

# Technical Memo



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**To:** Geoff Strack, Shamrock Landfill, Inc.  
**From:** Dave Parenteau, PE (MN), Wenck Associates, Inc.  
**Date:** January 14, 2016  
**Subject:** Annual Inspection Shamrock Environmental Landfill - Report of CCR Landfill Inspection  
Wenck Project # B3053-0033

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 blue ink, appearing to read 'David M. Parenteau'.

David M. Parenteau  
PE # 41243

Jan 14, 2016

## Purpose

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

## Background and Applicability

Shamrock Landfill, Inc. owns and operates the Shamrock Environmental Landfill. The site is an industrial waste landfill located 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. Approximately 9.5 acres of a total permitted 41.5 acres of the site are currently being utilized for landfill activities, with 5.4 acres of new disposal area recently constructed (Phases 3 and 4).

The facility is operated under the MPCA Solid Waste Permit SW-399, issued on December 21, 2010.

The attached Figure 1 presents a site location and a site layout is provided on Figure 2.

## CCR Landfill Inspection (40 CFR § 257.84)

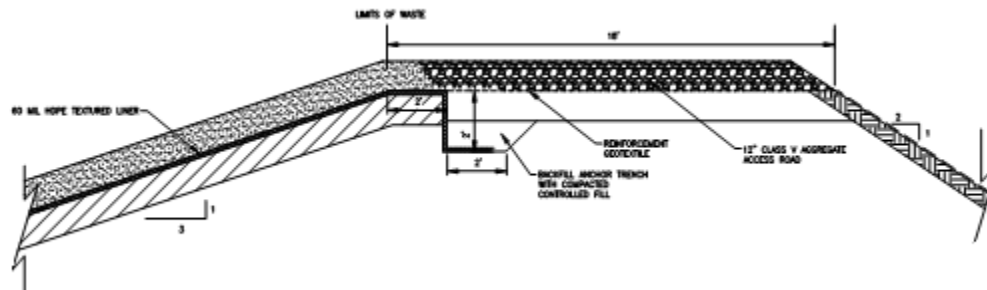
On December 30, 2015, Dave Parenteau conducted the on-site inspection of the CCR Landfill. During the inspection the following activities were performed.

- ▲ Available information regarding status and condition of the CCR unit, including, but not limited to, files available in the operating record were reviewed. Past inspection reports were reviewed on site, and Wenck Associates, Inc. prepared

the last cell construction report for Phases 3 and 4 which was reviewed as part of the preparation of this memo.

- ▲ The documentation reviewed covered the following topics
  - CCR unit design and construction information required by § 257.73(c)(1);
  - 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.
  - The results of inspections by a qualified person (contained below);
  - Results of previous annual inspections);

In general, most landfill cell embankments were constructed using on site borrow material, which consisted of silty clay and clayey sand type soils. The fill was placed as engineered fill, compacted to 95% of Standard Proctor Dry Density in lift thicknesses ranging from 8 inches to 12 inches, and the subgrade was proof rolled afterwards. A typical perimeter section, taken from the Phase 3 and 4 Construction Documentation Report, prepared by Wenck in September, 2015 is shown below.



- ▲ A visual inspection of the CCR units to identify signs of distress or malfunction of the CCR unit and appurtenant structures; and

There were no observed signs of distress or malfunction on either the CCR Impoundment or the CCR Landfill and their corresponding appurtenant structures.

Photos were taken during the inspection, however due to the snow cover at the time of the inspection, they show little detail and are not included.

### 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 from the geometry of the impoundment when compared to the permit drawings or the past construction documentation reports. Also, the recent aerial survey done in November, 2016 shows that the topography of the embankments has stayed straight and true.

- (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 40,000 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;

- (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 will comply 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) by the January 18, 2016 deadline.

## **Conclusions and recommendations**

The soils used for embankment construction have been placed as engineered fill and the cells are lined with a geomembrane ensuring that there is no leachate seeping through the embankment from the waste material. The landfill embankment crests are wide in width, have slopes no steeper than 2H:1V, and are relatively short in height, ranging from zero to

approximately 15 feet in height. The slopes appear to be vegetated and the site is well run and maintained.

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, however due to snow cover in place at the time of the inspection, we recommend that the next annual inspection be done in the summer/fall of 2016.



**Legend**

-  Waste Fill Limits
-  Township/Municipal Boundary
-  BOUNDARY



Aerial Photograph (Source: Bing Maps)

1,000 500 0 1,000 Feet

Mxd: L:\1101\1101-03\mxd\Site Location Map.mxd  
Last Modified: 1/4/2010 3:06:43 PM

**SHAMROCK DISPOSAL FACILITY**

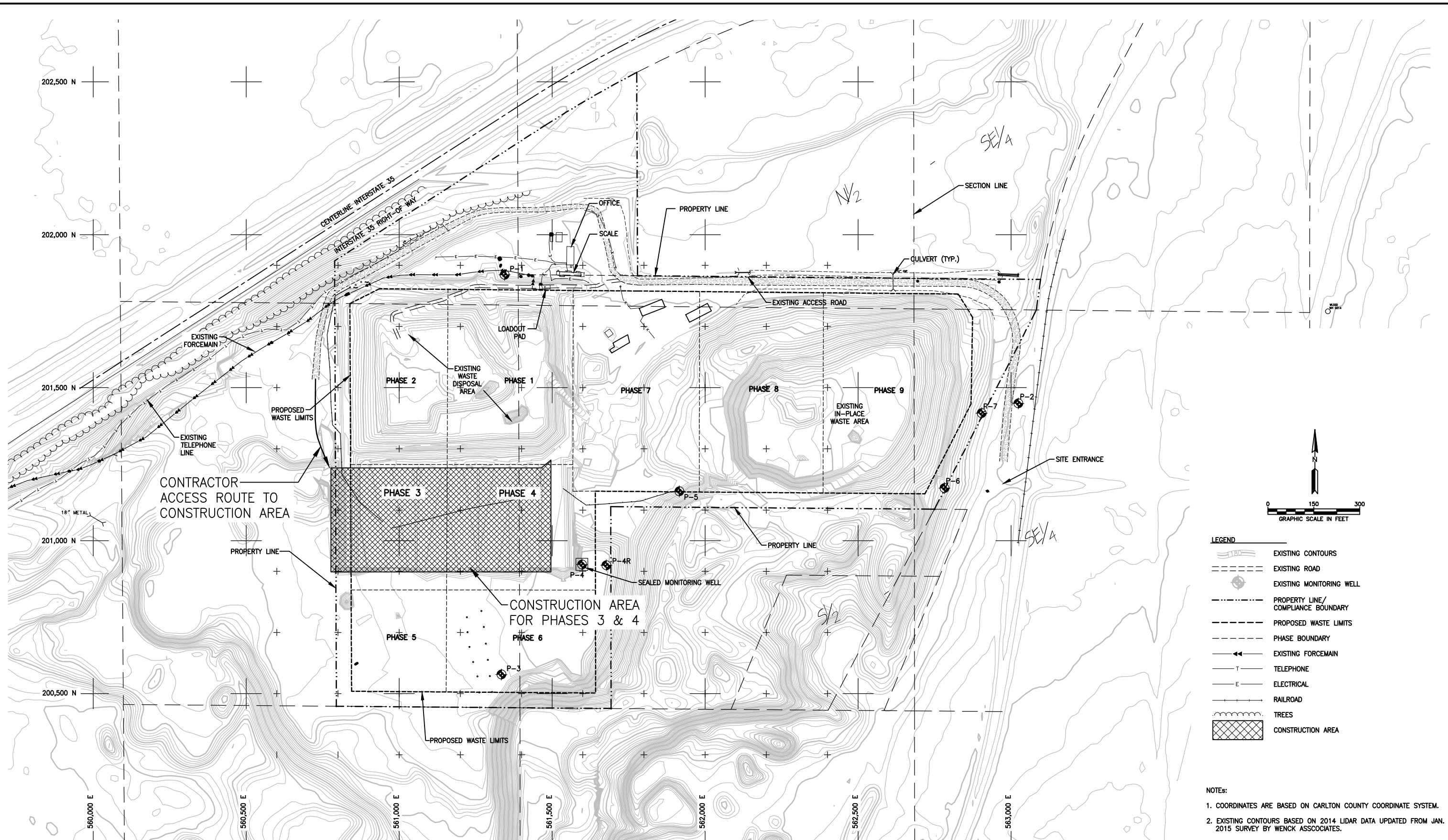
Site Location Map

 **Wenck**

Wenck Associates, Inc. 1800 Pioneer Creek Center  
Environmental Engineers Maple Plain, MN 55359-0429

JAN 2016

Figure 1



**LEGEND**

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

**NOTES:**

- COORDINATES ARE BASED ON CARLTON COUNTY COORDINATE SYSTEM.
- EXISTING CONTOURS BASED ON 2014 LIDAR DATA UPDATED FROM JAN. 2015 SURVEY BY WENCK ASSOCIATES.

REV	REVISION DESCRIPTION	DWN	APP	REV DATE
C	ISSUED FOR CONSTRUCTION RECORD DRAWINGS	JVB	TJS	08/28/15
B	MODIFACATION FOR GCL	DNO	TJS	04/20/15
A	ISSUED FOR APPROVAL	DNO	TJS	03/13/15

SEAL  
 I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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 MINNESOTA.  
 PRINT NAME: THOMAS J. SHUSTARICH  
 SIGNATURE: *Thomas J. Shustarich*  
 DATE: 08/28/2015 LICENSE #: 21210

SUB CONSULTANT

PRIME CONSULTANT

Responsive partner. Exceptional outcomes.

PROJECT TITLE  
**CONSTRUCTION RECORD DRAWINGS FOR PHASES 3 AND 4**

SHAMROCK ENVIRONMENTAL LANFILL

SHEET TITLE  
**EXISTING CONDITIONS**

DWN BY	CHK'D	APP'D	DWG DATE	FEB. 2015
JVB	SH	TJS	SCALE	AS NOTED
PROJECT NO.	SHEET NO.	REV NO.		
1101-0015	C-101	C		