

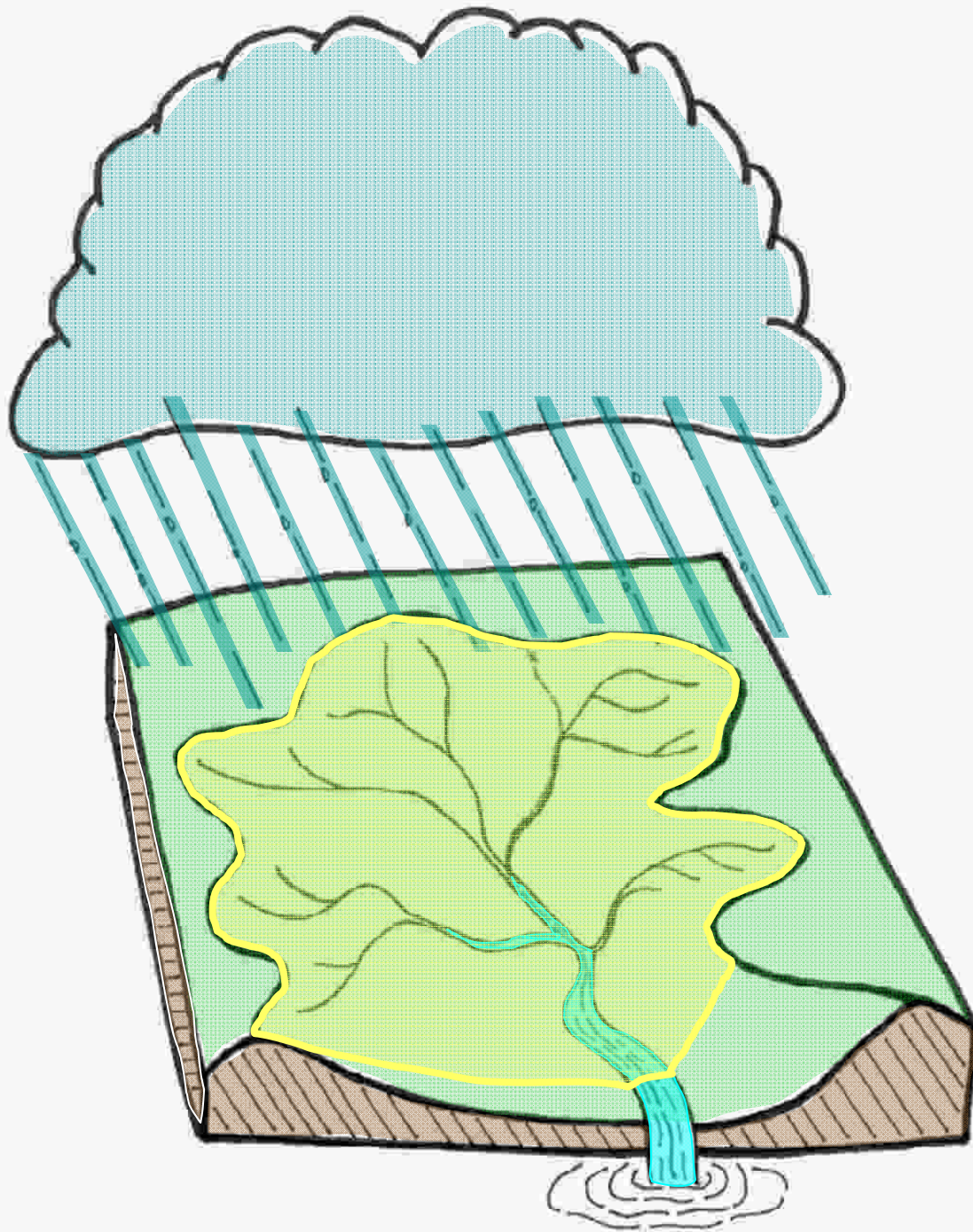
An aerial photograph of a rural landscape. The terrain is a mix of brown, tilled soil and vibrant green grass. A winding dirt road or path cuts through the fields. In the upper left, a small pond or reservoir is visible. The overall scene depicts a typical agricultural watershed area.

Watershed Delineation Techniques

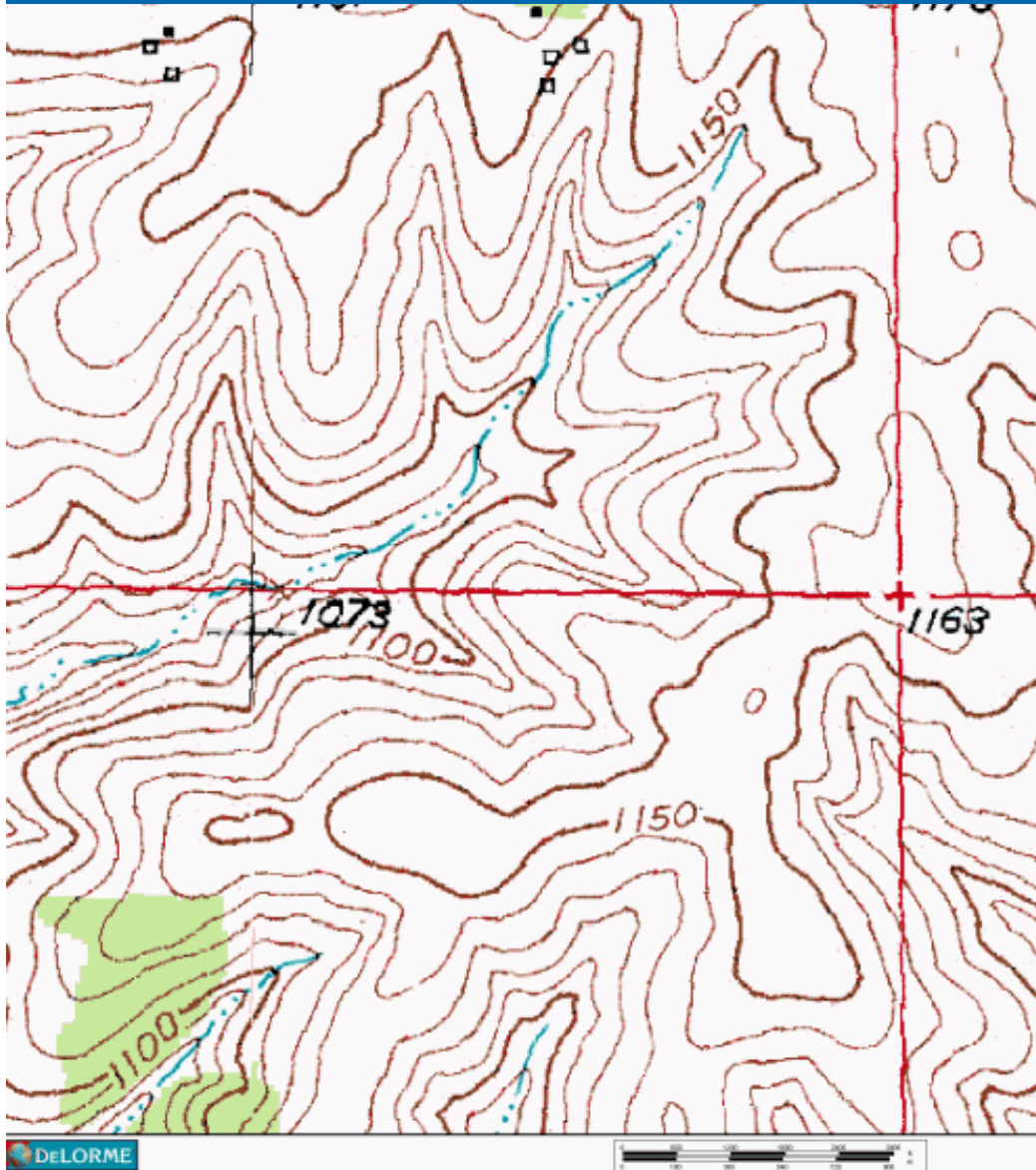
Stacy D. Dehne
DATCP Engineer

What Is a Watershed?

An Area of Land that Drains to a given location



Contour Map Features

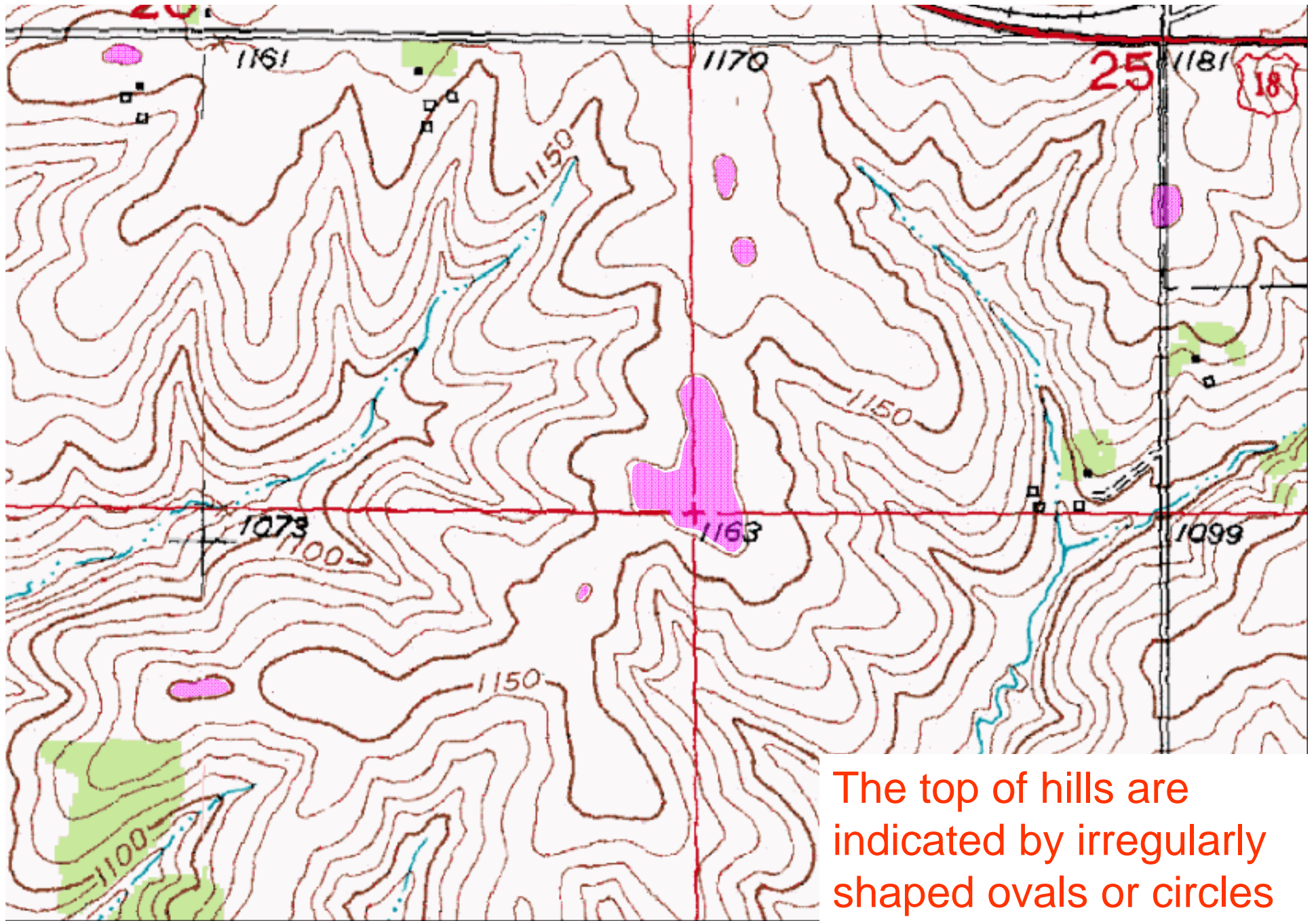


Contour Maps:

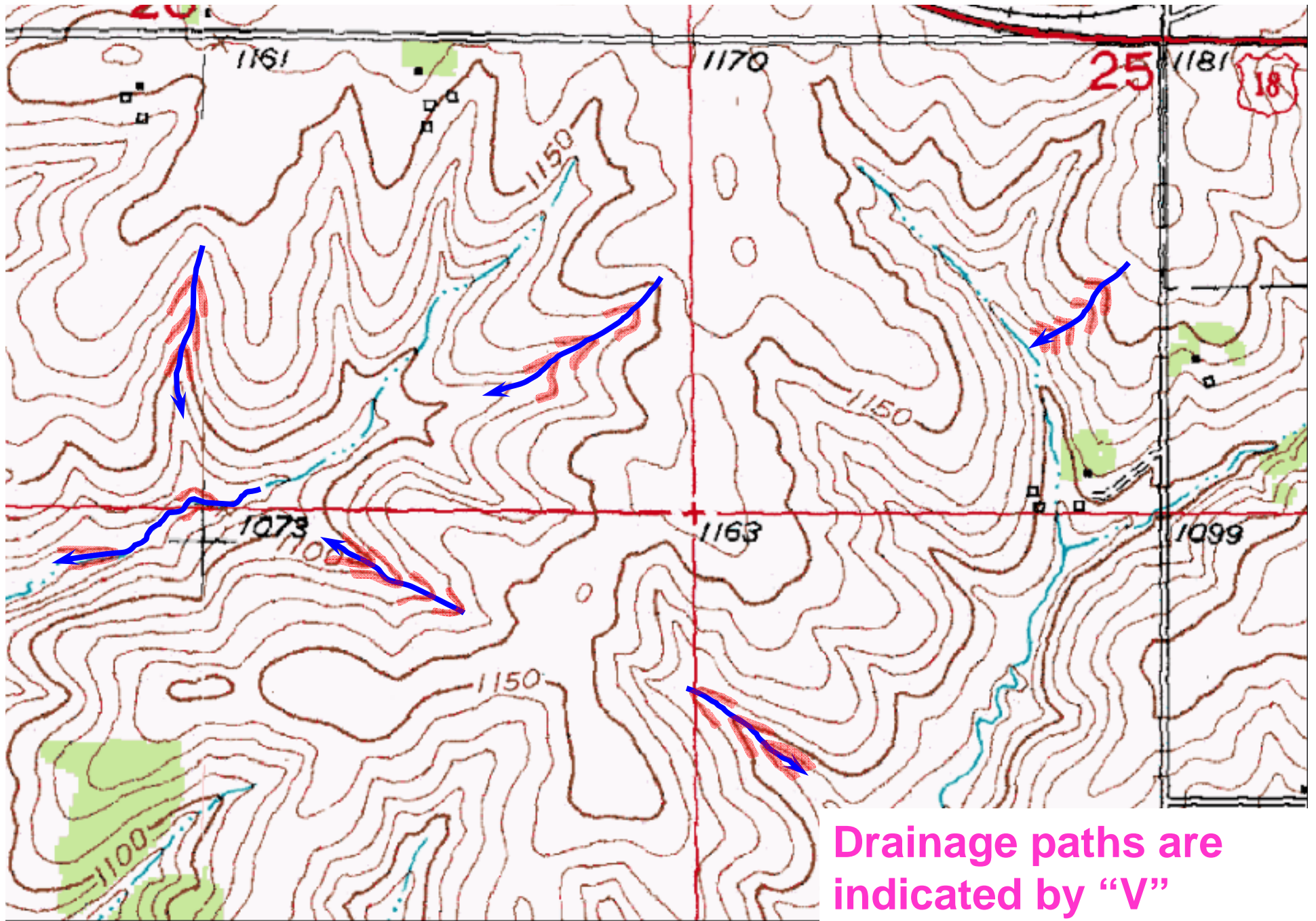
Represent 3-D Landscape

Contour Lines:

- Connect points of equal elevation
- Always close back on themselves
- Do not cross
- Darker lines represent the 50' or 100' contour

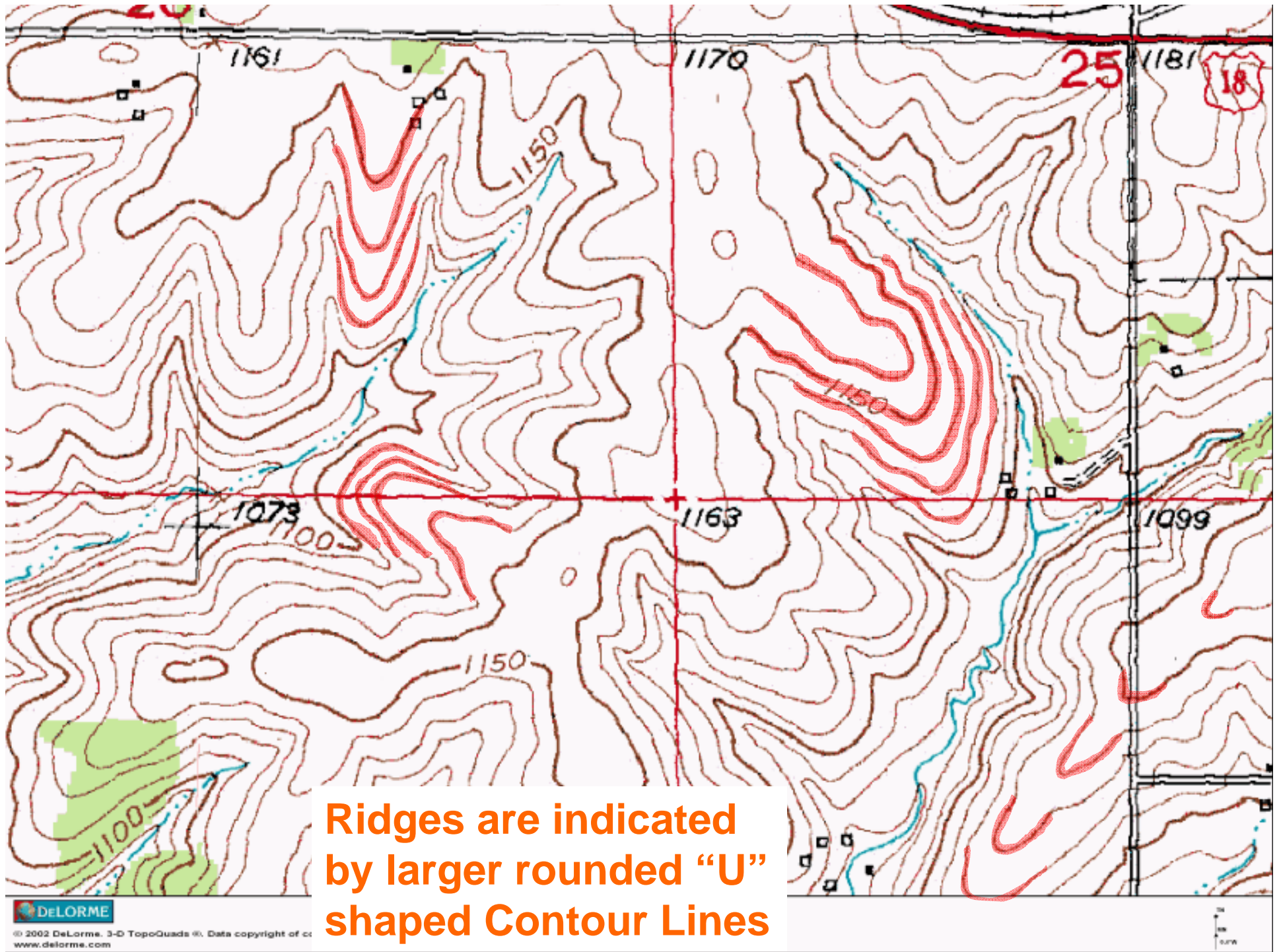


The top of hills are indicated by irregularly shaped ovals or circles



Drainage paths are indicated by "V" shaped Contour Lines

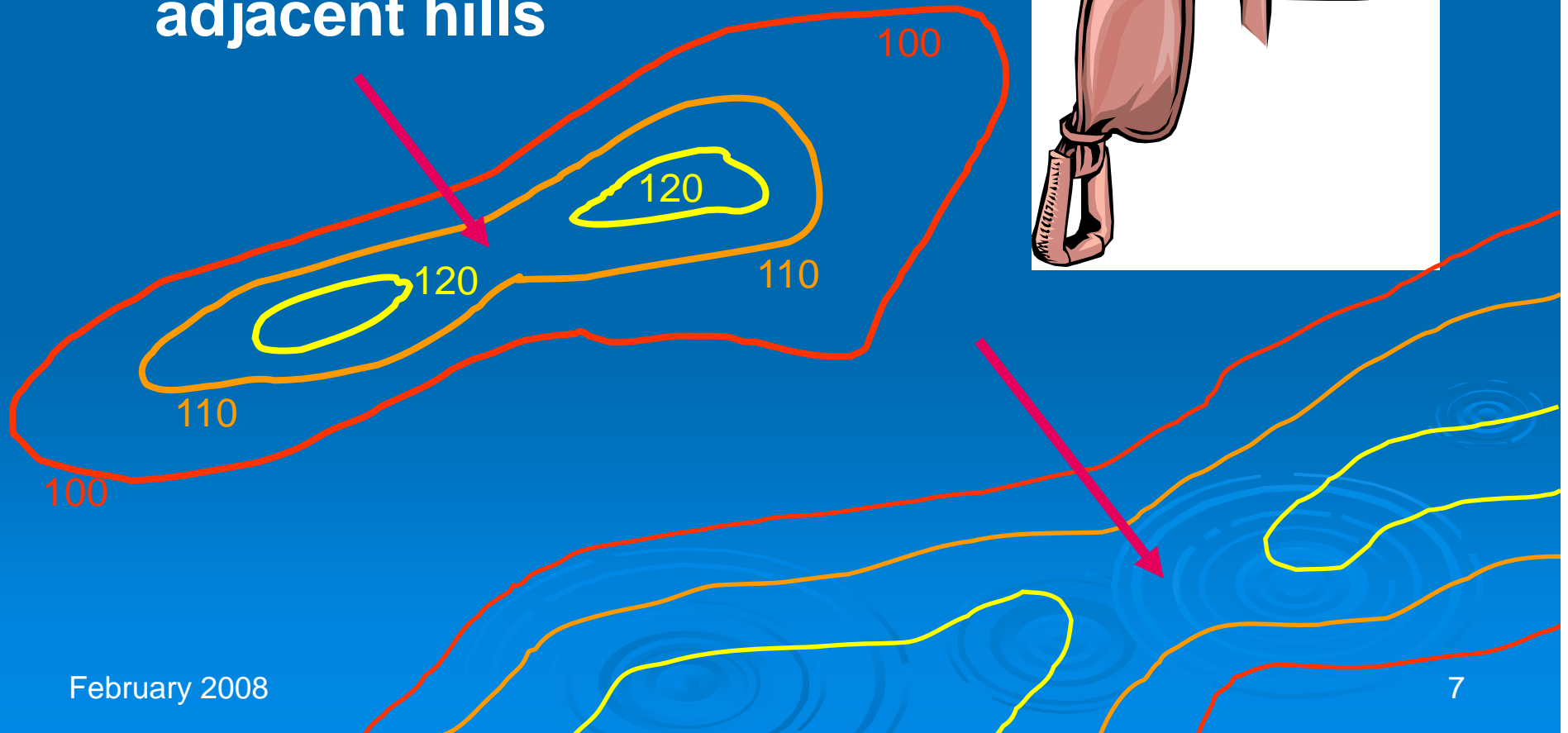
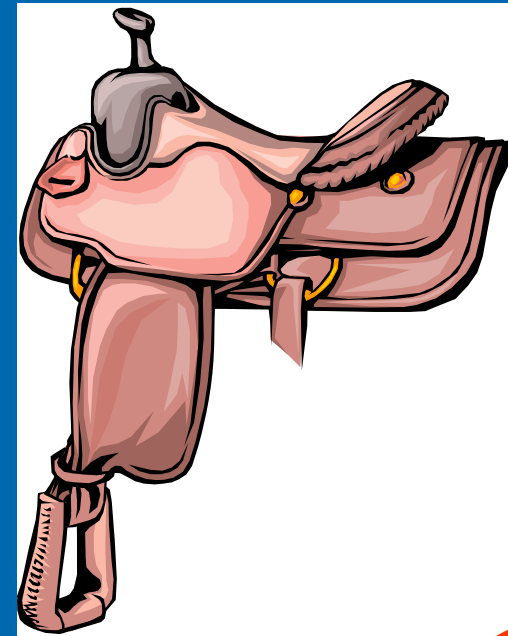


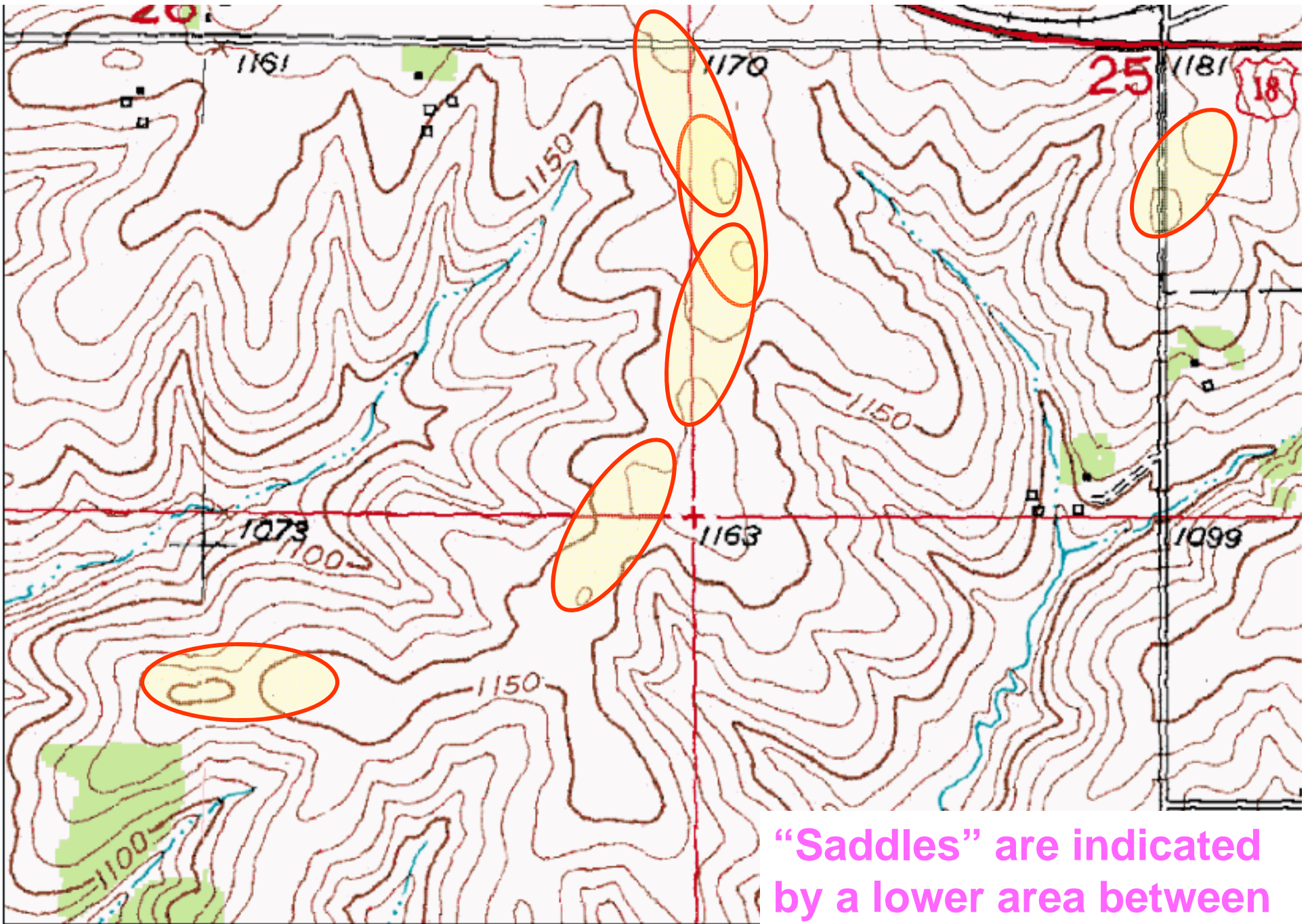


Ridges are indicated by larger rounded "U" shaped Contour Lines

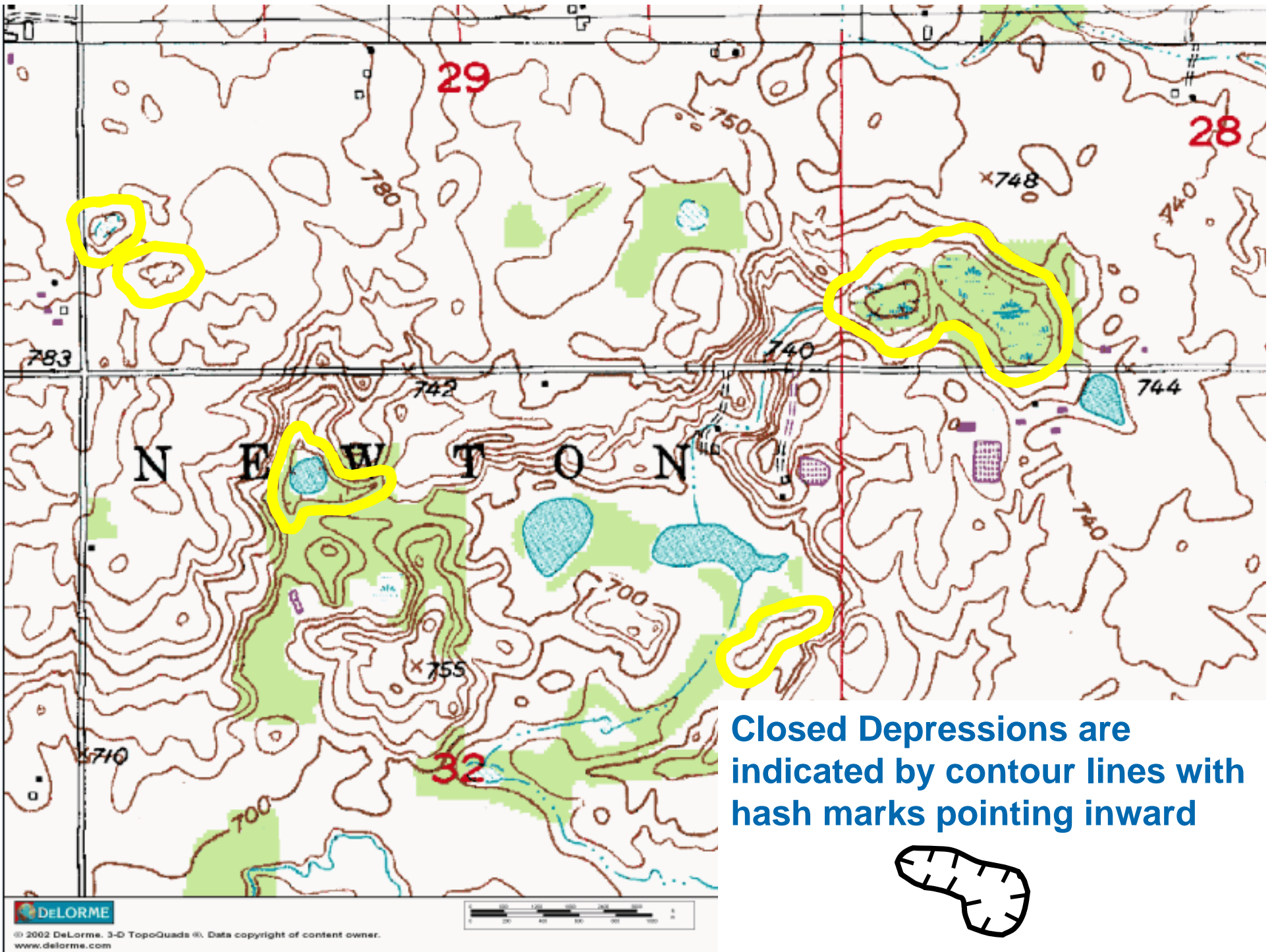
Contour Map Features (Continued)

On a Contour Map A
“Saddle” is indicated by a
lower area between two
adjacent hills

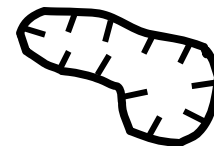




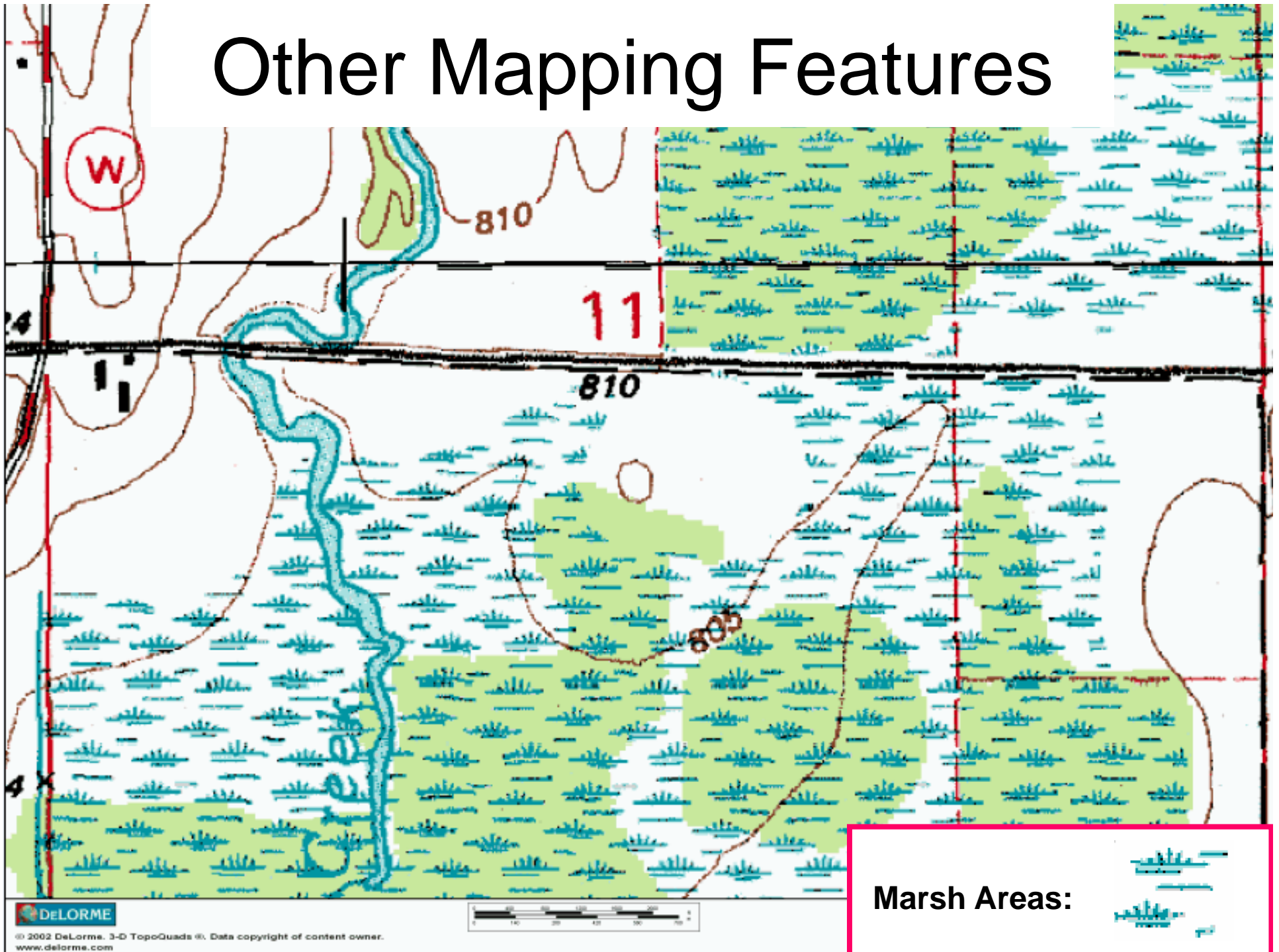
“Saddles” are indicated by a lower area between two adjacent hills

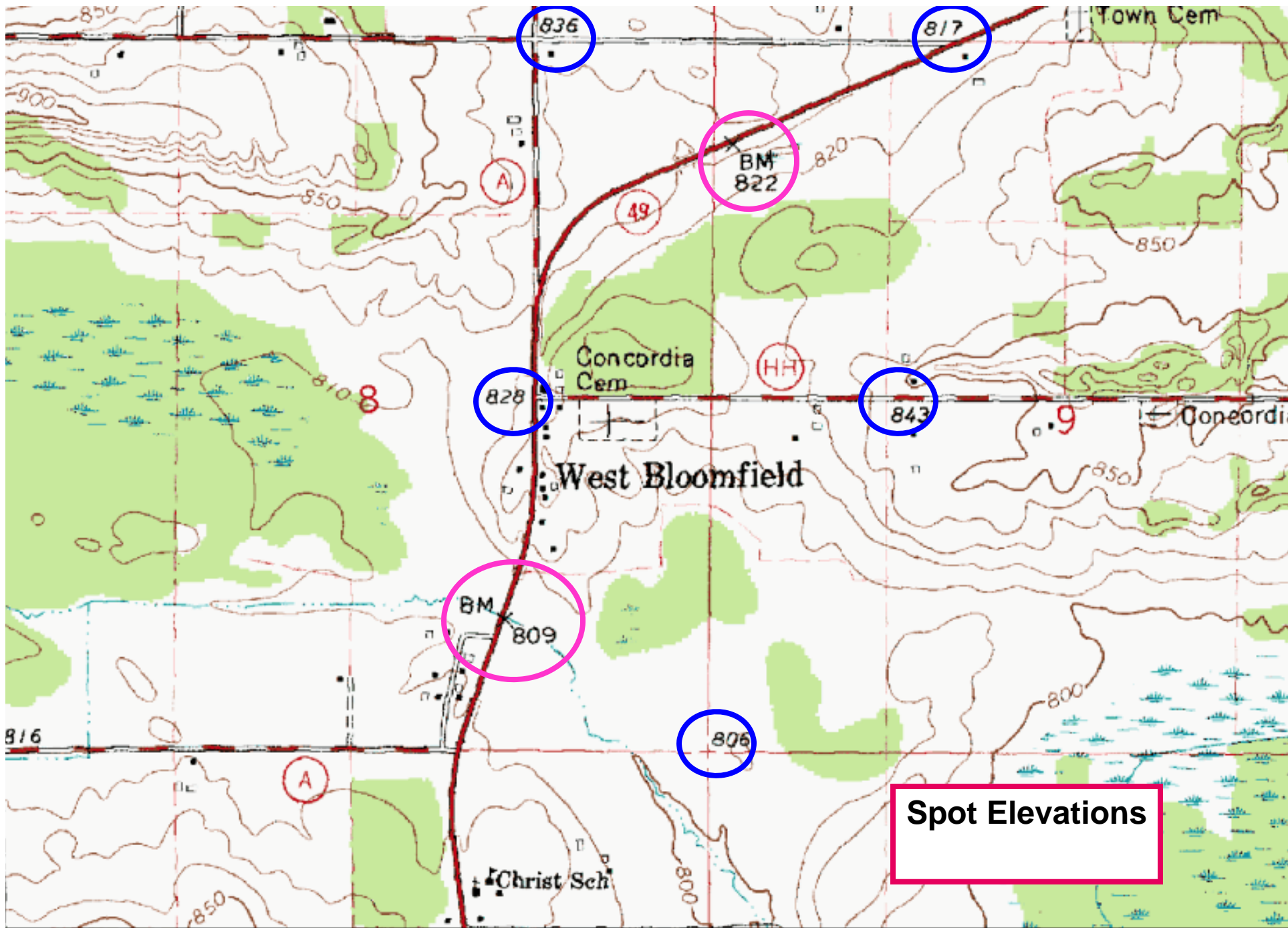


Closed Depressions are indicated by contour lines with hash marks pointing inward



Other Mapping Features





Spot Elevations

Watershed Boundary Delineation

➤ Basic Concepts:

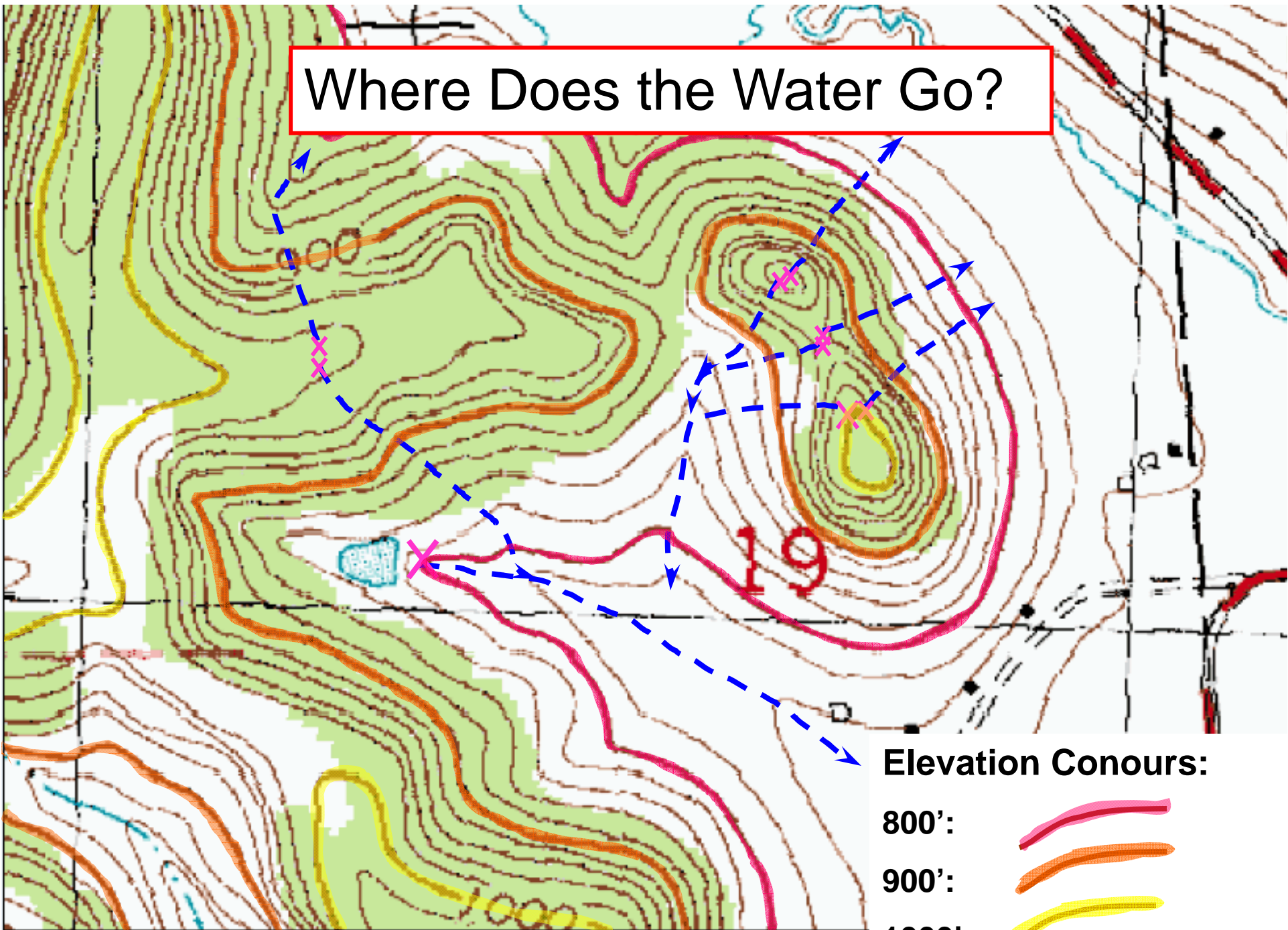
- Water Flows Downhill (i.e. Perpendicular to Contour Lines)
- Tops of Hills and Ridges are the Boundaries of Watersheds
- Start By Noting Unique Features in the Mapping of the Area that you are studying

General Assumptions – Watershed Boundary






Draw watershed boundary through the approximate centerline of a ridge and keep line perpendicular to each contour

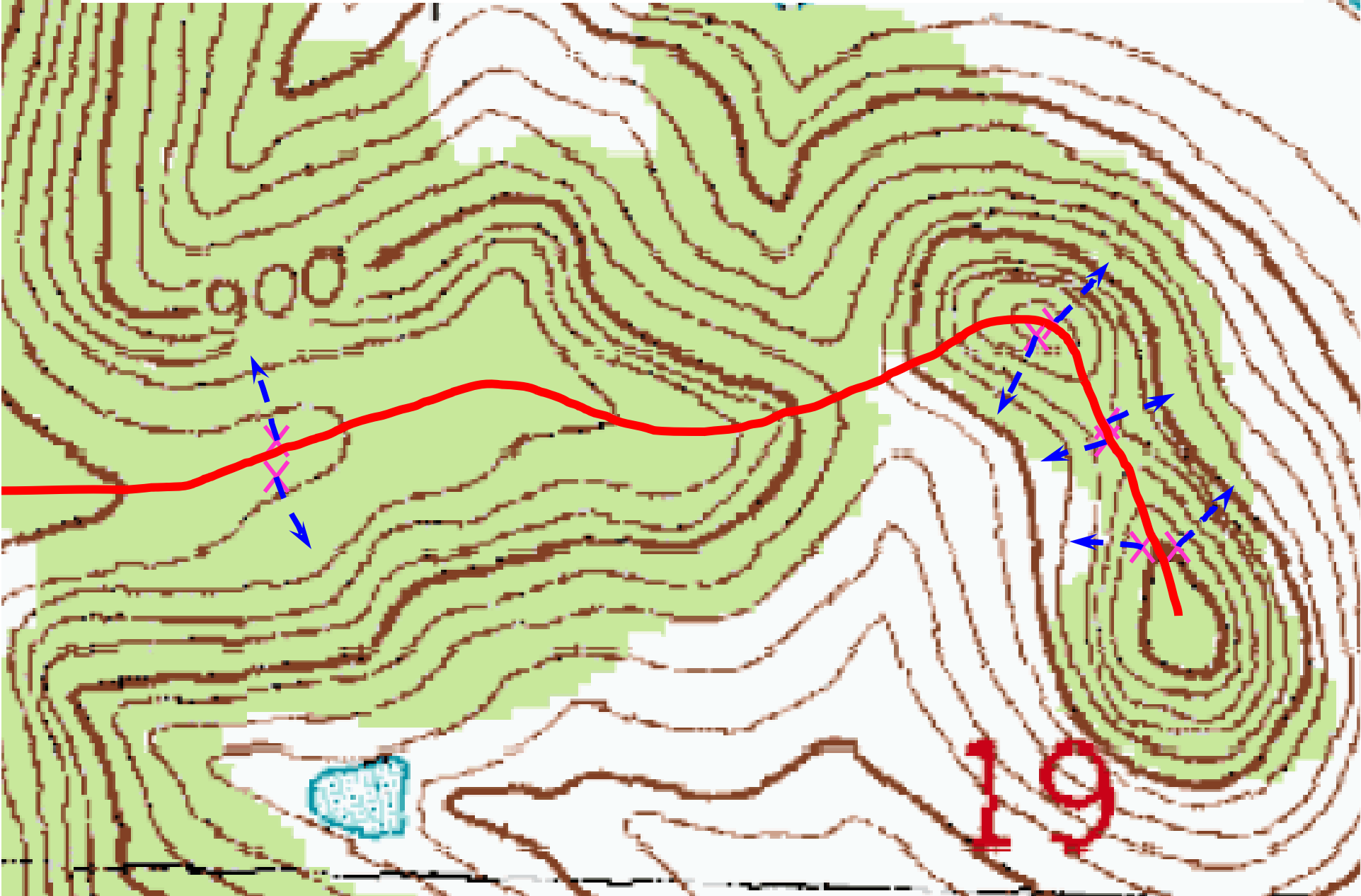
Where Does the Water Go?

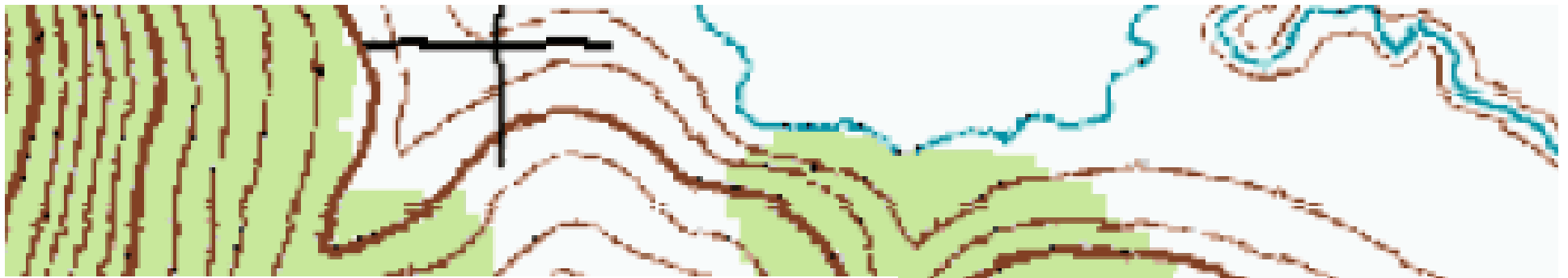


Elevation Conours:

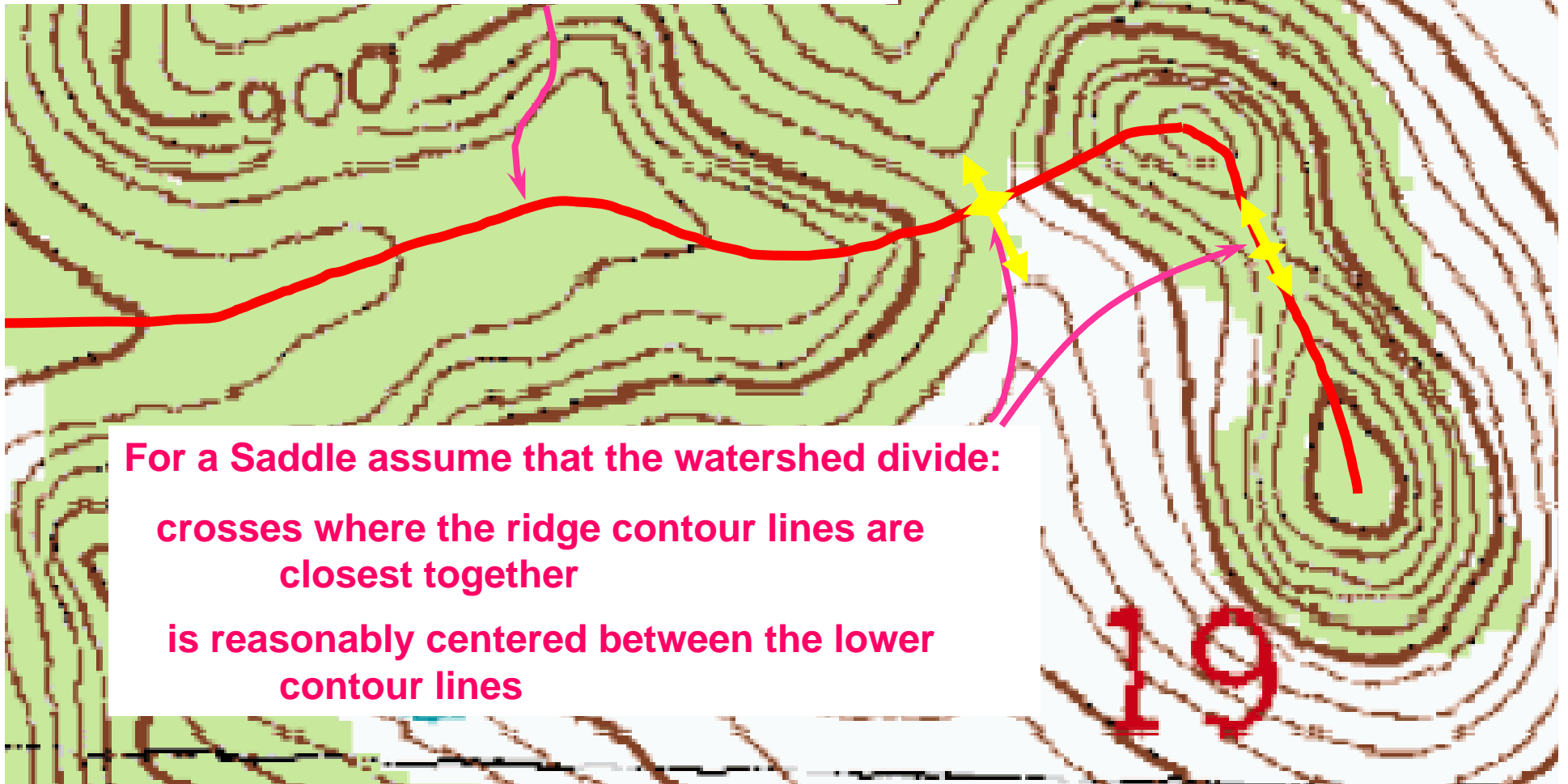
- 800': 
- 900': 
- 1000': 

Watershed Boundary Delineation

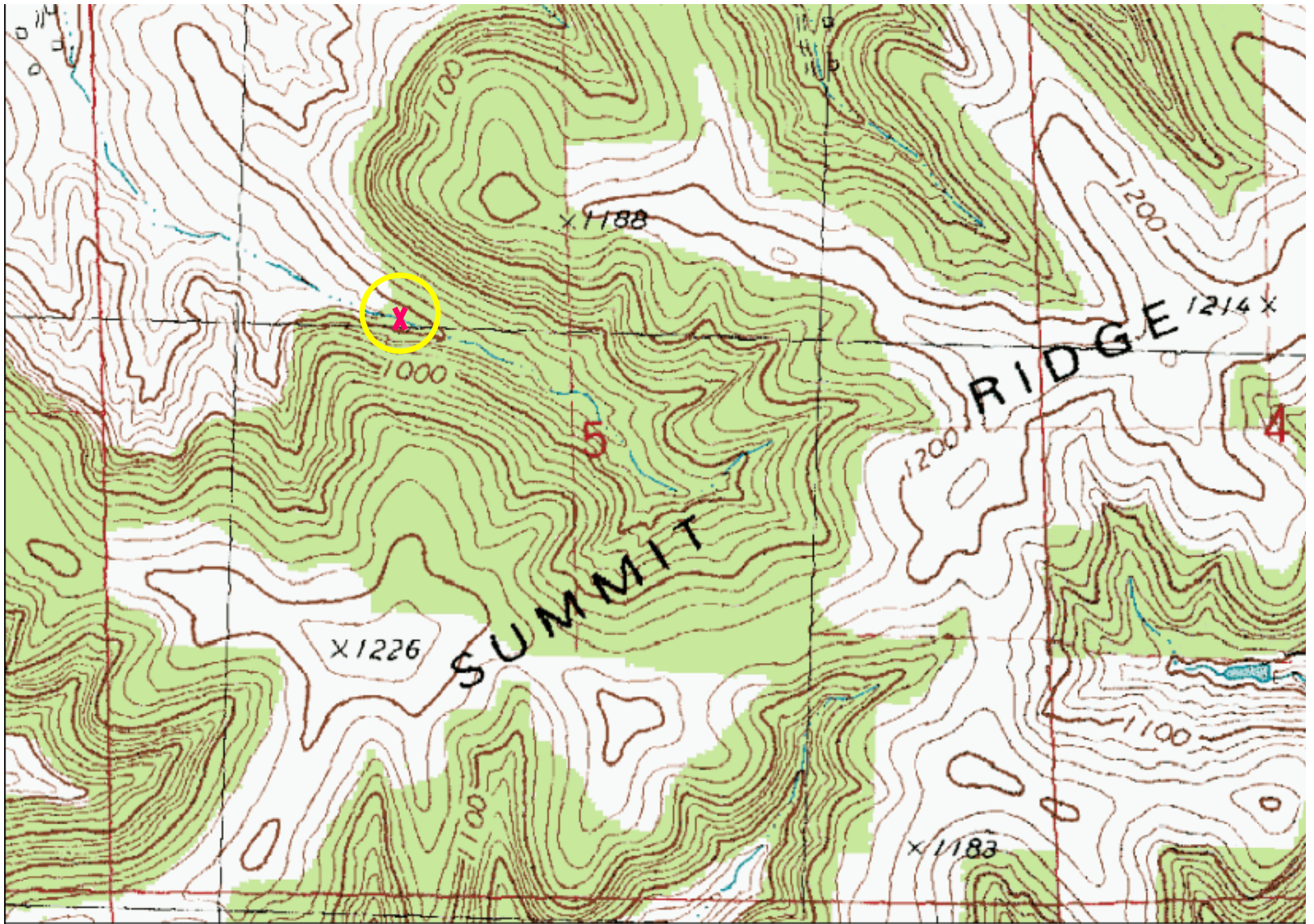


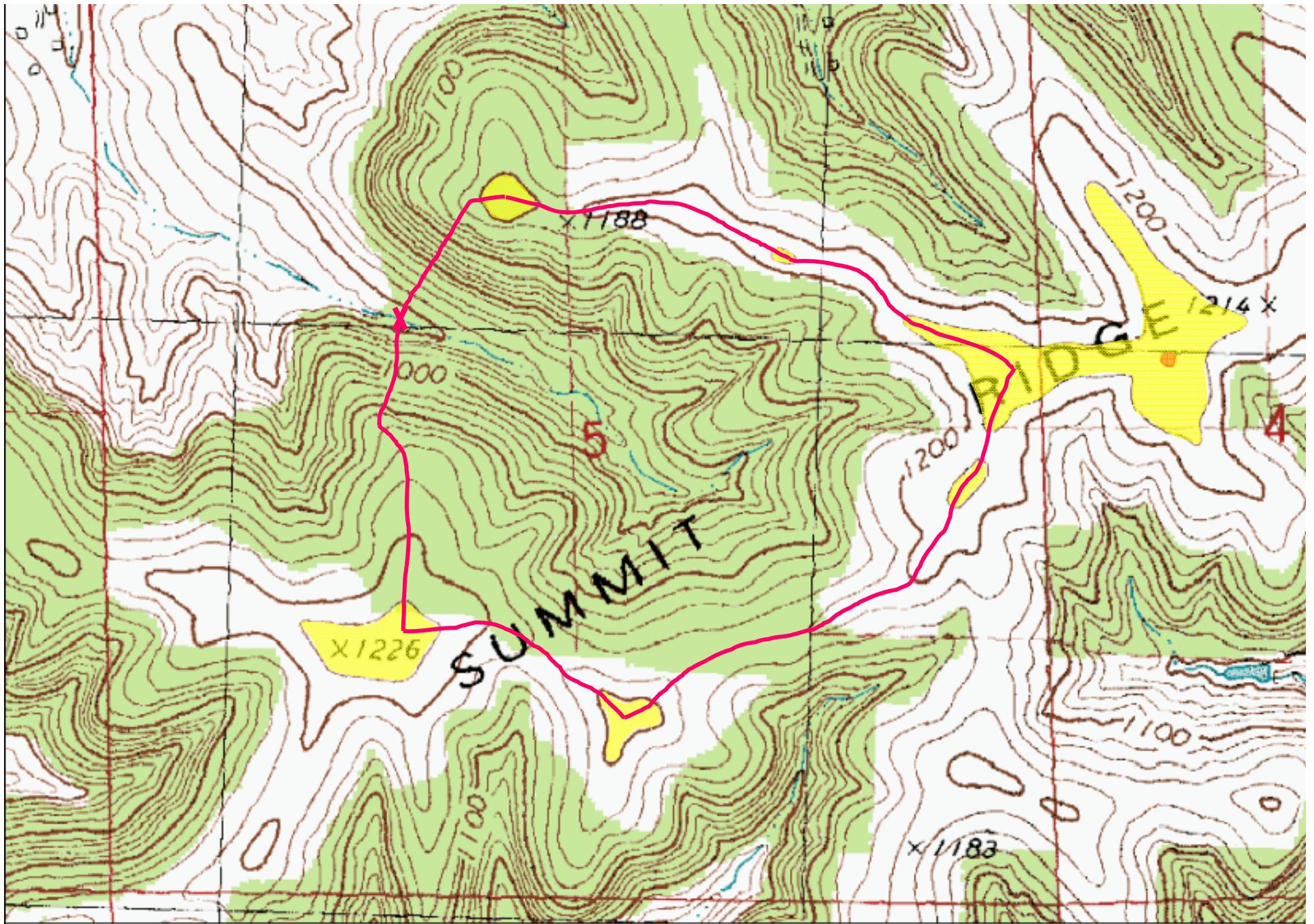


Assume that the Top of the Ridge is at the centerline between equal contour elevations



For a Saddle assume that the watershed divide:
crosses where the ridge contour lines are
closest together
is reasonably centered between the lower
contour lines





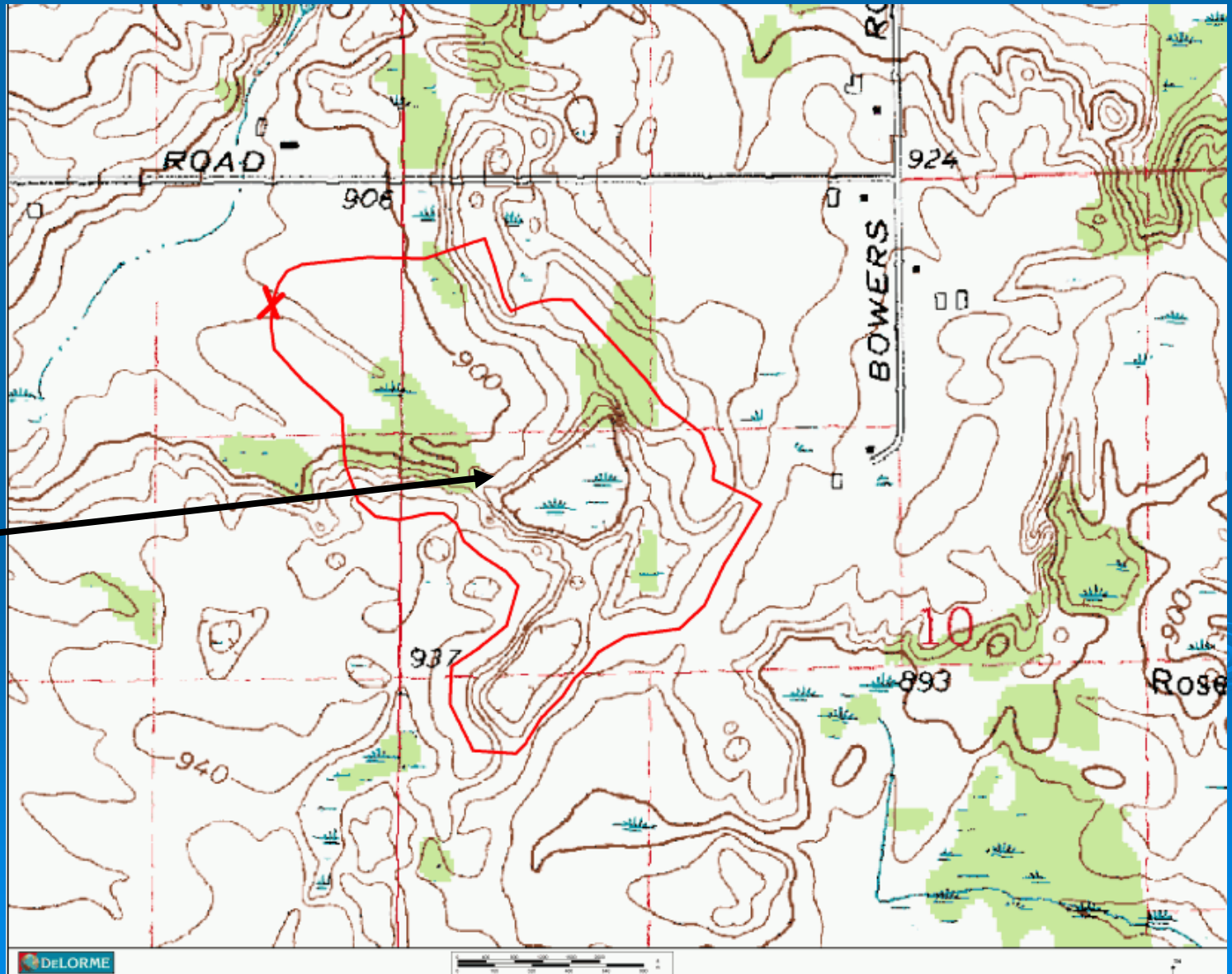
© 2002 DeLorme. 3-D TopoQuads ®. Data copyright of content owner.

www.delorme.com



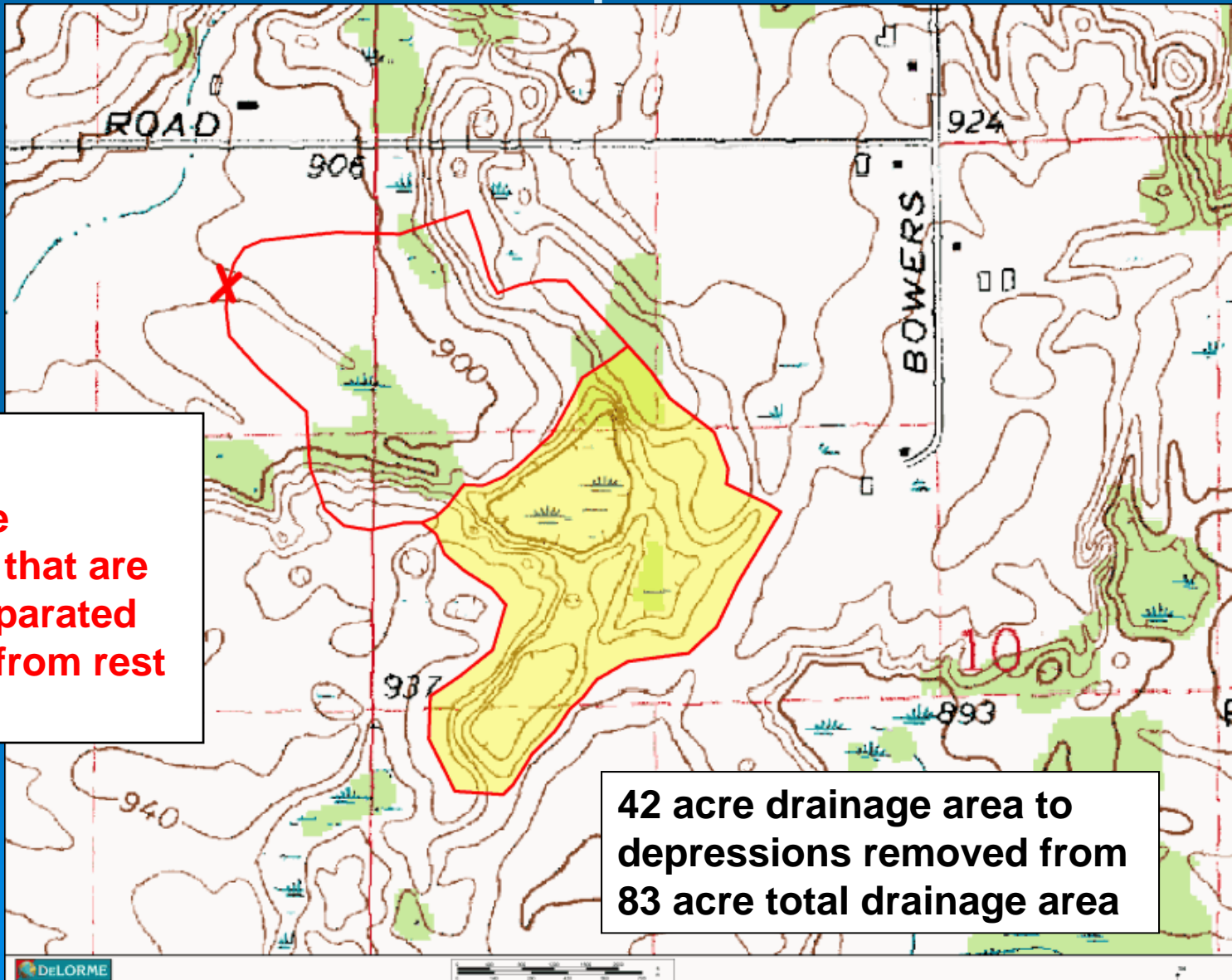
Watershed with Depressional Area

Ridge



February 2008

Watershed with Depressional Area

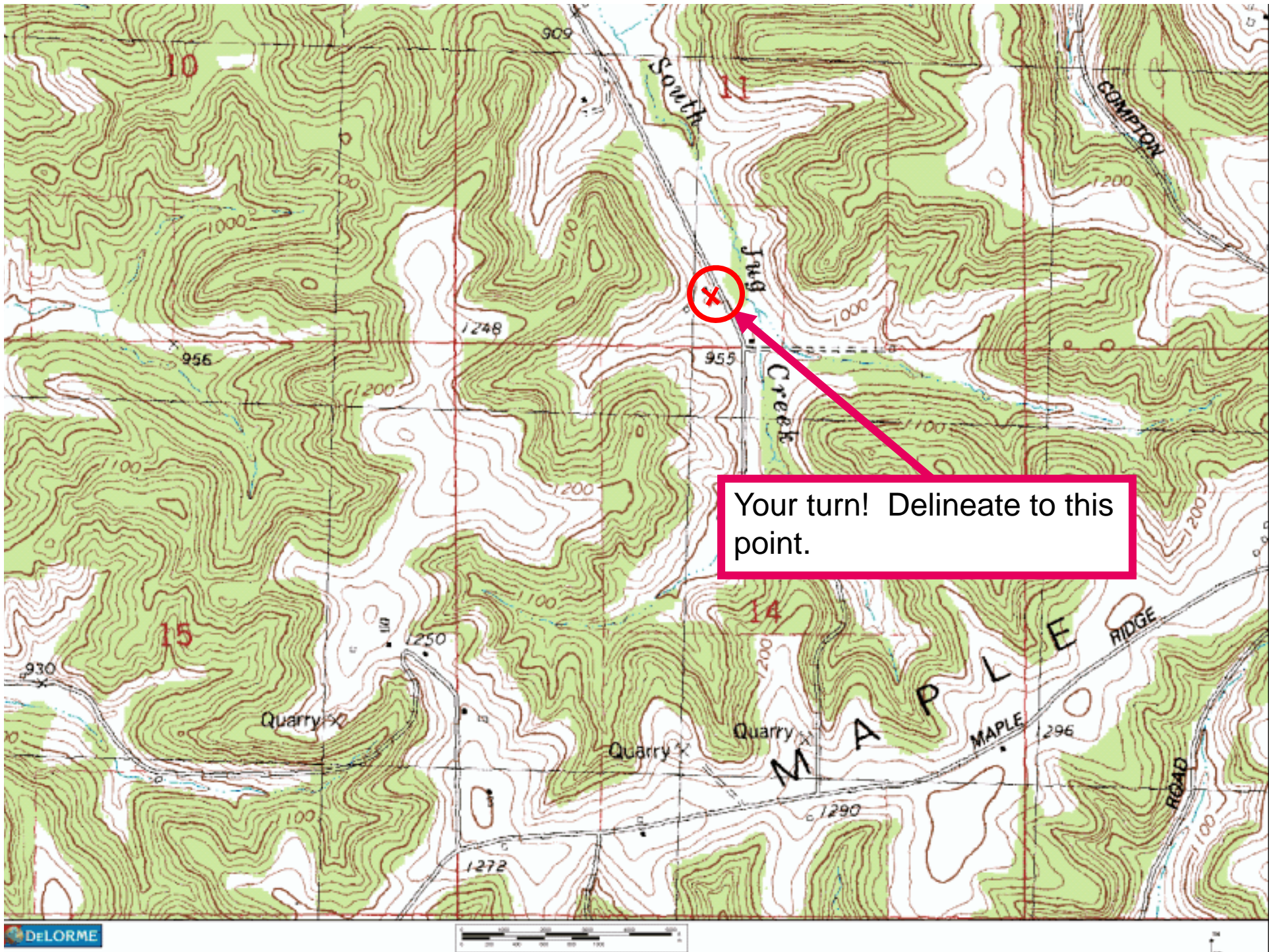


Caution!!

**Only Remove
Depressions that are
Deep and Separated
(by a Ridge) from rest
of Area!**

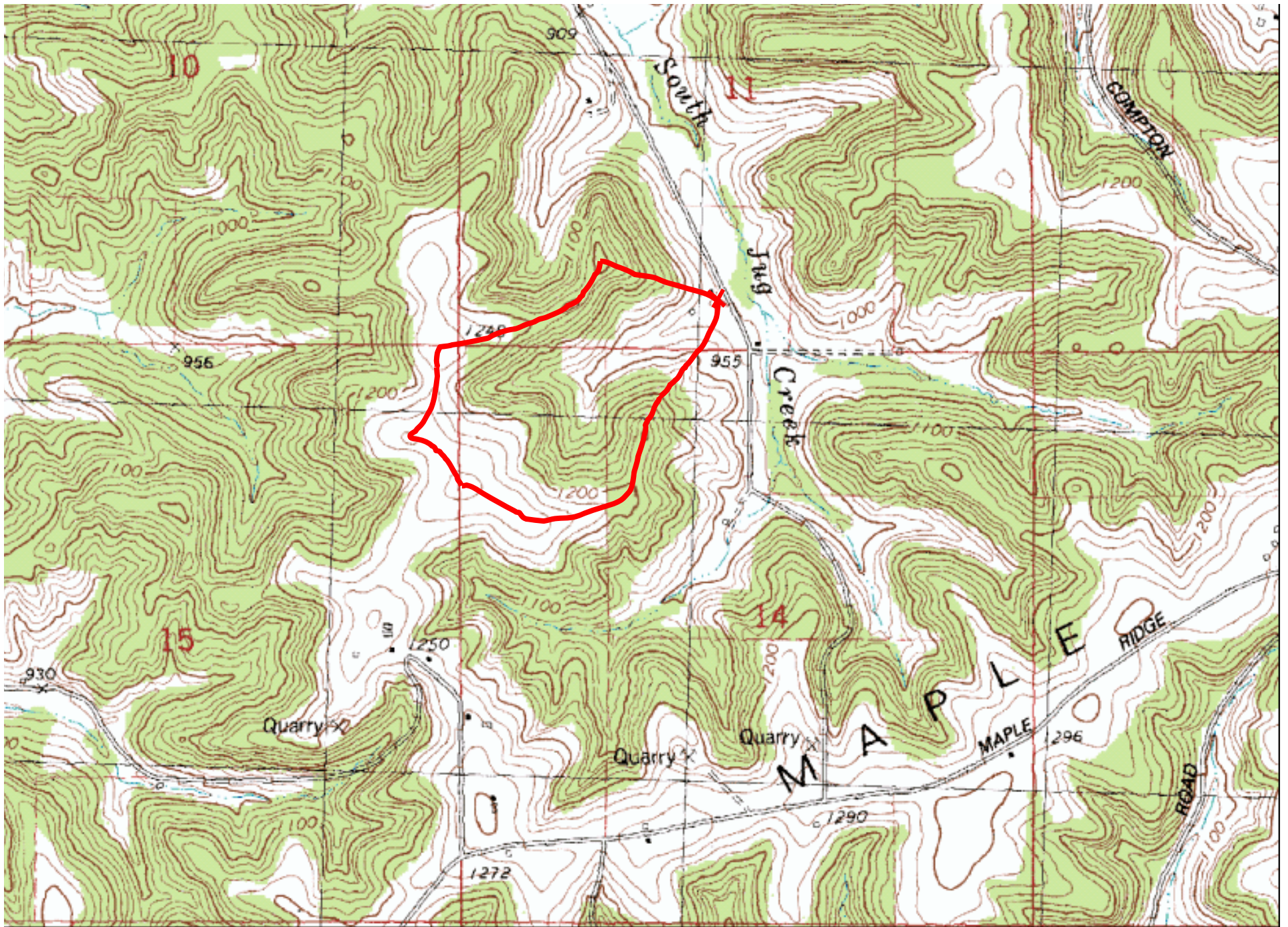
**42 acre drainage area to
depressions removed from
83 acre total drainage area**

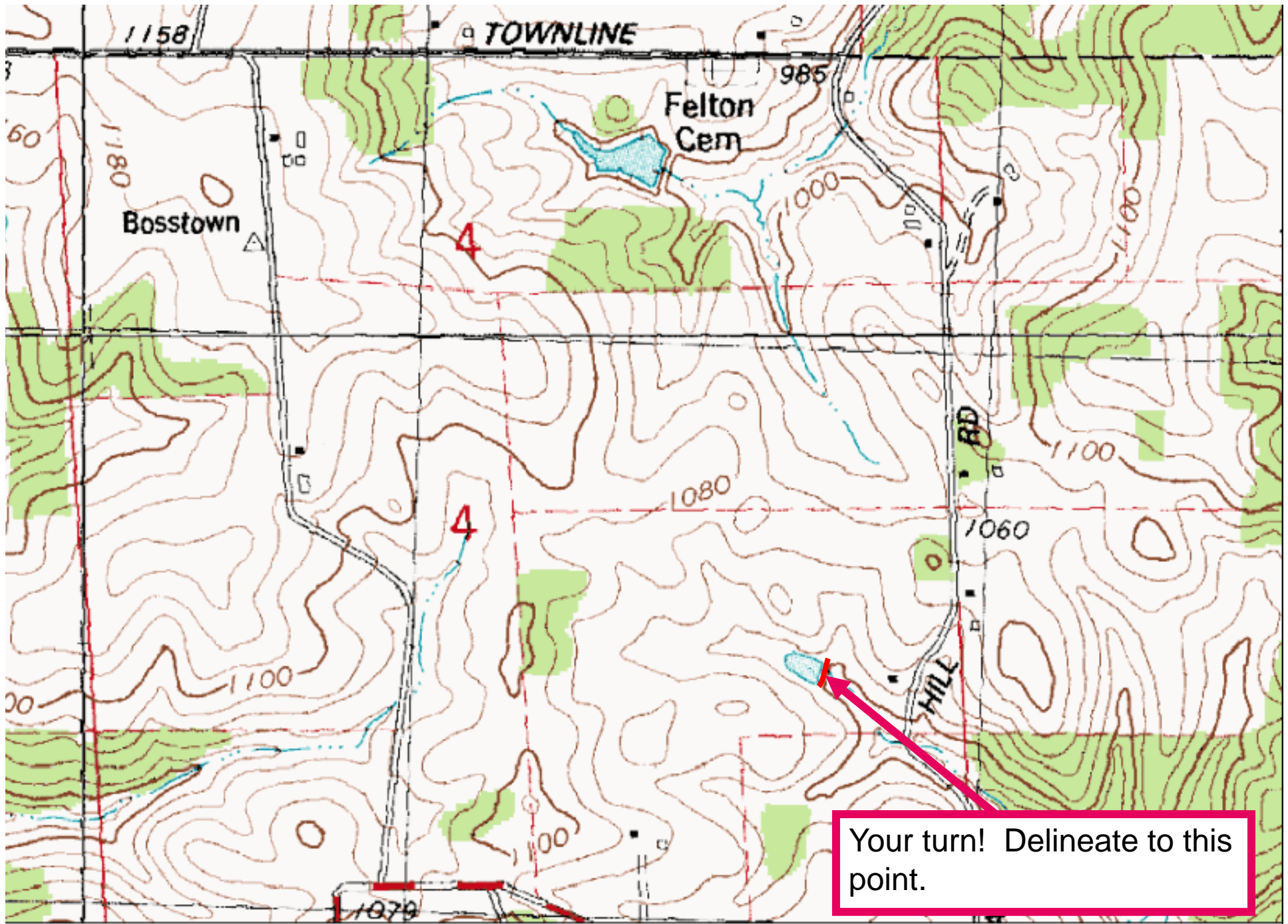
February 2008



Your turn! Delineate to this point.

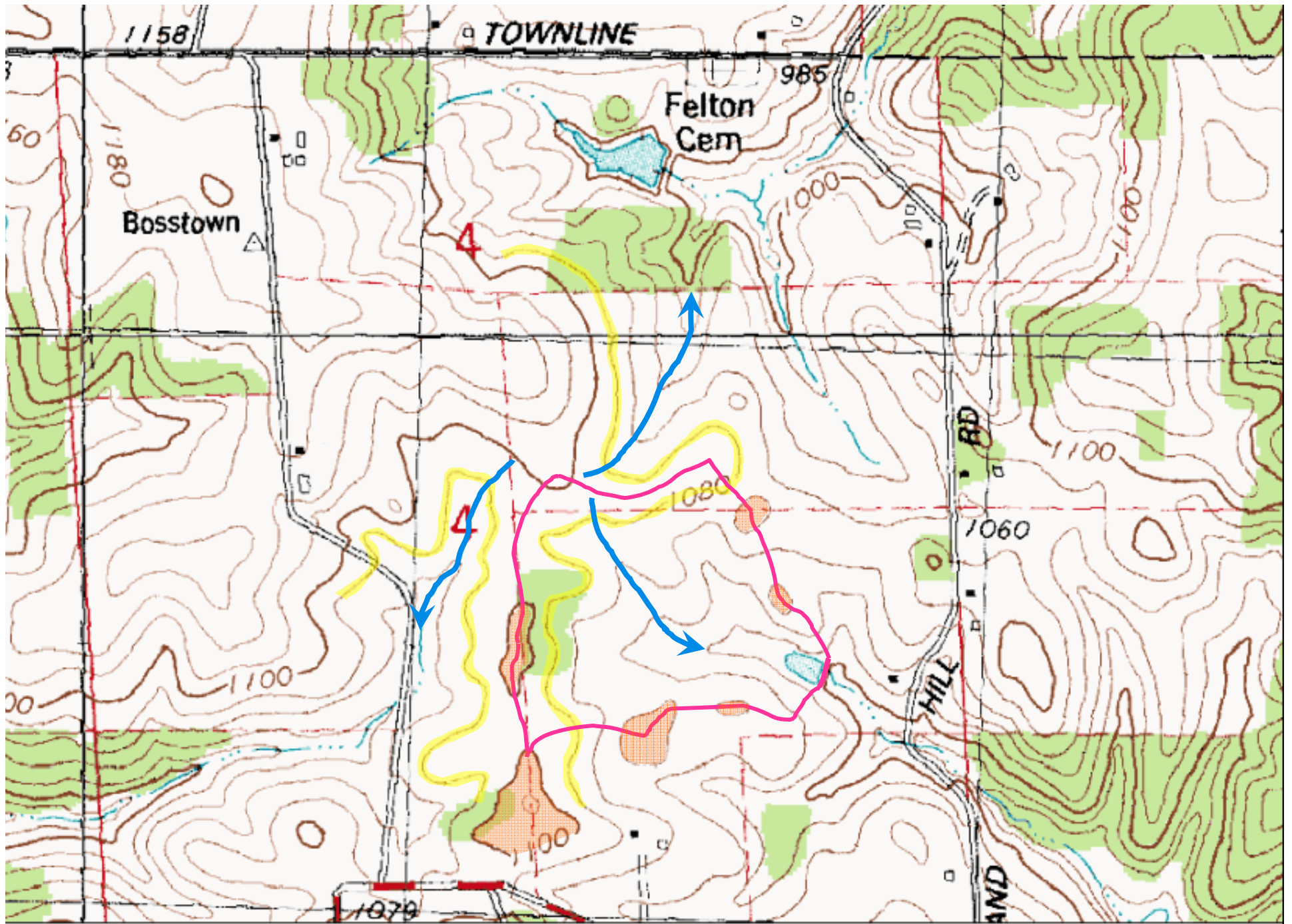




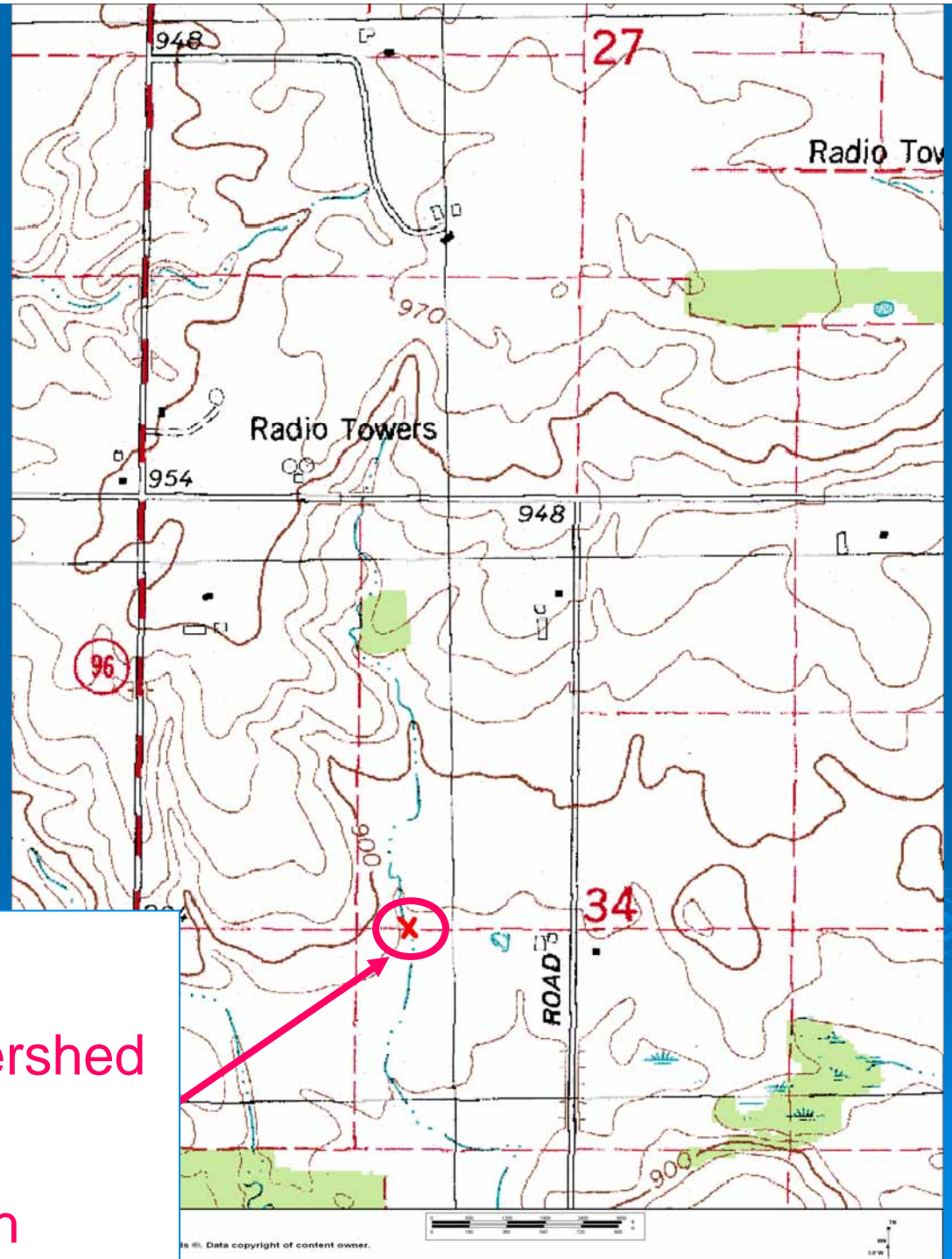


Your turn! Delineate to this point.





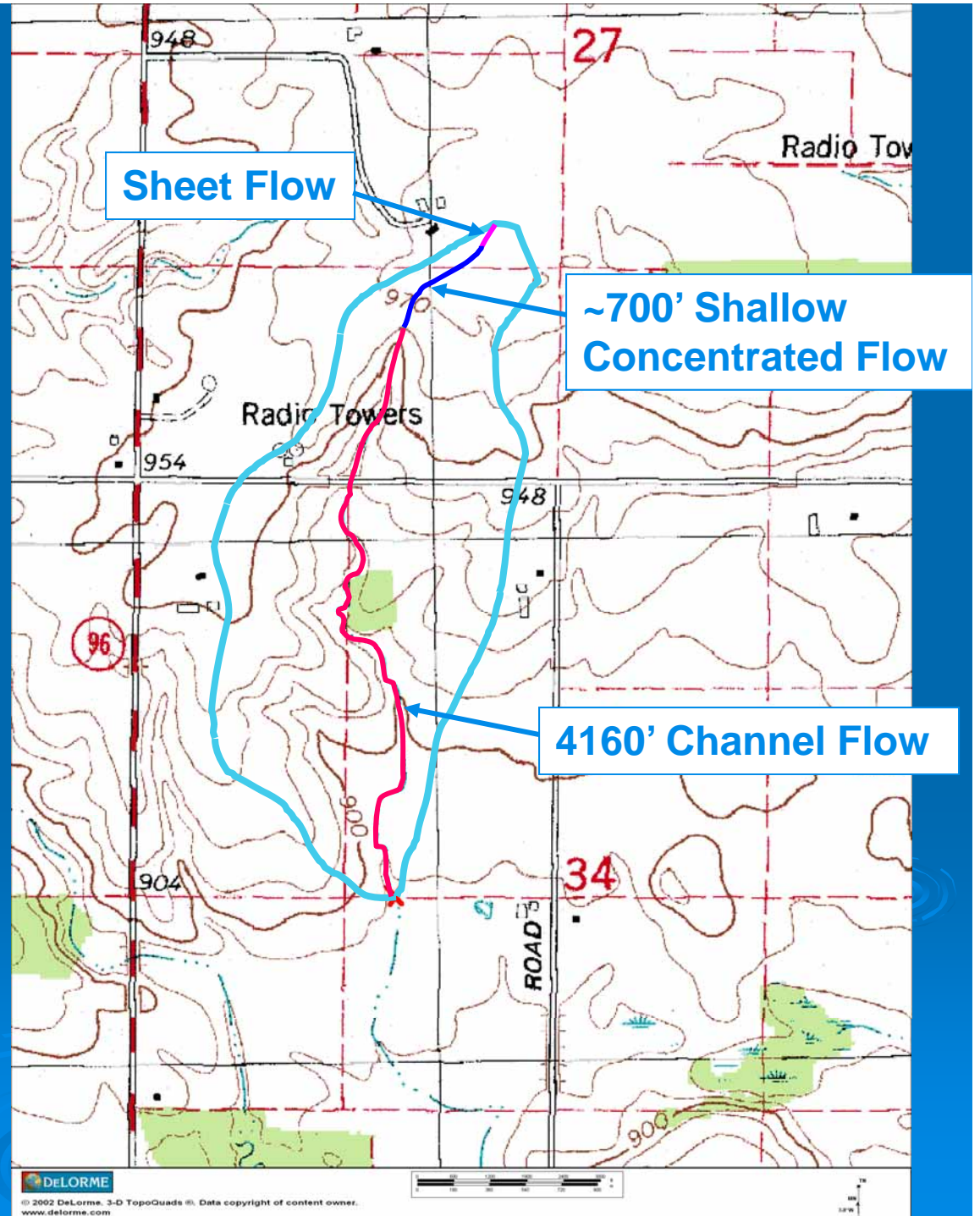
Example:

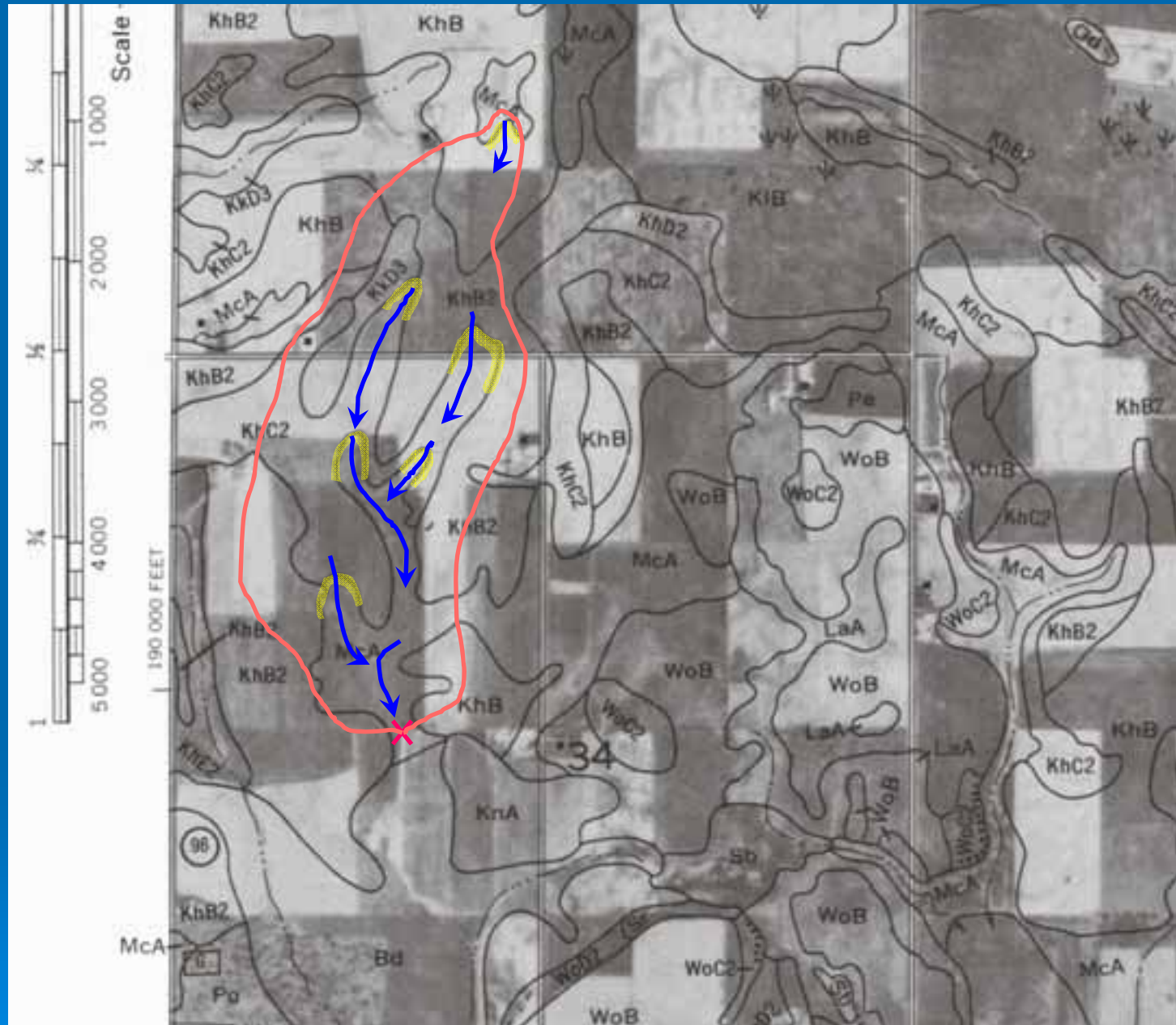


Your Turn!

1. Delineate the Watershed to this point
2. Draw the Flow Path

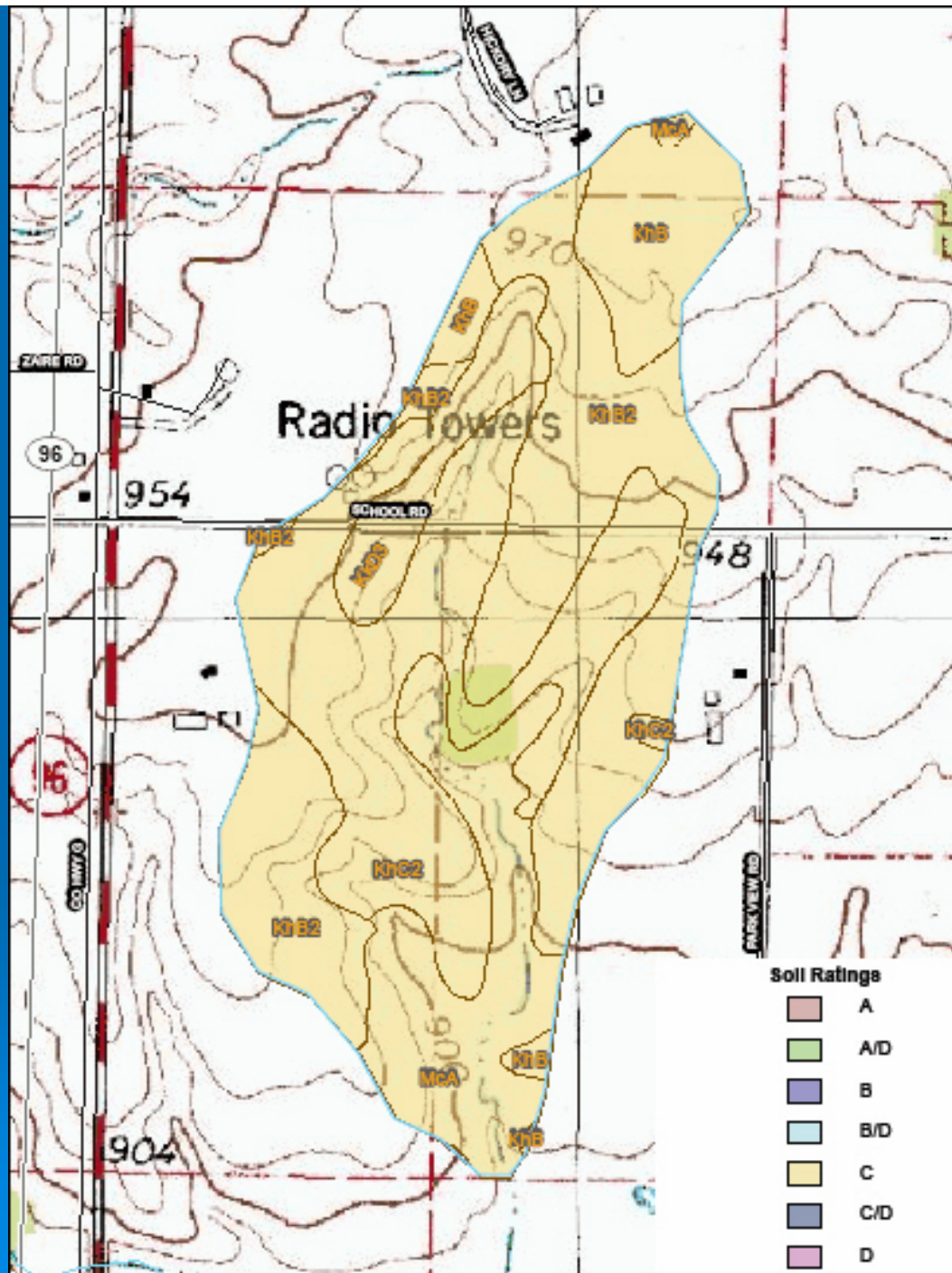
Example:





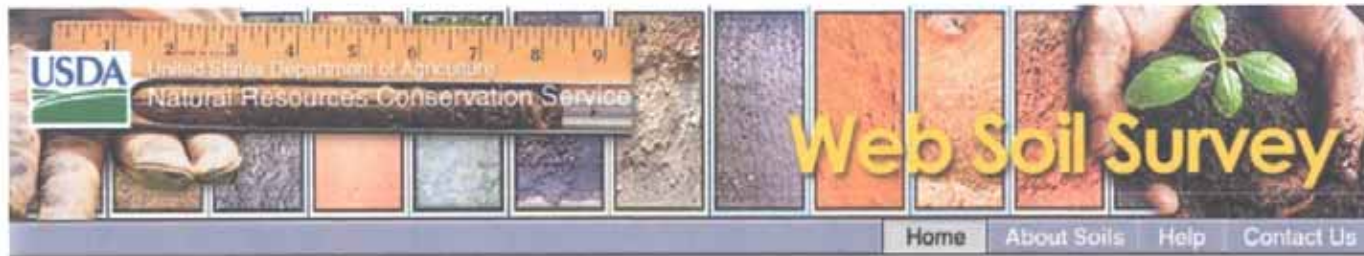
Example – Soil Map Approximate DA

Example:



**Hydrologic Soil
Groups from the
NRCS Web Soil
Survey**

<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>



You are here: Web Soil Survey Home

Search

Enter Keywords

All NRCS Sites

Browse by Subject

- Soils Home
- National Cooperative Soil Survey (NCSS)
- Archived Soil Surveys
- Status Maps
- Official Soil Series Descriptions (OSD)
- Soil Series Extent Mapping Tool
- Geospatial Data Gateway
- eFOTG
- National Soil Characterization Data
- Soil Quality
- Soil Geography

The simple yet powerful way to access and use soil data.



Welcome to Web Soil Survey (WSS)



Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation's counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

Soil surveys can be used for general farm, local, and wider area planning. Onsite investigation is needed in some cases, such as soil quality assessments and certain conservation and engineering applications. For more detailed information, contact your local [USDA Service Center](#) or your [NRCS State Soil Scientist](#).

Four Basic Steps

1 Define.

Use the **Area of Interest** tab to define your area of interest.

I Want To...

- Start Web Soil Survey (WSS)
- Know the requirements for running Web Soil Survey — will Web Soil Survey work in my web browser?
- Know the Web Soil Survey hours of operation
- Find what areas of the U.S. have soil data
- Find information by topic
- Know how to hyperlink from other documents to Web Soil Survey
- Know the SSURGO data structure

Announcements/Events

- Web Soil Survey 3.1 has been released! [View description of new features and fixes.](#)
- [Web Soil Survey Release History](#)
- [Sign up for e-mail updates via GovDelivery](#)

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Area of Interest (AOI)

Soil Map

Soil Data Explorer

Download Soils Data

Shopping Cart (Free)

Empty input field for Area of Interest (AOI)

Search	⊕
Area of Interest	⊕
Import AOI	⊕
Quick Navigation	⊕
Address	
State and County	
Soil Survey Area	
Latitude and Longitude	
PLSS (Section, Township, Range)	
Bureau of Land Management	
Department of Defense	
Forest Service	
National Park Service	
Hydrologic Unit	

Area of Interest Interactive Map

View Extent:
 Scale:





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[A](#) [A](#) [A](#)

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Search

Area of Interest
[Open All](#) [Close All](#)

AOI Properties
[Clear AOI](#)

AOI Information
Name
Map Unit Symbols
 Use Soil Survey Area Map Unit Symbols
 Use National Map Unit Symbols
Area (acres) 246.3
Soil Data Available from Web Soil Survey
Brown County, Wisconsin (WI009)
Data Availability Tabular and Spatial, complete
Tabular Data Version 8, Sep 18, 2014
Spatial Data Version 4, Sep 18, 2014
[Clear AOI](#)

Import AOI

Export AOI

Quick Navigation

Address

State and County

Soil Survey Area

Latitude and Longitude

Area of Interest Interactive Map
View Extent [Contiguous U.S.](#)
Scale [\[not to scale\]](#)



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AAA

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[Printable Version](#) | [Add to Shopping Cart](#)

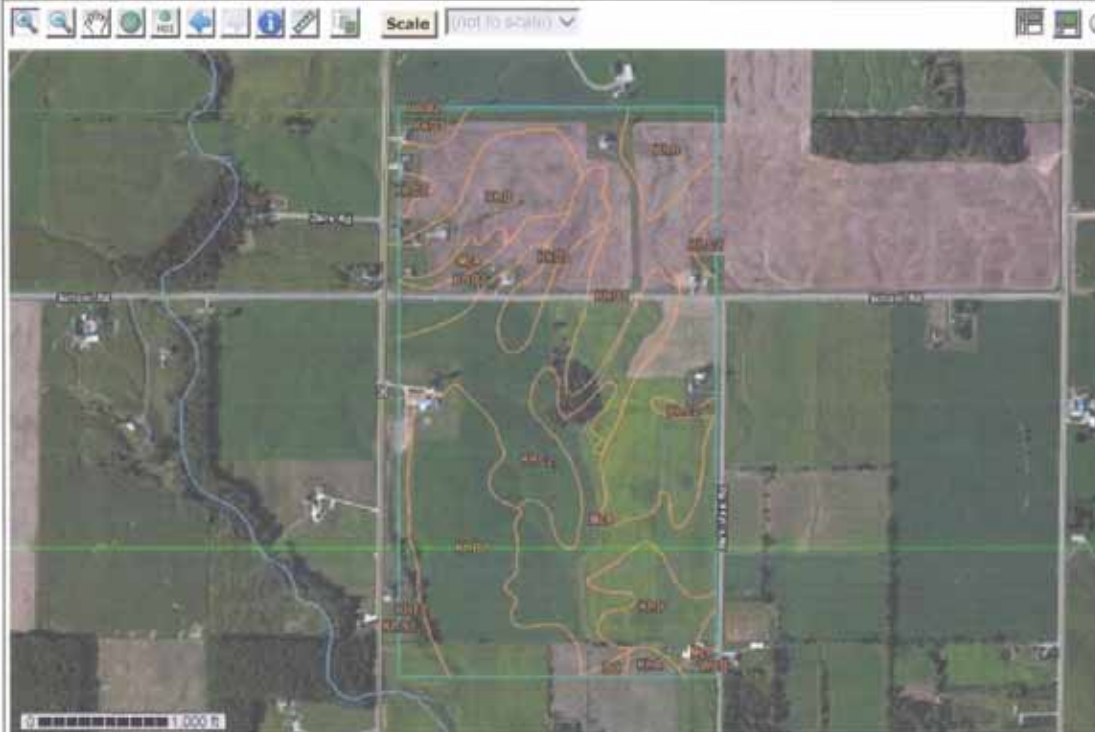
Search

Map Unit Legend

Brown County, Wisconsin (WI009)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bd	Bellevue silty clay loam, mottled subsoil variant	0.8	0.3%
KhB	Kewaunee silt loam, 2 to 6 percent slopes	39.0	15.9%
KhB2	Kewaunee silt loam, 2 to 6 percent slopes, eroded	104.4	42.4%
KhC2	Kewaunee silt loam, 6 to 12 percent slopes, eroded	46.1	18.7%
KhE2	Kewaunee silt loam, 20 to 30 percent slopes, eroded	7.2	2.9%
KkD3	Kewaunee soils, 12 to 20 percent slopes, severely eroded	10.4	4.2%
KnA	Kibbie silt loam, 1 to 3 percent slopes	1.7	0.7%
McA	Manawa silty clay loam, 0 to 3 percent slopes	36.6	14.8%
WoB	Waymor silt loam, 2 to 6 percent slopes	0.1	0.0%
Totals for Area of Interest		246.3	100.0%

Soil Map



Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soils is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:20,000. The design of map units and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Brown County, Wisconsin

KhC2—Kewaunee silt loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: g9h7

Elevation: 600 to 1,020 feet

Mean annual precipitation: 27 to 33 inches

Mean annual air temperature: 43 to 46 degrees F

Frost-free period: 120 to 150 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Kewaunee and similar soils: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kewaunee

Setting

Landform: Ground moraines

Landform position (two-dimensional): Backslope, shoulder

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Silty alluvium over clayey till

Typical profile

Ap,E - 0 to 8 inches: silt loam

Bt - 8 to 27 inches: clay

C - 27 to 60 inches: clay loam

Properties and qualities

Slope: 6 to 12 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.57 in/hr)

Depth to water table: About 60 to 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum in profile: 35 percent

Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: C

Other vegetative classification: Mod AWC, adequately drained (G095AY005W)

Description — Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Looking At the Model Spreadsheet for Determining Design Q:

PEAK DISCHARGE, EFH CHAPTER 2 METHOD, TR55 GRAPHICAL METHOD

VER. 12-2005

CLIENT: **Hydrology Class**

COUNTY: **BROWN**

DATE: _____

DSN BY: **A. Humpal**

CHK BY: _____

DATE: _____

COMMENTS: **For Introduction to Hydrology Class February 2008**

WOULD YOU LIKE TO DESIGN THIS TO EFH2
OR TR55 GRAPHICAL METHOD? (ENTER 2 OR 55)

55

GO TO
RCN
DATA

SOILS
INFO

PRINT
RUNOFF
TABLE

GO TO
T_c
TABLE

Drainage Area Acres

Runoff Curve Number

GO TO
WATERWAY

PRINT
RCN
DATA

HELP

Time of Concentration Hours

Frequency	yr	1	2	5	10	25	50	100
Rainfall, P (24 hour)	in	2.3	2.5	3.2	3.7	4.3	4.8	5.1
Initial Abstraction, I _a	in	0.41	0.41	0.41	0.41	0.41	0.41	0.41
I _a /P ratio		0.178	0.164	0.128	0.111	0.095	0.085	0.080
Unit Peak Discharge, q _u	cfs/ac/in	0.608	0.617	0.639	0.650	0.657	0.657	0.657
Runoff, Q	in	0.91	1.06	1.61	2.03	2.55	2.99	3.26
Peak Discharge, q _p	cfs	66	77	122	157	199	234	255

RCN Table

Cover Type	Treatment	hydrologic condition	Curve Numbers for Hydrologic Soil Type			
			A	B	C	D
RESET TABLE						
CULTIVATED AGRICULTURAL LANDS						
Fallow	Bare soil	----	77	86	91	94
	Crop residue (CR)	poor	76	85	90	93
Row Crops	Crop residue (CR)	good	74	83	88	90
	Straight row (SR)	poor	72	81	88	91
	Straight row (SR)	good	67	78	38	85
	SR + Crop residue	poor	71	80	87	90
	SR + Crop residue	good	64	75	82	85
	Contoured (C)	poor	70	79	84	88
	Contoured (C)	good	65	75	82	86
	C + Crop residue	poor	69	78	83	87
	C + Crop residue	good	64	74	81	85
	Cont & terraced(C&T)	poor	66	74	80	82
	Cont & terraced(C&T)	good	62	71	78	81
	C&T + Crop residue	poor	65	73	79	81
C&T + Crop residue	good	61	70	77	80	
Small Grain	Straight row (SR)	poor	65	76	84	88
	Straight row (SR)	good	63	75	19	83
	SR + Crop residue	poor	64	75	83	86
	SR + Crop residue	good	60	72	80	84
	Contoured (C)	poor	63	74	82	85
	Contoured (C)	good	61	73	81	84
	C + Crop residue	poor	62	73	81	84
	C + Crop residue	good	60	72	80	83
	Cont & terraced(C&T)	poor	61	72	79	82
	Cont & terraces(C&T)	good	59	70	78	81
	C&T + Crop residue	poor	60	71	78	81
	C&T + Crop residue	good	58	69	77	80
Close-seeded or broadcast legumes or rotation meadow	Straight row	poor	66	77	85	89
	Straight row	good	58	72	57	81
	Contoured	poor	64	75	83	85
	Contoured	good	55	69	78	83
	Cont & terraced	poor	63	73	80	83

**SOILS
INFO**

FINISHED

FULLY DEVELOPED URBAN AREAS (Veg Established)

Open space (Lawns,parks etc.)

Poor condition; grass cover < 50%	----- 68 ----- 79 ----- 86 ----- 89
Fair condition; grass cover 50% to 75 %	----- 49 ----- 69 ----- 79 ----- 84
Good condition; grass cover > 75%	----- 39 ----- 61 ----- 74 ----- 80

Impervious Areas

Paved parking lots, roofs, driveways	----- 98 ----- 98 ----- 98 ----- 98
Streets and roads	
Paved; curbs and storm sewer	----- 98 ----- 98 ----- 98 ----- 98
Paved; open ditches (w/right-of-way)	----- 83 ----- 89 1 ----- 92 ----- 93
Gravel (w/ right-of-way)	----- 76 ----- 85 ----- 89 ----- 91
Dirt (w/ right-of-way)	----- 72 ----- 82 ----- 87 ----- 89

FINISHED

Urban Districts

	Avg % impervious				
Commercial & business	85	----- 89 ----- 92 ----- 94 ----- 95			
Industrial	72	----- 81 ----- 88 ----- 91 ----- 93			

Residential districts by average lot size

	Avg % impervious				
1/8 acre (town houses)	65	----- 77 ----- 85 ----- 90 ----- 92			
1/4 acre	38	----- 61 ----- 75 ----- 83 ----- 87			
1/3 acre	30	----- 57 ----- 72 ----- 81 ----- 86			
1/2 acre	25	----- 54 ----- 70 ----- 80 ----- 85			
1 acre	20	----- 51 ----- 68 ----- 79 ----- 84			
2 acre	12	----- 46 ----- 65 ----- 77 ----- 82			

User defined urban

----- ** ----- ** ----- ** ----- **

DEVELOPING URBAN AREA (No Vegetation)

Newly graded area (pervious only)	----- 77 ----- 86 ----- 91 ----- 94
-----------------------------------	-------------------------------------

0 0 119 0

Total Acres	119
RCN	83

FINISHED

Scale of Project (DA size)

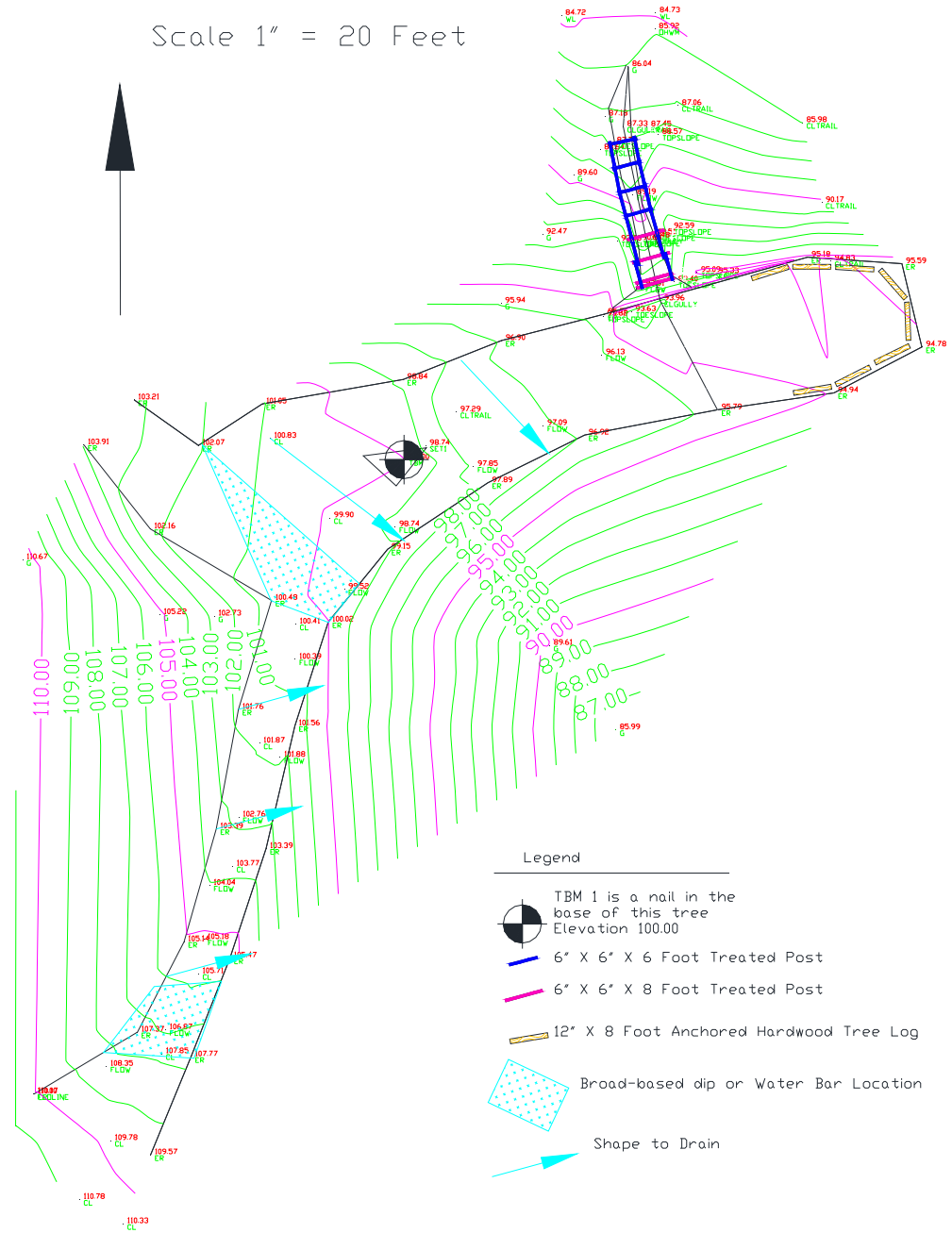
- Examples have shown larger scale
- Private Riparian owners may encounter smaller scale runoff problems
- How to size those watersheds and get design runoff flows?
- Topo maps and 10 foot contours not adequate, so need more specific data – 1 and 2 foot contours necessary









Town Road with public access – runoff delivery toward lakeshore from hillside above

EAST BASS LAKE PLAN VIEW

Scale 1" = 20 Feet



Legend

-  TBM 1 is a nail in the base of this tree
Elevation 100.00
-  6" X 6" X 6 Foot Treated Post
-  6" X 6" X 8 Foot Treated Post
-  12" X 8 Foot Anchored Hardwood Tree Log
-  Broad-based dip or Water Bar Location
-  Shape to Drain



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Search

Map Unit Legend

Florence County, Wisconsin (WI037)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CrA	Croswell loamy sand, 0 to 3 percent slopes	3.7	2.1%
Lu	Lupton and Cathro soils, 0 to 1 percent slopes	0.8	0.5%
SIB	Sarona-Vilas complex, 0 to 6 percent slopes, very stony	12.2	6.8%
SIC	Sarona-Vilas complex, 6 to 15 percent slopes, very stony	6.4	3.6%
VsB	Vilas loamy sand, 0 to 6 percent slopes	79.9	44.7%
VsC	Vilas loamy sand, 6 to 15 percent slopes	11.8	6.6%
VsD	Vilas loamy sand, 15 to 30 percent slopes	14.6	8.2%
W	Water	49.1	27.5%
Totals for Area of Interest		178.6	100.0%

Soil Map

Scale: (not to scale)



Warning: Soil Map may not be valid at this scale.

You have zoomed in beyond the scale at which the soil map for this area is intended to be used. Mapping of soil is done at a particular scale. The soil surveys that comprise your AOI were mapped at 1:12,000. The design of the map and the level of detail shown in the resulting soil map are dependent on that map scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

CrA—Croswell loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: gfft
Elevation: 600 to 1,600 feet
Mean annual precipitation: 27 to 34 inches
Mean annual air temperature: 41 to 45 degrees F
Frost-free period: 90 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Croswell and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Croswell

Setting

Landform: Stream terraces, outwash plains
Landform position (two-dimensional): Footslope, toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy outwash

Typical profile

Oa,E - 0 to 5 inches: loamy sand
Bs1,Bs2 - 5 to 21 inches: sand
BC - 21 to 27 inches: sand
C - 27 to 62 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: About 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4s
Hydrologic Soil Group: A

Florence County, Wisconsin

VsD—Vilas loamy sand, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: gfnz
Elevation: 600 to 1,950 feet
Mean annual precipitation: 28 to 33 inches
Mean annual air temperature: 36 to 45 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Not prime farmland

Map Unit Composition

Vilas and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vilas

Setting

Landform: Stream terraces, kames, outwash plains, moraines
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy outwash

Typical profile

O_iA - 0 to 4 inches: loamy sand
E - 4 to 5 inches: loamy sand
Bs1 - 5 to 8 inches: loamy sand
Bs2,BC - 8 to 37 inches: sand
C - 37 to 62 inches: sand

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A



New home development in
old gravel pit creates
unstable soils to wash
toward lakeshore

10/6/00



Search

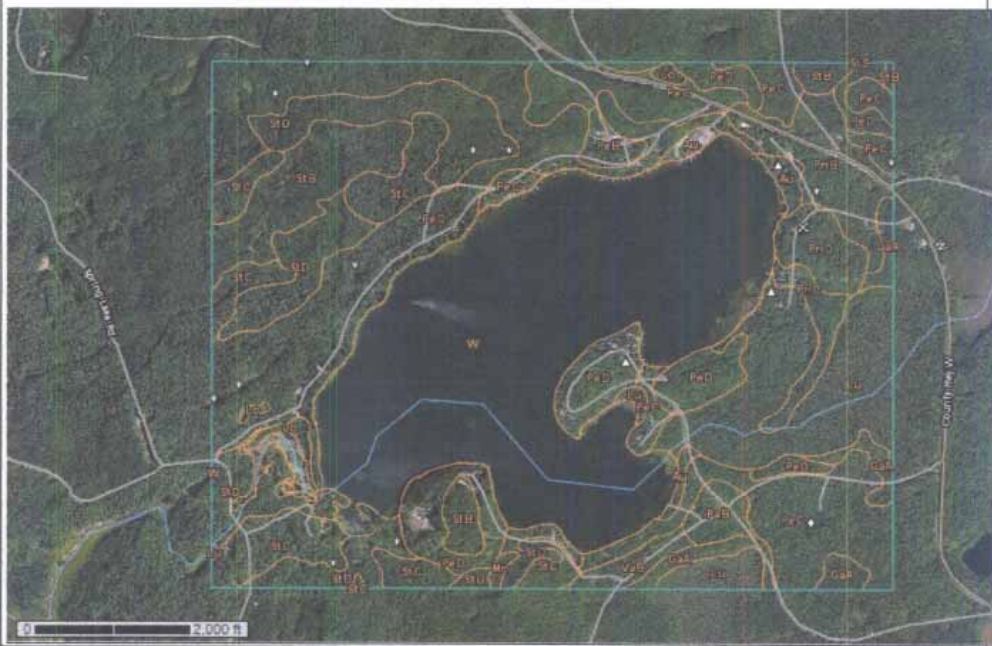
Map Unit Legend

Forest County, Wisconsin (WI041)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Au	Au Gres loamy sand, 0 to 2 percent slopes	12.8	0.9%
GaA	Gastrow silt loam, 0 to 3 percent slopes	28.7	2.0%
Lo	Loxley, Beseman, and Dawson peats, 0 to 1 percent slopes	7.7	0.5%
Lu	Lupton and Cathro soils, 0 to 1 percent slopes	119.6	8.3%
Mn	Minocqua muck, 0 to 2 percent slopes	2.1	0.1%
PaB	Padus sandy loam, 0 to 6 percent slopes	13.0	0.9%
PeB	Padus-Pence sandy loams, 0 to 6 percent slopes	9.0	0.6%
PeC	Padus-Pence sandy loams, 6 to 15 percent slopes	139.0	9.6%
PeD	Padus-Pence sandy loams, 15 to 35 percent slopes	282.1	19.5%
PnB	Pence sandy loam, 0 to 6 percent slopes	46.1	3.2%
PnC	Pence sandy loam, 6 to 15 percent slopes	16.1	1.1%

Soil Map

Scale (not to scale)



Forest County, Wisconsin

PeD—Padus-Pence sandy loams, 15 to 35 percent slopes

Map Unit Setting

National map unit symbol: gf98

Elevation: 600 to 2,000 feet

Mean annual precipitation: 28 to 33 inches

Mean annual air temperature: 36 to 45 degrees F

Frost-free period: 70 to 135 days

Farmland classification: Not prime farmland

Map Unit Composition

Padus and similar soils: 65 percent

Pence, sandy substratum, and similar soils: 35 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Padus

Setting

Landform: Eskers, stream terraces, kames, outwash plains

Landform position (two-dimensional): Backslope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Silty and/or loamy drift over sandy and gravelly and/or sandy outwash

Typical profile

A - 0 to 2 inches: sandy loam

E - 2 to 4 inches: sandy loam

Bs1,Bs2 - 4 to 16 inches: sandy loam

E/B,Bt - 16 to 25 inches: sandy loam

2C - 25 to 60 inches: stratified sand

Properties and qualities

Slope: 15 to 35 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

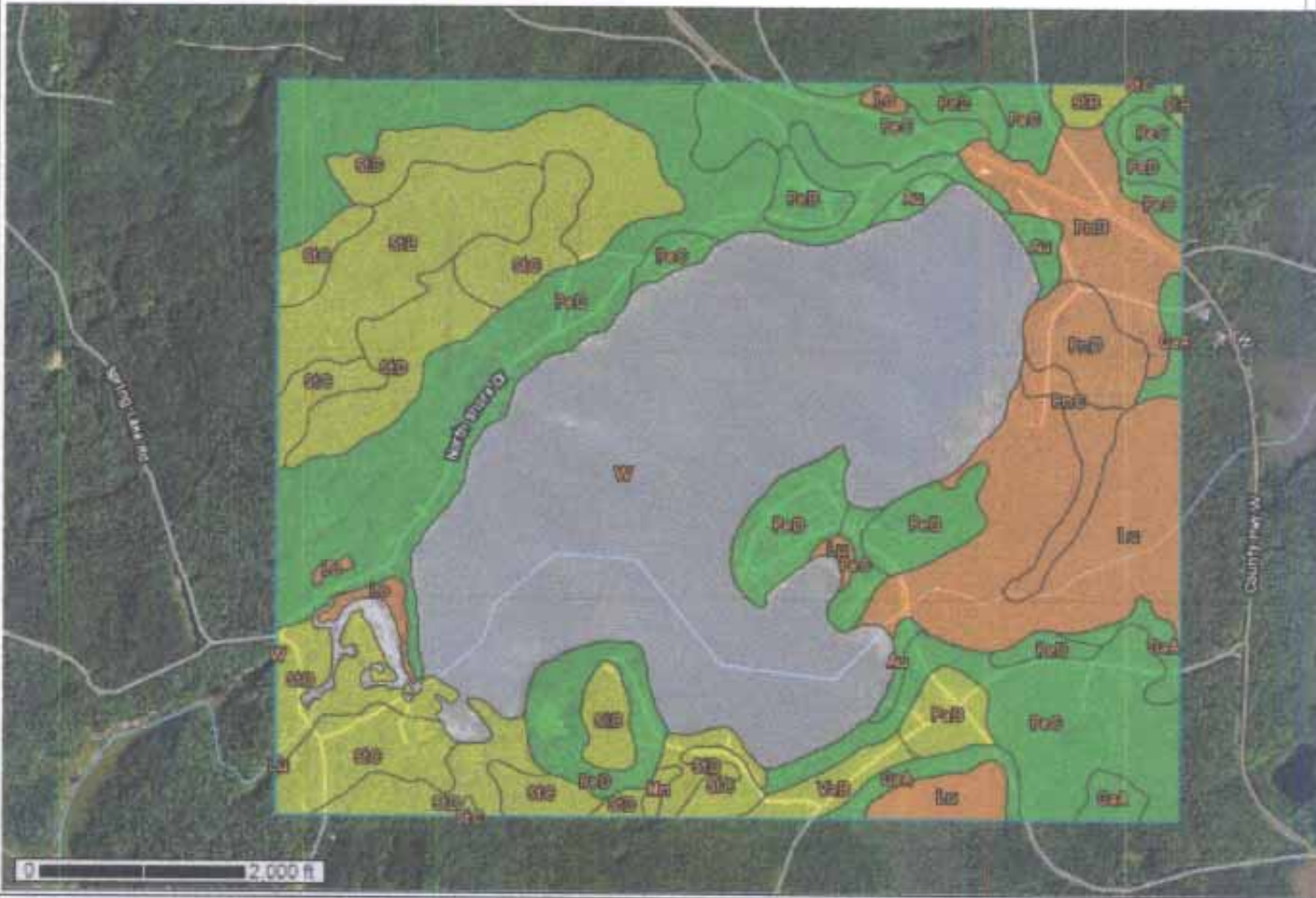
Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B

Map - T Factor

Scale (not to scale)



Close All

View Rating

option

Tables - T Factor - Summary By Map Unit

Summary by Map Unit - Forest County, Wisconsin (WI041)

nt off

ile Lower
 Higher

as ro Yes
 No

[View Description](#) [View Rating](#)

Group

Index

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Features

0 2,000 ft

Tables – T Factor – Summary By Map Unit

Summary by Map Unit – Forest County, Wisconsin (WI041)

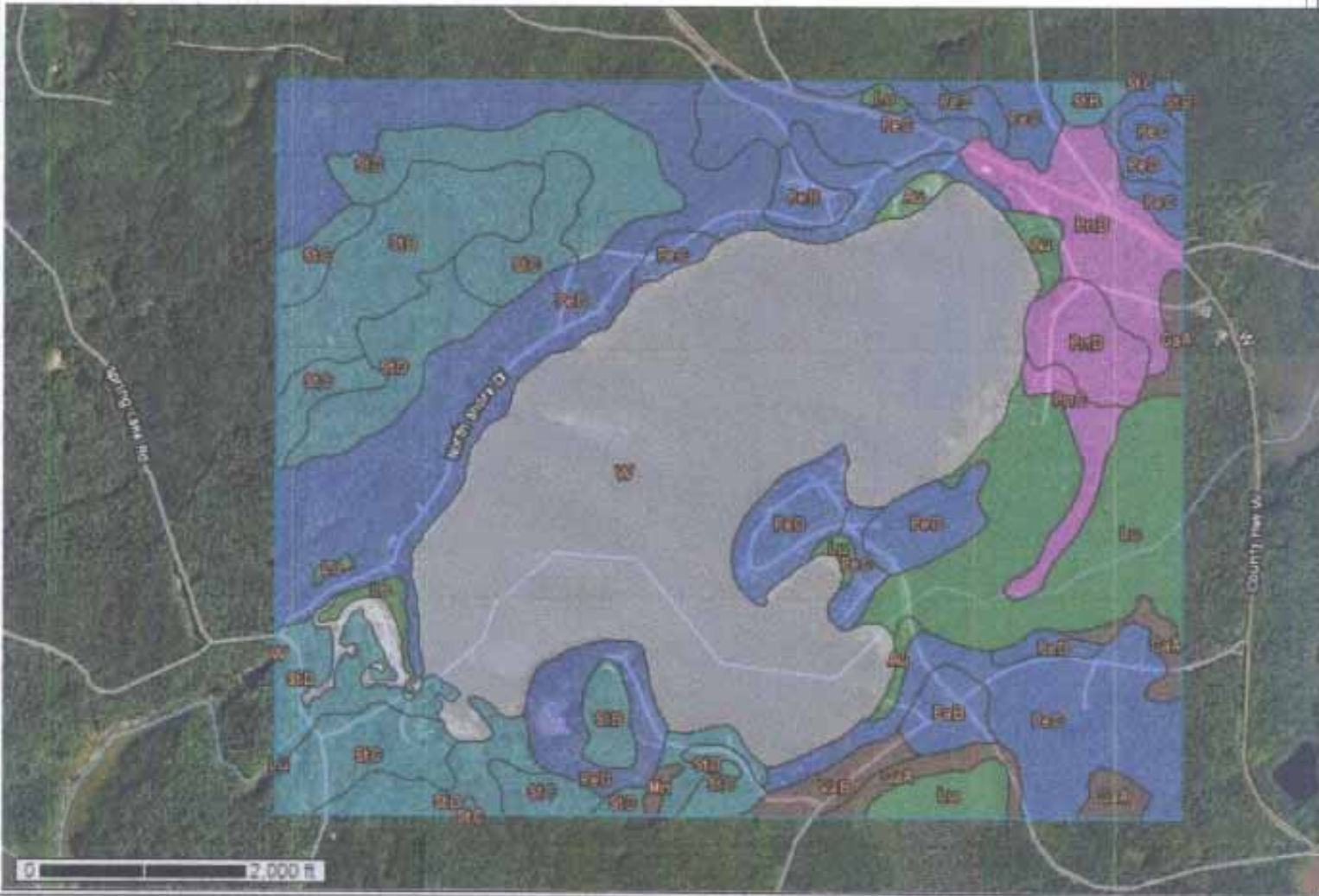
Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
Au	Au Gres loamy sand, 0 to 2 percent slopes	5	12.8	0.9%
GaA	Gastrow silt loam, 0 to 3 percent slopes	5	28.7	2.0%
Lo	Loxley, Beseman, and Dawson peats, 0 to 1 percent slopes	2	7.7	0.5%
Lu	Lupton and Cathro soils, 0 to 1 percent slopes	2	119.6	8.3%
Mn	Minocqua muck, 0 to 2 percent slopes	3	2.1	0.1%
PaB	Padus sandy loam, 0 to 6 percent slopes	3	13.0	0.9%
PeB	Padus-Pence sandy loams, 0 to 6 percent slopes	5	9.0	0.6%
PeC	Padus-Pence sandy loams, 6 to 15 percent slopes	5	139.0	9.6%
PeD	Padus-Pence sandy loams, 15 to 35 percent slopes	5	282.1	19.5%
PnB	Pence sandy loam, 0 to 6 percent slopes	2	46.1	3.2%
PnC	Pence sandy loam, 6 to 15 percent slopes	2	16.1	1.1%
PnD	Pence sandy loam, 15 to 35 percent slopes	2	22.5	1.5%
StB	Stambaugh silt loam, 0 to 6 percent slopes	3	69.2	4.8%
StC	Stambaugh silt loam, 6 to 15 percent slopes	3	84.5	5.8%
StD	Stambaugh silt loam, 15 to 25 percent slopes	3	132.6	9.1%
VaB	Vanzile silt loam, 0 to 6 percent slopes	3	11.7	0.8%
W	Water		452.7	31.2%
Totals for Area of Interest			1,449.4	100.0%

Description – T Factor

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Map — Hydrologic Soil Group

Scale (not to scale)



Tables — Hydrologic Soil Group — Summary By Map Unit

Summary by Map Unit — Forest County, Wisconsin (WI041)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
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Tables — Hydrologic Soil Group — Summary By Map Unit

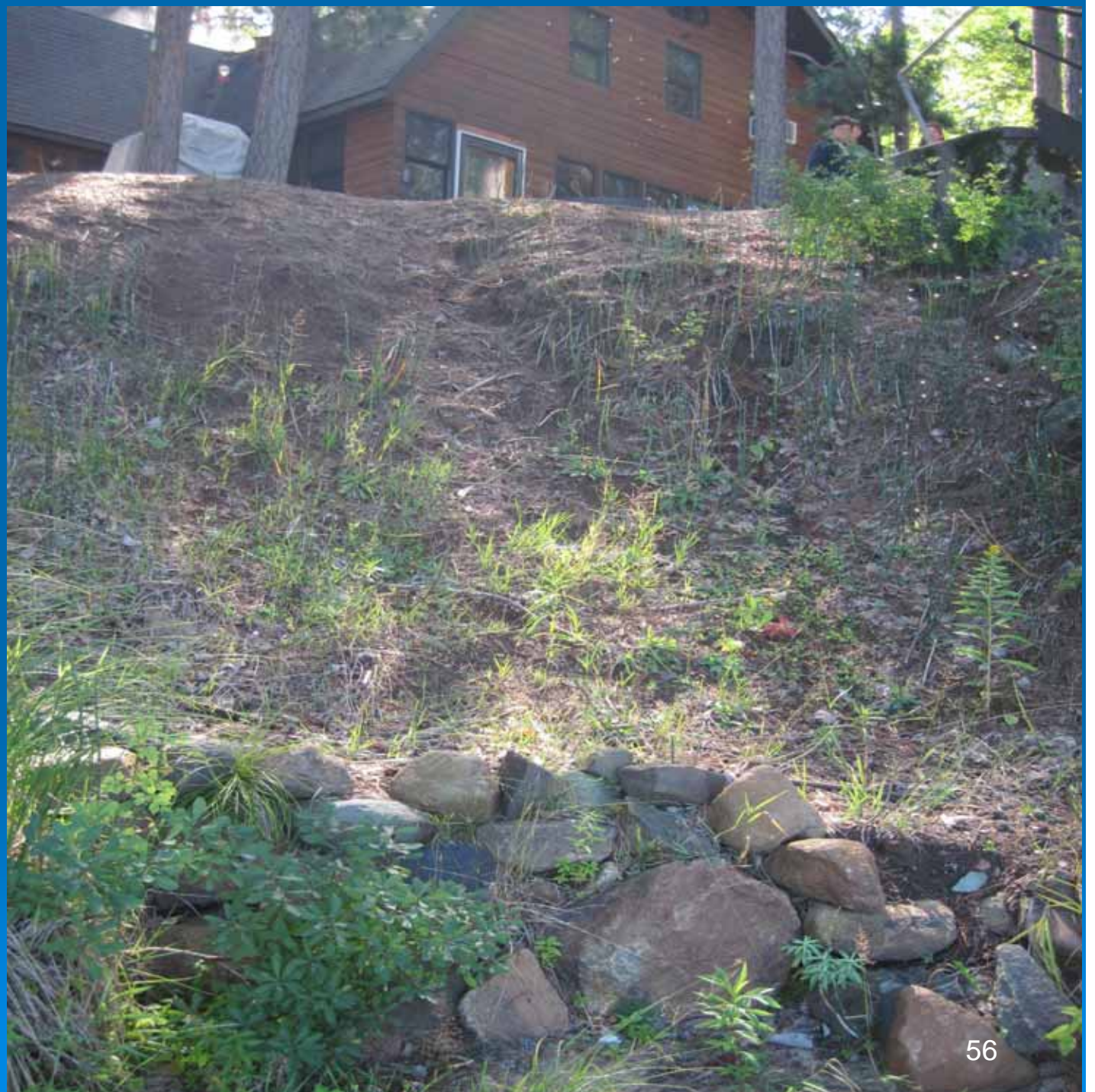
Summary by Map Unit — Forest County, Wisconsin (WI041)

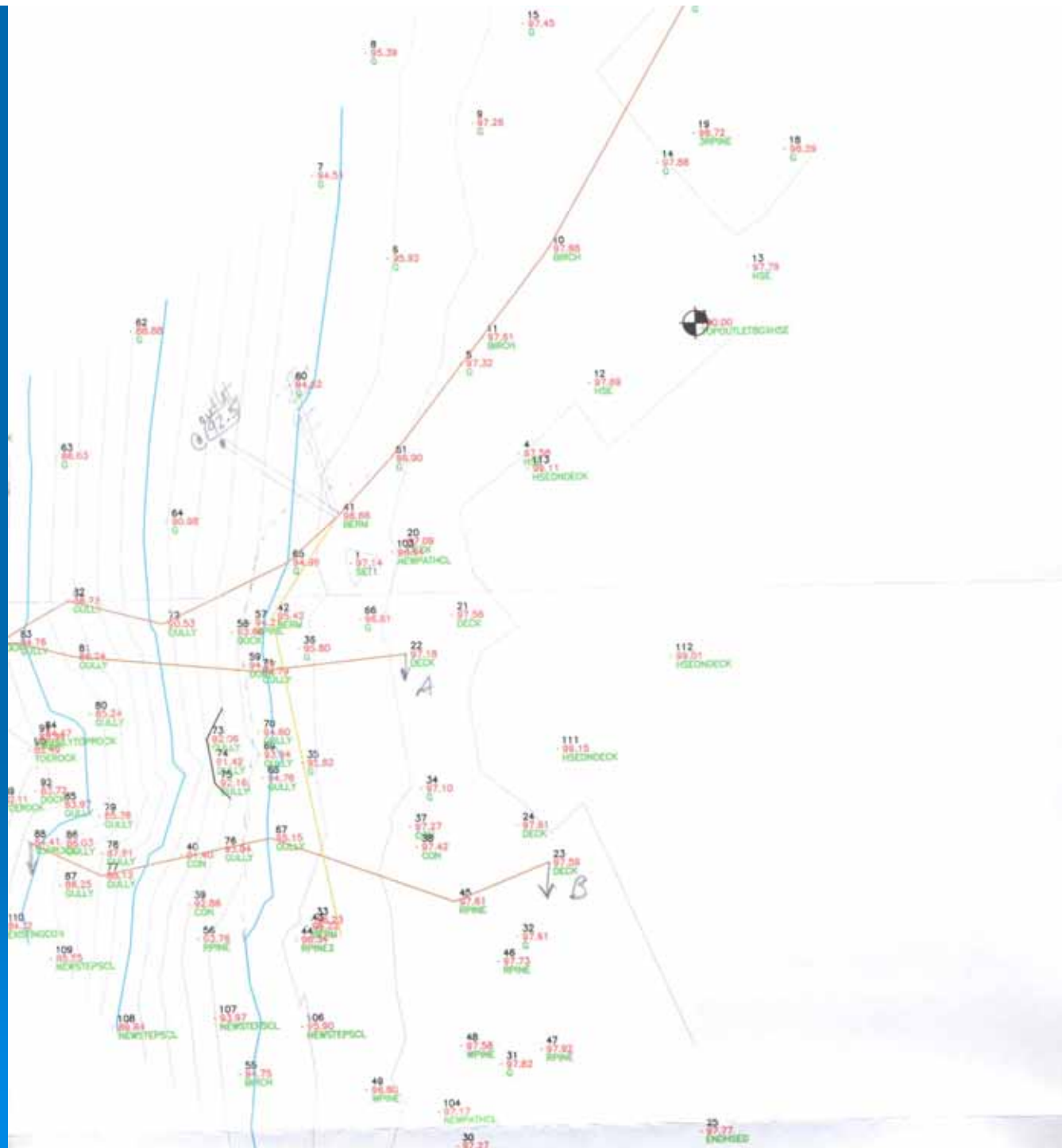
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GaA	Gastrow silt loam, 0 to 3 percent slopes	B/D	28.7	2.0%
Lo	Loxley, Beseman, and Dawson peats, 0 to 1 percent slopes	A/D	7.7	0.5%
Lu	Lupton and Cathro soils, 0 to 1 percent slopes	A/D	119.6	8.3%
Mn	Minocqua muck, 0 to 2 percent slopes	B/D	2.1	0.1%
PaB	Padus sandy loam, 0 to 6 percent slopes	B	13.0	0.9%
PeB	Padus-Pence sandy loams, 0 to 6 percent slopes	B	9.0	0.6%
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VaB	Vanzile silt loam, 0 to 6 percent slopes	B/D	11.7	0.8%
W	Water		452.7	31.2%
Totals for Area of Interest			1,449.4	100.0%

Description — Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

Runoff from Roof and deck headed toward slope and directly to the lakeshore





ROOF GUTTER DESIGN

Ver 5-2012

CLIENT: Example	COUNTY: PRICE	DATE:
DSN BY: SDD		
BLDG: Residence	CHK BY: _____	DATE: _____
COMMENT: _____		

DESIGN DATA

6" K-GUTTER

Design Storm: 25 yr.
Per 1000 ft²: 0.158 cfs

Gutter Size: 6 inch
Flow Area: 0.163 sq.ft.

Drop, min: 2.0 in.
Drop, max: 3.5 in.

Wetted Peri.: 1.189 ft.
Gutter Depth: 0.375 ft.
Hyd. Radius: 0.137 ft.

Downspout capacities: 12.0 sq.in. = 0.266 cfs capacity
20.0 sq.in. = 0.444 cfs capacity

Print Design Sheet

Downspout size: 20.0 sq.in.
with a flow of: 0.348 cfs This flow requires a slope of: 1.0 % min.

Sta.	Rod	Roof Width (Horiz)	Q in (extra Q) cfs	Q out (D S's) cfs	Design Interval Drop, ft	Roof Interval Drop, ft	Your Added Drop, ft	Tot Drop From Roof, in
0	5.65	18			---	---	---	2 0/8
10	5.65	18			0.00	0.00	0.00	2 0/8
20	5.65	18			0.00	0.00	0.00	2 0/8
30	5.65	18			0.00	0.00	0.00	2 0/8
40	5.65	18			0.00	0.00	0.00	2 1/8

Questions?

Remember to consider soils and drainage area calculations when considering erosion control practices for stormwater runoff!