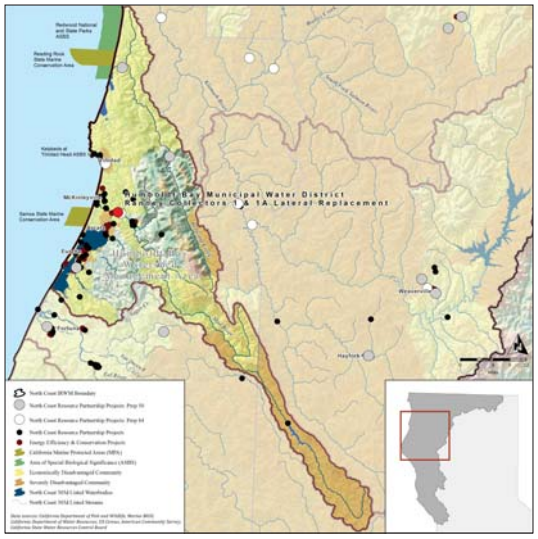
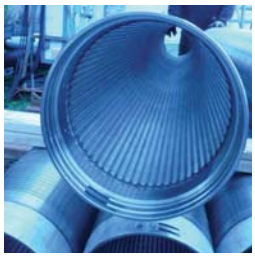
Ranney Collectors 1 & 1A Lateral Replacement

HUMBOLDT BAY MUNICIPAL WATER DISTRICT (HBMWD)





STATEMENT OF THE PROBLEM

HBMWD's water collection system is nearly 50 years old and its capacity to produce water has declined. HBMWD estimates that all of the laterals would progressively fail within the next 20 years, reducing water supply reliability and resulting in emergency operations and maintenance costs. With ongoing use of the existing system, engineering studies have shown that operation and maintenance costs associated with pumping, treatment, and overall system operation will be higher than with new collectors. Ultimately, the collectors will become unusable, requiring HBMWD to replace them after incurring extensive costs to keep the deteriorating system running.

Additionally, water treatment costs would increase. After it pumps and collects water, HBMWD treats the water to drinking water standards: chlorine is added, and during the winter, HBMWD processes the water at its Turbidity Reduction Facility (TRF). As the collection system has aged, HBMWD has had to increase flow velocity to maintain the same flow rate and volume production, which picks up more sediment and increases turbidity.

PROJECT GOALS

1. Provide a reliable supply of high quality drinking water
2. Reduce groundwater impacts
3. Improve energy efficiency

THE SOLUTION

The proposed project installs new laterals in Collectors 1&1A, ensuring capacity is maintained

PROJECT IMPLEMENTATION

This project focuses on the 2nd phase of a multi-phase project, installing new laterals in Collectors 1&1A by projecting new stainless steel laterals out from the existing caisson. Cores will be cut through the sides of the existing caissons and new laterals will be projected into the aquifer from within the existing caisson, minimizing environmental impact. The new laterals will reduce the flow velocities, reducing turbidity.

Given greater capacity of the new laterals and lower flow velocities, drawdown in the collectors will likely be reduced by several feet, reducing the energy required to pump water from the caisson to the treatment and distribution system. HBMWD provides flow to the collectors by releasing water from Ruth Lake, therefore, in addition to assuring water supply reliability, this project will maintain beneficial flows for salmonids in the Mad River.

Project Budget

IRWM funds:	*$ 666,624*
Leveraged funds:	*$ 966,372*
TOTAL	**$ 1,632,996**

BENEFITS

Economic

- Approximately $5,000,000 in avoided costs associated with expansion of the TRF
- Approximately $1.6 million in avoided costs associated with replacing Collectors 1 & 1A
- Approximately $1,800 annually for avoided costs associated with water treatment
- Approximately $16,800 annually for avoided costs associated with reduced energy use
- Approximately $4,462 over the life of the project for avoided costs associated with reduced CO_2 emissions

Groundwater

- Groundwater quality will be improved by spreading out groundwater production and recharge areas

Watershed Rehabilitation

- Improved fish and wildlife habitat
  - » Maintenance of beneficial flows for salmonids

Cultural and Social

- Sustainable salmon populations have an intrinsic worth outside the cultural framework and economic terms often imposed by western society
- Reduced risk of shortage to HBMWD customers during periods of peak demand

Jobs and Local Economy

- Over $1.6 million will be spent locally using local labor and supplies when possible, thus contributing to State goals for environmental justice and social equity
- Protecting late-summer flows in the Mad River will avoid impacts to recreation

NEXT STEPS & RECOMMENDATIONS

HBMWD conducted a systematic approach to assessment and planning for refurbishing its Ranney Collector Wells. Several phases of the refurbishment have been completed. The Collector 1&1A lateral replacement project is the next phase, with laterals in Collectors 2 and 4 to be replaced at a later stage.

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