2015 DAM & DIKE INSPECTION REPORT

GERS-15-020

BOTTOM ASH COMPLEX
SOUTH FLY ASH POND

KYGER CREEK STATION
GALLIPOLIS, OHIO

INSPECTION DATE October 6, 2015

PREPARED BY _____ **DATE** 11-2-15
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Shah Baig, P.E.

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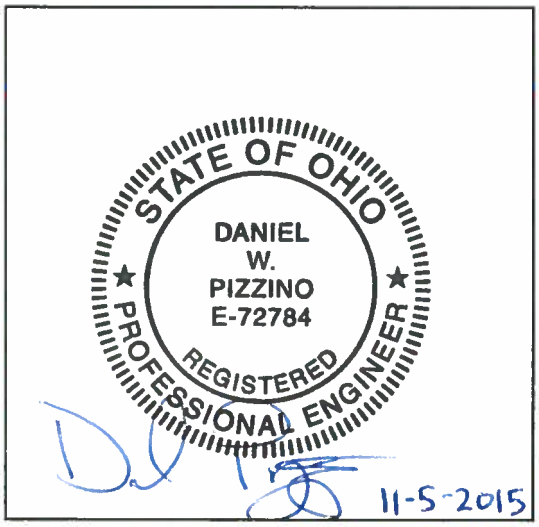

PROFESSIONAL ENGINEER SEAL & SIGNATURE

2015 DAM AND DIKE INSPECTION REPORT

GERS-15-020

KYGER CREEK STATION
GALLIPOLIS, OHIO

PREPARED BY
GEOTECHNICAL ENGINEERING
AEP SERVICE CORPORATION
1 RIVERSIDE PLAZA
COLUMBUS, OHIO

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INTRODUCTION

This Annual Dam and Dike Inspection Report has been prepared by AEP- Geotechnical Engineering Services (GES) section, in part, to fulfill requirements of the Ohio Department of Natural Resource (ODNR), to comply with the U.S. EPA rules governing Coal Combustion Residuals (CCRs) and to provide Ohio Valley Electric Corporation (OVEC) and Kyger Creek Station with an evaluation of the facility to aid in the prioritization of maintenance activities. This report contains the inspection findings, observations, photographic descriptions, conclusions, and maintenance recommendations. This inspection report addresses the Bottom Ash Complex and South Fly Ash Pond at the Kyger Creek Station.

Mr. Paul Hutchins, Associate Engineer, Kyger Creek Station provided onsite coordination for inspection activities. The inspection was performed on October 6, 2015. Weather conditions were generally good with temperatures in mid 70's F, with good visibility. Observations were briefly discussed with Kyger Creek Station onsite personnel during and after completing the inspection.

SUMMARY OF VISUAL INSPECTION TERMS

The summary of the visual observations uses terms to describe the general appearance or condition of an observed item, activity or structure. Their meaning is understood as follows:

Good:	A condition or activity that is generally better or slightly better than what is minimally expected or anticipated from a design or maintenance point of view.
Fair or Satisfactory	A condition or activity that generally meets what is minimally expected or anticipated from a design or maintenance point of view.
Poor:	A condition or activity that is generally below what is minimally expected or anticipated from a design or maintenance point of view.
Minor:	A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below what is normal or desired, but which is not currently causing concern from a structure safety or stability point of view.
Significant:	A reference to an observed item (e.g. erosion, seepage, vegetation, etc.) where the current maintenance program has neglected to improve the condition. Usually, conditions that have been previously identified in the previous inspections, but have not yet been corrected.
Excessive:	A reference to an observed item (e.g., erosion, seepage, vegetation, etc.) where the current maintenance condition is below or worse than what is normal or desired, and which may have affected the ability of the observer to properly evaluate the structure or particular area being observed or which may be a concern from a structure safety or stability point of view.

BOTTOM ASH COMPLEX

Bottom Ash Complex consists of a Bottom Ash Pond (BAP) and a Clearwater Pond (CWP) separated by a Splitter Dike shown in Figure 1. Ohio River runs parallel to the east dike and OH State Route 7 runs parallel to the west dike. The BAP is located between SR 7 and Kyger Creek to the west and Ohio River to the east. Kyger Creek also runs along a section of the dike and follows the shape of the dike. There have been no changes in geometry of the Bottom Ash Pond and Clearwater Pond since the last annual inspection

Capacity

Storage capacity of the impounding structure at the time of the inspection -	1,435 ac-ft.
Approximate volume of water at the time of the inspection -	238 ac-ft
Approximate volume of CCR at the time of the inspection -	408 ac-ft.

Impounded water depth since last inspection

Bottom Ash Pond

Minimum Water Elevation –	557.6
Maximum Water Elevation -	558.4
Present Depth-	557.9
Crest Elevation -	582

Clearwater Pond

Minimum Water Elevation –	549.2
Maximum Water Elevation -	557.0
Present Depth-	549.6
Crest Elevation -	582

Observations

Results of the visual inspection performed on October 6, 2015 are summarized below. Figures 2 through 4 include inspection notes and photograph locations.

Bottom Ash Pond

1. The crest of the bottom ash pond which is used for vehicular traffic for operations and maintenance activities appeared in good and stable condition with no significant settlement, misalignment, potholes, or noticeable sign of distress. There were newly drilled monitoring wells located in the crest in several locations. The wells were covered with a flushed mounted cap supported by concrete. In general the crest is in good condition. (See Photos BAP-01 to BAP-03)

2. The outboard slope of the east dike adjacent to the Ohio River is generally in good condition. It is well vegetated and was recently mowed within the past 4 weeks. There were no signs of bulging or settlement. There were no seepage or wet areas observed. No animal activity was observed. There is an area on the south end of the dike that appeared to have rutting possibly from the recent drilling activities or mowing. (See Photos BAP-04 to BAP-05)

3. A new set stairs were recently installed on the northern end of the east dike leading to stormwater outfall 8. The area around the new stairs was denuded and had sparse vegetation due to the construction activities. (See Photo BAP-06)

4. The outboard slope of the west dike adjacent to Route 7 is well vegetated and was recently mowed within the past 4 weeks. There were no signs of bulging or settlement. There were no seepage or wet areas observed. No animal activity was observed. The highway drainage channel near the toe is in good condition and there was no standing water or erosion. The general condition of the slope is good. (See Photo BAP-07)

5. The outboard slope of the north dike adjacent to the access road (west section) is in good condition. Full grown trees and brush are present on this section of the slope which makes this portion of dike difficult to inspect. The slope appears in stable condition. The ditch appeared to have positive drainage. (See Photo BAP-08)

6. The outboard slope of the north dike (east section) is well vegetated and recently mowed. The drainage channel at the toe showed no signs of erosion. There were no signs of sloughing, bulges, or animal activity. (See Photo BAP-09)

7. The inboard slope along most of the bottom ash pond is in fair condition. There are areas of high vegetation and woody plants where it may be difficult to get

mowing equipment. The surface material of the inboard slopes is made of a mostly bottom ash and is therefore very susceptible to erosion. The erosion gullies appear to be within bottom material and not the dike material. (See Photos BAP-10 to BAP-12)

8. In general the overflow discharge structure located at the north slope of the splitter dike that conveys water from the Bottom Ash Pond to the Clearwater is in good condition. Water flowed unobstructed into the structure. There was no spalling or deterioration of the concrete structure observed. Additional there are spare stop logs stored on the deck platform of the structure. The access-way consisting of wooden ties and handrail installed over the slope followed by metal walkway is generally in good condition. (See photograph BAP-13)

Clearwater Pond

1. The outboard slope of the Clearwater Pond is in good and stable condition. The slopes have recently been mowed. There were no signs of animal activity, sloughs, bulges or settlement. The area near the outlet pipe showed no signs of instability. Some overgrown, matured trees were noticed near the toe of the slope of the east dike. (See Photo BAP-14 to BAP-15)

2. The outfall to the Ohio River is in good functioning condition. There are no signs of deterioration of the concrete headwall or the portion of the pipe that was visible. Access to the outfall is in fair condition and portions were steep and contained loose stones. (See Photos BAP-016 to BAP-017)

3. The overflow discharge structure which conveys water from the Clearwater pond to the Ohio River is generally in good condition. The walkway, railings, metal decking show no signs of deterioration. The concrete portion of the structure showed no signs of spalling or damage. There were 3 stop logs present and were in good condition. (See Photos BAP-18)

4. There were newly drilled monitoring wells located in the crest in several locations. The wells were covered with a flushed mounted cap supported by concrete. (See Photo BAP-19)

5. The inboard slopes of the Clearwater Pond are well vegetated but have not been recently mowed and vegetation is high. Overall, the slopes appeared in good and stable condition. There were no signs of sloughing or erosion. (See Photo BAP-20)

6. The discharge pipe entering the Clearwater Pond from the Bottom Ash Pond is in poor condition. The pipe which runs on cribbing above the water is deteriorated and has failed along the bottom near the splitter dike. The pipe's ability to dissipate water across the pond for water quality purposes is greatly diminished. (See Photo BAP-21)

7. The splitter dike that separates the Clearwater Pond from the Bottom Ash Pond is generally in good condition. The material that makes up the surface is generally made of bottom ash and will not support much vegetation. The vegetation is sparse and where it exists it has not been recently mowed. There were no signs of instability or erosion present along the splitter dike. Where the discharge pipe runs through the splitter there is no signs of settlement or instability. (See Photo BAP-22)

FLY ASH COMPLEX

The Fly Ash Complex consists of two ash ponds divided by a splitter dike as shown in Figure 1. The North Pond has been capped and closed as part of the North Ash Pond Closure Project and was not included as part of this inspection report. The South Pond remains open and active as part of the plants fly ash sluicing operations. In 2010, the Kyger Creek plant began ash removal activities from the pond by dredging. The dredged fly ash is dried at the onsite filter press treatment plant and sent to a landfill located about 1 mile west of the Kyger Creek Station. Figures 5 through 8 include inspection notes and photos locations.

There have been several repairs and maintenance activities performed at the South Pond. A seepage area along SR 7 was repaired using a sand and gravel blanket drain. Similarly, the seepage area along the northern groin of the west dike was repaired using the same type of sand and gravel blanket drain. Also, a localized area of wave erosion along the inboard slope of the north dike has been repaired with placement of rip rap. There have been no changes in geometry of the Fly Ash complex since the last annual inspection

Capacity

Storage capacity of the impounding structure at the time of the inspection	2500 ac-ft.
Approximate volume of water at the time of the inspection	426 ac-ft
Approximate volume of CCR at the time of the inspection	1,729 ac-ft.

Impounded water depth since last inspection

Fly Ash Pond

Minimum Water Elevation –	583.0
Maximum Water Elevation -	583.9
Present Depth-	583.8
Crest Elevation -	590

Observations

Results of the visual inspection performed on October 6, 2015 are summarized below. Figures 5 through 8 include inspection notes and photograph location.

1. The crest, inboard, and outboard slopes of the north dike are generally in good condition. There are no signs of any settlement, deformation, or cracks observed. The drainage ditch between the north and south ponds appeared to function as intended and no standing water was observed. An area where wave erosion was noted in 2014 annual inspection has been repaired. A few locations of shoreline sloughing/slipping on the inboard side of the pond have occurred but are minor. (See Photos FAP-01 to FAP-03)

2. Vegetation along the outboard slopes of the entire dike is generally good and well vegetated. Mowing has recently occurred along the outboard slopes. A majority of the inboard slopes have been mowed with a few areas that are difficult to access that have not been mowed. (See Photos FAP-04 to FAP-05)

3. There are newly drilled monitoring wells located in the crest in several locations. The wells were covered with a flushed mounted cap supported by concrete.(See Photo FAP-06)

4. The crest, inboard, and outboard slopes of the east dike along SR 7 are generally in good condition. There are no signs of settlement, deformations, or cracks observed. A seepage area was repaired since the 2014 annual inspection by placing a sand and gravel blanket along the face of the dike similar to the previous two repairs made along the same embankment. The other two previous seep repairs were in good condition and appear to be functioning as designed. The most southern repair area appeared to have a minor slough of the cover aggregate or it was pushed downslope by mowing equipment. (See Photos FAP-07 to FAP-09)

5. The piping and supports located along the top of the east dike appear to be in good condition and there does not appear to be any settlement or movement of these structures. (See Photo FAP-10)

6. The crest, inboard, and outboard slopes of the south dike are generally in good condition. There were no signs of settlement, deformation or cracks. There were several areas along the toe that had standing water which could be attributed to recent rain. (See Photo FAP-11)

7. The crest inboard and outboard slopes of the west dike generally in good condition. There were no signs of settlement, deformation, or cracks. (See Photo FAP-12)

8. There is an area of seepage on the south side of the west dike. This seepage area has been noted on 2014 annual inspection reports and does not appear to be increasing in flow from previous years. (See Photo FAP-13)

9. The seepage area on the north side of the west dike that was noted in the 2014 annual inspection report has recently been repaired. The repair consisted of a sand and gravel drainage blanket to prevent piping and erosion of the seep. The drainage blanket is in good condition. (See Photo FAP-14)

10. While inspecting the area on the outboard slope directly above the outlet pipe of the principle spillway, a slight depression was noticed. This did not appear to be a major issue and may be attributed to the normal minor undulations in the ground surface. Positive flow was observed from the pipe into the ditch, but some unusual slug flow and burping was noticed at the outlet end of the pipe. The slug flow and burping has been present for the past several years. (See Photo FAP-15)

11. The overflow discharge structure was generally in good condition. The platform and walkway leading to an around the discharge structure did not show signs of deterioration. The concrete structure had no spalling or cracks. Water was entering the structure unobstructed. The extra stop log that was present at the discharge structure deck is in good condition. (See Photo FAP-16 to FAP-17)

12. The channel just below the toe of the west dike appeared to be in good condition. This area is not normally mowed and vegetation was high. There did not appear to be any standing water in this channel. (See Photo FAP-18)

13. The outlet pipe and outboard channel from the west channel to the Kyger creek was functioning properly. The water was flowing from the pipe unobstructed. The

metal walkway leading to the pipe outlet is in good condition and showed no signs of deterioration. (See Photo FAP-19 to FAP-20)

14. The area located beyond the toe at the southwest portion of the complex was observed to be seeping water as noted in previous annual inspections. The flow rate of this water was somewhere around 10-20 gpm estimated from visual observation which is consistent with previous years. This area was lined several years ago with rip rap to accommodate this flow. The flow rate can be measured by pumping out a depression at the outlet of a culvert and measuring the amount the free flowing water into the depression. (See Photo FAP-21)

ASSESSMENT OF WATER ELEVATION DATA

Historical water pool levels of the three ponds are summarized in Table 1 and presented in Figure 9 of Appendix C. Figure 9 provides the data from year 2001 through 2015. This data was provided by the plant personnel from their inspections. As mentioned before, the Kyger Creek Station continues fly ash removal activities from the pond which will be then placed in the landfill. It was observed that the water elevation in the SFAP increased significantly until 2010 and reached a maximum elevation of 584.6 (August 2011). The elevation has been maintained since 2010 and was recorded at 583.9 during this inspection.

Figures 10 and 11 of Appendix C present the Instruments map location of piezometers installed by DLZ in 2010 of the Bottom Ash Pond Complex and the Fly Ash Pond. Tables 2 and 3 and the corresponding Figures 12 and 13 of Appendix C present the water elevations of those piezometers.

The 2014 annual inspection noted that piezometer KC-1017 measured elevated water levels and recommended that the piezometer be flushed. In November of 2014 the piezometer was flushed and it was determined to be clogged. Once the flushing was complete the piezometer returned to its normal levels.

Several readings of piezometers located at the Bottom Ash Pond Complex showed elevated readings or an upward trend in readings. These piezometers are KC-1015, KC-1016 and KC-1018. Piezometer KC-1015 showed a significant drop in elevation for the November 1, 2015 reading. Piezometer KC-1021 showed a significant jump for the March 27, 2015 reading but returned to its typical levels in the subsequent readings. The elevations of pond pool levels and the Ohio River have remained fairly constant and do not appear to be cause for these fluctuations. AEP – Geotechnical Engineering Services will request more frequent readings taken over the next 90 days and further evaluate the readings of these wells.

Figure 13 includes the piezometers water elevation along with the ponds elevations and the embankment elevations for the SFAP. Figure 13 shows that the freeboard is less than 5 ft (4.1 ft). It was noticed that readings taken from piezometer KC-1004 have fluctuated a considerable amount compared to other piezometers at the SFAP. The elevations of the pond pool level and Ohio River have remained constant and do not appear to be the cause for these fluctuations. AEP – Geotechnical Engineering Services will request more frequent readings taken over the next 90 days and further evaluate the readings of these wells.

RECOMMENDATIONS

Bottom Ash Complex

1. The inboard slopes appeared to be in good and stable condition, but in general had overgrown brush and vegetation. There are also areas of erosion of the bottom ash material that lines the inboard slopes. It is recommended that the vegetation be cut and the inboard slopes be regraded to repair the erosion.

2. The minor rutting observed on the east dike should be regraded and reseeded.

3. The area around the new stairway installed at the east dike should be seeded to prevent erosion.

4. The outlet pipe that conveys water from Bottom Ash Pond to the Clearwater Pond should be repaired where it is deteriorated. The portion of pipe running through the splitter dike should be camera inspected to determine its condition and repaired if necessary.

5. If the pathway to Clearwater Pond outlet at the Ohio River becomes difficult to use the path should be improved.

6. The trees located on the outboard slope of the north dike should be removed. There are also several trees located on the east dike that should be removed.

7. Piezometer readings at the Bottom Ash Complex should be read approximately every 4 weeks for the next 90 days and given to AEP- Geotechnical Engineering for review.

Fly Ash Complex

1. The plant continues the removal of fly ash from the pond through dredging and disposing of the ash at the landfill, west of the Kyger Creek Station (power plant). For the safety of the dikes, it is recommended that a minimum of 10-foot setback must be maintained all the time during fly ash removal from the inboard slope at the depths of excavation. Any unusual condition occurs at the pond during ash removal (e.g. drawdown of the pond quickly, seepage from the dike, settlement of the dike or fly ash in the pond, etc) should be brought to the immediate attention of AEP-Geotechnical Engineering.

2. Portions of the inboard slope of the dike have localized areas of shoreline erosion /sloughing. These areas appear to be in the same condition as the previous inspections and one area was permanently repaired. The condition of the areas appears stable and do not appear to be compared to past inspections. The eroding areas should continue to be closely monitored and repaired if it worsens.

3. The three locations along the east dike where seepage control repair was installed appear stable and functioning as designed. One of the repair areas appeared to have a minor slough. This could have occurred from the mowing equipment. This area should be monitored to ensure the slough does not worsen.

4. A minor depression was observed directly over the outlet pipe on the outboard slope of the west dike. This depression could be due to a minor slough or ruts from the mowing equipment, however it should be monitored to ensure it does not worsen.

5. Two of the three seeps that were observed in the 2014 annual inspection report along the west dike have been repaired. The seep area which was not repaired is located south of the outlet structure. This seep area does not appear to have worsened compared to previous annual inspections. This seep area should be closely monitored for increase in flow and for clearness of the seep water until it can be repaired. To aid in monitoring a weir box could also be installed at the localized point of seepage to measure flow rate and clarity. This seep should be repaired in the same manner as the northern seep areas.

6. Perform grading work along the toe of the exterior slope of the south dike to promote drainage and to relieve ponding.

7. The seepage located beyond the toe at the southwest corner should be monitored for increase in flow and clarity of the water. This flow should be recorded during each routine inspection. If the flow rate increases or the water coming from the seep is not clear it should be brought to the immediate attention of AEP-Geotechnical Engineering.

8. Piezometer readings at the Fly Ash Pond should be read approximately every 4 weeks for the next 90 days and given to AEP- Geotechnical Engineering for review.

CONCLUSIONS

Based on this visual inspection, it is concluded that the embankments impounding the Bottom Ash Complex and Fly Ash Pond were generally in good condition at the time of inspection with no signs of distress that would indicate possible instability, excessive settlement, misalignment, sloughing, or cracking of the dam. The embankments appear to be well maintained. Specific conclusions and recommendations for repair, maintenance, monitoring, and safety at those structures are presented in the report. Continue to address items of concern with the annual maintenance activities. Inspections, monitoring, and reporting by the plant personnel should continue. If you have any questions with regard to this report, please do not hesitate to contact Daniel Pizzino at 614-716-1472 (Audinet: 200-1472) or Gary Zych at 614-716-2917 (Audinet: 200-2917).

APPENDICES

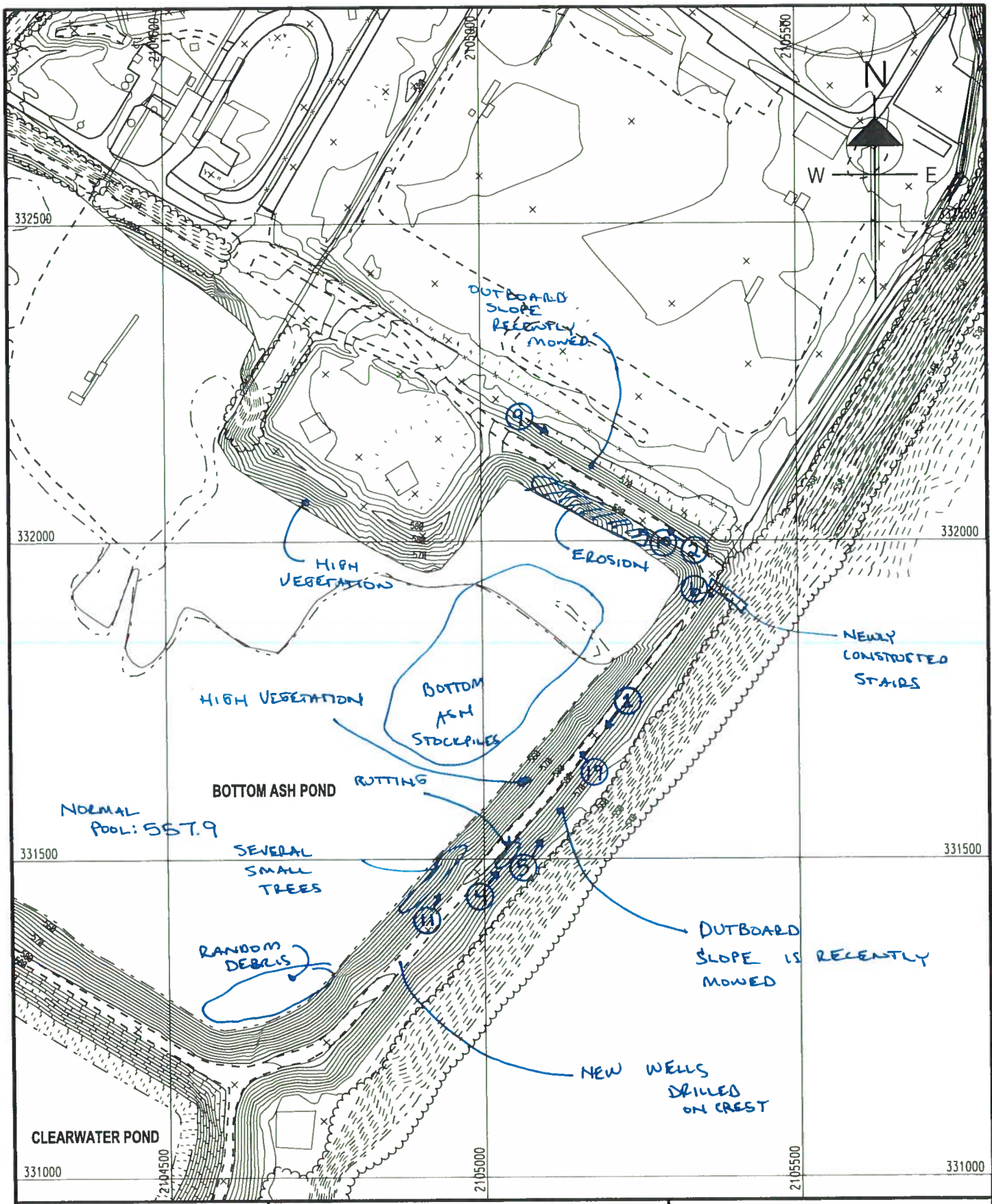
APPENDIX A

Figure 1 – Site Map


SOUTH FLY ASH POND
BOTTOM ASH POND
CLEARWATER POND
FIGURE 1
FIGURE 2
FIGURE 3
FIGURE 4
FIGURE 5
FIGURE 6
FIGURE 7
FIGURE 8
N
E
W
HORIZONTAL CONTROL:
DATUM: NORTH AMERICAN DATUM OF 1927 (NAD27)
ZONE: OHIO SOUTHERN
UNIT: U.S. SURVEY FEET
IMAGERY DATE: AUG 2007
DRN BY:
DATE:
SCALE: 1"=400'
KYGER CREEK POWER STATION
INDEX-SHEET 1 OF 8
FLY ASH, BOTTOM ASH AND CLEARWATER POND
DWG NO: FIGURE 1
AMERICAN ELECTRIC POWER
AEP SERVICE CORP.
1 RIVERSIDE PLAZA
COLUMBUS, OH 43215

APPENDIX B

- **Figures 2, 3 and 4 – Bottom Ash Complex (Splitter Dike, Clearwater Pond & Bottom Ash Pond)**
- **Inspection Photos of Bottom Ash Complex (Splitter Dike, Clearwater Pond & Bottom Ash Pond)**
- **Figures 5, 6, 7, and 8– South Fly Ash Pond**
- **Inspection Photos – South Fly Ash Pond**



DRN BY:	KYGER CREEK POWER STATION	DWG NO: FIGURE 4
DATE:	SHEET 4 OF 8	AEP AMERICAN ELECTRIC POWER
SCALE: 1"=200'	BOTTOM ASH POND	AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215

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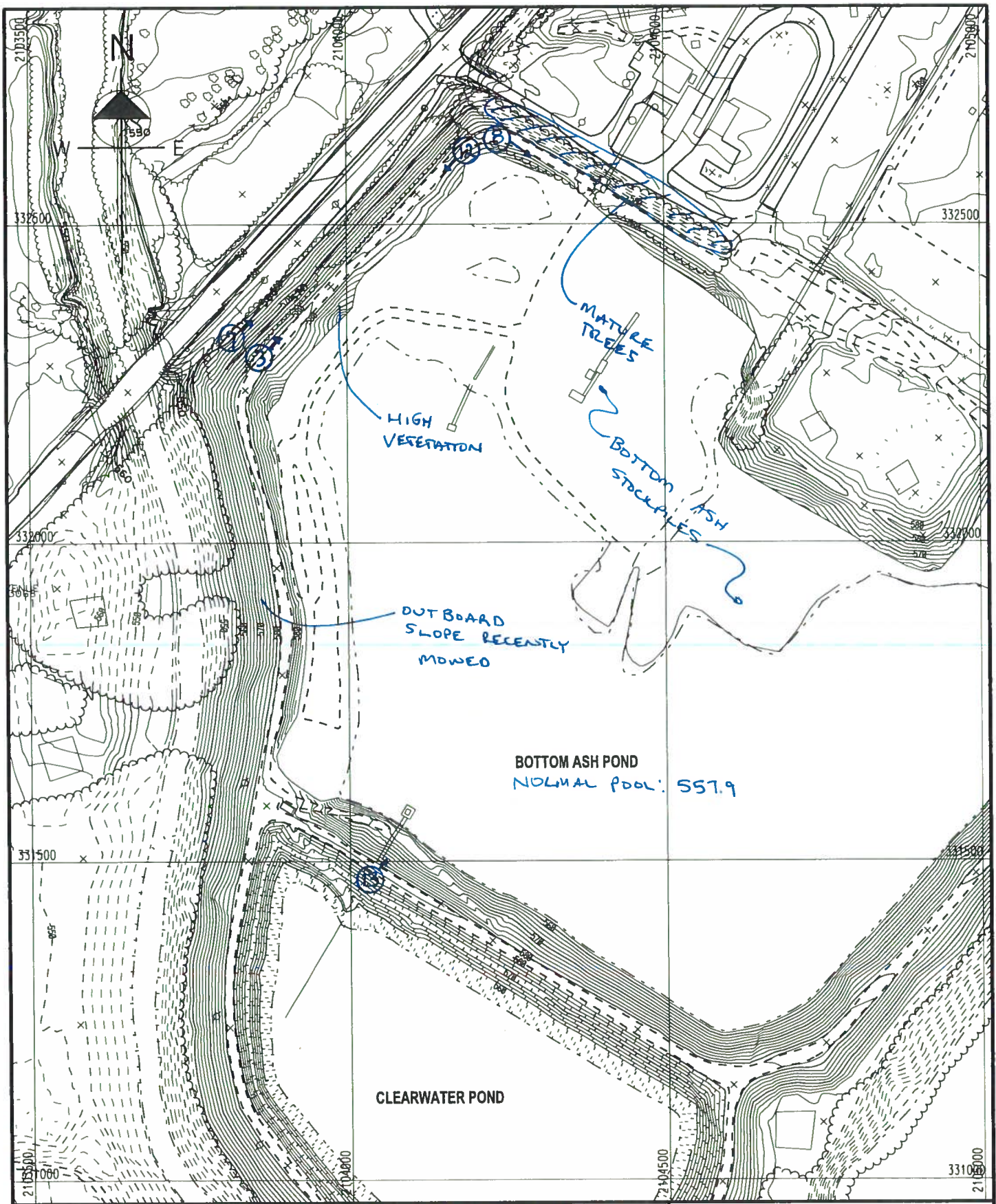

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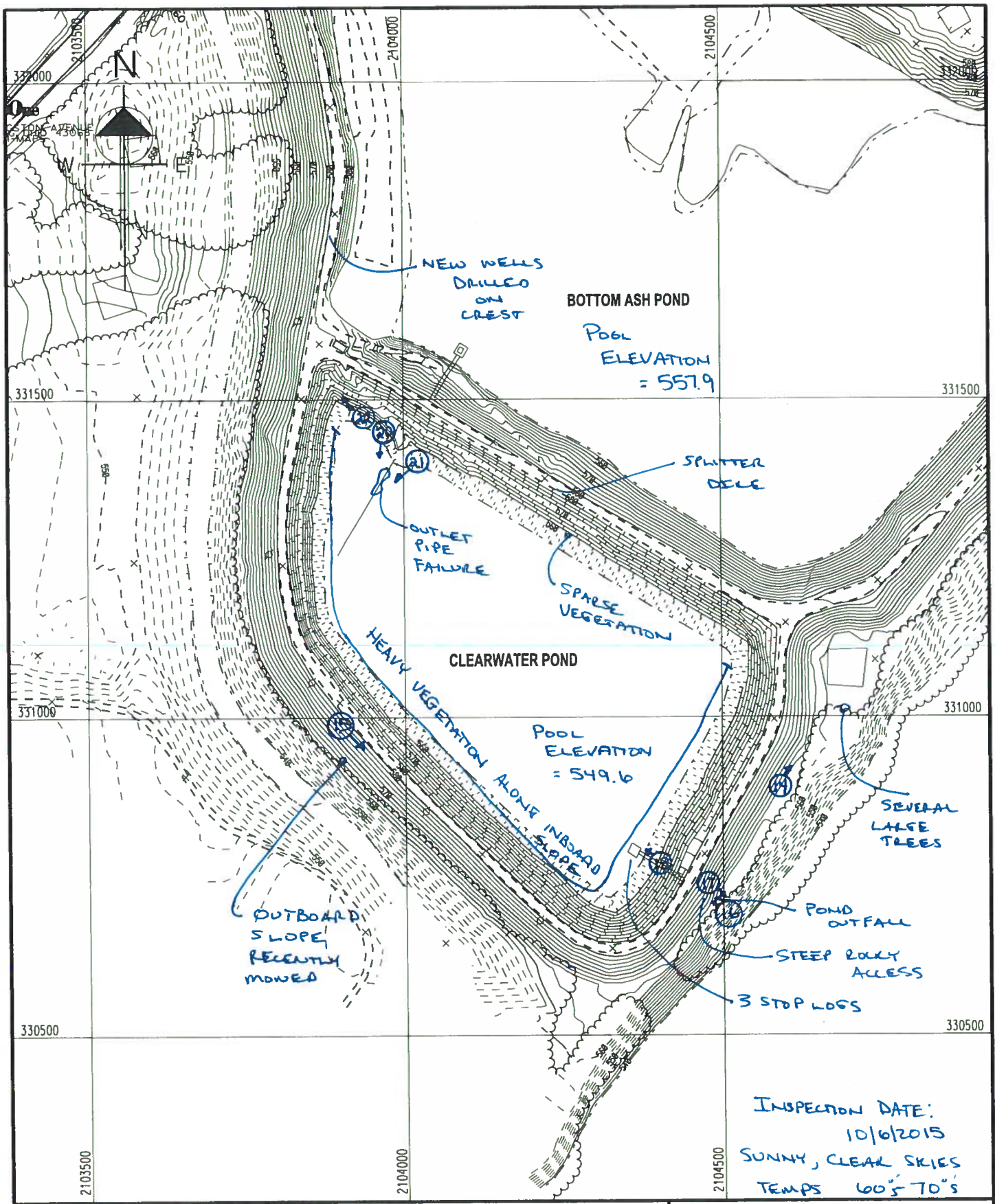

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SCALE: 1"=200'	CLEARWATER POND	AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215

PLOT DATE: 9/27/2011 PLOT TIME: 4:19:40 PM BY: s182642

Photo # BAP- 01 Crest of the Bottom Ash Pond	
Photo # BAP- 02 Crest of Bottom Ash Pond	
Photo # BAP- 03 Crest of Bottom Ash Pond	

Photo # BAP- 04 Rutting along East dike.	
Photo # BAP- 05 Typical view of outboard slope of east dike	
Photo # BAP- 06 Newly constructed stairs at north end of east dike	

Photo # BAP- 07 Typical view of west dike along SR 7.	
Photo # BAP- 08 View of the north dike. Trees and brush are located on the outboard slope.	
Photo # BAP- 09 Typical view of the north dike	

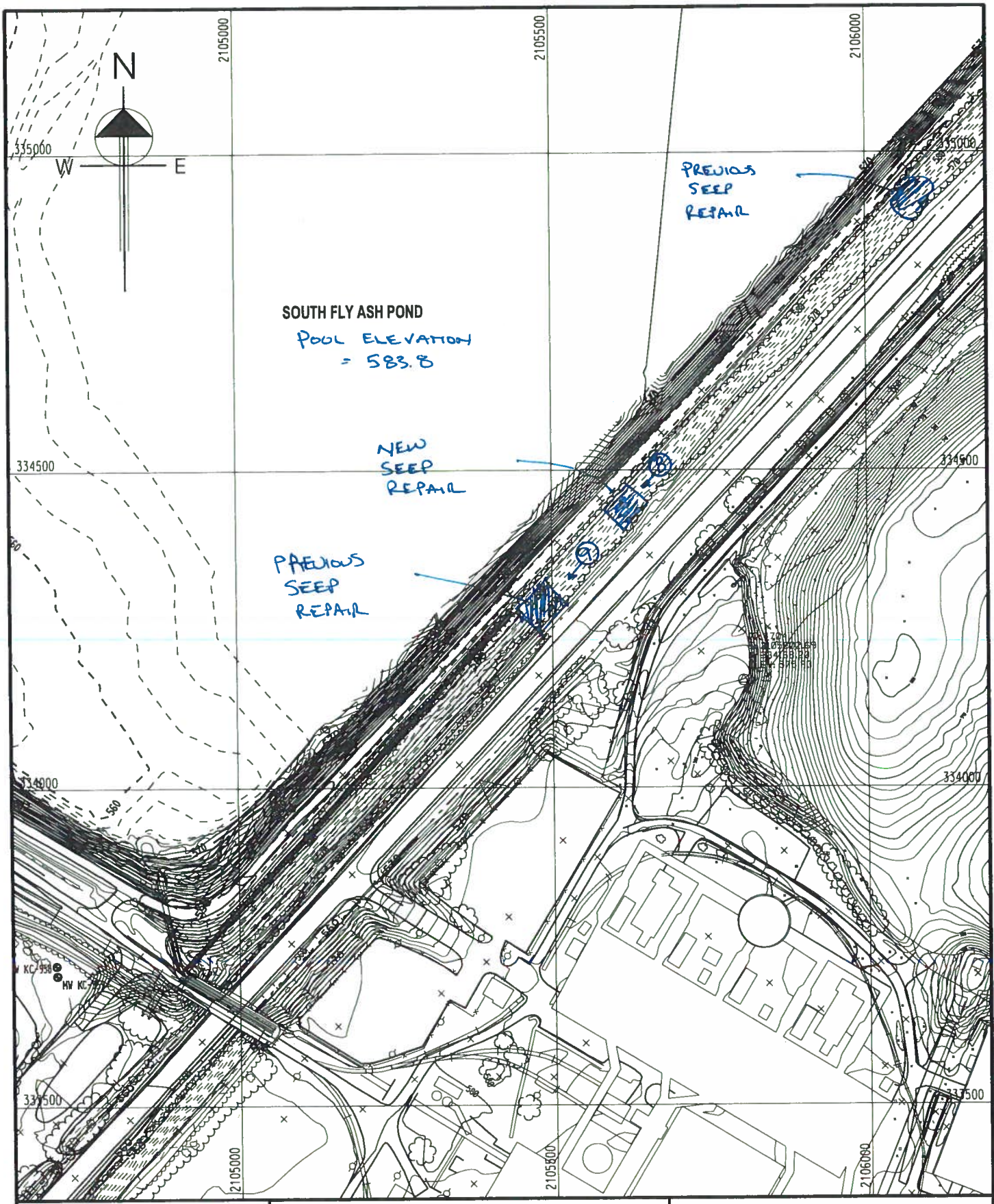
Photo # BAP- 10 Typical view of the inboard slope of the Bottom Ash Pond	
Photo # BAP- 11 Typical view of the inboard slope of the Bottom Ash Pond	
Photo # BAP- 12 Typical view of the inboard slope of the Bottom Ash Pond	

Photo # BAP- 13 Discharge structure located in the Bottom Ash Pond	
Photo # BAP- 14 Outboard slope of east dike of the Clearwater Pond. A few mature trees were observed.	
Photo # BAP- 15 Typical view of the outboard slope of the Clearwater pond.	

Photo # BAP- 16 Photo of the outfall to the Ohio River from the Clearwater Pond	
Photo # BAP- 17 Access to the outfall to the Ohio River	
Photo # BAP- 18 Outlet structure in Clearwater Pond	

Photo # BAP- 19 Recently installed well in the crest of the dike	
Photo # BAP- 20 View of the inboard slope of the Clearwater Pond	
Photo # BAP- 21 Outlet pipe from the Bottom Ash Pond into the Clearwater Pond. The pipe is misaligned in places and the bottom of the pipe is deteriorated and failed.	

Photo # BAP- 22	
Typical view of the splitter dike slope	



DRN BY:	KYGER CREEK POWER STATION	DWG NO: FIGURE 6
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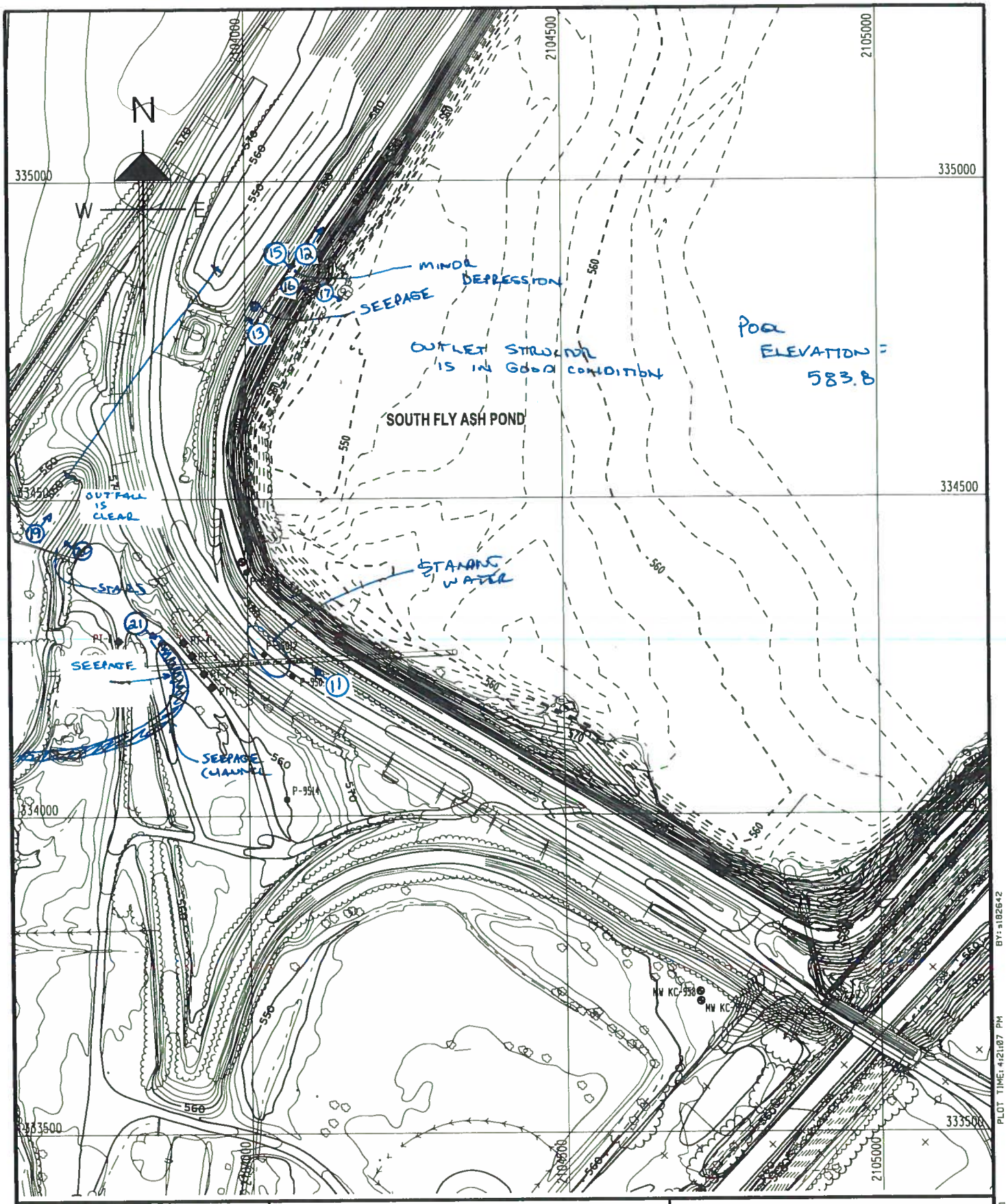

DRN BY:	KYGER CREEK POWER STATION	DWG NO: FIGURE 5
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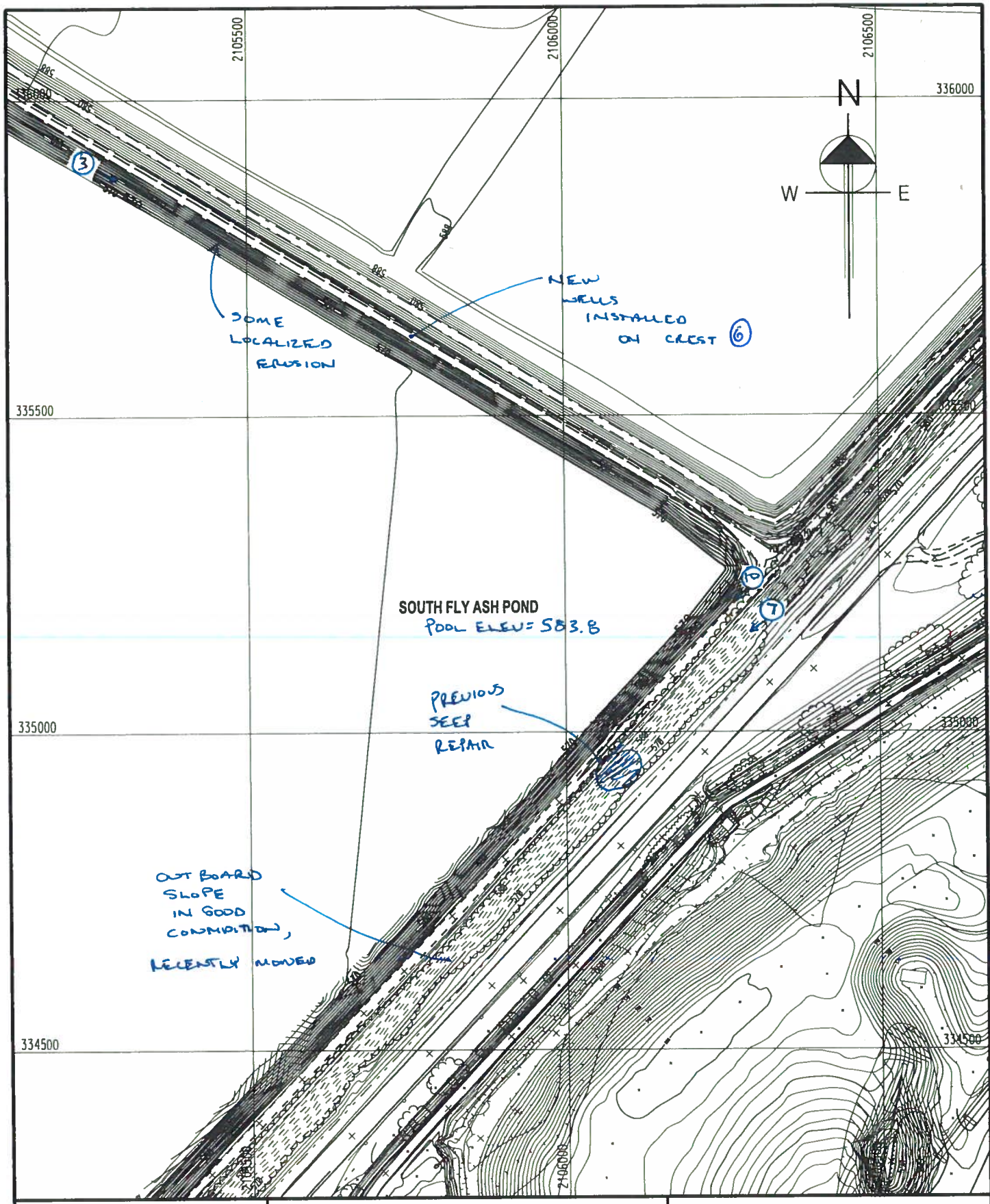

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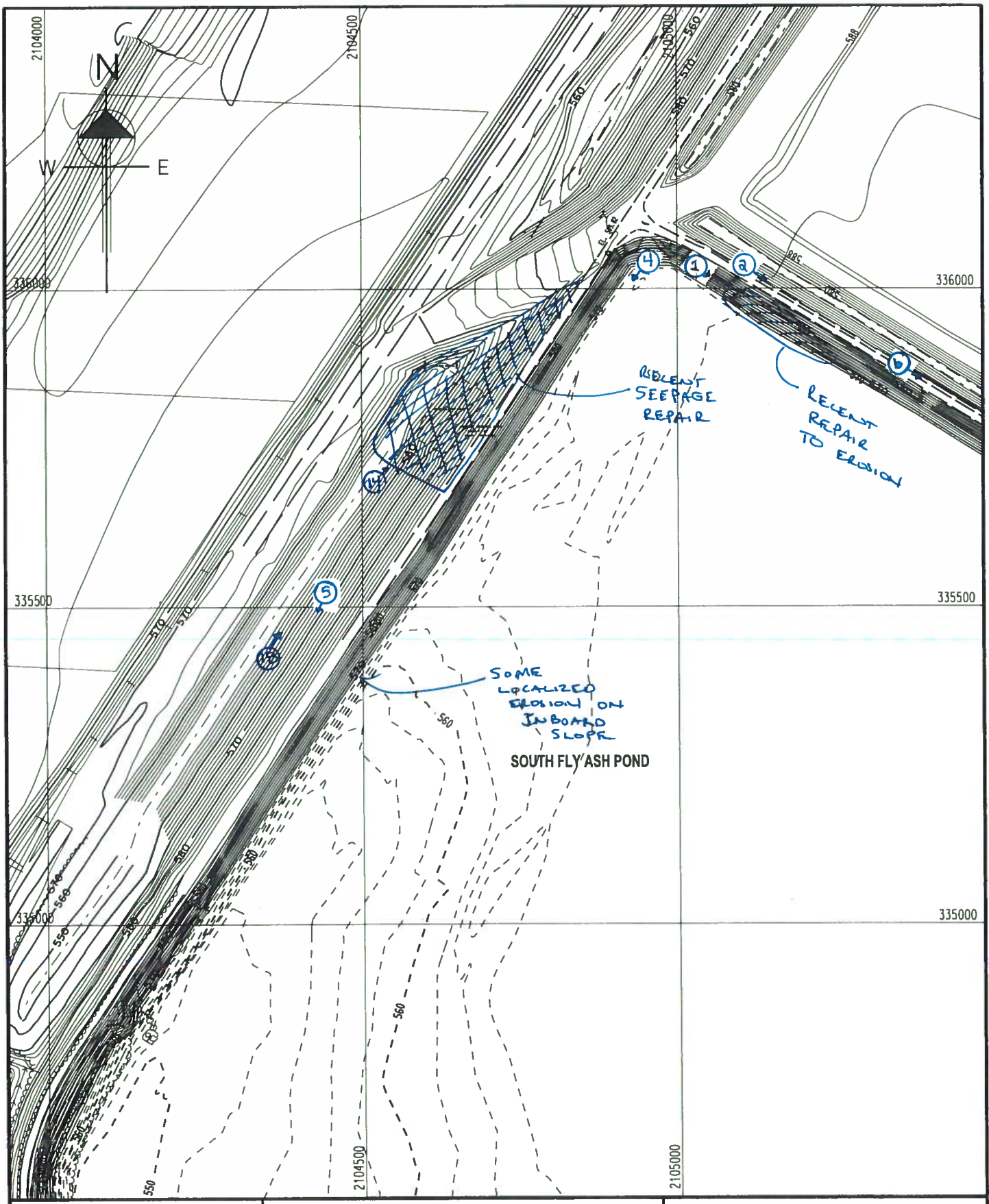

DRN BY:	KYGER CREEK POWER STATION	DWG NO: FIGURE 8
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SCALE: 1"=200'	FLY ASH POND	AEP SERVICE CORP. 1 RIVERSIDE PLAZA COLUMBUS, OH 43215

PLOT TIME: 4:36:00 PM BY: s182642
PLOT DATE: 9/27/2011

Photo # FAP- 01 Crest and inboard slope of the north dike. The area where the wave erosion was repaired is shown.	
Photo # FAP- 02 Typical view of the crest and outboard slope of the north dike	
Photo # FAP- 03 Localized area of wave erosion on inboard slope	

Photo # FAP-04 Typical view of the inboard slope	
Photo # FAP-05 Typical view of the outboard slope	
Photo # FAP- 06 Newly installed monitoring well in crest of dike	

Photo # FAP- 07 Typical view of the east dike	
Photo # FAP- 08 Typical view of seepage repair along east dike	
Photo # FAP- 09 Minor slough of aggregate at seepage repair	

Photo # FAP- 10 Piping and support along crest of east dike	
Photo # FAP- 11 Outboard slope of south dike with standing water along toe.	
Photo # FAP- 12 A typical view of the west dike	

Photo # FAP- 13 Seepage located on the south end of the west dike	
Photo # FAP- 14 Seepage repair area at the north end of the west dike	
Photo # FAP- 15 A slight depression in the west dike directly over the outlet pipe	

Photo # FAP- 16 Platform to overflow discharge structure	
Photo # FAP- 17 View of the overflow discharge structure	
Photo # FAP- 18 Outboard slope of the west dike and channel at toe	

Photo # FAP- 19 View of the ditch discharging from the pond to the Kyger Creek	
Photo # FAP- 20 Stairs leading to pond discharge to the Kyger Creek	
Photo # FAP- 21 Seepage located beyond the toe of the southeast corner of the pond	

APPENDIX C

- **Table 1 – Summarized Water Elevation Data**
- **Table 2 – Bottom Ash Complex Static Water Elevations**
- **Table 3 – South Fly Ash Pond Static Water Elevations**

- **Figure 9 – Ponds Water Elevations**
- **Figure 10 – Instruments Map Location, Bottom Ash Pond Figure 11 – Instruments Map Location, South Fly Ash Pond**
- **Figure 12 – Bottom Ash Pond Static Water Elevations**
- **Figure 13 – South Fly Ash Pond Static Water Elevations**

Table 1 - SUMMARIZED WATER ELEVATION DATA.

Dates	Elevation (ft)			
	SFAP	BAP	CWP	Ohio River
Apr-01	562	556	551	539
Apr-02	564.25	551.2	550.8	
Apr-03	566.75	556.3	551	
Oct-04	573.31	556.3	551	
Dec-05	578.7	551	ND	
Jun-09	582.18	556.92	550.03	
Sep-09	582.11	556.87	549.97	
Oct-09	582.68	556.8	549.82	
Nov-09	583.43	556.78	549.94	538
Mar-10	583.97	556.72	549.75	
Aug-10	584.01	556.39	549.87	
Sep-10	583.85	556.34	549.79	539
Oct-10	583.8	556.3	549.83	ND
Nov-10	583.86	556.36	549.89	539
Mar-11	584.06	556.76	550.5	539
Apr-11	583.56	556.43	549.83	549
May-11	583.59	557.09	550.33	539
Jun-11	583.56	557.03	554.62	543
Jul-11	583.76	556.84	550.33	539
Aug-11	584.6	556.96	549.91	539
Sep-11	583.41	556.76	549.95	539
Nov-11	583.3	556.68	549.45	
Nov-11	583.66	556.87	549.77	
Dec-11	583.63	556.79	549.9	
Jan-12	583.45	556.8	549.46	
Feb-12	583.3	556.63	549.5	
Mar-12	583.4	556.6	549.51	550.4
Apr-12	583.3	556.8	549.5	538.5
May-12	583.5	556.7	550.1	538.6
Jun-12	583.6	556.7	549.8	538.5
Sep-12	583.3	556.6	549.8	538.3
Oct-12	583.4	556.6	549.8	538.5
Feb-13	583.3	556.6	549.8	538.6
May-13	583.6	557.5	549.8	537
Aug-13	583.6	557.5	549.8	538.4
Oct-13	583.5	557.6	549.6	538.4
Feb-14	583.6	557.9	549.9	540.6
May-14	583.4	557.9	549.8	540.2
Aug-14	583.5	558	549.7	538.1
Sep-14	583.6	558	549.6	537.7
Nov-14	583.5	558	549.7	541
Mar-15	583.6	558	549.8	539
Jun-15	583.5	557.9	549.8	538
Sep-15	583.9	558	549.8	538.2

SFAP - South Fly Ash Pond -Crest Elevation :588
BAP - Bottom Ash Pond -Crest Elevation :582
CWP - Clearwater Pond -Crest Elevation :582
ND - No Data

Table 2 - Bottom Ash Pond Static Water Elevations

Dates	Elevation (ft)					
	KC-1015	KC-1016	KC-1017	KC-1018	KC-1021	KC-1022
8/30/2010	ND	ND	ND	ND	539.83	ND
9/1/2010	545.98	ND	ND	ND	539.85	ND
9/7/2010	545.83	ND	535.3	ND	539.76	538.79
9/8/2010	545.86	ND	535.5	530.6	539.73	538.78
9/9/2010	545.82	536.3	535.74	531.85	539.72	538.84
9/10/2010	545.81	538.85	536	533.09	539.75	538.89
9/13/2010	546.02	539.3	537.06	535.85	539.72	539.04
9/14/2010	545.89	539.25	537.29	536.3	539.72	539
9/15/2010	546.02	539.15	537.59	536.7	539.72	538.94
5/20/2011	550.52	ND	549.79	ND	545.32	545.94
6/7/2011	ND	539.15	ND	536.7	ND	ND
9/27/2011	546.97	537.98	546	541.65	540.01	539.36
3/20/2012	547.65	541.1	550.79	537.5	542.38	541.74
6/1/2012	544.75	537.28	549.89	538.9	540.21	539.73
8/3/2012	546.41	536.78	547.41	536.86	539.52	539
10/25/2012	546.02	536.95	548.29	535.05	539.82	538.99
2/21/2013	546.47	539.1	549.39	539.2	541.52	540.14
5/23/2013	545.85	539.27	549.59	534.41	540.22	539.56
8/16/2013	546.67	537.9	548.99	534.8	540.02	539.24
11/15/2013	546.77	538.4	548.69	534.3	539.92	539.34
3/7/2014	548.27	539.5	556.49	539.7	544.22	541.34
6/12/2014	547.07	538.8	551.59	534.2	540.62	535.74
9/9/2014	546.47	538.9	551.19	536.5	539.42	538.84
11/9/2014	549.07	541.3	544.19	541.1	540.02	540.54
3/27/2015	549.27	541.6	546.89	540.7	546.32	542.04
6/5/2015	546.57	542.1	543.79	539.1	540.52	539.59
9/1/2015	539.57	545.1	543.49	543.1	540.22	539.34

Table 3 - South Fly Ash Pond Static Water Elevations

Dates	Elevation (ft)					
	KC-1003	KC-1004	KC-1007	KC-1008	KC-1011	KC-1012
8/20/2010	558.09	ND	559.23	Dry	ND	ND
8/23/2010	561.35	ND	559.22	Dry	ND	ND
8/25/2010	561.35	ND	559.28	Dry	ND	ND
8/26/2010	561.43	551.24	559.27	Dry	ND	ND
8/30/2010	561.61	549.95	559.51	Dry	567.31	ND
9/1/2010	561.7	549.96	559.58	Dry	567.23	ND
9/7/2010	561.91	549.64	560.15	Dry	567.09	ND
9/8/2010	561.91	549.63	560.2	Dry	566.96	ND
9/9/2010	561.94	549.64	560.26	Dry	566.89	ND
9/10/2010	562.04	549.57	560.34	Dry	566.89	561.77
9/13/2010	562.24	549.49	560.64	Dry	567.07	561.67
9/14/2010	562.21	549.44	560.72	Dry	566.94	561.71
9/15/2010	562.27	549.43	560.83	Dry	567.04	561.75
5/20/2011	568.49	551.09	569.93	Dry	567.89	561.47
8/19/2011	566.94	ND	ND	Dry	ND	ND
9/27/2011	564.37	550.39	576.73	Dry	567.28	561.39
3/20/2012	567.29	550.46	573.48	Dry	567.18	561.42
6/1/2012	567.32	549.74	572.63	Dry	565.27	561.6
8/3/2012	567.68	549.35	572.65	Dry	564.61	560.78
10/25/2012	570.04	548.89	573.43	554.81	564.77	560.57
2/21/2013	ND	549.99	581.71	557.21	564.99	560.47
5/23/2013	572.59	549.34	576.33	554.01	565.49	560.47
8/16/2013	572.69	549.59	574.63	552.21	566.69	560.77
11/15/2013	572.79	549.79	575.63	Dry	566.79	560.67
3/7/2014	572.39	550.99	576.03	Dry	566.99	560.77
6/12/2014	570.89	550.49	570.83	Dry	566.49	560.67
9/9/2014	570.79	550.59	571.83	559.81	566.19	560.77
11/9/2014	573.79	550.49	574.13	560.71	567.19	560.77
3/27/2015	572.99	550.59	577.73	559.41	565.99	560.77
6/5/2015	571.39	549.69	570.43	558.21	564.86	560.47
9/1/2015	571.49	549.49	572.33	556.51	566.29	557.07

ND - No Data

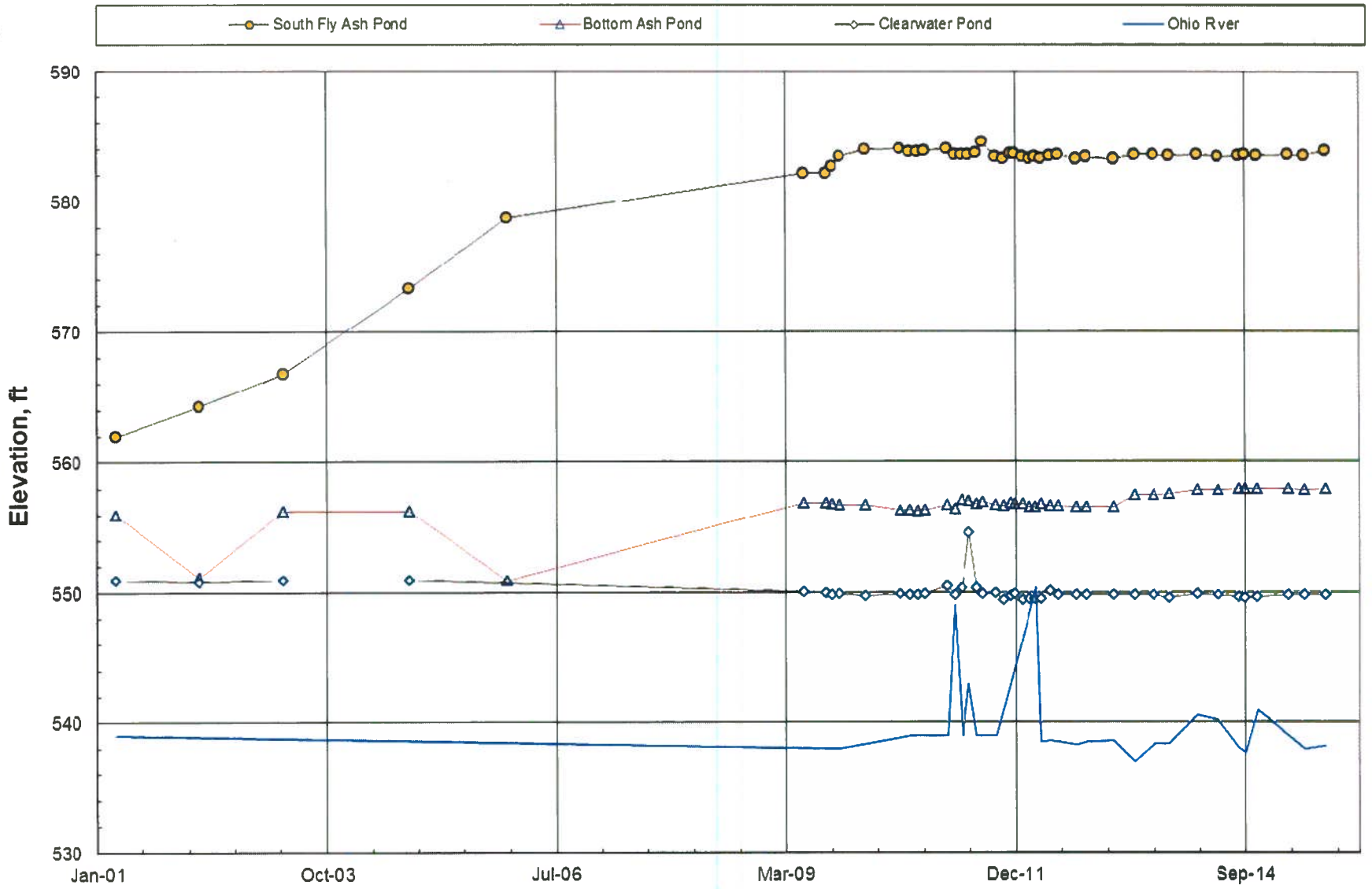

Figure 9 – Ponds Water Elevations

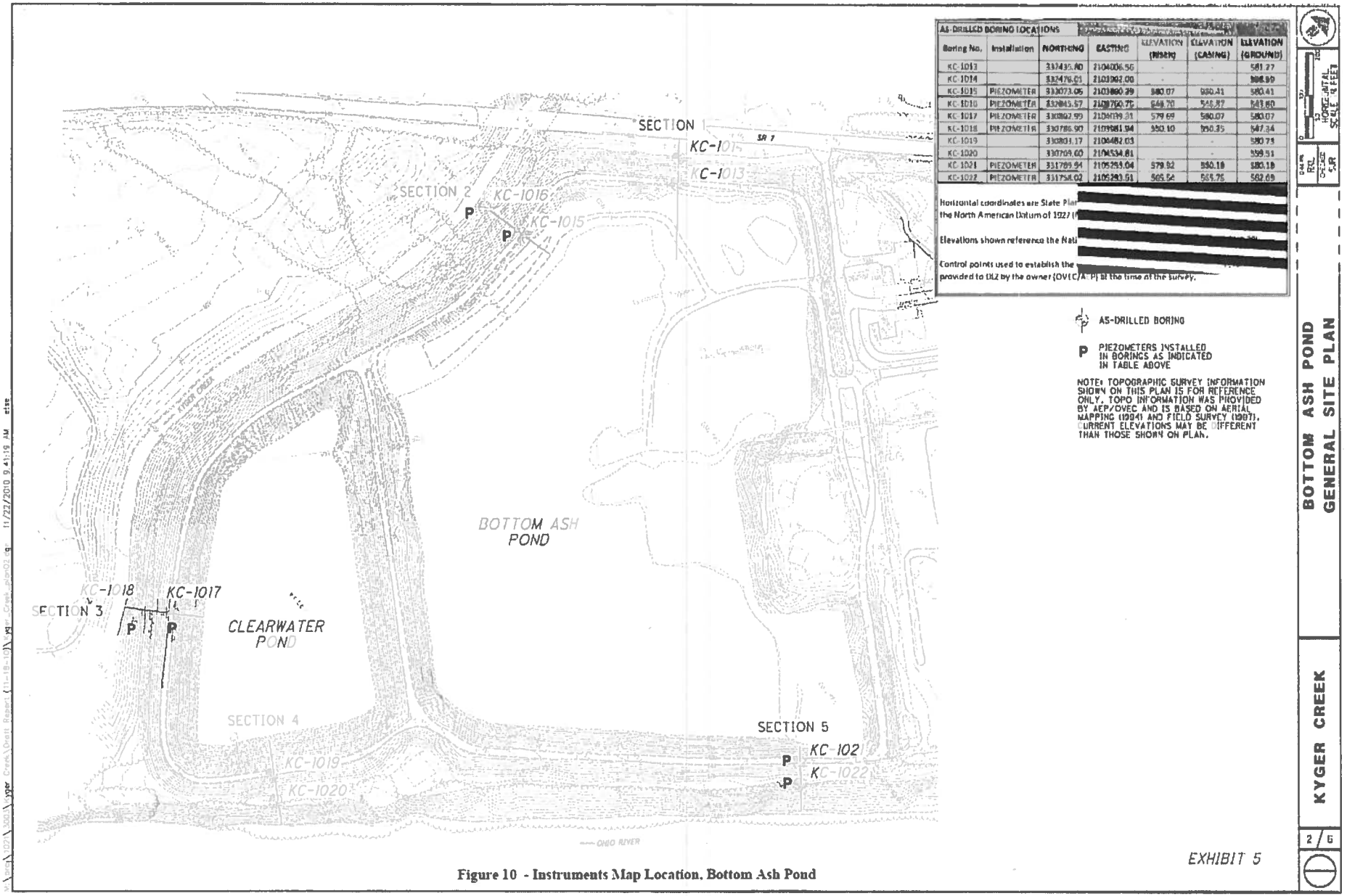

Figure 10 - Instruments Map Location, Bottom Ash Pond

Figure 10 – Instruments Location Map, Bottom Ash Pond

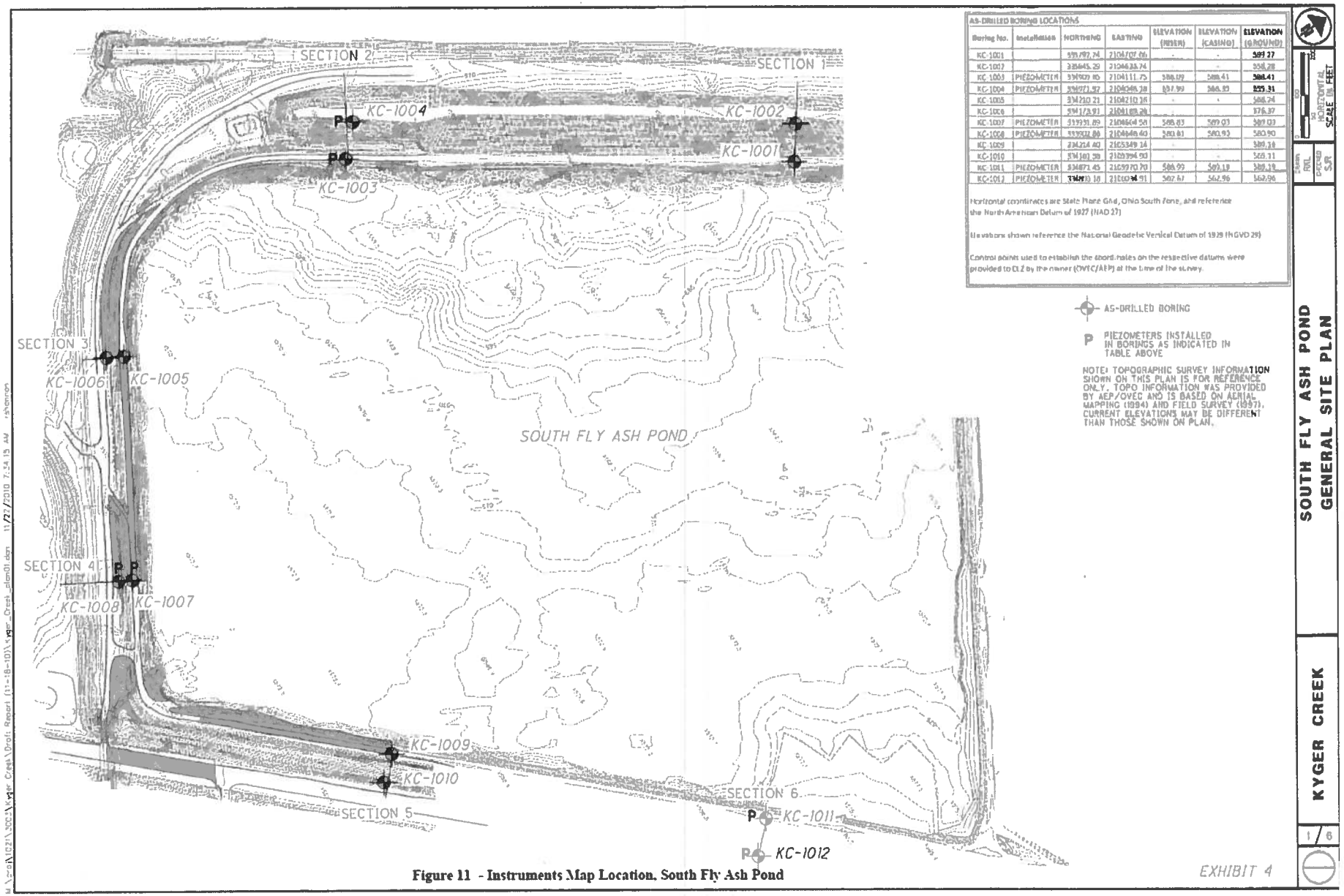

Figure 11 - Instruments Map Location, South Fly Ash Pond

Figure 11 – Instruments Location Map, South Fly Ash Pond

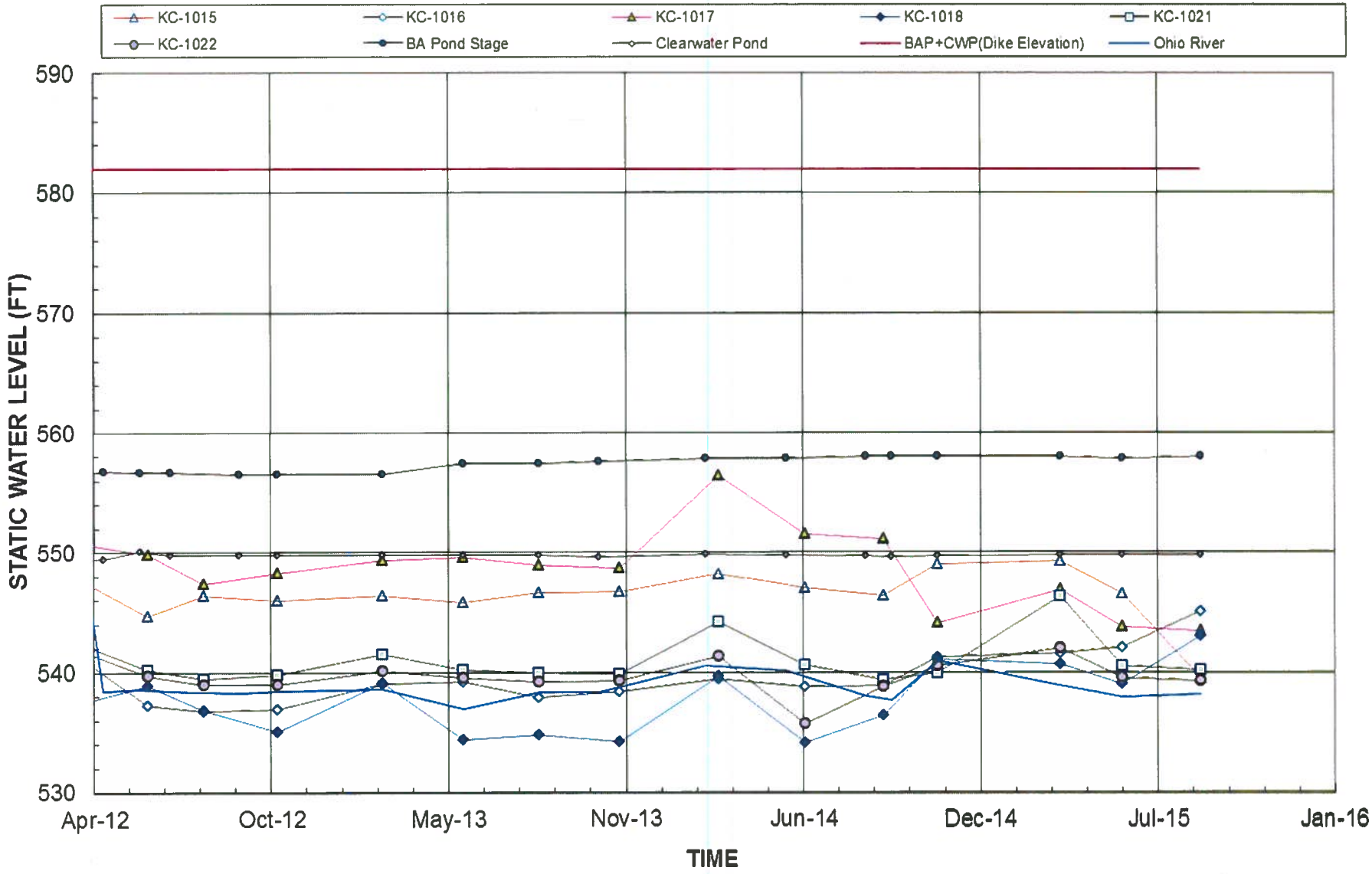

Figure 12 – Bottom Ash Pond Static Water Elevations

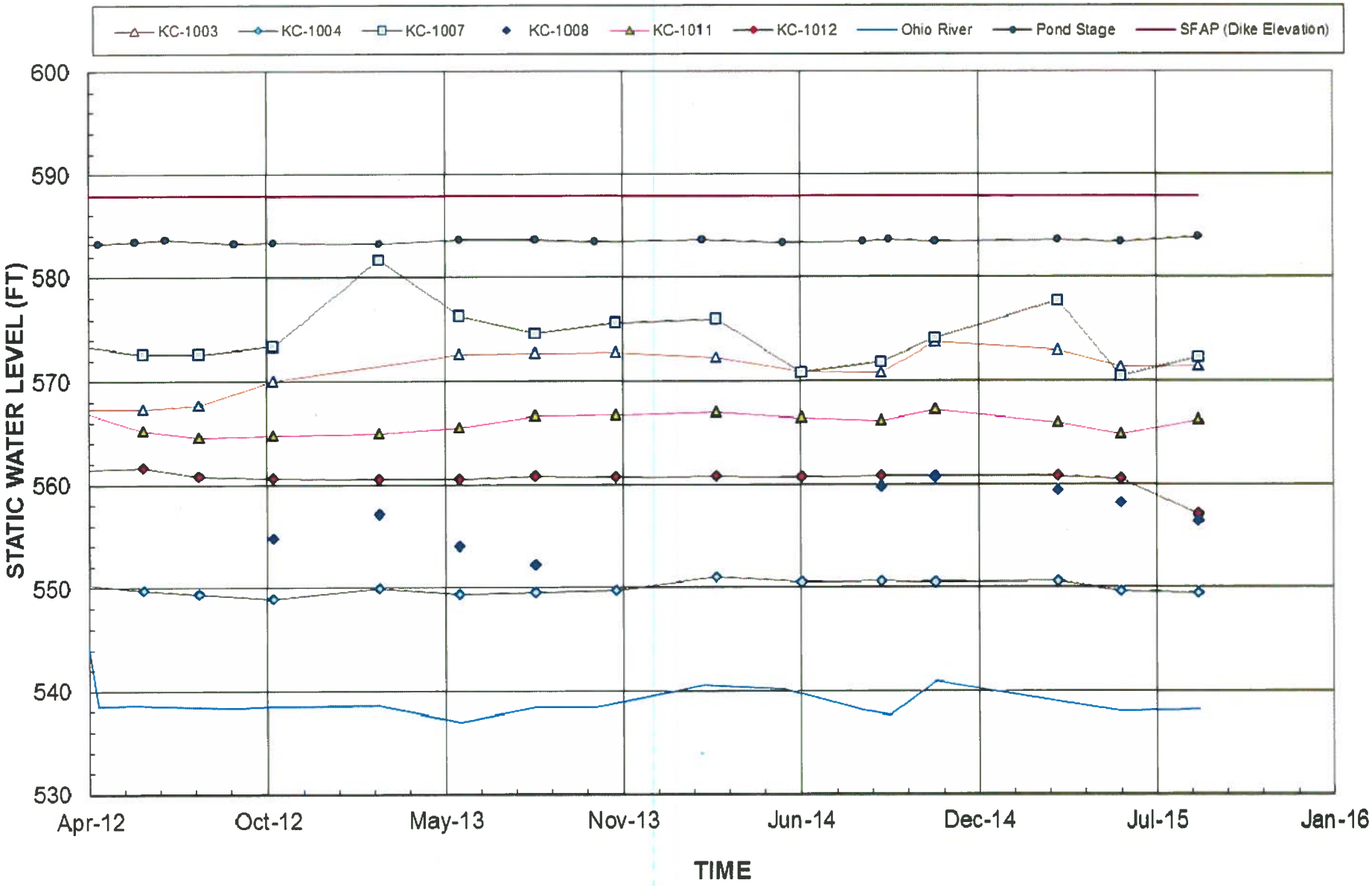

Figure 13 – South Fly Ash Pond Static Water Elevations