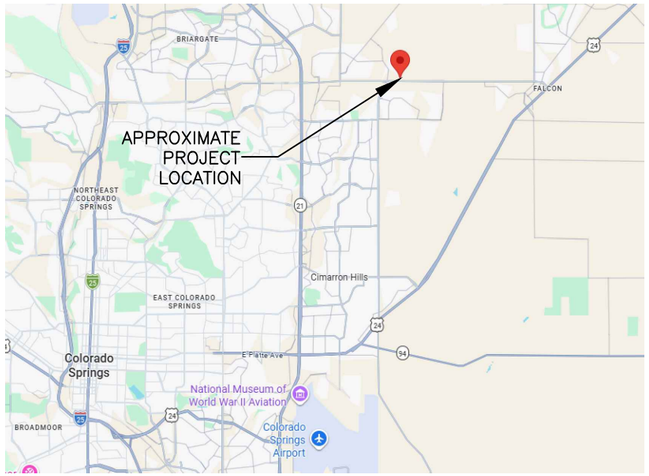
ONSITE WASTEWATER TREATMENT SYSTEM DESIGN
LOT 2, BLOCK 1, BAR J-B ACRES
(SEE DEED FOR COMPLETE LEGAL DESCRIPTION)
EL PASO COUNTY, COLORADO



LOCATION MAP

GENERAL NOTES

This plan set and the information contained herein has been prepared to fulfill the "Report and Site Plan" and the "Design Document" sections of the OWTS Regulations. The locations of wells and OWTS components shown on this site plan, and staked in the field are not the result of a property survey, and are to be considered approximate. It is the property owner's responsibility to ensure all construction is located within the property boundaries. All separation distances are to be verified prior to excavation.

Design criteria has been created based upon information submitted. If conditions differ from the information presented, this office should be contacted to verify and observe the conditions.

Locate all utilities prior to construction. Contractor shall have one set of county approved plans, on the jobsite, at all times during the construction and observation period. Deviation from these plans must be approved by the engineer.

All onsite wastewater treatment system construction, and any requirements not specified within this design, must meet county requirements and the requirements of local OWTS regulations. The contractor should have documented, and demonstrated, knowledge of the requirements and regulation of the county in which they are working.

All components of the OWTS (septic tank, piping, pump tanks, valves, proprietary units, etc.) are to be installed in accordance with the manufacturer recommendations.

The system is designed and intended to be used only for the wastewater load specified.

INDEX OF DRAWINGS

SHEET NO.	TITLE	SHEET NO.	TITLE
1.	Project Overview	8.	STA Profile
2.	Design Criteria	9.	STA/Piping Details
3.	Subsurface Conditions	10.	Septic & Flow EQ Tank Details
4.	Site Plan	11.	Flow EQ Pump Details and Curve
5.	Detail Site Plan	12.	Recirculation Tank Details
6.	Tank Detail Plan	13.	AX100 Details
7.	Tank Profile	14.	Discharge Pump Details
		15.	Pump and System Curves

PROJECT OVERVIEW

This design is for a proposed church.

Flows:
Per El Paso OWTS Regulation, Table 6-2: "Churches, per seat; warming kitchen only, no major food service = 5 GPD per seat".

Daily flow	= 75 people x 5 GPD	= 375 GPD
Peak event (3-4 days per year)	= 500 people x 5 GPD	= 2,500 GPD
Sunday school	= 225 people x 5 GPD	= 1,125 GPD

Flow Equalization Calculations:

Time Interval	Inlet Flow per Interval (gallons)	Flow to STA (gallons)	Storage Needed (gallons)	
Friday	375	-893	-518	
Saturday	375	-893	-1036	
Sunday	1500	-893	-429	
Monday	375	-893	-946	
Tuesday	375	-893	-1464	
Wednesday	2875	-893	518	
Thursday	375	-893	0	
Total Weekly Flow:	6250			
Daily Discharge to STA:	893			
Storage Required = (Highest Vol. - Lowest Vol.) =			1982	use 2500
Daily flow = 75 people x 5 gpcd = 375 GPD				
Peak event (3-4 days per year) = 500 people x 5 gpcd = 2500				
Sunday school = 225 people x 5 gpcd = 1125				

Storage required for flow equalization = 2500 Gallons
Daily effluent discharge to the soil treatment area = 900 GPD

WATER SUPPLY REQUIREMENTS

The property is to be served by a proposed well located greater than 100 feet from the proposed soil Treatment area. The proposed well location is depicted on Sheet 3.

A water meter is to be installed on the structure to monitor and record water usage over time.

285 ENGINEERING
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CONIFER, CO
80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: PROJECT OVERVIEW

DATE: 10/12/2026

SCALE: NONE

DRAWN BY: TS

REVISIONS:
1
2
3

SHEET:
1/15

COLORADO LICENSED PROFESSIONAL ENGINEER
ROGER J. SHAFER
29108

Roger J. Shafer
Digitally signed by Roger J. Shafer
Date: 2026.10.12 14:34:47 -06'00'

DESIGN CRITERIA:

This design is for a hydraulic loading of 375 GPD, with peak events of 2,500 GPD and 1,125 GPD for Sunday school.

BOD Results:

Per El Paso County OWTS Regulation, Table 6–2, BOD influent per person/seat = .01lbs BOD per day.

Daily flow + peak event = 2,875 GPD = 0.01 lb BOD x 575 people = 5.75 lb BOD
35% reduction of BOD for septic tank effluent:
5.75 lb x 0.65 = 3.74 lb BOD (effluent)
3.74 lb / 2875 GPD / 0.00000834 = 156 mg/L of BOD

We anticipate the septic tank effluent to be approximately 400 mg/L based on similar facilities.

AdvanTex filter media requirement:
400 mg/L x 900 GPD (average daily discharge) x 0.00000834 = 3.0024 lb BOD
3.0 lb BOD / 0.04 lbs per sq. ft. of filter media = 75 sq. ft. of media filter – Use AdvanTex AX100 treatment system.

Septic Tank Requirements:

Septic tank capacity required = a two–day retention time (2,875 gallons X 2 = 5,750 gallons). Install a 3,250 gallon single–compartment concrete septic tank Front Range Precast model number PCA–000–320, followed by a second 3,250 gallon single–compartment concrete septic tank Front Range Precast model number PCA–000–320, equipped with an 8–inch Orenco effluent filter (model FT0854–36A) with high water alarm. The primary septic tanks are to be followed by a 2,500 gallon, single compartment concrete flow equalization tank Front Range Precast model number PCA–000–326 equipped with an Orenco duplex pump system (pump model PF10053200). The flow equalization tank is to be followed by a 2,000 gallon, 3 compartment concrete recirculation/discharge tank (first baffle wall removed to create a two compartment tank with three access risers and second baffle wall sealed with no flow through) Front Range Precast model number PCA–000–269, equipped with an Orenco duplex pump system with flow inducer towers in each the second and third access risers. Recirculation and discharge duplex pump models are PF50073200.

Higher Level Treatment Requirements:

Install an AdvanTex AX100 treatment system for a total of 100 square feet of treatment media.

Filtered effluent will gravity flow to a proposed 2,000 gallon 3–compartment recirculation tank with the first baffle removed (as mentioned above) equipped with two Orenco effleunt pumps for recirculation to the AX100 and for discharging effluent to the soil treatment area.

Soil Treatment Area:

The soil treatment area has been calculated based upon the soil analysis and the design flows:

INFILTRATIVE SURFACE #1
A = (Q/Sand Filter Application Rate) x Application Adjustment Factor
A = 900/0.80 (TL2N) x 1.0 (Pressure Dosed Bed)
A = 1,125 sq. ft.

INFILTRATIVE SURFACE #2
A = (Q/Long Term Accceptance Rate) x Application Adjustment Factor
A = 900/1.4 (TL3) x 1.0 (Pressure Dosed Bed)
A = 1,125 sq. ft.

CHAMBER SIZING
A = 1,125 sq. ft.
# of Chambers = 1,125 sq. ft. /12 = 93.7 Chambers. **Use 96 Chambers Total.**

We propose one 12' x 98' soil treatment area chamber bed (4 rows x 24 chambers per row + end caps).

INSTALLATION OBSERVATION REQUIREMENTS

This office is to observe the installation of the system at the following intervals:
(1) Pre–Construction Meeting (to occur after OWTS components are staked by a surveyor)
(2) STA Open Hole Observation
(3) Final Pre–Burial Observation & Residual Head Test (Squirt Height)

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P.O. BOX 1048
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PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: DESIGN CRITERIA

DATE: 10/12/2026

SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
1
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3

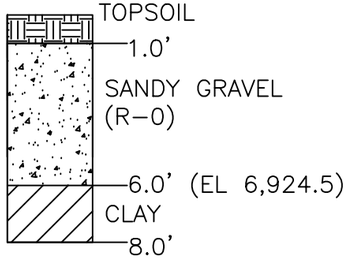
SHEET:
2/15

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SOILS INFORMATION

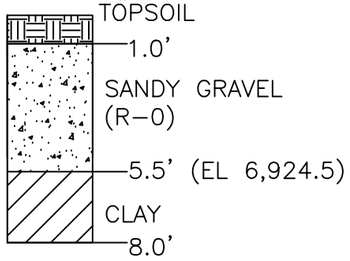
DATE TESTING COMPLETED: 09/03/2026
EQUIPMENT USED: EXCAVATOR
DEPTH TO BEDROCK REFUSAL: NOT PRESENT
DEPTH TO STANDING WATER: NOT PRESENT
REDOXIMORPHIC FEATURES: NOT PRESENT
LTAR: SOIL TYPE R-0, IMPORTED SAND APPLICATION RATE 0.80

PROFILE #1



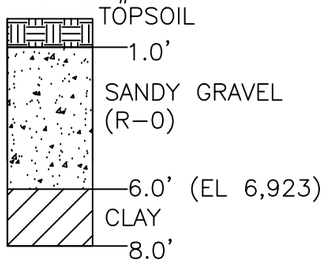
SOIL TYPE, TEXTURE AND STRUCTURE					
DEPTH	SOIL/BEDROCK TYPE	TEXTURE	STRUCTURESHAPE	STRUCTURE GRADE	RUPTURE RESISTANCE(RR)/ EXCAVATION DIFFICULTY(ED)/ FRACTURE CODE(FC)
1.0'-6.0'	R-0 WITH MATRIX 1	TYPE 1 SOIL WITH MORE THAN 35% GREATER THAN 2MM	N/A	N/A	(ED) LOW
6.0'-8.0'	TYPE 4	CLAY	BK	2 MODERATE	(RR) MODERATELY CEMENTED

PROFILE #2



SOIL TYPE, TEXTURE AND STRUCTURE					
DEPTH	SOIL/BEDROCK TYPE	TEXTURE	STRUCTURESHAPE	STRUCTURE GRADE	RUPTURE RESISTANCE(RR)/ EXCAVATION DIFFICULTY(ED)/ FRACTURE CODE(FC)
1.0'-5.5'	R-0 WITH MATRIX 1	TYPE 1 SOIL WITH MORE THAN 35% GREATER THAN 2MM	N/A	N/A	(ED) LOW
5.5'-8.0'	TYPE 4	CLAY	BK	2 MODERATE	(RR) MODERATELY CEMENTED

PROFILE #3



SOIL TYPE, TEXTURE AND STRUCTURE					
DEPTH	SOIL/BEDROCK TYPE	TEXTURE	STRUCTURESHAPE	STRUCTURE GRADE	RUPTURE RESISTANCE(RR)/ EXCAVATION DIFFICULTY(ED)/ FRACTURE CODE(FC)
1.0'-6.0'	R-0 WITH MATRIX 1	TYPE 1 SOIL WITH MORE THAN 35% GREATER THAN 2MM	N/A	N/A	(ED) LOW
6.0'-8.0'	TYPE 4	CLAY	BK	2 MODERATE	(RR) MODERATELY CEMENTED

SCALE: 3/16" = 1'

SITE AND SOIL EVALUATION

A site and soil evaluation was conducted by 285 Engineering in accordance with the OWTS Regulations, and the results of the evaluation are presented herein.

DIFFICULTIES ENCOUNTERED DURING SITE VISIT

Due to the tight setbacks our office was unable to stake OWTS components.

ANTICIPATED CONSTRUCTION RELATED ISSUES

Due to the tight setbacks from property line to OWTS components and to prevent the STA encroaching on the parking lot; the soil treatment area, septic tanks and temporary benchmark locations are to be staked by a surveyor prior to construction.

Maintain a minimum of 10 feet between the septic tanks and stormwater sewer collection system. Building sewer within 10 feet of stormwater sewer is to be encased with sch40 PVC and rigid end caps per El Paso County OWTS Regulation, Table 7-1, Note 2.

POTENTIAL LAND USE CHANGES

There are no known or foreseeable land use changes that would affect system performance.

SITE EVALUATOR

TYLER SHAFER
P.O. BOX 1048
CONIFER, CO. 80433
720-576-3572
tyler@285engineering.com

BS Civil Engineering

Credentials: CPOW Soils Characterization Class 2017

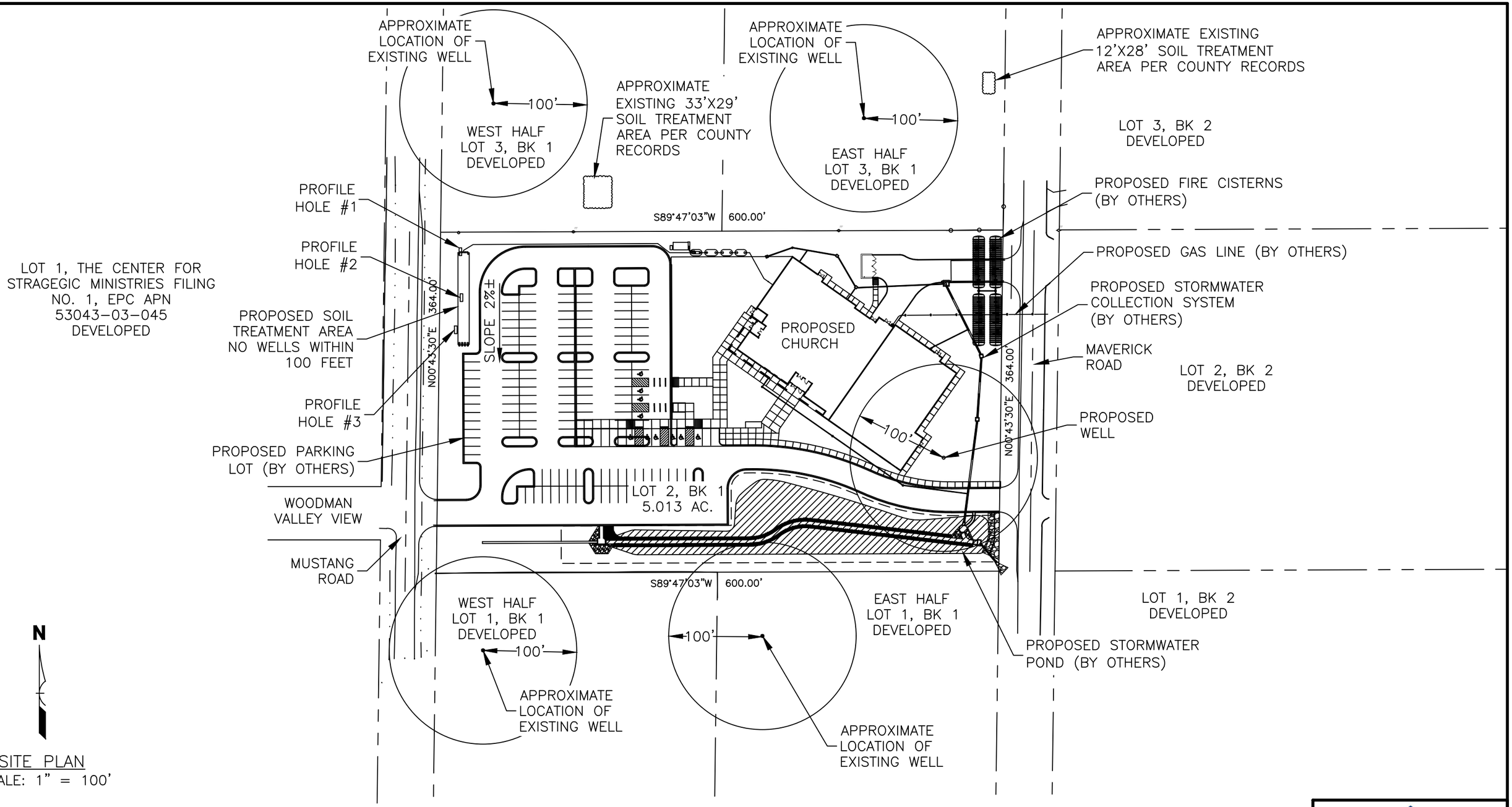
285 ENGINEERING
P.O. BOX 1048
CONIFER, CO
80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN
LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908
CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: SUBSURFACE CONDITIONS
DATE: 10/12/2026
SCALE: SHOWN
DRAWN BY: TS

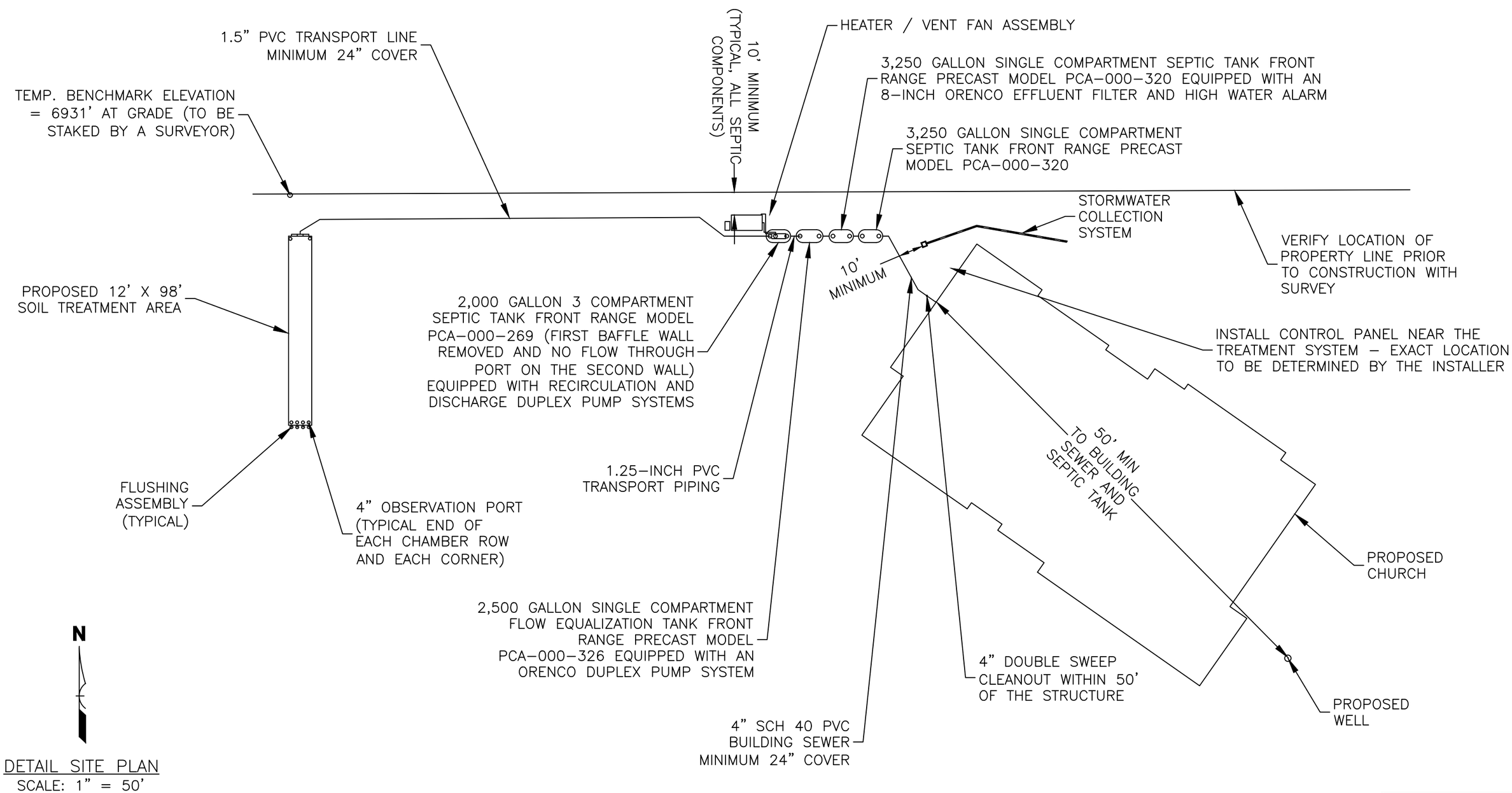
REVISIONS:
1
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3

SHEET:
3/15



SITE PLAN
SCALE: 1" = 100'

285 ENGINEERING P.O. BOX 1048 CONIFER, CO 80433 (720)-515-1781	PROJECT: 2025006 - OWTS DESIGN	TITLE: SITE PLAN		SHEET: 4/15
	LOCATION: 7610 MAVERICK ROAD COLORADO SPRINGS, CO 80908	DATE: 10/12/2026 SCALE: SHOWN	REVISIONS: 1 2 3	
	CLIENT: DESIGN STUDIO COLLABORATIVE	DRAWN BY: TS		



DETAIL SITE PLAN
SCALE: 1" = 50'

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80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: DETAIL SITE PLAN

DATE: 10/12/2026

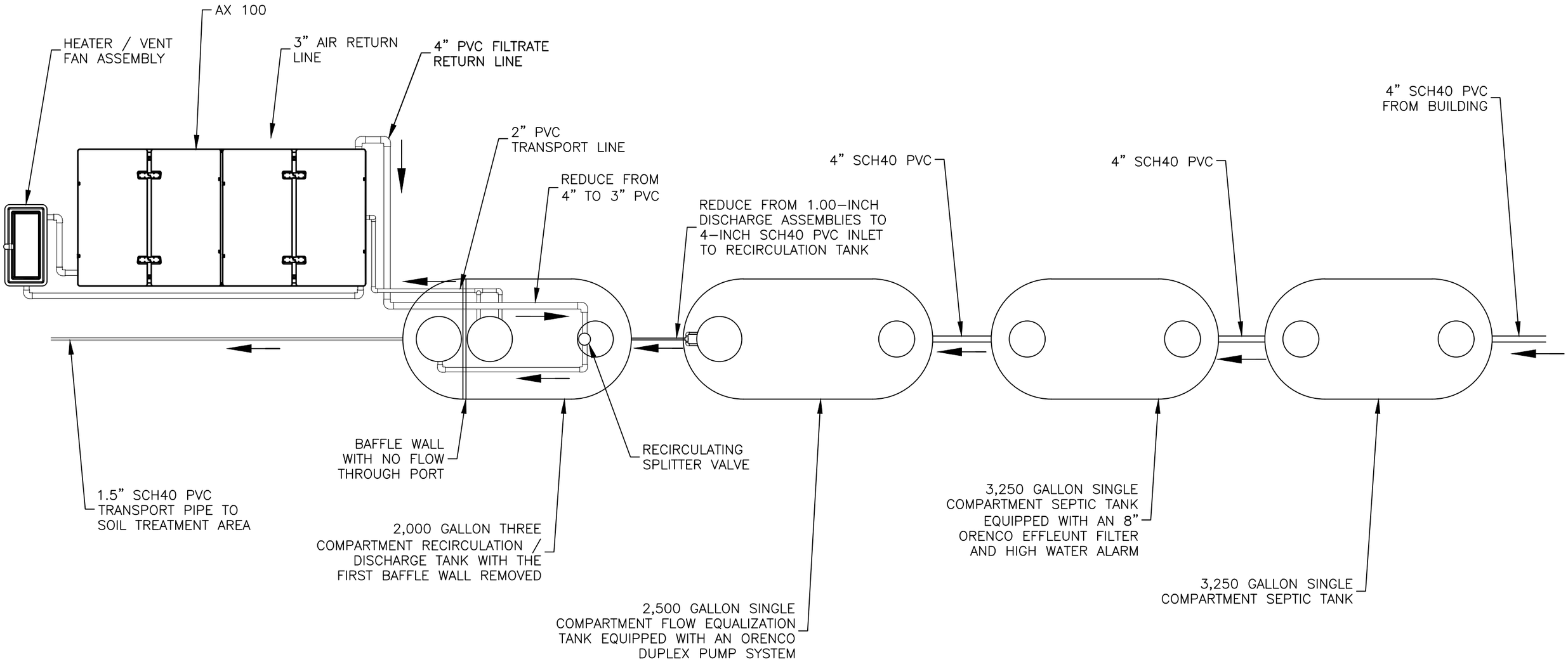
SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
1
2
3

SHEET:
5/15

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TANK DETAIL PLAN VIEW

SCALE: 3/16" = 1'

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P.O. BOX 1048
CONIFER, CO
80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: TANK DETAIL PLAN

DATE: 10/12/2026

SCALE: SHOWN

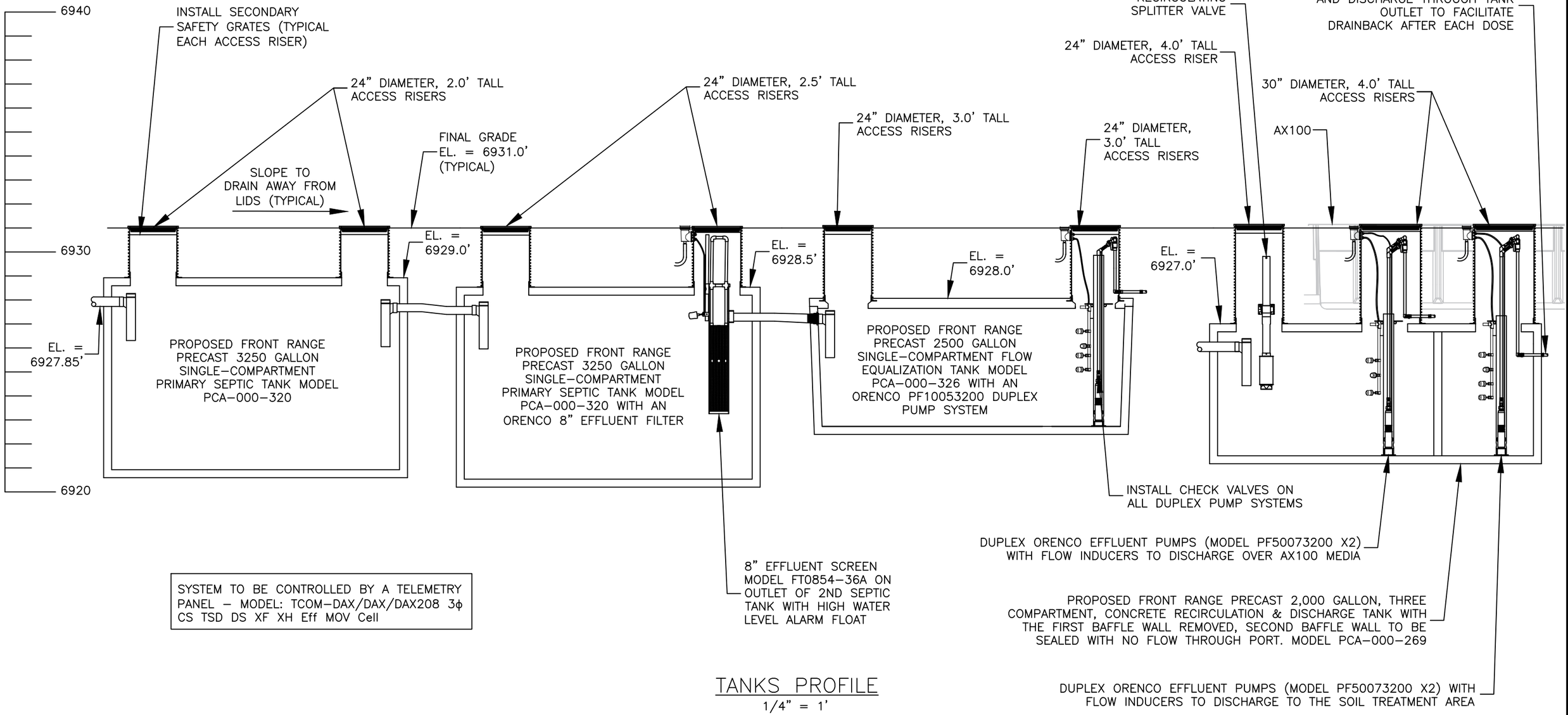
DRAWN BY: TS

REVISIONS:
1
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3

SHEET:
6/15

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TEMPORARY BENCHMARK = 6931.0' AT GRADE.
LOCATION TO BE STAKED BY A SURVEYOR PRIOR
TO CONSTRUCTION. SEE SHEET 5 FOR LOCATION.



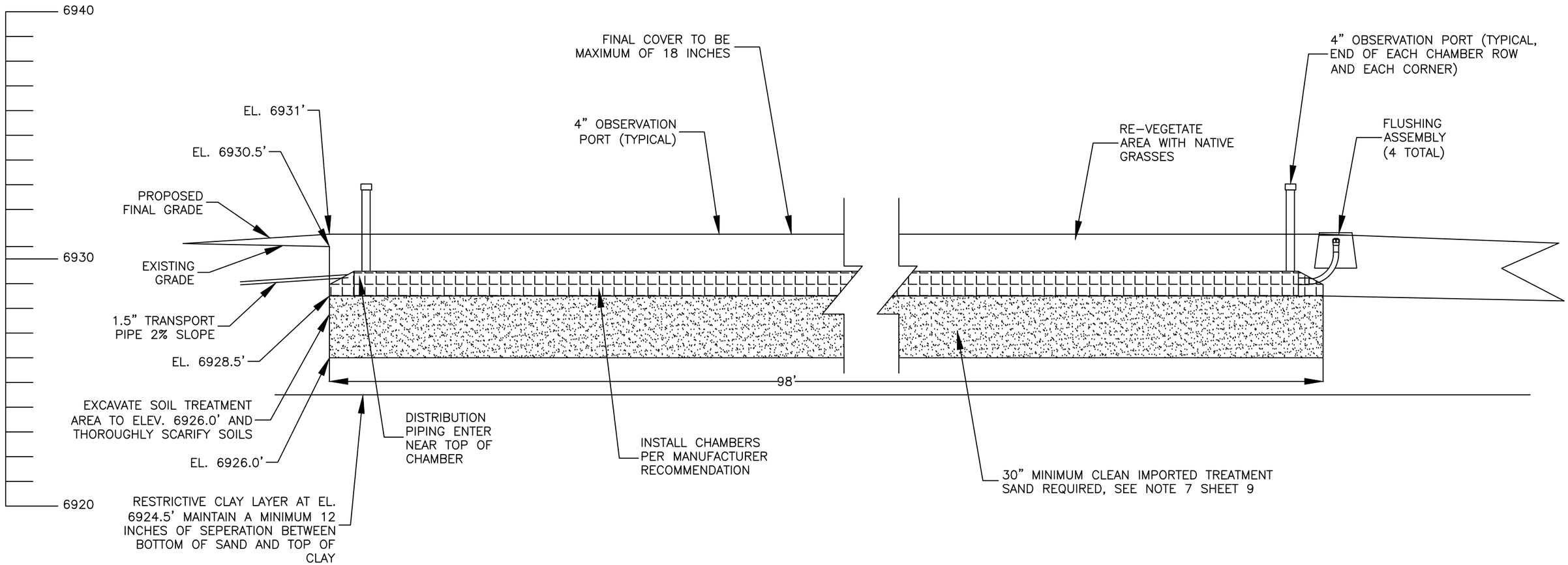
SYSTEM TO BE CONTROLLED BY A TELEMETRY PANEL – MODEL: TCOM-DAX/DAX/DAX208 3ϕ CS TSD DS XF XH Eff MOV Cell

TANKS PROFILE

1/4" = 1'

285 ENGINEERING P.O. BOX 1048 CONIFER, CO 80433 (720)-515-1781	PROJECT: 2025006 - OWTS DESIGN	TITLE: TANK PROFILE		SHEET: 7/15
	LOCATION: 7610 MAVERICK ROAD COLORADO SPRINGS, CO 80908	DATE: 10/12/2026 SCALE: SHOWN	REVISIONS: 1 2 3	
	CLIENT: DESIGN STUDIO COLLABORATIVE	DRAWN BY: TS		

TEMPORARY BENCHMARK = 6931.0' AT GRADE.
LOCATION TO BE STAKED BY A SURVEYOR PRIOR TO CONSTRUCTION. SEE SHEET 5 FOR LOCATION.



STA PROFILE

1/4" = 1'

PLACING THE OWTS INTO OPERATION:

Prior to placing the system into operation, we recommend all components be observed and tested for proper operation. This includes, but is not limited to, verifying the septic tank is watertight, the effluent screen is accessible and serviceable, and all observation ports in the soil treatment area exist.

When applicable, pump system amperage is to be checked, and the float functions verified. Automatic distributing valves are to be tested to verify proper rotation. A pressure test is to be performed on pressure distribution systems to verify the minimum 5-foot squirt height at the flushing valves, and all valves are to be flushed.

MAINTENANCE OF THE OWTS:

A service agreement for the Advantex is to be maintained with an authorized service provider.

The installer of the system is to provide the property owner with all product Operation & Maintenance manuals. Maintenance of each component is to be in accordance with the manufacturer recommendations.

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PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: STA PROFILE

DATE: 10/12/2026

SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
1
2
3

SHEET:
8/15

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SOIL TREATMENT AREA NOTES:

1. Construct soil treatment area in location depicted on the site plan.

2. Excavate soil treatment area level, scarify the infiltrative surface, and avoid compaction. Soil treatment area is to be installed along the contour.

3. All piping connections shall be securely fastened to avoid water infiltration into the system.

4. Direct surface water away from the soil treatment area by grading to divert water away from the treatment area.

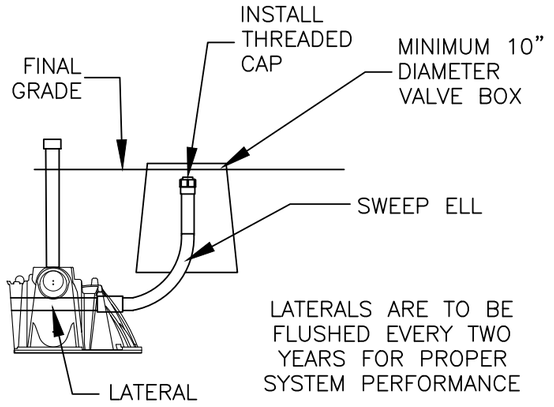
5. Re-vegetate the excavated area with only native species. Contact 285 Engineering, Inc. for recommendations.

6. Snow storage is not recommended on the soil treatment area.

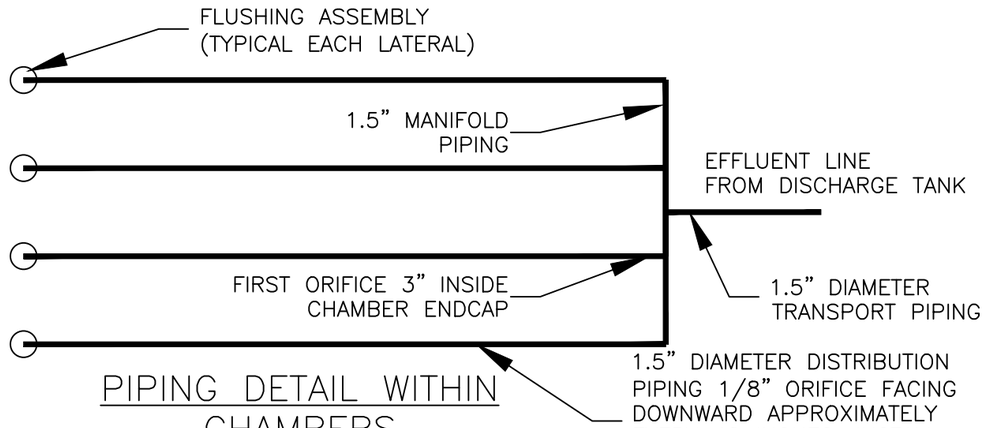
7. If off-site material is specified in this design; Off-site filtering material is to meet the OWTS Regulations for imported treatment sand media.

a. Effective size = 0.15 – 0.60 mm
b. Uniformity Coefficient ≤7.0
c. Percent Passing #200 Sieve ≤3.0
d. 100% must pass the 3/8" sieve; ≥95% must pass the #4 sieve; >65% must pass the #10 sieve (2mm).

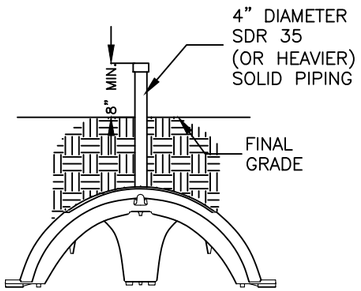
A gradation of the sand media used must be provided. The gradation must be dated no more than four months prior to the installation date. This office is to review the gradation PRIOR to construction.



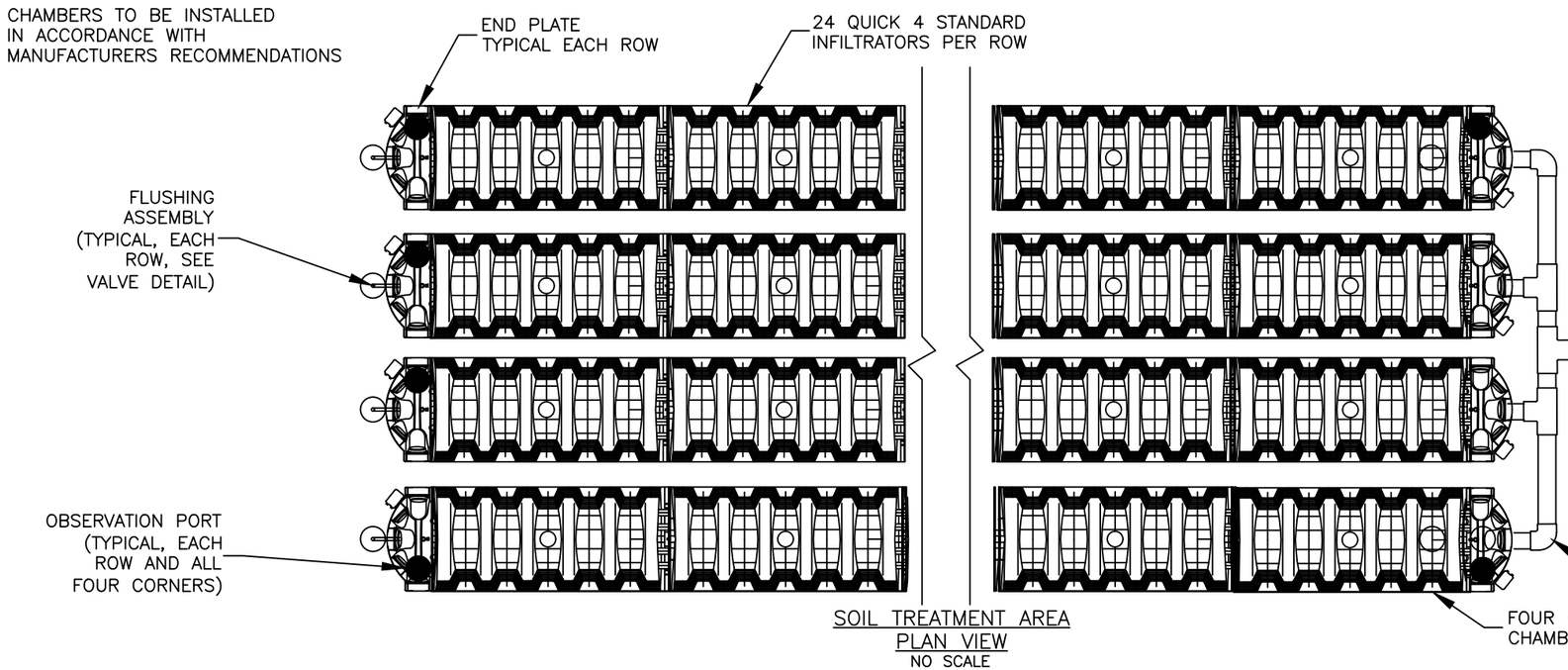
FLUSHING ASSEMBLY DETAIL
NO SCALE



PIPING DETAIL WITHIN CHAMBERS
NO SCALE



OBSERVATION PORT DETAIL
NO SCALE



SOIL TREATMENT AREA PLAN VIEW
NO SCALE

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P.O. BOX 1048
CONIFER, CO
80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: STA/PIPING DETAILS

DATE: 10/12/2026

SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
1
2
3

SHEET:
9/15

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SEPTIC TANK AND FLOW EQ TANK NOTES:

Access risers shall be sealed to prevent the intrusion of ground water and surface water into the system.

Install all access risers to grade. Access riser must include a structurally sound interior grate or other secondary safety feature, securely installed below the riser lid.

The septic tanks shall be constructed to withstand earth and hydrostatic pressures at the installed depth, when full and empty.

Install septic tanks and associated equipment per manufacturer's recommendations.

Sewer piping within 5' of septic tanks SCH 40 PVC minimum.

Drill one 1/8" diameter hole in the discharge pump line within the septic tank to facilitate gravity drain to proposed soil treatment area.

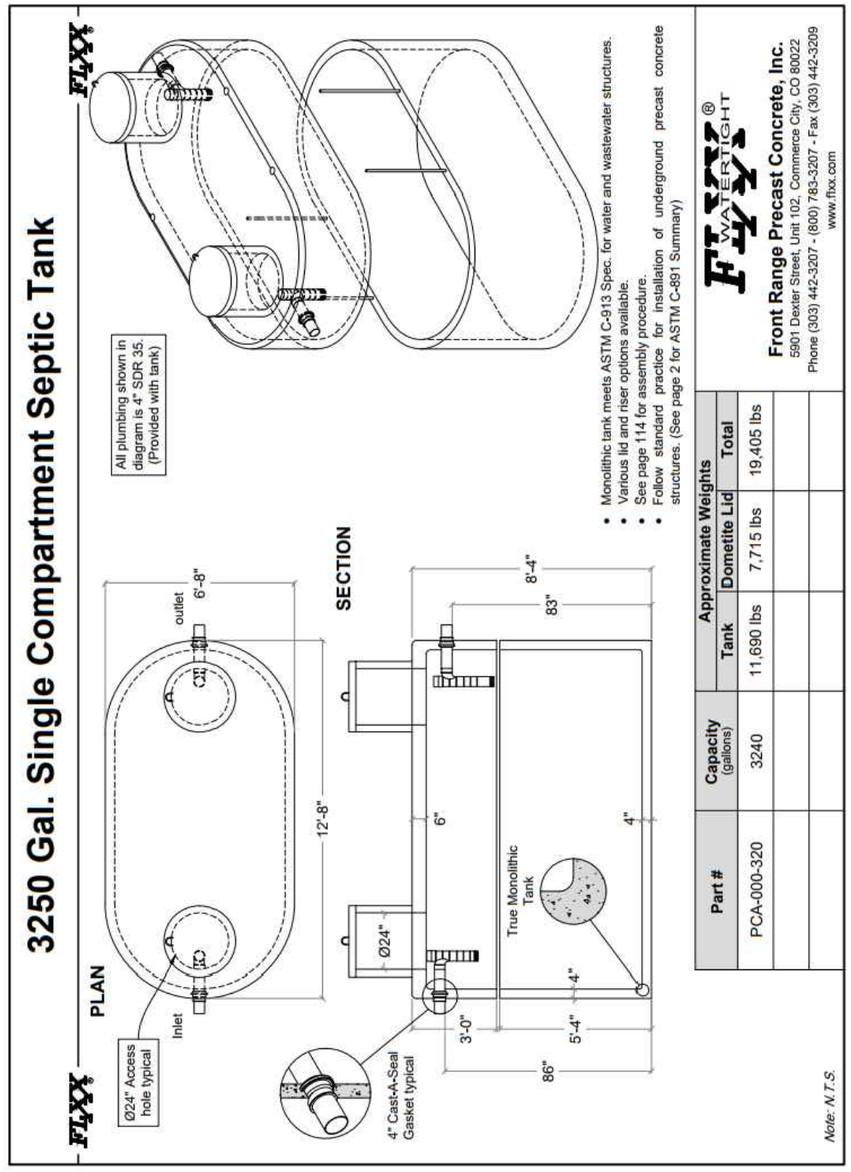
Install check valves on duplex discharge pump systems.

All electrical connections must be housed in a UL approved waterproof splice box.

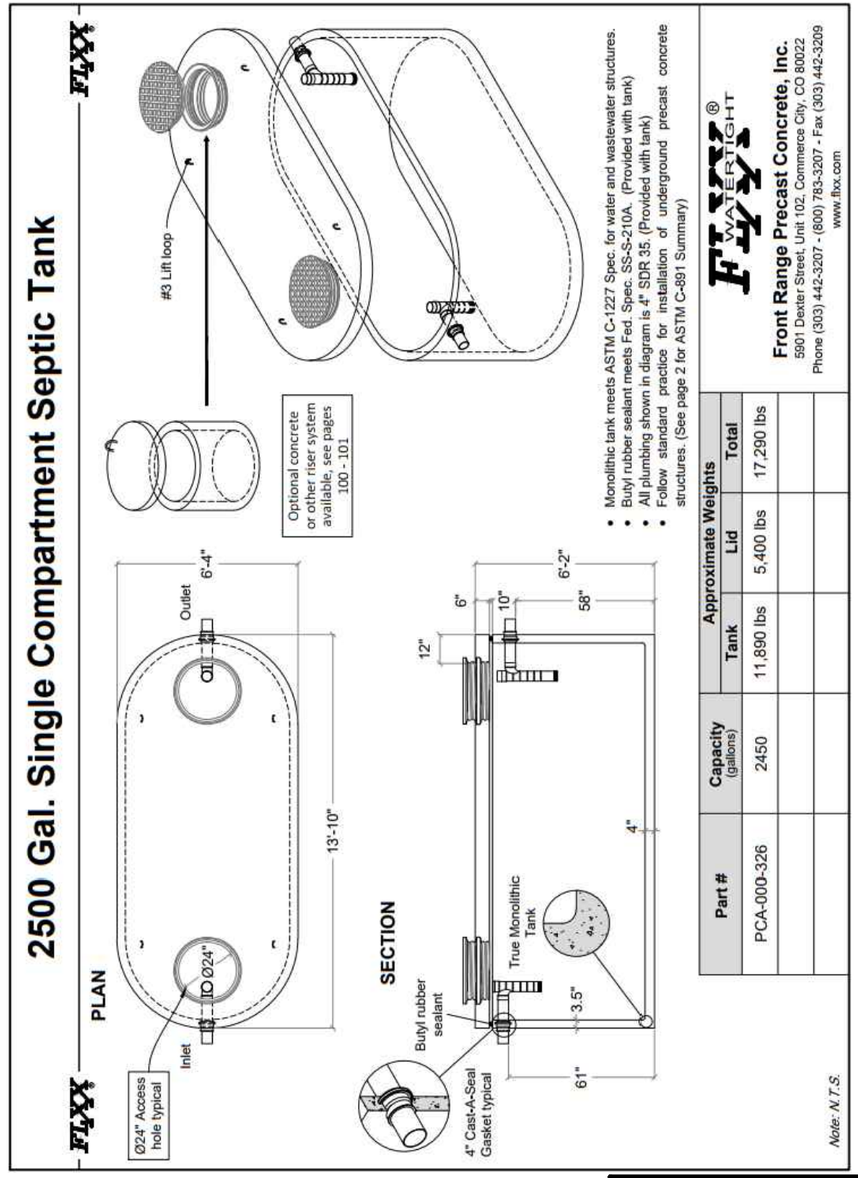
APPROVED EQUALS:

If the bidder seeks approval of a product other than the brand or brands specified within these documents, the bidder shall furnish written evidence that such product conforms in all respects to the specified requirements, and that it has been used successfully elsewhere under similar conditions.

3,250 GALLON SEPTIC TANKS, ONE TANK SHOWN FOR CLARITY, INSTALL TWO (2) 3,250 GALLON SEPTIC TANKS



2,500 GALLON FLOW EQUALIZATION TANK, INSTALL DUPLEX FLOW INDUCER TOWERS, SEE SHEET 7 FOR RISER HEIGHT AND SIZES



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PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: SEPTIC & FLOW EQ TANK DETAILS

DATE: 10/12/2026

SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
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3

SHEET:
10/15

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Pump Selection for a Non-Pressurized System - Single Family Residence Project

2025006 flow eq pump

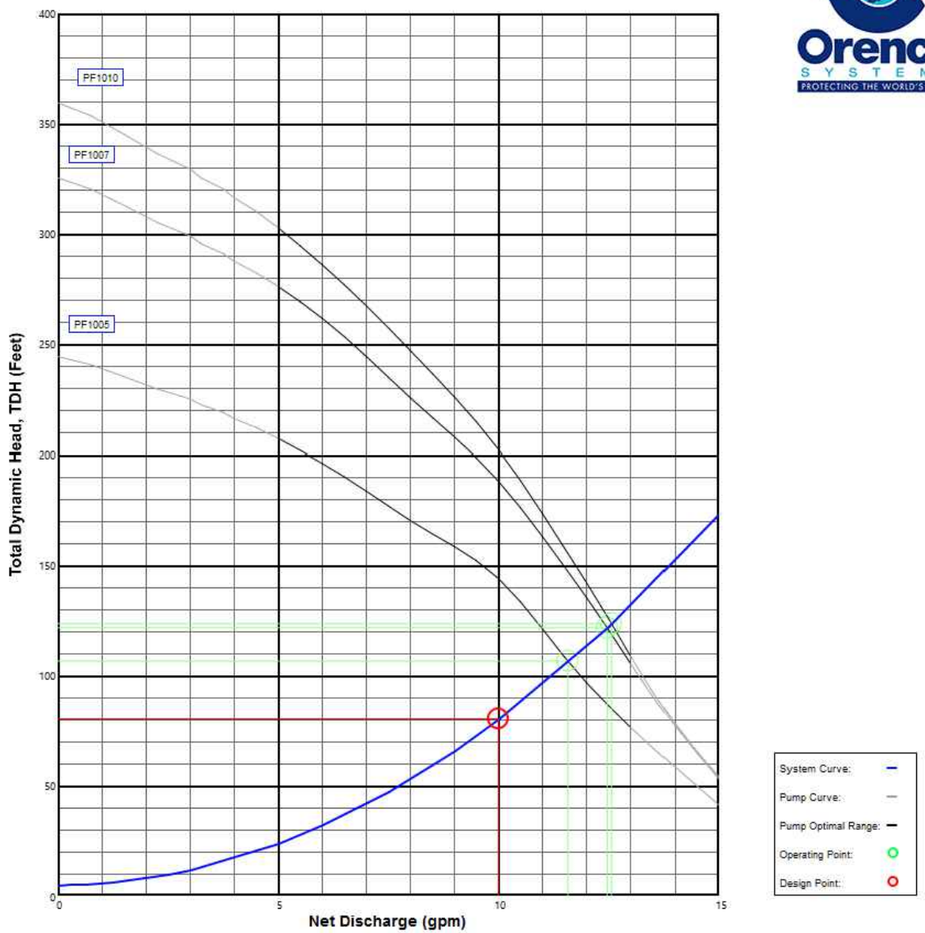
Parameters		
Discharge Assembly Size	1.0FC	inches
Transport Length	5	feet
Transport Pipe Class	40	
Transport Line Size	1.25	inches
Distributing Valve Model	None	
Max Elevation Lift	5	feet
Design Flow Rate	10	gpm
Flow Meter	None	inches
'Add-on' Friction Losses	0	feet

Calculations		
Transport Velocity	2.2	fps

Frictional Head Losses		
Loss through Discharge	75.0	feet
Loss in Transport	0.1	feet
Loss through Valve	0.0	feet
Loss through Flowmeter	0.0	feet
'Add-on' Friction Losses	0.0	feet

Pipe Volumes		
Vol of Transport Line	0.4	gals

Minimum Pump Requirements		
Design Flow Rate	10.0	gpm
Total Dynamic Head	80.1	feet

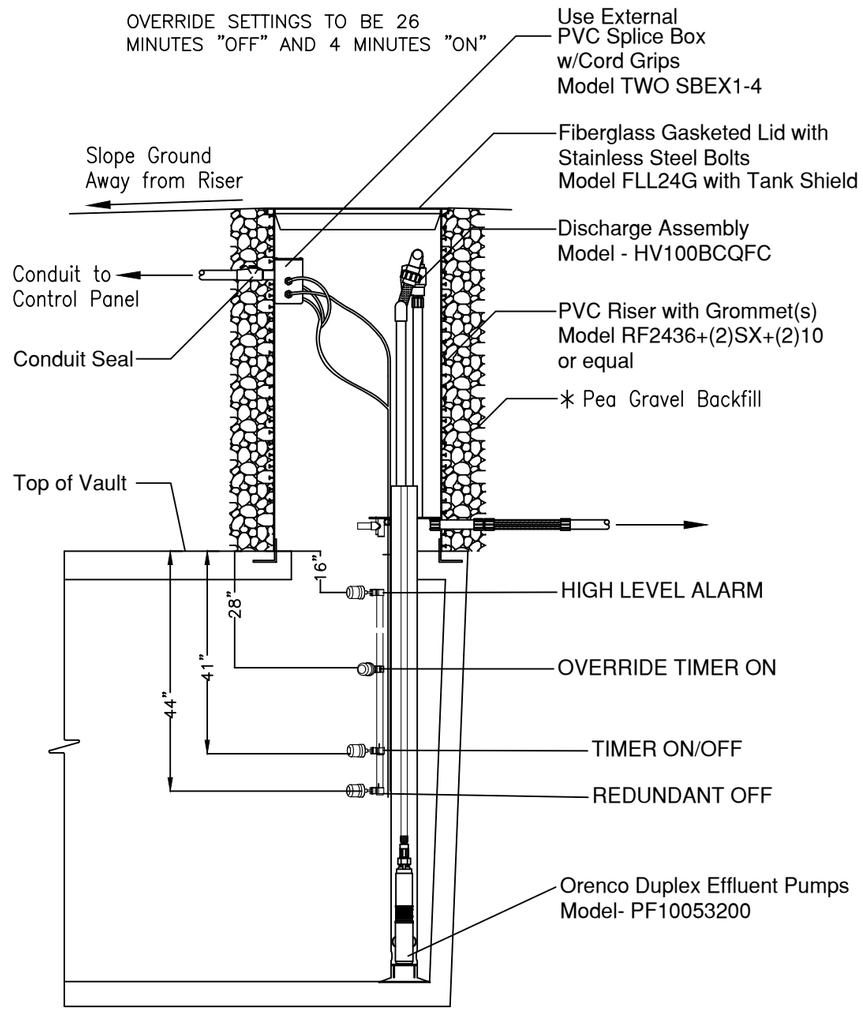


NOTES FOR FLOW EQ TANK:

USE A 1.00 INCH DISCHARGE ASSEMBLIES WITH FLOW CONTROL DISC

SET TIMER SETTINGS TO 56.25 MINUTES "OFF" AND 3.75 MINUTES "ON" PER PUMP CYCLE

OVERRIDE SETTINGS TO BE 26 MINUTES "OFF" AND 4 MINUTES "ON"



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P.O. BOX 1048
CONIFER, CO
80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: FLOW EQ PUMP DETAILS & CURVE

DATE: 10/12/2026

SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
1
2
3

SHEET:
11/15

RECIRCULATION TANK NOTES:

Access risers shall be sealed to prevent the intrusion of ground water and surface water into the system.

Install all access risers to grade. Access riser must include a structurally sound interior grate or other secondary safety feature, securely installed below the riser lid.

Install 4 foot maximum cover over recirculation tank.

The recirculation tank shall be constructed to withstand earth and hydrostatic pressures at the installed depth, when full and empty.

Install recirculation tank and associated equipment per manufacturer's recommendations.

Sewer piping within 5' of septic tanks SCH 40 PVC minimum.

Drill one 1/8" diameter hole in the pump line within the septic tank to facilitate drainback.

Install check valves on duplex pump systems.

All electrical connections must be housed in a UL approved waterproof splice box.

APPROVED EQUALS:

If the bidder seeks approval of a product other than the brand or brands specified within these documents, the bidder shall furnish written evidence that such product conforms in all respects to the specified requirements, and that it has been used successfully elsewhere under similar conditions.

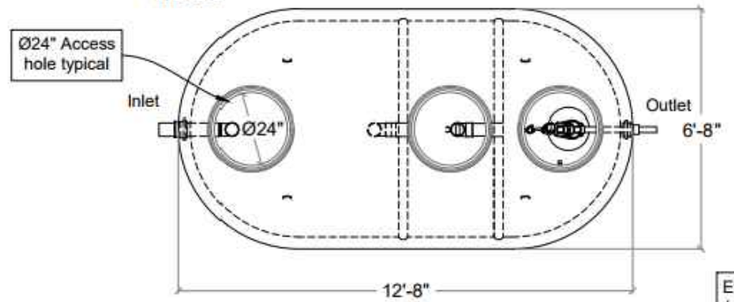
2,000 GALLON RECIRCULATION AND DISCHARGE TANK, FIRST BAFFLE WALL TO BE REMOVED. TWO DUPLEX PUMP SYSTEMS TO BE INSTALLED IN THE FIRST AND THIRD ACCESS RISER. SEE SHEET 7 FOR RISER HEIGHT AND SIZES. NO FLOW THROUGH PORT IN THE SECOND BAFFLE WALL.

2000 Gal. Three Compartment Electric Lift Septic Tank

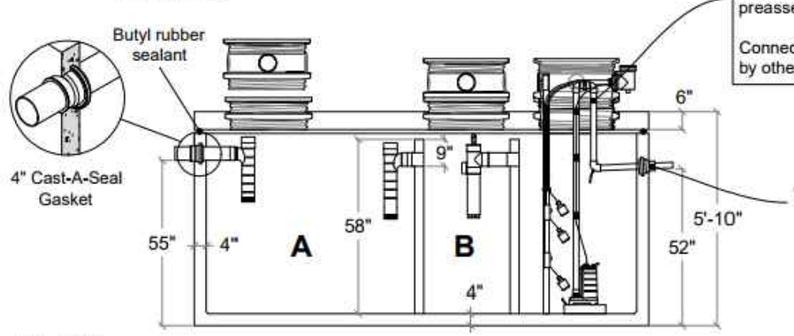
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PLAN



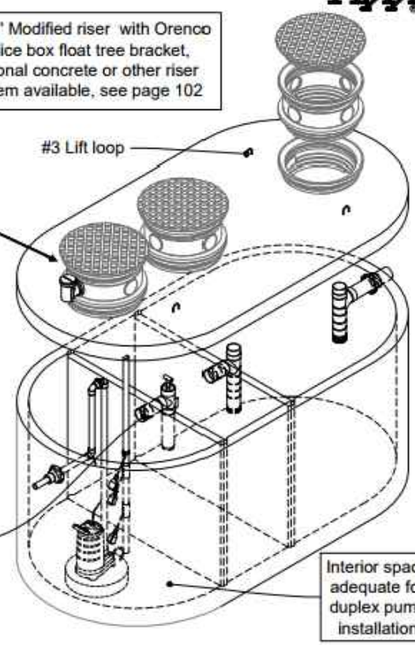
SECTION



Note: N.T.S.



2' X 1' Modified riser with Orenco splice box float tree bracket, optional concrete or other riser system available, see page 102



Effluent pump (per specification) / alarm box, float tree, control switches installed and pump plumbed to stub-out including preassembled pipes and fittings.

Connections to electrical source by others.

Sealed baffle wall. Install effluent filter at this location.

1 1/2" - 2" Cast-A-Seal Gasket

Interior space adequate for duplex pump installation

- Monolithic tank meets ASTM C-1227 Spec. for water and wastewater structures.
- Butyl rubber sealant meets Fed. Spec. SS-S-210A. (Provided with tank)
- All plumbing shown in diagram is 4" SDR 35. (Provided with tank)
- Follow standard practice for installation of underground precast concrete structures. (See page 2 for ASTM C-891 Summary)

Part #	Capacities (gallons) A	B	Lift Station Chamber	Discharge per Cycle	Approximate Weights Tank	Lid	Baffle Walls	Total
PCA-000-269	1000	500	500 Gal.	Variable 10.5 Gal. / Vertical inch	11,690 lbs	5,145 lbs	2,220 lbs	19,055 lbs
Total Capacity: 2000 gallons								

FLXX® WATERTIGHT

Front Range Precast Concrete, Inc.
5901 Dexter Street, Unit 102, Commerce City, CO 80022
Phone (303) 442-3207 - (800) 783-3207 - Fax (303) 442-3209
www.flxx.com

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PROJECT: 2025006 - OWTS DESIGN

LOCATION:
7610 MAVERICK ROAD
COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: RECIRC/DISCHARGE TANK DETAIL

DATE: 10/12/2026

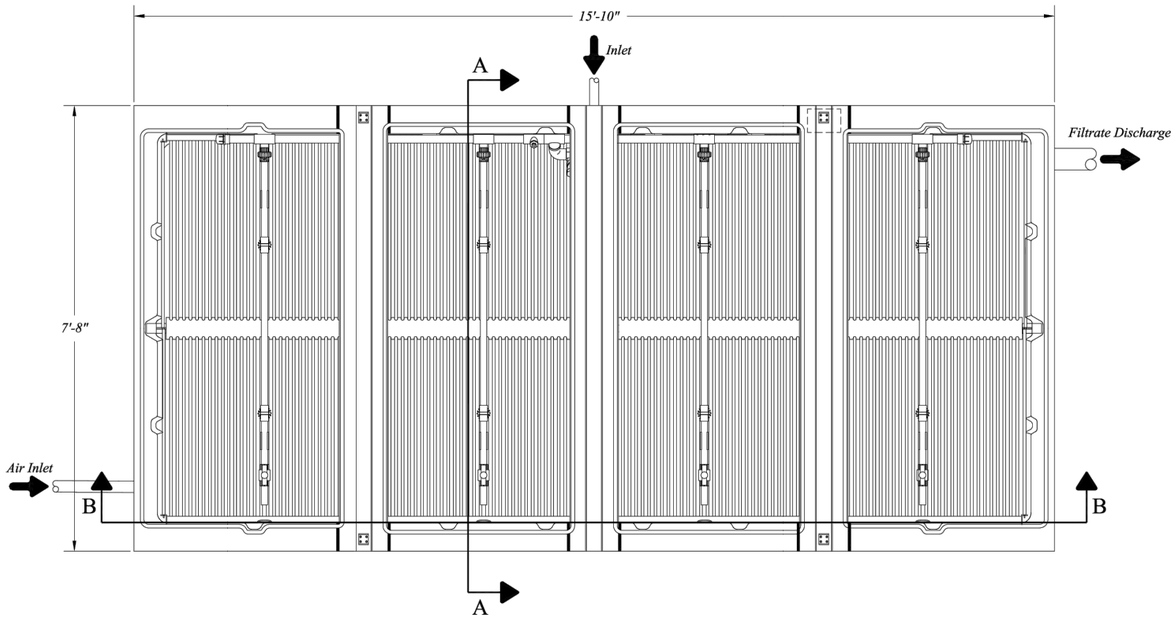
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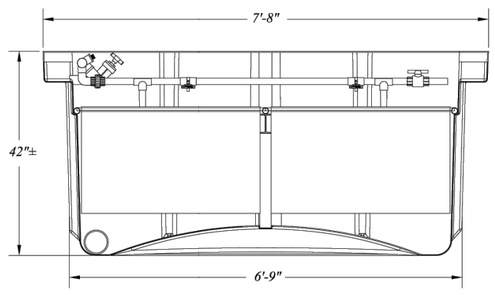
REVISIONS:
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SHEET:
12/15

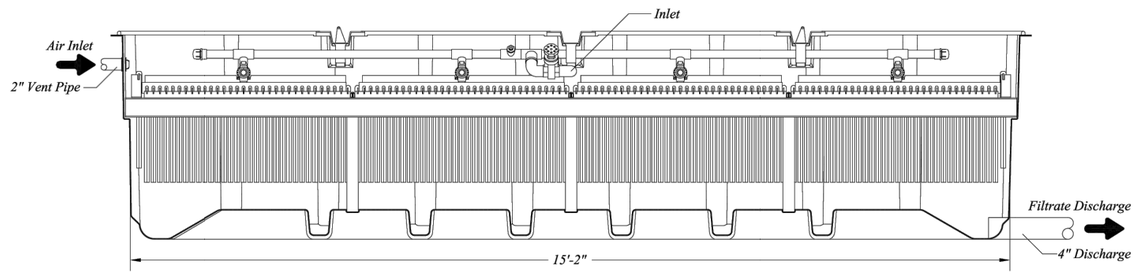
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Top View
Scale: 1" = 2'-0"



Section A-A
Scale: 1" = 2'-0"



Section B-B
Scale: 1" = 2'-0"

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PRODUCT CONFIGURATION DRAWINGS

Orenco Systems® Incorporated
Changing the Way the World Does Wastewater®

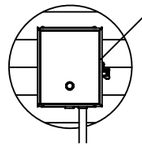
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Drawn For:		Sheet: 1 OF 1	
	Title: Filter Pod Details	Rev: A-03	Date: 08/12/13

285 ENGINEERING P.O. BOX 1048 CONIFER, CO 80433 (720)-515-1781	PROJECT: 2025006 - OWTS DESIGN	TITLE: AX100 DETAILS	SHEET: 13/15
	LOCATION: 7610 MAVERICK ROAD COLORADO SPRINGS, CO 80908	DATE: 10/12/2026 SCALE: SHOWN	REVISIONS: 1 2 3
	CLIENT: DESIGN STUDIO COLLABORATIVE	DRAWN BY: TS	

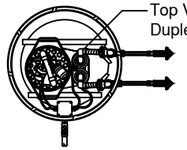
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Duplex Effluent Pumping System for Cold Weather Applications (cw style)

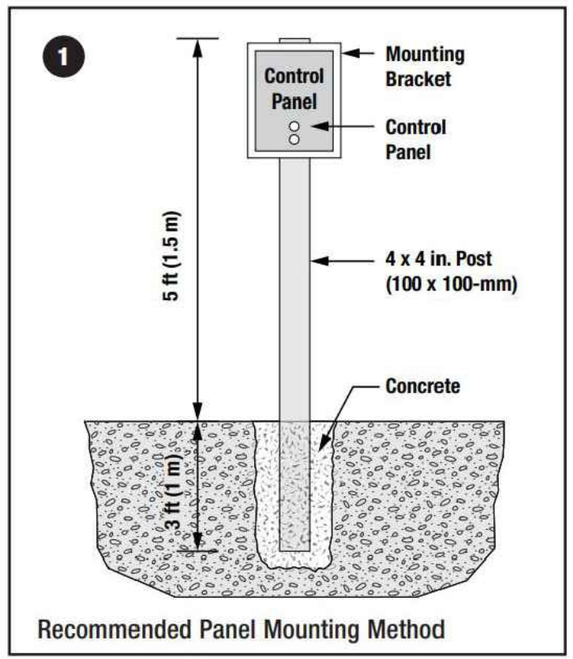
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Control Panel
Model
MVP-DAX2/DAX2



Top View (NTS)
Duplex Pumping System



Recommended Panel Mounting Method

DRAWING MODIFIED FROM
ORENCO PROVIDED
STANADRD DETAIL

Orenco Systems®
Incorporated

814 AIRWAY AVENUE
SUTHERLIN, OREGON
97479-9012

TOLL FREE:
(800) 348-9843

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Patents # 4,439,323 & 5,492,635
Foreign Patents May Apply
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* Pea Gravel Backfill Recommended to Help Prevent Frost Heave

NDW-TD-EPS-HV-02
Rev. 3.0 (03/06)

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80433
(720)-515-1781

PROJECT: 2025006 - OWTS DESIGN	TITLE: DISCHARGE PUMP DETAILS		SHEET: 14/15
LOCATION: 7610 MAVERICK ROAD COLORADO SPRINGS, CO 80908	DATE: 10/12/2026	REVISIONS: 1 2 3	
	SCALE: SHOWN		
CLIENT: DESIGN STUDIO COLLABORATIVE	DRAWN BY: TS		

DISCHARGE PUMP AND SYSTEM CURVES:

Pump Selection for a Pressurized System - Single Family Residence Project

2025006 Discharge pump

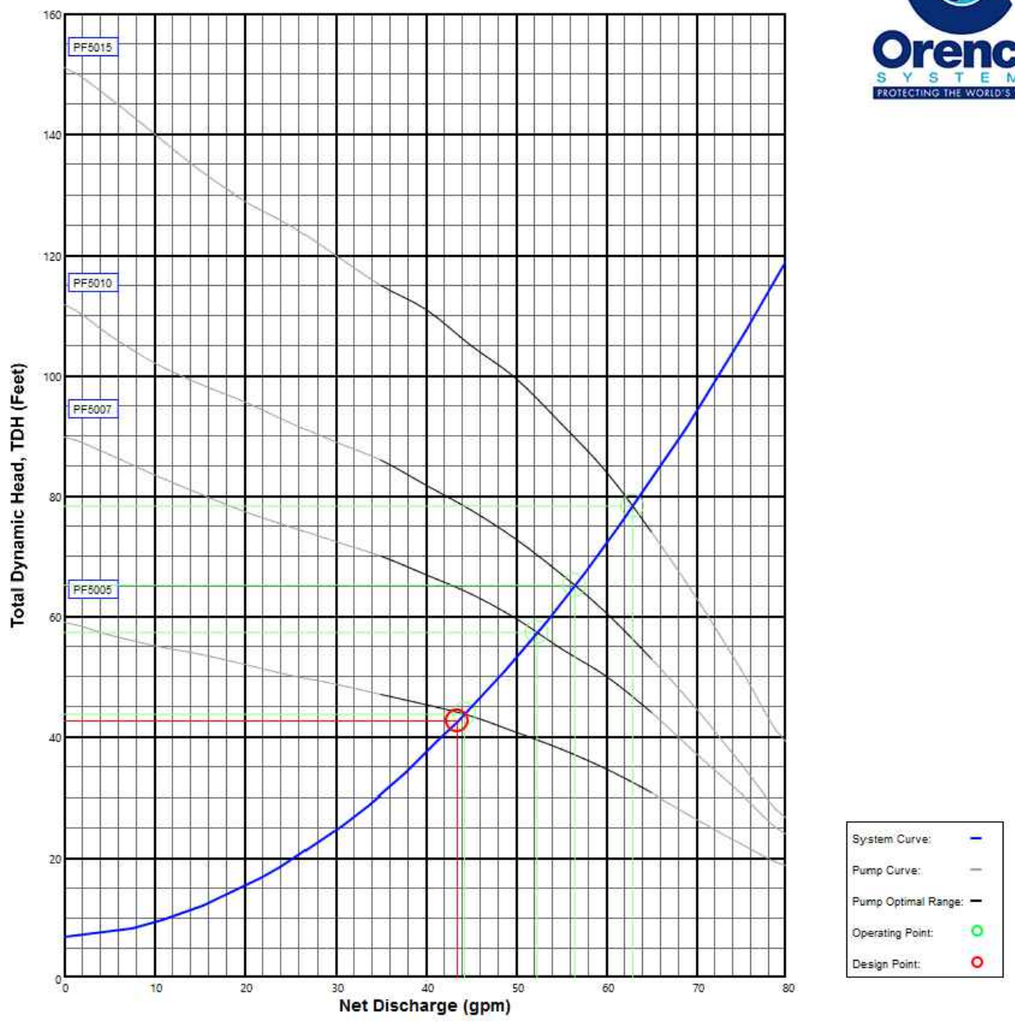
Parameters		
Discharge Assembly Size	2.00	inches
Transport Length	251	feet
Transport Pipe Class	40	
Transport Line Size	1.50	inches
Distributing Valve Model	None	
Max Elevation Lift	7	feet
Manifold Length	9	feet
Manifold Pipe Class	40	
Manifold Pipe Size	1.50	inches
Number of Laterals per Cell	4	
Lateral Length	98	feet
Lateral Pipe Class	40	
Lateral Pipe Size	1.50	inches
Orifice Size	1/8	inches
Orifice Spacing	4	feet
Residual Head	5	feet
Flow Meter	None	inches
'Add-on' Friction Losses	0	feet

Calculations		
Minimum Flow Rate per Orifice	0.43	gpm
Number of Orifices per Zone	100	
Total Flow Rate per Zone	43.6	gpm
Number of Laterals per Zone	4	
% Flow Differential 1st/Last Orifice	2.6	%
Transport Velocity	6.9	fps

Frictional Head Losses		
Loss through Discharge	3.8	feet
Loss in Transport	26.2	feet
Loss through Valve	0.0	feet
Loss in Manifold	0.3	feet
Loss in Laterals	0.3	feet
Loss through Flowmeter	0.0	feet
'Add-on' Friction Losses	0.0	feet

Pipe Volumes		
Vol of Transport Line	26.5	gals
Vol of Manifold	0.9	gals
Vol of Laterals per Zone	41.5	gals
Total Volume	68.9	gals

Minimum Pump Requirements		
Design Flow Rate	43.6	gpm
Total Dynamic Head	42.6	feet



NOTE:

SET PUMP FLOATS TO DISCHARGE A MINIMUM OF 152 GALLONS PER PUMP CYCLE

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LOCATION:
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COLORADO SPRINGS, CO 80908

CLIENT: DESIGN STUDIO COLLABORATIVE

TITLE: PUMP AND SYSTEM CURVES

DATE: 10/12/2026

SCALE: SHOWN

DRAWN BY: TS

REVISIONS:
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2
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SHEET:
15/15