ROLLANS *Soil & Environmental Services, Inc.*

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Attached is a proposed design for an Accepted (25% reduction) Septic System with Gravity distribution for a 4 bedroom single family residence on Lot #66 Autumn Grove Subdivision, Iredell County, North Carolina.

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July 16, 2007
Project #: 01-1043
Design By: Rollans Soil and Environmental Services

PRESSURE MANIFOLD SYSTEM FOR WASTEWATER TREATMENT

Owner:	Orchard Farms LLC
Address:	227 Hideaway Lane Mooresville, NC 28117
Phone:	704-201-6465
County:	Iredell
Location:	Autumn Grove LOT 66
Source of Wastewater Flow:	4 Bedroom Single Family Residence
Estimated Gallons Per Day Flow:	480
System Flow:	N/A

Design Specifications

Drainfield Size:	400
Loading Rate (gpd/ft.^{2}):	0.3
Depth of Gravel in Trench:	NA (25% reduction)
Gravel Size:	NA (25% reduction)
Trench Depth:	36 in.
Trench Width:	36 in.
Septic Tank Size:	1000
Pump Tank Size:	N/A
Estimated Supply Line Length:	10
Supply Line Diameter:	2 in. SCH 40 PVC
Supply Line Volume:	1.74
Dosing Volume:	N/A
Supply Manifold:	N/A
Supply Manifold Length:	N/A
Supply Manifold Volume:	N/A
Recommended Float Controls:	N/A
Recommended Control Panel:	N/A
Pressure Head:	N/A
Friction Head:	N/A
Elevation Head:	N/A
Total Dynamic Head:	N/A
Threaded Union:	N/A
Gate Valves:	N/A
Check Valves:	N/A
Anti-Siphon Hole:	NA
Additional Comments:	Soil suitability was performed by Rollans Soil & Environmental Services.

Autumn Grove LOT 66
PRESSURE MANIFOLD DESIGN

DESIGN FLOW (gpd):	480
SOIL APPLICATION RATE (gpd/ft.^{2}):	0.3
TOTAL AREA TRENCH BOTTOM:	1200
TOTAL LATERAL LENGTH:	400
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	400
SUPPLY LINE LENGTH:	10
TOTAL DYNAMIC HEAD:	N/A
MANIFOLD SIZE:	N/A
DOSING VOLUME:	N/A
PUMP TANK DRAW DOWN*:	N/A
SEPTIC TANK SIZE:	1000
PUMP TANK SIZE:	N/A

Autumn Grove LOT 66

Project #: 01-1043

LAYOUT FOR 4 BEDROOM HOME

July 16, 2007

LINE #	FLAG COLOR	BS	HI	FS	ELEVATION	FLAGGED LINE LENGTH	DESIGN LINE LENGTH
TBM		2.7			100.00		
INSTR. 1			102.70				
HOUSE			99.40	3.30			
TANK			94.80	7.90			
1	BLUE			2.90	99.80	52	52
2	ORANGE			3.40	99.30	78	78
3	DARK PINK			3.90	98.80	127	127
4	***PINK***			***4.40***	***98.30***	***123***	***100***
5	***BLUE***			***4.60***	***98.10***	***100***	***100***
6	BLUE			4.60	98.10	25	25
7	***ORANGE***			***5.60***	***97.10***	***125***	***100***
8	***DARK PINK***			***7.20***	***95.50***	***120***	***100***
					Total	**750**	**682**

	LINE LENGTH	LTAR GPD/FT^2	SYSTEM TYPE	SOIL LTAR GPD/FT^2	TRENCH SYSTEM	DISTRIBUTION
**** System***	***400***	***0.30***	***ACCEPT.***	***0.30***	***25% RED.***	**GRAVITY DISTRIBUTION**
Repair	282	0.30	MOD.	0.30	PPBPS	LOW PRESSURE

Notes:

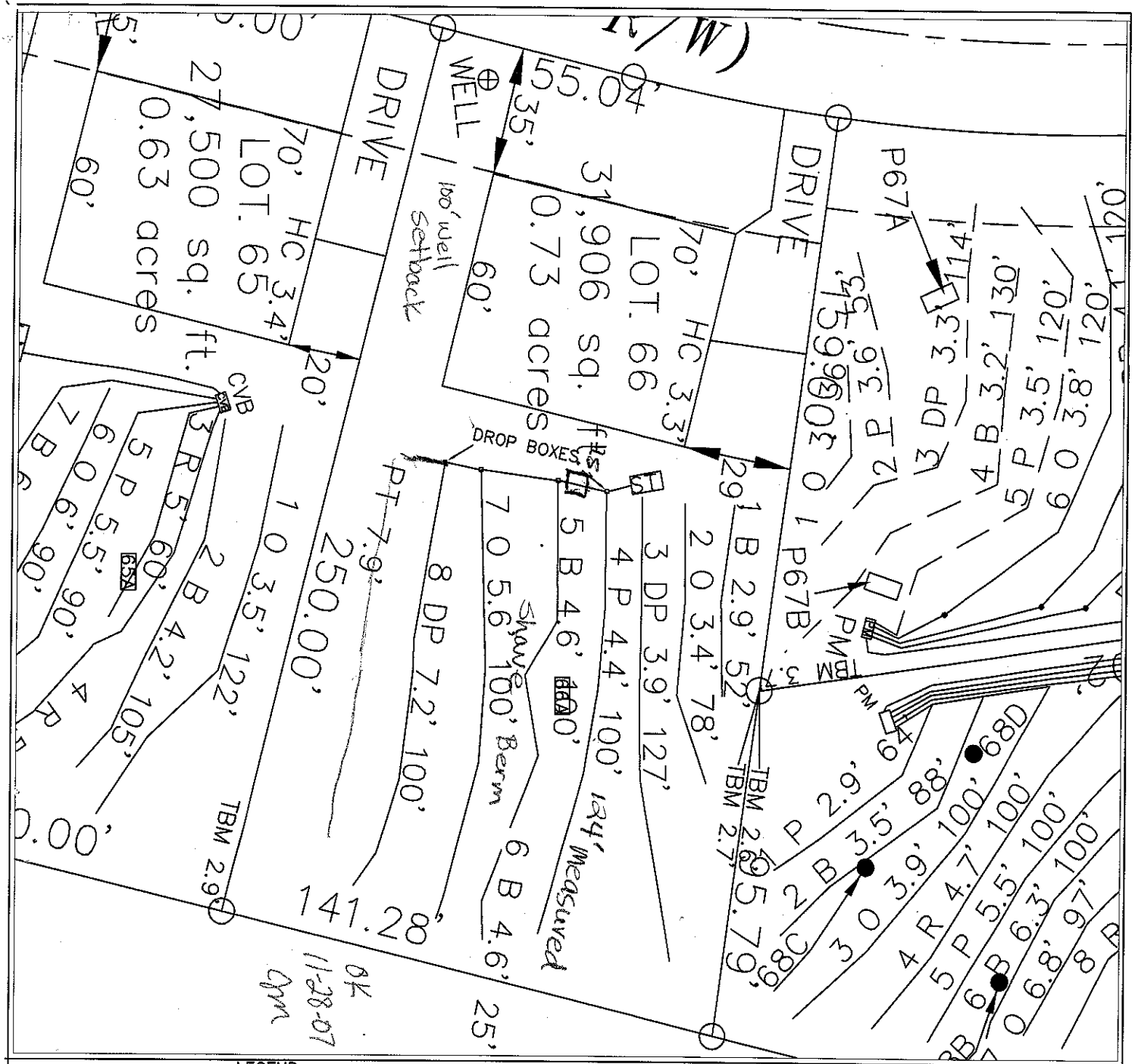
** TBM located on left front corner lot (see site plan)

**TBM is assumed to be 100'

**All measures in feet

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

**BS, HI, and FS indicate rod readings



LEGEND

House Box.

System lines.

Repair lines.

GRAPHIC SCALE
1" = 40'

40 0 40 80

FOR PRELIMINARY PLANNING PURPOSES ONLY. ALL LOTS WILL REQUIRE FINAL APPROVAL BY THE COUNTY HEALTH DEPARTMENT ON A LOT BY LOT BASIS. THIS MAP SHOULD BY USED AS A GENERAL GUIDE, SOME ADJUSTMENTS WILL BE NECESSARY IN THE FIELD DUE TO SOIL VARIABILITY AND COMPLEX TOPOGRAPHIC FEATURES. THIS MAP ONLY REFLECTS EXISTING SOIL SUITABILITY FOR ON-SITE SEPTIC TANK SYSTEMS.

PLEASE REFER TO ATTACHED SOIL REPORT FOR ADDITIONAL SITE SPECIFIC INFORMATION

ROLLANS SOIL & ENVIRONMENTAL SERVICES

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ASHLEY ROLLANS, NC LICENSED SOIL SCIENTIST
MOBILE: (704) 746 - 5026
EMAIL: ROLLANS@WINDSTREAM.NET

MAP TITLE: SITE PLAN & DRAINFIELD AREAS

PROJECT NAME: E&J DEVELOPMENT/AUTUMN GROVE SUBDIVISION

LOCATION/DATE: HWY 21/115 REDELL COUNTY, NORTH CAROLINA AUGUST 2007

JOB # : 01-1043
FILE: C:\JOBS\01-1043
PROJECT MGR.: C.B.F.
FIELD WORK: C.B.F., A.L.P. & M.D.B.
DRAWN BY: C.B.F. & M.D.B.

CALCULATIONS

Location Autumn Grove

Project Number 01-1043

Lot No: Lot 66

No. of Bedrooms	4	
Design Flow	480	$^{gal}/_{day}$
LTAR	0.3	$^{gpd/ft^2}$
25% RED.? (YES OR NO)	YES	
Supply Line Length	10	ft.
Supply Line Volume	1.74	gal.
Required Feet of Line	400	ft.
Amount of Line from Layout	400	ft.
Gallons per Minute N/A		$^{gal}/_{min}$
Required Septic Tank Capacity	1000	gal.
Minimum Standard Tank Size	1000	
Lateral Line Volume	261.2	gal.
Dosing Volume N/A		gal.

Note: Dosing Volume based on75% of lateral line volume

Tank Draw Down N/A	*Generic Draw Down of 21 gal.per in.*
Pump Run Time N/A	minutes
Elevation Head N/A	ft.
Pressure Head N/A	ft.
Friction Factor N/A	ft./100 ft. *(From the interpolater.)*
Friction Head N/A	ft.
Total Dynamic Head (+15%) N/A	ft.

FRICTION FACTOR INTERPOLATER
2" SCH 40 PVC

GPM	*f*
20	0.84
	-0.88
25	1.27
	-1.28
30	1.78
	-1.76
35	2.37
	-2.25
40	3.03
43.07	3.48
45	3.77
48.14	4.28
50	4.58
57.11	5.89
60	6.42

SOIL/SITE EVALUATION

(Continuation Sheet)

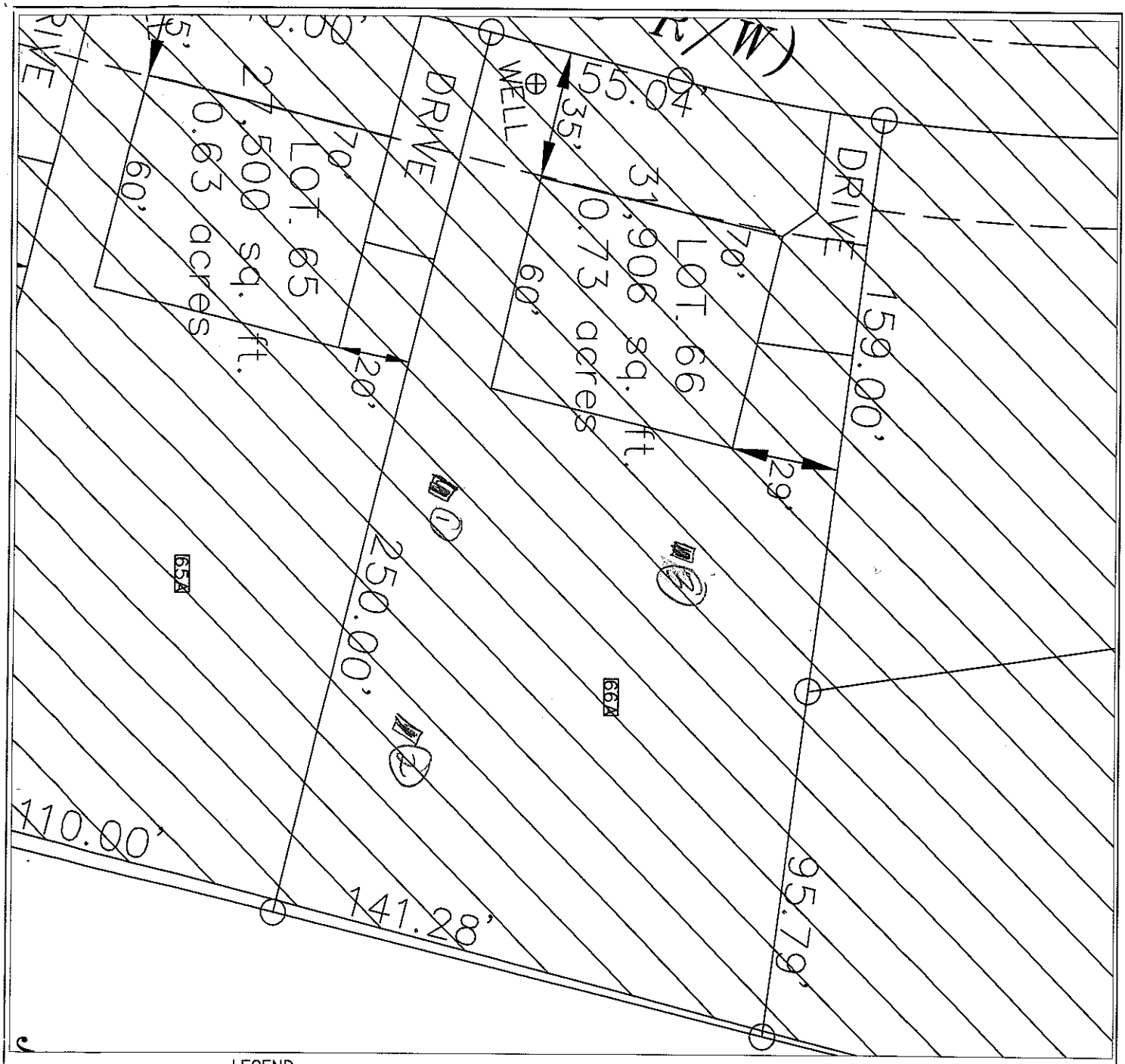
Sheet ___ of ___

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

PROPERTY ID #: _____
DATE OF EVALUATION: _____
COUNTY: _____

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
P	5 5	0-8	B scl cr	ss, sp, fr se sp	—	44"	PS	—	PS
66A	0-5%	8-25	RC MFSBK/GR	ss, sp, fr se sp					
		25-44	RCL WFSBK	ss, sp, fr se sp	common sap				
	5%	44-65	Vel. sl sap mass	ss, sp, fr se sp	common RCL incl.				.3
1		0-6	Br WK sbk scl	fr ss sp		48			.3
		6-20	mo sbk RC	fr ss sp					
		20-48	WK sbk RCL	fr ss sp					
2		0-8	BSCL WK	fri sss sap surf		45	PS	—	.3
		8-24	RC MFSBK	fri sss sap					
		24-45	RCL WSBK	fri sss sap	common sap				
		45-93	V. SL SAPM	fri sss sap					
3	5%	0-6	Br WK SCL	fr ss sp		50			.3
		6-24	mo sbk RC	fr ss sp					
		24-50	WK sbk CL	fr ss sp	C-m sap				

COMMENTS: _____



LEGEND

House Box.

System lines.

Repair lines.

GRAPHIC SCALE
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40 0 40 80

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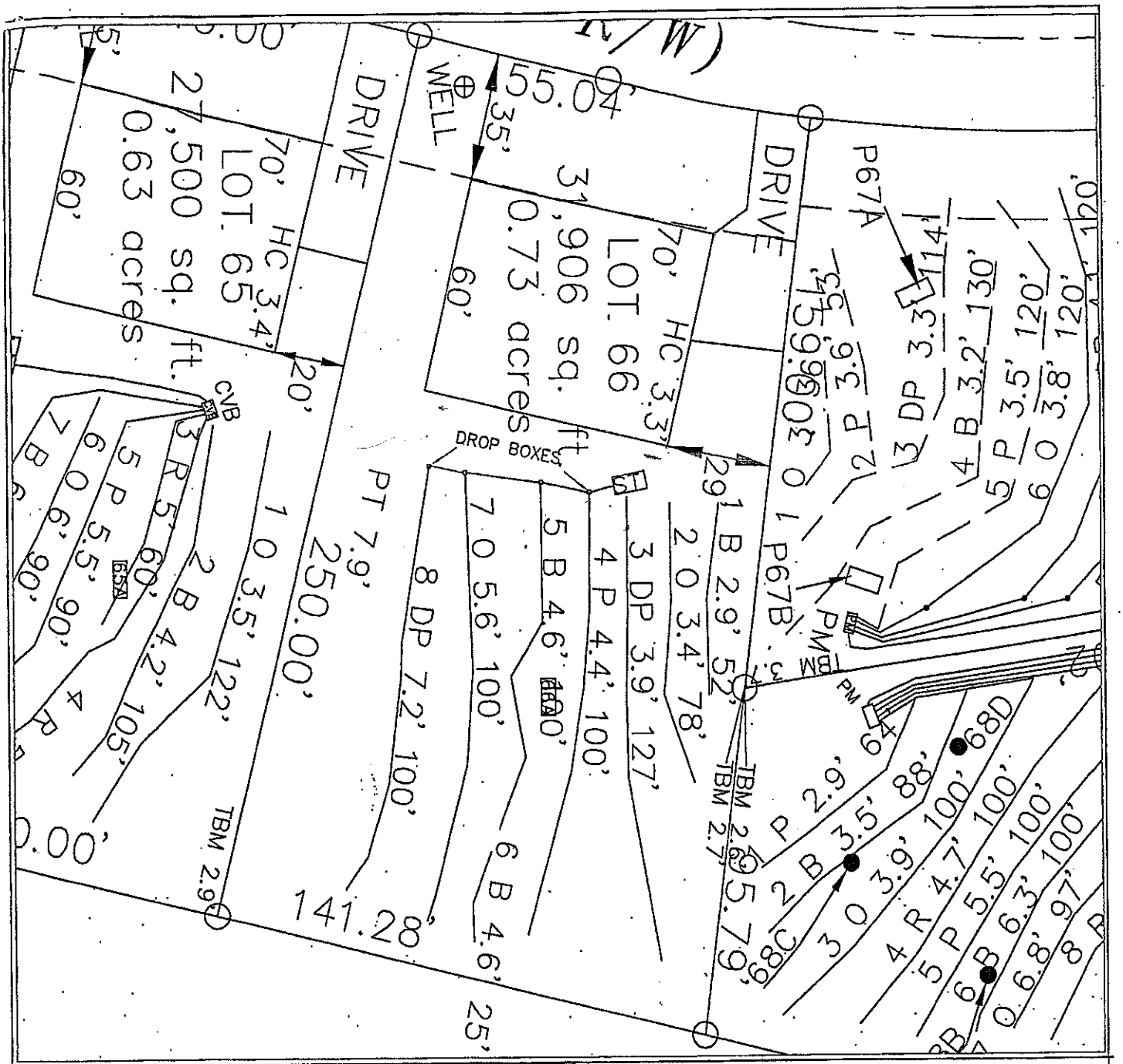
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