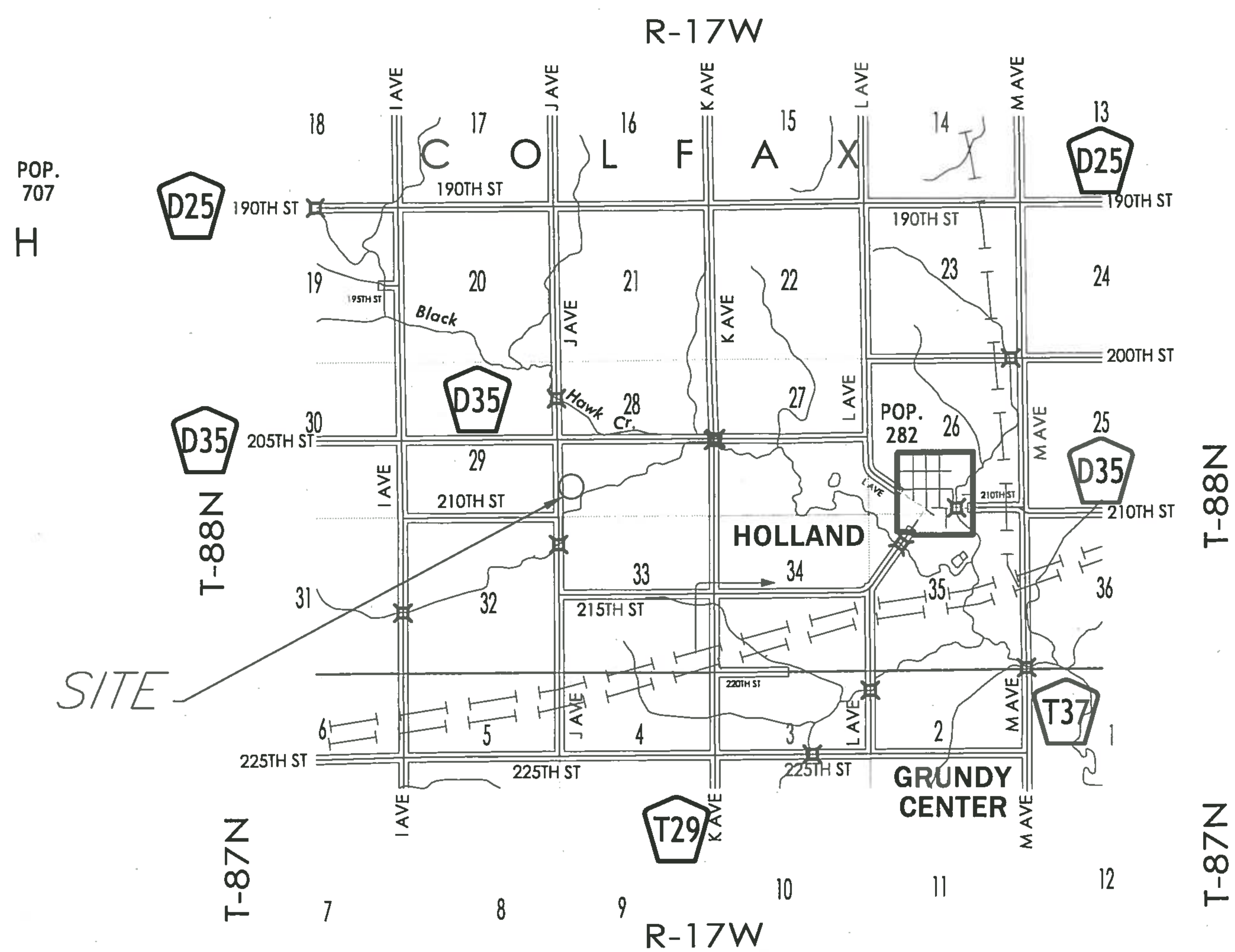
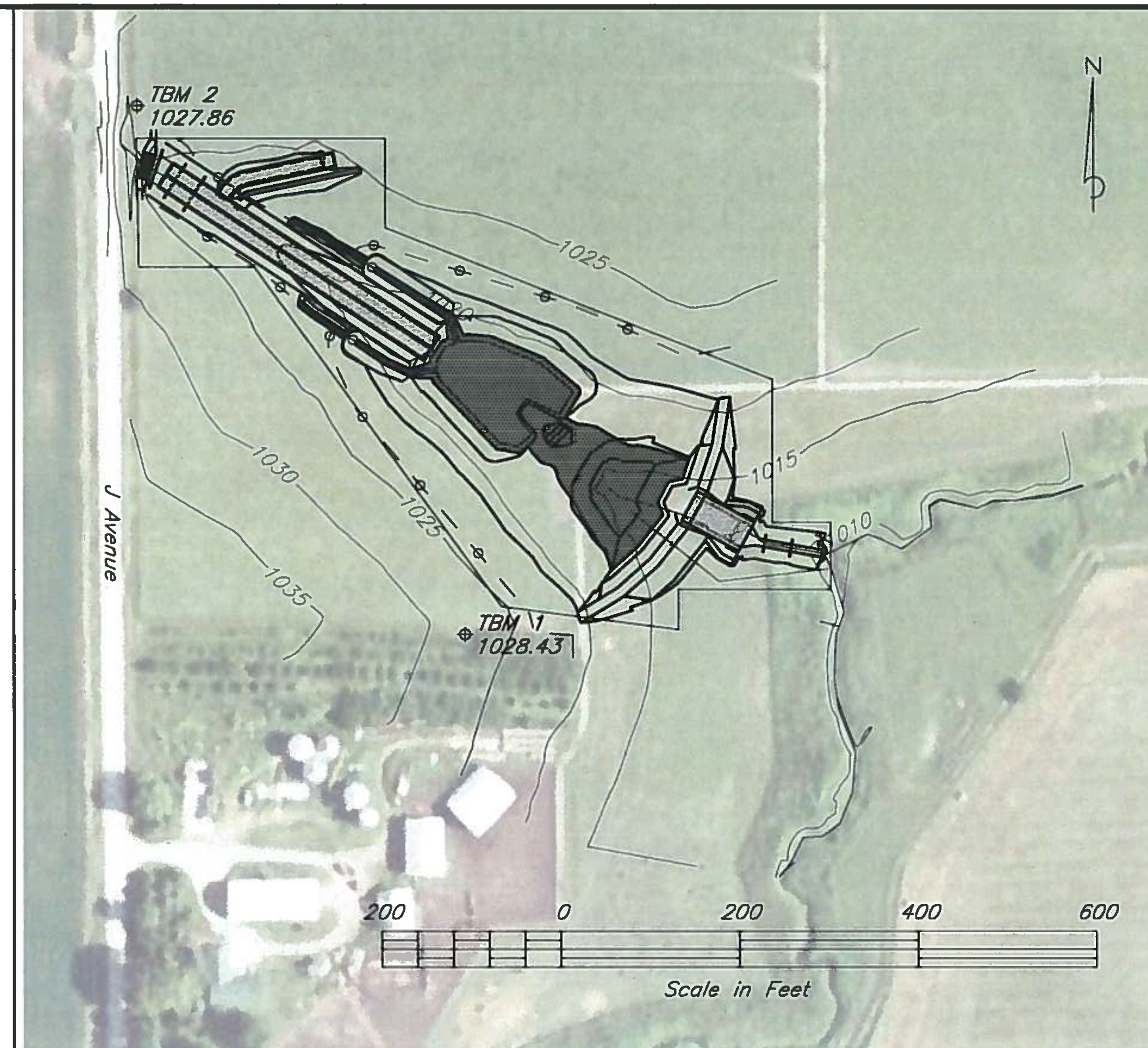
LOCATION MAP
Grundy county





BENCH MARK		
NO.	ELEV.	DESCRIPTION
TBM 1	1028.43	Top of steel rerod with yellow 'NRCS survey' cap located on north edge of farmstead approximately 125 feet west of northeast corner.
TBM 2	1027.86	Top of steel rerod with yellow 'NRCS survey' cap located along right-of-way edge east side gravel road 58 feet north of waterway.

Construction Specifications

IA-5	Pollution Control
IA-6	Seeding and Mulching
IA-9	Subsurface Drainage Investigation, Removal, and Repair
IA-21	Excavation
IA-23	Earthfill.
IA-45	Plastic(PVC, PE) Pipe
IA-46	Tile Drains for Land Drainage
IA-61	Loose Rock Riprap
IA-95	Geotextile
IA-412	Grassed Waterway

Contractor is required to follow Iowa One Call law.
IowaOneCall.com or Call 811
Ticket # ______________

If a cultural resource is identified during construction, stop immediately and notify the local Natural Resources Conservation Service office.

PLAN CONTENS

	Name	Date
Designed	Jeff A. Lutz	1/2023
Drawn	Jeff A. Lutz	1/2023
Checked	GS	4/24
Approved	[signature]	4/12/24

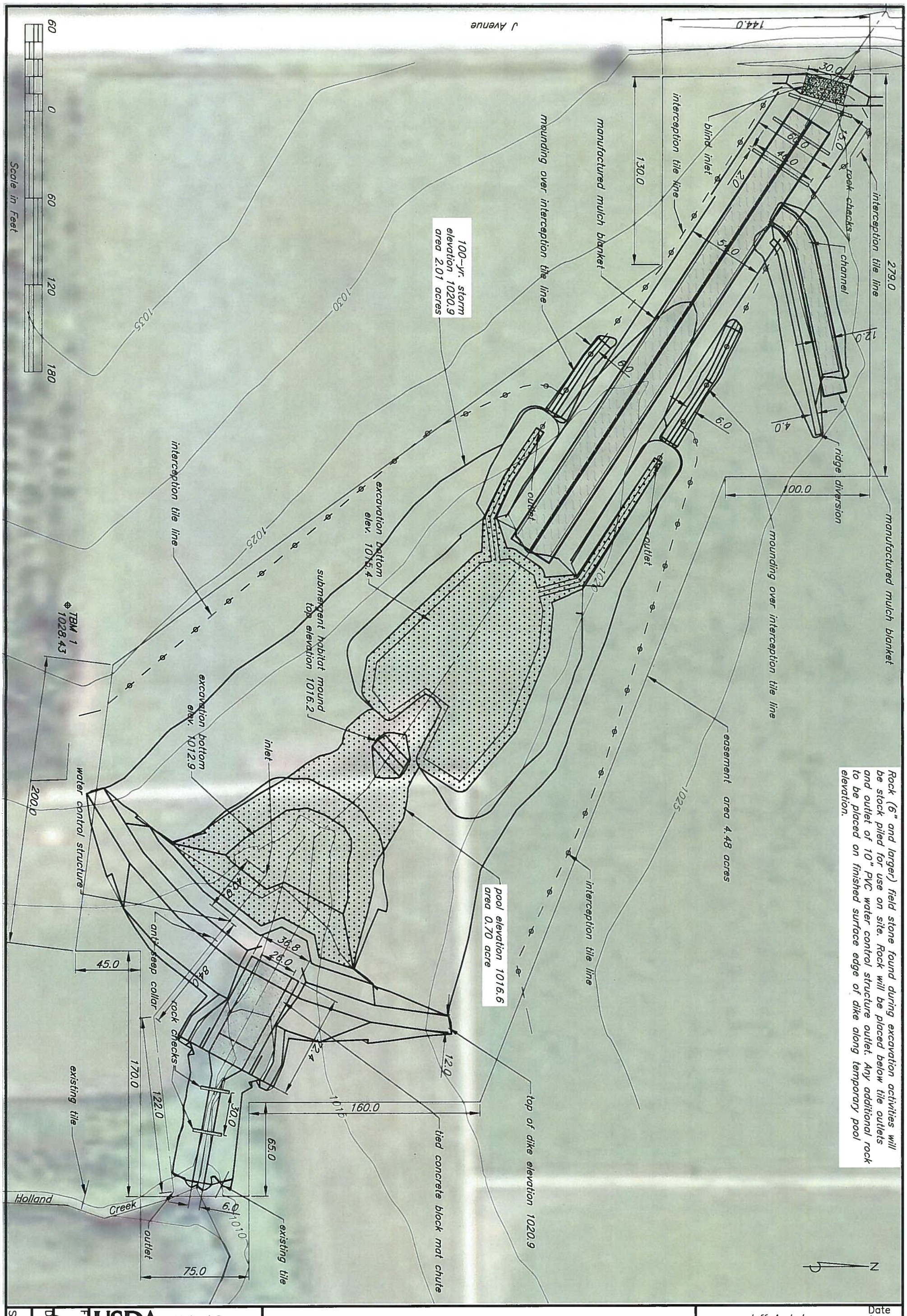
Fred Abels t7164
Wetland for Day-lighted Tile Outlet Treatment
PLAN VIEW & LOCATION MAP

SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

USDA United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CRP CP39 wetland
Drawing Name: GROUND.dwg

Sheet 1 of 27



Rock (6" and larger) field stone found during excavation activities will be stock piled for use on site. Rock will be placed below tile outlets and outlet of 10" PVC water control structure outlet. Any additional rock to be placed on finished surface edge of dike along temporary pool elevation.

Designed	Jeff A. Lutz	Date 1/2024
Drawn	Jeff A. Lutz	1/2024
Checked	GS	4/24
Approved		

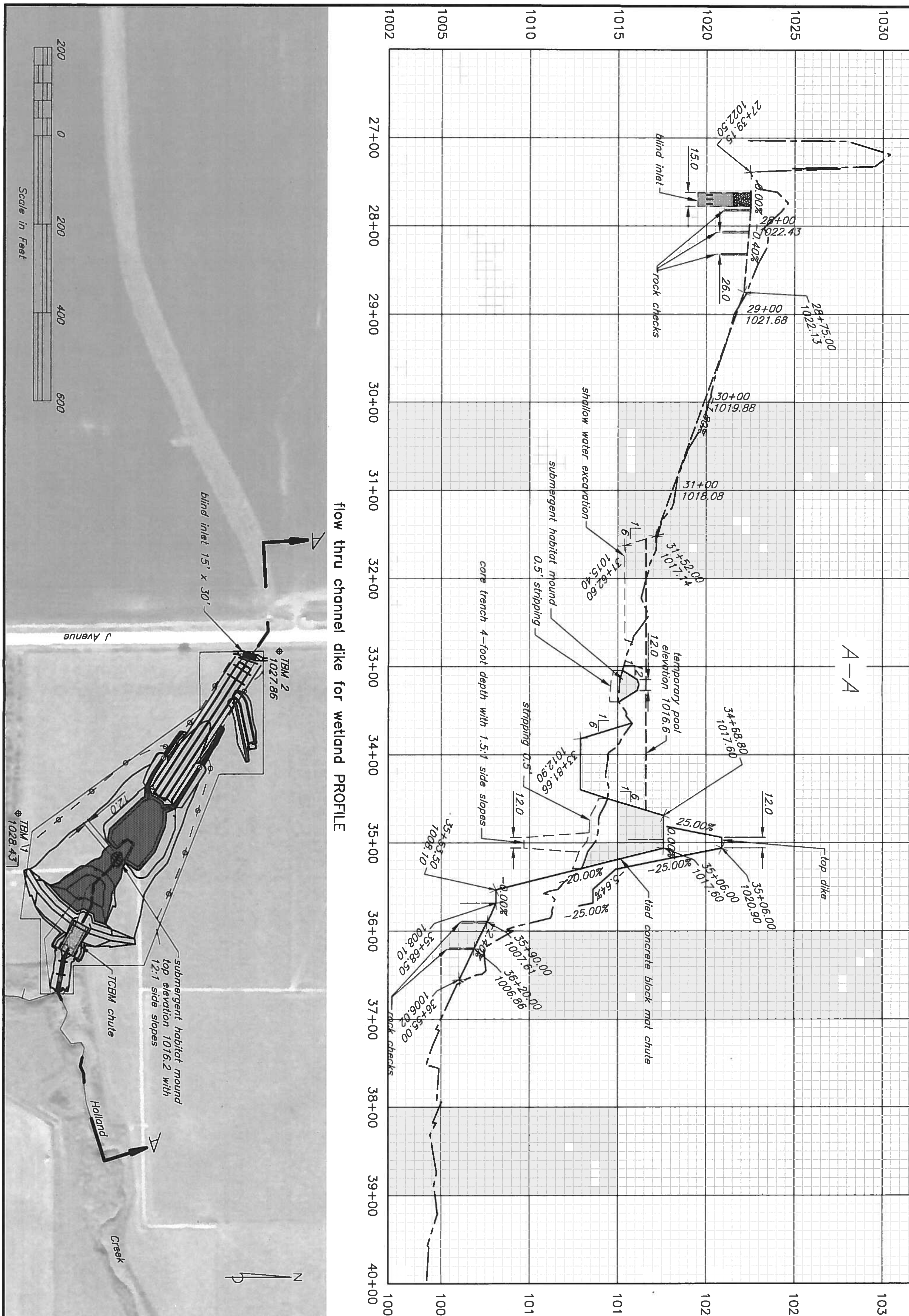
USDA United States Department of Agriculture
Natural Resources Conservation Service

Fred Abels t7164
Wetland for Day-lighted Tile Outlet Treatment
SITE PLAN

SW¼ sec. 28 T.88N.-R.17W. Colfax twp. Grundy County, IA

File No. Fred Abels t7164 CRP 39 wetland
Drawing No.

Sheet 2 of 27



Sheet 3 of 27	File No. Fred Abels t7164 CRP CP39 wetland Drawing Name	USDA United States Department of Agriculture Natural Resources Conservation Service	Fred Abels t7164 Wetland for Day-lighted Tile Outlet Treatment *PROFILE flow thru channel, dike for wetland* *SW¼ sec. 28 T.88N.–R.17W. Colfax twp.* *Grundy County, IA*	Designed *Jeff A. Lutz* Date 1/2024 Drawn *Jeff A. Lutz* 1/2024 Checked GS 4/24 Approved

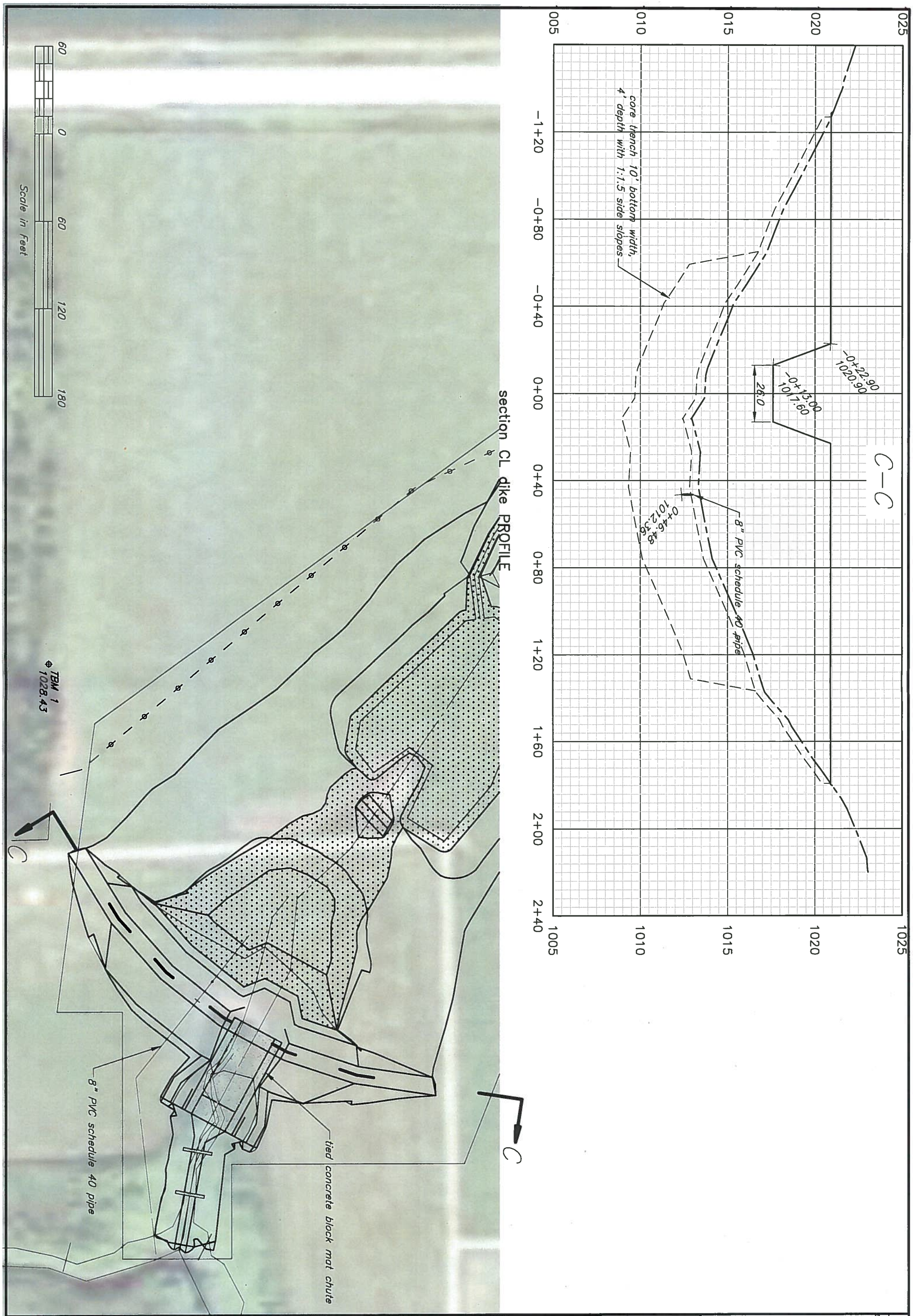
File No.		
Fred Abels t7164 CRP CP39 wetland	Drawing Name	Sheet 4 of 27

USDA United States Department of Agriculture
Natural Resources Conservation Service

Fred Abels t7164
Wetland for Day-lighted Tile Outlet Treatment
PROFILE CONDUIT with WATER CONTROL STRUCTURE

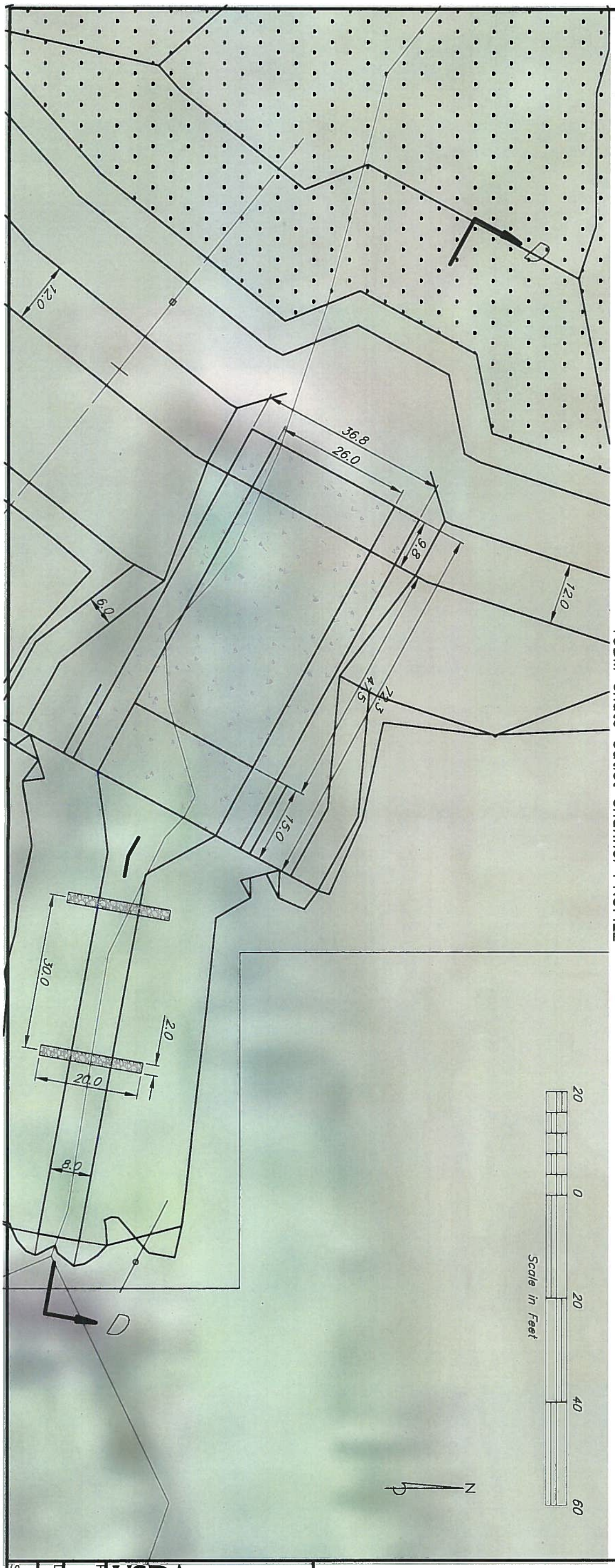
SW¼ sec. 28 T.88N.-R.17W. Colfax twp. *Grundy County, IA*

		Date
Designed	Jeff A. Lutz	1/2024
Drawn	Jeff A. Lutz	1/2024
Checked	[illegible]	4/24
Approved		

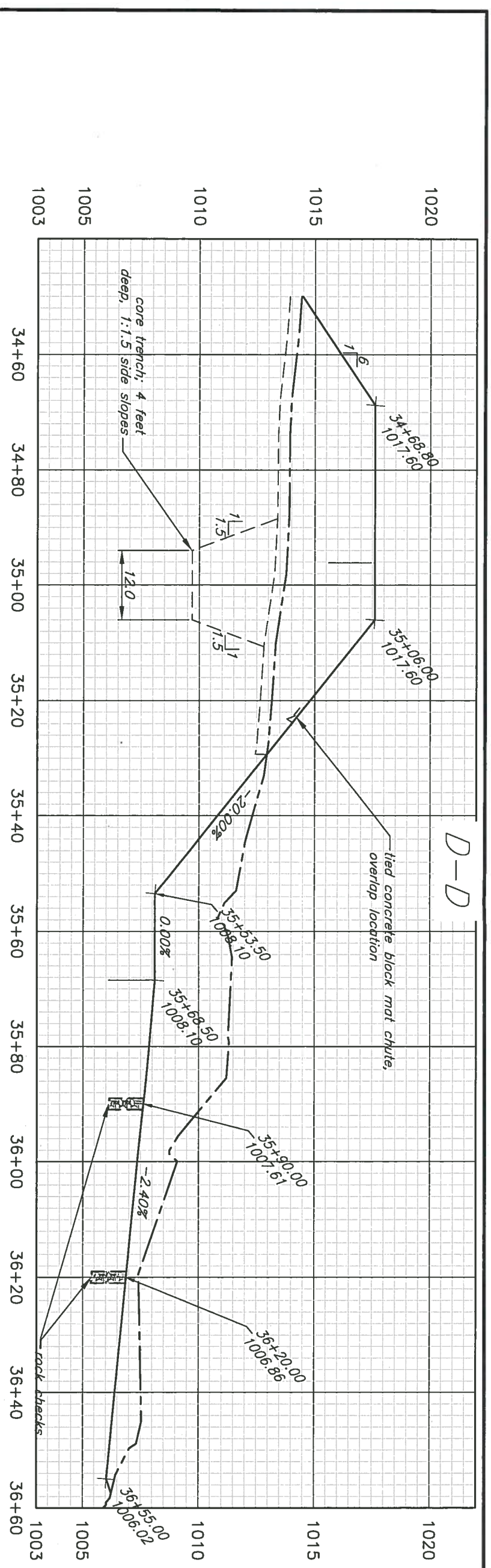


Sheet 5 of 27	File No. Fred Abels t7164 CRP CP39 wetland Drawing No.	USDA United States Department of Agriculture Natural Resources Conservation Service	Fred Abels t7164 Wetland for Day–lighted Tile Outlet Treatment SECTION ℄ DIKE SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

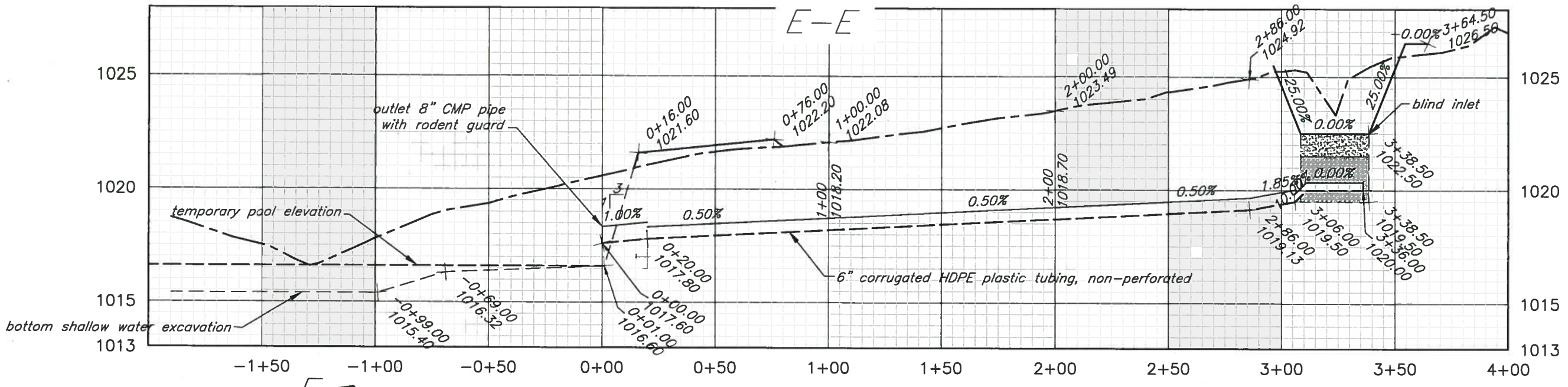
		Date
Designed	Jeff A. Lutz	1/2024
Drawn	Jeff A. Lutz	1/2024
Checked	GS	4/24
Approved		



TCBM chute outlet channel PROFILE

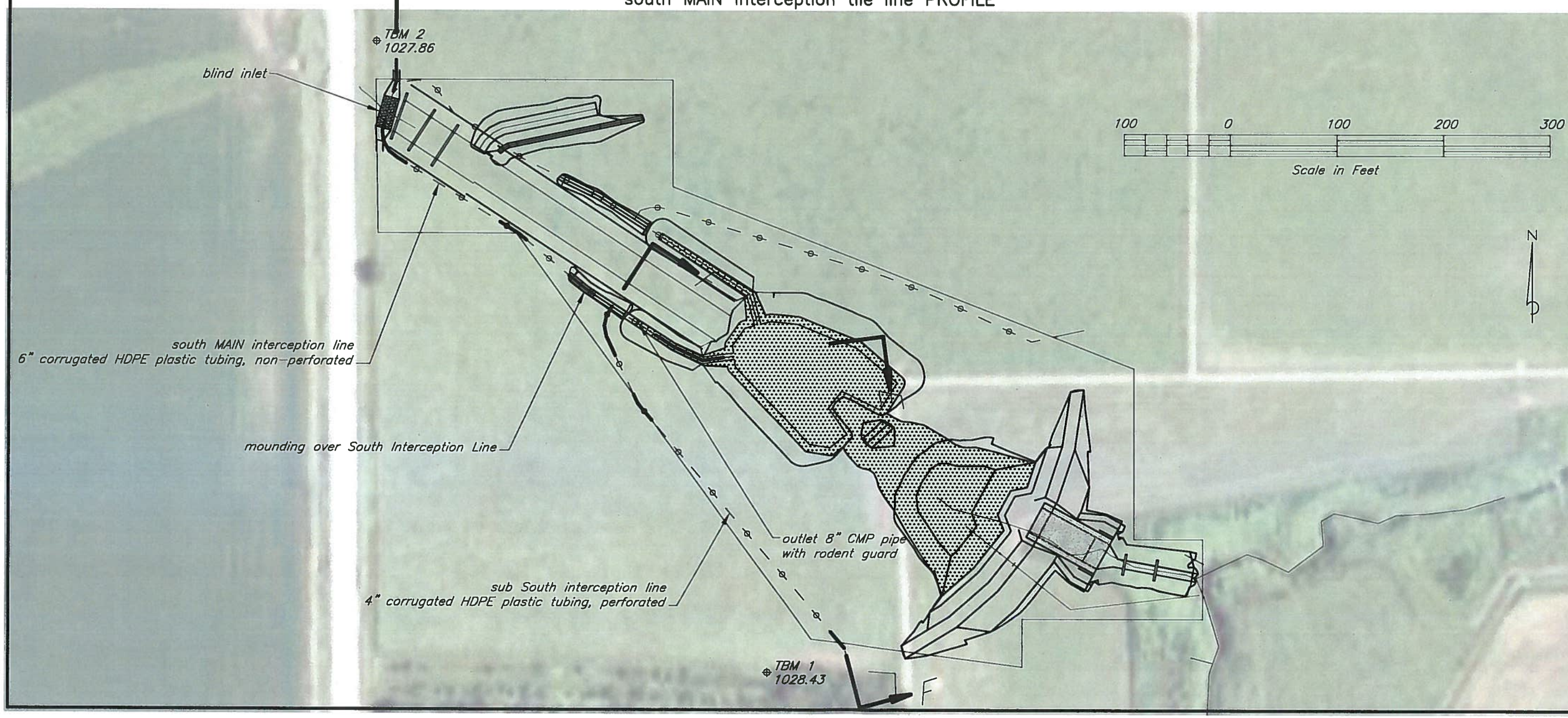


Sheet 6 of 27	File No. Fred Abels t7164 CRP CP39 wetland Drawing No. 2 dwg	USDA United States Department of Agriculture Natural Resources Conservation Service	Fred Abels t7164 Wetland for Day-lighted Tile Outlet Treatment PROFILE TCBM CHUTE OUTLET CHANNEL SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA	Designed Jeff A. Lutz 1/2024 Drawn Jeff A. Lutz 1/2024 Checked GS 4/24 Approved



south MAIN interception tile line PROFILE

E



Date
Designed Jeff A. Lutz 1/2024
Drawn Jeff A. Lutz 1/2024
Checked 4124.
Approved

Fred Abels t7164
Wetland for Day–lighted Tile Outlet Treatment

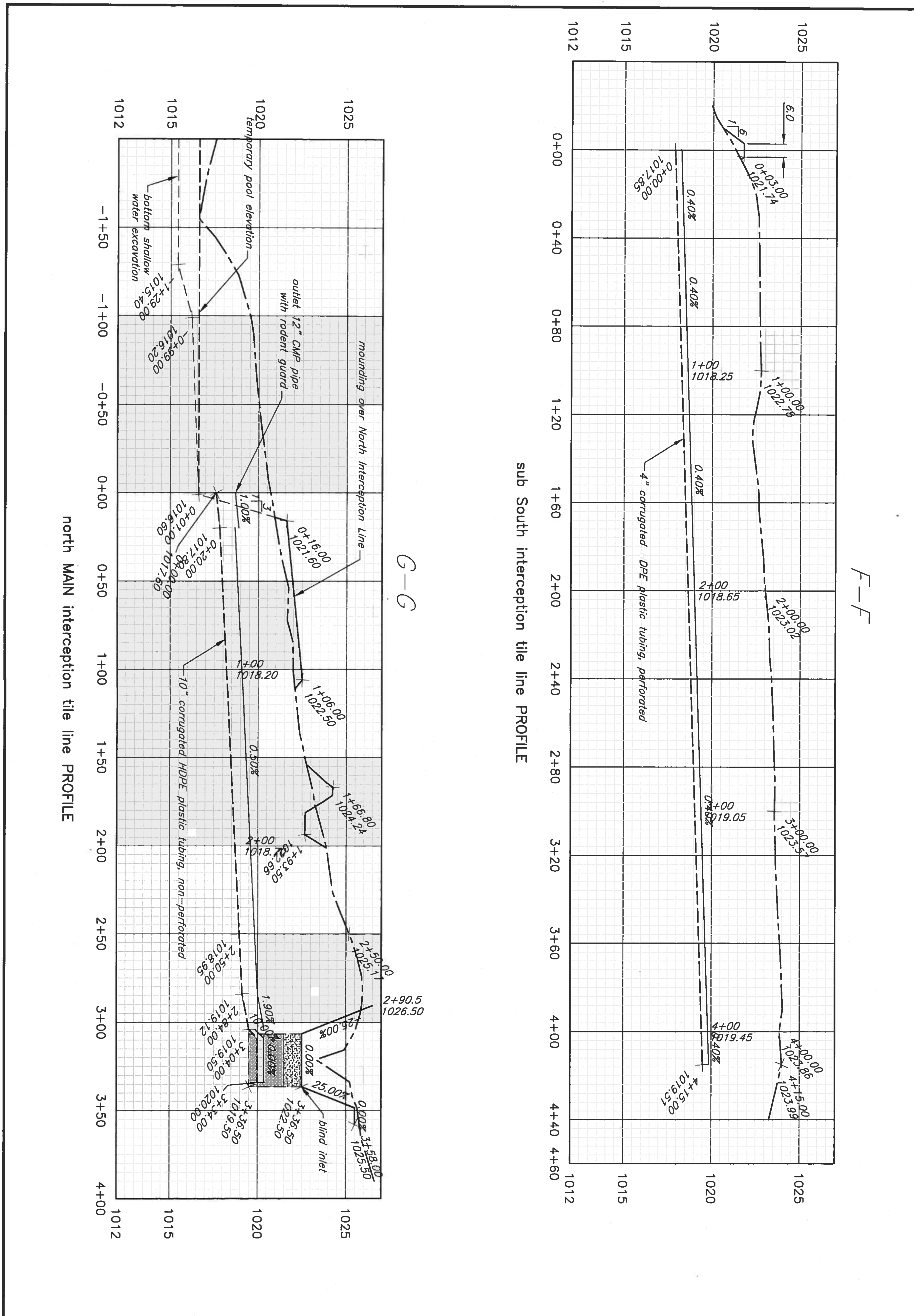
PROFILE INTERCEPTION TILE LINES

SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

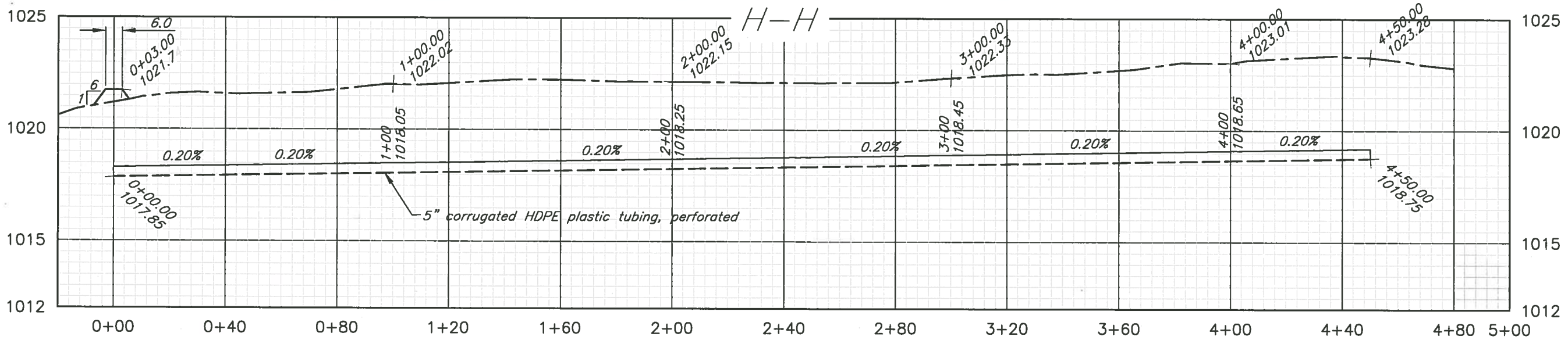
United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CRP CP39 wetland
Drawing No.

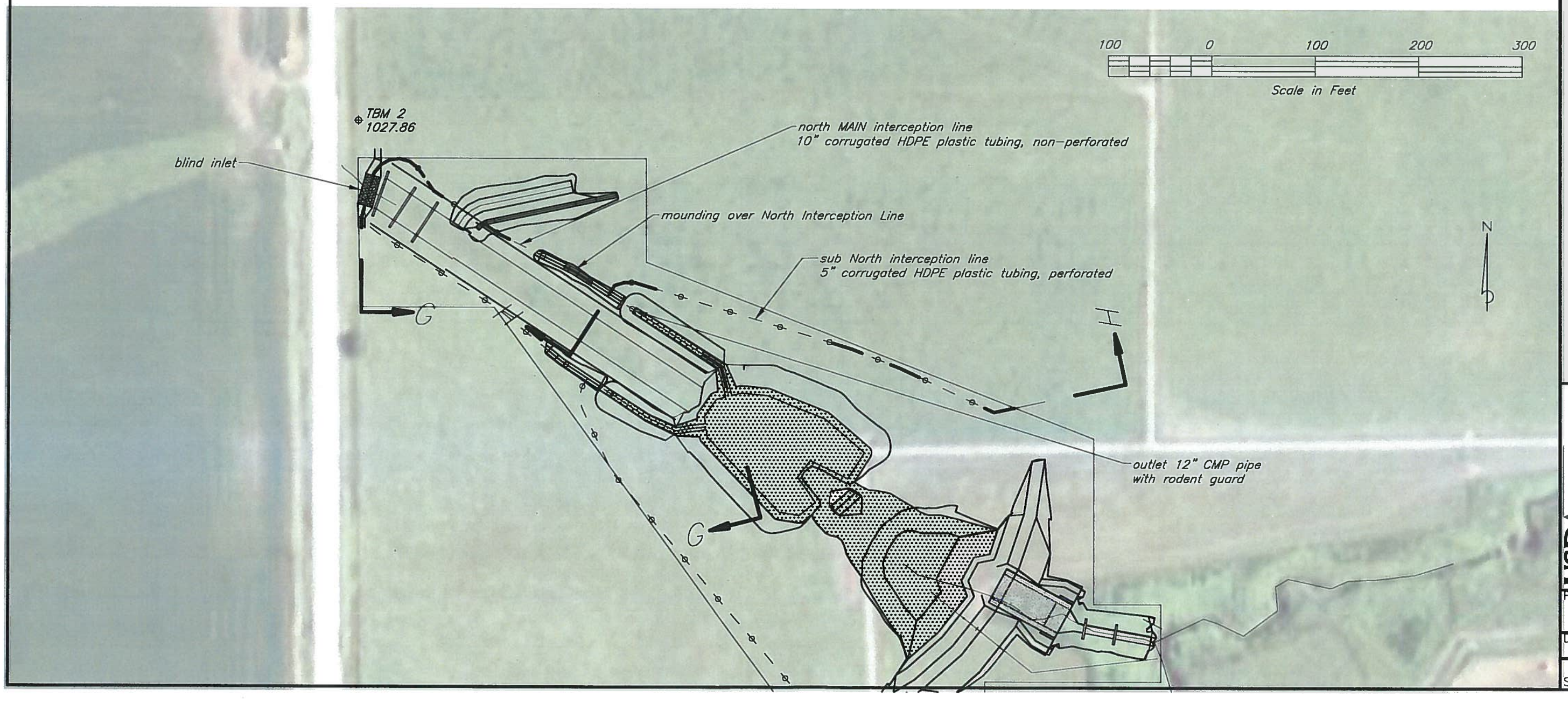
Sheet 7 of 27



File No.			
Fred Abels t7164 CRP	**USDA** United States Department of Agriculture Natural Resources Conservation Service	Fred Abels t7164 Wetland for Day-lighted Tile Outlet Treatment *PROFILE INTERCEPTION TILE LINES*	Designed *Jeff A. Lutz* Date *1/2024*
Drawing Name CP39 wetland		*SW¼ sec. 28 T.88N.–R.17W. Colfax twp.* *Grundy County, IA*	Drawn *Jeff A. Lutz* *1/2024*
Sheet 8 of 27			Checked GS 4/24
			Approved



sub North interception tile line PROFILE



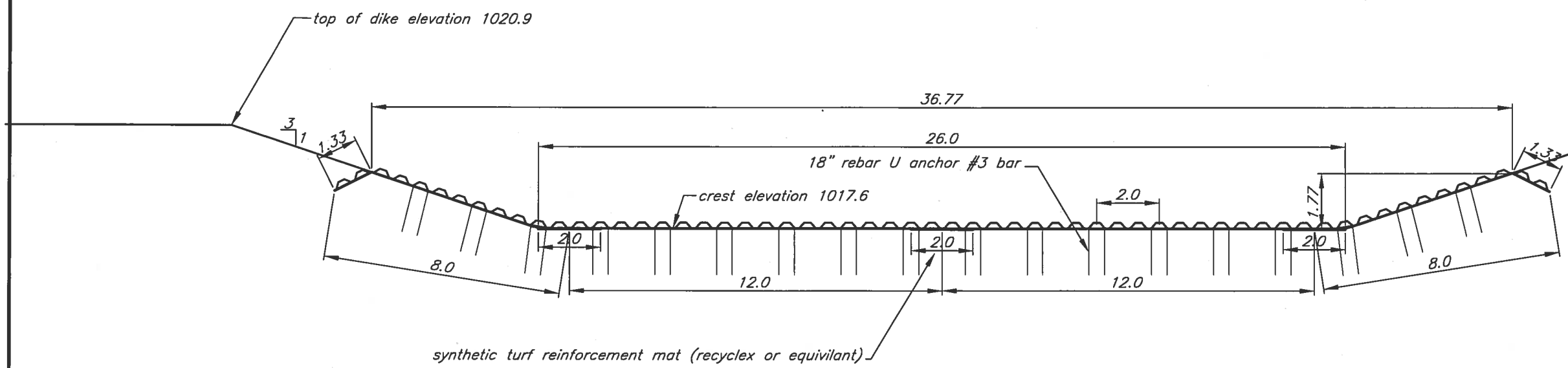
Date
Designed Jeff A. Lutz 1/2024
Drawn Jeff A. Lutz 1/2024
Checked 125 4124
Approved

Fred Abels t7164
Wetland for Day–lighted Tile Outlet Treatment
PROFILE INTERCEPTION TILE LINES
SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

United States Department of Agriculture
Natural Resources Conservation Service

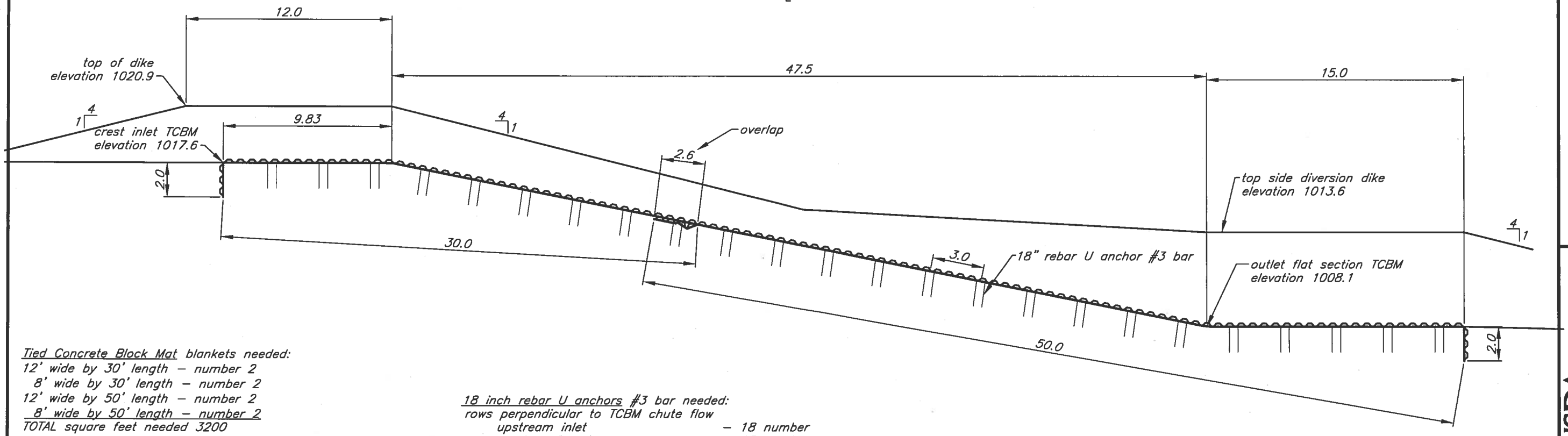
File No. Fred Abels t7164 CRP CP39 wetland
Drawing No. GRUND.dwg

Sheet 9 of 27



INLET SECTION

PROFILE ℄



Tied Concrete Block Mat blankets needed:
12' wide by 30' length – number 2
8' wide by 30' length – number 2
12' wide by 50' length – number 2
8' wide by 50' length – number 2
TOTAL square feet needed 3200

18 inch rebar U anchors #3 bar needed:

rows perpendicular to TCBM chute flow	
upstream inlet	– 18 number
overlap of mats	– 18 number
downstream outlet	– 18 number
longitudinal seams TCBM chute	
north	– 24 number
middle	– 24 number
south	– 24 number
TOTAL 18" rebar U anchors needed	126

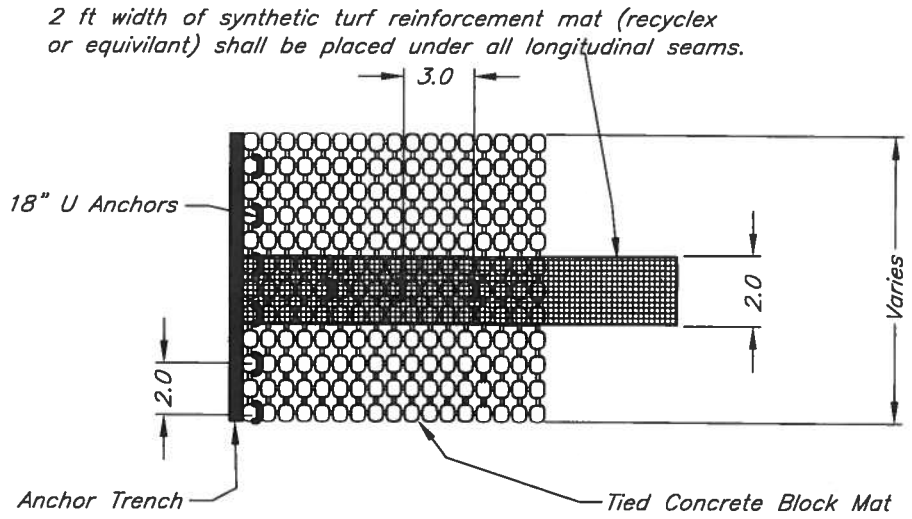
Designed Jeff A. Lutz Date 1/2024
Drawn Jeff A. Lutz Date 1/2024
Checked GS Date 4/24
Approved

Fred Abels t7164
Wetland for Day-lighted Tile Outlet Treatment
PROFILE DETAIL SECTION TCBM CHUTE
SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

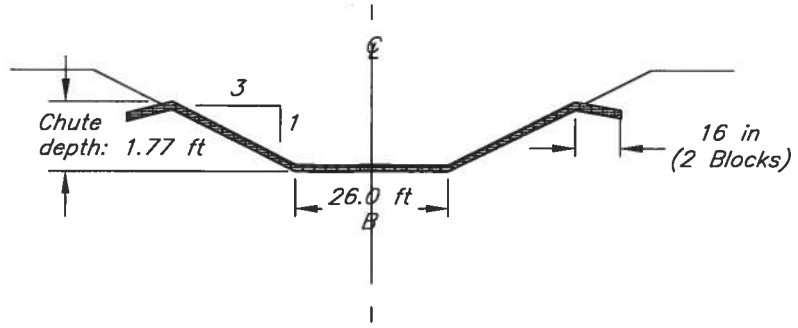
United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CRP CP39 wetland
Drawing No. GRUND.dwg

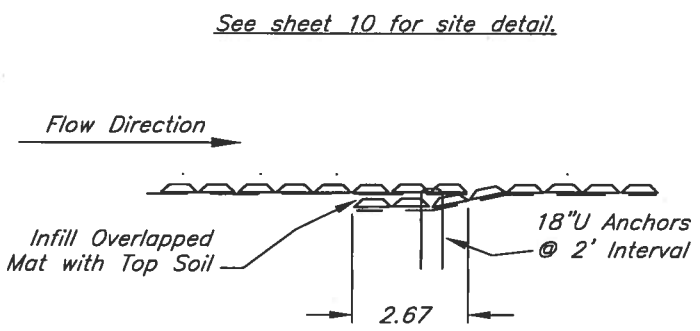
Sheet 10 of 27



PLAN VIEW (LONGITUDINAL SEAM)



TYPICAL CROSS SECTION



PROFILE VIEW (PERPENDICULAR OVERLAP)

NOTES:

1. The maximum chute slope in the direction of flow shall be 3:1. The maximum side slopes of the chute shall be 2:1.
2. The outlet section shall be flat (0% grade).
3. Apply seed and fertilizer prior to placing Tied Concrete Block Mat (TCBM), and after TCBM is placed.
4. Longitudinal seams shall be anchored every 3 ft.
5. 2 ft width of synthetic turf reinforcement mat (recyclex or equivilant) shall be placed under all longitudinal seams.
6. Anchor leading and downstream edge of TCBM in a minimum 16" deep (sized for two rows of blocks) trench. Trench should be backfilled with suitable material and compacted.

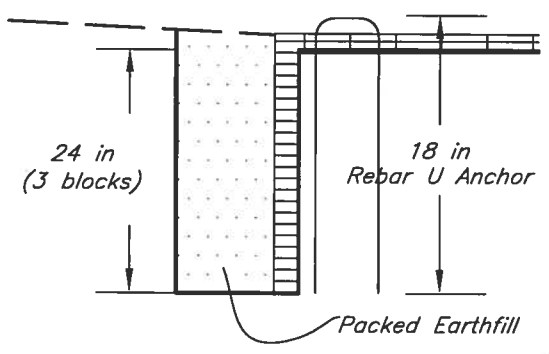
TABLE OF QUANTITIES		
Item	Quantity	Unit
Tied Concrete Block Mat	3200	sq.ft.
Underlayment	462	sq.ft.
Excavation	935	cu.yd.
Earthfill	1850	cu.yd.
Seeding	0.5	acres
Rebar Anchors	126	No.

NOTES Cont.:

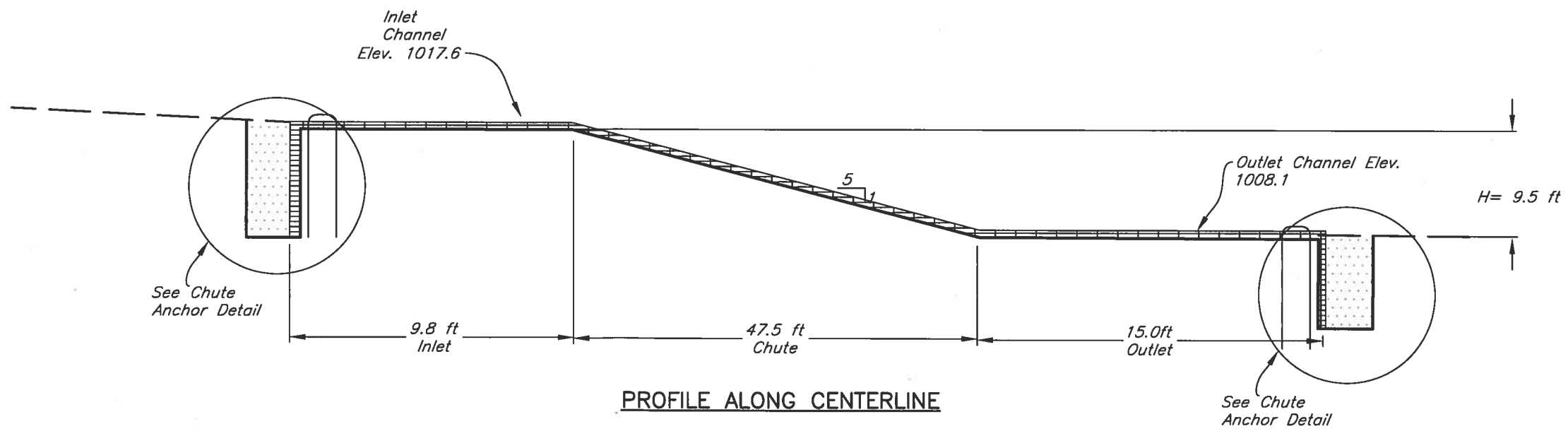
7. Recess two outside blocks 16" into subgrade along each edge of structure.
8. On perpendicular lap, and at anchor trenches, 18" U anchors are installed in 2' increments across overlap seam. Install anchor behind first row of blocks so that anchor is tight with subgrade.
9. Downstream rolls of TCBM and underlayment are shingled under upstream roll.

Dike site - N½ SW¼ SW¼ sec. 28
Colfax twp. Grundy county

NOT TO SCALE



CHUTE ANCHOR DETAIL



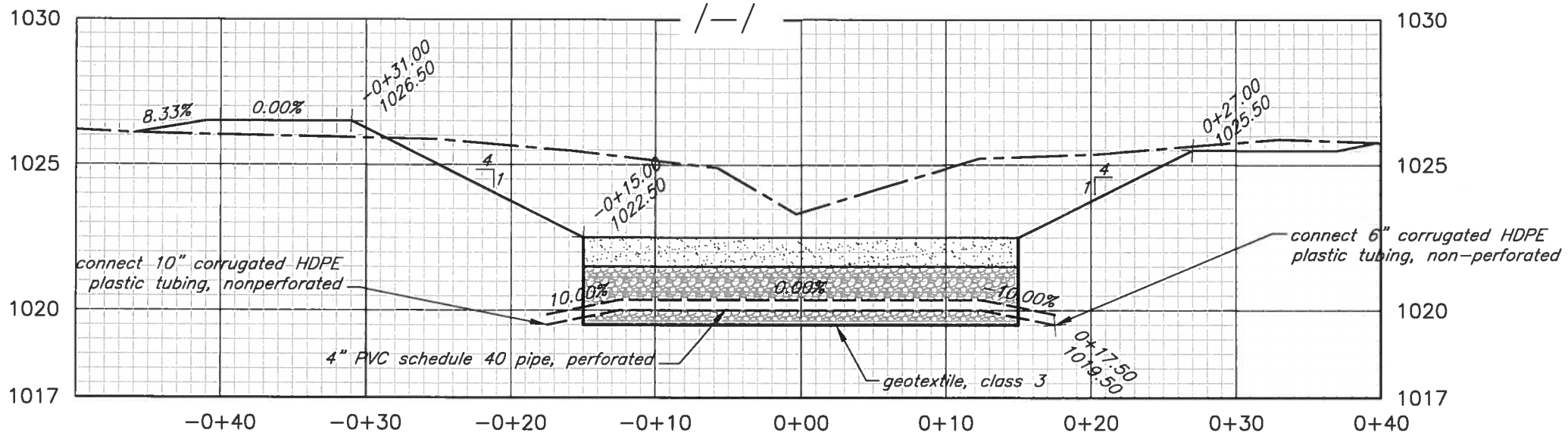
PROFILE ALONG CENTERLINE

Date 1/2020
Designed N. Klingenberg 1/2020
Drawn N. Klingenberg
Checked GS 4/24
Approved

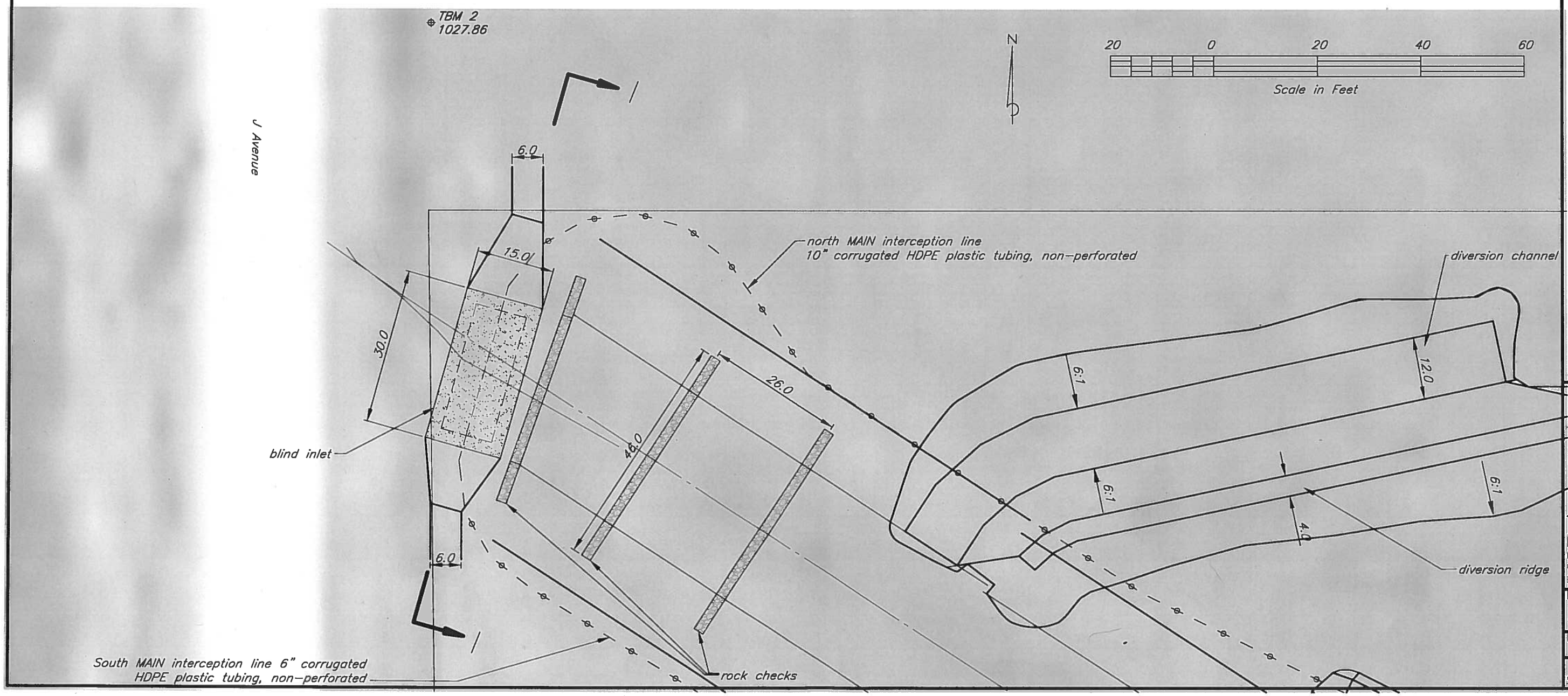
TIED CONCRETE BLOCK MAT CHUTE DETAILS
Fred Abels t7164 wetlands structure

United States Department of Agriculture
Natural Resources Conservation Service

File No.
Drawing No.
Sheet 11 of 27



Blind inlet north to south PROFILE



Designed Jeff A. Lutz Date 1/2024
Drawn Jeff A. Lutz Date 1/2024
Checked JS Date 4/24
Approved Date

Fred Abels t7164
Wetland for Day−lighted Tile Outlet Treatment

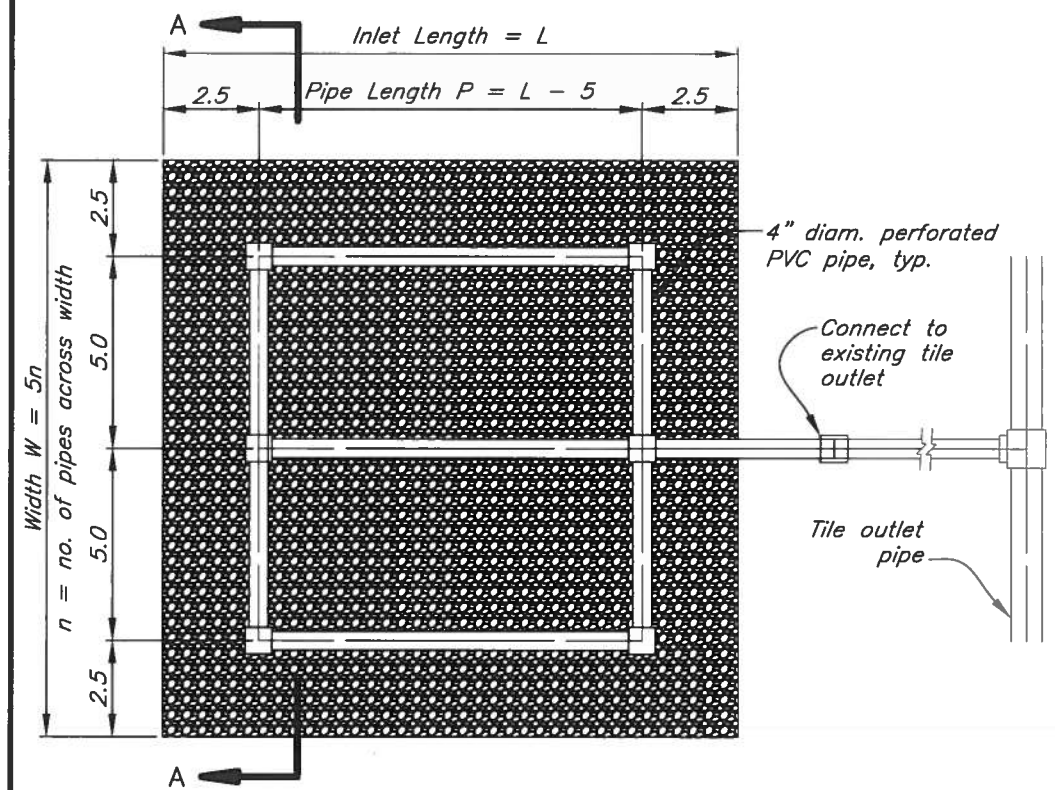
PROFILE BLIND INLET

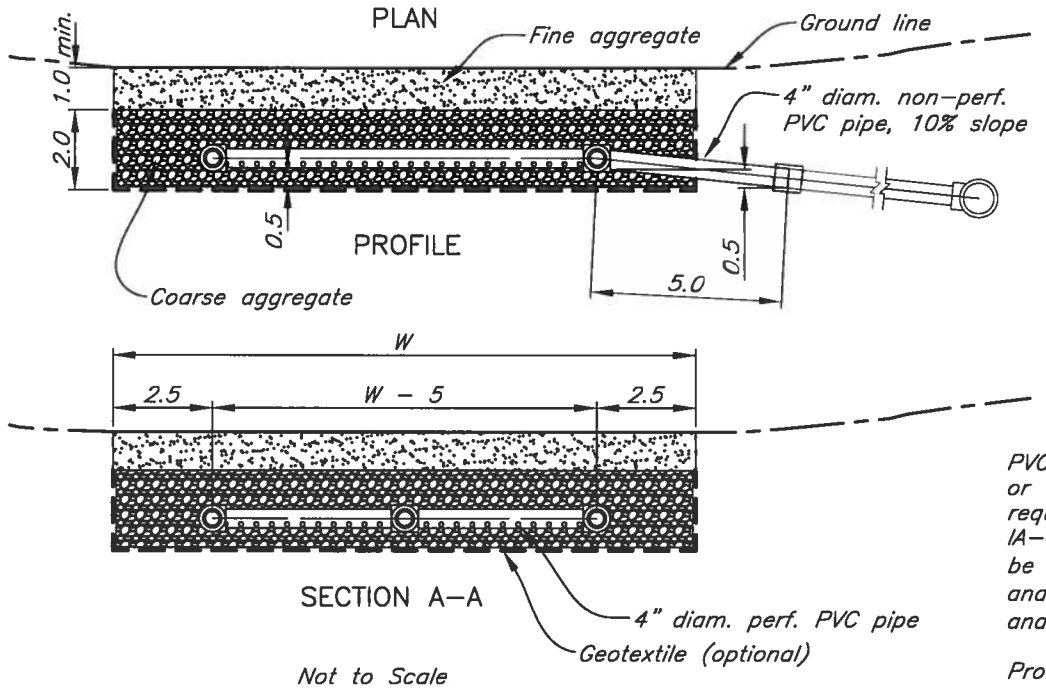
SW¼ sec. 28 T.88N.−R.17W. Colfax twp. Grundy County, IA

USDA United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CRP CP39 wetland GRUND.dwg

Sheet 12 of 27





Not to Scale

** Note: will outlet out of both
** sides of the blind inlet

AGGREGATE GRADATION REQUIREMENTS

Coarse Aggregate

U.S. Sieve Designation	% Passing Sieve
1–1/2"	100
3/4"	75–100
1/2"	25–80
3/8"	20–60
No. 4	0–10
No. 8	0–5
No. 100	0–3

Fine Aggregate

U.S. Sieve Designation	% Passing Sieve
3/8"	100
No. 4	95–100
No. 8	75–95
No. 16	50–70
No. 30	25–50
No. 50	10–20
No. 100	0–6
No. 200	0–3

INLET SIZING

P = 25 ft.
n = 3 pipes
L = 30 ft.
W = 15 ft.

Maximum P = 20 ft.
Maximum n = 5 pipes

Design Flow Rate
Q = 1.18 cfs

NOTES:

PVC pipe shall be Schedule 40 or thicker and shall meet the requirements of Specification IA–45. Perforation size shall be 3/8", positioned at 4:30 and 7:30 o'clock (90° apart), and spaced every 3".

Provide geotextile if site soils are known to be highly erosive or dispersive, or if needed for separation due to conditions during installation.

The ability of the blind inlet to remove water at the design flow rate is dependent on an appropriately sized outlet system and maintenance of a clean sand surface.

QUANTITIES

Excavation	125	Cu. Yd.
Geotextile	84	Sq. Yd.
Coarse Aggregate	33	Cu. Yd.
Fine Aggregate	17	Cu. Yd.
4" diam. perf. PVC pipe	95	Lin. Ft.
4" diam. non–perf. PVC pipe	10 **	Lin. Ft.

STANDARD DWG. IA–1550

DATE June 2013 | PAGE 1 OF 1

USDA United States Department of Agriculture

Natural Resources Conservation Service

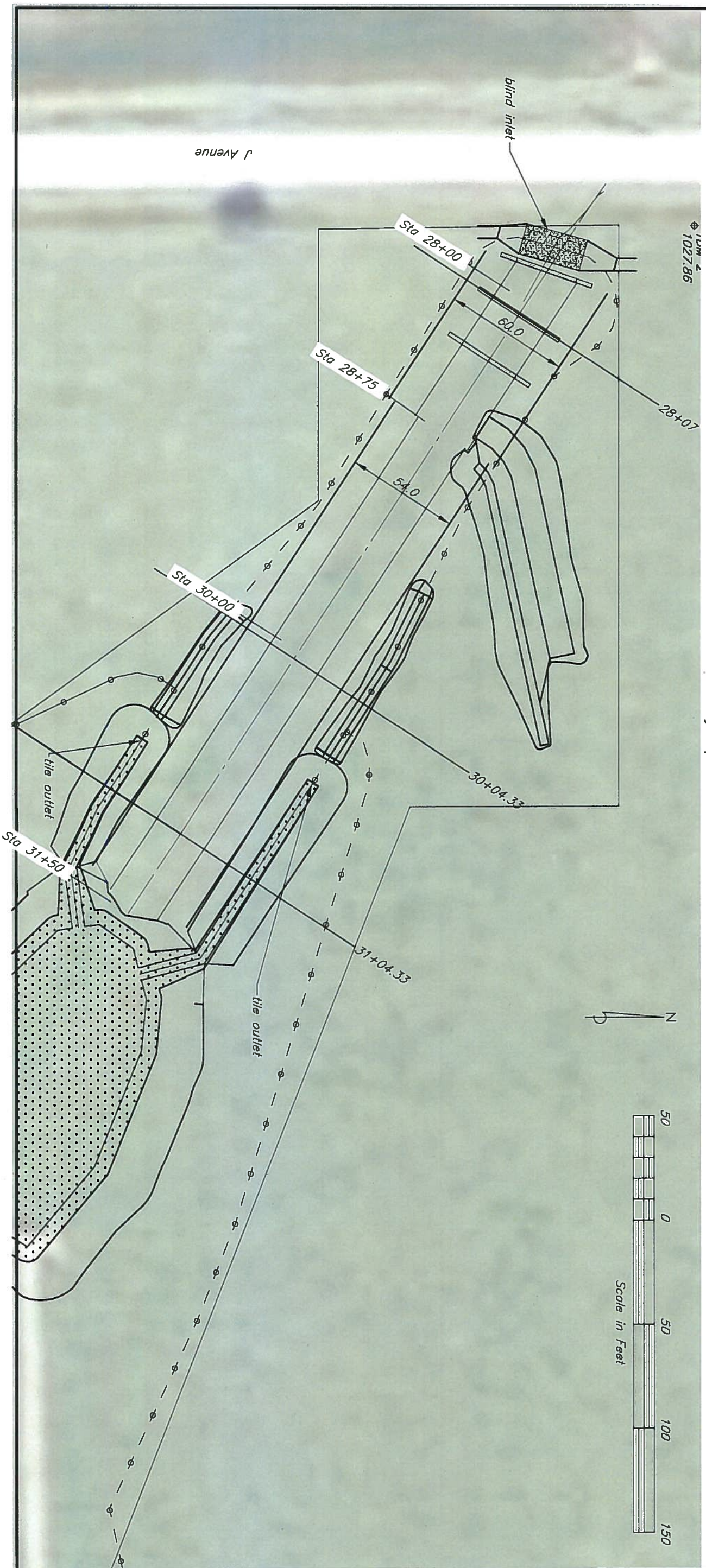
BLIND INLET Multi–Pipe Layout

Owner: Fred Abels t7164

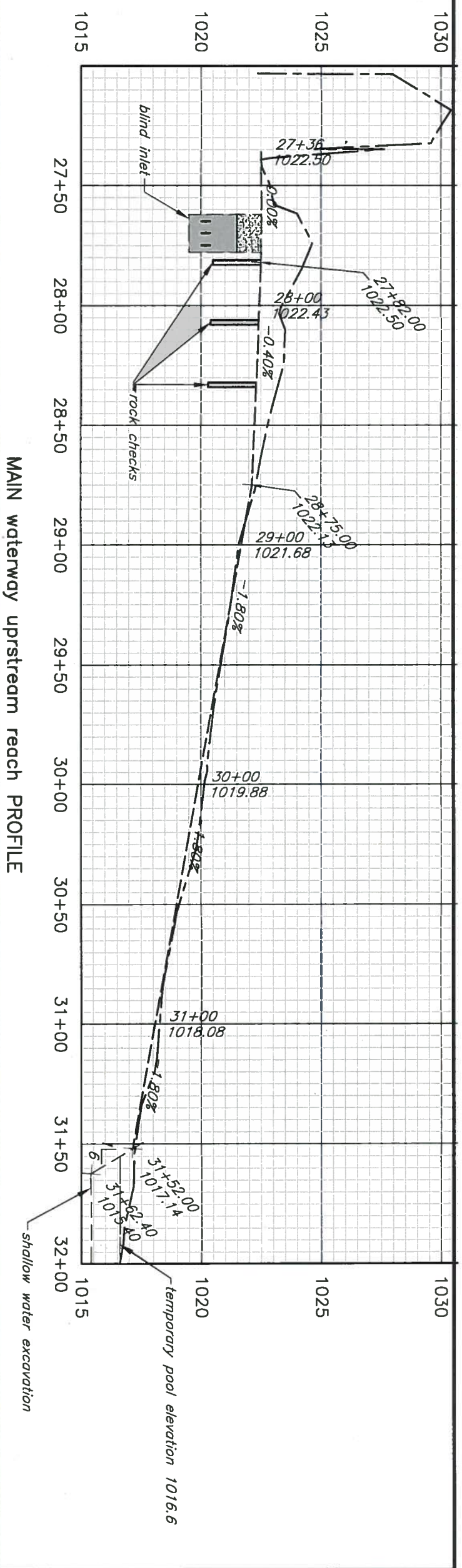
Location: Sec 28, T 88 N, R 17 W
Grundy County, Iowa

Designed Jeff A. Lutz 1/2024 (Date)
Drawn Jeff A. Lutz 1/2024
Checked GS 4/24
Approved

File Name
Drawing Name
Sheet 13 of 27



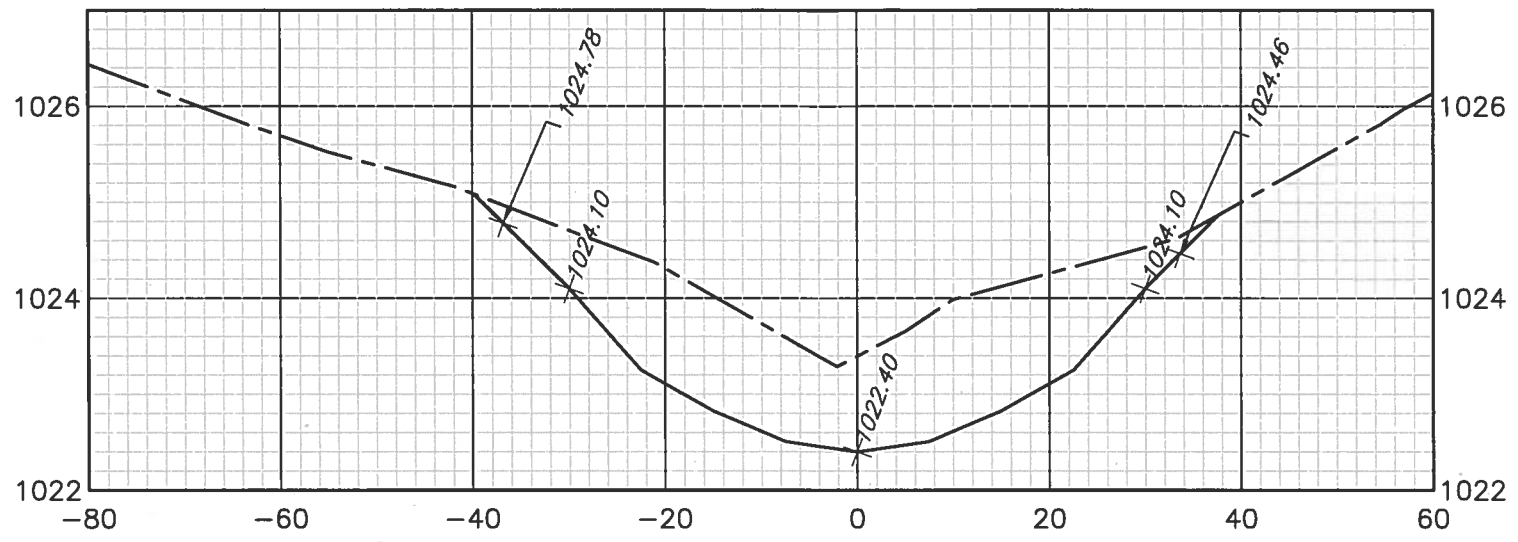
MAIN waterway uprstream reach PROFILE



Sheet 14 of 27	File No. Fred Abels t7164 CRP CP39 wetland Drawing No.	USDA United States Department of Agriculture Natural Resources Conservation Service	Fred Abels t7164 Wetland for Day–lighted Tile Outlet Treatment PROFILE GRASSED WATERWAY SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

		Date
Designed	Jeff A. Lutz	1/2024
Drawn	Jeff A. Lutz	1/2024
Checked	GS	4/24
Approved		

28+07



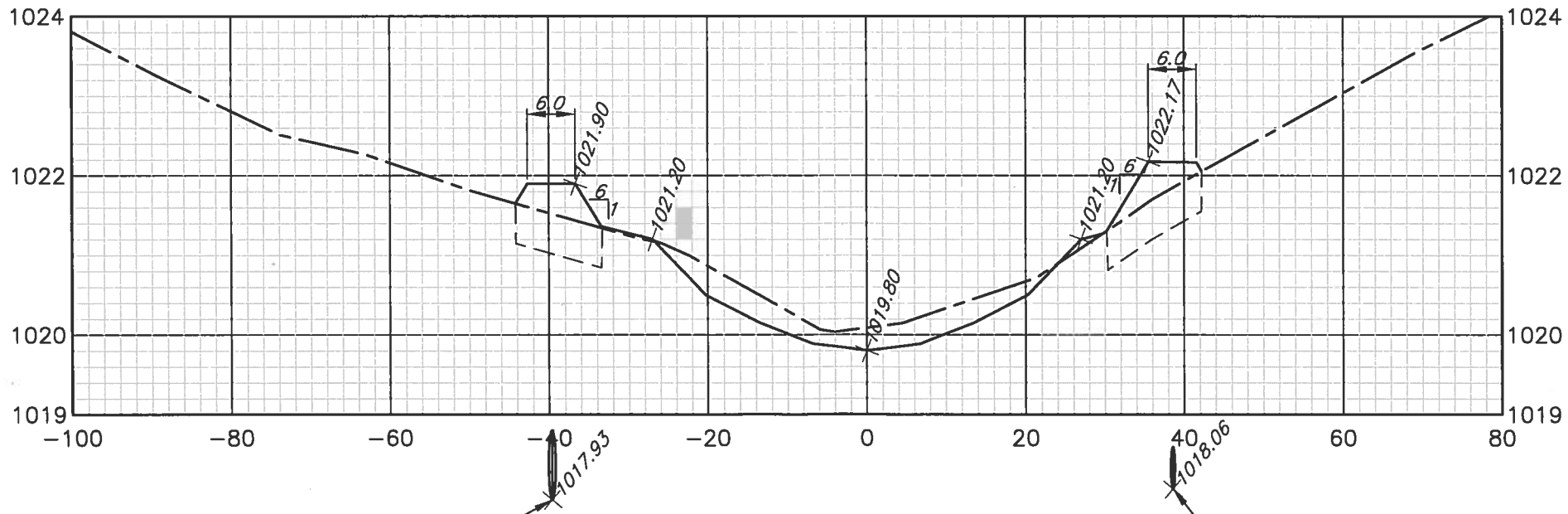
flowline North MAIN interception tile line 10" corrugated HDPE plastic tubing, non−perforated

1018.92

1019.05

flowline South MAIN interception tile line 6" corrugated HDPE plastic tubing, non−perforated

30+04.33



flowline North MAIN interception tile line 10" corrugated HDPE plastic tubing, non−perforated

flowline South MAIN interception tile line 6" corrugated HDPE plastic tubing, non−perforated

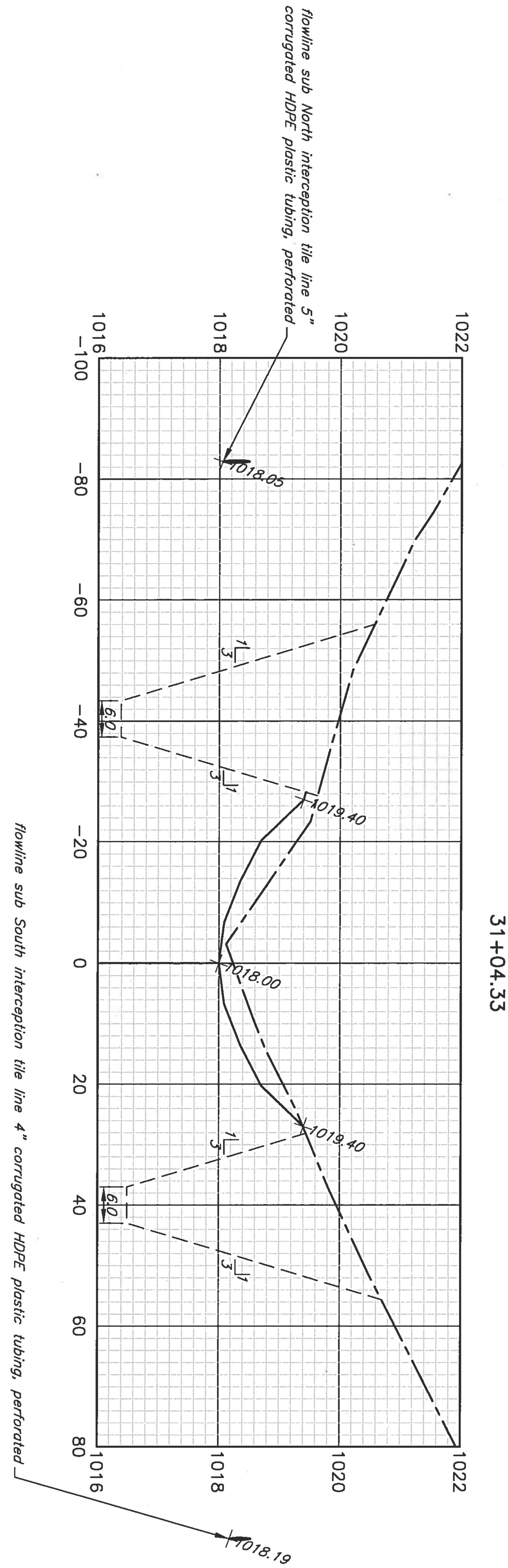
Fred Abels t7164
Wetland for Day−lighted Tile Outlet Treatment
CROSS SECTIONS GRASSED WATERWAY
SW¼ sec. 28 T.88N.−R.17W. Colfax twp. Grundy County, IA

Designed Jeff A. Lutz Date 1/2024
Drawn Jeff A. Lutz 1/2024
Checked GS 4124.
Approved

United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CP39 wetland GRUND.dwg

Sheet 15 of 27



Sheet 16 of 27	File No. Fred Abels t7164 CRP CP39 wetland	USDA United States Department of Agriculture Natural Resources Conservation Service	Fred Abels t7164 Wetland for Day-lighted Tile Outlet Treatment CROSS SECTIONS GRASSED WATERWAY SW¼ sec. 28 T.88N.-R.17W. Colfax twp. Grundy County, IA

		Date
Designed	Jeff A. Lutz	1/2024
Drawn	Jeff A. Lutz	1/2024
Checked	[illegible]	4/24
Approved		

DESIGN DATA

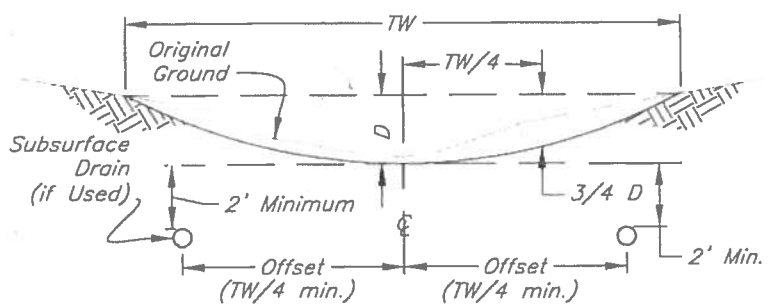
WW ID	Centerline Data		Cut or Fill at ℄ from None		Reach Length	Grade	Design Top Width (TW)	Design Depth (D)	¼ Top Width (TW/4)	¾ Depth (¾D)	Subsurface Drain Installation	
	Station	Design Elev.	C/F	feet	feet	%	feet	feet	feet	feet	No. Used (0,1,2)	Offset from w/w ℄ feet
MAIN	31+52	1,017.1			277	1.8	54	1.4	13.5	1.1	2	30
MAIN	28+75	1,022.1			93	0.4	60	1.7	15.0	1.3	2	30
MAIN	27+82	1,022.5										

ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT
Earthfill (if calculated)	N/A	cu. yd.
Excavation (if calculated)	N/A	cu. yd.
Clearing (if applicable)	N/A	ac.
Waterway Length	370	ft.
Waterway Area	0.5	ac.
Seeding Area		ac.
Other:		
Other:		

Notes:

1. All work shall comply with Construction Specification IA-412.
2. See Sheet N/A of N/A for the Plan View.
3. See Sheet(s) N/A of N/A for the Profile(s).
4. See Sheet N/A of N/A for the Fabric or Rock Check details.
5. See Sheet(s) N/A of N/A for the Subsurface Drain details.



TYPICAL PARABOLIC CROSS SECTION

BENCH MARK

ID	Elev.	Description
TBM 2	1,027.86	Top of steel rerod with yellow 'NRCS survey' cap located 53' north of Station 27+50 along R.O.W. edge

STANDARD DWG. IA-1510

DATE April 2015 | PAGE 1 OF 1

USDA United States Department of Agriculture

Natural Resources Conservation Service

PARABOLIC GRASSED WATERWAY

Owner: Fred Abels t7164

Location: Sec. 28, T 88 N R 17 W

Colfax Township

Grundy County, Iowa

		Date
Designed	Jeff A. Lutz	1/24
Drawn	JAL	1/24
Checked	[illegible]	4/24
Approved		

File Name

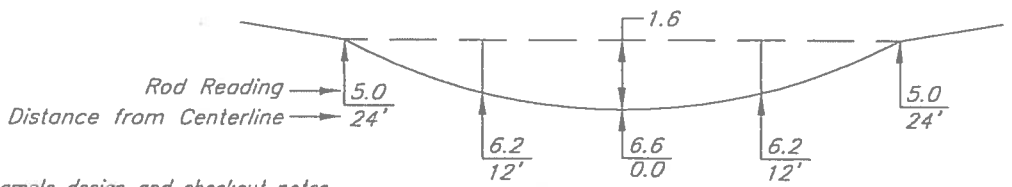
Drawing Name

Sheet 17 of

PARABOLIC WATERWAY CHECKOUT SHEET

Complete as-built survey data to provide a record of the construction checkout. If desired, record design data from waterway design or cut sheets. Record shape of waterway with ground shots using laser or optical level. Record grade rod from designated Hub. Left (-) and right correspond to left and right looking in the direction of increasing stationing. Upstream designated by u.s., and downstream is d.s. Waterway depth is determined from the low side of the waterway. Depth halfway to center must have ¾ depth. Record additional ground shot and distance from centerline 5-10 feet beyond design top width.

Example Design: Top Width: 48 ft., Depth: 1.6 ft., Grade: 1.0%



Example design and checkout notes

Design data from Plan	WW ID	Sta.	℄ Elev.	TW	Depth	Grade (%)	Hub ID	Hub Elev.	Cut/Fill from Hub at ℄	
	Ex.	3+00	101.0	48	1.6	1.0	3+00	102.82	1.8'	
As-Built Survey Data	Hub Rod Reading		4.8	Measured Top Width				49		
	Rod Reading	4.8	5.0	6.2	6.6	6.2	5.0	4.5		
	Distance	-34	-24	-12	℄	12	24	34		
	As-built Depth		0.0	1.2	1.6	1.2	0.0			
	℄ Rod Reading 50' u.s.		6.1	℄ Rod Reading 50' d.s.				'1		

Notes:

Grade 7.1-6.1 = 1%

Construction OK? (Y) N

Design data from n	WW ID	Sta.	℄ Elev.	TW	Depth	Grade (%)	Hub ID	Hub Elev.	Cut/Fill from Hub at ℄	
	MAIN	28+00	1027.4	60'	1.7'	0.40	TBM 2	1027.86	Cut - 5.4'	
As-Built Survey Data	Hub Rod Reading			Measured Top Width						
	Rod Reading									
	Distance	-50'	-30'	-15'	℄	15'	30'	40'		
	As-built Depth									
	Rod Reading 50' u.s.			℄ Rod Reading 50' d.s.						

Notes:

Construction OK? Y N

Design data from Plan	WW ID	Sta.	℄ Elev.	TW	Depth	Grade (%)	Hub ID	Hub Elev.	Cut/Fill from Hub at ℄	
	MAIN	31+00	1018.08	54'	1.4'	1.80	TBM 2	1027.86	Cut - 9.8'	
As-Built Survey Data	Hub Rod Reading			Measured Top Width						
	Rod Reading									
	Distance	-47'	-27	-13.5'	℄	13.5'	27	47'		
	As-built Depth									
	℄ Rod Reading 50' u.s.			℄ Rod Reading 50' d.s.						

Notes:

Grade =

Construction OK? Y N

Minimum check out requirements:

1. Survey at least one cross-section for each design reach.
2. Surveyed cross sections shall be no more than 400 feet apart.

STANDARD CHECKOUT SHEET IA-1510C

DATE April 2015 | PAGE 1 OF 1

USDA United States Department of Agriculture

Natural Resources Conservation Service

PARABOLIC GRASSED WATERWAY CHECK OUT

Owner: Fred Abels t7164

Location: Sec. 28, T 88 N R 17 W

Colfax Township

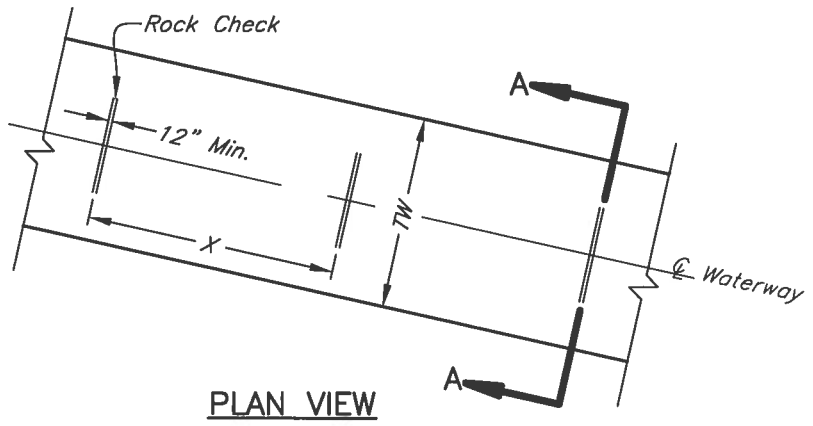
Grundy County, Iowa

	Date
Surveyed	
Checked	

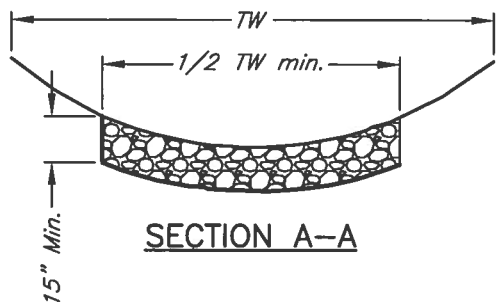
File Name NA

Drawing Name NA

Sheet 17 of 27



PLAN VIEW



SECTION A–A

Notes:

1. *Excavate trench a minimum 12 inches wide (thickness), not to exceed 18 inches.*
2. *Rock shall be graded according to the table shown.*
3. *Compact rock backfill by rolling with construction equipment.*
4. *Finished rock surface will be flush with the ground surface.*

ROCK GRADATION: D50=3"–4"	
Size	% Passing By Weight
50 lb.	*100*
10 lb.	*30–70*
1 lb.	*0–16*

[½TW min. _____ft X THICKNESS_____in/12 X TRENCH DEPTH _____in/12] / [27 cu ft/cu yd] X 1.6 tons/cu yd = _____ tons per rock check

Rock Check Data								
Waterway Number	Start Station	End Station	Check Spacing (X)	No. of Checks	Check Width (Section A–A)	Thickness (in)	Depth (in)	Total (Ton)
MAIN	*27+81*	*28+33*	*26'*	*3*	*46'*	*24"*	*24"*	*10.9*
							Totals:	*10.9*

Waterway Grade	*Maximum Spacing between Checks*
0 to 1.5 percent	*100 Feet*
1.5 to 3.0 percent	*75 Feet*
Greater than 3 percent	*50 Feet*

IOWA STANDARD DWG. NO. 1509

DATE Sept. 2009 | Page 1 OF 1

USDA United States Department of Agriculture

Natural Resources Conservation Service

PARABOLIC ROCK CHECK DETAIL

Owner: Fred Abels t7164

Location: Sec. 28, T 88 N, R 17 W

Colfax Township

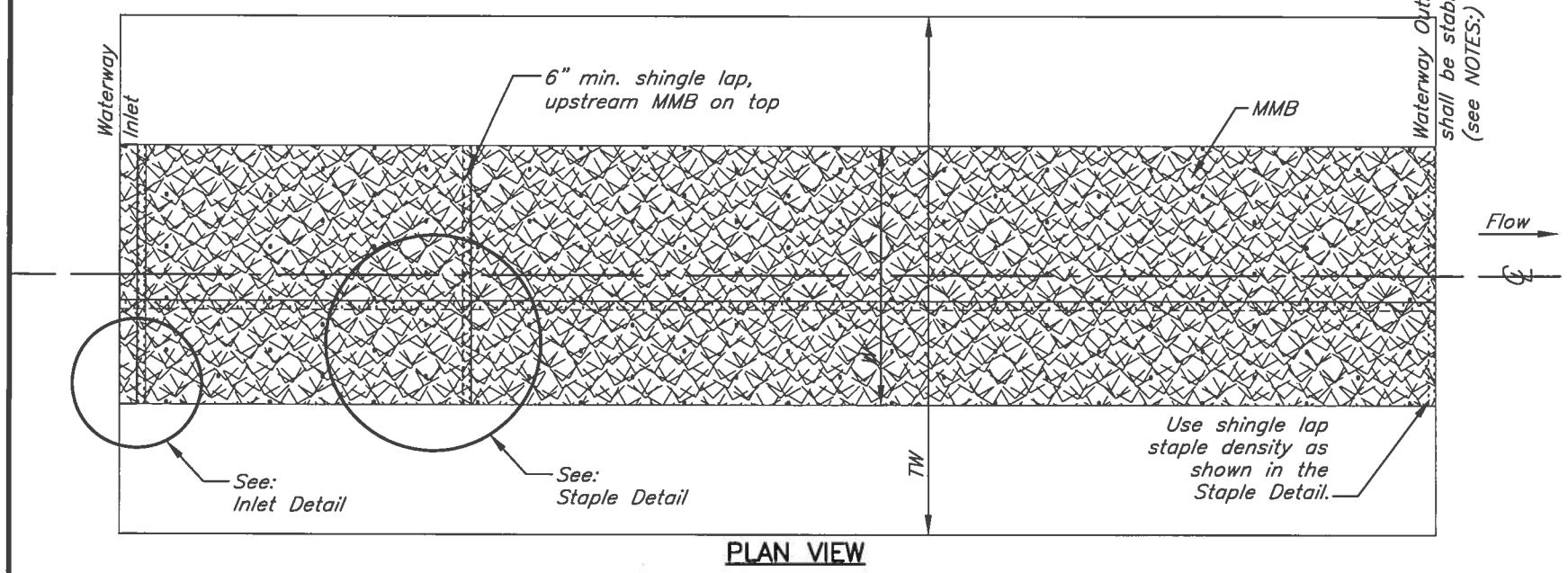
Grundy County, Iowa

		Date
Designed	*Jeff A. Lutz*	*1/24*
Drawn	*Jeff A. Lutz*	*1/24*
Checked	*[illegible]*	*4/24*
Approved		

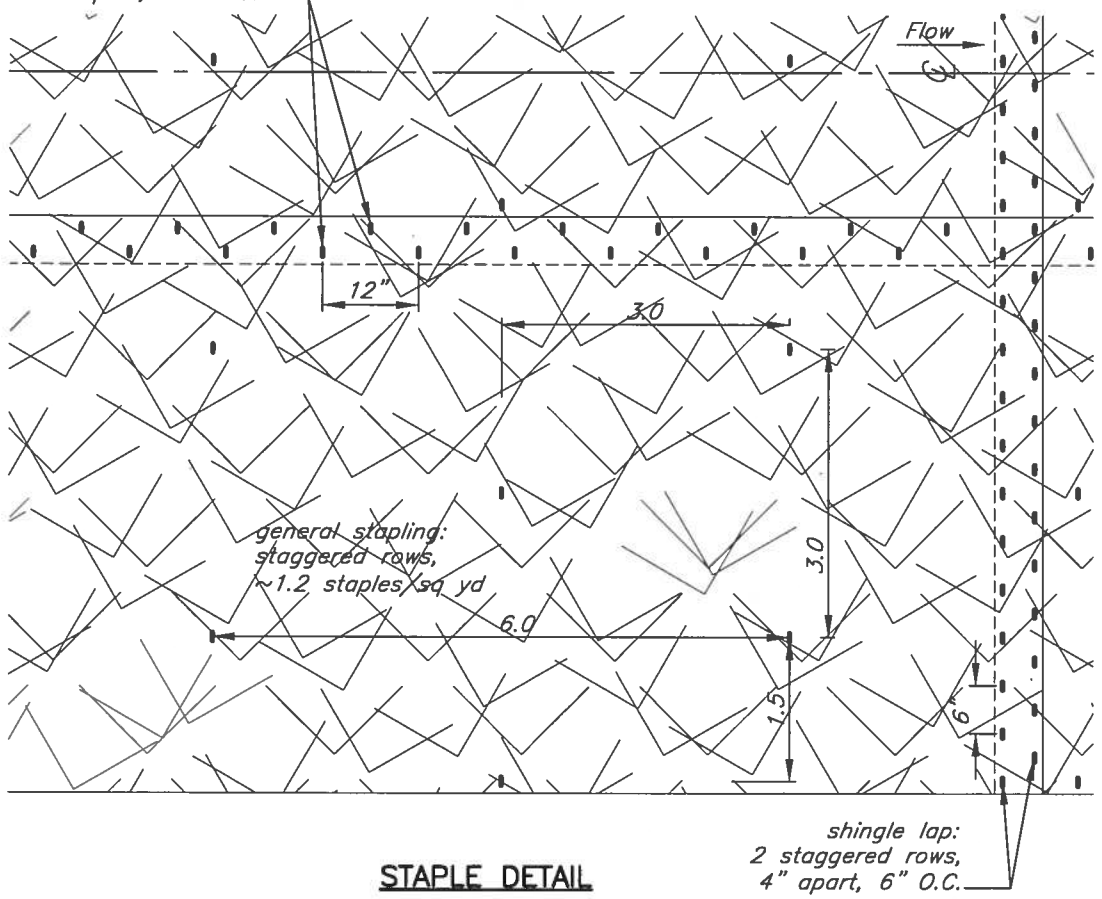
File Name

Drawing Name

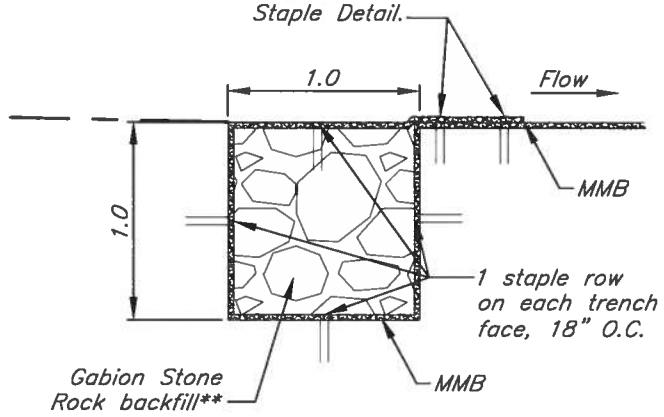
Sheet *18* of *27*



PLAN VIEW

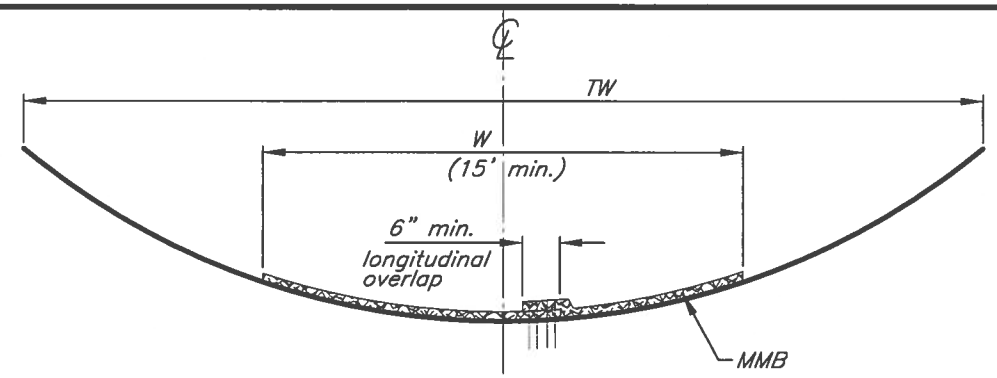


STAPLE DETAIL



** See Note 9 for earthfill option

INLET DETAIL



TYPICAL SECTION

NOTES:

1. Products available for manufactured mulch blanket applications are commercially referred to as: ECB – Erosion Control Blanket or RECP – Rolled Erosion Control Product
2. This Standard Drawing complies with NRCS Conservation Practice Standard, 484 Mulching. It shall not be used with NRCS Conservation Practice Standard, 468 Lined Waterway or Outlet.
3. The manufactured mulch blanket (MMB) shall be double netted (top and bottom) with a mulch medium between the nets comprised of one of the following:

   Straw Coconut Fiber Straw/Coconut Fiber Wood Excelsior other:
4. Minimum dry weight per surface area requirements (ASTM D6475) shall be 0.5 lb/sq yd or meet criteria of FHWA FP-03, Rolled Erosion Control Product Type 2.D, short-term double-net erosion control blankets.
5. All constructed finished grades, seedbed preparation, fertilizing, and seeding shall be approved by NRCS before installation of the MMB.
6. MMB shall be laid parallel to the direction of flow. Spread evenly without stretching to allow maximum contact with the soil.
7. U-Staples or Round Top-Single Stem-Wire Staples may be used as directed by the Engineer. U-Staples are to have a 1" crown and be 11 gauge or heavier wire (see Required Staple Length table below for lengths related to soil conditions). Round Top Staples may only be available in 6 inch lengths and not suitable for all soil conditions. Indicate staple to be used:

   U-Staple Round Top-Single Stem Staple
8. Staples shall be inset 1" min. from all blanket edges.
9. Rock backfill shall meet the quality and gradation found in Iowa DOT Standard Specification Section 4130, GABION STONE.

   Compacted earthfill may be used as directed by the Engineer. Earthfill shall be compacted in lifts no greater than 4 inches to a density equivalent to that of the surrounding native soil. Care should be taken to not tear the MMB. Add 1 additional staple row to the top face of the trench backfill, 18" O.C.
10. Lateral waterways with MMB shall be shingle lapped over the Main waterway MMB. Lateral waterways without MMB shall use a shingle lap staple density on the Main waterway MMB edge for a distance equal to the width of the Lateral waterway entering the Main waterway.
11. The Waterway Outlet staple pattern is only allowed for stable outlet conditions (i.e. Lateral into a Main). A waterway requiring a grade stabilization structure shall have the MMB outlet termination anchoring incorporated into the inlet portion of the grade stabilization structure.

Manufactured Mulch Blanket Data

Waterway Number	Start Station	End Station	Staple Length: L (in)	MMB Width: W (ft)	MMB Length (ft)	MMB Plan Area (sq yd)	Staple Quantity (no.)	Rock Quantity (ton)
MAIN	27+95	31+50	6	32	355	1298	3500	0
					TOTALS:	1298	3500	0

NOT TO SCALE

STANDARD DWG. IA-1520

DATE: March 2019 | SHEET 1 OF 1

Required Staple Length

Soil Condition	L (in)
Highly compacted soils	6
Friable soils	8
Loose or Sandy soils	10

Date 1/2024

Designed Jeff A. Lutz 1/2024

Drawn Jeff A. Lutz 1/2024

Checked GS 1/24

Approved

Manufactured Mulch Blanket (MMB) for Parabolic Grassed Waterways

Fred Abels t1764 SW¼ sec. 28 T.88N.-R.17W. Colfax twp. Grundy County, Iowa

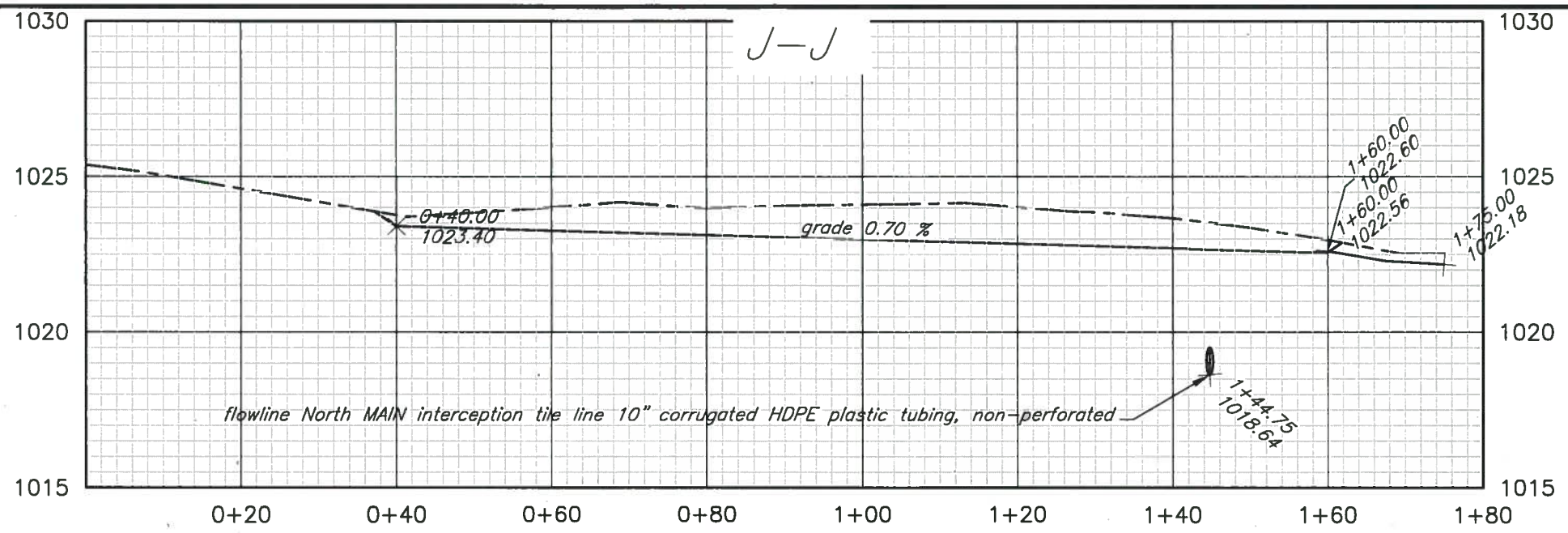
United States Department of Agriculture

USDA Natural Resources Conservation Service

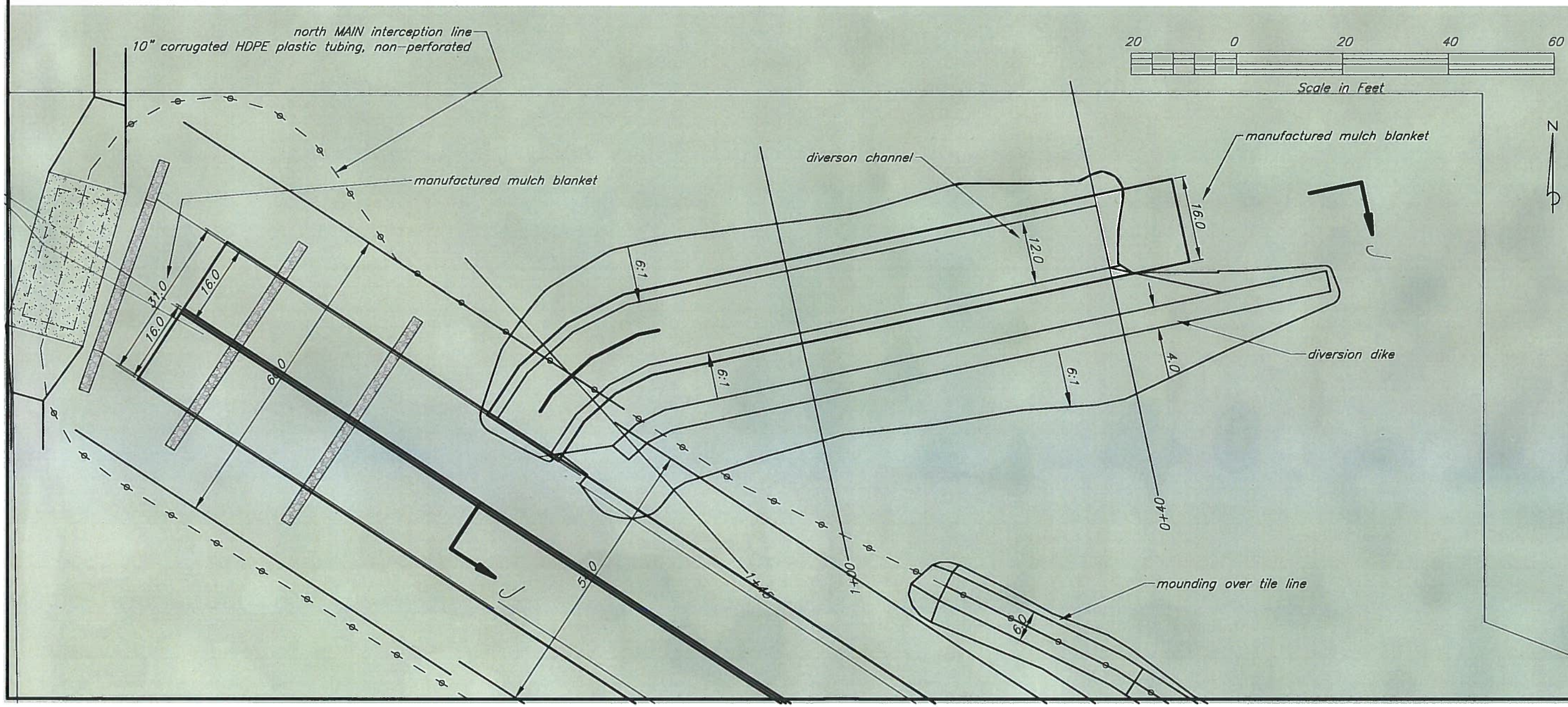
File No.

Drawing No.

Sheet 19 of 27



CL diversion channel PROFILE



Date
Designed Jeff A. Lutz 1/2024
Drawn Jeff A. Lutz 1/2024
Checked
Approved

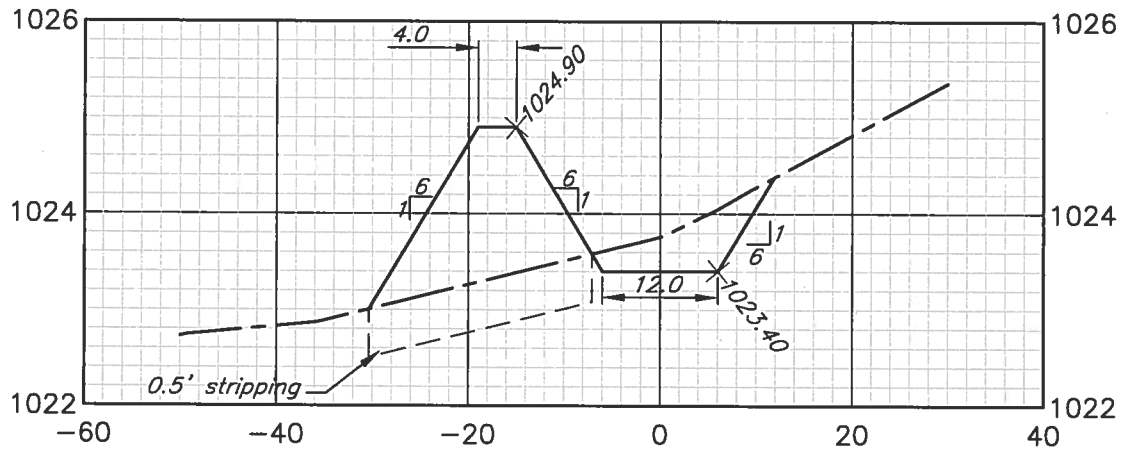
Fred Abels t7164
Wetland for Day-lighted Tile Outlet Treatment
PROFILE DIVERSION CHANNEL & RIDGE
SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CP39 wetland
Drawing No.

Sheet 20 of 27

0+40



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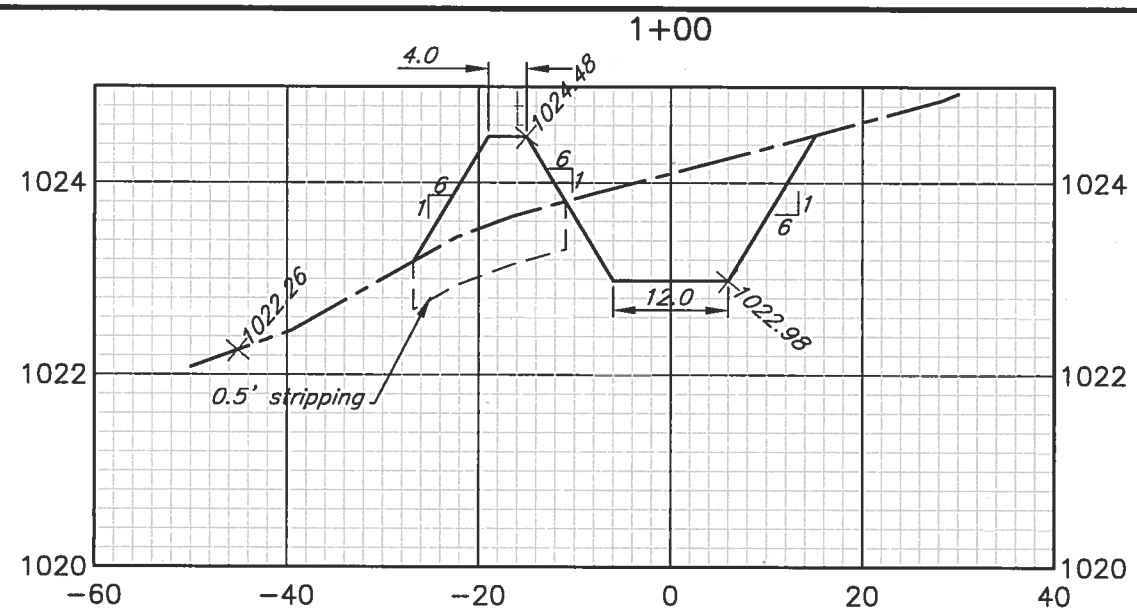
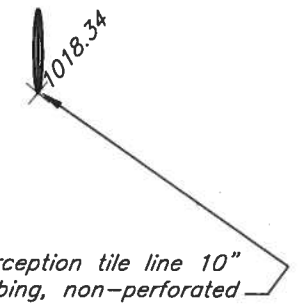
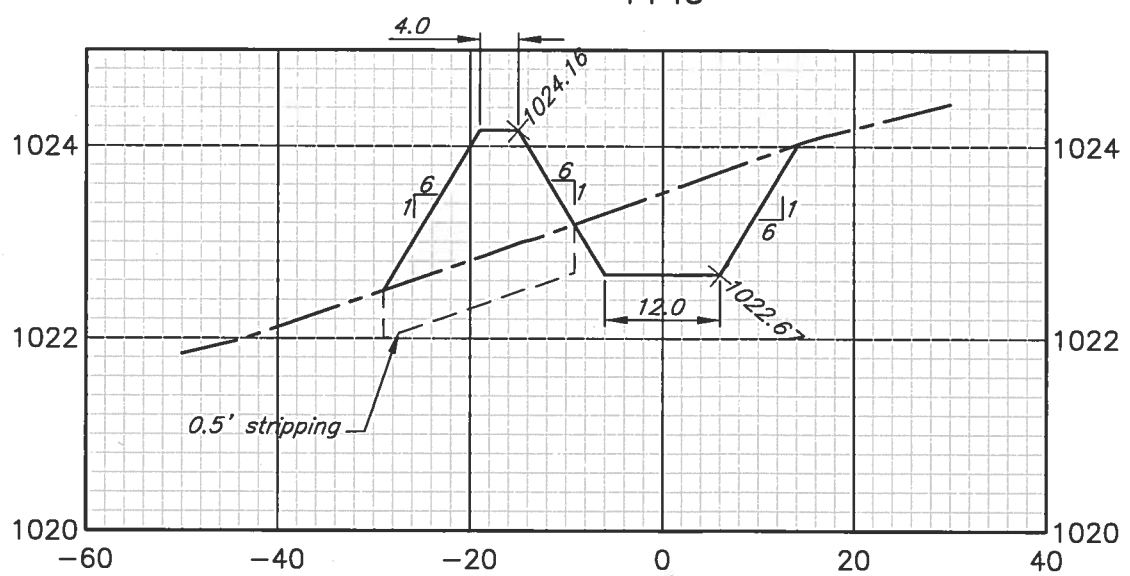
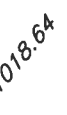




flowline North MAIN interception tile line 10" corrugated HDPE plastic tubing, non−perforated

1+45





flowline North MAIN interception tile line 10" corrugated HDPE plastic tubing, non−perforated

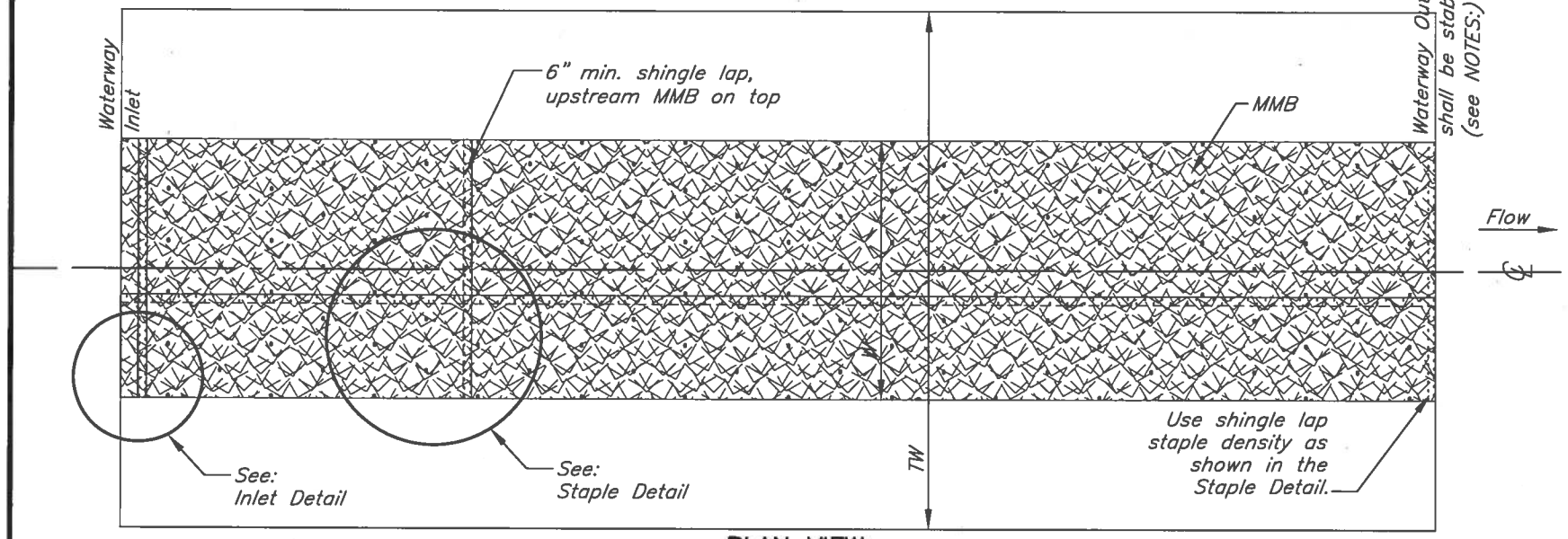
Date
Designed Jeff A. Lutz 1/2024
Drawn Jeff A. Lutz 1/2024
Checked 4124
Approved

Fred Abels t7164
Wetland for Day−lighted Tile Outlet Treatment
CROSS SECTIONS DIVERSION CHANNEL & RIDGE
SW¼ sec. 28 T.88N.−R.17W. Colfax twp. Grundy County, IA

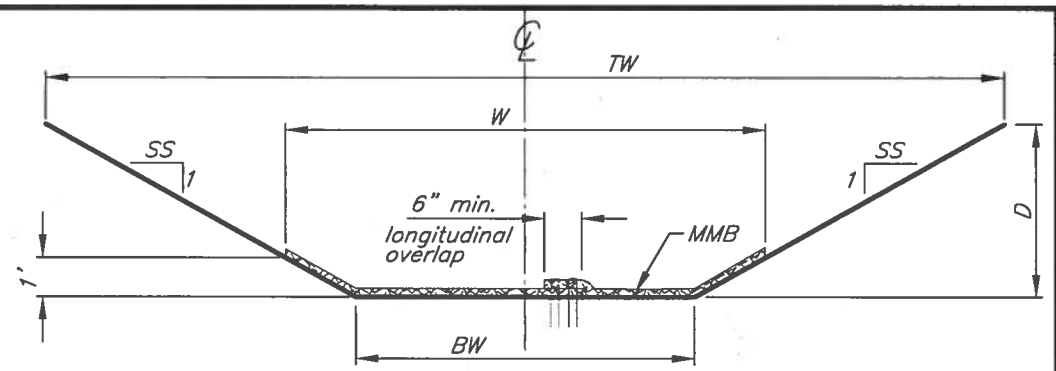
United States Department of Agriculture
Natural Resources Conservation Service

File No.
Fred Abels t7164 CRP CP39 wetland grading.dwg
Drawing No.

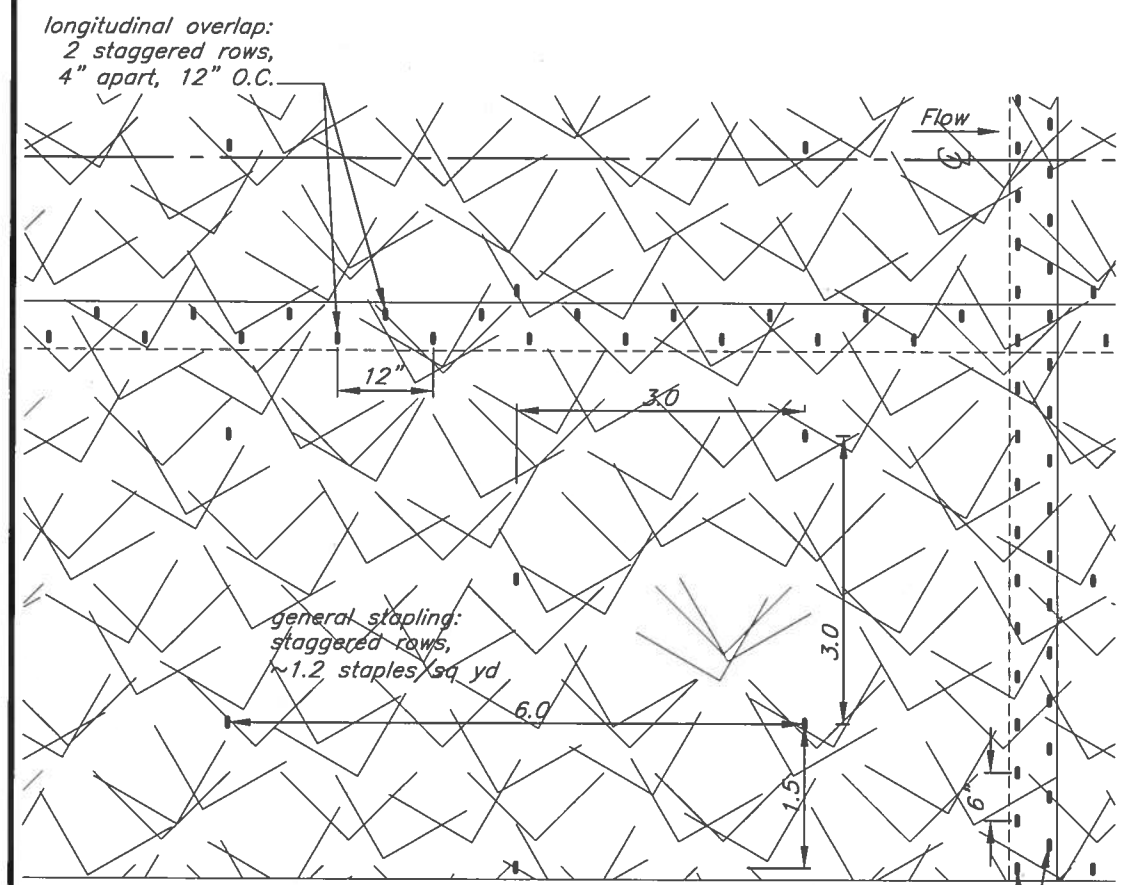
Sheet 21 of 27



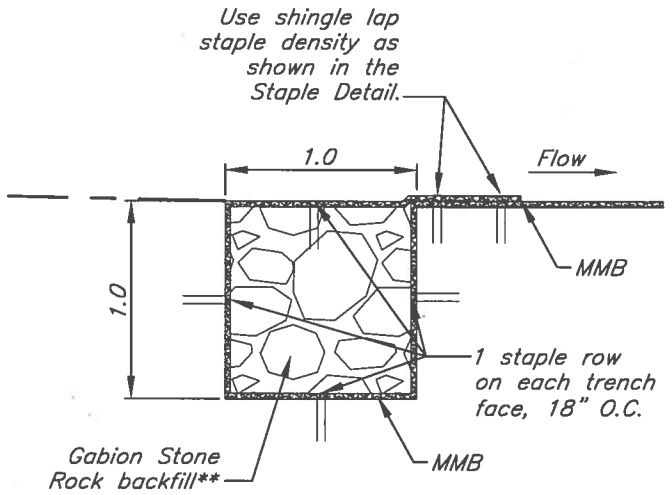
PLAN VIEW



TYPICAL SECTION



STAPLE DETAIL



** See Note 9 for earthfill option

INLET DETAIL

NOTES:

1. Products available for manufactured mulch blanket applications are commercially referred to as: ECB – Erosion Control Blanket or RECP – Rolled Erosion Control Product
2. This Standard Drawing complies with NRCS Conservation Practice Standard, 484 Mulching. It shall not be used with NRCS Conservation Practice Standard, 468 Lined Waterway or Outlet.
3. The manufactured mulch blanket (MMB) shall be double netted (top and bottom) with a mulch medium between the nets comprised of one of the following:

   Straw Coconut Fiber Straw/Coconut Fiber Wood Excelsior other:
4. Minimum dry weight per surface area requirements (ASTM D6475) shall be 0.5 lb/sq yd or meet criteria of FHWA FP-03, Rolled Erosion Control Product Type 2.D, short-term double-net erosion control blankets.
5. All constructed finished grades, seedbed preparation, fertilizing, and seeding shall be approved by NRCS before installation of the MMB.
6. MMB shall be laid parallel to the direction of flow. Spread evenly without stretching to allow maximum contact with the soil.
7. U-Staples or Round Top-Single Stem-Wire Staples may be used as directed by the Engineer. U-Staples are to have a 1" crown and be 11 gauge or heavier wire (see Required Staple Length table below for lengths related to soil conditions). Round Top Staples may only be available in 6 inch lengths and not suitable for all soil conditions. Indicate staple to be used:

   U-Staple Round Top-Single Stem Staple
8. Staples shall be inset 1" min. from all blanket edges.
9. Rock backfill shall meet the quality and gradation found in Iowa DOT Standard Specification Section 4130, GABION STONE.

   Compacted earthfill may be used as directed by the Engineer. Earthfill shall be compacted in lifts no greater than 4 inches to a density equivalent to that of the surrounding native soil. Care should be taken to not tear the MMB. Add 1 additional staple row to the top face of the trench backfill, 18" O.C.
10. Lateral waterways with MMB shall be shingle lapped over the Main waterway MMB. Lateral waterways without MMB shall use a shingle lap staple density on the Main waterway MMB edge for a distance equal to the width of the Lateral waterway entering the Main waterway.
11. The Waterway Outlet staple pattern is only allowed for stable outlet conditions (i.e. Lateral into a Main). A waterway requiring a grade stabilization structure shall have the MMB outlet termination anchoring incorporated into the inlet portion of the grade stabilization structure.

Manufactured Mulch Blanket Data

Waterway Number	Start Station	End Station	Staple Length: L (in)	MMB Width: W (ft)	MMB Length (ft)	MMB Plan Area (sq yd)	Staple Quantity (no.)	Rock Quantity (ton)
diversion	0+25	1+60	6	16'	135'	240	700	0
					TOTALS:	240	700	0

Required Staple Length

Soil Condition	L (in)
Highly compacted soils	6
Friable soils	8
Loose or Sandy soils	10

NOT TO SCALE

STANDARD DWG. IA-1521

DATE: June 2019 | SHEET 1 OF 1

	Date
Designed Jeff A. Lutz	1/2024
Drawn Jeff A. Lutz	1/2024
Checked JS	4/24
Approved	

Manufactured Mulch Blanket (MMB) for Trapezoidal Grassed Waterways

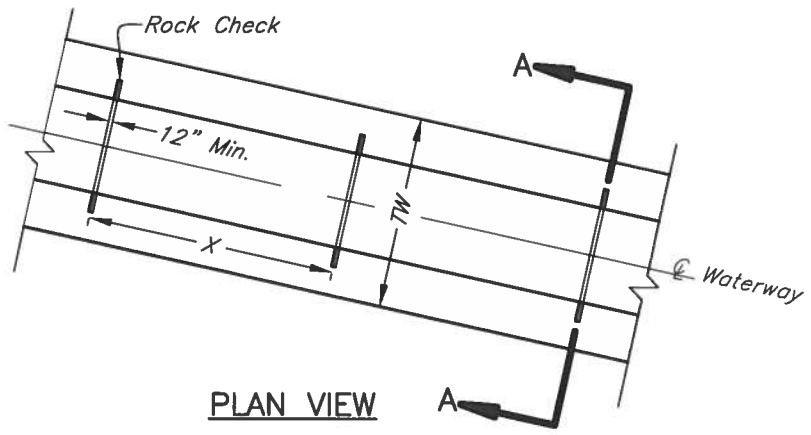
Fred Abels 17164 SW¼ sec. 28 T.88N.-R.17W. Colfax twp. Grundy County, Iowa

United States Department of Agriculture

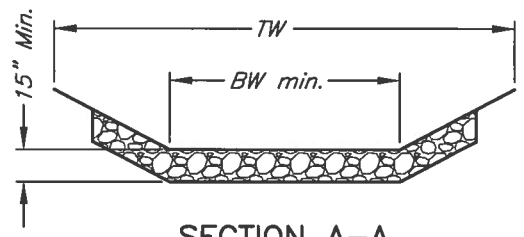
Natural Resources Conservation Service

File No.

Drawing No.



PLAN VIEW



SECTION A–A

Notes:

1. *Excavate trench a minimum 12 inches wide (thickness), not to exceed 18 inches.*
2. *Rock shall be graded according to the table shown.*
3. *Compact rock backfill by rolling with construction equipment.*
4. *Finished rock surface will be flush with the ground surface.*

ROCK GRADATION: D50=3"–4"	
Size	% Passing By Weight
50 lb.	*100*
10 lb.	*30–70*
1 lb.	*0–16*

[BW _____ft X THICKNESS_____in/12 X TRENCH DEPTH _____in/12] / [27 cu ft/cu yd] X 1.6 tons/cu yd = _____ tons per rock check

Rock Check Data								
Waterway Number	Start Station	End Station	Check Spacing (X)	No. of Checks	Check Width (Section A–A)	Thickness (in)	Depth (in)	Total (Ton)
outlet channel	*35+90*	*36+20*	*30'*	*2*	*20'*	*24"*	*18"*	*7.1*
							Totals:	*7.1*

Waterway Grade	*Maximum Spacing between Checks*
0 to 1.5 percent	*100 Feet*
1.5 to 3.0 percent	*75 Feet*
Greater than 3 percent	*50 Feet*

IOWA STANDARD DWG. NO. 1507

DATE Sept. 2009 | PAGE 1 OF 1

USDA United States Department of Agriculture

Natural Resources Conservation Service

TRAPEZOIDAL ROCK CHECK DETAIL

Owner: Fred Abels t7164

Location: Sec. 28, T 88 N, R 17 W

Colfax Township

Grundy County, Iowa

Designed *Jeff A. Lutz* Date *1/24*

Drawn *Jeff A. Lutz* *1/24*

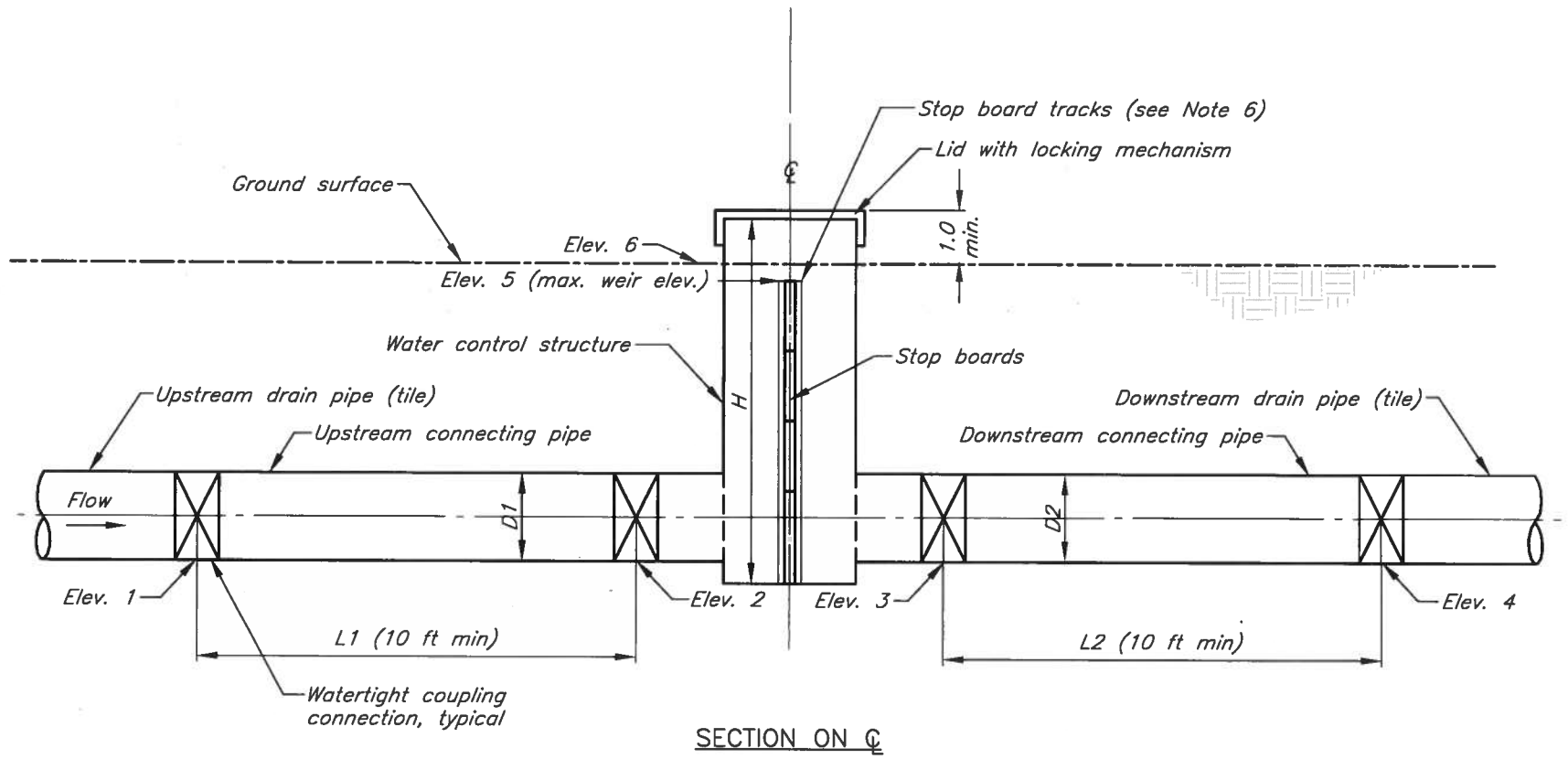
Checked *[illegible]* *4/24*

Approved _____

File Name

Drawing Name

Sheet *23* of *27*



SECTION ON ℄

NOTES:

1. Water Control Structure (WCS) materials and installation shall be in conformance with Iowa NRCS Construction Specification (CS) IA–45, Plastic (PVC, PE) Pipe.
2. Connecting pipe materials and installation shall be in conformance with CS IA–45; IA–46, Tile Drains For Land Drainage; IA–51, Corrugated Metal Pipe Conduits; or IA–52, Steel Pipe Conduits.
3. WCS shall be fabricated of PVC with integral upstream and downstream water–tight coupling connections, corrosion–resistant stop boards, aluminum extrusions and stainless steel fasteners and appurtenances. Acceptable models include Agri Drain, Nyloplast, or approved equal.
4. WCS shall provide flow capacity equal to or greater than that of adjacent pipe under expected flow conditions.
5. Stop boards shall provide a water–tight seal under 4 ft of pressure head (min.).
6. In situations where water levels higher than maximum design elevation would impact neighboring properties or other aspects of the site design, consider a custom–order box which limits extent of stop board tracks to the maximum design weir elevation.
7. Stop board removal tool shall be provided.
8. As an alternative to a stop board straight weir structure, a circular inner standpipe may be provided which meets the design flow requirements, with approval of the engineer (Nyloplast Standpipe WCS or equal). Maximum weir elevation shall be set at Elev. 5.
9. All connections shall be water–tight.
10. Structure lid shall be provided with locking mechanism.
11. Backfill around the WCS shall meet the requirements of CS IA–45. Normal stop board operation shall be verified following backfill.
12. Mark location of each structure using post or manufactured marker flag for safety in the field.

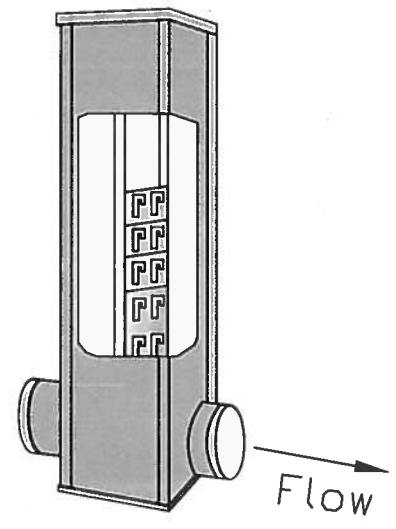
Structure Materials and Dimensions

Water Control Structure				Connecting Pipe (Non–perforated)						U/S Drain Pipe		D/S Drain Pipe	
ID	H (ft)	Width/Dia (in)	Design Flow (cfs)	L1 (ft)	U/S Connecting Pipe Material	D1 (in)	L2 (ft)	D/S Connecting Pipe Material	D2 (in)	Dia. (in)	Material	Dia. (in)	Material
1	6'	11 5/8"x12"	1.2	40'	PVC schedule 40	8"	84	PVC schedule 40	8"	8"	PVC schedule 40	8"	PVC schedule 40

Elevation Table

WCS ID	Elev. 1	Elev. 2	Elev. 3	Elev. 4	Elev. 5	*	Elev. 6
1	1013.2	1013.2	1013.2	1008.16	1016.6	x	1018.2

* Check box if stop board tracks must be limited to Elev. 5



WATER CONTROL STRUCTURE
ISOMETRIC VIEW

NOT TO SCALE

STANDARD DWG. IA–1530

DATE Jan. 2017 | PAGE 1 OF 1

Designed Jeff A. Lutz 1/2024
Drawn Jeff A. Lutz 1/2024
Checked GS 4/24
Approved

INLINE WATER CONTROL STRUCTURE

Fred Abels t7164 wetland for day-lighted tile treatment

Grundy County, Iowa

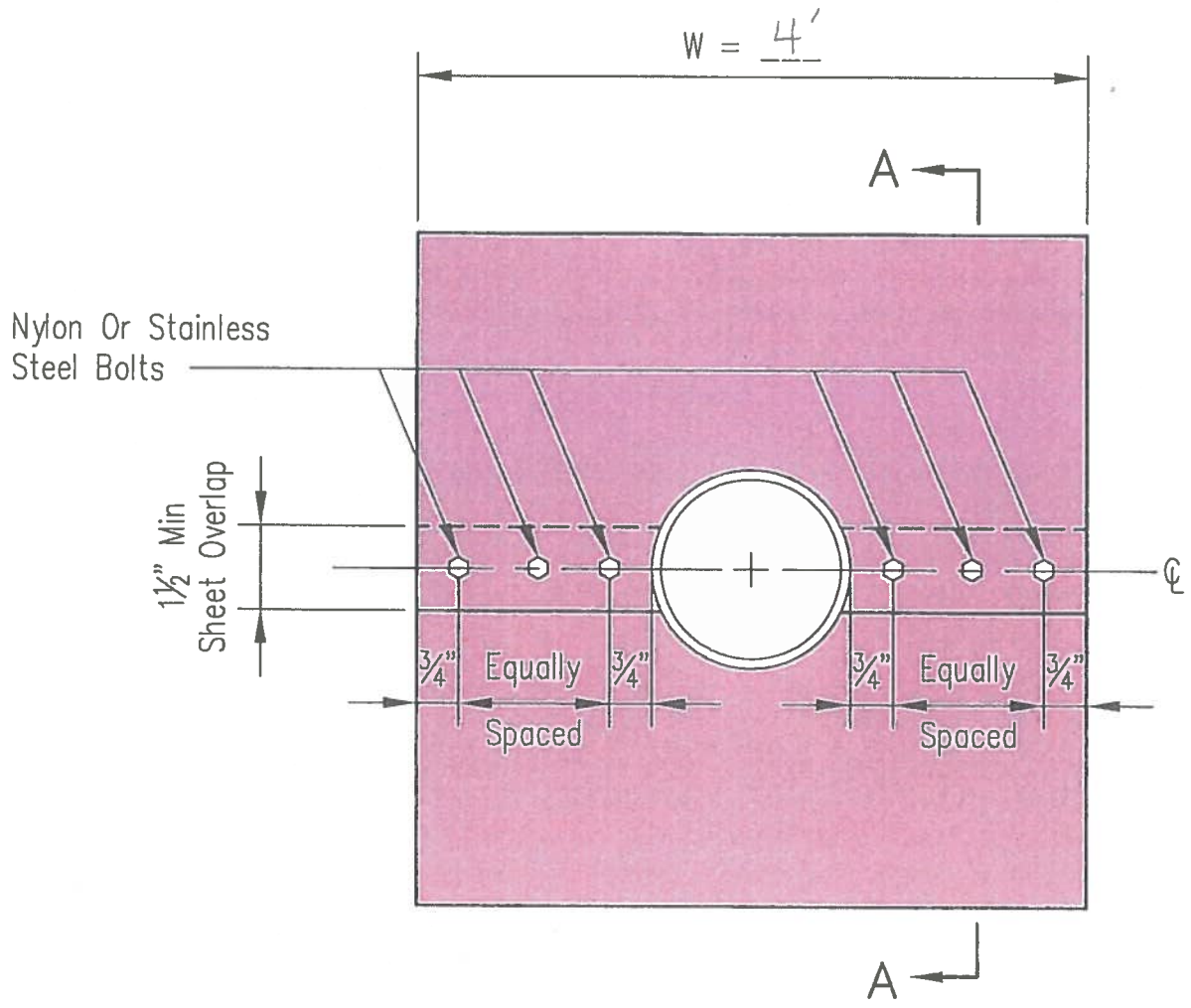
SW¼ sec. 28 T.88N.–R.17W. Colfax twp.

United States Department of Agriculture
Natural Resources Conservation Service

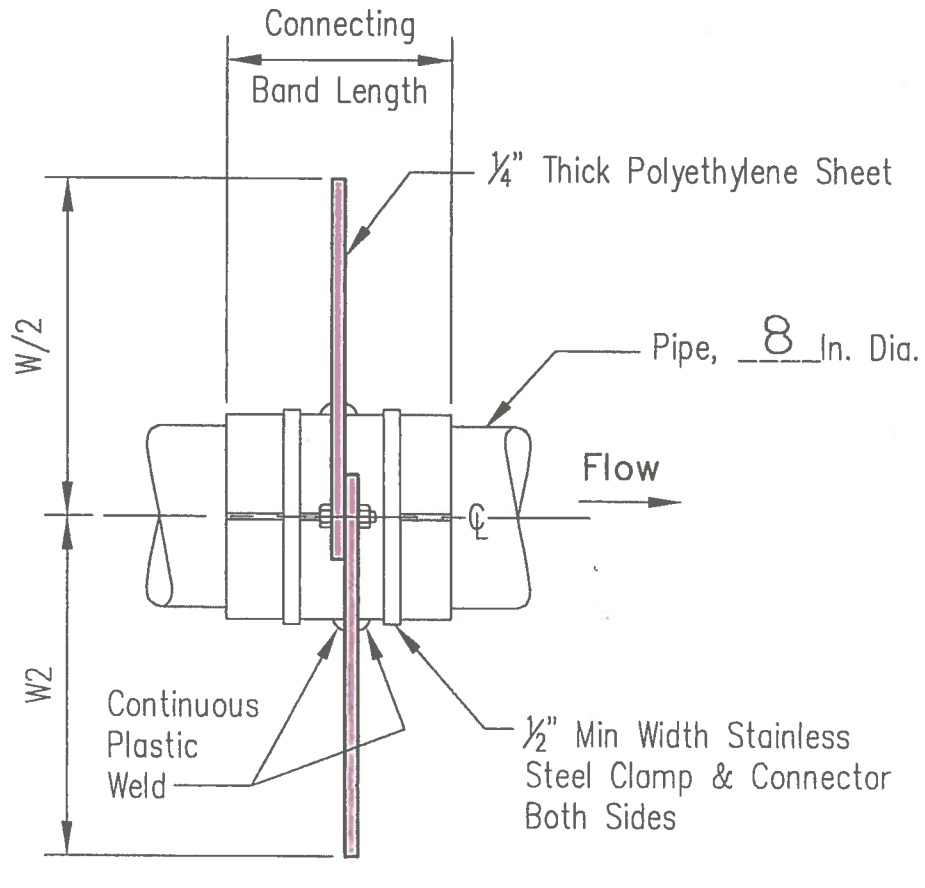
File No. IA1530.dwg

Drawing No. ----

Sheet 24 of 27



ELEVATION



SECTION A–A

NOTES:
1. Pipe, connecting band and seam coating can be either silicon caulk (recommended), or mastic (asphalt or tar based)
2. Apply silicon caulk, tar or mastic to bottom half of connecting band and lay pipe on connecting band. Apply silicon caulk or mastic to top half of collar and set in place, lining up bolt holes.
3. Install clamps on split halves of collar and tighten bolts and clamps.
4. Apply silicon caulk, tar or mastic on seams as needed to insure a good seal so that completed installation is watertight.
5. Backfill and hand tamp soil around completed installation.
6. Polyethylene antiseep collars can be used on corrugated and smooth PVC plastic, smooth steel and galvanized pipes.

TABLE OF QUANTITIES

W FEET	Polyethylene Sheet Sq. Ft.	Stainless Steel Clamp & Connector	Connecting Band Min Length	Bolts & Nuts ⅜"x 1"	No. Of Collars
3	9.5	2	6"	6	——
4	16.7	2	6"	6	1
5	25.8	2	8"	6	——
6	37.0	2	8"	6	——
Totals					

Adapted From Wisconsin
Standard Drawing WI–246

Date
Designed Jeff A. Lutz 1
Drawn M. QUINONES 11/1/13
Checked GS 4/24
Approved

POLYETHYLENE SHEET ANTISEEP COLLAR
FOR 4" TO 24" DIAMETER PIPE
Fred Abels + 7164

NRCS
Natural Resources Conservation Service
United States Department of Agriculture

File No. IL–ENG–215
Drawing No.
Page 1 of 1
Sheet 25 of 27

Materials Lists

Earthwork

Dike earthfill – FILL 1850 cubic yards (see sheets 2, 3, & 5)
submergent Habitat Mound earthfill – FILL 12 cubic yards (see sheet 2 & 3)
mounding over South MAIN Interception Line earthfill – FILL 10 cubic yards (see sheets 7 & 15)
mounding over North MAIN Interception Line earthfill – FILL 14 cubic yards (see sheets 8, 9, & 15)
Diversion ridge earthfill – FILL 67 cubic yards (see sheets 20 & 21)
Dikes extending off Blind Inlet earthfill – FILL 5 cubic yards (see sheet 12)

} TOTAL FILL yardage 1953 cubic yards

Shallow water excavation adjacent to Dike including outlet channel excavation – CUT 935 cubic yards (see sheets 2, 3, & 4)
Shallow water excavation upstream includes channels for day-lighting tile excavation – CUT 1768 cubic yards (see sheets 2, 3, 7 & 8)
Diversion channel excavation – CUT 78 cubic yards (see sheets 20 & 21)
Grassed waterway excavation – CUT 568 cubic yards (see sheets 14, 15, &16)
Blind Inlet excavation – CUT 125 cubic yards (see sheets 12 & 13)

} TOTAL CUT yardage 3474 cubic yards

Stripping 0.5' under foot-print Dike excavation – CUT 322 cubic yards (see sheets 3 & 5)
Stripping 0.5' under foot-print submergent Habitat Mound excavation – CUT 13 cubic yards (see sheet 3)
Stripping 0.5' under foot-print Mounding South MAIN Interception Line excavation – CUT 15 cubic yards (see sheet 7 & 15)
Stripping 0.5' under foot-print Mounding North MAIN Interception Line excavation – CUT 21 cubic yards (see sheet 8, 9, & 15)
Stripping 0.5' under foot-print Diversion ridge excavation – CUT 49 cubic yards (see sheets 12 & 13)
Core trench under dike excavation – CUT 441 cubic yards (see sheets 3, 4 & 5)

} TOTAL CUT yardage 861 cubic yards (there will be compacted fill replaced here)

Seeding & Mulching 3.78 acres (see sheet 27)

Subsurface Drains

284 feet – 10" corrugated HDPE non-perforated plastic tubing (see sheets 8 & 9)
286 feet – 6" corrugated HDPE non-perforated plastic tubing (see sheet 7)
450 feet – 5" corrugated HDPE perforated plastic tubing (see sheet 9)
415 feet – 4" corrugated HDPE perforated plastic tubing (see sheets 7 & 8)
20 feet – 12" outlet tube Corrugated Metal Pipe galvanized with rodent guard (see sheet 8)
20 feet – 8" outlet tube Corrugated Metal Pipe galvanized with rodent guard (see sheet 7)
8 hours – machine time excavator/backhoe to investigate and remove existing subsurface drainage

Blind Inlet (see sheets 12 & 13)

95 feet – 4" PVC schedule 40 perforated ($\frac{3}{8}$ holes 8 per foot) pipe (see sheet 12 & 13)
10 feet – 4" PVC schedule 40 non-perforated pipe (see sheets 12 & 13)
elbow, tees, caps, connections 4" as needed
50 tons – 1 $\frac{1}{2}$ inch gravel, clean (see sheets 12 & 13)
26 tons – sand (see sheets 12 & 13)
84 square yards – geotextile, class 3 (see sheets 12 & 13)

Principal Spillway (see sheets 6, 10, & 11)

3200 square feet – tied concrete block mats (two 12'x30' and two 8'x30' and two 12'x50' and two 8'x50')
462 square feet – underlayment seam material (three 2'x83' pieces)
126 number – 18" rebar 'U' #3 rebar anchors
2666 square feet – seeding under TCBM chute (0.06 acre)

Water Level Control Structure & Conduit (see sheets 4, 24, & 25)

1 number – water control structure 11 $\frac{5}{8}$ "x12" box 6' height with stubs 8" pipe size (see sheet 24)
246 feet – 8"PVC schedule 40 pipe with trash guard (inlet) and rodent guard (outlet)
1 number – 45 degrees elbow 8" PVC schedule 40
1 number – 48"x48" polyethylene sheet anti-seep collar (see sheet 25)

Structure Component for Grassed Waterway, Diversion Channel, and Outlet Channel downstream of Dike

18 tons – 4" to 8" rock size for 5 rock checks (see sheets 18 & 23)
178 feet – length of 24" deep by 24" wide trench for rock check placement (see sheets 18 & 23)
1538 square yards – manufactured mulch blanket; 16' x 562.5' roll size (see sheets 2, 19, 20, & 22)
4200 staples – 6" U-staple or round top-single stem staple (see sheets 19 & 22)
47 feet – length of 12"x12" trench to bury lead edge of MMB (see sheets 19 &22)

Designed Jeff A. Lutz Date 1/2024
Drawn Jeff A. Lutz 1/2024
Checked JS 4124.
Approved:

Fred Abels t7164
Wetland for Day-lighted Tile Outlet Treatment
MATERIAL LISTS
SW¼ sec. 28 T.88N.–R.17W. Colfax twp. Grundy County, IA

United States Department of Agriculture
Natural Resources Conservation Service

File No. Fred Abels t7164 CRP CP39 wetland
Drawing No. Grundy.dwg

Sheet 26 of 27

Iowa NRCS

Supplement to Seeding Plan (IA-CPA-4)

Conservation Cover (327) Native Plant Seeding

Name: Fred D. Abels (Hydric) County: Grundy

Field Number(s): 4, 11 Acres: 1.35 Tract: 7164

The client is responsible to ensure the seeding mix meets the conservation practice standard and conservation program requirements (if applicable). If the seeding mix is changed in any way, the client is responsible to ensure the updated seeding mix is approved by an NRCS Planner. Seeding mixes can be emailed to the conservation planner listed below. Clients are encouraged to work with their seed dealer to use the Iowa Native Seeding Calculator to make the approval process more efficient. The Iowa Native Seeding Calculator can be found at https://bit.ly/IANRCSNativeSeedingCalculator. Seeding a mixture that is not approved and does not meet conservation and/or program requirements could be denied financial assistance (cost share) and may result in a conservation program violation.

By signing, you are acknowledging:

a. **I received a seeding plan from NRCS.**
b. **I understand if changes to the plan are made, the changes need to be approved by an NRCS planner prior to purchase.**
c. **Updated seeding mixes can be sent by you or your seed dealer to the NRCS planner below.**
d. **If an unapproved seeding mix is planted, eligible cost share assistance may be denied.**

Client Signature **Date**

Conservation Program (if applicable): Environmental Quality Incentives Program

Contract # (if applicable):

CRP Practice (if applicable):

Seeding Purpose(s): Wetland Restoration

Moisture Regime: Wet Local Ecotype Required*: No

***As defined by Iowa Agronomy Technical Note #28**

Nurse Crop Required: No Full Seeding or Interseeding: Full Seeding

Seeding Rate (seeds/sq. ft.): 40 Grass to Forb Ratio (seeds/sq. ft.): 30:10

Minimum Number of Forb Species: 2 Non-Native Forbs Allowed: No

Minimum Number of Grass Species: 3 Preferred Growth Form: Mix (Tall and Short)

Planned Seeding Date: Dormant (November 15 - March 31)

Seeding Dates for Native Species

Spring	April 1 - July 1
Dormant	November 15 - March 31
Frost*	February 1 - March 31

*Debearded or smooth seed required for frost seeding.

Requirements for all seedings:

- Minimum full seeding rate for native plants is 40 seeds/sq. ft.
- Minimum of 10 seeds/sq. ft. of the mixture must be grass.
- Maximum of 4 switchgrass and 8 canada wildrye seeds/sq. ft. unless otherwise specified.
- When allowed, mixtures may include up to 20% introduced forbs, which no one species will comprise more that 10% of the total mix.
- Introduced forbs are not recommended for prairie restoration efforts.
- Maximum of 20% of the forb component may be annual/biennial forbs.

Select Additional Requirement(s) (if applicable):

Additional Seeding Plan Information:

Conservation Planner: Heather Kitzman, Resource Conservationist Date: 2/7/2024

Sheet 27A of 27

USDA NRCS
Natural Resources Conservation Service

IA - CPA - 4 REV.
September 2022
(File Code 180-12-12)

Seeding Plan

Name: **Fred D. Abels (Hydric)**
Prepared by: **Heather Kitzman, Resource Conservationist**
Program: Environmental Quality Incentives Program
Acres: 1.35

Date: **2/7/2024**
Tract No.: **7164**
Field No.: **4, 11**
Contract No.:
Moisture Regime: Wet

Seeding Mix Summary

Grasses	Scientific Name	Common Name	Seeds/Ft²	PLS Lbs/Acre	PLS Lbs Total
1	*Andropogon gerardii*	Big Bluestem	3.000	0.817	1.10
2	*Elymus virginicus*	Virginia Wildrye	1.500	0.972	1.31
3	*Carex hystericina*	Porcupine Sedge	0.100	0.009	0.012
4	*Carex bebbii*	Bebb's Sedge	0.100	0.008	0.011
5	*Carex annectens*	Yellow Fox Sedge	0.500	0.015	0.020
6	*Carex lurida*	Lurid Sedge	0.050	0.011	0.015
7	*Carex vulpinoidea*	Fox Sedge	8.000	0.218	0.29
8	*Poa palustris*	Fowl Bluegrass	5.165	0.108	0.15
9	*Glyceria striata*	Fowl Mannagrass	0.500	0.009	0 011
10	*Leersia oryzoides*	Rice Cutgrass	0.050	0.004	0 0054
11	*Spartina pectinata*	Prairie Cordgrass	0.050	0.021	0.028
12	*Scirpus atrovirens*	Dark Green Bulrush	5.000	0.030	0.040
13	*Scirpus cyperinus*	Woolgrass	5.000	0.008	0.011
14	*Muhlenbergia racemosa*	Marsh Muhly	1.000	0.034	0.046
		SUBTOTAL GRASSES	**30.015**	**2.263**	**3.056**

Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft²	PLS Lbs/Acre	PLS Lbs Total
1	*Verbena hastata*	Blue Vervain	1.000	0.029	0.040
2	*Helenium autumnale*	Sneezeweed	1.000	0.021	0.028
3	*Lobelia cardinalis*	Cardinal Flower	0.500	0.003	0.0046
4	*Ludwigia alternifolia*	Seedbox	1.740	0.004	0.0049
5	*Silphium perfoliatum*	Cup Plant	0.010	0.019	0.026
6	*Lythrum alatum*	Winged Loosestrife	1.500	0.001	0.0018
7	*Hypericum ascyron*	Great St. John's Wort	1.500	0.021	0.029
8	*Lobelia siphilitica*	Great Blue Lobelia	0.500	0.003	0.0037
9	*Bidens cernua*	Nodding Bur Marigold	0.050	0.006	0.0088
10	*Mimulus ringens*	Square-stemmed Monkeyflower	1.500	0.002	0.0024
11	*Vernonia fasciculata*	Ironweed	0.200	0.023	0.031
12	*Symphyotrichum novae-angliae*	New England Aster	0.100	0.004	0.0056
13	*Oligoneuron riddellii*	Riddell's Goldenrod	0.100	0.003	0.0040
14	*Eupatorium perfoliatum*	Boneset	0.100	0.002	0.0023
15	*Helianthus grosseserratus*	Saw-tooth Sunflower	0.050	0.009	0.012
16	*Eutrochium maculatum*	Spotted Joe Pye Weed	0.100	0.003	0.0039
17	*Asclepias incarnata*	Swamp Milkweed	0.050	0.028	0.038
		SUBTOTAL FORBS	**10.000**	**0.182**	**0.246**

Woody	Scientific Name	Common Name	Seeds/Ft²	PLS Lbs/Acre	PLS Lbs Total
		SUBTOTAL VINES/WOODY	0.000	0.000	0.000
		TOTAL	**40.015**	**2.446**	**3.302**

Estimated Cost/Acre | **Estimated Total Cost** $0.00

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

Seeding Dates: Dormant (November 15 - March 31)

Additional Seeding Criteria:

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

_____ (Producer's Signature)

_____ (Date)

Field Office _____

Certified by _____ (NRCS Representative)

When seeding is completed, return seeding plan to the Natural Resources Conservation Services.
For CRP cost-share, return receipts to Farm Service Agency.
For all other cost-share projects, attach seed tags and receipts for seed, fertilizer, lime, etc.

Iowa NRCS
Supplement to Seeding Plan (IA-CPA-4)
Conservation Cover (327) Native Plant Seeding

Name: Fred D. Abels (Wetland Buffer) County: Grundy

Field Number(s): 4, 11 Acres: 1.95 Tract: 7164

The client is responsible to ensure the seeding mix meets the conservation practice standard and conservation program requirements (if applicable). If the seeding mix is changed in any way, the client is responsible to ensure the updated seeding mix is approved by an NRCS Planner. Seeding mixes can be emailed to the conservation planner listed below. Clients are encouraged to work with their seed dealer to use the Iowa Native Seeding Calculator to make the approval process more efficient. The Iowa Native Seeding Calculator can be found at https://bit.ly/IANRCSNativeSeedingCalculator. Seeding a mixture that is not approved and does not meet conservation and/or program requirements could be denied financial assistance (cost share) and may result in a conservation program violation.

By signing, you are acknowledging:

a. **I received a seeding plan from NRCS.**
b. **I understand if changes to the plan are made, the changes need to be approved by an NRCS planner prior to purchase.**
c. **Updated seeding mixes can be sent by you or your seed dealer to the NRCS planner below.**
d. **If an unapproved seeding mix is planted, eligible cost share assistance may be denied.**

Client Signature **Date**

Conservation Program (if applicable): Environmental Quality Incentives Program

Contract # (if applicable):

CRP Practice (if applicable):

Seeding Purpose(s): Wetland Restoration

Moisture Regime: Mesic Local Ecotype Required*: No

***As defined by Iowa Agronomy Technical Note #28**

Nurse Crop Required: No Full Seeding or Interseeding: Full Seeding

Seeding Rate (seeds/sq. ft.): 40 Grass to Forb Ratio (seeds/sq. ft.): 30:10

Minimum Number of Forb Species: 2 Non-Native Forbs Allowed: No

Minimum Number of Grass Species: 3 Preferred Growth Form: Mix (Tall and Short)

Planned Seeding Date: Dormant (November 15 - March 31)

Seeding Dates for Native Species

Spring	April 1 - July 1
Dormant	November 15 - March 31
Frost*	February 1 - March 31

*Debearded or smooth seed required for frost seeding.

Requirements for all seedings:

- Minimum full seeding rate for native plants is 40 seeds/sq. ft.
- Minimum of 10 seeds/sq. ft. of the mixture must be grass.
- Maximum of 4 switchgrass and 8 canada wildrye seeds/sq. ft. unless otherwise specified.
- When allowed, mixtures may include up to 20% introduced forbs, which no one species will comprise more that 10% of the total mix.
- Introduced forbs are not recommended for prairie restoration efforts.
- Maximum of 20% of the forb component may be annual/biennial forbs.

Select Additional Requirement(s) (if applicable):

Additional Seeding Plan Information:

Conservation Planner: Heather Kitzman, Resource Conservationist Date: 2/7/2024

USDA NRCS
Natural Resources Conservation Service

IA - CPA - 4 REV.
September 2022
(File Code 180-12-12)

Seeding Plan

Name: Fred D. Abels (Wetland Buffer)
Prepared by: Heather Kitzman, Resource Conservationist
Program: _____
Acres: 1.95

Date: 2/7/2024
Tract No.: 7164
Field No.: 4, 11
Contract No: _____
Moisture Regime: Mesic

Seeding Mix Summary

Grasses	Scientific Name	Common Name	Seeds/Ft²	PLS Lbs/Acre	PLS Lbs Total
1	*Andropogon gerardii*	Big Bluestem	4.000	1.089	2.12
2	*Sorghastrum nutans*	Indiangrass	3.000	0.681	1.33
3	*Elymus virginicus*	Virginia Wildrye	1.500	0.972	1.90
4	*Panicum virgatum*	Switchgrass	4.000	0.778	1.52
5	*Sporobolus compositus*	Rough Dropseed	8.000	0.726	1.42
6	*Carex annectens*	Yellow Fox Sedge	1.500	0.045	0.088
7	*Carex vulpinoidea*	Fox Sedge	8.000	0.218	0.42
		SUBTOTAL GRASSES	**30.000**	**4.509**	**8.793**

Forbs/Legumes	Scientific Name	Common Name	Seeds/Ft²	PLS Lbs/Acre	PLS Lbs Total
1	*Rudbeckia hirta*	Black-eyed Susan	2.000	0.059	0.12
2	*Ratibida pinnata*	Gray-headed Coneflower	1.000	0.091	0.18
3	*Helenium autumnale*	Sneezeweed	2.190	0.046	0.089
4	*Lythrum alatum*	Winged Loosestrife	1.500	0.001	0.0027
5	*Physostegia virginiana*	Obedient Plant	0.100	0.012	0.024
6	*Pycnanthemum virginianum*	Virginia Mountain Mint	0.300	0.004	0.0072
7	*Verbena hastata*	Blue Vervain	0.200	0.006	0.011
8	*Silphium perfoliatum*	Cup Plant	0.010	0.019	0.038
9	*Hypericum ascyron*	Great St. John's Wort	1.500	0.021	0.042
10	*Zizia aurea*	Golden Alexander's	0.200	0.050	0.097
11	*Penstemon digitalis*	Foxglove Beardtongue	0.300	0.006	0.012
12	*Parthenium integrifolium*	Wild Quinine	0.050	0.019	0.038
13	*Eryngium yuccifolium*	Rattlesnake Master	0.050	0.018	0.035
14	*Coreopsis tripteris*	Tall Coreopsis	0.050	0.010	0.019
15	*Rudbeckia subtomentosa*	Sweet Coneflower	0.300	0.019	0.037
16	*Gentiana alba*	Cream Gentian	0.050	0.001	0.0019
17	*Asclepias incarnata*	Swamp Milkweed	0.100	0.057	0.11
18	*Vernonia fasciculata*	Ironweed	0.100	0.011	0.022
		SUBTOTAL FORBS	**10.000**	**0.451**	**0.880**

Woody	Scientific Name	Common Name	Seeds/Ft²	PLS Lbs/Acre	PLS Lbs Total
		SUBTOTAL VINES/WOODY	**0.000**	**0.000**	**0.000**
		TOTAL	**40.000**	**4.960**	**9.672**

Estimated Cost/Acre _____ **Estimated Total Cost** $0.00

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

Seeding Dates: Dormant (November 15 - March 31)

Additional Seeding Criteria: _____

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

_____ (Producer's Signature) _____ (Date)

Field Office _____ **Certified by** _____ (NRCS Representative)

When seeding is completed, return seeding plan to the Natural Resources Conservation Services.
For CRP cost-share, return receipts to Farm Service Agency.
For all other cost-share projects, attach seed tags and receipts for seed, fertilizer, lime, etc.

Wetland Seeding Map

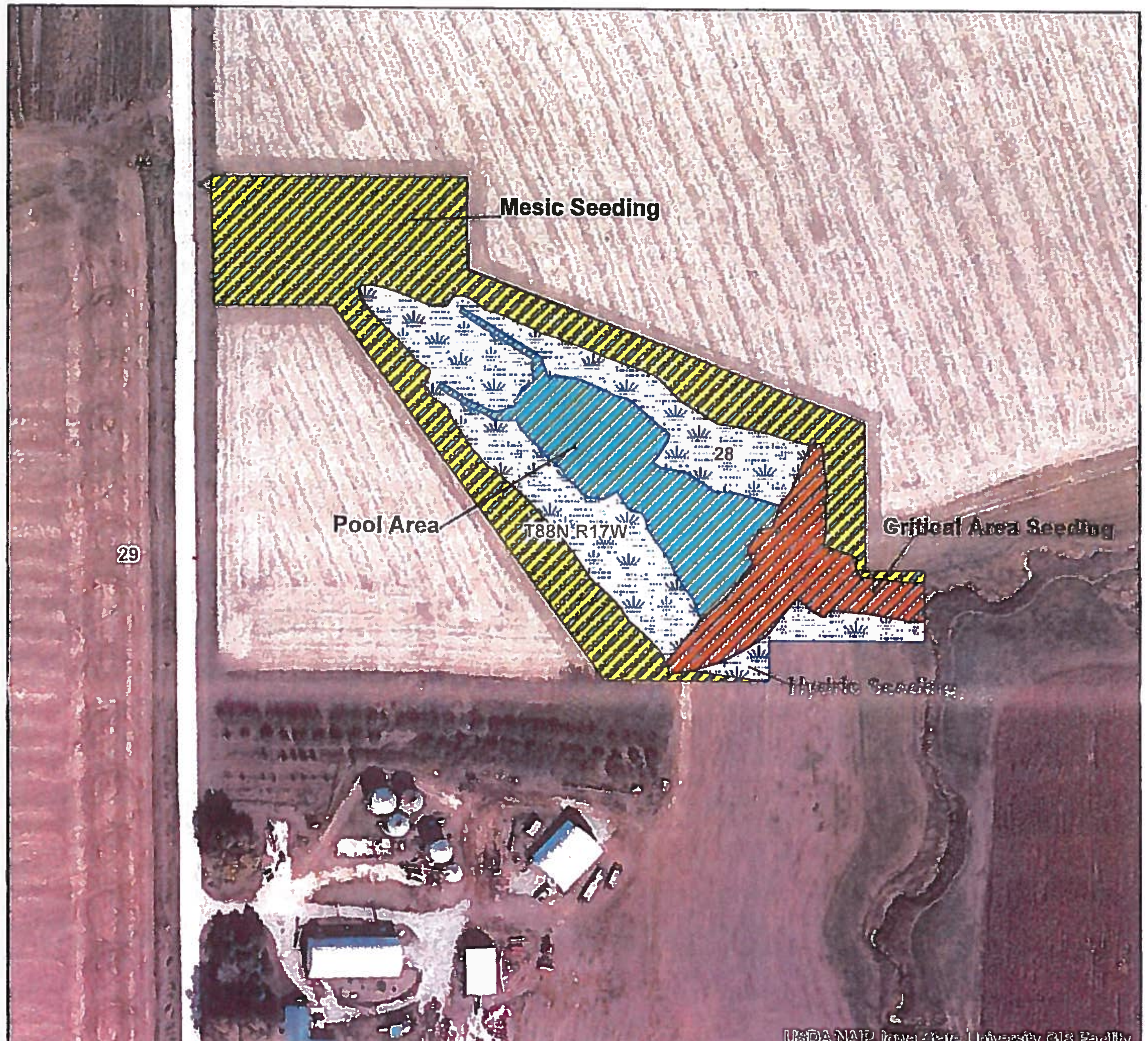
Date: 2/7/2023

Customer(s): FRED D. ABELS

District: GRUNDY COUNTY SOIL & WATER CONSERVATION DISTRICT

Legal Description: 88N, 17W, Sec. 28 (Colfax 28)

Field Office: GRUNDY CENTER SERVICE CENTER
Agency: USDA-NRCS
Assisted By: Heather Kitzman
State and County: IA, Grundy



Prepared with assistance from USDA-Natural Resources Conservation Service

Legend

- Mesic_Seeding
- Critical_Area_Seeding
- Hydric_Seeding
- Pool_Area

165 0 165 330 Feet

N

USDA

USDA NRCS Natural Resources Conservation Service

IA - CPA - 4 REV.
May-03
(File Code 180-12-12)

Seeding Plan

Name Fred D. Abels Date 2/1/2024 Tract No. 7164

Field No. 4

Contract No.

Type of Seeding: Introduced Grasses (Critical Area) Prepared by Heather Kitzman, RC

PROGRAM:

*Seeding Percent Pure Live Seed=(% Germination + Hard Seed) * % Purity
100

Enter Acres: → 0.5

SUBSTITUTION OF SPECIES OR OTHER VARIATIONS FROM THE SEEDING PLAN NEED TO BE APPROVED IN ADVANCE

Species	Acres	Pounds Per Acre - Circle One Below: (Bulk) - PLS*		Total Needed	
Smooth Bromegrass (80%)	0.5	20	Pounds	10	Pounds
Red Top (20%)	0.5	2	Pounds	1	Pounds
Oats	0.5	1.5	Bushels	1	Bushels
Fertilizer & Lime		X	General Soil Test		
Lime (ECCE)		3000	Pounds	0	Pounds
Nitrogen		80	Pounds	0	Pounds
Phosphate (P205)		120	Pounds	0	Pounds
Potash (K20)		80	Pounds	0	Pounds

Seeding will be completed: ☐ March 1 - May 15 ☐ August 1 - September 15 ☑ November 15 - Freeze-up

Additional Seeding Criteria ______

Seeding was completed by ______ (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.

Sheet 27E of 27