

Onsite Wastewater Scan Data Entry Form

PERMIT #: 0040120

PIN #: 0628804315

OP DATE: 1213012008

PRESSURE MANIFOLD:

☐ Yes
☒ No

MAINT. SCHEDULE:

☒ Yes *BK 13328*
☐ No *Pt 2640*

☒ Yes
☐ No

04800

ST: Mills 1200
STB-857
PT: Mills 1200
PT-170 19.62 gal/in

☒ Stone
☐ EZ Flow
☐ Infiltrator
☐ Biodiffuser
☐ Cultec
☐ Drip
☐ Hancor
☐ Large Dia. Pipe
☐ Multi-Pipe
☐ Other

TRENCH WIDTH (IN.):

☐ 12 in. or less
☒ 18 in.
☐ 24 in.
☐ 36 in.
☐ 6 ft. or less
☐ 9 ft. or less
☐ Other

BSA

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES WELL AND SEWAGE SITE LOCATION PERMIT
NO PERMIT(S) FOR CONSTRUCTION, LOCATION OR RELOCATION ACTIVITY SHALL BE ISSUED
UNTIL AN AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION HAS BEEN ISSUED
PERMIT VOID IF NOT IN COMPLIANCE WITH ZONING REGULATIONS AND/ OR IF SITE IS ALTERED OR INTENDED USE CHANGED

PERMIT#: D040120 STATUS: A APP. DATE: 08/08/2007 BLDG. PERMIT#: 0074286
 PIN: 0628.04 80 4315 080 TAX MAP: 0 RECORDED: Y ORIG. PERMIT#:
 TOWNSHIP: 06 HOLLY SPRINGS JURISDICTION: WC ZONING: R80 SW DEVICE: S#:
 APPLICANT: WILLIAM MITCHELL
 4744 PORCHAVEN LN
 APEX, NC 27639
 (919) 779-7601
 USE: HD USE: 101 ONE-FAMILY HOUSE
 EXIST USE:
 LTAR: 0.00 0.00 BEDROOMS: 4 BASEMENT: N #EMPLOYEES: 0
 SITE: ADDRESS: 3309 AVENT FERRY RD
 SUBDIVISION: PROP OF WILLIAM LOT: 20 ACRES: 2.38 EASEMENT: LOC: SYS:
 DIRECTION: 68S TO AVENT FERRY RD GO 5MI LOT ON L

Well System: WATER: INDIVIDUAL - TYPE: NEW

WELL LOG INFORMATION: DEPTH: 605 CASING DEPTH: 38 YIELD: 8.0 STATIC LEVEL: 36
 WELL CONTRACTOR: GRAHAM & CURRIE REG.# 00537 PUMP CONTRACTOR: Graham & Currie REG.# 875
 Construction Compliance GROUT APPROVED ☒ DATE 8/11/08 EHS HSC
 WELLHEAD APPROVED ☒ DATE 10/28/08 EHS HSC
 SYSTEM FINALIZED ☒ DATE 12/30/08 EHS DKA

COMMENTS: NEW WELL PERMIT. WELL MUST BE PLACED AS DESIGNED ON PLAN. MUST MAINTAIN AT LEAST 100FT TO ANY PART OF THE INITIAL OR REPAIR SYSTEM, 50FT TO ANY OTHER WELL, 10FT TO PROPERTY LINE, AND 50FT TO HOUSE. IF WELL SITING LOCATION IS QUESTIONED, CONTACT WCDES TO RESITE WELL LOCATION BEFORE ATTEMPTING TO INSTALL WELL. ALL WATER SAMPLING MUST BE COMPLETED AND APPROVED BEFORE OPERATIONS PERMIT CAN BE ISSUED (ASSUMING SEPTIC PERMIT HAS BEEN COMPLETED AND APPROVED).

DESIGN FLOW: 62.34 gal./min. ACTUAL FLOW: 57.8 gpm ^{Operation Permit} INNOVATIVE LETTER: [Signature]
 INSTALLED BY: Quality Landscape INSTALLATION APPROVED BY: [Signature]
 PROPRIETARY SYSTEM: FILTER NO: Red Filter

COMMENTS: AN ALTERNATIVE SEWAGE DISPOSAL MAINTENANCE SCHEDULE MUST BE RECORDED AT THE WAKE CO. REGISTER OF DEEDS BEFORE THE OP CAN BE ISSUED. THE OWNER OF THE PROPERTY IS REQUIRED TO MAINTAIN ALL PORTIONS OF THE SEWAGE DISPOSAL SYSTEM, AS DESCRIBED IN THE MAINTENANCE SCHEDULE. FAILURE TO ABIDE BY THE RECORDED SCHEDULE'S REQUIREMENTS CAN LEAD TO PREMATURE FAILURE OF THE SEWAGE DISPOSAL SYSTEM AND/OR REVOCATION OF THIS OPERATION PERMIT. EITHER SITUATION COULD RESULT IN LEGAL ACTION BEING TAKEN AGAINST THE OWNER OF THE PROPERTY. CONTRACT WITH CERTIFIED OPERATOR TO SERVICE THE SYSTEM 2 TIMES PER YEAR IS REQUIRED FOR LIFE OF SYSTEM. COPY OF CONTRACT MUST BE PROVIDED BEFORE O.P. CAN BE ISSUED.

OPERATIONS PERMIT ISSUED? Y OP DATE: 1/24/08 BY: [Signature]

This permit is based in part on information provided by the homeowner or his/her representative in the application submitted for this permit. The Environmental Health Specialist is not responsible for false or misleading information contained in the application. The Environmental Health Specialist is also not responsible for concealed conditions on the property or for statements in this report that may have resulted from false or misleading statements provided to him in the application. Neither Wake County nor the Environmental Health Specialist warrants that the septic tank system will continue to function satisfactorily in the future or that the water supply will remain potable.

As Built Information:

Date: 10-25-08 Benchmark: _____ Rod reading: _____ Distance to Structure: 40' house
 ST: 1200 gals ID#: Mile 518 457 D.O.M.: 9-4-08 Elev.: _____ Distance to Well: >100'
 PT: 1200 gals ID#: Mile P-170 D.O.M.: 9-4-08 Elev.: _____
 D-box/FD/PM elev.: _____ Supply Line: _____ ft. Pump/Control Panel: _____
 Line 1: 7'0" _____ Date: _____ Line 6: _____ Date: _____
 Line 2: 6'10" _____ Date: _____ Line 7: _____ Date: _____
 Line 3: 6'4" _____ Date: _____ Line 8: _____ Date: _____
 Line 4: 5'11" _____ Date: _____ Line 9: _____ Date: _____
 Line 5: _____ Date: _____ Line 10: _____ Date: _____
 Distance to P/L: _____ Notes: _____

Tanks & manholes checked & approved as well as hole spacing of pipes. Needs Pump Final, Transcribed

ES Copy

WAKE COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES WELL AND SEWAGE SITE LOCATION PERMIT

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

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

PERMIT#: D040120 STATUS: A APP. DATE: 06/08/2007 BLDG. PERMIT#: 0074286
PIN: 0628.04 80 4315 000 TAX MAP: 0 RECORDED: Y ORIG. PERMIT#:
TOWNSHIP: 06 HOLLY SPRINGS JURISDICTION: WC ZONING: R80 SW DEVICE: S#:
APPLICANT: WILLIAM MITCHELL
4744 PORCHAVEN LN
APEX, NC 27539
(919) 779-7601
USE: HD USE: 101 ONE-FAMILY HOUSE
EXIST USE:
LTAR: 0.00 0.00 BEDROOMS: 4 BASEMENT: N #EMPLOYEES: 0 FOUNDATION DRAIN: Y
SITE: ADDRESS: 3309 AVENT FERRY RD
SUBDIVISION: PROP OF WILLIAM LOT: 20 ACRES: 2.38 EASEMENT: LOC: SYS:
DIRECTION: 66S TO AVENT FERRY RD GO 6MI LOT ON L

IMPROVEMENT PERMIT

TANK SIZE: 1200 gal. PUMP Tank: 1200 gal. SQ FT: 4800 STONE DEPTH: 08 in. MAX DEPTH LINE: 12 in.
WASTEWATER: INDIVIDUAL SEWAGE: DOMESTIC TYPE SYSTEM: IV A PUMP: Y P/M: N
DAILY FLOW: 480 gal/day DESIGN FEE REQ?: Y PAID?: Y WATER: INDIVIDUAL

COMMENTS: PERMIT REQUIRES USE OF LOW PRESSURE PIPE SEWAGE DISPOSAL FOR BOTH THE ORIGINAL & REPAIR SYSTEMS. SYSTEM MUST BE INSTALLED ACCORDING TO APPROVED PLANS. SYSTEM DESIGNED TO USE 18" WIDE TRENCHES /8" OF STONE. -5" OF STONE UNDER CORR. PIPE WITH THE REMAINING 3" AROUND SIDES. 1 1/2" LATERALS WILL BE SLEEVED INSIDE THE CORR. PIPE. HOLES DRILLED ON TOP WITH 2 HOLES DRILLED DOWN 1/3 OF WAY FROM EITHER END. A CONTRACT WITH A CERTIFIED OPERATOR TO MAINTAIN THE SYSTEM IS REQUIRED FOR THE LIFE OF THE SYSTEM. A RECORDED ALTERNATIVE SEWAGE DISPOSAL MAINTENANCE SCHEDULE IS REQUIRED AS WELL. IT IS TO NOTIFY HOMEOWNER(S) PRESENT AND FUTURE OF REQUIRED MAINTENANCE TO BE DONE AND REQUIREMENT TO MAINTAIN CONTRACT WITH A CERTIFIED OPERATOR. SEE CA COMMENTS FOR FURTHER DETAILS.

IP ISSUED? Y DATE: 09/28/2007 BY: (JEW) *Jill Woodard* PHONE#: 856-7342

AUTHORIZATION FOR WASTEWATER/WATER SYSTEM CONSTRUCTION

VOID SIXTY (60) MONTHS FROM DATE OF ISSUANCE

AUTHORIZATION CONDITIONS:

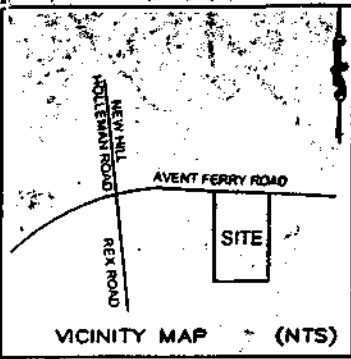
Contractors shall install system on contours, see attached site plan for wastewater system design and well location. No underground utilities, water lines or sprinkler systems may be located in the original system or repair areas. A septic tank filter with a riser for access is required. The wastewater system shall not be covered or placed into use until inspected by the Wake County Department of Environmental Services and an Operation 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 is 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 nitrification 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. **OTHER CONDITIONS:**

PLEASE SEE ATTACHED PLANS BY AGRI-WASTE TECHNOL. (REVISED 09-11-2008 BY BSM) REFER & ADHERE TO ATTACHED APPROVED PLANS, SPECIFICATIONS & ALL REGULATORY SETBACKS. SEE CA SITE PLAN & PLANS FOR FURTHER DETAILS. PROTECT SYSTEM & REPAIR AREAS FROM GRADING & TRAFFIC BY "FENCING". IF SYSTEM FLAGGING IS MISSING, BUILDER MUST HAVE DESIGNER RE-FLAG SYSTEM BEFORE THE CONTRACTOR STARTS THE INSTALLATION. COPIES OF THE CERTIFIED OPERATOR CONTRACT & THE RECORDED ALTERNATIVE SEWAGE DISPOSAL MAINTENANCE SCHEDULE ARE REQUIRED TO BE SUBMITTED TO THIS OFFICE, BEFORE THE OP WILL BE RELEASED. A SIMPLEX CONTROL PANEL WITH 2 BREAKERS, ALARM & PUMP ON SEPARATE CIRCUITS IS REQUIRED. AN ELAPSED TIME METER AND CYCLE COUNTER IS REQUIRED IN PANEL. INITIAL SYSTEM LPP IS END FED. REPAIR SYSTEM IS ALSO AN END FED LPP SYSTEM. SEE SITE PLAN FOR CHECK AND GATE VALVE REQUIREMENTS AND MANIFOLD/ LATERAL SIZE REQUIREMENTS. MANIFOLD IS 3"SCH40PVC, SUPPLY LINE IS 3"SCH40PVC, GATE VALVES ARE 1.5 OR 2"SCH40PVC, AND CHECK VALVES ARE 3"SCH40PVC.

TANK SIZE: 1200 gal. PUMP TANK: 1200 gal. SQ FT: 4800 STONE DEPTH: 08 in. MAX DEPTH LINE: 12 in.
MAINT: Y OPER: Y L/O: P TRENCH#: 8 LENGTH: 980 ft. WIDTH: 18 in. DESIGNER: AWT
SUBFIELDS: 3 DESIGN HEAD PRESSURE: 4 DESIGN FLOW: 62.34 gal/min DISE VOLUME: 677 gal.

CA ISSUED? Y DATE: 09/12/2008 BY: (BSM) *Scott M. M...* PHONE#: 856-7463

As Built 7"=100'



This map is of an existing parcel of land and is only intended for the parties and purposes shown. This map not for recordation. No title report provided.

IMPERVIOUS AREA	
HOUSE	2525 SQ.FT.
DRIVE	4783 SQ.FT.
TOTAL	7,308 SQ.FT.
ALLOWED	15,543 SQ.FT.
	7.0 %

AR & S. L. JONES
P.L. 0015210245

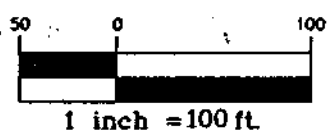
Zoning R20W By DLG
 Approve 9-2-08 Date
 Revise 101 Use
 Reject MBL
 Front 30 Rear
 Side 40 Corner
 Comments

I hereby certify that this map is correct and that the building lies wholly on the lot and that there are no visible encroachments on said lot.

SETBACKS
 FRONT YARD
 REAR YARD
 SIDE YARD
 CORNER YARD

40'
30'
20'
40'

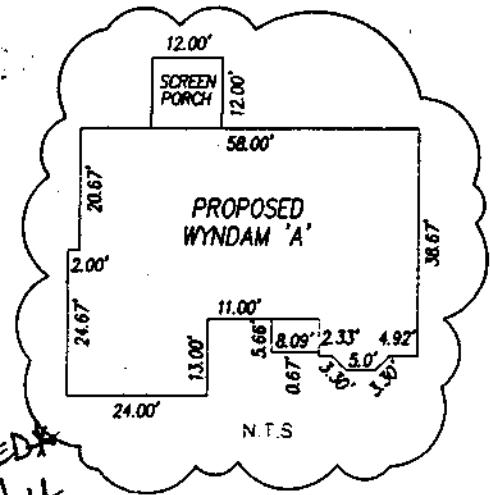
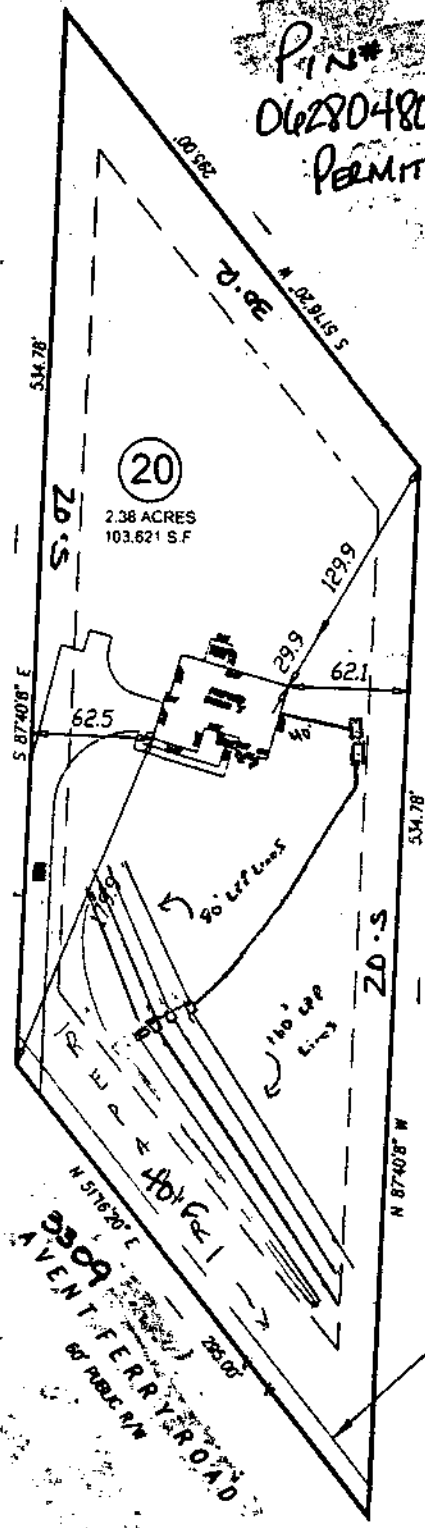
GRAPHIC SCALE



LEGEND
 PO=PORCH
 P=PATIO
 SW=SIDEWALK
 DW=CONC DRIVEWAY
 ○ IRON PIPE FOUND
 ● IRON PIPE SET
 ● NAIL SET

PIN#
 062804804315
 PERMIT # 0074285
 DO40120

PIN# 0628804315



REVISED
 ATTN: Jim Woodward

C.D. RAGAN
 P.L. 0627769361

I certify that the location of planned or existing structure(s) are accurately shown. I understand failure to locate structures in accordance with this plot plan may require the relocation of structure(s) regardless degree of completion. I hereby grant permission to Municipal/County Representatives the right of entry to make evaluations or inspections upon this property.

Signature of Owner or Authorized Agent

revision: move house, revise drive & revise impervious area 8-24-08
 revision: rotate & move house per septic layout 8-13-08

PRELIMINARY
 PLOT PLAN
 FOR:
 SCHUMACHER HOMES

G. Darrell Taylor, PLS 3729 Date

ECLS

SURVEYING THE EAST COAST
 123 HOLLY AVE.
 DUNN, NC 28334

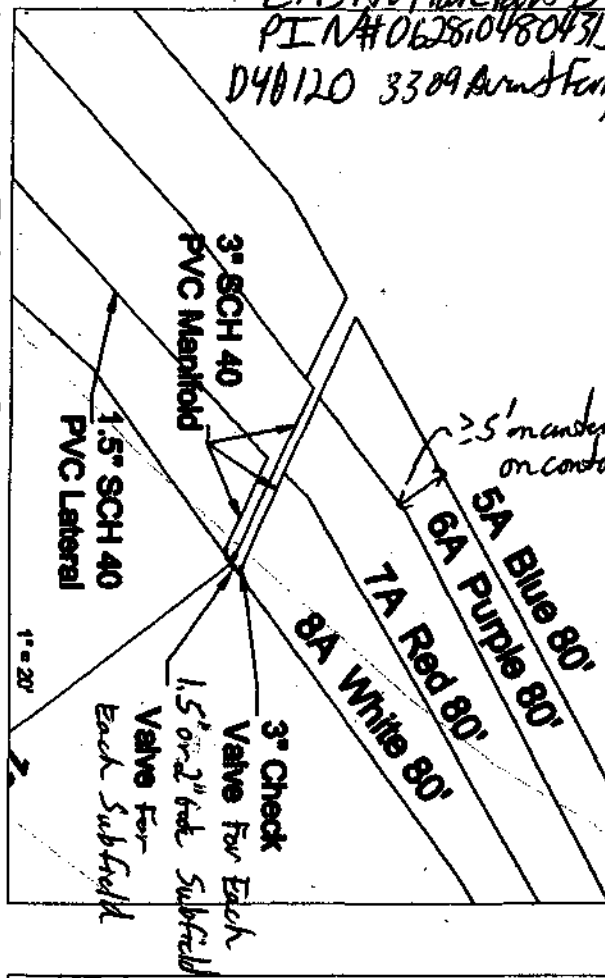
LOT 20 3309 AVENT FERRY ROAD
 MINOR SUBDIVISION MAP FOR WILLIAM A. MITCHELL
 HOLLY SPRINGS, NC 27562
 HOLLY SPRINGS TOWNSHIP
 DATE: 6/16/08

REFERENCE: BM 2007 PG 1129 SCALE: 1"=100'

CASI Fe Plan Part B
 PIN#0628104804315
 D40120 3309 Avent Ferry Rd

* CASI Fe Plan Part A & Design Plan
 (Revised 9-11-08 by BSM) for
 additional info.

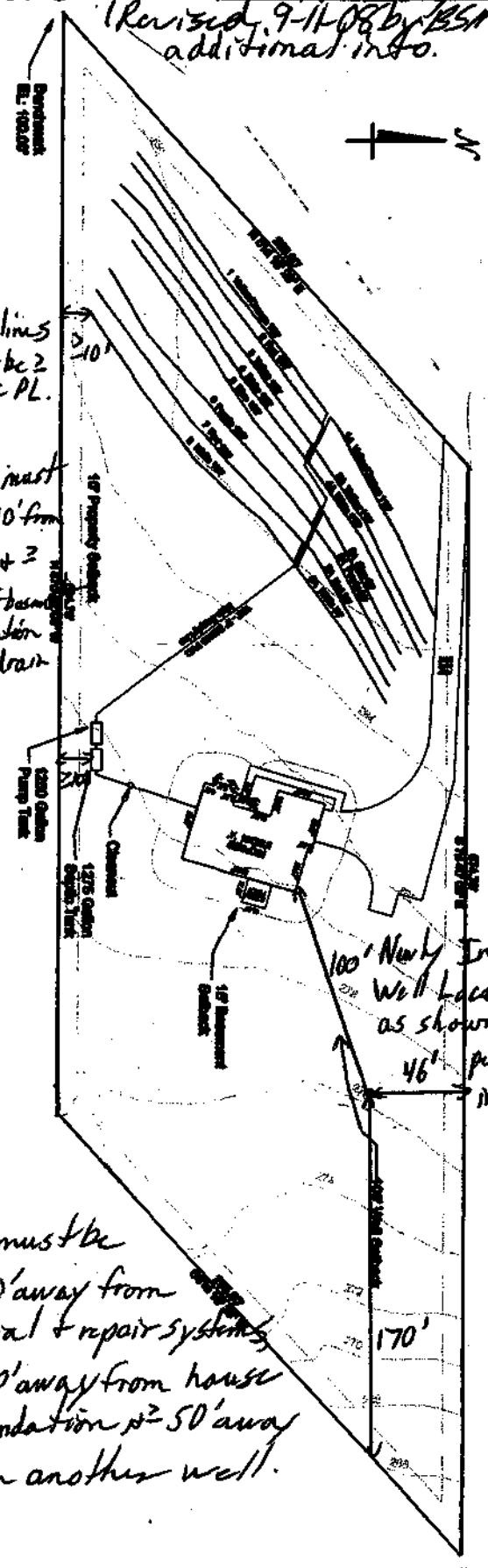
Primary System



Drainlines must be $\geq 10'$ off PL.

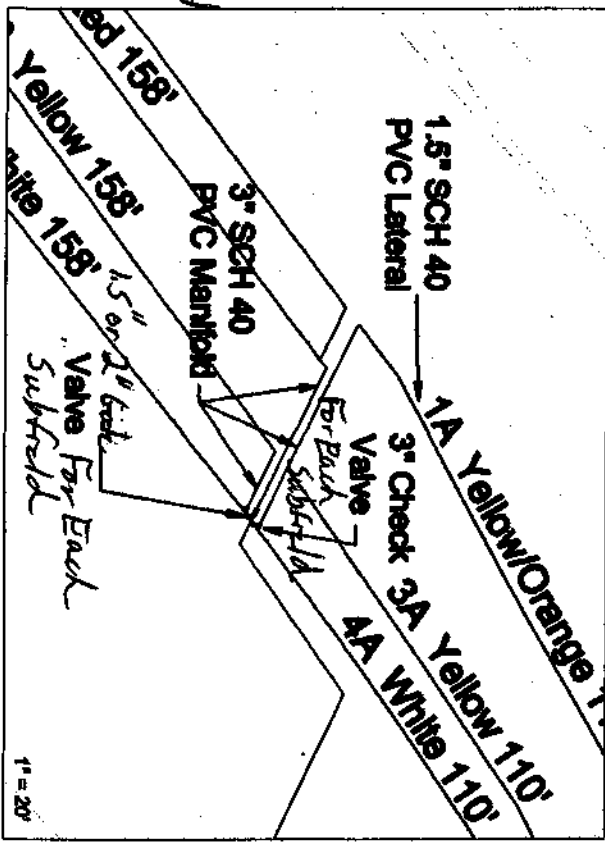
Tanks must be $\geq 10'$ from PL, + $\geq 15'$ off basement/foundation drain

Overall Plan



Well must be $\geq 100'$ away from initial & repair systems, $\geq 50'$ away from house foundation & $\geq 50'$ away from another well.

Repair System



3313 Avent Ferry Rd.
 New Hill, NC

CLIENT: William Mitchell
 PROJECT: SITE PLAN

Chris Hester, P.E.
 State of North Carolina
 Civil Engineer
 License No. 10000
 Exp. 12/31/2010

Sheet:
 1



Land Development Division

5400 Etta Burke Court
Raleigh, North Carolina 27606
Phone: (919) 859-0669
Fax: (919) 233-1970
www.awtlanddevelopment.com

ES Copy

August 22, 2007

Mr. Brett Martin
Ms. Jill McNally
Wake County Department of Environmental Services
Water, Wastewater & Development Services
P.O. Box 550
Raleigh, NC 27602

SUBJECT: Septic System for William Mitchell Property Submitted for Review and Approval

Dear Mr. Martin and Ms. McNally,

Enclosed please find plans and specifications for a Low Pressure Pipe (LPP) septic system serving a 4 bedroom home (to be constructed) on the referenced lot submitted for review and approval. Please let me know if there are outstanding items that remain upon your review of this information.

Sincerely,

Jeff Vaughan, L.S.S.

() APPROVED
(X) APPROVED AS NOTED
() DISAPPROVED

Review of this document has been made only for conformance with the design concept of the project and approval or approval as noted shall not relieve the designer and/or contractor from responsibility for any errors therein or for furnishing the materials, and equipment of proper dimension, size, quantity, quality and all performance characteristics to meet the requirements and intent of the contract documents.

WAKE COUNTY DEPARTMENT OF
ENVIRONMENTAL SERVICES

Date 9-25-07 By Brett Martin
9-11-08 Brett Martin

LOW PRESSURE PIPE (LPP) DESIGN

Permit #: D40120

Tract: 3313 Avent Ferry Road, New Hill, NC

Property Description: William Mitchell

DESIGN INFORMATION:

# Bedrooms or Design Unit Info:	4
Flow/Unit:	120 gal/bedroom
Daily Flow:	480 gal/day
L.T.A.R. (from Wake County):	0.1 gal/day/ft ²
L.T.A.R. + 5%:	0.1050 gal/day/ft ²
Trench Width:	18 in.
Line Length Required:	960.0 ft.

PRIMARY SYSTEM

DRAINFIELD DESIGN

Bench Mark	3.77	ft. = 100 ft.	set at	SW Corner of Property									
Backsight	3.083	Line 5											
Line	Color	Red Read* (ft)	Elev.* (ft)	Elev. Diff. (ft)	Head (ft)	Length (ft)	Hole Size	Flow/Hole	Spacing (ft)	# Holes	1st/Last (ft)	Flow/Lat	Inst. Flow Rate
Subfield 1													
5	Yellow	4.042	99.73	0.00	4.00	160	5/32	0.5757	8.00	20	4.00	11.51	0.072
6	White	3.667	99.14	-0.58	4.58	160	5/32	0.6163	10.00	16	5.00	9.66	0.062
					Total	Feet =	320						
											Flow (gal/min) = 21.37		
											Reduction = 14.36%		
Subfield 2													
7	Red	4.146	98.67	0.00	4.00	160	5/32	0.5757	8.50	18	7.75	10.36	0.065
8	Yellow/Orange	4.396	98.42	-0.25	4.25	160	5/32	0.5934	10.50	15	6.50	8.90	0.056
					Total	Feet =	320						
											Flow (gal/min) = 19.26		
											Reduction = 14.19%		
Subfield 3													
5A	Yellow	4.042	99.73	0.00	4.00	80	5/32	0.5757	7.00	11	5.00	6.33	0.079
6A	White	3.667	99.14	-0.58	4.58	80	5/32	0.6163	9.00	9	4.00	5.55	0.069
7A	Red	4.146	98.67	-0.46	5.06	80	5/32	0.6477	10.00	8	5.00	5.18	0.065
8A	Yellow/Orange	4.396	98.42	-0.25	5.31	80	5/32	0.6635	10.00	7	10.00	4.64	0.058
					Total	Feet =	320						
											Flow (gal/min) = 21.70		
											Reduction = 26.66%		
											Total Line Length = 960		
											Flow (gal/min) = 62.34		
											Total Reduction = 26.66%		
Total													
Dose Volume =		676.7											
Run Time/Dose =		10.85											
Estimated Drawdown =		32.2 @ 21 gal/in											

7/14
S/10
Down
S/11 Holes
S/10
4/8
3/6
3/6
2/8

*Elevations based on laser level measurements by Agri-Waste Technology, Inc.

Pump Sizing/Design

PUMP DESIGN

System (primary/repair): **PRIMARY**

Site Address: 3313 Aventura Ferry Road
New Hill, NC

CLIENT: William Mitchell

Friction Losses

Suction Head =	0 ft.	(submersible = 0)
Elev. Difference (highest point from pump) =	13.74 ft.	
Design Pressure At Outlet =	4 ft.	
Supply Line Length =	130 ft.	3" Schedule 40 PVC
Line Loss/100 ft =	0.82 ft/100 ft.	
Manifold Line Length =	30 ft.	3" Schedule 40 PVC
Line Loss/100 ft =	0.11 ft/100 ft.	
Friction Loss - Line =	1.10 ft.	
Friction Loss - Valves/Special Fittings =	4 ft.	
SUB-TOTAL =	22.84 ft.	
Friction Loss - Fittings (5%) =	1.14 ft.	
TOTAL =	23.98 ft.	

Pump Efficiency = 0.7 (assumed, typical)
Motor Efficiency = 0.9 (assumed for electric pumps)
Flow = 62.34 gpm

Required Horsepower = 0.60 hp
TDH = 23.98 ft.

Pump Selection

Manufacturer: Zoeller
Model: E140
Horsepower: 1 HP

LOW PRESSURE PIPE (LPP) DESIGN

Permit #: D40120

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Property Description: William Mitchell

DESIGN INFORMATION:

# Bedrooms or Design Unit Info:	4
Flow/Unit:	120 gal/bedroom
Daily Flow:	480 gal/day
L.T.A.R. (from Wake County):	0.1 gal/day/ft ²
L.T.A.R. + 5%:	0.1050 gal/day/ft ²
Trench Width:	18 in.
Line Length Required:	960.0 ft.

REPAIR SYSTEM

DRAINFIELD DESIGN

Bench Mark	3.77	ft. = 100 ft.	set at	SW Corner of Property										
Line	Color	Red Read* (ft)	Elev.* (ft)	Elev. Diff. (ft)	Head (ft)	Length (ft)	Hole Size	Flow/Hole	Spacing (ft)	# Holes	1st/Last (ft)	Flow/Lat	Inst. Flow Rate	
Subfield 1														
1	Yellow/Orange	2.9167	100.85	0.00	4.00	158	5/32	0.5757	8.50	16	6.75	10.38	0.068	
2	Red	3.1875	100.58	-0.27	4.27	158	5/32	0.5949	10.00	16	4.00	9.52	0.060	
					Total	Feet =	316	Flow (gal/min) = 19.88						
					Reduction = 8.15%									
Subfield 2														
3	Yellow	3.625	100.15	0.00	4.00	158	5/32	0.5757	9.00	17	7.00	9.79	0.062	
4	White	3.792	99.98	-0.17	4.17	158	5/32	0.5876	10.50	15	5.50	8.81	0.056	
					Total	Feet =	316	Flow (gal/min) = 18.60						
					Reduction = 9.94%									
Subfield 3														
1A	Yellow/Orange	2.9167	100.85	0.00	4.00	110	5/32	0.5757	7.50	14	6.25	8.06	0.073	
3A	Yellow	3.625	100.15	-0.71	4.71	110	5/32	0.6246	9.50	11	7.50	6.87	0.062	
4A	White	3.792	99.98	-0.17	4.88	110	5/32	0.6306	10.00	10	10.00	6.38	0.058	
					Total	Feet =	330	Flow (gal/min) = 21.29						
					Reduction = 21.14%									
Total Line Length =											962			Flow (gal/min) = 59.77
											Total Reduction =			21.14%
				Total										
Dose Volume =				678.1										
Run Time/Dose =				11.35										
Estimated Drawdown =				32.3										
				@ 21 gal/in										

*Elevations based on laser level measurements by Agri-Waste Technology, Inc.

Pump Sizing/Design

PUMP DESIGN

System (primary/repair): **REPAIR**

Site Address: 3313 Avent Ferry Road
New Hill, NC

CLIENT: William Mitchell

Friction Losses

Suction Head =	0 ft.	(submersible = 0)
Elev. Difference (highest point from pump) =	14.86 ft.	
Design Pressure At Outlet =	4 ft.	
Supply Line Length =	190 ft.	3" Schedule 40 PVC
Line Loss/100 ft =	0.82 ft/100 ft.	
Manifold Line Length =	30 ft.	3" Schedule 40 PVC
Line Loss/100 ft =	0.11 ft/100 ft.	
Friction Loss - Line =	1.59 ft.	
Friction Loss - Valves/Special Fittings =	4 ft.	
SUB-TOTAL =	24.45 ft.	
Friction Loss - Fittings (5%) =	1.22 ft.	
TOTAL =	25.67 ft.	

Pump Efficiency = 0.7 (assumed, typical)
Motor Efficiency = 0.9 (assumed for electric pumps)
Flow = 59.77 gpm

Required Horsepower = 0.62 hp
TDH = 25.67 ft.

Pump Selection

Manufacturer: **Zoeller**
Model: **E140**
Horsepower: **1 HP**