

**Engineering Report
For the
Proposed Dodge County Drainage District No. 88
Submitted to the
Dodge County Drainage Board
By the
Wisconsin Department of Agriculture, Trade, and Consumer Protection
September 24, 2010**

Background

In July, 2009 landowners petitioned the Dodge County Circuit Court to organize a drainage district in the Town of Burnett under the authority of Chapter 88 of the Wisconsin Statutes. The petitioners represented more than 50% of the land within the district. The Dodge County Drainage Board held a hearing on the proposed district on July 13th, 2010. Since the proposed drainage district exceeded 200 acres in size, the Dodge County Drainage Board submitted a report, prepared by Dan Prunuske, PE, of Designtech Engineering of Beaver Dam, Wisconsin, to the Department of Agriculture, Trade, and Consumer Protection (DATCP) as required by section 88.32(3m) of the Wisconsin Statutes on August 17th, 2010.

This engineering report has been prepared pursuant to s. 88.11(3), Wis. Stats.

Location, Design, and Feasibility of the Proposed Outlet Drains

The proposed district is within sections 19, 20, 21, 29, and 30 of the Town of Burnett, Dodge County, Wisconsin.

The proposed district wishes to use an existing ditch and grassed waterway. Changes to the drainage system would include the cleaning of the existing ditch, the replacement of several culverts, the installation of several 10-inch tile lines, and the construction of an additional section of grassed waterway. Appendix F of Designtech's report lists the total construction cost at \$75,140 as compared to a total potential benefit of \$185,128.20 or about 41% of the total benefits.

The drains as shown in the report will be designated as district drains. It is assumed that the 10-inch tile under CTH I would also be designated as a district drain.

The total area of the district is 639.1 acres as modified in the engineering report. The land of the district—in contrast to many drainage districts—is, as stated in the Designtech report, “narrow with rolling topography.” Its natural outlet will be the spring fed ponds on the land of Dennis Giese to the north. Those ponds in turn outlet into the Burnett Town Ditch. At present the area is partially drained with a total of 219.9 acres of potentially benefitted land.

Additional Drainage Necessary for General Agricultural Purposes and Cost

The area of the district is characterized by a mix of soils that range from well drained to very poorly drained. (See attached map.) The existing ditch with the proposed

improvements would drain most, if not all, of the poorly and somewhat poorly drained soils in the district. There are additional areas that are wetlands that it is not possible to drain. These will remain wetlands.

The Designtech report assigns a potential benefit to the district's soils by comparing their USDA yield assessment to the yield assessment of the locally most productive soil. Furthermore, Designtech assigns a factor which accounts for the depth to groundwater found in each soil. These factors combine to form a method for comparing the benefits that would accrue to each soil by enhancing local drainage.

Comparison of Benefits in Different Parts of the District

Although there are 219.9 acres that will benefit from the drainage system, there are areas that have naturally well drained soils. There are also areas that are wetlands that will continue to be wetlands. These areas will not receive benefits from the drainage system and, as stated in the engineering report, will not be assessed.

Physical Features of the Land to Be Drained

The topography of the proposed district is narrow with rolling hills in an area of drumlins formed by glacial drift. As such, there are areas of alternating well drained soils made primarily of glacial till in upland areas with poorly drained soils of silt loam overlying glacial till. If an adequate outlet can be maintained, the soils allow for relatively easy drainage. As the area is productive farmland the insurance of a reliable drainage system will add to the value of the land.

Comments and Recommendations

As is noted in the Designtech report, Denis Giese, who owns the land into which the proposed drain will outlet, has filed suit against the Town of Burnett and other defendants upstream of his property. Mr. Giese contends that his ponds have experienced a significant amount of sedimentation and eutrophication resulting from runoff from upstream properties. He has declined to sign the petition to organize the drainage district. After no agreement could be reached on how to route the proposed drain either through or around his property, the drainage board has recommended that Mr. Giese's property north of CTH B be removed from the district. Mr. Giese maintains that the ditch cleanout will exacerbate the algae and sediment problem with his ponds.

At Mr. Giese's request, on August 26th, 2010 the state drainage engineer visited his property and the area of the proposed district to determine whether or not the organization of the drainage district and the proposed construction would negatively impact his ponds.

His ponds are indeed in an advanced eutrophic state having been largely filled with sediment and choked with algae. During the visit, Mr. Giese also provide video footage of flow though his property during several large spring storms. This video showed a large amount of runoff from upstream properties washing into his land and through his ponds. He contends that the ditch cleanout will merely bring more water onto his property.

There is no evidence that the proposed ditch cleanout and grassed waterway construction will increase the volume of water flowing through the Giese property. Furthermore, while DATCP agrees that his ponds are in a degraded state and that the sediment (and nutrients that have encouraged algal growth) have most likely come from upstream areas, we do not agree that the organization of the district and the proposed construction will make the situation worse—in fact, the proposed extension of the grassed waterway may ultimately help Mr. Giese.

From the video footage provided by Mr. Giese and an examination of the lands and drainageways upstream it seems that the majority of the sediment that has been deposited in the Giese ponds have come from the field belonging to John Meylink immediately adjacent to the Giese property. At one time there had been a grassed waterway through the Meylink's land; it has since been replanted with soybeans. Early spring runoff has entrained a large amount of soil, most likely laden with phosphorous, sending that sediment to the Giese's ponds.

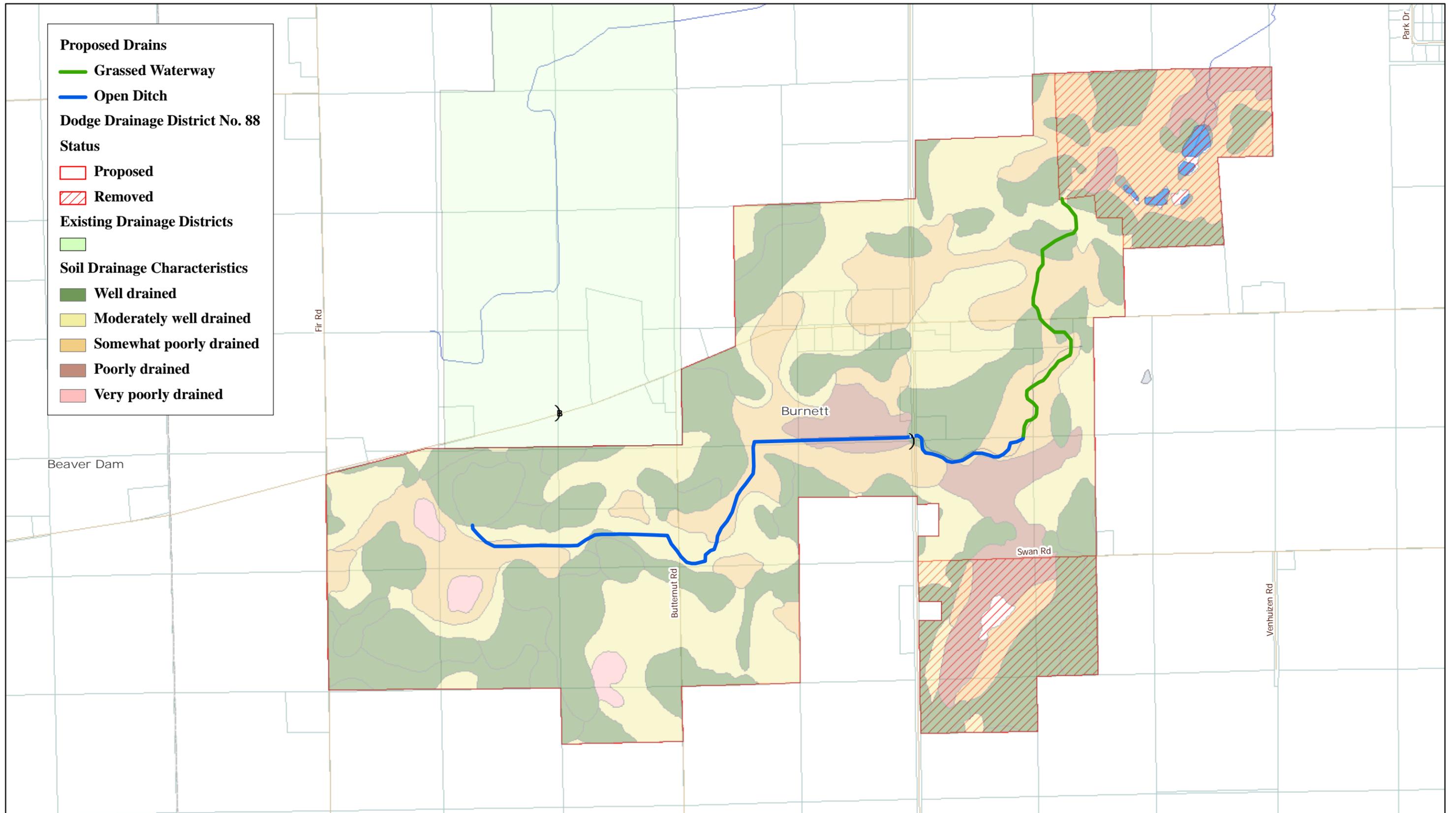
The proposed drainage district would restore the grassed waterway through the Meylink's land, greatly reducing the amount of soil exported from the field and trapping other sediment transported from further upstream. A perennial grassed waterway would be especially beneficial in spring before crops have become established to effectively stabilize the soil.

In addition, the drainage board could take more actions to further reduce the amount of sediment and phosphorus transported downstream. ATCP 48.30(2) states that "A county drainage board shall design, construct, and maintain district drains and corridors to minimize soil erosion and the movement of suspended solids into district drains." Under ATCP 48.24, Wis. Admin. Code, the Drainage Board has the ability to regulate the planning of crops within a maintenance corridor on either side of its drainage facilities in order to "provide a buffer against land uses which may adversely affect water quality in the district ditch." The drainage board could establish vegetated buffer strips in those corridors. Buffer strips have been shown to greatly reduce the amount of nutrient transport to downstream waterways.

For the above reasons and with the above recommendations, and the favorable cost-to-benefit ratio as thoroughly and credibly established in the Designtech report, DATCP recommends that the drainage district be created.

Staff Signature: _____

Seth McClure
State Drainage Engineer, DATCP



**Dodge County
Town of Burnett
Proposed Drainage District No. 88**

0 500 1,000 2,000 Feet

This map shows approximate boundaries of drainage districts in Wisconsin. This map is intended for general reference only. DATCP does not guarantee the accuracy, applicability for a particular use, completeness, or legality of data provided by other sources that appear on this map. This map is not intended to be used for navigation or as an authoritative source of information about legal land ownership, parcel boundaries, or public access.

Map by Seth McClure, State Drainage Engineer, DATCP, Sept. 2010