

BRIEF DESCRIPTION OF PRESENT DISTRICT AND PROPOSED DISTRICT

The existing Norway-Dover Farm Drainage District consists of 18,879 acres and contains 1,868 parcels. About 72% of the existing District area is located within the limits of the Town of Norway and about 25% is located in the northerly portion of the Town of Dover. The remaining 3% is spread out over very small portions along the easterly fringes of the Village of Rochester and the Town of Waterford. The existing district has a very jagged boundary. There is a substantial amount of land area, which lies outside of the present district boundary that naturally drains through existing district lands and contributes runoff to district owned channels and ditches.

In order to provide a fair assessment to present district properties, the Racine County Farm Drainage Board is proposing to annex all Racine County lands, which contribute runoff to the Wind Lake Canal. The new district boundary would be enlarged to correspond to the Wind Lake Canal Sub-watershed boundary within Racine County. The new and expanded District would include 4,977 parcels and a land area of 33,606 acres. The existing and proposed district boundaries are clearly defined on the new District Map Set. The exact parcel and land area breakdown is shown in a table on Sheet 1 of the District Map Set for both the existing and proposed District.

District lands are predominately agriculture with some isolated areas of low, medium, and high-density residential development. Scattered industrial and commercial developments are also present and mostly exist along the main highways and in the proximity of Wind Lake, Waubeesee Lake and Long Lake. The drainage of all district lands ultimately flows to the Wind Lake Canal, which outlets to the Fox River at the far southwestern corner of the District. Soils within the vast majority of the District are predominately clay and have a hydrologic classification of Type C. A very small area of the district mostly within Section 2-3-19 in the Village and Town of Rochester contains lighter and sandier soils with a Type B hydrologic classification.

The enlarged District encompasses almost all of the Town of Norway, about 1/3 of the Town of Dover, and small portions of the Town of Raymond, Town of Waterford, Village of Rochester and the Village of Waterford. The expanded District contains 254,797 linear feet (48.26 miles) of ditches and canals.

Of the 6 municipalities, only the Town of Raymond has formed their own Stormwater Drainage District. Except for the far westerly edge of the Town of Raymond, almost the entire Town drains directly to the Root River Watershed. It is this westerly edge of the Raymond that discharges to the Wind Lake Canal, which will be added to the expanded Norway-Dover District. There are some Raymond parcels, which will be partly within the Raymond Storm Water District and partly within the new enlarged Norway-Dover Farm Drainage District.

There are no District owned drain tiles present in Norway-Dover District. Most all of the District owned channels, waterways and ditches were not created by mother nature but were artificially excavated or enlarged by men and equipment. The entire Norway-Dover District is very flat, which means that the District channels have an almost flat gradient. The flat channel gradients cause the flow velocities for both the average and peak discharges to be very small. In most cases the velocities are less than 1 foot per second. The small velocities cause silt to build up in the channel bottoms. In order to keep the channel discharges at a reasonable level the channels must be cleaned of silt and debrushed or sprayed at regular time intervals. The proposed District Assessment will be used to cover maintenance expenses to keep clean and well-working waterways. Keeping a clean Wind Lake Canal is especially important to help alleviate flooding around Wind Lake. The 10 and 100-year flood levels of Wind Lake are controlled by the capacity of the Wind Lake Canal.

The District is controlled by the Racine County Farm Drainage Board. The Board has hired Griswold Engineering to complete District Mapping and to develop a parcel benefit assessment analysis.

DISTRICT MAP

Electronic data was gained from Racine County using shape files that were imported into AutoCAD. Parcel boundary lines, WDNR inventoried wetland boundaries, flood plain lines, waterway lines and street right of way lines make up the basis of the District Map. Areas of each parcel were computed using closed polylines and checked with County records. Parcel numbers and areas were entered onto the map. The historical district boundary and the branch ditch locations were taken from the established district map.

PARCEL BENEFITS AND DISTRICT SPECIAL ASSESSMENT

It was determined that the best way to assess benefits for each parcel was by quantifying the rate of runoff for each parcel. The 2 major factors in determining runoff are parcel area in acres and runoff coefficient. The runoff coefficient is a function of the parcel land use, surface permeability and soil porosity.

A parcel C x A factor was compiled for each parcel. Benefits were assigned to each parcel at the rate of 400 benefit points for each C x A factor unit. The District Commissioners historically assigned a minimum benefit for smaller residential and commercial parcels located within the district. It was determined that the minimum benefit for the smaller parcels would be 350. The reasoning for a minimum assessment is two-fold:

- 1) The smaller urbanized parcels have or have the potential for containing expensive improvements. They run the risk of suffering higher damages should the District system not be properly maintained and should flooding occur.

- 2) There is fixed per parcel cost associated with administrative and engineering expenses. This fixed cost is not linked with rate of runoff or parcel size.

The District commissioners developed a budget and determined that they need to raise \$1,400,000 for the total district assessment. The actual assessment amount for each parcel was determined by dividing the benefits for each parcel by the total benefits for the entire district and multiplying this ratio by the total amount to be assessed.

Data including owner's name, mailing address, municipal code, parcel number, parcel area, usage, runoff coefficient, C x A factor, benefits and assessment amount were entered on a Microsoft Excel spreadsheet file and the assessment roll was compiled.

As a guideline the following runoff coefficients were used for the different land uses:

CODE	LAND USE	RUNOFF COEFFICIENT
G1	Residential – less than 0.75 Ac	0.33
G1	Residential - 0.75 to 1.5 Ac	0.30
G1	Residential – greater than 1.5 Ac	0.20
G2	Commercial	0.40 to 0.68
G3	Industrial	0.40 to 0.68
G4	Agricultural	0.17
G5	Swamp/Wasteland	0.08
G-6	Woods	0.13
G-7	Agricultural Buildings	0.20
R/W	Road Right of way	0.42
5M	Pasture/Forest	0.15

In some cases runoff coefficients may have been increased or decreased based on specific and combined usage.