

## SUMMARY



ITEMS INSPECTED



MAINTENANCE ITEM

### Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures:

#### **Visual inspection of irrigation system**

Observation of each zone in a sprinkler system and the landscape surrounding sprinkler heads to identify sources of inefficient water use: broken, damaged, or leaking heads; improperly positioned sprinklers watering streets and sidewalks; sprinkler heads too low or off vertical; sprinkler heads improperly spaced or arranged in pentagon patterns instead of water-conserving triangle or square patterns; misting around sprinkler heads (excessive water pressure) or large water droplets falling close to heads.

Observation of each drip zone to identify sources of inefficient water use: broken, damage or leaking pipes; improperly positioned emitters or bubblers, run off, drip line spacing and use of manufacturer recommended or specified equipment.

#### **Evaluation of distribution uniformity (DU)**

While many of the problems described above in the sprinkler installation affect DU, a catch can test is routinely used to quantify whether or not irrigation water is being uniformly applied to the landscape. To perform a catch can test place collection containers in a grid pattern on the surface of an irrigated zone, runs the irrigation system through a typical timed cycle, and collect and record the amount of water in each catch container. The data gathered is then used to identify areas of over- and under-irrigation (relative to the targeted application amount); results of a catch can test may also be correlated to observations of plant health in the test area.

#### **Determination of precipitation rate (PR)**

## Irrigation Audit Procedures in WELO

The irrigation audit includes the following procedures and are highlighted in our Standards of Practice section:

- Visual inspection of irrigation system**
- Evaluation of distribution uniformity (DU)**
- Determination of precipitation rate (PR)**
- Determination of landscape's watering needs**
- Review and development of irrigation schedule**

### **California WELO Ordinance**

*§ 492.12. Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.*

*All landscape irrigation audits shall be conducted by a local agency landscape irrigation auditor or a third party certified landscape irrigation auditor. Landscape audits shall not be conducted by the person who designed the landscape or installed the landscape. In large projects or projects with multiple landscape installations (i.e. production home developments) an auditing rate of 1 in 7 lots or approximately 15% will satisfy this requirement.*

*For new construction and rehabilitated landscape projects installed after December 1, 2015, as described in Section 490.1:*

*The project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency 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, including configuring irrigation controllers with application rate, soil types, plant factors, slope, exposure and any other factors necessary for accurate programming;*

*The local agency 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.*

*Note: Authority cited: Section 65595, Government Code; and sections 11 and 30, Governor's Exec. Order No. B-29-15 (April 1, 2015). Reference: Section 65596, Government Code; and section 11, Governor's Exec. Order No. B-29-15 (April 1, 2015)*

**I, Andrew Bolt declare that I have performed a third party Irrigation Audit on the property listed above and not affiliated with the property owner, builder or landscape installer. This audit was performed with all guidelines and codes of licensing body that certified me as a landscape irrigation auditor.**



Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

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ARCHITECTURAL SOLUTIONS

209-404-1746

[irrigationaudit@gmail.com](mailto:irrigationaudit@gmail.com)

<http://www.architecturalsolutions.us.com>



LOT 9 - 2185 COBBLEHILL PLACE WELO IRRIGATION INSPECTION

Lots 9 & 10 Cobblehill Place  
San Mateo, CA 94402

Noel Chamberlain  
JUNE 28, 2022



Inspector  
Andrew Bolt

A handwritten signature in black ink, appearing to read "Andrew Bolt".

CLIA/CGIA # 57436, ASIC  
209-404-1746

[irrigationaudit@gmail.com](mailto:irrigationaudit@gmail.com)



# 1: INSPECTION DETAILS

## Information

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### Site Overview: Name of People In Attendance

General Contractor

Attendee Information

1. Name of Company: NexGen Builders
2. Name(s) of attendees: Noel Chamberlain
3. Email Address:
4. Contact Telephone Number:

### Site Overview: Project Type

Site

New Project, Residential

Describe Site: New Two Story, Single Family Home built in culda-sac. Landscaping both front and back gardens consisting of trees and shrubs.

### Site Overview: Project Status

Post Plant Audit

The project is subject to a WELO Irrigation Inspection. This report must be turned into the required division at the building/planning department.

### Site Overview: Weather at Time of Audit

Sunny

Weather conditions have been recorded for the period of time during the audit. If winds exceeds 5 mph we can not conduct any catch can testing.

### Site Overview: Site & Landscape Conditions

New Landscape Project

New Shubs, New Trees, New Bio Basins, Clay Soil Type, Sloped Site, No Standing Water, 2-3" Bark Mulch Installed

The irrigation that is being audited has been designed by a professional Landscape Architect, Irrigation Consultant or Landscape Contractor and has been approved by the local building/planning department.

All installation has been installed by a professional landscape contractor and is subject to all State and Local codes and ordinances.



Data from a catch can test is also used to determine the rate at which water is applied by the irrigation system. Since individual site conditions, specifically water pressure and sprinkler head spacing, may alter a system's performance, using catch can test results is more accurate than relying on the system manufacturer's performance specifications. Knowing the rate of application is important for developing appropriate irrigation schedules.

### **Determination of landscape's watering needs**

An evaluation of the landscape features present at a site provides a great deal of information about that site's water requirements. Factors to consider in developing a watering schedule include the types of plants present and the depth of their roots; whether they are growing in sun or shade, on flat areas or slopes; the presence or absence of a thatch layer in turf; whether or not non-turf plantings are mulched; soil texture and structure; and evidence of compaction and drainage problems.

### **Review and development of irrigation schedule**

A review of the site's current irrigation schedule (amount of water applied and the interval between watering events), and generate a watering schedule based on catch can test results, soil conditions, and plant water requirements, taking into account local climate and rainfall patterns. An irrigation audit is only a tool, audit findings and recommendations must be put into practice for water conservation to be realized.

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Irrigation Auditor Name: **Andrew Bolt** Certification #: **57436**

### 3.3.1 Irrigation Controller - As Built Map & Zone Schedule Present: Irrigation Schedule

**Water Source and Connection: Point Of Connection**

Street/House

Hose Bib Pressure Test, Gate Valve installed

- Manual Shut Off Valves such as a gate valves, 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 or routine repair.
- Backflow Prevention Devices shall be required to protect water supply from contamination by the irrigation system.
- Flow Sensors that detect high flow conditions created by system damage or malfunction are required for ALL non residential and residential landscapes of 5000 square feet or large. Local cities may have stricter requirements.
- Master Shut Of Valves are required on all landscapes that make use of technologies that allow the individual control of sprinklers that are pressurized in a system equipped with low pressure shut down features.
- Landscape Water Meters, defined as either a dedicated water service or private submeter, shall be installed for all non residential landscapes of 1000 square feet but no more than 5000 square feet and residential irrigated landscapes of 5000 square feet or greater. A landscape water meter can be either a customer service meter dedicated to landscape use provided by the local water purveyor or a privately owned meter or submeter.
- Static water pressure, dynamic or operating pressure and flow reading of water supply shall be measured at the point of connection.
- If the static pressure is above or below required dynamic pressure of the irrigation system, pressure regulating devices, booster pumps pr other devices shall be installed to meet the dynamic pressure of the irrigation system.



**Water Source and Connection: Water Source Type**

Potable Water

Irrigation Water Source is from the following:

Potable or Non Potable Water.

IF Non Potable Water may require Purple signage, ID Tags and Purple Equipment. See approved irrigation plans for information.

**Backflow Prevention: Backflow Preventer**

Backflow Preventer definition: A device that allows water to go through it in one direction, but prevents it from going backwards in the opposite direction.

A backflow preventer is like a one-way gate for water. Most backflow preventers are used to keep unsafe water from reversing flow and entering the clean water supply. Backflow preventers can be as simple as a single check valve that closes when water flow reverses.

**Backflow Preventer Model Installed:**

**Limitations**

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Landscape Flow/Water Meter

**NOT SPECIFIED OR REQUIRED**





**Contractor or Owner Responsibilities: Prior to Audit Inspection**

**Contractor /Owner Responsibility**

It remains the responsibility of the contractor to have the project 100% complete and irrigation fully operational prior to the time of the inspection.

Irrigation Controller, All Valves, Sensors and other equipment must be fully functional

**Contractor or Owner Responsibilities: Audit Inspection & Reporting**

**Auditor Responsibility**

We will only report on the conditions of the irrigation operation, conditions of and compliance to WELO. Any deficiencies of the system will need to be corrected prior to our final sign off.

## 2: POINT OF CONNECTION

		IN	NS	DE	CI	MI
2.1	Water Source and Connection	X				
2.2	Backflow Prevention	X				
2.3	Landscape Flow/Water Meter		X			
2.4	Master Valve		X			
2.5	Flow Sensor		X			
2.6	Hydrometer		X			

IN = Inspected    NS = Not Specified    DE = Deficiency    CI = Corrected Item    MI = Maintenance Item

### Information

**Water Source and Connection: Booster Pump Installed**

Only installed if specified  
See section on Booster Pump

**Water Source and Connection: Master Valve & Flow Meter Inspection & Conditions**

DBYR Connectors

**Backflow Prevention: Backflow or Water Source Pressure Test**

45 Static PSI







**Irrigation Controller Installation: Irrigation Controller Installation**

Secured to Wall, On Site Sensor

Irrigation Controller Assembly or Cabinet must be anchored to concrete base or to wall. Install Controller as per Manufacturer requirements

Hunter Controller installed-owner is responsible for set up of controller on WIFI and/or connect On Site Weather sensor and maintaining a weather based adjusted schedule



**As Built Map & Zone Schedule Present: As Built Map & Zone Schedule at Controller**

Irrigation Controller

Provide owner with copies and place copies at the controller for future use during Maintenance Period

**Power Source at Controller: Power Source and Wiring**

At Irrigation Controller

Controller Powered, Line Voltage in Conduit, 110 Volt grounding

Controller Power Source must be connected to an approved 110volt connection as per local electrical codes

**Programmed with Schedule: Programmed with Schedule**

At Irrigation Controller

Program controller with Maintenance Schedule until plants are established enough so that they can be irrigated on an Established Plant Schedule.

**Weather Adjusted Scheduling Set Up: Self Adjusted Scheduling Method**

At Irrigation Controller or On SW Corner Building

Weather Sensor on Site, On Site Rain Sensor

A Weather Sensor, Connection to Manufacturers Web Server or Central Control must be installed, connected and functioning for WELO Compliance

- Hunter Solar Sync

Master Valve

**NOT SPECIFIED OR REQUIRED**

Flow Sensor

**NOT SPECIFIED OR REQUIRED**

Hydrometer

**NOT SPECIFIED OR REQUIRED**

### 3: IRRIGATION CONTROLLER

		IN	NS	DE	CI	MI
3.1	Controller Installation Overview	X				
3.2	Irrigation Controller Installation	X				
3.3	As Built Map & Zone Schedule Present		X			
3.4	Power Source at Controller	X				
3.5	Programmed with Schedule	X				
3.6	Weather Adjusted Scheduling Set Up	X				

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#### Information

**Controller Installation Overview: Irrigation Controller Inspection**

Controller Powered, Controller Outside, Weather Self Adjusting Based

Automatic Irrigation controllers utilizing either evapotranspiration or soil moisture sensor data utilizing non-volatile memory shall be required for irrigation scheduling in all irrigation systems.

Note Status of Controller. Weather Adjustment programmed.

- 1. Note Make & Model of Controller. Hunter ProC
- 2. Note Station Count. 4
- 3. Note Grounding Method. None

## 4: REMOTE CONTROL VALVES

		IN	NS	DE	CI	MI
4.1	Irrigation Valve Installation	X				
4.2	Operation of Valve	X				
4.3	Leaks	X				
4.4	Wire Connections	X				

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### Information

#### Irrigation Valve Installation: Valve Installation

Gate Valve Installed, Atmospheric Valve Installed, Silicone Gel Wire Splices

Installation of and Condition of Valves has been inspected. If Standard Details have been provided with Approved Irrigation Plans all Valve Installation must be in accordance with details



#### Operation of Valve: Operation of Valves

Irrigation Valves

All Valves will be operated and any deficient conditions noted

- All valves operate as intended

#### Leaks: Examine for Leaks

Irrigation Valve Installation

No Leaks

Review Operation of all Valves and note any leaks at Valves, Unions or Fittings. If Valves are Sticking Open make a note under deficiencies

- No leaks found

#### Wire Connections: Wire Connections Condition

Irrigation Valve Installation

All Wire Connections must be connected with either 3M DBRY Connectors (or equal) or Silicone Filled (Gel) Wire Nuts and secured.

All wire must be secure and Pig Tailed as per any attached details





## Limitations

Programmed with Schedule

### SCHEDULES

Set up post plant schedule after 90 days

## Deficiencies

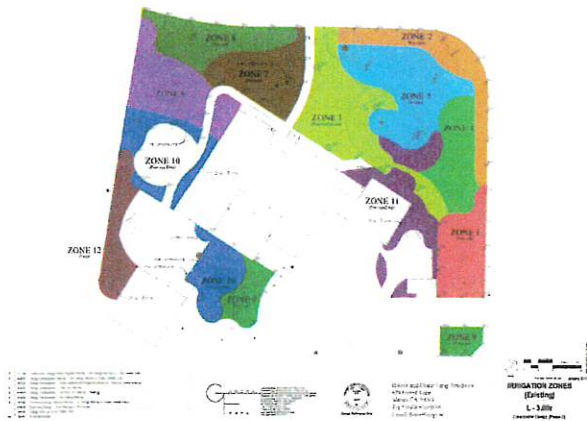
3.3.1 As Built Map & Zone Schedule Present

 Maintenance Item

### IRRIGATION SCHEDULE

Place copies of Irrigation Schedule and As Built's at controller and provide customer with copies-Sample copy below of AS Built Irrigation Zoning. Include POC, controller, mainline and valve locations

Recommendation  
Contact a qualified landscaping contractor





**Bubblers or Drip Rings Overview: Overview of Bubblers or Drip Ring/Emitter Installation**

Trees & Shrubs

Watering Tubes, Bubblers on Flex Pipe

Installation of Tree and Plant Bubblers as per Approved Irrigation Plans. All Bubblers must be placed at Root Ball so as to adequately Irrigate Plant Root Ball and surrounding Native Soils

**Tree Bubblers or Drip Rings: Bubblers or Drip Rings-Emitters**

Trees

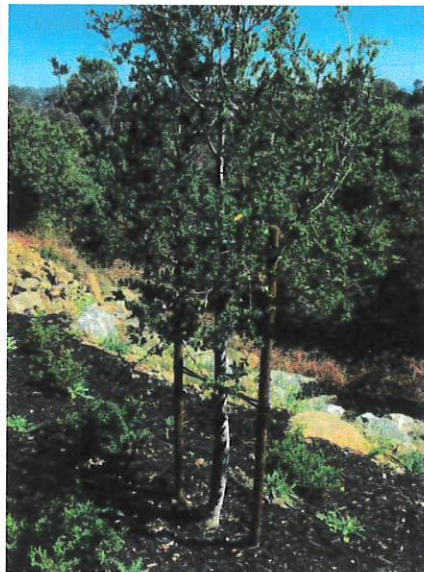
Watering Tubes, Bubblers on Flex Hose

Inspect Conditions and Placement of all Bubblers and/or Drip Rings

Description of irrigation method:

Trees on independent Valve as required by WELO: Yes

Two Count per tree



**Drip Irrigation: Drip-Micro-Low Flow Irrigation**

Planting Areas

Drip Pressure Regulation, Drip Filter(s), In-Line Drip, Drip Flush Valves, Drip Indicators, Drip Line on Grade, Drip Line Covered by Mulch

All Drip Irrigation will be inspected and conditions noted. Leaks will be photographed and noted as a deficiency

**Drip Kits: Drip Filters & Pressure Regulation Installation**

Drip Valves

Drip Filters and Pressure Regulation must be installed for Efficient Operation of all Drip Zones



**Drip Line Coverage: Drip Line Coverage**

Planting Areas

Drip Line must be adequately covered by mulch or buried and staked accordingly. Any exposed Drip Line must be buried under 2-3" of mulch or soil covering. Review Approved Irrigation Plans for detail information

## 5: SPRAY/ROTOR ZONES

		IN	NS	DE	CI	MI
5.1	Spray Head and Rotors Installation		X			
5.2	24" Set Back		X			
5.3	Coverage		X			
5.4	Nozzles		X			
5.5	Overspray		X			
5.6	Check Valve		X			
5.7	Pressure Regulation		X			

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#### Spray Head and Rotors Installation: Overhead Irrigation Installation

Turf/Shrub Areas

Not Specified

Inspection of installation of All Rotors and Sprinklers, all Nozzles must be installed per plan or adjusted to best suite Site Conditions. Set back all Overhead Irrigation 24" from Noon Permeable hardscape. Exceptions would be ONLY if any overspray stays on site and drains into site landscape

#### Nozzles: Nozzle Installation

Spray/Rotor Heads

Not specified

Nozzles must be installed as per Approved Plans or to best represent Site Conditions

- Installed per plan

## 6: LOW FLOW/MICRO & BUBBLER IRRIGATION

		IN	NS	DE	CI	MI
6.1	Bubblers or Drip Rings Overview	X				
6.2	Tree Bubblers or Drip Rings	X				
6.3	Plant Bubblers or Drip Rings		X			
6.4	Drip Irrigation	X				
6.5	Drip Kits	X				
6.6	Drip Line Coverage	X				
6.7	Drip Line Leaks	X				
6.8	Air Relief Valves	X				
6.9	Flush Valves	X				
6.10	Drip Indicators	X				

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### Information

# STANDARDS OF PRACTICE

## Inspection Details

### *Irrigation Audit Procedures in WELO*

The irrigation audit includes the following procedures:

#### Visual inspection of irrigation system

1. Observation of each zone in a sprinkler system and the landscape surrounding sprinkler heads to identify sources of inefficient water use: broken, damaged, or leaking heads; improperly positioned sprinklers watering streets and sidewalks; sprinkler heads too low or off vertical; sprinkler heads improperly spaced or arranged in pentagon patterns instead of water-conserving triangle or square patterns; misting around sprinkler heads (excessive water pressure) or large water droplets falling close to heads.
2. Observation of each drip zone to identify sources of inefficient water use: broken, damage or leaking pipes; improperly positioned emitters or bubblers, run off, drip line spacing and use of manufacturer recommended or specified equipment.

#### Evaluation of distribution uniformity (DU)

1. While many of the problems described above in the sprinkler installation affect DU, a catch can test is routinely used to quantify whether or not irrigation water is being uniformly applied to the landscape. To perform a catch can test place collection containers in a grid pattern on the surface of an irrigated zone, runs the irrigation system through a typical timed cycle, and collect and record the amount of water in each catch container. The data gathered is then used to identify areas of over- and under-irrigation (relative to the targeted application amount); results of a catch can test may also be correlated to observations of plant health in the test area.

#### Determination of precipitation rate

1. Data from a catch can test is also used to determine the rate at which water is applied by the irrigation system. Since individual site conditions, specifically water pressure and sprinkler head spacing, may alter a system's performance, using catch can test results is more accurate than relying on the system manufacturer's performance specifications. Knowing the rate of application is important for developing appropriate irrigation schedules.

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1. An evaluation of the landscape features present at a site provides a great deal of information about that site's water requirements. Factors to consider in developing a watering schedule include the types of plants present and the depth of their roots; whether they are growing in sun or shade, on flat areas or slopes; the presence or absence of a thatch layer in turf; whether or not non-turf plantings are mulched; soil texture and structure; and evidence of compaction and drainage problems.

#### Review and development of irrigation schedule

1. A review of the site's current irrigation schedule (amount of water applied and the interval between watering events), and generate a watering schedule based on catch can test results, soil conditions, and plant water requirements, taking into account local climate and rainfall patterns. An irrigation audit is only a tool, audit findings and recommendations must be put into practice for water conservation to be realized.

All Standards Of Practice have been followed:

**Irrigation Auditor name. Andrew Bolt Certificate #: 57436**



## Point Of Connection

1. The inspector will inspect the Back Flow Preventer if specified and installed.
2. Static Water Pressure(s) noted at back flow preventer outlet, at quick coupler and or at hose bib.



3. Inspect Master Valve, Flow Sensor and Flow Meter will be inspected, wired connections noted.

### **Irrigation Controller**

1. Inspector will need access to the Irrigation Controller
2. Inspect for Weather Based Operation Mode
3. Inspect for Weather Sensor
4. Inspect for programming of Master Valve, Flow Sensor and Landscape Water Meter( if specified)
5. Inspect for grounding of controller
6. Inspect for Irrigation Schedule and Irrigation Zone As Built Plan

### **Remote Control Valves**

1. Inspect each valve for operation from Irrigation Controller
2. Inspect each valve for correct wire connection method(s). Wire nuts without silicone gel will NOT be accepted
3. Inspect each valve(s) for numbering ID Tags or Branded Numbered Valve Box Lids
4. Two Wire System(s). Inspect for Decoder installation and wire connection techniques.
5. Inspect Two Wire for GROUNDING as required by controller manufacturer standards.
6. Inspect all valve box installations for gravel layer and or gopher wire as specified.

### **Spray/Rotor Zones**

1. Inspect for correct installation of specified spray or rotor as specified.
2. Inspect for installation of correct nozzles, all must be matched precipitation.
3. Inspect for uniform coverage of spray pattern.
4. Inspect for installation of pressure regulation and check valves or as specified.
5. Inspect for overspray of water onto hardscape or into planting areas.
6. Inspect for 24" set back from all non permeable hardscape areas as required by WELO
7. Conduct Catch Can Test, method as per Irrigation Association Guidelines.
8. Record Catch Can results and use to determine Distribution Uniformity and Precipitation Rate.

### **Low Flow/Micro & Bubbler Irrigation**

1. Inspect Drip Valves for leaks, pressure regulation and filtration.
2. Inspect Drip Valves for ID Tags/Branding, gravel in valve boxes.
3. Run Drip Zones and inspect for leaks.
4. Inspect for Drip Flush Valves and boxes
5. Inspect for Drip Air Relief if applicable
6. Inspect for Drip Indicators if specified
7. Inspect for uniformity coverage ensuring that all plants are being adequately irrigated
8. Pressure test at end of drip lines (use flush valves or drip indicators for a pressure test connection point)
9. Inspect for burial of drip line as specified





**Drip Line Leaks: Check for Leaks**

Planting Areas

Note all Drip Leaks as described under Drip Irrigation Section

- No Leaks found

**Air Relief Valves: Air Relief as Specified**

Drip Zones

Air Relief Valves must installed at highest point oil drip zone and in valve boxes for inspection. Consult with Approved Irrigation Plans and with Drip Manufacturer for all installation requirements

- Air Relief installed



**Flush Valves: Flush Valve Installation**

Drip Zones

Flush Valves must be installed and placed in valve boxes for service access at ends of drip zones. Flush Valves are to be used to flush out debris from within the drip from either Dirty Water Conditions or from Line Breaks

- Flush Valves installed



**Drip Indicators: Drip Indicators installed as specified**

Drip Zones

Drip Indicators are a good way of checking that the Drip System is operating at the required pressures. Any Specified Drip Indicators must installed as per approved plans

- Drip Indicators installed

