



**OTTER TAIL COUNTY
HIGHWAY DEPARTMENT**
PUBLIC WORKS DIVISION
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July 8, 2014

COUNTY DITCHES #28 & #15 DITCH VIEWERS REPORT

On July 9, 2013, the Otter Tail County Ditch Authority (Board of Commissioners) appointed Mike Johnson, Kevin Brennan, and Sheldon (Tiny) Holm as Ditch Viewers for the purpose of re-determining the benefits for County Ditches #28 and #15 pursuant to Minnesota Statute 103E.351. The same Ditch Viewers were sworn in on April 17, 2014. Otter Tail County Ditches #28 & #15 were originally established in 1907.

As Ditch Viewers we are certified by the Minnesota Association of Ditch Viewers and have been involved in and attended this Association's training for several years.

Our report is based upon information we received from aerial photos, soil maps, and topographical maps from the Geographic Information Systems (GIS) as well as LIDAR (High Accuracy Elevation Model), Minnesota Storm Water Manual, and local crop purchasing entities. We have also received information from Farm Services Agency (FSA). Every forty acre parcel and lake lot was viewed using the same criteria. We have made several trips to the watershed area which includes:

Sections: 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17 and 18 of Amor Township,
Sections 5, 7, 8, 9, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,
30, 31, 32, 33, 34, 35, and 36 of Dead Lake Township,
Sections 1, 2, 3, 4, 8, 9, 10, 11, 12 and 17 of Maine Township
Sections 30 and 30 of Rush Lake Township and
Sections, 23, 24, 25, 26, 27, 34, 35 and 36 of Star Lake Township.

This area covers 60 sections in 5 Townships within this watershed. We have talked to property owners and received information from the county offices of Land & Resource, Assessor, Recorder and Auditor. As the Ditch Viewers viewed this system we have determined by our on-site visits that the main problem with this system is debris (trees, weed growth and silt build-up), interfering with the flow of water in this system as the design was intended to accomplish.

The land use was determined from Aerial photography (2011-2013), on ground inspections and soil saturation mean value from SSURGO (Certified Soil Data Survey of Otter Tail County). This data was entered by the GIS department to build a computer data base for our information.

On July 2, 2014 the Ditch Viewers along with George Meyer from GIS used a pontoon to view all 461 properties on Dead Lake. The Viewers used a variety of sources of information to determine benefit values including USGS Topographic Maps, LIDAR

Topographic Maps, LIDAR Maps (High Accuracy Elevation Model), Minnesota Storm Water Manual Curve Numbers and elevations above the lake level for all lots around Dead Lake. The chart below showing elevations provides general estimates of benefit assignments which were also influenced by the observed lake level, slope of lots running away from the shoreline, eroded and/or rip-rapped shorelines, vegetation condition [i.e. drowned trees], structure locations among other observations). Based on the observations the Ditch viewers assigned an estimated range of benefits from 10% to 50% properties with shoreline on Dead Lake & Lake Alice.

<u>Estimated Elevation Above Lake Level</u>	<u>Benefit</u>
0 feet to 2 feet	50%
2.1 feet to 4 feet	40%
4.1 feet to 6 feet	30%
6.1 feet to 8 feet	20%
8.1 feet to more	10%

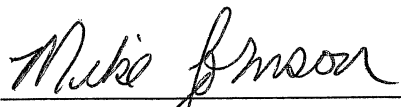
We began the determination of benefits by classifying each 40 acre parcel of land based on highest and best use. The land use provided by the State of Minnesota (2011 to 2013) land soil saturation mean value from SSURGO (Certified Soil and Data Survey of Otter Tail County) LIDAR (High Accuracy Elevation Model) and the Minnesota Storm water Manual.

The aforementioned data was used by the GIS Department to build a computer program for our information.

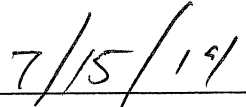
- A – Land = Land that has been muck soil, which may be standing water, unable to farm without the ditch. **Maximum Benefit.**
- B – Land = Soil types that are slow to drain, can be farmed most years. **Medium Benefit.**
- C – Land = Soil types that are slow to drain, can be farmed every year. **Minimum Benefit.**
- D – Land = Soil types that are well drained, always farmed, does contribute silt and run off to the system. **Least Benefit**

The Ditch Viewers recommend the Professional Negotiator in the County Highway Department negotiate easements from landowners for the required 50 foot buffer strips. This value should be based on prevailing land values/sales/rents of comparable properties in the immediate area.

As Ditch Viewers appointed by the Ditch Authority, it is our opinion that this is a fair and equitable determination of benefits to County Ditch #28 & #15 Watershed area.



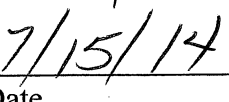
 Mike Johnson



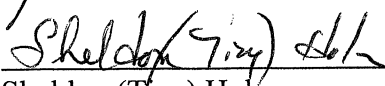
 Date



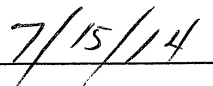
 Kevin Brennan



 Date



 Sheldon (Tiny) Holm



 Date

INCREASE IN AGRICULTURAL PRODUCTION								
(Under Best Management Practices)								
Ditch #28								
PRODUCTION INCOME								
Crop	Yield	Irrigated	Value	Income	Irrigated Income	Percent	Adj. Value of Production	Irrigated Adj. Value of Production
Corn	142	200	4.00	568	800	25%	142	200
Wheat	47	60	7.00	329	420	10%	33	42
Beans	37	50	12.5	462	625	25%	116	156
Oats								
Hay	3 Ton	6 Ton	130	390	780	40%	68	80
TOTAL							359	478
COST								
Crop	Seed And Fertilizer	Irrigated Seed & Fertilizer	Equip and Labor	Misc.	Irrigated Misc.	Percent	Adj. Value of Production	Irrigated Adj. Value of Production
Corn	325	350	30	22	44	25%	94.00	106.00
Wheat	250	330	25	15	27	10%	29.00	38.00
Beans	110	120	25	15	27	25%	38.00	43.00
Oats								
Hay	110	140	30	15	20	40%	62.00	76.00
TOTAL							223.00	263.00
BENEFIT VALUE								
	A-Acres	Irrig. A	B-Acres	Irrig. B	C-Acres	Irrig. C	D-Acres	Irrig. D
Percent of Normal Crop	70%	70%	85%	85%	100%	100%	100%	100%
Dollars of Crop Production	251.00	335.00	305.00	406.00	359.00	478.00	359.00	478.00
Minus Production cost	156.00	184.00	190.00	224.00	223.00	263.00	223.00	263.00
Gross Net (potential Profit/acre)	95.00	151.00	115.00	182.00	136.00	215.00	136.00	215.00
Minus Previous Net (Before Ditch)	0	0	65% 75.00	65% 118.00	85% 116.00	85% 183.00	136.00	215.00
Increase Production Value	95.00	151.00	40.00	64.00	20.00	32.00	0	0
Estimated Cost To Get Water From Land To Ditch								
Annual Cost Per Year For 25 Year Life								
Annual Benefit	95.00	151.00	40.00	64.00	20.00	32.00	0	0
Capitalized For 25 Yrs @ 3.5 Percent	1,566.00	2,489.00	659.00	1,055.00	330.00	527.00	0	0
Rounded Off	1,566.00	2,489.00	659.00	1,055.00	330.00	527.00	0	0

**AGRICULTURE PRODUCTION
BENEFIT CHART PER ACRE
COUNTY DITCH #28**

LAND TYPE	DOLLARS PER ACRE	LAND TYPE	DOLLARS PER ACRE
A LAND	\$1,566.00	A IRRIGATED	\$2,489.00
B LAND	\$659.00	B IRRIGATED	\$1,055.00
C LAND	\$330.00	C IRRIGATED	\$527.00
D LAND	\$0.00	D IRRIGATED	\$0.00

	DOLLARS PER ACRE	
TREES	\$15.00	
GRASS	\$18.00	
BUILDING SITE	\$32.00	
ROADS (COUNTY)	\$66.00	102 ACRES
RAIL ROAD	0	
TOWNSHIP ROADS	\$34.00	283 ACRES

**TOWNSHIP ROADS - PER ACRE
COUNTY DITCH #28**

TOWNSHIP NAME	ACRES	VAL.	TOTAL ACRES
AMOR	7.46	A	68.65 ACRES
	0.78	B	
	48.25	C	
	12.16	D	
DEAD LAKE	20.68	A	124.22 ACRES
	13.05	B	
	88.55	C	
	1.94	D	
MAINE	4.37	A	41.80 ACRES
	0	B	
	36.31	C	
	1.12	D	
STAR LAKE	13.26	A	48.58 ACRES
	24.48	B	
	8.25	C	
	2.59	D	
		A	
		B	
		C	
		D	

**TOWNSHIP ROADS - PER ACRE
COUNTY DITCH #28**

TOWNSHIP NAME	ACRES	VAL.	TOTAL ACRES
AMOR	7.46	A	68.65 ACRES
	0.78	B	
	48.25	C	
	12.16	D	
DEAD LAKE	20.68	A	124.22 ACRES
	13.05	B	
	88.55	C	
	1.94	D	
MAINE	4.37	A	41.80 ACRES
	0	B	
	36.31	C	
	1.12	D	
STAR LAKE	13.26	A	48.58 ACRES
	24.48	B	
	8.25	C	
	2.59	D	
		A	
		B	
		C	
		D	

COUNTY ROAD

A - 45.42

B - 14.41

C - 137.60

D - 6.43

202.86