S&EC

Soil & Environmental Consultants, Inc.

8412 Falls of Neuse Road, Suite 104, Raleigh, NC 27615 • Phone (919) 846-5900 • Fax (919) 846-9467
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January 27, 2026
Project #15531

Attached is a proposed design for a Pressure Manifold Septic System for a four bedroom residence located at 2417 Rosslare Mews Ln, Lot 5 Rosslare Subdivision, Wake County, NC

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S&EC PROJECT #15531
DESIGN – J. McGaughey
PROJECT MGR – R. Pontello
ENGINEER FLOW REDUCTION (EFR) [not included in this package]– BY OTHERS

INFORMATION FOR THE CONTRACTOR

The permit should be read very carefully prior to bidding. The following are details that must be considered by the contractor prior to and during installation:

- The septic installer for this system must have a valid septic installer certification from the North Carolina Onsite Wastewater Contractor Inspector Board (NCOWCICB).
- Tanks shall be approved by NCDHHS and meet 18E requirements, and certification supplied by the manufacturer.
- The installer shall be responsible to the owner for placement of the tanks and to ensure that final grades are returned to the original grade, with the exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement without damage or displacement of pipe or fittings.
- Installation of the system shall be during dry conditions in order to protect the soil structure.
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy-bodied PVC pipe glue applied to weld all joints.
- Trenches shall be carefully excavated so the bottom is within 2 inches from the highest to the lowest points of elevation within the trench. If the bottom elevation needs adjusting after it has been trenched, it will be done by removing high points rather than filling low points. It is extremely important to ensure that trenches are not over excavated during initial trenching. All fine grading within the trench will be done by hand with a shovel. No loose material will be left in the trench.
- All pipe openings in the tanks shall be properly filled with press boot seal.
- All tanks shall be properly back filled and compacted to prevent settlement.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the drainfield during or after installation. The use of a small loader (i.e. Bobcat skid steer) or a trencher/mini excavator (i.e. CAT 309 CR) or similar machinery may be used for septic installation.
- Elevations at pin flag locations should be <u>checked by the contractor prior</u> to beginning trench excavation.
- Pump tank riser shall be 6 inches above grade, control panel shall be 24 inches above grade.
- System uses HORIZONTAL PANEL BLOCK drain line.
- Repair uses HORIZONTAL PANEL BLOCK drain line.

2417 ROSSLARE MEWS LN
S&EC Project # 15531.S2
Date: 1/19/2026

PRESSURE MANIFOLD SYSTEM
FOR WASTEWATER TREATMENT

Owner:	TC HOMES NC LLC
Address:	3425 S BEAVER LN RALEIGH NC 27604
County:	WAKE

Source of Wastewater Flow:	4 Bedroom Residence (EFR)	
Estimated Daily Wastewater Production:	360	gpd
System Flow:	43.25	gpm

Design Specifications

Number of Drain Lines:	7	
Drainfield Size:	221	ft
Loading Rate (LTAR):	0.300	gpd/sq ft
Distribution Method:	HORIZONTAL PPBPS	
Approved Backfill Sand Types:	Natural Concrete Sand, NC-2S, ASTM C-33, FA-10, and/or Grade "A" Contact T&J Panel for questions regarding sand suitability and sources	
Minimum Trench Depth:	SEE LHD	in **Max Trench Depth:** SEE LHD in
Trench Width:	36	in
Minimum Septic Tank Liquid Capacity:	1200	gal
Pump Tank:	1200	gal
Grease Trap:	NA	-
Supply Line Length:	163	ft
Supply Line Diameter:	2.0	in. SCH 40 PVC
Supply Line Volume:	28.36	gal
Supply Manifold:	4 in. SCH 80 PVC	
Supply Manifold Length:	5.0	ft (minimum)
Supply Manifold Volume:	NA	
Threaded Union:	In Tank	
Gate Valves:	1 in Pump Tank 1 at Pressure Manifold	
Check Valves:	1 in Pump Tank	
Anti-Siphon Hole:	1 in Pump Tank	
Solenoid Valve:	NA	
Air Release/Vacuum Break Valve:	NA	

Recommended Septic Tank Filter:	STF 110 or County Approved Equivalent
Recommended Float Controls:	SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalent
Recommended Control Panel:	SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.
Recommended Pump:	Zoeller 153 or County Approved Equivalent
TDH Capacity:	22.5 ft
Flow Capacity:	43.25 gpm

Additional Comments: Soil suitability was performed by the Wake County Health Department.

2417 ROSSLARE MEWS LN
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DESIGN CALCULATIONS

Supply line length	163	ft
2.0 in. SCH 40 PVC	0.174	gal/ft
Supply line Volume	*28.36*	*gal*
Total drain field length	221	ft
Total # of Horizontal PPBPS Panels needed	52	
Backfill Sand Needed	37.6	Tons
Dose volume	187.20	gal
Pump tank	19.65	gal/in
Pump tank Drawdown	*9.5*	*in*
Ground Elevation at Pump Tank	96.3	ft
Pump Tank Installation Depth	3	ft
Pump Tank Elevation	93.3	ft
Pump Elev. Difference	4.8	ft
Pump Elevation	88.5	ft
Manifold Elevation	100.8	ft
	12.3	ft
Elevation Head	*12.3*	*ft*
System flow	43.25	gal/minute
Friction Factor*	3.50	*f* /100ft
Supply Line Length	163	ft
Friction Adjustment for Fittings**	233	ft
Friction Head	*8.2*	*ft*
Pressure Head	*2.0*	*ft*
(TDH) Total Dynamic Head	*22.5*	*ft*
Daily flow	360	gal/day
LTAR	0.300	sqft/day
Max Design LTAR w/ Product Reduction + 5%	0.630	sqft/day
Trench width	3.0	ft
Required drain field length (PPBPS Product)	*200*	*ft*

FRICTION FACTOR INTERPOLATER
2.0 in. SCH 40 PVC

GPM	*f*
20	0.84
22	1.01
25	1.27
27.5	1.53
30	1.78
32.5	2.08
35	2.37
37.5	2.70
40	3.03
42.5	3.40
45	3.77
47.5	4.18
50	4.58
55	5.50
60	6.42

* Computed by Hazen Williams Formula, assuming C=140

**If supply line is greater than 350ft, then 20% is added to account for fittings. If supply line is less than 350ft, then 70ft is added to account for fittings.

2417 ROSSLARE MEWS LN

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Date: 1/19/2026

LINE #	FLAG COLOR	BS (ft)	HI (ft)	FS (ft)	ELEVATION (ft)	FLAGGED LINE LENGTH (ft)	DESIGN LINE LENGTH (ft)	PANELS PER TRENCH
TBM		4.25			100.00			
INSTR. 1			104.25					
1	ORANGE			2.50	101.75	32	0	0
2	PINK			2.75	101.50	60	60	14
3	YELLOW			3.10	101.15	83	80	18
4	RED			3.35	100.90	66	65	15
5	BLUE			3.65	100.60	60	60	14
6	PINK			4.05	100.20	32	0	0
		3.6						
			103.6					
7	**PINK**			**3.80**	**99.80**	**36**	**36**	**8**
8	**YELLOW**			**4.20**	**99.40**	**38**	**38**	**9**
9	**ORANGE**			**4.50**	**99.10**	**30**	**30**	**7**
10	**RED**			**4.90**	**98.70**	**29**	**29**	**7**
11	**WHITE**			**5.25**	**98.35**	**25**	**25**	**6**
12	**BLUE**			**5.80**	**97.80**	**26**	**26**	**6**
13	**PINK**			**6.30**	**97.30**	**37**	**37**	**9**
					Total	**554**	**486**	

	LINE LENGTH (ft)	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	SYSTEM DRAIN TYPE	DISTRIBUTION	DESIGN FLOW (GPD)	TOTAL # OF PANELS PER SYSTEM
System	**221**	**0.300**	**18E**	**0.300**	**HORIZONTAL**	**PRESSURE**	**360**	**52**
			.0905		**PANEL BLOCK**	**MANIFOLD**	FLOW REDUCTION	
Repair	265	0.250	18E	0.250	HORIZONTAL	PRESSURE	360	61
			.0905		PANEL BLOCK	MANIFOLD	FLOW REDUCTION	

Notes: **TBM ground @ south west house box corner (repair) and north east house box corner (system)

**TBM is assumed to be 100.00'.

**All measures in feet.

**Nitrification lines are demonstrated on contour via colored pin flags.

**BS, FS indicate rod readings.

****Some flagged lines may be shown longer in the field.

2417 ROSSLARE MEWS LN

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SYSTEM TAP CHART

HORIZONTAL PANEL BLOCK (PPBPS) PRODUCT

Line #	Color	Field Elev. (ft)	Length (ft)	Hole Size (in)	Flow/Tap (gpm)	gpd	Trench Area (sq ft)	Line LTAR (gpd/sq ft)	# of Panels per Trench	Spacing between Panels (in)
7	PINK	***99.80***	**36**	1/2" SCH. 40	**7.11**	59.18	108	0.548	8	6
8	YELLOW	***99.40***	**38**	1/2" SCH. 40	**7.11**	59.18	114	0.519	9	5
9	ORANGE	***99.10***	**30**	1/2" SCH. 80	**5.48**	45.61	90	0.507	7	5
10	RED	***98.70***	**29**	1/2" SCH. 80	**5.48**	45.61	87	0.524	7	4
11	WHITE	***98.35***	**25**	1/2" SCH. 80	**5.48**	45.61	75	0.608	6	4
12	BLUE	***97.80***	**26**	1/2" SCH. 80	**5.48**	45.61	78	0.585	6	6
13	PINK	***97.30***	**37**	1/2" SCH. 40	**7.11**	59.18	111	0.533	9	3

Total Feet = **221** **Flow Capacity gal/min (GPM) =** **43.25** **Total # of Panels =** **52**

Des. Flow	**360**	**gpd**	***(TDH) Total Dynamic Head*** *22.5* *ft, approx.*
Pump Run=	**8.32**	**min**	
soil LTAR	**0.300**	**gpd/sq ft**	***Backfill Sand Needed*** *37.6* *Tons*
Product Reduction	**50%**		
LTAR with Product Reduction	**0.600**	**gpd/sq ft**	
LTAR with Product Reduction + 5%	**0.630**	**gpd/sq ft**	
total # of panels X	**3.6**	**gallons per panel**	
Dose Volume	**187.20**	**gal**	
Pump Run Time	**4.33**	**min**	
Pressure Head	*2.0*	*ft*	

Minimum Trench Depth: in SEE LHD NOTES

Max Trench Depth: in SEE LHD NOTES

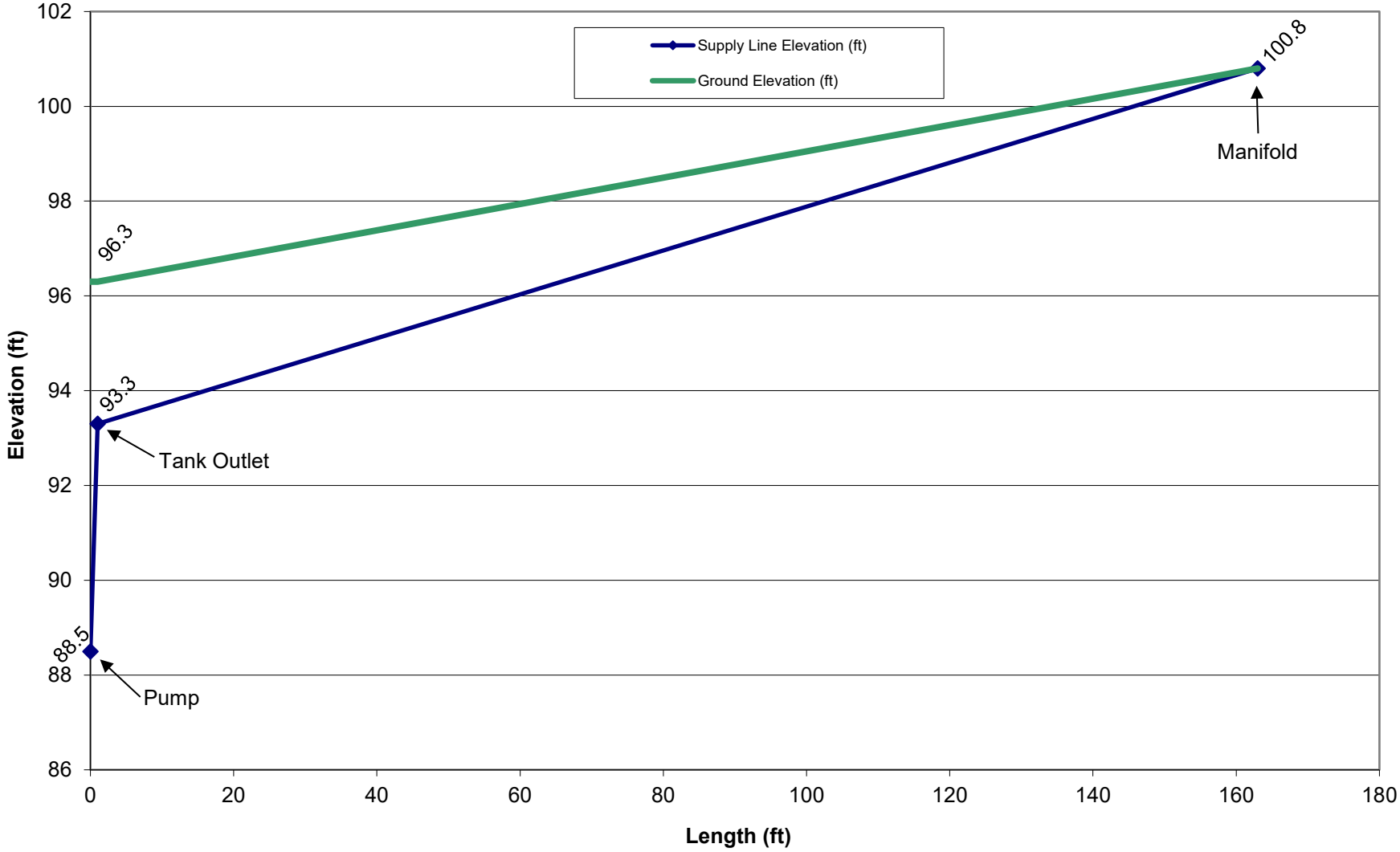
**Per T&J Panel Inc., please note spacing between panels does not have to be uniform. Spacing between panels may vary especially at bends along a trench.

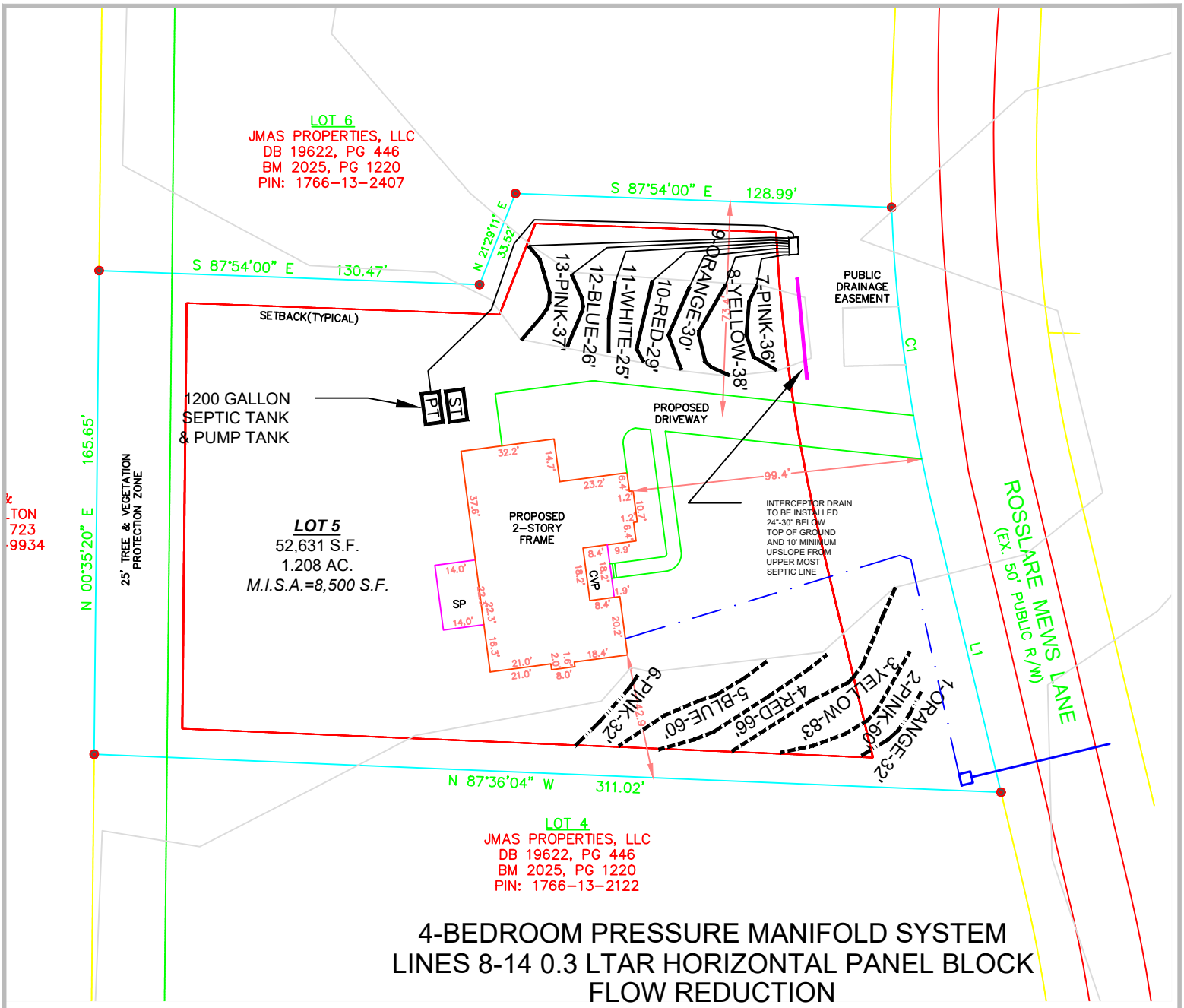
**As long as the correct number of panels are installed in the trench and no panels are butted together without space between them, the system will function as designed. Generally spacing between panels should be between 2 to 6 inches.

**If spacing between panels is more than 6 inches apart, this may require connecting pipe(s) longer than 24 inches between panels.

**Trench width for Horizontal Panel Block is 36 inches wide.

Supply Line Profile





4-BEDROOM PRESSURE MANIFOLD SYSTEM
LINES 8-14 0.3 LTAR HORIZONTAL PANEL BLOCK FLOW REDUCTION
4-BEDROOM PRESSURE MANIFOLD REPAIR
LINES 2-5 0.25 LTAR HORIZONTAL PANEL BLOCK FLOW REDUCTION

GRAPHIC SCALE
1" = 50'

50' 0 50'

LEGEND

- SYSTEM LINE
- REPAIR LINE
- EXTRA LINE
- ST SEPTIC TANK
- PT PUMP TANK

NOTES:

1) SITE DATA TO INCLUDE PROPERTY BOUNDARIES, STRUCTURE LOCATION, UTILITIES, ROADS, AND OTHER SITE FEATURES WERE PROVIDED BY THE SURVEYOR AND ARE SHOWN TO DISPLAY GENERAL SITE CONDITIONS.

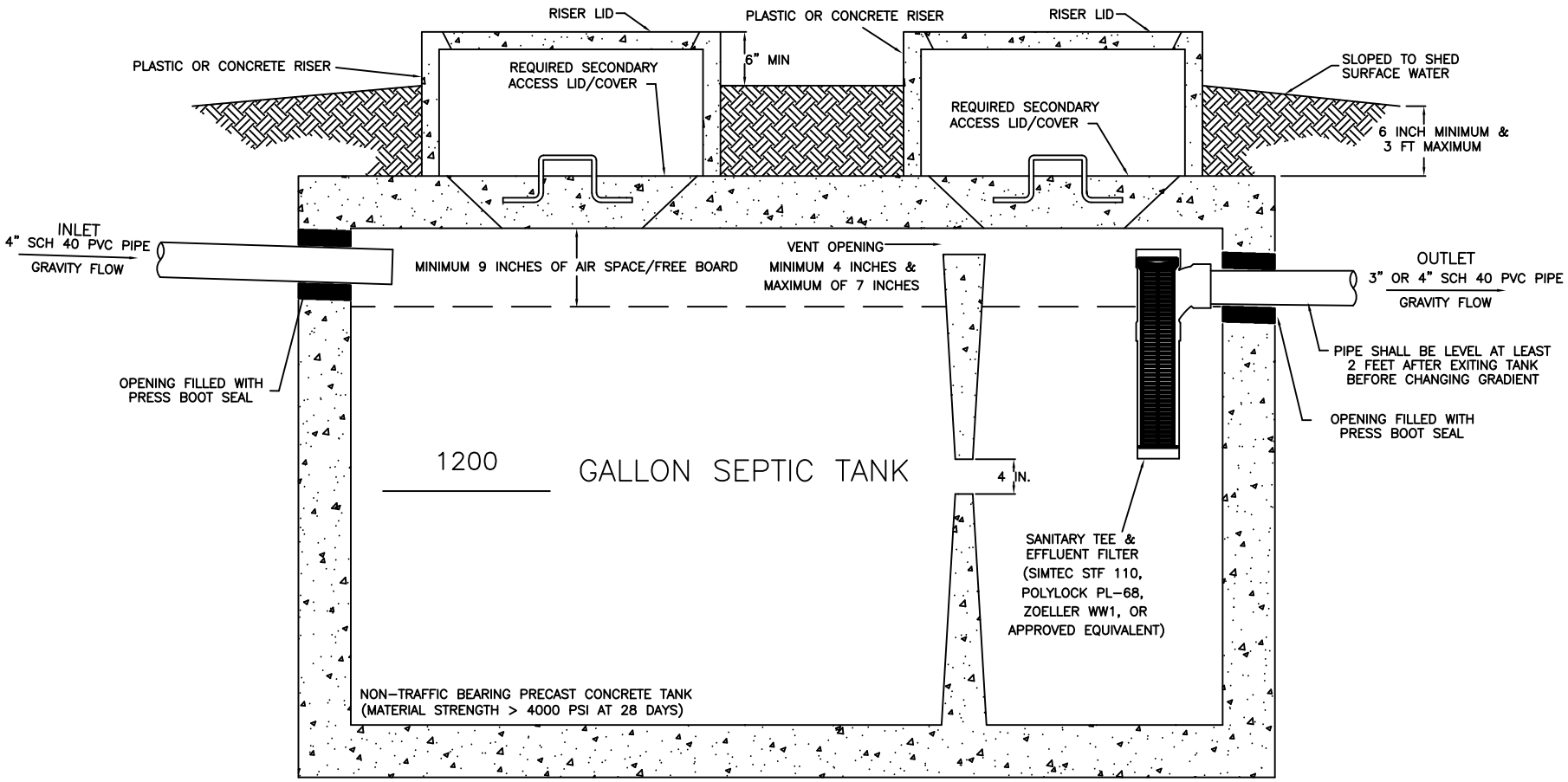
2) ALL SEPTIC SYSTEM COMPONENTS TO INCLUDE TANKS, PUMPS, MANIFOLDS, AND SYSTEM AND REPAIR LINES HAVE BEEN GPS LOCATED BY SOIL AND ENVIRONMENTAL CONSULTANTS, PA. ALL LOCATIONS, ELEVATIONS, AND DIMENSIONS ARE APPROXIMATE AND AS SUCH NO SPECIFIC ACCURACY EITHER VERTICAL OR HORIZONTAL IS IMPLIED.

3) THIS MAP AND CORRESPONDING SITE EVALUATION IS NOT CONFORMANT TO THE ENGINEERED OPTION PERMIT (EOP) PROCESS. ADDITIONAL SITE TESTING AND EVALUATIONS WILL BE REQUIRED TO UTILIZE THE EOP PROCESS.

4) PROPERTY AND EASEMENT BOUNDARIES SHOWN ON THIS SITE SKETCH ARE APPROXIMATE AND ARE NOT INTENDED FOR LOCATING PROPERTY OR IDENTIFYING PROPERTY OR EASEMENT CORNERS. THIS IS NOT A SURVEY.

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Project: 2417 ROSSLARE MEWS LN, LOT 5			Project No.: 15531.S2
		Project Manager: RP	Drawn: JM
Location: WAKE CO., NC	Client: THAYER HOMES	Scale: 1"=50'	Field Work: JM
Sheet Title: SEPTIC SYSTEM & REPAIR LAYOUT			Sheet No.: 1 of 1

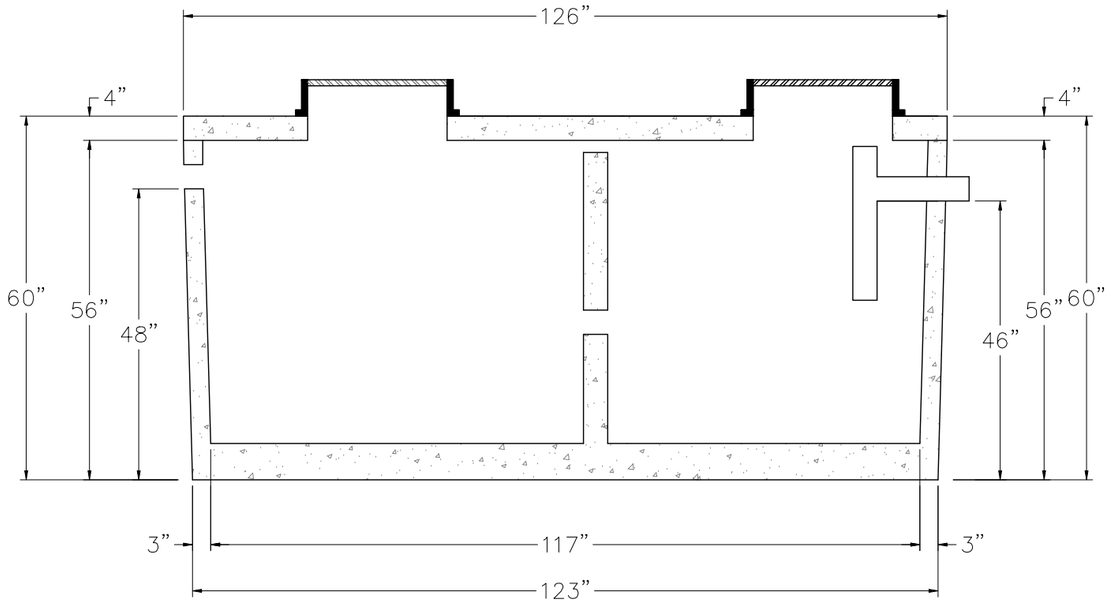


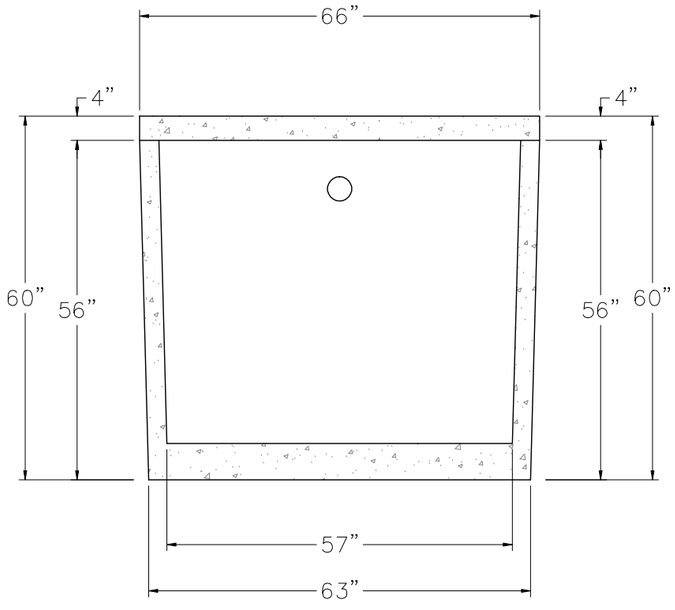
NOTES :

1. SEPTIC TANK, RISERS, SANITARY TEE, & EFFLUENT FILTER MUST BE PRODUCTS WITH APPROVAL TO BE USED IN NC BY NCDHHS.
2. SEPTIC TANK SHALL BE INSTALLED ACCORDING TO 15A NCAC 18E.0805 & 18E.1400.
3. SEPTIC TANK SHALL BE LEVEL ACCORDING TO 15A NCAC 18E.0805 (G).
4. SEPTIC TANK COMPARTMENTS MAY VARY FROM THE TANK DIAGRAM BUT SHALL MEET THE CONDITIONS IN 15A NCAC 18E.1402 (D)(11).
5. IF SEPTIC TANK LEAK TESTING IS PERFORMED AT A JOB SITE & VERIFIES THAT THE TANK, PIPE PENETRATIONS, & RISERS ARE WATER TIGHT THEN SOME REDUCED SETBACKS ARE ALLOWED FOR SOME SEPTIC COMPONENTS ACCORDING TO 18E.0601(e).
6. A GRAVEL BED UNDER THE SEPTIC TANK MAY BE NEEDED IF THE BOTTOM OF THE TANK HOLE HAS A ROUGH SURFACE.
7. SANITARY TEE & EFFLUENT FILTER MUST BE SIZED TO ACCOMMODATE THE DESIGN DAILY FLOW (DDF) IN GALLONS PER DAY (GPD).
8. SANITARY TEE & EFFLUENT FILTER CAN VARY FROM PRODUCTS STATED IN DIAGRAM AS LONG AS THE PRODUCTS HAVE APPROVAL TO BE USED IN NC BY NCDHHS.

JOB NO. 15531	PROJECT NAME: 2417 ROSSLARE MEWS LN.	S&EC
PROJECT MGR. RP	SHEET TITLE: SEPTIC TANK DIAGRAM	
SCALE NTS		

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1,250 ST 323

NTS

NON TRAFFIC BEARING

BRANTLEY TANK MODEL
1,250 ST 323

SHEET NUMBER
1 of 1

REVISION NO.	DATE
Original Submittal	April 11, 2014
Revision 1	
Revision 2	
Revision 3	
Master Set	-----

PREPARED FOR : David Brantley & Sons
37 Pine Ridge Rd.
Zebulon, NC 27597

DATE : April 11, 2014

CONTACT:
CORY BRANTLEY

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37 Pine Ridge Rd.
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Office 252-478-3721
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tinstaller@gmail.com

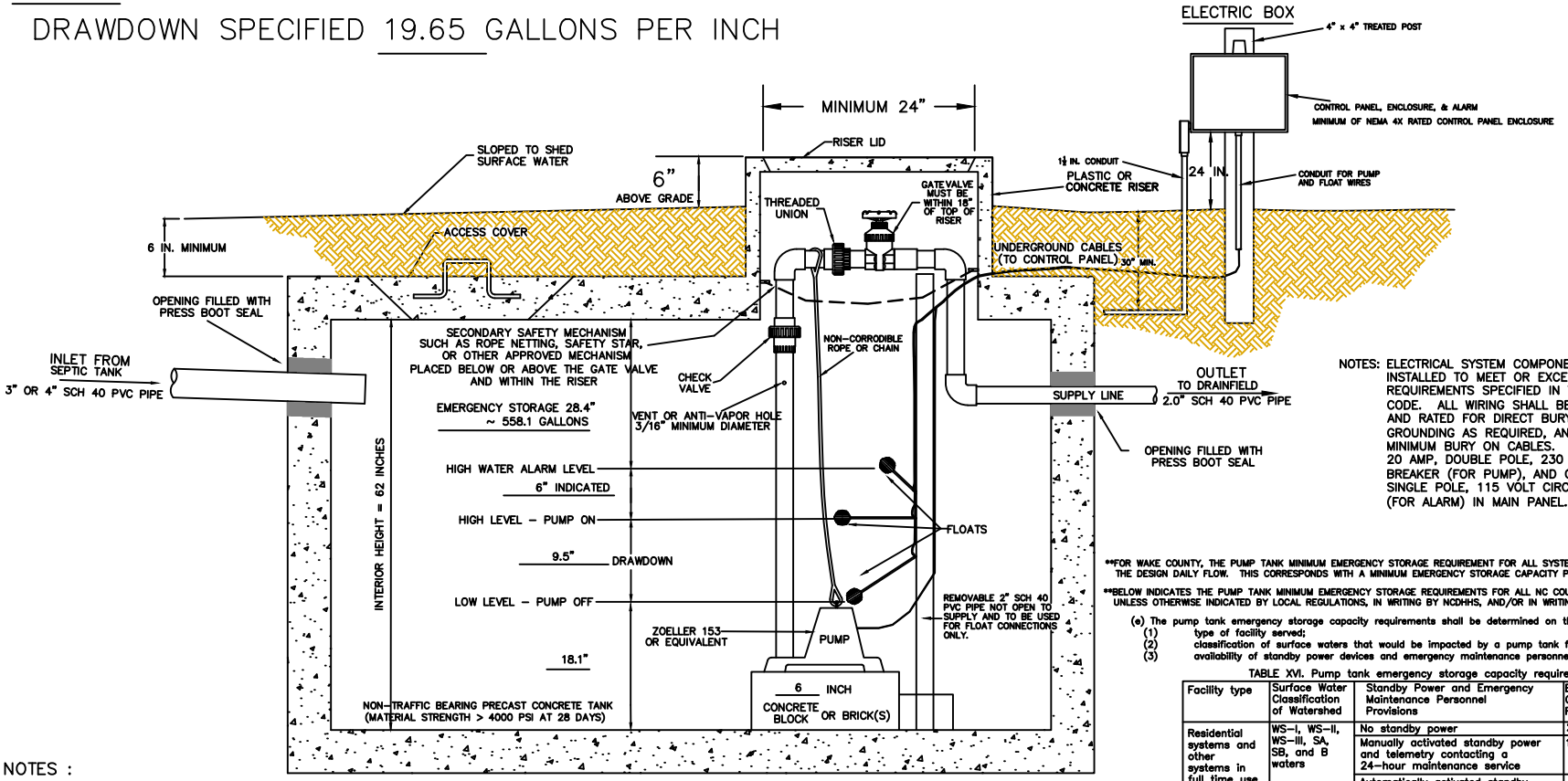
ENGINEER FLOW REDUCTION (EFR)

360 GPD | 24 HOURS | 19.65 GAL/IN | 18.83 INCHES

[DESIGN DAILY FLOW (GPD) x (MINIMUM # OF HOURS EMERGENCY STORAGE NEEDED FOR THIS SYSTEM / 24 HOURS)] / TANK SPECIFIC DRAWDOWN (GALLONS PER INCH) = MINIMUM EMERGENCY STORAGE IN INCHES BETWEEN THE UPPER LIMIT/ACTIVATION LEVEL OF THE HIGH WATER ALARM AND THE INSIDE TOP OF THE PUMP TANK

1,200 GALLON BRANTLEY PT-463 NON-TRAFFIC BEARING PUMP TANK (OR EQUIVALENT)

DRAWDOWN SPECIFIED 19.65 GALLONS PER INCH



NOTES: ELECTRICAL SYSTEM COMPONENTS SHALL BE INSTALLED TO MEET OR EXCEED MINIMUM REQUIREMENTS SPECIFIED IN THE ELECTRICAL CODE. ALL WIRING SHALL BE #12 MINIMUM, AND RATED FOR DIRECT BURY. PROVIDE GROUNDING AS REQUIRED, AND PROVIDE 30" MINIMUM BURY ON CABLES. PROVIDE ONE 20 AMP, DOUBLE POLE, 230 VOLT CIRCUIT BREAKER (FOR PUMP), AND ONE 20 AMP, SINGLE POLE, 115 VOLT CIRCUIT BREAKER (FOR ALARM) IN MAIN PANEL.

**FOR WAKE COUNTY, THE PUMP TANK MINIMUM EMERGENCY STORAGE REQUIREMENT FOR ALL SYSTEMS IS EQUAL TO OR EXCEEDS THE DESIGN DAILY FLOW. THIS CORRESPONDS WITH A MINIMUM EMERGENCY STORAGE CAPACITY PERIOD OF 24 HOURS.

**BELOW INDICATES THE PUMP TANK MINIMUM EMERGENCY STORAGE REQUIREMENTS FOR ALL NC COUNTIES (EXCEPT WAKE COUNTY) UNLESS OTHERWISE INDICATED BY LOCAL REGULATIONS, IN WRITING BY NCDHHS, AND/OR IN WRITING BY A WASTEWATER ENGINEER (PE).

(e) The pump tank emergency storage capacity requirements shall be determined on the following criteria and Table XVI:
(1) type of facility served;
(2) classification of surface waters that would be impacted by a pump tank failure; and
(3) availability of standby power devices and emergency maintenance personnel

TABLE XVI. Pump tank emergency storage capacity requirements

Facility type	Surface Water Classification of Watershed	Standby Power and Emergency Maintenance Personnel Provisions	Emergency Storage Capacity Period Requirement
Residential systems and other systems in full time use	WS-I, WS-II, WS-III, SA, SB, and B waters	No standby power	24 hours
		Manually activated standby power and telemetry contacting a 24-hour maintenance service	12 hours
		Automatically activated standby power and telemetry contacting a 24-hour maintenance service	4 hours
	All other surface waters or no surface waters	No standby power	12 hours
		Manually activated standby power and telemetry contacting a 24-hour maintenance service	8 hours
		Automatically activated standby power and telemetry contacting a 24-hour maintenance service	4 hours
Non-residential systems not in full-time use and all other systems	All surface waters	No standby power	12 hours
		Manually activated standby power and telemetry contacting a 24-hour maintenance service	8 hours
		Automatically activated standby power and telemetry contacting a 24-hour maintenance service	4 hours

NOTES :

1. PUMP TANK & ASSOCIATED COMPONENTS SHALL BE INSTALLED ACCORDING TO REGULATIONS: 15A NCAC 18E.0802, 18E.0805, 18E.1102, 18E.1103, & 18E.1400.
2. PUMP TANK, RISER(S), PUMP, CONTROL PANEL, & ASSOCIATED COMPONENTS MUST BE PRODUCTS WITH APPROVAL TO BE USED IN NC BY NCDHHS.
3. A DIFFERENT EQUIVALENT PUMP TANK SIMILAR SIZE OR LARGER CAN BE USED AS LONG AS THE MINIMUM EMERGENCY STORAGE IS MET AND ALL 18E & LOCAL REGULATIONS ARE FOLLOWED.
4. PUMP TANK SHALL BE LEVEL ACCORDING TO 15A NCAC 18E.0805 (F).
5. A GRAVEL BED UNDER THE PUMP TANK MAY BE NEEDED IF THE BOTTOM OF THE TANK HOLE HAS A ROUGH SURFACE.
6. THE PUMP TANK EMERGENCY STORAGE CAPACITY REQUIREMENT FOR THIS SEPTIC SYSTEM SHALL MET OR EXCEED REQUIREMENTS PER 15A NCAC 18E.0802(E) AND LOCAL REGULATIONS.
7. THE SECONDARY SAFETY MECHANISM ON THE OUTLET END OF THE PUMP TANK MUST BE ACCESSIBLE FROM THE TOP OF THE RISER/GROUND SURFACE AND PLACED WITHIN THE RISER.
8. PUMP TANK OUTLET PIPE SHALL BE INSERTED THROUGH THE OUTLET PIPE PENETRATION BOOT, CREATING A WATERTIGHT JOINT (AS SHOWN IN DIAGRAM ABOVE), OR THROUGH A WATERTIGHT RUBBER GROMMET IN THE PUMP TANK RISER. EITHER OUTLET PIPE ROUTING WAY IS ACCEPTABLE.
9. THE PUMP TANK SHALL BE VENTED IF LOCATED MORE THAN 50 FEET FROM THE FACILITY.
10. IF SEPTIC TANK LEAK TESTING IS PERFORMED AT A JOB SITE & VERIFIES THAT THE TANK, PIPE PENETRATIONS, & RISERS ARE WATER TIGHT THEN SOME REDUCED SETBACKS ARE ALLOWED FOR SOME SEPTIC COMPONENTS ACCORDING TO 18E.0601(E).
11. THE CONTROL PANEL SHALL BE INSTALLED ON A TREATED POST A MINIMUM OF 24 INCHES TALL (AS SHOWN) OR MOUNTED A MINIMUM OF 24 INCHES TALL ON THE SIDE OF A STRUCTURE OR BUILDING WITHIN 50 FEET OF AND IN THE LINE OF SIGHT OF THE PUMP TANK. THE MANAGEMENT ENTITY AND LHD SHALL BE ABLE TO ACCESS THE CONTROL PANEL AND OPERATE THE PUMP(S) WHEN THE OWNER IS NOT PRESENT.
12. TELEMETRY SHALL BE DEMONSTRATED TO BE OPERATIONAL TO THE AUTHORIZED AGENT AND THE MANAGEMENT ENTITY PRIOR TO ISSUANCE OF THE OP OR ATO.

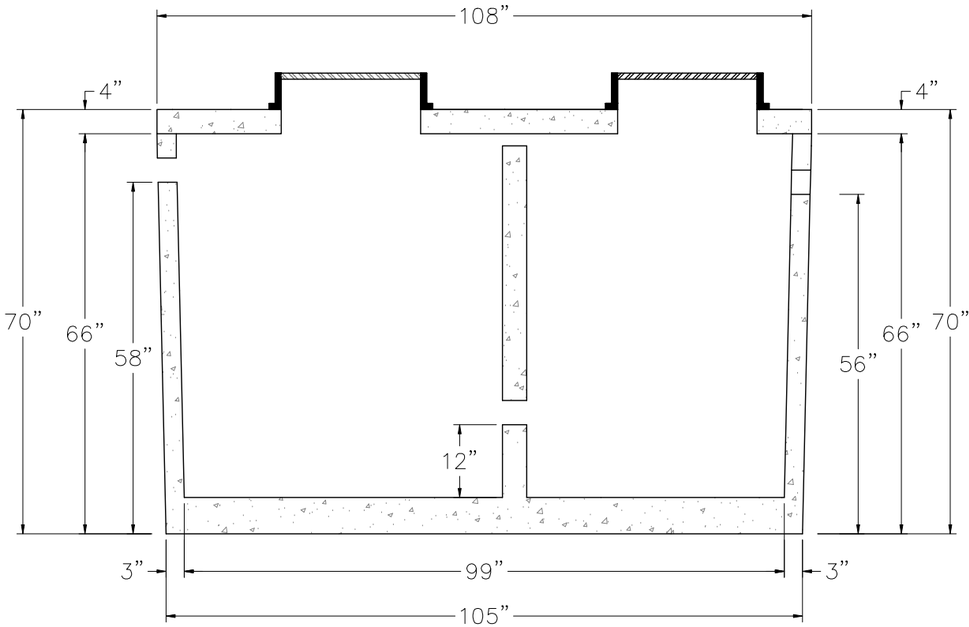
Project No.: 15531
Project Engr.: RP
Drawn: JM
Project: 2417 ROSSLARE MEWS LN.
Location: WAKE CO., NC
Client: THAYER HOMES
Scale: NOT TO SCALE (NTS)
Sheet No.: 1 OF 1
Sheet Title: PUMP TANK DIAGRAM

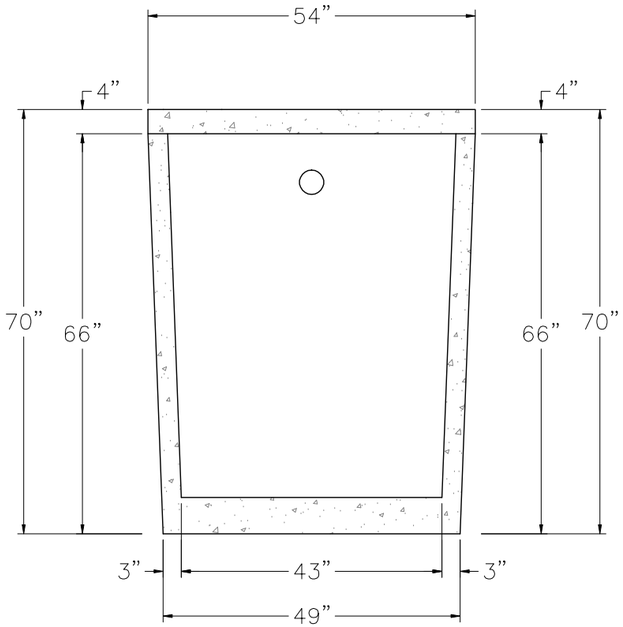
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REVISIONS

REV.	DESCRIPTION	DATE	APP'D
	PUMP TANK DIAGRAM	3/2024	





1,200 PT 463

NTS

NON TRAFFIC BEARING

BRANTLEY TANK MODEL
1,200 PT 463

SHEET NUMBER
1 of 1

REVISION NO.	DATE
Original Submittal	April 11, 2014
Revision 1	
Revision 2	
Revision 3	
Master Set	-----

PREPARED FOR : David Brantley & Sons
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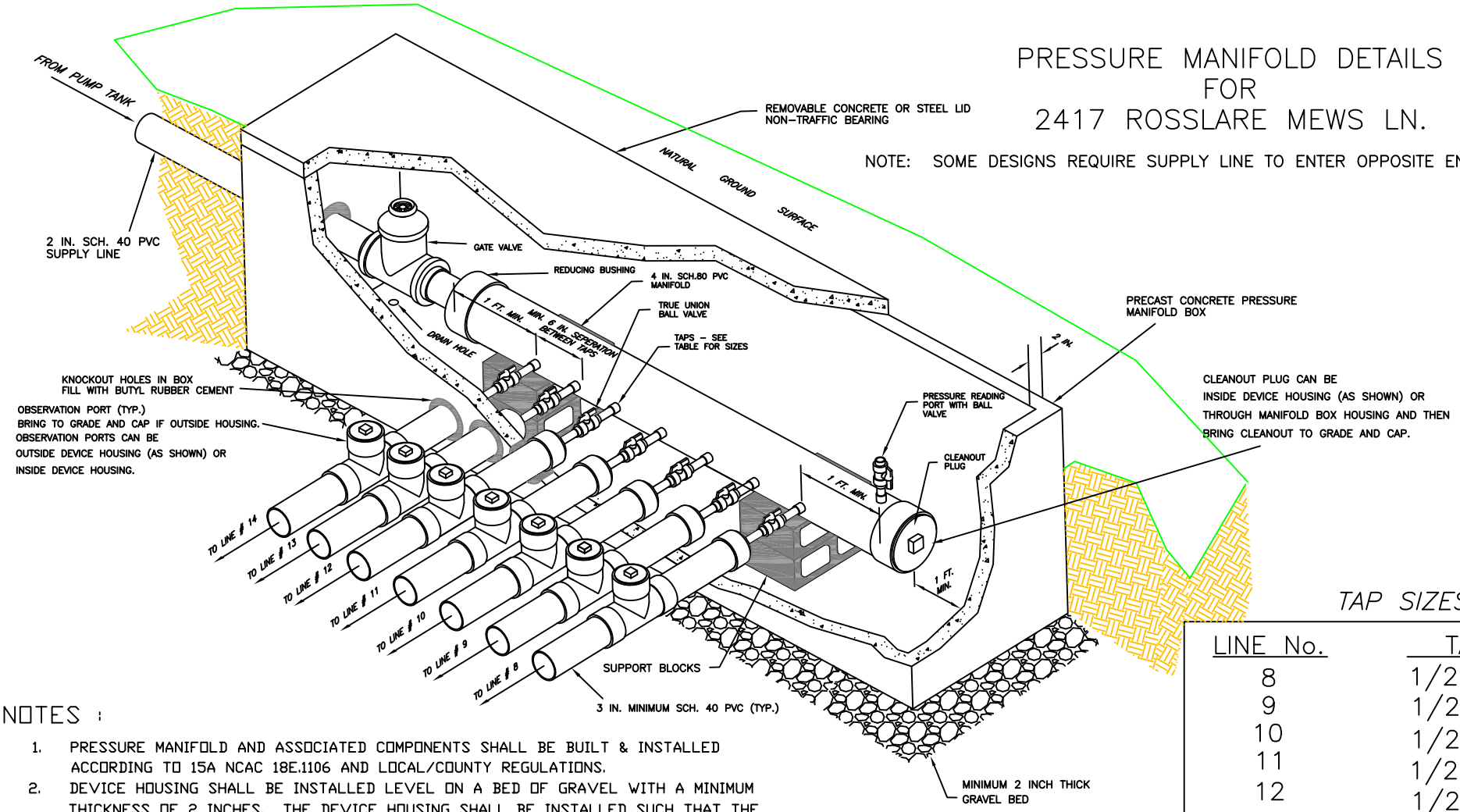
DATE : April 11, 2014

CONTACT: CORY BRANTLEY

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1installer@gmail.com

PRESSURE MANIFOLD DETAILS FOR 2417 ROSSLARE MEWS LN.

NOTE: SOME DESIGNS REQUIRE SUPPLY LINE TO ENTER OPPOSITE END OF MANIFOLD.



TAP SIZES

LINE No.	TAP SIZE
8	1/2" SCH. 40
9	1/2" SCH. 40
10	1/2" SCH. 80
11	1/2" SCH. 80
12	1/2" SCH. 80
13	1/2" SCH. 80
14	1/2" SCH. 40

PRESSURE HEAD 2 FEET

NOTES :

1. PRESSURE MANIFOLD AND ASSOCIATED COMPONENTS SHALL BE BUILT & INSTALLED ACCORDING TO 15A NCAC 18E.1106 AND LOCAL/COUNTY REGULATIONS.
2. DEVICE HOUSING SHALL BE INSTALLED LEVEL ON A BED OF GRAVEL WITH A MINIMUM THICKNESS OF 2 INCHES. THE DEVICE HOUSING SHALL BE INSTALLED SUCH THAT THE DEVICE IS ACCESSIBLE FROM THE GROUND SURFACE.
3. DEVICE HOUSING SHALL HAVE A DRAIN HOLE IN THE BOTTOM.
4. GATE VALVE CAN BE PLACED INSIDE HOUSING (AS SHOWN) OR OUTSIDE DEVICE HOUSING & WITHIN ITS OWN VALVE/IRRIGATION BOX WITH ACCESS FROM THE GROUND SURFACE.
5. DEVICE HOUSING AND SET-UP CAN VARY ACROSS NORTH CAROLINA. IF THE INSTALLER HAS ANY QUESTIONS CONTACT THE LOCAL HEALTH DEPARTMENT AND/OR THE SEPTIC DESIGNER.

JOB NO.	15531
PROJECT MGR.	RP
SCALE	NTS

2417 ROSSLARE MEWS LN.

SHEET TITLE:

PRESSURE MANIFOLD DIAGRAM

S&EC

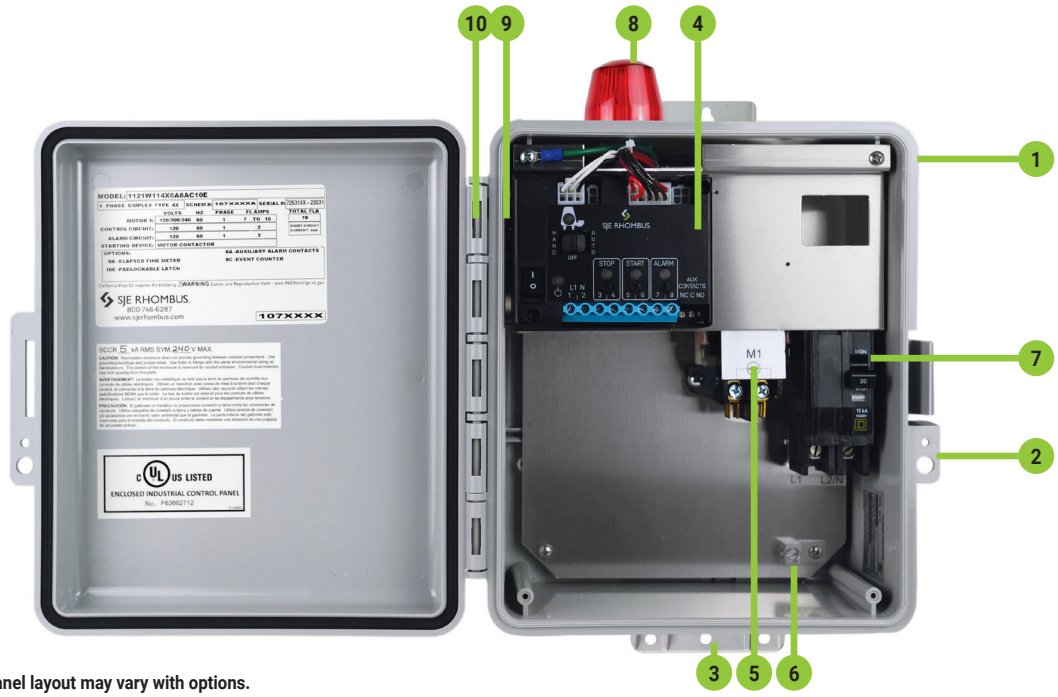
Soil & Environmental Consultants, Inc.

8412 Falls of Neuse Rd., Suite 104 • Raleigh, North Carolina 27615 • Phone: (919) 846-5900 • Fax: (919) 846-9467

www.SandEC.com

MODEL 112 CONTROL PANEL

Single Phase, Simplex Motor Contactor Control



c UL us LISTED

5 YEAR LIMITED WARRANTY

Panel layout may vary with options.

This latest generation Model 112 control panel controls one 120, 208, or 240 VAC single phase pump in water and sewage installations. This panel includes a new innovative simplex controller for pump control and alarm; including float status LEDs, control/alarm power on/off switch with LED indicator, pump run LED, HOA switch, auxiliary contacts and more!

The Model 112 control panel features built in pump failure and float out of sequence detection. In addition, there are three user selectable field programmable options: alarm steady state or flashing; alarm auto reset or manual reset; and optional seal failure alarm beacon plus horn activation.

Simplex controller features include:

- Touch safe circuit board housing and low voltage 24 VDC float circuits
- Alarm (field programmable to flash)
- Alarm automatic reset (field programmable to manual alarm reset)
- Float out-of-sequence detection
- Pump contactor failure detection
- Controller protected by three auto resettable fuses (control, alarm, and pump 1)

Note: SJE Rhombus recommends separate pump and control/alarm power sources.

COMPONENTS

1. Enclosure measures 10 x 8 x 4 inches (25 x 20 x 10 cm) NEMA 4X (ultraviolet stabilized thermoplastic) for indoor or outdoor use
2. Integral padlockable latch for added safety
3. Integral mounting feet for indoor or outdoor use
4. Simplex controller provides pump and alarm control; elevated in the enclosure for easy access and field wiring
   a. HOA switch for manual control of the pump
   b. Pump run green LED indicator
   c. Control power ON/OFF switch
   d. Power ON green LED indicator
   e. Float push-to-test buttons
   f. Float status red LED indicators
   g. Auxiliary alarm contacts Form C
   h. Option: adjustable seal failure circuit and red LED indicator (must select option 5E when ordering)
5. Magnetic motor contactor
6. Ground lug
7. Circuit breaker
8. Red LED beacon provides 360° visual check of alarm condition - Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon
9. Alarm horn provide audible warning of alarm condition (83 to 85 decibel rating) - Note: NEMA 1 style utilizes an internally mounted buzzer in lieu of horn **(Not shown)**
10. Exterior alarm test/normal/silence switch allows horn to be silenced in an alarm condition; alarm automatically resets once alarm condition has been cleared **(Not shown)**

Notes: Options, voltage, and amp range selected may change enclosure size and component layout.

Other options available.

Schematic/Wiring Diagram and Pump Specification Label are located inside the panel.

SJE RHOMBUS®

9500065M Rev 01/23
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Model 112 - Single phase, simplex motor contactor control.

Part #	Pre-configured Panels for Easy Ordering
1071824	1121W114X6A10E
1071853	1121W124X6A10E
1071823	1121W114H6A10E17G
1071822	1121W124H6A10E17G
1071841	1121W114H6A8AC10E17G
1075046	1121W124H6A8AC10E17G

112	1	W	1	0	4	L	6A10E
CONTROL PANEL	ALARM PACKAGE	ENCLOSURE RATING	STARTING DEVICE	PUMP FULL LOAD AMPS	PUMP DISCONNECTS	FLOAT SWITCH APPLICATION	OPTIONS (LISTED BELOW)

CONTROL PANEL	✓	112	Single Phase Simplex
ALARM PACKAGE	✓	1	Alarm Package (includes test/normal/silence switch, fuse, red light, horn & float)
ENCLOSURE RATING	✓	W	Weatherproof, NEMA 4X (engineered thermoplastic)
STARTING DEVICE	✓	1	Magnetic Motor Contactor 120/208/240V
PUMP FULL LOAD AMPS	✓	0	0 - 7 FLA
		1	7 - 15 FLA
		2	15 - 20 FLA
		3	20 - 30 FLA (Enclosure Upsize Required)
PUMP DISCONNECT	✓	4	Circuit Breaker 120/208/240V
FLOAT SWITCH APPLICATION		H	Floats - Pump Down (select Option 17G below - 3 floats by default when selected)
	✓	L	Floats - Pump Up (select Option 17G below - 3 floats by default when selected)
		X	No Floats

Model 112 Base Price _____
(includes Alarm Package, Enclosure Rating, Starting Device and Pump Disconnect

Pump Full Load Amps _____

Total Options _____

Enclosure Upsize _____

TOTAL LIST PRICE _____

ENCLOSURE UPSIZE: If you selected three or more of the ◆ options or one ◆◆ option, **add a one-time charge** for enclosure upsize.

	OPTIONS	DESCRIPTION	
	5A ◆	Thermal Cutout/Heat Sensor Auto Reset (for pumps with thermal switch leads)	
	5E	Seal Failure Circuit & Red Indicator (2 wire) (Normally Open)	
✓	**6A**	**Auxiliary Alarm Contact, Form C (included as standard)**	
✓	8A ◆	Elapsed Time Meter	
✓	8C ◆	Event (Cycle) Counter	
	9_A ◆◆	Pump Overload - Specify Amperage after Number 9 Followed by Letter "A" Example: 912A = 12 amp pump	0 - 25 FLA 25 - 30 FLA
✓	**10E**	**Lockable Latch - NEMA 4X (included as standard)**	
	10F ◆	Lightning Arrestor	
	10K ◆	Anti-condensation Heater	
	14B ◆◆	Main Disconnect (rotary style, mounted through door, non-fused, padlockable in the OFF position, door interlock in the ON position (must select Circuit Breaker)	0 - 20 FLA 20 - 30 FLA
✓	15A	Control / Alarm Circuit Breaker	

For additional control panel options, please contact Technical Support at techsupport@sjeinc.com.

	OPTIONS	DESCRIPTION
	17G	20' SJE MilliAmpMaster™ / Pipe Clamp (3 Floats) - Mechanical
	19T	TOA (Test/Off/Automatic) Switch and Pump Run Light through Door Mounted
	19U	HOA (Hand/Off/Automatic) Switch and Pump Run Light through Door Mounted
	19X	Door Mounted Pump Run Indicator

SJE Rhombus recommends the SJE MilliAmpMaster™* control float switch to operate the 112 control panel. For alternative cord lengths or float switch options, select the "X" option (switch application) and select from the float kits below or see our control switch catalog pages to order and ship separately.

ITEMS LISTED BELOW SHIP SEPARATELY.

PART NUMBER	DESCRIPTION
1075005	3 Float Kit. 30' SJE MilliAmpMaster™ Pipe Clamp - Normally Open
1075006	3 Float Kit. 20' Sensor Float®, Mercury Pipe Clamp - Normally Open
1075007	3 Float Kit. 20' Sensor Float®Mini, Mercury Pipe Clamp - Normally Open

***Float Kit pricing and part numbers are only available when ordering with a 112 control panel.**

California Prop 65 requires the following: ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov

Trusted. Tested. Tough.™

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER® PUMP COMPANY

SECTION: 2.15.080
FM2784
1017
Supersedes
0315

TECHNICAL DATA SHEET
DOSE-MATE SERIES
Models 151, 152, 153 Effluent Pumps

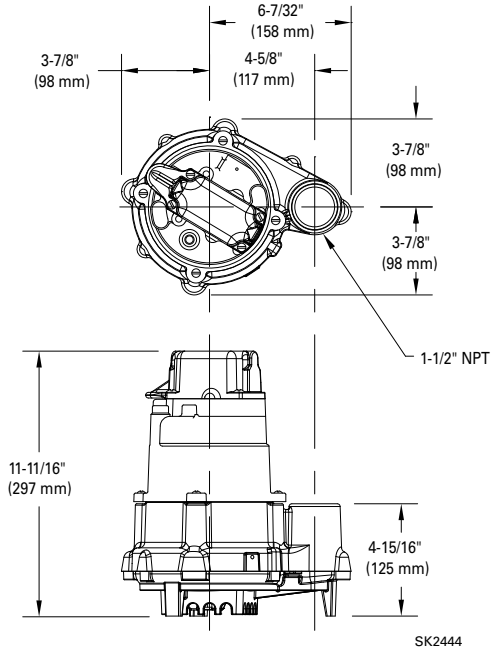
PRODUCT SPECIFICATIONS

MOTOR	Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	3.0 - 10.5
PUMP	Operation	Automatic or nonautomatic
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm), 3/4" (19 mm) spherical solids
	Cord Length	20' (6 m)
	Cord Type	UL listed power cord
	Max. Head	44' (13.4 m)
	Max. Flow Rate	77 GPM (291 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload
MATERIALS	Cap	Cast iron
	Motor Housing	Cast iron
	Pump Housing	Cast iron
	Base	Plastic or cast iron
	Upper Bearing	Sleeve bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Engineered thermoplastic
	Hardware	Stainless steel
	Motor Shaft	AISI 1215 steel
	Gasket	Neoprene

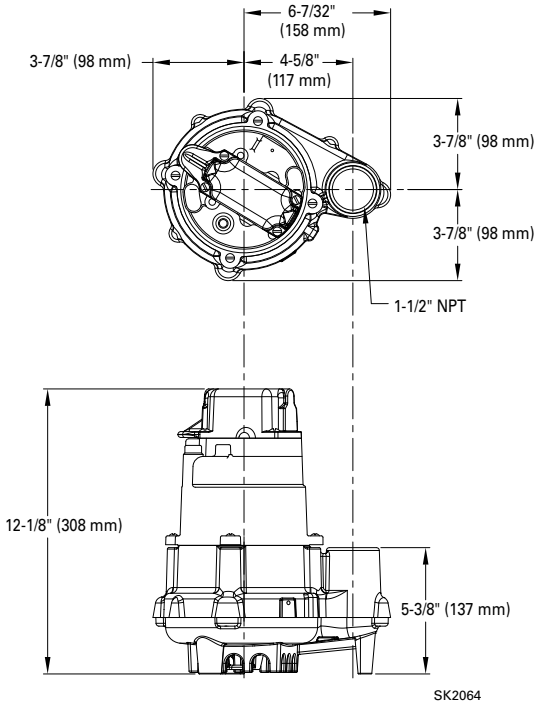
NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

MODEL 151



MODELS 152 & 153

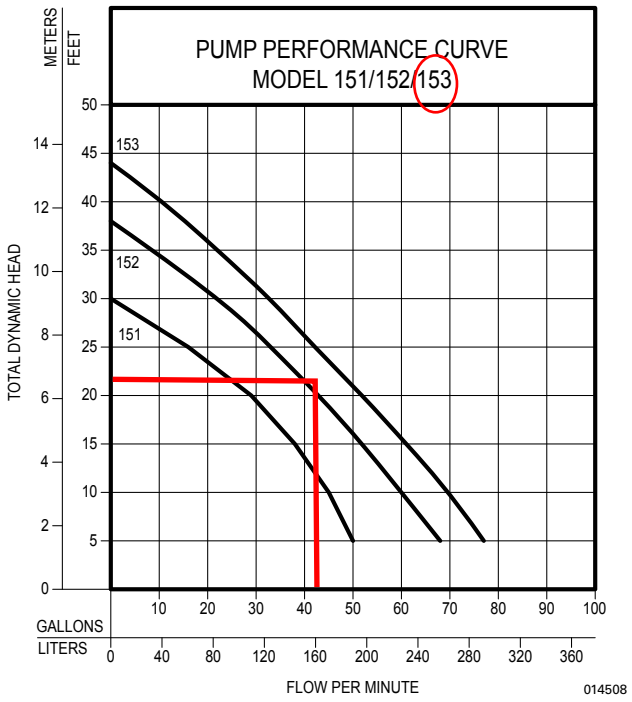


Tested to UL Standard UL778 and Certified to CSA Standard CSA22.2 No. 108

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TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		151		152		153	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.6	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	61	34	129	42	159
30	9.1	--	--	23	87	33	125
35	10.7	--	--	--	--	22	85
40	12.2	--	--	--	--	11	42
Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	1/3	60	32	15	1	2 or 3
E151	Single	Non	230	1	3.0	1/3	60	32	15	1	2 or 3
BN151	Single	Auto	115	1	6.0	1/3	60	33	15	*	2 or 3
BE151	Single	Auto	230	1	3.0	1/3	60	33	15	*	2 or 3
N152	Single	Non	115	1	8.5	4/10	60	37	17	1	2 or 3
E152	Single	Non	230	1	4.3	4/10	60	37	17	1	2 or 3
BN152	Single	Auto	115	1	8.5	4/10	60	39	18	*	2 or 3
BE152	Single	Non	230	1	4.3	4/10	60	39	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17		
BN153	Single	Auto	115	1	10.5	1/2	60	39	18	*	2 or 3
E153	Single	Non	230	1	5.3	1/2	60	37	17	1	2 or 3
BE153	Single	Non	230	1	5.3	1/2	60	39	18	*	2 or 3

*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m). 50' (15 m) cords are available for 230 V units only.

NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

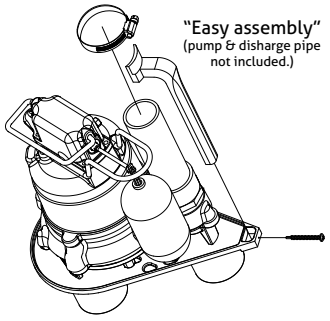
SELECTION GUIDE

1. For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
2. See FM1228 for correct model of simplex control panel.
3. See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
- Replaces rocks or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1½" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.



⚠ CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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Sim/Tech Filter
1455 Lexamar Drive
Boyne City, MI 49712
Office: 231-582-1020

Website: www.gag-simtech.com
Email: sales@gag-simtech.com
Fax: 231-582-7324
Toll Free: 888-999-3290

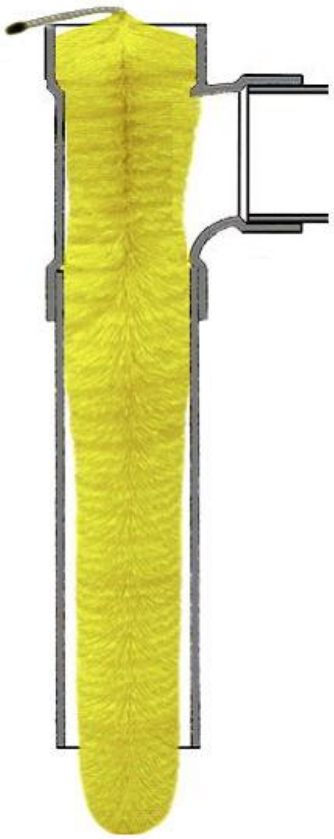
Sim/Tech Filter's Unique Gravity Filtration

The STF-110 series Bristle Filter

Main Features

- Keep out hair, lint, tissue, seeds and more that can clog a drain field
- Excellent filtration - visit our website or call us to see our 3rd party test results.
- Multi-directional flow combined with the contoured design that pre-filters effluent greatly reduces filter clogging
- Over 1/2 mile of filtration media
- Over 319 cubic inches of open area to reduce clogging
- Flexible filters can be used in tees, square baffles, hard to reach baffles etc.
- Multiple Sizes available -Yellow 4", White 6", Red 7", Blue 8"
- Maintenance sleeve (optional) available for servicing between tank pumping. Prevents flow out of tank during service.

Patent# 6,811,692





Maintenance Sleeve



7" Filter in a 5" square concrete baffle

Solutions
For the protection and performance of wastewater systems by
SIM/TECH FILTER
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2417 ROSSLARE MEWS LN
S&EC Project # 15531.S2
Date: 1/19/2026

REPAIR TAP CHART

HORIZONTAL PANEL BLOCK (PPBPS) PRODUCT

Line #	Color	Field Elev. (ft)	Length (ft)	Hole Size (in)	Flow/Tap (gpm)	gpd	Trench Area (sq ft)	Line LTAR (gpd/sq ft)	# of Panels per Trench	Spacing between Panels (in)
2	PINK	***101.50***	**60**	1/2" SCH. 80	**5.48**	83.77	180	0.465	14	5
3	YELLOW	***101.15***	**80**	1/2" SCH. 40	**7.11**	108.69	240	0.453	18	6
4	RED	***100.90***	**65**	1/2" SCH. 80	**5.48**	83.77	195	0.430	15	6
5	BLUE	***100.60***	**60**	1/2" SCH. 80	**5.48**	83.77	180	0.465	14	5

Total Feet = **265** **Flow Capacity gal/min (GPM) =** **23.55** **Total # of Panels =** **61**

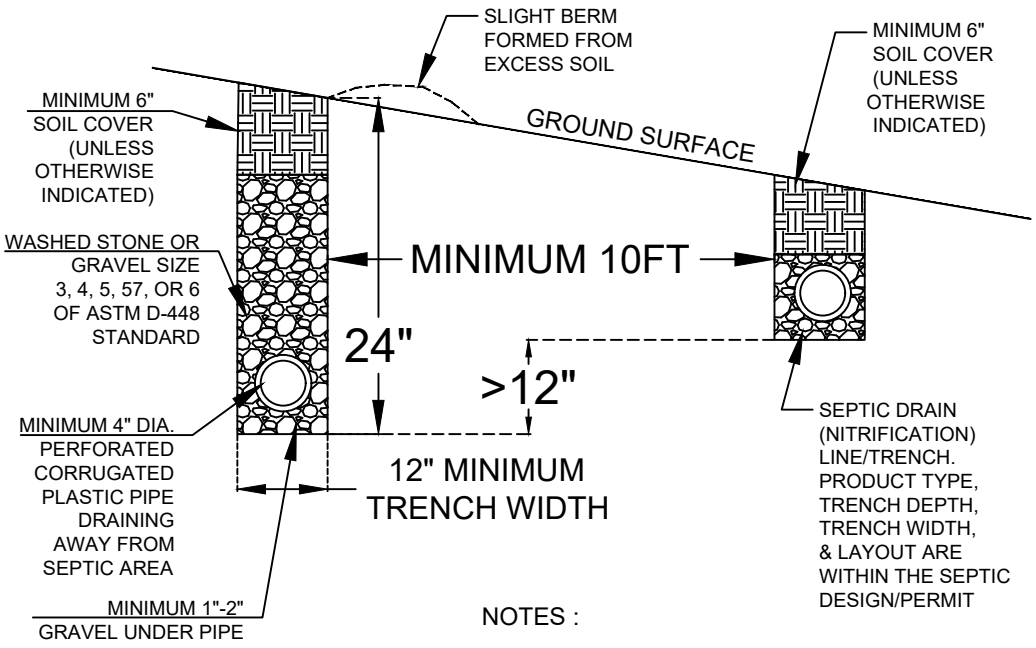
Des. Flow	**360**	**gpd**	
Pump Run=	**15.29**	**min**	
soil LTAR	**0.250**	**gpd/sq ft**	
Product Reduction	**50%**		
LTAR with Product Reduction	**0.500**	**gpd/sq ft**	
LTAR with Product Reduction + 5%	**0.525**	**gpd/sq ft**	
total # of panels **X**	**3.6**	**gallons per panel**	
Dose Volume	**219.60**	**gal**	
Pump Run Time	**9.32**	**min**	
Pressure Head	*2.0*	*ft*	

Minimum Trench Depth: in SEE LHD NOTES

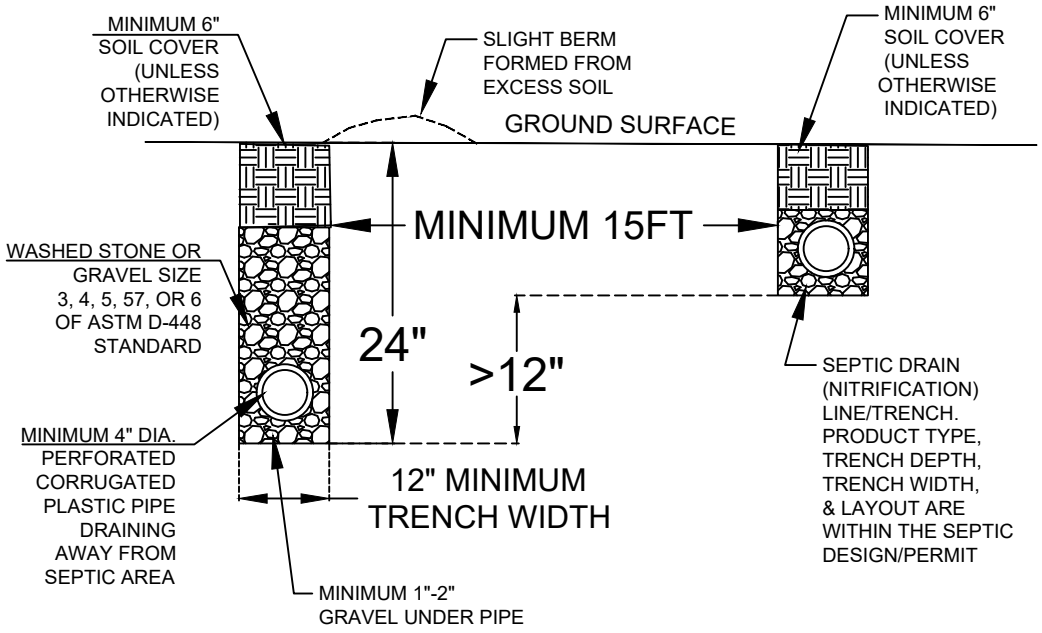
Max Trench Depth: in SEE LHD NOTES

**Per T&J Panel Inc., please note spacing between panels does not have to be uniform. Spacing between panels may vary especially at bends along a trench.
**As long as the correct number of panels are installed in the trench and no panels are butted together without space between them, the system will function as designed. Generally spacing between panels should be between 2 to 6 inches.
**If spacing between panels is more than 6 inches apart, this may require connecting pipe(s) longer than 24 inches between panels.
**Trench width for Horizontal Panel Block is 36 inches wide.

INTERCEPTOR DRAIN DETAIL (UPSLOPE FROM SEPTIC)



INTERCEPTOR DRAIN DETAIL (SIDESLOPE FROM SEPTIC)



NOTES :

1. MINIMUM 4 INCH DIAMETER PERFORATED CORRUGATED PLASTIC PIPE IN INTERCEPTOR DRAIN.
2. INTERCEPTOR PIPE OUTLET SHALL BE INSTALLED WHERE IT DAYLIGHTS AWAY FROM THE SEPTIC AREA.
3. WASHED STONE OR GRAVEL IN DRAIN SHALL BE SIZE NUMBER 3, 4, 5, 57, OR 6 OF ASTM D-448 STANDARD
4. INTERCEPTOR DRAINS SHOULD BE AT LEAST 10 FT UPSLOPE FROM THE EDGE OF ANY SEPTIC DRAIN LINE
5. INTERCEPTOR DRAINS SHOULD BE AT LEAST 15 FT SIDESLOPE FROM THE EDGE OF ANY SEPTIC DRAIN LINE

JOB NO. 15531	PROJECT NAME: 2417 ROSSLARE MEWS LN	S&EC
PROJECT MGR. RP		
SCALE NTS	SHEET TITLE: INTERCEPTOR DRAIN/FRENCH DRAIN DETAIL	

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