Bullock, Bennett & Associates, LLC

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ENGINEERING REPORT

FOR

ANNUAL CCR LANDFILL INSPECTION
40 CFR §257.84(b)
30 TAC §352.841

FAYETTE POWER PROJECT
COMBUSTION BY-PRODUCTS LANDFILL
TX REGISTRATION NO. CCR101
EPA IDENTIFICATION NO. TXD083566547

January 8, 2024

Prepared for:

LCRA
Fayette Power Project
6549 Power Plant Road
La Grange, TX 78945

Prepared by:

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BBA Project No. 23691

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1.0 BACKGROUND

Bullock, Bennett, and Associates, LLC (BBA) was retained by the Lower Colorado River Authority (LCRA) to perform the annual Coal Combustion Residuals (CCR) Landfill Inspection for the Fayette Power Project (FPP) Combustion By-products Landfill (CBL). The LCRA power plant is located east of La Grange, in Fayette County in Texas. CCR Units Inspection standards and guidance are set forth under the United States Environmental Protection Agency (USEPA) CCR Rule, 40 Code of Federal Regulations (CFR) §257.84(b) for landfills. The federal CCR rules have been recently adopted by the Texas Commission on Environmental Quality (TCEQ) under 30 Texas Administrative Code (TAC) Chapter 352. The intent of this inspection report is to summarize the visual observations made during a November 22, 2023 on-site inspection of the FPP CBL and provide an engineering opinion on the condition, structural integrity, operational status, and maintenance of the CCR Landfill in accordance with the cited regulations.

The CBL and its associated structural components (as defined in 40 CFR §257.53) are located in the southwest portion of the FPP, south of the power plant and north of the Union Pacific railroad line (Appendix A). LCRA deed recorded a 123-acre tract located within the FPP site for disposal of Class 2 non-hazardous industrial waste for the CBL. To date, an area of approximately 30-acres has been developed as the Cell 1 landfill unit and a 7.9-acre area has been developed as Sub-Cell 2D landfill unit. 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 CBL landfill and structural components currently include the CBL Cell 1 landfill embankments, berms, clay liner, and partial cover; Sub-Cell 2D landfill excavation and liner; the associated runoff channel and letdown structures that routes run-off water from the CBL Cell 1 and pumped water from Cell 2D Pond to the CBL Runoff Pond; and perimeter stormwater drainage channels, that route clean non-contact stormwater run-off from the embankments and areas outside the CBL, around the CBL and off of the facility.

The run-off pond structures fall under the terms and conditions of Texas Pollutant Discharge Elimination System (TPDES) permit no. WQ0002105000. Therefore, beginning with the 2021 reporting period, the run-off structures were reported under the TPDES permit and are no longer detailed in this engineering report unless it is observed that they have the potential to affect the stability or disrupt the operation and safety of the CBL as per 40 CFR §257.84(b)(2)(iii) and (iv).

In accordance with 40 CFR §257.84(b)(3), this report has been prepared to document the findings of the 2023 annual inspection and document review was conducted.

Table 1 – CCR Landfill Findings Summary

CCR Unit	CCR Section Reference	Section Summary	CCR Unit Inspection Status
CBL	§257.84(b)(1)	Annual Inspection	Requirements Met
	§257.84(b)(2)	Inspection report	Requirements Met
	§257.84(b)(3)	Inspection Frequency	Requirements Met
	§257.84(b)(4)	Observed Deficiencies	None

2.0 ANNUAL INSPECTION REQUIREMENTS

The following outlines the annual inspection requirements applicable to the CCR Landfill (the CBL) at the FPP. It is noted that information about operational and maintenance procedures were provided by LCRA plant personnel. LCRA personnel monitor the CCR Landfill on a regularly scheduled basis allowing for timely resolution of any identified maintenance needs.

The CBL is subject to annual inspection by a qualified engineer, pursuant to 40 CFR §257.84(b)(1), "…*to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards*." Components of the inspection are described below:

- 40 CFR §257.84(b)(1)(i) – *A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections).*

- 40 CFR §257.84(b)(1)(ii) – *A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.*

Results of the inspection must be documented pursuant to the inspection reporting requirements of 40 CFR §257.84(b)(2):

(i) *Any changes in geometry of the structure since the previous annual inspection.*
(ii) *The approximate volume of CCR contained in the unit at the time of the inspection.*
(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.*
(iv) *Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.*

The following subsections outline the inspection frequency for the CBL covered under 40 CFR §257.84(b)(4).

> *The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by §257.105(g)(9).*

3.0 DOCUMENT REVIEW

BBA performed the review of all relevant site documents prior to inspecting the CCR landfill unit. These documents were provided by LCRA personnel. The review of documents included reviewing weekly inspection reports since the previous CCR inspection was completed, reviewing prior annual CCR inspection reports, and reviewing any other construction, maintenance, or inspection reports that were completed in the last year and could include findings with potential impacts to the CBL or any of its structural components.

4.0 LANDFILL GEOMETRY & VOLUME

This is the ninth 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 arial survey was conducted on October 3, 2023 and did not show a change in the landfill containment structure geometry from the September 7, 2022 survey. This was confirmed during the field inspection. An approximate layout of the containment structures is included in Appendix B.

Per 40 CFR 257.84(b)(2)(ii), the CCR volume within the CBL, as determined by results of the October 3, 2023 survey, is approximately 1,252,960 cubic yards.

5.0 INSPECTION OF LANDFILL STRUCTURES

BBA performed the most recent annual inspection at the LCRA FPP on November 22, 2023. Mr. Dan Bullock, P.E. and Mr. Kyle Cavender, E.I.T. conducted the CCR Unit inspection and LCRA personnel provided guidance and direction to BBA's questions. The inspection commenced at approximately 9:00 a.m. and was completed at approximately 1:00 p.m. The weather was sunny with temperatures in the low 50's (F) during the inspection. There had been approximately 0.03 inches of precipitation since the most recent weekly inspection was completed. During the inspection, the CCR Landfill was readily accessible and free of obstructions. LCRA provided BBA with past CCR Landfill Annual Inspection reports and design documents for review. During the inspection, the CBL was in operation. Engineer findings from the inspection are below.

5.1 CBL CELL 1 LANDFILL FINDINGS

CCR Landfill contained by Perimeter Embankment Structures, Berms, 1-ft Thick Compacted Clay Liner Over 3-ft of In-Situ Clay

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Operational Issues ☐Safety

☐Other: _____

Comments:

(1) There were no conditions observed as disrupting or having the potential to disrupt the operation or safety of the CBL Cell 1 landfill unit. The structures were observed to be containing the CCR materials as designed.

5.1.1 CBL CELL 1 WEST EMBANKMENT FINDINGS

Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal Slope
Approximate Length: 350 ft.
Approximate Max Embankment Height: 20 ft. @ 410 ft-amsl

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Poor Grass Cover ☐Trees or Brush
☐Animal Burrows or Damage ☐Ponding ☐Wet Areas
☐Erosion ☐Depressions ☐Rutting ☐Cracks
☐Bulges ☐Misalignment ☐Sinkhole

☐Other: _____

Comments:

(1) Overall, grass cover was in good condition throughout. The area was recently mowed and was observed to have an average vegetation length of approximately 4-inches. There were no signs of animal damage or a history of such. The slopes were visually in alignment with the 3:1 design and no visual evidence of structural issues were observed. The structure was observed to be containing the CCR materials as designed.

5.1.2 CBL CELL 1 NORTH EMBANKMENT FINDINGS

Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal Slope
Approximate Length: 1,300 ft.
Approximate Max Containment Height: 35 ft. @ 420 ft-amsl

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Poor Grass Cover ☐Trees or Brush
☐Animal Burrows or Damage ☐Ponding ☐Wet Areas
☐Erosion ☐Depressions ☐Rutting ☐Cracks
☐Bulges ☐Misalignment ☐Sinkhole

☐Other: _____

Comments:

(1) Overall, grass cover was in good condition throughout. The area was recently mowed and was observed to have an average vegetation length of approximately 4-inches. There were no signs of animal damage or a history of such. The slopes were visually in alignment with the 3:1 design and no visual evidence of structural issues were observed. The structure was observed to be containing the CCR materials as designed.

5.1.3 CBL CELL 1 EAST EMBANKMENT FINDINGS

Clay Embankment w/ 1 ft. Vertical to 3 ft. Horizontal Slope
Approximate Length: 550 ft.
Approximate Max Containment Height: 30 ft. @ 420 ft-amsl

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Poor Grass Cover ☐Trees or Brush
☐Animal Burrows or Damage ☐Ponding ☐Wet Areas
☐Erosion ☐Depressions ☐Rutting ☐Cracks
☐Bulges ☐Misalignment ☐Sinkhole

☐Other: _____

Comments:

(1) Overall, grass cover was in good condition throughout. The area was recently mowed and was observed to have an average vegetation length of approximaately 4-inches. There were no signs of animal damage or a history of such. The slopes were visually in alignment with the 3:1 design and no visual evidence of structural issues were observed. The structure was observed to be containing the CCR materials as designed.

5.1.4 CBL CELL 1 CAPPED AREA FINDINGS

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 ☐Ponding ☐Wet Areas
☐Erosion ☐Depressions ☐Rutting ☐Cracks
☐Bulges ☐Misalignment ☐Sinkhole

☐Other: _____

Comments:

(1) Overall, grass cover was in good condition throughout. The area was recently mowed and was observed to have an average vegetation length of approximaately 4-inches. There were no signs of animal damage or a history of such. There was no visual evidence of structural issues observed. The structure was observed to be containing the CCR materials as designed.

5.1.5 CBL CELL 1 SOUTH BERMS FINDINGS

Interim Berms Structures for Containment of Run-Off Water
Approximate Length: 1,000 ft.

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Poor Grass Cover ☐Trees or Brush
☐Animal Burrows or Damage ☐Ponding ☐Wet Areas
☐Erosion ☐Depressions ☐Rutting ☐Cracks
☐Bulges ☐Misalignment ☐Sinkhole

☐Other: _____

Comments:

(1) No visual evidence of structural issues were observed. The tempoary berm structure was observed to be containing the CCR materials and run-off water as designed.

5.2 CBL SUB-CELL 2D LANDFILL FINDINGS
Excavated CCR Containment Area Below Natural Grade
3-ft Thick Compacted Clay Liner
CCR Storage and Beneficial Use Product Preparation Area

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Operational Issues ☐Safety

☐Other: _____

Comments:

(1) There were no conditions observed as disrupting or having the potential to disrupt the operation or safety of the landfill unit. The structures were observed to be containing the CCR materials as designed.

5.3 CBL STORMWATER RUN-ON/RUN-OFF STRUCTURES FINDINGS
Open Channels and Culverts

General Condition: ☒Good ☐Fair ☐Poor

Problems Noted: ☒None ☐Operational Issues ☐Safety

☐Other: _____

Comments:

(1) All stormwater drainage channels and culverts were observed to be in good condition and appeared to be operating as designed. There were no conditions observed as disrupting or having the potential to disrupt the operation or safety of the CBL.

6.0 CONCLUSIONS

The FPP CBL structures were observed to be in good condition at the time of the inspection, and it does not appear to have any current or impending structural weaknesses, 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 understanding of the plan in place to meet the 40 CFR Part 257 and 30 TAC Chapter 352 requirements for operation of the facility consistent with recongnized

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

7.0 RECOMMENDATIONS

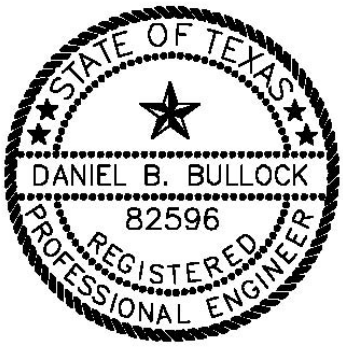
Based on document review, and the inspection conducted on November 22, 2023, there are no new or outstanding recommendations identified outside of continuing the maintenance items listed below.

Maintenance Items:

- Continue maintenance grading as needed to maintain drainageways,
- Continue vegetation control program,
- Continue rodent control measures, and
- Continue removal of ant beds when observed.

8.0 CERTIFICATION

I, Dan Bullock, certify under penalty of law that the information submitted in this report 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 Texas. The information submitted is to the best of my knowledge and belief, true, accurate and complete. Based on the annual inspection, the design, construction, operation, and maintenance of the CCR Unit is consistent with recognized and generally accepted good engineering standards.

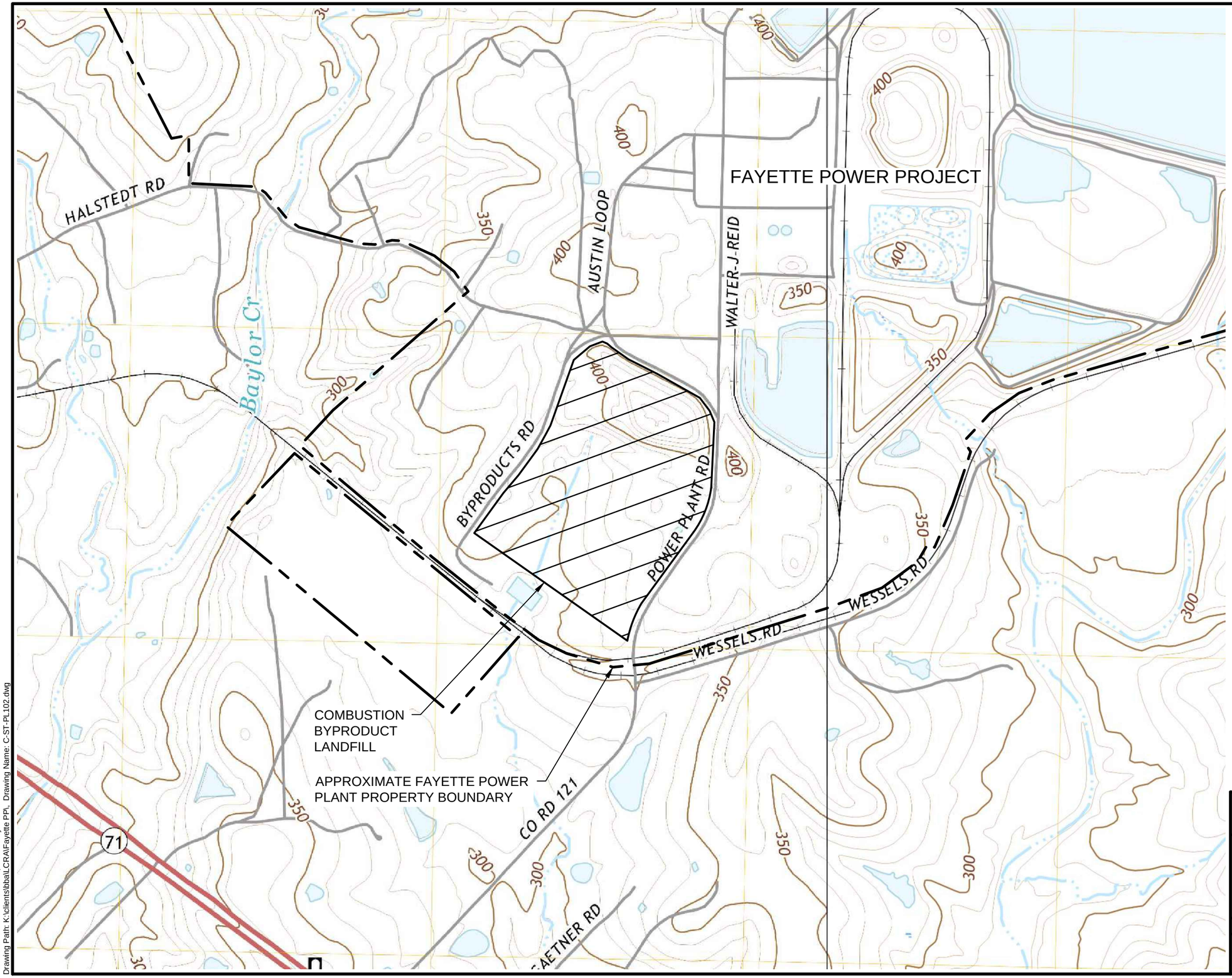


1/08/2024

Daniel B. Bullock

APPENDIX A

Fayette Power Project Site Map



N

APPROXIMATE SCALE IN FEET

0 1000 2000

NOTE:

BASE MAP SOURCE: U.S.G.S., 7.5 MINUTE SERIES QUADANGLE (TOPOGRAPHIC) MAP OF: LA GRANGE EAST, TEXAS 1988 REVISED 2022, FAYETTEVILLE, TEXAS 1988 REVISED 2022.

STATE OF TEXAS
DANIEL B. BULLOCK
82596
REGISTERED
PROFESSIONAL ENGINEER

Daniel B. Bullock
1-4-2024

LCRA - Fayette Power Plant
CCR Inspection Report

Appendix A

OVERALL SITE PLAN

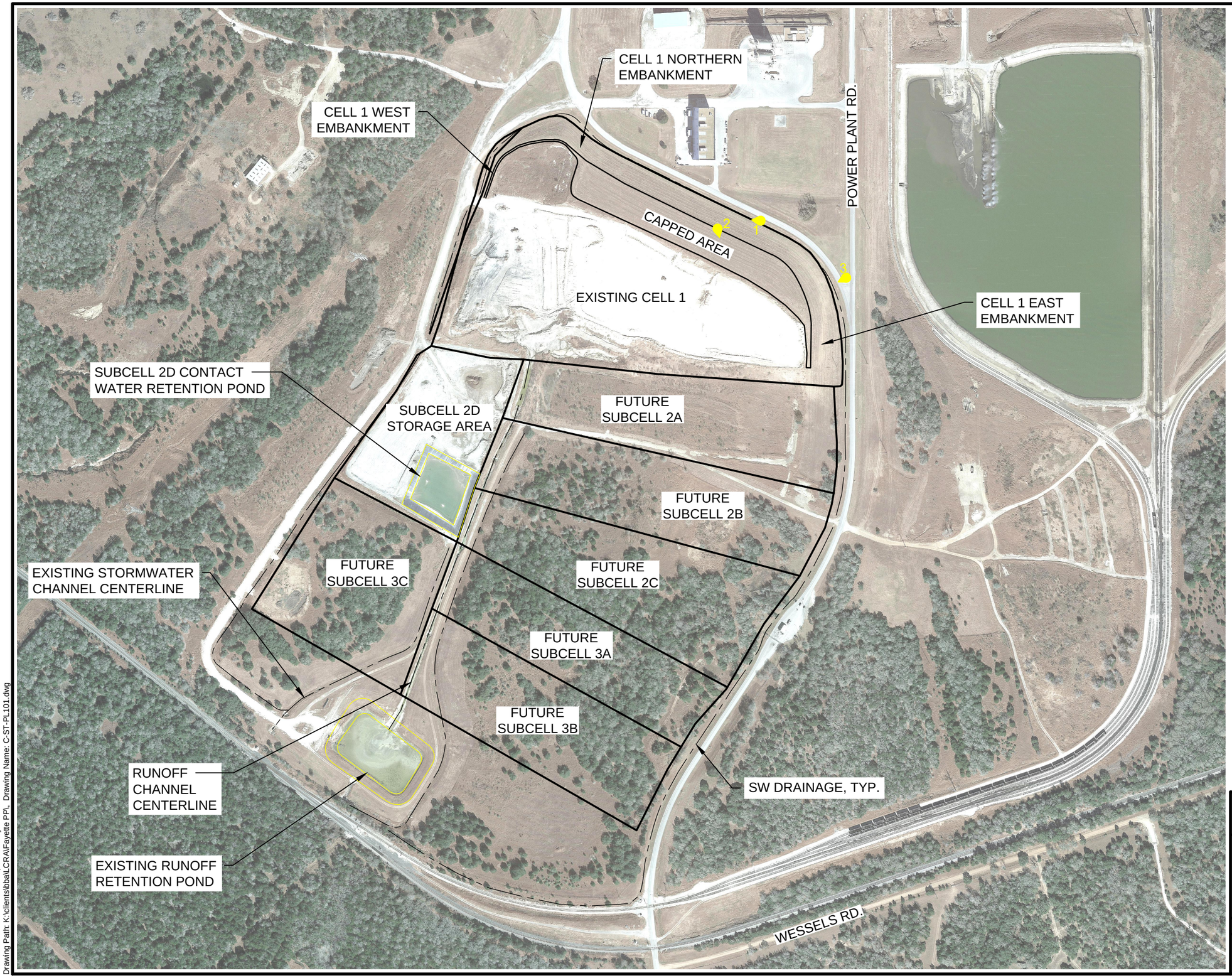
PROJECT: 23691	BY: RCAD-RR	DATE: JAN 2024	CHECKED: DBB

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 01/04/24 - 8:15am, Plotted by: Admin
Drawing Path: K:\clients\bba\LCRA\Fayette PP\, Drawing Name: C-ST-PL102.dwg

APPENDIX B

CBL Landfill Site Map



N

APPROXIMATE SCALE IN FEET

0 400 800

EXPLANATION

9854 PHOTO # AND DIRECTION OF PHOTO

NOTES:

LOCATIONS SHOWN ARE APPROXIMATE.

AERIAL BACKGROUND PROVIDED BY PLEX-EARTH USING GOOGLE MAPS (TAKEN 1-2022).

STATE OF TEXAS
DANIEL B. BULLOCK
82596
REGISTERED PROFESSIONAL ENGINEER
1-4-2024

LCRA - Fayette Power Plant
CCR Inspection Support

Appendix B

FPP COMBUSTION BY-PRODUCTS LANDFILL INSPECTION DRAWING

PROJECT: 23691	BY: RCAD-RR	DATE: JAN 2024	CHECKED: DBB

Bullock, Bennett & Associates, LLC
Engineering and Geoscience
Texas Registrations: Engineering F-8542, Geoscience 50127

Plot Date: 01/04/24 - 8:13am, Plotted by: Admin
Drawing Path: K:\clients\bball\CRA\Fayette PP\, Drawing Name: C-ST-PL101.dwg

APPENDIX C

Inspection Photos

Photo 1 – Cell 1 North Embankment, Facing West

Photo 2 – Cell 1 Capped Area (foreground) and Landfill Material (background), Facing Southeast

Photo 3 – Non-Contact Water Drainage Culvert at Northeast Corner of Cell 1, Facing Southwest