

**USACE Survey Marker Archive and Retrieval Tool
(U-SMART)
User Manual
5.0**

Prepared for

**US Army Corps of Engineers (USACE)
Cold Regions Research and Engineering Laboratory (CRREL)**

August 24, 2012

Document Change Record

Version Number	Date	Description
00.01	10/9/2009	Initial Draft Release
00.02	2/5/2010	Updated to incorporate CAC authentication
03.00	12/17/2010	Updated to reflect version 3.0
05.00	08/24/2012	Update to reflect version 5.0

Draft

Table of Contents

1.	Preface.....	1
2.	Getting Started	2
2.1	System Overview	2
2.2	Key Terms and Definitions	2
2.3	Data Integrations	2
2.3.1	NGS and OPUS.....	2
2.3.2	Gages.....	2
2.3.3	CPN Projects.....	3
3.	U-SMART User Roles	4
3.4	User Privileges	4
3.5	User Roles	4
4.	Accessing U-SMART	5
4.1	Technical Requirements	5
4.2	Launching Internet Explorer Browser.....	5
4.2.1	Navigating to U-SMART	6
4.2.2	Logging into U-SMART.....	7
5.	Home.....	8
6.	Submit and Manage Control Points	9
6.1	Web Application.....	9
6.1.1	Using the Web Application.....	9
6.1.2	Associating Documents and Images.....	12
6.1.3	Approve Control Points	13
6.1.4	Archiving Control Points.....	15
6.1.5	Delete Control Points	17
6.1.6	Edit Control Points.....	17
6.2	PDF Form	20
6.2.1	Technical Requirements for the U-SMART PDF	20
6.2.2	Using the U-SMART PDF	20
6.2.3	Approve Control Point.....	25
6.2.4	Delete or Archive Control Point.....	25
6.2.5	Edit Control Points.....	25
6.3	Submission through Bulk Load functionality	26
6.3.1	Technical Requirements	26
6.3.2	Using the Bulk Load Access Database.....	26
6.3.3	Approve Control Points	30

6.3.4	Delete and Archive Control Points	30
6.3.5	Edit Control Points.....	31
7.	Map	32
7.1	Map Tools.....	32
7.1.1	Map Utilities.....	33
7.1.2	Layers	34
7.1.3	Legend	36
7.1.4	Queries.....	38
7.1.5	Area/Distance Measurement	40
7.1.6	Coordinates	41
7.1.7	Search & Link.....	41
8.	Search.....	50
9.	Reports	51
9.1	Interactive Reports	51
9.2	Search	51
9.3	Actions.....	53
9.4	Select Columns.....	53
9.5	Filtering Option	54
9.6	Sort	56
9.7	Control Break	58
9.8	Highlight.....	60
9.9	Compute	62
9.10	Aggregate	64
9.11	Save Report	66
9.12	Reset	67
9.13	Help	69
9.14	Download	70
9.15	Using Interactive Columns.....	72
10.	My Account	74
11.	Admin	75
11.1	Create Contractor Account.....	75
11.2	User Information	76
	Appendix A – List of Acronyms.....	78
	Appendix B – Field Definitions.....	79
	Appendix C – Accuracy Standards.....	80

List of Figures

Figure 4.2-1: Internet Explorer Desktop Shortcut	5
Figure 4.2-2: Quick Launch Menu	6
Figure 4.2-3: Start Menu	6
Figure 4.2-4: Internet Explorer Address Bar	7
Figure 4.2-5: Home Screen	7
Figure 5-1: Home Page	8
Figure 6.1-1: Create New Control Point	9
Figure 6.1-3: Validation Errors	11
Figure 6.1-4: Submission Successful	12
Figure 6.1-5: Associations and Documents	13
Figure 6.1-6: Awaiting Approval – Home Page	14
Figure 6.1-7: Awaiting Approval – Control Point Details Page	14
Figure 6.1-8: Approved – Control Point Details Page	15
Figure 6.1-9: Archive – Control Point Details Page	16
Figure 6.1-10: Archive – Control Point Details Page	16
Figure 6.1-11: Archive – Control Point Details Page	17
Figure 6.1-12: Edit – Control Point Details Page	18
Figure 6.1-13: Edit – Control Point Details Page	18
Figure 6.1-14: Awaiting Approval – Control Point Details Page	19
Figure 6.1-15: Warnings and Differences	19
Figure 6.2-1: Download PDF	20
Figure 6.2-2: PDF Form – Page 1	21
Figure 6.2-3: Field Description	22
Figure 6.2-4: Field Required	22
Figure 6.2-5: Attach Image to PDF Form	23
Figure 6.2-6: User guidance for estimating local and network accuracy values	24
Figure 6.2-7: Submit	24
Figure 6.2-8: Control Point Details	25
Figure 6.3-1: Download Access Database	26
Figure 6.3-2: Access Database	27
Figure 6.3-3: Access Database – Legacy Control Point ID	27
Figure 6.3-3: Convert to .txt file	28
Figure 6.3-4: Upload File	29
Figure 6.3-5: Upload Successful	29
Figure 6.3-6: Staging Control Point Report	30
Figure 6.3-7: Approve Bulk Load	30
Figure 7.1-1: Map Screen	32
Figure 7.1-2: Map Utilities	33
Figure 7.1-3: Layers Screen	34
Figure 7.1-4: Layers	35
Figure 7.1-5: Legend Screen	36
Figure 7.1-6: Legend	36
Figure 7.1-7: Map Screen	38
Figure 7.1-8: Query Results Table	39
Figure 7.1-9: Query Results Popup	39

Figure 7.1-10: Distance and Area Measurement	40
Figure 7.1-11: Coordinates	41
Figure 7.1-12: Search	42
Figure 7.1-13: Search Screen	42
Figure 7.1-15: Local Linking	43
Figure 7.1-16: Local Linking	44
Figure 7.1-17: Local Linking	44
Figure 7.1-18: PPCP Linking	45
Figure 7.1-19: PPCP Linking	46
Figure 7.1-20: PPCP Linking	47
Figure 7.1-21: NGS/OPUS Linking	48
Figure 7.1-22: NGS/OPUS Linking	48
Figure 7.1-23: NGS/OPUS Linking	49
Figure 8.1-1: Search	50
Figure 9.1-1: View Report	51
Figure 9.2-1: Search	52
Figure 9.2-2: Display Criteria	52
Figure 9.4-1: Actions Menu Functions	53
Figure 9.4-2: Actions Menu - Select Columns	54
Figure 9.5-1: Actions Menu Functions	55
Figure 9.5-2: Actions Menu – Filter	56
Figure 9.6-1: Actions Menu Functions	57
Figure 9.6-2: Actions Menu – Sort	58
Figure 9.7-1: Advanced Search Options	59
Figure 9.7-2: Actions Menu – Control Break	60
Figure 9.8-1: Advanced Search Options	61
Figure 9.8-2: Actions Menu – Highlight	62
Figure 9.9-1: Advanced Search Options	63
Figure 9.9-2: Actions Menu – Compute	64
Figure 9.10-1: Advanced Search Options	65
Figure 9.10-2: Actions Menu – Aggregate	65
Figure 9.11-1: Advanced Search Options	66
Figure 9.11-2: Actions Menu – Save Report	67
Figure 9.12-1: Advanced Search Options	68
Figure 9.12-2: Actions Menu – Reset	68
Figure 9.13-1: Advanced Search Options	69
Figure 9.13-2: Actions Menu - Help	70
Figure 9.14-1: Advanced Search Options	71
Figure 9.14-2: Actions Menu - Download	72
Figure 9.15-1: Advanced Search Options	73
Figure 10-1: My Account Page – CAC User	74
Figure 10-2: My Account Page – Public Contractor	74
Figure 11-1: Admin Page	75
Figure 11.1-1: Admin Page – Create Contractor Account	75
Figure 11.1-2: Create Contractor Account	76
Figure 11.1-3: Assign Contractor Role	76

Figure 11.2-1: Admin Page..... 77

Draft

1. Preface

USACE (United States Army Corps of Engineers) utilizes survey markers, known as Control Points, across the United States, in order to monitor and measure the condition of the land and its effect on Corps Project Notebook (CPN) projects. This activity is critical to maintaining an understanding of subsidence and water levels and ensuring the success of CPN projects. Surveyors that support USACE projects also examine data from the National Geodetic Society (NGS) and the On-line Positioning System (OPUS) to compare data. Surveyors also utilize gage data from the U.S. Geological Survey (USGS), National Oceanic and Atmospheric Administration (NOAA), and USACE to measure water levels.

The main purpose of U-SMART is to provide a centralized system for the districts to manage Control Point data and view NGS, OPUS, CPN, and gage data on a map. Within U-SMART, the Surveyor has the ability to link Control Points to CPN projects. This allows other Surveyors to reference the same Control Points in the future when a CPN project is being reviewed.

This manual is designed to:

1. Provide users with an overview of U-SMART.
2. Provide instructions on how to submit and manage Control Points through U-SMART.
3. Provide instructions on how to use the visualization and query tools.

2. Getting Started

2.1 System Overview

The U-SMART system is web based and allows select users to submit Control Point data and link Control Points to CPN projects. The U-SMART system provides a map to view Control Point data and displays data from the following systems: NGS, OPUS, and CorpsMap. The U-SMART Project Team works with USACE districts to train users and provide guidance for using the system. While USACE districts are not required to submit Control Point data to U-SMART, over 40 have utilized the system since its initial deployment.

U-SMART features:

- Secure data – the system restricts access to U-SMART data.
- Intuitive Standard User Interface – the system provides a uniform and consistent means by which to acquire, manage, and report Control Point data.
- Map – the system includes the ability to query objects on the map.
- Reports – the system includes reporting capabilities, allowing users to view, create, and save customizable reports.
- Search – the system provides users with the ability to search and view Control Points based on a variety of searchable criteria.

2.2 Key Terms and Definitions

Local Project Control Point (LPCP) vs. Primary Project Control Point (PPCP):

- LPCP – A Control Point that is managed by USACE and is not assigned an NGS or OPUS PID.
- PPCP – A Control Point that is managed by NGS or OPUS, but also maintained in U-SMART if USACE is managing Control Point data. An NGS or OPUS Control Point must be vetted (linked to a project) before it is considered an active PPCP in U-SMART.

Inactive vs. Active Control Points:

- Inactive Control Point: A Control Point that is not linked to a project.
- Active Control Point:
 - A PPCP that is linked to a project.
 - An LPCP that is linked to both a project and a PPCP.

Refer to **Appendix B** for additional system terms and definitions.

2.3 Data Integrations

2.3.1 NGS and OPUS

The system imports data from NGS and OPUS on a scheduled basis.

2.3.2 Gages

The system imports data from the USGS, NOAA, and USACE Gage System.

2.3.3 CPN Projects

The system links to the Corps Project Notebook (CPN) system to access CPN project data.

Draft

3. U-SMART User Roles

The system is open to the general public to view Control Point data in a Read-Only format. In order to submit and manage Control Point data, a public user is required to have USACE create a Public Contractor account with the user's email address. All users within the USACE network may access the system using their CAC credentials. Upon initial access, a USACE User Administrator may then grant the CAC user the necessary roles.

3.4 User Privileges

Privilege	Description	Restricted by District?
Submit (Create / Edit)	Submit Control Point(s) through the web application, PDF**, bulk load capability.	No
Link	Link LPCPs, PPCPs, NGS/OPUS points, and projects.	No
Approve	Approve (or unapprove) the latest Control Point version through the web interface.	Yes
Archive	Archive (or unarchive) the latest approved Control Point version through the web interface.	Yes
Delete	Delete a Control Point version through the web interface.	Yes
User Admin	Administer User Accounts.	Yes

**restricted to CAC authenticated users only

3.5 User Roles

Role	Authentication	Privilege(s)
Public Read-Only	None	Read-Only access to application
Public Contractor	Username / Password	Submit (web app, bulk load only)
District Control Point Manager	CAC	Submit, Link, Approve, Archive, Delete
District User Administrator	CAC	User Admin
District Super User	CAC	Submit, Link, Approve, Archive, Delete, User Admin

4. Accessing U-SMART

4.1 Technical Requirements

U-SMART is a web-based application that requires an internet connection and Adobe Acrobat Reader (for PDF uploads). MS Access is additionally required for bulk loading. The initial release of U-SMART has been designed and tested within Internet Explorer version 7 and 8 and Mozilla Firefox version 3 and 4. While other browsers may work, they are considered unsupported.

U-SMART is available to public users via public URL:

- Public: <http://usmart.usace.army.mil>

CAC Authenticated users can also access U-SMART from the following CAC URL:

- CAC: https://rsgisias.crrel.usace.army.mil/pcdbprod/pcdb_auth.login

To access the U-SMART system, you will need:

1. A computer with an internet connection.
2. Internet Explorer version 7 or 8 or Mozilla Firefox version 3 or 4.
3. A PDF Viewer:
 - a. Adobe Acrobat Reader 8
 - b. Adobe Acrobat Professional 8
 - c. Adobe Acrobat Reader 9
 - d. Adobe Acrobat Professional 9

4.2 Launching Internet Explorer Browser

U-SMART is a web-based application requiring the use of an internet browser. Detailed below are three of the more common methods to access the Internet Explorer browser.

Method 1: Double-click the Internet Explorer shortcut icon on the desktop.



Figure 4.2-1: Internet Explorer Desktop Shortcut

Method 2: Click the Internet Explorer icon in the Quick Launch menu.



Figure 4.2-2: Quick Launch Menu

Method 3: Select Internet Explorer from the Start menu.

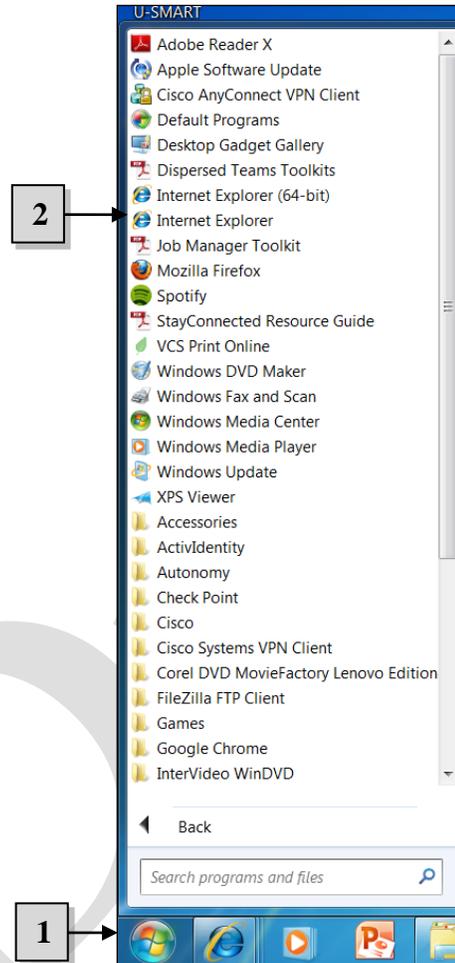


Figure 4.2-3: Start Menu

1. Click the “Start” button
2. Click Internet Explorer.

4.2.1 Navigating to U-SMART

Once the browser window has launched, navigate to the applicable U-SMART URL.

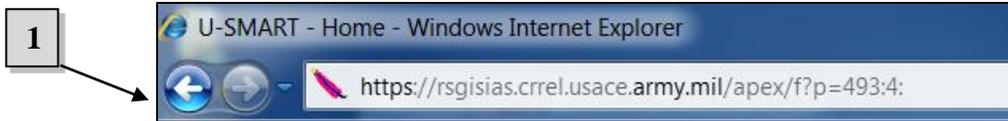


Figure 4.2-4: Internet Explorer Address Bar

1. Enter the URL in the address bar. Then press the “Enter” key on the keyboard.

4.2.2 Logging into U-SMART

You must login to be granted more than Read-Only access to the system.

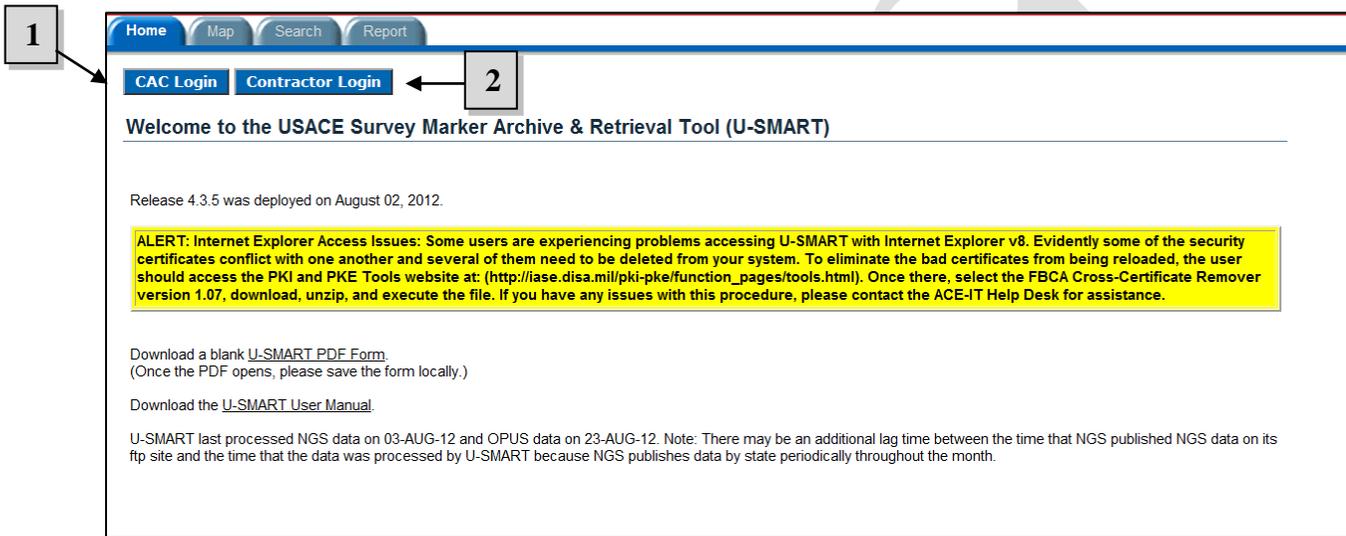


Figure 4.2-5: Home Screen

1. If you are a user within the USACE network, select the “CAC Login” button and enter your credentials when prompted. Upon initial system access, your user account will be automatically generated with the User ID associated with your CAC card. Subsequently, a user with User Administration privileges can search and assign you a user role.
2. If you are a public user who has been assigned a Public Contractor account, select the “Contractor Login” button and enter your email and password. You must first request access from a User Administrator to be assigned a Public Contractor account. You will receive an email notification, providing you with login credentials, as soon as your account has been created.

5. Home

The Home page contains important information regarding the U-SMART system. When logged in, the page displays the following information:

The screenshot shows the U-SMART Home page with the following elements and callouts:

- 1**: Welcome message and release information.
- 2**: Alert box regarding Internet Explorer access issues.
- 3**: Link to download a blank U-SMART PDF Form.
- 4**: Link to download the U-SMART User Manual.
- 5**: Link to download a zipped Microsoft Access database template.
- 6**: Information about the last processed NGS and OPUS data.
- 7**: Table of points awaiting approval.
- 8**: User name and logout option in the top navigation bar.

Table: Awaiting Approval

Designation	COE PID	NGS PID		Submitted By User	Detail Link
857 4857 TIDAL 2	ACI664	AE4033	Baltimore	JOHN WETHINGTON	View Detail
BREESE BM	ACI639	BBCP69	St. Louis	Martin Hoffman	View Detail
CP 100	ACI244	-	St. Louis	Raymond Armstrong	View Detail
CP 101	ACI243	-	St. Louis	Raymond Armstrong	View Detail
CP 102	ACI245	-	St. Louis	Raymond Armstrong	View Detail
CP2	ACI694	-	Detroit	Mike Ferens	View Detail
CP3	ACI695	-	Detroit	Mike Ferens	View Detail

Figure 4.2-1: Home Page

1. Latest release and release date for the U-SMART system.
2. Any system-wide notifications.
3. Link to a blank U-SMART PDF form.
4. Link to a blank U-SMART Access Database template.
5. Link to Create a New Control Point through the web application.
6. An update of when the last NGS and OPUS data sets were imported into U-SMART.
7. User-role dependent, a list of points awaiting approval. Includes those you submitted yourself, as well as those awaiting your approval (excludes unapproved bulk loaded Control Points).
8. The logged-in user's name and logout option.

6. Submit and Manage Control Points

The U-SMART system provides users with the ability to submit and edit Control Point data in three different ways, depending on the logged in user's role. ***Note: the term "editing" in U-SMART is equivalent to submitting a new Control Point version.*

After the new Control Point or new version of an existing Control Point is uploaded, it will be marked as "Unapproved" and will not display on the Map until a user with approval permissions approves the Control Point.

Also, user role dependent, U-SMART provides the ability to archive the latest version of a Control Point, delete an individual Control Point version, or link Control Points to other points or projects (refer to **Section 7.1.7** for more information about linking).

6.1 Web Application

U-SMART provides users with the ability to submit, approve, archive, and delete Control Points through the Web Application.

6.1.1 Using the Web Application

Any user with the ability to submit Control Points is able to submit Control Points using the web application.

Designation	Project Name	COE PID	NGS PID	District	Archived	Detail Link	Map Link
1002-25	-	CF8553	-	Portland	No	View Detail	View Map
1002-28	-	CF8525	-	Portland	No	View Detail	View Map

Figure 6.1-1: Create New Control Point

1. Click "Create New Control Point" on either the Control Point or Home tab to submit a Control Point through the web application, as shown in **Figures 5-1** and **6.1-1**.

The web application consists of multiple tabs. It contains open text fields, calendar date selection drop-downs, other data drop-downs, and required fields.

Figure 6.1-2: Create New Control Point

1. All required fields are marked with an orange asterisk. Validation will prevent you from submitting the control point to the U-SMART system until these fields are filled out.

The following fields are required:

- Designation
- District
- Horizontal Datum (NAD83 or NAD27)
- Latitude / Longitude
- Description / Comments

The version date will default to 'January 1, 1901' if the Horizontal, Vertical, or Recovered date is not populated.

2. Not all fields are editable; the following fields will be automatically assigned to the new Control Point upon submission:
 - COE PID (unique U-SMART Control Point ID)
 - Zone
 - Northing

- Easting
- Convergence
- CSF

Refer to **Appendix B** for a more detailed description of the fields included on the application.

The screenshot shows the 'Search Control Point' application interface. At the top, there is a search bar with 'Designation : test test'. Below it, a 'Save' button is highlighted with a box containing the number '1'. An error message box is displayed, containing the text '4 errors have occurred' and a list of four errors: 'The Description must be specified. (Go to error)', 'The Latitude must be specified. (Go to error)', 'The Longitude must be specified. (Go to error)', and 'The District must be specified. (Go to error)'. A box containing the number '2' has an arrow pointing to the error message box. Below the error message, there are tabs for 'Main', 'Horizontal', 'Vertical', 'Tidal/Gage', and 'Description'. The 'Main' tab is selected, showing various form fields: 'Designation : test test', 'COE PID :', 'Project :', 'Stamping :', 'NGS/OPUS PID :', 'State : - Please select a state -', 'County :', 'District : - Please select a district -' (highlighted in red with a red error icon and the text 'The District must be specified.'), 'Nearest Town :', 'USGS Quad :', 'T.R.S. :', 'Nearest Hwy/Mi :', 'Recovered Date :', 'Recovered By :', and 'Condition : - Please select a condition -'.

Figure 6.1-2: Validation Errors

1. After filling in all required fields, click Save to submit the Control Point for approval.
2. If a required field is not entered or a certain field was entered incorrectly, you will be alerted after you click Save. After modifying, click Save again to submit.

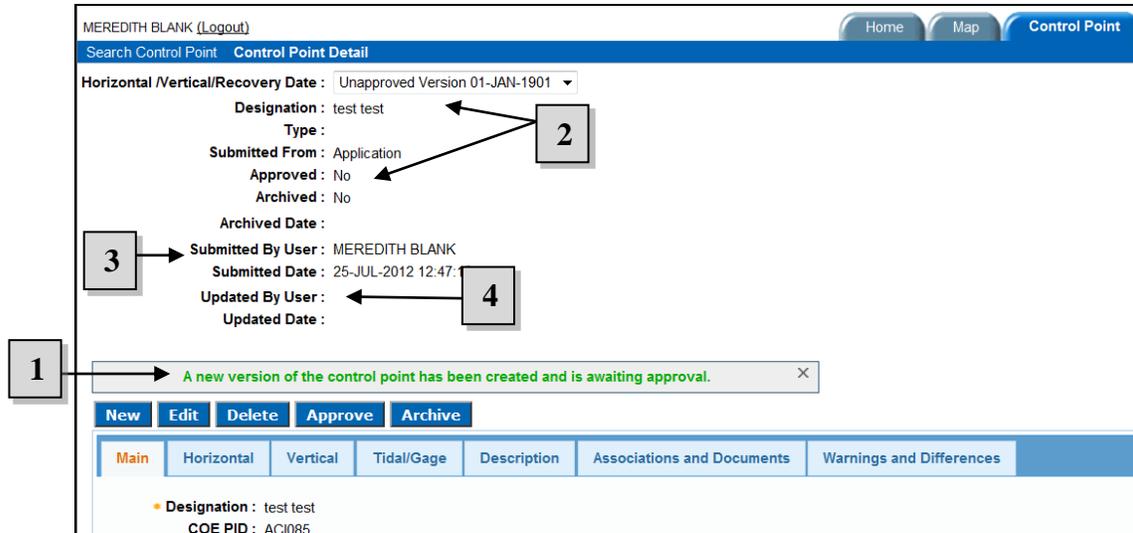


Figure 6.1-3: Submission Successful

1. If submission is successful, a message will display confirming success.
2. Until approved, the Approved field will display 'No' and the Horizontal/Vertical/Recovery Date will display 'Unapproved Version'.
3. The date of submission and user who submitted the initial Control Point version will be populated.
4. If you are submitting a new version of an existing Control Point, the date updated and user who updated will display. ***Note: all prior versions of the Control Point are viewable by selecting the version from the Horizontal/Vertical/Recovery Date dropdown. Refer to Section 6.1.3 for more information.*

6.1.2 Associating Documents and Images

After initial submission, the "Associations and Documents" tab will display, providing you with the ability to associate documents and images with the Control Point. Any number of attachments are allowed, totaling up to 4MB in size. Attachments are accepted in the following formats: .txt, .doc, .xls, .pdf, .shp, .kml, .jpg, .tiff, .gif, .png, .xml.

To attach a document or image:



Figure 6.1-4: Associations and Documents

1. Click the “Associations and Documents” tab.
2. Select Document Type from the following:
 - None
 - Image Map
 - Image Horizon/Setup
 - Image Monument
3. Enter a description for the document you wish to upload, if you wish.
4. Click Browse to choose the file from your computer and then click Add Document to upload.
5. Use the radio buttons to assign/reassign images to appear on the PDF and datasheet as the Map, Horizon/Setup, or Close-Up View.
6. After uploading, you have the ability to mark the image as Archived. An archived image will no longer display on the PDF or datasheet but will still be accessible by clicking the “Archived Documents” link at the bottom of the Associations and Documents tab.
7. You may also click Delete to delete the image from the U-SMART system.
8. Click Update Image Associations to save changes.

6.1.3 Approve Control Points

All submitted Control Points require approval before they will display on the Map and Reports. Only select users are able to approve Control Points.

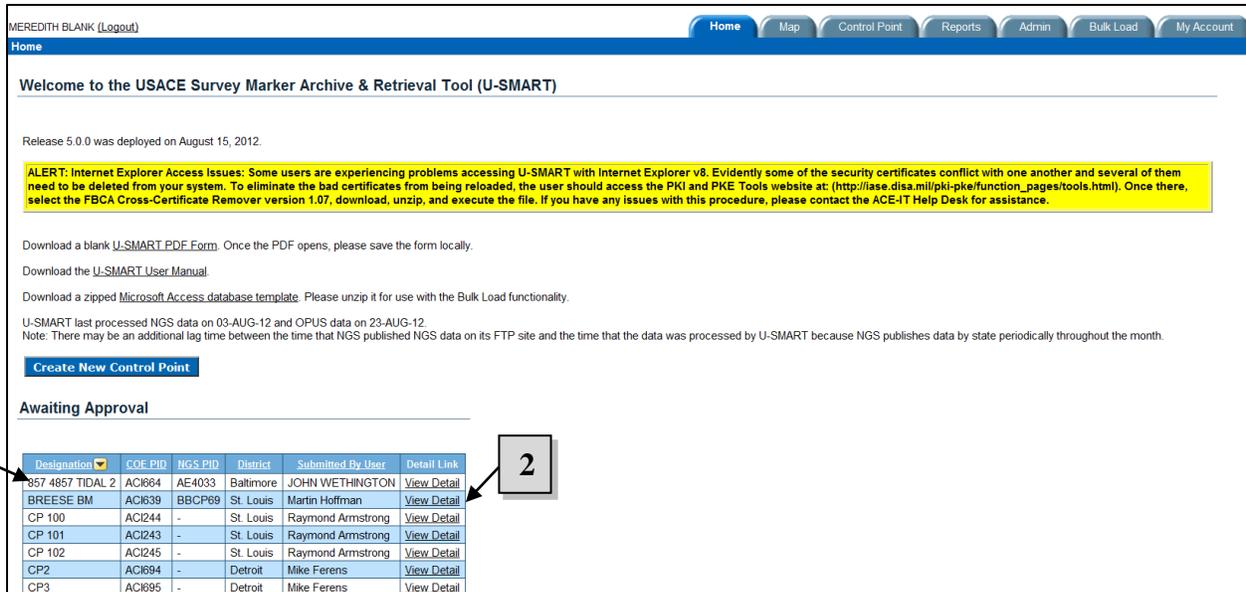


Figure 6.1-5: Awaiting Approval – Home Page

1. After logging in, a list of points awaiting your approval will display on the bottom of your home page. Alternatively, you can use the search functionality on the “Control Point” tab to search for a particular Control Point.
2. Click “View Detail” to navigate to the Control Point Detail page for the selected Control Point.

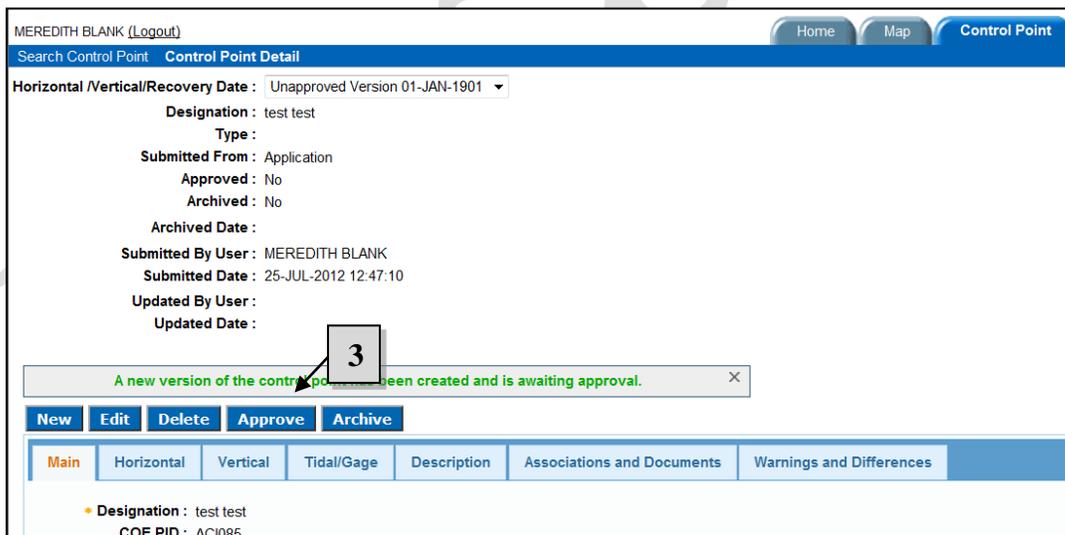


Figure 6.1-6: Awaiting Approval – Control Point Details Page

3. After reviewing, click “Approve” to approve the new Control Point version. Upon approval, this will be the version that displays on the Map.

Search Control Point **Control Point Detail**

Horizontal/Vertical/Recovery Date : Latest Approved Version 23-MAY-2011

Designation : 128

Type :

Submitted From : Application

Approved : Yes

Archived : No

Archived Date :

Submitted By User : Mike Ferens

Submitted Date : 08-JUL-2011 02:30:23

Updated By User :

Updated Date :

The control point has been approved and versioned.

New **Edit** **Delete** **Unapprove** **Archive**

Main Horizontal Vertical Tidal/Gage Description Associations and Documents Warnings and Differences

• Designation : 128
 COE PID : ACH678
 Project : UPPER RIVER ROUGE DEARBORN, MICHIGAN
 Stamping :
 NGS/OPUS PID :

Figure 6.1-7: Approved – Control Point Details Page

4. If approval is successful, a success message will display.
5. The Horizontal/Vertical/Recovery date dropdown will now read “Latest Approved Version” and the Approved field will now read “Yes”.

***Note: if you have Approval permissions, you are able to Approve Control Points you submit yourself.*

6.1.4 Archiving Control Points

The U-SMART application maintains a record of every version of each Control Point added to the system. You can access the historical versions by selecting a past version through the Horizontal/Vertical/Recovery Date dropdown on the Control Point Detail page.

Depending on your user role, you are able to mark the latest version of a Control Point as “Archived” through the Control Point Detail tab. Archiving an approved Control Point version removes that point from the Map and Reports; however, the archived Control Point is viewable through Search.

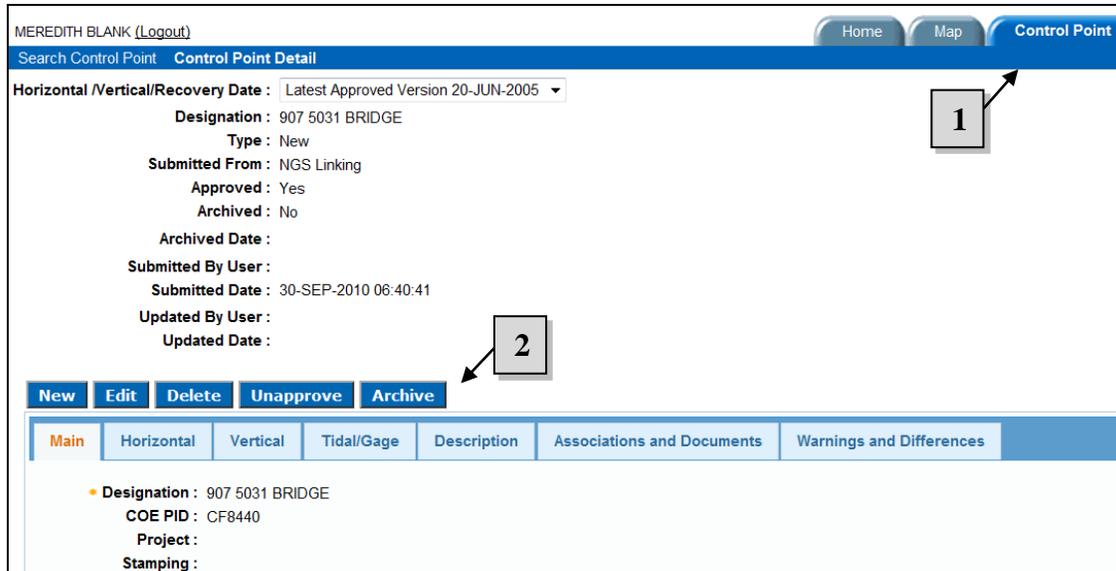


Figure 6.1-8: Archive – Control Point Details Page

1. Navigate to the Control Point details page of the Control Point you wish to archive.
2. Click “Archive” to mark the Control Point version as archived. ***Note: you will only be able to archive the Latest Version of a Control Point.*

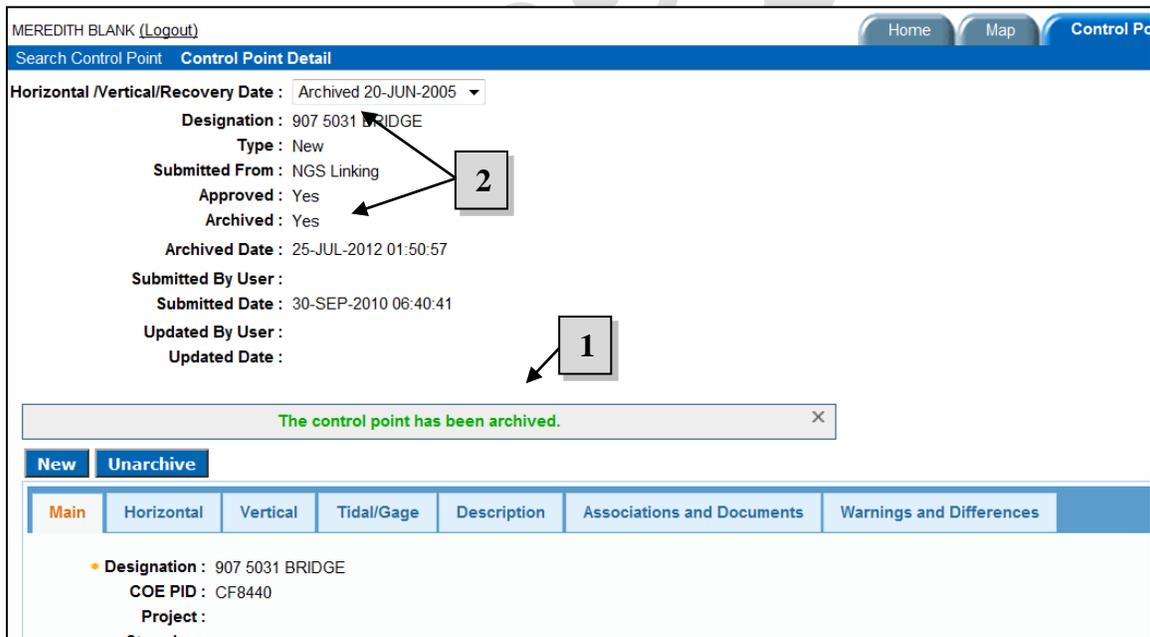


Figure 6.1-9: Archive – Control Point Details Page

1. If archiving is successful, a success message will display.
2. The Horizontal/Vertical/Recovery Date dropdown will display as “Archived” and the Archived field will display as Yes. ***Note: you will not be able to Edit or Delete Archived versions.*

6.1.5 Delete Control Points

Depending on your user role, you will have the ability to delete Control Point versions through the Control Point Details tab. Deleting a Control Point version will remove it from the U-SMART system.

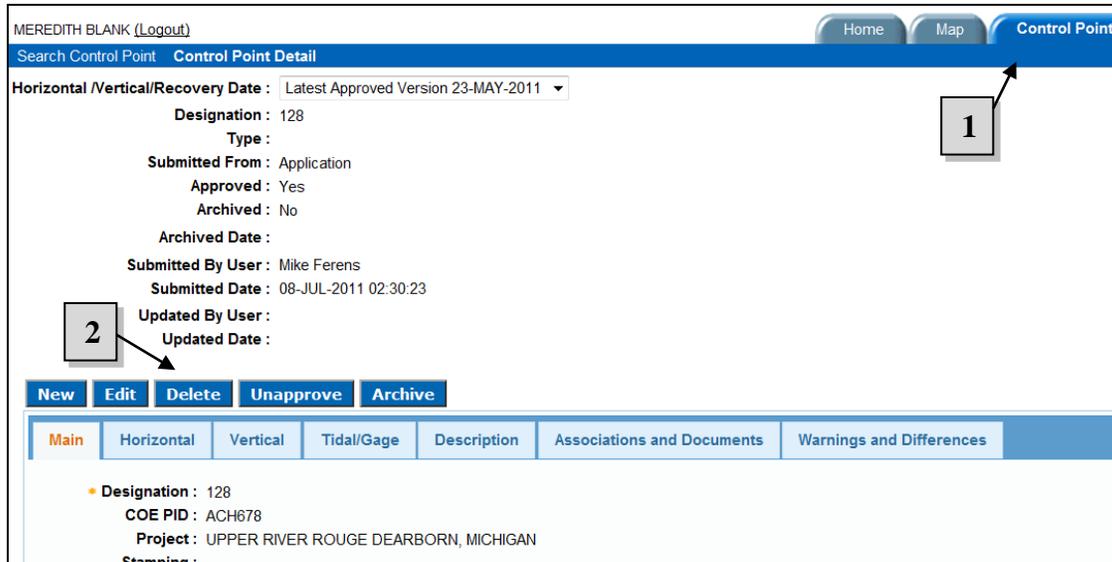


Figure 6.1-10: Archive – Control Point Details Page

1. Navigate to the Control Point details page of the Control Point you wish to delete.
2. Click “Delete” to delete the Control Point version. ***Note: delete only removes an individual Control Point version, not the whole instance (if more than one version exists).*

6.1.6 Edit Control Points

Depending on your user role, U-SMART provides the capability to edit Control Points submitted through the web application in one of three ways:

- 1) Creating a new version through the web application
- 2) Re-submitting the PDF form for the specific Control Point, after making required modifications (refer to **Section 6.2.5**)
- 3) Uploading a new version through the bulk load functionality (refer to **Section 6.3.5**)

Editing a Control Point will create a new version of the selected Control Point and will require approval, similar to submitting a new Control Point. You will be able to view all previous versions of a Control Point through the version dropdown (see **Section 6.1.4**).

To edit a Control Point through the web application:

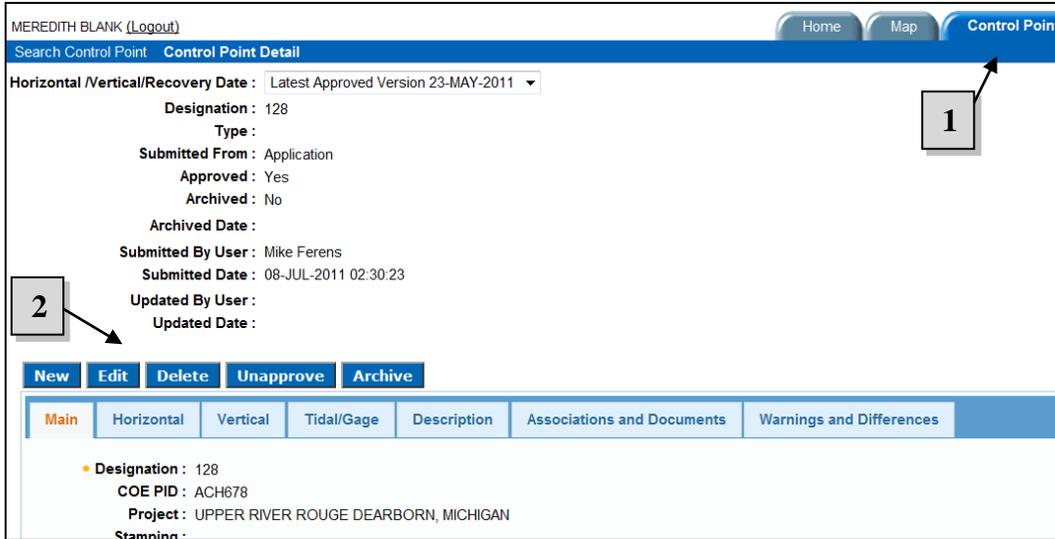


Figure 6.1-11: Edit – Control Point Details Page

1. Navigate to the Control Point details page of the Control Point you wish to edit.
2. Click “Edit” to edit the Control Point.

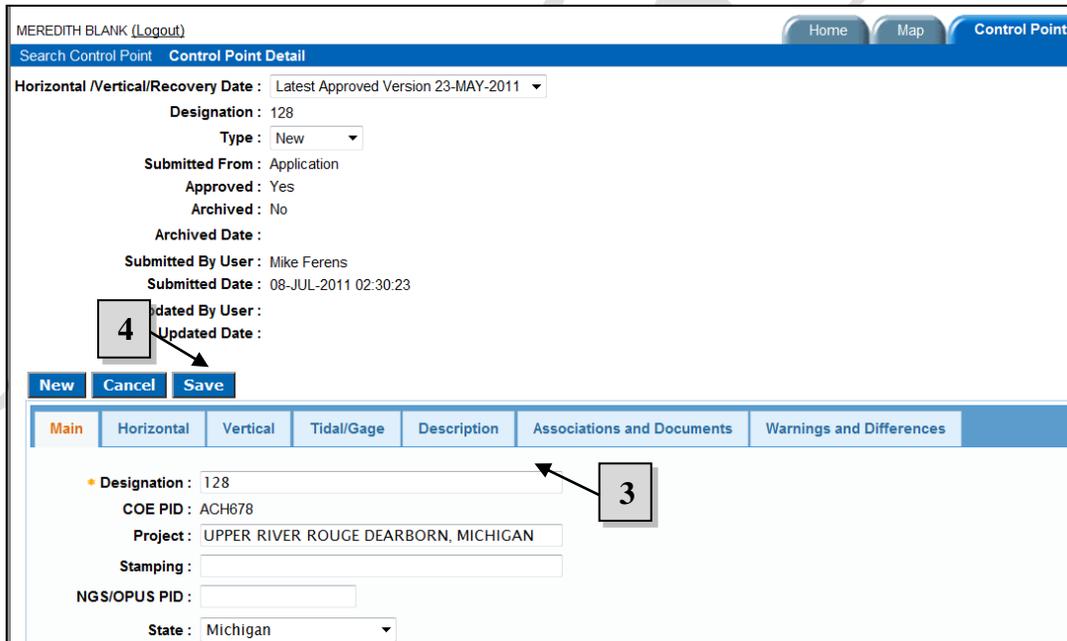


Figure 6.1-12: Edit – Control Point Details Page

3. Update the desired fields.
4. Click Save to save modifications.

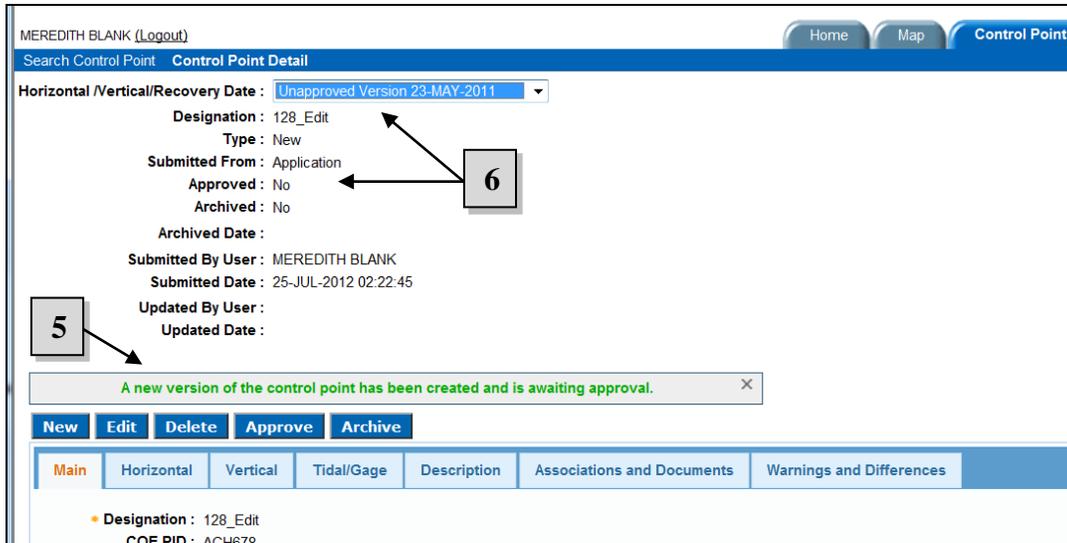


Figure 6.1-13: Awaiting Approval – Control Point Details Page

5. If updates were successfully saved, a success message will display.
6. The new version will be marked as unapproved until a user with approval permissions approves the version.

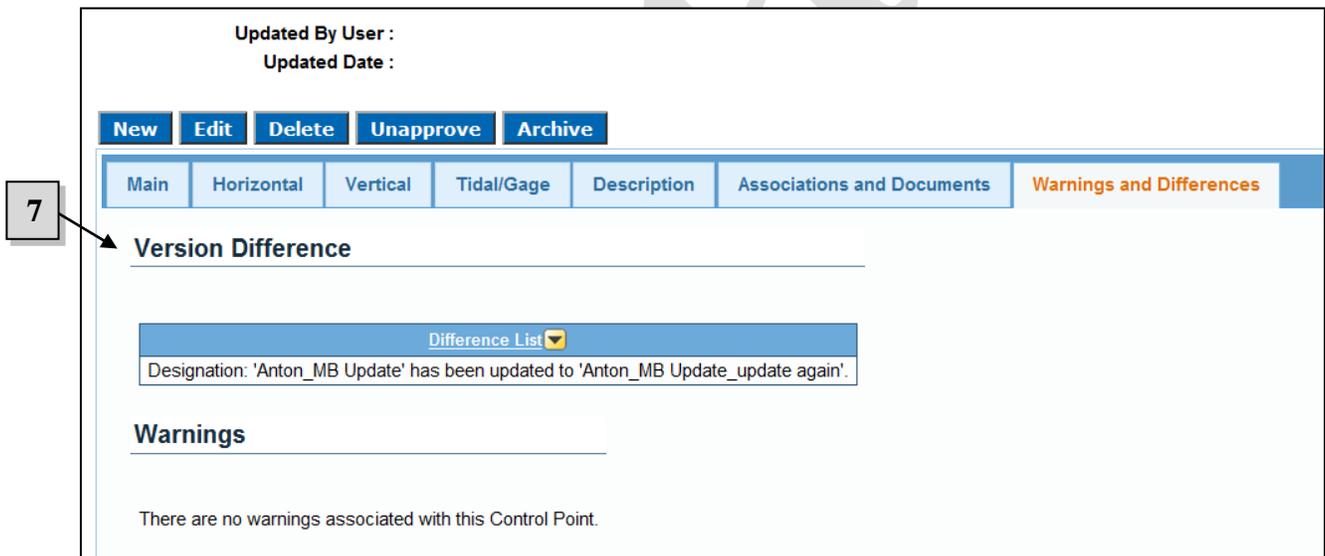


Figure 6.1-14: Warnings and Differences

7. Select the Warnings and Differences tab to view a list of what has changed versus the prior version, as well as a list of any data that doesn't conform to U-SMART data standards, if applicable.

6.2 PDF Form

Only CAC authenticated users have the ability to submit Control Points using the PDF form. Non-CAC users will be required to save and send the completed PDF form outside of the system to a CAC user if they wish to submit via this route.

After submission, Control Points will be approved, archived, and deleted in the same manner as those submitted via web application (refer to **Sections 6.1.3 – 6.1.5**). Control Points can be edited (new versions submitted) via web application (refer to **Section 6.1.6**), PDF, or bulk loading (refer to **Section 6.3.5**).

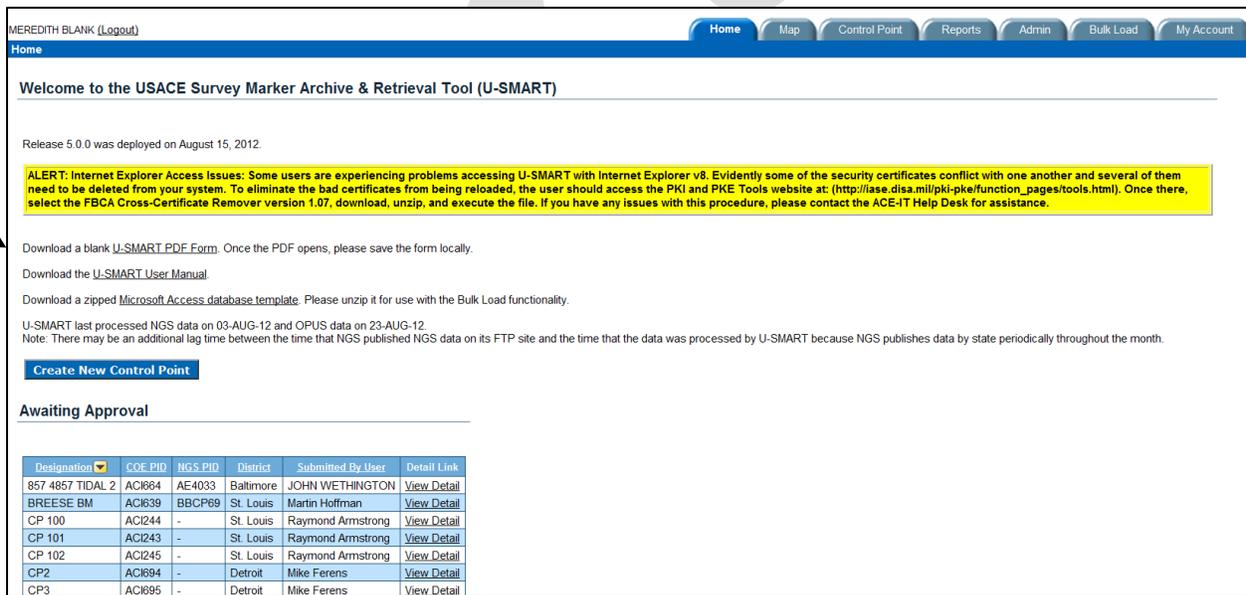
***Note: The description form (PDF) has a bug in which the file size continues to grow as the form is reused. To prevent this, simply copy a blank form to use for each control point. If you have some repetitive information, complete the fields prior to making the copies.*

6.2.1 Technical Requirements for the U-SMART PDF

To open, edit, and save the U-SMART PDF, you must have either Adobe Acrobat Professional/Reader 8 or 9. To submit the U-SMART PDF the user must be on the USACE network, possess a CAC card and user role with the submission privileges.

6.2.2 Using the U-SMART PDF

6.2.2.1 Download the U-SMART PDF



MEREDITH BLANK (Logout) Home Map Control Point Reports Admin Bulk Load My Account

Welcome to the USACE Survey Marker Archive & Retrieval Tool (U-SMART)

Release 5.0.0 was deployed on August 15, 2012.

ALERT: Internet Explorer Access Issues: Some users are experiencing problems accessing U-SMART with Internet Explorer v8. Evidently some of the security certificates conflict with one another and several of them need to be deleted from your system. To eliminate the bad certificates from being reloaded, the user should access the PKI and PKE Tools website at: (http://lase.disa.mil/pki-pke/function_pages/tools.html). Once there, select the FBCA Cross-Certificate Remover version 1.07, download, unzip, and execute the file. If you have any issues with this procedure, please contact the ACE-IT Help Desk for assistance.

Download a blank [U-SMART PDF Form](#). Once the PDF opens, please save the form locally.

Download the [U-SMART User Manual](#).

Download a zipped [Microsoft Access database template](#). Please unzip it for use with the Bulk Load functionality.

U-SMART last processed NGS data on 03-AUG-12 and OPUS data on 23-AUG-12.
Note: There may be an additional lag time between the time that NGS published NGS data on its FTP site and the time that the data was processed by U-SMART because NGS publishes data by state periodically throughout the month.

[Create New Control Point](#)

Awaiting Approval

Designation	COE PID	NGS PID	District	Submitted By User	Detail Link
857 4857 TIDAL 2	ACI684	AE4033	Baltimore	JOHN WETHINGTON	View Detail
BREESE BM	ACI639	BBCP69	St. Louis	Martin Hoffman	View Detail
CP 100	ACI244	-	St. Louis	Raymond Armstrong	View Detail
CP 101	ACI243	-	St. Louis	Raymond Armstrong	View Detail
CP 102	ACI245	-	St. Louis	Raymond Armstrong	View Detail
CP2	ACI694	-	Detroit	Mike Ferens	View Detail
CP3	ACI695	-	Detroit	Mike Ferens	View Detail

Figure 6.2-1: Download PDF

1. To use the U-SMART PDF, click to download the file from the Home Page and save locally.

The file is two pages and contains open text fields, calendar date selection drop-downs, other data drop-downs, and required fields. The PDF also allows for images to be loaded onto the PDF.

6.2.2.2 Enter Fields

USACE Survey Marker Archive & Retrieval Tool Datasheet Type:

1 → **Designation:**

Project:
 Stamping:
 PID - NGS:
 State:
 County:
 District:
 Nearest Town:
 USGS Quad:
 T.R.S.:
 Nearest Hwy/Mi:
 Date Recovered:
 By:
 Condition/Stability:
 Setting/Monument Type:
 Owner:
 GPS Suitable: Yes No
 Obstructions: N E S W
 Magnetic: Yes No

ImageMap

- Horizontal - Datum: ()
 Lat:
 Lon:
 Local Accuracy:
 NSRS Accuracy:
 Survey/Computation Method:
 Date Observed:

- Vertical - Datum: NAVD83 ()
 Elevation Ht:
 Ellip Ht:
 Local Accuracy:
 NSRS Accuracy:
 Survey/Computation Method:
 Date Observed:

- Tidal/Hydraulic Gage Relationships -
 Owner: Gage ID:
 Elevation: Datum: Epoch:

Access:

Remarks/Comments:

Zone 1: Northing 1: USFT Easting 1: USFT Convergence 1: CSF 1:
 Zone 2: Northing 2: USFT Easting 2: USFT Convergence 2: CSF 2:

- Horizon/Setup View - **- Close-Up View -**

Required Fields In Red System Fields In Green U-SMART ver 4.0 10/12/2011

Figure 6.2-2: PDF Form – Page 1

1. The same required and un-editable fields for web application submission apply to PDF submission. Required fields are highlighted in red and system generated fields in green on the PDF form.

USACE Survey Marker Archive &

Designation:

Project: Enter Station Name (Required)

Stamping:

PID NGS: COL

State:

County:

District:

Nearest Town:

Figure 6.2-3: Field Description

- Each of the fields has descriptions that will display if you mouse over the field. The description will also notate if it is a required field.

USACE Survey Marker Archive & Retrieval Tool Datasheet Type:

Designation:

Project:

Stamping:

PID NGS: COE:

State:

County:

District:

Nearest Town:

USGS Quad:

T.R.S.:

Nearest Hwy/Mi:

Date Recovered:

By:

Condition/Stability:

Lat: N Elevation Ht:

Lon: W Ellip Ht:

Figure 6.2-4: Field Required

- Like the web application, validation exists for missing required fields. If a required field is not filled in, a notification will display and required fields will continue to be highlighted in red.

6.2.2.3 Attach Images

Unlike through the web application, you are able to attach associated images to the PDF form during submission.

As shown in **Figure 6.2-2**, three images can be uploaded with the Control Point. Each image area on the PDF has a specific purpose for the image that is placed in the selected area. To find out the image type, hover the mouse over the area and it will display as it does for the fields.

The three image types are as follows:

- Map View (Main Image)

- Horizon/Setup View
- Close-Up View

Figure 6.2-5: Attach Image to PDF Form.

1. Mouse over any of the image areas on the PDF form. The mouse will turn into a hand. Hover the mouse over the area and the image type will display as it does for the fields.
2. Click the image and select the file to upload. After you select the picture, it will display in the area that you have selected. The picture will expand to fit the photo area. All three image areas of the PDF have this feature.

6.2.2.4 User Guidance for Calculating Accuracy Values

To assist you in calculating accuracy values, you can use the guidance for estimating local and networking agency values page to calculate these fields as shown in **Figure 6.2.6** (the second page of the PDF form). Type in the average control point spacing to compute the errors for each order classification.

User guidance for estimating local and network accuracy values

Local accuracy for horizontal and vertical geodetic control points is similar to the older accuracy methodology, since they are both methods to describe the relative accuracy between points. Hence, the older methodology can be converted into local accuracy by taking the average length of line, using the older defined accuracy of the points, and converting that into a value in meters.

Examples for horizontal and vertical surveys are:

- Second-order, class II horizontal survey (that is to say, 1:20,000) with average length line of 12,000 feet: $12,000 \times 1/20,000 = 0.600$ feet
- Second-order, class II leveling survey (that is to say, 8 millimeters per square-root of the distance in kilometers) with an average bench mark spacing of 1 mile (that is to say, 1.6 kilometers): $0.008 \times \text{SQRT}[1.6] = 0.01$ meters

Network accuracy for horizontal geodetic control points can be estimated in two ways. First, if the NAD 83 coordinates are consistent with the original NAD 83 adjustment, for example, the original NAD 83 (1986), then the network accuracy has been determined to seldom exceed 1.0 meters. Second, if the NAD 83 coordinates are the result of a statewide or regional High Accuracy Reference Network (HARN) adjustment, then the network accuracy has been determined to seldom exceed 0.05-0.1 meter. If better values have been determined for network accuracy for the area covered by the specific dataset, then those values should be used in place of these general values.

Vertical Accuracy:

Average Control Point Spacing (ft)

	meters	feet
1st Order, Class I	0.005	0.017
1st Order, Class II	0.007	0.023
2nd Order, Class I	0.010	0.034
2nd Order, Class II	0.014	0.046
3rd Order	0.021	0.069

Horizontal Accuracy:

Average Line Distance (ft)

	meters	feet
1st Order	0.030	0.100
2nd Order, Class I	0.061	0.200
2nd Order, Class II	0.152	0.500
3rd Order, Class I	0.305	1.000
3rd Order, Class II	0.610	2.000

Figure 6.2-6: User guidance for estimating local and network accuracy values

The accuracy values used in U-SMART conform to the specifications found in Table 2-1 of FGDC-STD-007.2-1998, “Geospatial Positioning Accuracy Standards, Part 2: Standards for Geodetic Networks”, Federal Geodetic Control Subcommittee, Federal Geographic Data Committee. (Refer to **Appendix C: Accuracy Standards**).

6.2.2.5 PDF Submission

If you are a Public Contractor, save the document to your desktop and email the document to a CAC authenticated user who will submit on your behalf.

If you are a CAC authenticated user, you can submit the form by filling out all of the necessary fields and clicking the “Submit” button at the bottom of the first page of the form as shown in **Figure 6.2-7** below. The system will display a notification that it is uploading data to the system. When complete, the system will display a notification that the control point was received. You must be connected to the USACE network to complete this action.

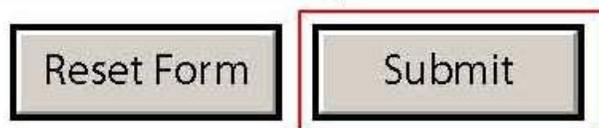


Figure 6.2-7: Submit

6.2.3 Approve Control Point

Refer to **Section 6.1.3**.

6.2.4 Delete or Archive Control Point

Refer to **Sections 6.1.4** and **6.1.5**.

6.2.5 Edit Control Points

U-SMART provides the capability to edit Control Points submitted through the PDF in one of three ways:

- 1) Creating a new version through the web application (refer to **Section 6.1.6**).
- 2) Re-submitting the PDF form for the specific Control Point, after making required modifications.
- 3) Uploading a new version through the bulk load functionality (refer to **Section 6.3.5**).

To edit a Control Point using the PDF Form:

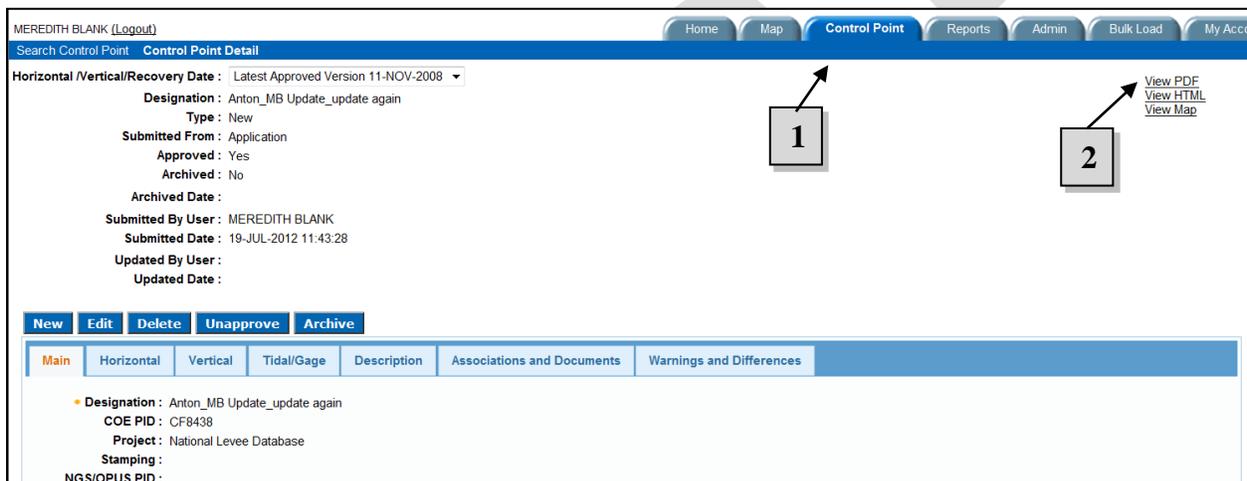


Figure 6.2-8: Control Point Details

1. Navigate to the Control Point Details page of the Control Point you wish to edit.
2. Click “View PDF” to download the PDF form for the selected Control Point.

The PDF form will download and you will be able to make modifications to the form and submit in the same manner you submitted a new Control Point (see **Section 6.2.2**).

***Note: COE PID must be populated on the form for a new version of an existing Control Point to be uploaded successfully. If not populated, a new Control Point will be created upon submission and the system will assign a new COE PID to the Control Point.*

6.3 Submission through Bulk Load functionality

The Bulk Load functionality provides any user with submission privileges the ability to submit multiple Control Points at one time by formatting them in a Microsoft Access Database Template. In addition to uploading multiple new Control Points at once, this functionality also provides users with the flexibility to upload multiple versions of one Control Point or new versions of existing Control Points.

6.3.1 Technical Requirements

To open, edit, and save the U-SMART Access Database, you must have Microsoft Access (2007 or above).

6.3.2 Using the Bulk Load Access Database

6.3.2.1 Download the Bulk Load Access Database

The screenshot shows the U-SMART Home page. At the top, there is a navigation bar with buttons for Home, Map, Control Point, Reports, Admin, Bulk Load, and My Account. Below the navigation bar, the page title is 'Welcome to the USACE Survey Marker Archive & Retrieval Tool (U-SMART)'. There is a release note for version 5.0.0. A yellow alert box contains information about Internet Explorer security issues. Below the alert, there are links to download a blank U-SMART PDF Form, the U-SMART User Manual, and a zipped Microsoft Access database template. A note indicates the last processed NGS data dates. A button labeled '1 Create New Control Point' is highlighted with a grey box and an arrow. Below this button, the text 'Awaiting Approval' is displayed. At the bottom, there is a table with columns: Designation, COE PID, NGS PID, District, Submitted By User, and Detail Link. The table contains several rows of data.

Designation	COE PID	NGS PID	District	Submitted By User	Detail Link
857 4857 TIDAL 2	ACI684	AE4033	Baltimore	JOHN WETHINGTON	View Detail
BREESE BM	ACI639	BBCP69	St. Louis	Martin Hoffman	View Detail
CP 100	ACI244	-	St. Louis	Raymond Armstrong	View Detail
CP 101	ACI243	-	St. Louis	Raymond Armstrong	View Detail
CP 102	ACI245	-	St. Louis	Raymond Armstrong	View Detail
CP2	ACI694	-	Detroit	Mike Ferens	View Detail
CP3	ACI695	-	Detroit	Mike Ferens	View Detail

Figure 6.3-1: Download Access Database

1. To use the U-SMART Access Database, click to download the file from the Home Page and save locally. The template has been formatted to allow users to enter Control Point data for multiple points.

6.3.2.2 Enter Fields

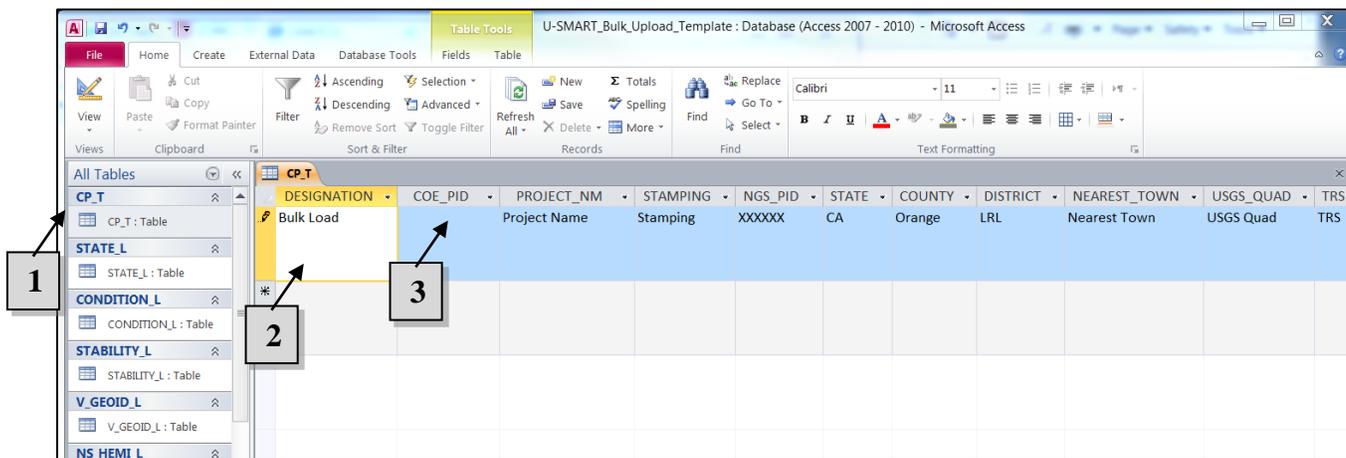


Figure 6.3-2: Access Database

1. Upon opening the Access Database template, right click on “CP_T” and select Open. You will now be able to fill out Control Point information for all the points you wish to upload. Enter information about each distinct Control Point version on a separate row of the table.
2. You are required to enter the same fields as required for submission via web application and PDF (refer to **Section 6.1.1** for a list of required fields).
3. If you wish to submit a new version of an existing U-SMART Control Point, you are additionally required to enter the unique COE PID for that point.

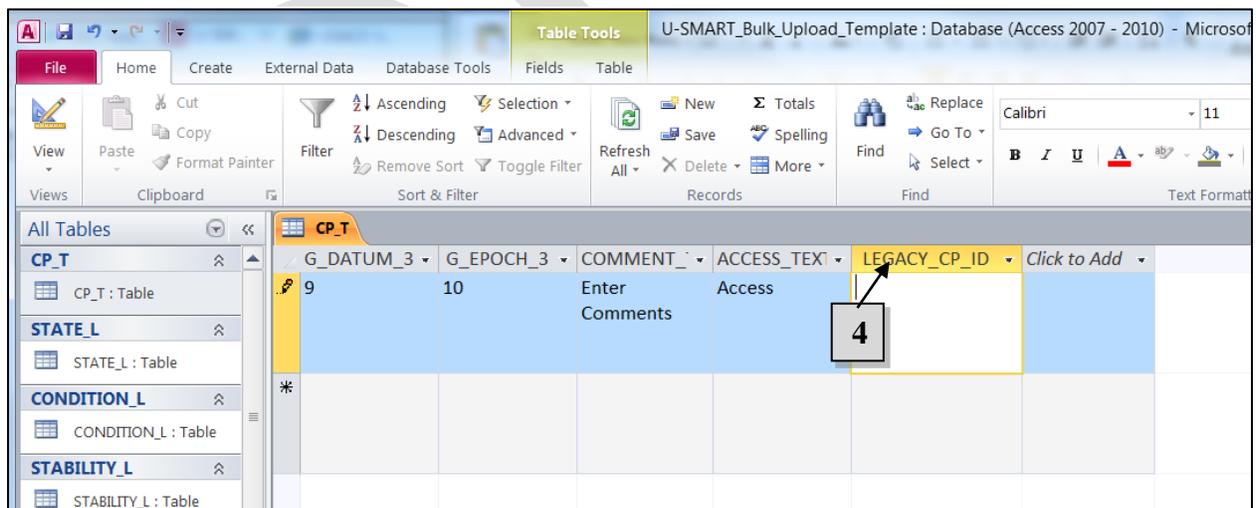


Figure 6.3-3: Access Database – Legacy Control Point ID

4. If you wish to submit multiple versions of a new Control Point, you are required to enter a Legacy Control Point ID (identification from legacy system). Upon approval, all Control Point versions tied to the Legacy CP ID will be uploaded as separate versions of the same Control Point. The last one processed will be assigned as the most recent version.

6.3.2.1 Convert Access Database

After all information is entered, you must follow the below steps to convert your Access Database into a .txt file for uploading:

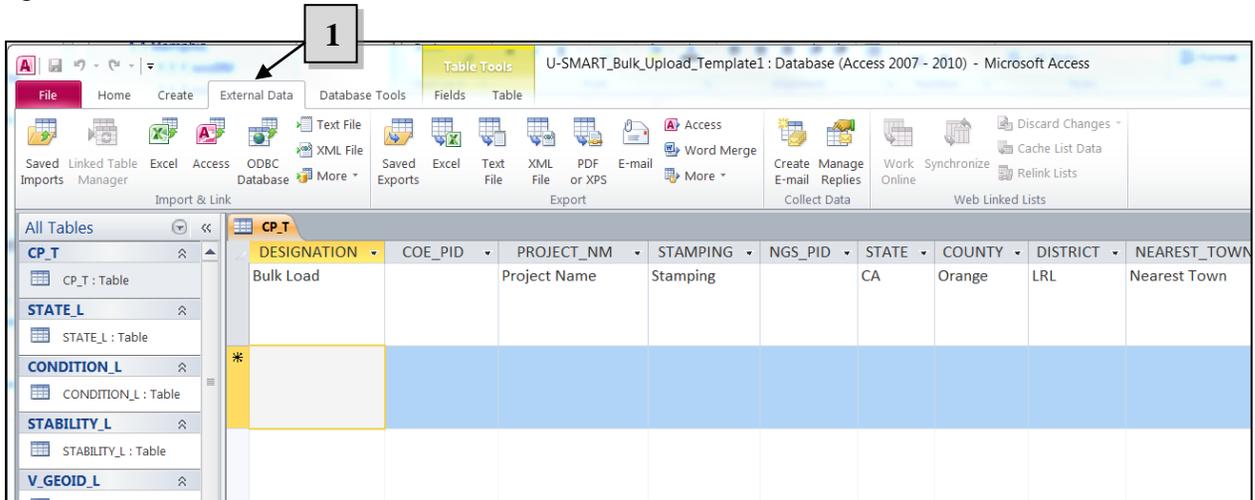


Figure 6.3-4: Convert to .txt file

1. In the Access Database, click on the “External Data” tab.
2. Choose “Text File” in Export section.
3. Specify the destination file name and format. Click “OK”.
4. Select export format as “Delimited”. Click “Next”.
5. Choose the delimiter you wish to use. (U-SMART’s delimiter defaults to the | character. If you choose another delimiter, you will also be required to specify the chosen delimiter on the Bulk Load tab.) Click “Next”.
6. Click “Finish”.

6.3.2.2 Submit Control Points

Navigate back to the U-SMART system.

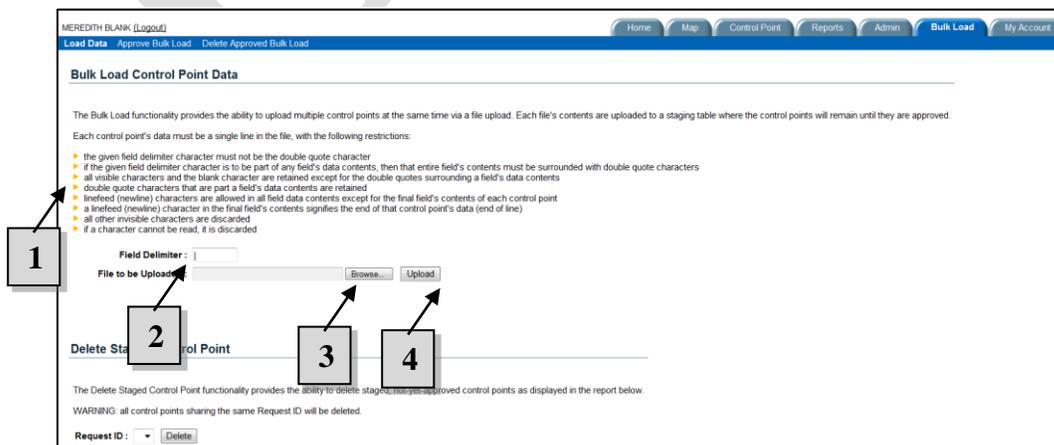


Figure 6.3-5: Upload File

1. On the “Bulk Load” tab, the .txt file format specifications display.
2. Specify the delimiter you chose in the “Field Delimiter” field.
3. Click “Browse” to find the .txt file you created and saved.
4. Click to Upload.

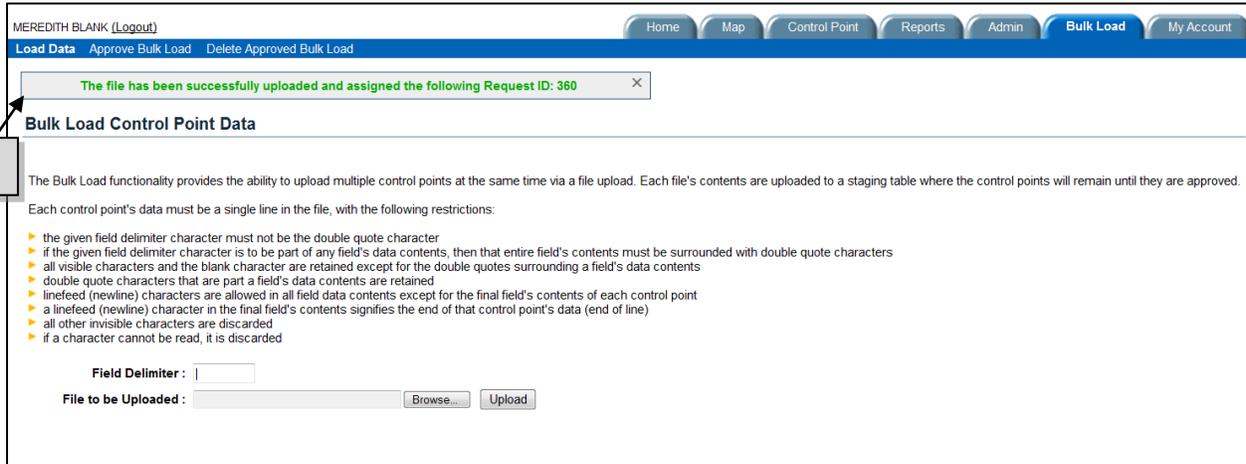


Figure 6.3-6: Upload Successful

1. If your upload was successful, a success message will display confirming success and providing you with the associated Request ID. All Control Points uploaded in the same file will be assigned the same Request ID.

Your uploaded Control Points will be listed individually in the Staged Control Point Report. Until Approved, these points are considered Unapproved and will not display elsewhere in the system, including the ‘Awaiting Approval’ table on your Home Page.

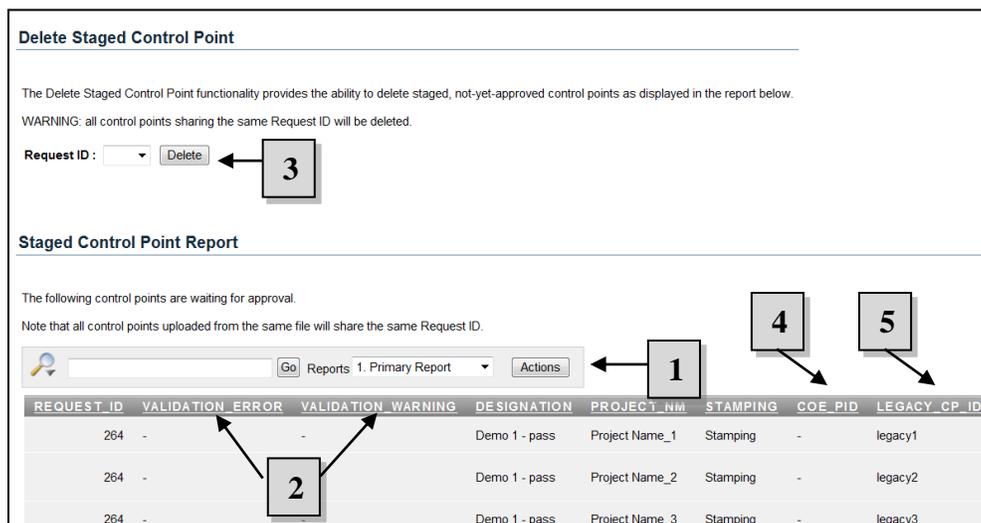


Figure 6.3-7: Staging Control Point Report

1. Similar to the 'Report' tab, the Staged Control Point report includes interactive search and filter capabilities.
2. Validation errors and warnings will display in the report, notifying you of any modifications you are required or suggested to make prior to approval. Note that if validation errors exist for a specific Control Point, you will be required to delete the associated Request ID, make the requisite changes and re-upload for it to be able to be approved.
3. You are able to delete Staged (Unapproved) Control Points that are listed in the Staged Control Point table by selecting the associated Request ID from the dropdown. All staged Control Points associated with that Request ID will be deleted.
4. COE PIDs for new Control Points will not be assigned until approval.
5. Legacy CP IDs tie multiple versions of a single Control Point together. Upon approval, the Legacy CP ID will become irrelevant and the COE PID will become the U-SMART Control Point identifier.

6.3.3 Approve Control Points

Permissions-dependent, you will be able to approve Control Points on the "Approve Bulk Load" subtab. Only Staged Control Points without Validation Errors will display on this tab. Select the Request ID for the points you wish to approve, and click "Approve". If successful, a confirmation message will display on the top of your screen. The Control Point(s) will now be accessible elsewhere in the U-SMART system, including the Report and Map.

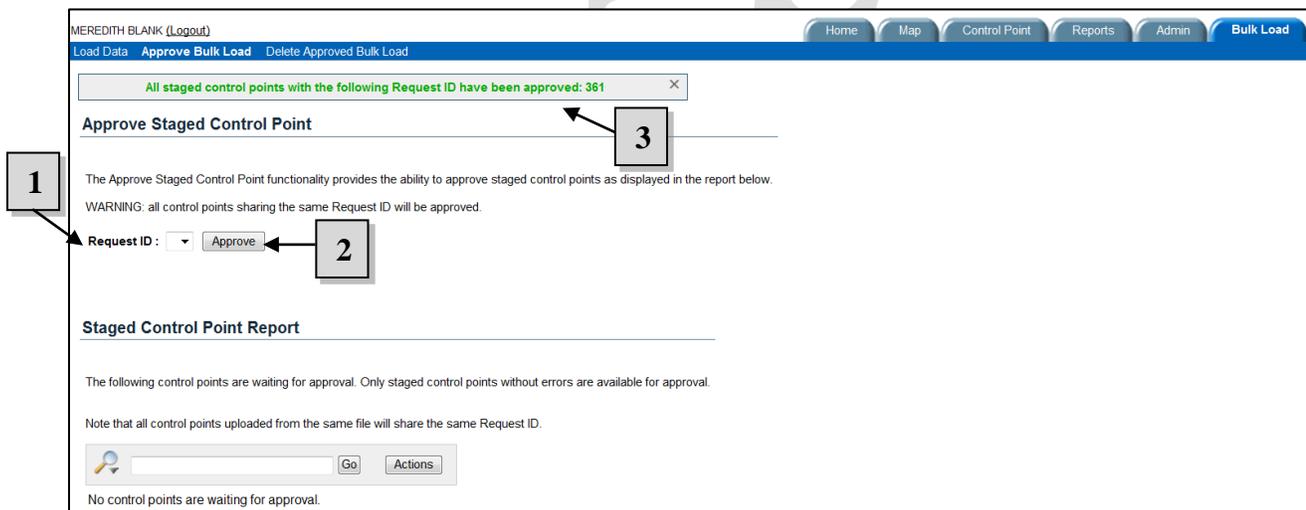


Figure 6.3-8: Approve Bulk Load

1. To approve, select the Request ID of the points you wish to approve.
2. Click Approve.
3. If successful, a confirmation message will display on the top of your screen.

6.3.4 Delete and Archive Control Points

Refer to **Sections 6.1.4** and **6.1.5** for instructions on deleting individual Control Points.

Additionally, U-SMART provides select users with the ability to delete approved bulk loaded Control Points on the “Delete Bulk Load” tab. ***Note that this functionality only deletes the bulk loaded version of a Control Point, not the entire Control Point instance (if multiple versions exist).*

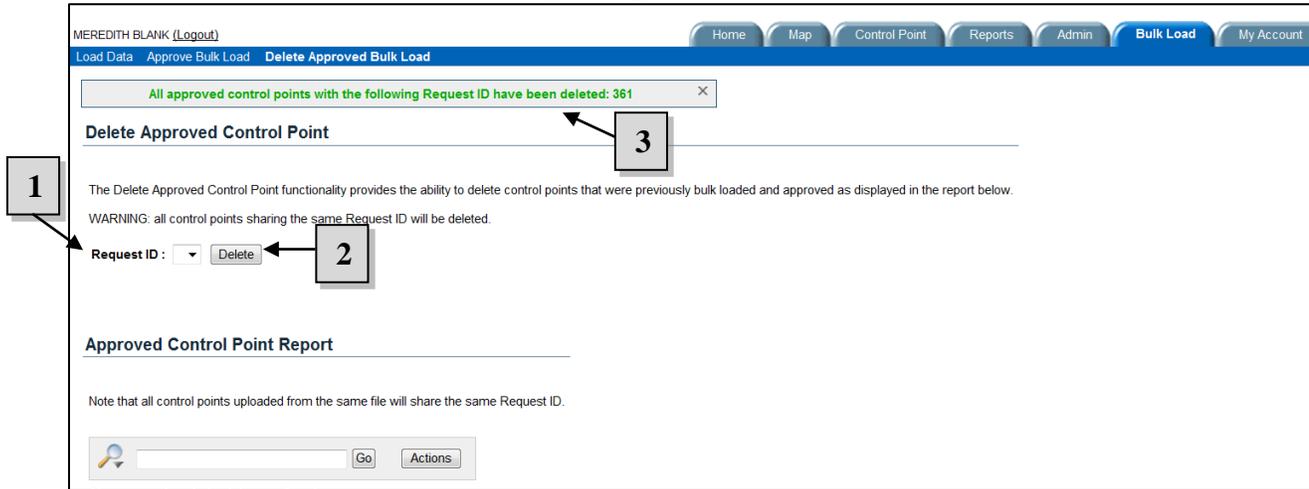


Figure 6.3-8: Delete Bulk Load

1. Select the Request ID of the approved points you wish to delete.
2. Click Delete.
3. If successful, a confirmation message will display on the top of your screen.

6.3.5 Edit Control Points

U-SMART provides the capability to edit a Control Point submitted through bulk loading in one of three ways:

- 1) Creating a new version through the web application (refer to **Section 6.1.5**)
- 2) Re-submitting the PDF for the specific Control Point, after making modifications (refer to **Section 6.2.5**)
- 3) Uploading a new version through the bulk load functionality

To edit a Control Point via bulk loading, make any modifications necessary and re-submit the Access Database for the specific Control Point.

***Note: COE PID must be populated on the form for a new version of an existing Control Point to be uploaded successfully. If not populated, a new Control Point will be created upon submission and the system will assign a new COE PID to the Control Point.*

7. Map

By clicking on the Map tab, a map of the United States will display on default as shown in **Figure 7.1-1**.

The U-SMART map uses CorpsMap 2.6 to display Control Points, Projects and mapping layers.

7.1 Map Tools

The basic functions of Map Tools are:

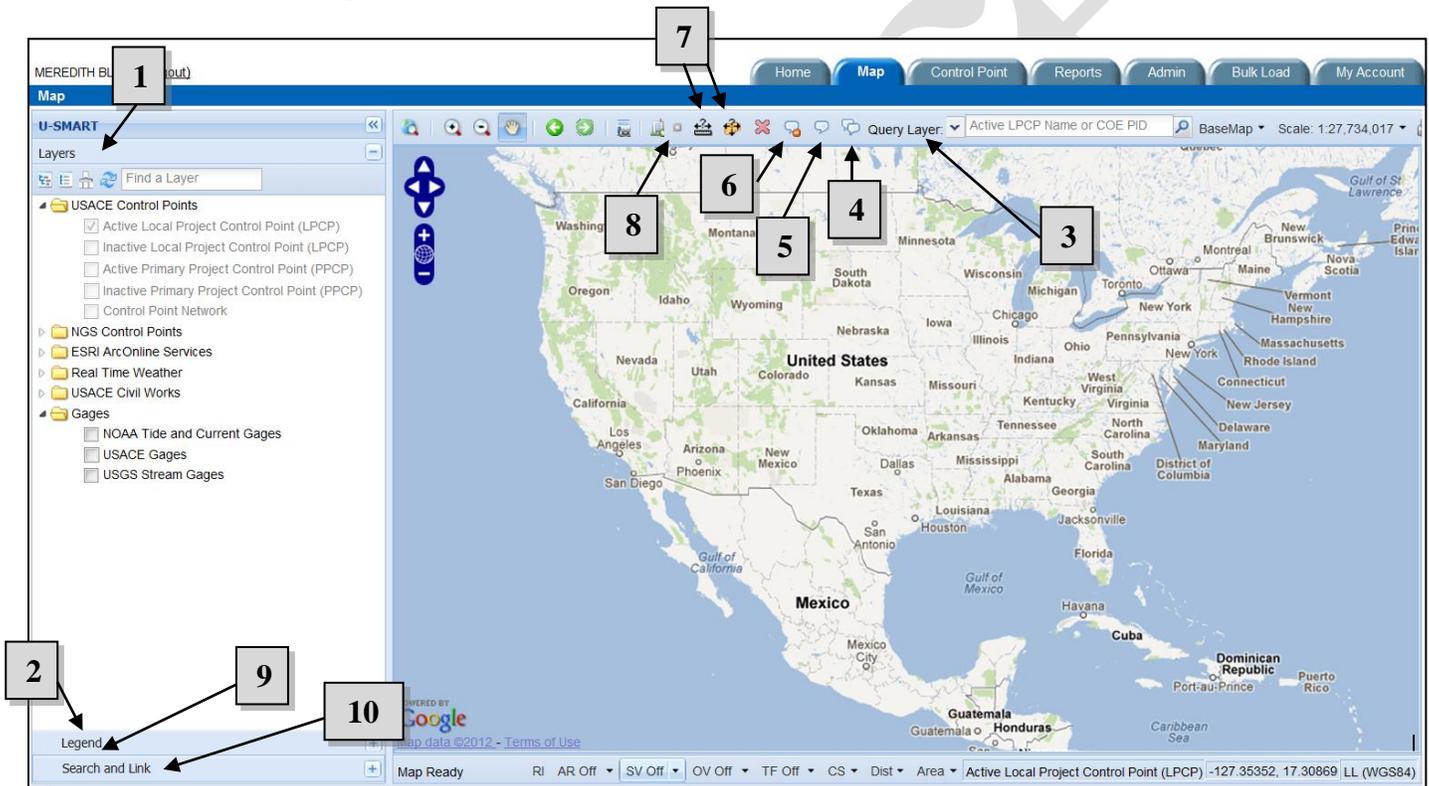


Figure 7.1-1: Map Screen

1. Layers: Allows you to display layers on map. Multiple layers can be displayed on map at one time.
2. Legend: Explanatory table of symbols used on the map. It is important to note that the legend will only display the layers that have been selected under the “Layers” tab.
3. Query Layer: Allows you to search the Control Point, CPN Project, or Gage layers.
4. Table Info Query: Displays query data in a table.
5. Pop up Info Query: Displays query data in a pop up window.
6. Clear Highlighted Features: Allows you to delete selected information.
7. Measure Distance/Area: Allows you to draw a line or geometry on the map to measure a distance.
8. Coordinates: Allow you to draw a point on the map to determine a coordinate. Please make sure to set the coordinate system (CS) located at the bottom of the screen before using the tool.
9. Search: Allows you to search a location on the map. You can search by Coordinate, Address, ZIP Code, County, Google, PPCP, and LPCP.

10. Link: Allows you to link LPCPs, PPCPs, NGS/OPUS points and projects.

7.1.1 Map Utilities

To customize your map view:

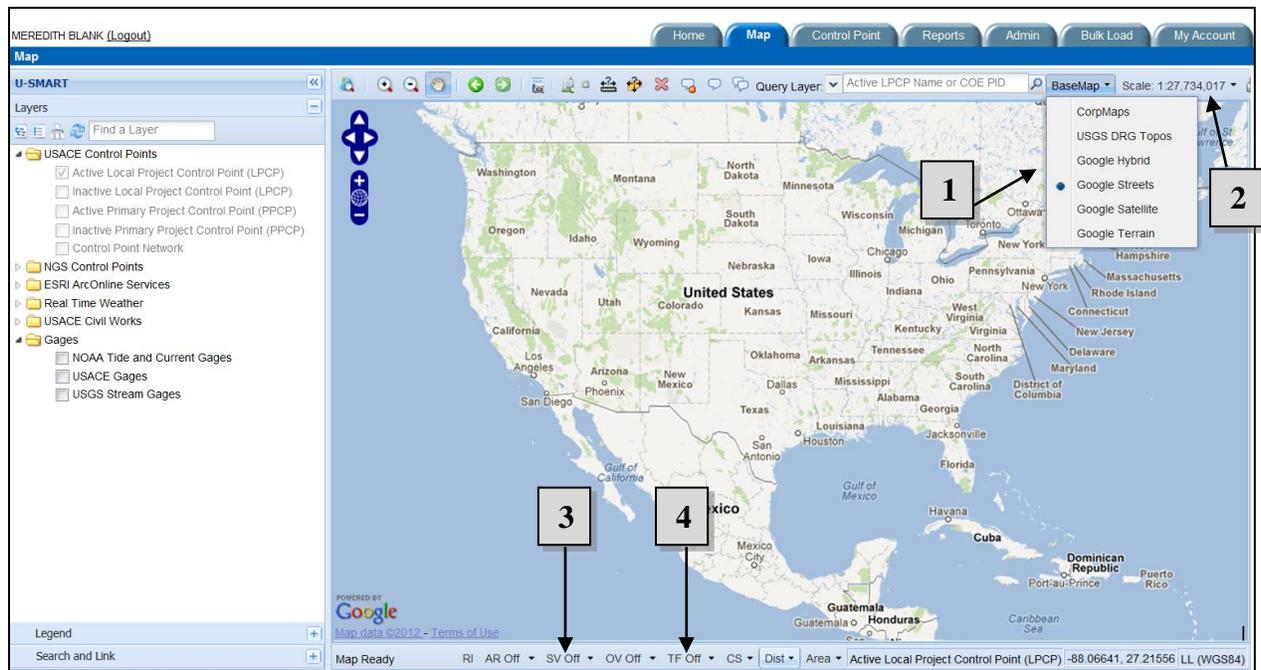


Figure 7.1-2: Map Utilities

1. Click on the drop down arrow in the “BaseMap” box to select a base map. Six base maps are included in the map utilities; four Google maps, a USGS DRG Topographic Map Layer (U.S. Geological Survey, Digital Raster Graphics), and the USACE CorpMaps base map.
2. Click on the drop down arrow in the “Scale” box. You can set the map to a fixed scale. The fixed scale choices are based on Google map tile scales.
3. Select “SV On” from the SV drop down menu to view and navigate within street-level imagery.
4. Click “TF On” from the TF drop down menu to display real time traffic on the map. ***Note: This functionality is only available on google basemaps.*

7.1.2 Layers

The layers are located on the left panel of the map.

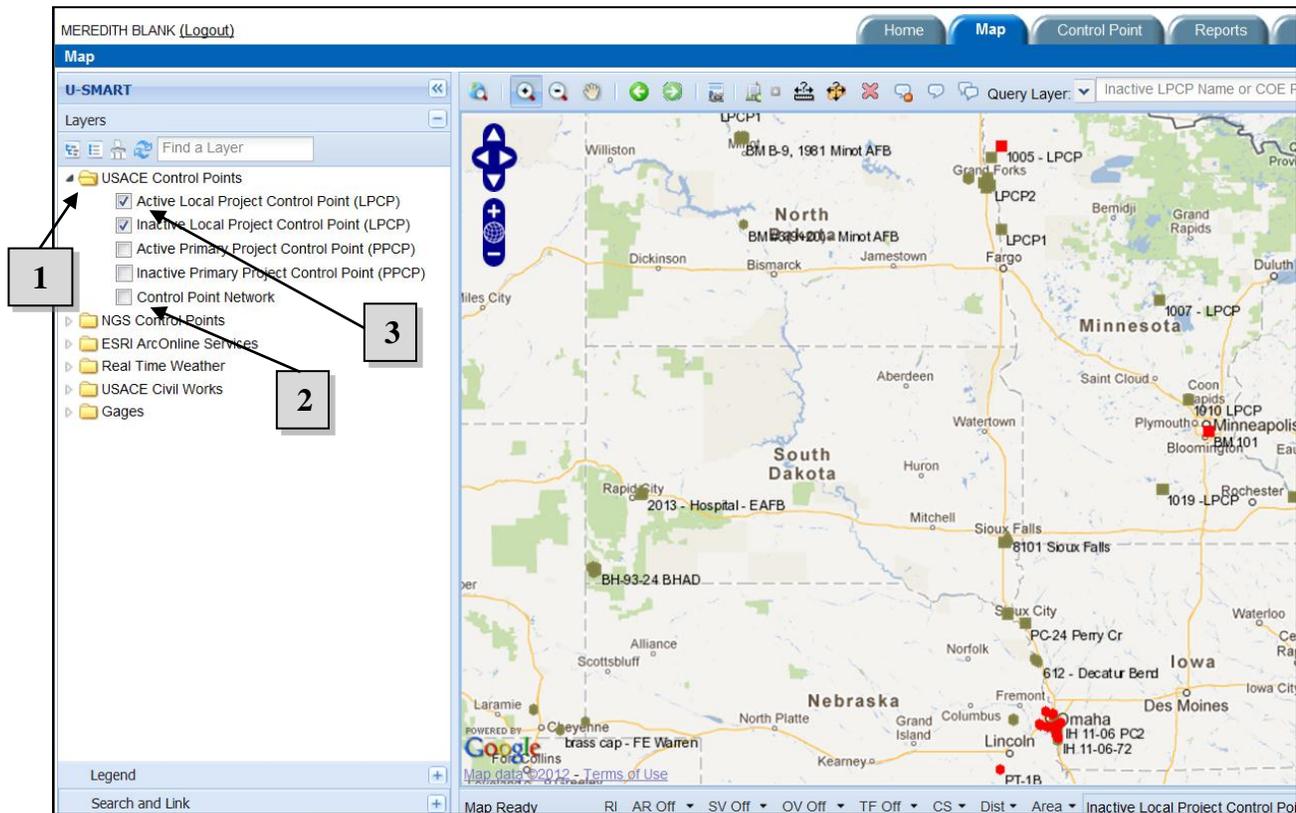


Figure 7.1-3: Layers Screen

1. Click on a layer folder to view its respective layers. To view all options expand the layer folders.
2. Turn on a layer by selecting the associated checkbox.
3. Multiple layers can be displayed on the map. Select the sub-layers by clicking the check boxes of the ones you want to display.

There are many layers available in the U-SMART application, as shown in **Figure 7.1-4** below.

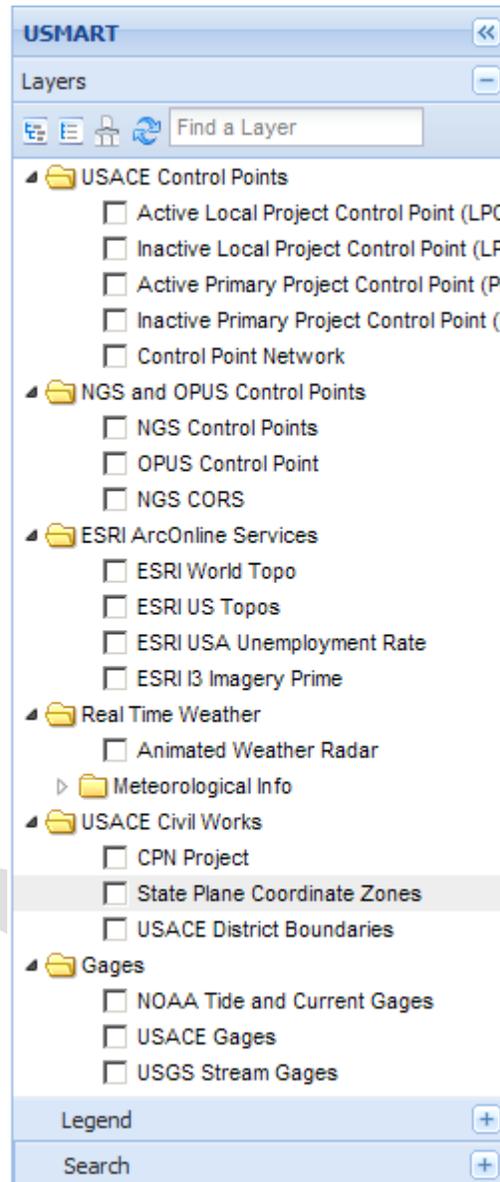


Figure 7.1-4: Layers

Many of the available data layers come from external servers. The following data layers are impacted by Control Point data within U-SMART (see **Section 2.2** or **Appendix B** for a more detailed explanation of the terms):

- Active Local Project Control Point (LPCP)
- Inactive Local Project Control Point (LPCP)
- Active Primary Control Point (PPCP)
- Inactive Primary Control Point (PPCP)
- Control Point Network

7.1.3 Legend

The legend will help you decipher the various symbols generated on the map when displaying selected layers.

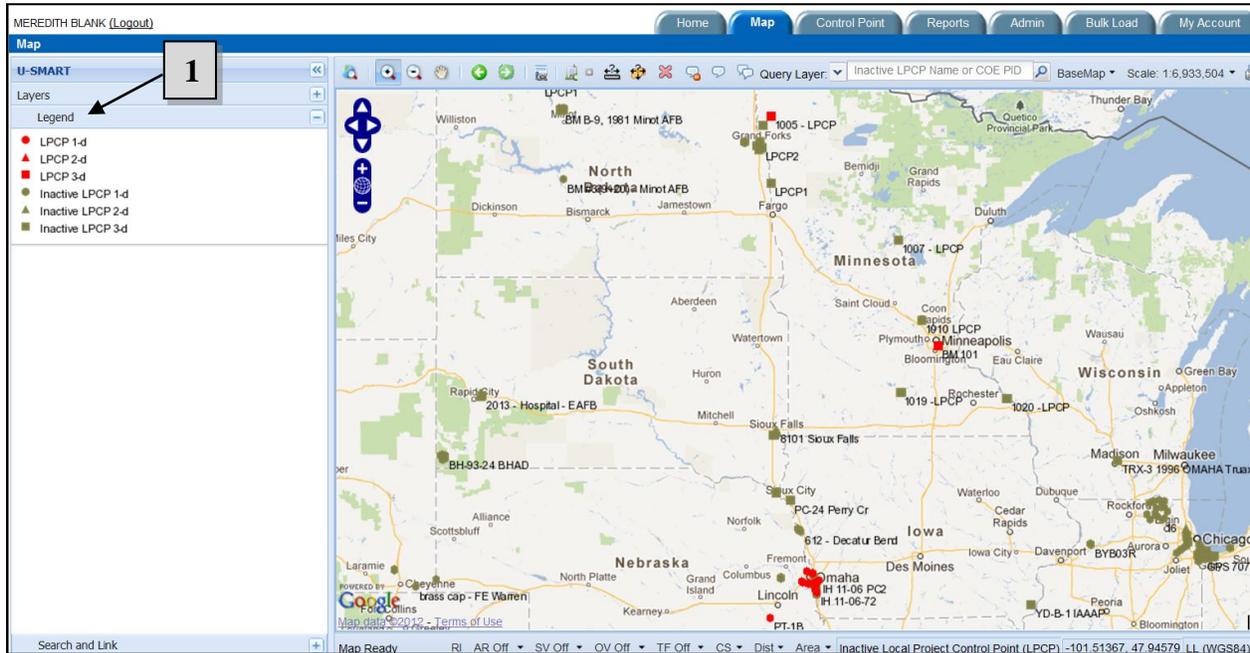


Figure 7.1-5: Legend Screen

1. To access the legend click “Legend” in the left hand navigation. The legend will only display the layers that have been selected in the “Layers” tab.

Points are distinguished on the map by color and shape based on their accuracy and whether they are local or primary control points, as shown in **Figure 7.1-6** below.

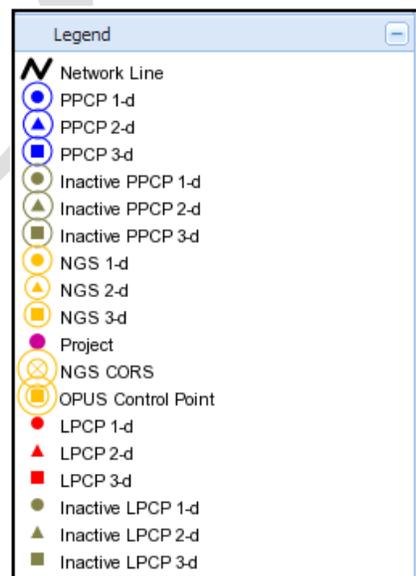


Figure 7.1-6: Legend

Point shape is based on Horizontal NSRS Accuracy and Vertical NSRS Accuracy and is defined as follows:

Shape	Accuracy Definition
Circle (1-d)	Horizontal NSRS Accuracy is ≥ 1 m; Vertical NSRS Accuracy is ≤ 5 cm
Triangle (2-d)	Horizontal NSRS Accuracy is ≤ 5 dm; Vertical NSRS Accuracy is ≥ 1 dm
Square (3-d)	Horizontal NSRS Accuracy is ≤ 5 dm; Vertical NSRS Accuracy is ≤ 5 cm

Point color is based on Point Type and Status (Active/Inactive):

Color	Type
Red	Identifies Active LPCPs (assigned to a CPN project through the linking process). (Refer to Section 6.2.10 for instructions about linking Control Points).
Blue	Identifies Active PPCPs (assigned to a CPN project through the linking process).
Grey	Identifies Inactive LPCPs or PPCPs (have not been directly assigned to a CPN Project through the linking process).
Orange	Identifies NGS or OPUS Control Points that have not been made PPCPs (through linking to a CPN Project).
Purple	CPN Projects

7.1.4 Queries

The map provides the capability to run a query within a defined area.

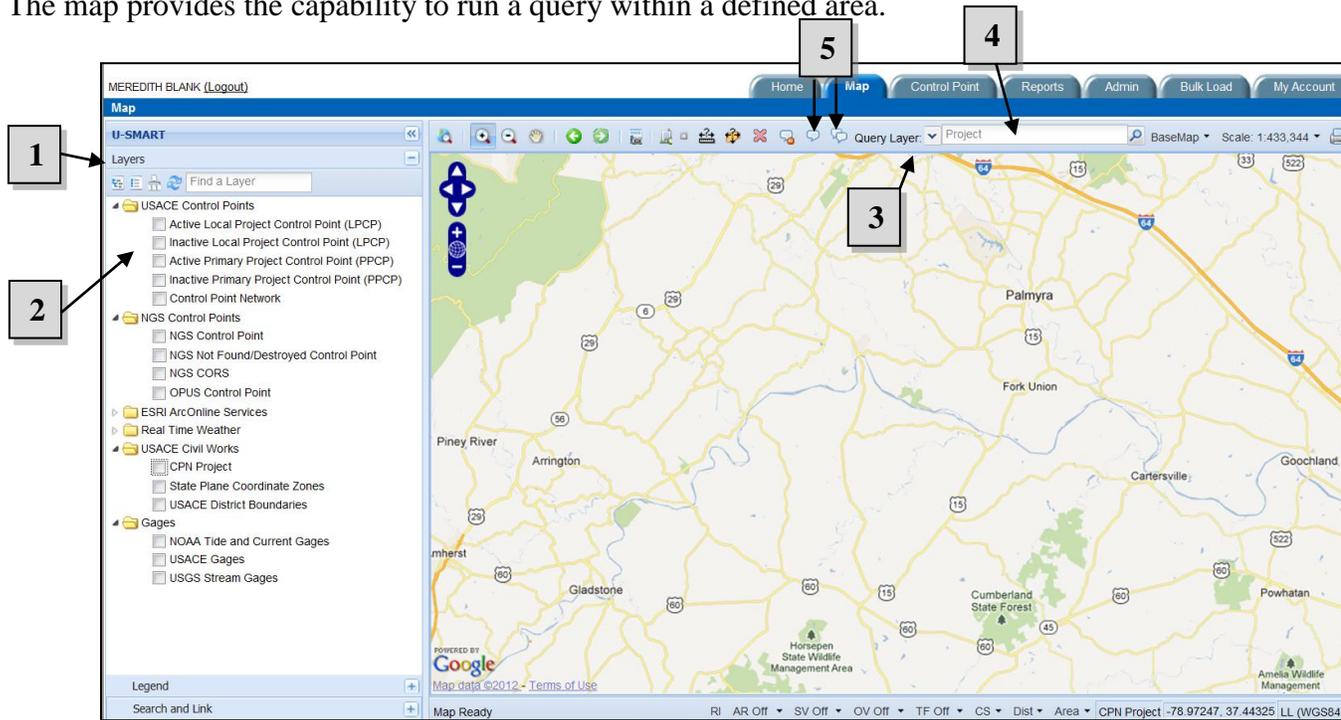


Figure 7.1-7: Map Screen

1. Click the expand icon (+) on the “Layers” panel to maximize the layer bar.
2. You may query on one of the following layers by checking the box beside the text:
 - a. Active Local Project Control Point (LPCP)
 - b. Inactive Local Project Control Point (LPCP)
 - c. Active Primary Project Control Point (PPCP)
 - d. Inactive Primary Project Control Point (PPCP)
 - e. CPN Project
 - f. NOAA Tide and Current Gages
 - g. USACE Gages
 - h. USGS Stream Gages
3. On the taskbar, you will see “Query Layer.” Click the arrow in the box and a drop down menu will appear. Click a layer that is displayed.
4. Enter the Query in the open text field.

-OR-

5. Click the double conversation box titled “Table Info Query” or the single conversation box titled “Popup Info Query.” Both are located immediately to the left of the Query Layer drop down. After clicking the box you will be able to draw a square on the map. The square you draw will determine the area that will be searched.

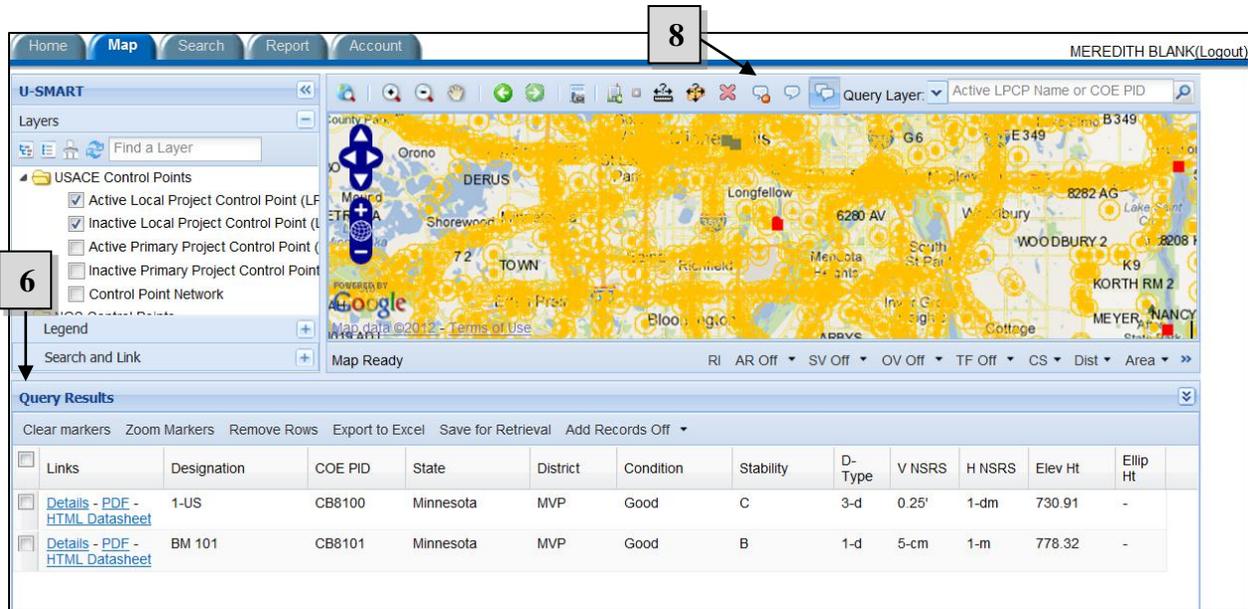


Figure 7.1-8: Query Results Table

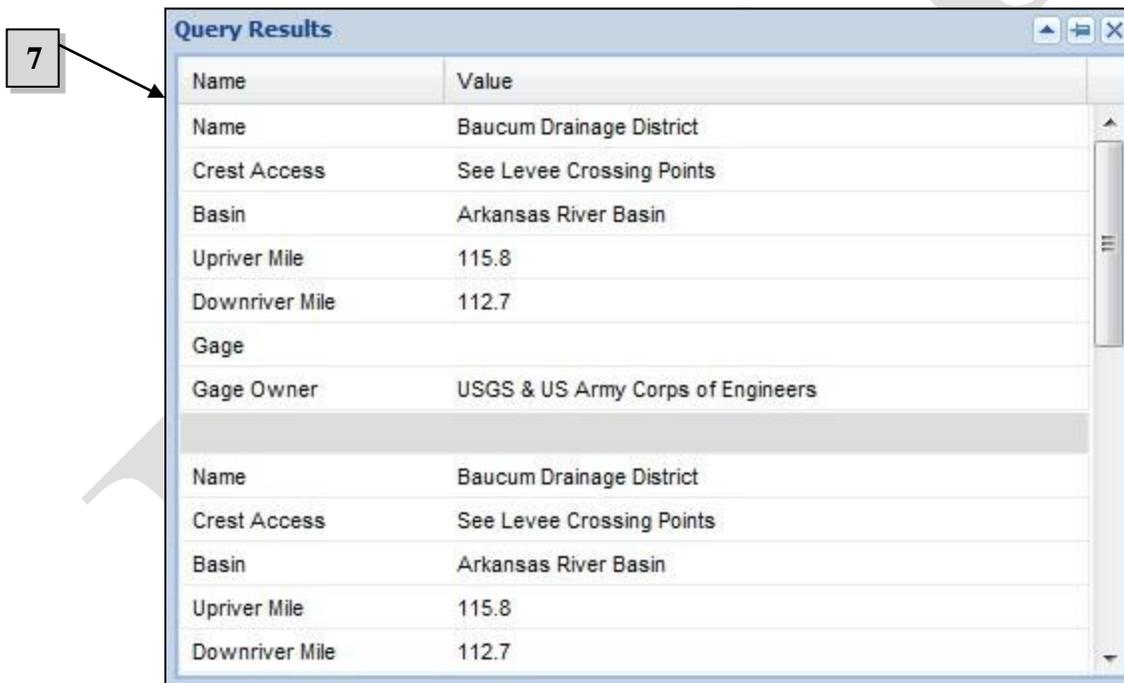


Figure 7.1-9: Query Results Popup [BM1]

6. Results will be highlighted on the map. If you selected the “Table Info Query” option the results will also populate in the Query Results table as shown above in **Figure 7.1-8**.
7. If you selected the “Popup Info Query” option your results will display in the Query Results popup as shown above in **Figure 7.1-9**.
8. To clear the highlighted results displaying on the map select the “Cleared Highlighted Features” button.

7.1.5 Area/Distance Measurement

The map provides the capability to measure both area and distance.

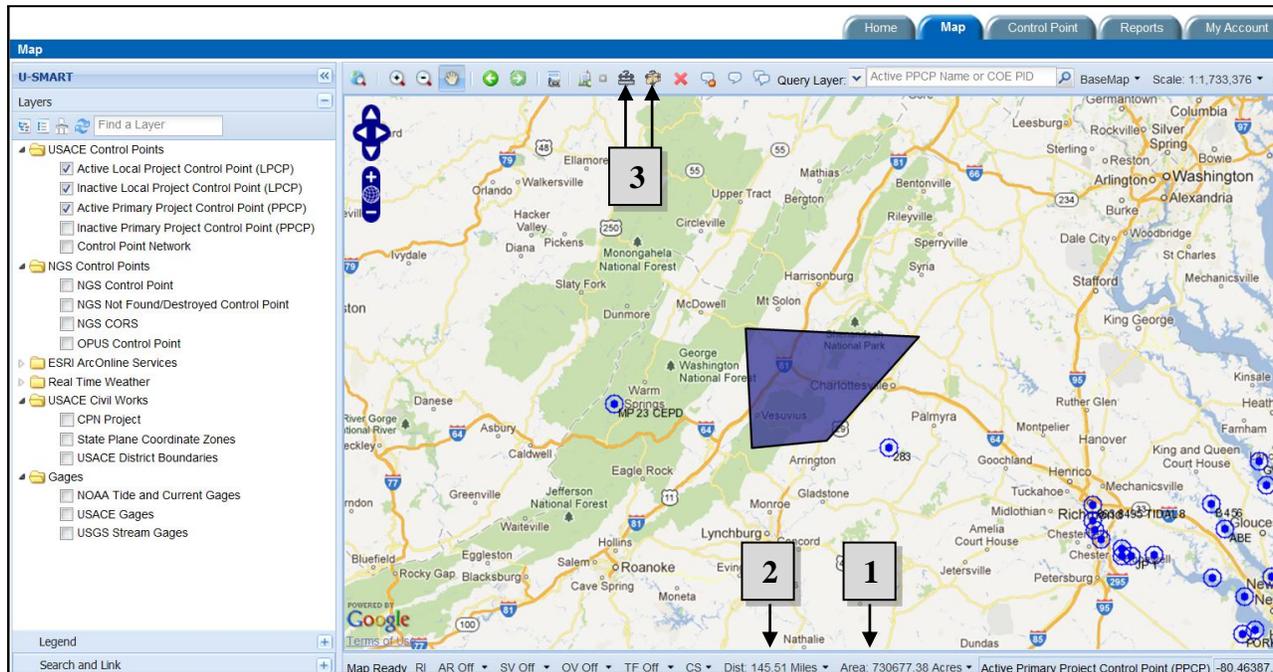


Figure 7.1-10: Distance and Area Measurement

1. Click the drop down arrow in the “Area” box to set the units the area will be returned in.
2. Click the drop down arrow in the “Distance” box to set the units the distance will be returned in.
3. Dependent on your preference of measurement, select the “Measure Area” icon or the “Distance” icon from the toolbar. Click on the map and begin digitizing. The line or polygon you draw will define the area that will be measured. Once complete, double click. The area and distance box will populate the measurement results. ***Note: if generating multiple measurements, please make sure to select the “Clear Current Measure” tool after each measurement result.*

7.1.6 Coordinates

The map allows you to view coordinates of a particular location.

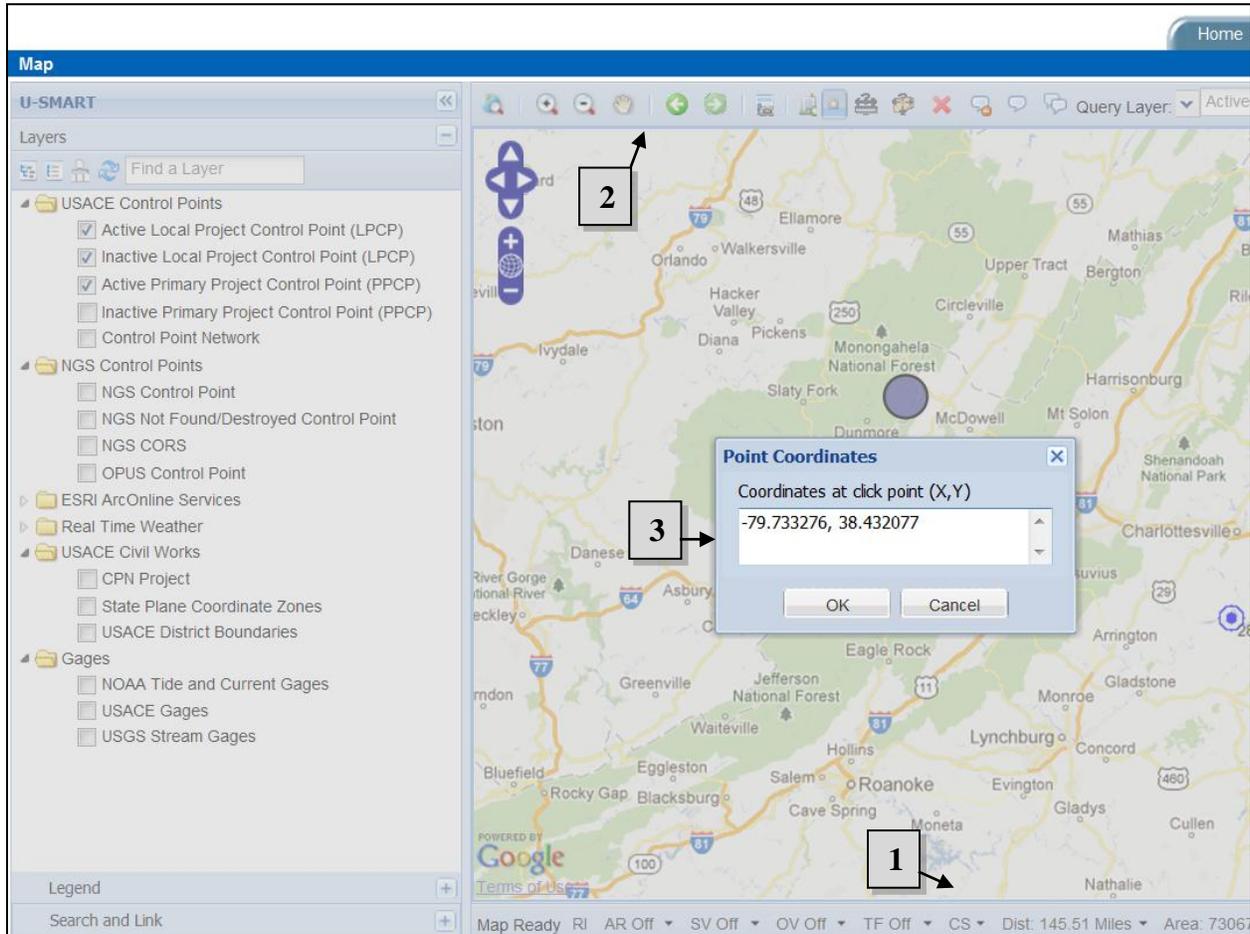


Figure 7.1-11: Coordinates

1. Click the drop down arrow in the “CS” box to set the coordinate system the coordinates will be returned in.
2. Select the “Get Coordinates at Point Click” icon from the toolbar. Locate your location on the map and click.
3. The point coordinates will display in a popup window.

7.1.7 Search & Link

This section explains searching and linking capabilities that are found under the ‘Search & Link’ navigation panel.

7.1.7.1 Search

You can search for a specific location on the map by using the search functionality.

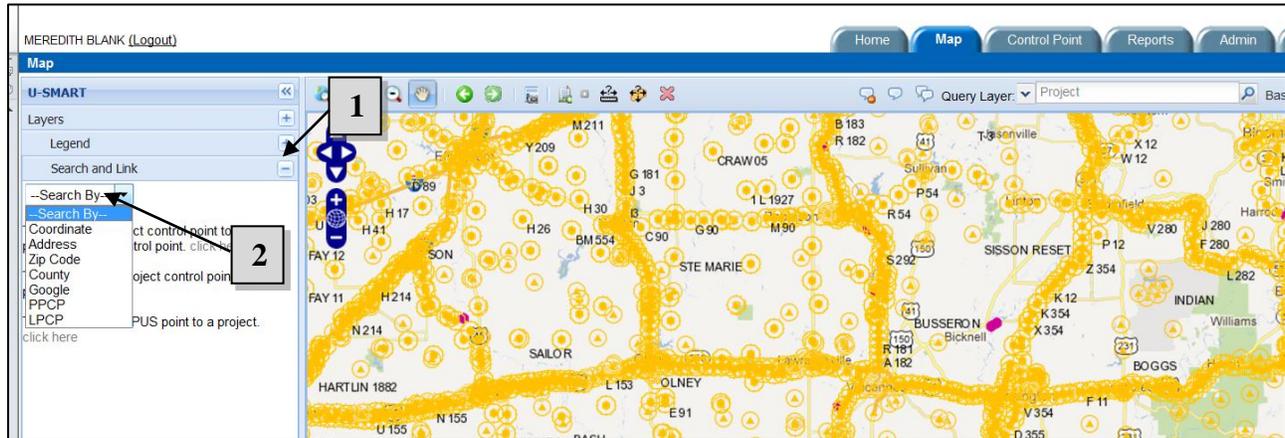


Figure 7.1-12: Search

1. Click the expand icon (+) on the Search and Link panel to maximize the search bar.
2. Define your search parameter by selecting a ‘Search By’ option from the drop down list. The following options are available: Coordinate, Address, ZIP Code, County, Google, Primary Project Control Point and Local Project Control Point. Once selected, enter your information and click “Submit.”

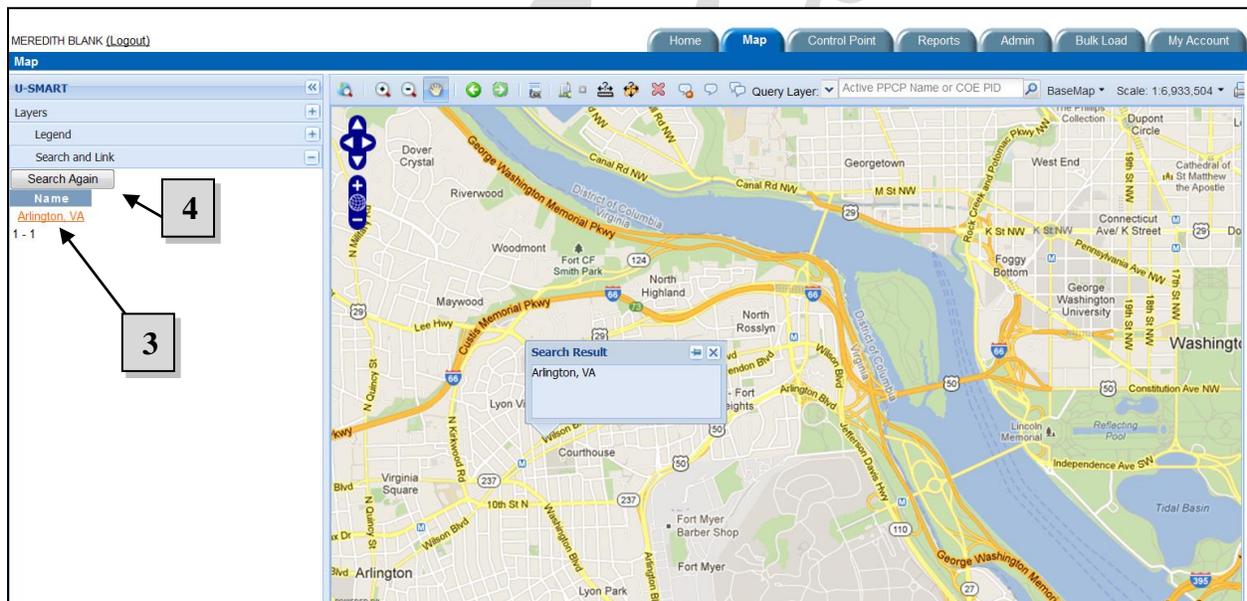


Figure 7.1-13: Search Screen

3. Search results display in the panel. Click the link to ‘zoom to’ your area on the map.
4. You can search using a different search category by selecting the “Search Again” button

7.1.7.2 Link

Dependent on your user role, U-SMART provides users with the ability to link projects and Control Points through the linking functionality.

7.1.7.2.1 Local Linking

Local Linking creates a network between an inactive Local Project Control Point, active Primary Project Control Point, and project, and is how a user is able to turn an inactive LPCP into an active LPCP.

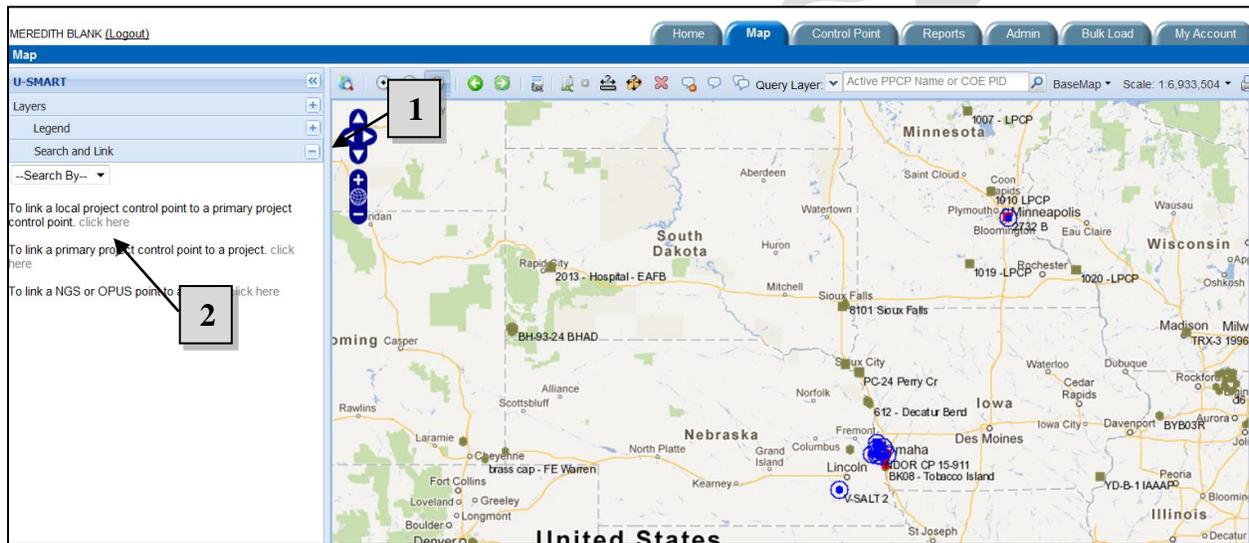


Figure 7.1-14: Local Linking

1. Click the expand icon (+) on the Search and Link panel to maximize the search bar.
2. Click to link an LPCP to a PPCP.

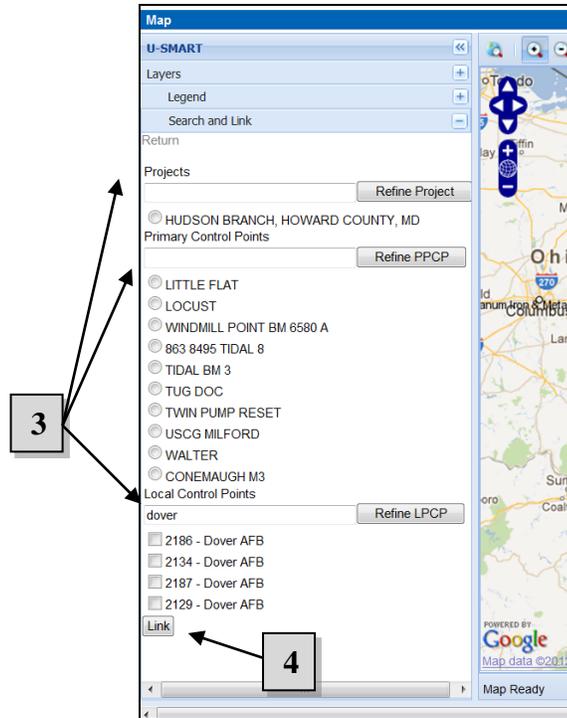


Figure 7.1-15: Local Linking

3. Select the Project, Primary Control Point, and Local Control Point you wish to link.
4. Click “Link”. A message will display at the top of the Search and Link tab, confirming success.

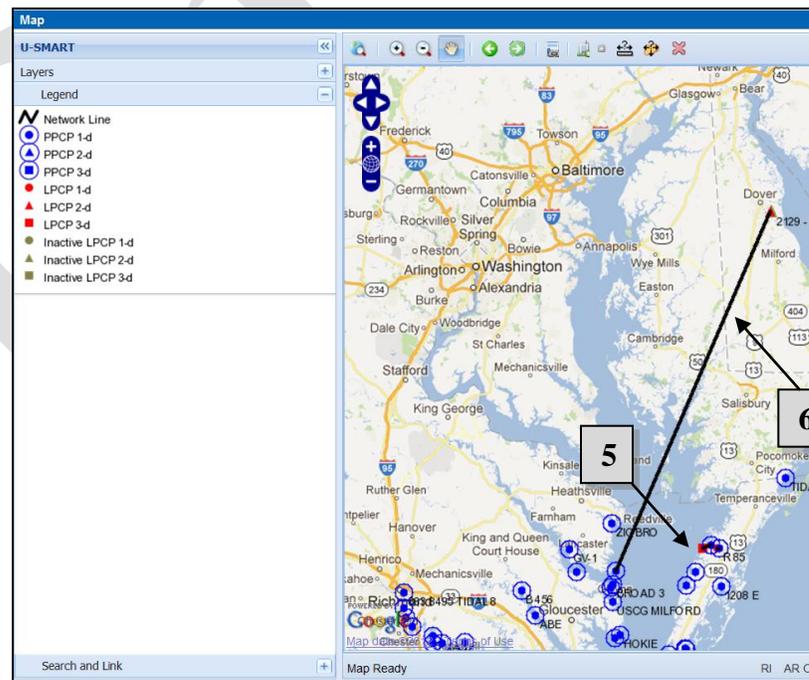


Figure 7.1-16: Local Linking

5. Once linked, the selected LPCP becomes active, changing from gray to red on the map.
6. A black 'Network' line will display, connecting the LPCP and PPCP. This line will display if the Control Point Network layer is activated.

****Note:** an LPCP can only be linked to one PPCP, whereas a PPCP can be linked to many LPCPs.

7.1.7.2.2 Primary Project Control Point Linking

PPCP Linking creates a network between a Primary Project Control Point and a project, and is how a user is able to turn an inactive PPCP into an active PPCP.

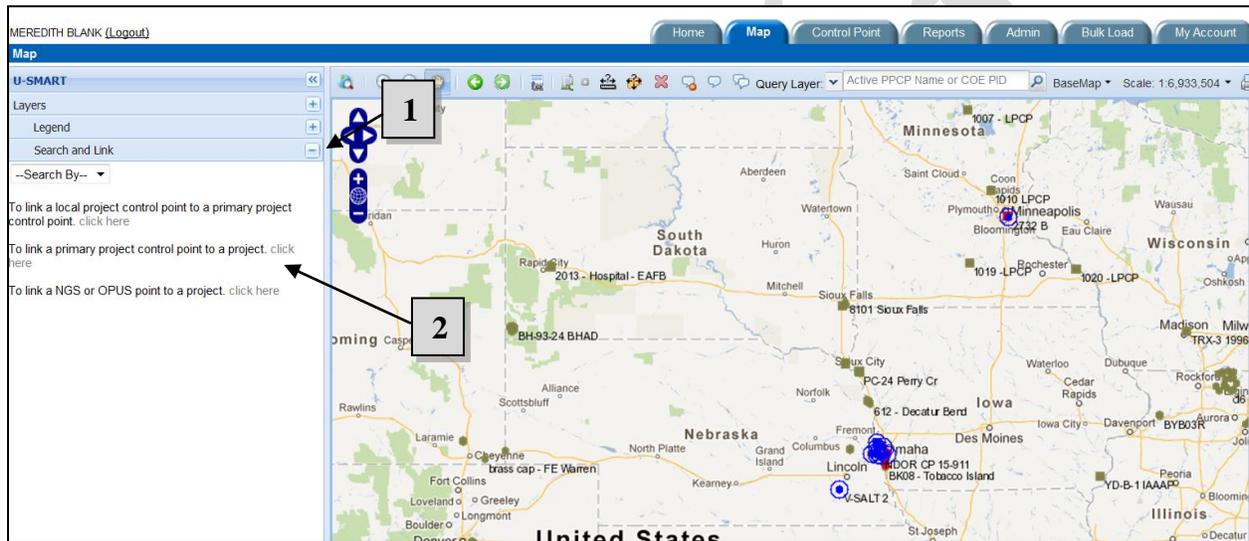


Figure 7.1-17: PPCP Linking

1. Click the expand icon (+) on the Search and Link panel to maximize the search bar.
2. Click to link a PPCP to a project.

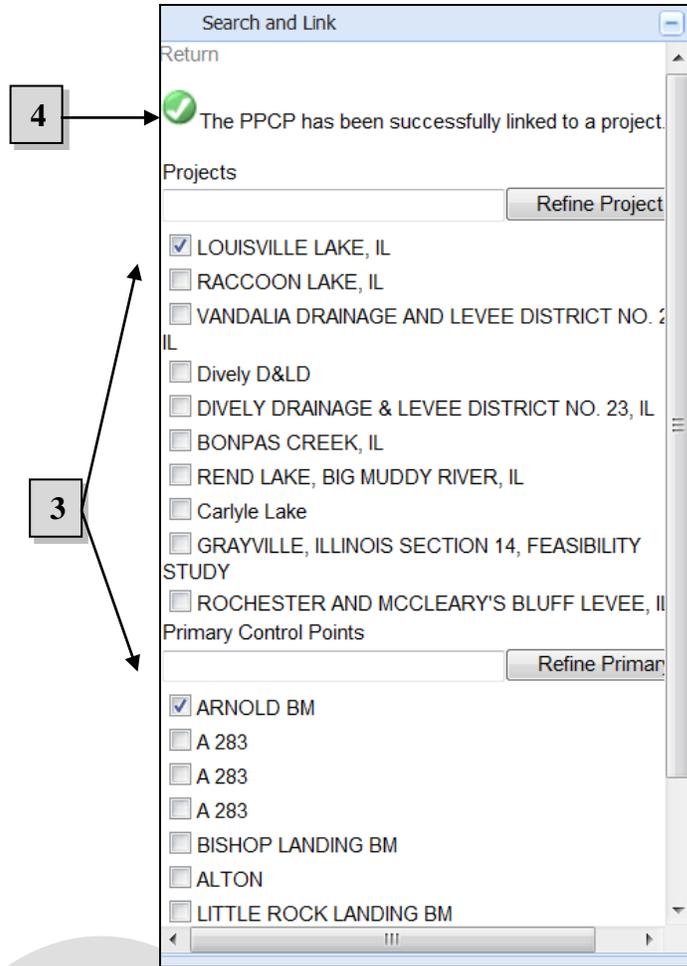


Figure 7.1-18: PPCP Linking

3. Select a Primary Control Point and Project you wish to link.
4. Click “Link”. If successful, a message will display at the top of the Search and Link tab.



Figure 7.1-19: PPCP Linking

5. Once linked, the inactive PPCP becomes active, changing from gray to blue on the map.

***Note: PPCPs can be linked to multiple projects. If the selected PPCP was already linked to a project, it will not change colors on the map (will remain blue).*

7.1.7.2.3 NGS / OPUS Control Point Linking

NGS/OPUS Linking creates a network between an NGS or OPUS Control Point and a Project, and is how a user is able to turn an NGS or OPUS Control Point into an active PPCP.

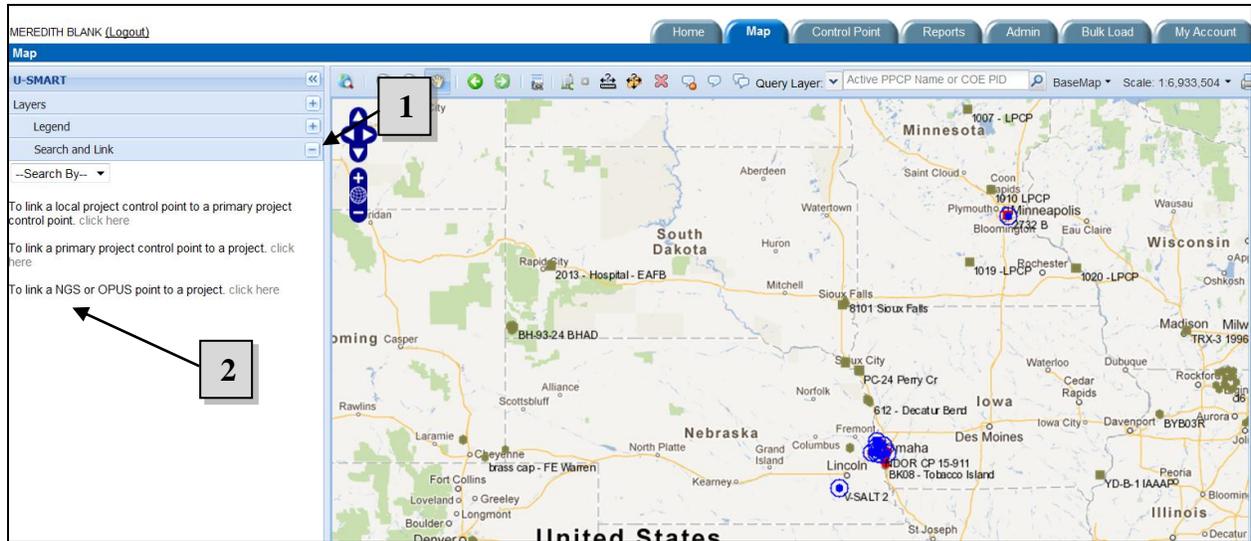


Figure 7.1-20: NGS/OPUS Linking

1. Click the expand icon (+) on the Search and Link panel to maximize the search bar.
2. Click to link an NGS or OPUS point to a project.

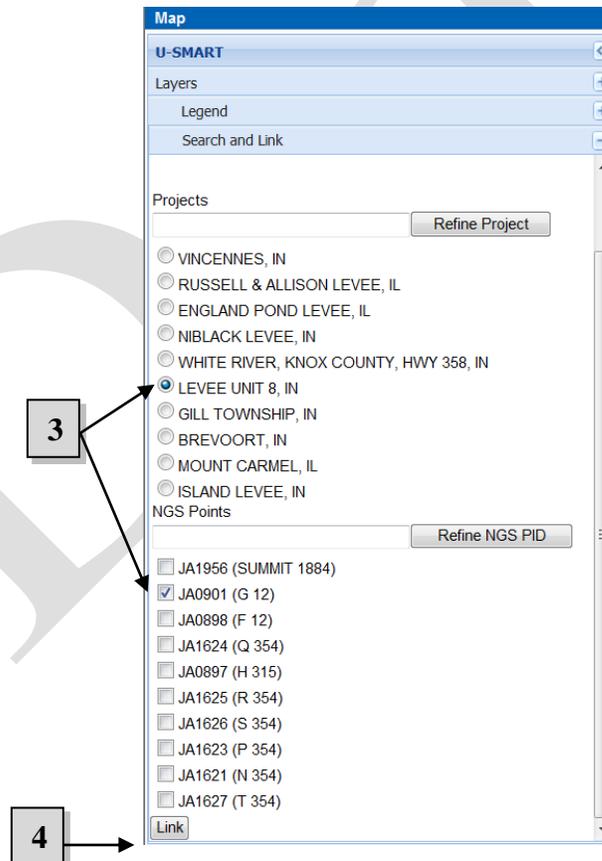


Figure 7.1-21: NGS/OPUS Linking

3. Select a NGS or OPUS Control Point and Project you wish to link.

- Click “Link”. If successful, a message will display at the top of the Search and Link tab.

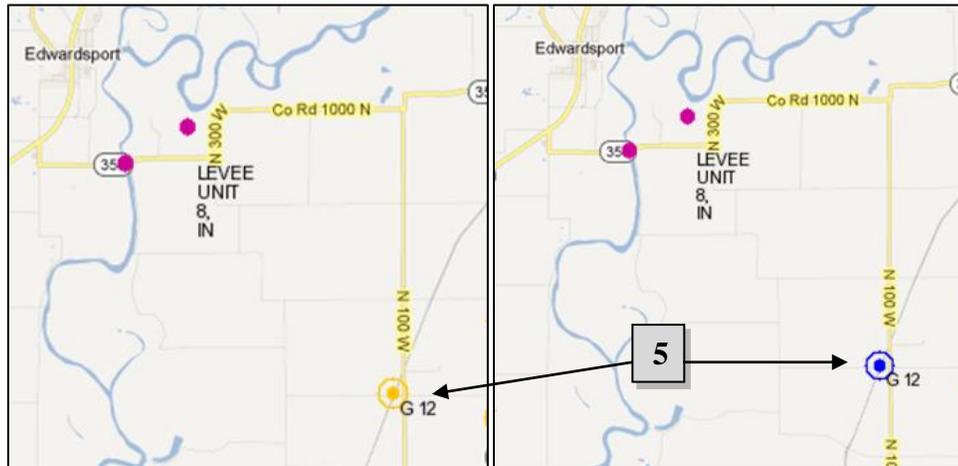


Figure 7.1-22: NGS/OPUS Linking

- Once linked, the NGS or OPUS Control Point turns into a PPCP, changing from orange to blue on the map.

8. Search

By clicking on the Control Point tab, U-SMART provides users with the ability to search and view details for particular Control Points. You can search for Control Points by Designation, Project Name, COE PID, NGS/OPUS PID, District and Date Created.

MEREDITH BLANK (Logout) Home Map Control Point Reports Admin Bulk Load My Account

Search Control Point

Create New Control Point

Designation :

Project Name :

COE PID :

NGS/OPUS PID :

District : - All Districts -

Created on or after : DD-MON-YYYY (ex. 01-APR-2010)

Created before or on : DD-MON-YYYY (ex. 01-JUN-2010)

Display Archived?:

Search Results

Designation	Project Name	COE PID	NGS PID	District	Archived	Detail Link	Map Link
1002-25	-	CF8553	-	Portland	No	View Detail	View Map
1002-28	-	CF8525	-	Portland	No	View Detail	View Map
1002-29	-	CF8582	-	Portland	No	View Detail	View Map
BM BZ-1	-	CD8556	-	Little Rock	No	View Detail	View Map
CASCADE RAPIDS LWR RGE Bolt_MB TEST	-	CF8529	-	Portland	No	View Detail	View Map
GOVT ISLAND Mid-Range Bolt	-	CF8511	-	Portland	No	View Detail	View Map
HENRY	-	CF8531	-	Portland	No	View Detail	View Map
IVES/ISL LIGHT 91 Bolt	-	CF8528	-	Portland	No	View Detail	View Map

Figure 7.1-1: Search

1. Enter desired search criteria in the search fields.
2. Select whether or not to include archived Control Points in search results, using the checkbox.
3. Click Search.
4. Search Results will display in the Search Results table and include links that allow you to view Control Point details or view the selected Control Point on the map.
5. Click on a Search Results column header to sort results by that column.

9. Reports

By clicking on the Reports tab, U-SMART provides the ability to create and view Control Point information in a Reporting format. The Primary Control Point Report will display on default.

9.1 Interactive Reports

U-SMART Reports are fully customizable. You have the ability to create and save your own custom reports. All columns and rows are customizable so that you may search, organize, filter, summarize and save the data using the interactive reporting tool features available in the top left of the report data screen.

The basic functions of interactive reporting tool include the following:

Designation	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Longitude	Elevation	V Datum	Recovered Date	Map Link	Detail Link
COE CEPD GO1	ACG754	BBBY64	-	Yes	NAD83 (2002.00)	35 27 48.97194	106 12 30.29139	5648.79 Ft	NAVD88()	24-MAY-10	View Map	View Detail
R8	CD7938	-	-	-	NAD83()	34 55 2.15469	92 8 48.03505	307.9 Ft	NGVD29 ()	01-JAN-78	View Map	View Detail
OS 5	ACH025	-	-	Yes	NAD83 (2004.0)	33 12 17.82332	117 23 36.77496	16.148 Ft	NAVD88()	13-OCT-10	View Map	View Detail
11FTBLISS-1- 3071	ACH209	-	-	Yes	NAD83 (2007)	31 49 37.54174	106 22 47.70812	3930.41 Ft	NAVD88()	-	View Map	View Detail

Figure 9.1-1: View Report

1. Search: Allows you to search for a specific word within the columns list. See **Figure 9.1-2** for complete list of columns.
2. Actions Menu: Allows you to customize the report to your liking. Options include Select Columns, Filter, Rows Per Page, Format, Flashback, Save Report, Reset, Help and Download.

9.2 Search

The “Search” feature allows you to search for a specific word within the results list.

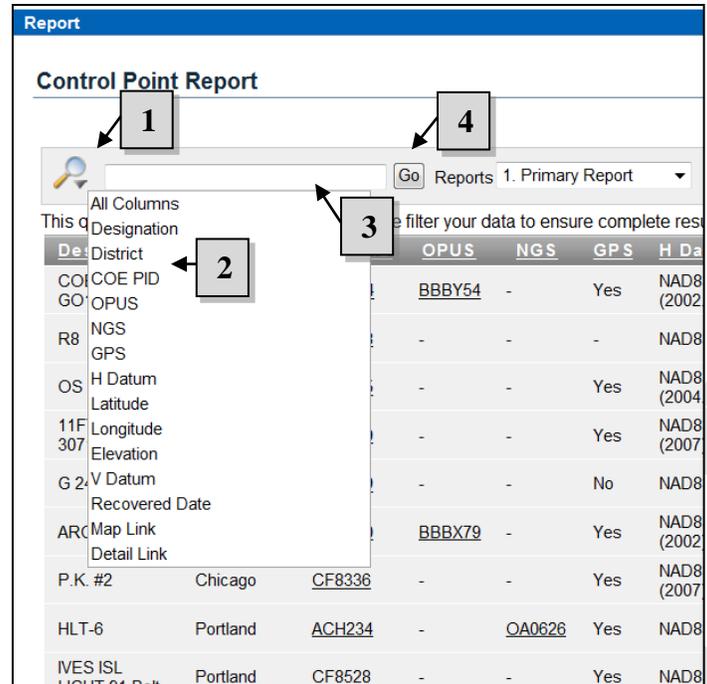


Figure 9.2-1: Search

1. Click on the magnifying glass. A column will display with your search options.
2. Select a column name.
3. Insert search criteria in the search box.
4. Click the “Go” button to submit the search. When the system is loading, it will display a symbol in the center top of the screen to notify you of its current status.

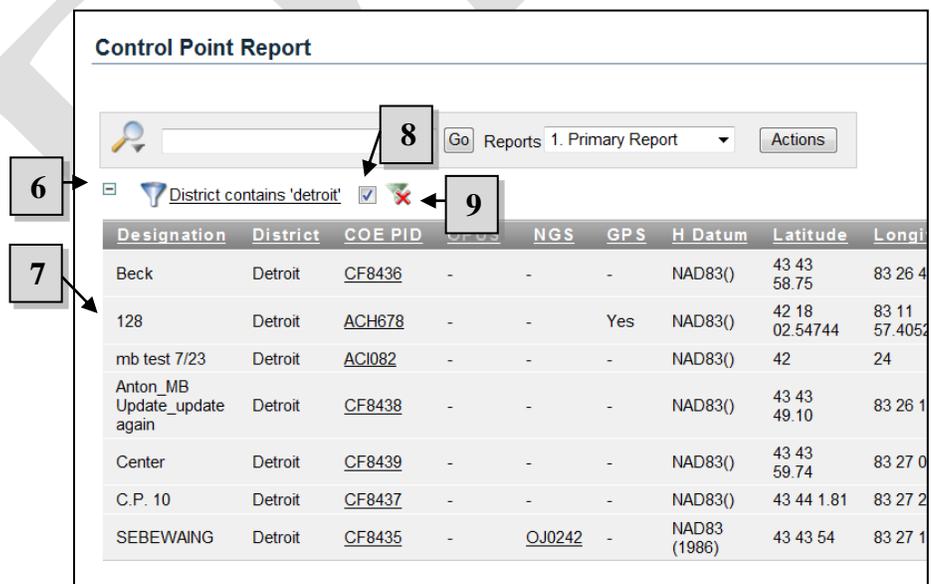


Figure 9.2-2: Display Criteria

6. After the system loads, it will display the searched criteria below the search bar.
7. The interactive reporting capability displays a table of results based upon your search criteria.
8. By clicking the checked box on and off you can remove the specific search terms from the results table.
9. By clicking the “Filter” icon with the red “X” you can completely remove the specific search terms.

9.3 Actions

The Actions Menu contains many tasks that are useful in manipulating an Interactive Report. All Interactive Reporting functions from the Actions Menu are displayed in the example report as shown in **Figure 9.4-1: Actions Menu Functions**.

9.4 Select Columns

The “Select Columns” option in the actions menu allows you to reorder/modify the columns displayed in a report.

Control Point Report

Search: [] Go Reports: 1. Primary Report [v] **Actions** 1

This query returns more than 500 rows, please filter your data to ensure complete results

Designation	District	COE PID	OPUS	NGS	GPS	H Date	levation
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.0)	348.79 Ft
R8	Little Rock	CD7938	-	-	-	NAD83	7.9 Ft
OS 5	Los Angeles	ACH025	-	-	Yes	NAD83 (2004.0)	3.148 Ft
11FTBLISS-1-3071	Little Rock	ACH209	-	-	Yes	NAD83 (2007)	930.41 Ft
G 249	Portland	ACH289	-	-	No	NAD83	37 Ft
ARC 1	Tulsa	ACH310	BBBX79	-	Yes	NAD83 (2002)	2053.85 Ft
P.K. #2	Chicago	CF8336	-	-	Yes	NAD83 (2007)	27.141 Ft
HLT-6	Portland	ACH234	-	OA0626	Yes	NAD83	5.42 Ft
IVES ISL LIGHT 91 Bolt	Portland	CF8528	-	-	Yes	NAD83	0.12 Ft
D 193	Portland	ACH551	-	RD0504	-	NAD83 (1986)	43 34 43. 122 43 42. 12.007 M
HLM 51A	Portland	ACH550	-	RD3633	-	NAD83 (1991)	45 34 50.28063 122 45 45.34089 9 M

2

- Select Columns
- Filter
- Rows Per Page
- Format
- Flashback
- Save Report
- Reset
- Help
- Download

Figure 9.4-1: Actions Menu Functions

1. Click on the “Actions” button

2. Click on Select Columns. A new region will display as shown below in **Figure 9.4-2: Actions Menu- Select Columns**.

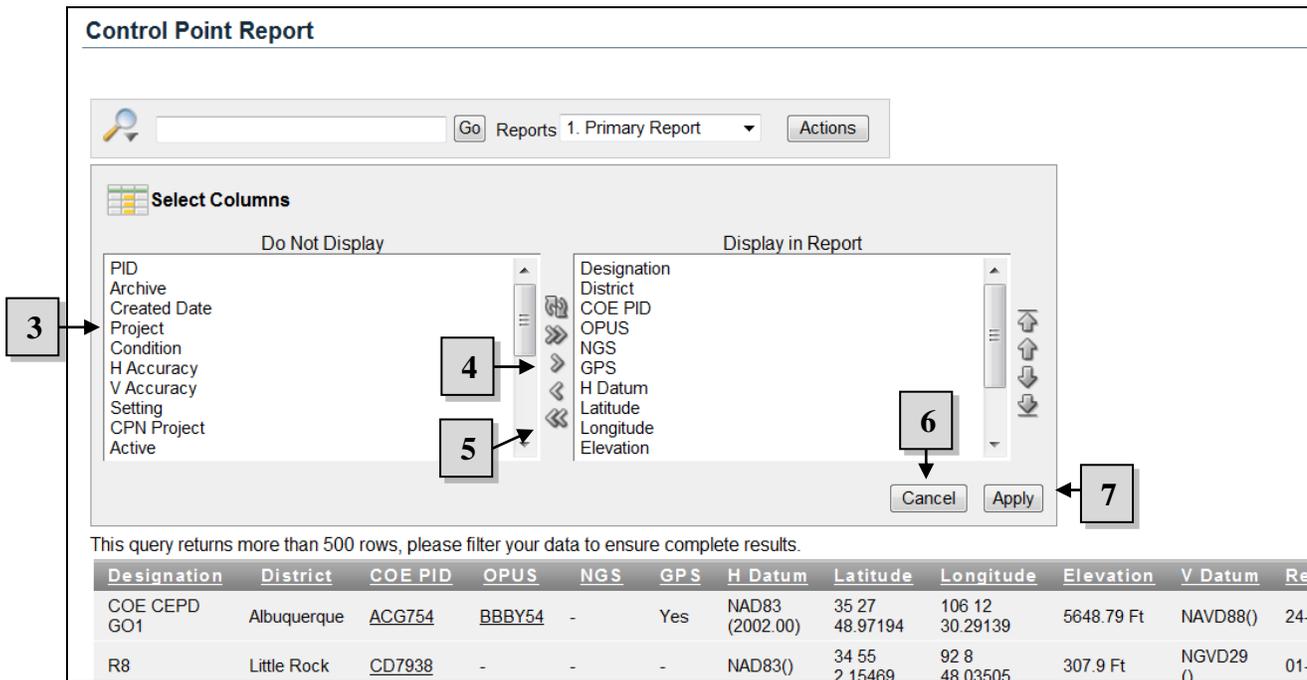


Figure 9.4-2: Actions Menu - Select Columns

3. Click on a column name (i.e. "Project") in the "Do Not Display" Column. The column name will become highlighted (Note: You can also click on a name in the "Display in Report" Column).
4. Click the single arrow to move it over to the "Display in Report" window. The arrow pointing right will move the column to the "Display in Report" window and vice versa.
5. To move all columns to one side or the other, click the double arrows.
6. Click the "Cancel" button to reset.
7. Click the "Apply" button to have your desired settings displayed.

9.5 Filtering Option

The "Filter" option allows you to modify the report query through the use of Oracle operators and/or expressions.

Control Point Report

Reports 1. Primary Report

This query returns more than 500 rows, please filter your data to ensure complete results

Designation	District	COE PID	OPUS	NGS	GPS	H Data	levation
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.0)	348.79 Ft
R8	Little Rock	CD7938	-	-	-	NAD83	07.9 Ft
OS 5	Los Angeles	ACH025	-	-	Yes	NAD83 (2004.0)	3.148 Ft
11FTBLISS-1-3071	Little Rock	ACH209	-	-	Yes	NAD83 (2007)	330.41 Ft
G 249	Portland	ACH289	-	-	No	NAD83	37 Ft
ARC 1	Tulsa	ACH310	BBBX79	-	Yes	NAD83 (2002)	053.85 Ft
P.K. #2	Chicago	CF8336	-	-	Yes	NAD83 (2007)	27.141 Ft
HLT-6	Portland	ACH234	-	OA0626	Yes	NAD83	5.42 Ft
IVES ISL LIGHT 91 Bolt	Portland	CF8528	-	-	Yes	NAD83	0.12 Ft
D 193	Portland	ACH551	-	RD0504	-	NAD83 (1986)	43 34 43. 122 43 42. 12.007 M
HLM 51A	Portland	ACH550	-	RD3633	-	NAD83 (1991)	45 34 50.28063 122 45 45.34089 9 M

Figure 9.5-1: Actions Menu Functions

1. Click on the “Actions” button.
2. Click on Filter. A new region will display as shown below in **Figure 9.5-2: Actions Menu – Filter.**

Control Point Report

Go Reports 1. Primary Report Actions

Filter

Filter Type Column Row

Column Operator Expression

Designation =

Cancel Apply

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Longitude	Elevation
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.00)	35 27 48.97194	106 12 30.29139	5648.79 Ft
R8	Little Rock	CD7938	-	-	-	NAD83()	34 55 2.15469	92 8 48.03505	307.9 Ft
OS 5	Los Angeles	ACH025	-	-	Yes	NAD83 (2004.0)	33 12 17.82332	117 23 36.77496	16.148 Ft

Figure 9.5-2: Actions Menu – Filter

3. Select a column by clicking on the Column drop down list.
4. Select an operator by clicking on the Operator drop down list.
5. Select an expression by clicking on the Expression drop down list or type your own expression into the field.
6. Click the “Apply” button. Results are filtered. You can apply multiple filters on data, check them on or off, and remove them if necessary.

9.6 Sort

The “Sort” option in the actions menu allows you to arrange the columns in a report.

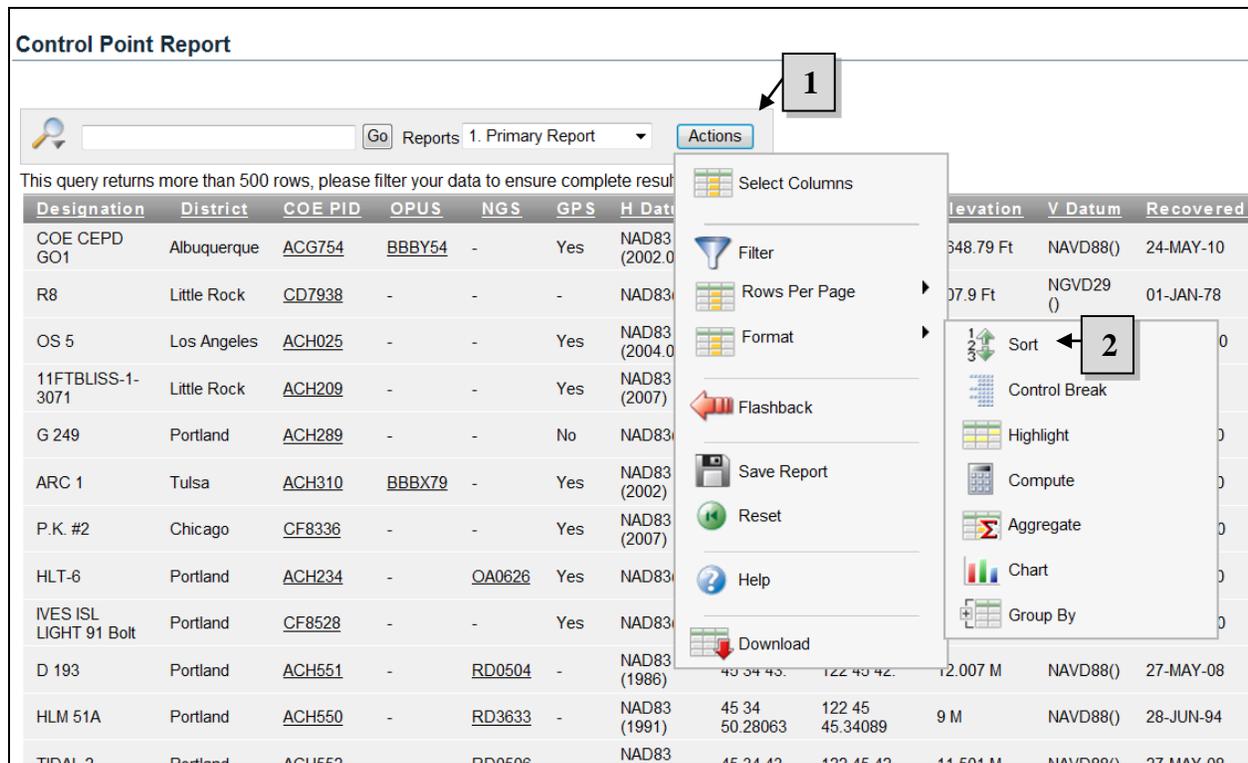


Figure 9.6-1: Actions Menu Functions

1. Click on the “Actions” button.
2. Click on Format - Sort. A new region will display as shown below in **Figure 9.6-2: Actions Menu- Sort.**

Control Point Report

Go Reports 1. Primary Report Actions

Sort

3 4 5

Column Direction Null Sorting

1	- Select Column -	Ascending	Default
2	- Select Column -	Ascending	Default
3	- Select Column -	Ascending	Default
4	- Select Column -	Ascending	Default
5	- Select Column -	Ascending	Default
6	- Select Column -	Ascending	Default

Cancel Apply 6

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Longitude
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.00)	35 27 48.97194	106 12 30.29139

Figure 9.6-2: Actions Menu – Sort

3. Click on drop down arrow in the Columns box to change columns to sort.
4. Click the drop down arrow in the Direction box to sort the reports in ascending or descending order.
5. Click the drop down arrow in the Null Sorting box to determine where you want your null results to populate.
6. Click the “Apply” button (you also have the choice of clicking the “Cancel” button to rest).

9.7 Control Break

The “Control Break” option in the actions menu allows you to organize the data by grouping results into sections.

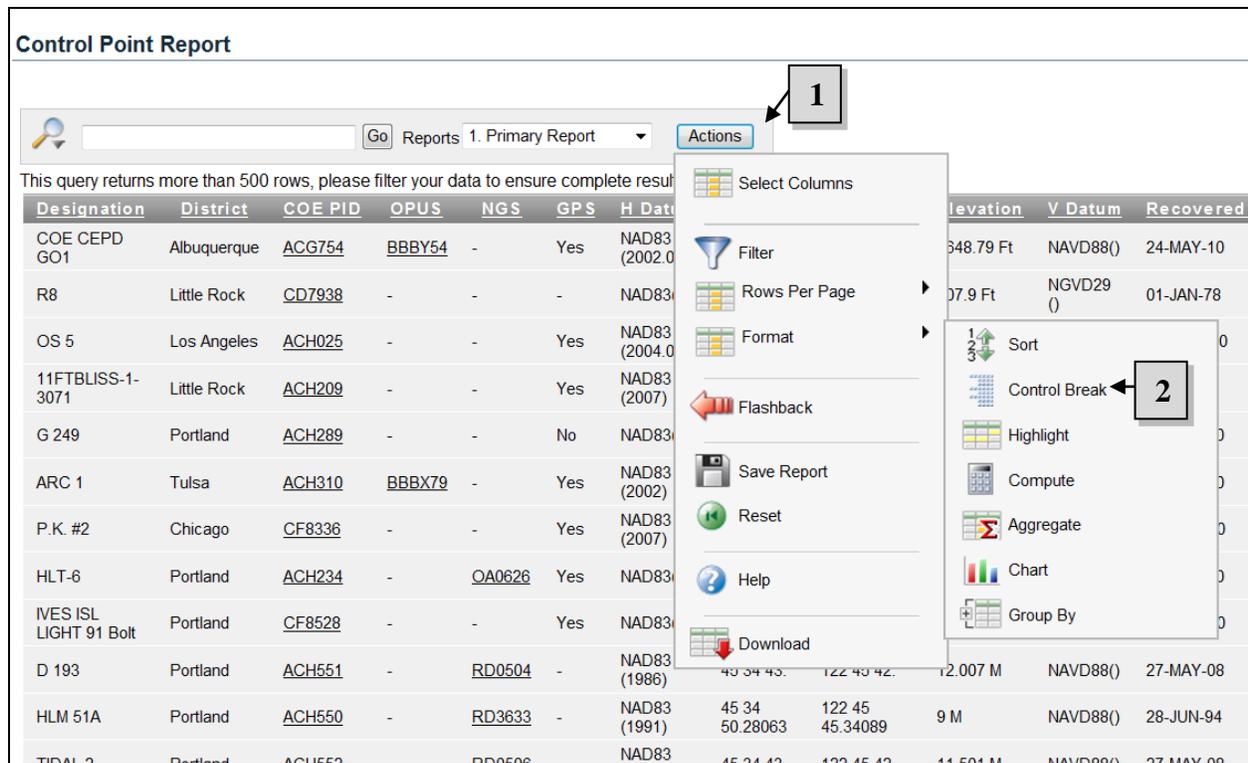


Figure 9.7-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Format - Control Break. A new region will display as shown below in **Figure 9.7-2: Actions Menu-Control Break.**

Control Point Report

Go Reports 1. Primary Report Actions

Control Break

Column Status

1	- Select Column -	Enabled
2	- Select Column -	Enabled
3	- Select Column -	Enabled
4	- Select Column -	Enabled
5	- Select Column -	Enabled
6	- Select Column -	Enabled

Cancel Apply

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Lon
COE CEPD GO1	Albuquerque	<u>ACG754</u>	<u>BBBY54</u>	-	Yes	NAD83 (2002.00)	35 27 48.97194	106 30.2
R8	Little Rock	<u>CD7938</u>	-	-	-	NAD83()	34 55 2.15469	92 8 49.0

Figure 9.7-2: Actions Menu – Control Break

3. Click on drop down arrow in the Columns box to group data into several columns
4. Click the drop down arrow in the Status box to enable or disable the column.
5. Click the “Apply” button (You also have the choice of clicking the “Cancel” button to reset).

9.8 Highlight

The “Highlight” option in the actions menu allows you define a filter.

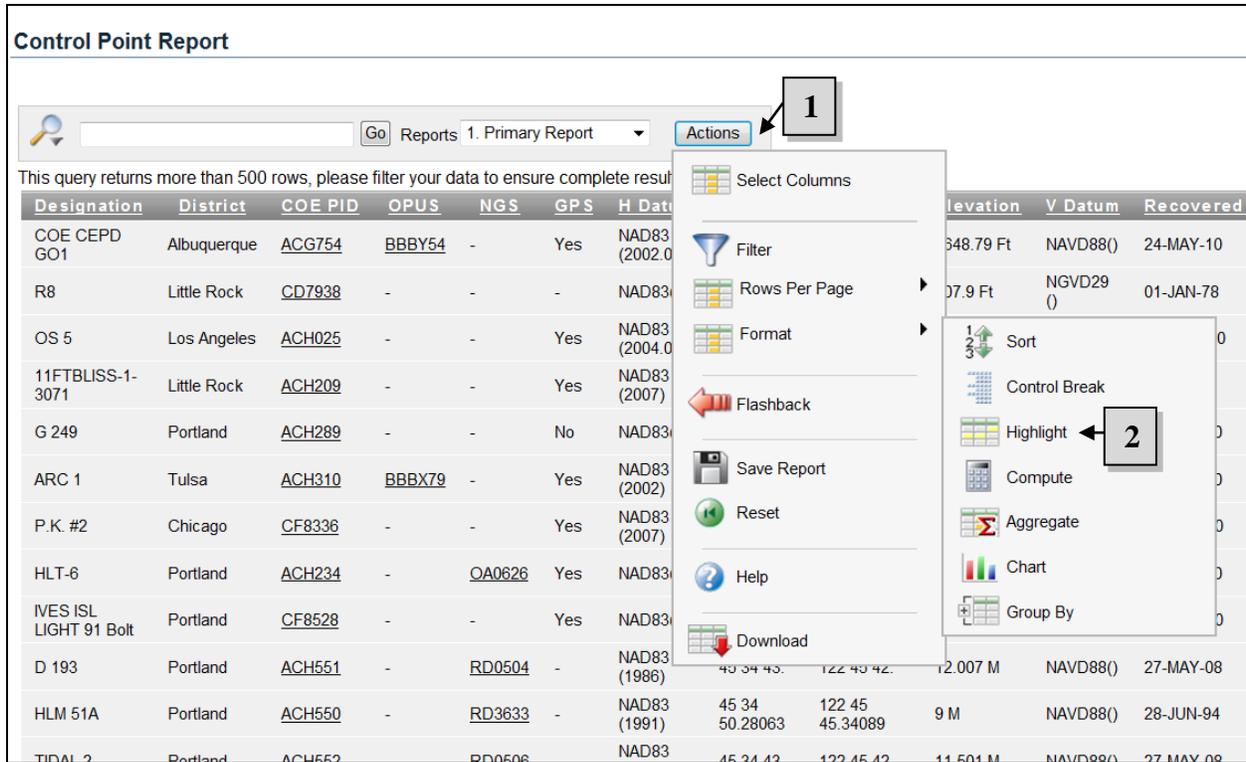


Figure 9.8-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Format- Highlight. A new region will display as shown below in **Figure 9.8-2: Actions Menu-Highlight.**

Control Point Report

Go Reports 1. Primary Report Actions

Highlight

Name

Sequence 10

Enabled Yes

Highlight Type Row

Background Color [yellow] [green] [blue] [orange] [red]

Text Color [yellow] [green] [blue] [orange] [red]

Highlight Condition

Column Operator Expression

Designation =

Cancel Apply

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Longitude
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.00)	35 27 48.97194	106 1 30.29

Figure 9.8-2: Actions Menu – Highlight

3. Enter Name
4. Enter a number in the “Sequence” box. A sequence identifies the sequence in which the rules will be evaluated.
5. Select Enabled. This identifies if the rule is enabled or disabled.
6. Select the Highlight Type. This will identify whether the Row or Cell should be highlighted.
7. You can apply colors to certain data set by clicking on the color links beside the background color box and text color box. If you do not like the color selections given by the links, click on the multicolor box. A separate window will display with more color options.
8. By selecting the Column, Operator, and Expression in the Highlighted Condition section you will define your filter condition.
9. Click the “Apply” button. The fields you selected will be highlighted. (You also have the choice of clicking the “Cancel” button to reset.)

9.9 Compute

The “Compute” option in the actions menu allows you to add computed columns to a report. These can be mathematical computations or standard Oracle functions applied to existing columns.

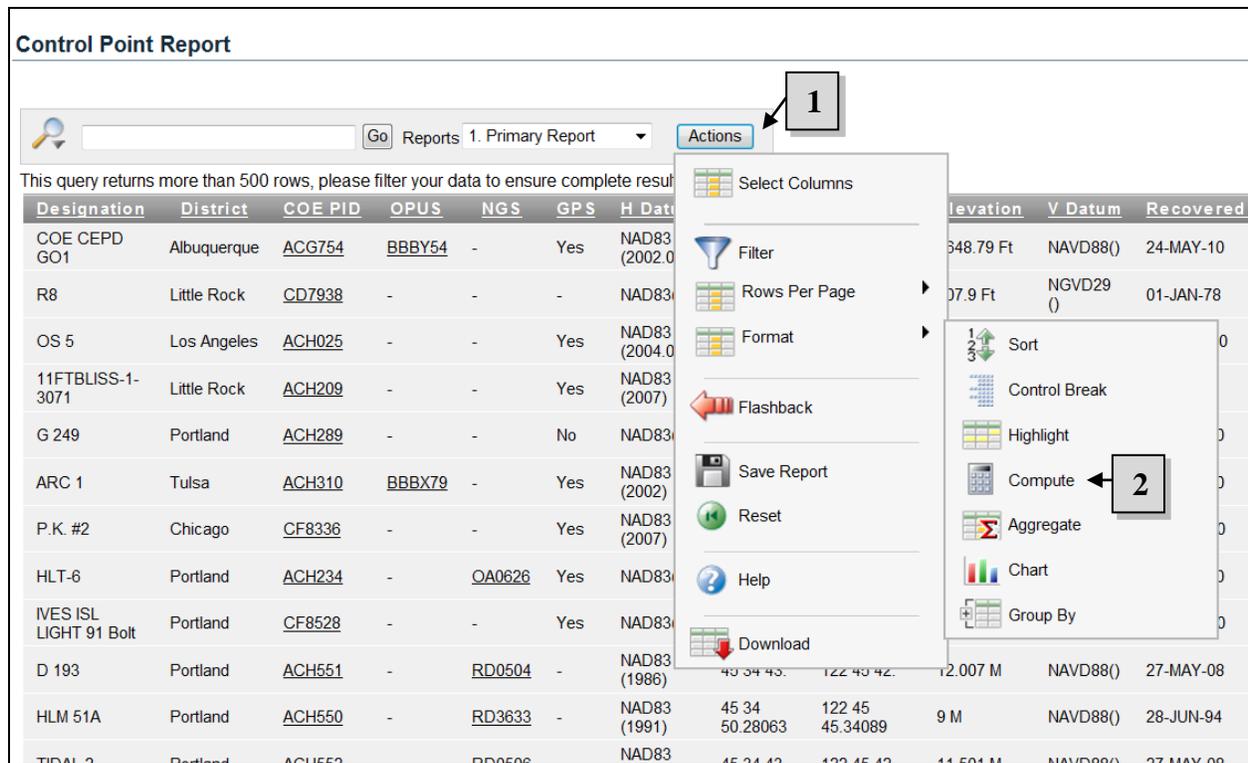


Figure 9.9-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Format - Compute. A new region will display as shown below in **Figure 9.9-2: Actions Menu-Compute.**

Control Point Report

Go Reports 1. Primary Report Actions

Compute

Computation - New Computation -

Column Heading Format Mask

Computation Expression

Columns	Keypad	Function
A. Designation	() '	ABS
B. COE PID	7 8 9 -	ADD_MONTHS
C. PID	4 5 6 +	CASE
D. District	1 2 3 *	CEIL
E. Archive	0 . /	CHR
G. Latitude	space ,	COALESCE
H. Longitude		COS
K. V Datum		CURRENT_DATE

Create a computation using column aliases.
Examples:
1. (B+C)*100
2. INITCAP(B)||', '||INITCAP(C)
3. CASE WHEN A = 10 THEN B + C ELSE B END

Cancel Apply

Figure 9.9-2: Actions Menu – Compute

3. Click on the drop down arrow in the Computation box to select a Computation.
4. Fill in the Column Heading box.
5. Select a Format Mask (to define how the data is to be displayed).
6. Fill in Computation box. Within the computation columns are referenced using the aliases displayed. Clicking on the column name or alias will write them into the Computation. Please note the keypad is displayed as a shortcut. These are commonly used keys.
7. Click the “Apply” button (You also have the choice of clicking the “Cancel” button to rest).

9.10 Aggregate

The “Aggregate” option in the actions menu allows you to aggregate columns in the report. Aggregates are mathematical computations performed against a column.

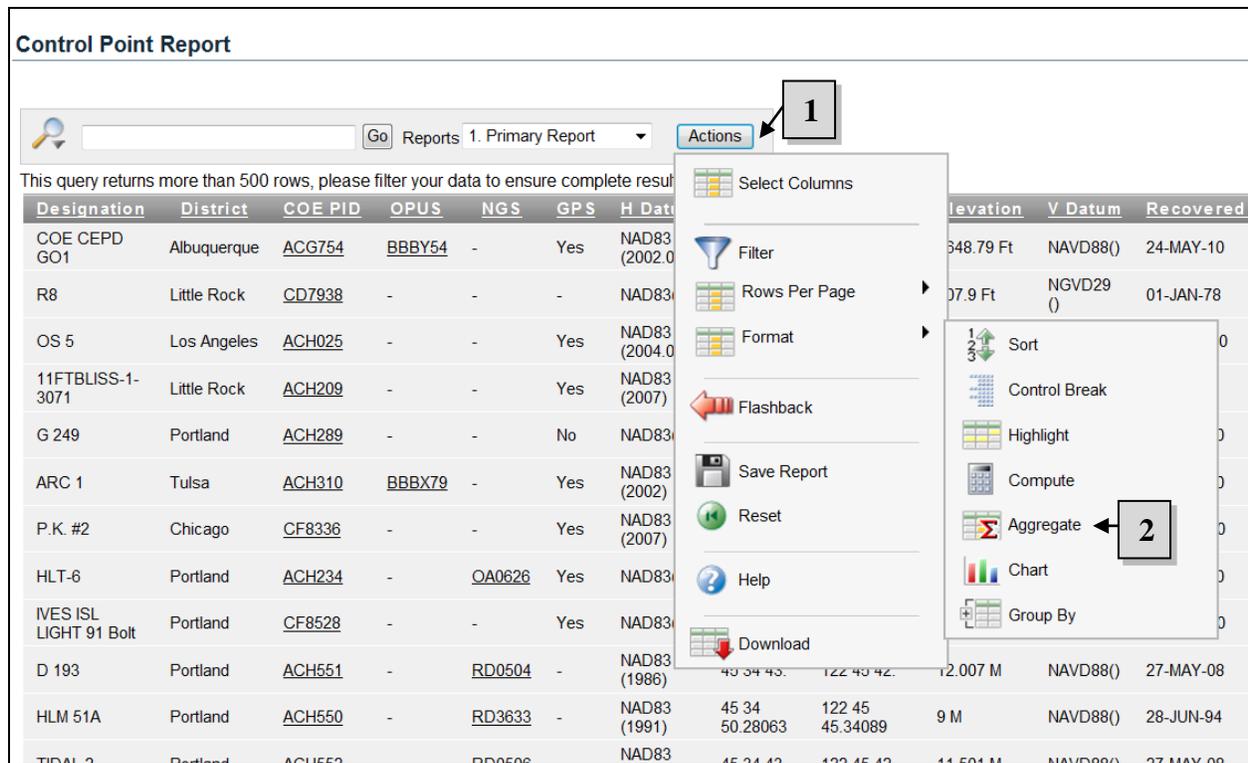


Figure 9.10-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Format - Aggregate. A new region will display as shown below in **Figure 9.10-2: Actions Menu- Aggregate.**

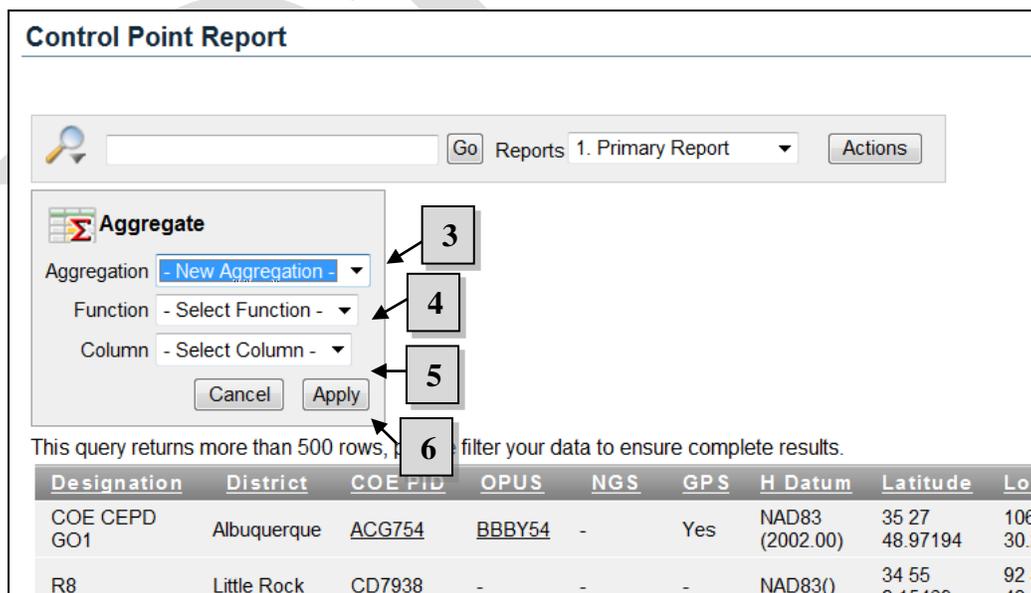


Figure 9.10-2: Actions Menu – Aggregate

3. Click the drop down arrow in Aggregations box to select an Aggregation.
4. Click the drop down arrow in Function box to select a Function to be performed.

5. Click the drop down arrow in the Column box to select a Column to apply the mathematical function to. Only numeric columns will be displayed.
6. Click the “Apply” button (You also have the choice of clicking the “Cancel” button to reset).

9.11 Save Report

The “Save Report” option in the actions menu allows you to save custom report settings. It also provides you with the option of making your custom report available to the public.

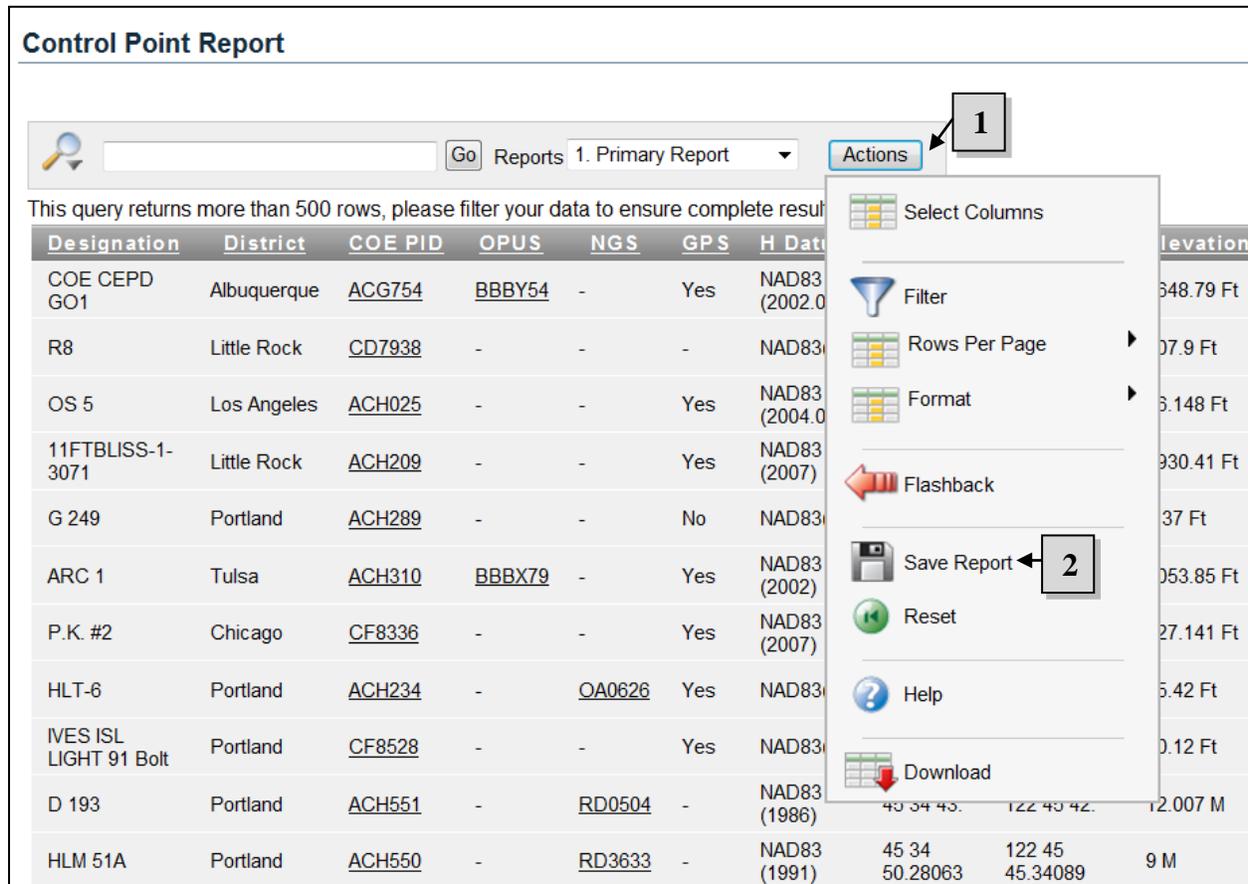


Figure 9.11-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Save Report. A new region will display as shown in **Figure 9.11-2: Actions Menu- Save Report.**

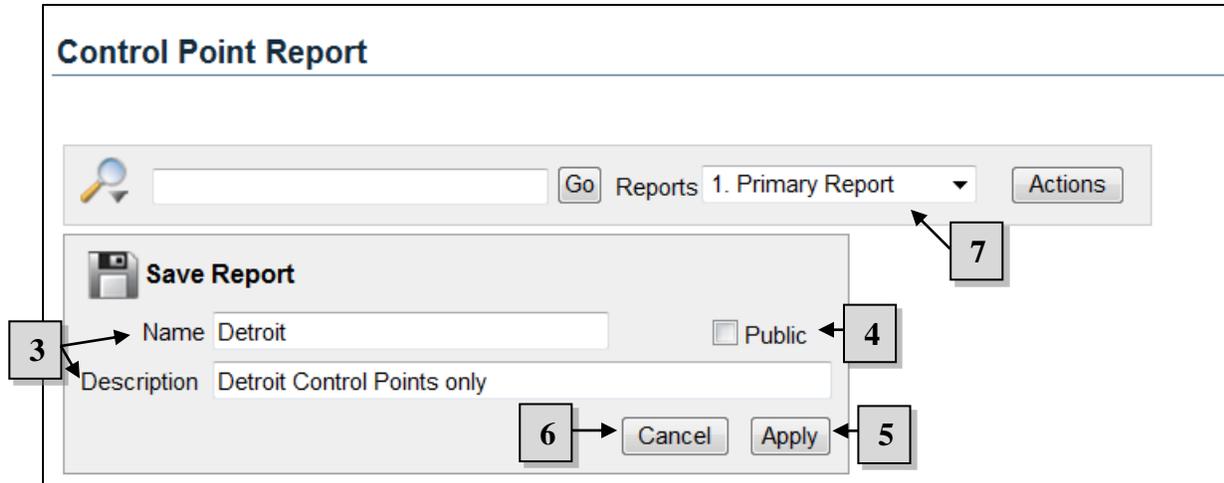


Figure 9.11-2: Actions Menu – Save Report

3. Enter a Report Name and Description.
4. Click to checkbox if you wish to make the report public.
5. Click the “Apply” button to save the report.
6. Click the “Cancel” button if you do not want to save the report.
7. After the report is saved, it will be available as a Reports dropdown.

9.12 Reset

The “Reset” option in the actions menu allows you to reset the report back to the default settings and remove any customizations that were added.

Control Point Report

Search: [] Go Reports 1. Primary Report Actions

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Longitude	Elevation
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.0)			348.79 Ft
R8	Little Rock	CD7938	-	-	-	NAD83			707.9 Ft
OS 5	Los Angeles	ACH025	-	-	Yes	NAD83 (2004.0)			3,148 Ft
11FTBLISS-1-3071	Little Rock	ACH209	-	-	Yes	NAD83 (2007)			330.41 Ft
G 249	Portland	ACH289	-	-	No	NAD83			37 Ft
ARC 1	Tulsa	ACH310	BBBX79	-	Yes	NAD83 (2002)			1,053.85 Ft
P.K. #2	Chicago	CF8336	-	-	Yes	NAD83 (2007)			27.141 Ft
HLT-6	Portland	ACH234	-	OA0626	Yes	NAD83			5.42 Ft
IVES ISL LIGHT 91 Bolt	Portland	CF8528	-	-	Yes	NAD83			10.12 Ft
D 193	Portland	ACH551	-	RD0504	-	NAD83 (1986)	43 34 43.	122 43 42.	12,007 M
HLM 51A	Portland	ACH550	-	RD3633	-	NAD83 (1991)	45 34 50.28063	122 45 45.34089	9 M

Figure 9.12-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Reset. A new region will display as shown in **Figure 9.12-2: Actions Menu- Reset.**

Control Point Report

Search: [] Go Reports 1. Primary Report Actions

Reset
Restore report to the default settings.

Cancel Apply

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude
COE CEPD	Albuquerque	ACG754	BBBY54	-	Yes	NAD83	35 27

Figure 9.12-2: Actions Menu – Reset

3. Click the “Apply” button to reset report to the default settings.
4. Click the “Cancel” button if you do not want to reset report.

9.13 Help

The “Help” option in the actions menu provides a detailed explanation on the Interactive Reporting functions.

Control Point Report

Search: Go Reports 1. Primary Report **Actions** 1

This query returns more than 500 rows, please filter your data to ensure complete results

Designation	District	COE PID	OPUS	NGS	GPS	H Date	levation
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.0)	348.79 Ft
R8	Little Rock	CD7938	-	-	-	NAD83	7.9 Ft
OS 5	Los Angeles	ACH025	-	-	Yes	NAD83 (2004.0)	3.148 Ft
11FTBLISS-1-3071	Little Rock	ACH209	-	-	Yes	NAD83 (2007)	30.41 Ft
G 249	Portland	ACH289	-	-	No	NAD83	37 Ft
ARC 1	Tulsa	ACH310	BBBX79	-	Yes	NAD83 (2002)	53.85 Ft
P.K. #2	Chicago	CF8336	-	-	Yes	NAD83 (2007)	27.141 Ft
HLT-6	Portland	ACH234	-	OA0626	Yes	NAD83	5.42 Ft
IVES ISL LIGHT 91 Bolt	Portland	CF8528	-	-	Yes	NAD83	0.12 Ft
D 193	Portland	ACH551	-	RD0504	-	NAD83 (1986)	2.007 M
HLM 51A	Portland	ACH550	-	RD3633	-	NAD83 (1991)	45 34 50.28063 122 45 45.34089 9 M

Select Columns

Filter

Rows Per Page

Format

Flashback

Save Report

Reset

Help 2

Download

Figure 9.13-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Help. A new region will display as shown in Figure 9.13-2: Actions Menu- Help.

Interactive Report Help

Interactive report regions enable end users to customize reports. Users can alter the layout of report data by selecting columns, applying filters, highlighting, and sorting. Users can also define breaks, aggregations, charts, group bys, and add their own computations. Users can also set up a subscription so that an HTML version of the report will be emailed to them at a designated interval. Users can create multiple variations of a report and save them as named reports, for either public or private viewing.

An interactive report can be customized using the Search bar, Actions menu, or Column Heading menu. To learn more, see "Customizing Interactive Reports" in online Help.

Search Bar

At the top of each report page is a search region. This region (or Search bar) provides the following features:

- **Select columns icon** enables you to identify which column to search (or all).
- **Text area** enables you to enter case insensitive search criteria (wild card characters are implied).
- **Go button** executes the search.
- **Reports** displays alternate default and saved private or public reports.
- **Actions Menu** enables you to customize a report. See the sections that follow.

Actions Menu

The Actions menu appears to the right of the Go button on the Search bar. Use this menu to customize an interactive report.

Select Columns

Used to modify the columns displayed. The columns on the right display. The columns on the left are hidden. You can reorder the displayed columns using the arrows on the far right. Computed columns are prefixed with **.

Filter

Focuses the report by adding or modifying the `WHERE` clause on the query. You can filter on a column or by row.

If you filter by column, select a column (it does not need to be one that displays), select a standard Oracle operator (`=`, `!=`, `not in`, `between`), and enter an expression to compare against. Expressions are case sensitive. Use `%` as a wild card (for example, `STATE_NAME like A%`).

If you filter by row, you can create complex `WHERE` clauses using column aliases and any Oracle functions or operators (for example, `G = 'VA'` or `G = 'CT'`, where `G` is the alias for `CUSTOMER_STATE`).

Rows Per Page

Figure 9.13-2: Actions Menu - Help

9.14 Download

The Download option in the actions menu allows you to download the current result set of the report as an Excel CSV file, in HTML format, as well as providing you the option of sending the report within the body of an email.

Control Point Report

Reports 1. Primary Report

This query returns more than 500 rows, please filter your data to ensure complete results

Designation	District	COE PID	OPUS	NGS	GPS	H Data	levation
COE CEPD GO1	Albuquerque	ACG754	BBBY54	-	Yes	NAD83 (2002.0)	348.79 Ft
R8	Little Rock	CD7938	-	-	-	NAD83	07.9 Ft
OS 5	Los Angeles	ACH025	-	-	Yes	NAD83 (2004.0)	3.148 Ft
11FTBLISS-1-3071	Little Rock	ACH209	-	-	Yes	NAD83 (2007)	330.41 Ft
G 249	Portland	ACH289	-	-	No	NAD83	37 Ft
ARC 1	Tulsa	ACH310	BBBX79	-	Yes	NAD83 (2002)	053.85 Ft
P.K. #2	Chicago	CF8336	-	-	Yes	NAD83 (2007)	27.141 Ft
HLT-6	Portland	ACH234	-	OA0626	Yes	NAD83	5.42 Ft
IVES ISL LIGHT 91 Bolt	Portland	CF8528	-	-	Yes	NAD83	0.12 Ft
D 193	Portland	ACH551	-	RD0504	-	NAD83 (1986)	12.007 M
HLM 51A	Portland	ACH550	-	RD3633	-	NAD83 (1991)	9 M

1

-
-
-
-
-
-
-
-
- 2

Figure 9.14-1: Advanced Search Options

1. Click on the “Actions” button.
2. Click on Download. A new region will display as shown in **Figure 9.14-2: Actions Menu- Download.**

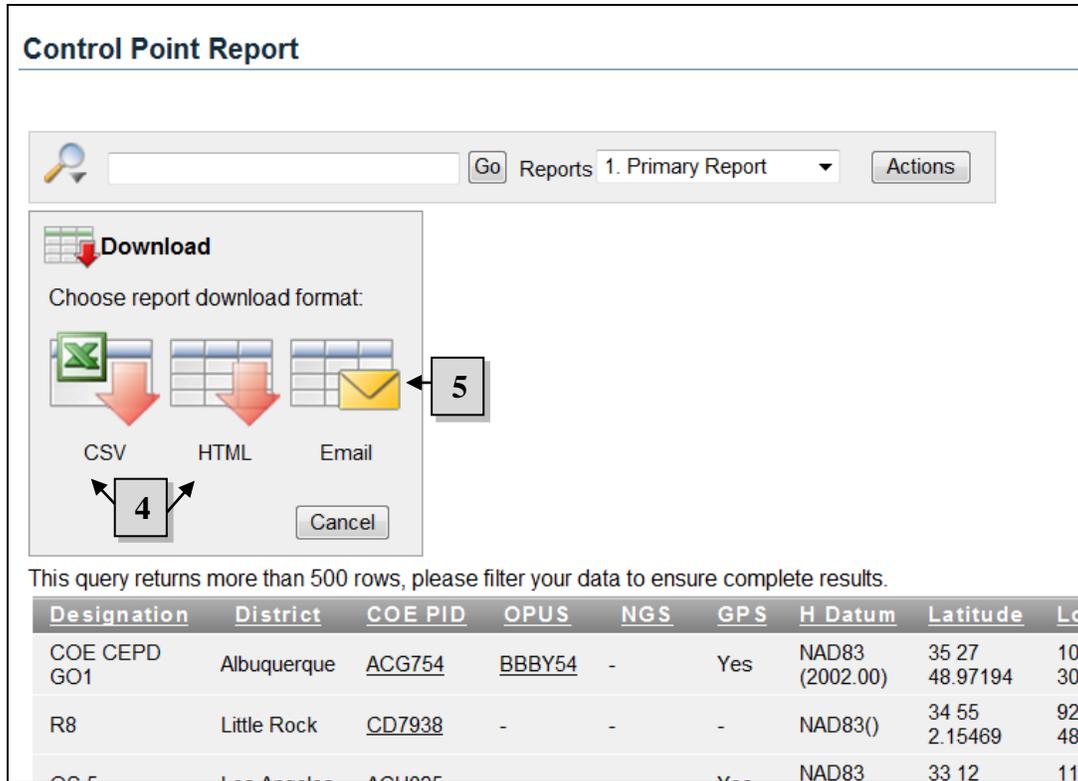


Figure 9.14-2: Actions Menu - Download

1. Click the respective CSV or HTML icons, to download the report to Excel CSV or HTML. You will be given the option to open or save the file. Choose to open the file to store in a temporary location on your hard drive, or save it to specify the location of the file.
2. To email the contents of the report, click the Email icon. You will be given the option to specify the desired recipients (To, Cc, Bcc), modify the subject (defaulted to name of Report) or body of the email. Click “Send” to send email.

9.15 Using Interactive Columns

In addition to creating an interactive report within a Standard Report results list, an interactive report can be created within a column of the results list.

Control Point Report

Go Reports 1. Primary Report Actions

This query returns more than 500 rows, please filter your data to ensure complete results.

Designation	District	COE PID	OPUS	NGS	GPS	H Datum	Latitude	Longitude
CG754		BBBY54	-	-	Yes	NAD83 (2002.00)	35 27 48.97194	106 12 30.29139
D7938			-	-	-	NAD83()	34 55 2.15469	92 8 48.03505
1002-25 HENRY IVES ISL LIGHT 91 Bolt		CH025	-	-	Yes	NAD83 (2004.0)	33 12 17.82332	117 23 36.77496
The Dalles Boat Basin Light 2 Bolt VIENTO DAY MARKER 28		CH209	-	-	Yes	NAD83 (2007)	31 49 37.54174	106 22 47.70812
0+00 Kenner 00-39-05 00-39-07 01 46 01 05-03-01 07124410 RM-1 07130500 RM-2		CH289	-	-	No	NAD83()	43° 21' 34.72354"	124° 09' 34.21504"
		CH310	BBBX79	-	Yes	NAD83 (2002)	35 38 54.90875	097 21 45.92031
		F8336	-	-	Yes	NAD83 (2007)	41 55 13.18712	87 49 57.45901
		CH234	-	OA0626	Yes	NAD83()	43° 24' 18.77252"	124° 13' 19.36213"
IVES ISL LIGHT 91 Bolt	Portland	CF8528	-	-	Yes	NAD83()	45 37 24.393	121 59 10.911

Figure 9.15-1: Advanced Search Options

The basic functions of interactive reporting within a column include the following:

1. Column Header: Allows you to click the column header within a results list to display the interactive reporting capabilities.
2. Sort Ascending/Descending: Allows you to sort column results list in ascending/descending order.
3. Hide Column: Allows you to hide column from results list.
4. Control Break: Allows you to organize the data by grouping results into sections.
5. Search Field: Allows you to enter a word to search for within the column results list.
6. Column Results: Allows you to select an individual column result to display.

10. My Account

By clicking on the “My Account” tab, you will be taken to the My Account screen. Here you can manage and view your account information.

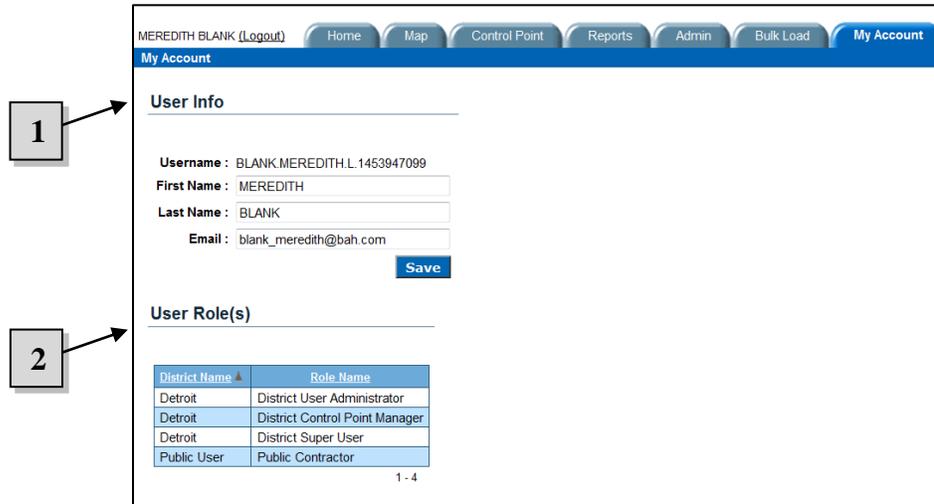


Figure 9.151: My Account Page – CAC User

1. Edit your name (first and last) and email address.
2. View the user role(s) and districts to which you have been assigned.

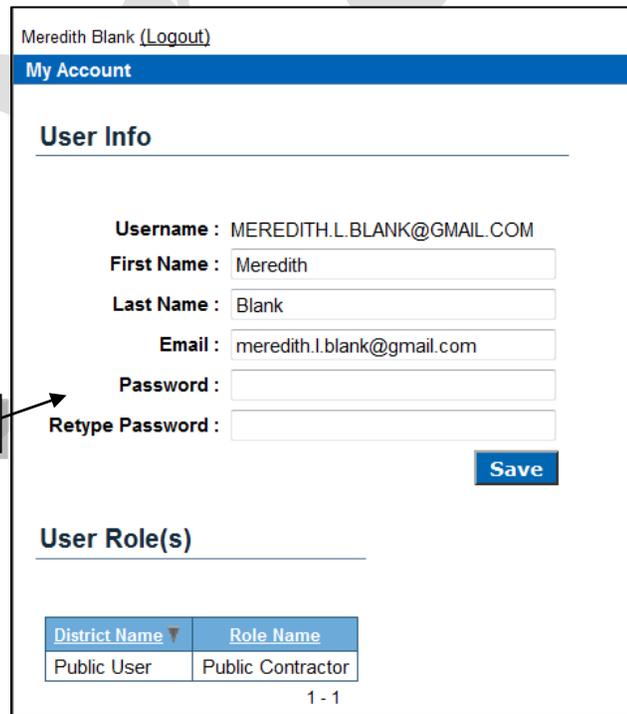


Figure 9.152: My Account Page – Public Contractor

3. If you are a password authenticated user, you are able to update your password information here.

11. Admin

A user with user administration privileges has the ability to search for users, create user accounts, assign roles, and edit user information within assigned districts. You are able to search and filter the list of users using the same functionality as outlined in Reports (refer to Section 9).

The screenshot shows the 'Admin' page in U-SMART. At the top, there are navigation tabs: Home, Map, Control Point, Reports, Admin (selected), Bulk Load, and My Account. Below the tabs is a search bar with 'Search User' and 'Create User' options. The main content area is titled 'User Accounts' and contains a 'Create Contractor Account' button. Below this is a search input field with 'Go' and 'Actions' buttons. A table lists user accounts with columns: User ID, User Name, First Name, Last Name, Email, Active, User Type, Role Assigned, Role District, and Created Date. The table contains 20 rows of user data. At the bottom right of the screenshot, it says '1 - 20 of 213'.

User ID	User Name	First Name	Last Name	Email	Active	User Type	Role Assigned	Role District	Created Date
Edit	PETERDRYAN@YAHOO.COM	Peter	Ryan	peterdryan@yahoo.com	Yes	Public User	Yes	Headquarters USACE	16-JUL-12
Edit	BLANK MEREDITH L	MEREDITH	BLANK	blank_meredith@bah.com	Yes	CAC	Yes	Detroit	12-JUL-12
Edit	RYAN PETER DAVID	PETER	RYAN	ryan_peter@bah.com	Yes	CAC	Yes	Headquarters USACE	12-JUL-12
Edit	(NULL)	-	-	-	Yes	CAC	-	-	12-JUL-12
Edit	BLANK MEREDITH L	MEREDITH	BLANK	blank_meredith@bah.com	Yes	CAC	Yes	Headquarters USACE	12-JUL-12
Edit	HALISKY MERLAND GARNER	MERLAND	HALISKY	merland.g.halisky@usace.army.mil	Yes	CAC	Yes	Headquarters USACE	11-JUL-12
Edit	VCCHOPRA@HOTMAIL.COM	Sandy	Chopra	vcchopra@hotmail.com	Yes	Public User	Yes	Headquarters USACE	06-DEC-11
Edit	WILLIAMSON GEORGE F III	GEORGE	WILLIAMSON	george.f.williamson@usace.army.mil	Yes	CAC	-	-	30-SEP-11
Edit	WALLER TERRY N	TERRY	WALLER	Terry.N.Waller@usace.army.mil	Yes	CAC	-	-	30-SEP-11
Edit	RODINO ANTHONY III	ANTHONY	RODINO	anthony.rodino@usace.army.mil	Yes	CAC	-	-	29-SEP-11
Edit	JMULLANE@USGS.COM	John	Mullane	JMULLANE@usgs.com	Yes	Public User	-	-	27-SEP-11
Edit	SWALLOW JEFFREY A	JEFFREY	SWALLOW	-	Yes	CAC	-	-	26-SEP-11
Edit	MIKE.JOHNSTON@JACOBS.COM	Mike	Johnston	mike.johnston@jacobs.com	Yes	Public User	Yes	Headquarters USACE	23-SEP-11
Edit	ALLISON JAMES R	JAMES	ALLISON	James.R.Allison@usace.army.mil	Yes	CAC	-	-	23-SEP-11
Edit	GIBSON MARK ALAN	MARK	GIBSON	mark.a.gibson@usace.army.mil	Yes	CAC	-	-	23-SEP-11
Edit	DAN.HAVNER@JACOBS.COM	Dan	Havner	Dan.Havner@Jacobs.com	Yes	Public User	Yes	Headquarters USACE	23-SEP-11
Edit	ROBERT.W.MACGOVERN@USACE.ARMY.MIL	Robert	Mac Govern	Robert.W.Macgovern@usace.army.mil	Yes	Public User	-	-	22-SEP-11
Edit	STEPHEN.A.JOHNSTON@USACE.ARMY.MIL	Stephen	Johnston	Stephen.A.Johnston@usace.army.mil	Yes	Public User	-	-	22-SEP-11
Edit	TCSARGEN@USGS.GOV	Timothy	Sargent	tc.sargen@usgs.gov	Yes	Public User	Yes	-	22-SEP-11
Edit	RICHARD.J.ORLOWSKI@USACE.ARMY.MIL	Richard	Orlowski	Richard.J.Orlowski@usace.army.mil	Yes	Public User	-	-	22-SEP-11

Figure 9.151: Admin Page

11.1 Create Contractor Account

Non-CAC users who are to submit Control Point data need to be assigned a Public Contractor role by a User Administrator.

This is a close-up of the 'Create Contractor Account' button on the Admin page. A callout box with the number '1' points to the button. The button is blue with white text. Below the button is a search input field with 'Go' and 'Actions' buttons. The top of the screenshot shows the 'User Accounts' section header and the top of the user table.

Figure 11.1-1: Admin Page – Create Contractor Account

1. Click “Create Contractor Account” on the Admin tab.

Figure 11.1-2: Create Contractor Account

1. Enter an email address and first and last name for the new contractor account.
2. Click “Create Account” to create the new account. ***Note: At this time, a Password Reset Notification will be sent to the email address entered and will provide the new user with login information.*

Figure 11.1-3: Assign Contractor Role

3. You will be directed to the User Information page for the new user and will be able to assign an applicable user role using checkboxes.
4. Click “Save Roles” to update user’s role.

11.2 User Information

U-SMART provides User Administrators with the ability to manage a user’s account, including the ability to assign/remove roles and activate/deactivate a user’s account.

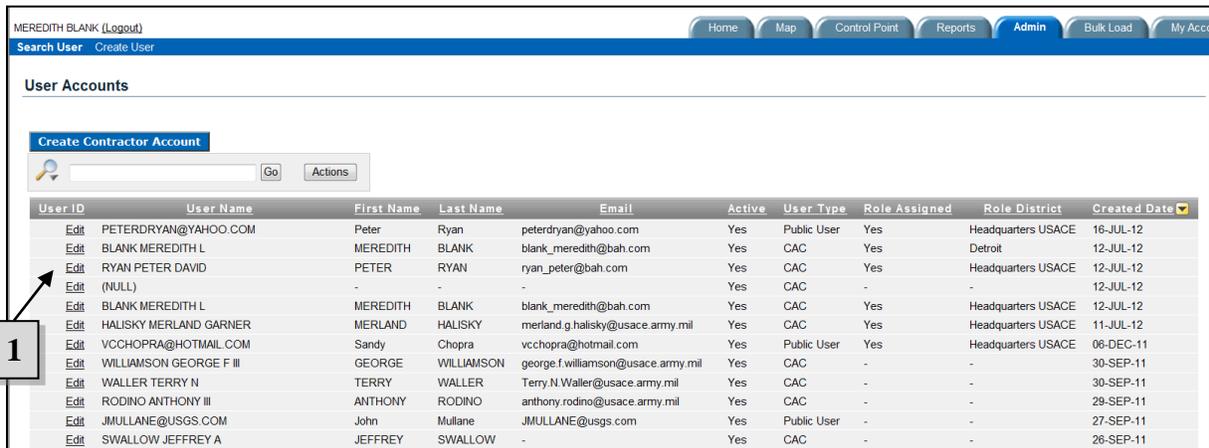


Figure 11.2-1: Admin Page

1. Click “Edit” next to the user name of the user you would like to manage.

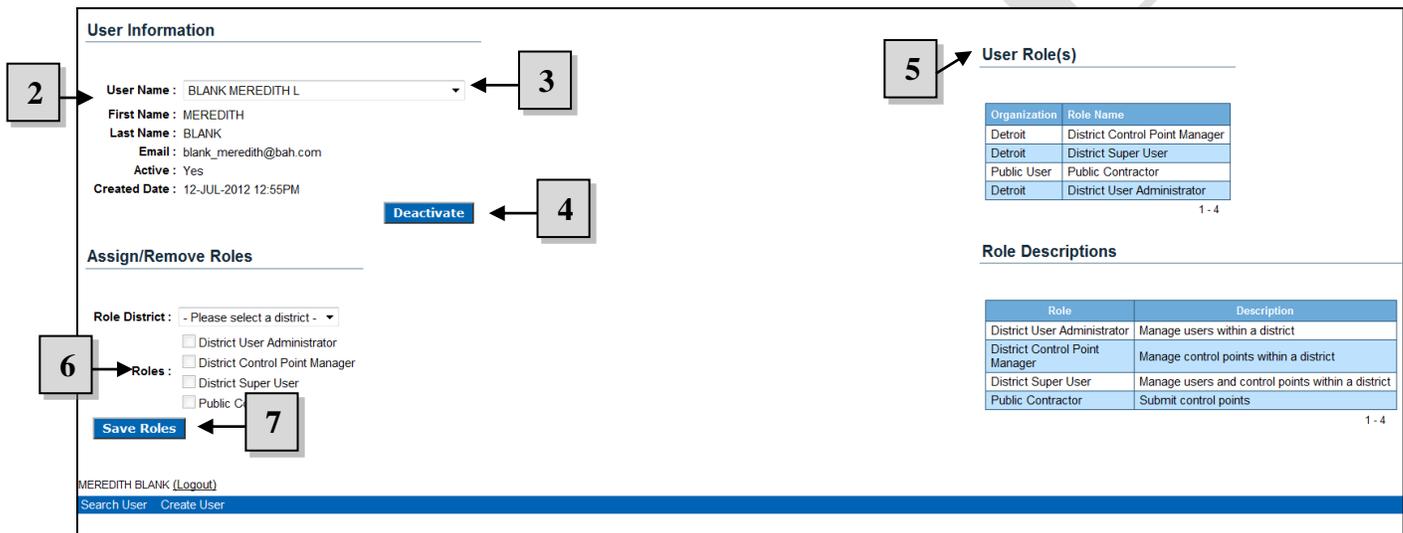


Figure 11.2-2: User Information

- The User Information page display basic user information, including the user’s name, email, active status, and date that the user account was created.
- You are able to select to view user information for a different user through the “User Name” dropdown.
- Click “Deactivate” to deactivate the user’s account. You will be able to re-activate a deactivated account.
- All role(s) currently assigned to the selected user will display in the User Role(s) table.
- Click (or unclick) applicable checkboxes to assign (or remove roles) for the select user.
- Click “Save Roles” to save updates.

Appendix A – List of Acronyms

CAC	Common Access Card
COE PID	U-SMART Control Point Identifier
CP	Control Point
CPN	Corps Project Notebook
LPCP	Local Project Control Point
NGS	National Geodetic Society
OPUS	On-line Positioning System
PCDB	Project Control Database, former name of U-SMART
PPCP	Primary Project Control Point
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
U-SMART	USACE Survey Marker Archival and Retrieval Tool

Appendix B – Field Definitions

Field	Definition
Designation*	Station Name
Project	CPN Project or Project Alias (non-CPN project) associated to Control Point
Stamping	Stamping on Control Point setting/monument
NGS PID	NGS Control Point Identification Number, e.g. AA9999
OPUS PID	OPUS Control Point Identification Number
COE PID*	U-SMART Unique CP Identification Number
Legacy CP ID	Legacy System's Control Point Identification Number
State	State
County	County or Parish
District*	District
Nearest Town	Nearest Town
USGS Quad	15' USGS Quadrangle Name
T.R.S.	Township, Range, and Section
Nearest Hwy/Mi	Nearest Highway and Mile Marker (ex US Hwy 66 / Mile 134)
Date Recovered***	Date Monument Recovered; will default to January 1, 1901 if not entered.
By	User who Recovered (Initials)
Condition/Stability	Condition and Stability of Mark, e.g. 'Good', 'Not recovered'
Setting/Monument Type	Setting (i.e. concrete post with brass cap)
Owner	Owner of Mark
GPS Suitable	Yes / No
Obstructions	Obstructions located N/E/S/W of marker
Magnetic	Yes / No
Horizontal Datum*	e.g. NAD83, NAD27
Horizontal Datum Epoch	e.g. 83/86, 2002, NSRS 2007
Latitude*	e.g. 29 08.4786 N
Longitude*	e.g. 090 23.769 W
Local Accuracy**	1-mm to 10-m+
NSRS Accuracy**	2" to 10-m+
Survey/Computation Method	Method of Survey, e.g. OPUS-DB
Date Observed***	Date Datum Observed
Vertical Datum	e.g. NAVD88, NGVD29
Elevation Height	Orthometric Height (number)
Ellip Height	Ellipsoid Height (number)
Access	Access Issues such as POC and phone numbers
Gage ID	Gage Identification Number
Gage Elevation	Elevation of mark relative to the selected datum
Gage Datum	e.g. LMSL, IGLD85, MLLW, MHW, Pool
Gage Epoch	Datum's Period of Record (NTDE)

*Required Fields

Refer to **Section 6.2.2.4 and **Appendix C** for more guidance on how to enter these values.

***Must be a valid date in the past.

Appendix C – Accuracy Standards

Table 2.1 -- Accuracy Standards
Horizontal, Ellipsoid Height, and Orthometric Height

Accuracy 95-Percent
Classification Confidence

Less Than or
Equal to:
1-Millimeter 0.001 meters
2-Millimeter 0.002 "
5-Millimeter 0.005 "
1-Centimeter 0.010 "
2-Centimeter 0.020 "
5-Centimeter 0.050 "
1-Decimeter 0.100 "
2-Decimeter 0.200 "
5-Decimeter 0.500 "
1-Meter 1.000 "
2-Meter 2.000 "
5-Meter 5.000 "
10-Meter 10.000 "