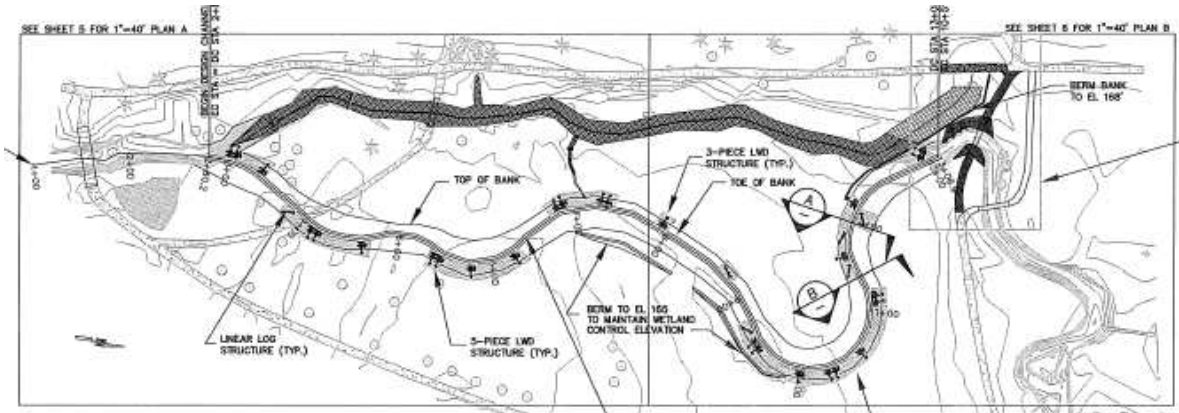




# Fanno Creek Stream Restoration Design

## Tualatin River Basin, Oregon



R2 Resource Consultants, Inc. (R2) was contracted by Clean Water Services to provide stream restoration design services, including preparing design drawings and permit application materials. The project involves constructing a new stream channel and bypassing an incised section that was historically straightened. The project will effectively convert the stream to a lower gradient, ~1000-foot-long meander, maintaining an existing wetland swale outside of the new channel footprint, and adding large wood habitat elements for bank protection, flow roughness, and fish habitat.

The goal of the project is to improve channel function, floodplain connectivity, and aquatic

habitat in an otherwise urban park setting. The new design reflected a compromise between restoring a more natural looking channel and addressing public perceptions of changes in channel form and flooding impacts. Design stages include 75% and 100%. The project also involved converting the old channel into a storm water drainage swale in integration with designs prepared for the City of Beaverton to rebuild the storm drainage system, and replacing invasive vegetation with native plant communities.

R2 collected survey, hydraulic, and geomorphic data to supplement a topographic surface contour map of the site. The data were used to determine representative channel radius of curvature, toe and bankfull width, bankfull depth, and bank slope. This information was then used to guide the design of a naturally stable stream plan form and profile, and compare with geomorphic and river engineering design criteria established in the literature for cohesive bank material. The design process included development of detailed HEC-RAS flow models of the existing and proposed channels, for estimating bankfull flow, and for documenting a predicted zero rise in the 100-year flood elevation.

### Project Elements:

- Stream Restoration
- Stormwater Conveyance
- Hydrologic/Hydraulic Analysis and Modeling
- Sediment Transport/Geomorphology
- Hydraulic and Civil Design
- Plans, Specifications, and Cost Estimates
- Permitting Assistance