



**2021 VISUAL SITE INSPECTION
AES INDIANA PETERSBURG RESTRICTED WASTE TYPE III LANDFILL
SOLID WASTE FACILITY PERMIT NO. FP63-02**

AES INDIANA PETERSBURG GENERATING STATION
6925 NORTH STATE ROAD 57
PETERSBURG, INDIANA 47567

ATC PROJECT NO. 170LF01140

DECEMBER 10, 2021

PREPARED FOR:

AES INDIANA
6925 NORTH STATE ROAD 57
PETERSBURG, INDIANA 47567

ATTENTION: MR. WILL TEAGUE



December 10, 2021

Mr. Will Teague
Senior Scientist
AES Indiana
6925 North State Road 57
Petersburg, Indiana 47567-0436

ATC Group Services / Atlas

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Re: 2021 Visual Site Inspection
Petersburg Restricted Waste Landfill
Solid Waste Facility Permit No. FP 63-02
AES Indiana
Petersburg Generating Station
Petersburg, Indiana
ATC Project No. 170LF01140

Dear Mr. Teague:

ATC Group Services, an Atlas Company, is pleased to present the findings of the November 2, 2021 Visual Site Inspection of the AES Indiana Petersburg Generating Station Type III Restricted Waste Landfill. This visual inspection and report were done in accordance with guidelines established by the Coal Combustion Residuals (CCR) Rule published by the Environmental Protection Agency (EPA) on April 17, 2015.

The scope of this inspection was limited to an examination of readily observable surficial features of the landfill and its appurtenant structures, and a review of information that you provided. Please note that the inspection did not include any test drilling, testing of materials, precise physical measurements of landfill features, detailed calculations to verify slope stability, or other engineering analyses. Although the inspection was conducted by competent personnel in accordance with generally accepted methods for inspecting landfills, it should not be considered as a warranty or guaranty of the future performance/safety of the landfill.

The AES Indiana Petersburg Generating Station Type III Restricted Waste Landfill is located about four (4) miles north of the City of Petersburg in Pike County, Indiana west of State Road 57 (Figure 1). The landfill encompasses an area of approximately 122.1 acres inside the Solid Waste Boundary (Figure 2). The Petersburg Type III RWS Landfill operates under Indiana Department of Environmental Management (IDEM) Permit Number 63-2.

The landfill inspection was completed by Bill Paraskevas and Martin Brungard of ATC Group Services (ATC). The weather conditions during the inspection were between 45 and 50°F and sunny.

Grass mowing was underway on the landfill's west face during the inspection, but other landfill areas had not been mowed. Contained herein is a summary of the engineering observations of the landfill including condition of the cover soils, grading and erosion, vegetation, haul roads, perimeter ditches, down drain channels, riprap areas, culverts and other adjacent structures. The landfill system features are highlighted on the attached Site Plan shown in Figure 3 of this report.

The 2021 annual inspection was performed to address the standards and guidelines required by the CCR Rule instituted by the Environmental Protection Agency on April 17, 2015. As a result, CCR Landfills are now required to meet the requirements of 40 C.F.R. §257 to conduct annual inspections of the landfill in accordance with 40 C.F.R. §257.84(b). Listed below are requirements specified within the CCR Rule and the observations made by Bill Paraskevas and Martin Brungard during the annual inspection:

- 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 inspection;
- iii. Any appearances of an actual or potential structural weakness of the CCR unit;
- iv. Any other change (s) which may have affected the stability or operation of the CCR Unit since the last annual inspection.

Changes in Structural Geometry

There were no observed geometry changes during the 2021 Petersburg visual landfill inspection. Waste placement has paused at the landfill and all areas are under final or intermediate cover. Engineering observations were grouped into two inspection zones shown in Figure 3, 2021 Visual Site Inspection Grid Map.

The zone descriptions, observations, and recommendations are as follows:

Zone A Partial Closure Area – North and West Side-slopes

A 33.8 acre area on the northern and western slopes of the landfill have received partial closure certification from the Indiana Department of Environmental Management (IDEM). In general, this area has a good soil cover and is well-vegetated. Since the time of the 2020 inspection, additional improvements have been made to fill in ruts and over-seed sparsely vegetated areas.

1. Good vegetation exists along the majority of the west and north slopes of the partial closure area.
2. At the southwest corner of the landfill, erosion has occurred along the face of the slope, exposing underlying Poz-o-tec material, see grid locations M-23 and M-24. The riprap-lined stormwater channel has lost portions of its riprap and eroded into the Poz-o-tec.
 - o Recommendation: Replace the undersized riprap material in the channel to prevent erosion into the Poz-o-tec. Alternative erosion protection measures such as fabric-formed concrete or cellular linings, or reinforced membrane linings may be considered instead of using larger riprap replacement.

3. The stormwater downlet channel in grid location K-22 is very steep and discharge from the downlet pipes appears likely to displace the existing channel riprap.
 - Recommendation: Place additional large-diameter riprap in the channel to help dissipate the storm flow from the pipes.

Zone B Intermediate Cover Area – Top East and South Side slopes

In 2017, a soil cover was applied to the top and east side slopes of the landfill and new vegetation was established. Terrace and riprap down chute channels were added or improved to accommodate the addition of the new soil and vegetative cover.

1. Good vegetation exists along the majority of the south end of the landfill, top of landfill and east slope.
2. Overgrown, woody vegetation was observed in riprap downchutes and channels located in the along the eastern and northern landfill faces.
 - Recommendation: Remove or kill vegetation.
3. On the east side of the landfill low or sparse vegetation observed at certain locations as shown in grid P-21, P-20, P-19, and R-25.
 - Recommendation: Monitor areas for continued vegetation establishment and watch for erosion activity. Overseed and protect these areas if grass cover does not improve.
4. Deep erosion gullies into waste material were noted along the main landfill access road as shown in grids M25, N25, and O25.
 - Recommendation: Fill the gullies with gravel to reduce waste material erosion.

CCR Volume

There is a 43 acre expansion area east of the existing landfill which has been approved as a Type I landfill, this area has not been developed at this time. Currently, landfill operations are limited to the original landfill footprint and waste placement has been paused.

Based on IPL surveying information at the time of the inspection, there is approximately 7,043,808 cubic yards of CCR material placed in the landfill unit.

Structural Integrity

All landfill slopes appear to be stable with no visual indications or signs of sloughing or subsidence were detected during the 2021 visual inspection.

Stability and Operation

The landfill is generally in good condition and well vegetated in most places. Minor cover and waste erosion was noted and should be repaired at the earliest opportunity. Operation of the landfill unit is not expected to be adversely affected by any items detected during the 2021 inspection.

We appreciate the opportunity to assist you with this project. If you have any questions concerning information contained in this report, please do not hesitate to call either of the undersigned at 317.849.4990.

Sincerely,

ATC Group Services LLC



Martin Brungard, P.E., D.WRE.
Senior Project Engineer

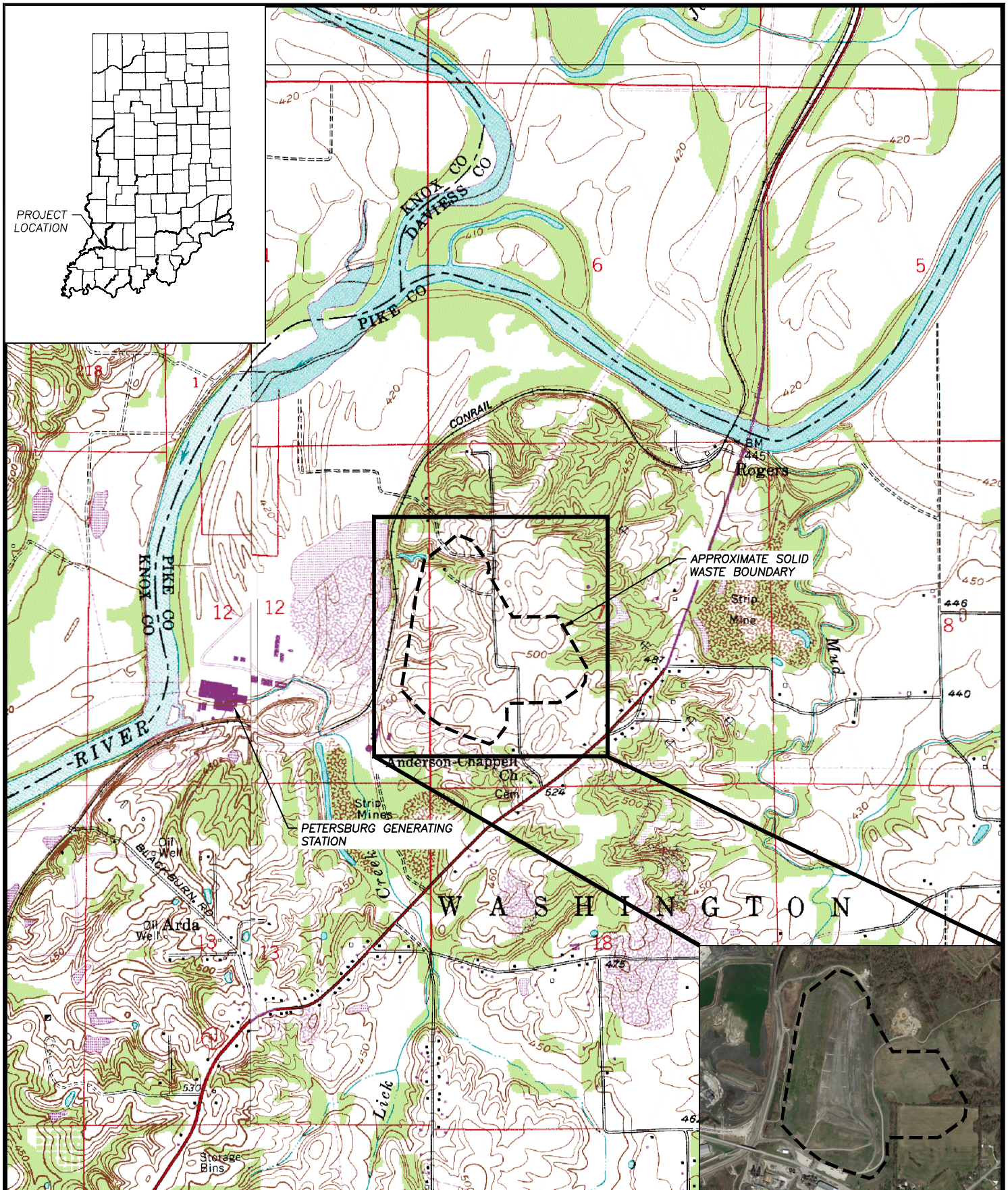


Bill Paraskevas, P.E.
Principal Engineer

Copies: Will Teague (1)
Erwin Leidolf (1)

Attachments:

Figure 1 Vicinity Map
Figure 2 CCR Disposal Facilities
Figure 3 Visual Site Inspection Grid



VICINITY MAP

AES PETERSBURG ASH POND AMBANKMENTS
 AES INDIANA
 6925 NORTH STATE ROAD 57
 PETERSBURG, INDIANA

Project Number:
 170LF01140

Drawing File:
 SEE LOWER LEFT

Date:
 12/02/2021

Scale:
 AS SHOWN

Drn. By:
 BH

Ckd. By:
 MB

App'd By:

Figure:

1



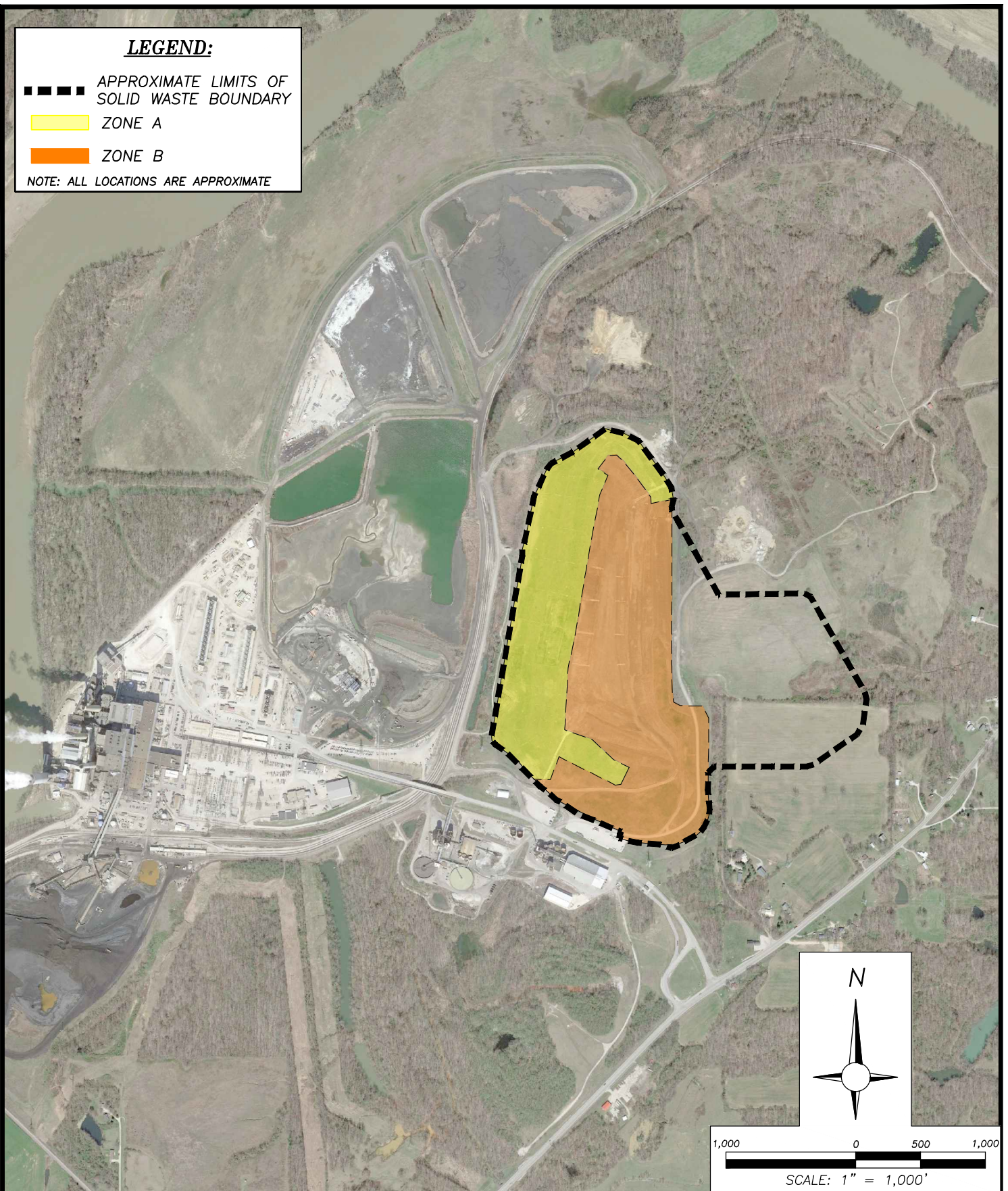
LEGEND:

■ ■ ■ ■ APPROXIMATE LIMITS OF
SOLID WASTE BOUNDARY

 ZONE A

 ZONE B

NOTE: ALL LOCATIONS ARE APPROXIMATE



CCR DISPOSAL FACILITIES CCR LANDFILL ANNUAL INSPECTION REPORT

AES PETERSBURG RESTRICTED WASTE TYPE III LANDFILL
AES INDIANA
6925 NORTH STATE ROAD 57
PETERSBURG, INDIANA

Project Number:
170LF01140

Drawing File:
SEE LOWER LEFT

Date:
12/02/2021

Scale:
AS SHOWN

Drn. By:
BH

Ckd. By:
MB

App'd By:

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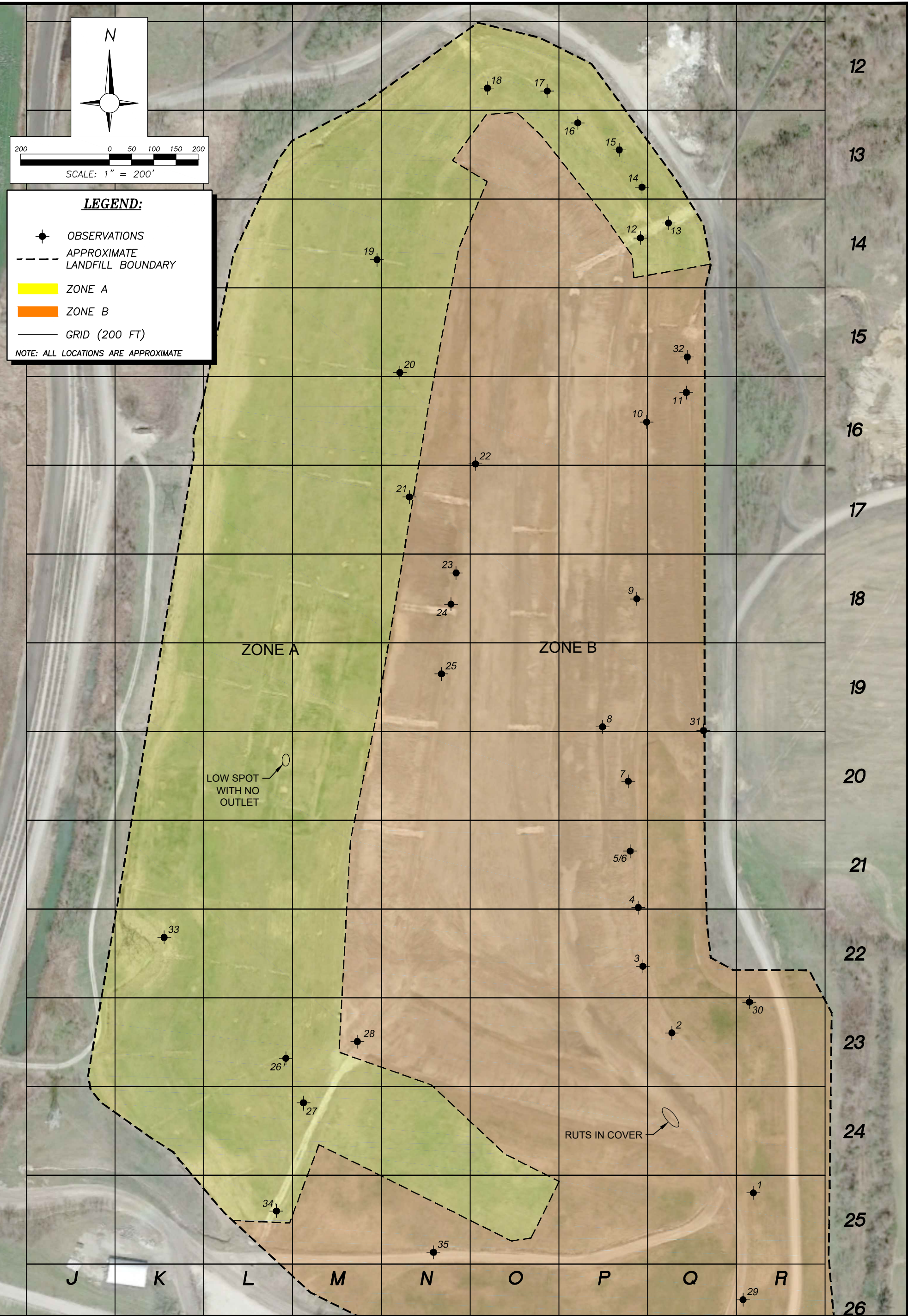



Figure: 3	Scale: AS SHOWN	Date: 12/09/2021	2021 VISUAL SITE INSPECTION GRID MAP			Project Number: 170LF01140		Drm. By: BH	
			AES PETERSBURG RESTRICTED WASTE TYPE III LANDFILL			Drawing File: SEE LOWER LEFT		Ckd. By: MB	
			AES INDIANA					App'd By:	
			6925 NORTH STATE ROAD 57 PETERSBURG, INDIANA					Ckd. Date:	

Petersburg 2021 Annual Landfill Inspection

Notes on Photographs – 11/2/2021

1	SE corner – bare spots in cover. Typical of occasional bare spots across the landfill
2	SE corner – ponded water in mid-slope drainage ditch. Ditches generally are in good shape and appear to convey flows adequately even though slopes in some areas are very mild.
3	East side near south – rock check dams. Good vegetation around dams indicates little or no sediment in flows.
4	East slope – bare areas in mid-slope ditch. Occasional.
5	East slope – exposed CCR at base of slope with some erosion rills. CCR at this location and a few others around LF appears to be deposited. Probable drill cuttings.
6	East slope – more exposed CCR materials. Probable drill cuttings.
7	East slope – bare areas on outside of upper diversion berm slope
8	East slope – bare areas on upper slope
9	East slope – hole in cover, exposed CCR
10	East slope near north end – more exposed CCR
11	East slope near north end – drainage channel for lower berm
12	NE corner – rip rap channel
13	NE corner – rip rap channel
14	N slope – appears to have been re-seeded this year. More vegetation cover than last year
15	N slope – appears to have been re-seeded this year. More vegetation cover than last year
16	N slope – vegetation blocking drain pipes
17	NW corner – hole in cover near down drain pipes. Hole on left, drain pipe on right
18	NW corner – upper drain channel in decent condition
19	W slope – downstream channel in decent conditions
20	W slope – holes in cover before drainpipe inlets
21	W slope – drain pipes covered by vegetation
22	N central, top – drill cuttings on ground next to piezometer. No marking on piezometer
23	W top - drill cuttings on ground next to piezometer. No marking on piezometer
24	W top - vegetation blocking drain pipes
25	W top – looks like recent grading in this area. Sparse vegetation
26	SW corner – bare area
27	SW corner – steep slope
28	SW corner – outlet pipes with no drainage directed to them
29	SE corner – rut in access road. CCR materials visible
30	East LF face – looking north at good vegetation cover
31	East LF face – minor erosion noted by rock check dam
32	East LF face – trees growing in riprap lined ditch
33	West LF face – erosion below stormwater outlets
34	South LF face – exposed CCR and riprap erosion
35	Main LF access road – erosion along road side

Grid ID R-25	Photo ID 1	
Date November 2, 2021		
Description: SE corner – bare spots in cover. Typical of occasional bare spots across the landfill		

Grid ID Q-23	Photo ID 2	
Date November 2, 2021		
Description: Ponded water in mid-slope drainage ditch. Ditches generally are in good shape and appear to convey flows adequately even though slopes in some areas are very mild.		


Grid ID P-22	Photo ID 3	
Date November 2, 2021		
Description: East side near south – rock check dams. Good vegetation around dams indicates little or no sediment in flows.		


Grid ID P-22	Photo ID 4	
Date November 2, 2021		
Description: East slope – bare areas in mid-slope ditch. Occasional.		


Grid ID P-21	Photo ID 5	
Date November 2, 2021		
Description: East slope – exposed CCR at base of slope with some erosion rills. CCR at this location and a few others around LF appears to be deposited. Probable drill cuttings.		


Grid ID P-21	Photo ID 6	
Date November 2, 2021		
Description: East slope – more exposed CCR materials. Probable drill cuttings.		

Grid ID P-20	Photo ID 7	
Date November 2, 2021		
Description: East slope – bare areas on outside of upper diversion berm slope		
Grid ID P-19	Photo ID 8	
Date November 2, 2021		
Description: East slope – bare areas on upper slope		

Grid ID P-18	Photo ID 9	
Date November 2, 2021		
Description: East slope – hole in cover, exposed CCR		


Grid ID P-16	Photo ID 10	
Date November 2, 2021		
Description: East slope near north end – more exposed CCR		

Grid ID Q-16	Photo ID 11	
Date November 2, 2021		
Description: East slope near north end – drainage channel for lower berm		


Grid ID P-14	Photo ID 12	
Date November 2, 2021		
Description: NE corner – rip rap channel		


Grid ID Q-14	Photo ID 13	
Date November 2, 2021		
Description: NE corner – rip rap channel		

Grid ID P-13	Photo ID 14	
Date November 2, 2021		
Description: N slope – appears to have been re-seeded this year. More vegetation cover than last year		

Grid ID P-13	Photo ID 15	
Date November 2, 2021		
Description: N slope – appears to have been re-seeded this year. More vegetation cover than last year		

Grid ID P-13	Photo ID 16	
Date November 2, 2021		
Description: N slope – vegetation blocking drain pipes		

Grid ID O-12	Photo ID 17	
Date November 2, 2021		
Description: NW corner – hole in cover near down drain pipes. Hole on left, drain pipe on right.		

Grid ID O-12	Photo ID 18	
Date November 2, 2021		
Description: NW corner – upper drain channel in decent condition		

Grid ID M-14	Photo ID 19	
Date November 2, 2021		
Description: W slope – downstream channel in decent conditions		

Grid ID N-15	Photo ID 20	
Date November 2, 2021		
Description: W slope – holes in cover before drainpipe inlets		

Grid ID N-17	Photo ID 21	
Date November 2, 2021		
Description: W slope – drain pipes covered by vegetation		

Grid ID O-16	Photo ID 22	
Date November 2, 2021		
Description: N central, top – drill cuttings on ground next to piezometer. No marking on piezometer		

Grid ID N-18	Photo ID 23	
Date November 2, 2021		
Description: W top - drill cuttings on ground next to piezometer. No marking on piezometer		
Grid ID N-18	Photo ID 24	
Date November 2, 2021		
Description: W top - vegetation blocking drain pipes		

Grid ID N-19	Photo ID 25	
Date November 2, 2021		
Description: W top – looks like recent grading in this area. Sparse vegetation		
Point ID M-21	Photo ID 26	
Date November 2, 2021		
Description: SW corner – bare area		

Grid ID L-23	Photo ID 27	
Date November 2, 2021		
Description: SW corner – steep slope		


Grid ID M-24	Photo ID 28	
Date November 2, 2021		
Description: SW corner – outlet pipes with no drainage directed to them		

Grid ID M-23	Photo ID 29	
Date November 2, 2021		
Description: SE corner – rut in access road. CCR materials visible		
Grid ID R-26	Photo ID 30	
Date November 2, 2021		
Description: East LF face – looking north at good vegetation cover		

Grid ID R-23	Photo ID 31	
Date November 2, 2021		
Description: East LF face – minor erosion noted by rock check dam		

Grid ID Q-20	Photo ID 32	
Date November 2, 2021		
Description: East LF face – trees growing in riprap lined ditch		

Grid ID Q-15	Photo ID 33	
Date November 2, 2021		
Description: West LF face – erosion below stormwater outlets		
Grid ID K-22	Photo ID 34	
Date November 2, 2021		
Description: South LF face – exposed CCR and riprap erosion		

Grid ID L-25	Photo ID 35	
Date November 2, 2021		
Description: Main LF access road – erosion along road side		