

**ENGINEERING REPORT**

**FOR**

**ANNUAL CCR LANDFILL INSPECTION**

**40 CFR §257.84(b)**

**30 TAC §352.841**

**FAYETTE POWER PROJECT  
COMBUSTION BY-PRODUCTS LANDFILL**

**PREPARED FOR  
LCRA  
FAYETTE POWER PROJECT**

**PREPARED BY  
LCRA ENGINEERING SERVICES  
January 15, 2021**



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1/15/21



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1/15/21

This document is certified under the authority of the engineer whose seal appears above. **IT IS NOT TO BE USED FOR PERMITTING, BIDDING, OR CONSTRUCTION PURPOSES.**

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## 1.0 BACKGROUND

This report is intended to ensure that the design, construction, operation and maintenance of the Fayette Power Project (FPP) Combustion By-products Landfill (CBL) is consistent with recognized and generally accepted good engineering standards in accordance with the Environmental Protection Agency's Coal Combustion Residual (CCR) rules under 40 CFR Part 257. More specifically this report meets the requirements of 40 CFR §257.84(b) Annual inspections by a qualified professional engineer and 30 Texas Administrative Code (TAC) 352.841, adopted by the Texas Commission on Environmental Quality (TCEQ) on May 22, 2020.

As required by 40 CFR §257.84(b) and 30 TAC 352.841, this inspection report documents the annual inspection of the CBL, located at 6549 Power Plant Road, La Grange, Texas 78945. The CBL is registered as a non-hazardous solid waste management unit (MU013) by the TCEQ as part of TCEQ Registration No. 31575.

The CBL and associated support facilities are located in the southwest portion of the FPP, south of the power plant and north of the Missouri-Kansas-Texas railroad line (Appendix A). LCRA deed recorded a 123-acre tract located within the FPP site for disposal of Class 2 nonhazardous industrial waste. To date, an approximately 30-acre area has been developed as Cell 1 and a 7.9 acre area has been developed as Sub-Cell 2D. In 2013 LCRA notified TCEQ and received concurrence to raise the maximum elevation of the CBL from approximately 430 feet above mean sea level (ft-amsl) to 470 ft-amsl and added Sub-Cell 2D.

The support facilities for the CBL currently include the CBL Sub-Cell 2D Pond contained within Sub-Cell 2D which collects its contact water, the CBL Runoff Pond which collects water from the Sub-Cell 2D Pond and the CBL Cell 1 contact water, the associated drainage channel that routes contact water from the CBL Cell 1 and Cell 2D Pond to the Runoff Pond, and two stormwater drainage channels that route clean non-contact stormwater off-site. Historically, these support facilities have been included in the Annual CCR Landfill Inspection for simplicity. However, the support facilities are not regulated under the CCR rules and fall under the terms and conditions of Texas Pollutant Discharge Elimination System (TPDES) permit WQ 0002105000. Therefore, the support facilities will be inspected under the TPDES permit and beginning in 2021 will no longer be included in this report.

In accordance with 40 CFR §257.84(b)(3) and 30 TAC 252.841, the 2020 annual inspection was performed, document review was conducted, and this report has been prepared to document this work.

## 2.0 DOCUMENT REVIEW

Pertinent record documents reviewed as part of the development of past inspections reports were again reviewed for updates since the "ENGINEERING REPORT FOR ANNUAL CCR LANDFILL INSPECTION 40 CFR §257.84(b), FAYETTE POWER PROJECT COMBUSTION BY-PRODUCTS LANDFILL" (2020 Report) was issued on January 13, 2020. This review was intended to capture any revisions or updates to the

previously reviewed record documents and addition of new record documents related to design, construction, operation, and maintenance of the CBL. In addition to the 2020 Report there was one (1) new document produced in 2020 that has been posted to the Publicly Accessible Internet Site as required by 40 Code of Federal Regulations § 257.107. As follows:

1. “Annual Coal Combustion Residuals (CCR) Fugitive Dust Control Report – 2020” dated November 25, 2020, by Waste Management National Services, in compliance with 40 CFR §257.80(c).

All documents reviewed were found to ensure adherence to recognized and generally accepted good engineering standards.

The weekly inspections were performed for this facility in calendar year 2020 as required under 40 CFR §257.84(a) and 30 TAC 352.841. These weekly inspection reports for the period from January 1, 2020 through December 31, 2020 were reviewed. The weekly inspection report was modified in June 2020 to implement the TCEQ regulations and include a list of deficiencies requiring TCEQ notification under 30 TAC §352.841 if found during an inspection. Due to the issuance of the renewal of TPDES permit WQ 0002105000 on November 20, 2020, the weekly inspection report starting December 15, 2020 was modified to exclude inspection of the CBL and Sub-Cell 2D Ponds. These ponds will be inspected under the TPDES permit process and recorded on an inspection form covered under the TPDES permit and will no longer be included in this report.

Review of these documents did not result in findings indicating the CBL design, construction, operations or maintenance activities would result in potential structural weakness of the CBL as currently configured.

### **3.0 LANDFILL GEOMETRY & VOLUME**

This is the sixth annual inspection report as required under 40 CFR §257.84(b)(2) with the 2015 report serving as a baseline for changes in geometry of the structure and approximate CCR volume.

An aerial survey was conducted on November 23, 2020 and did not show a change in the landfill impounding structure geometry from the December 27, 2019 survey. This was also confirmed during the field inspection. An approximate layout of the impounding structures is included in Appendix B.

Per 40 CFR §257.84(b)(2)(ii), the CCR volume, as determined by results of the November 23, 2020 aerial survey, is approximately 1,324,423 cubic yards.

### **4.0 INSPECTION OF IMPOUNDING STRUCTURES**

Inspection of the Fayette Power Project’s Combustion By-products Landfill was conducted by Mr. Nathan M. Gullo, P.E. and Mr. Samuel C. Brown, P.E. on the morning of November 13, 2020 beginning at 08:00 and concluding at 10:00 hours. The weather was generally cloudy with temperatures in the low 70’s during the inspection. The CBL location had received precipitation amounts of 0.41 inches over the previous 30 days and

23.21 inches since the 2019 inspection. Precipitation data was provided from the LCRA Hydromet rain gauge number 563400 located at the FPP site.

#### 4.1 LANDFILL CELL 1 WESTERN EMBANKMENT SLOPE

**Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal slope**

**Approximate Length: 350 ft.**

**Approximate Max Impoundment Height: 20 ft. @ 410 ft-amsl**

General Condition:  **Good**  Fair  Poor

Problems Noted:  **None**  Poor Grass Cover  Trees or Brush  Animal Burrows or Damage

Standing Water/Ponding  Wet Areas  Erosion  Depressions  Rutting  Cracks

Bulges  Misalignment  Sinkhole  Other: \_\_\_\_\_

**Comments:**

(1) Overall, grass cover was in good condition with full coverage and was in the process of being mowed at the time of inspection with an approximate height of 5-inches. There were no visual signs of active animal activity or history of such. The slopes are visually in alignment with the 3:1 design and no visual evidence of structural issues were observed.

#### 4.2 LANDFILL NORTHERN EMBANKMENT SLOPE

**Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal slope**

**Approximate Length: 1,300 ft.**

**Approximate Max Impoundment Height: 35 ft. @ 420 ft-amsl**

General Condition:  **Good**  Fair  Poor

Problems Noted:  **None**  Poor Grass Cover  Trees or Brush  Animal Burrows or Damage

Standing Water/Ponding  Wet Areas  Erosion  Depressions  Rutting  Cracks

Bulges  Misalignment  Sinkhole  Other: \_\_\_\_\_

**Comments:**

(1) Overall, grass cover was in good condition with good coverage and was in the process of being mowed at the time of inspection with an approximate height of 5-inches. There were no visual signs of active animal activity or history of such. The slopes are visually in alignment with the 3:1 design and no visual evidence of structural issues were observed.

#### 4.3 LANDFILL CELL 1 EASTERN EMBANKMENT SLOPE

**Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal slope**

**Approximate Length: 550 ft.**

**Approximate Max Impoundment Height: 30 ft. @ 420 ft-amsl**

General Condition:  **Good**  Fair  Poor

Problems Noted:  **None**  Poor Grass Cover  Trees or Brush

Animal Burrows or Damage  Standing Water/Ponding  Wet Areas  Erosion

Depressions  Rutting  Cracks  Bulges  Misalignment  Sinkhole

Other: \_\_\_\_\_

**Comments:**

(1) Overall, grass cover was in good condition with good coverage and was in the process of being mowed at the time of inspection with an approximate height of 5-inches. There were no visual signs of active animal activity or history of such. The slopes are visually in alignment with the 3:1 design and no visual evidence of structural issues were observed.

#### 4.4 CELL 1 TOP TEMPORARY CAP

##### Clay Cap with Topsoil & Grass Vegetation

Approximate Length: 1,000 ft.

Approximate Width: 120 ft.

General Condition:  Good  Fair  Poor

Problems Noted:  None  Poor Grass Cover  Trees or Brush  Animal Burrows or Damage  
 Standing Water/Ponding  Wet Areas  Erosion  Depressions  Rutting  Cracks  
 Bulges  Misalignment  Sinkhole  Other: \_\_\_\_\_

##### Comments:

(1) Overall, grass cover was in good condition with good coverage and was in the process of being mowed at the time of inspection with an approximate height of 5-inches. There were no visual signs of active animal activity or history of such. No visible evidence of structural issues was observed.

#### 4.5 VISIBLE LINERS

##### Clay & Synthetic Liners

General Condition:  Good  Fair  Poor

Problems Noted:  None  Tears  Damage  Trees or Brush  Animal Activity  Erosion  
 Depressions  Rutting  Cracks  Bulges  Other: Water Under HDPE Liner

##### Comments:

(1) The presence of water beneath the Sub-Cell 2D synthetic liner identified during the prior inspection period was noted in weekly inspection reports initiating in January 2020 and persisting throughout the year. A pumping system and monitoring program were implemented in April 2020 to remove and measure the amount of water recovered from underneath the liner. Data collection is on-going at the time of this report.

Going forward, the inspection and monitoring of both the CBL run-off pond and the Sub-Cell 2D pond will be conducted under the terms and conditions of TPDES Permit WQ 0002105000 and will no longer be included in this annual inspection report.

#### 4.6 RUN-ON/RUN-OFF FACILITIES

##### Open Channels, Culverts, CBL Pond & Sub-Cell 2D Pond

General Condition:  Good  Fair  Poor

Problems Noted:  None  Poor Grass Cover  Trees or Brush  Animal Burrows or Damage  
 Excessive Sediment Buildup  Blockage  Erosion  Depressions  Rutting  Cracks  
 Freeboard Exceeded  Misalignment  Sinkhole  Other: \_\_\_\_\_

##### Comments:

(1) A new discharge structure was added to the CBL Pond slope with energy dissipater blocks to convey flow from the CBL Runoff Chanel to the pond (See Photo No. 1).

(2) Excessive sediment buildup was again identified behind the rock berm filter located at the Sub-Cell 2D Contact Runoff Retention Pond (See Photo No. 2). Waste Management, Inc. (WMI) inspects and maintains this area and it was reported that material was removed in January 2020. WMI should continue to monitor the area and if excessive sediment is identified, it should be removed from behind the rock berm structure to maintain an unobstructed flow through the berm and prevent excessive silt accumulation in the pond area.

Going forward, the inspection and monitoring of both the CBL run-off pond and the Sub-Cell 2D pond will be conducted under the terms and conditions of TPDES Permit WQ 0002105000 and will no longer be included in this annual inspection report.

## 5.0 CONCLUSIONS

The FPP CBL structure was in good condition at the time of this inspection and does not appear to have an actual or potential structural weakness nor any existing conditions that are disrupting, or have the potential to disrupt, the operation and safety of the CBL. The operation and maintenance of the landfill is currently contracted to a landfill manager believed to have good competency with a plan in place to meet the 40 CFR Part 257 and 30 TAC Chapter 352 requirements for operation of the facility consistent with recognized and generally acceptable good engineering standards.

The CBL is designed, constructed, operated, and maintained consistent with recognized and generally accepted good engineering standards.

## 6.0 RECOMMENDATIONS

The following recommendations are made based on the document review and the November 13,2020 inspection:

### 6.1 OUTSTANDING RECOMMENDATIONS

- Item 2019-001, Develop and implement an inspection plan to determine if the amount of water under the synthetic liner is increasing or decreasing. If it is determined that the amount of water is increasing, implement measures to determine the best course of action to mitigate the issue.

**A plan has been developed and implemented. Data collection is on-going at the time of this report. The inspection and monitoring of both the CBL run-off pond and the Sub-Cell 2D pond will be conducted under the terms and conditions of TPDES Permit WQ 0002105000 and will no longer be included in this annual inspection report.**

**It is recommended this item is conveyed and captured under that inspection and reporting process.**

- Item 2019-002, restore vegetative cover in the area of discontinuity identified during the annual inspection on the existing Cell 1 Contact Water Runoff retention Pond North cut bank. The area should be mowed and reseeded during normal vegetative control operations to ensure full vegetative coverage is maintained.

**This item has been completed and will be removed from future reports.**

- Item 2019-003, tall grassy vegetation identified in front of the inlets of the corrugated metal drainage culverts which convey non-contact runoff from the closed northern slope section beneath the Austin Loop plant road should be



trimmed during normal vegetative control measures to ensure an unobstructed flow is maintained.

**This item is part of routine maintenance and will be removed from future reports.**

- Item 2019-004, excessive sediment buildup identified behind the rock berm filter at the Sub-Cell 2D Contact Runoff Retention Pond should be removed from behind the rock berm structure sufficient to maintain an unobstructed flow and prevent silt accumulation in the pond area.

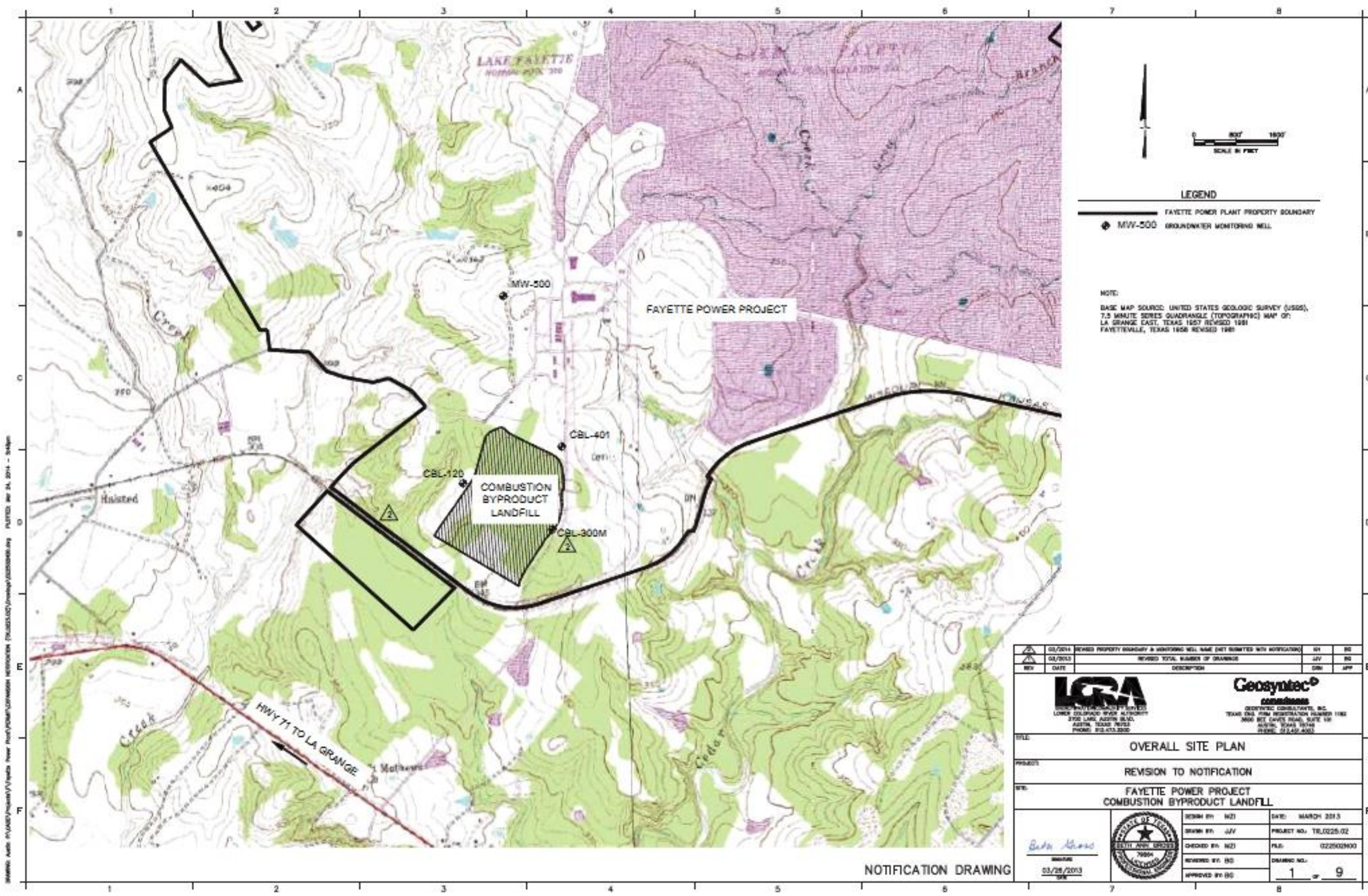
**In January 2020, it was reported WMI removed material from behind the rock berm. The excessive buildup was again present at this time of inspection and should be removed and monitored regularly. The inspection of this area will be added to the monthly inspection required by TPDES Permit 0002105000 and will no longer be included in this annual inspection report.**

**It is recommended this item is conveyed and captured under that inspection and reporting process**

## 6.2 NEW RECOMMENDATIONS

No new recommendations.

**APPENDIX A**  
**FPP COMBUSTION BY-PRODUCTS LANDFILL**  
**LOCATION DRAWING**



**LEGEND**

— FAYETTE POWER PLANT PROPERTY BOUNDARY

● MW-500 GROUNDWATER MONITORING WELL

**NOTE:**  
 BASE MAP SOURCE: UNITED STATES GEOLOGIC SURVEY (USGS),  
 7.5 MINUTE SERIES QUADRANGLE (TOPOGRAPHIC) MAP OF:  
 LA GRANGE EAST, TEXAS 1507 REVISED 1981  
 FAYETTEVILLE, TEXAS 1408 REVISED 1985

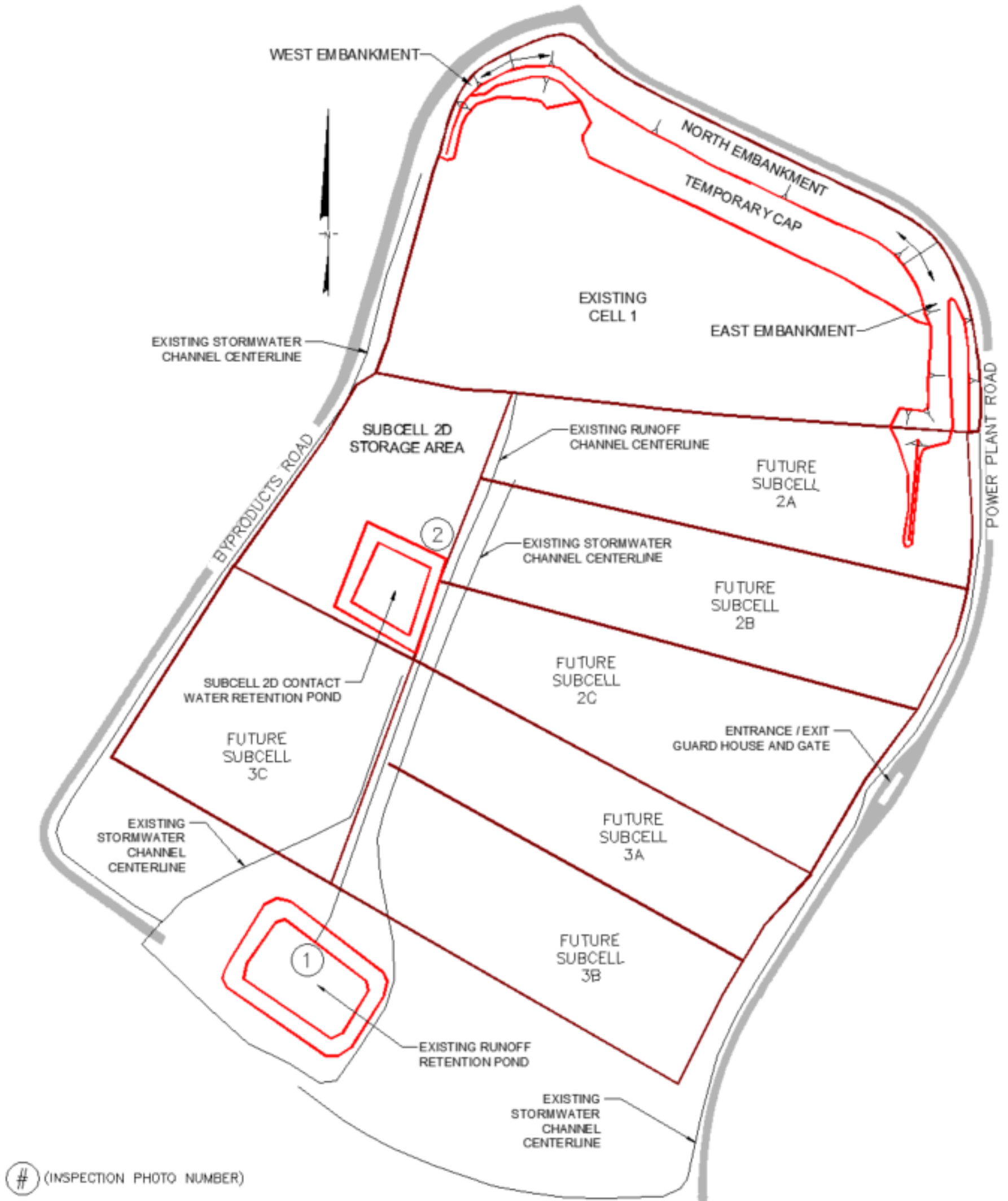
03/20/14	REVISED PROPERTY BOUNDARY & MONITORING WELL NAME (NOT LIMITED BY NOTIFICATION)	JH	BC
03/20/13	REVISED TOTAL NUMBER OF DRAINAGE	JJV	BC
REV	DATE	DESCRIPTION	DRN
<b>TITLE</b> OVERALL SITE PLAN			
<b>PROJECT</b> REVISION TO NOTIFICATION			
<b>DESCRIPTION</b> FAYETTE POWER PROJECT COMBUSTION BYPRODUCT LANDFILL			
		DRAWN BY: JHJ DATE: MARCH 2013	PROJECT NO: TEL0225.02
CHECKED BY: JHJ FILE: 022502N00		DRAWING NO.: 1 of 9	
APPROVED BY: BC DATE: 03/28/2013			

NOTIFICATION DRAWING

I:\Projects\2013\130302\130302.dwg PLOTTED: 03/24/2014 10:44am

**APPENDIX B**  
**FPP COMBUSTION BY-PRODUCTS LANDFILL**  
**INSPECTION DRAWING**

# FPP COMBUSTION BY-PRODUCTS LANDFILL INSPECTION DRAWING



## **APPENDIX C**

### **INSPECTION PHOTOS**



**PHOTO 1 – View of new CBL Channel Discharge Structure at the CBL Pond (11-13-2020)**



**PHOTO 2 – View of excessive sediment build-up behind rock berm filter (11-13-2020)**