Overview

- Brief Overview of Case Study
- Concept Design Development
- Concept Design Iteration
  - New/Refined Data
  - External Forces
  - When to Communicate
- Final Design Stages
Introduction of Case Study - Cosumnes Floodplain Mitigation Bank
Introduction of Case Study - Cosumnes Floodplain Mitigation Bank
Introduction of Case Study - Cosumnes Floodplain Mitigation Bank - 1849
Introduction of Case Study - Cosumnes Floodplain

Courtesy of UC Berkeley, Bancroft Library

1859
Introduction of Case Study - Cosumnes Floodplain Mitigation Bank-1929
Introduction of Case Study - Cosumnes Floodplain Mitigation Bank - 2008
Concept Design Development – Basis of Design

“Set of conditions, needs, and requirements taken into account in designing a facility or product.”

Example Basis Elements
- Biotic and abiotic baseline data
- Wetland functional goals and references
- Anticipated outcomes
- External influences
- Sustainability/durability
- Cost Benefit analysis
Concept Design Development – Biotic and Abiotic Data

1) Should be driving the Conceptual design

2) Should be consistent with, and support, Mitigation Goals and Objectives

Common Sources of Uncertainty:
• Hydrologic and Hydraulic data
• Topographic data
• Soils and geologic data
Concept Design Development – Assessment Methods and Quantification Tools

Wetland/Stream Assessment and Quantification Tools

California Rapid Assessment Method for Wetlands

Riverine Wetlands Field Book
ver. 5.1
January 2013

Wyoming Stream Quantification Tool
User Manual (Version 1.0)
Common sources of new or refined data:
- On ground topographic data (vs. Lidar etc.)
- Site specific soil data
- More complete understanding of adjacent land uses/effects
- Site-specific hydraulic or hydrologic observations or models

New or refined data can influence:
- Spatial location and/or anticipated function of wetlands
- Wetland Goals and Objectives
- Cost vs. benefit and overall site suitability
Design Iteration – Case Study

New Data: Improved regional flood modeling
Design Iteration – The Influence of External Elements

- Utilities (pipelines, electricity transmission, etc.)
- Mineral Rights
- Water Rights
- Local Agencies
- Neighbors & Concerned Citizens
- Local “experts”
- Permitting
Design Iteration – The Influence of External Elements

- Utilities (pipelines, electricity transmission, etc.)
- **Mineral Rights**
- Local Agencies
- Neighbors & Concerned Citizens
- Local “experts”
- Permitting
Design Iteration – The Influence of External Elements

- Utilities (pipelines, electricity transmission, etc.)
- Mineral Rights
- Other Agencies
- Engineering
- Local “experts”
- Permitting
Design Iteration – The Influence of External Elements

- Utilities (pipelines, electricity transmission, etc.)
- Mineral Rights
- Other Agencies
- Engineering
- Local “experts”
- Permitting
Design Iteration – The “Final” Design

• Utilities (pipelines, electricity transmission, etc.)
• Mineral Rights
• Other Agencies
• Engineering
• Local “experts”
• Permitting: T&E spp
Design Iteration – When to Communicate Change?

Initial Concept

The Final Concept
Overview of Final Design Stages – 30% Design

• “Final” Conceptual design is shown and is tied to survey grid and available topographic data
• Design topography shown
• Cross sections developed
• Quantities determined
• “Value Engineering” stage
Overview of Final Design Stages – 60 to 90% Design

- Continual refinement of construction plan
- Specifications
- Access and ESA areas identified
- Design topography
- Cut and fill locations identified
- Cross sections finalized
- Quantities finalized
- Specifications and Technical Elements
Thank You

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