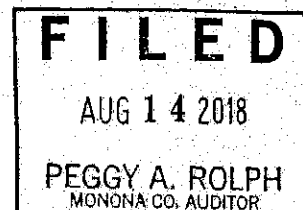


McCANDLESS INTER-COUNTY
DRAINAGE DISTRICT

AMMENDED ENGINEER'S REPORT
ANNEXATION OF ADDITIONAL LANDS
SECTIONS 10,11,14 & 15
TOWNSHIP 85 NORTH, RANGE 47 WEST,
FAIRVIEW TOWNSHIP

DISTRICT TRUSTEES
JAMES ALEXANDAR
LYLE ERNST
LEE WESTERGAARD





SUNDQUIST
ENGINEERING, P.C.

"The Foundation of Excellence"

August 15, 2018

Honorable Chairman and Board of Trustees
McCandless Inter-County Drainage District
Monona County, Iowa

Gentlemen:

In accordance with the direction of this board I have conducted an investigation into the possibility of additional lands draining into the district. This was conducted in accordance with Iowa Code section 468.119 which states "if the board becomes convinced that additional lands contiguous to the district, and without regard to county boundaries, are benefited by the improvement or that the same are then receiving benefit or will be benefited by a repair or improvement to said district as contemplated in section 468.126, it may adopt, with or without a petition from owners of the proposed annexed lands, a resolution of necessity for the annexation of such land and appoint an engineer with the qualifications". During the investigation Light Imaging Detection And Ranging (LIDAR) of the area requested by the board and surveyed inlet and outlet elevations of all culverts that may drain into the McCandless Inter-County Drainage District were reviewed. In addition, a topographic survey was taken in portions of sections 14 and 15 of Fairview Township to more accurately determine the district boundary. The results of the investigation are contained in the following report:

ENGINEER'S REPORT

Procedure: A visual inspection of the lands was taken. It showed a flat topography with a few localized depressions of ponded water. The locations of ponded water in sections 10,14, and 15 seemed to be generally connected by areas of grass and not actively farmed land. This appeared to form a channel that extended past the existing drainage district Boundary. When reviewing LIDAR information near Albaton, Iowa sections 10, 11,14 and 15 showed elevations higher than the existing boundary of the District. To determine water flow, culvert records from the Monona County Engineer's office were obtained and there were five locations of culverts under the roadway outside the existing boundary that appeared to drain water towards the District. Culvert flow line elevations were then taken at the inlet and outlet of the culverts to determine the flow direction of the water between culverts.

Within sections 14 and 15 near county road 130th Street there was an area that appeared lower in elevation based on LIDAR information. A topographic survey of approximately 6,600 points was taken with a Global Positioning System (GPS) unit to determine the exact proposed district boundary within these sections.

Discussion: After reviewing the LIDAR information, culvert flow line elevations were taken and are attached to this report. They show that water would drain from section 10 to section 15 then to section 14 of Fairview Township. Culvert elevations were also taken in between section 9 and section 10. The inlet and outlet elevations of the culvert showed that water drained towards the West rather than to the District. However, the culvert inlet was not located in the bottom of the ditch and had approximately 5 inches of soil within the culvert. Flowline elevations of the ditch were taken East of this culvert and showed elevations below this soil elevation within the culvert. Therefore, water could pond in this area and would eventually flow away from this culvert into the district before flowing thru the culvert. If the culvert was cleaned and the inlet lowered there would be a portion of the SW corner of section 10 that would drain to the west. For this report it is assumed that all of section 10 would drain towards the District.

Within sections 14 and 15 the topography was extremely flat making it difficult to determine an exact location of the district boundary. GPS data was collected. With this information the district boundary was determined.

Drainage from section 2 to section 11 then into section 14 of Fairview Township was also studied. After reviewing LIDAR information, culvert elevations were again taken. The culvert between section 2 and section 11 was filled partially with soil. Also, the soil near the outlet appeared to have been removed allowing water to flow into section 11. The elevation near the outlet of the culvert was approximately 1 foot higher than the bottom of the culvert. When this was considered the water would drain to the South into the district. The culvert elevations clearly show water would drain from section 11 into section 14.

Conclusions: Based on our review of the district boundary we found additional lands in sections 10, 11, 14 and 15 of Fairview Township that drain into the district. The general topography is very flat with many locations where ponded water could reside. This will result in some of the acres only draining into the district in the wettest years. In total there are 1635.35 acres and 41.85 county road acres that would drain into the district and receive benefit. Therefore, it is recommended they be added to the district. A location map and current landowners is attached to this report

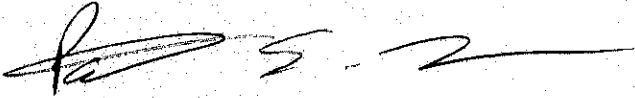
Recommendations: This report recommends annexing additional lands to the district. Therefore, it is recommended that the district board complete the following:

1. Tentatively approve this report.
2. Notify all landowners to be annexed and hold the required public hearing.
3. Annex to the District the lands determined to be benefited.
4. Classify and assign benefits to each of the annexed parcels.



Respectfully submitted,

SUNDQUIST ENGINEERING, P.C.



Patrick E. Mouw, P.E

PEM
Enclosures

cc: File – 70317-9



LANDOWNER(S)	PIN #	DESCRIPTION	NET BENEFIT ACRES	GIS ACRES
	SEC 10-85-47			
HUNTER, LOWELL D ETAL	854710100001	NE-NE	38.00	
	854710125001	NW-NE	39.00	
	854710175001	PT SE-NE	36.94	
	854710150001	SW-NE	40.00	
	854710200001	NE-NW	39.00	
	854710225001	NW-NW	38.00	
	854710275001	SE-NW	40.00	
	854710250001	PT SW-NW	34.62	
HUNTER, GEORGE L	854710250002	PT SW-NW	4.38	
GRIMSLEY, RONALD A & BRENDA M	854710175003	PT SE-NE	1.12	
GRIMSLEY, RONALD ANTHONY & BRENDA MARIE	854710175002	PT SE-NE	0.94	
CONWAY, HENRY L, JR	854710400001	PT NE-SE	14.50	
MURPHY, RICHARD E & DONNA J LIV TR-35%	854710400002	PT NE-SE	24.50	
MURPHY, RICHARD E CREDIT SHELTER TR-65%	854710425001	NW-SE	40.00	
	854710300001	NE-SW	40.00	
	854710325001	NW-SW	39.00	
	854710375001	SE-SW	39.00	
	854710350001	SW-SW	38.00	
LARSON, RUTH VIRGINIA	854710475004	PT SE-SE	33.46	
	854710450001	SW-SE	39.00	
CHRISTIANSON, GARRY J	854710475005	PT SE-SE	2.04	
THE SKIEN LUTHERAN CHURCH	854710475002	PT SE-SE	3.16	
	SEC 11-85-47			
BAKKE, MARYANN	854711200001	NE-NW	39.00	
	854711225001	NW-NW	38.00	
	854711275001	SE-NW	40.00	
	854711250001	SW-NW	39.00	
MURPHY, RICHARD E & DONNA J LIV TR-35%	854711300001	NE-SW	40.00	
MURPHY, RICHARD E CREDIT SHELTER TR-65%	854711325001	NW-SW	36.99	
KRUEGER, WILLIAM N & JILL M	854711325002	PT NW-SW	2.01	
HICKS, RANDALL F a/k/a RANDY F & HICKS, DEBRA D	854711350005	PT SW-SW	1.07	

HICKS, RANDALL F	854711350006	PT SW-SW	0.53
HICKS, RANDALL F & DEBRA D	854711350009	PT SW-SW	0.61
ROARSON, BEVERLY K-1/2	854711350008	PT SW-SW	24.35
ROARSON, JON M-1/2	854711375001	PT SE-SW	33.80
WILT, MICHAEL W & RHONDA R	854711375002	PT SE-SW	4.92
KIRKPATRICK, KAY A-6/8; KIRKPATRICK, KAY & KATHY-1/8 EACH	854711350007	PT SW-SW	3.95
TRUSTEES OF FAIRVIEW TOWNSHIP (CEMETERY)	854711350002	PT SW SW	4.50
THE NORWEGIAN EVANGELICAL LUTHERAN SKIENS CONGREGATION D/B/A SKIEN LUTHERAN CHURCH	854711350003	PT SW SW	1.82
THE SKIEN LUTHERAN CHURCH, A CORP	854711350004	PT SW SW	0.90
SEC 14-85-47			
HANISCH, DONALD E & ANNE MARIE	854714200001	NE-NW	38.79
	854714225001	NW-NW	37.79
	854714250001	SW-NW	39.00
BAKKE, MARYANN	854714325001	NW-SW	39.00
	854714350001	SW-SW	38.00
ALFREDSON, VERNON R	854714375001	SE-SW	39.00
SEC 15-85-47			
NELSON, MYRON LEE	854715200001	NE-NW	39.00
	854715225001	NW-NW	38.00
	854715250001	PT SW-NW	23.31
	854715275002	PT SE-NW	12.12
MILLER LIV TR; ERVIN MILLER JR & LILA-TRUSTEES	854715250003	PT SW-NW	14.83
	854715275003	PT SE-NW	7.39
	854715325001	PT NW-SW	9.40
	854715300002	PT NE-SW	4.73
KUTZLER, LORRAINE I TRUST	854715325002	PT NW-SW	29.25
NELSON, MYRON TRUSTEE	854715300003	PT NE-SW	15.00
STODDARD, BERTAL MORGAN-1/2	854715300001	E1/2 NE-SW	20.00
STODDARD, MARK E-1/2	854715425002	W3/4 NW-SE	30.00

BOMGAARS, JANE MARIE	854715400002	PT NE-SE	23.10	
	854715425003	PT NW-SE	5.93	
HM FARMS, LLC, CLAYTON MOLLE-MGR	854715125001	NW-NE	39.00	
	854715100002	NE-NE	37.45	
	854715175001	SE-NE	39.00	
	854715150001	SW-NE	40.00	
	854715275001	PT SE-NW	20.00	
	854715425001	PT NW-SE	4.00	
	854715400001	PT NE-SE	15.60	
TAYLOR, PHILLIP C	854715100003	PT NE-NE	0.46	
MONONA COUNTY, IOWA (COUNTY GARAGE)	854715100001	PT NE NE	0.09	
		NET ACRES		1635.35
MONONA COUNTY	10-85-47		16.00	
	11-85-47		8.00	
	14-85-47		8.00	
	15-85-47		9.85	
		COUNTY ROADS		41.85

ROAD CULVERTS

STREET	SECTIONS	INVERT ELEVATION	OUTLET ELEVATION
120th Street	10 & 15	1065.34	1065.50
Ash Avenue	9 & 10	1069.12	1068.36
Aspen Avenue	14 & 15	1064.65	1064.38
Beach Avenue	13 & 14	1061.60	1061.40
Beach Avenue	13 & 14	1061.56	1061.40
120th Street	11 & 14	1067.19	1066.83
120th Street	11 & 14	1067.12	1066.78
110th Street	2 & 11	1066.88	1066.96