Joint Federal/State Application for Waterway Alteration

Town of Boonsboro, MD

Shafer Park Creek Masonry Repair & Renovation

Project Summary & Work Scope

Monday, June 27th, 2022

PROJECT SUMMARY

The stonework throughout Shafer Park is unique and original to the park's construction, in the late 1930s. Since it was dedicated in 1939, the park has served as the center of recreational activity for Boonsboro and the historic stonework creates a beautiful and charming aesthetic, in line with the Town's 200-year history. Over 80 years ago, all the park structures were built of fieldstone from nearby land and included the bandstand, a concession stand, stone restrooms, a stone concession stand, equipment storage buildings, several stone bridges, and the stone streambanks that cuts a straight path through the park. Those structures still stand, today, and are maintained by the Town's Public Works Department.

Shafer Park, 1939

In the 1930s, plans were developed by the federal Works Progress Administration (WPA) and the construction was completed by the Civilian Conservation Corps (CCC). The Corps cleared and graded the land and routed three streams into a single meandering one (which has since been straightened). The Corps also lined the banks with masonry stone and built the stone bridges across the stream, linked by paved walking paths for walkers, joggers, and all parkgoers.

Shafer Park is an excellent example of how state and federally funded projects during the Great Depression, all the way up to present day, can affect small towns in rural Maryland. Shafer Memorial Park is one of the most elaborate and well-known public parks in Washington County and a major contributing element to the overall historical character of the town. This project would serve to renew one of our most important historic landmarks and preserve the Town's heritage, for the next 80 years.

Shafer Park, 1939

The Town was recently awarded a DNR Program Open Space grant to complete the renovation and repair of this historic landmark. Program Open Space supports rehabilitation of existing parks, encourages enhancing quality of life in existing population centers, and the development of environmentally oriented parks and recreation projects. The Creek Masonry Repair & Renovation project meets all three criteria. The public will benefit from the repair and renovation project as the project restores critical park infrastructure, encourages the public to commune with the natural environment, and enhances quality of life through sustainability and cultural/historical preservation. Shafer Park is a point of pride for residents and this project would serve to further solidify the Park as the Town's social center.

The project renovates an existing structure and does not create/add additional stormwater runoff. The project will stabilize existing infrastructure and prevent runoff caused by age and deterioration. The existing stone will be reused and repointed, with minimal new materials used.

WORK SCOPE

Beginning with Bridge #1, which serves as a crossing over the Creek for Park Drive, the work scope will detail repairs and renovations, as they occur progressively westward or downstream. In dry weather, the flow through the Shafer Park Creek is Spring Water, surfacing in a local property owner's backyard, a few hundred feet from the Creek. During rain events, the Creek is connected to the nearby stormwater infrastructure and becomes both a conveyance and outfall. The Creek joins an Unnamed Tributary to the Little Antietam Creek, further downstream (depicted below).

Dewatering & Erosion Control

With all four of the weirs removed, the water doesn't pool in each of the four stream sections (pictured below). In dry weather, with all four weirs removed, the depth of the stream, from the concrete streambed to the surface, is approximately 1 inch.

Using MDE's Guidelines to Waterway Construction and prescribed instream construction measures, each of the construction areas will be isolated and dewatered using sandbag diversion dams with impervious membrane.

Per the MGWC 1.5: Sandbag/Stone Channel Diversion, construction areas will be dewatered, and creek flow diverted around construction activities occurring in the creek channel, using sandbags. **ALL DIVERSIONS, EXCAVATED AREAS, EROSION CONTROL DEVICES, AND PROPOSED IMPACTS TO THE**

STREAM AND 100-YEAR FLOODPLAIN ARE TEMPORARY. THE PROPOSED RESTORATION WORK WILL NOT ALTER THE CREEK'S FLOW, DIMENSIONS, OR PERFORMANCE. FOLLOWING COSTRUCTION, DIVERSION DAMS WILL BE REMOVED, DISTRUBED VEGETATION WILL BE RESEEDED, EROSION CONTROL DEVICES WILL BE REMOVED.

TEMPORARY IMPACTS TO THE WATERWAY AND FLOODPLAIN WILL BE LIMITED TO THE STREAM CHANNEL (6,240 SQ. FT.) AND 10 FEET ON EITHER SIDE OF THE CHANNEL (10,400 SQ. FT.) FOR STAGING/STORAGE. THE TOTAL TEMPORARY IMPACT WILL BE 16,640 SQ. FT.

Materials used will include:

- Riprap: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
- Sandbags: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.). ·
- Sheeting: Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

After installation of erosion control devices, installation should proceed from upstream to downstream, with weirs removed to allow 1-inch of dry-weather spring water flow. Silt fence will be installed around the perimeter of the work areas. Sandbag diversions will be used as the stream diversion technique to isolate and dewater the construction areas and control erosion from entering the water flow.

Installation will proceed as follows (refer to Detail 1.5):

1. The diversion structure should be installed from upstream to downstream.

2. The height of the sandbag diversion should be a function of the duration of the project in the stream reach. Each dewatered construction section will take no more than 2 weeks and the height of the diversion should be one half the streambank height, measured from the channel bed, or approximately 2 feet high. The stream bed is poured concrete and water tightness with the sandbag diversions will no be an issue.

3. All excavated material will be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.

4. Sediment-laden water from the construction areas will be pumped to a dewatering basin.

5. Sheeting on the diversion will be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.

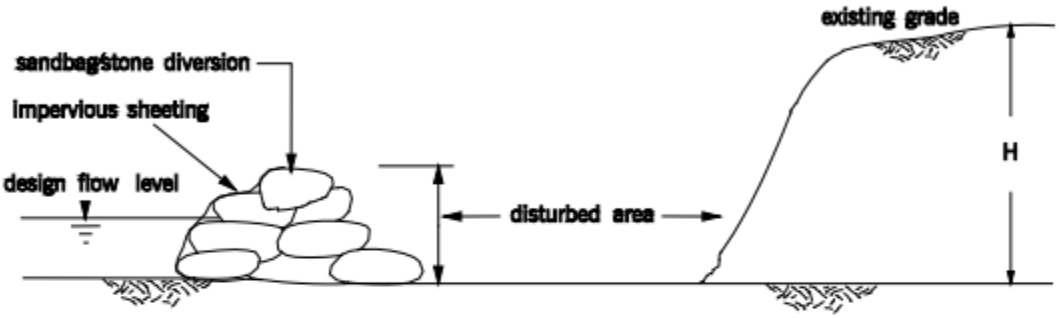
6. Sandbag or stone diversions will not obstruct more than 45% of the stream width.

7. Prior to removal of these temporary structures, any accumulated sediment will be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.

8. Sediment control devices will remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal. Please see detailed MGWC Diagram on following page:

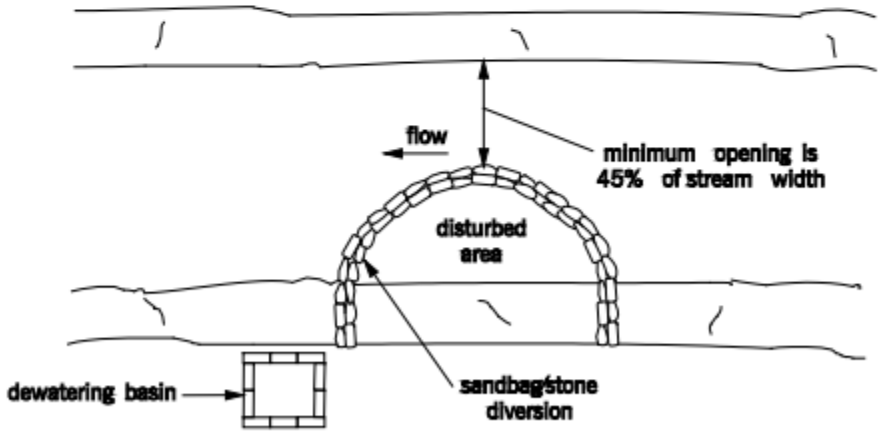
Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION

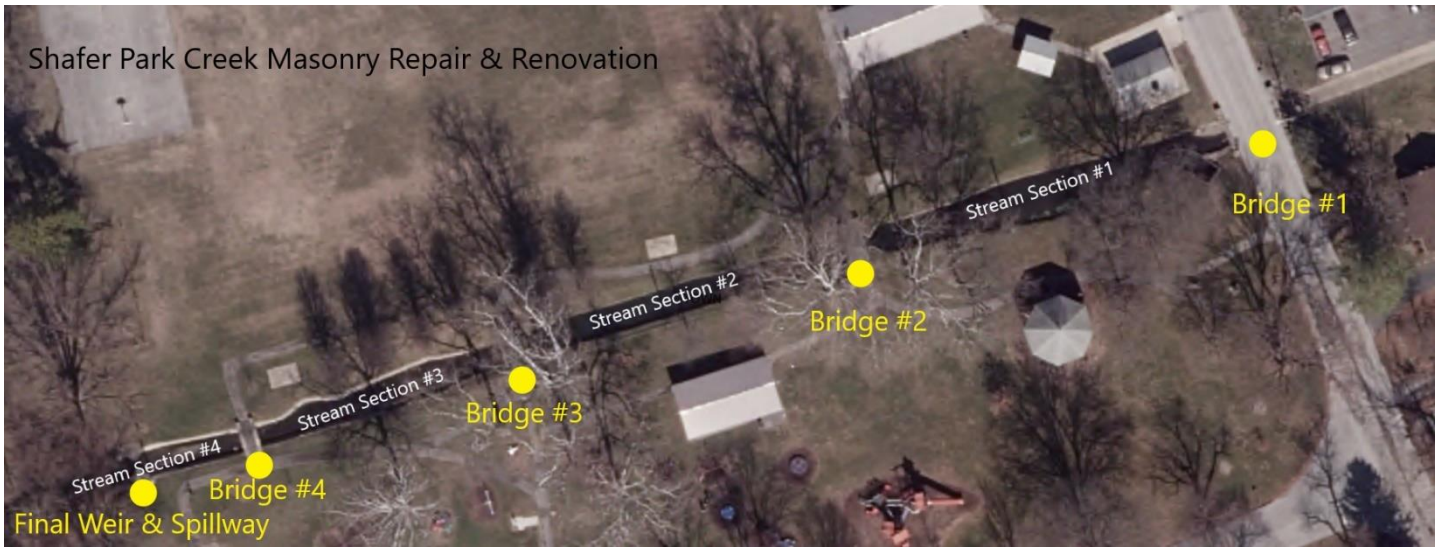
TRANSVERSE SECTION VIEW



H/2 + 1 ft (0.3 m) for projects of duration < 2 weeks;
2-year flood elevation for projects of longer duration

PLAN VIEW





<u>Project Phasing & Work Scope</u> – Estimated time to completion is 12 weeks. (See Map, above)

Stream Section #1: North Bank

1) Install silt fencing around construction area and place dewatering basin.
2) Isolate/dewater northern streambank and area below bridge #2, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Repoint stone streambanks and north side of bridge with new mortar.
5) Seal joint between weir and spillway, underneath bridge #2 (see pics), with concrete and new mortar.
6) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
7) Allow mortar and concrete to set/harden.
8) Remove sandbags and erosion control devices.

Stream Section #1: South Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and area below bridge #2, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Excavate 60-foot section of collapsed stone streambank and install new concrete footer, with a minimum 6-inch thickness, the width of the stone wall to be rebuilt, and reinforced with rebar.
5) Backfill excavated area, behind newly-constructed wall, with minimum 6-inch, washed riprap.
6) Rebuild collapsed stone streambank, using existing stone, and point with Type S Cement.

7) Repoint stone streambanks and south side of bridge with new mortar.
8) Seal joint between weir and spillway, underneath bridge #2 (see pics), with concrete and new mortar.
9) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
10) Allow mortar and concrete to set/harden.
11) Remove sandbags and erosion control devices.

Stream Section #2: North Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and area below bridge #3, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Repoint stone streambanks and north side of bridge with new mortar.
5) Seal joint between weir and spillway, underneath bridge #3, with concrete and new mortar.
6) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
7) Allow mortar and concrete to set/harden.
8) Remove sandbags and erosion control devices.

Stream Section #2: South Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and area below bridge #3, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Repoint stone streambanks and south side of bridge with new mortar.

5) Seal joint between weir and spillway, underneath bridge #3, with concrete and new mortar.
6) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
7) Allow mortar and concrete to set/harden.
8) Remove sandbags and erosion control devices.

Stream Section #3: North Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and area below bridge #4, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Repoint stone streambanks and north side of bridge with new mortar.
5) Seal joint between weir and spillway, underneath bridge #4, with concrete and new mortar.
6) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
7) Allow mortar and concrete to set/harden.
8) Remove sandbags and erosion control devices.

Stream Section #3: South Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and area below bridge #4, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Excavate 75-foot section of collapsed stone streambank and install new concrete footer, with a minimum 6-inch thickness, the width of the stone wall to be rebuilt, and reinforced with rebar.
5) Rebuild collapsed stone streambank, using existing stone, and point with Type S Cement.
6) Backfill excavated area, behind newly-constructed wall, with minimum 6-inch, washed riprap.
7) Repoint stone streambanks and south side of bridge with new mortar.
8) Seal joint between weir and spillway, underneath bridge #4 (see pics), with concrete and new mortar.
9) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
10) Allow mortar and concrete to set/harden.
11) Remove sandbags and erosion control devices.

Stream Section #4: North Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and northside of Final Weir & Spillway, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.
4) Repoint stone streambanks and north side of bridge with new mortar.
5) Seal joint between Final Weir and Spillway, with concrete and new mortar.
6) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
7) Allow mortar and concrete to set/harden.
8) Remove sandbags and erosion control devices.

Stream Section #4: South Bank

1) Install silt fencing around construction area and place dewatering basins.
2) Isolate/dewater southern streambank and southside of Final Weir & Spillway, using MGWC 1.5: Sandbag/Stone Channel Diversion technique.
3) Clear stone masonry walls of vegetation and damaged mortar.

4) Excavate 40-foot section of collapsed stone streambank and install new concrete footer, with a minimum 6-inch thickness, the width of the stone wall to be rebuilt, and reinforced with rebar.
5) Rebuild collapsed stone streambank, using existing stone, and point with Type S Cement.
6) Backfill excavated area, behind newly-constructed wall, with minimum 6-inch, washed riprap.
7) Repoint stone streambanks and south side of bridge with new mortar.
8) Seal joint between weir and spillway, underneath bridge #2 (see pics), with concrete and new mortar.
9) Remove/dispose of remaining sediment or construction debris, per MGWC 1.5.
10) Allow mortar and concrete to set/harden.
11) Remove sandbags and erosion control devices.