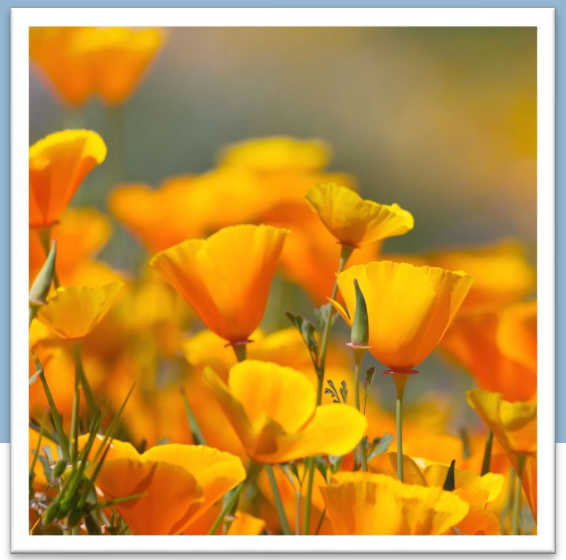
Local Agency MWELO Guidebook Webinar

January 11, 2021@ 10:00 AM

WELCOME

Julie Saare-Edmonds | Department of Water Resources

POLL



Which profession/ affiliation best describes you (choose all that apply)?

- Landscape Architect
- Landscape Contractor
- Landscape Designer
- Irrigation Consultant/Designer
- City Planner
- County Planner
- City or County Public Works
- City or County Parks Department
- State Agency
- Water Agency
- Master Gardener
- Educator
- Other

MWELO Guidebook for Local Agencies

Kim O'Cain | O'Cain Consulting, Inc.

Background: O'Cain Consulting, Inc.

- Wrote the draft MWELO Guidebook for Local Agencies
- 20-years developing and implementing water conservation programs and ordinances including:
  - Writing City of Santa Monica's Sustainable Landscape Ordinance and Standards, performing inspections, and enforcing ordinance
- Adjunct Professor at Santa Monica College

Topics

- What is MWELO?
- What is the MWELO Guidebook for Local Agencies?
- Goals of the Guidebook
- Process for Developing the Guidebook
- Layout of the Guidebook
- Providing Edits
- Q&A

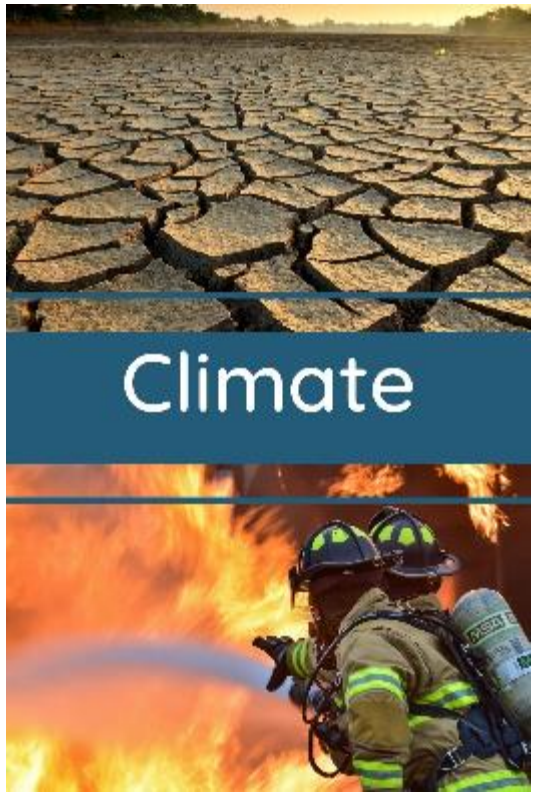
What is MWELO?

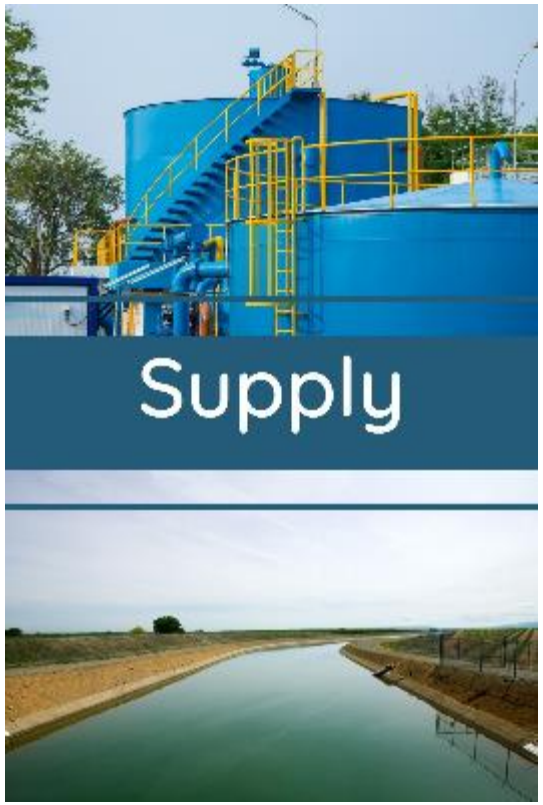
A model for local agencies to enforce **minimum water-efficiency standards** in landscape design, construction, management, and maintenance.

It drives water-efficiency through water budgets and the **thoughtful selection** of soil, plants, irrigation, stormwater management, and non-potable water supplies.

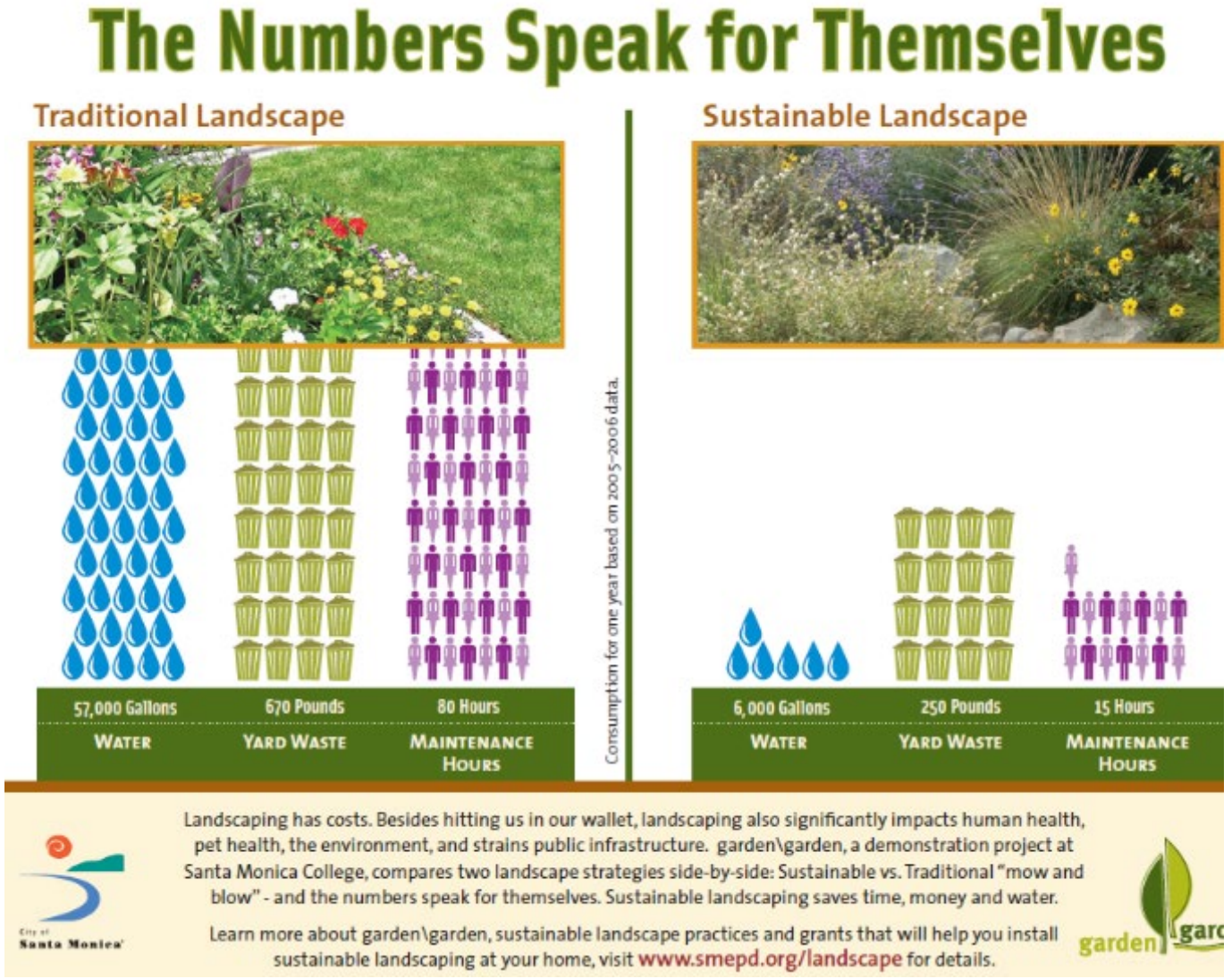
There are **two compliance pathways** depending on the size and scope of the project.

MWELO Address Issues:





MWELO Intent



Where is MWELO in Effect?

MWELO is in effect in every city/county unless a local ordinance that is at least as effective has been adopted.

The MWELO Guidebook for Local Agencies

It is **NOT** a “How to Design A Landscape and Irrigation System” guidebook…

The MWELO Guidebook for Local Agencies

A resource guide to make compliance easier

Written for plan checkers but can be used by Architects, CID's, Contractors, Designers and Homeowners

Guidebook Availability

- Draft is available on DWR's website by using the link provided
- The final Guidebook will be available on DWR's WUE website
  - Downloadable files

Link to website

https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance

MWELO Guidebook Goals

Increase compliance and save water by:

- Clarifying language in the code
- Explaining the intent (why these things are required)
- Providing basic information about the components of a landscape and irrigation system
- Clarifying and showing examples of what needs to be included in a plan set
- Providing a suite of checklists and resources for plan checkers and applicants

Prepare & Enforce

1. Tips for developing internal enforcement processes and systems
2. Tips for implementing programs for existing landscapes
3. Tips for reporting
4. Tips for educating the public

Guidebook Process

- Incorporated Landscape Stakeholders Advisory Group Working Groups comments and sample templates
- Interviewed cities/counties/water agencies that are easily complying and those that are struggling
- Researched examples of resources developed by cities/counties/water agencies/non-profits

People Involved in MWELO Compliance

Local agency (city or county) – Plan check/review, inspections, education, tracking and reporting

Water purveyor – may also review already approved plans or implement MWELO for the local agency; may provide dedicated water meter

Applicant – owner or designee that submits required documentation

Property owner – receives landscape documentation

Irrigation Auditor – performs irrigation audit to confirm landscape installed to specific standards and approved plans

Guidebook Layout

- Main Body: Compliance Pathways
  - Performance
  - Prescriptive
- Appendices: Resources

Note: the draft is in plain text with no formatting except for heading numbers and titles.

** = bullet point*

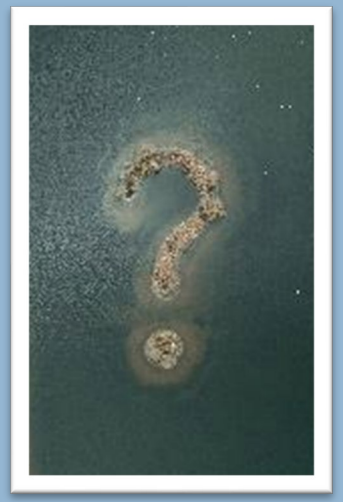
Guidebook Layout: Main Body

- Introduction
- Purpose
- One Water Approach
- History
- Effective Use of the Guidebook
- Compliance Pathways
- Performance Path
- Prescriptive Path
- Recycled Water, Graywater, Rainwater, Stormwater
- Existing Landscape Requirements
- Reporting
- Public Education
- Considerations for Enforcing MWELO

Guidebook Layout: Appendices

- Index
- 2015 MWELO Ordinance
- Landscape, Irrigation and Water Budget Overview
- Updated Water Efficient Landscape Worksheet
- Flowcharts
- Checklists
- Samples
- Resources for agencies
- Applicant Brochure

Guidebook: Purpose



Drivers for requiring water-efficient landscapes:

1) Public Health and Safety
2) Sustainability and Resiliency
3) Livability & Wellbeing
4) Affordability

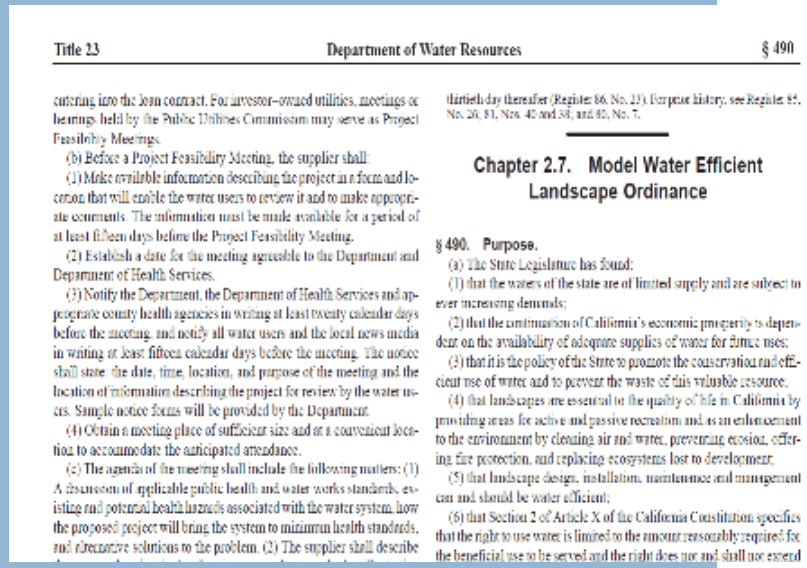
Guidebook: History

From AB 325, the Water Conservation in Landscaping Act, in 1990 to today

Guidebook: Effective Use of This Guidebook

- Building officials, plan checkers, inspectors, irrigation auditors and applicants
- Highly recommend reading the **Landscape, Irrigation and Water Budget Overview** that explains key terms in a picture book format (Appendix C)

Guidebook: MWELO Sections



Title 23 Department of Water Resources § 490

entering into the loan contract. For investor-owned utilities, meetings or hearings held by the Public Utilities Commission may serve as Project Feasibility Meetings.

(b) Before a Project Feasibility Meeting, the supplier shall:

(1) Make available information describing the project in a form and location that will enable the water users to review it and to make appropriate comments. The information must be made available for a period of at least fifteen days before the Project Feasibility Meeting.

(2) Establish a date for the meeting agreeable to the Department and Department of Health Services.

(3) Notify the Department, the Department of Health Services and appropriate county health agencies in writing at least twenty calendar days before the meeting, and notify all water users and the local news media in writing at least fifteen calendar days before the meeting. The notice shall state the date, time, location, and purpose of the meeting and the location of information describing the project for review by the water users. Sample notice forms will be provided by the Department.

(4) Obtain a meeting place of sufficient size and at a convenient location to accommodate the anticipated attendance.

(c) The agenda of the meeting shall include the following matters: (1) A discussion of applicable public health and water works standards, existing and potential health hazards associated with the water system, how the proposed project will bring the system to minimum health standards, and alternative solutions to the problem. (2) The supplier shall describe

thirtieth day thereafter (Register 86, No. 23). For prior history, see Register 85, No. 26, 81, Nos. 40 and 50, and 80, No. 7.

Chapter 2.7. Model Water Efficient Landscape Ordinance

§ 490. Purpose.

(a) The State Legislature has found:

(1) that the waters of the state are of limited supply and are subject to ever increasing demands;

(2) that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;

(3) that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource.

(4) that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development;

(5) that landscape design, installation, maintenance and management can and should be water efficient;

(6) that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend

CCR, Title 23, Chapter 2.7 Model Water Efficient Landscape Ordinance

- §490 Purpose
- §491 Definitions
- §492 Provisions for new construction or rehabilitated landscapes
- §493 Provisions for Existing Landscapes
- §494 Effective Precipitation
- §495 Reporting – to DWR annually

Guidebook: Effective Use of This Guidebook

Ordinance section: Ordinance section numbers from the 2015 MWELO.

Summary: Explanation of the requirement.

Intent: Explanation of the catalyst for the requirement.

Compliance: Recommendations, suggestions or notes about the requirement.

Design: Explanation for the design team.

Applicant: Explanation for the applicant which may or may not be the designer.

Enforcement: Explanations for the agency staff performing plan review/check and inspections.

Plan review: Recommendations or suggestions for construction documents.

Inspection: Recommendations or suggestions for on-site inspections during and after construction.

Guidebook: Effective Use of This Guidebook

Under the Compliance and Enforcement sections are **notes** that are essentially tips to help the applicant, reviewer and/or inspector.

Guidebook: Draft

The draft you will be reviewing is NOT formatted. Please ignore the heading numbering and “bullets” and “numbering” such as:

Heading example:

H3/4.3.1 Project Information Form § 492.3(a)(1)

Bullet and numbering examples:

*Decomposed granite.

*River rock, small stones, gravel, pebbles.

Guidebook: Example

H3/4.3.1 Project Information Form § 492.3(a)(1)

Summary: This form includes basic information about the project scope, applicant, owner, and water provider.

Intent: Plan reviewers will understand the scope of the project and determine which MWELO requirements apply and if other laws apply, e.g. non-potable water supplies will trigger additional review by local health agency.

Compliance:

Design: Total Landscape Area includes the aggregate of all proposed irrigated landscape areas. For common interest developments (neighborhoods, planned developments, tract developments, campuses, etc.), this includes all of the landscaping that will be designed and installed by the developer which is considered one project, NOT what the individual homeowner is responsible for designing and installing.

Design: The landscape area also includes water features like swimming pools, spas and fountains.

Note: The water provider may request from the applicant the total irrigable area including homeowner installed areas in tract developments in order to size the meter correctly. Irrigable area is the area that is irrigated or could be irrigated in the future.

Example: A homeowner builds a new custom home but does not have the money to install plants and irrigation. They install only 3 inches of mulch over the entire backyard. They plan to install plants and irrigation in a few years. The water provider needs to size the service line and meter for the future water supply and may require or formulate a water budget for the irrigable (current and future) area.

Note: The Performance Submittal Checklist which includes Project Information can be found in Appendix F.

Guidebook: Overview

- **Intent**: Pictorial guide that explains the various elements of a landscape and components of an irrigation system found in Appendix C
- **Elements**:
  - Soil
  - Plants
  - Irrigation
  - Water Budgets

Guidebook: Overview Example

H4/1.0 Types of Mulch:

Organic, Recycled Content Mulch:

*Tree trimmings/wood chips – usually 2-3 inch pieces; don't hold together; prone to migration; may absorb water from soil until decomposition begins.

PLACEHOLDER Photo 7 Wood Chip Mulch

*Stabilized/coarse composted/walk-on mulch- usually long, fine shredded bark and wood that weaves together to create a blanket; holds together and doesn't migrate; good for bioretention/stormwater retention and to prevent soil erosion.

PLACEHOLDER Photo 8 Walkon Mulch

*Pallet Mulch or Dimensional Lumber– recycled and shredded wood pallets or pre-cut lumber used for framing.

PLACEHOLDER Photo 9 Pallet Mulch

Inorganic Mulch:

*Decomposed granite

*River rock, small stones, gravel, pebbles

These types of mulch are not recommended: gorilla hair bark, virgin materials, tires, playground fiber.

Guidebook: Overview Example

H3/1.1 Anatomy of Irrigation Systems

PLACEHOLDER Graphic 2 Diagram of Residential Irrigation System

PLACEHOLDER Graphic 3 Diagram of Non-residential Irrigation System

H3/1.2 Key Terms

Irrigation systems are made of many devices and components. These components are affected by different variables. Before the individual components are explained, there are a few terms to know.

Flow rate – The volume of water flowing through an area. It is measured in gallons per minute (GPM) or gallons per hour (GPH).

Pressure – The force the pushes water through an area. It is measured in pounds per square inch (PSI).

Precipitation rate - The speed at which the irrigation water is applied over an area. It is also called the "application rate." It is measured in inches per hour.

Distribution uniformity – how evenly irrigation water is applied over an area. Distribution uniformity for the lower quarter (DULQ) is the ratio of the average measurements in the lowest quarter of samples to the average of all samples. Some resources consider DULQ of 0.85 or more excellent;

Guidebook: Overview Example

Emission Devices: A device that emits water over an area. There are three main types of emission devices: sprinklers, microirrigation, and bubblers. MWELO requires emission devices to adhere to the ASABE/ICC 802-2014 "Landscape Irrigation Sprinkler and Emitter Standard."

Depending on the type of emission device the efficiency and flow rates vary.

H4/1.0 Sprinklers

The ANSI/ASABE/ICC standard calls all overhead irrigation sprinklers. Spray irrigation are what the public generally calls "sprinklers" that pop-up or are stationary and found in single-family homes and smaller landscapes. Rotors are the devices that are found in sports fields, parks and larger estates or properties.

Sprinkler: Spray irrigation device that emits water through a nozzle in various radii (spray distance 2 to 30 feet) and arcs (90 to 360 degrees). Sprinklers can be plastic or brass.

The flow rate for a sprinkler is measured in gallons per minute (GPM) and varies by make and model.

Sprinklers should not be used on the same irrigation zone as drip or bubblers.

Guidebook: Overview Example

H2/1.5 Calculating the MWELO Water Budget

For the Performance Path MWELO requires an annual water budget which calculates the total water required for the established landscape which cannot exceed the maximum allowance.

Key Terms

ETo – Reference ET is the amount of water in inches per year needed to keep cool season grass thriving based on the evapotranspiration which water transpired by plants and evaporated from soil. Appendix A in MWELO provides a list of ETo for each county and can also be found at www.cimis.water.ca.gov for each CIMIS weather station throughout California. You can get a free password from DWR.

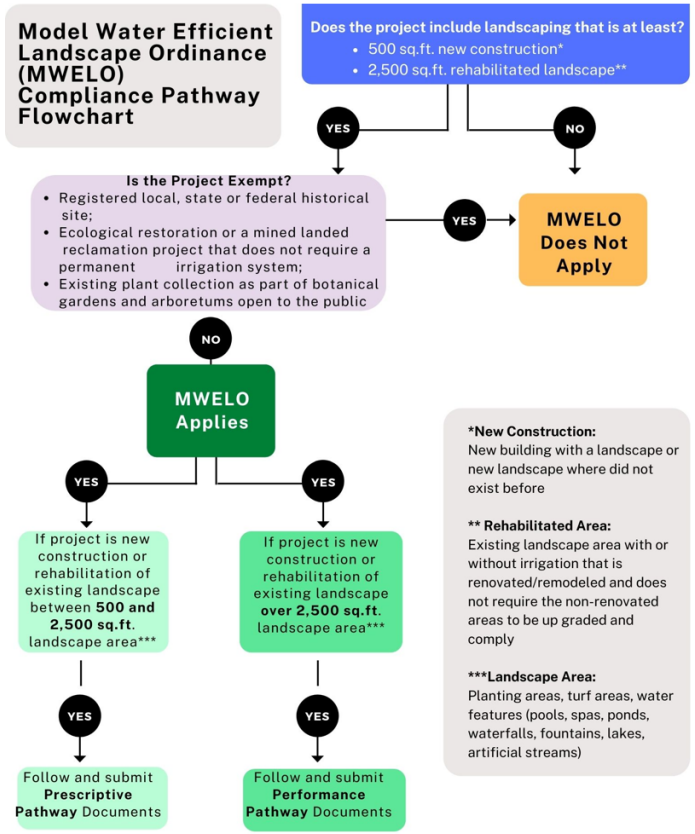
PF – Plant Factor is a number from 0 to 1.0 that was multiplied by a factor and ETo to estimate the water needed by plants.

MWELO defines the PF categories as follows:
- 0 to 0.1 = Very low water use plants
- 0.1 to 0.3 = Low water use plants
- 0.4 to 0.6 = Moderate water use plants
- 0.7 to 1.0 = High water use plants

WUCOLS – Water Use Classification of Landscape Species is an online searchable database for plant factors of individual plant species and is published by the University of California Cooperative Extension and the California Department of Water Resources. https://ucanr.edu/sites/WUCOLS/

Guidebook: Determining Pathway

Provide an Applicability Chart – sample in Guidebook



Note: Local agencies can require new or rehabilitated landscapes to follow the Performance Pathway even if the size is 500 to 2,500 sq.ft.

Note: Local agencies may choose not to adopt Prescriptive Pathway (MWELO Appendix D)

Guidebook: Compliance Pathways

Performance:

- 500 sq.ft.+ new construction; 2,500 sq.ft.+ renovations
- Water Budget
- Specific soil, irrigation and plant requirements
- Design flexibility
- Construction documents for plants, irrigation, grading

Prescriptive (Appendix D in MWELO):

- 500 to 2,500 sq. ft. new or renovated
- No Water Budget
- Specific but very limited irrigation and plant requirements
- Landscape plan
- More cost-effective for smaller projects

Guidebook: Performance Pathway

Guidebook addresses:

- Roles and responsibilities
- What is required to be submitted as part of the Landscape Documentation Package and Certificate of Completion
- What is recommended for submittal to provide a complete set of plans for plan check and installation, e.g. cover sheet, plant list, details, specifications, notes
- Clarification of confusing language such as rehabilitated landscapes, special landscape areas, compost
- Common submittal errors such as water budget miscalculations, notations missing, verification of compost installation
- Common errors found during irrigation audits and/or final inspection

Guidebook: Performance Pathway

- H1/4.0 Performance Pathway
- H2/4.1 Applicability §490.1
- **Summary**: Landscape projects that require a building or landscape permit, plan check or design review and meet the following criteria:
- *New construction projects: aggregate landscape area equal to or greater than 500 sq. ft.
- *Rehabilitated landscape projects: aggregate landscape area equal to or greater than 2,500 sq. ft.
- *Any landscape project: aggregate landscape area 500 to 2,500 sq. ft. (or follow Prescriptive Method).
- **Note:** The rehabilitated area is the portion of the landscape at least 2,500 sq.ft. that will be renovated/modified.
- Example: If a homeowner wants to remodel 4,500 sq. ft. of a 10,000 sq. ft. yard, only that 4,5000 sq. ft. needs to comply, because: 1) the renovation size triggers compliance and 2) MWELO does not require the non-renovated areas to come into compliance. This is similar to a homeowner remodeling their master bed and bath. Only the bedroom and bathroom would need to comply with the building code (electrical, plumbing, etc.) for the renovation, because the code does not require the entire house to be upgraded.

Guidebook: Performance Pathway

SAMPLE Model Water Efficient Landscape Ordinance: Performance Pathway Process Flowchart (new construction landscape ≥ 500 square feet and rehabilitated landscape ≥ 2,500 square feet)*

	Entitlement: Design Review	Building Permit: Construction Documents	Construction	Project Completion: Prior to Sign-off & Occupancy	Reporting
Applicant	Review MWELO Requirements Develop Conceptual Plans and Documents Submit Conceptual Plans and Documents: 1. Landscape Plan 2. Water Efficient Landscape Worksheet	Submit/Re-submit Landscape Documentation Package: 1. Plans: Cover Sheet, Site Plan, Landscape Irrigation, Grading 2. Water Efficient Landscape Worksheet 3. Soil Management Report Provide copy of Worksheet to water provider	Construct according to approved plans Re-submit plans, if significant changes Request open-trench inspection, if required Request irrigation audit and make corrections	Submit Certificate of Completion: 1. Certificate of Installation 2. Irrigation Schedule 3. Schedule of Landscape and Irrigation Maintenance 4. Irrigation Zone Map (inside controller) 5. Irrigation Audit Report 6. As-Built Plans 7. Soil Management Report[1] 8. Verification of Soil Amendments[2] Request final inspection, if required	Not Applicable
Agency	Determine if proposed project triggers MWELO Review and comment on Conceptual Plans and Documents Coordinate with local water provider, is needed	Review Plans/Construction Documents and Approve or Deny Track data for annual report Provide Landscape Documentation Package to local water provider and owner	Perform open-trench inspection, if required Perform irrigation audit if provided by local agency	Review Certificate of Completion and Approve or Deny Perform final inspection, if required Track data for annual reporting	Submit Annual Report to DWR by January 31st Each Year

[1]Submit with Certificate of Completion if mass grading will occur; [2]Verification that the Soil Management Report recommendations were installed

Guidebook: Performance Pathway

SAMPLE Model Water Efficient Landscape Ordinance: Performance Pathway Process Flowchart (new construction landscape ≥ 500 square feet and rehabilitated landscape ≥ 2,500 square feet)*

	Entitlement: Design Review	Building Permit: Construction Documents	Construction	Project Completion: Prior to Sign-off & Occupancy	Reporting
Applicant	Review MWELO Requirements Develop Conceptual Plans and Documents Submit Conceptual Plans and Documents: 1. Landscape Plan 2. Water Efficient Landscape Worksheet	Submit/Re-submit Landscape Documentation Package: 1. Plans: Cover Sheet, Site Plan, Landscape Irrigation, Grading 2. Water Efficient Landscape Worksheet 3. Soil Management Report Provide copy of Worksheet to water provider	Construct according to approved plans Re-submit plans, if significant changes Request open-trench inspection, if required Request irrigation audit and make corrections	Submit Certificate of Completion: 1. Certificate of Installation 2. Irrigation Schedule 3. Schedule of Landscape and Irrigation Maintenance 4. Irrigation Zone Map (inside controller) 5. Irrigation Audit Report 6. As-Built Plans 7. Soil Management Report[1] 8. Verification of Soil Amendments[2] Request final inspection, if required	Not Applicable
Agency	Determine if proposed project triggers MWELO Review and comment on Conceptual Plans and Documents Coordinate with local	Review Plans/Construction Documents and Approve or Deny Track data for annual report Provide Landscape Documentation Package	Perform open-trench inspection, if required Perform irrigation audit if provided by local agency	Review Certificate of Completion and Approve or Deny Perform final inspection, if required Track data for annual reporting	Submit Annual Report to DWR by January 31st Each Year

Guidebook: Performance Pathway

SAMPLE Performance Pathway Flowchart – Model Water Efficient Landscape Ordinance

Applicant (owner or designee) Requirements

Design Review	Building Permit & Construction Document	Construction	Project Completion: Prior to Sign-off	Reporting
• **Review** MWELO Requirements • **Develop** Conceptual Plans and Documents • **Submit** Conceptual Plans and Documents 1. Landscape Plan 2. Water Efficient Landscape Worksheet	• **Submit/Resubmit** Landscape Documentation Package: 1. Plans: Cover Sheet, Site Plan, Landscape Plan, Irrigation Plan, Grading Plan 2. Water Efficient Landscape Worksheet 3. Soil Management Report, if mass grading then submit with Certificate of Completion • **Provide** copy of approved Worksheet to water provider • **Provide** copy of approved Landscape Documentation Package to owner	• **Construct** according to approved plans • **Resubmit** if significant changes • **Request** open-trench inspection, if required • **Request** irrigation audit & make corrections	• **Submit** Certificate of Completion: 1. Certificate of Installation 2. Irrigation Schedule 3.Schedule of Landscape & Irrigation Maintenance 4. Hydrozone Irrigation Map (with controller) 5. Irrigation Audit 6. As-Built Plans 7. Soil Management Report 8. Verification of Soil Amendments • **Request** Final Inspection • **Provide** approved Certificate of Completion to the water provider and owner	• **Not Applicable**

Local Agency Requirements

Design Review	Building Permit & Construction Document	Construction	Project Completion: Prior to Sign-off	Reporting
• **Determine** if proposed project triggers MWELO & Pathway • **Review** & Comment on Conceptual Plans & Documents • **Coordinate** with Water Provider	• **Review** & Comment on Construction Documents • **Approve & Permit** • **Track** data for annual report • **Provide** approved Landscape Water Efficient Landscape Worksheet to local water provider	• **Perform** open-trench inspection, if required • **Perform** irrigation audit, if staff is certified	• **Review** Certificate of Completion and approve or deny • **Perform** final inspection • **Complete** Permit • **Track data for annual reporting**	• **Submit** Annual Report to DWR by January 31st each year

Guidebook: Performance Pathway

Landscape Documentation Package	**Who Prepares Documents?**
Project Information	Owner or designee
Water Efficient Landscape Worksheet	Owner or designee
Soil Management Report (if doing mass grading, submit with Cert of Completion)	Soil Lab
Landscape Plan	Landscape Architect, Contractor, Owner
Irrigation Plan	Landscape Architect, Contractor, Irrigation Designer or other "authorized" person
Grading Plan	Landscape Architect, Civil Engineer

Guidebook: Performance Pathway Example

Applicant: The applicant must submit the Landscape Documentation Package and include the following:

1. Project Information.
2. Water Efficient Landscape Worksheet.

*Hydrozone Information Table.

*Water Budget Calculations.

3. Soil Management Report (mass grading projects may submit with Certificate of Completion Package).
4. Landscape Design Plan.
5. Irrigation Design Plan.
6. Grading Design Plan.

Design: Landscape Design Plans and Irrigation Design Plans must be signed by a licensed landscape architect, licensed landscape contractor, or other authorized person per California Business and Professions Code in the California Code of Regulations. Grading Plan must be signed by a licensed professional. For additional guidance, see Appendix Z, the Permitted Practice in California chart.

Guidebook: Performance Pathway Example

- **Enforcement**:
- **Plan review**: Check that the total landscape area includes all the irrigated areas listed on the site plan, landscape design plan, and irrigation design plan.
- **Note**: Track data for annual MWELO implementation (§495) report.
- **Note**: Submit approved Landscape Documentation Package to local water provider and property owner/designee.

Guidebook: Performance Pathway Example

Recommendation: The Certificate of Completion should be submitted after the project is complete and before the final inspection.

Compliance:

Applicant: Include the required documents in the Certificate of Completion and follow irrigation audit and inspection instructions provided by the local agency. The package must include:

1. Project Information Form.
2. Certificate of Installation.
3. Irrigation Schedule and Parameters.
4. Landscape and Irrigation Maintenance Schedule.
5. Irrigation Audit Report.
6. Irrigation Zone.
7. Soil Management Report if not previously included in the Landscape Documentation Package.

Recommendation: Use the Certificate of Completion Checklist provided by the local agency.

Note: See sample Irrigation Zone in Appendix K.

Note: See sample Irrigation Schedule and Parameters in Appendix L.

Note: See sample Irrigation Schedule Appendix M.

Note: See sample Maintenance Schedule in Appendix N.

Guidebook: Prescriptive Pathway

Guidebook addresses:

- Roles and responsibilities
- What is required to be submitted as part of the Landscape Documentation Package and Certificate of Completion
- What is recommended for submittal to provide a complete set of plans for plan check and installation, e.g. irrigation equipment
- Clarification of confusing language such as rehabilitated landscapes
- Common submittal errors such as verification of compost installation
- Common errors found during final inspection

Guidebook: Prescriptive Pathway

Applicability

Landscape projects that require a building or landscape permit; plan check or design review and meet the following criteria:

*Any landscape project: aggregate landscape area 500 sq. ft. to 2,500 sq. ft.

*Any landscape project: aggregate landscape area 500 sq. ft. to 2,500 sq. ft. and 100 percent of Estimated Total Water Use is provided by on-site graywater or rainwater is subject to only Appendix D (5) Prescriptive Path Non-potable water distribution systems must comply with Chapters 15 and 16 of the California Plumbing code (http://epubs.iapmo.org/2019/CPC/#p=12)

Guidebook: Prescriptive Pathway

SAMPLE Model Water Efficient Landscape Ordinance: Prescriptive Pathway Process Flowchart (new construction and rehabilitated landscapes 500 to 2,500 square feet)*

	Building Permit: Construction Documents	Construction	Project Completion: Prior to Sign-off & Occupancy	Reporting
Applicant	Submit/Re-submit Landscape Documentation Package: 1. Project Information 2. Landscape Plan 3. Soil Analysis Report (optional)	Construct according to approved plans Re-submit plans, if there are significant changes Request open-trench inspection, if required	Request final inspection Submit Certificate of Completion: 1. Certificate of Installation 2. Irrigation Schedule 3. Schedule of Landscape Provide copy of Certificate of Completion to property owner and water provider	Not Applicable
Agency	Review Construction Documents Track data for annual reporting	Perform open-trench inspection, if required	Review Certificate of Completion Perform final inspection, if required Track data for annual reporting	Submit Annual Report to DWR by January 31st Each Year

Guidebook: Prescriptive Pathway

SAMPLE Prescriptive Pathway Flowchart – Model Water Efficient Landscape Ordinance
(new construction and rehabilitated landscapes 500 to 2,500 square feet)

Applicant (owner or designee) Requirements

- **Review** MWELO Requirements
- **Submit** Landscape Documentation Plan

1. Project Information
2. Landscape Plan
3. Soil Analysis Report (optional)

- **Construct** according to approved plans
- **Resubmit** if significant changes
- **Request** open-trench inspection, if required

- Request final inspection
- Submit Certificate of Completion:

1. Certificate of Installation
2. Irrigation Schedule
3. Schedule of Landscape

- At time of final inspection, provide Certificate to property owner and water provider

- **Not Applicable**

Local Agency Requirements

- **Determine** if proposed project triggers MWELO & Pathway
- **Review** & Comment on Construction Documents
- **Track** data for annual report

- **Perform** open-trench inspection, if required

- **Review** Certificate of Completion and approve or deny
- **Perform** final inspection
- **Complete** Permit
- **Track data for annual reporting**

- **Submit** Annual Report to DWR by January 31st each year

Guidebook: Prescriptive Pathway

Certificate of Completion	Who Prepares Documents?
Certificate of Installation	Does not specify
Irrigation Schedule (with controller)	Does not specify
Irrigation & Landscape Maintenance Schedule	Does not specify

Guidebook: Prescriptive Pathway

H2/5.2 Landscape Plan Requirements:

Table 2. Prescriptive Path Requirements

PLACEHOLDER Table 2 Prescriptive Path Requirements

Note: A sample landscape plan is included in Appendix S.

Design: A soil test may be performed to determine the compost application rate. If the test shows the soil needs more or less than 4 cu. yd. per 1,000 sq. ft., submit the soil analysis report. Otherwise, indicate that the 4 cu. yd. per 1,000 sq. ft. at a depth of 6 in. will be applied.

Applicant: The Certificate of Completion must be submitted after the project is complete and before the permit is closed and must include the following:

*Certificate of Installation

*Irrigation Schedule

*Schedule of Landscape and Irrigation Maintenance

Guidebook: Additional Sections

- Recycled water, graywater, stormwater management and rainwater retention
- Existing landscape requirements
- Reporting
  - Starting 1/31/2021 all MWELO reports will be submitted using the WUE Data online portal (link in guidebook)
- Public Education

Guidebook: Considerations for Enforcing MWELO

- A list of questions to help local agencies prepare for or better enforce MWELO.

Example

How Will The Agency Perform Plan Check/Review And Permitting?

1. Who on your staff will review the plans? Do you need more than one person trained? Do you hire a consultant to review the plans instead?

2. Do you need to adjust your fee schedule for review and inspections?

3. Do you need to update your permitting software? Is there funding available? Who will make the updates and when?

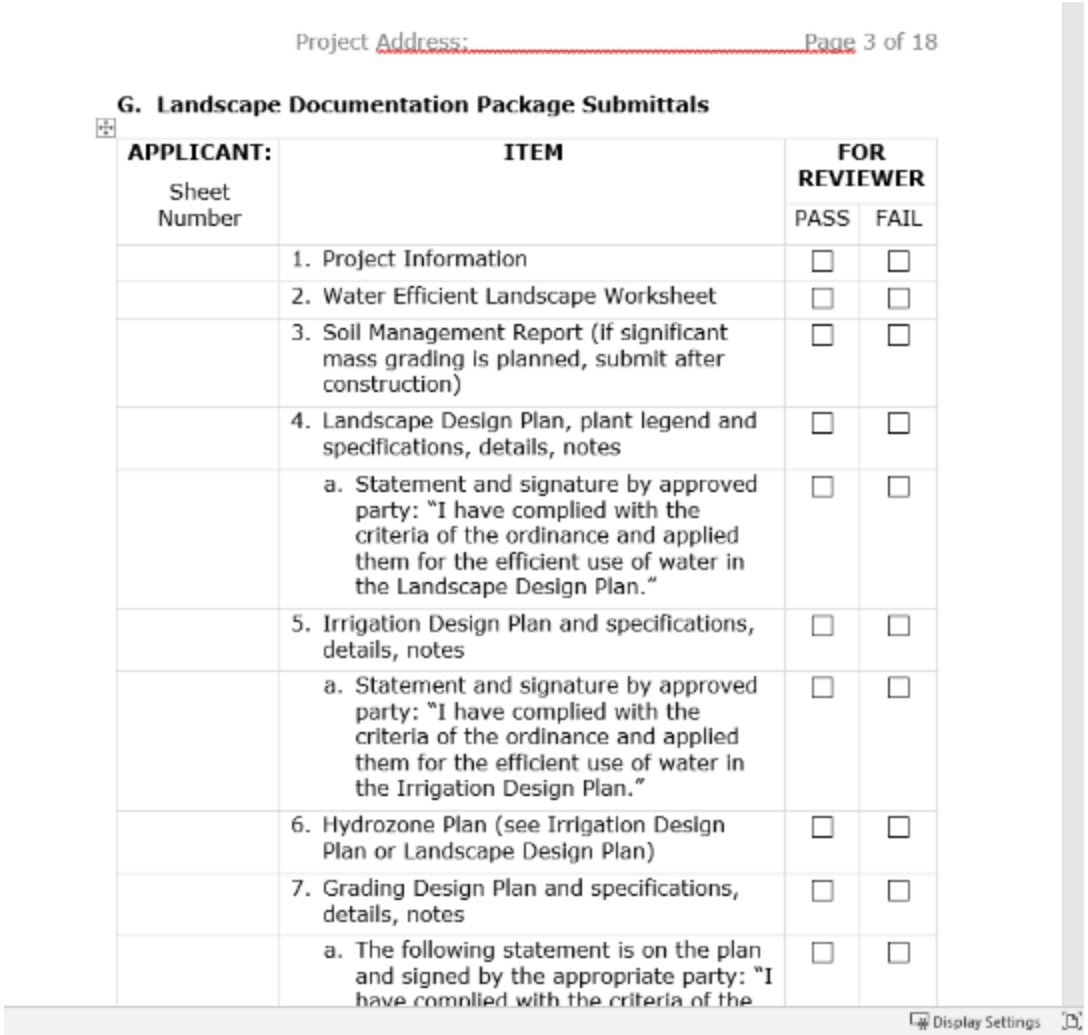
4. Will you require the applicant to provide more detailed information than what is required in the ordinance? Will you require a cover sheet, site plan, specifications, notes, and details to facilitate quick review of all the landscape elements?

Guidebook Layout: Appendices

- Index
- 2015 MWELO Ordinance
- Landscape, Irrigation and Water Budget Overview
- Updated Water Efficient Landscape Worksheet
- Flowcharts
- Checklists
- Samples
- Resources for agencies
- Applicant Brochure

Guidebook Layout: Appendices

Performance Pathway Checklist



Project Address: Page 3 of 18

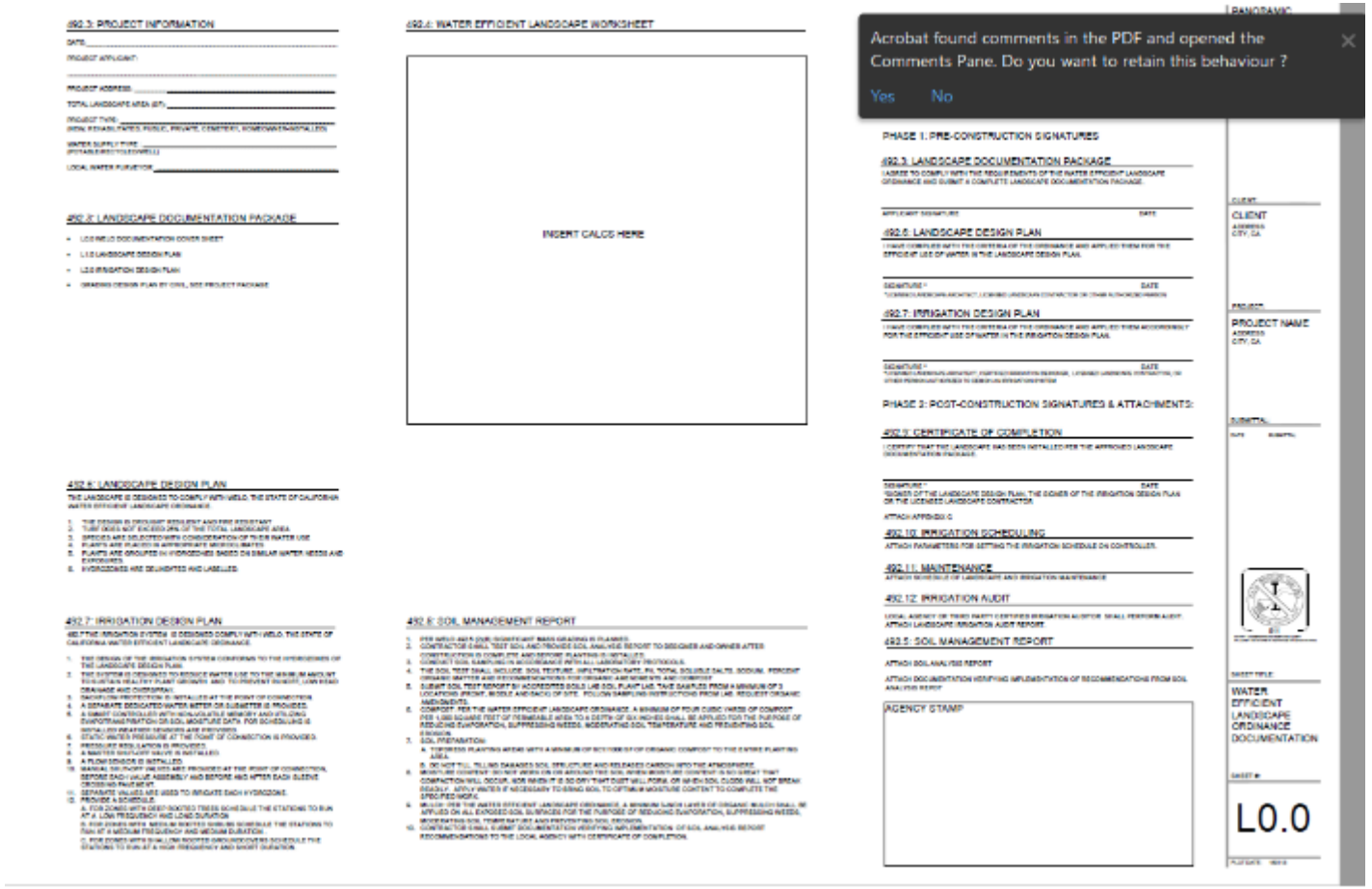
G. Landscape Documentation Package Submittals

APPLICANT: Sheet Number	ITEM	FOR REVIEWER PASS	FAIL
	1. Project Information	☐	☐
	2. Water Efficient Landscape Worksheet	☐	☐
	3. Soil Management Report (if significant mass grading is planned, submit after construction)	☐	☐
	4. Landscape Design Plan, plant legend and specifications, details, notes	☐	☐
	a. Statement and signature by approved party: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the Landscape Design Plan."	☐	☐
	5. Irrigation Design Plan and specifications, details, notes	☐	☐
	a. Statement and signature by approved party: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the Irrigation Design Plan."	☐	☐
	6. Hydrozone Plan (see Irrigation Design Plan or Landscape Design Plan)	☐	☐
	7. Grading Design Plan and specifications, details, notes	☐	☐
	a. The following statement is on the plan and signed by the appropriate party: "I have complied with the criteria of the	☐	☐

Display Settings

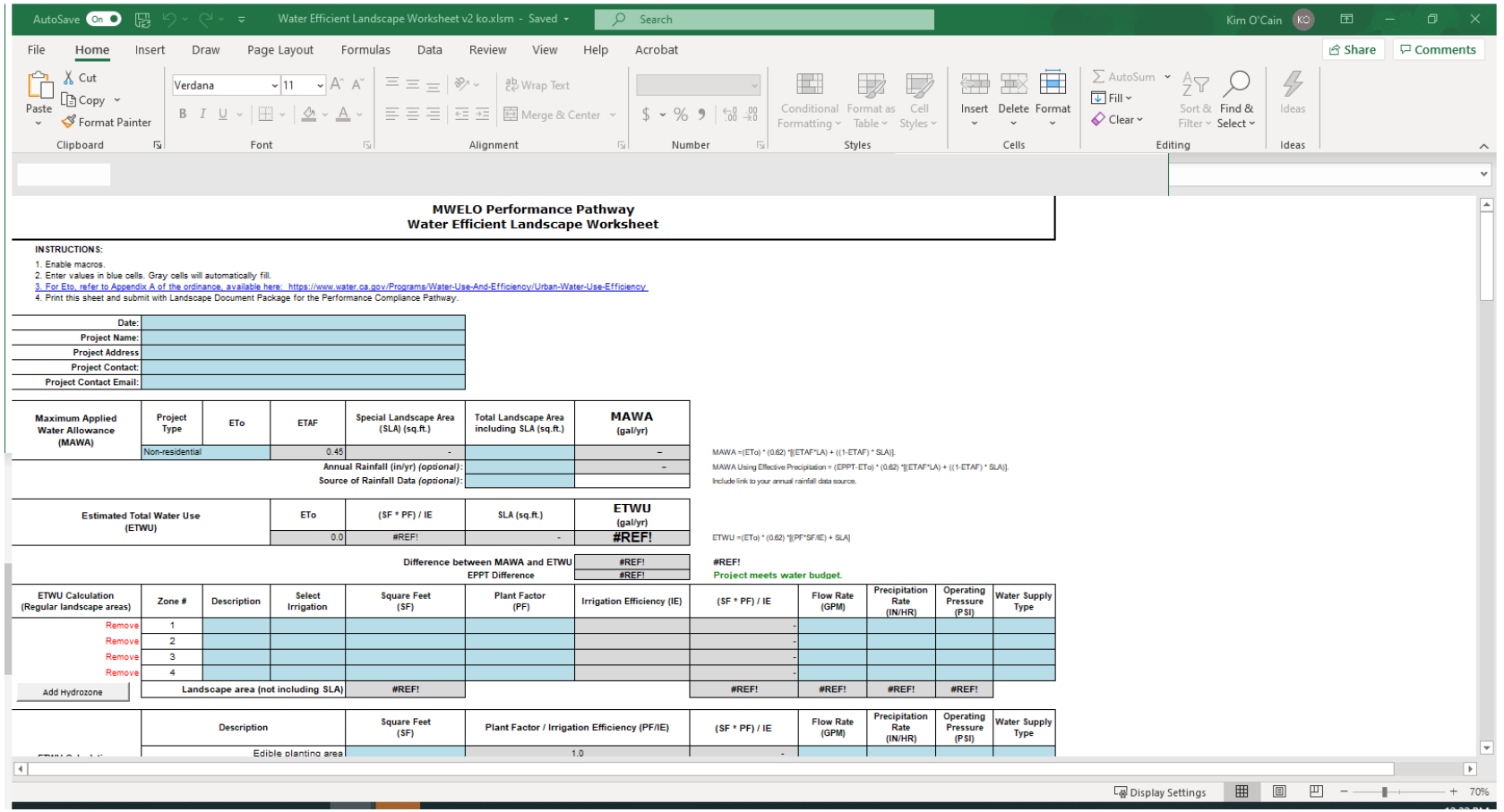
Guidebook Layout: Appendices

Cover Sheet



Guidebook Layout: Appendices

Performance Pathway Water Efficient Landscape Worksheet



MWELO Performance Pathway
Water Efficient Landscape Worksheet

INSTRUCTIONS:

1. Enable macros.
2. Enter values in blue cells. Gray cells will automatically fill.
3. For Eto, refer to Appendix A of the ordinance, available here: https://www.water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency
4. Print this sheet and submit with Landscape Document Package for the Performance Compliance Pathway.

Date:	
Project Name:	
Project Address	
Project Contact:	
Project Contact Email:	

Maximum Applied Water Allowance (MAWA)	Project Type	ETo	ETAF	Special Landscape Area (SLA) (sq.ft.)	Total Landscape Area including SLA (sq.ft.)	MAWA (gal/yr)
	Non-residential		0.45	-		-
				Annual Rainfall (in/yr) *(optional)*:		-
				Source of Rainfall Data *(optional)*:		

MAWA =(ETo) * (0.62) *[(ETAF*LA) + ((1-ETAF) * SLA)].
MAWA Using Effective Precipitation = ((EPPT-ETo) * (0.62) *[(ETAF*LA) + ((1-ETAF) * SLA)].
Include link to your annual rainfall data source.

Estimated Total Water Use (ETWU)	ETo	(SF * PF) / IE	SLA (sq.ft.)	ETWU (gal/yr)
	0.0	#REF!	-	#REF!

ETWU =(ETo) * (0.62) *[(PF*SF/IE) + SLA]

Difference between MAWA and ETWU	#REF!
EPPT Difference	#REF!

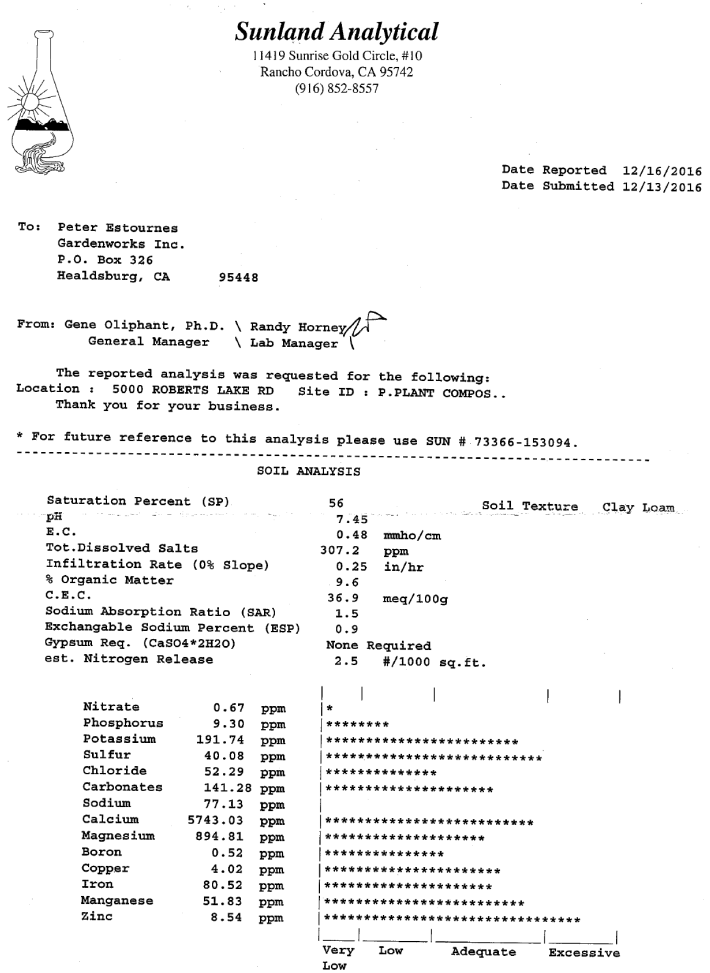
#REF!
Project meets water budget.

ETWU Calculation (Regular landscape areas)	Zone #	Description	Select Irrigation	Square Feet (SF)	Plant Factor (PF)	Irrigation Efficiency (IE)	(SF * PF) / IE	Flow Rate (GPM)	Precipitation Rate (IN/HR)	Operating Pressure (PSI)	Water Supply Type
Remove	1						-				
Remove	2						-				
Remove	3						-				
Remove	4						-				
Add Hydrozone	Landscape area (not including SLA)			#REF!			#REF!	#REF!	#REF!	#REF!	

	Description	Square Feet (SF)	Plant Factor / Irrigation Efficiency (PF/IE)	(SF * PF) / IE	Flow Rate (GPM)	Precipitation Rate (IN/HR)	Operating Pressure (PSI)	Water Supply Type
	Edible planting area		1.0	-				

Guidebook Layout: Appendices

Soil Report Sample



Sunland Analytical
11419 Sunrise Gold Circle, #10
Rancho Cordova, CA 95742
(916) 852-8557

Date Reported 12/16/2016
Date Submitted 12/13/2016

To: Peter Estournes
Gardenworks Inc.
P.O. Box 326
Healdsburg, CA 95448

From: Gene Oliphant, Ph.D. \ Randy Horney
General Manager \ Lab Manager

The reported analysis was requested for the following:
Location : 5000 ROBERTS LAKE RD Site ID : P.PLANT COMPOS..
Thank you for your business.

* For future reference to this analysis please use SUN # 73366-153094.

SOIL ANALYSIS

Saturation Percent (SP)	56		Soil Texture Clay Loam
pH	7.45		
E.C.	0.48	mmho/cm	
Tot.Dissolved Salts	307.2	ppm	
Infiltration Rate (0% Slope)	0.25	in/hr	
% Organic Matter	9.6		
C.E.C.	36.9	meq/100g	
Sodium Absorption Ratio (SAR)	1.5		
Exchangable Sodium Percent (ESP)	0.9		
Gypsum Req. (CaSO4*2H2O)	None Required		
est. Nitrogen Release	2.5	#/1000 sq.ft.	

Nitrate	0.67	ppm	*
Phosphorus	9.30	ppm	********
Potassium	191.74	ppm	************************
Sulfur	40.08	ppm	****************************
Chloride	52.29	ppm	**************
Carbonates	141.28	ppm	**********************
Sodium	77.13	ppm	
Calcium	5743.03	ppm	****************************
Magnesium	894.81	ppm	********************
Boron	0.52	ppm	*****************
Copper	4.02	ppm	**********************
Iron	80.52	ppm	**********************
Manganese	51.83	ppm	************************
Zinc	8.54	ppm	*********************************

Very Low | Low | Adequate | Excessive

Guidebook Layout: Appendices

Hydrozone Irrigation Map

Guidebook Layout: Appendices

Irrigation Scheduling Parameters Worksheet

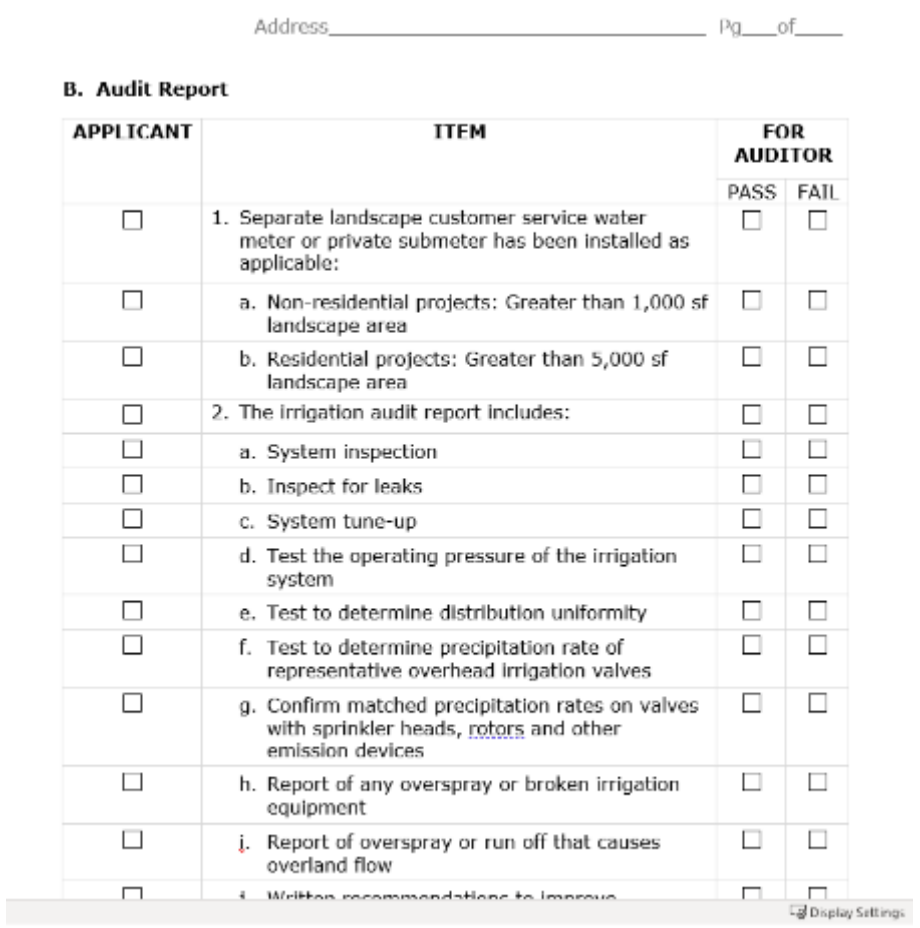
Irrigation Scheduling Parameters Worksheet

1) Irrigation schedules will be regulated using a weather-based irrigation controller located_____. The controller has a non-volatile memory
2) Irrigation watering will occur typically between the hours of 8pm – 10am unless otherwise dictated by weather, drought emergency, system, maintenance, repair and or testing
3) Irrigation schedules will be designed and implemented to meet the California Model Water Efficient Landscape Ordinance or local ordinance's Estimated Total Water Use calculations from approved Landscape Documentation Package. The total annual applied water shall not exceed the Maximum Applied Water Allowance from approved Landscape Documentation package
4) An establishment irrigation schedule: Attached
5) A permanent irrigation schedule: Attached
6) Temporary irrigated areas schedule: Applicable ☐Yes or ☐No
7) The following additional parameters are in place for each hydrozone/station:
   a) Interval between waterings
   b) Station run times to prevent run off
   c) Number of cycle starts to prevent runoff
   d) A monthly water budget
   e) Type of emission device and application rate
   f) Root depth target
   g) Soil type
   h) Slope
   i) Micro-climate
   j) Distribution uniformity

Signature*	Date
Name (print):	Telephone No.
	Fax No.
Title:	Email Address;
License No. or Certification No.	
Company:	Street Address:

Guidebook Layout: Appendices

Irrigation Audit Checklist & Report



Address_____ Pg___of____

B. Audit Report

APPLICANT	ITEM	FOR AUDITOR	
		PASS	FAIL
☐	1. Separate landscape customer service water meter or private submeter has been installed as applicable:	☐	☐
☐	a. Non-residential projects: Greater than 1,000 sf landscape area	☐	☐
☐	b. Residential projects: Greater than 5,000 sf landscape area	☐	☐
☐	2. The irrigation audit report includes:	☐	☐
☐	a. System inspection	☐	☐
☐	b. Inspect for leaks	☐	☐
☐	c. System tune-up	☐	☐
☐	d. Test the operating pressure of the irrigation system	☐	☐
☐	e. Test to determine distribution uniformity	☐	☐
☐	f. Test to determine precipitation rate of representative overhead irrigation valves	☐	☐
☐	g. Confirm matched precipitation rates on valves with sprinkler heads, rotors and other emission devices	☐	☐
☐	h. Report of any overspray or broken irrigation equipment	☐	☐
☐	j. Report of overspray or run off that causes overland flow	☐	☐
☐	i. Written recommendations to improve	☐	☐

Display Settings

Guidebook Layout: Appendices

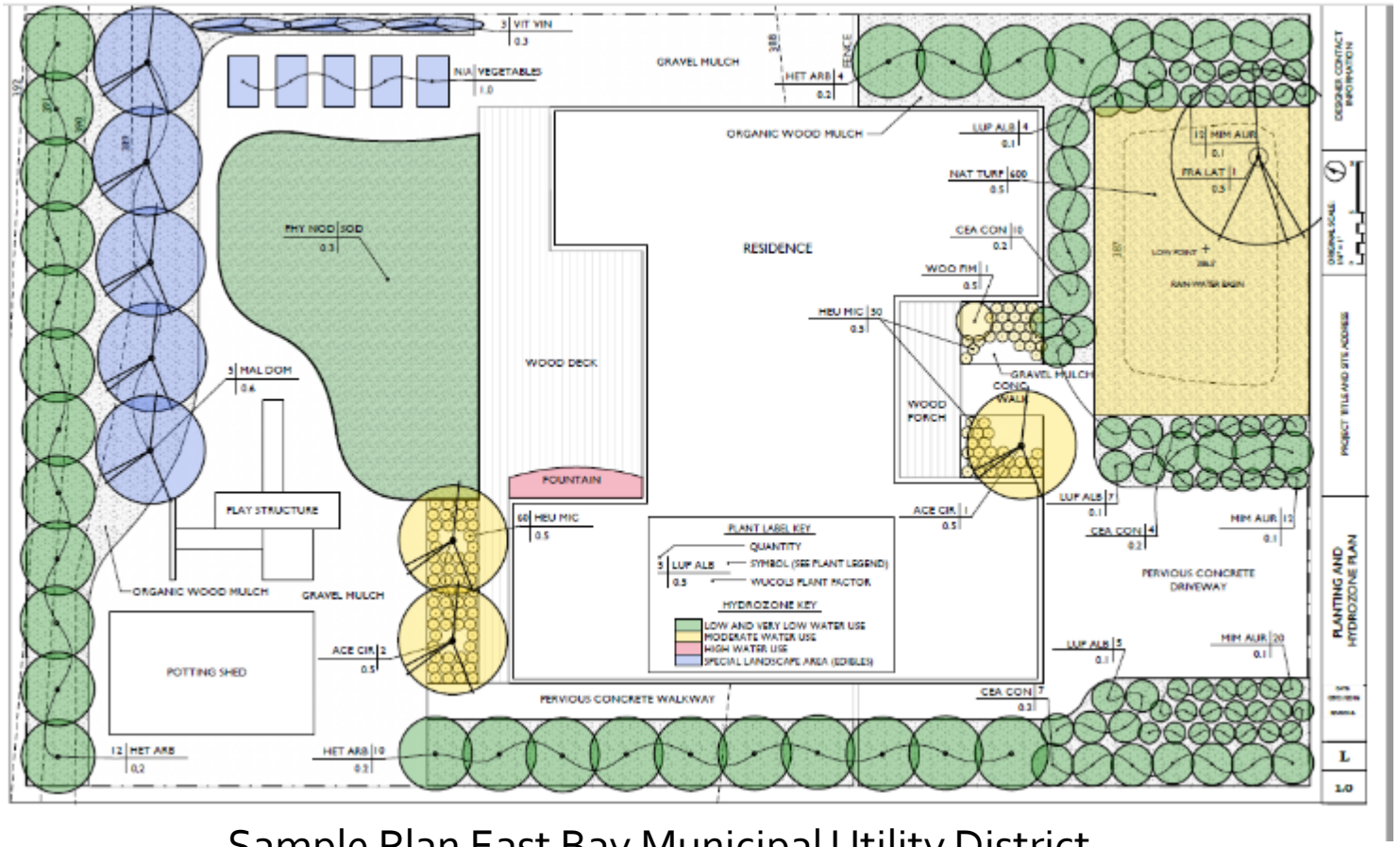
Sample Residential Landscape Plans

SAMPLE WATER EFFICIENT RESIDENTIAL LANDSCAPE PLANS

The following sample set of landscape plans meets the minimum requirements of the Model Water Efficient Landscape Ordinance (MWELO) as enforced by the East Bay Municipal Utility District. Contact your local City or County planning office for its landscape design and installation requirements.

Guidebook Layout: Appendices

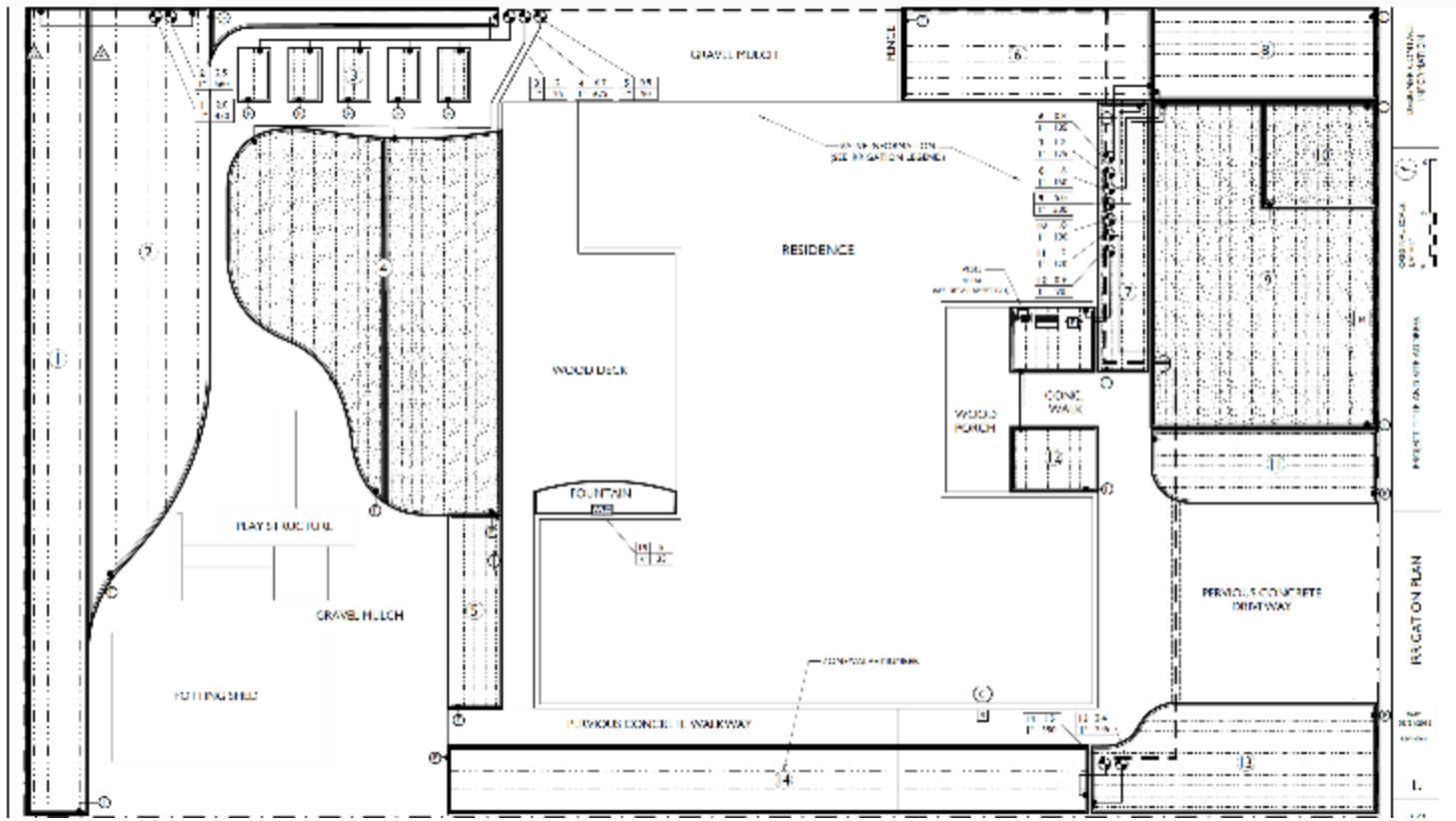
Sample Residential Landscape Plans



Sample Plan East Bay Municipal Utility District
https://www.ebmud.com/customers/new-meter-installation/regulations/

Guidebook Layout: Appendices

Sample Residential Landscape Plans



Sample Plan East Bay Municipal Utility District
https://www.ebmud.com/customers/new-meter-installation/regulations/

Guidebook Layout: Appendices

Landscape Inspection Checklist

Landscape Inspection Checklist

Inspection Date _____
Application Number _____
Project Name _____
Project Address _____
Contact Name _____
Contact Phone Number _____
Inspector Name _____

APPLICANT	ITEM	FOR AUDITOR			
		PASS	FAIL	CORRECTED	N/A
☐	1. Installed planting matches Landscape Design Plan	☐	☐	☐	☐
☐	2. No turf on slopes over 25%	☐	☐	☐	☐
☐	3. No turf in planting areas less than 10 feet wide	☐	☐	☐	☐
☐	4. No invasive plants are installed (http://cal-ipc.org/landscaping/dpp/)	☐	☐	☐	☐
☐	5. Delivery tags/receipts for compost submitted verifying a rate of 4 CY/1,000 sf or as prescribed by soil lab recommendations	☐	☐	☐	☐
☐	6. 3 inches of mulch installed in all non-turf planting areas, unless prohibited by fire code	☐	☐	☐	☐
☐	7. Mulch is aged tree trimmings,	☐	☐	☐	☐

Guidebook Layout: Appendices

Prescriptive Path Checklist

Prescriptive Path (Appendix D) Checklist

For projects with 500 to 2,500 sq.ft. of total landscape area.

A. Project Information

Submittal Date _____

Application Number _____

Project Address _____

Project Type* ☐ Residential ☐ Non-residential

Applicant Name _____

Applicant Email _____

Applicant Phone _____

Property Owner Name _____

Property Owner Email _____

Property Owner Phone _____

Water Supply Type _____

Water Supplier _____

Total Landscape Area (sf) * † _____

Total Turf Area (sf) _____

Total Non-turf Planting Area (sf) _____

* Information required in an annual report to the State Department of Water Resources from the permitting agency.

Guidebook Layout: Appendices

Standard Correction Sheet

MWELO Plan Check Standard Corrections

Requires Correction	Code Sec. No.	Ordinance Description	Correction/Comment
	492.3	Landscape Documentation Package	
	492.4	Water Efficient Landscape Worksheet	
	492.5	Soil Management Report	
	492.6	Landscape Design Plan	
	492.7	Irrigation Design Plan	
	492.8	Grading Design Plan	
	492.9	Certificate of Completion	
	492.14	Recycled Water	
	492.15	Graywater Systems	

Guidebook Layout: Appendices

MWELO Website Landing Page Template

MWELO Website Landing Page Template

What is the Model Water Efficient Landscape Ordinance (MWELO)?

MWELO is a statewide water efficiency law for new and renovated landscapes in California. It sets limits on high water use plants and irrigation equipment and incentivizes a holistic approach to landscaping that incorporates alternative water supplies like graywater, harvested rainwater, and recycled water.

Why is MWELO needed?

Traditionally designed landscapes incorporate plants and irrigation that waste water; contribute to polluted water runoff into streams, lakes and the ocean; overspray causing water damage to buildings, fences, streets; and create a lot of plant and trimming green waste.

These landscapes can be beautiful and functional. Research has shown that creating and maintaining landscapes that meet MWELO use 80% less water; require 60% less maintenance; produce 50% less yard waste.

Does this mean the landscapes need to be rocks and cactus?

No, the ordinance encourages the use of a variety of plants including natives, climate-appropriate plants. Limited size lawns and non-adapted plants can be planted.

Who needs to comply?

Any single-family or multi-family residential, public, institutional, or commercial project that requires a permit, plan review or check from the local review agency AND meets one of these size thresholds:

- New construction project with a total landscape area greater than 500 sq. ft.
- Rehabilitation of existing landscape with a total landscape area greater than 2,500 sq. ft.

Guidebook Layout: Appendices

Resources

Irrigation

Hunter: https://www.hunterindustries.com/sites/default/files/california_mwelo_lit-682_dom.pdf

Rain Bird: https://www.rainbird.com/agency/mwelo

Landscape Design Templates

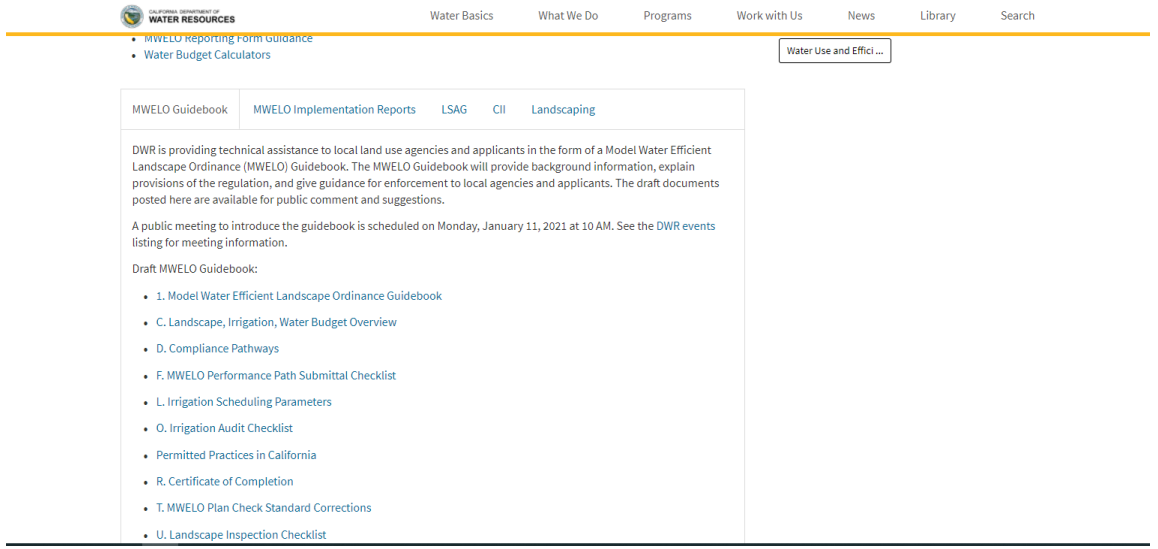
Landscape and Irrigation Design Templates - City of Santa Monica: https://www.smgov.net/Departments/OSE/Categories/Landscape/Airport_Avenue_Demonstration_Gardens.aspx

Landscape Design Templates - Sonoma-Marin Water Saving Partnership: http://www.savingwaterpartnership.org/concept-plans-and-design-templates/

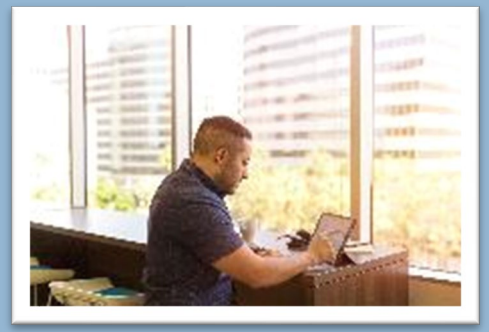
How to Access Guidebook & Provide Comments

Accessing Draft Guidebook

- Visit DWR's Model Water Efficient Landscape Ordinance web page: https://water.ca.gov/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/Model-Water-Efficient-Landscape-Ordinance



Guidebook: Comments & Feedback



Please review and provide comments by **February 12, 2021**

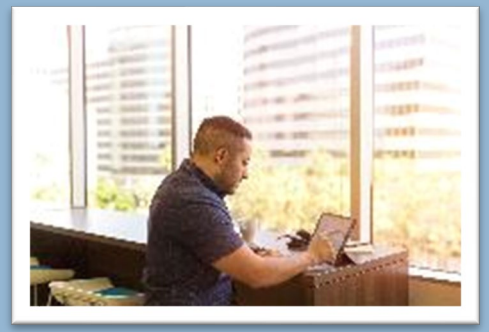
- What's Missing?
- Errors?
- Are the resources, checklists, samples useful? If not, how can we make them better?
- Is the terminology correct, i.e. plans vs construction documents?

Guidebook: Excel Comment Form

Instructions for use: Please include as much information in each requested field (columns A-G) as possible. Use one row for each new comment, idea or suggestion. Your completed excel form can be submitted via email to meagan.wylie@csus.edu no later than **Friday February 12, 2020**. Only comments received in this format will be compiled for review an consideration. Thank you!

Name	Affiliation	Your Stakeholder Category or Profession	Guidebook Page # or Appendix Title	Reference Paragraph, Section, or Graphic

Guidebook: Comments & Feedback



- Please use the provided Excel sheet only
- Email completed comment forms to Meagan.Wylie@csus.edu by February 12, 2021
- Every comment will be reviewed
- Final will be published on DWR website in spring/summer 2021

Guidebook: Q&A

Email: kim@ocainconsulting.com
(424) 272-0766