



TEL 919 856 7400
FAX 919 856 7407

Environmental Services

336 Fayetteville St. • P.O. Box 550 • Raleigh, NC 27602

Water Quality Division

6/20/2023

REQUIREMENTS TO COMPLETE YOUR PRESSURE MANIFOLD SYSTEM

Dear Sir/Madam:

Enclosed is your approved pressure manifold installation plan and the "Pressure Manifold Sewage Disposal System Maintenance Information Sheet".

To complete your permit:

- **System Installation** - A contractor **CERTIFIED** by the State of North Carolina to at least a **LEVEL II** certification, and **REGISTERED** in Wake County, must be used to install your system.
- **Alternative Sewage Disposal System Maintenance Schedule** – this document must be signed, notarized and recorded at the Wake County Register of Deeds Office. A copy of the recorded document must be submitted to Wake County before your permit can be finalized.
- A copy of the "Pressure Manifold Sewage Disposal System Maintenance Information Sheet" and a copy of the "Wake County Well and Septic System Owner's Guide", which contain information essential to the long-term performance of this wastewater disposal system, must be forwarded to the owner or user of the system, if other than yourself.

ANY PROPOSED MODIFICATION TO THE APPROVED PLANS MUST BE COORDINATED WITH YOUR SYSTEM DESIGNER

Please call (919) 480-9998 or email at CORY.LARSEN@wake.gov if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Cory Larsen".

CORY LARSEN, PE
Environmental Consultant

***** CA PART A - D *****

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES WASTEWATER PERMIT

NO PERMIT(S) FOR CONSTRUCTION, LOCATION OR RELOCATION ACTIVITY SHALL BE ISSUED UNTIL AN AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION AUTHORIZATION HAS BEEN ISSUED

PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/OR IF SITE IS ALTERED OR INTENDED USE CHANGED

CONSTRUCTION AUTHORIZATION PERMIT

PERMIT # WRP-101164-2023

APPLICATION DATE: 04/21/2023

BLDG. PERMIT#: RBPR-101380-2023

PIN: 0890132818

RECORDED: Yes

TOWNSHIP: 02 - Bartons Creek

JURISDICTION: Wake County

ZONING: R-40W

APPLICANT: Raleigh Custom Homes Inc
7708 Harps Mill RD
RALEIGH, NC 27615

BUSINESS PHONE: (919) 847-2664

HOME PHONE:

MOBILE PHONE: (918) 530-0197

HD USE: 101A CONVENTIONAL ONE-FAMILY HOUSE

EXISTING USE:

SITE ADDRESS: 1429 SKY VISTA WAY

SUBDIVISION: SOUTHERN HILLS ESTATES

LOT: 33

ACRES: 1.17

DIRECTIONS: 0

Contractors shall install system on contour. See attached SITE PLAN for wastewater system design and well location. No underground utilities, water lines or sprinklers systems may be located in the original system, or permit areas. A septic tank filter with two risers for access is required. The wastewater system shall not be covered or placed into use until inspected by the Wake County Department of Environmental Services and Operations Permit issued. An Accepted Status System may be used in place of conventional system, if it can be placed in the permitted/authorized trench footprint (except reduction in line length and/or number as allowed for in approval) and the installation in accordance with the accepted system approval, without unauthorized product alteration. If permit required use of an Accepted Status System, substitution with another accepted status system may be made, as long as no changes are necessary in the location of each nitrifications line (including any increase in line length), trench depth or effluent distribution method. If changes are necessary, prior approval by this office is required before system installation. Maximum depth of line is calculated using the downhill side of the trench and includes slope correction.

CONSTRUCTION AUTHORIZATION PERMIT VALID FOR: Five Years

CONSTRUCTION AUTHORIZATION PERMIT: CA STATUS: Issued

BY: Cory Larsen

DATE: 06/20/2023

CA VALID FOR: Five Years

DESIGN FLOW: 480 GALLONS

BASEMENT:

BASEMENT FIXTURES:

SEPTIC TANK: 1200 GALLONS

SEPTIC TANK FILTER: Yes

DOSING PUMP TANK: 1200 GALLONS

DOSING PUMP TANK FILTER:

GREASE TRAP:

GREASE TRAP FILTER:

RECIRCULATION PUMP TANK:

RECIRCULATION PUMP TANK FILTER:

PROPOSED SYSTEM: 0.25 - 25% Reduction (Innovative or Accepted)

EXISTING SYSTEM: No

DRAINFIELD SQ. FT: 1,275

AGGREGATE DEPTH: 12

MAX. TRENCH DEPTH: 20 INCHES

DISTRIBUTION DEVICE: PM - Pressure Manifold

TRENCH #: 6

TRENCH LENGTH: 90, 55, 70,
75, 70, 65 FEET

TRENCH WIDTH: 36 INCHES

TOTAL TRENCH LENGTH: 425 FEET

CENTER SPACING: 9 FEET

MINIMUM SOIL COVER: 6 INCHES

PRETREATMENT:
SUBFIELDS #:
PUMP TDH: 33.88 FEET

APPROVAL #:
PUMP DESIGN FLOW: 44.02
ZONE VALVE: No

ASDMS REQUIRED: Yes
P.E. SIGN OFF/ASBUILT REQUIRED: No

LINE OF CREDIT REQUIRED: No

OPERATOR REQUIRED: No

TRIPARTY AGREEMENT REQUIRED: No

SPECIFIC CONSTRUCTION AUTHORIZATION REQUIREMENTS:

ALLOWED SYSTEM REDUCTION HAS BEEN TAKEN FOR THE DESIGN OF THE INITIAL AND REPAIR FOR THIS 4 BEDROOM DWELLING. INITIAL SYSTEM IS A PRESSURE MANIFOLD SYSTEM PUMPING TO 6 UNEQUAL DRAINLINES WITH 20" TRENCH BOTTOM. REPAIR SYSTEM IS A PRESSURE MANIFOLD SYSTEM PUMPING TO 4 EQUAL LENGTH OFF-SITE DRAINLINES WITH 22" TRENCH BOTTOM. 1200 GALLON SEPTIC TANK AND 1200 GALLON PUMP TANKS ARE PROPOSED. OFF-SITE SUPPLY LINE IS INSTALLED PER PERMIT D058989. FOUNDATION DRAIN ALLOWED.

WHEN INSTALLING SYSTEM, MAINTAIN ALL REQUIRED SETBACKS. DO NOT DISTURB OR REMOVE ANY SOIL IN INITIAL OR REPAIR AREAS. MUST MAINTAIN REQUIRED EMERGENCY STORAGE IN THE PUMP TANK. A NEMA 4X CONTROL PANEL WITH TWO BREAKERS, TWO POWER SUPPLIES, ELAPSED TIME METER AND CYCLE COUNTER ARE REQUIRED. IF FLAGS ARE MISSING, CALL DESIGNER TO RE-FLAG.

ALTERNATIVE SEWAGE DISPOSAL SYSTEM MAINTENANCE SCHEDULE MUST BE SIGNED, NOTARIZED AND RECORDED AT THE WAKE COUNTY REGISTER OF DEEDS OFFICE. INITIAL SYSTEM MUST BE INSPECTED BY A CERTIFIED INSPECTOR OR OPERATOR AT A FREQUENCY OF AT LEAST ONCE EVERY FIVE YEARS AND A REPORT SUBMITTED. A CERTIFIED OPERATOR IS REQUIRED FOR THE LIFE OF THE SYSTEM ONCE REPAIR SYSTEM IS INSTALLED.

THIS SYSTEM IS DESIGNED BY A CONSULTANT AND MUST BE INSTALLED PER THE APPROVED DESIGN, PLAN AND SPECIFICATIONS. ANY DEVIATION MUST BE APPROVED BY THE DESIGNER AND WAKE COUNTY ENVIRONMENTAL SERVICES PRIOR TO SYSTEM INSTALLATION. PLEASE CONTACT ENVIRONMENTAL SERVICES IF ANY QUESTIONS OR PROBLEMS ARISE PRIOR TO INSTALLATION.

Issued By:



Date: 06/20/2023

HOMEOWNER GUIDE FOR UTILIZATION AND MAINTENANCE OF ON-SITE WASTEWATER DISPOSAL SYSTEMS

What is an On-site Wastewater Disposal System?

There are a number of different types of on-site wastewater disposal systems each designed for a specific set of site conditions. However, there are several system components that are common to most systems. These include the following:

1. A septic tank - a concrete tank that is designed to receive wastewater from the house and to provide a degree of pretreatment for the waste, chiefly through removal of some of the solids in the waste. Note that these solids accumulate over time and necessitate periodic pumping of the septic tank. Currently septic tanks are equipped with two access risers (normally constructed of concrete), which are designed to be at least 6 inches above the ground surface to prevent surface and shallow groundwater from entering the septic tank and to provide access for maintenance. **Care must be taken not to damage or cover these risers so that water inflow / infiltration can be prevented and the tank can be accessed for maintenance.**
2. In some installations, a pump tank - a concrete tank, very similar to the septic tank, which contains a pump along with the associated controls / componentry. The pump tank and pump is designed to receive effluent from the septic tank, and pump the effluent to a disposal field located at a higher elevation and/or to a pressurized distribution network in the disposal field. **The pump tank also has an access riser which must be protected in a similar manner to that indicated for the septic tank.** Servicing of the pump tank components often necessitates the assistance of a professional such as a septic tank installer or Certified Subsurface System Operator. The latter is required for operation and maintenance of certain types of systems.
3. A disposal field - a series of subsurface trenches and lines that are designed to distribute the effluent into the soil and provide for the ultimate treatment and disposal of the effluent. There are numerous variations on the design of the disposal field, related chiefly to the type of system chosen, site constraints, etc. Dependent on the type of disposal system, you may have to maintain a contract with a Certified Subsurface System Operator for operation and maintenance of your wastewater disposal system.

Utilization of Your Wastewater Disposal System

In order to obtain the maximum efficiency and life expectancy from your system, the following simple procedures must be adhered to:

1. **Practice water conservation.** This can include many practical considerations such as not leaving the water running while you brush your teeth, not overfilling the tub, limiting time in the shower, not replacing low flow fixtures with those of higher flows, over rinsing dishes (allow the dishwasher to do its job), immediate repair of any leaking fixtures, running washing machines and dishwashers only when full, etc.

NOTE: Washing machines generate significant volumes of wastewater. As a result, laundry activities should be spread over the week as opposed to accumulating all of laundry until the weekend.

2. **Do not utilize your wastewater disposal system as a trash can by dumping nondegradables down your drains or toilet.** These include cigarette butts, sanitary products, grease, plastics, disposable diapers, etc. Avoid use of garbage disposals. Do not retrofit garbage disposals unless the system is specifically permitted for their use. Also, do not dump harmful chemicals down the drain. These include petroleum products, paint, paint thinner, pesticides, antifreeze, etc.

Maintenance of Your Wastewater Disposal System

Every wastewater disposal system requires maintenance in order to function properly. The specific maintenance required is related to the type of system. The following are general considerations that apply to all systems.

1. **Protect your wastewater disposal system components including the tanks, access risers, disposal field and associated components.** Do not drive or park on any portion of the system. The area over the disposal field should be left undisturbed with the grass cover being maintained as you would your lawn. Location of trees and shrubs on or in close proximity to the disposal field is not recommended since roots may clog or damage your drain lines. Additionally, great care must be exercised when considering the addition of any structure(s) to the site. The location of any appurtenances cannot encroach on the installation or repair areas for your system. It is not recommended that irrigation systems be located in proximity to the disposal system since their construction can cause system damage and/or result in additional hydraulic load on the disposal field.
2. **Protect the system from excess surface and shallow groundwater.** The land surface on and around the wastewater disposal system should be landscaped to shed rainfall and runoff and prevent ponding. Be sure that foundation drains, runoff from roofs and drives, etc. are diverted away from the disposal system.
3. **Regularly have the septic tank / pump tank pumped and cleaned by a permitted septage hauler.** Although the necessary frequency of pumping varies with the household and system, most tanks need **pumping at a frequency of 3-5 years** and at any time solids occupy one-fourth to one-third of the septic tank liquid depth.

Note that all septic tanks being currently installed incorporate an effluent filter within the outlet compartment of the septic tank. This filter is to be cleaned anytime the septic tank is pumped. If plumbing becomes sluggish, this filter should be checked. If filter service is found to be necessary, the tank is to be pumped, the filter cleaned and the filter reinstalled.

4. **Be alert to warning signs that your system may not be functioning properly.**
These include sewage surfacing over the disposal system, sewage backups / slow draining in the house, lush growth over the disposal system, sewage odors, etc.
5. **Do not make or allow repairs to your system unless all necessary permits are obtained from Wake County Department of Environmental Services.**
6. **Commercial additives for septic tank systems** - It has generally not been demonstrated that these additives enhance the function of septic systems or reduce the need for tank pumping and other necessary maintenance.
7. **Special maintenance considerations** - As already alluded to, some of the more complex wastewater disposal systems require that you retain / maintain the services of a Certified Wastewater System Operator in order to comply with Laws and Rules and maintain a valid operation permit for your system. In Wake County this maintenance requirement should be recorded with Register of Deeds if applicable.

Where Do I Obtain Information and Assistance?

If you are purchasing a new home, you should request a copy of your wastewater system permit from the builder / seller along with information regarding any special maintenance requirements. You may also obtain information and assistance from the **Wake County Department of Environmental Services**, 336 Fayetteville Street Mall, Raleigh, NC, Telephone (919) 856-7400. Additional information is also available on Wake County's [Septic and Wastewater Management](#) webpage.

BSM 3/9/21



Environmental Services

TEL 919 856 7400
FAX 919 856 7407

Water Quality Division

336 Fayetteville St. • P.O. Box 550 • Raleigh, NC 27602
www.wake.gov

PRESSURE MANIFOLD SYSTEMS

A Pressure Manifold System is one of several types of septic systems approved for use in Wake County. The Pressure Manifold System, while somewhat more expensive to install, is a flexible and high-quality method of wastewater disposal. A pump doses a pressure distribution manifold that disperses the effluent evenly to each trench. Dosed systems are more common for larger flows. The manifold can be constructed with different size taps to accommodate different trench lengths. This allows for better utilization of the area on the lot. The pressure manifold can include valves or plugs that permit more control over trench loading or trench resting.

Experience and study have shown that pressure manifold systems require routine maintenance in order to function properly. Items 1, 4 and 6 are also recommended for conventional septic systems. The maintenance schedule frequency is as follows:

<u>System Component</u>	<u>Frequency</u>	<u>Maintenance</u>
1. Septic Tank	6-12 months 1-3 years	Check riser condition (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation. Check and clean septic tank filter. Pump septage when 1/3 to 1/4 of the liquid capacity of the tank is occupied by solids.
2. Pump or Dosing Tank	6-12 months	Check riser conditions (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation. Pump sludge accumulation as required and when septic tank is pumped. Check pump(s), controls, floats, electrical connections, and alarm for proper operation. Wash (hose) sludge accumulation from pump housing.
3. Supply lines (Manifold)	6-12 months	Check for settling, pipe exposure and leakage.
4. Ground Absorption Field	1-4 weeks 6-12 months	Maintain vegetative cover (mow grass and remove weeds and brush). Check for settling, erosion and surfacing of effluent. Check site drainage, eliminate low or settled areas and divert surface or shallow groundwater movement around fields.
5. Pressure Manifold	6-12 months	Flush sludge from pressure manifold (any discharge sludge and effluent is to be treated with a chlorine solution). Check and reset pressure head.
6. General	At all times	Prohibit vehicular or equipment traffic on ground absorption field. Prohibit tillage (gardening) or other soil disturbance over ground absorption field. Practice water conservation to reduce wastewater load on system. Do not permit entry of grease and non-domestic waste to system. Use of a garbage disposal is <u>prohibited</u> . Addition of chemical or biological additives has <u>not</u> been demonstrated to be necessary to maintain proper system function. Prevention of root intervention on lateral lines and trenches may be necessary on certain sites. Surface and groundwater diversion structures must be maintained.

A certified operator may be required.

ALTERNATIVE SEWAGE DISPOSAL SYSTEM MAINTENANCE SCHEDULE

To Be Recorded In The Register Of Deed's Office In Wake County.

Owner/Grantor _____ Deedbook and Page _____

PIN No. _____ Date Installed _____

Subdivision Name _____ Lot No. _____

System Designed by _____ Installer _____

AN ALTERNATIVE OR NON-TRADITIONAL SEWAGE DISPOSAL SYSTEM HAS BEEN INSTALLED ON THIS PROPERTY. The design specifications and locations for alternative sewage disposal systems are specified or authorized in Regulations Governing Wasterwater Treatment and Dispersal in Wake County effective November 21, 1988, amended effective June 25, 2020. As A Condition Of Issuance Of This Improvements/Operation Permit, The Property Owner Hereby Grants The Wake County Department Of Environmental Services A Right Of Access To The System During Regular Working Hours For Purposes Of Monitoring Compliance With State And Local Regulations, Recorded Maintenance Agreements And Certified Operator Compliance. This permit requires the use of **a mode of subsurface wastewater dispersal for the repair system, located in an offsite easement area**, which will require a contract with a Certified Operator to perform maintenance on the system as described in the above referenced regulations. **Due to this requirement, the initial system must be inspected by a certified inspector or operator at a frequency of at least once every five years and a report submitted.** Experience and study have shown that pre-treatment systems require routine maintenance in order to function satisfactorily. In as much as each system must be individually designed and sited, special maintenance requirements may apply to a specific installation; however, the following maintenance schedule is applicable to all pre-treatment systems. For additional information, technical assistance or if a malfunction of the system occurs, contact the Wake County Department of Environmental Services, Telephone: (919) 856-7400.

<u>System Component</u>	<u>Frequency</u>	<u>Maintenance</u>
1. Septic Tank	6-12 months	Check riser condition (must be accessible from ground surface), excess in/exfiltration, entry of water at riser, and solids accumulation.
	1-3 years	Pump septage.
2. Pump/Dosing Tank	6-12 months	Check riser conditions (must be accessible from ground surface),excess in/exfiltration, entry of water at riser, and solids accumulation. Pump sludge accumulation as required and when septic tank is pumped. Check pump(s), controls, floats, electrical connections, and alarm for proper operation. Wash (hose) sludge accumulation from pump housing.
3. Supply lines	6-12 months	Check for settling, pipe exposure and leakage. Includes Manifold(s).
4. Drain Field(s)	1-4 weeks	Maintain vegetative cover (mow grass and remove weeds and brush).
	6-12 months	Check for settling, erosion and surfacing of effluent. Repair any broken lateral turn-ups and make certain they are accessible from ground surface and are filled with screw-on type caps. Check and reset pressure head and flush sludge from lateral lines (any discharge sludge and effluent is to be treated with a chlorine solution). Check site drainage, eliminate low or settled areas and divert surface or shallow groundwater movement around fields.
5. General	At all times	Prohibit vehicular or equipment traffic on ground absorption field. Prohibit tillage (gardening) or other soil disturbance over ground absorption field. Practice water conservation to reduce waste water load on system. Do no permit entry or grease and non-domestic waste to system. Use of a garbage disposal is <u>prohibited</u> . Addition of chemical or biological additives has <u>not</u> been demonstrated to be necessary to maintain proper system function. Prevention of root intervention on lateral lines and trenches may be necessary on certain sites. Surface and groundwater diversion structures must be maintained.

Initial system must be inspected by a certified inspector or operator at a frequency of at least once every five years and a report submitted. A certified operator is required for the life of the system, **once repair system is installed.**

Signature of Property Owner

Date

NORTH CAROLINA _____County. I, a Notary Public of the County and State aforesaid, certify that _____Owner, Personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this ____day of _____ 20____.

My commission expires _____ Notary Public _____

WWDS 6/2/22

PLOT PLAN FOR
RALEIGH CUSTOM HOMES
 1429 SKY VISTA WAY
 LOT 33, SOUTHERN HILLS ESTATES
 BARTON'S CREEK TOWNSHIP, WAKE COUNTY, NORTH CAROLINA

WAKE COUNTY
NORTH CAROLINA

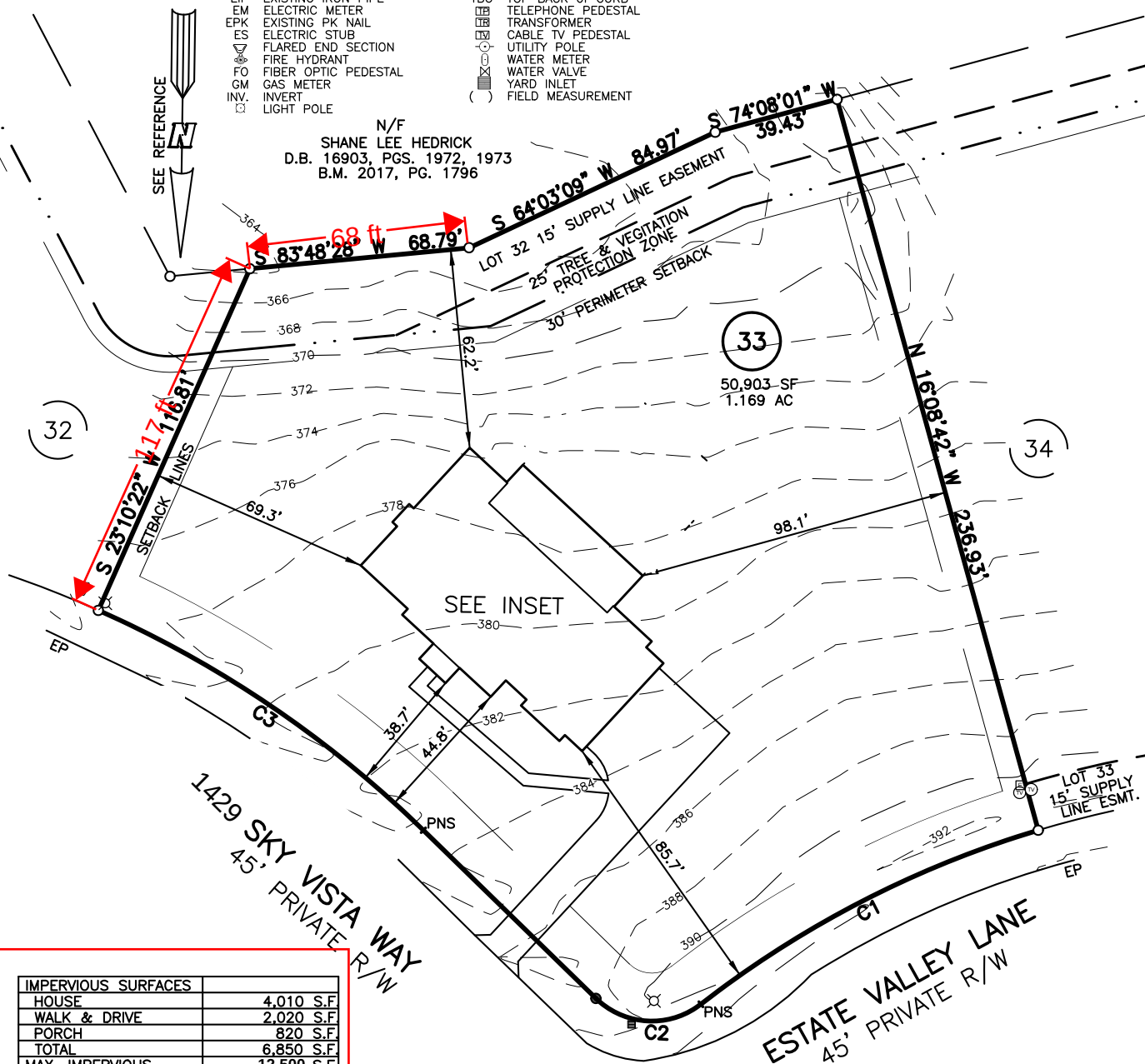
SITE PLAN APPROVED BY
WAKE COUNTY N.C. P.D.I.
Jennifer Vega
04/27/2023 10:08:03 AM

- | | | | | | |
|---|----------------------------|---|-------------------------|---|--------------|
|  | AIR CONDITIONER |  | MANHOLE |  | SANITARY SEW |
|  | BACK FLOW PREVENTER |  | NEW DRILL HOLE | | |
|  | CURB INLET |  | NEW IRON PIPE | | |
| | CLEANOUT |  | NEW PK NAIL | | |
|  | EXISTING CONCRETE MONUMENT |  | OVERHEAD WIRES |  | |
|  | EXISTING DRILL HOLE |  | POINT NOT SET | | |
|  | EXISTING IRON STAKE |  | PUBLIC UTILITY EASEMENT | | |
|  | EXISTING IRON PIPE |  | TOP BACK OF CURB | | |
|  | ELECTRIC METER |  | TELEPHONE PEDESTAL | | |
|  | EXISTING PK NAIL |  | TRANSFORMER | | |
|  | ELECTRIC STUB |  | CABLE TV PEDESTAL | | |
|  | F LARED END SECTION |  | UTILITY | | |
|  | FIRE HYDRANT |  | WATER METER | | |
|  | FIBER OPTIC PEDESTAL |  | WATER VALVE | | |
|  | GAS METER |  | YARD INLET | | |
|  | INVERT |  | FIELD MEASUREMENT | | |
|  | INLET POLE | | | | |

RBPR 101380-2023

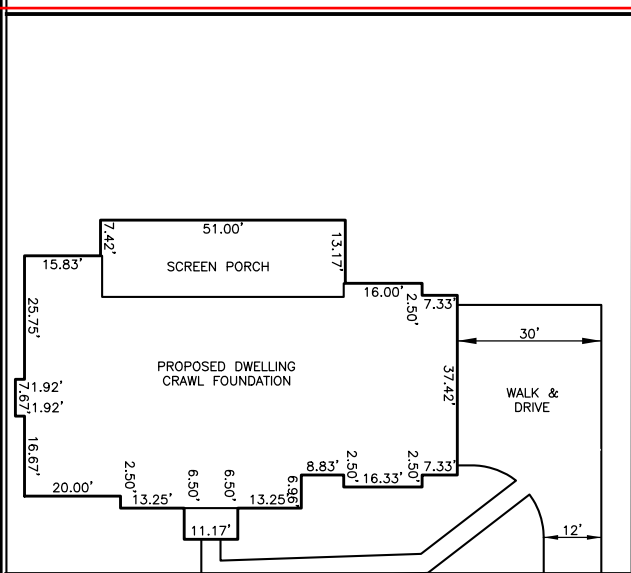
1 SKY VISTA WAY.
2 ESTATE VALLEY LN.
3 CENTURY OAK CT.
4 SHOOTING CLUB RD

VICINITY MAP NO SCALE



IMPERVIOUS SURFACES	
HOUSE	4,010 S.F.
WALK & DRIVE	2,020 S.F.
PORCH	820 S.F.
TOTAL	6,850 S.F.
MAX. IMPERVIOUS	12,500 S.F.

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	322.50'	119.28'	118.60'	S 61°56'49" W	21°11'28"
C2	25.00'	35.84'	32.85'	N 87°34'37" W	82°08'35"
C3	347.50'	123.27'	122.63'	N 56°40'04" W	20°19'30"



INSERT: $1' = 40'$

PLOT PLAN
PRELIMINARY PLAT- NOT FOR RECORDATION,
CONVEYANCE OR SALES

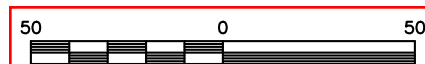
REV CODE: 1.FLIP, 2.PLAN, 3.ROTATE, 4.MOVE, 5.SS
6.SEVERAL OF ABOVE, 7.LAND FEATURE, 8. OTHER

Required Setbacks

SE	Front	20
FRONT REAR	Side	10
SIDE CORNER SIDE	Rear	15
	Corner	

REFERENCES:

B.M. 2018, PG. 372-377



SCALE: 1" = 50'

VERTICAL DATUM: NAVD '88
CONTOUR INT. = 2'

NOTES

1. THIS SURVEY SUBJECT TO ANY FACTS THAT MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
2. THIS MAP MAY NOT BE A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS AND HAS NOT BEEN REVIEWED FOR COMPLIANCE WITH RECORDING REQUIREMENTS FOR PLATS.
3. FUTURE POOL AREA FOR SEPTIC PURPOSES ONLY.

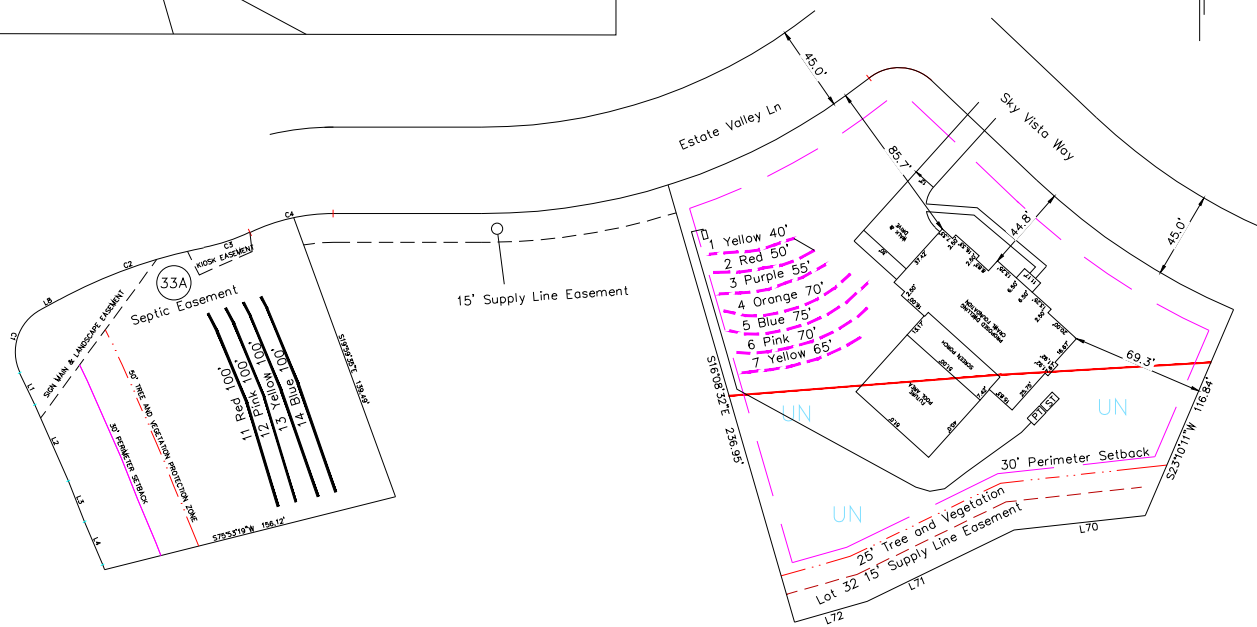
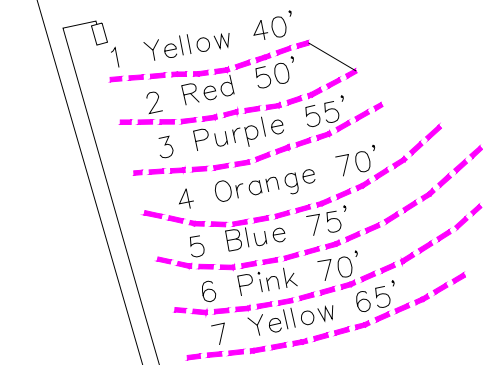
REV5: APR. 25, 2023(4)
REV4: MAR. 21, 2023(8)
REV3: JAN. 24, 2023(3)
REV2: JAN. 23, 2023(3,4)
REV1: JAN. 18, 2023 (4)
DATE: DEC. 16, 2022

Q:\FieldLoc\SKYVISTA1429BNDYTOPO.txt

RWK, PA
ENGINEERING ~ SURVEYING
CORPORATE LICENSE: C-1771
101 W. MAIN ST., SUITE 202
GARNER, NC 27529
PHONE (919) 779-4854
FAX (919) 779-4056

CA PART B (1)

Not To Scale



- *Keep tanks and drain lines 10' from property lines.
- *Not a survey.
- *Not a guarantee of a septic permit.
- *Keep supply lines >5' from property lines.
- *Some lines are flagged longer in the field than lengths indicate.
- *No grading septic area.

GRAPHIC SCALE
1" = 100'



System: 
Repair:

System: Pressure Manifold
Lines: 1-7, (425')
0.3 Soil LTAR

Accepted Status System

Repair: Pressure Manifold
Lines: 11-14, (400')
0.3 Soil LTAR

Accepted Status System



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

SEPTIC SITE PLAN

Lot 33 Southern Hills Subdivision
Wake County, North Carolina

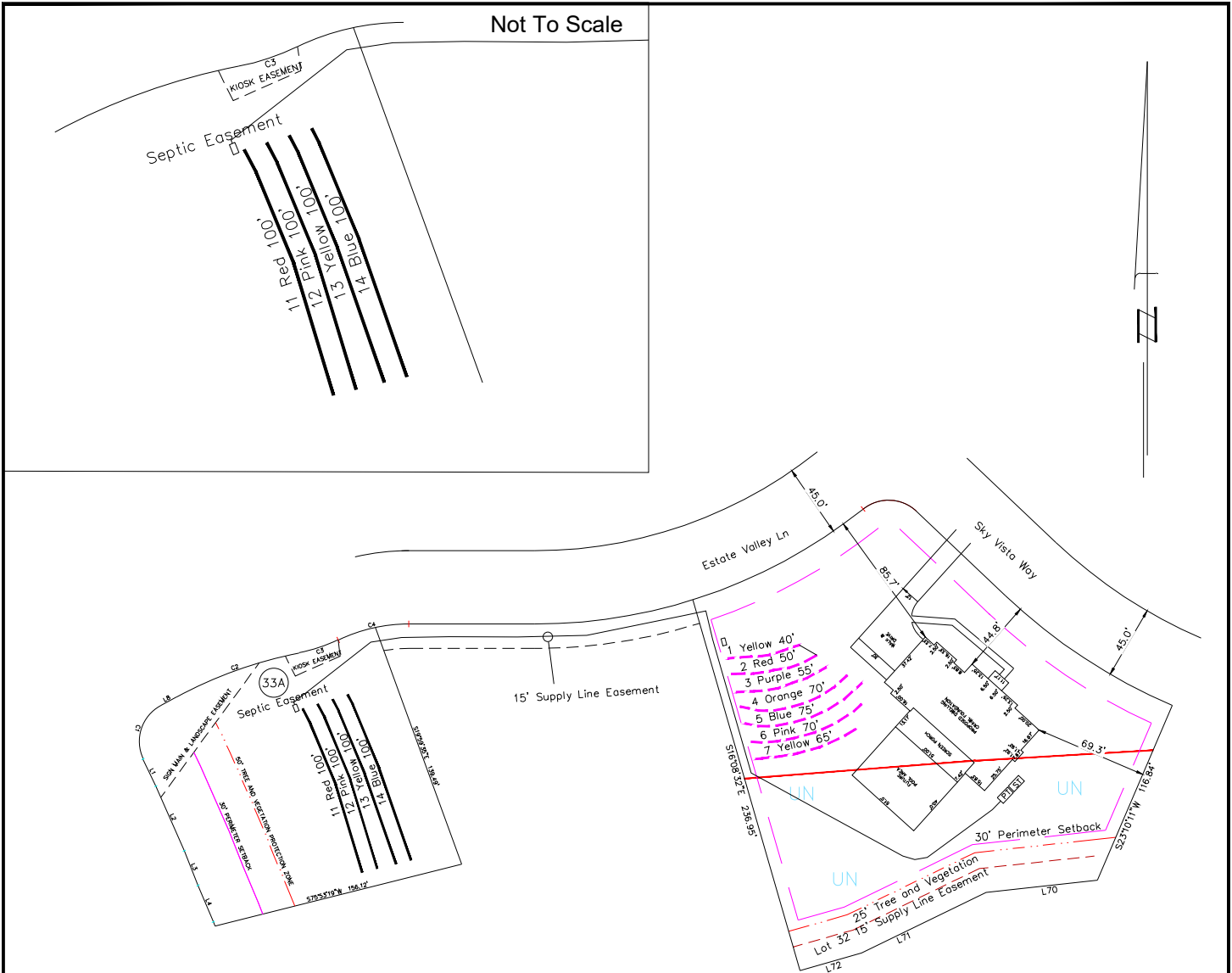
Job# : 4511

Drawn By : AH

Date : 04/12/2023

Revision: 04/19/2023

CA PART B (2)



- *Keep tanks and drain lines 10' from property lines.
- *Not a survey.
- *Not a guarantee of a septic permit.
- *Keep supply lines >5' from property lines.
- *Some lines are flagged longer in the field than lengths indicate.
- *No grading septic area.

GRAPHIC SCALE
1" = 100'



System:	---
Repair:	---

System: Pressure Manifold
Lines: 1-7, (425')
0.3 Soil LTAR

Accepted Status System

Repair: Pressure Manifold
Lines: 11-14, (400')
0.3 Soil LTAR

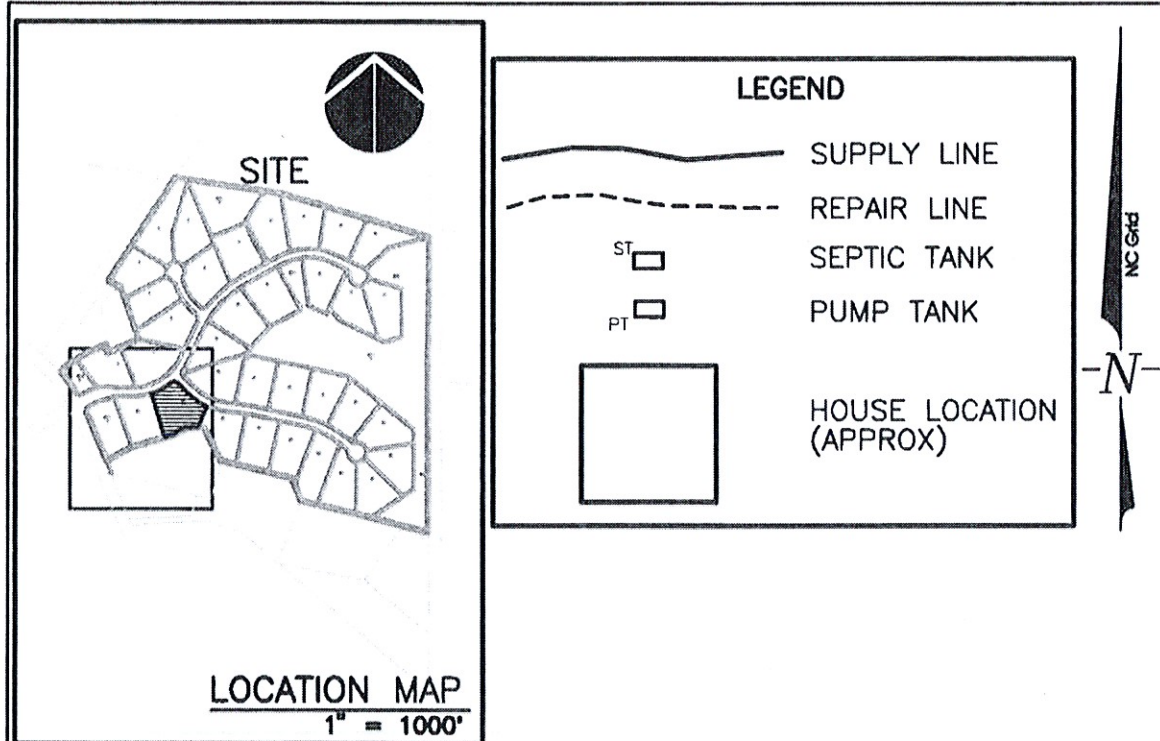
Accepted Status System



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

REPAIR SEPTIC SITE PLAN
Lot 33 Southern Hills Subdivision
Wake County, North Carolina

Job# : 4511
Drawn By : AH
Date : 04/12/2023
Revision: 04/19/2023



General Notes:

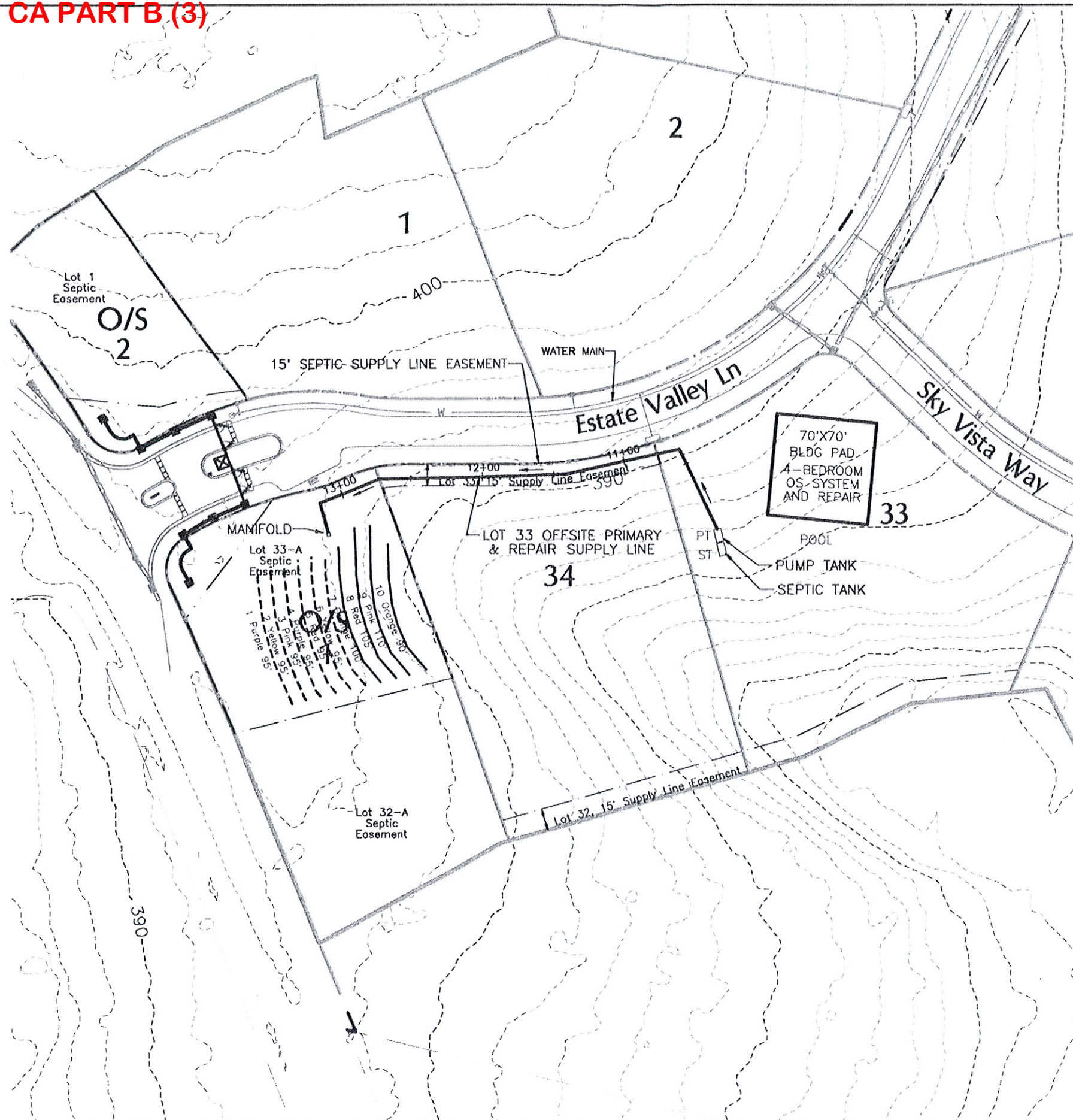
1. Site Data including property boundaries, utility structure locations, roads and other site features provided by WithersRavenel, Inc.
2. Primary and Repair septic field designed by Central Carolina Soil Consulting, PLLC.
3. All septic system components including tanks, pumps, manifolds and system and repair lines have been GPS located by soils consultant. All locations, elevations and dimensions are approximate and as such no specific accuracy either vertical or horizontal is implied.
4. Property and easement boundaries shown on this site sketch are approximate and are not intended for locating property or identifying property corners or easement corners. This is not a survey.
5. Installation shall be according to Regulations Governing Wastewater Treatment and Dispersal Systems in Wake County - October 27, 2011.
6. Wake County GIS topographic data.

SOILS CONSULTANT	
Central Carolina Soil Consulting, PLLC 1900 South Main Street, Suite 110 Wake Forest, North Carolina 27587 Contact: Jason Hall TEL (919) 569-6704; FAX (919) 569-6703	
DEVELOPER	
Southern Hills Developers, LLC 8310 Bandford Way Raleigh, North Carolina 27615 Contact: J. Terry Stephens, PE TEL (919) 781-4177 FAX (919) 571-1521	

Professional Engineer Seal
NORTH CAROLINA
SEAL
26495
DALE WERENKO
12.19.17

Scale: 1" = 80'

0 40' 80' 160'



No.	Revision	Date	By	Designer	Scale
				DW	AS SHOWN
				DW	12.19.2017
				Checked By	Job No.
				DW	2150178.00

Southern Hills Estates
Wake County Project # S-27-15
WAKE COUNTY NORTH CAROLINA

OFFSITE SEPTIC SUPPLY LINE DESIGN
For
LOT 33

WithersRavenel
Engineers | Planners | Surveyors
115 MacKinnon Drive Cary, NC 27511 | t: 919.488.3340 | f: 919.488.3342 | www.withersravenel.com

Sheet No
1 of 2

CA PART C



Pressure Manifold Septic System Design

for

Southern Hills S/D Lot 33
Wake County, North Carolina

Designed by:

Aaron Holder
Central Carolina Soil Consulting, PLLC
Wake Forest, North Carolina

6/8/2023

Southern Hills S/D Lot 33
Table of Contents

Cover Sheet -----	1
Table of Contents -----	2
Contact Information -----	3
Specifications (system) -----	4
Tap Charts (System and Repair) -----	5
Site Plan (System and Repair)-----	6
Control Panel Specifications -----	7-8
Pump Specifications -----	9-10
Effluent Filter Specifications -----	11-13
Brantley 1,250 Gallon ST 323 Diagram-----	14
Brantley 1,200 Gallon PT 463 Diagram-----	15
Septic and Pump Tank Details-----	16
Pressure Manifold and Trench Details-----	17
Supply Line Profile-----	18

Southern Hills S/D Lot 33
Contact Information

Client: Raleigh Custom Homes
Attn: Kyle Johnson
Street Address:

Phone:
Email:

Designer: Central Carolina Soils Consulting
Attn: Jason Hall
Street Address: 1900 Main Street Suite 110
Wake Forest, NC 27587
Phone: 919-569-6704
Cell: 919-422-2827

Southern Hills S/D Lot 33
Layout/Design Specifications

Facility Type:	Single Family Home
# of Bedrooms:	4
Daily Flow:	480 gal/day
L.T.A.R.:	0.30 gal/day/sq.ft
Trench Depth:	WCDES in
Trench Width:	36 in
Stone Depth:	Ezflow in
Manifold Length:	54 in
Manifold Diameter:	4 in sch 80pvc
Supply Line Length:	272 ft
Supply Line Diameter:	2 in sch 40pvc
Total Supply Line Volume:	47.33 gallons
Friction Loss + Fitting Loss:	15.48 ft includes 70' for fittings in tank and 25% for line fittings
Design Head:	2 ft
Elevation Head:	16.40 ft
Total Head:	33.88 ft
Dose Volume:	207.44 gals
% of Pipe Vol.	.75
Drawdown:	10.6 in @ 19.65 gal/in
Pump Run Time:	4.7 Mins
Control Panel:	SJE Rhombus Model112 control panel (or approved equivalent)
Pump:	Zoeller 161 Flow-Mate (or approved equivalent)
Septic Tank Effluent Filter:	Zoeller 170-0144 residential effluent filter (or approved equivalent)
Septic Tank:	Brantley 1,250 Gallon ST 323
Pump Tank:	Brantley 1,200 Gallon PT 463

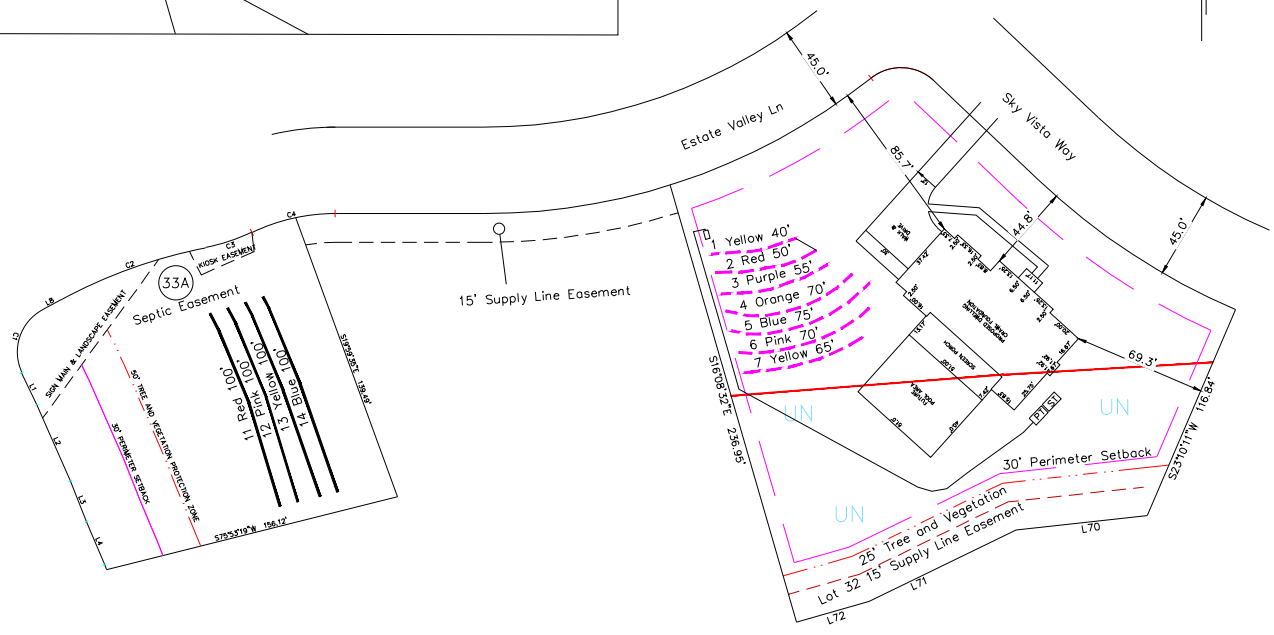
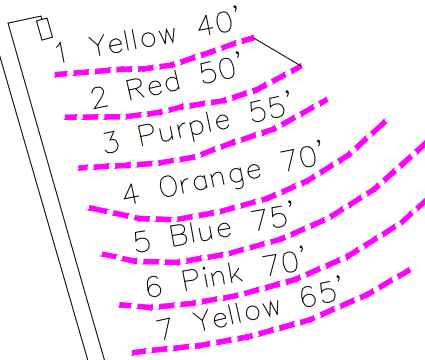
Southern Hills S/D Lot 33 System Tap Chart

Bench Mark		Elevation Head							16.40
Pump tank elev.		11	89.00 <th>Pump elev.</th> <td>83.60</td> <th colspan="3">Manifold elev.</th> <td>100.00</td>	Pump elev.	83.60	Manifold elev.			100.00
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR
1&2	Yel/Red	1.00	99.00	90	3/4in SCH 80	10.1	110.13	270	0.4079
3	Purple	3.50	96.50	55	1/2in SCH 80	5.48	59.75	165	0.3621
4	Orange	4.80	95.20	70	1/2in SCH 40	7.11	77.53	210	0.3692
5	Blue	5.90	94.10	75	1/2in SCH 40	7.11	77.53	225	0.3446
6	Pink	7.20	92.80	70	1/2in SCH 40	7.11	77.53	210	0.3692
7	Yellow	8.60	91.40	65	1/2in SCH 40	7.11	77.53	195	0.3976
		total	feet =	425	gal/min =	44.02	LTAR =		0.3000
		LTAR + %5							0.3150
% of Dose Vol.	75	Des. Flow		480	(Itar W/ INOV)		0.4000		
Dose Volume	207.44	Pump Run=		10.90	(Itar W/ INOV + 5%)		0.4200		
Dose Pump Time	4.70	Tank Gal/IN		19.65					
Drawdown in Inches	10.60								

Southern Hills S/D Lot 33 Repair Tap Chart

Bench Mark		Elevation Head							14.90
Pump tank elev.		11	89.00	Pump elev.	83.60	Manifold elev.			98.50
line	color	rod read	Elevation	length	hole size	flow/tap	gal/day	trench area	LINE LTAR
11	Red	2.50	97.50	100	1/2in SCH 40	7.11	120.00	300	0.4000
12	Pink	2.80	97.20	100	1/2in SCH 40	7.11	120.00	300	0.4000
13	Yellow	3.00	97.00	100	1/2in SCH 40	7.11	120.00	300	0.4000
14	Blue	3.40	96.60	100	1/2in SCH 40	7.11	120.00	300	0.4000
		total	feet =	400	gal/min =	28.44	LTAR =		0.3000
		LTAR + %5							0.3150
% of Dose Vol.	75	Des. Flow		480	(Itar W/ INOV)		0.4000		
Dose Volume	195.00	Pump Run=		16.88	(Itar W/ INOV + 5%)		0.4200		
Dose Pump Time	6.86	Tank Gal/IN		19.65					
Drawdown in Inches	9.92								

Not To Scale



- *Keep tanks and drain lines 10' from property lines.
- *Not a survey.
- *Not a guarantee of a septic permit.
- *Keep supply lines >5' from property lines.
- *Some lines are flagged longer in the field than lengths indicate.
- *No grading septic area.

GRAPHIC SCALE
1" = 100'



System: ---
Repair: ---

System: Pressure Manifold
Lines: 1-7, (425')
0.3 Soil LTAR

Accepted Status System

Repair: Pressure Manifold
Lines: 11-14, (400')
0.3 Soil LTAR

Accepted Status System



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

SEPTIC SITE PLAN
Lot 33 Southern Hills Subdivision
Wake County, North Carolina

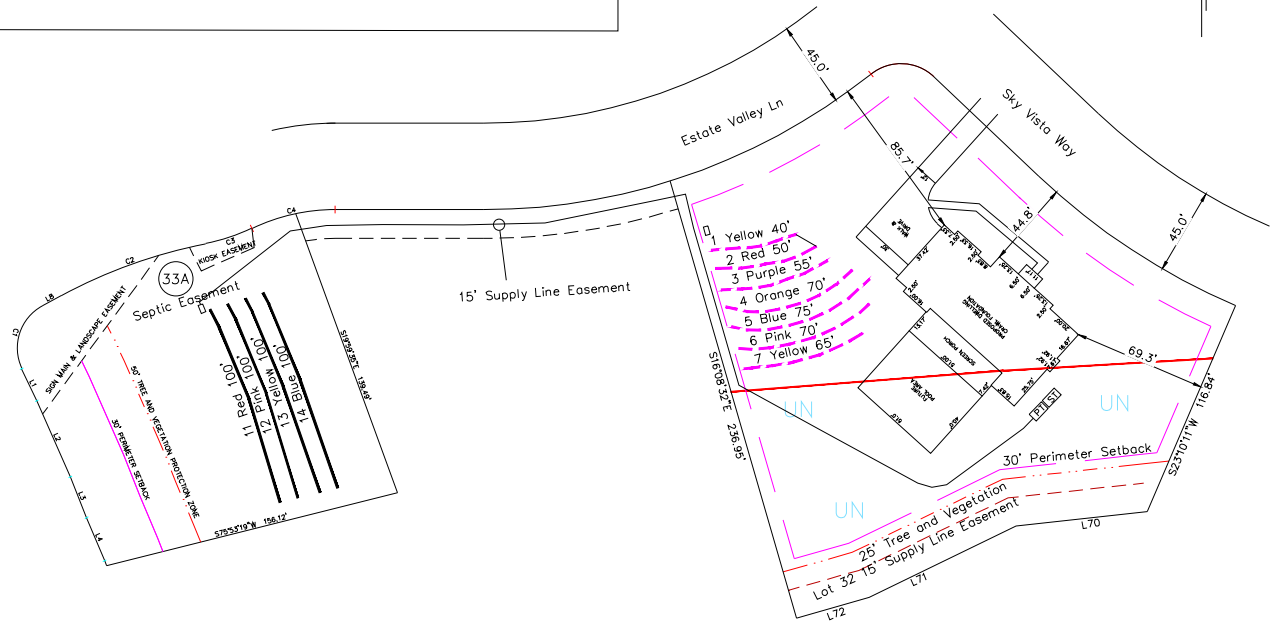
Job# : 4511
Drawn By : AH
Date : 04/12/2023
Revision: 04/19/2023

Not To Scale

Septic Easement

G3 KIOSK EASEMENT

11 Red 100'
12 Pink 100'
13 Yellow 100'
14 Blue 100'



- *Keep tanks and drain lines 10' from property lines.
- *Not a survey.
- *Not a guarantee of a septic permit.
- *Keep supply lines >5' from property lines.
- *Some lines are flagged longer in the field than lengths indicate.
- *No grading septic area.

GRAPHIC SCALE
1" = 100'



System: ---
Repair: ---

System: Pressure Manifold
Lines: 1-7, (425')
0.3 Soil LTAR

Accepted Status System

Repair: Pressure Manifold
Lines: 11-14, (400')
0.3 Soil LTAR

Accepted Status System



Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

REPAIR SEPTIC SITE PLAN
Lot 33 Southern Hills Subdivision
Wake County, North Carolina

Job# : 4511
Drawn By : AH
Date : 04/12/2023
Revision: 04/19/2023

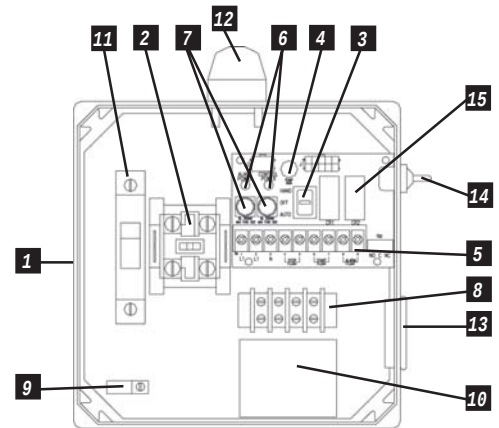
MODEL 112 Control Panel

Single phase, simplex motor contactor control.

The Model 112 control panel provides a reliable means of controlling one 120, 208, or 240 VAC single phase pump in pump chambers, sump pump basins, irrigation systems and lift stations. Two control switches activate a magnetic motor contactor to turn the pump on and off. If an alarm condition occurs, an additional alarm switch activates the audio/visual alarm system.

PANEL COMPONENTS

1. **Enclosure** measures 8 x 8 x 4 inches (20.32 X 20.32 X 10.16 cm). Choice of NEMA 1 (steel for indoor use), or NEMA 4X (ultraviolet stabilized thermoplastic with removable flanges for outdoor or indoor use).
* Options selected may increase enclosure size and change component layout.
2. **Magnetic Motor Contactor** controls pump by switching electrical lines.
3. **HOA Switch** for manual pump control (mounted on circuit board).
4. **Green Pump Run Indicator Light** (mounted on circuit board).
5. **Float Switch Terminal Block** (mounted on circuit board).
6. **Alarm and Control Fuses** (mounted on circuit board).
7. **Alarm and Control Power Indicators** (mounted on circuit board).
8. **Pump Input Power and Pump Connection Terminal Block**
9. **Ground Lug**
10. **Terminal Block Installation Label**
11. **Circuit Breaker** (optional) provides pump disconnect and branch circuit protection.



Model Shown 1121W914X

STANDARD ALARM PACKAGE

12. **Red Alarm Beacon** provides 360° visual check of alarm condition.
Note: NEMA 1 style utilizes a door mounted indicator in lieu of a beacon.
13. **Alarm Horn** provides audio warning of alarm condition (83 to 85 decibel rating).
Note: NEMA 1 style utilizes an internally mounted buzzer in lieu of horn.
14. **Exterior Alarm Test/Normal/Silence Switch** allows horn and light to be tested and horn to be silenced in an alarm condition. Alarm automatically resets once alarm condition has been cleared.
15. **Horn Silence Relay** (mounted on circuit board).

NOTE: other options available.

FEATURES

- Entire control system (panel and switches) is UL Listed to meet and/or exceed industry safety standards
- Dual safety certification for the United States and Canada
- Standard package includes three 20' Sensor Float® control switches
- Complete with step-by-step installation instructions
- Three-year limited warranty



SJE
Rhombus
CONTROLS

PO Box 1708, Detroit Lakes, MN 56502

1-888-DIAL-SJE • 1-218-847-1317

1-218-847-4617 Fax

email: sje@sjerhombus.com

www.sjerhombus.com

SEE BACKSIDE FOR COMPLETE LISTING OF AVAILABLE OPTIONS.

112**1****W****1****2****4****H****3A, 8A, 8C, 15A****MODEL 112****ALARMPACKAGE**

0 = select options or no alarm package

1 = alarm package (includes test/normal/silence switch, fuse, red light, horn & float)

ENCLOSURE RATING

I = Indoor, NEMA 1 (metal)

W = Weatherproof, NEMA 4X (engineered thermoplastic)

STARTING DEVICE

1 = magnetic motor contactor 120/208/240V

9 = magnetic motor contactor 120V only

PUMP FULL LOAD AMPS

0 = 0-7 FLA

1 = 7-15 FLA

2 = 15-20 FLA

3 = 20-30 FLA

PUMP DISCONNECTS

0 = no pump disconnect

1 = pull-out with safety deadfront in a 10"x8" enclosure

4 = circuit breaker 120V (select STARTING DEVICE option 9 above)

120/208/240V (select STARTING DEVICE option 1 above)

FLOAT SWITCH APPLICATION

H or L = pump down or pump up

X = no floats

WITH alarm package

WITHOUT alarm package

OPTIONS *Listed below*

ENCLOSURE UPSIZE - If you selected 3 or more of the ★ options, or one ★★ option, a one-time enclosure upsize fee would apply.

If additional features are required, call the factory for a quote on either a SJE-Rhombus Pro-Line or Engineered Custom control panel.**CODE DESCRIPTION**

- ☐ 1A Red beacon only / no audio
(must select 1E if floats included)
- ☐ 1C Horn only / no visual
(must select 1E if floats included)
- ☐ 1E Alarm float
- ☒ 3A Alarm flasher
- ☐ ★ 3B Manual alarm reset
- ☐ ★ 4A Low level cutout
(select option 4D if floats included)
- ☐ ★ 4B Red low-level indicator & alarm
(must select 4A also)
- ☐ 4D Low-level float
- ☐ ★ 5A Thermal cutout/heat sensor auto
reset (for pumps w/thermal switch leads)
- ☐ ★★ 5E Seal failure circuit & red indicator (2 wire)
- ☐ 6A Auxiliary alarm contact, form C type
- ☒ ★ 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
- ☐ 10E Lockable latch - NEMA 1
- ☐ ★ 10F Lightning arrester
- ☐ ★ 10K Anti-condensation heater

CODE DESCRIPTION

- ☐ 11C NEMA 1 alarm panel *must select option 6A*
- ☐ 11D NEMA 4X alarm panel *must select option 6A*
- ☐ ★★ 14B Main disconnect (rotary style, mounted through door)
non-fused
- ★★ ☐ 0-20 FLA (total of both pumps)
- ★★ ☐ 20-30 FLA (total of both pumps)
- ☒ 15A Control / alarm circuit breaker
Does not include the circuit board as in standard.
- ☐ 16A 10' cord in lieu of 20' (per float)
- ☐ 16B 15' cord in lieu of 20' (per float)
- ☐ 16C 30' cord in lieu of 20' (per float)
- ☐ 16D 40' cord in lieu of 20' (per float)
- ☐ 17A SJE SignalMaster® / mounting strap ● (per float)
- ☐ 17B SJE SignalMaster® / externally weighted ● (per float)
- ☐ 17C Sensor Float® / internally weighted ▲ (per float)
- ☐ 17D Sensor Float® / externally weighted ▲ (per float)
- ☐ 17E Sensor Float® Mini / pipe clamp ▲ (per float)
- ☐ 17F Sensor Float® Mini / externally weighted ▲ (per float)
- ☐ 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
- ☐ 21A SJE PumpMaster® in lieu of on/off switches ●
- ☐ 21B SJE PumpMaster® Plus in lieu of on/off switches ●
- ☐ 21C Super Single® in lieu of on/off switches ▲
- ☐ 21D Double Float® in lieu of on/off switches ▲

● Mechanically-activated ▲ Mercury-activated

SAMPLE**MODEL****112****1****W****9****1****4****H****3A 8A**

Alarm Package

Enclosure Rating

Starting Device

Pump Full Load Amps

Pump Disconnect

Float Switch Application

Options: Flasher, Elapsed Time Meter

"QUALITY PUMPS SINCE 1939"

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



ZOELLER

PUMP CO.



SECTION: 2.20.050
FM0460
0102
Supersedes
0300

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site:
<http://www.zoeller.com>

COMPARE THESE FEATURES

- Non-clogging bronze vortex impeller design.
- Durable cast construction. Cast iron switch case, base, motor and pump housing.
- Castings - Cast iron class 25-30 (25,000# tensile strength). Impeller, bronze class 85-5-5-5.
- Corrosion resistant powder coated epoxy finish.
- 20 foot UL listed 3-wire neoprene cord and plug. Longer cords available in lengths of 25-35-50 feet.
- Motor - 60 Hz. 3450 RPM, oil-filled, hermetically sealed, automatic reset thermal overload protection (1 Ph only).
- Upper sleeve bearing and lower ball bearing running in bath of oil.
- Carbon and ceramic shaft seal.
- Maximum temperature for effluent or dewatering, 130° F. - 54° C. (ED 140° F. - 60° C).
- Major width 12¾". Height 18⅞". (Single seal pumps)
- No screens to clog.
- Square Ring & Gasket - Neoprene.
- Stainless steel screws, bolts, float rod, handle guard, arm and seal assembly.
- Passes ¾" spherical solids.
- 1½" NPT discharge with 2" or 3" flange available.
- Automatic units available with float operated, submersible (NEMA 6) 2-pole mechanical switch. On point 14¾" - Off point 5".
- Available in single or double seal designs.
- 100% of units are computerized tested.

MODELS 4161-4163-4165

DOUBLE SEAL PUMPS (Nonauto only)

- Protects motor from seal leaks.
- Improved bearing lubrication.
- Helps eliminate seal and bearing damage from dry runs.
- Major width 12¾". Height 20⅞".

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.

AUTOMATIC UNITS NOT RECOMMENDED FOR USE IN EFFLUENT SYSTEMS.

161 - 163 - 165 Single Seal Series 4161 - 4163 - 4165 Double Seal Series (For Pump Prefix Identification see News & Views 0052)

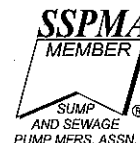


HIGH HEAD "FLOW-MATE"

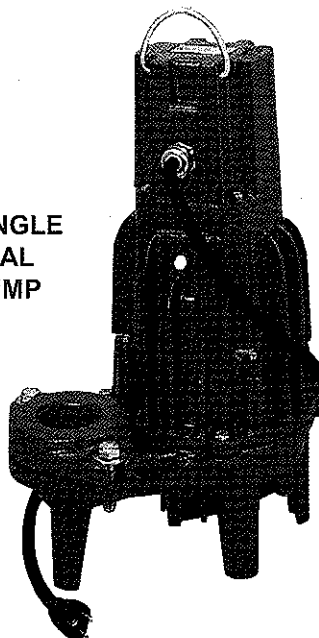


FOR SEPTIC TANK • LOW PRESSURE PIPE (LPP)
AND ENHANCED FLOW STEP SYSTEMS
EFFLUENT

OR DEWATERING PUMP • SUBMERSIBLE
1½" NPT DISCHARGE STANDARD • 2" AND 3" NPT FLANGE AVAILABLE



SINGLE SEAL PUMP



DOUBLE SEAL PUMP



MODELS AVAILABLE

• Automatic (Single Seal Only) or Nonautomatic

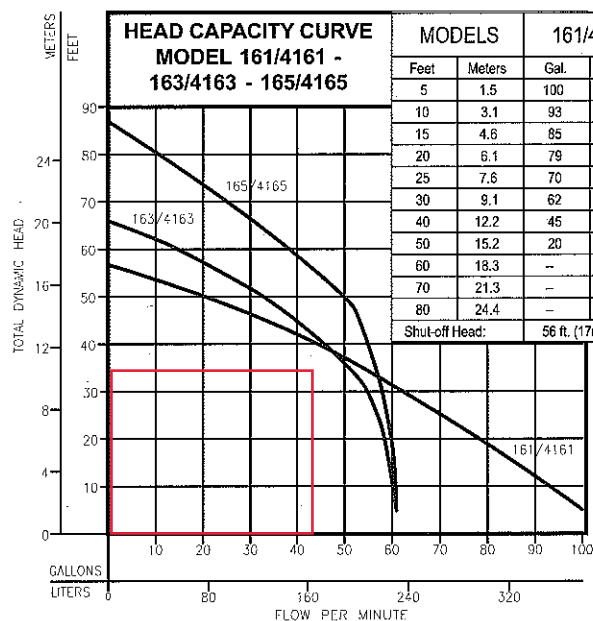
161-163 and 4161-4163 Series

- ½ H.P., 1 Ph, 115V, 200-208V or 230V
- ½ H.P., 3 Ph., 200-208V, 230V or 460V

165 and 4165 Series

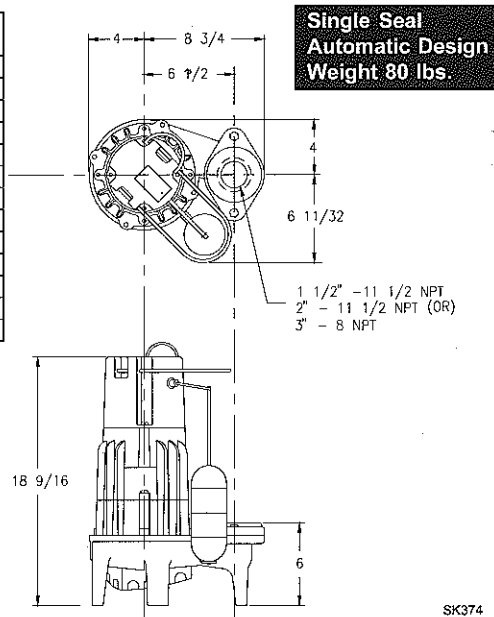
- 1 H.P., 1 Ph., 200-208V or 230V
- 1 H.P., 3 Ph., 200-208 230V or 460V

*NOTE: No UL listing or approval for 200-208V 1Ph or Extra Duty (ED) pumps. See back page for UL & CSA Listings.



MODELS		161/4161		163/4163		165/4165	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	100	379	61	231	61	231
10	3.1	93	352	60.5	229	60.5	229
15	4.6	85	322	60	227	60.5	229
20	6.1	79	297	59	223	60	227
25	7.6	70	265	57	216	59	223
30	9.1	62	233	55	206	58	220
40	12.2	45	170	46	172	55	208
50	15.2	20	76	33	125	50	189
60	18.3	—	—	15	57	39	148
70	21.3	—	—	—	—	22.5	85
80	24.4	—	—	—	—	10	38
Shut-off Head:		56 ft. (17m)		66 ft. (20m)		86.5 ft. (26m)	

009920B



Standard all models - 20 ft. cord - 1/2 H.P.

161 MODELS	4161 MODELS	Double Seal/Volts	Ph	Mode	Amps	Control Selection	Simplex	Duplex	CSA	UL
Single Seal	Double Seal									
M161	—	115	1	Auto	15.5	1	—	—	Y	Y
N161	N4161	115	1	Non	15.5	2	3 or 5 & 6	—	Y	Y ⁽¹⁾
D161	—	230	1	Auto	7.5	1	—	—	Y	Y
E161	E4161	230	1	Non	7.5	2	3 or 5 & 6	—	Y	Y
* H161	—	200-208	1	Auto	8.8	1	—	—	Y	N
* I161	* I4161	200-208	1	Non	8.8	2	3 or 5 & 6	—	Y	N
* J161	* J4161	200-208	3	Non	6.4	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* F161	* F4161	230	3	Non	5.2	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* G161	* G4161	460	3	Non	2.9	4 & 6	3 & 4 or 5 & 6	—	Y	Y

Standard all models - 20 ft. cord - 1/2 H.P.

163 MODELS	4163 MODELS	Double Seal/Volts	Ph	Mode	Amps	Control Selection	Simplex	Duplex	CSA	UL
Single Seal	Double Seal									
M163	—	115	1	Auto	15.0	1	—	—	Y	Y
N163	N4163	115	1	Non	15.0	2	3 or 5 & 6	—	Y	Y ⁽¹⁾
D163	—	230	1	Auto	7.5	1	—	—	Y	Y
E163	E4163	230	1	Non	7.5	2	3 or 5 & 6	—	Y	Y
* H163	—	200-208	1	Auto	8.5	1	—	—	Y	N
* I163	* I4163	200-208	1	Non	8.5	2	3 or 5 & 6	—	Y	N
* J163	* J4163	200-208	3	Non	6.0	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* F163	* F4163	230	3	Non	4.8	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* G163	* G4163	460	3	Non	2.9	4 & 6	3 & 4 or 5 & 6	—	Y	Y

Standard all models - 20 ft. cord - 1 H.P.

165 MODELS	4165 MODELS	Double Seal/Volts	Ph	Mode	Amps	Control Selection	Simplex	Duplex	CSA	UL
Single Seal	Double Seal									
D165	—	230	1	Auto	10.2	1	—	—	Y	Y
E165	E4165	230	1	Non	10.2	2	3 or 5 & 6	—	Y	Y
* H165	—	200-208	1	Auto	12.6	1	—	—	Y	N
* I165	* I4165	200-208	1	Non	12.6	2	3 or 5 & 6	—	Y	N
* J165	* J4165	200-208	3	Non	7.5	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* F165	* F4165	230	3	Non	7.4	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* G165	* G4165	460	3	Non	3.7	4 & 6	3 & 4 or 5 & 6	—	Y	Y
* BA165	* BA4165	575	3	Non	3.0	4 & 6	3 & 4 or 5 & 6	—	N	N

* No Molded Plug

⁽¹⁾ UL listed unit available with 20 Amp plug.

For information on additional Zoeller products refer to catalog on Piggyback Variable Level Float Switches, FM0477; Electrical Alternator, FM0486; Mechanical Alternator, FM0495; Alarm Package, FM0732; and Sump/Sewage Basins, FM0487.

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 Electric Code (NEC) and the Occupational Safety and Health Act (OSHA).

CAUTION

- SELECTION GUIDE**
1. Integral float operated 2-pole mechanical switch, no external control required.
 2. Single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
 3. Mechanical alternator M-Pak 10-0072 or 10-0075. Refer to FM0495
 4. Simplex three phase control panel. Refer to FM1228.
 5. See FM0712 for correct model of Electrical Alternator.
 6. Variable level control switch 10-0225 used as control activator, specify simplex (3) float or duplex (3) or (4) float system.

RESERVE POWERED DESIGN

For unusual conditions a reserve safety factor is engineered into the design of every Zoeller pump.

© Copyright 2002 Zoeller Co. All rights reserved.

Trusted. Tested. Tough.®

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

Register your
Zoeller Pump Company Product
on our website:
<http://reg.zoellerpumps.com/>



SECTION: C2.10.130

CL0040

0421

Supersedes

0318

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961
TEL: (502) 778-2731 • 1 (800) 928-PUMP • FAX: (502) 774-3624

Visit our website:
zoellerpumps.com

WW1 Effluent Filter, P/N 170-0078

OWNER'S MANUAL

Application: Single family homes.

Filter Area: 132 Linear Feet of 1/16" filtration.

Flow Rate: 1,500 GPD. Two or more filters may be connected with a manifold for higher flow applications.

Material: All materials are non corrodible in the septic tank environment. Sleeve is PVC, primary filter is polypropylene, and filter connection element is neoprene.

Easy To Install Or Retrofit: The WW1 Filter fits inside any 4" sanitary tee. To install, slide the cartridge into the sleeve and rotate clockwise to lock. Insert the assembled cartridge and sleeve into the sanitary tee at the tank's outlet. Ensure the white vertical locking tab is pointing toward the outlet of the septic tank before installation. Firmly press the filter down into the sanitary tee until the vertical locking tab snaps into place, then rotate clockwise until the bypass screen no longer rotates. When installed correctly, the cartridge should be capable of rotating within the sleeve to the locked and unlocked position. If the cartridge hangs or will not rotate to the unlocked position, check to make sure the sleeve is installed with the vertical locking tab extending freely into the septic tank's outlet pipe. For an optional high water alarm assembly, order the high water alarm bracket (5090-0014), an alarm box (10-3067) and a float switch (sold separately).

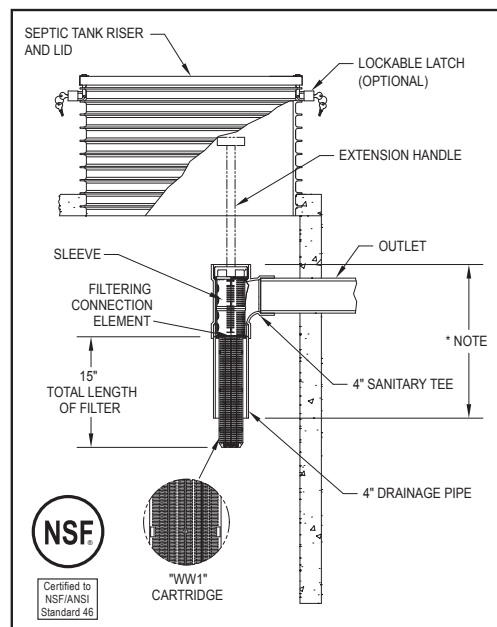
Adding An Extension Handle: A 1/2" PVC pipe can be attached to the top of the filter with a stainless steel screw. Cut off to appropriate length below the lid.

Easy To Maintain: The cartridge can be removed for maintenance by rotating the handle counterclockwise and then pulling the unit up out of the sleeve. The sleeve should remain in the sanitary tee while cleaning the cartridge. To clean, hold cartridge over septic tank opening and rinse with tap water until clean, washing filtered solids back into the septic tank. In addition, spray off any solids that have accumulated on the inside of the sleeve. The WW1 Filter should be cleaned each time the septic tank is pumped or when the need is indicated by a high water level in the tank or slow flows from the house. The secondary filter sleeve should be cleaned whenever the tank is pumped. For installations that exceed the design flow rate of the filter or in applications where the septic tank is undersized, more frequent cleanings may be required. It is recommended that the filter be inspected and serviced as part of a regular septic tank maintenance routine.

Troubleshooting, repair, and replacement: Follow the installation and maintenance instructions above. For replacement components, call 1-800-928-7867.

Lifetime Warranty: Every Zoeller Pump Company filter is guaranteed to be free from defects in materials and workmanship for the lifetime of the homeowner/purchaser. Free repair or replacement, excluding labor, will be made on return of the filter prepaid to the factory. This warranty is limited to product proven to be free from abuse or improper installation.

ALL ZOELLER PUMP COMPANY PRODUCTS MUST BE INSTALLED IN ACCORDANCE WITH PLUMBING AND HEALTH DEPARTMENT CODES.



NOTE: State and local plumbing codes may require a specific liquid penetration. For example, 25% - 45% into the liquid depth or 9" off the tank bottom.

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

WW1 Effluent Filter

Protects Drainfield Components By Screening Effluent In Residential Applications With Flows Up To 1,500 Gpd (5.7 M³/Day)



Help prolong the life of an onsite system in residential applications. The deep pleated filter design offers highly effective screening and solids retention.

Features

- Rated for flows up to 1,500 gpd (5.7 m³/day)
- 132 linear feet of 1/16" filtration
- Fits 4" sanitary tees or DWV Tees
- Easy to install and maintain
- Integral bypass protection screen
- High water alarm bracket available
- Lifetime warranty

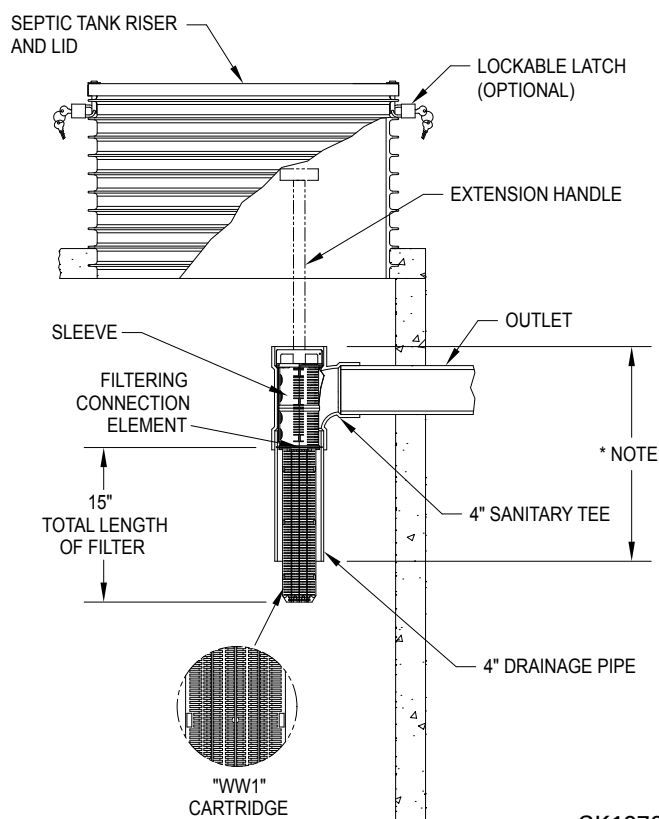
Alarm bracket sold separately
Float switch sold separately



Trusted. Tested. Tough.®

zoellerpumps.com 800-928-7867
3649 Cane Run Road, Louisville, KY 40211 USA

3.20.052
CL0038
0121
Supersedes
0119

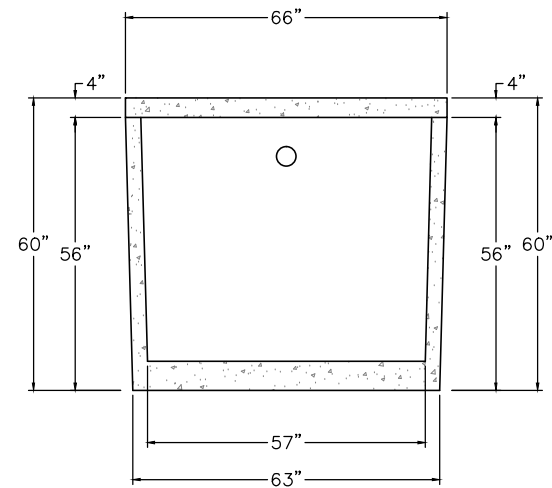
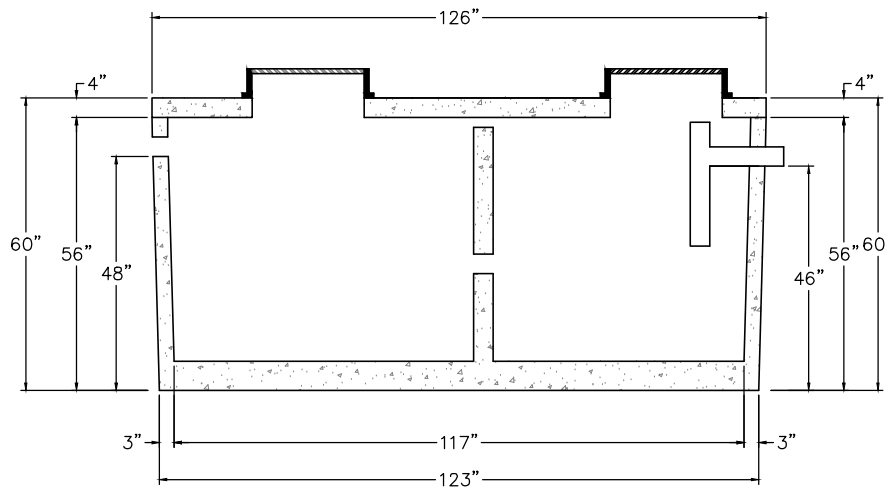


Zoeller Pump Company septic tank effluent filters are designed to protect all downstream components from solids. Every filter comes standard with bypass protection which keeps the filter working, even during cleaning!

SK1972

WW1 Effluent Filter (1,500 GPD)	
Part Number	Description
170-0078	WW1 Effluent Filter
170-0079	WW1 Effluent Filter (10 pk)
170-0144	WW1 Effluent Filter with 4" sanitary tee
170-0145	WW1 Effluent Filter with 4" sanitary tee (10 pk)
5090-0014	Alarm bracket assembly
10-3067	C-Pak Alarm, touch pad without float
013216	Replacement filter cartridge (without bypass screen)
013218	Rubber alignment gasket
Container Assembly	
Part Number	Description
31-1473	12" Riser extension with hardware and gasket
31-1476	6" Riser extension with hardware and gasket
170-0078	WW1 Effluent Filter
170-0144	WW1 Effluent Filter with 4" sanitary tee
5090-0001	Container assembly with 12" riser and lid





1,250 ST 323
NTS

NON TRAFFIC BEARING

DAVID BRANTLEY & SONS
37 Pine Ridge Rd.
Zebulon, NC 27597
Office 252-478-3721
Fax 919-573-0443
1nsta11er@gmail.com

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

DATE : April 11, 2014

CONTACT: CORY BRANTLEY

REVISION NO.
Original Submitted

Revision 1

Revision 2

Revision 3

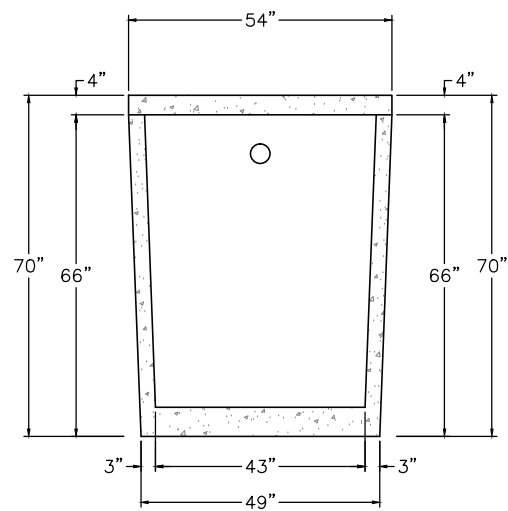
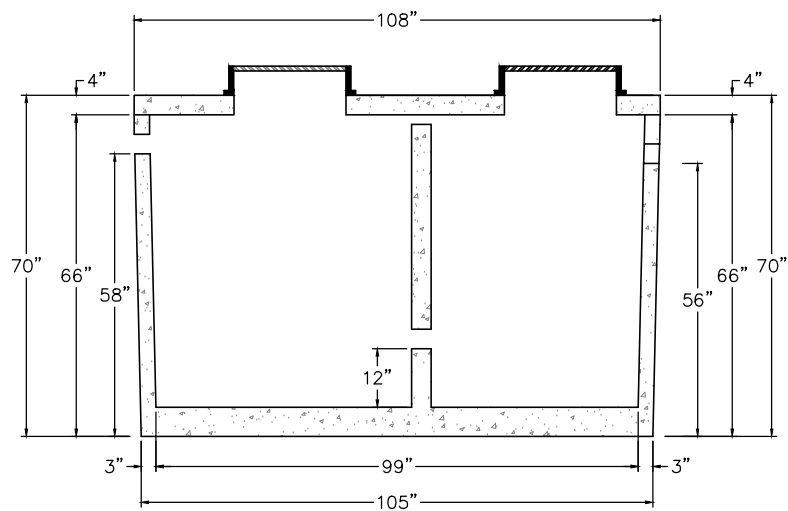
Master Set

DATE
April 11, 2014

BRANTLEY TASK MODEL
1,250 ST 323

SHEET NUMBER

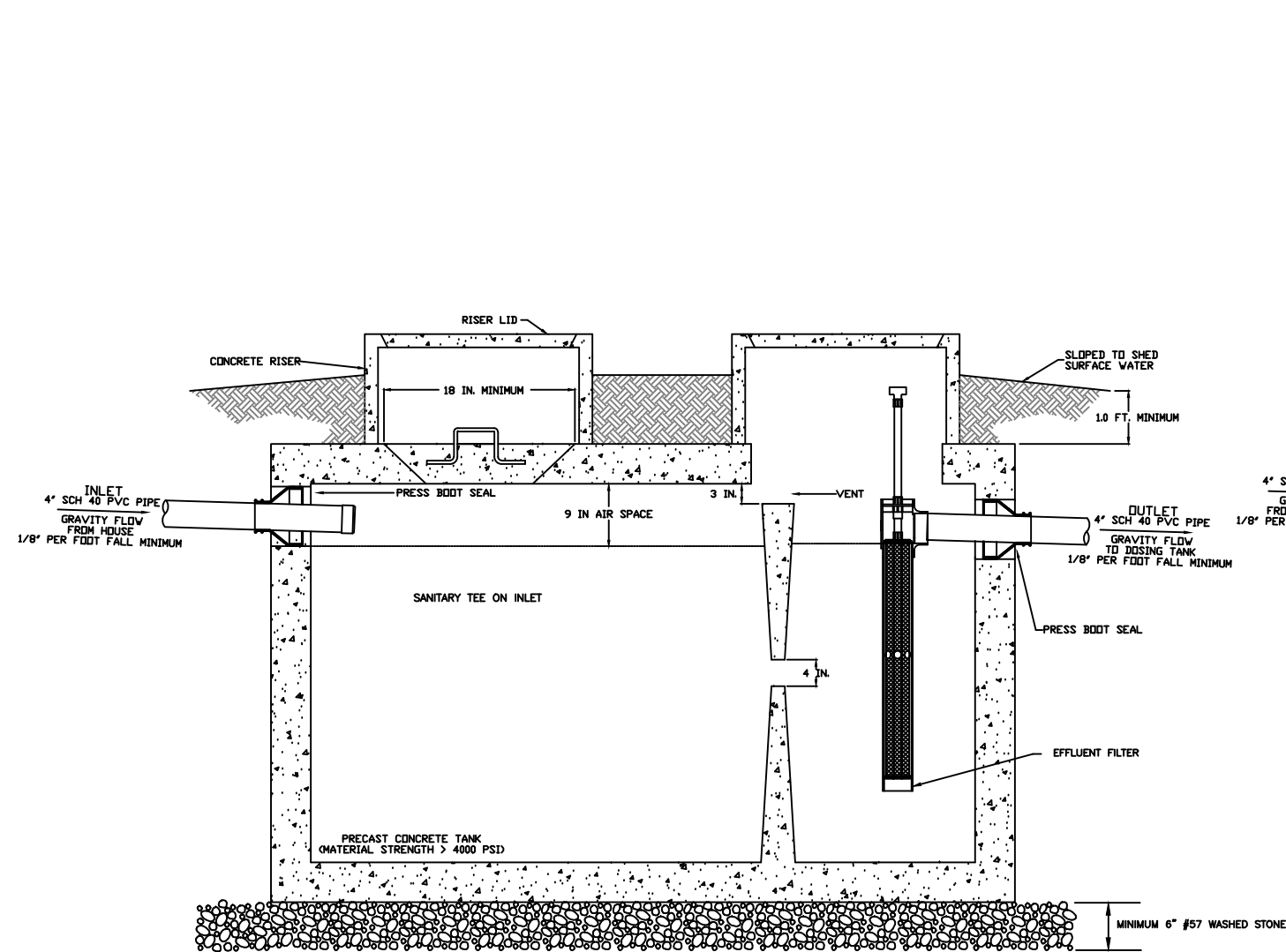
1 of 1



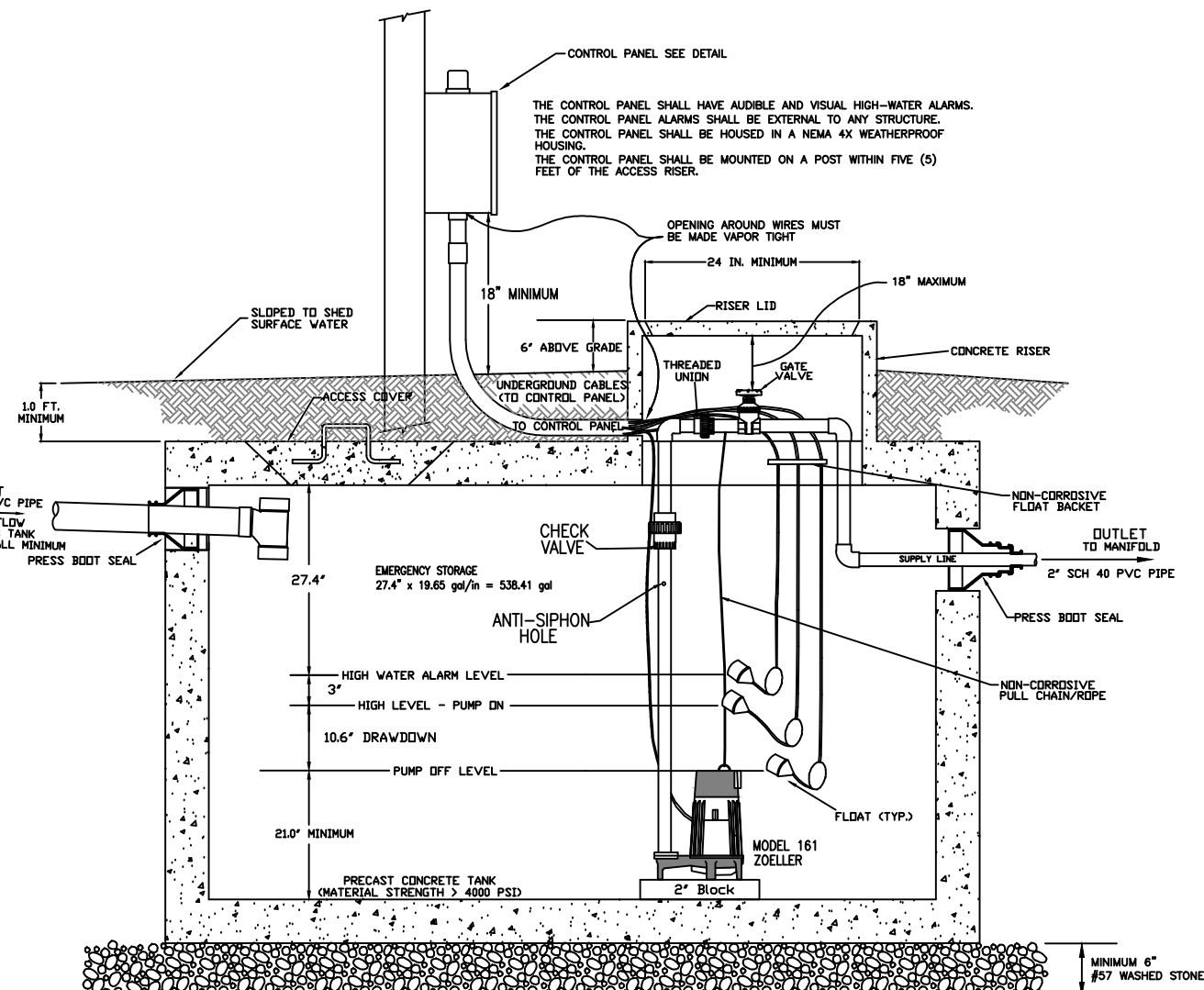
1,200 PT 463
NTS

NON TRAFFIC BEARING

BRANTLEY TASK MODEL 1,200 PT 463		DATE April 11, 2014
SHEET NUMBER 1 of 1		
PREPARED FOR : David Brantley & Sons 37 Pine Ridge Rd. Zebulon, NC 27597 DATE : April 11, 2014 CONTACT: CORY BRANTLEY	REVISION NO. Original Submitted	
	Revision 1	
	Revision 2	
	Revision 3	
	Master Set	
DAVID BRANTLEY & SONS 37 Pine Ridge Rd. Zebulon, NC 27597 Office 252-478-3721 Fax 919-573-0443 1n1staller@gmail.com		



1250 GAL SEPTIC TANK SCHEMATIC
NOT TO SCALE



1200 GAL PUMP TANK SCHEMATIC
NOT TO SCALE

NOTES

1. ALL TANKS SHALL BE LEAK TESTED SUCH THAT EXFILTRATION OCCURS AT A RATE WHICH DOES NOT EXCEED TEN GALLONS PER TWENTY-FOUR HOURS PER 1,000 GALLONS OF TANK CAPACITY
2. ALL TANKS SHALL REST ON A BED OF #57 WASHED GRAVEL. THE MINIMUM THICKNESS OF THE GRAVEL BED IS 6 INCHES.
3. ALL TANKS MUST BE APPROVED FOR USE BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL HEALTH (DEH).
4. INVERTS SHOWN ARE APPROXIMATE. THE INSTALLER SHALL FIELD CONFIRM PRIOR TO CONSTRUCTION.
5. ALL HARDWARE INSTALLED INSIDE OF TANKS SHALL BE OF STAINLESS STEEL.
6. TANK DIMENSIONS VARY BY MANUFACTURER.
7. DRAWDOWN WILL VARY WITH TANK DIMENSIONS.
8. NO ELECTRICAL SPLICES SHALL BE MADE INSIDE THE PUMP TANK.

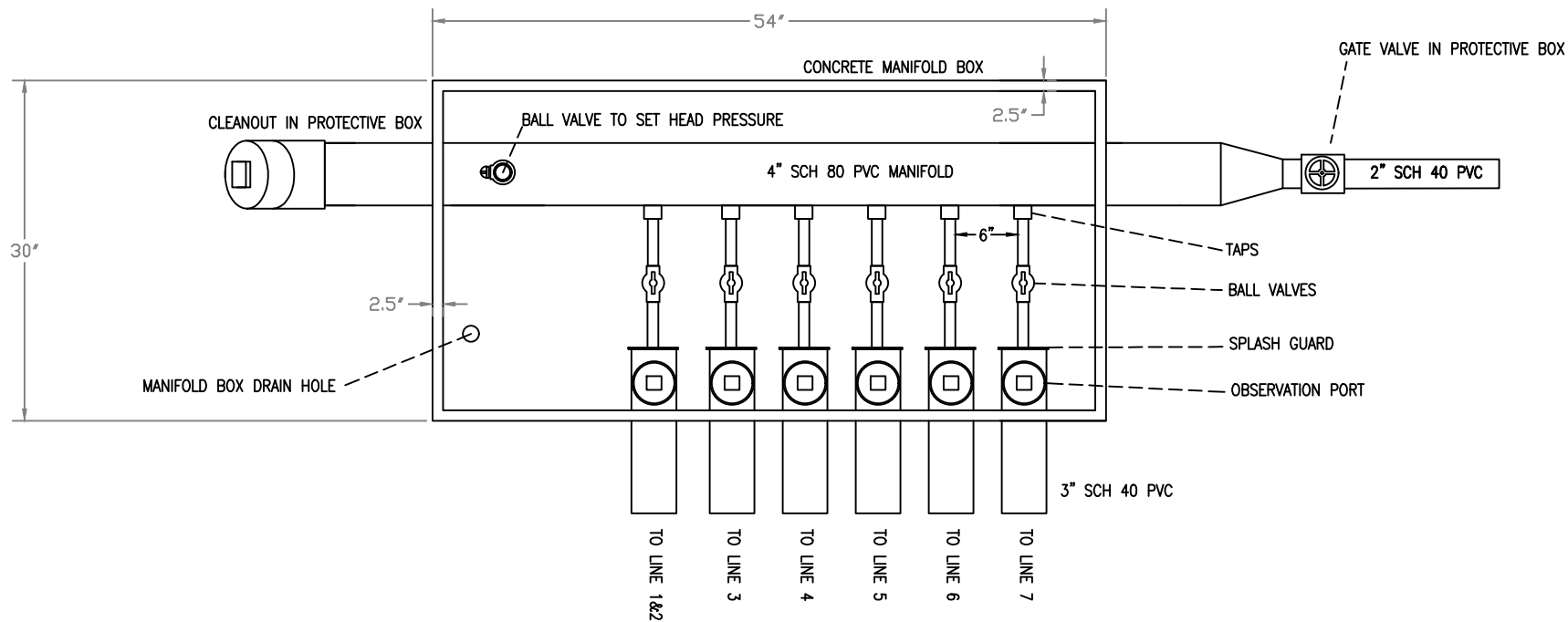


Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

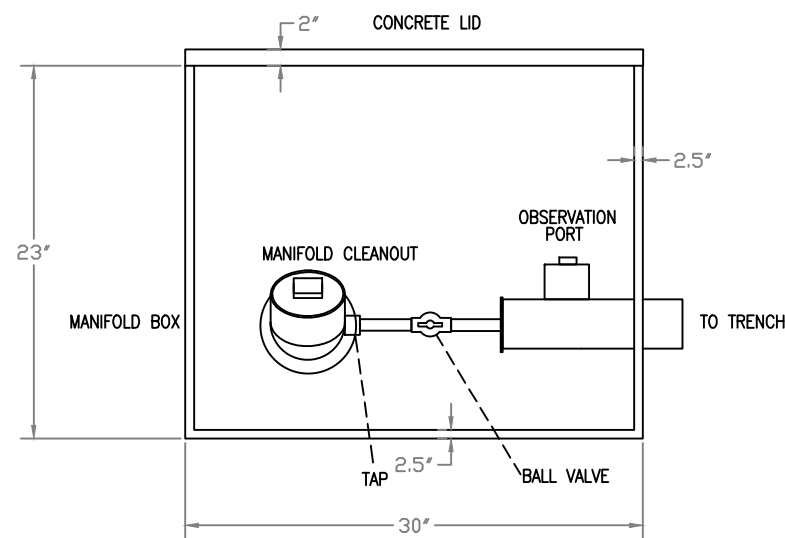
Septic and Pump Tank Details
Southern Hills S/D, Lot 33
Wake County, North Carolina

Job# : 4511
Drawn By : AH
Date : 6/8/2023
Revision : 00/00/0000

PRESSURE MANIFOLD DETAILS
 TOP VIEW



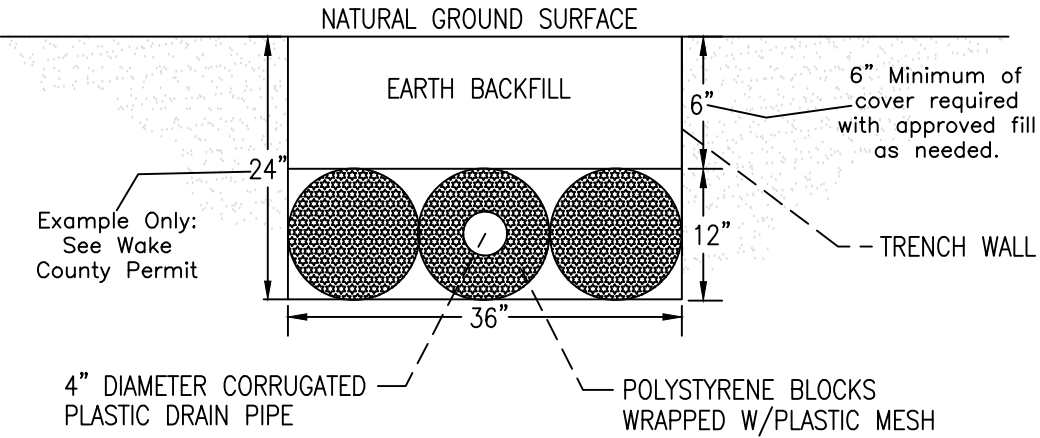
PRESSURE MANIFOLD DETAILS
 END VIEW



TAP SCHEDULE	
LINE #	TAP
1&2	$\frac{3}{4}$ " SCH 80
3	$\frac{1}{2}$ " SCH 80
4	$\frac{1}{2}$ " SCH 40
5	$\frac{1}{2}$ " SCH 40
6	$\frac{1}{2}$ " SCH 40
7	$\frac{1}{2}$ " SCH 40

EZ-FLOW DETAILS

Example only: Installed trench bottom should match design.



NOTE :

- EZ-FLOW INSTALLATION SHALL MEET THE REQUIREMENTS INCLUDED IN ITS INNOVATIVE APPROVAL
- TRENCH BOTTOM SHALL BE AT LEAST 12" FROM ANY RESTRICTIVE SOIL LAYER
- END CAP SHALL BE PROVIDED AT END OF ALL CORRUGATED PLASTIC PIPE LINES AND TRENCH BOTTOMS SHALL BE LEVEL
- THIS IS A GENERIC TRENCH PROFILE SEE COUNTY PERMIT FOR TRENCH DEPTH.

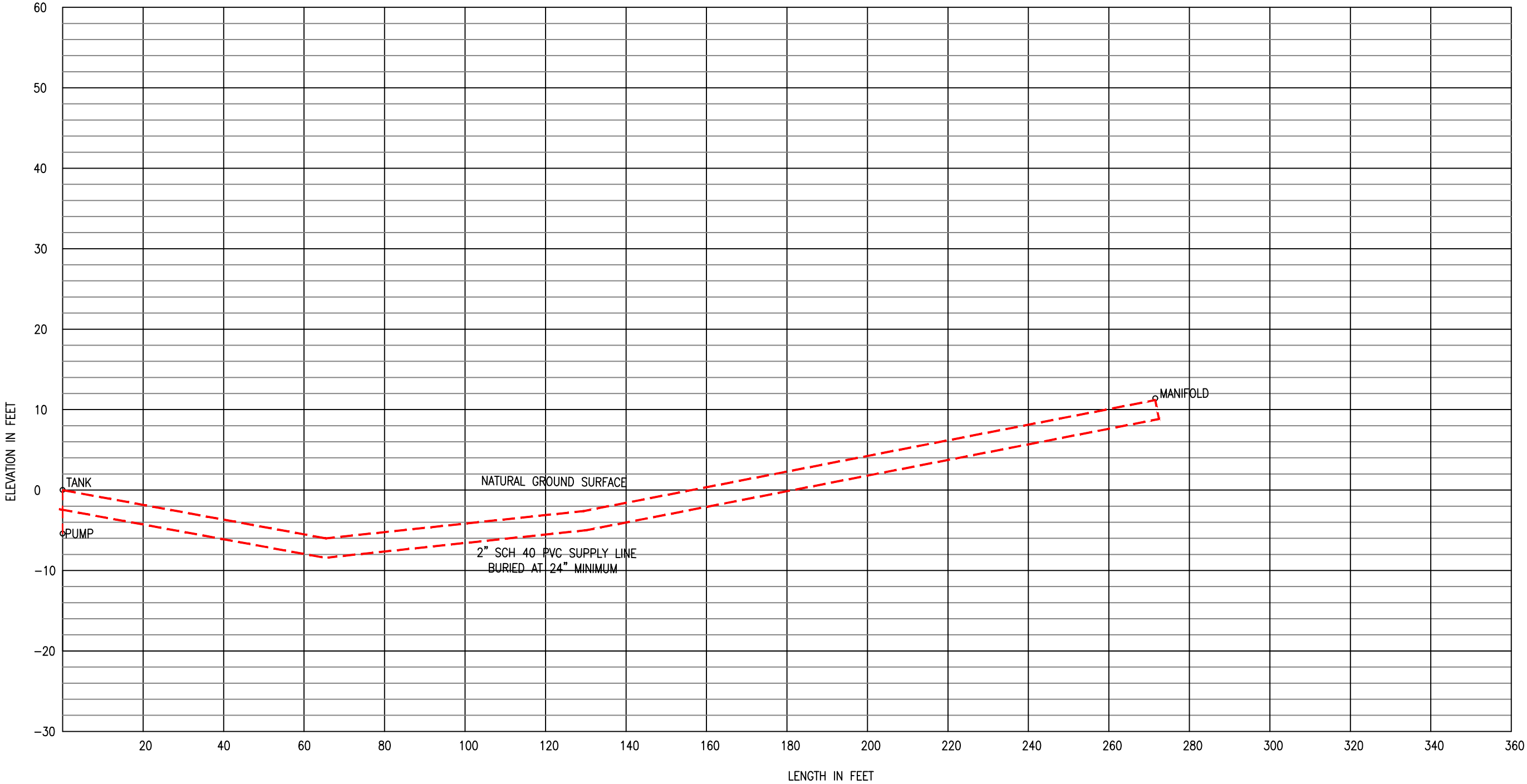


Central Carolina Soil Consulting, PLLC
 1900 South Main Street, Suite 110
 Wake Forest, North Carolina 27587
 Phone (919)569-6704 Fax (919)569-6703

Manifold and Trench Details
 Southern Hills S/D, Lot 33
 Wake County, North Carolina

Job# : 4511
Drawn By : AH
Date : 6/8/2023
Revision : 00/00/0000

SUPPLY LINE
HYDRAULIC PROFILE

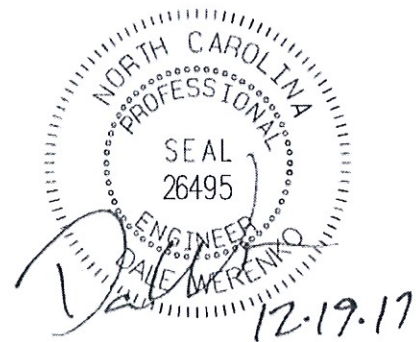


Central Carolina Soil Consulting, PLLC
1900 South Main Street, Suite 110
Wake Forest, North Carolina 27587
Phone (919)569-6704 Fax (919)569-6703

Hydraulic Profile
Southern Hills S/D, Lot 33
Wake County, North Carolina

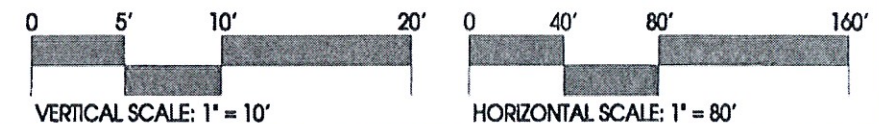
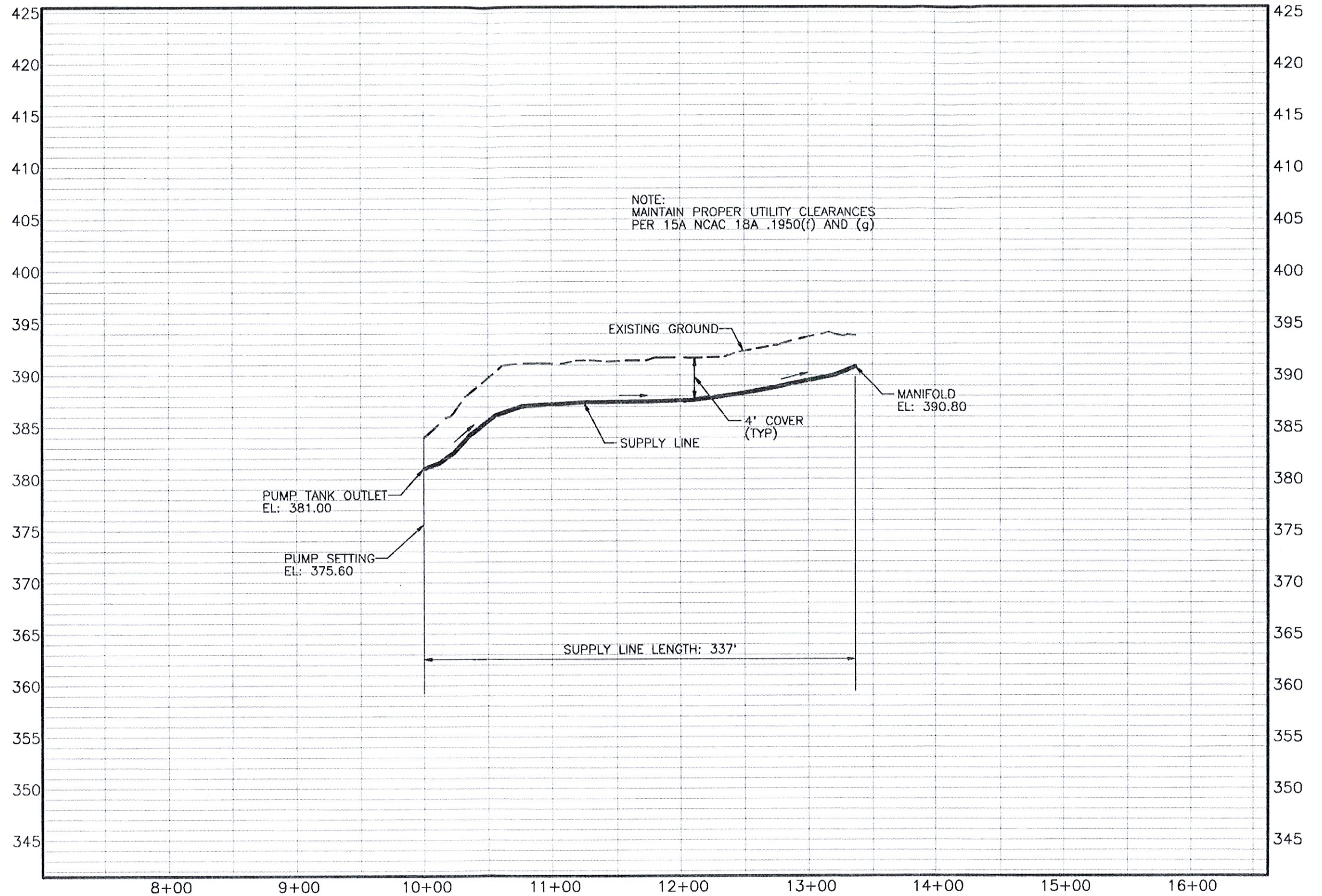
Job# : 4511
Drawn By : AH
Date : 06/8/2023
Revision : 00/00/0000

\\wcrp-1001\A\1515-0170\150178-Crawford Williams Tract\CAON\Plan pro Tue Dec 19, 2017 8:07:47AM WITHERSRAVENEL, INC.



General Notes:

1. 2" Schedule 40 PVC Supply Line.
2. Elevations based on best available Wake County GIS information and field survey by WithersRavenel, Inc.
3. Top of Tank installed 2' below grade.



No.	Revision	Date	By

Designer	DW	Scale	AS SHOWN
Drawn By	DW	Date	12.19.2017
Checked By	DW	Job No.	2150178.00

Southern Hills Estates
Wake County Project # S-27-15
WAKE COUNTY NORTH CAROLINA

OFFSITE SEPTIC SUPPLY LINE DESIGN
For
LOT 33

WithersRavenel
Engineers | Planners | Surveyors
116 MacKanan Drive Cary, NC 27511 | t: 919.469.3340 | license #: C-0832 | www.withersravenel.com

Sheet No.
2 of 2