



DAM SAFETY SECTION

CRITICAL INFRASTRUCTURE DIVISION

DAM SAFETY INSPECTION REPORT

GENERAL INFORMATION

INVENTORY No.: TX07192

DAM: Camp Branch Acres Dam

OWNER: Ben Stubbs

STREAM: Unnamed Tributary of Trinity River

BASIN: Trinity River

COUNTY: Trinity

GENERAL LOCATION: 6 Miles NW of Onalaska

DAM HEIGHT: 22 Feet

SIZE CLASSIFICATION: Small

NORMAL CAPACITY: 25 Acre-Feet (Ac-Ft)

MAXIMUM CAPACITY: 130 Ac-Ft

NORMAL WATER LEVEL: 154.4 Feet-Mean Sea Level (Ft-MSL)

CURRENT WATER LEVEL: 151.0 Ft-MSL

PREVIOUS INSPECTION DATE: May 8, 2018

CURRENT INSPECTION DATE: October 18, 2023

INSPECTION BY TCEQ PERSONNEL: José J. Ayala and Jackson Ziebert

PERSONNEL CONTACTED: Via Phone – Ben Stubbs, Owner

SUMMARY

Camp Branch Acres Dam, a small size earthen dam, was inspected by TCEQ staff on October 18, 2023, as part of the TCEQ regular inspection schedule. The owner was notified of the inspection on September 19, 2023. The dam was found in overall poor condition due to the overgrown condition of the dam's slopes, spillway, and downstream channel. Additional issues of concern included: brush and tree growth encroaching onto the crest from the upstream and downstream slopes; scattered and piled dry wood debris throughout the

Texas Commission on Environmental Quality • PO Box 13087 • Austin, Texas • 78711-3087

The TCEQ is an equal opportunity/affirmative action employer. The agency does not allow discrimination on the basis of race, color, religion, national origin, sex, disability, age, sexual orientation, or veteran status. In compliance with the Americans with Disabilities Act, this document may be requested in alternate formats by contacting the TCEQ at 512/239-0028, fax 239-4488, or 1-800-RELAY-TX (TDD), or by writing PO Box 13087, Austin, Texas, 78711-3087. Authorization for use or reproduction of any original material contained in this publication, i.e., not obtained by other sources, is freely granted. The Commission would appreciate acknowledgement.

upstream and downstream slopes; animal burrowing throughout the upstream and downstream slopes; vegetative growth obstructing the downstream channel; and the unknown location or condition of the original spillway pipes.

Other non-inspection related items of concern included the need to develop and submit an Emergency Action Plan (EAP), prepare an Operation and Maintenance (O&M) Plan, and re-evaluate and address the unknown hydraulic adequacy of the dam.

BACKGROUND

Camp Branch Acres Dam was constructed in 1957 and is currently used for recreational purposes. The dam was first inspected by the TCEQ in February 2005 in response to a 3-foot backwater flood. During the 2005 inspection, TCEQ staff were informed by the dam owner (at the time) and a homeowner that the spillway had once consisted of two drop inlet pipes. According to the dam owner and homeowner, both who had second-hand knowledge of the history of the spillway, stated that one of the spillway pipes had been plugged with concrete while the status of the other pipe was unknown. No new information on the drop inlet spillway has been obtained since that initial inspection.

Primary observations during the 2005 inspection included a water backup of the lake and pond water levels due to an undersized spillway and to a blockage in the culvert under the road, respectively. A letter was sent by the TCEQ to the chairman of the Camp Branch Acres Property Owners Association on February 4, 2005, indicating that the culvert under East High Line Road needed to be kept clean and free flowing. The dam owner excavated the spillway channel in response to discussions with TCEQ inspectors during and after the 2005 inspection; however, no construction plans or specifications were received by TCEQ.

Since then, Camp Branch Acres Dam has been inspected in 2006 (poor condition), 2009 (fair condition), and 2014 (fair condition) by TCEQ and found with similar deficiencies. These deficiencies included: vegetation and mature trees on the crest and slopes; a beaver lodge on the shoreline; bare soil and rutting on the crest; evidence of animal activity on the embankment; gullies on the upstream slope; corroded original spillway pipes; excessive vegetation in the spillway; and fallen trees and tree limbs along the shoreline.

The dam was last inspected by the TCEQ on May 8, 2018, which found the dam in overall poor condition. The 2018 inspection included the following observations:

- Uneven and bare areas on the crest.

- Piles of vegetative debris along the crest.
- Trees and densely overgrown vegetation along both slopes.
- Stumps, cut tree trunks, and vegetative debris on the upstream and downstream slopes and in the spillway.
- Vegetation encroaching on the spillway.
- Undefined channel between the spillway and the downstream pond.
- Burrow at the right of the spillway.
- Old spillway outlets were not located.
- Densely overgrown along the downstream channel beyond the road crossing.
- In addition, the Emergency Action Plan is required, and address the unknown hydraulic adequacy of the dam.

PRE-INSPECTION MEETING

TCEQ staff met with Mr. Stubbs at the dam site and accompanied staff through the duration of the inspection. A verbal exit interview explaining the preliminary observations of the inspection was conveyed following the inspection.

INSPECTION FINDINGS

Figure 1 is a location map. Figure 2 is an aerial photo of the dam with 5-ft elevation contours produced from 2018 LiDAR Data. Figure 3 is an aerial photo of the dam and spillway with 1-ft elevation contours produced from 2018 LiDAR Data. Figure 4 is an aerial photo of the dam and spillway with approximate photo locations. Note that right and left indications are from the perspective of an observer looking downstream. Field measurements taken during the inspection were done using a hand-level and survey rod. The water level was at approximately 151.0 feet-msl, or 3.4-feet below the spillway.

Crest (Photos 1 and 2)

- The 12-foot-wide crest of the dam had a sparse grass cover with some bare soil areas throughout the length of the crest.
- Several areas along the crest had brush and tree growth from the slopes encroaching onto the crest.
- The crest was found to be in fair condition.

Upstream Slope (Photos 3-7)

- The 3 horizontal to 1 vertical [3H:1V] upstream slope of the earthen embankment was densely overgrown, resulting in a limited inspection of the slope.
- Several areas of the slope had been cleared of some brush and tree growth.

- Dry wood and cut-tree debris were scattered throughout the upstream slope.
- Several burrows were observed throughout the length of the slope. One of the burrows measured to be about 2-feet deep and located near the middle of the dam.
- The upstream slope was found to be in poor condition due to the densely overgrown condition of the slope.

Downstream Slope (Photos 8-12)

- The 3H:1V downstream slope of the earthen embankment was densely overgrown, resulting in a limited inspection of the slope.
- Several areas of the slope had been cleared of some brush and tree growth.
- Dry wood and cut-tree debris were scattered throughout the downstream slope.
- Several burrows were observed throughout the length of the slope. One of the burrows measured to be about 1.7-feet deep and located near the mid-left end of the dam.
- A trail was observed on the downstream slope near the middle of the dam. Exposed tree roots were observed crossing the trail as a result of run-off erosion.
- The previously observed staired foot path and handrail were located near the mid-right end of the dam and appeared unchanged from the last inspection.
- The downstream slope was found to be in poor condition due to the densely overgrown condition of the slope.

Spillway (Photos 13-17)

- The spillway is located on the left end of the dam and is the only spillway and means for the dam to convey water safely downstream.
- The spillway consists of an uncontrolled earthen channel with an unknown width at the control section of the spillway.
- Dense brush and small tree growth were observed obstructing the spillway approach and spillway channel.
- The spillway channel dimensions widened to approximately 15-feet wide and 6-feet deep about 25-feet downstream from the spillway approach. Encroaching overgrown vegetation was also observed along the channel banks and covering most of the channel at this location.
- A small relief channel had been excavated by the owner. The channel was about 2-feet deep and leveled out to the natural grade several feet before draining into the downstream pond.
- The small pond located along the middle downstream toe area was slightly more overgrown with vegetation along the banks than in the last

inspection. The old spillway outlets are believed to be located along the toe area and pond; however, the outlets were not located.

- The spillway was found to be in poor condition due to the densely overgrown condition of the spillway.

Downstream Channel (Photos 18 and 19)

- A 3-foot diameter steel culvert drains and regulates the water elevation of the pond and spillway beneath East High Line Road. The culvert had some dry wood debris obstructing the inlet and was just engaged with flow at the time of the inspection.
- The area surrounding the culvert inlet was slightly more overgrown than in the last inspection.
- Flows from the culvert travel along a moderately defined and vegetated channel with dry wood debris and tree growth.
- The downstream channel was found in poor condition due to the possible obstruction of vegetative growth and scattered tree growth throughout the channel.

CONFIDENTIAL

Downstream Hazards

This dam is classified as a high hazard dam due to multiple residential homes located between the dam and Lake Livingston, approximately 1,200-feet downstream of the dam. This is enough to warrant a high hazard classification for this dam.

It should be noted that the hazard classification is not a description of the condition of the structure, but rather, a description of the potential for loss of downstream life or property in the event of a failure of the dam. The high hazard classification indicates that some potential for loss of life exists.

Hydrologic / Hydraulic (H&H) Analyses

The current 30 Texas Administrative Code (30 TAC), §299.15(a)(1) states that a dam of this size and hazard classification is required to safely pass 75% of the Probable Maximum Flood (PMF) without overtopping. There is no record of an H&H study on file; therefore, the hydraulic adequacy of the dam is undetermined at this time.

OPERATION AND MAINTENANCE (O&M) PLAN

To our knowledge, a written O&M plan has not been developed for this dam; however, it is evident that some initial maintenance work is being performed by the owner. Dam owners are not required to submit an O&M plan; however, it is required that all dam owners have and implement one.

EMERGENCY ACTION PLAN (EAP)

Per 30 TAC §299.61(b), an EAP is required for Camp Branch Acres Dam and TCEQ records indicate that no EAP is on file.

REQUIREMENTS/RECOMMENDATIONS

The following requirements and/or recommendations are provided (not prioritized):

1. In 30 Texas Administrative Code (TAC) Chapter 299, §299.61, an EAP is required for this dam. It is recommended that a draft EAP be submitted to the TCEQ Dam Safety Section for review and approval. The EAP should then be provided to the local Emergency Management Coordinator (EMC) to review, approve, and sign. At a minimum, the owner should put together a draft notification flowchart and compile a list (with phone numbers) of potentially affected downstream residents, local emergency management contact(s), TxDOT office, etc., until time allows for completion of a comprehensive EAP. This plan can be a positive step by the dam owners to accomplish safety objectives, protect the investment, and reduce potential liability. You may use the template provided in Appendix D of the TCEQ *Guidelines for Developing Emergency Action Plans for Dams in Texas* (GI-394). A current version of this guidance document may be found at the following website:

https://www.tceq.texas.gov/compliance/investigation/damsafetyprog.html#guide_eaps

It should be noted that the majority of the EAP, excluding the inundation map (generated by an engineered breach analysis), can be developed by the owner without the assistance of a Texas Licensed Professional Engineer (PE).

2. In 30 TAC, §299.43(a), a written O&M plan is required to be developed. The owner may use the most current version of the agency's Guidelines for Operation and Maintenance of Dams in Texas, a manual, a checklist, or some other written procedure to demonstrate implementation of the program. The Guidelines for Operation and Maintenance of Dams in Texas can be downloaded at:

https://www.tceq.texas.gov/publications/gi/gi_357/index.html

This plan should be designed to provide the owner or owner's representatives clear instructions for everyday operation of the dam, as well as maintenance guidance. The plan is for the owner's records and should be accessible if requested by TCEQ; however, the plan is not required to be submitted to the TCEQ. Your O&M plan should include items addressed in the requirements/recommendations portion of this

report. The method and the timeframe for addressing these items are left up to the owner, and it is recognized that finances may govern when the work can be undertaken. The following deficiencies need to be monitored in conjunction with your O&M plan:

- a. Monitor the minor erosion observed on the trail and staired path.
- b. Routine safety inspections should be conducted on a periodic basis and immediately after a significant rain event to evaluate the condition of the structure and detect and address problems before they progress to a serious level. These actions will minimize cost of dam maintenance and repair activities as well as minimize risks and liabilities associated with dam safety issues.


If conditions worsen with any of the deficiencies, then a PE should be consulted to determine the level of damage and recommend repairs/improvements, if needed.

3. All excessive non-grassy vegetation, brush, scattered and piled dry wood debris, dead tree trunks, and tree growth with a trunk diameter less than 4 inches should be removed from the dam embankment's crest, slopes, spillway, and the area located within 15-20 feet of the downstream toe of the dam. After removal, a short grass cover should be established over the affected and bare soil area(s). A short grass cover provides an ideal surface to protect against erosion, prevents harborage for burrowing animals, and allows for easier detection of incipient problems. Mowing should be performed as needed (prior to any future inspections (including owner inspections), and/or typically not less than twice yearly).
 - a. Trees that are larger than 4 inches in diameter may remain until their natural death, at which time the tree and roots are to be removed, the resulting holes backfilled with properly compacted non-dispersive clay, and a vegetative cover established. Removal of larger trees and backfill repairs should be supervised by a PE with dam experience. Additionally, the larger tree canopy cover should be thinned out and be pruned up high to facilitate mowing and light penetration to allow for vegetative grass cover to establish on the bare soil areas of the crest and slopes.
 - b. Once the upstream and downstream slopes have been mowed and cleared of non-grassy vegetation and dry wood debris, the slopes should be re-inspected by the owner or the owner's PE to determine if slides and/or benching is occurring. Proper repairs to these problems should be developed and implemented under the supervision of a PE.

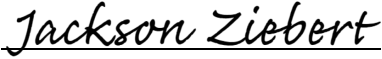
- c. All trees (regardless of size), non-grassy vegetation, and dry wood debris should be removed from within the spillway, inlet/outlet, spillway discharge channel, and downstream channel to ensure adequate flow conveyance.
4. Animal burrowing was observed throughout the dam. Nonetheless, it is likely that any other burrows or other animal activity may have been hindered and missed due to the dense vegetative growth. If additional animal burrowing is located upon clearing the slopes, then burrows should be backfilled and properly compacted with non-dispersive fill and a grass cover should be re-established. It should be noted that animal burrowing activity can create flow paths and can otherwise weaken the integrity of the embankment. Assistance in removing nuisance animals can be obtained from the Texas Wildlife Services Program.
5. A small pond has historically been noted along the downstream toe area and believed to be the location of the old drop inlet outlet pipes. These pipes were not located or observed at the time of the inspection but should be further investigated.
6. In adherence with 30 TAC Chapter 299, §299.15, this dam is required to safely pass 75% of the PMF. The dam and spillway's current hydraulic adequacy are unknown but most likely inadequate. It is recommended that the owner retain a PE with dam safety experience to evaluate the hydraulic adequacy of the dam with the current spillway configurations per the TCEQ's *Hydrologic and Hydraulic Guidelines for Dams in Texas* (GI-364) and the new Probable Maximum Precipitation (PMP) tool required for all H&H analyses. This guidance is available at:
https://www.tceq.texas.gov/assets/public/comm_exec/pubs/gi/gi-364.pdf
Depending on the results of the analysis, additional spillway improvements or repairs may be necessary to upgrade the structure to safely pass the required design storm. The H&H analysis and any engineering plans and specifications to modify the dam to pass the design flood must be submitted to the TCEQ Dam Safety Section for review and approval prior to the beginning of any work.

CONCLUSIONS

The owner of this dam may be liable for downstream damages in the event of a spill or breach. It is the owner's responsibility to maintain the dam in a safe condition in order to prevent loss of life and limit the potential for property loss. In addition, regular maintenance may reduce future rehabilitation and repair costs. The dam was found in overall poor condition due to the overgrown condition of the dam slopes and spillway. This structure will be scheduled for reinspection in 2 years, or in conjunction with any modifications.



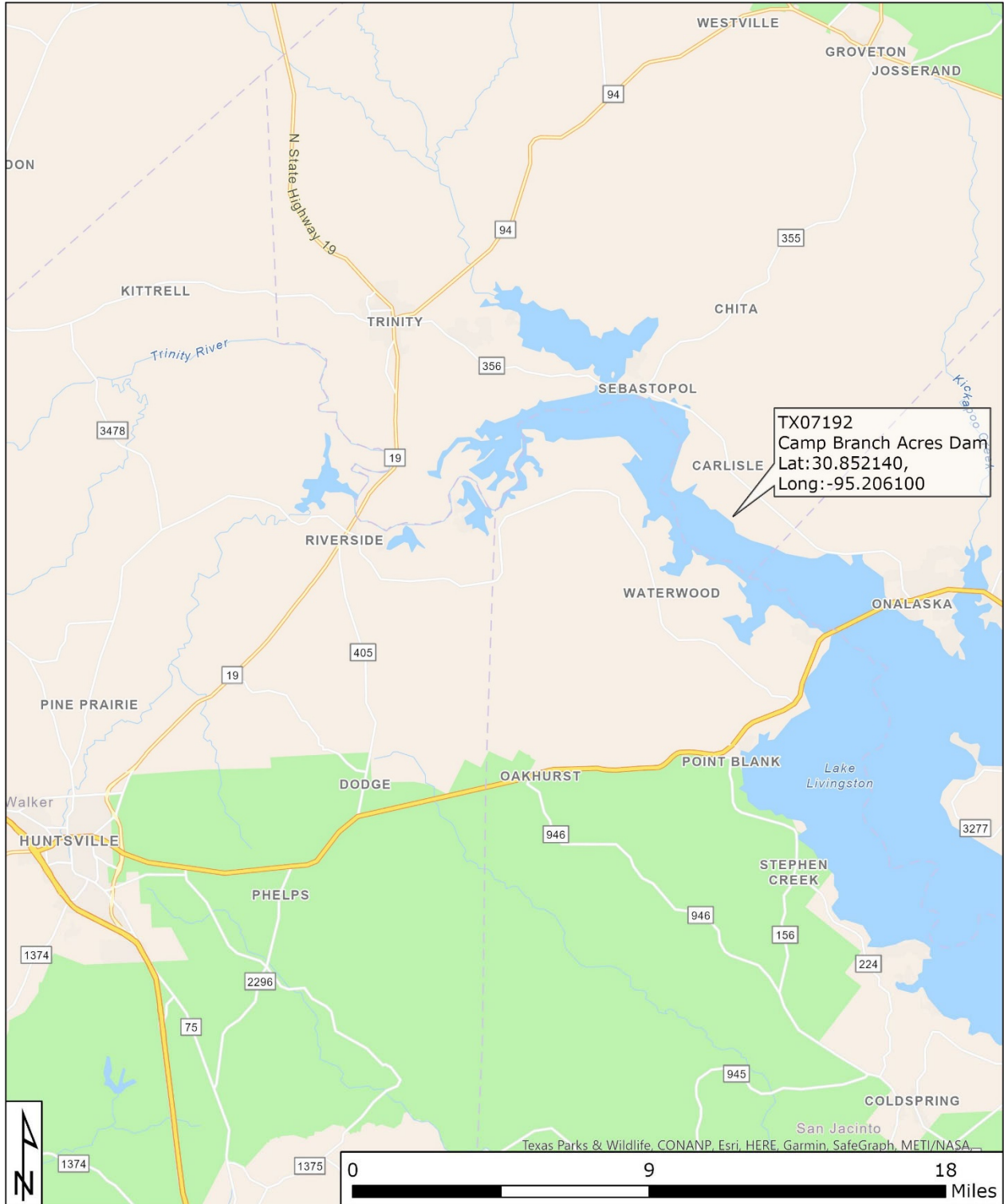
José J. Ayala
Dam Safety Section
Critical Infrastructure Division



Jackson Ziebert
Dam Safety Section
Critical Infrastructure Division

I concur: 

David Trujillo, P.E.
Dam Safety Section
Critical Infrastructure Division



This map was generated by the Critical Infrastructure Division of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the Critical Infrastructure Division at 512-239-1510.

Figure 1 – Location Map of the Camp Branch Acres Dam



This map was generated by the Critical Infrastructure Division of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the Critical Infrastructure Division at 512-239-1510.

Figure 2 – Aerial Photo of the Dam with 5-ft Elevation Contours produced from 2018 LiDAR Data & National Hydrographic Dataset



This map was generated by the Critical Infrastructure Division of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the Critical Infrastructure Division at 512-239-1510.

Figure 3 – Aerial Photo of Dam and Spillway with 1-ft Elevation Contours produced from 2018 LiDAR Data & National Hydrographic Dataset



Figure 4 – Aerial Photo of the Dam and Spillways with Approximate Photo Locations



Photo 1. View of the crest looking right from the left end of the dam. Note the dense brush and tree growth along the slopes beginning to encroach the crest.



Photo 2. View of the crest looking left from the right end of the dam. Note the brush and tree growth along the slopes and the lack of grass cover along the crest.



Photo 3. View of the upstream slope looking right from the left end of the dam. Note the dense brush and tree growth along the length of the slope.



Photos 4A & 4B. Views of the upstream slope looking left and right (respectively) from the near middle of the upstream slope. Note this area had been partially cleared compared to the rest of the slope; however, cut vegetative debris and tree trunks were still on the slope.



Photo 5. View of some partial clearing as seen by the remaining small tree trunks. Note some non-vegetative debris observed within the dense brush.



Photo 6. View of a downed tree along the crest/upstream slopes edge, near the mid-right side of the dam.



Photo 7. View of a burrow along the upstream slope, about 2-feet deep, near the middle of the dam.



Photo 8. View of the densely overgrown brush and tree growth along downstream slope looking right from the left end of the dam. Note the utility lines traverse across the length of the downstream toe area.



Photo 9. View of the densely overgrown brush and tree growth along the downstream slope looking left from the right end of the dam. Note the habitable residences along the downstream toe area.



Photo 10. View of a burrow along the downstream slope, about 1.7-feet deep, near the mid-left end of the dam. Note the dead tree roots adjacent to the burrow.



Photo 11. View of a trail observed on the downstream slope near the middle of the dam. Note the exposed tree roots crossing the trail as a result of runoff erosion.



Photo 12. View of a staired foot path and handrail along the downstream slope near the mid-right end of the dam. Note the railroad ties used as steps along the slope.



Photo 13. View of the spillway approach looking upstream. Note the dense brush and small tree growth obstructing the spillway approach. The direction of flow is noted by the arrows.



Photo 14. View of the spillway channel looking downstream. Note the vegetative growth along the channel banks encroaching on the spillway channel. The direction of flow is noted by the arrows.



Photo 15. View of the obscured spillway channel (estimated dashed lines) looking upstream. The dimensions of the spillway channel were approximately 15-feet wide and 6-feet deep at this section of the channel with encroaching brush vegetative growth. The direction of flow is noted by the arrows.



Photo 16. View of the shallower section of the spillway channel (approximately 2-feet deep) looking downstream. The direction of flow is noted by the arrows.



Photo 17. View of the previously observed pond along the downstream toe area.



Photo 18. View of the 3-foot diameter steel culvert under East High Line Road. The culvert was obstructed with some dry wood debris and just engaged with flow from the downstream pond. The direction of flow is noted by the arrows.



Photo 19. View of a downstream channel looking downstream from the roadway. Note the dense brush and tree growth along the channel and channel banks. The direction of flow is noted by the arrows.