

**ORDINANCE #2015- 05**

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF AMERICAN CANYON, CALIFORNIA APPROVING A NEW MUNICIPAL CODE CHAPTER 16.14 AND AMENDING CHAPTER 19.22 TO PROVIDE NEW REGULATIONS ON WATER-EFFICIENT LANDSCAPING**

**WHEREAS**, Assembly Bill 1881 requires local jurisdictions to either adopt the State Model Water Efficient Landscape Ordinance or develop a local ordinance that is at least as effective the state ordinance and submit evidence of effectiveness to the state; and

**WHEREAS**, the City of American Canyon faces constraints in water supply and endeavors to ensure that supply is used efficiently; and

**WHEREAS**, appropriate landscaping techniques and management can significantly reduce water use; and

**WHEREAS**, StopWaste.Org has developed the model Bay-Friendly Water-Efficient Landscaping Ordinance; and

**WHEREAS**, the proposed new Municipal Code Chapter 19.22 Water-Efficient Landscaping and adding Chapter 16.14 Water-Efficient Landscaping would establish effective landscaping standards; and

**WHEREAS**, the Planning Commission of the City of American Canyon conducted a public hearing on December 18, 2014 and March 26, 2015 and unanimously recommended approval of the proposed ordinance amendments; and

**WHEREAS**, the City Council conducted a public hearing on April 7, 2015 after due notice was given as required by law, at which time oral and documentary evidence was introduced along with the written recommendation of the Community Development Department staff of the City of American Canyon.

**NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF AMERICAN CANYON DOES HEREBY ORDAIN AS FOLLOWS:**

**SECTION 1:** The adoption of the proposed ordinance is not a project that has the potential for causing a significant effect on the environment and therefore is not subject to review under the California Environmental Quality Act (CEQA). In addition, the proposed ordinance amendment is exempt under the definition of Project in Section 15378 (b)(3) in that it concerns general policy and procedure making.

**SECTION 2:** American Canyon Municipal Code Chapter 16.14, Water-Efficient Landscaping, is hereby added to the Municipal Code:

**Chapter 16.14 Water-Efficient Landscaping**

**16.14.010 Purpose.**

This chapter defines the requirements for completing water-efficient final landscape plans, in compliance with Section 19.22 of the Municipal Code. The documentation described is intended to implement the landscape efficiency standards set by the Water Conservation in Landscaping Act of 2006 (AB 1881).

**16.14.020      Applicability.**

- A. Applicability. Final Landscape plans shall be required for the following landscape projects:
  - 1. New construction and rehabilitated landscapes for public agency projects, private development projects and developer-installed single-family and multi-family projects, requiring a building permit, plan check or design permit;
  - 2. Cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 16.14.070, 16.14.140 and 16.14.160; and existing cemeteries are limited to Sections 16.14.160 and 16.14.170.
- B. This ordinance does not apply to:
  - 1. Registered local, state or federal historical sites;
  - 2. Ecological restoration projects that do not require a permanent irrigation system;
  - 3. Plant collections, as part of botanical gardens and arboretums open to the public.

**16.14.030      Review and Approval.**

Final landscape plans shall be subject to review and approval by the community development director.

**16.14.040      Definitions.**

- The terms used in this ordinance have the meaning set forth below:
- “applied water” means the portion of water supplied by the irrigation system to the landscape.
  - “automatic irrigation controller” means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
  - “backflow prevention device” means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
  - “Bay-Friendly Landscape Guidelines” means the most recent version of the guidelines developed by StopWaste.Org for use in the professional design, construction and maintenance of landscapes.
  - “Bay-Friendly Landscaping Scorecard” means the most recent version of the Bay-Friendly Landscaping points system developed by StopWaste.Org.
  - “Certificate of Completion” means the document required under Section 16.14.180.
  - “certified irrigation designer” means a person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation designer certification program and Irrigation Association’s Certified Irrigation Designer program.
  - “certified landscape irrigation auditor” means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency’s WaterSense irrigation auditor certification program and Irrigation Association’s Certified Landscape Irrigation Auditor program.
  - “check valve” or “anti-drain valve” means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
  - “City” means the City of American Canyon and its representatives.
  - “common interest developments” means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
  - “conceptual landscape plan” means a preliminary landscape plan submitted to the City for review with a discretionary application.

“conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year

“compost” is the product of controlled biological decomposition of organic materials, often including urban plant debris and food waste. It is an organic matter resource that has the unique ability to improve the chemical, physical and biological characteristics of soils or growing media. It contains plant nutrients but is typically not characterized as a fertilizer. Excerpted from US Compost Council, Field Guide to Compost Use

“drip irrigation” means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

“drought resistant soil” means soil that has been managed, by amending with compost and covering with mulch, for example, to maximize rainfall infiltration, increase the soil’s capacity to hold water, and allow for plant roots to penetrate and proliferate such that the landscape can survive with less than optimal water (i.e. less than MAWA).

“ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

“effective precipitation” or “usable rainfall” (Eppt) means the portion of total precipitation which becomes available for plant growth.

“emitter” means a drip irrigation emission device that delivers water slowly from the system to the soil.

“established landscape” means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.

“establishment period of the plants” means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.

“Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 492.4.

“ET adjustment factor” (ETAf) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.

“evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

“final landscape plan” means a landscape plan submitted to the City for review and issuance of building permits and contains the same elements as the conceptual landscape plan.

“flow rate” means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

“hardscapes” means any durable material (pervious and non-pervious).

“high-flow sensors” or “flow meters” detect and report high flow conditions created by system damage or malfunction

“homeowner-provided landscaping” means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.

“hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

“infiltration rate” means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

**"invasive plant species"** means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources.

**"irrigation audit"** means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor.

**"irrigation efficiency"** (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices.

**"irrigation survey"** means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.

**"irrigation water use analysis"** means an analysis of water use data based on meter readings and billing data.

**"landscape architect"** means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

**"landscape area"** means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

**"landscape contractor"** means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

**"Landscape Documentation Package"** means the documents required under Section 16.14.050.

**"landscape project"** means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 16.14.020.

**"lateral line"** means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.

**"lawn"** means an area of short, mown grass in a yard, garden, or park.

**"low volume irrigation"** means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

**"main line"** means the pressurized pipeline that delivers water from the water source to the valve or outlet.

**"Maximum Applied Water Allowance"** (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 16.14.070. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area.

**"microclimate"** means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.

**"mined-land reclamation projects"** means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.

**"mulch"** means any organic material such as leaves, bark, arbor or wood chips, recycled wood waste, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

**"native species"** means plants from the local microclimate or Northern California species.

**"new construction"** means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

**"operating pressure"** means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.

**"overhead sprinkler irrigation systems"** means systems that deliver water through the air (e.g., spray heads and rotors).

**"overspray"** means the irrigation water which is delivered beyond the target area.

**"permit"** means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

**"pervious"** means any surface or material that allows the passage of water through the material and into the underlying soil.

**"plant factor"** or **"plant water use factor"** is a factor , when multiplied by ETo, estimates the amount of water needed by plants.

**"precipitation rate"** means the rate of application of water measured in inches per hour.

**"project applicant"** means the individual or entity submitting a Landscape Documentation Package required under Section 16.14.050, to request a permit, plan check, or design permit from the City. A project applicant may be the property owner or his or her designee.

**"rain sensor"** or **"rain sensing shutoff device"** means a component which automatically suspends an irrigation event when it rains.

**"record drawing"** or **"as-builts"** means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

**"recreational area"** means publically owned or publically accessible areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.

**"recycled water"**, **"reclaimed water"**, or **"treated sewage effluent water"** means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

**"reference evapotranspiration"** or **"ETo"** means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Section 16.14.070, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

**"rehabilitated landscape"** means any re-landscaping project that requires a permit , plan check, or design permit, meets the requirements of Section 16.14.020, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

**"runoff"** means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

**"soil moisture sensing device"** or **"soil moisture sensor"** means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.

**"soil texture"** means the classification of soil based on its percentage of sand, silt, and clay.

**"Special Landscape Area"** (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

**"sprinkler head"** means a device which delivers water through a nozzle.

**"static water pressure"** means the pipeline or municipal water supply pressure when water is not flowing.

**"station"** means an area served by one valve or by a set of valves that operate simultaneously.

“swing joint” means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.

“turf” means a species of grass that was developed to be used as a lawn together with the surface layer of earth held together by its roots.

“valve” means a device used to control the flow of water in the irrigation system.

“water conserving plant species” means a plant species identified as having a low plant factor.

“water feature” means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). “watering window” means the time of day irrigation is allowed.

“WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2100.

#### **16.14.050 Water-Efficient Landscape Plans.**

A. Prior to issuance of a building permit, the applicant shall submit a Final Landscape Documentation Package to the Community Development Department. The Final Landscape Documentation Package, submitted as part of the final landscape plan, shall include the following:

1. Project information;
  - a. Date
  - b. Applicant name, address, telephone, email
  - c. Property Owner name, address, telephone, email
  - d. Project address (if available, parcel and/or lot number(s))
  - e. Total landscape area (square feet)
  - f. Project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)
  - g. Water supply type (e.g., potable, recycled, well)
  - h. Checklist of all documents in Landscape Documentation Package
- i. Applicant signature and date with statement, “I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package”.

#### 2. Water Efficient Landscape Worksheet;

##### A. Hydrozone information table

##### B. Water budget calculations

- i. Maximum Applied Water Allowance (MAWA)
- ii. Estimated Total Water Use (ETWU)
- iii. Soil management report;
- iv. Landscape design plan;
- v. Irrigation design plan; and
- vi. Grading design plan.

#### **16.14.060 General Requirements and Standards.**

##### A. General Requirements and Standards

1. The setbacks from streets required by the schedule of zoning district regulations shall be fully landscaped except in single-family districts where parking may be permitted as specified in this title.
2. All landscaped areas shall be protected by six-inch concrete curbing.
3. Parking and circulation areas shall be landscaped according to the requirements this title.
4. The use of turf is limited to rear yards of residential projects.

5. Landscaping should be used to separate parking and vehicle circulation areas from buildings, to provide a visual landscaped foreground for buildings, and to enhance the perimeter of a project.

6. Live plant materials generally should be used in all landscaped areas.

7. Landscape planters abutting parking areas shall be sufficiently large to allow for vehicle overhang without extending into the planting area.

B. Trees.

1. Landscape plans for sites on major streets should include large-scale street trees, with deep root systems and broad canopies.

2. Tree planting shall consider passive solar heating and cooling opportunities related to building orientation.

3. Trees shall be provided in parking lot areas in a manner that provides shading of parked vehicles to the maximum extent feasible.

4. Trees shall be properly supported. Stakes and ties on trees shall be checked regularly for correct functions. Ties shall be adjusted to avoid creating abrasions or girdling on trunks or branches.

C. Hard Surfaces. Required planter or landscaped areas may be combined with pedestrian walks and similar hard surface areas, provided that such hard surface areas do not cover more than thirty percent of any required planter or landscaped areas. Ornamental or landscaping rock and gravel areas, artificial turf, or other areas covered with other artificial materials shall be considered hard surface areas for the purpose of this provision.

D. Slopes.

1. All manufactured slopes over five feet in height created by grading shall be fully landscaped utilizing a combination of trees, shrubs and groundcover materials.

2. Stabilizing jute netting or equivalent netting shall be provided in conjunction with the landscape planting and shall fully cover lower slope areas.

E. Installation.

1. All landscaping and planter areas shall be installed consistent with an approved water efficient landscape plan prior to final building permit sign-off or granting of an occupancy permit for a project.

2. Prior to the installation of landscaping in any public right-of-way, the developer shall provide for continued maintenance until such areas are accepted by the City or as defined in a subdivision improvement agreement.

F. Maintenance.

1. Required landscaped areas shall be continually maintained in good condition and kept clean and weeded. Good maintenance shall be interpreted to include: watering and maintaining water efficiency, weeding, pruning, insect and disease control, and replacement of plant materials and irrigation equipment as needed to preserve the health and appearance of plant materials.

**16.14.070 Water Efficient Landscape Worksheet.**

A. The applicant shall complete the Water Efficient Landscape Worksheet which contains two sections:

1. A hydrozone information table for the landscape project; and

2. A water budget calculation for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the table below:

NAPA County	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
													ETo	
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8	

\* The values in this table were derived from:

- 1) California Irrigation Management Information System (CIMIS);
- 2) Reference EvapoTranspiration Zones Map, University of California, Davis – Dept. of Land, Air & Water Resources and California Dept. of Water Resources 1999; and
- 3) Reference Evapotranspiration for California, University of California, Davis – Department of Agriculture and Natural Resources (1987) Bulletin 1922
- 4) Determining Daily Reference Evapotranspiration, Cooperative Extension University of California, Davis – Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

B. Water budget calculations shall adhere to the following requirements:

1. The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
2. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
3. All Special Landscape Areas shall be identified and their water use calculated as described below.
4. ETAF for Special Landscape Areas shall not exceed 1.0.

C. Maximum Applied Water Allowance. The Maximum Applied Water Allowance shall be calculated using the equation:

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

D. Estimated Total Water Use. The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

Where:

ETWU = Estimated Total Water Use per year (gallons)

ETo = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 491)

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

1. Example ETWU calculation: landscape area is 50,000 square feet; plant water use type, plant factor, and hydrozone area are shown in the table below. The ETo value is 51.1 inches per year. There are no Special Landscape Areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water) in this example.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	10,000	7,000
3	Medium	0.5	16,000	8,000
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	24,700

\*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62) \left( \frac{24,700}{0.71} + 0 \right)$$

$$= 1,102,116 \text{ gallons per year}$$

Compare ETWU with MAWA: For this example MAWA = (51.1) (0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,108,870 gallons per year. The ETWU (1,102,116 gallons per year) is less than MAWA (1,108,870 gallons per year). In this example, the water budget complies with the MAWA.

2. Example ETWU calculation: total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The reference evapotranspiration value is 51.1 inches per year. The plant type, plant factor, and hydrozone area are shown in the table below.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	9,000	6,300
3	Medium	0.5	15,000	7,500
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	23,500
6	SLA	1.0	2,000	2,000

\*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62) \left( \frac{23,500}{0.71} + 2,000 \right)$$

$$= (31.68) (33,099 + 2,000)$$
$$= 1,111,936 \text{ gallons per year}$$

Compare ETWU with MAWA. For this example:

$$\begin{aligned} \text{MAWA} &= (51.1) (0.62) [(0.7 \times 50,000) + (0.3 \times 2,000)] \\ &= 31.68 \times [35,000 + 600] \\ &= 31.68 \times 35,600 \\ &= 1,127,808 \text{ gallons per year} \end{aligned}$$

The ETWU (1,111,936 gallons per year) is less than MAWA (1,127,808 gallons per year). For this example, the water budget complies with the MAWA.

#### 16.14.080 Irrigation Efficiency.

A. For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

**16.14.090      Soil Management Report.**

A. In order to create drought resistant soil, reduce runoff and encourage healthy plant growth, a soil management report addressing soil attributes of the project site shall be completed by the applicant, or his/her designee.

B. The soil management report shall address the soil attributes of the project site and shall include:

1. Identification of areas of quality topsoil to be protected during construction and/or critical soil limitations such as compaction; water logged soils or wetlands; thin, eroded or erosion prone soils.

2. A laboratory soil analysis of the soil(s) into which plantings are to be made;

C. Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.

D. At a minimum the soil analysis shall include:

i. Soil texture;

ii. Infiltration rate determined by laboratory test or soil texture infiltration rate table;

iii. pH;

iv. Total soluble salts;

v. Sodium;

vi. Essential nutrients

vii. Percent organic matter; and

viii. Recommendations for soil amendments or nutrient applications to ameliorate the soil limitations identified by the analysis and the amount of compost required to bring the soil organic matter content to a minimum of 3.5% by dry weight or a minimum application of at least 1 inch . The required practice of adding compost is waived if the plant palette primarily includes California native species that are adapted to soils with little or no organic matter as documented by a published plant reference.

E. Specifications for protecting topsoil, ameliorating soil limitations, such as ripping the soil to alleviate soil compaction, and incorporating compost and/or amendments as per recommendations in the soil analysis report.

F. The applicant, or his/her designee, shall comply with one of the following:

1. If significant mass grading is not planned, the soil management report shall be submitted to the City as part of the Landscape Documentation Package; or

2. If significant mass grading is planned, the soil management report shall be submitted to the City as part of the Certificate of Completion.

3. The soil management report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.

4. The applicant, or his/her designee, shall submit documentation verifying implementation of soil management report recommendations to the City with the Certificate of Completion.

**16.14.100      Landscape Design Plan.**

For the efficient use of water, landscaping shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

**A. Plant Material**

1. The estimated total water use of the plant material selected must not exceed the Maximum Applied Water Allowance.

2. Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 16.14.110(B)(4).

3. At least 75% of the total number of plants in non-turf areas shall require occasional, little or no summer water. All species should be adapted to the climate in which they will be planted, as documented by a published plant reference. If plants are given a range of water needs from "occasional to moderate" for example, the landscape designer must determine if the plant will require either occasional or moderate watering based on site, soil, and climate conditions and categorize the plant appropriately. Sources used to determine climate adaptation and watering requirements may include:

a. Bornstein, Carol, David Fross and Bart O'Brien, California Native Plants for the Garden.

Qualifying irrigation designation: "occasional", "infrequent", or "drought tolerant"

b. East Bay Municipal Utility District's publication Plants and Landscapes for Summer Dry Climates.

Qualifying irrigation designation: "occasional", "infrequent" or "no summer water"

c. Sunset Publishing Corporation Sunset Western Garden Book.

Qualifying irrigation designation: "little or no water"

d. University of California Cooperative Extension's Guide to Estimating Irrigation Water Needs of Landscape Plantings in CA.

Qualifying irrigation designation: "Low" or "Very Low"

4. Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).

5. Total irrigated areas specified as turf shall be limited to a maximum of 25% with recreational areas exempted.

6. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per California Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.

7. Those species identified by the California Invasive Plant Council (CAL-IPC) as invasive in the San Francisco Bay Area shall not be specified.

8. The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.

9. Plant species shall be selected and spaced to allow them to grow to their natural size and shape. Pruning for structural integrity and health of plant is permitted. In addition, plants located in a row or adjacent to buildings, sidewalks, or roads will be spaced between their minimum and maximum mature plant spread according to a published reference plant book and still fit into their planting area without significant overhang. Trees must meet the spacing requirements only when adjacent to buildings, in a row or adjacent to other vertical obstructions. Vines are not subject to spacing requirements.

10. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.

#### B. Water Features

1. Recirculating water systems shall be used for water features.

2. Where available, recycled water shall be used as a source for decorative water features.

3. Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.

#### C. Mulch and Amendments

1. A minimum three inch (3") layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, or direct seeding applications where mulch should not be used because it may be harmful. The use of plastic sheeting as a weed barrier is prohibited.

2. Stabilizing mulching products shall be used on slopes.

3. The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.

4. Compost and soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 16.14.090).
5. Ongoing maintenance shall include regular reapplication of mulch to a minimum of (3").
- D. The landscape design plan, at a minimum, shall:
  1. Delineate and label each hydrozone by number, letter, or other method;
  2. Identify each hydrozone as low, moderate, high water, or mixed water use. Areas of the landscape temporarily irrigated to establish drought tolerant plants shall be included in the low water use hydrozone for the water budget calculation;
  3. Identify recreational areas;
  4. Identify areas permanently and solely dedicated to edible plants;
  5. Identify areas irrigated with recycled water;
  6. Identify type of mulch and application depth;
  7. Identify soil amendments, type, and quantity;
  8. Identify type and surface area of water features;
  9. Identify hardscapes (pervious and non-pervious);
  10. Identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater.
  11. Identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
  12. 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"; and
  13. Bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

#### **16.14.110      Irrigation Design Plan.**

For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.

##### **A. System**

1. The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
  - a. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.
  - b. Static water pressure, dynamic or operating pressure, and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
2. Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.
3. Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions are required for all irrigation systems, as appropriate

for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.

4. Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system.

5. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.

6. Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.

7. The design of the irrigation system shall conform to the hydrozones of the landscape design plan.

8. The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 16.14.080 regarding the Maximum Applied Water Allowance.

9. In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.

10. Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.

11. Sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.

12. Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.

13. Check valves or anti-drain valves are required for all irrigation systems.

14. Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or a low volume irrigation system.

15. Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:

a. The landscape area is adjacent to permeable surfacing and no runoff occurs; or

b. The adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or

c. The irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 16.14.110(A)(8). Prevention of overspray and runoff must be confirmed during the irrigation audit.

16. Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.

#### B. Hydrozone

1. Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.

2. Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.

3. Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.

4. Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if the plant factor of the higher water using plant is used for calculations.

5. Individual hydrozones that mix high and low water use plants shall not be permitted.

6. On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see City of American Template Water-Efficient Landscaping Worksheet). This table can also assist with the irrigation audit and programming the controller.

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

- a. Location and size of separate water meters for landscape;
- b. Location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
- c. Static water pressure at the point of connection to the public water supply;
- d. Flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
- e. Recycled water irrigation systems as specified in Section 19.22.070;
- f. 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"; and
- g. The signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

#### **16.14.120      Grading Design Plan.**

For the efficient use of water, project site grading shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other City permits satisfies this requirement.

A. The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:

1. Height of graded slopes;
2. Drainage patterns;
3. Pad elevations;
4. Finish grade; and
5. Stormwater retention improvements, if applicable.

B. 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.

#### **16.14.130      Irrigation Scheduling.**

For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

A. Irrigation scheduling shall be regulated by automatic irrigation controllers.

B. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

C. For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to

Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

D. Parameters used to set the automatic controller shall be developed and submitted for each of the following:

1. The plant establishment period;
  2. The established landscape; and
  3. Temporarily irrigated areas.
- E. Each irrigation schedule shall consider for each station all of the following that apply:
1. Irrigation interval (days between irrigation);
  2. Irrigation run times (hours or minutes per irrigation event to avoid runoff);
  3. Number of cycle starts required for each irrigation event to avoid runoff;
  4. Amount of applied water scheduled to be applied on a monthly basis;
  5. Application rate setting;
  6. Root depth setting;
  7. Plant type setting;
  8. Soil type and mulch depth;
  9. Slope factor setting;
  10. Shade factor setting; and
  11. Irrigation uniformity or efficiency setting.

**16.14.140      Landscape and Irrigation Maintenance Schedule.**

A. Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.

B. A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

C. Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.

D. At least one landscaping staff member or contractor shall be trained in the use of Integrated Pest Management (IPM) or is a "Bay-Friendly Qualified Landscape Professional."

**16.14.150      Stormwater Management.**

All landscape plans shall conform to Chapter 14.28 Storm Water and Pollution Discharge Control Program.

**16.14.160      Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

A. All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

B. For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 16.14.020:

1. The project applicant shall submit an irrigation audit report with the Certificate of Completion to the City that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule;

2. The City shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits; and irrigation surveys for compliance with the Maximum Applied Water Allowance.

**16.14.170      Effective Precipitation.**

- A. The City may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:

$$\text{MAWA} = (\text{ETO} - \text{Eppt}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})].$$

Upon approval of the Final Landscape Documentation Package by the City, the project applicant shall:

1. Receive a permit or approval of the plan check or design permit and record the date of the permit in the Certificate of Completion;
2. Submit a copy of the approved Final Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and
3. Submit a copy of the Water Efficient Landscape Worksheet to the City.

**16.14.180      Certificate of Completion.**

The Certificate of Completion shall include the following:

- A. Project information sheet that contains:

1. Date;
2. Project name;
3. Project applicant name, telephone, and mailing address;
4. Project address and location; and
5. Property owner name, telephone, and mailing address;

B. Certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;

C. Where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;

D. Irrigation scheduling parameters used to set the controller (see Section 16.14.130);

E. Landscape and irrigation maintenance schedule (see Section 16.14.140);

F. Irrigation audit report (see Section 16.14.160); and

G. Soil management report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 16.14.090).

H. The project applicant shall:

1. Submit the signed Certificate of Completion to the City for review;

2. Ensure that copies of the approved Certificate of Completion are submitted to the City and property owner or his or her designee.

**SECTION 3:** American Canyon Municipal Code Chapter 19.22 is hereby repealed and replaced with the following:

**Chapter 19.22 Water-Efficient Landscaping**

**19.22.010      Purpose.**

This chapter is intended to implement the landscape design requirements of the Water Conservation in Landscaping Act of 2006 (AB 1881) and to establish standards for sustainable landscape practices in accordance with the StopWaste.Org Bay Friendly Landscape guidelines. It ensures that urbanized areas are sufficiently augmented by adequate, water-efficient, landscaping and open space in order to:

- A. Shade vehicles in parking lots.
- B. Break up extensive stretches of paving.
- C. Reduce impervious areas.
- D. Provide natural solar insulation for buildings, to screen certain types of land uses where appropriate.
- E. Create interesting and defined entries to facilities.
- F. Soften project perimeters.

#### **19.22.020      Applicability.**

- A. Applicability. A Conceptual Landscape plan shall be required for all entitlements for which design permit approval is required (Chapter 19.41).
- B. This ordinance does not apply to:
  - 1. Registered local, state or federal historical sites.
  - 2. Ecological restoration projects that do not require a permanent irrigation system.
  - 3. Plant collections, as part of botanical gardens and arboretums open to the public.
- C. Review and Approval.
  - 1. Conceptual landscape plans shall be reviewed and approved by the planning commission, except for entitlements subject to the approval of the community development director (pursuant to Chapter 19.40, Review and Approval Procedures).
  - 2. Final landscape plans, as defined by Section 16.13 of the Municipal Code, shall be subject to review and approval by the community development director.

#### **19.22.030      Definitions.**

The terms used in this ordinance have the meaning set forth below:

“applied water” means the portion of water supplied by the irrigation system to the landscape.

“Bay-Friendly Landscape Guidelines” means the most recent version of the guidelines developed by StopWaste.Org for use in the professional design, construction and maintenance of landscapes.

“City” means the City of American Canyon and its representatives.

“conceptual landscape plan” means a preliminary landscape plan submitted to the City for review with a discretionary application.

“conversion factor (0.62)” means the number that converts acre-inches per acre per year to gallons per square foot per year.

“drip irrigation” means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.

“ecological restoration project” means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.

“Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 492.4.

“ET adjustment factor” (ETAF) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.

**"evapotranspiration rate"** means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.

**"final landscape plan"** means a landscape plan submitted to the City for review and issuance of building permits and contains the same elements as the conceptual landscape plan.

**"flow rate"** means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.

**"hardscapes"** means any durable material (permeable and non-permeable).

**"homeowner-provided landscaping"** means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.

**"hydrozone"** means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.

**"infiltration rate"** means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).

**"invasive plant species"** means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources.

**"landscape architect"** means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.

**"landscape area"** means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other permeable or non-permeable hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

**"landscape contractor"** means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.

**"Landscape Documentation Package"** means the documents required under Section 16.13.050.

**"landscape project"** means total area of landscape in a project as defined in "landscape area" for the purposes of this ordinance, meeting requirements under Section 19.22.020.

**"lawn"** means an area of short, mown grass in a yard, garden, or park.

**"Maximum Applied Water Allowance"** (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 19.22.060. It is based upon the area's reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area.

**"mulch"** means any organic material such as leaves, bark, arbor or wood chips, recycled wood waste, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.

**"native species"** means plants from the local microclimate or Northern California species.

**"new construction"** means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.

**"permit"** means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.

**"permeable"** means any surface or material that allows the passage of water through the material and into the underlying soil.

**"plant factor"** or **"plant water use factor"** is a factor , when multiplied by ET<sub>0</sub>, estimates the amount of water needed by plants.

“project applicant” means the individual or entity submitting a Landscape Documentation Package required under Section 19.22.050, to request a permit, plan check, or design permit from the City. A project applicant may be the property owner or his or her designee.

“record drawing” or “as-builts” means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.

“recreational area” means publically owned or publically accessible areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.

“recycled water”, “reclaimed water”, or “treated sewage effluent water” means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.

“reference evapotranspiration” or “ET<sub>0</sub>” means a standard measurement of environmental parameters which affect the water use of plants. ET<sub>0</sub> is expressed in inches per day, month, or year as represented in Section 19.22.060, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.

“rehabilitated landscape” means any re-landscaping project that requires a permit , plan check, or design permit, meets the requirements of Section 19.22.020, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.

“runoff” means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.

“Special Landscape Area” (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.

“turf” means a species of grass that was developed to be used as a lawn together with the surface layer of earth held together by its roots

“water feature” means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied).

“WUCOLS” means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2100.

#### **19.22.040 General Requirements and Standards.**

##### **A. General Requirements and Standards**

1. The setbacks from streets required by the schedule of zoning district regulations shall be fully landscaped except in single-family districts where parking may be permitted as specified in this title.
2. All landscaped areas shall be protected by six-inch concrete curbing.
3. Parking and circulation areas shall be landscaped according to the requirements of this title.
4. The use of turf in new residential projects is limited to the rear yard.
5. Landscaping should be used to separate parking and vehicle circulation areas from buildings, to provide a visual landscaped foreground for buildings, and to enhance the perimeter of a project.
6. Live plant materials generally should be used in all landscaped areas. Bark should only be utilized as mulch, not as a permanent form of groundcover.

7. Landscape planters abutting parking areas shall be sufficiently large to allow for vehicle overhang without extending into the planting area.

B. Trees.

1. Landscape plans for sites on major streets should include large-scale street trees, with deep root systems and broad canopies.

2. Tree planting shall consider passive solar heating and cooling opportunities related to building orientation.

3. Trees shall be provided in parking lot areas in a manner that provides shading of parked vehicles to the maximum extent feasible.

4. Trees shall be properly supported. Stakes and ties on trees shall be checked regularly for correct functions. Ties shall be adjusted to avoid creating abrasions or girdling on trunks or branches.

C. Hard Surfaces. Required planter or landscaped areas may be combined with pedestrian walks and similar hard surface areas, provided that such hard surface areas do not cover more than thirty percent of any required planter or landscaped areas. Ornamental or landscaping rock and gravel areas, artificial turf, or other areas covered with other artificial materials shall be considered hard surface areas for the purpose of this provision.

D. Slopes.

1. All manufactured slopes over five feet in height created by grading shall be fully landscaped utilizing a combination of trees, shrubs and groundcover materials.

2. Stabilizing jute netting or equivalent netting shall be provided in conjunction with the landscape planting and shall fully cover lower slope areas.

E. Installation.

1. All landscaping and planter areas shall be installed consistent with an approved final landscape plan prior to final building permit sign-off or granting of an occupancy permit for a project.

2. Prior to the installation of landscaping in any public right-of-way, the developer shall provide for continued maintenance until such areas are accepted by the City or as defined in a subdivision improvement agreement.

F. Maintenance.

1. Required landscaped areas shall be continually maintained in good condition and kept clean and weeded. Good maintenance shall be interpreted to include: watering and maintaining water efficiency, weeding, pruning, insect and disease control, and replacement of plant materials and irrigation equipment as needed to preserve the health and appearance of plant materials.

**19.22.050 Elements of the Conceptual Landscape Documentation Plan.**

A. The Conceptual Landscape Documentation Plan, submitted as part of the discretionary application, shall include the following:

1. Project information.

a. Date

b. Project applicant

c. Project address (if available, parcel and/or lot number(s))

d. Total landscape area (square feet)

e. Water supply type (e.g., potable, recycled, well)

f. Landscape requirements identified in Section 19.22.040 and 19.22.060.

g. Project contacts to include contact information for the project applicant and property owner

2. Water Efficient Landscape Worksheet in Section 19.22.060.

a. Hydrozone information table

b. Water budget calculations

i. Maximum Applied Water Allowance (MAWA)

ii. Estimated Total Water Use (ETWU)

3. Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site.
4. The use of turf in new residential projects is limited to 25% of the rear yard of each home.
5. On nonresidential projects, turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
6. Total irrigated areas specified as turf shall be limited to a maximum of 25% with recreational areas exempted.
7. Turf is prohibited in street medians, traffic islands or bulb outs of any size.
8. A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per California Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.
9. Those species identified by CAL-IPC as invasive in the San Francisco Bay Area shall not be specified.
10. Landscape plans shall bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the California Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

**19.22.060 Water Efficient Landscape Worksheet.**

A. A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections:

1. A hydrozone information table for the landscape project.

2. A water budget calculation for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the table below:

County and City NAPA	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ETo
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8

\* The values in this table were derived from:

- 1) California Irrigation Management Information System (CIMIS);
- 2) Reference EvapoTranspiration Zones Map, University of California, Davis – Dept. of Land, Air & Water Resources and California Dept. of Water Resources 1999; and
- 3) Reference Evapotranspiration for California, University of California, Davis – Department of Agriculture and Natural Resources (1987) Bulletin 1922
- 4) Determining Daily Reference Evapotranspiration, Cooperative Extension University of California, Davis – Division of Agriculture and Natural Resources (1987), Publication Leaflet 21426

B. Water budget calculations shall adhere to the following requirements:

1. The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.
2. All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.
3. All Special Landscape Areas shall be identified and their water use calculated as described below.

4. ETAF for Special Landscape Areas shall not exceed 1.0.

C. Maximum Applied Water Allowance. The Maximum Applied Water Allowance shall be calculated using the equation:

$$\text{MAWA} = (\text{ETo}) (0.62) [(0.7 \times \text{LA}) + (0.3 \times \text{SLA})]$$

D. Estimated Total Water Use. The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

Where:

ETWU = Estimated Total Water Use per year (gallons)

ETo = Reference Evapotranspiration (inches)

PF = Plant Factor from WUCOLS (see Section 491)

HA = Hydrozone Area [high, medium, and low water use areas] (square feet)

SLA = Special Landscape Area (square feet)

0.62 = Conversion Factor

IE = Irrigation Efficiency (minimum 0.71)

#### **19.22.070 Recycled Water.**

A. The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in Section 19.22.070(B).

B. Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the City stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.

C. All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.

D. Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

#### **19.22.080 Stormwater Management.**

All landscape plans shall conform to Chapter 14.28 Storm Water and Pollution Discharge Control Program.

**SECTION 4: Severability.** If any section, sub-section, subdivision, paragraph, clause or phrase in this Ordinance, or any part thereof, is for any reason held to be invalid or unconstitutional, such decision shall not affect the validity of the remaining sections or portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed each section, sub-section, subdivision, paragraph, sentence clause or phrase of this Ordinance, irrespective of the fact that any one or more sections, subsections subdivisions, paragraphs, sentences, clauses or phrases may be declared invalid or unconstitutional., is for any reason held to be invalid or unconstitutional.

**SECTION 5:** The Mayor shall sign this Ordinance and the City Clerk shall attest thereto and shall within fifteen days of its adoption cause a summary of it to be published in a newspaper and circulated in the City and thereupon and thereafter this Ordinance shall take effect and be in force according to law.

The foregoing Ordinance was introduced and read at a regular meeting of the City Council of the City of American Canyon, State of California, held on the 7th day of April, 2015, and was passed and adopted at a regular meeting of the City Council of the City of American Canyon, State of California, on April 21, 2015, by the following vote:

**MAYOR GARCIA:**

Yes

**VICE MAYOR LEARY:**

Yes

**COUNCIL MEMBER BENNETT:**

Yes

**COUNCIL MEMBER JOSEPH:**

Yes

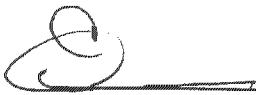
**COUNCIL MEMBER RAMOS:**

Yes



Leon Garcia, Mayor

ATTEST:



Cherri Walton, Deputy City Clerk

APPROVED AS TO FORM:



William D. Ross, City Attorney