

TEAM 04: RECS

Responsibly Enhancing Cedar Springs

Introduction

Team 04 is developing a construction sheet set for the Heart of Cedar Springs Park, located in Cedar Springs, Michigan. Specifically, the Team is working in conjunction with the Cedar Springs Community Building Development Team (CBDT) to design additions to the park as a plan of action for future development phases of the park.

The goal of this project is to formulate a sheet set to present to the CBDT and/or the City of Cedar Springs, MI to utilize as a basis for future design decisions. Overall, the project aims to increase the overall appeal of the park, drawing more residents to the area and revitalizing the ‘heart’ of Cedar Springs, keeping with the overall goals of the CBDT.

Project Location



Project Overview

- An artistic feature that pays homage to the history of Cedar Springs
- Angled parking along Maple St.
- An off-street parking lot
- A pedestrian bridge that shall replace the existing culvert that was creating issues with the flow of Cedar Creek.

Design



Figure 1: Proposed Site Plan

Parking Lot Design

A parking lot with 2 accessibility spaces and 46 total spaces was designed and graded to the existing park surface.

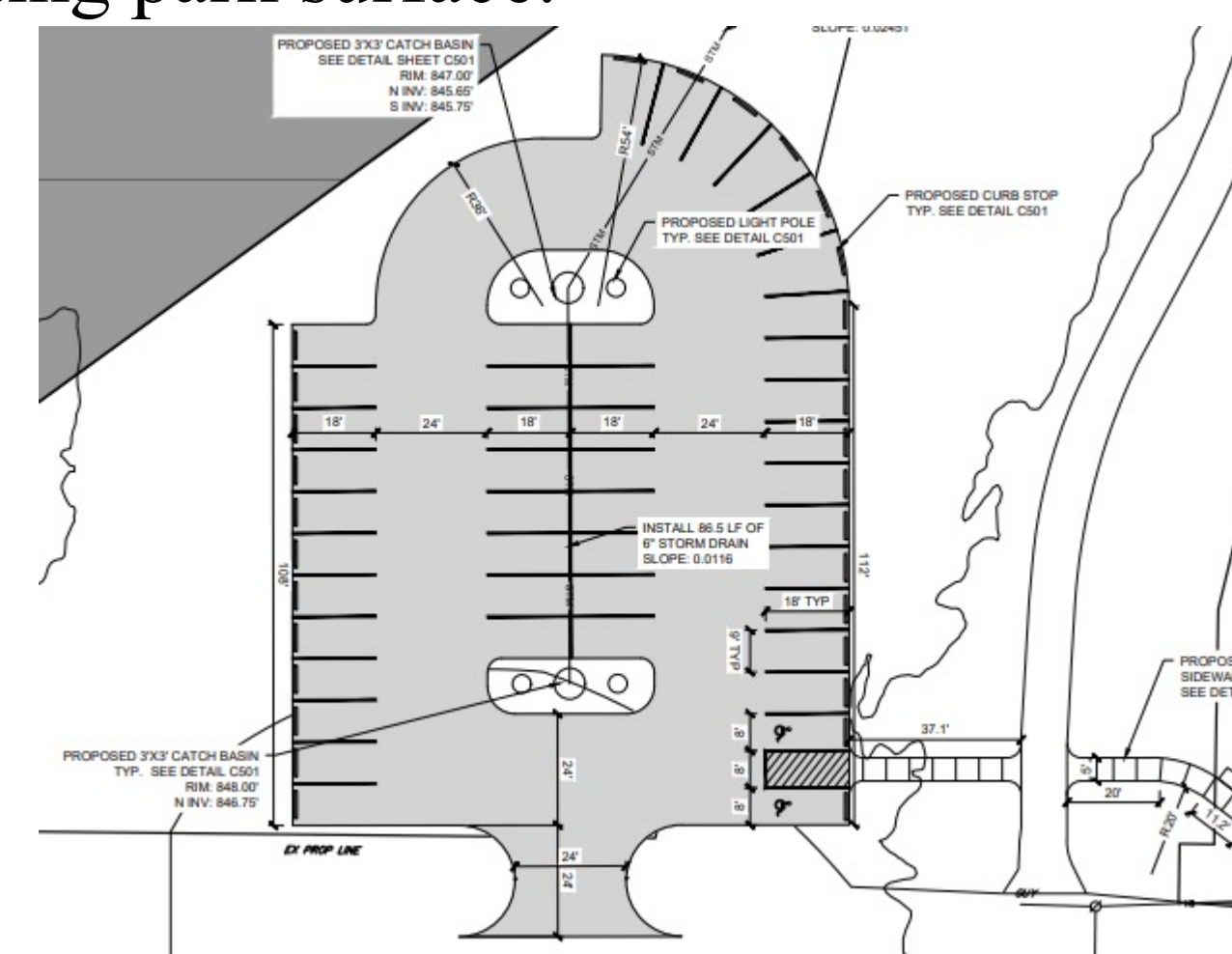


Figure 2: Proposed Parking Lot Layout

Culvert Removal

The flow of Cedar Creek was simulated in HEC-RAS to determine potential negative impacts of removing the existing culvert. This was done by comparing the flow of the creek with and without the culvert. There was no significant increase in the flow downstream and the existing culvert no longer served its purpose. A pedestrian bridge was designed in its place.

Catch Basin Design

To mitigate impacts of stormwater runoff, 2 catch basins were sized to accommodate a 2-year storm, with a 6" dia. pipe discharging to Cedar Creek.

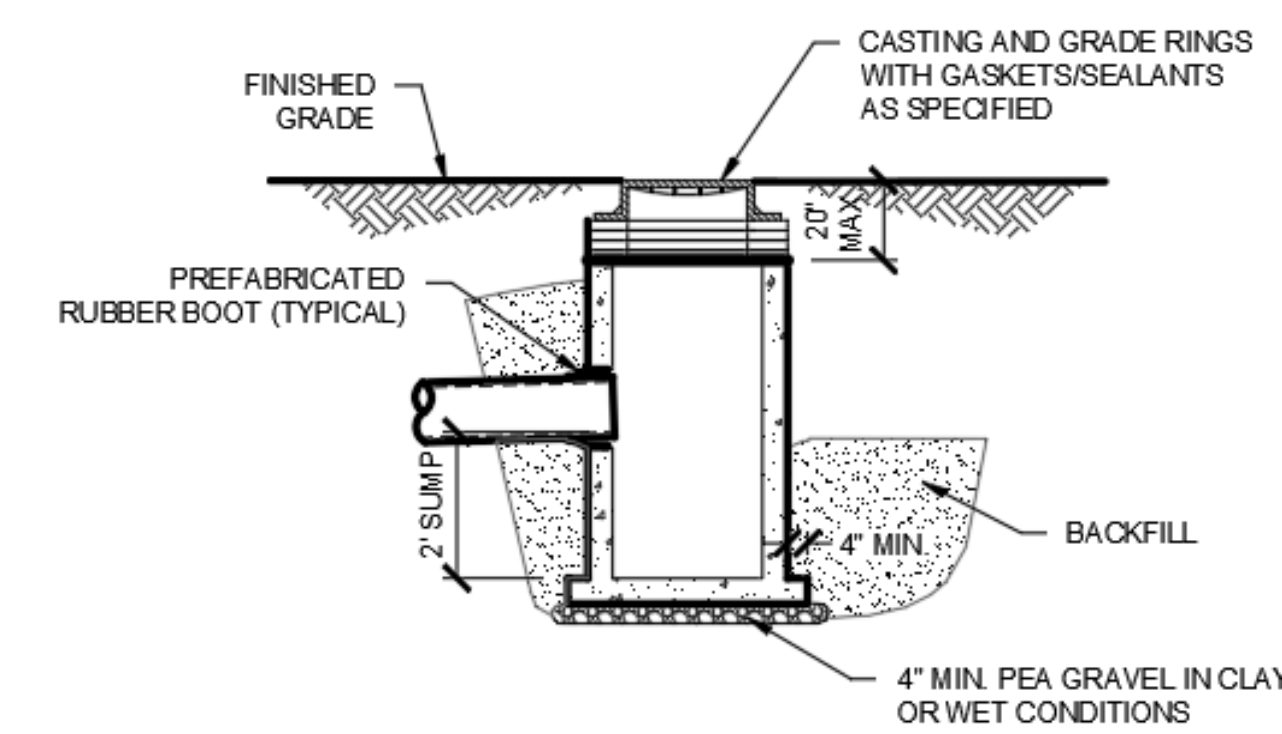


Figure 3: Catch Basin Detail

Bridge Design

To match the style of existing bridges along the White Pine Trail, a CON/SPAN bridge design was obtained from Contech.

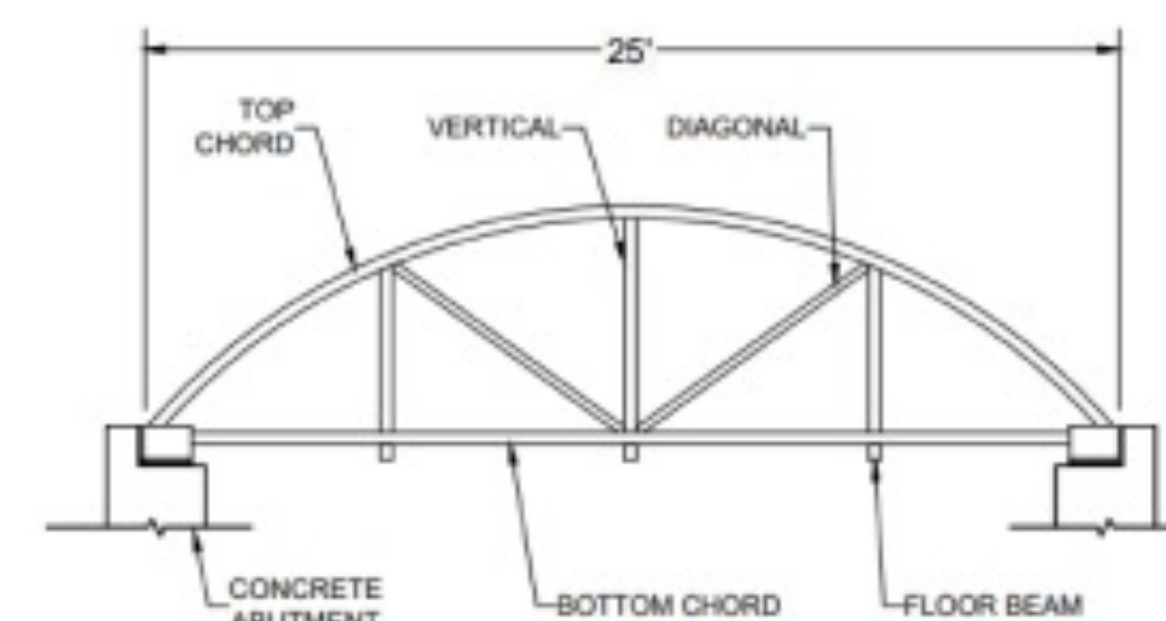
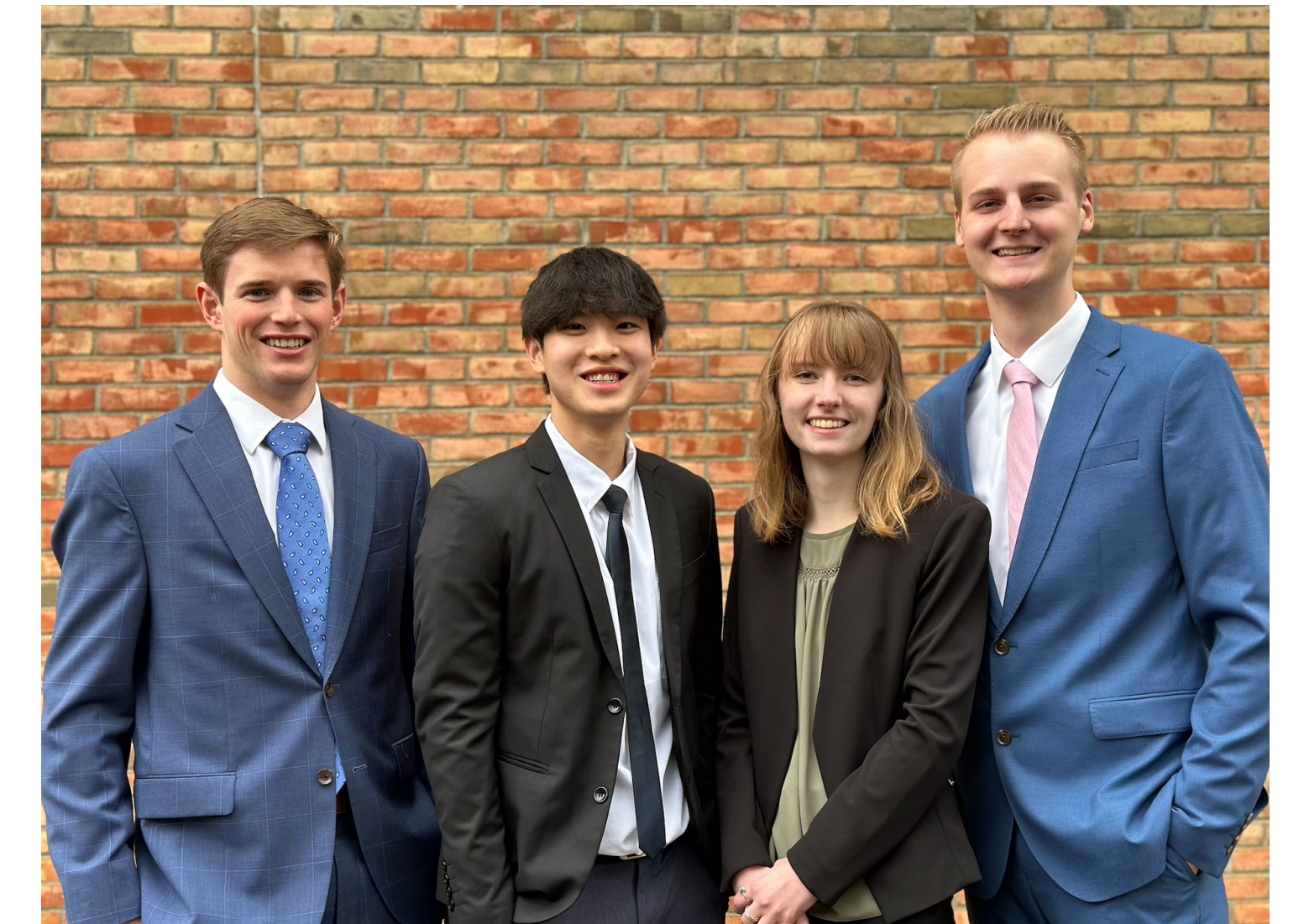


Figure 4: Configured Pedestrian Bridge Design

Team Members



James Van Hekken, Adrian Poh, Emma Graham, Jacob Koning

Artistic Feature Design

Cedar Springs has a rich railroad history. The Grand Rapids and Indiana Railroad arrived in 1869, followed by the Grand Trunk Western Railroad. Railroads played a vital role in Cedar Springs' economy, but most lines were abandoned by the mid-20th century. Only one line operated by CSX Transportation remains today.

To encapsulate this part of the city's heritage, a train-themed feature shall be proposed to the CBDT for consideration.

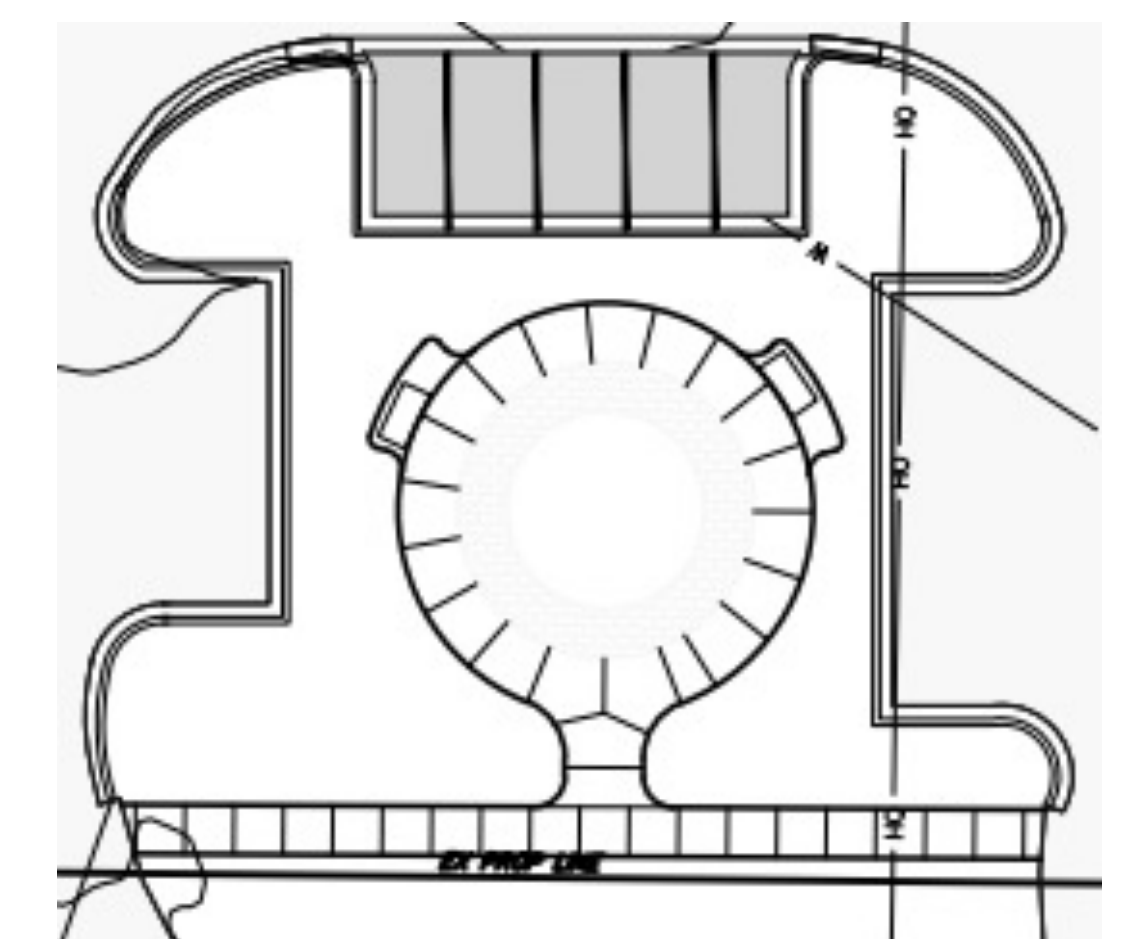


Figure 5: Proposed Feature Layout

Acknowledgements

Acknowledgements to Professor Leonard De Rooy, Professor Julie Wildschut, John Ensley, Rob Laplaca, Jacob Weston, CBDT, F&V, and Contech