

Sample Restoration Plan, Opportunity USDA-NRCS-IA-18-03, will be provided by NRCS to awardees for each project

Agreement Number 68-6114-15-015 ACEP-WRE: .

Attachment B - **Project Number: 19** Restoration Cover Sheet

Landowner Name:

Landowner Phone:

County:

Cerro Gordo

Field Office Contact:

Area Easement Specialist:

Easement Number(s):

Date:	October 17, 2016
NOTES: This restoration consists of tile investigation/plugging/installation, shallow water excavation and re-seeding of disturbed areas. Completion dates can be adjusted with advanced notice and reasonable justification. Please remind all sub-contractors to contact the landowners or the field office prior to beginning any restoration practices.	

Restoration proposed to be completed by September 30, 2018					
Practice	Quantity	Unit	Unit Cost	Total Cost	Estimated Completion Date
Wetland Restoration:					
Mobilization	1	LS			7/1/17
Tile Investigation	240	LF			7/1/17
Tile Removal/Plugging*	10	EA			7/1/17
6" Dual-wall Tile, installed	390	LF			7/1/17
10" Dual-wall Tile, installed	254	LF			7/1/17
15" Dual-wall Tile, installed	817	LF			7/1/17
Shallow Water Excavation (approx. 1.1 acres)	2,295	CY			7/1/17
Conservation Cover:					
Site Prep Disk (if needed)	7.6	Acres			7/1/17
Northern Cordgrass Wet Prairie, seed & seeding	7.6	Acres			7/1/17
Midwest Ephemeral Pond, seed & seeding	1.1	Acres			7/1/17
Herbaceous Weed Control:					
Mowing, first pass	7.6	Acres			9/30/18
Mowing, second pass	7.6	Acres			9/30/18
Mowing, third pass	7.6	Acres			9/30/18
Mowing, fourth pass	7.6	Acres			9/30/18
Mowing, fifth pass	7.6	Acres			9/30/18
Total from Restoration Plans					
10% Indirect Costs:					
Restoration Management:					
TOTAL:					

Applied Ecological Services, Inc.

Date

NRCS Technical Liaison

Date

**There are seven (7) planned tile plugging/removals, an additional three have been included should additional tiles be discovered during restoration. Bill for actual installed amounts.*

**WRP RESTORATION
LANDOWNER CONTACT INFORMATION**

Easement #

Easement Location:

Easement Name:

Primary Landowner Contact:

Primary Contact Telephone:

Email:

Field Office Contact:

Easement Specialist Contact:

|

|



TO: John Paulin

FROM: Mike Webster, Easement Specialist *mw*

DATE: June 6, 2016

SUBJECT: WRE Restoration Narrative –

INTRODUCTION:

This site totals 139.7 acres, is located in West Central Cerro Gordo County, and lies within the Clear Lake Watershed, approximately 1 mile South of Clear Lake.

This WRE application was not awarded ranking points for T&E, nor are any known T&E within range per a search of IDNR's INAI. The site was enrolled in CRP prior to WRE, thru which some wetlands have already been restored by completing tile breaks/plugs and deleveling/creating shallow water excavations to restore the natural micro-topography of the land. The site was also seeded/established to a nice mix of native grasses and forbs thru the CRP.

The site is also part of an organized drainage district administered by the Cerro Gordo County Supervisors. Approval of this restoration must be granted by Cerro Gordo County prior to construction, because drainage district tile is included in the restoration plans. Tony Moore, DC is working on getting approval from Cerro Gordo County.

OBJECTIVES:

Restore the additional wetlands and improve water quality by replacing existing drainage district tile with solid/non-perforated drainage tile, and restoring additional wetlands.

RESTORATION PLANS/RATIONALE:

Hydrology Restoration – Some wetlands have already been restored on this easement thru prior CRP, including shallow water excavations and tile plugs. Preliminary WRE restoration plans on this easement, at the time of enrollment, was to restore all remaining wetlands by replace existing drainage tile with solid/non perforated tile. However, based on the results of a recent tile search/investigation and detailed topographic elevation survey of the easement area, the wetland basin's in the northeast, northwest, and southeast cannot be fully restored without the potential to adversely impact adjoining landowners during large rainfall events or extreme wet conditions. We are hoping that at sometime in the future, the adjoining landowners may enroll portions of their land into WRE so additional wetlands may be restored at that time.

The tile search and topographic elevation survey did find two additional wetland basins which may be restored without adversely impacting adjacent landowners. This includes a planned shallow water excavation (swe 1) located in the center of the easement and includes replacement of 10"



United States Department of Agriculture

and 15" drainage district tile with non perforated tile; and a second shallow water excavation (swe 2) located in the southeast portion of the easement and also includes replacement of existing perforated tile with non perforated. All replacement tile will be non perforated and will be of equivalent size and grade to carry the same capacity from uplands. See the "design report" for additional information/documentation.

Vegetation Restoration – The vegetation on this easement has already been restored to adequate cover of native grasses and forbs thru prior CRP contract. Areas disturbed thru shallow water excavations and tile replacement will be seeded to the appropriate native plant communities. See the seeding plan map and seeding plans for specific location, species and seeding rates.

Additional Practices – none.

T&E SPECIES CONSIDERATION:

No known wetland dependent T&E within ranged according to IDNR's INAI.

TIMELINE:

This easement was closed/recorded on 11/24/2015, and because the site was all CRP, there is no cropping rights in 2016. Restoration can begin as soon as possible.

IOWA



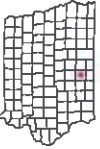
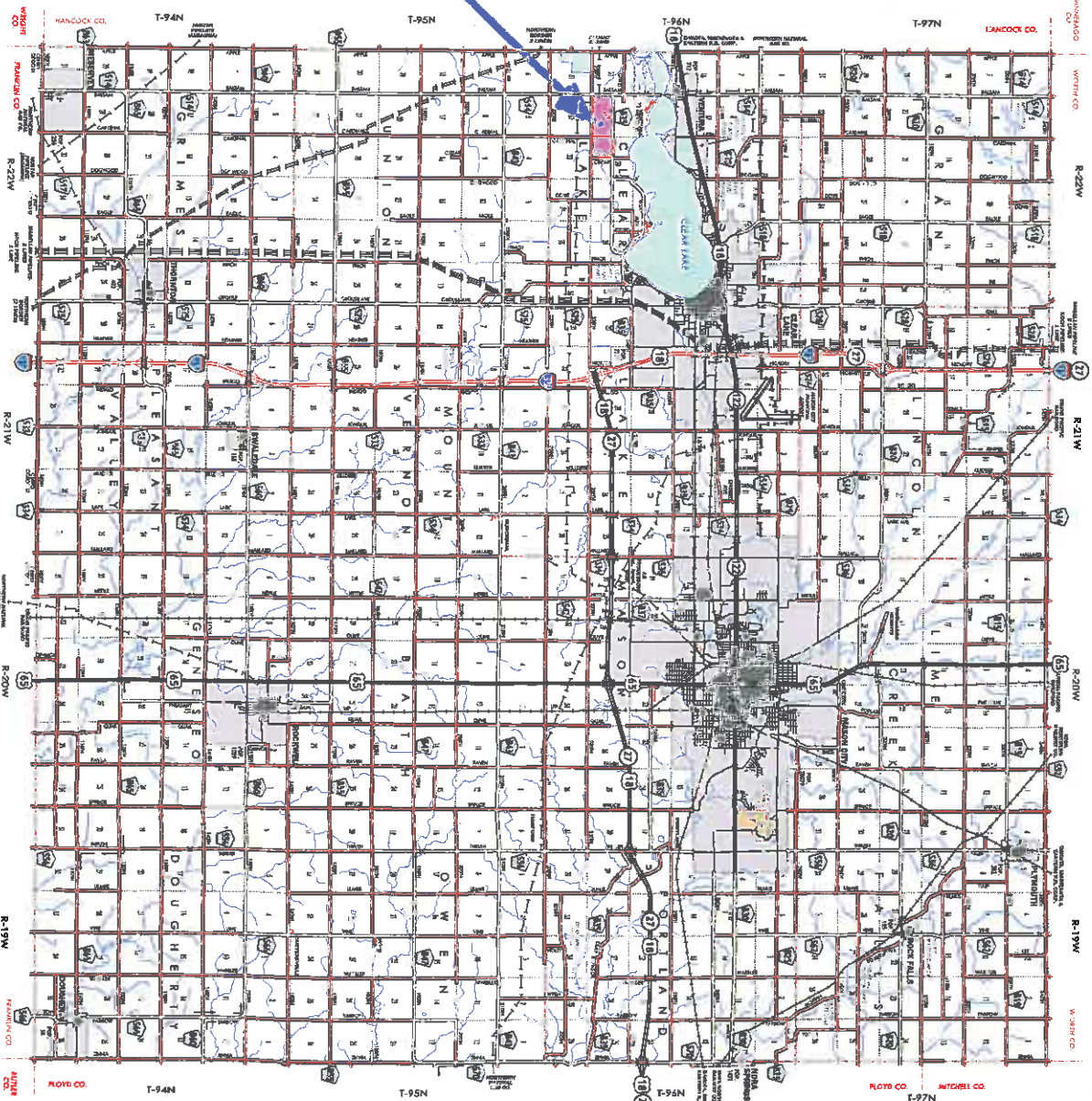
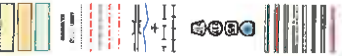
www.jowaport.gov/maps

JANUARY 1, 2015



LEGEND

- [illegible]





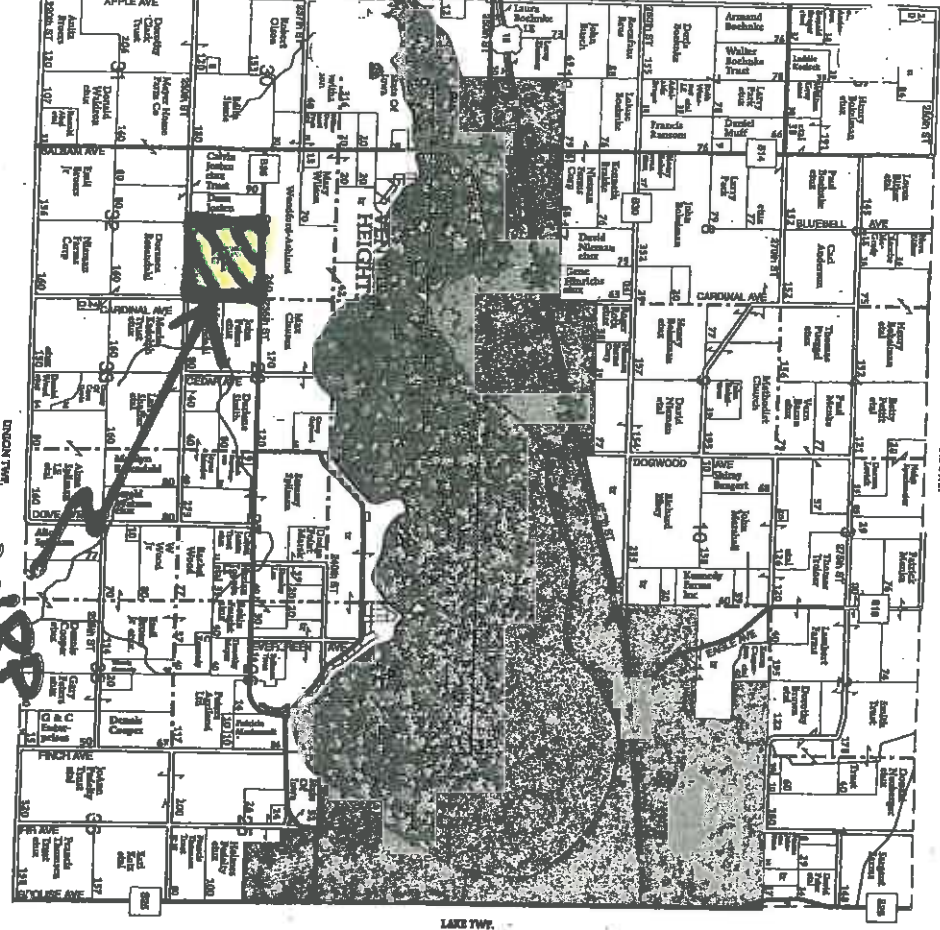
K & H COOPERATIVE OIL CO.
Petroleum Products • L.P. Gas • Iowa Paint
DEALER AT:
• Woden • Garretts • Mankato • Algona • Bancroft • Burt • Lake Park • Armstrong
• Thompson • Mason City • Thornton • Dougherty • Rockwell • Clear Lake
Mason City Office 1-800-244-6691



T-96-N

CLEAR LAKE PLAT
(Landowners)

R-22-W



© Farm & Home Publishers, Ltd.

24

CERRITO GORDO CO., IA



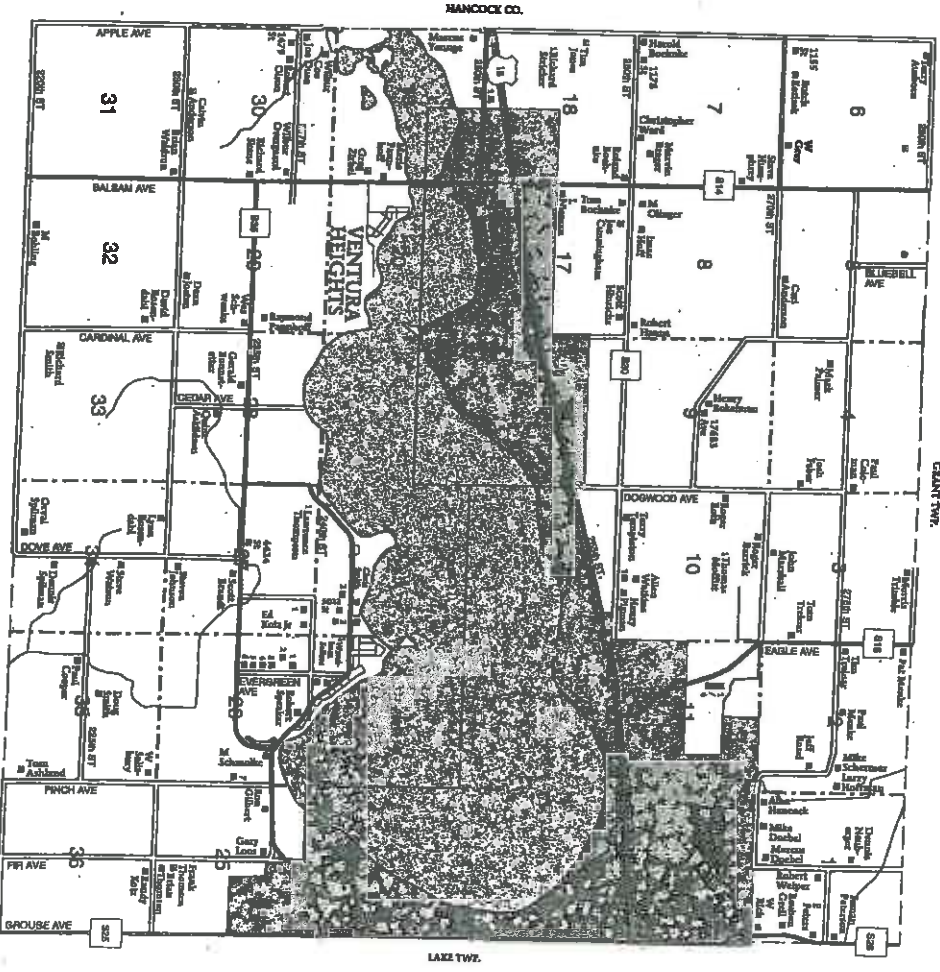
TELEPHONE
HIGH SPEED
INTERNET
DIGITAL
CABLE TV
AMATEUR
CERAMIC
TELEPHONE

357-2111
www.citel.com

T-96-N

CLEAR LAKE DIRECTORY
(Residents • Owners or Landowners)

R-22-W



© Farm & Home Publishers, Ltd.

25

CERRITO GORDO CO., IA



MASON CITY SERVICE CENTER
1415 S MONROE AVE STE B
MASON CITY, IA 50401-5615
(641) 424-4452

TONY W. MOORE
DISTRICT CONSERVATIONIST

Conservation Plan



OBJECTIVE(S)

This site has been enrolled in the Agricultural Conservation Easement Program - Wetland Reserve Easement (ACEP-WRE) and a permanent easement placed on 139.7 acres. The program objectives from ACEP-WRE Manual are to protect, restore, and enhance the functions and values of wetland ecosystems to attain:

- *Habitat for migratory birds and other wetland-dependent wildlife, including endangered or threatened species and species of concern.
- *Protection and improvement of water quality.
- *Attenuation of floodwater.
- * Recharge of groundwater.
- *Protection and enhancement of open space and aesthetic quality.
- *Carbon sequestration.
- *Protection of native flora and fauna contributing to the Nation's natural heritage.
- *Contribution to educational and scientific scholarship.

The landowner's objectives include improving the quality of water entering Clear Lake, as well as providing outdoor recreational opportunities such as hunting, hiking, and bird watching by maintaining a diverse wetland complex. All actions must comply with the terms and conditions in the recorded "Warranty Easement Deed".

Specific details regarding the management and long term maintenance of the easement will be found in the Compatible Use Agreement/Management Plan, which includes guidance from NRCS standard and specifications on Upland Wildlife Habitat Management (WRP 645) and Wetland Wildlife Habitat Management (WRP 644) .

T/E CONSIDERATIONS:

All actions on this easement should protect and not adversely affect any endangered, threatened, or species of concern. The following listed species are known to be within range of this easement:

FEDERAL SPECIES:

There are no known Federally listed T&E species within range of the easement.

STATE SPECIES:

There are no known State listed T&E species within range of this easement.

Crop**Tract: 8181****Conservation Cover**

This field(s) has been enrolled in the Wetland Reserve Easement Program (WRE) and "shallow water excavation areas" will be seeded to the following seed mix - **Midwest Ephemeral Pond**. This seeding will control erosion, provide wildlife habitat, & restore native plant community. Refer to seeding plan for specific species and rates.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	0.3 ac	5	2017		
1	0.8 ac	5	2017		
Total:	1.1 ac				

Conservation Cover

This field(s) has been enrolled in the Wetland Reserve Easement Program (WRE) and "spoil areas" will be seeded to the following seed mix - **Northern Cordgrass Wet Prairie**. This seeding will control erosion, provide wildlife habitat, & restore native plant community. Refer to seeding plan for specific species and rates.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	6.7 ac	5	2017		
1	0.9 ac	5	2017		
Total:	7.6 ac				

Conservation Cover

This field(s) have been enrolled in the Wetland Reserve Easement (WRE) Program. Native vegetation of grass and forbs are already established thru prior CRP contract, and no further vegetative establishment is required to provide Wetland Restoration.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	130.9 ac	5	2017		
Total:	130.9 ac				

Herbaceous Weed Control

Mowing of new seeding - 1st year. Mowing will be completed to control weeds and promote growth of new seeding. Mow three times per year as needed.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	22.8 ac	8	2017		
Total:	22.8 ac				

Herbaceous Weed Control

Mowing of new seeding - 2nd year. Mowing will be completed to control weeds and promote growth of the new seeding. Mow twice per year as needed.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	15.2 ac	8	2018		
Total:	15.2 ac				

Upland Wildlife Habitat Management

IA-ACEP 645 Upland Wildlife Management. Areas of non-hydric soils within the conservation easement boundary will be/have been restored to upland habitat. These non-wetland areas are important to the ecological function of the restored wetland. These upland areas are already established to native grasses and forbs thru prior CRP contract.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	50.8 ac	5	2017		
Total:	50.8 ac				

Wetland Restoration

IA-ACEP 657 Wetland restoration activities will be carried out to restore the biological functions and values that have been lost due to agricultural uses. This includes the restoration of both vegetative and hydrological conditions. A portion of this easement has already been restored thru prior CRP contract which included tile plugs and shallow water excavations to delevel and restore the microtopography of the landscape which has been lost over time. Additional wetlands will be restored thru replacement of existing drainage tile with non-perforated tile and two additional shallow water excavations. See Wetland Restoration Design, and Design Report for further details.

Field	Planned Amount	Month	Year	Applied Amount	Date
1	88.9 ac	5	2017		
Total:	88.9 ac				

CERTIFICATION OF PARTICIPANTS

CERTIFICATION OF:

PUBLIC BURDEN STATEMENT

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0578-0013. The time required to complete this information collection is estimated to average 45/0.75 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection information.

PRIVACY ACT

The above statements are made in accordance with the Privacy Act of 1974 (5 U.S.C 522a). Furnishing this information is voluntary; however failure to furnish correct, complete information will result in the withholding or withdrawal of such technical or financial assistance. The information may be furnished to other USDA agencies, the Internal Revenue Service, the Department of Justice, or other state or federal law enforcement agencies, or in response to orders of a court, magistrate, or administrative tribunal.

USDA NON-DISCRIMINATION STATEMENT

The U.S. Department of Agriculture (USDA) prohibits discrimination against its customers. If you believe you experienced discrimination when obtaining services from USDA, participating in a USDA program, or participating in a program that receives financial assistance from USDA, you may file a complaint with USDA. Information about how to file a discrimination complaint is available from the Office of the Assistant Secretary for Civil Rights. USDA prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex (including gender identity and expression), marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, complete, sign, and mail a program discrimination complaint form, available at any USDA office location or online at www.ascr.usda.gov, or write to:

USDA Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW.
Washington, DC 20250-9410

Or call toll free at (866) 632-9992 (voice) to obtain additional information, the appropriate office or to request documents. Individuals who are deaf, hard of hearing, or have speech disabilities may contact USDA through the Federal Relay service at (800) 877-8339 or (800) 845-6136 (in Spanish). USDA is an equal opportunity provider, employer, and lender. Persons with disabilities who require alternative means for communication of program information (e.g., Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

WRE
FINAL CONSERVATION PLAN MAP

Date: 5/26/2016



2014 Imagery

Legend

★ Access

□ Connell_WRE_Surveyed_Boundary

□ plss_a_ia

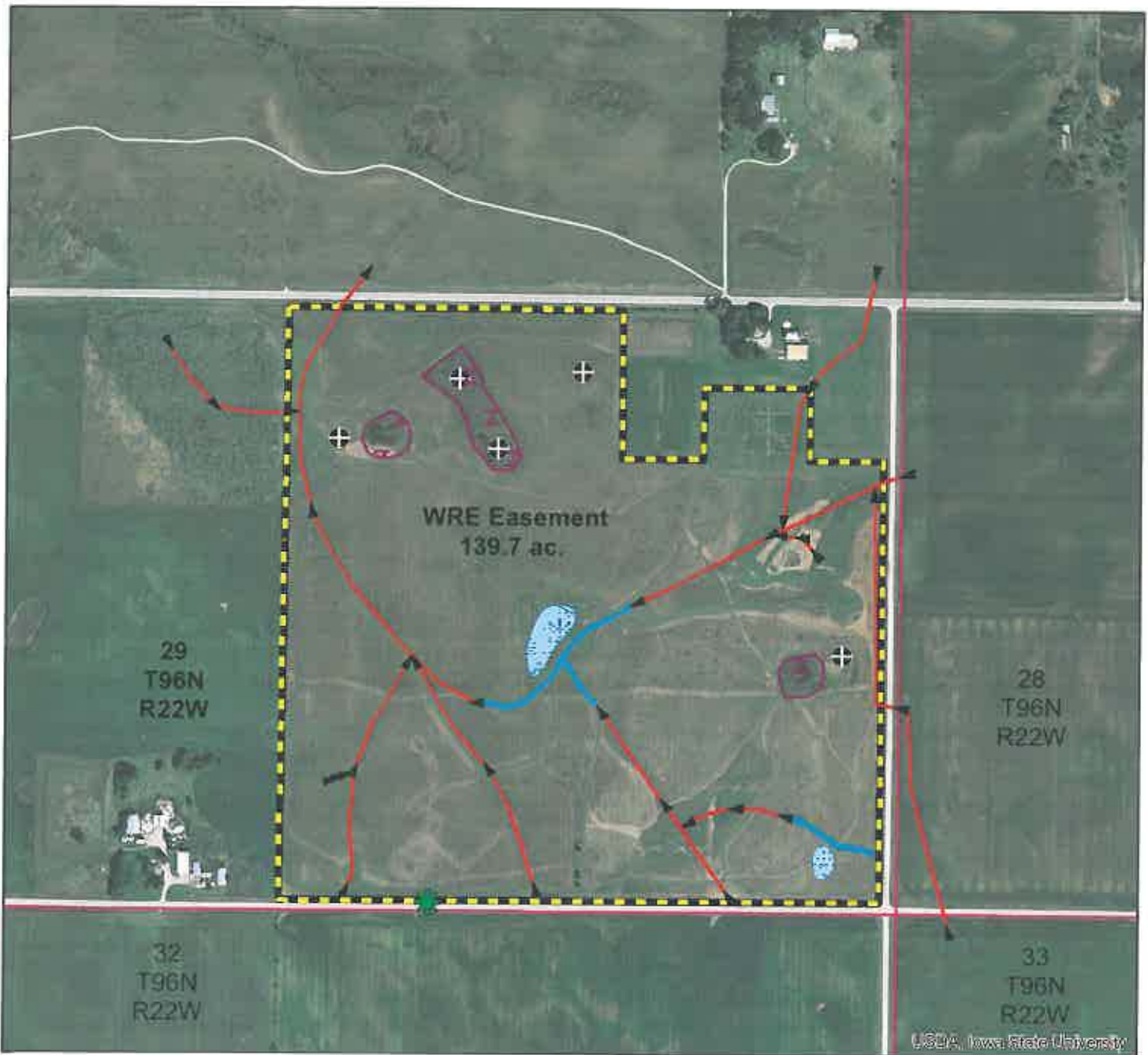
1 inch = 660 feet

660 0 660
Feet



WRE
FINAL RESTORATION PLAN MAP

Date: 5/26/2016



Legend

2014 Imagery

-  Access
-  Planned_SWE's_(final)
-  Existing_SWE's_thru_CRP
-  Planned_Non_Perforated_Tile_(final)
-  Existing Tile including Drainage District Tile (approx location)
-  Existing_Tile_Plugs_thru_CRP (approx location)
-  Connell_WRE_Surveyed_Boundary

1 inch = 660 feet

660 0 660
Feet

N



WRE
FINAL SEEDING PLAN MAP

Date: 5/26/2016



2014 Imagery

Legend

 Planned_SWE's_(final)

Practice name

 Conservation Cover

 Access

 Connell_WRE_Surveyed_Boundary

1 inch = 660 feet



Seeding Plan

Midwest Ephemeral Pond

Name _____
Prepared by _____

Date 5/31/2016
Tract No. _____
Field No. _____
Contract No. _____

Type of Seeding: WRP

Field Area (acres): 1.100

Seeding Mix Summary

Grasses	Scientific Name	Common Name	PLS Lbs/Acre	PLS Lbs	Estimated Cost
1	<i>Calamagrostis canadensis</i>	Bluejoint	0.012	0.013	\$5.01
2	<i>Carex atherodes</i>	Wheat Sedge	0.028	0.031	\$19.83
3	<i>Poa palustris</i>	Fowl Bluegrass	0.021	0.023	\$0.37
4	<i>Carex hystericina</i>	Bottlebrush Sedge	0.091	0.100	\$14.97
5	<i>Spartina pectinata</i>	Prairie Cordgrass	0.19	0.20	\$18.38
6	<i>Carex lupulina</i>	Hop Sedge	0.041	0.045	\$21.78
7	<i>Carex pellita</i>	Woolly Sedge	0.019	0.021	\$20.54
8	<i>Carex scoparia</i>	Broom Sedge	0.032	0.036	\$6.42
9	<i>Carex stipata</i>	Owlfruit Sedge	0.080	0.088	\$19.82
10	<i>Carex stricta</i>	Upright Sedge	0.021	0.023	\$16.95
11	<i>Carex tribuloides</i>	Blunt Broom Sedge	0.023	0.025	\$14.97
12	<i>Carex trichocarpa</i>	Hairyfruit Sedge	0.015	0.017	\$23.96
13	<i>Carex vesicaria</i>	Blister Sedge	0.045	0.050	\$23.96
14	<i>Carex vulpinoidea</i>	Fox Sedge	0.018	0.019	\$2.34
15	<i>Eleocharis acicularis</i>	Needle Spikerush	0.027	0.030	\$14.37
16	<i>Eleocharis obtusa</i>	Blunt Spikerush	0.027	0.030	\$14.37
17	<i>Carex bebbii</i>	Bebb's Sedge	0.080	0.088	\$6.61
18	<i>Glyceria striata</i>	Fowl Mannagrass	0.021	0.023	\$10.53
19	<i>Juncus arcticus ssp. littoralis</i>	Baltic Rush	0.015	0.016	\$3.59
20	<i>Juncus dudleyi</i>	Dudley's Rush	0.00085	0.00094	\$0.28
21	<i>Juncus nodosus</i>	Knotted Rush	0.0015	0.0016	\$1.04
22	<i>Juncus torreyi</i>	Torrey's Rush	0.0017	0.0019	\$0.56
23	<i>Leersia oryzoides</i>	Rice Cutgrass	0.080	0.088	\$21.14
24	<i>Schoenoplectus tabernaemontani</i>	Softstem Bulrush	0.088	0.097	\$14.49
25	<i>Schoenoplectus fluviatilis</i>	River Bulrush	0.063	0.070	\$6.27
26	<i>Carex bicknellii</i>	Bicknell's Sedge	0.096	0.11	\$15.85
27	<i>Carex utriculata</i>	Northwest Territory Sedge	0.027	0.030	\$19.17
28	<i>Carex sartwellii</i>	Sartwell's Sedge	0.017	0.018	\$17.53
29	<i>Carex laeviconica</i>	Smoothcone Sedge	0.091	0.100	\$17.97
SUBTOTAL GRASSES			1.27	1.40	\$373.06

Forbs/Legumes	Scientific Name	Common Name	PLS Lbs/Acre	PLS Lbs	Estimated Cost
1	<i>Alisma subcordatum</i>	Water Plantain	0.059	0.065	\$4.87
2	<i>Asclepias incarnata</i>	Swamp Milkweed	0.074	0.081	\$14.60
3	<i>Bidens cernua</i>	Nodding Beggartick	0.091	0.100	\$11.98
4	<i>Anemone canadensis</i>	Canadian Anemone	0.034	0.037	\$11.23
5	<i>Epilobium coloratum</i>	Purpleleaf Willowherb	0.011	0.012	\$7.67
6	<i>Eupatorium perfoliatum</i>	Boneset	0.024	0.026	\$7.86

7	<i>Helenium autumnale</i>	Sneezeweed	0.029	0.032	\$4.84
8	<i>Impatiens capensis</i>	Spotted Touch-Me-Not	0.027	0.030	\$14.37
9	<i>Iris shrevei</i>	Blue Flag	0.054	0.060	\$8.98
10	<i>Lycopus americanus</i>	Water Horehound	0.029	0.032	\$7.26
11	<i>Mentha arvensis</i>	Wild Mint	0.013	0.014	\$6.29
12	<i>Mimulus ringens</i>	Monkey Flower	0.0017	0.0018	\$0.55
13	<i>Pedicularis lanceolata</i>	Swamp Lousewort	0.093	0.10	\$12.25
14	<i>Penthorum sedoides</i>	Ditch Stonecrop	0.0023	0.0025	\$0.76
15	<i>Polygonum pennsylvanicum</i>	Pennsylvania Smartweed	0.21	0.23	\$13.82
16	<i>Polygonum punctatum</i>	Water Smartweed	0.010	0.012	\$7.37
17	<i>Pontederia cordata</i>	Pickereel-weed	0.26	0.29	\$25.92
18	<i>Rumex orbiculatus</i>	Great Water Dock	0.091	0.100	\$14.97
19	<i>Sagittaria latifolia</i>	Common Arrowhead	0.017	0.019	\$26.95
20	<i>Physostegia virginiana</i>	False Dragonhead	0.025	0.027	\$19.06
21	<i>Sparganium eurycarpum</i>	Common Bur Reed	0.54	0.60	\$35.94
22	<i>Lobelia siphilitica</i>	Great Lobelia	0.0076	0.0084	\$5.03
23	<i>Agalinis tenuifolia</i>	Slenderleaf False Foxglove	0.0048	0.0052	\$3.35
24	<i>Lythrum alatum</i>	Winged Loosestrife	0.00091	0.00100	\$1.28
25	<i>Gentiana andrewsii</i>	Bottle Gentian, Closed Gentian	0.0097	0.011	\$16.04
26	<i>Cicuta maculata</i>	Water Hemlock	0.11	0.12	\$37.43
SUBTOTAL FORBS			1.84	2.02	\$321

		PLS Lbs /			
Woody	Scientific Name	Common Name	Acre	PLS Lbs	Estimated Cost
1	<i>Amorpha fruticosa</i>	False Indigo	0.0074	0.0081	\$5.18
			0.01	0.01	\$5
TOTAL			3.11	3.42	\$699

	General Soil Test	Total Needed lbs
Lime (ECCE) (Actual Lime)	0	0
Nitrogen	0	0
Phosphate (P205)	0	0
Potash (K20)	0	0

Seeding Dates:

D r m t: 11 / 15 - F r e e z e

Spring 4/15 - 7/1

Additional Seeding Criteria:

Seed SWE basins TO EXTENT PRACTICABLE given likely wet conditions in basin areas.

Use no additional fertilizer or lime.

Seeding was completed by _____ according to the above requirements.
(Date)

(Producer's Signature)

(Date)

Field Office

Certified by

(NRCS Representative)

When seeding is completed, return seeding plan to the Natural Resources Conservation Services.

For state cost-share projects, attach receipts for seed, fertilizer, lime and mulch.

For Federal cost-share, return receipts to Farm Service Agency.

Seeding Plan

Northern Cordgrass Prairie

Name _____
Prepared by _____

Date 6/1/2016
Tract No. _____
Field No. _____
Contract No. _____

Type of Seeding: Field Area (acres): 7.600

Seeding Mix Summary

Grasses	Scientific Name	Common Name	PLS Lbs/Acre	PLS Lbs	Cost
1	Andropogon gerardii	Big Bluestem	0.27	2.07	\$14.48
2	Beckmannia syzigachne	American Sloughgrass	0.095	0.72	\$14.48
3	Calamagrostis canadensis	Bluejoint	0.017	0.13	\$48.49
4	Carex atherodes	Wheat Sedge	0.033	0.25	\$159.82
5	Carex laeviconica	Smoothcone Sedge	0.11	0.86	\$155.18
6	Carex pellita	Woolly Sedge	0.024	0.18	\$177.35
7	Carex scoparia	Broom Sedge	0.052	0.39	\$70.94
8	Carex stricta	Upright Sedge	0.031	0.23	\$175.68
9	Carex vulpinoidea	Fox Sedge	0.044	0.33	\$39.73
10	Eleocharis acicularis	Needle Spikerush	0.049	0.37	\$177.35
11	Hierochloa odorata	Sweetgrass	0.0068	0.052	\$165.53
12	Juncus dudleyi	Dudley's Rush	0.0015	0.011	\$3.39
13	Leersia oryzoides	Rice Cutgrass	0.10	0.76	\$182.57
14	Muhlenbergia racemosa	Marsh Muhly	0.051	0.39	\$29.10
15	Panicum virgatum	Switchgrass	0.19	1.48	\$11.82
16	Poa palustris	Fowl Bluegrass	0.037	0.28	\$4.46
17	Schoenoplectus pungens	Common Threesquare	0.068	0.52	\$116.39
18	Sorghastrum nutans	Indiangrass	0.23	1.72	\$10.35
19	Spartina pectinata	Prairie Cordgrass	0.25	1.88	\$169.29
20	Tripsacum dactyloides	Eastern Gamagrass	1.10	8.39	\$167.76

Forbs/Legumes	Scientific Name	Common Name	PLS Lbs/Acre	PLS Lbs	Cost
1	Agalinis tenuifolia	Slenderleaf False Foxglove	0.0051	0.039	\$24.83
2					
3	Asclepias tuberosa	Butterfly Milkweed	0.063	0.48	\$144.36
4	Baptisia alba	White Wild Indigo	0.016	0.12	\$36.51
5	Chelone glabra	White Turtlehead	0.036	0.27	\$161.93
6	Epilobium ciliatum	Northern Willow Herb	0.052	0.40	\$118.97
7	Glycyrrhiza lepidota	Wild Licorice	0.070	0.53	\$159.16
8	Helenium autumnale	Sneezeweed	0.026	0.20	\$29.84
9	Helianthus grosseserratus	Saw-tooth Sunflower	0.036	0.28	\$124.15
10	Helianthus mollis	Downy Sunflower	0.078	0.59	\$177.35
11	Heterotheca villosa	Hairy False Goldenaster	0.051	0.38	\$115.28
12	Liatris pycnostachya	Prairie Blazing Star	0.20	1.50	\$180.58
13	Lythrum alatum	Winged Loosestrife	0.0014	0.010	\$13.24
14	Mentha arvensis	Wild Mint	0.0091	0.069	\$31.04
15	Pedicularis lanceolata	Swamp Lousewort	0.093	0.71	\$84.65
16	Pycnanthemum virginianum	Common Mountain Mint	0.00	0.00	\$0.00
17	Rudbeckia hirta	Black-eyed Susan	0.10	0.76	\$34.24
18	Stachys palustris	Woundwort	0.034	0.26	\$165.53
19	Symphyotrichum ericoides	White Heath Aster	0.014	0.10	\$165.53
20	Symphyotrichum lanceolatum	White Panicle Aster	0.00	0.00	\$0.00

21	Symphotrichum novae-angliae	New England Aster	0.045	0.34	\$103.46
22	Teucrium canadense	American Germander	0.10	0.78	\$174.58
23	Thalictrum dasycarpum	Purple Meadow-rue	0.074	0.56	\$169.29
24	Vernonia fasciculata	Ironweed	0.10	0.78	\$174.58
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					

Woody	Scientific Name	Common Name	PLS Lbs /		Cost
			Acre	PLS Lbs	
1	Amorpha fruticosa	False Indigo	0.22	1.68	\$1,073.70
2	Cephalanthus occidentalis	Buttonbush	0.0045	0.034	\$4.14
3	Opuntia humifusa	Devil's-tongue	0.00	0.00	\$0.00
4					
5					
TOTAL			4.20	31.90	\$5,361

Fertilizer & Lime	General Soil Test	☒ ☐	Total Needed lbs
Lime (ECCE) (Actual Lime)	0		0
Nitrogen	0		0
Phosphate (P205)	0		0
Potash (K20)	0		0

Additional Seeding Criteria:

Spring seeding dates April 15-July 1; Dormant dates November 15-Freeze

Seeding was completed by according to the above requirements.
(Date)

(Producer's Signature)

(Date)

Field Office

Certified by

(NRCS Representative)

When seeding is completed, return seeding plan to the Natural Resources Conservation Services.

For state cost-share projects, attach receipts for seed, fertilizer, lime and mulch.

For Federal cost-share, return receipts to Farm Service Agency.

DESIGN REPORT FOR

LOCATION

The wetland restoration easement owner is

SOILS

The soils in the areas designated for restoration include 6 Okoboji silty clay loam, and 107 Webster clay loam. Both soil types are poorly drained, hydric, and suitable for wetland restoration. Soil scientist, Patrick Chase, evaluated the amount of post sediment alluvium (PSA) in shallow water excavation (SWE) 1 as 9 inches.

SURVEY

Survey was completed using a Trimble R10 GPS system. A topography survey was conducted using both continuous survey mounted to a UTV, and single shots mounted atop a 2 meter rod. Survey conditions were sunny with winds light and variable on April 4, 2016. A tile search was also conducted and supervised by Applied Ecological Services in March of 2016.

CULTURAL RESOURCES

A visual inspection of the construction area revealed no cultural resources. ISITES was checked and no known cultural resource hits were recorded for the project area.

RESTORATION

During investigation and evaluation of the easement area, several drained pothole sites were noted that had potential for restoration. A large complex located on the NE, NW, and SE corner of the easement were evaluated for restoration, however the survey, and soils map revealed that the sites were shared with neighboring landowners. The presence of culverts and large drainage area to storage ratios (see design documentation) made restoration impossible without adversely impacting neighboring landowners. If future easements are secured by neighboring landowners, reevaluation of restoration potential on those share potholes sites should be re-considered.

Two sites on the easement were identified that had restoration potential that would not adversely impact neighboring landowners. Shallow water excavation (SWE) 1 is centrally located within the easement. SWE and replacement of a perforated 15 and 10 inch drainage district tile with non-perforated tile will restore hydrology and remove PSA. Permission from the drainage district to replace the tile is required to be secured by the landowner. The current tile is concrete and will be replaced with a non-perforated equivalent that has the same grade and capacity. Although the restoration area shares contours at the same elevation as neighboring potholes that cannot be restored, a slight rise in elevation isolates the restoration in the NE corner of the pothole. If the pothole does overtop, the drainage district infrastructure left in place would likely mitigate any risk to neighboring landowners.

SWE 2 was also identified as a restoration area. Restoration will be accomplished with the replacement of perforated tile with a non-perforated tile equivalent. Replacement of the tile will maintain upstream drainage from the neighbor to the east. Should the restoration overtop, water flows NW into the downstream pothole where tile infrastructure will be left intact and mitigate any risk to neighboring landowners. Permission from the drainage district to replace the tile is required to be secured by the landowner.

EJAA

The wetland restoration includes the replacement of a 15" tile line resulting in an Engineering Job Approval Authority classification of III.

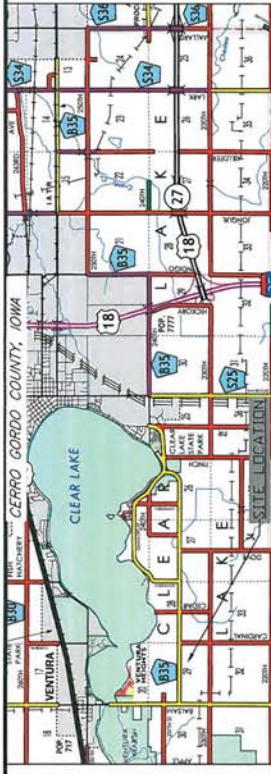


Table of Contents	
SHEET	CONTENT
1	Location & Plan Map / Table of Contents
2	Subsurface Drain (Tile) 1 & 2 Details
3	Subsurface Drain (Tile) 3 Details
4	Shallow Water Excavation Details

Standards and Specifications	
SPECIFICATION NUMBER	PAGES
1A-1	Site Preparation (1)
1A-5	Pollution Control (2)
1A-6	Seeding and Mulching for Protective Cover (1)
1A-9	Subsurface Drain Investigation, Removal, and Repair (3)
1A-21	Excavation (1)

Quantity Summary Table		
Item/Description	Quantity	Unit
Tile Investigation (20 ft per block + any additional searching)	240.0'	FT
Tile Block Excavation	7.0	EA
6" Dual Wall Non Perf Tile	2295.0	CY
10" Dual Wall Non Perf Tile	389.74	FT
15" Dual Wall Non Perf Tile	253.07	FT
	816.33	FT

BENCHMARKS		
NAME	NORTHING	EASTING
TBM1	15655381.421	1518105.540
		ELEV. 1268.167

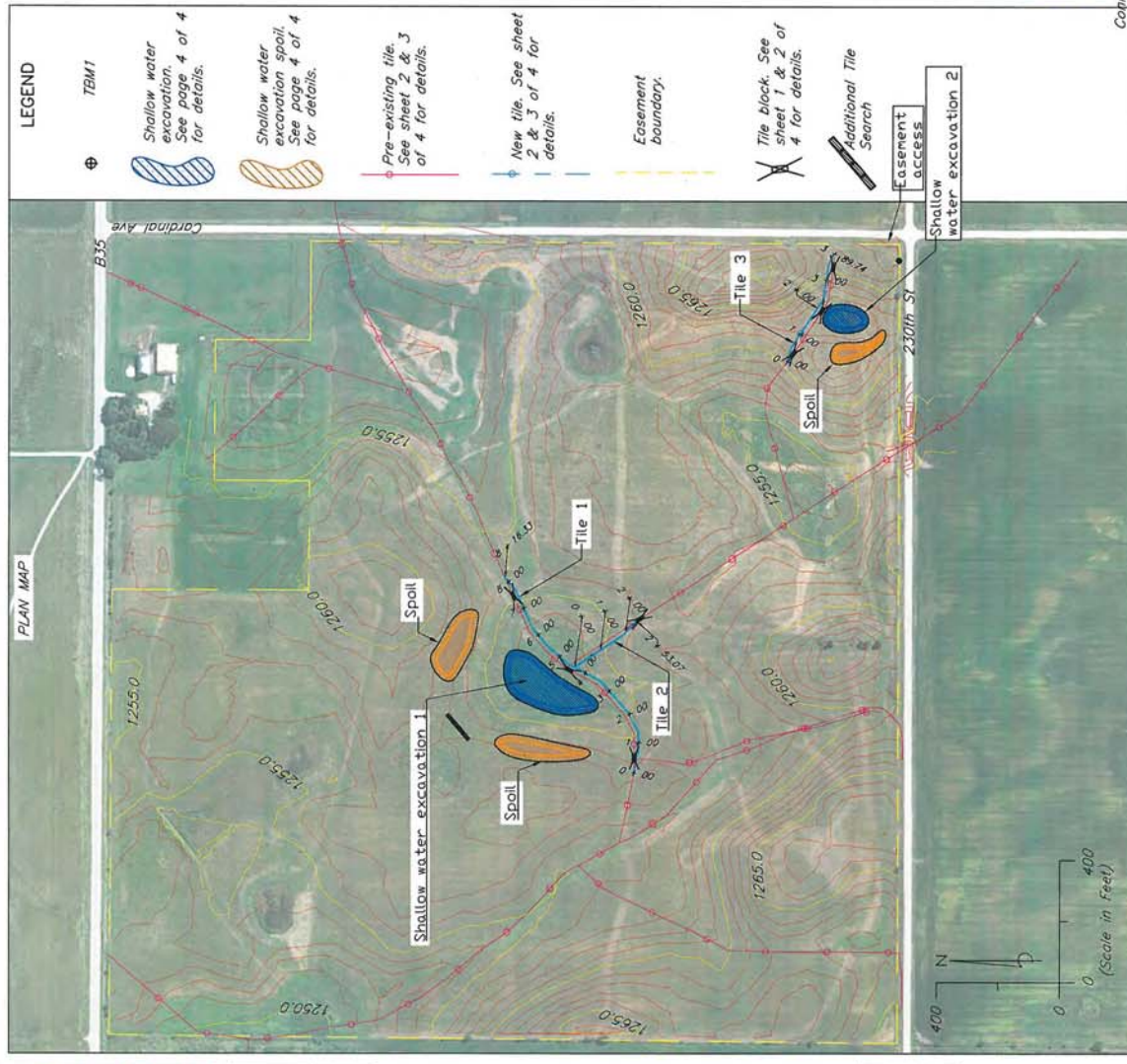
CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL 1-800-292-8989

If a cultural resource is identified during construction, stop immediately and notify the Natural Resources Conservation Service Archeologist at (515) 284-4370.

Designed JD GOEMAT
 Drawn JD GOEMAT
 Checked JL
 Approved Jeff Lutz
 Date 5/16
 5/16
 4/16
 4/16

WETLAND RESTORATION LOCATION & PLAN MAP/TABLE OF CONTENTS

United States Department of Agriculture
 Natural Resources Conservation Service
 File No. 652_040416
 Drawing No. 4/14/16 2:27 PM
 Sheet 1 of 4



Excavations will be staked in the field by NRCS. Digital surface models available upon request for layout. Additional hubs can be set at layout, or at contractors request.

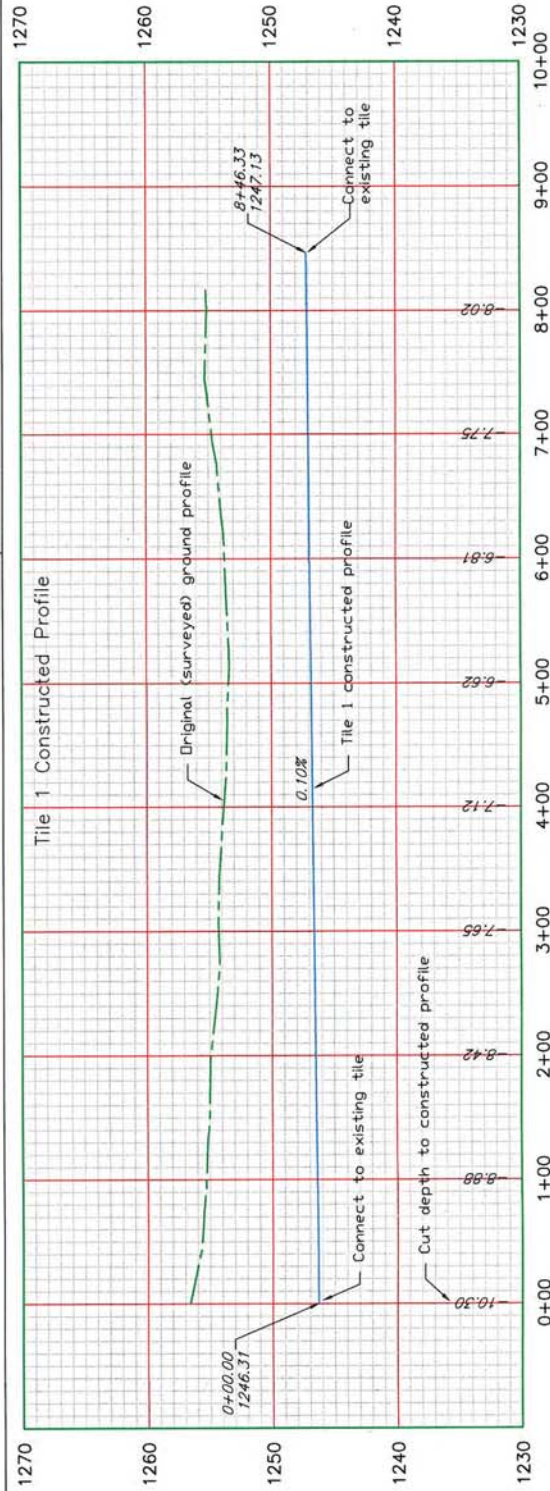
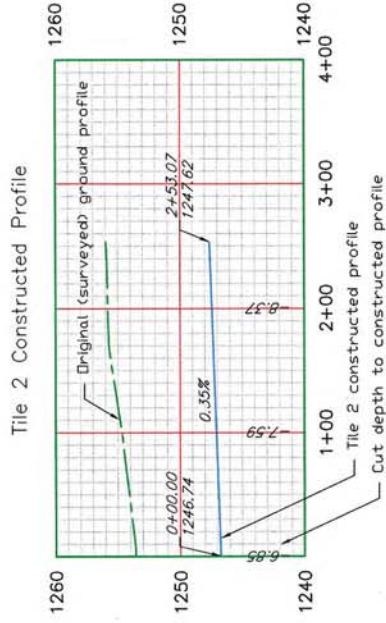
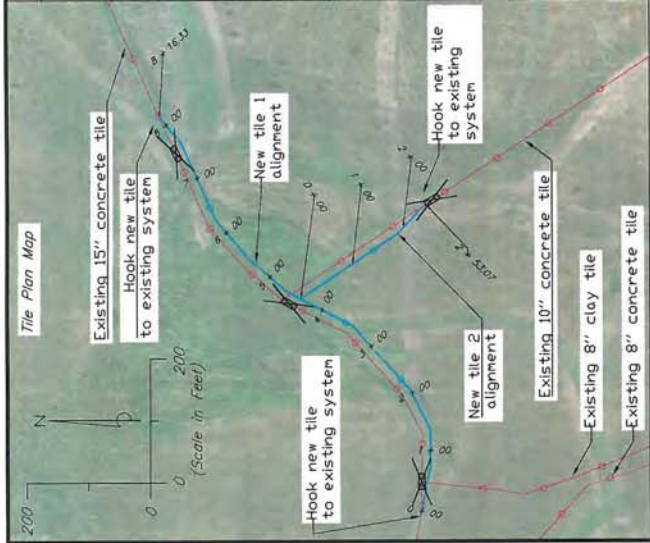
SUBSURFACE DRAIN (TILE) 1 & 2 DETAILS

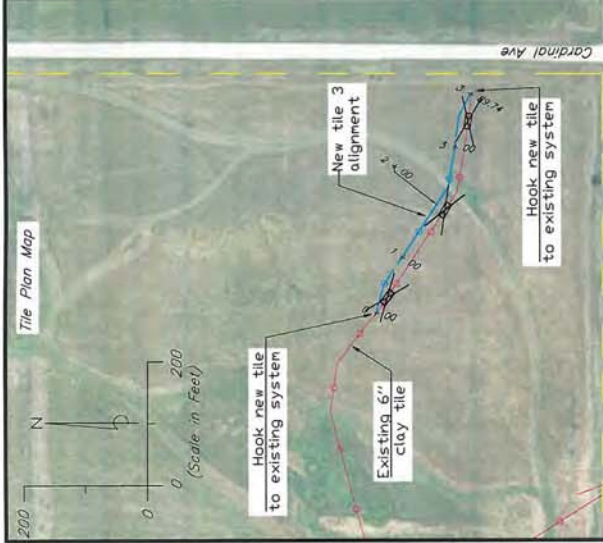
SUBSURFACE DRAIN (TILE) DETAILS

Line No.	Station to Station	Conduit Capacity (CFS)		Length of Conduit (ft.)	Conduit Dia. (in.)	Conduit Material Specs.	Designed Conduit Grade (%)		Conduit Cover (ft.)	
		Req'd	Design	Design			Design	Install	Min. Req'd	Max. Allowed
1	0+00 to 8+16.33	1.94	2.04	8+16.33	15	Non-Perforated Dual Wall	0.10	0.10	2.4	11.2
2	0+00 to 2+53.07	1.18	1.30	2+53.07	10	Non-Perforated Dual Wall	0.29	0.29	2.4	11.2

NOTES

1. Verify start and ending hookup elevations before installing tile.
2. Tile shall be installed at the same grade and capacity as existing tile.
3. For bedding and trench details see page 3 of 4.
4. NRCS shall be on site during tile block construction and tile search. The approximate locations of tile blocks will be flagged by NRCS.
5. For tile blocks a minimum of 50' of tile shall be removed. Tile ends shall be capped and plugged. For a minimum distance of two feet around each sealed tile end, backfill in layers not over 4 inches thick and tamp by hand or manually directed power tamper. Do not backfill with any soil containing broken tile fragments. The remainder of each trench shall be backfilled with the most suitable soil material available and compacted to a density equal to or greater than that of the surrounding undisturbed soil.
6. If any existing drainage tile not shown on the drawings or staked in the field is encountered during excavation, NRCS shall be notified. No additional work in the area of the encountered drainage tile shall be performed prior to NRCS approval. Any work done to remove, replace, or repair the encountered drainage tile shall be directed by NRCS.
7. Landowner is responsible for securing written permission from the Drainage District for work on any subsurface drain tile that is not privately owned. Permission must be presented to NRCS before construction begins.





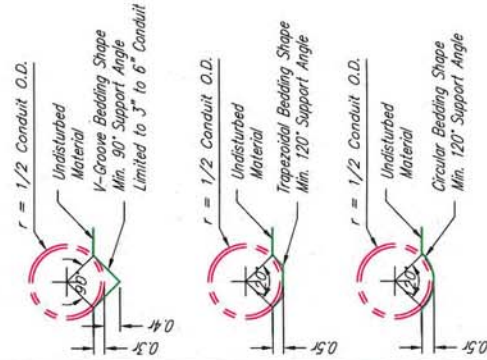
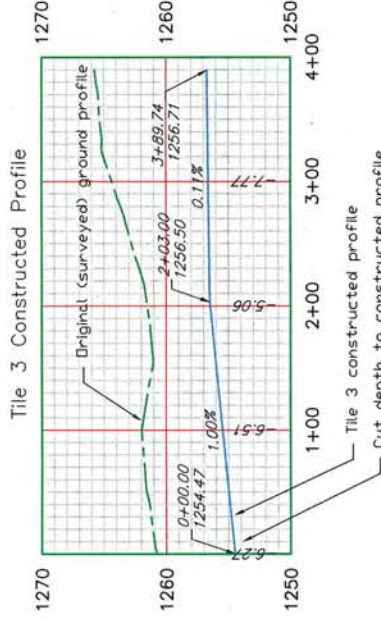
SUBSURFACE DRAIN (TILE) DETAILS

Line No.	Reach No.	Station to Station	Conduit Capacity (cfs)		Length of Conduit (ft.)	Conduit Dia. (in.)	Conduit Material Specs.	MIN Designed Conduit Grade (%)		Conduit Cover (ft.)	
			Req'd	Design	Design	Design	Material Type and Classification	Design	Install	Min. Req'd	Max. Allowed
3	1	0+00 to 3+89.74	0.19	0.19	3+89.74	6	Non-Perforated Dual Wall	0.11		2.4	11.2

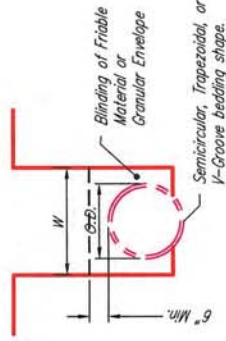
NOTES

1. Verify start and ending hookup elevations before installing tile.
2. Tile shall be installed at the same grade and capacity as existing tile.
3. NRCS shall be on site during tile block construction and tile search. The approximate locations of tile blocks will be flagged by NRCS.
4. For tile blocks a minimum of 50' of tile shall be removed. Tile ends shall be capped and plugged. For a minimum distance of two feet around each sealed tile end, backfill in layers not over 4 inches thick and tamp by hand or manually directed power tamper. Do not backfill with any soil containing broken tile fragments. The remainder of each trench shall be backfilled with the most suitable soil material available and compacted to a density equal to or greater than that of the surrounding undisturbed soil.
5. If any existing drainage tile not shown on the drawings or staked in the field is encountered during excavation, NRCS shall be notified. No additional work in the area of the encountered drainage tile shall be performed prior to NRCS approval. Any work done to remove, replace, or repair the encountered drainage tile shall be directed by NRCS.
6. Landowner is responsible for securing written permission from the Drainage District for work on any subsurface drain tile that is not privately owned. Permission must be presented to NRCS before construction begins.

Tile block symbol.



BEDDING DETAIL



1. W = trench width at top of conduit
 2. $W = 0.0 + 6"$ min. for trench installation;
 3. $W = 0.0 + 4"$ min. for plow installation.
- Where $W > 0.0 + 12"$, hand compact the blinding or use a granular envelope.

TRENCH DETAIL

SUBSURFACE DRAIN (TILE) 3 DETAILS

5/16	Approved	Jeff Lutz
5/16	Checked	JL
4/16	Drawn	JD GOEMAAT
4/16	Designed	JD GOEMAAT
Date		



- Notes:
1. Shallow water excavation 1
Area = 0.85 acres
1925.0 cubic yards
 2. Shallow water excavation 2
Area = 0.25 acres
370.0 cubic yards
 4. Spoil shall be placed so that water flow shall not be impeded nor pond behind spoil piles.
 5. Spoil shall be placed outside of the pithole soil types on adjacent high areas. Note that spoil locations are not immediately adjacent to excavation areas.
 6. Final surfaces shall be smooth enough for operation of tillage and seeding equipment.

NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATION

IA-1 SITE PREPARATION

1. SCOPE

Site preparation work shall consist of clearing, grubbing, stripping, refuse removal, bank sloping and structure removal on the site as necessary to rid the site of all undesirable materials on or near the surface and prepare the site for the structure. All woody growth within the construction area shall be cleared and all stumps and roots one inch in diameter or larger shall be grubbed from the site. In addition, all areas within 25 feet of the footprint of the structure shall be cleared and grubbed except as directed by NRCS. The work shall also consist of the removal and disposal of structures (including fences) that must be removed to perform other items of work.

For wetland restoration, enhancement, or creation projects, the wetland area shall be disturbed as little as possible and existing naturally vegetated spillway areas shall not be disturbed.

2. FOUNDATION PREPARATION

The construction areas shall be stripped a minimum of 6 inches to remove all unsuitable materials such as organic matter, grasses, weeds, sod, debris, and stones larger than 6 inches in diameter.

In an earth embankment foundation area, all channel banks and sharp breaks shall be sloped to no steeper than 1.5 horizontal to 1 vertical.

The foundation area shall be thoroughly scarified before placement of fill material. The surface shall have moisture added or shall be compacted if necessary so that the first layer of fill material can be compacted and bonded to the foundation.

3. STRIPPED MATERIAL DISPOSAL

Suitable soil material shall be stockpiled for use as topsoil. The other stripped materials shall be buried, removed from the site, or disposed of as directed by the owner or NRCS. Whenever possible, material shall not be disposed of in the pool area created by the structure.

Stockpiled materials around a construction site should be placed so as not to hinder subsequent construction operations.

4. DISPOSAL OF REFUSE MATERIALS

Waste materials from clearing and structure removal shall be burned or buried at locations approved by the owner. Buried materials shall be covered with a minimum of 2 feet of earthfill. Whenever possible, material shall not be disposed of in any pool area created by the structure.

All refuse shall be disposed of in a manner which complies with all local and state regulations.

5. SALVAGE

Items to be salvaged shall be as shown on the drawings. Structures and fencing materials that are designated to be salvaged shall be carefully removed and neatly placed in the specified storage areas.

6. SPECIAL SPECIFICATIONS

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-5 POLLUTION CONTROL

1. SCOPE

The work shall consist of installing measures or performing work to control erosion and minimize the production of sediment and other pollutants to water and air during construction operations.

2. MATERIALS

All materials furnished shall meet the requirements shown on the drawings or in the specifications.

3. EROSION AND SEDIMENT CONTROL MEASURES AND WORKS

The measures and works shall include, but are not limited to, the following:

Staging of Earthwork Activities: The excavation and moving of soil materials shall be scheduled so that areas unprotected from erosion will be minimized. These areas will be unprotected for the shortest time feasible.

Seeding: Structures and disturbed areas shall be seeded as soon as possible after construction is completed.

Temporary seedings may be used as an alternative to other stabilization measures as approved by NRCS.

Mulching: Construction areas that have been disturbed but have no construction activity scheduled for 21 days or more shall have erosion protection measures applied by the 14th day. This erosion protection may be mulching or other approved temporary measures. Construction areas shall not be left open during a winter shutdown period and shall be protected by mulching.

All seeding and mulching shall be completed in accordance with the seeding plan and Iowa Construction Specification IA-6, Seeding and Mulching for Protective Cover.

The following works may be temporary. If they are installed as a temporary measure, they shall be removed and the area restored to its original state when they are no longer needed or when permanent measures are installed.

Diversions: Diversions may be required to divert clean runoff water away from work areas and to collect runoff from work areas for treatment and safe disposition.

Stream Crossings: Culverts or bridges may be required where construction equipment must cross streams.

Sediment Basins: Sediment basins may be required to settle and filter out sediment from eroding areas to protect properties and streams below the construction site.

Sediment Filters: Straw bale filters, geotextile sediment fences, or other equivalent methods may be used to trap sediment from areas of limited runoff. Sediment filters shall be properly anchored to prevent erosion under them.

Waterways: Waterways may be required for the safe removal of runoff from fields, diversions, and other structures or measures.

4. CHEMICAL POLLUTION

The Contractor shall provide watertight tanks or barrels or construct a sump sealed with plastic sheets to be used to dispose of chemical pollutants, such as drained lubricating or transmission oils, greases, soaps, concrete mixer wash water, asphalt, etc., produced as a by-product of the construction work. At the completion of the construction work, sumps shall be removed and the area restored without causing pollution.

Sanitary facilities such as chemical toilets or septic tanks shall not be placed adjacent to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water sources. At the completion of construction work, facilities shall be disposed of without causing pollution.

5. AIR POLLUTION

The burning of brush or trash or disposal of other materials shall adhere to local and state regulations.

Fire prevention measures shall be taken to prevent the start or the spreading of wild fires, which result from project work. Fire breaks or guards shall be constructed at locations shown on the drawings.

All public access or haul roads used by the contractor during construction of the project shall be sprinkled or otherwise treated to fully suppress dust. All dust control methods shall insure safe operations at all times. If chemical dust suppressants are used, the material shall be a commercially available product specifically designed for dust suppression and the application shall follow manufacturer's requirements and recommendations. A copy of the product data sheet and manufacturer's recommended application procedures shall be provided to the Engineer five working days before use.

6. MAINTENANCE, REMOVAL, AND RESTORATION

All pollution control measures and works shall be adequately maintained in a functional condition as long as needed during the construction operation. All temporary measures shall be removed and the site restored to as near original conditions as practical.

7. SPECIAL SPECIFICATIONS

NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATION

IA-9 SUBSURFACE DRAIN INVESTIGATION, REMOVAL, AND REPAIR

1. SCOPE

The work shall consist of investigation, location, repair, and/or removal of subsurface drains (tile) near new or existing animal waste storage facilities or in wetland restoration, enhancement, or creation project areas, or other situations where subsurface drains may be present.

2. INVESTIGATION AND LOCATION

An inspection trench at least 10 inches wide shall be dug at the location shown on the drawings or as directed by the engineer or his representative. The trench shall be at least 6 feet deep measured from the original ground line, unless otherwise shown on the plans. The Engineer or his representative shall examine the trench and excavated material to identify tile lines.

Size, material, operating condition and direction of flow of each conduit shall be documented. Location and flow line elevation of each conduit shall be surveyed with horizontal and vertical control based on benchmarks shown on the plans.

The inspection trench shall be documented by surveying the natural ground and trench bottom location and elevations at the beginning, end, and every 50 feet for trenches longer than 50 feet.

Backfilling shall not be started without approval of the Engineer. See Section 5 for backfill specifications.

Trench shields, shoring and bracing, or other methods necessary to safeguard the workers and work, and to prevent damage to the existing improvements shall be furnished, placed, and subsequently removed by the contractor.

3. TILE REPAIR

Unless designated for removal, replace damaged conduit with new conduit having equal or greater capacity using material specified in Section 6 or 7. When replacing short sections of clay or concrete tile with single-wall corrugated polyethylene pipe, use the next larger nominal size.

Make connections with manufactured fittings and tight joints. Where joints have gaps that would allow soil to enter, cover the joint with a permanent type material such as coal tar pitch treated roofing paper, fiber glass sheet or mat, or plastic sheet.

If the investigation trench has been excavated below the existing drain grade, backfill the trench with gravel or well-pulverized soil in layers not over four (4) inches thick and tamp by hand or manually directed power tamper to provide a firm foundation for the conduit at the existing grade. Do not backfill with any soil containing broken tile fragments.

Using selected soil free of hard clods, rocks, or frozen soil, hand tamp the backfill material around the haunch of the pipe in layers not over four (4) inches thick to provide support. Hold the conduit in place mechanically while placing excavated material around and over the conduit to ensure proper alignment and grade is maintained. Complete the backfill operation according to Section 5.

4. TILE REMOVAL

Remove conduits as shown on the plans or directed by the Engineer or his representative, including envelope filter material or other flow enhancing material when present.

Cap or plug the open ends of the disconnected conduit to prevent soil entry when the conduit will continue to function downstream, or otherwise shown on the plans. For a minimum distance of two feet around each sealed conduit end, backfill in layers not over four (4) inches thick and tamp by hand or manually directed power tamper to a density equal to or greater than the surrounding undisturbed soil. Do not backfill with any soil containing broken tile fragments, large stones, frozen material, or large dry clods.

Where tile are located beneath an existing animal waste facility, remove the tile or fill the entire length of tile with concrete or Portland cement grout as shown on the plans. When tile removal is specified, the owner shall contact the Iowa Department of Natural Resources (IDNR) for permission to remove the drainage tile under the structure. The structure shall be emptied of waste or lowered to a point below the tile prior to its removal. The structure must be retested for percolation and the results submitted to IDNR and approval received prior to reusing the structure.

If shown on the plans or directed by the engineer, reroute upstream drain lines so the capacity of the upstream drainage system is maintained. Install conduit in accordance with Iowa Construction Specification IA-46, Tile Drains for Land Drainage.

5. BACKFILL

Compact soil around disturbed tile as specified in Section 3 (Tile Repair) and Section 4 (Tile Removal). Keep the backfill within 5 feet of the conduit free from large stones, frozen material, and large dry clods. Unless otherwise shown on the plans, backfill the remainder of the trench as follows:

For trenches located under or near structures, backfill in 12 inch layers and compact each layer to a density equal to or greater than the surrounding undisturbed soil.

For other locations, backfill the remainder of each trench with the excavated soil material which shall extend above the ground surface and be well rounded over the trench.

6. MATERIALS

Unless otherwise shown on the plans, conduit and fittings used for repair shall conform to the specifications listed in Table 1. Perforated pipe shall have a water inlet area of at least 1 square inch per foot, provided by perforations spaced uniformly along the long axis of the pipe. The perforations shall be circular or slots. Circular perforations shall not exceed 3/16 inch in diameter. Slots shall not be more than 1/8 inch wide.

Table 1. Acceptable pipe for subsurface drain repair

Kind of Pipe [#]	Specification
Corrugated Polyethylene (PE) Pipe and Fittings, 3 to 6 inch	ASTM F 405
Corrugated Polyethylene (PE) Pipe and Fittings, 3 to 24 inch	ASTM F 667
Corrugated Profile Wall (Dual Wall) Polyethylene (PE) pipe, 2 to 60 inch	ASTM F 2648 ^s
Corrugated Profile Wall (Dual Wall) Polyethylene (PE) pipe, 12 to 60 inch	ASTM F 2306 ^s
Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80 and 120	ASTM D 1785
PVC Pressure-Rated Pipe (SDR Series)	ASTM D 2241
Clay drain tile	ASTM C 4
Concrete drain tile	ASTM C 412

[#] Pipe sizes are nominal and the ranges are inclusive

^s Pipe conforming to AASHTO M 252 (3 to 10 inch), or AASHTO M 294 (12 to 60 inch) is acceptable

7. SPECIAL SPECIFICATIONS

None

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATION**

IA-21 EXCAVATION

1. SCOPE

The work shall consist of the excavation required by the drawings and specifications and disposal of the excavated materials. The cutoff trench and any other required excavations shall be dug to the lines and grades shown on the drawings or as staked in the field. Structure or trench excavations will conform to all safety requirements of OSHA.

2. USE OF EXCAVATED MATERIALS

Suitable materials from the specified excavations shall be used in the construction of required permanent earth fill. The suitability of materials for specific purposes shall be determined by the NRCS Inspector.

3. DISPOSAL OF WASTE MATERIAL

All surplus or waste material shall be disposed of in areas shown on the drawings or as approved by the NRCS Inspector. The waste material shall be smoothed and sloped to provide drainage.

4. STRUCTURE AND TRENCH EXCAVATION

Structure or trench excavations will conform to all safety requirements of OSHA.

5. BORROW EXCAVATION

When the quantities of suitable materials obtained from specified excavations are insufficient to construct the specified fills, additional materials shall be obtained from the designated borrow areas as shown on the drawings or as approved by NRCS and the landowner. On wetland projects, borrow shall not be taken from the wetland area within 10 feet of the embankment or as shown on the drawings.

Borrow areas shall be excavated and grading completed in a manner to eliminate steep or unstable side slopes or hazardous or unsightly conditions.

6. OVER-EXCAVATION

Excavation beyond the specified lines and grades shall be corrected by filling the resulting voids with compacted earthfill, except that if the earth is to become the subgrade for riprap, sand or gravel bedding or drainfill, the voids shall be filled with material conforming to the specifications for the riprap, bedding or drainfill, as appropriate.

7. SPECIAL SPECIFICATIONS