MEMO

TO: **Iowa DNR Solid Waste Section**
Attn: Brian Rath, PE

FROM: **Dan Jensen, PE, Shive-Hattery, Inc.**
on behalf of the City of Iowa City

DATE: **May 13, 2026**

RE: **Iowa City Landfill and Recycling Center**
Compost Pad Expansion Project
Landfill Cells FY72 and FY73 Cover

Executive Summary

The purpose of this document is to document the 2026 Iowa City Landfill Compost Pad improvement project that is currently under construction. The DNR has requested documentation that the project will not impact the final cover of the landfill cells areas below the project area (FY72, FY74, and FY75).

The landfill cells in question were closed prior to 1989 and at the time the cover requirements were for closed cells to have two feet of soil cover. This was documented in the May 11, 2012 report by HR Green included in Attachment 1. It has also been communicated that additional fill material was placed in these cells over the years.

Proposed Improvements

The proposed project includes a variety of pavement sections to facilitate expansion of composting operations. The project plans are included in Attachment 2. A composting operating permit application has been submitted to the DNR for review.

Boring Log Results

Terracon completed six borings in the project location prior to construction of the compost expansion. The borings showed that waste was encountered in 5 of 6 borings, which were advanced to 10.5 feet depth. Waste was encountered at the depths included in Table 1. The boring logs concluded that it was unlikely that project excavation would encounter waste or disturb the 2 feet of final cover when excavated to the bottom of the proposed subgrade. Final cover from top of waste to top of proposed pavement exceeds 6 feet at the thinnest location (Boring 1).

Table 1: Cover Thickness Verification from Borings

Boring Number	Landfill Cell	Existing Ground	Depth to Waste (Feet)	Top of Waste Elevation	Proposed Top of Pavement (Finished Grade)	Proposed Pavement Section	Pavement Thickness, including modified (Inches)	Proposed Compacted Subgrade Thickness (Inches)	Proposed Top of Subgrade	Proposed Bottom of Subgrade	Excavated Cover Thickness, (Feet) (waste to bottom of subgrade)	Final Cover Thickness, (Feet) (waste to top of subgrade)
B-1	FY72	774.62	6.0	768.62	774.84	PCC	16	12	773.51	772.51	3.89	6.22
B-2	NA	776.50	NA	NA	776.46	HMA	16	12	775.13	774.13	NA	NA
B-3	FY72	767.47	8.0	759.47	767.75	HMA + FDR	16	12	766.42	765.42	5.95	8.28
B-4	FY74	772.09	7.5	764.59	772.88	HMA	16	12	771.55	770.55	5.96	8.29
B-5	FY74	767.96	10.0	757.96	767.88	HMA + FDR	16	12	766.55	765.55	7.59	9.92
B-6	FY75	774.50	6.0	768.50	774.86	HMA	16	12	773.53	772.53	4.03	6.36

Further Analysis of cover thickness used the results of the boring logs to interpolate a top of waste surface between borings. This top of waste surface was then compared to the bottom of subgrade to evaluate to the best of our ability if waste could be encountered when excavation reached the bottom of subgrade and if there were areas that may require excavation into the two feet of soil above the interpolated top of waste surface.

The surface comparison yielded an average thickness of excavated cover to be 6.32 feet, a maximum of 8.56 feet and minimum of 3.84 feet between the bottom of subgrade excavation and top of waste. Based on the borings and analysis, it was concluded that the landfill cover would not be disturbed and that waste was not expected to be encountered during the project.

The contract documents included waste handling procedure in the event that waste was encountered during construction. The procedures are to over excavate and remove waste to an elevation two feet below top of subgrade, dispose of said waste within the current active landfill, and backfill with compacted clay. Once these activities were completed, the contractor was directed to proceed with construction of the compost pad as planned. To date, no waste has been encountered during excavation of the Phase 1 project area.

Compost Pad Testing and Waste Management

As part of the construction project, testing to provide documentation of compliance for the compost pad and detention basin will be conducted. These testing procedures are included in Table 2. Records will be provided to the DNR post construction along with record drawings. Some requirements are in alignment with the future composting regulations yet to take effect and others are to comply with Iowa Department of Agriculture and Land Stewardship requirements. Based on the onsite soils and the remolded permeability tests of boring 8 sample (see geotechnical report), the permeability of recompacted clay liner are expected to be on the order of 10 x 1^{-8} cm/s.

Table 2: Proposed Testing

Area	Agency	Thickness	Requirement	Number of Tests
Detention Basin Bottom	IDALS Chapter 44 DNR Chapter 102(1)	1 foot	Permeability <10 x 1^{-7} cm/s (2)	Two per acre (two total)
Compost Pad	DNR Chapter 102(1)	1 foot	Permeability <10 x 1^{-5} cm/s	One per acre (six total) (3)

1. Reference is to draft rules dated December 2024
2. DNR proposed ruled state Permeability <10 x 1^{-7} cm/s while IDALS Chapter 44 states Permeability <10 x 1^{-6} cm/s.
3. Construction documents included 1' of recompacted clay subgrade preparation to satisfy this requirement. Field results thus far indicate that soil has not been encountered and that bottom of subgrade has terminated in asphalt millings. These materials have been hard and well consolidated, are assumed to meet the intent of the permeability requirement and a permeability test is likely not practical. Where soil is encountered below the compost pad, subgrade preparation will be completed, Shelby tubes collected, and permeability tests will be completed with results provided to the DNR. Further, the majority of the pad is over unlined landfill, making this requirement less critical to underlying conditions.

Should you have any questions regarding this report, please do not hesitate to reach out to me.

Sincerely,
SHIVE-HATTERY, INC.



Dan Jensen, PE
Civil Engineer
djensen@shive-hattery.com

Attachments

Attachment 1 - May 11, 2012 report by HR Green
Attachment 2 – Geotechnical Report
Attachment 3 – Proposed Construction Drawings

HRGreen

Attachment 1

May 11, 2012

Mr. Matt Phoenix, P.E.
Iowa Department of Natural Resources
502 East 9th Street
Des Moines, IA 50319-0034

Re: Documentation of Final Cover for Cells FY72 through FY91
Permit 52-SDP-01-72P
Iowa City Landfill and Recycling Center

Dear Matt:

As part of the recent permit renewal process, you indicated that the Department of Natural Resources (department) did not have certifications of the closed areas at the Iowa City Landfill and Recycling Center. Since this work was performed many years ago under department purview and regulations in place at that time, we are surprised that the City is now being asked for this documentation and certification. It is important to the City that the department formally recognizes that these covered cells were closed in accordance with the applicable rules. Accordingly, landfill records were searched and the following documentation is hereby submitted:

Cells FY73 through FY86

The exact date that cells FY72 through FY86 were closed was not determined. From what we could conclude from historical files, the original cover soil was placed over these cells prior to October 25, 1989. At that time, cover requirements were simply two feet of soil. To document that at least two feet of soil exists over the waste in these areas, the most comprehensive available data in our files consists of 37 boring logs that were prepared during installation of landfill gas extraction wells in March 2000. A map showing the well locations and cover thickness is included with this letter. Also included are copies of the 37 boring logs.

With the exception of one location (well 104), the boring logs indicated cover thickness of two feet or greater. In 2005 and 2006, a significant amount of additional soil cover was added to FY72 through FY86 to improve slopes and provide berms and structures for storm water management. Existing gas wells were lengthened to accommodate the additional cover. To verify that soil cover is currently at least two feet thick at the location of well 104, HR Green completed a hand auger boring near the well on May 9, 2012. The boring was terminated at the two foot depth in hard clay soil and no solid waste was encountered. Photograph documentation of this hand auger boring is attached.

Cells FY89 and FY91

Project records indicate cells FY89 and FY91 were closed during construction occurring in 1995 and 1996. At that time, final cover was required to be two feet of uncompacted soil over two feet of compacted clay having a permeability of 1×10^{-7} cm/sec or less. Permeability and compaction correlation testing were conducted on the compacted layer

and are summarized in a letter from HR Green to the City of Iowa City, dated May 24, 1996. A copy of the letter is attached. The letter indicated that the data illustrates "all tests of the 2 foot compacted clay cover to be in excess of 95% standard Proctor density, or a related permeability value of 1 x 10-7 cm/sec, or less." Documentation of the total depth of the final cover is supported by the 2000 gas well boring data as described previously. These data indicate that total cover depths in these cells range from 4 to 11 feet.

Certification

Based on the available records described herein, I believe that the soil cover placed on landfill cells FY72 through FY91 was in accordance with the cover requirements in effect at the time of closure.



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Jon E. Scharf, P.E. Date 5/10/12

License Number 11786 My renewal date is December 31, 2013

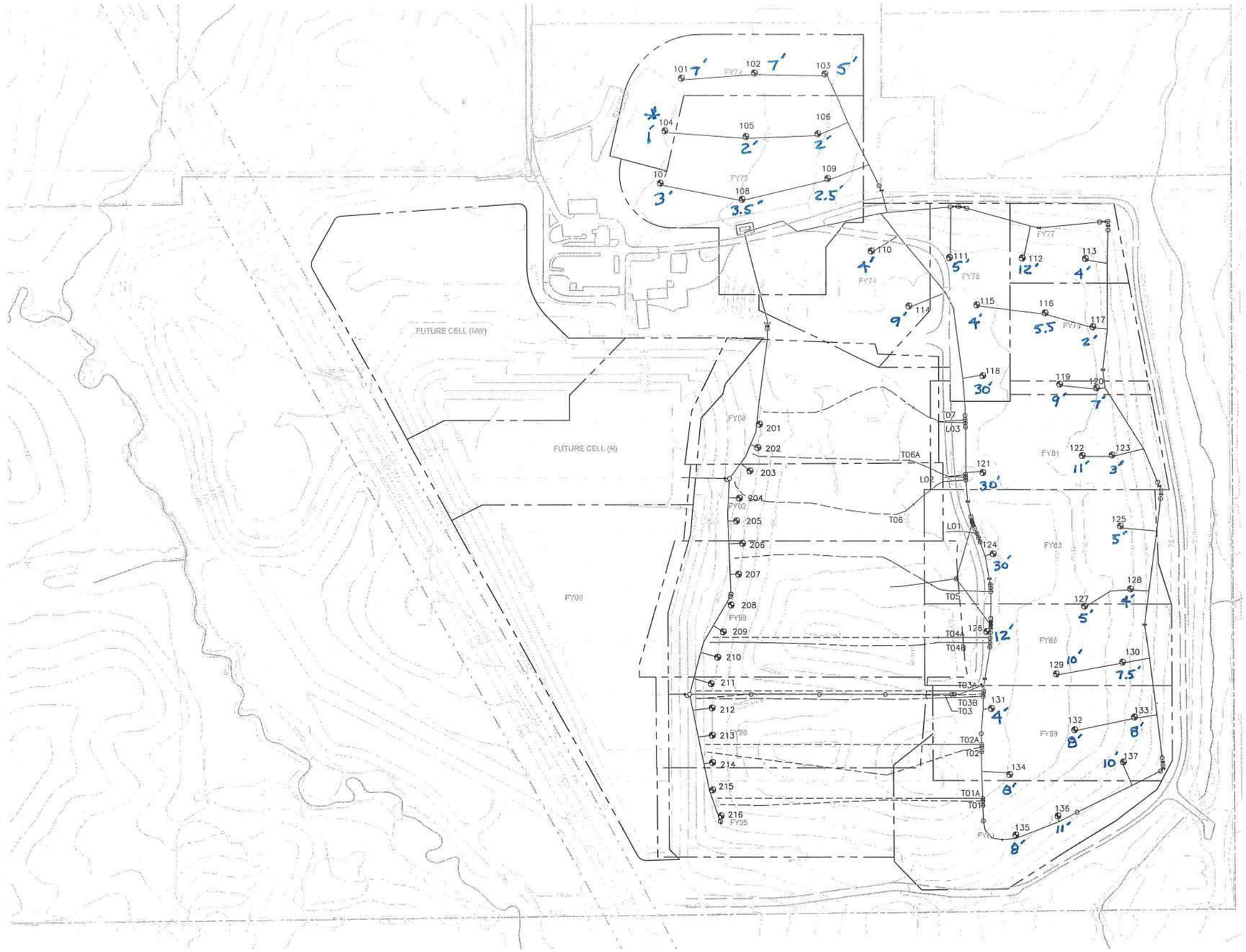
Pages or sheets covered by this seal:

Letter and attachments

Attachments: Sheet 1 – Gas Well Locations and Cover Thickness
Photographs of hand auger boring next to LFG well 104
Log of Borings for LFG Wells
Letter from Howard R. Green to City of Iowa City, May 24, 1996

cc: Dave Elias, City of Iowa City
Daniel Scott, City of Iowa City
Jon Thomas, City of Iowa City

\\HRGCRNAS\DATA\20100098\DESIGN\CORR\LTR-051112-IC_FY72-91_CERT.DOCX



SURVEY NOTES:

1. TOPOGAPHIC MAP BASED ON 2008 AERIAL SURVEY WITH PORTIONS UPDATED BY CITY ON MARCH 4, 2011 AND OCTOBER 6, 2011. FY09 CONSTRUCTION AREA WAS UPDATED BY CONNOLLY CONSTRUCTION ON DECEMBER 21, 2011.
2. MAPPING DATUM: NAD 27 STATE PLANE, HORIZONTAL; NGVD 29, VERTICAL.

LEGEND

- GAS WELLHEAD (VERTICAL)
- TRENCH WELLHEAD
- LEACHATE CLEANOUT WELLHEAD
- DRIPLEG WITH VACUUM BYPASS TO LEACHATE CLEANOUT
- HEADER ACCESS RISER
- CONTROL VALVE
- CONDENSATE KNOCKOUT
- IN-LINE CONDENSATE SUMP
- REMOTE CONDENSATE SUMP
- GAS HEADER & LATERALS
- TRENCH WELL
- HIGH POINT

PHASE 2 – EXISTING CONDITIONS

1. THIS SHEET DEPICTS THE EXTENT OF THE GCCS AS IT EXISTS IN YEAR 2012.
2. THE GCCS WAS INITIALLY INSTALLED IN YEAR 2000 FOR COMPLIANCE OF 40 CFR 60.752. EXPANSIONS TO THE GCCS OCCURRED IN YEAR 2003, 2009, AND 2011 TO ACCOMMODATE LANDFILL DEVELOPMENT AND ODOR CONTROL.

NOTE: WRITTEN NUMBER NEXT TO LFG WELL LOCATION INDICATES SOIL COVER THICKNESS AT TIME OF WELL INSTALLATION IN MARCH 2000. SINCE THAT TIME, ADDITIONAL SOIL COVER WAS PLACED FOR STORM WATER BERMS AND TO FILL DEPRESSIONS FROM SETTLED WASTE.

* HAND AUGER PROBE PERFORMED BY HRGREEN ON MAY 6, 2012 VERIFIED THAT THE COVER THICKNESS AT THE LOCATION OF WELL 104 EXCEEDS 2 FEET.

PRELIMINARY. NOT FOR CONSTRUCTION

DRAWN BY: JJC	JOB DATE: FEBRUARY 2011		
APPROVED: JES	JOB NUMBER: 191130J01		
CAD DATE: 2/22/2012 1:55:02 PM			
CAD FILE: O:\CAD\191130J01\Dwgs-Gas-DOPS\C\C01.dwg			

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen.com
HRGreen

LANDFILL GAS COLLECTION SYSTEM DEVELOPMENT PLANS
IOWA CITY LANDFILL RECYCLING CENTER
IOWA CITY, IOWA

GAS WELL LOCATIONS AND SOIL COVER THICKNESS
PHASE 2 – EXISTING CONDITIONS

SHEET NO. 1

XREF

HRGreen

HAND AUGER BORING NEAR GAS WELL 104
IOWA CITY LANDFILL
May 9, 2012



1. Hand auger was advanced into soil cap for two feet.



2. Soil at 2 ft termination depth was blue-gray clay. No solid waste was encountered.

Log # ~~5448~~ 3364

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMARK Customer Rep. MIKE W. PO # 1

Job Location IOWA CITY LANDFILL Rig # 3

Hole # 101 Date Started 3-21-00 Date Completed 3-21-00 Weather Cond COOL & CLOUDY

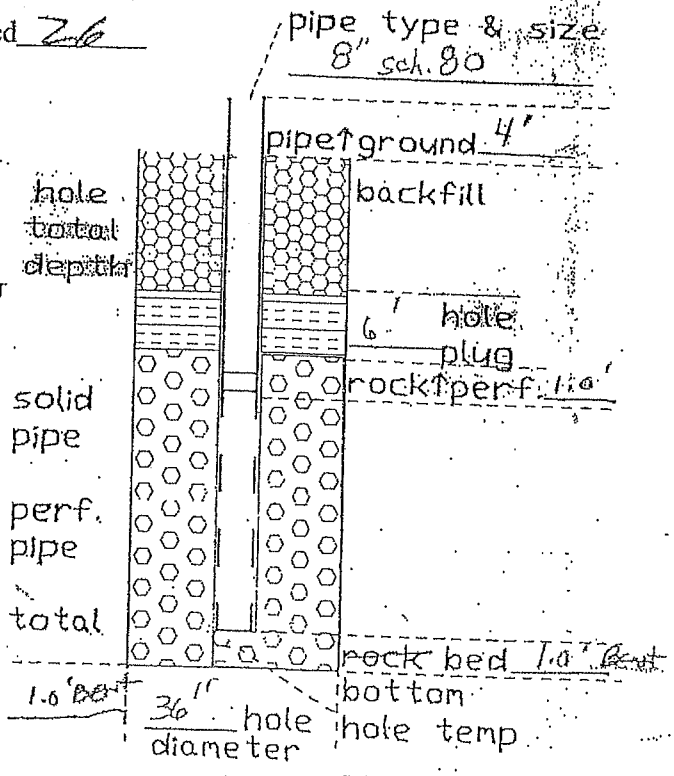
Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size 8" Hole Depth 25.8

Job forward -0-

Total drilled 26

Depth	Material Drilled
Top Cap 7'	
0-5	TOP COVER 60°
6-10	TRASH AT 7' HHG
11-20	HHG & WOOD
21-30	HHG & WOOD TD 25.8 26
31-40	
41-50	
51-60	
61-70	
71-80	
81-90	
91-100	
101-110	



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Weber

Log # 3365

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location IOWA CITY LANDFILL Rig # 3

Hole #102 Date Started 3-21-00 Date Completed 3-21-00 Weather Cond. COOL & CLOUDY

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 18

Job forward 26

Depth Cap 7' Material Drilled Total drilled 44'

0-5 TOP SOIL

6-10 TRASH AT 7' HHG WOOD

11-20 HHG + WOOD TD 18' 70°

21-30

31-40

41-50

51-60

61-70

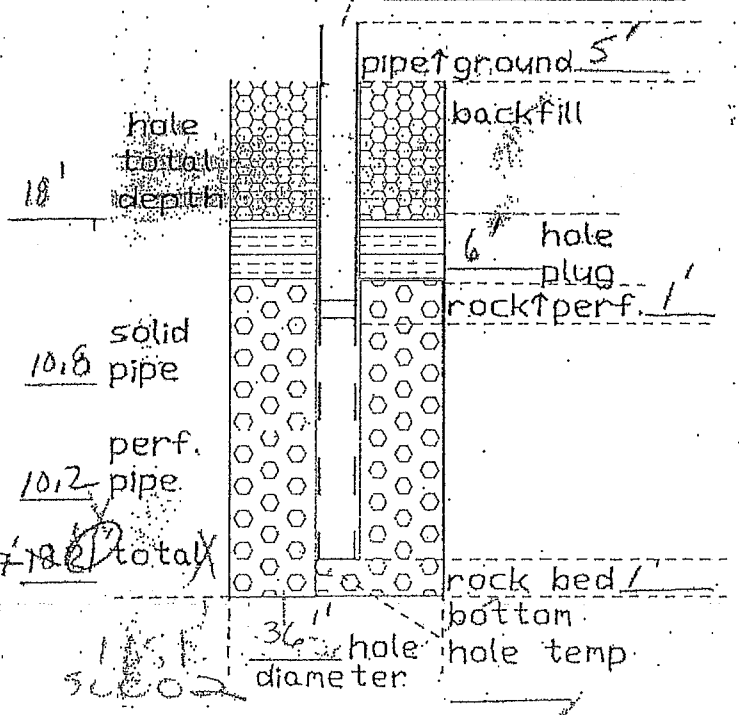
71-80

81-90

91-100

101-110

pipe type & size 8" SCH 80



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Weber

Log # 1149
3366

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY LAND FILL Rig # 3

Hole # 103 Date Started 3-21-00 Date Completed 3-21-00 Weather Cond. COOL & CLOUDY

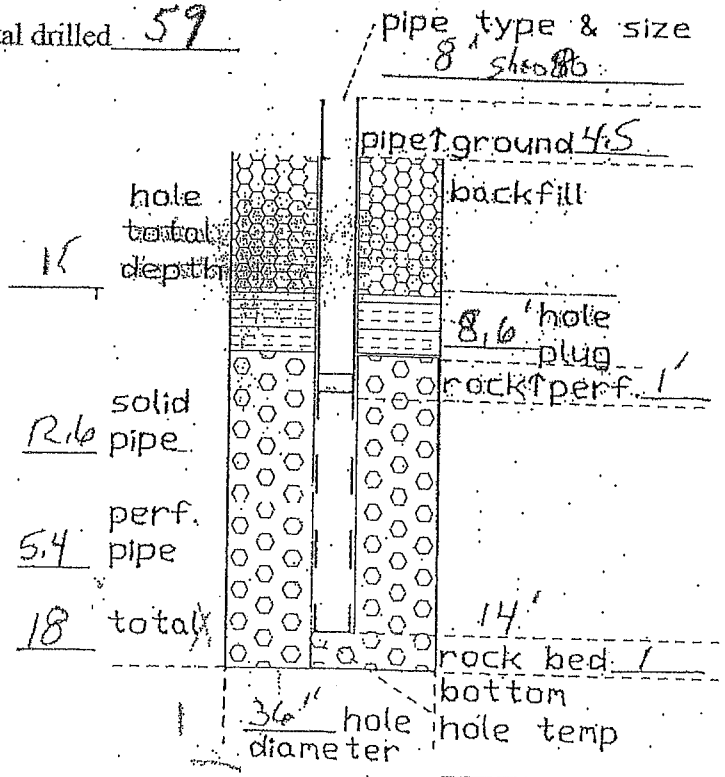
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 15'

Job forward 44

Total drilled 59

Depth	Material Drilled
Top Cap 5	
0-5	TOP SOIL
6-10	HHG + WOOD 1973 PAPER
11-20	HHG + WOOD TD 15' 70°
21-30	
31-40	
41-50	
51-60	
61-70	
71-80	
81-90	
91-100	
101-110	



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Weber

Log # 456
3367

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location FOWA CITY LANDFILL Rig # 3

Hole # 104.0 Date Started 3-21-00 Date Completed 03-21-00 Weather Cond COOL & CLOUDY

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 22

Job forward 59

Depth Top Cap 1' Material Drilled Total drilled 81

0-5 TOP SOIL HHG MODEL WOOD

6-10 HHG & WOOD 60°

11-20 HHG & WOOD 1973 paper

21-30 HHG & WOOD, TIRES TO 22' 75°

31-40

41-50

51-60

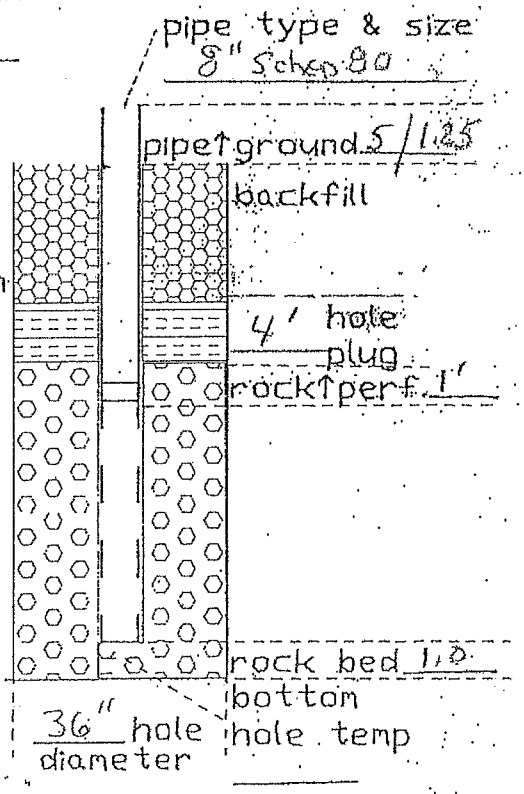
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Wilson

Log # TST 3368

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

b Location IOWA CITY LANDFILL Rig # 3

Hole # 105 Date Started 03-22-00 Date Completed 3-22-00 Weather Cond. COOL & CLOUDY

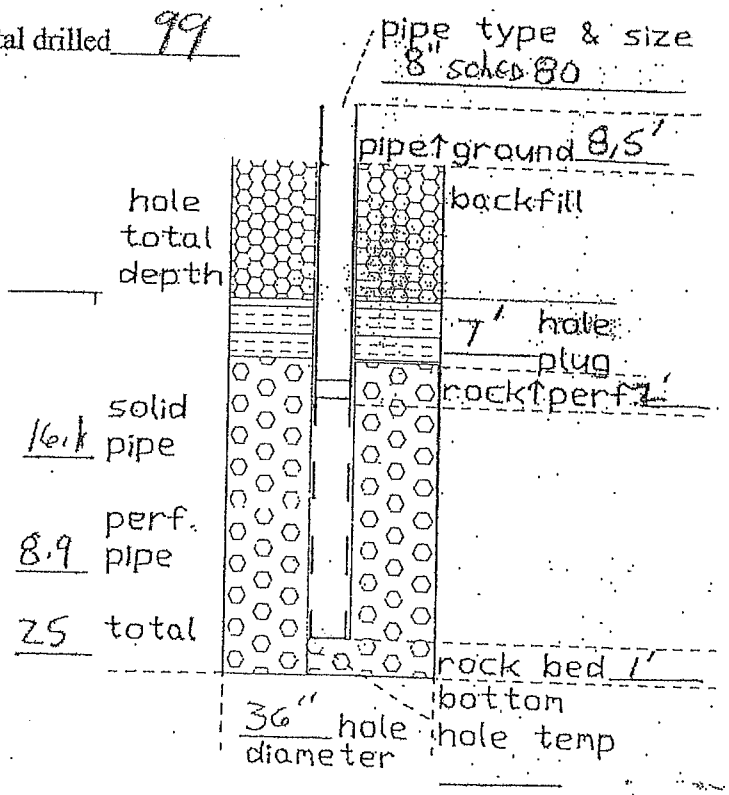
iller JEFF Helper DENVER Other

Diameter of Hole Casing Size Hole Depth 18

Job forward 81

Total drilled 99

Depth p Cap 2	Material Drilled
0-5	TOP SOIL HHG
6-10	HHG WOOD
11-20	HHG WOOD TD 18 70°
21-30	
31-40	
41-50	
51-60	
61-70	
71-80	
81-90	
91-100	
101-110	



Gas Meter Readings:

ime	LEL%	Oxy%	H2S

General Comments: @ 10'

1974 NEWSPAPER

Hospital waste

Mike Weber

Log # ~~752~~ 3369

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE W. PO #

Job Location TOWN CITY LANDFILL Rig # 3

Hole #106 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond. CLOUDY COOL

Driller Jeff Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 16

Job forward 199

Depth Top Cap 2 Material Drilled Total drilled 115

0-5 TOPSOIL TRASH AT 2'

6-10 H/HG WOOD STEEL

11-20 H/HG WOOD TO 16' 70°

21-30

31-40

41-50

51-60

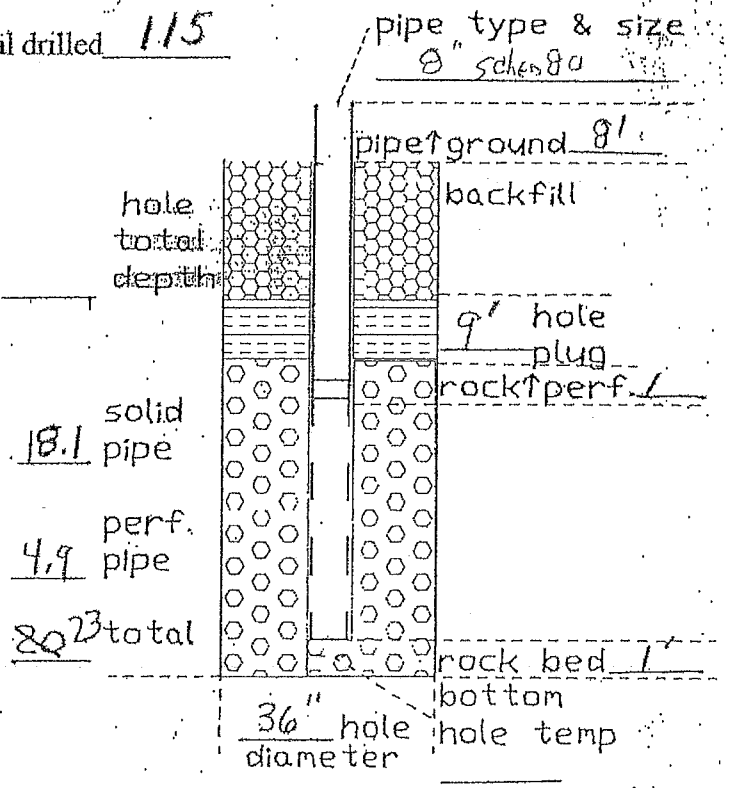
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: ▽ 6.00 below GL

Mike Nelson

Log # 3310

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer Weatherford Customer Rep. Mike Wilson PO #

Job Location Town City Landfill Rig # 3

Hole #107 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond. Clear cool

Driller Jeff C Helper Howard Other

Diameter of Hole 36" Casing Size Hole Depth 25

Job forward 115

Total drilled 140

Depth of Cap 3 Material Drilled

0-5 Torrent Trashmaster 3'

6-10 HHG wood DC 65°

11-20 HHG wood TMS

21-30 HHG TD 25' 75°

31-40

41-50

51-60

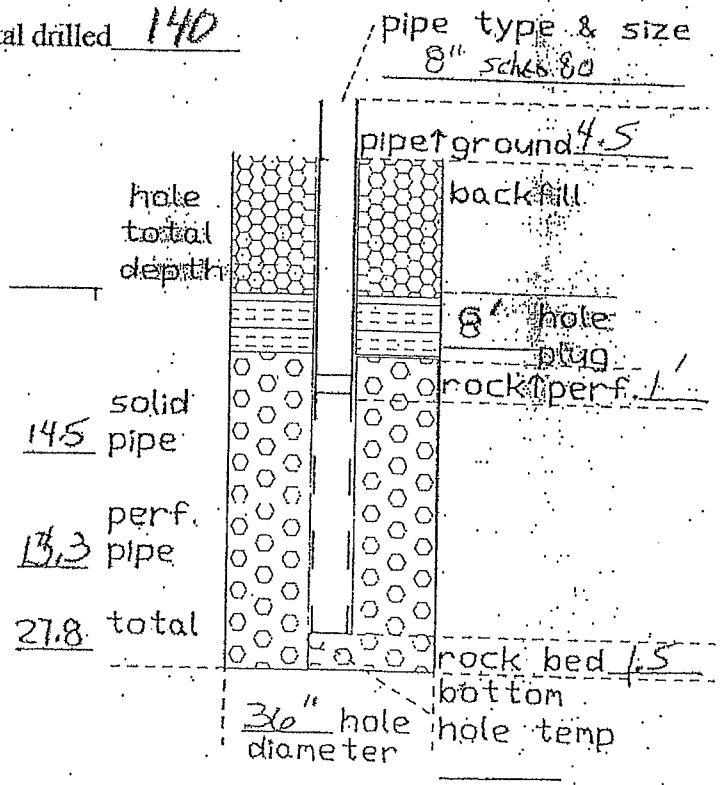
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: V. 10'

74 Newspaper

hospital waste

Mike Wilson

Log # 153
3371

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location TOWN CITY LANDFILL Rig # 3

Hole # 108 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 17

Job forward 140

Depth Top Cap 3½' Material Drilled Total drilled 157

0-5 TOP SOIL TRANSIT 3½

6-10 HK

11-20 HK WOOD TO 17' 650

21-30

31-40

41-50

51-60

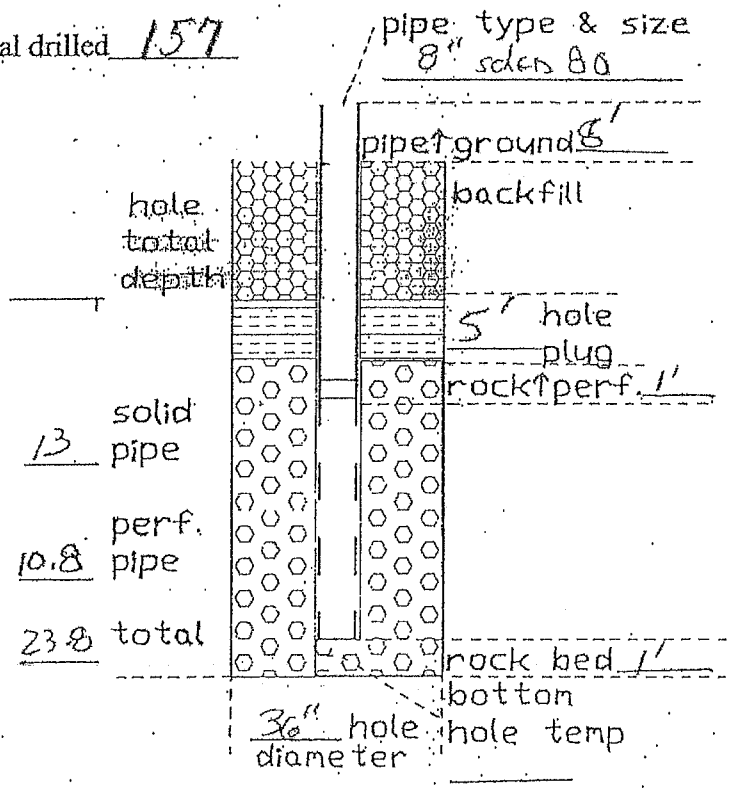
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: ▽ APPROX 17'

SLOPPY ON BOTTOM AT BACKHOE

Mike Weber

Log # 154
3372

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

b Location Iowa City LANDFILL Rig # 3

Hole #109 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond.

Driller JEFF Helper DENVER Other

ameter of Hole 36" Casing Size Hole Depth 15

Job forward 157

Depth
p Cap 2.5 Material Drilled Total drilled 172

0-5 Top soil TRACE AT 2½'

10 HHG DC wood

-20 HHG TD 15' 70°

21-30

-40

41-50

-60

61-70

71-80

-90

91-100

101-110

pipe type & size
8" sch 40

pipe ↑ ground 5'

backfill

hole total depth

6.5' hole plug

rock ↑ perf. 1'

13 solid pipe

64 perf. pipe

19.4 total

rock bed 1'

bottom hole temp

36" hole diameter

Gas Meter Readings:
ime LEL% Oxy% H2S

General Comments: ∇ 13' below GL

Mike Ruben

Log # 156
3374

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOWN COUNTY LANDFILL Rig # 3

Hole # 110 Date Started 3-23-00 Date Completed 3-23-00 Weather Cond. SUNNY

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 25'

Job forward 266

Depth
Top Cap 4 Material Drilled Total drilled 291

1-5 TOP SOIL TRASH AT 4'

6-10 NO DC

11-20 NO WOOD TRASH

21-30 NO WOOD TD 25' 75°

31-40

41-50

51-60

61-70

71-80

81-90

91-100

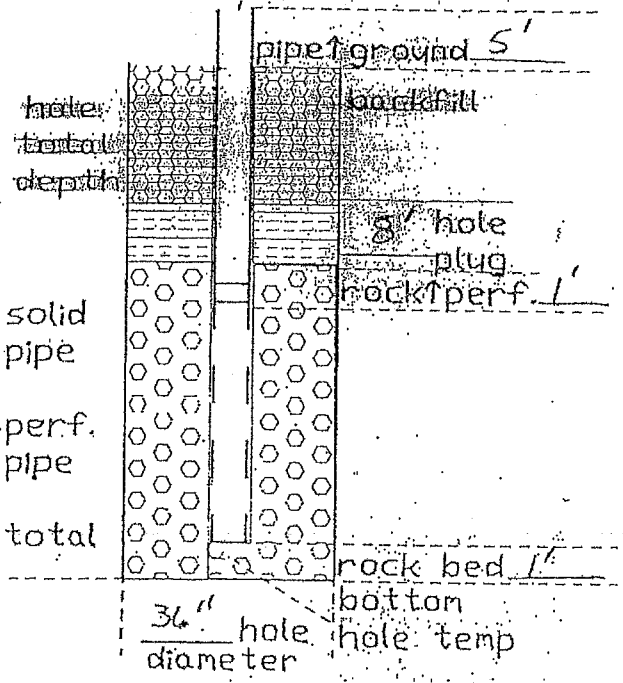
101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments 16'-19' Geo. cover (clay)

March 1974



Mike Wells

Log # 3385

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WASTE MGR Customer Rep. MIKE W PO #

Job Location Coppell City Landfill Rig # 3

Hole # 111 Date Started 3-28-00 Date Completed 3-28-00 Weather Cond

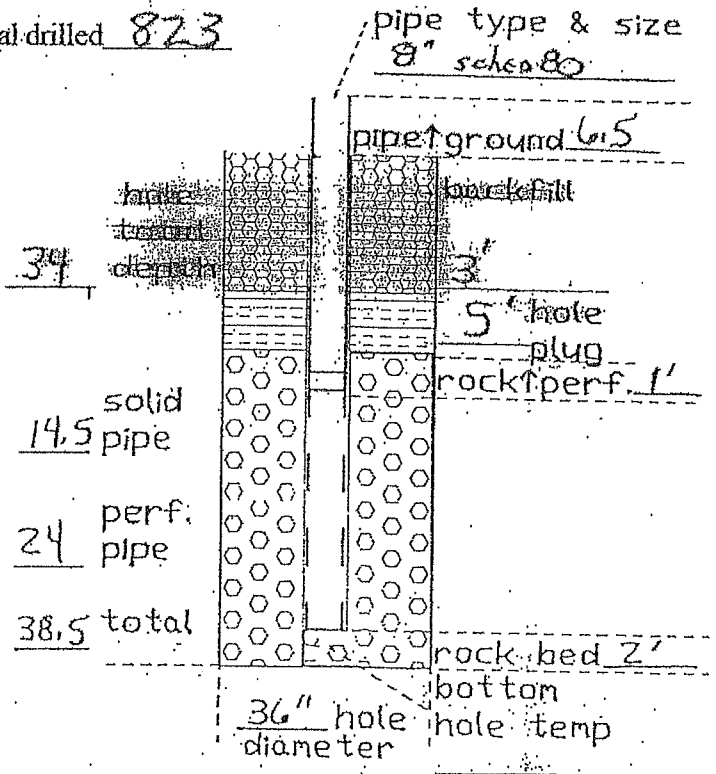
Driller SHAFT Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 34

Job forward 789

Depth Cap 5' Material Drilled Total drilled 823

Depth	Material Drilled	
0-5	Top soil	
6-10	Hard Top	65°
11-20	Hard clay	70°
21-30	Hard clay	80°
31-40	Hard STONE	80°
41-50		
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: JUNE "77" PAPER

JULY "76" PAPER

LEACHATE @ 30'

Mike Dube

Log #3377

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE W. PO #

Job Location IOWA CITY LANDFILL Rig # 3

Hole # 112 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 50

Job forward 391

Depth
Cap 12 Material Drilled Total drilled 441

1-5 TOP SOIL

6-10 Top Soil

11-20 Top Soil TRASH @ 12' 20°

21-30 HHG WOOD TIRES 75°

31-40 HHG WOOD 80°

41-50 HHG TD 50' 85°

51-60

61-70

71-80

81-90

91-100

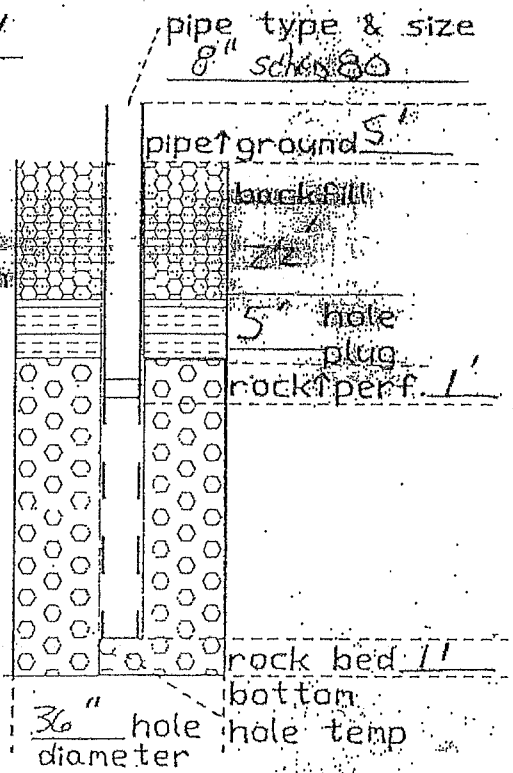
101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	

General Comments:

Mike Archer



Log # 3382

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOOA City LAMOSIE Rig # 3

File # 113 Date Started 3-27-00 Date Completed 3-27-00 Weather Cond

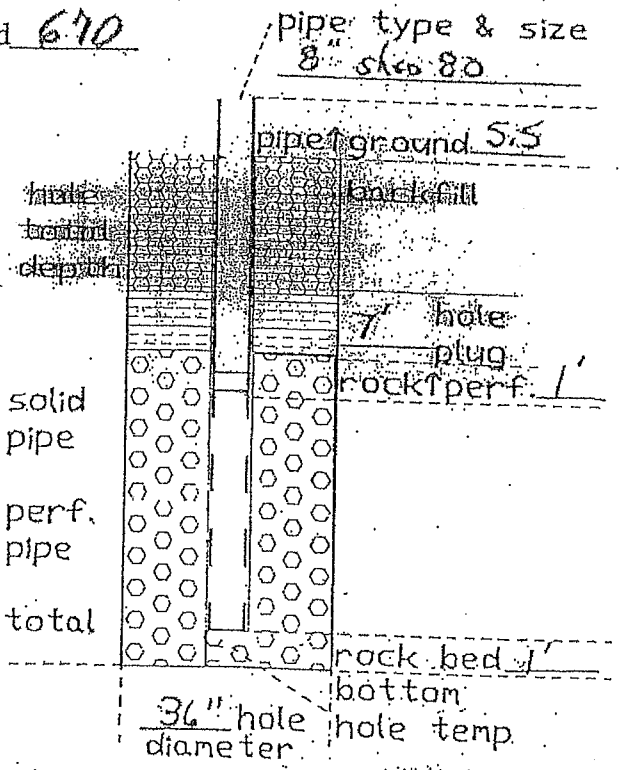
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 46'

Job forward 624

Depth Cap 4' Material Drilled Total drilled 670

0-5	TOP SOIL	
6-10	HHG	65°
11-20	HHG WOOD	70°
21-30	HHG WOOD STICK DC	75°
31-40	HHG TIRES	80°
41-50	HHG TD 46	
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Sept "77" paper
July "80" paper

Mike Walker

Log # 3386

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE WILSON PO #

Job Location Town city Landfill Rig # 3

Hole # 114 Date Started 3-28-00 Date Completed 3-28-00 Weather Cond.

Driller JEFF Helper DEWEL Other

Diameter of Hole 36" Casing Size Hole Depth 35

Job forward 823

Depth
Top Cap 9 Material Drilled Total drilled 858

1-5 Top soil

6-10 Top soil

11-20 HHG Trees 60°

21-30 HHG wood 70°

31-40 HHG 80°

41-50

51-60

61-70

71-80

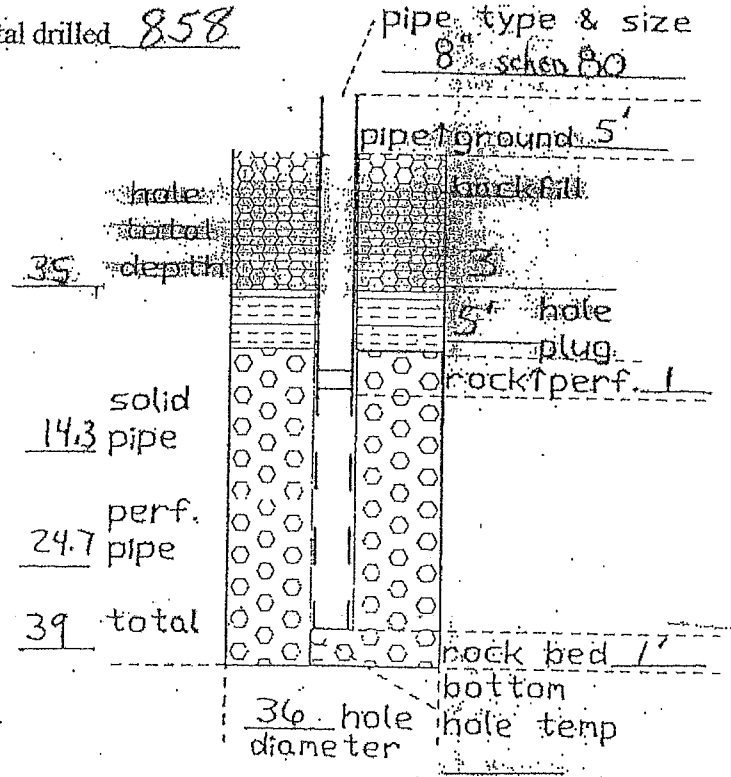
81-90

91-100

101-110

Gas Meter Readings:
Time LEL% Oxy% H2S

General Comments: Nov "76" paper
July + Sept "75" paper



Mike Wilson

Log # ~~157~~ 3375

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location Texas city Refinery Rig #: 3

File # 115 Date Started 3-23-00 Date Completed 3-23-00 Weather Cond. SUNNY

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size 8' Hole Depth 40

Job forward 291

Depth Cap 4 Material Drilled Total drilled 331

0-5 Top Soil TRACE AT 4'

6-10 HHG, WOOD 65°

11-20 HHG WOOD DC

21-30 HHG WOOD TOOLS 70°

31-40 HHG WOOD TD 40' 80°

41-50

51-60

61-70

71-80

81-90

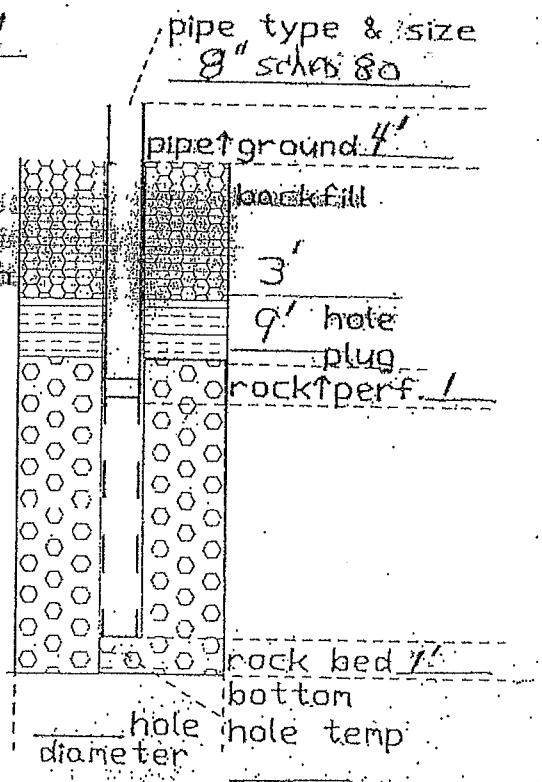
91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: JAN 1977 paper



Mike Wade

Log# 760
3376

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep MIKE W. PO #

Job Location TOWN CITY LANDFILL Rig# 3

Hole #110 Date Started 3-23-00 Date Completed 3-25-00 Weather Cond.

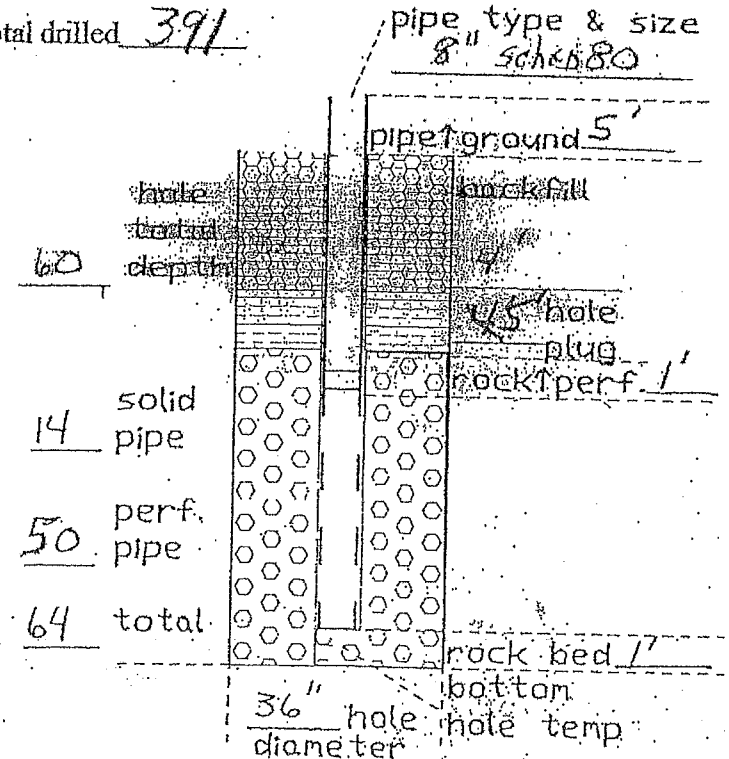
Driller JEFF Helper ~~DENVER~~ Other

Diameter of Hole 36" Casing Size Hole Depth 60

Job forward 331

Depth Top Cap 5' Material Drilled Total drilled 391

Depth	Material Drilled	
1-5	TOP SOIL	
6-10	HHG WOOD	70°
11-20	HHG WOOD SOIL	
21-30	HHG	75°
31-40	HHG WOOD TIRES	80°
41-50	HHG WOOD	85°
51-60	HHG WOOD TD 60'	
61-70		
71-80		
81-90		
91-100		
101-110		



Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: 1980 PAPER NOV 1979 "

Mike Rubio

Log # 3383

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location TOWN CITY LANDFILL Rig # 3

File # 117 Date Started 3-27-00 Date Completed 3-27-00 Weather Cond

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 55

Job forward 670

Depth Cap 2' Material Drilled Total drilled 725

1-5 TOP SOIL HHG

6-10 HHG WOOD TREES 65°

11-20 HHG TREES 70°

21-30 HHG WOOD STEEL

31-40 HHG 80°

41-50 HHG WOOD

51-60 HHG WOOD TOSS 90°

61-70

71-80

81-90

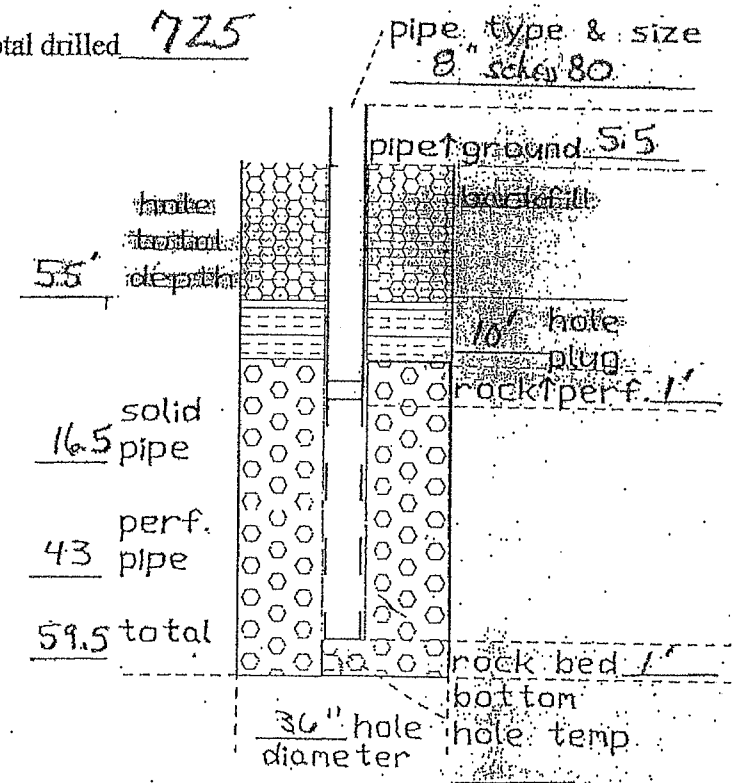
91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			

General Comments: NOV - DEC "79" PAPER



Mike Weber

Log # 3384

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep MIKE W. PO #

Location TOWN CITY LANDFILL Rig # 3

Hole # 118 Date Started 3-27-00 Date Completed 3-28-00 Weather Cond.

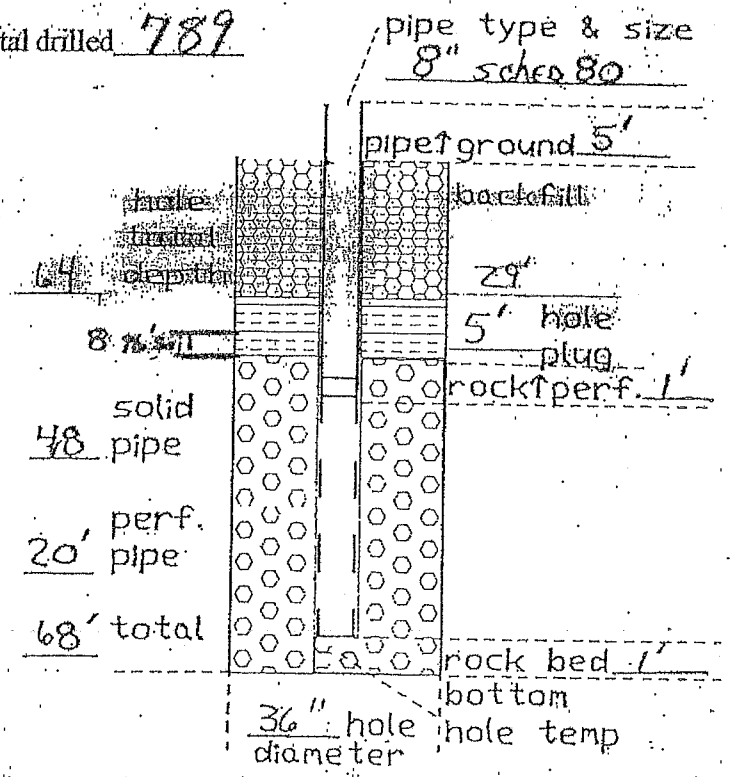
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 64

Job forward 725

Depth Cap 30 Material Drilled Total drilled 789

0-5	TOP SOIL	
6-10	TOP SOIL	
11-20	TOP SOIL	
21-30	TOP SOIL	
31-40	HHG WOOD	75°
41-50	HHG WOOD	80°
51-60	HHG WOOD	90°
61-70	HHG WOOD & ROLLOF PAPER	95°
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: DRILL UP BIG TREE STUMP TOOK 45 MIN. TO GET OUT OF BUCKET. BIG ROLL OF PAPER TOOK 1 HR TO GET OUT OF BUCKET & CHANGE DRILL LINE. MAY "77" + OLD "79" PAPER. CLEAR H2O @ WELL BOTTOM.

Mike Weber

Log # 3388

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location TOWN CITY LANDFILL Rig # 3

Hole # 119 Date Started 3-29-00 Date Completed 3-29-00 Weather Cond

Driller TOWN CITY LANDFILL Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 56

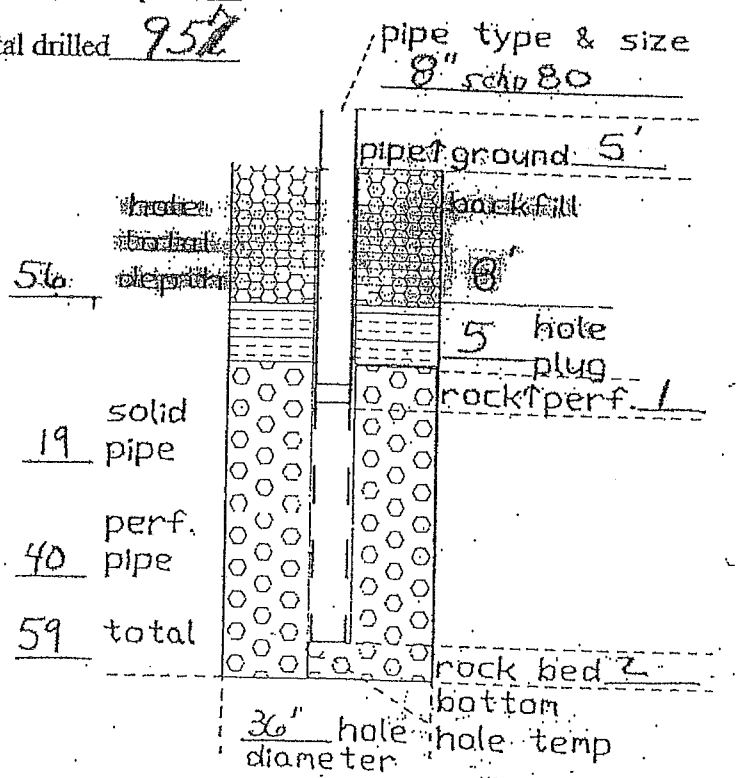
Job forward 901

Total drilled 957

Depth
Cap 9 Material Drilled

0-5 Top Soil
6-10 Top Soil
11-20 HHG Trash 65°
21-30 HHG Wood DC
31-40 HHG Wood Tires 75°
41-50 HHG DC 80°
51-60 HHG Wood 90°
61-70
71-80
81-90
91-100
101-110

Meter Readings:
Time LEL% Oxy% H2S



General Comments: JUNE 85 paper
20' Sept. 81 paper
32'-35' grey daily cover
35' OCT '78 paper

Mike Weber

Log # 3381

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location Town of Lewisville Rig # 3

Hole # 120 Date Started 3-27-00 Date Completed 3-27-00 Weather Cond

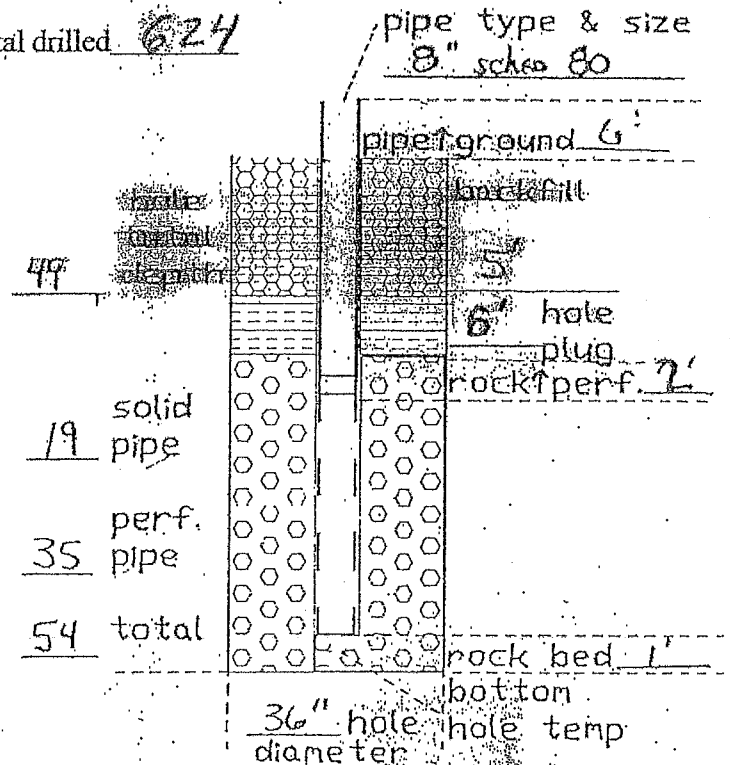
Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 49

Job forward 575

Depth Cap 7' Material Drilled Total drilled 624

0-5	Top Soil	
6-10	Top Soil HHG	65°
11-20	HHG 5" CLAY 17' 70	70°
21-30	HHG WOOD TIRES	80
31-40	HHG WOOD	
41-50	HHG WOOD TD 49	85°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: clay + gravel mixed 25' to bottom

March '82 paper

Mike Weber

Log # 3395

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE W. PO #

Job location TOWN CITY LANDFILL Rig # 3

File #121 Date Started 3-31-00 Date Completed 4-1-00 Weather Cond.

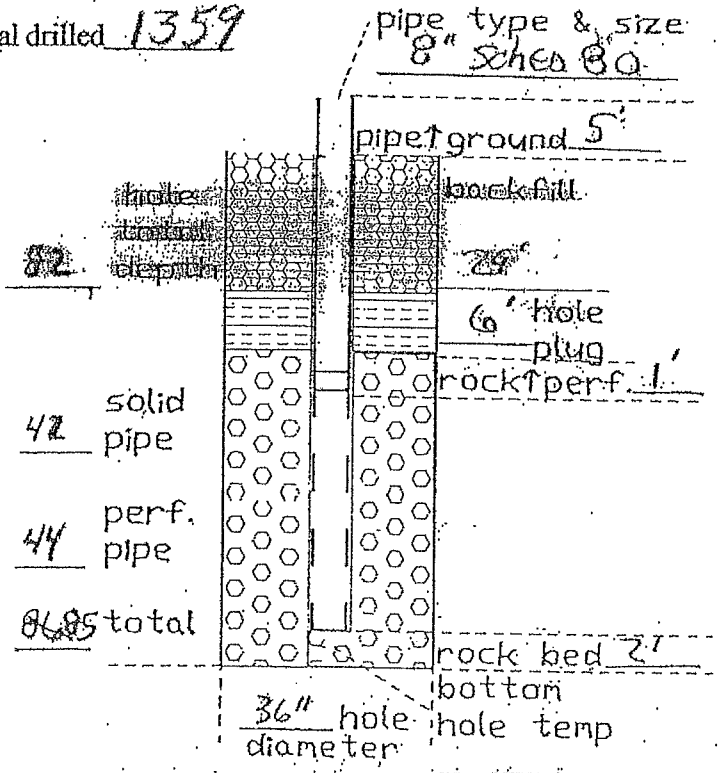
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 82

Job forward 1277

Depth Cap 30 Material Drilled Total drilled 1359

1-5	TOP SOIL	
6-10	TOP SOIL	
11-20	TOP SOIL	
21-30	TOP SOIL	
31-40	HHG	70°
41-50	HHG DC	80
51-60	HHG WOOD	85°
61-70	HHG WOOD TIRES DC	90°
71-80	HHG WOOD	
81-90	HHG TD 82'	100°
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: clay + garbage mix to 45'

Aug 82 paper

Jan 81 paper

Dec 80 "

Oct 79 "

Image clay plug e bottom

Mike Weber

Log # 3387

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer: WEST MAR Customer Rep. MIKE W. PO #

Job Location: TOWN CITY LANDFILL Rig # 3

Hole # 122 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond.

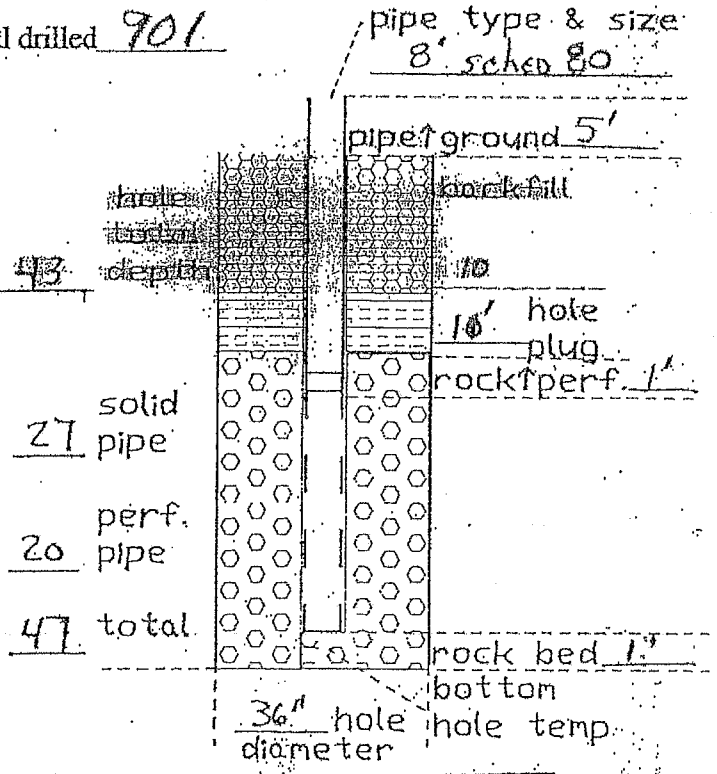
Driller: JEFF Helper: DENVER Other:

Diameter of Hole 36" Casing Size Hole Depth 43

Job forward 858

Depth Cap H Material Drilled Total drilled 901

Depth	Material Drilled	
0-5	TOP SOIL	
6-10	TOP SOIL	
11-20	HHG WOOD	70°
21-30	HHG WOOD	80°
31-40	WOOD DC	90"
41-50	HHG WOOD CLAY	95°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: HIT WATER AT 25'
JUNE '83 PAPER

Mike Wilson

Log # 3380

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO#

Location TOWN - CITY LANDFILL Rig# 3

Hole# 123 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond

Driller JEFF Helper DENVER Other

Diameter of Hole Casing Size Hole Depth 43

Job forward 532

Depth Cap 3 Material Drilled Total drilled 575

1-5 TOP SOIL TRASH AT 3' HHG

6-10 HHG WOOD TIRES 20°

11-20 HHG WOOD 8"

21-30 HHG WOOD 75°

31-40 HHG DC WOOD 80°

41-50 HHG TD 43'

51-60

61-70

71-80

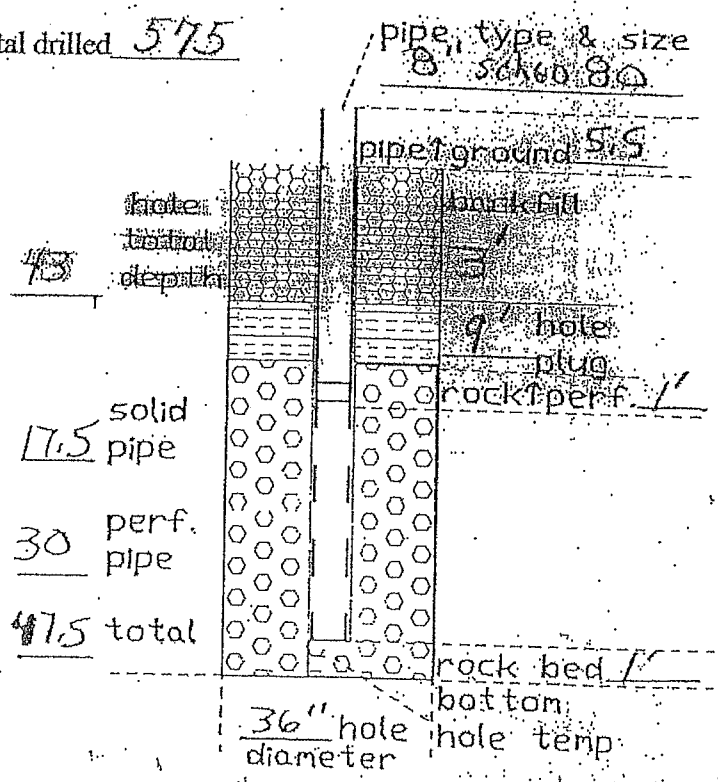
81-90

91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S



General Comments: DEC 1984 PAPER

▽ 35' below GL

Tough call on bottom, little recovery

Mike Weber

Log # 3396

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOWN OF KARNES Rig # 3

Hole # 124 Date Started 4-1-00 Date Completed 4-7-00 Weather Cond

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 80

Job forward 1359

Depth Top Cap 30 Material Drilled Total drilled 1439

0-5 Top soil

6-10 Top soil

11-20 Top soil

21-30 Top soil

31-40 HHG BACK TO CMH AT 32'-35' 75°

41-50 HHG WOOD 80°

51-60 HHG WOOD DC 85°

61-70 HHG 95°

71-80 HHG TIRES 100°

81-90

91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: MAY 85 PAPER

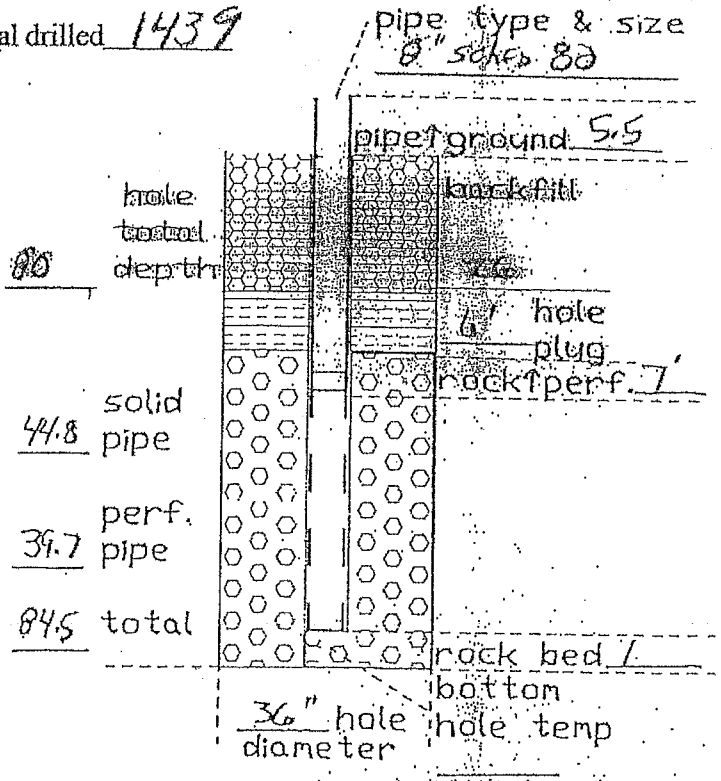
JULY 84 "

JAN 84 "

DEC + SEPT 83

LEACHATE @ 78'

GREY BOTTOM PLUG



Log # 3379

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTAR Customer Rep. MIKE W. PO #

Job Location Town of Lindale Rig # 5

Hole # 125 Date Started 03-25-00 Date Completed 3-25-00 Weather Cond.

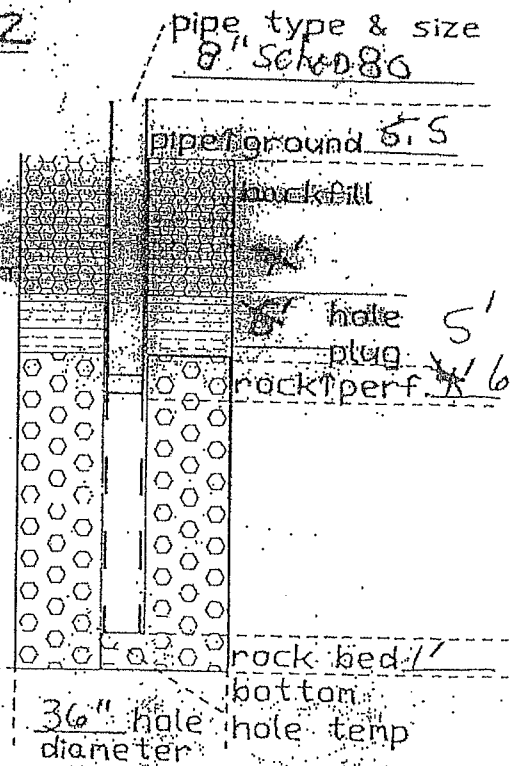
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 49

Job forward 483

Depth Cap 5 Material Drilled Total drilled 532

Depth	Material Drilled	
0-5	TOP SOIL TRUCK AT 5'	
6-10	HHG WOOD	70°
11-20	HHG WOOD ZONE DC	
21-30	HHG TREES	75°
31-40	HHG DC	
41-50	HHG WOOD TD 49'	80°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Aug 1986 pipe
@ 25' below G.L.

Mike Wilson

Log # ~~455~~ 3373

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer: WESTMAR Customer Rep.: MIKE W. PO #:

Job Location: TOWN CTY LANDFILL Rig #: 3

Hole #: 126 Date Started: 3-22-00 Date Completed: 3-23-00 Weather Cond: SUNNY

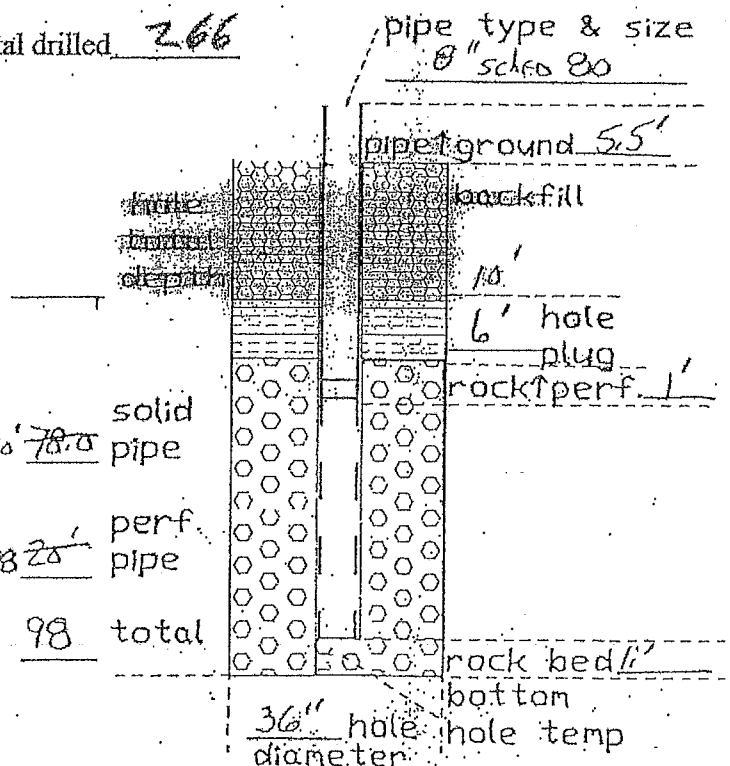
Driller: DAVE Helper: DENVER Other:

Diameter of Hole: 36 Casing Size: Hole Depth: 94

Job forward: 172

Total drilled: 266

Depth / Top Cap: 12	Material Drilled	
5	TOP SOIL	
6-10	TOP SOIL	
11-20	TOP SOIL TRACE AT 15'	70°
21-30	HHG WOOD TIRES	
31-40	HHG DC	75°
41-50	HHG WOOD	
51-60	HHG PAPER WOOD DC	80°
61-70	HHG WOOD	
71-80	HHG TIRES DC	85°
81-90	HHG STEEL	1986
91-100	HHG TD 94'	90°
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			

General Comments: 1988 pop. @ 55'

NOV. 86" " " 90'

extreme heat o/ng - moist above, dry below

Mike Webb

Log # 3389

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOWN CITY LANDFILL Rig # 3

Hole #127 Date Started 3-29-00 Date Completed 3-30-00 Weather Cond.

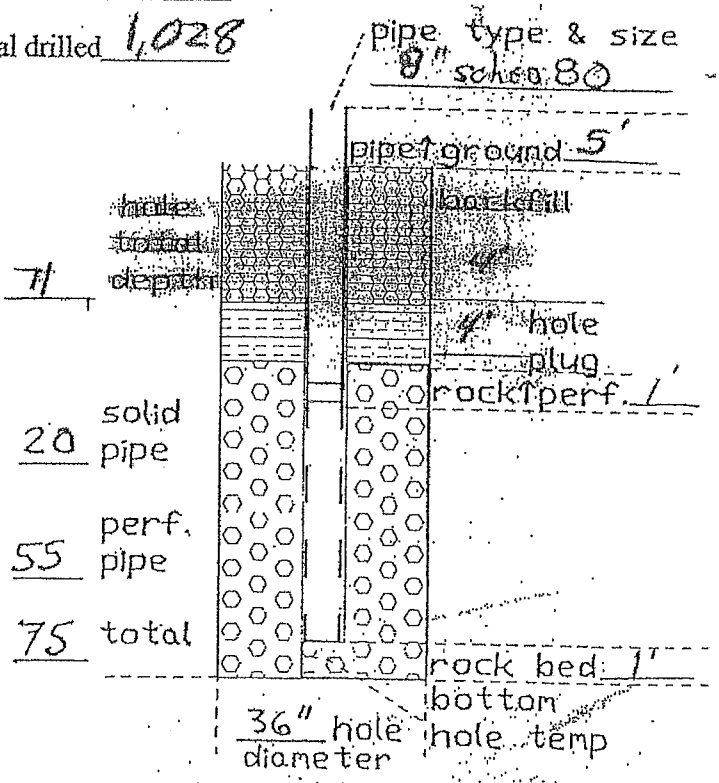
Driller JEFF Helper DEWAYNE Other

Diameter of Hole 36" Casing Size Hole Depth 71

Job forward 957

Total drilled 1,028

Depth Cap 5	Material Drilled
0-5	TOP SOIL
6-10	HHG WOOD
11-20	HHG WOOD PIPE OC 75°
21-30	HHG WOOD TIRES 80°
31-40	HHG WOOD STEEL DC 85°
41-50	HHG TIRES 90
51-60	HHG WOOD DC
61-70	HHG
71-80	HHG 100°
81-90	
91-100	
101-110	



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Oct '88 pipe

Feb '95 pipe

May '87 pipe

Apr '86 pipe

Mike Wilson

Log # 3378

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MFR Customer Rep. MIKE W. PO #

Job Location TOCA CITY LANDFILL Rig # 3

Hole # 128 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 42

Job forward 441

Depth Cap 4' Material Drilled Total drilled 483

1-5 TOP SOIL TRASH AT 4' HHG

6-10 HHG 70°

11-20 HHG STEEL TIRES

21-30 HHG 75°

31-40 HHG, WOOD 80°

41-50 HHG TD 42'

51-60

61-70

71-80

81-90

91-100

101-110

Gas Meter Readings

Time	LEL%	Oxy%	H2S

pipe type & size 8" sched 80

pipe ↑ ground 5.5

backfill

3'

6" hole plug

rock ↑ perf. 1'

42 depth

15.5 solid pipe

30 perf. pipe

45.5 total

rock bed 2

bottom hole temp

36" hole diameter

General Comments: JUNE, OCT 1988 PAPER

WELL BOTTOM 12' LESS THAN PLANS

LOW RECOVERY CLAY IN FINAL BUCKET 62°

Mike Wilson

Log # 3397

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location TOWN CITY LANDFILL Rig # 3

Hole # 129 Date Started 4-2-00 Date Completed 4-3-00 Weather Cond.

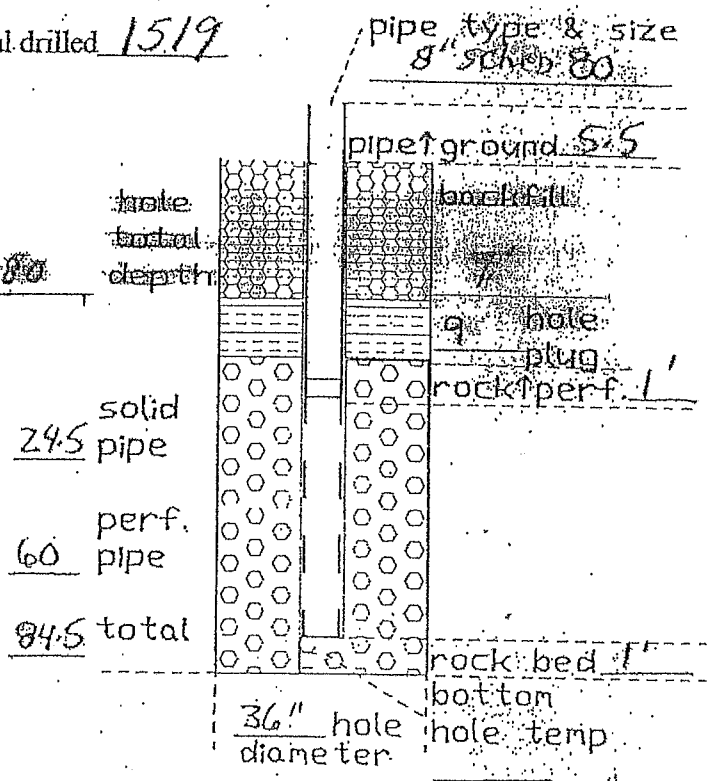
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 80'

Job forward 1439

Total drilled 1519

Depth Top Cap 10	Material Drilled	
0-5	TOP SOIL	
6-10	TOP SOIL	
11-20	HHG WOOD	65°
21-30	HHG WOOD STEEL	
31-40	HHG DC	70°
41-50	HHG WOOD	
51-60	HHG WOOD TREES DC	75°
61-70	HHG	
71-80	HHG TD 80'	75°
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Dec 91 paper

Nov + Sept 90

Dec 87

black, moist + grassy @ 70'

Mike Weber

Log # 3390

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY / LANCASTER Rig # 31

Hole # 130 Date Started 3-30-00 Date Completed 3-30-00 Weather Cond.

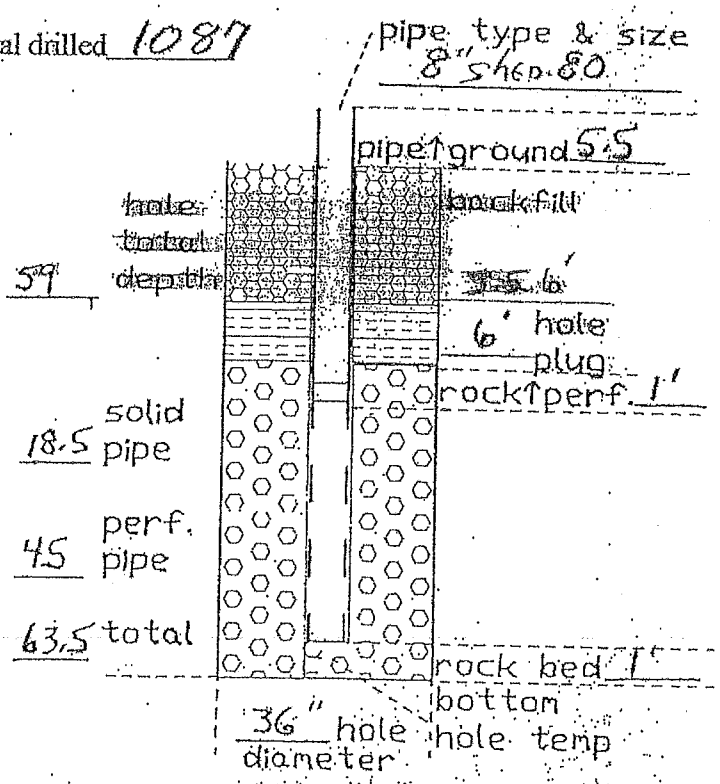
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 59

Job forward 1028

Depth
Top Cap 72 Material Drilled Total drilled 1087

Depth	Material Drilled	
1-5	TOP SOIL	
6-10	TOP SOIL HHG	45°
11-20	HHG TREES	72°
21-30	HHG WOOD DK	80°
31-40	HHG WOOD	
41-50	HHG WOOD DK	90°
51-60	HHG STEEL	
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: HIT WATER AT 40'

JAN 91 PAPER

OCT 90 PAPER

SEPT 88 + JAN 89 PAPER @ 40'

Mike Weber

Log # 3398

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep MIKE W. PO #

Job Location Town CRK Landfill Rig # 3

Hole # 131 Date Started 4-3-00 Date Completed 4-3-00 Weather Cond

Driller JEFF Helper DRIVER Other

Diameter of Hole 36" Casing Size Hole Depth 81

Job forward 1519

Top Cap 4 Material Drilled Total drilled 1600

0-5 TOP SOIL

6-10 HHG

11-20 HHG WOOD

21-30 HHG WOOD DC

31-40 HHG WOOD STEEL

41-50 HHG

51-60 HHG DC

61-70 HHG WOOD

71-80 HHG WOOD

81-90 HHG TD 81'

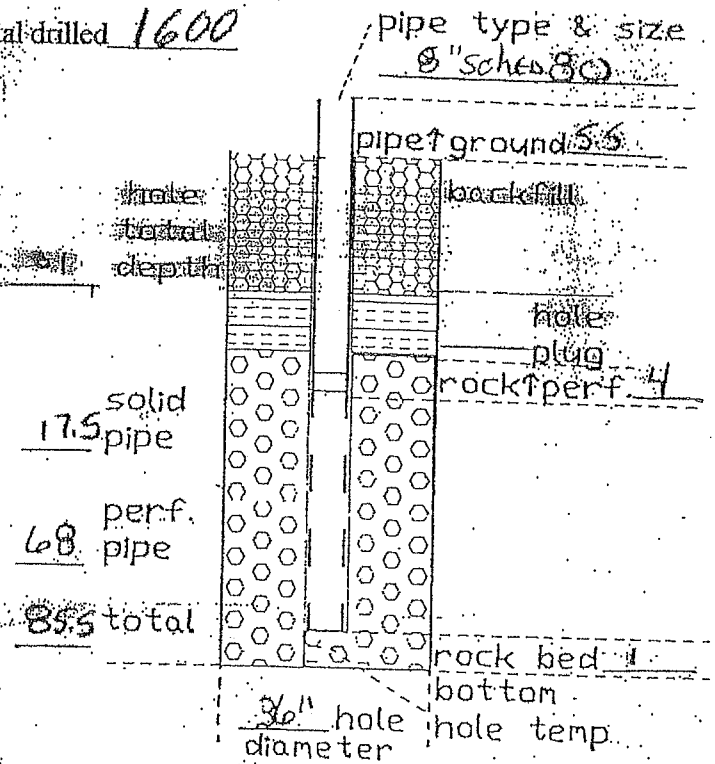
91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: AUG 99 paper
Feb 89



Mike Orton

Log # 3399

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location Town CRK LANDFILL Rig # 3

File # 132 Date Started 4-3-00 Date Completed 4-4-00 Weather Cond

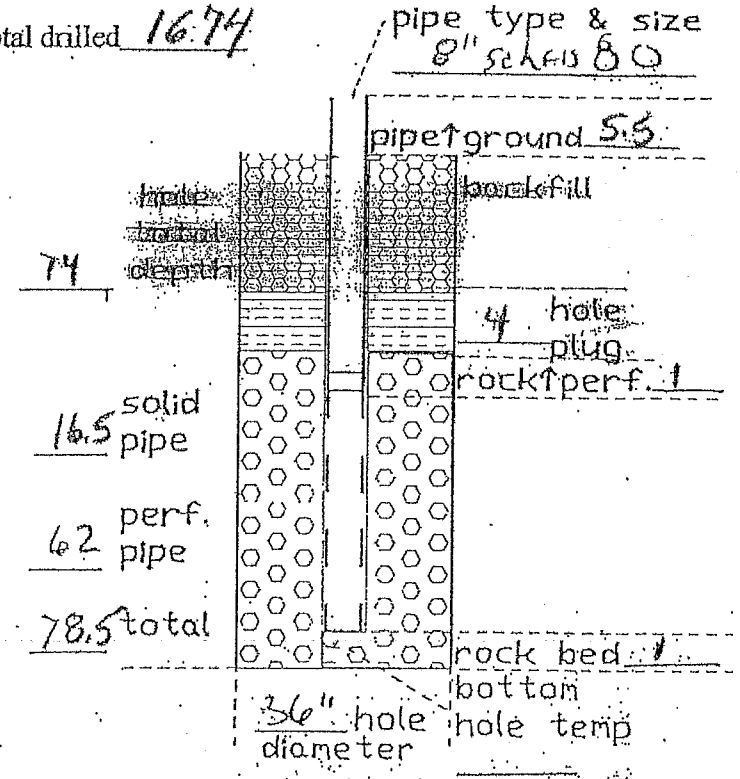
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 74

Job forward 1600

Depth
Top Cap 8 Material Drilled Total drilled 1674

1-5	TOP SOIL		
6-10	TOP SOIL HHG		
11-20	HHG WOOD		65
21-30	HHG WOOD	DC	
31-40	HHG WOOD		70°
41-50	HHG WOOD	DC	
51-60	HHG WOOD STEEL		80°
61-70	HHG		
71-80	HHG	TD 74	85°
81-90			
91-100			
101-110			



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: June + Apr. 95 report

Nov 91 "

Apr + May 89

62' @ BOW (plug)

Mike Weber

Log # 3391

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location FORT CITY LANDFILL Rig # 3

File # 133 Date Started 3-30-00 Date Completed 3-30-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 55

Job forward 1087

Depth Cap 8' Material Drilled Total drilled 1142

0-5 TOP SOIL

5-10 TOP SOIL

15-20 HHG WOOD 65°

21-30 HHG WOOD DC

31-40 HHG WOOD TIRES 75°

41-50 HHG WOOD 85°

51-60

61-70

71-80

81-90

91-100

101-110

pipe type & size 8" SCH 80

pipe ↑ ground 5'5

backfill

55 bottom depth

6" hole plug rock ↑ perf. 1'

195 solid pipe

40 perf. pipe

59.5 total

rock bed 1'

bottom hole temp

36" hole diameter

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Sept '91 proper

Aug '91 "

Oct 91 "

wet on bottom

Mike Weber

Log # 3900

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

C13824-0678

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY LANDFILL Rig # 3

Hole # 434 Date Started 4-4-00 Date Completed 4-4-00 Weather Cond

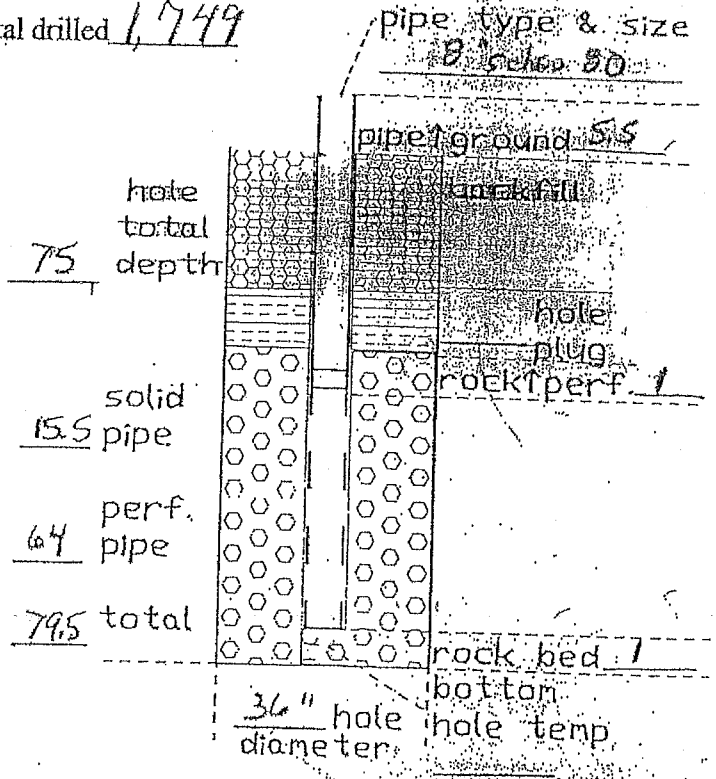
Driller MIKE Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 75

Job forward 1674

Depth Top Cap 8 Material Drilled Total drilled 1,749

Depth	Material Drilled	
5	Top Soil	
6-10	Top Soil HHG	
11-20	HHG	65°
21-30	HHG WOOD DC	
31-40	HHG WOOD	70°
41-50	HHG	
51-60	HHG DC	75°
61-70	HHG WOOD	80
71-80	HHG TD 75	89°
81-90		
91-100		
101-110		



Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Sept Aug 94 repair

June 94

moist @ 50'

Groundwater reached @ 63'

Log # 3394

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Location TOWN CITY LANDFILL Rig # 3

Sample # 135 Date Started 3-31-00 Date Completed 3-31-00 Weather Cond.

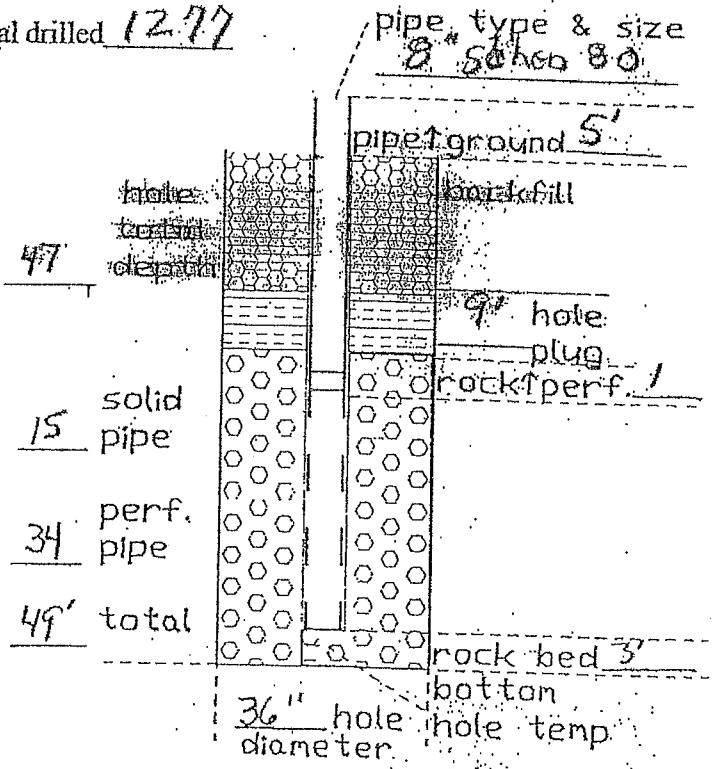
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 47

Job forward 1230

Total drilled 1277

Depth Top Cap 8	Material Drilled	
1-5	Top soil	
6-10	Top soil HHG	65°
11-20	HHG Tires	
21-30	HHG wood DC	70°
31-40	HHG STEEL	
41-50	HHG	85°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Apr 94 paper

May 94 " damp @ 25'

Feb 93 " dry @ 30'

JAN 93 "

xtra bent plug @ bottom

Mike Weber

Log # 3393

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location Town City Landfill Rig # 3

Hole # 136 Date Started 3-31-00 Date Completed 3-31-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 40

Job forward 1190

Depth Top Cap 11 Material Drilled Total drilled 1230

1-5 Top soil

6-10 Top soil

11-20 Top soil HHG 60°

21-30 HHG wood 70°

31-40 HHG wood 75°

41-50

51-60

61-70

71-80

81-90

91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

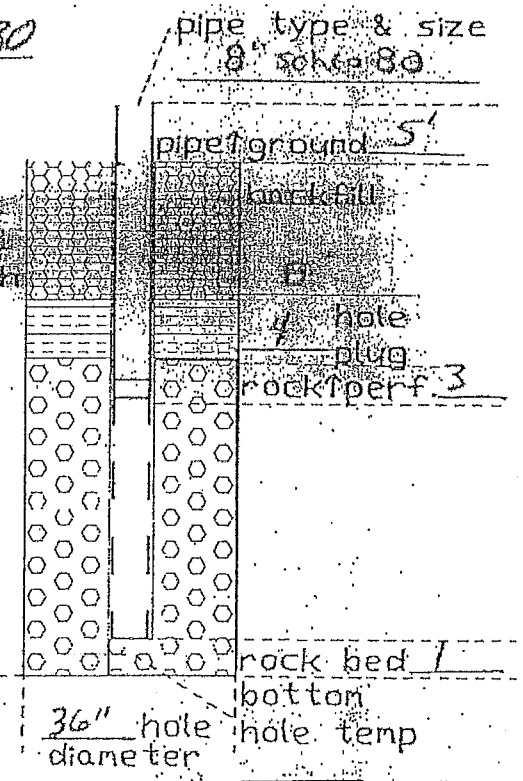
General Comments: Apr 94

Aug 94

Oct 94

sandy / black + wet @ bottom

Mike Weber



Log # 3392

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY IOWA Rig # 3

File # 3337 Date Started 3-3-00 Date Completed 3-3-00 Weather Cond.

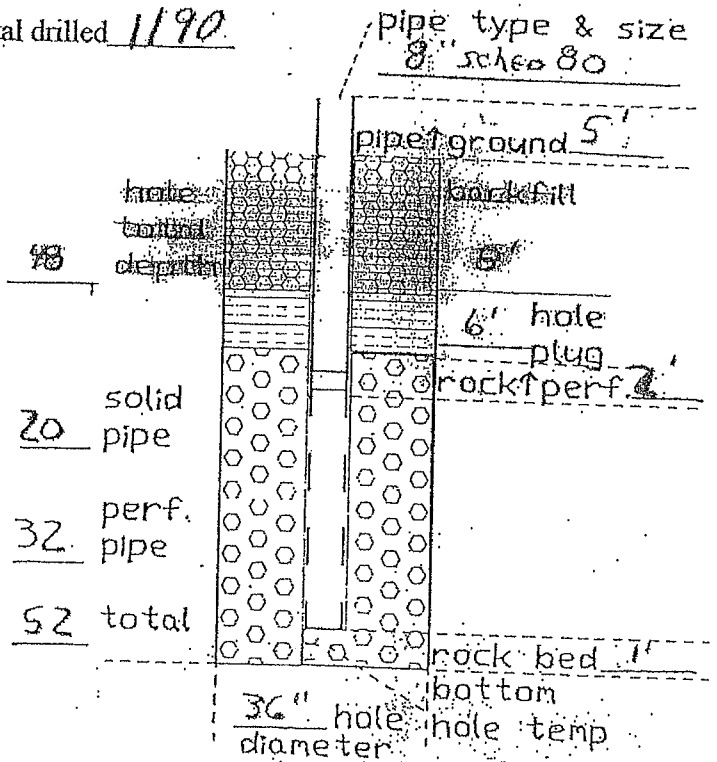
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 48

Job forward 1142

Depth Cap 10 Material Drilled Total drilled 1190

Depth	Material Drilled	
5	TOP SOIL	
10	TOP SOIL	
20	HHG WOOD	70°
1-30	HHG WOOD DC	
40	HHG STEEL WOOD	80°
1-50	HHG	85°
60		
70		
1-80		
90		
1-100		
1-110		



Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Nov 91 paper

Feb 94 "

Feb 92 "

Dec 91 "

40' wet / 43' dry

grey/brown bottom plug

Mike Weber

Howard R. Green Company
CONSULTING ENGINEERS

May 24, 1996

QA/QC ✓
BY
Date 5-24-96

Daniel Scott, Civil Engineer
City of Iowa City
Engineering Division
410 E. Washington Street
Iowa City, IA 52240-1826

RE: FY 89 and FY 91 Cover
Iowa City Sanitary Landfill

Dear Mr. Scott:

Enclosed are the laboratory verification tests performed on on-site soil samples to provide a correlation between compacted in-place or field density and permeability for cover soils. The attached test report from Terracon illustrates relative percent compaction values based on Standard Proctor densities as required to meet the desired soil permeabilities, and on the basis of this correlation we have established field density test requirements. The attached table illustrates all tests of the 2 foot compacted clay cover to be in excess of 95% Standard Proctor density, or a related permeability value of 1×10^{-7} cm/sec., or less.

Also enclosed are the As-Built drawings for the FY1 96 Cell. Copies of these drawings were sent to John Vigna, IDNR Field Office #6, Washington, Iowa, and to Cyrus Rustin, IDNR, Des Moines, Iowa.

If you have any questions or concerns, please do not hesitate to give us a call so that we can provide the necessary additional information

Very truly yours,

HOWARD R. GREEN COMPANY

Brian K. Harthun, Staff Engineer

Enclosure

O:\PROJ\718310\5-24-96.LTR

4250 Glass Road NE, PO Box 9009 • Cedar Rapids, IA 52409-9009 • 319/395-7805 fax 319/395-9410 toll free 800/728-7805

FY 89 AND FY91 - IOWA CITY LANDFILL SOIL FIELD DENSITY TEST TABULATION FOR COMPACTED LAYER				
LIFT NO.	SAMPLE I.D. #	EASTING	NORTHING	% STANDARD PROCTOR
FIRST 8 INCH LIFT	1	2513355.95	604709.23	95.15
	2	2513355.95	604599.77	96.62
	3	2513549.28	604833.14	94.22
	4	2513685.6	604841.26	98.10
	5	2513507.19	604706.24	99.65
	6	2513602.49	604627.67	97.43
	7	2513552.31	604522.79	98.10
	8	2513198.62	604293.43	98.35
	9	2513452.69	604340.06	97.71
	10	2513713.53	604526.67	94.69
SECOND 8 INCH LIFT	11	2513678.51	604612.72	96.20
	12	2513276.01	604572.7	95.03
	13	2513362.32	604485.5	96.63
	14	2513600.78	604796.32	96.19
	15	2513515.93	604602.17	95.52
	16	2513632.12	604515.06	95.27
	17	2513501.06	604279.32	99.85
	18	2513348.62	604197.74	97.59
THIRD 8 INCH LIFT	19	2513436.04	604771.45	100.90
	20	2513568.65	604774.48	97.34
	21	2513326.25	604560.71	95.86
	22	2513281.91	604424.56	96.07
	23	2513719.57	604800.36	97.88
	24	2513759.48	604701.09	100.70
	25	2513808.42	604644.1	96.85
	26	2513503.38	604513.33	99.14
	27	2513065.78	604685.81	93.96
	28	2513534.44	604424.23	95.51
	29	2513311.6	604276.29	98.73
	30	2513752.72	604594.32	95.35

PERMEABILITY TEST RESULTS
IOWA CITY LANDFILL
JOB NO. 06951092 (H. R. GREEN NO. 718310J)

		SAMPLE PREPARED			
Sample No.	Sample Description	Moisture Content (%)	Dry Density (pcf)	% Compaction	Coefficient of Permeability (cm/sec.)
1	Brown, Lean Clay, Trace Sand	17.0	96.8	90	2.6×10^{-8}
2	Light Brown, Sandy Lean Clay, Trace Gravel	12.5	108.0	90	4.3×10^{-8}
3	Gray Brown, Lean Clay, Trace Sand	18.5	95.8	90	1.3×10^{-7}

Note: The permeability tests were performed in a fluid filled chamber with the sample surrounded by a flexible membrane. Back pressure was used to aid in saturating the sample, and a water head of 3 psi was used. For construction of clay liners, we typically recommend that the material be compacted to at least 95% of the material's maximum standard Proctor dry density at moisture contents ranging from 0 to 4% above its optimum moisture content.

Terracon

Iowa City Compost Pavement

Geotechnical Engineering Report

Iowa City, Iowa

January 27, 2026 | Terracon Project No. 06245143.01

Prepared for:

Shive-Hattery, Inc.
222 Third Avenue SE, Suite 300
Cedar Rapids, Iowa 52401



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

January 27, 2026

Justin D. Widdel, P.E. Date

License Number 20495

My license renewal date is December 31, 2026.

Pages or sheets covered by this seal: All pages

Terracon
Explore with us
Nationwide
Terracon.com
Facilities
Environmental
Geotechnical
Materials

Attachment 2

2640 12th Street
Cedar Rapids, Iowa 52404
P (319) 366-8321
Terracon.com

January 27, 2026

Shive-Hattery, Inc.
222 Third Avenue SE, Suite 300
Cedar Rapids, Iowa 52401

Attn: Dave Panos, P.E.
P: (319) 551-3997
E: dpanos@shive-hattery.com

Re: Geotechnical Engineering Report
Iowa City Compost Pavement
3900 Hebl Avenue SW
Iowa City, Iowa
Terracon Project No. 06245143.01

Dear Mr. Panos:

We have completed the scope of Geotechnical Engineering services for the above referenced project. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Jordan W. Perry
Staff Engineer

Justin D. Widdel, P.E.
Principal/Senior Engineer

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Exploration and Testing Procedures
Site Location and Exploration Plans
Exploration and Laboratory Results
Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Iowa City Compost Pavement to be located at 3900 Hebl Avenue SW in Iowa City, Iowa. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Pavement design and construction

The geotechnical engineering Scope of Services for this project included the advancement of seven soil borings, laboratory testing, engineering analysis, and preparation of this report. An additional boring (i.e. B-8) was requested to be performed in a potential borrow area near the southwest corner of the landfill site.

Drawings showing the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the **Exploration and Laboratory Results** section.

Project Description

Item	Description
Information Provided	Preliminary site plan and anticipated pavement sections dated 10/21/2025 and proposed boring locations plan dated 9/30/2025.
Project Description	The project consists of expansion of the construction of new pavement in the existing composting area. A stormwater basin will also be constructed north of the pavement area.

Item	Description
Grading	A grading plan was not provided, based on the provided existing ground surface elevations at the boring locations, we anticipate the finished grade will be near an elevation of 774 feet resulting in site cuts of less than 2 feet and fill thicknesses up to about 7 feet. We anticipate the stormwater basin will be at existing grade with berms constructed around the basin. We understand a clay liner will be placed below the composting area and the City of Iowa City indicated that the permeability requirement for the clay liner is $1x10^{-5}$ cm/s.
Pavements	Per the preliminary pavement sections, we understand the new pavements could consist of: • Portland cement concrete (PCC) over 6 inches of granular base over 12 inches compacted subgrade on the western, side of the new pavement area, and access road east of the gravel road on the southern side of the new pavement area • Hot mix asphalt (HMA) over 6 inch granular base over 12 inches compacted subgrade west, south, and east of the composting area • HMA section may include full depth reclamation with asphalt overlay • Gravel access roads north, east, and south of the compost area • HMA millings in the compost pile areas • Refer to **Exploration Plan** for the general areas of the above sections based on the Preliminary Site Plan dated 10/21/2025 Vehicle weights were provided by Shive, but traffic volumes were not provided: F. SPECIAL LOADING DOZER 94,000 LBS COMPACTOR 90,000 LBS END LOADER 34,000 LBS GRINDER 92,000 LBS EXCAVATOR 81,000 LBS TRACTOR 11,000 LBS EJECTOR TRUCK 163,000 LBS Case 721G End Loader operating weight: 32,837 lbs
Stormwater Basin	We understand the stormwater basin is anticipated to have a clay liner and the City of Iowa City indicated the permeability of the clay liner for the stormwater basin is $1x10^{-7}$ cm/s.

Terracon should be notified if any of the above information is inconsistent with the planned construction as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 3900 Hebl Avenue SW in Iowa City, Iowa. Latitude, Longitude: 41.6491° N, 91.6245° W (approximate) See **Site Location**
Existing Improvements/Current Ground Cover	Existing buildings, asphalt and gravel surfacing, green and earthen spaces around the existing improvements, and subsurface utilities
Topography	Topographic contours were not provided, based on the ground surface elevations of the boring locations, the compost pavement areas range in elevation from about 767 feet to 777 feet, generally increasing to the west, and decreasing to the north. The ground surface elevation of the stormwater basin is lower in elevation with a ground surface elevation of about 743 feet at Boring B-7.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration and Laboratory Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Surficial Fill	Asphalt Millings and Crushed Limestone
2	Apparent Capping Fill	Fat Clay, Lean Clay, Sandy Lean Clay, and Poorly Graded Sand
3	Garbage	Mixture of trash and organic matter
4	Apparent Native Soil	Lean Clay and Sandy Lean Clay

The boreholes were observed for the presence and level of groundwater while drilling/sampling and shortly after completion of drilling. Groundwater was only encountered in boring B-5 at a depth of about 5.5 feet below ground surface and was not encountered in the remaining borings. The absence of water in the boreholes does not necessarily mean that they terminated above the water table, since, for the lower permeability clay soils encountered in the borings, a longer time may be required to develop representative water level in the boreholes. Longer-term observations using cased holes or piezometers, sealed from the influence of surface water, would be required for a better evaluation of the groundwater conditions on this site.

Fluctuations of the groundwater levels will likely occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be different than the levels indicated on the boring logs. Also, trapped or "perched" water could be present within the sand or silt seams within native clay soils and/or in cohesionless soils (fill and native) or trash above lower permeability clay soil layers. The possibility of groundwater level fluctuations and perched water should be considered when developing the design and construction plans for the project.

Geotechnical Overview

The borings in the proposed pavement areas encountered existing fill overlying a mixture of trash and organic matter. Based on the standard penetration test (SPT) N-values, the existing fill and trash strata appear to have had compactive effort presumably either at the time of placement (i.e., trash and capping fill) and/or regular repetitions of heavy equipment over the near surface soils. However, it is not possible to estimate long term performance of buried trash and settlement over time is possible. It does not appear feasible to remove all the existing fill and trash and replace with properly compacted fill. Therefore, the City should understand the risks of placing new pavements over buried trash. This could result in differential movement and pavement cracking and potentially decreased pavement life and/or early rehabilitation measures.

In addition, moderate to high plasticity soils (lean to fat and fat clay) were encountered in Boring B-1 in the upper soil profile, and may be present at other non-tested locations. Moderate to high plasticity soils are considered poor pavement subgrade soils due to the shrink-swell potential with changes in moisture content which can lead to pavement distress. The **Earthwork** section provides recommendations to decrease the risks associated with the buried trash and moderate to high plasticity soils by placing a uniform subgrade below the new pavements.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration and Laboratory Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Earthwork is anticipated to include clearing and grubbing, excavations, and fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for pavements.

Site Preparation

Construction areas should be stripped of vegetation, root zones, organic soils (i.e., those with more than 5 percent loss on ignition), existing gravel or millings surfacing, and any other unsuitable materials (e.g., debris, desiccated soil, frozen soil, etc.) from within planned new construction areas.

Subgrade Preparation and Stabilization

Moderate to high plasticity soils should be undercut a minimum of 12 inches and replaced with low plasticity structural fill when moderate to high plasticity soils are encountered within 12 inches of pavement subgrade.

New Fill Areas: Prior to placing fill, the exposed subgrade should be proofrolled by the contractor and tested by Terracon. Obviously, unstable subgrades should not be proofrolled to reduce disturbance of the subgrade soils, until after these soils have been stabilized. Proofrolling could be accomplished by using heavy, rubber-tire construction equipment or a partially loaded tandem-axle dump truck (with a gross weight of about 25 tons). This surficial proofroll would evaluate subgrade conditions, and delineate low density, soft, or disturbed areas that may exist below subgrade level. Soft, low density,

and disturbed areas should be scarified, moisture conditioned, and recompacted or replaced with approved structural fill.

All exposed areas which will receive fill, should be scarified to a minimum depth of 9 inches, moisture conditioned as necessary, and compacted per the compaction requirements in this report. Compacted structural fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation or pavement construction.

Cut Areas: The subgrade should be undercut at least 12 inches to allow for uniform low-plasticity structural fill layer below new pavements consistent with the structural fill placed to raise grade in 'new fill areas'. After the undercut is performed the subgrade should be proofrolled as discussed above.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by undercutting the unstable subgrade soils, scarified on-site, and compacted with moisture and density control in maximum 9-inch loose lifts up to final subgrade elevation to provide a uniform thickness of well-compacted material. Other stabilization alternatives include chemical treatment with portland cement, or overexcavation and backfill with crushed limestone or recycled concrete. A geotextile stabilization material could also be placed below the crushed stone or recycled concrete to help stabilize the subgrade soils.

Subgrade improvement methods are influenced by schedule, weather, the size of the disturbed/unstable area, and the nature of the disturbance or instability. Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Fill Material Types and Placement

We understand a borrow source has been identified near the southwest corner of the Landfill site which consisted of lean clay that appears suitable for use as site grading fill. Permeability tests were performed on bulk samples remolded to 95 percent of the material's standard Proctor maximum density. The hydraulic conductivity (k) values were 4.7×10^{-8} cm/s and 6.9×10^{-8} cm/s for the bulk samples obtained from depths of about 1 to 4 feet and 8 to 13 feet in Boring B-8, respectively.

The on-site existing fill soils generated from site cuts in the existing composting area are anticipated to be highly variable and could contain rubble, organic matter, or other deleterious materials. If on-site soils, generated from cuts in the existing composting area are reused as fill, then sorting of unsuitable materials should be anticipated, and if

used, should generally be used as thin zones placed below new pavements or in green space areas. A greater than normal number of laboratory moisture-density determinations (i.e., "Proctor" tests) and field density tests should be anticipated if existing fill materials are reused as new structural fill. Uniform imported compacted fill should be placed within the upper 12 inches of pavement subgrades.

Compacted structural fill should meet the following material property requirements tabulated below.

Fill Type [1, 2]	USCS Classification	Acceptable Location for Placement
Low plasticity cohesive [3]	CL-ML, CL (LL ≤ 45 and PI ≤ 24)	General site grading fill below pavement subbase [4]; Stormwater basin liner and berms [5]
Moderate to high plasticity cohesive	CL (LL>45 and/or PI>24), CL/CH, CH	Green (non-structural) locations; Stormwater basin liner and berms [5]
Granular [6]	GW, GP, GM, GC, SW, SP, SM, SC	General site grading fill; should not be used where low-permeability soils are required for compost area or stormwater basin liners
Unsuitable	ML, MH, CL-OL, OL, CH-OH, OH, PT	Green (non-structural) locations

1. Structural fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation prior to use on this site.
2. Any organic materials, rock fragments larger than 3 inches, and other unsuitable materials should be removed prior to use as structural fill.
3. Low plasticity cohesive soil has a liquid limit less than or equal to 45 and a plasticity index less than or equal to 23.
4. Cohesive soils should have a permeability of $1x10^{-5}$ cm/s or less when used as compost area liner.
5. Stormwater basin liner should have a permeability of $1x10^{-7}$ cm/s or less.
6. Specific material requirements will need to be satisfied based on intended use and should be approved by the geotechnical engineer.

Appropriate laboratory tests, including Atterberg Limits for cohesive soils, organic content tests for dark colored soils and/or those that exhibit a noticeable odor, and standard Proctor (ASTM D698) moisture-density relationship tests should be performed on proposed fill materials prior to their use as structural fill. Permeability tests should be performed for soils to be used as liners with permeability requirements. Further

evaluation of any on-site soils or off-site fill materials should be performed by Terracon prior to their use in compacted fill sections.

Fill Placement and Compaction Requirements

Structural fill should meet the following compaction requirements.

Item	Description
Maximum Fill Lift Thickness for General Site Grading	9 inches or less in loose thickness when heavy, self-propelled compaction equipment is used
Minimum Compaction Requirements [1, 2]	98% within the upper foot of pavement subgrade 95% below the upper foot of pavement subgrade
Moisture Content Range [1]	Low plasticity cohesive: -2% to +3% Moderate to high plasticity cohesive: 0 to +4% Granular: typically at -3% to +3%; sufficient to achieve compaction without pumping when proofrolled

1. As determined by the Standard Proctor test (ASTM D698).
2. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254).

Grading and Drainage

All grades must provide effective drainage away from the new pavements during and after construction and should be maintained throughout the life of the pavement. Water retained next to the pavement can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential movements and pavement cracking.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to slab construction.

Shallow groundwater could affect subgrade preparation and utility trench excavations. A temporary dewatering system consisting of sumps with pumps in clay soils may be necessary to achieve the recommended depth of overexcavation depending on groundwater conditions at the time of construction. Where excavations extend into water bearing sand soils, sheeting, shoring, and/or well points could be required to effectively dewater the excavations.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation and topsoil), evaluation and remediation of poorly compacted or otherwise unsuitable fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Pavements

Pavement Subgrade Support Characteristics

For pavement design, we recommend that a subgrade California Bearing Ratio, CBR, of 3 be used for the asphaltic concrete pavement designs. We recommend that a modulus of subgrade reaction of 75 pci be used for the portland cement concrete pavement designs. These values were empirically derived based upon our experience with compacted lean

clay subgrade soils and our expectation of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**.

General Pavement Comments

Pavement designs are provided for the traffic conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Support characteristics of subgrade for pavement design do not account for frost heave or shrink/swell movements of an expansive clay subgrade, such as soils observed on this project. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to freeze/thaw and shrink/swell related movement of the subgrade.

Pavement Design Parameters

- We have used the following parameters to develop our pavement thickness designs in PCASE software. Design vehicle: Cat 740 EJ articulated haul truck (Cat 740 EJ Specalog)
- Traffic level: assumed a range of 1 to 2 passes/day × 365 days/year × 20 years = 7,300 to 14,600 passes. For design, we rounded up to 7,500 and 15,000 passes
- Truck load: 161,473 lbs. (Assume max. operating load from Cat 740 EJ Specalog)
- Prepared subgrade: CBR = 3 (According to Terracon Geotech Exploration Report); K-value = 60 pci (based on CBR =3, UFC 3-250-1)
- PCC flexural strength: 580 psi (Based on fc = 4,000 psi, Iowa SUDAS 5F-1)
- Base layer for rigid option: assumed well-constructed unbound aggregate; To account for potential long-term loss of support due to base erodibility (e.g., fines migration/pumping), a conservative modulus of subgrade reaction of k = 75 pci was assumed.
- Base layer for flexural option: assumed the cement-treated reclamation layer as PC-stab-GW,GP,SW,SP; CBR = 100 (value based on the PCASE default setting, and the lab testing will be required to verify the strength value before construction)
- Performance criterion: thickness was selected to meet or exceed the 7,500 to 15,000-pass target under PCASE design routines.
- Frost consideration: Considered in the analysis. Frost code selected F3/F4 in PCASE 7.07, based on subgrade condition.

Pavement Section Thicknesses

The following table provides our opinion of minimum thickness for pavements considering the variations in number of passes for the CAT 740 EJ Articulated Haul Truck:

Design Number of Passes	Pavement Layer	Rigid Pavement Option	Flexible Pavement Option [1]
7,500	Pavement Surface	14 inches PCC	4.5 inches HMA
	Base Course	8 inches Unbound Aggregate Course	12 inches Cement-Stabilized Aggregate Course
15,000	Pavement Surface	14.5 inches PCC	5 inches HMA
	Base Course	8 inches Unbound Aggregate Course	12 in. Cement-Stabilized Aggregate Course

1. We understand portions of the pavement will consist of HMA over 6-inch granular base. The recommended HMA thickness for unstabilized aggregate base is 13 inches HMA over 6 inches aggregate base.

Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its "green" state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. Islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils are particular areas of concern. The civil design for the pavements with these conditions should include features to restrict or collect and discharge excess water from the islands. Examples of features are edge drains connected to the stormwater collection system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Due to frost-susceptible soils and the possibility of perched groundwater, consideration should be given to installing a pavement subdrain system to control subgrade moisture, improve stability, and improve long-term pavement performance.

We recommend at least 6 inches of free-draining granular material be placed beneath the pavements. The use of a free draining granular base will also reduce the potential for frost action. The design recommendations for the subdrains are provided in the following table:

Subdrain Design Recommendations

Item	Value
Free Draining Granular Base Thickness below Pavement	6 inches of material free-draining granular material with less than 6% fines
Minimum Drainpipe Diameter	4 inches
Drain Trench Width	16 inches or greater to provide minimum 6-inch annulus of drainage aggregate around drainpipe.
Invert Depth below Subgrade Elevation	3½ feet
Maximum Drainpipe Spacing	150 feet
Subdrain Trench Backfill Material	IDOT Section No. 4131 or other free-draining crushed limestone wrapped in filter fabric

The subdrains should be hydraulically connected to the free-draining granular base layer. Subdrains should be sloped to provide positive gravity drainage to reliable discharge points such as the stormwater detention basin. Periodic maintenance of subdrains is required for long-term proper performance.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner

is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

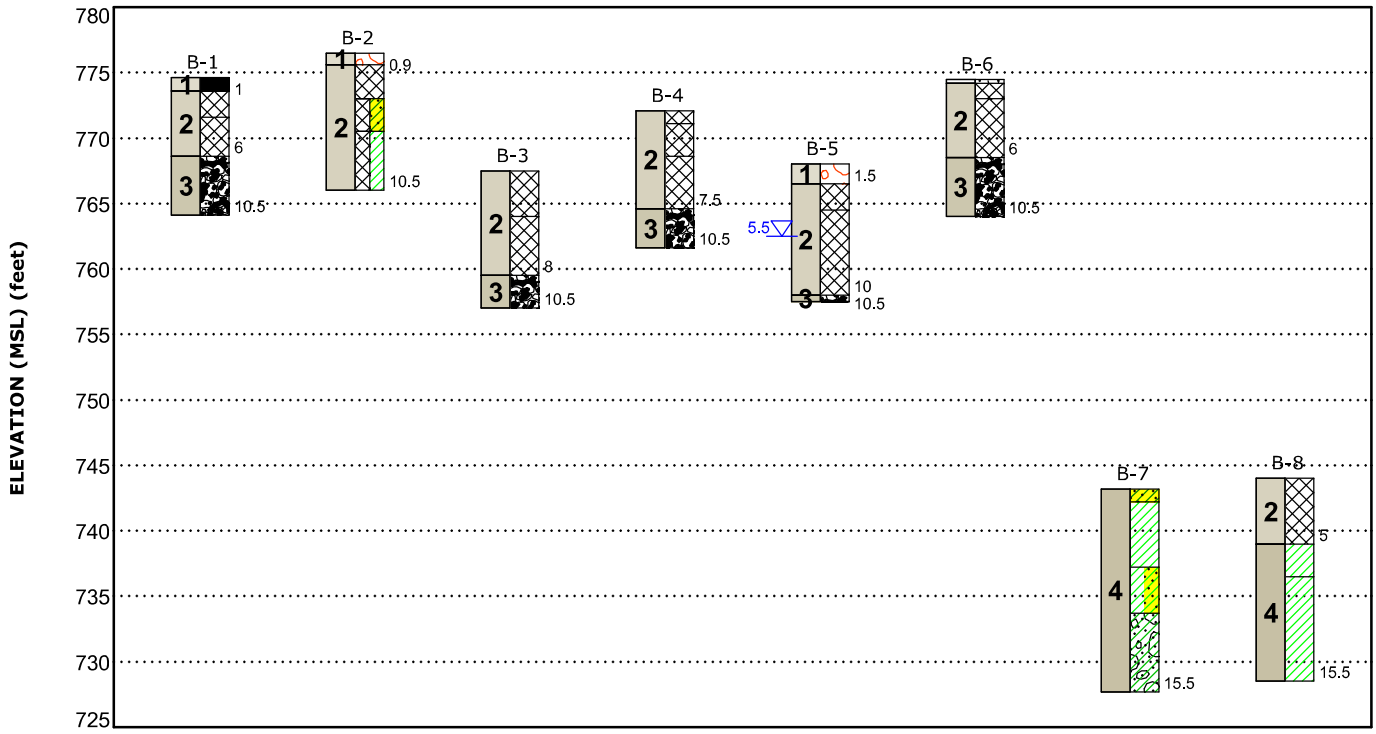
Contents:

GeoModel

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Surficial Fill**	Asphalt Millings and Crushed Limestone
2	**Apparent Capping Fill**	Fat Clay, Lean Clay, Sandy Lean Clay, and Poorly Graded Sand
3	**Garbage**	Mixture of trash and organic matter
4	**Apparent Native Soil**	Lean Clay, Lean Clay with Sand, and Sandy Lean Clay

Legend

- Asphalt
- Fill
- Fill
- Aggregate Base Course
- Sandy Lean Clay
- Lean Clay
- Topsoil
- Lean Clay with Sand
- Glacial Till

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
6	10.5	New Pavement
1	15.5	Stormwater Basin
1	15.5	Boring Area

Boring Layout and Elevations: Shive-Hattery provided the boring layout and ground surface elevations for Borings B-1 to B-7. Boring B-8 was laid out be Terracon and the ground surface elevation was obtained from the online USGS National Map.

Subsurface Exploration Procedures: We advanced the borings with an ATV-mounted rotary drill rig using continuous solid-stem augers. Samples were obtained at intervals of 2.5 feet using split-barrel sampling procedures. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. The borings were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content

- Atterberg Limits
- Grain Size Distribution
- Percent Passing #200 Sieve
- Standard Proctor
- Permeability (Remolded Samples)

The laboratory testing program included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

Site Location

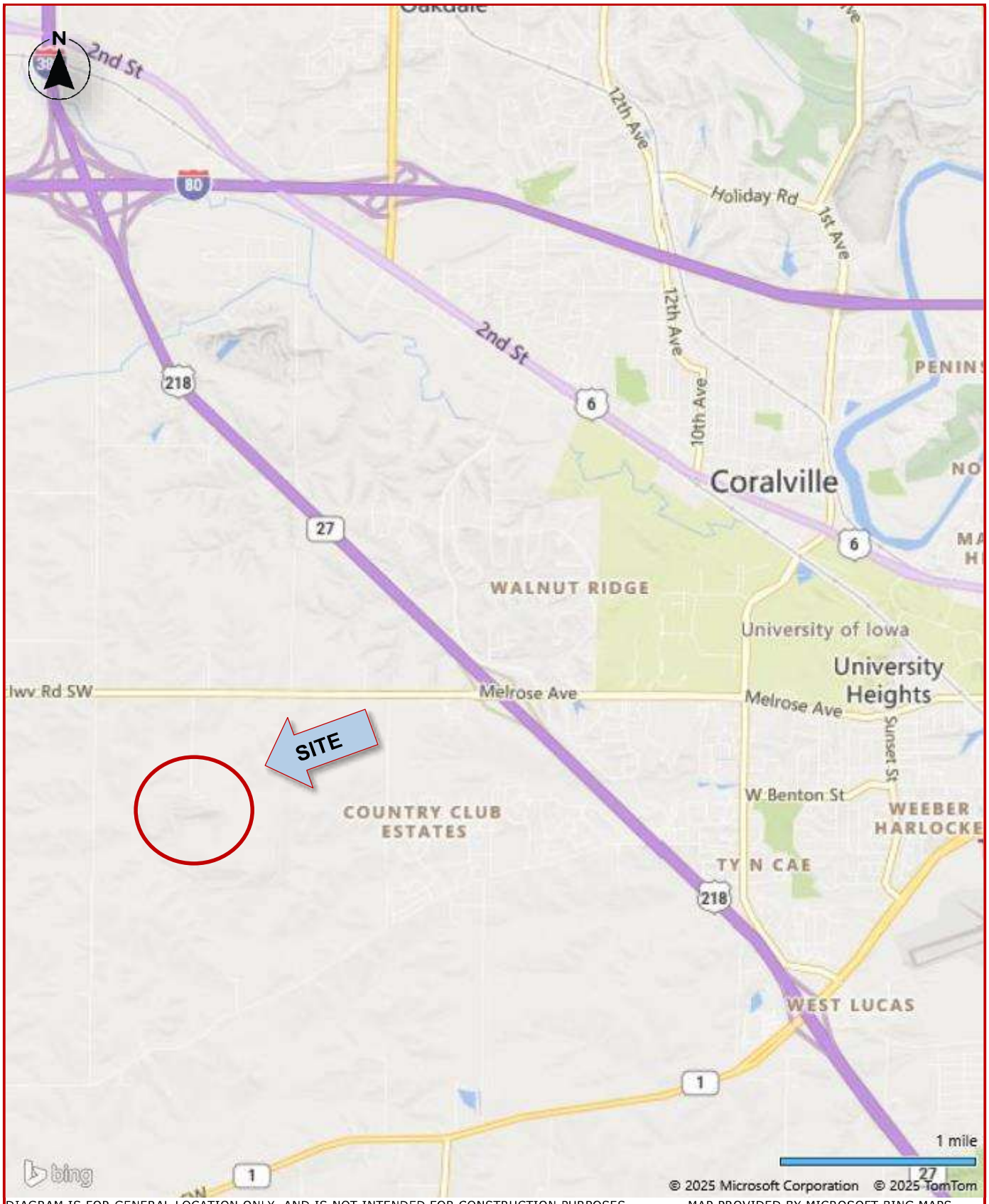


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan – Aerial Imagery



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan – Site Plan Overlay

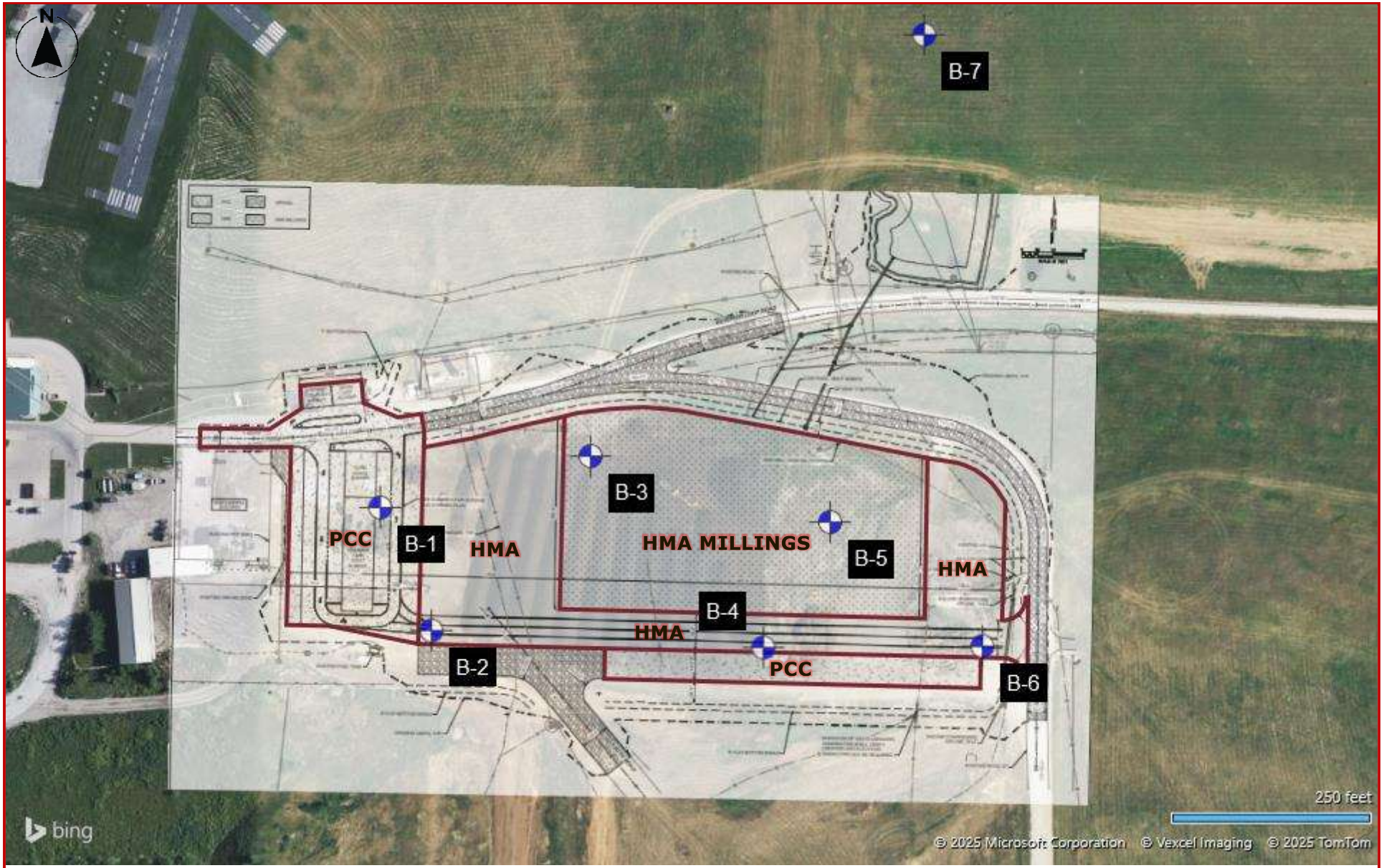


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Boring Logs (B-1 through B-8)
Grain Size Distribution
Moisture-Density Relationships
Permeability Tests

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 41.6492° Longitude: -91.6255°

Depth (Ft.) Elevation: 774.6 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
1		**1-Ft. Asphalt Millings** 1.0 773.6								
2		**FILL - LEAN TO FAT CLAY**, with wood pieces, trace sand, brown and gray 3.0 771.6			14	4-5-5 N=10	4.5+	19.6	41-19-22	
2		**FILL - FAT CLAY**, trace sand, brown gray 6.0 768.6			15	3-4-5 N=9	1.75	25.2		
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER** 10.5 764.1			5	2-4-6 N=10				
					7	3-19-5 N=24				
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 41.6488° Longitude: -91.6253°

Depth (Ft.) Elevation: 776.5 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
1		**10" Crushed Limestone** 0.9 / 775.6								
2		**FILL - LEAN CLAY**, trace sand, wood, and gravel, gray and brown 3.5 / 773								
		SANDY LEAN CLAY (CL), gray brown, (Probable Fill) 6.0 / 770.5								
		LEAN CLAY (CL), gray brown, (Probable Fill) 10.5 / 766								
		Boring Terminated at 10.5 Feet								

Depth (Ft.)	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)
5		11	4-7-8 N=15	4.5	15.8
		12	4-7-6 N=13	4.5	15.2
		15	3-4-4 N=8	1.5	24.2
10		15	3-3-2 N=5		24.4

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 41.6494° Longitude: -91.6245°

Depth (Ft.) Elevation: 767.5 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
2		**FILL - SANDY LEAN CLAY**, trace wood and gravel, gray brown								
		3.5 764								
					12	3-6-5 N=11	4.5+	20.5		
2		**FILL - SANDY LEAN CLAY**, trace gravel, gray and brown								
					11	3-5-5 N=10	4.0	22.2		
		8.0 759.5								
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER**								
					13	3-4-7 N=11	3.0	17.9		
					16	5-7-8 N=15				
		10.5 757								
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 41.6487° Longitude: -91.6237°

Depth (Ft.) Elevation: 772.1 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
2		**FILL - LEAN CLAY**, trace sand, brown 1.0 / 771.1								
		FILL - SANDY LEAN CLAY, gray brown 3.5 / 768.6				21-7-5 N=12	4.5+	12.9 18.3		
		FILL - SANDY LEAN CLAY, trace gravel, gray brown 7.5 / 764.6			8	2-5-5 N=10	2.5	17.3		
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER** 10.5 / 761.6			11	4-10-7 N=17				
					10	6-7-7 N=14				
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-5

Location: See Exploration Plan

Latitude: 41.6492° Longitude: -91.6234°

Depth (Ft.) Elevation: 768 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
1		**1.5-Ft. Crushed Limestone** 1.5 766.5								
2		**FILL - POORLY GRADED SAND**, trace clay, brown 3.5 764.5			5	4-2-1 N=3		9.1		
		FILL - SANDY LEAN CLAY, trace gravel, gray brown	▽		7	1-2-3 N=5		15.9		
					13	3-5-5 N=10	4.0	17.7		
		10.0 758			11	4-9-8 N=17	4.25	17.7		
3		10.5 **FILL - MIXTURE OF TRASH and ORGANIC MATTER** 757.5								
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations

▽ 5.5' while drilling and sampling

No water after boring

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-6

Location: See Exploration Plan

Latitude: 41.6487° Longitude: -91.6227°

Depth (Ft.) Elevation: 774.5 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
		0.3 **4" Topsoil with 3" Root Zone** 774.2								
2		**FILL - LEAN CLAY**, trace sand, brown gray 1.5 773								
2		**FILL - SANDY LEAN CLAY**, gray brown			13	6-8-6 N=14	4.5+	14.7		
2										
2					14	5-7-8 N=15	4.5+	13.7		
3		6.0 768.5 **FILL - MIXTURE OF TRASH and ORGANIC MATTER**								
3					10	11-8-24 N=32				
3										
3					11	6-4-5 N=9				
		10.5 764 ***Boring Terminated at 10.5 Feet***								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-7

Location: See Exploration Plan

Latitude: 41.6508° Longitude: -91.6230°

Depth (Ft.) Elevation: 743.2 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
		SANDY LEAN CLAY (CL), brown 1.0 742.2								
		LEAN CLAY (CL), trace sand, gray brown, stiff								
					9	4-4-4 N=8		18.1		
					14	3-4-5 N=9		18.6		98.1
		6.0 737.2								
4		**LEAN CLAY WITH SAND (CL)**, gray brown, stiff								
					15	4-5-6 N=11		14.0		72.8
		9.5 733.7								
		SANDY LEAN CLAY (CL), trace gravel, brown, medium stiff to stiff								
					15	3-6-8 N=14		15.2		
					14	2-3-3 N=6	1.75	16.8		
					18	3-5-5 N=10		14.5		
		15.5 727.7								
		Boring Terminated at 15.5 Feet								

5
10
15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-8

Location: See Exploration Plan

Latitude: 41.6471° Longitude: -91.6315°

Depth (Ft.) Elevation: 744 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
2		**FILL - LEAN CLAY**, trace sand and gravel, gray and brown								
		5.0 739			9	3-3-4 N=7		17.6	41-17-24	
		5			10	3-4-6 N=10	1.5	21.2		
4		**LEAN CLAY (CL)**, trace sand, gray and brown, stiff								
		7.5 736.5			18	3-4-6 N=10	1.5	24.6		
		LEAN CLAY (CL), trace sand, brown, medium stiff to stiff								
		10			13	2-2-3 N=5	0.25	26.9		
					10	2-3-4 N=7	0.5	25.7		
		15			18	3-3-4 N=7	0.75	18.9		
		15.5 728.5								
		Boring Terminated at 15.5 Feet								

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation obtained using USGS National Map

Water Level Observations
No water encountered during drilling and sampling

No water after boring

Drill Rig
603 - CME 850XR

Hammer Type
Automatic

Driller
SZ

Logged by
WE

Boring Started
12-09-2025

Boring Completed
12-09-2025

Notes

Advancement Method
Power Auger to termination depth.

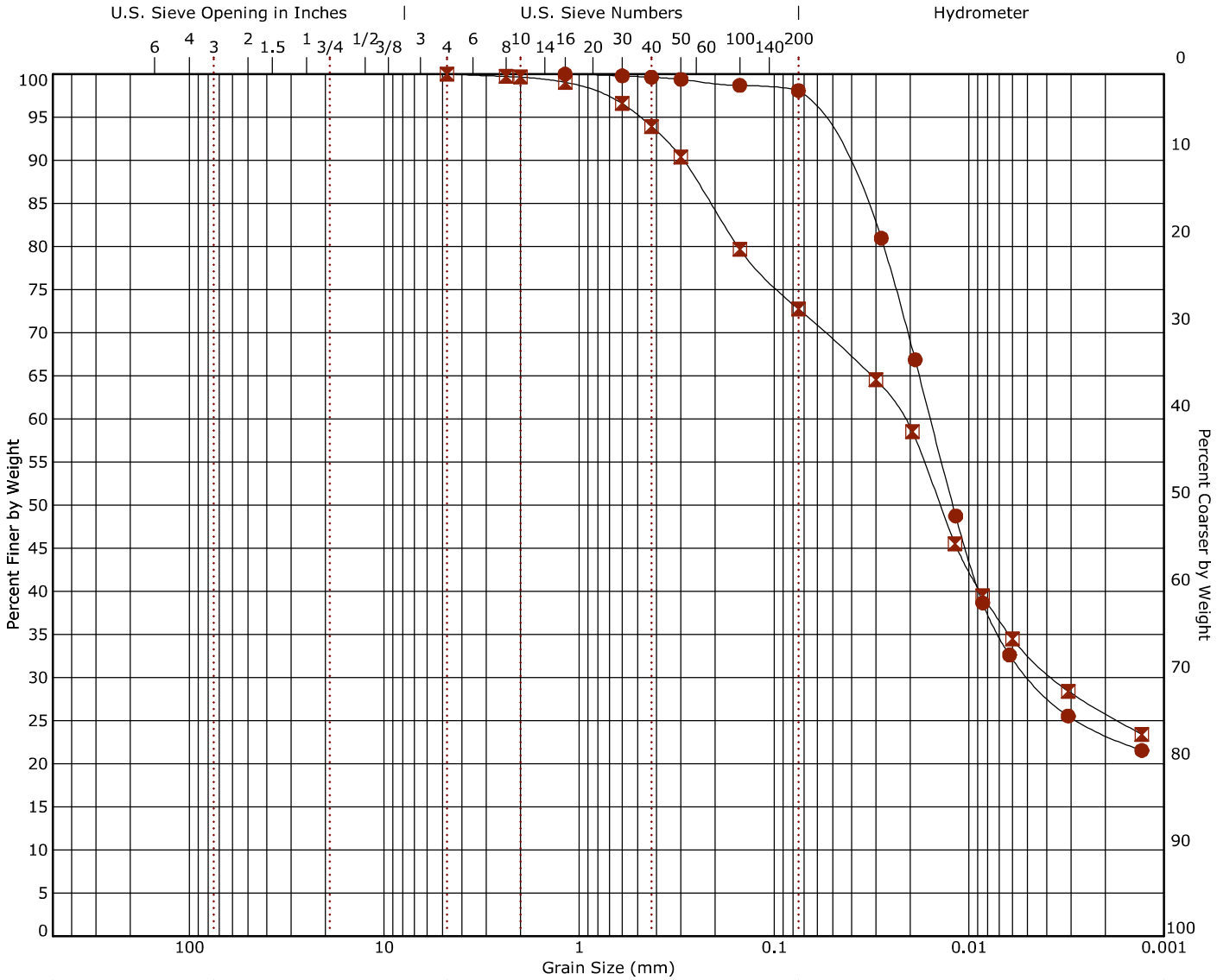
Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Grain Size Distribution

ASTM D422 / ASTM C136 / AASHTO T27



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS
●	B-7	4 - 5.5	0.0	0.0	1.9		67.7	30.4	CL
⊠	B-7	6.5 - 8	0.0	0.0	27.2		39.9	32.8	CL

	Description
●	LEAN CLAY
⊠	LEAN CLAY WITH SAND

Remarks
●
⊠

●		⊠			
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#16	100.0	#4	100.0		
#30	99.8	#8	99.72		
#40	99.63	#10	99.66		
#50	99.39	#16	99.05		
#100	98.7	#30	96.59		
#200	98.08	#40	93.94		
		#50	90.39		
		#100	79.69		
		#200	72.76		

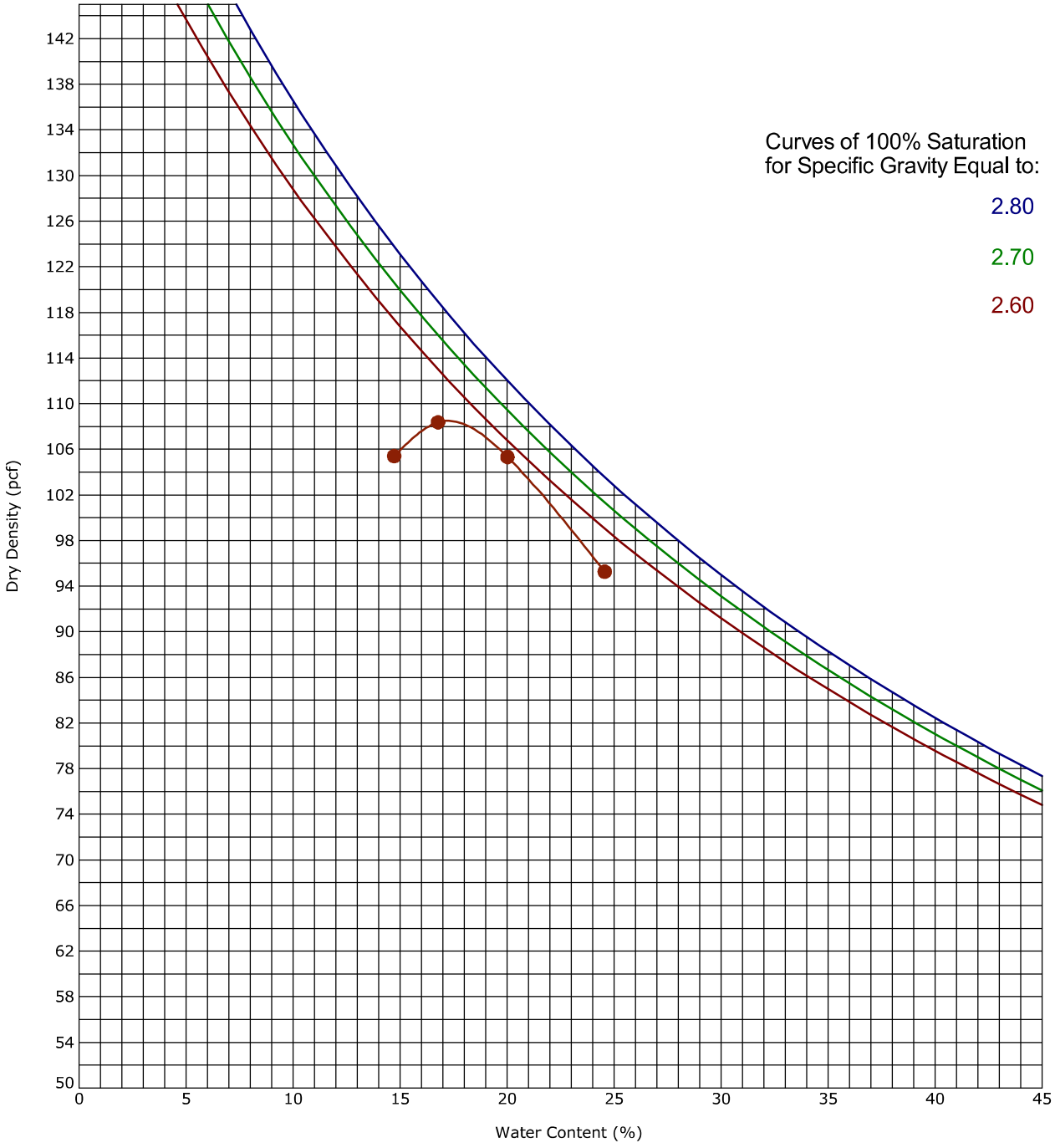
Grain Size			
	●	⊠	
D_{60}	0.016	0.022	
D_{10}			

Coefficients			
	●	⊠	
C_c			
C_u			

2640 12th St SW
Cedar Rapids, IA

Moisture-Density Relationship

ASTM D698-Method A



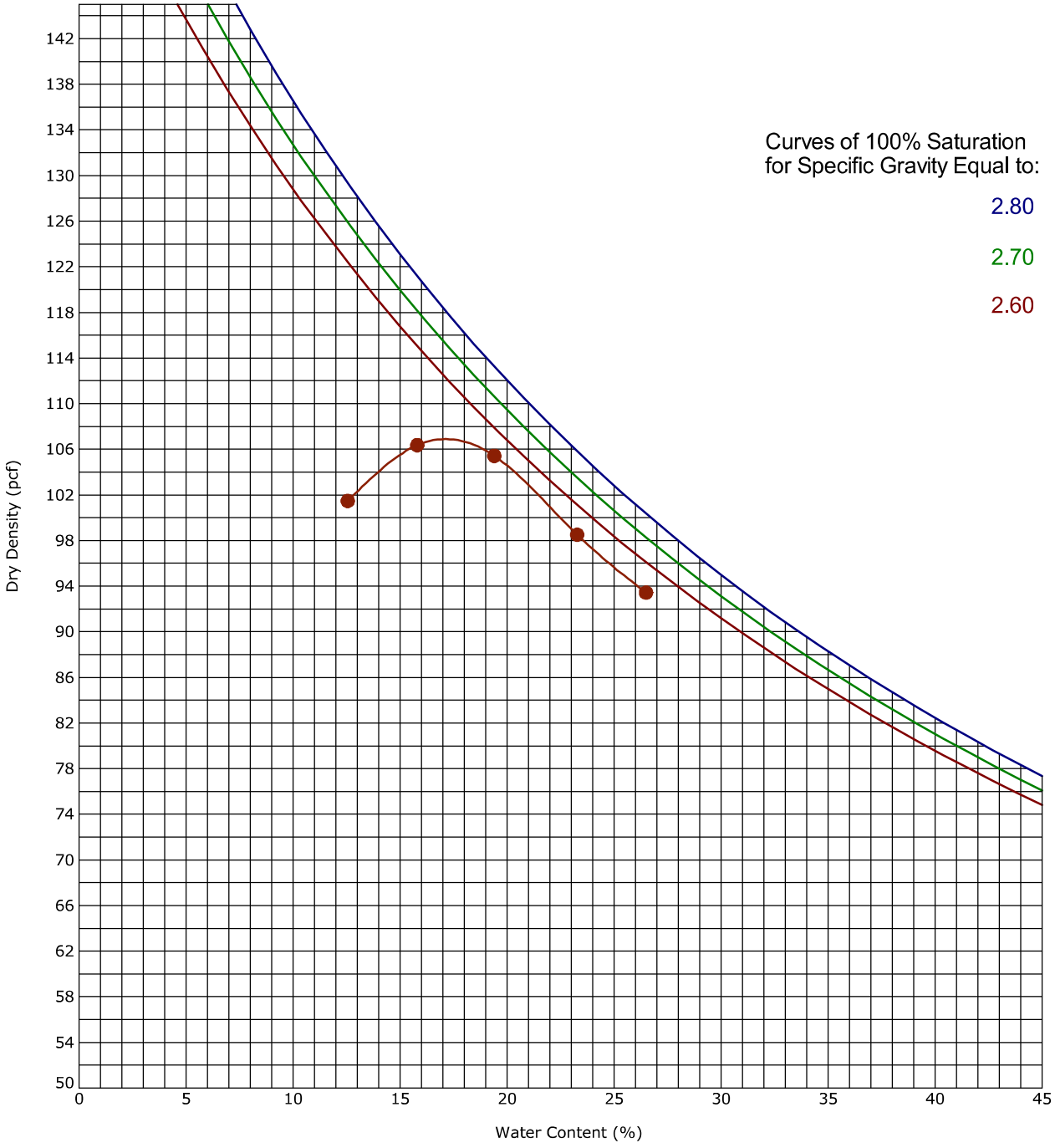
Boring ID	Depth (Ft)	Description of Materials
B-8	1 - 4	LEAN CLAY, trace sand and gravel, gray and brown

Fines (%)		LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
		41	17	24	ASTM D698-Method A	108.5	17.3

2640 12th St SW
Cedar Rapids, IA

Moisture-Density Relationship

ASTM D698-Method A



Boring ID	Depth (Ft)	Description of Materials
B-8	8 - 13	LEAN CLAY, trace sand, brown

Fines (%)		LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
					ASTM D698-Method A	106.9	17.1

MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS USING A FLEXIBLE WALL PERMEAMETER

ASTM D 5084 - 16 METHOD C TEST WITH INCREASING TAILWATER LEVEL

PROJECT NAME:	Iowa City Compost Pavement	PROJECT NO.:	06245143	CITY, STATE:	Iowa City, Iowa
SAMPLE ID:	Bulk 1, Boring B-8 from 1 to 4 feet	TEST DATE:	1/16/2026	PROJECT LOCATION:	Iowa City, Iowa
DESCRIPTION:	Gray and Brown Lean Clay trace Sand and Gravel (Fill)			Cross Sectional Area:	0.852 cm^2
LIQUID LIMIT:	41	PLASTIC LIMIT:	17	PERCENT FINES:	

MOISTURE%		DENSITY							
WET + TARE, g:	103.80	WET WT, g:	604.9			SPEC GRAV (G_S):	2.75	REMOLD (Y/N):	Y
DRY + TARE, g:	91.50	DIA, in:	2.84	7	cm	ASSUMED G_S (Y/N):	Y	PROCTOR:	108.5
TARE, g:	20.80	HT, in:	3.00	7.62	cm	POROSITY, %:	40.0	OPTIMUM:	17.3
MOISTURE %:	17.4	AREA, in^2:	6.350	40.96	cm^2	SATURATION, %:	71.8	COMPACTION, %:	95.0
		WET DENSITY:	121.0	PCF		VOID RATIO:	0.67	OVER OPTIMUM, %:	0.1
		DRY DENSITY:	103.0	PCF					

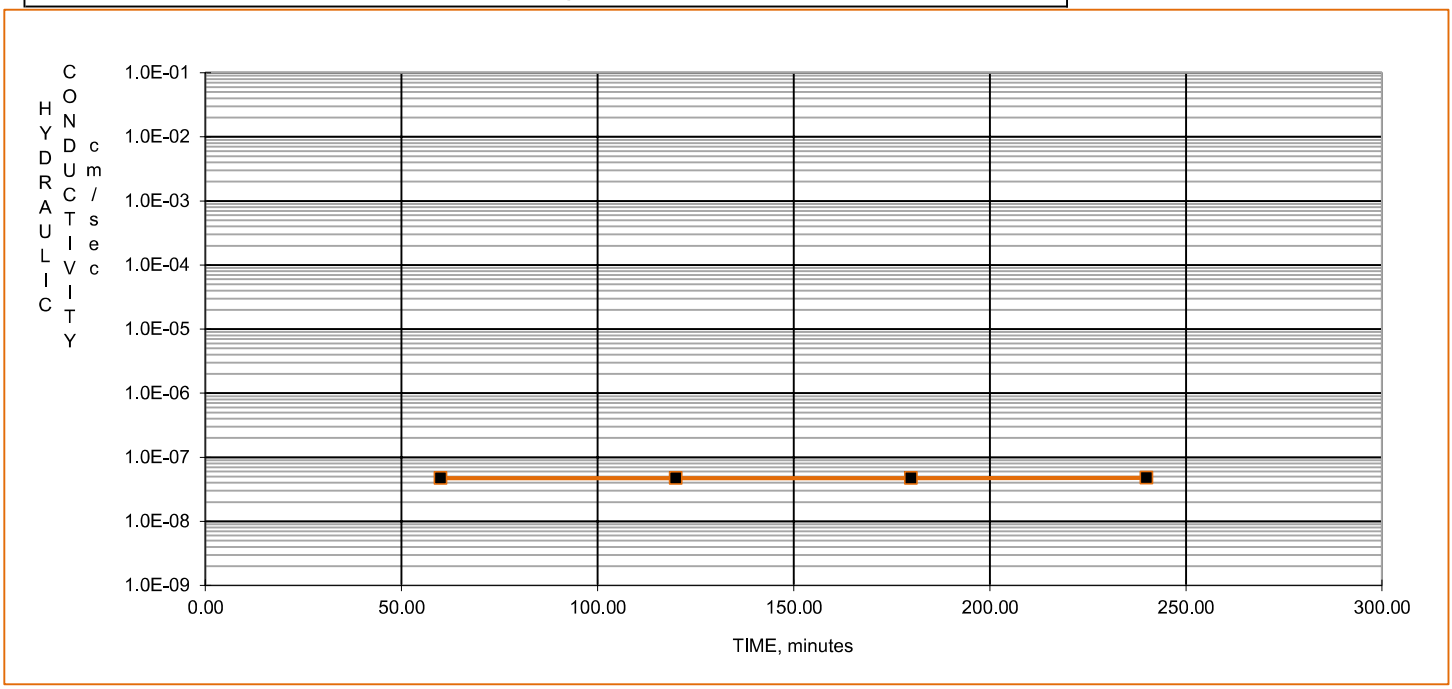
SATURATION:	CHAMBER PRESS.:	45.0	psi	BACK PRESSURE (=UPPER=LOWER):	40.0	psi	B VALUE:	99%
TEST:	CHAMBER PRESS.:	45.0	psi	UPPER: 40.0 psi	LOWER:	41.0	psi	
	EFFECT. CONSOL. STRESS:	**5.0**	psi	BIAS PRESSURE (=LOWER-UPPER)		1.0	psi	

Upper cm	Lower cm	ELAPSED TIME, min	DELTA H cm	Ln H1/H2	HYD CON k, cm/sec	OUT FLOW cm^3	IN FLOW cm^3	OUT/IN RATIO	HYD GRAD	% FROM MEAN k	TEMP.: C	TEMP. CORR.:
2.0	22.1		20.1									
2.1	22.0	60.00	19.9	0.002158	4.71E-08	0.1	0.1	1.00	11.8	0	20.5	0.992
2.2	21.9	120.00	19.7	0.002163	4.72E-08	0.1	0.1	1.00	11.8	0	20.5	0.992
2.3	21.8	180.00	19.5	0.002167	4.73E-08	0.1	0.1	1.00	11.8	0	20.5	0.992
2.4	21.7	240.00	19.3	0.002172	4.74E-08	0.1	0.1	1.00	11.8	0	20.5	0.992

HYDRAULIC CONDUCTIVITY (k) = AVERAGE 4.7E-08 cm/sec

0.002

FINAL MOISTURE%		FINAL DENSITY						
WET + TARE, g:	996.10	WET WT, g:	638.5			SPEC GRAV (G_S):	2.70	
DRY + TARE, g:	884.90	DIA, in:	2.84	7	cm	ASSUMED G_S (Y/N):	Y	
TARE, g:	371.80	HT, in:	2.98	7.57	cm	POROSITY, %:	37.2	
MOISTURE %:	21.7	AREA, in^2:	6.335	40.87	cm^2	SATURATION, %:	98.9	
		WET DENSITY:	128.9	PCF		VOID RATIO:	0.59	
		DRY DENSITY:	105.9	PCF				



MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS USING A FLEXIBLE WALL PERMEAMETER

ASTM D 5084 - 16 METHOD C TEST WITH INCREASING TAILWATER LEVEL

PROJECT NAME:	Iowa City Compost Pavement	PROJECT NO.:	06245143	CITY, STATE:	Iowa City, Iowa
SAMPLE ID:	Bulk 2, Boring B-8 from 8 to 13 feet	TEST DATE:	1/16/2026	PROJECT LOCATION:	Iowa City, Iowa
DESCRIPTION:	Gray and Brown Lean Clay trace Sand			Cross Sectional Area:	0.852 cm^2
LIQUID LIMIT:		PLASTIC LIMIT:		PERCENT FINES:	

MOISTURE%		DENSITY							
WET + TARE, g:	101.00	WET WT, g:	594.1			SPEC GRAV (G_S):	2.75	REMOLD (Y/N):	Y
DRY + TARE, g:	89.80	DIA, in:	2.84	7	cm	ASSUMED G_S (Y/N):	Y	PROCTOR:	106.9
TARE, g:	23.90	HT, in:	3.00	7.63	cm	POROSITY, %:	40.6	OPTIMUM:	17.1
MOISTURE %:	17.0	AREA, in^2:	6.320	40.77	cm^2	SATURATION, %:	68.3	COMPACTION, %:	95.3
		WET DENSITY:	119.2	PCF		VOID RATIO:	0.68	OVER OPTIMUM, %:	-0.1
		DRY DENSITY:	101.9	PCF					

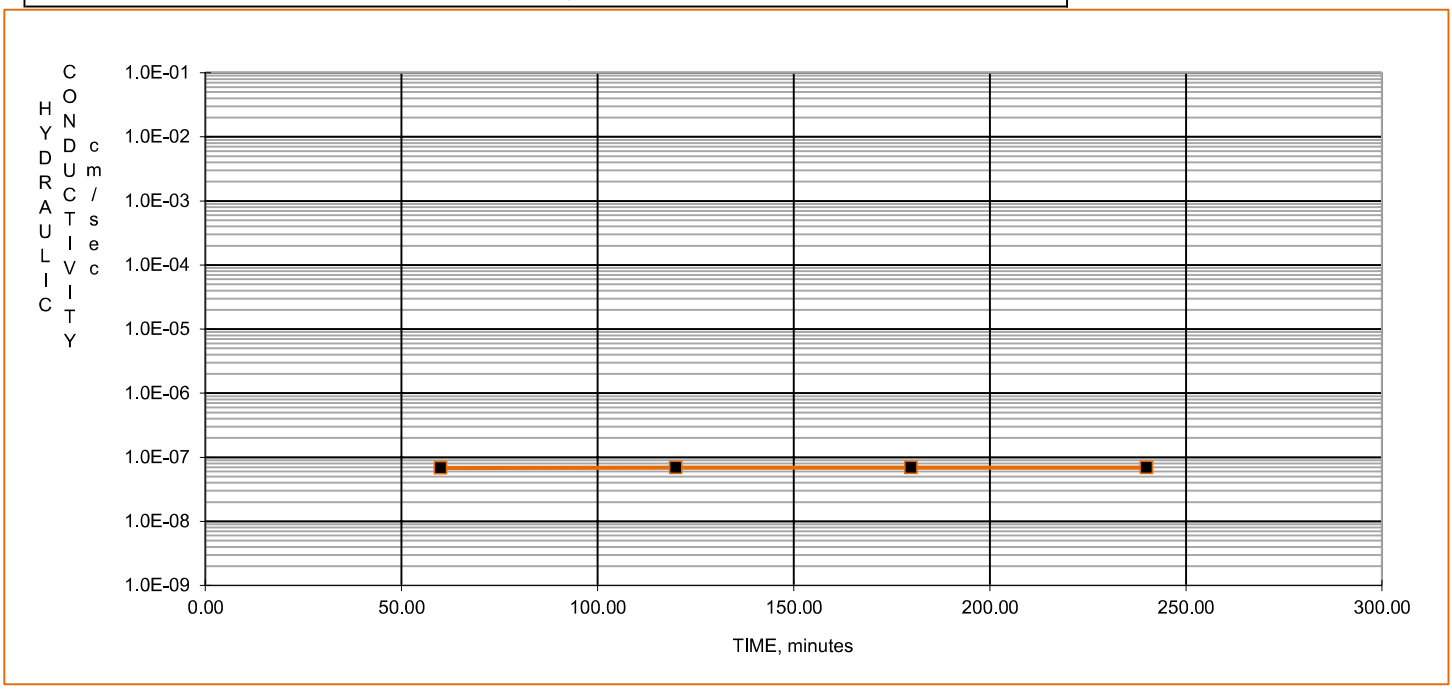
SATURATION:	CHAMBER PRESS.:	45.0	psi	BACK PRESSURE (=UPPER=LOWER):		40.0	psi	B VALUE:	99%
TEST:	CHAMBER PRESS.:	45.0	psi	UPPER:	40.0 psi	LOWER:	41.5	psi	
	EFFECT. CONSOL. STRESS:	**5.0**	psi	BIAS PRESSURE (=LOWER-UPPER)			1.5	psi	

Upper cm	Lower cm	ELAPSED TIME, min	DELTA H cm	Ln H1/H2	HYD CON k, cm/sec	OUT FLOW cm^3	IN FLOW cm^3	OUT/IN RATIO	HYD GRAD	% FROM MEAN k	TEMP.: C	TEMP. CORR.:
2.2	22.2		20.0									
2.4	22.0	60.00	19.6	0.003111	6.84E-08	0.2	0.2	1.00	16.4	0	20.5	0.992
2.6	21.8	120.00	19.2	0.003121	6.86E-08	0.2	0.2	1.00	16.3	0	20.5	0.992
2.8	21.6	180.00	18.8	0.003131	6.88E-08	0.2	0.2	1.00	16.3	0	20.5	0.992
3.0	21.4	240.00	18.4	0.003141	6.90E-08	0.2	0.2	1.00	16.2	0	20.5	0.992

HYDRAULIC CONDUCTIVITY (k) = **AVERAGE 6.9E-08 cm/sec**

0.002

FINAL MOISTURE%		FINAL DENSITY							
WET + TARE, g:	1006.80	WET WT, g:	645.1			SPEC GRAV (G_S):	2.70		
DRY + TARE, g:	897.00	DIA, in:	2.85	7	cm	ASSUMED G_S (Y/N):	Y		
TARE, g:	391.90	HT, in:	2.98	7.57	cm	POROSITY, %:	37.0		
MOISTURE %:	21.7	AREA, in^2:	6.379	41.16	cm^2	SATURATION, %:	99.9		
		WET DENSITY:	129.3	PCF		VOID RATIO:	0.59		
		DRY DENSITY:	106.2	PCF					



Supporting Information

Contents:

General Notes
Unified Soil Classification System

Terracon
2640 12th St SW
Cedar Rapids, IA

General Notes

Sampling	Water Level	Field Tests
Auger Cuttings Standard Penetration Test	Water Initially Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils
(More than 50% retained on No. 200 sieve.)
Density determined by Standard Penetration Resistance

Relative Density	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3
Loose	4 - 9
Medium Dense	10 - 29
Dense	30 - 50
Very Dense	> 50

Consistency of Fine-Grained Soils
(50% or more passing the No. 200 sieve.)
Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance

Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Soft	less than 0.25	0 - 1
Soft	0.25 to 0.50	2 - 4
Medium Stiff	0.50 to 1.00	5 - 8
Stiff	1.00 to 2.00	9 - 15
Very Stiff	2.00 to 4.00	16 - 30
Hard	> 4.00	> 30

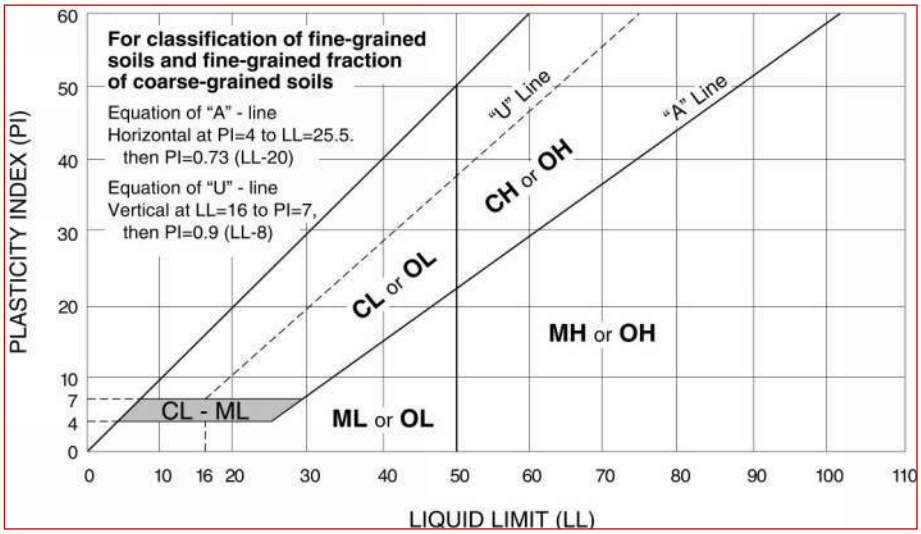
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 4 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



MEMO

TO: **Iowa DNR Solid Waste Section**
Attn: Brian Rath, PE

FROM: **Dan Jensen, PE, Shive-Hattery, Inc.**
on behalf of the City of Iowa City

DATE: **May 13, 2026**

RE: **Iowa City Landfill and Recycling Center**
Compost Pad Expansion Project
Landfill Cells FY72 and FY73 Cover

Executive Summary

The purpose of this document is to document the 2026 Iowa City Landfill Compost Pad improvement project that is currently under construction. The DNR has requested documentation that the project will not impact the final cover of the landfill cells areas below the project area (FY72, FY74, and FY75).

The landfill cells in question were closed prior to 1989 and at the time the cover requirements were for closed cells to have two feet of soil cover. This was documented in the May 11, 2012 report by HR Green included in Attachment 1. It has also been communicated that additional fill material was placed in these cells over the years.

Proposed Improvements

The proposed project includes a variety of pavement sections to facilitate expansion of composting operations. The project plans are included in Attachment 2. A composting operating permit application has been submitted to the DNR for review.

Boring Log Results

Terracon completed six borings in the project location prior to construction of the compost expansion. The borings showed that waste was encountered in 5 of 6 borings, which were advanced to 10.5 feet depth. Waste was encountered at the depths included in Table 1. The boring logs concluded that it was unlikely that project excavation would encounter waste or disturb the 2 feet of final cover when excavated to the bottom of the proposed subgrade. Final cover from top of waste to top of proposed pavement exceeds 6 feet at the thinnest location (Boring 1).

Table 1: Cover Thickness Verification from Borings

Boring Number	Landfill Cell	Existing Ground	Depth to Waste (Feet)	Top of Waste Elevation	Proposed Top of Pavement (Finished Grade)	Proposed Pavement Section	Pavement Thickness, including modified (Inches)	Proposed Compacted Subgrade Thickness (Inches)	Proposed Top of Subgrade	Proposed Bottom of Subgrade	Excavated Cover Thickness, (Feet) (waste to bottom of subgrade)	Final Cover Thickness, (Feet) (waste to top of subgrade)
B-1	FY72	774.62	6.0	768.62	774.84	PCC	16	12	773.51	772.51	3.89	6.22
B-2	NA	776.50	NA	NA	776.46	HMA	16	12	775.13	774.13	NA	NA
B-3	FY72	767.47	8.0	759.47	767.75	HMA + FDR	16	12	766.42	765.42	5.95	8.28
B-4	FY74	772.09	7.5	764.59	772.88	HMA	16	12	771.55	770.55	5.96	8.29
B-5	FY74	767.96	10.0	757.96	767.88	HMA + FDR	16	12	766.55	765.55	7.59	9.92
B-6	FY75	774.50	6.0	768.50	774.86	HMA	16	12	773.53	772.53	4.03	6.36

Further Analysis of cover thickness used the results of the boring logs to interpolate a top of waste surface between borings. This top of waste surface was then compared to the bottom of subgrade to evaluate to the best of our ability if waste could be encountered when excavation reached the bottom of subgrade and if there were areas that may require excavation into the two feet of soil above the interpolated top of waste surface.

The surface comparison yielded an average thickness of excavated cover to be 6.32 feet, a maximum of 8.56 feet and minimum of 3.84 feet between the bottom of subgrade excavation and top of waste. Based on the borings and analysis, it was concluded that the landfill cover would not be disturbed and that waste was not expected to be encountered during the project.

The contract documents included waste handling procedure in the event that waste was encountered during construction. The procedures are to over excavate and remove waste to an elevation two feet below top of subgrade, dispose of said waste within the current active landfill, and backfill with compacted clay. Once these activities were completed, the contractor was directed to proceed with construction of the compost pad as planned. To date, no waste has been encountered during excavation of the Phase 1 project area.

Compost Pad Testing and Waste Management

As part of the construction project, testing to provide documentation of compliance for the compost pad and detention basin will be conducted. These testing procedures are included in Table 2. Records will be provided to the DNR post construction along with record drawings. Some requirements are in alignment with the future composting regulations yet to take effect and others are to comply with Iowa Department of Agriculture and Land Stewardship requirements. Based on the onsite soils and the remolded permeability tests of boring 8 sample (see geotechnical report), the permeability of recompacted clay liner are expected to be on the order of 10 x 1^{-8} cm/s.

Table 2: Proposed Testing

Area	Agency	Thickness	Requirement	Number of Tests
Detention Basin Bottom	IDALS Chapter 44 DNR Chapter 102(1)	1 foot	Permeability <10 x 1^{-7} cm/s (2)	Two per acre (two total)
Compost Pad	DNR Chapter 102(1)	1 foot	Permeability <10 x 1^{-5} cm/s	One per acre (six total) (3)

1. Reference is to draft rules dated December 2024
2. DNR proposed ruled state Permeability <10 x 1^{-7} cm/s while IDALS Chapter 44 states Permeability <10 x 1^{-6} cm/s.
3. Construction documents included 1' of recompacted clay subgrade preparation to satisfy this requirement. Field results thus far indicate that soil has not been encountered and that bottom of subgrade has terminated in asphalt millings. These materials have been hard and well consolidated, are assumed to meet the intent of the permeability requirement and a permeability test is likely not practical. Where soil is encountered below the compost pad, subgrade preparation will be completed, Shelby tubes collected, and permeability tests will be completed with results provided to the DNR. Further, the majority of the pad is over unlined landfill, making this requirement less critical to underlying conditions.

Should you have any questions regarding this report, please do not hesitate to reach out to me.

Sincerely,
SHIVE-HATTERY, INC.



Dan Jensen, PE
Civil Engineer
djensen@shive-hattery.com

Attachments

Attachment 1 - May 11, 2012 report by HR Green
Attachment 2 – Geotechnical Report
Attachment 3 – Proposed Construction Drawings

HRGreen

Attachment 1

May 11, 2012

Mr. Matt Phoenix, P.E.
Iowa Department of Natural Resources
502 East 9th Street
Des Moines, IA 50319-0034

Re: Documentation of Final Cover for Cells FY72 through FY91
Permit 52-SDP-01-72P
Iowa City Landfill and Recycling Center

Dear Matt:

As part of the recent permit renewal process, you indicated that the Department of Natural Resources (department) did not have certifications of the closed areas at the Iowa City Landfill and Recycling Center. Since this work was performed many years ago under department purview and regulations in place at that time, we are surprised that the City is now being asked for this documentation and certification. It is important to the City that the department formally recognizes that these covered cells were closed in accordance with the applicable rules. Accordingly, landfill records were searched and the following documentation is hereby submitted:

Cells FY73 through FY86

The exact date that cells FY72 through FY86 were closed was not determined. From what we could conclude from historical files, the original cover soil was placed over these cells prior to October 25, 1989. At that time, cover requirements were simply two feet of soil. To document that at least two feet of soil exists over the waste in these areas, the most comprehensive available data in our files consists of 37 boring logs that were prepared during installation of landfill gas extraction wells in March 2000. A map showing the well locations and cover thickness is included with this letter. Also included are copies of the 37 boring logs.

With the exception of one location (well 104), the boring logs indicated cover thickness of two feet or greater. In 2005 and 2006, a significant amount of additional soil cover was added to FY72 through FY86 to improve slopes and provide berms and structures for storm water management. Existing gas wells were lengthened to accommodate the additional cover. To verify that soil cover is currently at least two feet thick at the location of well 104, HR Green completed a hand auger boring near the well on May 9, 2012. The boring was terminated at the two foot depth in hard clay soil and no solid waste was encountered. Photograph documentation of this hand auger boring is attached.

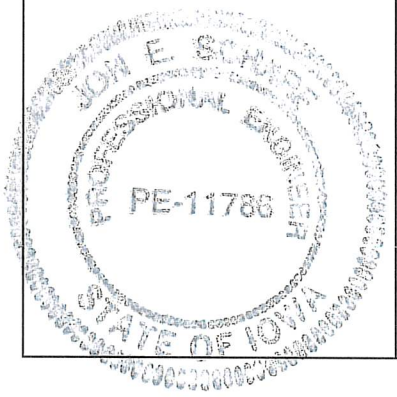
Cells FY89 and FY91

Project records indicate cells FY89 and FY91 were closed during construction occurring in 1995 and 1996. At that time, final cover was required to be two feet of uncompacted soil over two feet of compacted clay having a permeability of 1×10^{-7} cm/sec or less. Permeability and compaction correlation testing were conducted on the compacted layer

and are summarized in a letter from HR Green to the City of Iowa City, dated May 24, 1996. A copy of the letter is attached. The letter indicated that the data illustrates "all tests of the 2 foot compacted clay cover to be in excess of 95% standard Proctor density, or a related permeability value of 1 x 10-7 cm/sec, or less." Documentation of the total depth of the final cover is supported by the 2000 gas well boring data as described previously. These data indicate that total cover depths in these cells range from 4 to 11 feet.

Certification

Based on the available records described herein, I believe that the soil cover placed on landfill cells FY72 through FY91 was in accordance with the cover requirements in effect at the time of closure.



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Jon E. Scharf, P.E. Date 5/10/12

License Number 11786 My renewal date is December 31, 2013

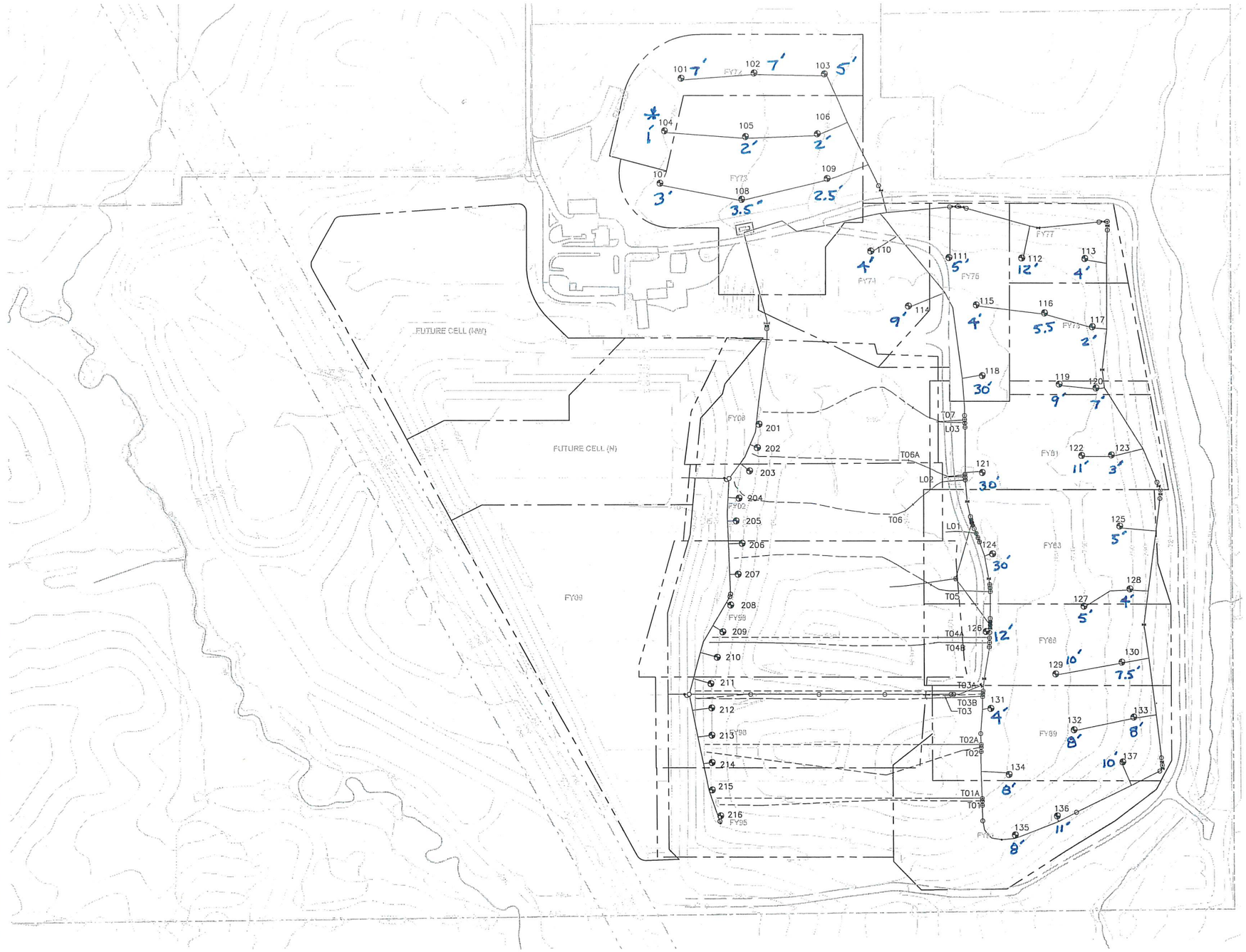
Pages or sheets covered by this seal:

Letter and attachments

Attachments: Sheet 1 – Gas Well Locations and Cover Thickness
Photographs of hand auger boring next to LFG well 104
Log of Borings for LFG Wells
Letter from Howard R. Green to City of Iowa City, May 24, 1996

cc: Dave Elias, City of Iowa City
Daniel Scott, City of Iowa City
Jon Thomas, City of Iowa City

\\HRGCRNAS\DATA\20100098\DESIGN\CORR\LTR-051112-IC_FY72-91_CERT.DOCX



SURVEY NOTES:

1. TOPOGAPHIC MAP BASED ON 2008 AERIAL SURVEY WITH PORTIONS UPDATED BY CITY ON MARCH 4, 2011 AND OCTOBER 6, 2011. FY09 CONSTRUCTION AREA WAS UPDATED BY CONNOLLY CONSTRUCTION ON DECEMBER 21, 2011.
2. MAPPING DATUM: NAD 27 STATE PLANE, HORIZONTAL; NGVD 29, VERTICAL.

LEGEND

- GAS WELLHEAD (VERTICAL)
- TRENCH WELLHEAD
- LEACHATE CLEANOUT WELLHEAD
- DRIPLEG WITH VACUUM BYPASS TO LEACHATE CLEANOUT
- HEADER ACCESS RISER
- CONTROL VALVE
- CONDENSATE KNOCKOUT
- IN-LINE CONDENSATE SUMP
- REMOTE CONDENSATE SUMP
- GAS HEADER & LATERALS
- TRENCH WELL
- HIGH POINT

PHASE 2 – EXISTING CONDITIONS

1. THIS SHEET DEPICTS THE EXTENT OF THE GCCS AS IT EXISTS IN YEAR 2012.
2. THE GCCS WAS INITIALLY INSTALLED IN YEAR 2000 FOR COMPLIANCE OF 40 CFR 60.752. EXPANSIONS TO THE GCCS OCCURRED IN YEAR 2003, 2009, AND 2011 TO ACCOMMODATE LANDFILL DEVELOPMENT AND ODOR CONTROL.

NOTE: WRITTEN NUMBER NEXT TO LFG WELL LOCATION INDICATES SOIL COVER THICKNESS AT TIME OF WELL INSTALLATION IN MARCH 2000. SINCE THAT TIME, ADDITIONAL SOIL COVER WAS PLACED FOR STORM WATER BERMS AND TO FILL DEPRESSIONS FROM SETTLED WASTE.

* HAND AUGER PROBE PERFORMED BY HRGREEN ON MAY 6, 2012 VERIFIED THAT THE COVER THICKNESS AT THE LOCATION OF WELL 104 EXCEEDS 2 FEET.

PRELIMINARY. NOT FOR CONSTRUCTION

DRAWN BY: JJC	JOB DATE: FEBRUARY 2011		
APPROVED: JES	JOB NUMBER: 191130J01		
CAD DATE: 2/22/2012 1:55:02 PM			
CAD FILE: O:\CAD\191130J01\Dwgs-Gas-DOPS\C\C01.dwg			

NO.	DATE	BY	REVISION DESCRIPTION

HRGreen.com
HRGreen

LANDFILL GAS COLLECTION SYSTEM DEVELOPMENT PLANS
IOWA CITY LANDFILL RECYCLING CENTER
IOWA CITY, IOWA

GAS WELL LOCATIONS AND SOIL COVER THICKNESS
PHASE 2 – EXISTING CONDITIONS

SHEET NO. 1

XREF

HRGreen

HAND AUGER BORING NEAR GAS WELL 104
IOWA CITY LANDFILL
May 9, 2012



1. Hand auger was advanced into soil cap for two feet.



2. Soil at 2 ft termination depth was blue-gray clay. No solid waste was encountered.

Log # ~~5448~~ 3364

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMARE Customer Rep. MIKE W. PO # 1

Job Location IOWA CITY LANDFILL Rig # 3

Hole # 101 Date Started 3-21-00 Date Completed 3-21-00 Weather Cond COOL & COMING

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size 8" Hole Depth 25.8

Job forward —0—

Total drilled 26

Depth
Top Cap 7' Material Drilled

0-5 TOP COVER 60°
6-10 TRASH AT 7' HHG
11-20 HHG & WOOD
21-30 HHG & WOOD TD 25.8 ~~26~~
31-40
41-50
51-60
61-70
71-80
81-90
91-100
101-110

pipe type & size 8" sch. 80

pipe ↑ ground 4'

backfill

hole total depth 26

6' hole plug

rock ↑ perf. 11.0'

11 solid pipe

18.8 perf. pipe

~~25.8~~ ~~27.8~~ 29.8 total

rock bed 1.0' ~~Bent~~

1.0' ~~Bent~~

36" hole diameter

bottom hole temp

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Weber

Log # 3365

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location IOWA CITY LANDFILL Rig # 3

Hole #102 Date Started 3-21-00 Date Completed 3-21-00 Weather Cond. COOL & CLOUDY

Driller SCOTT Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 18

Job forward 26

Depth Cap 7' Material Drilled Total drilled 44'

0-5 TOP SOIL

6-10 TRASH AT 7' HHG WOOD

11-20 HHG + WOOD TD 18' 70°

21-30

31-40

41-50

51-60

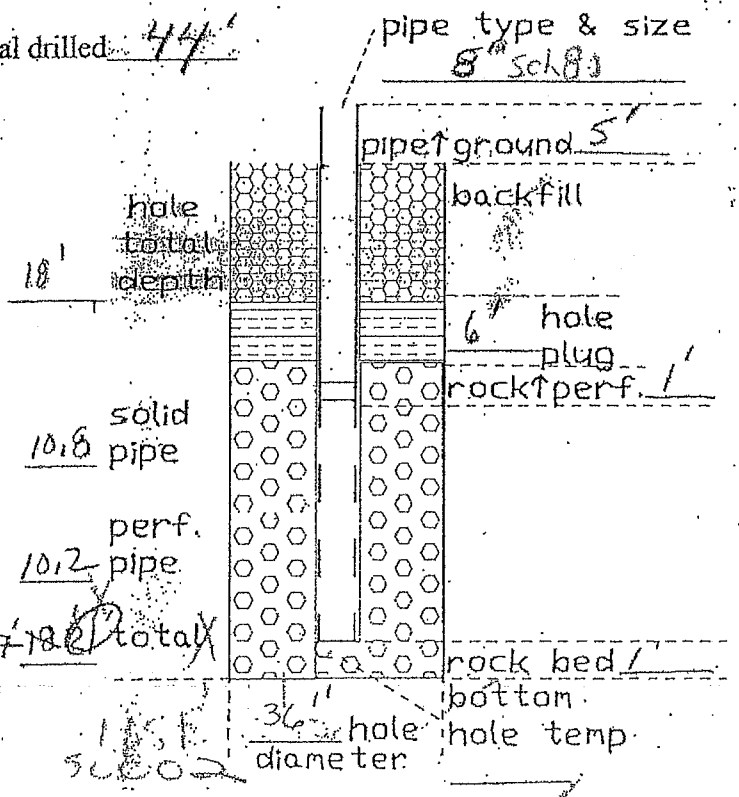
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Weber

Log # 1149
3366

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY LAND FILL Rig # 3

Hole # 103 Date Started 3-21-00 Date Completed 3-21-00 Weather Cond. COOL & CLOUDY

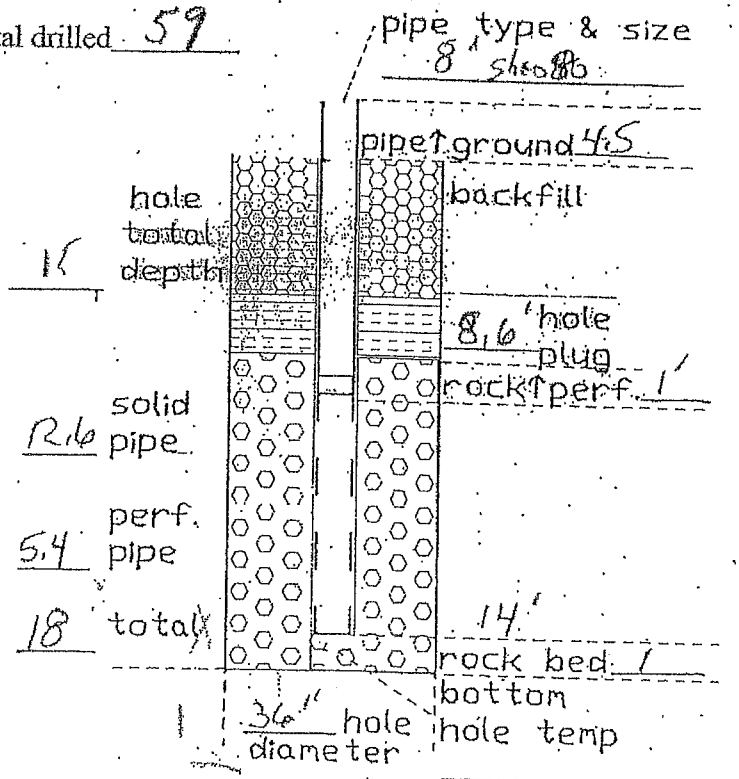
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 15'

Job forward 44

Total drilled 59

Depth	Material Drilled
Cap 5	
0-5	TOP SOIL
6-10	HHG + WOOD 1973 PAPER
11-20	HHG + WOOD TD 15' 70°
21-30	
31-40	
41-50	
51-60	
61-70	
71-80	
81-90	
91-100	
101-110	



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Weber

Log # 150
3367

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location FORT CITY LANDFILL Rig # 3

Hole # 104.0 Date Started 3-21-00 Date Completed 03-21-00 Weather Cond COOL & CLOUDY

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 82

Job forward 59

Depth Cap 1' Material Drilled Total drilled 81

0-5 TOP SOIL HHG MODEL WOOD

6-10 HHG & WOOD 60°

11-20 HHG & WOOD 1975 paper

21-30 HHG & WOOD, TIRES TO 22 75°

31-40

41-50

51-60

61-70

71-80

81-90

91-100

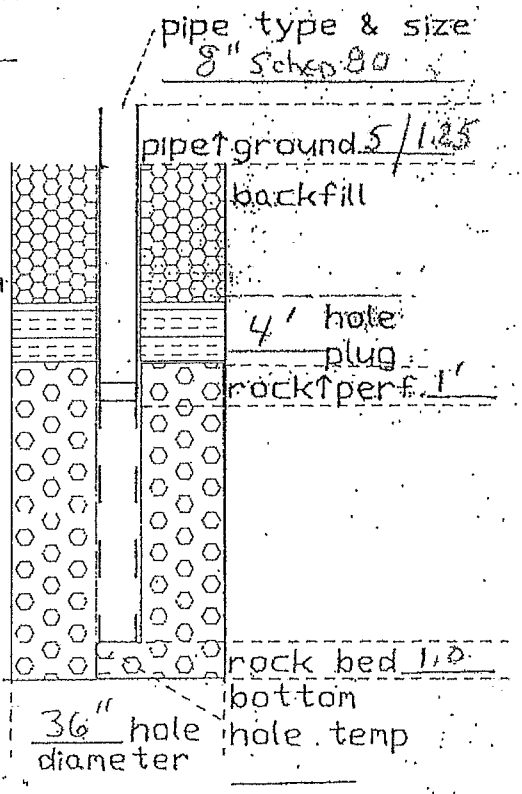
101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments:

Mike Wilson



Log # TST 3368

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

b Location IOWA CITY LANDFILL Rig # 3

Hole # 105 Date Started 03-22-00 Date Completed 3-22-00 Weather Cond. COOL & CLOUDY

iller JEFF Helper DENVER Other

Diameter of Hole Casing Size Hole Depth 18

Job forward 81

Depth
p Cap 2 Material Drilled Total drilled 99

0-5 TOP SOIL HHG

10 HHG WOOD

11-20 HHG WOOD TD 18 70°

-30

1-40

41-50

-60

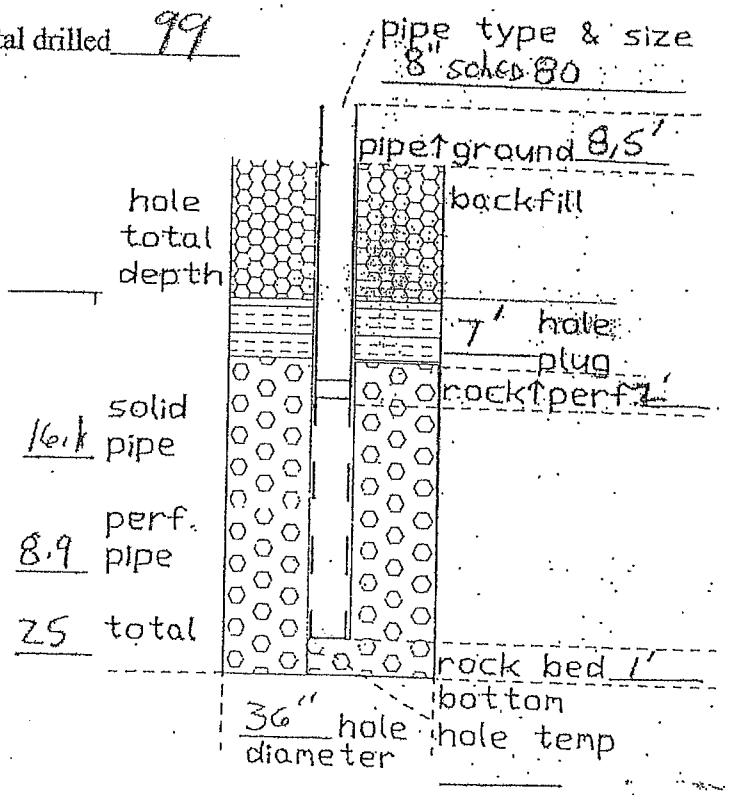
51-70

-80

81-90

91-100

1-110



Gas Meter Readings:

ime	LEL%	Oxy%	H2S

General Comments: @ 10'

1974 NEWSPAPER

Hospital waste

Mike Weber

Log # ~~152~~ 3369

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE W. PO #

Job Location TOWN CITY LANDFILL Rig # 3

Hole #106 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond. CLOUDY COOL

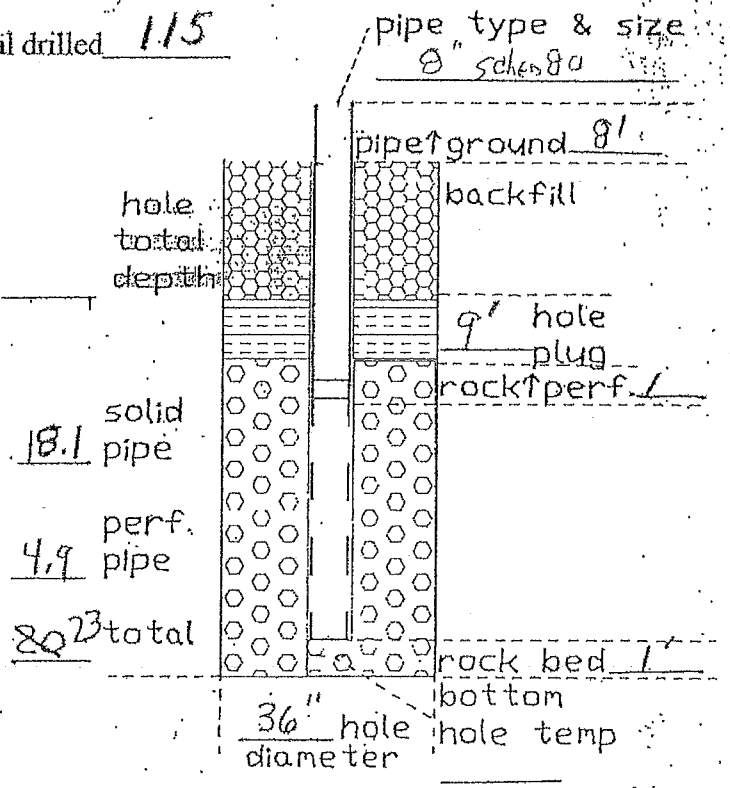
Driller Jeff Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 16

Job forward 99

Total drilled 115

Depth	Top Cap 2	Material Drilled
0-5		TOP SOIL TRASH AT 2'
6-10		1/4" WOOD STEEL
11-20		1/4" WOOD TO 16' 70°
21-30		
31-40		
41-50		
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: ▽ 6.00 below GL

Mike Nelson

Log # 330

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer Weatherford Customer Rep. Mike Webb PO #

Job Location Town Cty Landfill Rig # 3

Hole #107 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond. Cloudy cool

Driller Jeff C Helper Howard Other

Diameter of Hole 36" Casing Size Hole Depth 25

Job forward 115

Total drilled 140

Depth of Cap 3 Material Drilled

0-5 Toresani TRASHMAT 5'8" 3'

6-10 HHG wood DG 65°

11-20 HHG wood TIRES

21-30 HHG TD 25' 75°

31-40

41-50

51-60

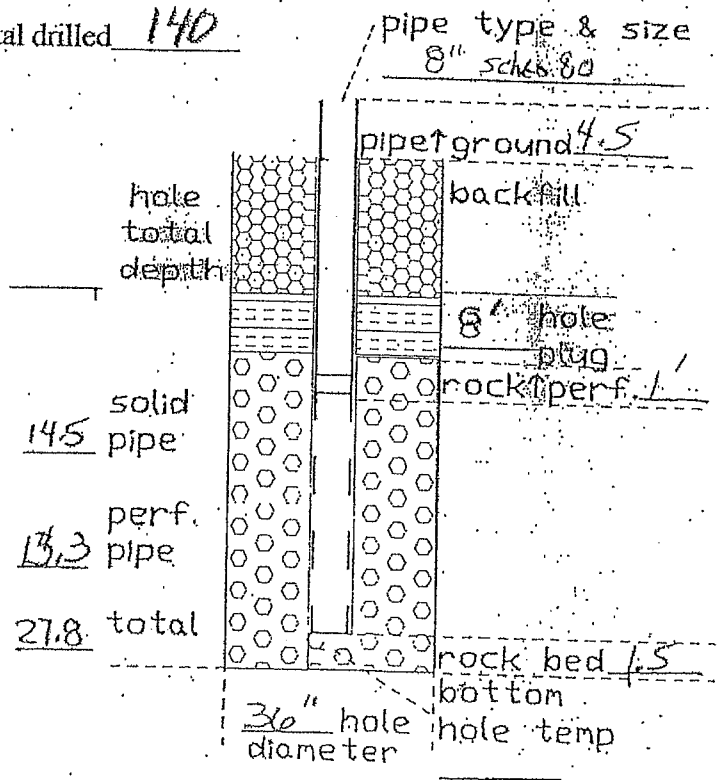
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: V. 10'

74 Newspaper

hospital waste

Mike Webb

Log # 153
3371

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location TOWN CITY LANDFILL Rig # 3

Hole # 108 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 17

Job forward 140

Depth Top Cap 3½' Material Drilled Total drilled 157

0-5 TOP SOIL TRASH AT 3½

6-10 HK

11-20 HK WOOD TO 17' 650

21-30

31-40

41-50

51-60

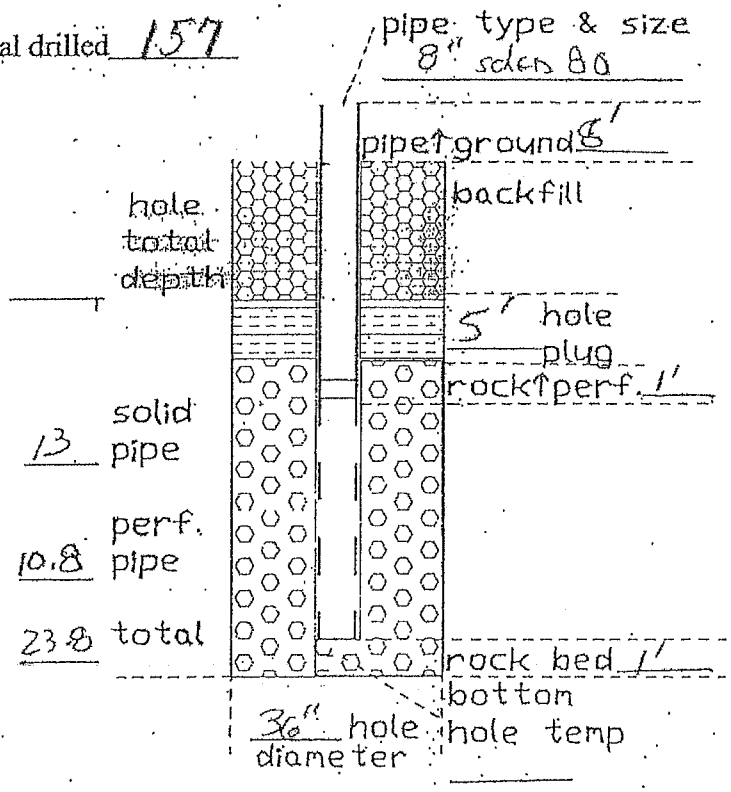
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: ▽ APPROX 17'

SLOPPY ON BOTTOM AT BACKHOE

Mike Weber

Log # ~~154~~ 3372

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location Town City LANDFILL Rig # 3

Hole # 109 Date Started 3-22-00 Date Completed 3-22-00 Weather Cond.

Driller JEFF Helper DENVER Other

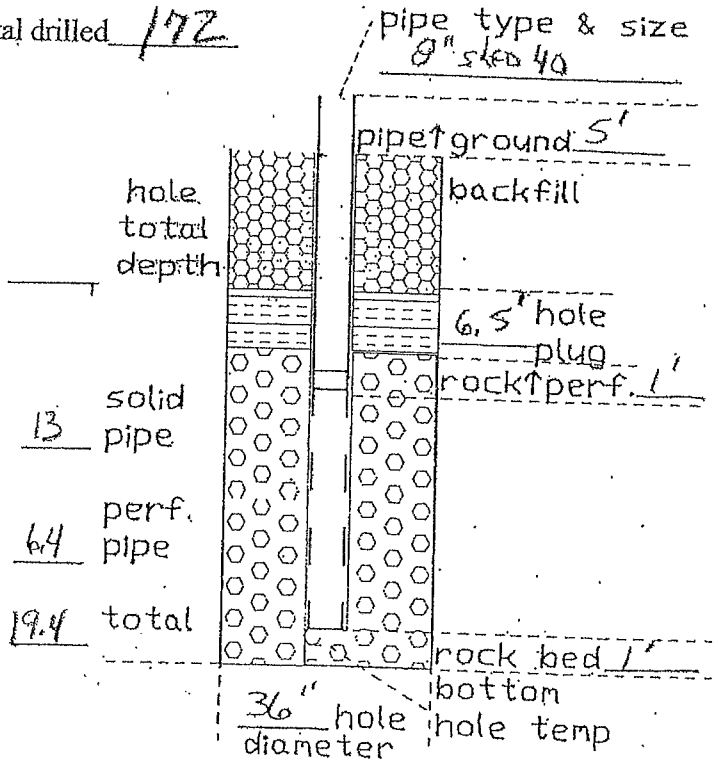
Diameter of Hole 36" Casing Size Hole Depth 15

Job forward 157

Total drilled 172

Depth
Top Cap 2.5 Material Drilled

0-5 Top soil TRASH AT 2½'
6-10 HHG DC wood
11-20 HHG TD 15' 70°
21-30
31-40
41-50
51-60
61-70
71-80
81-90
91-100
101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: @ 13' below GL

Mike Weber

Log # 156
3374

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOWN COUNTY LANDFILL Rig # 3

Hole # 110 Date Started 3-23-00 Date Completed 3-23-00 Weather Cond. SUNNY

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 25'

Job forward 266

Depth
Top Cap 4 Material Drilled Total drilled 291

0-5 TOP SOIL TRASH AT 4'

6-10 H/A DC

11-20 H/A WOOD TRASH

21-30 H/A WOOD TD 25 75°

31-40

41-50

51-60

61-70

71-80

81-90

91-100

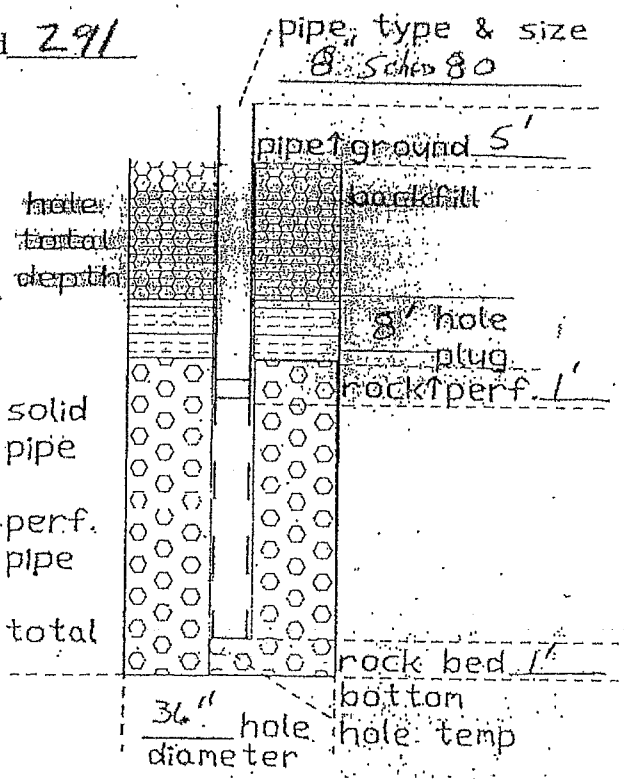
101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments 16'-19' Geo cover (clay)

MARCH 1974



Mike Wells

Log # 3385

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WASTE MGR Customer Rep. MIKE W PO #

Job Location Denton City Land Fill Rig # 3

Hole # 111 Date Started 3-28-00 Date Completed 3-28-00 Weather Cond

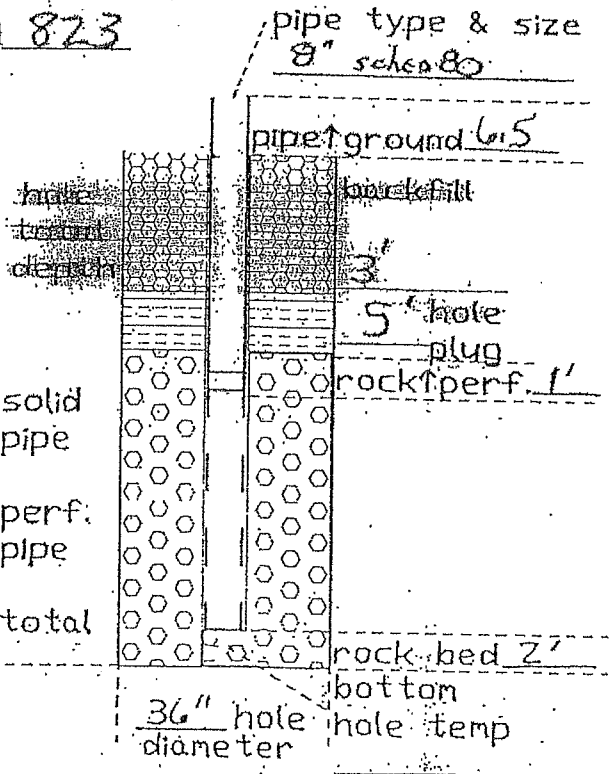
Driller SHAFT Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 34

Job forward 789

Depth Top Cap 5' Material Drilled Total drilled 823

Depth	Material Drilled	
0-5	Top soil	
6-10	Hard Top	65°
11-20	Hard clay	70°
21-30	Hard clay	80°
31-40	Hard Shale	80°
41-50		
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: JUNE "77" PAPER

JULY "76" PAPER

LEACHATE @ 30'

Mike Weber

Log #3377

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE W. PO #

Job Location IOWA CITY LANDFILL Rig # 3

Hole # 112 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 50

Job forward 391

Depth Cap 12 Material Drilled Total drilled 441

1-5 TOP SOIL

6-10 Top Soil

11-20 Top Soil TRASH A 12' 20°

21-30 HHG WOOD TIRES 75°

31-40 HHG WOOD 80°

41-50 HHG TD 50' 85°

51-60

61-70

71-80

81-90

91-100

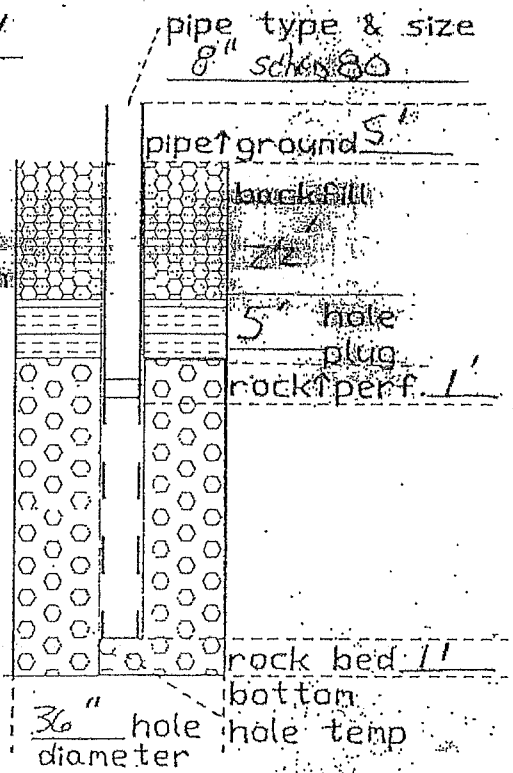
101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	
/	/	/	

General Comments:

Mike Archer



Log # 3382

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOOA City LAMONT Rig # 3

File # 113 Date Started 3-27-00 Date Completed 3-27-00 Weather Cond

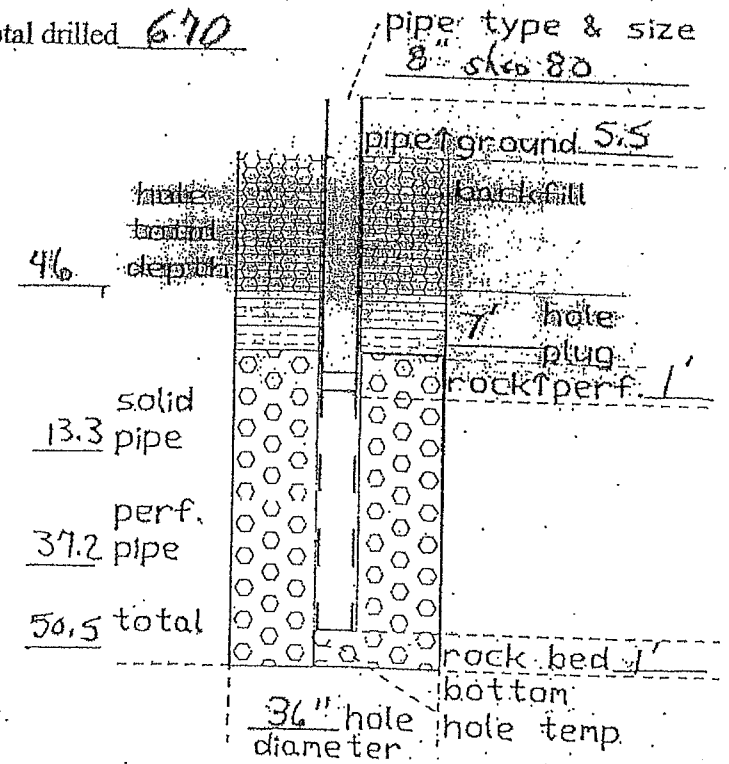
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 46'

Job forward 624

Depth Cap 4' Material Drilled Total drilled 670

1-5	Top soil
6-10	HHG 65°
11-20	HHG wood 70°
21-30	HHG wood steel DC 25 46
31-40	HHG TIRES 80°
41-50	HHG TD 46
51-60	
61-70	
71-80	
81-90	
91-100	
101-110	



Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Sept "77" paper

July "80" paper

Mike Walker

Log # 3386

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE WILSON PO #

Job Location Town city Landfill Rig # 3

Hole # 114 Date Started 3-28-00 Date Completed 3-28-00 Weather Cond

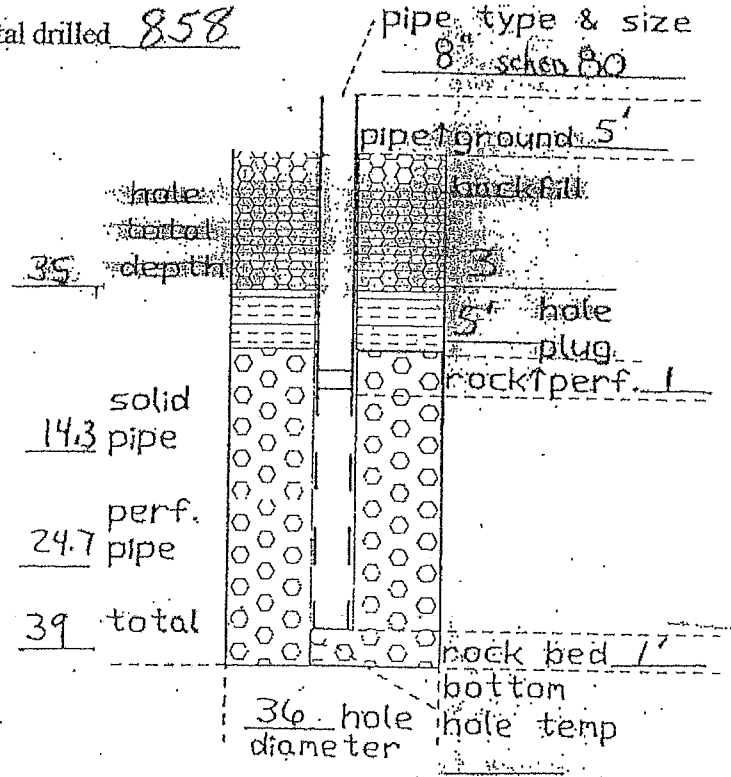
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 35

Job forward 823

Depth Cap 9 Material Drilled Total drilled 858

1-5	Top soil	
6-10	Top soil	
11-20	HHG Trees	60°
21-30	HHG wood	70°
31-40	HHG	80°
41-50		
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Nov "76" paper

July + Sept "75" paper

Mike Wilson

Log # ~~157~~ 3375

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location Texas city refinery Rig # 3

File # 115 Date Started 3-23-00 Date Completed 3-23-00 Weather Cond. SUNNY

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size 8' Hole Depth 40

Job forward 291

Depth Cap 4 Material Drilled Total drilled 331

1-5 Top Soil TRACE AT 4'

6-10 HAG, WOOD 65°

11-20 HAG WOOD DC

21-30 HAG WOOD TOOLS 70°

31-40 HAG WOOD TD 40' 80°

41-50

51-60

61-70

71-80

81-90

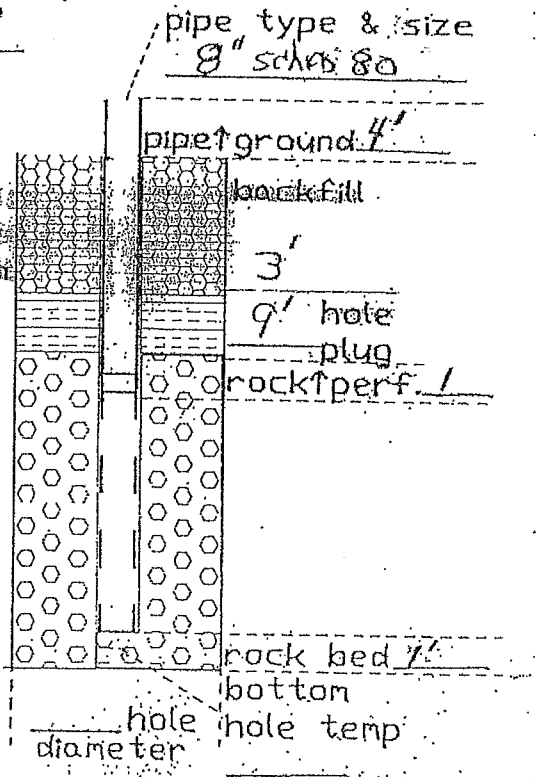
91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: JAN 1977 paper



Mike Wade

Log# ~~760~~ 3376

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep MIKE W. PO #

Job Location Town City LANDFILL Rig# 3

Hole #110 Date Started 3-23-00 Date Completed 3-25-00 Weather Cond.

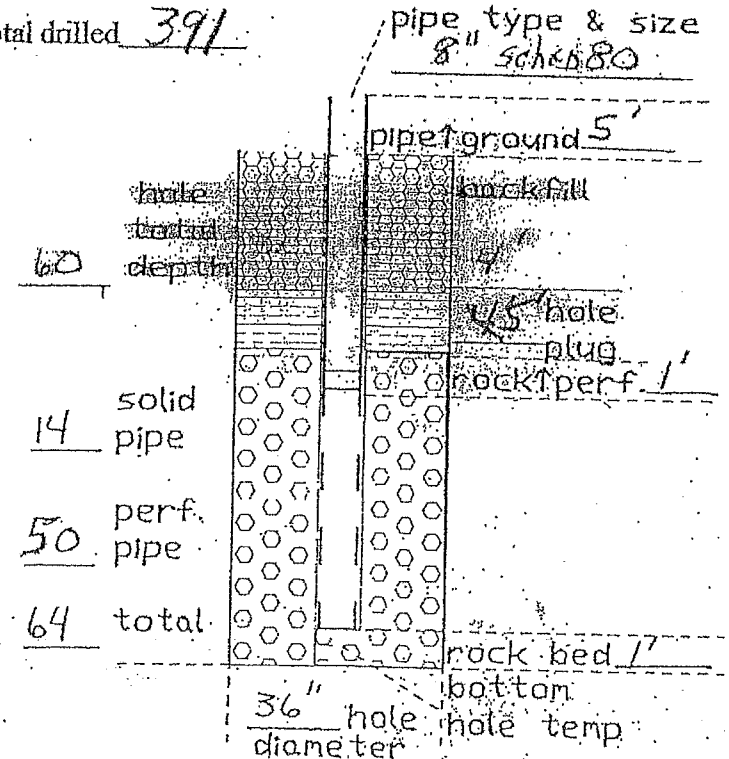
Driller JEFF Helper ~~DENVER~~ Other

Diameter of Hole 36" Casing Size Hole Depth 60

Job forward 331

Depth Top Cap 5½ Material Drilled Total drilled 391

Depth	Material Drilled	
1-5	Top Soil	
6-10	HHG Wood	70°
11-20	HHG Wood Some	
21-30	HHG	75°
31-40	HHG Wood Timbers	80°
41-50	HHG Wood	85°
51-60	HHG Wood TD 60'	
61-70		
71-80		
81-90		
91-100		
101-110		



Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: 1980 PAPER NOV 1979 "

Mike Rubio

Log # 3383

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location Town City Landfill Rig # 3

File # 117 Date Started 3-27-00 Date Completed 3-27-00 Weather Cond

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 55

Job forward 670

Depth Top Cap 2' Material Drilled Total drilled 725

1-5 Top soil HHG

6-10 HHG wood Tops 65°

11-20 HHG Tops 70°

21-30 HHG wood Stock

31-40 HHG 80°

41-50 HHG wood

51-60 HHG wood Tops 90°

61-70

71-80

81-90

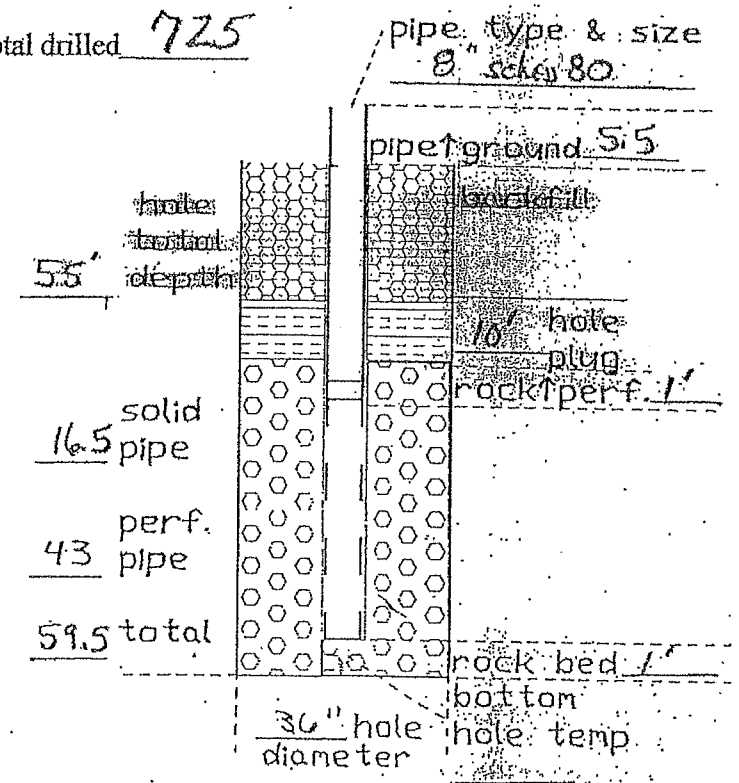
91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S
/ /	/	/	/
/ /	/	/	/
/ /	/	/	/
/ /	/	/	/
/ /	/	/	/
/ /	/	/	/
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/ /	/	/	/
/ /	/	/	/
/ /	/	/	/

General Comments: Nov - Dec "79" paper



Log # 3384

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep MIKE W. PO #

Location TOWN CITY LANDFILL Rig # 3

Hole # 118 Date Started 3-27-00 Date Completed 3-28-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 64

Job forward 725

Depth Cap 30 Material Drilled Total drilled 789

0-5 TOP SOIL

6-10 TOP SOIL

11-20 TOP SOIL

21-30 TOP SOIL

31-40 HHG WOOD 75°

41-50 HHG WOOD 80°

51-60 HHG WOOD 90°

61-70 HHG WOOD & ROLLOF PAPER 95°

71-80

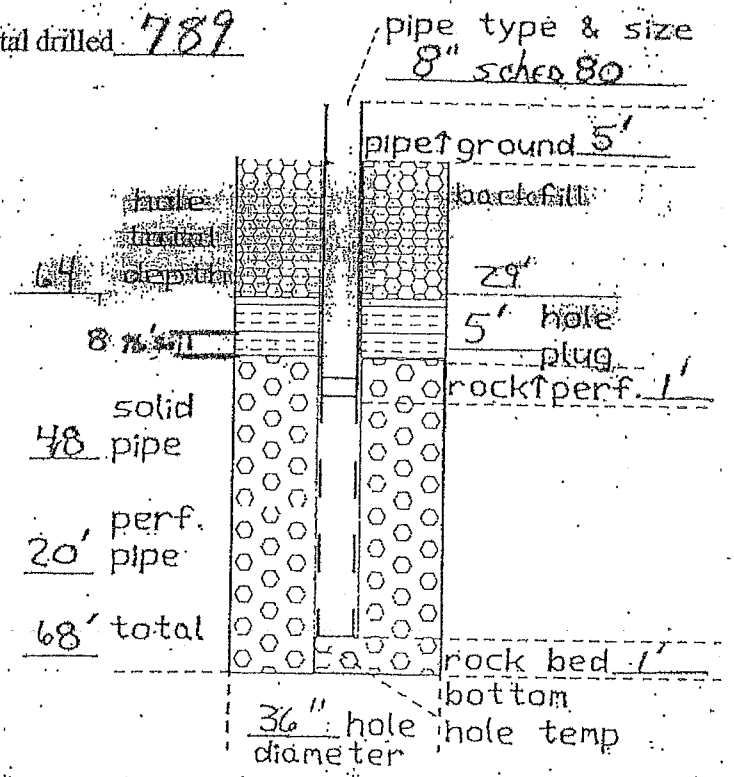
81-90

91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S



General Comments: DRILL UP BIG TREE STUMP TOOK 45 MIN. TO GET OUT OF BUCKET. BIG ROLL OF PAPER TOOK 1 HR TO GET OUT OF BUCKET & CHANGE DRILL LINE MAY "77" + OCT "79" PAPER CLEAN H2O @ WELL BOTTOM

Mike Weber

Log # 3388

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

b Location IOWA CITY LANDFILL Rig # 3

ole # 119 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond

Driller ~~IOWA CITY LANDFILL~~ Helper DENVER Other

ameter of Hole 36" Casing Size Hole Depth 56

Job forward 901

pth
p Cap 9 Material Drilled Total drilled 957

0-5 Top Soil

5-10 Top Soil

10-20 HHG Tires 65°

21-30 HHG Wood DC

31-40 HHG Wood Tires 75°

41-50 HHG DC 80°

51-60 HHG Wood 90°

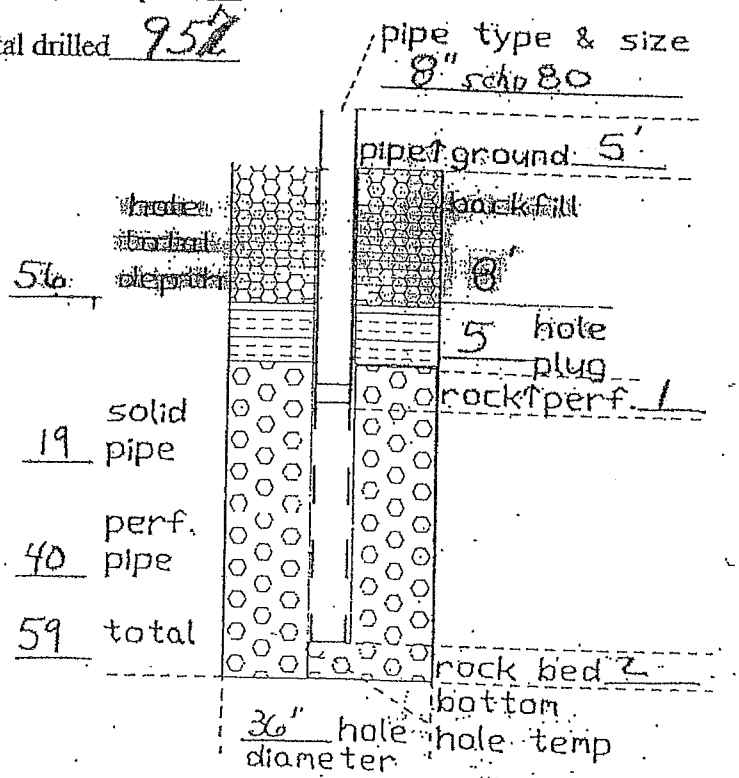
61-70

71-80

81-90

91-100

101-110



s Meter Readings:

ime	LEL%	Oxy%	H2S

General Comments: June 85 paper

20' Sept. 81 paper

32' - 35' grey daily cover

35' OCT '78 paper

Mike Weber

Log # 3381

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Job Location Town of Lewisville Rig # 3

Hole # 120 Date Started 3-27-00 Date Completed 3-27-00 Weather Cond

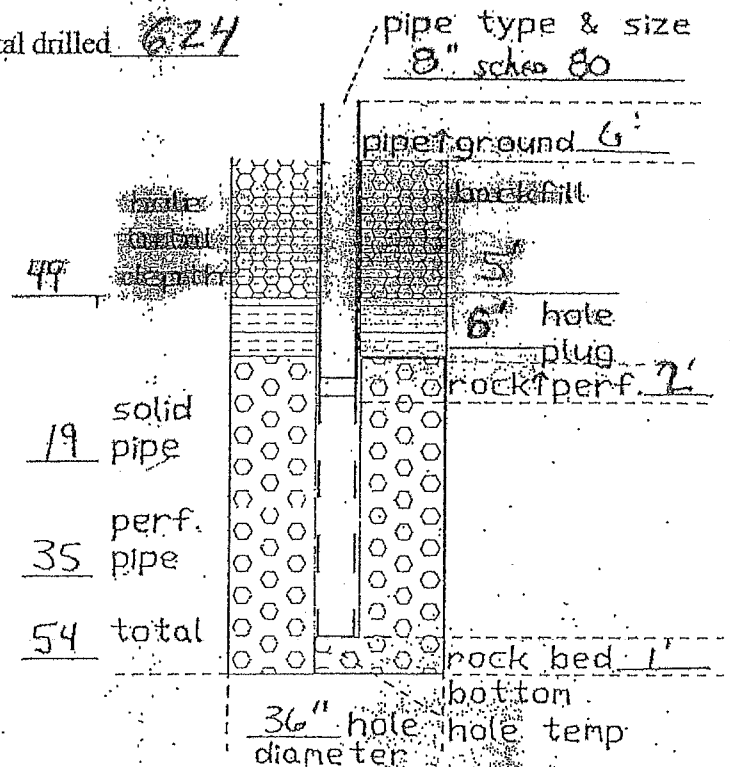
Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 49

Job forward 575

Depth Cap 7' Material Drilled Total drilled 624

0-5	Top Soil	
6-10	Top Soil HHG	65°
11-20	HHG 5" CLAY 17' 70	70°
21-30	HHG WOOD TIRES	80
31-40	HHG WOOD	
41-50	HHG WOOD TD 49	85°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: C/F + garbage mixed 25' to bottom
March '82 paper

Mike Weber

Log # 3395

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MAR Customer Rep. MIKE W. PO #

Job Location TOWN CITY LANDFILL Rig # 3

File #121 Date Started 3-31-00 Date Completed 4-7-00 Weather Cond.

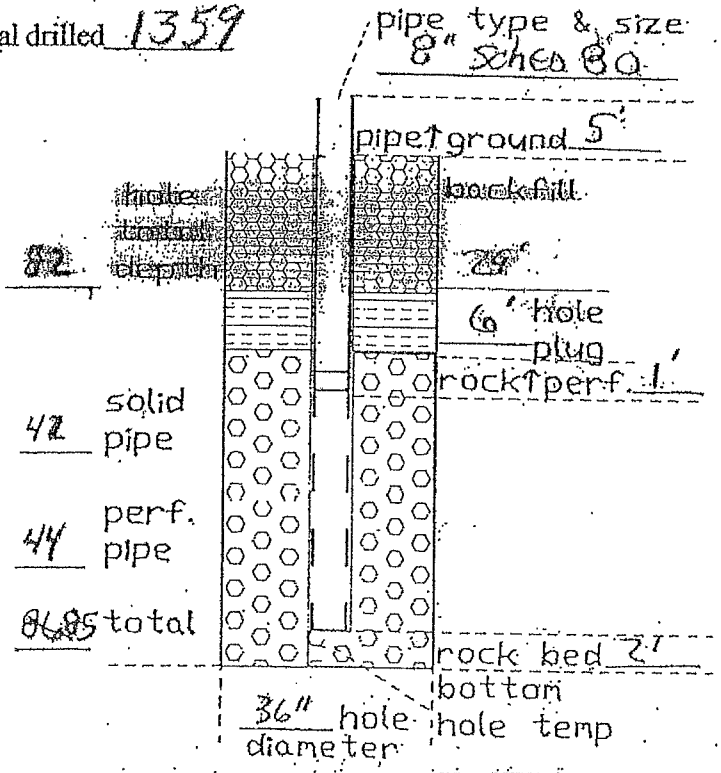
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 82

Job forward 1277

Depth
Cap 30 Material Drilled Total drilled 1359

Depth	Material Drilled	
1-5	TOP SOIL	
6-10	TOP SOIL	
11-20	TOP SOIL	
21-30	TOP SOIL	
31-40	HHG	70°
41-50	HHG DC	80
51-60	HHG WOOD	85°
61-70	HHG WOOD TIRES DC	90°
71-80	HHG WOOD	
81-90	HHG TD 82'	100°
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: clay + gravel mix to 45'

Aug 82 paper

Jan 81 paper

Dec 80 "

Oct 79 "

Image clay plug @ bottom

Mike Weber

Log # 3387

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer: WEST MAR Customer Rep. MIKE W. PO #

Job Location: TOWN CITY LANDFILL Rig # 3

Hole # 122 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond.

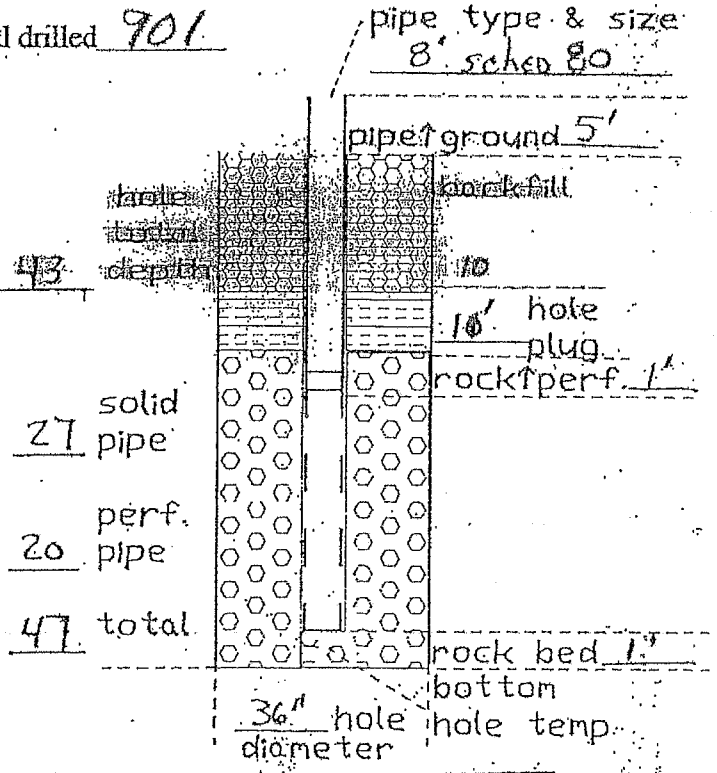
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 43

Job forward 858

Depth Cap H Material Drilled Total drilled 901

Depth		
0-5	TOP SOIL	
6-10	TOP SOIL	
11-20	HHG WOOD	70°
21-30	HHG WOOD	80°
31-40	WOOD DC	90"
41-50	HHG WOOD CLAY	95°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: HIT WATER AT 25'

JUNE '83 PAPER

Mike Wilson

Log # 3380

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO#

Location TOWN CITY LANDFILL Rig# 3

Hole# 123 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond

Driller JEFF Helper DENVER Other

Diameter of Hole Casing Size Hole Depth 43

Job forward 532

Depth Cap 3 Material Drilled Total drilled 575

1-5 TOP SOIL TRASH AT 3' HHG

6-10 HHG WOOD TIRES 20°

11-20 HHG WOOD 8"

21-30 HHG WOOD 75°

31-40 HHG AC WOOD 80°

41-50 HHG TD 43'

51-60

61-70

71-80

81-90

91-100

101-110

Gas Meter Readings:

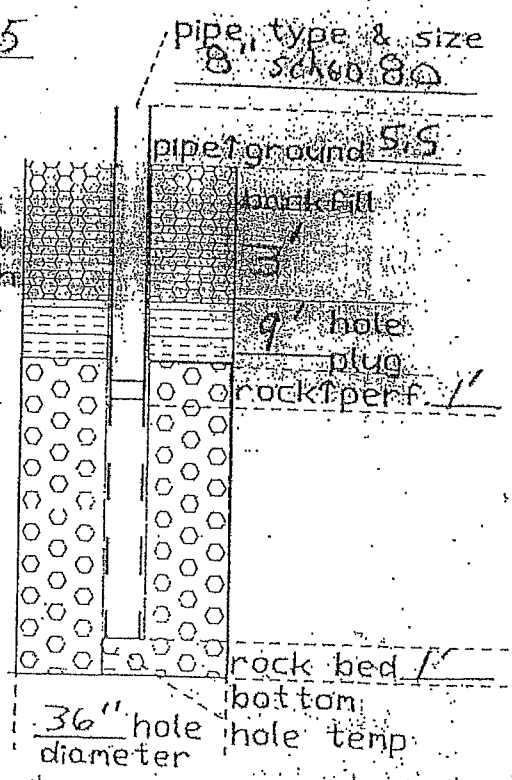
Time	LEL%	Oxy%	H2S

General Comments: DEC 1984 PAPER

▽ 35' below GL

Tough call on bottom, little recovery

Mike Weber



Log # 3396

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location TOWN OF KARNES Rig # 3

Hole # 124 Date Started 4-1-00 Date Completed 4-7-00 Weather Cond

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 80

Job forward 1359

Depth Top Cap 30 Material Drilled Total drilled 1439

0-5 Top soil

5-10 Top soil

10-20 Top soil

21-30 Top soil

30-40 HHG BACK TO CLAY AT 32'-35' 75°

41-50 HHG WOOD 80°

50-60 HHG WOOD DC 85°

61-70 HHG 95°

71-80 HHG TIRES 100°

80-90

91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: MAY 85 paper

July 84 "

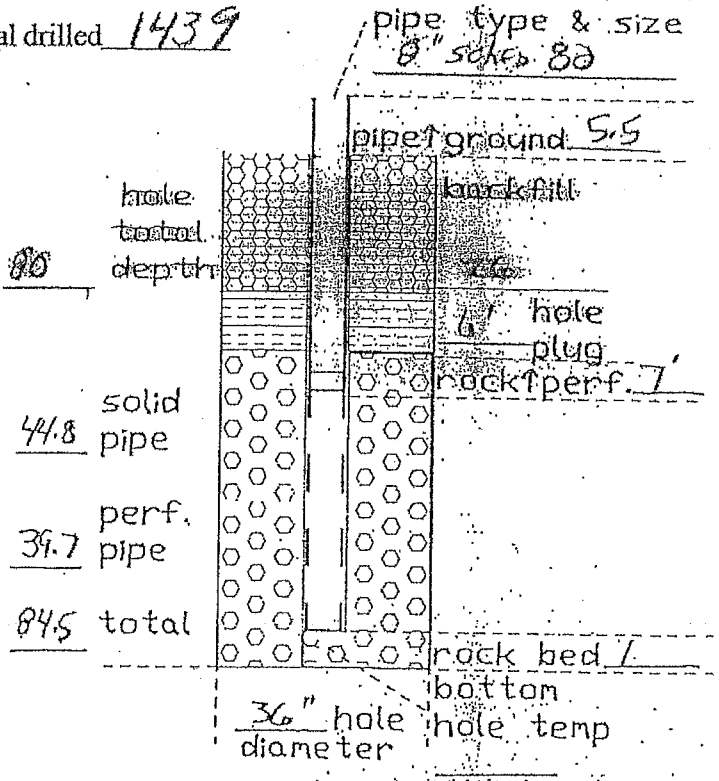
JAN 84 "

DEC + SEPT 83

Leachate @ 78'

grey bottom plug

Mike Weber



Log # 3379

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTAR Customer Rep. MIKE W. PO #

Job Location Town of Lindale Rig # 5

Hole # 125 Date Started 03-25-00 Date Completed 3-25-00 Weather Cond.

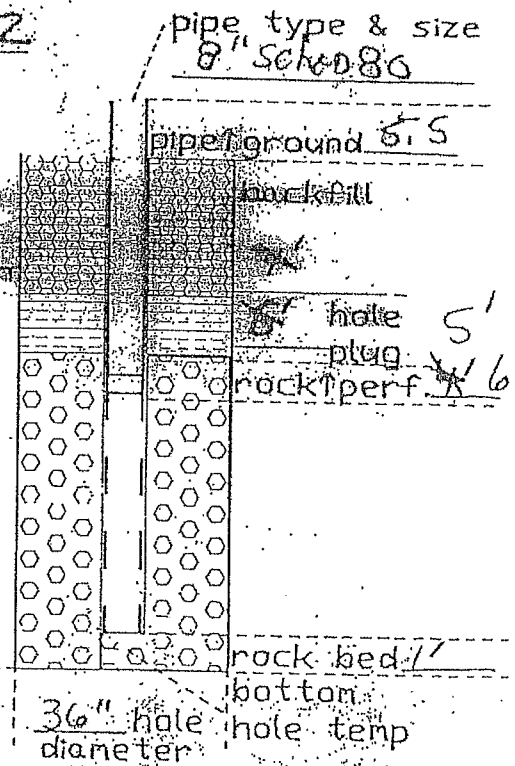
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 49

Job forward 483

Total drilled 532

Depth Top Cap	Material Drilled	
0-5	TOP SOIL THRU AT 5'	
6-10	HHG WOOD	70°
11-20	HHG WOOD ZONE DC	
21-30	HHG TREES	75°
31-40	HHG DC	
41-50	HHG WOOD TD 49'	80°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Aug 1986 pipe
@ 25' below GL

Mike Wilson

Log # ~~455~~ 3373

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer: WESTMAR Customer Rep.: MIKE A. PO #:

Job Location: TOWN CTY Landfill Rig #: 3

Hole #: 126 Date Started: 3-22-00 Date Completed: 3-23-00 Weather Cond: SUNNY

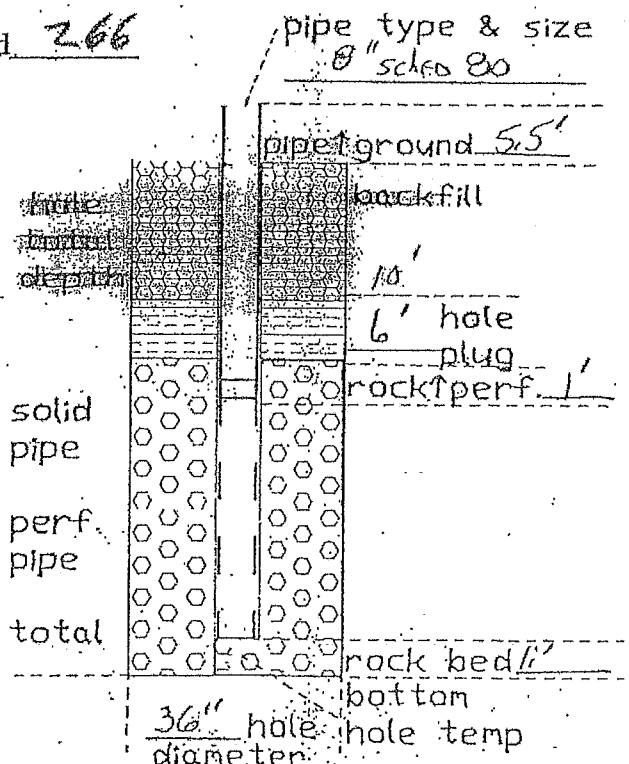
Driller: JEFF Helper: DENVER Other:

Diameter of Hole: 36 Casing Size: Hole Depth: 94

Job forward: 172

Depth Top Cap: 12 Material Drilled Total drilled: 266

Depth	Material Drilled	
5	TOP SOIL	
6-10	TOP SOIL	
11-20	TOP SOIL STRUCK AT 15'	70°
21-30	HHG WOOD TIRES	
31-40	HHG DC	75°
41-50	HHG WOOD	
51-60	HHG PRIME WOOD DC	80°
61-70	HHG WOOD	
71-80	HHG TIRES DC	85°
81-90	HHG STEEL	1986
91-100	HHG TD 94'	90°
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			
/ /			

General Comments: 1988 pop to 0 55'

NOV. 86" " " 90'

THERMAL O/N - moist above, dry below

Mike Webb

Log # 3389

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location Tolna City Landfill Rig # 3

Hole #127 Date Started 3-29-00 Date Completed 3-30-00 Weather Cond.

Driller JEFF Helper DEWAYNE Other

Diameter of Hole 36" Casing Size Hole Depth 71

Job forward 957

Depth Top Cap 5 Material Drilled Total drilled 1,028

0-5 Top Soil

6-10 HHG wood

11-20 HHG wood Posts OC 75°

21-30 HHG wood Tires 80°

31-40 HHG WOOD STEEL OC 85°

41-50 HHG TIRES 90

51-60 HHG WOOD OC

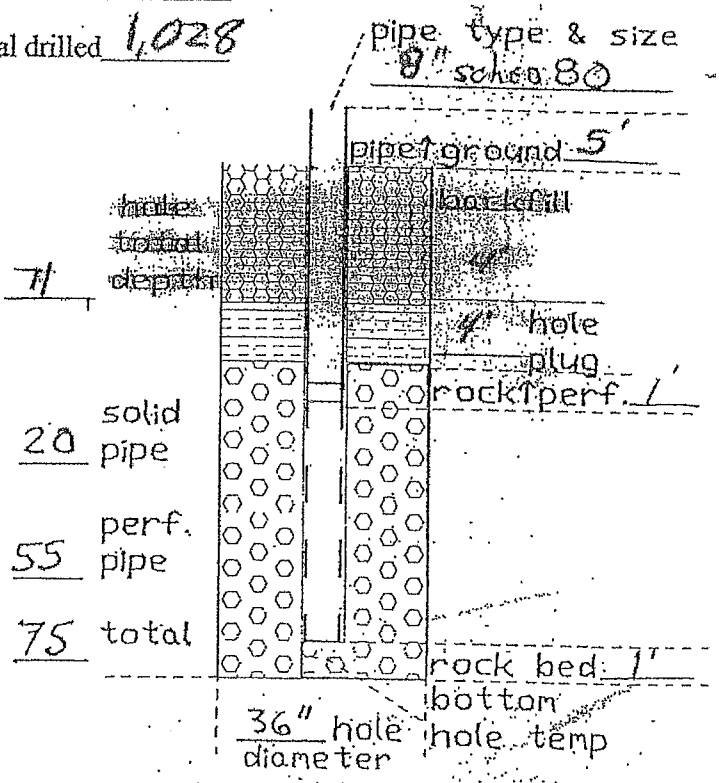
61-70 HHG

71-80 HHG 100°

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: 6 of "88" pipe

Feb "95" pipe

May "87" pipe

Apr "86" pipe

Mike Wilson

Log # 3378

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WEST MFR Customer Rep. MIKE W. PO #

Job Location TOCA CITY LANDFILL Rig # 3

Hole # 188 Date Started 3-25-00 Date Completed 3-25-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36 Casing Size Hole Depth 42

Job forward 441

Depth Cap 4 Material Drilled Total drilled 483

1-5 TOP SOIL TRASH AT 4' HHG

6-10 HHG 70°

11-20 HHG SHALE TRACES

21-30 HHG 75°

31-40 HHG, WOOD 80°

41-50 HHG TD 42'

51-60

61-70

71-80

81-90

91-100

101-110

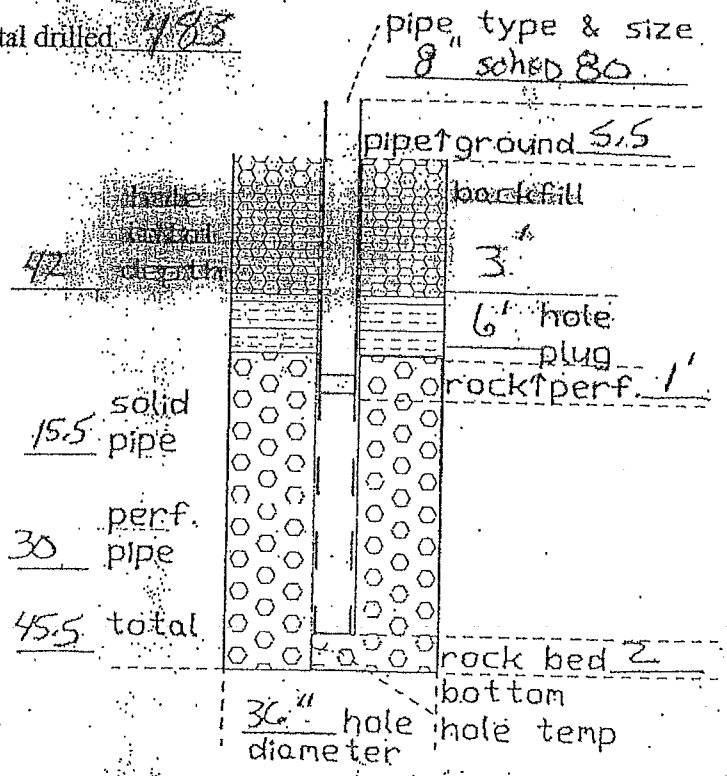
Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: JUNE, OCT 1988 PAPER

WELL BOTTOM 12' LESS THAN PLANS

LOW RECOVERY CLAY IN FINAL BUCKET 62°



Log # 3397

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location TOWN CITY LANDFILL Rig # 3

Hole # 129 Date Started 4-2-00 Date Completed 4-3-00 Weather Cond.

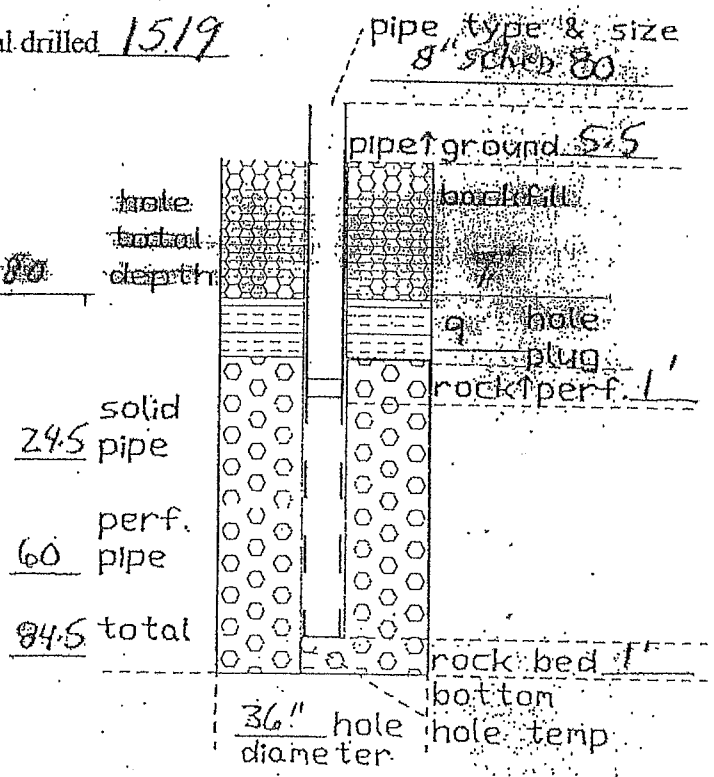
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 80'

Job forward 1439

Total drilled 1519

Depth Top Cap 10	Material Drilled	
0-5	TOP SOIL	
6-10	TOP SOIL	
11-20	HHG WOOD	65°
21-30	HHG WOOD STEEL	
31-40	HHG DC	70°
41-50	HHG WOOD	
51-60	HHG WOOD TREES DC	75°
61-70	HHG	
71-80	HHG TD 80'	75°
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Dec 91 pipe

Nov + Sept 90

Dec 87

black, moist + grassy @ 70'

Mike Weber

Log # 3390

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location TOWN CREEK / KNOLL FIELD Rig # 31

Hole # 130 Date Started 3-30-00 Date Completed 3-30-00 Weather Cond.

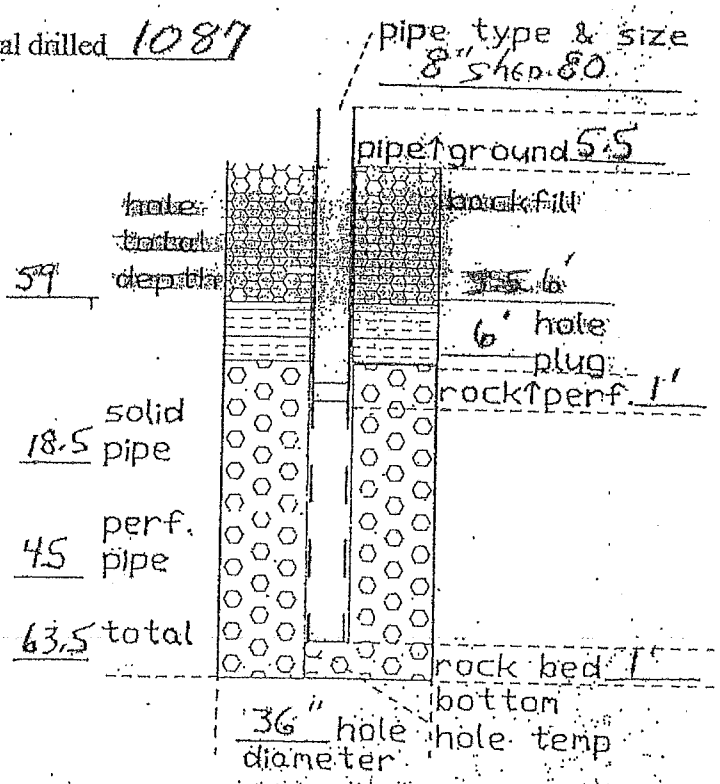
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 59

Job forward 1028

Total drilled 1087

Depth Cap 72	Material Drilled	
1-5	TOP SOIL	
6-10	TOP SOIL HHG	45°
11-20	HHG TREES	70°
21-30	HHG WOOD DC	80°
31-40	HHG WOOD	
41-50	HHG WOOD DC	90°
51-60	HHG STEEL	
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: HIT WATER AT 40'

JAN 91 paper

Oct 90 paper

Sept 88 + JAN 89 paper 40'

Mike Weber

Log # 5398

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep MIKE W. PO #

Job Location Town CRK Landfill Rig # 3

Hole # 131 Date Started 4-3-00 Date Completed 4-3-00 Weather Cond.

Driller JEFF Helper DRIVER Other

Diameter of Hole 36" Casing Size Hole Depth 81

Job forward 1519

Depth Cap 4 Material Drilled Total drilled 1600

1-5 TOP SOIL

6-10 HHG

11-20 HHG WOOD

21-30 HHG WOOD DC

31-40 HHG WOOD STEEL

41-50 HHG

51-60 HHG DC

61-70 HHG WOOD

71-80 HHG WOOD

81-90 HHG TD 81'

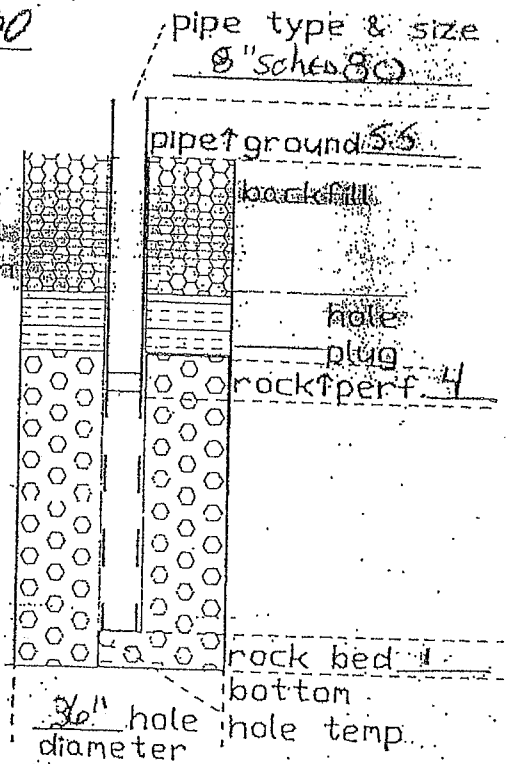
91-100

101-110

Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: AUG 01 paper
Feb 89



Mike Miller

Log # 3399

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W' PO #

Job Location Town of city LANDFILL Rig # 3

File # 132 Date Started 4-3-00 Date Completed 4-4-00 Weather Cond

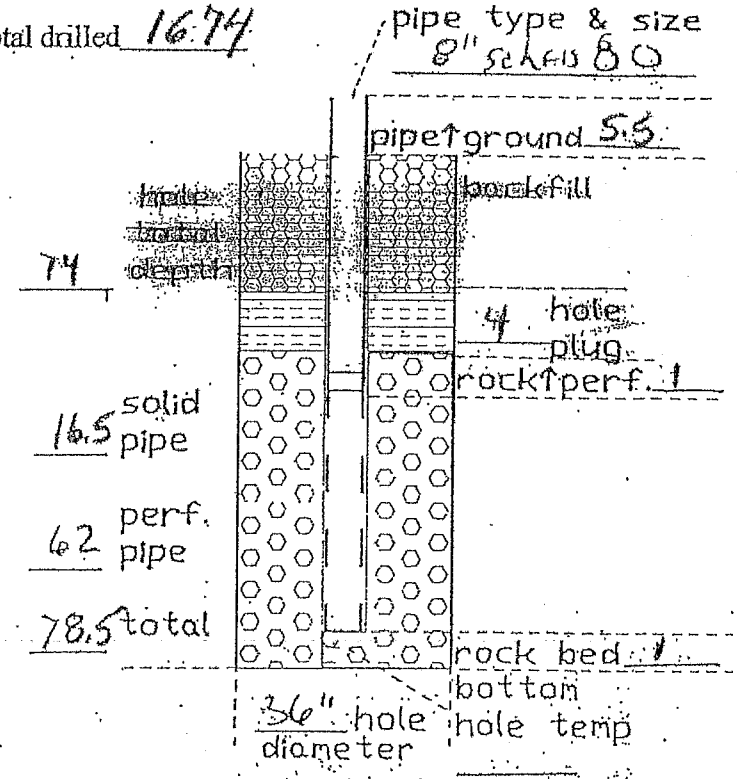
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 74

Job forward 1600

Total drilled 1674

Depth	Material Drilled	
Top Cap 8		
0-5	TOP SOIL	
6-10	TOP SOIL HHG	
11-20	HHG WOOD	65
21-30	HHG WOOD	DC
31-40	HHG WOOD	70°
41-50	HHG WOOD	DC
51-60	HHG WOOD STEEL	80°
61-70	HHG	
71-80	HHG TD 74	85°
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: June + Apr. 95 report

Nov 91 "

Apr + May 89

62' @ BOW (plug)

Mike Weber

Log # 3391

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location FORT CITY LANDFILL Rig # 3

File # 133 Date Started 3-30-00 Date Completed 3-30-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 55

Job forward 1087

Depth Cap 8' Material Drilled Total drilled 1142

0-5 TOP SOIL

5-10 TOP SOIL

21-30 HHG WOOD DC

31-40 HHG WOOD TIRES 75°

41-50 HHG WOOD 85°

51-60

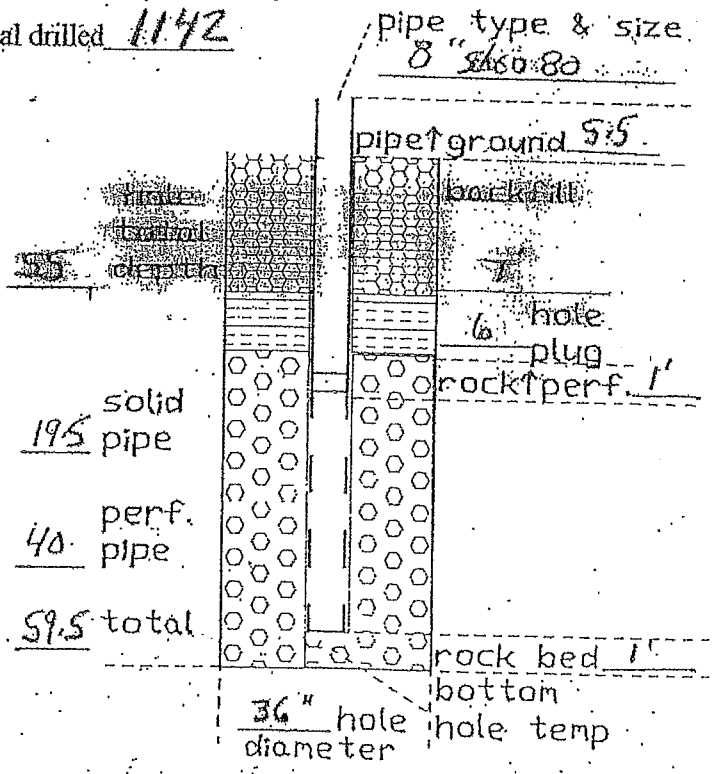
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Sept 91 proper
Aug 91 "
Oct 91 "
wet on bottom

Mike W Beer

Log # 3900

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

C13824-0678

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY LANDFILL Rig # 3

Hole # 434 Date Started 4-4-00 Date Completed 4-4-00 Weather Cond

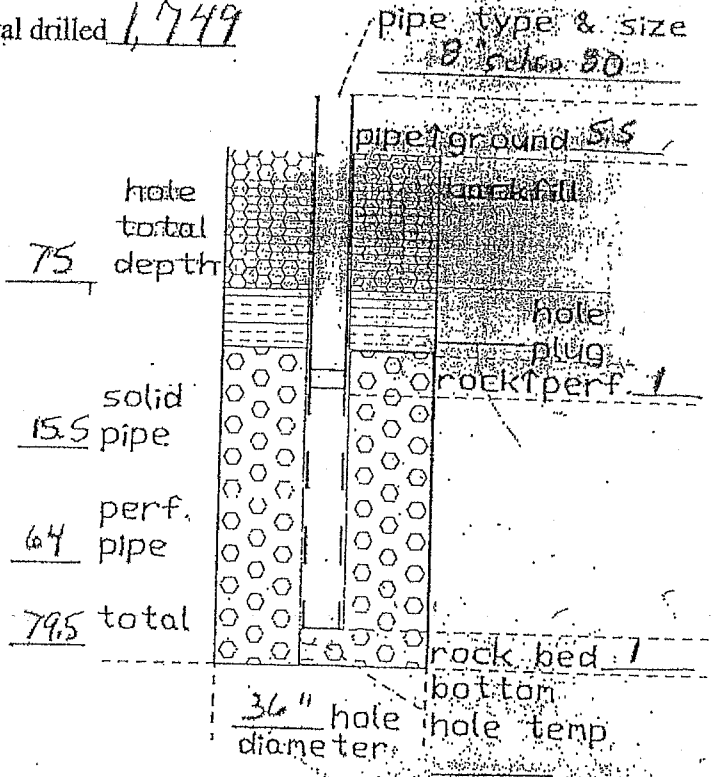
Driller MIKE Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 75

Job forward 1674

Depth Cap 8 Material Drilled Total drilled 1,749

Depth	Material Drilled	
5	Top Soil	
6-10	Top Soil HHG	
11-20	HHG	65°
21-30	HHG WOOD DC	
31-40	HHG WOOD	70°
41-50	HHG	
51-60	HHG DC	75°
61-70	HHG WOOD	80
71-80	HHG TD 75	89°
81-90		
91-100		
101-110		



Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Sept Aug 94 repair

June 94

moist @ 50'

Leachate reached 63

Log # 3394

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W PO #

Location TOWN CITY LANDFILL Rig # 3

Hole # 135 Date Started 3-31-00 Date Completed 3-31-00 Weather Cond

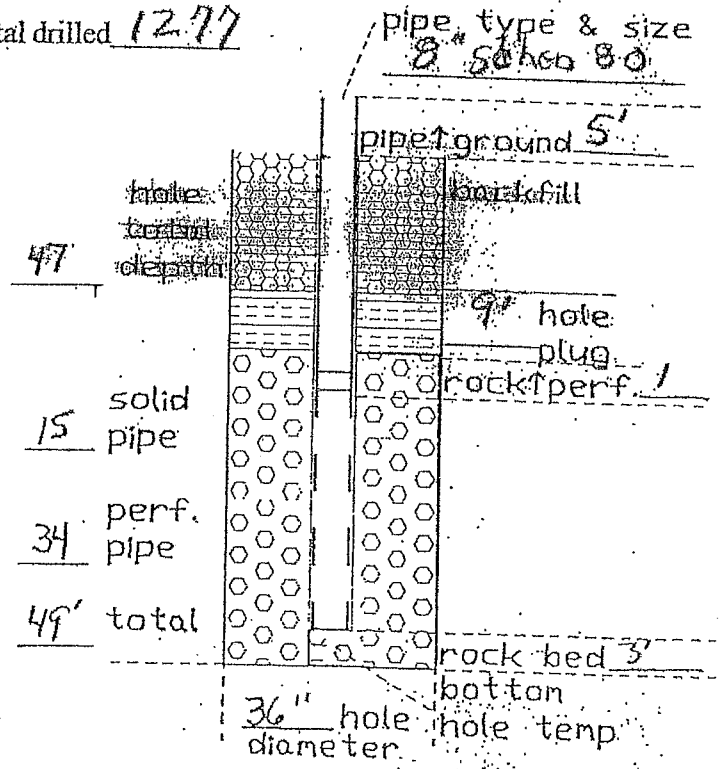
Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 47

Job forward 1230

Depth Top Cap 8 Material Drilled Total drilled 1277

Depth	Material Drilled	
0-5	Top soil	
5-10	Top soil HHG	65°
10-20	HHG Tires	
21-30	HHG wood DC	70°
31-40	HHG STEEL	
41-50	HHG	85°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Apr 94 paper

May 94 " damp @ 25'

Feb 93 " dry @ 30'

JAN 93 "

xtra bent plug @ bottom

Log # 3393

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Job Location Town City Landfill Rig # 3

Hole # 136 Date Started 3-31-00 Date Completed 3-31-00 Weather Cond.

Driller JEFF Helper DENVER Other

Diameter of Hole 36" Casing Size Hole Depth 40

Job forward 1190

Depth Cap 11 Material Drilled Total drilled 1230

0-5 Top soil

5-10 Top soil

10-20 Top soil HHG 60°

21-30 HHG wood DC

31-40 HHG wood 75°

41-50

51-60

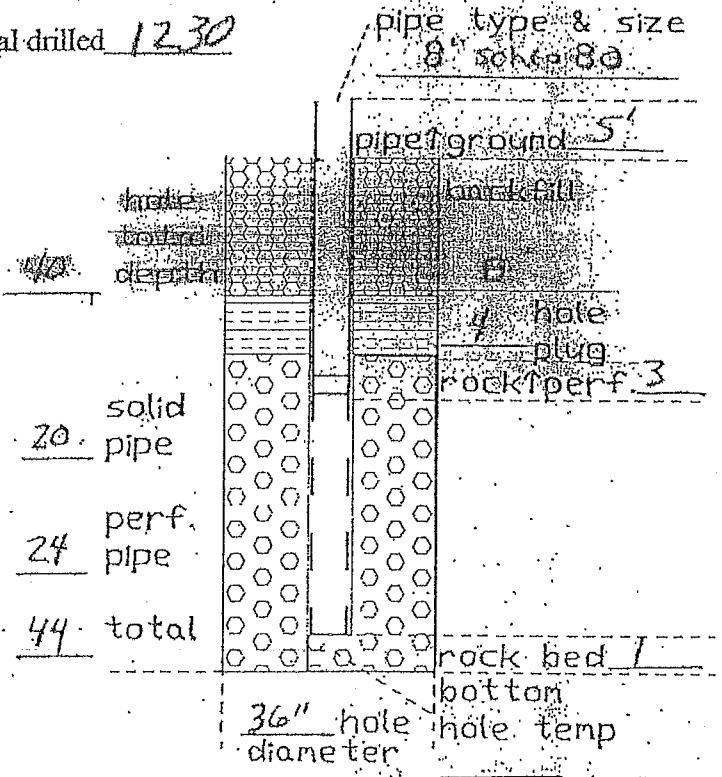
61-70

71-80

81-90

91-100

101-110



Gas Meter Readings:

Time	LEL%	Oxy%	H2S

General Comments: Apr 94

Aug 94

Oct 94

sandy / black + wet @ bottom

Mike Wilson

Log # 3392

KODA DRILLING, INC.

P.O. Box 3196 / Grapevine, Texas 76099
817-488-1945

Drilling Log

Customer WESTMAR Customer Rep. MIKE W. PO #

Location IOWA CITY IOWA Rig # 3

File # 337 Date Started 3-3-00 Date Completed 3-3-00 Weather Cond.

Driller JEFF Helper DENVER Other

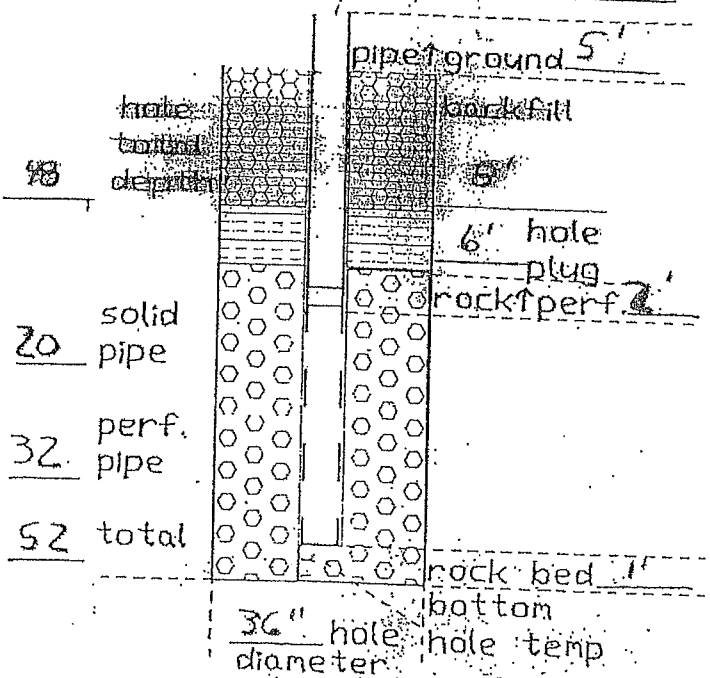
Diameter of Hole 36" Casing Size Hole Depth 48

Job forward 1142

Depth Cap 10 Material Drilled Total drilled 1190

Depth	Material Drilled	
1-5	Top soil	
6-10	Top soil	
11-20	HHG wood	70°
21-30	HHG wood DC	
31-40	HHG STEEL wood	80°
41-50	HHG	85°
51-60		
61-70		
71-80		
81-90		
91-100		
101-110		

pipe type & size 8" sch 80



Meter Readings:

time	LEL%	Oxy%	H2S

General Comments: Nov 91 piped

Feb 94 "

Feb 92 "

Dec 91 "

40' wet / 43' dry

grey/brown bottom plug

Mike Weber

Howard R. Green Company
CONSULTING ENGINEERS

May 24, 1996

QA/QC ✓
BY
Date 5-24-96

Daniel Scott, Civil Engineer
City of Iowa City
Engineering Division
410 E. Washington Street
Iowa City, IA 52240-1826

RE: FY 89 and FY 91 Cover
Iowa City Sanitary Landfill

Dear Mr. Scott:

Enclosed are the laboratory verification tests performed on on-site soil samples to provide a correlation between compacted in-place or field density and permeability for cover soils. The attached test report from Terracon illustrates relative percent compaction values based on Standard Proctor densities as required to meet the desired soil permeabilities, and on the basis of this correlation we have established field density test requirements. The attached table illustrates all tests of the 2 foot compacted clay cover to be in excess of 95% Standard Proctor density, or a related permeability value of 1×10^{-7} cm/sec., or less.

Also enclosed are the As-Built drawings for the FYI 96 Cell. Copies of these drawings were sent to John Vigna, IDNR Field Office #6, Washington, Iowa, and to Cyrus Rustin, IDNR, Des Moines, Iowa.

If you have any questions or concerns, please do not hesitate to give us a call so that we can provide the necessary additional information

Very truly yours,

HOWARD R. GREEN COMPANY

Brian K. Harthun, Staff Engineer

Enclosure

O:\PROJ\718310\5-24-96.LTR

4250 Glass Road NE, PO Box 9009 • Cedar Rapids, IA 52409-9009 • 319/395-7805 fax 319/395-9410 toll free 800/728-7805

FY 89 AND FY91 - IOWA CITY LANDFILL SOIL FIELD DENSITY TEST TABULATION FOR COMPACTED LAYER				
LIFT NO.	SAMPLE I.D. #	EASTING	NORTHING	% STANDARD PROCTOR
FIRST 8 INCH LIFT	1	2513355.95	604709.23	95.15
	2	2513355.95	604599.77	96.62
	3	2513549.28	604833.14	94.22
	4	2513685.6	604841.26	98.10
	5	2513507.19	604706.24	99.65
	6	2513602.49	604627.67	97.43
	7	2513552.31	604522.79	98.10
	8	2513198.62	604293.43	98.35
	9	2513452.69	604340.06	97.71
	10	2513713.53	604526.67	94.69
SECOND 8 INCH LIFT	11	2513678.51	604612.72	96.20
	12	2513276.01	604572.7	95.03
	13	2513362.32	604485.5	96.63
	14	2513600.78	604796.32	96.19
	15	2513515.93	604602.17	95.52
	16	2513632.12	604515.06	95.27
	17	2513501.06	604279.32	99.85
	18	2513348.62	604197.74	97.59
THIRD 8 INCH LIFT	19	2513436.04	604771.45	100.90
	20	2513568.65	604774.48	97.34
	21	2513326.25	604560.71	95.86
	22	2513281.91	604424.56	96.07
	23	2513719.57	604800.36	97.88
	24	2513759.48	604701.09	100.70
	25	2513808.42	604644.1	96.85
	26	2513503.38	604513.33	99.14
	27	2513065.78	604685.81	93.96
	28	2513534.44	604424.23	95.51
	29	2513311.6	604276.29	98.73
	30	2513752.72	604594.32	95.35

PERMEABILITY TEST RESULTS
IOWA CITY LANDFILL
JOB NO. 06951092 (H. R. GREEN NO. 718310J)

		SAMPLE PREPARED			
Sample No.	Sample Description	Moisture Content (%)	Dry Density (pcf)	% Compaction	Coefficient of Permeability (cm/sec.)
1	Brown, Lean Clay, Trace Sand	17.0	96.8	90	2.6×10^{-8}
2	Light Brown, Sandy Lean Clay, Trace Gravel	12.5	108.0	90	4.3×10^{-8}
3	Gray Brown, Lean Clay, Trace Sand	18.5	95.8	90	1.3×10^{-7}

Note: The permeability tests were performed in a fluid filled chamber with the sample surrounded by a flexible membrane. Back pressure was used to aid in saturating the sample, and a water head of 3 psi was used. For construction of clay liners, we typically recommend that the material be compacted to at least 95% of the material's maximum standard Proctor dry density at moisture contents ranging from 0 to 4% above its optimum moisture content.

Terracon

Iowa City Compost Pavement

Geotechnical Engineering Report

Iowa City, Iowa

January 27, 2026 | Terracon Project No. 06245143.01

Prepared for:

Shive-Hattery, Inc.
222 Third Avenue SE, Suite 300
Cedar Rapids, Iowa 52401



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

_____ January 27, 2026

Justin D. Widdel, P.E. Date

License Number 20495

My license renewal date is December 31, 2026.

Pages or sheets covered by this seal: All pages

Terracon
Explore with us
Nationwide
Terracon.com
Facilities
Environmental
Geotechnical
Materials

Attachment 2

2640 12th Street
Cedar Rapids, Iowa 52404
P (319) 366-8321
Terracon.com

January 27, 2026

Shive-Hattery, Inc.
222 Third Avenue SE, Suite 300
Cedar Rapids, Iowa 52401

Attn: Dave Panos, P.E.
P: (319) 551-3997
E: dpanos@shive-hattery.com

Re: Geotechnical Engineering Report
Iowa City Compost Pavement
3900 Hebl Avenue SW
Iowa City, Iowa
Terracon Project No. 06245143.01

Dear Mr. Panos:

We have completed the scope of Geotechnical Engineering services for the above referenced project. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

Jordan W. Perry
Staff Engineer

Justin D. Widdel, P.E.
Principal/Senior Engineer

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Exploration and Testing Procedures
Site Location and Exploration Plans
Exploration and Laboratory Results
Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the Terracon logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Iowa City Compost Pavement to be located at 3900 Hebl Avenue SW in Iowa City, Iowa. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Site preparation and earthwork
- Pavement design and construction

The geotechnical engineering Scope of Services for this project included the advancement of seven soil borings, laboratory testing, engineering analysis, and preparation of this report. An additional boring (i.e. B-8) was requested to be performed in a potential borrow area near the southwest corner of the landfill site.

Drawings showing the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs in the **Exploration and Laboratory Results** section.

Project Description

Item	Description
Information Provided	Preliminary site plan and anticipated pavement sections dated 10/21/2025 and proposed boring locations plan dated 9/30/2025.
Project Description	The project consists of expansion of the construction of new pavement in the existing composting area. A stormwater basin will also be constructed north of the pavement area.

Item	Description
Grading	A grading plan was not provided, based on the provided existing ground surface elevations at the boring locations, we anticipate the finished grade will be near an elevation of 774 feet resulting in site cuts of less than 2 feet and fill thicknesses up to about 7 feet. We anticipate the stormwater basin will be at existing grade with berms constructed around the basin. We understand a clay liner will be placed below the composting area and the City of Iowa City indicated that the permeability requirement for the clay liner is $1x10^{-5}$ cm/s.
Pavements	Per the preliminary pavement sections, we understand the new pavements could consist of: • Portland cement concrete (PCC) over 6 inches of granular base over 12 inches compacted subgrade on the western, side of the new pavement area, and access road east of the gravel road on the southern side of the new pavement area • Hot mix asphalt (HMA) over 6 inch granular base over 12 inches compacted subgrade west, south, and east of the composting area • HMA section may include full depth reclamation with asphalt overlay • Gravel access roads north, east, and south of the compost area • HMA millings in the compost pile areas • Refer to **Exploration Plan** for the general areas of the above sections based on the Preliminary Site Plan dated 10/21/2025 Vehicle weights were provided by Shive, but traffic volumes were not provided: F. SPECIAL LOADING DOZER 94,000 LBS COMPACTOR 90,000 LBS END LOADER 34,000 LBS GRINDER 92,000 LBS EXCAVATOR 81,000 LBS TRACTOR 11,000 LBS EJECTOR TRUCK 163,000 LBS Case 721G End Loader operating weight: 32,837 lbs
Stormwater Basin	We understand the stormwater basin is anticipated to have a clay liner and the City of Iowa City indicated the permeability of the clay liner for the stormwater basin is $1x10^{-7}$ cm/s.

Terracon should be notified if any of the above information is inconsistent with the planned construction as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located at 3900 Hebl Avenue SW in Iowa City, Iowa. Latitude, Longitude: 41.6491° N, 91.6245° W (approximate) See **Site Location**
Existing Improvements/Current Ground Cover	Existing buildings, asphalt and gravel surfacing, green and earthen spaces around the existing improvements, and subsurface utilities
Topography	Topographic contours were not provided, based on the ground surface elevations of the boring locations, the compost pavement areas range in elevation from about 767 feet to 777 feet, generally increasing to the west, and decreasing to the north. The ground surface elevation of the stormwater basin is lower in elevation with a ground surface elevation of about 743 feet at Boring B-7.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration and Laboratory Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Surficial Fill	Asphalt Millings and Crushed Limestone
2	Apparent Capping Fill	Fat Clay, Lean Clay, Sandy Lean Clay, and Poorly Graded Sand
3	Garbage	Mixture of trash and organic matter
4	Apparent Native Soil	Lean Clay and Sandy Lean Clay

The boreholes were observed for the presence and level of groundwater while drilling/sampling and shortly after completion of drilling. Groundwater was only encountered in boring B-5 at a depth of about 5.5 feet below ground surface and was not encountered in the remaining borings. The absence of water in the boreholes does not necessarily mean that they terminated above the water table, since, for the lower permeability clay soils encountered in the borings, a longer time may be required to develop representative water level in the boreholes. Longer-term observations using cased holes or piezometers, sealed from the influence of surface water, would be required for a better evaluation of the groundwater conditions on this site.

Fluctuations of the groundwater levels will likely occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be different than the levels indicated on the boring logs. Also, trapped or "perched" water could be present within the sand or silt seams within native clay soils and/or in cohesionless soils (fill and native) or trash above lower permeability clay soil layers. The possibility of groundwater level fluctuations and perched water should be considered when developing the design and construction plans for the project.

Geotechnical Overview

The borings in the proposed pavement areas encountered existing fill overlying a mixture of trash and organic matter. Based on the standard penetration test (SPT) N-values, the existing fill and trash strata appear to have had compactive effort presumably either at the time of placement (i.e., trash and capping fill) and/or regular repetitions of heavy equipment over the near surface soils. However, it is not possible to estimate long term performance of buried trash and settlement over time is possible. It does not appear feasible to remove all the existing fill and trash and replace with properly compacted fill. Therefore, the City should understand the risks of placing new pavements over buried trash. This could result in differential movement and pavement cracking and potentially decreased pavement life and/or early rehabilitation measures.

In addition, moderate to high plasticity soils (lean to fat and fat clay) were encountered in Boring B-1 in the upper soil profile, and may be present at other non-tested locations. Moderate to high plasticity soils are considered poor pavement subgrade soils due to the shrink-swell potential with changes in moisture content which can lead to pavement distress. The **Earthwork** section provides recommendations to decrease the risks associated with the buried trash and moderate to high plasticity soils by placing a uniform subgrade below the new pavements.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration and Laboratory Results**), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Earthwork is anticipated to include clearing and grubbing, excavations, and fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for pavements.

Site Preparation

Construction areas should be stripped of vegetation, root zones, organic soils (i.e., those with more than 5 percent loss on ignition), existing gravel or millings surfacing, and any other unsuitable materials (e.g., debris, desiccated soil, frozen soil, etc.) from within planned new construction areas.

Subgrade Preparation and Stabilization

Moderate to high plasticity soils should be undercut a minimum of 12 inches and replaced with low plasticity structural fill when moderate to high plasticity soils are encountered within 12 inches of pavement subgrade.

New Fill Areas: Prior to placing fill, the exposed subgrade should be proofrolled by the contractor and tested by Terracon. Obviously, unstable subgrades should not be proofrolled to reduce disturbance of the subgrade soils, until after these soils have been stabilized. Proofrolling could be accomplished by using heavy, rubber-tire construction equipment or a partially loaded tandem-axle dump truck (with a gross weight of about 25 tons). This surficial proofroll would evaluate subgrade conditions, and delineate low density, soft, or disturbed areas that may exist below subgrade level. Soft, low density,

and disturbed areas should be scarified, moisture conditioned, and recompacted or replaced with approved structural fill.

All exposed areas which will receive fill, should be scarified to a minimum depth of 9 inches, moisture conditioned as necessary, and compacted per the compaction requirements in this report. Compacted structural fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation or pavement construction.

Cut Areas: The subgrade should be undercut at least 12 inches to allow for uniform low-plasticity structural fill layer below new pavements consistent with the structural fill placed to raise grade in 'new fill areas'. After the undercut is performed the subgrade should be proofrolled as discussed above.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by undercutting the unstable subgrade soils, scarified on-site, and compacted with moisture and density control in maximum 9-inch loose lifts up to final subgrade elevation to provide a uniform thickness of well-compacted material. Other stabilization alternatives include chemical treatment with portland cement, or overexcavation and backfill with crushed limestone or recycled concrete. A geotextile stabilization material could also be placed below the crushed stone or recycled concrete to help stabilize the subgrade soils.

Subgrade improvement methods are influenced by schedule, weather, the size of the disturbed/unstable area, and the nature of the disturbance or instability. Further evaluation of the need and recommendations for subgrade stabilization can be provided during construction as the geotechnical conditions are exposed.

Fill Material Types and Placement

We understand a borrow source has been identified near the southwest corner of the Landfill site which consisted of lean clay that appears suitable for use as site grading fill. Permeability tests were performed on bulk samples remolded to 95 percent of the material's standard Proctor maximum density. The hydraulic conductivity (k) values were 4.7×10^{-8} cm/s and 6.9×10^{-8} cm/s for the bulk samples obtained from depths of about 1 to 4 feet and 8 to 13 feet in Boring B-8, respectively.

The on-site existing fill soils generated from site cuts in the existing composting area are anticipated to be highly variable and could contain rubble, organic matter, or other deleterious materials. If on-site soils, generated from cuts in the existing composting area are reused as fill, then sorting of unsuitable materials should be anticipated, and if

used, should generally be used as thin zones placed below new pavements or in green space areas. A greater than normal number of laboratory moisture-density determinations (i.e., "Proctor" tests) and field density tests should be anticipated if existing fill materials are reused as new structural fill. Uniform imported compacted fill should be placed within the upper 12 inches of pavement subgrades.

Compacted structural fill should meet the following material property requirements tabulated below.

Fill Type [1, 2]	USCS Classification	Acceptable Location for Placement
Low plasticity cohesive [3]	CL-ML, CL (LL ≤ 45 and PI ≤ 24)	General site grading fill below pavement subbase [4]; Stormwater basin liner and berms [5]
Moderate to high plasticity cohesive	CL (LL>45 and/or PI>24), CL/CH, CH	Green (non-structural) locations; Stormwater basin liner and berms [5]
Granular [6]	GW, GP, GM, GC, SW, SP, SM, SC	General site grading fill; should not be used where low-permeability soils are required for compost area or stormwater basin liners
Unsuitable	ML, MH, CL-OL, OL, CH-OH, OH, PT	Green (non-structural) locations

1. Structural fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation prior to use on this site.
2. Any organic materials, rock fragments larger than 3 inches, and other unsuitable materials should be removed prior to use as structural fill.
3. Low plasticity cohesive soil has a liquid limit less than or equal to 45 and a plasticity index less than or equal to 23.
4. Cohesive soils should have a permeability of $1x10^{-5}$ cm/s or less when used as compost area liner.
5. Stormwater basin liner should have a permeability of $1x10^{-7}$ cm/s or less.
6. Specific material requirements will need to be satisfied based on intended use and should be approved by the geotechnical engineer.

Appropriate laboratory tests, including Atterberg Limits for cohesive soils, organic content tests for dark colored soils and/or those that exhibit a noticeable odor, and standard Proctor (ASTM D698) moisture-density relationship tests should be performed on proposed fill materials prior to their use as structural fill. Permeability tests should be performed for soils to be used as liners with permeability requirements. Further

evaluation of any on-site soils or off-site fill materials should be performed by Terracon prior to their use in compacted fill sections.

Fill Placement and Compaction Requirements

Structural fill should meet the following compaction requirements.

Item	Description
Maximum Fill Lift Thickness for General Site Grading	9 inches or less in loose thickness when heavy, self-propelled compaction equipment is used
Minimum Compaction Requirements [1, 2]	98% within the upper foot of pavement subgrade 95% below the upper foot of pavement subgrade
Moisture Content Range [1]	Low plasticity cohesive: -2% to +3% Moderate to high plasticity cohesive: 0 to +4% Granular: typically at -3% to +3%; sufficient to achieve compaction without pumping when proofrolled

1. As determined by the Standard Proctor test (ASTM D698).
2. If the granular material is a coarse sand or gravel, or of a uniform size, or has a low fines content, compaction comparison to relative density may be more appropriate. In this case, granular materials should be compacted to at least 70% relative density (ASTM D 4253 and D 4254).

Grading and Drainage

All grades must provide effective drainage away from the new pavements during and after construction and should be maintained throughout the life of the pavement. Water retained next to the pavement can result in soil movements greater than those discussed in this report. Greater movements can result in unacceptable differential movements and pavement cracking.

Earthwork Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to slab construction.

Shallow groundwater could affect subgrade preparation and utility trench excavations. A temporary dewatering system consisting of sumps with pumps in clay soils may be necessary to achieve the recommended depth of overexcavation depending on groundwater conditions at the time of construction. Where excavations extend into water bearing sand soils, sheeting, shoring, and/or well points could be required to effectively dewater the excavations.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation and topsoil), evaluation and remediation of poorly compacted or otherwise unsuitable fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Pavements

Pavement Subgrade Support Characteristics

For pavement design, we recommend that a subgrade California Bearing Ratio, CBR, of 3 be used for the asphaltic concrete pavement designs. We recommend that a modulus of subgrade reaction of 75 pci be used for the portland cement concrete pavement designs. These values were empirically derived based upon our experience with compacted lean

clay subgrade soils and our expectation of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**.

General Pavement Comments

Pavement designs are provided for the traffic conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Support characteristics of subgrade for pavement design do not account for frost heave or shrink/swell movements of an expansive clay subgrade, such as soils observed on this project. Thus, the pavement may be adequate from a structural standpoint, yet still experience cracking and deformation due to freeze/thaw and shrink/swell related movement of the subgrade.

Pavement Design Parameters

- We have used the following parameters to develop our pavement thickness designs in PCASE software. Design vehicle: Cat 740 EJ articulated haul truck (Cat 740 EJ Specalog)
- Traffic level: assumed a range of 1 to 2 passes/day × 365 days/year × 20 years = 7,300 to 14,600 passes. For design, we rounded up to 7,500 and 15,000 passes
- Truck load: 161,473 lbs. (Assume max. operating load from Cat 740 EJ Specalog)
- Prepared subgrade: CBR = 3 (According to Terracon Geotech Exploration Report); K-value = 60 pci (based on CBR =3, UFC 3-250-1)
- PCC flexural strength: 580 psi (Based on fc = 4,000 psi, Iowa SUDAS 5F-1)
- Base layer for rigid option: assumed well-constructed unbound aggregate; To account for potential long-term loss of support due to base erodibility (e.g., fines migration/pumping), a conservative modulus of subgrade reaction of k = 75 pci was assumed.
- Base layer for flexural option: assumed the cement-treated reclamation layer as PC-stab-GW,GP,SW,SP; CBR = 100 (value based on the PCASE default setting, and the lab testing will be required to verify the strength value before construction)
- Performance criterion: thickness was selected to meet or exceed the 7,500 to 15,000-pass target under PCASE design routines.
- Frost consideration: Considered in the analysis. Frost code selected F3/F4 in PCASE 7.07, based on subgrade condition.

Pavement Section Thicknesses

The following table provides our opinion of minimum thickness for pavements considering the variations in number of passes for the CAT 740 EJ Articulated Haul Truck:

Design Number of Passes	Pavement Layer	Rigid Pavement Option	Flexible Pavement Option [1]
7,500	Pavement Surface	14 inches PCC	4.5 inches HMA
	Base Course	8 inches Unbound Aggregate Course	12 inches Cement-Stabilized Aggregate Course
15,000	Pavement Surface	14.5 inches PCC	5 inches HMA
	Base Course	8 inches Unbound Aggregate Course	12 in. Cement-Stabilized Aggregate Course

1. We understand portions of the pavement will consist of HMA over 6-inch granular base. The recommended HMA thickness for unstabilized aggregate base is 13 inches HMA over 6 inches aggregate base.

Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its "green" state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. Islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils are particular areas of concern. The civil design for the pavements with these conditions should include features to restrict or collect and discharge excess water from the islands. Examples of features are edge drains connected to the stormwater collection system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Due to frost-susceptible soils and the possibility of perched groundwater, consideration should be given to installing a pavement subdrain system to control subgrade moisture, improve stability, and improve long-term pavement performance.

We recommend at least 6 inches of free-draining granular material be placed beneath the pavements. The use of a free draining granular base will also reduce the potential for frost action. The design recommendations for the subdrains are provided in the following table:

Subdrain Design Recommendations

Item	Value
Free Draining Granular Base Thickness below Pavement	6 inches of material free-draining granular material with less than 6% fines
Minimum Drainpipe Diameter	4 inches
Drain Trench Width	16 inches or greater to provide minimum 6-inch annulus of drainage aggregate around drainpipe.
Invert Depth below Subgrade Elevation	3½ feet
Maximum Drainpipe Spacing	150 feet
Subdrain Trench Backfill Material	IDOT Section No. 4131 or other free-draining crushed limestone wrapped in filter fabric

The subdrains should be hydraulically connected to the free-draining granular base layer. Subdrains should be sloped to provide positive gravity drainage to reliable discharge points such as the stormwater detention basin. Periodic maintenance of subdrains is required for long-term proper performance.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner

is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly affect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

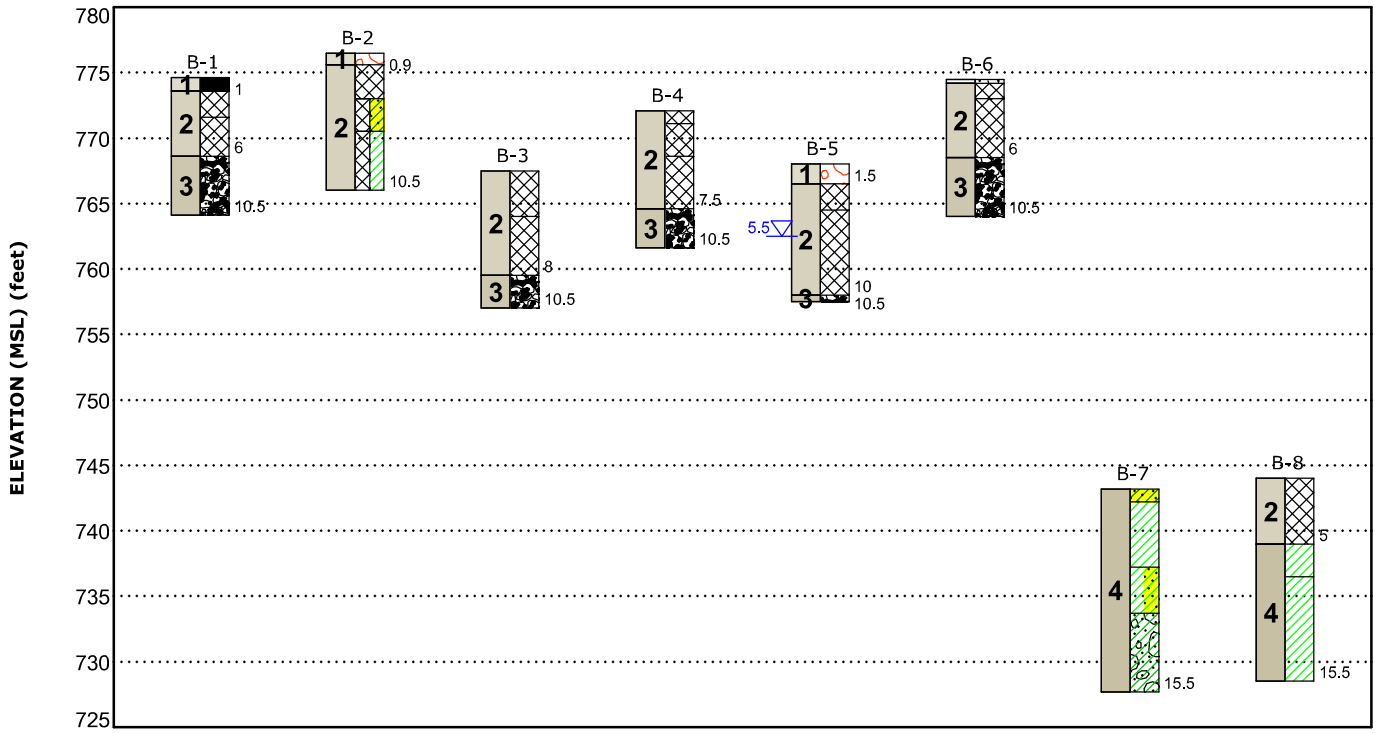
Contents:

GeoModel

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	**Surficial Fill**	Asphalt Millings and Crushed Limestone
2	**Apparent Capping Fill**	Fat Clay, Lean Clay, Sandy Lean Clay, and Poorly Graded Sand
3	**Garbage**	Mixture of trash and organic matter
4	**Apparent Native Soil**	Lean Clay, Lean Clay with Sand, and Sandy Lean Clay

Legend

- Asphalt
- Fill
- Fill
- Aggregate Base Course
- Sandy Lean Clay
- Lean Clay
- Topsoil
- Lean Clay with Sand
- Glacial Till

▽ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.
Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
6	10.5	New Pavement
1	15.5	Stormwater Basin
1	15.5	Boring Area

Boring Layout and Elevations: Shive-Hattery provided the boring layout and ground surface elevations for Borings B-1 to B-7. Boring B-8 was laid out be Terracon and the ground surface elevation was obtained from the online USGS National Map.

Subsurface Exploration Procedures: We advanced the borings with an ATV-mounted rotary drill rig using continuous solid-stem augers. Samples were obtained at intervals of 2.5 feet using split-barrel sampling procedures. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. We observed and recorded groundwater levels during drilling and sampling. The borings were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content

- Atterberg Limits
- Grain Size Distribution
- Percent Passing #200 Sieve
- Standard Proctor
- Permeability (Remolded Samples)

The laboratory testing program included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

Site Location

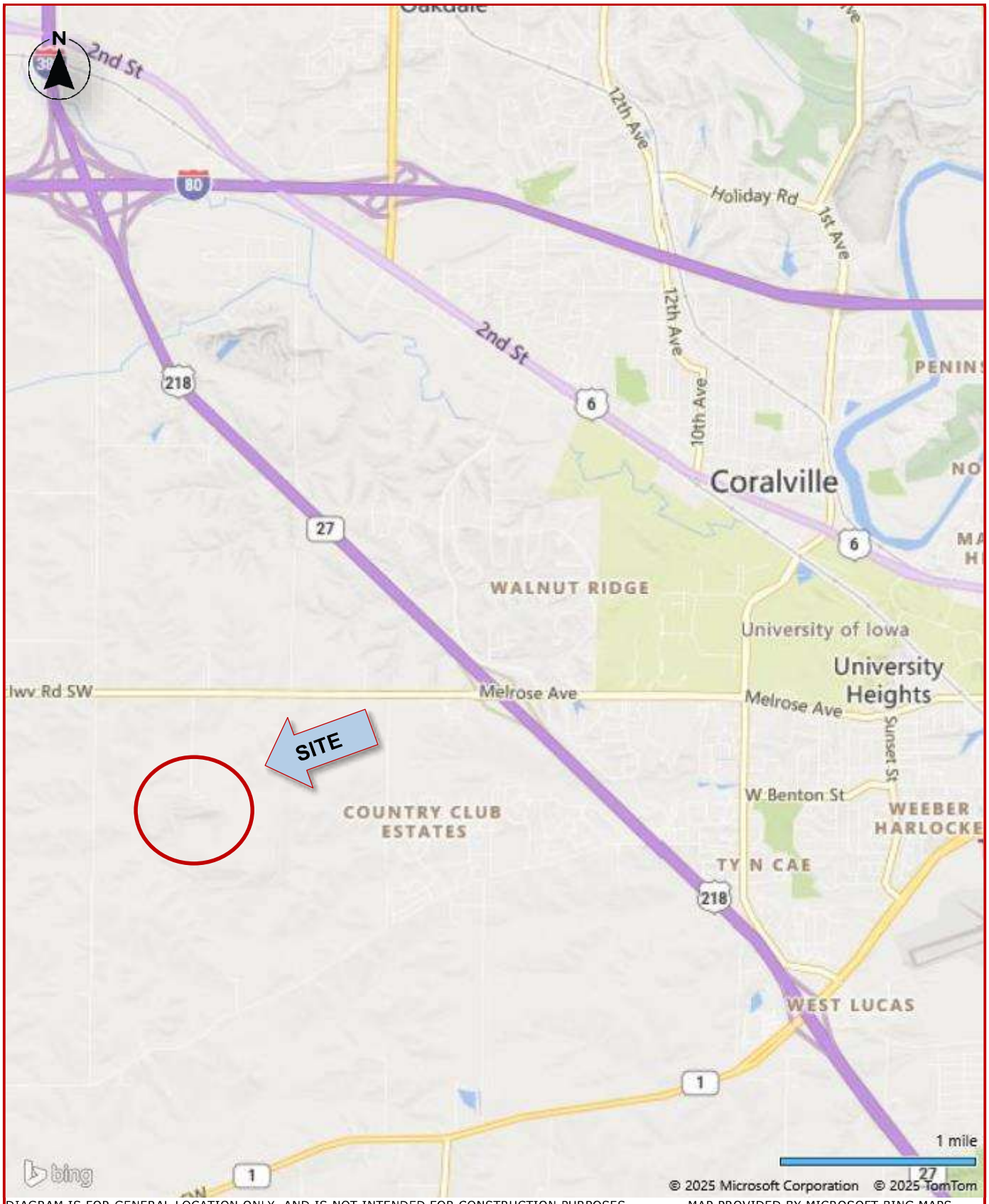


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan – Aerial Imagery



DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration Plan – Site Plan Overlay

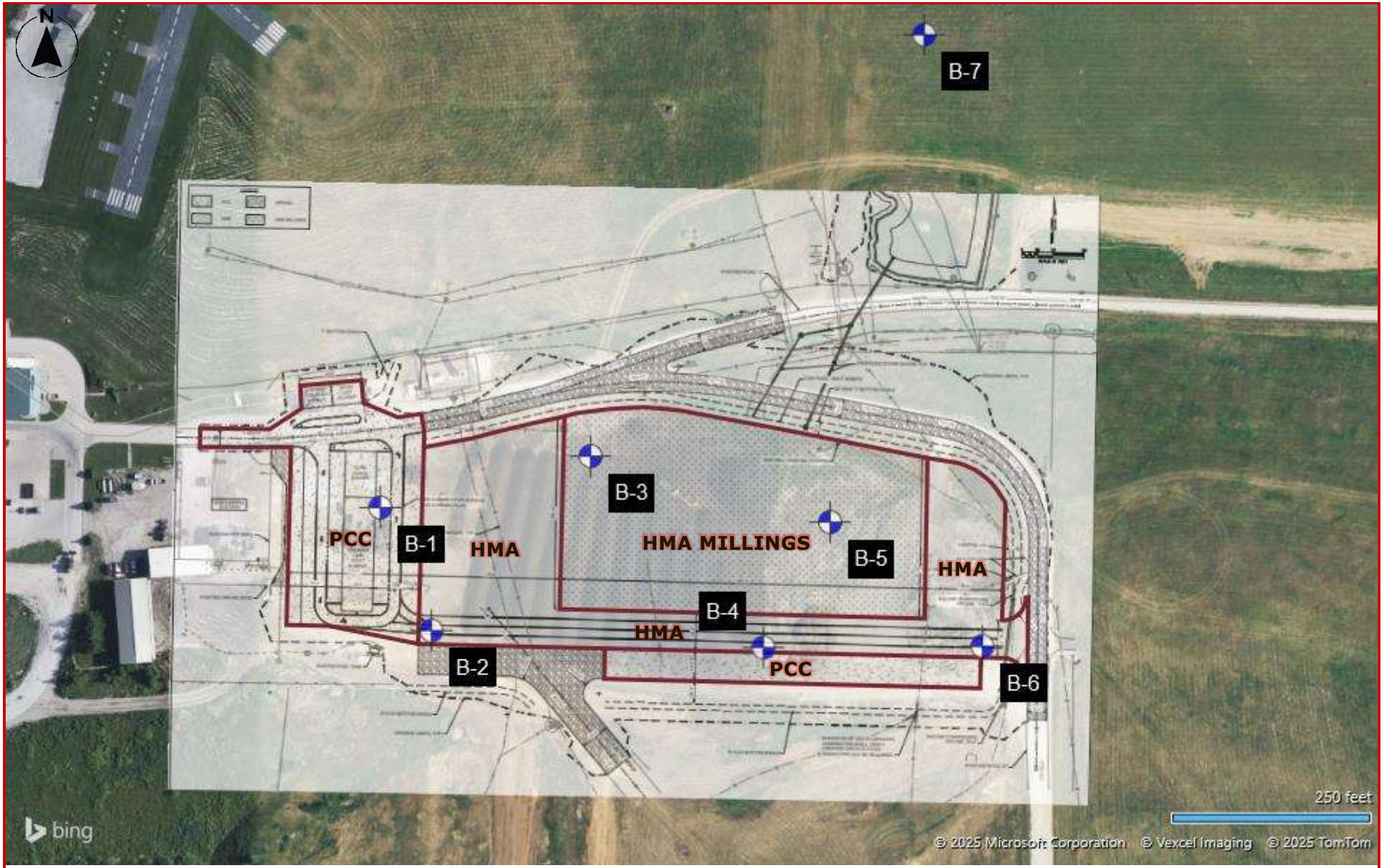


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Boring Logs (B-1 through B-8)
Grain Size Distribution
Moisture-Density Relationships
Permeability Tests

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-1

Location: See Exploration Plan

Latitude: 41.6492° Longitude: -91.6255°

Depth (Ft.) Elevation: 774.6 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
1		**1-Ft. Asphalt Millings** 1.0 / 773.6								
2		**FILL - LEAN TO FAT CLAY**, with wood pieces, trace sand, brown and gray 3.0 / 771.6			14	4-5-5 N=10	4.5+	19.6	41-19-22	
2		**FILL - FAT CLAY**, trace sand, brown gray 6.0 / 768.6			15	3-4-5 N=9	1.75	25.2		
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER** 10.5 / 764.1			5	2-4-6 N=10				
					7	3-19-5 N=24				
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-2

Location: See Exploration Plan

Latitude: 41.6488° Longitude: -91.6253°

Depth (Ft.) Elevation: 776.5 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
1		**10" Crushed Limestone** 0.9 / 775.6								
2		**FILL - LEAN CLAY**, trace sand, wood, and gravel, gray and brown 3.5 / 773								
		SANDY LEAN CLAY (CL), gray brown, (Probable Fill) 6.0 / 770.5								
		LEAN CLAY (CL), gray brown, (Probable Fill) 10.5 / 766								
		Boring Terminated at 10.5 Feet								

Depth (Ft.)	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)
5		11	4-7-8 N=15	4.5	15.8
		12	4-7-6 N=13	4.5	15.2
		15	3-4-4 N=8	1.5	24.2
10		15	3-3-2 N=5		24.4

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-3

Location: See Exploration Plan

Latitude: 41.6494° Longitude: -91.6245°

Depth (Ft.) Elevation: 767.5 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
		FILL - SANDY LEAN CLAY, trace wood and gravel, gray brown								
		3.5 764								
2		**FILL - SANDY LEAN CLAY**, trace gravel, gray and brown			12	3-6-5 N=11	4.5+	20.5		
					11	3-5-5 N=10	4.0	22.2		
		8.0 759.5								
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER**			13	3-4-7 N=11	3.0	17.9		
					16	5-7-8 N=15				
		10.5 757								
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-4

Location: See Exploration Plan

Latitude: 41.6487° Longitude: -91.6237°

Depth (Ft.) Elevation: 772.1 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
2		**FILL - LEAN CLAY**, trace sand, brown 1.0 / 771.1								
2		**FILL - SANDY LEAN CLAY**, gray brown 3.5 / 768.6				21-7-5 N=12	4.5+	12.9 18.3		
2		**FILL - SANDY LEAN CLAY**, trace gravel, gray brown 7.5 / 764.6			8	2-5-5 N=10	2.5	17.3		
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER** 10.5 / 761.6			11	4-10-7 N=17				
					10	6-7-7 N=14				
		Boring Terminated at 10.5 Feet								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-5

Location: See Exploration Plan

Latitude: 41.6492° Longitude: -91.6234°

Depth (Ft.) Elevation: 768 (Ft.)

Model Layer	Graphic Log		Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
1		**1.5-Ft. Crushed Limestone** 1.5 766.5									
2		**FILL - POORLY GRADED SAND**, trace clay, brown 3.5 764.5				5	4-2-1 N=3		9.1		
		FILL - SANDY LEAN CLAY, trace gravel, gray brown	5	▽		7	1-2-3 N=5		15.9		
						13	3-5-5 N=10	4.0	17.7		
		10.0 758	10			11	4-9-8 N=17	4.25	17.7		
3		**FILL - MIXTURE OF TRASH and ORGANIC MATTER** 10.5 757.5									
		Boring Terminated at 10.5 Feet									

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
▽ 5.5' while drilling and sampling
No water after boring

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-6

Location: See Exploration Plan

Latitude: 41.6487° Longitude: -91.6227°

Depth (Ft.) Elevation: 774.5 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
		0.3 **4" Topsoil with 3" Root Zone** 774.2								
2		**FILL - LEAN CLAY**, trace sand, brown gray 1.5 773								
2		**FILL - SANDY LEAN CLAY**, gray brown			13	6-8-6 N=14	4.5+	14.7		
2										
2					14	5-7-8 N=15	4.5+	13.7		
3		6.0 768.5 **FILL - MIXTURE OF TRASH and ORGANIC MATTER**								
3					10	11-8-24 N=32				
3										
3					11	6-4-5 N=9				
		10.5 764 ***Boring Terminated at 10.5 Feet***								

5

10

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-7

Location: See Exploration Plan

Latitude: 41.6508° Longitude: -91.6230°

Depth (Ft.) Elevation: 743.2 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
		SANDY LEAN CLAY (CL), brown 1.0 742.2								
		LEAN CLAY (CL), trace sand, gray brown, stiff								
					9	4-4-4 N=8		18.1		
					14	3-4-5 N=9		18.6		98.1
		6.0 737.2								
4		**LEAN CLAY WITH SAND (CL)**, gray brown, stiff								
					15	4-5-6 N=11		14.0		72.8
		9.5 733.7								
		SANDY LEAN CLAY (CL), trace gravel, brown, medium stiff to stiff								
					15	3-6-8 N=14		15.2		
					14	2-3-3 N=6	1.75	16.8		
					18	3-5-5 N=10		14.5		
		15.5 727.7								
		Boring Terminated at 15.5 Feet								

5
10
15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation was provided by Shive-Hattery, Inc.

Water Level Observations
No water encountered during drilling and sampling

Drill Rig
1206 - CME 550X

Hammer Type
Automatic

Driller
DL

Logged by
KW

Boring Started
11-06-2025

Boring Completed
11-06-2025

Notes

Advancement Method
Power Auger to termination depth.

Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Boring Log No. B-8

Location: See Exploration Plan

Latitude: 41.6471° Longitude: -91.6315°

Depth (Ft.) Elevation: 744 (Ft.)

Model Layer	Graphic Log	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	HP (tsf)	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
2		**FILL - LEAN CLAY**, trace sand and gravel, gray and brown								
		5.0 739			9	3-3-4 N=7		17.6	41-17-24	
					10	3-4-6 N=10	1.5	21.2		
4		**LEAN CLAY (CL)**, trace sand, gray and brown, stiff								
		7.5 736.5			18	3-4-6 N=10	1.5	24.6		
		LEAN CLAY (CL), trace sand, brown, medium stiff to stiff								
					13	2-2-3 N=5	0.25	26.9		
					10	2-3-4 N=7	0.5	25.7		
		15.5 728.5			18	3-3-4 N=7	0.75	18.9		
		Boring Terminated at 15.5 Feet								

5

10

15

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Elevation Reference: Elevation obtained using USGS National Map

Water Level Observations
No water encountered during drilling and sampling

No water after boring

Drill Rig
603 - CME 850XR

Hammer Type
Automatic

Driller
SZ

Logged by
WE

Boring Started
12-09-2025

Boring Completed
12-09-2025

Notes

Advancement Method
Power Auger to termination depth.

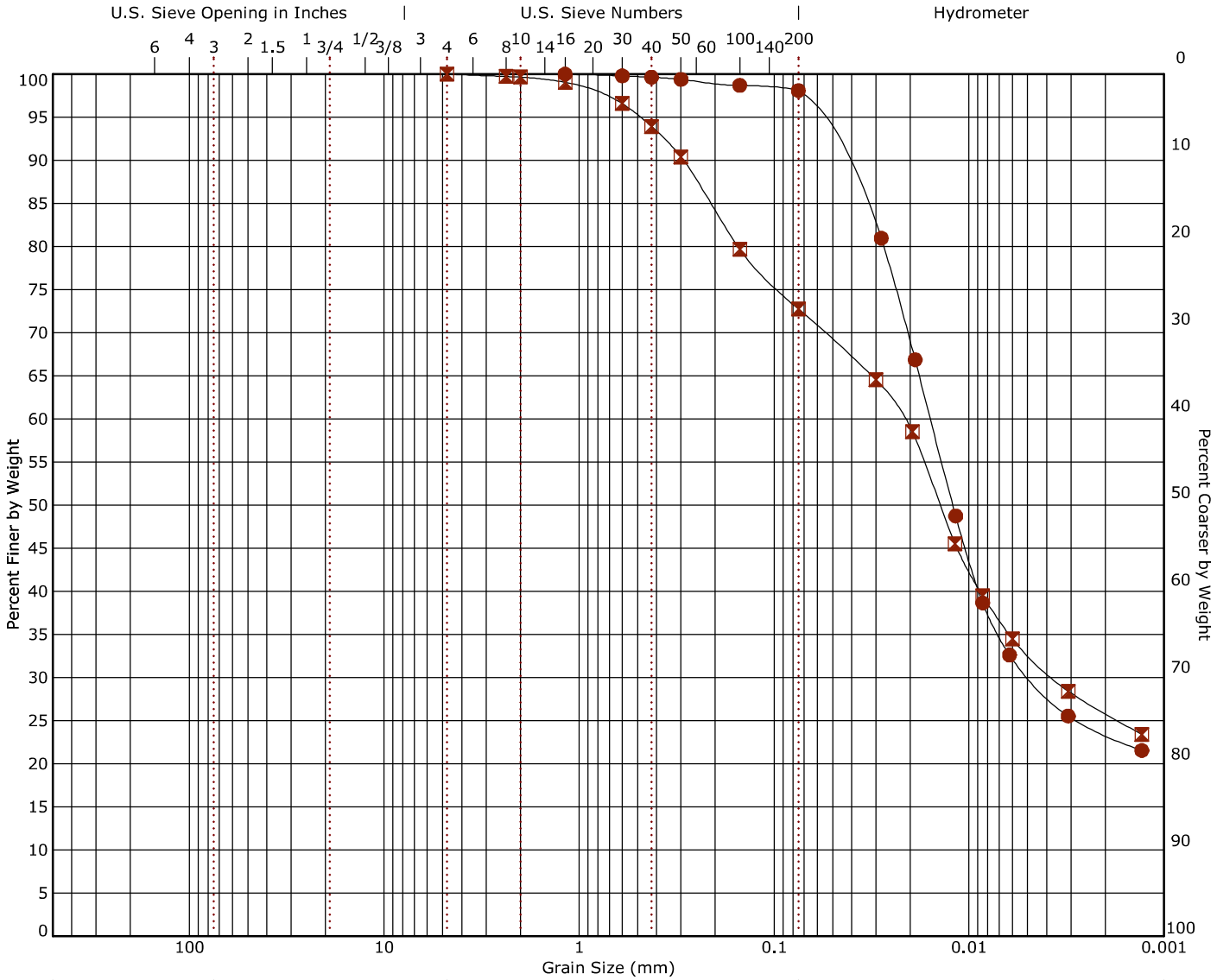
Abandonment Method
Boring backfilled with auger cuttings upon completion.

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Grain Size Distribution

ASTM D422 / ASTM C136 / AASHTO T27



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	% Cobbles	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS
●	B-7	4 - 5.5	0.0	0.0	1.9		67.7	30.4	CL
⊠	B-7	6.5 - 8	0.0	0.0	27.2		39.9	32.8	CL

	Description
●	LEAN CLAY
⊠	LEAN CLAY WITH SAND

Remarks
●
⊠

●		⊠			
Sieve	% Finer	Sieve	% Finer	Sieve	% Finer
#16	100.0	#4	100.0		
#30	99.8	#8	99.72		
#40	99.63	#10	99.66		
#50	99.39	#16	99.05		
#100	98.7	#30	96.59		
#200	98.08	#40	93.94		
		#50	90.39		
		#100	79.69		
		#200	72.76		

Grain Size			
	●	⊠	
D_{60}	0.016	0.022	
D_{10}			

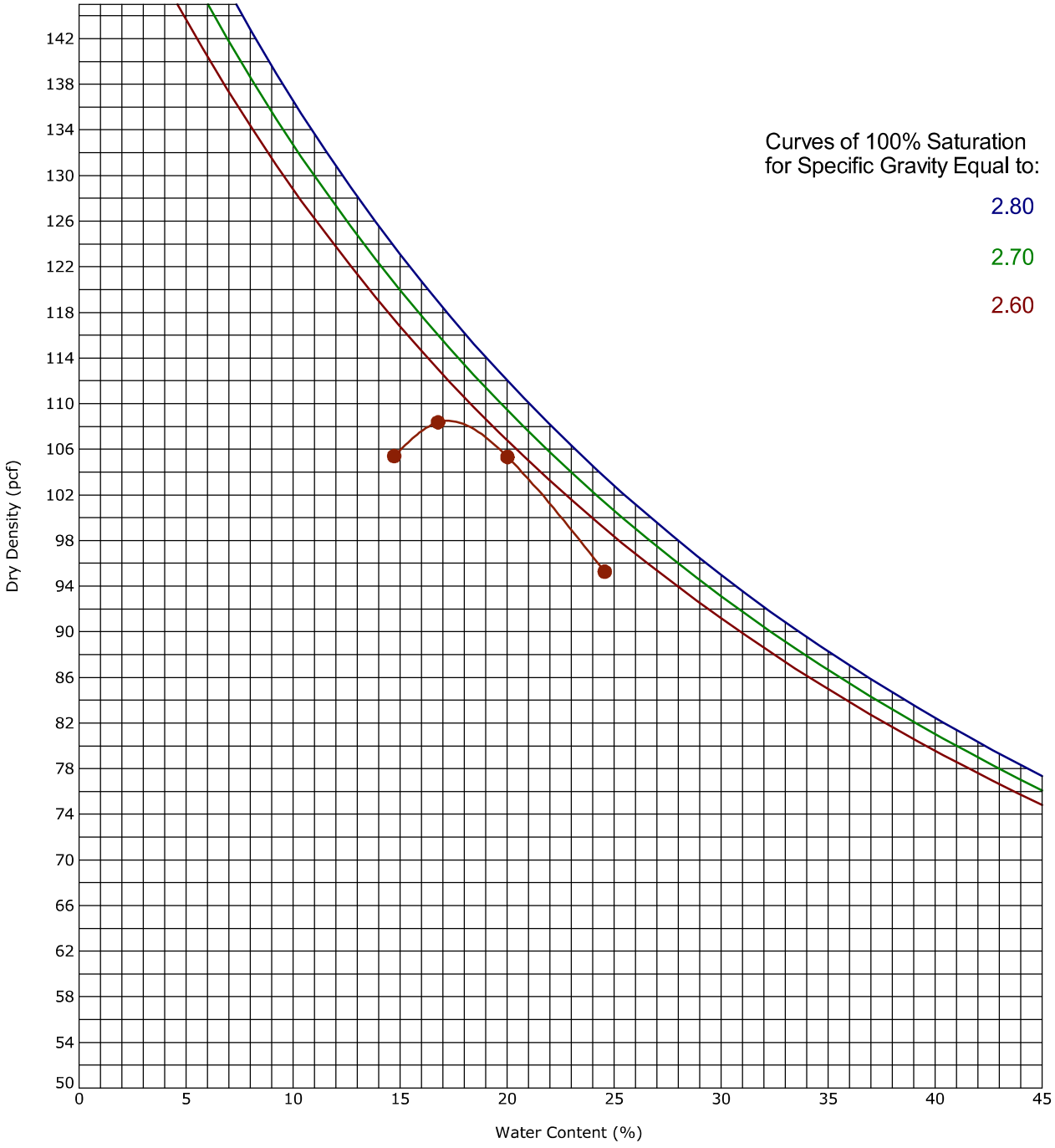
Coefficients			
	●	⊠	
C_c			
C_u			

Iowa City Compost Pavement
3900 Hebl Avenue SW | Iowa City, IA
Terracon Project No. 06245143

Terracon
2640 12th St SW
Cedar Rapids, IA

Moisture-Density Relationship

ASTM D698-Method A



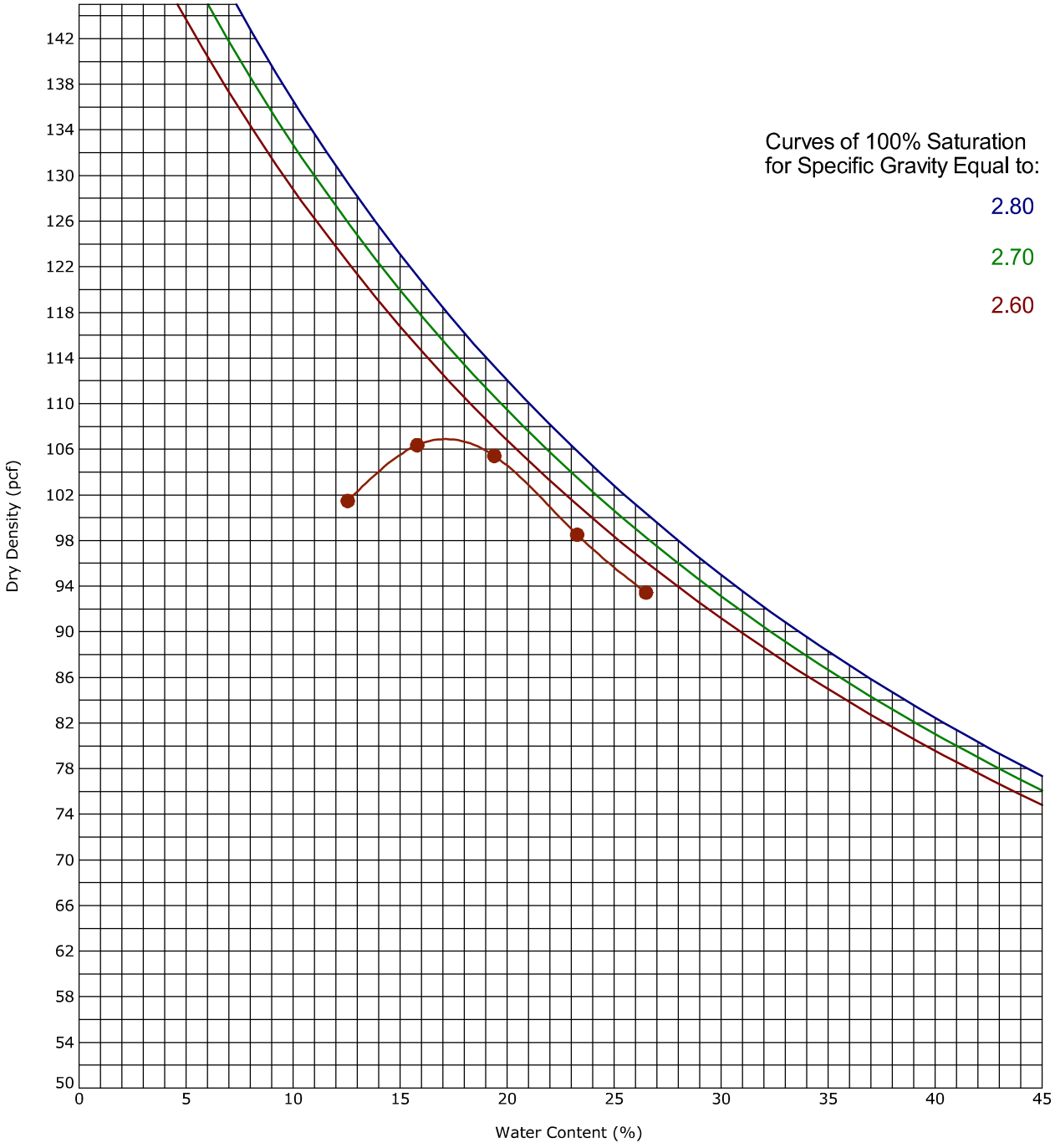
Boring ID	Depth (Ft)	Description of Materials
B-8	1 - 4	LEAN CLAY, trace sand and gravel, gray and brown

Fines (%)		LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
		41	17	24	ASTM D698-Method A	108.5	17.3

2640 12th St SW
Cedar Rapids, IA

Moisture-Density Relationship

ASTM D698-Method A



Boring ID	Depth (Ft)	Description of Materials
B-8	8 - 13	LEAN CLAY, trace sand, brown

Fines (%)		LL	PL	PI	Test Method	Maximum Dry Density (pcf)	Optimum Water Content (%)
					ASTM D698-Method A	106.9	17.1

MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS USING A FLEXIBLE WALL PERMEAMETER

ASTM D 5084 - 16 METHOD C TEST WITH INCREASING TAILWATER LEVEL

PROJECT NAME:	Iowa City Compost Pavement	PROJECT NO.:	06245143	CITY, STATE:	Iowa City, Iowa
SAMPLE ID:	Bulk 1, Boring B-8 from 1 to 4 feet	TEST DATE:	1/16/2026	PROJECT LOCATION:	Iowa City, Iowa
DESCRIPTION:	Gray and Brown Lean Clay trace Sand and Gravel (Fill)			Cross Sectional Area:	0.852 cm^2
LIQUID LIMIT:	41	PLASTIC LIMIT:	17	PERCENT FINES:	

MOISTURE%		DENSITY							
WET + TARE, g:	103.80	WET WT, g:	604.9			SPEC GRAV (G_S):	2.75	REMOLD (Y/N):	Y
DRY + TARE, g:	91.50	DIA, in:	2.84	7	cm	ASSUMED G_S (Y/N):	Y	PROCTOR:	108.5
TARE, g:	20.80	HT, in:	3.00	7.62	cm	POROSITY, %:	40.0	OPTIMUM:	17.3
MOISTURE %:	17.4	AREA, in^2:	6.350	40.96	cm^2	SATURATION, %:	71.8	COMPACTION, %:	95.0
		WET DENSITY:	121.0	PCF		VOID RATIO:	0.67	OVER OPTIMUM, %:	0.1
		DRY DENSITY:	103.0	PCF					

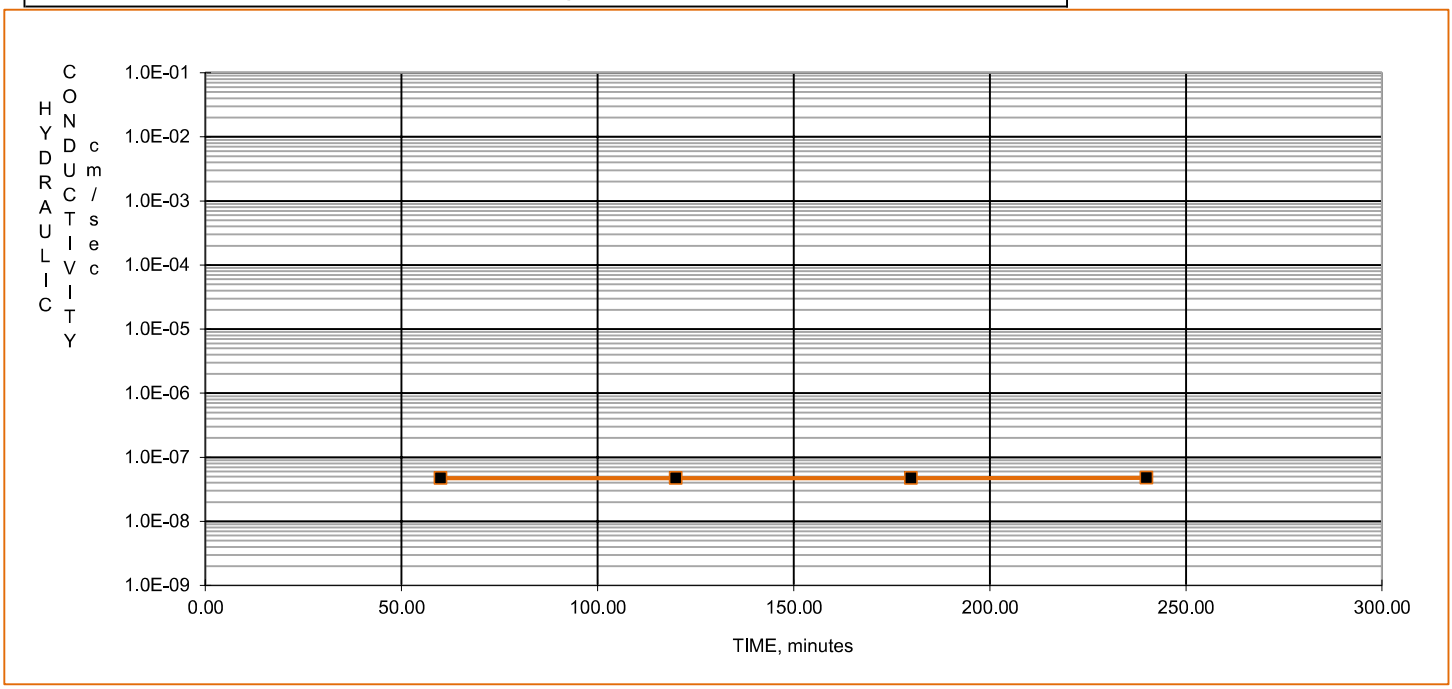
SATURATION:	CHAMBER PRESS.:	45.0	psi	BACK PRESSURE (=UPPER=LOWER):		40.0	psi	B VALUE:	99%
TEST:	CHAMBER PRESS.:	45.0	psi	UPPER:	40.0 psi	LOWER:	41.0	psi	
	EFFECT. CONSOL. STRESS:	**5.0**	psi	BIAS PRESSURE (=LOWER-UPPER)			1.0	psi	

Upper cm	Lower cm	ELAPSED TIME, min	DELTA H cm	Ln H1/H2	HYD CON k, cm/sec	OUT FLOW cm^3	IN FLOW cm^3	OUT/IN RATIO	HYD GRAD	% FROM MEAN k	TEMP.: C	TEMP. CORR.:
2.0	22.1		20.1									
2.1	22.0	60.00	19.9	0.002158	4.71E-08	0.1	0.1	1.00	11.8	0	20.5	0.992
2.2	21.9	120.00	19.7	0.002163	4.72E-08	0.1	0.1	1.00	11.8	0	20.5	0.992
2.3	21.8	180.00	19.5	0.002167	4.73E-08	0.1	0.1	1.00	11.8	0	20.5	0.992
2.4	21.7	240.00	19.3	0.002172	4.74E-08	0.1	0.1	1.00	11.8	0	20.5	0.992

HYDRAULIC CONDUCTIVITY (k) = **AVERAGE 4.7E-08 cm/sec**

0.002

FINAL MOISTURE%		FINAL DENSITY							
WET + TARE, g:	996.10	WET WT, g:	638.5			SPEC GRAV (G_S):	2.70		
DRY + TARE, g:	884.90	DIA, in:	2.84	7	cm	ASSUMED G_S (Y/N):	Y		
TARE, g:	371.80	HT, in:	2.98	7.57	cm	POROSITY, %:	37.2		
MOISTURE %:	21.7	AREA, in^2:	6.335	40.87	cm^2	SATURATION, %:	98.9		
		WET DENSITY:	128.9	PCF		VOID RATIO:	0.59		
		DRY DENSITY:	105.9	PCF					



MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS USING A FLEXIBLE WALL PERMEAMETER

ASTM D 5084 - 16 METHOD C TEST WITH INCREASING TAILWATER LEVEL

PROJECT NAME:	Iowa City Compost Pavement	PROJECT NO.:	06245143	CITY, STATE:	Iowa City, Iowa
SAMPLE ID:	Bulk 2, Boring B-8 from 8 to 13 feet	TEST DATE:	1/16/2026	PROJECT LOCATION:	Iowa City, Iowa
DESCRIPTION:	Gray and Brown Lean Clay trace Sand			Cross Sectional Area:	0.852 cm^2
LIQUID LIMIT:		PLASTIC LIMIT:		PERCENT FINES:	

MOISTURE%		DENSITY							
WET + TARE, g:	101.00	WET WT, g:	594.1			SPEC GRAV (G_S):	2.75	REMOLD (Y/N):	Y
DRY + TARE, g:	89.80	DIA, in:	2.84	7	cm	ASSUMED G_S (Y/N):	Y	PROCTOR:	106.9
TARE, g:	23.90	HT, in:	3.00	7.63	cm	POROSITY, %:	40.6	OPTIMUM:	17.1
MOISTURE %:	17.0	AREA, in^2:	6.320	40.77	cm^2	SATURATION, %:	68.3	COMPACTION, %:	95.3
		WET DENSITY:	119.2	PCF		VOID RATIO:	0.68	OVER OPTIMUM, %:	-0.1
		DRY DENSITY:	101.9	PCF					

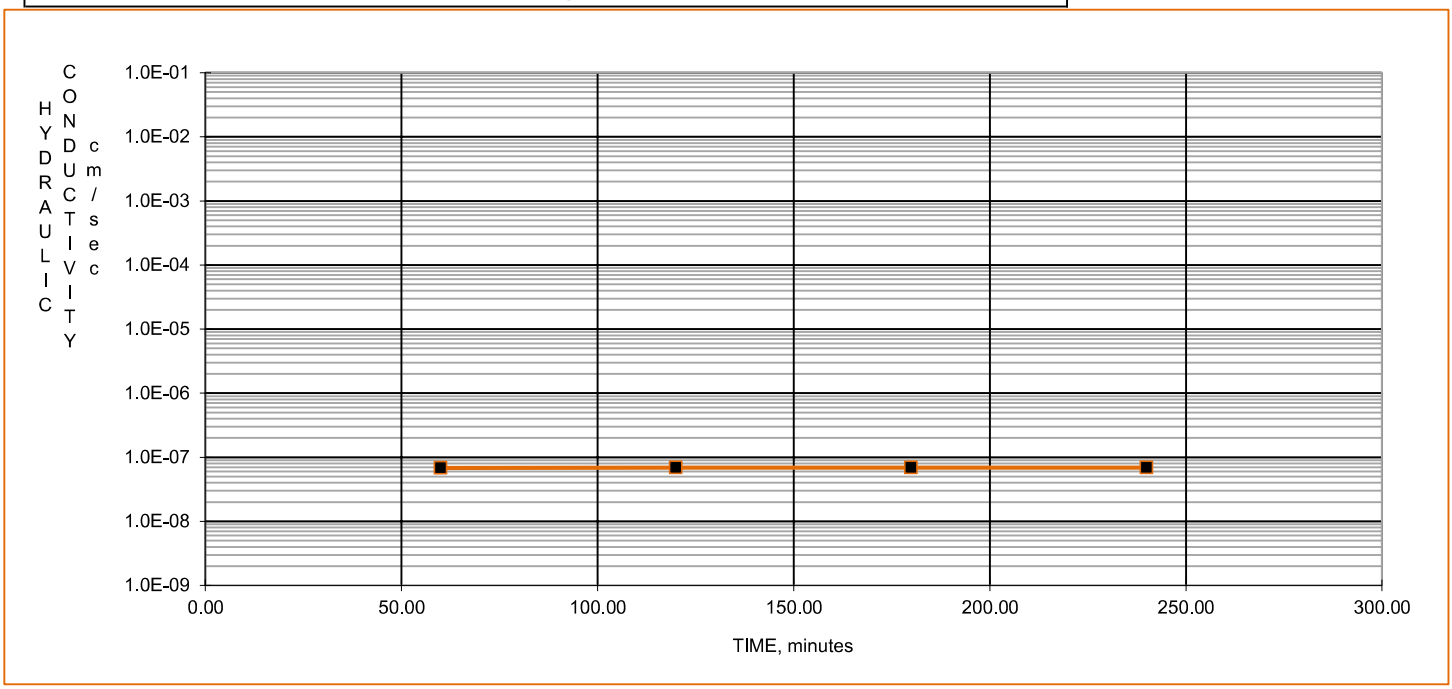
SATURATION:	CHAMBER PRESS.:	45.0	psi	BACK PRESSURE (=UPPER=LOWER):		40.0	psi	B VALUE:	99%
TEST:	CHAMBER PRESS.:	45.0	psi	UPPER:	40.0 psi	LOWER:	41.5	psi	
	EFFECT. CONSOL. STRESS:	**5.0**	psi	BIAS PRESSURE (=LOWER-UPPER)			1.5	psi	

Upper cm	Lower cm	ELAPSED TIME, min	DELTA H cm	Ln H1/H2	HYD CON k, cm/sec	OUT FLOW cm^3	IN FLOW cm^3	OUT/IN RATIO	HYD GRAD	% FROM MEAN k	TEMP.: C	TEMP. CORR.:
2.2	22.2		20.0									
2.4	22.0	60.00	19.6	0.003111	6.84E-08	0.2	0.2	1.00	16.4	0	20.5	0.992
2.6	21.8	120.00	19.2	0.003121	6.86E-08	0.2	0.2	1.00	16.3	0	20.5	0.992
2.8	21.6	180.00	18.8	0.003131	6.88E-08	0.2	0.2	1.00	16.3	0	20.5	0.992
3.0	21.4	240.00	18.4	0.003141	6.90E-08	0.2	0.2	1.00	16.2	0	20.5	0.992

HYDRAULIC CONDUCTIVITY (k) = **AVERAGE 6.9E-08 cm/sec**

0.002

FINAL MOISTURE%		FINAL DENSITY						
WET + TARE, g:	1006.80	WET WT, g:	645.1			SPEC GRAV (G_S):	2.70	
DRY + TARE, g:	897.00	DIA, in:	2.85	7	cm	ASSUMED G_S (Y/N):	Y	
TARE, g:	391.90	HT, in:	2.98	7.57	cm	POROSITY, %:	37.0	
MOISTURE %:	21.7	AREA, in^2:	6.379	41.16	cm^2	SATURATION, %:	99.9	
		WET DENSITY:	129.3	PCF		VOID RATIO:	0.59	
		DRY DENSITY:	106.2	PCF				



Supporting Information

Contents:

General Notes
Unified Soil Classification System

Terracon
2640 12th St SW
Cedar Rapids, IA

General Notes

Sampling	Water Level	Field Tests
Auger Cuttings Standard Penetration Test	Water Initially Encountered Water Level After a Specified Period of Time Water Level After a Specified Period of Time Cave In Encountered Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	N Standard Penetration Test Resistance (Blows/Ft.) (HP) Hand Penetrometer (T) Torvane (DCP) Dynamic Cone Penetrometer UC Unconfined Compressive Strength (PID) Photo-Ionization Detector (OVA) Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Relative Density	**Standard Penetration or N-Value (Blows/Ft.)**	**Consistency**	**Unconfined Compressive Strength Qu (tsf)**	**Standard Penetration or N-Value (Blows/Ft.)**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	9 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	> 30

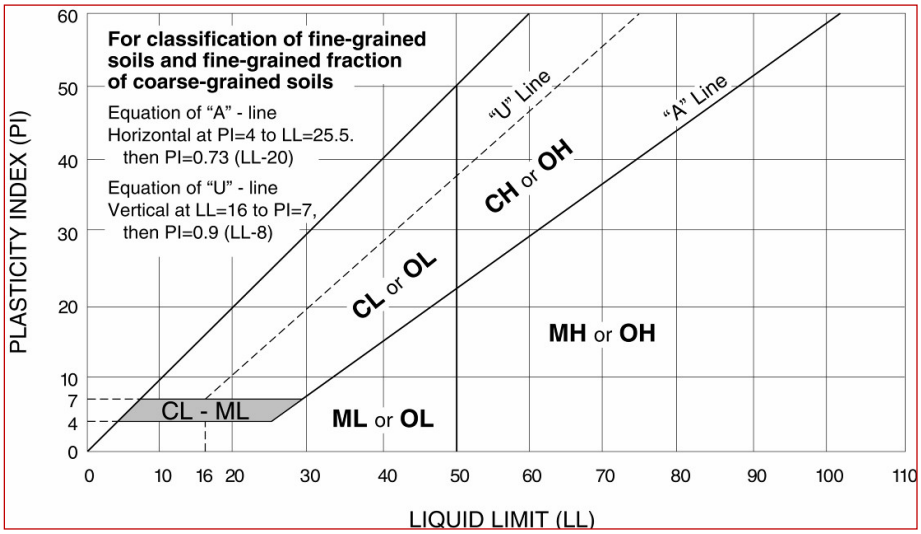
Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Unified Soil Classification System

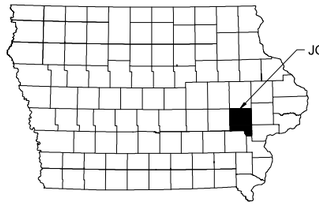
Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Soil Classification	
				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 4 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



Attachment 3

PLANS OF PROPOSED IMPROVEMENTS FOR



CITY OF IOWA CITY

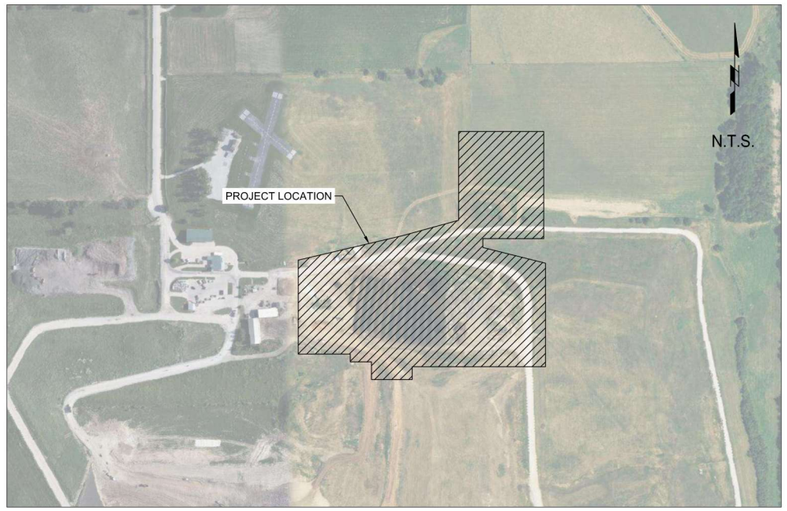
JOHNSON COUNTY, IOWA

IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

THIS PROJECT IS COVERED BY IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 1. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 1 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2602 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) AND CITY OF IOWA CITY SUPPLEMENTAL SPECIFICATIONS.

PROJECT LOCATION MAP



TOTAL SHEETS: 66

SHEET INDEX

SHEET NO.	SHEET TITLE
A.01	COVER
A.02 - A.03	GENERAL NOTES AND LEGEND
B.01 - B.05	DETAILS
C.01 - C.03	QUANTITIES AND ESTIMATE REFERENCE NOTES
D.01	SITE PLAN
D.02 - D.04	PLAN AND PROFILE - COMPOST ROAD
E.01 - E.02	PLAN AND PROFILE - EXTERIOR LOOP ROAD & SOUTH ROAD
EC.01 - EC.05	EROSION CONTROL PLAN
F.01 - F.04	GRADING PLAN
G.01	GEOMETRIC CONTROL
J.01 - J.04	TRAFFIC CONTROL PLAN
K.01 - K.02	PAVING PLAN
L.01 - L.02	JOINTING PLAN
M.01 - M.03	STORM SEWER PLAN
M.04 - M.08	UTILITY ADJUSTMENT PLAN
R.01	REMOVAL PLAN
W.01 - W.15	COMPOST ROAD - CROSS SECTIONS
X.01 - X.04	EXTERIOR LOOP ROAD - CROSS SECTIONS
X.05 - X.07	SOUTH ROAD - CROSS SECTIONS

IOWA CITY PUBLIC WORKS DEPARTMENT

THIS ENGINEERING DOCUMENT IS RECOMMENDED FOR FILING WITH THE CITY CLERK

CITY ENGINEER DATE

CIVIL ENGINEER

LICENSED PROFESSIONAL ENGINEER
DAVE PANOS
P15579
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE 12/31/2025 DATE

PRINTED OR TYPED NAME DAVE PANOS

LICENSE NUMBER 15579

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2026

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL
ALL SHEETS EXCLUDING B.02, B.03, F.04, M.01, M.02, M.03, M.06, M.07, M.08

CIVIL ENGINEER

LICENSED PROFESSIONAL ENGINEER
DANIEL J. JENSEN
25063
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

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PRINTED OR TYPED NAME DAN JENSEN

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IOWA ONE CALL

1-800-292-8989

The Utilities as shown on this drawing were developed from the information available. This is not implied nor intended to be the complete inventory of utilities in this area. It is the clients/contractors responsibility to verify the location of all utilities (whether shown or not) and protect said utilities from any damage.

EPA

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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT
CITY OF IOWA CITY
IOWA CITY, IOWA

BID ISSUE DATE: 12/31/2025

PROJECT NUMBER: 2240011780

A.01

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GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION SCHEDULE WITH CITY STAFF TO TO COORDINATE GATE ACCESS AND OPERATIONS OF ACTIVITIES WHILE THE LANDFILL REMAINS OPEN TO THE PUBLIC.
2. CREATING A SAFE WORK ENVIRONMENT FOR ALL ACCESSING AREAS OF THE LANDFILL IS A REQUIREMENT AT ALL TIMES WHILE OPERATING AT THE LANDFILL.
3. DUE TO THE POSSIBLE NATURE OF LANDFILL GASES BEING PRESENT WHILE CONTRACTOR IS WORKING ON SITE. SMOKING IS NOT ALLOWED AT ANY TIME ON THE IOWA CITY LANDFILL PROPERTY.
4. ALL CONSTRUCTION PUBLIC OR PRIVATE SHALL BE IN ACCORDANCE WITH IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) AS AMENDED BY THE CITY OF IOWA CITY ORDINANCE AND SUPPLEMENTAL SPECIFICATIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
5. THE LOCATIONS OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS PLOTTED ON THESE DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SHIVE-HATTERY, INC. THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES AND SERVICE CONNECTIONS NOT KNOWN TO SHIVE-HATTERY, INC. AND NOT SHOWN ON THIS DRAWING.
6. NOTIFY UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN CONSTRUCTION LIMITS OF THE SCHEDULE PRIOR TO EACH STAGE OF CONSTRUCTION. NOTIFY THE APPROPRIATE PRIVATE UTILITY A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION ON ANY FACILITIES OWNED OR OPERATED BY THAT UTILITY.
7. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, COORDINATES, ELEVATIONS, AND UTILITIES AT CRITICAL LOCATIONS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATIONS. IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES SO THE CONFLICT MAY BE RESOLVED.
8. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-292-8989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
9. THE MEANS OF THE WORK AND THE SAFETY OF THE CONTRACTOR'S EMPLOYEES ARE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
10. NO WORK SHALL BE PERFORMED BEYOND THE PROJECT LIMITS WITHOUT PRIOR AUTHORIZATION FROM THE CITY.
11. A PRE-CONSTRUCTION MEETING SHALL BE HELD FOLLOWING ISSUANCE OF THE NOTICE TO PROCEED BUT PRIOR TO COMMENCING WORK.
12. THE SAFE AND ORDERLY PASSAGE OF TRAFFIC SHALL BE PROVIDED WHERE CONSTRUCTION OPERATIONS ABUT PUBLIC THROUGH-FARES. NORMAL LANDFILL OPERATIONS SHALL NOT BE INTERRUPTED WITHOUT APPROVAL BY THE CITY OF IOWA CITY.
13. ALL AREAS DISTURBED BY THE GENERAL CONTRACTOR OR SUB-CONTRACTORS SHALL BE RETURNED TO THE ORIGINAL CONDITION OR BETTER, EXCEPT WHERE PROPOSED CONSTRUCTION IS INDICATED ON THE PLANS.
14. CONTRACTOR SHALL PROVIDE TRAFFIC MEASURES (SIGNS, BARRICADES, FLAGGERS, ETC.) IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) LATEST EDITION.
15. CONSTRUCTION STAKING SHALL BE PERFORMED BY CONTRACTOR.
16. PROTECT ALL EXISTING FEATURES NOT SPECIFICALLY NOTED FOR REMOVAL. FEATURES NOT DESIGNATED FOR REMOVAL THAT ARE DAMAGED OR REMOVED BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
17. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE ON THE SITE THROUGHOUT CONSTRUCTION. ANY DAMAGE CAUSED BY A FAILURE TO MAINTAIN POSITIVE DRAINAGE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
18. ALL OPEN EXCAVATIONS SHALL BE PROTECTED IN ACCORDANCE WITH REGULATORY REQUIREMENTS.
19. CONSTRUCTION ACTIVITIES ARE TO BE LIMITED TO THE DESIGNATED WORK ZONE. IF ADDITIONAL AREAS ARE NEEDED FOR STAGING, STORAGE, ETC., IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN WRITTEN PERMISSION FROM THE PROPERTY OWNER(S). CONTRACTOR OPERATIONS ON CONDUCTED TO NOT IMPACT IOWA CITY LANDFILL PUBLIC USE OF OVERALL FACILITY AND COMPOST OPERATION AREA EAST OF PROJECT SITE.
20. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN SUBSURFACE INFORMATION THAT MAY AFFECT COSTS. IF ADVERSE SUBSURFACE CONDITIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL NOTIFY THE OWNER REPRESENTATIVE IMMEDIATELY. THE CONTRACTOR SHALL VISIT THE SITE AND ACQUAINT HIM/HERSELF WITH ALL EXISTING CONDITIONS PRIOR TO BIDDING/CONSTRUCTION. POTENTIAL CONTRACTORS MAY MAKE A SUBSURFACE INVESTIGATION TO SATISFY THEMSELVES AS TO SITE AND SUBSURFACE CONDITIONS. ANY INVESTIGATION SHALL BE CLEARED THROUGH THE OWNER PRIOR TO COMMENCEMENT.

GENERAL UTILITY NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) STANDARD SPECIFICATIONS, GENERAL SUPPLEMENTAL SPECIFICATIONS, AND SUPPLEMENTAL SPECIFICATIONS.
2. TRENCH BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH FIGURE 3010.201, SHEETS 1-8, OF THE CITY OF IOWA CITY SUPPLEMENTAL SPECIFICATIONS. ALL PIPE TRENCHES LOCATED UNDER AND WITHIN 5-FEET OF PAVED SURFACES SHALL BE BACKFILLED WITH CLASS A CRUSHED STONE (IOWA DOT GRADATION #11).
3. PRIOR TO CONSTRUCTING PROPOSED STORM SEWERS, ETC., THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES AT LOCATIONS OF POTENTIAL CONFLICTS TO VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION.
4. THE SITE HAS EXISTING LANDFILL GAS, AND AIR LINES, GAS WELL . CONTRACTOR SHAL FIELD VERIFY UTILITY DEPTHS PRIOR TO WORK AS INDICATED ON GRADING AND STORM SEWER UTILITY SHEETS. COORDINATION WITH CITY STAFF IS REQUIRED PRIOR TO WORK TO VERIFY CLEARANCE AND DEPTH.
5. IOWA CODE 480, UNDERGROUND FACILITIES INFORMATION, REQUIRES VERBAL NOTICE TO IOWA ONE-CALL 1-800-2928989, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
6. ADJUST ALL VALVES, MANHOLES, CASTINGS, HYDRANTS, ETC., TO MATCH THE NEW SURFACE FOR UTILITIES THAT ARE NOT TO BE ABANDONED OR REMOVED. BASED ON FINAL SURFACE ELEVATIONS, COORDINATE WITH THE APPROPRIATE UTILITY OWNER.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR DOCUMENTING AS-BUILT CONDITIONS OF BOTH NEWLY CONSTRUCTED UTILITIES AND EXISTING UTILITIES WHERE THE EXISTING UTILITIES DIFFER FROM THAT SHOWN ON THE PLAN. THE INFORMATION SHALL INCLUDE THE HORIZONTAL AND VERTICAL LOCATIONS, SIZE, MATERIAL DATA, AND OTHER PERTINENT INFORMATION.
8. COORDINATE WITH CITY IF ANY UTILITIES ARE LOCATED IN THE FIELD THAT ARE NOT IDENTIFIED ON PLAN SHEETS TO VERIFY IF LINES ARE ACTIVE.
9. ALL STORM SEWERS SHALL BE CLASS III RCP WITH CONFINED "O" RING GASKET JOINTS UNLESS NOTED OTHERWISE. STORM SEWERS 36" AND SMALLER SHALL HAVE BELL AND SPIGOT JOINTS. FABRIC WRAPPED JOINTS OR MASTIC JOINTS ARE NOT PERMITTED.
10. ALL PIPE SHALL BE CERTIFIED.
11. LIFT HOLES IN STORM SEWER WILL NOT BE ALLOWED.
12. MANHOLE AND INTAKE CASTINGS SHALL HAVE CITY OF IOWA CITY LOGO AND ONE CONCEALED PICK HOLE. MANHOLE FRAME AND LID TO BE NEENAH R-1642 SELF SEALING OR APPROVED EQUAL.
13. STORM SEWER PIPE CONNECTIONS TO STRUCTURES SHALL REQUIRE USE OF WATER STOP AND CONCRETE COLLARS. COMPLY WITH FIGURE 4020.211 OF THE SUPPLEMENTAL SPECIFICATIONS.
14. ALL STORM STRUCTURES SHALL BE WATERTIGHT. WATER STOP SHALL BE USED IN ALL FIELD CONSTRUCTION JOINTS AND COLD JOINTS.
15. MANHOLE CHIMNEY SEALING SHALL BE EXTERNAL INFI-SHIELD UNIBAND, CRETEX OR APPROVED EQUAL. INTERNAL CHIMNEY SEALS BY CRETEX OR APPROVED EQUAL WILL BE ALLOWED ONLY IN PROPOSED PAVED AREAS WHERE SLIP-FORM PAVING WILL BE UTLIZED FOR CONSTRUCTION.
16. MANHOLE ADJUSTMENT RINGS TO BE CRETEX PRO-RING, AMERICAN HIGHWAY PRODUCTS RUBBER ADJUSTMENT RING, OR STANDARD PCC. IF PCC RINGS ARE USED, SHIMS TO LEVEL MANHOLE FRAME MADE OF MATERIALS OTHER THAN PCC OR THE RING MATERIAL DISCUSSED ABOVE WILL NOT BE ALLOWED, I.E.: WOOD, BRICK, ROCKS, ETC

SITE PREPARATION NOTES

1. COORDINATE WITH CITY LANDFILL STAFF TO DETERMINE STOCKPILE AND WASTE AREA OR DISPOSAL LOCATIONS FOR EXCESS MATERIAL. EXCESS GRAVEL AND DIRT MATERIAL CAN BE DISPOSED ONSITE. CONTRACTOR TO COORDINATE WITH PUBLIC WORKS AND LANDFILL STAFF PRIOR TO WORK OCCURRING.
2. WHERE A SECTION OF PAVEMENT, CURB AND GUTTER, DAMAGED BY THE CONTRACTOR, THE ENTIRE SECTION SHALL BE REMOVED AND REPLACED.
3. DOUBLE SAWCUT EDGES OF PAVEMENT FULL DEPTH PRIOR TO REMOVAL TO PREVENT DAMAGE TO ADJACENT SLABS AND FIXTURES.
4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT ALL TREES AND SHRUBS IN PROJECT AREA FROM DAMAGE DUE TO CONSTRUCTION ACTIVITY UNLESS SHOWN ON THE PLANS OR DIRECTED BY THE OWNER'S REPRESENTATIVE.
5. REMOVAL AND DISPOSAL OF EXISTING TREES AND SHRUBS WITHIN CONSTRUCTION LIMITS SHALL BE INCIDENTAL TO THE GRADING PORTION OF THE PROJECT. STUMPS ARE TO BE GROUND TO TWO FEET BELOW FINISHED GRADE. TREES THAT QUALIFY FOR ENDANGERED BAT HABITAT ARE TO BE FELLED BETWEEN OCTOBER 1ST AND MARCH 31ST.
6. THE DEMOLITION PLAN IS INTENDED TO SHOW REMOVAL OF KNOWN SITE FEATURES AND UTILITIES AS SHOWN ON THE SURVEY PROVIDED TO THE ENGINEER FOR DESIGN. THERE MAY BE OTHER SITE FEATURES, UTILITIES, STRUCTURES, AND MISCELLANEOUS ITEMS BOTH BURIED AND ABOVE GROUND THAT ARE WITHIN THE LIMITS OF WORK THAT MAY REQUIRE REMOVAL FOR THE PROPOSED SITE IMPROVEMENTS BUT THAT ARE NOT SHOWN HEREIN. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF SUCH ITEMS AT NO ADDITIONAL COST TO THE OWNER.
7. VOIDS LEFT BY ANY ITEM REMOVED SHALL BE BACKFILLED.
8. CONTRACTOR SHALL PROVIDE TEMPORARY DIVERSION SWALES OR OTHER MEANS OF MAINTAINING ADEQUATE SITE DRAINAGE.
9. CONTRACTOR SHALL UTILIZE CARE WHEN WORKING NEAR EXISTING UTILITIES TO REMAIN. ANY DAMAGE TO EXISTING UTILITIES NOT NOTED TO BE REMOVED SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE AND TO THE SATISFACTION OF THE OWNER AND/OR ENGINEER.
10. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF A FIELD OR DRAIN TILE IS ENCOUNTERED AND SHALL INDICATE THE METHOD OF RESOLVING THE CONFLICT. THE ENGINEER SHALL APPROVE THE PROPOSED METHOD. A RECORD OF THE LOCATION OF ALL FIELD TILE OR DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE CONTRACTOR AND TURNED OVER TO THE OWNER AND/OR ENGINEER UPON COMPLETION OF THE PROJECT AND ACCURATELY SHOWN ON THE RECORD DRAWINGS. EXISTING FIELD TILE LINES ENCOUNTERED IN THIS PROJECT SHALL BE REPAIRED BY THE CONTRACTOR IN ONE OF THE FOLLOWING WAYS:
    10.1. CONNECT TILE TO THE NEAREST STORM SEWER.
    10.2. DAYLIGHT TO FINISHED GROUND.
    10.3. REPAIR TILE AND MAINTAIN SERVICE

PAVEMENT GENERAL NOTES

1. ALL SLOPES IN PAVEMENT SHALL BE UNIFORM TO AVOID PONDING.
2. ALL DIMENSIONS TO TOP OF SLAB UNLESS NOTED OTHERWISE.
3. REMOVE AND REPLACE OR RESTORE ALL STREET SIGNS, PAVEMENT MARKINGS, SIDEWALK LAMPS, SIDEWALKS, STEPS, LANDSCAPE STRUCTURES, CURB AND GUTTER, STREETS, DRIVES, AND ALL OTHER SURFACE STRUCTURES REMOVED OR OTHERWISE DAMAGED DURING THE COURSE OF THE WORK.
4. ALL PAVEMENT AND SIDEWALKS SHALL BE REMOVED AND REPLACED TO NEAREST JOINT BEYOND CONSTRUCTION AREA.
5. COMPACT SUBGRADE BENEATH PAVEMENTS IN ACCORDANCE WITH GRADING NOTES.
6. ALL PCC PAVEMENT SHALL BE PROTECTED ACCORDING TO SUDAS SECTION 7010-3.04.
7. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS WITH 6-1/2 PERCENT± 1/2% AIR ENTERTAINMENT AND LIMESTONE AGGREGATE 1-1/2 INCH MAXIMUM SIZE. ANY MODIFICATIONS TO JOINTING SHALL MEET SUDAS REQUIREMENTS FOR MAXIMUM LENGTH AND WIDTH BASED ON PAVEMENT THICKNESSES SHOWN. PROVIDE JOINTS 18' O/C MAXIMUM (9" PAVEMENT), 16' O/C MAXIMUM (8" PAVEMENT), 14' O/C MAXIMUM (7" PAVEMENT) OR 10' O/C MAXIMUM (6" PAVEMENT) UNLESS NOTED OTHERWISE. MATERIALS AND CONSTRUCTION FOR PORTLAND CEMENT CONCRETE PAVEMENTS SHALL MEET THE REQUIREMENT OF IOWA DOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, LATEST REVISION, SECTION 2301. THE PARAGRAPHS FOR MEASUREMENT AND PAYMENT SHALL NOT APPLY.
8. CURBS SHALL BE CAST INTEGRAL WITH CONCRETE PAVEMENT UNLESS NOTED OTHERWISE. EDGES SHALL BE ROUNDED BUT NOT ROLLED.
9. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A PAVEMENT POURING DIAGRAM TO THE OWNER AND ENGINEER FOR APPROVAL PRIOR TO PAVEMENT OPERATIONS. DESIGN FILE AND ADDITIONAL PAVEMENT ELEVATIONS AT JOINTS CAN BE COORDINATED WITH ENGINEER TO FACILITATE STAKING, LAYOUT, AND DESIGNED DRAINAGE PATTERNS UPON REQUEST.
10. THE CONTRACTOR SHALL PROVIDE THE ENGINEER A FINAL PAVEMENT JOINTING PLAN FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
11. ALL JOINT TYPES ARE DETAILED IN IOWA SUDAS STANDARD DETAIL 7010.101.
12. PAVEMENT LONGITUDINAL JOINTS SHALL AS SHOWN ON THE PLANS.
13. PAVEMENT TRANSVERSE JOINTS SHALL BE AS SHOWN ON THE PLANS.
14. ALL JOINTS, INCLUDING "BT" OR "L" TYPE JOINTS, SHALL BE SEALED PER IOWA SUDAS STANDARD DETAIL 7010.101 DETAIL "A" AND IOWA SUDAS STANDARD SPECIFICATION SECTION 3.02 K.

GRADING NOTES

1. NO ROCK EXCAVATION IS ANTICIPATED ON THIS PROJECT, SHOULD ROCK BE ENCOUNTERED DURING CONSTRUCTION, NOTIFY THE OWNER'S REPRESENTATIVE.
2. STRIP EXISTING VEGETATION AND REMOVE AND DISPOSE OF GRAVEL AND SURFACE MATERIAL WITHIN THE PROJECT LIMITS AND AREAS TO RECEIVE FILL. CORRDINATE DISPOSAL OF THESE MATERIALS WITH CITY OF IOWA CITY.
3. STRIP EXISTING TOPSOIL WITHIN THE PROJECT LIMITS AND AREAS TO RECEIVE FILL. STOCKPILE TOPSOIL FOR REUSE. EXCESS TOPSOIL MAY BE STOCKPILED ON SITE AT A LOCATION APPROVED BY THE OWNER'S REPRESENTATIVE. ESTIMATED TOP SOIL DEPTH IS 4" IN EXISTING LANDSCAPED AREAS. PLEASE NOTE TOP SOIL DEPTHS MAY VERY ON-SITE.
4. PROOFROLL ALL FILL AREAS TO IDENTIFY SOFT OR DISTURBED AREAS IN THE SUBGRADE. ALL UNSUITABLE MATERIAL IDENTIFIED SHALL BE REMOVED AND REPLACED WITH STRUCTURAL FILL AND RECOMPACTED TO 95% STANDARD PROCTOR DENSITY. PROOFROLL WITH 25 TON MINIMUM GROSS VEHICLE WEIGHT.
5. REMOVE AND RECOMPACT AREAS OF SUBGRADE WHICH ARE SOFT OR UNSTABLE TO MEET SPECIFIED LIMITS FOR DENSITY AND MOISTURE CONTENT. PAVED AREAS TO BE COMPACTED TO 98% STANDARD PROCTOR DENSITY AND 98% STANDARD PROCTOR DENSITY FOR BUILDING PAD AREAS.
6. SCARIFY AND RECOMPACT THE TOP 12 INCHES OF SUBGRADE IN ALL CUT AREAS AFTER ROUGH GRADING IS COMPLETED. COMPACT THE ENTIRE PAVING SUBGRADE TO 95% STANDARD PROCTOR DRY DENSITY TO WITHIN 12 INCHES OF FINAL SUBGRADE.
7. DO NOT PLACE, SPREAD, OR COMPACT ANY FILL MATERIAL DURING UNFAVORABLE WEATHER CONDITIONS AND DO NOT RESUME COMPACTION OPERATIONS UNTIL MOISTURE CONTENT AND DENSITY OF IN-PLACE FILL MATERIAL ARE WITHIN SPECIFIED LIMITS.
8. FILL MATERIAL OBTAINED FROM OFF-SITE SOURCES SHALL BE SOIL OR SOIL AND ROCK MIXTURE FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES. IT SHALL CONTAIN NO ROCKS OR LUMPS OF 6 INCHES IN GREATEST DIMENSION AND NOT MORE THAN 15% OF THE ROCKS OR LUMPS SHALL BE LARGER THAN 2-1/2 INCHES IN GREATEST DIMENSION.
9. CONTRACTOR SHALL CAREFULLY PRESERVE ALL SITE BENCHMARKS AND REFERENCE POINTS DURING CONSTRUCTION OPERATIONS.
10. CONTRACTOR SHALL MAKE SURE POSITIVE DRAINAGE TO ALL STORM DRAINAGE STRUCTURES EXIST. AREAS OF SURFACE PONDING SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
11. EXCAVATION SHORING SHALL BE DONE AS NECESSARY FOR THE PROTECTION OF THE WORK AND FOR THE SAFETY OF PERSONNEL. SHORING SHALL BE IN ACCORDANCE WITH ALL O.S.H.A AND LOCAL REGULATIONS.
12. FINISH CONTOURS AND SPOT ELEVATIONS SHOWN ARE TO TOP OF PAVEMENT OR TO TOP OF TOPSOIL, UNLESS OTHERWISE NOTED.

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IOWA CITY LANDFILL COMPOST FACILITY
IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY
IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	---

GENERAL NOTES AND LEGEND

A.02

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LEGEND

EXISTING GENERAL SITE

PLAN MARK	DESCRIPTION
	EXISTING STRUCTURE
	BOLLARD
	SHRUB
	DECIDUOUS TREE
	CONIFEROUS TREE
	SINGLE POLE SIGN
	DOUBLE POLE SIGN
	TRAFFIC SIGNAL WITH ARM
	CHAIN LINK FENCE
	WOOD FENCE
x x	WIRE FENCE
	TREE LINE
621	MINOR CONTOUR
620	MAJOR CONTOUR

LEGEND

UTILITY LINES

EXISTING LINE TYPE	DESCRIPTION	PROPOSED LINE TYPE
OE	ELECTRIC - OVERHEAD	OE
E	ELECTRIC - UNDERGROUND	E
G	GAS MAIN	G
W	WATER MAIN	W
	SANITARY SEWER	
	STORM SEWER	
T	TELEPHONE - UNDERGROUND	T
FO	FIBER OPTICS	FO

LEGEND

UTILITIES

PLAN MARK	DESCRIPTION
W	WATER IRRIGATION VALVE
	UTILITY POLE W/TRANSFORMER
	WATER SHUTOFF VALVE
	GUY ANCHOR
	FIRE HYDRANT
	FLARED END SECTION
	VALVE
C	CABLE TV PEDESTAL
	CLEANOUT
J	JUNCTION BOX
MH	MANHOLE
	STORM MANHOLE
	ELECTRICAL MANHOLE
S	SANITARY MANHOLE
	TELEPHONE MANHOLE
T	TELEPHONE PEDESTAL
V	VAULT BOX
HH	HANDHOLE
S	SIGNAL BOX
G	GAS METER
E	ELECTRIC METER
W	WATER METER
	CURB INLET
	INTAKE - CIRCLE
	INTAKE - RECTANGLE
	INTAKE - SQUARE

LEGEND

RIGHT-OF-WAY

PLAN MARK	DESCRIPTION
ROW	PROPOSED RIGHT-OF-WAY
ROW	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
	EXISTING EASEMENT
	TEMPORARY EASMENT
	PROPOSED EASEMENT

LEGEND

SURVEY

PLAN MARK	DESCRIPTION
BM	BENCH MARK
	BOUND
	IRON ROD - FOUND
	IRON ROD - SET
	MONUMENT FOUND
	MONUMENT SET
	X CUT FOUND
	X CUT SET
	RIGHT OF WAY MARKER
	DRILL HOLE
	STATION MARKER
	SOIL BORING
	PROPERTY CORNER
736.43 TOP	SURVEY POINT ELEVATION

LEGEND

GENERAL SITE GRADING / EROSION CONTROL

PLAN MARK	DESCRIPTION
	SLOPE ARROW
	FLOW ARROW
	SILT FENCE
	INLET PROTECTION
	COMPOST SOCK
	GRADING LIMITS

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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

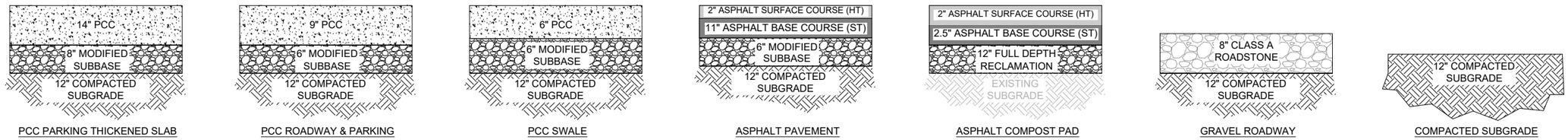
CITY OF IOWA CITY
IOWA CITY, IOWA

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ISSUE DATE	12/31/2025
PROJECT NUMBER	224001780
CLIENT PROJECT NUMBER	---

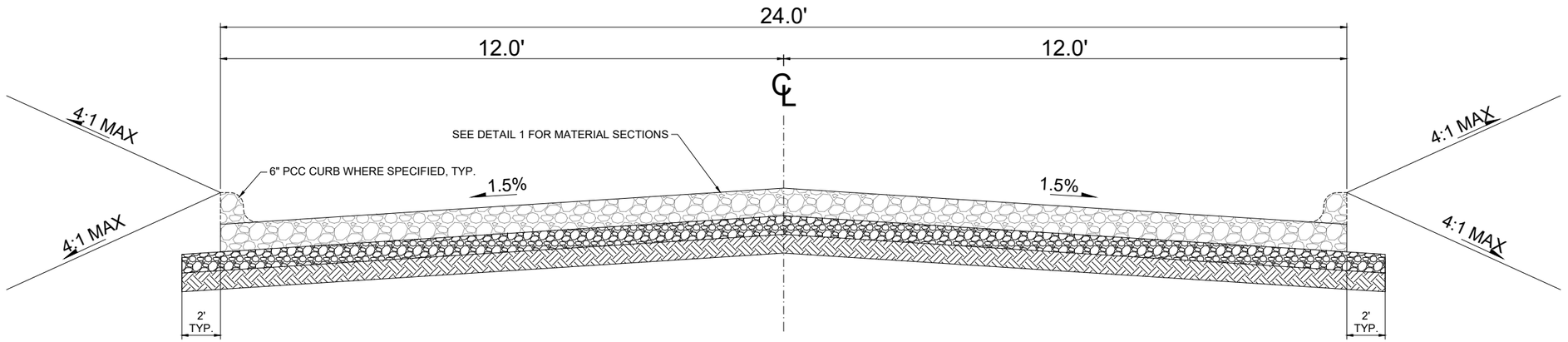
GENERAL NOTES AND LEGEND

A.03

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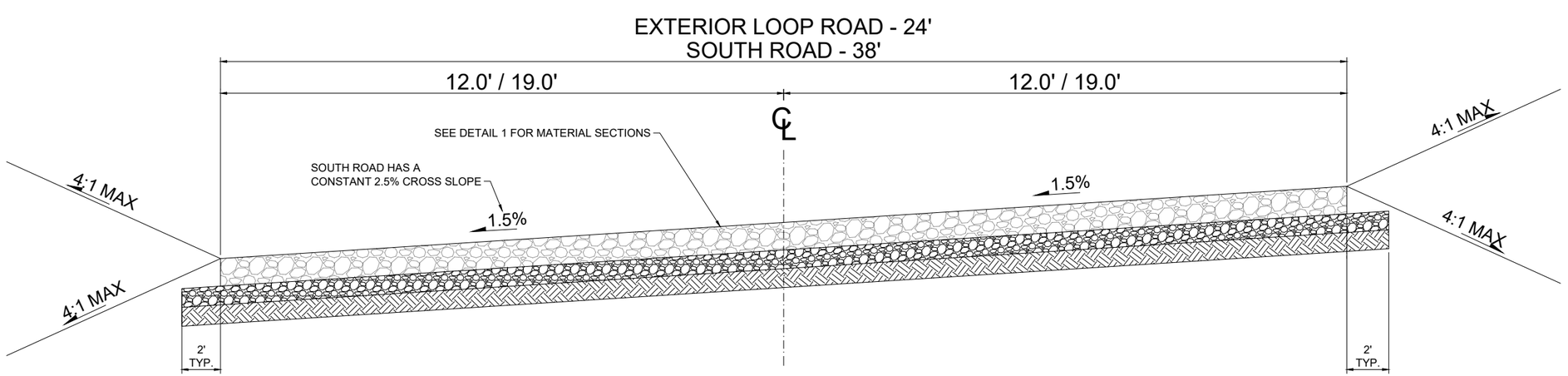


1 TYPICAL PAVEMENT SECTIONS
NOT TO SCALE



100+31.14 - 100+17.53	SEE DETAIL 1 - PCC ROADWAY
100+17.53 - 114+38.50	SEE DETAIL 1 - GRAVEL ROADWAY

2 TYPICAL ROADWAY SECTION - COMPOST ROAD
NOT TO SCALE



(EXTERIOR LOOP ROAD) 300+00.00 - 303+22.17	SEE DETAIL 1 - GRAVEL ROADWAY
(SOUTH ROAD) 200+84.92 - 202+86.66	SEE DETAIL 1 - GRAVEL ROADWAY

3 TYPICAL ROADWAY SECTION - EXTERIOR LOOP ROAD & SOUTH ROAD
NOT TO SCALE

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IOWA CITY LANDFILL COMPOST FACILITY
IMPROVEMENTS AND EXPANSION PROJECT

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IOWA CITY, IOWA

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DETAILS

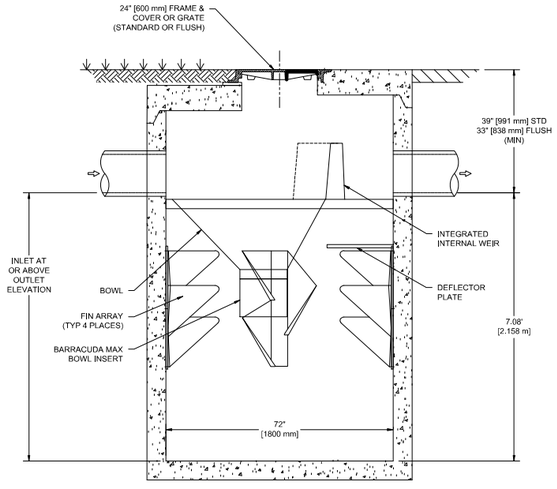
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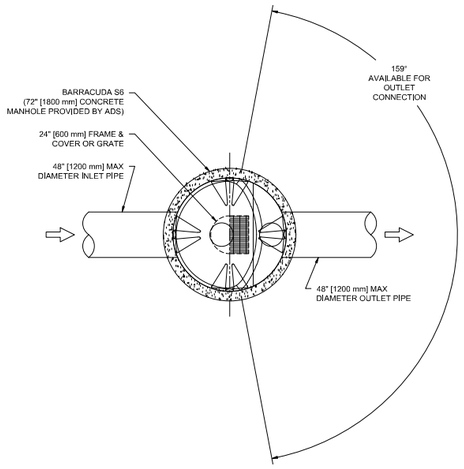
PRODUCT SPECIFICATIONS

- THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW. IF PEAK FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.
- THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 80% OF THE SUSPENDED SOLIDS ON AN ANNUAL AGGREGATE REMOVAL BASIS. SAID REMOVAL SHALL BE BASED ON FULL-SCALE THIRD PARTY TESTING USING OK-110 MEDIA GRADATION OR EQUIVALENT AND 300 mg/L INFLUENT CONCENTRATION. SAID FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASED ON ACTUAL TOTAL MASS COLLECTED BY THE STORMWATER TREATMENT UNIT.
  -OR -
  THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS USING A MEDIA MIX WITH d_{50}=75 MICRON AND 200 MG/L INFLUENT CONCENTRATION.
  -OR -
  THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS PER PREVIOUS 2013 NJDEP/NJCAT HDS PROTOCOL.

BARRACUDA MAX S6		
	CFS	L/s
NJDEP (50% Removal)	3.40	96.3
OK-110 (80% Removal)	3.42	96.8



SECTION VIEW A-A
NOT TO SCALE

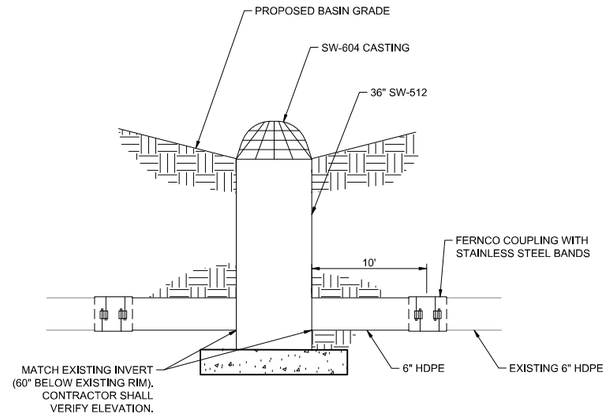


PLAN VIEW
NOT TO SCALE

NOTES:

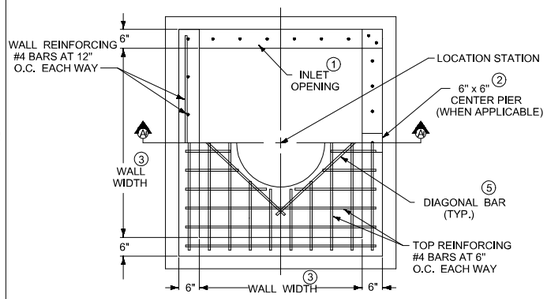
- ENGINEER / CONTRACTOR TO CONFIRM PIPE MATERIALS AND APPLICABLE ADAPTERS
- CONTRACTOR IS RESPONSIBLE FOR MATERIAL AND LABOR TO BRING CASTINGS TO FINISHED GRADE
- CONTRACTOR TO MEASURE HEIGHT OF STRUCTURE TO ENSURE THAT DEPTH OF EXCAVATION IS CORRECT.
- UNIT SHALL CONFORM TO HS20-44 LOAD RATINGS.

1 ADS BARRACUDA MAX S6 STANDARD DETAIL
NOT TO SCALE

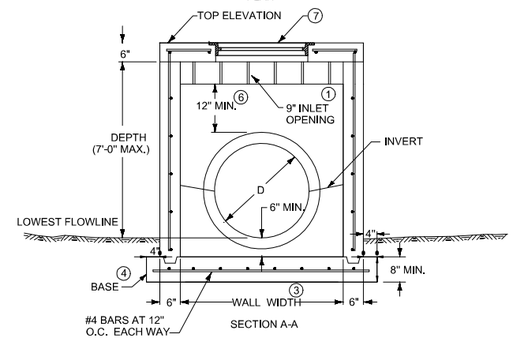


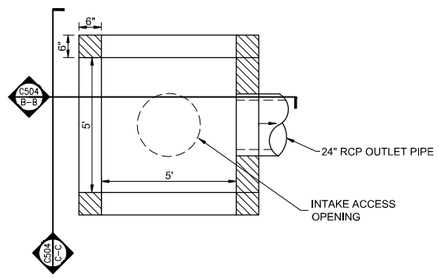
NOTE:
- SEE SUDAS STANDARD DETAIL 6010,512 FOR SW-512 INTAKE
- SEE M,06 FOR APPROXIMATE LOCATION

2 (INT 4.0) SW-512 - DETENTION BASIN INTAKE REPLACEMENT
NOT TO SCALE

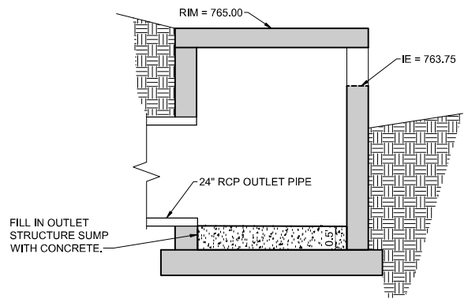


①	STRUCTURE MAY BE BUILT WITH OPENINGS ON ANY OR ALL SIDES. PROVIDE OPENINGS AND ORIENTATION AS SPECIFIED IN THE CONTRACT DOCUMENTS. ADJACENT WALLS MAY HAVE DIFFERENT WIDTHS BASED UPON PIPE CONFIGURATION, BUT STRUCTURE MUST BE RECTANGULAR.
②	CONSTRUCT INLET OPENINGS WITH 15-INCH #4 EPOXY-COATED BARS AT 8 INCHES ON CENTER. EMBED BARS A MINIMUM OF 3 INCHES INTO WALLS AND TOP AT ALL OPENINGS. OPENINGS TO BE PROVIDED ON WEST, SOUTH AND EAST FACES OF STRUCTURE.
③	CENTER PIER REQUIRED AT CENTER OF ANY INLET OPENING WITH LENGTH OF 5 FEET OR GREATER. EXTEND WALL REINFORCING VERTICALLY THROUGH PIER. INSTALL ONE ADDITIONAL 15-INCH #4 BAR IN PIER.
④	WALL WIDTHS VARY WITH PIPE DIAMETER. PROVIDE 6 INCHES OF WALL WIDTH (MINIMUM) EACH SIDE OF PIPE OPENING. MINIMUM WALL WIDTH IS 36 INCHES. MAXIMUM WALL WIDTH IS 72 INCHES.
⑤	CAST-IN-PLACE BASE SHOWN. IF BASE IS PRECAST INTEGRAL WITH WALLS, THE FOOTPRINT OF BASE IS NOT REQUIRED TO EXTEND BEYOND THE OUTER EDGE OF THE WALLS.
⑥	INSTALL FOUR #4 DIAGONAL BARS AT ALL PIPE OPENINGS.
⑦	12" MINIMUM WALL HEIGHT ABOVE ALL PIPES.
⑧	MANHOLE FRAME AND LID TO BE NEENAH R-6115 OR APPROVED EQUAL.

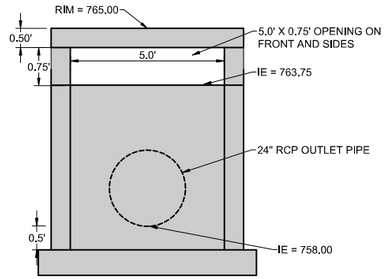




INT 1.0 - OPENING CONFIGURATION



INT 1.0 - SECTION B-B



INT 1.0 - SECTION C-C

3 INT 1.0 (SW-513, 48" X 48") - IMPOUNDMENT OUTLET
NOT TO SCALE

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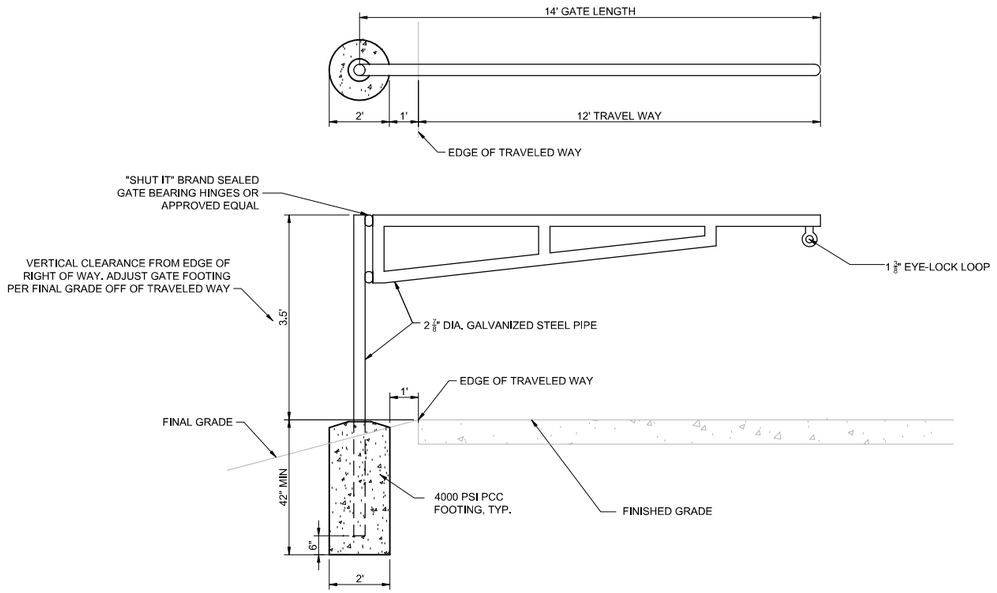
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DETAILS

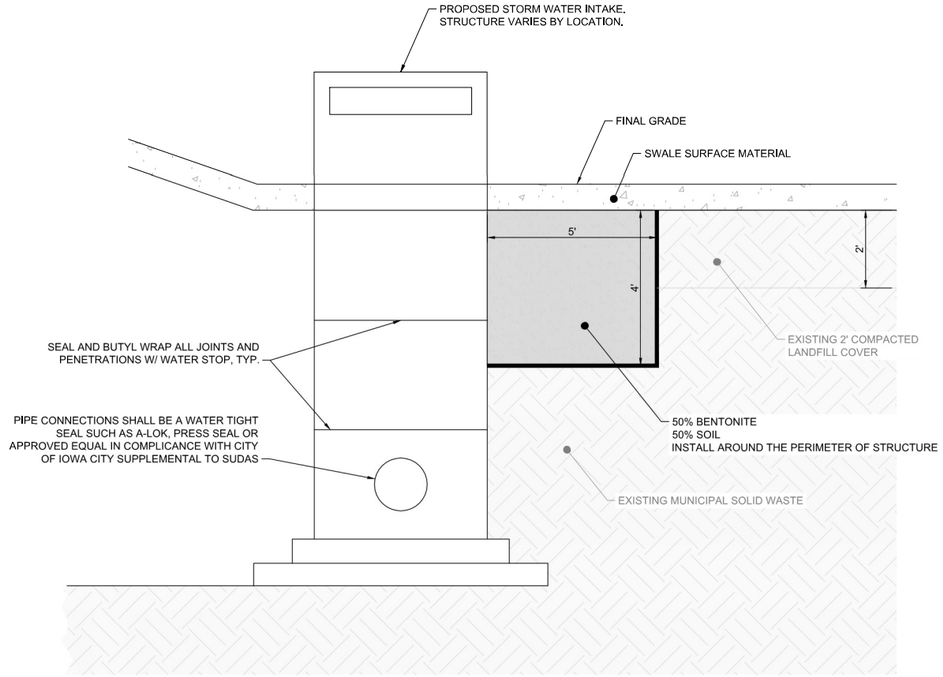
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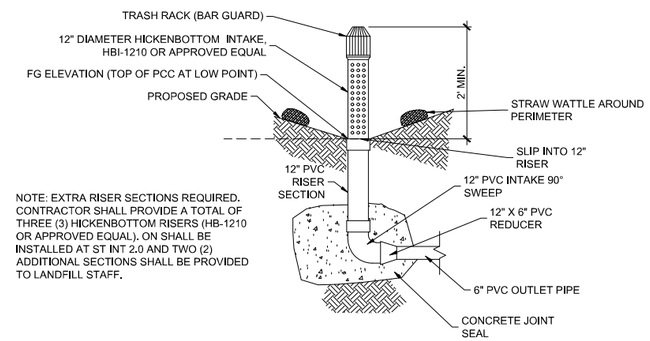
NOTE:
FENCE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL GATE TYPES INCLUDING ALL REQUIRED ASSEMBLIES TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY FENCE INSTALLATION.

1 SWING GATE
NOT TO SCALE



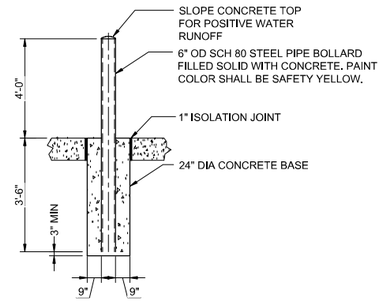
DETAIL:
1. FOR INSTALLATION OF A STRUCTURE BURIED DIRECTLY IN LANDFILL WASTE
2. THIS BACKFILL INSTALLATION IS REQUIRED FOR INTAKES:
   - INT 1.0
   - INT 2.0
3. INSTALLATION IS REQUIRED TO PROVIDE SEAL OUR STRUCTURE TO PREVENT LANDFILL GAS FROM EXITING CELL AROUND PIPING AND STRUCTURE FOLLOWING INTAKE INSTALLATION
4. THIS ITEM IS INCIDENTAL TO THE INSTALLATION OF THE STORM SEWER STRUCTURES IDENTIFIED THAT PENETRATE THE EXISTING 2' COMPACTED LANDFILL COVER

2 SPECIAL INTAKE BACKFILL DETAIL - LANDFILL LINER PENETRATION
NOT TO SCALE



NOTE: EXTRA RISER SECTIONS REQUIRED. CONTRACTOR SHALL PROVIDE A TOTAL OF THREE (3) HICKENBOTTOM RISERS (HB-1210 OR APPROVED EQUAL). ON SHALL BE INSTALLED AT ST INT 2.0 AND TWO (2) ADDITIONAL SECTIONS SHALL BE PROVIDED TO LANDFILL STAFF.

3 (INT 2.0) HICKENBOTTOM RISER WITH BAR GUARD
NOT TO SCALE



4 BOLLARD
NOT TO SCALE

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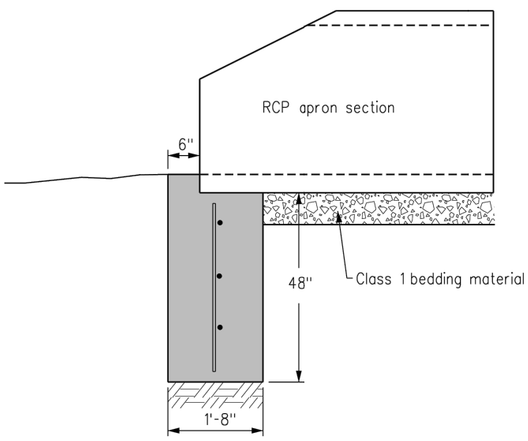
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DETAILS

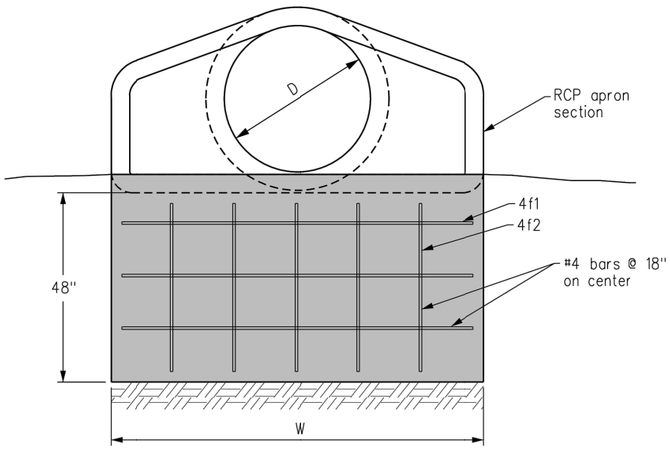
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TYPICAL SECTION



ELEVATION

REINFORCING BAR LIST

D	W	Mark	Size	Length	Count
12"	2'-4"	4f1	4	2'-0"	3
		4f2	4	3'-8"	2
15"	2'-10½"	4f1	4	2'-6 ½"	3
		4f2	4	3'-8"	2
18"	3'-5"	4f1	4	3'-1"	3
		4f2	4	3'-8"	3
24"	4'-6"	4f1	4	4'-2"	3
		4f2	4	3'-8"	3
30"	5'-7"	4f1	4	5'-3"	3
		4f2	4	3'-8"	4
36"	6'-8"	4f1	4	6'-4"	3
		4f2	4	3'-8"	5
42"	7'-3"	4f1	4	6'-11"	3
		4f2	4	3'-8"	5

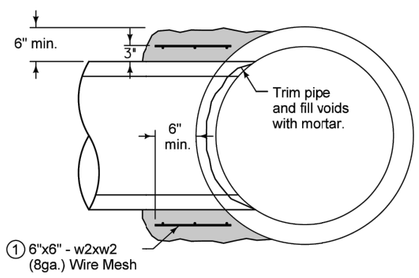
D	W	Mark	Size	Length	Count
48"	7'-10"	4f1	4	7'-6"	3
		4f2	4	3'-8"	6
54"	8'-5"	4f1	4	8'-1"	3
		4f2	4	3'-8"	6
60"	8'-11"	4f1	4	8'-7"	3
		4f2	4	3'-8"	6
66"	8'-11"	4f1	4	8'-7"	3
		4f2	4	3'-8"	6
72"	10'-0"	4f1	4	9'-8"	3
		4f2	4	3'-8"	7
78"	10'-7"	4f1	4	10'-3"	3
		4f2	4	3'-8"	7
84"	11'-1"	4f1	4	10'-9"	3
		4f2	4	3'-8"	8

FIGURE 4030.221 SHEET 1 OF 1

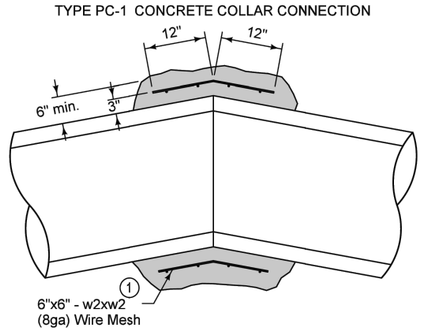
SUDAS

REVISION	
NEW	10/21/08
FIGURE 4030.221	
SHEET 1 OF 1	

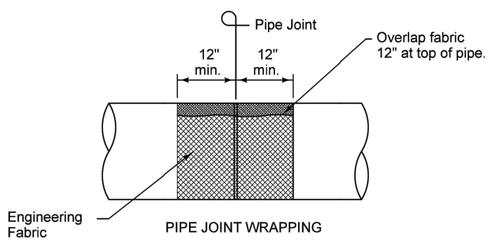
RCP APRON SECTION FOOTING



TYPE PC-1 CONCRETE COLLAR CONNECTION

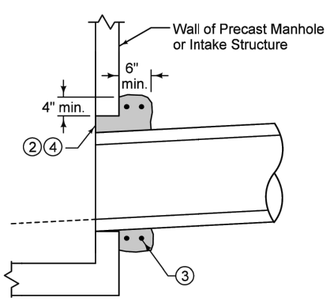


TYPE PC-2 CONCRETE COLLAR CONNECTION

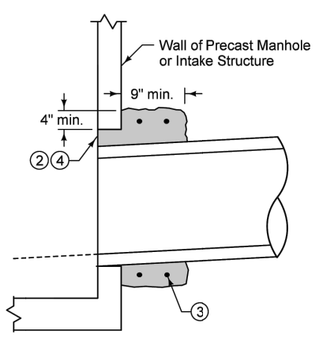


PIPE JOINT WRAPPING

PIPE TO PIPE CONNECTION



CONCRETE COLLAR FOR PIPES 12" AND SMALLER



CONCRETE COLLAR FOR PIPES GREATER THAN 12"

PIPE TO STRUCTURE CONNECTION

① Lap ends of wire mesh a minimum of 6 inches.

② Concrete collar is required when annular space between the outside of the pipe and the wall of the structure is 2 inches or greater.

③ Provide two #4 hoop bars in concrete collar. Lap bars a minimum of 6 inches.

④ Trowel concrete flush with inside wall of structure.

FIGURE 4020.211 SHEET 1 OF 1

SUDAS | IOWADOT

REVISION	
2	04-17-18
SW-211	
SHEET 1 of 1	

FIGURE 4020.211 | STANDARD ROAD PLAN

REVISIONS: Removed "Invert" callout on Pipe to Structure View. Retitled and replaced old Iowa DOT and SUDAS logos with new logos.

Paul D. Wigand, SUDAS DIRECTOR | Brian Smith, DESIGN METHODS ENGINEER

STORM SEWER PIPE CONNECTIONS

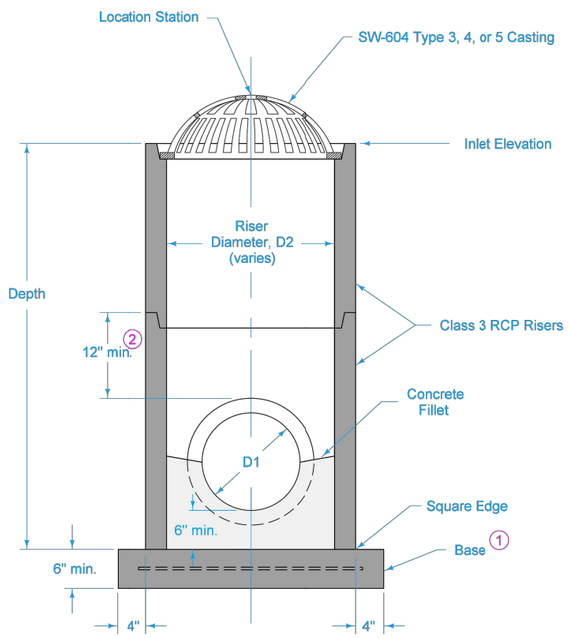
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TYPICAL SECTION

CASE 1

1. Precast (shown) or cast-in-place base:
   - Precast: 6 inch thick concrete with #6 welded wire mesh on 4 inch centers (WWF 4" x 4"). Center mesh vertically within base.
   - Cast-in-place: 8 inch thick non-reinforced concrete.
2. 12 inch minimum riser height above all pipes.

INTAKE SIZE - CASE 1	
Outlet Pipe Diameter, D1	Minimum Riser Diameter, D2
12"	18"
15"	24"
18"	24"
21"	30"
24"	30"
27"	36"

FIGURE 6010.512 SHEET 1 OF 2

SUDAS	IOWA DOT	REVISION 5 10-21-25
FIGURE 6010.512	STANDARD ROAD PLAN	SW-512 SHEET 1 of 2

REVISIONS: Updated Sudas and IDOT Logos.

SUDAS DIRECTOR — DESIGN METHODS ENGINEER

CIRCULAR AREA INTAKE

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CITY OF IOWA CITY

IOWA CITY, IOWA

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ESTIMATED PROJECT QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	ESTIMATED QUANTITY
1	2010-D-1	Topsoil, On-site, 6"	CY	3034
2	2010-D-1	Topsoil, Import, 6"	CY	275
3	2010-E	Excavation, Class 10	CY	13419
4	2010-E	Embankment Construction	CY	12514
5	2010-F	Below Grade Excavation (Core Out)	CY	600
6	2010-G	Subgrade Preparation, 12"	SY	30209
7	2010-J	Subbase, Class A Roadstone, 8"	SY	6212
8	2010-J	Subbase, Modified, 6"	SY	21644
9	2010-J	Subbase, Modified, 8"	SY	1039
10	2010-J	Subbase, Detention Liner, Compacted Clay, 12"	SY	9437
11	2010-M	Compaction Testing	LS	1
12	3010-E	Special Pipe Encasement	LF	105
13	4020-A-1	Storm Sewer, Trenched, PVC, 6"	LF	190
14	4020-A-1	Storm Sewer, Trenched, RCP, Class III, 24"	LF	359
15	4030-B	Pipe Apron, RCP, 24"	EA	2
16	5020-I	Fire Hydrant Adjustment	EA	1
17	5020-J	Fire Hydrant Assembly Removal	EA	2
18	6010-B	Storm Sewer Manhole, SW-401, 48"	EA	3
19	6010-B	Intake, SW-512, 24"	EA	1
20	6010-B	Intake, SW-512, 30"	EA	1
21	6010-B	Intake, SW-513, 48" X 48"	EA	1
22	7010-A	Pavement, PCC, 6", C-SUD	SY	3503
23	7010-A	Pavement, PCC, 9", C-SUD	SY	5745
24	7010-A	Pavement, PCC, 14", C-SUD	SY	1039
25	7010-I	PCC Pavement Samples and Testing	LS	1
26	7020-B	HMA, 2.5", Standard Traffic (ST), Base, 1/2", PG 58-28S	TON	1431
27	7020-B	HMA, 11", Standard Traffic (ST), Base, 3/4", PG 58-28S	TON	6986
28	7020-B	HMA, 2", High Traffic (HT), Surf, 1/2", Fric L-4, PG 58-28H	TON	2473
29	7040-G	Surface Milling, 10"	SY	20347
30	7040-H	Pavement Removal	SY	100
31	7091-A	Full Depth Reclamation	SY	11060
32	8030-A	Temporary Traffic Control	LS	1
33	9010-A-1	Conventional Seeding	AC	4
34	9040-D-1	Filter Sock, 12"	LF	50
35	9040-D-2	Filter Sock, Removal	LF	50
36	9040-E	Temporary RECP, Type 2B	SY	11884
37	9040-J	Rip Rap, Class D	TON	318
38	9040-N-1	Silt Fence	LF	2700
39	9040-N-3	Silt Fence, Removal of Device	LF	2700
40	9040-O-1	Stabilized Construction Entrance	SY	272
41	9040-T-1	Inlet Protection Device, Filter Sock	EA	4
42	9060-B	Swing Gate, Double	EA	2
43	9060-E	Removal of Fence	LF	22
44	11,010-A	Construction Survey	LS	1
45	11,020-A	Mobilization	LS	1
46	SPECIAL	Remove and Salvage Gravel on Site	SY	8141
47	SPECIAL	Hydrodynamic separator, 72" ADS Barracuda S3 or approved equal	EA	1
48	SPECIAL	Hickenbottom Riser, 12"	EA	1
49	SPECIAL	HDPE, DR11, Fusion Weld (Gas Header)	LF	100
50	SPECIAL	Remote Well Head Modification	EA	2
51	SPECIAL	Ground Water Monitoring Station Adjustment	EA	3
52	SPECIAL	Temporary Barrier Rails	LF	1100
53	SPECIAL	Compost Relocation	CY	750
54	SPECIAL	Removal of Swing Gate, Double	EA	1
55	SPECIAL	Removal of Wastewater Stone	TON	406
56	SPECIAL	Removal of Waste	TON	100
57	SPECIAL	Miscellaneous Removal	TON	100

ESTIMATE REFERENCE NOTES

Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.

ITEM NO.	ITEM CODE	DESCRIPTION
1	2010-D-1	TOPSOIL, ON-SITE, 6" A. Existing topsoil is to be stripped and stockpiled to be placed back on site at the completion of the project. Location of stockpile will be determined by the contractor based on operations. Do not compact topsoil placed on site. B. Strip and salvage topsoil to a minimum depth of 6" before excavation occurs. C. Topsoil to be spread to a minimum of 6" in all disturbed areas. D. Quantity represents the quantity to be stripped. Do not stockpile with other materials. Excess material, if any, to be wasted on site upon foreslopes, backslopes, and ditches.
2	2010-D-1	TOPSOIL, IMPORT, 6" A. Topsoil is to be imported and placed on site at the completion of the project. Location of stockpile will be determined by the contractor based on operations. Do not compact topsoil placed on site. B. Topsoil to be spread to a minimum of 6" in all disturbed areas. C. Quantity represents the quantity to be imported. Do not stockpile with other materials.
3	2010-E	EXCAVATION, CLASS 10 A. Raw Cut Volume = 13419 CY B. Raw Fill Volume= 7026 CY C. Adjusted Fill Volume = 8431 CY (20% Shrinkage factor). D. Estimated excess cut is 4988 CY. No Subdrain trench volumes included in adjustments. E. Total excavation quantity based on 13419 CY projected cut.
4	2010-E	EMBANKMENT CONSTRUCTION A. This item is for earthfill required for the roadway and detention basin embankments. B. Total earthfill quantity based on net fill 12,514 CY (20% Shrinkage Factor)
5	2010-F	BELOW GRADE WASTE EXCAVATION (CORE OUT) A. This item consists of excavation of below grade waste encountered during excavation and hauled to the landfill active face by the contractor. B. No tipping fee shall apply; however contractor will be required to scale each load for quantity calculations. C. Quantity will be paid based on actual tonnage removed.
6	2010-G	SUBGRADE PREPARATION, 12" A. Item includes excavating, manipulating, replacing, compacting and trimming to proper grade. B. Depth 12". C. See 'B' sheets for details. D. Contractor coordination with third-party soil permeability testing shall be incidental to this item. The City shall be responsible for selecting the third-party testing contractor and for payment of six (6) permeability test locations on the compost pad. Testing locations shall be identified by the Engineer. The subgrade shall meet permeability requirements at all test locations. The Contractor may proceed with hardscaping over the subbase prior to receipt of test results at their own risk.
7	2010-J	SUBBASE, CLASS A ROADSTONE, 8" A. Item will be installed at the gravel roadways indicated in the 'B' sheets. B. Depth shall be 8" C. Material shall meet gradation requirements of Iowa DOT gradation #14. D. Granular subbase shall be placed 2' beyond edge of pavement as indicated in the 'B' sheets. E. Place roadstone in lifts no greater than 6".
8	2010-J	SUBBASE, MODIFIED, 6" A. Item will be installed under paving areas as indicated in the 'B' sheets. B. Depth shall be 6" C. Material shall meet gradation requirements of Iowa DOT gradation #14. D. Modified subbase shall be placed 2' beyond edge of pavement as indicated in the 'B' sheets. E. Place modified subbase in lifts no greater than 6".
9	2010-J	SUBBASE, MODIFIED, 8" A. Item will be installed under paving areas as indicated in the 'B' sheets. B. Depth shall be 8" C. Material shall meet gradation requirements of Iowa DOT gradation #14. D. Modified subbase shall be placed 2' beyond edge of pavement as indicated in the 'B' sheets. E. Place modified subbase in lifts no greater than 6".
10	2010-J	SUBBASE, DETENTION LINER, COMPACTED CLAY, 12" A. Item will be installed within the footprint of the proposed detention basin and consist of clay compacted to 95% proctor density and 0 to +3% optimum moisture content. B. Depth shall be 12" C. Approved material with a hydraulic conductivity of 1 × 10-7 cm/sec or less. Hydraulic conductivity to be verified with a minimum of 2 shelby tubes and falling head permeameter tests. D. Contractor coordination with third-party soil permeability testing shall be incidental to this item. The City shall be responsible for selecting the third-party testing contractor and for payment of one (1) permeability test locations at the proposed basin. Testing locations shall be identified by the Engineer. The subgrade shall meet permeability requirements at all test locations. The Contractor may proceed with hardscaping over the subbase prior to receipt of test results at their own risk.
11	2010-M	COMPACTION TESTING A. Testing laboratory shall be independent of the contractor and approved by the Engineer or City.
12	3010-E	SPECIAL PIPE ENCASEMENT A. See 'D' sheets for locations. B. See 'C' sheets for tabulations.
13	4020-A-1	STORM SEWER, TRENCHED, PVC, SCHEDULE 80, 6" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. Pipe bedding and backfill to be done per SUDAS Detail 3010.10. Hauling and disposal of excavated material is incidental. D. Pipe is measured in linear feet from center of manhole to center of manhole.
14	4020-A-1	STORM SEWER, TRENCHED, RCP, CLASS III, 24" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. Pipe bedding and backfill to be done per SUDAS Detail 3010.10. Hauling and disposal of excavated material is incidental. D. Pipe is measured in linear feet from center of manhole to center of manhole.
15	4030-B	PIPE APRON, RCP, 24" A. Includes Apron Guard and Apron Footing per SUDAS Standard Plan B. See 'M' sheets for locations. C. See 'C' sheets for tabulations. D. Item includes installation of an apron footing and tied joints at the two upstream-most pipe connections from the pipe apron. Refer to 'M' Sheets for details.
16	5020-I	FIRE HYDRANT ADJUSTMENT A. See 'M' sheets for location
17	5020-J	FIRE HYDRANT ASSEMBLY REMOVAL A. See 'R' sheets for location B. Identified hydrants for removal are on an abandoned water line. Hydrant shall be removed and capped a minimum of 5' below final grade.
18	6010-B	STORM SEWER MANHOLE, SW-401, 48" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. Install intake per SUDAS detail 6010.402
19	6010-B	INTAKE, SW-512, 24" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. This item includes removal and dissposal of the existing intntake and installation of a new intake per SUDAS detail 6010.512. Requird pipe stubs and approproate fernco connections, excavation and backfill are to be included.
20	6010-B	INTAKE, SW-512, 30" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. See 'B' sheets for repalcement detail. D. Install intake per SUDAS detail 6010.512 E. Removal of the existing SW-512 intake and existing piping, along with any piping required to connect to the existing storm sewer network, shall be incidental to this item. F. The contractor shall field-verify the location, pipe sizes, and invert elevations of all existing storm sewer infrastructure prior to construction.

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IOWA CITY LANDFILL COMPOST FACILITY
IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY
IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	—

QUANTITIES AND ESTIMATE REFERENCE NOTES

C.01

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ESTIMATE REFERENCE NOTES

Data listed below is for informational purposes only and shall not constitute a basis for any extra work orders.

ITEM NO.	ITEM CODE	DESCRIPTION
21	6010-B	INTAKE, SW-513, 48" X 48" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. Install intake per SUDAS detail 6010.513 D. Bentenite and soil fill around perimeter of structure is incidental to this item. See strom intake set in waste detail on the 'B' sheets.
22	7010-A	PAVEMENT, PCC, 6", C-SUD A. See 'D' sheets for locations.
23	7010-A	PAVEMENT, PCC, 9", C-SUD A. See 'D' sheets for locations.
24	7010-A	PAVEMENT, PCC,14", C-SUD A. See 'D' sheets for locations.
25	7010-I	PCC PAVEMENT SAMPLES AND TESTING A. Item includes pavement thickness cores, and maturity testing.
26	7020-B	HMA, 2.5", STANDARD TRAFFIC (ST), BASE, 1/2", PG 58-28S A. See 'D' sheets for locations.
27	7020-B	HMA, 11", STANDARD TRAFFIC (ST), BASE, 3/4", PG 58-28S A. See 'D' sheets for locations.
28	7020-B	HMA, 2", HIGH TRAFFIC (HT), SURF, 1/2", FRIC L-4, PG 58-28H A. See 'D' sheets for locations.
29	7040-G	SURFACE MILLING, 10" A. See 'R' sheets for locations of removal. B. Surface milling to be completed on existing compost lay down pad to remove existing millings in place. C. Milled surface shall be stockpiled and incorporated back into the surface item for full depth reclamation. Excess surface millings not incorporated into full depth reclamation shall remain the property of the City of Iowa City
30	7040-H	PAVEMENT REMOVAL A. See 'R' sheets for locations. B. Item includes any PCC and HMA rubble encountered while grading of the compost pad. C. See note for "Concrete & Asphalt Rubble" on 'R' sheets for disposal information.
31	7091-A	FULL DEPTH RECLAMATION A. Item will be installed under paving areas as indicated in the 'B' sheets. B. See 'D' sheets for locations. C. Install per SUDAS Design Manual 5J-3 D. 6" of Millings shall be placed over surface of existing prepared clay and incorporated at a depth of 12" Full depth reclamation. E. Cement Treatment percent and moisture content shall be monitored by Contractor during installation to provide required compaction. Cement treatment shall meet 5%.
32	8030-A	TEMPORARY TRAFFIC CONTROL A. See 'J' sheets for plan. B. Item includes the installation, relocation and removal of all temporary fence as locations specified in the plans. C. Contractor shall include removals and resetting costs of traffic control devices in the traffic control bid item. No additional compensation shall be provided to reset from stage to stage. D. Any changes to staging must be approved by the Engineer prior to implementation. E. Impacts to adjacent properties shall be minimized. F. Temporary pavement markings and removal of temporary pavement markings are incidental to this item. G. All traffic control shall conform to the Manual on Uniform Traffic Control Devices for Streets and Highways, as adopted by the Department per 761 of the Iowa Administrative Code (IAC), Chapter 130. H. The use of a message board is incidental to this item. The message board shall be installed two weeks prior to construction. I. A EPA project sign is incidental to this item. The Contractor shall coordinate with the owner regarding the installation location.
33	9010-A-1	CONVENTIONAL SEEDING A. See 'C' sheets for tabulations. B. Seeding area shall be all disturbed areas not including pavement areas identified on the 'D' sheets. C. Contractor shall be responsible for waterings required to sustain seeding for 60 day Maintenance/ Establishment period. City shall have the opportunity to review seeding following the 60 day Maintenance/ Establishment period, for areas not viable those areas shall be replaced by Contractor.
34	9040-D-1	FILTER SOCK, 12" A. See 'EC' sheets for details and locations.
35	9040-D-2	FILTER SOCK, REMOVAL A. See 'EC' sheets for details and locations.
36	9040-E	TEMPORARY RECP, TYPE 2B B. See 'EC' sheets for details. C. Placed on all 4:1 or steeper disturbed slopes
37	9040-J	RIP RAP, CLASS D A. Install per SUDAS standard detail 9040.110
38	9040-N-1	SILT FENCE A. See 'EC' sheets for details and locations.
39	9040-N-3	SILT FENCE, REMOVAL OF DEVICE A. See 'EC' sheets for details and locations.
40	9040-O-1	STABILIZED CONSTRUCTION ENTRANCE A. See 'EC' sheets for details and locations. B. Entrance shall be installed per sudas detail shown on EC.02 and installed before any operations can be conducted on site.
41	9040-T-1	INLET PROTECTION DEVICE, FILTER SOCK A. See 'EC' sheets for details and locations.
42	9060-B	SWING GATE, DOUBLE A. This item is quantified by each location where a set of gates is installed. B. See 'D' sheets for locations. C. See 'B' sheets for detail. D. The swing gate work includes all labor, materials, and components required to fabricate and install the horizontal swing gate and the vertical support shaft from which the gate pivots.
43	9060-E	REMOVAL OF FENCE A. See 'R' sheets for locations.
44	11,010-A	CONSTRUCTION SURVEY A. This item will not be measured. Payment will be by lump sum based on percent of total contract complete.
45	11,020-A	MOBILIZATION A. Item includes the movement of personnel, equipment, and supplies to the project site; the establishment of offices, buildings, and other facilities necessary for the project; and bonding, permits, and other expenses incurred prior to construction.
46	SPECIAL	REMOVE AND SALVAGE GRAVEL ON SITE A. Strip and salvage gravel in areas shown on the plans for existing roadways. Stockpile gravel in owner approved location for re-use. B. Roadbed thickness is unknown and assumed to be between 12 and 18 inches.
47	SPECIAL	HYDRODYNAMIC SEPARATOR, 72" ADS BARRACUDA S3 OR APPROVED EQUAL A. Inline stormwater treatment unit capable of removal of 80% removal of TSS at a flow rate of 3.42 cfs or greater. Refer to detail.
48	SPECIAL	HICKENBOTTOM RISER, 12" A. See 'C' sheets for tabulations. B. See 'M' sheets for locations. C. Bentenite and soil fill around perimeter of structure is incidental to this item. See strom intake set in waste detail on the 'B' sheets.
49	SPECIAL	HDPE, DR11, FUSION WELD (GAS HEADER) A. Refer to written specifications.
50	SPECIAL	REMOTE WELL HEAD MODIFICATION A. Modification shall include removal and salvage of the QED wellhead, cutting the vertical pvc pipe below grade, and reinstallation of the wellhead at the new location. See details on plan.
51	SPECIAL	REMOTE WELL HEAD MODIFICATION A. Modifications shall include the removal and disposal of the existing protective casing, concrete apron, and protective bollards, as well as the installation of an extended steel casing pipe, new concrete apron, and new bollards. B. See details for the monitoring well extension on the "M" sheets.

ESTIMATE REFERENCE NOTES

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ITEM NO.	ITEM CODE	DESCRIPTION
52	SPECIAL	TEMPORARY BARRIER RAILS A. Barrier rails will be furnished to the city for use for landfill compost operations. B. Shall be precast concrete per Iowa DOT Standard Road Plan BA-401. C. Place barriers as shown on the plans unless otherwise directed by the owner. Barriers should not be tied or anchored to allow for future mobility. D. Barriers will be paid based on linear feet of barriers placed and accepted.
53	SPECIAL	COMPOST RELOCATION A. The compost operation will be active during construction. The owner will relocate compost at the request of the contractor, however in the event that the owner determines the contractor shall relocate compost for any reason, the unit price provided by the contractor shall apply. B. Compost volume will be determined based on load counts or survey by the engineer. C. Contractor should assume compost relocation consists of either moving material using an end loader or placing the material in haul trucks and stockpiling in a location on site as specified by the owner.
54	SPECIAL	REMOVAL OF SWING GATE, DOUBLE A. See 'R' sheets for locations. B. Item includes the complete removal of the existing swing gate assembly, including the gate, vertical support shaft, and associated footing.
55	SPECIAL	REMOVAL OF WASTEWATER STONE A. See 'R' sheets for locations if identified. B. See 'R' sheets for specifications regarding the disposal and destination of the removed materials. C. See note for "Wastewater Stone" on 'R' sheets for disposal information. D. Wastewater Stone shall be weighed on Landfill scale for payment prior to disposal or relocation.
56	SPECIAL	REMOVAL OF WASTE A. See 'R' sheets for locations if identified. B. See 'R' sheets for specifications regarding the disposal and destination of the removed materials. C. See note for "Encountered Buried Waste" on 'R' sheets for disposal information.
57	SPECIAL	MISCELLANEOUS REMOVAL A. See 'R' sheets for locations identified. B. See 'R' sheets for specifications regarding the disposal and destination of the removed materials. C. See note for "Other Materials" on 'R' sheets for disposal information. D. Includes excavtion, backfill and removal of the 90 LF of 20" CMP stormsewer pipe and the 46 LF of 18" RCP stormsewer pipe, associated intake and flared end sections shown on the 'R' sheet E. Includes the removal of the tree and stump indentified on the 'R' sheet

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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY
IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	—

QUANTITIES AND ESTIMATE REFERENCE NOTES

C.02

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Special Pipe Encasement

NO.	NORTHING	EASTING	AREA (LF)	REMARKS
1	606128.69	2153363.45	45	
2	606153.04	2153480.61	30	
3	606287.58	2153485.55	30	
		TOTAL	105	

STORM SEWER MAIN

LINE NO.	PIPE MATERIAL	DIAMETER (IN)	LENGTH (FT)	SLOPE (%)	FLOW LINES		STRUCTURE NO.	
					UPSTREAM	DOWNSTREAM	UPSTREAM	DOWNSTREAM
ST 1.0	RCP	24	94	13.47%	758.00'	745.50'	INT 1.0	MH 1.1
ST 1.1	RCP	24	53	5.69%	741.00'	738.00'	MH 1.1	MH 1.2
ST 1.2	RCP	24	54	5.40%	737.90'	735.00'	MH 1.2	MH 1.3
ST 1.3	RCP	24	45	1.35%	730.10'	729.50'	MH 1.3	FES 1.3
ST 2.0	PVC	6	125	12.54%	758.50'	743.00'	INT 2.0	INT 2.1
ST 2.1	PVC	6	65	5.97%	742.90'	739.00'	INT 2.1	MH 1.2
ST 3.0	RCP	24	113	0.50%	771.48'	770.92'	INT 3.0	FES 3.1
RCP, 24"			**359**					
PVC, 6"			**190**					

STORM SEWER STRUCTURES

NO.	TYPE	NORTHING	EASTING	FORM GRADE	RIM ELEVATION	FLOW LINE(S) IN	FLOW LINE OUT	REMARKS
INT 1.0	SW-513, 48" X 48"	606501.48	2153216.21		764.71'		ST 1.0 (758.00)	
MH 1.1	SW-401, 48 IN	606587.39	2153251.29		750.20'	ST 1.0 (745.50)	ST 1.1 (741.00)	
MH 1.2	SW-401, 48 IN	606636.18	2153271.39		743.76'	ST 1.1 (738.00), ST 2.1 (739.00)	ST 1.2 (737.90)	
MH 1.3	SW-401, 48 IN	606682.45	2153298.66		740.08'	ST 1.2 (735.00)	ST 1.3 (730.10)	
FES 1.3	FES, 24 IN	606720.77	2153321.32	729.50'		ST 1.3 (729.50)		
INT 2.0	HICKENBOTTOM RISER, 12 IN	606514.24	2153147.56		763.80'		ST 2.0 (758.50)	
MH 2.1	ADS BARRACUDA, 72"	606622.25	2153207.61		747.37'	ST 2.0 (743.00)	ST 2.1 (742.90)	
INT 3.0	SW-512, 30 IN	606163.60	2153473.64		774.73'		ST 3.0 (771.48)	
FES 3.1	FES, 24 IN	606275.98	2153485.11	770.92'		ST 3.0 (770.92)		
INT 4.0	SW-512, 24 IN	606742.11	2153390.02		729.38'	EX PIPE (UNKNOWN)	EX PIPE (UNKNOWN)	CONTRACTOR SHALL VERIFY EXISTING INVERT ELEVATIONS AND LOCATION
SW-401, 48 IN		3						
SW-512, 24 IN		1						
SW-512, 30 IN		1						
SW-513, 48" X 48"		1						
FES, 24 IN		2						
HICKENBOTTOM RISER, 12 IN		1						
ADS BARRACUDA, 72"		1						

HYDRANT REMOVAL AND ADJUSTMENT

NO.	TYPE	ACTION	NORTHING	EASTING	REMARKS
1	Yard Hydrant	Remove	606495.56	2152902.99	
2	Hydrant	Remove	606495.84	2152905.74	
3	Hydrant	Adjust to Final Grade	606491.71	2152908.23	
Fire Hydrant Assembly Removal				2	
Fire Hydrant Adjustment				1	

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IOWA CITY LANDFILL COMPOST FACILITY
IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY
IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	---

QUANTITIES AND ESTIMATE REFERENCE NOTES

C.03

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LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- GRAVEL, 8"
- RIP RAP
- ASPHALT 4.5" W/ 12" TREATED SOIL BASE
- ASPHALT, 13"
- COMPACTED SUBGRADE, 12"

0 20 40 80
SCALE IN FEET

REPLACE GRAVEL ROAD FOR STORM SEWER REMOVAL. SEE R SHEETS FOR REMOVALS.
EXISTING ROAD, 17'
INSTALL SWING GATE. REFER TO B.03 FOR DETAILS
EXTERIOR LOOP ROAD
'V' BOTTOM SWALE
COMPOST ROAD
PROPOSED STORM SEWER, TYP.
GRADING LIMITS, TYP.
GAS WELL HEAD RELOCATION
20' WIDE 'V' BOTTOM SWALE
SEE R SHEETS FOR HYDRANT REMOVALS
PROTECT EXISTING HYDRANT AND RESET TO PROPOSED GRADE
2025 EQUIPMENT BUILDING
FACE OF BUILDING
EXISTING REINFORCED PCC EGDE
EXISTING BOLLARDS (2)
EXISTING GRAVEL EDGE
SALVAGED GRAVEL ABUTTING TO STORAGE BUILDING PCC SLAB SHALL BE REINSTALLED HERE
EXISTING FUEL TANK
12" GAS HEADER, TYP.
8' FLAT BOTTOM SWALE
GRADING LIMITS, TYP.
SOUTH ROAD
ELEVATION OF GAS IS UNKNOWN. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION. CASING PIPE MAY BE REQUIRED.
EXISTING AIR
EXISTING GAS
GAS WELL HEAD RELOCATION
ENCASE COMPRESSED AIR LINE, 30 LF
EXISTING ROAD, 27'
SMH. RIM=740.69 722.94 (W) 722.94 (E)

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CITY OF IOWA CITY
IOWA CITY, IOWA

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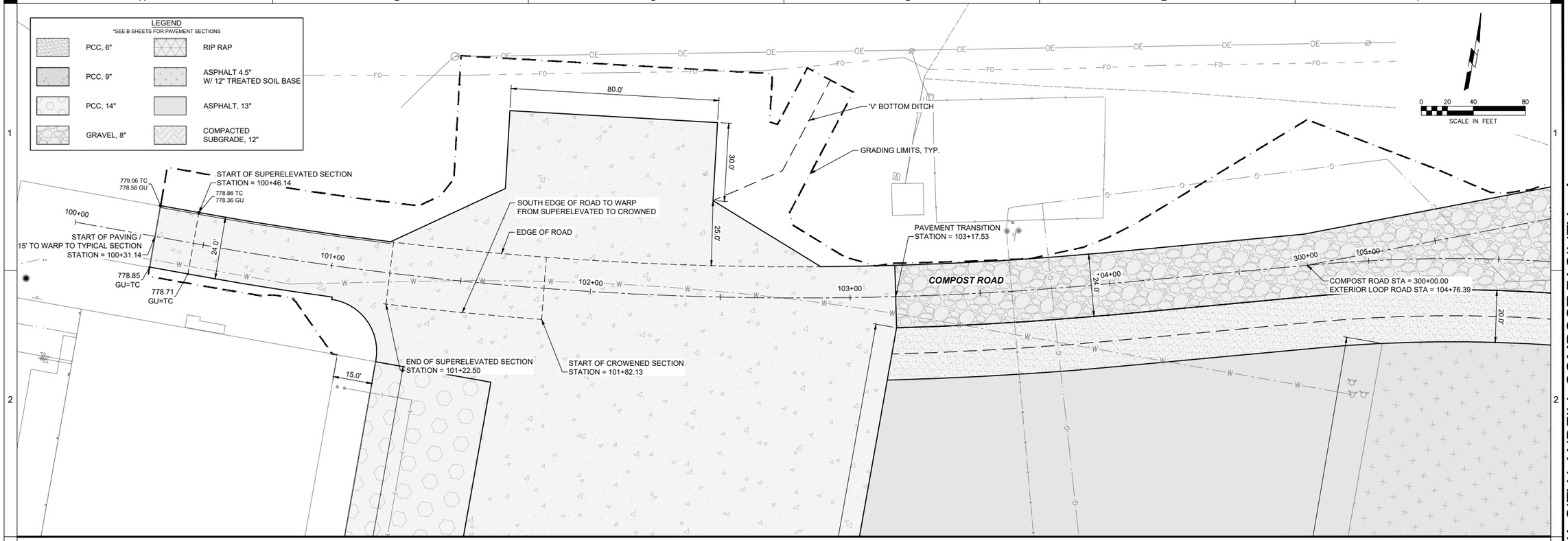
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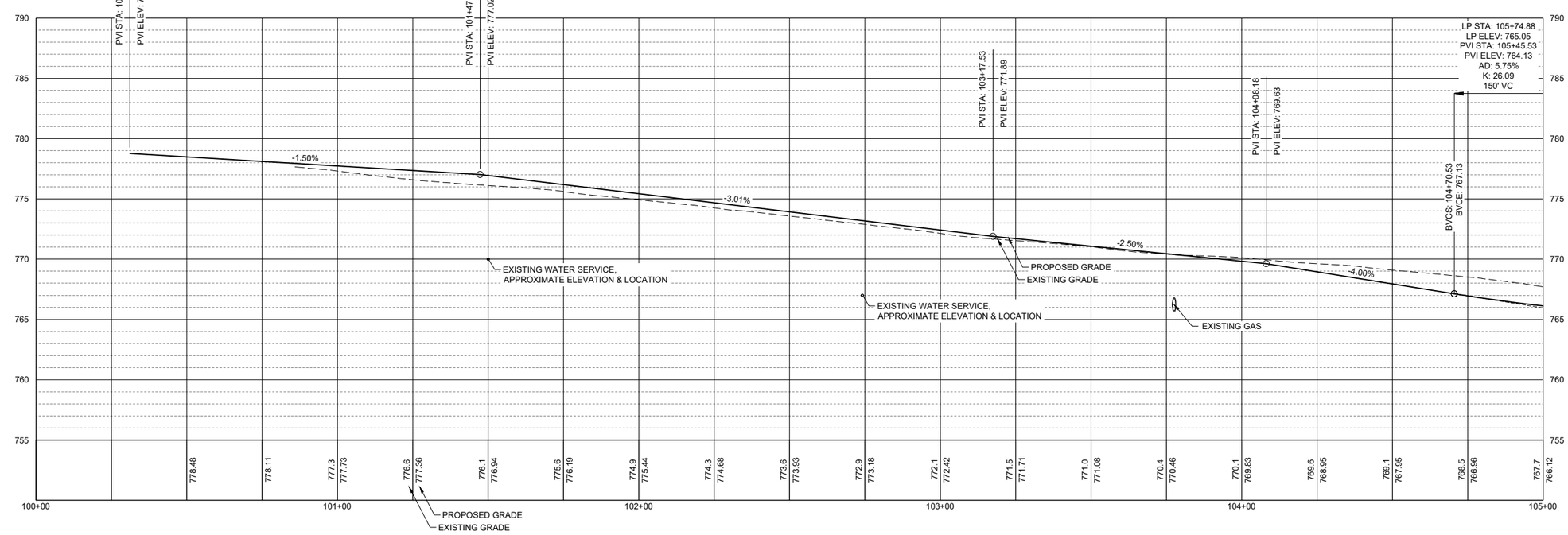
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LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- GRAVEL, 8"
- RIP RAP
- ASPHALT 4.5" W/ 12" TREATED SOIL BASE
- ASPHALT, 13"
- COMPACTED SUBGRADE, 12"





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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY
IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	224001780
CLIENT PROJECT NUMBER	—

PLAN AND PROFILE - COMPOST ROAD

D.02

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LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- GRAVEL, 8"
- RIP RAP
- ASPHALT 4.5" W/ 12" TREATED SOIL BASE
- ASPHALT, 13"
- COMPACTED SUBGRADE, 12"

EXTERIOR LOOP ROAD
24.0'
302+00
301+00
300+00
SWING GATE
STATION = 106+40.04
SWING GATE
STATION = 106+42.82
R=8.0'
COMPOST ROAD
107+00
108+00
109+00
110+00
106+00
105+00
5.0'
20.0'
20.0'
COMPOST ROAD STA = 300+00.00
EXTERIOR LOOP ROAD STA = 104+76.39
20' WIDE 'V' BOTTOM SWALE
EXTEND GRAVEL TO EDGE OF SWALE
EDGE OF ROAD
GRADING LIMITS, TYP.
MH
GM-110
W
W
0 20 40 80
SCALE IN FEET

LP STA: 105+74.88
LP ELEV: 765.05
PVI STA: 105+45.53
PVI ELEV: 764.13
AD: 5.75%
K: 26.09
150' VC
EVCS: 106+20.53
EVCE: 765.45
PVI STA: 106+24.14
PVI ELEV: 765.51
1.75%
0.50%
EXISTING AIR
EXISTING GAS
EXISTING GAS
EXISTING GRADE
PROPOSED GRADE
STORM SEWER
STORM SEWER
PROPOSED GRADE
EXISTING GRADE

105+00	106+00	107+00	108+00	109+00	110+00
767.7 / 766.12	766.6 / 765.52	765.2 / 765.16	764.0 / 765.05	762.8 / 765.17	762.1 / 765.51
762.0 / 765.64	761.4 / 765.76	760.9 / 765.89	760.7 / 766.01	760.5 / 766.14	760.4 / 766.26
760.0 / 766.39	759.6 / 766.52	759.7 / 766.64	759.8 / 766.77	759.8 / 766.89	760.0 / 767.02
760.6 / 767.14	761.3 / 767.27	762.0 / 767.39			

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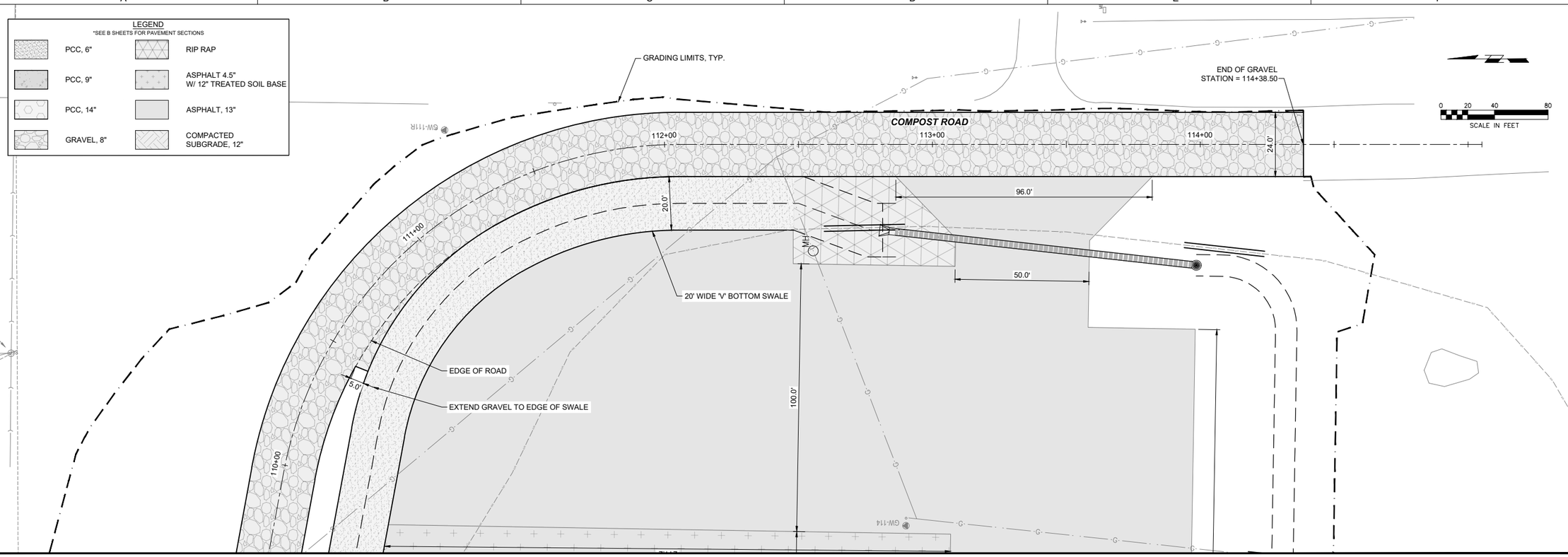
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IOWA CITY, IOWA

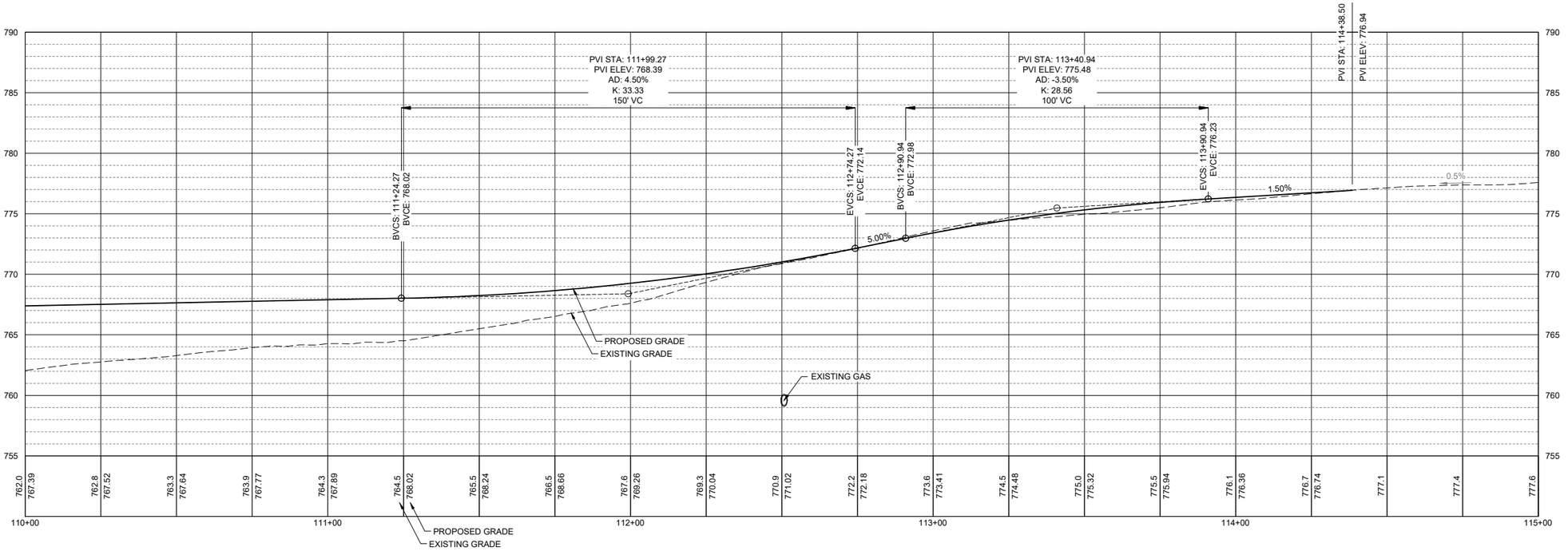
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PLAN AND PROFILE - COMPOST ROAD

D.03

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PLAN AND PROFILE - COMPOST ROAD

D.04

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LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- GRAVEL, 8"
- RIP RAP
- ASPHALT 4.5" W/ 12" TREATED SOIL BASE
- ASPHALT, 13"
- COMPACTED SUBGRADE, 12"

RANSITION
3+17.53

COMPOST ROAD

EXTERIOR LOOP ROAD

104+00
105+00
106+00
107+00
108+00
300+00
301+00
302+00
303+00
304+00

24.0'
20.0'

COMPOST ROAD STA = 300+00.00
EXTERIOR LOOP ROAD STA = 104+76.39

SWING GATE
STATION = 106+40.04

R=8.0'

SWING GATE
STATION = 106+42.82

END OF GRAVEL
STATION = 303+22.17

REPLACE GRAVEL ROAD FOR STORM SEWER REMOVAL. SEE R SHEETS FOR REMOVALS.

0 20 40 80
SCALE IN FEET

HP STA: 301+28.90
HP ELEV: 765.01
PVI STA: 301+49.32
PVI ELEV: 765.23
AD: -10.91%
K: 4.58
50' VC

PVI STA: 300+76.08
PVI ELEV: 764.98
PVI STA: 300+99.89
PVI ELEV: 764.74
BVCS: 301+24.32
BVCE: 764.98
EVCS: 301+74.32
EVCE: 762.76
PVI STA: 303+22.17
PVI ELEV: 748.10

-1.00%
1.00%
-8.3%
-9.91%
-6.1%

EXISTING COMPRESSED AIR
EXISTING GAS
PROPOSED GRADE
EXISTING GRADE

775 770 765 760 755 750 745 740

300+00	301+00	302+00	303+00	303+50
768.5 / 766.91	767.7 / 766.05	766.6 / 765.41	765.3 / 764.99	764.1 / 764.74
762.5 / 764.99	761.0 / 764.52	759.0 / 762.69	756.8 / 760.21	755.0 / 757.73
753.1 / 755.25	751.1 / 752.77	749.4 / 750.30	747.9	746.5

PROPOSED GRADE
EXISTING GRADE

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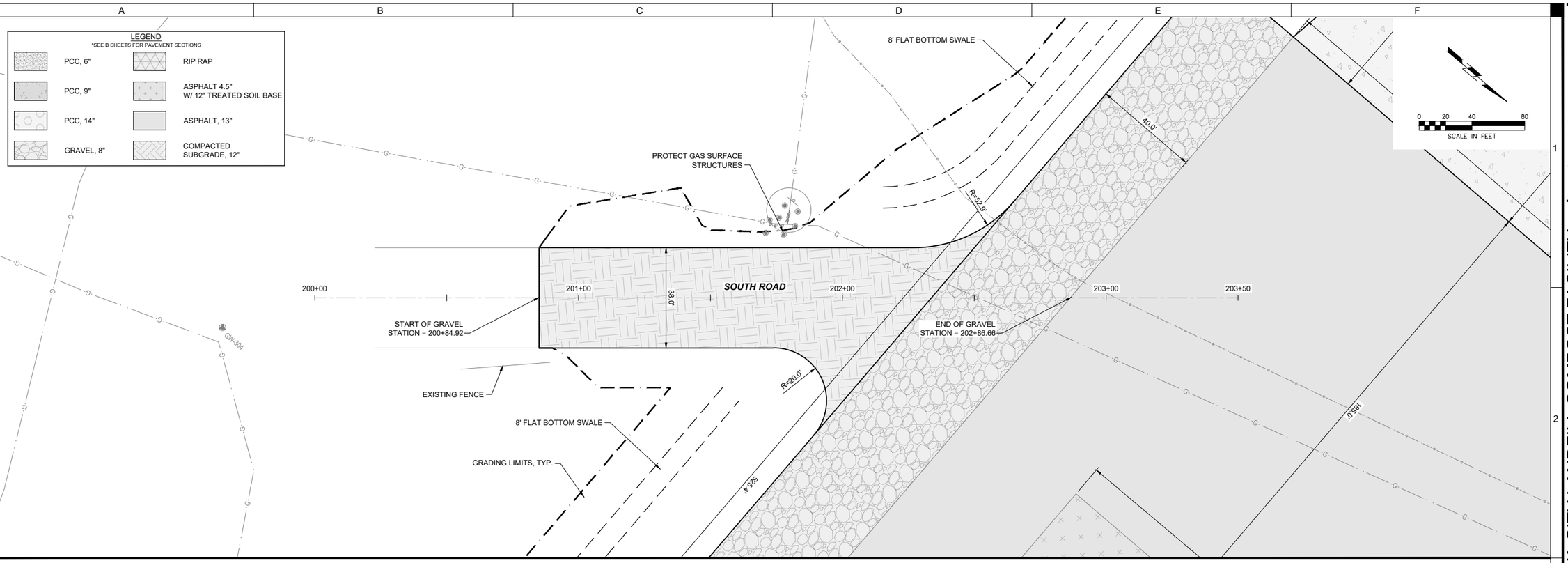
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CITY OF IOWA CITY
IOWA CITY, IOWA

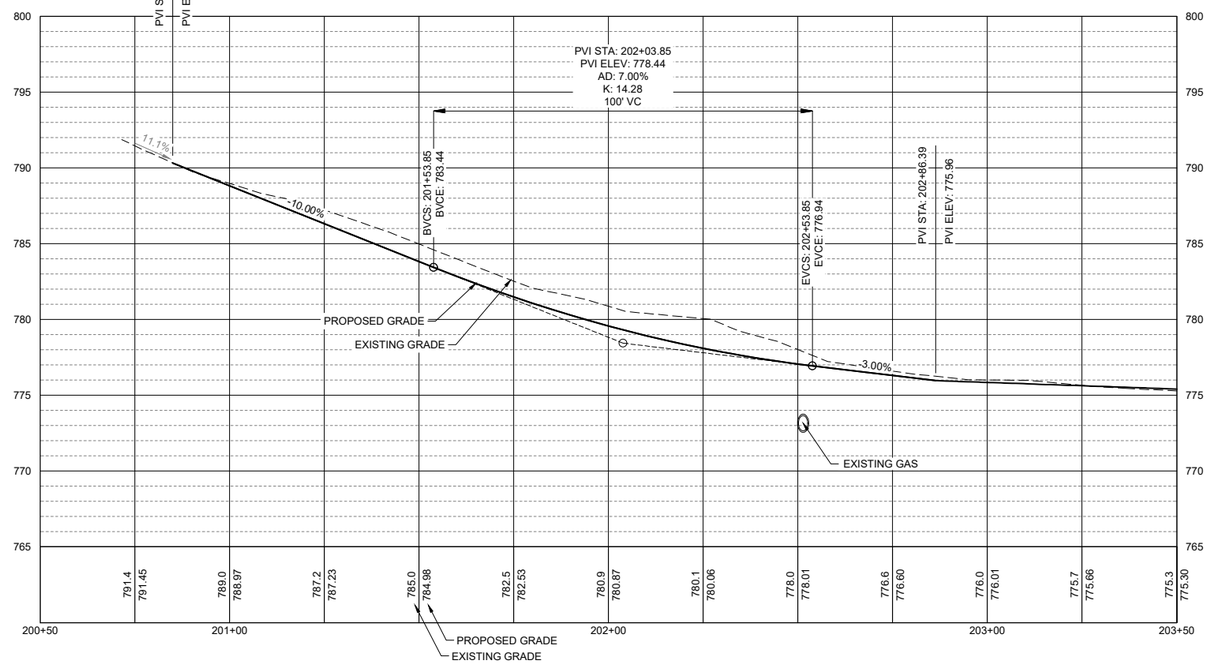
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PLAN AND PROFILE - EXTERIOR LOOP ROAD

E.01

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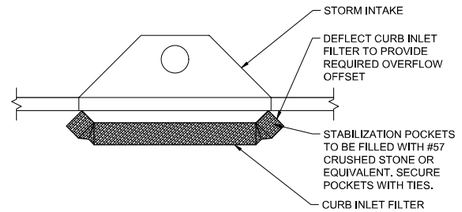
PLAN AND PROFILE - SOUTH ROAD

E.02

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STORMWATER POLLUTION PREVENTION NOTES

1. SEDIMENTATION CONTROL MEASURES ARE REQUIRED REGARDLESS OF THE TIME OF YEAR. THIS PLAN AND ITS ASSOCIATED REQUIREMENTS FOR THE PERMIT MUST BE IMPLEMENTED DURING WINTER MONTHS AS WELL.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTROL EROSION ON THE SITE AT ALL TIMES. THE CONTROL MEASURES SHOWN ON THE PLAN ARE A MINIMUM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL EROSION CONTROL MEASURES AS NECESSARY TO FULFILL THIS REQUIREMENT.
3. THE CONTRACTOR IS REQUIRED TO USE STABILIZATION CONTROLS OF DISTURBED AREAS, INITIATED IMMEDIATELY, WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. THE CONTRACTOR SHALL SEED DISTURBED AREAS AS SOON AS WORK IS COMPLETED AS INDICATED ON THE PLANS AND PROJECT MANUAL.
4. THE CONTRACTOR SHALL USE CONTROL MEASURES AS REQUIRED TO KEEP SOILS FROM LEAVING THE SITE.
5. IN THE EVENT THAT SOILS LEAVE THE SITE, CLEANUP OF ALL SURROUNDING ROADS, DRIVES, AND PARKING LOTS SHALL BE PERFORMED ON A DAILY BASIS AT A MINIMUM AND UPON REQUEST BY OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST. PAVEMENT IS TO BE SCRAPED OF DEBRIS AND MUD AND BROOMED CLEAN. MUD TRACKS ARE TO BE REMOVED AS THEY ARE CREATED.
6. MAINTAIN SILT FENCING OR FILTER SOCK AT ALL TIMES IN AN UPRIGHT POSITION. CLEAN SILT FROM FENCING OR FILTER SOCK ON A REGULAR BASIS AS PER THE IDOT AND SUDAS STANDARD SPECIFICATIONS. SILT FENCES MUST BE CLEANED OUT WHEN THEY ARE 50% FULL. COMPOST FILTER SOCK MUST BE CLEANED OUT WHEN THEY ARE 33% FULL.
7. CONTRACTOR TO LOCATE SILT FENCING OR FILTER SOCK AS NECESSARY THROUGHOUT THE PROJECT TO CONTROL EROSION.
8. INSTALL SILT FENCE OR COMPOST FILTER SOCKS AROUND ALL STORM INTAKES WITHIN THE SITE. PROVIDE SILT FENCE OR FILTER SOCKS AROUND ALL NEW INTAKES AS THEY ARE CONSTRUCTED.
9. CONTRACTOR IS REQUIRED TO PROVIDE SILT FENCE OR COMPOST FILTER SOCKS AROUND STOCKPILED OR EXCAVATED SOILS IF RAIN IS FORECASTED BEFORE STOCKPILE IS RE-SPREAD.
10. CONTRACTOR TO USE EXTREME CAUTION WHILE INSTALLING SILT FENCE OR OTHER EROSION CONTROL DEVICES SO AS NOT TO DAMAGE UNDERGROUND UTILITIES.
11. WHERE WATER IS PUMPED FROM EXCAVATIONS ON SITE, PROVISIONS SHALL BE MADE TO REMOVE SEDIMENT FROM THE WATER BEFORE IT IS RELEASED INTO THE STORM SEWER SYSTEM. PLACING A FILTER FABRIC BARRIER AROUND THE PUMP INLET IS ONE METHOD OF REMOVING SEDIMENT WHILE DEWATERING.
12. WHERE WATER IS RELEASED FROM A DEWATERING SYSTEM, PRECAUTIONS SHALL BE TAKEN TO ENSURE THAT EROSION GULLIES DO NOT FORM. ONE METHOD IS TO PIPE THE WATER DIRECTLY INTO A STORM WATER SYSTEM.
13. A 12" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR SILT FENCE WHEN SLOPE IS LESS THAN 10%, FOR INTAKE PROTECTION AN 8" COMPOST FILTER SOCK MAY BE SUBSTITUTED FOR SILT FENCE. COMPOST FILTER TUBES MUST BE STAKED IN PLACE. COMPOST FILTER TUBES MAY BE OBTAINED FROM SOIL-TEK OF IOWA, 1-888-SOILTEK OR APPROVED EQUAL.
14. SANITARY WASTE DISPOSAL: PORTABLE REST ROOM FACILITIES ARE ANTICIPATED TO BE PLACED ON-SITE. IN THE EVENT THAT PORTABLE REST ROOM FACILITIES ARE USED ON-SITE, THE CONTRACTOR IS REQUIRED TO INSTALL A 12" COMPOST FILTER TUBE AROUND THE FACILITY TO MINIMIZE THE RADIUS OF THE AFFECTED ZONE IN THE EVENT OF A SPILL. WASTES SHALL BE COLLECTED AND DISPOSED OF IN COMPLETE COMPLIANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
15. IDENTIFICATION OF ALLOWABLE NON-STORMWATER DISCHARGES: DURING CONSTRUCTION THE NON-STORM WATER DISCHARGES, WHICH INCLUDE WATER FLUSHED FROM WATER LINES, PAVEMENT AND EQUIPMENT WASHING, AND GROUNDWATER (DEWATERING), SHOULD BE DIRECTED AS MUCH AS POSSIBLE TOWARDS VEGETATED AREAS AND AWAY FROM DRAINAGE WAYS.
16. POLLUTION AND SPILL PREVENTION PLANNING: POTENTIALLY HAZARDOUS MATERIALS ON THE CONSTRUCTION SITE INCLUDE FUEL, LUBRICANTS, CURING COMPOUNDS, FERTILIZERS, GREASE AND CLEANING SOLVENTS. ALL REASONABLE PRECAUTIONS WILL BE TAKEN TO PREVENT SPILLS. ANY SPILLED MATERIAL WILL IMMEDIATELY BE DIRECTED AWAY FROM STORM WATER INTAKES, DETENTION BASINS, OR DRAINAGE WAYS. SPILLED MATERIALS WILL BE CLEANED AND, IF NECESSARY, SOIL REMEDIATION PRACTICES WILL BE USED, A RECORD OF SPILLS WILL BE MAINTAINED BY THE MAIN CONTRACTOR.
17. DUST CONTROL: THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL MEASURES WHERE DUST IS GENERATED. FREQUENT WATERING OF THE SITE, SPRINKLED, VEGETATIVE COVER, MULCH, WINDBREAKS, TILLAGE, STONE AND SPARY-ON CHEMICAL SOIL TREATMENTS (PALLIATIVES) ARE POSSIBLE DUST CONTROL MEASURES. IF THE DUST CONTROL IS NOT ACCEPTABLE IT SHALL BE CHANGED AS DIRECTED BY THE OWNER'S REPRESENTATIVE.



1 CURB INLET FILTER

SEQUENCING AND PHASING NOTES

1. THIS PROJECT WILL BE CONSTRUCTED OVER SEVERAL PHASES. EROSION/SEDIMENT CONTROL DEVICES IDENTIFIED ON THE PLAN WILL BE IMPLEMENTED ON A PER PHASE BASIS TO ALLOW FOR MAXIMUM PEDESTRIAN ACCESS AND EASE OF CONSTRUCTION.
2. INSTALL INTAKE PROTECTION AND DOWN SLOPE AND SIDE SLOPE PERIMETER CONTROLS BEFORE LAND DISTURBING ACTIVITY OCCURS.
3. STRIP TOPSOIL TO A DEPTH OF 6" AND STOCKPILE. DO NOT MIX TOPSOIL WITH SUBSOIL.
4. GRADE SUBSOIL TO CONFORM WITH THE GRADES, CONTOURS AND LEVELS IDENTIFIED ON THE DRAWINGS.
5. ROUGH GRADE FOR ROADWAY, WALKS, CURBS, GUTTERS, AND LANDSCAPED AREAS.
6. COVER OR STABILIZE DISTURBED AREAS AS SOON AS POSSIBLE.
7. REMOVE ALL STONES, WOOD AND OTHER DEBRIS LARGER THAN 1" FROM AREAS TO RECEIVE TOPSOIL. DO NOT COMPACT TOPSOIL.
8. OUTSIDE LANDSCAPED AREAS, ALL DISTURBED AREAS NOT PAVED, OR HARD SURFACED ON THE SITE SHALL RECEIVE A MINIMUM 6" OF TOPSOIL AND SODDING. FILTER SOCK TO BE REMOVED UPON INSTALLATION OF SOD.
9. UPON COMPLETION OF EACH PHASE AND APPROVAL BY THE OWNER'S REPRESENTATIVE, EROSION/SEDIMENT CONTROL DEVICES MAY BE REMOVED/RELOCATED.

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EROSION CONTROL PLAN

EC.01

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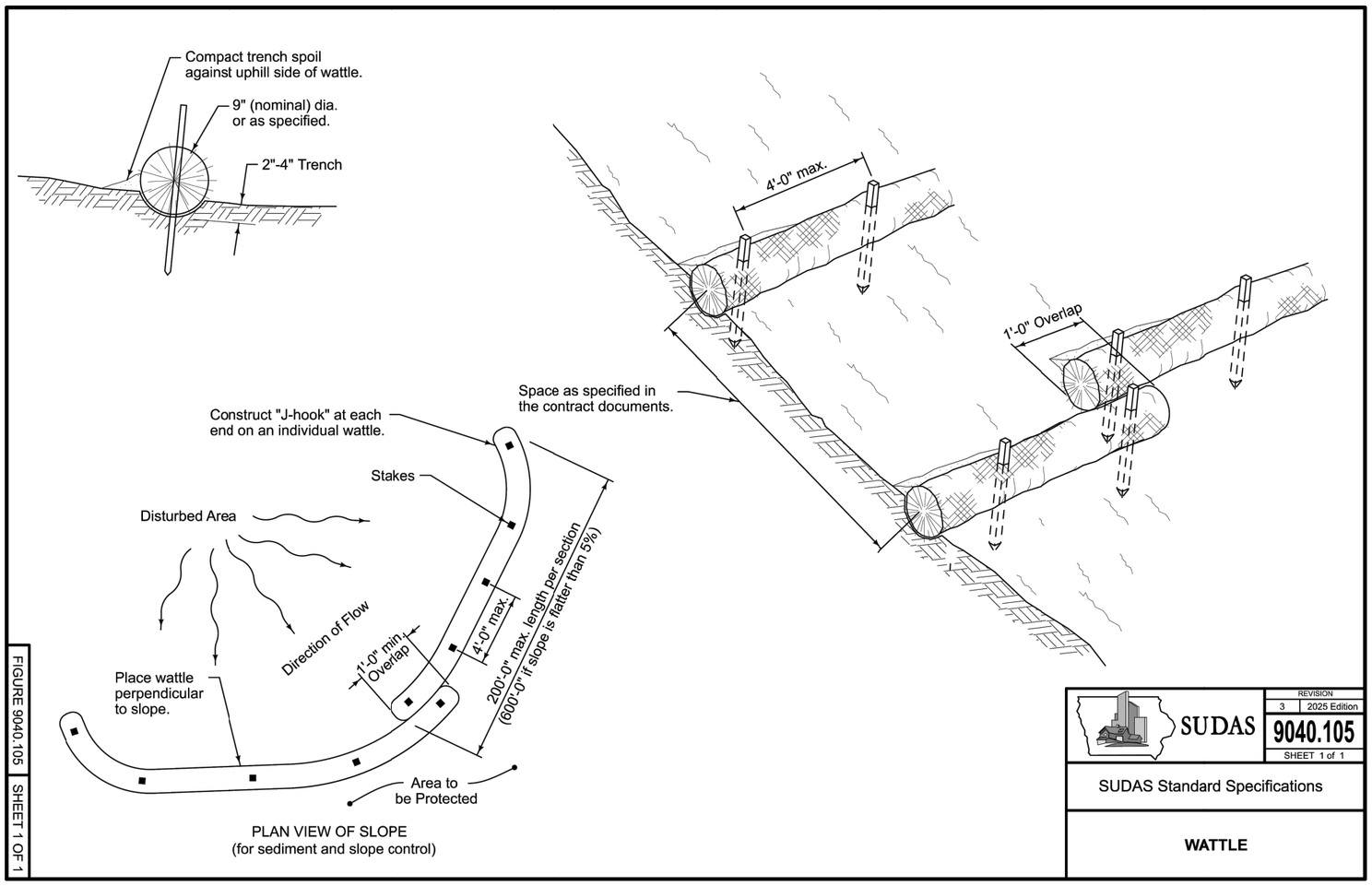
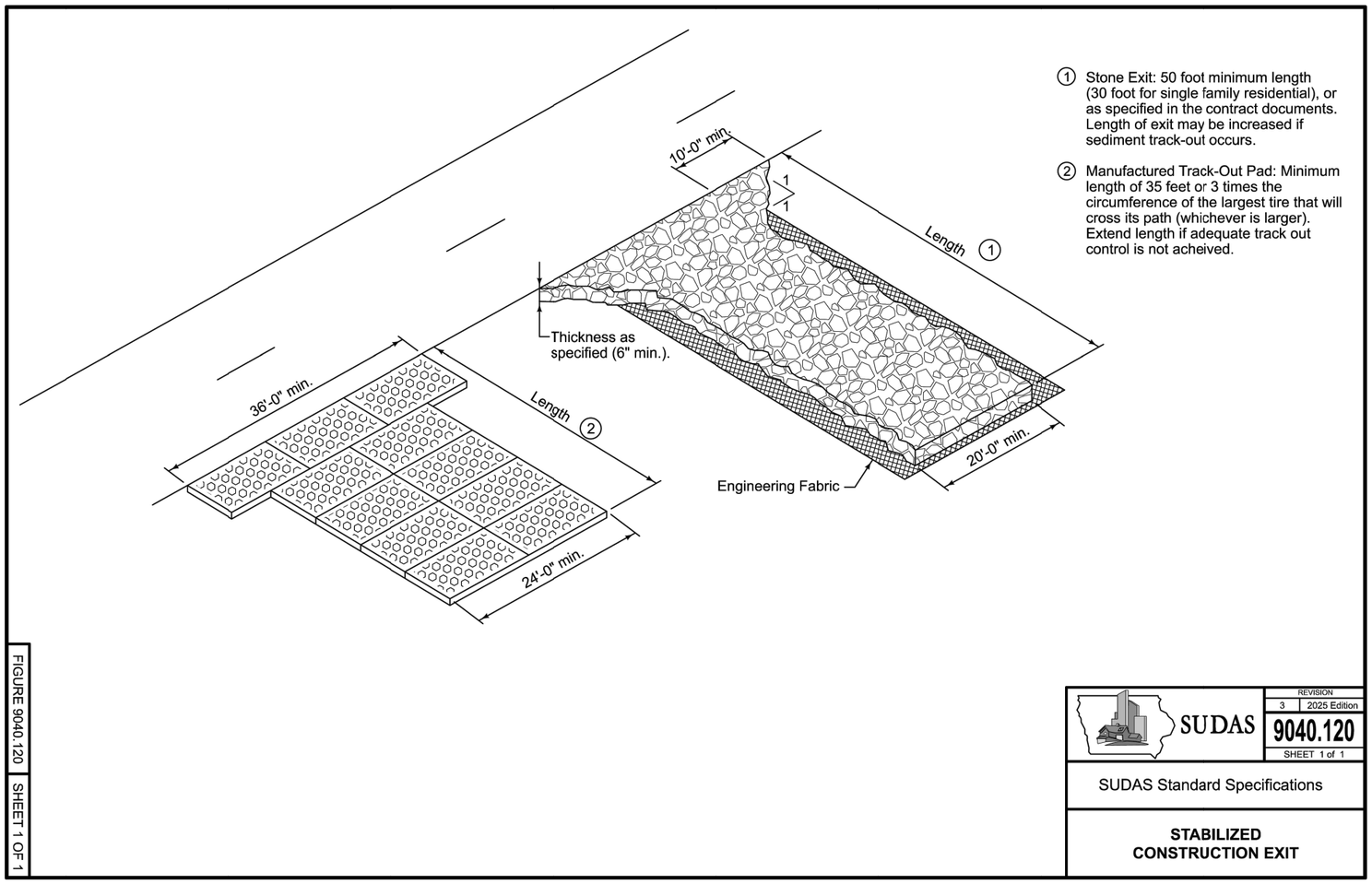


FIGURE 9040.105 | SHEET 1 OF 1

SUDAS | REVISION 3 2025 Edition | 9040.105 | SHEET 1 of 1

SUDAS Standard Specifications

WATTLE



(1) Stone Exit: 50 foot minimum length (30 foot for single family residential), or as specified in the contract documents. Length of exit may be increased if sediment track-out occurs.

(2) Manufactured Track-Out Pad: Minimum length of 35 feet or 3 times the circumference of the largest tire that will cross its path (whichever is larger). Extend length if adequate track out control is not acheived.

FIGURE 9040.120 | SHEET 1 OF 1

SUDAS | REVISION 3 2025 Edition | 9040.120 | SHEET 1 of 1

SUDAS Standard Specifications

STABILIZED CONSTRUCTION EXIT

EC.02

EROSION CONTROL PLAN

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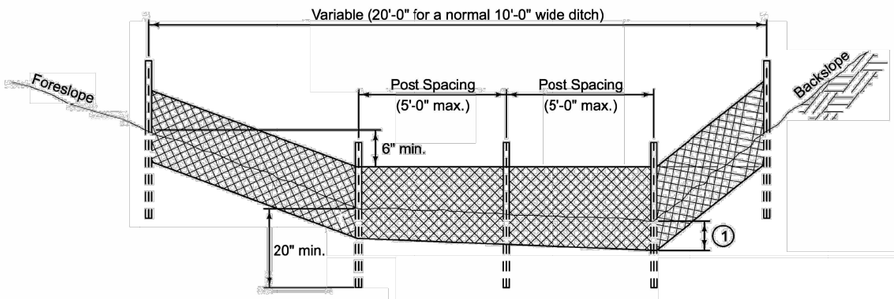
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CITY OF IOWA CITY

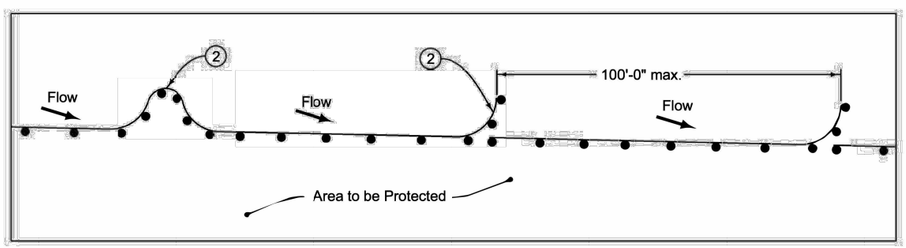
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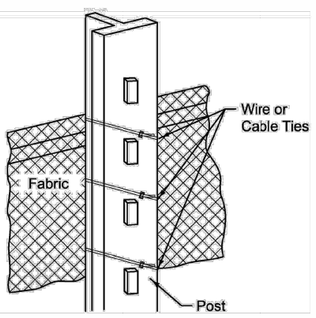


TYPICAL SILT FENCE DITCH CHECK



TYPICAL SILT FENCE INSTALLATION FOR PERIMITER CONTROL

1. Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).
2. Install silt fence for perimiter control with a maximum run length of 100 feet. At the downstream end of each run, turn the silt fence up the slope for 20 feet as shown to construct a 'J-Hook' to contain runoff. At the contractor's option, the silt fence may terminate and restart at the J-hook or may be installed continuously through the J-hook.



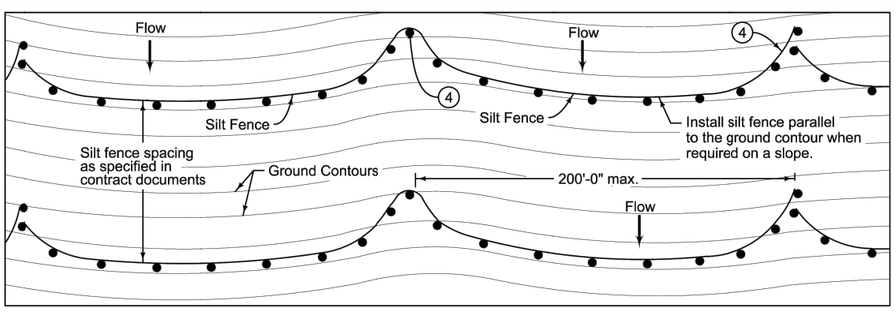
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FIGURE 9040.119 | SHEET 1 OF 2

SUDAS | REVISION 3 2025 Edition | 9040.119 | SHEET 1 of 2

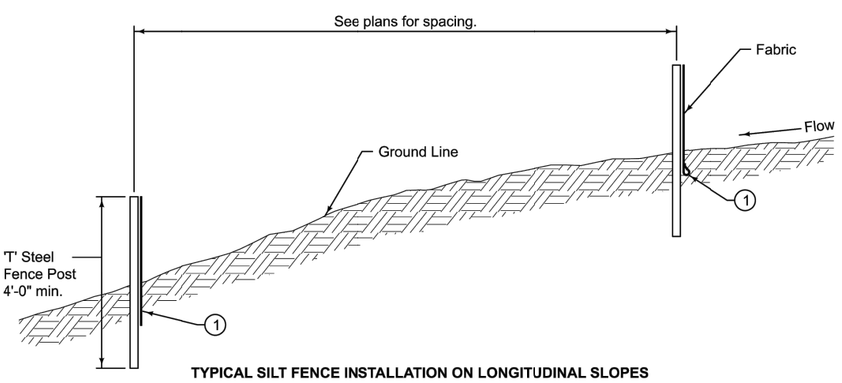
SUDAS Standard Specifications

SILT FENCE

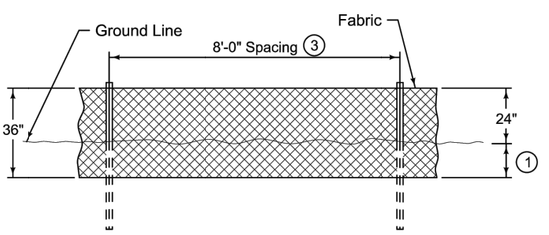


TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Plan View)

1. Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).
3. Reduce post spacing to 5 feet at water concentration areas, or as required to adequately support fence.
4. Place silt fence continuously along a constant elevation for a maximum run of 200 feet. At the end of each run, construct a 'J-Hook' to contain runoff by turning the silt fence up the slope for a length of 20 feet as shown. At the contractor's option, the silt fence may terminate and restart at the J-hook or may be installed continuously through the J-hook.



TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Profile View)



DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES

FIGURE 9040.119 | SHEET 2 OF 2

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SUDAS Standard Specifications

SILT FENCE

EC.03

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IOWA CITY, IOWA

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LEGEND

- INLET PROTECTION DEVICE, COMPOST FILTER SOCK
- 12" COMPOST SOCK
- SILT FENCE
- ROLLED EROSION CONTROL FABRIC (RECP), TYPE 2B
- STABILIZED CONSTRUCTION ENTRANCE
- RIP RAP

INLET PROTECTION DEVICE AT INTAKES, TYP.

RIP RAP, 20' LONG WITH 2:1 FLARES. FOLLOW SUDAS DETAIL 9040.110

SILT FENCE IN EXISTING SWALE

SILT FENCE IN EXISTING SWALE

SILT FENCE DOWNSTREAM OF SWALE

GRADING LIMIT LINE, TYP.

50' X 24' STABILIZED CONSTRUCTION ENTRANCE

2025 LANDFILL BUILDING

SILT FENCE ALONG SWALE TOP

INSTALL SILT FENCE PRIOR TO PAVING, SPACED AT 100' IN PROPOSED SWALE

RIP RAP AROUND FLARED END SECTION

32.5'

60.5'

SILT FENCE SPACED 75' IN PROPOSED SWALE

50' X 24' STABILIZED CONSTRUCTION ENTRANCE

0 20 40 80

SCALE IN FEET

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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY
IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	—

EROSION CONTROL PLAN

EC.04

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EROSION CONTROL PLAN

EC.05

SCALE IN FEET
0 20 40 80

EXTERIOR LOOP ROAD

COMPOST ROAD

SOUTH ROAD

PROTECT EXISTING UTILITY STRUCTURES.
CONTRACTOR SHALL NOT BURY ANY UTILITY STRUCTURES.

CONTRACTOR SHALL GRADE AROUND THE FLARE TO ENSURE SURFACE DRAINAGE IS DIRECTED AWAY FROM AND DOES NOT INTERACT WITH THE FLARE PAD.

CORNER OF FLARE PAD, 777.10'

SWALE HIGH POINT
N = 606524.23
E = 2152649.10
FG = 773.63

SWALE LOW POINT
N = 606576.71
E = 2152685.80
FG = 770.14

2025 LANDFILL BUILDING

EXISTING BUILDING

EXISTING REINFORCED SLAB EDGE

SEE GRADING PLAN FOR SURFACE ELEVATIONS

12" GAS HEADER, TYP.

EXISTING FUEL TANK, 777.50'

SWALE LOW POINT
N = 606154.71
E = 2152710.22
FG = 774.04

8' FLAT BOTTOM SWALE

GRADING LIMITS, TYP.

SWALE BEND
N = 606145.79
E = 2152825.31
FG = 775.70

SWALE HIGH POINT
N = 606127.27
E = 2152868.23
FG = 777.08

SWALE HIGH POINT
N = 606476.88
E = 2152726.78
FG = 771.92

SWALE LOW POINT
N = 606514.48
E = 2153146.11
FG = 761.85

GRADE BREAK
N = 606504.01
E = 2153147.92
FG = 761.99

20' WIDE 'V' BOTTOM SWALE
AT 2% CROSS SLOPE. SEE 'COMPOST SWALE GRADING' VIEW FOR TYPICAL SECTION.

GRADE BREAK

GRADE BREAK
N = 606256.23
E = 2153145.94
FG = 772.05

GRADE BREAK
N = 606206.23
E = 2153145.54
FG = 773.05

SWALE HIGH POINT
N = 606137.67
E = 2152965.67
FG = 780.11

WELL HEAD RELOCATION
N = 606482.51
E = 2153258.90
FG = 763.96

EXISTING AIR, CONTRACTOR TO VERIFY ELEVATIONS

EXISTING GAS, CONTRACTOR TO VERIFY ELEVATIONS

WELL HEAD RELOCATION
N = 606306.67
E = 2153477.77
FG = 771.14

SWALE HIGH POINT
N = 606280.59
E = 2153485.73
FG = 771.38

SWALE LOW POINT
N = 606163.63
E = 2153469.64
FG = 774.73

SWALE BEND
N = 606420.11
E = 2153477.84
FG = 767.71

SWALE BEND
N = 606357.09
E = 2153495.06
FG = 769.07

8' FLAT BOTTOM SWALE

SEE SECTION VIEW ' SOUTH SWALE GRADING' FOR TYPICAL GRADING OF SWALE

ELEVATION OF GAS IS UNKNOWN. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION.

ENCASE COMPRESSED AIR LINE, 55 LF

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GRADING PLAN

F.01

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NOTE:
THIS SWALE WILL BE PAVED. SEE D-SHEETS FOR PAVEMENT LOCATIONS. SEE B SHEET FOR PAVEMENT SECTIONS. SEE F SHEET FOR SUPPORTING ELEVATIONS.

LOW POINT
N = 606576.71
E = 2152685.80
FG = 770.14

SWALE HIGH POINT
N = 606476.88
E = 2152726.78
FG = 771.92

SWALE LOW POINT
N = 606514.48
E = 2153146.11
FG = 761.85

GRADE BREAK
N = 606504.01
E = 2153147.92
FG = 761.99

WELL HEAD RELOCATION
N = 606482.51
E = 2153258.90
FG = 763.96

GRADE BREAK
N = 606256.23
E = 2153145.94
FG = 772.05

WELL HEAD RELOCATION
N = 606306.67
E = 2153477.77
FG = 771.14

SWALE HIGH POINT
N = 606280.59
E = 2153485.73
FG = 771.38

SWALE LOW POINT
N = 606163.63
E = 2153469.64
FG = 774.73

SWALE BEND
N = 606420.11
E = 2153477.84
FG = 767.71

SWALE BEND
N = 606357.09
E = 2153495.06
FG = 769.07

MID POINT 771.91

MID POINT 769.86

0 20 40 80
SCALE IN FEET

PVI STA: 102+02.39
PVI ELEV: 764.94
AD: 3.53%
K: 25.52
90' VC

PVI STA: 108+21.96
PVI ELEV: 768.13
AD: 2.48%
K: 28.21
70' VC

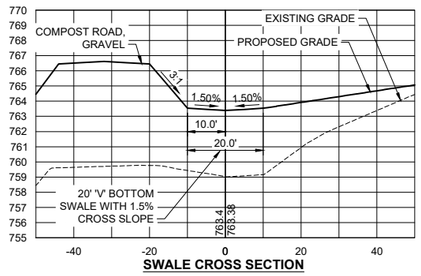
PROPOSED GRADE
EXISTING GRADE

STORM STRUCTURE
STA 104+28.88
EL 761.82

STORM STRUCTURE
STA 104+98.70
EL 762.98

PVI STA: 107+81.11
PVI ELEV: 767.71

PVI STA: 108+71.96
PVI ELEV: 769.89



SWALE CROSS SECTION

NORTH COMPOST PAD SWALE - ALIGNMENT SEGMENT TABLE

SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT	START STATION	END STATION
C1	87.09'	1322.00'	N76° 55' 56.51"E	3° 46' 27.47"	N = 606476.88 E = 2152726.78	N = 606496.56 E = 2152811.59	100+00.00	100+87.09
L1	75.26'		N75° 02' 42.77"E		N = 606496.56 E = 2152811.59	N = 606515.98 E = 2152884.30	100+87.09	101+62.35
C2	95.59'	578.00'	N79° 46' 58.73"E	9° 28' 31.92"	N = 606515.98 E = 2152884.30	N = 606532.92 E = 2152978.27	101+62.35	102+57.93
C3	80.71'	300.00'	S87° 46' 19.44"E	15° 24' 51.73"	N = 606532.92 E = 2152978.27	N = 606529.79 E = 2153058.67	102+57.93	103+38.64
L2	355.21'		S80° 03' 53.58"E		N = 606529.79 E = 2153058.67	N = 606468.51 E = 2153408.55	103+38.64	106+93.85

NORTH COMPOST PAD SWALE - ALIGNMENT SEGMENT TABLE

SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT	START STATION	END STATION
C4	87.26'	100.00'	S55° 04' 02.94"E	49° 59' 41.28"	N = 606468.51 E = 2153408.55	N = 606420.11 E = 2153477.84	106+93.85	107+81.11
C5	66.06'	128.00'	S15° 17' 03.66"E	29° 34' 17.29"	N = 606420.11 E = 2153477.84	N = 606357.09 E = 2153495.06	107+81.11	108+47.17
L3	44.79'		S00° 29' 55.01"E		N = 606357.09 E = 2153495.06	N = 606312.30 E = 2153495.45	108+47.17	108+91.96
L4	28.77'		S19° 50' 14.67"W		N = 606312.30 E = 2153495.45	N = 606285.23 E = 2153485.69	108+91.96	109+20.74
L5	9.28'		S00° 29' 55.01"E		N = 606285.23 E = 2153485.69	N = 606275.95 E = 2153485.77	109+20.74	109+30.02

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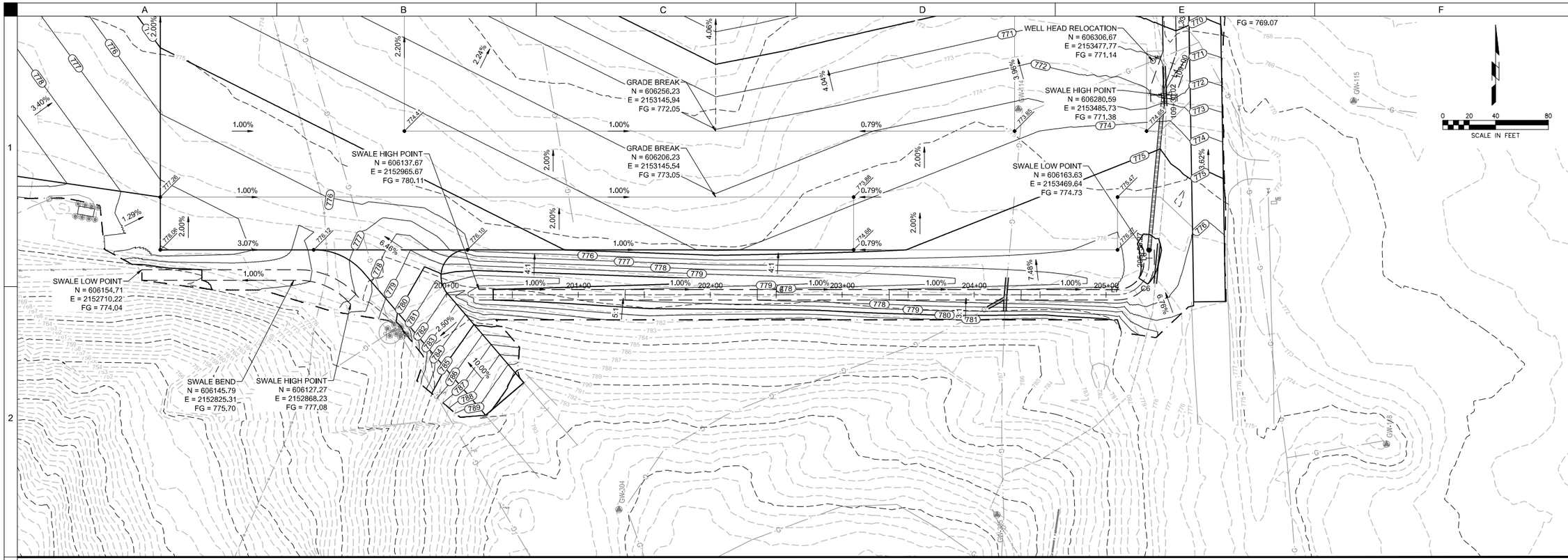
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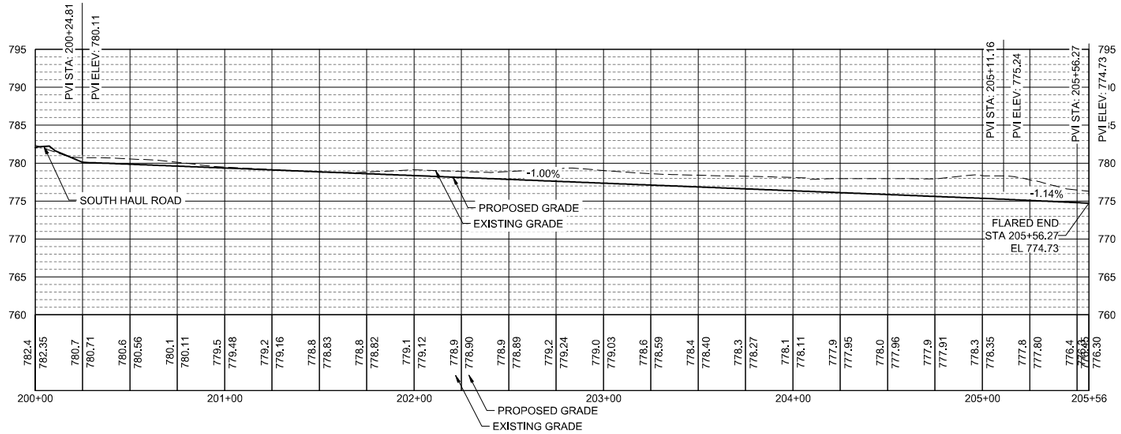
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GRADING PLAN

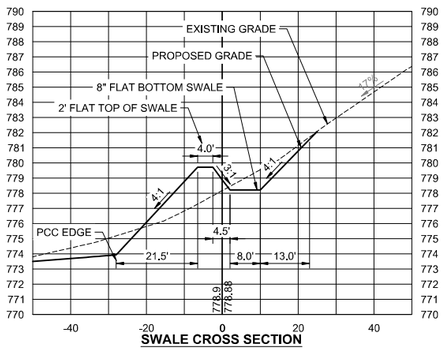
F.02

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SOUTH COMPOST PAD SWALE PROFILE



SWALE CROSS SECTION

SOUTH COMPOST PAD SWALE - ALIGNMENT SEGMENT TABLE

SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START POINT	END POINT	START STATION	END STATION
L6	505.00'		S89° 32' 30.48"E		N = 606133.87 E = 2152940.83	N = 606129.83 E = 2153445.81	200+00.00	205+05.00
L7	3.58'		S89° 32' 30.48"E		N = 606129.83 E = 2153445.81	N = 606129.80 E = 2153449.39	205+05.00	205+08.58
C6	37.70'	24.00'	N45° 27' 11.79"E	90° 00' 35.45"	N = 606129.80 E = 2153449.39	N = 606153.61 E = 2153473.58	205+08.58	205+46.28
L8	9.99'		N00° 20' 42.65"E		N = 606153.61 E = 2153473.58	N = 606163.60 E = 2153473.64	205+46.28	205+56.27

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GRADING PLAN

F.03

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MONITORING WELL ELEVATION ADJUSTMENTS

WELL LABEL	EXISTING TOP OF CASING ELEVATION	PROPOSED TOP OF CASING ELEVATION	EXTENSION HEIGHT (FEET)
MW-204A	739.95	737.31	-2.64
MW-302B	733.97	736.35	2.38
MW-15A	727.14	736.55	9.41

EARTHWORK SUMMARY

CLASSIFICATION	CUT (CY)	FILL + 20% SHRINK
EARTHFILL, EMBANKMENT AND BASIN	8,000	4,060
EARTHFILL, SPOIL	0	3,940
TOTAL EARTHWORK	8,000	8,000

BYPASS SWALE CENTERLINE

STA 3+00
AUXILIARY SPILLWAY
ELEVATION = 735.0

MW-204A
ADJUST TOP OF MONITORING WELL TO 737.40

GRADING LIMITS

MW-302B
ADJUST TOP OF MONITORING WELL TO 736.50

DETENTION BASIN OVERFLOW
DRAINAGE ROUTE

DETENTION BASIN
TOP OF DAM = 736.0

MW-15A
ADJUST TOP OF MONITORING WELL TO 736.50

EXISTING DETENTION AREA LIMITS

FES 1.3
24" RCP FLARED END SECTION

GROUNDWATER MONITORING WELL (TYP)

GRADING LIMITS

MH 1.3
48" - SW-401

REMOVE AND REPLACE INTAKE TO LEACHATE SYSTEM.
SEE DETAIL ON SHEET B SHEET.

HAUL ROAD #2

MH 1.2
48" - SW-401

EXISTING LEACHATE COLLECTION PIPE

SEE M SHEETS FOR FULL STORM SEWER NETWORK

LOW FLOW PIPE TO
HYDRODYNAMIC SEPARATOR
SEE SHEET F.03

OVERFLOW PIPE
SEE SHEET F.03

HAUL ROAD #1

ROADWAY OVERTOP LOCATION
ELEVATION = 765.0

DETENTION SUMMARY:

BASIN BOTTOM ELEVATION:	729.0
BASIN OVERFLOW ELEVATION:	735.0
BASIN TOP OF DAM ELEVATION:	736.5
5-YEAR STORM EVENT DETENTION VOLUME:	1.66 AC-FT
5-YEAR STORM EVENT BASIN HIGHWATER ELEVATION:	732.58
100-YEAR STORM EVENT BASIN HIGHWATER ELEVATION:	734.88
DETENTION BASIN CAPACITY AT OVERFLOW:	3.90 AC-FT
DETENTION BASIN CAPACITY AT TOP OF DAM:	5.54 AC-FT

NORTH

0 15 30 60
SCALE IN FEET

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DETENTION BASIN GRADING PLAN

F.04

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COMPOST ROAD - ALIGNMENT SEGMENT TABLE								
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START STATION	START POINT	END STATION	END POINT
L1	50.00'		S89° 28' 45.19"E		100+00.00	N = 606474.29 E = 2152408.63	100+50.00	N = 606473.84 E = 2152458.62
C1	351.13'	1300.00'	N82° 46' 58.79"E	15° 28' 32.04"	100+50.00	N = 606473.84 E = 2152458.62	104+01.13	N = 606517.82 E = 2152805.91
L2	75.26'		N75° 02' 42.77"E		104+01.13	N = 606517.82 E = 2152805.91	104+76.39	N = 606537.24 E = 2152878.62
C2	260.65'	600.00'	N87° 29' 24.60"E	24° 53' 23.65"	104+76.39	N = 606537.24 E = 2152878.62	107+37.04	N = 606548.56 E = 2153136.98
L3	259.87'		S80° 03' 53.58"E		107+37.04	N = 606548.56 E = 2153136.98	109+96.90	N = 606503.73 E = 2153392.95
C3	208.30'	150.00'	S40° 16' 54.30"E	79° 33' 58.57"	109+96.90	N = 606503.73 E = 2153392.95	112+05.21	N = 606357.28 E = 2153517.06
L4	300.00'		S00° 29' 55.01"E		112+05.21	N = 606357.28 E = 2153517.06	115+05.21	N = 606057.29 E = 2153519.67

EXTERIOR LOOP ROAD - ALIGNMENT SEGMENT TABLE								
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START STATION	START POINT	END STATION	END POINT
L5	173.15'		N69° 32' 49.34"E		300+00.00	N = 606537.24 E = 2152878.62	301+73.15	N = 606597.74 E = 2153040.86
C4	42.66'	500.00'	N71° 59' 29.38"E	4° 53' 20.08"	301+73.15	N = 606597.74 E = 2153040.86	302+15.81	N = 606610.93 E = 2153081.42
L6	77.14'		N74° 26' 09.42"E		302+15.81	N = 606610.93 E = 2153081.42	302+92.95	N = 606631.63 E = 2153155.73
C5	283.35'	1000.00'	N82° 33' 12.08"E	16° 14' 05.33"	302+92.95	N = 606631.63 E = 2153155.73	305+76.30	N = 606668.23 E = 2153435.75
L7	128.80'		S89° 19' 45.25"E		305+76.30	N = 606668.23 E = 2153435.75	307+05.10	N = 606666.72 E = 2153564.54

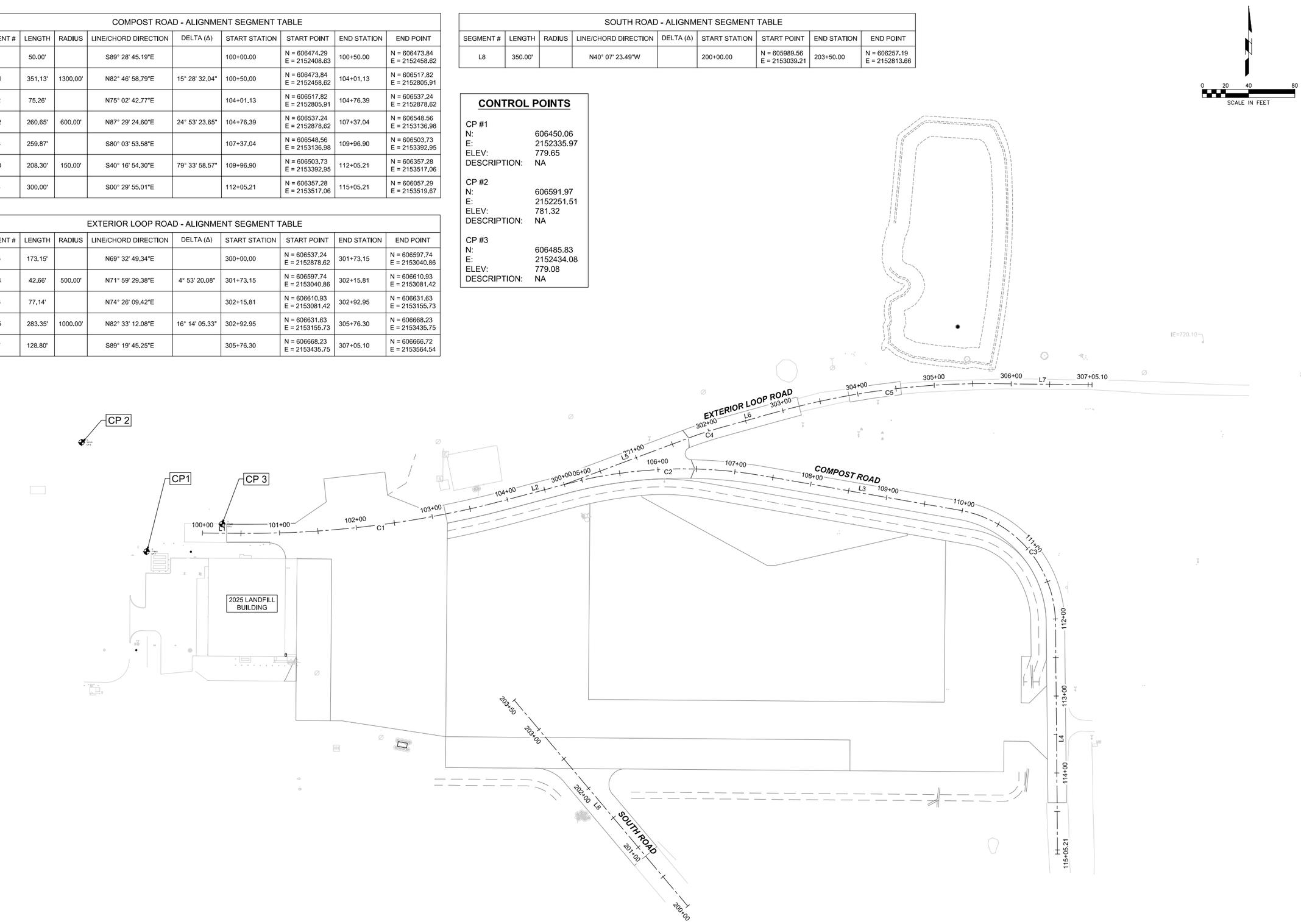
SOUTH ROAD - ALIGNMENT SEGMENT TABLE								
SEGMENT #	LENGTH	RADIUS	LINE/CHORD DIRECTION	DELTA (Δ)	START STATION	START POINT	END STATION	END POINT
L8	350.00'		N40° 07' 23.49"W		200+00.00	N = 605989.56 E = 2153039.21	203+50.00	N = 606257.19 E = 2152813.66

CONTROL POINTS

CP #1
N: 606450.06
E: 2152335.97
ELEV: 779.65
DESCRIPTION: NA

CP #2
N: 606591.97
E: 2152251.51
ELEV: 781.32
DESCRIPTION: NA

CP #3
N: 606485.83
E: 2152434.08
ELEV: 779.08
DESCRIPTION: NA



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GEOMETRIC CONTROL

G.01

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PHASING PLAN

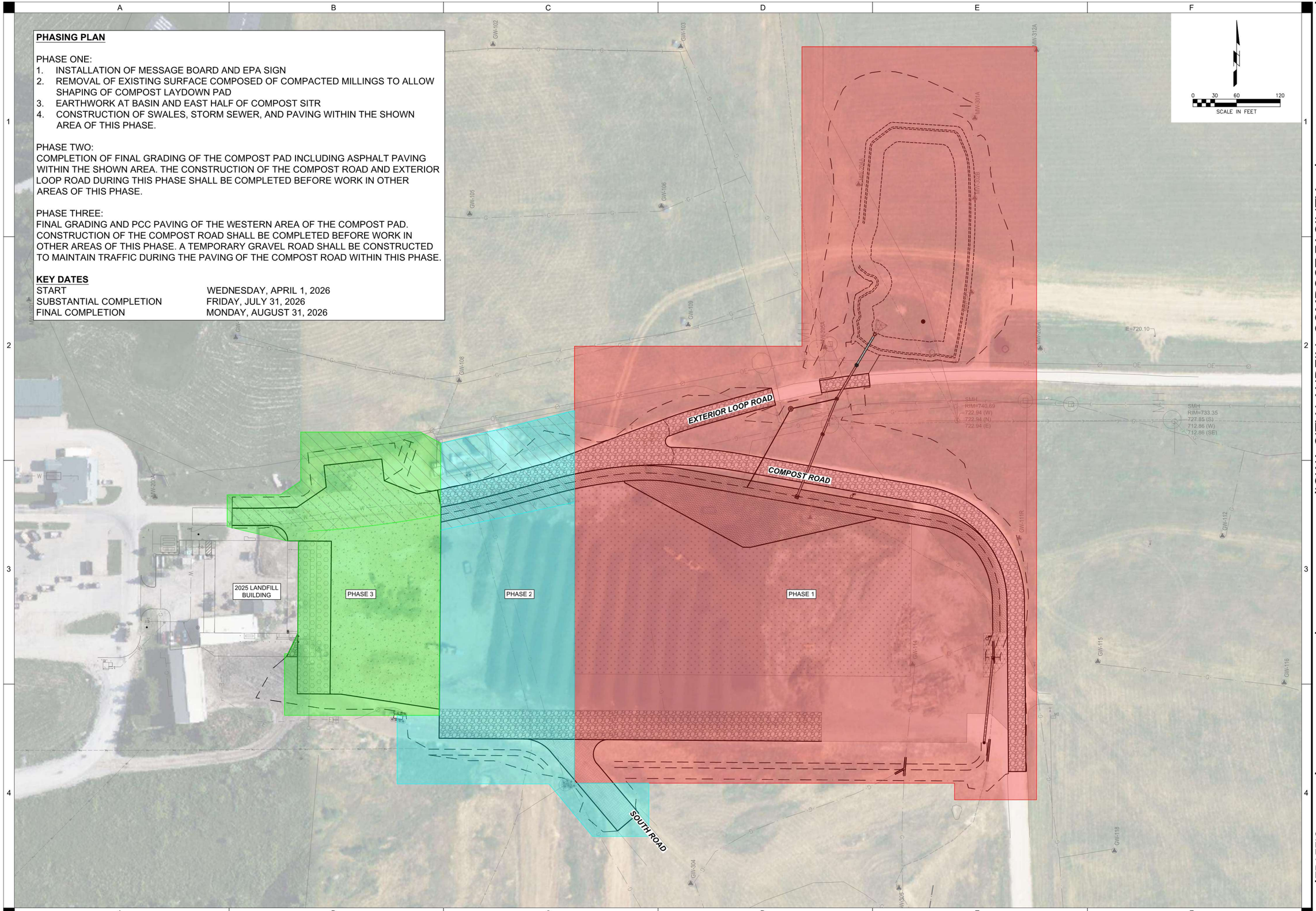
PHASE ONE:
1. INSTALLATION OF MESSAGE BOARD AND EPA SIGN
2. REMOVAL OF EXISTING SURFACE COMPOSED OF COMPACTED MILLINGS TO ALLOW SHAPING OF COMPOST LAYDOWN PAD
3. EARTHWORK AT BASIN AND EAST HALF OF COMPOST SITR
4. CONSTRUCTION OF SWALES, STORM SEWER, AND PAVING WITHIN THE SHOWN AREA OF THIS PHASE.

PHASE TWO:
COMPLETION OF FINAL GRADING OF THE COMPOST PAD INCLUDING ASPHALT PAVING WITHIN THE SHOWN AREA. THE CONSTRUCTION OF THE COMPOST ROAD AND EXTERIOR LOOP ROAD DURING THIS PHASE SHALL BE COMPLETED BEFORE WORK IN OTHER AREAS OF THIS PHASE.

PHASE THREE:
FINAL GRADING AND PCC PAVING OF THE WESTERN AREA OF THE COMPOST PAD. CONSTRUCTION OF THE COMPOST ROAD SHALL BE COMPLETED BEFORE WORK IN OTHER AREAS OF THIS PHASE. A TEMPORARY GRAVEL ROAD SHALL BE CONSTRUCTED TO MAINTAIN TRAFFIC DURING THE PAVING OF THE COMPOST ROAD WITHIN THIS PHASE.

KEY DATES

START	WEDNESDAY, APRIL 1, 2026
SUBSTANTIAL COMPLETION	FRIDAY, JULY 31, 2026
FINAL COMPLETION	MONDAY, AUGUST 31, 2026



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TRAFFIC CONTROL PLAN

J.01

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PHASING ONE

1) COMPOST ROAD AND EXTERIOR LOOP ROAD WITHIN THE PHASE BOUNDARY SHOWN WILL BE CLOSED DURING THE DURATION OF THIS PHASE.
2) LANDFILL STAFF SHALL FOLLOW THE SHOWN ROUTE USING THE SOUTH ROAD TO ACCESS THE SOUTH AND EAST SIDE OF THE LANDFILL.
3) COMPOSTING OPERATIONS WILL BE MAINTAINED IN THE APPROXIMATE AREA SHOWN.

PHASE 1 AREA

EXTERIOR LOOP ROAD

COMPOST ROAD

PHASE 1

MAINTAINED COMPOST OPERATIONS, 1.5 AC

DETOUR ROUTE

2025 LANDFILL BUILDING

SOUTH ROAD

LANDFILL STAFF TO ACCESS THE SOUTH SIDE OF THE LANDFILL SITE FROM THE SOUTH ROAD

0 30 60 120
SCALE IN FEET

SMH
RIM=740.69
722.94 (W)
722.94 (N)
722.94 (E)

SMH
RIM=733.35
727.85 (S)
712.86 (W)
712.86 (SE)

IE=720.10

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TRAFFIC CONTROL PLAN - PHASE 1

J.02

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PHASING TWO

1) THE COMPOST ROAD WILL BE TEMPORARILY CLOSED AT THE BEGINNING OF THIS PHASE.
2) THE CONTRACTOR SHALL COMPLETE THE PAVING OF THE COMPOST ROAD BEFORE WORK IN OTHER AREAS OF THIS PHASE.
3) WHILE THE COMPOST ROAD IS BEING PAVED, TRAFFIC TO THE EAST SIDE OF THE COMPOST SITE SHALL BE MAINTAINED BY TRAVELING THROUGH THE SOUTH LIMITS OF THIS PHASE.

0 30 60 120
SCALE IN FEET

EXTERIOR LOOP ROAD
COMPOST ROAD
DETOUR ROUTE
PHASE 2 - PRIORITIZED AREA
PHASE 2 AREA
PHASE 2
MAINTAINED COMPOST OPERATIONS, 2.25 AC
2025 LANDFILL BUILDING
LANDFILL STAFF TO ACCESS THE SOUTH SIDE OF THE LANDFILL SITE FROM THE COMPOST ROAD
SOUTH ROAD

SMH
RIM=740.69
722.94 (W)
722.94 (N)
722.94 (E)

SMH
RIM=733.35
727.85 (S)
712.86 (W)
712.86 (SE)

IE=720.10

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IOWA CITY LANDFILL COMPOST FACILITY
IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY

IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	----

TRAFFIC CONTROL PLAN - PHASE 2

J.03

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PHASING THREE

1) THE COMPOST ROAD WILL BE TEMPORARILY CLOSED AT THE BEGINNING OF THIS PHASE.
2) THE CONTRACTOR SHALL COMPLETE THE PAVING OF THE COMPOST ROAD BEFORE WORK IN OTHER AREAS OF THIS PHASE.
3) WHILE THE COMPOST ROAD IS BEING PAVED, TRAFFIC SHALL BE MAINTAIN BY INSTALLING A TEMPORARY ACCESS DRIVE TO THE NORTH OF THE PROPOSED COMPOST ROAD. TWO 12.5' LANES SHALL BE MAINTAINED.
4) EASTERN CONNECTION OF THIS GRAVEL DRIVE SHALL BE A MINIMUM OF 15' WHILE THE EDGE OF THE DRIVE SHALL MAINTAIN A MINIMUM 15' OF SEPARATION OFF THE FLARE FENCE LINE.
5) WESTBOUND TRAFFIC SHALL YIELD TO ONCOMING TRAFFIC AT THE NARROWING OF THE GRAVEL DRIVE.

EDGE OF TEMPORARY GRAVEL DRIVE SHALL MAINTAIN A MINIMUM A DISTANCE OF 15' FROM THE EDGE OF THE EXISTING FENCE.

IF OPERATIONS ENCROACH ON THE FENCE, TEMPORARY BARRIER RAIL SPECIFIED FOR POST CONSTRUCTION COMPOST OPERATIONS SHALL BE USED TO PROTECT THIS AREA.

15' GRAVEL DRIVE. WESTBOUND TRAFFIC SHALL YIELD TO ONCOMING TRAFFIC.

25' TEMPORARY GRAVEL DRIVE

DETOUR ROUTE

EXTERIOR LOOP ROAD

COMPOST ROAD

PHASE 3 - PRIORITIZED AREA

PHASE 3 AREA

2025 LANDFILL BUILDING

PHASE 3

LANDFILL STAFF TO ACCESS THE SOUTH SIDE OF THE LANDFILL SITE FROM THE COMPOST ROAD OR THE SOUTH ROAD

SOUTH ROAD

0 30 60 120
SCALE IN FEET

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TRAFFIC CONTROL PLAN - PHASE 3

J.04

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CALLOUT LEGEND	
– – – –	GRADE BREAK
TOS	TOP OF SLAB
TOC	TOP OF CURB
GU	GUTTER
MP	MID POINT

HATCH LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- GRAVEL, 8"
- RIP RAP
- ASPHALT 4.5" W/ 12" TREATED SOIL BASE
- ASPHALT, 13"
- COMPACTED SUBGRADE, 12"

SCALE IN FEET: 0 20 40 80

SEE K.02 FOR PAVING PLAN

START OF PAVING
STATION = 103+17.55
OFFSET = 11.76' LT
TOS = 771.72

START OF PAVING
STATION = 103+17.55
OFFSET = 12.24' RT
TOS = 771.71

STATION = 104+75.81
OFFSET = 12.00' LT
TOS = 766.75

STATION = 105+90.27
OFFSET = 34.99' LT
TOS = 764.78

STATION = 105+96.90
OFFSET = 12.00' LT
TOS = 764.96

STATION = 106+35.95
OFFSET = 51.43' LT
TOS = 762.69

STATION = 106+40.16
OFFSET = 27.46' LT
TOS = 763.44

END OF PAVING
STATION = 107+62.97
OFFSET = 108.00' LT
TOS = 747.92

END OF PAVING
STATION = 107+72.57
OFFSET = 86.27' LT
TOS = 748.28

STATION = 106+42.95
OFFSET = 12.00' LT
TOS = 765.42

SEE K.02 FOR PAVING PLAN

STATION = 105+03.77
OFFSET = 32.00' RT
TOS = 765.84

STATION = 104+68.50
OFFSET = 155.18' RT
MP = 771.61

STATION = 109+85.17
OFFSET = 42.00' RT
TOS = 765.84

STATION = 110+26.31
OFFSET = 39.89' RT
TOS = 766.39

STATION = 111+40.08
OFFSET = 32.00' RT
TOS = 767.95

STATION = 112+78.48
OFFSET = 12.00' RT
TOS = 772.17

STATION = 112+78.48
OFFSET = 15.00' RT
TOS = 772.00

STATION = 112+86.37
OFFSET = 12.00' RT
TOS = 772.57

STATION = 113+09.04
OFFSET = 12.00' RT
TOS = 773.64

STATION = 113+59.05
OFFSET = 12.00' RT
TOS = 775.39

STATION = 113+82.05
OFFSET = 12.00' RT
TOS = 775.90

STATION = 113+88.50
OFFSET = 15.00' RT
TOS = 775.90

STATION = 113+88.50
OFFSET = 12.00' RT
TOS = 776.01

STATION = 113+08.65
OFFSET = 35.00' RT
TOS = 774.73

STATION = 113+08.48
OFFSET = 45.50' RT
TOS = 774.65

STATION = 113+06.81
OFFSET = 145.49' RT
TOS = 773.85

STATION = 113+58.65
OFFSET = 35.83' RT
TOS = 775.73

STATION = 113+58.10
OFFSET = 68.33' RT
TOS = 775.47

STATION = 113+98.10
OFFSET = 69.00' RT
TOS = 776.27

STATION = 104+34.70
OFFSET = 277.77' RT
TOS = 774.41

STATION = 104+25.56
OFFSET = 327.12' RT
TOS = 775.37

STATION = 104+14.93
OFFSET = 365.68' RT
TOS = 778.98

STATION = 103+94.22
OFFSET = 318.03' RT
TOS = 775.71

STATION = 107+96.30
OFFSET = 286.40' RT
TOS = 772.05

STATION = 102+71.25
OFFSET = 284.71' RT
TOS = 777.26

STATION = 103+66.94
OFFSET = 334.74' RT
TOS = 776.06

STATION = 104+73.76
OFFSET = 340.41' RT
TOS = 774.87

STATION = 108+04.53
OFFSET = 335.72' RT
TOS = 773.05

STATION = 104+63.13
OFFSET = 378.97' RT
TOS = 775.67

STATION = 113+93.01
OFFSET = 373.49' RT
TOS = 773.85

STATION = 102+65.86
OFFSET = 324.15' RT
TOS = 778.06

STATION = 103+09.03
OFFSET = 334.09' RT
TOS = 777.51

STATION = 103+47.79
OFFSET = 344.66' RT
TOS = 775.81

STATION = 103+81.98
OFFSET = 373.39' RT
TOS = 777.53

STATION = 104+33.41
OFFSET = 405.02' RT
TOS = 782.05

STATION = 103+99.54
OFFSET = 421.18' RT
TOS = 781.10

EXISTING FUEL TANK

EQUIPMENT BUILDING

30.0'
135.0'
28.75'
50.0'
40.0'
23.0'

2.62%
2.12%
9.01%
6.61%
3.40%
6.22%
4.88%
4.73%
1.43%
1.00%
2.00%
0.79%

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PAVING PLAN

K.01

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CALLOUT LEGEND

– – – –	GRADE BREAK
TOS	TOP OF SLAB
TOC	TOP OF CURB
GU	GUTTER
MP	MID POINT

HATCH LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- GRAVEL, 8"
- RIP RAP
- ASPHALT 4.5" W/ 12" TREATED SOIL BASE
- ASPHALT, 13"
- COMPACTED SUBGRADE, 12"

SCALE IN FEET: 0 20 40 80

STATION = 100+46.14
OFFSET = 12.00' LT
TOC = 778.86
GU = 778.36

STATION = 100+31.14
OFFSET = 12.00' LT
TOC = 779.06
GU = 778.56

15' TRANSITION IN CROSS SLOPE

STATION = 100+31.15
OFFSET = 12.08' RT
TOC / GU = 778.85

STATION = 100+46.13
OFFSET = 12.00' RT
TOC / GU = 778.71

STATION = 101+63.93
OFFSET = 37.00' LT
TOS = 776.10

STATION = 101+21.42
OFFSET = 12.00' LT
TOS = 777.23

STATION = 101+62.93
OFFSET = 66.98' LT
TOS = 776.40

STATION = 102+47.29
OFFSET = 66.98' LT
TOS = 773.93

STATION = 102+46.29
OFFSET = 37.00' LT
TOS = 773.63

STATION = 102+88.80
OFFSET = 12.00' LT
TOS = 772.61

STATION = 103+17.53
OFFSET = 12.00' RT
TOS = 771.71

STATION = 103+08.22
OFFSET = 58.94' RT
TOS = 772.67

COMPOST ROAD

100+00 101+00 102+00 103+00

777.57 776.68 775.79 773.88 776.34

3.08% 1.00% 0.99% 2.00% 2.75% 4.69% 7.23% 4.53% 2.18%

777.88
GU=TC

MP / GB 778.20

R=20.0'

SEE D SHEETS FOR ROADWAY ELEVATIONS

CENTER OF RADIUS
STATION = 101+01.85
OFFSET = 33.00' RT

STATION = 101+06.70
OFFSET = 33.72' RT
TOS = ???

STATION = 101+21.30
OFFSET = 34.44' RT
TOS = 779.20

STATION = 101+50.45
OFFSET = 36.39' RT
TOS = 777.79

STATION = 101+79.49
OFFSET = 39.01' RT
TOS = 776.38

EQUIPMENT BUILDING

MATCH INTO EXISTING PCC EDGE

FACE OF BUILDING

30.0' 135.0'

STATION = 101+15.32
OFFSET = 159.28' RT
TOS = 779.20

STATION = 101+15.22
OFFSET = 161.44' RT
CORNER / TOS = 779.20

BEND FROM EXISTING SLAB TO CENTER OF BOLLARD FOOTING

EXISTING CONCRETE BOLLARD
N 606309.89
E 2152531.61
ME / TOS 779.20

EXISTING CLEANOUT
N 606305.81
E 2152531.58
ME / TOS 779.20

EXISTING CONCRETE BOLLARD
N 606301.74
E 2152531.55
ME / TOS 779.20

28.75'

STATION = 101+15.34
OFFSET = 184.31' RT
TOS = 779.20

STATION = 101+14.09
OFFSET = 213.87' RT
TOS = 778.90

STATION = 101+12.85
OFFSET = 244.24' RT
TOS = 778.60

STATION = 101+62.14
OFFSET = 248.13' RT
TOS = 780.58

779.04 779.29 779.43 779.57

0.53% 0.31% 1.82% 3.38%

0.00% 1.00% 2.00% 2.75%

STATION = 101+68.57
OFFSET = 163.45' RT
TOS = 778.88

STATION = 101+66.60
OFFSET = 188.35' RT
TOS = 779.38

STATION = 101+64.36
OFFSET = 217.83' RT
TOS = 779.98

STATION = 102+86.69
OFFSET = 181.72' RT
TOS = 775.17

STATION = 102+82.81
OFFSET = 206.31' RT
TOS = 775.67

STATION = 102+78.37
OFFSET = 235.45' RT
TOS = 776.26

STATION = 102+73.99
OFFSET = 265.40' RT
TOS = 776.87

STATION = 102+71.25
OFFSET = 284.71' RT
TOS = 777.26

STATION = 105+75.62
OFFSET = 12.00' RT
TOS = 764.87

STATION = 105+75.62
OFFSET = 32.00' RT
TOS = 764.87

STATION = 105+75.62
OFFSET = 34.00' RT
TOS = 764.94

2.0'

SCALE IN FEET: 0 20 40 80

STATION = 106+58.04
OFFSET = 37.13' RT
TOS = 763.50

SEE F SHEETS FOR COMPLETE SWALE ELEVATIONS

STATION = 106+60.75
OFFSET = 17.30' RT
TOS = 763.50

0.05%

STATION = 107+00.88
OFFSET = 40.99' RT
TOS = 762.82

STATION = 107+02.13
OFFSET = 21.02' RT
TOS = 762.82

107+00

GRADE BREAK AS SEEN ON F-SHEETS

761.82
LOW PT

1.69%

STATION = 107+53.83
OFFSET = 42.00' RT
TOS = 761.97

STATION = 107+53.83
OFFSET = 22.00' RT
TOS = 761.97

STATION = 107+55.50
OFFSET = 42.00' RT
TOS = 761.99

STATION = 107+62.42
OFFSET = 113.81' RT
TOS = 765.03

4.06%

0.5'

10.0'

20.0'

STATION = 107+67.35
OFFSET = 112.98' RT
TOS = 764.92

STATION = 107+72.28
OFFSET = 112.16' RT
TOS = 764.97

108+00

COMPOST ROAD

1.67%

0.02%

STATION = 108+73.37
OFFSET = 42.00' RT
TOS = 763.97

STATION = 108+73.37
OFFSET = 22.00' RT
TOS = 763.97

MH

109+00

2.0'

STATION = 109+35.32
OFFSET = 44.00' RT
TOS = 765.08

STATION = 109+35.32
OFFSET = 42.01' RT
TOS = 765.00

STATION = 109+35.32
OFFSET = 22.00' RT
TOS = 765.00

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IOWA CITY, IOWA

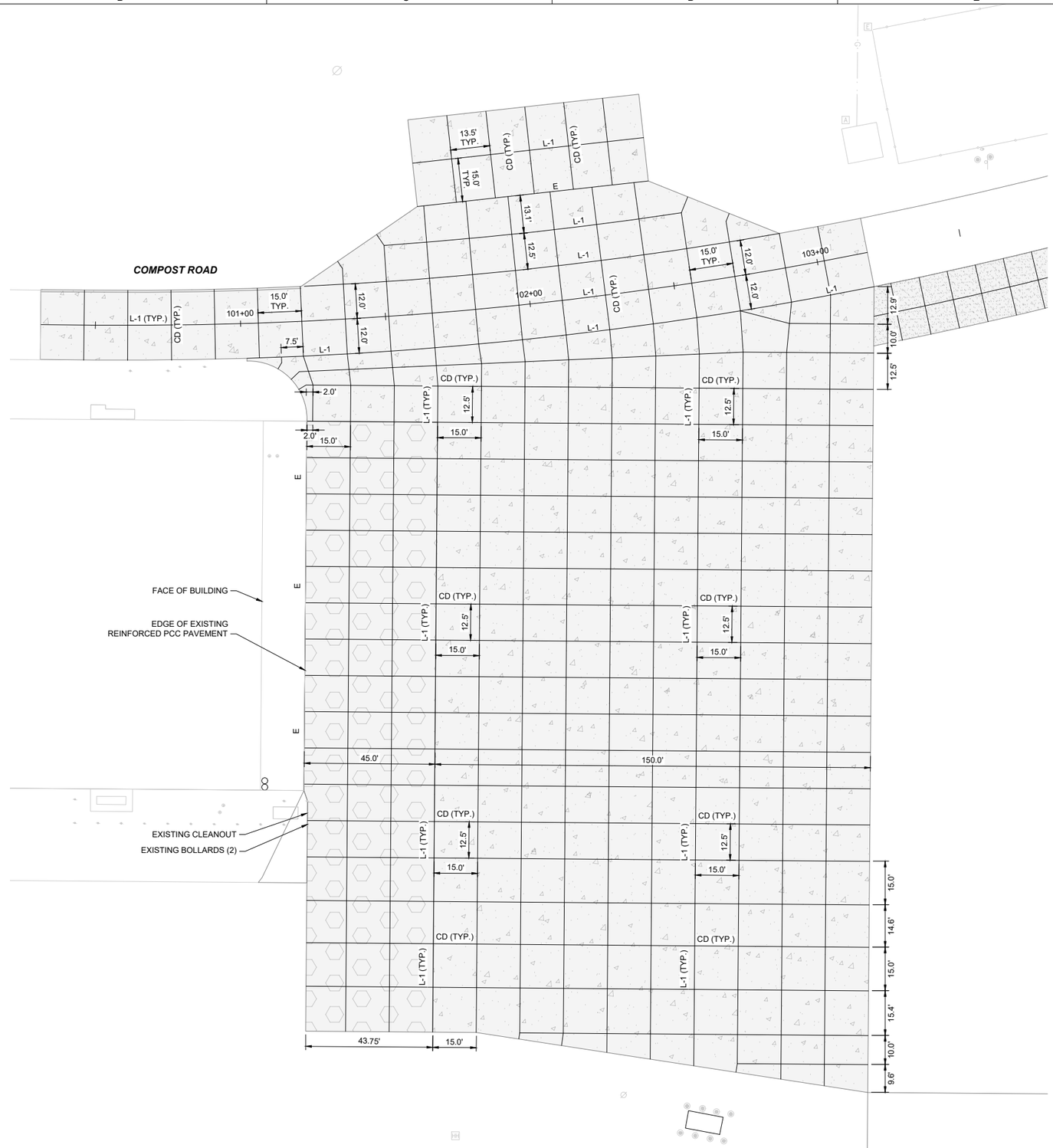
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PAVING PLAN

K.02

HATCH LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- JOINT



0 10 20 40
SCALE IN FEET

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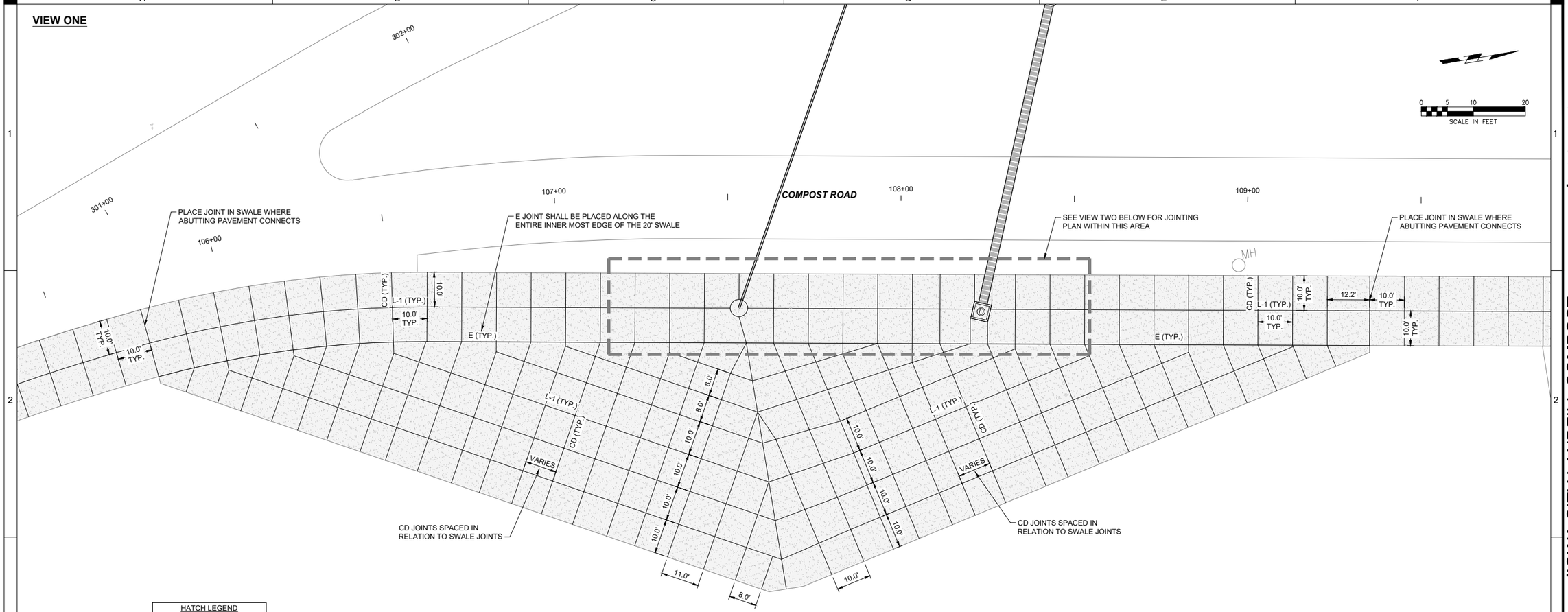
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JOINTING PLAN

L.01

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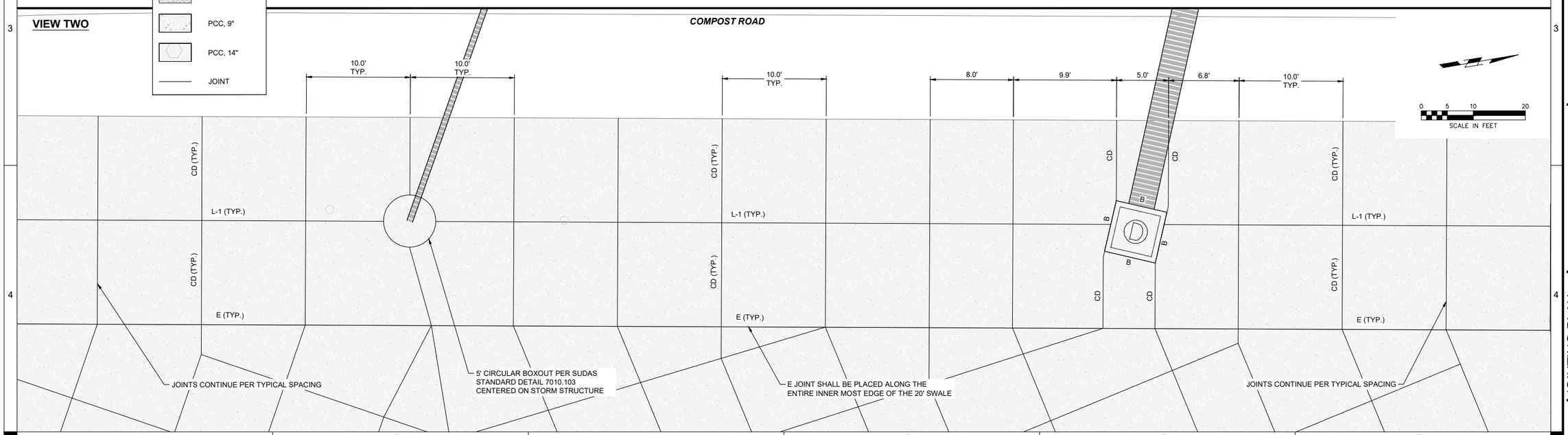
VIEW ONE



HATCH LEGEND
*SEE B SHEETS FOR PAVEMENT SECTIONS

- PCC, 6"
- PCC, 9"
- PCC, 14"
- JOINT

VIEW TWO



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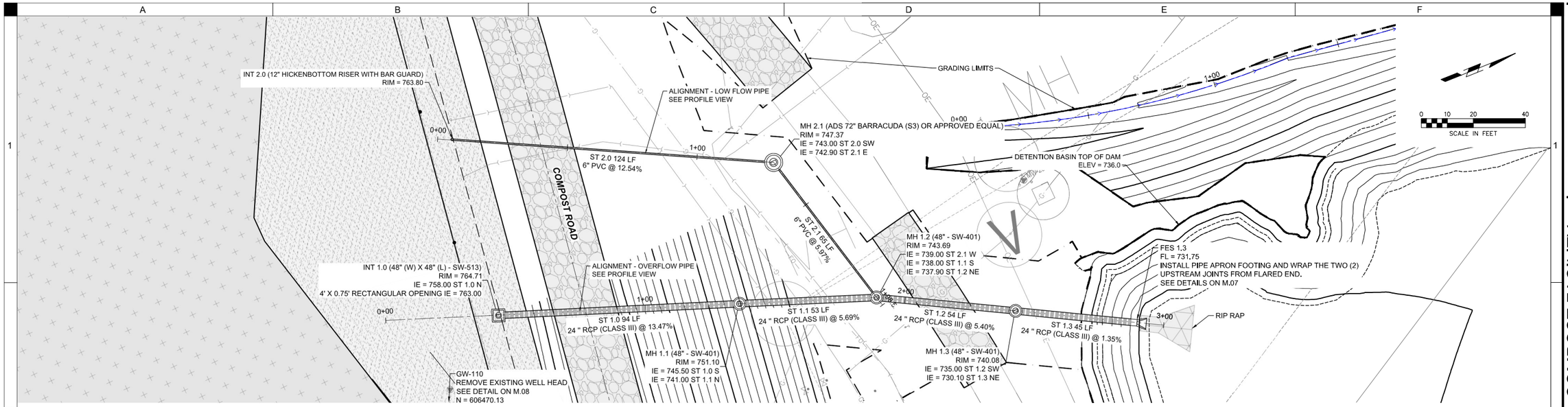
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JOINTING PLAN

L.02



PROFILE VIEW OF ALIGNMENT - OVERFLOW PIPE

VERTICAL SCALE:
0 2.5 5 10
SCALE IN FEET

HORIZONTAL SCALE:
0 10 20 40
SCALE IN FEET

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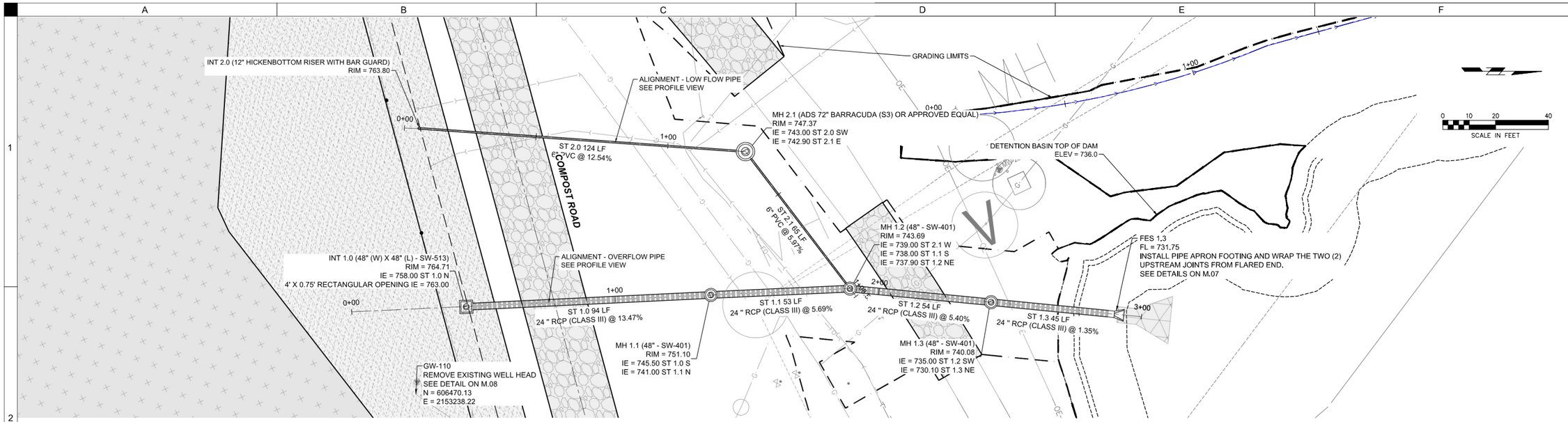
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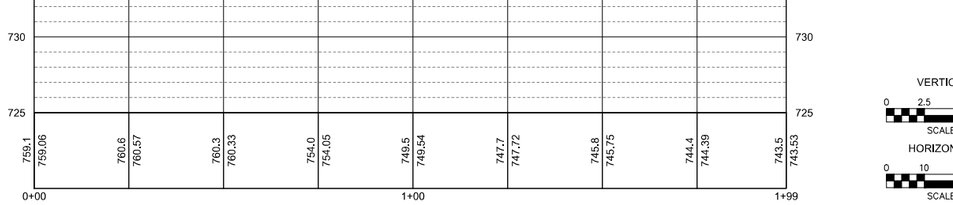
STORM SEWER PLAN

M.01

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PROFILE VIEW OF ALIGNMENT - LOW FLOW PIPE



VERTICAL SCALE:
0 2.5 5 10
SCALE IN FEET

HORIZONTAL SCALE:
0 10 20 40
SCALE IN FEET

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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY

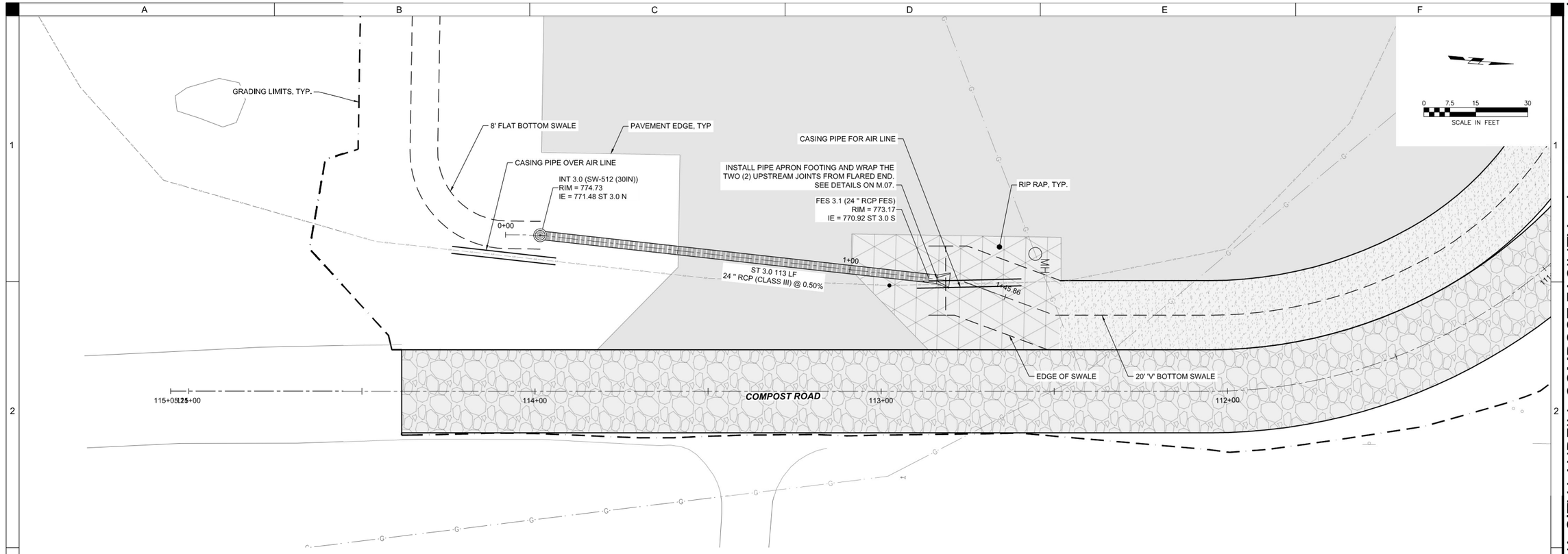
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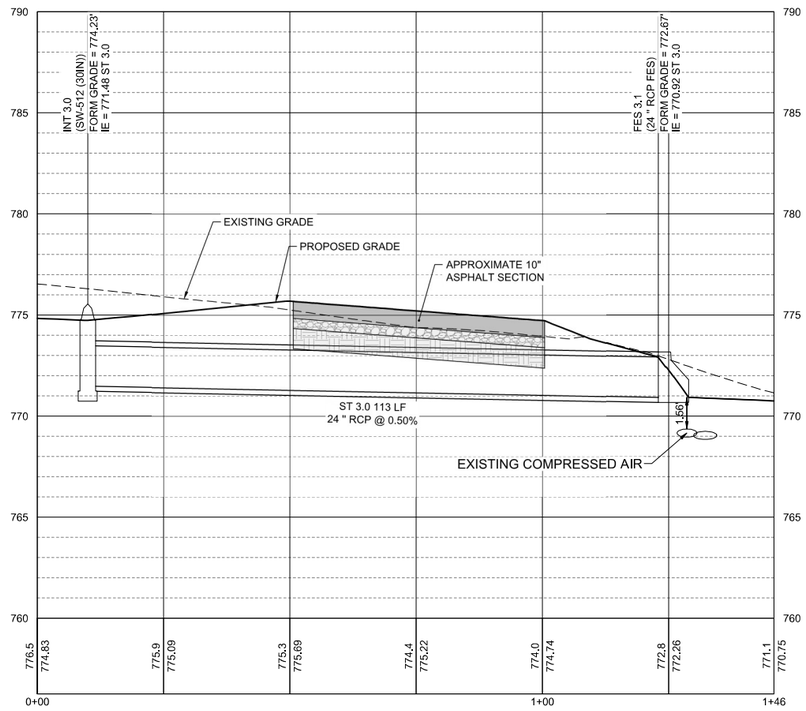
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STORM SEWER PLAN

M.02

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VERTICAL SCALE:

0 3.75 7.5 15

SCALE IN FEET

HORIZONTAL SCALE:

0 15 30 60

SCALE IN FEET

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STORM SEWER PLAN

M.03

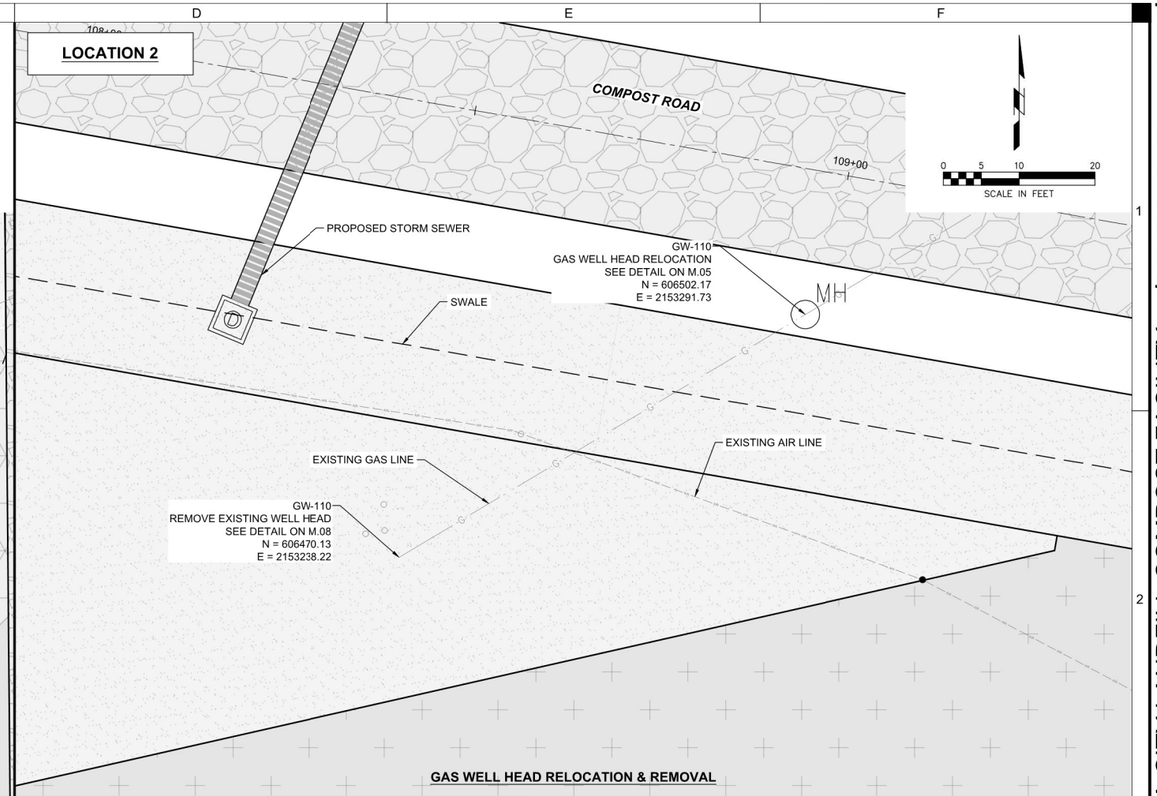
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LOCATION 1



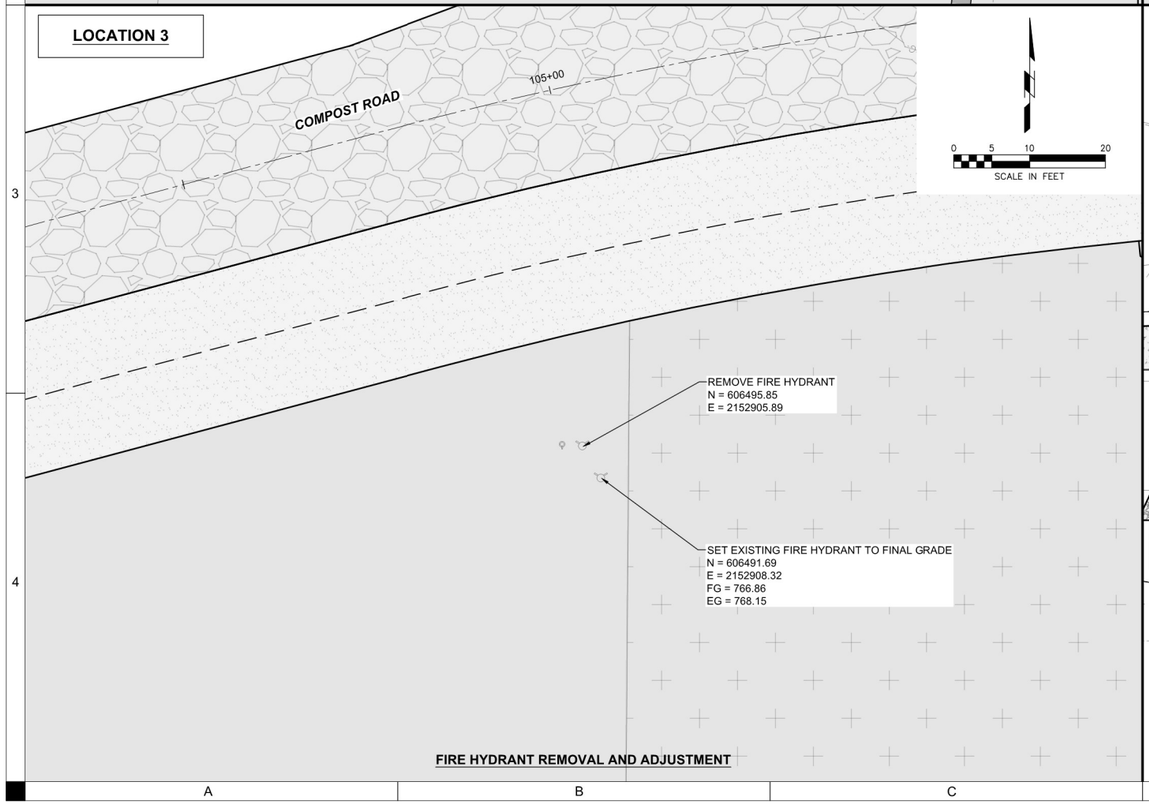
GAS WELL HEAD RELOCATION & REMOVAL

LOCATION 2



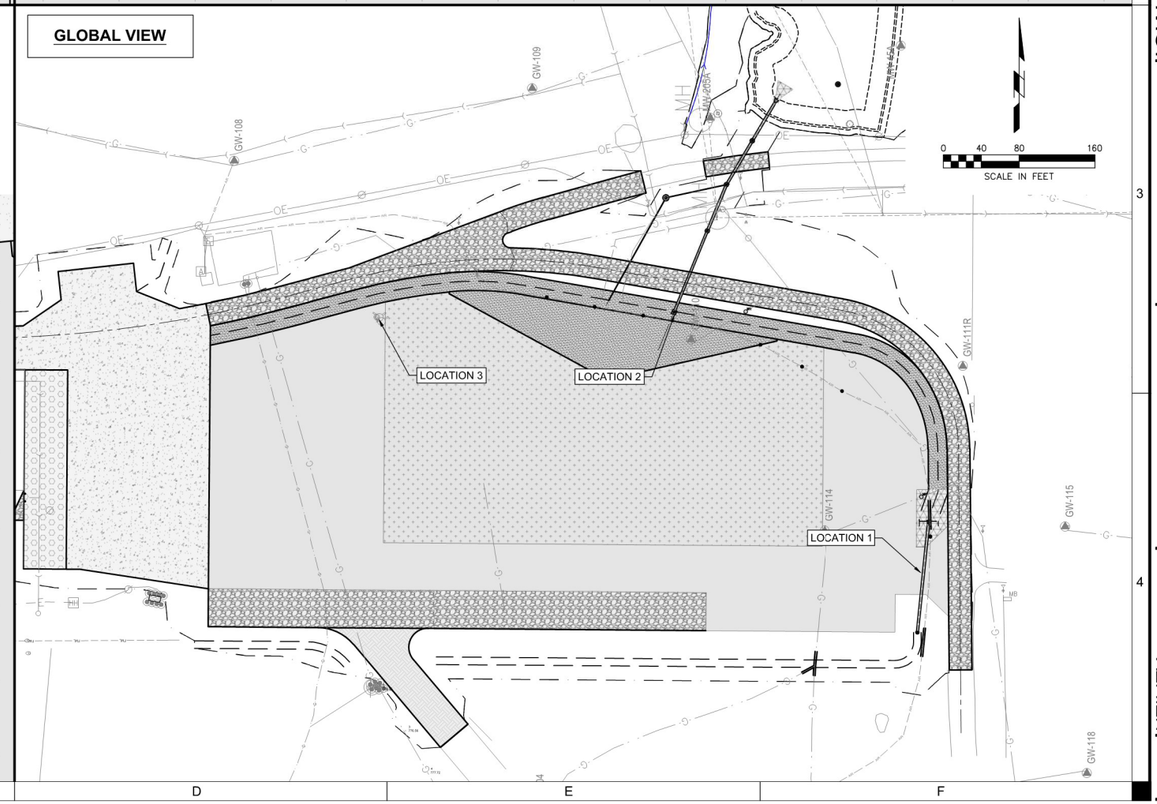
GAS WELL HEAD RELOCATION & REMOVAL

LOCATION 3



FIRE HYDRANT REMOVAL AND ADJUSTMENT

GLOBAL VIEW



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IOWA CITY, IOWA

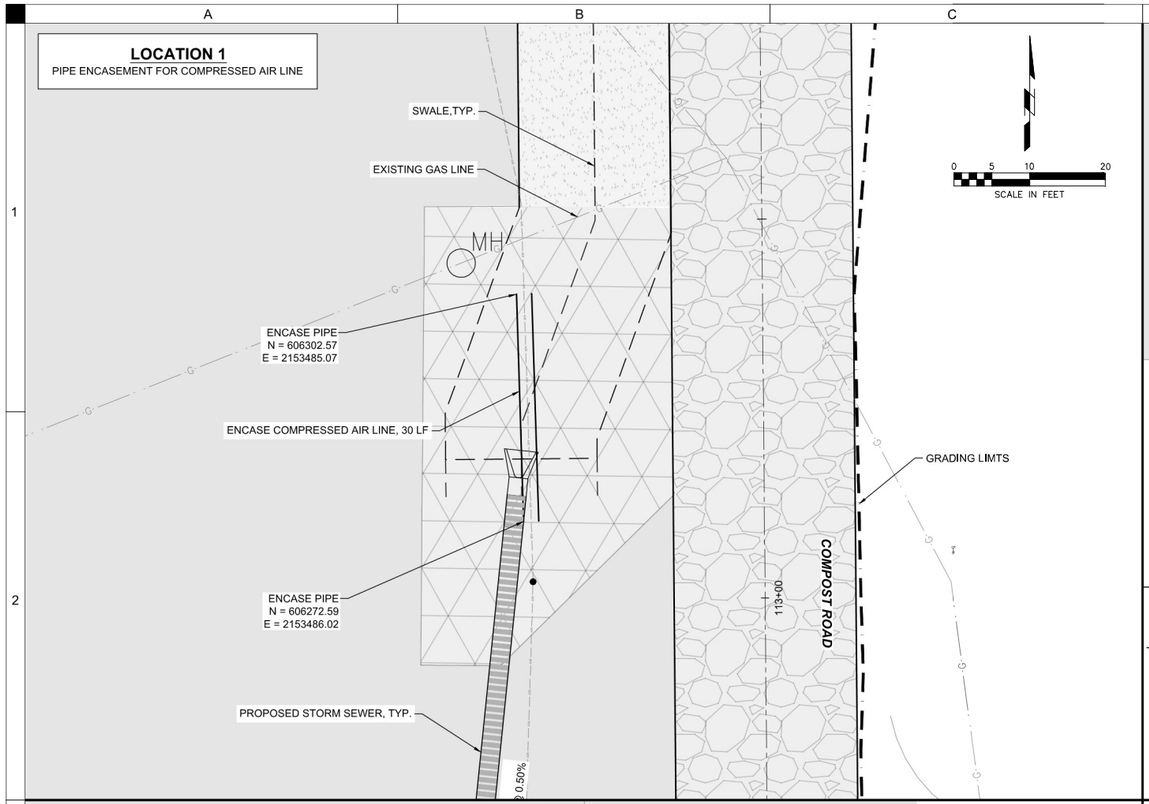
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UTILITY ADJUSTMENT PLAN

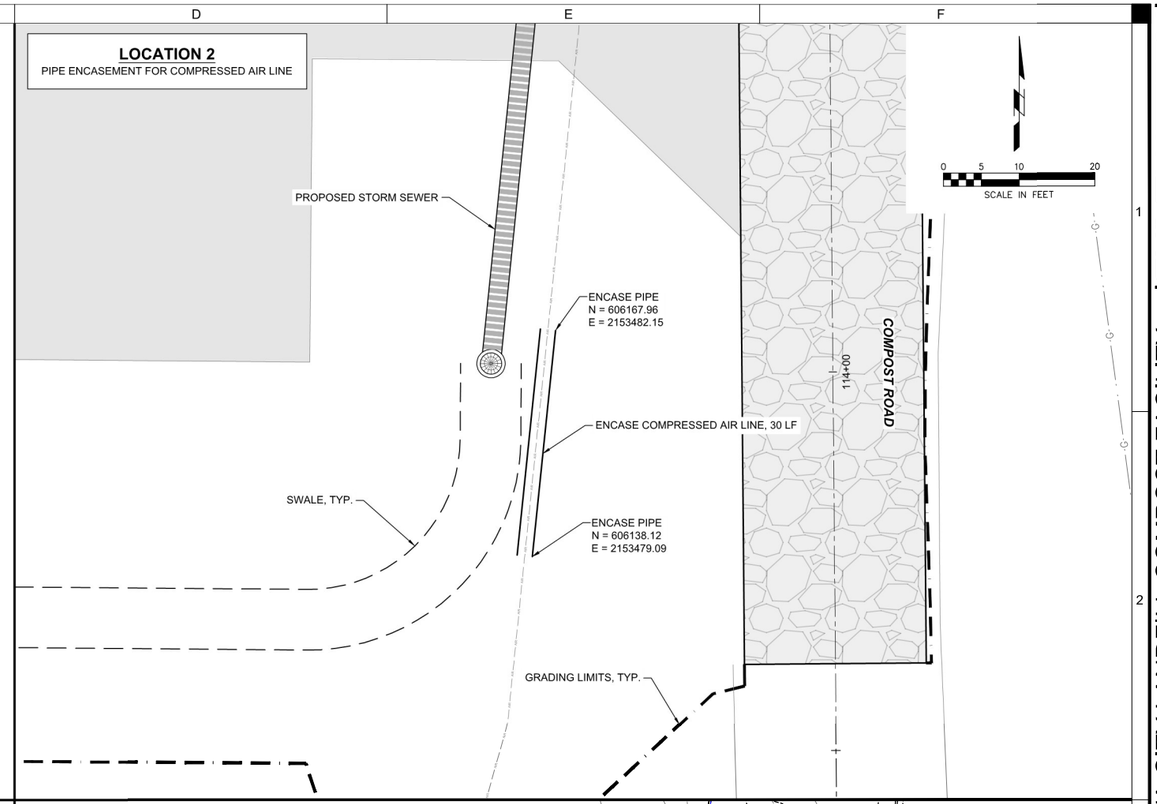
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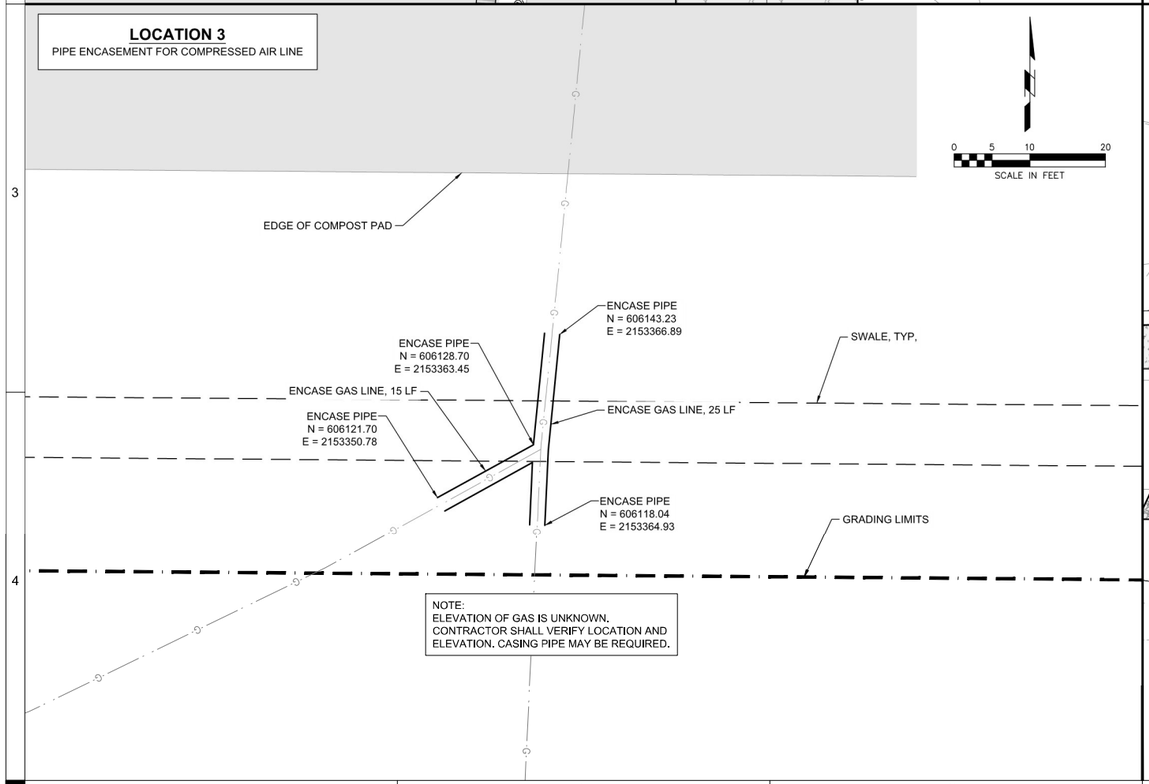
LOCATION 1
PIPE ENCASEMENT FOR COMPRESSED AIR LINE



LOCATION 2
PIPE ENCASEMENT FOR COMPRESSED AIR LINE

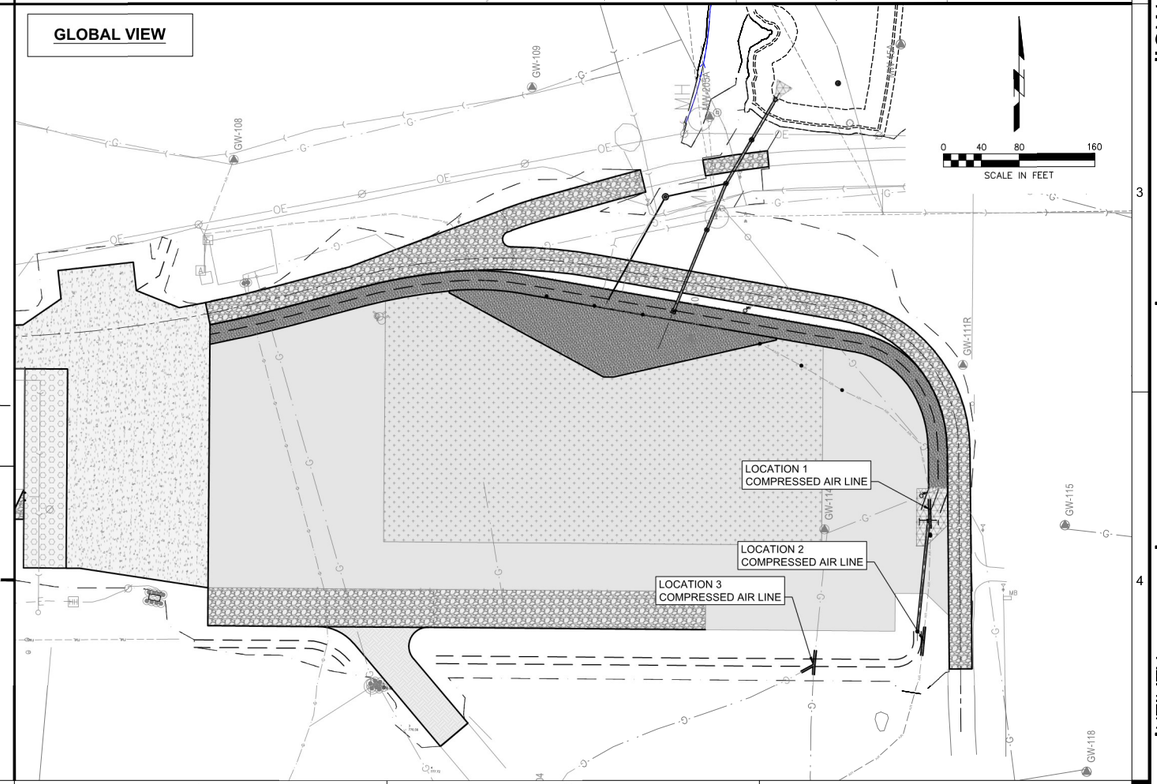


LOCATION 3
PIPE ENCASEMENT FOR COMPRESSED AIR LINE



NOTE:
ELEVATION OF GAS IS UNKNOWN. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION. CASING PIPE MAY BE REQUIRED.

GLOBAL VIEW



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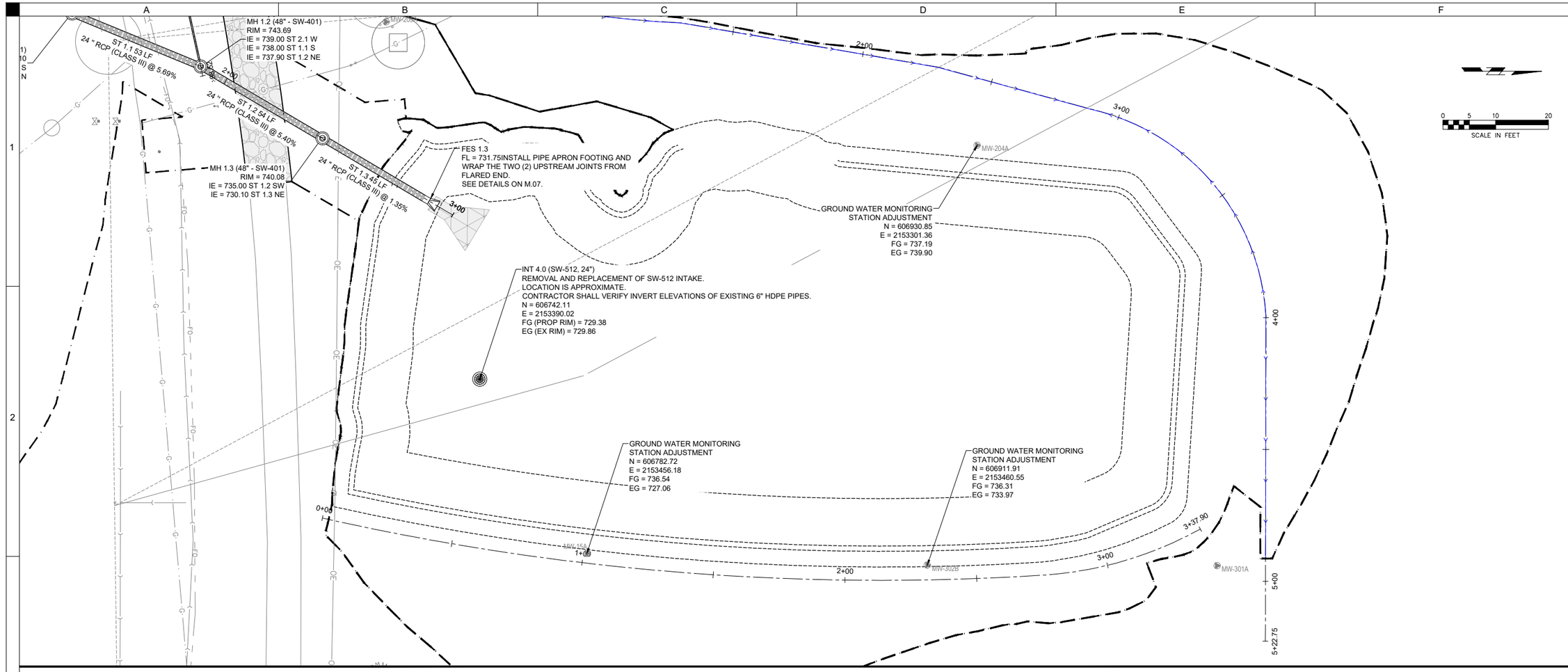
CITY OF IOWA CITY

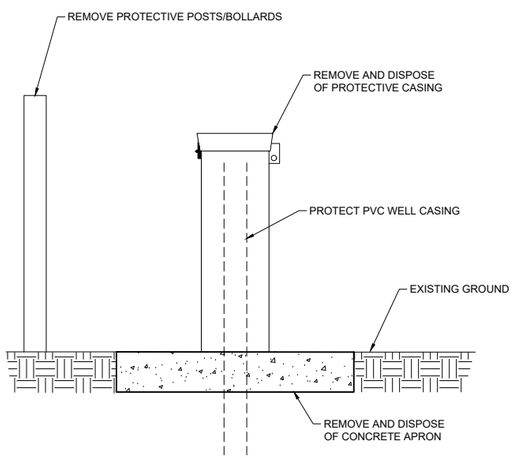
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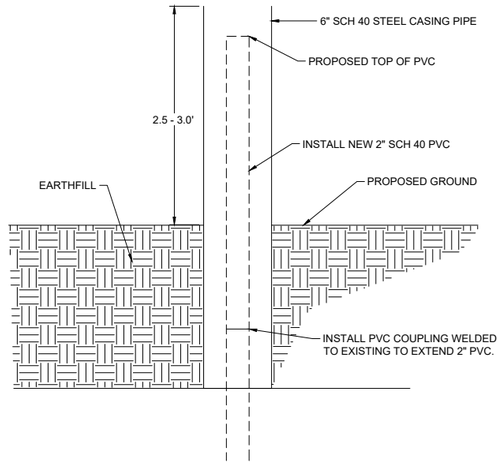
UTILITY ADJUSTMENT PLAN

M.05

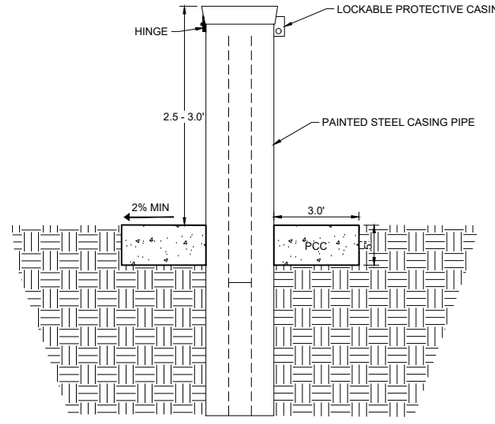




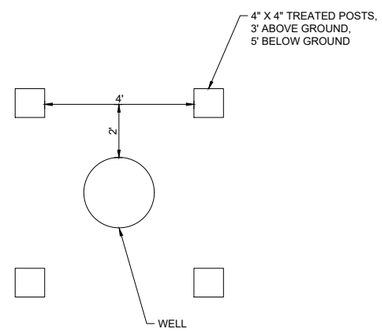
STEP 1



STEP 2



WELL PROTECTION



1 MONITORING WELL EXTENSION
NOT TO SCALE

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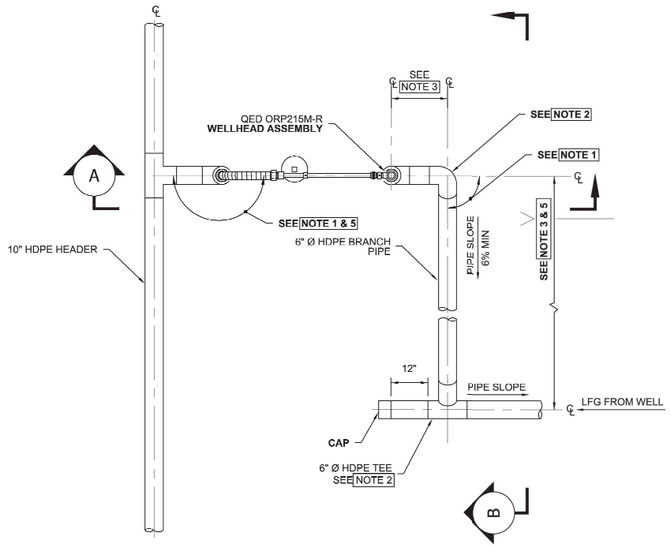
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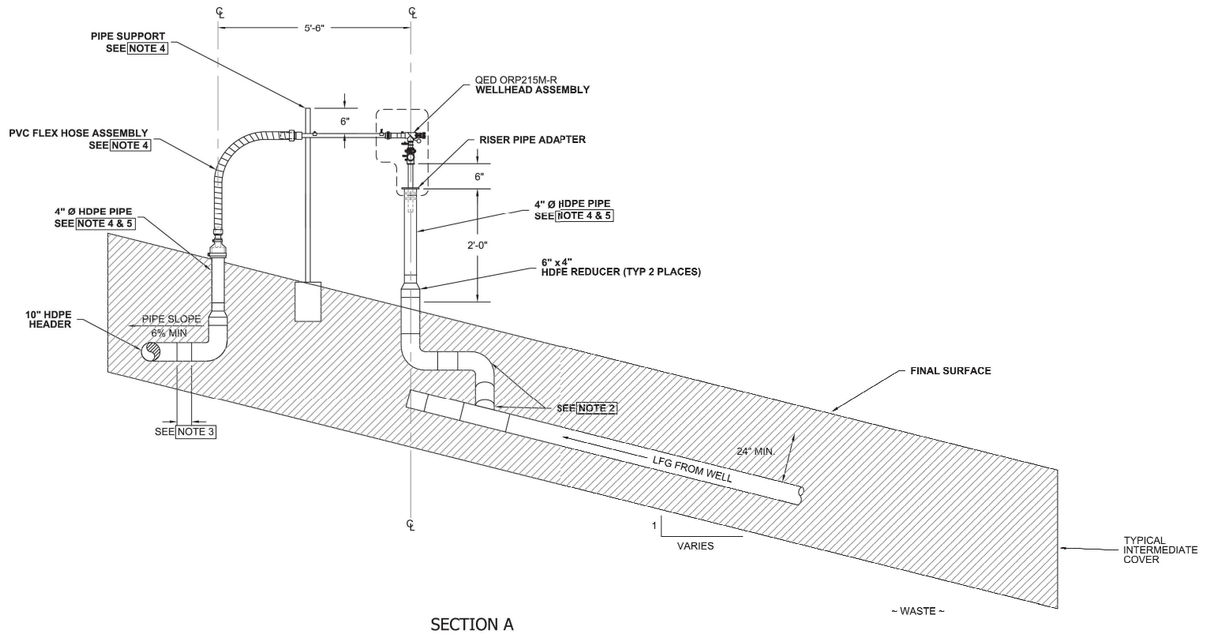
UTILITY ADJUSTMENT PLAN

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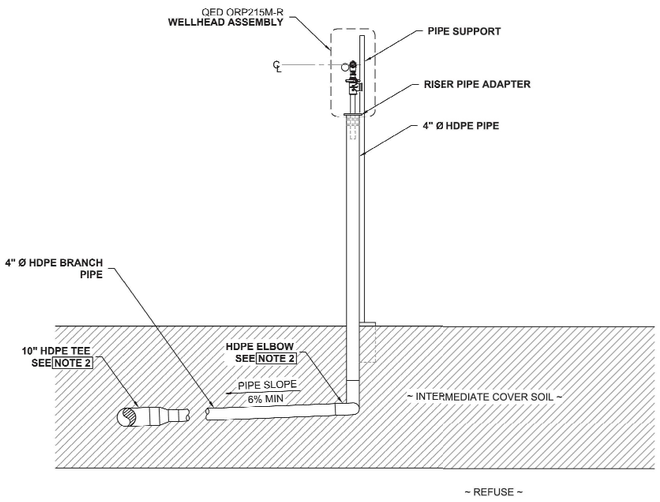
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PLAN



SECTION A



SECTION B

GENERAL NOTES:
1. ALL PVC PIPE SHALL BE SCHEDULE 80 UNLESS NOTED OTHERWISE.
2. ALL HDPE PIPE SHALL BE SDR 17.0 UNLESS NOTED OTHERWISE.
3. HDPE PIPE JOINT SHALL BE THERMAL BUTT FUSION WELDED UNLESS NOTED OTHERWISE. ELECTRO-FUSION FITTINGS & FLANGES ARE NOT ALLOWED UNLESS NOTED OTHERWISE OR AUTHORIZED BY OWNER.
4. FOR EACH REMOTE WELL HEAD CONTROL ASSEMBLY:
   A. PROVIDE SKETCH OF PROPOSED PIPE CONFIGURATION TO ENGINEER BASED ON SITE CONDITIONS AT EACH WELL/COLLECTOR.
   B. CONFIRM FINAL PIPE CONFIGURATION WITH ENGINEER IMMEDIATELY PRIOR TO WORK.
   C. DO NOT INSTALL PIPE WITHOUT ENGINEER'S APPROVAL FOR FINAL PIPE CONFIGURATION.

DETAIL NOTES:
1. **ORIENTATION VARIES AS DIRECTED BY ENGINEER.**
2. **TURN TEE AND ELBOWS AS NECESSARY FOR CONSTANT SLOPE (6% MIN) AND MAKE RISER PIPE VERTICAL.**
3. **LENGTH VARIES CONFIRM LENGTH AS DIRECTED BY ENGINEER.**
4. **MAKE FINAL CUT FOR HEIGHT/LENGTH ADJUSTMENTS AFTER FINAL SURFACE HAS BEEN FINISHED AND APPROVED BY ENGINEER.**
5. **INSTALL ELECTRONIC LOCATE WIRE TO TOP OF PIPE AND LABEL WIRE DIRECTIONS.**

1 REMOTE WELL HEAD CONTROL ASSEMBLY, TYPE 2
NOT TO SCALE

ISSUED FOR BID

GAS COLLECTION SYSTEM DETAIL - 1

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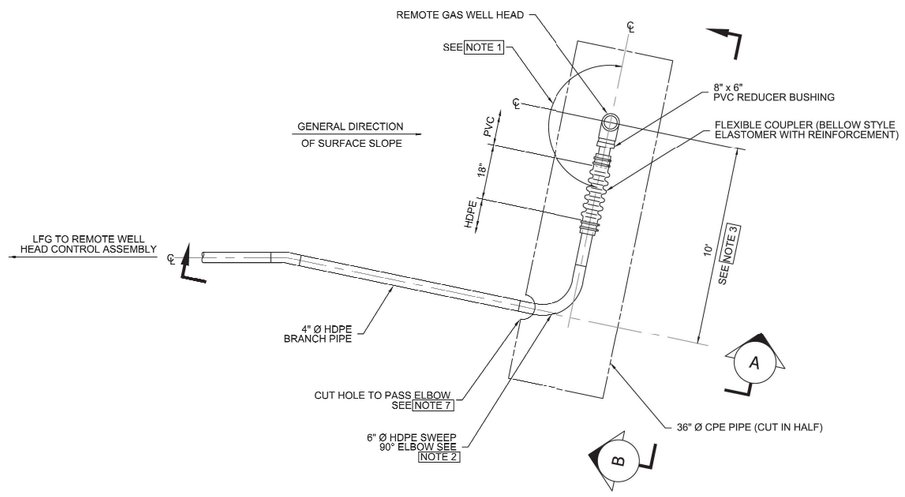
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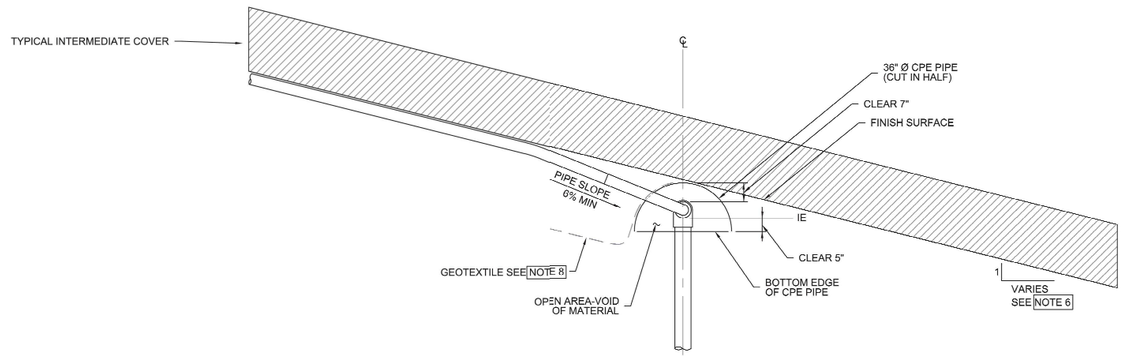
UTILITY ADJUSTMENT PLAN

M.07

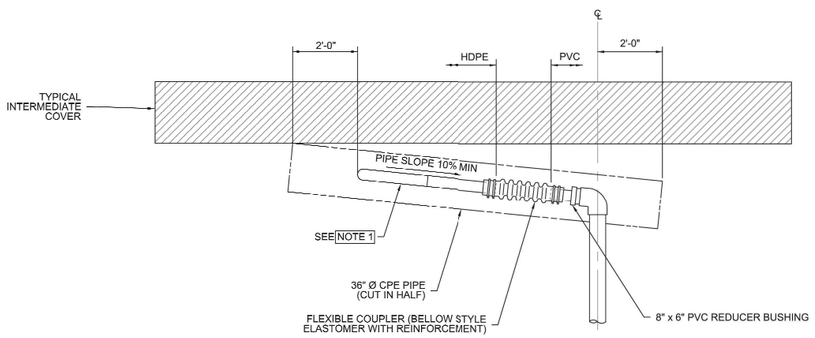
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PLAN



SECTION A



SECTION B

GENERAL NOTES:
1. ALL PVC PIPE SHALL BE SCHEDULE 80 UNLESS NOTED OTHERWISE.
2. ALL HDPE PIPE SHALL BE SDR 17.0 UNLESS NOTED OTHERWISE.
3. HDPE PIPE JOINT SHALL BE THERMAL BUTT FUSION WELDED UNLESS NOTED OTHERWISE. ELECTRO-FUSION FITTINGS & FLANGES ARE NOT ALLOWED UNLESS NOTED OTHERWISE OR AUTHORIZED BY OWNER.
4. FOR EACH REMOTE WELL HEAD CONTROL ASSEMBLY:
   A. PROVIDE SKETCH OF PROPOSED PIPE CONFIGURATION TO ENGINEER BASED ON SITE CONDITIONS AT EACH WELL/COLLECTOR.
   B. CONFIRM FINAL PIPE CONFIGURATION WITH ENGINEER IMMEDIATELY PRIOR TO WORK.
   C. DO NOT INSTALL PIPE WITHOUT ENGINEER'S APPROVAL FOR FINAL PIPE CONFIGURATION.

DETAIL NOTES:
1. **ORIENTATION VARIES AS DIRECTED BY ENGINEER.**
2. **TURN TEE AND ELBOWS AS NECESSARY FOR CONSTANT SLOPE (6% MIN) AND MAKE RISER PIPE VERTICAL.**
3. **LENGTH VARIES CONFIRM LENGTH AS DIRECTED BY ENGINEER.**
4. **MAKE FINAL CUT FOR HEIGHT/LENGTH ADJUSTMENTS AFTER FINAL SURFACE HAS BEEN FINISHED AND APPROVED BY ENGINEER.**
5. **INSTALL ELECTRONIC LOCATE WIRE TO TOP OF PIPE AND LABEL WIRE DIRECTIONS.**
6. **ALL HDPE ELBOWS SHALL BE SWEEPING LONG RADIUS UNLESS NOTED OTHERWISE.**
7. **PLACE ADDITIONAL GEOTEXTILE OVER ANNULAR SPACE BETWEEN GAS PIPE AND CPE PIPE.**

1 CONNECTION TO REMOTE VERTICAL GAS WELL
NOT TO SCALE

ISSUED FOR BID

GAS COLLECTION SYSTEM DETAIL - 2

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UTILITY ADJUSTMENT PLAN

M.08

LEGEND

- REMOVE AND SALVAGE GRAVEL
- REMOVE AND SALVAGE WASTEWATER STONE
- REMOVE AND SALVAGE ASPHALT MILLINGS

REMOVAL NOTES:

- CONTRACTOR SHALL HANDLE EACH MATERIAL AS ENCOUNTERED AS FOLLOWS WHILE REMOVING MATERIAL FROM COMPOST PAD:
  CONCRETE & ASPHALT RUBBLE – DISPOSE IN LANDFILL AND PAY TIPPING FEE.
  WASTEWATER STONE (ANGULAR 1"-3") – STOCKPILE ON SITE NEAR RAIN DAY PAD. NO TIPPING FEE. CONTRACTOR SHALL CONFIRM STOCKPILE LOCATION.
  ENCOUNTERED BURIED WASTE – DISPOSE IN LANDFILL. NO TIPPING FEE.
  OTHER MATERIALS – DISPOSE IN LANDFILL AND PAY TIPPING FEE.
- TIPPING FEE IS APPROXIMATELY $47.50. CONTRACTOR SHALL VERIFY COST AT LANDFILL SCALE HOUSE AT TIME OF CONSTRUCTION.
- NO MATERIAL SHALL BE MOVED OFF SITE
- REMOVAL LIMITS IF ASPHALT MILLINGS IS APPROXIMATE. ALL MILLINGS LOCATED WITHIN THE COMPOST PAD AREA SHALL BE REMOVED AS ENCOUNTERED ARCHIVE FINAL GRADE

SEE M SHEET FOR UTILITY ADJUSTMENTS IN PROPOSED BASIN AREA

REPLACE SW-512 INTAKE. SEE M SHEETS FOR APPROXIMATE LOCATION AND B SHEETS FOR DETAILS.

REMOVE 90 LF EXISTING 20" CMP STORM PIPE, INTAKE, AND END SECTIONS

PROTECT UTILITY STRUCTURE

REMOVE TREE

REMOVE 65 LF OF EXISTING GRAVEL ROAD FOR REMOVAL OF STORM SEWER

END OF REMOVALS STATION = 107+67.28

PROTECT UTILITY MARKER

PROTECT VALVE AND PVC UTILITY MARKER

RESET PVC MARKER TO FINAL GRADE

PROTECT SURFACE UTILITY STRUCTURES

PROTECT VALVE. RESET PVC MARKER TO FINAL GRADE.

REMOVE AND REINSTALL UTILITY MARKER TO FINAL GRADE

EXTERIOR LOOP ROAD

GRADING LIMITS, TYP.

BARRICADES TO BE RELOCATED BY LANDFILL STAFF BEFORE CONSTRUCTION

END OF REMOVALS STATION = 100+31.14

REMOVE SWING GATE AT EACH SIDE OF THE ROAD

REMOVE PVC UTILITY MARKERS

REMOVE HYDRANT AND YARD HYDRANT

ADJUST HYDRANT TO FINAL GRADE.

REMOVE 46 LF EXISTING 18" RCP STORM PIPE AND END SECTIONS

BARRICADES TO BE RELOCATED BY LANDFILL STAFF BEFORE CONSTRUCTION

REMOVE WELL HEAD. SEE M SHEETS FOR PROPOSED RELOCATION.

COMPOST ROAD

2025 EQUIPMENT BUILDING

GRAVEL ABUTING TO EXISTING PCC SLAB SHALL BE SALVAGED AND REINSTALLED ALONG THE PROPOSED PCC EDGE AT THE SOUTHEAST CORNER OF THE EQUIPMENT BUILDING. ADDITIONAL GRAVEL TO BE ADDED TO MATCH INTO PROPOSED GRADE AS NEEDED.

PROTECT EXISTING BOLLARDS (2) AND CLEANOUT

REMOVE MISCELLANEOUS PAVEMENT

EXISTING GRAVEL EDGE

REMOVE WELL HEAD. SEE M SHEETS FOR PROPOSED RELOCATION.

ALL PILES WILL BE RELOCATED BY LANDFILL STAFF PRIOR TO CONSTRUCTION

PROTECT EQUIPMENT

PROTECT GAS HEAD

EXISTING ROAD

SOUTH ROAD

REMOVE FENCE, 22 LF

END OF REMOVALS STATION = 114+48.54

0 20 40 80
SCALE IN FEET

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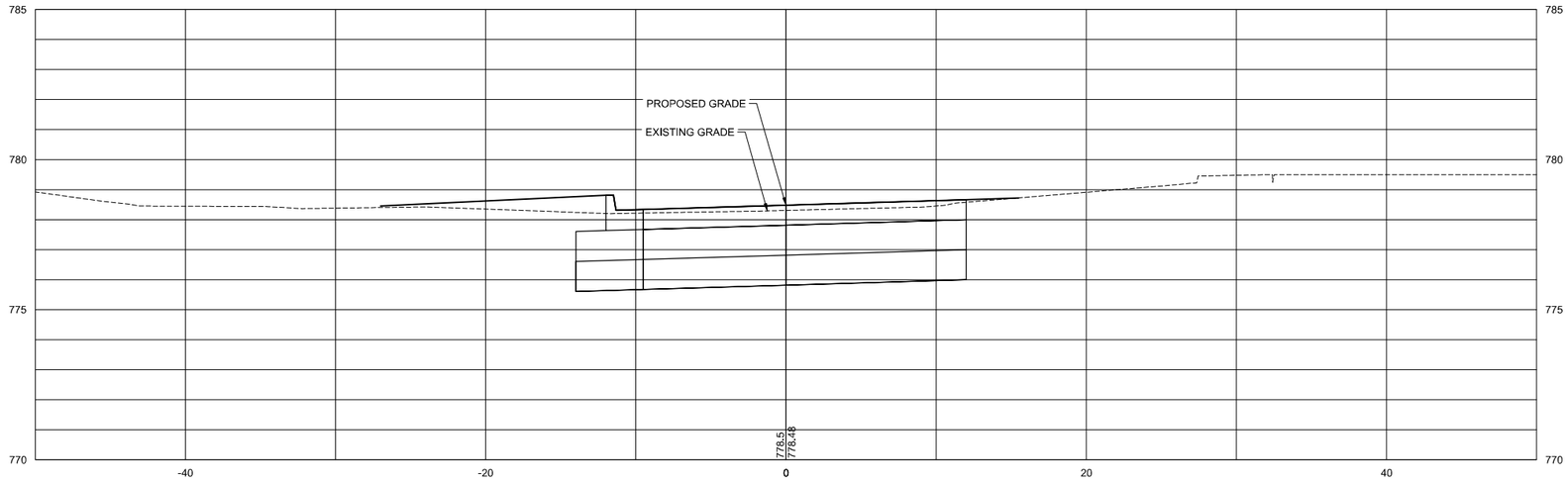
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REMOVAL PLAN

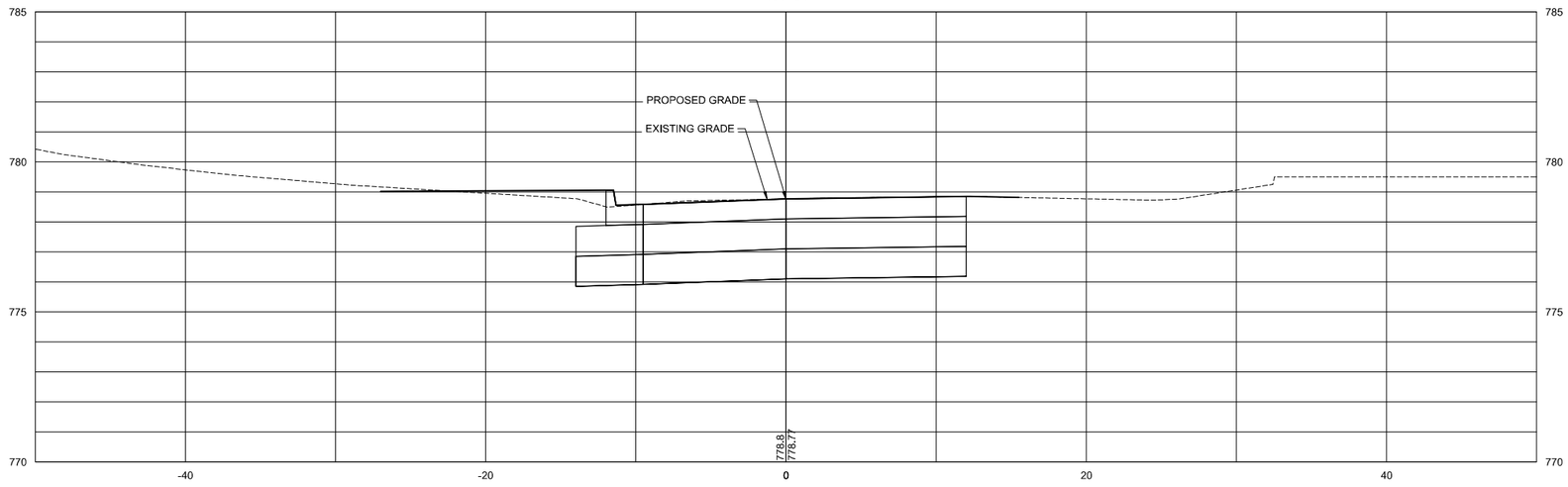
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100+50



100+31



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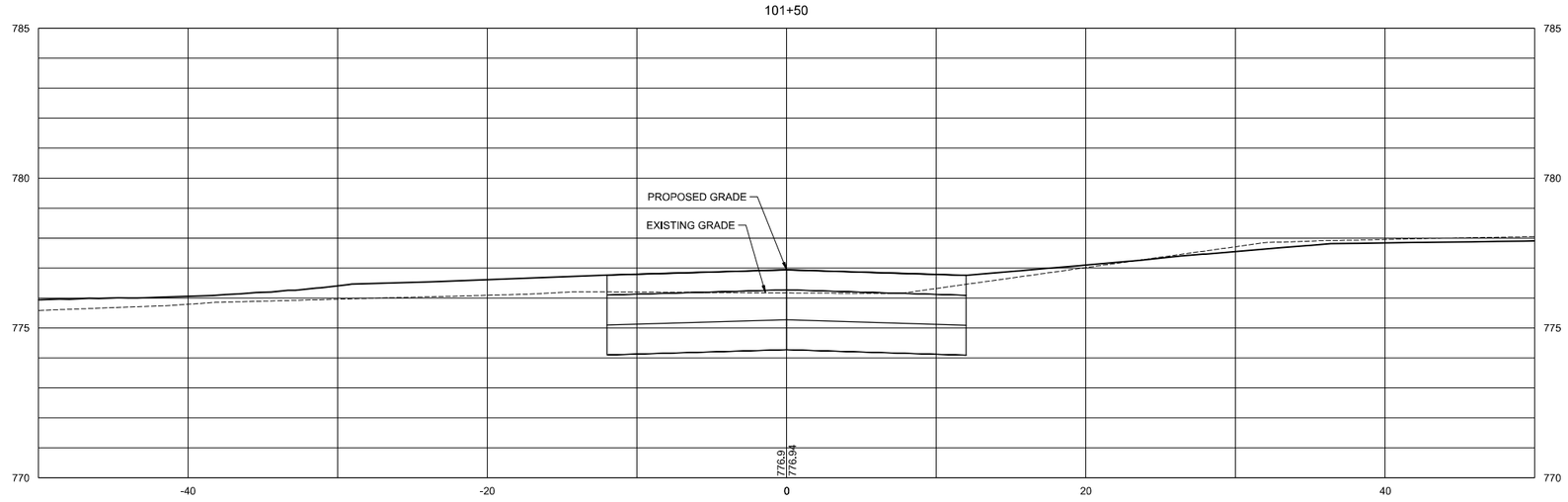
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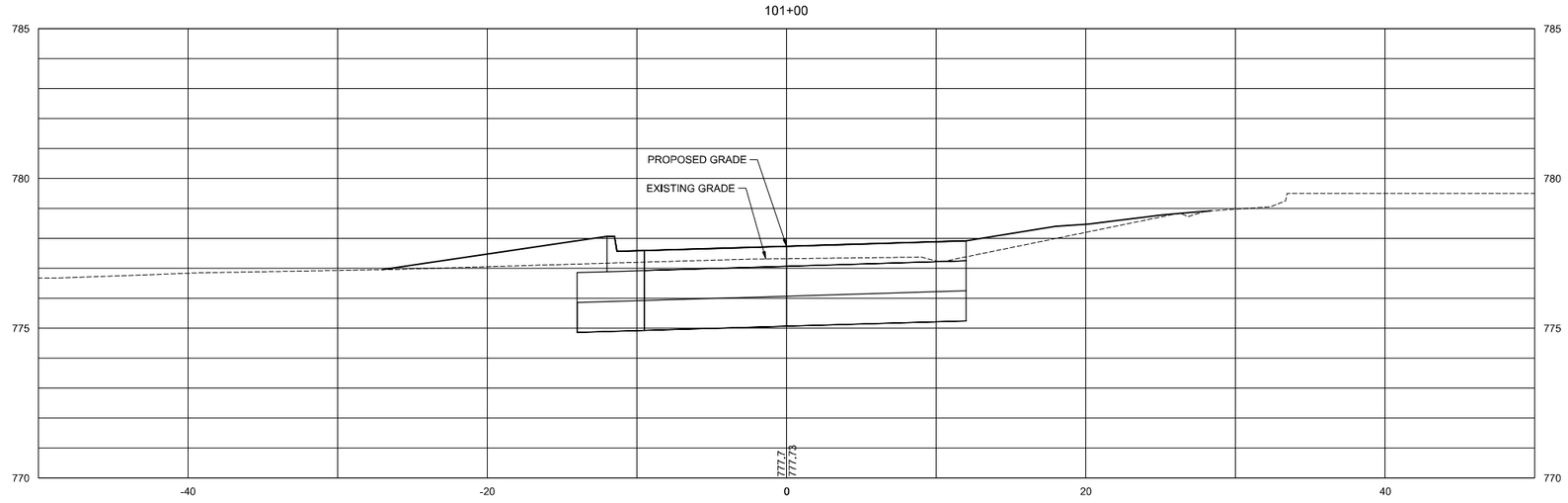
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COMPOST ROAD - CROSS SECTIONS

W.01

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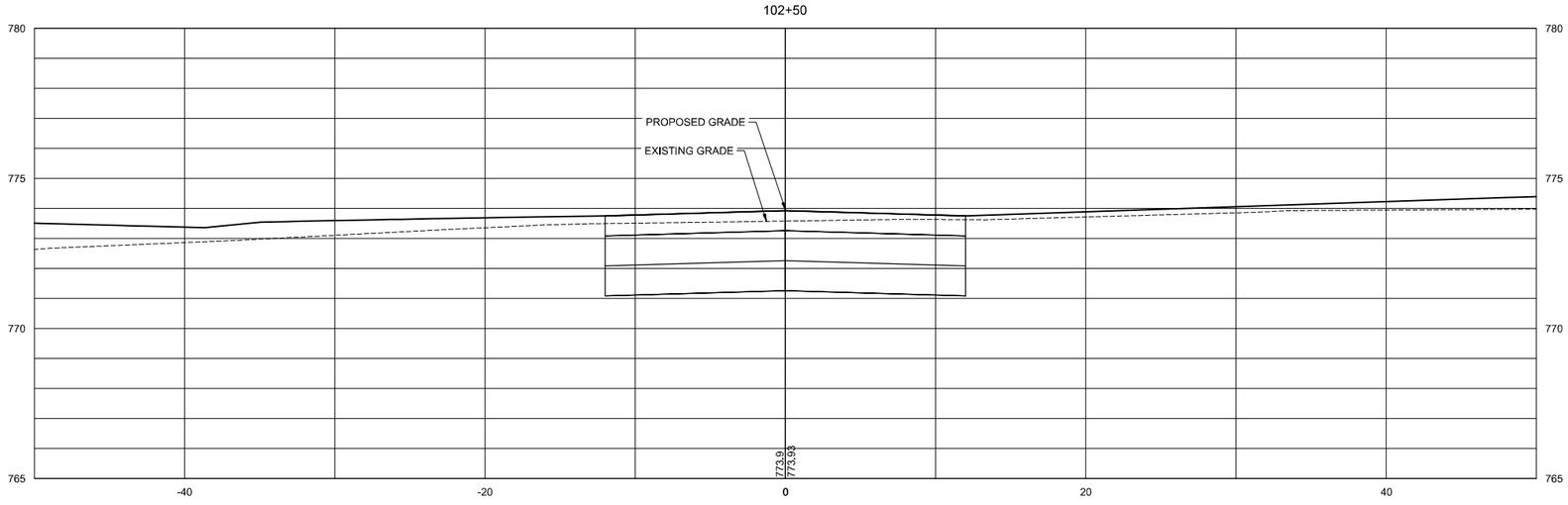
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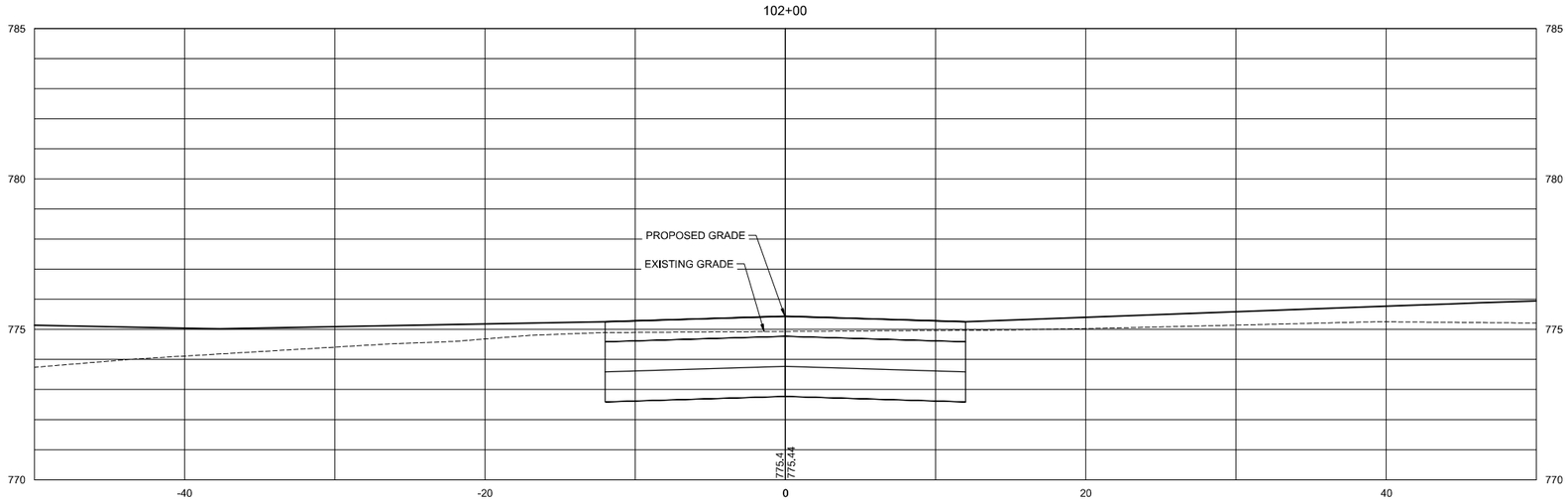
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COMPOST ROAD - CROSS SECTIONS

W.02

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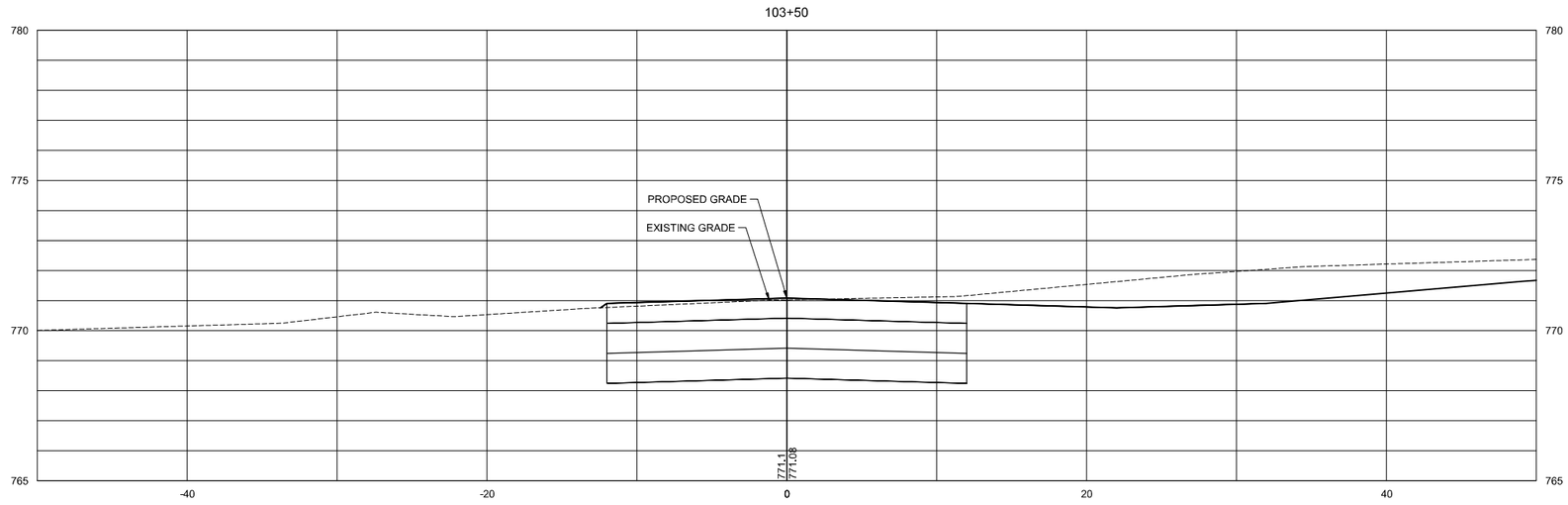
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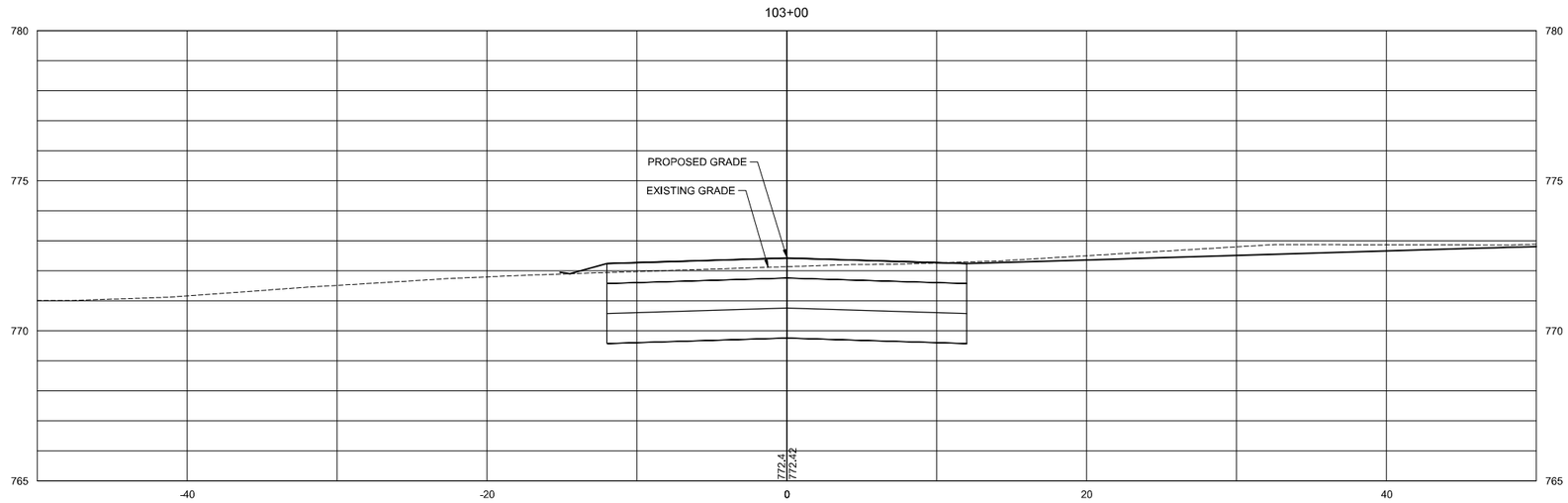
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COMPOST ROAD - CROSS SECTIONS

W.03

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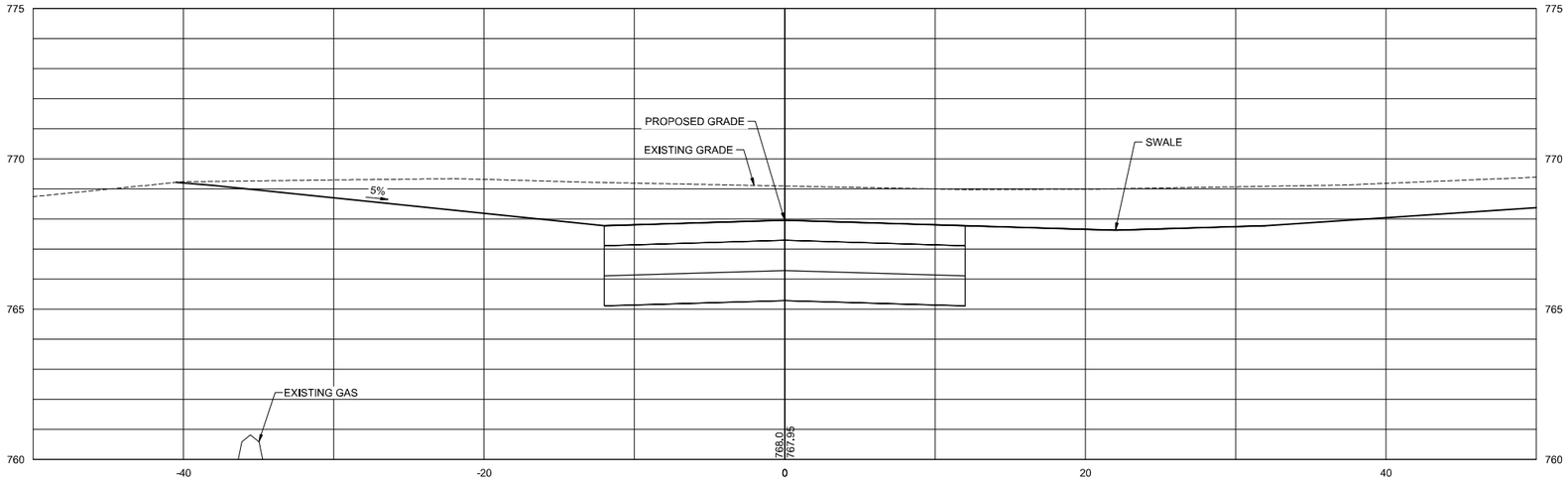
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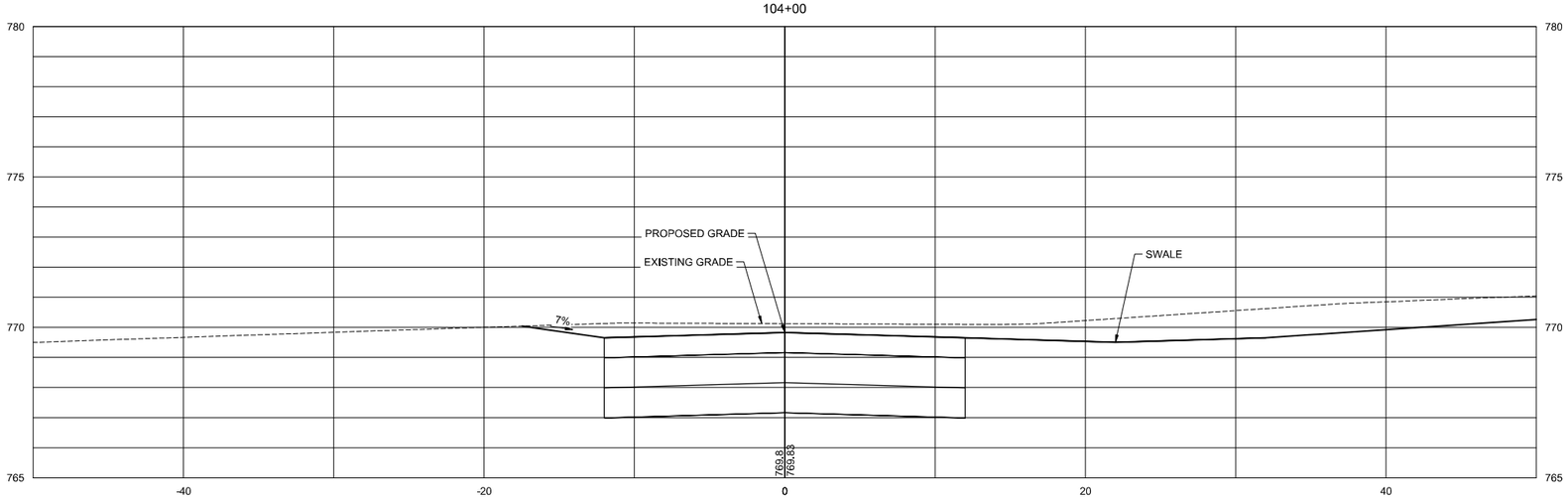
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104+50



104+00



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CITY OF IOWA CITY

IOWA CITY, IOWA

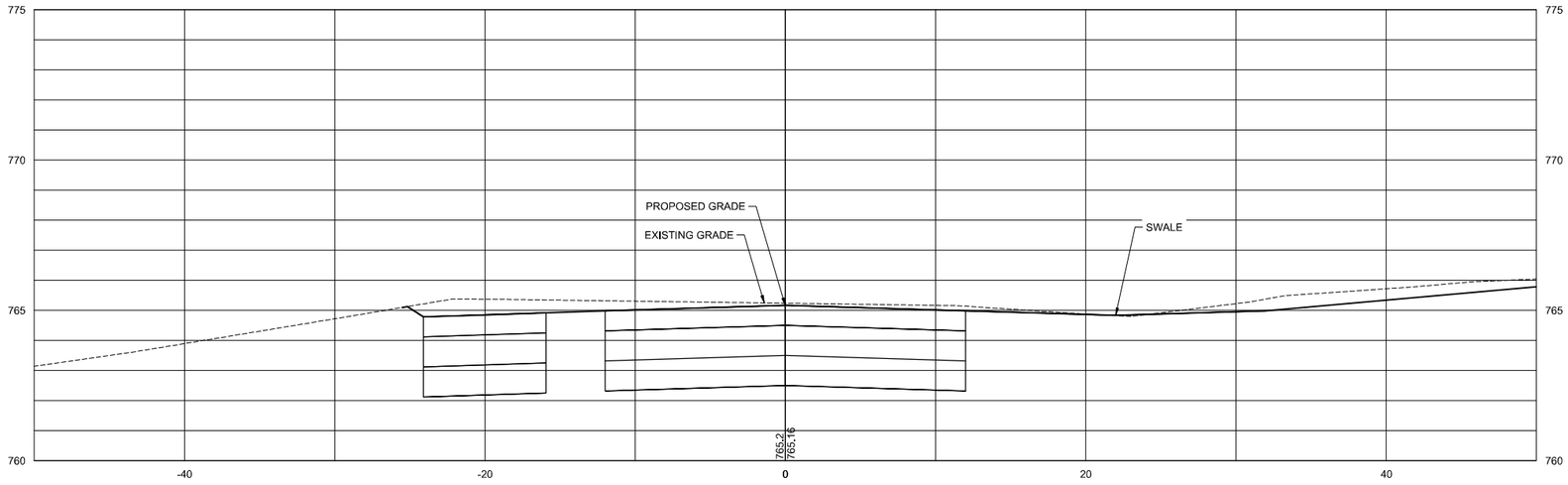
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CLIENT PROJECT NUMBER	---

COMPOST ROAD - CROSS SECTIONS

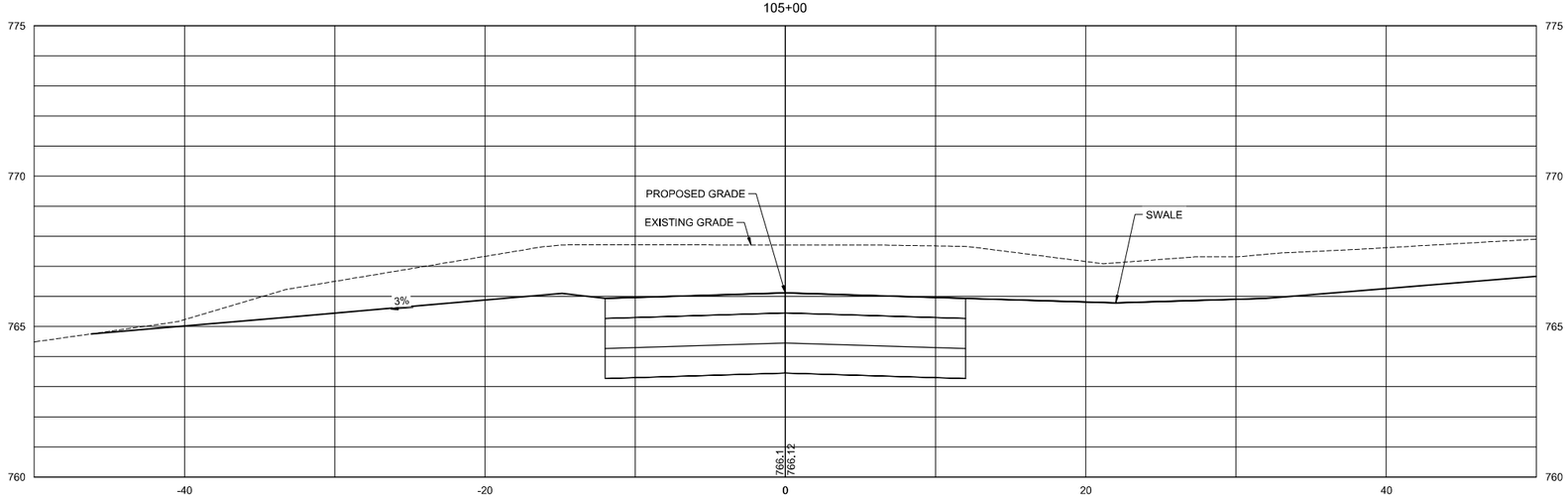
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105+50



105+00



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CITY OF IOWA CITY

IOWA CITY, IOWA

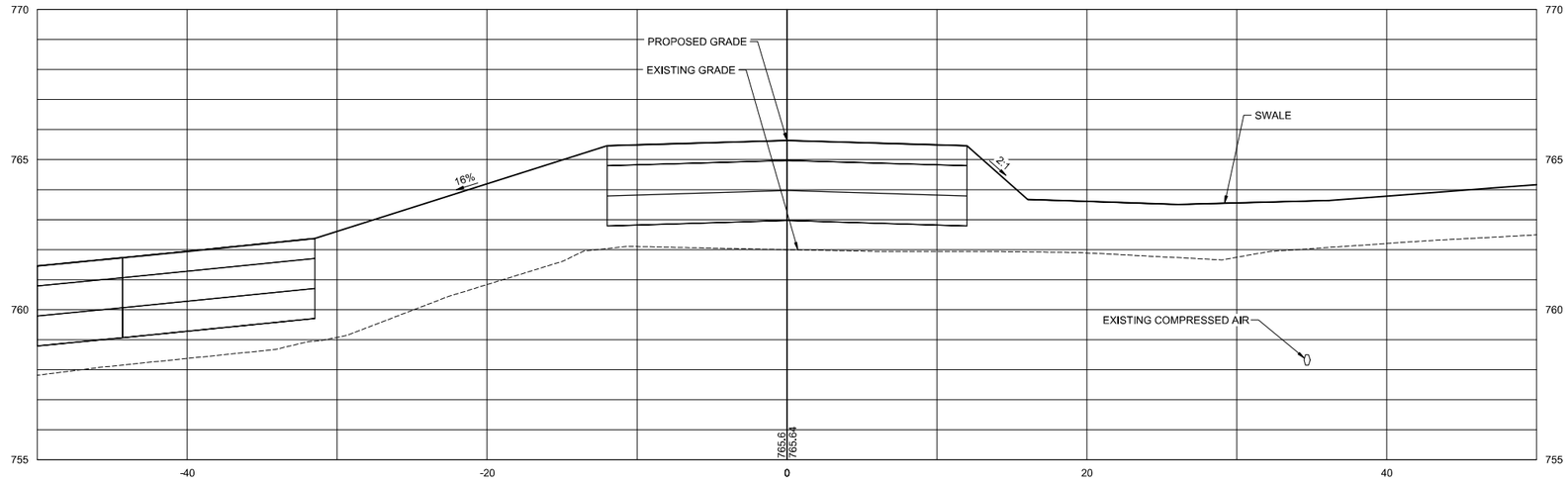
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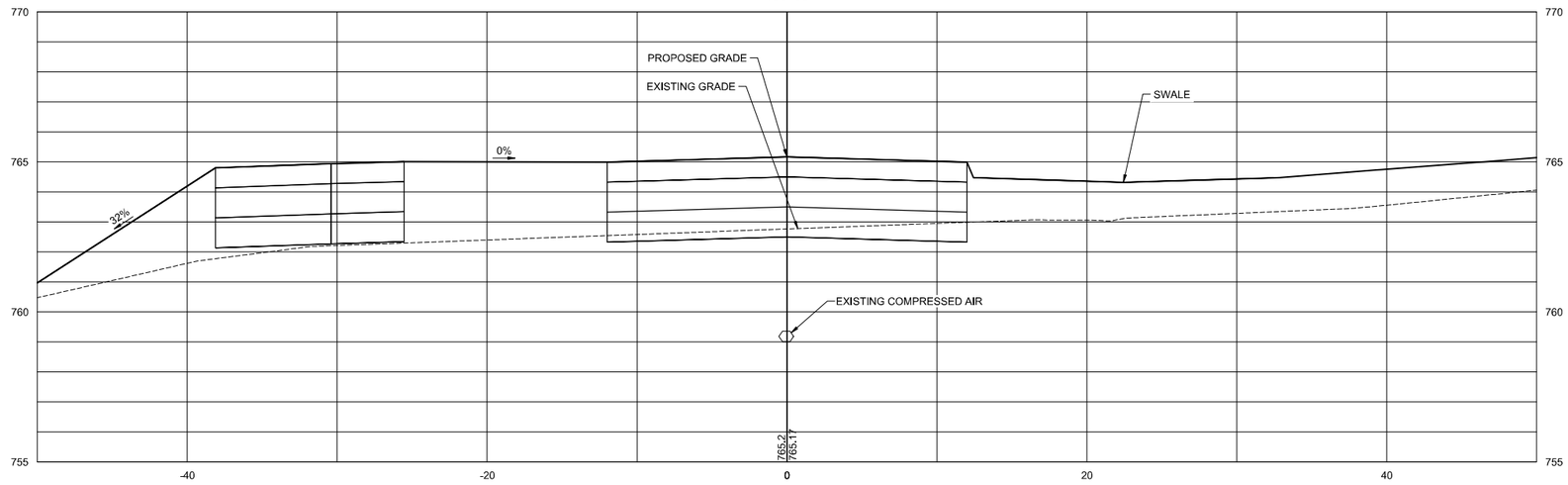
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106+50



106+00



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CITY OF IOWA CITY

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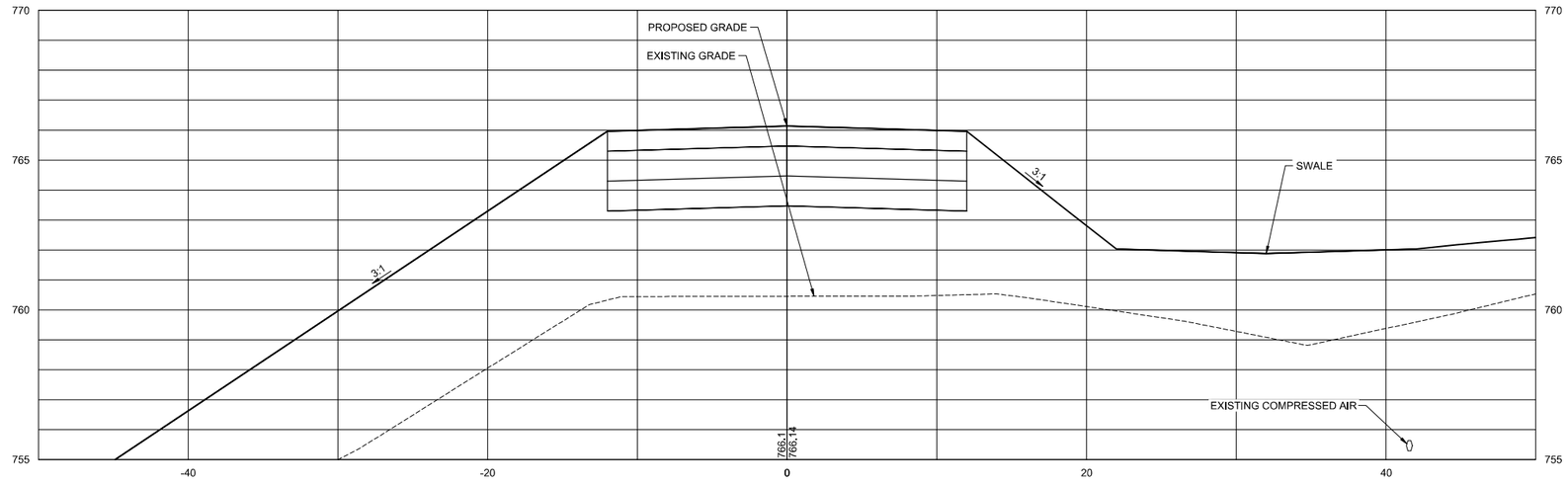
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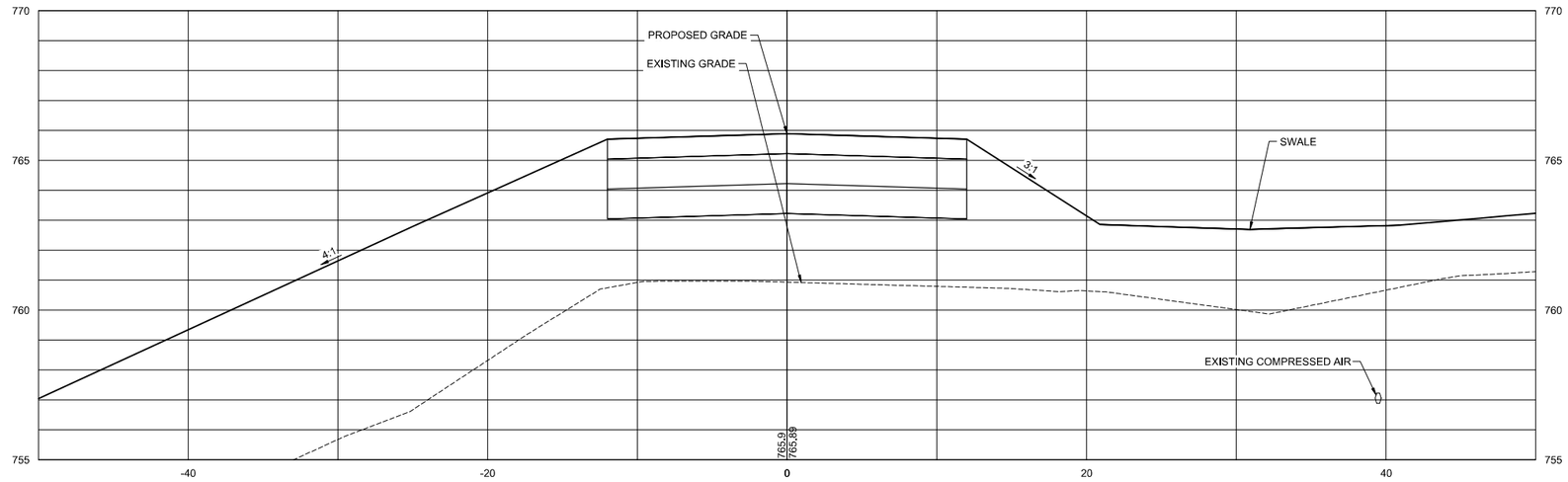
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107+50



107+00



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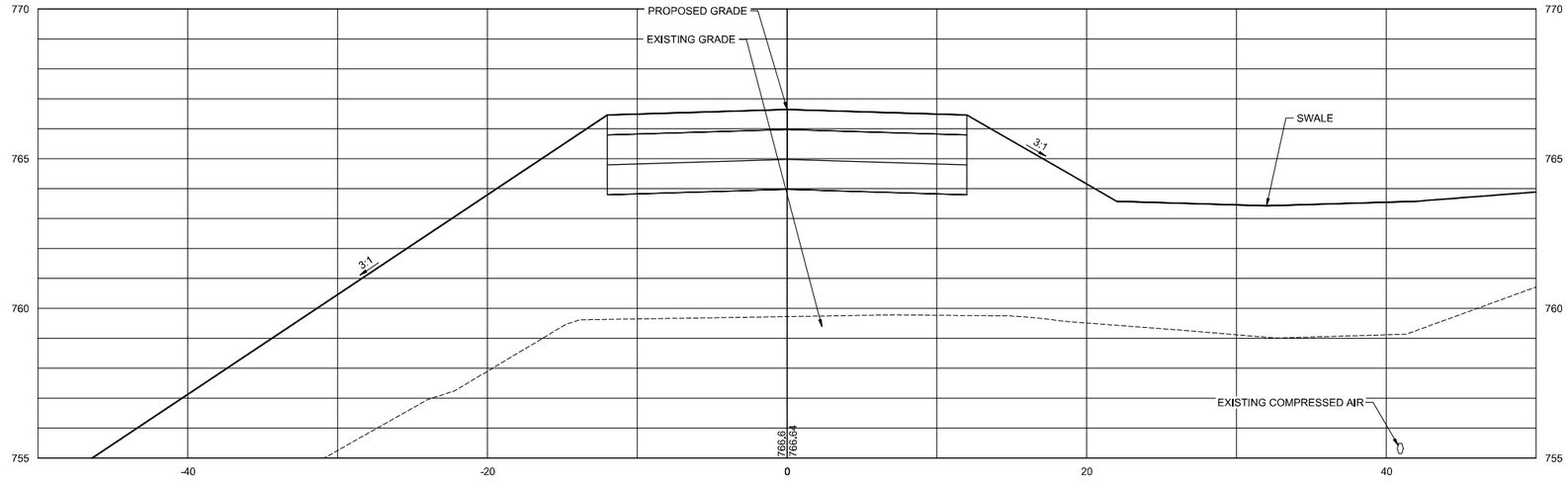
IOWA CITY, IOWA

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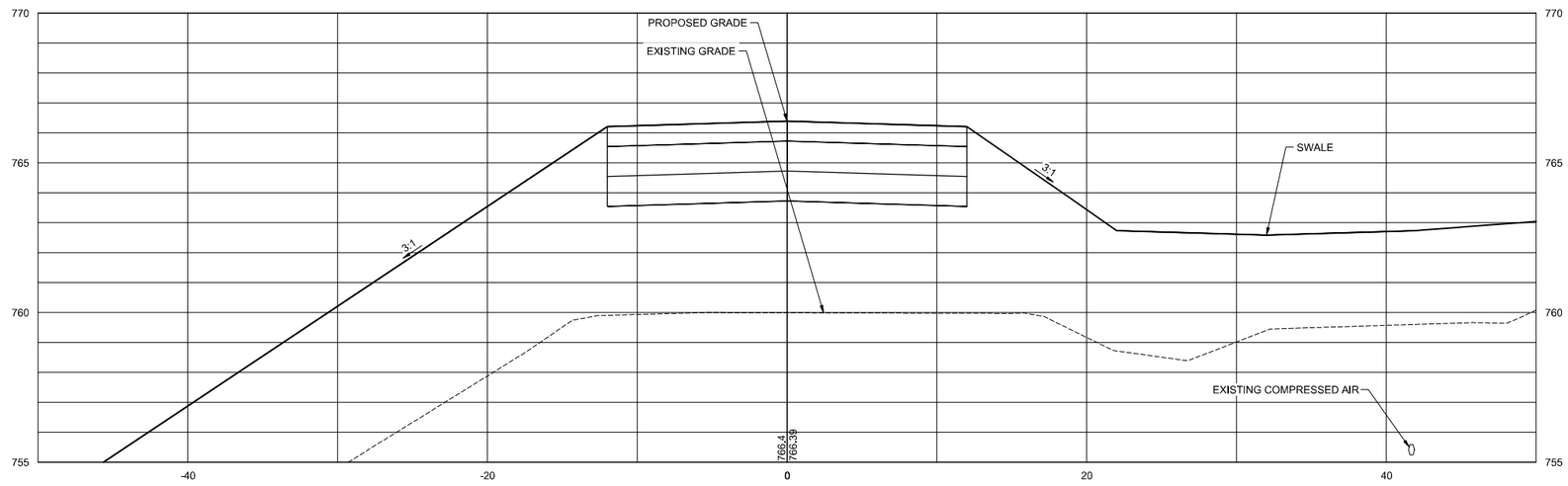
COMPOST ROAD - CROSS SECTIONS

W.08

108+50



108+00



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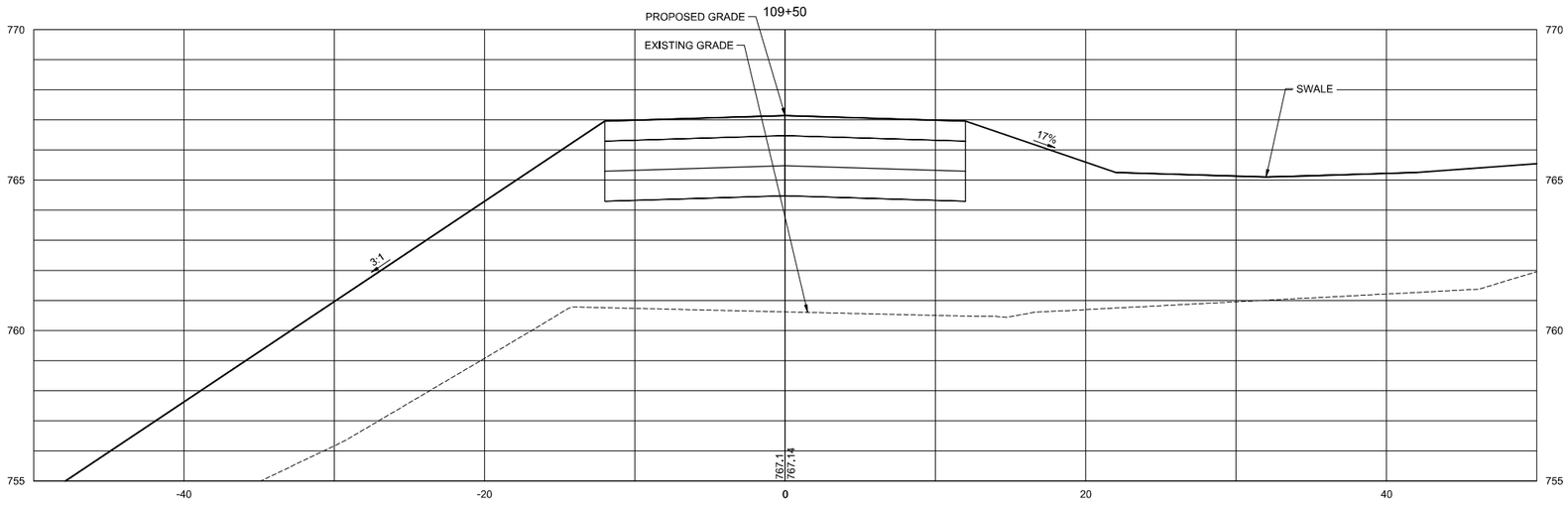
CITY OF IOWA CITY
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IOWA CITY, IOWA

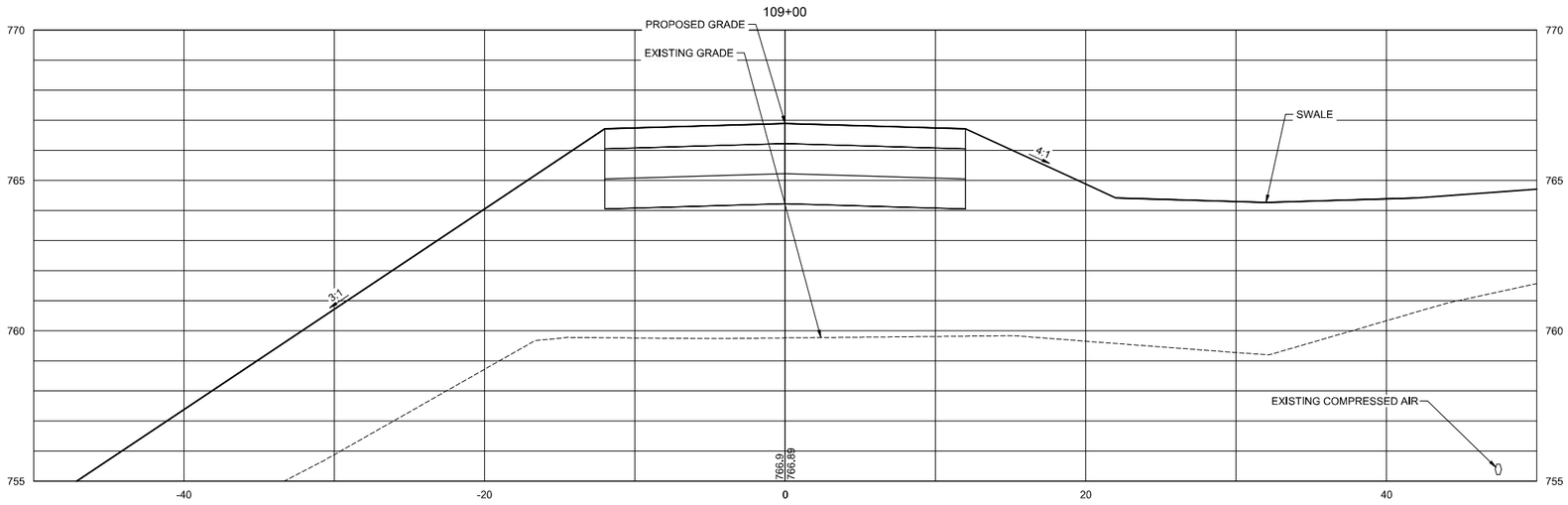
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COMPOST ROAD - CROSS SECTIONS

W.09

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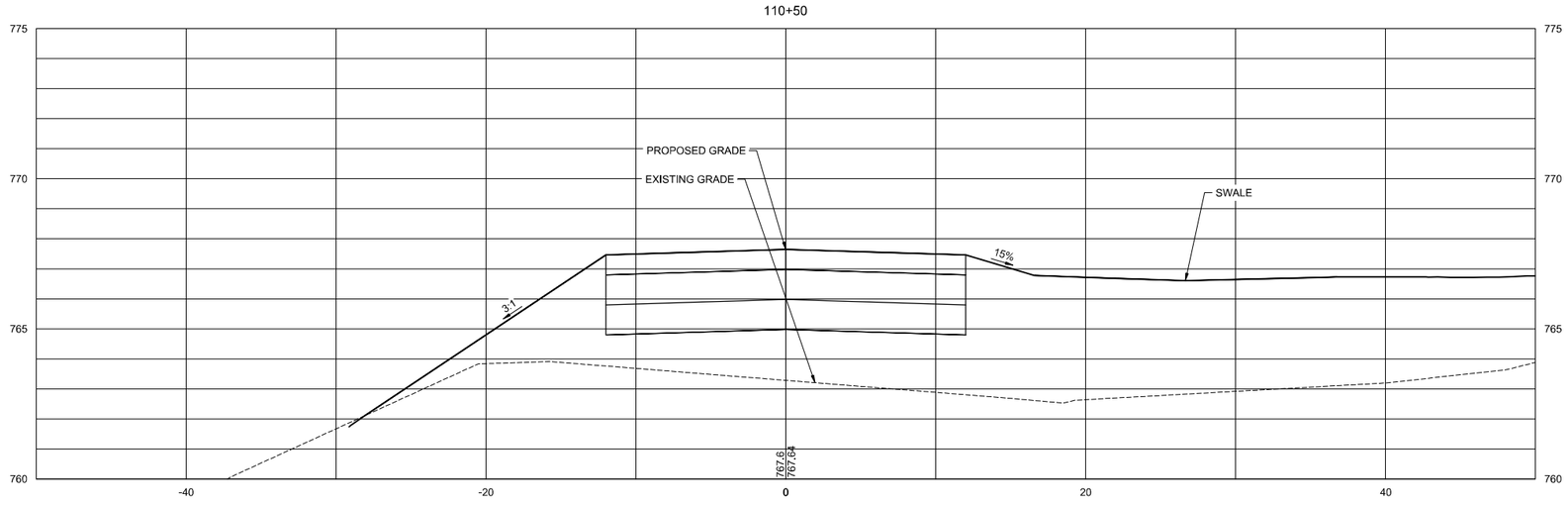
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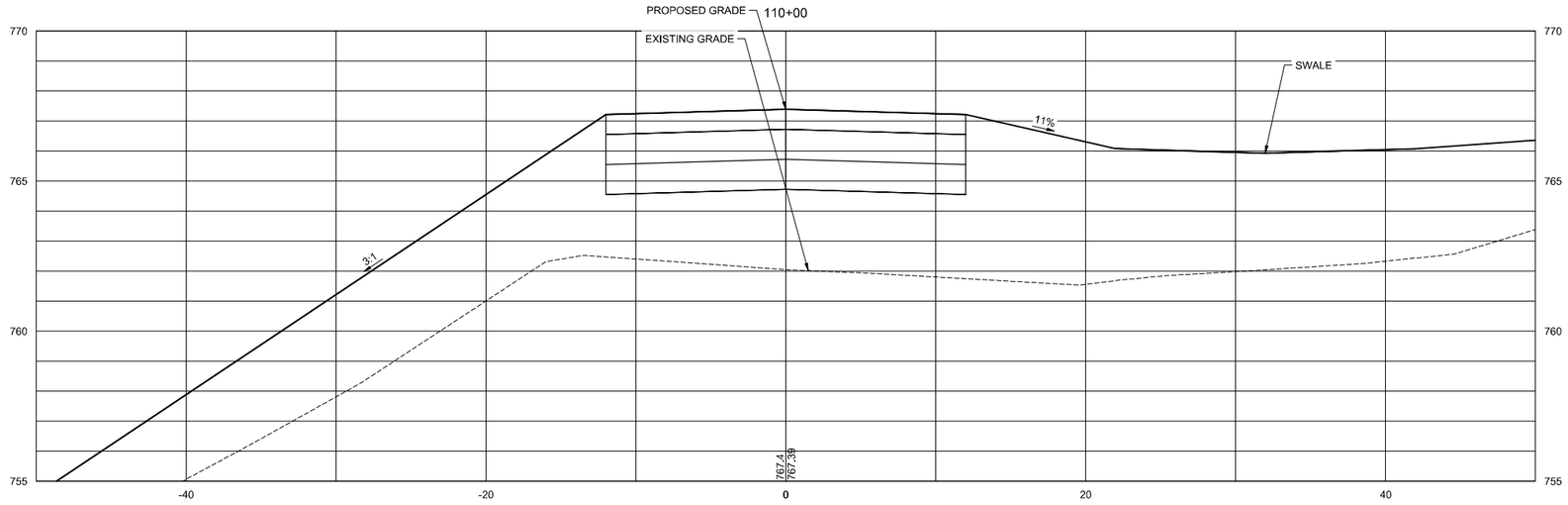
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COMPOST ROAD - CROSS SECTIONS

W.10

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IOWA CITY, IOWA

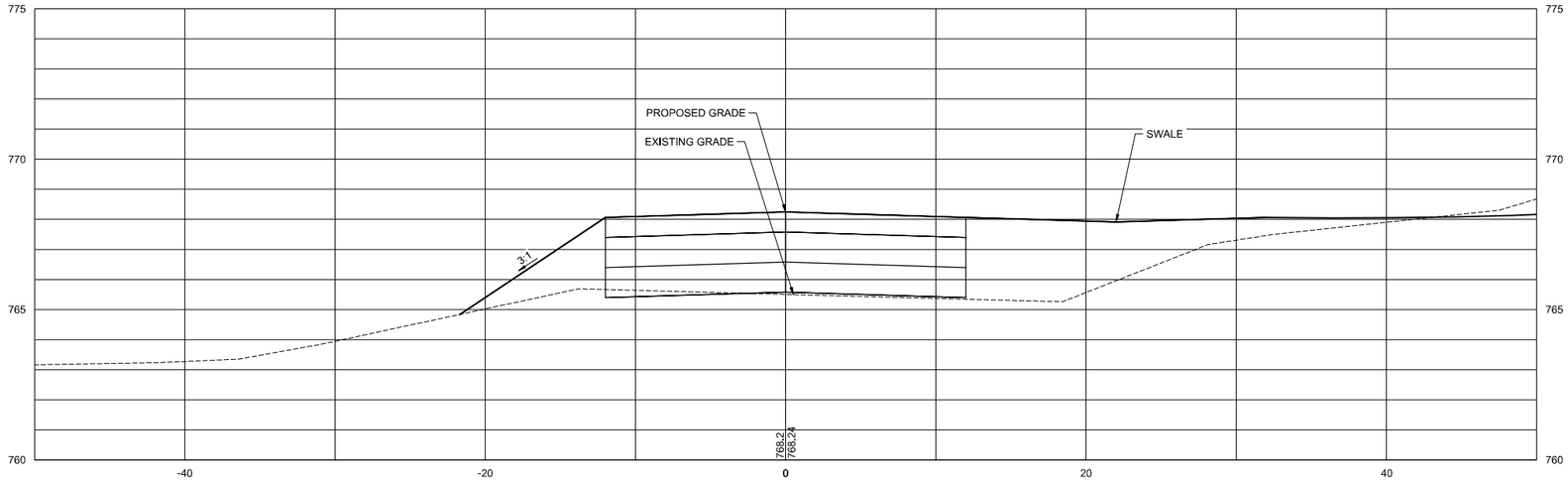
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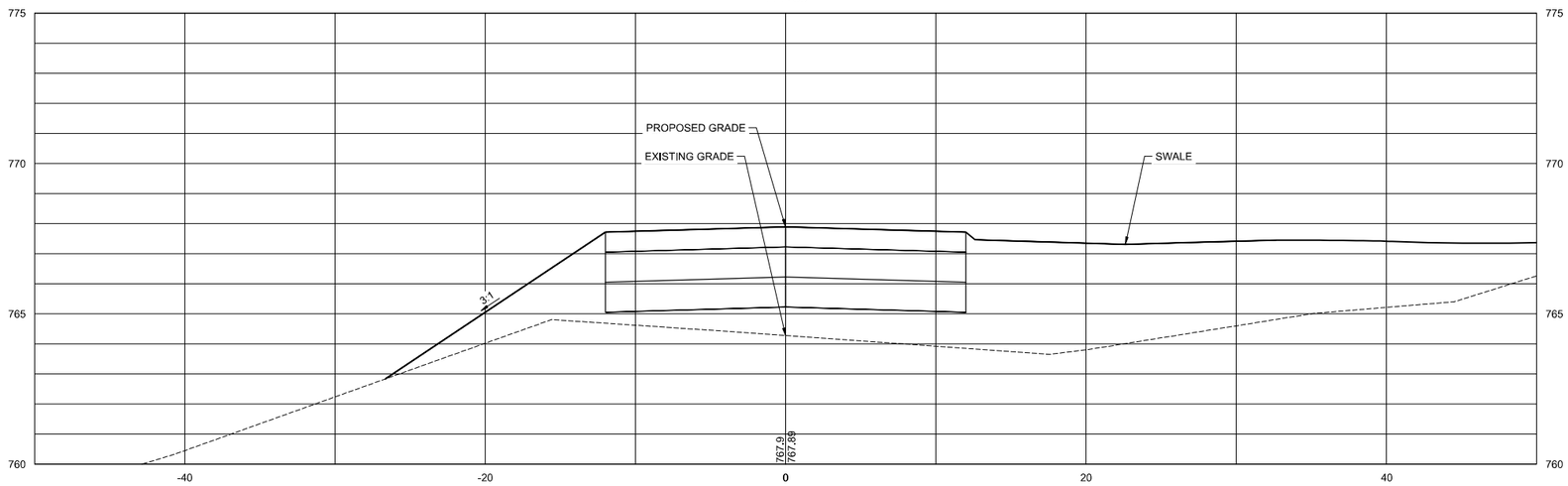
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111+50



111+00



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IOWA CITY, IOWA

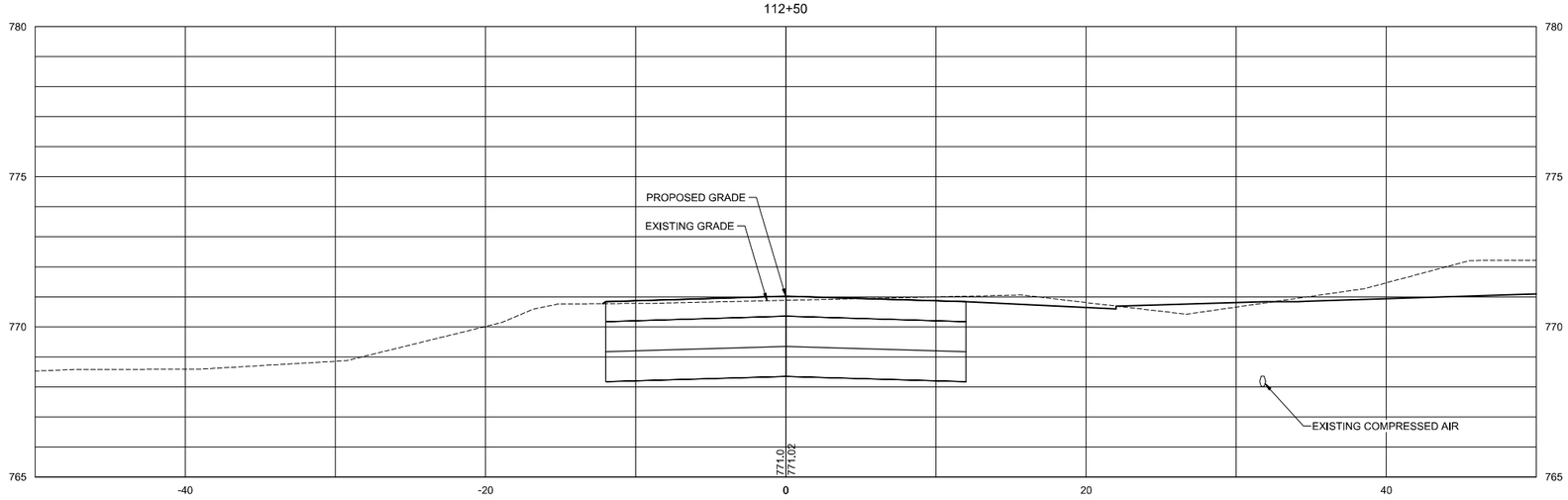
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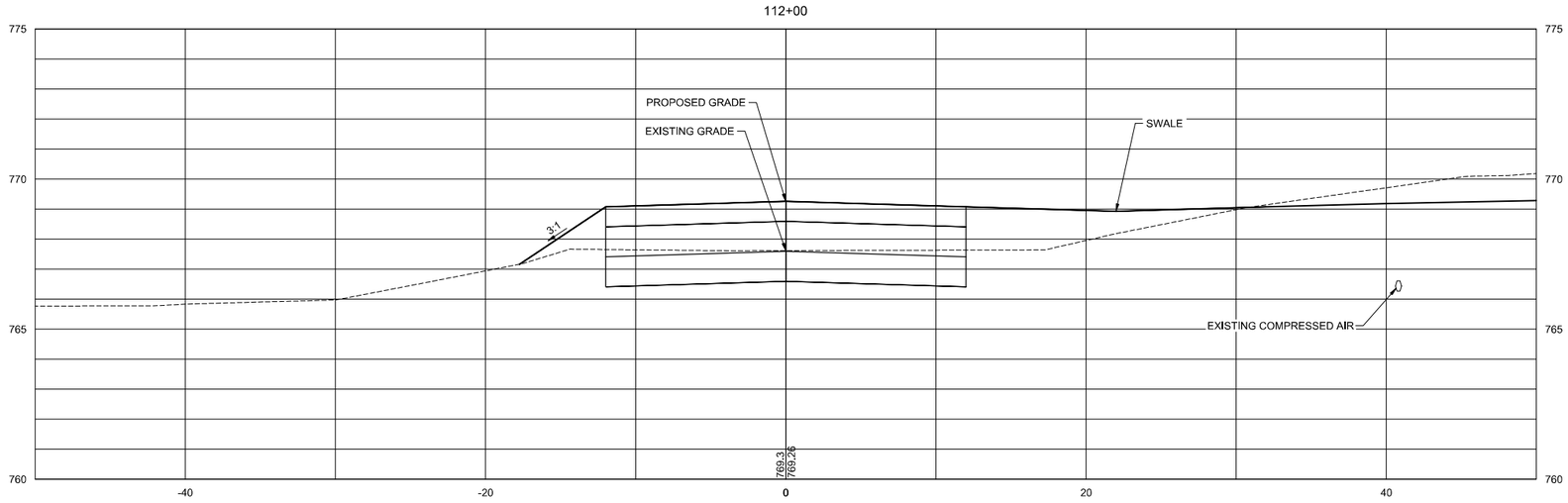
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COMPOST ROAD - CROSS SECTIONS

W.12

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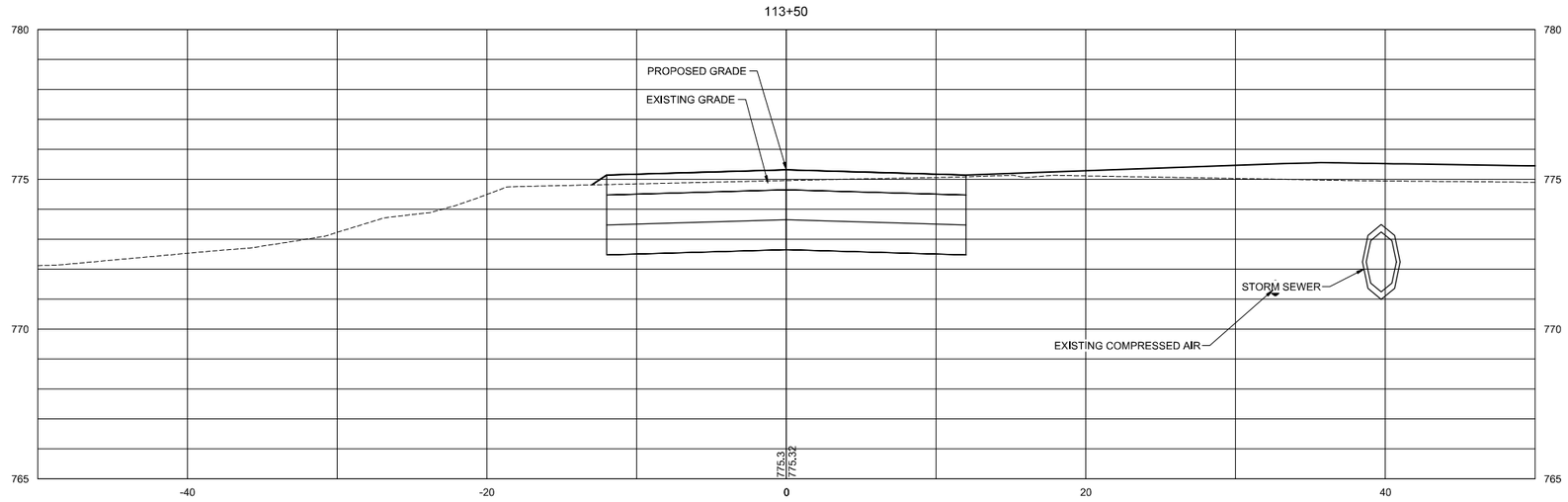
IOWA CITY, IOWA

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COMPOST ROAD - CROSS SECTIONS

W.13

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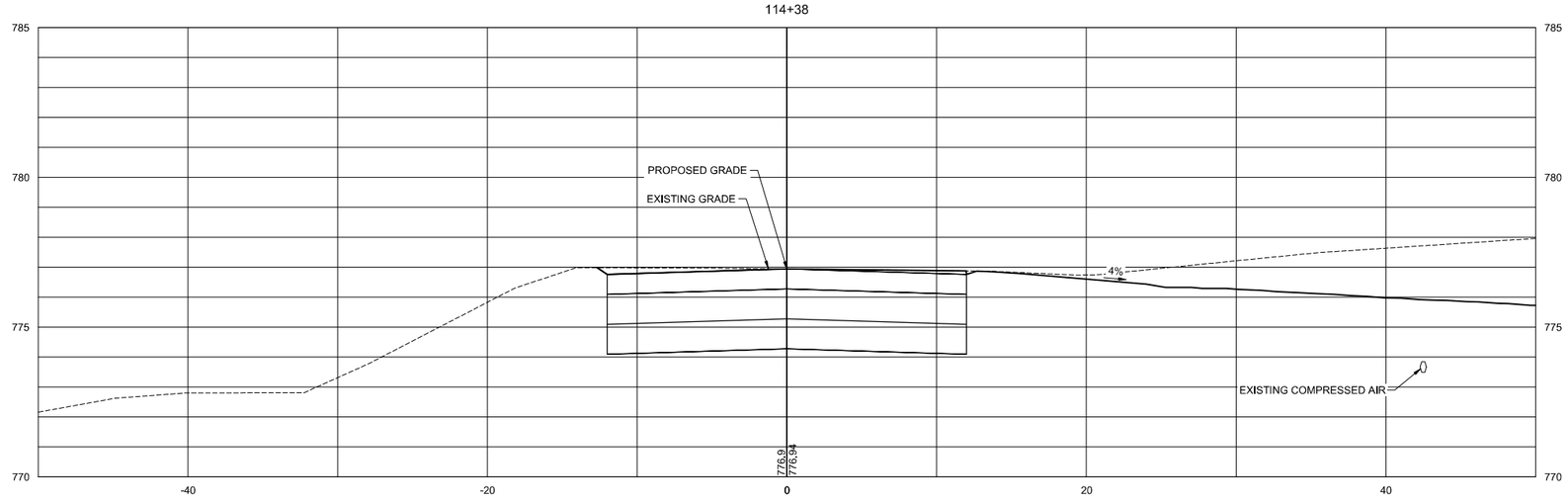
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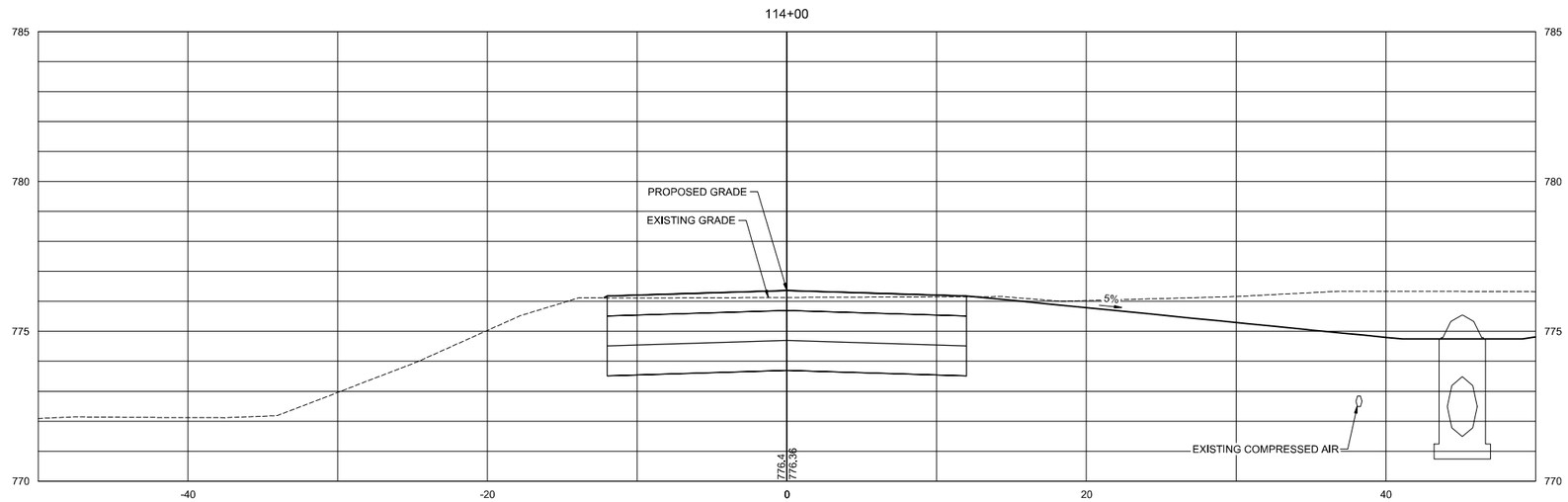
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COMPOST ROAD - CROSS SECTIONS

W.14

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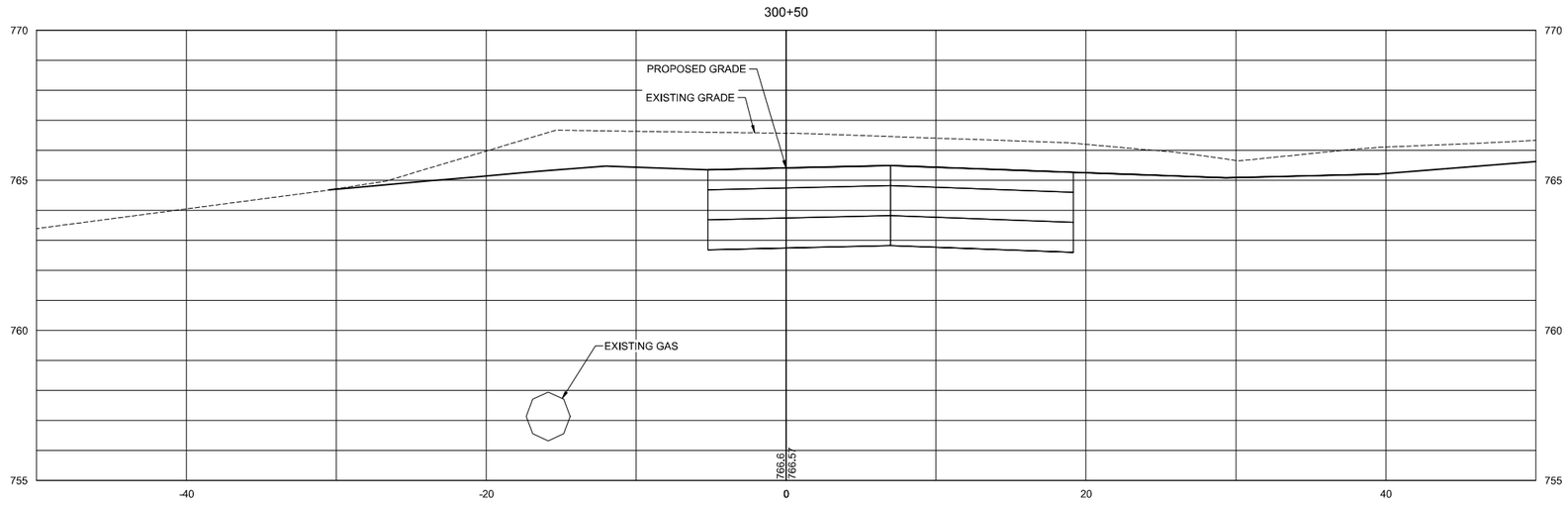
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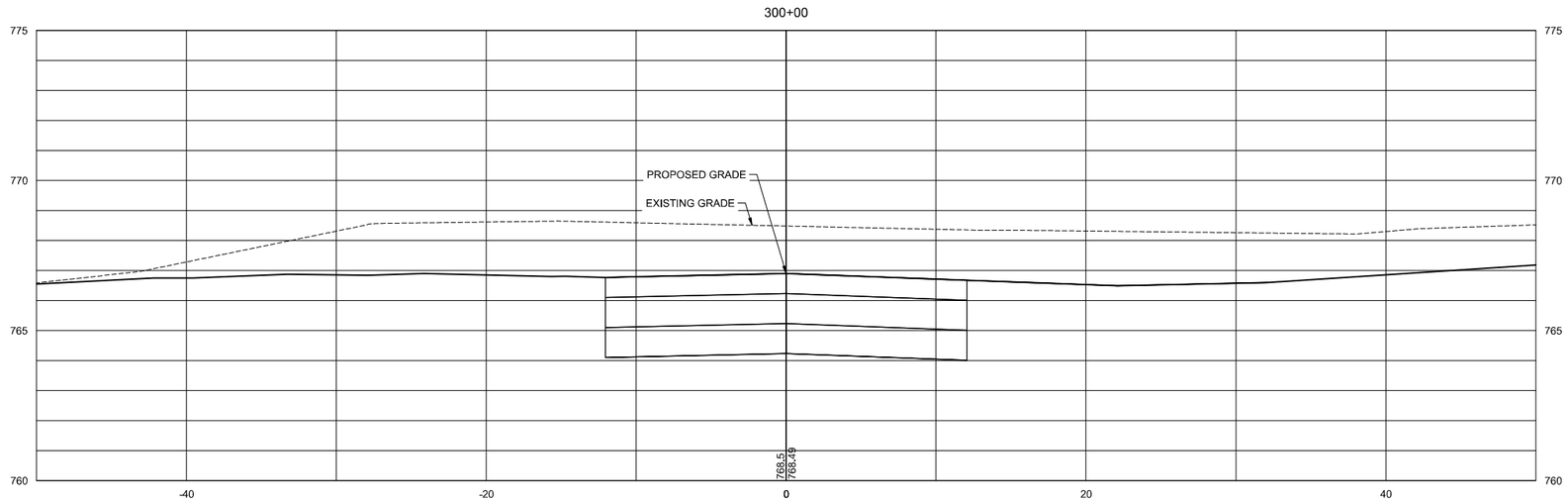
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COMPOST ROAD - CROSS SECTIONS

W.15

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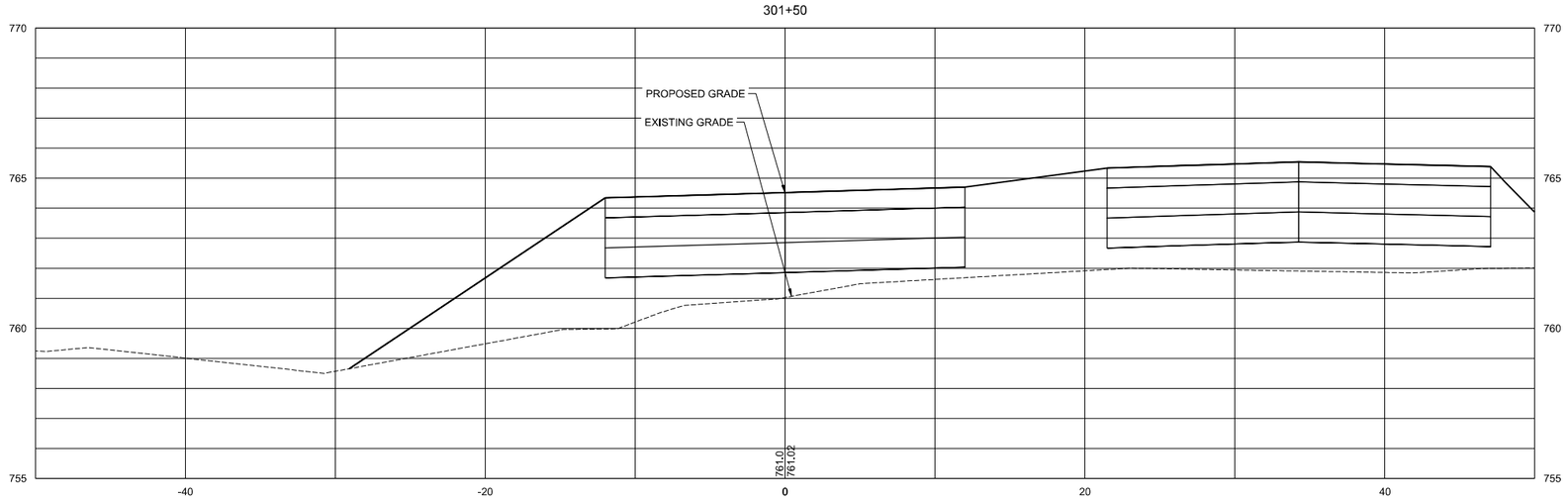
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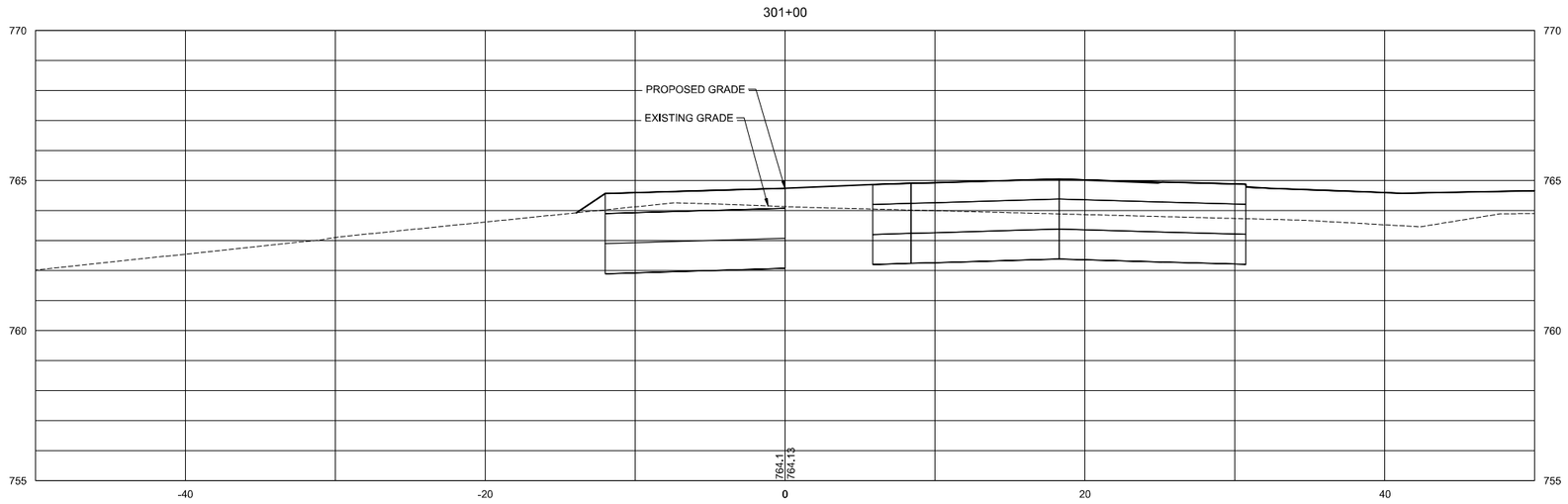
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EXTERIOR LOOP ROAD - CROSS SECTIONS

X.01

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IOWA CITY, IOWA

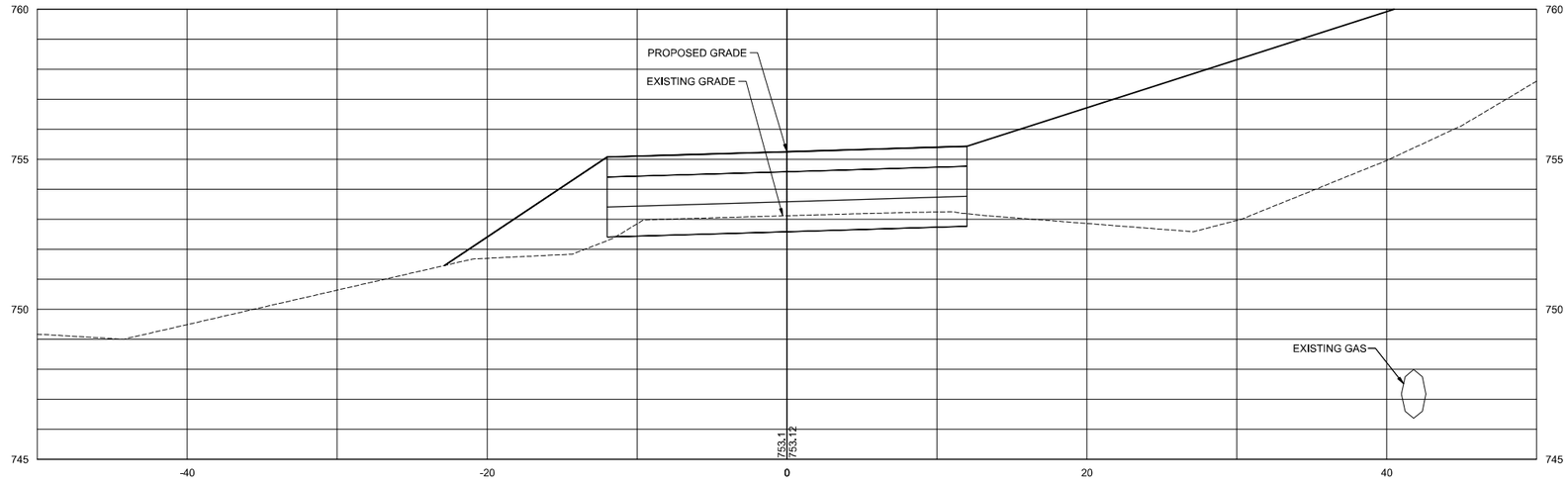
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EXTERIOR LOOP ROAD - CROSS SECTIONS

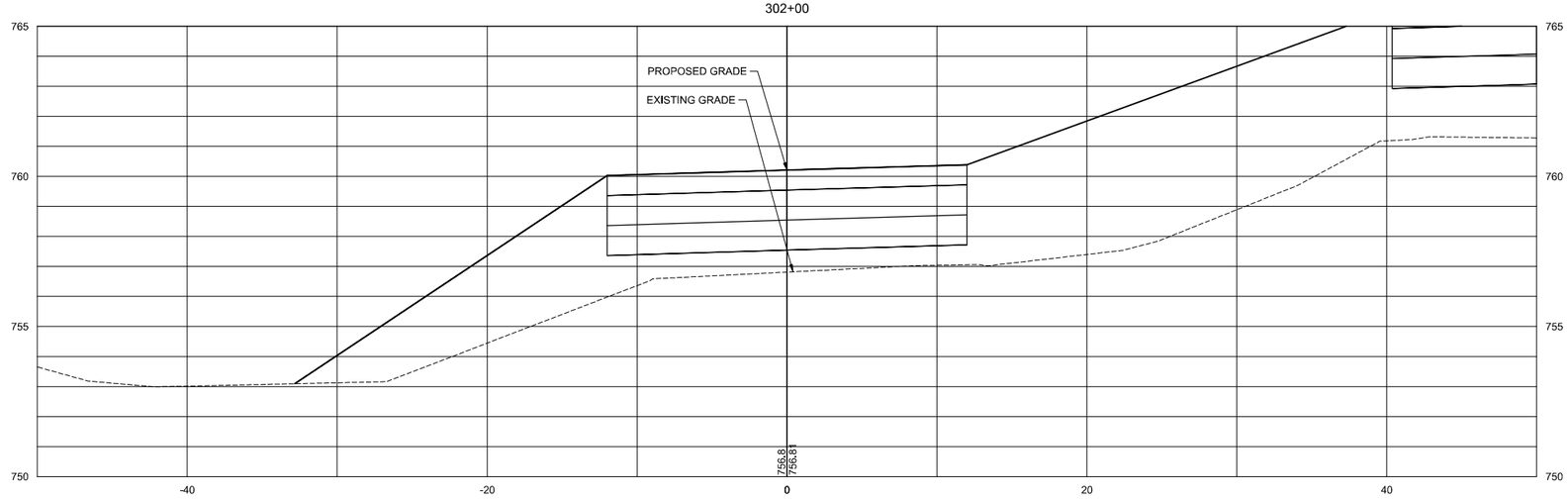
X.02

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302+50



302+00



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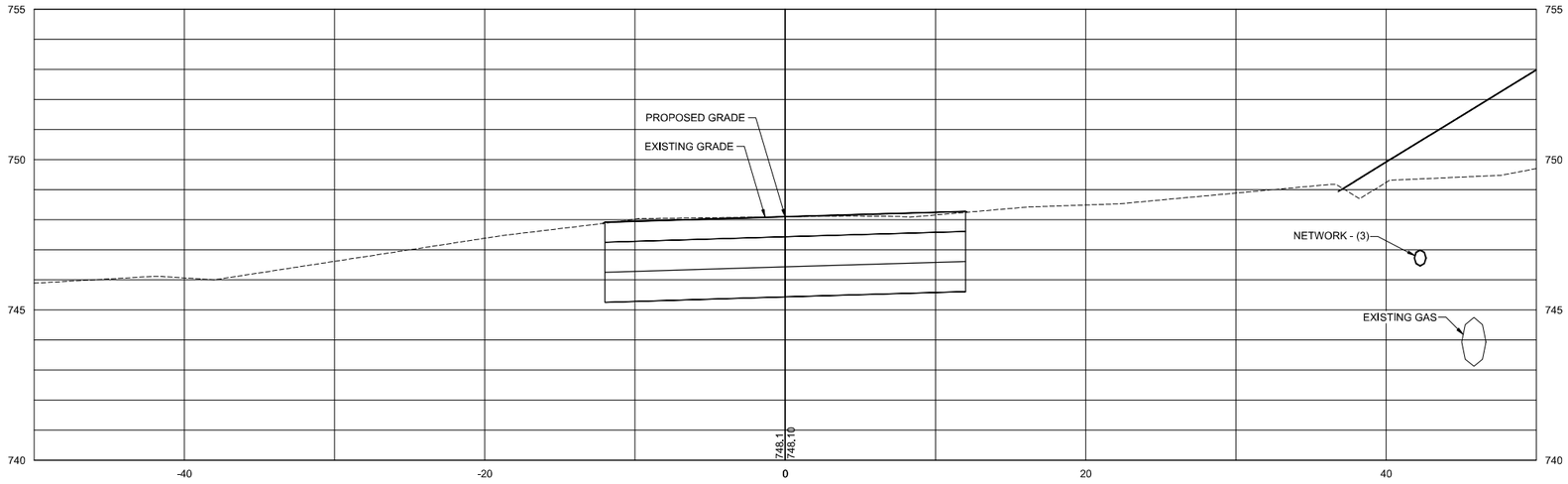
IOWA CITY, IOWA

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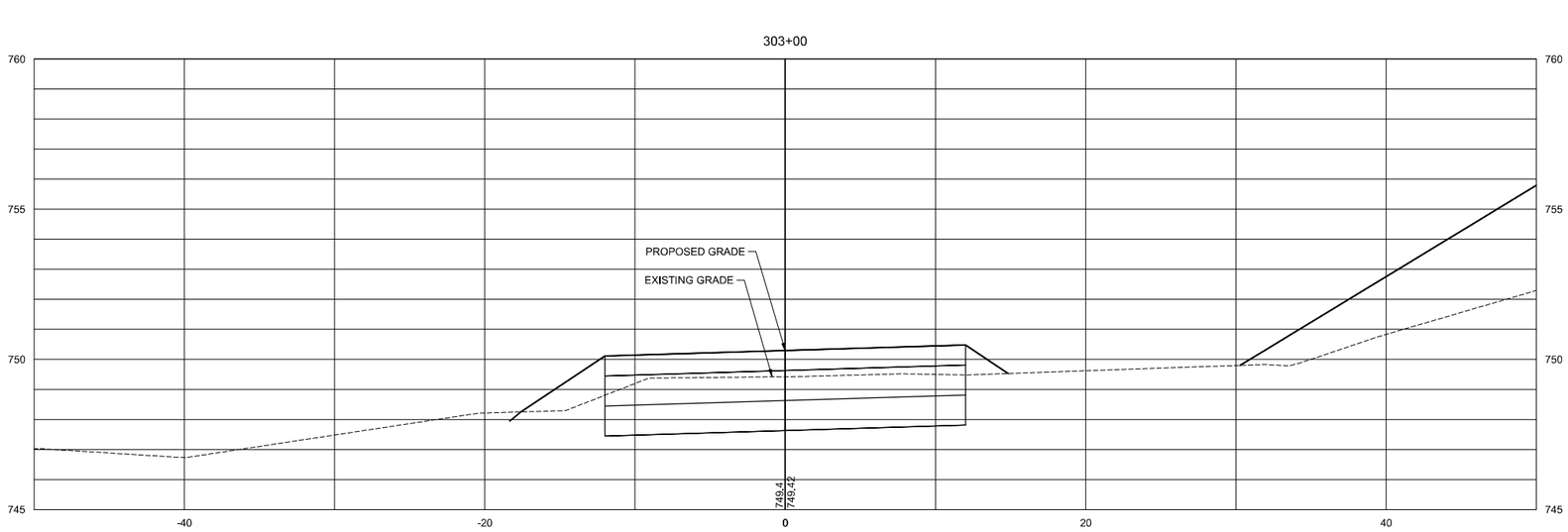
EXTERIOR LOOP ROAD - CROSS SECTIONS

X.03

303+22



303+00



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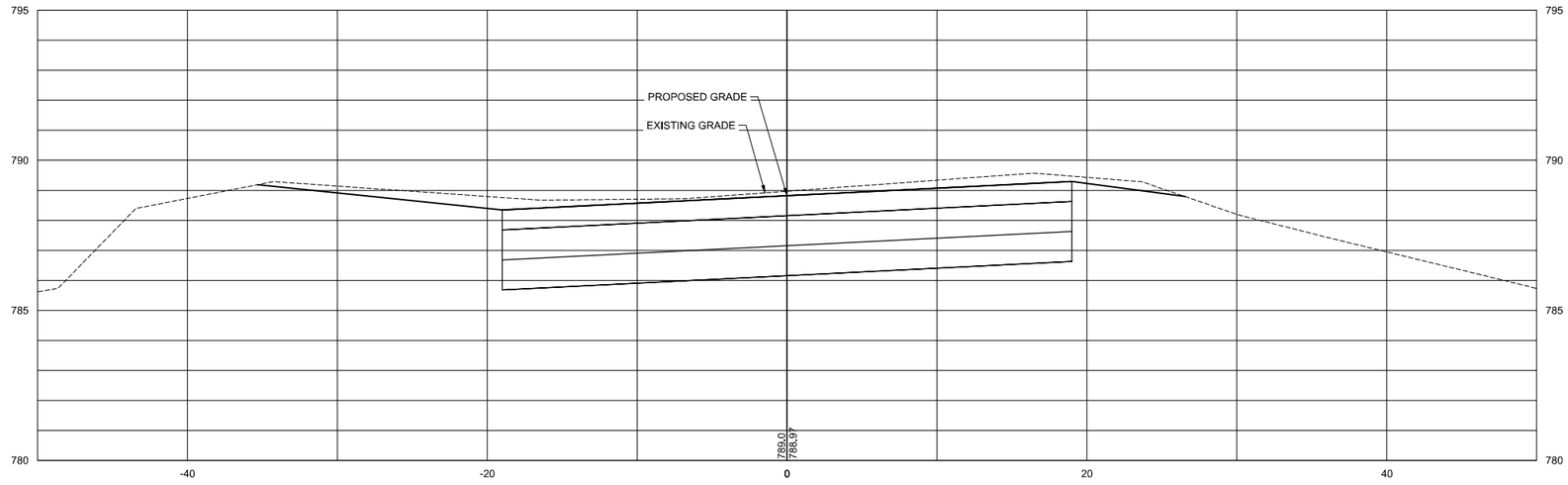
IOWA CITY, IOWA

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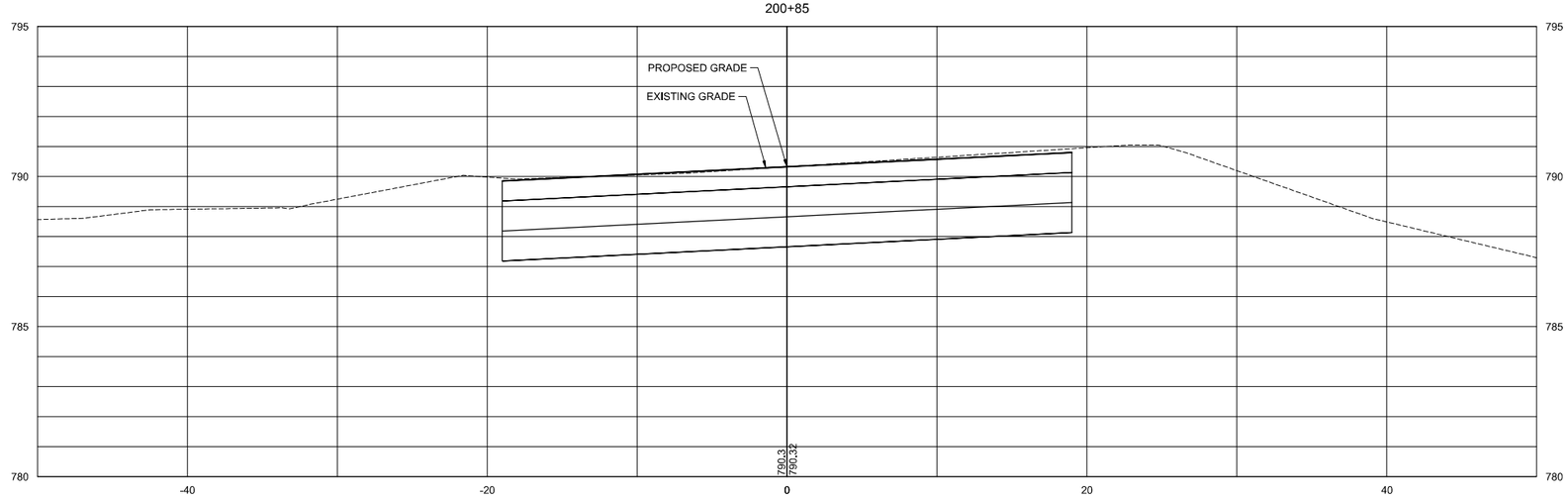
EXTERIOR LOOP ROAD - CROSS SECTIONS

X.04

201+00



200+85



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IOWA CITY, IOWA

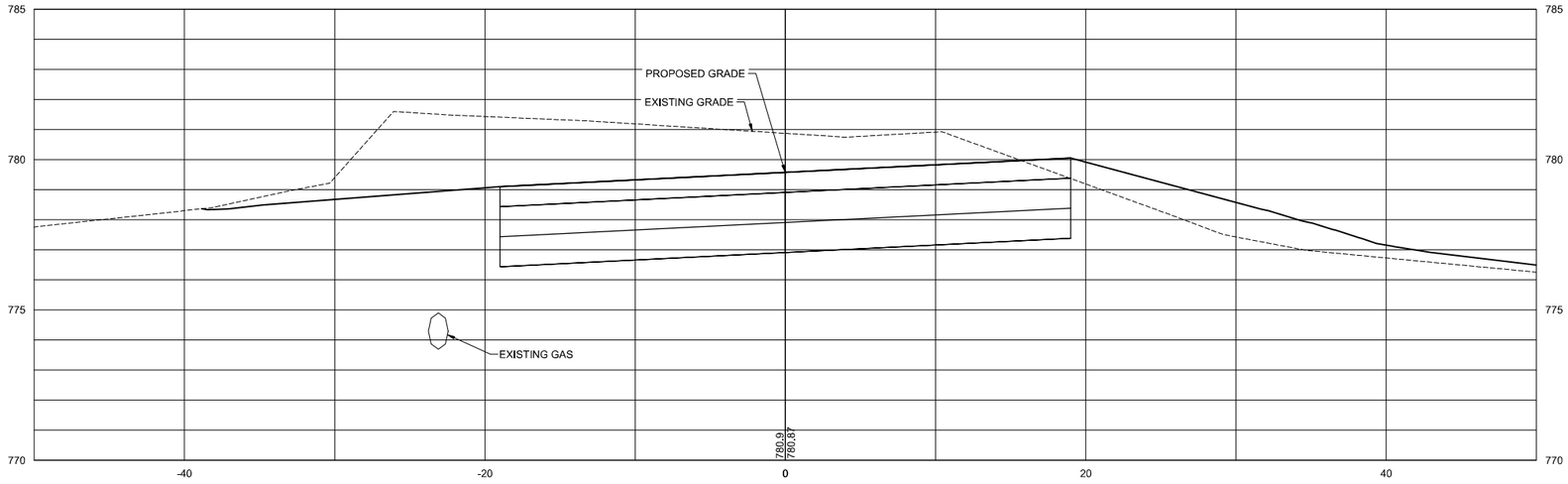
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CLIENT PROJECT NUMBER	----

SOUTH ROAD - CROSS SECTIONS

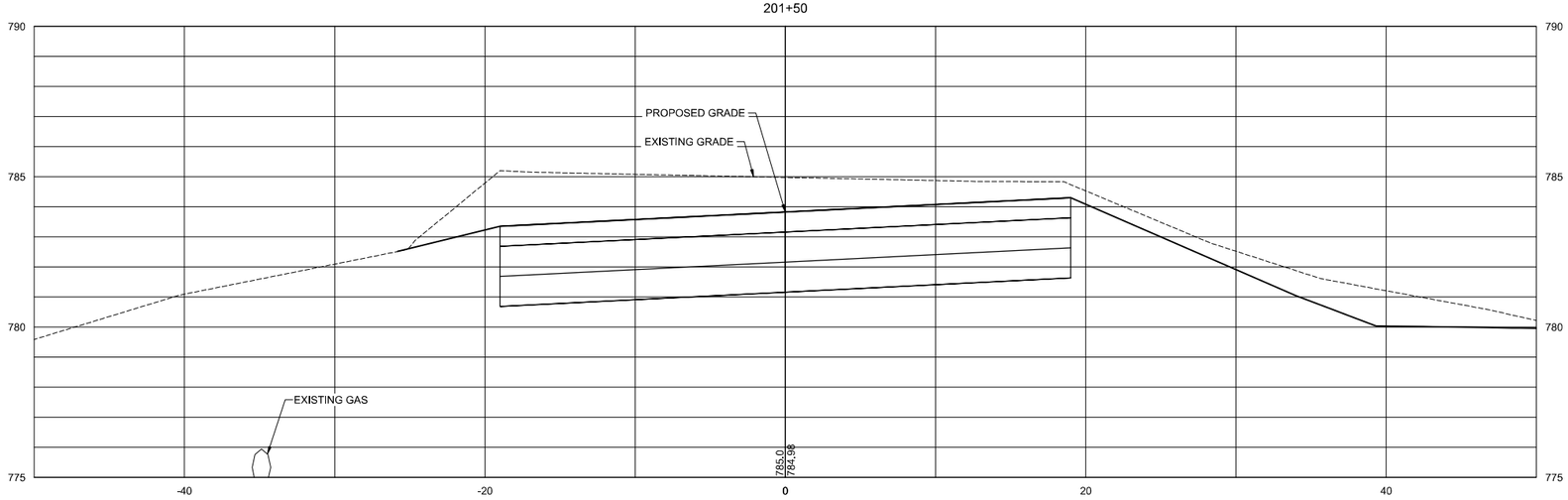
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202+00



201+50



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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY

IOWA CITY, IOWA

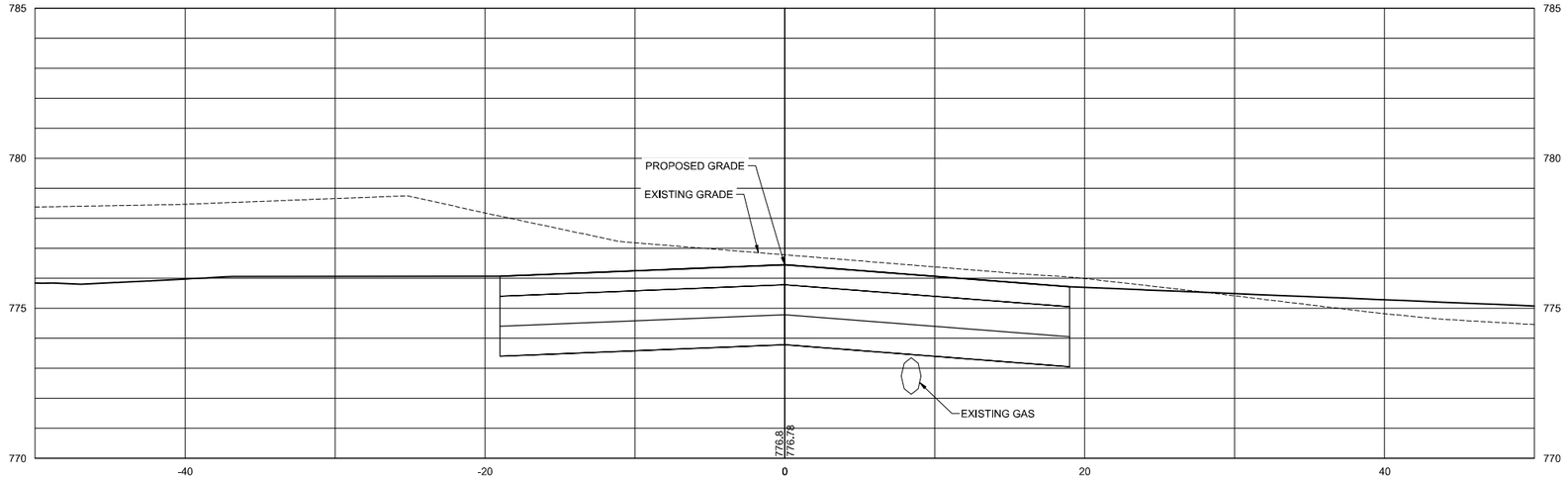
DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	---

SOUTH ROAD - CROSS SECTIONS

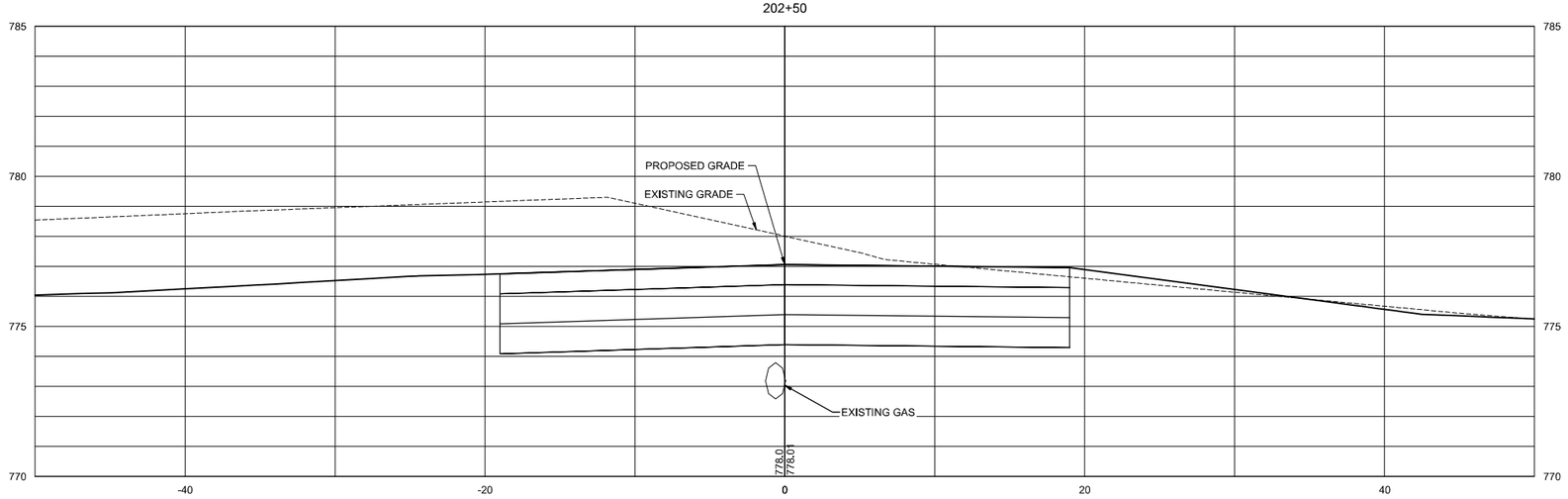
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202+70



202+50



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IOWA CITY LANDFILL COMPOST FACILITY IMPROVEMENTS AND EXPANSION PROJECT

CITY OF IOWA CITY

IOWA CITY, IOWA

DRAWN BY	CBS
APPROVED BY	DAP
ISSUED FOR	BID
ISSUE DATE	12/31/2025
PROJECT NUMBER	2240011780
CLIENT PROJECT NUMBER	---

SOUTH ROAD - CROSS SECTIONS

X.07

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Transmittal

PROJECT:	IC Landfill Compost Pad Expansion
DATE:	5/18/2026
SUBJECT:	Compost project - Landfill Cap Documentation
VIA:	Info Exchange
PURPOSE:	For your use

TO:	COMPANY / ADDRESS	PHONE
brian.rath@dnr.iowa.gov		
brian.rath@dnr.iowa.gov		
theresa.stiner@dnr.iowa.gov		
theresa.stiner@dnr.iowa.gov		

FROM:	COMPANY / ADDRESS	PHONE
Dan Jensen djensen@shive-hattery.com	Shive-Hattery, Inc.	

REMARKS: All -
At the link below you may download the full resolution document that includes Attachment 3 (Plans as bid).

Thanks,
Dan

Description of Contents

QTY	DATED	TITLE	NOTES
1	5/13/2026	2026.05.13_IowaCity_LandfillCoverDocumentation.pdf	

COPIES:

Jennifer Jordan	City of Iowa City, IA
Joseph Welter	City of Iowa City, IA

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