

Technical Memo



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Exceptional outcomes.

To: Geoff Strack, P.E., SKB Environmental

From: Brad Sullivan, P.E., Wenck Associates, Inc.

Date: January 9, 2019

Subject: SKB Rosemount Industrial Waste Facility – 2018 Annual CCR Inspection
Wenck Project # B3053-0138

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

A handwritten signature in black ink, appearing to read 'Brad Sullivan', is written over a horizontal line.

Bradley W Sullivan
PE # 56502

January 9, 2019

Purpose

This memorandum fulfills the requirements of 40 CFR § 257.84 Inspection Requirements for coal combustion residue (CCR) Surface Landfills, Part b, regarding an annual inspection by a qualified professional engineer.

Background and Applicability

SKB Environmental, Inc. owns and operates the SKB Rosemount Industrial Waste Facility, an industrial waste disposal facility operating under MPCA Solid Waste Permit SW-383, originally issued in January of 1992.

The site is located on a 236-acre parcel in Sections 19, 20 and 25 of Township 115 North, Range 18 West, in the City of Rosemount, Minnesota, which is in Dakota County. The site is located between Minnesota State Highway 55 (aka Courthouse Boulevard) and Dakota County Road 38, and is accessed via 13425 Courthouse Boulevard, Rosemount, MN 55068.

There are 6 permitted disposal cells in the Landfill. Operating records indicate that CCR Material is contained in Cells 1, 2 and 3. See Figure 1 for a facility site plan.

CCR Landfill Inspection (40 CFR § 257.84)

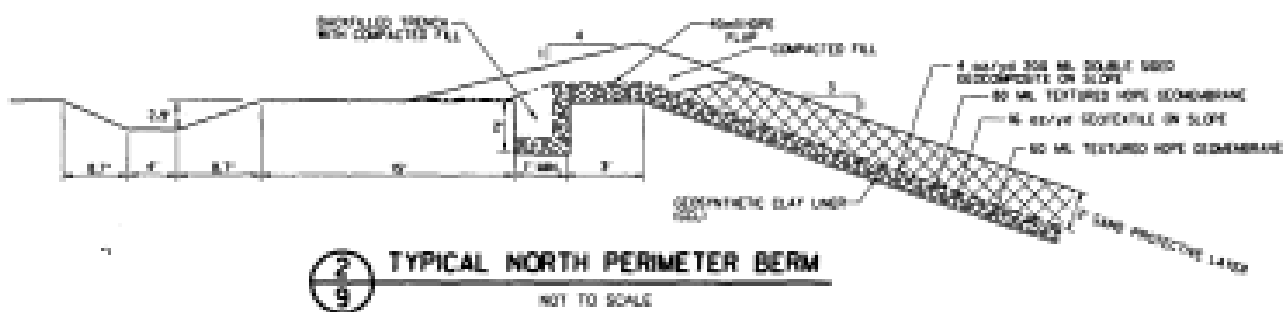
On November 6, 2018, Mr. Geoff Strack, P.E. of Waste Connections and Mr. Brad Sullivan, P.E., of Wenck conducted the on-site inspection of the CCR Landfill. As part of the inspection, the following operating and inspection records were reviewed:

- ▲ Review of weekly visual CCR inspections performed by landfill operators;
- ▲ Previous annual inspections performed by a licensed professional engineer;
- ▲ CCR unit design and construction information required by § 257.73(c)(1); and
- ▲ Previous periodic structural stability assessments required under § 257.73(d).

It should be noted that §257.74 does not apply as the site is not new, nor is it a lateral expansion of an existing impoundment/landfill, therefore this is not addressed.

Landfill Cell Design

In general, most of the facility's landfill cell embankments were constructed using granular borrow material, which consisted of silty clay and clayey sand type soils. The fill was placed and compacted to 95% of Standard Proctor Dry Density in lift thicknesses ranging from 8 inches to 12 inches. The final subgrade surface was proof rolled prior to geosynthetics installation. A typical perimeter section taken from the Cell 3A Construction Documentation Report prepared by Foth & Van Dyke dated October 2005 is shown below.



During the inspection, no signs of landfill cell embankment distress, no signs of waste slope instability, or other CCR landfill issues were observed. The landfill embankments and interim covered slopes were generally in good condition with a well-established vegetation cover and no signs of significant erosion.

Photos of the landfill embankments and waste slopes were taken during the inspection. Figure 1 presents the photo locations, and Attachment 1 contains a photo log from the inspections.

CCR Landfill Inspection Report

40 CFR § 257.84, Subpart b.2 requires the following topics in italics be addressed within this report. The requirements are shown in italics with the response immediately afterwards for each item.

- (i) *Any changes in geometry of the impounding structure since the previous annual inspection;*

Construction of Cell 3F was partially complete during this CCR inspection. Cell 3F's design entails an overlay liner connected to the southwestern anchor trench of Cells 2D, 3A, and 3C, and is constructed over the top of Cells 5A, B, and C. At the time of the inspection, the toe of the waste slope of Cells 2D, 3A, and 3C was excavated as to expose the anchor trench for the connection of the overlay liner. The Cell 3F overlay liner's secondary liner was substantially installed, but not yet connected to the existing industrial waste (CCR) landfill. Cell 3F construction is anticipated to be completed by the end of 2018. Other than the excavate toe of the waste slope, the southwestern waste slope was

substantially unchanged from the previous annual inspection, other than the active filling area.

Since the previous annual CCR inspection, the outer northwestern waste slopes of Cell 3E have been substantially filled. Cell 3E is the valley fill between Cell 1 and Cell 2A and is located along on the northwestern anchor trench. Cell 3E's waste slopes have been filled to match the adjacent cell's waste slopes. The northwestern landfill anchor trench and embankment are otherwise unchanged from the previous annual CCR inspection.

There were no other apparent changes to the embankment geometry of any other landfill cell when compared to the permit drawings or the past inspection reports.

The annual aerial photogrammetry survey was performed on November 14, 2018, which the estimated in-place volume is based on. A comparison of the 2018 and 2017 aerial surveys confirm that the embankment and slope topography is substantially unchanged with no significant movement. The 2018 aerial survey is included as Figure 2.

- (ii) *The approximate volume of CCR contained in the unit at the time of the inspection;*

The approximate volume of CCR material contained in the landfill at the time of the inspection is 632,300 cubic yards.

- (iii) *Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures; and*

None of the following were observed that could indicate structural weakness;

- Signs of slumping or rotational movement;
- Lateral or vertical distortion of the embankment crest;
- Seepage on the outboard slope; or
- Borrowing or damage due to vectors.

- (iv) *Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.*

There were no changes noted that may could potentially affect the stability or operation of the impoundment. Observations were consistent with those noted in that report.

Notification Requirements

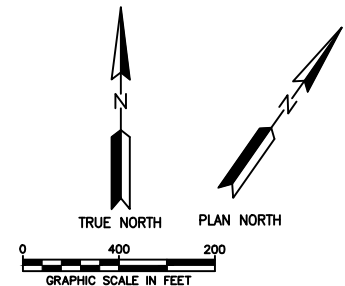
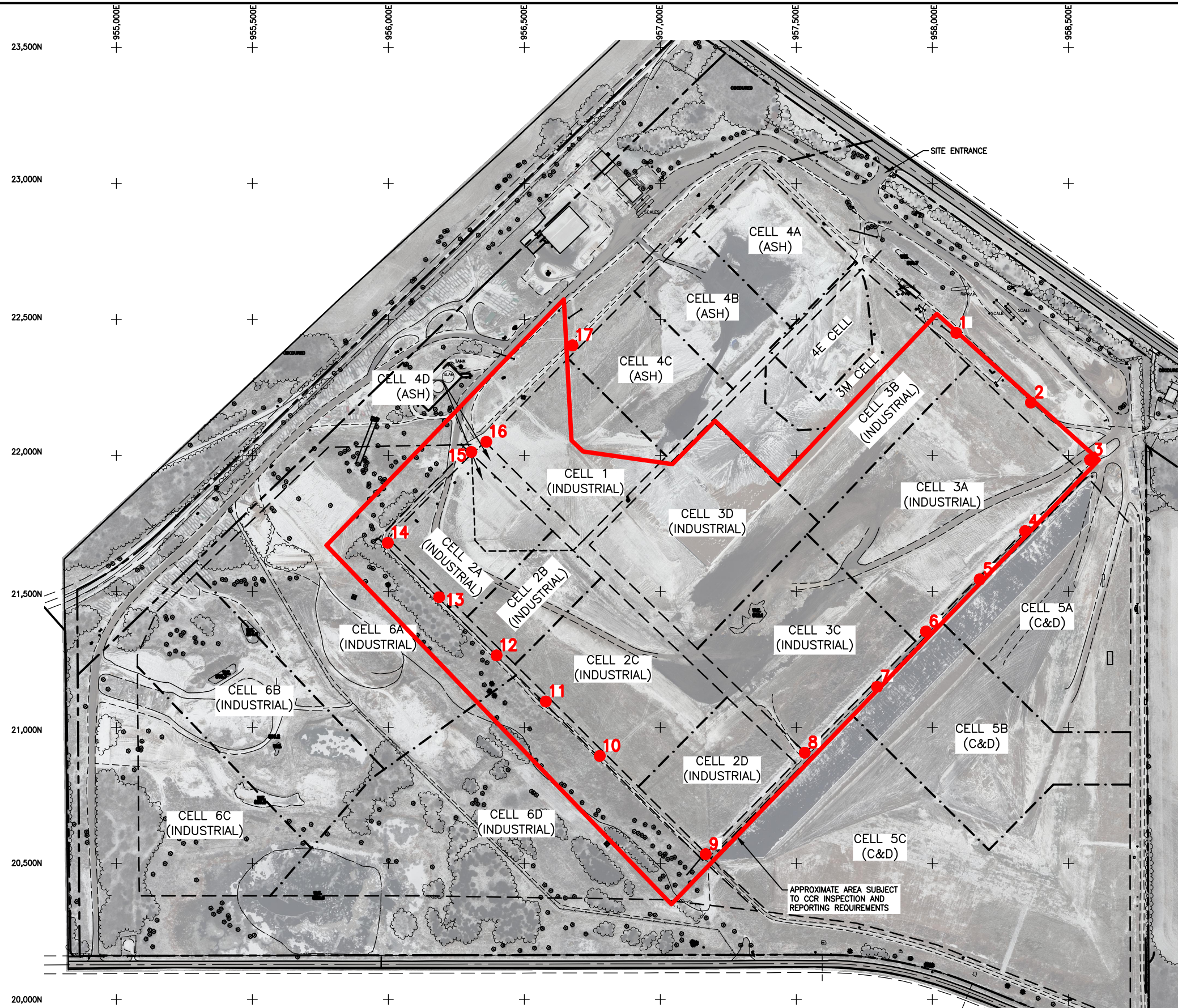
The SKB Rosemount Industrial Waste Landfill is in compliance with the recordkeeping requirements specified in § 257.105(g), the notification requirements specified in § 257.106(g), and the internet requirements specified in § 257.107(g).

Conclusions and Recommendations

It is recommended that the trees rooted in the southern perimeter berms be monitored as part of future annual inspections. Observations requiring action would be signs of the tops of the trees leaning away from the slope. This leaning can cause concentrated stresses in the slope that, in some cases, can induce slumping of the slope's fill materials. All other recommendations presented in the previous inspection report were implemented.

The SKB Rosemount Landfill facility has been constructed in operated in accordance with the facility permit and the CCR regulations. No embankment or waste slope stability issues were observed during the visual inspection.

40 CFR § 257.83, Subpart b.5 and 40 CFR § 257.84, Subpart b.5 each require that if a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken. There were no deficiencies or releases related to CCR operations identified during the inspection.



LEGEND
 ● PHOTO LOCATIONS

NOTE:
 BASE MAPPING HAS BEEN UPDATED BY AERIAL SURVEY PROVIDED BY CONTINENTAL MAPPING COMPLETED ON NOVEMBER 14, 2018.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT

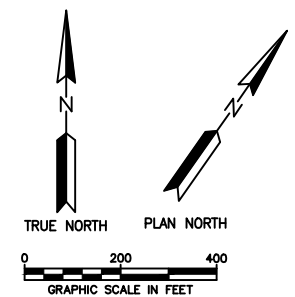
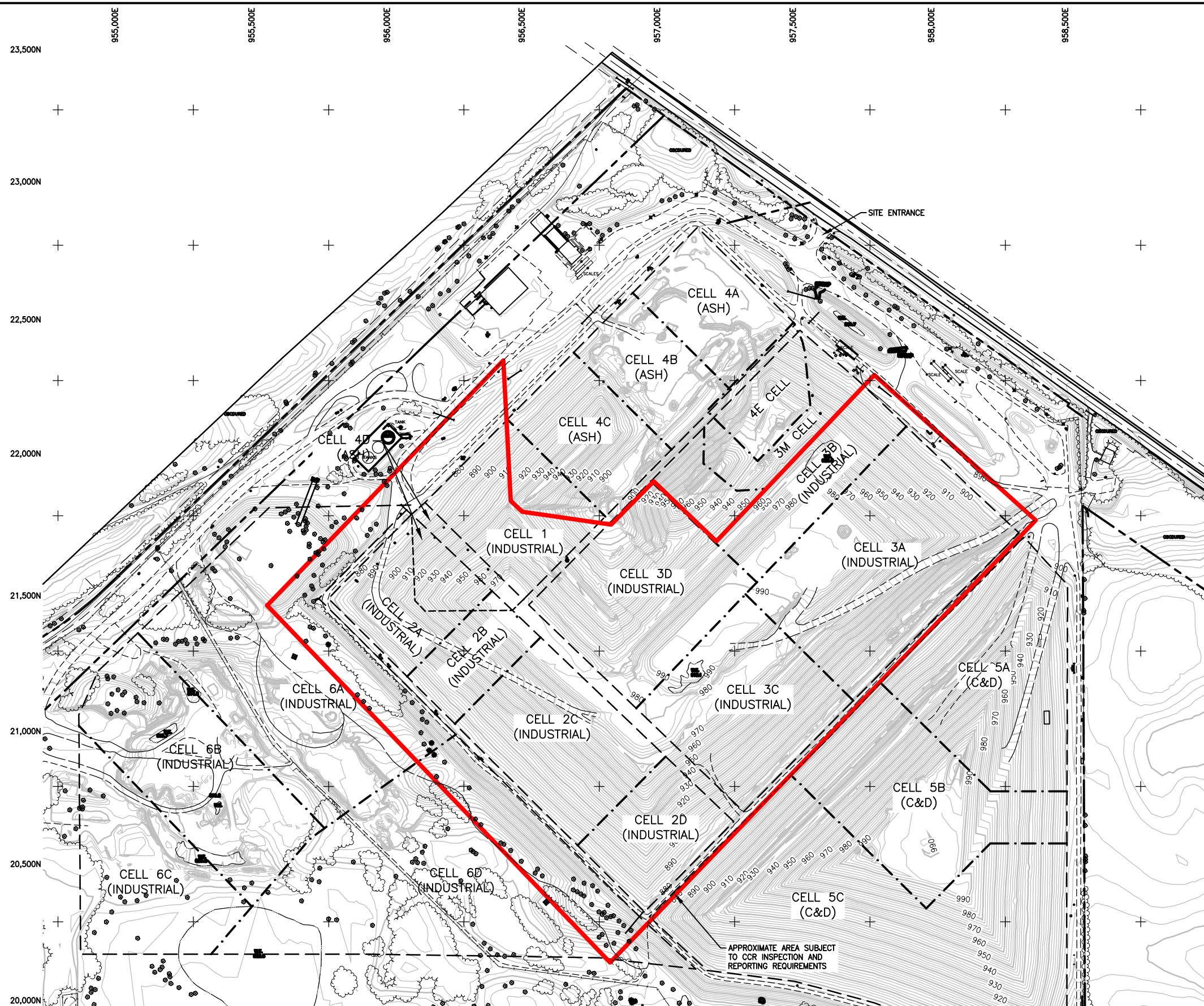
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1800 PIONEER CREEK CENTER 763-479-4242
 MAPLE PLAIN, MINNESOTA 763-749-4200

PROJECT TITLE
2018 CCR INSPECTION REPORT

SKB ROSEMOUNT LANDFILL
 ROSEMOUNT, MINNESOTA

SHEET TITLE			
PHOTO LOCATIONS			
DWN BY	CHK'D	APP'D	DWG DATE
JVB	DMP	DMP	JAN. 2018
PROJECT NO.		SCALE	
3053-0138		AS NOTED	
SHEET NO.		REV NO.	
FIGURE 1		0	



NOTE: BASE MAPPING HAS BEEN UPDATED BY ARIAL SURVEY PROVIDED BY CONTINENTAL MAPPING COMPLETED ON NOVEMBER 14, 2018.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

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1800 PIONEER CREEK CENTER 763-479-4242
 MAPLE PLAIN, MINNESOTA 763-749-4200

PROJECT TITLE
2018 CCR INSPECTION REPORT

SKB ROSEMOUNT LANDFILL
 ROSEMOUNT, MINNESOTA

SHEET TITLE			
SITE MAP			
DWN BY	CHK'D	APP'D	DWG DATE
JVB	DMP	DMP	JAN. 2019
PROJECT NO.		SCALE	
3053-0138		AS NOTED	
SHEET NO.		REV NO.	
FIGURE 2		0	

SKB Environmental
Rosemount Landfill
2018 Site Inspection Report Photo List
Inspection Date: 11/6/2018

Photo #	Photo Location	View Direction	Description
1	1	Southeast	Cell 3A & 3B Waste Slope & Anchor Trench
2	1	Northwest	Cell 3 Berm
3	2	Northwest	Cell 3 Berm & Stormwater Pond
4	2	Northwest	Cell 3 Anchor Trench and Waste Slope
5	2	Southeast	Phase 3A Anchor Trench and Northeastern Waste Slope
6	3	Northwest	Phase 3A Anchor Trench and Northeastern Waste Slope
7	3	West	Phase 3 East Corner & Interior Access Road
8	3	Southwest	Southeastern Anchor Trench & New Liner Construction
9	4	Southwest	Southeastern Slope, Anchor Trench & New Liner Construction
10	4	Northeast	Southeastern Slope, Anchor Trench & New Liner Construction
11	5	Northeast	Southeastern Slope, Anchor Trench & New Liner Construction
12	5	Southwest	Southeastern Slope, Anchor Trench & New Liner Construction
13	6	Northeast	Southeastern Slope, Anchor Trench & New Liner Construction
14	6	Southwest	Southeastern Slope, Anchor Trench & New Liner Construction
15	8	Northeast	Southeastern Slope, Anchor Trench & New Liner Construction
16	8	Southwest	Southeastern Slope, Anchor Trench & New Liner Construction
17	9	Northeast	Southeastern Slope, Anchor Trench & New Liner Construction
18	9	Northwest	Cell 2D Southwestern Slope and Perimeter Road
19	9	North	Cell 2D Southwestern Berm
20	10	Southeast	Cell 2D Southwestern Slope, Anchor Trench, and Road
21	10	Southeast	Cell 2D Southwestern Berm
22	10	Northwest	Cell 2C Southwestern Slope, Anchor Trench, and Road
23	10	Northwest	Cell 2C Southwestern Berm
24	11	Southwest	Cell 2C Southwestern Berm
25	11	Southwest	Cell 2C Southwestern Waste Slope and Anchor Trench
26	11	Northwest	Cell 2C & 2B Southwestern Waste Slope and Anchor Trench
27	12	Southeast	Cell 2C Southwestern Waste Slope and Anchor Trench
28	12	Southeast	Cell 2C Southwestern Berm
29	12	Northwest	Cell 2B Southwestern Waste Slope and Anchor Trench
30	12	Northwest	Cell 2B Southwestern Berm
31	13	Northwest	Cell 2A Southwestern Berm
32	13	Southeast	Looking Southeast, Cell 2B Southwestern Berm
33	13	Northwest	Cell 2A Southwestern Waste Slope and Perimeter Road
34	13	Southeast	Cell 2B Southwestern Waste Slope and Perimeter Road
35	14	Southeast	Cell 2A Southwestern Berm
36	14	Southeast	Cell 2A Southwestern Waste Slope
37	14	Northeast	Cell 2A Northwestern Berm
38	14	Northeast	Cell 2A Northwestern Perimeter Road and Anchor Trench
39	15	Southwest	Cell 2A Northwestern Berm
40	15	Southwest	Cell 2A Northwestern Waste Slope and Anchor Trench
41	15	Northeast	Cell 1 Northwestern Waste Slope
42	17	Southwest	Cell 1 Northwestern Berm
43	17	South	Cell 1 Limit of Industrial Waste (CCR)

2018 Rosemount Landfill CCR Inspection



Photo 1: Location 1 – Looking Southeast, Cell 3A & 3B Waste Slope & Anchor Trench



Photo 2: Location 1 – Looking Northwest, Cell 3 Berm

2018 Rosemount Landfill CCR Inspection



Photo 3: Location 2 – Looking Northwest, Cell 3 Berm & Stormwater Pond



Photo 4: Location 2 – Looking Northwest, Cell 3 Anchor Trench and Waste Slope

2018 Rosemount Landfill CCR Inspection



Photo 5: Location 2 – Looking Southeast, Phase 3A Anchor Trench and Northeastern Waste Slope



Photo 6: Location 3 – Looking Northwest, Phase 3A Anchor Trench and Northeastern Waste Slope

2018 Rosemount Landfill CCR Inspection



Photo 7: Location 3 – Looking West, Phase 3 East Corner & Interior Access Road



Photo 8: Location 3 – Looking Southwest, Southeastern Slope, Anchor Trench & New Liner Construction

2018 Rosemount Landfill CCR Inspection



Photo 9: Location 4 – Looking Southwest, Southeastern Slope, Anchor Trench & New Liner Construction



Photo 10: Location 4 – Looking Northeast, Southeastern Slope, Anchor Trench & New Liner Construction

2018 Rosemount Landfill CCR Inspection



Photo 11: Location 5 – Looking Northeast, Southeastern Slope, Anchor Trench & New Liner Construction



Photo 12: Location 5 – Looking Southwest, Southeastern Slope, Anchor Trench & New Liner Construction

2018 Rosemount Landfill CCR Inspection



Photo 13: Location 6 – Looking Northeast, Southeastern Slope, Anchor Trench & New Liner Construction



Photo 14: Location 6 – Looking Southwest, Southeastern Slope, Anchor Trench & New Liner Construction

2018 Rosemount Landfill CCR Inspection



Photo 15: Location 8 – Looking Northeast, Southeastern Slope, Anchor Trench & New Liner Construction



Photo 16: Location 8 – Looking Southwest, Southeastern Slope, Anchor Trench & New Liner Construction

2018 Rosemount Landfill CCR Inspection



Photo 17: Location 9 – Looking Northeast, Southeastern Slope, Anchor Trench & New Liner Construction



Photo 18: Location 9 – Looking Northwest, Cell 2D Southwestern Slope and Perimeter Road

2018 Rosemount Landfill CCR Inspection



Photo 19: Location 9 – Looking North, Cell 2D Berm



Photo 20: Location 10 – Looking Southeast, Cell 2D Southwestern Slope, Anchor Trench, and Road

2018 Rosemount Landfill CCR Inspection



Photo 21: Location 10 – Looking Southeast, Cell 2D Berm



Photo 22: Location 10 – Looking Northwest, Cell 2C Southwestern Slope, Anchor Trench, and Road

2018 Rosemount Landfill CCR Inspection



Photo 23: Location 10 – Looking Northwest, Cell 2C Cell 2C Southwestern Berm



Photo 24: Location 11 – Looking Southwest, Cell 2C Southwestern Berm

2018 Rosemount Landfill CCR Inspection



Photo 25: Location 11 – Looking Southwest, Cell 2C Southwestern Waste Slope and Anchor Trench



Photo 26: Location 11 – Looking Northwest, Cell 2C & 2B Southwestern Waste Slope and Anchor Trench

2018 Rosemount Landfill CCR Inspection



Photo 27: Location 12 – Looking Southeast, Cell 2C Southwestern Waste Slope and Anchor Trench



Photo 28: Location 12 – Looking Southeast, Cell 2C Southwestern Berm

2018 Rosemount Landfill CCR Inspection



Photo 29: Location 12 – Looking Northwest, Cell 2B Southwestern Waste Slope and Anchor Trench



Photo 30: Location 12 – Looking Northwest, Cell 2B Southwestern Berm

2018 Rosemount Landfill CCR Inspection



Photo 31: Location 13 – Looking Northwest, Cell 2A Southwestern Berm



Photo 32: Location 13 – Looking Southeast, Cell 2B Southwestern Berm

2018 Rosemount Landfill CCR Inspection



Photo 33: Location 13 – Looking Northwest, Cell 2A Southwestern Waste Slope and Perimeter Road



Photo 34: Location 13 – Looking Southeast, Cell 2B Southwestern Waste Slope and Perimeter Road

2018 Rosemount Landfill CCR Inspection



Photo 35: Location 14 – Looking Southeast, Cell 2A Southwestern Berm



Photo 36: Location 14 – Looking Southeast, Cell 2A Southwestern Waste Slope

2018 Rosemount Landfill CCR Inspection



Photo 37: Location 14 – Looking Northeast, Cell 2A Northwestern Berm



Photo 38: Location 14 – Looking Northeast, Cell 2A Northwestern Perimeter Road and Anchor Trench

2018 Rosemount Landfill CCR Inspection



Photo 39: Location 15 – Looking Southwest, Cell 2A Northwestern Berm



Photo 40: Location 15 – Looking Southwest, Cell 2A Northwest Waste Slope and Anchor Trench

2018 Rosemount Landfill CCR Inspection



Photo 41: Location 15 – Looking Northeast, Cell 1 Northwestern Waste Slope



Photo 42: Location 17 – Looking Southwest, Cell 1 Northwestern Berm

2018 Rosemount Landfill CCR Inspection



Photo 43: Location 17 – Looking South, Cell 1 Limit of Industrial Waste (CCR)