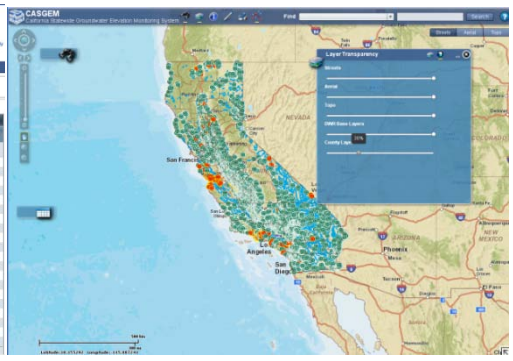
# California Statewide Groundwater Elevation Monitoring (CASGEM)

# Online System (OS)
# Public User Guide – Version 2.1

## November 21, 2011



# Table of Contents


1.1 CASGEM Online System (OS) Overview ..... 4

1.2 User Guide Layout ..... 5

2.1 Public User Registration and Log In ..... 7

2.1.1 Self-Registering ..... 7

2.1.2 How to Log In ..... 11

2.2 Public User Homepage ..... 13

2.3 Notifications ..... 14

2.4 Well Information and Groundwater Elevation Data ..... 17

2.5 Reports ..... 24

2.5.1 Program Level Reports ..... 24

2.5.2 Water Data Reports ..... 28

2.5.3 Elevation Data Reports ..... 31

2.6 View Map ..... 33

2.7 GIS Functionality ..... 34

2.7.1 View Map / GIS Viewer ..... 35

2.7.2 GIS Minimum Computer Requirements ..... 35

2.7.3 Initial Map Layout Presentation ..... 36

2.7.4 Top Bar Functions ..... 37

2.7.5 CASGEM Search ..... 38

2.7.5.1 Using the Search Menu to Find Wells ..... 41

2.7.5.2 Exporting Search Results to Excel ..... 46

2.7.5.3 Using the Search Menu to Find Basin Notifications ..... 47

2.7.5.4 Using the Search Menu to Find Unmonitored Basins ..... 50

2.7.6 Layer Control ..... 52

2.7.6.1 Using the Map Layer Control Menu ..... 54

2.7.6.2 Using the Layer Transparency Tool ..... 56

2.7.7 Identify ..... 58

2.7.7.1 Working with the Identify Menu ..... 59

2.7.7.2 Identifying Features by Point Selection ..... 61

2.7.7.3 Identifying Features by Polyline Selection ..... 63

2.7.7.4 Identifying Features by Rectangle Selection ..... 66

2.7.7.5 Identifying Features by Polygon Selection ..... 68
2.7.8 Draw and Measure ..... 70
2.7.8.1 Measuring the Distance between Two Wells ..... 72
2.7.8.2 Using the Text Tool ..... 75
2.7.9 Print ..... 76
2.7.10 Elevation Data Hydrograph ..... 79
2.7.10.1 Single Well Hydrograph ..... 79
2.7.10.2 Multiple Wells Hydrograph ..... 82
2.7.11 Quick Find for Wells and Basins ..... 83
2.7.11.1 Searching for Wells Using Quick Find ..... 84
2.7.11.2 Searching for Basins ..... 86
2.7.12 Help Icon ..... 87
2.7.13 Base Map Toggle ..... 87
2.7.14 Overview Map ..... 91
2.7.15 Scale Bar and Coordinates ..... 93
2.7.16 Navigation ..... 94
2.8 My Profile ..... 96
2.8.1 User Profile ..... 96
2.8.2 Change Password ..... 98
3.1 Known Errors ..... 100
3.2 Further Help ..... 103

# 1.0 CASGEM Online System (OS) Overview

Section Topics


1.1 CASGEM Online System (OS) Overview
1.2 OS User Guide Layout

## 1.1 CASGEM Online System (OS) Overview

The California Statewide Groundwater Elevation Monitoring (CASGEM) Online System (OS) was developed to help local agencies participate in the CASGEM program and comply with the provisions of Water Code Section 10927, et. seq. An overview of CASGEM is provided on the program web site: http://www.water.ca.gov/groundwater/casgem/. The CASGEM System was developed in three separate phases.

Phase 1 of the CASGEM System was released in December 2010, and allows a prospective Monitoring Entity (ME) to do the following:

- Create, edit, and submit ME notifications
- Create and manage user accounts
- Create and manage agency information
- Submit GIS Shape files of mapped monitoring areas and other required information

Phase 2 of the CASGEM System, released in May 2011, made the following additional functions available to a prospective ME:

- Submittal of Groundwater monitoring plans
- Submittal of proposed well construction and coordinate information
- Corrections to initial ME notifications or submittal of additional information requested by DWR
- Ability to view and query maps of groundwater basins, proposed monitoring areas, monitored wells, and other geographic information associated with the CASGEM Program
- Administrative capabilities for Administrator Roles: Organize Profile; Manage Users; Associate with other organizations / agencies

Phase 3 of the CASGEM System, released in November 2011, allows a designated ME to do the following:

- Submit Groundwater elevation measurement data
- View and update their CASGEM data, as needed
- Generate and Save/Print Reports of the data within the CASGEM System
- Use the GIS functionality

Additionally, Phase 3 of the CASGEM System introduced public access to the Statewide CASGEM System. The general public will have the ability to:

- View Notifications, Well Information, Groundwater Elevation Measurement Data and Reports
- Use the GIS functionality

## 1.2 User Guide Layout

This User Guide was created to provide general step-by-step instructions on how to use the CASGEM OS. If you know which section in the guide you are looking for, you may use the hyperlinked table of contents by holding down the "Ctrl" key while clicking on the line of the specific section to jump to a desired section.

The User Guide is organized into sections as follows:


1.0 CASGEM OS Overview
- 1.1 Overview
- 1.2 User Guide Layout

2.0 The CASGEM System for the General Public
- 2.1 Public User Registration and Log In
- 2.2 Public User Homepage
- 2.3 Notifications
- 2.4 Well Information and Groundwater Elevation Data
- 2.5 Reports
- 2.6 View Map
- 2.7 GIS Functionality
- 2.8 My Profile

3.0 Additional Information
- 3.1 Known Errors
- 3.2 Further Help

# 2.0 The CASGEM System for the General Public

Section Topics

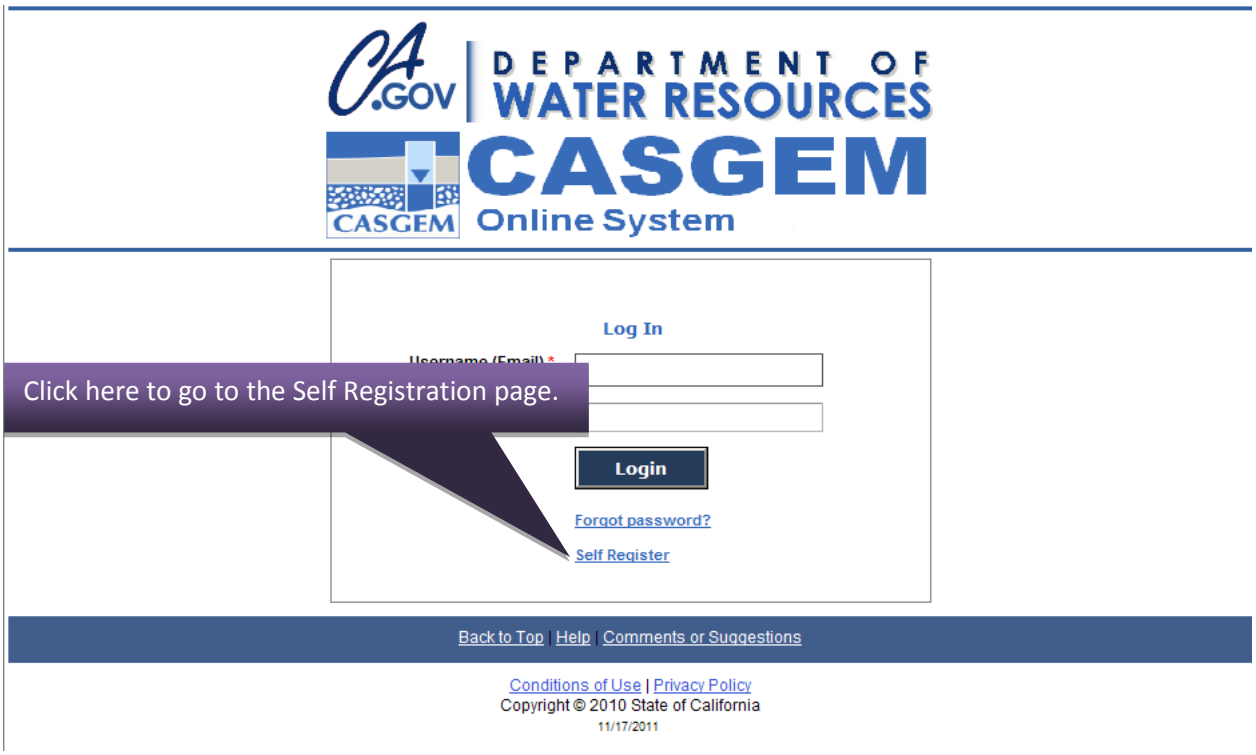

- 2.1 Public User Registration and Log In
  - 2.1.1 Self-Registering
  - 2.1.2 How to Log On
- 2.2 Public User Homepage
- 2.3 Notifications
- 2.4 Well Information and Groundwater Elevation Data
- 2.5 Reports
  - 2.5.1 Program Level Reports
  - 2.5.2 Water Data Reports
  - 2.5.3 Elevation Data Reports
- 2.6 View Map
- 2.7 GIS Functionality
- 2.8 My Profile
  - 2.8.1 User Profile
  - 2.8.2 Change Password

## 2.1 Public User Registration and Log In

If you are already a registered user, you can log in using the email and password combination you previously provided to the CASGEM system and may go straight to the log-in instructions. New users must first register with the CASGEM system.

### 2.1.1 Self-Registering

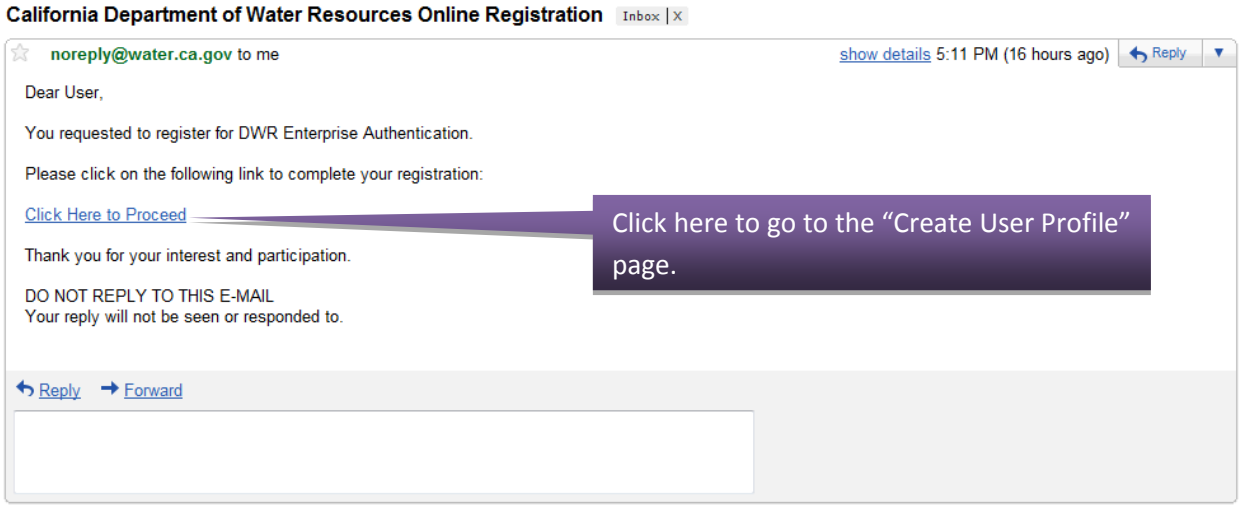
To register, click on the "Self Register" link on the log-in page.



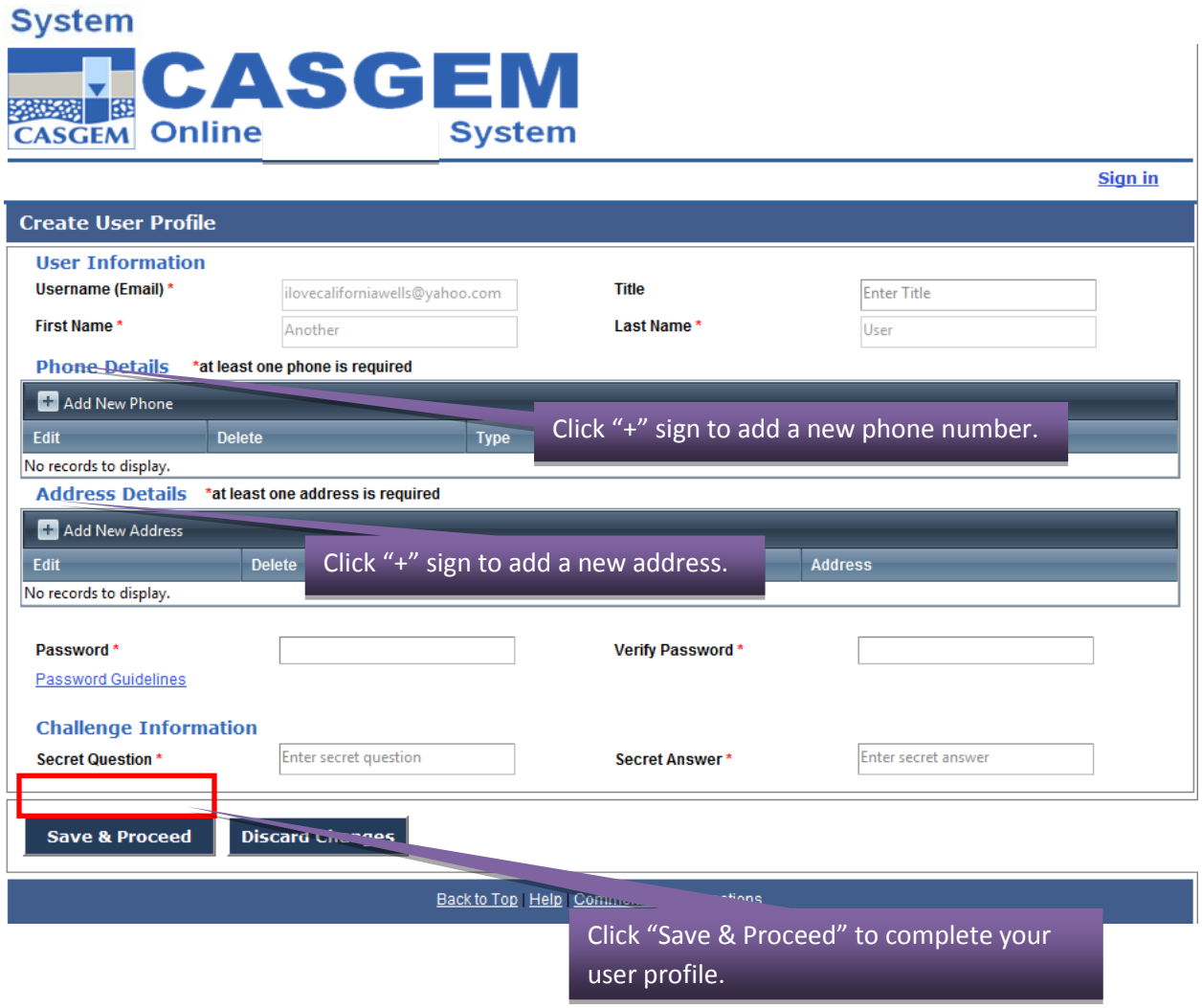

From the user registration page, fill in your name, email address and the CAPTCHA text. To submit, click "Register".

Upon successfully submitting your registration, you will be shown the following confirmation page.

The CASGEM system will send an authentication message to your email account, similar to that shown below. Click on the link (Click Here to Proceed) in the message and you will be taken to the CASGEM "Create User Profile" page.



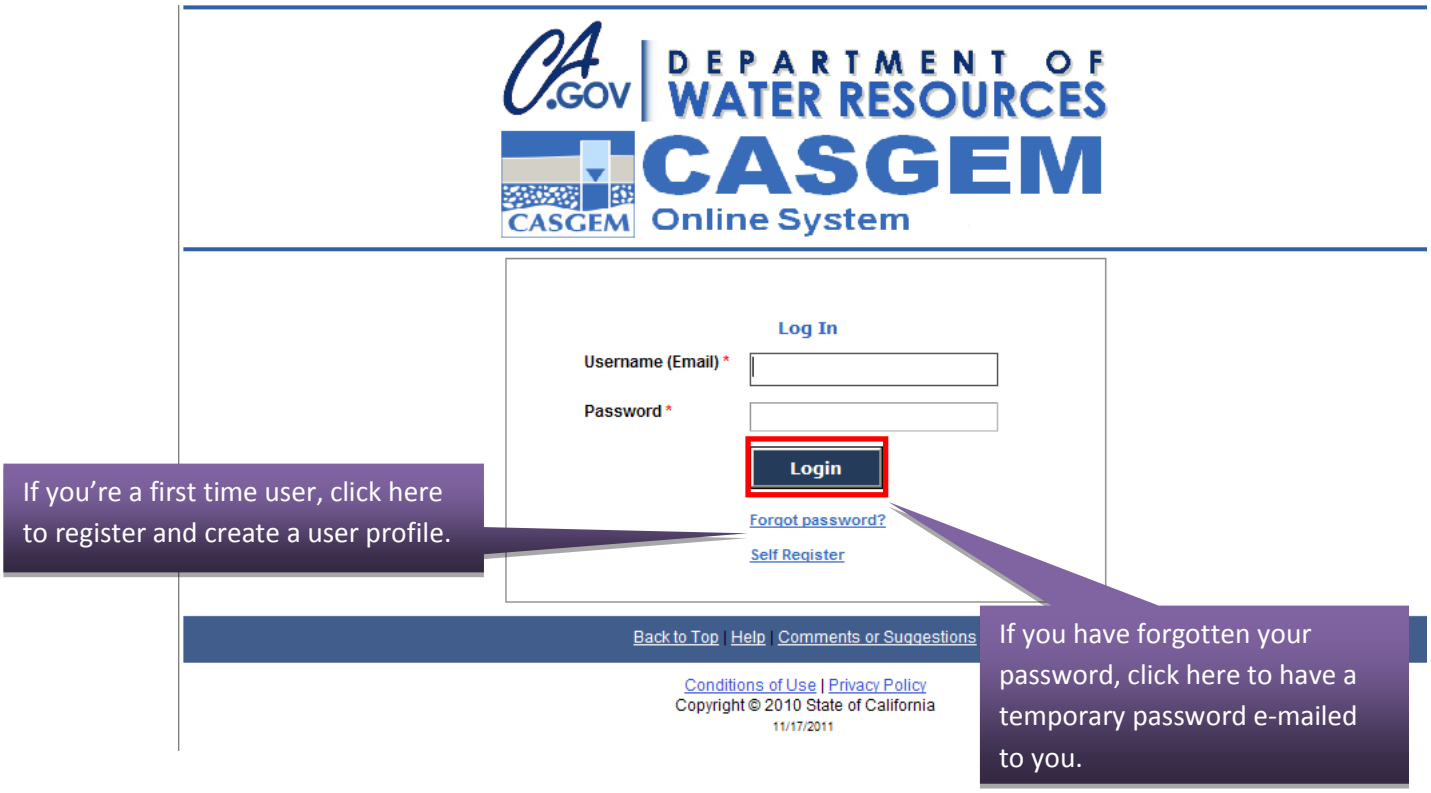

Enter the personal information associated with your account. Your email address is your user name. All fields bearing a red asterisk are required and you must enter at least one phone number and one mailing address. Review the password guidelines, type in a new password, and retype the password for verification. Also select and answer a secret question to recover you password in case it becomes forgotten. After you have completed the form, click on the "Save & Proceed" button. You may also clear the fields by clicking the "Discard Changes" button.




After saving your user profile, you will be directed to the login page.

### 2.1.2 How to Log In

The log-in page allows both new and returning users to sign into the CASGEM OS. If you have previously created a User Profile, you should enter your email address and password in the identified fields and click the "Login" box to enter the system. If you have not created a user profile, return to the self-registration instructions of the User Guide. If you forgot your password, you can click on "Forgot password?" and answer the secret question to have your password emailed to you.

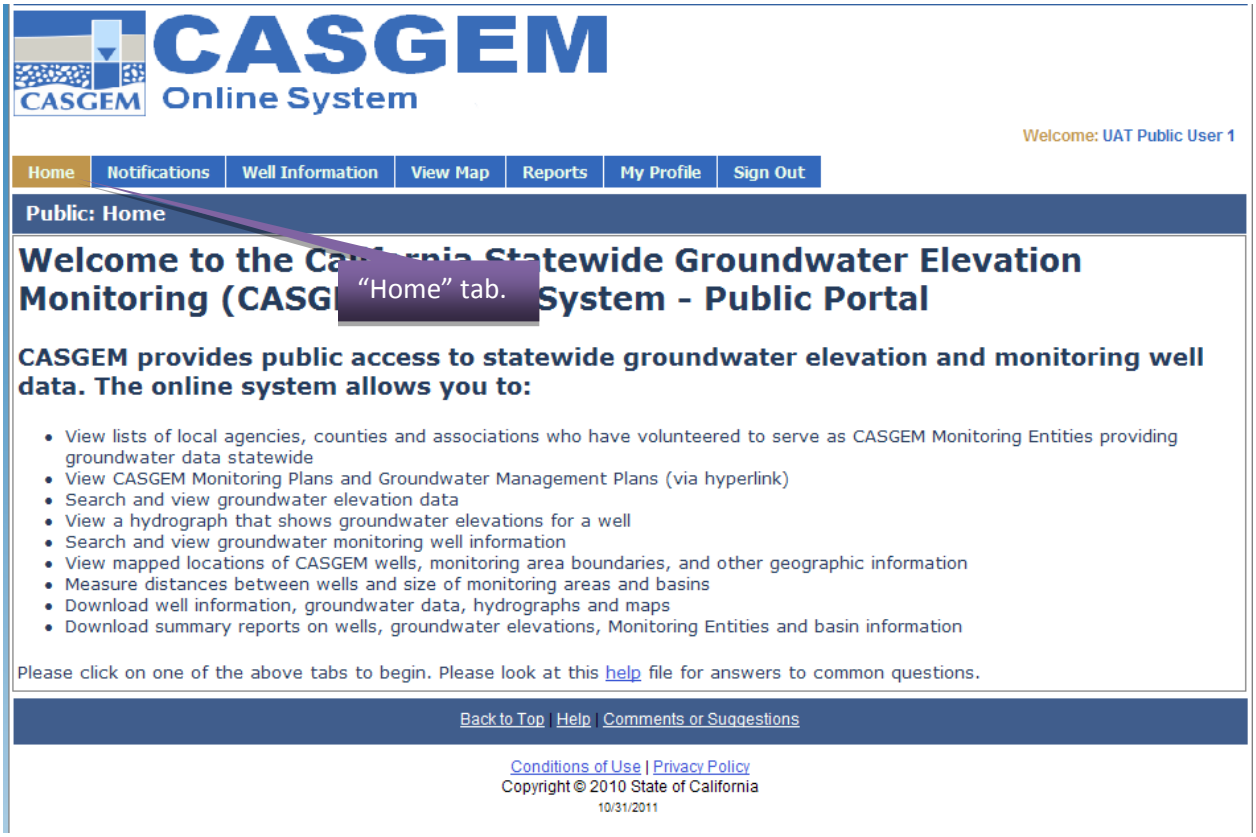



The first time you log into the CASGEM OS with your new user profile, you must identify that you are a Public user, as shown in the following screen shot. **NOTE: Selecting a User Type is an irreversible process.**

DEPARTMENT OF WATER RESOURCES
CASGEM
Online System
Sign Out
Select User Type
Please select your user type: Public user Monitoring Entity user Important : This is an irreversible process
Continue
You must select the “Public user” option and then click the “Continue” button.
Back to Top | Help | Comments or Suggestions

## 2.2 Public User Homepage

The public user Homepage, seen below, is the first screen that you will see upon successfully logging into the CASGEM system. To return to the homepage at any point, you can simply click on the "Home" tab.




Aside from the Home tab, you also have access to the following tabs:

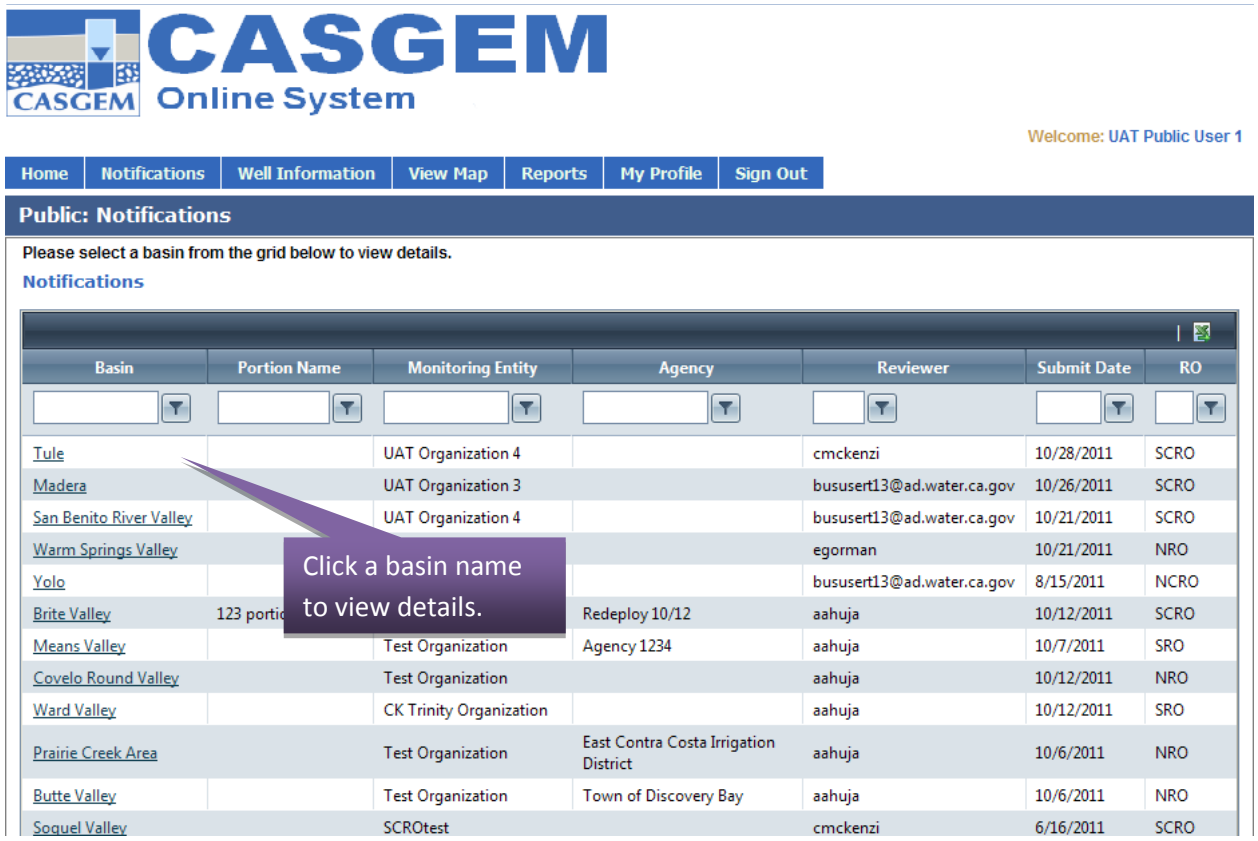
- "Notifications": for viewing existing notifications submitted by Monitoring Entities.
- "Well Information": to view existing wells submitted by Monitoring Entities and DWR officials.
- "Groundwater Elevation Data": to view existing elevation data within the CASGEM system.
- "View Map": to access the GIS functionality of the system.
- "Reports": to generate reports of the data within the CASGEM system.
- "My Profile": to manage their personal profile information.
- "Sign Out": to log out of the CASGEM OS.

Each of these is described in detail in the sections that follow.

## 2.3 Notifications

To view Notifications within the CASGEM System, public users have to select Notifications from the Public View tab.

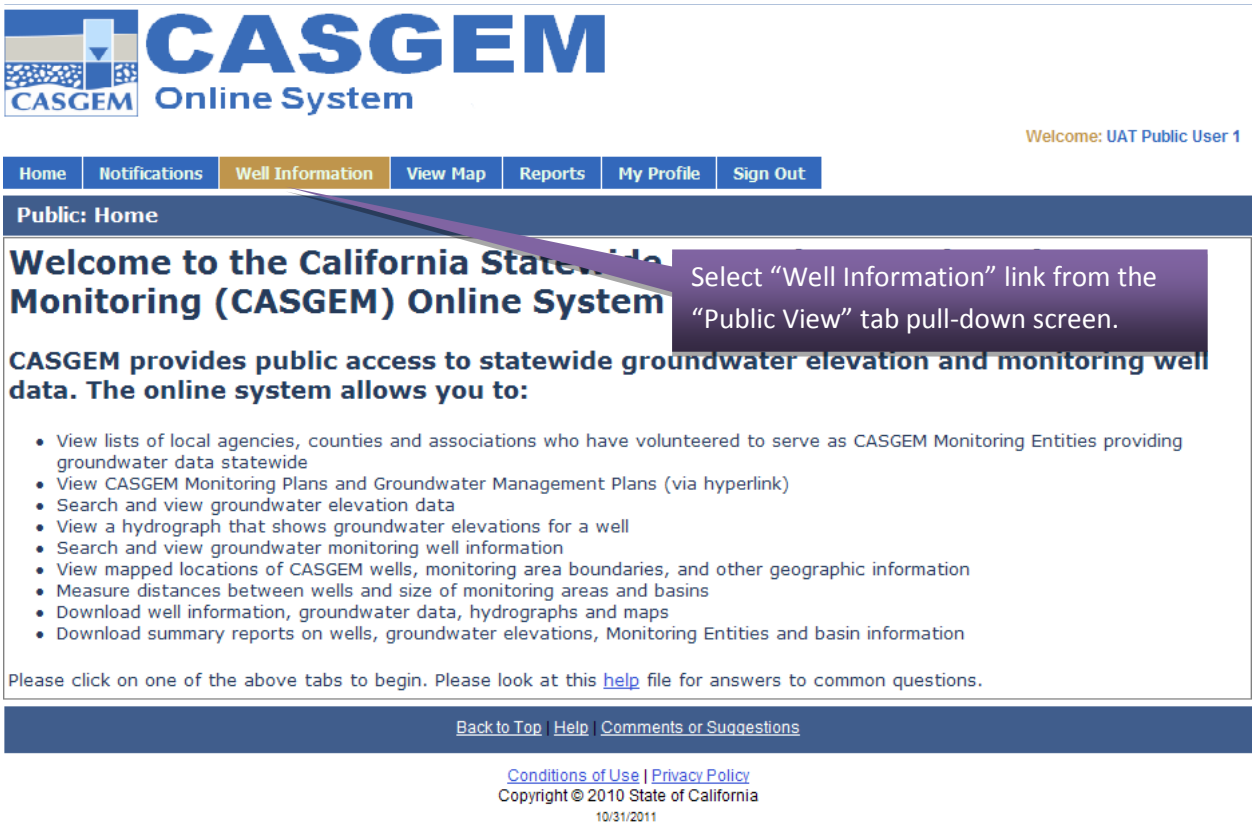
The system will open a page showing a table of Notifications. The user can chose to view details for any notification displayed by clicking on the hyperlinked basin name.



Upon clicking on a basin, the Basin Summary page will pop up, showing details about that specific basin.

## 2.4 Well Information and Groundwater Elevation Data

The Well Information screen can be reached by selecting “Well Information” from the Public View tab pull-down menu.



The Well Information page requires you to search for wells. Because the public is not associated to any Monitoring Entities, you must search from a data set of all wells within the CASGEM system by using the various search attributes available. You can also search for specific wells by one of their three potential well identification numbers if know.

CASGEM Online System

Welcome: UAT Public User 1

Home | Notifications | Well Information | View Map | Reports | My Profile | Sign Out

## Public: Well Information

### Search by Name or Number

| | |
|---|---|
| Local Well Designation | Enter Local Well Designation |
| CASGEM Well Number | Enter CASGEM Well Number |
| State Well Number | Enter State Well Number |

### Search by Attributes

| | | | |
|---|---|---|---|
| Hydrological Region | Please select a basin region | Well Use | Please select a well use type |
| Basin Name and Number | Please select a basin | Well Status | Please select well status |
| Regional Office | Northern Region Office | Completion Type | Please select a completion type |
| County | Please select a county | | |
| Monitoring Entity | Please select a monitoring entit | | |

Search | Basic Search Options

Click on "View" to view the data attributes for any of the wells, or on "View on Map" to see the well's geographical location.

| Local Well Designatio | | | | | Well Use | Depth | View On Map | Well Details |
|---|---|---|---|---|---|---|---|---|
| 34 Voluntary | Butte Valley | | | 342289N1213432W001 | Industrial | Confidential | View On Map | View |
| Bob's Well No 3 | Colusa | Just a little bit of it around my house | 15S15E22R002M | 345000N1155000W002 | Stockwatering | 155 | View On Map | View |
| 13 Voluntary NTD | Prairie Creek Area | | | 362811N1191723W001 | Irrigation | Confidential | View On Map | View |
| 6 CASGEM TD | Mattole River Valley | | | 367510N1221723W001 | Irrigation | 12 | View On Map | View |
| Erase2 | Prairie Creek Area | | | 373421N1212341W001 | Observation | Confidential | View On Map | View |
| 26 Voluntary | Butte Valley | | | 374234N1223249W001 | Observation | Confidential | View On Map | View |
| 01S08E04R001M | Eel River Valley | Coop Agency 1 Side | 01S08E04R001M | 378737N1210917W001 | Irrigation | Confidential | View On Map | View |
| 8 Voluntary TD | Butte Valley | | | 380098N1221723W001 | Irrigation | Confidential | View On Map | View |

Upon clicking on the "View" link, a new window will open and the Well Details attributes will be displayed by default for the well selected. You can also expand or minimize the well's data element displays by clicking on "View Hydrograph" or "View Elevation Data" to see these data elements associated with the well. The following screen shots are examples of the different displays.

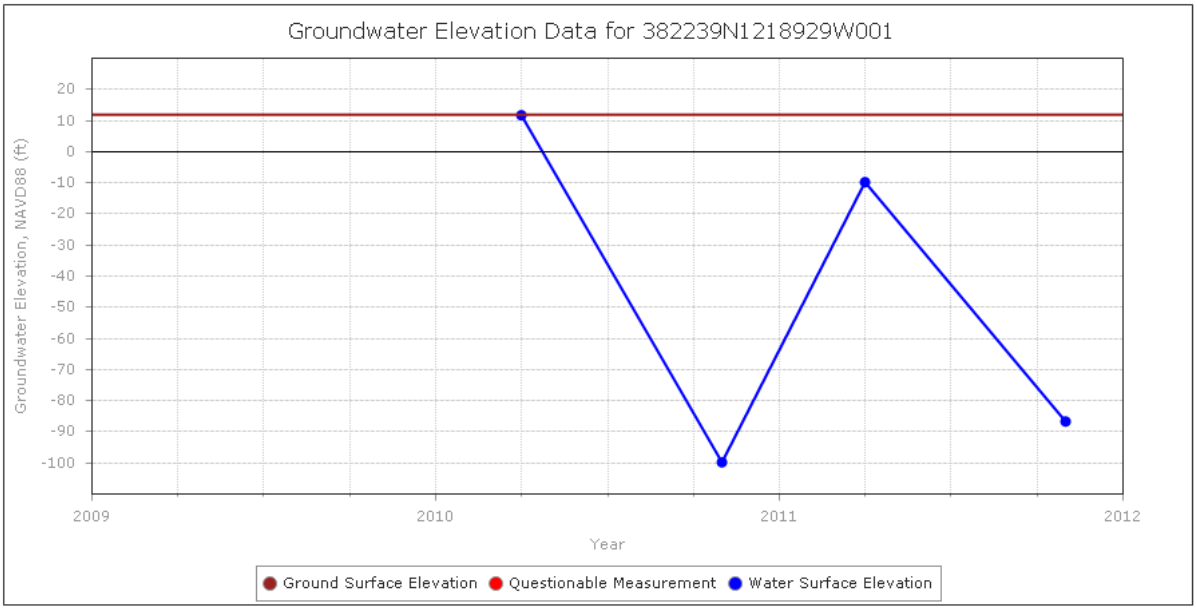
CASGEM Online System

Welcome: UAT Public User 1

## Public: Well Details

View Well Data

View Hydrograph




View Elevation Data

Close



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10/31/2011

Welcome: UAT Public User 1

## Public: Well Details

View Well Data

View Hydrograph

View Elevation Data

| Date | Military Time (PST) | NM | QM | Reading @RP | Reading @WS | RP to WS | RP Elev | GS Elev | WSE | GS to WS | Measurement Method | Measurement Accuracy | Co-op |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10/20/2011 | 00:00 | | | 100.000 | 1.100 | 98.900 | 12.300 | 12.000 | -86.600 | 98.600 | ST | 0.1 Ft | Senter Compa |
| 03/20/2011 | 00:00 | | | 22.100 | 0.100 | 22.000 | 12.300 | 12.000 | -9.700 | 21.700 | ST | 0.1 Ft | Senter Compa |
| 10/15/2010 | 00:00 | | | 112.000 | 0.000 | 112.000 | 12.300 | 12.000 | -99.700 | 111.700 | ST | 0.1 Ft | Senter Compa |
| 03/10/2010 | 00:00 | | | 1.000 | 0.500 | 0.500 | 12.300 | 12.000 | 11.800 | 0.200 | ST | 0.1 Ft | Senter Compa |

Close



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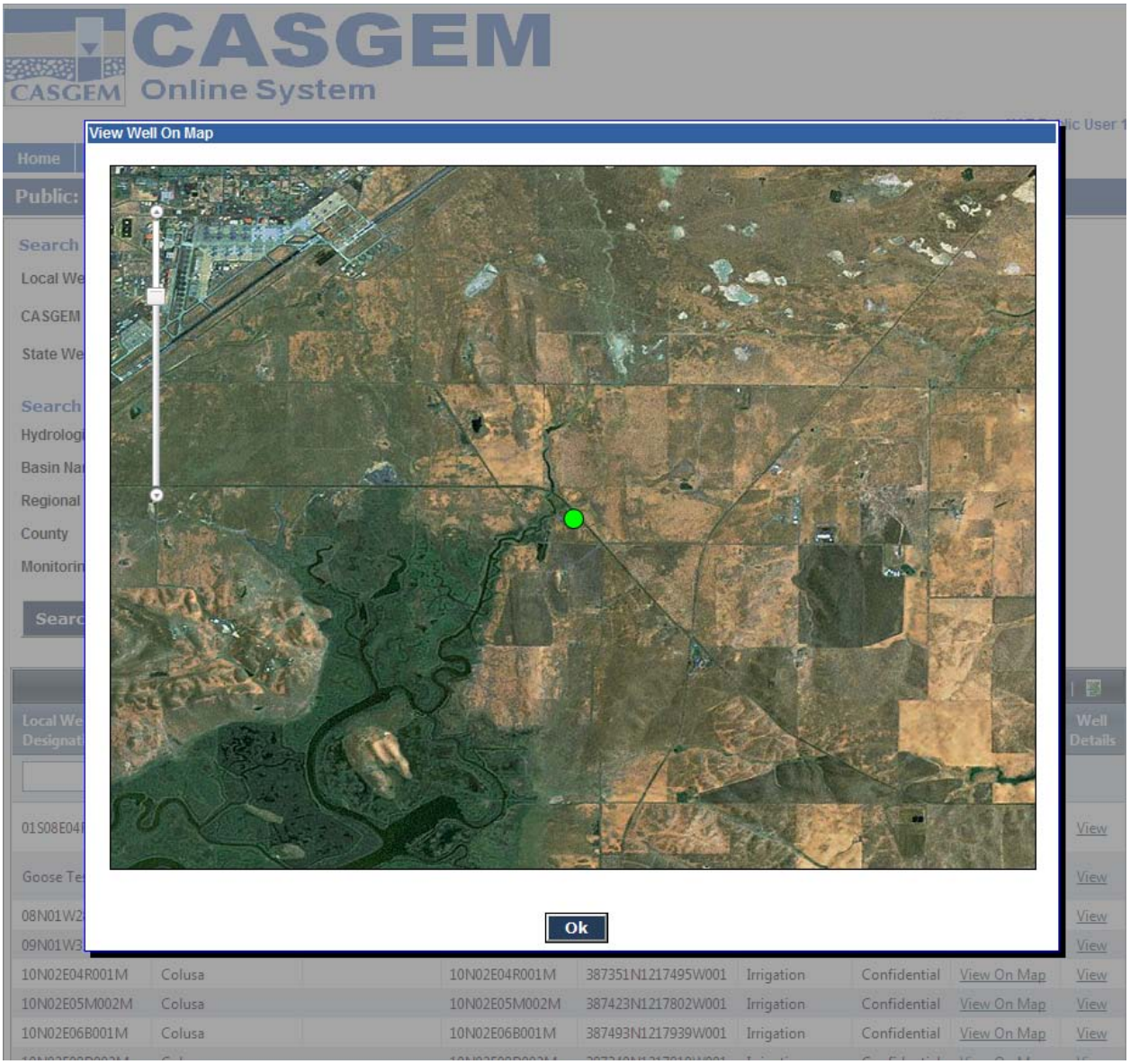
10/31/2011

Upon clicking on the “View on Map” link on the Well Information page, another window will open displaying the well’s location on an aerial photo as shown in the following screen shot.



## 2.5 Reports

The Reports function can be accessed by clicking on "Reports" link from the Public View tab pull-down menu as shown below. The Reports function allows you to generate reports of the data within the CASGEM system, based on different sets of search criteria.

Reports can be viewed within the CASGEM web application, as well as exported to Excel and saved to your local file system, or printed.

Keep in mind that the Reports function has certain limitations; these are described in the sections that follow.

### 2.5.1 Program Level Reports

#### *Report on Basins*

This report provides a list of basins depending on different search criteria. You can search by any of the below listed criteria, but only CASGEM basins that have a "designated" status will be displayed in the results. The search is based on the following criteria:

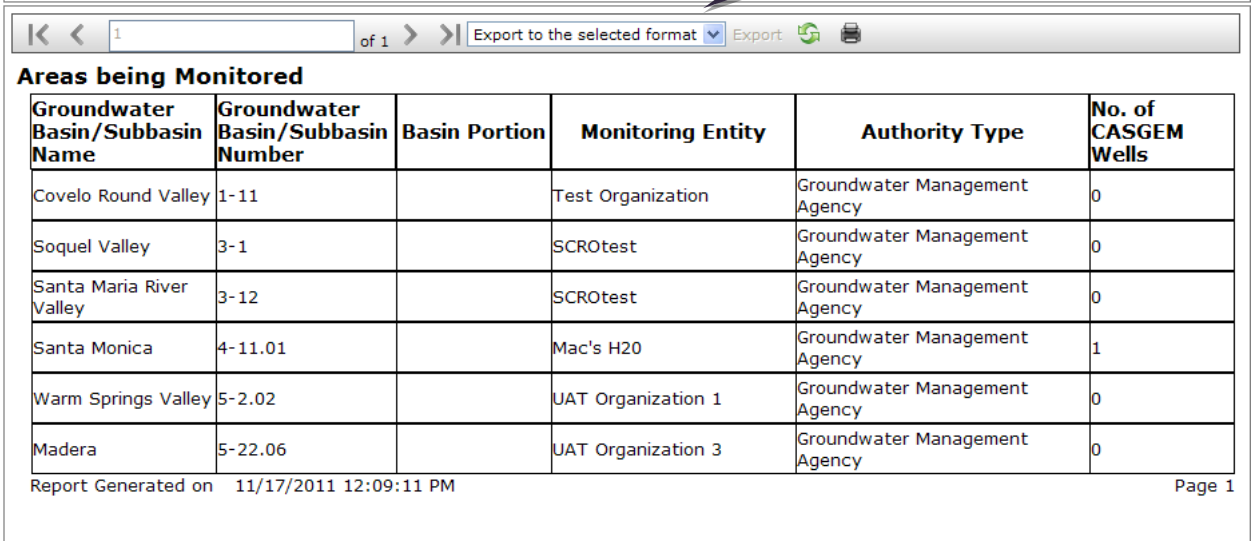
a. By Groundwater Basin/Sub-basin Name
b. By Groundwater Basin/Sub-basin Number
c. By Monitoring Entity
d. By Authority type
e. By Date (mm/yyyy) include in the title (as of date)
f. By Date Range (To view the Status Changes)

Based on the selection criteria mentioned above, the following search results will be generated:

- Areas being Monitored; containing the following information:
  a. Total Number of Monitoring Entities
  b. Total Number of Groundwater Basins/Sub-basins being Monitored (as Oct. 2011.)
  c. Total Number of CASGEM Wells

d. Total Number of Voluntary Wells
e. Total Number of Wells
f. Groundwater Basin/Sub-basin Name
g. Groundwater Basin/Sub-basin Number
h. County
i. Monitoring Entity
j. Authority Type
k. Number of CASGEM Wells

- Areas not being Monitored; containing the following information:
  a. Total Number of Groundwater Basins/Sub-basins not being Monitored
  b. Total Number of Counties not being monitored
  c. Groundwater Basin/Sub-basin Name
  d. Groundwater Basin/Sub-basin Number
  e. County




**Areas being Monitored**

| Groundwater Basin/Subbasin Name | Groundwater Basin/Subbasin Number | Basin Portion | Monitoring Entity | Authority Type | No. of CASGEM Wells |
|---|---|---|---|---|---|
| Covelo Round Valley | 1-11 | | Test Organization | Groundwater Management Agency | 0 |
| Soquel Valley | 3-1 | | SCROtest | Groundwater Management Agency | 0 |
| Santa Maria River Valley | 3-12 | | SCROtest | Groundwater Management Agency | 0 |
| Santa Monica | 4-11.01 | | Mac's H20 | Groundwater Management Agency | 1 |
| Warm Springs Valley | 5-2.02 | | UAT Organization 1 | Groundwater Management Agency | 0 |
| Madera | 5-22.06 | | UAT Organization 3 | Groundwater Management Agency | 0 |

Report Generated on 11/17/2011 12:09:11 PM Page 1

### *Report on Plans*

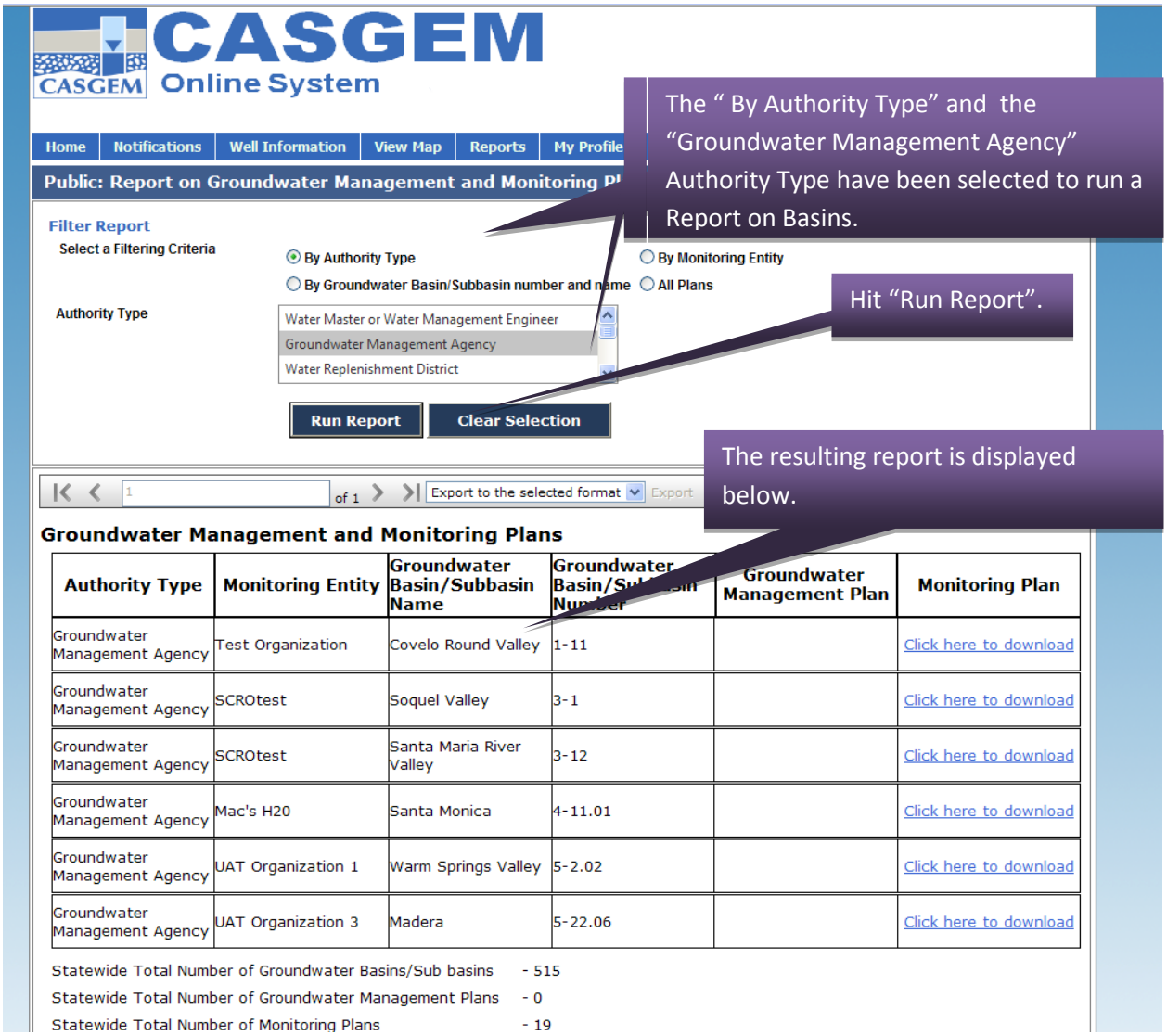
This report provides a list of plans depending on different search criteria. The user can search for Groundwater Management Plans or Monitoring Plans.

The search is based on the following criteria:

a. By Groundwater Basin/Sub-basin Name
b. By Groundwater Basin/Sub-basin Number
c. By Monitoring Entity
d. By Authority Type
e. By County
f. By State (California)

Based on the selection criteria mentioned above, the following search results will be generated:

- Total Number of Groundwater basins/sub-basins
- Total number of Groundwater Management Plans
- Total Number of Monitoring Plans
- Authority Type
- Monitoring Entity
- Groundwater Basin/Sub-basin Name
- Groundwater Basin/Sub-basin Number
- County
- Monitoring Plan (including hyperlink to Plan)
- Groundwater Management Plan (including hyperlink to Plan)


CASGEM
Online System
Home
Notifications
Well Information
View Map
Reports
My Profile
Public: Report on Groundwater Management and Monitoring Pl
Filter Report
Select a Filtering Criteria
By Authority Type
By Monitoring Entity
By Groundwater Basin/Subbasin number and name
All Plans
Authority Type
Water Master or Water Management Engineer
Groundwater Management Agency
Water Replenishment District
Run Report
Clear Selection
The " By Authority Type" and the "Groundwater Management Agency" Authority Type have been selected to run a Report on Basins.
Hit "Run Report".
The resulting report is displayed below.
of 1
Export to the selected format
Export
Groundwater Management and Monitoring Plans
Authority Type
Monitoring Entity
Groundwater Basin/Subbasin Name
Groundwater Basin/Sub
Groundwater Management Plan
Monitoring Plan
Groundwater Management Agency
Test Organization
Covelo Round Valley
1-11
Click here to download
Groundwater Management Agency
SCROtest
Soquel Valley
3-1
Click here to download
Groundwater Management Agency
SCROtest
Santa Maria River Valley
3-12
Click here to download
Groundwater Management Agency
Mac's H20
Santa Monica
4-11.01
Click here to download
Groundwater Management Agency
UAT Organization 1
Warm Springs Valley
5-2.02
Click here to download
Groundwater Management Agency
UAT Organization 3
Madera
5-22.06
Click here to download
Statewide Total Number of Groundwater Basins/Sub basins - 515
Statewide Total Number of Groundwater Management Plans - 0
Statewide Total Number of Monitoring Plans - 19

### 2.5.2 Water Data Reports

#### *Report of Wells*

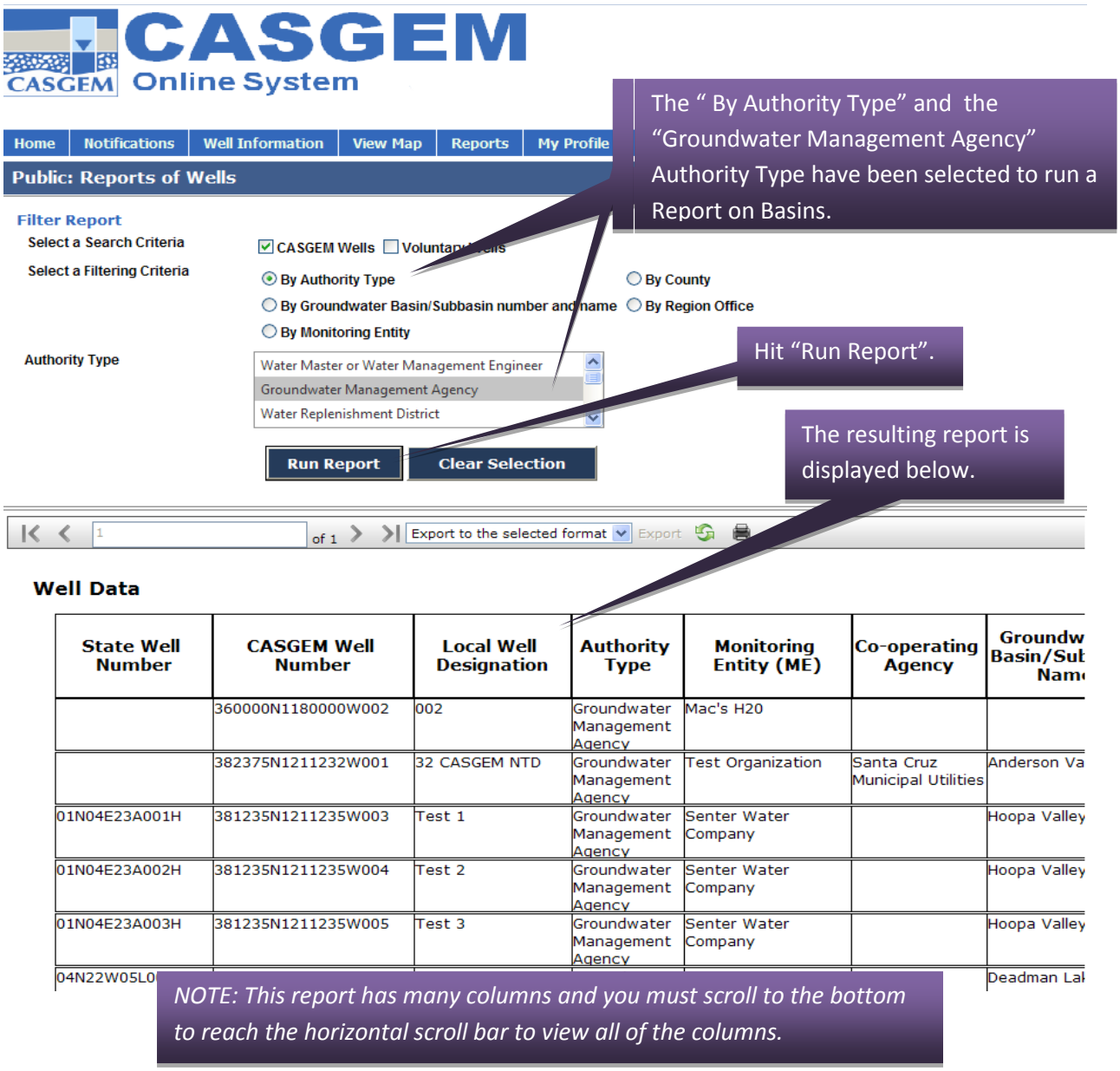
This report provides information on Wells depending on different search criteria. You can search for CASGEM and/or Voluntary Wells.

The search is based on the following criteria:

a) By Authority type
b) By Groundwater Basin/Sub-basin Name
c) By Groundwater Basin/Sub-basin Number
d) By Monitoring Entity
e) By County
f) By State (California)
g) By Region Office
h) By Well Group

Based on the selection criteria mentioned above, the following data elements will be generated:

1. State Well Number
2. CASGEM Well Number
3. Local Well Designation
4. ME Authority Type
5. Monitoring Entity
6. Co-operating Agency Association (if Any)
7. Groundwater Basin/Sub-basin Name
8. Groundwater Basin/Sub-basin Number
9. County
10. Type of Well - CASGEM Well/Voluntary Well
11. Status of Well – Active/Inactive
12. Well Usage
13. Measurement Count (No. of Elevation Data records)
14. Earliest Elevation Measurement Date
15. Most recent Elevation Measurement Date
16. Minimum Groundwater elevation measured
17. Minimum Groundwater elevation Measurement Date
18. Maximum Groundwater elevation measured
19. Maximum Groundwater elevation Measurement Date
20. Latitude
21. Longitude




### *Report of Monitoring Entities*

This report provides a listing of MEs within the CASGEM system.

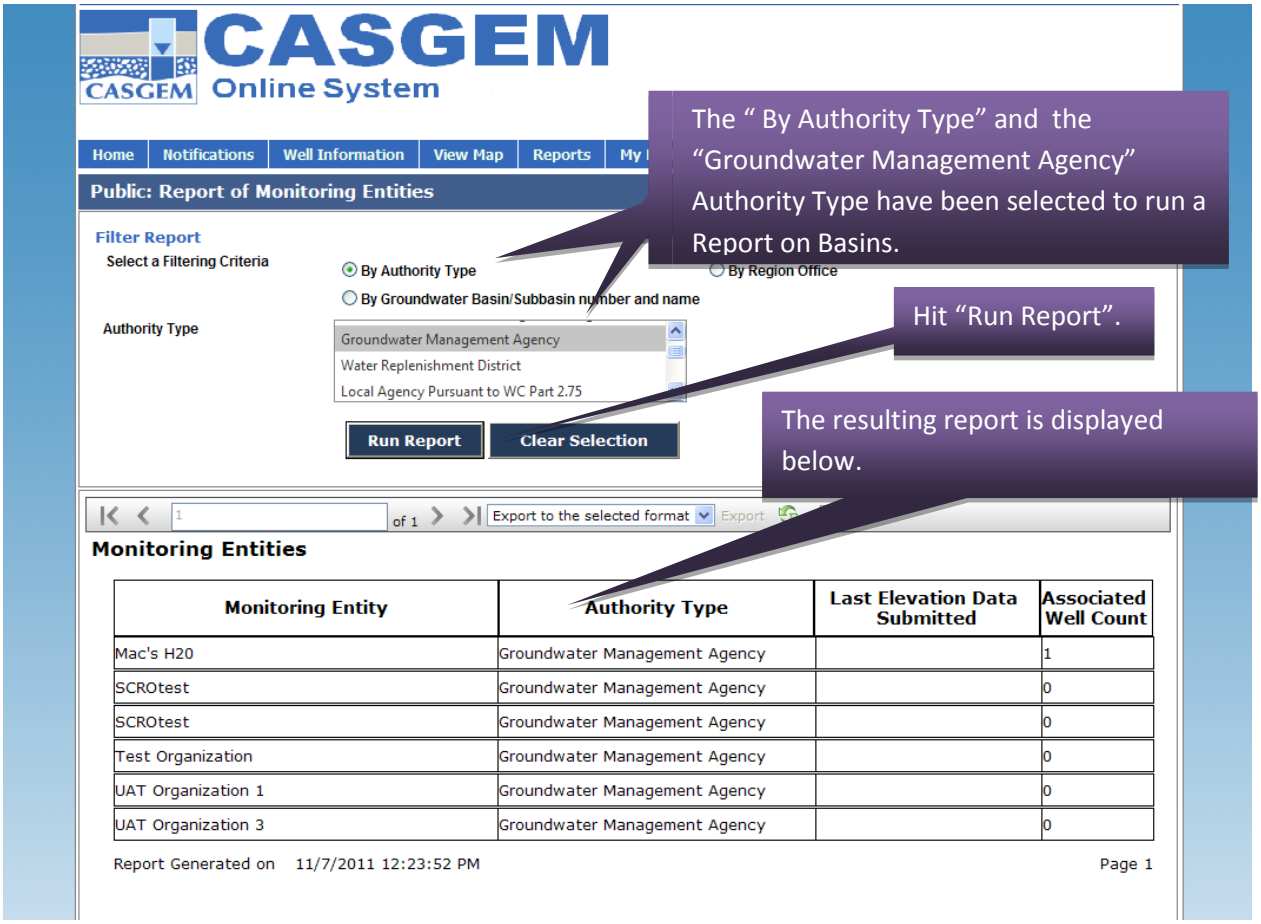
The search is based on the following criteria:

a) By Authority type
b) By Groundwater Basin/Sub-basin name
c) By Groundwater Basin/Sub-basin number
d) By Region Office

Based on the selection criteria mentioned above, the following data elements will be generated:

1. Monitoring Entity Name
2. ME Authority Type
3. Last Elevation Data Submitted

4. Number of Wells Associated



### 2.5.3 Elevation Data Reports

#### *Report of Groundwater Elevation Data*

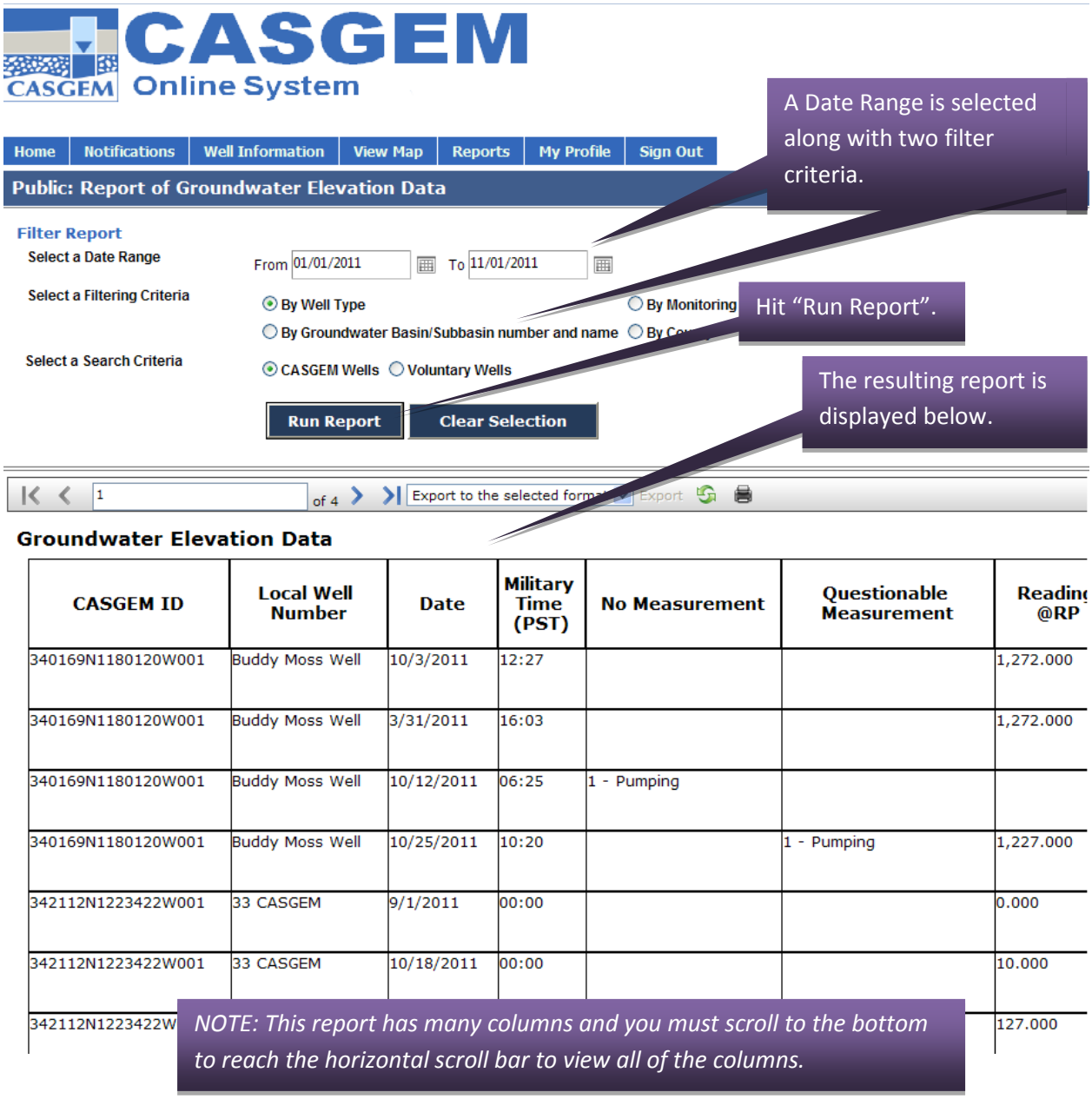
This report provides Elevation Data of wells. The public user can search for CASGEM and/or Voluntary Wells.

The search is based on choosing a data range and one of the following search criteria:

a) Well Status (CASGEM/Voluntary)
b) Well Group
c) Monitoring Entity
d) Groundwater Basin/Sub-basin name
e) Groundwater Basin/Sub-basin number
f) County

Based on the selection criteria mentioned above, the following data elements will be generated:

1. CASGEM ID
2. Local Well Number
3. State Well Number
4. Date
5. Military Time (PST)
6. NM
7. QM
8. Reading @ RP
9. Reading @ GS
10. RP to WS
11. RP Elev
12. GS Elev
13. WSE
14. GS to WS
15. Measurement Method
16. Accuracy
17. Collecting/ Co-op Agency
18. Voluntary or CASGEM measurement
19. Comments




**Groundwater Elevation Data**

| CASGEM ID | Local Well Number | Date | Military Time (PST) | No Measurement | Questionable Measurement | Readin @RP |
|---|---|---|---|---|---|---|
| 340169N1180120W001 | Buddy Moss Well | 10/3/2011 | 12:27 | | | 1,272.000 |
| 340169N1180120W001 | Buddy Moss Well | 3/31/2011 | 16:03 | | | 1,272.000 |
| 340169N1180120W001 | Buddy Moss Well | 10/12/2011 | 06:25 | 1 - Pumping | | |
| 340169N1180120W001 | Buddy Moss Well | 10/25/2011 | 10:20 | | 1 - Pumping | 1,227.000 |
| 342112N1223422W001 | 33 CASGEM | 9/1/2011 | 00:00 | | | 0.000 |
| 342112N1223422W001 | 33 CASGEM | 10/18/2011 | 00:00 | | | 10.000 |
| 342112N1223422W | | | | | | 127.000 |

*NOTE: This report has many columns and you must scroll to the bottom to reach the horizontal scroll bar to view all of the columns.*

## 2.6 View Map

The public user can also utilize the GIS functionality to search for wells and perform analysis using the GIS application. To access the GIS functionality, the public user has to click on the View Map tab.

- Upon entering the Map View, you can do the following:
  1. Search for Wells/Basins/Notifications
  2. Turn on/off Layers on the Map
  3. Identify Wells
  4. Draw & Measure on the Map
  5. Print anything on the Map
  6. Export search results
  7. View Hydrographs for wells
  8. View Designated Basins and Unmonitored/Not Designated basins (any basin where there is not a Designated ME, then it will be an Unmonitored or Not Designated basin)

## 2.7 GIS Functionality

The CASGEM OS is enabled with a Geographic Information System (GIS) to provide mapping capability for the associated database. Section 2.5 includes basic instructions on how to operate the GIS, as well as instruction on operations that are unique to the CASGEM OS. Topics covered in this section include:


2.7.1 View Map / GIS Viewer
2.7.2 GIS Minimum Computer Requirements
2.7.3 Initial Map Layout Presentation
2.7.4 Top Bar Functions
2.7.5 CASGEM Search
- 2.7.5.1 Using the Search Menu to Find Wells
- 2.7.5.2 Exporting Search Results to Excel
- 2.7.5.3 Using the Search Menu to Find Basin Notifications
- 2.7.5.4 Using the Search Menu to Find Unmonitored Basins

2.7.6 Layer Control
- 2.7.6.1 Using the Map Layer Control Menu
- 2.7.6.2 Using the Layer Transparency Tool

2.7.7 Identify
- 2.7.7.1 Working with the Identify Menu
- 2.7.7.2 Identifying Features by Point Selection
- 2.7.7.3 Identifying Features by Polyline Selection
- 2.7.7.4 Identifying Features by Rectangle Selection
- 2.7.7.5 Identifying Features by Polygon Selection

2.7.8 Draw and Measure
- 2.7.8.1 Measuring the Distance between Two Wells
- 2.7.8.2 Using the Text Tool

2.7.9 Save and Print
2.7.10 Elevation Data Hydrograph
- 2.7.10.1 Single Well Hydrograph
- 2.7.10.2 Multiple Wells Hydrograph

2.7.11 Quick Find for Wells and Basins
- 2.7.11.1 Searching for Wells Using Quick Find
- 2.7.11.2 Searching for Basins

2.7.12 Help Icon
2.7.13 Base Map Toggle
2.7.14 Overview Map
2.7.15 Scale Bar and Coordinates
2.7.16 Navigation

### 2.7.1 View Map / GIS Viewer

The GIS Viewer provides the following functionalities:

- Enables users to spatially view the different geographic features related to the CASGEM Program. These features include Groundwater basins, Basin Notifications, monitored wells, and administrative boundaries.
- Enables users to search for Basin Notifications, monitored wells, unmonitored basins, and overlapped Basin Notifications, based on single or multiple search criteria. Results of searches are shown in tabular format as well as on a GIS map.

Note: The GIS Viewer does not verify that the Monitoring Entity boundaries or wells are geographically located in the correct basin.

The following is a list of the major components of the GIS viewer, which are discussed in detail in upcoming sections:

I. Initial Map Layout Presentation
II. Top Bar
III. Base Map Toggle
IV. Toggle and Scroll button
V. Overview Map
VI. Scale Bar and Coordinates
VII. Navigation
VIII. Search Results

### 2.7.2 GIS Minimum Computer Requirements

The CASGEM web application has been designed to work most efficiently on computers that have the following minimum specifications:

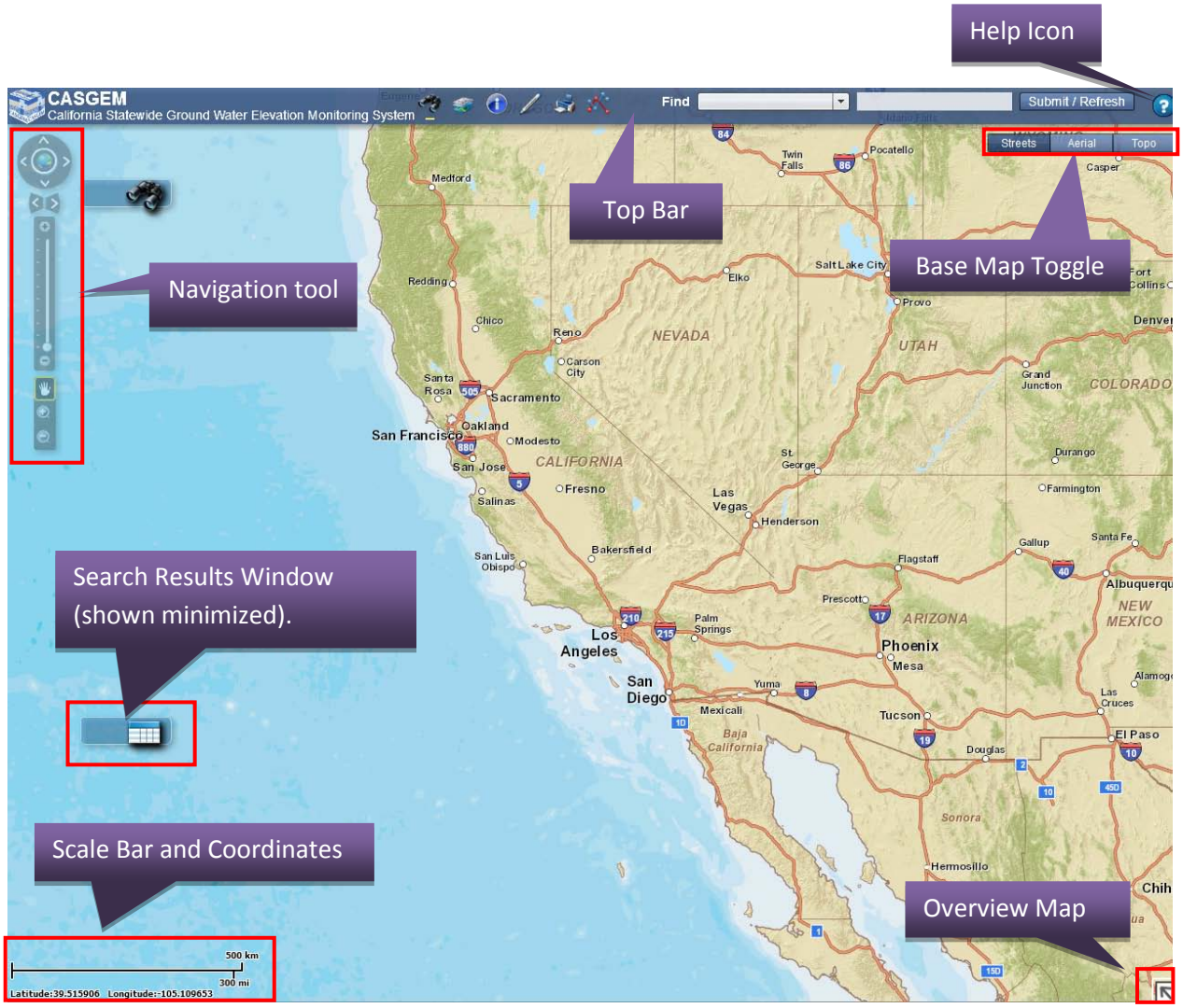
| | |
|---|---|
| Processor: | Dual Core - 1.67 GHz CPU |
| Memory: | 1 GB RAM |
| Operating System: | Windows XP or more recent |
| Browser: | Internet Explorer 8 with Adobe Flash Player (v10.1 or higher) |

If your system does not meet these specifications, the application might not perform optimally.

**Note:** Make sure that all pop-up blockers are turned-off, including those that are part of Google, Yahoo, MSN or similar toolbars.

## 2.7.3 Initial Map Layout Presentation

This is the default page of the GIS Map viewer which opens up within a new window when the "View Map" tab in the CASGEM application page is clicked.



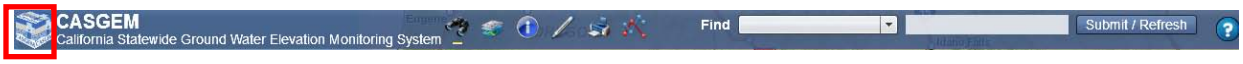
### 2.7.4 Top Bar Functions

The Top Bar is located on the top left of the Map View screen.

- The following menu icons are present in the Top Bar:
    1. CASGEM Search
    2. Layer Control
    3. Identify
    4. Draw & Measure
    5. Save and Print
    6. Elevation Data Hydrograph
    7. Quick Find for Wells and Basins
    8. Help Icon

- When clicked, these menu icons open separate related windows on-screen, which can then be minimized, moved or hidden, using the controls on the map view.
- The individual menu items are described in detail in the following sections.

The Top Bar can be minimized or maximized by clicking on the cube with the CASGEM logo on the far left of the Top Bar.




Upon clicking on the CASGEM logo, the Top Bar is hidden. Click on the logo again to re-expand the Top Bar.

## 2.7.5 CASGEM Search

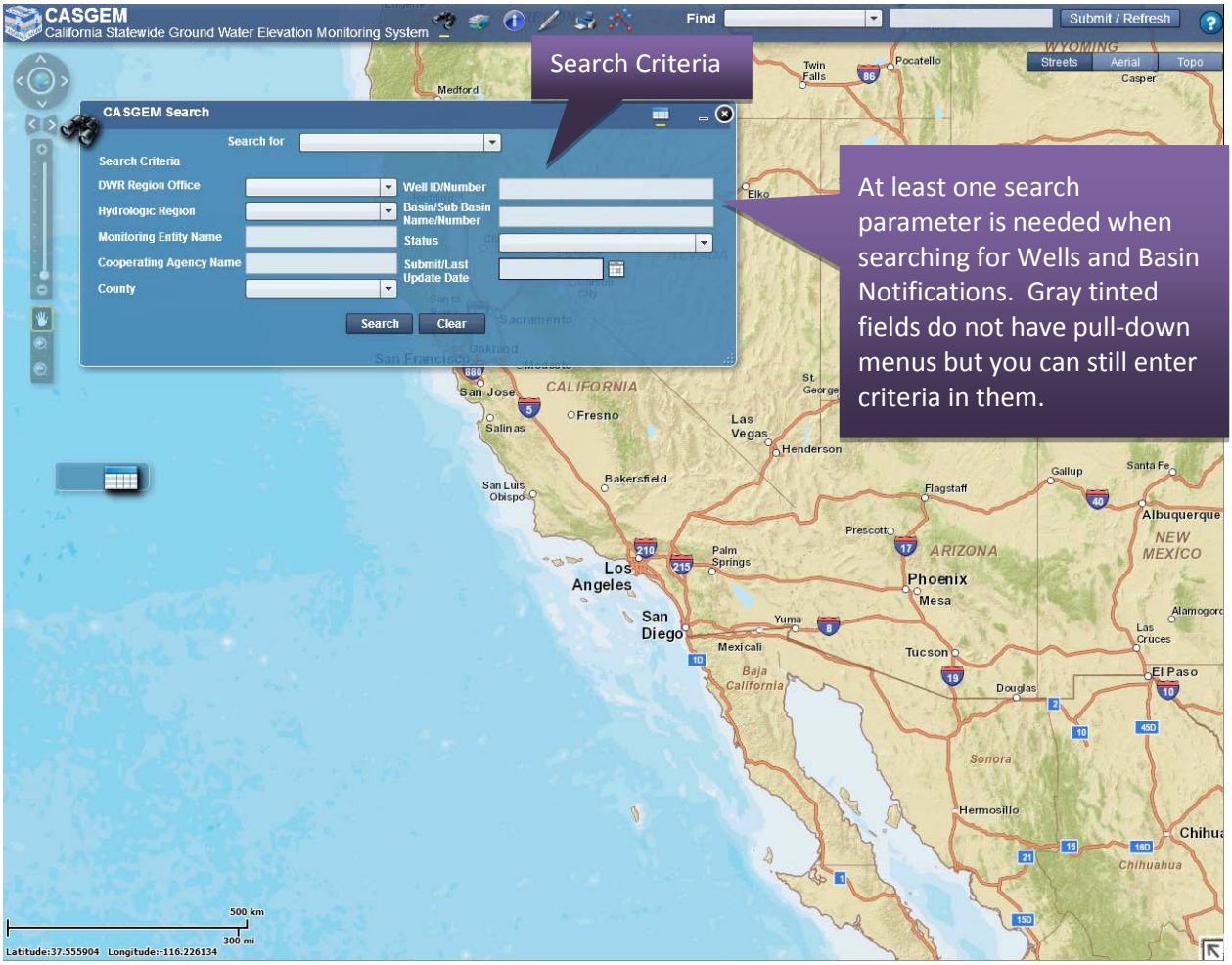
The CASGEM Search menu provides users with the ability to search for Monitored Wells, Basin Notifications, Unmonitored Basins, and Overlapped Basin Notifications, based on various search criteria defined by the user in the search window. Topics covered in this subsection include:


2.7.5.1 Using the Search Menu to Find Wells
2.7.5.2 Exporting Search Results to Excel
2.7.5.3 Using the Search Menu to Find Basin Notifications
2.7.5.4 Using the Search Menu to Find Unmonitored Basins

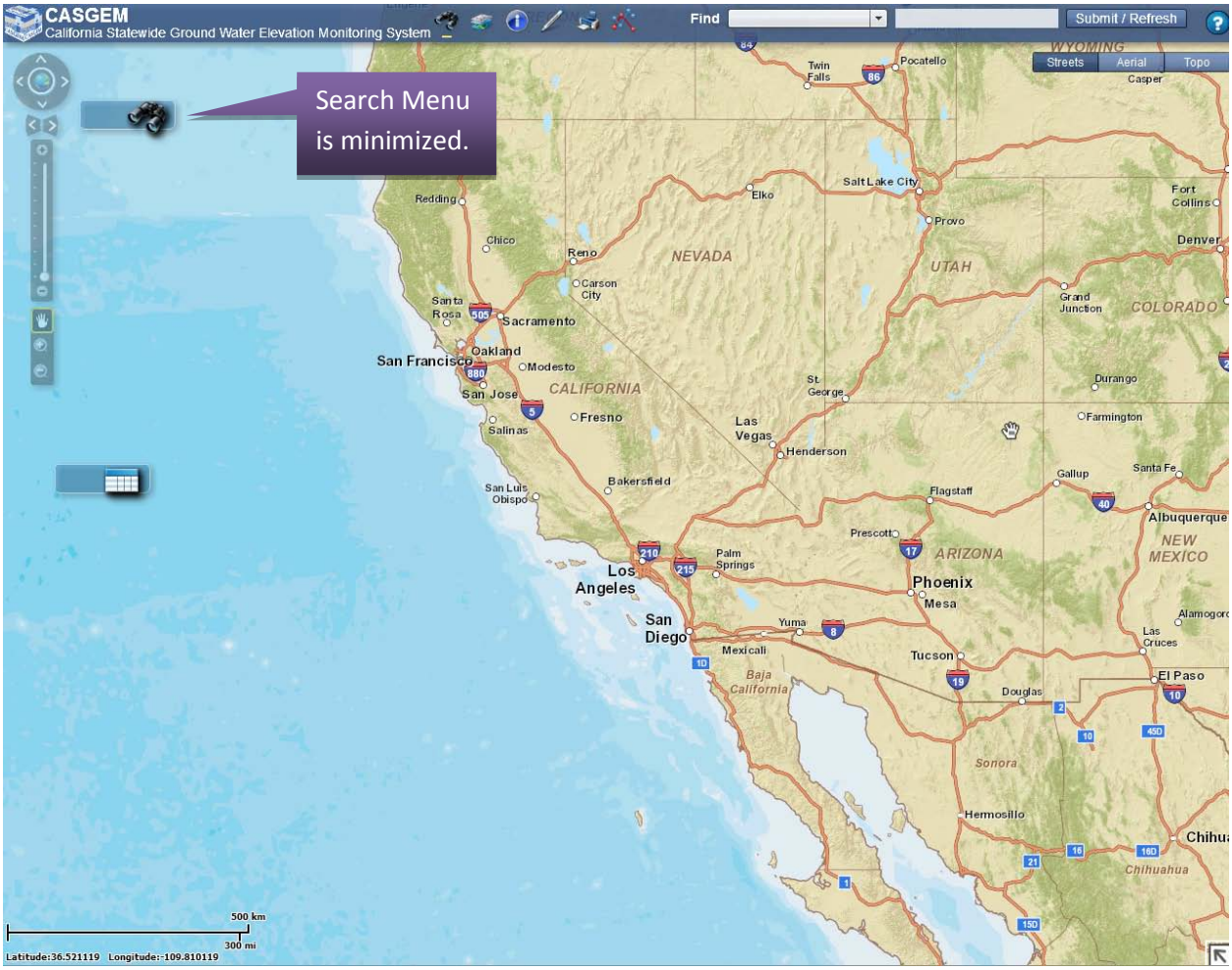

To access the CASGEM Search widget, click on the Search icon on the Top Bar. The Search Menu will pop up and display its dialog window on the map.

Listed below are some of the characteristics of the CASGEM Search Menu:

- The search can be simple, based on one parameter, or advanced, based on multiple criteria.
  - CASGEM Search criteria are not case sensitive and users can do wild card searches.
  - The CASGEM Search parameter for Submit/Last update date has a calendar to assist the user in selecting a date.
  - Any portion of a valid character string can be entered into the various search fields.
- Upon submitting a search:
  - The Search Results table will open providing the search results in tabular format.
  - The search results will be displayed graphically on the map.

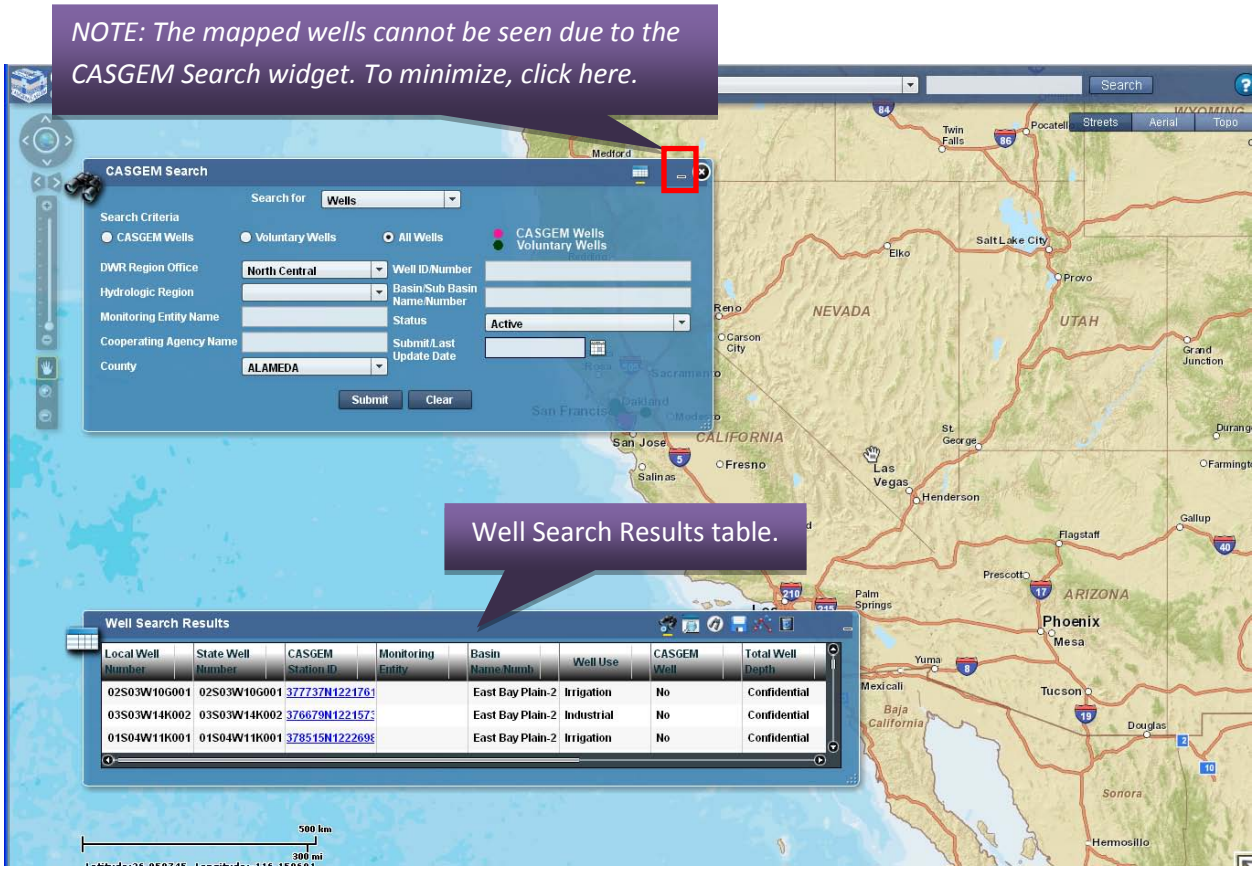



- To minimize the Search Menu, click on the minimize button on the CASGEM Search Menu window dialog. The Search Menu will minimize on the map viewer as shown in the picture below. Clicking on the minimized icon again will re-open the search dialog window on the map.

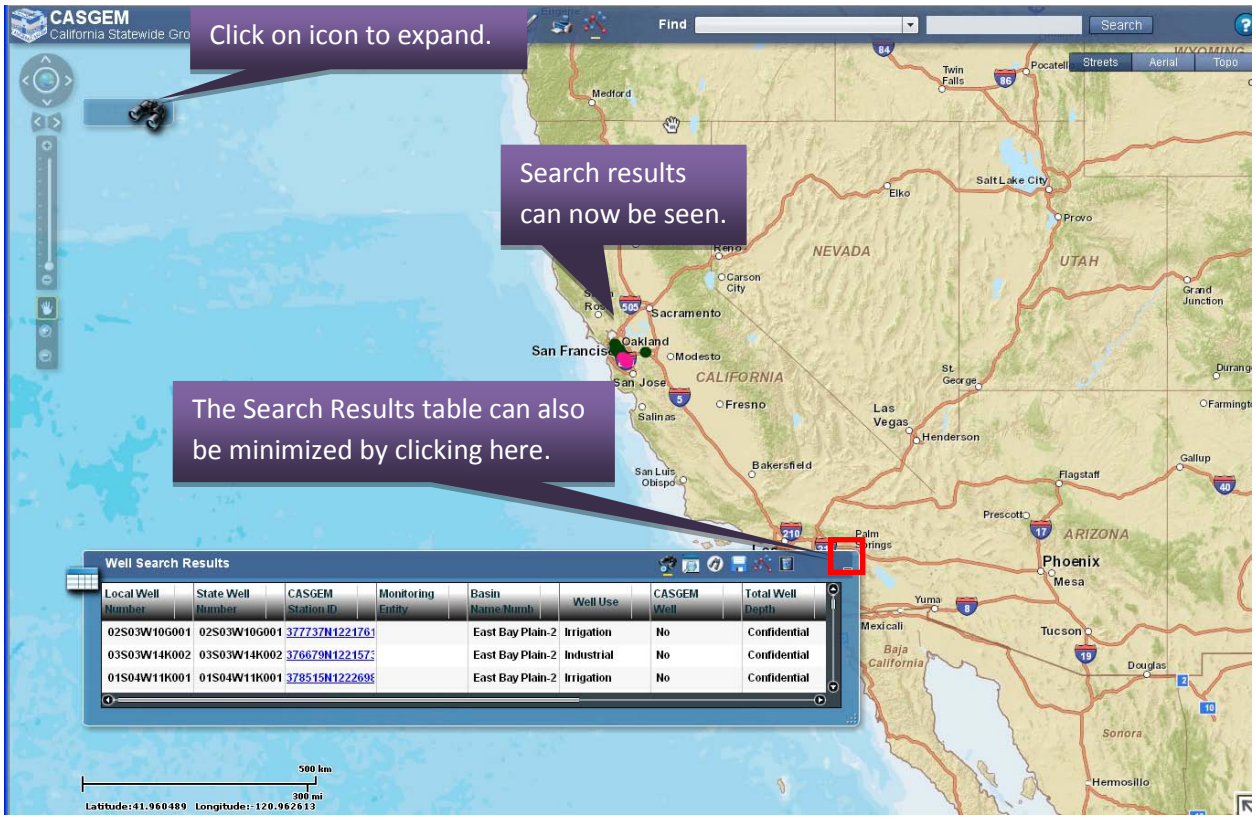

CASGEM
California Statewide Ground Water Elevation Monitoring System
Find
Submit / Refresh
Streets
Aerial
Topo
Search Menu is minimized.
WYOMING
Casper
Pocatello
Twin Falls
Salt Lake City
Elko
Redding
Chico
Reno
NEVADA
Carson City
Provo
UTAH
Fort Collins
Denver
Grand Junction
COLORADO
Santa Rosa
Sacramento
Oakland
San Francisco
Modesto
San Jose
CALIFORNIA
Fresno
Salinas
St. George
Durango
Farmington
Las Vegas
Henderson
Bakersfield
San Luis Obispo
Flagstaff
Gallup
Santa Fe
Albuquerque
Prescott
ARIZONA
NEW MEXICO
Palm Springs
Los Angeles
Phoenix
Mesa
San Diego
Yuma
Mexicali
Baja California
Tucson
Las Cruces
El Paso
Douglas
Sonora
Hermosillo
Chihuahua
500 km
300 mi
Latitude:36.521119 Longitude:-109.810119

### 2.7.5.1 Using the Search Menu to Find Wells

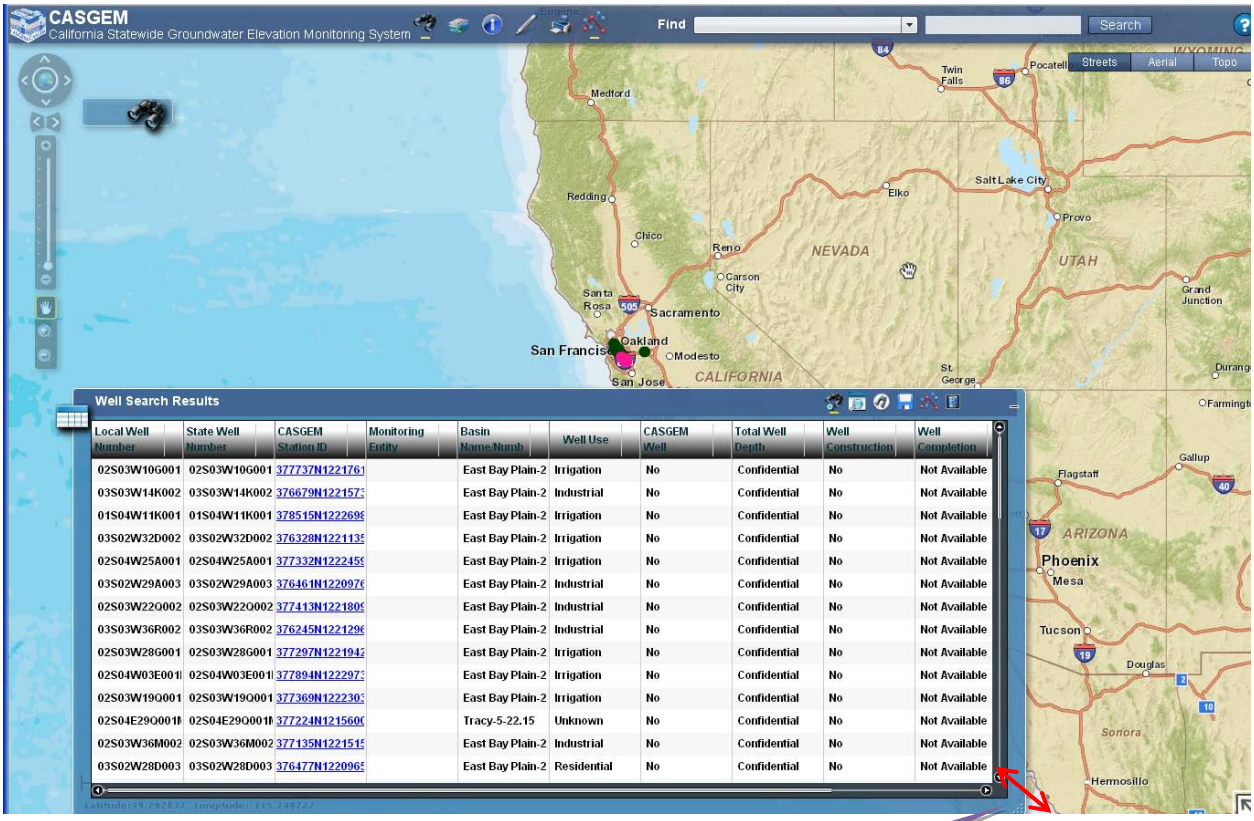
- Upon opening the CASGEM Search Menu, select “Wells” in the “search for” drop-down menu.
- Select your search criteria and click on the Search button.
    - The Search Results table will open, displaying the Well Search Results. Note: If a well is monitored by more than one agency it will show up twice in the search results.
    - The results will also be portrayed on the map.



- To properly view the results displayed on the map, it will help to minimize the CASGEM Search window. This is done by clicking on the hyphen icon in the upper right hand corner of the CASGEM Search window. The screenshot below displays the CASGEM Search window minimized and the Well Search Results still open.

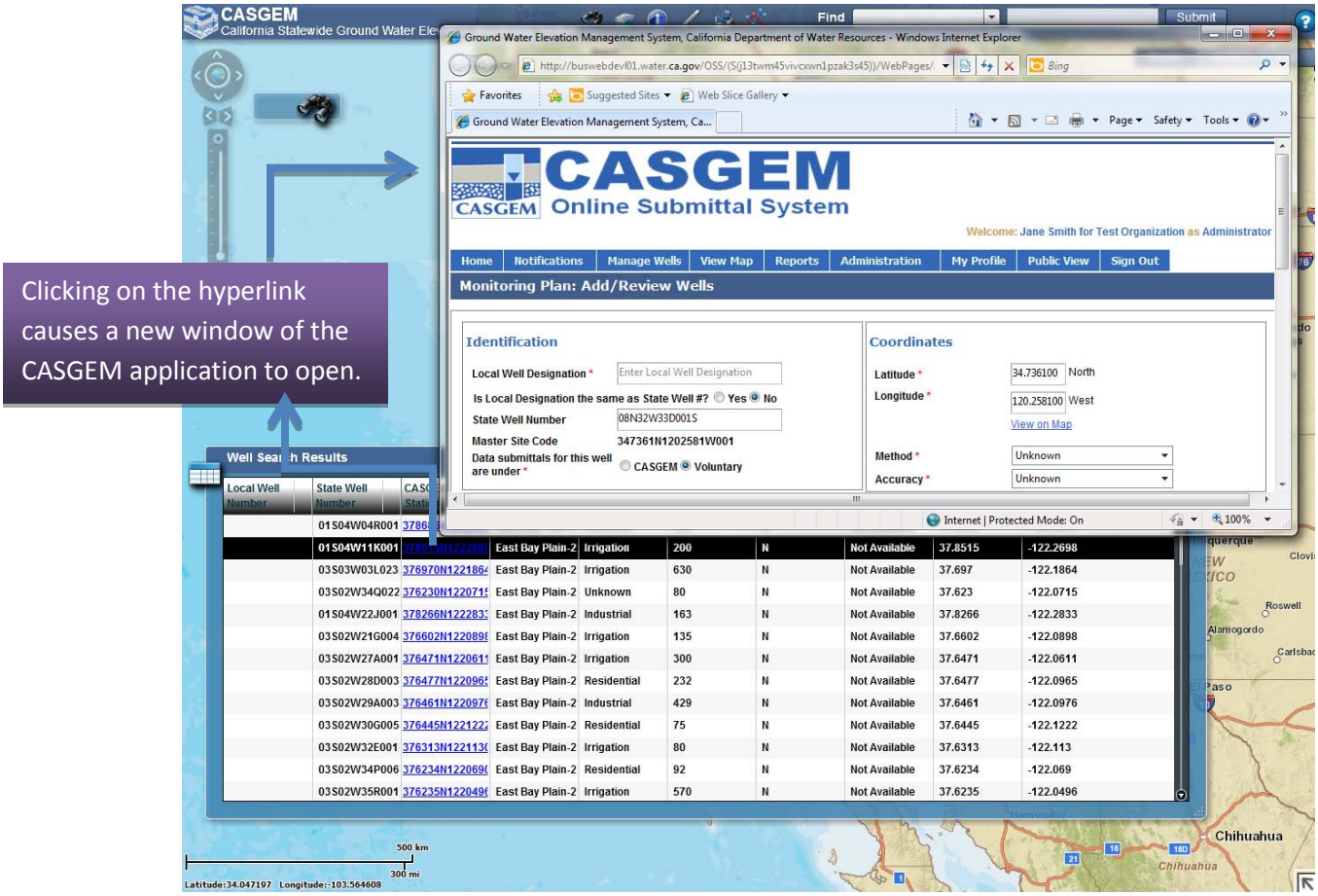


- To view details of the search results, it may help to re-size the Well Search Results table. That can be done by dragging the lower right hand corner. The table can also be re-positioned by clicking and holding the outline of the table. Moving your mouse will then move the table. Below, the Search Results table has been re-sized and moved so more of the search results can be seen.

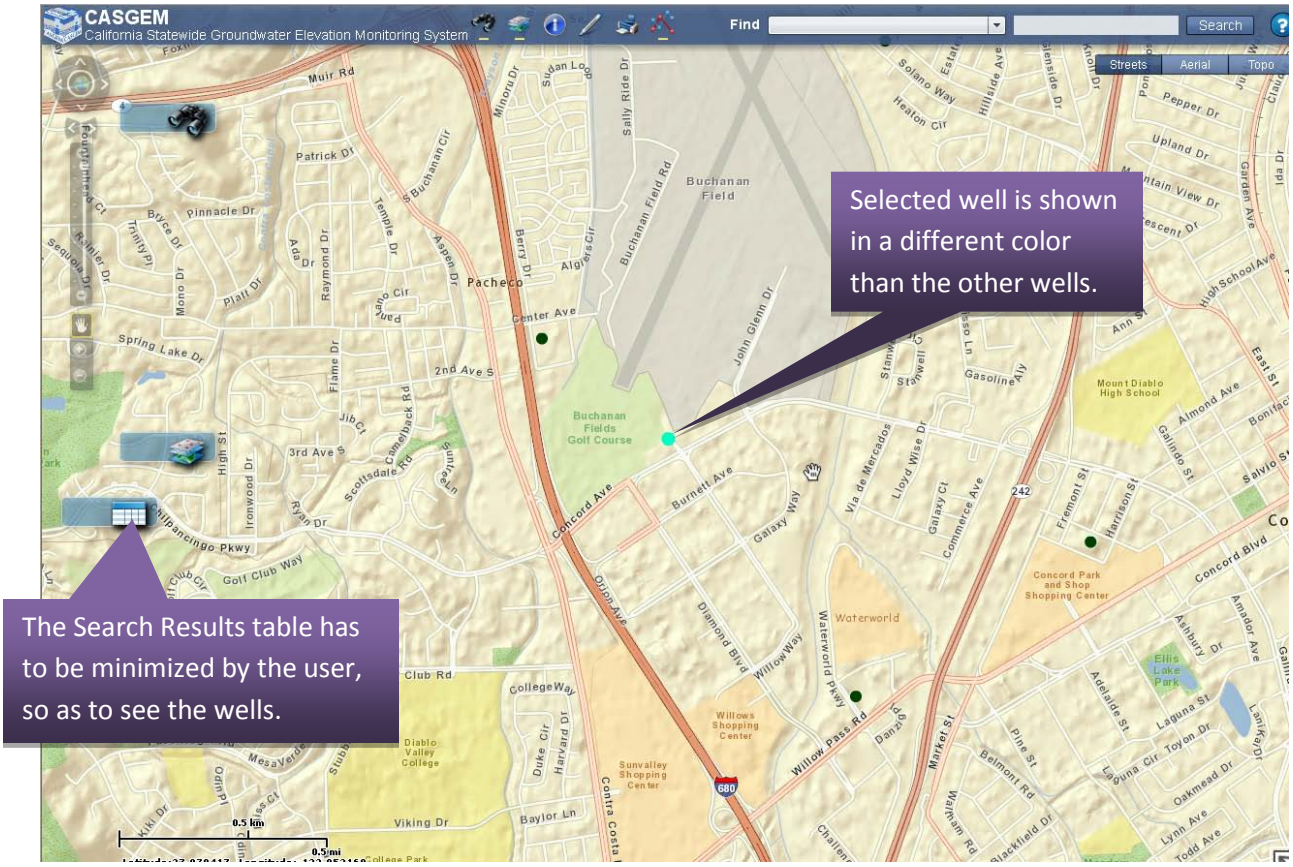



| Local Well Number | State Well Number | CASGEM Station ID | Monitoring Entity | Basin Name/Numb | Well Use | CASGEM Well | Total Well Depth | Well Construction | Well Completion |
|---|---|---|---|---|---|---|---|---|---|
| 02S03W10G001 | 02S03W10G001 | 377737N1221761 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 03S03W14K002 | 03S03W14K002 | 376679N122157 | | East Bay Plain-2 | Industrial | No | Confidential | No | Not Available |
| 01S04W11K001 | 01S04W11K001 | 378515N122269 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 03S02W32D002 | 03S02W32D002 | 376328N122113 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 02S04W25A001 | 02S04W25A001 | 377332N122245 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 03S02W29A003 | 03S02W29A003 | 376461N122097 | | East Bay Plain-2 | Industrial | No | Confidential | No | Not Available |
| 02S03W22Q002 | 02S03W22Q002 | 377413N122180 | | East Bay Plain-2 | Industrial | No | Confidential | No | Not Available |
| 03S03W36R002 | 03S03W36R002 | 376245N122129 | | East Bay Plain-2 | Industrial | No | Confidential | No | Not Available |
| 02S03W28G001 | 02S03W28G001 | 377297N122194 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 02S04W03E001 | 02S04W03E001 | 377894N122297 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 02S03W19Q001 | 02S03W19Q001 | 377369N122230 | | East Bay Plain-2 | Irrigation | No | Confidential | No | Not Available |
| 02S04E29Q001 | 02S04E29Q001 | 377224N121560 | | Tracy-5-22.15 | Unknown | No | Confidential | No | Not Available |
| 02S03W36M002 | 02S03W36M002 | 377135N122151 | | East Bay Plain-2 | Industrial | No | Confidential | No | Not Available |
| 03S02W28D003 | 03S02W28D003 | 376477N122096 | | East Bay Plain-2 | Residential | No | Confidential | No | Not Available |

- To view the Well Information of a specific well, click on the CASGEM Station ID hyperlink of that well. A new window will pop up displaying the Well Information page (as seen below). For further information about well data attributes displays, refer to the last portion of Section 2.4, Well Information and Groundwater Elevation Data.

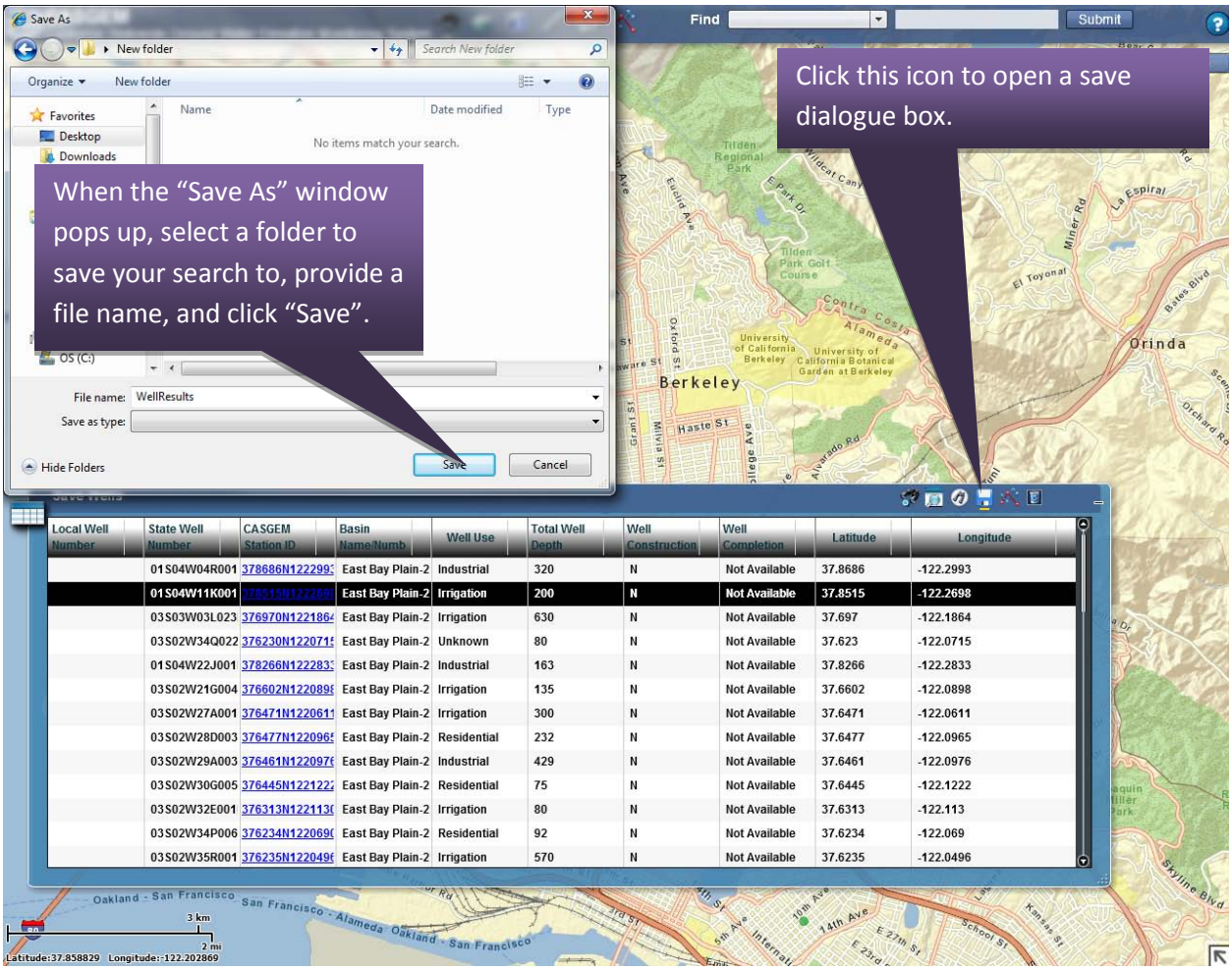


- To examine the individual search results within the GIS application, select the row of the well of interest from within the Well Search Results table and click on it.



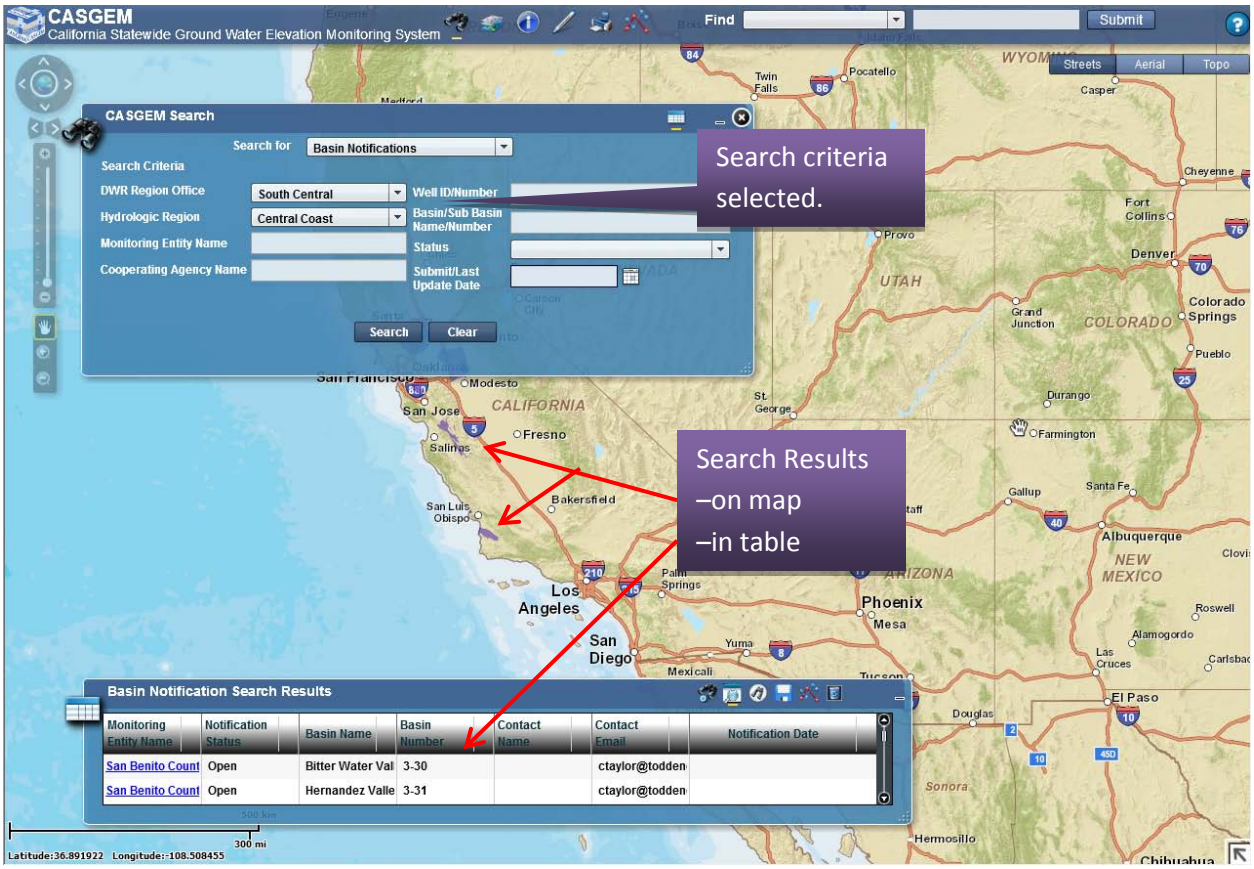
### 2.7.5.2 Exporting Search Results to Excel

- To save the search results in a spreadsheet (Excel), expand the Search Results table.
- Click on the Save Data button on the search results table. A dialog box will open prompting the user to save the file on their computer.
- Select a folder to save your search to, provide a file name and click “Save”.

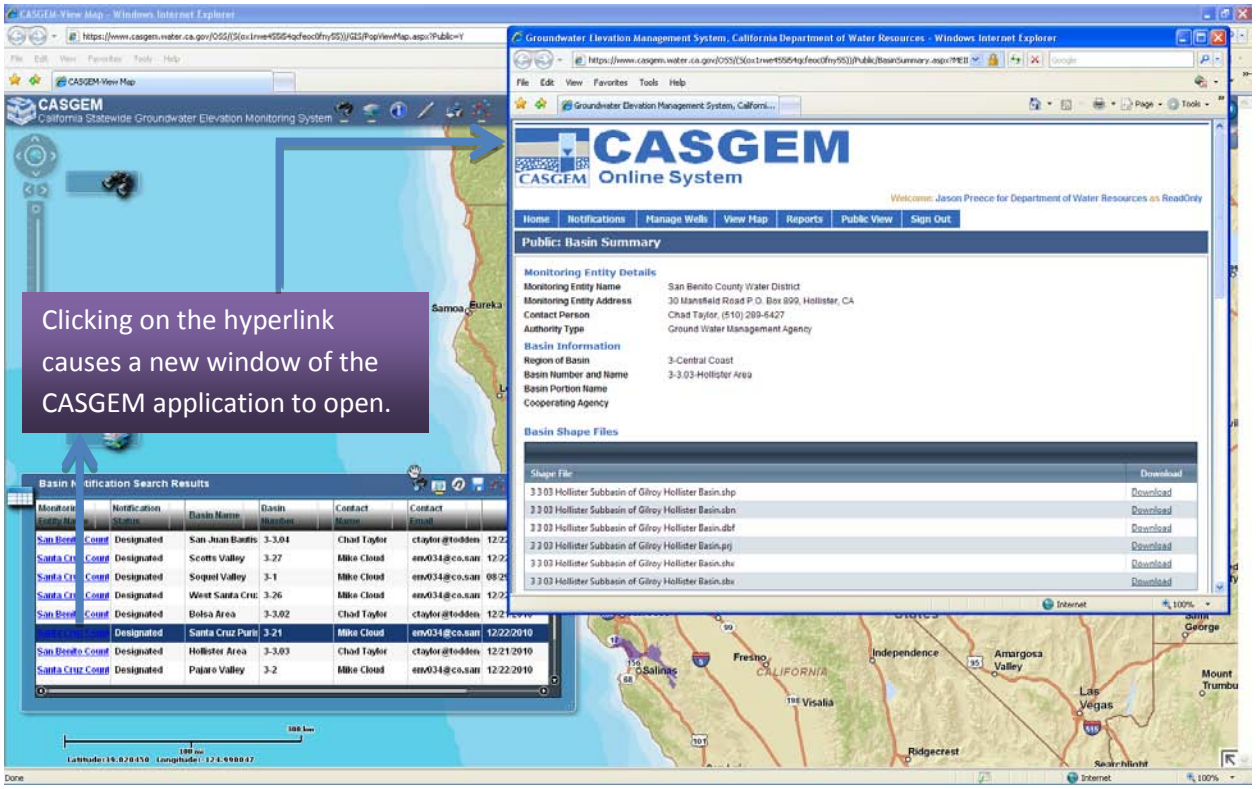


### 2.7.5.3 Using the Search Menu to Find Basin Notifications

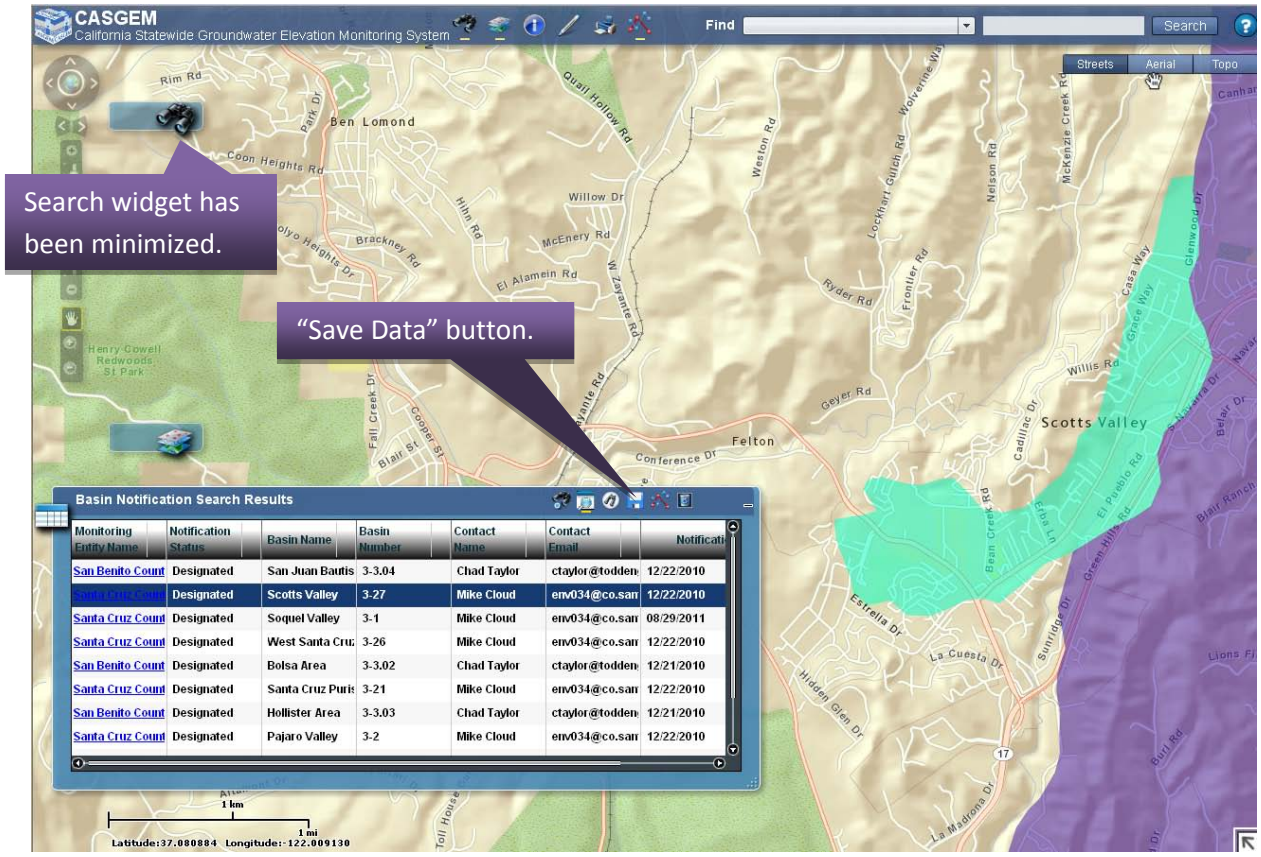
- Open the CASGEM Search Menu by clicking on either the minimized icon or the Top Bar.
- Select “Basin Notifications” in the “search for” drop-down menu.
- Select the search criteria as shown in the above figure and click on the search button.
- The results will be displayed on the map as well as in the Basin Notification Search Results table.



- To view the information for a specific Basin Notification, click on the hyperlink of the desired record in the search results. A new window will pop up displaying the Basin Summary for the Notification (as seen below).

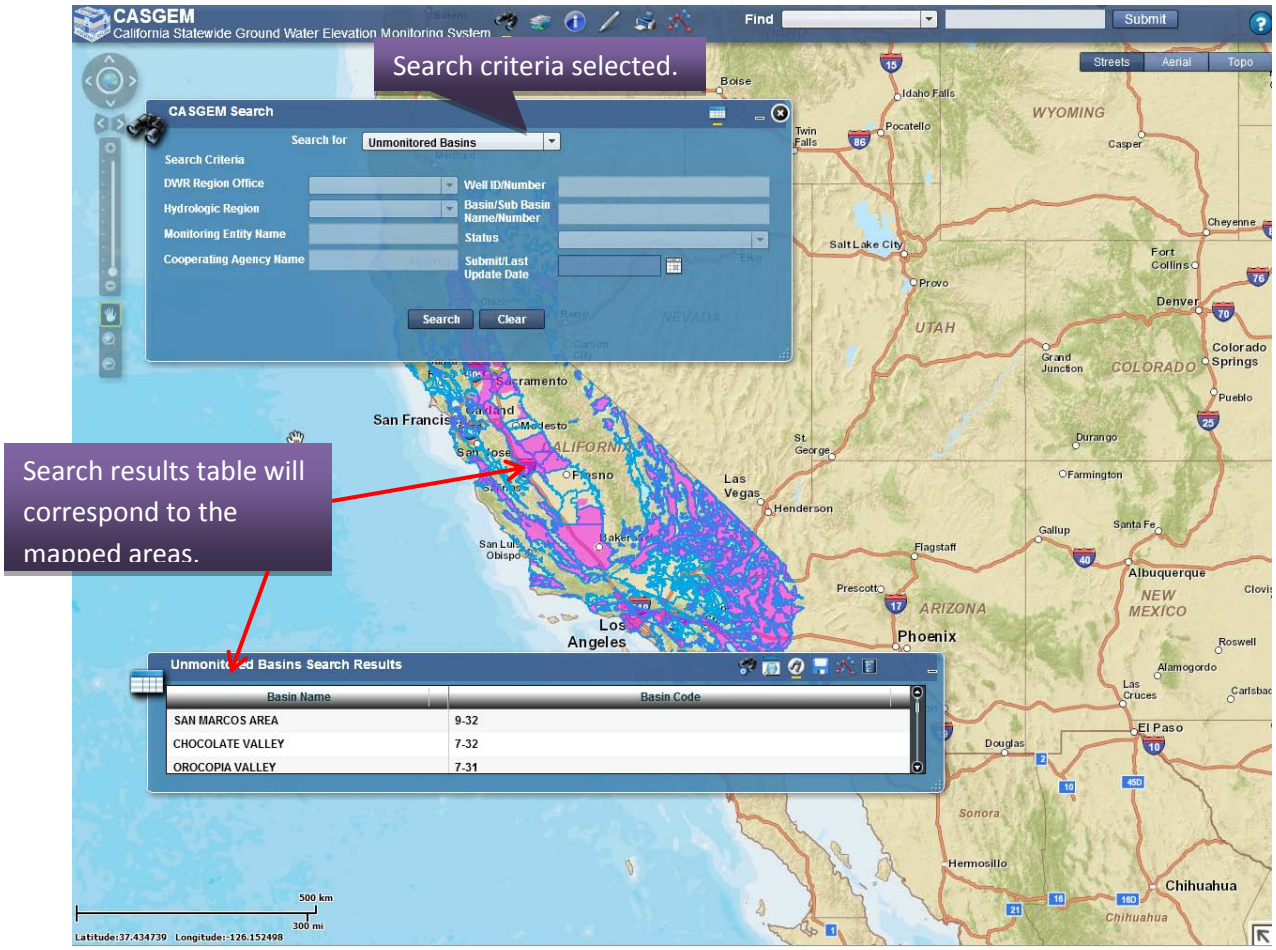


- To examine the individual search results, select a row of interest from within the Basin Search Results and click on it. The map will zoom in to the feature.
- To save the search results in a spreadsheet, the user should click on the Save Data button on the search results table. A dialog box will open for the user to save the file in Excel format on their computer (to see example on exporting search results to Excel, click here ).

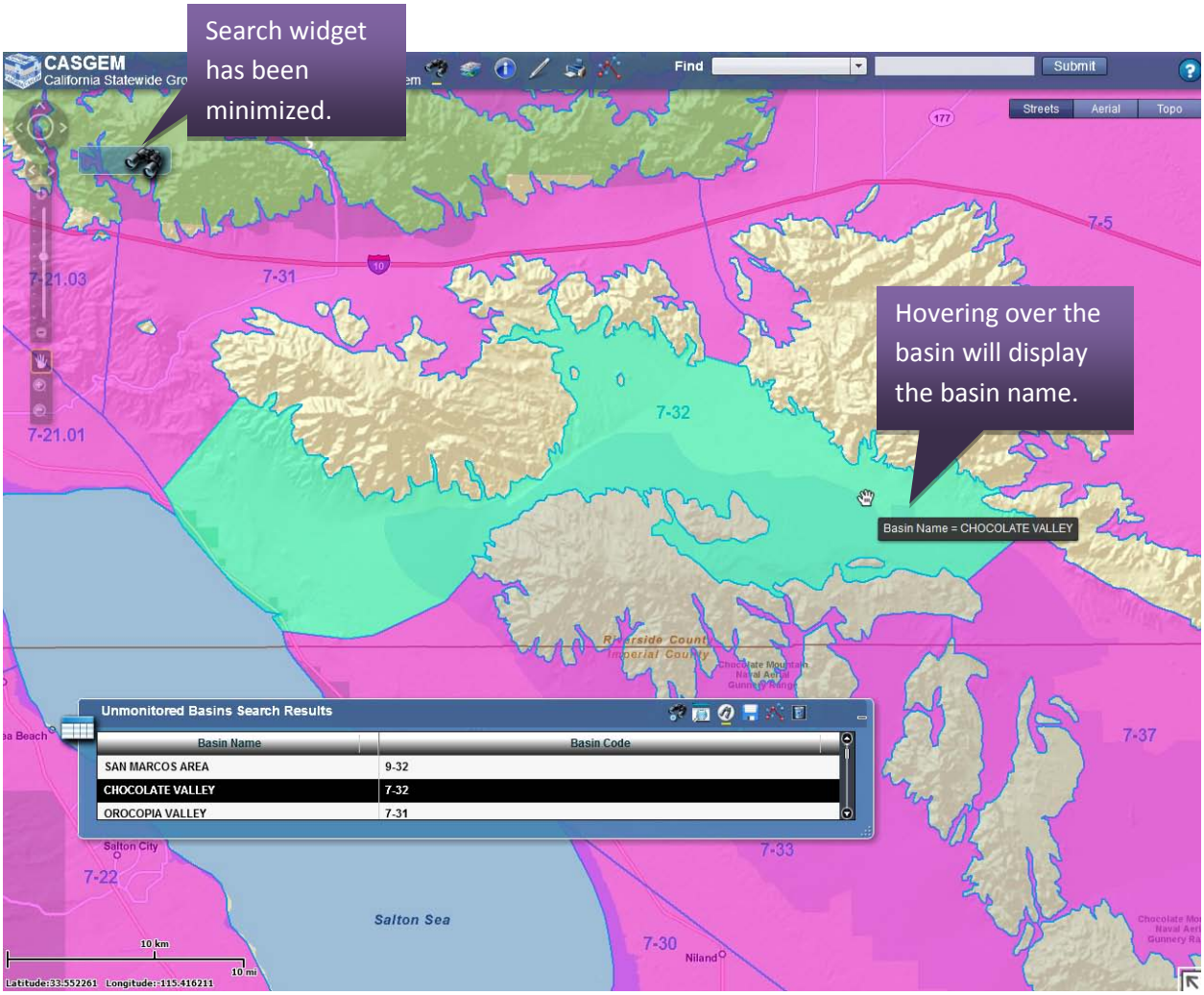


### 2.7.5.4 Using the Search Menu to Find Unmonitored Basins

- Open the CASGEM Search Menu, by clicking on either the minimized icon or the Top Bar.
- Select “Unmonitored Basins” in the “search for” drop-down and click on the search button.
- The results will be displayed on the map and the Unmonitored Basins Search Results table.



- To examine the individual search results, select a row of interest from within the Unmonitored Basin Notification Search Results and click on it. The map will zoom in to the feature.
- To save the search results in a spreadsheet, the user should click on the Save Data button on the search results table. A dialog box will open for the user to save the file in Excel format on their computer (to see example on exporting search results to Excel, click here ).



## 2.7.6 Layer Control

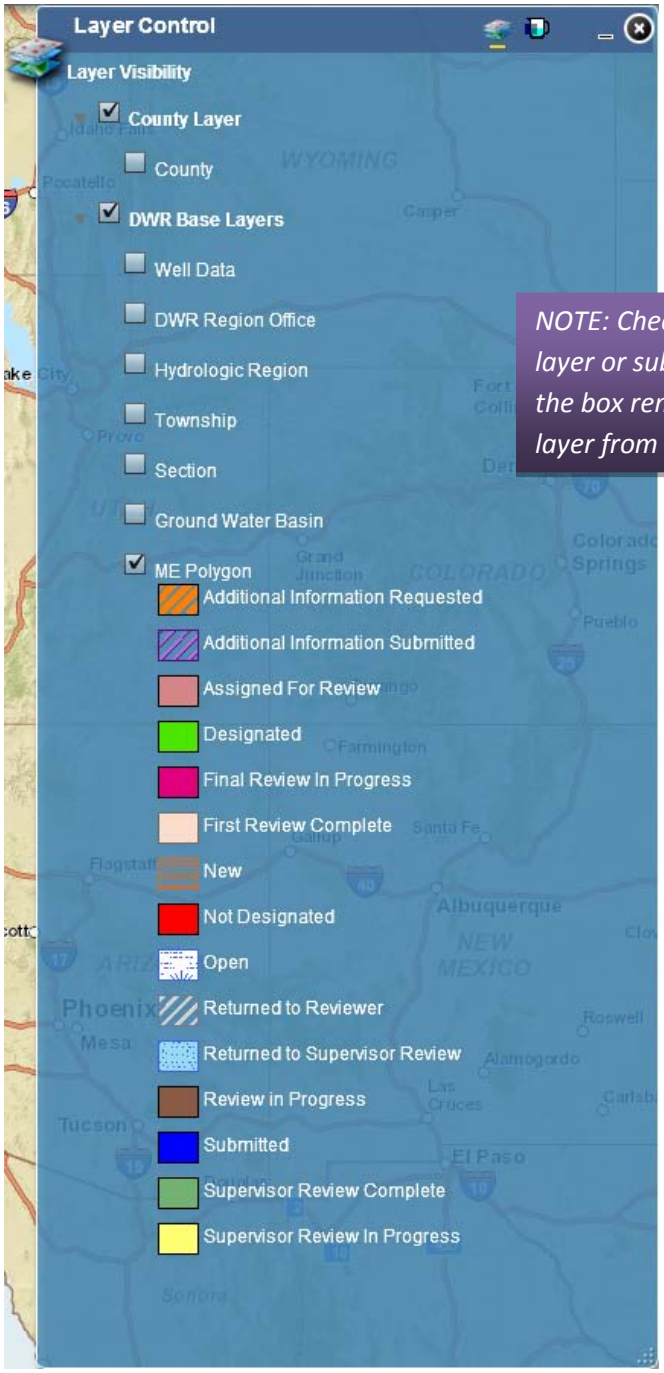
The Layer Control menu provides GIS viewer application users the ability to turn map layers on and off. Topics covered in this subsection include:


2.7.6.1 Using the Map Layer Control Menu

2.7.6.2 Using the Layer Transparency Tool


It can be accessed by clicking on the Layer icon in the Top Bar.

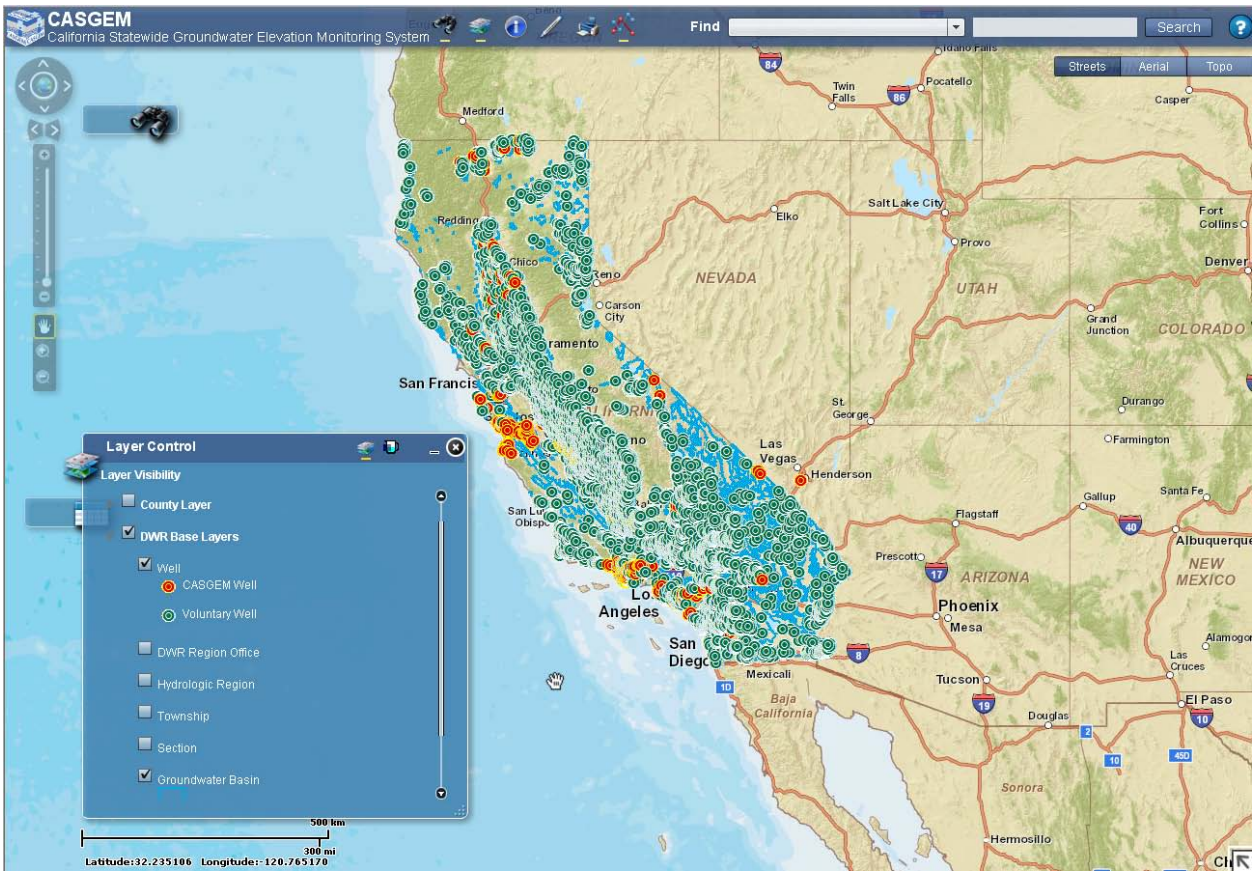
All available layers are represented in the Layer Control table that appears below.



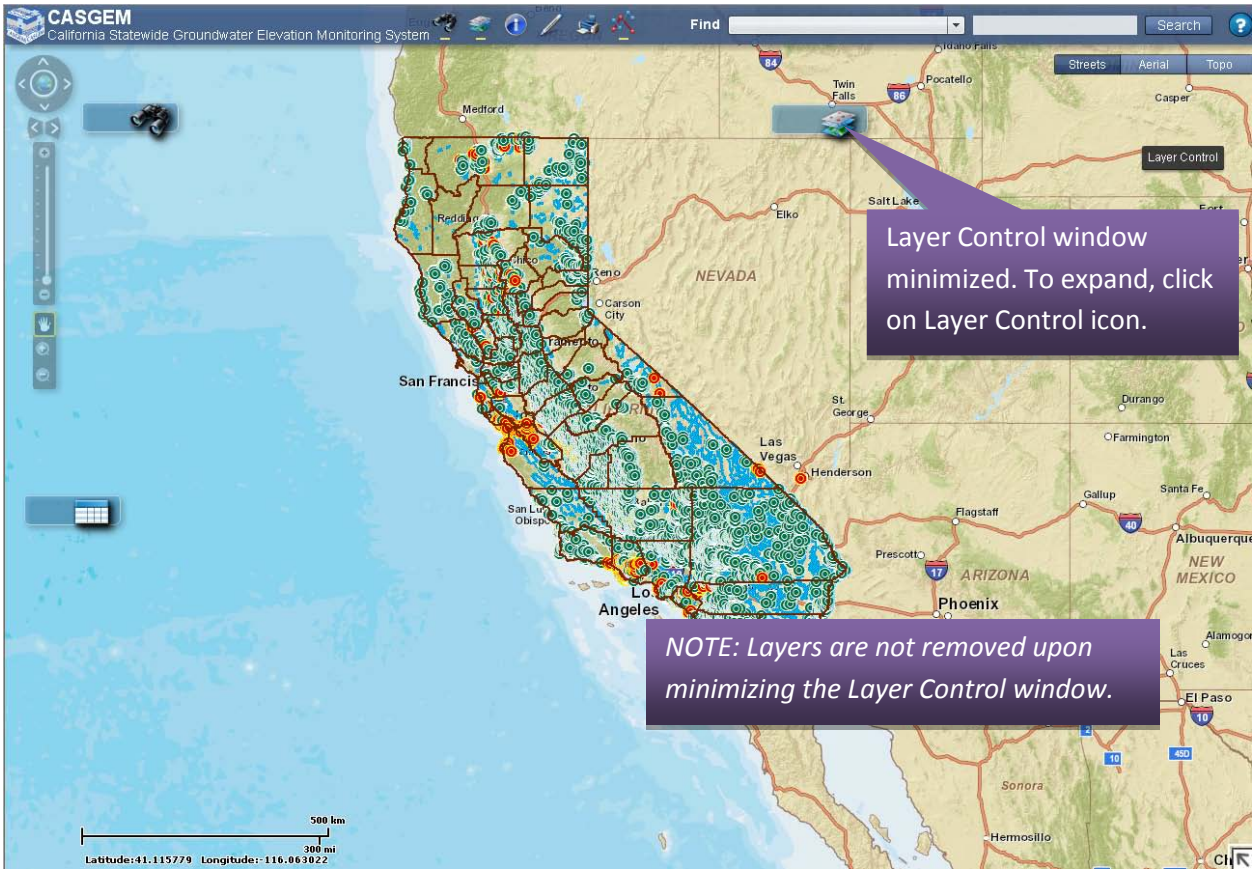

*NOTE: Checking the box turns the layer or sub-layer on. Un-checking the box removes the layer or sub-layer from the view.*

### 2.7.6.1 Using the Map Layer Control Menu

- Click on the Layer Control Menu icon in the Top Bar. The Layer Control Menu opens as a dialog window listing all available layers with selection boxes to toggle layers on and off.
- All the layers that are turned on (boxes checked) will be displayed on the map.

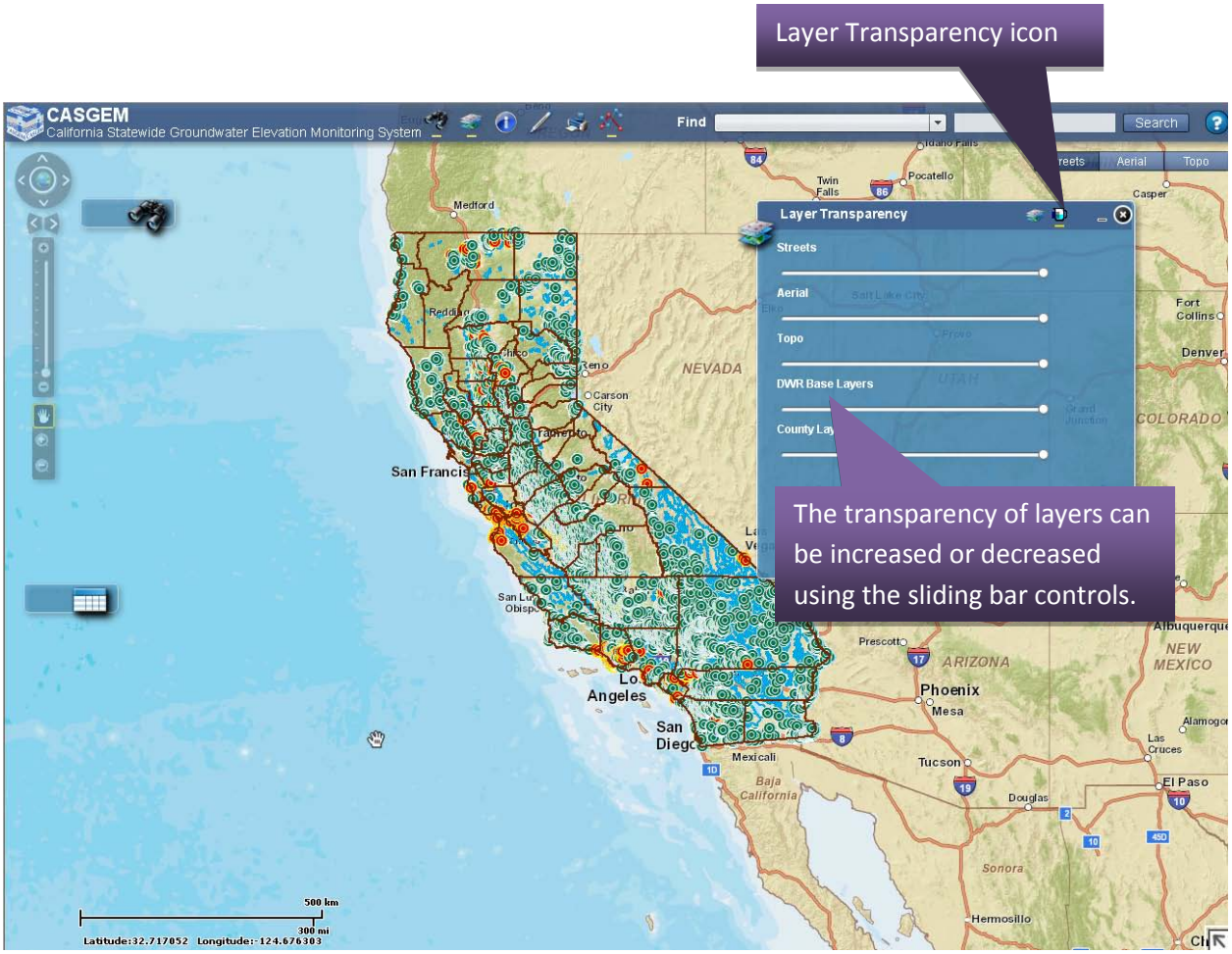


- To minimize the Layer Control Menu on the map, click the minimize button on the Layer Control Menu window dialog. The Layer Control Menu minimizes on the map viewer as shown in the picture below.
- Clicking on the Layer Control icon again will re-open the Layer Control Menu dialog window.

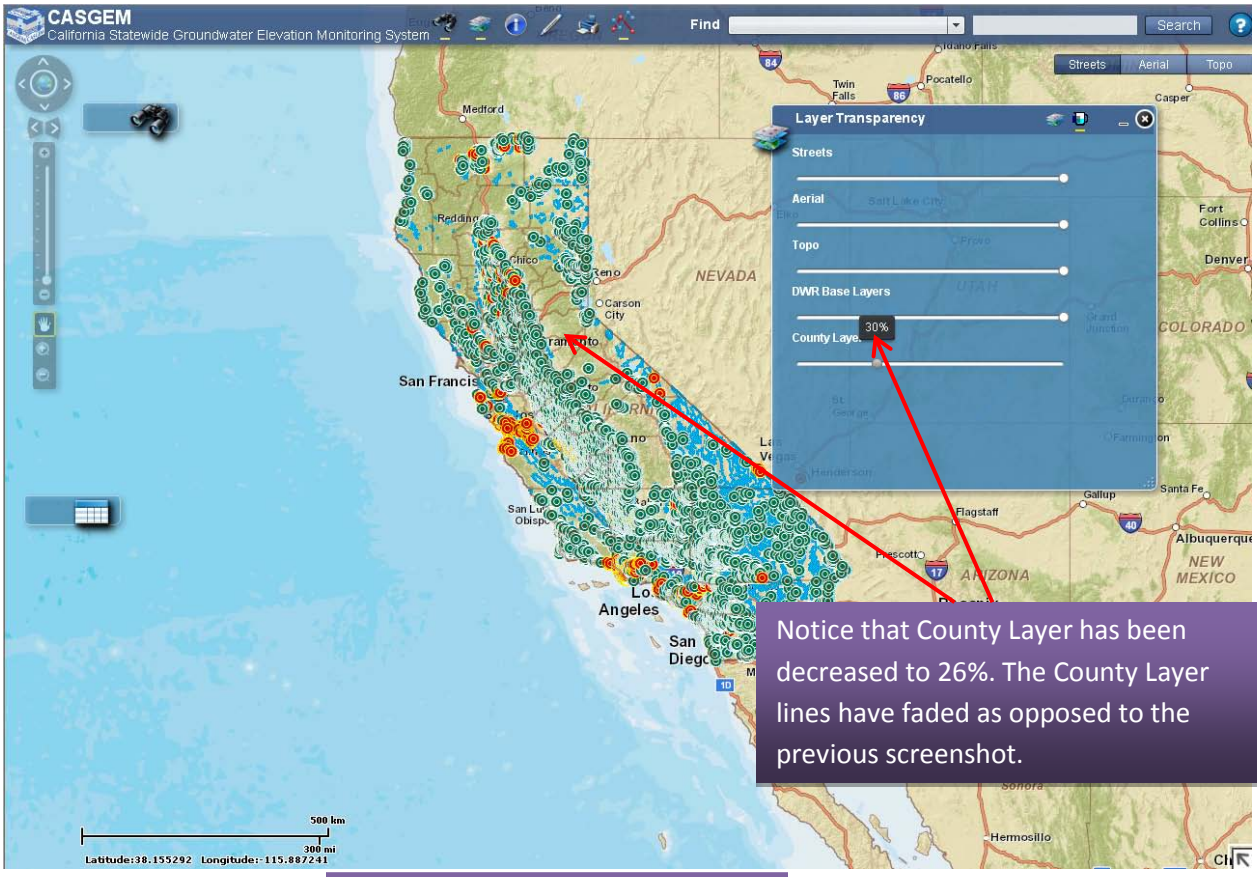


### 2.7.6.2 Using the Layer Transparency Tool

- The Layer Control menu bar contains a Transparency Tool icon which can be used for setting the transparency of certain map layers.
- When the Layer Transparency icon is clicked, the associated dialog window is opened as shown below. The transparency of layers can be increased or decreased using the sliding bar controls.



To decrease the transparency of a layer, simply move the sliding bar controls. The changes can be seen on the map instantly.




*NOTE: Once the desired level of layer transparency is set, the user can click on the Layer list icon to return to the Layer Control Menu.*

## 2.7.7 Identify

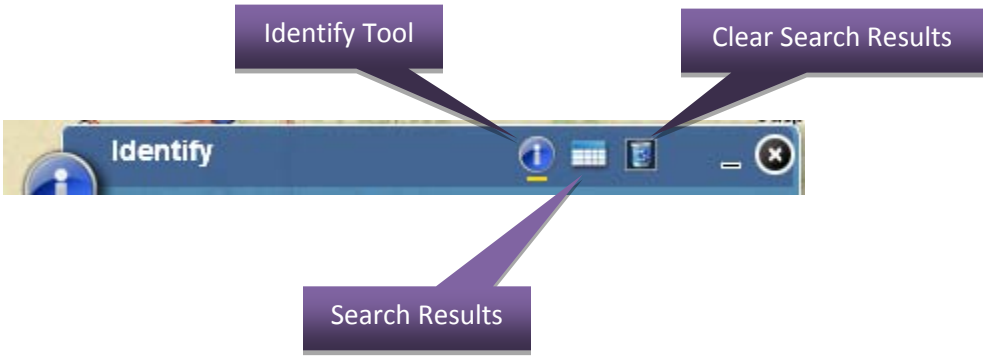
This subsection of the User Guide covers the following topics:


2.7.7.1 Working with the Identify Menu
2.7.7.2 Identifying Features by Point Selection
2.7.7.3 Identifying Features by Polyline Selection
2.7.7.4 Identifying Features by Rectangle Selection
2.7.7.5 Identifying Features by Polygon Selection


The Identify Menu, found in the Top Bar of the GIS application, enables users to identify features, associated with active map layers, on the map.

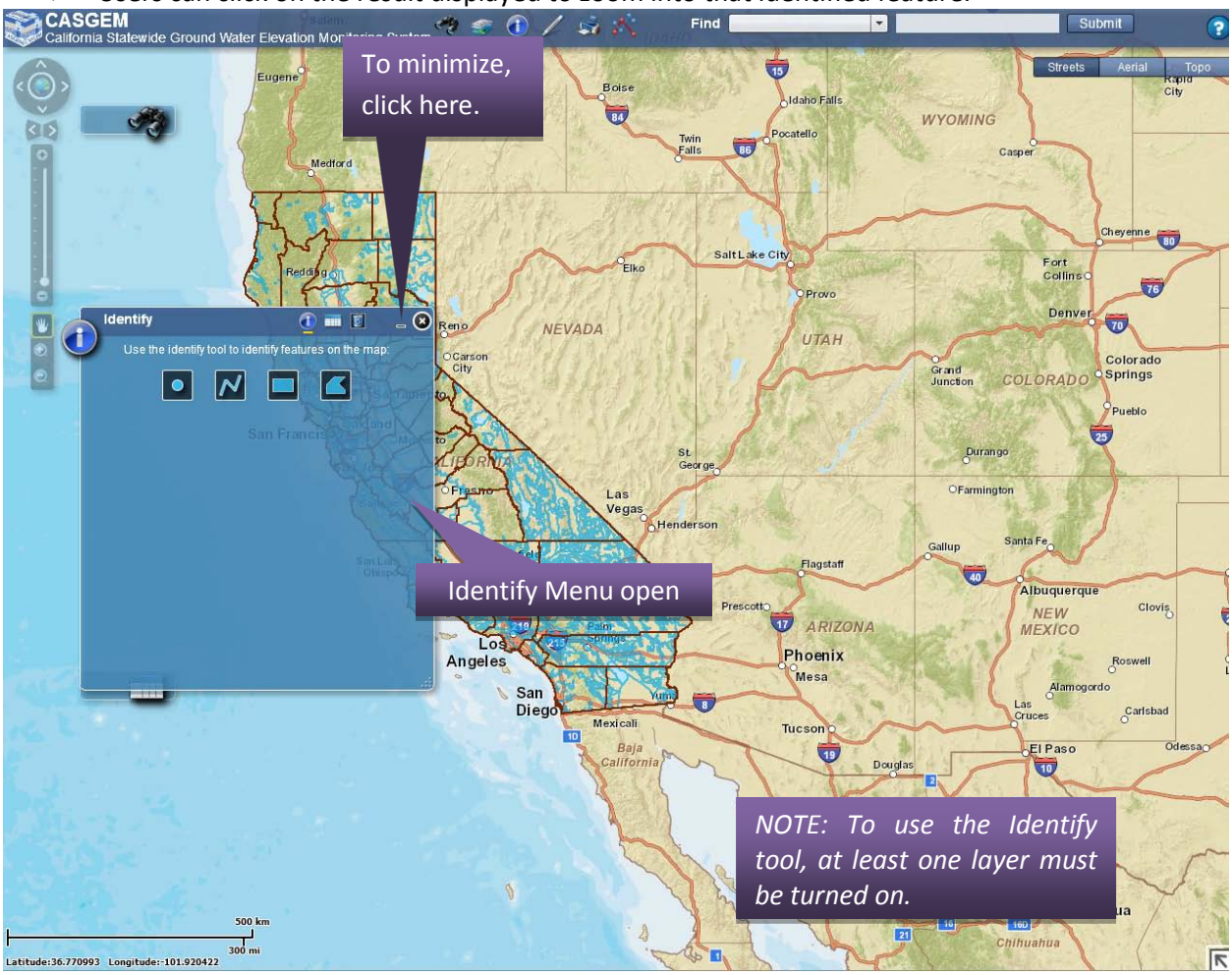
NOTE: Before using the Identify tool, at least one layer of interest should be turned on using the Layer Control menu.

Below are the different functions of the Identify Menu:

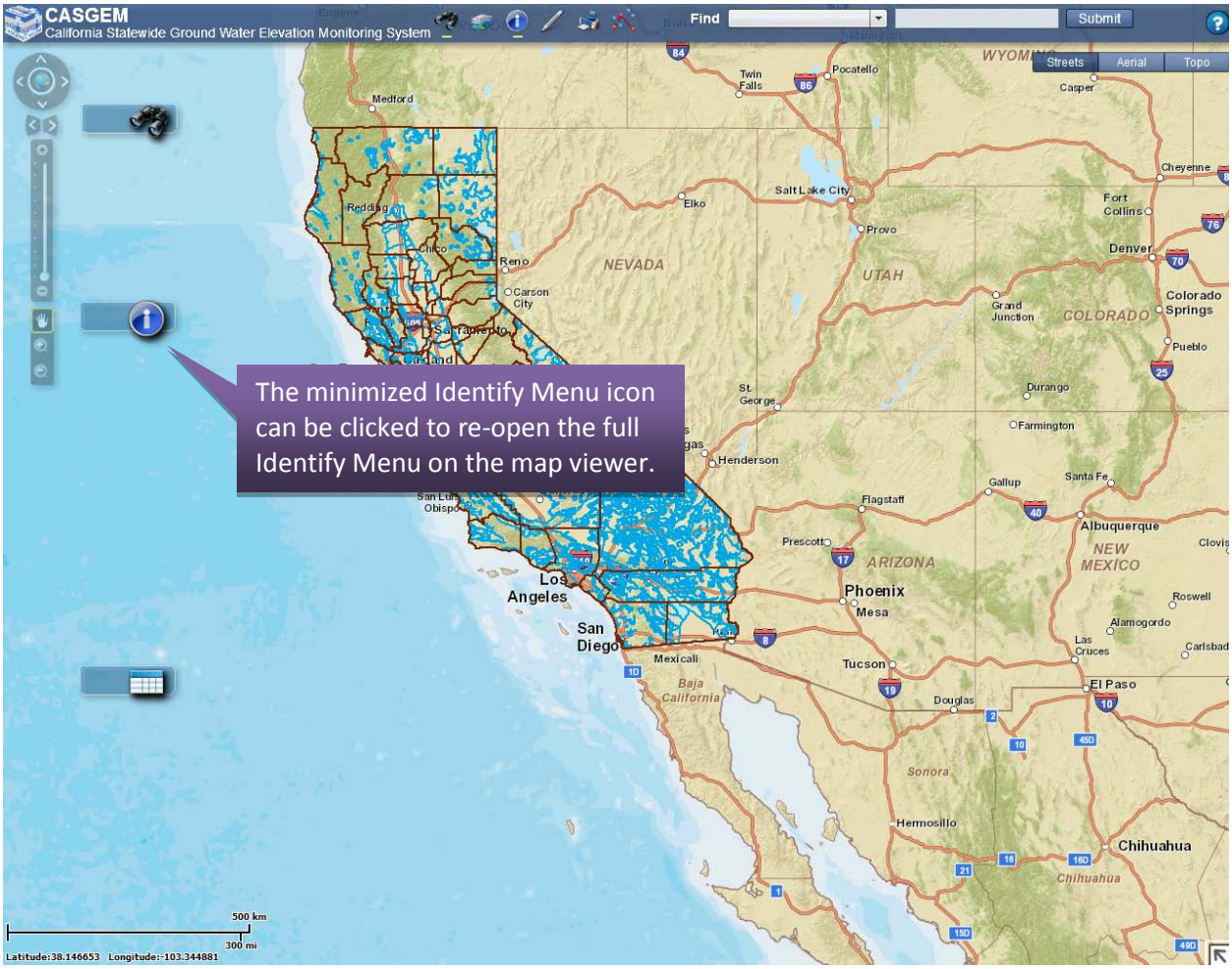


### 2.7.7.1 Working with the Identify Menu

- Click on the Identify Menu icon on the Top Bar. The Identify Menu opens within the map display as shown below.
- The Identify menu bar has three icons titled Identify, Results and Clear Results.
- The Identify menu contains buttons representing four different ways to select map features to identify them:
    - Select by clicking a point on map features
    - Select by drawing a polyline on map features
    - Select by drawing a rectangle over map features
    - Select by drawing a polygon over map features
- The Identify menu works on the principle of identifying all displayed/visible features on the map.
- Users can click on the result displayed to zoom into that identified feature.

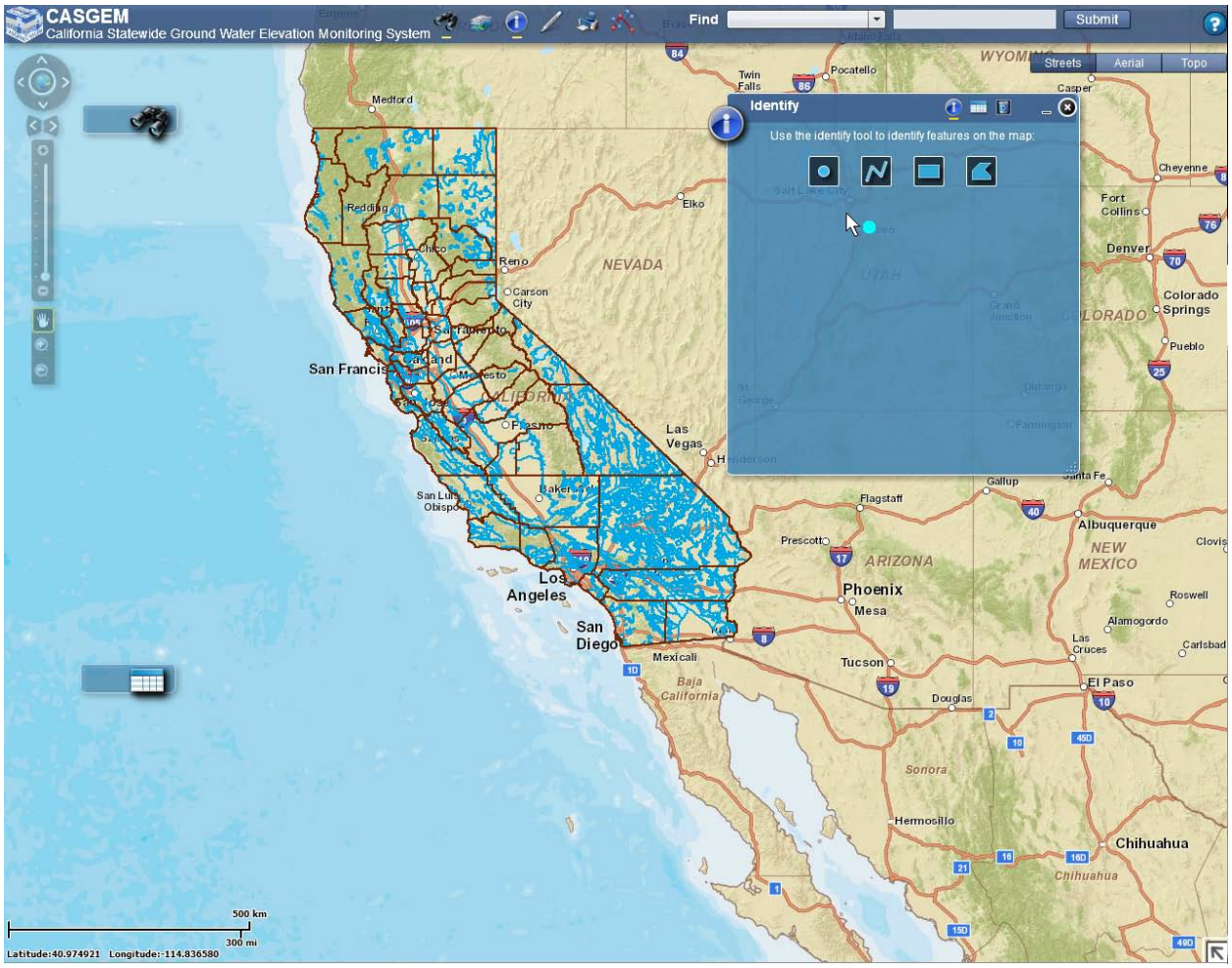


- To minimize the Identify Menu, click on the minimize button on the Identify Menu dialog window. The Identify Menu minimizes on the map viewer as shown below.



### 2.7.7.2 Identifying Features by Point Selection

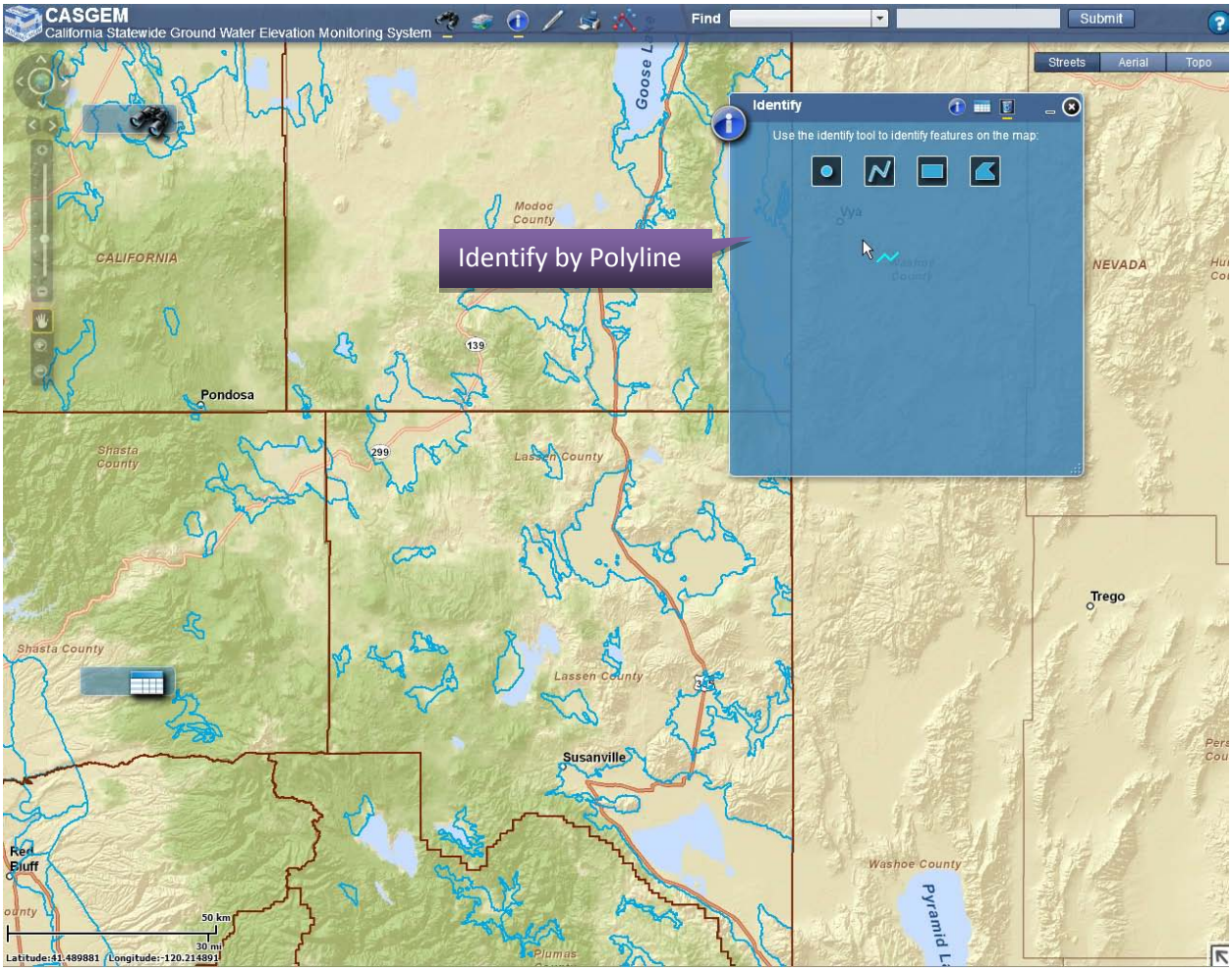
- Select the "Identify by point" icon in the Identify Menu to identify the features on the map.
- To identify a specific area of the map, click on the map and a point will be displayed in addition to a results table (in the Identify Menu) identifying the features present at that location.
- The Identify by point function is not capable of identifying a well feature; rather, use the rectangle, or polygon, identify function.



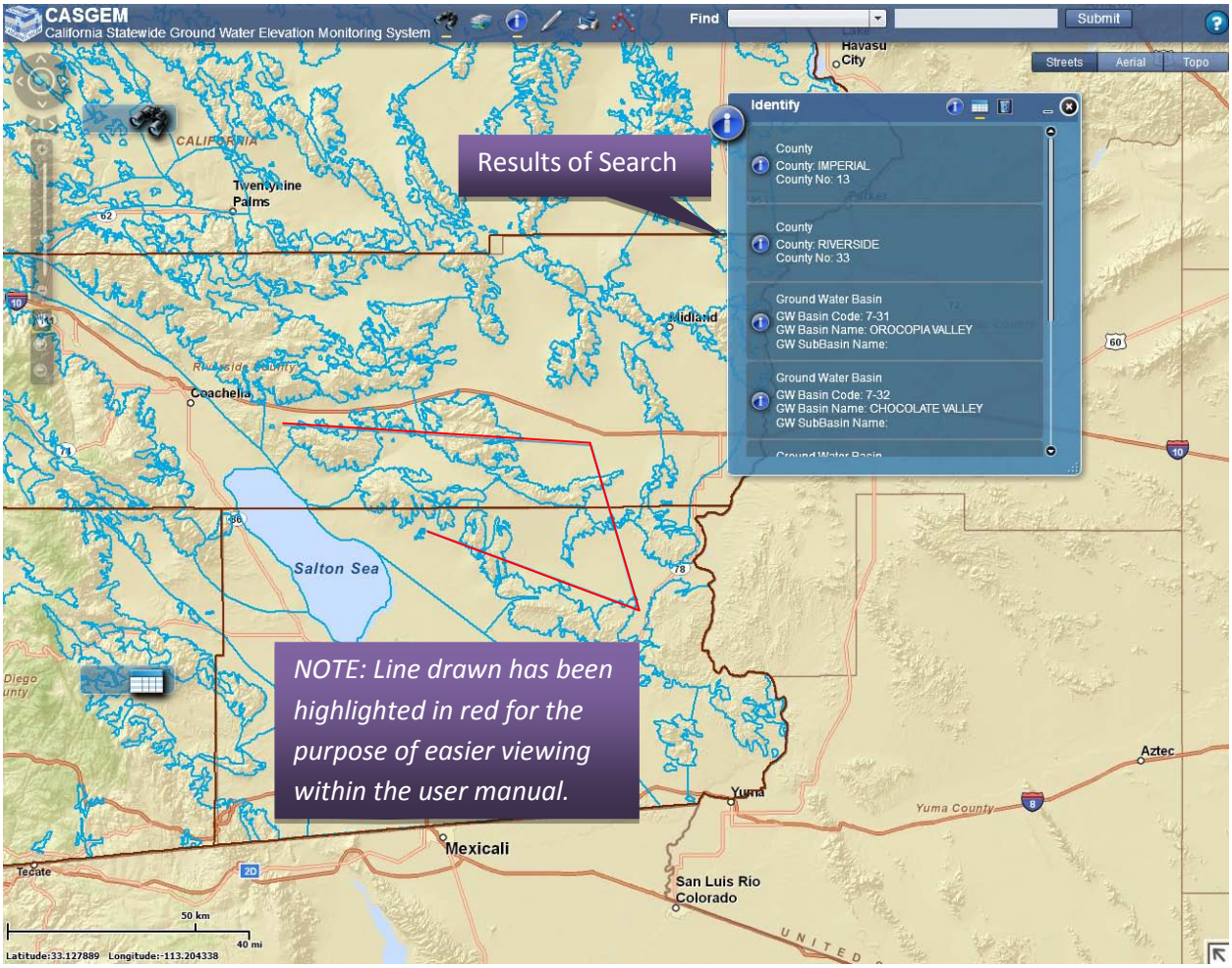
- The individual results in the results table can be selected to highlight those features on the map, along with a pop-up display of the attributes associated with the features.

### 2.7.7.3 Identifying Features by Polyline Selection

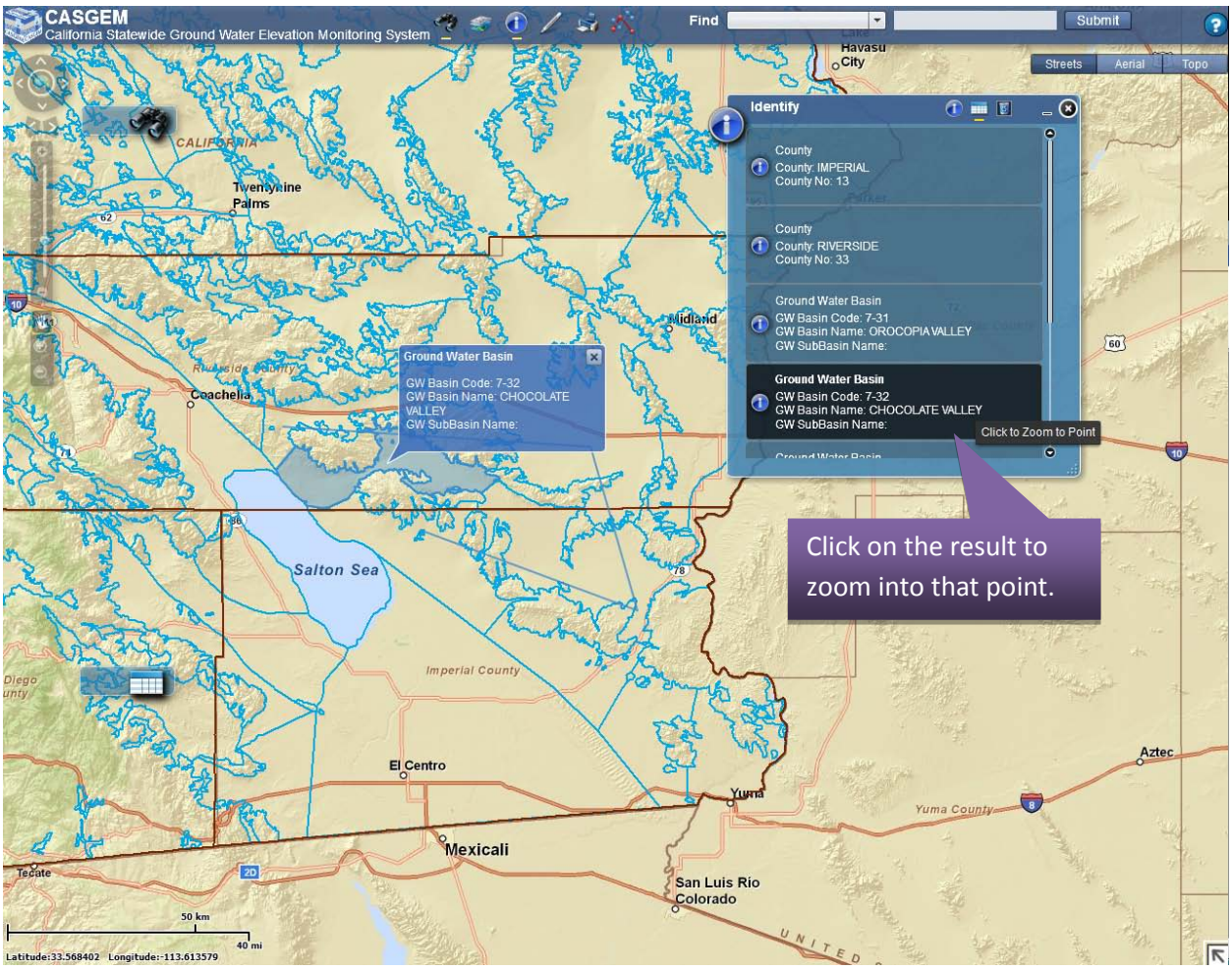
- Select the “Identify by polyline” icon in the Identify Menu to identify the features on the map.



- Click on the map to start drawing a line and double click to stop drawing. The line the user has drawn is displayed and all the features present at the location of the line will be identified in a results table in the Identify Menu.

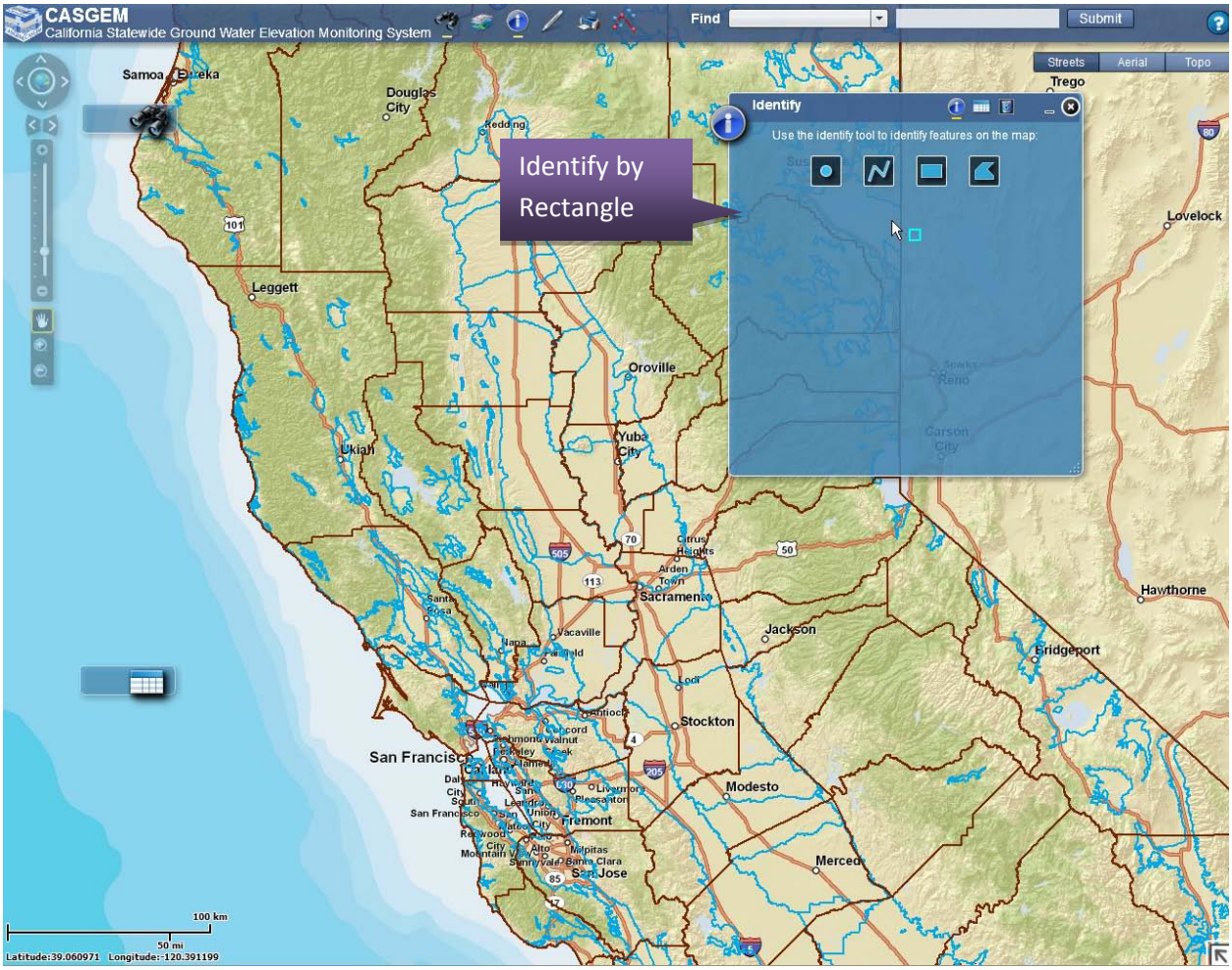


- Select a feature in the results table to highlight the identified feature on the map along with a pop-up display of the attributes associated with the feature.

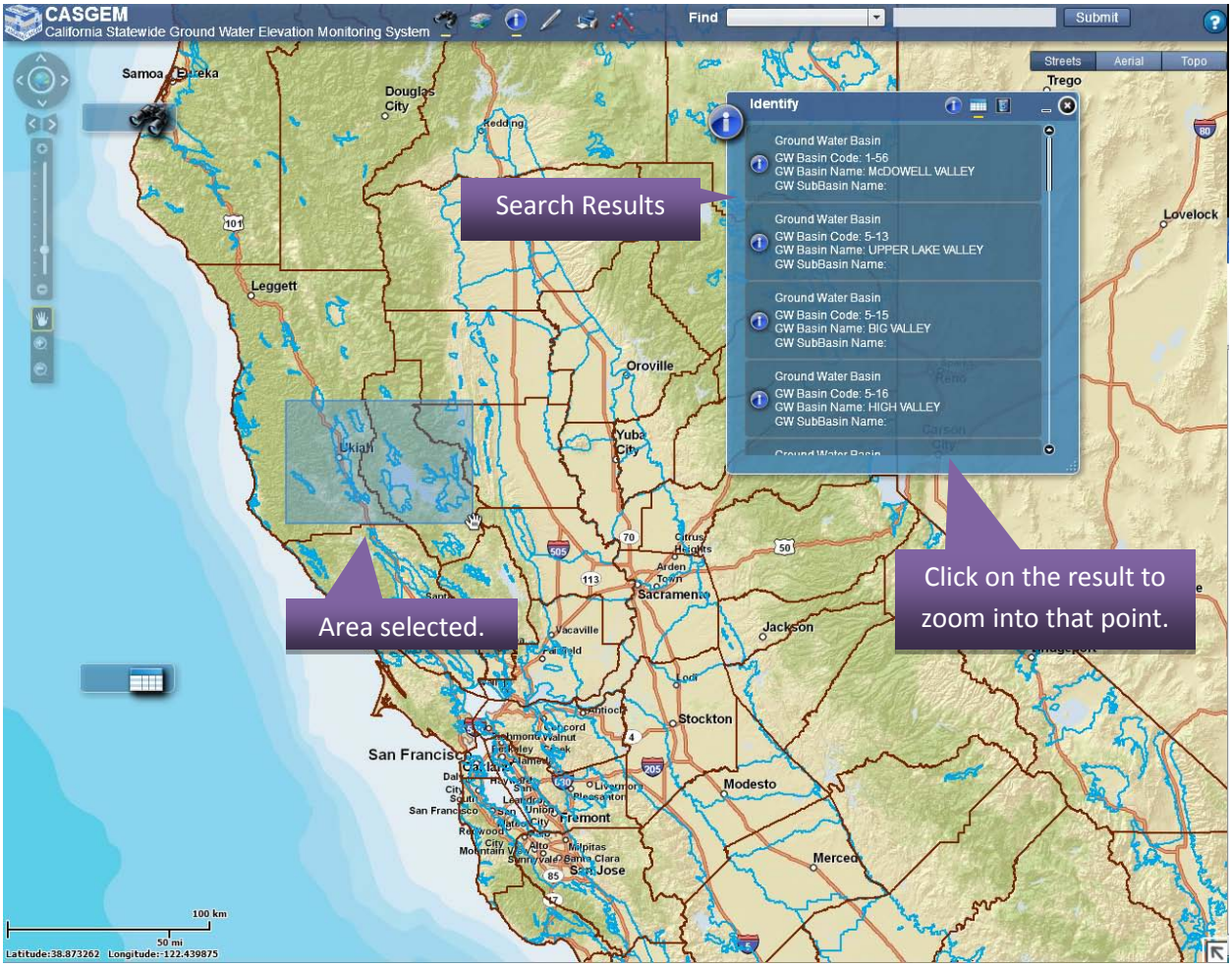


### 2.7.7.4 Identifying Features by Rectangle Selection

- Select the "Identify by Rectangle" icon in the Identify Menu to identify the features on the map.

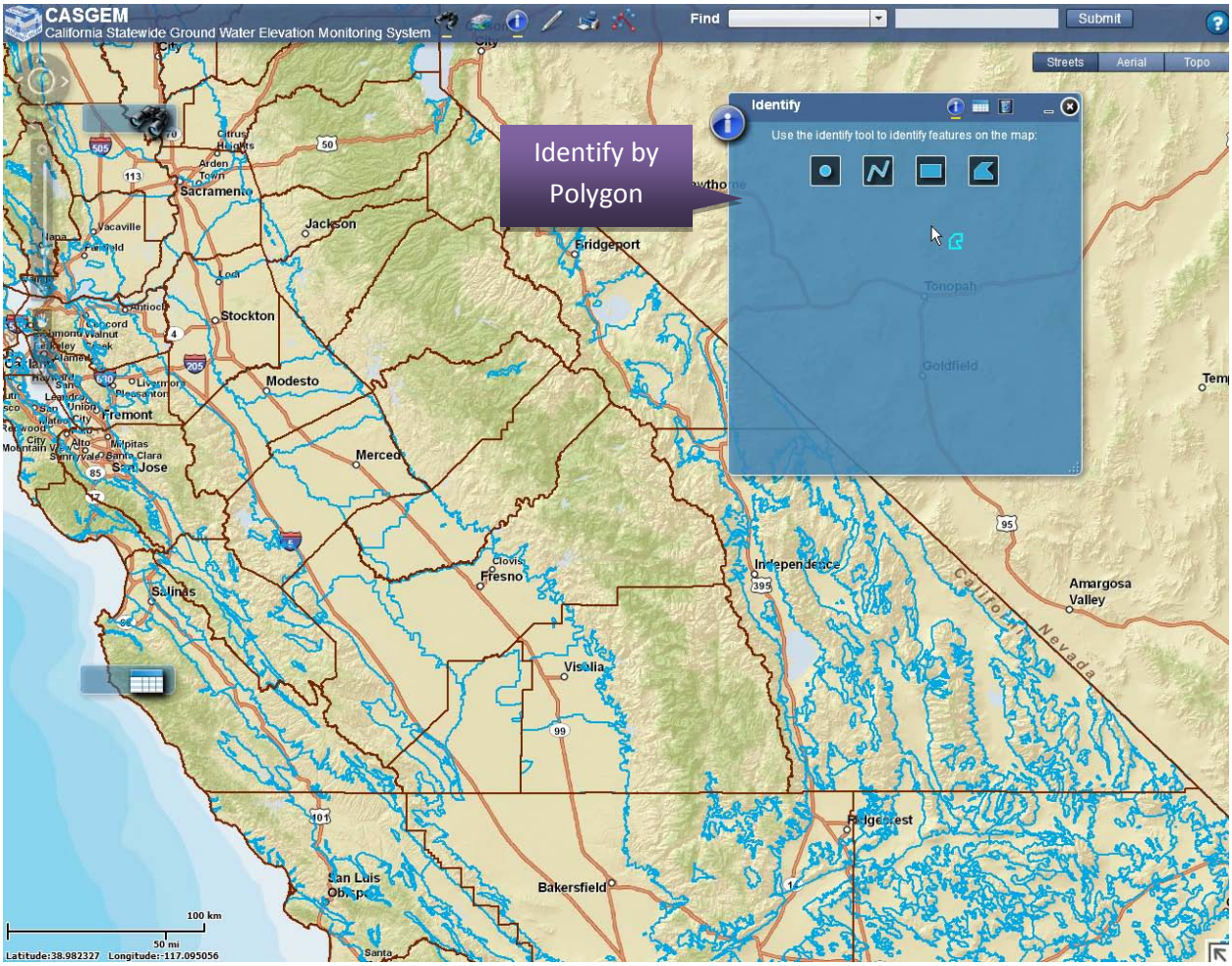


- Click on the map and drag to draw a rectangle encompassing the features of interest. A rectangle is displayed where the user has clicked and all displayed features present within the rectangle will be identified in a results table in the Identify menu.
- Select a feature in the results table to highlight the identified feature on the map along with a pop-up display of the attributes associated with the feature.



### 2.7.7.5 Identifying Features by Polygon Selection

- Select the “Identify by Polygon” icon in the Identify Menu to identify the features on the map.



- Click on the map and draw a polygon encompassing the features of interest by clicking once for each node of the polygon, and double-clicking to complete the polygon. The polygon is displayed where the user has clicked and all displayed features present within the polygon will be identified in a results table in the Identify Menu.
- Select a feature in the results table to highlight the identified feature on the map along with a pop-up display of the attributes associated with the feature.

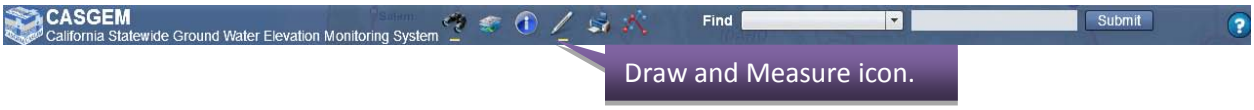
## 2.7.8 Draw and Measure

Topics covered in this subsection Include:

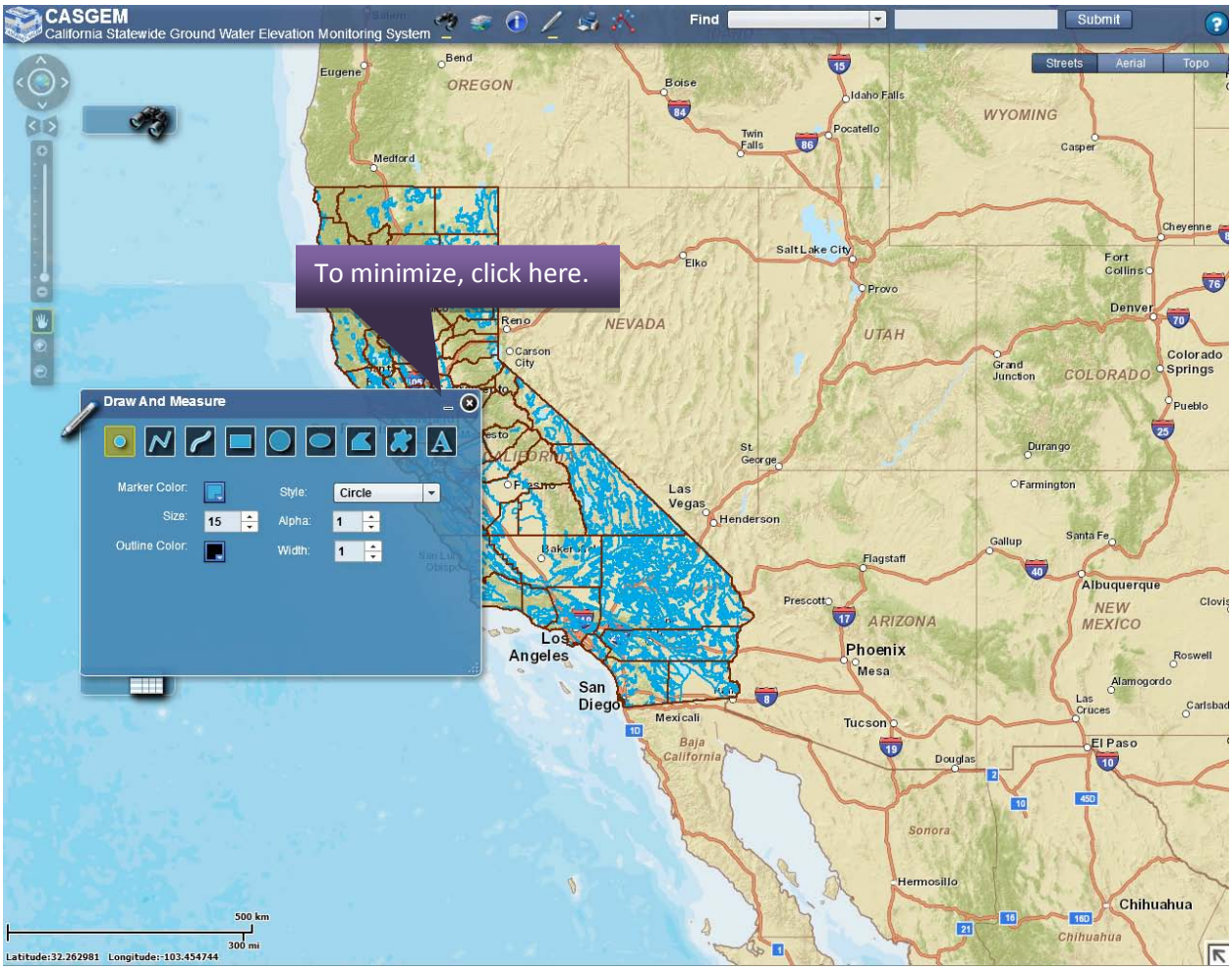

2.7.8.1 Measuring the Distance Between Two Wells

2.7.8.2 Using the Text Tool


The Draw and Measure feature can be accessed from the Top Bar within the GIS application.




This feature allows users to draw lines, polygons and other shapes on the map connecting/ encompassing wells of their choice and displays the area covered or the distance between wells.



Area Units and Distance Units have options for both US & Metric measurements. The units available for selection are:

Area Units

- Square Meters - Default
- Square Kilometers
- Square Feet
- Square Miles
- Acres

Distance Units

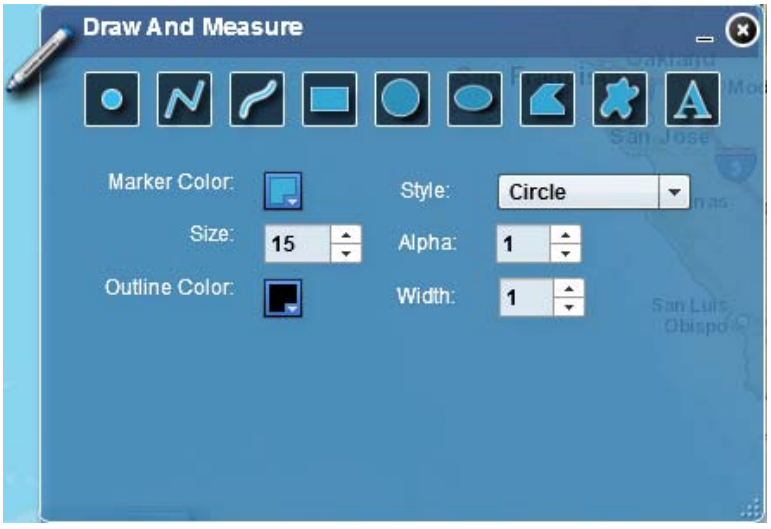
- Meters- Default
- Kilometers
- Feet
- Miles
- Hectares

The tools available within the Draw and Measure functionality are:

- Point
- Line
- Freehand Line
- Rectangle
- Circle
- Ellipse
- Polygon
- Freehand Polygon
- Text Addition

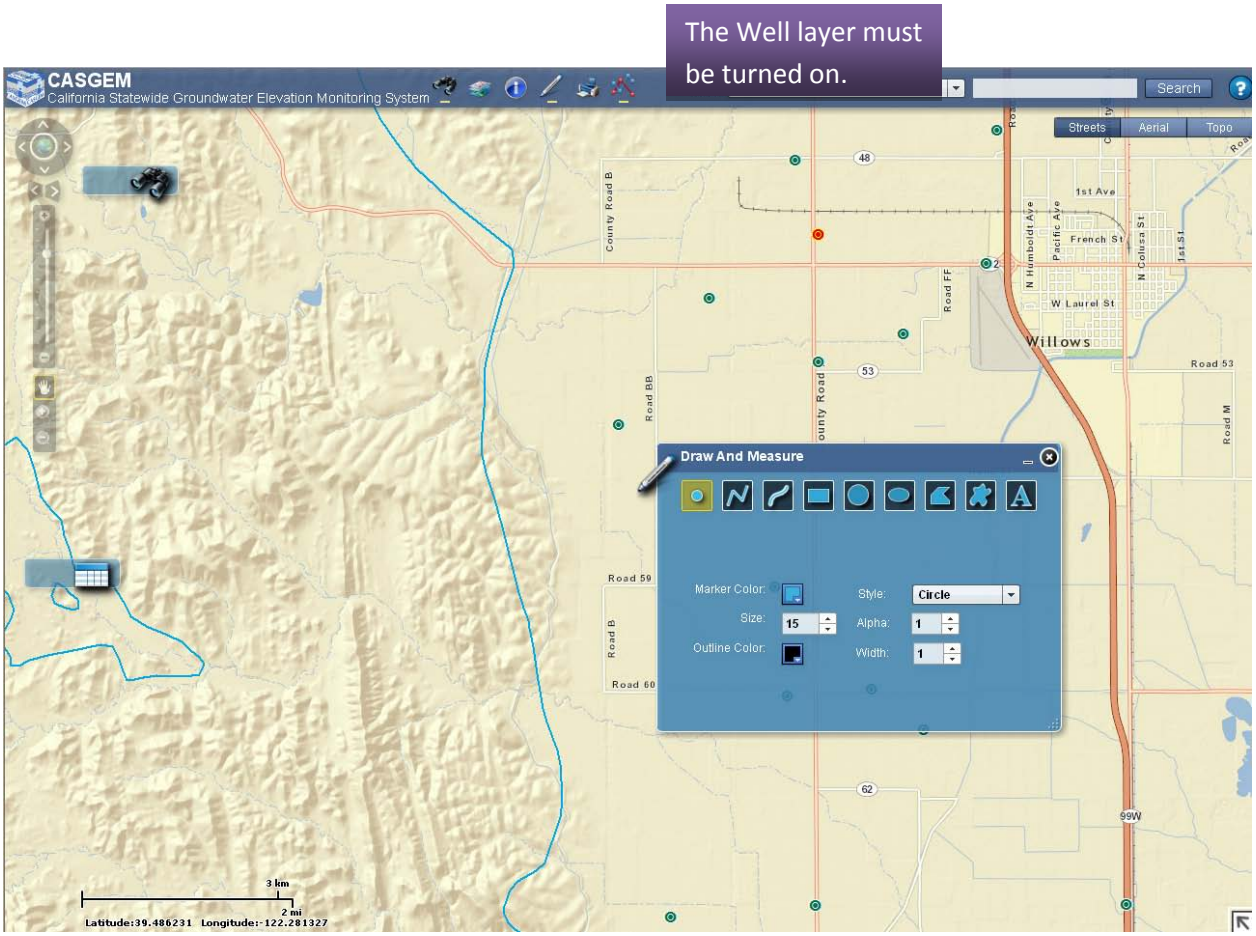
Users can manipulate the following options (as seen below):

- Marker Color
- Marker Size
- Outline Color
- Style
- Alpha (Transparency; 0 to 1)
- Width

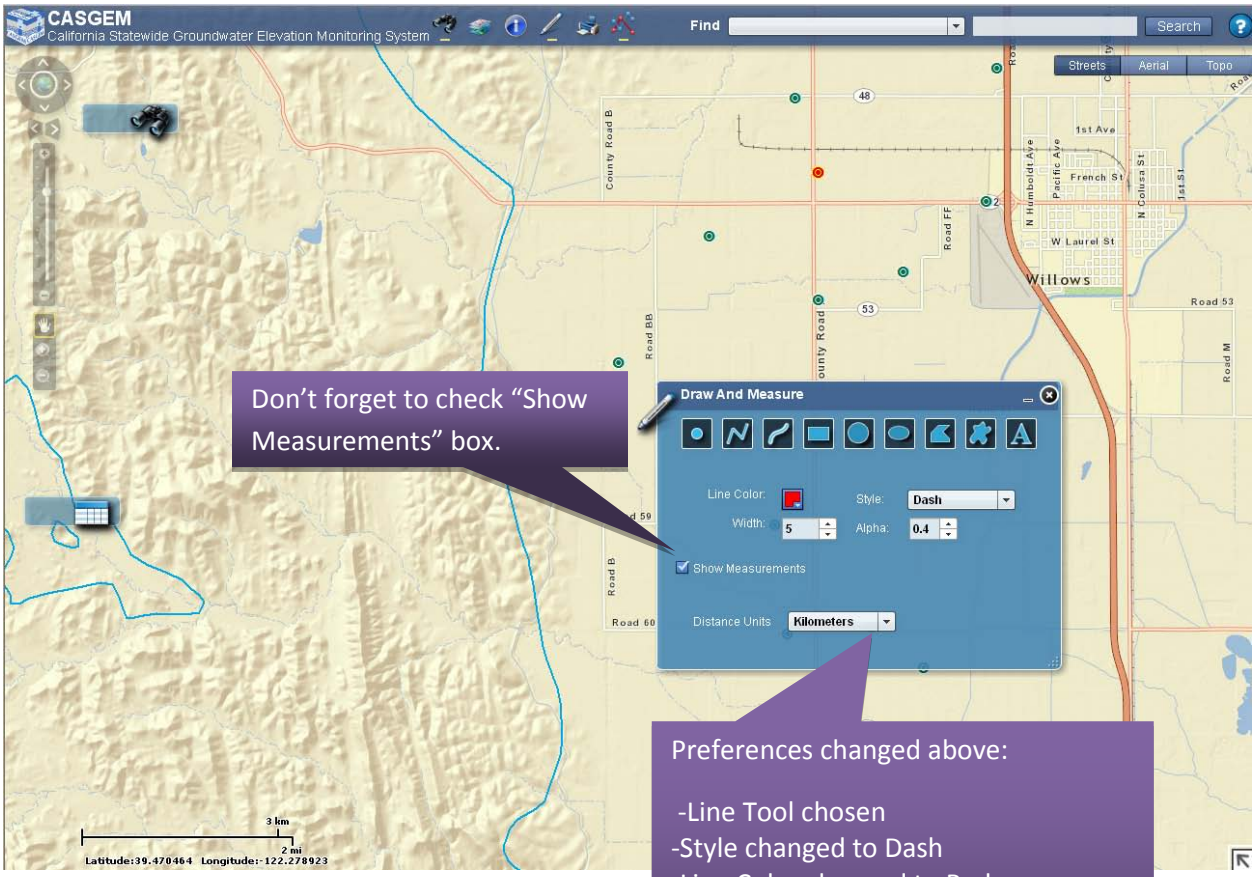


### 2.7.8.1 Measuring the Distance between Two Wells

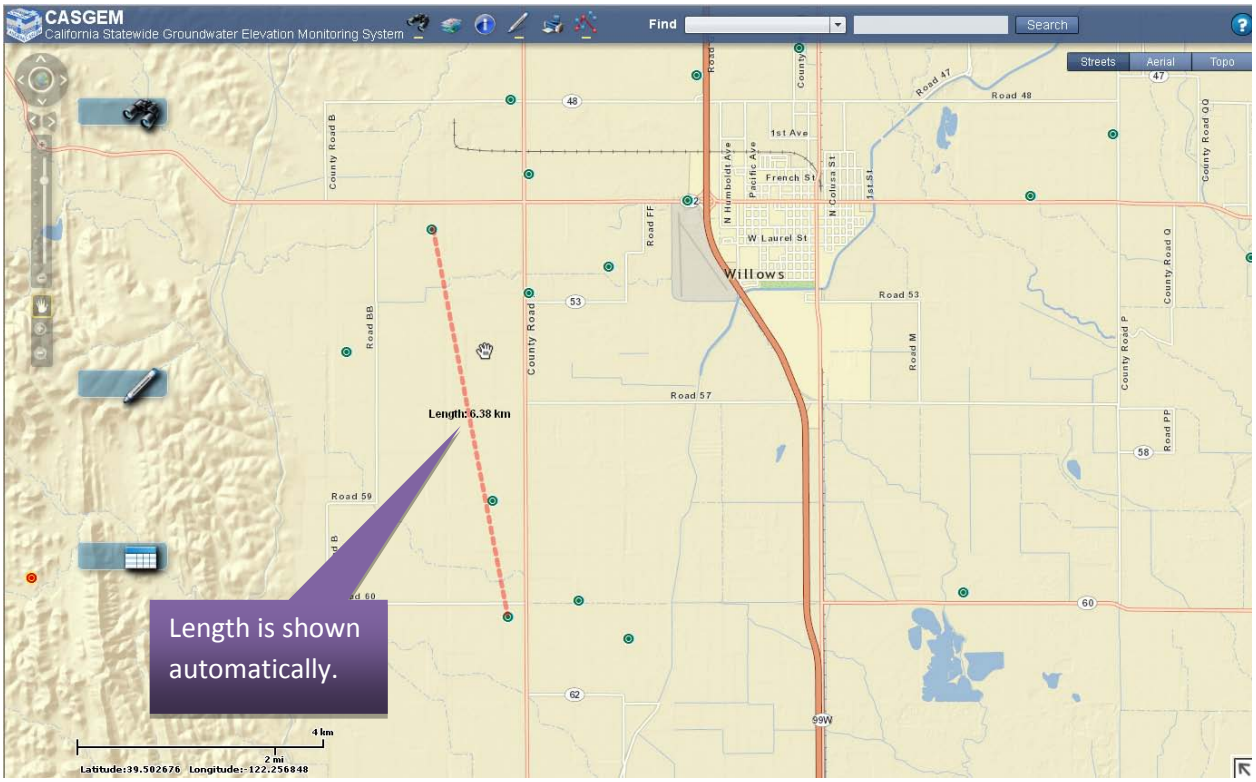
One of the uses of the Draw and Measure function can be measuring the distance between two Wells. To do that, first select an appropriate measuring tool (this example will display the use of the Line tool). Zoom in to the point where both wells can be seen.



- Change the options within the Draw and Measure table in line with your preferences.



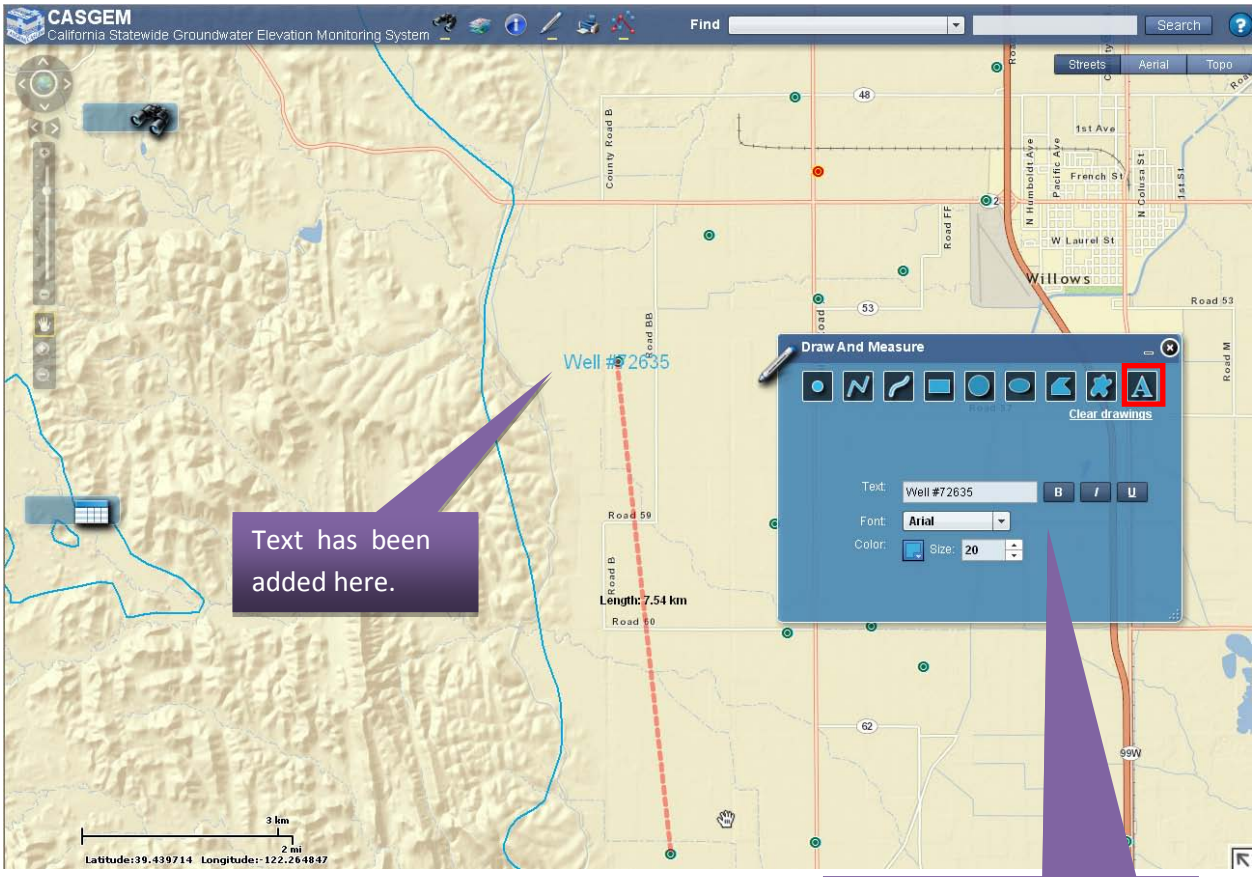
- Draw the Line from the first Well to the second. Click to start drawing and double-click to stop.



### 2.7.8.2 Using the Text Tool

The Text Tool within the Draw and Measure function can be used to add text to a page or a name to a well before saving the page to a PDF.

- Select the Text tool and Enter Text.
- Click the point where the text should be placed (see below)

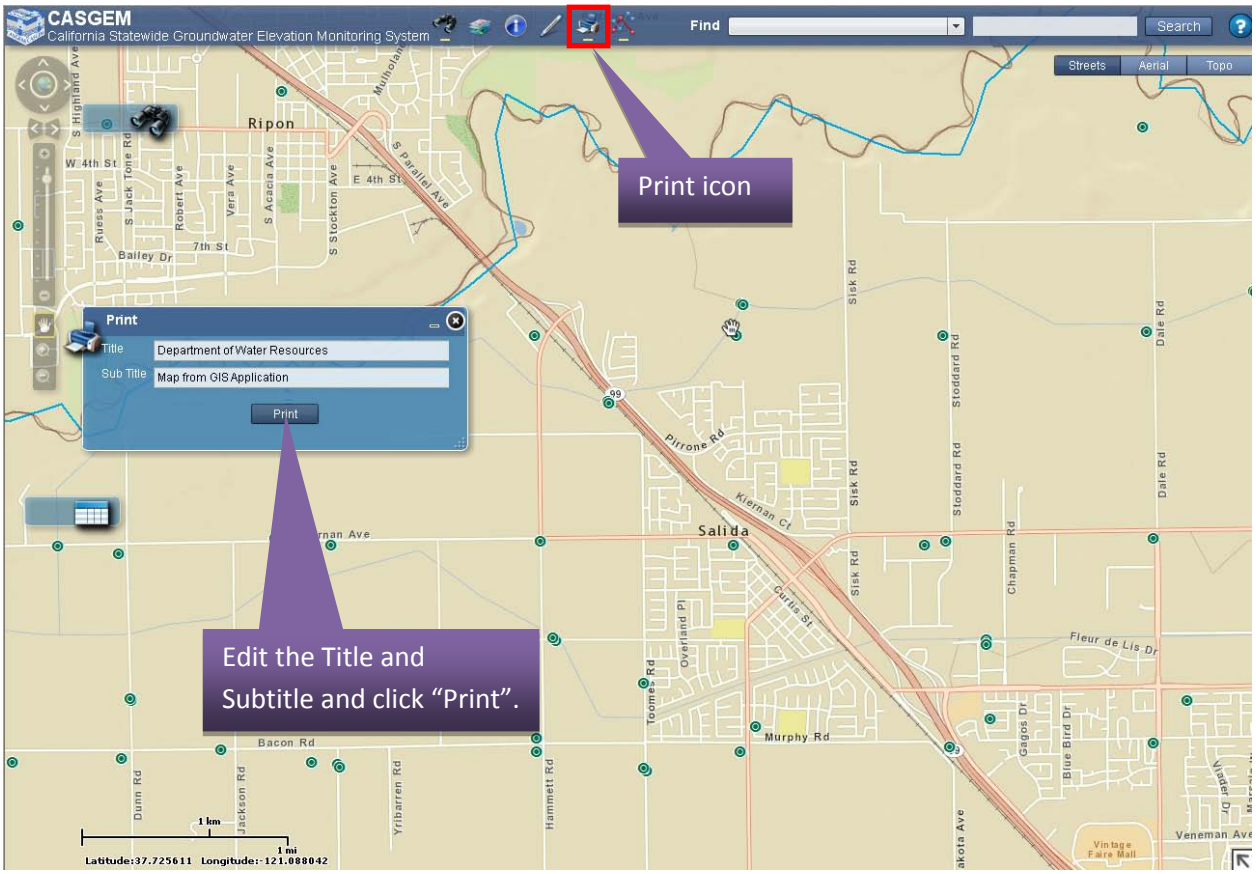


### 2.7.9 Print

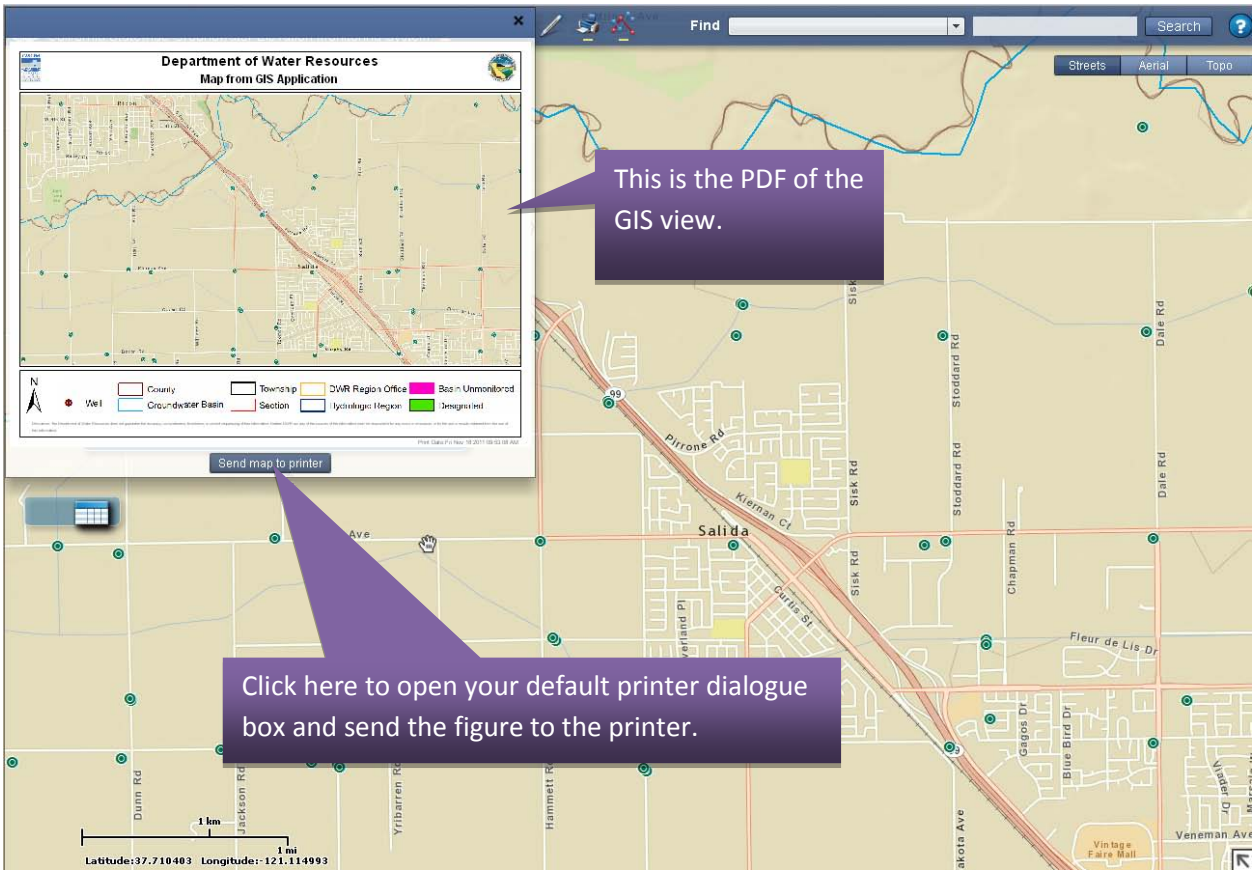
The Print functionality can be found on the Top Bar. It allows you to save (and subsequently print) the current map view.

To print, follow the instructions below:

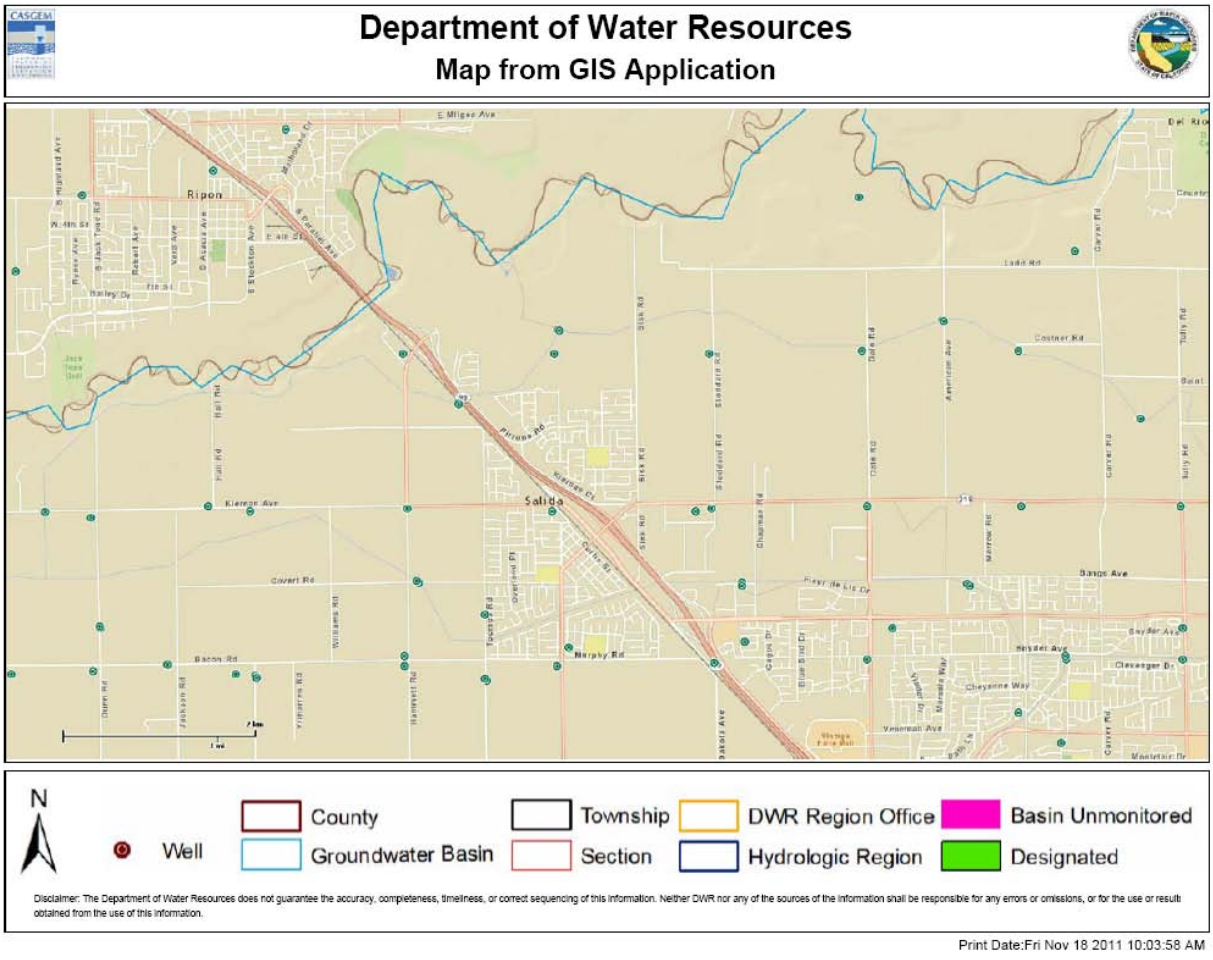
- To print, select the Print icon on the Top Bar.
- A widget will pop up that prompts the user to give the page a Title/Sub Title.
- Choose a Title and Sub Title and then click “Print”. (Keep in mind that the limit for either the Title or Sub Title is 40 characters.)



- You can print this PDF by clicking on the “Send Map to Printer” opening the document, clicking on File and then click on Print (see below). In order to capture the entire map, select landscape as the page orientation on the printer’s settings.



The printed version of the map will adhere to a CASGEM template which includes the CASGEM logo, scale of map, a North position marker, and a legend.



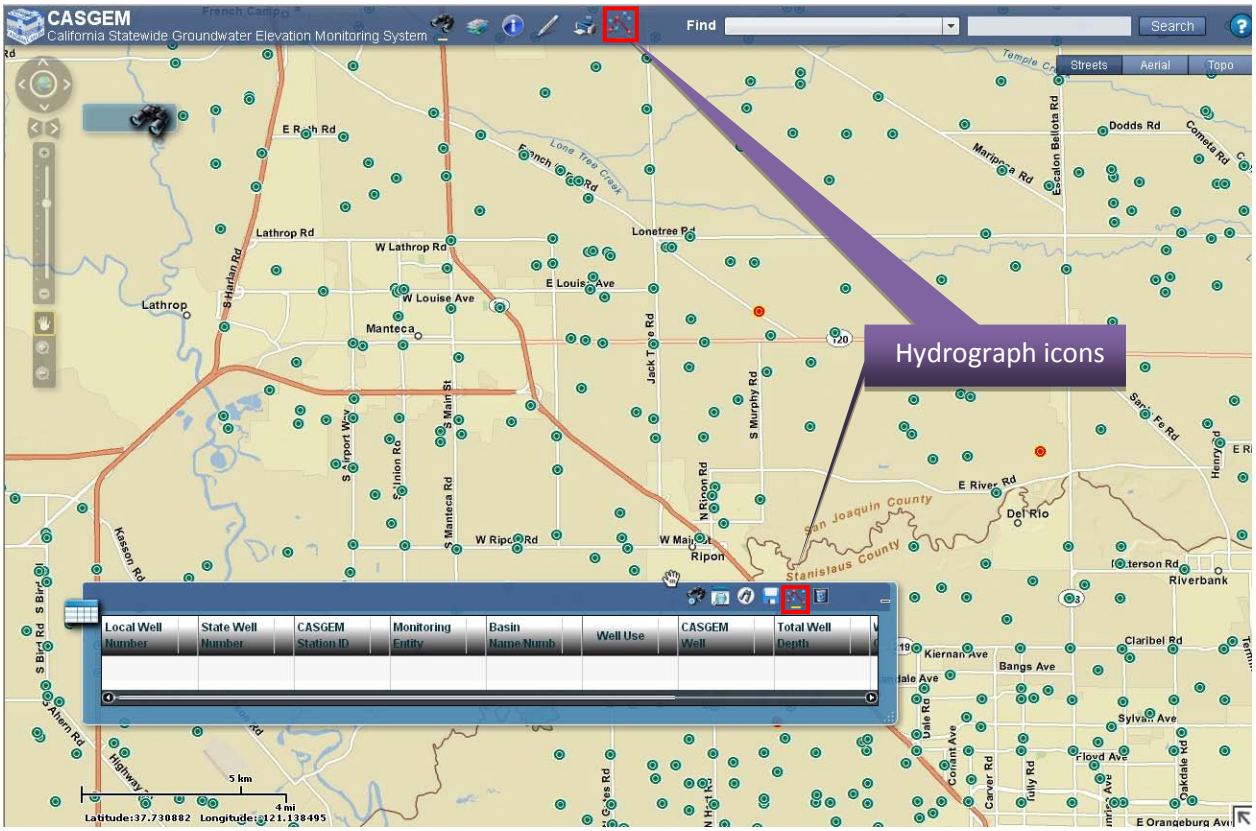
## 2.7.10 Elevation Data Hydrograph

Topics covered in this subsection include:


2.7.10.1 Single Well Hydrograph

2.7.10.2 Multiple Wells Hydrograph


The hydrograph functionality is accessible by selecting the Hydrograph icon from either the Top Bar or the Well Search Results table.



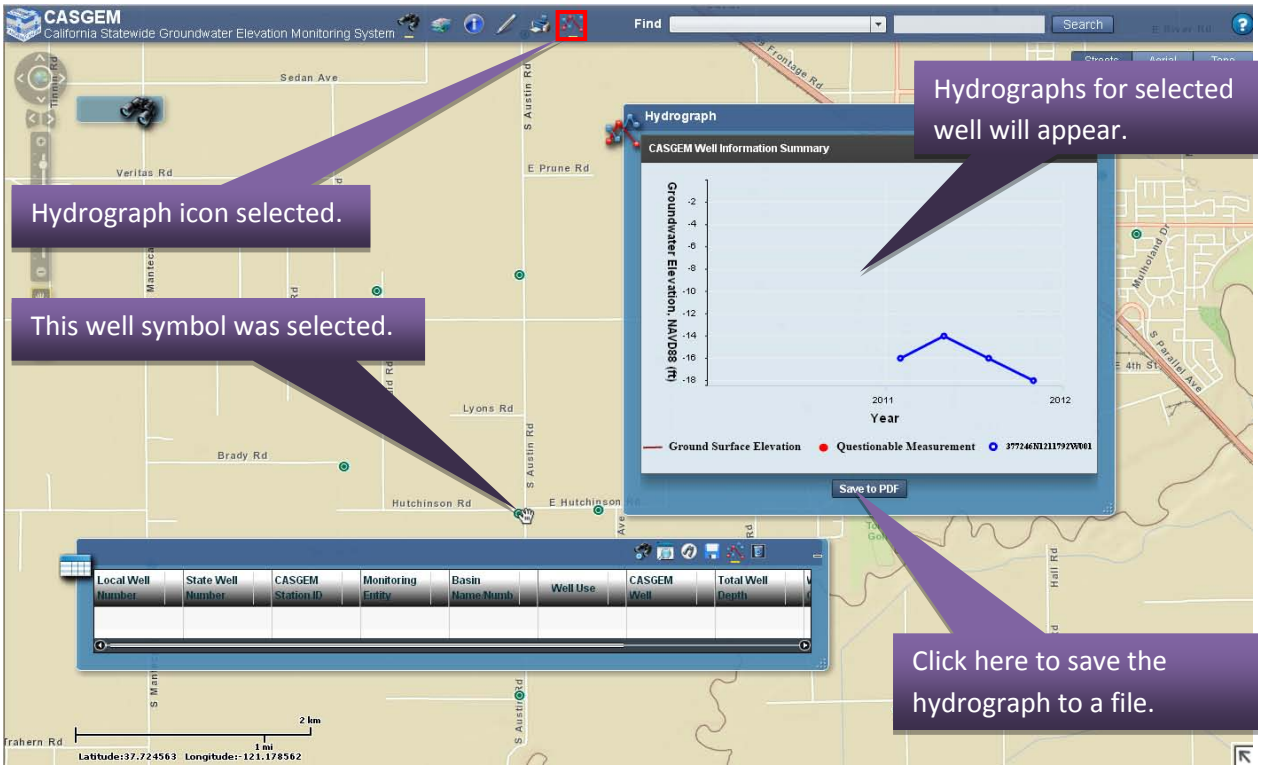

The user can click on a well to view a hydrograph which depicts variations in elevation data across a time span. Ground surface elevation will not be shown in the GIS view and no data grid will be shown in the map view. The user can save a hydrograph, along with a screen print of the area selected, as a PDF file.

### 2.7.10.1 Single Well Hydrograph

Single well hydrographs can be created by using the hydrograph icon on the Top Bar or Well Search Results table.

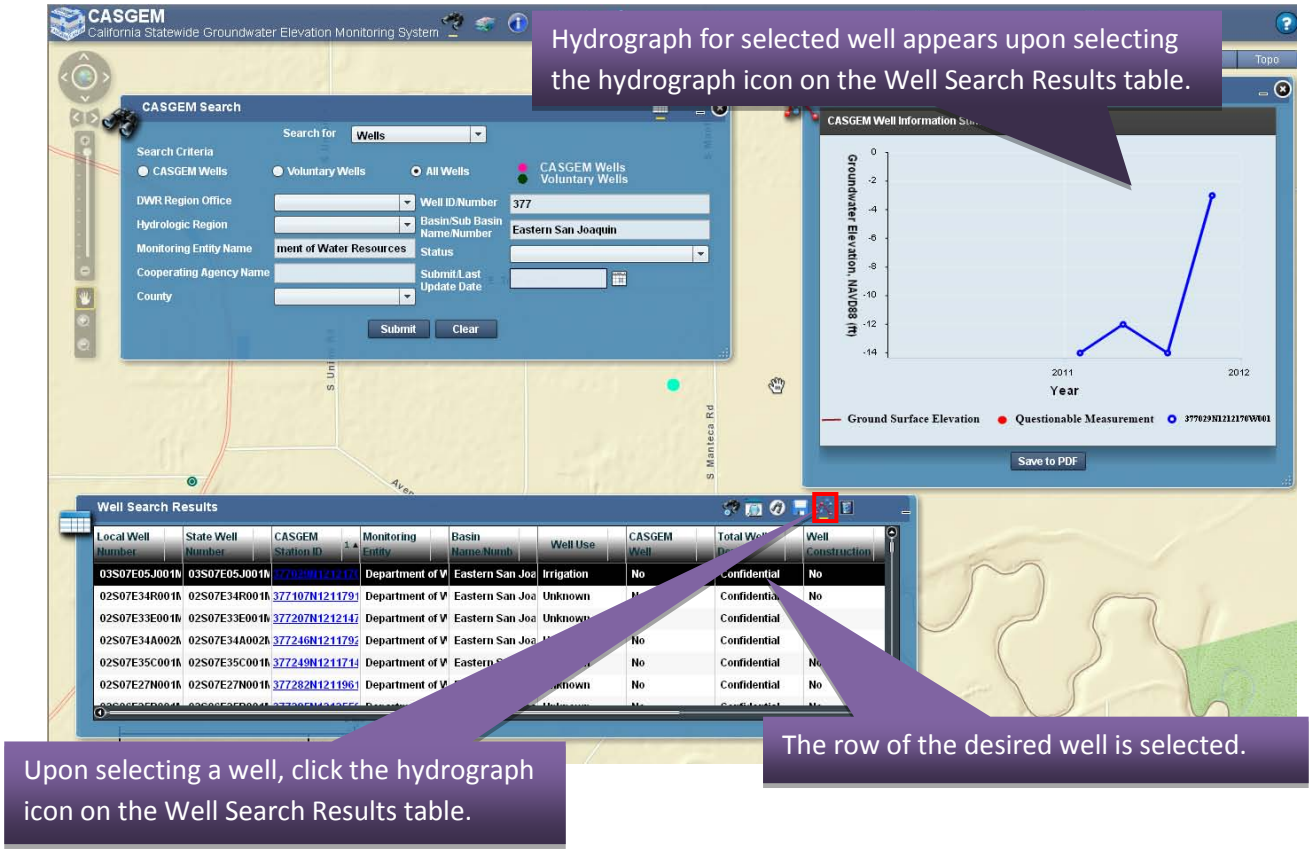
### *Method 1 to Create a Single Well Hydrograph*

To view hydrographs using the Top Bar icon, the Well layer must be turned on. Navigate to the location of the well of interest until you can see the well's symbol. With the Top Bar icon selected (as indicted by the yellow underscore), click on the well symbol. A window showing the hydrograph will pop up as shown below. You can click "Save to PDF" to save the hydrograph to a PDF file. If there is no groundwater elevation data associated with the well, an error message will be obtained.



### *Method 2 to Create a Single Well Hydrograph*

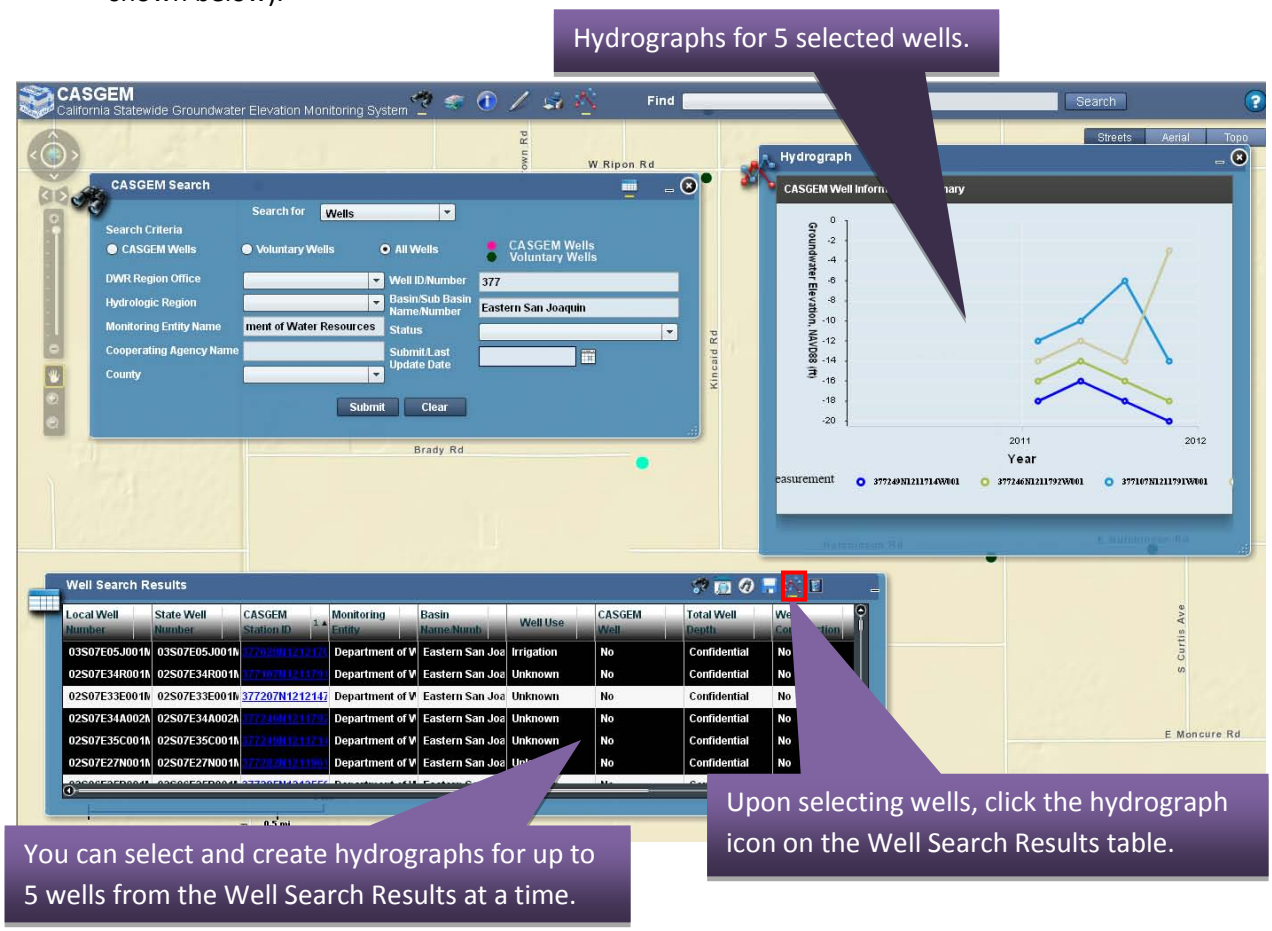
The second method available to create a single well hydrograph is use the Well Search Results table. First, click on the row of the desired well (not the hyperlink). Then select the hydrograph icon at the top of the Well Search Results table. A window showing the hydrograph will pop up as shown below. You can click "Save to PDF" to save the hydrograph to a PDF file. If there is no groundwater elevation data associated with the well, an error message will be obtained.



### 2.7.10.2 Multiple Wells Hydrograph

A maximum of five wells can be selected for inclusion on the hydrograph. For these types of multiple well hydrographs, follow the instructions below:

1. Select the group of wells (maximum of 5 wells) from the Well Search Results widget to plot.
2. You can hold the “Ctrl” key down while selecting wells from random locations in the list versus using the “Shift” key to select wells sequentially listed.
3. Click the hydrograph icon on the Well Search Results table to generate the hydrograph plots (as shown below).




Wells without groundwater elevation data will not be plotted on the hydrograph. Due to system constraints, you will not be able to save multiple well hydrographs to a PDF file

## 2.7.11 Quick Find for Wells and Basins

Topics covered in this subsection include:


2.7.11.1 Searching for Wells Using Quick Find

2.7.11.2 Searching for Basins


The Quick find feature enables the user to search for a well (Local, CASGEM or SWN) or basin/sub-basin. This feature is available from the Top Bar. Note: Your search criteria must be match exactly what is in the database in order for the Quick find feature to return results. If you do not know the exact format of the well or basin you are searching for you should use the Advanced Search widget (e.g., the binoculars icon).

The search criteria, available in the drop-down, are Well Number, Basin/Sub-Basin Number and Basin/Sub-Basin Name.

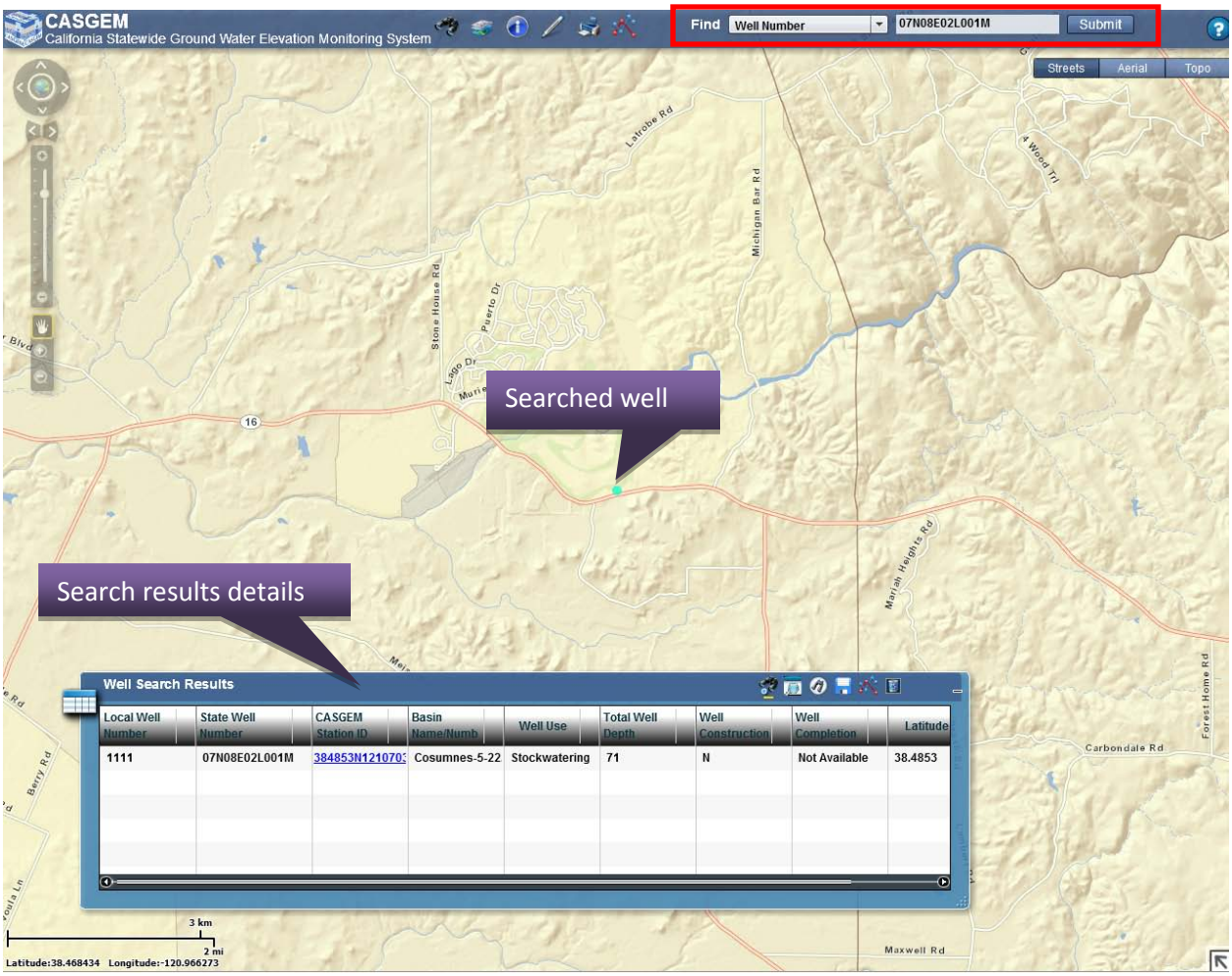
- Select your search criteria and press Submit, or the Enter key, to search.

### 2.7.11.1 Searching for Wells Using Quick Find

Select Well Number from the Quick Find drop-down and enter a Well # (Local, CASGEM or SWN). The entire ID must be entered. For searching for wells using a portion of the well ID, use the Search Widget.

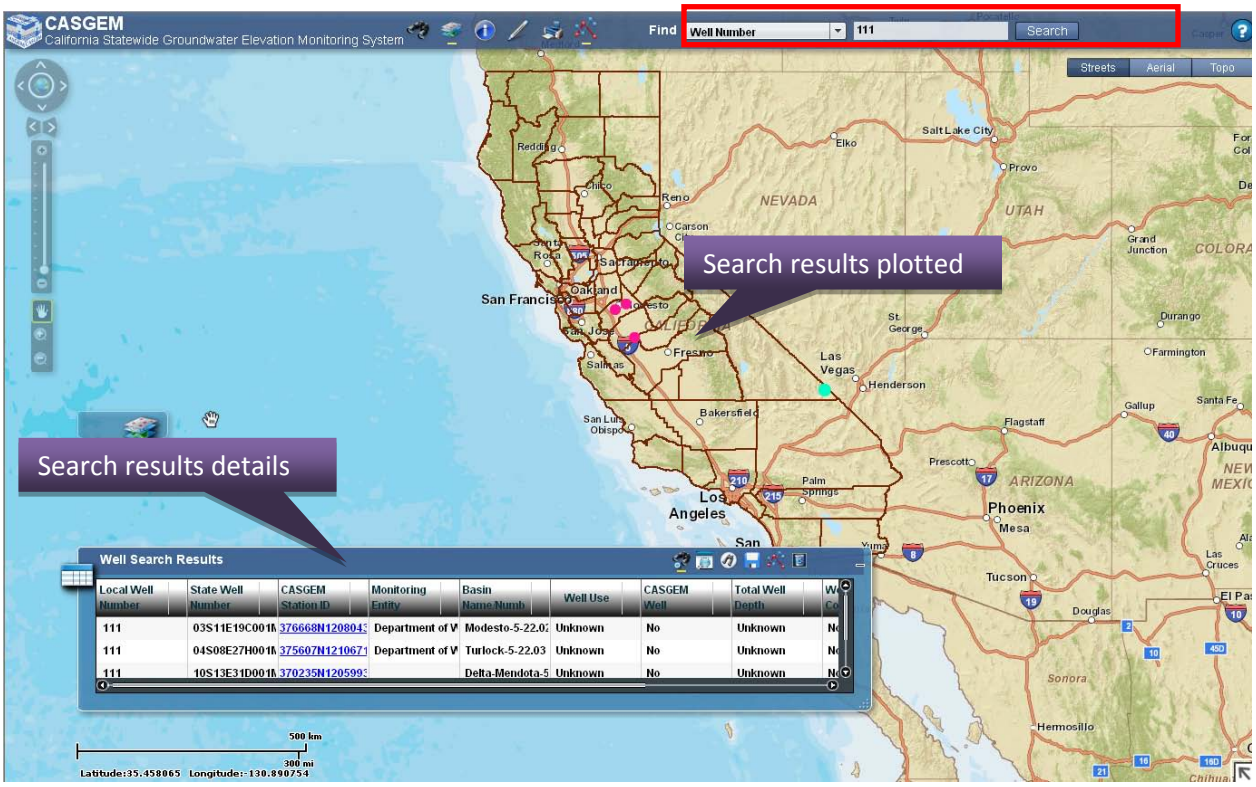
#### *Single Well Result*

If the result of the Quick Find is a unique well (that is, only one well is associated to the searched well number), the GIS application will zoom in to that well.



### *Multiple Wells Result*

If the Quick Find function encounters multiple results for the same well number, the GIS application will not zoom in. The resultant wells are highlighted within the initial California map and a Search Results table is opened, displaying detailed information about the wells. You can zoom into the location of a well by clicking on any well row in the table. Click on the hyperlink in the well row to view a hydrograph or the groundwater elevation data.

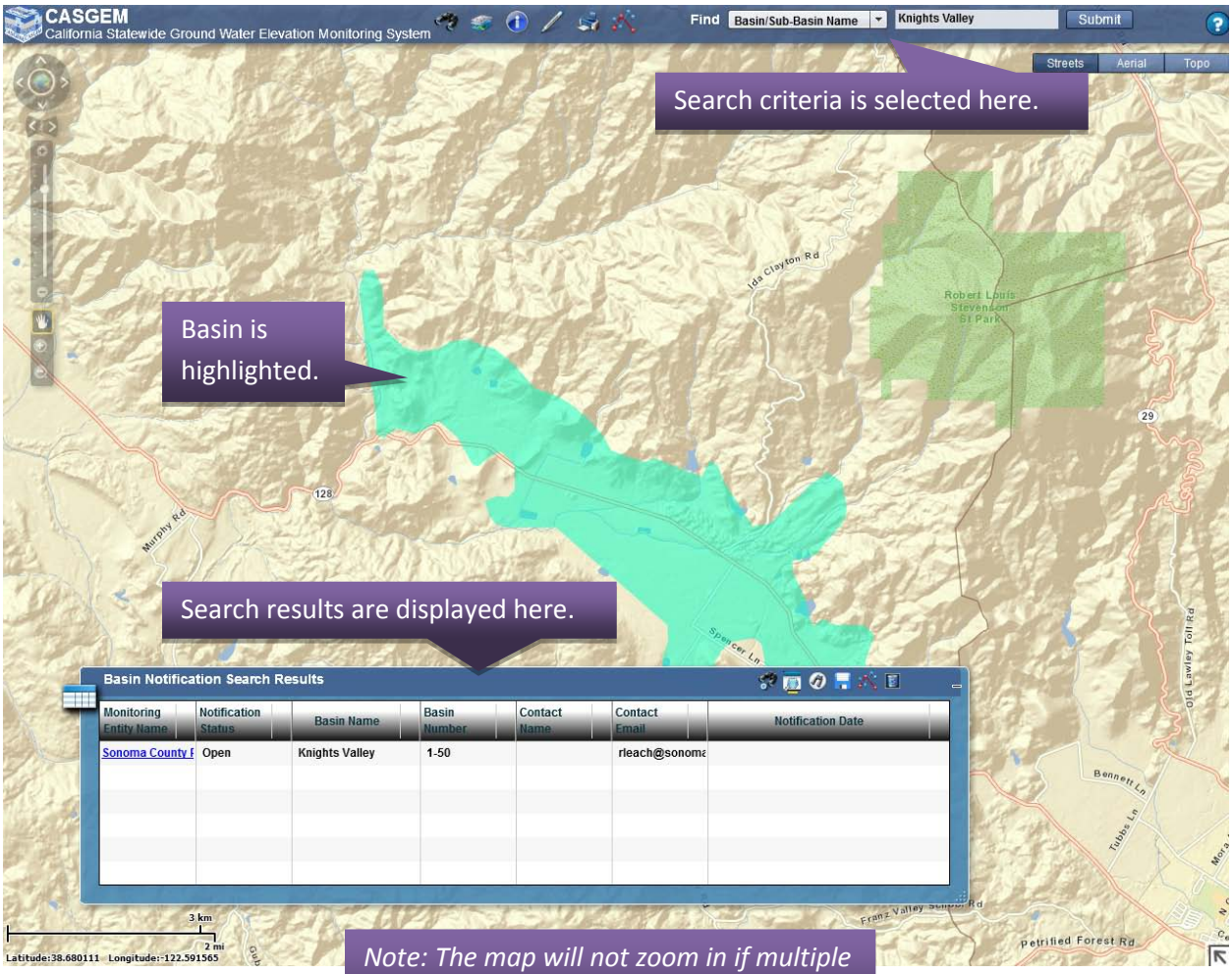


### 2.7.11.2 Searching for Basins

The Quick Find function allows the user to search for Basins or Sub-Basins using the Basin/Sub-Basin Number or Name. This function works for "designated" basins only. If an undesignated basin is entered in the search parameters, it will return an error box stating, "No results found."

To find a basin, follow the instructions below:

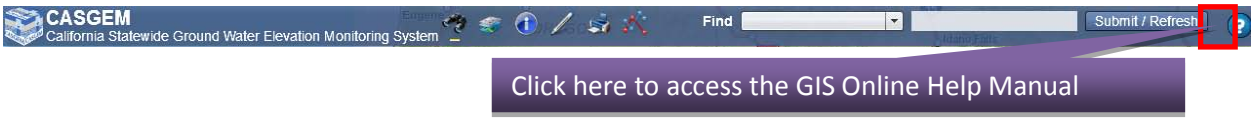
- Select "Basin/Sub-Basin Name" or "Basin/Sub-Basin Number" from the Quick Find drop-down.
- Enter the Name or Number of the Basin being searched for.
- Upon clicking Submit, the system will zoom into the Basin/Sub-Basin and display a Search Results table showing details about the result (as seen below). The system will not zoom into the Basin/Sub-Basin if there is more than one result.




*Note: The map will not zoom in if multiple basin results are returned in search.*

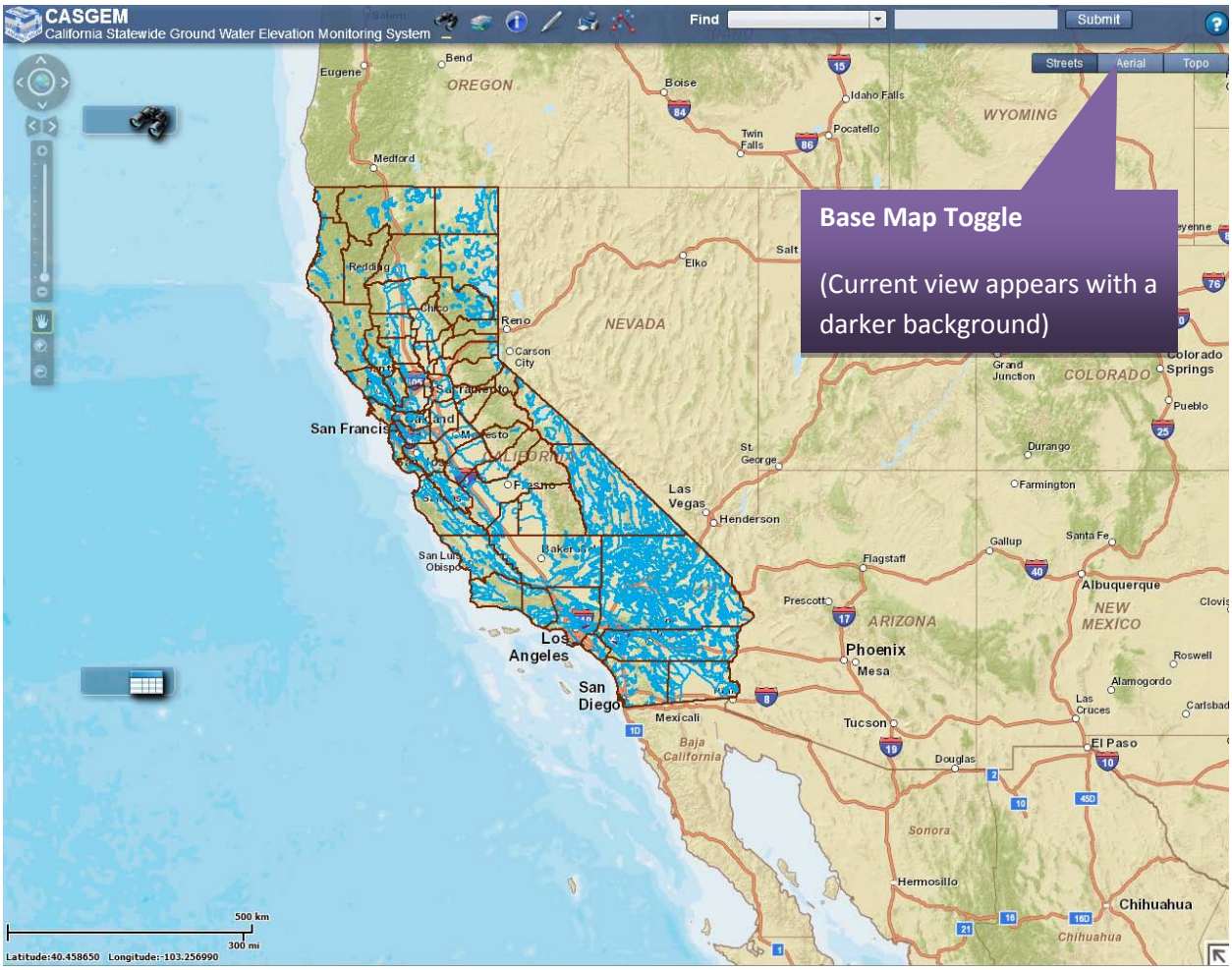
## 2.7.12 Help Icon

Most questions about the GIS function can be answered by looking through the Online Help Manual. To access the Online Help Manual, click on the question mark icon in the upper right hand corner of the GIS function.



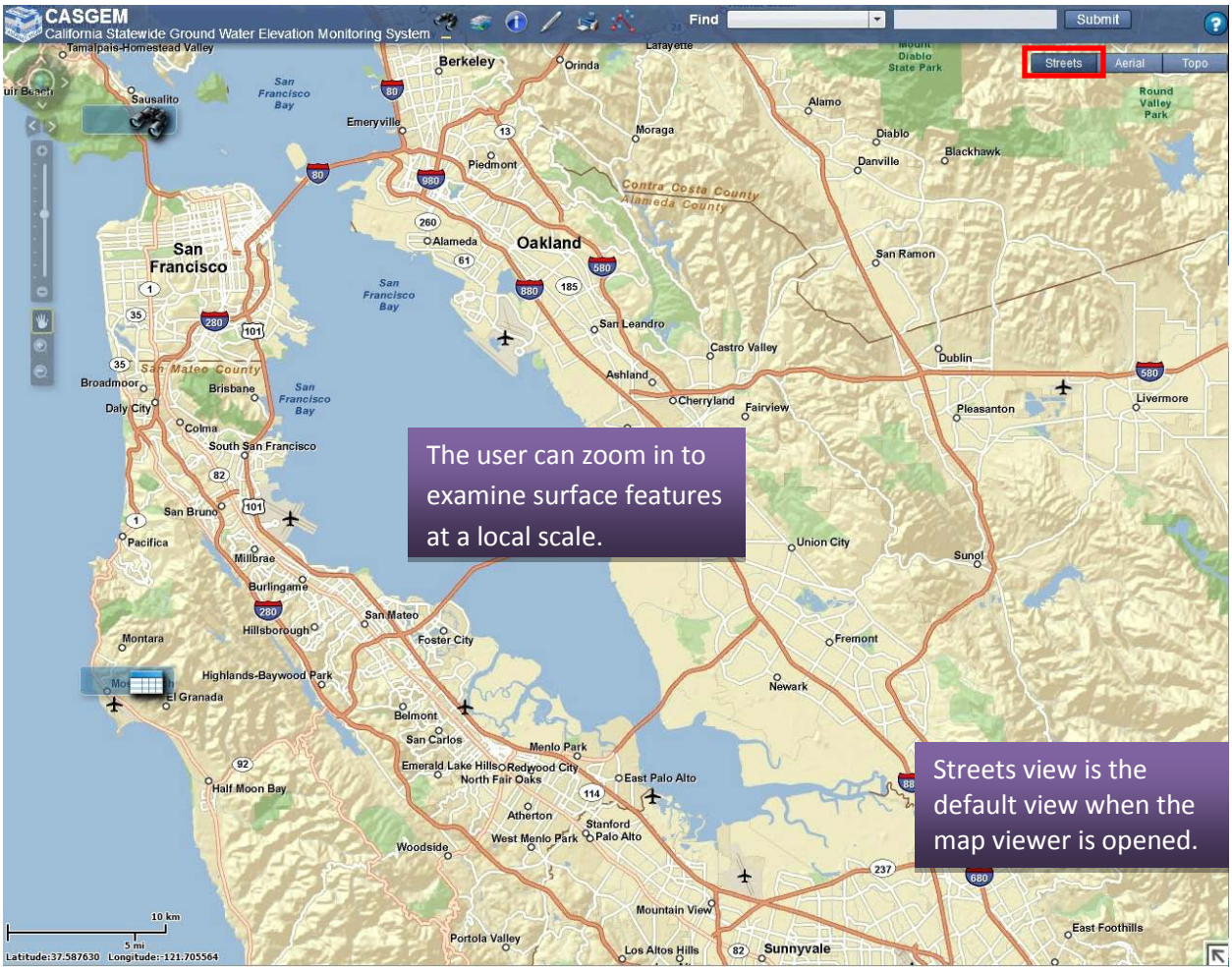

## 2.7.13 Base Map Toggle

The Base Map Toggle Menu enables GIS application users to easily switch between base maps. Three base maps are available in the GIS viewer: street information, satellite imagery, and topographic data. All other layers in the GIS viewer are projected on top of the base layer that is selected at the time (only one base map is available at a time). In the default Map view, the Base Map Toggle Menu is located in the upper right hand corner of the Map. Clicking one of the Base Map Toggle's three buttons will change the base map displayed in the Viewer.

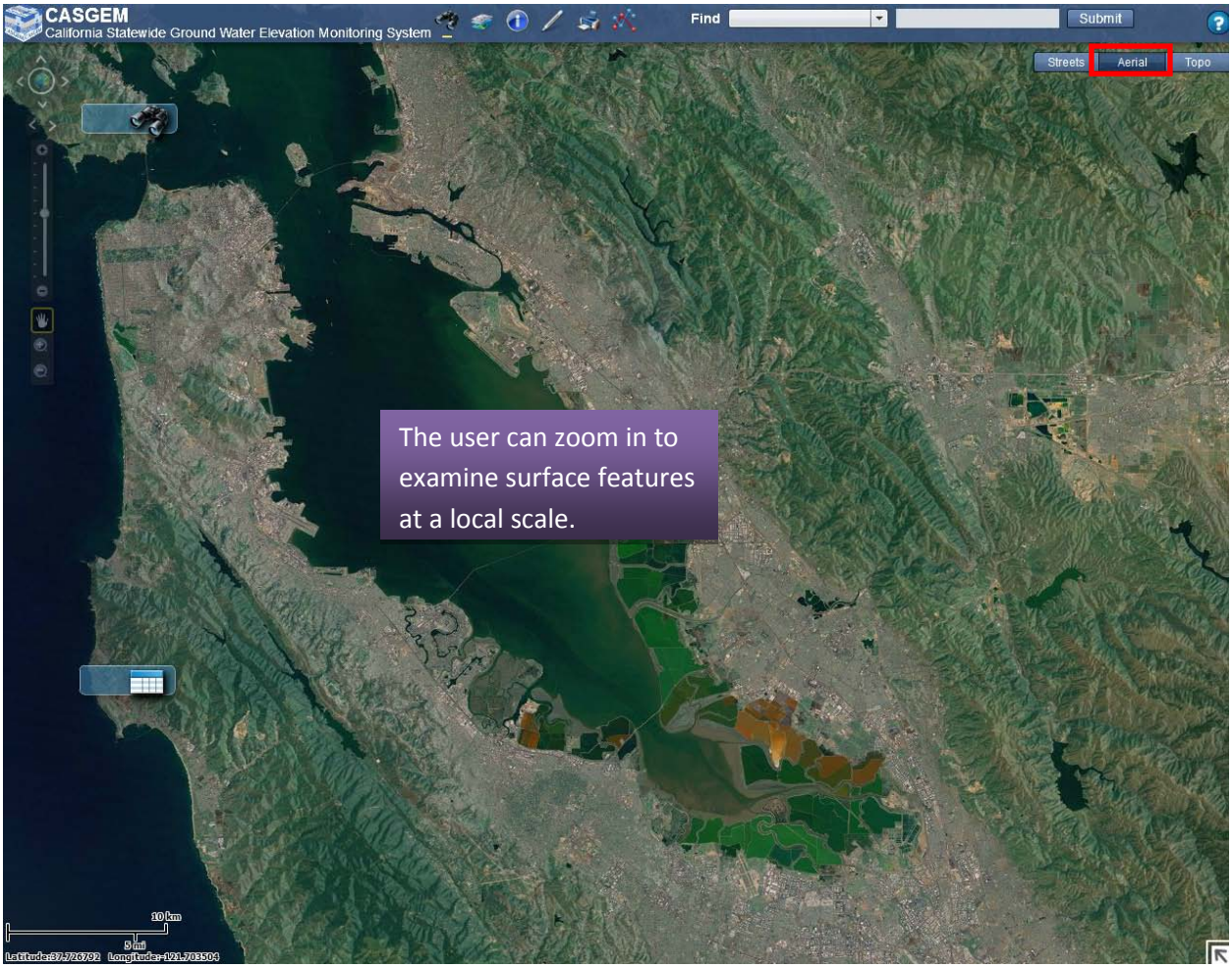


### *Using Base Map Toggle to Change Base Maps*

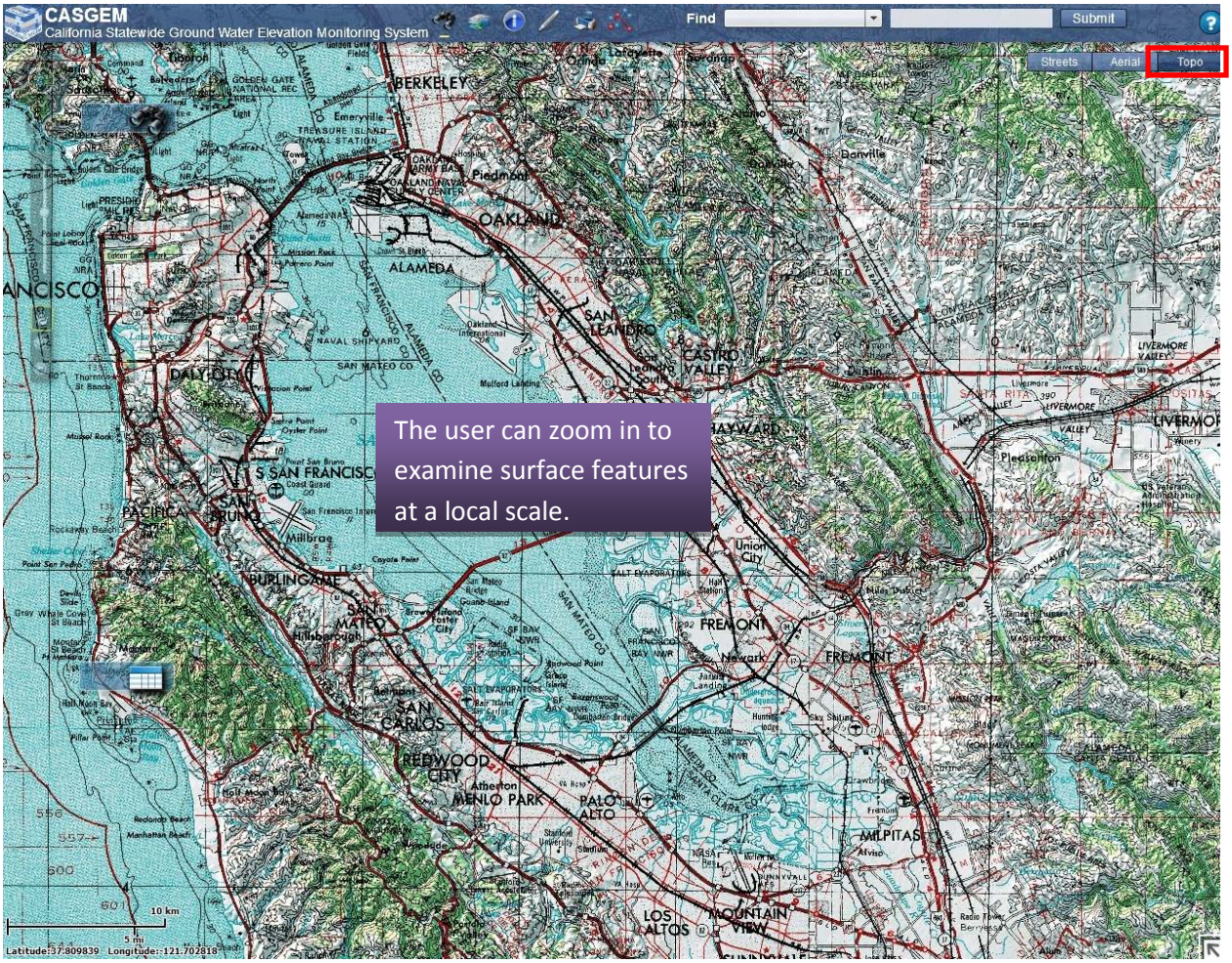
- Click on the Streets tab to view the major roads, streets, and State boundary within the map viewer.



- Click on the Aerial tab to view satellite imagery of the surface of the State within the map viewer.

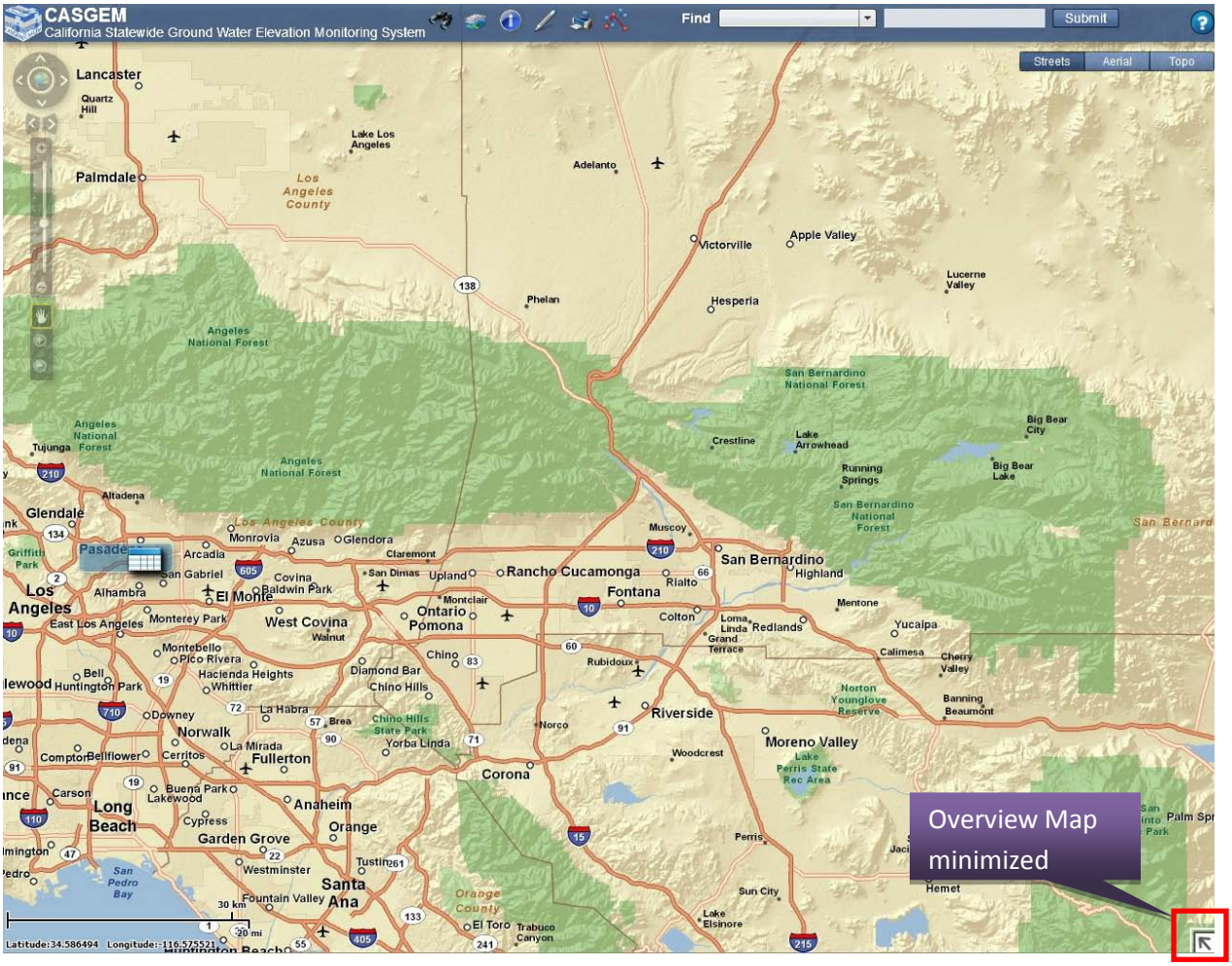


- Click on the Topo tab to view a topographic map base within the map viewer.

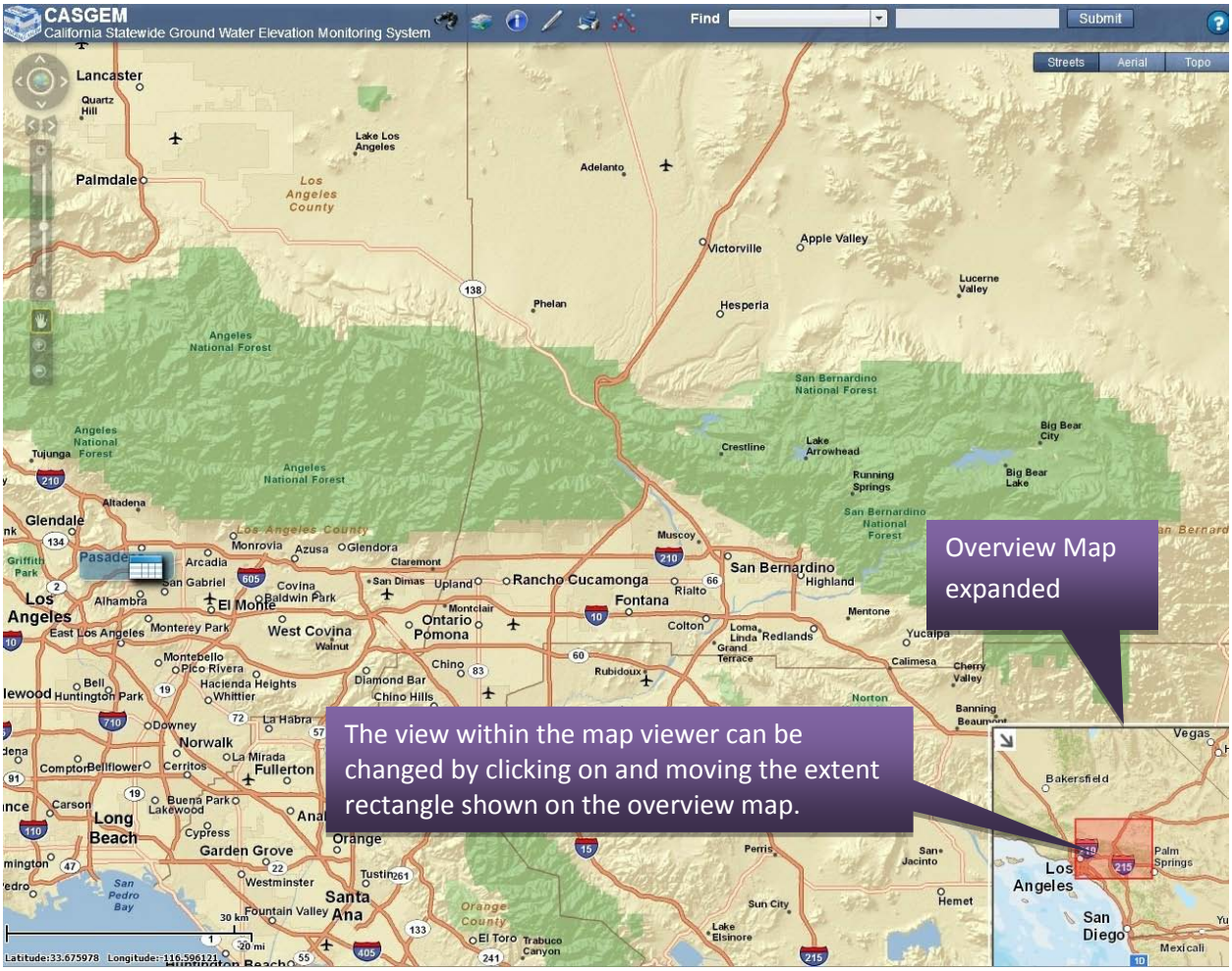


## 2.7.14 Overview Map

The Overview Map shows the current spatial extent of the map display as a red rectangle (i.e., extent rectangle) relative to the entire spatial extent of the base map service. This menu is located in the lower right corner of the map viewer and is minimized (appears hidden) by default.

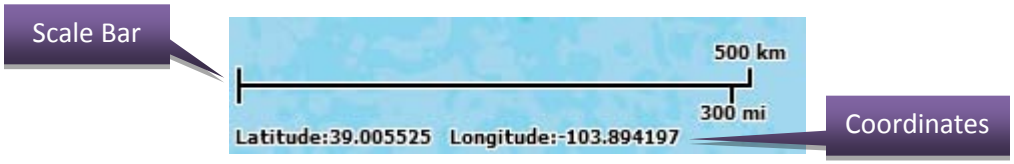


- To open the Overview Map, click on the Map Overview expand arrow on the right hand corner of the map. A small window will open up to show the overview map with a bounding box of the area zoomed in.

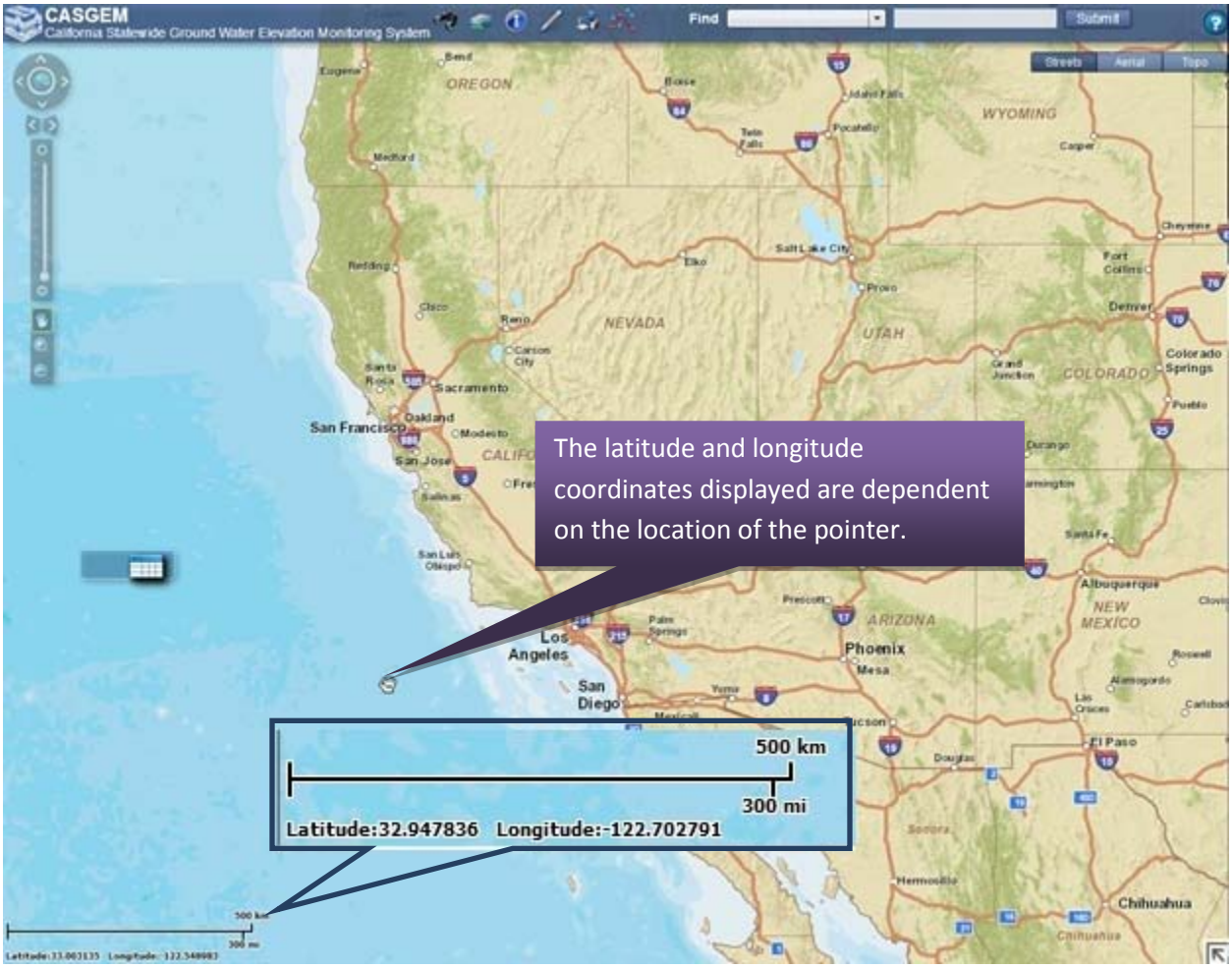


## 2.7.15 Scale Bar and Coordinates

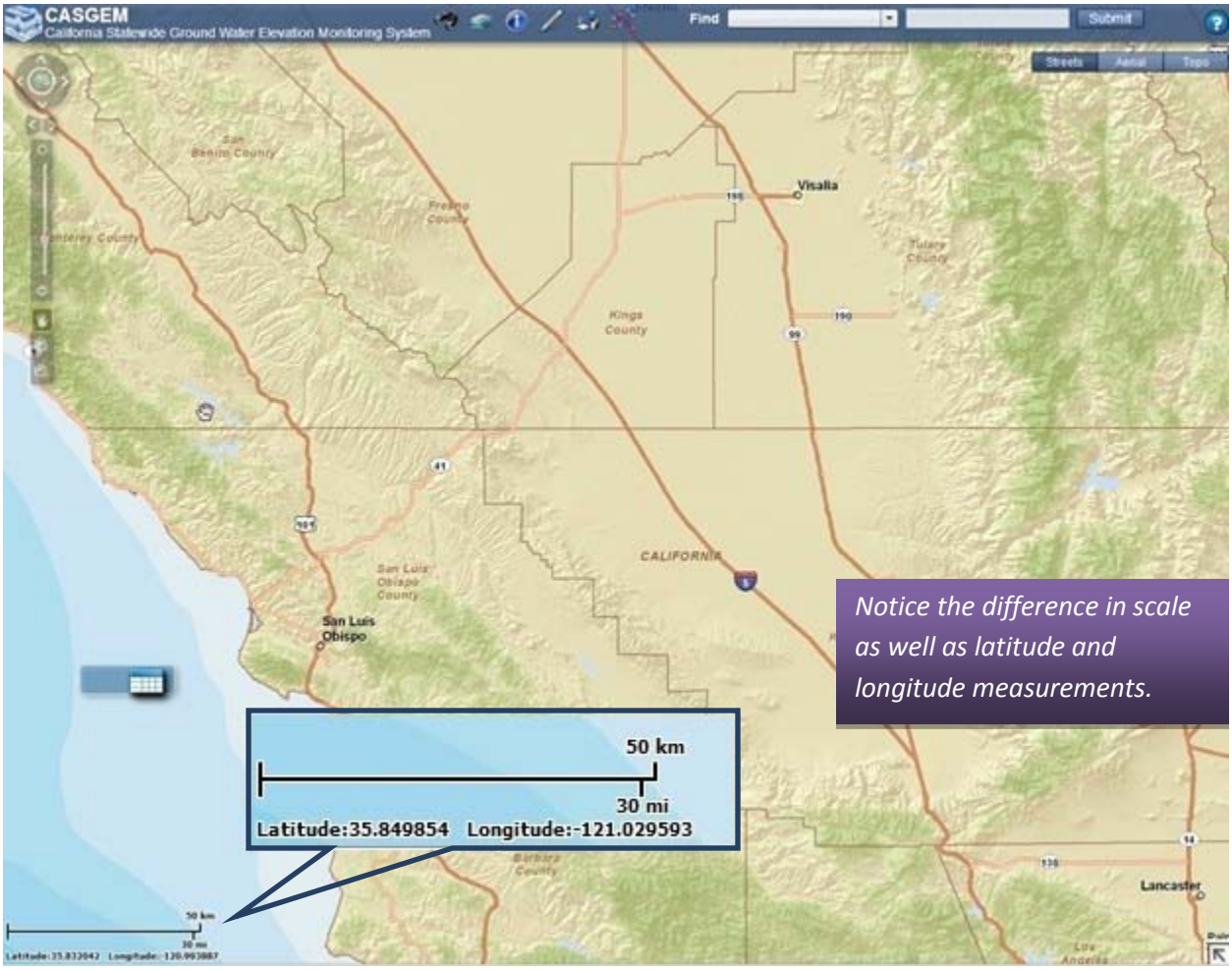
The Scale Bar and Coordinates can be found in the lower left hand corner of the GIS Application.




- The Scale bar enables GIS viewer users to know the reference scale of the map they are viewing. The scale dynamically changes when users perform zoom in and zoom out operations.
- The Coordinates Menu enables x,y (Longitude, Latitude) coordinate values to appear in the GIS viewer as the cursor moves to different locations in the map display.
- The coordinate values change dynamically as the cursor moves and are displayed underneath the Map Scale bar.
- The coordinate values are displayed in Degree Decimal units.

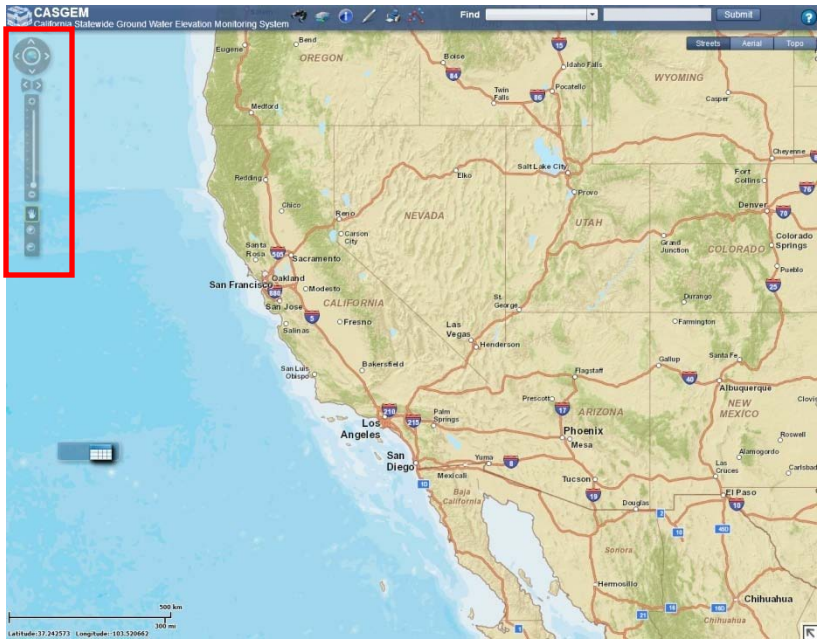


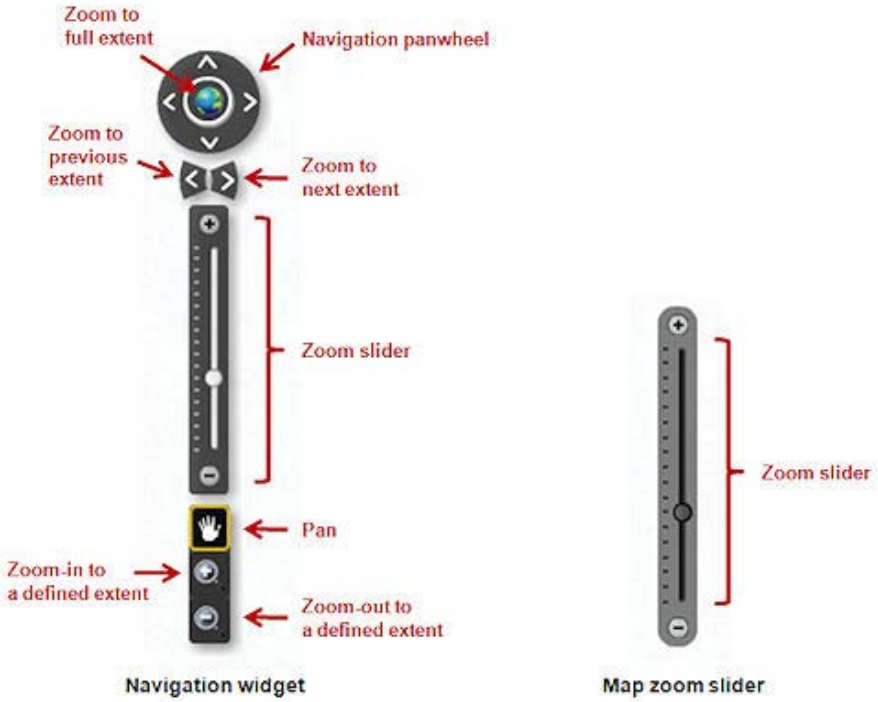
The scale dynamically changes when users perform zoom in and zoom out operations. This can be seen by comparing the screenshot from above to the one below, as they are at different levels of zoom.




## 2.7.16 Navigation

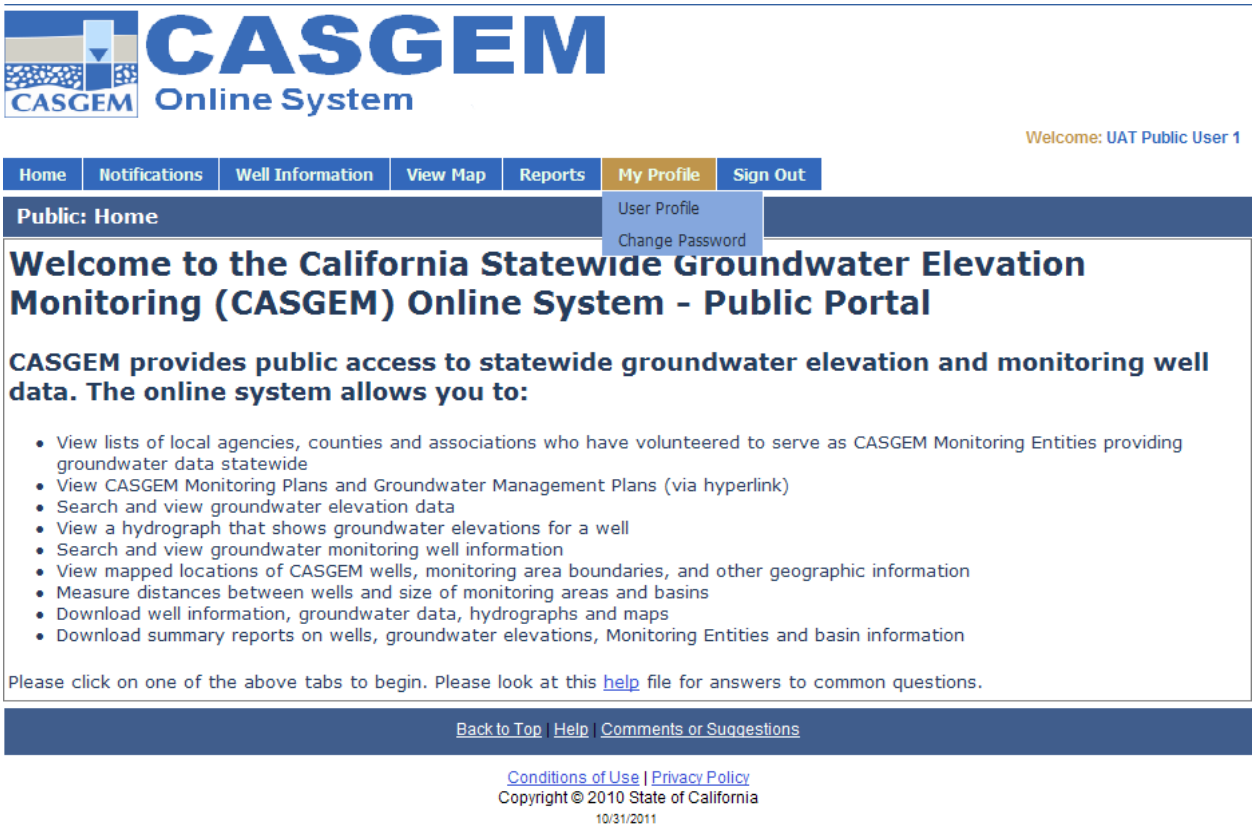
The Navigation Menu provides a comprehensive set of map navigation controls in the GIS Viewer application. It is located on the left side of the GIS viewer and appears on top of the map display. It becomes transparent when the cursor is not hovering over a navigation control.


CASGEM
California Statewide Ground Water Elevation Monitoring System
Find
Submit
Streets
Aerial
Topo
OREGON
WYOMING
NEVADA
UTAH
COLORADO
CALIFORNIA
ARIZONA
NEW MEXICO
Sacramento
San Francisco
Oakland
San Jose
Fresno
Las Vegas
Los Angeles
San Diego
Phoenix
Albuquerque
El Paso
Chihuahua


Zoom to full extent
Navigation panwheel
Zoom to previous extent
Zoom to next extent
Zoom slider
Pan
Zoom-in to a defined extent
Zoom-out to a defined extent
Navigation widget
Zoom slider
Map zoom slider

## 2.8 My Profile

The My Profile tab allows you to view and edit user profiles and change passwords.




Details about each of these functionalities can be found in the sections that follow.

### 2.8.1 User Profile

The User Profile link under the My Profile tab allows users to enter or edit their personal details, such as address and contact information. To edit, click on any field and edit the information within it.

- To edit Challenge Information (Security Question and Answer); select the Challenge Information link to expand.
- To add a new phone number, simply click on the plus icon next to “Add New Phone”. The system will display a Phone Details window with empty fields where you can add a phone number. Click “Apply Changes” to save.
- To edit a phone number, click on Edit within the Add New Phone table. Edit the Phone Details in the pop-up window and click on “Apply Changes” to save.
- To delete a phone number, click on the “Delete” option within the Phone Details table.
- To add a new address, simply click on the plus icon next to “Add New Address”. The system will display an Address Details window with empty fields where you can add address information. Click “Apply Changes” to save.
- To edit an address, click on Edit within the Add New Address table. Edit the Address Details in the pop-up window and click on “Apply Changes” to save.
- To delete an address, click on the “Delete” option within the Address Details table.

Upon making any changes within the Edit User Profile page, you must click “Save” to save all of this information to the CASGEM system.

### 2.8.2 Change Password

The Change Password link under the My Profile tab allows you to change their password. In order to change your password, enter your old password and then enter your new password twice to verify. After making your changes, click “Change” to update your password.

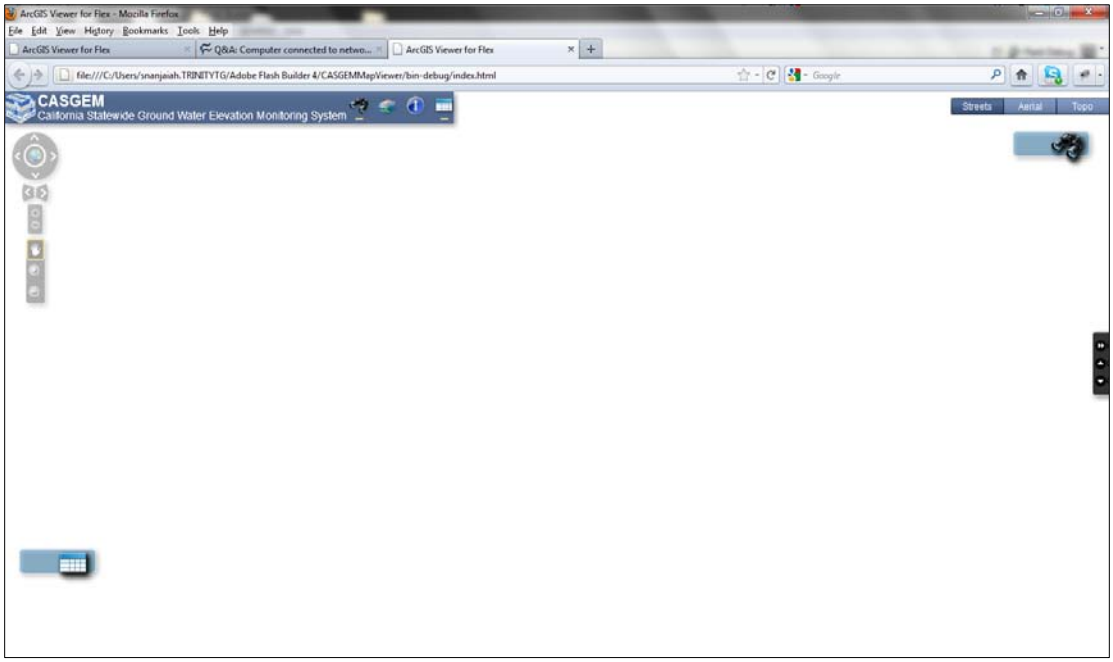
# 3.0 Additional Information

Section Topics

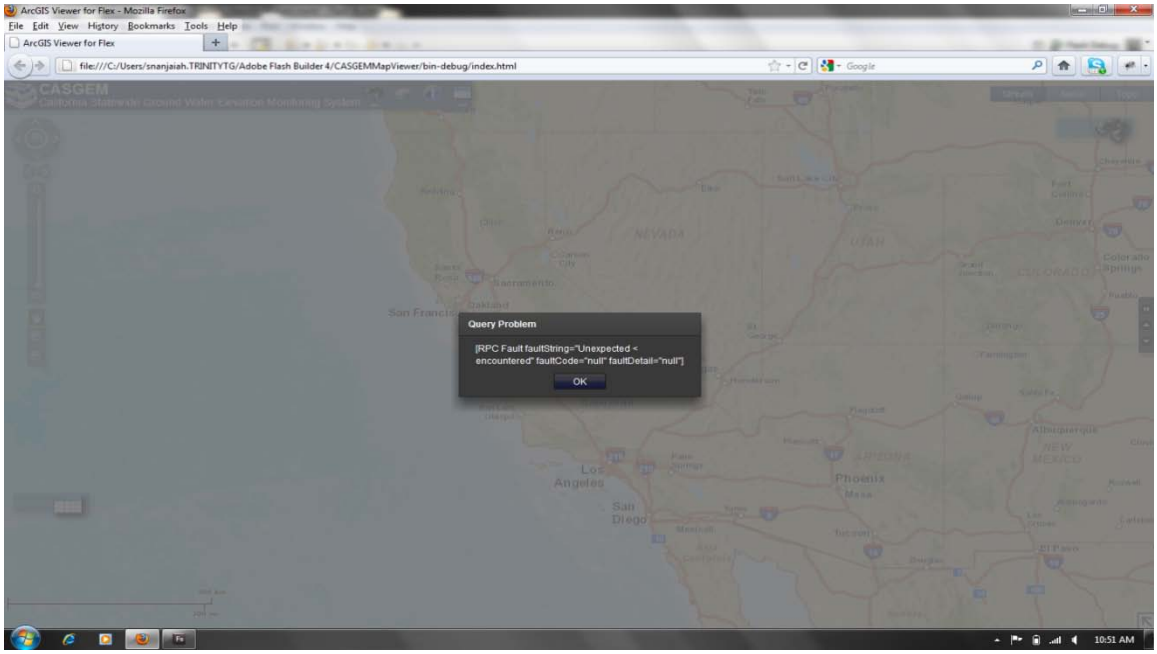
3.1 Known Errors
3.2 Further Help

## 3.1 Known Errors

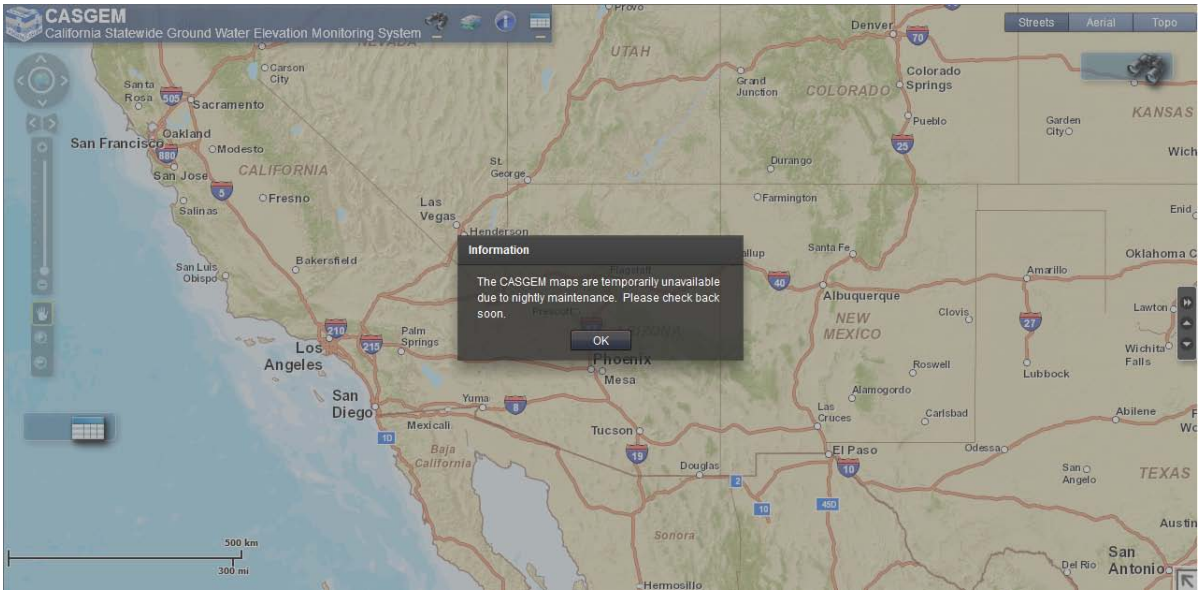
1. There is a possibility that the ESRI ArcGIS online service is not available. We have no control over the availability of the base maps if this happens. During this error, you will be able to access the GIS application, but none of the map layers will be loaded. Typically you would see a white screen as shown below.




2. There is a possibility that the operation layers hosted on DWR's GIS servers are not available. This might happen if there are any internal network problems at the DWR headquarters. If any problems are encountered, please contact the system administrator. The error you will see if this problem is encountered is shown below, and the user will be asked to close the GIS browser window.




3. There is a possibility that the operation layers hosted on DWR's GIS servers are not available. This will happen daily between 2:00AM and 3:00AM due to server maintenance at the DWR headquarters. If any problems are encountered, please contact the system administrator. The error you will see if this problem is encountered is shown below, and the user will be asked to close the GIS browser window.



## 3.2 Further Help

If you need additional help, the please contact the following individuals in the appropriate DWR Regional office:

Northern Region Office, Bill Ehorn, behorn@water.ca.gov , (530) 528-7403

North Central Region Office, Chris Bonds, cbonds@water.ca.gov , (916) 376-9657

South Central Region Office, Dane Mathis, dmathis@water.ca.gov , (559) 230-3354

Southern Region Office, Tim Ross, tross@water.ca.gov , (818) 500-1645 x278

Headquarters, Mary Scruggs, mscruggs@water.ca.gov, (916) 654-1324