

Drainage District:

#121

Investigation Summary:

- Due to the recommendations of the previous Investigation Summary, further investigation into the condition of the Main tile was pursued in the SW¼ SE¼ Section 30, Township 86 North, Range 20 West.
- Beginning with the blowout/sinkhole in the grassed swale, conducted exploratory excavations in the upstream and downstream directions to determine the general condition of the Main tile in this area. The initial excavation found a 15-inch single wall HDPE tile (downstream side) connected to a collapsed 14-inch clay tile that was backing up water into the upstream 15-inch rusty CMP tile. In this excavation, there was little to no cover over the Main tile.
- Excavating at a blowout/sinkhole further upstream found the 14-inch VCP to be fully plugged with tree roots, and further upstream found a 15-inch single wall HDPE tile. Upstream of that, the 14-inch VCP tile was found to be in round with greater soil cover.
- Conducted two exploratory excavations in the downstream direction and found the 15-inch VCP tile to be round with greater soil cover.

Contractor Time and Materials (spent while CGA was on-site):

See attached Tabulated Contractor Time and Materials Sheet.

Additional Actions Recommended:

With the poor physical condition of the tile, lack of soil cover, and multiple previous repairs that have taken place in the past, CGA recommends the Main tile be replaced between the excavations that showed the Main to be in adequate condition. Such a repair would correct the multiple issues found, repair the existing blowouts, and prevent the occurrence of more (given the tile has been repaired multiple times already). It is our opinion that this repair would consist of replacing approximately 800-feet of tile with RCP tile and would have a construction cost of approximately \$40K-60K.



Tabulated Contractor Time and Materials

Date	Totals	5/5/2021
Workman (hrs)	12	12
Mini Excavator (hrs)	6	6





Drainage Work Order Request For Repair

Hardin County

Date: 6/3/2020

Work Order #: WO00000295

Drainage District: DDs\DD 121 (51136)

Sec-Twp-Rge: 30-86-20 **Qtr Sec:** _____

Location/GIS: 86-20-30-400-003

Requested By: Tom Gilmore

Contact Phone: (515) 450-1942

Contact Email: _____

Landowner (if different): George C Fagg Heirs

Description: DD 121 - Tom Gilmore reports blow out/ plugged tile and water running across the field on parcel #862030400003.

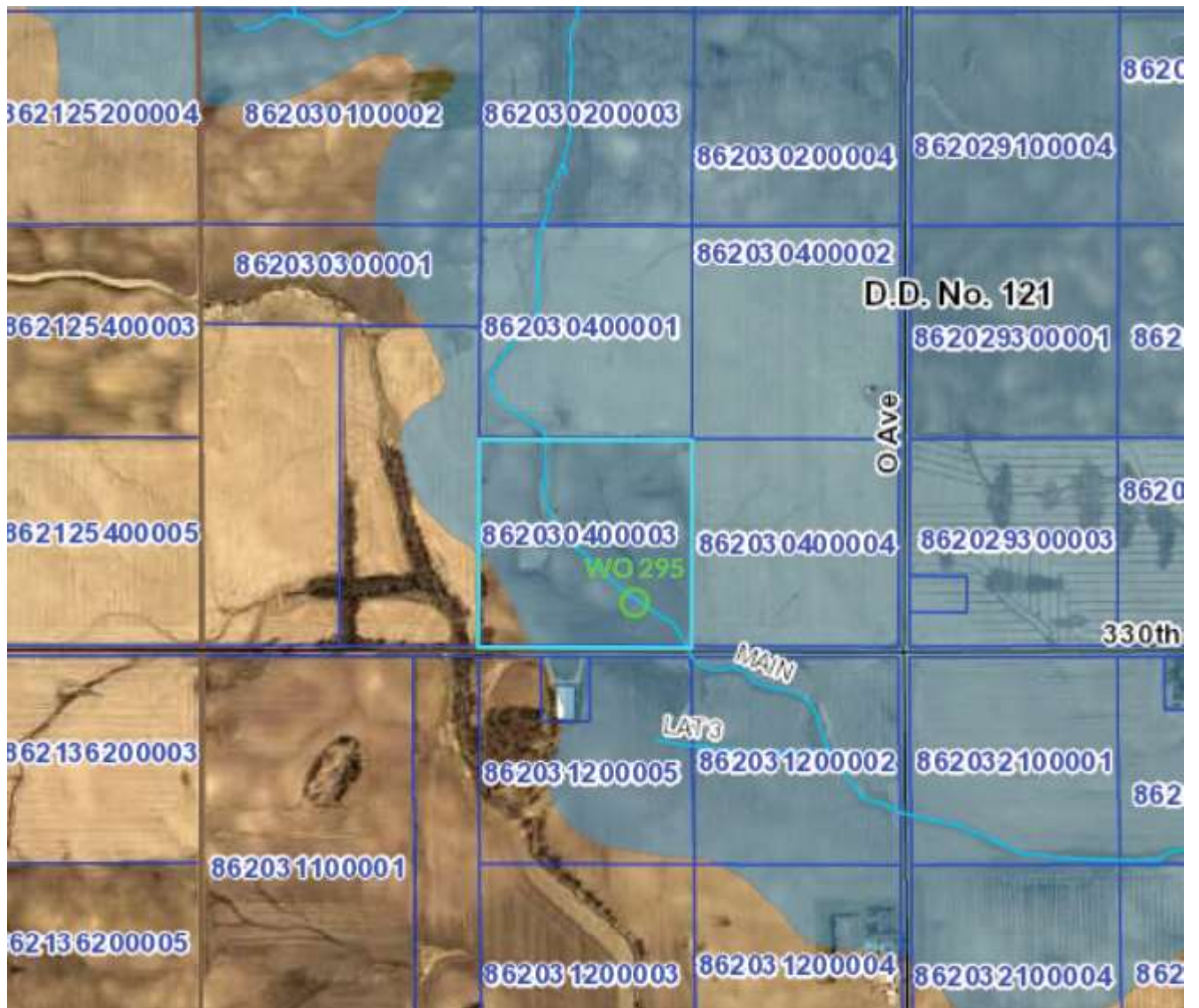
Repair labor, materials and equipment _____

Repaired By: _____ **Date:** _____

Please reference work order # and send statement for services to: Hardin County Auditor's Office
 Attn: Drainage Clerk
 1215 Edgington Ave, Suite 1
 Eldora, IA 50627
 Phone (641) 939-8111
 Fax (641) 939-8245

For Office Use Only

Approved: _____ **Date:** _____



Project Diary

Project: <u>DD 121 HARDIN</u>			
CGA PN: <u>6934.2</u>	Days Charged:	Report No.	Proj. Mgr. <input checked="" type="checkbox"/>
Contractor:		Date: <u>5/5/21</u>	
Superintendent:	Weather Conditions:	Precip.: "	Temp. Hi: ° Temp. Low: °
INSPECTOR: Time Arrived: <u>9:00</u> Time Left: <u>3:00</u>		Contractor: Time Arrived: <u>9:00</u> Time Left: <u>12:00 NOON</u>	
1. General Remarks and Work Accomplished:			
<p style="margin-left: 40px;">ARRIVED @ JOB SITE @ 9:00; ADAM AND HELPER ON SITE UNLOADING mini Ex. STARTED TO DIG @ S. END OF GRASS SWALE IN MIDDLE OF FIELD. FOUND 15" PE. TILE CONNECTED TO 14" CLAY TILE (COLLAPSED, BACKING UP WATER) WITH 15" CMP UPSTREAM OF THAT. WENT NEXT TO BLOW-OUT UPSTREAM, FOUND ELDER BERRY ROOTS COMPLETELY PACKED IN 14" CLAY. NEXT BLOW-OUT UPSTREAM HAD 15" PE IN PLACE. TILE NORTH OF THIS IS IN GOOD SHAPE. POT HOLE S. OF GRASS SWALE NEXT., FOUND 15" CLAY TILE IN GOOD SHAPE.</p>			
2. Changes or Extra Work Ordered:			
<p style="margin-left: 40px;">PROBABLY NEED TO REPAIR TILE FROM $\approx 3011 \pm$ TO $3027 \pm$ (700') WITH 15" HDPE DUAL WALL. NEED TO FLATTEN GRADE TO GET DEPTH @ 3017 OR SHIFT ALIGNMENT TO NE TO GET MORE COVER. EXISTING FALL IS 8' = 1.1% GRADE</p>			
3. Test Samples Taken:			
4. Visitors to Site:			
5. Other Work Crews or Project (utilities, subcontractors, etc.) and Work Done:			
6. Attachments (total sheets attached <u>0</u>):			

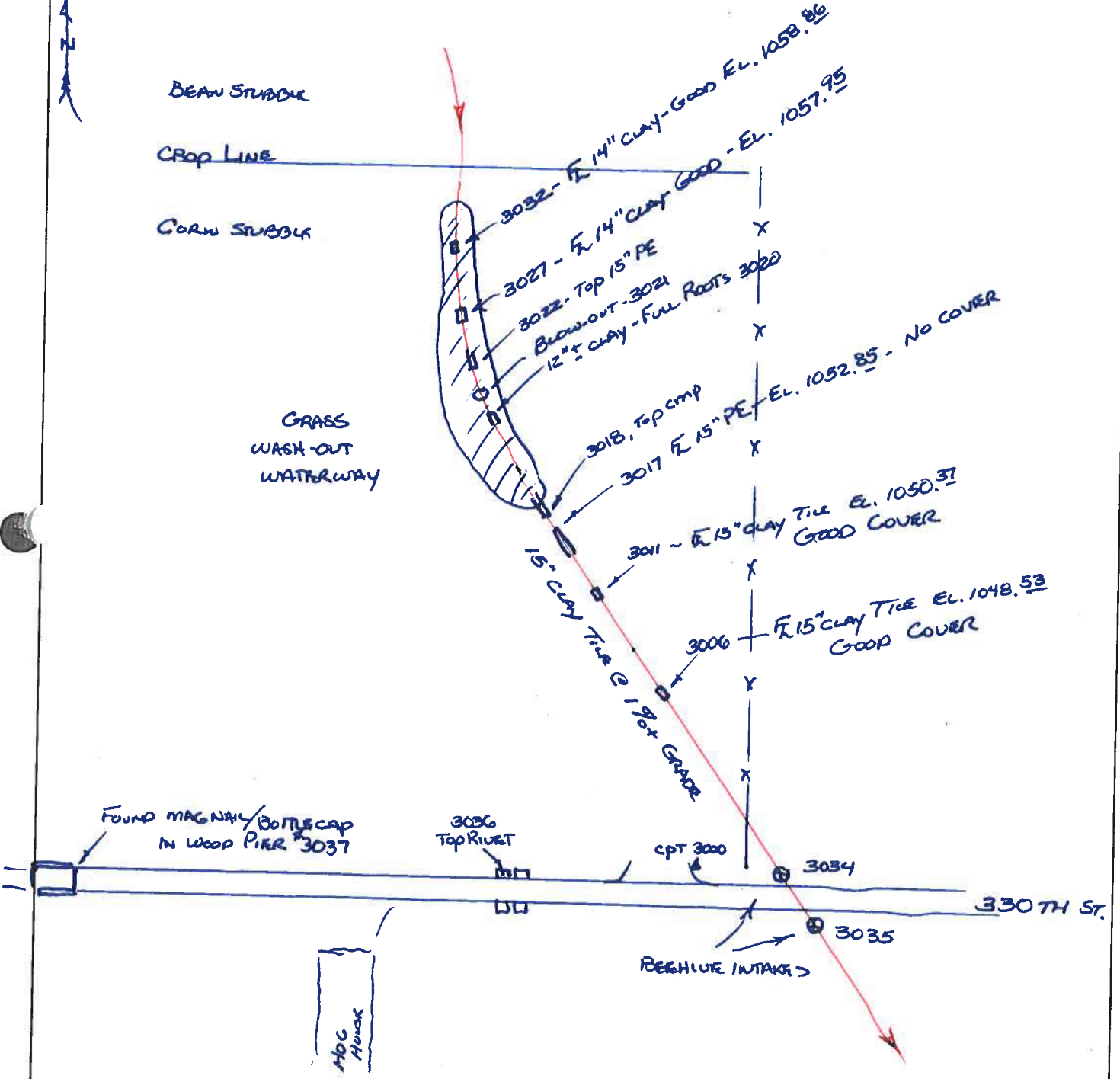
Inspector's Project Diary (continued)

CGA PN: 8712.06

Report No.

Date:

1. General Remarks and Work Accomplished (Continued):



3011 - 3020 = 460' 3020 - 3027 = 250'

Roots @ Blow-out # 3020



05/05/2021
09:02

PE-CLAY COLLAPSE TO Cmp @ 2017-2018

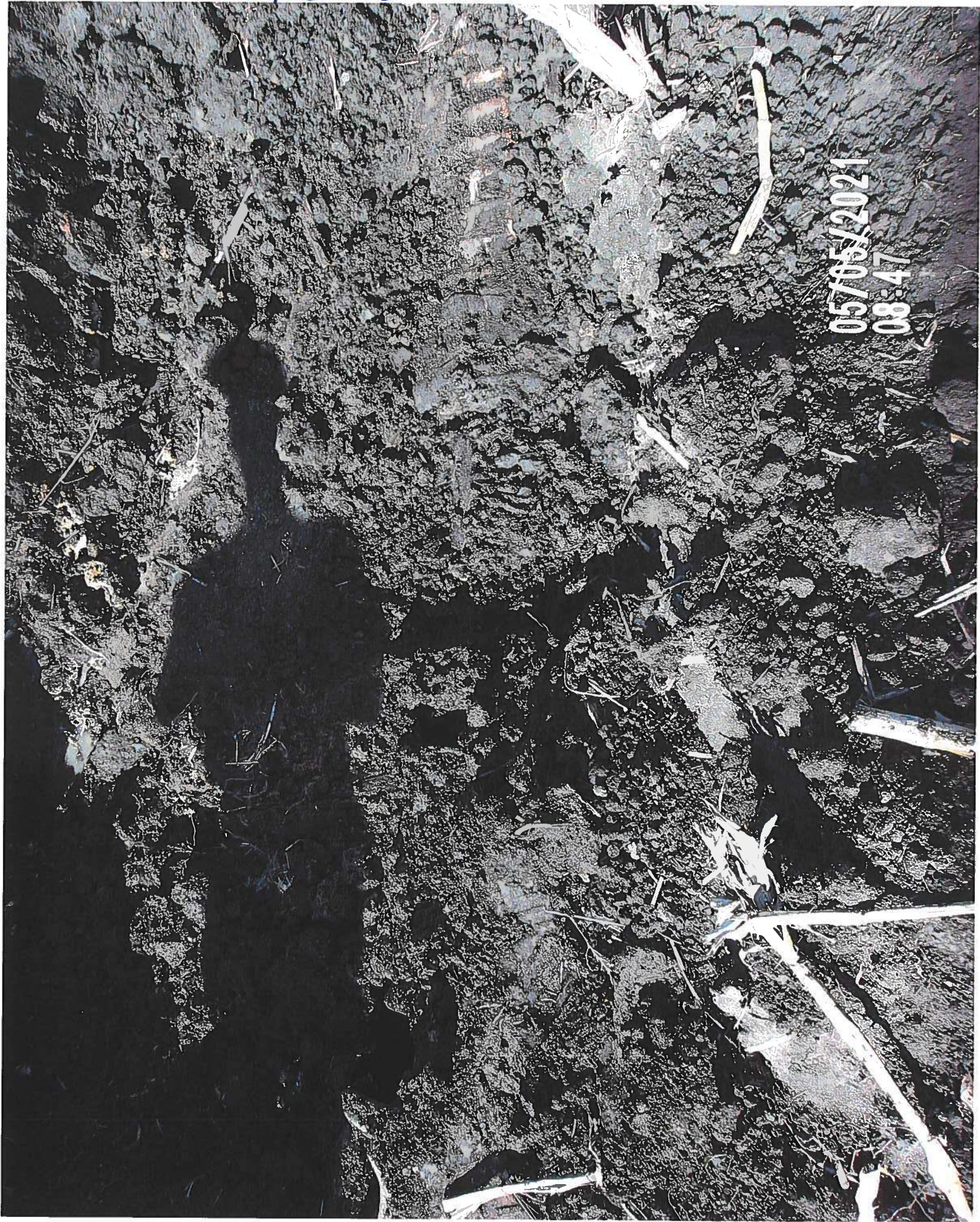


cmp @ 3018

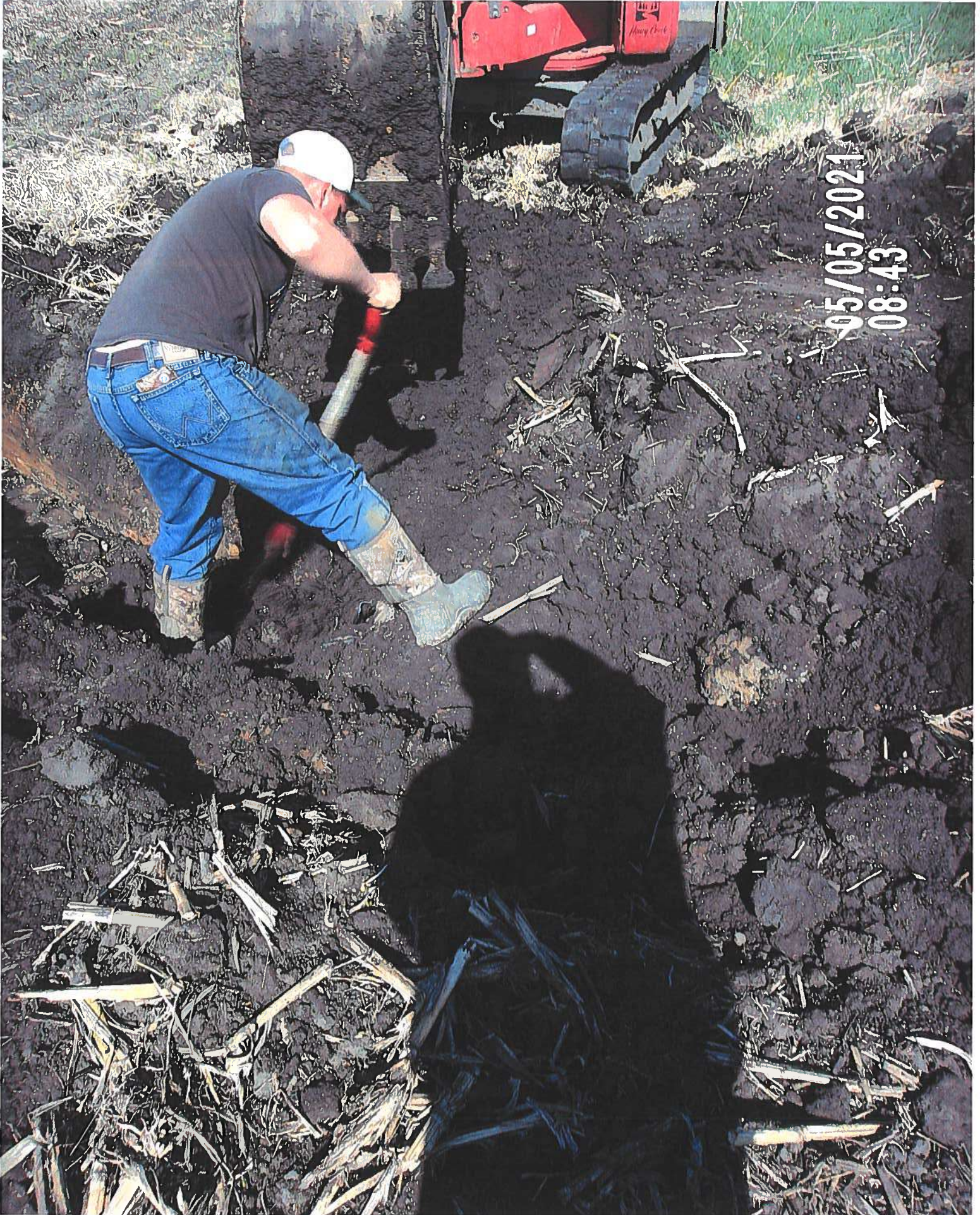


Cmp @ 3018

05/05/2021
08:47



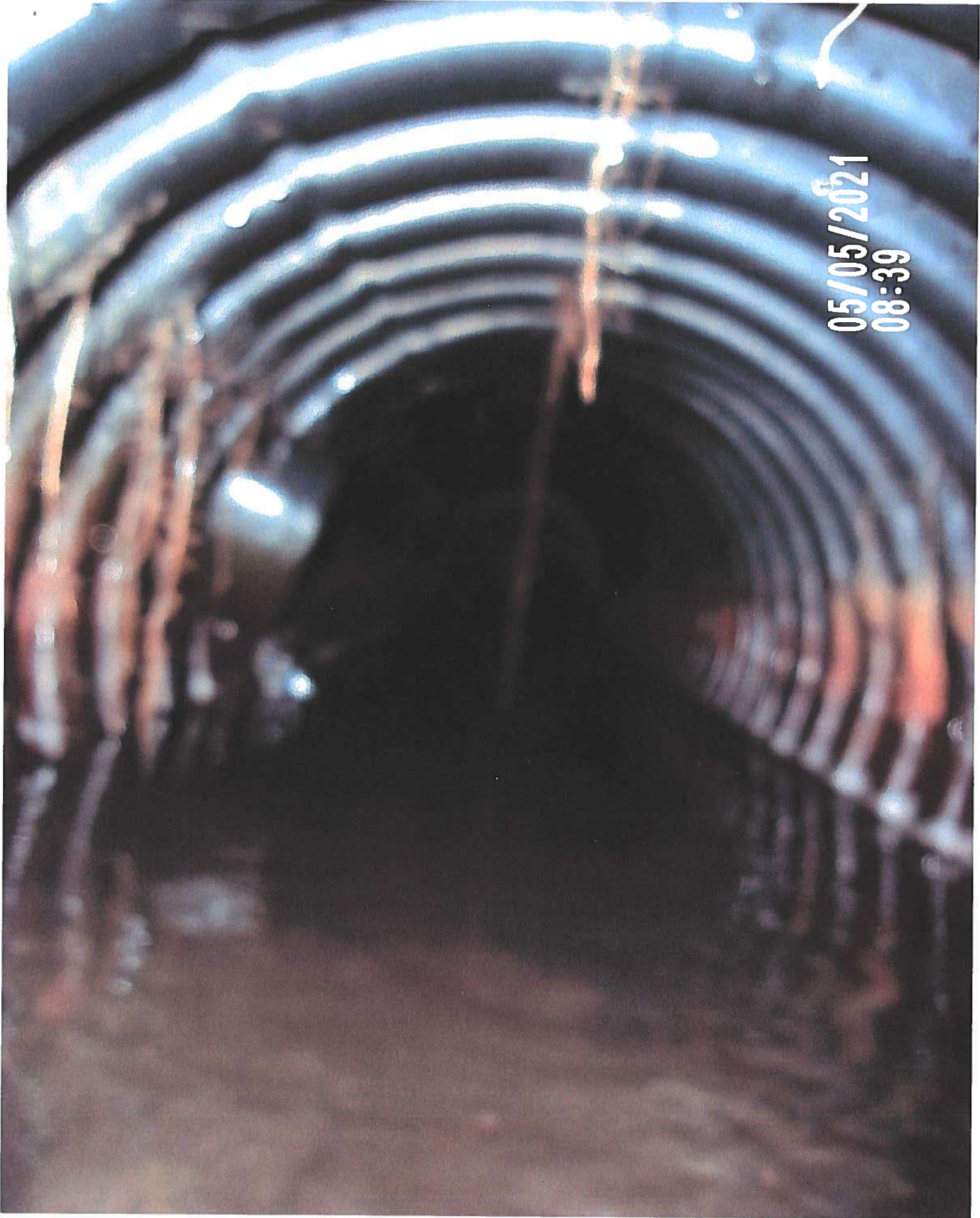
PE. © 2017



05/05/2021
08:43

PE @ ~~3017~~ 3017

05/05/2021
08:39



PE © ~~2017~~ 2017, NOTE COLLAPSED CLAY



05/05/2021
08:39

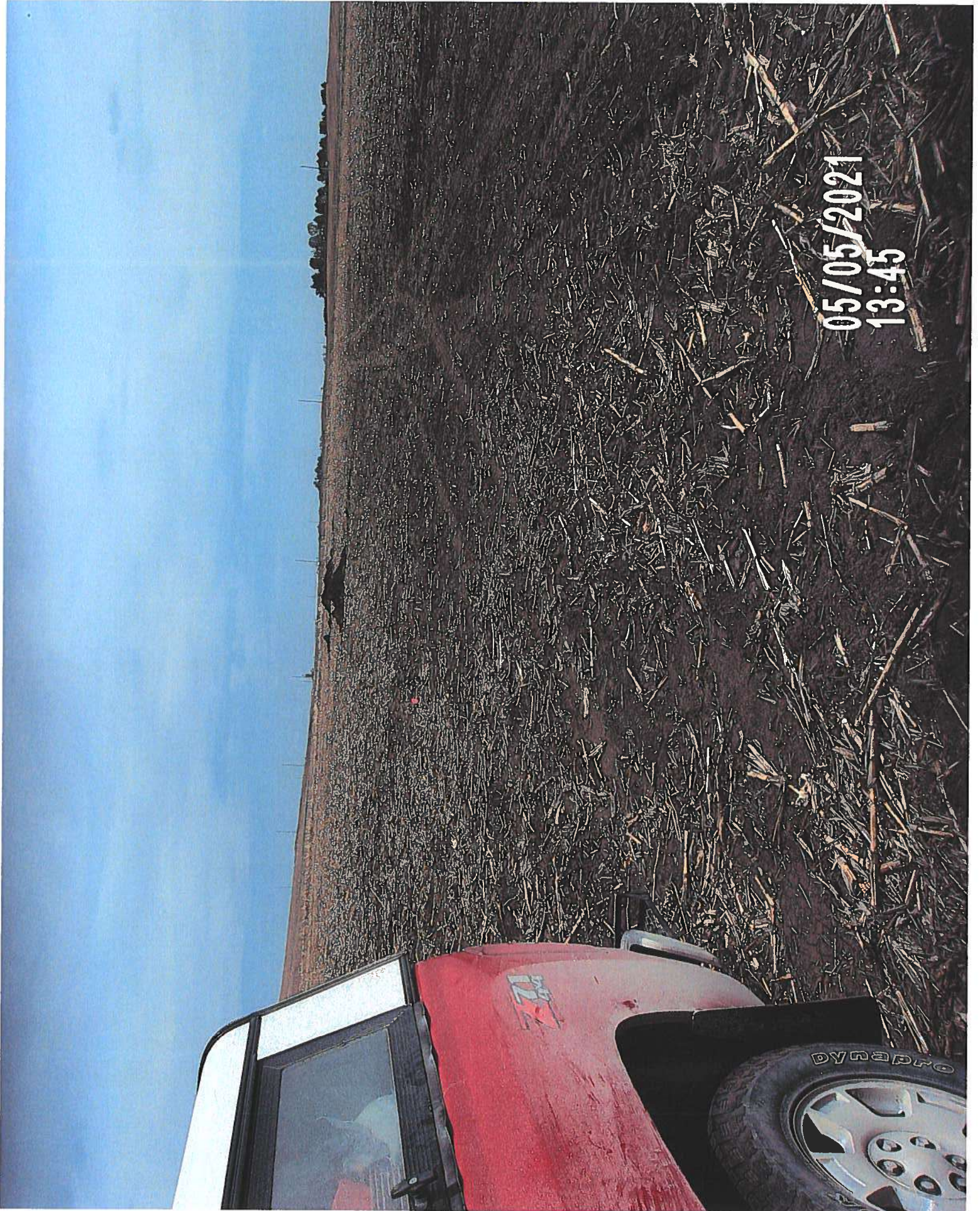
LOOKING UPSTREAM @ 2017



05/05/2021
13:45

LOOKING DOWNSTREAM @ 3017

05/05/2021
13:45



PE. @ 3022

05/05/2021
09:15



PE. @ 3022

05/05/2021
09:15



PE. C 3021

05/05/2021
09:04



6934 DD121 2021-05-05

3000,3544599.5680,4996918.7650,1052.5800,CPT PAVENAIL .5DOWN
3001,3544884.5990,4996872.2590,1053.3710,GS TILELOCATE
3002,3544922.5970,4996847.1910,1053.5540,GS TILELOCATE
3003,3544959.8970,4996820.5820,1053.5470,GS TILELOCATE
3004,3545008.5060,4996787.0620,1053.7470,GS TILELOCATE
3005,3545046.9940,4996757.7300,1053.9730,GS TILELOCATE
3006,3545067.0910,4996740.9470,1048.5250,FL 15"CLAY
3007,3545073.8990,4996736.3490,1054.3020,GS TILELOCATE
3008,3545109.3590,4996699.1910,1054.5110,GS TILELOCATE
3009,3545149.9600,4996647.7990,1054.7640,GS TILELOCATE
3010,3545176.5480,4996616.4710,1054.8760,GS TILELOCATE
3011,3545197.4800,4996590.2270,1050.3650,FL 15"CLAY
3012,3545227.1470,4996551.0290,1055.2980,GS TILELOCATE
3013,3545258.9840,4996511.5970,1055.4030,GS TILELOCATE
3014,3545289.3280,4996469.6420,1055.3770,GS TILELOCATE
3015,3545309.8740,4996436.0210,1055.5130,GS TILELOCATE
3016,3545319.1510,4996420.6630,1055.5590,GS TILELOCATE
3017,3545321.4510,4996416.3660,1052.8500,FL PE 15"
3018,3545323.6380,4996412.0380,1054.4730,TOP 15"CMP
3019,3545335.5550,4996386.1580,1056.0890,GS TILELOCATE
3020,3545380.3220,4996168.1460,1055.5860,FL 12"CLAY FULL ROOTS
3021,3545393.0000,4996131.1160,1058.8940,GS TILE BLOWOUT
3022,3545452.1850,4996058.4460,1058.0140,TOP 15"PE
3023,3545472.2080,4996050.0200,1061.0080,GS TILELOCATE
3024,3545505.6730,4996037.4380,1061.3710,GS TILELOCATE
3025,3545542.2340,4996027.4570,1061.6490,GS TILELOCATE
3026,3545580.2360,4996020.9360,1061.9830,GS TILELOCATE
3027,3545584.5940,4996020.5850,1057.9460,FL 14"CLAY
3028,3545607.7870,4996018.8040,1062.2200,GS TILELOCATE
3029,3545657.7060,4996017.8660,1062.9190,GS TILELOCATE
3030,3545710.4120,4996019.2260,1063.0740,GS TILELOCATE
3031,3545772.1280,4996019.2760,1063.3920,GS TILELOCATE
3032,3545798.9030,4996017.9160,1058.8560,FL 14"CLAY
3033,3545792.3760,4996018.5640,1063.7260,GS TILELOCATE
3034,3544593.9780,4997096.0520,1049.7890,S RIM BEEHIVE 15"
3035,3544541.0730,4997145.2770,1049.7120,W RIM BEEHIVE 15"
3036,3544587.1690,4996416.5020,1053.5950,TOP RIVET W CMP
3037,3544589.2240,4995488.7250,1053.3560,MAG BOTTELCAP NE COR BRDG