

## SCS ENGINEERS

December 18, 2017  
File No. 23212007.05

Ms. Tracy Buchanan  
Ohio EPA Southwest District Office  
401 East Fifth Street  
Dayton, Ohio 45402-2911

*Submitted Electronically*

Subject: Village of St. Bernard Landfill  
Request to Remove MP-10 from the Monitoring Network

Dear Ms. Buchanan:

With this letter, the Village of St. Bernard is requesting that gas probe MP-10 be removed from the monitoring network at the closed St. Bernard Landfill. The background information and the rationale for this request are presented below. If this request is approved, a revised monitoring network table and drawing will be submitted to update the facility's Explosive Gas Monitoring Plan (EGMP).

### **Background**

The location of MP-10 is shown on Figure 1 in Attachment A. It is near the boundary between the properties at 441 and 437 Bank Avenue. A boring log with the as-built construction of MP-10 is presented in Attachment B. MP-10 is screened from approximately 2 to 12 feet below ground surface. The materials screened include fill from 5 to 11 feet below ground surface. As can be seen in Figure 1, MP-10 is located near the waste limits. MP-10 is also near a storm water inlet that provides for a concentration of storm water flow in the area and creates a wet, boggy condition at times due to the increased infiltration in the vicinity of MP-10.

From September 2016 through October 2017, MP-10 has experienced two periods, ranging from approximately 4 to 5 months in duration, when the readings at the probe exceeded the 5 percent threshold value. Prior to September 2016, the last exceedance at MP-10 occurred in September 2012. No specific cause or causes for these periods of exceedance have been identified, although each began shortly after a large precipitation event.

### **Rationale**

Contingency monitoring at MP-10 during the periods of exceedance has included performing a reading after the GEM 5000 was used to evacuate the probe for 30 minutes at a rate of 550 cc/min (removing a volume of approximately 0.50 cubic feet). The significant decrease in combustible gas concentration after the purging, often achieving a final reading below 5% methane, demonstrates that the source of combustible gas is likely either a localized concentration or is present due to migration driven only by a concentration gradient/diffusion.



Given this condition and observations to-date, there is insufficient methane volume to present a risk to human health and safety for the nearby residences. The residences adjacent to the landfill (excluding the Schrenk residence at 429 Bank Avenue) have combustible gas indicators and there have been no reported alarms/detections of landfill related combustible gas, indicating that these short term detections of combustible gas at MP-10 do not represent a risk to the residences. In addition, bar punch monitoring was performed in the southwest corner of the 437 Bank Avenue property (5 to 10 feet north northeast of MP-10) during the eight most recent monitoring events in and following the latest period of exceedance (contingency or quarterly events). The results of the bar punch monitoring was zero percent combustible gas, demonstrating that combustible gas was not present in the shallow subsurface between MP-10 and the 437 Bank Avenue residence.

The monitoring network without MP-10 is shown on Figure 2 in Attachment A. By removing MP-10, an average spacing between the probes would increase only slightly from 61 to 73 feet and the maximum distance between probes would increase only slightly from approximately 83 to 113 feet. There remains at least one probe between the landfill and each of the residences that abut the landfill.

### Summary

The combustible gas occasionally detected at MP-10 is a localized phenomenon that does not present a threat to the nearby residences. It is SCS's professional opinion that the proposed monitoring network, excluding MP-10, provides adequate protection for the residences adjacent to the closed St. Bernard Landfill. If the removal of MP-10 from the monitoring network is approved, it will no longer be monitored and will be abandoned as soon as practical in early 2018.

If you have any questions or need additional information, please contact us.

Sincerely,



Randall C. Mills, P.G.  
Senior Project Scientist  
**SCS ENGINEERS**

RCM/JJW

cc Nick Schapman, GHD  
Tom Paul, Village of St. Bernard  
John Estep, Village of St. Bernard

Attachments



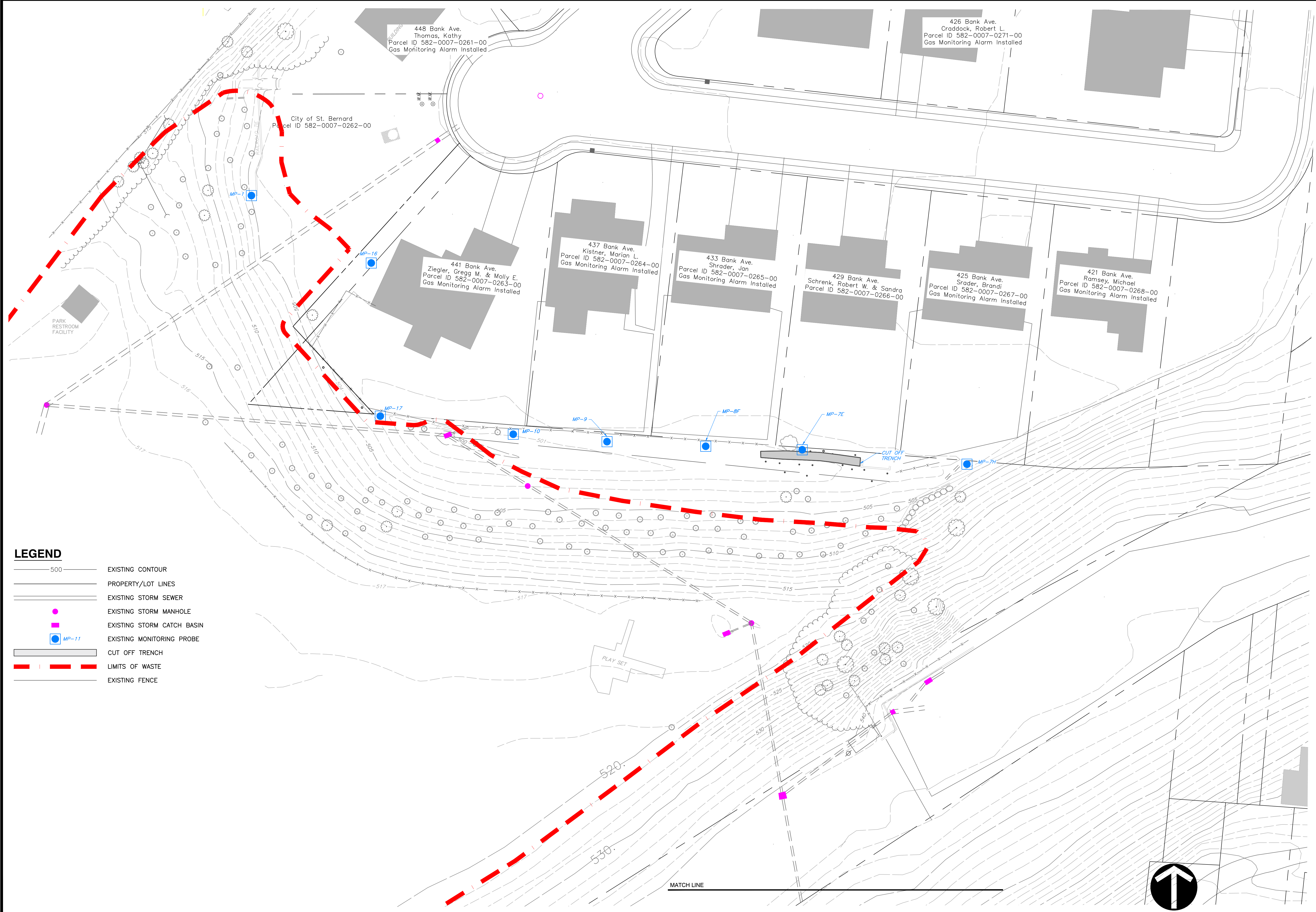
James J. Walsh, P.E.  
Principal  
**SCS ENGINEERS**

ATTACHMENT A

FIGURES

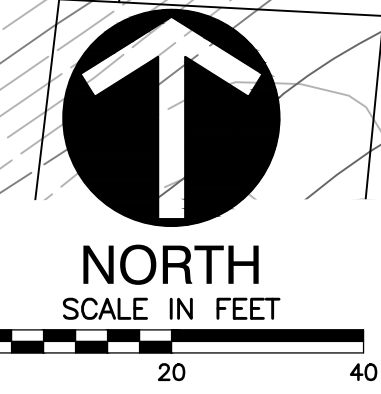


C:\Users\4078jcb\appdata\local\temp\AcPublish\_8628\FIG 1 - Existing Permanent Monitors v3.dwg Dec 11, 2017 - 2:19pm Layout Name: FIG 1 By: 4078jcb



- LEGEND**
- EXISTING CONTOUR
  - PROPERTY/LOT LINES
  - EXISTING STORM SEWER
  - EXISTING STORM MANHOLE
  - EXISTING STORM CATCH BASIN
  - EXISTING MONITORING PROBE
  - CUT OFF TRENCH
  - LIMITS OF WASTE
  - EXISTING FENCE

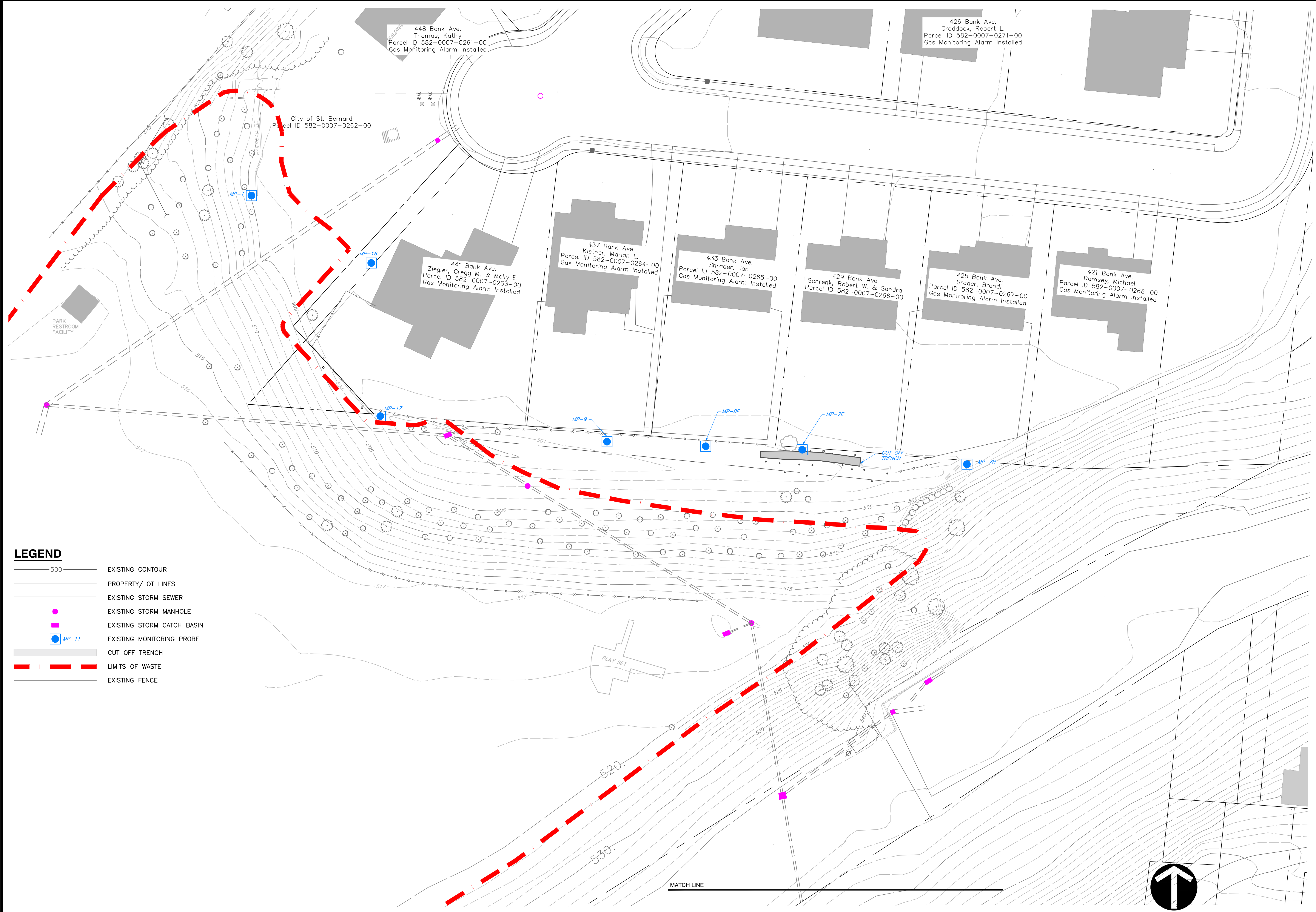
**NOTES:**  
 1. BASE MAP SOURCE CEC DRAWING 2B, DATED MARCH 31, 2011



|             |  |             |
|-------------|--|-------------|
| SHEET TITLE | EXISTING PERMANENT MONITORS  |             |
|             | ST. BERNARD LANDFILL<br>VILLAGE OF ST. BERNARD, OHIO                       |             |
| CLIENT      | VILLAGE OF ST. BERNARD<br>110 WASHINGTON AVENUE<br>ST. BERNARD, OHIO 45217 |             |
| CADD FILE:  | FIG 1  |             |
| DATE:       | NOVEMBER 2017  |             |
| SCALE:      | AS SHOWN   |             |
| DRAWING NO. | FIG 1  |             |
| DESIGNER    | DATE   | DESCRIPTION |
| CHK. BY:    | REV. DATE  | CK. BY:     |



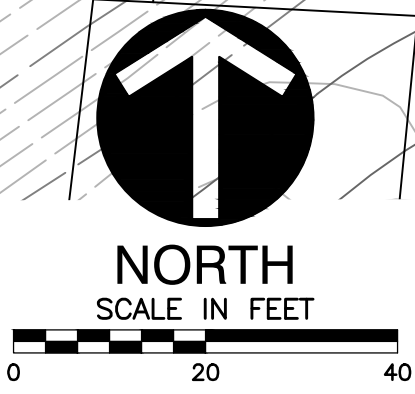
C:\Users\4078jcb\appdata\local\temp\AcPublish\_8628\FIG 1 - Existing Permanent Monitors v3.dwg Dec 11, 2017 - 2:19pm Layout Name: FIG 2 By: 4078jcb



**LEGEND**

|  |                            |
|--|----------------------------|
|  | EXISTING CONTOUR           |
|  | PROPERTY/LOT LINES         |
|  | EXISTING STORM SEWER       |
|  | EXISTING STORM MANHOLE     |
|  | EXISTING STORM CATCH BASIN |
|  | EXISTING MONITORING PROBE  |
|  | CUT OFF TRENCH             |
|  | LIMITS OF WASTE            |
|  | EXISTING FENCE             |

**NOTES:**  
 1. BASE MAP SOURCE CEC DRAWING 2B, DATED MARCH 31, 2011



|   |  |  |
|---|--|--|
| SHEET TITLE<br><b>PROPOSED PERMANENT MONITORS</b>   | CK. BY   |  |
|   | DESCRIPTION  |  |
| PROJECT TITLE<br><b>ST. BERNARD LANDFILL<br/>VILLAGE OF ST. BERNARD, OHIO</b>                 | REV. DATE  |  |
|   |  |  |
| CLIENT<br><b>VILLAGE OF ST. BERNARD<br/>110 WASHINGTON AVENUE<br/>ST. BERNARD, OHIO 45217</b> | <b>SCS ENGINEERS</b><br>STEARNS, CONRAD AND SCHMIDT<br>CONSULTING ENGINEERS, INC.<br>2060 READING ROAD, CINCINNATI, OH 45202<br>PH. (619) 421-5353 FAX. (613) 421-2847<br><small>DESIGN BY: JCB CHECK BY: JCB APP. BY: RCM</small> |  |
| CADD FILE:<br>FIG 2   | DATE:<br>NOVEMBER 2017   |  |
| DRAWING NO.   | SCALE:<br>AS SHOWN   |  |
| <b>FIG 2</b>  |  |  |

ATTACHMENT B

BORING LOG





**Civil & Environmental Consultants, Inc.**  
 Cincinnati, OH Pittsburgh, PA  
 (513) 985-0226 • (800) 759-5814 (412) 921-3402 • (800) 365-2324

**CITY OF ST. BERNARD**

**JOB NO.: 200610**

**LOG OF MP-10**

**St. Bernard, Ohio**

**Sheet 1 of 1**

**LOGGED BY: PCS**

**GROUND SURFACE ELEVATION:**

**DRILLER: Jersey West Drilling**

**TOP OF CASING ELEVATION:**

**DATE DRILLED: 08/14/00**

**INITIAL WATER LEVEL: 12.5 ft. BGS**

**DATE: 08/14/00**

**DRILL METHOD: 4 1/4 IN. HSA**

**STATIC WATER LEVEL:**

**DATE:**

| HNu (ppm) | Recovery (in.) | Blow Counts | Elevation, MSL | Depth (ft.) | Graphic Log | Materials Description  | Well Completion |
|-----------|----------------|-------------|----------------|-------------|-------------|--|-----------------|
| 1.8       |                |             |                |             |             | No sample, Vapor reading from soil cuttings  |                 |
| 1.2       | 17             | 5-18<br>5-5 |                | 5           |             | Gray silty CLAY w/ fine to medium sand, glass, concrete, metal, rubber, and fine gravel, wet in concrete fragments at 6.7 to 7 feet, very stiff (FILL) |                 |
| 0         | 18             | 1-3<br>4-4  |                |             |             | Gray silty CLAY w/ roots and black organic stains, moist, medium stiff (FILL)  |                 |
|           |                |             |                |             |             | Soft   |                 |
| 1.0       | 22             | 1-1<br>2-1  |                | 10          |             | Gray fine sandy silty CLAY w/ medium sand, moist, very soft  |                 |
| 1.9       | 16             | 1-1<br>1-2  |                |             |             | Gray fine SAND, wet, very loose  |                 |
|           |                |             |                |             |             | Boring terminated at 13 feet   |                 |
|           |                |             |                | 15          |             |  |                 |
|           |                |             |                | 20          |             |  |                 |
|           |                |             |                | 25          |             |  |                 |