STIFFLER MCGRAW
ENGINEERS • SURVEYORS • ARCHITECTS

BLAIR COUNTY
1731 N. JUNIATA STREET
HOLLIDAYSBURG, PA 16648
TEL: 814.696.6280
FAX: 814.696.6240

October 25th, 2023

Brandon Frey, E.I.T.
Western Section
PA DEP Division of Dam Safety
Rachel Carson State Office Building
400 Market Street, 2nd Floor
Harrisburg, PA 17101

RE: 2023 Inspection of Howell's Run Dam
DEP File No. 11-103
Project No. 15-0017.102

Dear Mr. Frey:

On behalf of Ebensburg Borough, we herewith submit for your review and approval, two (2) copies of the referenced inspection report.

In summary, the dam appeared to be in good condition. However, the following observations should be noted and addressed by Borough staff:

1. The dam's foundation drain discharges over a weir plate in the eastern spillway wall and into the stilling basin. Over the past few years, seepage has been flowing behind the weir plate, eroding the concrete the plate is fastened to at an increasing rate. The seepage flowing behind their weir plate has eroded the concrete to the point where a significant portion of the seepage flows behind the weir plate, only worsening the erosion. This issue should be rectified. In the short term, the weir plate should be removed to minimize concrete deterioration behind it. (See Photo 16)
2. As identified on the Sketch Plan, the areas on the downstream embankment with brush / woody growth needs cut. Also, areas along the upstream embankment slope are overgrown and should be cut. An area along the left abutment and at the outlet headwall also needs cut. See the Sketch Plan and Photos 9, 24, and 25.
3. During the 2022 inspection, two notable animal burrows were observed at the lower portion of the downstream face, east of the spillway wall. During the 2023 inspection these burrows could not be located, but it is our suspicion that they are still present but could not be located due to high brush in these areas. These animal burrows should be located and appropriately filled to prevent any further damage. See Sketch Plan.
4. Two new wet areas were identified during the 2022 inspection. Both areas east (see photos 27 & 28) and west of the stilling basin (see photo 31) portion of the spillway were notably wet with visible flow. A "swale" of wetness also extended parallel to the western spillway wall, about half the length of the spillway. Please note, these areas were likely wet during past inspections but the thick brush in both areas prevented any thorough observations from being made. (See Sketch Plan).

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5. The inlet ends of the corrugated steel pipes through the stilling basin wall should be cleared of silt and debris. Consideration should be given to repairing the corroded ends of these pipes or the pipes' outright replacement. See Photos 15 and 26.
6. One of the three typically wet areas along the downstream embankment were wet this year. These areas should continue to be periodically monitored. See sketch plan for specifics.
7. The seepage weirs at the outlet works headwall should be monitored.
8. The seeps on the western spillway wall were wet this year and should continue to be monitored.
9. The concrete joint where the eastern spillway wall meets the stilling basin overflow spillway was notably separated this year. Some portion (approx. 5-10 gpm) of the eastern spillway wall wet area was flowing through this separation. Additionally, the next joint down from this separation was also beginning to separate, although less severely. (See Sketch Plan.)
10. During the 2022 inspection, a small pipe opening was identified on the western spillway wall, in the stilling basin, slightly below the basin's normal pool. In 2022, around 1-2 CF of clean fill (likely 2A stone) was present at the discharge of the pipe, likely indicative of the pipe which leads to this outlet being crushed. Around 2-3 CF of fill was present this year, to the point that the pipe opening is mostly closed. Since the pipe opening is now essentially closed, there should not be much, if any, increase in stone volume next year, however this pipe should continue to be monitored. Note, the original construction drawings are unclear on the purpose or nature of this pipe. (See Photo 33).
11. Small portions of exposed rebar were identified on the downstream face of the spillway ogee wall.
12. The primary closure valve should be operated prior to next year's inspection.
13. A lock should be installed on the gate across the access road.

During the 2022 inspection we were able to make additional and more detailed observations, as the thick brush on either side of the spillway / stilling basin was cleared. Clearing this brush allowed for the wet areas / seepage around the lower spillway / stilling basin, the two animal burrows, and the joint separation to be observed more closely. During this year's inspection and past years' inspections it is difficult to impossible to properly make observations on these conditions. We would highly encourage Ebensburg to clear these areas annually and prior to the annual inspections.

If you should have any questions, please contact our office.

Sincerely,

Tyler M. McGraw, P.E.
Project Engineer

# ANNUAL RESERVOIR INSPECTION

## HOWELL'S RUN DAM

## DEP ID NO. D11-103

*Prepared by:*

STIFFLER MCGRAW
ENGINEERS • SURVEYORS • ARCHITECTS

## EBENSBURG BOROUGH, CAMBRIA COUNTY, PENNSYLVANIA

## OWNER: EBENSBURG BOROUGH

## OCTOBER 2023

# DAM INSPECTION CHECKLIST
## Department of Environmental Protection
## Bureau of Waterways Engineering
## Division of Dam Safety

**NAME OF DAM:** Howell's Run Dam **DEP DAM NO.:** D11-103

**LOCATION:** **Municipality:** Ebensburg Borough **County:** Cambria

**DEP CLASSIFICATION DATA:** **Size:** B **Hazard:** 1

**PHYSICAL DATA:**
**Type of Dam:** Earth Fill **Height of Dam:** 63' **Normal Pool Storage Capacity:** 1324 Ac-Ft

**ELEVATIONS:**
**Normal Pool:** 2050 (+/-) **Pool at Inspection:** 2045.5 (+/-) **Tailwater at Inspection:**

**DAM OWNER:** Ebensburg Borough **OPERATOR:** Kelly Cook

**ADDRESS:** 300 West High Street
Ebensburg, PA 15931

Borough Manager
Ebensburg Borough

**PHONE:** (814) 472-8780 **FAX NO.:** **E-MAIL ADDRESS:** kcook@ebensburgpa.com

**A completed and signed Dam Owners Notice Checklist is to accompany this Inspection Checklist.**

**PERSONS PRESENT AT INSPECTION:**

| Name | Title/Position | Representing |
|---|---|---|
| Tyler M. McGraw, P.E. | Project Engineer | Stiffler, McGraw & Assoc. |
| Jonah E. Salyards, P.E. | Project Engineer | Stiffler, McGraw & Assoc. |

**DATE OF INSPECTION:** 10/10/2023

**WEATHER:** Sunny

**TEMPERATURE:** 45°F

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
TYLER MATHIS McGRAW
ENGINEER
PE032881

This is to certify that the above dam has been inspected and the following are the results of this inspection.

Signature of Registered Professional Engineer (P.E. Seal Required) — Date: 10-25-23

Date Revised: 1/2009

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **EMBANKMENT: CREST** | | | | | |
| 1 | Surface Cracking | None noted | ☐ | ☐ | ☐ |
| 2 | Sinkhole, Animal Burrow | None noted | ☐ | ☐ | ☐ |
| 3 | Low Area(s) | Slightly irregular | ☐ | ☐ | ☐ |
| 4 | Horizontal Alignment | One end curved | ☐ | ☐ | ☐ |
| 5 | Ruts and/or Puddles | None noted | ☐ | ☐ | ☐ |
| 6 | Vegetation Condition | Mix of stones and grass | ☐ | ☐ | ☐ |
| 7 | Warning Signs | Yes, recently replaced | ☐ | ☐ | ☐ |
| 8 | | | ☐ | ☐ | ☐ |
| 9 | | | ☐ | ☐ | ☐ |
| Additional Comments (Refer to item number if applicable): | | | | | |
| **EMBANKMENT: UPSTREAM FACE** | | | | | |
| 10 | Slide, Slough, Scarp | None noted | ☐ | ☐ | ☐ |
| 11 | Slope Protection | Large riprap is in good condition | ☐ | ☐ | ☐ |
| 12 | Sinkhole, Animal Burrow | None noted | ☐ | ☐ | ☐ |
| 13 | Emb.-Abut. Contact | No problems noted | ☐ | ☐ | ☐ |
| 14 | Erosion | None noted | ☐ | ☐ | ☐ |
| 15 | Vegetation Condition | Remove woody growth and brush along face (See Sketch Plan and photos 24 & 25). | ☒ | ☐ | ☒ |
| 16 | | | ☐ | ☐ | ☐ |
| 17 | | | ☐ | ☐ | ☐ |
| Additional Comments (Refer to item number if applicable): | | | | | |

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **EMBANKMENT: DOWNSTREAM FACE** | | | | | |
| 18 | Wet Area(s) | Typically wet area noted near the outlet headwall was wet this year (cont'd below). | ☒ | ☐ | ☐ |
| 19 | Seepage | None noted | ☐ | ☐ | ☐ |
| 20 | Slide, Slough, Scarp | None noted | ☐ | ☐ | ☐ |
| 21 | Emb. - Abut. Contact | No problems noted | ☐ | ☐ | ☐ |
| 22 | Sinkhole, Animal Burrow | (see below) | ☒ | ☐ | ☒ |
| 23 | Erosion | None noted | ☐ | ☐ | ☐ |
| 24 | Unusual Movement | None noted | ☐ | ☐ | ☐ |
| 25 | Vegetation Control | Brush and weeds need cut in the areas below and surrounding the stilling basin outlet. See Sketch Plan. Some portions of embankment still need mowed. | ☒ | ☐ | ☒ |
| 26 | | | ☐ | ☐ | ☐ |
| 27 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

18. The typically wet areas on the 1st bench on the downstream slope and near the eastern edge of the toe drain were dry this year.

Both areas east (see photos 27 & 28) and west of the stilling basin (see photo 31) portion of the spillway were notably wet with visible flow. A "swale" of wetness also extended parallel to the western spillway wall, about half the length of the spillway. Please note, these areas were likely wet during past inspections but the thick brush in both areas prevented any thorough observations from being made. (See Sketch Plan).

22. Last year, two notable animal burrows were discovered at the lower portion of the downstream face, east of the spillway wall. These burrows could not be located this year, but it is our suspicion that they are still present, but the high brush and weeds prevented them from being identified.

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **EMBANKMENT: INSTRUMENTATION** | | | | | |
| 28 | Piezometers/Observ. Wells | N/A | ☐ | ☐ | ☐ |
| 29 | Staff Gauge and Recorder | Staff gauge on the intake structure bridge is in good condition | ☐ | ☐ | ☐ |
| 30 | Weirs | Weirs are located on each side of the drain (See below) | ☒ | ☐ | ☐ |
| 31 | Survey Monuments | None observed | ☐ | ☐ | ☐ |
| 32 | Drains | N/A | ☐ | ☐ | ☐ |
| 33 | Low Flow Release | Monitored at Ebensburg Storage Dam | ☐ | ☐ | ☐ |
| 34 | Frequency of Readings | Continuously monitored at Ebensburg Storage Dam | ☐ | ☐ | ☐ |
| 35 | Location of Records | Treatment facility building | ☐ | ☐ | ☐ |
| 36 | | | ☐ | ☐ | ☐ |
| 37 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

30. outlet headwall. No notable amount of flow was observed at the weirs this year. The drain pipe was video inspected, as recommended in the 2015 report. The pipe was found to be in satisfactory / good condition. The video is available for review at the Borough office or Engineer's office and was submitted to the PA DEP via transmittal letter dated March 6, 2017.

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **DOWNSTREAM AREA** | | | | | |
| 38 | Abutment Leakage | None noted | ☐ | ☐ | ☐ |
| 39 | Foundation Seepage | Foundation Drain Outlet – See Photo 16 (see below) | ☒ | ☐ | ☒ |
| 40 | Slide, Slough, Scarp | None noted | ☐ | ☐ | ☐ |
| 41 | Drainage System | Rip-Rap Toe Drain | ☐ | ☐ | ☐ |
| 42 | Boils | None noted | ☐ | ☐ | ☐ |
| 43 | Wet Areas | Yes, see Sketch Plan | ☒ | ☐ | ☐ |
| 44 | Reservoir Slopes | Wooded – no problems noted | ☐ | ☐ | ☐ |
| 45 | Access Roads | Good condition. Road enters the site along the left abutment and crosses the crest to the right abutment | ☐ | ☐ | ☐ |
| 46 | Security Devices | The gate is located on the access road and is working properly, however, a lock should be installed on this gate. A locked gate and fencing are also installed on the access bridge. | ☐ | ☐ | ☒ |
| 47 | Act 91 Run-of-the-River Signs or Bouys | N/A | ☐ | ☐ | ☐ |
| 48 | | | ☐ | ☐ | ☐ |
| 49 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

39. The condition of the concrete surrounding the foundation drain outlet weir has worsened over the past year. The seepage flowing behind their weir plate has eroded the concrete to the point where a significant portion of the seepage flows behind the weir plate, only worsening the erosion. This issue should be rectified. In the short term, the weir plate should be removed to minimize concrete deterioration behind it.

| | | | | | |
|---|---|---|---|---|---|
| **SPILLWAYS: ERODABLE CHANNEL N/A** | | | | | |
| 50 | Slide, Slough, Scarp | | ☐ | ☐ | ☐ |
| 51 | Erosion | | ☐ | ☐ | ☐ |
| 52 | Vegetation Condition | | ☐ | ☐ | ☐ |
| 53 | Debris | | ☐ | ☐ | ☐ |
| 54 | | | ☐ | ☐ | ☐ |
| 55 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **SPILLWAYS: NON-ERODABLE CHANNEL** | | | | | |
| 56 | Sidewalls | Areas of typical seepage through (See Below) | ☒ | ☐ | ☐ |
| 57 | Channel Floor | Spillway channel floor was in Fair condition (cont'd below) | ☒ | ☐ | ☐ |
| 58 | Unusual Movement | None noted | ☐ | ☐ | ☐ |
| 59 | Approach Area | Good condition. Remove woody growth and brush between approach channel and embankment | ☒ | ☐ | ☒ |
| 60 | Weir or Control | Concrete ogee spillway section was repaired in 2008 and is in fair condition. Minor surface wearing is evident. Additionally, multiple locations of exposed rebar were identified this year (see photo 34) | ☒ | ☐ | ☐ |
| 61 | Discharge Channel | Silt and debris are obstructing the inlets of the stilling basin discharge pipes and should be cleared. The two – 15" Corrugated Metal Pipes (see below) | ☒ | ☐ | ☒ |
| 62 | Boils | None noted | ☐ | ☐ | ☐ |
| 63 | | | ☐ | ☐ | ☐ |
| 64 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

56. · several joints on the western sidewall were present this year, despite the lower reservoir level. The weired seepage outlet through the eastern sidewall (See Photo 16) was flowing at a moderate, but typical flow rate. The flow exiting this seepage outlet does not seem dependent upon the upper 6' of reservoir pool level. The concrete joint where the eastern spillway wall meets the stilling basin overflow spillway was notably separated this year. Some portion (approx. 5-10 gpm) of the eastern spillway wall wet area was flowing through this separation. Additionally, the next joint downstream from this separation was also beginning to separate, although less severely. (See Sketch Plan.)

57. During the 2022 inspection, a small pipe opening was identified on the western spillway wall, in the stilling basin, slightly below the basin's normal pool. In 2022, around 1-2 CF of clean fill (likely 2A stone) was present at the discharge of the pipe, likely indicative of the pipe which leads to this outlet being crushed. Around 2-3 CF of fill was present this year, to the point that the pipe opening is mostly closed. Since the pipe opening is now essentially closed, there should not be much, if any, increase in stone volume next year, however this pipe should continue to be monitored. Note, the original construction drawings are unclear on the purpose or nature of this pipe. (See Photo 33).

61. are severely corroded at both the inlets and outlets of both pipes (See Photo 15 and 26). Pieces of corrugated metal have completely broken away from the pipes and sit in the stilling basin or immediately downstream. Consider repair or replacement of these pipes.

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **SPILLWAYS: DROP INLET / N/A** | | | | | |
| 65 | Intake Structure | N/A | ☐ | ☐ | ☐ |
| 66 | Trashrack | N/A | ☐ | ☐ | ☐ |
| 67 | Stilling Basin | N/A | ☐ | ☐ | ☐ |
| 68 | | | ☐ | ☐ | ☐ |
| 69 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

| NAME OF DAM: Howell's Run Dam | DEP DAM NO.: D11-103 | DATE: 10/10/23 |
|---|---|---|

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| | | **OUTLET WORKS** | | | |
| 70 | Intake Structure | Fair condition | ☐ | ☐ | ☐ |
| 71 | Trashrack | Did not observe | ☐ | ☐ | ☐ |
| 72 | Stilling Basin | N/A | ☐ | ☐ | ☐ |
| 73 | Primary Closure | 3' Sluice Gate – (See below) | ☐ | ☐ | ☒ |
| 74 | Secondary Closure | Drop log – not operated in 2023. | ☐ | ☐ | ☐ |
| 75 | Control Mechanism | Drop log – Winch; Sluice Gate – Handwheel | ☐ | ☐ | ☐ |
| 76 | Outlet Pipe | 48 inch reinforced concrete pipe at lower end with an arched-top box culvert extending from the downstream toe to the intake tower. Video inspection completed in 2016. Pipe found to be in satisfactory / good condition. Video submitted to the PA DEP in March, 2017. | ☐ | ☐ | ☐ |
| 77 | Outlet Tower | N/A | ☐ | ☐ | ☐ |
| 78 | Outlet Structure | Headwall at discharge point | ☐ | ☐ | ☐ |
| 79 | Seepage | V-notch weirs on either side of the outlet pipe – little to no flow seeping behind weir plate. Non-Quantifiable amount of flow through 48" pipe. | ☒ | ☐ | ☐ |
| 80 | Unusual Movement | None noted | ☐ | ☐ | ☐ |
| 81 | | | ☐ | ☐ | ☐ |
| 82 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

73. Valve not operated in over 14 years. Coordination efforts are being made with operational staff to operate the valve prior to the 2024 inspection.

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **CONCRETE/MASONRY DAMS: UPSTREAM FACE N/A** | | | | | |
| 83 | Surface Conditions | N/A | ☐ | ☐ | ☐ |
| 84 | Condition of Joints | N/A | ☐ | ☐ | ☐ |
| 85 | Unusual Movement | N/A | ☐ | ☐ | ☐ |
| 86 | Abutment-Dam Contacts | N/A | ☐ | ☐ | ☐ |
| 87 | | | ☐ | ☐ | ☐ |
| 88 | | | ☐ | ☐ | ☐ |
| Additional Comments (Refer to item number if applicable): | | | | | |
| **CONCRETE/MASONRY DAMS: DOWNSTREAM FACE N/A** | | | | | |
| 89 | Surface Conditions | N/A | ☐ | ☐ | ☐ |
| 90 | Condition of Joints | N/A | ☐ | ☐ | ☐ |
| 91 | Unusual Movement | N/A | ☐ | ☐ | ☐ |
| 92 | Abutment-Dam Contacts | N/A | ☐ | ☐ | ☐ |
| 93 | Drains | N/A | ☐ | ☐ | ☐ |
| 94 | Leakage | N/A | ☐ | ☐ | ☐ |
| 95 | | | ☐ | ☐ | ☐ |
| 96 | | | ☐ | ☐ | ☐ |
| Additional Comments (Refer to item number if applicable): | | | | | |

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|
| **CONCRETE/MASONRY DAMS: CREST N/A** | | | | | |
| 97 | Surface Conditions | N/A | ☐ | ☐ | ☐ |
| 98 | Horizontal Alignment | N/A | ☐ | ☐ | ☐ |
| 99 | Vertical Alignment | N/A | ☐ | ☐ | ☐ |
| 100 | Condition of Joints | N/A | ☐ | ☐ | ☐ |
| 101 | Unusual Movements | N/A | ☐ | ☐ | ☐ |
| 102 | | | ☐ | ☐ | ☐ |
| 103 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

| | | | | | |
|---|---|---|---|---|---|
| **RESERVOIR AREA** | | | | | |
| 104 | Sedimentation | None noted | ☐ | ☐ | ☐ |
| 105 | Slope Stability | No problems noted | ☐ | ☐ | ☐ |
| 106 | Sinkholes | None noted | ☐ | ☐ | ☐ |
| 107 | Fractures | None noted | ☐ | ☐ | ☐ |
| 108 | Unwanted Growth | None noted | ☐ | ☐ | ☐ |
| 109 | Storage Gage | No problems noted | ☐ | ☐ | ☐ |
| 110 | | | ☐ | ☐ | ☐ |
| 111 | | | ☐ | ☐ | ☐ |

Additional Comments (Refer to item number if applicable):

| ITEM | CONDITION | COMMENTS | MONITOR | INVESTIGATE | REPAIR |
|---|---|---|---|---|---|

## Final Comments:

The brush that was cleared on either side of the spillway walls along the stilling basin and along the western spillway wall during the 2022 inspection allowed for numerous deficiencies and noteworthy observations to be made. This brush was not cleared for the 2023 inspection. We **highly** recommend the Borough ensures that this brush is cleared prior to every annual inspection.

During the 2022 inspection, the wet areas identified on the eastern side of the spillway walls had a notable amount of flow, although said flow was spread out over a wide enough area to not be quantifiable. We would estimate this flow as being around 10 GPM (since roughly 5-10 GPM of flow was passing through the wall joint separation identified on the sketch plan) and some portion of flow could have been passing through the weired seepage outlet on the eastern spillway wall. However, that number is an estimate, and we have no past observations to compare said theoretical flow to.

Similar observations were made on the wet areas west of the spillway wall. Again, no real definitive estimate of the flow quantity could be made.

We would recommend that Ebensburg maintains the brush at a lower level in these areas, monitors the areas for any changes, and gives consideration to redirecting, channelizing, and measuring said flow (with a weir) in the future.

# DAM OWNERS NOTICE CHECKLIST
## Department of Environmental Protection
## Bureau of Waterways Engineering
## Division of Dam Safety

**NAME OF DAM:** Howell's Run Dam | **DEP DAM NO.:** D11-103

This is to certify that both the Downstream Hazard Description is accurate and the Posted Notice locations listed below have been inspected and the following are the results of these inspections.

Ebensburg Borough — Name of Dam Owner

Cook — Signature of Dam Owner

10/16/2023 — Date

**This Dam Owners Notice Checklist is to accompany the Inspection Checklist filed by the Engineer.**

## EMERGENCY ACTION PLAN

Date of Last Update of Emergency Plan: September 24, 2018

Downstream Hazard Description (Refer to sections II.C and II.D in the EAP), additionally, specify any new developments, structures, etc. downstream within the inundation area:

The inundation area resulting from a sudden dam failure follows Howells Run southward to the Ebensburg Storage Dam and then to Jenks Dam immediately north of the Borough Swimming Pool. The inundation area then extends roughly along the eastern boundary of Ebensburg Borough to Lake Rowena. From Lake Rowena, the inundation area continues across and under SR 22, leaves the Borough and enters Cambria Township where it continues southward along Howells Run through primarily undeveloped woodland area for approximately 3.4 miles to the crossing of Wilmore Road then eastward through woodland area for approximately 1.6 miles where it joins the North Branch of the Little Conemaugh River. From that point the inundation area continues another 0.1 mile where it crosses Spinner Road and then follows the North Branch of the Little Conemaugh River southward through additional woodland area and flows into Wilmore Reservoir.

Within the inundation area there are approximately 38 homes with an estimated 88 residents, and 12 commercial businesses and 12 public/recreational/institutional facilities with an approximate population of 265, for a combined total population of 353. The public/recreational/institutional facilities include: the Ebensburg Water Plant; Ebensburg Reservoir Trail; Ebensburg Swimming Pool; Lions Field; Lake Rowena Park; Ebensburg Lake Field; Ebensburg Tennis Center; Skills of Central PA; Lakeside Church of the Nazarene; Ebensburg Outdoor Hockey Rink; and the Ebensburg Wastewater Treatment Plant

## POSTED NOTICES (Refer to section V.A in the EAP)

| ITEM | DATE INSPECTED | LOCATION | COMMENTS | EXISTING | MISSING | REPLACED |
|---|---|---|---|---|---|---|
| 1 | | Ebensburg Water Plant | | ☐ | ☐ | ☑ |
| 2 | | Reservoir Trail (Trailhead) | | ☐ | ☐ | ☑ |
| 3 | | Ebensburg Swimming Pool | | ☐ | ☐ | ☑ |
| 4 | | Lions Field | | ☐ | ☐ | ☑ |
| 5 | | Frostbite Ice Cream and Treats | Did not open this yr. | ☐ | ☐ | ☐ |
| 6 | | Festival Beverage | | ☐ | ☐ | ☑ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | | Dr. Archibald Morris Medical Office | | ☐ | ☐ | ☑ |
| 8 | | Lakeview Lanes | | ☐ | ☐ | ☑ |
| 9 | | Ebensburg Oil and Gas | | ☐ | ☐ | ☑ |
| 10 | | Lake Rowena Park | | ☐ | ☐ | ☑ |
| 11 | | Ebensburg Lake Field | | ☐ | ☐ | ☑ |
| 12 | | Ebensburg Tennis Center | | ☐ | ☐ | ☑ |
| 13 | | Traders Guide and Pennysaver | | ☐ | ☐ | ☑ |
| 14 | | Mainline Newspaper | | ☐ | ☐ | ☑ |
| 15 | | Skills of Central PA | | ☐ | ☐ | ☑ |
| 16 | | Lake Inn Motel | | ☐ | ☐ | ☑ |
| 17 | | Ebensburg Lakeside Community Church of Nazarene | | ☐ | ☐ | ☑ |
| 18 | | Ebensburg Animal Hospital | | ☐ | ☐ | ☑ |
| 19 | | Ebensburg Outdoor Hockey Rink | | ☐ | ☐ | ☑ |
| 20 | | Country Sisters Store | | ☐ | ☐ | ☑ |
| 21 | | Foster F. Wineland Inc. | | ☐ | ☐ | ☑ |
| 22 | | Dunkin Donuts | | ☐ | ☐ | ☑ |
| 23 | | Dodson Electric | | ☐ | ☐ | ☑ |
| 24 | | Ebensburg Wastewater Treatment Plant | | ☐ | ☐ | ☑ |

Additional Comments (Refer to item number if applicable):

# PHOTOGRAPHS
# 2023


Photo 1: View of Gated Access to Dam


Photo 2: Downstream Embankment Looking Northwest


Photo 3: Crest looking Northwest toward Spillway


Photo 4: Upstream Embankment looking Northwest


Photo 5: View of Locked Gate Access to the Bridge and Intake Structure

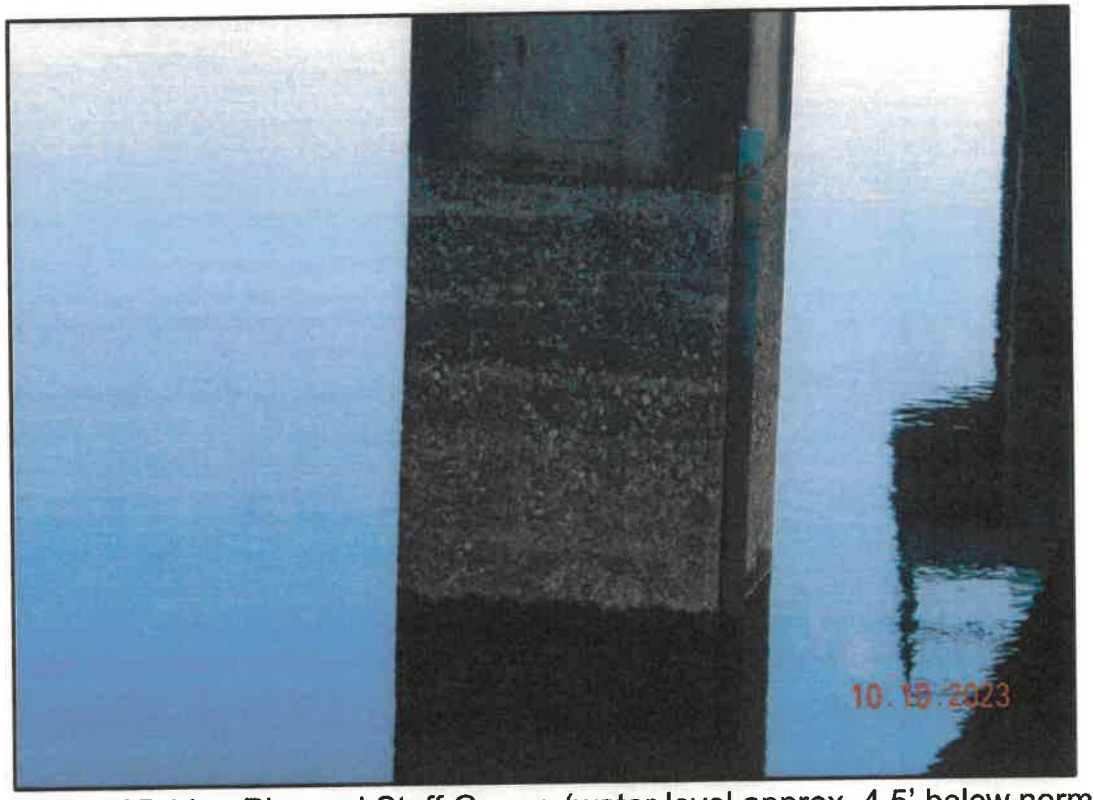



Photo 6: View of Bridge Pier and Staff Gauge (water level approx. 4.5' below normal pool)


Photo 7: View of Bridge Walkway


Photo 8: Upstream Embankment Looking Southeast

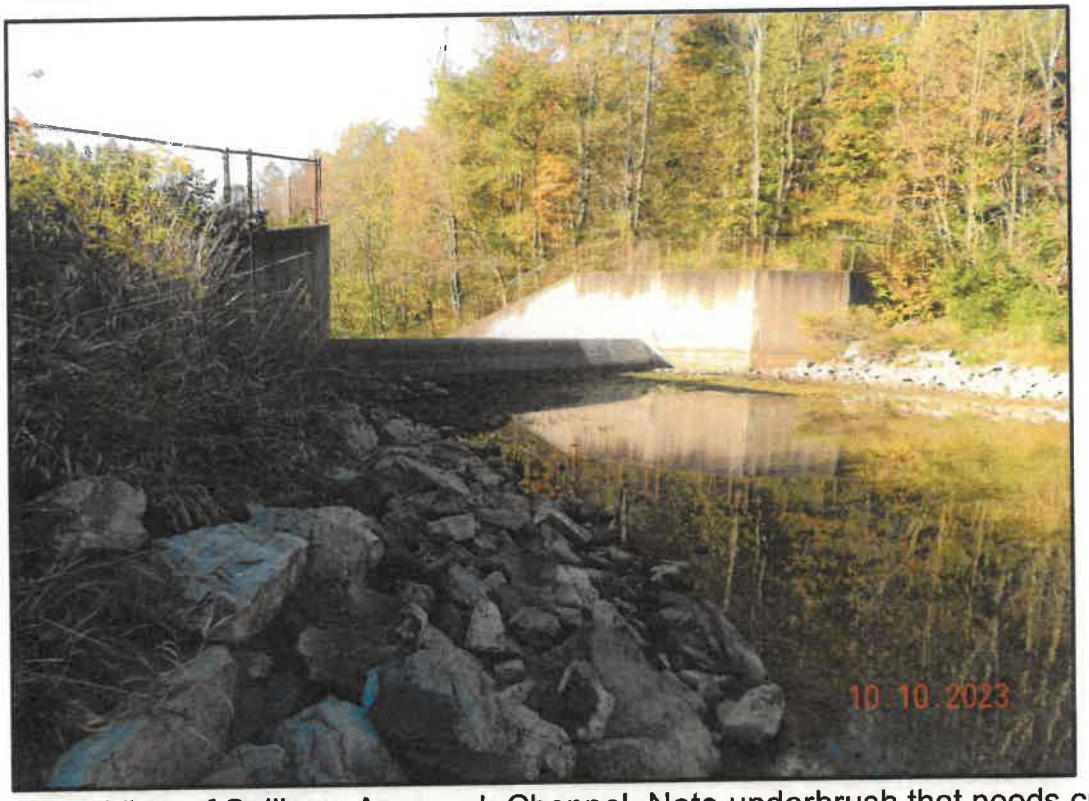



Photo 9: View of Spillway Approach Channel, Note underbrush that needs cut

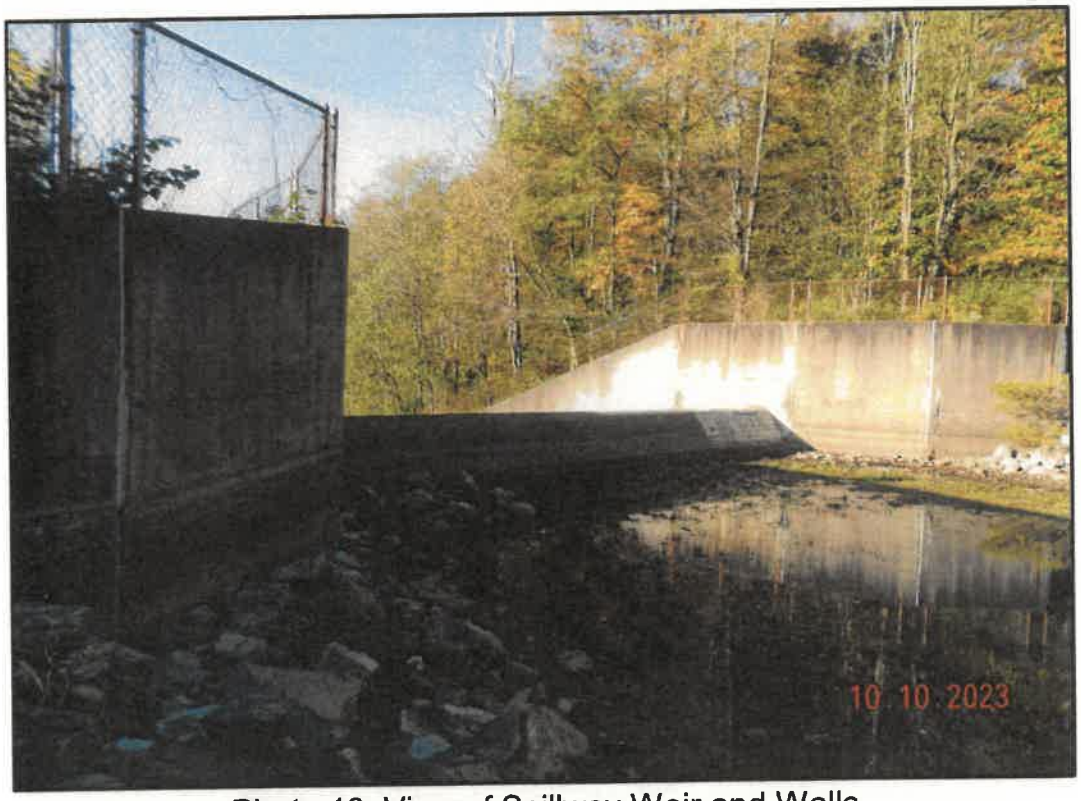



Photo 10: View of Spillway Weir and Walls

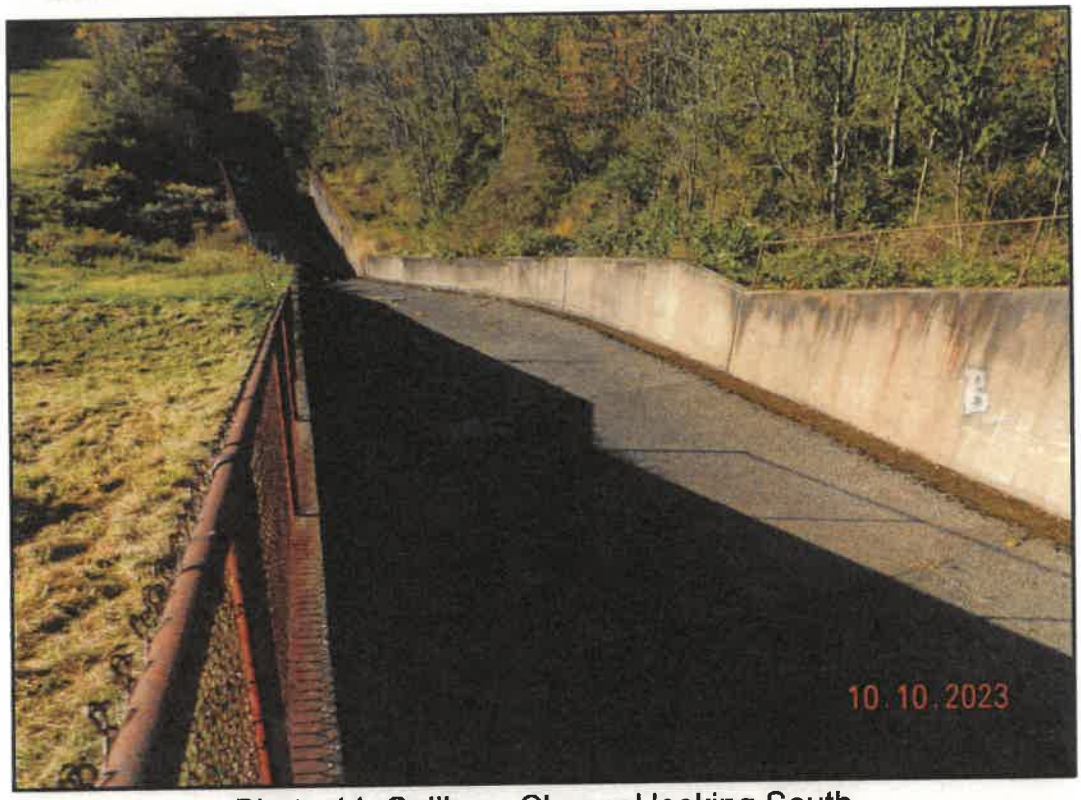



Photo 11: Spillway Channel looking South

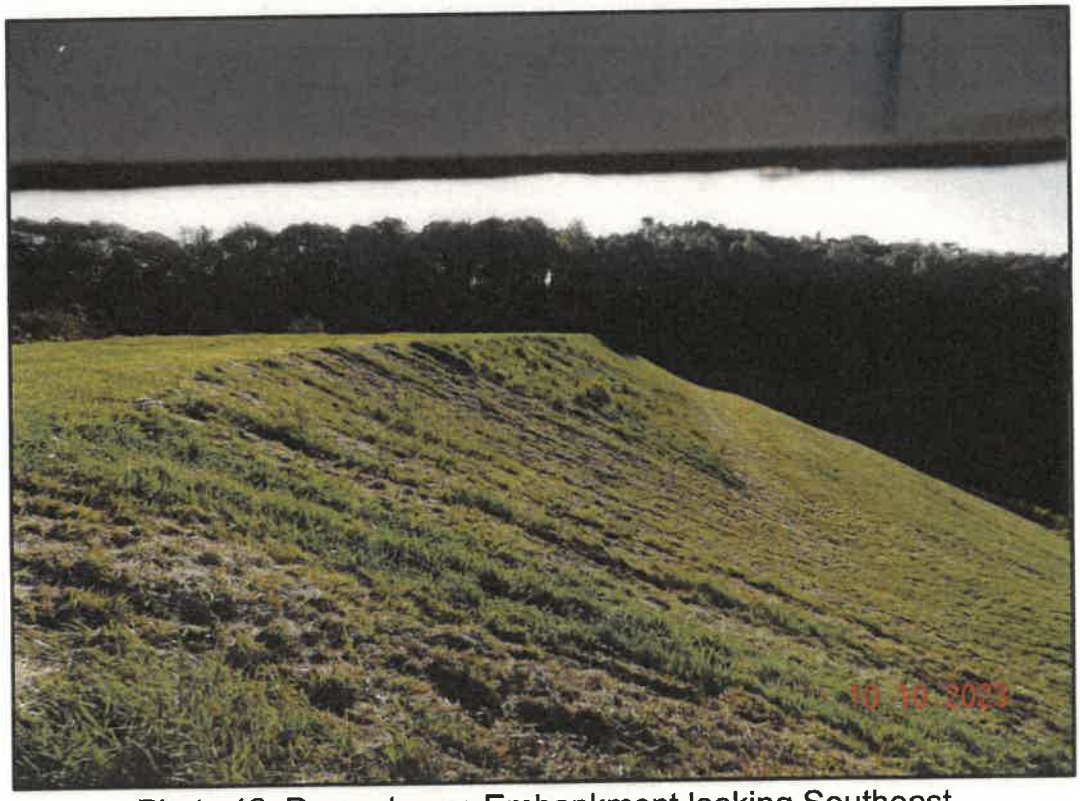


Photo 12: Downstream Embankment looking Southeast

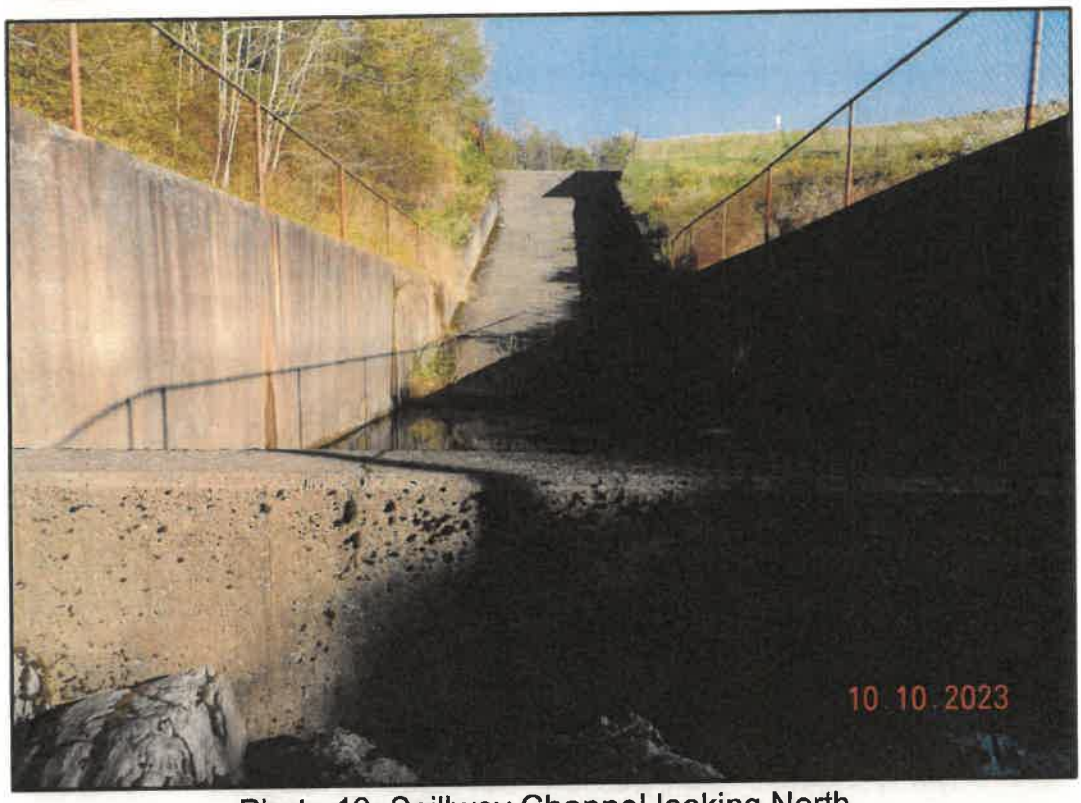



Photo 13: Spillway Channel looking North

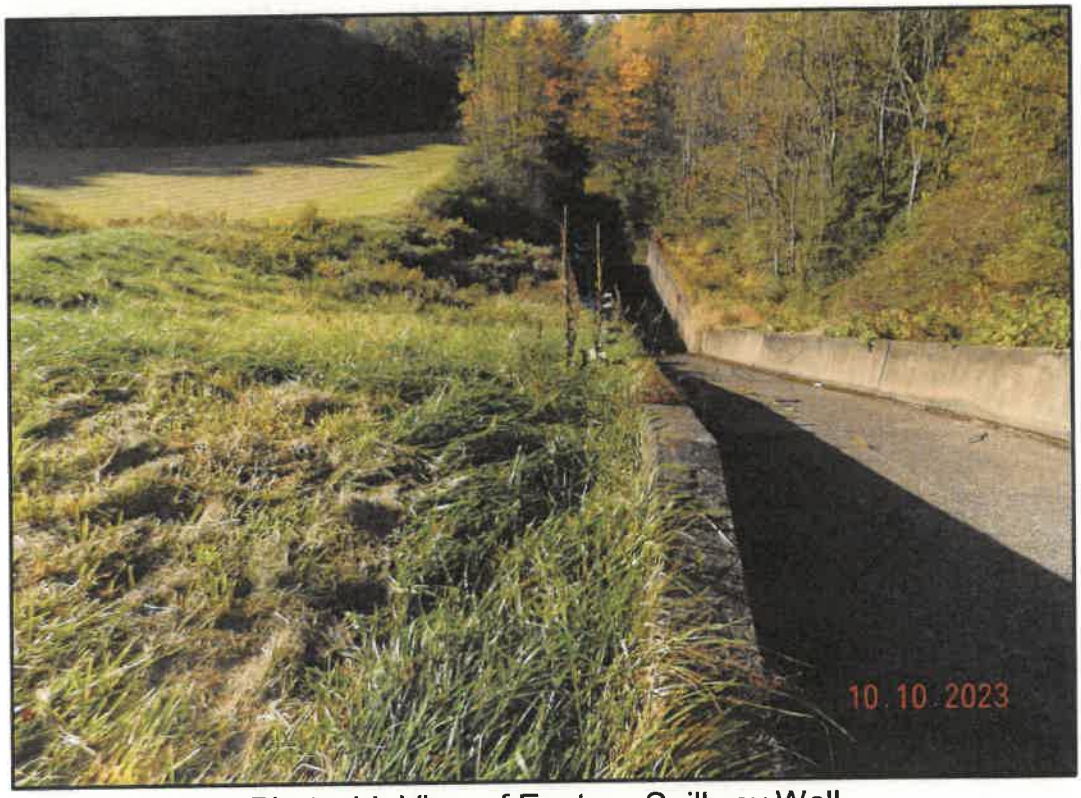



Photo 14: View of Eastern Spillway Wall


Photo 15: View of Stilling Basin Wall and Weir. Note corroded ends of pipes passing through stilling basin wall

Photo 16: View of Weired Seepage Outlet through Eastern Spillway Wall. (Note, water seeping behind and under weir plate)


Photo 17: View of Junction Box for Drain Pipe Extension at Toe of Embankment


Photo 18: View of "Wet Area" Adjacent to Junction Box (dry this year)

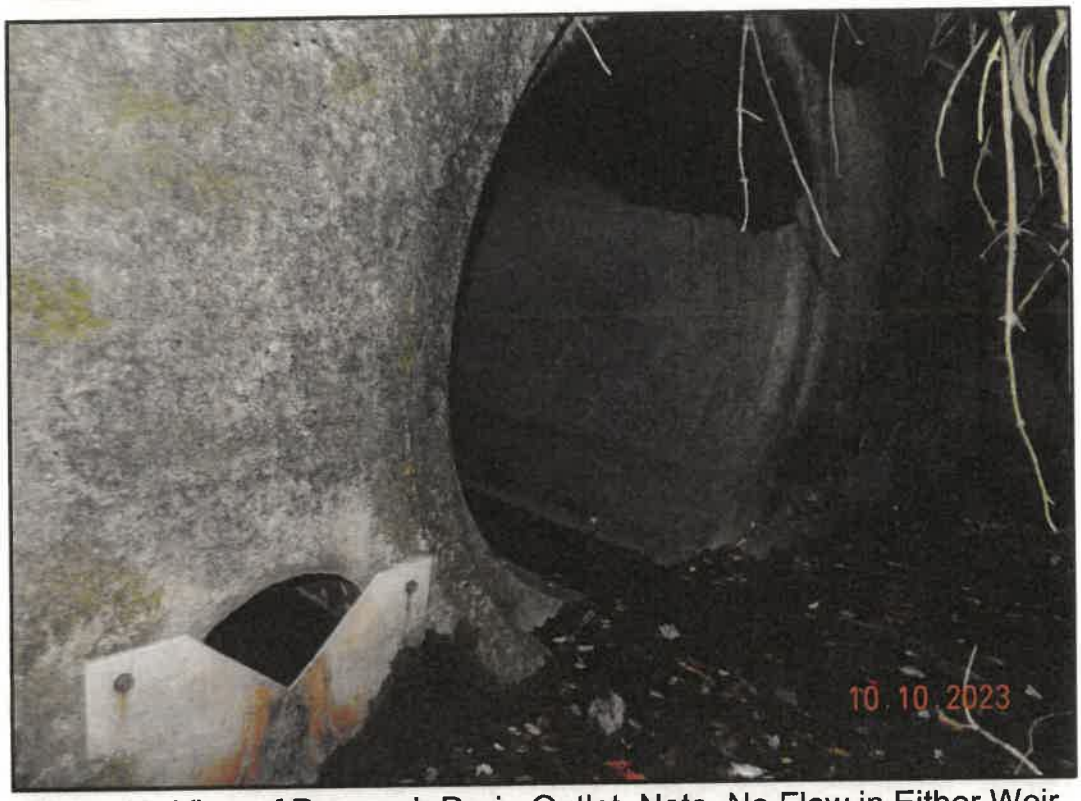



Photo 19: View of Reservoir Drain Outlet. Note, No Flow in Either Weir.


Photo 20: View of Seepage area on Western Wall Above Stilling Basin


Photo 21: View of Seepage area between Stilling Basin Weir Wall and Western Abutment


Photo 22: View of Seepage through Western Spillway Wall approx. 10' below Weir. Note that most of the Discharge is not in the Wall Joint. (note, no liquid seepage was observed, only


Photo 23: View of Typically Wet Area (dry this year) on the 1st bench below the Dam's Crest. This view is typical for the majority of the crest.


Photo 24: View of Overgrown Brush along Southeastern Upstream Embankment.

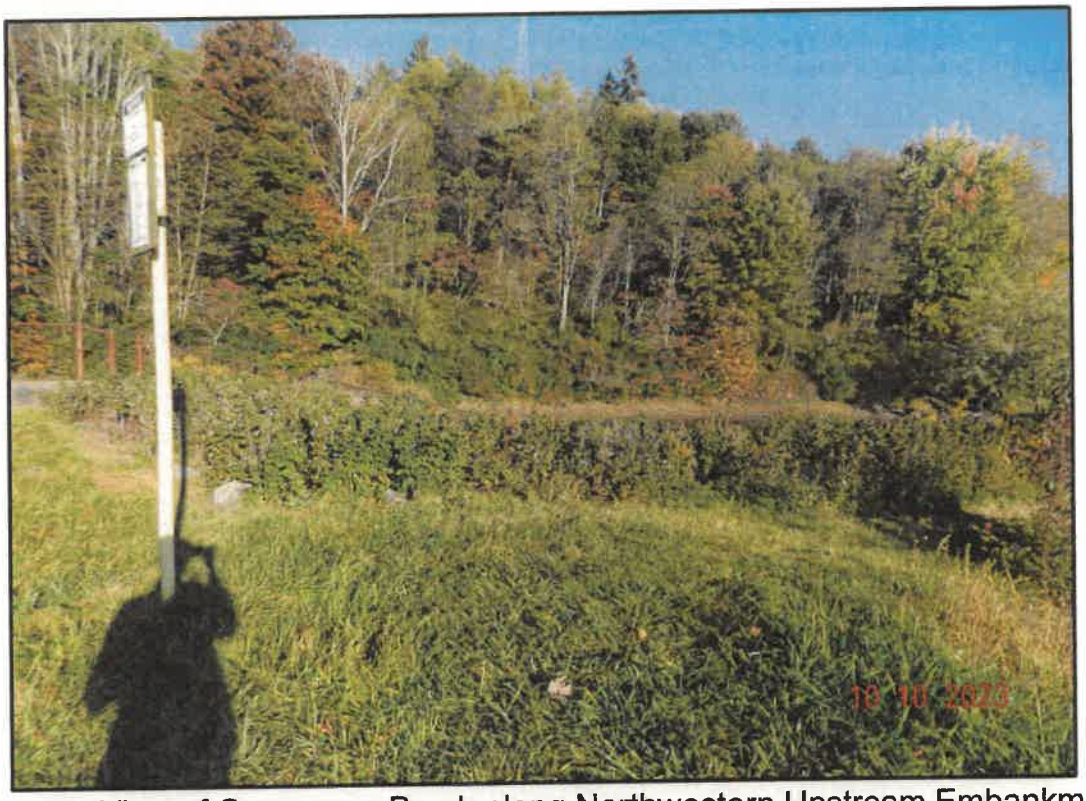



Photo 25: View of Overgrown Brush along Northwestern Upstream Embankment.


Photo 26: Corroded 15" CMP passing through stilling basin weir wall.

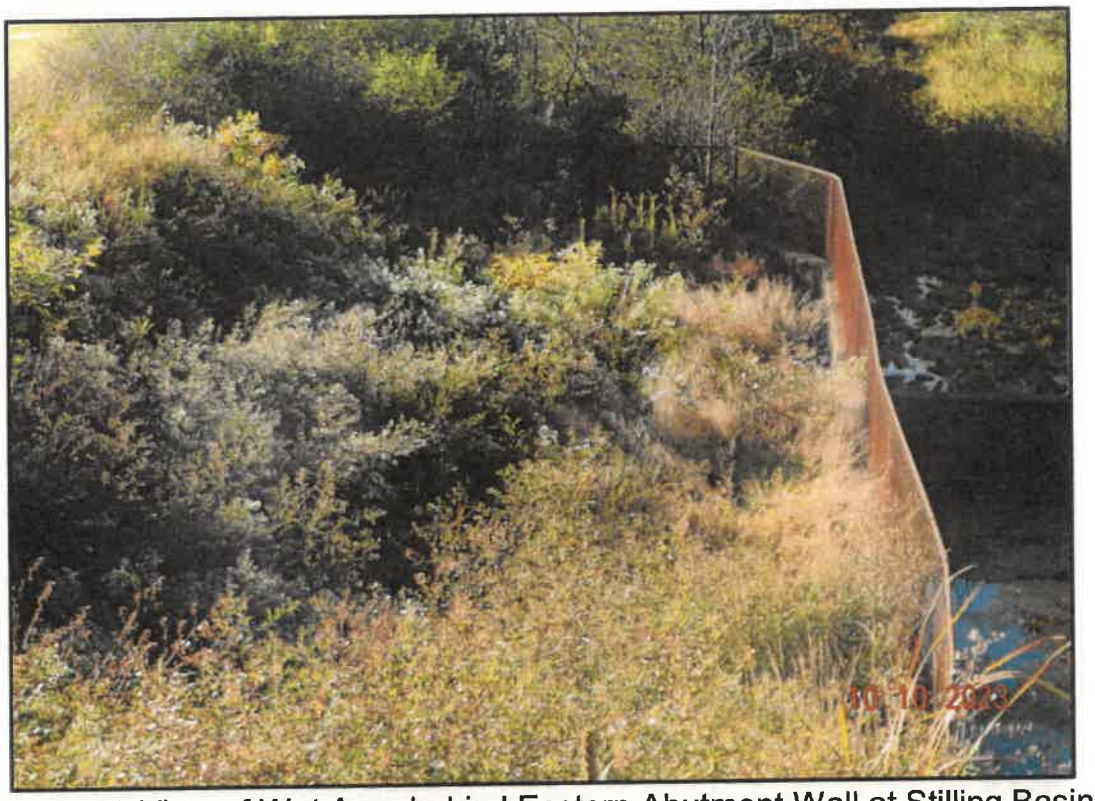


Photo 27: View of Wet Area behind Eastern Abutment Wall at Stilling Basin


Photo 28: View of Wet Area behind Eastern Abutment Wall at Stilling Basin


Photo 29: Joint with Active Flow of Water in Eastern Abutment Wall adjacent to Wet Area (Back Face View)


Photo 30: Joint with Active Flow of Water in Eastern Abutment Wall adjacent to Wet Area (Front Face View)

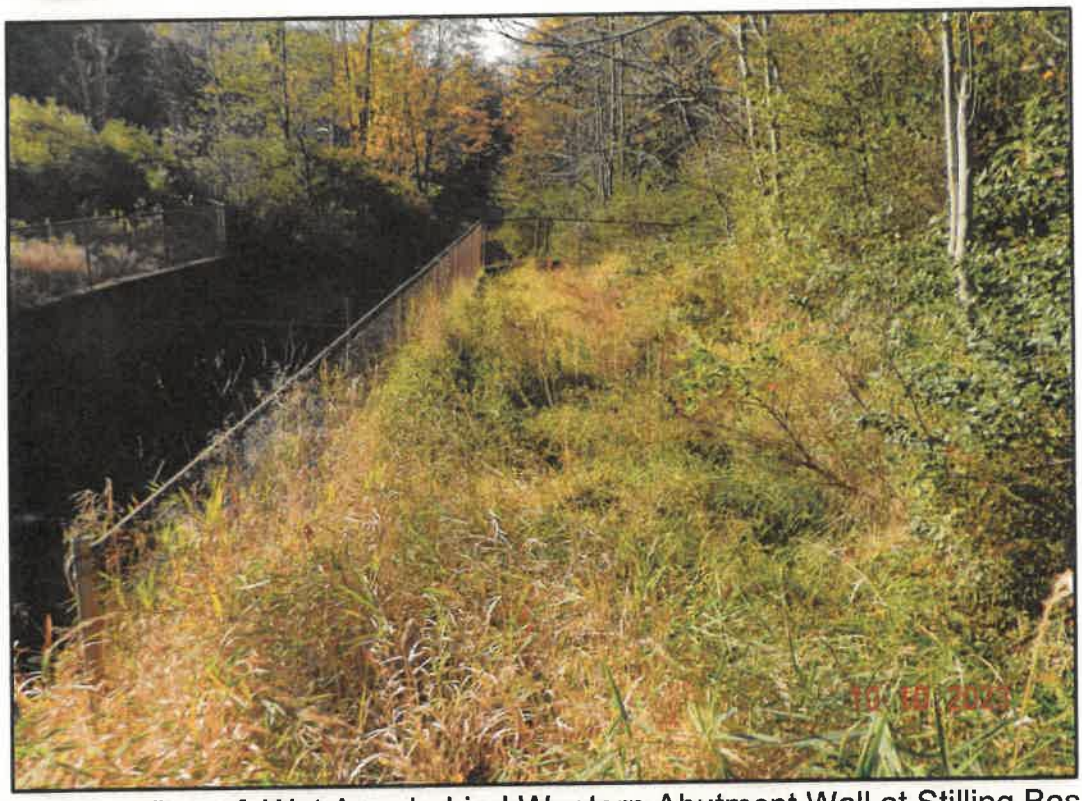


Photo 31: View of Wet Area behind Western Abutment Wall at Stilling Basin

Photo 32: View of Seepage Area on Western Wall Above Stilling Basin


Photo 33: Backfill at Base of Weephole on Western Abutment Wall (Possible Collapsed Pipe)

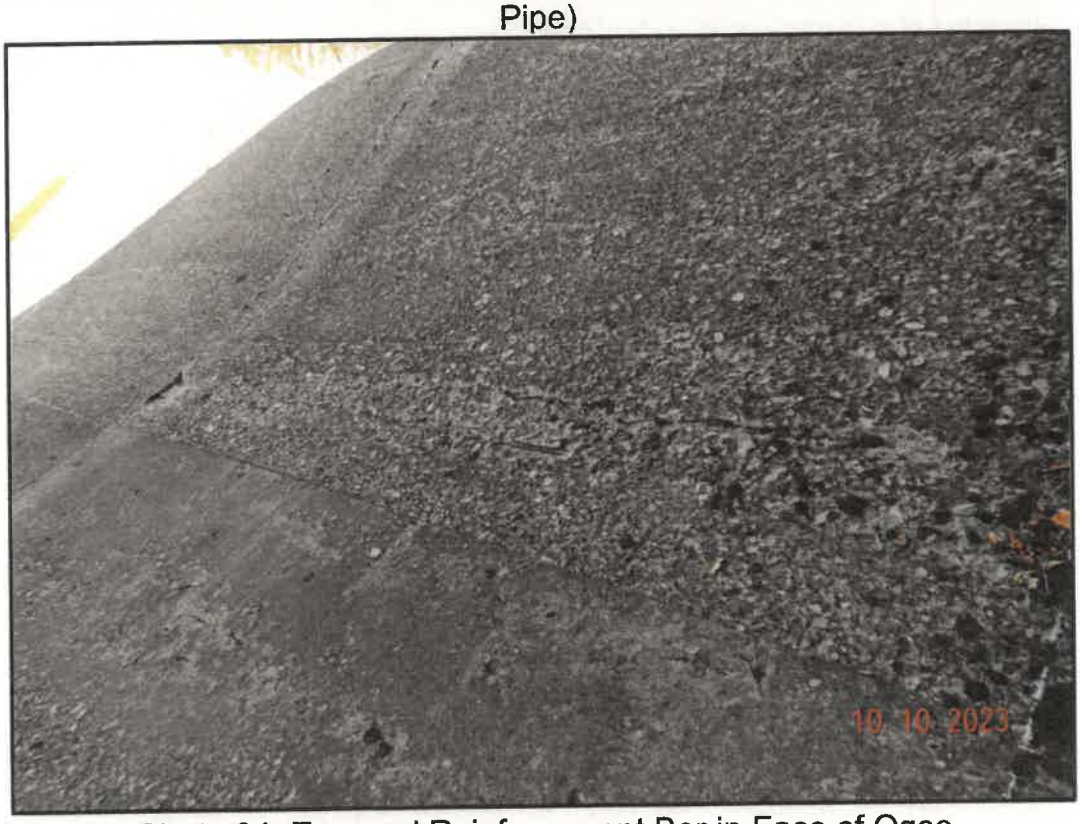
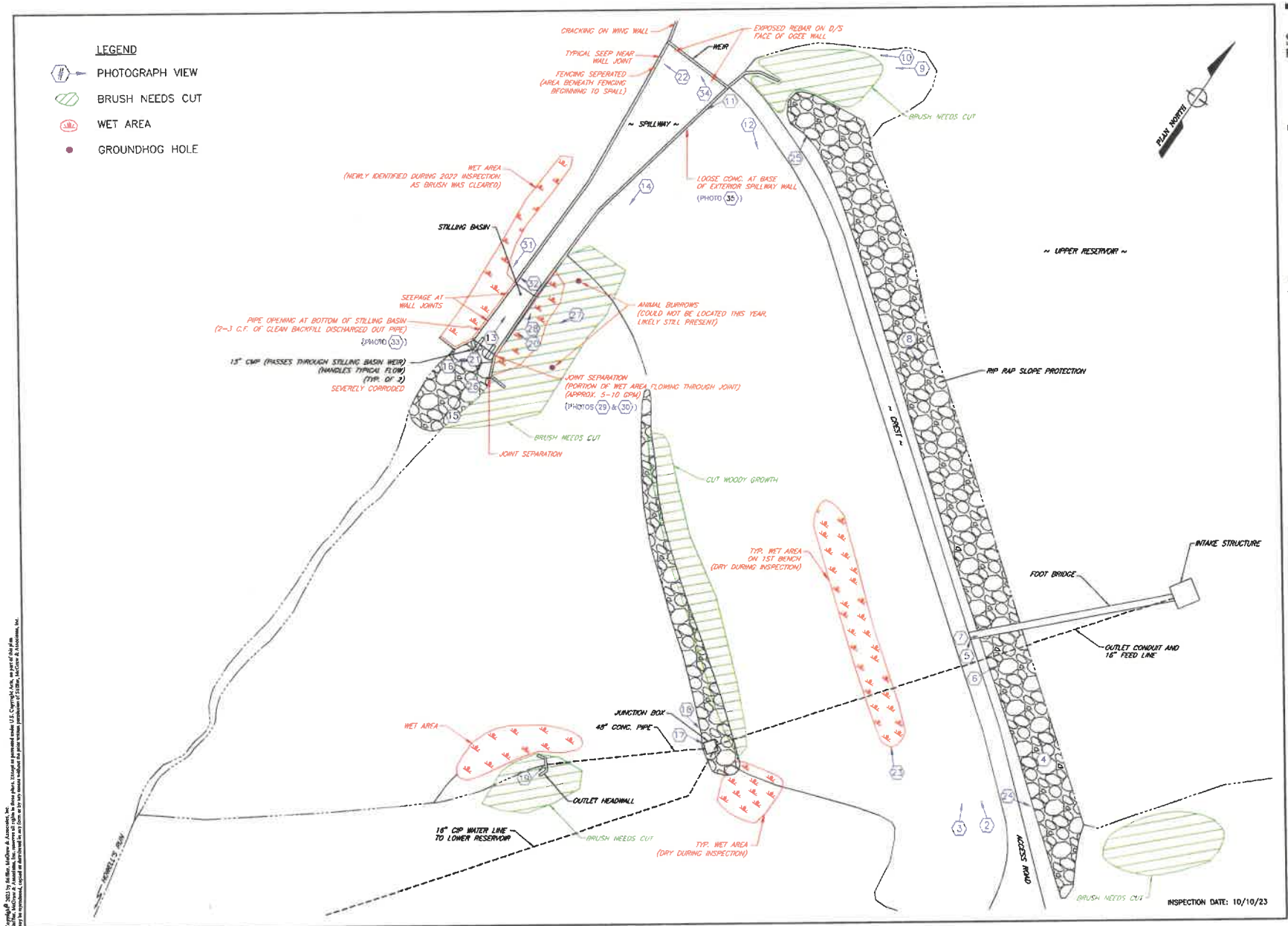



Photo 34: Exposed Reinforcement Bar in Face of Ogee


Photo 35: Spalling and Cracking Concrete on Eastern Wall (at 3rd Post from Crest)

# SKETCH PLAN
# 2023



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STIFFLER McGRAW
Engineers · Surveyors · Architects

BLAIR COUNTY
1731 N. Juniata Street
Hollidaysburg, PA 16648
Phone: 814.696.6280 Fax: 814.696.6240

With Offices In:
Bedford County • Bradford County • Warren County

Stiffler, McGraw & Associates, Inc.

Owner:
EBENSBURG BOROUGH
300 WEST HIGH STREET
EBENSBURG, PA. 15931

Project Name:
HOWELL'S RUN DAM
DEP FILE NO. D11-103

EBENSBURG BOROUGH
CAMBRIA COUNTY, PENNSYLVANIA

Revisions:

| No. | Date | Description |
|---|---|---|
| 1 | | |

Sheet Title:

DAM INSPECTION SKETCH PLAN

| | |
|---|---|
| PROJECT NO. | 15-0017.102 |
| DRAWN BY: | TMM |
| DESIGNED BY: | TMM |
| CHECKED BY: | DRS |
| SCALE: | NONE |

Drawing:

S2

# DEP REVIEW LETTER
# FOR
# 2022 INSPECTION REPORT
***(not received)***