LAKE COUNTY ENVIRONMENTAL HEALTH DEPARTMENT
FINAL INSPECTION AND USE PERMIT OF WASTEWATER TREATMENT SYSTEM

PROPERTY OWNER: JIM WILLIAMS.

PHYSICAL ADDRESS: LAKE TO SKY DR. BIGFORK.

LEGAL DESCRIPTION: SECTION 9/10, TWP 24 N, RNG 19 W ___ ½ ___ ¼ ___ ¼

GEOCODE: 3489-09-1-03-04-0000 SUBDIVISION: COS 5643 LOT: 2.

PERMIT NO: 6628 CONTRACTOR: EAGLE EXCAVATING.

SEE ATTACHED SKETCH

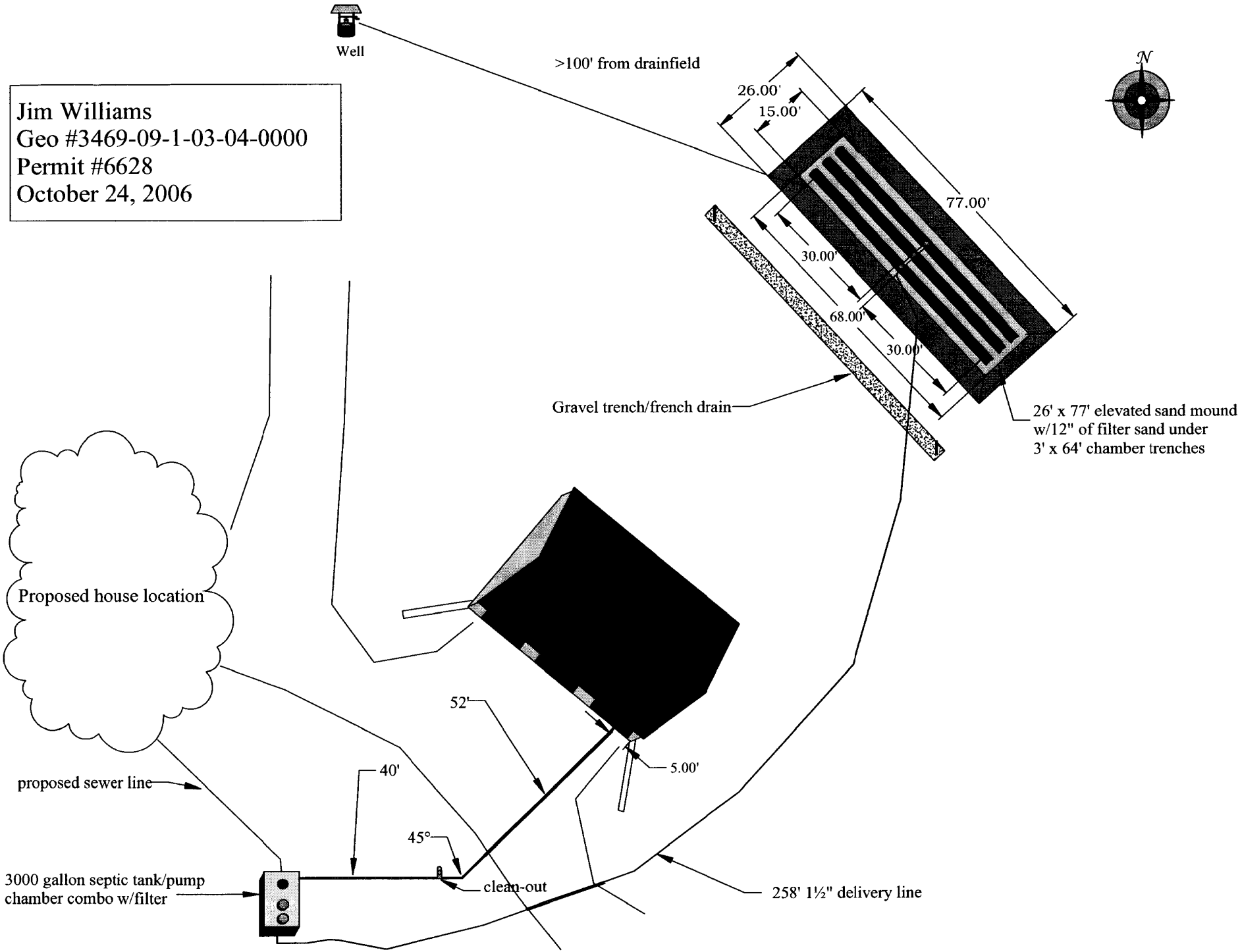
APPROVED FOR 4+2 (6) BEDROOMS 1.0 f2 ~~1500~~ 575 GPD

SEPTIC TANK: GPS-NS 261822.721 GPS-EW 410442.644

DRAINFIELD: GPS-NS 261863.536 GPS-EW 410493.945

INSPECTED BY: Laurie Ellenwood DATE Oct 24, 2006

SIGNATURE OF APPLICANT OR AUTHORIZED AGENT: SETH Steve Thornton, EAGLE EXCAVATING


Jim Williams
Geo #3469-09-1-03-04-0000
Permit #6628
October 24, 2006
Well
>100' from drainfield
N
26.00'
15.00'
77.00'
30.00'
68.00'
30.00'
Gravel trench/french drain
26' x 77' elevated sand mound
w/12" of filter sand under
3' x 64' chamber trenches
Proposed house location
52'
5.00'
40'
proposed sewer line
45°
3000 gallon septic tank/pump
chamber combo w/filter
clean-out
258' 1½" delivery line

APPLICATION FOR LAKE COUNTY WASTEWATER TREATMENT INSTALLATION PERMIT

LAKE COUNTY ENVIRONMENTAL HEALTH
106 FOURTH AVENUE EAST
POLSON, MT 59860-2175

PH: 406-883-7236
FAX: 406-883-7205
Email: envhealth@lakemt.gov

Return the completed application with the $150.00 permit fee to the above address.

Property Owner: Williams, Jim Phone #(336) 248-8080 ext 22
Mailing Address: 115 Salt Main Street City ~~Kalispell~~ Lexington State/Zip NC 27292
Property Address (Lake County E-911 Assigned): 1182 Lake to Sky Drive Big Fork MT 59911
Legal Description: Section: 9 & 10 Township 24 N Range 19 W
Subdivision Name: N.A. Lot 2 Block ____ Parcel Size 20.01 acres
Bedroom # 6 total **Basement: Yes** ____ **No** X of 0.55643 Garage with apartment 2 Bedroom future home 4 bedroom
Wastewater System: (Circle) (New) Replacement Per Jord Construction T.J. Bladholm 2-16-06 dw
Water System: (Circle) (Well) Lake Spring Community Per phone
(Circle) Existing (Proposed) Property Zoned: Yes No
Dwelling: (Circle) (Single Family) Multi-Family Mobile Home Commercial (Garage) 2 Bedroom apart.
4 Bedroom home

I hereby declare that the information submitted herein is true and completed to the best of my knowledge. I understand that a final inspection and approval of the system must be conducted by Lake County Environmental Health prior to back filling and use of the system. My signature also authorizes access to the described property for purposes of reviewing this application.

Owner Signature: Jim Williams (for Jim Williams) Date: 2.9.06

OFFICE USE ONLY

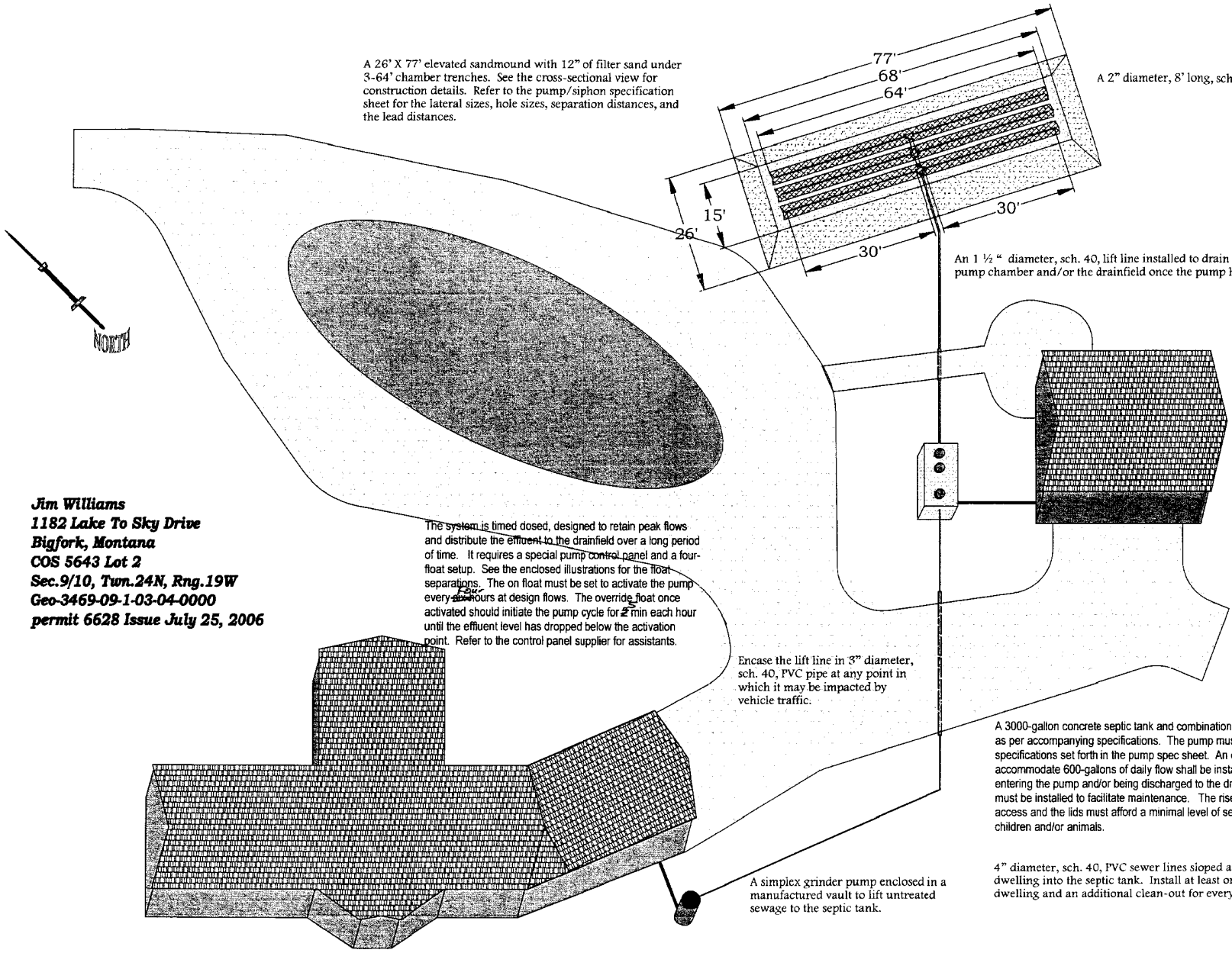
Per Pam Lee 2-15-06 Zoning permit dw

Planning Review: East Shore Zoning: Mailed letter 2-9-06 DW
Geo Code: 3469-09-1-03-04 Tax Statement # 36045
Property Type: (Circle) ~~Residential~~ Commercial Agricultural Lakeshore
State Septic Approval: (Circle) Required Completed (Not Required)
Name: ____ Reference Date: ____ States Es # ____
Soil Type: Gravelly Silt loam Absorption Area Required: 1.0 gpd/ft2 sand mound
Contractor: Licensed in Lake County Required Septic Tank: 3000 w/ pump
Drainfield Sizing Reference: # of Bedrooms 6 (4+2) Other: grinder pump for future home.
575 gpd
Type of Absorption Area Required: A · 26'x77' Elevated Sand Mound
installed as per accompanying specifications

Signature of Registered Sanitarian | July 25, 2006 | 06028 | 22924
Date of Issue | Permit Number | Check Number

FEB 10 2006

THE DESIGN, LOCATION, & ORIENTATION OF THE DRAINFIELD MAY NOT BE ALTERED WITHOUT PRIOR APPROVAL FROM LAKE COUNTY ENVIRONMENTAL HEALTH.
APPROVED PERMIT IS INVALID IF SYSTEM IS NOT INSTALLED WITHIN TWELVE MONTHS OF ISSUANCE.


A 26' X 77' elevated sandmound with 12" of filter sand under 3-64' chamber trenches. See the cross-sectional view for construction details. Refer to the pump/siphon specification sheet for the lateral sizes, hole sizes, separation distances, and the lead distances.
77'
68'
64'
15'
26'
30'
30'
A 2" diameter, 8' long, sch. 40 manifold.
An 1 ½ " diameter, sch. 40, lift line installed to drain back to the pump chamber and/or the drainfield once the pump has shut off.
NORTH
Jim Williams
1182 Lake To Sky Drive
Bigfork, Montana
COS 5643 Lot 2
Sec.9/10, Twn.24N, Rng.19W
Geo-3469-09-1-03-04-0000
permit 6628 Issue July 25, 2006
The system is timed dosed, designed to retain peak flows and distribute the effluent to the drainfield over a long period of time. It requires a special pump control panel and a four-float setup. See the enclosed illustrations for the float separations. The on float must be set to activate the pump every four hours at design flows. The override float once activated should initiate the pump cycle for 2 min each hour until the effluent level has dropped below the activation point. Refer to the control panel supplier for assistants.
Encase the lift line in 3" diameter, sch. 40, PVC pipe at any point in which it may be impacted by vehicle traffic.
A 3000-gallon concrete septic tank and combination pump chamber installed as per accompanying specifications. The pump must meet or exceed the specifications set forth in the pump spec sheet. An effluent filter sized to accommodate 600-gallons of daily flow shall be installed to prevent solids from entering the pump and/or being discharged to the drainfield. Access risers must be installed to facilitate maintenance. The risers must provide surface access and the lids must afford a minimal level of security to prevent entry by children and/or animals.
A simplex grinder pump enclosed in a manufactured vault to lift untreated sewage to the septic tank.
4" diameter, sch. 40, PVC sewer lines sloped at ¼" per foot from the dwelling into the septic tank. Install at least one clean-out per dwelling and an additional clean-out for every 50' of run.

K-Value for Multiple Wells Using Fetter

Project: Jim Williams county check
Date: 07/26/06
Reviewer: Terry Murphy R.S.

T= 33.6 (Q/S)^0.67 T= transmissivity S=drawdown
Q=ft^3/day (gpm)(192.5)=ft^3/day
Convert Q from gpm to ft^3/day

Gwic well #	223574	Gwic well #	196159	Gwic well #	208071
Yield in gpm	10	Yield in gpm	20	Yield in gpm	40
convert to ft^3	1925	convert to ft^3	3850	convert to ft^3	7700
Static water level	201	Static water level	265	Static water level	102
Pumping water level	357	Pumping water level	596	Pumping water level	160
Drawdown	156	Drawdown	331	Drawdown	58
T=	180.932	T=	173.905	T=	888.774
well depth	357	well depth	596	well depth	165
Casing length	357	Casing length	596	Casing length	165
slot length	20	slot length	20	slot length	60
open bottom	0	open bottom	0	open bottom	0
Aquifer depth	20	Aquifer depth	20	Aquifer depth	60
K=T/b	9.047	K=T/b	8.695	K=T/b	14.813

Gwic well #	156997	Gwic well #	165529	Gwic well #	78444
Yield in gpm	10	Yield in gpm	4	Yield in gpm	30
convert to ft^3	1925	convert to ft^3	770	convert to ft^3	5775
Static water level	177	Static water level	2	Static water level	142
Pumping water level	370	Pumping water level	426	Pumping water level	200
Drawdown	193	Drawdown	424	Drawdown	58
T=	156.886	T=	50.113	T=	732.964
well depth	375	well depth	426	well depth	229
Casing length	375	Casing length	426	Casing length	229
slot length	40	slot length	60	slot length	20
open bottom	0	open bottom	10	open bottom	10
Aquifer depth	40	Aquifer depth	70	Aquifer depth	30
K=T/b	3.922	K=T/b	0.716	K=T/b	24.432

AVERAGE K ***10.27*** Total number of wells used 6

K-Value	10.27 ft/day			
Flow direction	**South 76° West**	256°	degrees	
Montana Ground Water Assessment				
Elevation drop	0 ft	Conversion to miles	0.56 miles	
Distance in feet	2932 ft	Hydraulic gradient	0 ft/ft	
1/3 topographic		**Triangulation**		
drop	0 ft			
run	100 ft			
percent slope	0.00%			
calculated gradient	0 ft/ft		0.05 ft/ft	
default	0			

i= hydraulic gradient	0.0500	f= discharge gpd	400
d= Mixing zone thickness	15	Qf= effluent discharge	53.4
w= width of drainfield **minimum**	26	p= precipitation	17
L= length of mixing zone	287	I= prec. In ground water	0.2
Ng= nitrogen in background ground water	1.01	converstion factor	0.0039
Nr= nitrogen in recharge ie. Rainwater	1	nitrogen in drainfield Level II	24
Ne= nitrogen in drainfield	50		

W=.175*L+w	**W=**	**76.23**	mixing zone width
Am=W*d	**Am=**	**1143.5**	mixing zone area
As=W*L	**As=**	**21878**	mixing zone surface area
Qg=K*i*Am	**Qg=**	**587.16**	ground water volumetric rate
Qr=As*p*I	**Qr=**	**17.06**	precipitation volumetric rate
Qe=f*Qf	**Qe=**	**53.4**	effluent volumetric rate
Qt=Qg+Qr+Qe	**Qt=**	**657.62**	total water volumetric rate
Nt=((Ng*Qg)+(Nr*Qr)+(Ne*Qe))/Qt	**Nt=**	**4.99**	ppm nitrogen

Nitrogen value at the end of mixing zone standard	*4.99 mg/l*
Nitrogen value at the end of mixing zone with Level II	*2.88 mg/l*

Hydraulic Gradient calculations

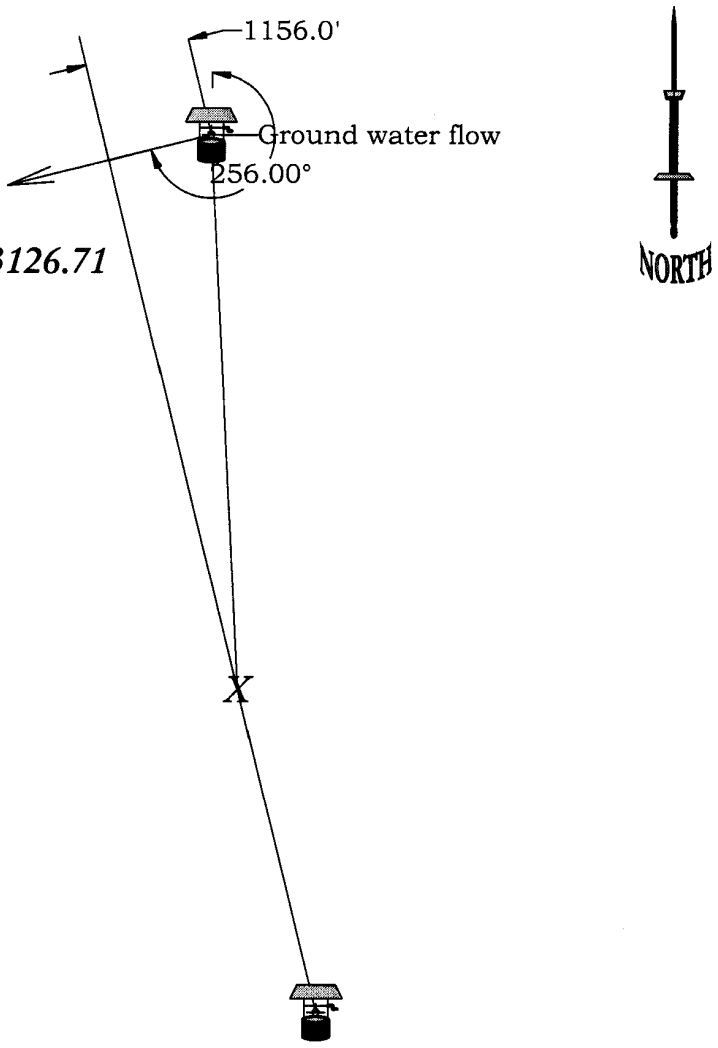
static rank	well identifcation	well elevation	static	static elevation	horizonal distance in feet	
high	Lambert 79187	3160.00	33.29	3126.71	high to mid	9562.00
intermediate	Lamb 146856	3060.00	1.03	3058.97	mid to low	8516.00
low	Tweto 78443	2925.00	1.64	2923.36	high to low	18023.00

A=	203.35	ft
B=	88.63	ft
C=	67.74	ft
D=	6003.80	ft
E=	1156.00	ft
X=	6003.80	ft
Hydraulic grad.	0.0586	ft/ft

High static water level=(HSWE) Horizonal distance=(HD)
Intermediate water level=(ISWE) Low water level=(LSWE)

A= (hswe)-(lswe) B=(hd) between (hswe), (lswe) /A
C= (hswe)-(iswe) D=B*C=horizonal distance between the (hswe) and (lswe)=to (iswe)
X=distance D from hswe to lswe plotted on line Draw a line from iswe to X =static water level of iswe
groundwater flow= draw a line perpenducular to the iswe contour line through hswe
E=distance along ground water flow line from hswe to iswe contour line
Hydraulic gradient = C/E ft/ft

gw flow direction : 256°



Lambert 79187 Static Water Elevation 3126.71

Lamb 146856 Static Water Elevation 3058.97

Tweto 78443 Static Water Elevation 2923.36