

**AGENDA
REGULAR DRAINAGE MEETING
FEBRUARY 6, 2019
8:30 AM**

1. Open Meeting
2. Approve Agenda
3. Approve Minutes
 - January 16, 2019 Regular Drainage Meeting
 - January 16, 2019 DD 148 Hearing on Repairs
 - January 23, 2019 Regular Drainage Meeting
 - January 23, 2019 DD 55-3 Lat 9 Landowner Meeting

Documents:

[1_16_2019 - DRAINAGE MINUTES.PDF](#)
[DD 148 ENG REPORT HRG 1_16_2019 - MINUTES.PDF](#)
[1_23_2019 - DRAINAGE MINUTES.PDF](#)
[DD 55-3 LAT 9 LANDOWNER MTG 1_23_2019 - MINUTES.PDF](#)

4. Discuss, With Possible Action, IRUA Utility Permits
5. DD 1 - Legal Opinion Regarding Engineering Fees
6. DD 25 - Discuss, With Possible Action, Repair Summary For Work Order #226

Documents:

[DD 25 WO 226 REPAIR SUMMARY.PDF](#)

7. DD 72 - Discuss, With Possible Action, Repair Summary For Work Order #213

Documents:

[DD 72 WO 213 REPAIR SUMMARYH.PDF](#)

8. DD H-F 1 - Discuss, With Possible Action, Updates To Work Order #238
9. Other Business
10. Adjourn Meeting

REGULAR DRAINAGE MEETING

1/16/2019 - Minutes

1. Open Meeting
Hardin County Board of Supervisors Chairperson, Renee McClellan, opened the meeting. Also present were Supervisors, Lance Granzow and BJ Hoffman; Landowner, Marv Kramer; Lee Gallentine with Clapsaddle-Garber Associates (CGA); Drainage Clerk, Tina Schlemme.
2. Approve Agenda
Granzow moved, Hoffman seconded to approve the agenda as presented. All ayes. Motion carried.
3. Approve Minutes
Hoffman moved, Granzow seconded to approve the minutes of the January 2, 2019 regular drainage meeting. All ayes. Motion carried.
4. Acknowledge Receipt Of CGA 2019 Rates
Gallentine stated the rates were increased from \$2-\$5 an hour on the different positions with administrative not increasing at all. Granzow moved, Hoffman seconded to acknowledge receipt of CGA's 2019 Rates. All ayes. Motion carried.
5. DD 14 - Discuss, With Possible Action, Repair Summary For Work Order #170
Gallentine updated the Trustees that the reported blowout was not related to soil cover but to physical deterioration. Approximately 20 feet of 15" tile was replaced. The Trustees agreed no action was necessary but to file the repair summary.
6. DD 22 - Discuss, With Possible Action, Investigation Summary For Updates To Work Order #176
Schlemme updated the Trustees that Engineer, Heather Thomas, stated the sinkhole would be replaced during the upcoming project. She also added that Gerhke's plan to begin construction this upcoming spring. Hoffman moved, Granzow seconded that no action was necessary. All ayes. Motion carried.
7. DD 26 Lat 4 - Discuss, With Possible Action, Investigation Summary For Updates To Work Order #82
Schlemme updated the Trustees that Engineer, Heather Thomas, stated the aerial photos showed the wet spot appeared around 2015/2016. The 2011 as-builts did not show any private tile in that area. She recommended that the information is shared with Randy Silvest and see if he thinks there may be private tile in the area that did not get connected during the 2011 project. The Trustees agreed for Schlemme to let Silvest know and go from there.
8. DD 38 - Discuss, With Possible Action, 2nd Investigation Summary For Work Order #231
Gallentine updated the Trustees that they found approximately 660 feet of 12" tile with 1 to 11 inches of sand in it. They recommend jet/vac clean to remove the sand/silt and allow dewatering of the tile. Once dewatered, they recommend excavation to determine the necessary tile repair. At this time, they believe it should be under the \$50,000 threshold, but will not know until they excavate. Hoffman moved, Granzow seconded to jet/vac clean and then excavate as discussed. All ayes. Motion carried.
9. DD 52 - Discuss, With Possible Action, Attorney Update
Schlemme updated the Trustees that the attorney is questioning whether they should file the petition in district court or with the board of adjusters. After discussion, it was unclear who the board of adjusters were and if the attorney's assistant actually meant board of trustees. Schlemme is to obtain clarification and report back.
10. DD 55-3 Lat 12 - Discuss, With Possible Action, Railroad Updates
It was discussed that UPRR has requested as builts of the existing facilities and any new drawings or plans for what is being proposed. Gallentine stated there has not been any formal plans drafted due to it being a small project. The Trustees agreed for Schlemme to report back to UPRR and move forward.
11. DD 86 - Discuss, With Possible Action, Repair Summary For Work Order #236
Gallentine updated the Trustees that approximately 8 feet of 15" tile was replaced with trees cut down and stumps treated. Granzow moved, Hoffman seconded to acknowledge receipt of the Repair Summary for Work Order #236. All ayes. Motion carried.

12. DD 143 - Discuss, With Possible Action, Reseeding Invoices

Schlemme presented invoices from Radcliffe Friendly Fairways for: Seed \$4,047.81, Equipment Rental and Labor \$1,162.00 and Chemical with Applicator \$179.00. The seed invoice was looked at closely which showed 1700 pounds of seed was purchased. It was believed that approximately 5 acres was seeded, which averaged 340 pounds per acre. Discussion was had on what a typical application of seed was necessary for golf courses. Hoffman moved, Granzow seconded to table any action on the invoices until Schlemme researches the seed concern. All ayes. Motion carried. During this time, Hoffman found a survey online from the United States Golf Association that showed the average seeding rate for fairways as 622 lbs/acre with the lowest rate at 200 lbs/acre and the highest at 900 lbs/acre. Hoffman moved, Granzow seconded to rescind the previous motion and for Schlemme to submit the invoice at the next claims writing. All ayes. Motion carried.

13. DD H-F 1 - Discuss, With Possible Action, Repair Summary For Work Order #238

Gallentine updated the Trustees that Adam Seward removed the willow trees, treated the stumps and piled the brush. He recommends correspondence with the contractor to be sure the brush is either removed from the site or burned. Hoffman moved, Granzow seconded for Schlemme to contact Seward now and again in the spring to retreat the stumps and make sure the debris is taken care of. All ayes. Motion carried.

14. Other Business

DD 148 & DD 9 - Gallentine updated the Trustees that Randy Brown began Work Order #227 and #229 in September but never completed them and both have had open holes since November. Gallentine has tried to getting a hold of him but he doesn't show up and now his cell phone states it has been disconnected. Hoffman moved, Granzow seconded to give the work orders to Paul Williams to finish up and for Schlemme to closely look at the invoice from Brown on what work has been done. All ayes. Motion carried.

DD 1 - Kramer questioned the invoice paid to CGA for engineering services for the road crossing project. Schlemme stated they typically invoice secondary roads for the materials on road crossing work but never add engineering services to it. Hoffman moved, Granzow seconded for Schlemme to obtain a legal opinion from Mike Richards if engineering services should be paid from secondary roads. All ayes. Motion carried. Kramer also updated the Trustees regarding the dirt work project for Work Order #205. He doesn't think a lot needs done, but is still willing to perform the work. After discussion, it was determined that Gallentine will mail Kramer the necessary contractor requirement documents and Gallentine will stake the tile locations. Kramer will first flag where he plans on beginning and ending the project. Kramer is to remove dirt to widen the waterway and will seed once done. Kramer is to submit pictures of the project once complete and then no CGA oversight is needed. Kramer added that landowner, Arnie Luiken, was okay with the project and will be assisting Kramer.

DD 25 & DD 1 - Gallentine updated the Trustees that he will be submitting the Plans and Specifications at the next regular meeting for a bid letting to occur on February 13, 2019. Hoffman moved, Granzow seconded to set the bid letting date as Wednesday, February 13, 2019 at 1:00 PM in the lower level conference room of the courthouse. All ayes. Motion carried.

15. Adjourn Meeting

Hoffman moved, Granzow seconded to adjourn the meeting. All ayes. Motion carried.

PUBLIC HEARING ON ENGINEER'S REPORT ON REPAIRS TO MAIN OPEN DITCH, DRAINAGE DISTRICT 148, HARDIN COUNTY

1/16/2019 - Minutes

1. Open Meeting

Hardin County Board of Supervisors Chairperson, Renee McClellan, opened the meeting. Also present were Supervisors, Lance Granzow and BJ Hoffman; Landowners, Bill Ibeling, Kenneth Smith, Paul Enslin, Marie Rameyer, Brandon Pieper, Jim Bartling, Harold Muller, Dean Stalzer and Marvin Kramer; Lee Gallentine with Clapsaddle-Garber Associates (CGA); Drainage Clerk, Tina Schlemme.

2. Approve Agenda

Hoffman moved, Granzow seconded to approve the agenda as presented. All ayes. Motion carried.

3. Introductions/Attendance

Introductions were made and attendance verified.

4. Open Public Hearing

McClellan opened the public hearing.

5. Verify Publication

The publication was verified as being published in the Times Citizen on December 22, 2018.

6. Explanation Of Project

Gallentine explained the project as shown in the Engineer's Report dated November 30, 2018. He stated the upper 3,700' of the open ditch had 1/2 to 3 inches of siltation. Gallentine presented photos of washouts and surface drains.

7. Written Or Verbal Comments/Discussion

Smith questioned why so many surface outlets were needing replaced, in which Gallentine replied a lot of them looked rusty and they are easily damaged by the contractor during construction. They estimated 17 but this can always be reduced. The landowners agreed they would like to salvage what they can during the project. They would like to see UV resistant, PVC/sewer pipe included as an alternate bid item.

Smith also questioned why the fancy flared ends were included to which Gallentine explained they recommend them, but it is up to the Trustees discretion and they can remove them. The landowners agreed they would like to include this as an alternate bid item.

Landowners questioned why engineering is not a bid item like the contractor, to which Gallentine stated they could be if the Trustees preferred that. They also questioned why the fees were so high, in which Gallentine replied about 50% of the costs are field services/observations that the Trustees ask to be included. The landowners agreed they would like to bid the job first and to see who the contractor is and then decide if they want to include engineering observation at that time.

Landowners added they were unsure of why the seeding warranty was needed. They agreed they would like seeding to be included in the project, but the seeding warranty be an alternate bid item.

Reclassification options were discussed in which landowners agreed they would like to look at doing after the bid letting. Landowners stated there is a lot of trees east of T Avenue. It was discussed that Schlemme should let B & W Control know that the drainage district facility extends 400 feet east of T Avenue and to be sure they are spraying it.

Schlemme stated she had received two written letters of concern. Kenneth Smith stated his questions had been answered and Schlemme read David Keninger's letter outloud.

8. Close Public Hearing

McClellan closed the public hearing.

9. Possible Action

Granzow moved, Hoffman seconded to adopt the recommendations of the engineer's report with the changes discussed. All ayes. Motion carried.

Hoffman moved, Granzow seconded to direct CGA to prepare plans and specifications including the alternate bids items of the surface drains, flared ends and seeding warranty and to set a landowner meeting directly following the bid letting. All ayes. Motion carried.

10. Other Business

None.

11. Adjourn Meeting

Granzow moved, Hoffman seconded to adjourn the meeting. All ayes. Motion carried.

REGULAR DRAINAGE MEETING

1/23/2019 - Minutes

1. Open Meeting

Hardin County Board of Supervisors Chairperson, Renee McClellan, opened the meeting. Also present were Supervisors, Lance Granzow and BJ Hoffman; Landowner, Jerry Kramer; Lee Gallentine with Clapsaddle-Garber Associates (CGA); Drainage Clerk, Tina Schlemme.

2. Approve Agenda

Granzow moved, Hoffman seconded to approve the agenda as presented. All ayes. Motion carried.

3. Approve Claims For Payment

Hoffman moved, Granzow seconded to approve the claims for payment with pay date of Friday, January 25, 2019. All ayes. Motion carried.

DD 22 ENG SVCS 11/17-12/22/18	Clapsaddle-Garber Assoc	\$ 393.65
DD 38L4 WO 231 INVESTIGATION 5 HRS	Williams Excavation LLC	\$ 1,870.00
DD 55-3L9 WO 224 INVESTIGATIONS 4 HRS	Williams Excavation LLC	\$ 1,499.00
DD 72 WO 213 REPAIR	Williams Excavation LLC	\$ 1,868.90
DD 86 WO 172 REPAIR	Williams Excavation LLC	\$ 7,172.00
DD 86 WO 236 REPAIR	Williams Excavation LLC	\$ 2,071.60
DD 131 RECLASS SVCS 11/23-1/4/19	Clapsaddle-Garber Assoc	\$ 3,379.75
DD 131 CLASSIFICATION COMMISSION FEES	Prochaska, Dennis	\$ 145.20
DD 131 CLASSIFICATION COMMISSION FEES	Walters, Chuck	\$ 145.20
DD 143 GOLF COURSE SEEDING	Radcliffe Friendly Fairways	\$ 5,388.81
DD 167 WO 208 INVESTIGATION ON BLOWOUTS TO 1/4	Clapsaddle-Garber Assoc	\$ 363.05
DD 167 ENG RPT & SCANNING RECORDS 10/12-1/4/19	Clapsaddle-Garber Assoc	\$ 6,672.85

4. DD 25 & DD 1 - Approve Plans And Specifications

Discussion was had regarding the DD 1 project with explanation by the Trustees and Gallentine. Hoffman moved, Granzow seconded to approve the plans and specifications and continue with the set bid letting date of Wednesday, February 13, 2019 at 1:00 PM in the lower level conference room of the Hardin County Courthouse. All ayes. Motion carried.

5. DD 52 - Discuss, With Possible Action, Attorney Update

No update at this time.

6. Other Business

DD 26 Lat 4 - Schlemme updated the Trustees that she spoke with Randy Silvest regarding his wet spot concern on the Krause farm. He has farmed it for 20 years and does not believe there are any private tiles in the area that would have been missed being connected during the 2011 project. Granzow moved, Hoffman seconded for Thomas to investigate to verify that the old clay tile is flowing and report back. Schlemme is to contact Silvest and see if he would like to pay to have an intake installed while they open up the tile to investigate. All ayes. Motion carried.

7. Adjourn Meeting

Hoffman moved, Granzow seconded to adjourn the meeting. All ayes. Motion carried.

**DRAINAGE DISTRICT 55-3 LATERAL 9
LANDOWNER MEETING**

1/23/2019 - Minutes

1. Open Meeting

Hardin County Board of Supervisors Chairperson, Renee McClellan, opened the meeting. Also present were Supervisors, Lance Granzow and BJ Hoffman; Landowners, Randy Dubberke, Al Uhrhammer, Mark Granzow, Scott Thompson, Mike Fiscus and Tara Yoder; Lee Gallentine with Clapsaddle-Garber Associates (CGA); Drainage Clerk, Tina Schlemme.

2. Approve Agenda

Granzow moved, Hoffman seconded to approve the agenda as presented. All ayes. Motion carried.

3. Attendance/Introductions

Introductions were made and attendance verified.

4. Explanation Of Project

The meeting was turned over to Gallentine who explained that a blowout was investigated and it was determined that approximately 150' to 200' of tile is plugged with tree roots, including under 280th Street. The tile is concrete so it should withstand root cutting/jet cleaning but because there isn't a readily water source available, they would need to bring both jetter trucks and shuttle them to Hubbard/Radcliffe for water. The cost would be about \$600 an hour and there's no estimate on how long it would take to jet clean it. Depending on the length of time, it may be cheaper to completely replace the tile instead of jet cleaning it.

5. Comments/Discussion

Mark Granzow stated he had Drain Tech pull out tree roots in 2008 on his own, so they are probably due again. There was much discussion if the tile was district or private. By looking at the district maps, it was agreed that if a tile locate was performed and the tile ran southwest from the road, it was more than likely private tile. If the tile runs straight south of the road, then it would be district tile.

After being asked, the majority of landowners stated they believe replacing the tile would be a better option than jet cleaning. It was discussed that the road crossing area would be paid for by secondary roads. The landowners agreed that the trees definitely need removed. Gallentine asked they were okay with the contractor burning the trees on site and all agreed it was okay.

6. Possible Action

Granzow moved, Hoffman seconded for the district to remove the trees within the right of way. Landowners are to perform exploratory research this upcoming spring to locate the tile to verify if it is private of drainage district. They are to contact the drainage clerk with their findings. If the tile is district, then the Trustees will move forward with replacing the tile. All ayes. Motion carried.

7. Other Business

None.

8. Adjourn Meeting

Hoffman moved, Granzow seconded to adjourn the meeting. All ayes. Motion carried.



Drainage Work Order Request For Repair

Hardin County

Date: 10/15/2018

Work Order #: WO00000226

Drainage District: Drainage Districts \DD 25 (51048)

Sec-Twp-Rge: 22-86-22 Qtr Sec: SW

Location/GIS: 86-22-22-326-002

Requested By: LaVerne Severseike

Contact Phone: (515) 290-2614

Contact Email: _____

Landowner (if different): Keith Dubberke

Description: DD 25 Lat 3 - Water boiling out of ground, just NW of previous repair in apple orchard.

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: _____

Drainage District:

#25 Lateral 3

Repair Summary:

- Per recommended actions of previous investigation summary:
 - Removed trees and stumps above tile and in nearby vicinity.
 - Excavated and found concrete collar at upstream end of previous repair.
 - Removed concrete collar along with 160± feet of existing VCP upstream from this point.
 - Repaired with 10-inch perforated dual wall HDPE tile with rock backfill/bedding.
 - Connected repaired tile to existing tile with factory snap collar at downstream end and concrete collar at upstream end.
 - Filled excavations with on-site soil.
- Contractor indicated that tree removal debris would be removed from the site and remaining stumps treated the following week.

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

See attached Tabulated Contractor Time and Materials Sheet.

Additional Actions Recommended:

- Verify with contractor that that tree removal debris was removed from the site and stumps treated.
- If necessary in the spring, direct contractor to smooth the site or address any settling that has occurred over the winter.



Tabulated Contractor Time and Materials

Date	Totals	12/13/2018	12/14/2018
Workman (hrs)	39.0	19.5	19.5
Dump Truck (hrs)	13.5	7	6.5
Mini Excavator (hrs)	13.5	7	6.5
Skid Loader (hrs)	13.5	7	6.5
10" HDPE Snap Coupler (ea.)	1.0	1	
10" Perforated Dual Wall HDPE (ft.)	156.7	60.2	96.5
Tree and stump removal	Yes		
1" Rock Bedding	Yes		
Concrete Collar (ea.)	1.0		1

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE: 12/13/2018

PROJECT NUMBER:

6501.6 WO# 226

DAYS OF WEEK:

S	M	T	W	<u>T</u>	F	S
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COUNTY, ROUTE, ROAD:

HARDIN COUNTY OD

SHEET NO.

1 OF 4

LOCATION:

SOUTH OF COUNTY S-27 IN NW 1/4 SW 1/4
22-86-22 HARDIN COUNTY & WEST SIDE
OF GARDEN CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN
COUNTY

LOWER 20'S TO MID 30'S CLOUDY
WITH LIGHT WINDS

JOB# 6501 DD25 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

7:40 A.M. OBSERVER LEFT OFFICE AND HEADED TO SITE.

8:25 A.M. OBSERVER SET GPS BASE ON GPS# 8011 HARDIN COUNTY GPS MONUMENT
#8011.

9:00 A.M. OBSERVER ARRIVED ONSITE AND CHECKED INTO GPS# 220
5/8" Ø BROWNEROD FLUSH & 2.8' ± EAST OF FENCE N-S &
129.0' ± SOUTH OF TILE REPAIR. WILLIAMS EXCAVATING HAD
A 2 MAN CREW ON SITE (DOUG AND BRAD) WITH BOBCAT E85
MINI EXCAVATOR, BOBCAT T300 TRACKED SKID LOADER, & DUMP TRUCK
ON SITE FOR EQUIPMENT.

9:24 A.M. PICTURE #2249 SEE PICTURE FOR DETAILS

9:25 A.M. WILLIAMS CREW WAS STARTING TO CUT DOWN 22" Ø ASH
& 15" MULBERRY TREE WITH STIHL CHAINSAW THAT WAS
ABOVE COUNTY TILE & JUST EAST OF FENCE LINE N-S
ON WEST SIDE OF GARDEN CITY.

9:35 A.M. WILLIAMS CREW HAD 15" Ø MULBERRY & 22" Ø ASH
TREE CUT DOWN & STARTED TO MOVE THEM TO FIELD
& PILE THEM UP FOR NOW.

9:38 A.M. PICTURE # 2250 SEE PICTURE FOR DETAILS.

9:39 A.M. PICTURE # 2251 SEE PICTURE FOR DETAILS.

10:10 A.M. PICTURE # 2252 SEE PICTURE FOR DETAILS.

10:10 A.M. OBSERVER STAKED LOCATION OF GPS# 218 TOP 8"
CLAY TILE END OF PREVIOUS REPAIR. 3.9' ± DEEP FROM
TOP OF GROUND TO TOP OF TILE.

10:00 A.M. WILLIAMS CREW STARTED TO EXPOSE EXISTING
CONCRETE COLLAR AT START OF SE END OF REPAIR
(10" DW PERFORATED TILE (0.87' TOP TO FL)). CREW WAS

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Jean Penning

Date Prepared:

12/13/2018

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

12/13/2018

PROJECT NUMBER:

6501.6 WO#226

DAYS OF WEEK:

S M T W Th F S

COUNTY, ROUTE, ROAD:

HARDIN COUNTY DD#25
TILE REPAIR LATERAL #3 PLUG

SHEET NO.

2 OF 4

LOCATION:

SOUTH OF COHWY S-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY & WEST SIDE OF GARDEN
CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

LOWER 20'S TO MID 30'S CLOUDY
WITH LIGHT WINDS

JOB# 6501.0025 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

ALSO GOING TO EXPOSE EXISTING 8" CLAY TILE JUST
WEST OF FENCE N-S TO FIGURE OUT GRADE FOR TILE REPAIR.

10:10 A.M. PICTURE # 2253 SEE PICTURE FOR DETAILS.

10:15 A.M. OBSERVER LEFT SITE TO SET CONTROL POINT CLOSER

SINCE GPS WAS FIXING AND NOT FIXING ALL THE
TIME. SCANNER WAS NOT PICKING UP ANY INTERFERENCE.

10:20 A.M. PAUL ARRIVED ON SITE WITH TRAILER LOAD OF

8-10" DUAL WALL HDPE PERFORATED TILE

10:26 A.M. OBSERVER SET 3/4" Ø IRON ROD 0.1' DEEP GPS# 313 IN

NW CORNER DRIVE ON WEST SIDE SIDE OF COHWY S-27 (FIELD DRIVE &
31459, 31461, & 31463 WIND TURBINE GRAVEL DRIVE).

10:30 A.M. PAUL LEFT WITH DUMP TRUCK TO GET A LOAD OF
1" CLEAN ROCK FROM GEHRKE QUARRIES.

11:00 A.M. OBSERVER HAD GPS BASE SET UP ON GPS# 313

3/4" Ø IRON ROD 0.1' DEEP AND CHECKED INTO GPS# 220

5/8" Ø IRON ROD FLUSH (2.8' ± EAST OF FENCE N-S ON WEST SIDE
OF GARDEN CITY 129' ± SOUTH OF TILE REPAIR. GPS CHECKED

GOOD BOTH ON HORIZONTAL AND VERTICAL POSITION. GPS IS NOW

STAYING FIXED MUCH BETTER.

11:16 A.M. PICTURE # 2254 SEE PICTURE FOR DETAIL.

11:20 A.M. OBSERVER CHECKED 10" HDPE DW PER TILE (TOP TO FL 0.87')

11:20 A.M. WILLIAMS CREW HAD HOLE EXCAVATED TO EXPOSE
TILE. WATER STARTED TO FLOW INTO HOLE SO CREW DID NOT

WANT TO EXPOSE TILE. OBSERVER SHOT GPS# 313

GS IN EXCAVATED HOLE (GROUND TO TOP TILE 1.97') & USED
PREVIOUS 8" CLAY TILE TOP TO FL 0.72' = 1192.137 - 1.97 - 0.72'

APPROXIMATE FL (NW END OF REPAIR) = 1189.442

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Peary

Date Prepared:

12/13/2018

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

12/13/2018

DAYS OF WEEK:

S M T W Th F S

PROJECT NUMBER:

6501.6 WO#226

COUNTY, ROUTE, ROAD:

HARDIN COUNTY DD#25

SHEET NO.

3 OF

4

LOCATION:

SOUTH OF CO HWY 5-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY & WEST SIDE OF GARDEN
CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

LOWER 20'S TO MID 30'S CLOUDY
WITH LIGHT WINDS

JOB# 6501 DD25 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

11:45 A.M. PAUL BACK ON SITE WITH LOAD #1 OF T" CLEAN
ROCK FROM GEHRKE QUARRIES.

12:00 P.M. CREW STOPPED FOR LUNCH.

12:30 P.M. CREW DONE WITH LUNCH AND STARTED TO EXCAVATE
FOR 1ST SECTION OF 10" HDPE DW PERF TILE FOR 4" OF
BEDDING ROCK IN TRENCH & REMOVE CONCRETE COLLAR.

12:40 P.M. OBSERVER SHOT GPS # 316 TOP 10" DUAL WALL PERFORATED
TILE (TIE IN FROM PREVIOUS REPAIR SOUTH OF CONCRETE COLLAR.)

$$1189.318 - 0.87' = 1188.448 \text{ FL}$$

$$\text{GRADE} = (1189.447 - 1188.448) / 148.546' = .006725$$

WILLIAMS EXCAVATING WILL SET THEIR GRADE LASER TO
.0065, 3.0' ± WIDE TRENCH.

12:52 P.M. PICTURE # 2255 & # 2256 SEE PICTURE FOR DETAILS.

1:03 P.M. PICTURE # 2257 SEE PICTURE FOR DETAILS.

1:05 P.M. OBSERVER SHOT GPS. GPS # 323 TOP 1ST 10" DW HDPE PERF
(4.0' ± DEEP)

$$\text{TILE } (0.87' \text{ TOP TO FL}) = 1189.475 \quad 1188.45 + (.0067 \times 20.18) + 0.87$$

$$0.015' \text{ HIGHER (GPS)} = 1189.46 = \text{PLAN TOP TILE}$$

1:19 P.M. PICTURE # 2258 SEE PICTURE FOR DETAILS.

1:20 P.M. PICTURE # 2259 SEE PICTURE FOR DETAILS.

1:15 P.M. WILLIAMS CREW HAD 2ND 10" DUAL WALL HDPE PERF TILE
I SNAPPED IN PLACE WITH 4" OF BEDDING ROCK UNDER TILE IN BOTTOM OF
TRENCH USING GRADE LASER AND TAMPING IN ROCK TO 8" ABOVE TOP OF TILE

1:28 P.M. OBSERVER SHOT GPS # 324 (4.2' ± DEEP) TOP 2ND 10" DW HDPE
PERF TILE (0.87' TOP TO FL = 1189.616

$$1188.45 + (.0067 \times 40.2) + 0.87 = 1189.59$$

$$0.025' \text{ HIGHER (GPS)}$$

PLAN
TOP TILE

1:58 P.M. PICTURE # 2260 SEE PICTURE FOR DETAILS.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Peary

Date Prepared:

12/13/2018

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

12/13/2018

DAYS OF WEEK:

S M T W Th F S

PROJECT NUMBER:

6501.6 WO#226

COUNTY, ROUTE, ROAD:

HARDIN COUNTY DD#25
LATERAL #3 PLUGGED TILE REPAIR

SHEET NO.

4 OF 4

LOCATION:

SOUTH OF COHWAY S-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY, WEST SIDE OF GARDEN
CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

LOWER 20'S TO MID 30'S CLOUDY
WITH LIGHT WINDS

JOB# 6501 DD25 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

2:15 P.M. WILLIAMS CREW HAD 3RD 10" DW HOPE PERF TILE
SNAPPED, IN PLACE WITH BOTTOM OF TRENCH GRADED
FOR 4" OF BEDDING ROCK UNDER TILE WITH GRADE LASER
AND CREW BEDDING ROCK TO 8" ABOVE TOP OF TILE.

2:20 P.M. OBSERVER SHOT GPS#328 (4.4' ± DEEP) TOP 3RD 10" DW
HOPE PERF TILE (0.87' TOP TO FC) = 1189.724 GOOD = (GPS)
 $1188.45 + (.0067 \times 60,20) + 0.87 = 1189.723$ (PLAN TOP TILE)

2:32 P.M. PICTURE #2261 & #2262 SEE PICTURE FOR DETAILS.

2:56 P.M. PICTURE # 2264 SEE PICTURE FOR DETAILS.

3:04 P.M. PICTURE # 2265 SEE PICTURE FOR DETAILS.

3:05 P.M. WILLIAMS CREW STARTING TO BACKFILL SOIL IN TRENCH.

3:23 P.M. PICTURE # 2266 SEE PICTURE FOR DETAILS.

4:01 P.M. PICTURE # 2267 SEE PICTURE FOR DETAILS.

3:55 P.M. PAUL BACK ON SITE WITH DUMP TRUCK AND
2ND LOAD OF 1" CLEAN ROCK.

4:06 P.M. PICTURE # 2268 SEE PICTURE FOR DETAILS.

4:10 P.M. OBSERVER AND WILLIAMS CREW LEFT SITE.

WILLIAMS EXCAVATING 2 MAN CREW 1 1/2 HRS 3 MAN CREW 5 1/2 HRS

DUMP TRUCK ON SITE 7 HRS

BOBCAT E85 MIN EXCAVATOR 7 HRS

BOBCAT T300 TRACK SKIDLOADER 7 HRS

10" HOPE SNAP COUPLER

60.2 LF OF 10" HOPE DW PERF TILE

STIHL CHAINSAW 1 HR

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Peary

Date Prepared:

12/13/2018

Reviewed by:

Engineer

Date Reviewed

PICTURE # 2249 IS LOOKING SOUTH JUST EAST OF N-S FENCE LINE WEST SIDE OF GARDEN CITY SHOWING 2 BATTERIES, METAL ROD, AND ANOTHER METAL PART REMOVED BY CREW BEFORE CUTTING DOWN 22" Ø ASH TREE. CREW SAID THEY WILL HAUL THESE ITEMS BACK TO THEIR SHOP TO DISPOSE OF THEM PROPERLY.



↓ N

12/13/2018
09:24



← FENCE N-S ON WEST SIDE

↓ N

12/13/2018
09:38

PICTURE # 2250 IS LOOKING SWI SHOWING 30" STUMP CLUSTER ABOVE TILE LINE THAT WILL BE REMOVED

PICTURE # 2251 IS LOOKING WEST TOWARDS FIELD ON WEST SIDE OF GARDEN CITY SHOWING 15" MULBERRY, 6" MULBERRY & 22" ASH TREE CUT DOWN ABOVE TILE.



PICTURE # 2252 IS LOOKING SOUTH SHOWING AREA ABOVE TILE WHERE 30" STUMP, 15" STUMP, 6" STUMP, & 22" STUMP WAS REMOVED.

PICTURE# 2253 IS LOOKING NW SHOWING TREES AND STUMPS THAT WERE REMOVED AND PILED UP IN FIELD WEST OF GARDEN CITY.



GPS# 3187
EXISTING
CONCRETE
COLLAR
BETWEEN
10" OD PERF
TILE &
8" CLAY
TILE
ON PREVIOUS
REPAIR

PICTURE# 2254 IS LOOKING SE SHOWING CONCRETE COLLAR FROM PREVIOUS REPAIR (NORTH END). CREW WILL REMOVE CONCRETE COLLAR AND USE 10" HDPE SNAP COUPLER FOR CONNECTION
NOTE: INSIDE OF TILE HAD ONLY A FEW STRINGY ROOTS INSIDE TILE.

PICTURE# 2255 IS LOOKING NW SHOWING GRADE LASER SET UP AND SET TO .65% TO GRADE BOTTOM OF TRENCH FOR 4" BEDDING ROCK & TOP OF ROCK 6" TO 12" ABOVE TOP OF TILE.



(3.9'± DEEP)
 GPS# 316 TOP
 EXISTING 10" HDPE DW PERF TILE (0.87' TOP TO FL)
 GPS# 317
 TOP 10" HDPE SNAP COUPLER (3.9'± DEEP)

PICTURE # 2256 IS LOOKING NW SHOWING WILLIAMS CREW GRADING BOTTOM OF TRENCH FOR 4" OF BEDDING ROCK UNDER NEW TILE WITH GRADE LASER. ALSO SHOWS 10" SNAP COUPLER ON EXISTING 10" DW HDPE PERF TILE BEFORE 1ST NEW 10" DW HDPE PERF TILE INSTALLED.

PICTURE # 2257 IS LOOKING NW SHOWING WILLIAMS CREW TAMPING IN BEDDING ROCK AROUND TILE FOR 1ST NEW SECTION OF 10" HOPE DW PERFORATED TILE.



PICTURE # 2258 IS LOOKING NW SHOWING WILLIAMS CREW HAVING BEDDING ROCK BACK FILLED AROUND TILE TO 8" ABOVE TOP OF TILE. OBSERVER CHECKED TOP ROCK USING GPS.

PICTURE # 2259 IS LOOKING NORTH SHOWING MORE FINE
ROOTS INSIDE EXISTING 8" CLAY TILE NW OF END OF
1ST 10" SECTION OF HDPE DW PERF TILE.

N



N

PICTURE # 2260 IS LOOKING NW SHOWING 2 ROOT BALLS
PULLED FROM INSIDE EXISTING 8" CLAY TILE ABOUT
8' TO 10' NW OF END OF 2ND NEW TILE FOR TODAY.

PICTURE # 2261 IS LOOKING SE SHDWING SHOWING 3 TREES THAT WILL BE CUT DOWN DUE TO BEING WITH IN 50' OF TILE,

27" TREE CUT DOWN 19.5' OFF TILE & GROWING BACK TO SW

22" ASH 29.5' OFF TILE TO SW



27" GRUBS IN TREE TREE CUT DOWN 19.5' OFF TILE & GROWING BACK TO SW

22" ASH 29.5' OFF TILE TO SW



PICTURE # 2262 IS LOOKING SE SHOWING 27" JUNK TREE BEING REMOVED. MOST OF IT IS ROTTEN

PICTURE# 2264 IS LOOKING SE FROM END 3RD FULL SECTION OF TILE SHOWING BEDDING ROCK TO 8" ABOVE TOP OF TILE.



CPS#
328
TOP 3RD 10"
HDPE DW
PERF TILE
(0.87' TO TOP FL)
(1ST RIB SE)
(OF BELL)



PICTURE# 2265 IS LOOKING NW EXISTING 8" CLAY TILE STILL FLOWING BUT 3/4 FULL OF ROOTS 8' TO 10' NW OF END OF 3RD NEW FULL SECTION OF 10" DW HDPE PERF TILE FOR DAY.

PICTURE # 2266 IS LOOKING NW SHOWING SUBSOIL BACK FILLED INTO TRENCH ON TOP OF BEDDING ROCK,



PICTURE # 2267 IS LOOKING NW SHOWING TOPSOIL PLACED ON TOP OF TRENCH.

PICTURE #2268 IS LOOKING WEST SHOWING 27" ϕ ^{SCRAP} TREE
REMOVED & 22" ASH, 12" SCRAP TREE CUT DOWN.



CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

12/14/2018

DAYS OF WEEK:

S M T W T F S

PROJECT NUMBER:

6501.6 WO#226

COUNTY, ROUTE, ROAD:

HARDIN COUNTY DD#25
REPAIR TO PLUGGED LATERAL #3

SHEET NO.

1 OF 4

LOCATION:

SOUTH OF CO HWY 5-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY, & WEST SIDE OF GARDEN
CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

LOWER 20 TO LOWER 40'S FOGGY
TILL MIDDAY THEN SUNNY WITH
LIGHT WINDS JOB# 6501.0025 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

7:45 A.M. OBSERVER LEFT OFFICE FOR SITE

8:30 A.M. OBSERVER ARRIVED ON SITE. WILLIAMS EXCAVATING CREW
HAD 3 MAN CREW ON SITE (DOUG, BRAD, & WILLIAM). CREW HAD
DUMP TRUCK WITH LOAD #2 OF 1" CLEAN ROCK, BOBCAT T300
TRACKED SKID LOADER, BOBCAT E85 MINI EXCAVATOR ON
SITE. OBSERVER LET CREW KNOW THAT WE MAY WANT WANT TO
CHANGE GRADE LASER TO .60% FOR REST OF REPAIR
FOR A FACTOR OF SAFETY SINCE WE DO NOT HAVE
NW END OF REPAIR EXPOSED YET.

8:45 A.M. OBSERVER SET GPS BASE ON GPS# 313 3/4" IRON ROD (0.1' DEEP)
ON WEST SIDE OF CO HWY 5-27, IN NW COR OF (FIELD DRIVE &
31459, 31461, & 31463 WIND TURBINE GRAVEL DRIVE.

9:00 A.M. OBSERVER CHECKED INFO GPS 220 5/8" IRON ROD FLUSH
28' EAST OF FENCE N-S ON WEST SIDE OF GARDEN CITY & 129'±
SOUTH OF TILE REPAIR, GPS CHECKED GOOD BOTH ON
HORIZONTAL AND VERTICAL POSITION.

9:20 A.M. WILLIAMS CREW HAD 4TH NEW 10" DWH HOPE PERF TILE
SNAPPED IN PLACE WITH 4" BEDDING ROCK IN BOTTOM OF TRENCH
USING GRADE LASER AND TAMPING ROCK TO 8" ABOVE TOP
OF TILE. (3.0'± WIDE TRENCH)

9:25 A.M. OBSERVER SHOT GPS# 329 TOP 4TH 10" DWH HOPE PERF TILE (4.5'± DEEP)
 $(0.87' \text{ TOP TO FL} = 1189.849 \quad ((1188.45 + (.0067 \times 80.16)) + 0.87 = 1189.857$
(WILLIAMS LASER SET NOW TO .60%) 0.01' LOW = (GPS) PLAN TOP TILE

9:26 A.M. PICTURE # 2269 SEE PICTURE FOR DETAILS,

10:03 A.M. PICTURE # 2270 SEE PICTURE FOR DETAILS,

10:15 A.M. WILLIAMS CREW HAD 5TH NEW 10" DWH HOPE PERF TILE SNAPPED IN

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

Dean Perry

Date Prepared:

12/14/2018

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE: 12/14/2018

DAYS OF WEEK:

S	M	T	W	TH	F	S
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S	M	T	W	TH	F	S
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SHEET NO. 2 OF 4

2 OF 4

PROJECT NUMBER: 6501.6 WO#226

COUNTY, ROUTE, ROAD: HARDIN COUNTY DD#25

LOCATION: SOUTH OF CO HWY 5-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY & WEST SIDE OF GARDEN
CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

LOWER 20' TO LOWER 40'S FOGGY
TILL MIDDAY THEN SUNNY WITH
LIGHT WINDS

JOB# 6501 DD25 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

PLACE WITH 4" OF BEDDING ROCK IN BOTTOM OF TRENCH USING
GRADE LASER AND TAMPING BEDDING ROCK TO 8" ABOVE TOP
OF TILE (3.0' ± WIDE TRENCH)

10:36 A.M. PICTURE# 2271 SEE PICTURE FOR DETAILS.

10:17 A.M. OBSERVER SHOT GPS# 330 TOP 5TH 10" HDPE PERF TILE
4.8' ± DEEP (0.87' TOP TO FL) = 1189.969 1188.45 + (0.0667 x 100.08) + 0.87
0.021' LOW = 6PS 1189.99 = PLAN TOP TILE

10:37 A.M. PICTURE# 2272 SEE PICTURE FOR DETAILS.

10:30 A.M. WILLIAM LEFT WITH DUMP TRUCK TO GET 3RD LOAD
OF 1" CLEAN ROCK FOR JOB.

10:40 A.M. DOUG RECEIVED A CALL FROM WILLIAM THAT DUMP
TRUCK EITHER RAN OUT OF FUEL OR GELED UP. DOUG AND
BRAD LEFT SITE TO GET DUMP TRUCK GOING AGAIN

11:15 A.M. DOUG AND BRAD BACK ON SITE AFTER GETTING DUMP TRUCK
GOING AGAIN AND CONTINUED TO EXCAVATE FOR
6TH NEW 10" HDPE DW PERF TILE.

11:45 A.M. WILLIAMS CREW HAD 6TH NEW 10" HDPE PERF TILE SNAPPED
IN PLACE WITH 4" BEDDING ROCK IN BOTTOM OF TRENCH
USING GRADE LASER AND TAMPING ROCK TO 8" ABOVE TOP
OF TILE (3.0' ± WIDE TRENCH)

11:50 A.M. OBSERVER SHOT GPS# 331 TOP 6TH 10" DW HDPE PERF
TILE 5.2' ± DEEP (0.87' TOP TO FL) = 1190.08 1188.45 + (0.0667 x 120.21)
WILLIAMS CREW GRADE LASER SET TO 1.6% STILL 0.45' LOW = 6PS 1190.125 = + 0.87 PLAN TOP TILE

12:15 P.M. WILLIAM BACK WITH DUMP TRUCK & 3RD LOAD OF
1" CLEAN ROCK. WILLIAMS CREW STOPPED FOR LUNCH.

12:20 P.M. PICTURE# 2273 SEE PICTURE FOR DETAILS.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature: Dean Peary

Date Prepared: 12/14/2018

Reviewed by: _____

Engineer

Date Reviewed: _____

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

12/14/2018

DAYS OF WEEK:

S	M	T	W	T	F	S
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SHEET NO.

3 OF 4

PROJECT NUMBER:

6501.6 WO#226

COUNTY, ROUTE, ROAD:

HARDIN COUNTY DD#25
REPAIR TO PLUGGED LATERAL#3

LOCATION:

SOUTH OF COHAWY S-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY & WEST SIDE OF GARDEN
CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

LOWER 20 TO LOWER 40'S FOGGY
TILL MIDDAY THEN SUNNY WITH LIGHT
WINDS
JOB# 6501 DD25 SURVE

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB
NAME, ITEM NO. AND LOCATION

12:30 P.M. PICTURE # 2274, # 2275, & # 2276 SEE PICTURE FOR DETAILS.

12:45 P.M. CREW DONE WITH LUNCH. EXISTING TILE
STILL HAS ROOTS IN TILE AT END OF 7TH NEW 10" HDPE
DW PERF TILE

12:50 P.M. WILLIAMS CREW REMOVED SEVERAL SECTIONS
OF EXISTING 8" CLAY TILE WITH TILE LOOKING
PRETTY CLEAN NOW

1:00 P.M. WILLIAMS EXCAVATING CREW HAD 7TH NEW 10" HDPE
PERF TILE SNAPPED IN PLACE WITH 4" BEDDING ROCK
UNDER TILE IN BOTTOM OF TRENCH USING GRADE LASER
AND TAMPING BEDDING ROCK AROUND TILE TO 8" ABOVE
TOP OF TILE. (3.0'± WIDE TRENCH)

1:00 P.M. OBSERVER SHOT GPS # 332 TOP 7TH 10" DW HDPE PERF
TILE 5.9'± DEEP (0.87' TOP TO FL) = 1190.207 1188.45 + (.0067 x 140.201)
WILLIAMS CREW GRADE LASER SET TO 1.69± STILL .052 LOW = 6PS 1190.259 ± 0.87 = PLAN TO TILE

1:31 P.M. PICT # 2277 SEE PICTURE FOR DETAILS.

1:41 P.M. PICT # 2278 & # 2279 SEE PICTURE FOR DETAILS

1:44 P.M. OBSERVER SHOT GPS # 333 TOP EXISTING 8" CLAY TILE
(0.72' TOP TO FL) 1190.184

2:05 P.M. PICTURE # 2280 SEE PICTURE FOR DETAILS

2:12 P.M. PICTURE # 2282 & # 2283 SEE PICTURE FOR DETAILS.

2:09 P.M. WILLIAMS CREW STARTING BACK FILLING SUB SOIL ON
TOP OF BEDDING ROCK IN TRENCH & STARTED MIXING
CONCRETE FOR CONCRETE COLLARS

2:24 P.M. PICTURE # 2284 SEE PICTURE FOR DETAILS.

2:54 P.M. PICTURE # 2285 SEE PICTURE FOR DETAILS.

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

*Dean P...
P...*

Date Prepared:

12/14/2018

Reviewed by:

Engineer

Date Reviewed

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE: 12/14/2018

DAYS OF WEEK: S M T W T F S

PROJECT NUMBER: 6501.6 WO#226
COUNTY, ROUTE, ROAD: HARDIN COUNTY DD#25
LOCATION: SOUTH OF HWY 5-27 IN NW 1/4 SW 1/4 22-86-22
HARDIN COUNTY & WEST SIDE OF GARDEN CITY IN NE 1/4 SW 1/4 22-86-22 HARDIN COUNTY

SHEET NO. 4 OF 4
LOWER 20'S TO LOWER 40'S FOGGY TILL MIDDAY THEN SUNNY WITH LIGHT WINDS
JOB# 6501 DD25 SURVEY

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

3:01 P.M. PICTURE # 2286 SEE PICTURE FOR DETAILS -
3:52 P.M. PICTURE # 2287 SEE PICTURE FOR DETAILS
3:53 P.M. PICTURE # 2288 SEE PICTURE FOR DETAILS
4:00 P.M. WILLIAMS CREW & OBSERVER LEFT FOR DAY
WILLIAMS CREW SAID THEY WILL BE BACK ON MONDAY 12/17/2018 TO CLEAN UP TREES AND TORDON STUMPS.

WILLIAMS EXCAVATING 3 MAN CREW 6 1/2 HOURS
DUMP TRUCK ON SITE 6 1/2 HOURS
BOBCAT E85 MINI EXCAVATOR 6 1/2 HOURS
BOBCAT T300, TRACKED SKIDLOADER 6 1/2 HOURS

96.5 LF OF 10" HDPE DW PERF TILE
2.0' X 3.0' ENGINEERING FABRIC
2.0' X 4.5' 6" X 6" SQUARE WIRE MESH
7 BAGS OF SAKRETE (FAST SETTING 50 LB BAGS)

15.1 STONS LOAD #1 12/13/2018 GEHRKE QUARRIES, INC 1" CLEAN ROCK TICKET #154198
14.78 TONS LOAD #2 12/13/2018 GEHRKE QUARRIES, INC 1" CLEAN ROCK TICKET #154209
15.5 STONS LOAD #3 12/14/2018 GEHRKE QUARRIES, INC 1" CLEAN ROCK TICKET #154215
(NOTE DID NOT USE APPROXIMATELY 3 TO 4 TONS OF 3RD LOAD)

NOTE: THINGS TO DO YET ON PROJECT

- ① CLEAN UP TREE & STUMP PILES
- ② TORDON 12" SCRAP TREE & 22" ASH TREE STUMPS
- ③ SPRING DRESS UP TRENCH BACKFILL SOIL & SEED

I Certify that the work described in this report was incorporated into this contract unless otherwise noted.
Observer's Signature: Dean Peary Date Prepared: 12/14/2018
Reviewed by: _____ Engineer _____ Date Reviewed _____

PICTURE # 2269 IS LOOKING NW SHOWING 4TH NEW 10" HDPE DW PERK TILE SNAPPED IN PLACE WITH 4" BEDDING ROCK UNDER TILE USING GRADE LASER AND READY TO TAMP IN BEDDING ROCK AROUND TILE TO 8" ABOVE TOP OF TILE,



GPS # 328
TDP SRD
10" DW HDPE
PERK TILE
(0.87' TO TOP OF)
1ST RIBSE OF
BELL

12/14/2018
09:26



PICTURE # 2270 IS LOOKING NW SHOWING TILE BEDDED WITH 1" CLEAN ROCK TO 8" ABOVE TOP OF TILE. OBSERVER CHECKED TOP OF ROCK WITH GPS. PICTURE ALSO SHOWS CREW GRADING FOR 4" OF BEDDING ROCK UNDER 5TH NEW TILE USING GRADE LASER. A 3.0' ± WIDE TRENCH

12/14/2018
10:03

PICTURE # 2271 IS LOOKING NW INSIDE EXISTING 8" CLAY TILE WITH TILE STILL 3/4 FULL OF ROOTS JUST NW OF 5TH NEW 10" HDPE DW PERF TILE.



PICTURE # 2272 IS LOOKING NW SHOWING BEDDING ROCK TO 8" ABOVE TOP OF TILE ON 4TH & 5TH NEW 10" HDPE DW PERF TILE SET. OBSERVER CHECKED TOP OF ROCK WITH GPS.

PICTURE #2273 IS LOOKING NW ABOUT 15' ± NW OF END OF 6th NEW 10" HDPE DW PERF TILE SHOWING TILE IS STILL FLOWING BUT 3/4 FULL OF ROOTS



Gehrke Quarries, Inc.	
154198	
P.O. BOX 521 ELDORA, IOWA 50627 PHONE: (641) 486-2201	
Order No.	12/13/18
Sold To:	Date:
<i>Williams Excavating</i>	
Project No.:	
GROSS:	30960
TARE:	10560
NET:	20400
TONS:	15.15 TONS
Haul Rate	Price:
Iowa Secretary of Agriculture Certified Pounds E.C.C.E. per ton. 10139	Description 1" (CLEAN)

12/14/2018
12:30

PICTURE # 2274 12/13/2018 LOAD # 1 OF 1" CLEAN ROCK 15.15 TONS

PICTURE # 2275 12/13/2018 LOAD # 2 OF 1" CLEAN ROCK
14.78 TONS

Gehrke Quarries, Inc.	
P.O. BOX 521 ELDORA, IOWA 50627 PHONE: (641) 486-2201	
Order No.	Date:
Sold To:	<i>Williams Excavating</i>
Project No.:	
GROSS:	50120
TARE:	2550
NET:	47570
TONS:	14.78 TONS
Haul Rate	Price:
Iowa Secretary of Agriculture Certified Pounds E.C.C.E. per ton.	Description 1" CLEAN
This is to certify that the material herein described meets the applicable contract specifications & requirements #A42004	
Signature	

12/14/2018
12:30

Gehrke Quarries, Inc.	
P.O. BOX 521 ELDORA, IOWA 50627 PHONE: (641) 486-2201	
Order No.	Date:
Sold To:	<i>Williams Excavating</i>
Project No.:	
GROSS:	51680
TARE:	2550
NET:	49130
TONS:	15.55 TONS
Haul Rate	Price:
Iowa Secretary of Agriculture Certified Pounds E.C.C.E. per ton.	Description 1" CLEAN
This is to certify that the material herein described meets the applicable contract specifications & requirements #A42004	
Signature	

12/14/2018
12:30

PICTURE # 2276 12/14/2018 LOAD # 3 OF 1" CLEAN ROCK
15.55 TONS (THOUGHT ABOUT 3 TO 4 TONS OF THIS
LOAD NOT USED)

PICTURE # 2277 IS LOOKING NW SHOWING AT ANOTHER SECTION OF 8" CLAY TILE WITH FINE ROOTS INSIDE WITH SOME FINE ROOTS & OFFSET JOINT AT NW END OF ANOTHER 2 SECTIONS OF CLAY TILE, CREW WILL REMOVE ANOTHER



2 SECTIONS OF CLAY TILE.
N ↗



GPS # 333
TOP EXISTING
8" CLAY
(0.72' TO PTD)
FL
(NW END)
TIE IN
(6.1' ± DEEP)

N ↗

PICTURE # 2278 IS LOOKING NW AT NW END OF TILE REPAIR WITH NO ROOTS INSIDE TILE VISIBLE,

PICTURE# 2279 IS LOOKING NW INSIDE EXISTING 8" CLAY TILE FROM GPS #333 TO EXISTING 8" CLAY TILE (0.72' TOP TO FL), INSIDE OF TILE HAS NO ROOTS AND IS IN GOOD SHAPE.



NOTE NEW TILE BUTTED UP TO CLAY TILE WITH 6.14' FROM TOP HOPE TILE TO TOP CLAY
 PICTURE# 2280 IS LOOKING NW SHOWING LAST 16.50' OF 10" HOPE DW IPERF TILE IN PLACE WITH 4" BEDDING ROCK UNDER TILE & EXCAVATED AROUND TILE FOR CONCRETE COLLAR WITH ENGINEERING FABRIC WRAPPED AROUND JOINT 2.0' X 30' PIECE

PICTURE# 2282 IS LOOKING NW SHOWING BEDDING ROCK
TAMPED IN AROUND TILE TO 8" ABOVE TOP
OF TILE UP TO CONCRETE COLLAR @ NW END TIE IN
CONNECTION, OBSERVER CHECKED TOP ROCK WITH GPS,



N



N

PICTURE# 2283 IS LOOKING NW AT NW END OF TILE REPAIR
TIE IN WITH 2.0' X 3.0' PIECE OF ENGINEERING FABRIC
& 2.0' X 4.5' OF 6" X 6" WIRE MESH AROUND CONNECTION
WITH CONCRETE COLLAR STARTING TO BE POURED

PICTURE# 2284 IS LOOKING NW SHOWING CONCRETE COLLAR POURED ON NW TIE IN OF TILE REPAIR BETWEEN 8" CLAY / 10" HOPE DW PERF TILE. CREW USED 7-50 LBS OF FAST SETTING SAKRETE



CONCRETE FOR COLLAR,



PICTURE# 2285 IS LOOKING SE SHOWING WILLIAMS CREW BACK FILLING TRENCH WITH SUBSOIL.

PICTURE # 2286 IS LOOKING NW SHOWING BEDDING ROCK
PLACED ON TOP OF CONCRETE COLLAR AFTER
CONCRETE WAS DRY TO THE TOUCH.



PICTURE # 2287 IS LOOKING SE SHOWING BACK FILL SOIL
PLACED ABOVE TRENCH

PICTURE # 2288 IS LOOKING NW SHOWING BACKFILL SOIL PLACED ABOVE TRENCH.

TREES STILL NEED CLEANUP & REMOVE THE 12" SCRAP TREE STUMP & 22" ASH STUMP

CLEAN UP TREE PILE IN FIELD



12/14/2018
15:53

12/12/2018 & 12/14/2018

JOB# 6501.6
WO# 226

D.A.P. JOB# 6501 DD25, SURVEY
HARDIN COUNTY SW 1/4 22-86-22

REPAIR TO PLUGGED LAT3 DD#25 TILE

6501 DD25 12-14-2018DP

- 1, 3548391.302, 4949528.811, 1169.931, FL 10" TILE
- 2, 3548381.397, 4949551.507, 1173.942, TOP INTK GRATE
- 3, 3548389.034, 4949554.645, 1174.819, UGCABLE FIBER
- 4, 3548415.966, 4949575.448, 1174.428, CASING SURF DRAIN
- 5, 3548405.662, 4949531.602, 1174.266, GS EXPLOR AREA
- 6, 3548361.907, 4949532.691, 1174.838, GS EXPLOR AREA
- 7, 3548315.638, 4949533.703, 1175.160, GS EXPLOR AREA
- 8, 3548272.610, 4949534.632, 1175.340, GS EXPLOR AREA
- 9, 3548234.106, 4949535.310, 1175.280, GS EXPLOR AREA
- 10, 3548257.640, 4949582.869, 1174.749, SINK HOLE
- 11, 3548260.241, 4949600.007, 1180.327, CL RR
- 12, 3548417.417, 4949600.351, 1180.686, CL RR
- 13, 3548419.643, 4949627.240, 1177.318, TOP CASING
- 14, 3548419.735, 4949627.692, 1174.316, FL CASING
- 15, 3548419.992, 4949489.403, 1169.913, FL 10" CLAY TILE
- 16, 3548417.372, 4949493.053, 1169.907, FL 10" CLAY TILE
- 17, 3548599.446, 4949528.407, 1175.996, GS POND AREA
- 18, 3548630.794, 4949431.005, 1175.812, GS POND AREA
- 19, 3548551.975, 4949324.400, 1175.649, GS POND AREA
- 20, 3548536.702, 4949221.784, 1175.660, GS POND AREA
- 21, 3548563.306, 4949094.542, 1175.537, GS POND AREA
- 22, 3548552.751, 4948980.600, 1175.781, GS POND AREA
- 23, 3548469.453, 4948962.017, 1175.938, GS POND AREA
- 24, 3548397.818, 4949002.053, 1175.834, GS POND AREA
- 25, 3548333.259, 4949146.421, 1175.743, GS POND AREA
- 26, 3548258.828, 4949347.878, 1175.201, GS POND AREA
- 27, 3548143.776, 4949451.066, 1175.768, GS POND AREA
- 28, 3548117.557, 4949522.293, 1176.100, GS POND AREA
- 29, 3548411.803, 4948960.713, 1175.950, GS PATH 8'
- 30, 3548371.986, 4948924.331, 1177.047, GS PATH 8'
- 31, 3548307.498, 4948886.785, 1179.036, GS PATH 8'
- 32, 3548248.120, 4948852.247, 1180.359, GS PATH 8'
- 33, 3555150.559, 4946719.581, 1202.123, USGS8012
- 34, 3548241.340, 4949669.301, 1170.405, TOP PIPE 6" CLAY
- 35, 3548234.828, 4949667.930, 1171.550, GS PIPE 6" CLAY
- 36, 3548229.031, 4949668.704, 1171.929, GS PIPE 6" CLAY
- 37, 3548223.695, 4949670.151, 1172.034, GS PIPE 6" CLAY
- 38, 3548167.936, 4949670.750, 1169.190, TOP PIPE 12" CLAY
- 39, 3548164.691, 4949672.369, 1168.420, TOP PIPE 12" CLAY
- 40, 3548091.090, 4949811.405, 1174.064, TILE LOCATE
- 41, 3548203.224, 4949650.874, 1173.466, TILE LOCATE
- 42, 3548195.890, 4949657.465, 1173.533, GS
- 43, 3548222.340, 4949652.447, 1173.848, FE REMAINS
- 44, 3548260.943, 4949657.637, 1173.861, GS
- 45, 3548237.909, 4949693.640, 1173.789, GS
- 46, 3548194.577, 4949693.765, 1173.682, GS
- 47, 3548150.251, 4949695.574, 1173.503, GS
- 48, 3548107.763, 4949695.707, 1173.617, GS
- 49, 3548107.349, 4949656.318, 1174.511, GS
- 50, 3548100.278, 4949652.550, 1175.461, UGEL
- 51, 3548084.802, 4949650.194, 1175.629, UGEL
- 52, 3548091.316, 4949663.875, 1174.638, UGEL
- 53, 3548118.079, 4949710.288, 1173.508, UGEL
- 54, 3548123.964, 4949744.019, 1173.754, UGEL
- 55, 3548125.654, 4949778.275, 1173.759, UGEL
- 56, 3548087.489, 4949776.921, 1174.016, UGEL 2
- 57, 3548077.649, 4949737.031, 1173.832, UGEL 2
- 58, 3548082.272, 4949686.956, 1174.271, UGEL 2
- 59, 3548091.443, 4949663.990, 1174.518, UGEL 2
- 60, 3548051.386, 4949714.149, 1174.055, UGEL 3
- 61, 3548048.480, 4949746.269, 1173.803, UGEL 3
- 62, 3548055.836, 4949782.303, 1173.645, UGEL 3
- 63, 3548082.176, 4949734.752, 1173.860, GS

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127,3548813.703,4949264.244,1177.130,GS LOW TILELOCATE
 128,3548827.140,4949270.764,1176.931,GS LOW TILELOCATE
 129,3548856.419,4949281.948,1177.057,GS LOW TILELOCATE
 130,3548886.383,4949298.404,1177.355,GS LOW TILELOCATE
 131,3548918.851,4949316.218,1177.523,GS LOW TILELOCATE
 132,3548257.577,4949583.342,1174.851,SINK HOLE INBALAST
 133,3548258.145,4949589.613,1177.439,SINK HOLE INBALAST
 200,3551978.267,4948400.105,1188.112,TOP 10" VCP TILE
 201,3552027.762,4948382.594,1188.409,TOP 10" VCP TILE
 202,3551954.698,4948408.829,1191.623,GS FLAG ABOVE TILE
 203,3551932.568,4948415.463,1191.447,GS FLAG ABOVE TILE
 204,3551903.413,4948424.093,1191.015,GS MARK ABOVE TILE
 205,3551873.770,4948431.224,1190.830,GS MARK ABOVE TILE
 206,3552008.872,4948389.415,1188.148,TOP 10" VCP TILE END REMOVAL
 208,3552038.632,4948380.743,1188.651,TOP 6" VCP
 209,3552080.104,4948361.294,1188.550,TOP VCP TILE
 210,3552199.428,4948292.676,1193.542,GS SOFT AREA
 211,3552180.491,4948303.539,1193.301,GS SOFT AREA
 212,3552155.835,4948318.628,1193.140,GS SOFT AREA
 213,3552494.128,4948293.581,1199.418,CP MAG TOP RCP
 214,3552166.241,4948306.025,1192.759,TRD 2.0' DIA REMOVAL
 215,3552107.879,4948347.994,1187.950,FL 8" VCP TILE
 216,3552145.860,4948324.954,1188.293,FL 8" VCP TILE
 217,3552168.062,4948311.242,1188.439,FL 8" VCP TILE
 218,3552190.242,4948297.779,1189.260,TOP 8" VCP TILE END REMOVAL
 219,3552106.051,4948337.672,1192.137,TRD 4.0' DIA CLUSTER REMOVAL
 220,3552181.323,4948233.665,1195.193,IR 58 BM *CHECK INTO WITH GPS 2.8' EAST OF FENCELINE*
 221,3552027.484,4948382.247,1188.263,TOP 10" DWHDPE TILE
 222,3552037.332,4948378.683,1188.387,TOP 10" DWHDPE TILE END DAY
 223,3552037.842,4948378.412,1188.539,TOP DWHDPE 10"*10"*6" TEE
 224,3552038.156,4948379.247,1188.247,TOP 6" NONPERF TILE
 225,3552012.578,4948390.366,1191.943,GS
 226,3552066.014,4948367.597,1188.606,TOP 10" DWHDPE TILE
 227,3552061.373,4948362.336,1191.975,GS
 228,3552100.481,4948344.642,1192.422,GS
 229,3552133.759,4948328.562,1192.835,GS
 230,3552183.841,4948296.894,1193.228,GS
 231,3552102.306,4948350.352,1188.790,TOP 10" DWHDPE TILE
 232,3552128.931,4948342.191,1188.923,TOP 7" VCP TILE 0.62'TOPTOFL
 233,3552120.715,4948339.954,1189.096,TOP 10"*10"*10" DWHPPEWYE TILE
 234,3552139.296,4948329.181,1189.046,TOP 10" DWHDPE TILE END DAY
 235,3552122.414,4948340.734,1188.971,TOP 10"/8" REDUCER
 236,3552124.645,4948341.409,1189.056,TOP 8" SW NON PERF
 237,3552127.530,4948341.564,1189.063,TOP 8" SW NON PERF
 238,3552122.161,4948340.697,1189.115,TOP 10" WYE STUB
 239,3552074.506,4948369.457,1192.584,TRD 4.0' DIA CLUSTER REMOVAL
 240,3552481.511,4948229.742,1198.641,FENCE S
 241,3552253.238,4948230.823,1195.541,FENCE N-S
 242,3551999.158,4948230.958,1197.594,FENCE N-S
 243,3551760.704,4948230.939,1198.816,FENCE N&E
 300,3548126.326,4949557.172,1175.798,GS FIBEROPTIC
 301,3548227.778,4949555.663,1175.859,GS FIBEROPTIC
 302,3548278.886,4949558.845,1175.572,GS FIBEROPTIC
 303,3548309.063,4949558.929,1175.537,GS FIBEROPTIC
 304,3548335.822,4949558.633,1175.260,GS FIBEROPTIC
 305,3548373.722,4949557.884,1174.582,GS FIBEROPTIC
 306,3548382.973,4949557.639,1174.650,GS FIBEROPTIC
 307,3548388.688,4949555.107,1174.988,SIGN FIBEROPTIC
 308,3548401.500,4949557.491,1174.996,GS FIBEROPTIC
 309,3548408.183,4949557.733,1174.844,GS FIBEROPTIC
 310,3548417.171,4949557.999,1174.892,GS FIBEROPTIC
 311,3548430.692,4949556.926,1175.147,GS FIBEROPTIC
 312,3547245.598,4952233.429,1173.194,READING

*2.8' EAST OF FENCELINE
 N-S
 WEST SIDE OF
 GARDEN CITY
 129.0' SOUTH OF
 TILE REPAIR*

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442,3547600.748,4950136.419,1177.209,GS
 443,3547501.139,4950136.632,1176.423,GS
 444,3547501.251,4950036.806,1175.211,GS
 445,3547501.400,4949935.667,1174.129,GS
 446,3547501.705,4949834.884,1173.402,GS
 447,3547501.503,4949737.095,1172.867,GS
 448,3547501.465,4949656.686,1172.887,GS CROP/GRASS
 449,3547501.316,4949653.599,1173.303,GS GRASS
 450,3547499.407,4949645.239,1173.602,GS GRASS
 451,3547499.414,4949638.948,1173.712,GS GRASS
 452,3547492.064,4949626.360,1174.362,SIGN RR 1/2 (26+70)
 453,3547400.851,4949636.712,1173.603,GS GRASS
 454,3547401.029,4949652.136,1173.300,GS GRASS
 455,3547400.568,4949654.451,1172.592,GS CROP/GRASS
 456,3547401.251,4949737.335,1173.192,GS
 457,3547401.809,4949836.273,1174.641,GS
 458,3547402.200,4949936.194,1174.865,GS
 459,3547401.960,4950034.968,1175.062,GS
 460,3547401.749,4950136.682,1175.850,GS
 461,3547302.272,4950136.866,1175.233,GS
 462,3547302.602,4950035.779,1175.329,GS
 463,3547302.775,4949936.450,1175.287,GS
 464,3547302.018,4949836.266,1174.476,GS
 465,3547301.225,4949736.951,1173.057,GS
 466,3547301.187,4949652.240,1171.905,GS CROP/GRASS
 467,3547300.737,4949646.858,1171.490,GS GRASS
 468,3547302.192,4949639.609,1171.801,GS GRASS
 469,3547287.675,4949651.973,1172.370,GS CROP/GRASS
 470,3547268.075,4949655.810,1172.341,GS CROP/GRASS
 471,3547256.306,4949669.047,1172.400,GS CROP/GRASS
 472,3547256.160,4949669.117,1172.358,GS CROP/GRASS
 473,3547253.769,4949699.212,1172.843,GS CROP/GRASS
 474,3547251.323,4949699.188,1173.210,GS GRASS
 475,3547249.311,4949699.839,1173.255,LONE SFP
 476,3547249.265,4949673.336,1172.340,GS GRASS
 477,3547249.147,4949672.978,1172.174,E SIDE RR TIE POST
 478,3547248.154,4949652.520,1171.847,W SIDE RR TIE POST FENCE S&REM E
 479,3547248.119,4949644.228,1172.153,GS TREE BOULDER AREA
 480,3547239.036,4949651.670,1172.411,W SIDE RR TIE BP
 481,3547235.206,4949651.935,1172.873,GS TREE BOULDEP AREA
 482,3547228.482,4949656.438,1172.640,GS TREE BOULDEP AREA
 483,3547236.944,4949666.497,1173.231,GS TREE BOULDEP AREA
 484,3547249.705,4949667.016,1172.155,GS TREE BOULDEP AREA
 485,3547256.032,4949655.522,1172.104,GS TREE BOULDEP AREA
 486,3547263.277,4949652.871,1172.328,GS TREE BOULDEP AREA
 487,3547271.316,4949639.441,1173.131,GS TREE BOULDEP AREA
 488,3547280.435,4949640.041,1172.783,GS GRASS
 489,3547279.770,4949647.638,1172.292,GS GRASS
 490,3547254.012,4949737.401,1173.524,GS CROP/GRASS
 491,3547252.583,4949737.393,1173.897,GS GRASS
 492,3547250.017,4949737.568,1174.492,GS GRASS
 493,3547249.660,4949746.182,1174.648,FNB START TO EAST
 494,3547254.904,4949837.948,1174.898,GS CROP/GRASS
 495,3547251.820,4949838.350,1175.398,GS GRASS
 496,3547250.389,4949841.313,1175.854,FNB E-W
 497,3547254.780,4949942.974,1175.513,GS CROP/GRASS
 498,3547253.313,4949944.721,1175.881,GS GRASS
 499,3547250.403,4949945.356,1176.550,FNB E-W
 500,3547255.239,4950038.451,1175.639,GS CROP/GRASS
 501,3547252.834,4950039.056,1175.986,GS GRASS
 502,3547250.337,4950039.490,1176.431,FNB E-W
 503,3547255.339,4950137.141,1175.258,GS CROP/GRASS
 504,3547253.486,4950137.479,1175.650,GS GRASS

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568,3548464.484,4949432.120,1174.749,GS
569,3548463.866,4949427.619,1174.457,GS
570,3548450.525,4949430.281,1174.260,GS
571,3548479.695,4949428.977,1174.141,GS
572,3548409.361,4949351.628,1174.310,GS
573,3548423.647,4949296.514,1174.845,GS
574,3548511.738,4949371.635,1174.472,GS
575,3548594.165,4949371.440,1175.585,GS
576,3548574.035,4949291.428,1176.113,GS
577,3548664.958,4949290.937,1177.391,GS
578,3548633.536,4949213.563,1176.443,GS
579,3548722.764,4949213.570,1176.915,GS
580,3548541.610,4949213.890,1175.659,GS
581,3548696.036,4949133.589,1177.727,GS
582,3548785.894,4949133.227,1178.456,GS
583,3548604.365,4949133.690,1176.223,GS
584,3548373.939,4949548.647,1174.540,GS CROP/GRASS
585,3548416.015,4949549.314,1174.837,GS CROP/GRASS
586,3548461.631,4949549.916,1175.222,GS CROP/GRASS
587,3548331.343,4949550.671,1175.340,GS CROP/GRASS
588,3548286.706,4949551.452,1175.694,GS CROP/GRASS
8011,3539544.190,4946944.550,1153.580,ALUM DISK CONC *GPS BASE ORIGINALLY SET ON*
8011_GNSS,3539544.190,4946944.550,1153.580,Autonomous Setup



Drainage Work Order Request For Repair Hardin County

Date: 5/22/2018

Work Order #: WO00000213

Drainage District: Drainage Districts \DD 72

Sec-Twp-Rge: _____ **Qtr Sec:** _____

Location/GIS: _____

Requested By: CGA Construction Observer Notes

Contact Phone: _____

Contact Email: _____

Landowner (if different): _____

Description: DD 72 Lat 2 - During the current project, a blowout/sinkhole was observed on the west side of O Ave and the existing intakes are in disrepair. The current contractor is not interested in repairing.

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:** _____

Drainage District:

#72 Lat 2

Repair Summary:

- While completing construction on the Main tile, construction observer noted tile sinkhole/blowout along Lateral 2 tile route in the west ditch of O Avenue in the SE¼ Section 19 Township 86 North, Range 20 West.
- Excavated sinkhole/blowout and found collapsed 8-inch VCP Lateral 2 tile with 2 to 3 feet of soil cover.
- Removed 14 feet of existing Lateral 2 tile (existing VCP tile upstream and downstream is still cracked). Repaired the with 10-inch dual wall HDPE (only size contractor had) with rock bedding/backfill and concrete collars for connections to existing tile.
- Backfilled excavation with on-site soil.

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

See attached Tabulated Contractor Time and Materials Sheet.

Additional Actions Recommended:

Lateral 2 tile is shallow and does not appear to be in good overall condition. If additional sinkholes/blowouts are reported, wholesale replacement of the Lateral 2 tile should be considered. Since the Main tile was lowered during the recent improvement project, the Lateral 2 tile could be lowered during a wholesale replacement.



Tabulated Contractor Time and Materials

Date	Totals	1/8/2019
Workman (hrs)	4.5	4.5
Mini Excavator (hrs)	1.5	1.5
1" Clean Rock (lbs)	2000	2000
Fast Setting Concrete (lbs)	720	720
Concrete Collar (ea.)	2	2
10" Dual Wall HDPE (ft)	14	14

CONSTRUCTION ENGINEERING
OBSERVATION REPORT

DATE:

1/8/19

PROJECT NUMBER:

6833.2

COUNTY, ROUTE, ROAD:

0072

LOCATION:

0 Ave.

DAYS OF WEEK:

S | M | **T** | W | T | F | S

SHEET NO.

1 OF 1

DESCRIPTION OF WORK AND MATERIAL USED FOR EACH OPERATION, INCLUDING CONTRACTOR/SUB NAME, ITEM NO. AND LOCATION

Sunny, 35°, Very Windy From NW.

9:00 A.M., WILLIAMS CREW SHOWS UP, 3 MEN, MINI EX., TRUCK/ROCK STARTED TO REPOSE 8" CLAY TILE FLOWING N. ON W. SIDE OF 0" AVE. @ GPS #375-GPS 1547. TOOK PICS UP + DOWN STREAM, TILE IS IN BAD SHAPE, NEEDS TO BE REPLACED. CREW IS USING 4" BRICKING ROCK UNDER AND OVER PIPE + 3/4 COLLARS. CUT 14' OF HDPE FOR FIX, SET IN REPAIR TO FIND OUT IT WAS 10" HDPE INSTEAD OF 8". SINCE IT WAS THE ONLY PIPE THEY HAD AND WAS POLYMER, I ALLOWED THEM TO FINISH. CREW LEFT @ 10:30 A.M.

1 1/2 HRS, 3 MEN + MINI EX.

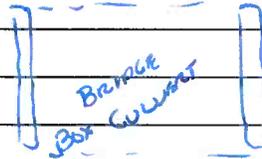
2000 ± 1" ROCK

(12) BAGS CONC.

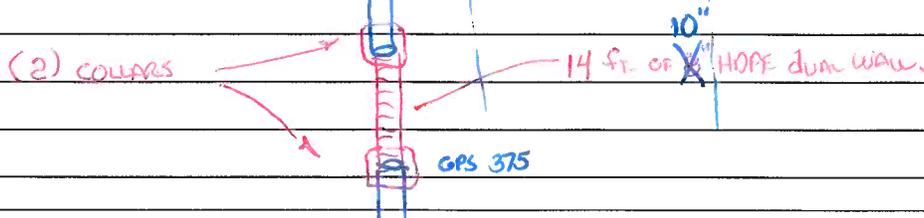
WIRE MESH

FABRIC

(14) FT OF 10" HDPE DUAL WALL



* 8" CLAY LINE NEEDS TO BE COMPLETELY REPLACED.



I Certify that the work described in this report was incorporated into this contract unless otherwise noted.

Observer's Signature:

[Signature]

Date Prepared:

1/8/19

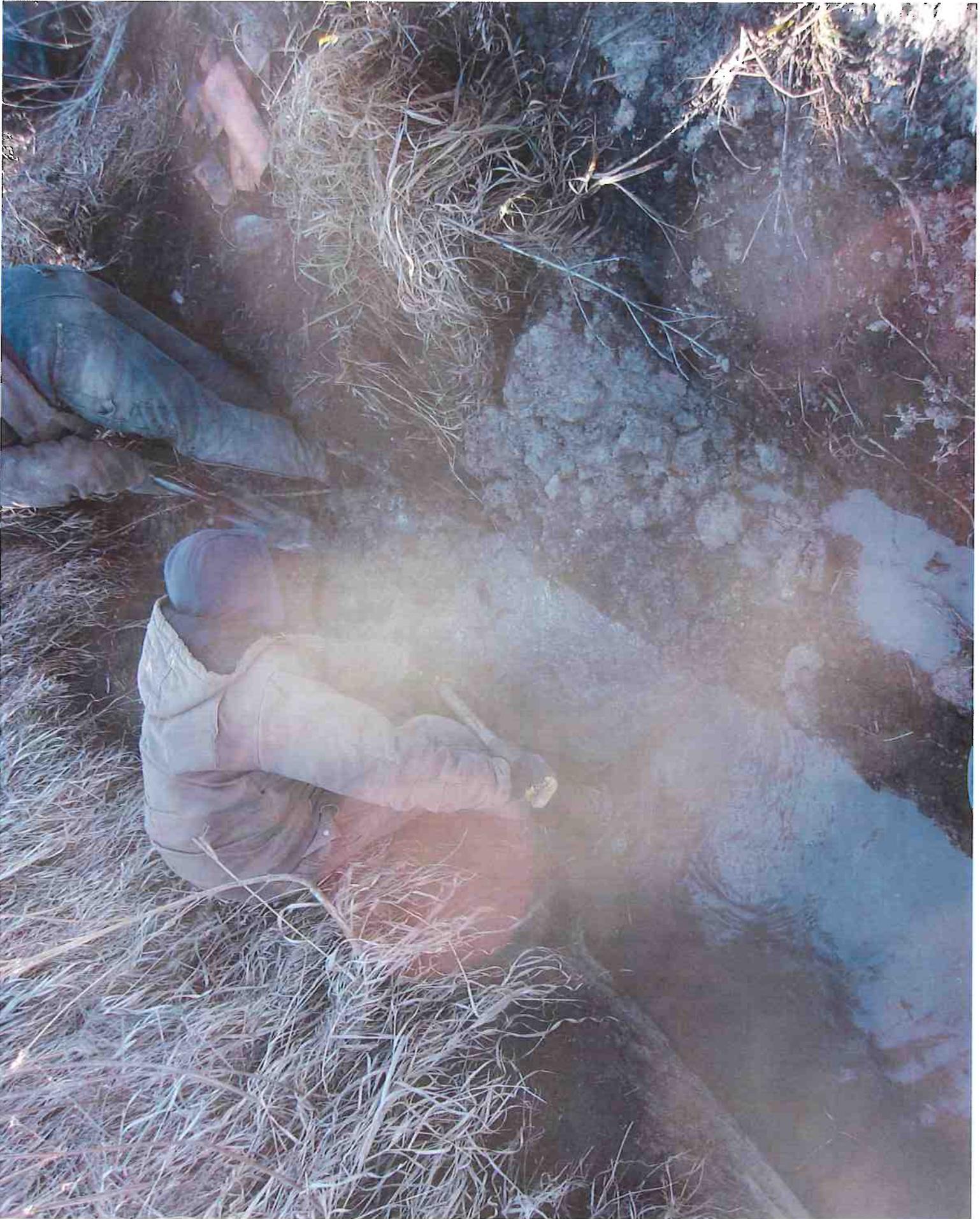
Reviewed by:

Engineer

Date Reviewed

UPSTREAM END OF REPAIR





DOWNSTREAM 8" CLAY, WATER IS VERY SLOW



DOWNSTREAM END OF REPAIR



Looking upstream on B" clay



LOOKING UPSTREAM



14' of HOPE 10" ON 4" OF BRIDGING ROCK AND HARD CLAY



downstream Colvar



Cove. Course 3/4 Round



3/4 corner downstream end.



1, 3549920.987, 4993884.949, 1136.528, GPR MON 9808
2, 3557817.789, 4993751.572, 1049.848, IRS 1/2
3, 3557070.288, 4994335.326, 1046.598, CL SWALE FE EW
4, 3557062.741, 4994333.232, 1045.363, TOP 12"CLAY+-
5, 3557059.597, 4994333.809, 1047.087, GS
6, 3556919.754, 4994266.530, 1048.589, GS CL SWALE
7, 3556604.049, 4994195.632, 1051.781, HOLE
8, 3556609.698, 4994161.000, 1052.378, GS CL SWALE
9, 3556354.712, 4994108.612, 1054.833, GS CL SWALE
10, 3556186.484, 4994082.932, 1056.768, GS CL SWALE
11, 3556193.732, 4994109.219, 1058.144, HOLE
12, 3556191.419, 4994109.019, 1051.788, FL CLAY
13, 3556192.203, 4994108.853, 1053.053, TOP CLAY TILE
14, 3556164.045, 4994112.656, 1057.592, SINK HOLE
15, 3556135.185, 4994113.252, 1058.288, SINK HOLE
16, 3556116.616, 4994113.531, 1058.433, SINK HOLE
17, 3556107.052, 4994090.878, 1057.489, GS CL SWALE
18, 3556036.011, 4994096.810, 1056.922, SINK HOLE
19, 3555902.619, 4994058.482, 1059.648, GS CL SWALE
20, 3555624.542, 4993863.067, 1065.454, WASHOUT
21, 3555613.581, 4993864.238, 1067.451, FE NS
22, 3556133.217, 4994113.035, 1052.557, FL 15"CLAY
23, 3556134.237, 4994113.433, 1053.948, TOP CLAYTILE
24, 3557166.229, 4994289.009, 1047.880, HOLE
25, 3557152.643, 4994286.871, 1047.915, HOLE
26, 3557795.825, 4993747.504, 1050.988, EOG CLFARMDR
27, 3557885.568, 4993843.718, 1049.306, EOC CL RBC
28, 3557885.351, 4993871.288, 1049.804, EOC CL RBC
29, 3557819.089, 4993759.760, 1049.657, WCP 2'HIGH
30, 3556016.749, 4995511.575, 1046.496, GS BLOWOUT
31, 3556082.456, 4995442.565, 1046.585, GS POTHOLE
32, 3556085.633, 4995439.219, 1042.283, FL 15"CLAYTILE
33, 3556176.970, 4995346.258, 1046.315, GS POTHOLE
34, 3556180.702, 4995342.376, 1042.019, FL 15"CLAYTILE
35, 3556220.711, 4994107.062, 1057.810, GS TILELOCT
36, 3556257.994, 4994105.381, 1056.999, GS TILELOCT
37, 3556019.020, 4995509.676, 1042.411, FL 15" TILE
38, 3555890.772, 4995705.455, 1043.987, TOP 15" TILE
39, 3555787.019, 4996024.391, 1043.030, FL 15" CLAY
40, 3556278.368, 4994103.765, 1056.586, TILE LOCATE
41, 3556293.769, 4994103.970, 1056.278, TILE LOCATE
42, 3556302.069, 4994105.272, 1056.200, TILE LOCATE
43, 3556263.179, 4994103.996, 1050.907, FL 16" CLAY
44, 3556330.231, 4994114.335, 1055.648, TILE LOCATE
45, 3556361.271, 4994129.381, 1055.535, TILE LOCATE
46, 3556386.580, 4994139.022, 1055.532, TILE LOCATE
47, 3556304.002, 4994105.392, 1050.217, FL 16" TILE
48, 3556404.292, 4994148.370, 1055.581, TILE LOCATE
49, 3556603.215, 4994194.810, 1047.126, FL 16" TILE
50, 3556575.822, 4994189.561, 1054.164, TILE LOCATE
51, 3556521.231, 4994185.042, 1054.779, TILE LOCATE
52, 3556472.539, 4994176.691, 1055.184, TILE LOCATE
53, 3556432.856, 4994161.748, 1055.339, TILE LOCATE
54, 3556403.908, 4994152.120, 1055.937, TILE LOCATE
55, 3556627.299, 4994197.449, 1053.216, TILE LOCATE
56, 3556683.016, 4994200.875, 1052.141, TILE LOCATE
57, 3556740.472, 4994205.634, 1050.826, TILE LOCATE
58, 3556801.329, 4994211.679, 1050.436, TILE LOCATE
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64, 3557161.896, 4994289.818, 1042.446, FL TILE

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 66, 3557181.734, 4994292.738, 1047.745, TILE LOCATE
 67, 3557189.790, 4994294.473, 1047.721, TILE LOCATE
 68, 3556116.316, 4994114.834, 1058.446, TILE LOCATE START TV
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 71, 3555961.511, 4994109.138, 1059.725, TILE LOCATE HOLE
 72, 3555910.510, 4994094.884, 1060.372, TILE LOCATE
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 84, 3555452.032, 4993755.753, 1067.967, TILE LOCATE
 85, 3558848.513, 4994600.502, 1040.609, TOP RCP
 86, 3558849.124, 4994600.932, 1037.931, FL RCP
 87, 3558845.485, 4994605.685, 1038.118, FL RCP
 88, 3558845.094, 4994605.684, 1039.300, TOP RCP
 89, 3558845.864, 4994597.335, 1042.075, FL WOOD WIER
 90, 3558842.689, 4994606.267, 1042.149, FL WOOD WIER
 91, 3558823.836, 4994594.508, 1043.032, GS FL
 92, 3558773.184, 4994562.506, 1043.139, GS BLOWOUT
 93, 3558765.672, 4994560.926, 1042.910, GS BLOWOUT
 94, 3558730.743, 4994541.530, 1043.375, GS BLOWOUT
 95, 3558693.398, 4994524.852, 1040.243, TOP TILE BLOWOUT
 96, 3558693.776, 4994521.756, 1043.337, GS FL
 97, 3558629.392, 4994474.499, 1043.866, GS FL WATER
 98, 3558539.752, 4994413.987, 1044.304, GS FL WATER
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 102, 3558377.689, 4994330.775, 1045.536, GS FL
 103, 3558300.276, 4994333.901, 1045.511, GS FL
 104, 3558247.479, 4994336.591, 1044.808, GS FL
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 106, 3557069.987, 4994589.365, 1048.265, FNL EW
 107, 3557068.264, 4994602.052, 1047.493, TILE PROBED
 108, 3554389.072, 4993866.594, 1073.909, WASHOUT WITH ROCK
 109, 3554392.235, 4993886.842, 1073.782, GS FL
 110, 3554404.128, 4993864.340, 1074.642, FNL NS
 111, 3554398.380, 4993906.011, 1072.573, GS DEPRESSION
 112, 3554432.887, 4993943.204, 1072.709, GS FL
 113, 3554469.265, 4993954.325, 1072.465, GS FL
 114, 3554497.370, 4993929.787, 1072.149, GS FL
 115, 3554570.220, 4993898.950, 1071.905, GS FL
 116, 3554628.609, 4993886.568, 1072.064, GS FL
 117, 3554679.776, 4993895.457, 1071.474, GS FL
 118, 3554727.402, 4993924.464, 1072.071, GS TILE ROUTE
 119, 3554738.375, 4993918.619, 1071.746, GS TILE ROUTE
 120, 3554734.401, 4993921.090, 1066.945, TOP 15"CLAY
 121, 3554752.247, 4993862.543, 1072.101, FNL NS
 122, 3552469.627, 4996971.710, 1078.220, CPT IRS 3/4 .5DEEP
 123, 3551700.671, 4996973.935, 1068.197, FNL NS
 124, 3551544.309, 4996973.702, 1068.932, EOC INTK
 125, 3551309.273, 4996973.555, 1068.874, INTK PLASTIC gs nw side 8"
 126, 3551307.859, 4996976.582, 1069.480, GS BADGER DEN
 127, 3551423.708, 4996834.335, 1067.287, CMP TOP
 128, 3551423.365, 4996835.039, 1065.987, CMP FL

129,3552453.782,4996956.950,1076.189,GS
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132,3551467.313,4996775.989,1068.159,GS PROBED TILE 1.1DEEP
133,3551477.676,4996760.989,1068.270,GS PROBED TILE .9DEEP
134,3551485.614,4996749.706,1068.323,GS PROBED TILE .9DEEP
135,3551497.306,4996732.345,1068.376,GS PROBED TILE .9DEEP
136,3551517.260,4996703.583,1068.609,GS PROBED TILE .75DEEP
137,3551535.850,4996675.692,1068.681,GS PROBED TILE 1.1DEEP
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146,3551337.807,4996937.208,1068.602,GS PROBED TILE 1.3DEEP
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151,3552246.530,4996972.011,1069.508,FNL
152,3552244.411,4996954.984,1068.870,GS
153,3552139.986,4996955.538,1068.375,GS
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163,3551726.442,4997009.936,1067.908,GS INTK
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187,3551064.915,4997048.607,1078.312,GS
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225, 3551206.805, 4996994.057, 1070.694, GS
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327, 3549896.416, 4998264.291, 1080.735, spk top cp +1.24
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352, 3552212.320, 5000429.344, 1046.038, TOP 15"CLAY@6"CONC LAT S
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359, 3551523.602, 4998315.328, 1066.084, INTK 6"STEEL WASHOUT
360, 3551518.675, 4998316.047, 1066.754, TOP CLAYTILE BROKEN
361, 3551498.820, 4998305.705, 1069.855, FL RCB 6'WIDE
362, 3551499.097, 4998278.787, 1068.949, FL RCB 6'WIDE
363, 3551499.073, 4998279.464, 1073.738, 2 IN 15215
364, 3551521.589, 4998269.635, 1069.639, GS FLDITCH
365, 3551468.279, 4998266.408, 1068.209, 15"INTK RISER BROKEN
366, 3551461.392, 4998316.514, 1069.459, GS FL DITCH
367, 3551196.562, 4998267.718, 1070.727, TOP 15"CMP
368, 3551200.847, 4998268.041, 1070.274, GS FLDITCH
369, 3551182.049, 4998268.581, 1072.185, GS FIELD DR
370, 3551168.487, 4998266.505, 1070.404, TOP CMP 15"
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372, 3551137.980, 4998317.344, 1069.320, GS FLDITCH
373, 3550710.806, 4998269.730, 1071.150, GS FLDITCH
374, 3550709.233, 4998317.465, 1070.227, GS FLDITCH
375, 3551278.615, 4998273.532, 1067.218, FL CLAYTILE RUNING N 10"+-
376, 3551287.139, 4998273.449, 1067.120, FL CLAYTILE RUNING N 10"+-
377, 3551286.317, 4998269.721, 1069.519, GS FL DITCH
378, 3551283.171, 4998281.976, 1073.056, EOG
379, 3551283.451, 4998305.370, 1073.167, EOG
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381, 3551497.849, 4998303.248, 1073.430, EOG
382, 3551560.896, 4998270.118, 1069.621, GS FL DICH
383, 3551564.136, 4998316.703, 1068.950, GS FL DTCH
384, 3551523.749, 4998319.309, 1064.237, FL 15"CLAY

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 736, 3552190.687, 5000668.888, 1050.505, GS GRASSLN
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 738, 3552223.751, 5000779.130, 1050.262, GS
 739, 3552250.771, 5000749.408, 1049.865, GS
 740, 3552258.000, 5000743.267, 1049.488, GS GRASSLN
 741, 3552272.622, 5000729.087, 1047.493, GS
 742, 3552291.395, 5000714.798, 1045.867, TOP TILE
 743, 3552290.097, 5000714.419, 1047.045, GS
 744, 3552299.293, 5000707.059, 1047.498, GS
 745, 3552317.875, 5000698.920, 1048.995, GS GRASSLN
 746, 3552382.976, 5000672.056, 1048.747, GS
 747, 3552446.056, 5000746.829, 1048.384, GS
 748, 3552405.888, 5000791.146, 1048.375, GS
 749, 3552393.960, 5000805.212, 1047.695, GS GRASSLN
 750, 3552378.614, 5000828.157, 1046.266, GS
 751, 3552362.635, 5000848.914, 1048.493, GS GRASSLN
 752, 3552325.046, 5000894.708, 1050.018, GS
 753, 3552360.558, 5000937.612, 1050.190, GS CROPLN
 754, 3552405.188, 5000937.847, 1048.872, GS CROPLN
 755, 3552430.623, 5000928.441, 1048.322, GS GRASSLN
 756, 3552450.222, 5000912.826, 1046.200, GS
 757, 3552466.388, 5000901.326, 1045.983, GS
 758, 3552494.578, 5000885.037, 1046.490, GS GRASSLN
 759, 3552539.187, 5000864.189, 1047.391, GS
 760, 3552556.073, 5000937.310, 1046.474, GS
 761, 3552516.318, 5000956.056, 1045.549, GS
 762, 3552489.260, 5000967.838, 1044.572, GS
 763, 3552463.092, 5000976.123, 1045.876, GS
 764, 3552415.887, 5000993.819, 1047.687, GS
 765, 3552433.889, 5000945.618, 1047.691, GS GRASSLN
 766, 3552466.994, 5000955.703, 1046.068, GS GRASSLN
 767, 3552489.821, 5000959.803, 1044.835, GS GRASSLN
 768, 3552498.434, 5000943.383, 1045.068, GS GRASSLN

769,3552239.077,5000529.418,1049.757,GS TILECHARD
 770,3552228.009,5000485.653,1050.049,GS TILECHARD
 771,3552208.379,5000266.061,1051.348,GS TILECHARD
 772,3552169.600,5000044.976,1052.906,GS TILECHARD
 773,3552165.726,5000028.739,1053.008,GS TILCHARD
 774,3552143.263,4999943.482,1053.697,GS TILECHARD
 775,3552129.144,4999887.858,1054.425,GS TILECHARD
 776,3552086.507,4999579.305,1057.724,GS TILECHIP
 777,3551878.114,4998581.104,1068.704,GS TILECHARD
 778,3551885.194,4998588.837,1068.489,GS TILECHARD
 779,3551929.893,4998647.474,1068.527,GS PROBETILE -3
 780,3551933.967,4998659.447,1068.281,GS PROBETILE -3
 781,3551936.474,4998668.586,1068.177,GS PROBETILE -3
 782,3551939.706,4998675.810,1068.118,GS PROBETILE -3
 783,3551945.414,4998685.838,1068.146,GS PROBETILE -2
 784,3551942.908,4998774.800,1066.759,GS PROBETILE -3
 785,3551942.351,4998779.716,1066.767,GS PROBETILE -3
 786,3551941.282,4998784.876,1066.871,GS PROBETILE -3
 787,3551941.397,4998784.723,1066.921,GS PROBETILE
 788,3551939.857,4998791.691,1066.841,GS PROBETILE
 789,3551938.439,4998799.215,1066.839,GS PROBETILE
 790,3551936.865,4998807.521,1067.072,GS PROBETILE
 791,3551935.173,4998816.555,1067.047,GS PROBETILE
 792,3551931.588,4998833.239,1067.035,GS PROBETILE
 793,3551928.208,4998851.307,1066.948,GS PROBETILE
 794,3551925.763,4998862.393,1066.825,GS PROBETILE
 795,3551922.797,4998875.181,1066.463,GS PROBETILE
 796,3551919.934,4998887.374,1066.071,GS PROBETILE
 797,3551916.255,4998900.236,1065.740,GS PROBETILE
 798,3551911.770,4998912.211,1065.397,GS PROBETILE
 799,3551909.128,4998918.154,1065.337,GS PROBETILE
 800,3551905.439,4998925.738,1065.224,GS PROBETILE -2.5
 801,3551892.595,4998947.231,1065.001,gs probed tile -2.1
 802,3551872.106,4998984.953,1064.224,gs probed tile -1.8
 803,3551857.343,4999011.738,1063.967,gs probed tile -1.7
 804,3551849.495,4999044.794,1063.658,gs probed tile -1.7
 805,3551845.512,4999085.619,1063.082,gs probed tile -2.4
 806,3551845.429,4999127.857,1062.397,gs probed tile -2.2
 807,3551844.847,4999178.521,1062.071,gs probed tile -2.5
 808,3551847.731,4999227.862,1062.179,gs probed tile -2.7
 809,3551849.531,4999263.734,1061.832,gs probed tile -3.1
 810,3551853.170,4999294.917,1061.417,gs probed tile -3.2
 811,3551858.803,4999340.358,1061.109,gs probed tile -3.2
 812,3551864.554,4999362.390,1060.854,gs probed tile -3.1
 813,3551874.079,4999387.552,1060.740,gs probed tile -3.0
 814,3551889.450,4999430.046,1060.122,gs probed tile -2.6
 815,3551909.214,4999477.493,1059.868,gs probed tile -3.0
 816,3551931.940,4999524.288,1059.230,gs probed tile -2.8
 817,3551954.013,4999570.574,1058.616,gs probed tile -2.6
 818,3551977.084,4999626.400,1058.153,gs probed tile -2.7
 819,3551996.751,4999670.207,1057.178,gs probed tile -3.6 piastic
 820,3551988.555,4999672.604,1057.453,gs probed tile -2.4
 821,3551998.111,4999718.749,1057.039,gs probed tile -2.4
 822,3552010.373,4999778.340,1056.599,gs probed tile -2.4
 823,3552021.778,4999811.590,1056.304,gs probed tile -2.2
 824,3552023.360,4999813.953,1056.385,gs probed tile -2.2
 825,3552026.846,4999817.596,1056.279,gs probed tile -2.2
 826,3552044.965,4999830.802,1055.897,gs probed tile -2.2
 827,3552060.308,4999837.764,1055.489,gs probed tile -2.1
 828,3552072.585,4999840.832,1055.299,gs probed tile -2.2
 829,3552114.683,4999850.140,1054.983,gs probed tile -3.7
 830,3552107.369,4999848.705,1054.760,gs probed tile -2.2
 831,3552111.908,4999867.915,1054.532,gs probed tile -2.2
 832,3552117.329,4999892.417,1054.346,gs probed tile -2.2

833,3552127.380,4999944.672,1053.734,gs probed tile -3.5
 834,3552134.651,4999998.515,1053.313,gs probed tile -3.5
 835,3552140.723,5000029.080,1053.059,gs probed tile -3.4
 836,3552204.807,5000335.959,1050.542,gs probed tile -4.3
 837,3552203.815,5000324.154,1050.475,gs probed tile -4.4
 900,3551528.110,4998328.042,1064.187,FL 15" CLAY TILE
 901,3551531.271,4998332.394,1070.217,GS ABOVE TILE
 902,3551527.198,4998324.998,1070.781,GS ABOVE TILE
 903,3551512.632,4998316.765,1068.556,FL DITCH
 904,3551567.372,4998366.581,1069.914,GS TILE LOCATE 6FT DEEP
 905,3551611.675,4998389.755,1069.752,GS TILE LOCATE 6FT DEEP
 906,3551656.189,4998412.681,1069.697,GS TILE LOCATE 6FT DEEP
 907,3551697.725,4998433.057,1069.425,GS ABOVE TILE
 908,3551704.829,4998436.195,1069.340,GS ABOVE TILE
 909,3551701.342,4998434.300,1063.599,FL 15" CLAY TILE
 910,3551749.208,4998459.503,1069.164,GS TILE LOCATE 5'5" D
 911,3551793.550,4998482.141,1068.978,GS TILE LOCATE 6'0" D
 912,3551834.667,4998508.741,1068.813,GS TILE LOCATE 6'0" D
 913,3551870.398,4998542.168,1068.578,GS ABOVE TILE
 914,3551873.569,4998547.187,1068.625,GS ABOVE TILE
 915,3551872.864,4998545.834,1062.201,FL 15" CLAY TILE
 916,3551896.574,4998595.776,1068.500,GS TILE LOCATE 6'4"D
 917,3551913.360,4998641.931,1068.145,GS TILE LOCATE 7'0"D
 918,3551899.044,4998540.676,1069.024,GS GRASS WATER WAY
 919,3551898.853,4998593.963,1068.493,GS GRASS WATER WAY
 920,3551902.054,4998646.771,1068.261,GS GRASS WATER WAY
 921,3551914.532,4998701.486,1068.524,GS GRASS WATER WAY
 922,3551924.561,4998738.150,1068.277,GS GRASS WATER WAY
 923,3551927.576,4998763.906,1068.111,GS GRASS WATER WAY
 924,3551927.529,4998818.906,1067.633,GS GRASS WATER WAY
 925,3551921.169,4998855.962,1067.481,GS GRASS WATER WAY
 926,3551892.777,4998917.404,1066.771,GS GRASS WATER WAY
 927,3551940.976,4998926.436,1066.764,GS GRASS WATER WAY
 928,3551956.406,4998884.809,1066.955,GS GRASS WATER WAY
 929,3551965.817,4998834.534,1067.315,GS GRASS WATER WAY
 930,3551966.037,4998803.102,1067.572,GS GRASS WATER WAY
 931,3551963.227,4998748.902,1067.841,GS GRASS WATER WAY
 932,3551957.108,4998714.255,1068.157,GS GRASS WATER WAY
 933,3551937.253,4998661.202,1068.511,GS GRASS WATER WAY
 934,3551922.107,4998610.869,1068.839,GS GRASS WATER WAY
 935,3551920.359,4998581.141,1069.211,GS GRASS WATER WAY
 936,3551920.362,4998543.447,1069.520,GS GRASS WATER WAY
 937,3551927.288,4998689.885,1067.460,GS TILE LOCATE 7.0' DEEP
 938,3551941.484,4998741.383,1060.186,FL 15" CLAY TILE
 939,3551940.454,4998737.409,1067.125,GS ABOVE TILE
 940,3551941.481,4998743.097,1067.079,GS ABOVE TILE
 941,3551952.046,4998793.577,1066.427,GS TILE LOCATE 6'0" D
 942,3551951.456,4998842.485,1065.958,GS TILE LOCATE 7'0" D
 943,3551936.872,4998888.262,1065.000,GS TILE LOCATE 6'0" D
 944,3551916.964,4998928.058,1064.845,GS ABOVE TILE
 945,3551913.752,4998933.313,1064.587,GS ABOVE TILE
 946,3551915.026,4998931.403,1058.569,FL 15" CLAY TILE
 947,3551888.507,4998977.088,1063.766,GS TILE LOCATE 5'8"D
 948,3551871.643,4999025.631,1063.662,GS TILE LOCATE 6'3"D
 949,3551864.063,4999074.104,1062.671,GS TILE LOCATE 6'0"D
 950,3551864.722,4999126.081,1062.445,GS TILE LOCATE 6'0"D
 951,3551863.994,4999120.215,1062.507,GS ABOVE TILE
 952,3551863.773,4999123.228,1056.776,FL 15" CLAY TILE
 953,3551866.716,4999176.571,1061.740,GS TILE LOCATE 5'0"D
 954,3551872.172,4999225.679,1061.031,GS TILE LOCATE 5'5"D
 955,3551882.711,4999272.975,1060.175,GS TILE LOCATE 5.0'D
 956,3551901.342,4999321.769,1060.592,GS ABOVE TILE
 957,3551898.631,4999316.538,1060.670,GS ABOVE TILE
 958,3551899.358,4999317.894,1055.036,FL 15" CLAY TILE

959,3551929.250,4999362.979,1060.598,GS TILE LOCATE 6'0" D
960,3551959.383,4999400.972,1060.108,GS TILE LOCATE 6'0" D
961,3551987.862,4999439.582,1059.671,GS TILE LOCATE 6'0" D
962,3552025.281,4999482.138,1059.080,GS ABOVE TILE
963,3552019.838,4999476.038,1059.584,GS ABOVE TILE
964,3552022.677,4999479.376,1053.243,FL 15" CLAY TILE
965,3552057.050,4999523.787,1058.272,GS TILE LOCATE 5'5" D
966,3552087.758,4999564.217,1057.920,GS TILE LOCATE 5'5" D
967,3552116.142,4999602.351,1057.135,GS TILE LOCATE 5'5" D
968,3552135.758,4999638.625,1056.645,GS ABOVE TILE
969,3552138.964,4999645.423,1056.554,GS ABOVE TILE
970,3552138.258,4999643.245,1051.547,FL 15" CLAY TILE
971,3552136.522,4999644.167,1054.431, TOP 4" CPP PERF
972,3552135.888,4999639.789,1054.470, TOP 4" CPP PERF
973,3552150.836,4999696.128,1055.937,GS TILE LOCATE 5'0"D
974,3552154.777,4999746.458,1055.396,GS TILE LOCATE 5'0"D
975,3552159.091,4999794.282,1055.035,GS TILE LOCATE 6'0"D
976,3552164.967,4999844.242,1053.874,GS ABOVE TILE
977,3552164.003,4999836.667,1054.139,GS ABOVE TILE
978,3552164.592,4999840.918,1049.812,FL 15" CLAY TILE
979,3552148.889,4999800.231,1055.108,GS GRASS WATER WAY
980,3552167.245,4999826.831,1054.909,GS GRASS WATER WAY
981,3552185.557,4999863.314,1054.193,GS GRASS WATER WAY
982,3552194.064,4999881.356,1054.185,GS GRASS WATER WAY
983,3552170.242,4999892.619,1053.198,GS TILE LOCATE 4'0" D
984,3552173.393,4999942.992,1053.441,GS TILE LOCATE 5'0" D
985,3552176.952,4999993.092,1053.343,GS TILE LOCATE 5'0" D
986,3552181.870,5000044.594,1053.084,GS TILE LOCATE 5'0" D
987,3552181.002,5000038.302,1053.057,GS ABOVE TILE
988,3552180.961,5000041.451,1047.972,FL 15" CLAY TILE
989,3552189.087,5000092.938,1052.447,GS TILE LOCATE 5'0"D
990,3552190.198,5000142.610,1052.568,GS TILE LOCATE 5'10"D
991,3552192.662,5000191.494,1052.011,GS TILE LOCATE 6'0"
992,3552208.961,5000221.982,1051.744,GS WATERWAY
993,3552196.697,5000157.218,1052.432,GS WATERWAY
994,3552186.564,5000107.323,1052.642,GS WATERWAY
995,3552183.554,5000068.179,1052.777,GS WATERWAY
996,3552179.913,5000045.050,1053.189,GS WATERWAY
997,3552176.126,5000019.771,1053.361,GS WATERWAY
998,3552173.915,4999993.509,1053.366,GS WATERWAY
999,3552168.367,4999959.953,1053.721,GS WATERWAY
1000,3552151.971,4999910.426,1054.210,GS WATERWAY
1001,3552195.576,5000235.829,1049.291, TOP 6" CLAY TILE
1002,3552196.893,5000240.145,1048.438, TOP 6" CLAY TILE
1003,3552197.833,5000238.491,1046.318,FL 15" CLAY TILE
1004,3552197.460,5000235.143,1051.178,GS ABOVE TILE
1005,3552197.898,5000241.594,1051.352,GS ABOVE TILE
1006,3552203.650,5000291.256,1050.778,GS TILE LOCATE 5'0"D
1007,3552205.429,5000342.799,1050.279,GS TILE LOCATE 5'0"D
1008,3552209.848,5000391.444,1050.339,GS TILE LOCATE 5'0"D
1009,3552214.759,5000453.716,1050.202,GS ABOVE TILE
1010,3552214.868,5000453.588,1050.202,GS ABOVE TILE
1011,3552214.218,5000457.841,1044.549,FL 16" CLAY TILE
1012,3552222.637,5000503.687,1049.942,GS TILE LOCATE 5'5"D
1013,3552229.126,5000550.277,1049.739,GS TILE LOCATE 5'5"D
1014,3552253.170,5000593.238,1049.689,GS TILE LOCATE 6'0"D
1015,3552276.867,5000628.428,1048.799,GS ABOVE TILE
1016,3552281.088,5000633.034,1048.419,GS ABOVE TILE
1017,3552278.366,5000630.398,1043.562,FL 16" CLAY TILE
1018,3552311.121,5000673.191,1048.854,GS TILE LOCATE 5'5"D
1019,3552342.648,5000708.520,1049.040,GS TILE LOCATE 6'0"D
1020,3552380.176,5000746.398,1048.724,GS TILE LOCATE
1021,3552402.854,5000772.882,1048.319,GS ABOVE TILE
1022,3552406.527,5000777.748,1048.497,GS ABOVE TILE

1023, 3552403.972, 5000774.491, 1043.965, TOP 15" CLAY TILE (1.28'TOP TO FL)
1024, 3552422.799, 5000804.076, 1048.410, GS TILE LOCATE 6'0"D
1025, 3552446.825, 5000847.843, 1047.783, GS TILE LOCATE 5'7"D
1026, 3552468.313, 5000892.739, 1046.460, GS TILE LOCATE 4'0"D
1027, 3552485.175, 5000939.944, 1041.749, FL 18" CLAY TILE INTAKE
1028, 3552481.820, 5000930.450, 1045.800, GS ABOVE TILE
1029, 3552486.347, 5000944.633, 1045.512, GS ABOVE TILE
1030, 3552469.889, 5000855.326, 1047.652, GS GRASS WATERWAY
1031, 3552447.425, 5000843.446, 1047.972, GS GRASS WATERWAY
1032, 3552413.928, 5000821.690, 1047.893, GS GRASS WATERWAY
1033, 3552386.947, 5000792.779, 1048.068, GS GRASS WATERWAY
1034, 3552342.791, 5000744.992, 1048.731, GS GRASS WATERWAY
1035, 3552327.604, 5000722.955, 1048.867, GS GRASS WATERWAY
1036, 3552319.473, 5000699.798, 1049.046, GS GRASS WATERWAY
1037, 3552315.097, 5000678.366, 1049.068, GS GRASS WATERWAY
1038, 3552314.588, 5000649.220, 1049.036, GS GRASS WATERWAY
1039, 3552312.919, 5000599.590, 1049.325, GS GRASS WATERWAY
1040, 3552267.267, 5000560.645, 1049.585, GS GRASS WATERWAY
1041, 3552265.275, 5000596.211, 1049.761, GS GRASS WATERWAY
1042, 3552264.936, 5000618.959, 1049.743, GS GRASS WATERWAY
1043, 3552249.134, 5000618.079, 1049.934, GS GRASS WATERWAY
1044, 3552232.057, 5000610.831, 1049.891, GS GRASS WATERWAY
1045, 3552214.649, 5000599.004, 1049.880, GS GRASS WATERWAY
1046, 3552529.740, 4997002.718, 1082.412, SIR 12 FLUSH
1047, 3552485.460, 5000941.883, 1043.036, top 16" clay tile 1.43'toptofl
1048, 3552486.159, 5000934.584, 1043.386, top exist 10" swcpp perf
1049, 3552483.157, 5000932.414, 1043.791, top 24" hdpp 1st e end perf tile 2.18' top to fl
1050, 3552476.974, 5000915.081, 1043.840, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w of bell
1051, 3552469.531, 5000896.424, 1043.876, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w of bell
1052, 3552459.749, 5000881.895, 1044.624, top 5" sw cpp perf tile 0.44' top to fl
1053, 3552461.825, 5000878.007, 1043.914, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' to west
1054, 3552453.841, 5000859.467, 1043.960, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to end bell
1055, 3552444.703, 5000841.650, 1044.002, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to end bell
1056, 3552483.566, 5000934.503, 1043.803, top 24"*24"*18" hdpp tee 2.18' top to fl
1057, 3552484.635, 5000938.464, 1041.615, fl 24"*24"*18" hdpp tee intake
1058, 3552485.279, 5000940.885, 1043.778, top 24"*18" hdpp reducer
1059, 3552486.457, 5000933.695, 1043.976, top 18"*12" hdpe reducer
1060, 3552487.726, 5000933.303, 1043.770, top 12"*10" hdpe reducer
1061, 3552490.491, 5000932.144, 1043.623, top 10" sw hdpe perf tile
1062, 3552424.890, 5000806.809, 1044.082, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w to end bell
1063, 3552434.457, 5000824.348, 1044.014, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to end bell
1064, 3552415.223, 5000789.902, 1044.119, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w to end bell
1065, 3552404.334, 5000773.203, 1044.164, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to end bell
1066, 3552391.816, 5000757.619, 1044.206, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to end bell
1067, 3552378.699, 5000742.632, 1044.235, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to end bell
1068, 3552462.345, 5000881.095, 1043.755, top 6" hdpe tap tee
1069, 3552350.590, 5000714.433, 1044.315, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w to end bell
1070, 3552336.709, 5000700.111, 1044.358, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w to end bell
1071, 3552364.600, 5000728.468, 1044.274, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to end bell
1072, 3552342.189, 5000701.287, 1045.477, fl 4" clay tile
1073, 3552323.138, 5000685.253, 1044.394, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to

end bell
1074,3552335.075,5000693.173,1045.510,fl 4" clay tile
1075,3552318.637,5000673.845,1045.578,fl 4" clay tile
1076,3552309.827,5000670.373,1044.435,top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to
end bell
1077,3552294.890,5000645.968,1045.586,fl 4" clay tile
1078,3552296.874,5000655.787,1044.498,top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to
end bell
1079,3552284.038,5000640.445,1044.513,top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to
end bell
1080,3552286.832,5000636.849,1046.071,top 4" clay tile 0.38' top to fl
1081,3552229.517,5000561.468,1047.330,top 6" sw perf tile w side
1082,3552231.208,5000566.781,1047.264,top 6" sw perf tile e side
1083,3552225.433,5000566.418,1046.195,fl 4" clay tile w side
1084,3552228.502,5000569.626,1046.149,fl 4" clay tile e side
1085,3552271.958,5000624.390,1044.557,top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to
end bell
1086,3552261.672,5000607.125,1044.616,top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to
end bell
1087,3552253.707,5000605.520,1046.876,top 6" cpp perf tile
1088,3552221.807,5000350.167,1047.956,fl 6" clay tile e side
1089,3552220.820,5000346.349,1048.018,fl 6" clay tile w side
1090,3552251.715,5000589.678,1044.661,top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to
end bell
1091,3552247.577,5000591.313,1046.245,fl 4" vcp
1092,3552240.695,5000580.823,1046.859,top 8" clay tile 0.72' top to fl
1093,3552232.919,5000554.353,1044.740,top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w to
end bell
1094,3552242.255,5000572.132,1044.703,top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w to
end bell
1095,3552240.251,5000557.835,1046.864,top 6" clay tile 0.57'tofl
1096,3552224.540,5000536.113,1044.780,top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to
end bell
1097,3552231.291,5000567.070,1047.256,top 6" sw cpp perf tile to e
1098,3552216.906,5000517.975,1047.649,top 6" sw cpp perf tile to w
1099,3552218.673,5000516.900,1044.808,top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to
end bell
1100,3552208.105,5000493.536,1047.910,top 4" sw cpp perf tile 0.38' toptofl
1101,3552207.618,5000491.101,1047.887,top 6" sw cpp perf tile 0.49' toptofl
1102,3552214.827,5000497.353,1044.856,top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to
end bell
1103,3552212.978,5000477.301,1044.881,top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to
end bell
1104,3552212.110,5000457.238,1044.909,top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to
end bell
1105,3552212.006,5000437.393,1044.947,top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to
end bell
1106,3552211.583,5000417.750,1044.984,top 24" hdpp 10th perf tile 2.18' top to fl 0.9' w to
end bell
1107,3552211.076,5000398.139,1045.043,top 24" hdpp 11th perf tile 2.18' top to fl 0.9' w to
end bell
1108,3552206.213,5000427.235,1046.672,top 6" conc tile 0.55'toptofl
1109,3552213.608,5000492.423,1044.801,top 6" hdpe tap tee
1110,3552209.544,5000492.273,1047.590,top 6"*6"*4" hdpe reducer tee
1111,3552209.379,5000492.778,1047.440,top 4" cpp sw nonperf
1112,3552208.966,5000492.239,1047.777,top 6" cpp sw nonperf tile 1
1113,3552211.057,5000427.763,1044.872,top 6" hdpe tap tee
1114,3552210.391,5000378.504,1045.063,top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to
end bell
1115,3552210.047,5000375.313,1045.167,top 24" hdpp 1st perf tile 2.18' top to fl outlet
1116,3552209.585,5000372.739,1044.796,top 18" hdpp 1st perf tile 1.64' top to fl inlet
1117,3552207.354,5000355.975,1044.893,top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
end bell
1118,3552205.560,5000336.306,1045.095,top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to

end bell
1119, 3552203.731, 5000316.776, 1045.271, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to
end bell
1120, 3552208.711, 5000314.039, 1047.072, top 6" conc tile 0.55' top to fl
1121, 3552201.606, 5000297.285, 1045.398, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to
end bell
1122, 3552204.189, 5000315.566, 1045.153, top 6" hdpe tap tee
1123, 3552207.595, 5000315.046, 1046.839, top 6" hdpe snap coupler
1124, 3552200.146, 5000277.739, 1045.549, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to
end bell
1125, 3552313.317, 5000591.368, 1049.511, gs bean damage 1
1126, 3552335.723, 5000618.142, 1049.254, gs bean damage 1
1127, 3552349.119, 5000634.307, 1049.297, gs bean damage 1
1128, 3552348.932, 5000619.388, 1049.286, gs bean damage 1
1129, 3552353.334, 5000619.820, 1049.227, gs bean damage 1
1130, 3552353.007, 5000641.727, 1049.071, gs bean damage 1
1131, 3552359.123, 5000648.679, 1049.006, gs bean damage 1
1132, 3552358.989, 5000618.207, 1049.201, gs bean damage 1
1133, 3552363.222, 5000619.152, 1049.129, gs bean damage 1
1134, 3552363.381, 5000652.879, 1048.990, gs bean damage 1
1135, 3552390.761, 5000679.829, 1048.762, gs bean damage 1
1136, 3552407.103, 5000701.928, 1048.590, gs bean damage 1
1137, 3552406.590, 5000711.528, 1048.544, gs bean damage 1
1138, 3552426.948, 5000730.003, 1048.444, gs bean damage 1
1139, 3552426.787, 5000736.410, 1048.434, gs bean damage 1
1140, 3552439.135, 5000738.704, 1048.316, gs bean damage 1
1141, 3552439.206, 5000747.934, 1048.218, gs bean damage 1
1142, 3552452.158, 5000761.702, 1048.249, gs bean damage 1
1143, 3552466.878, 5000784.260, 1048.099, gs bean damage 1
1144, 3552476.175, 5000797.937, 1047.926, gs bean damage 1
1145, 3552483.197, 5000819.791, 1047.947, gs bean damage 1
1146, 3552482.248, 5000837.961, 1047.716, gs bean damage 1
1147, 3552198.817, 5000258.118, 1045.687, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to
end bell
1148, 3552197.495, 5000238.473, 1045.866, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to
end bell
1149, 3552196.536, 5000218.922, 1046.011, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to
end bell
1150, 3552195.089, 5000199.256, 1046.167, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to
end bell
1151, 3552193.201, 5000179.781, 1046.301, top 18" hdpp 10th perf tile 1.64' top to fl 0.8' w to
end bell
1152, 3552191.372, 5000160.199, 1046.467, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
end bell
1153, 3552188.097, 5000202.944, 1049.689, top 6" clay tile 0.57' top to fl
1154, 3552189.256, 5000140.772, 1046.616, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to
end bell
1155, 3552185.665, 5000155.880, 1048.908, top 5" conc tile 0.47' top to fl
1156, 3552187.509, 5000121.145, 1046.784, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to
end bell
1157, 3552190.269, 5000156.876, 1046.310, top 6" hdpe tap tee
1158, 3552186.553, 5000156.435, 1048.584, top 6" hdpe snap coupler
1159, 3552185.772, 5000101.709, 1046.938, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to
end bell
1160, 3552184.224, 5000082.195, 1047.104, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to
end bell
1161, 3552229.151, 5000059.635, 1053.130, gs bean damage 3
1162, 3552230.961, 5000029.501, 1053.207, gs bean damage 3
1163, 3552224.061, 4999924.806, 1054.213, gs bean damage 3
1164, 3552214.282, 4999876.051, 1054.626, gs bean damage 3
1165, 3552214.322, 4999813.245, 1055.163, gs bean damage 3
1166, 3552205.545, 4999730.479, 1056.296, gs bean damage 3
1167, 3552192.919, 4999661.488, 1057.240, gs bean damage 3
1168, 3552193.870, 4999630.738, 1057.638, gs bean damage 3

1169, 3552177.831, 4999605.671, 1058.056, gs bean damage 3
1170, 3552165.520, 4999577.818, 1058.113, gs bean damage 3
1171, 3552163.361, 4999556.235, 1058.397, gs bean damage 3
1172, 3552127.564, 4999521.697, 1058.313, gs bean damage 3
1173, 3552105.063, 4999498.224, 1058.554, gs bean damage 3
1174, 3552072.359, 4999508.623, 1058.434, gs bean damage 3
1175, 3552044.220, 4999473.625, 1058.993, gs bean damage 3
1176, 3552005.412, 4999440.897, 1059.677, gs bean damage 3
1177, 3551980.967, 4999393.241, 1060.451, gs bean damage 3
1178, 3551940.537, 4999326.122, 1061.333, gs bean damage 3
1179, 3551896.670, 4999259.964, 1061.351, gs bean damage 3
1180, 3552182.704, 5000062.659, 1047.291, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to end bell
1181, 3552195.027, 5000204.507, 1046.152, top 6" hdpe tap tee
1182, 3552189.830, 5000205.012, 1049.108, top 6" hdpe snap coupler
1183, 3552188.738, 5000204.501, 1049.613, top 6" hdpe sw nonperf tile
1184, 3552186.072, 5000156.237, 1048.819, top 6" hdpe sw nonperf tile
1185, 3552181.031, 5000043.117, 1047.439, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to end bell
1186, 3552179.250, 5000023.628, 1047.587, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to end bell
1187, 3552177.712, 5000004.087, 1047.736, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to end bell
1188, 3552104.551, 4999838.142, 1055.110, gs bean damage 2
1189, 3552107.410, 4999851.444, 1054.931, gs bean damage 2
1190, 3552119.560, 4999880.277, 1054.516, gs bean damage 2
1191, 3552119.995, 4999961.313, 1053.784, gs bean damage 2
1192, 3552130.068, 5000014.555, 1053.331, gs bean damage 2
1193, 3552129.991, 5000049.521, 1053.045, gs bean damage 2
1194, 3552137.427, 5000100.552, 1052.664, gs bean damage 2
1195, 3552137.659, 5000135.229, 1052.322, gs bean damage 2
1196, 3552144.491, 5000164.956, 1052.183, gs bean damage 2
1197, 3552144.756, 5000232.229, 1051.788, gs bean damage 2
1198, 3552152.310, 5000279.435, 1051.404, gs bean damage 2
1199, 3552152.962, 5000324.763, 1051.144, gs bean damage 2
1200, 3552155.412, 5000380.573, 1051.083, gs bean damage 2
1201, 3552157.849, 5000446.312, 1050.601, gs bean damage 2
1202, 3552170.502, 5000488.874, 1050.365, gs bean damage 2
1203, 3552171.507, 5000543.490, 1050.467, gs bean damage 2
1204, 3552176.383, 4999984.520, 1047.881, top 18" hdpp 10th perf tile 1.64' top to fl 0.8' w to end bell
1205, 3552174.746, 4999964.987, 1048.075, top 18" hdpp 11th perf tile 1.64' top to fl 0.8' w to end bell
1206, 3552173.254, 4999945.544, 1048.182, top 18" hdpp 12th perf tile 1.64' top to fl 0.8' w to end bell
1207, 3552209.798, 5000374.079, 1042.597, center 36" rcp access structure
1209, 3552171.303, 4999926.055, 1048.343, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to end bell
1210, 3552169.299, 4999906.613, 1048.495, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to end bell
1211, 3552167.399, 4999887.097, 1048.707, top 18" hdpp 3rd hdpp perf tile 1.64' top to fl 0.8' w to end bell
1212, 3552173.940, 4999900.026, 1052.014, top 4" clay tile 0.39' top to fl
1213, 3552166.290, 4999867.512, 1048.876, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to end bell
1214, 3552169.271, 4999900.952, 1048.568, top 6" hdpe snap tap tee
1215, 3552173.430, 4999900.106, 1051.857, top 6" hdpe snap coupler
1216, 3552164.784, 4999847.982, 1048.990, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to end bell
1217, 3552163.545, 4999828.246, 1049.165, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to end bell
1218, 3552161.752, 4999808.732, 1049.308, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to end bell
1219, 3552160.087, 4999789.215, 1049.507, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to

end bell
 1220, 3552158.171, 4999769.655, 1049.657, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to
 end bell
 1221, 3552156.443, 4999750.132, 1049.774, top 18" hdpp 10th perf tile 1.64' top to fl 0.8' w to
 end bell
 1222, 3552154.337, 4999730.541, 1049.950, top 18" hdpp 11th perf tile 1.64' top to fl 0.8' w to
 end bell
 1223, 3552152.200, 4999710.962, 1050.109, top 18" hdpp 12th perf tile 1.64' top to fl 0.8' w to
 end bell
 1224, 3552149.576, 4999691.523, 1050.261, top 18" hdpp 13th perf tile 1.64' top to fl 0.8' w to
 end bell
 1225, 3552145.991, 4999672.257, 1050.423, top 18" hdpp 14th perf tile 1.64' top to fl 0.8' w to
 end bell
 1226, 3552141.428, 4999653.086, 1050.593, top 18" hdpp 15th perf tile 1.64' top to fl 0.8' w to
 end bell
 1227, 3552152.326, 4999679.124, 1054.134, top 4" hdpe sw perf tile 0.36' top to fl plastic plug
 1228, 3552135.176, 4999634.500, 1050.743, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
 end bell
 1229, 3552127.536, 4999616.399, 1050.884, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to
 end bell
 1230, 3552117.639, 4999599.452, 1051.033, top 18" hdpp 3rd hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1231, 3552129.313, 4999619.027, 1050.776, top 6" hdpe snap tap tee
 1232, 3552134.588, 4999616.503, 1054.749, top 6"/5"/4" hdpe snap coupler
 1233, 3552134.958, 4999616.135, 1054.725, top 4" hdpe sw perf tile 0.36' top to fl
 1234, 3552106.500, 4999583.248, 1051.187, top 18" hdpp 4th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1235, 3552094.772, 4999567.608, 1051.331, top 18" hdpp 5th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1236, 3552082.014, 4999552.691, 1051.488, top 18" hdpp 6th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1237, 3552069.134, 4999538.040, 1051.634, top 18" hdpp 7th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1238, 3552056.180, 4999523.191, 1051.795, top 18" hdpp 8th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1239, 3552043.706, 4999508.098, 1051.946, top 18" hdpp 9th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1240, 3552031.808, 4999492.546, 1052.107, top 18" hdpp 10th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1241, 3552037.445, 4999484.930, 1059.116, w hub
 1242, 3552039.046, 4999486.749, 1059.077, e hub
 1243, 3551813.529, 4999132.647, 1060.256, top 6" hdpe sw perf tile 0.55'toptofl
 1244, 3552019.748, 4999476.923, 1052.263, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
 end bell
 1245, 3552007.503, 4999461.726, 1052.423, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' W TO
 END BELL
 1246, 3551867.000, 4999353.235, 1060.973, gs bean damage 4
 1247, 3551849.372, 4999333.322, 1061.457, gs bean damage 4
 1248, 3551844.152, 4999253.371, 1062.012, gs bean damage 4
 1249, 3551818.947, 4999227.809, 1062.746, gs bean damage 4
 1250, 3551814.838, 4999148.408, 1063.547, gs bean damage 4
 1251, 3551809.402, 4999119.505, 1064.185, gs bean damage 4
 1252, 3551823.525, 4999087.024, 1064.327, gs bean damage 4
 1253, 3551825.685, 4999003.364, 1065.981, gs bean damage 4
 1254, 3551868.541, 4998903.850, 1068.028, gs bean damage 4
 1255, 3551842.361, 4998983.322, 1066.072, gs bean damage 4
 1256, 3551871.443, 4998923.183, 1067.098, gs bean damage 4
 1257, 3551891.286, 4998880.542, 1067.760, gs bean damage 4
 1258, 3551900.478, 4998848.535, 1068.388, gs bean damage 4
 1259, 3551900.542, 4998826.388, 1068.629, gs bean damage 4
 1260, 3551905.466, 4998811.125, 1068.687, gs bean damage 4
 1261, 3551905.707, 4998772.152, 1068.855, gs bean damage 4
 1262, 3551890.840, 4998755.944, 1069.503, gs bean damage 4
 1263, 3551890.394, 4998746.271, 1069.509, gs bean damage 4

1264, 3551909.894, 4998684.890, 1068.189, gs bean damage 4
 1265, 3551995.480, 4999446.229, 1052.572, top 18" hdpp 3rd hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1266, 3551983.050, 4999431.146, 1052.729, top 18" hdpp 4th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1267, 3551970.610, 4999415.948, 1052.887, top 18" hdpp 5th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1268, 3551963.041, 4999400.231, 1057.048, fl 4" clay tile (full mud) eside cut
 1269, 3551875.553, 4998551.499, 1062.201, calc 24"/18" reducer
 1270, 3551875.539, 4998551.543, 1068.656, gs
 1271, 3551958.239, 4999400.769, 1053.051, top 18" hdpp 6th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1272, 3551945.559, 4999385.828, 1053.243, top 18" hdpp 7th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1273, 3551933.643, 4999370.243, 1053.392, top 18" hdpp 8th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1274, 3551922.465, 4999354.181, 1053.554, top 18" hdpp 9th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1275, 3551911.294, 4999338.139, 1053.698, top 18" hdpp 10th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1276, 3551901.198, 4999321.164, 1053.877, top 18" hdpp 11th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1277, 3551892.651, 4999303.539, 1054.049, top 18" hdpp 12th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1278, 3551885.408, 4999285.308, 1054.169, top 18" hdpp 13th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1279, 3551896.145, 4999280.808, 1060.883, hub
 1280, 3551880.336, 4999266.288, 1054.325, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
 end bell
 1281, 3551876.474, 4999247.029, 1054.461, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to
 end bell
 1282, 3551872.734, 4999227.826, 1054.623, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to
 end bell
 1283, 3551869.024, 4999208.604, 1054.773, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to
 end bell
 1284, 3551866.196, 4999189.253, 1054.936, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to
 end bell
 1285, 3551864.071, 4999169.730, 1055.091, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to
 end bell
 1286, 3551872.868, 4999168.699, 1062.335, hub
 1287, 3551901.657, 4998340.682, 1073.635, gs bean damage 5
 1288, 3551900.851, 4998374.726, 1072.733, gs bean damage 5
 1289, 3551900.996, 4998427.792, 1071.448, gs bean damage 5
 1290, 3551900.947, 4998467.138, 1070.535, gs bean damage 5
 1291, 3551900.916, 4998489.478, 1069.985, gs bean damage 5
 1292, 3551919.230, 4998447.011, 1071.478, gs bean damage 5
 1293, 3551921.007, 4998423.703, 1072.031, gs bean damage 5
 1294, 3551927.943, 4998371.948, 1073.268, gs bean damage 5
 1295, 3551943.403, 4998354.336, 1073.994, gs bean damage 5
 1296, 3551964.695, 4998342.876, 1074.699, gs bean damage 5
 1297, 3551565.865, 4996631.347, 1066.520, FL 14" CLAY TILE
 1298, 3551566.438, 4996630.241, 1069.016, GS ABOVE TILE
 1299, 3551563.090, 4996634.961, 1068.823, GS ABOVE TILE
 1300, 3551553.557, 4996649.626, 1068.742, GS ABOVE TILE
 1301, 3551551.058, 4996653.421, 1068.696, GS TILELOCATE 22"D
 1302, 3551552.207, 4996651.610, 1067.574, TOP 15" CMP 1.28'TOPTOFL
 1303, 3551512.127, 4996712.125, 1068.485, GS TILELOCATE 25"D
 1304, 3551484.071, 4996752.403, 1068.150, GS TILELOCATE 30"D
 1305, 3551456.169, 4996790.870, 1068.173, GS TILELOCATE 20"D
 1306, 3551428.098, 4996828.266, 1068.021, GS TILELOCATE
 1307, 3551419.176, 4996840.428, 1068.311, GS ABOVE TILE
 1308, 3551423.782, 4996834.665, 1067.307, TOP 15" CMP 1.28'TOP TO FL
 1309, 3551406.472, 4996856.753, 1068.076, GS ABOVE TILE
 1310, 3551391.993, 4996874.916, 1068.330, GS TILELOCATE 24"D

1311, 3551361.956, 4996910.371, 1068.448, GS ABOVE TILE
1312, 3551338.022, 4996939.190, 1068.542, GS TILELOCATE 32"D
1313, 3551316.395, 4996963.893, 1068.702, GS ABOVE TILE
1314, 3551310.825, 4996971.346, 1069.161, GS ABOVE TILE
1315, 3551312.077, 4996969.715, 1066.404, GS ABOVE TILE
1316, 3551312.007, 4996969.824, 1066.366, FL 14" CLAY TILE
1317, 3551285.474, 4996975.123, 1069.746, FENCE N-S
1318, 3551299.315, 4996974.997, 1069.683, FENCE N-S
1319, 3551313.478, 4996974.779, 1069.267, FENCE N-S
1320, 3551342.384, 4996974.783, 1069.106, FENCE N-S
1321, 3551297.338, 4996991.698, 1069.626, GS ABOVE TILE
1322, 3551279.339, 4997019.322, 1069.736, GS TILE LOCATE 4'3"D
1323, 3551251.986, 4997060.900, 1070.035, GS TILE LOCATE 4'8"D
1324, 3551236.220, 4997105.179, 1070.228, GS TILE LOCATE 4'0"D
1325, 3551224.447, 4997153.020, 1070.934, GS ABOVE TILE
1326, 3551222.022, 4997158.145, 1070.961, GS ABOVE TILE
1327, 3551222.551, 4997156.515, 1066.075, FL 14" CLAY TILE
1328, 3551211.000, 4997198.497, 1071.556, GS TILE LOCATE 6'0"D
1329, 3551199.393, 4997240.350, 1072.432, GS TILE LOCATE 6'0"D
1330, 3551177.182, 4997319.520, 1073.433, GS TILE LOCATE 7'4"
1331, 3551199.158, 4997349.066, 1072.594, GS TILE LOCATE 6'0"D
1332, 3551199.221, 4997354.681, 1072.549, GS ABOVE TILE
1333, 3551199.087, 4997352.865, 1067.608, TOP 12"CLAY TILE 1.08' TOP TO FL
1334, 3551592.060, 4996591.310, 1070.460, GS TILE LOCATE 3'11"D
1335, 3551620.298, 4996550.327, 1071.238, GS TILE LOCATE 4'3"D
1336, 3551646.667, 4996510.163, 1071.582, GS TILE LOCATE 5'0"D
1337, 3551669.308, 4996482.029, 1071.409, GS TILE LOCATE
1338, 3551676.654, 4996465.745, 1071.431, GS ABOVE TILE
1339, 3551680.260, 4996460.626, 1071.250, GS ABOVE TILE
1340, 3551678.523, 4996462.460, 1068.214, TOP 12" CLAY TILE 1.08'TOFTOFL
1341, 3551451.596, 4998223.581, 1070.785, GS ABOVE TILE
1342, 3551446.981, 4998218.741, 1070.748, GS ABOVE TILE
1343, 3551449.004, 4998220.258, 1064.449, FL 14" CLAY TILE
1344, 3551498.979, 4998247.512, 1070.986, WL LOCATE CIRW
1345, 3551372.546, 4998248.248, 1071.027, WL LOCATE CIRW
1346, 3551430.100, 4998259.345, 1071.687, FENCE N-S
1347, 3551482.202, 4998259.200, 1070.935, FENCE N-S
1348, 3551488.350, 4998260.025, 1070.895, GS TILE LOCATE
1349, 3551534.828, 4998259.669, 1071.430, FENCE NS
1350, 3551521.470, 4998259.929, 1071.039, TB DICH
1351, 3551522.349, 4998263.312, 1069.977, TOE DITCH
1352, 3551525.132, 4998269.321, 1069.682, FL DITCH
1353, 3551525.794, 4998272.876, 1070.043, TOE DITCH
1354, 3551526.359, 4998278.810, 1072.835, SHOULDER
1355, 3551526.673, 4998281.636, 1072.990, EOG
1356, 3551527.250, 4998303.236, 1073.339, EOG
1357, 3551526.550, 4998292.565, 1073.315, CL GRAVEL ROAD
1358, 3551525.892, 4998305.412, 1073.050, SHOULDER
1359, 3551529.090, 4998313.016, 1069.580, TOE DITCH
1360, 3551530.681, 4998319.372, 1069.180, TOE DITCH
1361, 3551533.873, 4998324.448, 1071.024, TOP BANK DITCH
1362, 3551518.678, 4998304.533, 1073.316, GS TILE LOCATE
1363, 3551396.117, 4998188.757, 1070.599, GS TILE LOCATE 5'10"
1364, 3551352.885, 4998165.918, 1070.595, GS TILE LOCATE 5'10"
1365, 3551310.565, 4998142.513, 1070.561, GS TILE LOCATE 5'7"D
1366, 3551263.943, 4998117.337, 1070.723, GS ABOVE TILE
1367, 3551258.511, 4998113.888, 1070.717, GS ABOVE TILE
1368, 3551261.278, 4998115.921, 1065.007, FL 14" CLAY TILE
1369, 3551053.213, 4997914.630, 1071.829, GS TILE LOCATES 7'0"D
1370, 3551065.039, 4997960.091, 1071.871, GS TILE LOCATES 7'0"D
1371, 3551127.423, 4998038.107, 1071.850, GS TILE LOCATES 6'6"D
1372, 3551167.185, 4998067.315, 1071.491, GS TILE LOCATES 6'0"D
1373, 3551209.150, 4998088.640, 1070.927, GS TILE LOCATES 5'8"D
1374, 3551090.050, 4998000.421, 1066.506, TOP 14" CLAY TILE 1.28' TOPTO FL

1375, 3551049.103, 4997865.723, 1072.268, GS ABOVE TILE
1376, 3551086.286, 4997996.852, 1071.850, GS ABOVE TILE
1378, 3551091.389, 4998002.231, 1071.890, GS ABOVE TILE
1379, 3551045.905, 4997817.397, 1072.380, GS ABOVE TILE
1380, 3551044.296, 4997808.781, 1072.392, GS ABOVE TILE
1381, 3551056.299, 4997746.917, 1072.542, GS TILE LOCATE 7'0"D
1382, 3551068.935, 4997702.173, 1072.634, GS TILE LOCATE 6'10"D
1383, 3551083.042, 4997655.609, 1072.456, GS TILE LOCATE 7'0"D
1384, 3551109.372, 4997564.240, 1072.633, GS TILELOCATE 6'9"D
1385, 3551120.567, 4997518.024, 1073.073, GS TILELOCATE 7'3"D
1386, 3551124.953, 4997502.277, 1065.775, FL 14" CLAY TILE
1387, 3551045.248, 4997813.311, 1065.403, FL 14" CLAY TILE
1388, 3551093.555, 4997610.948, 1072.486, GS ABOVE TILE
1389, 3551096.801, 4997602.275, 1072.173, GS ABOVE TILE
1390, 3551095.123, 4997606.787, 1065.645, FL 14" CLAY TILE
1391, 3551126.107, 4997499.383, 1072.494, GS ABOVE TILE
1392, 3551123.609, 4997506.245, 1073.347, GS ABOVE TILE
1393, 3551135.557, 4997467.368, 1073.784, GS TILE LOCATE
1394, 3551149.370, 4997419.390, 1072.964, GS TILE LOCATE 7'8"D
1395, 3551164.078, 4997368.692, 1073.498, GS TILE LOCATE
1396, 3551188.048, 4997280.250, 1073.170, GS TILE LOCATE 6'5"
1397, 3551150.366, 4997415.531, 1067.210, TOP 14" CLAY TILE 1.28'TOP TO FL
1398, 3551190.362, 4997295.674, 1073.076, GS TILE LOCATE 6'5"D
1399, 3551507.463, 4998304.721, 1073.405, N EDGE CONCBXHDWALL E SIDE
1400, 3551508.155, 4998279.529, 1073.170, N EDGE CONCBXHDWALL W SIDE
1401, 3551916.315, 4998643.143, 1068.145, PROPOSED 24" TO 18"
1402, 3551476.101, 4998247.645, , APPROX WM CROSS
1403, 3551917.099, 4998791.520, 1064.620, top 6" dw nonperf hdpe tile
1404, 3551863.387, 4999150.158, 1055.243, top 18" hdpp 1ST perf tile 1.64' top to fl 0.8' w to
end bell
1405, 3551863.464, 4999130.572, 1055.399, top 18" hdpp 2ND perf tile 1.64' top to fl 0.8' w to
end bell
1406, 3551863.981, 4999111.027, 1055.544, top 18" hdpp 3RD perf tile 1.64' top to fl 0.8' w to
end bell
1407, 3551865.239, 4999091.436, 1055.732, top 18" hdpp 4TH perf tile 1.64' top to fl 0.8' w to
end bell
1408, 3551866.165, 4999071.856, 1055.910, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to
end bell
1409, 3551868.067, 4999052.249, 1056.066, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to
end bell
1410, 3551870.299, 4999032.771, 1056.227, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to
end bell
1411, 3551874.611, 4999013.624, 1056.362, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to
end bell
1412, 3551886.684, 4999016.085, 1064.922, HUB
1413, 3551858.476, 4999106.887, 1060.577, top 4" clay tile 0.39' top to fl 2.75" FULL MUD
1414, 3551879.749, 4998994.679, 1056.548, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
end bell
1415, 3551886.501, 4998976.251, 1056.725, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to
end bell
1416, 3551895.529, 4998958.813, 1056.835, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to
end bell
1417, 3551906.255, 4998942.302, 1056.959, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to
end bell
1418, 3551916.979, 4998925.900, 1057.129, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to
end bell
1419, 3551927.467, 4998909.418, 1057.265, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to
end bell
1420, 3551936.496, 4998891.987, 1057.432, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to
end bell
1421, 3551514.597, 4998274.785, 1073.170, caic cl tile
1422, 3551944.420, 4998874.059, 1057.588, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to
end bell
1423, 3551950.683, 4998855.427, 1057.757, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to

end bell
1424, 3551955.648, 4998836.439, 1057.961, top 18" hdpp 10th perf tile 1.64' top to fl 0.8' w to
end bell
1425, 3551958.727, 4998817.223, 1058.071, top 18" hdpp 11th perf tile 1.64' top to fl 0.8' w to
end bell
1426, 3551959.220, 4998797.445, 1058.232, top 18" hdpp 12th perf tile 1.64' top to fl 0.8' w to
end bell
1427, 3551973.005, 4998797.165, 1067.976, HUB
1430, 3551589.997, 4998346.482, 1069.822, calc cl tile
1431, 3551958.151, 4998777.820, 1058.380, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to
end bell
1433, 3551955.532, 4998758.380, 1058.528, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to
end bell
1434, 3551660.006, 4998403.438, 1069.697, calc cl tile
1435, 3551702.637, 4998432.776, 1063.599, calc cl tile
1436, 3551951.815, 4998739.151, 1058.735, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to
end bell
1437, 3551947.190, 4998720.145, 1058.854, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to
end bell
1438, 3551476.048, 4998242.942, 1073.170, calc cl tile
1439, 3551435.372, 4998213.865, 1073.170, calc cl tile
1440, 3551941.941, 4998701.204, 1059.036, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to
end bell
1441, 3551937.135, 4998687.178, 1059.157, top 18"*18"*12 hdpp tee 1.64' top to fl
1442, 3551940.304, 4998688.521, 1061.051, top 12" clay tile 1.09' top to fl
1443, 3551934.625, 4998679.733, 1059.221, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to
end bell
1444, 3551927.273, 4998661.435, 1059.372, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to
end bell
1445, 3551919.681, 4998643.417, 1059.533, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to
end bell
1446, 3551911.853, 4998625.398, 1059.706, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to
end bell
1447, 3551915.150, 4998622.675, 1063.877, top 5" hdpe sw perf tile 0.44' top to fl
1448, 3551903.110, 4998607.942, 1059.796, top 18" hdpp 10th hdpp perf tile 1.64' top to fl 0.8'
w to end bell
1449, 3551911.515, 4998624.043, 1059.763, top 6" hdpe snap tap tee
1450, 3551914.301, 4998622.958, 1063.480, top 6"/5" hdpe snap reducer
1451, 3551893.782, 4998590.728, 1059.998, top 18" hdpp 11th hdpp perf tile 1.64' top to fl 0.8'
w to end bell
1452, 3551884.726, 4998573.398, 1060.147, top 18" hdpp 12th hdpp perf tile 1.64' top to fl 0.8'
w to end bell
1453, 3551894.551, 4998568.673, 1068.841, hub
1454, 3551781.259, 4998499.319, 1065.825, top 6" sw hdpe perf tile
1456, 3551875.393, 4998556.136, 1060.290, top 18" hdpp 1st perf tile 1.64' top to fl
1457, 3551872.862, 4998551.820, 1058.720, fl 24" hdpp perf tile @ center 36" rcp access
1458, 3551874.774, 4998555.264, 1060.838, top 24"/18" hdpp reducer
1459, 3551868.976, 4998545.071, 1060.895, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w of
bell
1460, 3551879.553, 4998538.944, 1068.912, hub
1461, 3551934.529, 4998663.146, 1065.781, TOP 12" CLAY TILE 1.08'TOPTOFL 6"fullofmud
1462, 3551920.257, 4998622.062, 1068.727, gs tile locate 3.0' to top tile
1463, 3551906.941, 4998590.873, 1068.672, gs tile locate 2.9' to top tile
1464, 3551900.277, 4998573.078, 1068.747, gs tile locate 3.15' to top tile
1465, 3551857.602, 4998528.722, 1060.936, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to
end bell
1466, 3551844.430, 4998513.509, 1060.966, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w of
bell
1467, 3551829.895, 4998499.801, 1061.025, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' to west
1468, 3551590.877, 4998396.467, 1067.539, top 4" hdpe sw perf tile 0.34' top to fl
1469, 3551587.819, 4998395.479, 1067.993, top 4" hdpe sw perf tile 0.34' top to fl
1470, 3551813.932, 4998487.655, 1061.061, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to
end bell
1471, 3551797.191, 4998476.352, 1061.096, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to

end bell
1472, 3551835.847, 4998498.482, 1065.789, top existing 12" clay tile 1.1' top to fl 6" mud in fl to e
1473, 3551780.071, 4998466.010, 1061.161, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to end bell
1474, 3551762.339, 4998456.917, 1061.188, top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to end bell
1475, 3551743.925, 4998449.040, 1061.210, top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to end bell
1476, 3551938.133, 4998686.758, 1059.765, top 12" hdpp tee/12" hdpe dw nonperf tile 1.1' top to fl
1477, 3551939.876, 4998686.196, 1060.942, top 12" hdpe dw/sw nonperf tile 1.1' top to fl
1478, 3551941.728, 4998684.683, 1062.294, top 12" hdpe sw nonperf tile 1.1' top to fl
1479, 3551725.746, 4998440.768, 1061.258, top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to end bell
1480, 3551707.555, 4998432.305, 1061.290, top 24" hdpp 10th perf tile 2.18' top to fl 0.9' w to end bell
1481, 3551711.584, 4998424.169, 1069.686, hub
1482, 3551758.130, 4998448.110, 1066.085, top 12" clay tile 1.14' toptofl 6" mud in fl to west
1483, 3551689.930, 4998422.660, 1061.336, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w of bell
1484, 3551673.181, 4998412.213, 1061.371, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w of bell
1485, 3551673.340, 4998421.309, 1066.451, top 4" clay tile 0.40' top to fl 3" full mud
1486, 3551679.290, 4998411.400, 1066.331, top 4" clay tile 0.40' top to fl 3" full mud
1487, 3551657.154, 4998400.319, 1061.383, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' to west
1488, 3551675.353, 4998421.351, 1064.869, top 15" clay tile 1.18' toptofl (removal ended)
1489, 3551642.020, 4998387.768, 1061.457, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to end bell
1490, 3551627.178, 4998374.922, 1061.491, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to end bell
1491, 3551612.167, 4998362.366, 1061.523, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to end bell
1492, 3551099.048, 4997595.068, 1065.645, calc hpp 24"/18" reducer
1493, 3551099.049, 4997595.011, 1072.510, gs @ 24"/18" reducer
1494, 3551596.780, 4998349.804, 1061.564, top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to end bell
1495, 3551582.073, 4998336.790, 1061.604, top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to end bell
1496, 3551630.717, 4998372.306, 1066.835, top 4" clay tile 0.40' top to fl 3" full mud
1497, 3551613.897, 4998370.508, 1066.751, top 4" clay tile 0.39' top to fl 3" full mud
1498, 3551604.773, 4998369.409, 1066.825, top 4" clay tile 0.40' top to fl 3" full mud
1499, 3551609.544, 4998370.035, 1066.346, fl 4" clay tile 3" full mud
1500, 3551599.512, 4998383.164, 1063.903, fl existing 15" clay tile main @ water diversion
1501, 3551604.407, 4998326.825, 1070.559, gs ditch/field
1502, 3551603.099, 4998319.969, 1069.296, toe ditch
1503, 3551602.915, 4998316.421, 1069.282, fl ditch
1504, 3551601.041, 4998314.068, 1069.400, toe ditch
1505, 3551600.614, 4998308.480, 1071.126, gs ditch
1506, 3551600.260, 4998306.749, 1072.868, shoulder
1507, 3551547.709, 4998306.690, 1072.884, shoulder
1508, 3551545.243, 4998303.752, 1073.307, eog
1509, 3551532.074, 4998293.164, 1073.310, cl gravel
1510, 3551521.759, 4998282.033, 1073.044, eog
1511, 3551518.021, 4998278.997, 1072.817, shoulder
1512, 3551513.556, 4998272.534, 1070.166, toe
1513, 3551508.826, 4998270.106, 1069.916, fl ditch
1514, 3551502.164, 4998263.211, 1070.096, toe ditch
1515, 3551500.201, 4998259.639, 1071.277, gs @ w row fence
1516, 3551588.423, 4998329.815, 1070.197, hub
1517, 3551566.893, 4998323.592, 1061.642, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w of bell
1518, 3551557.818, 4998315.512, 1059.501, fl 24"*24"*18" hdpp tee intake
1519, 3551549.174, 4998307.613, 1061.707, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w of

bell
 1520, 3551534.644, 4998294.362, 1061.739, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w of bell
 1521, 3551561.207, 4998310.998, 1067.233, TOP 12" CLAY TILE 1.08'TOFTOFL 6"fullmud
 1522, 3551523.275, 4998283.855, 1061.770, top 24" hdpp 4th perf tile (15.5'long) 2.18' top to fl 0.9' w of bell
 1523, 3551529.142, 4998285.592, 1062.317, top 2.5"od heart of iowa foc n side
 1524, 3551522.552, 4998285.882, 1062.380, top 2.5"od heart of iowa foc s side
 1525, 3551537.342, 4998281.053, 1073.132, hub
 1526, 3551943.035, 4998681.432, 1063.085, top 12" clay tile 1.09' top to fl
 1527, 3551547.687, 4998306.061, 1066.225, gs road crossing e side
 1528, 3551599.452, 4998267.798, 1069.722, gs fl ditch
 1529, 3551455.273, 4998268.489, 1069.274, gs fl ditch
 1530, 3551522.167, 4998294.837, 1069.177, top 10" clay tile (withbell1) cracked full mud
 1531, 3551512.668, 4998274.373, 1061.797, top 24" hdpp 1st perf tile (15'long) 2.18' top to fl 0.9' w of end spigot
 1532, 3551510.741, 4998272.519, 1061.806, top 24"*24"*12" hdpp wye 2.18' top to fl
 1533, 3551507.932, 4998270.142, 1059.628, fl 24"*24"*18" hdpp tee @ intake
 1534, 3551502.966, 4998265.822, 1061.815, top 24" hdpp 2nd perf tile (5.0'long) 2.18' top to fl 0.9' w of bell
 1535, 3551514.487, 4998267.741, 1067.550, top 6" clay tile 0.53'toptofl
 1536, 3551492.177, 4998273.034, 1066.322, top 6" clay tile 0.56'toptofl removed
 1537, 3551487.188, 4998266.906, 1065.627, top 6" clay tile 0.56'toptofl
 1538, 3551497.147, 4998272.750, 1064.162, fl 15" clay tile ABANDONMENT W SIDE
 1539, 3551487.830, 4998252.725, 1061.871, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w of bell
 1540, 3551479.812, 4998249.357, 1065.903, top 2.5" pvc wm 0.25'OD od
 1541, 3551490.474, 4998249.529, 1066.013, top 2.5" pvc wm 0.25'OD
 1542, 3551472.318, 4998239.881, 1061.916, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w of bell
 1543, 3551520.711, 4998281.272, 1072.838, GS ROAD CROSSING
 1544, 3551498.955, 4998305.480, 1069.716, GS DIRT @ BOX CULVERT
 1545, 3551558.187, 4998315.000, 1067.734, GS ROCK @ INTAKE
 1546, 3551874.376, 4998551.038, 1066.288, n rim 36" access mh
 1547, 3551287.451, 4998273.457, 1067.813, TOP 8" CLAY TILE 0.73'TOFTOFL
 1548, 3551353.421, 4998272.426, 1069.997, GS ABOVE TILE 40"D
 1549, 3551411.556, 4998272.856, 1069.885, GS ABOVE TILE 37"D
 1550, 3551457.079, 4998271.664, 1069.773, GS ABOVE TILE 40"D
 1551, 3551509.132, 4998272.990, 1062.851, TOP 12" HDPP WYE
 1552, 3551507.482, 4998272.784, 1063.604, TOP 12"/8" FRATCO HDPE REDUCER
 1553, 3551506.711, 4998272.720, 1063.421, TOP 8" HDPE DW TILE 0.71'TOFTOFL
 1554, 3551489.057, 4998272.896, 1067.112, TOP 8" CLAY TILE 0.73'TOP TO FL
 1555, 3551507.024, 4998270.075, 1064.454, TOP 6" HDPE SNAP TEE
 1556, 3551509.049, 4998269.639, 1066.842, TOP 6" HDPE SNAP TEE
 1557, 3551488.374, 4998266.791, 1065.582, top 6" clay tile 0.56'toptofl
 1558, 3551499.093, 4998278.781, 1068.722, GS @ BOX CULVERT WDITCH
 1559, 3551507.819, 4998268.999, 1068.092, TOP ROCK W SIDE INTAKE
 1560, 3551496.298, 4998272.588, 1065.602, TOP 8" HDPE NON PERF TILE 0.70'TOFTOFL
 1561, 3551469.233, 4998243.688, 1066.965, TOP 12" CLAY TILE 1.07'TOFL 4"FULLMUDTOW
 1562, 3551573.996, 4998259.638, 1071.625, FENCE REPAIR N SIDE
 1563, 3551469.223, 4998259.358, 1070.921, FENCE REPAIR S SIDE
 1564, 3551516.277, 4998310.442, 1065.002, TOP 8"CLAY TILE 0.71'TOFTO FL
 1565, 3551518.617, 4998309.552, 1064.228, FL 15" CLAY TILE ABANDONMENT E SIDE
 1568, 3551536.378, 4998313.462, 1064.774, TOP 8" DW HDPE NONPERF TILE (0.71'TOFTOFL)
 1569, 3551556.925, 4998315.516, 1064.441, top 8" hdpe split band coupler 8" tee (0.71'toptofl)
 1570, 3551555.940, 4998315.441, 1064.490, TOP 8" HDPE DW TILE (0.71'TOFTOFL)
 1571, 3551563.511, 4998312.863, 1067.226, top 12" clay tile 1.09'TOFTOFL 6"FULLmud
 1572, 3551508.870, 4998269.987, 1068.523, N RIM W DITCH INTAKE
 1573, 3551558.884, 4998315.661, 1068.391, N RIM E DITCH INTAKE
 1574, 3551442.780, 4998258.685, 1071.549, SIR 12
 1575, 3551457.486, 4998226.951, 1061.932, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to bell
 1576, 3551441.943, 4998214.889, 1061.978, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to bell.

1577, 3551425.311, 4998204.421, 1062.014, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w to bell
1578, 3551408.450, 4998194.464, 1062.045, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w to bell
1579, 3551391.332, 4998185.509, 1062.086, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to bell
1580, 3551372.979, 4998175.925, 1062.127, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to bell
1581, 3551377.816, 4998170.929, 1068.018, top 5" clay tile 0.45' top to fl
1582, 3551355.311, 4998166.409, 1062.176, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to bell
1583, 3551337.647, 4998156.902, 1062.223, top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to bell
1584, 3551339.277, 4998147.365, 1065.678, fl 12" clay top cracked hook up ?
1585, 3551319.945, 4998147.528, 1062.254, top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to bell
1586, 3551302.190, 4998138.517, 1062.292, top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to bell
1587, 3551284.217, 4998129.615, 1062.329, top 24" hdpp 10th perf tile 2.18' top to fl 0.9' w to bell
1588, 3551266.440, 4998120.290, 1062.376, top 24" hdpp 11th perf tile 2.18' top to fl 0.9' w to bell
1589, 3551260.254, 4998131.600, 1070.912, hub
1590, 3551459.217, 4996786.667, 1068.173, calc hpp 18"/15" reducer
1591, 3551683.054, 4996455.674, 1068.214, calc junction box
1592, 3551248.699, 4998110.926, 1062.431, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to bell
1593, 3551231.613, 4998102.451, 1062.458, top 24" hdpp 2nd perf tile 2.18' top to fl no bell
1594, 3551215.782, 4998094.380, 1062.486, top 24" hdpp 3rd perf tile 2.18' top to fl .0.9' w to bell partial
1595, 3551376.978, 4998177.857, 1062.134, top 6" hdpe snap tap tee
1596, 3551377.706, 4998175.589, 1066.871, top 6" hdpe snap coupler
1597, 3551377.799, 4998174.119, 1067.789, top 6" hdpe snap coupler
1598, 3551198.140, 4998084.723, 1062.520, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to end bell
1599, 3551180.641, 4998074.854, 1062.564, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to end bell
1600, 3551163.604, 4998064.347, 1062.631, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to end bell
1601, 3551147.624, 4998052.203, 1062.689, top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to end bell
1602, 3551132.495, 4998039.068, 1062.698, top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to end bell
1603, 3551117.773, 4998025.357, 1062.730, top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to end bell
1604, 3551103.513, 4998011.447, 1062.806, top 24" hdpp 10th perf tile 2.18' top to fl 0.9' w to end bell
1605, 3551089.891, 4997996.866, 1062.828, top 24" hdpp 11th perf tile 2.18' top to fl 0.9' w to end bell
1606, 3551077.113, 4997981.583, 1062.844, top 24" hdpp 12th perf tile 2.18' top to fl 0.9' w to bell
1607, 3551066.103, 4997990.817, 1071.958, hub
1608, 3551066.389, 4997964.639, 1062.892, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to bell
1609, 3551058.327, 4997946.340, 1062.950, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w to bell
1610, 3551052.129, 4997927.186, 1062.992, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w to bell
1611, 3551047.649, 4997907.696, 1063.014, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to bell
1612, 3551045.078, 4997887.886, 1063.051, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to bell
1613, 3551044.131, 4997867.877, 1063.092, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to bell

1614, 3551043.672, 4997847.918, 1063.147, top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to bell
1615, 3551044.547, 4997828.053, 1063.169, top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to bell
1616, 3551045.830, 4997807.957, 1063.207, top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to bell
1617, 3551048.670, 4997788.102, 1063.266, top 24" hdpp 10th perf tile 2.18' top to fl 0.9' w to bell
1618, 3551036.095, 4997786.106, 1072.772, hub
1619, 3551044.458, 4997779.454, 1067.992, top 7" clay tile 0.64'top to fl
1620, 3551050.137, 4997781.046, 1063.384, top 24"*8" hdpe saddle tee
1621, 3551052.842, 4997768.413, 1063.296, top 24" hdpp 1st perf tile 2.18' top to fl 0.9' w to end bell
1622, 3551049.048, 4997780.782, 1065.732, top 8" hdpe snap coupler
1623, 3551046.874, 4997780.143, 1067.448, top 8" hdpe snap coupler
1624, 3551056.864, 4997748.877, 1063.331, top 24" hdpp 2nd perf tile 2.18' top to fl 0.9' w to end bell
1625, 3551061.048, 4997729.376, 1063.365, top 24" hdpp 3rd perf tile 2.18' top to fl 0.9' w to end bell
1626, 3551066.312, 4997710.119, 1063.401, top 24" hdpp 4th perf tile 2.18' top to fl 0.9' w to end bell
1627, 3551071.960, 4997691.036, 1063.456, top 24" hdpp 5th perf tile 2.18' top to fl 0.9' w to end bell
1628, 3551077.535, 4997672.255, 1063.488, top 24" hdpp 6th perf tile 2.18' top to fl 0.9' w to end bell
1629, 3551083.380, 4997653.453, 1063.540, top 24" hdpp 7th perf tile 2.18' top to fl 0.9' w to end bell
1630, 3551089.600, 4997634.967, 1063.569, top 24" hdpp 8th perf tile 2.18' top to fl 0.9' w to end bell
1631, 3551095.129, 4997616.113, 1063.610, top 24" hdpp 9th perf tile 2.18' top to fl 0.9' w to end bell
1632, 3551101.588, 4997597.585, 1063.643, top 24" hdpp 10th perf tile 2.18' top to fl bell removed
1633, 3551086.845, 4997594.031, 1072.783, hub
1634, 3551101.861, 4997596.802, 1063.645, top 24"/18" hdpp reducer 2.18'top to fl
1635, 3551101.020, 4997599.213, 1061.462, fl 24" hdpp perf tile in 36" access mh
1636, 3551100.924, 4997598.935, 1061.415, center 36" access mh
1637, 3551106.867, 4997581.630, 1063.140, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to end bell
1638, 3551112.819, 4997562.981, 1063.178, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to end bell
1639, 3551118.761, 4997544.386, 1063.219, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to end bell
1640, 3551124.648, 4997525.699, 1063.276, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to end bell
1641, 3551130.694, 4997507.082, 1063.303, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to end bell
1642, 3551136.105, 4997488.291, 1063.346, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to end bell
1643, 3551141.429, 4997469.419, 1063.379, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to end bell
1644, 3551146.230, 4997450.467, 1063.418, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to end bell
1645, 3551150.646, 4997431.402, 1063.463, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to end bell
1646, 3551135.782, 4997424.876, 1073.193, hub
1647, 3551154.703, 4997412.291, 1063.511, top 18" hdpp 1st perf tile 1.64' top to fl 0.8' w to end bell
1648, 3551158.445, 4997393.026, 1063.531, top 18" hdpp 2nd perf tile 1.64' top to fl 0.8' w to end bell
1649, 3551163.058, 4997373.861, 1063.587, top 18" hdpp 3rd perf tile 1.64' top to fl 0.8' w to end bell
1650, 3551168.082, 4997354.780, 1063.616, top 18" hdpp 4th perf tile 1.64' top to fl 0.8' w to end bell

1651, 3551173.585, 4997336.093, 1063.669, top 18" hdpp 5th perf tile 1.64' top to fl 0.8' w to end bell
1652, 3551178.303, 4997317.427, 1063.704, top 18" hdpp 6th perf tile 1.64' top to fl 0.8' w to end bell
1653, 3551183.644, 4997298.106, 1063.755, top 18" hdpp 7th perf tile 1.64' top to fl 0.8' w to end bell
1654, 3551188.966, 4997279.226, 1063.775, top 18" hdpp 8th perf tile 1.64' top to fl 0.8' w to end bell
1655, 3551194.103, 4997260.334, 1063.810, top 18" hdpp 9th perf tile 1.64' top to fl 0.8' w to end bell
1656, 3551199.381, 4997241.480, 1063.866, top 18" hdpp 10th perf tile 1.64' top to fl 0.8' w to end bell
1657, 3551198.154, 4997262.265, 1067.433, fl 12" clay tile 5" mud to e
1658, 3551204.935, 4997222.571, 1063.895, top 18" hdpp 11th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1659, 3551210.276, 4997203.778, 1063.930, top 18" hdpp 12th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1660, 3551215.577, 4997184.916, 1063.969, top 18" hdpp 13th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1661, 3551221.514, 4997166.307, 1064.010, top 18" hdpp 14th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1662, 3551226.782, 4997147.397, 1064.043, top 18" hdpp 15th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1663, 3551218.124, 4997144.961, 1071.127, hub
1664, 3551102.546, 4997599.614, 1069.149, concrete n side rim
1665, 3551233.029, 4997128.869, 1064.093, top 18" hdpp 1st hdpp perf tile 1.64' top to fl 0.8' w to end bell
1666, 3551239.351, 4997110.338, 1064.136, top 18" hdpp 2nd hdpp perf tile 1.64' top to fl 0.8' w to end bell
1667, 3551245.657, 4997091.828, 1064.166, top 18" hdpp 3rd hdpp perf tile 1.64' top to fl 0.8' w to end bell
1668, 3551252.043, 4997073.323, 1064.216, top 18" hdpp 4th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1669, 3551258.883, 4997054.940, 1064.268, top 18" hdpp 5th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1670, 3551266.678, 4997036.960, 1064.299, top 18" hdpp 6th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1671, 3551275.490, 4997019.460, 1064.316, top 18" hdpp 7th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1672, 3551285.693, 4997002.714, 1064.359, top 18" hdpp 8th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1673, 3551297.505, 4996987.021, 1064.411, top 18" hdpp 9th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1674, 3551324.247, 4996956.738, 1064.477, top 18" hdpp 11th hdpp perf tile 1.64' top to fl 1.0' w to end bell
1675, 3551309.942, 4996973.039, 1064.458, top 18" hdpp 10th hdpp perf tile 1.64' top to fl bell removed
1676, 3551310.971, 4996971.904, 1062.807, fl 18"*12" hdpp tee
1677, 3551317.797, 4996951.040, 1068.960, hub
1678, 3551251.548, 4997046.084, 1067.092, fl 6" conc tile
1679, 3551260.081, 4997051.208, 1064.213, top 6" hdpe snap tap tee
1680, 3551258.197, 4997050.227, 1066.159, top 6" hdpe snap coupler
1681, 3551255.379, 4997048.501, 1067.432, top 6" hdpe snap coupler
1682, 3551337.416, 4996941.984, 1064.530, top 18" hdpp 1st hdpp perf tile 1.64' top to fl 0.8' w to end bell
1683, 3551350.458, 4996927.309, 1064.558, top 18" hdpp 2nd hdpp perf tile 1.64' top to fl 0.8' w to end bell
1684, 3551363.272, 4996912.681, 1064.600, top 18" hdpp 3rd hdpp perf tile 1.64' top to fl 0.8' w to end bell
1685, 3551376.297, 4996897.459, 1064.635, top 18" hdpp 4th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1686, 3551389.080, 4996882.586, 1064.696, top 18" hdpp 5th hdpp perf tile 1.64' top to fl 0.8' w to end bell
1687, 3551401.174, 4996867.178, 1064.731, top 18" hdpp 6th hdpp perf tile 1.64' top to fl 0.8'

w to end bell
 1688, 3551413.050, 4996851.671, 1064.761, top 18" hdpp 7th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1689, 3551424.796, 4996835.998, 1064.791, top 18" hdpp 8th hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1690, 3551418.023, 4996830.882, 1068.296, hub
 1691, 3551436.359, 4996820.160, 1064.831, top 18" hdpp 1st hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1692, 3551448.807, 4996805.069, 1064.887, top 18" hdpp 2nd hdpp perf tile 1.64' top to fl 0.8'
 w to end bell
 1693, 3551455.208, 4996797.321, 1063.253, fl 18" hdpp perf tile center 36" access mh
 1694, 3551457.451, 4996794.462, 1064.896, top 18"/15" hdpp reducer
 1695, 3551469.387, 4996779.408, 1064.687, top 15" hdpp 1st perf tile 1.37' top to fl 0.8' w to
 end bell
 1696, 3551481.333, 4996763.459, 1064.722, top 15" hdpp 2nd perf tile 1.37' top to fl 0.8' w to
 end bell
 1697, 3551493.222, 4996747.432, 1064.754, top 15" hdpp 3rd perf tile 1.37' top to fl 0.8' w to
 end bell
 1698, 3551505.130, 4996731.327, 1064.789, top 15" hdpp 4th perf tile 1.37' top to fl 0.8' w to
 end bell
 1699, 3551516.886, 4996715.289, 1064.827, top 15" hdpp 5th perf tile 1.37' top to fl 0.8' w to
 end bell
 1700, 3551528.399, 4996698.987, 1064.866, top 15" hdpp 6th perf tile 1.37' top to fl 0.8' w to
 end bell
 1701, 3551538.843, 4996681.989, 1064.909, top 15" hdpp 7th perf tile 1.37' top to fl 0.8' w to
 end bell
 1702, 3551549.326, 4996664.919, 1064.938, top 15" hdpp 8th perf tile 1.37' top to fl 0.8' w to
 end bell
 1703, 3551559.451, 4996647.770, 1064.989, top 15" hdpp 9th perf tile 1.37' top to fl 0.8' w to
 end bell
 1704, 3551569.336, 4996630.456, 1065.026, top 15" hdpp 10th perf tile 1.37' top to fl 0.8' w to
 end bell
 1705, 3551579.939, 4996613.508, 1065.089, top 15" hdpp 11th perf tile 1.37' top to fl 0.8' w to
 end bell
 1706, 3551590.580, 4996596.599, 1065.122, top 15" hdpp 12th perf tile 1.37' top to fl 0.8' w to
 end bell
 1707, 3551557.668, 4996660.273, 1067.240, top 4" sw perf hdpe tile 0.36' top to fl
 1708, 3551601.385, 4996579.833, 1065.141, top 15" hdpp 13th perf tile 1.37' top to fl 0.8' w to
 end bell
 1709, 3551612.604, 4996563.343, 1065.184, top 15" hdpp 14th perf tile 1.37' top to fl 0.8' w to
 end bell
 1710, 3551602.144, 4996577.822, 1065.084, top 6" hdpe snap tap tee
 1711, 3551598.362, 4996574.653, 1069.288, top 6"/5"/4" hdpe snap reducer coupler
 1712, 3551597.819, 4996574.356, 1069.409, top 4" sw hdpe perf tile 0.36" top to fl
 1713, 3551597.673, 4996574.098, 1069.465, top 4" sw hdpe perf tile 0.36" top to fl
 1714, 3551624.177, 4996547.163, 1065.247, top 15" hdpp 15th perf tile 1.37' top to fl 0.8' w to
 end bell
 1715, 3551617.227, 4996542.172, 1071.659, hub
 1716, 3551456.513, 4996798.168, 1066.083, n rim 36" access mh
 1717, 3551635.477, 4996530.654, 1065.284, top 15" hdpp 1st perf tile 1.37' top to fl 0.8' w to
 end bell
 1718, 3551646.414, 4996513.972, 1065.328, top 15" hdpp 2nd perf tile 1.37' top to fl 0.8' w to
 end bell
 1719, 3551657.544, 4996497.392, 1065.376, top 15" hdpp 3rd perf tile 1.37' top to fl 0.8' w to
 end bell
 1720, 3551668.014, 4996492.421, 1068.713, top 7" clay tile 0.63' top to fl
 1721, 3551668.336, 4996480.587, 1065.387, top 15" hdpp 4th perf tile 1.37' top to fl 0.8' w to
 end bell
 1722, 3551678.619, 4996463.536, 1065.454, top 15" hdpp 5th perf tile 1.37' top to fl 0.8' w to
 end bell
 1723, 3551686.554, 4996450.634, 1068.199, top 12" clay tile 1.07' top to fl
 1724, 3551681.138, 4996459.419, 1064.084, fl 15" hdpp perf tile in 36" access mh
 1725, 3551680.864, 4996459.910, 1067.228, top 15" hdpp perf tile inlet 1.37' to fl
 1726, 3551682.074, 4996461.371, 1069.687, conc rim 36" access mh

1727, 3551680.569, 4996460.528, 1064.049, fl center 36" access mh
 1728, 3551309.205, 4996973.555, 1064.492, top 18"*8" saddle tap tee
 1729, 3551308.858, 4996973.265, 1064.957, top 8" hdpe split coupler band
 1730, 3551308.227, 4996972.508, 1066.119, top 8" sw nonperf hdpe tile 0.72' to fl
 1731, 3551308.111, 4996970.786, 1067.031, top 8" sw nonperf hdpe tile 0.72' to fl
 1732, 3551308.315, 4996968.508, 1067.149, top existing 8" sw perf hdpe tile 0.72'to fl
 1733, 3551661.447, 4996491.219, 1065.408, top 15" * 8" saddle tap
 1734, 3551661.777, 4996491.396, 1065.968, top 8" split band coupler
 1735, 3551662.766, 4996492.513, 1067.985, top 8" sw nonperf hdpe tile 0.72'to fl
 1736, 3551663.611, 4996492.622, 1068.443, top 8" sw nonperf hdpe tile 0.72'to fl
 1737, 3551665.044, 4996492.652, 1068.659, top 8" hdpe split band coupler
 1738, 3551597.668, 4998306.565, 1072.907, gs e ditch seeding
 1739, 3551611.358, 4998325.483, 1070.874, gs e ditch seeding
 1740, 3551559.500, 4998327.745, 1071.597, gs e ditch seeding
 1741, 3551500.013, 4998326.755, 1071.811, gs e ditch seeding
 1742, 3551498.937, 4998311.625, 1069.392, gs e ditch seeding
 1743, 3551512.560, 4998310.022, 1070.477, gs e ditch seeding
 1744, 3551517.337, 4998304.895, 1073.151, gs e ditch seeding
 1745, 3551557.019, 4998305.738, 1072.606, gs e ditch seeding
 1746, 3551578.342, 4998278.131, 1072.669, gs w ditch seeding
 1747, 3551523.488, 4998279.335, 1072.617, gs w ditch seeding
 1748, 3551508.212, 4998278.987, 1072.417, gs w ditch seeding
 1749, 3551490.279, 4998278.940, 1072.624, gs w ditch seeding
 1750, 3551466.560, 4998278.539, 1072.762, gs w ditch seeding
 1751, 3551460.693, 4998275.052, 1070.810, gs w ditch seeding
 1752, 3551463.990, 4998265.043, 1069.257, gs w ditch seeding
 1753, 3551469.820, 4998259.181, 1070.874, gs w ditch seeding
 1754, 3551567.122, 4998259.488, 1071.510, gs w ditch seeding
 1755, 3552211.461, 5000373.965, 1048.820, n rim 36" access mh
 1756, 3551102.362, 4997599.416, 1068.910, n rim 36" access mh 0.26' conc lip above
 1757, 3551874.594, 4998550.891, 1066.587, n conc rim 36" access mh
 1758, 3551681.882, 4996461.198, 1069.408, n rim 36" access mh
 1759, 3551459.779, 4998228.474, 1061.966, top 6" hdpe snap tap tee
 1760, 3551460.331, 4998227.068, 1064.515, top 6" hdpe snap coupler
 1761, 3551460.640, 4998219.962, 1067.349, top 6" hdpe perf tile
 1762, 3551334.422, 4998154.746, 1062.119, top hdpp @ approx 12" clay tie in
 1764, 3551329.931, 4998138.854, 1066.792, top 12" clay (1.07'toptofl)
 1765, 3551204.793, 4997223.764, 1063.759, top 6" hdpe snap tap tee
 1767, 3551207.888, 4997224.216, 1067.394, top 6" dw hdpe bell
 1768, 3551209.925, 4997224.031, 1068.654, top 6" hdpe snap coupler
 1769, 3551210.894, 4997223.942, 1068.766, TOP 6" CLAY TILE
 1770, 3551336.154, 4998145.242, 1066.470, top 12" hdpe split band coupler
 1771, 3551336.531, 4998149.764, 1064.346, top 12" hdpe split band coupler
 1772, 3551334.600, 4998153.572, 1062.439, top 12" hdpe split band coupler
 1773, 3551334.247, 4998154.379, 1062.035, top 24"*12" hdpe saddle tee
 2000, 3552485.218, 5000939.935, 1041.770, FL 18"+-CLAY@INTAKE
 2001, 3552489.844, 5000938.387, 1045.816, GS
 2002, 3552486.933, 5000953.862, 1045.179, GS
 2003, 3552469.044, 5000956.217, 1045.923, GS
 2004, 3552512.313, 5001042.256, 1043.486, GS
 2005, 3552537.045, 5001176.795, 1043.252, GS
 2006, 3552523.648, 5001299.275, 1042.762, GS END STANDING WATER
 2007, 3549162.883, 5007211.278, 1010.029, TOP 24"CMP OUTLET
 2008, 3551875.189, 4999371.875, 1060.766, 300 UNDISTURBEDSWALE
 2009, 3551886.168, 4999372.347, 1059.684, 300 UNDISTURBEDSWALE
 2010, 3551929.600, 4999418.474, 1059.616, 300 UNDISTURBEDSWALE
 2011, 3551911.369, 4999471.212, 1060.013, 300 UNDISTURBEDSWALE
 2012, 3551971.009, 4999495.144, 1059.172, 300 UNDISTURBEDSWALE
 2013, 3551957.421, 4999569.634, 1058.878, 300 UNDISTURBEDSWALE
 2014, 3552026.090, 4999605.502, 1058.305, 300 UNDISTURBEDSWALE
 2015, 3552017.606, 4999685.194, 1057.495, 300 UNDISTURBEDSWALE
 2016, 3552105.195, 4999734.281, 1056.243, 300 UNDISTURBEDSWALE
 2017, 3552110.583, 4999842.409, 1055.227, 300 UNDISTURBEDSWALE
 2018, 3552261.605, 5000242.005, 1051.560, 300 UNDISTURBEDSWALE

2019, 3552243.871, 5000247.088, 1050.673, 300 UNDISTURBEDSWALE
2020, 3552250.153, 5000299.899, 1050.184, 300 UNDISTURBEDSWALE
2021, 3552286.466, 5000340.718, 1051.254, 300 UNDISTURBEDSWALE
2022, 3552255.406, 5000382.337, 1049.768, 300 UNDISTURBEDSWALE
2023, 3552299.324, 5000433.090, 1050.586, 300 UNDISTURBEDSWALE
2024, 3552268.391, 5000485.860, 1049.324, 300 UNDISTURBEDSWALE
2025, 3552309.528, 5000536.224, 1049.780, 300 UNDISTURBEDSWALE
2026, 3552295.335, 5000562.990, 1048.610, 300 UNDISTURBEDSWALE
2027, 3552311.101, 5000581.438, 1049.363, 300 UNDISTURBEDSWALE
8047, 3555164.800, 4991293.130, 1150.970, GPS MON
8047_GNSS, 3555164.800, 4991293.130, 1150.970, Autonomous Setup