WENCK now part of Stantec

Memo

To:	Geoff Strack, PE, Waste Connections	From:	Bradley W Sullivan, PE, Stantec Consulting Services, Inc.
File:	Project #B3053-0519	Date:	January 9, 2021

Reference: **SKB Environmental Cloquet Landfill, dba Shamrock Landfill, Inc. 2020 Annual CCR Inspection Report**

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, 20.8 acres of lined landfill are constructed of the permitted 41.5-acre footprint. Phases 5A & 6A became operational in 2018. Phases 5B & 6B were constructed during the summer of 2020 and became operational in the fall of 2020. There is no constructed or operational distinction between the "A" and "B" of Cell 5 and 6. A small portion on the east side of Phase 4 and Phase 6 have yet to be constructed, as illustrated on Figures 1 and 2.

Filling operations in 2020 were primarily in Phases 5 & 6, 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)

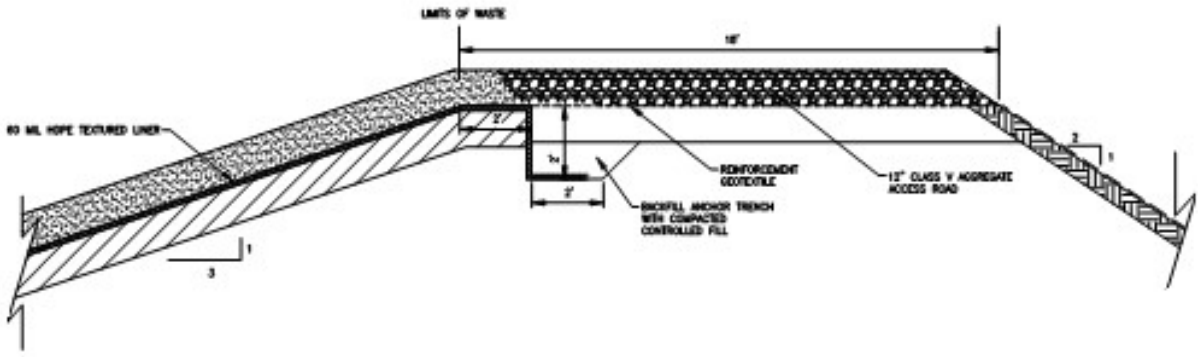
On October 27, 2020, Brad Sullivan, PE of Wenck (now part of Stantec) conducted the on-site inspection of the CCR Landfill. As part of the inspection, the following operating and inspection records were reviewed:

- 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 §257.74(c)(1); and
- Previous periodic structural stability assessments required under § 257.73(d).

Reference: Shamrock Landfill, Inc. 2020 Annual CCR Inspection Report

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;*

Other than the construction of the remaining areas of Cell 5 and 6, there were no apparent changes to the embankment geometry of Cells 1 through 6 when compared to the permit drawings or the past inspection reports. The annual aerial photogrammetry survey was performed on October 31, 2020, which the estimated in-place volume is based on. A comparison 2020 and 2019 aerial survey confirm that the embankment and slope topography is substantially unchanged with no significant movement. The 2020 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 54,600 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.

Reference: Shamrock Landfill, Inc. 2020 Annual CCR Inspection Report

The SKB Environmental Cloquet Landfill facility has been constructed and 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.

Stantec Consulting Services Inc.

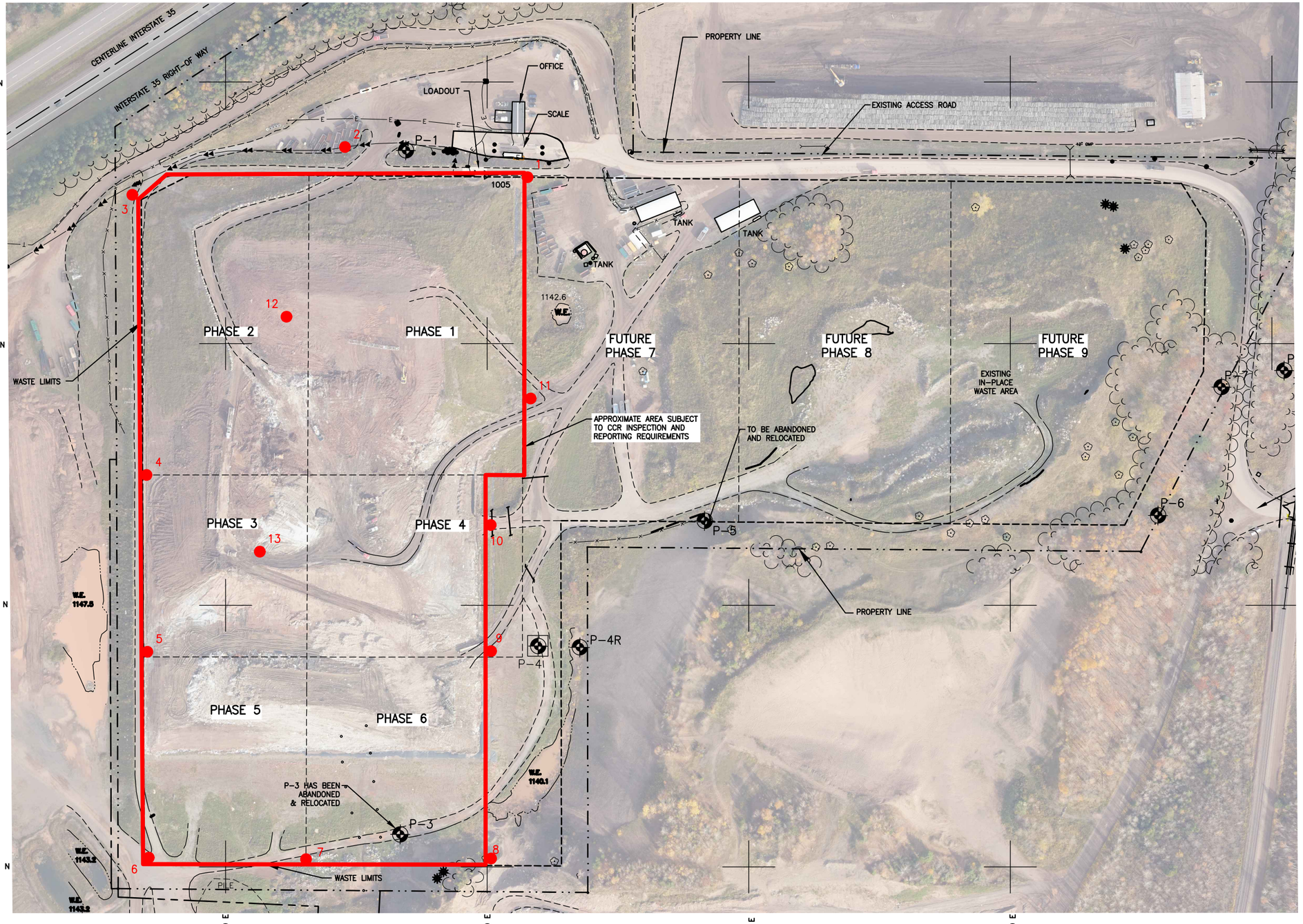
Bradley W. Sullivan, PE
Civil Engineer, Associate

Phone: (763) 479-4259
Cell: (603) 289-5257

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 PE # 56502
January 9, 2021

Plot Date & Time: 19 January 2021 11:50 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
now part of
Stantec

PROJECT TITLE
2020 CCR INSPECTION REPORT

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

CLOQUET, MINNESOTA

SHEET TITLE
PHOTO LOCATIONS

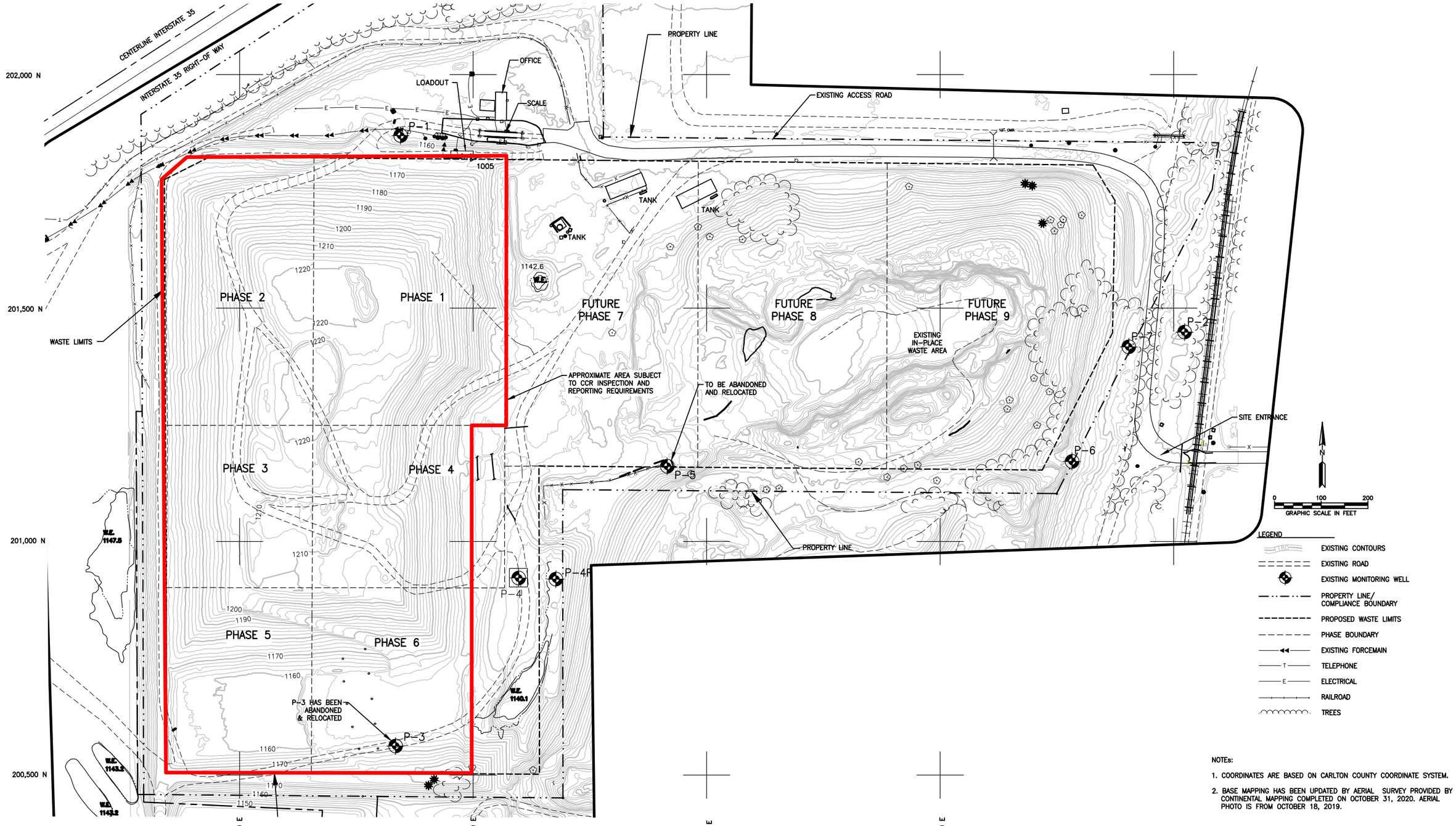
DWN BY	CHK'D	APP'D	DWG DATE
JJT	SH	TJS	JAN. 2021

SCALE AS NOTED

PROJECT NO.	SHEET NO.	REV NO.
3053-20-519	FIGURE 1	0

M:\3053\Cloquet_Shamrock\2020 CCR Report\civil\cad\FIGURE 1 PHOTO LOCATIONS.dwg

Plot Date & Time: 19 January 2021 11:52 PM



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 31, 2020. AERIAL PHOTO IS FROM OCTOBER 18, 2019.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE

SEAL

SUB CONSULTANT

PRIME CONSULTANT

WENCK
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PROJECT TITLE
2020 CCR INSPECTION REPORT

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
JJT	SH	TJS	JAN. 2021

SCALE AS NOTED

PROJECT NO.	SHEET NO.	REV NO.
3053-20-519	FIGURE 2	0

M:\3053\Cloquet_Shamrock\2020 CCR Report\civil\cad\FIGURE 2 INSPECTION LOCATIONS.dwg

Location 1 – Looking South, Phase 1 Eastern Berm

Location 1 – Looking West, Phase 1 Northern Berm

Location 2 – Looking East, Phase 1 Northern Waste Slope

Location 2 – Looking West, Phase 2 Northern Waste Slope & Berm

Location 3 – Looking South, Phase 2 Perimeter Road

Location 3 – Looking South, Phase 2 Western Berm

Location 3 – Looking East, Phase 2 Road & Berm

Location 4 – Looking North, Phase 2 Western Berm

Location 4 – Looking South, Phase 3 Western Berm

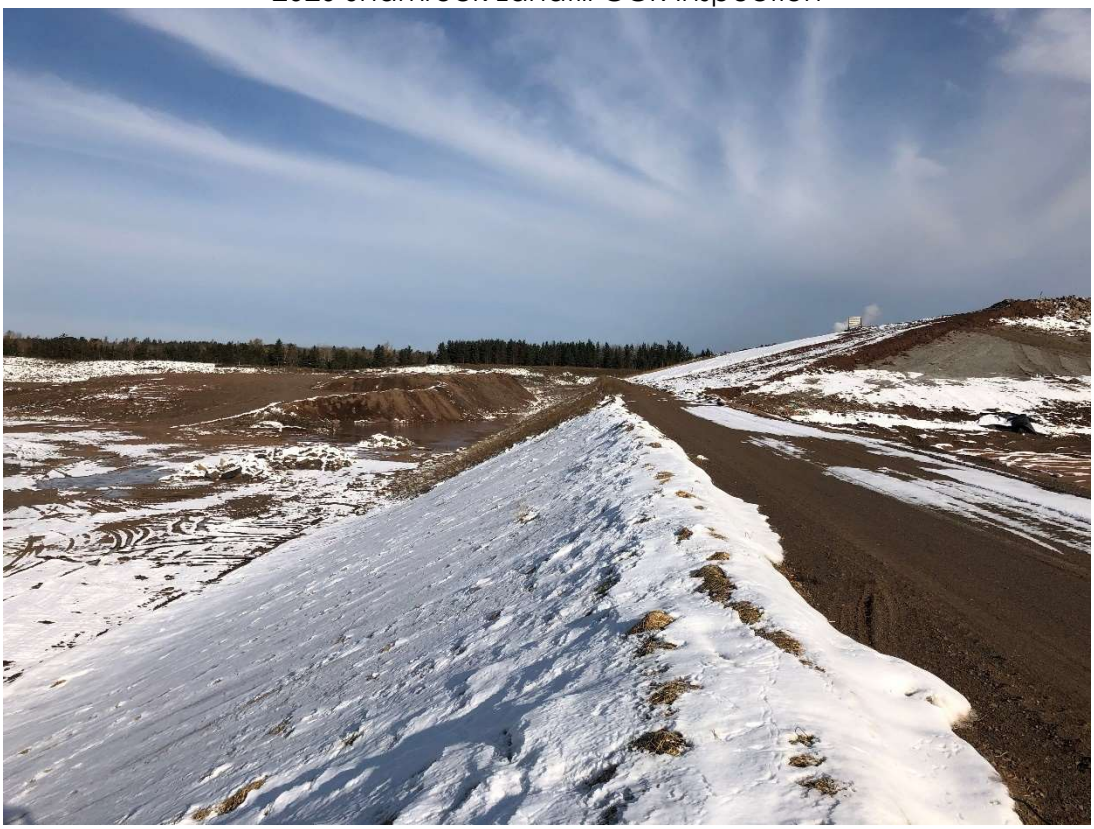
Location 4 – Looking South, Phase 3 Waste Slope

Location 5 – Looking North, Phase 3 Western Waste Slope

Location 5 – Looking North, Phase 3 LF Western Road

Location 5 – Looking South, Phase 6 Western LF Berm

Location 5 – Looking South, Phase 5 Interior



Location 6 – Looking North, Phase 6 Western LF Berm

Location 6 – Looking North, Phase 6 Interior (Future Waste Slope)

Location 6 – Looking East, Phase 5/6 Southern Anchor Trench

Location 6 – Looking East, Phase 5/6 Southern Berm

Location 7 – Looking West, Cell 5 Southern Anchor Trench

Location 7 – Looking East, Cell 6 Southern Anchor Trench

Location 7 – Looking West, Cell 5 Southern Berm

Location 7 – Looking East, Cell 6 Southern Berm

Location 8 – Looking West, Cell 6 Southern Anchor Trench

Location 8 – Looking West, Cell 6 Southern Berm

Location 8 – Looking North, Cell 6 Eastern Anchor Trench

Location 9 – Looking North, Phase 4 Eastern LF Berm and Waste Slope

Location 9 – Looking South, Cell 6 Eastern Anchor Trench

Location 9 – Looking North, Cell 6 Eastern Anchor Trench

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

Location 10 – Looking North, Phase 4 Eastern Berm & Phase 1 Southeast Corner

Location 11 – Looking Southwest, Phase 1 Southern Access Road

Location 11 – Looking North, Phase 1 Northern Access Road

Location 12 – Looking South, Phase 2/3 Upper Lifts

Location 12 – Looking East, Phase 2/1 Upper Lifts

Location 13 – Looking North, Phase 3/4 Upper Lifts

Location 13 – Looking Southeast, From Phase 3 Upper Lifts At Phase 5/6