Technical Memo

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To: Geoff Strack, P.E., Waste Connections

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

Date: January 9, 2020

Subject: SKB Environmental Cloquet Landfill
dba Shamrock Landfill, Inc.
2019 Annual CCR Inspection Report
Wenck Project #B3053-0182

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.

Bradley W Sullivan
January 9, 2020 PE # 56502

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 Cloquet Landfill Inc., f/n/a Shamrock Landfill, Inc. owns and operates the Shamrock Environmental Landfill which is a secure landfill permitted to accept industrial waste, including CCR waste. The facility is situated on an approximately 59-acre parcel of land located at Section 25, Township 49 North, Range 17 West, Carlton County with a street address of 761 MN Highway 45 in Cloquet, Minnesota. Currently, 17.8 acres of lined landfill are constructed of the permitted 41.5-acre footprint. Phase 5A & 6A became operational in 2018.

Prior to the completion of Phase 5A & 6A, filling operations were primarily in Phases 3 and 4, though some waste was disposed in Phases 1 & 2. Following their completion, filling operations were primarily in 5A &6A, although Phases 1 through 4 remained operational and received some waste. The Facility is operated under the MPCA Solid Waste Permit SW-399.

See Figure 1 for a facility site plan.

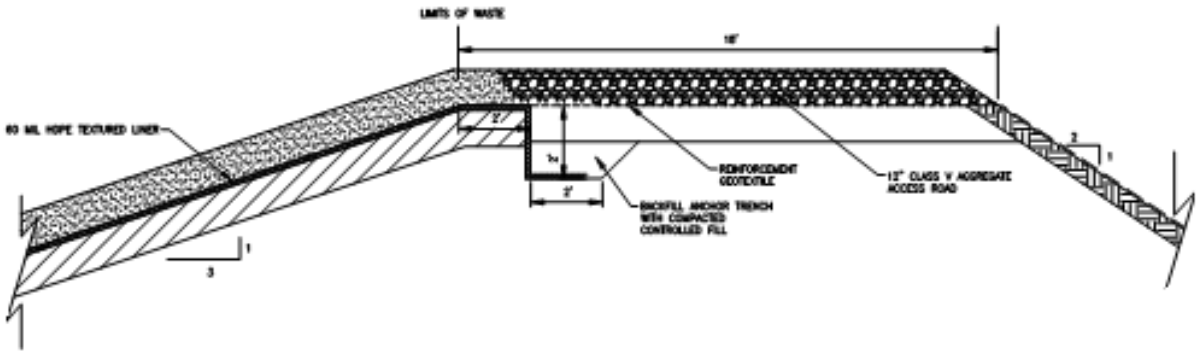
CCR Landfill Inspection (40 CFR § 257.84)

On November 5, 2019, Mr. Geoff Strack, P.E. of Waste Connections and Mr. Brad Sullivan, P.E. of Wenck and 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
Most of the facility's landfill cell embankments were constructed using on-site 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 Phase 3 and 4 Construction Documentation Report prepared by Wenck in September 2015 is shown below.



Typical Landfill Berm Detail

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 were taken during the inspection. Figure 1 presents the photo locations, and Attachment 1 contains a photo log and the photos taken.

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;

There were no apparent changes to the embankment geometry of Cells 1, 2, 3, or 4 when compared to the permit drawings or the past inspection reports. The annual aerial photogrammetry survey was performed on October 18, 2019, which the estimated in-place volume is based on. A comparison 2019 and 2018 aerial survey confirm that the embankment and slope topography is substantially unchanged with no significant movement. The 2019 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 51,600 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

Shamrock 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

All recommendations presented in the previous inspection report were implemented.

The SKB Environmental Cloquet 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 identified during the inspection that require remedy as soon as possible.

Plot Date & Time: 15 January 2020 1:36 PM

LEGEND

- EXISTING CONTOURS
- EXISTING ROAD
- EXISTING MONITORING WELL
- PROPERTY LINE/ COMPLIANCE BOUNDARY
- PROPOSED WASTE LIMITS
- PHASE BOUNDARY
- EXISTING FORCEMAIN
- TELEPHONE
- ELECTRICAL
- RAILROAD
- TREES

NOTEs:

1. COORDINATES ARE BASED ON CARLTON COUNTY COORDINATE SYSTEM.
2. BASE MAPPING HAS BEEN UPDATED BY AERIAL SURVEY PROVIDED BY CONTINENTAL MAPPING COMPLETED ON OCTOBER 18, 2019.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT

WENCK ASSOCIATES

Responsive partner. Exceptional outcomes.

1800 PIONEER CREEK CENTER
MAPLE PLAIN, MINNESOTA
P 763-479-4294
F 763-479-4242

PROJECT TITLE
2019 CCR INSPECTION REPORT

SKB ENVIRONMENTAL CLOQUET LANDFILL, INC.
f/n/a SHAMROCK LANDFILL, INC

CLOQUET, MINNESOTA

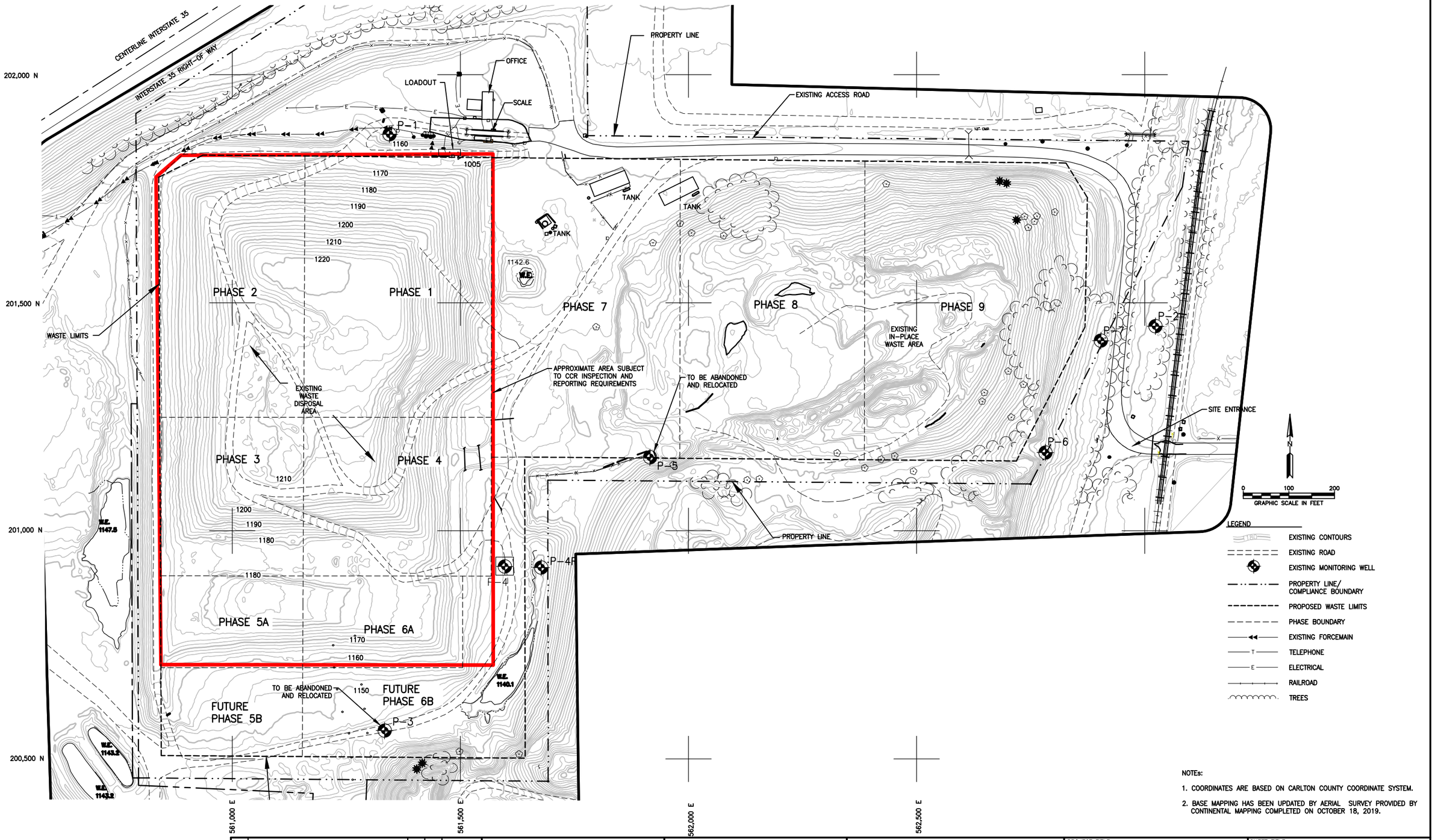
SHEET TITLE
PHOTO LOCATIONS

DWN BY	CHK'D	APP'D	DWG DATE
JVB	SH	TJS	JAN. 2020

SCALE AS NOTED

PROJECT NO.	SHEET NO.	REV NO.
3053-0182	FIGURE 1	0

M:\3053\Cloquet_Shamrock\2019 CCR Report\cdr\cad\FIGURE 1 PHOTO LOCATIONS.dwg



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SKB ENVIRONMENTAL CLOQUET LANDFILL, INC.
f/n/a SHAMROCK LANDFILL, INC.

CLOQUET, MINNESOTA

SHEET TITLE
SITE MAP

DWN BY	CHK'D	APP'D	DWG DATE
BWS	TJS	BWS	JAN. 2020

SCALE AS NOTED

PROJECT NO.	SHEET NO.	REV NO.
3053-0182	FIGURE 2	0

Photo 1: Location 1 – Looking South, Phase 2/3 Upper Lifts

Photo 2: Location 1 – Looking Northeast, Phase 2/1 Upper Lifts

Photo 3: Location 2 – Looking North, Phase 3/4 Upper Lifts

Photo 4: Location 3 – Looking East, Phase 1 Northern Waste Slope

Photo 5: Location 3 – Looking West, Phase 2 Northern Waste Slope & Berm

Photo 6: Location 4 – Looking South, Phase 1 Eastern Berm

Photo 7: Location 4 – Looking West, Phase 1 Northern Berm

Photo 8: Location 5 – Looking Southwest, Phase 1 Southern Access Road

Photo 9: Location 5 – Looking North, Phase 1 Northern Access Road

Photo 10: Location 6 – Looking South, Phase 4 Eastern Berm and Waste Slope

Photo 11: Location 6 – Looking North, Phase 4 Eastern Berm & Phase 1 Southeast Corner

Photo 12: Location 7 – Looking North, Phase 4 Eastern LF Berm and Waste Slope

Photo 13: Location 7 – Looking West, Phase 4 Eastern LF Berm and Waste Slope

Photo 14: Location 8 – Looking North, Phase 3 Western Waste Slope

Photo 15: Location 8 – Looking North, Phase 3 LF Western Road

Photo 16: Location 8 – Looking South, Phase 6 Western LF Berm

Photo 17: Location 8 – Looking South, Phase 6 Interior

Photo 18: Location 9 – Looking North, Phase 2 Perimeter Road

Photo 19: Location 9 – Looking North, Phase 2 Western Berm

Photo 20: Location 9 – Looking South, Phase 3 Western Berm

Photo 21: Location 9 – Looking South, Phase 3 Perimeter Road

Photo 22: Location 9 – Looking South, Phase 3 Waste Slope

Photo 23: Location 10 – Looking South, Phase 2 Perimeter Road

Photo 24: Location 10 – Looking South, Phase 2 Western Berm

Photo 25: Location 10 – Looking East, Phase 2 Road & Berm

Photo 26: Location 11 – Looking North, Phase 6 Western LF Berm

Photo 29: Location 11 – Looking North, Phase 6 Interior (Future Waste Slope)7

Photo 28: Location 11 – Looking East, Phase 6A/7A Southern Rain Flap

Photo 29: Location 12 – Looking West, Cell 6A Southern Rain Flap

Photo 30: Location 12 – Looking East, Cell 7A Southern Rain Flap

Photo 31: Location 13 – Looking West, Cell 7A Southern Rain Flap

Photo 32: Location 13 – Looking North, Cell 7 Eastern Berm