

Appendix B: Surface Water Run-Off Control System Calculations

- Leachate Storage Capacity for the 25-Year 24-Hour Storm Event
- References

Leachate Storage Capacity for the 25-Year 24-Hour Storm Event



PROJECT / LOCATION: DPC: Alma Offsite Disposal Facility, Phase IV Landfill		PROJECT / PROPOSAL NO.
SUBJECT: Active Area Leachate Disposal Capacity		421717.0000
PREPARED BY: B. Kahnk	DATE: 4/27/2021	FINAL X
CHECKED BY: J. Hotstream	DATE: 4/29/2021	REVISION X

Purpose: Determine the leachate storage capacity from a 25 year, 24-hour storm event during the critical leachate generation scenario.

Assumptions:

1. Critical leachate generation scenario occurs during the current condition with approximately 12.7 acres are operational (Portions of Cell 2 and the entirety of Cell 3) and approximately 7.6 acres have final cover. (See Figure 1 for this scenario).
2. The 25 year, 24-hour storm event is 5.40 inches (refer to attached sheet).
3. No portion of the leachate drainage layer within the open area is saturated.
4. The leachate drainage sand has a porosity of 30 percent. The bottom ash has a porosity of 25 percent.
5. The minimum thickness of the drainage layer is 1.0 foot.
6. A minimum of 1 foot of bottom ash was installed above the drainage layer in Cell 2A over an area of approximately 2.3 acres.
7. A minimum of 4 feet of bottom ash was installed above the drainage layer during the Cell 3A construction. Using a maximum elevation of 820 feet, this bottom ash covers an area of approximately 2.75 acres.

Method:

1. Determine the volume of rain collected in the open areas during the critical condition from a 25 year, 24-hour storm event.
2. Calculate the available storage volume for leachate in the drainage layer. Due to the slope of the landfill perimeter berm, the capacity of the drainage layer is based on the area of the drainage layer at or below an elevation of 820 feet. Elevation 820 represents the lowest top of berm base grade elevation documented during construction of Cell 3A (refer to attached base grades sheet).
3. The available storage volume within the pipe trenches, transfer piping, and leachate collection tank is ignored.
4. Calculate the available storage volume for leachate in the 4 feet of bottom ash placed above the drainage layer during Cell 3A construction and 1 foot of bottom ash placed above the drainage layer during Cell 2A construction.
5. Calculate the volume of storage required for the 25 year, 24-hour storm event.



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PREPARED BY: B. Kahnk	DATE: 4/27/2021	FINAL X
CHECKED BY: J. Hotstream	DATE: 4/29/2021	REVISION □

Step 1. Determine volume of run-off collected during the 25 year, 24-hour storm event

Area: 12.7 acres - Area open (portions of Cell 2 and the entirety of Cell 3)

Rain Event: 5.43 inches

$$\text{Runoff Volume}(ft^3): \text{Rain Event (inches)} \times \frac{1ft}{12 \text{ inches}} \times \text{Area (acres)} \times \frac{43,560 ft^2}{1 \text{ acre}}$$

Runoff Volume: 250,328 cubic feet

Step 2. Calculate the available storage volume for leachate in the drainage layer.

Area: 9.2 acres - see attached base grades plan

Thickness: 1 foot

Porosity: 0.3

$$\text{Storage Capacity}(ft^3): \text{Area (acres)} \times \frac{43,560 ft^2}{1 \text{ acre}} \times \text{Thickness (foot)} \times \text{Porosity}$$

Storage Capacity: 120,226 cubic feet

Step 3. Ignore storage in pipe trenches, transfer piping and leachate collection tank

Step 4. Calculate the available storage volume in the bottom ash placed above the drainage layer

Cell 2A:

Area: 2.3 acre(s)

Thickness: 1 foot

Porosity: 0.25

Cell 3A:

Area: 2.75 acre(s)

Thickness: 4 feet

Porosity: 0.25

$$\text{Storage Capacity}(ft^3): \text{Area (acres)} \times \frac{43,560 ft^2}{1 \text{ acre}} \times \text{Thickness (foot)} \times \text{Porosity}$$

Cell 2A:

Storage Capacity: 25,047 cubic feet

Cell 3A:

Storage Capacity: 119,790 cubic feet

Total Storage Capacity (Cell 2A + Cell 3A): 144,837 cubic feet



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PREPARED BY: B. Kahnk	DATE: 4/27/2021	FINAL <input checked="" type="checkbox"/>
CHECKED BY: J. Hotstream	DATE: 4/29/2021	REVISION <input type="checkbox"/>

Step 5. Calculate the storage required for the 25 year, 24-hour storm event.

Required Storage:

$$\text{Required Storage} = \text{Run Off Volume} - \text{Drainage Layer Capacity} - \text{Bottom Ash Capacity}$$

Run-Off Volume: 250,328 cubic feet from Step 1
 Drainage Layer: 120,226 cubic feet, from Step 2
 Bottom Ash: 144,837 cubic feet from Step 4

Required Storage: -14,734 cubic feet

The negative required storage calculated above indicates that there is sufficient storage capacity in the leachate collection drainage layer and the bottom ash that was placed in the cells above the drainage layer to contain the runoff from a 25 year, 24-hour storm event.

References



NOAA Atlas 14, Volume 8, Version 2
Location name: Alma, Wisconsin, US*
Latitude: 44.3657°, Longitude: -91.9171°
Elevation: 1074 ft*
 * source: Google Maps



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk,
 Dale Unruh, Michael Yekta, Geoffrey Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.366 (0.300-0.455)	0.436 (0.357-0.543)	0.555 (0.453-0.692)	0.657 (0.532-0.822)	0.801 (0.626-1.03)	0.915 (0.697-1.20)	1.03 (0.757-1.38)	1.16 (0.809-1.58)	1.32 (0.887-1.85)	1.45 (0.946-2.06)
10-min	0.536 (0.439-0.666)	0.639 (0.523-0.795)	0.813 (0.663-1.01)	0.962 (0.779-1.20)	1.17 (0.917-1.52)	1.34 (1.02-1.75)	1.51 (1.11-2.02)	1.69 (1.19-2.31)	1.94 (1.30-2.71)	2.13 (1.39-3.02)
15-min	0.653 (0.535-0.812)	0.779 (0.638-0.989)	0.991 (0.809-1.24)	1.17 (0.950-1.47)	1.43 (1.12-1.85)	1.64 (1.25-2.14)	1.84 (1.35-2.46)	2.06 (1.45-2.82)	2.36 (1.58-3.31)	2.59 (1.69-3.68)
30-min	0.908 (0.744-1.13)	1.09 (0.894-1.36)	1.40 (1.14-1.74)	1.66 (1.34-2.08)	2.03 (1.58-2.62)	2.32 (1.76-3.03)	2.62 (1.92-3.49)	2.92 (2.05-4.00)	3.34 (2.24-4.68)	3.66 (2.39-5.19)
60-min	1.19 (0.978-1.48)	1.42 (1.16-1.77)	1.82 (1.48-2.27)	2.17 (1.76-2.72)	2.69 (2.12-3.51)	3.13 (2.39-4.11)	3.58 (2.63-4.81)	4.07 (2.86-5.60)	4.76 (3.20-6.70)	5.31 (3.46-7.53)
2-hr	1.48 (1.22-1.82)	1.75 (1.44-2.15)	2.23 (1.84-2.76)	2.68 (2.19-3.33)	3.36 (2.67-4.37)	3.94 (3.04-5.15)	4.55 (3.38-6.09)	5.22 (3.70-7.15)	6.18 (4.20-8.66)	6.96 (4.57-9.80)
3-hr	1.67 (1.38-2.04)	1.95 (1.62-2.39)	2.48 (2.05-3.05)	2.99 (2.46-3.69)	3.79 (3.04-4.93)	4.48 (3.48-5.86)	5.24 (3.92-7.00)	6.07 (4.33-8.31)	7.28 (4.97-10.2)	8.28 (5.46-11.6)
6-hr	1.96 (1.64-2.38)	2.28 (1.91-2.77)	2.90 (2.41-3.53)	3.50 (2.90-4.28)	4.47 (3.63-5.79)	5.32 (4.18-6.93)	6.27 (4.73-8.33)	7.32 (5.27-9.96)	8.86 (6.11-12.3)	10.1 (6.74-14.1)
12-hr	2.23 (1.88-2.68)	2.59 (2.18-3.12)	3.29 (2.76-3.96)	3.96 (3.30-4.79)	5.02 (4.10-6.43)	5.96 (4.71-7.68)	6.99 (5.31-9.21)	8.13 (5.90-11.0)	9.80 (6.81-13.5)	11.2 (7.49-15.5)
24-hr	2.53 (2.15-3.01)	2.91 (2.47-3.46)	3.63 (3.07-4.33)	4.33 (3.64-5.49)	5.43 (4.47-6.89)	6.40 (5.10-8.17)	7.46 (5.72-9.75)	8.65 (6.33-11.6)	10.4 (7.26-14.2)	11.8 (7.97-16.2)
2-day	2.94 (2.52-3.46)	3.29 (2.81-3.87)	3.97 (3.39-4.69)	4.65 (3.94-5.53)	5.76 (4.79-7.25)	6.75 (5.44-8.56)	7.86 (6.08-10.2)	9.10 (6.72-12.1)	10.9 (7.72-14.9)	12.5 (8.48-17.0)
3-day	3.23 (2.79-3.79)	3.58 (3.08-4.19)	4.26 (3.65-5.01)	4.95 (4.21-5.84)	6.07 (5.07-7.59)	7.07 (5.72-8.91)	8.19 (6.37-10.6)	9.45 (7.01-12.5)	11.3 (8.02-15.3)	12.8 (8.79-17.5)
4-day	3.48 (3.00-4.05)	3.85 (3.32-4.49)	4.57 (3.93-5.35)	5.28 (4.51-6.21)	6.42 (5.37-7.98)	7.43 (6.03-9.31)	8.55 (6.67-11.0)	9.81 (7.30-12.9)	11.6 (8.29-15.7)	13.2 (9.04-17.9)
7-day	4.09 (3.56-4.73)	4.59 (3.99-5.31)	5.48 (4.75-6.37)	6.30 (5.42-7.35)	7.54 (6.31-9.20)	8.58 (6.97-10.6)	9.70 (7.58-12.3)	10.9 (8.15-14.2)	12.6 (9.03-16.9)	14.0 (9.70-19.0)
10-day	4.64 (4.05-5.34)	5.24 (4.57-6.03)	6.27 (5.45-7.24)	7.17 (6.20-8.32)	8.50 (7.11-10.3)	9.58 (7.80-11.7)	10.7 (8.39-13.4)	11.9 (8.91-15.4)	13.6 (9.73-18.1)	14.9 (10.4-20.1)
20-day	6.27 (5.53-7.14)	7.04 (6.19-8.02)	8.32 (7.29-9.51)	9.40 (8.19-10.8)	10.9 (9.19-13.0)	12.1 (9.95-14.7)	13.4 (10.6-16.6)	14.7 (11.0-18.7)	16.4 (11.8-21.6)	17.7 (12.4-23.7)
30-day	7.70 (6.82-8.72)	8.60 (7.61-9.75)	10.1 (8.89-11.5)	11.3 (9.91-12.9)	13.0 (11.0-15.3)	14.3 (11.8-17.2)	15.7 (12.4-19.3)	17.0 (12.9-21.6)	18.8 (13.6-24.6)	20.2 (14.2-26.9)
45-day	9.58 (8.53-10.8)	10.7 (9.51-12.1)	12.5 (11.1-14.1)	13.9 (12.3-15.8)	15.9 (13.4-18.5)	17.3 (14.3-20.6)	18.8 (14.9-22.9)	20.2 (15.3-25.3)	21.9 (15.9-28.5)	23.3 (16.4-30.8)
60-day	11.2 (10.0-12.6)	12.6 (11.2-14.1)	14.7 (13.0-16.5)	16.3 (14.4-18.5)	18.5 (15.7-21.4)	20.1 (16.8-23.7)	21.5 (17.1-26.1)	22.9 (17.4-28.7)	24.7 (18.0-31.8)	25.9 (18.4-34.2)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PROJECT / LOCATION: DPC: Alma Offsite Disposal Facility, Phase IV Landfill		PROJECT / PROPOSAL NO.
SUBJECT: Active Area Leachate Disposal Capacity		243332.0002
PREPARED BY: J. Hotstream	DATE: 8/31/2016	FINAL <input type="checkbox"/>
CHECKED BY:	DATE:	REVISION <input type="checkbox"/>

Volume Relationships of Sand

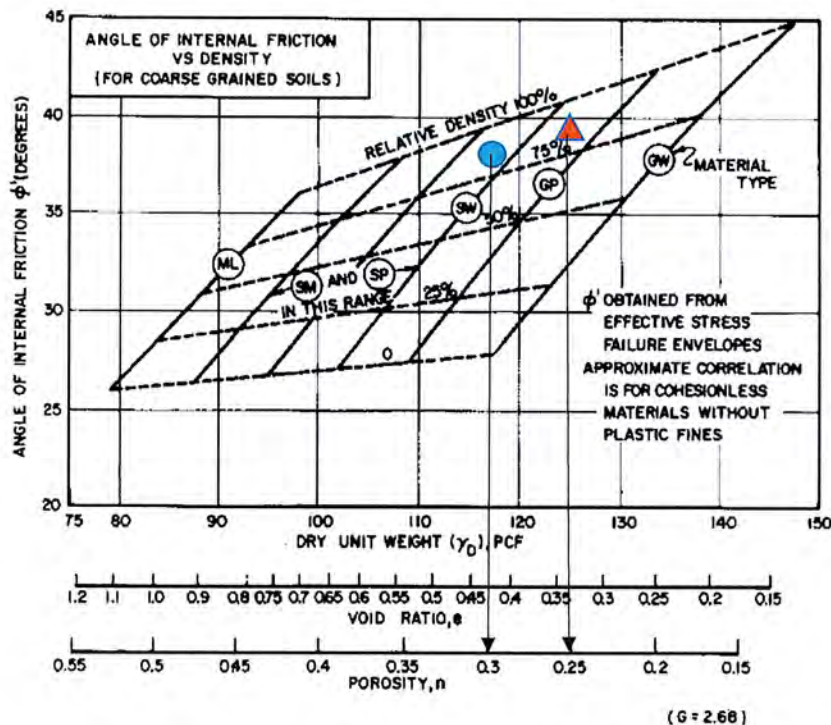
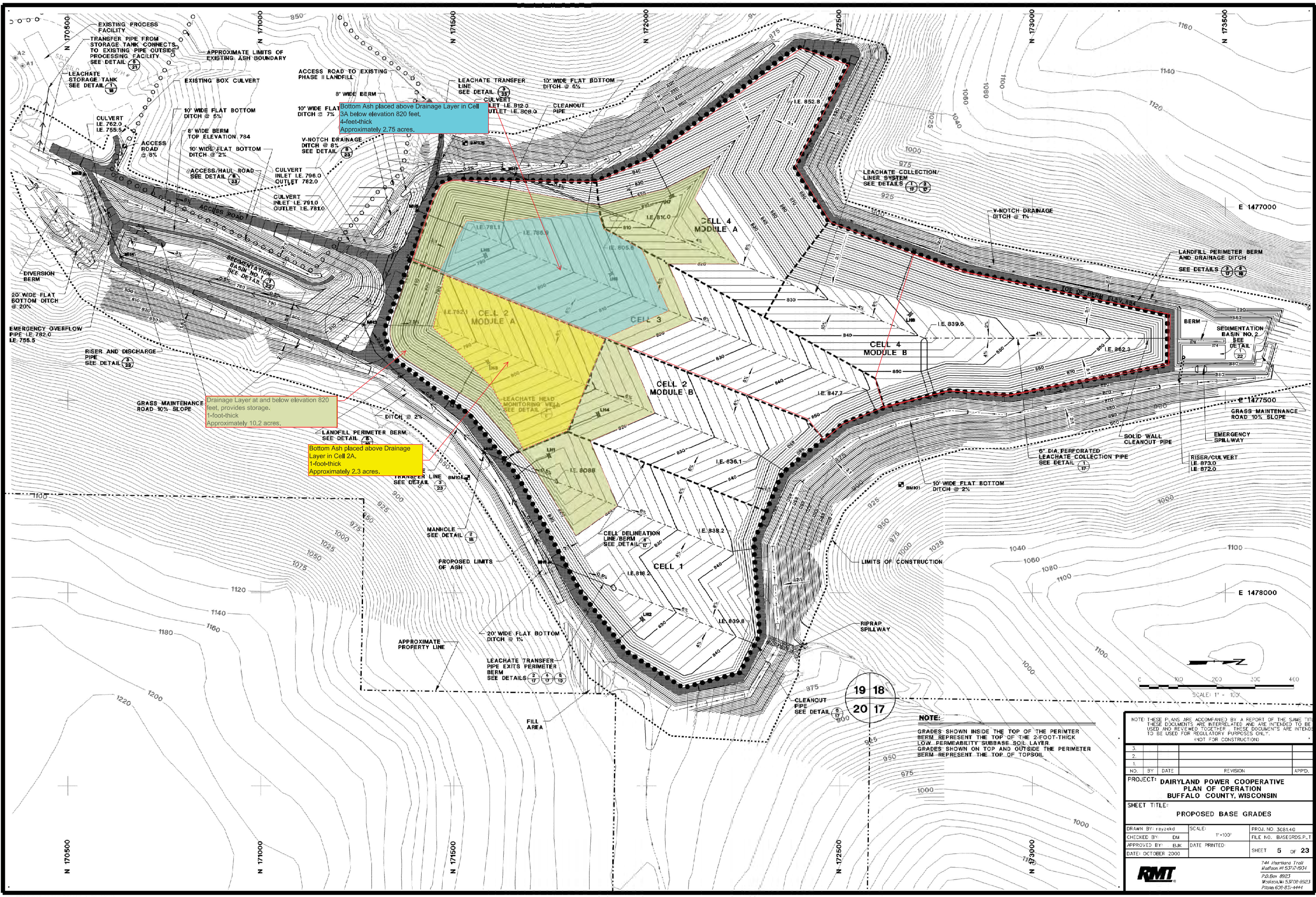


Figure from NavFac DM 7.1 (1986)

- Drainage Layer Sand - Poorly Graded Sand (SP)
- ▲ Bottom Ash - Poorly Graded Sand (SP) to Poorly Graded Gravel (GP)



Bottom Ash placed above Drainage Layer in Cell 3A below elevation 820 feet, 4-foot-thick Approximately 2.75 acres.

Drainage Layer at and below elevation 820 feet, provides storage, 1-foot-thick Approximately 10.2 acres.

Bottom Ash placed above Drainage Layer in Cell 2A, 1-foot-thick Approximately 2.3 acres.

NOTE:
GRADES SHOWN INSIDE THE TOP OF THE PERIMETER BERM REPRESENT THE TOP OF THE 2-FOOT-THICK LOW PERMEABILITY SUBBASE SOIL LAYER. GRADES SHOWN ON TOP AND OUTSIDE THE PERIMETER BERM REPRESENT THE TOP OF TOPSOIL.

NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY. (NOT FOR CONSTRUCTION)

NO.	BY	DATE	REVISION	APPD.
3				
2				
1				

PROJECT: DAIRYLAND POWER COOPERATIVE
PLAN OF OPERATION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE:
PROPOSED BASE GRADES

DRAWN BY: rsyzekd SCALE: 1"=100' PROJ. NO. 308140
CHECKED BY: DM DATE PRINTED: FILE NO. BASEGRD5.PLT
APPROVED BY: BLK DATE PRINTED: SHEET 5 OF 23
DATE: OCTOBER 2000

RMT
744 Hartland Trail
Madison WI 53717-9334
P.O. Box 8923
Madison WI 53708-8923
Phone: 608-831-4444

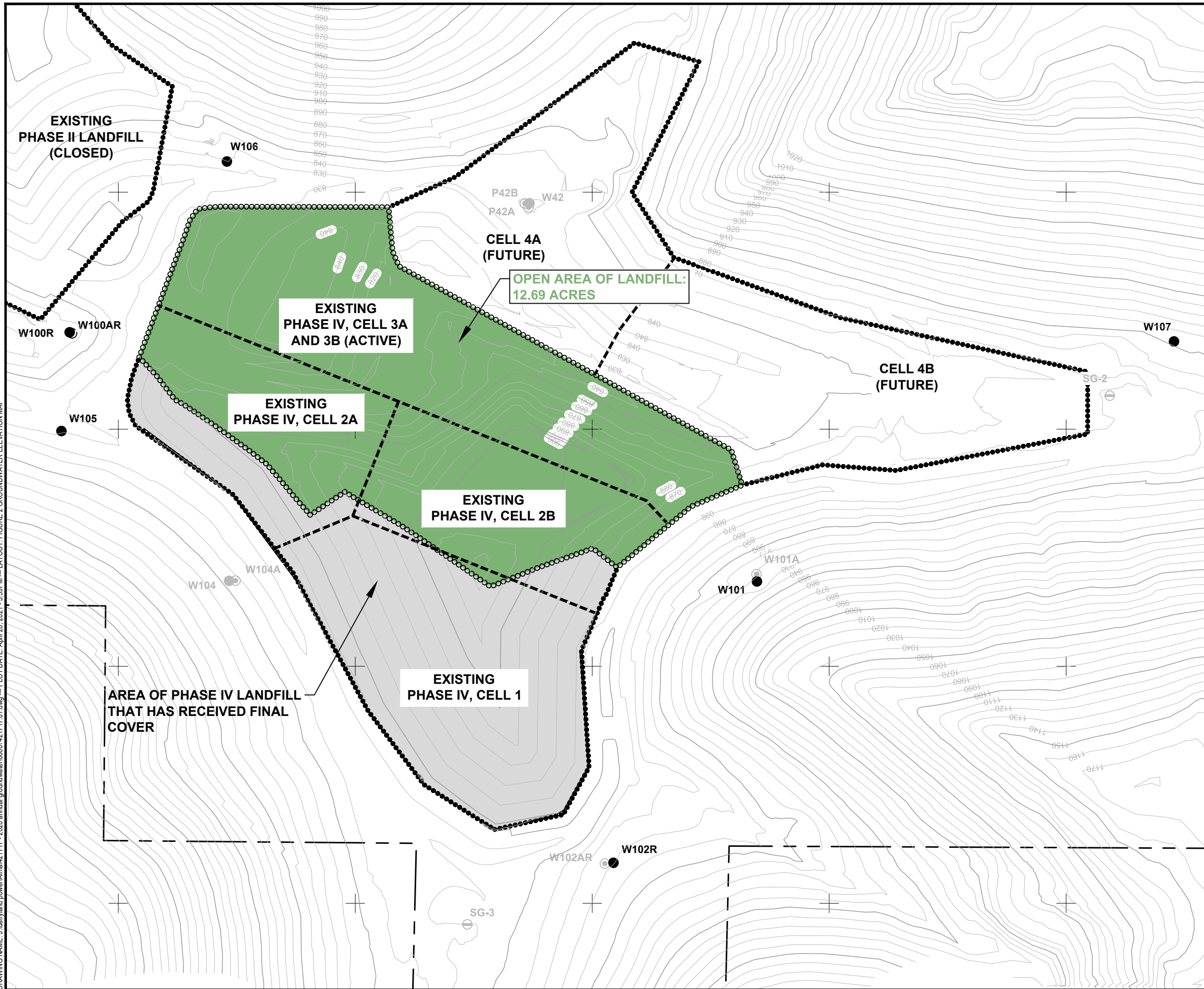
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3. 1"=100'
4. 1"=100'
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Reference Files:
REF 100 1 - 11/11/00
REF 101 1 - 11/11/00
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Print Date: 10/10/00
Print Time: 10:10:10
Plot Size: 11x17
Scale: 1"=100'
Date: 10/10/00
Time: 10:10:10

RMT COMPUTER AIDED DESIGN & DRAFTING

11x17 -- ATTACHED REFS: WELLS 200, GRID 200; PROPOSED: E3 2020-11-12 -- ATTACHED IMAGES: DRAWING NAME: J:\dairyland power\Alma\421717 - 2020 annual groundwater\0000_421717.01.dwg -- PLOT DATE: April 28, 2021 - 3:59PM -- LAYOUT: FIGURE 2 GROUNDWATER ELEVATION MAP
 Version: 2017-03-03



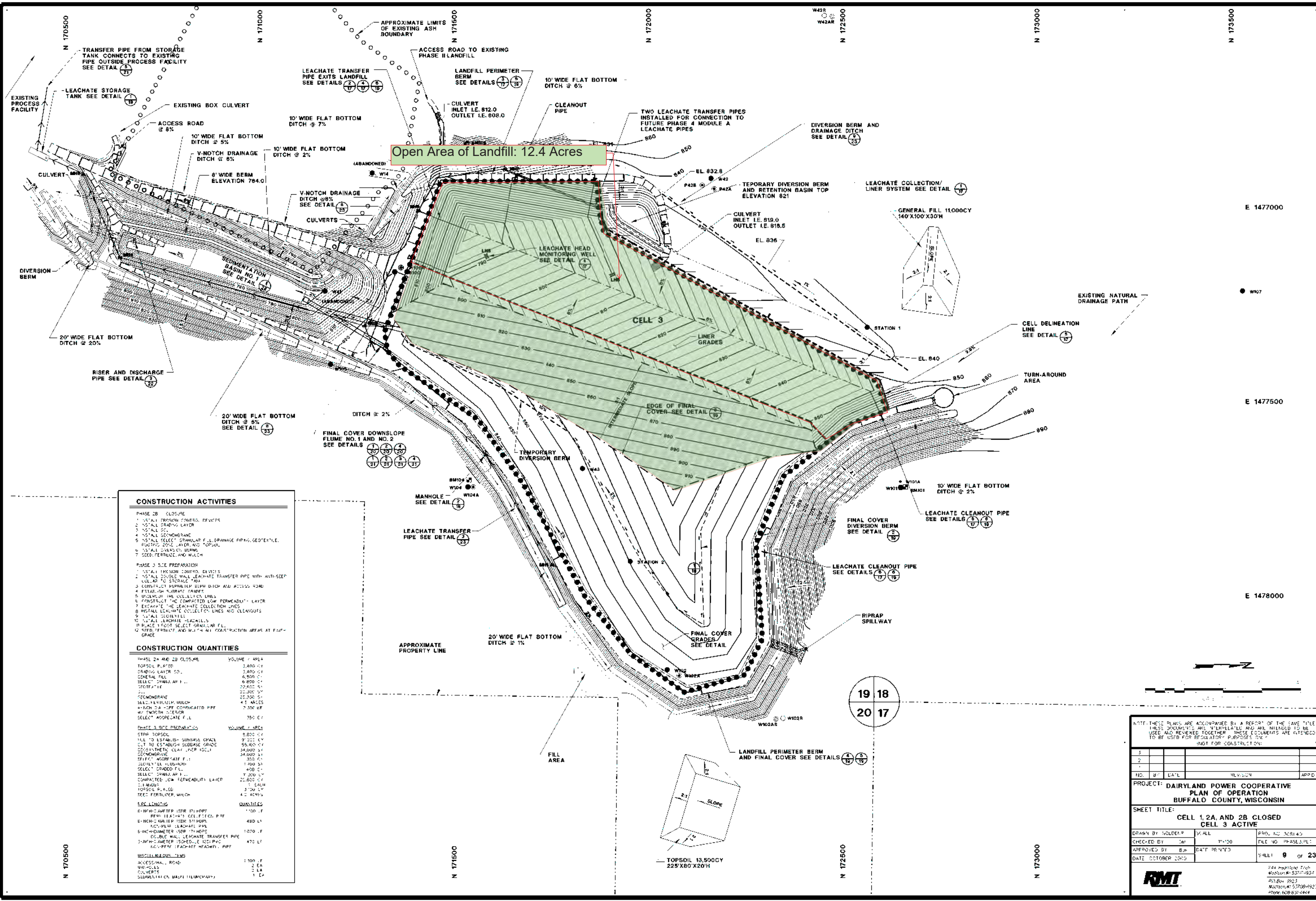
LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- GRID LOCATION
- EXISTING 10' CONTOUR
- EXISTING SPOT ELEVATION
- LIMITS OF PERMITTED LANDFILL
- LIMITS OF CCR DISPOSAL (ACTIVE LANDFILL)
- PHASE LINE
- W42 MONITORING WELL (NOT INCLUDED IN FEDERAL GWMP)
- W42B PIEZOMETER (NOT INCLUDED IN FEDERAL GWMP)
- W101 MONITORING WELL LOCATION
- W101A PIEZOMETER LOCATION

- ### NOTES
1. THE BASE MAP WAS COMPILED FROM THE CELL 3B LINER CONSTRUCTION DOCUMENTATION REPORT (OCTOBER, 2016) AND THE NOVEMBER 12, 2020 ANNUAL AIR SPACE SURVEY BY EXETER DESIGN, INC.
 2. THE HORIZONTAL DATUM IS REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983, US SURVEY FEET.
 3. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM 1988. CONTOUR INTERVAL IS 10 FEET.



PROJECT: DAIRYLAND POWER COOPERATIVE RUN-ON AND RUN-OFF CONTROL SYSTEMS PLAN ALMA OFF-SITE PHASE IV LANDFILL BUFFALO COUNTY, WISCONSIN	
WORKING COPY	
TITLE:	FIGURE 1
DRAWN BY: S. HAMWAY	PROJ NO.: 421717
CHECKED BY: B. KAHNK	
APPROVED BY:	
DATE: OCTOBER 2021	
708 Heartland Trail Suite 3000 Madison, WI 53717 Phone: 608.826.3600	
FILE NO.:	421717.01.dwg



NOTE: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY. NOT FOR CONSTRUCTION.

NO.	BY	DATE	REVISION	APP'D
1				
2				
3				

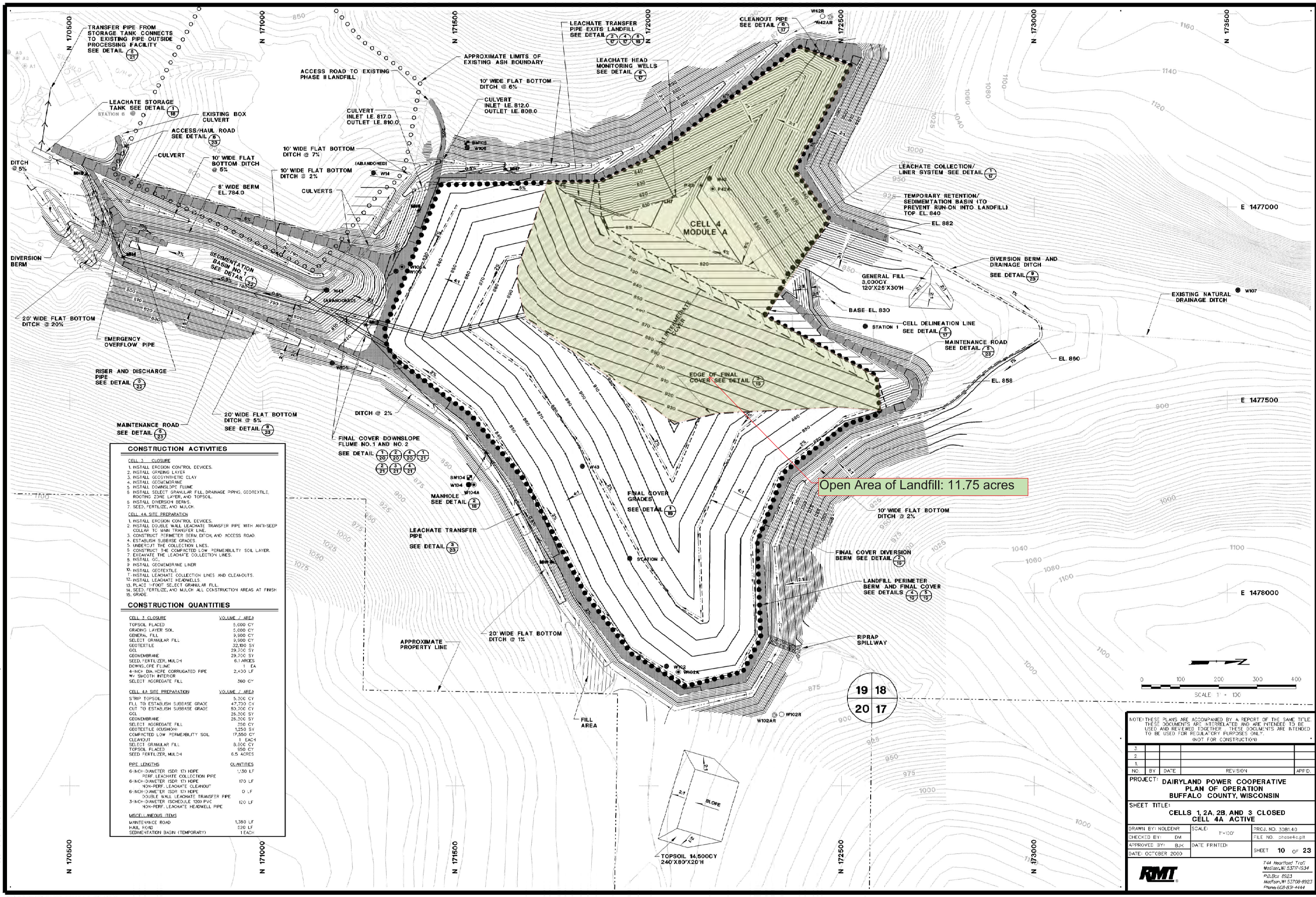
PROJECT: DAIRYLAND POWER COOPERATIVE PLAN OF OPERATION BUFFALO COUNTY, WISCONSIN

SHEET TITLE: CELL 1, 2A, AND 2B CLOSED CELL 3 ACTIVE

DRAWN BY: HOLDEP
 CHECKED BY: DM
 APPROVED BY: BJK
 DATE: OCTOBER 2003

SCALE: AS SHOWN
 FILE NO: PH-2513.PLT
 DATE PRINTED:
 SHEET 9 OF 23

RMT
 744 Highway Tech
 Madison WI 53717-9334
 P.O. Box 3623
 Madison, WI 53708-9923
 PHONE: 608.651-4444



CONSTRUCTION ACTIVITIES	
CELL 3 CLOSURE	
1. INSTALL EROSION CONTROL DEVICES.	
2. INSTALL GRADING LAYER	
3. INSTALL GEOSYNTHETIC CLAY	
4. INSTALL GEOMEMBRANE	
5. INSTALL DOWNSLOPE FLUME	
6. INSTALL SELECT GRANULAR FILL, DRAINAGE PIPING, GEOTEXTILE, ROOTING ZONE LAYER, AND TOPSOIL.	
7. SEED, FERTILIZE, AND MULCH.	
CELL 4A SITE PREPARATION	
1. INSTALL EROSION CONTROL DEVICES.	
2. INSTALL DOUBLE WALL LEACHATE TRANSFER PIPE WITH ANTI-SEEP COLLAR TO MAIN TRANSFER LINE.	
3. CONSTRUCT PERIMETER BERM, DITCH, AND ACCESS ROAD.	
4. ESTABLISH SUBBASE GRADES.	
5. UNDERCUT THE COLLECTION LINES.	
6. CONSTRUCT THE COMPACTED LOW PERMEABILITY SOIL LAYER.	
7. EXCAVATE THE LEACHATE COLLECTION LINES.	
8. INSTALL GCL.	
9. INSTALL GEOMEMBRANE LINER.	
10. INSTALL GEOTEXTILE.	
11. INSTALL LEACHATE COLLECTION LINES AND CLEANOUTS.	
12. INSTALL LEACHATE HEADWELLS.	
13. PLACE 3-FOOT SELECT GRANULAR FILL.	
14. SEED, FERTILIZE, AND MULCH ALL CONSTRUCTION AREAS AT FINISH.	
15. GRADE.	
CONSTRUCTION QUANTITIES	
CELL 3 CLOSURE	VOLUME / AREA
TOPSOIL PLACED	5,000 CY
GRADING LAYER SOL.	5,000 CY
GENERAL FILL	9,900 CY
SELECT GRANULAR FILL	9,900 CY
GEOTEXTILE	32,900 SY
GCL	29,700 SY
GEOMEMBRANE	29,700 SY
SEED, FERTILIZER, MULCH	6.1 ACRES
DOWNSLOPE FLUME	1 EA
4-INCH DIA. HDPE CORRUGATED PIPE	2,400 LF
W/ SMOOTH INTERIOR	
SELECT AGGREGATE FILL	360 CY
CELL 4A SITE PREPARATION	VOLUME / AREA
STRIP TOPSOIL	5,300 CY
FILL TO ESTABLISH SUBBASE GRADE	47,700 CY
CUT TO ESTABLISH SUBBASE GRADE	80,700 CY
GCL	28,500 SY
GEOMEMBRANE	28,500 SY
SELECT AGGREGATE FILL	250 CY
GEOTEXTILE (CUSHION)	1,250 SY
COMPACTED LOW PERMEABILITY SOIL	17,550 CY
CLEANOUT	1 EACH
SELECT GRANULAR FILL	8,800 CY
TOPSOIL PLACED	5,000 CY
SEED FERTILIZER, MULCH	6.5 ACRES
PIPE LENGTHS	QUANTITIES
6-INCH DIAMETER (SDR 17) HDPE	1,300 LF
REF. LEACHATE COLLECTION PIPE	
6-INCH DIAMETER (SDR 17) HDPE	170 LF
NON-REF. LEACHATE CLEANOUT	
6-INCH DIAMETER (SDR 17) HDPE	0 LF
DOUBLE WALL LEACHATE TRANSFER PIPE	120 LF
3-INCH DIAMETER (SCHEDULE 120) PVC	
NON-REF. LEACHATE HEADWELL PIPE	
MISCELLANEOUS ITEMS	
MAINTENANCE ROAD	1,380 LF
HAUL ROAD	520 LF
SEDIMENTATION BASIN (TEMPORARY)	1 EACH

Open Area of Landfill: 11.75 acres

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3				
2				
1				
NO.	BY	DATE	REVISION	APP'D.

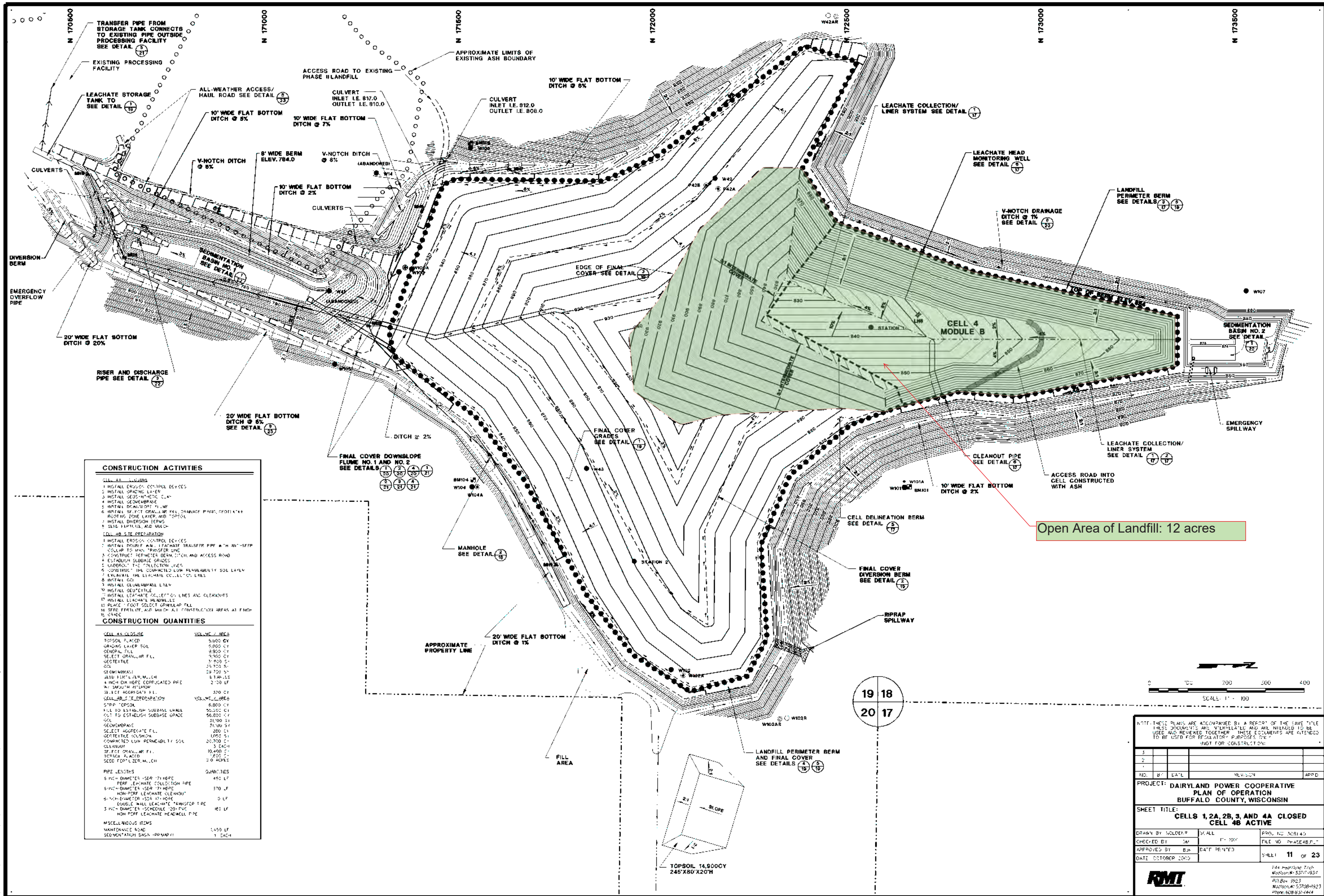
PROJECT: DAIRYLAND POWER COOPERATIVE
PLAN OF OPERATION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE:
CELLS 1, 2A, 2B, AND 3 CLOSED
CELL 4A ACTIVE

DRAWN BY: NOLDENR	SCALE: 1"=100'	PRGJ. NO. 308140
CHECKED BY: BW	DATE PRINTED:	FILE NO. sh08e4.cpl
APPROVED BY: BJK		SHEET 10 OF 23
DATE: OCTOBER 2000		

744 Heartland Trail
Madison, WI 53717-9344
Phone: 608-831-4444

Logical Names: 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 Reference Files: 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
 RMT COMPUTER AIDED DESIGN & DRAFTING



CONSTRUCTION ACTIVITIES

CELL 4B CLOSURE

1. INSTALL EROSION CONTROL DEVICES
2. INSTALL GRASSING LAYER
3. INSTALL GEOTEXTILE CLAY
4. INSTALL GEOMEMBRANE
5. INSTALL DRAINAGE PIPES
6. INSTALL 30" P.C. GRANULAR FILL DRAINAGE PIPES, PROTECTIVE ROOTING, ZONE LAYER, AND TOPSOIL
7. INSTALL DIVERSION BERMS
8. SEED TOPSOIL, ADD MULCH

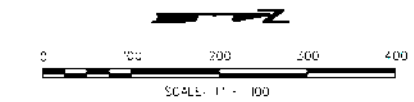
CELL 4B SITE PREPARATION

1. INSTALL EROSION CONTROL DEVICES
2. INSTALL DOUBLE WALL LEACHATE TRANSFER PIPE WITH 30" STIFF COLLAR TO MAIN TRANSFER LINE
3. CONSTRUCT SEDIMENTATION DITCH AND ACCESS ROAD
4. ESTABLISH SUBBASE GRADES
5. UNDERLAY T-2 COLLECTION LINES
6. CORRECTIVE THE COMPACTED LOW PENETRABILITY SOIL LAYER
7. EVALUATE THE LEACHATE COLLECTION LINES
8. INSTALL GCI
9. INSTALL GEOMEMBRANE LAYER
10. INSTALL GEOTEXTILE
11. INSTALL LEACHATE COLLECTION LINES AND CLEANOUTS
12. INSTALL LEACHATE MANHOLES
13. PLACE 1" FOOT SELECT GRANULAR FILL
14. SEED TOPSOIL, ADD MULCH - ALL CONSTRUCTION AREAS AT FINAL GRADE

CONSTRUCTION QUANTITIES

CELL 4B CLOSURE	QUANTITY / REQS
TOPSOIL PLACED	5,000 CY
GRASSING LAYER SOIL	5,000 CY
GENERAL FILL	2,800 CY
SELECT GRANULAR FILL	3,900 CY
GEOTEXTILE	3,200 SF
GCI	25,700 SF
GEOMEMBRANE	29,700 SF
30" P.C. GRANULAR FILL	8,100 SF
4" INCH DIA HERS CORRUGATED PIPE	2,100 LF
30" SELECT GRANULAR FILL	320 CY
CELL 4B SITE PREPARATION	10,800 CY
3" TOP SOIL	6,800 CY
FILL TO ESTABLISH SUBBASE GRADE	50,500 CY
FILL TO ESTABLISH SUBBASE GRADE	56,800 CY
GCI	25,700 SF
GEOMEMBRANE	29,700 SF
SELECT GRANULAR FILL	280 CY
GEOTEXTILE	1,800 SF
COMPACTED LOW PENETRABILITY SOIL	20,700 CY
CLEANOUT	3 EACH
30" P.C. GRANULAR FILL	10,400 SF
TOPSOIL PLACED	2,400 CY
SEED TOPSOIL, MULCH	2.0 ACRES
PIPE LENGTHS	QUANTITIES
6" DIA. DIAMETER 1/2" HERS	450 LF
PERF. LEACHATE COLLECTION PIPE	370 LF
6" DIA. DIAMETER 1/2" HERS	370 LF
NON-PERF. LEACHATE CLEANOUT	0 LF
6" DIA. DIAMETER 1/2" HERS	0 LF
DOUBLE WALL LEACHATE TRANSFER PIPE	180 LF
6" DIA. DIAMETER 1/2" HERS	180 LF
NON-PERF. LEACHATE HEADWELL PIPE	0 LF
MISCELLANEOUS ITEMS	1,450 LF
MAINTENANCE ROAD	1 EACH
SEDIMENTATION BASIN RIPRAP	1 EACH

Open Area of Landfill: 12 acres



NOT: THESE PLANS ARE ACCOMPANIED BY A REPORT OF THE SAME TITLE THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED AND REVIEWED TOGETHER. THESE DOCUMENTS ARE INTENDED TO BE USED FOR REGULATORY PURPOSES ONLY. NOT FOR CONSTRUCTION.

NO.	REV.	DATE	REVISION	APP'D.
1				
2				
3				
4				

PROJECT: DAIRYLAND POWER COOPERATIVE
PLAN OF OPERATION
BUFFALO COUNTY, WISCONSIN

SHEET TITLE:
CELLS 1, 2A, 2B, 3, AND 4A CLOSED
CELL 4B ACTIVE

DRAWN BY: HOLDEP
SCALE: 1" = 100'
PROJ. NO: ACR145

CHECKED BY: JMK
FILE NO: P-ASE4B.PLT

APPROVED BY: BJK
DATE PRINTED: SHEET 11 OF 23

DATE: OCTOBER 2010

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