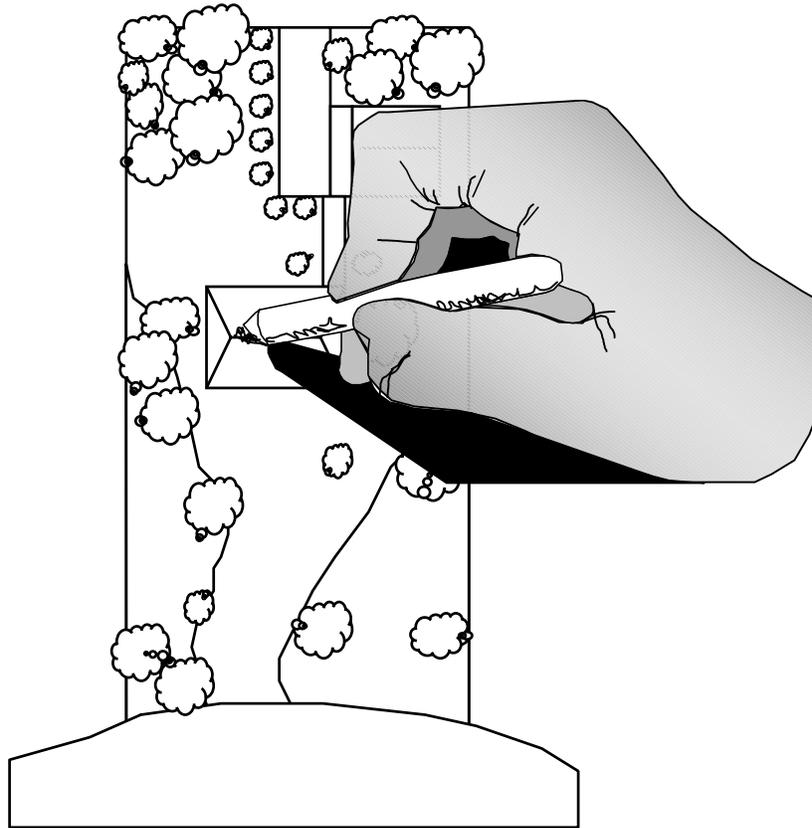
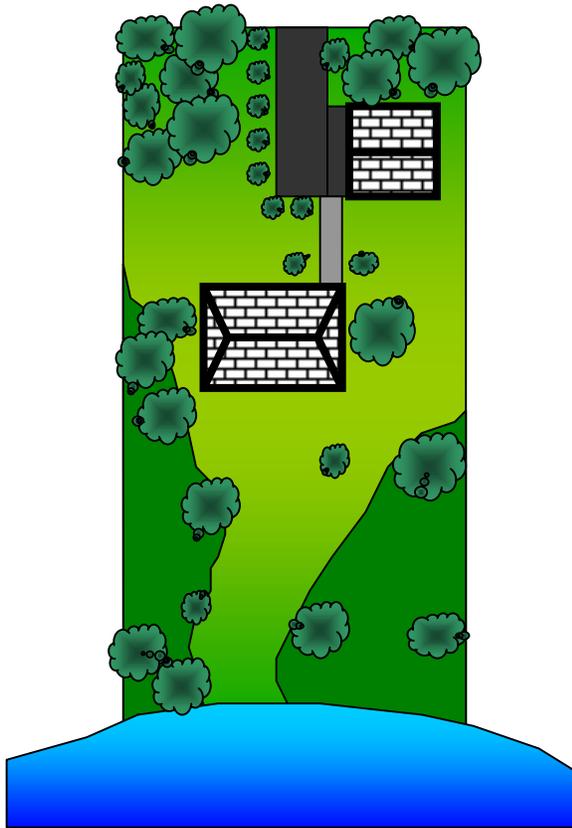


Polk County, Wisconsin

An introduction to the Land Use Runoff Rating

The Land Use Runoff Rating was developed as a method to reduce the negative effects of shoreline development. This method recognizes that every waterfront property is unique. However, the cumulative effects of land development near lakes, rivers, and streams will almost certainly have negative impacts on water quality and habitat no matter how sensitive development proceeds.



The Land Use Runoff Rating is based on the amount of storm water runoff generated from various land uses as determined in *Urban Hydrology for Small Watersheds, Technical Release 55* (1986) published by the United States Department of Agriculture.

December 2001

Welcome

The following exercise should familiarize you with how to determine your property's Land Use Runoff Rating as proposed in the 2001 *DRAFT Shoreland Protection Zoning Ordinance*. The Land Use Runoff Rating is applicable only when a building permit is requested:

- 1) **For property within the shoreland setback area.** Shoreland setbacks are as follows:
 - Class 1 lake, 75 ft.
 - Class 2 lake, 100 ft.
 - Class 3 lake, 100 ft.
 - Rivers/Streams, 100 ft.

- 2) **For activities that will increase impervious surface on land that drains directly to a lake** (but only within 300 feet of a lakeshore or riverbank).

You will need the following in order to calculate a Land Use Runoff Rating for your own property:

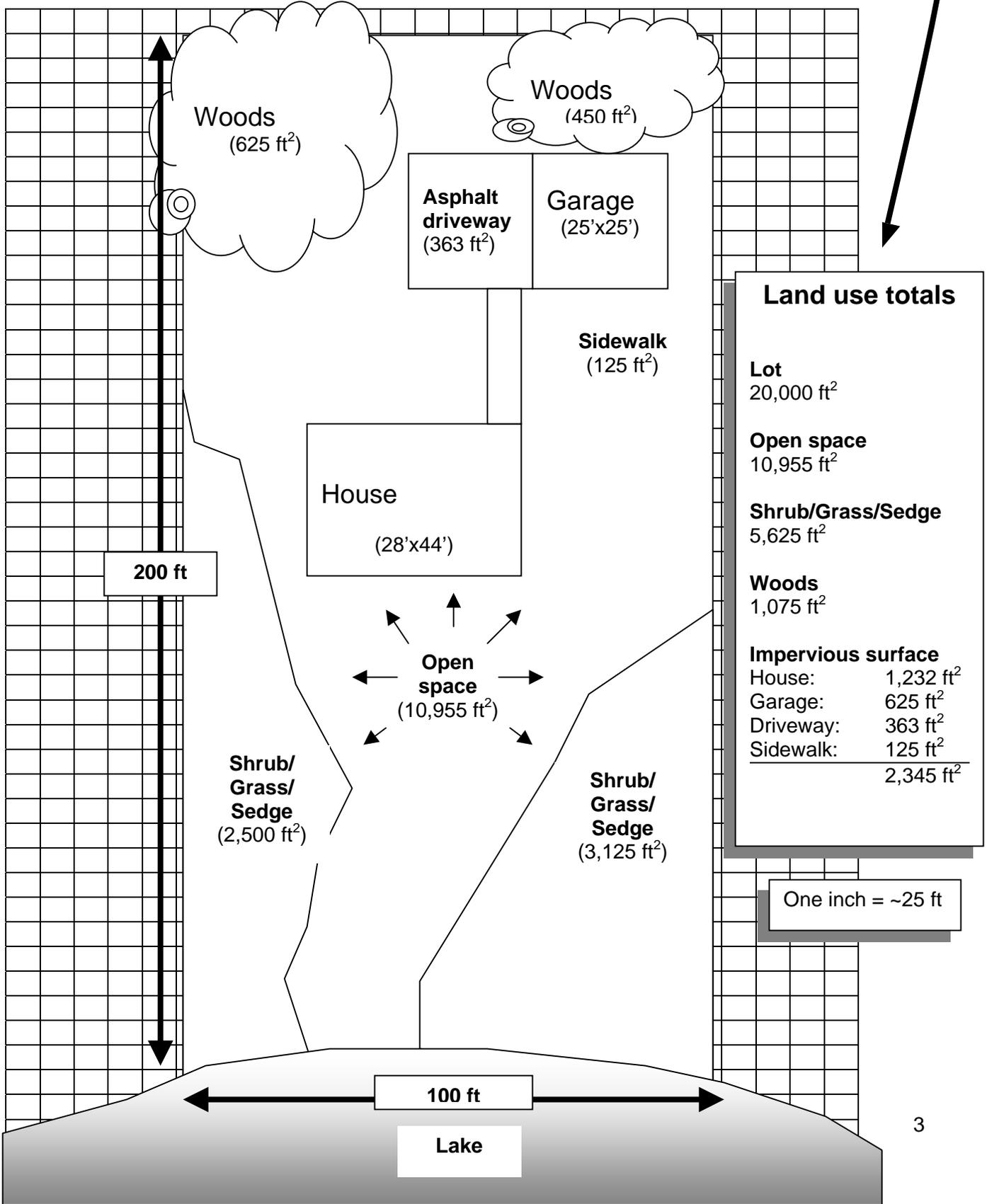
- 1) Hydraulic Soils Map of Polk County (available from the Polk County Zoning Department).
- 2) Curve numbers for hydraulic soil types (included in this workbook).
- 3) Plat map or other document that shows the dimensions of your lot.
- 4) Pencil and paper (graph paper is recommended).
- 5) Tape measure (50' or longer is recommended).
- 6) Calculator.

CAUTION:

If you plan to build or remodel on your lot contact all applicable state and local authorities regarding your project. Make certain that you have obtained all necessary permits before beginning any work.

1. Determine the area of each land use for the lot.

Land uses fall into one of the following 4 categories: **Open space** (lawns, parks, golf courses, cemeteries, etc.); **Shrub/Grass/Sedge community** (dominated by a mix of deep-rooting, native shrubs, grasses, sedges, and perennial forbs); **Woods** (stands that consist of one or more tree species with an understory of shrubs and immature trees); **Impervious surfaces** (roofs, driveways, sidewalks, gravel paths and driveways).



Land use totals	
Lot	20,000 ft ²
Open Space	10,955 ft ²
Shrub/Grass/Sedge	5,625 ft ²
Woods	1,075 ft ²
Impervious surfaces	
House:	1,232 ft ²
Garage:	625 ft ²
Driveway:	363 ft ²
Sidewalk:	125 ft ²
Total:	2,345 ft²

2. Determine the percentage of each land use on the lot.

Open Space:	$10,955 / 20,000 = .55 = 55\%$
Shrub/Grass/Sedge:	$5,625 / 20,000 = .28 = 28\%$
Woods:	$1,075 / 20,000 = .05 = 5\%$
Impervious surfaces:	$2,345 / 20,000 = .12 = 12\%$

3. Determine the hydrologic soils type of the property.

This information is available from the Polk County Zoning Department.

Most soils in Polk County are type **B** hydrologic soils. (We will use **B** for this exercise.)

4. Determine the appropriate curve number for each land use.

PERVIOUS AREAS

OPEN SPACE: Lawns, parks, golf courses, cemeteries, etc.

- Poor condition; grass cover < 50%; mowed height = less than 2"
- Fair condition; grass cover 50% to 75%; mowed height = 2" to less than 3"
- Good condition; grass cover > 75%; mowed height = 3" or taller

SHRUB/GRASS/SEDGE COMMUNITY: Mixture of deep-rooting native plants

- Poor: <50% ground cover; no mowing
- Fair: 50 to 75% ground cover; no mowing
- Good: >75% ground cover; no mowing

WOODS: Ground cover primarily native perennials and/or forest litter.

- Poor: small trees, brush, and forest litter removed; <50% ground cover
- Fair: small trees, brush, forest litter present; 50-75% ground cover
- Good: small trees, brush, and forest litter present; >75% ground cover

IMPERVIOUS AREAS

- Roofs, paved driveways, paved walkways, paved patios, etc.
- Gravel driveways, gravel walkways, etc.

Curve Numbers for Hydrologic Soil Type

A	B	C	D
.68	.79	.86	.89
.49	.69	.79	.84
.39	.61	.74	.80
.48	.67	.77	.83
.35	.56	.70	.77
.30	.48	.65	.73
.45	.66	.77	.83
.36	.60	.73	.79
.30	.55	.70	.77
.98	.98	.98	.98
.76	.85	.89	.91

5. Multiply the percentage of each land use by the appropriate curve number.

Open space (fair condition):	55%	→	55 x	.69	= 38.0
Shrubs/Grass/Sedge (good):	28%	→	28 x	.48	= 13.4
Woods (good condition):	5%	→	5 x	.55	= 2.8
Impervious surfaces:	12%	→	12 x	.98	= 11.8

6. Add the resulting numbers to determine your Land Use Runoff Rating.

Open space (fair condition):	55%	55 x .69 =	38.0
Shrubs/Grass/Sedge (good):	28%	28 x .48 =	13.4
Woods (good condition):	5%	5 x .55 =	2.8
Impervious surfaces:	12%	12 x .98 =	11.8
			+
			<hr/>
		Land Use Runoff Rating:	66.0

7. Results

If the Land Use Runoff Rating (LURR) for a property is **less than or equal to 69** additions, additional buildings, or additional impervious surfaces will be allowed only the proposed construction does not “bump” the property’s LURR over 69.

If the LURR for a property is **greater than 69** expansions to impervious surfaces will be allowed only after measures to reduce the rating to 69 or below are approved by the Zoning Department. Such measures include but are not limited to: rain basins, retention ponds, vegetative areas, and redirecting water away from the navigable water.

This particular sample lot has a LURR of 66. This is well below the threshold of 69. Therefore, the owner of this lot would be able to add about 600 ft² of impervious area to the lot by obtaining the appropriate building permits. A structure 600 ft² is approximately 24 ft by 24 ft.