Aldrich Park Stream Restoration

Project Manager: Dustin Lee (dustil2@uci.edu)
Project Engineers: Cristen Álvarez, Ivy Lu, Grant Magnanelli, Chelsea Yuen
Team E3

**Design Approach**

The proposed stream line follows the gradient to mitigate erosion and match the original stream path. 100-year storm flow data is analyzed to determine channel sizing to contain maximum possible flow. MJølnir Solutions currently is developing a HEC-RAS model to size the channel and analyze the stream hydraulics. Additionally, a plant palette is being developed to reduce erosion potential, and improve water quality. Design goals of the project include complementing Aldrich Park’s aesthetic, maximizing pedestrian safety, attenuating flooding, and diminishing pollutants in SD Creek.

**Design Constraints**

- Stream velocity
  - Minimize for subcritical flow
  - Minimize for erosion control
- Topography
  - Determines stream location
- Stream dimensions
  - Optimize for safety
- Clay Soil
  - Low infiltration capability
  - Impacts water quality
  - Very cohesive; less erodible
  - Affects plant selection

**Plan View of Proposed Stream Relative to Aldrich Park**

**Cross Section of Proposed Stream Restoration**

**HEC-RAS 3D Hydraulic Profile of Proposed Stream Restoration**

**Environmental Documentation**

<table>
<thead>
<tr>
<th>Permits</th>
<th>Purpose</th>
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<tbody>
<tr>
<td>SWPPP (Stormwater Pollution Prevention Plan)</td>
<td>Construction-related permit to reduce pollutant loads into natural channels.</td>
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<tr>
<td>Streambed Alteration Agreement Section 1002</td>
<td>An agreement that mitigates substantial diversion of river flow or change to a river bed.</td>
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<tr>
<td>Clean Water Act Sections 401 &amp; 404</td>
<td>Permit and program to regulate the discharge of dredged or fill material into the waters of the United States.</td>
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**Cost**

Total: $3,200,000

- Site Preparation: $500,000
- Grading: $2,000,000
- Structures: $110,000
- Vegetation: $50,000
- Contingency: $32,000

**Team Organization**

- Dustin Lee - Permitting & Funding
- Grant Magnanelli - Hydrology & Water Quality
- Cristen Álvarez - HEC-RAS Modeling
- Chelsea Yuen - Plant Palette
- Ivy Lu - Land Use & Topography

**Client:** Matt Deines, RLA LEED AP, Senior Planner, UC Consultant: David Jaffe, Ph.D, PE, D.WRE; PSOMAS