#8 Item #2 Received
11/21/23

REVIEW OF ENGINEER'S REPORT

FOR

PROPOSED SALIX DRAINAGE DISTRICT
WOODBURY COUNTY, IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

TROY J. GROTH, P.E. #14450 — 11/17/23 DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023.

PAGES OR SHEETS COVERED BY THIS SEAL: 1 THRU 4 OF 4

SUNDQUIST ENGINEERING, P.C.
Consulting Engineers

November 2023
SE# 12223

SUNDQUIST
ENGINEERING, P.C.
"The Foundation of Excellence"

November 17, 2023

Wallace J. Wagner
1358 280th Street
Salix, IA 51052

RE: REVIEW OF ENGINEER'S REPORT
WRITTEN BY VEENSTRA & KIMM, INC.
PROPOSED SALIX DRAINAGE DISTRICT

Dear Mr. Wagner:

In accordance with your instructions, I have reviewed the Engineer's Report for the proposed Salix Drainage District filed with the Woodbury County Board of Supervisors by Veenstra & Kimm, Inc.

The results of my review of the report are as follows:

CHANGE TO PETITION

The proposed district boundary does not comply with the petition. The petitioned district includes approximately 594 acres, all of which are located south of 275th Street. However, the boundary proposed in the Engineer's report includes approximately 1100 acres, an 85% increase. These additional acres are all located north of 275th Street. This change was initiated by a local landowner and undoubtedly resulted in additional survey and design costs. Should the lateral ditch meant to serve this additional area be included in the established district, a separate assessment schedule for this lateral ditch would be warranted.

OUTLET SWALE

The proposed ditch outlets into a swale on land owned by the Iowa Department of Natural Resources (DNR) which drains into Snyder's Bend, a Missouri River oxbow. The plan does not indicate any right-of-way (R-O-W) will be acquired along the swale. This swale is overgrown with trees and brush and there is currently 1.5 feet of water standing in the 280th Street culverts despite the area being in a moderate drought condition (see Drought Map of Iowa below). The ditch is dry 0.7 miles downstream of 280th Street which indicates there is a drainage obstruction within the swale. The trees, down timber, and vegetation within the swale will likely continue to cause obstructions.

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The plans show the flowline elevation of the swale is approximately 1068, thus the elevation of the water standing in the swale is 1069.5. Since the proposed ditch elevation at its outlet is 1067.3, if the ditch was constructed today there would be over 2 feet of water standing in it. The proposed ditch grade is 2.5 feet per mile; thus, the standing water would back up the ditch for 0.8 miles which is essentially the entire length of the ditch along the paved portion of 280th Street.

To eliminate the standing water would require the 1.05-mile-long swale be cleaned out and maintained. The DNR's management practices typically don't align with drainage needs and thus this swale should not be relied upon as an outlet for a drainage ditch.

ALTERNATIVE MAIN DITCH LOCATION

The main ditch length from the Snyder's Bend oxbow to the intersection of Benton Avenue and 280th Street is 2.80 miles. Using the alternative ditch route shown on the attached aerial photograph results in a ditch length of 2.25 miles from the Snyder's Bend oxbow to the intersection of Benton Avenue and 280th Street. This shorter distance will yield a beneficial steeper slope resulting in higher velocity flows thus keeping the ditch cleaner. Also, the higher velocity flows should reduce the required width of the ditch.

This alternative route will provide for an outlet fully controlled by the proposed drainage district without reliance on the DNR for maintenance. This route also eliminates multiple entrance crossings and their associated culverts, thereby reducing initial costs and future maintenance. Finally, the number of residential parcels from which R-O-W will be acquired is reduced thus saving in R-O-W acquisition costs since residential property typically has a higher value per acre than agricultural property.

Respectfully submitted,

SUNDQUIST ENGINEERING, P.C.

Troy J. Groth, P.E.

TJG/ksg
Attachments
File – 12223

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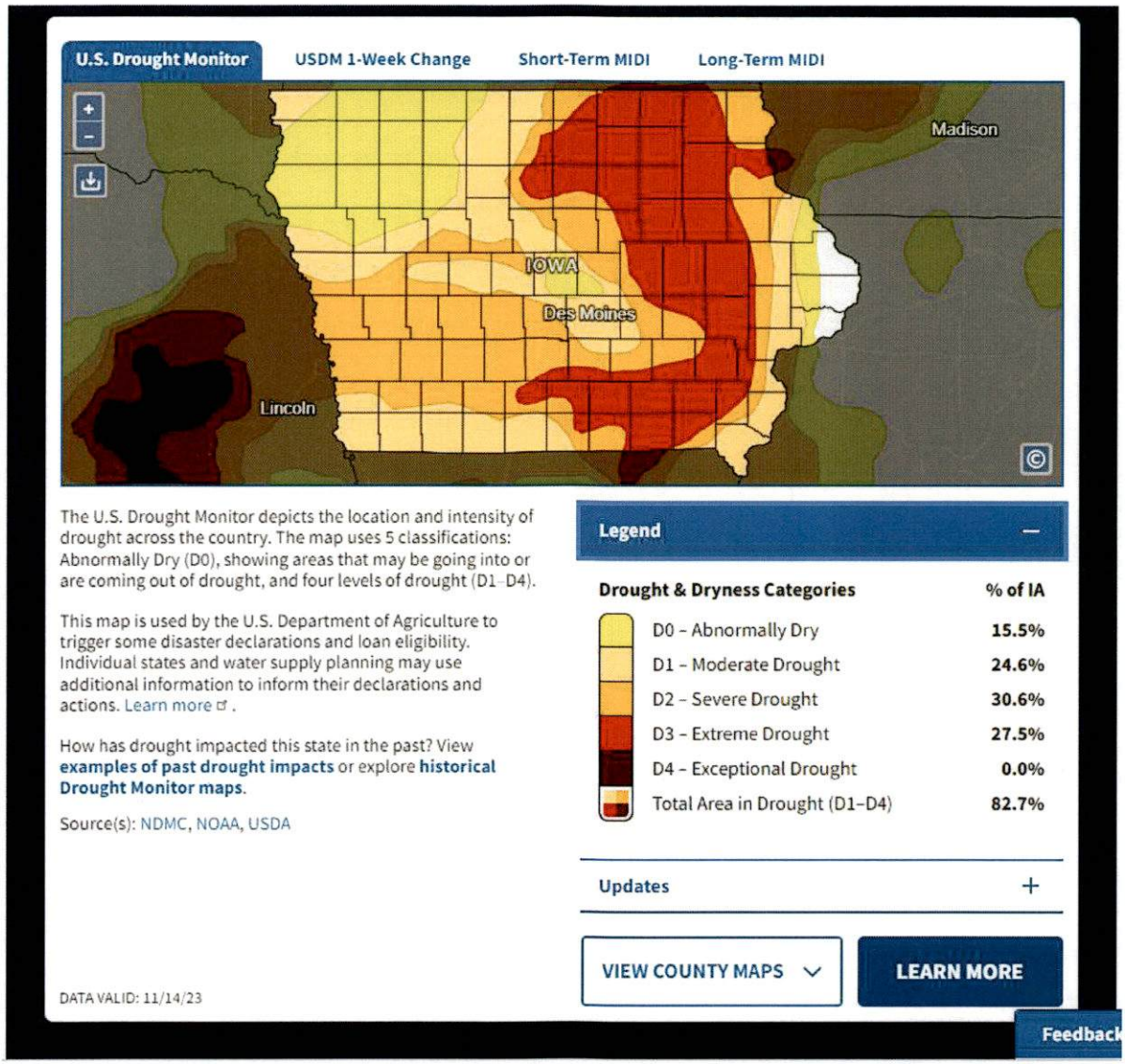
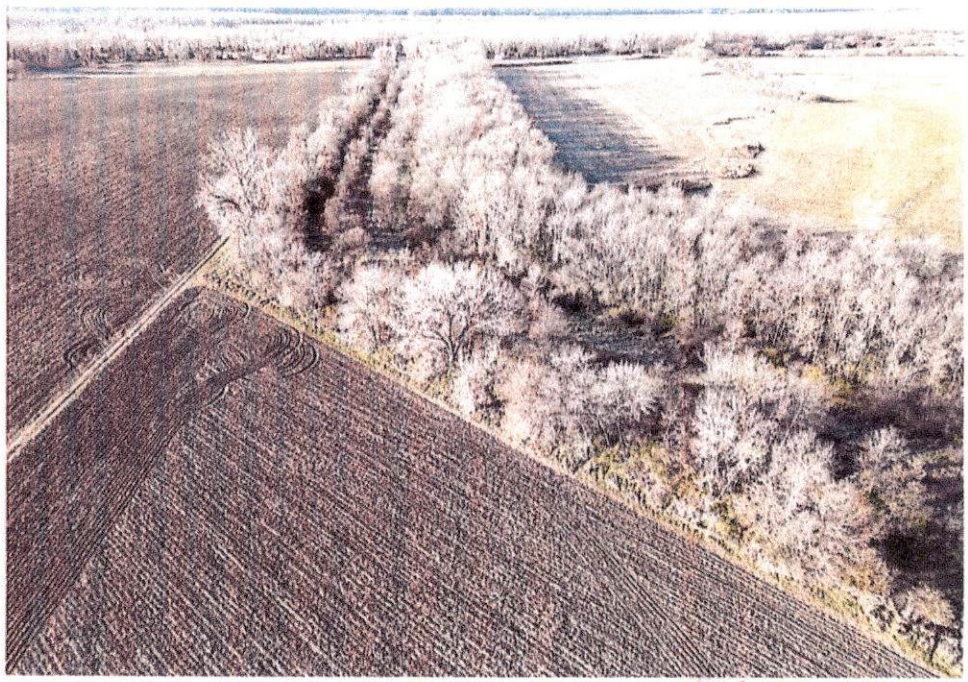
Drought Map of Iowa (source: https://www.drought.gov/states/Iowa)




Proposed Salix D.D.
Alternate Main Ditch Location
Brown's Lake
NEBRASKA
Google Earth
N
1 mi

LOOKING NORTHEAST

LOOKING WEST
FROM P.A WAGNER FARM



LOOKING SOUTH WEST

LOOKING NORTH EAST

CONDITION OF GOVERNMENT DITCH

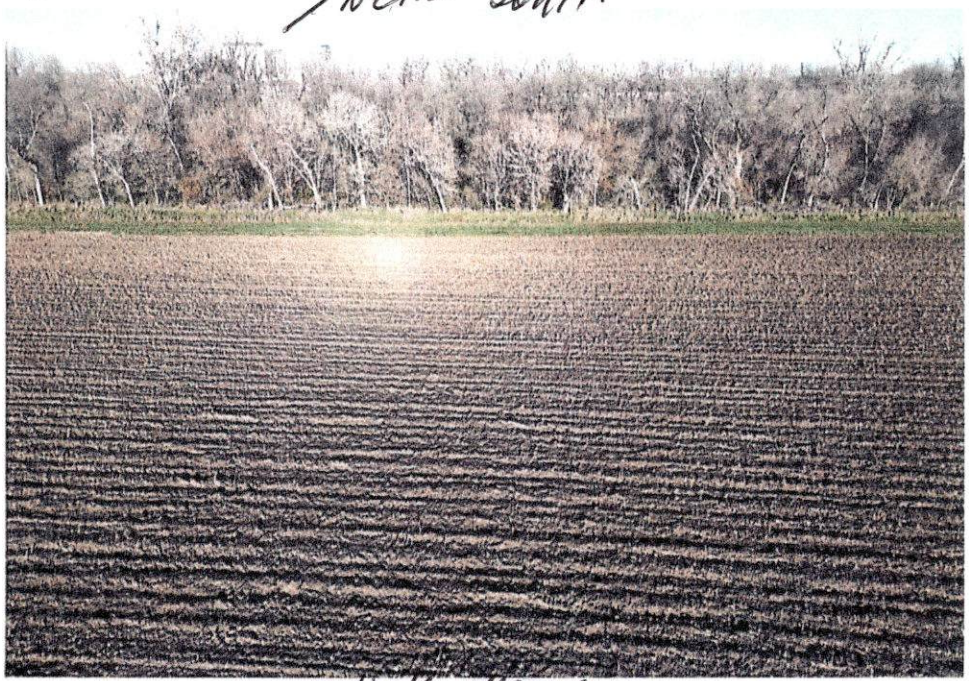
LOOKING SOUTH

LOOKING SOUTHWEST

LOOKING SOUTH

LOOKING SOUTH

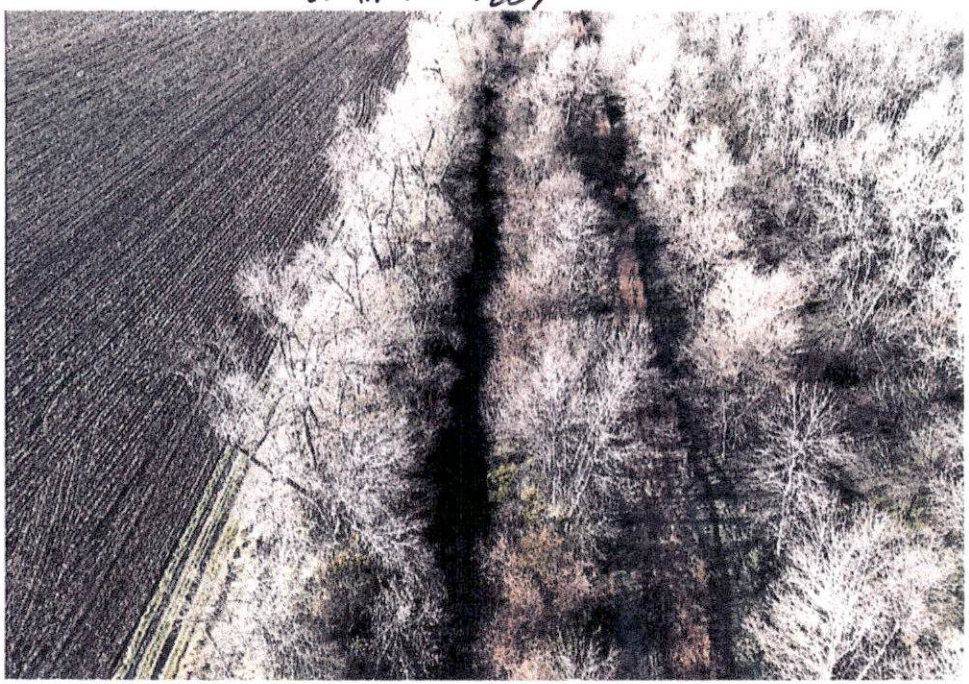
NEAL SOUTH



LOOKING WEST

NEAL SOUTH

LOOKING NORTH



LOOKING SOUTHWEST

LOOKING NORTH