BRECKENRIDGE LAND SURVEYING
Rick Breckenridge, PLS
370 Golden Pine Lane
Proctor, MT 59929 Ph: 849-5711

EXHIBIT 2
DATE 1/17/11
HB 28

Name: Franz Barthel, Parcel 1

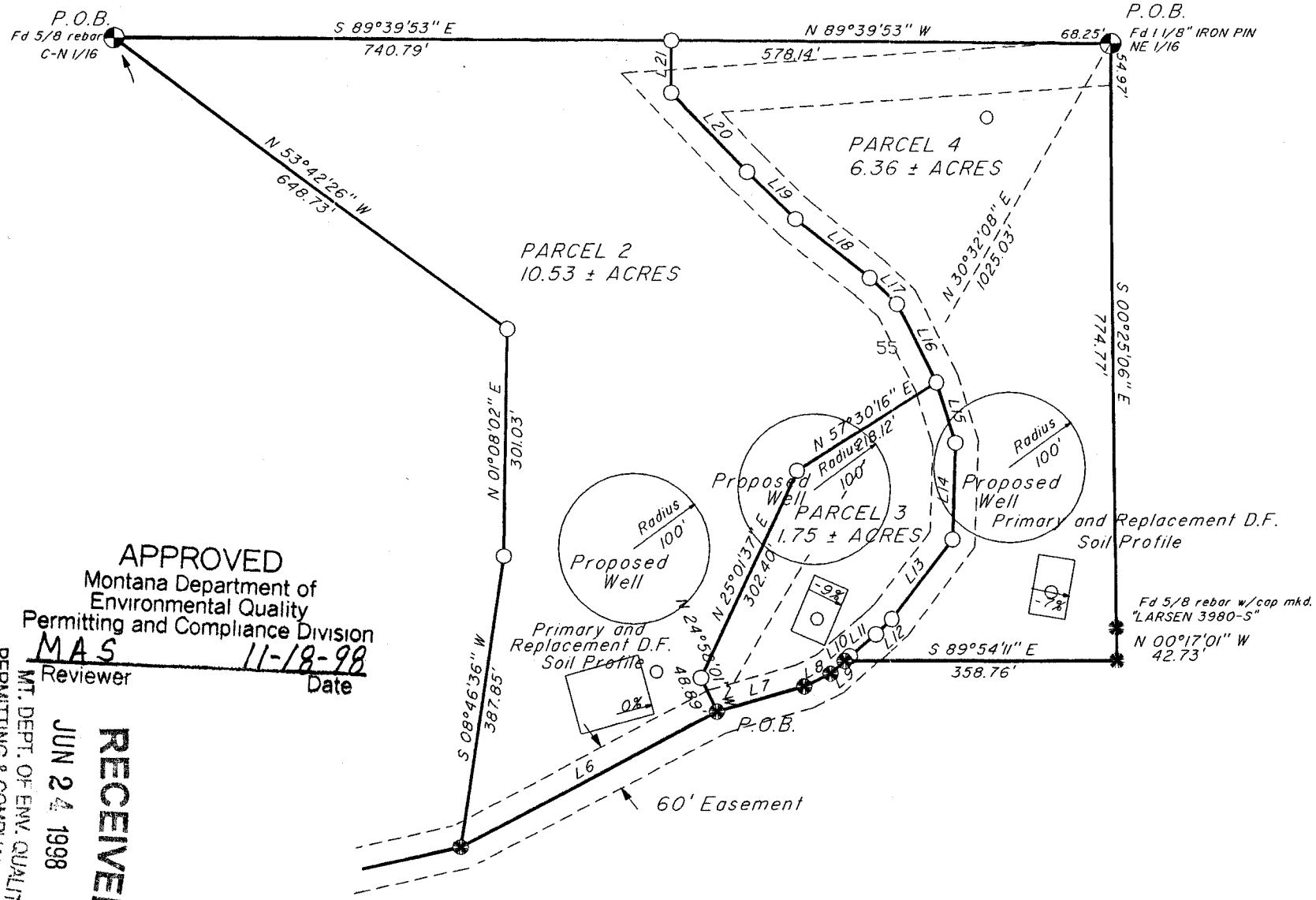
NITRATE SENSITIVITY ANALYSIS
ENGLISH UNITS

K=	Hydraulic Conductivity (see attached well log info)	10.96	ft/day	
i=	Hydraulic Gradient (see attached well log info)	0.08	ft/ft	
d=	Depth of Aquifer (constant)	16.405	ft	
l =	Downgradient Mixing Zone Boundary Distance	200	ft	
=	100 ft for sngl fam & lots < 2 acres			
=	200 ft for sngl, mutpl fam & lots » 2 acres			
=	downgradient length of adj undeveloped land if central water			
=	500 ft for public systems			
y =	Width of drainfield perpendicular to shallow gw flow	80	ft	
w=	Width of mixing zone perpendicular to flow direction	115	ft	
Am=	Cross sectional area of aquifer mixing zone	1886.58	ft2	
As=	Surface area of mixing zone	40000	ft2	
Ng=	Background Nitrates from Report	0.19	ppm	
Nr=	Naturally Occuring Nitrates in Rainwater	1	ppm	
Ne=	Nitrates in Effluent (constant)	50	ppm	
#l=	Number of Lots in Subdivision	2	ea	
Ql=	Quantity of Effluent per Dwelling Unit	26.7	ft3/dy	
p=	Precipitation for Area	0.00502	ft/day	22 in/yr
I=	Recharge Percentage (constant)	0.2	na	
Qg=	Groundwater or Aquifer = K*i*Am	1654.15		
Qr=	Recharge = As*p*I	40.1826		
Qe=	Effluent = #l*Ql	53.4		
Nt=	Total Measureable Nitrates After Development	1.73051		

Barthel Sanitary Restriction
EQ # 98-2726

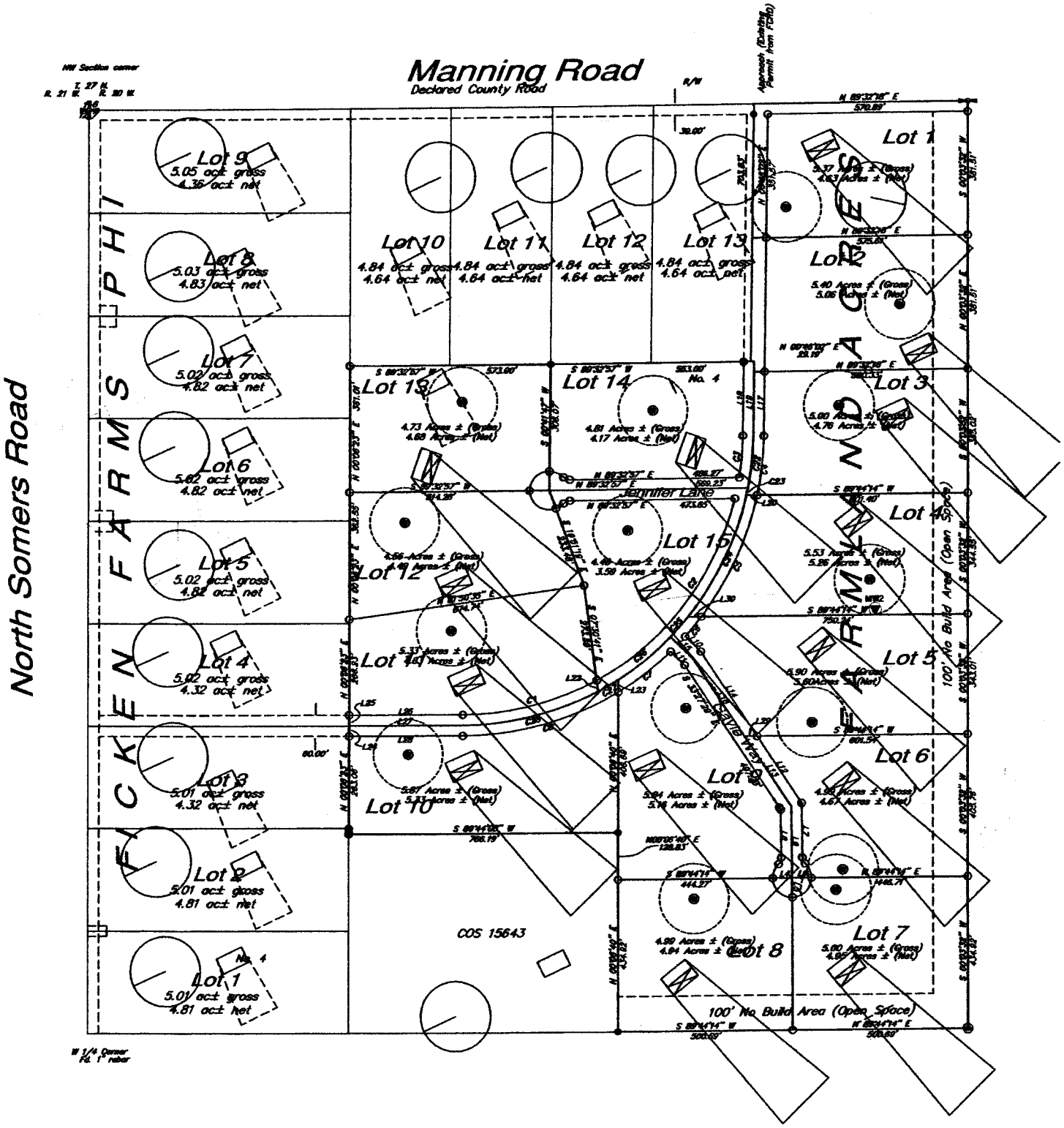
Site Plan

GOV'T LOT 10, SECTION 6, T. 27 N., R. 22 W.
PRINCIPAL MERIDIAN, FLATHEAD COUNTY, MONTANA
Scale 1" = 200'



APPROVED
Montana Department of
Environmental Quality
Permitting and Compliance Division
MAS 11-18-98
Reviewer Date

RECEIVED
JUN 24 1998
MT. DEPT. OF ENV. QUALITY
PERMITTING & COMPLIANCE DIV.

Ficken Farms
EQ#04-1864

Farmland
EQ#04-2900