- ❑ identify location, installation details, and 24-hour retention or infiltration capacity of any applicable stormwater best management practices that encourage on-site retention and infiltration of storm water.
- ❑ Identify any applicable rain harvesting or catchment technologies;
- ❑ Identify any applicable gray water discharge piping, system components and area(s) of distribution;
- ❑ contain the following statement: “I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan”.
- ❑ Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape.

5. IRRIGATION DESIGN PLAN (DWR Title 24, Chapter 2.7, 492.7)
Irrigation Design Plan shall meet the following design criteria:

- ❑ System
  - Landscape water meters shall be installed for all non-residential irrigated landscapes of 1,000 square feet but not more than 5,000 square feet (the level at which Water Code 535 applies)
  - Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.
  - If the water pressure is below or exceeds the recommended pressure of the specified irrigation devices, the installation of a pressure regulating device is required.
  - Sensors that suspend or alter irrigation operations during unfavorable weather conditions shall be required on all irrigation systems.
  - Manual shut off valves shall be required, as close as possible to the point of connection, to minimize water loss in case of emergency or routine repair.
  - Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.
  - Flow sensors are required for all non-residential landscapes and residential landscapes of 5,000 square feet or larger.
  - Master shut-off valves are required on all projects except landscapes that make use of technologies that allow for individual control of sprinklers that are individually pressurized in a system equipped with low pressure shut down features.
  - The irrigation system shall be designed to prevent runoff, low head drainage, overspray or other similar conditions, where water flows onto non-targeted areas.
  - Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
  - The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
  - The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria regarding the Maximum Applied Water Allowance.
  - All irrigation emission devices must meet the requirements set forth in ANSII, ASABE/ICC 802-2014.
  - It is highly recommended that the project applicant inquire with the local water purveyor about peak water operating demands or watering restrictions.

- In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
- Sprinkler heads and other emission devices shall have matched precipitation rates.
- Head to head coverage is recommended
- Swing joints are required on all risers subject to damage that are adjacent to hardscape or in high traffic areas of turf grass.
- Check valves or anti-drain valves are required on all sprinkler heads where low point drainage could occur.
- Areas less that ten (10) feet in width shall be irrigated with subsurface irrigation or other means that produces no runoff or overspray
- Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface.
- Slopes greater than 25% shall not be irrigated with an irrigation system with an application rate exceeding 0.75 inches per hour.

❑ Hydrozone
- Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials of similar use.
- Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
- Where feasible, trees shall be placed on separate valves.
- Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:
  - plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
  - the plant factor of the higher water using is used for calculations.
- Individual hydrozones that mix high and low water use plants are not permitted.
- On the landscape design plan and the irrigation design plan, hydrozone areas shall be designated by number, letter or other designation.

The irrigation design plan, at a minimum, shall contain:

❑ Location and size of separate water meters.
❑ Location, type and size of all components of the irrigation system
❑ Static water pressure at point of connection to the public water supply
❑ Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (gallons per minute) for each station.
❑ Recycled water irrigation systems.
❑ The following statement: “I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan”.
❑ The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system

6. GRADING DESIGN PLAN (DWR Title 24, Chapter 2.7, 492.8)

❑ The project applicant shall submit a landscape grading plan (a grading plan prepared by a civil engineers for other local agency permits satisfies this requirement)that indicates finished configurations and elevations of the landscape area including:
- Height of graded slopes.

- Drainage patterns.
- Pad elevations.
- Finish grade.
- Stormwater retention improvements, if applicable.

- ❑ To prevent excessive erosion and runoff, it is highly recommended that project applicants:
  - Grade so that all irrigation and normal rainfall remains within the property lines and does not drain on to non-permeable hardscapes.
  - Avoid disruption of natural drainage patterns and undisturbed soil; and
  - Avoid soil compaction in landscape areas.

- ❑ The grading design plan shall contain the following statement: “I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan” and shall bear the signature of a licensed professional as authorized by law.

SMARTSCAPE
Model Water Efficient Landscape Ordinance Performance Compliance

CITY OF LONG BEACH

MWELO Water Efficient Landscape Worksheet

Reference Evapotranspiration (ETo) = 39.7 (annual ETo for Signal Hill/Long Beach per State Reference Table)

Hydrozone # /Planting Description[a]	Plant Factor (PF)	Irrigation Method[b]	Irrigation Efficiency (IE)[c]	ETAF (PF/IE)	Landscape Area (sq, ft,)	ETAF x Area	Estimated Total Water Use (ETWU)[e]
Regular Landscape Areas							
				Totals	(A)	(B)	
Special Landscape Areas							
				1			
				1			
				1			
				Totals	(C)	(D)	
						ETWU Total	
						Maximum Applied Water Allowance (MAWA)[e]	

[a] ***Hydrozone #/Planting Description***
E.g
1.) front lawn
2.) low water use plantings
3.) medium water use planting

[b] ***Irrigation Method***
overhead spray or drip

[c] ***Irrigation Efficiency***
0.75 for spray head
0.81 for drip

[d] ***ETWU*** **(Annual Gallons Required) =**
Eto x 0.62 x ETAF x Area
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year.

[e] ***MAWA (Annual Gallons Allowed) = (****Eto) (0.62) [(ETAF x LA) + ((1-ETAF) x SLA)]*
where 0.62 is a conversion factor that converts acre-inches per acre per year to gallons per square foot per year, LA is the total landscape area in square feet, SLA is the total special landscape area in square feet, and ETAF is .55 for residential areas and 0.45 for non-residential areas.

ETAF Calculations

Regular Landscape Areas

Total ETAF x Area	(B)
Total Area	(A)
Average ETAF	**B ÷ A**

Average ETAF for Regular Landscape Areas must be 0.55 or below for residential areas, and 0.45 or below for non-residential areas.

All Landscape Areas

Total ETAF x Area	(B+D)
Total Area	(A+C)
Sitewide ETAF	**(B+D) ÷ (A+C)**

Certificate of MWELO Completion

CERTIFICATE OF MWELO COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

PART 1. PROJECT INFORMATION SHEET

Date		
Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Project Address and Location:

Street Address		Parcel, tract or lot number, if available.
City		Latitude/Longitude (optional)
State	Zip Code	

Property Owner or his/her designee:

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Property Owner

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of MWELO Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

_____

Property Owner Signature Date

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the local agency _____
2. Date the Landscape Documentation Package was approved by the local agency _____

PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

"I/we certify that based upon periodic site observations, the work has been completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

<table>
<tr><td>Signature*</td><td colspan="2">Date</td></tr>
<tr><td rowspan="2">Name (print)</td><td colspan="2">Telephone No.</td></tr>
<tr><td colspan="2">Fax No.</td></tr>
<tr><td>Title</td><td colspan="2">Email Address</td></tr>
<tr><td colspan="3">License No. or Certification No.</td></tr>
<tr><td>Company</td><td colspan="2">Street Address</td></tr>
<tr><td>City</td><td>State</td><td>Zip Code</td></tr>
</table>

*****Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

The requirements of Part 3 – 6 below shall apply only to MWELO landscape projects approved using the Performance Compliance option. MWELO landscape projects approved using the Prescriptive Compliance option are not required to file these documents with Development Services.

PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package.

Attach documentation verifying implementation of recommendations from soil analysis report.