Why Water Management is Important to…

Running a Greener Building
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Cagwin & Dorward is a full service landscape provider specializing in:

- Landscape Maintenance
- Landscape Construction
- Tree Care
- Water Management
- Environmental Restoration
Becoming part of the solution... by committing to preserve the beauty that surrounds us and to heal our planet for future generations

Water Management

Sustainability Solutions
“Whiskey is for drinking but water is worth fighting over!”

– Mark Twain
In the News

• California Snowpack at 61% of normal

• Lake Mendocino lowest point in 20 years. Mandatory water rationing of 30-50%

• Rainfalls
  - San Jose - 52%
  - San Francisco - 51%
  - Oakland - 55%
  - Santa Rosa, 38%
In the News

- Spring 2008 driest in 88 years
- 2008-2009 - Third driest year on record for California
- June 4, 2008 - Governor declares drought
- Court orders water reductions in the Sacramento Delta to protect Salmon and Smelt
Population Growth

The population of California grows by 1 person every minute, that means:

- **1,440** people every day
- **10,080** people every week
- **524,160** people every year
Supply and Demand

Infrastructure problems:

• Aging levees in the Delta
• Aging water delivery systems
• Many water delivery systems near capacity in summer
• Repairs and improvements are costly
“About 180,000 customers of Cal Am Water in the Sacramento area face a 40.4% rate hike through 2014.”

“If a proposal before CPUC is approved in late 2011, the increases would come on top of rate hikes totaling 24.3% in 2010.”

- Sacramento Bee, 8/3/10
Federal & State agencies recognize the importance of water conservation and have found that:

- 30% of water consumed in the US is devoted to outdoor use.
- 20% of water used on landscapes is wasted.
Poor DU Leads to Overwatering

When water is applied very unevenly (40% DU), it’s estimated you will apply 250% of water needed by plants in an effort to manage dry spots.

When water is applied fairly evenly (75% DU), it’s estimated you will apply 133% of water needed by plants.
Legislative Timeline

1990
AB 325 - Water Conservation in Landscaping Act

1993
Model Water Efficient Landscape Ordinance

2004
Water Smart Landscapes for California” report released from Landscape Task Force

2005
AB 2717 Landscape Task Force convened and developed recommendations to improve on AB325
Legislative Timeline

Gov. Schwarzenegger puts forward his 20 by 2020 Water Conservation Plan, a.k.a. SBX7-7

2006
AB 1881 Water Conservation in Landscaping Act directed DWR to update the Ordinance

2008

2010
AB1881 – Model Landscape Ordinance goes into effect
AB1881 - Major Provisions

- Minimize overspray and runoff
- Group plants by “Hydro-zones”
- Use of “well-adapted” plants
- Use of (MAWA) Water Budget
- Increase stormwater retention
- Irrigation scheduling based on CIMIS, ETo data, or soil moisture sensors
AB1881 - Major Provisions

• Soil assessment and amendments
• Grading to promote healthy plant growth
• Mulch required in most planting
• Recycled water to be used where available
• Education of water users
• Fire prevention
• Sustainable landscape maintenance practices
AB1881 – Applicable to:

- 2500 sq. ft or more landscaped areas
- Public agency (parks, schools, city properties)
- Private development (retail, industrial, commercial properties)
- Developer-installed single family and multi-family (master-planned communities)
Evapotranspiration (ET)

Water loss from landscape due to weather factors (sunlight, wind, humidity, temperature) which cause:

- Evaporation from soil and plant surfaces
- Transpiration by plants

Important - ET changes as weather changes.
Comparing ETo and Rainfall
(Monthly Averages for 1995-2004*)
MAWA Calculations

- **Eureka**
  \[32.9'' \times 5000 \text{ sq ft} \times 0.7 \times 0.62 = 71,393 \text{ gallons per year}\]

- **San Jose**
  \[45.3'' \times 5000 \text{ sq ft} \times 0.7 \times 0.62 = 98,301 \text{ gallons per year}\]

- **Palm Desert**
  \[66.5'' \times 5000 \text{ sq ft} \times 0.7 \times 0.62 = 155,365 \text{ gallons per year}\]
The “Right Amount” of Water
ET and Plant Type

Inches

Mar Apr May Jun Jul Aug Sep Oct

High
Moderate
Low
Landscape Design Plan

Low Water Use:

Moderate

High

[Diagram showing different sections labeled Low Water Use, High Water Use, Moderate Water Use, Hardscape, and Building]
Assessment Tools

Observation

Soil Core Tool

CLIA - Cup Audit
CLCA Certified Water Manager Program

• Pass a written test
• Complete an irrigation auditing course
• Demonstrate proficiency at required levels for one year on actual landscape sites, prior to achieving full certification status.
Example of Site Water Budget Report

Water Usage for SAMPLE Business Park

- **Budget**
- **80% ETo**
- **Usage**
- **2009 Usage**

Month
Advanced Assessment Tools

Bay Friendly or River Friendly Guidelines

Soil Tests
Technology

“SMART” Controllers

- Lower water bills
- Reduced energy costs
- Fewer plant diseases and insect pests
- Less damage to pavement, fences, and buildings
- Reduced runoff
- Better air circulation in soil
- Satellite or on-site sensors
Technology

- Rain Sensors
- Moisture Sensors
- Master Valves with Flow Sensors
- Alert Notifications
Technology

Rotary Stream nozzles:
• Improved coverage
• Reduced run off

Sub-surface drip tube:
• Very efficient
• No overspray
• Shrub or Turf
Technology

“Fertigation” – Saves water, time, and reduces fertilizer run-off
Utilizing Bay Friendly Principles

Sheet Mulching

Hydro-seeding Wildflower

Compost Tea
Before

After
Results

- 53% Reduction in water use
- $39,000 Saved
Technology

Making good use of existing water can include:

- Use of permeable surfaces
- Recycled water
- Rainwater harvesting
Cool ways to save
- Bump up your thermostat
- Seal up air leaks
- Tune-up your air conditioner

Save Energy at Home
- Summer Savings Tips
  Simple actions to save money and prepare for warmer weather.
- Income Based Programs
  Learn about income-based discounts, assistance and free retrofits.
- Efficient Appliances
  Replace your aging appliances with efficient models. Buying tips & rebates.

Business & Government
- Flex Your Power Awards
  Learn how California’s leaders in energy-efficiency and conservation are fighting global warming and helping their bottom lines.
- Best Practice Guides
  Energy best practices for office buildings, hotels, restaurants and processing plants.

Find Rebates & Services
ZIPcode Sector
34509
For efficient appliances, lighting, heating & cooling, energy audits and more. Access income-based programs.

Energy News
This Summer, Save Money and Help Prevent Blackouts
Cash for Appliances Continues... Over...
East Bay HOA
Site Details

- 16 acres of Turf
- 14 acres of Shrubs
- 12 miles of parkway strips and medians
Challenges

- Water rates increasing by 7% annually
- 25 year old irrigation system
- Average rainfall May to September is only ½ inch
- Compacted clay soils throughout site
Customer Goals

Environmental:
- Improve irrigation efficiency
- Improve aesthetics of landscape
- Reduce synthetic pesticide and fertilizer use

Fiscal:
- Reduce annual water costs
- Complete irrigation improvements within budget
Solutions

- Reduced Turf in selected areas
- Utilized Organic products and services
- Improved irrigation efficiency
Medians Before

Medians After
Results

• 27% Reduction in water use
• $51,000 Saved
Additional Benefits

EBMUD WaterSmart award recipient 2010
What questions do you have?

Thank you!