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Engineer's Report Joint Drainage District No. 1-31-86 Tree Removal

Cerro Gordo, Hancock & Franklin Counties, Iowa

Filed June 24, 2024

Submitted by:

Bolton & Menk, Inc. 1609 U.S. Hwy 18 East Algona, IA 50511 P: 515-395-3140

Certification

Engineer's Report

for

Main Open Ditch Tree Removal Joint Drainage District No. 1-31-86 Cerro Gordo, Hancock & Franklin Counties, Iowa

0T7.134032

June 24, 2024



I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Iowa. My renewal date is December 31, 2025.

By:

Tyler A. Conley, P.E. License No. 25044

Date: 6/24/2024

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I. INTRODUCTION

A. SCOPE OF WORK

The purpose of this report is to provide information relative to drainage relief requested by landowners of Joint Drainage District No. 1-31-86, Cerro Gordo (DD31), Hancock (DD86), and Franklin (DD1) Counties, Iowa (JDD 1-31-86). The Joint Board of Supervisors, acting as Trustees for JDD 1-31-86 appointed Tyler Conley, P.E., Bolton & Menk, Inc. to complete the necessary preliminary survey, study, and engineering report.

This report addresses landowner requests for facility repairs, associated with the Main Open Ditch (Bailey Creek). This report examines the requested tree removal along the Main Open Ditch to initiate a repair of the drainage efficiency of the facility. A copy of the drainage petition is attached with this report in Appendix A.

B. LOCATION & DISTRICT FACILITIES

The portion of the Main Open Ditch that has been examined is located South of the City Thornton. The heavily treed portion of the Main Open Ditch is located in Section 24 of Grimes Township (T-94-N, R-22-W) of Cerro Gordo County and Section 19 of Pleasant Valley (T-94-N, R-21-W) of Cerro Gordo County.

The Main Open Ditch begins at the intersection of Bailey Creek and Heather Avenue approximately one mile upstream of the intersection of Bailey Creek and US Interstate 35. The Main Open Ditch continues until approximately the intersection of Balsam Avenue and 150th Street in Cerro Gordo County. The Main Open Ditch is not quite 8-miles in length and serves an area of 31,300 acres as found in the original engineer's report. This area represents 19 other Drainage Districts and Sub-Lateral Districts that utilize the Main Open Ditch as an outlet. A plat found in the district history has been attached to this report as Appendix B.

The Main Open Ditch continues further south and east becoming Bailey Creek proper. Bailey Creek flows to the West Fork of the Cedar River, then the Cedar River, the Iowa River and eventually the Mississippi River.

C. HISTORY SUMMARY

Bolton & Menk conducted an investigation based on records found at the Cerro Gordo County Courthouse. This information was gathered in order to better understand the drainage district's history. A summary of events based on these records is as follows:

On June 3rd, 1915, the petition for the establishment of JDD 1-31-86 was filed. The original engineer's report was filed with the Joint Board of Supervisors on June 25th, 1917. In this report the serviceable area is described as 31,300 acres and the dimensions of the channel are described as being constructed sufficiently large enough to satisfy the drainage needs of the area with side-slopes that were constructed at 1.5 feet horizontal to 1 foot vertical. Throughout September of 1917, affected landowners submitted damage claims for the impacts that the construction would induce. Then on December 19th, 1917, the Joint Board of Supervisors approved the establishment of the district as described in the engineer's report

and subsequently supplemental reports including the damages as described in the report of appraisers.

II. INVESTIGATION

A. SURVEY & INVESTIGATION

Included with the drainage repair petition, there were some additional notes from the Cerro Gordo County Auditor regarding the request. Those notes are as follows:

"On July 17, 2023, the Cerro Gordo County BOS approved a contract with B&W Brush Control to conduct brush control in the main open ditches of five drainage districts within Cerro Gordo County. After the work was completed Doug Caffrey, a landowner in Joint Drainage District 1/31/86, submitted a work order on November 20, 2023, stating that trees remained in the main ditch of DD 31 which impeded the flow of water within the main ditch. On November 27, 2023, the Cerro Gordo County BOS authorized Rodney McKinney to investigate the report of trees within the drainage district.

Mr. McKinney investigated and discovered numerous trees, some over 40 feet tall, growing in and along the water of the main ditch. Mr. McKinney discussed the trees with Nathan Reffer of B&W Brush Control. Mr. Reffer explained that the trees were too large to be treated and would need to be removed and suggested either an excavation company or a tree service would be needed to remove the trees. Mr. McKinney agreed that the trees were too large to be treated and the best course of action would be to cut the trees, drag them up the embankment, transport the trees away for disposal, and then apply a treatment to the stumps to prevent regrowth.

In order to determine the approximate scope of the project Mr. McKinney inquired with local drainage contractors who advised they were not equipped to perform the work and suggested contacting tree services to inquire about costs. Our office contacted nine local tree services inquiring if they would be able to perform the work and if so to provide an estimate for removal of all trees along a stretch of approximately one- and one-half miles within the district. We received three bids which are listed below.

Contractor	Bid	
Jim's Tree Serv	vice	\$109,750
American Arb	or	\$157,750
Bryant Tree Se	ervice	\$250,000

Due to the scale, complexity, and cost of the project the services of a professional drainage engineer would be beneficial to accurately define the scope of the work that is necessary, to conduct appropriate bidding and contract management, to oversee the work, and to facilitate any public meetings that may be necessary. A drainage engineer will be equipped to determine the actual amount of trees that must be removed to facilitate drainage, ensure property damage is minimized, and coordinate the work."

Based on these notes as well as a map that was included with the request, during the spring

of 2024, a field review and drone flight were performed of the trees and debris within that portion of the Main Open Ditch. No topographic data was gathered along the open ditch to determine the existing sediment levels because tree density was too significant. After tree removal, if it is determined that silt and sediment is present in the open ditch, further topographic data can be obtained to determine the amount of sediment and the potential impact relative to the drainage efficiency.

Based on information obtained in the survey, it was determined that large trees, fallen branches, log jams, and bank erosion have accumulated in this portion of the Main Open Ditch causing potential drainage issues. The drone video footage can be viewed at https://www.youtube.com/watch?v=JdyIQVHUJYg.

B. CAPACITY ANALYSIS

The existing dimensions of the Main Open Ditch are difficult to determine without additional field survey as the original dimensions of the facility are described as "being constructed sufficiently large enough to provide the appropriate amount of drainage for the area". The designed cross-section is said to have been constructed with a side-slope of 1.5:1. In the event that a more substantial repair project is requested to remove silt and sedimentation from the open ditch facility after the tree removal project is completed, a much more in depth design search and field survey would be required to accurately diagnose the facility issues as well as provide an adequate repair design and preliminary cost estimate. For the current petition, it is pertinent to remove the trees and other obstructions to be able to analyze the existing conditions of the facility in order to determine the original main open ditch drainage capacity.

III. PROPOSED REPAIR

A. REPAIR SUMMARY

The investigation has confirmed the need for drainage relief in the district. It is recommended that the trees within the right-of-way on the Main Open Ditch of JDD 1-31-86 be removed starting at the intersection with Heather Avenue and ending approximately 6,200 feet upstream. This cleanout would remove trees, log jams, and attempt to stabilize erosion zones to partially restore the drainage capacity to the original planned capacity. Additionally, damage caused by trees and tree removal to the side-slopes of the Main Open Ditch would be reshaped and repaired. The Trustees of the Joint District have the authority to take such actions under Iowa Code Section 468.138 Removal of obstructions which states "The board shall cause to be removed from the ditches, drains, and laterals of any district any obstructions which interfere with the flow of the water, including trees, hedges, or shrubbery and the roots thereof, and may cause any tile drain so obstructed to be relaid in concrete or any other adequate protection, such work to be paid for from the drainage funds of the district." Appendix C contains a cost estimate for this repair option.

B. WORK LIMITS & DAMAGES

Landowners are entitled to full reimbursement for damages resulting from the work on lands outside of open ditch rights-of-way. These damages will be established at a project completion hearing after the work is complete. The contractor will be assigned temporary work limits along each side of the ditch and tile lines to allow for construction activities. The work limits for the open ditch will be set at approximately 35 to 50 feet outside of the toe of the spoil pile of the ditch.

It is anticipated that the repair work will commence in the fall of 2024 and continue into the spring of 2025. Crops that are damaged during construction would be paid for by the District based on crop appraisals. The construction zone would be minimized and the work scheduled to minimize the loss of crops.

Buffer Strips may exist within the work area. Seeding of these areas is typically performed by the landowner with reimbursement being made at the project completion hearing. Seed mixes for these lands are often very specific for the type of conservation practice which is utilized.

IV. OPINIONS OF PROBABLE COST

The cost estimate for the repair option is contained in Appendix C. This estimate represents our best judgment of the probable cost based upon our experience with similar projects. The quantities and unit costs for construction are believed to be reasonably accurate for use in this report and hearing. Actual costs are subject to the market for the respective components and to other economic forces. These estimates carry no actual or implied guarantees.

V. DISTRICT RIGHT-OF-WAY

Open ditch rights-of-way are essential to maintaining district quality and efficiency. These right-of-way purchases include the right of ingress and egress across adjoining land and the right of access for maintenance, repair, improvement, and inspection. A review of the existing right-of-way for JDD 1-31-86 Main Open Ditch was performed, starting with the district history found at the Cerro Gordo County Courthouse. Claims for damages caused by the taking of land for the right-of-way for the Main Open Ditch were found. However, only damage values in the form of dollar amounts were listed without the corresponding acres. Therefore, the landowner records for each ¼, ¼ section of land were examined for the existence of the open ditch right-of-way. It was determined that a right-of-way does exist, however, it is not defined on property cards and is not clearly defined as a measurable width.

Typically, it is necessary to have a minimum width of right-of-way to contain the top width of the ditch and to have 20 feet on each side of the ditch for access. The current top width of the open ditch varies based on depth, but an approximation of uniform top width is 80-feet. Therefore, to provide 20 feet on each side of the ditch would necessitate a width of right-of-way of 120-feet. In addition, to provide more consistency in the district's right-of-way, it is recommended, the district define an easement to the lands necessary to provide a uniform right-of-way along the Main Open Ditch. Under Iowa Code Section 468.27 Dismissal or Establishment – Permanent Easement – second paragraph "Following its establishment, the drainage district is deemed to have acquired by permanent easement all right-of-way for

drainage district ditches, tile lines, settling basins and other improvements, unless they are acquired by fee simple, in the dimensions shown on the survey, plat and profile, if one is made." and also under section 468.126 Repair, Subsection 8 – "If the drainage records on file in the auditor's office for a particular district do not define specifically that land taken for right-of-way for drainage purposes, the Board may at any time upon its own motion employ a land surveyor to make a survey and report of the district and actually define the right-of-way taken for drainage purposes." A tabulation of proposed right-of-way areas has been attached to this report in Appendix D.

Drainage district open ditch rights-of-way are exempt from real estate taxes and drainage assessments. Therefore, deductions should be made to the net acres of those affected parcels and the property records for those affected parcels should be adjusted accordingly. Under Iowa law, landowners have the right to the beneficial use of the spoil bank in the right-of-way subject only to the district's use of the right-of-way to protect and maintain the open ditch.

VI. BUFFER STRIPS

It appears there may be some farm program buffer strips in place along the open ditch. There are some manageable drawbacks which must be addressed by the owners of the buffer strips.

If farm program buffer strips do exist, the destruction of buffer strip vegetation by spoil placement or leveling from cleaning the open ditch places the landowner in violation of farm program conservation rules. The penalties can include loss of the CRP contract, forfeiture of back CRP payments, and penalties. To avoid these, landowners must request a waiver from the USDA Farm Service Agency County Committee. The county committee will grant waivers for ditch maintenance if seeding restoration in compliance with NRCS requirements is completed. If the work on the open ditch is authorized, all farm program buffer strip owners on the repair portion of the ditch must independently seek the FSA County Committee waivers. This process will take two or three months and should be initiated immediately if ditch maintenance is authorized.

VII. WATER QUALITY

The hydrologic impacts to tile drainage entails a complex interaction of processes dependent upon landscape, climatic and human influences, watershed scale, soil permeability and rainfall event size. There is a popular and often accepted idea that an increase in subsurface drainage facilities adds to an increase in both peak and total rainfall values thereby increasing flooding. Recently published research from the University of Iowa's IIHR – Hydroscience and Engineering Center refutes that perception. This University of Iowa report was the result of a water model study of the Clear Creek Watershed in Iowa and Johnson Counties and found that an increase in field tile and subsurface drainage decreases peak flows for most storm events. The field scale DRAINMOD model was used in the research in conjunction with a simplified routing equation to analyze the impact of tile drains in the Clear Creek Watershed.

However, additional steps are required to slow, impound, or infiltrate water in order to receive benefits in water quality. Water quality is a growing topic throughout the nation and more recently throughout Iowa. The particle loads and nutrient levels within drainage water is a concern that is receiving increased scrutiny. Processes and reduction practices are being developed and incorporated on farms and into projects throughout Iowa which reduce

nitrogen loss and improve water quality. Enhancement of water quality is possible through many different drainage applications that can see both immediate and long-term benefits.

We encourage the landowners of this District to consider multi-purpose drainage management, which incorporates Best Management Practices (BMPs) which utilize effective measures aimed at reducing sediment and nutrient loading and improving water quality. These BMPs are divided into three (3) areas: preventative measures, control measures, and treatment measures.

Preventative measures that can be applied throughout the watershed include crop rotation, cover crops, residue management, and nutrient management. These measures are aimed at controlling sediment, minimizing erosion and nutrient loss, and sustaining the soil's health, all without dramatically changing the current land use of the landscape.

Control measures are practices aimed at improving water quality directly associated with the flow of water by reducing peak flows, providing in stream storage, sedimentation, and nutrient uptake. Examples of control measures include alternative tile intakes, grassed waterways, two (2) stage ditches, water control structures, and controlled subsurface drainage. These practices are directly linked to the conveyance of subsurface tile water or open channel ditch flow.

The function of **treatment measures** is to improve water quality by directly removing sediment and nutrients from the subsurface or surface water flow throughout a watershed. Examples of treatment measures include surge basins (storage ponds), filter/buffer strips, wetland restorations, woodchip bioreactors, and water and sediment control basins (WASCOBs).

These practices may be incorporated into either the public or private drainage systems.

Funding options are available to landowners through the Environmental Quality Incentives Program (EQIP) and the Iowa Water Quality Initiative. EQIP is a voluntary program that provides financial assistance to individual landowners for various conservative practices as identified above. Also, the State of Iowa through the Iowa Water Quality Initiative provides cost share funds to participating landowners to voluntarily install nutrient reduction practices.

A unique opportunity may exist when a wetland is created within the district for the treatment of the tile and/or surface waters of the watershed. A properly sized and created wetland may be able to be utilized as a mitigation site for any farmed wetlands that are found within the drainage district. With the possibility of a large share of the created wetland being funded by the lowa Water Quality Initiative program, any potential farmed wetlands could be mitigated at a much-reduced cost.

If there is landowner interest in any of these water quality features and funding options, further study and review would be required to select, site and fund the water quality measures appropriate for the area.

VIII. SUMMARY & DISCUSSION

This report has confirmed the need for drainage relief for JDD1-31-86. The work described herein for the proposed repair can accomplish that relief. We recommend proceeding with the proposed repair. The proposed repair is considered to be of public benefit and is conducive to public health, convenience or welfare.

Recommendations

Repair Recommended

This report has confirmed the need for drainage relief for Joint Drainage District No. 1-31-86. The existing Main Open Ditch has trees, log jams, and erosion issues that require removal/stabilization.

Right-of-Way Recommended

Because a defined right-of-way width is not specified, it is recommended that a defined right-of-way be set as 120 feet as shown on the tabulation in Appendix D and on the preliminary plans in Appendix E in order to facilitate maintenance of the Main Open Ditch now and into the future.

Installment Payments

lowa drainage law allows for drainage district costs for large projects to be spread between ten to twenty years at the discretion of the Joint Board of Supervisors. Typically, the board would spread assessments of the magnitude contemplated in this report over ten years. Be reminded that final individual assessments are based upon benefits and that some parcels will likely bear two to three times the average per acre costs.

Recommended Steps

It is recommended that the Joint Board of Supervisors acting as trustees for Joint Drainage District No. 1-31-86 take appropriate action, with legal guidance, to accomplish the following:

- 1. Tentatively approve this engineer's report and schedule a public hearing to receive and consider the input of the district landowners.
- 2. Adopt the proposed repair recommended for construction, modified as deemed appropriate, to satisfy the desires of the Joint District.
- 3. Establish a width of right-of-way for the Main Open Ditch.
- 4. Direct the engineer to prepare final plans and specifications for the adopted plan and proceed toward a bid letting.

Respectfully submitted, Bolton & Menk, Inc.

Tyler A. Conley, P.E. Project Manager Prepared by: Bolton & Menk, Inc. Main Open Ditch Tree Removal Repair | 0T7.134032

SUMMARY & DISCUSSION Page 7 Appendix A: Petitions

CERRO GORDO COUNTY DRAINAGE WORK ORDER

Work Order No.: <u>2023/12001</u> Date Filed: <u>11/20/23</u>	
To: Cerro Gordo County Board of Supervisor's It is hereby requested that changes be made on:	Contractor Assigned:
Drainage District: 31, 1 + 22	
Lateral:	Engineer Appointed:
Assessable District:	Date Engineer Appointed:
Diameter of Tile:	Attorney Appointed:
Tile Material:	
Section, Township, Range: Grimes/Pleasan	Date Attorney Appointed:
Qtr-Qtr: Lime Cruck -	Coordinates:
	Latitude
Requested by: Doug Cafford	Longitude
🛛 Owner 🗹 Tenant 🖉 Other	Vendor Paid:
Address:	Total Amount Paid:
Phone No.:	
Landowner Name:	Date Paid:
(in different from requestor)	Date Completed:
Chairman's Signature:	
Problem: We had a contra	ct w/ B+W Brush Control
to spray + remove trell	in DD31. Doug Caffry
came in 11/17 stating t	hat nothing has been done
We were guoked = \$6,500	for the work to be done
+ the bill was only at	1.000. adam got a hold
of Nathan from Br W	+ he stated they went
in and sprayed, but the	trees were too big
for theme to remove. that	We need to find a
contractor who is able	to remove those trees.
It is also possible once the	at is done that B+ N
will have to go back 1.	n to do more spraif

treatments. Which loke Rodand to get quokes trom a comple different contractors. Which when to quoke the work for just the rural part of this area and also the 1:\Share\Real estate\FORMS rural + city areas combined.

CERRO GORDO COUNTY DRAINAGE WORK ORDER

f= ____

Work Performed: McKinney Field Review:

Notes: 12/6/23 adam + Hannah spoke w/ Rodauj + Nathan from B+W Brush Control over the phone. They were in Thornton and there is nearly 2 miles worth of trees, some roughly 50' tall. Rodaey said this is going to be very costly. also Bt W does not treat anything over 20' tall. We decided that Rodkey is going to get a couple estimates and will not move on to any other areas until we have Thornton figured out. 14 est 2"50k we will need to have a public hearing





Map Created in Cerro Gordo County Auditor's Office January 23, 2024 Appendix B: Original Joint Drainage District Plat



Appendix C: Opinions of Probable Costs

Engineer's Opinion of Probable Cost Proposed Main Open Ditch Repair Drainage District No. JDD 1-31-86 Cerro Gordo, Hancock, & Franklin Counties, Iowa

2024

ltem	Description	Unit	Quantity	Unit Price	Total	
1	Clearing and Grubbing	LS	1	\$150,000	\$150,000	
2	Seeding and Fertilize Open Ditch	STA	62	\$100	\$6,170	
3	Class 10 Excavation	STA	45	\$300	\$13,500	
4	Mobilization	LS	1	\$8,500	\$8,500	
5	Construction Contingency	LS	1_	\$17,830	\$17,830	
		Total Est	imated Cons	truction Cost	\$196,000	
	Non-Cor	struction Costs				
Construct	tion Related Damages				\$6 , 400	
Basic Eng	ineering Services					
	Survey, Study & Report. Meetings & Hearin	g			\$30,000	
	Construction Plans, Specifications, & Bid Let	tting			\$17,500	
	Construction Engineering Services, Staking,	and Inspection			\$15,000	
Legal Services, Publications, Mailings, Etc						
Finance, Interest & Contingency					<u>\$9,800</u>	
		Total Estimate	d Assessable	Project Cost	\$276,200	

Appendix D: Right-of-Way Tabulation

Proposed Open Ditch Right of Way Joint Drainage District No. 1-31-86 Cerro Gordo, Hancock, and Franklin Counties

Total Proposed

			Establishment		
			From Ditch	Existing Ditch	Proposed Ditch
Cerro Gordo County Landowner	Parcel ID	Legal Description	Centerline (ft)	ROW (ac)	ROW (ac)
Cerro Gordo County	141930200100	BLK 2 ENGEBRETSON ADD THORNTON	60	-	0.47
Cerro Gordo County	141930400400	THAT PART OF N 1001' NW SW 19-94-21 LYG S OF BAILEY CREEK	60	-	1.35
Cerro Gordo County	141930400300	THAT PART OF N 1001' NW SW 19-94-21 LYG N OF BAILEY CREEK	60	-	1.55
Cerro Gordo County & C/O County Conservation Board	132340000900	SW SE & SE SE 23-94-22 & NW SE 23-94-22 EXC COM AT CTR SEC 23 TH S 00-19-01 E 47.9' TO S ROW LINE 125TH ST; N 89°36'12"" E 973.93' TO POB; S 00°07'55"" E 774.68'; N 89°52'05"" E 532.47'; N 00°07'55"" W 777.14' TO S ROW LINE 125TH ST; S 89°36'12"" W 532.48' TO POB & NE SE 23-94-22 EXC COM AT CTR SEC 23 TH S 00°19'01"" E 47.9' TO S ROW LINE 125TH ST; N 89°36'12"" E 973.93' TO POB; S 00°07'55"" E 774.68'; N 89°52'05"" E 532.47'; N 00°07'55"" W 777.14' TO S ROW LINE 125TH ST; S 89°36'12"" W 532.48' TO POB EXC THAT PART THEREOF AS DESC SURV BK 2005 PG 233	60	-	1.03
Cerro Gordo County Conservation Board	132440700600	BR B/W LOC IN SE1/4 24-94-22	60	-	0.40
certo dordo county conservation board	132440700000	COM NE COR SE1/4 24-94-22 N ON SEC LINE 964 5' W 33' TO POB TH	00		0.40
City Of Thornton	132443300900	CONT W A DIST 185' TH S 113.4' TH N 75'31'30''' E A DIST 103.95' TH N 82°17'45''' E A DIST 85.9' TH N 76' ON LINE 33 NRMLY DIST & W SEC LINE TO POB	60	-	0.10
City Of Thornton	141940000400	THAT PART S 965' W 770' SE1/4 LYG NELY CREEK 19-94-21	60	-	1.46
Dorenkamp, Michael L	132140000300	NE SE 21-94-22	60	-	0.98
Engebretson, Scott H	132443401500	BEG AT SE COR L 12 SUB NE SE 24-94-22 TH N 89°42'14''' W 731.51' ALG S LINE L 12 TO E LINE W 94' L 12 TH N 00°24'16''' W 502.95' ALG E LINE W 94' TO CTR LINE DD #31 TH N 73°37'37''' E 766.12 ALG CTR LINE DD #31 TO PT NLY EXT W LINE SUNNYSIDE ACRES TH S 00°00'00''' W 722.68 ALG W LINE SUNNYSIDE ACRES & NLY EXT THEREOF TO POB 10.32 AC	60	-	0.98
Fischer, Donald L & Fischer, Marilyn J	130830000700	NE SW 08-94-22 EXC PCL ""A"" DESC IN SURV BK 2015 PG 556	60	-	2.36
Fischer, Donald L & Fischer, Marilyn J	130810000600	PCL ""A"" LOC IN SW NW 08-94-22 DESC IN SURV BK 2015 PG 556	60	-	1.21
Fischer, Donald L & Fischer, Marilyn J	130830000500	NW SW 08-94-22 EXC PCL ""A"" DESC IN SURV BK 2015 PG 556	60	-	0.52
Fischer, Donald L & Fischer, Marilyn J	130830000800	SE SW 08-94-22 EXC PCL ""A"" DESC IN SURV BK 2015 PG 556	60	-	1.07
Fischer, Donald L & Fischer, Marilyn J	130840000800	PCL ""A"" LOC IN SW SE 08-94-22 DESC SURV BK 2015 PG 556	60	-	0.77
Fischer, Mark D	130840000900	PCL ""B"" LOC IN \$1/2 SE1/4 08-94-22 DESC SURV BK 2015 PG 556	60	-	0.83
Fischer, Randall R	130830000600	PCL ""A"" LOC IN SW1/4 08-94-22 DESC IN SURV BK 2015 PG 556	60	-	3.69
Fischer, Randall R & Fischer, Vikki J	130840000600	SW SE 08-94-22 EXC PCLS ""A"" & ""B"" DESC SURV BK 2015 PG 556	60	-	0.51
Fischer, Randall R & Fischer, Vikki J	130840000100	NW SE 08-94-22	60	-	0.07
Floy, Lori	132610000900	NW NW 26-94-22 N CTR OPEN DITCH EXC COM NW COR NW1/4 S 00°00'00" E 434.31' TO POB CONT S 00°00'00" E 529.18' TO CTR LINE BAILEY CREEK TH N 89°08'30" E 3544.04' ALG CTR LINE CREEK TH N 00°00'00" W 523.88' TH S 00°00'00" W 354' TO POB	60		1.47
Floy, Lori	132620000100	NW NE 26-94-22 N RR	60	-	3.90
Floy, Lori	132620000400	NE NE 26-94-22 N RR	60	-	3.29
Floy, Lori	132610000400	NE NW 26-94-22 N CTR OPEN DITCH	60	-	2.07
Groesbeck, Linda Kae	131720000300	SW NE 17-94-22	60	-	0.46
Groesbeck, Linda Kae	131720000100	NW NE 17-94-22	60	-	4.21
Jaspersen Insurance & Real Estate Ltd	132440601000	OLT 5-6-7-8-9 EXC N 216' & OLT 10 EXC COM AT NE COR OLT 10 TH S 216' TO POB TH N 66' TH W 66.21' TH S 60' TH SELY TO POB EXC N 150' & OLT 11.12-13-14-15-16 EXC N 210' & W 20' N 210' OLT 16 & ALL OLT 17 & S 66' OLT 18 KNAPPS 2ND ADD	60	-	2.40
Jorgensen, James L	142910000100	NW NW 29-94-21	60	-	0.59
Ken Scott Inc	131720000400	BEG NE COR SE NE 17-94-22 S 1452' NWLY TO W LINE SE NE WHICH IS 136.95' S NW COR SE NE TH N TO NW COR SE NE TH E TO POB	60	-	2.70
Kohler, Joel A & Kohler, Kristi A	141937600100	SE SW 19-94-21 EXC S 19 RDS W 47 RDS	60	-	1.71
Kohler, Joel A & Kohler, Kristi A	141932600300	NE SW 19-94-21 EXC PCL 'A' AS DESC SURV BK 2018 PG 4347	60	-	2.84
Kohler, Joel A & Kohler, Kristi A	141940000300	SW SE 19-94-21 S CREEK	60	-	1.35
Kruszka, Alan E	132440602300	OLT'S 3 & 4 EXC N 174' KNAPPS 2ND ADD & BEG AT PT 229' S NW COR BLK 12 KNAPPS 1ST ADD E 139' S 125.5' E 125' TO E LINE BLK 12 S TO SE COR SWLY TO SW COR N ON W LINE BLK 12 TO POB KNAPPS 1ST ADD	60	-	0.76
M & P Farmco	131740000200	BEG SE COR NE SE 17-94-22 TH N 72 RDS NWLY TO W LINE SE NE WHICH IS 151.7 RDS N SW COR NE SE TH S TO SW COR NE SE TH E TO POB	60	-	2.45
Mcbride, Dale W & Mcbride, Carol L	132430000500	S 10 AC NE SW 24-94-22	60	-	2.61
Mcbride, Dale W & Mcbride, Carol L	132430000600	SE SW 24-94-22 N RR 24-94-22	60	-	1.36
Mcbride, Dale W & Mcbride, Carol L	132430001000	PCL 'A' SW SW 24-94-22 AS DESC & DEPICTED IN SURV 2022-6382	60	-	4.30
Mclaughlin, Phillip J & Mclaughlin, Nancy J	132443401400	W 94' L 12 SUB NE SE 24-94-22 S RR EXC BEG NW COR L 12 TH N 62'35'00"" E 105.89' ALG N LINE L 12 & PARA TO & 50' SLY MEAS AT RIGHT ANG TO CTR LINE MAIN TRACK C & NW RR TH S 00°00'00"" W 91.53' TO CTR LINE DD #31 TO A PT ON W LINE L 12 TH N 00°00'00"" E 35' TO POB	60	-	0.13
Meier, Bradley R & Meier, Rachel A	143020000200	NE NE 30-94-21	60	-	3.76
Meier, Bradley R & Meier, Rachel A	143020000100	NW NE 30-94-21	60	-	2.14
Nielsen, Lois Ann	132720000900	SE NE 27-94-22 EXC 2 AC N DD ()	60	-	0.91
Nielsen, Lois Ann	132720000200	NW NE 27-94-22 S DD	60	-	1.87
Nielsen, Lois Ann	132720000400	SW NE 27-94-22 EXC 1 AC N DD	60		0.75
Nielsen, Lois Ann	132720000700	NE NE 27-94-22 S DD	60		0.96

Proposed Open Ditch Right of Way Joint Drainage District No. 1-31-86 Cerro Gordo, Hancock, and Franklin Counties

Total Proposed

Cerro Gordo County Landowner	Parcel ID	Legal Description	From Ditch Centerline (ft)	Existing Ditch ROW (ac)	Proposed Ditch ROW (ac)
North Iowa Cooperative Elevator	132443301000	PART NE SE 24-94-22 DESC AS COM AT PT ON W LINE E 33' SEC 24 150' SELY MEAS AT RIGHT ANG FROM CTRLINE MAIN TRACK NW TRANS AS ORIG LOC TH SWLY PARA WITH ORIG MAIN TRACK CTRLINE 695' TO POB CONT SWLY PARA WITH TRACK CTRLINE 615' TO PT ON A LINE DRAWN PARA WITH E LINE SEC 24 THRU ORIG MAIN TRACK CTRLINE 695' TO POB 1300' SWLY FROM INTERSEC WITH W LINE PUBLIC ROAD RUNNING ALG E LINE SEC 24 TH NLY ALG SAID LAST DESC PARA LINE A DIST 120' MORE OR LESS TO PT DIST 50 SELY MEAS AT RIGHT ANG FROM ORIG MAIN TRACK CTRLINE TH NELY PARA WITH ORIG MAIN TRACK CTRLINE A DIST 560' MORE OR LESS TO PT ON LINE DRAWN AT RIGHT ANG THRU POB TH SELY ALG SAID LAST DESC RIGHT ANG LINE A DIST 100' TO POB AND A TRACT IN NE SE 24-94-22 BEG AT A PT 359' SWLY FROM W LINE E 33' SEC 24 & 150' SELY & RUN PARA TO CTRLINE MAIN TRACK C & NW RR TH 375' SELY TH NWLY 125 AT RIGHT ANG TH 375' NELY TH SELY 125' TO POB AND TRACT NE SE 24-94-22 BEG AT PT ON W LINE 33' SEC 24 & 150' SELY FROM CTRLINE MAIN TRACK C & NW RR TH SWLY PARA TO TRACK 320' TH NWLY 125' TH NELY 430' TH SWLY ON E LINE 35' SEC 24 & 150' SELY FROM CTRLINE MAIN TRACK C & NW RR TH SWLY PARA TO TRACK 320' TH NWLY 125' TH NELY 430' TH SWLY ON E LINE 34' TH SWLY 39' TO POB AND PART L'S 9-10.12 SUB NE SE 24-94-22 LYG N DD #31 EXC W 94' L 12 & EXC COM AT NE COR SE1/4 SEC 24 TH ON N SEC LINE 964.5' TH W 33' TO POB TH CONT W 185' TH S 113.4' TH N 75''31'30''' E 103.95' TH N 82''17'45''' E 85.9' TH N 51' 13.1'' H N 75''31'30'''' E 103.95' TH N 82''17'45'''' E 55.9' ALG N LINE L 12 & PARA TO & 50' SLY MEAS AT RIGHT ANG TO CTRLINE MAIN TRACK C & NW RR TH S 00'00'00'''' W 91.53' TO CTRLINE DD #31 TO PT ON W LINE L 12 TH N 00''00'''''''''''''''''''''''''''''''	60		1.87
Paul K Willis Revocable Living Trust Dtd 1/15/19	132610000200	NW NW 26-94-22 S CTR OPEN DITCH	60	-	1.65
Paul K Willis Revocable Living Trust Dtd 1/15/19	132230000500	NE SW 22-94-22	60	-	2.01
Paul K Willis Revocable Living Trust Dtd 1/15/19 Paul K Willis Revocable Living Trust Dtd 1/15/19	132230000600	SE SW 22-94-22	60	-	3.72
Paul K Willis Revocable Living Trust Dtd 1/15/19	132610000500	NE NW 26-94-22 S CTR OPEN DITCH	60	-	1.57
Payne, Loren J & Payne, Marianne J	132120000500	THAT PART NW NE LYG NELY CREEK 21-94-22	60	-	2.01
Payne, Loren J & Payne, Marianne J	132120000600	THAT PART NE NE LYG NELY CREEK 21-94-22	60	-	0.10
Payne, Loren J & Payne, Marianne J	132120000900	THAT PART SE NE LYG NELY CREEK 21-94-22	60	-	2.51
Ryan Pals Revocable Trust Dtd 4/28/2020 Ryan Pals Revocable Trust Dtd 4/28/2020	132120000300 132120000800	SW NE 21-94-22 THAT PART SE NE LYG SWLY CREEK & THAT PART NE NE LYG SWLY CREEK 21 94 22	60 60	-	0.07 2.11
Rvan Pals Revocable Trust Dtd 4/28/2020	132110000200	NE NW 21-94-22	60	-	3.31
Ryan Pals Revocable Trust Dtd 4/28/2020	132120000700	THAT PART NW NE LYG SWLY CREEK 21-94-22	60	-	2.48
Schlichting, Bruce	132720000800	SE NE 27-94-22 N DD	60	-	0.89
Schlichting, Bruce	132720001400	NE NE 27-94-22 LYG N DD; EXC COM NE COR NE1/4; TH W 661' TO POB; CONT W 405.03'; TH S 466.42'; TH E 405.03'; TH N 466.42' TO POB DESC IN SURV BK 1987 PG 1319; EXC PCL ""B"" DESC IN SURV BK 2010 PG 6819	60	-	1.31
Schlichting, Bruce	132720000300	SW NE 27-94-22 N DD	60	-	0.64
Schlichting, Bruce	132720001200	NW NE 27-94-22 N DD EXC PCL ""B"" DESC IN SURV BK 2010 PG 6819	60	-	2.35
Schlichting, Bruce	132230000200	NW SW 22-94-22 LYG S W BRANCH BEAVER CREEK	60	-	1.94
Schmale, Sharon K & Schmale, Vernon P	131630000100	NW SW 16-94-22	60	-	3.50
Schmale, Sharon K & Schmale, Vernon P	131630000500	SE SW 16-94-22 EXC COM SE COR SW1/4 N 90°00'00"" W 360' TO POB CONT N 90°0'00"" W 308.80' TH N 00°13'34"" E 188.94' TH N 79°47'22"" W 168.71' TH N 01°05'30"" W 261.11' TH S 88"03'49"" E 177.20' TH N 39°23'34"" E 29.36' TH S 89°32'41"" E 181.86' TH S 00°00'00" W 269.46' TH S 62°47'56"" E 114.10' TH S 00°00'00"" E 173.41' TO POB	60	-	0.43
Stadtlander, Larry	132443400300	W 195.36' L 9 & PART L 12 SUB NE SE 24-94-22 S DD#31 EXC SUNNYSIDE ACRES ADD & EXC BEG 16.5' N NE COR L 17 SUNNYSIDE ACRES ADD TH CONT N APPROX 60' TH SWLY 113.33' TH S 42' TH E 13.14' TO SW COR L 7 TH N 16.5' TH E 96.86' TO POB	60	-	0.26
Stadtlander, Larry	132443500200	L 10 SUB NE SE LYG S DD #31 EXC SUNNYSIDE ACRES ADD	60	-	0.17
Stadtlander, Larry	132443500100	L 8 & E 3 RDS L 9 SUB NE SE & EXC SUNNYSIDE ACRES ADD TO THORNTON	60	-	0.09
Torkelson, Scott Anthony	132610000800	COM NW COR NW1/4 26-94-22 S 00°00'00"" E 434.31' TO POB CONT S 00°00'00"" E 529.18' TO CTRLINE BAILEY CREEK TH N 89'08'30"" E 354.04' ALG CTRLINE CREEK TH N 00°00'00"" W 523.88' TH S 90°00'00"" W 354' TO POB ()	60	-	0.45
Zieman, Brian Wayne & Zieman, Abby Kay	130810000700	PCL ""B"" LOC IN NW1/4 08-94-22DESC IN SURV BK 2016 PG 5663	60	-	1.41
Zieman, David A & Zieman, Lucinda W	132710000700	NE NW 27-94-22 EXC COM NE COR NW1/4 27-94-22 5 90°00'00'" W 1054.88' TO POB CONT 5 90°00'00"" W 315.27' TH 5 00°00'00"" E 400' TH N 90°00'00"" E 315.27' TH N 00°00'00"" W 400' TO POB	60	-	0.29

Total Proposed Open Ditch Right-of-Way (ac) 111.90

Appendix E: Preliminary Plans

CONSTRUCTION PLANS FOR

JOINT DRAINAGE DISTRICT NO. 1 - 31 - 86 **OPEN DITCH TREE REMOVAL** CERRO GORDO, HANCOCK & FRANKLIN COUNTIES, IOWA 2024

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GOVERNING SPECIFICATIONS

THE 2024 EDITION OF THE "SUDAS SPECIFICATIONS FOR PUBLIC IMPROVEMENT" SHALL GOVERN

IOWA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION" SERIER 2015 AND ALL CURRENT GENERAL SUPPLEMENT SPECIFICATIONS AND SHALL GOVERN AS REFERENCED

ALL APPLICABLE FEDERAL. STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITHIN THE CONSTRUCTION OF THIS PROJECT.



NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIEV EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY IOWA ONE CALL 1-800-292-8989 OR 811

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINE FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES"

> UTILITY CONTACTS NOWN, BUT NOT NECESSARILY THE ONLY UTILITY CONTACTS THAT SHOULD BI CONTACTED PRIOR TO BEGINNING OF EXCAVATION.





1609 US HWY 18 EAST ALGONA, IA 50511 Phone: (515) 395-3140 Email: Algona@bolton-menk.com www.bolton-menk.com

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SHEET INDEX				
SHEET NUMBER	SHEET TITLE			
A.01	TITLE SHEET			
A.02	SITE PLAN			
A.03	DISTRICT PLAT			
B.01	CONSTRUCTION NOTES FOR SUBSURFACE DRAINS WORK			
B.02	OPEN DITCH AND GENERAL CONSTRUCTION NOTES			
B.03	SEEDING DETAILS			
C.01	QUANTITIES & ESTIMATE REFERENCE NOTES			
R.01-R.02	TREE REMOVAL AREA			







CONSTRUCTION NOTES - FOR SUBSURFACE DRAINS WORK

PLAN NOTES SUPERSEDE CONFLICTING PROVISIONS IN THE TECHNICAL SPECIFICATIONS.

- 1. WORK LIMITS. ARE 50 FEET FROM THE CENTERLINE OF THE TILE, OR AS OTHERWISE SHOWN ON THE PLANS, THE WORK AREA MAY BE EXPANDED IF NECESSARY TO COMPLETE THE WORK WITH THE PRIOR APPROVAL OF ENGINEER. THE CONTRACTOR MAY SHIFT THE CORRIDOR RELATIVE TO THE CENTERLINE.
- 2. CONNECT INTERCEPTED TILE. 12" DIAMETER OR LARGER TO NEW TILE WITH RCP OF SAME OR NEXT LARGER SIZE. USE OF TWO STANDARD LENGTH SECTIONS OF RCP IS REQUIRED UNLESS LESS OR MORE IS AUTHORIZED ON A SITE BY SITE BASIS. RCP CLASS SHALL BE SAME OR STRONGER THAN THE CLASS OF THE RECEIVING PIPE. FIELD CUT AND SHAPE HOLE IN RECEIVING PIPE AND ENDS OF CONNECTING PIPE TO PROVIDE FOR TIGHT FIT AND UNRESTRICTED FLOW. ENCASE ALL CONNECTIONS, EXCEPT FULLY SEATED TONGUE & GROOVE JOINTS. IN MINIMUM 6-INCH THICK BY 12-INCH WIDE PC CONCRETE COLLARS. CONNECTION IS TO BE SUPPORTED ACROSS THE MAIN LINE TRENCH AND BE BEDDED IN THE INSTALLATION TRENCH WITH CRUSHED STONE BEDDING AS PER SUDAS SECTION 3010-108-C. PAYMENT FOR CRUSHED ROCK BEDDING SHALL BE LIMITED TO 5 TONS PER CONNECTION UNLESS OTHERWISE APPROVED BY ENGINEER PRIOR TO BACKFILL. THE FURNISHING AND PLACEMENT OF SPECIFIED CRUSHED ROCK FOR SUPPORT AND BEDDING SHALL BE CONSIDERED PART OF, AND BE MEASURED AND PAID FOR UNDER THE TRENCH STABILIZATION ROCK BID ITEM, KEEP AND DELIVER TO ENGINEER A LOG OF CONNECTIONS INCLUDING LOCATION AND MATERIALS USED. CAPPING OF DOWNSTREAM LINE WITH A PC CONCRETE PLUG IS INCLUDED IN THIS BID ITEM. SECTIONS OF RCP USED ARE TO BE MEASURED AND PAID FOR UNDER THE APPLICABLE PIPE BID ITEM.
- 3. CONNECT INTERCEPTED TILE. 10" DIAMETER OR SMALLER, TO NEW TILE WITH CORRUGATED POLYETHYLENE DRAINAGE TUBING OF NEXT LARGER SIZE. SECURELY GROUT BOTH CONNECTIONS IN 6" X 12" CONCRETE COLLAR AND PLACE PIPE ON AND IN FIRMLY COMPACTED CRUSHED ROCK BEDDING AND SOIL ENVELOPE TO LIMIT SETTLEMENT AND DEFLECTION. WHERE COVER WILL EXCEED 8.0 FEET, EMBED CONNECTION IN MINIMUM 12 INCH THICK CRUSHED STONE BEDDING AS PER SUDAS 11. SAFETY. CONTRACTOR IS COMPLETELY RESPONSIBLE FOR SAFETY ON THE WORK SECTION 3010-108-C. PAYMENT FOR CRUSHED ROCK BEDDING SHALL BE LIMITED TO 3 TONS PER CONNECTION UNLESS OTHERWISE APPROVED BY ENGINEER PRIOR TO BACKFILL. THE FURNISHING AND PLACEMENT OF SPECIFIED CRUSHED ROCK FOR BEDDING AND ENVELOPE SHALL BE CONSIDERED PART OF. AND MEASURED AND PAID FOR UNDER, THE TRENCH STABILIZATION AND PIPE BEDDING ROCK BID ITEM. KEEP AND DELIVER TO ENGINEER A LOG OF CONNECTIONS INCLUDING LOCATION AND MATERIALS USED. CAPPING OF DOWNSTREAM LINE IS INCLUDED IN THIS BID ITEM. FURNISHING UP TO 20 FEET OF DRAINAGE TUBING IS INCLUDED IN THIS BID ITEM. SEE DETAIL ON SHEET B.01.
- **4. UTILITIES.** IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY UTILITY COMPANIES AND TO COOPERATE WITH THEM IN THE LOCATION, MARKING & PROTECTION OF THEIR FACILITIES. CONTRACTOR IS TO IMMEDIATELY NOTIFY ENGINEER OF APPARENT CONFLICTS OF EXISTING PUBLIC UTILITIES WITH THE PLAN GRADE OF THE TILE.
- PRIOR TO STARTING ANY WORK AT THE SITE, CONTRACTOR SHALL EXAMINE ANY APPLICABLE DRAWINGS AVAILABLE FROM THE OWNER OR ENGINEER, AND CONSULT THE OWNER'S PERSONNEL AND THE INVOLVED UTILITY COMPANIES. NO COMPENSATION WILL BE ALLOWED FOR DAMAGE CAUSED DUE TO CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT. CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA 1-CALL AT 1-800-292-8989.
- 5. WEED CONTROL. CONTRACTOR IS REQUIRED TO CONTROL WEED GROWTH WITHIN THE WORK LIMITS, AS NEEDED, TO PREVENT WEEDS FROM GOING TO SEED. THIS WORK IS INCIDENTAL
- 6. DRAINAGE. MAINTAIN DRAINAGE OF THE EXISTING DRAIN, DRAINAGE WAYS, AND TRIBUTARY FACILITIES AT ALL TIMES DURING CONSTRUCTION.
- 7. TOPSOIL-TRENCH EXCAVATION. FOR ALL REACHES OF THE TRENCH EXCAVATION, THE CONTRACTOR IS REQUIRED TO SEGREGATE THE TOPSOIL FROM SUBSOIL BY PLACING TOPSOIL ON ONE SIDE OF TRENCH AND REMAINING EXCAVATION ON THE OPPOSITE SIDE. CONTRACTOR IS REQUIRED TO OPERATE SUCH THAT MOST OF THE TOPSOIL IS RETURNED TO THE TOP FOOT OF THE COMPLETED TILE TRENCH BACKFILL. EXCESS TRENCH EXCAVATION SHALL BE GENTLY MOUNDED OVER TRENCH SO TO BE FARMABLE AND NOT INTERFERE WITH DRAINAGE AND WITH MINIMUM 12" OF TOPSOIL. TO ASSURE COMPLIANCE WITH THIS NOTE CONTRACTOR IS REQUIRED TO DESCRIBE TO ENGINEER AT THE PRE-CONSTRUCTION CONFERENCE HOW TOPSOIL WILL BE MANAGED.

CONTRACTOR IS REQUIRED TO STRIP 18" OF TOPSOIL. STOCKPILE NEAR THE WORK LIMITS AND RESPREAD OVER COMPLETED TILE TRENCH. WHERE TRENCH DEPTHS EXCEED 13 FEET THE TOPSOIL STRIPPING WIDTH IS BASED UPON THE ASSUMPTION THAT CONTRACTOR WILL OBSERVE OSHA TRENCH EXCAVATION STANDARD 1926.652(B)(1).

- 8. OPEN CUT SECONDARY ROAD RIGHT OF WAY CROSSINGS. UNDER DIVISION 2 CONTRACTOR SHALL NOTIFY AND COMPLY WITH THE REQUIREMENTS OF HANCOCK COUNTY ENGINEER. ROAD SHALL BE CLOSED TO TRAFFIC DURING CONSTRUCTION. CONSTRUCTION SHALL BE SUBSTANTIALLY COMPLETED DURING DAYLIGHT HOURS AND THE ROAD OPENED TO TRAFFIC IN ONE WORKING DAY. BARRICADES AND SIGNING SHALL BE SECURED, INSTALLED, AND MAINTAINED BY CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE COUNTY ENGINEER. DISTURBED AREAS IN ROAD DITCHES SHALL BE COVERED WITH A MINIMUM 3 INCHES OF TOPSOIL AND SHALL BE FERTILIZED AND RESEED. EXCESS ROAD DITCH MATERIAL MAY BE BLENDED INTO TRENCH BACKFILL ON ADJACENT LANDS.
- 9. ROAD CROSSING DETAILS. CONTRACTOR IS REQUIRED TO USE SEPARATE STOCKPILES AND PROVIDE SEPARATE WEIGH TICKETS OF TRENCH STABILIZATION ROCK BEDDING MATERIAL. SURPLUS ROCK MAY BE SHIFTED TO OTHER AREAS OF WORK WITH PRIOR CALCULATION BY ENGINEER OF THE WEIGHT OF THE MATERIAL TRANSFERRED.

ROAD CROSSING WORK INCLUDES SECURING AND MAINTAINING ROAD WORK SIGNAGE FOR THE PLACEMENT OF FILL, GRADING AND SEEDING IN THE ROAD DITCHES

THE COUNTY ENGINEER WILL MAKE FINAL SIGNING DECISIONS. SIGNING REQUIREMENTS ARE IN ACCORDANCE WITH THE CURRENT SIGNING STANDARDS OF THE COUNTY.

- 10. SEDIMENT CONTROL. CONTRACTOR SHALL FURNISH AND INSTALL TEMPORARY SILT FENCES AT LOCATIONS DESIGNATED BY ENGINEER. IN ROAD DITCHES PLACE A SILT FENCE ACROSS THE DITCH BOTTOM ON THE SIDE OF THE SITE TOWARD WHICH SURFACE RUNOFF FLOWS. CONTRACTOR IS REQUIRED TO MAINTAIN THE SILT FENCES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING OR REPLACING THROUGHOUT THE CONTRACT PERIOD. CONTRACTOR SHALL REMOVE THE FENCE AT THE END OF THE CONTRACT PERIOD.
- SITE INCLUDING THE BRACING OF, SHORING OF, SHAPING OF, AND /OR USE OF A TRENCH BOX IN THE EXCAVATIONS. THIS INCLUDES KNOWLEDGE OF AND COMPLIANCE WITH ALL RULES AND REGULATIONS INTENDED TO PROTECT THE HEALTH OF THE CONTRACTOR'S, ENGINEER'S, AND OWNER'S PERSONNEL.
- 12. FENCE CUTS. EXISTING FENCES IN POOR CONDITION ARE TO BE REMOVED TO THE WIDTH NECESSARY TO DO THE WORK PROPERLY. CUT, DETACH AND FLATTEN WIRE AND PULL POSTS. BURY ON SITE. FENCES IN GOOD CONDITION ARE TO BE CUT AND THE WIRES PULLED BACK. FENCE POST PULLED AND STORED BY OPENING. FENCE RESTORATION NOT REQUIRED.
- 13. TRAFFIC CONTROL. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL NECESSARY TRAFFIC CONTROL SIGNS, DEVICES, ETC. AS SPECIFIED OR ALLOWED, AND TO PLACE, MAINTAIN, AND REMOVE SAME AS CONSTRUCTION COMMENCES AND IS COMPLETED IN ACCORDANCE WITH THE CURRENT COUNTY STANDARDS. FAILURE TO COMPLY WITH THIS PORTION OF THE SPECIFICATIONS WILL RESULT IN SUSPENSION OF WORK UNTIL THE SITUATION IS CORRECTED. A REDUCTION IN THE LUMP SUM PAID WILL BE MADE FOR EXCESSIVE NONCOMPLIANCE WITH REQUIRED TRAFFIC CONTROL. NO WORK SHALL COMMENCE IN ANY GIVEN AREA UNTIL ALL APPROPRIATE TRAFFIC CONTROL IS IN PLACE.
- 14. MANUFACTURED PIPE FIXTURES. SHALL BE BUILT IN CONFORMANCE WITH THE FOLLOWING IDOT STANDARD SPECIFICATIONS.

ELBOW = DR-141

PIPE CAP = DR-142

TEE = DR-142

15. CORRUGATED POLYETHYLENE DRAINAGE TUBING. SHALL BE INSTALLED IN ACCORDANCE WITH ASTM 449. THE DETAILS ON SHEET B.01 APPLY TO THIS MATERIAL USED IN CONNECTIONS.



1609 US HWY 18 FAST ALGONA, IA 50511 Phone: (515) 395-3140 nail: Algona@bolton-menk.com www.bolton-menk.com

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CONSTRUCTION NOTES FOR SUBSURFACE DRAINS WORK	0.01

CONSTRUCTION NOTES - OPEN DITCH

PLAN NOTES SUPERSEDE CONFLICTING PROVISIONS IN THE TECHNICAL SPECIFICATIONS.

- 1. WORK LIMITS. ARE GENERALLY 100 FEET FROM THE CENTERLINE OF THE DITCH, OR AS OTHERWISE SHOWN ON THE PLANS. THE WORK AREA MAY BE EXPANDED IF NECESSARY TO COMPLETE THE WORK WITH THE PRIOR APPROVAL OF ENGINEER.
- 2. EXCAVATION AND BANK SHAPING IS REQUIRED TO BE CARRIED OUT FROM BOTH SIDES OF THE OPEN DITCH UNLESS OTHERWISE NOTED OR APPROVED BY ENGINEER. APPROXIMATELY EQUAL AMOUNTS OF SPOIL ARE TO BE PLACED ON EACH SIDE OF THE DITCH UNLESS OTHERWISE SPECIFIED ON PLANS. A MACHINE WITH THE NECESSARY REACH TO ACCOMPLISH THE CLEANOUT WITHOUT DISTURBING THE TOP EXISTING BANK WILL BE REQUIRED. CONTRACTOR SHALL LIMIT, AS MUCH AS PRACTICAL, DISTURBANCE OF STABLE VEGETATED BANKS WHICH LIE OUTSIDE THE DESIGN CROSS SECTION. WHERE THE DITCH IS WIDER THAN THE DESIGN CROSS SECTION, CONTRACTOR SHALL EXCAVATE AS REQUIRED TO SHAPE BOTTOM TO BASE OF SIDE SLOPES.
- 3. NEW PIPE

-ALL NEW PIPES ARE TO BE FABRICATED FROM CORRUGATED STEEL OR IRON. -ALL NEW PIPES ARE TO HAVE ANNULAR CORRUGATION AND RIVETED OR RESISTANCE SPOT WELDED SEAMS.

-MINIMUM TILE PIPE SIZE IS 12". SUBSTITUTE NEW 12" FOR ALL SMALLER TILE INSTALLATIONS MARKED "INSTALL:" OR "REMOVE. SALVAGE AND REINSTALL".

4. DRAIN TILE LINES. WHERE IT IS NECESSARY TO EXTEND OR RELAY TILE LINES. 12" DIA. OR LARGER, TO CONNECT TO TILE EXTENSION PIPES THE EXTENSION SHALL BE WITH REINFORCED CONCRETE PIPE IN A TRENCH WITH A MAXIMUM WIDTH 24" WIDER THAN THE PIPE SECTIONS. THE PIPE SHALL BE INSTALLED IN COMPLIANCE WITH PLANS AND SPECIFICATIONS. USE CLASS III RCP WHEN COVER DEPTH DOES NOT EXCEED 8 FEET. USE CLASS IV RCP WHEN COVER DEPTH EXCEEDS 8 FEET. DUAL WALL HDPE N-12 PIPE MAY BE USED ONLY WITH THE ENGINEER'S APPROVAL, WHICH MAY BE WITHHELD AT ENGINEER'S SOLE DISCRETION IF IT IS NOT BEING INSTALLED AS SPECIFIED. EXTEND ALL SMALLER TILE LINES WITH 10" DIAMETER PVC SDR-35 SEWER PIPE FITTED OVER TILE WHENEVER POSSIBLE AND INTO OUTLET PIPE. NECESSARY EXTENSIONS OR RELAYS LESS THAN 20 FEET IN LENGTH MAY BE COMPLETED WHEN DISCOVERED. LONGER EXTENSIONS MUST BE FIRST APPROVED BY ENGINEER. THIS WORK SHALL BE PAID AT THE UNIT PRICE BID FOR PIPE CULVERT TE, FOR THE APPLICABLE DIAMETER PIPE FOR THE ACTUAL LENGTH OF TILE LINE INSTALLED. PIPE BEDDING SHALL BE INCIDENTAL TO EXTENDING THE TILE LINES AND WILL NOT BE PAID FOR SEPARATELY.

WHERE A LATERAL TILE LINE IS FOUND TO BE CRUSHED, CRACKED AND/OR FILLED WITH SEDIMENT CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO DOING ADDITIONAL WORK. ENGINEER WILL DETERMINE IF REPLACEMENT OR ABANDONMENT IS WARRANTED. TILE REPLACEMENT WILL NOT EXTEND BEYOND THE WORK LIMITS.

CONTRACTOR IS REQUIRED TO MAINTAIN AND PROVIDE A LOG OF ALL DRAIN TILE LINE EXTENSION AND REPLACEMENT WORK. CONTRACTOR SHALL RECORD THE LOCATION. EXISTING TILE MATERIAL, SIZE, STRENGTH & LENGTH OF MATERIALS INSTALLED, OTHER WORK PERFORMED, AND EQUIPMENT AND LABOR TIME. MAINTAINING THIS LOG IS INCIDENTAL TO THE CONTRACT. FAILURE TO MAINTAIN AN ACCURATE LOG WILL RESULT IN CONTRACTOR BEING REQUIRED TO EXPOSE THE PIPE FOR FIELD VERIFICATION OF QUANTITIES AT CONTRACTOR'S EXPENSE.

ALL CONNECTIONS OF DRAIN TILE TO EXTENSION PIPES ARE TO BE ENCASED IN A PORTLAND CEMENT CONCRETE COLLAR AT LEAST 12" WIDE AND 6" THICK CONTINUOUS AROUND THE JOINT. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE TILE EXTENSION BID ITEM AND WILL NOT BE PAID FOR SEPARATELY.

- 5. ANIMAL GUARDS. IF AN ANIMAL GUARD EXISTS IN AN EXISTING TILE EXTENSION AND THE TILE EXTENSION IS BEING REPLACED, THE ANIMAL GUARD SHALL BE REPLACED WITH A NEW ANIMAL GUARD OF THE PROPER SIZE.
- 6. RIPRAP. PLACEMENT LOCATIONS WILL BE MARKED DURING CONSTRUCTION. LENGTH, HEIGHT & THICKNESS OR TONS PER FOOT AND CLASS OF ROCK WILL BE SPECIFIED. UNLESS OTHERWISE NOTED, FOR OPEN DITCH BANK STABILIZATION USE CLASS E RIPRAP AT ONE TON PER FOOT ON BOTTOM 5 FEET OF DITCH BANK SLOPE, ENGINEERING FABRIC NOT REQUIRED UNLESS OTHERWISE SPECIFIED, ENGINEERING FABRIC WILL BE PAID UNDER SEPARATE BID ITEM.
- 7. SPOIL BANK LEVELING. SPOIL PILES ARE TO BE PLACED, LEVELED, SHAPED AND GRADED IN COMPLIANCE WITH PLAN REQUIREMENTS AND SUPPLEMENTAL SPECIFICATIONS. SEE PLAN SHEET D.01. THE TOP 8 INCHES OF ALL LEVELED SPOIL, OLD AND NEW, IS TO BE TILLED BY CONTRACTOR WITH A CHISEL PLOW OR OTHER APPROVED IMPLEMENT. DISPOSE OF ROCKS (FIST SIZE OR LARGER) AND OTHER DEBRIS EXPOSED BY THIS OPERATION. CHISELING AND FINISH GRADING ARE SUBSIDIARY TO THE SPOIL BANK LEVELING BID ITEM.
- 8. PIPE WORK IN OPEN DITCH. QUANTITIES FOR THE OPEN DITCH WORK ARE ONLY AN ESTIMATE BASED ON PRELIMINARY SURVEY INFORMATION. MOST PIPE WORK LOCATIONS ARE SHOWN ON THE PLANS BUT THESE MAY CHANGE AND THERE MAY BE NEW PIPE WORK LOCATIONS ADDED DURING THE COURSE OF THE PROJECT. WORK TO BE DONE AT EACH LOCATION WILL BE DETERMINED IN THE FIELD. CONTRACTOR'S MOVEMENTS BETWEEN THE SEVERAL MARKED PIPE WORK SITES AND ANY ADDED SITES ON THE ENTIRE DITCH DURING THE ENTIRE CONTRACT PERIOD IS CONSIDERED INCIDENTAL TO THE APPLICABLE PIPE WORK BID ITEM.
- 9. BRIDGES AND CULVERTS. ARE TO BE COMPLETELY CLEAR OF SEDIMENT ABOVE THE PLAN SECTION AT THE TIME ENGINEER MAKES THE FINAL INSPECTION. THIS WORK IS INCIDENTAL TO THE EXCAVATION BID ITEM.

CONSTRUCTION NOTES - GENERAL

- ENGINEER.

PRIOR TO STARTING ANY WORK AT THE SITE, CONTRACTOR SHALL EXAMINE ANY APPLICABLE DRAWINGS AVAILABLE FROM THE OWNER OR ENGINEER, AND CONSULT THE OWNER'S PERSONNEL AND THE INVOLVED UTILITY COMPANIES. NO COMPENSATION WILL BE ALLOWED FOR DAMAGE CAUSED DUE TO CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT. CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA 1-CALL AT 1-800-292-8989.

- INCIDENTAL
- MEASURES.
- AND OWNER'S PERSONNEL.
- CROP IS HARVESTED.

GENERAL CONSTRUCTION NOTES -

PLAN NOTES SUPERSEDE CONFLICTING PROVISIONS IN THE TECHNICAL SPECIFICATIONS.

- TO BE SHARED WITH THE ENGINEER.
- UNTIL THE CROP IS HARVESTED

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PLAN NOTES SUPERSEDE CONFLICTING PROVISIONS IN THE TECHNICAL SPECIFICATIONS.

1. ACCESS. IS AVAILABLE AT INTERSECTIONS OF WORK LIMITS AND PUBLIC ROADS OR AS CAN BE OTHERWISE ARRANGED BY CONTRACTOR. CONTRACTOR IS RESPONSIBLE TO SECURE PERMISSION OF COUNTY ENGINEER TO CONSTRUCT TEMPORARY ACCESSES IF NECESSARY. OTHER LEGAL ACCESSES ARE SHOWN ON THE PLANS. THE LAND OWNERS WHERE THE ACCESSES EXIST WILL BE NOTIFIED THAT THE CONTRACTOR MAY USE THESE LEGAL ACCESSES FOLLOWING WHICH THE DISTRICT WILL PAY FAIR DAMAGES. EXCESSIVE DAMAGES MAY BE ASSESSED TO THE CONTRACTOR AT THE COMPLETION HEARING. CONTRACTOR IS REQUIRED TO COMMUNICATE WITH THE LAND OWNERS TO REVIEW ALTERNATIVE ROUTES AND SCHEDULES. THE RESULTS OF THESE COMMUNICATIONS ARE TO BE SHARED WITH THE

2. UTILITIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY UTILITY COMPANIES AND TO COOPERATE WITH THEM IN THE LOCATION. MARKING & PROTECTION OF THEIR FACILITIES. CONTRACTOR IS TO IMMEDIATELY NOTIFY ENGINEER OF APPARENT CONFLICTS OF EXISTING PUBLIC UTILITIES WITH THE PLAN GRADE OF THE TILE OR OPEN DITCH.

3. WEED CONTROL. CONTRACTOR IS REQUIRED TO CONTROL WEED GROWTH WITHIN THE WORK LIMITS, AS NEEDED, TO PREVENT WEEDS FROM GOING TO SEED. THIS WORK IS

4. DRAINAGE. MAINTAIN DRAINAGE OF THE EXISTING DRAIN, DRAINAGE WAYS, AND TRIBUTARY FACILITIES AT ALL TIMES DURING CONSTRUCTION.

5. STORAGE. NO WORK, OR EQUIPMENT OR MATERIAL STORAGE, TO BE DONE WITHIN COUNTY ROAD RIGHT-OF-WAY OR CITY STREETS WITHOUT THE KNOWLEDGE AND PERMISSION OF THE COUNTY ENGINEER OR CITY . CONTRACTOR IS RESPONSIBLE TO CONTACT COUNTY ENGINEER OR CITY AND TO OPERATE IN COMPLIANCE WITH THE REQUIRED SAFETY

6. SAFETY. CONTRACTOR IS COMPLETELY RESPONSIBLE FOR SAFETY ON THE WORK SITE INCLUDING THE BRACING OF, SHORING OF, SHAPING OF, AND /OR USE OF A TRENCH BOX IN THE EXCAVATIONS. THIS INCLUDES KNOWLEDGE OF AND COMPLIANCE WITH ALL RULES AND REGULATIONS INTENDED TO PROTECT THE HEALTH OF THE CONTRACTOR'S. ENGINEER'S.

7. FENCE CUTS. EXISTING FENCES IN POOR CONDITION ARE TO BE REMOVED TO THE WIDTH NECESSARY TO DO THE WORK PROPERLY. CUT, DETACH AND FLATTEN WIRE AND PULL POSTS. BURY ON SITE. FENCES IN GOOD CONDITION ARE TO BE CUT AND THE WIRES PULLED BACK. FENCE POST PULLED AND STORED BY OPENING.FENCE RESTORATION NOT REQUIRED.

8. CROP PROTECTION. WHEN CROP DAMAGE MAY BE AVOIDED, AND A DELAY WILL NOT HAMPER CONTRACTOR'S PROGRESS TOWARD COMPLETION OF THE WORK, ENGINEER MAY REQUIRE THAT OPEN DITCH SPOIL LEVELING OR PIPE INSTALLATION BE DELAYED UNTIL THE

1. ACCESS. IS AVAILABLE AT INTERSECTIONS OF WORK LIMITS AND PUBLIC ROADS OR AS CAN BE OTHERWISE ARRANGED BY CONTRACTOR. CONTRACTOR IS RESPONSIBLE TO SECURE PERMISSION OF COUNTY ENGINEER TO CONSTRUCT TEMPORARY ACCESSES IF NECESSARY. OTHER LEGAL ACCESSES ARE SHOWN ON THE PLANS. THE LAND OWNERS WHERE THE ACCESSES EXIST WILL BE NOTIFIED THAT THE CONTRACTOR MAY USE THESE LEGAL ACCESSES FOLLOWING WHICH THE DISTRICT WILL PAY FAIR DAMAGES. EXCESSIVE DAMAGES MAY BE ASSESSED TO THE CONTRACTOR AT THE COMPLETION HEARING. CONTRACTOR IS REQUIRED TO COMMUNICATE WITH THE LAND OWNERS TO REVIEW ALTERNATIVE ROUTES AND SCHEDULES. THE RESULTS OF THESE COMMUNICATIONS ARE

2. STORAGE. NO WORK, OR EQUIPMENT, OR MATERIAL STORAGE TO BE DONE WITHIN CITY ROAD RIGHT-OF-WAY WITHOUT THE KNOWLEDGE AND PERMISSION OF THE CITY ENGINEER. CONTRACTOR IS RESPONSIBLE TO CONTACT CITY ENGINEER AND TO OPERATE IN COMPLIANCE WITH THE REQUIRED SAFETY MEASURES.

3. CROP PROTECTION. WHEN CROP DAMAGE MAY BE AVOIDED. AND A DELAY WILL NOT HAMPER CONTRACTOR'S PROGRESS TOWARD COMPLETION OF THE WORK, ENGINEER MAY REQUIRE THAT OPEN DITCH SPOIL LEVELING OR PIPE INSTALLATION BE DELAYED

> CERRO GORDO, HANCOCK & FRANKLIN, COUNTIES IOWA JNT DD 1-31-86 MAIN OPEN DITCH TREE REMOVAL

OPEN DITCH AND GENERAL CONSTRUCTION NOTES

CONSTRUCTION NOTES - FOR OPEN DITCH SEEDING AND FERTILIZING

PLAN NOTES SUPERSEDE CONFLICTING PROVISIONS IN THE TECHNICAL SPECIFICATIONS.

1. MEASUREMENT AND PAYMENT.

MEASUREMENT: MEASURE AT 100 FOOT STATIONS ALONG CENTERLINE OF DITCH. Α.

PAYMENT: UNIT PRICE PER 100 FOOT STATIONS SHALL BE FULL COMPENSATION FOR SEEDING AND В. FERTILIZING DISTURBED BANKS AT THE RATES SPECIFIED IN THE CONTRACT DOCUMENTS.

C INCLUDES: SUPPLYING SEED SACKS AND TAGS AND FERTILIZER TAGS OR OTHER EVIDENCE OF COMPLIANCE WITH THE SPECS TO THE ENGINEER. ALL REQUIRED SEED TREATMENTS, ANY NECESSARY SEED BED PREPARATION, LABOR, EQUIPMENT, TOOLS, AND MISCELLANEOUS ASSOCIATED WORK NECESSARY TO COMPLETE ITEM ON ONE SIDE OR BOTH SIDES RESPECTIVELY AS SPECIFIED.

2. SEED MIXTURE.

BROME GRASS	50 LB/AC (1.15 LB/1000 SF) PLS
WINTER RYE	84 LB/AC (1.95 LB/1000 SF) PLS
OATS	80 LB/AC PLS (1.85 LB/1000 SF) PLS

SEED SHALL BE TREATED WITH STICKING AGENT, INOCULANT, AND FUNGICIDE WHEN APPROPRIATE.

3. FERTILIZER. USE FERTILIZER OF THE GRADE, TYPE, AND FORM SPECIFIED THAT COMPLIES WITH RULES OF THE IOWA DEPARTMENT OF AGRICULTURE AN LAND STEWARDSHIP AND THE FOLLOWING REQUIREMENTS:

A. GRADE: IDENTIFY THE GRADE OF FERTILIZER ACCORDING TO THE PERCENT NITROGEN (N), PERCENT OF AVAILABLE PHOSPHORIC ACID (P₂0₅), AND PERCENT WATER SOLUBLE POTASSIUM (K₂0), IN THAT ORDER, AND BASE APPROVAL ON THAT IDENTIFICATION.

THE CONTRACTOR MAY SUBSTITUTE OTHER FERTILIZER CONTAINING ANALYSIS PERCENTAGES DIFFERENT FROM THOSE SPECIFIED, PROVIDED THAT THE MINIMUM AMOUNTS OF ACTUAL NITROGEN, PHOSPHATE, AND POTASH PER ACRE ARE SUPPLIED, AND THAT IN NO CASE DOES THE TOTAL AMOUNT PER ACRE OF THE THREE FERTILIZER ELEMENTS BE EXCEEDED BY 30% OF THE FOLLIWING MINIMUM AMOUNTS.

TYPE: USE FERTILIZER THAT CAN BE UNIFORMLY DISTRIBUTED BY THE APPLICATION EQUIPMENT. FURNISH FERTILIZER EITHER AS SEPARATE INGREDIENTS OR IN CHEMICALLY-COMBINED FORM.

PRE-SEEDING FERTILIZER: 6-20-20 - 500 LB/AC (11 LB/1000 SF)

POST EMERGENCE FERTILZER: 48-0-0 (UREA) - 65 LB/AC (1.5 LB/1000 SF)



AREA OF SEEDING FOR DEPTH OF DITCH AND PORTION OF VEGETATION REMOVED (SF PER STATION PER SIDE) FOR SIDESLOPE 1.5:1

DITCH DEPTH (FT)	$rac{1}{2}$ BANK	³ / ₄ BANK	FULL BANK
6	270	541	811
8	451	811	1172
10	631	1082	1532
12	811	1352	1893
14	992	1622	2253
16	1172	1893	2614
18	1352	2163	2975

AREA OF SEEDING FOR DEPTH OF DITCH AND PORTION OF VEGETATION REMOVED

(SF PER STATION PER SIDE) FOR SIDESLOPE 2:1								
DITCH DEPTH (FT)	DITCH DEPTH (FT) $\frac{1}{2}$ BANK $\frac{3}{4}$ BANK FULL BANK							
6	335	671	1006					
8	559	1006	1453					
10	783	1342	1901					
12	1006	1677	2348					
14	1230	2012	2795					
16	1453	2348	3242					
18	1677	2683	3690					

4. DAILY SEEDING. BETWEEN APRIL 1 AND OCTOBER 15, DISTURBED OPEN DITCH BANK SLOPES ABOVE THE NORMAL WATER SURFACE ARE TO BE FERTILIZED AND SEEDED WITH A PORTABLE CYCLONE SEEDER OR BY OTHER APPROVED MEANS AT LEAST ONCE (MINIMUM) AT THE END OF EACH DAY OF WORK.

FERTILIZER AND SEED SHALL BE PLACED AND SOWN AS SOON AS PRACTICAL ON THE FRESH CUT SLOPE WHILE THE CUT IS STILL WET AND ALL PLACED MATERIAL WILL ADHERE. NO SPECIAL PREPARATION OF AREAS TO BE SEEDED WILL BE REQUIRED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

DITCH BANK SLOPES FINISHED AFTER OCTOBER 15 ARE TO BE FERTILIZED AND SEEDED BETWEEN APRIL 1 AND APRIL 20.

AFTER SEED HAS GERMINATED, CONTRACTOR SHALL APPLY POST EMERGENCE FERTILIZER AT THE SPECIFIED RATE.

5. NON-DAILY SEEDING. THE CONTRACTOR MAY OPT TO FOREGO DAILY SEED APPLICATIONS AND INSTEAD SEED LONG REACHES OF THE DITCH AT A TIME. UNDER THIS OPTION, CONTRACTOR MUST WET AND DISTURB TO A DEPTH OF 2 INCHES THE DENUDED DITCH BANK WITH A BOBCAT SCARIFIER (OR OTHER APPROVED MEANS OF BANK DISTURBANCE) PRIOR TO APPLYING FERTILIZER AND SEED.

ENGINEER AT ENGINEER'S SOLE DISCRETION MAY REQUIRE UP TO TWO ADDITIONAL PASSES IF DITCH BANKS ARE NOT SUFFICIENTLY DISTURBED.

AFTER SEED HAS GERMINATED, CONTRACTOR SHALL APPLY POST EMERGENCE FERTILIZER AT THE SPECIFIED RATE

MOUNT DISTURBANCE IMPLEMENT ON APPROPRIATE EQUIPMENT OR SKID TO PROTECT DITCH BANK FROM DAMAGE.

6. ACCEPTABLE DISTURBANCE METHODS/EQUIPMENT.

- 6.1. DAILY SEEDING: FINAL PASS OF EXCAVATOR SHALL BE WITH A TOOTHED BUCKET TO SUFFICIENTLY DISTURB THE DITCH BANK TO MORE EFFECTIVELY HOLD SEED.
- 6.2. NON-DAILY SEEDING: IF CONTRACTOR CHOOSES TO SEED LONG REACHES, A BOBCAT SCARIFIER SHALL BE USED TO DISTURB THE BANK TO A DEPTH OF 2 INCHES.



Main features Carifier includes two depth guides and five teeth. Adjustable depth skids for presetting digging depth. Prepares hard-pack ground for digging or landscaping Standard five-tooth unit with additional teeth available Bob-Tach[™] mounted for easy attachment changes. Rijs light asphalt for removal. 😹 Bobcat Item number Scarifier 6563526 Weights and dimension

	Operating weight Shipping weight Overall Wi					Overall lenght (A)	
Scarifier	350 lbs	350 lbs	60 in.		26 in.	24 in.	
Characteristics and performance							
Number of Teeth Maximum Dig Depth (approximate)							
carifier 5 6 in.							

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1609 US HWY 18 FAST ALGONA, IA 50511

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CERRO GORDO, HANCOCK & FRANKLIN, COUNTIES IOWA	SHEET
JNT DD 1-31-86 MAIN OPEN DITCH TREE REMOVAL	B U3
SEEDING DETAILS	0.05

	ESTIMATE PROJECT QUANTITIES					
		JOINT DRAINAGE DISTRICT NO. 1 - 31 - 86				
ITEM NO	ITEM CODE	ITEM	UNIT	TOTAL		
101	2010-108-C-0	CLEARING AND GRUBBING	LS	1		
102	9010-108-A-0	SEEDING AND FERTILIZATING OPEN DITCH	STA	61.7		
103	11020-108-A	MOBILATION	LA	1		

ESTIMATE REFERENCE					
	JOINT DRAIN	IAGE DISTRICT NO. 1 - 31 - 86			
ITEM NO.	ITEM CODE	DESCRIPTION			
101	2010-108-C-0	CLEARING AND GRUBBING			
102	9010-108-A-0	SEEDING FERTILIZING OPEN DITCH			
103	11020-108-A	MOBILIZATION			



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CERRO GORDO, HANCOCK & FRANKLIN, COUNTIES IOWA	SHEET
JDD1-31-86 MAIN OPEN DITCH TREE REMOVAL	C 01
QUANTITIES & ESTIMATE REFERENCE NOTES	0.01



