UNIFORM DESIGN STANDARDS FOR POTABLE WATER DISTRIBUTION SYSTEMS

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1.00 GENERAL STATEMENT

The Las Vegas Valley Water District, the Big Bend Water District and the Cities of Henderson, North Las Vegas, and Boulder City are governmental subdivisions of the State of Nevada which provide municipal water service. The Uniform Design and Construction Standards For Potable Water Distribution Systems presented herein has been adopted by the participating Agency's governing body and represent the minimum design and construction criteria for water distribution systems within the participating Agency's jurisdiction. The Contractor will be required to have a copy of these Standards on-site at all times during construction.

Except as expressly set forth in these Standards or otherwise directed by the Agency, the Developer or Contractor shall select the means, methods, and sequences for constructing facilities in accordance with these Standards. The participating Agency is not concerned with the means, methods, or sequences, only the results. The Developer or Contractor may petition each Agency for a variance to these Standards on a case by case basis.

Except as expressly set forth in a written agreement approved by the governing body for the participating Agency, the Developer or the Contractor shall pay all costs of constructing facilities in accordance with these Standards. Except as expressly set forth in a written agreement approved by the participating Agency's governing body, the participating Agency assumes no liability for, and does not agree to pay any costs of, constructing facilities. No statements, actions, or omissions of any participating Agency officer or employee may be construed as an assumption of liability for, or an agreement to, pay any costs of constructing facilities. The participating Agency's governing body has not delegated any respective Agency officer or employee nor any other person any authority to assume liability for or agree to pay costs of constructing facilities.

Where there is a conflict between the Agency rules, regulations or ordinances and these Uniform Design Standards, the Agency rules, regulations or ordinances shall supersede these Standards.

1.01 DEFINITIONS

1.01.01 Agency

The Las Vegas Valley Water District, located at
1001 South Valley View Boulevard
Las Vegas, Nevada 89153; (702) 258-3165 or 258-3166.

The City of Henderson, located at
240 Water Street
Henderson, Nevada 89015; (702) 565-2103.

The City of North Las Vegas, located at
2266 Civic Center Drive
North Las Vegas, Nevada 89036; (702) 649-1278.

The City of Boulder City, located at
401 California Avenue
Boulder City, Nevada 89005; (702) 293- 9200.

The Big Bend Water District, located at
5857 East Flamingo Road
Las Vegas, Nevada 89122; (702) 434-6600 - LV;
(702) 298-3113 - Laughlin.

1.01.02 Agency's Representative

The individual duly authorized by the Agency to act as the agent for an Agency or a jurisdiction.

1.01.03 Air Binding

A condition in which air accumulates in the higher points of a distribution main thus restricting the flow in the main.

1.01.04 Air-Gap

A physical separation between the free flowing discharge end of a potable water supply pipeline and an open or non-pressurized receiving vessel. An "approved air-gap separation" shall be at least double the supply pipe diameter measured vertically above the vessel's overflow rim and in no case less than one (1) inch (2.54 cm).

1.01.05 Air-Relief

Releasing of entrapped air during filling or releasing entrained air which will accumulate and cause flow resistance with subsequent downstream pressure loss and even complete flow blockage.

1.01.06 Air Vacuum Air Relief Valve (AVAR)

An air valve placed at the summit of a pipeline (1) to release air automatically and prevent air binding and pressure buildup or (2) to allow air to enter a line if the internal pressure becomes less than that of the atmosphere.

1.01.07 Alternate Fire Service Meter

(See “Fire Service Meter Type II”).

1.01.08 Altitude Control Valve

A valve that automatically:

A. Shuts off the flow of water when the water level in a storage structure reaches a predetermined elevation; and

B. Opens when the water level in the storage structure lowers to a predetermined elevation.

1.01.09 Angle Meter Stop

(See “Meter Stop”).

1.01.10 Appurtenances

Any machinery, appliances, structures and other parts of the main structure that will enable the main structure to function but is not considered part of the main structure.

1.01.11 Assessor’s Parcel Number

A number found in real property records. This number is assigned by Clark County to identify and track a particular piece of property.

1.01.12 Aquifer

A geologic formation, group of geologic formations, or part of a geologic formation that is capable of yielding ground water to a well or spring.

1.01.13 Atmospheric Vacuum Breaker

A device consisting of a float check, a check seat, an air inlet port, and possibly a shutoff valve immediately upstream, designed to allow air to enter the downstream water line to prevent backsiphonage.

1.01.14 Atmospheric Vacuum Breaker Automatic Control

A system for the control of Vacuum Breakers without human intervention under normal conditions.

1.01.15 Auxiliary Water Supply

A supply of water or system for the supply of water which is available to the premises of a customer of a public water system, other than the supply or system of the public water system established to provide water to the premises, including another public water system or any natural source of water.

1.01.16 Average Day Demand

The average daily demand for water over a one-year period, as determined by historical data.

1.01.17 Backfill

The material used to refill an excavation.

1.01.18 Backflow

A hydraulic condition, caused by a difference in pressures, that causes nonpotable water or other fluid to flow into a potable water system.

1.01.19 Backflow Preventer

The physical appurtenance or assembly designed to prevent backflow.

1.01.20 Backflow Prevention Assembly - Approved

An assembly or means investigated and approved by the Agency having jurisdiction designed to prevent backflow.

1.01.21 Backflow Testing Laboratory

The Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California; or any other person or entity who the

Nevada Department of Human Resources Health Division authority determines:

A. Is competent and possesses the necessary facilities to investigate and evaluate backflow prevention assemblies;

B. Adheres to the testing and certification procedures set forth in the American Water Works Association Standards; and

C. Is independent of any backflow prevention assembly manufacturer.

1.01.22 Backpressure

An elevation in the downstream pressure of a piping system above the supply pressure which:

A. Is caused by pumping, air pressure, steam, or the elevation of piping; and

B. Could cause a reversal in the normal direction of flow at a particular point.

1.01.23 Backsiphonage

A form of backflow due to a reduction in system pressure which causes a negative or sub-atmospheric pressure to exist at a point in the Agency's water system allowing water from the customer's system to enter the Agency's supply system.

1.01.24 Ball Valve

A valve with the closing and opening mechanism formed in the shape of a ball with a hole. The valve is opened by rotating to the flow, allowing it to pass. The valve is closed when the hole is perpendicular to the flow.

1.01.25 Bell-shaped

Having an expanding rounded entrance.

1.01.26 Blow-Off Assembly

An assembly which consists of a valve that is installed at a low point, or at the end of a pipeline, and is used primarily for purging or blowing-off accumulated sediment from low spots or dead-ends in the main and for de-watering lines or reservoirs for repairs or inspections.

1.01.27 Butterfly Valve

A valve in which a disk rotates on a shaft such that the valve is fully open when the disk is parallel to the axis of the pipe and fully closed when perpendicular.

1.01.28 Bypass Valve

A small valve attached to a much larger valve to (equalize) pressure against the main valve seat when opening or closing the main valve.

1.01.29 Casing

A. The conduit required to prevent waste and contamination of ground water and to hold the formation open during the construction or use of a well; or

B. The enclosure surrounding an impeller, into which the suction and discharge ports are machined.

1.01.30 Cement Grout

A mixture of portland cement, sand, and water which contains at least seven sacks of cement per cubic yard and not more than 7 gallons of clean water for each sack of cement

1.01.31 Cement Slurry

A mixture of cement and sand (without aggregate) which:

A. Has a cured compressive strength of 300 psi;

B. Can be excavated with minimal difficulty; and

C. Can provide a uniform support for pipes and backfill in a trench.

1.01.32 Certified Backflow Prevention Assembly Tester

A person who is certified by the California/Nevada section of the American Water Works Association to test assemblies designed for the prevention of backflow.

1.01.33 Check Valves

A valve that allows flow in one direction and that closes when the flow tries to reverse.

1.01.34 Chlorination

The disinfecting process of adding chlorine to water to:

A. Kill or inactivate organisms that cause disease; or

B. Act as an oxidizing agent.

1.01.35 Chlorinator

A device used to add chlorine, or a compound that contains chlorine, to water.

1.01.36 Chlorine Residual

A concentration of chlorine species present in water after the oxidant demand has been satisfied.

1.01.37 Coliform Bacteria

A group of bacteria that inhabits the intestines of humans and animals, and is occasionally found in other habitats, including:

A. All aerobic and facultative anaerobic, Gram-negative bacilli that do not form spores and which cause the production of gas through the fermentation of lactose; and

B. All bacteria that produce a dark purplish-green colony with a metallic sheen when the membrane-filter technique is used for the identification of coliform.

1.01.38 Combined Service

A metered service connection through which water is obtained for the dual purpose of fire protection and domestic use.

1.01.39 Commitment for Water Service

A document pursuant to which a supplier of water acknowledges that it has assumed a legal obligation to supply water to property under development or proposed to be developed for residential, commercial, or industrial purposes. The document may indicate that the obligation is subject to certain conditions precedent, including, without limitation, the payment of fees, the dedication of water rights, or the construction and dedication of infrastructure.

1.01.40 Concentric Reducer

A reducer used to connect a larger pipe to a smaller pipe in such a manner as to align the center lines of both pipes.

1.01.41 Concrete

A mixture of Portland cement, sand, 1/4-inch minus aggregate, and water which contains at least five bags of cement per cubic yard of concrete and not more than 7 gallons of clean water for each bag of cement.

1.01.42 Construction Water

Metered water delivered for construction purposes including, but not limited to, compaction and dust control.

1.01.43 Contamination

A potable water quality impairment by sewage, industrial fluids, or waste liquids, compounds, or other materials to a degree that creates an actual or potential hazard to the public health.

1.01.44 Contractor

The construction firm properly licensed in the State of Nevada retained to install water facilities in accordance with these Standards.

1.01.45 Controlled Low Strength Material (CLSM)

Backfill material consisting of low strength, self-leveling concrete material per USS 208.02.06. (Known as the Blue Book).

A. Have a design compressive strength at an age of 28 days within the ranges required in the table below for the specified class:

1. Class I (50 to 150 psi): Specified when the maximum strength is of primary concern due to the desire to have material that can be excavated in the future with relative ease.

2. Class II (100 to 300 psi): Specified where the minimum strength is of primary concern for pipe support.

3. Class Special (as shown in project specifications or drawings): Specified where project unique criteria, such as erosion control, are the primary concern.

B. Class I: Can be excavated with a backhoe with minimal difficulty.

C. Class I: Can provide uniform support for pipes and backfill in a trench.

D. Proportioning and testing shall be in accordance with USS 208.02.06.

1.01.46 Corporation Stops

A water service shutoff valve located on a service lateral at the connection to the water main. This valve cannot be operated from the ground surface because it is buried and there is no valve box. Also called a corporation cock.

1.01.47 Cross-Connection

An unprotected connection or structural arrangement, whether actual or potential, between a public water system and any other source or system, through which it is possible to introduce into any part of the public water system any used water, industrial fluid, gas, or substance other than the potable water intended to supply the system. The term includes any bypass arrangements, jumper connections, removable sections, swivel or changeover devices, or other temporary or permanent devices through which or because of which backflow can occur.

1.01.48 Cross-Connection Control

The installation of an approved backflow prevention assembly at the water service connection to any customer's premises where it is physically or economically not feasible to find, and permanently eliminate or control, all actual or potential cross-connections within the customer's water system; or, it shall mean the installation of an approved backflow prevention assembly on the service line leading to and supplying a portion of a customer's water system where there are actual or potential cross-connections which cannot be effectively eliminated or controlled at the point of cross-connection.

1.01.49 Curb stop

A valve that is attached to a service line and can be operated by a valve key to start or stop the flow of water.

1.01.50 Dead-end Mains

A water main which ends in a cap plug or blow off. The design and use of dead-end mains is to be avoided (cul-de-sacs) due to water quality problems, and distribution system reliability considerations.

1.01.51 Design and Construction Standards for Waste Water Collection Systems

Minimum design and construction criteria for sanitary sewer systems within the jurisdiction of the participating agencies.

1.01.52 Dedicated Public Rights-of-Ways

A plot of ground which, by owner definition, has been reserved for the public's use or betterment. The uses are, but not limited to, utilities, roadways, and flood control.

1.01.53 Detector Tape

A metallic tracer tape or wire which is detectable by electronic finders running along the pipe crown.

1.01.54 Developer

The individual, corporation or partnership that requires water service, either by a service lateral installation or by constructing a water main extension for a proposed or existing structure(s).

1.01.55 Developer's Engineer

(See "Engineer").

1.01.56 Disinfection

The process of destroying or inactivating pathogenic organisms (bacteria, viruses, fungi, and protozoa) by either chemical or physical means.

1.01.57 Distribution Main

Any pipe in a distribution system other than a service line.

1.01.58 Distribution Storage

(See “Reservoir”).

1.01.59 Domestic Service

A metered service connection through which water is obtained for all purposes exclusive of fire protection, including residential, commercial, and industrial uses.

1.01.60 Double Check Detector Assembly (DCDA)

An assembly composed of a line-sized, approved, double check valve assembly and a bypass line water meter with an approved, meter-sized, double check valve assembly.

1.01.61 Double Check Valve Assembly

An assembly which:

A. Is composed of two independently acting, approved check valves;

B. Has tightly closing, resilient seated shutoff valves attached at each end;

C. Is fitted with properly located, resilient seated test cocks; and

D. Has been tested and approved, in accordance with American Water Works Association Standard C510, by an approved backflow testing laboratory.

1.01.62 Double Strap Service Saddle

A pipe tapping saddle used for installing a service lateral. This saddle has two separate bands to tighten to achieve a leak-proof seal.

1.01.63 Easement

A plot of land reserved under County recording that allows the Agency ingress and egress to Agency facilities on private property (outside the public right-of-way).

1.01.64 Eccentric Reducer

A reducer used to connect a larger pipe to a smaller pipe in such a manner that one edge of both pipes is aligned.

1.01.65 Emergency

A situation in which an unusual calamity, including a flood, fire, storm, earthquake, drought, civil disturbance, accidental spill of a hazardous material, or similar occurrence, disrupts the provision of water by a public water system or endangers the quality of water provided by a pubic water system.

1.01.66 Engineer

The consulting Civil Engineer, licensed in the State of Nevada, who is working for a developer or owner.

1.01.67 Existing public water system

A system for providing to the public, water for human consumption through pipes or other constructed conveyance and is operational.

1.01.68 Final Map

A final map has the meaning ascribed to it in NRS 278.0145.

1.01.69 Finished Water or Potable Water

Water that has been treated or otherwise developed in a manner that complies with NAC 445A.450 to 445A.540.

1.01.70 Fire Authority

The county, city, town, special district, or Agency responsible for fire protection in the area of service of a public water system.

1.01.71 Fire Demand

The total quantity of water required for protection from fire, as determined by the fire authority and expressed in gallons per minute for a specified number of hours.

1.01.72 Fire Flow

The rate of the flow of water, as determined by the fire authority and expressed in gallons per minute, which:

A. Is required for protection from fire; and

B. Can be delivered from a distribution system at a residual pressure of 20 psi at a fire hydrant.

1.01.73 Fire Service Meter

A meter design and sized for domestic and fire service, in accordance with AWWA C-703 consisting of one of the following types:

TYPE I:

A main-line proportional type meter having an unobstructed passageway of essentially the full pipe size for measuring high flow rates, with a bypass meter, with check valve of appropriate size for measuring domestic low flow rates. The meter shall have an automatic valve mechanism for diverting low flow rates through the bypass meter (Previously referred to as Fire Service Meter or FMCT.).

TYPE II:

A main-line turbine meter (Class II) having an UL/FM fire service strainer, with a bypass meter with check valve of appropriate size for measuring domestic low flow rates. The meter shall have an automatic valve mechanism for diverting low flow rates through the bypass meter(Previously referred to as Alternate Fire Service Meter or FSM).

TYPE III:

A mainline turbine meter (Class II) having UL/FM fire service strainer, without check valve. Used for domestic and fire services.

1.01.74 Fire Sprinkler System

A system of piping which is connected to a public water system and has sprinklers that automatically discharge water over the area of a fire.

1.01.75 Flexible Coupling

A joint between two pipes that allows one of the pipes to be deflected without disturbing the other pipe.

1.01.76 Flowable Backfill

(See "CLSM – Controlled Low-Strength Material).

1.01.77 Gate Valve

A valve in which a disk slides across an opening to stop the flow of water.

1.01.78 Globe Valve

A valve that has a round opening to let liquid pass and that closes when a stem is turned to press a disk against the round opening. Globe valves are used in plumbing where numerous openings and closings are anticipated.

1.01.79 Head

A measure of water pressure expressed in feet of water.

1.01.80 Head Loss

A reduction in pressure as a result of friction.

1.01.81 Header

A pipe fitting with several branches for the conveyance of water.

1.01.82 Health Authority

The officers and agents of the health division; Bureau of Health Protection Services, State of Nevada, Department of Human Resources.

1.01.83 Hydraulic Analysis

The engineering process used to determine the pressure and flow requirements for a networked system of water mains and appurtenances either existing or proposed (See "Section 2.03").

1.01.84 Hydraulic Grade Line (HGL)

If a pipe is under pressure, the HGL is the level water would rise to in a small tube connected to the pipe freely vented to atmospheric pressure. Also, equal to the pressure at a given point in the distribution system, in feet, plus the elevation.

1.01.85 Idler

"Idler" shall be a length of pipe installed in lieu of a meter (Use of an idler is not allowed).

1.01.86 Inspector

The Agency representative authorized to make detailed inspections for compliance with these standards.

1.01.87 Isolation Valve

A valve, including a ball valve, butterfly valve, gate valve, globe valve, or other type of valve, installed in a pipeline to shut off the flow of water in a portion of the pipeline for the purpose of inspection or repair.

1.01.88 Junction Node

A point in a hydraulic analysis where there is an input, demand or known set of values not subject to variation in the analysis.

1.01.89 Maximum Day Demand

The maximum daily demand for water over a one-year period, as determined by historical data.

1.01.90 Mechanical Joint

A pipe joint that uses a combination of bolts, flanges, gaskets, locking rings.

1.01.91 Mechanical Joint Tapping Casings

A fitting used when making large pipe diameter taps on existing water mains. The opening cut in the main is not threaded and a shut-off valve is used instead of a corporation stop.

1.01.92 Mechanically Restrained Joint

A pipe joint which has been secured using a method of restraint in addition to the typical mechanical joint fitting.

1.01.93 Meter Box

An enclosure constructed of approved materials protecting one or more water meters installed in the ground outside and allows access for a person to read the meters.

1.01.94 Meter Stop or Angle Meter Stop or Curb Stop

An isolation valve located in a meter box on a water service lateral.

1.01.95 Network Hydraulic Analysis

(See "Hydraulic Analysis").

1.01.96 Nominal Size

The commercial designation used by manufacturers for the diameter of a casing or pipe.

1.01.97 Non-Potable

Water that may contain objectionable pollution, contamination, minerals, or infective agents and is considered unsafe, unpalatable, or both for drinking.

1.01.98 Optimum Moisture Content

The water content (expressed in percent, dry weight) at which a given soil can be compacted to its maximum density by means of a standard method of compaction.

1.01.99 Owner

The individual, corporation, or partnership who owns the parcel of land to be developed.

1.01.100 Peak Hour Demand

The volume of water which must be supplied by a public water system to meet the demand of its customers for water during the hour that the maximum amount of water during a yearly period, as determined by historical data.

1.01.101 pH

The hydrogen ion concentration in moles per liter. A solution of pH 0 to 7 is acid, pH 7 is neutral, and pH over 7 to 10 is alkaline.

1.01.102 Pipe Casing

A protective conduit into which a pipe is inserted.

1.01.103 Pipe Zone

The full trench excavation width from the top of the compacted pipe foundation to an elevation at least 12 inches above the outside top of the pipe bell.

1.01.104 Plumbing Code

Except as otherwise modified by local ordinance pursuant to NRS 444.340 to 444.430, inclusive, the International Plumbing Code or Uniform Plumbing Code as adopted by the Agency having jurisdiction.

1.01.105 Pressure Reducing Valve (PRV) or Pressure regulator

A valve for automatically sustaining or reducing water pressure in a main, lateral, or service line at or to a preset value. The term includes a pressure-reducing valve, a pressure-sustaining valve, and a valve that incorporates both features.

1.01.106 Pressure Regulating Valve

A valve to protect against downstream static pressure damage. Should the downstream flow be stopped, the regulator immediately responds and limits the downstream pressure thus preserving the integrity of the downstream pipe and appurtenances.

1.01.107 Pressure Relief Valve

A valve that opens automatically when the water pressure reaches a preset limit.

1.01.108 Pressure Vacuum Breaker

A vacuum breaker that:

A. Contains an independently operating, internally loaded approved check valve, and an independently operating, loaded air inlet valve located on the discharge side of the approved check valve; and

B. Is equipped with properly located, resilient seated test cocks and tightly closing, resilient seated shutoff valves that are attached at each end of the assembly.

1.01.109 Pressure Zones

Geographical areas of a distribution system which are served by a tank, reservoir, or pump system having a specified source head. A pressure zone may be completely isolated from the remaining distribution system or it may be interconnected through open, closed, and pressure regulating valves.

1.01.110 Private Fire Service

An approved service connection through which water is obtained exclusively for fire protection.

1.01.111 Private Water Facilities

"Private Water Facilities" are all water facilities not owned by the Agency after completion.

1.01.112 Property Line Frontage

The length of private property to which a main is being installed essentially parallel to in the public right-of-way or easement. That portion of the property or easement along the right-of-way.

1.01.113 Proportional Meter

A device where a certain proportion of the total flow is diverted through a bypass meter and measured. The measuring bypass meter gears are adjusted to indicate, on its register dial, the total water volume passing through the whole unit. The flows in the bypass line and the main pipe are proportional to the ratio of the areas of the bypass line and the main pipe.

1.01.114 Public Water Facilities

The water facilities owned, operated, and maintained by the Agency after completion and acceptance.

1.01.115 Public Water System

Any system, regardless of ownership, which provides the public with piped water for human consumption, if the system has 15 or more service connections used by residents throughout the year or regularly serves 25 or more persons for 60 or more days a year. A public water system includes:

A. Any facility for the collection, pumping, treatment, storage, or distribution of water which is under the control of the operator of the system and used primarily in connection with the system; and

B. Any facility for the collection or pretreatment storage of water which is not under the control of the operator of the system but used primarily in connection with the system.

1.01.116 Raw Water

Water that is not suited for human consumption without treatment.

1.01.117 Reaction Blocking

(See “Thrust Block”).

1.01.118 Reduced Pressure Detector Assembly (RPDA)

An approved assembly designed to protect against pollution and contamination which is composed of a reduced pressure principle assembly and a bypass that contains a water meter and another reduced pressure principle assembly. Has been tested and approved, in accordance with American Water Works Association Standard C511, by an approved backflow testing laboratory.

1.01.119 Reduced Pressure Principle Assembly (RPPA)

An assembly that contains:

A. Two independently acting approved check valves; and

B. A hydraulically operating, mechanically independent pressure relief valve that is located between the approved check valves and below the upstream check valve;

C. Has properly located, resilient, seated test cocks and tightly closing, resilient, seated shutoff valves at each end of the assembly;

D. Is designed to protect against pollution and contamination under conditions of backsiphonage or backpressure; and

E. Has been tested and approved, in accordance with American Water Works Association Standard C511, by an approved backflow testing laboratory.

1.01.120 Reducer

A pipe or pipe fitting that has a smaller opening at one end than at the other end.

1.01.121 Residual Pressure

The pressure remaining in the mains of a water distribution system when water is being withdrawn from the distribution system at a particular rate of flow.

1.01.122 Sack of Cement

One cubic foot (or 94 pounds) of cement.

1.01.123 Sanitary Sewer

An underground system of sewer lines for the collection and conveyance of wastewater from a home or community.

1.01.124 Sanitary Survey

An on-site evaluation of a public water system to determine whether the water sources, facilities, equipment, processes, administration, operation, and maintenance of the system are adequate for the production and distribution of safe and reliable drinking water.

1.01.125 Service Connection

The point of connection between a public water system and the water system used by a customer of the public water system, at which the public water system loses its authority and control over the water;

If a meter is installed at a connection between a public water system and the water system used by a customer of the public water system, the downstream end of the meter shall be considered the point of service connection.

1.01.126 Service Line or Lateral for Water

The pipe and all appurtenances located between a water main of a distribution system and service connection.

1.01.127 Service Saddle

A fitting (casing) which allows for the use of a threaded corporation stop on pipe.

1.01.128 Set Point

The pressure or flow that an automatic control is designed to maintain.

1.01.129 Sewer

(See “Sanitary Sewer” or “Storm Drain”).

1.01.130 Sewer Line

A pipe or conduit and any appurtenances, including catch basins and manholes, used to convey wastewater or surface drainage.

1.01.131 Sewer Main

Those pipelines installed in dedicated easement or right-of-way designed to receive tributary wastewater flows from one or more service laterals.

1.01.132 Sewer Service Lateral

A pipe or conduit that connects a building or other property to a sewer main.

1.01.133 Soil Bearing Capacity

The maximum unit pressure which a soil will withstand without failure or, without settlement to an amount detrimental to the structural integrity or function.

1.01.134 Spacer

A length of perforated pipe installed in lieu of a meter or idler on a temporary basis while facilities are under construction.

1.01.135 Spool

A short section of pipe with flanged ends.

1.01.136 Standards

The Uniform Design and Construction Standards for Potable Water Distribution Systems, latest edition as amended by each Agency.

1.01.137 Standard Plates

The illustrations in Section 5 of the Uniform Design and Construction Standards for Potable Water Distribution Systems, latest revision as amended by each Agency, also referred to as UDACS Plates.

1.01.138 Static Pressure (Head)

A. The pressure recorded in the distribution system at any given location without accounting for the pressure drop due to flowing water (zero demand conditions).

B. When water is not moving, the vertical distance (in feet) travel specific point to the free water surface multiplied by 0.433 psi/ft, or;

C. A measure of the energy possessed or pressure exerted by water at a given location in the water system, expressed in feet.

1.01.139 Steel Fabricated Tapping Casings

A fitting used on a water distribution pipe (main) which allows for the water pipe to be tapped while in continuous use by utilizing the proper valves and tools.

1.01.140 Storm Drain

An underground system of pipelines and appurtenances for the collection and conveyance of surface drainage and other materials deposited into and borne by surface water to a point of disposal.

1.01.141 Subdivision

Subdivision has the meaning ascribed to it in NRS 278.320.

1.01.142 Supplier of Water

A person or other entity, including a governmental entity, which owns or operates a public water system.

1.01.143 Surge Pressure

A momentary increase in the pressure of water in a pipeline caused by a sudden change in the velocity or the direction of flow of the water.

1.01.144 Tail Piece

The portion of the service lateral extending from the meter to the property line or backflow device.

1.01.145 Tapping Pit

An excavation used for the purpose of performing a tap (wet or dry) to the distribution system.

1.01.146 Temporary Fire Hydrant

A fire hydrant classified as "temporary" due to its projected useful life and in no way reflects a lesser standard of construction. Its installation will be the same as a permanent fire hydrant.

1.01.147 Temporary Service

Includes all service connections for temporary delivery of water for use during the construction of subdivisions, other construction projects, and in certain instances, for emergency services.

1.01.148 Tentative Map

Tentative map has the meaning ascribed to it in NRS 278.019.

1.01.149 Thrust Anchor

A block of concrete that is cast in place below a fitting and tied to the fitting with anchor rods for the purpose of anchoring the fitting against vertical thrust.

1.01.150 Thrust Block

A block of concrete, which may contain reinforcing steel, placed and sized to counteract the thrust or force developed in a water main when it changes direction abruptly.

1.01.151 Transmission Main

Large diameter pipelines used exclusively for moving water from one point to another. Valved outlets, if allowed, are typically at uniform distances and there are no service laterals allowed from the pipe. A water main that transports water from the main supply or source to a distant area where the water is distributed through distribution lines.

1.01.152 Treatment Facility

A facility for the treatment of water of a public water system.

1.01.153 Type II Backfill Material

An aggregate fill material with a specific sieve analysis, plasticity index and proctor as listed in Section 4, Table G. Type II material as specified in this Standard may be different than Type II material referenced in other publications but is as listed in the Uniform Standard Specifications for Public Works Construction Off-Site Improvements and the Improvement Standards, Department of Public Works, Clark County, Nevada.

1.01.154 Type III Backfill Material

Also known as Type II Backfill Material (Modified). An aggregate fill material with a specific sieve analysis, plasticity index and proctor as listed in Section 4, Table G. A majority of natural soils in the Las Vegas area fall under this category. Modified Type II material may be used in locations where Type II material is specified with prior Agency approval.

1.01.155 Union

A mechanical coupling or adapter that is used to connect two pieces of pipe.

1.01.156 Vacuum Breaker

A mechanical device that allows air into a piping system and thereby prevents the backflow that could result when a partial vacuum creates a siphoning action.

1.01.157 Valve Box

A housing that encloses the operating nut of a valve and extends to the ground surface, allowing an access opening for an operating or valve key to be inserted and connected to the operating nut so that the valve may be opened and closed.

1.01.158 Warning Tape

A plastic tape of the color reserved for the applicable utility (i.e., blue tape for potable water).

1.01.159 Wastewater

Water which, as a result of domestic, commercial, or industrial use, contains physical, chemical, or biological impurities.

1.01.160 Water Commitment

An Agency determined allocation of water committed to a land parcel (property) which allows for the continued development of that land parcel.

1.01.161 Water Hammer

A potentially damaging slam, bang, or shudder that occurs in a pipe when a sudden change in water velocity, usually caused by the rapid starting or stopping of a pump or the rapid opening or closing of a valve, creates a great increase in the pressure of water.

1.01.162 Water Main

The water pipe, typically located beneath the ground, from which domestic water supply is delivered to the service pipe leading to specific premises.

1.01.163 Water Project

The initial construction, or any renovation, modification, or expansion, of:

A. Each portion of a public water system that begins operation after the effective date of this regulation; or

B. Each portion of a public water system that began operating on or before the effective date of this regulation if the portion of the public water system is involved in:

C. The collection, pumping, treatment, storage, or distribution of water; or

D. The boosting, sustaining, or reducing of water pressure, except any construction, renovation, modification, or expansion approved by a health authority or other appropriate governmental entity before the effective date of this regulation.

1.01.164 Water Service Lateral

A pipe that conveys water from a water main to the point of use of the water.

1.01.165 Wet Tap

A connection made to an existing water main in which the main connected to remains in full service during the connection.

1.01.166 Zone of Pressure

An area within a distribution system where the pressure in the water main is maintained within certain specified limits.

1.02 ABBREVIATIONS

AC	Asphaltic Concrete
ACI	American Concrete Institute
ACP	Asbestos Cement Pipe
ADA	Americans with Disabilities Act
AG	Air Gap separation
ANSI	American National Standard Institute
ASA	American Standard Association
ASTM	American Society of Testing and Materials
AVAR	Air Vacuum Air Relief (valve)
AWS	American Welding Society
AWWA	American Water Works Association
BC	Back of Curb
BM	Bench Mark
BSW	Back of Sidewalk
C&G	Curb and Gutter
CIP	Cast Iron Pipe
CL	Centerline
CLSM	Controlled Low Strength Material
CMP	Corrugated Metal Pipe
CRSI	Concrete Reinforcing Steel Institute
DCDA	Double Check Detector Assembly
DCVA	Double Check Valve Assembly
DI	Drop Inlet
DIP	Ductile Iron Pipe (AWWA C600)
EL	Elevation
EX	Existing
FG	Finish Grade
FH	Fire Hydrant
FMCT	Proprietary name for a FSM by Hersey FMCT
FPS	Feet Per Second
FSM	Fire service meter
FT	Foot
G	Gas
GA	Gauge
GPM	Gallons Per Minute
HGL	Hydraulic Grade Line
ID	Inside Diameter
IPC	International Plumbing Code
IPS	Iron Pipe Size
IQAC	Inter-Agency Quality Assurance Committee
LF	Linear Feet
mg/L	Milligrams per Liter
MLCP	Mortar Lined and Coated Pipe (AWWA C200 & C205)
NAC	Nevada Administrative Codes
NDOT	Nevada Department Of Transportation
NEMA	National Electric Manufacturers Association
NPLS	Nevada Professional Land Surveyor
NPE	Nevada Professional Engineer
NRS	Nevada Revised Statutes
NSF	National Sanitation Foundation
OD	Outside Diameter
PL	Property Line
POC	Point of Connection
ppm	Parts Per Million
PRV	Pressure Reducing Valve
PSF	Pounds per Square Foot
PSI	Pounds per Square Inch
PVC	PolyVinyl Chloride pipe (AWWA C900, C905)
R/W	Right-of-Way
RCP	Reinforced Concrete Pipe
ROW	Right-Of-Way
RPDA	Reduced Pressure Detector Assembly
RPPA	Reduced Pressure Principle Assembly
SCCP	Steel Cylinder Concrete Pipe (AWWA C303)
SNWA	Southern Nevada Water Authority
SNWS	Southern Nevada Water System
SSPC	Steel Structures Painting Council
STA	Station
SW	Sidewalk
UDACS	Uniform Design and Construction Standards for Potable Water
UPC	Uniform Plumbing Code
USD	Uniform Standard Drawings for Public Works Construction Off-Site Improvements, Clark County Area, Nevada , commonly knows as the “Blue Book”
USS	Uniform Standard Specifications for Public Works Construction Off-Site Improvements, Clark County Area, Nevada, commonly known as the “Blue Book”
W	Water

1.03 REFERENCE TO STANDARDS AND PUBLICATIONS

Any reference made in these Standards or on approved drawings to any specification, standard, method, or publication of any scientific or technical society or other organization shall, in the absence of a specific designation to the contrary, be understood to refer to the specification, standard, method, or publication in effect as of the date the work is performed.

1.04 LINES, GRADES, AND MEASUREMENTS

The Developer's Engineer will be responsible for the establishment of such benchmarks and reference points needed for the water main installations. The Contractor shall be responsible for water facility construction to the lines and grades shown on the water plans.

1.05 RIGHT-OF-WAY

All water mains, services, and meters shall be located within dedicated public rights-of-ways or within permanent easements granted to the Agency. The size of the easements shall be as determined by the Agency (See Section 2.04). All easements shall be granted to the Agency prior to water plan approval.

1.06 OVERTIME INSPECTION FEE

Unless otherwise approved by the Agency, the Contractor will be required to pay an overtime inspection fee as established by the Agency for each hour or each portion of each hour thereof, to provide for an Inspector to be present should the Contractor work outside the established normal working hours as established by the Agency. The Contractor will be required to sign a document that constitutes approval of an overtime inspection fee. The format and wording of this document is presented in Section 4. Call-outs after hours will be charged a minimum number of hours overtime, which varies by Agency. The Contractor will also be required to pay overtime charges for any Agency approved holidays.

1.07 NIGHT WORK

In the event night work is permitted, the Contractor shall provide lighting and other facilities which, in the opinion of the Agency's Representative, are satisfactory and sufficient for proper work inspection and the Agency Representative’s safety.

1.08 INSPECTION

1.08.01 Duties of Inspector

Inspectors employed by the Agency will be authorized to inspect all work done and materials furnished. Such inspection may extend to all, or any part, of the work and to the preparation, fabrication, or manufacture of the materials to be used. The Inspector will not be authorized to alter or waive the provisions of the plans and specifications.

The Inspector will, however, have the authority to reject work or materials until any questions at issue can be referred to the Engineer, and a decision made.

Work inspection by an authorized Agency Representative shall not be construed as direct control of the individual workman and the work. The direct control shall be the sole responsibility of the Developer and/or the Contractor.

1.08.02 Inspection of Work

The Contractor shall furnish the Agency every reasonable facility, as determined by the Agency, for safely ascertaining whether the work is in accordance with the requirements and intention of these Standards.

All materials furnished and all work done under these Standards shall be subject to inspection. Work performed or covered in the absence of prescribed inspection may be uncovered or taken out and replaced under proper inspection. The entire cost of removing and replacement, including the cost of all materials taken, shall be borne by the Contractor irrespective of whether the work is found to be defective or not.

Failure to reject any defective work or materials shall not in any way prevent later rejection if such defect(s) are discovered, or obligate the Agency to final acceptance.

The Agency's inspection is only for the purpose of ascertaining the work is in accordance with these Standards. The Agency does not assume any responsibility to inspect for the benefit of any person.

1.08.03 Scheduling of Inspection

Following water plan final approval, notice shall be given to the Agency a minimum of (2) business days prior to the start of construction. Notice must be given to the Agency by 2:00 p.m. of the business day prior to any inspection subsequent to the construction start.

1.09 INDEMNITY

The Developer and his Contractor shall indemnify and hold harmless the Agency, its officers, agents, and employees from all damages and costs to which they may be put by reason of injury to person or property resulting from the Contractor's negligence or carelessness in the work performance or in guarding the same, or from any improper materials, implements, or appliances used in its construction, or by or on account of any act or omission by the Contractor or its agents.

1.10 GUARANTEE

The Developer shall guarantee that the entire work constructed by him will fully meet all requirements in these Standards. The Developer will perform, at his own expense, any repairs or replacements made necessary by defects in materials or workmanship supplied by him which become evident within one (1) year after the final acceptance date. Repairs or replacements shall be made in full compliance with the requirements in these Standards, including the test and guarantee requirements set forth herein. The Developer shall hold the Agency harmless from claims of any kind arising from damage due to said defects. The Developer shall make all repairs and replacements promptly upon receipt of verbal notice followed by written orders for same from the Agency's Representative. If the Developer fails to make the repairs and replacements promptly, the Agency may do the work and the Developer shall be liable to the Agency for the cost thereof.

1.11 RULES AND REGULATIONS

The Agency's rules, regulations, and ordinances shall be adhered to at all times. Copies are available at each Agency's office. Regulations as established in Nevada Revised Statutes (NRS), Nevada Administrative Codes (NAC) shall also be obeyed at all times.

1.12 PRE-APPROVED MATERIALS LIST

A Pre-Approved Materials List is available at each Agency's office. This list contains all materials and appurtenances that are pre-approved for installation in the public water system. Any individual, corporation, or other entity may submit to the Agency other materials for approval. Each submittal must include documentation demonstrating, to the Agency's satisfaction, the material meets the technical and performance requirements set forth in these and other applicable standards. In addition, a history of use at other locations and names and phone numbers of contacts for reference is required. The submittal must also demonstrate, to the Agency's satisfaction, the use of the proposed material is in conformance with the Agency's goal of developing a reliable and efficient distribution system with minimal maintenance requirements and maximum life. The individual agencies may be contacted to obtain the specific process for obtaining material approvals within their Agency.

All manufactured materials (pipe, valves, fittings, meters, etc.) shall be new and suitable for use in municipal potable water distribution systems. Used or refurbished materials are not permitted. Materials shall meet the minimum standards of AWWA, ASTM, NSF, IQAC, or certifying entity acceptable to the Agency. Unless otherwise identified in these Standards, each Agency shall have sole control over the approval and acceptance of materials to be incorporated into its system. Each Agency, at its discretion, may approve, qualify, restrict, or remove materials from its pre-approved materials list. Specific approval procedures for new materials and manufacturers are under sole Agency control. References made to particular materials in these Standards do not imply these materials are approved by all Agencies.