CALIFORNIA STATE UNIVERSITY - WATER RESOURCES AND POLICY INITIATIVES ANNUAL CONFERENCE

Chuck Gardner, Hallmark Group
April 9, 2015
New Water Facilities

- Three north Delta intakes, each 3,000 cfs capacity, with state of the art fish screens
- 40 acre forebay
- Two 30-mile long gravity-fed main tunnels
- New Head of Old River operable gate
- Improvements and expansion of Clifton Court Forebay
Intake Animation
FISH SCREENS

Intake facilities designed with state-of-the-art fish screens held to performance standards to protect fish.
DEEP SHAFT CONSTRUCTION

- **Launch/Receiving Shafts**
  - 110 ft. diameter
  - ±180 ft. depth
  - Permanent access

- **Receiving Shafts**
  - 85 ft. diameter
  - ±180 ft. depth
  - Permanent access

- **Intermediate/vent Shafts**
  - Contractor sized
  - TBM maintenance
  - Permanent access
TUNNEL DEPTH

±150'

44' Minimum

40' 90' 40'
CLIFTON COURT FOREBAY IMPROVEMENTS

PROPOSED ALTERNATIVE
(MODIFIED PIPELINE/TUNNEL OPTION
CLIFTON COURT FOREBAY PUMPING PLANT OPTION)
CLIFTON COURT ANIMATION
## CM1 BY THE NUMBERS

<table>
<thead>
<tr>
<th>Material</th>
<th>Total Needed</th>
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<tbody>
<tr>
<td>Asphalt (square feet)</td>
<td>6,496,144</td>
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<tr>
<td>Concrete (cubic yards including segments)</td>
<td>7,407,175</td>
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<tr>
<td>Tunnels Segments (2’ thick x 5’ wide x 14’8” long)</td>
<td>701,933</td>
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<tr>
<td>Rebar (lbs)</td>
<td>1,513,500,000</td>
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<td>Borrow (cubic yards)</td>
<td>25,135,677</td>
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<tr>
<td>Excavation (cubic yards)</td>
<td>3,241,906</td>
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<tr>
<td>Dredging (cubic yards)</td>
<td>7,100,000</td>
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<tr>
<td>RTM (cubic yards)</td>
<td>25,000,000</td>
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Questions?