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To: HCD 05-12 Plumbing Code

## CHAPTER 2 DEFINITIONS

### 206.0

**Disposal Field.** An intended destination for gray water including but not limited to a mulch basin or receiving landscape feature, gray water leach field, or other approved method of disposal.

### 217.0

**On-Site Treated Nonpotable Water.** Nonpotable water that has been collected, treated, and intended to be used on-site and is suitable for direct beneficial use. Sources for on-site treated nonpotable water include, but are not limited to, gray water; rainwater; stormwater; reclaimed (recycled) water; cooling tower blow-down water; and foundation drainage

### 220.0

**Rainwater.** Precipitation on any public or private parcel that has not entered an offsite storm drain system or channel, a flood control channel, or any other stream channel, and has not previously been put to beneficial use.

**Rainwater Catchment System.** A facility designed to capture, retain, and store rainwater flowing off a building, parking lot, or any other manmade impervious surface for subsequent onsite use. Rainwater catchment system is also known as "Rainwater Harvesting System" or "Rainwater Capture System."

**Receiving Landscape.** Includes features such as soil, basins, swales, mulch, and plants.

**Reclaimed (Recycled) Water.** Nonpotable water that meets California Department of Public Health statewide uniform criteria for disinfected tertiary recycled water. Reclaimed (recycled) water is also known as "recycled water" or "reclaimed water".

### 222.0

**Treated Gray Water.** Non-potable water meeting the definition of "graywater" collected and treated on-site suitable for direct beneficial use.

## Comments

In the City of Los Angeles, the voters approved a bond for \$500,000,000 called Proposition O-Clean Water, Ocean, River, Beach, Bay, Storm Water Cleanup

Measure. With that extensive amount of funding, major Rainwater Harvesting Systems have been financed before this code.

We are concerned about Public Health and Safety because no considerations were given for contamination for humans and animals. In fact, a small group of government and non-profit insiders managed to administerial obtain Guidance approval from the LOS ANGELES COUNTY DEPARTMENT OF PUBLIC HEALTH, so these huge systems could be used. This Guidance (attached) was not approved by a Governing Body, nor was it fact checked as to jurisdictional issues. By that, we mean the Guidance gave jurisdictional authority to City departments who had authority over private land but not public land.

The STATE DEPARTMENT OF PUBLIC HEALTH has no jurisdiction over this water.

The CITY OF LOS ANGELES BUILDING AND SAFETY DEPARTMENT (private land) is given jurisdiction. BUREAU OF CONTRACT ADMINISTRATION (public land) was omitted.

Public Works Departments were included, but not by name. They are:

- BUREAU OF ENGINEERING
- BUREAU OF SANITATION

LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD was given jurisdiction.

Other CITY OF LOS ANGELES departments who legally have jurisdiction are:

- DEPARTMENT OF CITY PLANNING
- DEPARTMENT OF RECREATION AND PARKS
- BUREAU OF SANITATION

City of Los Angeles Governing Authorities are:

- PROPOSITION O CITIZENS OVERSIGHT COMMITTEE
- PROPOSITION O ADMINISTRATIVE OVERSIGHT COMMITTEE
- BOARD OF PUBLIC WORKS
- LOS ANGELES CITY COUNCIL
- MAYOR

This presents a Health Risk.

Public parks have been the recipients of the massive storage tank systems because of the funding, but golf courses have applied for the future funding. Stormwater urban runoff from streets will be captured, not necessarily the rainwater received on a individual parcel.

So far, projects are placed in non-adjudicated Groundwater Basins to avoid problems of groundwater extraction rights.

Private citizens protested the installation in the Temescal Canyon Park (Pacific Palisades) because of its proximity to the shoreline, an unmapped fault line and vibration damage from previous earthquakes. Overweight trucks also present vibration damage. All these considerations were ignored. If damaged, there could be substantial flooding.

The City permitting process occurred first, both a Coastal Permit and the Planning entitlements.

The Coastal Commission permitting process was not circulated to those concerned citizens and the governing body met in the San Diego area for that approval. There is no regulation allowing the public to reasonably attend a public hearing in the matter.

So, we question that some of the DEFINITIONS are lacking consideration of earthquake and/or vibration damage of these gray water systems. Administrative policies trump CEQA California Environmental Quality Act requirements. It is unclear who the AUTHORITY would be under the definitions, as written, or if multiple AUTHORITIES could pick and choose jurisdiction.

Beneficial Uses, in the term of the Water Boards, were never identified. The approach was TMDL Total Daily Maximum Load reduction. This means pollutant loads would be reduced. So, instead of going into the storm drains, the pollutants are captured in these underground storage tanks. One could conclude that water quality is poor.

Recycled water, on the other hand, is under the jurisdiction of the LOS ANGELES DEPARTMENT OF WATER AND POWER and its system of compliance.

## CHAPTER 16 RESERVED

### ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS

**1601.2 System Design.** Alternate water source systems complying with this chapter shall be designed by a person who demonstrates competency to design the alternate water source system as required by the Authority Having Jurisdiction Enforcing Agency. The Authority Having Jurisdiction Enforcing Agency may also require plans and specifications to be prepared by a licensed design professional for Complex Systems. Components, piping, and fittings used in any alternate water source system shall be listed.

**1601.3 Permit.** It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered an alternate water source system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction. Prior to commencing the issuance of permits for indoor gray water systems pursuant to state requirements relating to gray water, a city, county, or other local agency shall seek consultation with the local public health department to ensure that local public health concerns are addressed in local standards or ordinances, or in issuing permits. See California Water Code Section 14877.3.

**1601.5 Maintenance and Inspection.** Alternate water source systems and components shall be inspected and maintained in accordance with Section 1601.5.1 through Section 1601.5.3 the manufacturer's recommendations and/or as required by the Enforcing Agency. [BSC] Where no manufacturers recommendations exist, additional recommendations are listed in Table 1601.5.

**1601.6 Operation and Maintenance Manual.** An operation and maintenance manual for gray water, rainwater, and on-site treated water systems required to have a permit in accordance with Section 1601.3 shall be supplied to the building owner by the system designer or installer. The operating and maintenance manual shall include the following:

- (1) Detailed diagram Diagrams of the entire system and the location of system components.
- (2) Instructions on operating and maintaining the system.
- (3) Details Instructions on maintaining the required water quality as determined by the Authority Having Jurisdiction for on-site treated nonpotable water systems.
- (4) Details on startup, shutdown, and deactivating the system for maintenance, repair, or other purposes.
- (5) Applicable testing, inspection, and maintenance frequencies in accordance with Table Section 1601.5.
- (6) A method of contacting the installer and/or manufacturer(s).
- (7) Directions to the owner or occupant that the manual shall remain with the building throughout the life cycle of the structure.

**1601.7 Minimum Water Quality Requirements.** The minimum water quality for alternate water source systems shall meet the applicable water quality requirements for the intended application as determined by the public health Authority Having Jurisdiction. In the absence of water quality requirements for on-site nonpotable treated gray water systems, the EPA/625/R-04/108 contains recommended water reuse guidelines to assist regulatory agencies develop, revise, or expand alternate water source water quality standards the requirements of NSF/ANSI 350 shall apply.

**Exceptions:**

- (1) Water treatment is not required for rainwater catchment systems used for aboveground irrigation with a maximum storage capacity of 360 gallons (1363 L).

- (2) Water treatment is not required for gray water used for subsurface/subsoil irrigation or a disposal field.
- (3) Water treatment is not required for rainwater catchment systems used for subsurface or drip irrigation.

Note:

**TABLE 1401.1**  
**REFERENCED STANDARDS**  
**STANDARD NUMBER**  
*NSF/ANSI 350 –2011 [BSC]*  
**STANDARD TITLE**

*Onsite Residential and Commercial Water Reuse Treatment Systems, as amended\**

*NSF/ANSI 350, amended sections follow:*

**5.6 Electrical components.** Electrical components . . . NFPA 70 *The California Electrical Code* shall be followed for all electrical components, system installation, and system operation.

**APPLICATION**

*Miscellaneous*

**REFERENCE D SECTIONS**

*1604.10.2*

**Comments**

Again, the designs are not for small areas, but large parcels of land that may be designated as Public Facilities or Open Space.

We have problems with the term:

Authority Having Jurisdiction Enforcing Agency

due to our points that there are many jurisdictions over several local, county and state jurisdictions. So, who is the Lead Agency responsible? You have no method of determination. Who have no requirements for expertise in that area? In the case of a City Planning desk, it may be a plan check item with no real expertise.

Enforcement throughout the code is not clearly defined. This lack of definition usually results in judicial action and the court system decides based on evidence. That may not be in conformance with Public Health and Safety Codes.

In the case of a COUNTY PUBLIC HEALTH DEPARTMENT, you will accept administrative guidelines and not legislative body approved legislation. Administrative approvals trump CEQA requirements. Is the intent of this code to eliminate mitigation and accountability.

Very few cities have their own HEALTH DEPARTMENTS and rely on their COUNTY.

You also delegate to the SYSTEM DESIGNER or INSTALLER the responsibility to deliver an OPERATIONS AND MAINTENANCE MANUAL. Not stated, is the author of that manual and if it requires testing and to what standards.

- Instructions on maintaining the required water quality for on-site treated nonpotable water systems

We assume you are addressing the smaller systems and not addressing these \$18,000,000-\$84,000,000 systems.

Minimum Water Quality Requirements jurisdiction is:  
Authority Having Jurisdiction

This presents a major problem, as multiple authorities can choose who has jurisdiction. When dealing with the possibility of disease, that *Authority Having Jurisdiction* may be clueless as to the responsibility of other State and Federal laws governing such as issue. Proposition O included the ECHO PARK LAKE RESTORATION. Here, no STATE FISH AND GAME permits were pulled nor were FEDERAL MIGRATORY BIRD paths considered. No quarantines took place of birds and fish. There could have been a disease outbreak that could destroy poultry and fish industries. It did upset the ECOSYSTEM of the surrounding WATERSHED.

You, as building experts, do not address those ECOSYSTEMS and their importance to WATER. GRAY WATER is part of that ECOSYSTEM.

## CHAPTER 16 RESERVED ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS

### 1602.0 Gray Water Systems.

**1602.1 General.** The provisions of this section shall apply to the construction, alteration, and repair of gray water systems. A city, county, or city and county or other local government may adopt, after a public hearing and enactment of an ordinance or resolution, building standards that are more restrictive than the gray water building standards adopted in this code. For additional information, see Health and Safety Code Section 18941.7.

**(A)** All gray water systems shall be designed to allow the user to direct the flow to either the subsoil irrigation or subsurface irrigation field or the building sewer. The means of changing the direction of the gray water shall be clearly labeled and readily accessible to the user.

**(B)** Water used to wash diapers or similarly soiled or infectious garments or other prohibited contents shall be diverted by the user to the building sewer.

- (C)** Gray water shall not be used in spray irrigation, allowed to pond or runoff and shall not be discharged directly into or reach any storm sewer system or any surface body of water.
- (D)** Human contact with gray water or the soil irrigated by gray water shall be minimized and avoided, except as required to maintain the gray water system. The discharge point of any gray water subsoil irrigation or subsurface irrigation field shall be covered by at least (2) inches (51 mm) of mulch, rock, or soil, or a solid shield to minimize the possibility of human contact.
- (E)** Gray water may be released above the ground surface provided at least two (2) inches (51 mm) of mulch, rock, or soil, or a solid shield covers the release point. Other methods which provide equivalent separation are also acceptable.
- (F)** Gray water shall not contain hazardous chemicals derived from activities such as cleaning car parts, washing greasy or oily rags, or disposing of waste solutions from
- (1) [HCD] home photo labs or similar hobbyist or home occupational activities.[
  - (2) [BSC] photo labs or similar activities.
- (G)** Exemption from construction permit requirements of this code shall not be deemed to grant authorization for any gray water system to be installed in a manner that violates other provisions of this code or any other laws or ordinances of the Enforcing Agency.
- (H)** An operation and maintenance manual shall be provided to the owner. Directions shall indicate the manual is to remain with the building throughout the life of the system and indicate that upon change of ownership or occupancy, the new owner or tenant shall be notified the structure contains a gray water system.
- (I)** A gray water system shall not be connected to any potable water system without an air gap, reduced-pressure principle backflow preventer or other physical device which prevents backflow and shall not cause ponding or runoff of gray water.

### **1602.3 Connections to Potable and Reclaimed (Recycled) Water Systems.**

Gray water systems shall have no direct unprotected connection to a potable water supply, on-site treated nonpotable water supply, or ~~reclaimed (recycled)~~ water systems. Potable, on-site treated nonpotable, or reclaimed (recycled) water or rainwater is permitted to be used as makeup water for a non-pressurized storage tank provided the connection is protected by an airgap, reduced-pressure principle backflow preventer or other physical device which prevents backflow in accordance with this code.

**1602.4 Location.** No gray water system or part thereof shall be located on a lot other than the lot that is the site of the building or structure that discharges the gray water, nor shall a gray water system or part thereof be located at a point having less than the minimum distances indicated in Table 1602.4.

**Exception:** When there exists a lawfully recorded perpetual and exclusive covenant to an easement appurtenant and right-of-way between adjoining land-

owners of two or more contiguous lots to discharge graywater from one lot to an adjoining lot.

**1602.6 Prohibited Location.** Where there is insufficient lot area or inappropriate soil conditions for adequate absorption to prevent the ponding, surfacing, or runoff of the gray water, as determined by the Authority Having Jurisdiction, **no gray water system shall be permitted.** A gray water system is not permitted on a property in a geologically sensitive area as determined by the Authority Having Jurisdiction.

**1602.7 Drawings and Specifications.** The Authority Having Jurisdiction shall **may** require the following information to be included with or in the plot plan before a permit is issued for a gray water system, or at a time during the construction thereof:

- (1) Plot plan drawn to scale and completely dimensioned, showing lot lines and structures, direction and approximate slope of surface, location of present or proposed retaining walls, drainage channels, water supply lines, wells, paved areas and structures on the plot, number of bedrooms and plumbing fixtures in each structure, location of private sewage disposal system and expansion area or building sewer connecting to the public sewer, and location of the proposed gray water system.
- (2) Details of construction necessary to ensure compliance with the requirements of this chapter, together with a full description of the complete installation, including installation methods, construction, and materials in accordance with the Authority Having Jurisdiction.
- (3) Details for holding tanks shall include dimensions, structural calculations, bracings, and such other pertinent data as required.
- (4) A log of soil formations and groundwater level as determined by test holes dug in proximity to proposed irrigation and/or disposal area, together with a statement of water absorption characteristics of the soil at the proposed site as determined by approved percolation tests.

**Exceptions:**

- (1) The Authority Having Jurisdiction shall permit the use of Table 1602. 4 10 in lieu of percolation tests.
- (2) The Enforcing Agency may waive the requirement for identification of groundwater level and/or soil absorption qualities based on knowledge of local conditions.
- (3) The absence of groundwater in a test hole three (3) vertical feet (915 mm) below the deepest irrigation or disposal point shall be sufficient to satisfy this section unless seasonal high groundwater levels have been documented to rise to within this area.
- (4) A log of soil formations and groundwater level as determined by test holes dug in proximity to proposed irrigation and/or disposal area, together with a statement of water absorption characteristics of the soil at the proposed site as determined by approved percolation tests.

**Exceptions:**

(1) The Authority Having Jurisdiction shall permit the use of Table 1602.4 10 in lieu of percolation tests.

(2) The Enforcing Agency may waive the requirement for identification of groundwater level and/or soil absorption qualities based on knowledge of local conditions.

(3) The absence of groundwater in a test hole three (3) vertical feet (915 mm) below the deepest irrigation or disposal point shall be sufficient to satisfy this section unless seasonal high groundwater levels have been documented to rise to within this area.

(5) Distance between the plot and surface waters such as lakes, ponds, rivers or streams, and the slope between the plot and the surface water, where in close proximity.

#### TABLE 1602.4 LOCATION OF GRAY WATER SYSTEM<sup>7</sup>

##### Notes:

- <sup>3</sup> ~~Reference to a 45 degree (0.79 rad) angle from foundation. Underground tanks shall not be located within a 45 degree angle from the bottom of the foundation, or they shall be designed to address the surcharge imposed by the structure. The distance may be reduced to six (6) inches (153 mm) for aboveground tanks when first approved by the Enforcing Agency.~~

1602.8.3 Daily Discharge. Gray water systems using tanks shall be designed to minimize the amount of time gray water is held in the tank and shall be sized to distribute the total amount of estimated gray water on a daily basis.

Exception: Approved on-site treated nonpotable gray water systems.

**1602.10.2 Determination of Maximum Absorption Capacity.** The irrigation field and mulch basin size shall be based on the maximum absorption capacity of the soil and determined using Table 1602.10. For soils not listed in Table 1602.10, the maximum absorption capacity for the proposed site shall be determined by percolation tests or other method acceptable to the Authority Having Jurisdiction. A gray water system shall not be permitted, where the percolation test shows the absorption capacity of the soil is unable to accommodate the maximum discharge of the proposed gray water irrigation system.

Exception: The Enforcing Agency may waive the requirement for identification of groundwater level and/or soil absorption qualities based on knowledge of local conditions.

**1602.10.3 Groundwater Level.** No excavation for an irrigation field, disposal field, or mulch basin shall extend within 3 feet (914 mm) vertical of the highest known seasonal groundwater level, nor to a depth where gray water contaminates the groundwater or surface water. The applicant shall supply evidence of groundwater depth to the satisfaction of the Authority Having Jurisdiction.

Note: The absence of groundwater in a test hole three (3) vertical feet (915 mm) below the deepest irrigation or disposal point shall be sufficient to satisfy this section unless seasonal high groundwater levels have been documented to rise to within this area.

## Comments

Gray water systems, in the larger systems, are being designed for irrigation watering and runoff affiliated with those systems. Because these are huge stormwater capture systems, they may contain runoff from surrounding properties and streets. It would be impossible to exempt hazardous chemicals derived from activities involving cars or waste solutions. Not considered is contact with birds and animals and resulting contamination and possible disease.

We find the use of a manual interesting and very limited to home ownership. Buildings are usually managed and public facilities are, in essence, managed also. There would be no way of enforcing such a requirement, outside of an escrow instruction.

Prohibited locations would need a soil test. That is an item that would not necessarily be required by the public oversight BUREAU OF CONTRACT ADMINISTRATION on public property. Groundwater levels need to be considered as well as liquefaction factors. Also, Methane Buffer Zones should be a factor. We find that oil still surfaces in Los Angeles as well as migrating gases.

Blanket approvals on these large projects can occur the way this code is written with waivers.

Daily discharges would be based on wet-weather conditions for these large tanks, not daily conditions. The purpose of stormwater capture is to reduce TMDL Total Daily Maximum Loads into Receiving Waters.

*Local condition* exemptions would be based on need to reduce TMDLs in these large systems.

## CHAPTER 16 RESERVED

### ALTERNATE WATER SOURCES FOR NONPOTABLE APPLICATIONS

**1604.10.2 Minimum Water Quality.** On-site treated nonpotable *gray* water supplied to toilets or urinals or for other uses in which it is sprayed or exposed shall be disinfected. Acceptable disinfection methods shall include chlorination, ultraviolet sterilization, ozone, or other methods as approved by the Authority Having Jurisdiction. The minimum water quality for on-site treated nonpotable *gray* water systems shall meet the applicable water quality requirements for the intended applications as determined by the public health Authority Having

Jurisdiction. In the absence of local water quality requirements for on-site treated nonpotable gray water, Section 1601.7 shall apply.

**1604.10.6 Disinfection.** Where the intended use of on-site treated non potable gray water requires disinfection and/or other treatment, on-site treated nonpotable gray water shall be disinfected as needed to ensure the required water quality is obtained at the point of use. Where chlorine is used for disinfection or treatment, water shall be tested for residual chlorine in accordance with ASTM D 1253.

**1604.12 Inspection and Testing.** On-site treated nonpotable gray water systems shall be inspected and tested in accordance with Section 1604.12.1 and Section 1604.12.2 and/or as required by the Authority Having Jurisdiction.

### Comments

LADWP Los Angeles Department of Water and Power is setup to test under Title 22 Water. With gray water in large systems, there may not be a HEALTH DEPARTMENT within jurisdiction and the Inspection and Testing aspect should not be left in a department that is not staffed, trained and budgeted to do so.

## CHAPTER 17 NONPOTABLE RAINWATER CATCHMENT SYSTEMS

CBSC proposes to adopt Chapter 17 of the 2012 UPC with the following amendments.

**1701.1 Applicability.** The provisions of this chapter shall apply to the installation, construction, alteration, and repair of nonpotable rainwater catchment systems. In addition, applicable provisions in Chapter 16, Sections 1601.0 through 1601.9 for "Alternate Water Sources For Nonpotable Applications" shall apply to rainwater catchment systems.

**1702.1 General.** The installation, construction, alteration, and repair of rainwater catchments systems intended to supply uses such as water closets, urinals, trap primers for floor drains and floor sinks, irrigation, industrial processes, water features, cooling tower makeup and other uses shall be approved by the Authority Having Jurisdiction.

**1702.2.1 Permit.** It shall be unlawful for a person to construct, install, alter, or cause to be constructed, installed, or altered a nonpotable rainwater catchment system in a building or on a premise without first obtaining a permit to do such work from the Authority Having Jurisdiction.

**Exception:** A permit is not required for exterior rainwater catchment systems used for outdoor non-spray irrigation with a maximum storage capacity of 5000 gallons (18 927L) where the tank is supported directly upon grade and the ratio of height to diameter or width does not exceed 2 to 1, and it does not require electrical power or a makeup water supply connection.

**1702.9.3 Collection Surfaces.** *Rainwater shall be collected from roof surfaces or other impervious manmade, above-ground collection surfaces. Rainwater collected from surface water runoff, vehicular parking surfaces or manmade surfaces at or below grade shall comply with the water quality requirements for on-site treated nonpotable gray water in Section 1604.0.*

**Exception:** *Collected rainwater or storm water used exclusively for subsurface landscape irrigation.*

**1702.9.4 Minimum Water Quality.** The minimum water quality for harvested rainwater shall meet the applicable water quality requirements for the intended applications as determined by the Authority Having Jurisdiction. ~~No treatment is required for rainwater used for subsurface or non-sprinkled surface irrigation where the maximum storage volume is less than 360 gallons (1363 L).~~ *In the absence of water quality requirements for harvested rainwater Table 1702.9.4 shall apply.*

**Exception:**

*No treatment is required for rainwater used for non-spray irrigation where the maximum storage volume is less than 5000 gallons (18 927L) where the tank is supported directly upon grade and the ratio of height to diameter or width does not exceed 2 to 1.*

**1702.9.4.1 Disinfection.** *Where the initial quality of the collected rainwater requires disinfection or other treatment or both, the collected rainwater shall be treated as necessary to ensure the required water quality is delivered at the point of use. Where chlorine is used for disinfection or treatment, water shall be tested for residual chlorine in accordance with ASTM D 1253. The levels of residual chlorine shall not exceed the levels allowed for the intended use in accordance with the requirements of the local enforcing agency.*

### Comments

Is Chapter 16 being adopted, or only by certain agencies.

Collection surfaces catchment is exactly the purpose to address the regulatory concerns of the LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD on behalf on the US ENVIRONMENTAL PROTECTION AGENCY under permitting to the LOS ANGELES COUNTY FLOOD CONTROL DISTRICT and sub-permittee to CITY OF LOS ANGELES BUREAU OF SANITATION.

Who is considered the ENFORCING AUTHORITY here-LA REGIONAL WATER QUALITY CONTROL BOARD or USEPA.

Gray water is complex.

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Attachment:  
LACDPH RainwaterMatrix