



# Selective Sediment Control Projects

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Sediment control projects presented include Environmental, Deep Water, and Strong Current Applications.



When utilizing turbidity curtains some key considerations are:

- Permits
- Climatic Conditions
- Water Conditions
- Soil Conditions
- Logistics





## Projects include:

- TRC Solution & JF Brennan
  - Environmental Dredging Project
- Kiewit Constructors
  - Deep Water Construction Project
- Kiewit West Infrastructure
  - Dam Construction Project
- Flagstone/ Island Gardens Mega-Yacht Harbor
  - Strong Current Dredging Project



## TRC Solutions & JF Brennan – Environmental Dredging Project



Location – Northeast US River

Our Role – Turbidity curtain design, manufacture & installation support





## Selective Sediment Control Projects

TRC Solutions & JF Brennan – Environmental Dredging Project



General Scope of Work –  
Contain hydraulic dredge  
site contaminated  
sediments within several  
work zones utilizing  
3,400' of double walled  
TYPE 3 HD curtains to  
manage site turbidity

## Project Features

- Monitored NTU release – 5 NTU Delta, must remain within 95%
- Strong winds – 30-40mph
- Sizable tidal exchange and winter storm surge
- Strong currents during storms projected and bridge crossing currents





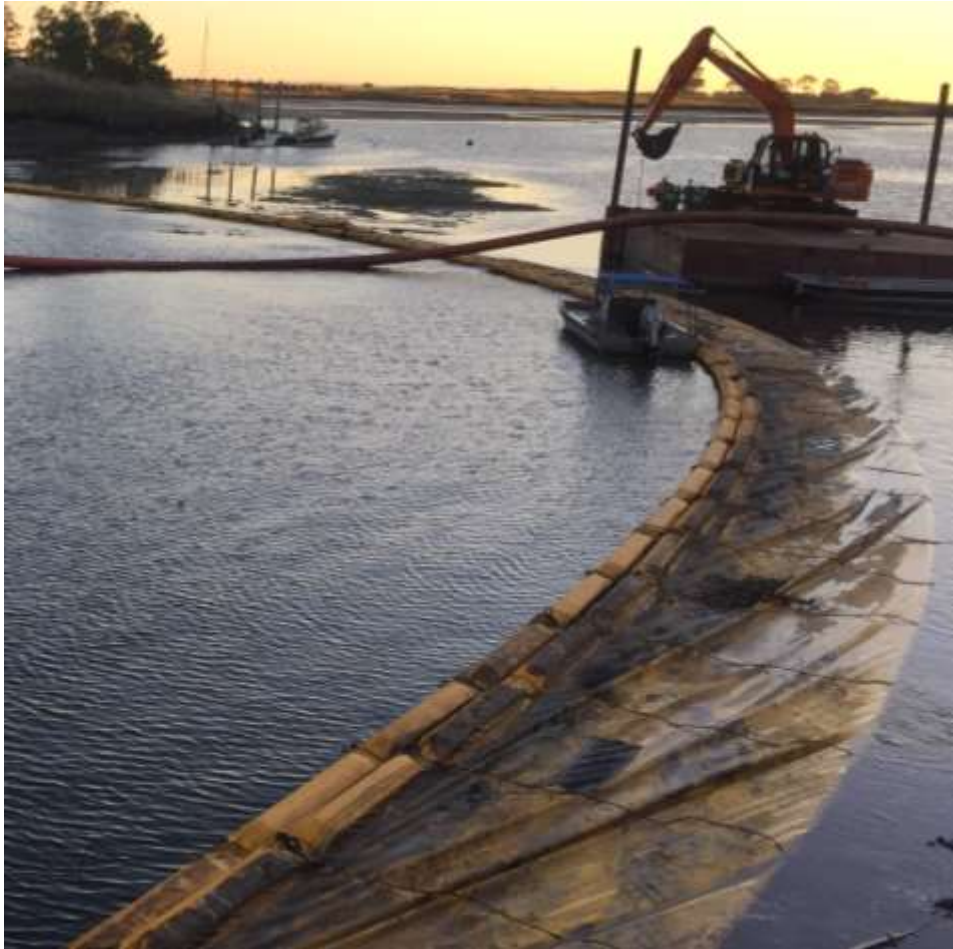
- Two Nor'easter Storms
- Dredge activity limited by herring and shellfish migration; fish corridors
- Project duration exceeded one year
- Filter window flow arrangement for tidal, rain and storm events
- Curtains remained in river and was frozen in at times



## Product –

- TYPE 3 HD with 7', 10' and 14' depths using furling lines
- Dual 5/16" SS top tension cables & 3/8" HG Ballast Chain
- 22oz PVC coated fabric and 1' x 4' windows with 12 oz/yd non-woven polypropylene with 100 US sieve flowing 75 gpm/ft<sup>2</sup>
- Aluminum ASTM Universal Slide Connectors with anchor points and ASTM Toggle pins



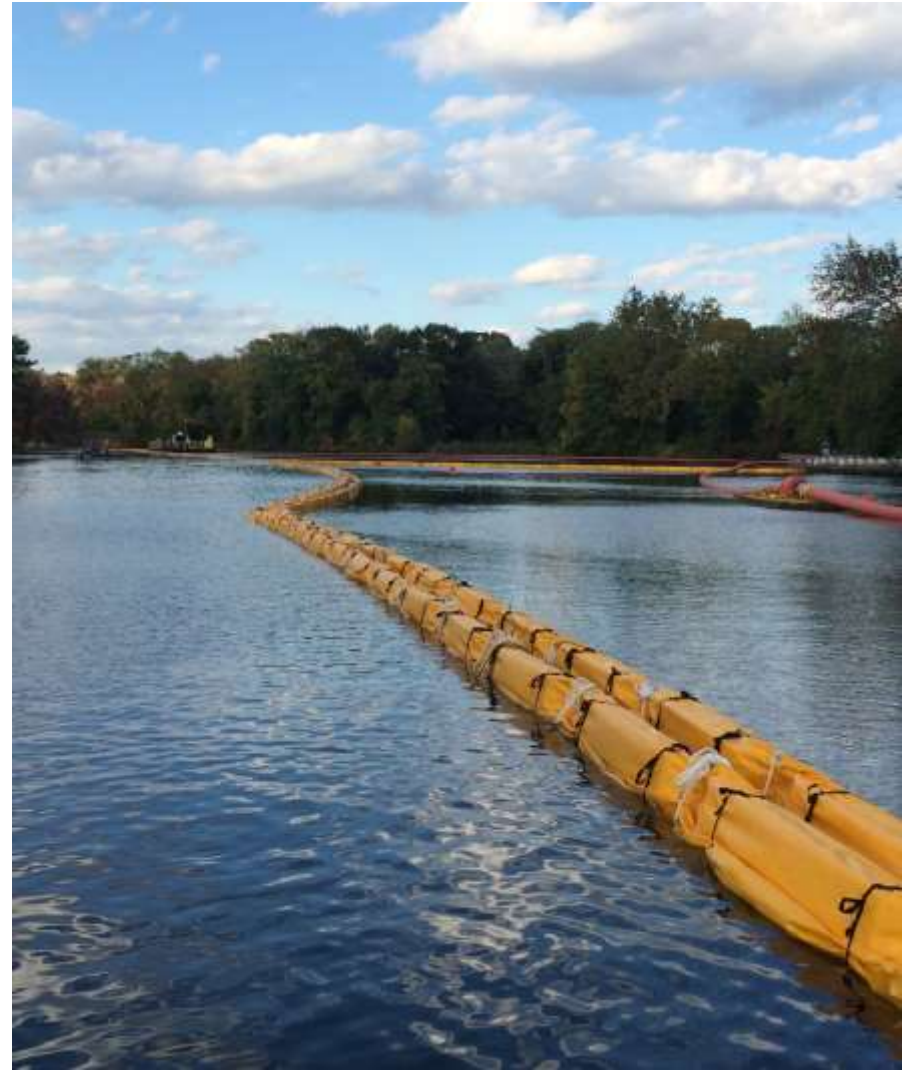


- 50' and 100' sections using SS grommets at vertical ends with furling lines
- AS 22 Anchor packages with Danforth anchor, chain leader, 1/2" poly rope, A-2 Anchor Buoy
- TB-18 Tow Bridles
- Lighted Buoys



## Review –

- Curtain performance & design
- Storm conditions
- Organic build up on the non-woven curtain windows
- No worksite interruptions for excessive NTU release







# Selective Sediment Control Projects

TRC Solutions & JF Brennan – Environmental Dredging Project



## Kiewit Constructors – Deep Water Construction Project



Location – Upper & Lower Crystal Springs and San Andreas Reservoir, San Mateo County, California

Our Role – Product design, manufacture & installation support



General Scope of Work – Contain construction sediments within each reservoir's work zones used to provide seismic and hydraulic upgrades at the three reservoirs built in 1888. Demolition, new tunnel liners, refurbishment or replacement of water management infrastructure with frequent barge traffic with turbidity managed utilizing 9,150' of tapered TYPE 3 HD turbidity curtains



## Project Features

- Type 3 HD curtains provided depth to 110' depths in 50' sections
- Strong winds up to 45mph at San Andreas
- Restricted NTU release
- Manta Ray and Danforth anchor utilized with detailed design



- Two vestibules required and gates
- Sulfate reducing bacteria caused H<sub>2</sub>S corrosion
- Long term application from 3/11 to 5/13
- Spreader bar utilized on curtains up to 1,500lbs



## Product –

- TYPE 3 tapered curtains ranging from 5' to 110'
- Dual 5/16" top tension cables & 3/8" HG chain
- Aluminum ASTM Universal Slide Connectors







- 14", 16" and 22" flotation
- 22oz PVC coated fabric with skirt welded in vertical lengths; reinforced fabric corners and grommet area
- AS 40 Anchor Packages with Danforth anchor, chain leader, 5/8" poly rope, A-2 Anchor Buoy and 5/8" painter line

## Review –

- Curtain performance and design
- Bottom anchoring challenges
- Top tension cable corrosion
- Logistics and curtain handling





## Kiewit West Infrastructure – Dam Construction Project



Location – Folsom Dam Modification Phase IV, California

Our Role – Design engineering, manufacture & installation support



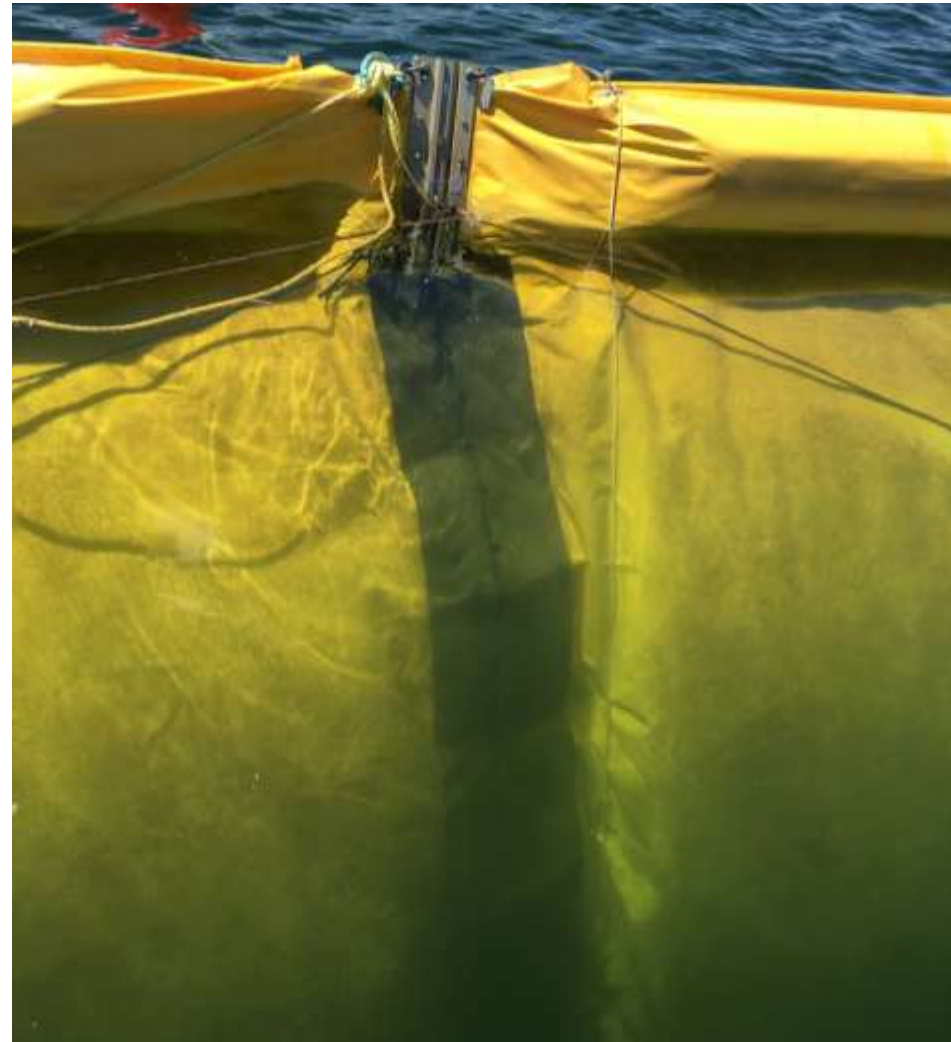
## General Scope of Work - Contain Folsom Dam work site construction sediments within several

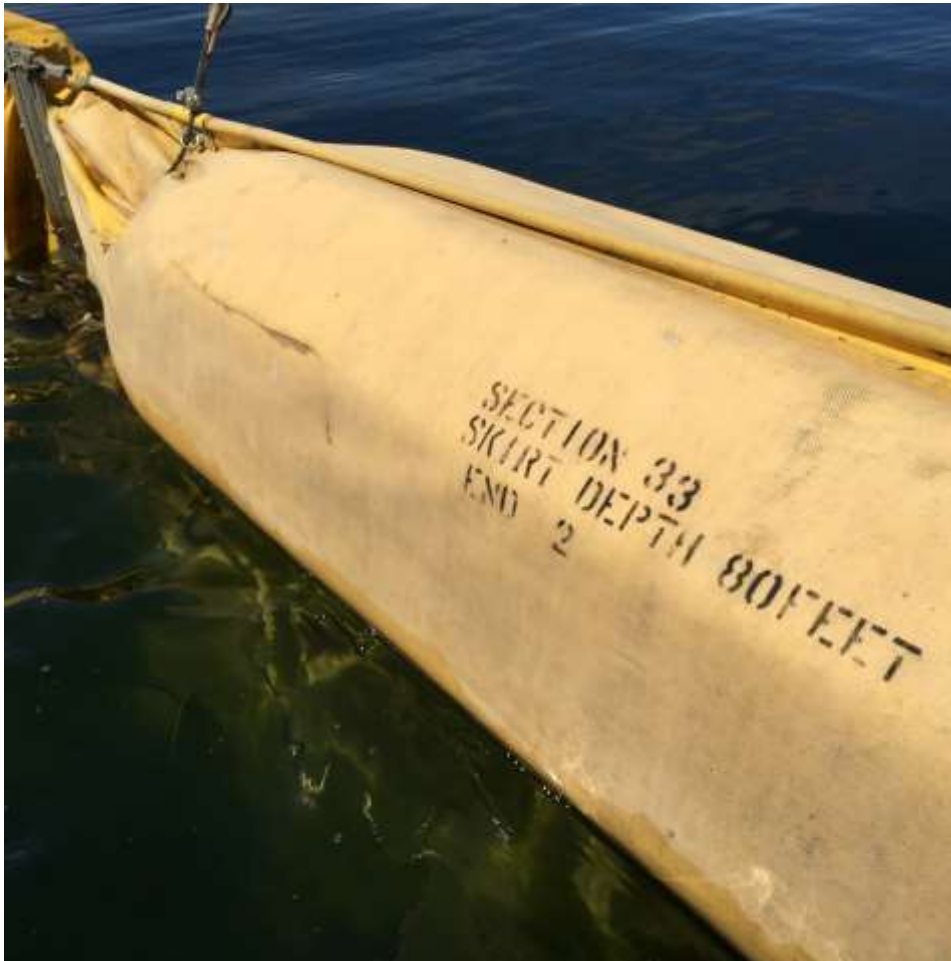
work zones to  
complete a new  
spillway offering  
4,800' Phase 1  
and 2,500'  
Phase 2 of Type  
3 turbidity  
curtains



## Project Features

- Type 3 HD curtains provided down to 120' water depths
- California drought caused water depth reduction with lake at 14% of capacity
- Restricted NTU release





- Concrete deadweight anchors and Danforth anchors
- Long term application from 8/13 to 12/16
- SS cable furling lines required for multiple site relocations



## Product –

- Type 3 HD curtains ranging from 1' to 120' in 50' sections
- Dual 5/16" or 3/8" SS top tension cables
- 3/8" or 1/2" HG chain ballast chain w/ tension plates
- Skirt welded in vertical lengths
- Furling lines constructed with 3/16" SS coated cable secured to guides at waterline



- USACE Specification No. 1859, Section # 35 31 10
  1. 6" grommet centers w/ 35oz PVC reinforcement around keder
  2. 22oz PVC base fabric w/ skirt corners reinforced using 40oz PVC
  3. Universal Slide Connectors w/ ASTM pins



## Review –

- Substantial water level adjustments
- Multiple Zone Anchoring layout
- Over 3 year project duration
- Logistics and curtain handling





## Flagstone/Island Mega-Yacht Harbor – Strong Current Dredging Project

Location – Biscayne  
Bay, Watson Island,  
Miami, Florida  
Our Role – Design  
engineering,  
manufacture & site  
support





## Selective Sediment Control Projects

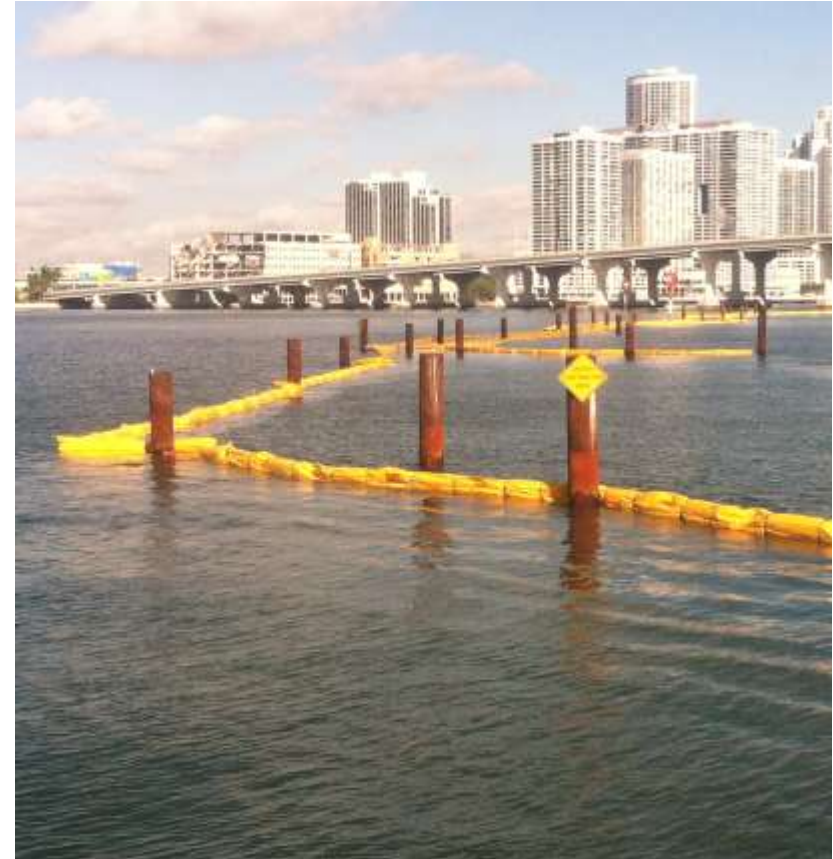
### Flagstone/Island Mega-Yacht Harbor – Strong Current Dredging Project



**General Scope of Work –**  
Contain bucket dredge sediments within several work zones, protect mitigation areas and frequent barge traffic offering 30,300' of Type 3 along with specialty turbidity curtains

### Project Features

- Type 3 HD and specialty curtains exposed to 4-5 knot currents
- Strong winds up to 45mph
- Release restricted to low NTU levels, multiple samplings per day
- Pilings and deadweight anchors







- Curtain restrictions related to Manatee movements
- Dredge area, sponge / seagrass mitigation areas and spoils area
- Fine silt coral sediment in dredge area (baby powder)
- High profile location

## Product –

- TYPE 2 DOT w/ 3/8" chain used in interior mitigation areas
- TYPE 3 HD w/ 1/2" chain used in primary dredge area and outer mitigation area
- TYPE 3 HD w/ additional belting in primary dredge area







- Custom Heavy Curtains – 35oz PVC, 2ea 1/2" chains for high load areas
- High tensile strength belting, D-Rings and fasteners used on some higher load areas



### Review –

- Restrictive dredge/construction permit
- High current
- Anchoring
- Project location
- Sponge and seagrass mitigation areas





# Selective Sediment Control Projects

## Flagstone/Island Mega-Yacht Harbor – Strong Current Dredging Project

