

Rural Trail

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Location

Our goal was to design a rural trail along the Volga River that connects the community of Volga, IA with the Clayton County Conservation Center in Osborne, IA. Volga and Osborne are both located in Clayton County, IA and the distance between is shown in Figure 1. We've designed a trail on the north side of the Volga River, and one on the south side.



Figure 2. Box culvert example



Figure 3. Pre-fabricated bridge example

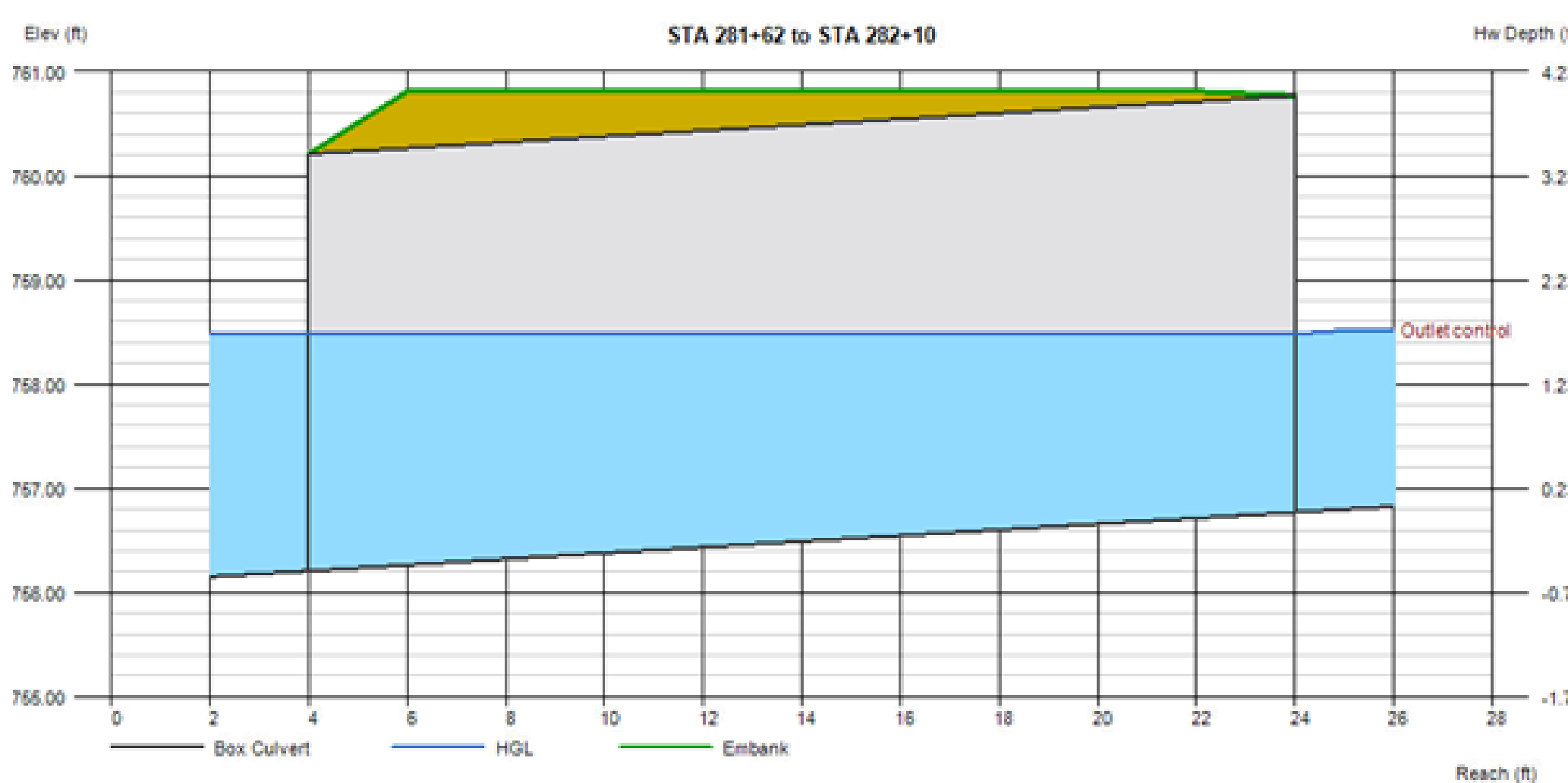


Figure 6. 12' x 4 RCB Culvert

Methods and Background

Civil 3D was used to create the horizontal and vertical alignment for the trails as well as the culvert designs for each of the stream crossings. Figure 2 above shows an example of a box culvert design. For the bigger stream crossings, we used estimates of pre-fabricated bridges from Wheeler Lumber LLC. Figure 3 shows an example of a pre-fabricated bridge. The specifications used to create the trails are the Iowa DOT Design Manual, Iowa Statewide Urban Design and Specifications (SUDAS), the US department of Transportation and the ADA accessible guidelines.

Final Designs

The trail is ten feet wide with two feet shoulders on each side. The cross section, mile marker, and handrail details are shown in Figure 4 below. The three pavement options considered for the trails are concrete, asphalt or limestone gravel. Certain areas will need handrails due to steep slopes along the river. There will be a few observation look out points along the river for some scenic viewing and mile markers to indicate distance travelled.

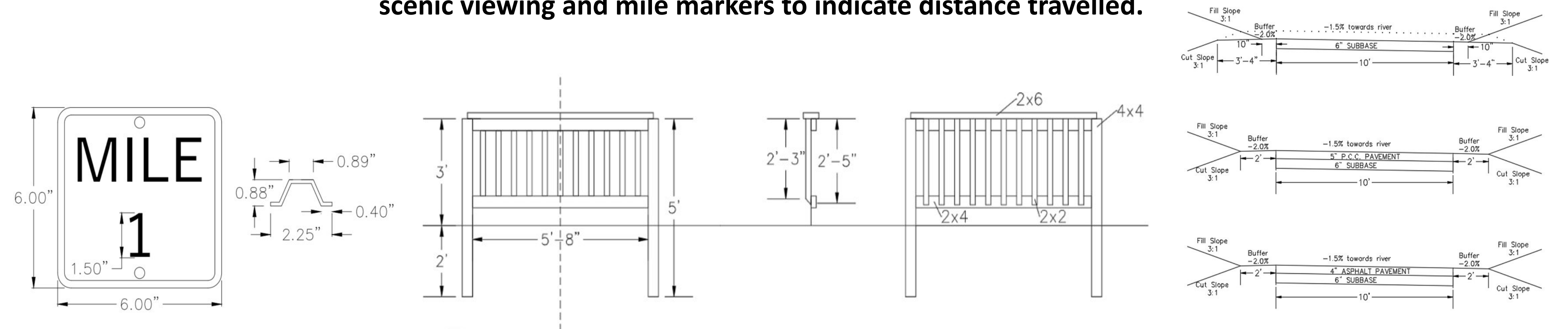


Figure 4. Signpost, Handrail, and Cross section detail

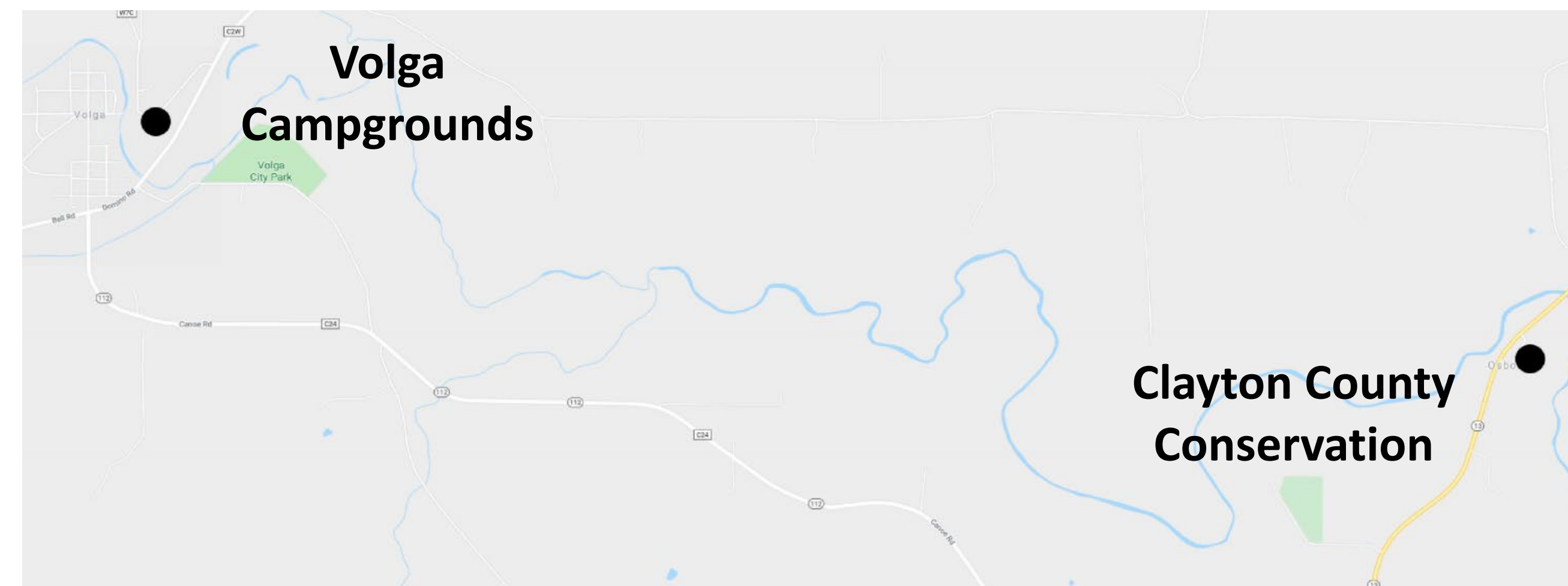


Figure 1. Trailhead Locations

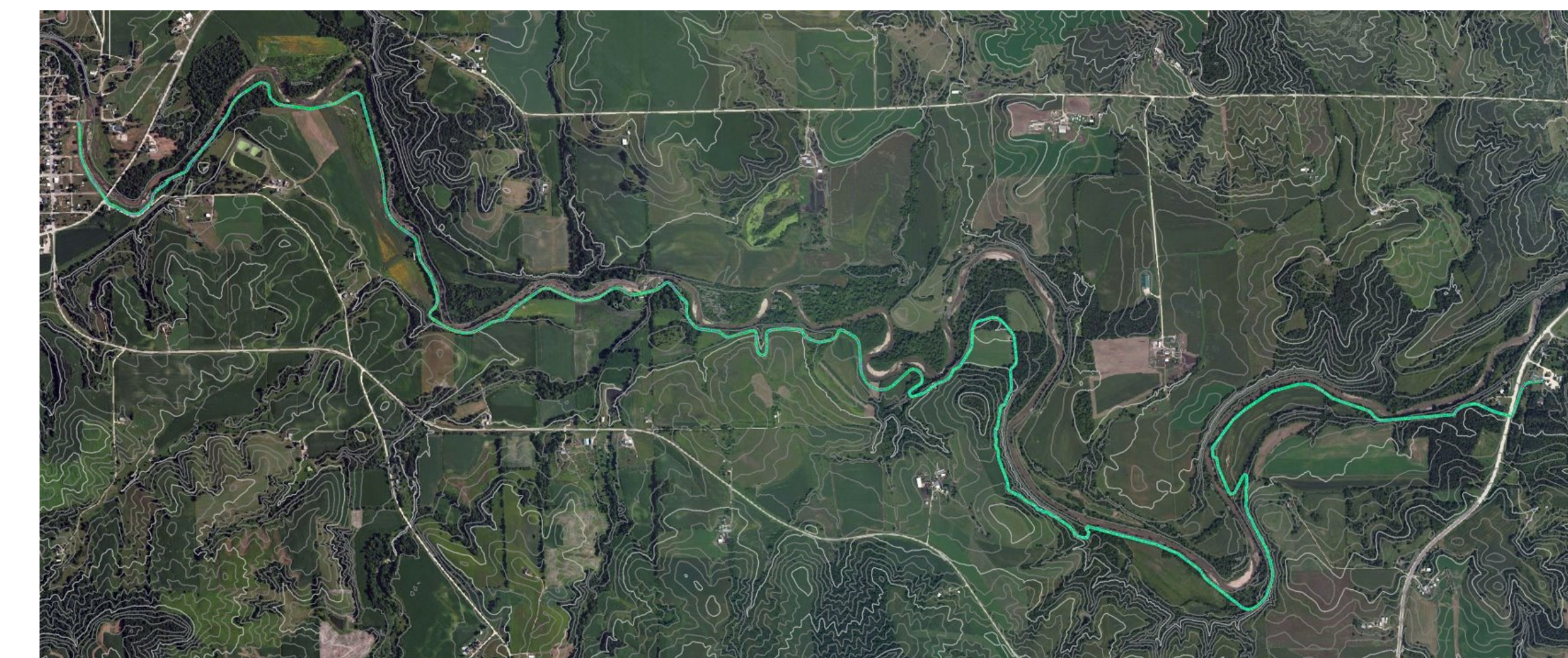
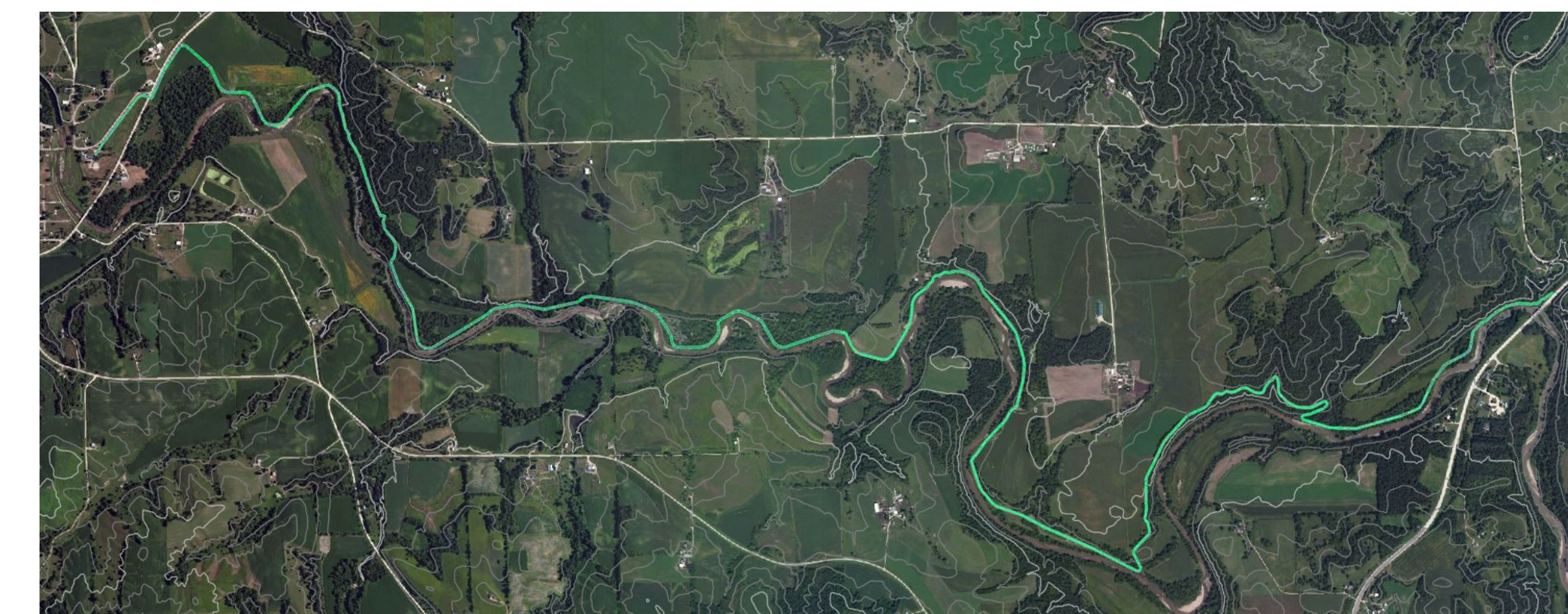


Figure 5. North and South Site Plans

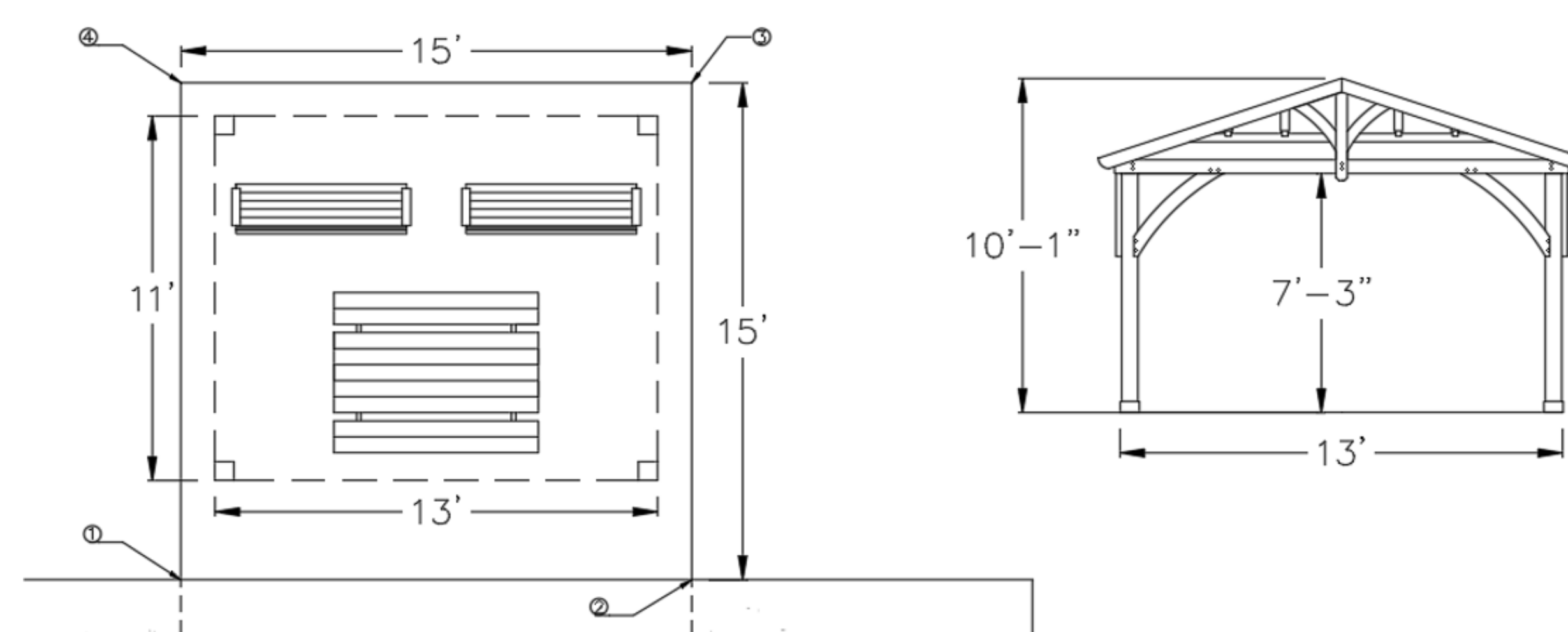


Figure 7. Benches, Picnic table and Pavilion detail

Cost Estimate and Recommendations

The final preliminary cost estimation for the North trail is \$1,256,500. The final cost estimation for the South trail is \$967,500. These cost estimations are based on using just the crushed limestone and no P.C.C. pavement or asphalt pavement. Detailed cost estimations are in the design report.

References

- <https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/ada-standards/doj-s-2010-ada-standards>
- <https://iowadot.gov/design/design-manual>
- <https://iowasudas.org/manuals/design-manual/>
- https://www.fhwa.dot.gov/environment/recreational_trails/guidance/manuals.cfm