NOT APPROVED

3350 Far View Drive
Lot 25
River Point Subdivision

5 Bedroom Equivalent Residence
3722 ft^2 (living)
360 Gallons per Day

April 10, 2020

System design by:

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Map to 3350 Far View Drive

- From RR 2222, head south on City Park Road.
- Turn right on Glen Lake Drive.
- Turn left on Far View Drive.
- Turn down a long private drive on the right.
- The site is at the end of the drive on the left.

FIELD SIZE CALCULATIONS

SOIL CLASS	III	
Ra	0.1	To reduce break setback
# OF BEDROOMS	4	
HEATED SPACE	3722 SQ. FT.	
DAILY FLOW (Q)	360	
DRIPFIELD AREA	3600	
TREATMENT UNIT	Norweco 960-600gpd	
DRIP LINE DEPTH	6"	on scarified surface
TUBING SPACING	24"	
EMITTER SPACING	2.00'	Netafim
EMITTER FLOW	0.60	
# of DOSING ZONES	1	
# OF SCOUR ZONES	2	
MAX FEEDS per SCOUR ZONE	4	
TOTAL REQUIRED TUBING	1800	

Scour Zones	Feeds	Laterals	Line Length	Feeder Total	Zone Length	Line Flow	Feeder Flow	Zone Flow	Total System Length
Zone I	A	2	230	230	920	1.15	1.15	4.60	1840
	B	2	230	230		1.15	1.15		
	C	2	230	230		1.15	1.15		
	D	2	230	230		1.15	1.15		
Zone II	E	2	230	230	920	1.15	1.15	4.60	
	F	2	230	230		1.15	1.15		
	G	2	230	230		1.15	1.15		
	H	2	230	230		1.15	1.15		
Maximum			**230'**	**230'**	**920'**	**1.15**	**1.15**	**4.60**	
Totals			**1840'**	**1840'**	**1840'**	**9.20**	**9.20**	**9.20**	**1840'**

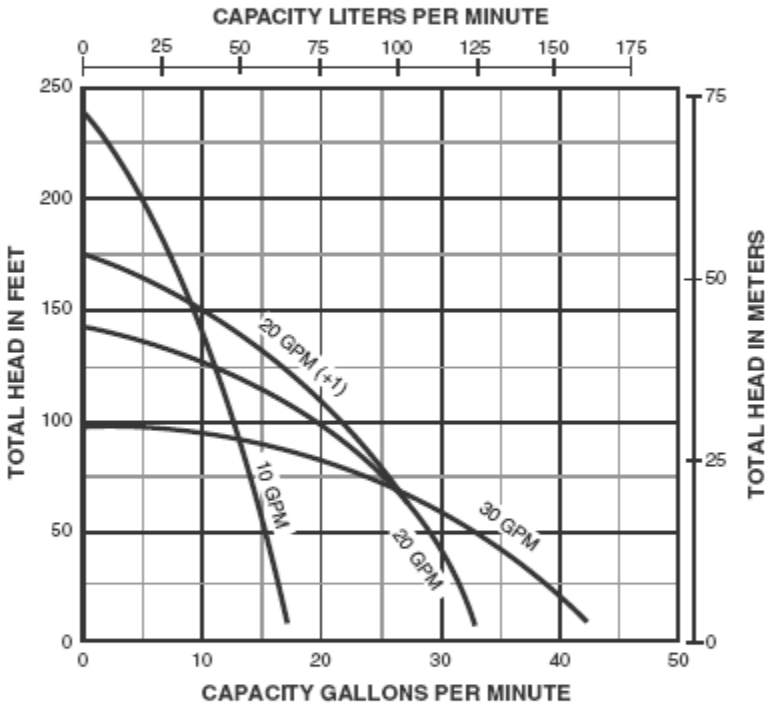
DESIGN APPLICATION RATE	0.1	
SCOUR FLOW (GPM)	2.0	
SCOUR VELOCITY (FT/SEC)	2.5	
INLET PRESSURE (PSI)	25.0	
MAX TUBING LENGTH TO ACHIEVE	268'	
LIFT TO FIELD	8'	
SUPPLY SIZE	1.25"	ACTUAL I.D. = 1.380"
SUPPLY LENGTH	70'	
SUPPLY FRICTION	3.15'	$H_f = 10.46\ (Q/C)^{1.85}\ L/D^{4.87}$
RETURN SIZE	1.00"	ACTUAL I.D. = 1.049"
RETURN LENGTH	75'	
RETURN FRICTION	3.12'	
FILTER FRICTION	8'	From Netafim spec sheet
TOTAL LOSSES to inlet	19'	OR 8 PSI
TDH SCOURING	**18 GPM @ 77'**	**(33 PSI)**

STA-RITE BOTTOM SUCTION PUMP
MODEL 20DOMO5121
1/2HP, 115 VOLT, 20 GPM SUBMERSIBLE

STA-RITE

4" multi-stage submersible pump

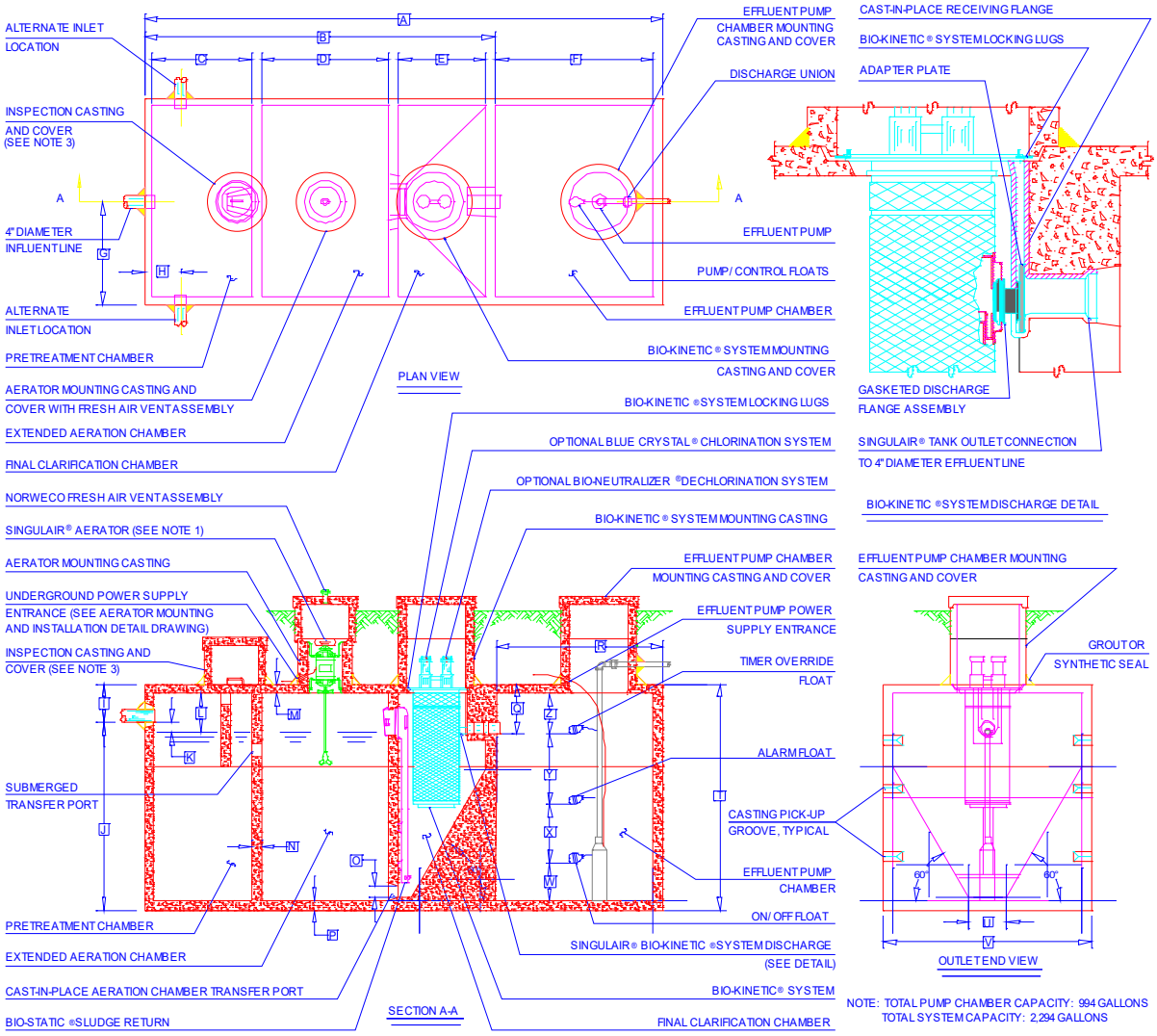
PUMP PERFORMANCE



PUMP PERFORMANCE *(Capacity in Gallons per Minute)*

Pump Model	Flow Rate (GPM)	PSI											
		0	10	20	30	40	50	60	70	80	90	100	110
10DOM05221	10			15.0	13.7	12.7	11.5	10.2	8.4	6.5	4.3	1.0	
10DOM05121	10			15.0	13.7	12.7	11.5	10.2	8.4	6.5	4.3	1.0	
20DOM05221	20			30.0	26.0	21.5	14.2	4.4					
20DOM05121	20			30.0	26.0	21.5	14.2	4.4					
30DOM05221	30		38.5	33.3	25.8	16							
30DOM05121	30		38.5	33.3	25.8	16							
20DOM05221+1	20 + 1			30	27.5	24	20	13.5	6				
20DOM05121+1	20 + 1			30	27.5	24	20	13.5	6				

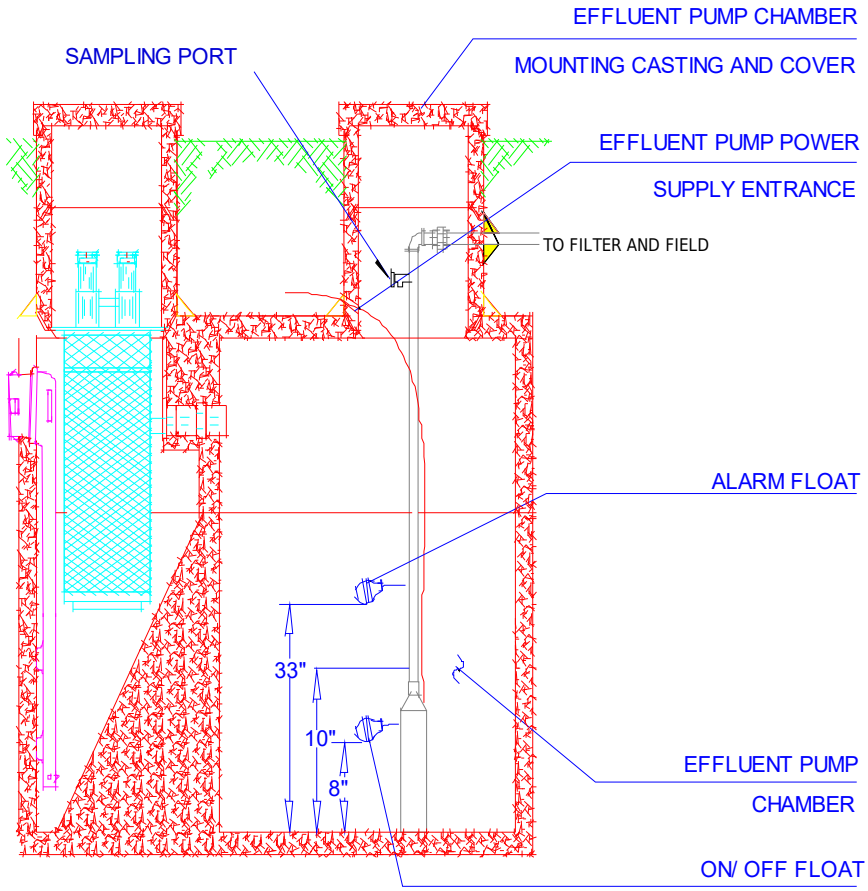
AEROBIC TREATMENT UNIT SPECIFICATIONS
(NORWECO 960-600 GPD WITH PC)



SEPTIC TANK/SEWER LINE DETAIL:

- MUST BE SCH 40 (OR OTHER APPROVED MATERIAL) AND 3” OR LARGER I.D.
- MUST HAVE 1/8” OR GREATER FALL PER FOOT.
- MUST HAVE A 2-WAY CLEANOUT BETWEEN HOUSE AND TANK AND EVERY 50’ IF A LONGER SEWER LINE IS USED.
- MUST NOT HAVE 90 DEGREE ELBOWS (TWO 45’S MAY BE USED INSTEAD).
- TEE’S MUST BE INSTALLED ON THE INLET AND OUTLET INSIDE OF TANK.
- USE OF CHLORINATOR IS OPTIONAL. IF USED, IT SHALL USE ONLY CALCIUM HYPOCHLORITE.
- NO PART OF THE SYSTEM SHALL BE WITHIN TEN FEET OF A POTABLE WATER LINE.

NORWECO PUMP CHAMBER DIAGRAM



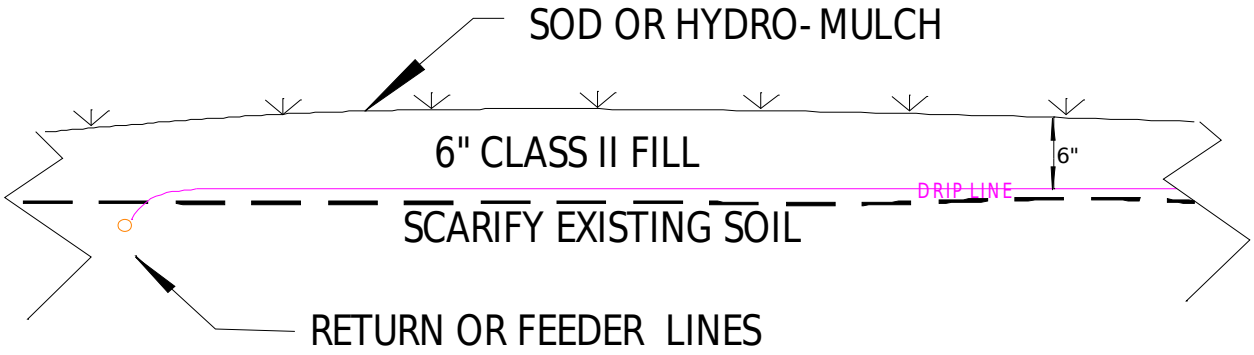
PUMP TANK CALCULATIONS

PUMP TANK VOLUME	997 GALLONS	Specified by manufacturer	
TANK DEPTH	53"		
GALLONS/INCH	18.81		
PUMP STOP LEVEL	**8"**		
PUMP START LEVEL	**10"**	STORAGE VOLUME	470 GALLONS
ALARM LEVEL	**33"**	RESERVE VOLUME	376 GALLONS

NOTE:

- **NO PART OF THE SYSTEM SHALL BE WITHIN TEN FEET OF A POTABLE WATER LINE.**
- **TANK MUST BE PLACED ON 4" SAND PAD.**
- **SYSTEM PRESSURE TO BE SET BY OPENING THE GATE VALVE THAT DUMPS TO THE PUMP TANK UNTIL THE PRESSURE AT THE SUPPLY SIDE OF THE FILTER READS 40 PSI.**
- **AN AUDIO AND VISUAL HIGH WATER, AND AERATOR ALARM ARE REQUIRED.**
- **ALARM AND PUMP TO BE ON SEPARATE CIRCUITS .**
- **100 MICRON NETAFIM SUPER FILTER REQUIRED ON PUMP LINE.**
- ****TANK RISER MUST BE INSTALLED TO MEET ALL CURRENT RISER AND SAFETY REQUIREMENTS (TAC§285.38)**
- **CONTROLLER SHALL BE SET TO DOSE FOR 15 MINUTES EVERY 8 HOURS.**

DISTRIBUTION FIELD REQUIREMENTS



- CARE MUST BE TAKEN TO REGRADE ENTIRE FIELD AREA SO THAT THE FRONT YARD DRAINS PROPERLY AFTER THE SYSTEM IS INSTALLED.
- DRIP LINES ARE TO BE PLACED ON SCARIFIED SURFACE AND COVERED WITH A MINIMUM OF SIX INCHES OF COVER.
- 12" OF SOIL MUST LIE BETWEEN THE DRIP TUBING AND ROCK HORIZON.
- VALVES SHALL BE PLACED BELOW GRADE AND COVERED WITH BOXES FOR FUTURE ACCESS.
- CARE SHOULD BE TAKEN NOT TO DAMAGE ANY PIPES OR PLACE ANY ROCKS ON DRIP LINES WHEN COVERING TRENCHES.
- CARE SHOULD ALSO BE TAKEN NOT TO COMPACT THE SOIL WHILE COVERING FIELDS.
- BALL VALVES WILL SERVE TO MANUALLY SCOUR DRIP LINES AND SHALL REMAIN CLOSED EXCEPT WHEN SERVINCING.
- DRIP LINES ARE TO BE LAID ON CONTOURS.

PROPER FIELD OPERATION AND VALVE SETTINGS:

FOR NORMAL OPERATION:

- **SYSTEM PRESSURE SHALL BE TESTED NEAR MAXIMUM PRESSURE THEN SET BY OPENING THE GATE VALVE THAT DUMPS BACK INTO THE PUMP TANK. OPEN THE GATE VALVE SLOWLY TO LOWER THE SYSTEM PRESSURE SO THAT THE IT <u>RUNS AT 40 PSI</u> ON THE SUPPLY SIDE OF THE SYSTEM.**
- **PRESSURE SHOULD BE CHECKED EACH TIME ATU IS SERVICED.**

FOR MANUAL FIELD FLUSHING:

- **EACH BALL VALVE SHALL BE OPENED WIDE MANUALLY AND ALLOWED TO RUN UNTIL THE FIELD LINES HAVE BEEN ADEQUATELY FLUSHED.**
- **ONLY ONE BALL VALVE SHALL BE OPENED AT A TIME.**
- **AFTER ALL LINES HAVE BEEN ADEQUATELY FLUSHED BALL VALVES ARE TO BE FULLY CLOSED.**
- **AFTER FIELD FLUSHING IS COMPLETE, FILTER SHOULD BE SERVICED AND PRESSURE RESET FOR NORMAL OPERATION.**

Bioline Technical Information

DRIPPER FLOW PATH DIMENSIONS

Dripper	Length	Depth	Width
0.4 GPH	.75"	.037"	0.040"
0.6 GPH	.75"	.045"	0.044"
0.9 GPH	.75"	.047"	0.060"

DRIPPER HYDRAULIC PERFORMANCE

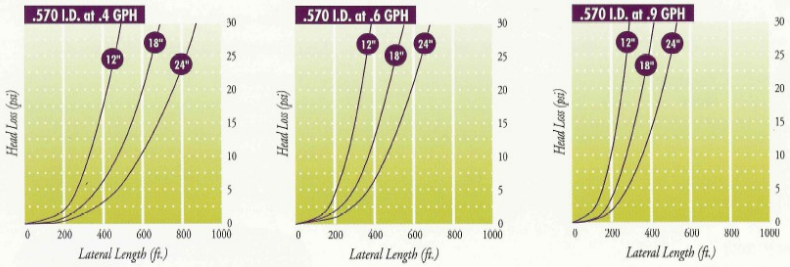
Dripper	Kd	Exponent (x)	Constant (K)
0.4 GPH	.9	0	.42
0.6 GPH	.9	0	.61
0.9 GPH	.9	0	.92

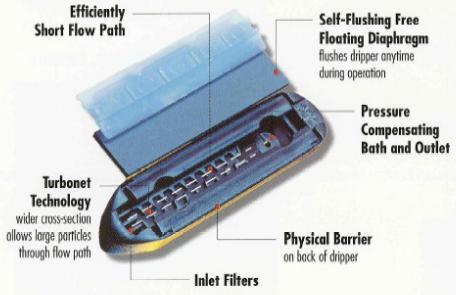
UNIFORMITY

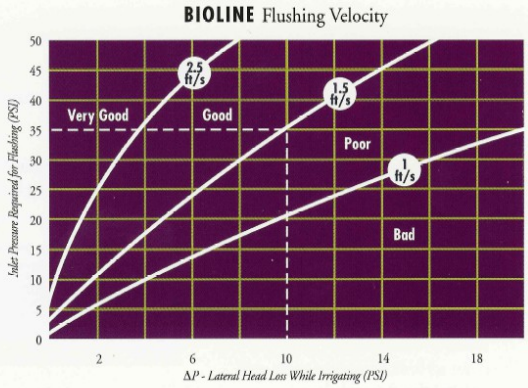
Dripper	Cv
0.4 GPH	0.25
0.6 GPH	0.25
0.9 GPH	0.25

OPERATING RECOMMENDATIONS

Dripper	Minimum Pressure	Maximum Pressure	Minimum Filtration
0.4 GPH	10 psi	60 psi	120
0.6 GPH	10 psi	60 psi	120
0.9 GPH	10 psi	60 psi	120







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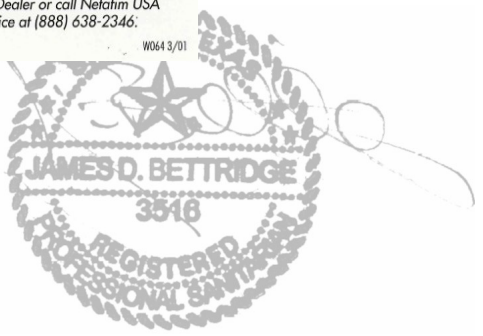


On-Site Sewerage Facility Maintenance and Water Conservation Measures

1) Maintenance and management practices.

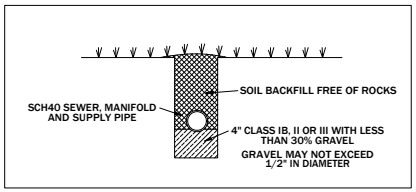
a) An OSSF should not be treated as if it were a normal city sewer system.
b) The use of in-sink garbage grinders and grease discarding should be avoided. In-sink garbage grinders can cause a rapid buildup of sludge or scum resulting in a requirement for more frequent cleaning and possible system failure. In general, non-soluble solids (no matter how small you grind them) will build up in the system and require removal. Keeping them from going down the drain you will reduce the need pumping.
c) Chemicals, solvents or paint should never be introduced to the system. In general, anything that could harm, dissolve or clog the plastic piping, pump, wiring or small orifices in your system.
d) Do not use the toilet to dispose of cleaning tissues, cigarette butts, or other trash. This disposal practice will waste water and also impose an undesired solids load on the treatment system.
e) Septic tanks shall be cleaned before sludge accumulates to a point where it approaches the bottom of the outlet device. If sludge or scum accumulates to this point, solids will leave the tank with the liquid and possibly cause clogging of the perforations in the drainfield line resulting in sewage surfacing or backing up into the house through the plumbing fixtures.
f) Since it is not practical for the average homeowner to inspect his tank and determine the need for cleaning, a regular schedule of cleaning the tank at two-to-three year intervals should be established. Commercial cleaners are equipped to readily perform the cleaning operation. Owners of septic tank systems shall engage only persons registered with the TNRCC to transport the septic tank cleanings. It is important that if a filter was installed in your system it be checked and cleaned regularly.
g) Do not build driveways, storage buildings, or other structures over the treatment works or its disposal field.
h) Chemical additives or the so-called enzymes are not necessary for the operation of a septic tank. Some of these additives may even be harmful to the tank's operation.
i) Soaps, detergents, bleaches, drain cleaners, and other household cleaning materials will very seldom affect the operation of the system. However, moderation should be exercised in the use of such materials.
j) It is not advisable to allow water softener back flush to enter into any portion of the OSSF. The system is not designed to handle the extra load, and the brine will rapidly corrode your pump.
k) The liquid from the OSSF is still heavily laden with bacteria. The surfacing of this liquid constitutes a hazard to the health of those that might come into contact with it. If the system alarm is activated or if you experience surfacing, it is important to contact the installer. The alarm may be silenced, but the system is only designed to handle a days flow before surfacing and backing up may occur. Even an intermittent alarm is an indication of an impending problem.
l) If necessary to install irrigation to maintain vegetative growth, no piping should be within 10 feet of drainfield and zoned separate from the rest of the irrigation system. The significance is to not over saturate the field. If the field is saturated by over watering, it may result in surfacing and failure.
m) Digging in the field area can result in exposure to OSSF liquids and should be avoided.
n) Planting in the field area should be avoided. Root intrusion, excessive shade, or damming of disposal field may result in failure or reduced field capacity. The field will operate most effectively if it has solid grass cover, minimal shade and unrestricted air flow.

2) Water conservation measures/practices.

Note: It is important to realize that your system was installed for average daily use according to the size and number of bedrooms in your home. It is expected that the number of inhabitants not be more than the number of bedrooms plus one. Frequent field switching and water conservation measures may be crucial to avoid failure due to overloading the system.

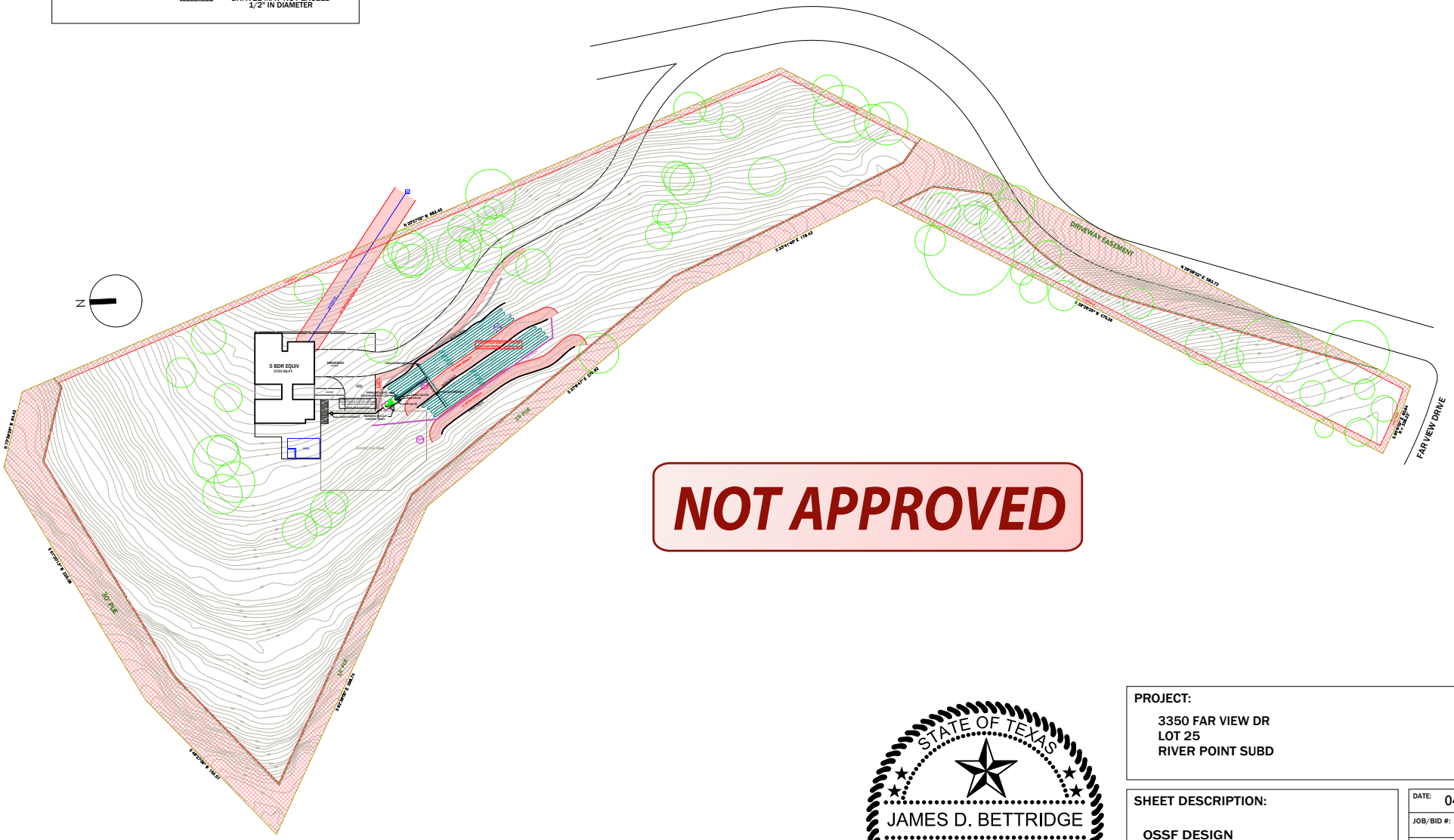
a) Showers usually use less water than baths. Install a water saving shower head that uses less than two and ½ gallons per minute and saves both water and energy.
b) If you take a tub bath, reduce the level of water in the tub from the level to which you customarily fill it.
c) Leaky faucets and faulty toilet fill-up mechanisms should be repaired as quickly as possible.
d) Check toilets for leaks that may not be apparent. Add a few drops of food coloring to the tank. Do not flush. If the color appears in the bowl within a few minutes, the toilet fill or ball-cock valve needs to be adjusted to prevent water from overflowing the stand pipe or the flapper at the bottom of the toilet tank needs to be replaced.
e) Reduce the amount of water used for flushing the toilet by installing one of the following: a new toilet (1.6 gallon); a toilet tank dam; or filling and capping one-quart plastic bottles with water (usually one is all that will fit in smaller toilet tanks) and lowering them into the tank of the existing 3.5 gallon or larger toilet. Do not use bricks since they may crumble and cause damage to the fixture.
f) Try to run the dishwasher with a full load, whenever possible.
g) Avoid running the water continuously for brushing teeth, washing hands, rinsing kitchen utensils or for cleaning vegetables.
h) Use faucet aerators that restrict flow to no more than 2.2 gallons per minute to reduce water consumption.
i) Keep a container of drinking water in the refrigerator instead of running the faucet until the water turns cool.
j) Insulate all hot water pipes and/or install a system that circulates the hot water to avoid long delays of wasted water while waiting for the heated water. If filling a tub run only the hot water into a stopped till the water in the tub gets warm. Rather than running water down the drain waiting for hot water only to mix it with cold water once it arrives.
k) Ask your city, county, or local government about their programs to conserve water and how they can help you save water.

WASTEWATER PIPE BEDDING DETAIL



SETBACKS

- WATER LINE
- PROPERTY/PUE
- SURFACE IMPROVEMENTS
- BREAK



NOT APPROVED

STATE OF TEXAS
JAMES D. BETTRIDGE
3516
REGISTERED PROFESSIONAL SANITARIAN

PROJECT:

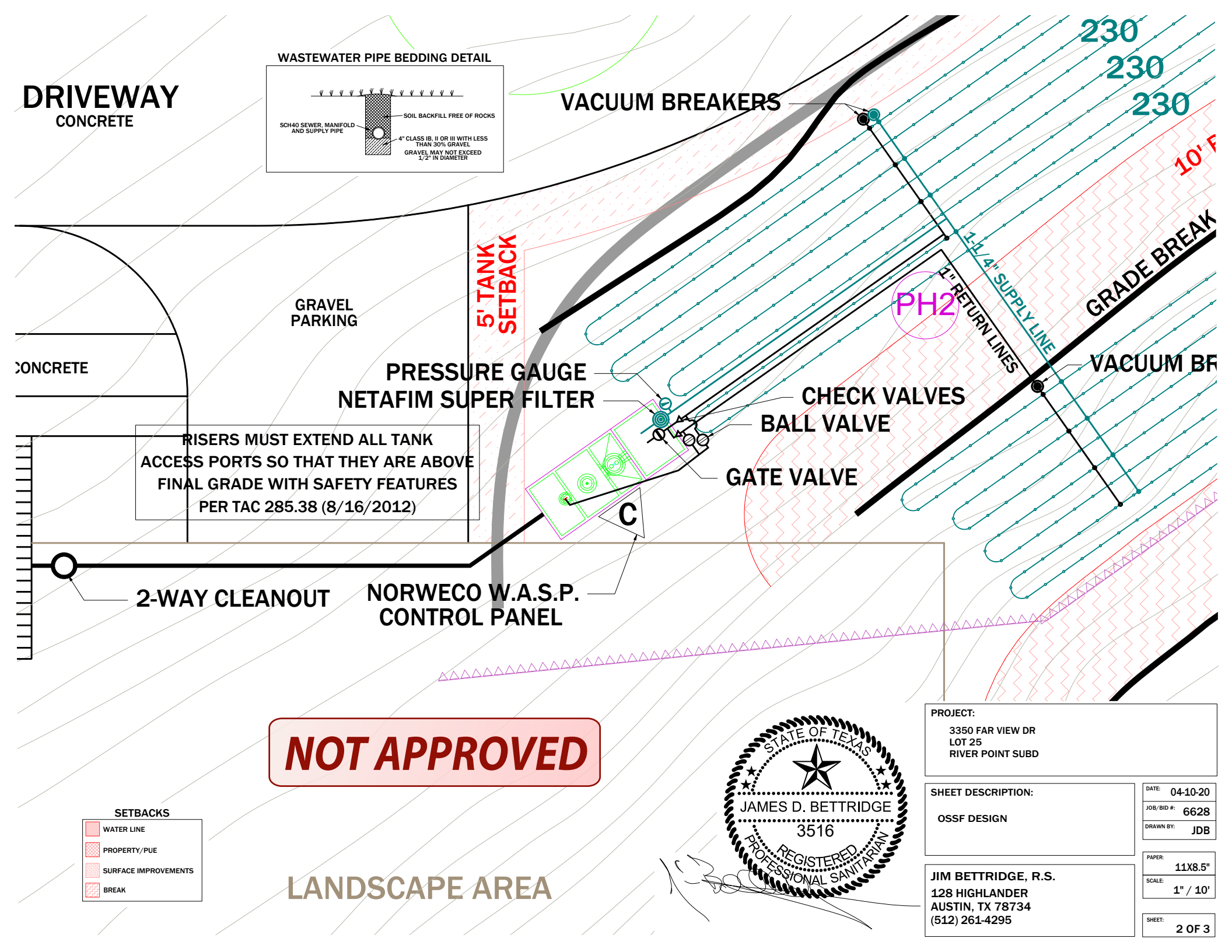
3350 FAR VIEW DR
LOT 25
RIVER POINT SUBD

SHEET DESCRIPTION:

OSSF DESIGN

DATE:	04-10-20
JOB/BID #:	6628
DRAWN BY:	JDB
PAPER:	11X8.5"
SCALE:	1" / 120'
SHEET:	1 OF 3

JIM BETTRIDGE, R.S.
128 HIGHLANDER
AUSTIN, TX 78734
(512) 261-4295


WASTEWATER PIPE BEDDING DETAIL
SCH40 SEWER, MANIFOLD AND SUPPLY PIPE
SOIL BACKFILL FREE OF ROCKS
4" CLASS IB, II OR III WITH LESS THAN 30% GRAVEL
GRAVEL MAY NOT EXCEED 1/2" IN DIAMETER
DRIVEWAY
CONCRETE
VACUUM BREAKERS
230
230
230
10' F
5' TANK SETBACK
GRAVEL PARKING
CONCRETE
1-1/4" SUPPLY LINE
1" RETURN LINES
PH2
GRADE BREAK
VACUUM BR
PRESSURE GAUGE
NETAFIM SUPER FILTER
CHECK VALVES
BALL VALVE
GATE VALVE
RISERS MUST EXTEND ALL TANK ACCESS PORTS SO THAT THEY ARE ABOVE FINAL GRADE WITH SAFETY FEATURES PER TAC 285.38 (8/16/2012)
C
2-WAY CLEANOUT
NORWECO W.A.S.P. CONTROL PANEL
NOT APPROVED
SETBACKS
WATER LINE
PROPERTY/PUE
SURFACE IMPROVEMENTS
BREAK
LANDSCAPE AREA
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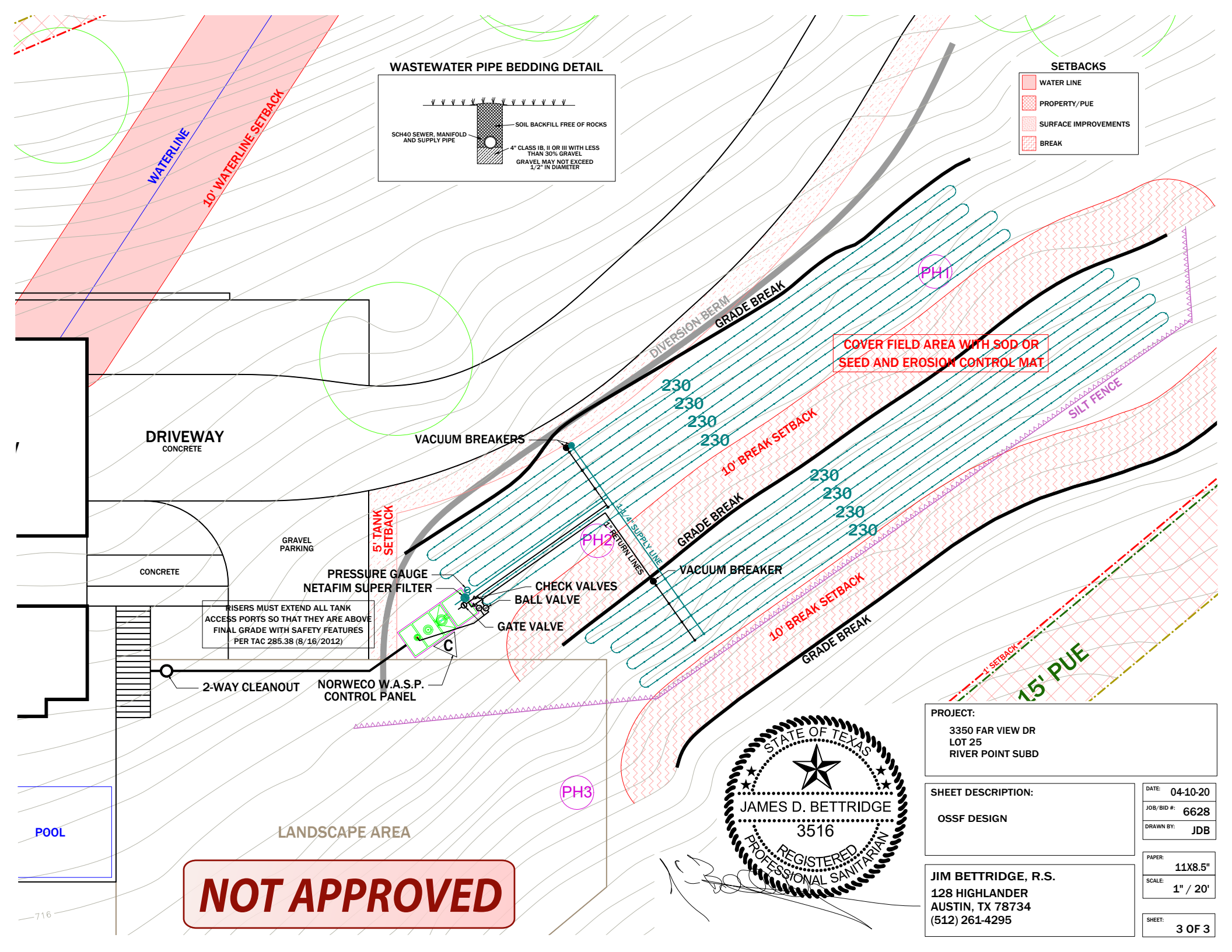

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