

Recycled Water Construction, Connections & Community Outreach

WaterReuse Association
Northern California Chapter Meeting
Friday, February 24, 2017

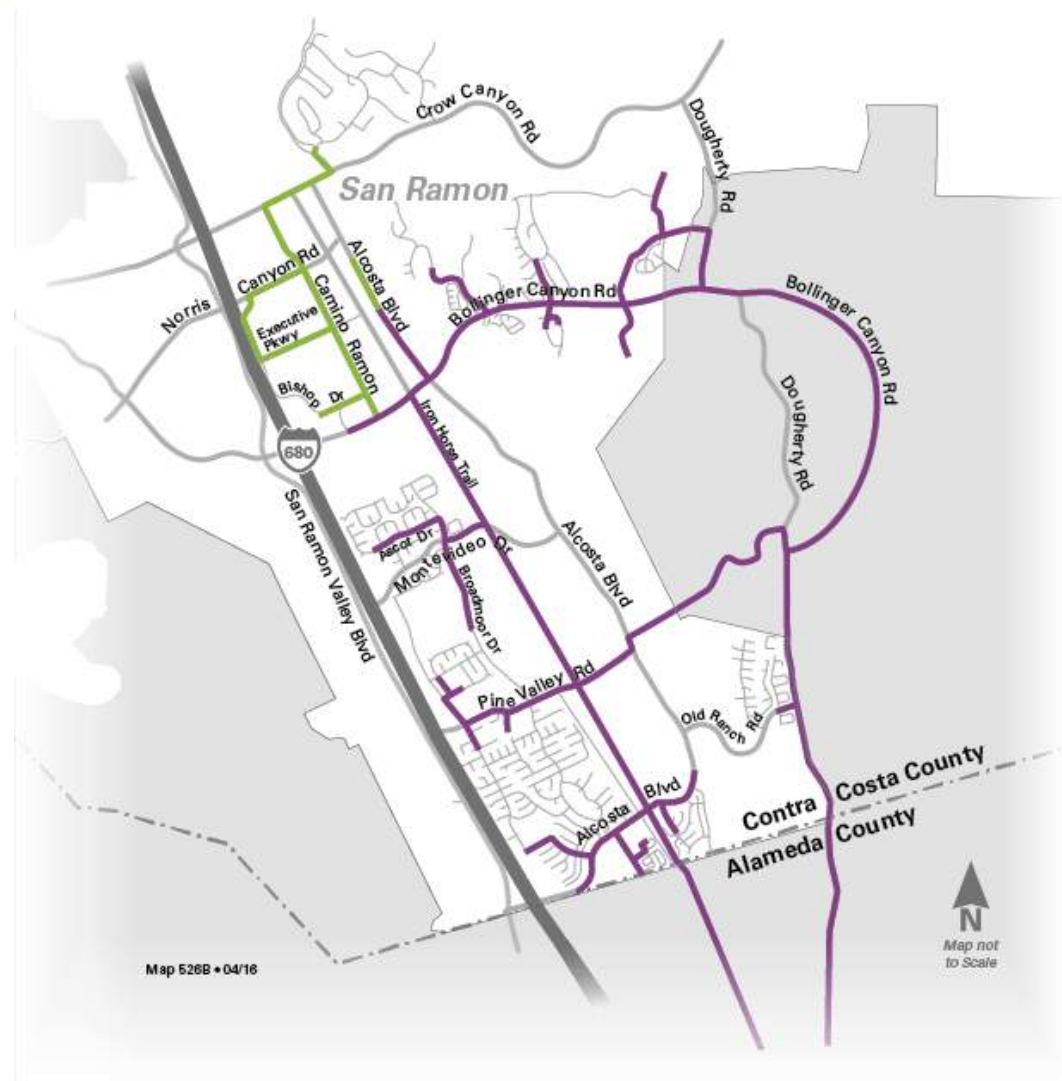
Ben Glickstein
East Bay Municipal Utility District



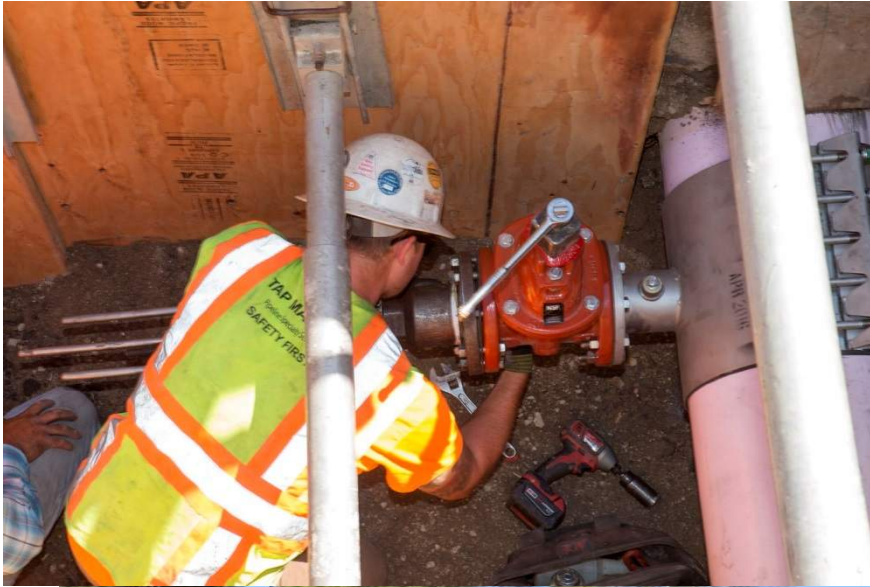
San Ramon Valley Construction



- Phase 2: Summer 2015 to Summer 2016.
- Project elements
 - Bishop Ranch businesses
 - Bus routing
 - Plating/ temporary restoration for public events
 - Laterals and paving moratorium



Construction Activity



San Ramon Valley Customers



- Cross-connection testing
- Quality/ safety
 - Worker health
 - Salt tolerance of plants
 - Irrigation components



Salt Sensitivity

SOME SALT-TOLERANT PLANTS

Trees

Albizia julibrissin (silk tree)
Cedrus deodara (deodar cedar)
Fraxinus angustifolia 'Raywood' (Raywood ash)
Koeberlinia paniculata (goldensin tree)
Pinus cembroides (Mexican piñon pine)
Platanus x acerifolia 'Bloodgood' (London plane)
Quercus agrifolia (coast live oak)
Quercus lobata (valley oak)
Sagwina sempervirens 'Los Altos' (redwood)
Washingtonia filifera (California fan palm)

Rosmarinus officinalis 'Prostratus' (rosemary)
Sambucus nigra (elderberry)
Xylocma congestum (xylocma)



CANTHARUS 'CONCHA'

Shrubs

Acacia redolens (prostrate acacia)
Arbutus unedo (strawberry tree)
Arctostaphylos uva-ursi 'Point Reyes' (bearberry manzanita)
Baccharis pilularis 'Twin Peaks #2' (coyote brush)
Cantharus 'Concha' (California lilac)
Cantharus griseus var. *horizontalis* 'Yankee Point' (Carmel creeper)
Cantharus thyrsiflorus (California lilac)
Cotoneaster dammeri 'Coral Beauty' (bearberry cotoneaster)
Cotoneaster microphyllus (rockspiny cotoneaster)
Escallonia rubra (red escallonia)
Heteromelus arbutifolia (toyon)
Juniperus horizontalis 'Wiltonii' (juniper)
Lantana camara (lantana)
Mahonia pinnata (California holly grape)
Myrtus communis (myrtle)
Nandina domestica (heavenly bamboo)
Nerium oleander (oleander)
Olea europaea 'Montra' (dwarf olive)
Photinia x fraseri (photinia)
Pittosporum tobira (tobira)
Prunus caroliniana (Carolina laurel)
Raphiolepis indica (Indian hawthorn)

Grasses

Bromus carinatus (California brome)
Deschampsia cespitosa (tufted hairgrass)
Deschampsia elongata (slender hairgrass)
Elymus glaucus (blue wild rye)
Festuca californica (California fescue)
Melica californica (California melic)
Muhlenbergia rigens (deergrass)
Sporobolus airoides (alkali sacaton)

Vine

Jasminum polyanthum (pink jasmine)

— Roger Waters, president
 National Urban Agriculture Council
 Woodacre, California

Table A-2. Salt tolerance of evergreen shrubs and trees, and conifers.

Shrubs		Trees	
Sensitive (<3 dS m⁻¹)			
Rose	(<i>Rosa</i> sp.)	Holly oak	(<i>Quercus ilex</i>)
Nandina	(<i>Nandina domestica</i>)	Leyland cypress	(<i>Cupressus nypsis hybrid</i>)
Red tip photinia	(<i>Photinia fraseri</i>)	Japanese yew	(<i>Podocypus macrophyllus</i>)
Burford holly	(<i>Ilex cornuta</i> , 'Burfordii')	Texas Mt. laurel	(<i>Sophora secundiflora</i>)
Chinese holly	(<i>Ilex cornuta</i>)		
Pyracantha coccinea	(<i>Cotoneaster congestus</i>)		
Cotoneaster	(<i>Cotoneaster lucidulus</i>)		
Texas Mt. laurel	(<i>Sophora secundiflora</i>)		
Moderately Sensitive (3 - 6 dS m⁻¹)			
Oriental arbutus	(<i>Thuja orientalis</i>)	Rocky Mt. juniper	(<i>Juniperus scopulorum</i>)
Japanese boxwood	(<i>Buxus microphylla</i>)	Eastern red cedar	(<i>Juniperus virginiana</i>)
Glossy privet	(<i>Ligustrum lucidum</i>)	Southern live oak	(<i>Quercus virginiana</i>)
Indian hawthorn	(<i>Raphiolepis indica</i>)	Southern magnolia	(<i>Magnolia grandiflora</i>)
Yampon holly	(<i>Ilex vomitoria</i>)	Japanese black pine	(<i>Pinus thunbergiana</i>)
Dwarf pittosporum	(<i>Pittosporum tobira</i>)		
Blue point juniper	(<i>Juniperus chinensis</i>)		
Hollywood juniper	(<i>Juniperus chinensis</i>)		
Spreading juniper	(<i>Juniperus chinensis</i>)		
Pyracantha	(<i>Pyracantha fortuneana</i>)		
Silverberry	(<i>Elaeagnus argentea</i>)		
Moderately Tolerant (6 - 8 dS m⁻¹)			
Rosemary	(<i>Rosmarinus officinalis</i>)	Attepo pine	(<i>Pinus halpensis</i>)
Spreading acacia	(<i>Acacia redolens</i>)	Russian olive**	(<i>Elaeagnus angustifolia</i>)
Bottle brush*	(<i>Callistemon viminalis</i>)	White pine	(<i>Pinus strobus</i>)
Bougainvillea*	(<i>Bougainvillea spectabilis</i>)	Arizona cypress	(<i>Cupressus arizonica</i>)
Coyotebush	(<i>Baccharis pilularis</i>)	European olive	(<i>Olea europaea</i>)
Japanese euonymus	(<i>Euonymus japonica</i>)	Afghan pine	(<i>Pinus edulis</i>)
Oleander	(<i>Nerium oleander</i>)	Pinus pine	(<i>Pinus edulis</i>)
Texas sage	(<i>Leucophyllum frutescens</i>)	Italian cypress	(<i>Cupressus sempervirens</i>)
European olive	(<i>Olea europaea</i>)		
Tolerant (8 - 10 dS m⁻¹)			
Four-wing saltbush	(<i>Atriplex canescens</i>)		
Highly Tolerant (>10 dS m⁻¹)			
		Italian stone pine	(<i>Pinus pinea</i>)

* Subject to freeze damage unless protected

** Invasive, not recommended

Species with bold print are from our experiment.

Media Coverage



- Mercury News & KTVU
- Follow-ups on 2015 construction start stories



EBMUD @ebmud · 10 Aug 2016

Ready to connect @CityofSanRamon Central Park to recycled water pipe to save 30,000 gallons of drinking a water day!



The Mercury News

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THE CANNIFORNIAN

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News

San Ramon: Recycled water starts flowing in Central Park



By PAUL KILDUFF |
August 16, 2016 at 10:12 am

SAN RAMON — After tapping into a 16-inch-wide underground pipe of highly treated wastewater last week, San Ramon's 42.8-acre Central Park went from being watered by pristine, fresh Sierra snowmelt to highly treated sewage effluent.

The water, reclaimed from residents served by the Dublin San Ramon Services District at its plant in Pleasanton, is being piped in to the park and other major public spaces in San Ramon and Dublin thanks to new lines installed by the East Bay Municipal Utilities District. The project, begun last summer at a cost of \$9.9 million, is expected to save as much fresh water as would be used by 2,500 homes in the area annually.

MOST POPULAR

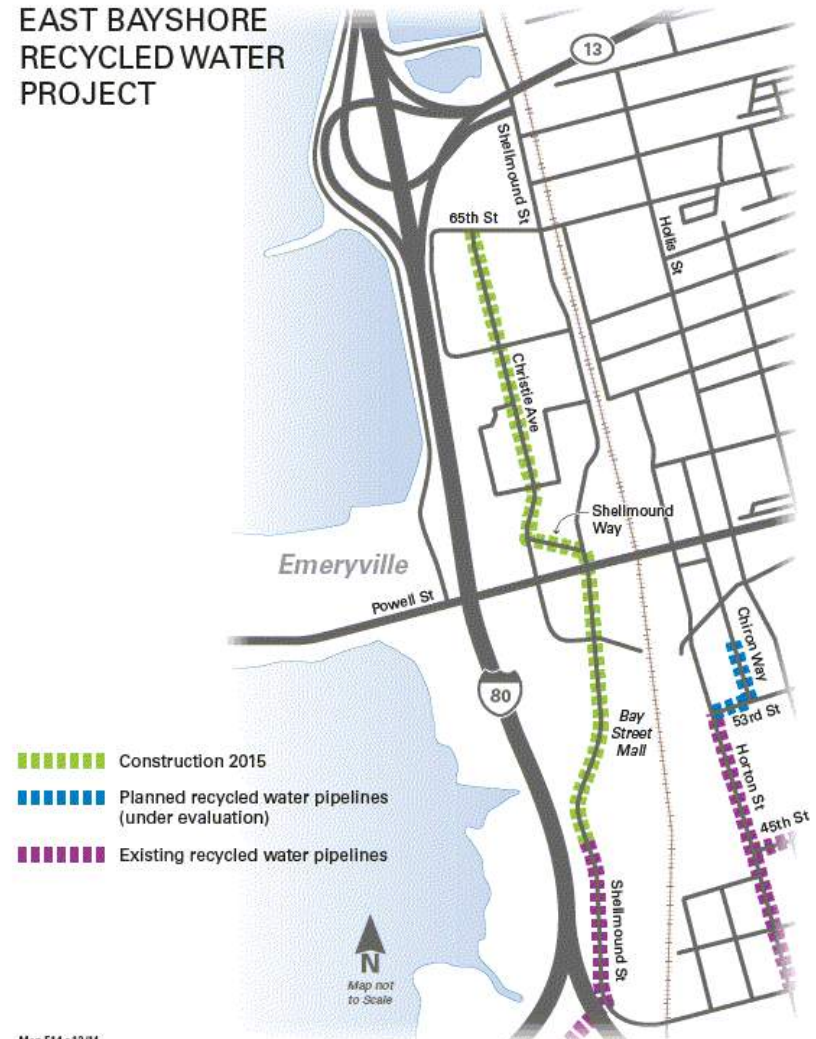
1 'A Day With businesses

Emeryville Construction



- Phase 1A: Summer 2015 to Summer 2016.
- Project elements:
 - Busy commercial area
 - Creek crossing
 - Holiday moratorium
 - Construction contract delay

EAST BAYSHORE
RECYCLED WATER
PROJECT



Construction Activity



Recycled Water for Construction



- EBMUD provides recycled water for commercial use at our West Oakland fill station
- It was a priority to ensure that our contractor used the nearby fill station for construction uses



Emeryville Customers

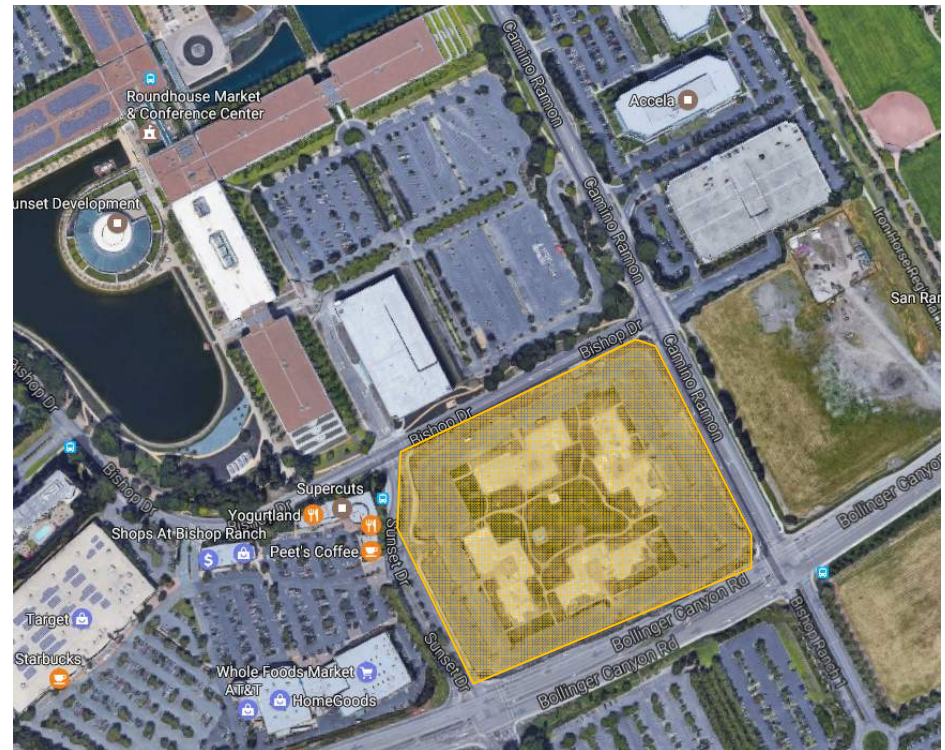


- Cross-connection challenges
 - Hotels: full shut-down test is challenging
 - Considering possible alternate cross-connection tests



New Development

- As construction progresses, development also continues.
- EBMUD retrofits existing customers, but not new customers
- Cases:
 - City Center Bishop Ranch
 - Emeryville developments
 - Station House development



Bishop Ranch City Center under development in San Ramon

Construction

- Coordinate with transit, HOAs, developments to provide for unique needs.
- Use recycled water for construction if feasible.
- Identify existing customers and possible new developments along project alignment.

Customer Communication

- Always include mention of recycled water's benefits to the customer and the district.
- Communicate early about recycled water service, including cross-connection and self-monitoring requirements.
- Answer questions about recycled water quality promptly and thoroughly to avoid concern and misinformation.

Contact Me



EBMUD
RECYCLED
■ WATER ■
PROGRAM

East Bay Municipal Utility District
Water Supply Improvements Division
Office of Water Recycling

Ben Glickstein

510.287.1631

ben.glickstein@ebmud.com

 @ebmud

ebmud.com/recycledwater