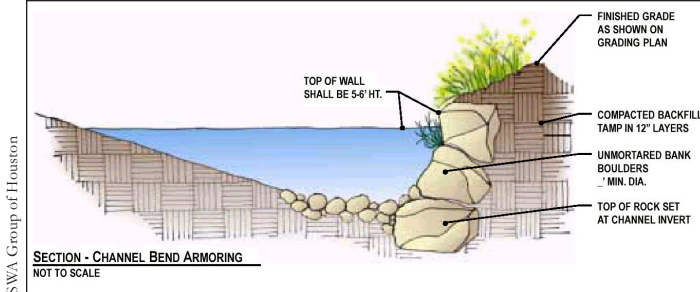
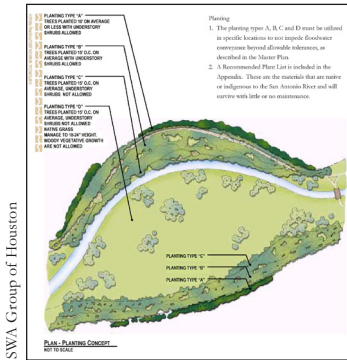


# San Antonio River Improvements Project Concept Design

San Antonio, Texas



SWA Group of Houston



SWA Group of Houston



Initial conditions

To prevent flooding around San Antonio, the U.S. Army Corps of Engineers had reconfigured and reconstructed the San Antonio River with a trapezoidal channel, flat bottom, and floodplain levees. Recognizing the impacts of the flood control channel on aquatic life, water quality, and quality of life, the Corps, along with the San Antonio River Authority, developed an ambitious plan to restore over 13 miles of the river.

Biohabitats, a key member of a team led by the SWA Group, helped prepare the San Antonio River

*Design creates a more natural meander pattern and riparian vegetation scheme that vastly improves aquatic and riparian habitat while maintaining approved flood elevations and incorporating recreational features and infrastructure.*

Improvements Plan, a master plan to restore habitat, water quality, and recreation opportunities.

Biohabitats' responsibilities included comprehensive geomorphic assessment, hydrologic and hydraulic (H&H) modeling, community stakeholder facilitation, and preparation of preliminary engineering and concept plans. A key project goal was to not compromise existing flood elevations and to increase floodwater capacity wherever feasible. Biohabitats modeled proposed channel modifications using HEC-RAS. Critical to the modeling effort was the estimation of roughness

coefficients due to proposed revegetation of the floodplain and re-meandering of the river channel. Through research and collaboration with peer H&H modeling professionals, Biohabitats was able to develop roughness coefficients for various revegetation scenarios and meandering patterns.

The plan was enthusiastically adopted and approved by the City council and river authority board.

**SERVICES**

- Inventory & Assessments
- Planning
- Green Infrastructure Design
- Public Outreach

*conservation planning  
ecological restoration  
regenerative design*



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