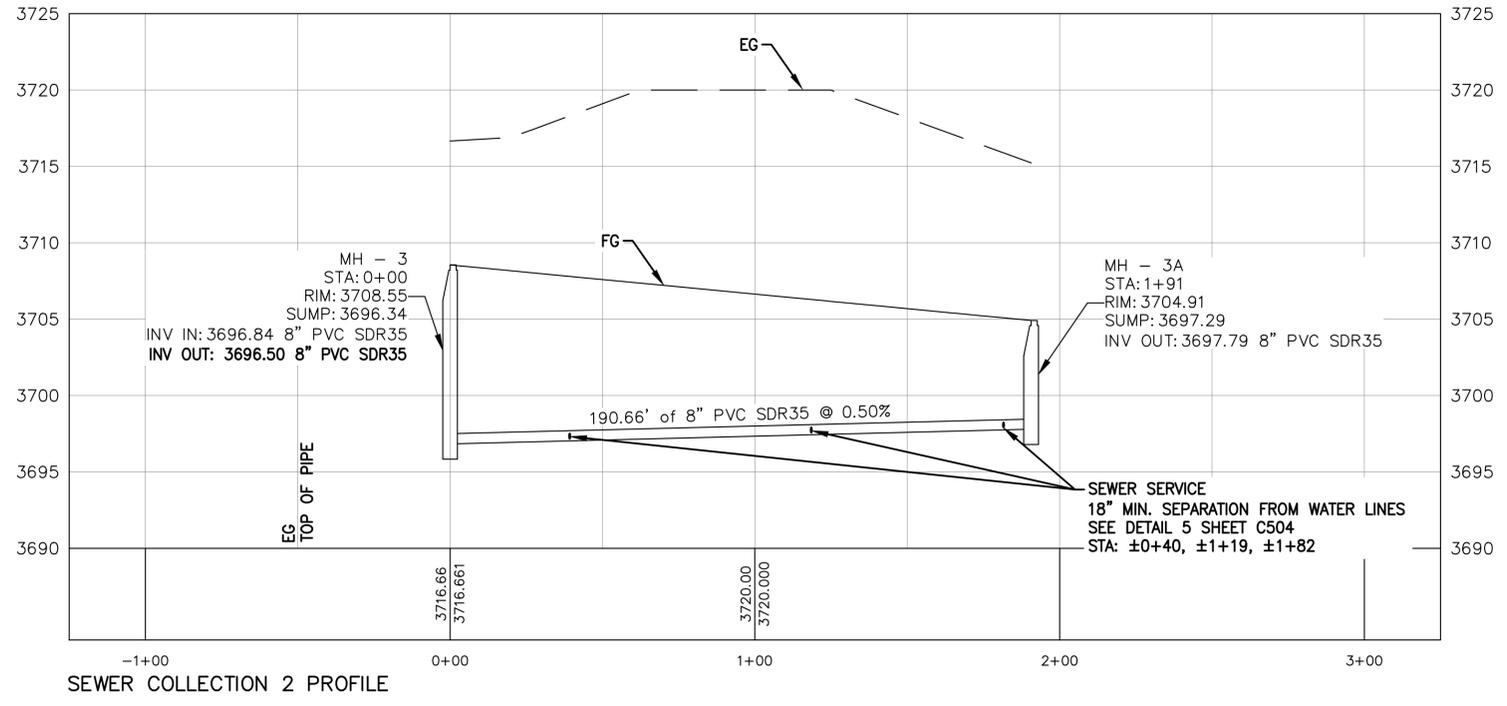
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**CONSTRUCTION NOTES**

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 SEWER COLLECTION 2



REVISIONS	DATE	DESCRIPTION
0	8/22/19	FINAL PERMIT SET

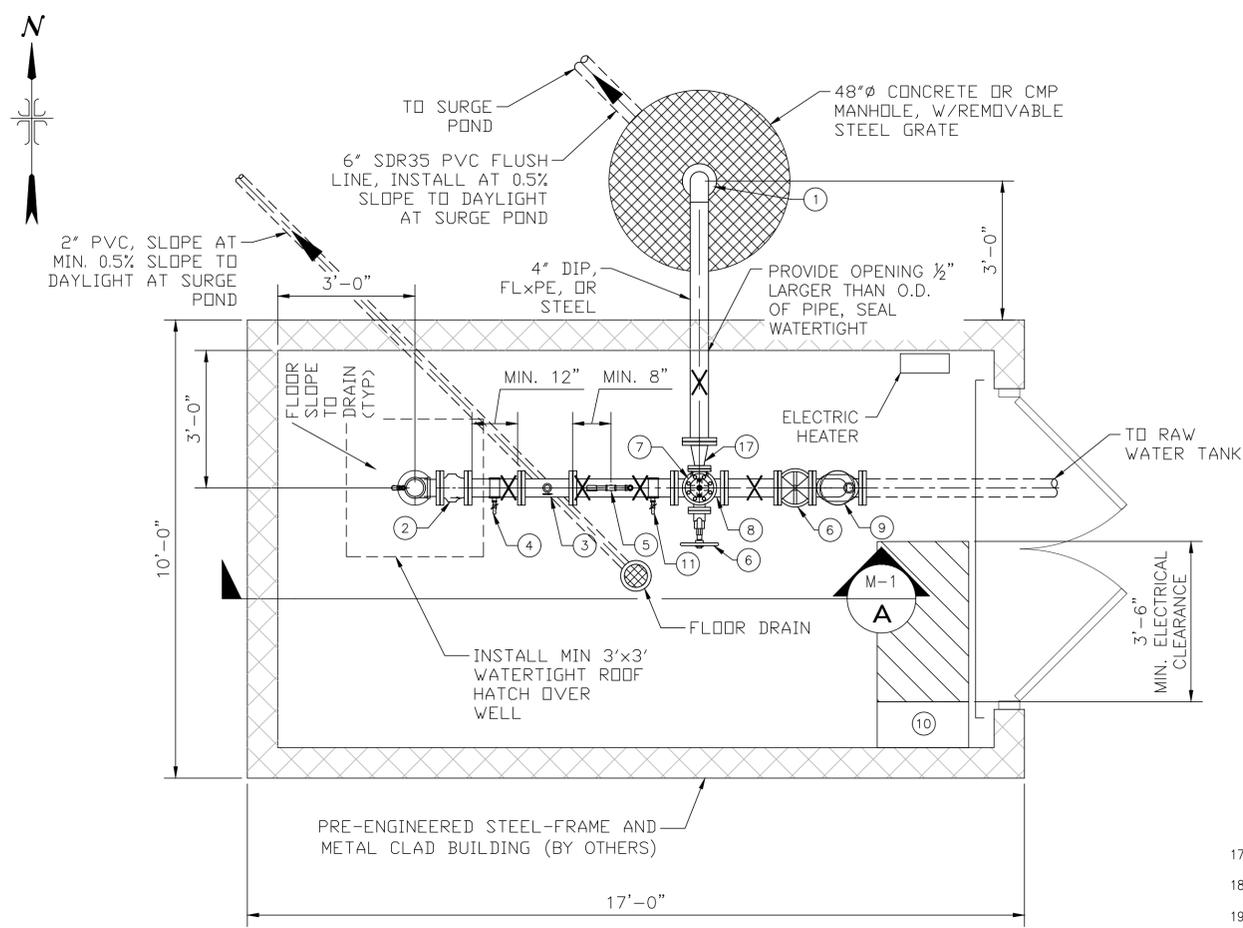
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PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

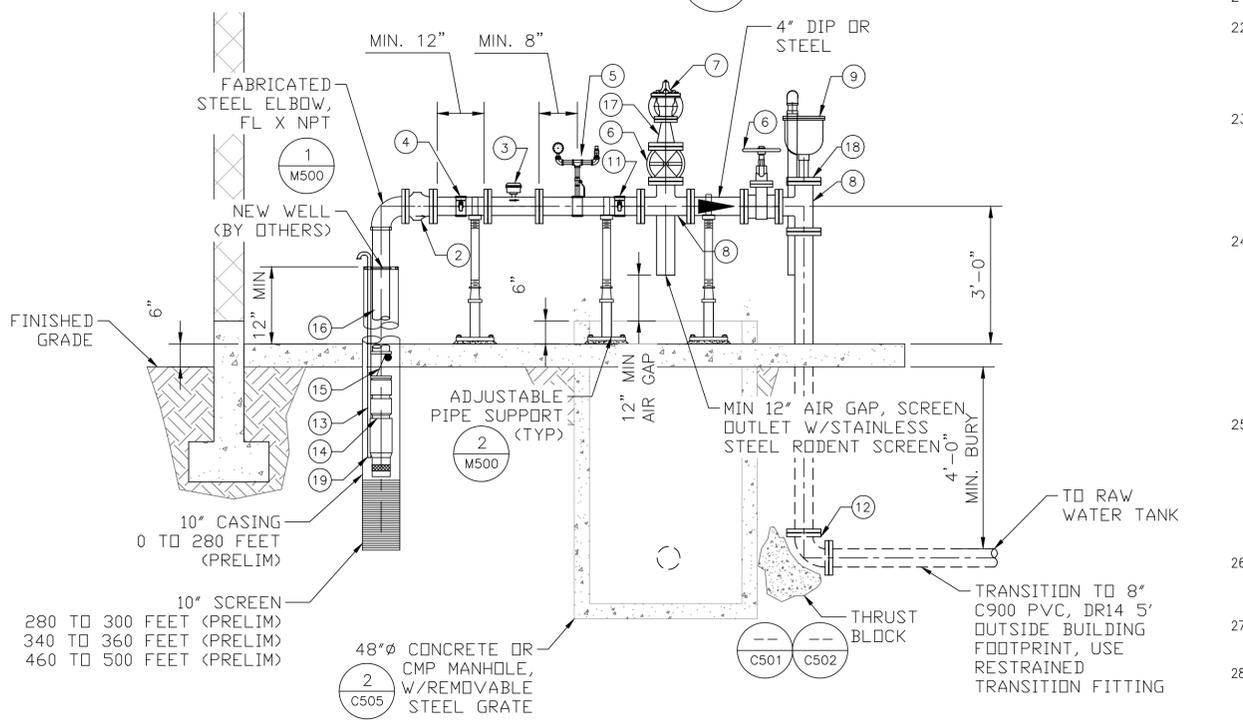
C403



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MECHANICAL PLAN (A)  
SCALE: 1/2"=1'-0"



MECHANICAL SECTION (A)  
SCALE: 1/2"=1'-0"

EQUIPMENT SCHEDULE		
NO	DESCRIPTION	QTY
1	4" D.I. OR STEEL 90° ELBOW	1
2	4" GLOBE STYLE SILENT CHECK VALVE, VAL-MATIC SERIES 1800 OR APPROVED EQUAL	1
3	4" MAGNETIC FLOW METER W/ GROUNDING RINGS, FLG X FLG, BADGER M2000 OR APPROVED EQUAL	1
4	SMOOTH-NOSE SAMPLE TAP W/ SADDLE; PROVIDE PRESSURE REDUCING VALVE SET AT 60PSI	1
5	MECHANICAL PRESSURE GAUGE, OIL-FILLED, 0-400 PSI, W/ISOLATION VALVE AND COMMON SADDLE W/PRESSURE TRANSMITTER	1
6	4" D.I. RESILIENT WEDGE GATE VALVE, FLG X FLG	2
7	2" ANGLE PRESSURE RELIEF AND SURGE ANTICIPATOR VALVE, 300 CLASS, FLG X FLG, CLA-VAL 52-01 BPVKC	1
8	4" D.I. TEE, FLG X FLG X FLG	2
9	1" COMBINATION AIR VALVE W/ ISOLATION VALVE, VAL-MATIC 201C.2, 300 PSI OR APPROVED EQUAL	1
10	WELL PUMP CONTROL PANEL	1
11	HOSE BIB W/ VACUUM BREAKER AND SADDLE; PROVIDE PRESSURE REDUCING VALVE SET AT 60PSI	1
12	4" D.I. 90 ELBOW, MJ X MJ, RESTRAINED	1
13	1" PVC FLUSH-THREAD SOUNDING TUBE	1
14	SUBMERSIBLE PUMP W/MOTOR (GOULDS MODEL 6CLC, 20 STAGES, 4.1875" IMPELLER TRIM, 75 HP, OR APPROVED EQUAL)	1
15	4" COLUMN CHECK VALVE, FLOMATIC 80 DI, SET AT 21" ABOVE PUMP	1
16	4" SCH 40 STEEL DROP PIPE	1
17	4" x 2" D.I. CONCENTRIC REDUCER, FL x FL	2
18	4" D.I. BLIND FLANGE	1
19	WELL WATER LEVEL SENSOR, IN-SITU LEVEL TROLL 400, 100 PSI, ABSOLUTE	1

- NOTES:
- ALL PIPING, FITTINGS, AND FLANGES SHALL BE APPROPRIATE FOR 350 PSI UNLESS OTHERWISE NOTED. ALL PIPING SHALL BE PRESSURE TESTED, IN ACCORDANCE WITH AWWA REQUIREMENTS. ENGINEER SHALL BE NOTIFIED OF AND BE PRESENT FOR TESTING. ALL PIPING SHALL BE 4-INCH NOMINAL DIAMETER DIP OR STEEL UNLESS OTHERWISE NOTED. WELL DROP PIPE TO BE 4-INCH SCH 40 STEEL DROP PIPE, FITTINGS, AND COLUMN CHECK SHALL BE RATED FOR 500 PSI.
  - CONTRACTOR SHALL PROVIDE TO ENGINEER SHOP DRAWINGS INDICATING FINAL SELECTED FITTINGS, EQUIPMENT, AND GASKETS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF FITTING AND EQUIPMENT LOCATIONS AND DIMENSIONS. CONTRACTOR SHALL NOT RELY ON DRAWING SCALE TO VERIFY EQUIPMENT DIMENSIONS.
  - ALL WATERLINES SHALL BE FLUSHED, DISINFECTED AND TESTED FOR BACTERIA IN ACCORDANCE WITH AWWA STANDARD C651. CHLORINATED WATER SHALL BE PROPERLY DISPOSED OF WITH NO DISCHARGE TO SURFACE WATER. CONTRACTOR TO SUBMIT PLAN FOR CHLORINATED WATER DISPOSAL TO THE ENGINEER FOR APPROVAL.
  - PROVIDE SERVICE SADDLE, NYLON COATED DI BODY WITH STAINLESS STEEL DOUBLE STRAP, MUELLER OR EQUAL RATED FOR 350 PSI, AND BRONZE ISOLATION VALVE FOR ALL EQUIPMENT CONNECTED TO MAIN LINE.
  - THE ENDS OF ALL AIR VALVE OUTLET PIPING SHALL BE TERMINATED DOWNWARD AND COVERED W/ 24-MESH CORROSION RESISTANT SCREEN. ROUTE GSP OUTLET PIPING TO NEAREST FLOOR DRAIN. PROVIDE AIR GAP OF 18 INCHES.
  - INSTALL ALL SAMPLE TAPS HORIZONTALLY W/SPECIFIED AIR GAP.
  - ALL D.I.P. TO BE CLASS 53, CEMENT-MORTAR LINED PER AWWA C105. INTERIOR DUCTILE IRON PIPE SHALL BE ORDERED WITH NO EXTERIOR ASPHALTIC SEAL COAT AND SHALL RECEIVE A RUST INHIBITIVE PRIMER AND EPOXY COATING. COLOR TO BE SELECTED BY OWNER.
  - DUCTILE IRON FLANGED FITTINGS SHALL COMPLY WITH ANSI/AWWA C110/A21.10 STANDARD. DUCTILE IRON SPOOLS SHALL HAVE FLANGES COMPATIBLE WITH ANSI/AWWA C115/A21.15 STANDARD. GASKETS SHALL BE APPROPRIATE FOR A WORKING PRESSURE OF 350 PSI. WHERE FLANGED PIPE OR FITTINGS CONNECT TO ANSI CLASS 250 OR 300 FLANGES, COMPATIBLE ASME B16.1 CLASS 250 FLANGES SHALL BE PROVIDED.
  - PIPE SUPPORTS INDICATED BY AN 'X' ARE THE MINIMUM REQUIRED. CONTRACTOR TO PROVIDE ADDITIONAL SUPPORTS AS NEEDED TO ADEQUATELY SUPPORT EQUIPMENT.
  - ALL STEEL PIPE (EXCLUDING DROP PIPE) TO BE STANDARD WEIGHT (SCHEDULE 40 FOR 10-INCH AND SMALLER, 0.375-INCH WALL FOR 12-INCH OR LARGER). ALL STEEL PIPE (EXCLUDING DROP PIPE) TO BE CEMENT MORTAR LINED. ALL EXPOSED STEEL PIPE TO BE COATED WITH RUST INHIBITIVE PRIMER AND EPOXY PAINT PER THE SPECIFICATIONS. COLOR SELECTED BY OWNER.
  - SLOPE FLOORS AT 1% TO FLOOR DRAINS.
  - PRESSURE GAUGES SHALL BE OIL FILLED, 2.5-INCHES IN DIAMETER WITH WHITE LAMINATED DIALS AND BLACK GRADUATIONS. PRESSURE INDICATOR RANGE SHALL BE 0-400 PSI, UNLESS OTHERWISE INDICATED ON THE DRAWINGS. GAUGE CASE SHALL BE TYPE 304 STAINLESS STEEL WITH BRASS WETTED MATERIALS. EACH PRESSURE GAUGE SHALL BE PROVIDED WITH A BRASS ISOLATION VALVE.
  - INSTALL FLOW METERS WITH UPSTREAM AND DOWNSTREAM STRAIGHT-PIPE DISTANCES PER MANUFACTURER RECOMMENDATION.
  - THE SURGE ANTICIPATOR VALVE SHALL HAVE DUCTILE IRON BODY, CAST IRON DISC AND RETAINER, WITH STAINLESS STEEL SPRING AND TRIM. VALVE SHALL BE RATED FOR 350 PSI. VALVE SHALL BE PROVIDED WITH HIGH PRESSURE PILOT SYSTEM (CRL-60), RATED FOR 100 TO 300 PSI. CRA PILOT SYSTEM SHALL BE RATED FOR 30 TO 300 PSI. PROVIDE INLET PRESSURE GAUGE (0-400PSI), AND X101 POSITION INDICATOR. INTERIOR AND EXTERIOR OF VALVE SHALL BE COATED WITH FUSION BONDED EPOXY. CONNECT PRESSURE SENSING LINE TO PIPING PER MANUFACTURER RECOMMENDATIONS. PRESSURE SENSING LINE SHALL BE 3/4-INCH MINIMUM I.D. COPPER INSTALLED WITH A 2' SLOPE FROM THE VALVE TO THE PIPING TO AVOID AIR POCKETS.
  - GATE VALVES SHALL BE RESILIENT-SEATED GATE VALVES CONFORMING TO ANSI/AWWA C515. RESILIENT-SEATED GATE VALVES SHALL HAVE DUCTILE IRON BODIES WITH FLANGED ENDS, RUBBER-COATED DUCTILE IRON WEDGE, FLANGED DUCTILE IRON BONNET, BRONZE OR COPPER ALLOY STEM, AND TYPE 304 STAINLESS STEEL EXTERIOR VALVE BODY BOLTING. THE VALVE SHALL BE LEAD FREE. GATE VALVES SHALL BE PROVIDED WITH HAND WHEEL OPERATORS FOR ABOVE-GROUND INSTALLATIONS. THE VALVES SHALL BE DESIGNED FOR A WATER WORKING PRESSURE OF NOT LESS THAN 350 PSI UNLESS OTHERWISE NOTED.
  - THE CHECK VALVE SHALL BE OF THE SILENT OPERATING TYPE, GLOBE-STYLE, WITH CAST OR DUCTILE IRON VALVE BODY. THE VALVE SEAT, DISC, AND DISC STEM SHALL BE SILICON BRONZE OR STAINLESS STEEL. THE SPRING AND RETAINING SCREWS SHALL BE TYPE 316 STAINLESS STEEL. THE VALVE SHALL BE LEAD FREE. THE VALVES SHALL BE DESIGNED FOR A WATER WORKING PRESSURE OF NOT LESS THAN 350 PSI UNLESS OTHERWISE NOTED.

- THE CONTRACTOR IS TO UTILIZE PIPE FITTINGS THAT ARE PROPERLY RESTRAINED.
- PUMP SHALL BE SET AT APPROXIMATELY 357 FEET BELOW TOP OF WELL.
- ELECTRICAL CABLE SHALL BE FIRMLY ATTACHED TO THE DROP PIPE AT EACH COUPLING W/STAINLESS STEEL STRAPS. MOTORS CABLE SHALL BE SIZED TO LIMIT VOLTAGE DROP TO LESS THAN 5%.
- 1" SOUNDER TUBE SHALL BE ATTACHED TO DROP PIPE WITH STAINLESS STEEL STRAPS EVERY 20 FEET. TERMINATE AT TOP OF PUMP. INSTALL FROM TOP OF WELL TO TOP OF PUMP. THE BOTTOM 20 FEET OF THE TUBE SHALL BE PERFORATED W/ 1/8" HOLES EVERY 6" ON 4 SIDES. THE BOTTOM SHALL BE CAPPED.
- SUPPORT MECHANICAL PIPING AS SHOWN ON DRAWINGS.
- SUBMERSIBLE PUMP SHALL BE CAPABLE OF PUMPING 200 GPM AT A TOTAL DYNAMIC HEAD OF 980 FEET. WELL 4 HAS NOT BEEN CONSTRUCTED OR TESTED. PRELIMINARY PUMP SELECTION IS BASED ON ESTIMATES OF WELL SPECIFIC CAPACITY AND INTERFERENCE EFFECTS. FINAL PUMP SELECTION WILL OCCUR AFTER THE WELL IS CONSTRUCTED AND TESTED.
- THE PUMP BOWL ASSEMBLY SHALL BE CONSTRUCTED OF CLOSE GRAINED CAST IRON, ASTM A48, CLASS 30. THE INTERMEDIATE BOWLS SHALL BE ENAMEL OR EPOXY-LINED. THE IMPELLERS SHALL BE CONSTRUCTED OF TYPE 304 STAINLESS STEEL AND BALANCED TO GRADE G6.3 OF ISO 1940 AS MINIMUM. THEY SHALL BE SECURELY FASTENED TO THE BOWL SHAFT WITH TAPER LOCKS OF C1018 STEEL. THE INLET MOTOR ADAPTER SHALL BE DUCTILE IRON. THE PUMP SHAFT AND COUPLING SHALL BE TYPE 416 STAINLESS STEEL.
- THE PUMP MOTOR SHALL BE OF THE SUBMERSIBLE TYPE SUITABLE FOR ACROSS-THE-LINE STARTING, DESIGNED FOR AND RATED FOR 460 VOLTS, 3-PHASE, 60 HERTZ. MINIMUM HORSEPOWER IS 75 HP AND MINIMUM MOTOR SPEED IS 3,450 RPM. THE MOTOR SHALL HAVE A SERVICE FACTOR OF 1.15. THE MOTOR SHALL BE SIZED TO DRIVE THE PUMP CONTINUOUSLY OVER THE SPECIFIED OPERATING RANGE WITHOUT THE LOAD EXCEEDING THE NAMEPLATE RATING OF THE MOTOR. THE MOTOR SHALL INCORPORATE A MECHANICAL SEAL TO PREVENT INTRUSION OF ABRASIVES OR OTHER WATER-BORNE CONTAMINANTS. THE MOTOR LEADS SHALL BE OF SUFFICIENT LENGTH SO THAT THEY MAY BE SPLICED ABOVE THE BOWL ASSEMBLY AND THE LEADS SHALL BE PROTECTED BY A TYPE 304 STAINLESS STEEL CABLE GUARD HELD IN PLACE WITH STAINLESS STEEL BANDING.
- PROVIDE PUMP CONTROL PANEL WITH VFD AND FUSIBLE DISCONNECT FOR 75HP PUMP. PUMP CONTROL PANEL SHALL BE UL LISTED IN A NEMA 3R ENCLOSURE. PANEL SHALL INCLUDE HOA SWITCH AND PUSH BUTTON START, AND VOLTAGE MONITOR CAPABLE OF MONITORING OVERVOLTAGE, UNDERVOLTAGE, PHASE IMBALANCE, PHASE LOSS, PHASE REVERSAL, REFER TO C002. A UL1449 SPD SHALL BE INSTALLED IN THE PUMP CONTROLLER. PROVIDE RADIO MODULE AND ANTENNA. PANEL SHALL BE MANUFACTURED BY PRECISION AUTOMATION OR APPROVED EQUAL. INSTALL PANEL ON CONCRETE HOUSEKEEPING PAD IN WELL HOUSE.
- CONTRACTOR TO PROVIDE ELECTRICAL HEATER W/ THERMOSTAT CAPABLE OF MAINTAINING AMBIENT TEMP OF 45F IN WELL HOUSE. CONTRACTOR TO INSTALL LIGHTS IN WELL HOUSE IN ACCORDANCE WITH LOCAL BUILDING CODE.
- FINISH FLOOR OF WELL HOUSE SHALL BE A MIN. OF 6" ABOVE FINAL GRADE. GRADE AREA AROUND WELL HOUSE TO DIVERT SURFACE WATER AWAY.
- INSTALL WATER LEVEL SENSOR IN 1" PVC SOUNDING TUBE TO A DEPTH OF 5' ABOVE TOP OF PUMP. PROVIDE BAROMETRIC PRESSURE LOGGER, IN-SITU BARO TROLL IN CONTROL PANEL TO CORRECT FOR BAROMETRIC PRESSURE. LEVEL SENSOR AND BAROMETRIC PRESSURE SENSOR SHALL HAVE A DIRECT READ CABLE FOR A 4-20mA SIGNAL TO PUMP CONTROL PANEL.
- ALL BURIED PIPE SHALL BE INSTALLED WITH COPPER FINDER WIRE, BLUE NO. 12, SUITABLE FOR DIRECT BURIAL. SECURELY FASTEN WIRE TO PIPE EVERY 10' WITH DUCT TAPE. LOCATING WIRE SHALL BE TESTED BY CONTRACTOR IN PRESENCE OF ENGINEER. ALL BURIED PIPE SHALL BE INSTALLED WITH LOCATOR TAPE, 3-INCH WIDE, PLACED BETWEEN 18 INCHES AND 24 INCHES ABOVE THE PIPE. TAPES SHALL BE MARKED AS BEING POTABLE WATER LINE LOCATOR TAPE.

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 WELL 4 MECHANICAL PLAN & SECTION

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 Tel (208) 383-4140 Fax (208) 383-4156

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VERIFY SCALE

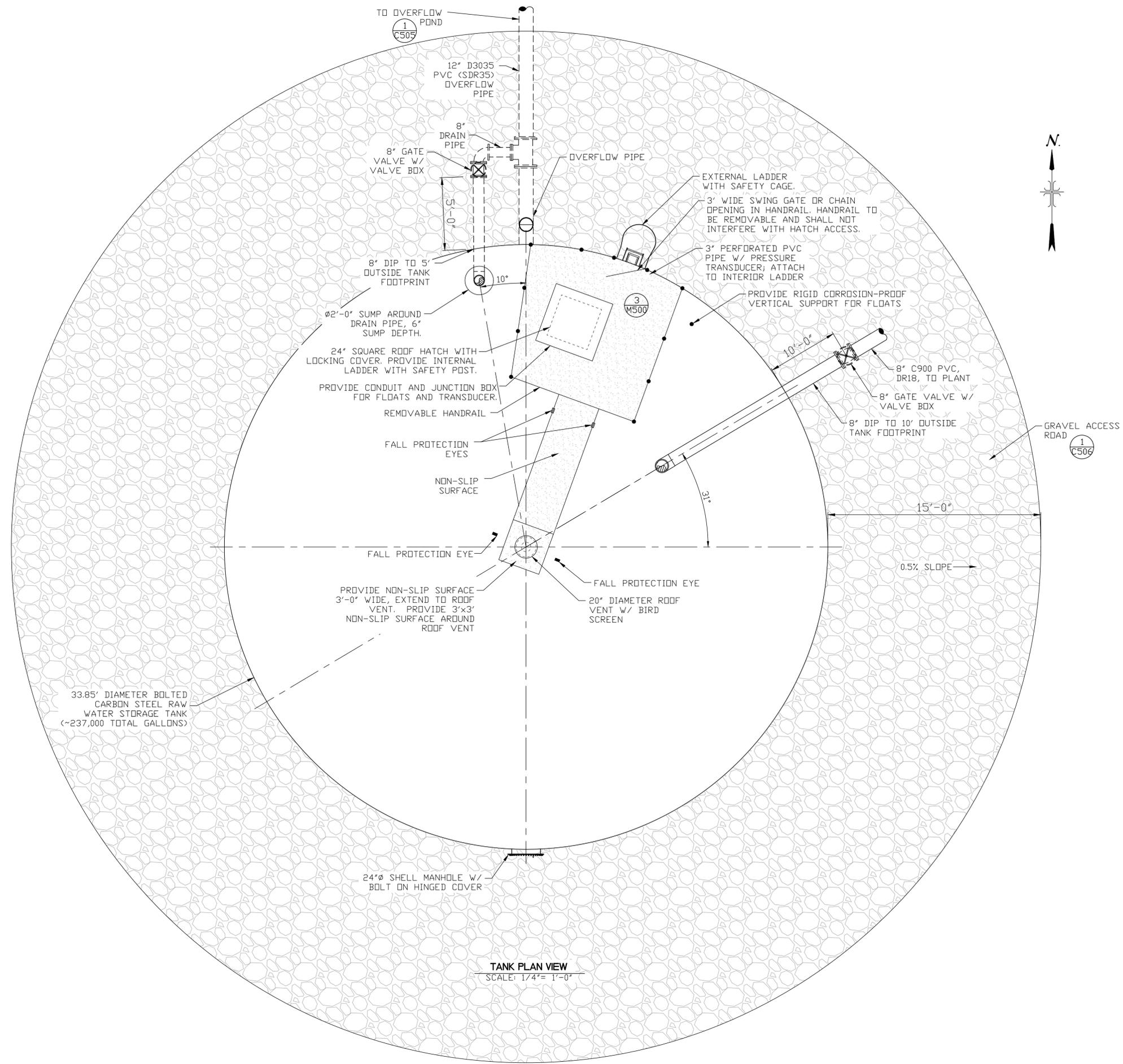
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M101



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TANK PLAN VIEW  
 SCALE: 1/4" = 1'-0"

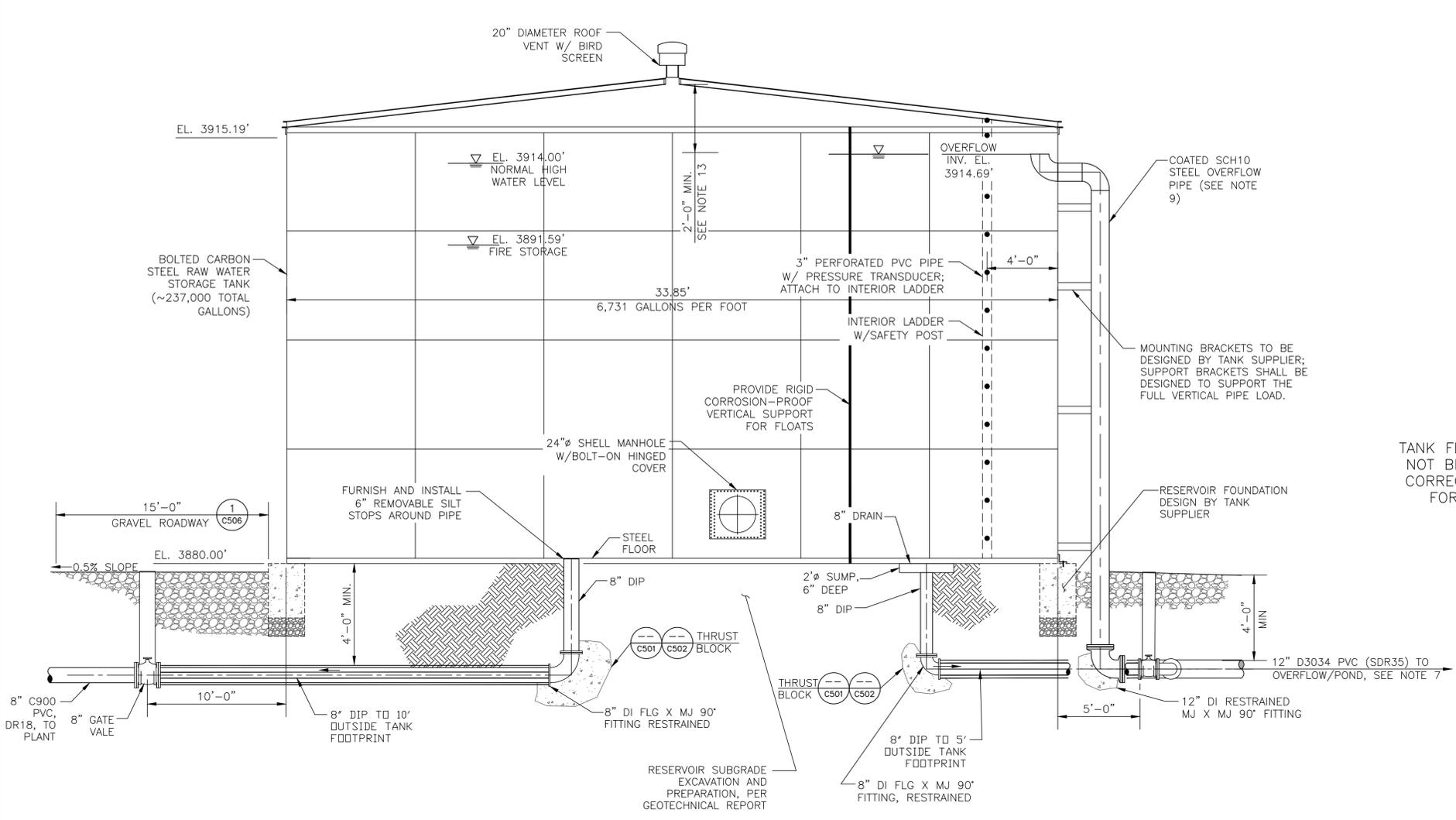
- NOTES:
1. RESERVOIR TO MEET THE REQUIREMENTS OF AWWA D103-09. STRUCTURAL DESIGN BY RESERVOIR CONTRACTOR.
  2. RESERVOIR FOUNDATION DESIGN BY TANK SUPPLIER TO MEET THE REQUIREMENTS OF AWWA D103-09.
  3. RESERVOIR SUBGRADE SHALL BE PREPARED PER THE GEOTECHNICAL REPORT.
  4. PLACE ROOF HATCH NEAR OVERFLOW PIPE TO ALLOW INSPECTION OF OVERFLOW THROUGH HATCH.
  5. ALL SAFETY AND FALL PROTECTION APPURTENANCES TO BE DESIGNED, FABRICATED, AND INSTALLED BY THE RESERVOIR CONTRACTOR TO MEET ALL APPLICABLE SAFETY LAWS INCLUDING OSHA REGULATIONS.
  6. MAINTAIN POSITIVE DRAINAGE AWAY FROM STORAGE TANK.



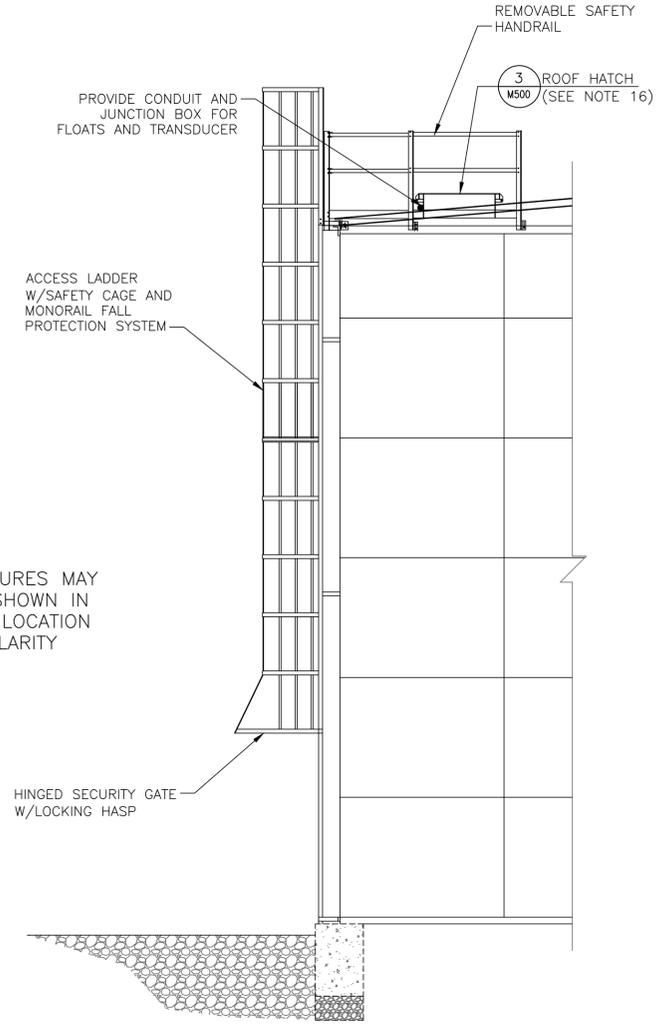
REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE	0 1/2 1
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

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 Xref Filename: I X-TITLE (2) 1



**A** TANK ELEVATION  
SCALE: NOT TO SCALE



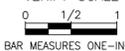
**B** EXTERNAL LADDER ELEVATION  
SCALE: NOT TO SCALE

- NOTES:**
- ALL STRUCTURAL DESIGN BY RESERVOIR CONTRACTOR TO MEET THE REQUIREMENTS OF AWWA D103-09.
  - RESERVOIR FOUNDATION DESIGN BY TANK SUPPLIER TO MEET THE REQUIREMENTS OF AWWA D103-09.
  - RESERVOIR SUBGRADE SHALL BE PREPARED PER THE GEOTECHNICAL REPORT.
  - MINIMUM DEPTH OF COVER OVER PIPES IS 4 FEET, UNLESS OTHERWISE NOTED.
  - ALL PIPING PENETRATIONS AND TANK ACCESSORIES SHALL CONFORM TO AWWA D103 OR D100, WHICHEVER IS APPLICABLE.
  - TANK SHALL BE DISINFECTED PER AWWA C652 AND OAR 333-061-0050(10).
  - THE END OF THE DRAIN OVERFLOW PIPE SHALL BE PROVIDED WITH AN ANGLE-FLAP OR TIDE-FLEX VALVE. PROVIDE AN AIR GAP OF AT LEAST 24-INCHES BETWEEN BOTTOM OF PIPE AND MAXIMUM WATER SURFACE ELEVATION OF OVERFLOW POND..
  - POLYETHYLENE ENCASE BURIED DUCTILE IRON PIPING.
  - OVERFLOW MUST BE CAPABLE OF OVERFLOWING 500 GPM WITH MAXIMUM 0'-6" WATER DEPTH OVER TOP OF OVERFLOW. SIZE AND DESIGN BY RESERVOIR CONTRACTOR.
  - PROVIDE FALL PROTECTION SYSTEM ON RESERVOIR ROOF AS SHOWN ON DRAWINGS.
  - COAT ALL STEEL PIPE (ABOVE AND BELOW GRADE) WITH FUSION BONDED EPOXY.
  - RESERVOIR CONTRACTOR TO PROVIDE LIGHTNING PROTECTION SYSTEM UTILIZING AIR TERMINALS, WIRE AND GROUND RODS ON RESERVOIR. THE SYSTEM SHALL BE DESIGNED AND INSTALLED BY A CERTIFIED LIGHTNING PROTECTION CONTRACTOR.
  - TANK DESIGN SHALL INCLUDE A MINIMUM 24-INCH HEAD SPACE BETWEEN TOP OF OVERFLOW AND BOTTOM OF ROOF STRUCTURE AT CENTER OF TANK.
  - TANK SHALL BE FILLED FROM WELLS BASED ON WATER LEVEL CHANGE AS DETECTED BY WATER LEVEL TRANSDUCER. AN EMERGENCY LOW LEVEL FLOAT SHALL BE INSTALLED TO ACTIVATE WELL PUMPS IF WATER LEVEL DROPS TO 3881 FEET (ADJUSTABLE). AN EMERGENCY HIGH LEVEL FLOAT SHALL BE INSTALLED TO DE-ACTIVATE WELL PUMPS IF WATER LEVEL RISES TO 3914.50 FT (ADJUSTABLE). REFER TO C002 FOR OPERATIONAL DESCRIPTION
  - INTERIOR COATING SHALL BE LIQ FUSION 8000 FBE, 5-9 MILS DFT, NSF/ANSI 61 APPROVED, OR APPROVED EQUAL. EXTERIOR COATING SHALL BE FUSION 8000 FBE + EXT FUSION SDP, 6-10 MILS DFT, OR APPROVED EQUAL. EXTERIOR COLOR PER OWNER.
  - ROOF HATCHES SHALL BE WATERTIGHT AND OVERLAP THE FRAME OPENING BY AT LEAST 2 INCHES. THE FRAME OPENING SHALL EXTEND AT LEAST 4 INCHES ABOVE THE TANK ROOF TO PREVENT SURFACE WATER INTRUSION. EACH HATCH SHALL BE HINGED ON ONE SIDE AND EQUIPPED WITH A LOCKING MECHANISM.
  - PROVIDE HIGH-LEVEL EMERGENCY FLOATS, CONERY 2901-B2-S1-C1, OR APPROVED EQUAL. PROVIDE PRESSURE TRANSDUCER, KELLER LEVELGAGE OR APPROVED EQUAL.
  - INSTALL A RADIO MODULE AND ANTENNA, BANNER DX80G9M6S-PB2, OR APPROVED EQUAL.



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

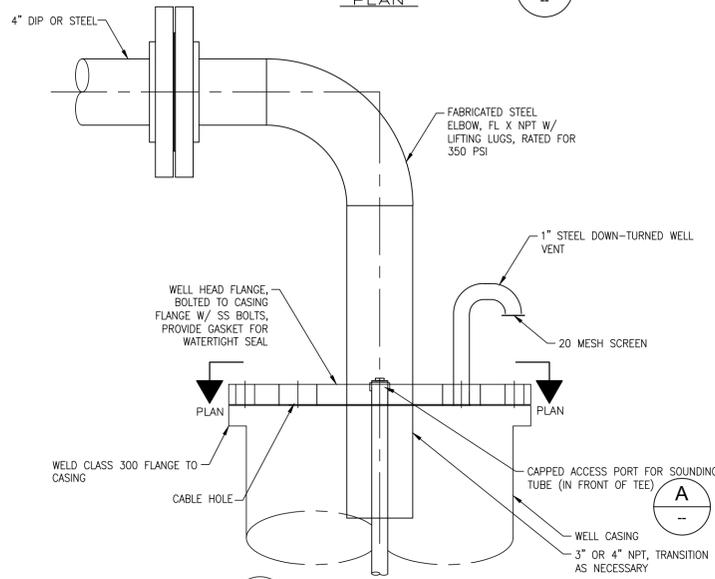
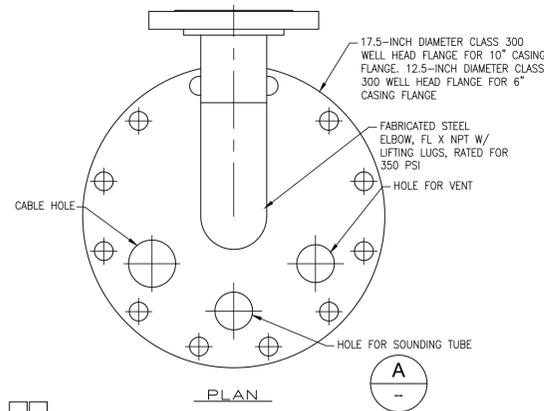
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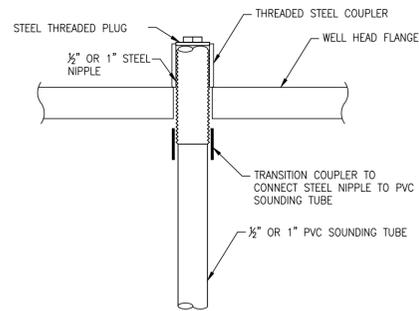
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

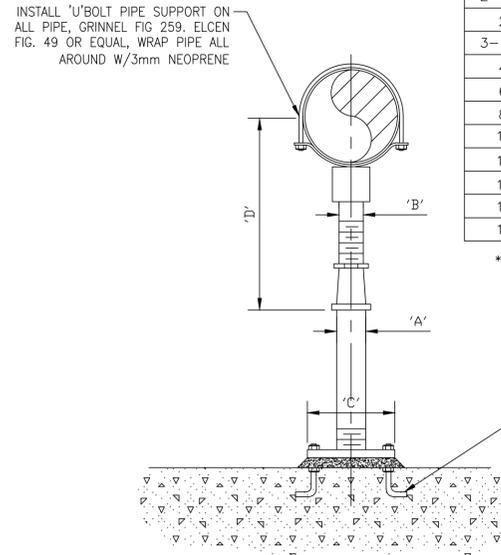
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 Xref Filename: 1 X-TITLE (2) 1



1 WELL HEAD DETAIL  
NOT TO SCALE



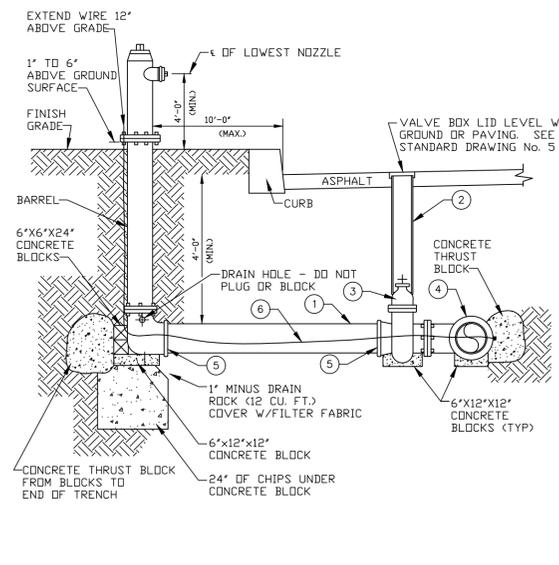
A SOUNDING TUBE DETAIL  
NOT TO SCALE



2 PIPE SUPPORT DETAIL  
NOT TO SCALE

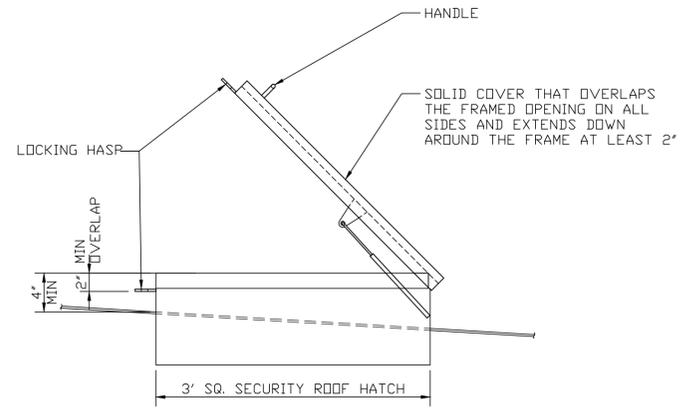
ADJUSTABLE PIPE SUPPORT APPROXIMATE DIMENSIONS IN INCHES					
PIPE SIZE	'A'	'B'	'C'	'D' MINIMUM	'D' MAXIMUM
2-1/2	2-1/2	1-1/2	9	8	13
2	2-1/2	1-1/2	9	8-1/2	13-1/2
3-1/2	2-1/2	1-1/2	9	8-1/2	13-1/2
4	3	*2-1/2	9	9-1/2	14
6	3	*2-1/2	9	10-1/2	15-1/2
8	3	*2-1/2	9	11-1/2	16-1/2
10	3	*2-1/2	9	14-5/8	18-1/4
12	3	*2-1/2	9	15-5/8	19-3/4
14	4	3	11	18-7/8	20-3/4
16	4	3	11	19-7/8	22-1/4
18	6	3-1/2	13-1/2	21-1/4	24

\*PER MFR



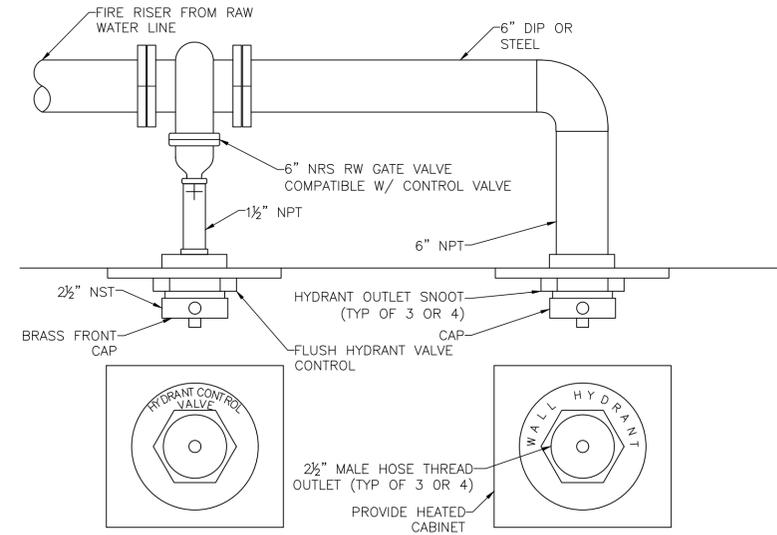
5 FIRE HYDRANT DETAIL  
NOT TO SCALE

- CONSTRUCTION NOTES**
- 6" PVC PIPE
  - 6" VALVE BOX PIPE W/LID
  - 6" (FLG x MJ) GATE VALVE
  - MAIN SIZE (FLG OR MJ) X 6" (FLG) TEE
  - RESTRAINT FOLLOWERS
  - #12 LOCATOR WIRE
- GENERAL NOTES**
- NOT CLOSER THAN 10 FEET TO SEWER.
  - 50 FEET FROM SEPTIC SYSTEMS 25 FEET FROM SEEPAGE BEDS.
  - MUST BE ABOVE GROUNDWATER.
  - SLOPE SURFACE DRAINAGE AWAY FROM FIRE HYDRANT.
  - MINIMUM DISTANCE FROM THE FIRE HYDRANT TO THE FIRE HYDRANT GATE SHALL BE 5 FEET.
  - ALL JOINTS SHALL BE RESTRAINED.



3 RESERVOIR ROOF HATCH DETAIL  
NOT TO SCALE

- NOTES:**
- ROOF HATCH SHALL HAVE LOCKING HASP AND CLOSE WATER-TIGHT.
  - HATCH MUST BE HINGED ON ONE SIDE.



4 WALL HYDRANT DETAIL  
NOT TO SCALE

- NOTES:**
- WALL HYDRANT SHALL BE FLUSH-TYPE BRASS BODY CONNECTION WITH FEMALE NPT INLET AND MALE HOSE THREAD OUTLET. ALL BUILDINGS SHALL BE PROVIDED WITH WALL HYDRANT WITH 3-WAY OUTLET, EXCEPT FOR MINE OFFICE AND CHANGE-HOUSE, WHICH SHALL BE PROVIDED WITH 4-WAY OUTLET.
  - WALL HYDRANT SHALL BE PROVIDED WITH BRASS CAP AND CHAIN AND IDENTIFICATION PLATE LETTERED "WALL HYDRANT".
  - WALL HYDRANT SHALL BE FM APPROVED.
  - WALL HYDRANT SHALL BE PROTECTED INSIDE HEATED CABINET AND MOUNTED TO EXTERIOR OF BUILDING IN AN ACCESSIBLE AND VISIBLE LOCATION.
  - WALL HYDRANT SHALL BE MANUFACTURED BY AMERICAN FIRE SUPPLY OR APPROVED EQUAL.
  - WALL HYDRANT SHALL BE EQUIPPED W/ SEPERATE FLUSH HYDRANT VALVE CONTROL OR INTEGRATED INDIVIDUAL 2 1/2" F NPT X 2 1/2" M NST GATE VALVE (LOOSE BONNET STYLE).
  - WALL HYDRANT VALVE CONTROL SHALL BE PROVIDED WITH BRASS CAP AND CHAIN AND IDENTIFICATION PLATE LETTERED "HYDRANT CONTROL VALVE."
  - WALL HYDRANT VALVE CONTROL SHALL BE MANUFACTURED BY AMERICAN FIRE SUPPLY OR APPROVED EQUAL.
  - PROVIDE EXTENSION ROD FOR HYDRANT VALVE COMPATIBLE W/ GATE VALVE.
  - FOR BUILDINGS W/ FIRE SPRINKLERS, FIRE SPRINKLER SUPPLY CAN TEE OFF RISER TO WALL HYDRANT. FIRE SPRINKLER DESIGN BY OTHERS.



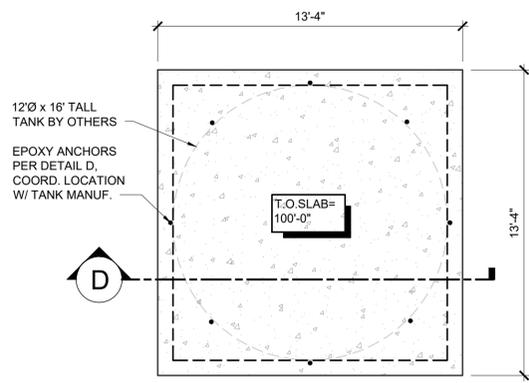
REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE

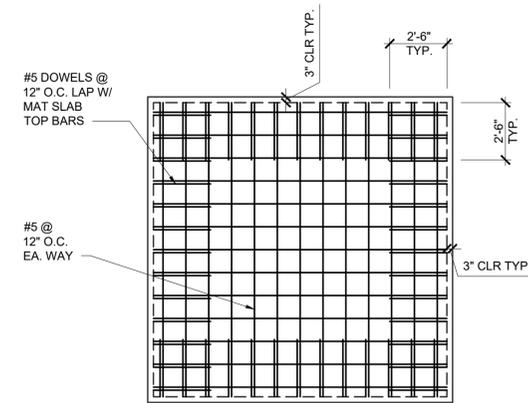
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT





**FOUNDATION PLAN**  
SCALE: 1/4" = 1'-0"

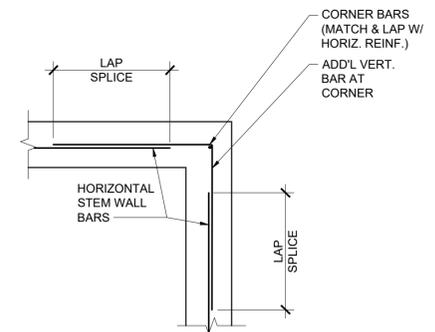


**REBAR TOP MAT LAYOUT PLAN**  
SCALE: 1/4" = 1'-0"

**FOUNDATION PLAN NOTES:**

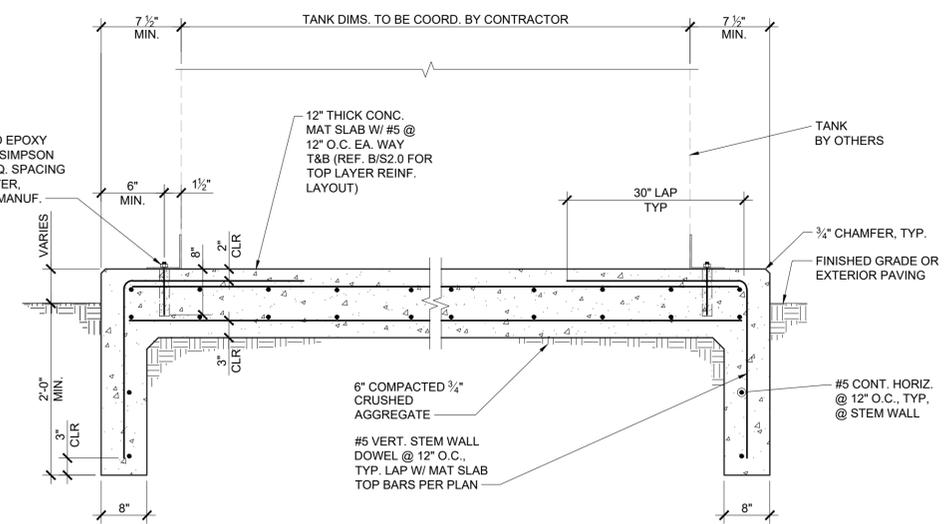
- FOR ANY ADDITIONAL DIMENSIONS NOT SHOWN, OR IF ANY DISCREPANCIES ARE FOUND NOTIFY THE ENGINEER IMMEDIATELY.
- CONTRACTOR TO REVIEW GEOTECH REPORT FOR SPECIAL REQUIREMENTS PRIOR TO POURING CONCRETE.
- T.O.SLAB = TOP OF CONCRETE SLAB ELEVATION
- B.O.FTG. = BOTTOM OF FOOTING ELEVATION, 24" MIN. BELOW FINISH GRADE
- CORNER REINF. IS REQ'D PER DETAIL C

**FOUNDATION PLAN LEGEND:**



**PLAN VIEW**  
NOTE:  
LAP SPLICE LENGTHS (U.N.O.):  
CONCRETE WALL: 48 BAR DIA. OR 30"  
(MIN) WHICHEVER IS GREATER

**STEM WALL CORNER REINF.**  
SCALE: N.T.S.

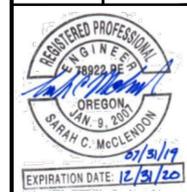


**STEM WALL CORNER REINF.**  
SCALE: 3/4" = 1'-0"



1412 W. Idaho Street  
Suite 240  
Boise, Idaho 83702  
Tel: 208.342.2919  
Fax: 208.331.4568

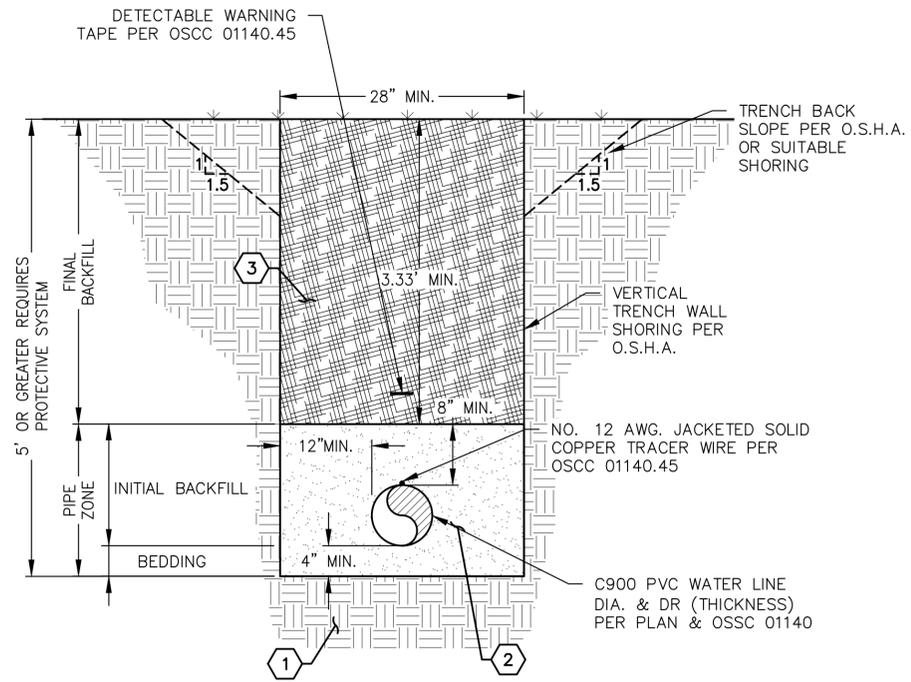
GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
CALICO RESOURCES USA, CORP.  
TREATED WATER STORAGE TANK  
FOUNDATION PLAN & DETAILS



REVISIONS	DATE	DESCRIPTION
0	07/31/19	FINAL PERMIT SET

VERIFY SCALE	0 1/2 1
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1041.19
DESIGNED:	WT
DRAWN:	CJH
CHECKED:	SM
S2.0	

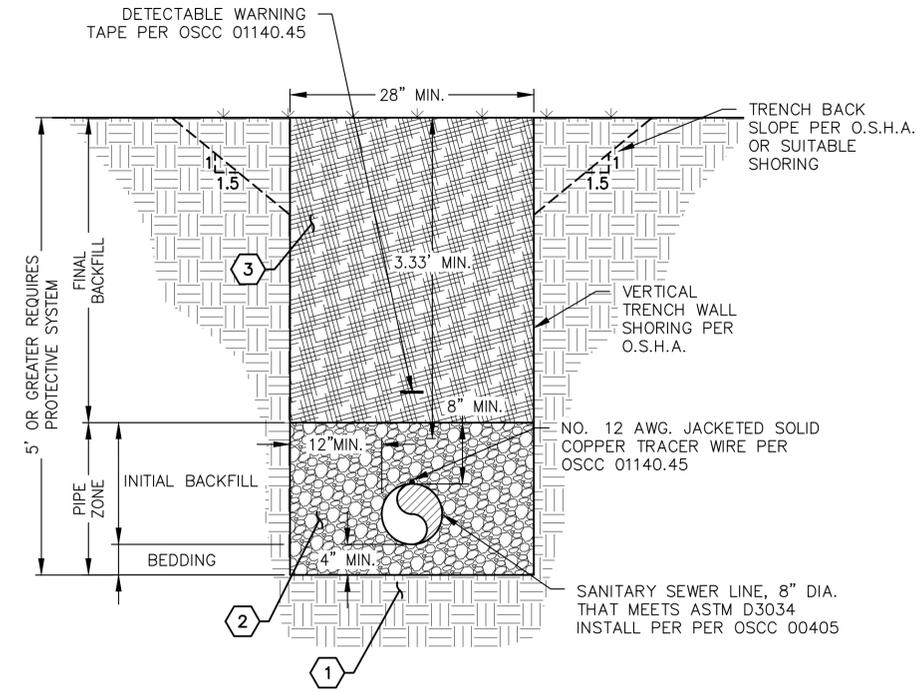
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 Xref Filename: | X-TITLE | X-TITLE (2) |



1 WATER LINE TRENCH DETAIL  
NOT TO SCALE

LEGEND

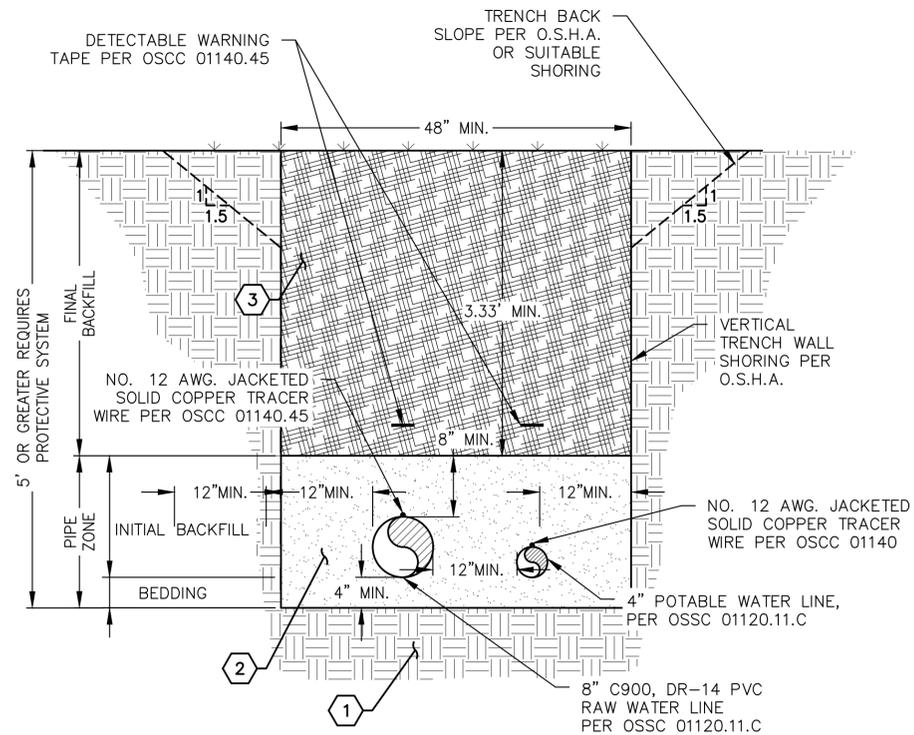
- 1 UNSTABLE SUBGRADE SHALL BE EXCAVATED AND BACKFILLED WITH APPROVED PIPE BEDDING MATERIAL AND COMPACTED PER OSCC 00405.44
- 2 PIPE BEDDING & INITIAL BACKFILL SHALL BE REASONABLY WELL-GRADED, FROM MAXIMUM SIZE TO DUST, SAND WITH 100% PASSING THE 3/8" SIEVE. BEDDING & INITIAL BACKFILL SHALL BE COMPACTED ACCORDING TO ASTM-D698 (STANDARD PROCTOR)
- 3 FINAL BACKFILL SHALL BE CLASS A BACKFILL ACCORDING TO OSCC 00405.14.A. FINAL BACKFILL SHALL BE 3" MINUS, FREE OF ORGANIC MATERIAL, FREE OF FROST CHUNKS, AND FREE OF TOXIC WASTE AND HAZARDOUS CHEMICALS. SEE OSCC 00405.12 FOR WET CONDITIONS



2 SANITARY SEWER TRENCH DETAIL  
NOT TO SCALE

LEGEND

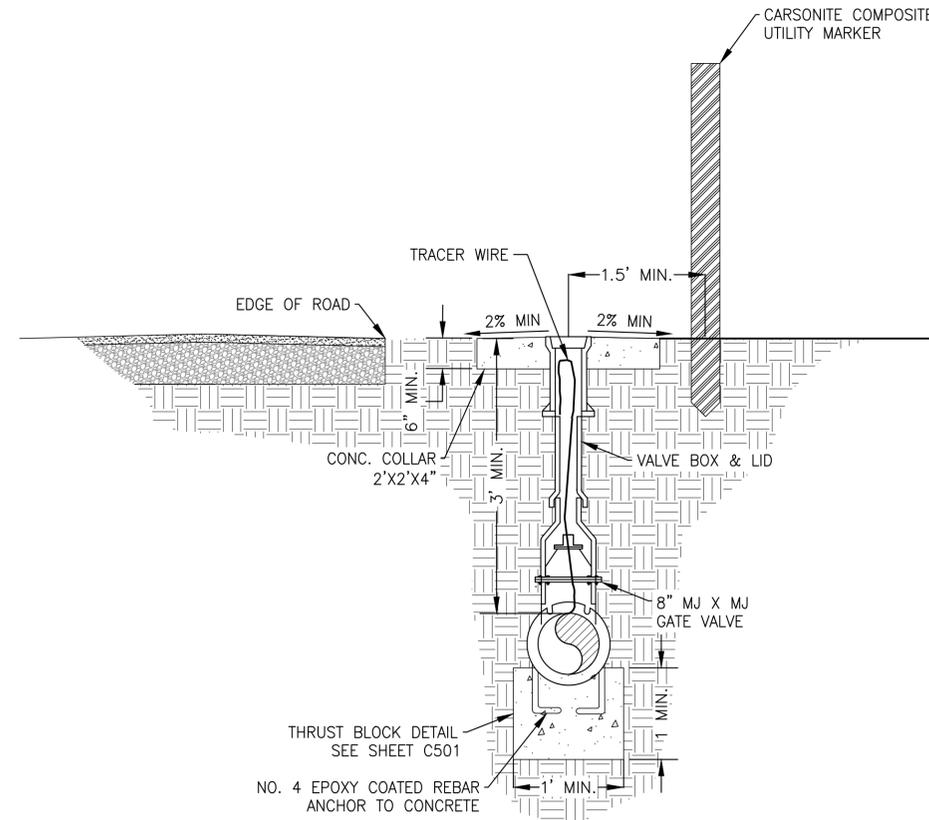
- 1 UNSTABLE SUBGRADE SHALL BE EXCAVATED AND BACKFILLED WITH APPROVED PIPE BEDDING MATERIAL AND COMPACTED PER OSCC 00405.44
- 2 PIPE BEDDING & INITIAL BACKFILL SHALL BE COMMERCIALY AVAILABLE 3/8" ROCK CHIPS.
- 3 FINAL BACKFILL SHALL BE CLASS A BACKFILL (NATIVE BACKFILL) ACCORDING TO OSCC 00405.14.A. FINAL BACKFILL SHALL BE 3" MINUS, FREE OF ORGANIC MATERIAL, FREE OF FROST CHUNKS, AND FREE OF TOXIC WASTE AND HAZARDOUS CHEMICALS. SEE OSCC 00405.12 FOR WET CONDITIONS



3 JOINT TRENCH DETAIL  
NOT TO SCALE

LEGEND

- 1 UNSTABLE SUBGRADE SHALL BE EXCAVATED AND BACKFILLED WITH APPROVED PIPE BEDDING MATERIAL AND COMPACTED PER OSCC 00405.44
- 2 PIPE BEDDING & INITIAL BACKFILL SHALL BE REASONABLY WELL-GRADED, FROM MAXIMUM SIZE TO DUST, SAND WITH 100% PASSING THE 3/8" SIEVE. BEDDING & INITIAL BACKFILL SHALL BE COMPACTED ACCORDING TO ASTM-D698 (STANDARD PROCTOR)
- 3 FINAL BACKFILL SHALL BE CLASS A BACKFILL ACCORDING TO OSCC 00405.14.A. FINAL BACKFILL SHALL BE 3" MINUS, FREE OF ORGANIC MATERIAL, FREE OF FROST CHUNKS, AND FREE OF TOXIC WASTE AND HAZARDOUS CHEMICALS. SEE OSCC 00405.12 FOR WET CONDITIONS



4 TYP. GATE VALVE & VALVE BOX  
NOT TO SCALE

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
CALICO RESOURCES USA CORP.



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

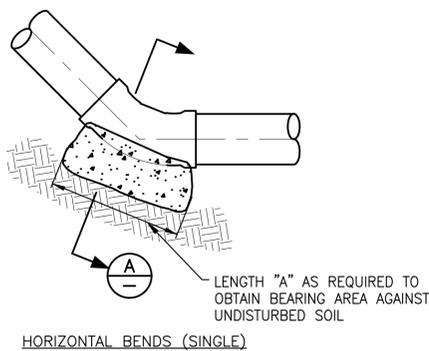
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BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

C500

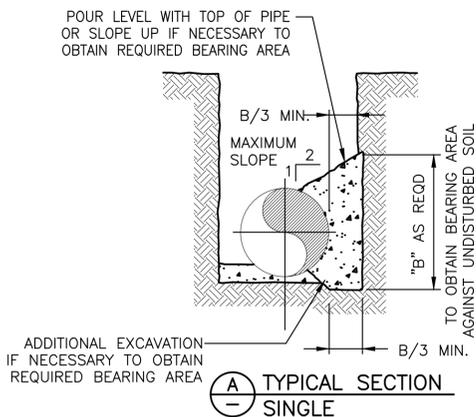
SPF WATER ENGINEERING  
300 East Mallard Drive, Suite 350  
Boise, Idaho 83706  
Tel (208) 383-4140 Fax (208) 383-4156

TRENCH DETAILS

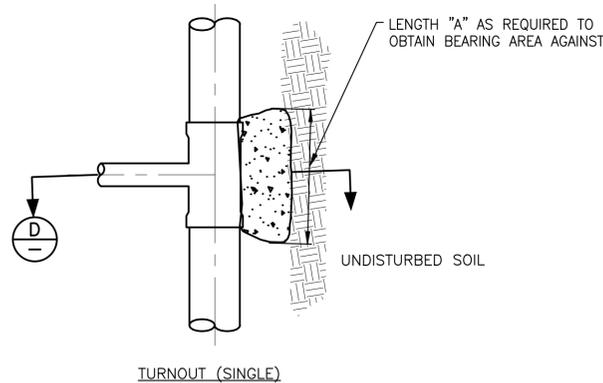
\*NOTE: THRUST BLOCK SCHEDULE SEE SHEET C502



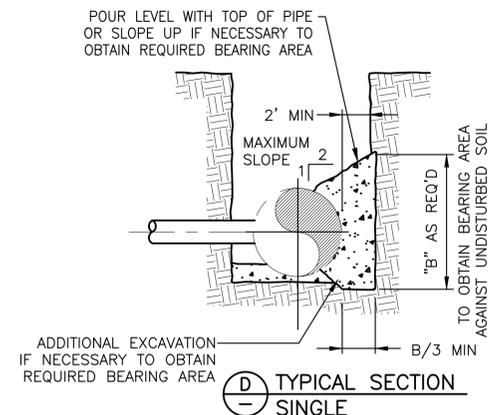
1 TYP. HORIZONTAL BEND THRUST BLOCK DETAIL  
NOT TO SCALE



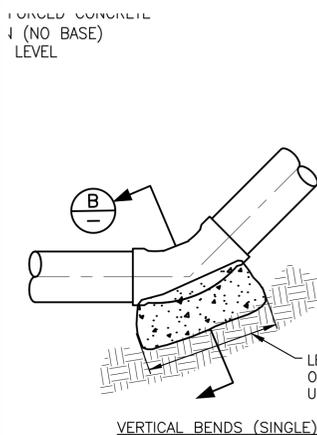
A TYPICAL SECTION SINGLE



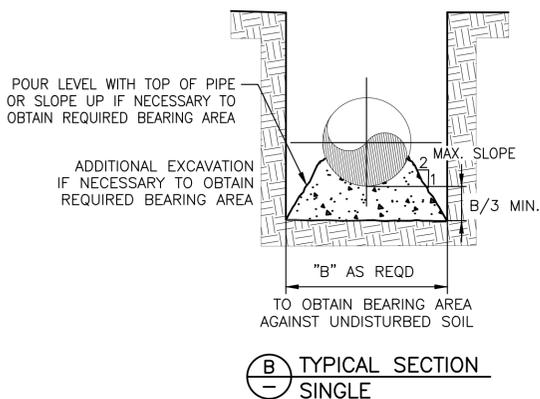
4 TYP. TEE THRUST BLOCK DETAIL  
NOT TO SCALE



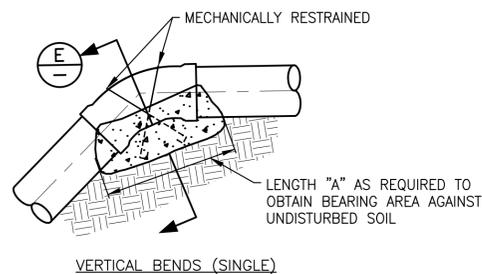
D TYPICAL SECTION SINGLE



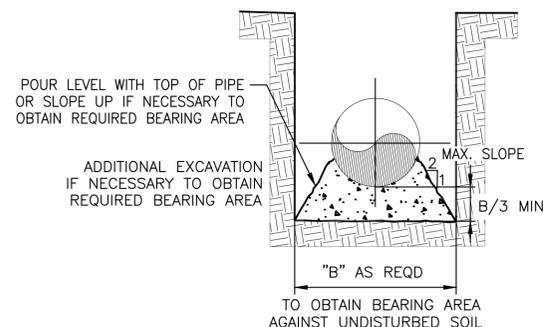
2 TYP. VERTICAL UPWARD BEND THRUST BLOCK DETAIL  
NOT TO SCALE



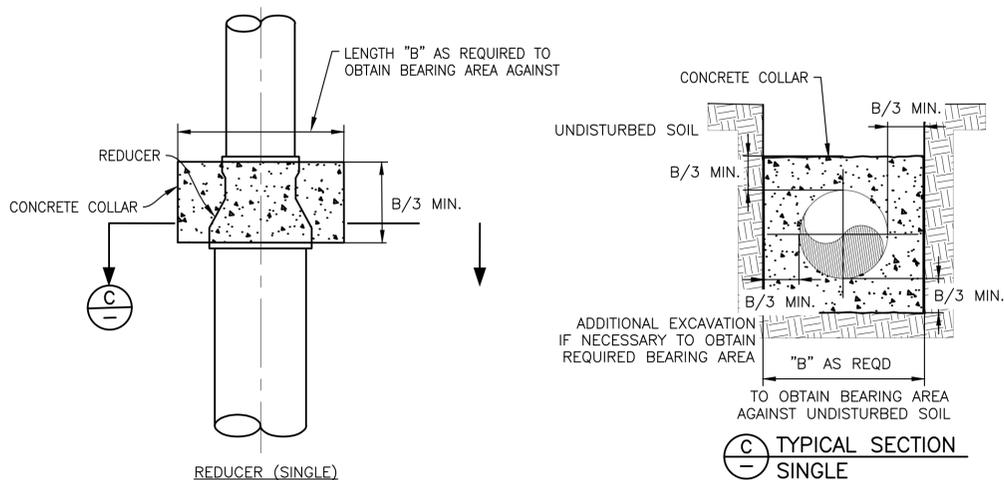
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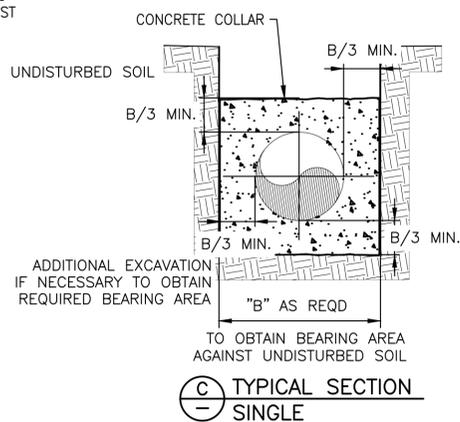
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NOT TO SCALE



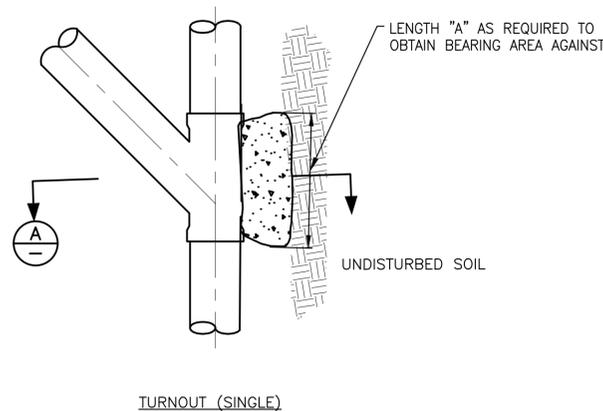
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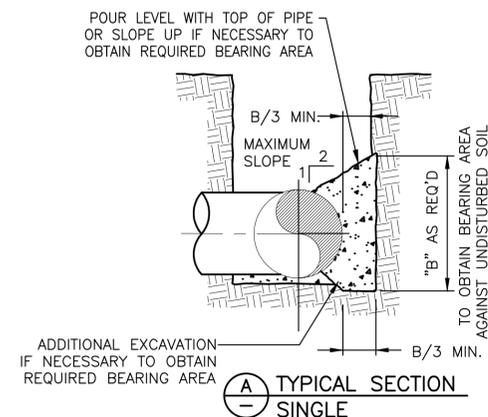
3 TYP. REDUCER THRUST BLOCK DETAIL  
NOT TO SCALE



C TYPICAL SECTION SINGLE



6 TYP. WYE THRUST BLOCK DETAIL  
NOT TO SCALE



A TYPICAL SECTION SINGLE



REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE	0 1/2 1
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

\*SEE SHEET C502 FOR THRUST BLOCK SCHEDULE AND NOTES

Path: S:\PROJECTS\M thru R\Projects\Paramount\_Gold\_1294\0050\_Water and Wastewater Design\2018 A File: DETAILS\_GRASSY\_hw Plot date: Aug 22, 2019-03:17:10pm CAD User: HWhite. Xref Filename: | X-TITLE | X-TITLE (2) |

THRUST BLOCK MINIMUM DIMENSIONS								
NOTE: THIS TABLE IS BASED ON 250-300 PSI MAIN PRESSURE & 2000 PSI SOIL BEARING PRESSURE. STA. 0+00 - STA. 27+50								
DIMENSIONS FOR THRUST BLOCKING								
FITTING SIZES	TEES & PLUGS		90° ELBOW		45° ELBOW & WYES		22.5° ELBOW & REDUCERS	
	A	B	A	B	A	B	A	B
4"	2'-3"	1'-8"	2'-6"	2'-2"	2'-5"	1'-3"	2'-3"	1'-0"
6"	2'-10"	2'-8"	3'-6"	3'-1"	2'-7"	2'-3"	2'-6"	1'-3"
8"	3'-10"	3'-10"	4'-6"	4'-3"	3'-6"	3'-0"	2'-6"	2'-2"
10"	4'-9"	4'-8"	5'-8"	5'-6"	4'-3"	3'-11"	3'-1"	2'-8"
12"	5'-8"	5'-6"	6'-8"	6'-8"	5'-3"	4'-8"	3'-8"	3'-3"
14"	7'-8"	5'-6"	9'-3"	7'-0"	6'-9"	4'-10"	4'-10"	3'-6"

THRUST BLOCK MINIMUM DIMENSIONS								
NOTE: THIS TABLE IS BASED ON MAX 150-250 PSI MAIN PRESSURE & 2000 PSI SOIL BEARING PRESSURE. STA. 27+50 - 112+50								
DIMENSIONS FOR THRUST BLOCKING								
FITTING SIZES	TEES & PLUGS		90° ELBOW		45° ELBOW & WYES		22.5° ELBOW & REDUCERS	
	A	B	A	B	A	B	A	B
4"	2'-1"	1'-7"	2'-4"	2'-0"	2'-2"	1'-1"	2'-1"	0'-11"
6"	2'-8"	2'-6"	3'-2"	2'-10"	2'-4"	2'-1"	2'-4"	1'-1"
8"	3'-6"	3'-6"	4'-2"	3'-11"	3'-2"	2'-9"	2'-4"	2'-0"
10"	4'-3"	4'-3"	5'-2"	5'-0"	3'-11"	3'-7"	2'-10"	2'-6"
12"	5'-2"	5'-0"	6'-1"	6'-1"	4'-9"	4'-3"	3'-5"	2'-11"
14"	7'-0"	5'-0"	8'-5"	6'-5"	6'-2"	4'-5"	4'-5"	3'-2"

THRUST BLOCK MINIMUM DIMENSIONS								
NOTE: THIS TABLE IS BASED ON MAX 0-150 PSI MAIN PRESSURE & 2000 PSI SOIL BEARING PRESSURE. STA. 112+50 - 146+90								
DIMENSIONS FOR THRUST BLOCKING								
FITTING SIZES	TEES & PLUGS		90° ELBOW		45° ELBOW & WYES		22.5° ELBOW & REDUCERS	
	A	B	A	B	A	B	A	B
4"	1'-7"	1'-2"	1'-9"	1'-6"	1'-8"	0'-10"	1'-7"	0'-8"
6"	2'-0"	1'-11"	2'-5"	2'-2"	1'-10"	1'-7"	1'-9"	0'-10"
8"	2'-8"	2'-8"	3'-2"	3'-0"	2'-5"	2'-1"	1'-9"	1'-6"
10"	3'-4"	3'-3"	4'-0"	3'-10"	3'-0"	2'-9"	2'-2"	1'-11"
12"	4'-0"	3'-10"	4'-8"	4'-8"	3'-8"	3'-3"	2'-7"	2'-3"
14"	5'-5"	3'-10"	6'-6"	4'-11"	4'-9"	3'-5"	3'-5"	2'-5"

**NOTES:**

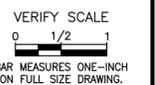
- MINIMUM BEARING AREA IS DESIGNED FOR A MAXIMUM SOIL BEARING CAPACITY OF 2,000 POUNDS PER SQUARE FOOT. IF LOW OR HIGH BEARING CAPACITY SOILS ARE ENCOUNTERED, CONTACT THE ENGINEER IMMEDIATELY. IF SOILS WITH LOW BEARING CAPACITY SUCH AS SATURATED SOILS, SOIL CONTAINING A HIGH PERCENTAGE OF CLAY OR ORGANIC MATERIAL ARE ENCOUNTERED AT A THRUST BLOCK LOCATION, THE BEARING AREA MAY NEED TO BE INCREASED OR THE UNSUITABLE SOILS MAY NEED TO BE OVER-EXCAVATED AND REPLACED WITH STRUCTURAL FILL AS APPROVED AND DIRECTED BY THE ENGINEER. THE BEARING AREA MAY BE DECREASED IF HIGHER BEARING CAPACITY IS SUBSTANTIATED BY SOIL BEARING TESTS AS APPROVED AND DIRECTED BY THE ENGINEER.
- CONCRETE THRUST BLOCKS SHALL BE IN ACCORDANCE WITH THE OSCC 01140.44.
- THRUST BLOCK IS TO EXTEND TO UNDISTURBED SOIL.
- ALL FITTINGS SHALL BE COVERED WITH POLYETHYLENE WRAP PRIOR TO POURING THRUST BLOCK.

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.

THRUST BLOCK SCHEDULE & NOTES



REVISIONS	DESCRIPTION	DATE
0	FINAL PERMIT SET	7/31/19

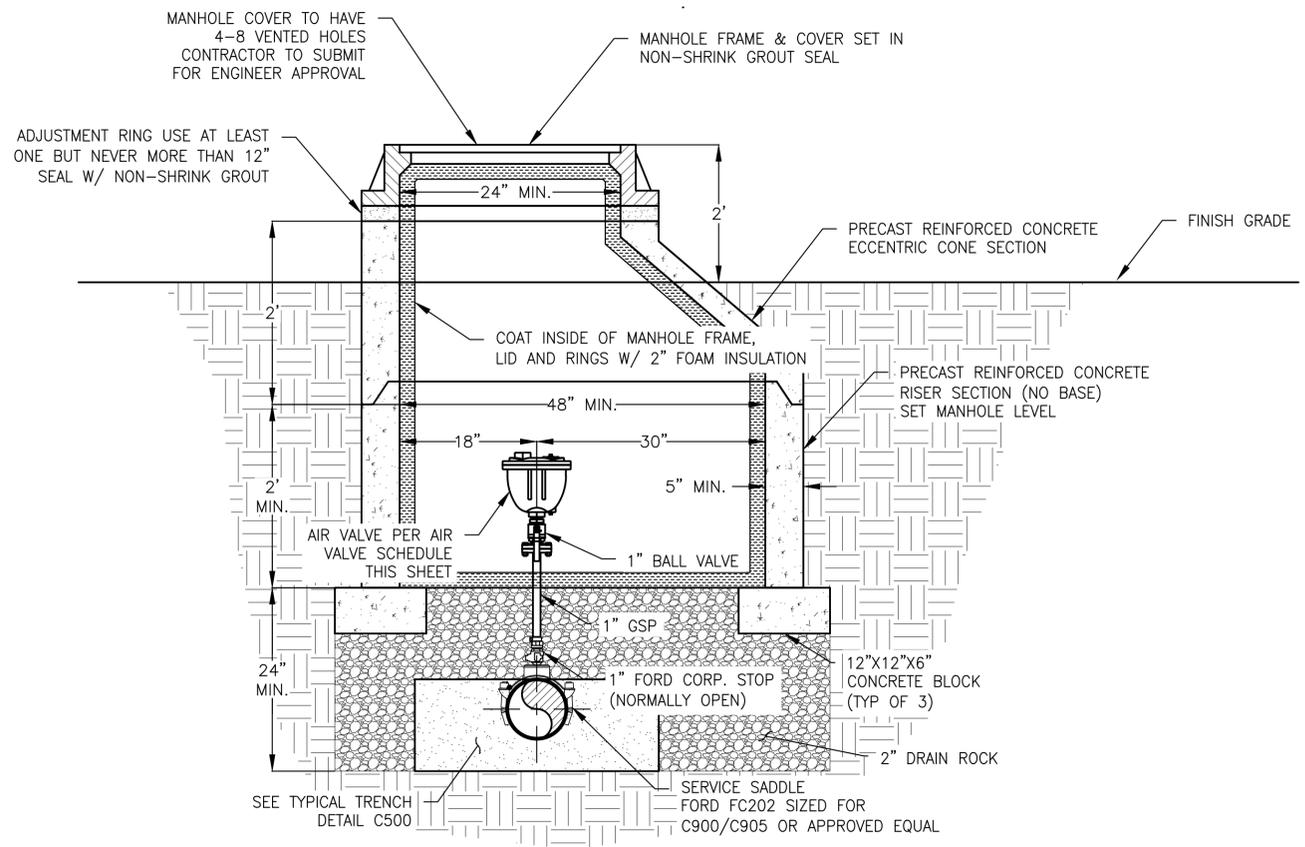


PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

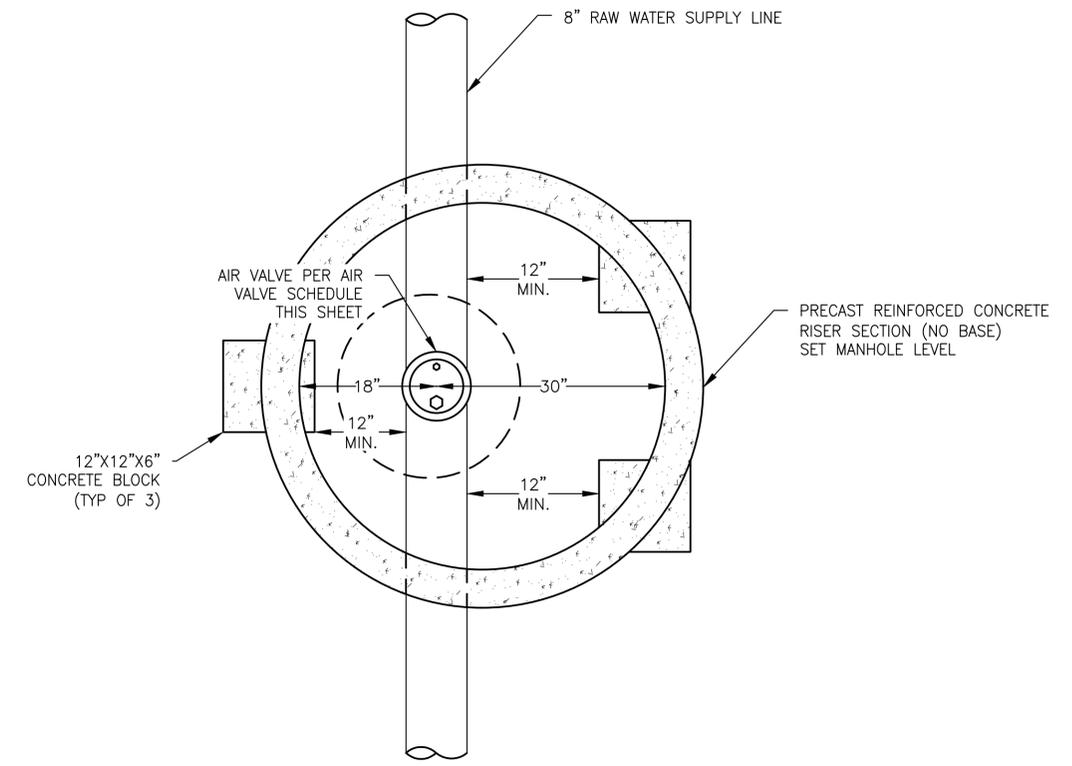
C502



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 Xref Filename: | X-TITLE | X-TITLE (2) |



1 AIR VALVE & AIR VALVE VAULT SECTION DETAIL  
 NOT TO SCALE



2 AIR VALVE & AIR VALVE VAULT DETAIL  
 NOT TO SCALE

MAINLINE AIR VALVE MINIMUM SIZES & LOCATIONS							
VAL-MATIC SERIES	TYPE	SIZE & SMALL ORIFICE DIA. MIN.	PIPELINE	PRESSURE CLASS (PSI)	MAX. GPM	MAIN DIA. (IN)	STATION
201C.2	COMBINATION	1" - 5/64"	MAIN	300	400	8	32+00
201C.2	COMBINATION	1" - 5/64"	MAIN	300	400	8	65+50
201C.2	COMBINATION	1" - 5/64"	MAIN	300	400	8	97+00
201C.2	COMBINATION	1" - 5/64"	MAIN	300	400	8	128+85
201C.2	COMBINATION	1" - 5/64"	MAIN	300	400	8	147+50

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GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 PARAMOUNT GOLD NEVADA  
 AIR VALVE DETAILS AND SCHEDULE

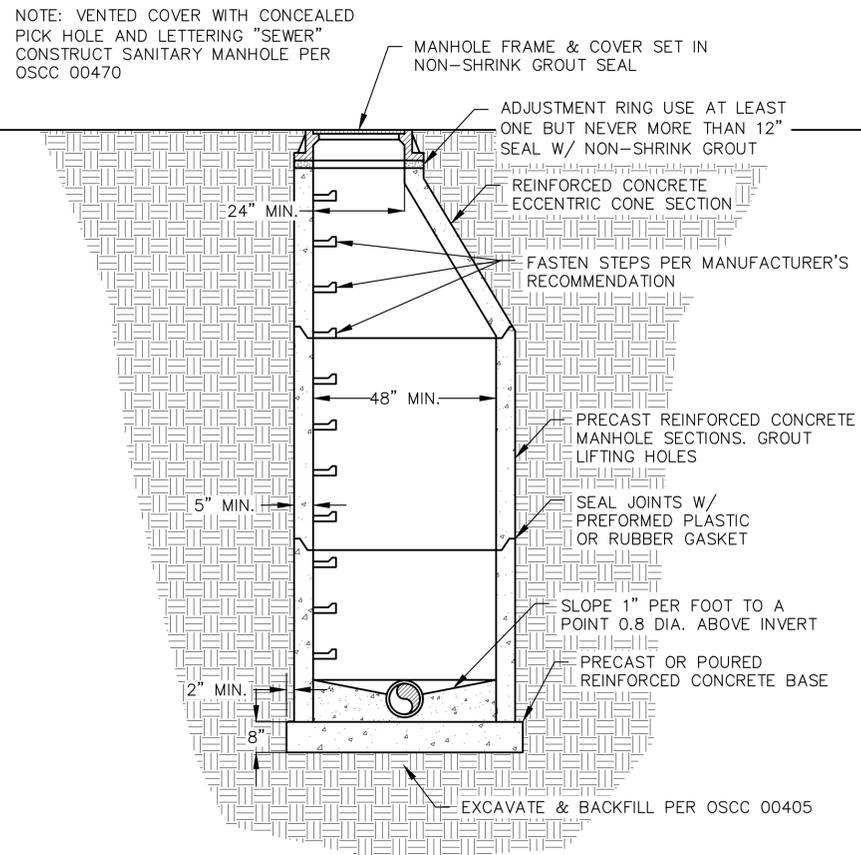


REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

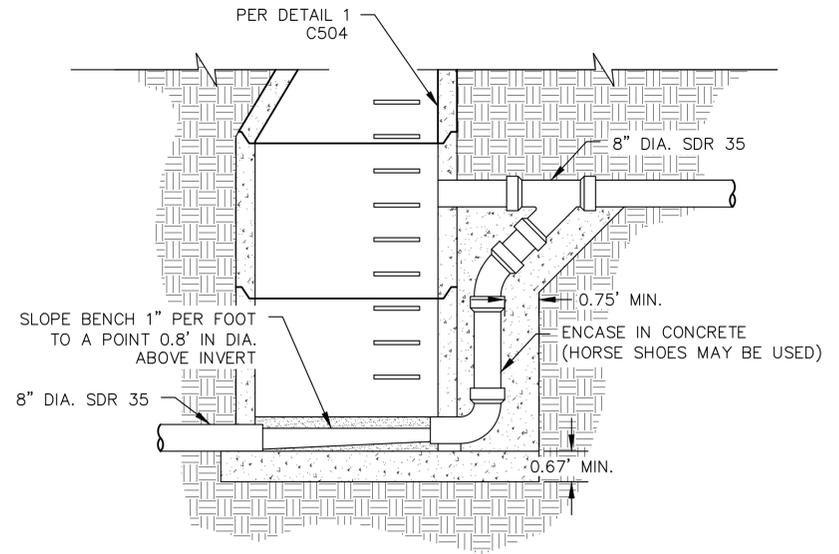
VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.  
 PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

C503

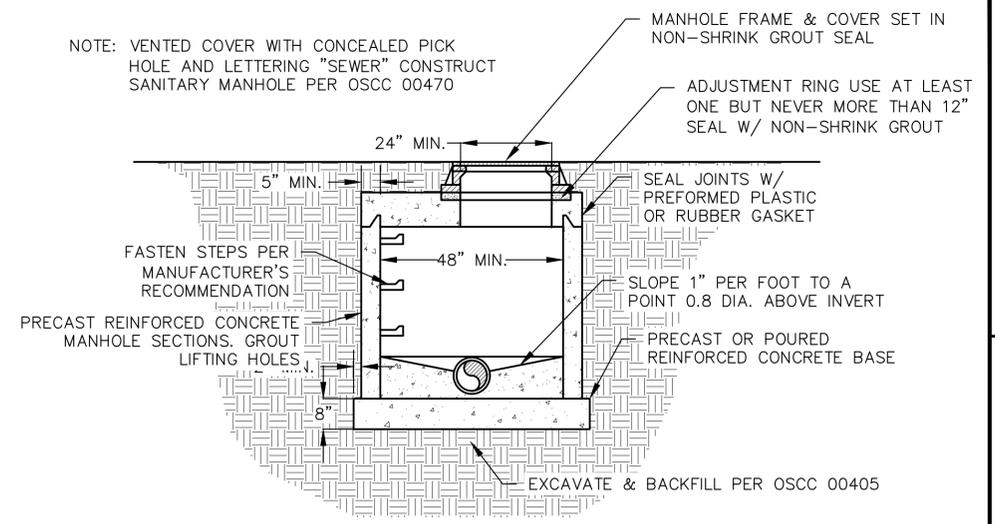
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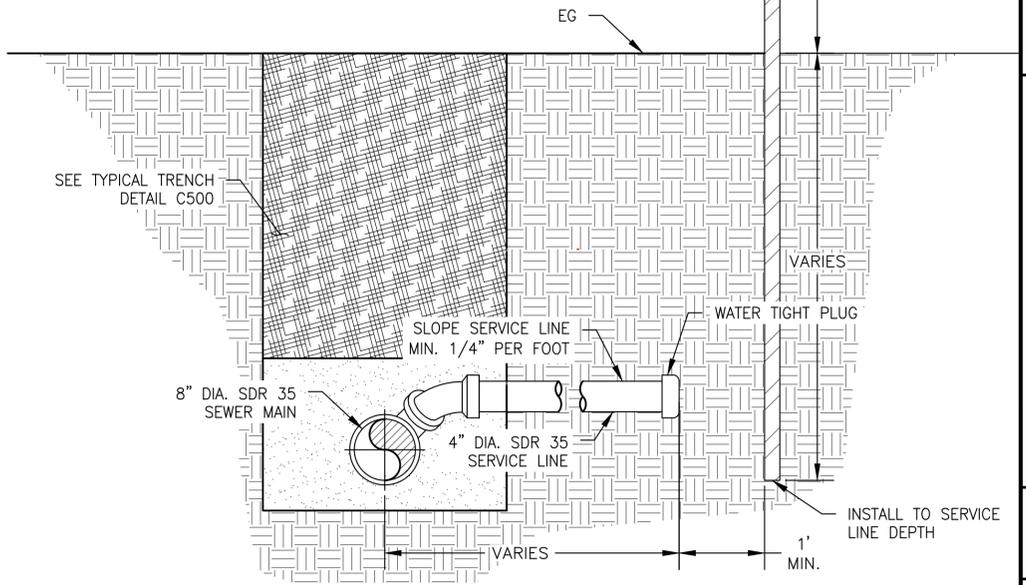
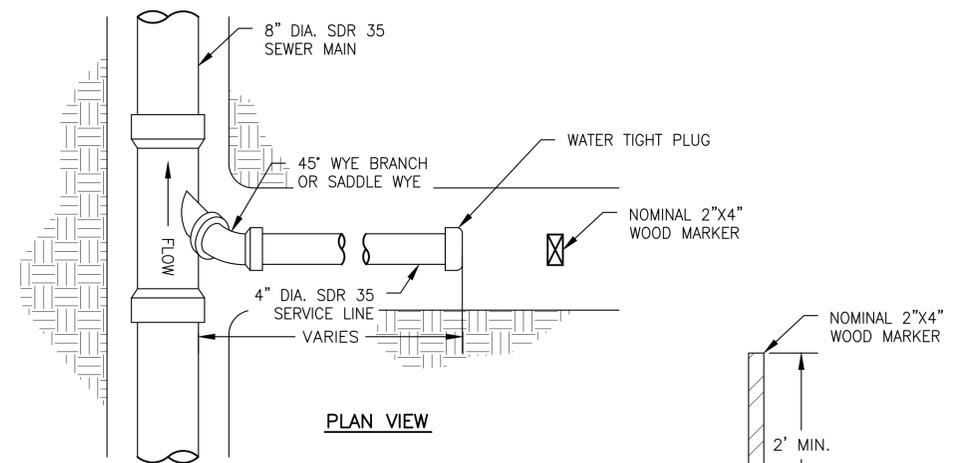
1 SANITARY SEWER MANHOLE DETAIL  
NOT TO SCALE



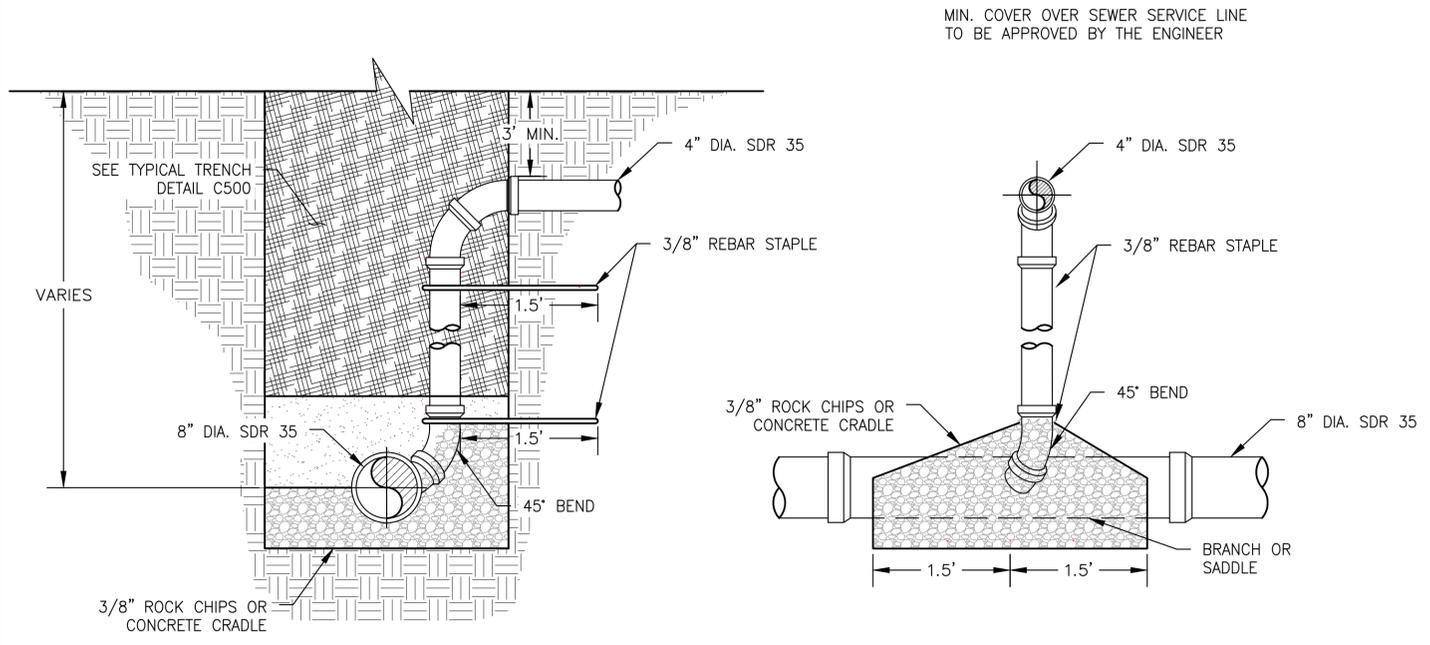
2 DROP SANITARY SEWER MANHOLE DETAIL  
NOT TO SCALE



3 SHALLOW SANITARY SEWER MANHOLE DETAIL  
NOT TO SCALE



5 SANITARY SEWER SERVICE DETAIL  
NOT TO SCALE



4 SANITARY SEWER RISER DETAIL  
NOT TO SCALE

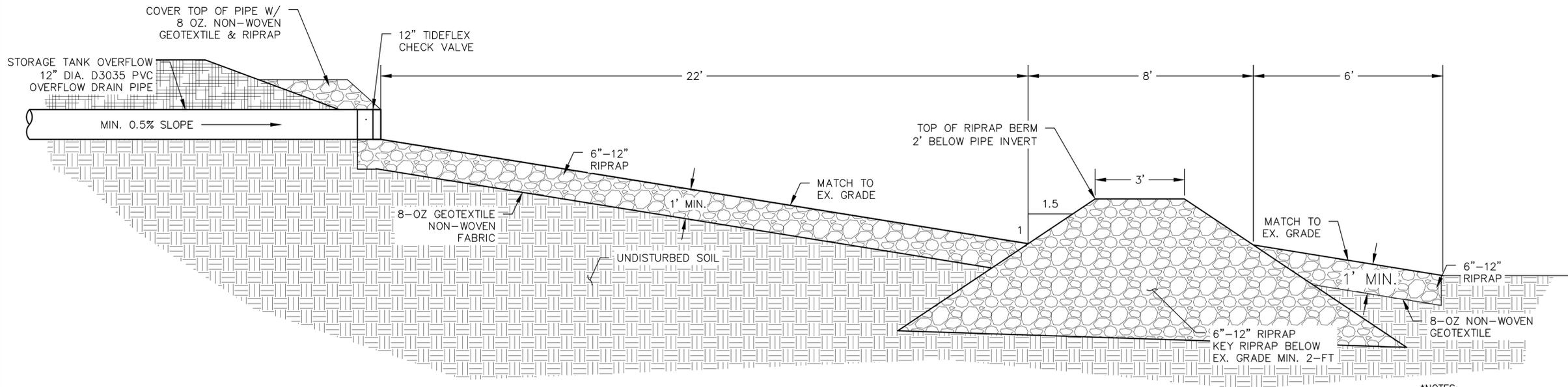
REVISIONS	DATE	DESCRIPTION
0	8/22/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

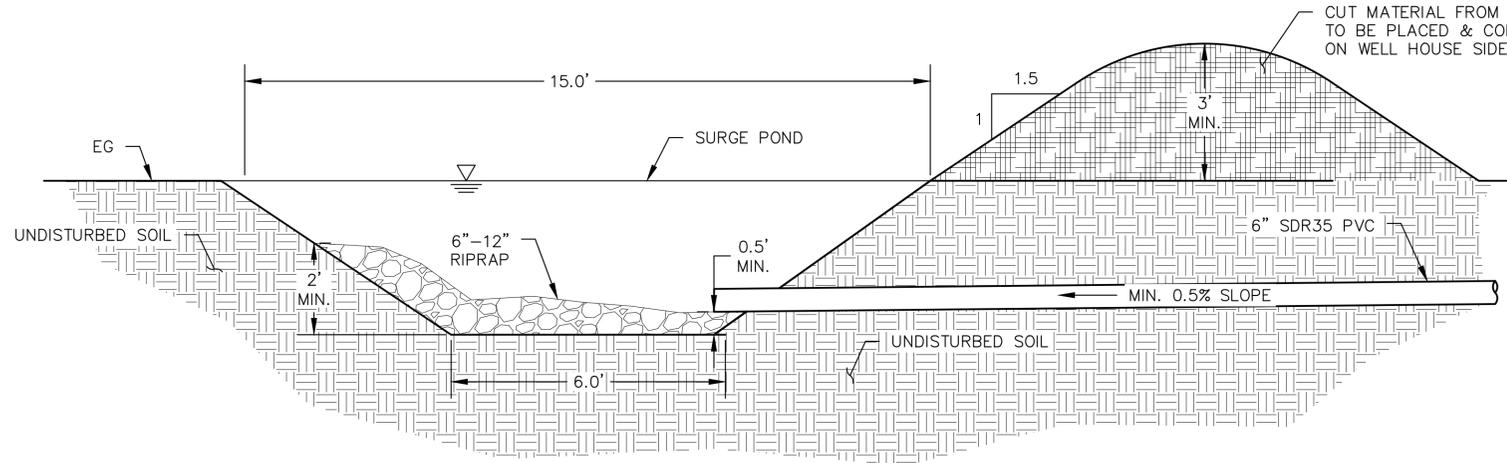
C504

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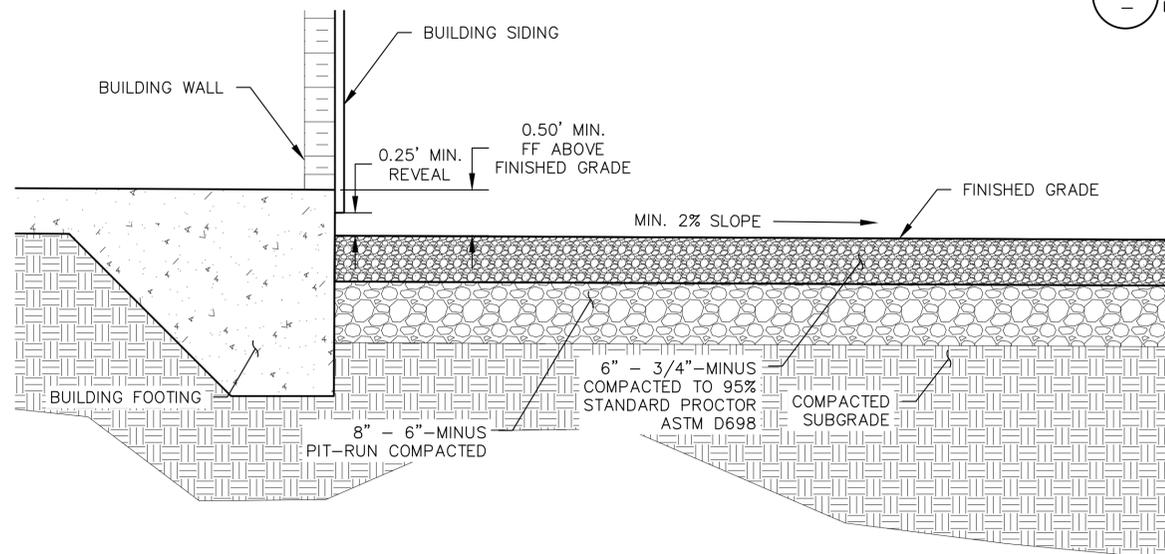
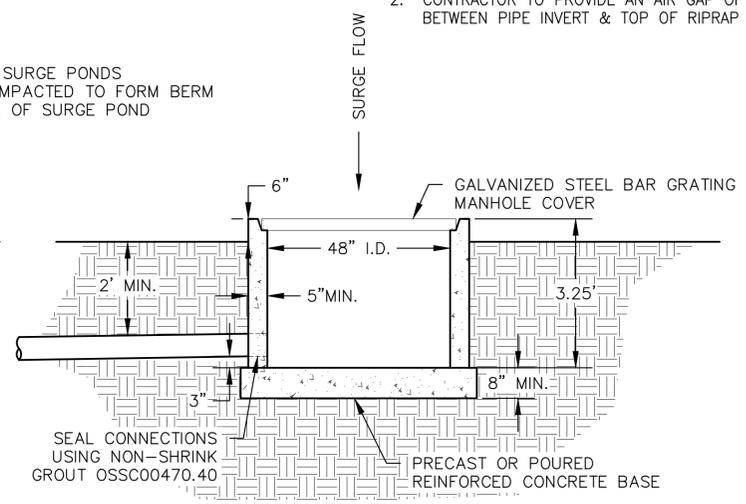


1 STORAGE TANK OVERFLOW  
 NOT TO SCALE

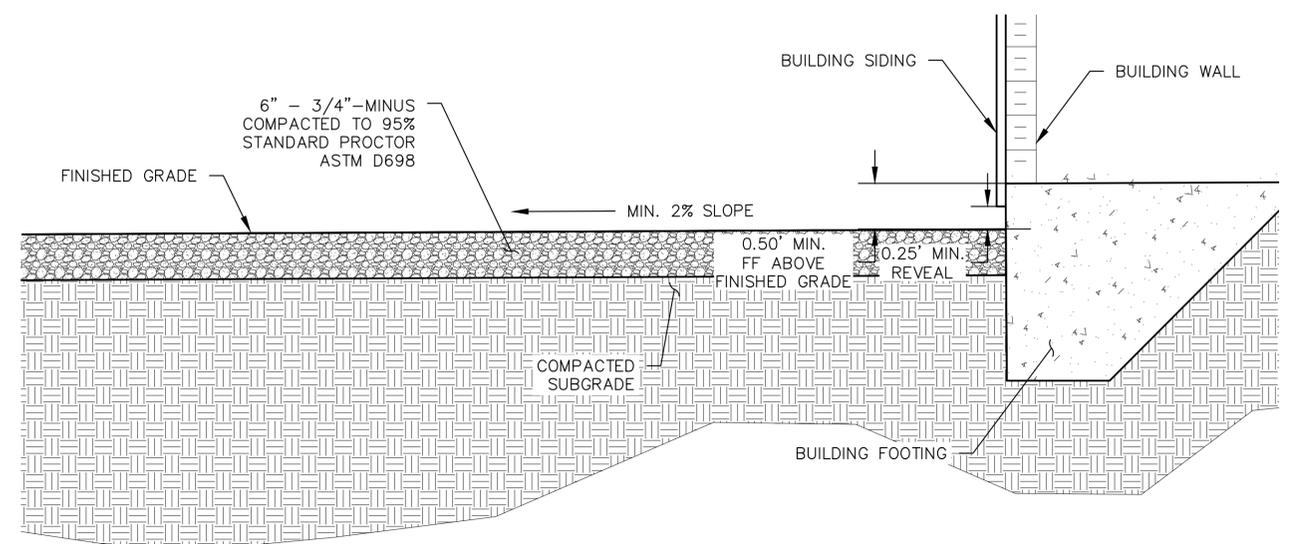
- \*NOTES:  
 1. CONTRACTOR SHALL OBTAIN RIPRAP FROM ON-SITE BORROW SOURCES.  
 2. CONTRACTOR TO PROVIDE AN AIR GAP OF 24" BETWEEN PIPE INVERT & TOP OF RIPRAP BERM



2 SURGE MANHOLE & SURGE POND CROSS SECTION  
 NOT TO SCALE



3 TYP. FRONT SITE GRADING  
 NOT TO SCALE



4 TYP. BACK SITE GRADING  
 NOT TO SCALE



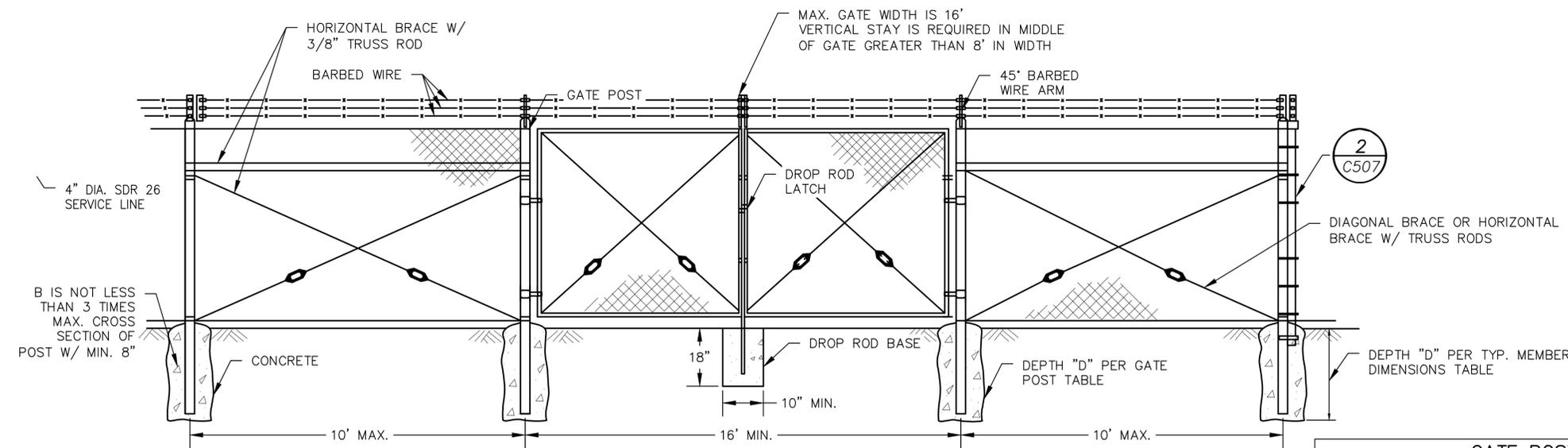
REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.

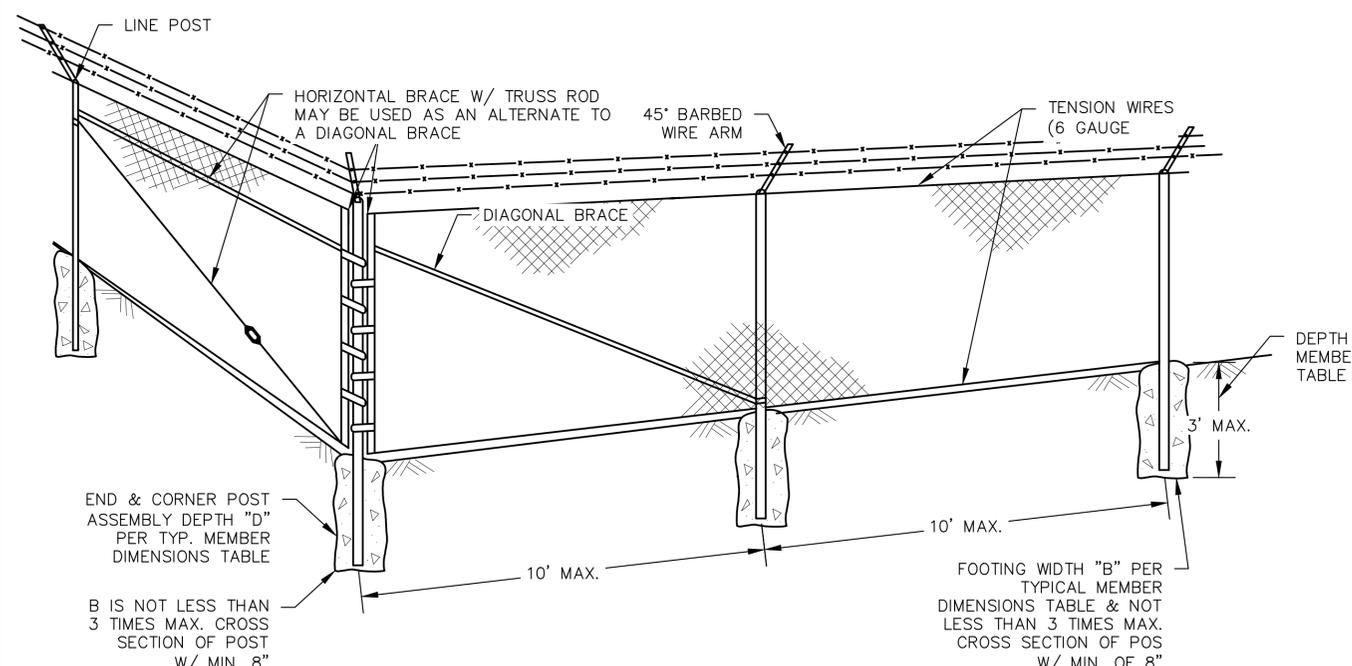
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 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT



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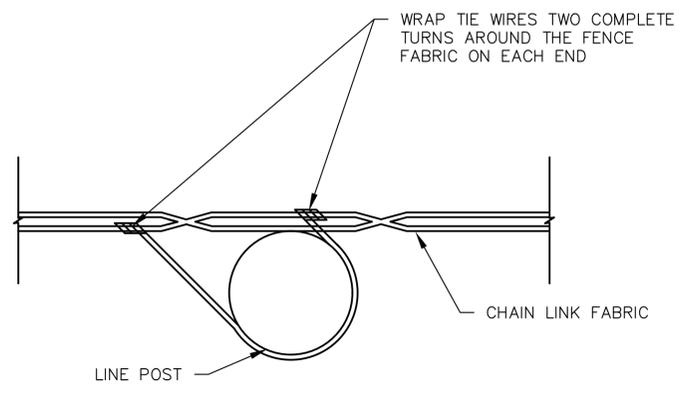
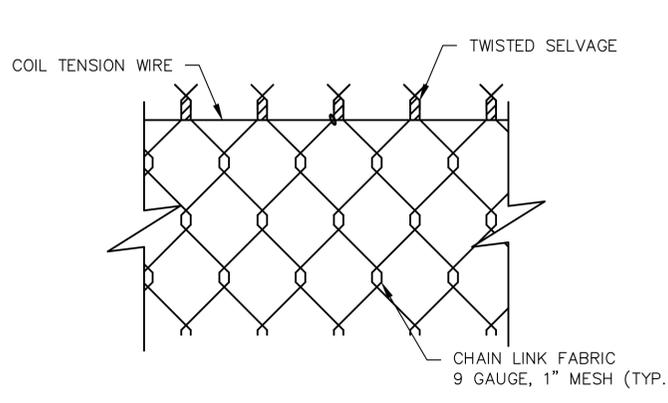
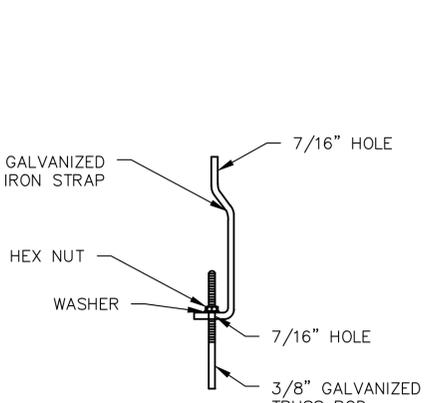
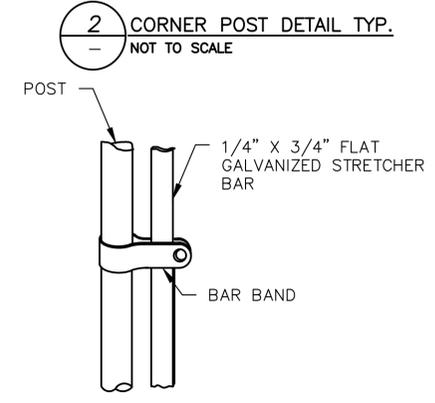
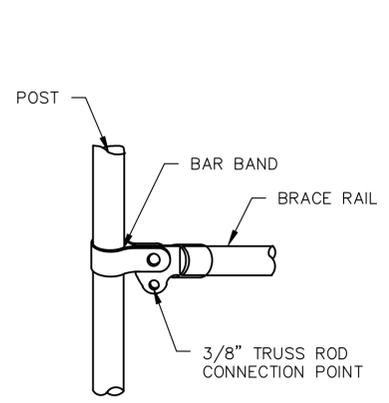


GATE POST					
FENCE HEIGHT (Max)	B (in)	D (ft)	ROUND PIPE		
			SECTION	ROUND OD PIPE	WEIGHT (lb/ft)
6'-0"	12"	2'-6"	3 Std	3.50"	7.58
8'-0"	12"	3'-0"	3 Std	3.50"	7.58



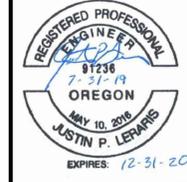
TYPICAL MEMBER DIMENSIONS (See Notes)												
FENCE HEIGHT (Max)	B (in)	D (ft)	LINE POSTS				BRACES					
			ROUND PIPE		ROLL FORMED		ROUND PIPE			ROLL FORMED		
			SECTION	ROUND OD PIPE	WEIGHT (lb/ft)	SECTION	WEIGHT (lb/ft)	SECTION	ROUND OD PIPE	WEIGHT (lb/ft)	SECTION	WEIGHT (lb/ft)
6'-0"	10"	2'-6"	2 Std	2.38"	3.66	1.875" x 1.625"	2.40	2 Std	2.38"	3.66	1.625" x 1.250"	1.35
8'-0"	12"	3'-0"	2 1/2 Std	2.88"	5.80	3.250" x 2.500"	4.50	2 Std	2.38"	3.66	1.625" x 1.250"	1.35

- GENERAL NOTES**
- ALL FENCE AND FENCING MATERIALS SHALL BE GALVANIZED.
  - TRUSS ROD TIGHTENER AND THE NON-TIGHTENING END OF THE TRUSS ROD MAY BE WELDED TO THE GATE.
  - SPACE THE VERTICAL UPRIGHTS EVENLY ON THE GATE LEAF AND INSTALL TRUSS RODS AS SHOWN ON THE UPRIGHT/BRACE PLACEMENT DETAIL. SPACE HORIZONTAL BRACES EVENLY ON THE GATE LEAF.
  - SPACE POSTS EQUAL DISTANCES APART. 10' APART MAXIMUM SPACING UNLESS OTHERWISE DIRECTED ON THE PLANS OR BY THE ENGINEER.
  - SECURELY FASTEN BARBED WIRE ARMS TO THE POSTS.
  - SECURELY FASTEN THE BRACE RAILS AND TRUSS RODS TO POST WITH BRACE BANDS THREADED TAKE-UP ON THE TRUSS RODS.
  - STRETCH THE FENCE FABRIC & BARBED WIRE SMOOTH SO THAT IT HAS A UNIFORM APPEARANCE.
  - SELVAGE THE PLAIN WIRE ENDS ON THE TOP AND BOTTOM OF THE CHAIN LINK FABRIC BY THE TWISTED OR KNUCKLED METHOD. SEE WIRE SELVAGE DETAIL.
  - SET THE POSTS IN CONCRETE UNLESS OTHERWISE DIRECTED ON THE PLANS.
  - ADJUST THE POST TOP ELEVATIONS TO PROVIDE A SMOOTH VISUAL FENCE PROFILE. INSTALL CORNER POSTS AT HORIZONTAL BREAKS IN THE FENCE OF 15' OR MORE.
  - THE DESIGN OF THE CHAIN LINK HARDWARE MAY VARY SOMEWHAT FROM THAT SHOWN. ENSURE THAT HARDWARE AND MATERIALS USED ON A SINGLE INSTALLATION ARE UNIFORM AND COMPATIBLE.
  - MAX. GATE WIDTH IS 12' VERTICAL STAY IS REQUIRED IN MIDDLE OF GATE GREATER THAN 8' IN WIDTH.
  - MINIMUM SIZED POSTS AND BRACES COMPLYING WITH THE SPECIFICATIONS. LARGER OR HEAVIER POST AND BRACE SIZES MAY BE USED UPON APPROVAL.



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 Tel (208) 383-4140 Fax (208) 383-4156

GRASSY MOUNTAIN GOLD MINE WATER & SEWER  
 CALICO RESOURCES USA CORP.  
 FENCE AND GATE DETAILS



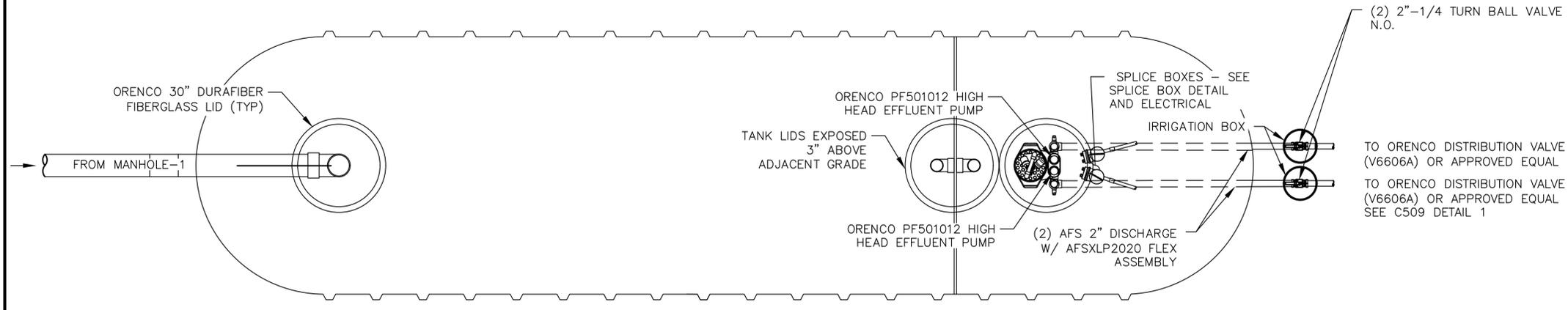
REVISIONS	DATE	DESCRIPTION
0	7/31/19	FINAL PERMIT SET

VERIFY SCALE  
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 BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.  
 PROJECT: 1294.0050  
 DESIGNED: EH/SM/JL  
 DRAWN: JL/SM/KN  
 CHECKED: JT

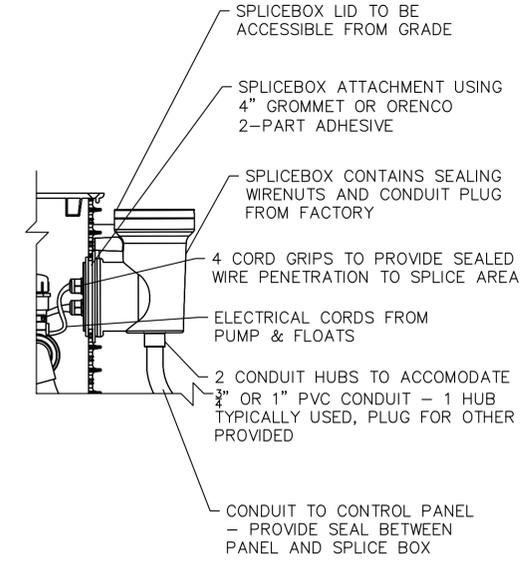
C507

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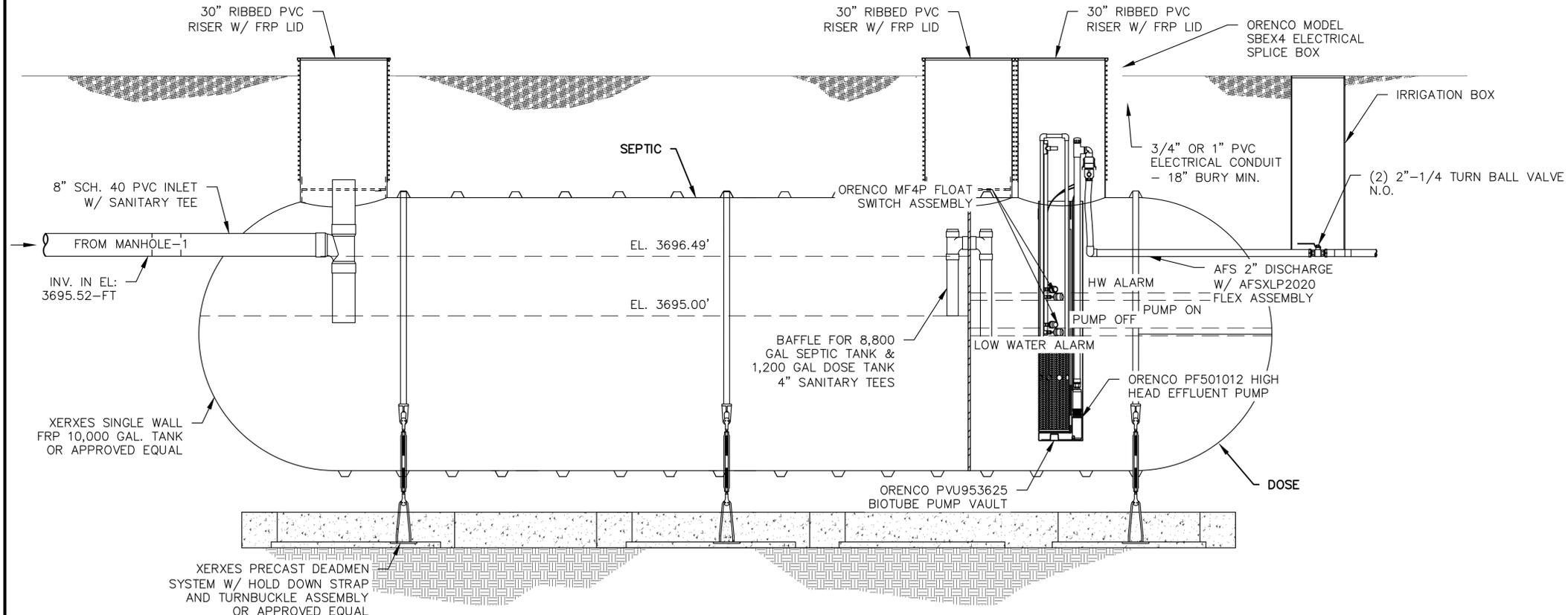
NOTE:  
 ALL PRODUCT BRANDS THIS SHEET ARE "OR APPROVED EQUAL" ITEMS.  
 CONTRACTOR TO PROVIDE SUBMITTALS.



1 10,000 GAL. FIBERGLASS SEPTIC TANK PLAN VIEW  
 NOT TO SCALE

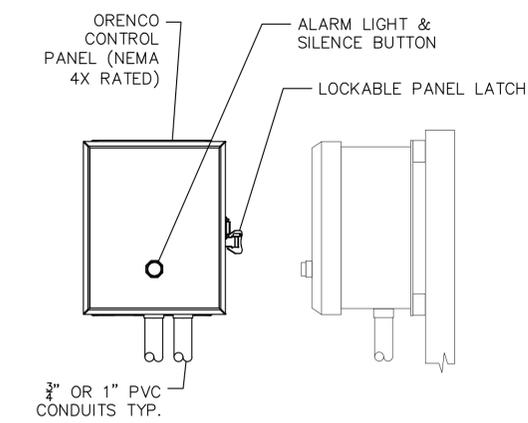


3 SPLICE BOX DETAILS  
 NOT TO SCALE



2 10,000 GAL. FIBERGLASS SEPTIC TANK PROFILE  
 NOT TO SCALE

- PANEL MOUNTING REQUIREMENTS
- PANEL SHALL BE MOUNTED ON 4X4 WOODEN POST IN LOCATION SHOWN PER SHEET C2 AND ELECTRICAL
  - PANEL DIMENSIONS: DAXMVP PANELS: 9.5" HIGH X 7.3" WIDE X 5.4" DEEP



4 MVPDAX2 DM CONTROL PANEL  
 NOT TO SCALE



REVISIONS	DATE	DESCRIPTION
0	8/22/19	FINAL PERMIT SET

VERIFY SCALE	0 1/2 1
BAR MEASURES ONE-INCH ON FULL SIZE DRAWING.	
PROJECT:	1294.0050
DESIGNED:	EH/SM/JL
DRAWN:	JL/SM/KN
CHECKED:	JT

