TOPCON

Sitelink3D v2

Software

User's Manual

Sitelink3D v2 Software User's Manual

Part Number 1029556-01

Rev A

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Preface

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Manual Conventions

This manual uses the following conventions:

Convention	Description	Example
Bold	Menu, or drop-down menu selection	**File > Exit** (Click the **File** menu and click **Exit**)
	Name of a dialog box or screen	From the **Connection** screen...
	Button or key commands	Click **Finish**.
`Mono`	User supplied text or variable	Type `guest`, and click **Enter.**
Italic	Reference to another manual or help document	Refer to the *Topcon Reference Manual.*

NOTE Further information to note about system configuration, maintenance, or setup.

NOTICE Supplementary information that can have an adverse affect on system operation, system performance, data integrity, or measurements.

CAUTION Notification that an action has the potential to result in minor personal injury, system damage, loss of data, or loss of warranty.

WARNING Notification that an action has the potential to result in personal injury or property damage.

DANGER Notification that an action has the potential to result in severe personal injury or death.

Introduction

Overview

Welcome to the Topcon Sitelink3D v2 User's Manual. This document describes the use of the Sitelink3D v2 web portal found at https://sitelink.topcon.com. Readers are assumed to have a base level of construction domain knowledge.

What's New in Sitelink3D v2?

Sitelink3D v2 is an evolution of previous versions. Having been entirely redesigned, existing Sitelink3D v2 Users will notice some new features and concepts. This section describes some of the major changes in the latest release and provides insight into the concepts involved.

Better Client Integration

The modern architecture that Sitelink3D v2 has been built on allows much better integration with client applications including:

- The Haul Truck mobile application for Android and iOS devices
- 3DMC v13 and above
- RDS LoadMaster.

Refer to the appropriate User's manual for further information.

Simplified Machine To Site Connection

The once complex process of registering a machine for use on previous versions of Sitelink3D has been re-engineered to allow clients to connect simply with a single screen.

No OpenVPN Requirement

Previous versions of Sitelink3D required a specific OpenVPN configuration for each Organization. All Sitelink3D v2 clients now connect to a single secure endpoint irrespective of the Site or Organization.

Site Discovery

One area that has been significantly improved is the process by which clients can connect to and start working on a Sitelink3D v2 Site.

Site Discovery is a new feature that allows clients to browse and connect to Sites in their vicinity using GPS enabled equipment such as a mobile phone. This replaces the previous process of connecting to specific Sites using OpenVPN with a dedicated IP address and port.

A Site Discovery enabled client application pushes notifications to Users when they enter what is known as a discoverable Region. This process allows client applications to ask Users whether they wish to join Sites. This approach eliminates any need for employees, contractors or Site visitors to configure software or know anything about Sites prior to their arrival on location.

With Site Discovery, a client User only needs to physically be within a discoverable Region and their client application will guide them through the process of Site connection, presenting contact information where available. For example, a haul truck operator will be issued with a popup on their mobile device informing them of a Site contact name and phone number as part of the discovery process. See "Enabling Client Connectivity" on page 2-12 for more information.

The power of Site Discovery becomes evident when considering cases where multiple client Users are working at the same physical location. Each Site manager can configure their own overlapping discoverable Regions and the client User can select the Site relevant to them using the options provided by the client application.

Event Driven Real Time Performance

Previous versions of Sitelink3D required client applications to poll for machine positions and other information. This introduced delays in the distribution of Site information. Data is now disseminated using event notifications meaning that Site information is now provided in real time.

Fine Grained Authorization

Previous versions of Sitelink3D provided three course levels of access for the User. These accommodated Remote Support features, basic Sitelink3D features and enterprise Sitelink3D features.

In contrast, Sitelink3D v2 implements a granular authorization model. This allows Administrator Users to configure and refine the level of User access that best suits their needs. See "Controlling User Access With The User Manager" on page 3-3 for more information.

Site Management

Overview

Site management is fundamental to Sitelink3D v2. This chapter describes the types of Sites available and how Sites are created and used.

Understanding Site Types

Site Types At A Glance

Sitelink3D v2 provides two types of Sites. Choosing a Site Type allows the User to favor either economy or functionality. The available Site Types are:

- Basic
- Advanced.

This section describes the functionality provided by each Site Type.

Basic Sites

Basic Sites are selected to minimize cost. To achieve this, Basic Sites do not provide some of the functionality available on advanced Sites. If such functionality is required at any point, the Site can be upgraded to an advanced Site. See “Upgrading A Basic Site To An Advanced Site” on page 2-3 for more information.

The functionality of a Basic Site includes the following:

- Pocket3D connectivity (v15 and above)
- 3DMC connectivity (v13 and above)
- Site Remote Support
- Organization Remote Support
- Real-time machine tracking
- Design file synchronization
- Working Set support.

Advanced Sites

Advanced Sites are selected to maximize functionality. To achieve this, advanced Sites cost more to run than Basic Sites. The functionality of an advanced Site includes everything referenced in “Basic Sites” and additionally includes:

- Haul Truck mobile application connectivity
- RDS client connectivity
- Live statistics

- Report generation
- As-built website mapping.

Displaying The Selected Site Type

The selected Site Type can be determined at any time using the following process:

1. Open the **Site Menu** as described in "Opening The Site Menu" on page 2-33
2. Click on **Site Type Manager** as sown in Figure 2-1 to open the **Site Type Manager** as shown in Figure 2-2.

The Site Type is indicated by the highlighted column. Basic Sites are marked with an orange highlight as shown in figure Figure 2-2. Advanced Sites are marked with a blue highlight as shown in figure Figure 2-3.

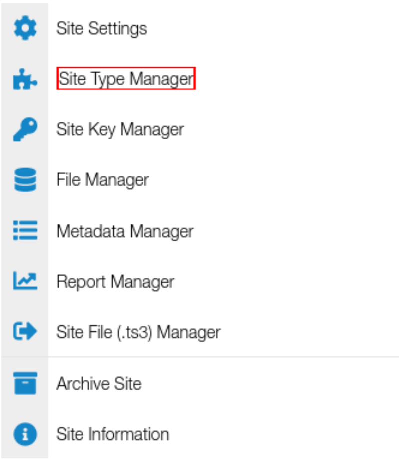

Figure 2-1: The Site Type Option in the Site Menu

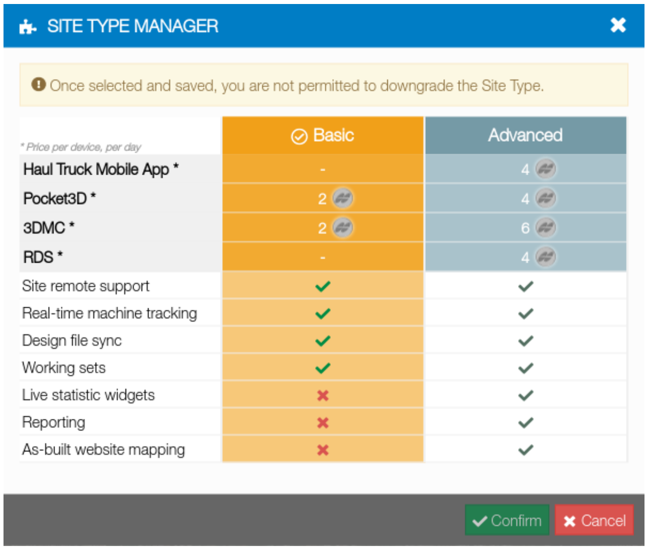

Figure 2-2: The Site Type Manager for a Basic Site

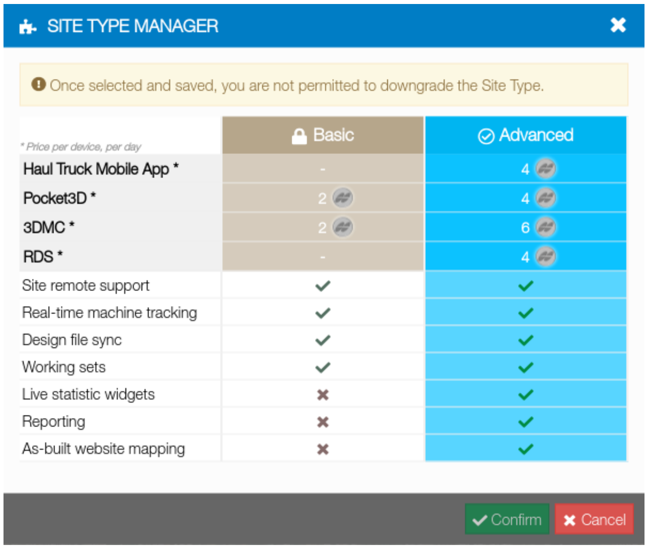

Figure 2-3: The Site Type Manager for an Advanced Site

Upgrading A Basic Site To An Advanced Site

Users may opt to upgrade a Basic Site to an advanced Site at any time. This is typically done to access the additional functionality described in "Advanced Sites" on page 2-1. The following process describes how to perform this upgrade:

1. Open the **Site Type Manager** as described in "Displaying The Selected Site Type" on page 2-2
2. Click on the **Advanced** column to highlight it and enable the **Confirm** button as shown in Figure 2-4.
3. Click the **Confirm** button
4. Click the **Confirm** button on the resulting confirmation dialog as shown in Figure 2-5 to complete the upgrade.

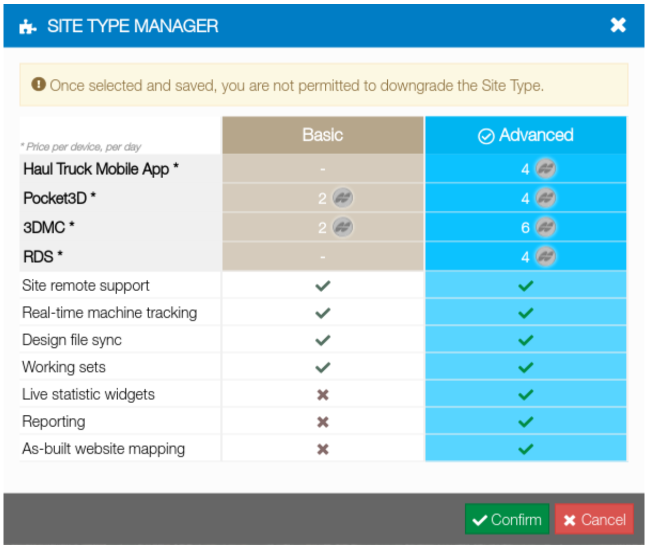

Figure 2-4: The Site Type Manager With Enabled Confirm Button When Upgrading a Basic Site

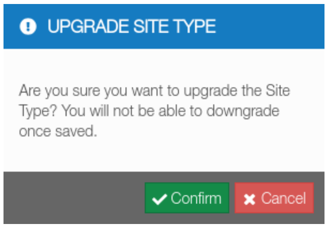

Figure 2-5: The Upgrade Site Type Confirmation Dialog

NOTE Care must be taken when upgrading Sites as downgrades are not permitted.

Creating A New Site

One of the first steps required to get working with Sitelink3D v2 is the creation of a new Site. Site managers will want to create Sites for many reasons, including to:

- Represent a physical job Site visually on the map
- Organize data and resources associated with that Site
- Monitor live work progress to ensure production is meeting expectations
- Run reports.

Sites are created using the **New Site Wizard**. This wizard consists of a number of steps as listed below. The wizard can be optionally finalized on all but the first step.

- General
- Site Type
- Localization
- Client Connectivity
- Complete.

NOTE Site creation is only available to Administrator Users. See “Understanding User Types” on page 3-1 for more information

Opening The New Site Wizard

The **New Site Wizard** can be accessed from two locations for convenience. These are:

- Via the **Sitelink Menu**
- Via the **Site Manager**.

Opening The New Site Wizard Via The Sitelink Menu

New Sites can be created via the **Sitelink Menu** as described by the following process:

1. Click on the **Sitelink Menu Selector** to show the **Sitelink Menu**

2. Click on **New Site** to open the **New Site Wizard** as shown in Figure 2-6

The **New Site Wizard** will open.

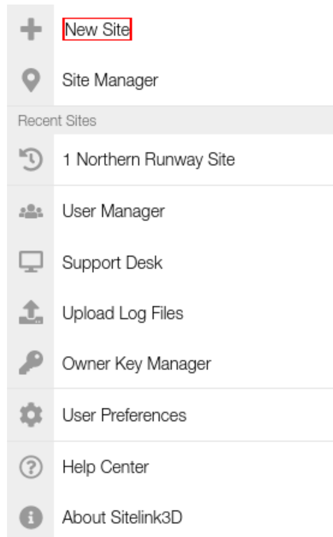

Figure 2-6: The New Site Option in the Sitelink Menu

Opening The New Site Wizard Via The Site Manager

New Sites can be created directly from the **Site Manager** as described by the following process:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16
2. Click the **New Site** button as shown in Figure 2-7

The following will occur:

- The **Site Manager** will close
- The **New Site Wizard** will be launched.

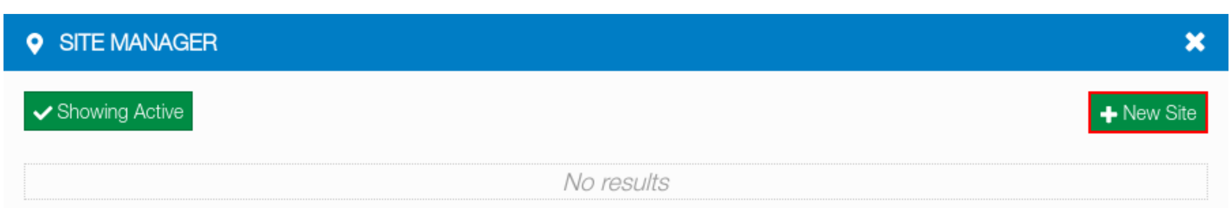

Figure 2-7: The New Site Button on the Site Manager

Using The New Site Wizard

Overview

The following process describes how to create a new Site:

1. Open the **New Site Wizard** as described in "Opening The New Site Wizard" on page 2-4
2. Populate the **General** step as described in "Entering General Site Information"
3. Click **Next** to open the **Site Type** step
4. Select the appropriate Site Type as described in "Selecting A Site Type" on page 2-8
5. Click **Next** to open the **Localization** step
6. Upload Localization data if available as described in "Specifying Site Localization" on page 2-8
7. Click **Next** to open the **Client Connectivity** step
8. Populate the **Client Connectivity** step as described in "Enabling Client Connectivity" on page 2-12
9. Click **Next** to open the **Complete** step
10. Click the **Complete** button.

Sitelink3D v2 will automatically set the new Site as "selected" as indicated by the **Site Menu Selector** and focus the map on the Site location.

Entering General Site Information

General Site information is entered on the **General Details** step in the **New Site Wizard** as shown in Figure 2-8. Fields marked with a red asterisk (*) on the step are compulsory.

- **Site Name:** A descriptive title that identifies the new Site in areas such as the **Site Menu Selector** and the **Site Manager**
- **Job Code:** An optional field that can be used to externally reference the Site
- **Data Center:** The location of the server that will host data for the new Site. Best performance is achieved by selecting a data center geographically closest to the new Site
- **Cell Size:** An As-built configuration determined by work type
  - **small:** Suitable for Sites that mostly involve paving and curbing with a typical machine operating speed of 4 – 16 km/h
  - **medium:** Suitable for Sites that involve bulk earth works, paving and compaction with a typical machine operating speed of 6 – 22 km/h

– **large:** Suitable for piste management with a typical machine operating speed of 10 – 42 km/h.

NOTICE The **Data Center** and **Cell Size** cannot be changed once the Site is created.

- **Latitude:** The latitude of a marker in decimal degrees that will represent the physical location of the Site. This value can either be typed in or selected on the map by clicking on the pin icon. If using the map, confirm the location using the green tick at the top right once selected
- **Longitude:** The longitude of a marker in decimal degrees that will represent the physical location of the Site. This value can either be typed in or selected on the map by clicking on the pin icon. If using the map, confirm the location using the green tick at the top right once selected

NOTE Although a Site may occupy a large area on the ground, a latitude and longitude is required to orient and annotate the map when a Site is selected or focused on.

- **Timezone:** A GMT offset that allows activity at the Site, shift definitions and reports to be represented in local time. The timezone is automatically selected when a latitude and longitude are entered but can be changed by clicking on the associated blue edit button
- **Measurement System:** A selection that determines the set of units used at the Site. Like the timezone, a measurement system is automatically selected when a latitude and longitude are entered but this can be changed manually.

The general Site settings entered here can be edited later. See “Using The Edit Site Settings Dialog” on page 2-26 for more information.

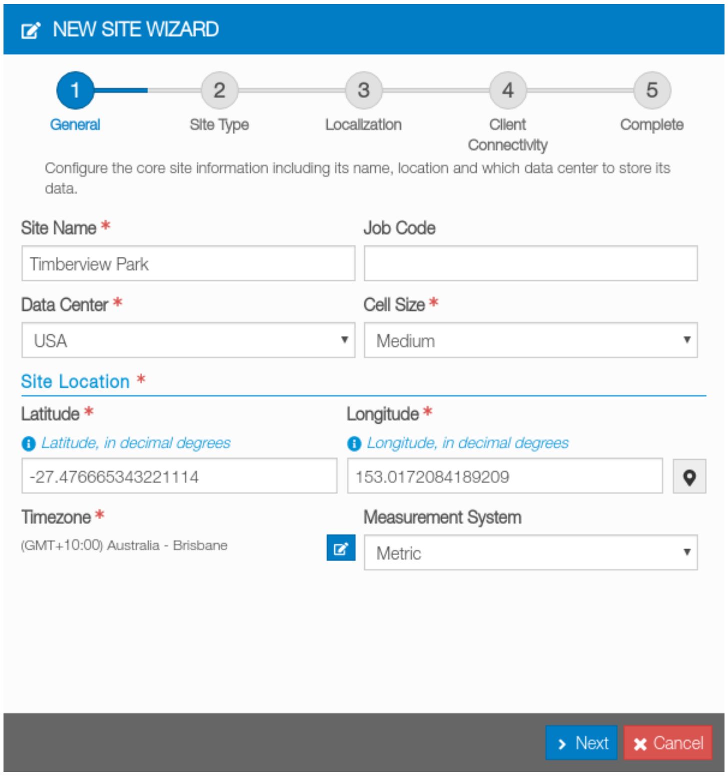

Figure 2-8: The General Details Step on the New Site Wizard

Selecting A Site Type

The Site Type is first selected on the **Site Type** step in the **New Site Wizard** as shown in Figure 2-9. The default behavior is to create a Basic Site which can be upgraded later if required. Click on the column associated with the desired Site Type. See “Understanding Site Types” on page 2-1 and “Upgrading A Basic Site To An Advanced Site” on page 2-3 for more information.

Figure 2-9: The Site Type Step on the New Site Wizard

Specifying Site Localization

Localization for a Site can be optionally uploaded on the **Localization** step in the **New Site Wizard** as shown in Figure 2-10. Files uploaded here are processed immediately and will be available in the **File Manager** once the wizard is complete.

The Localization configured here can be updated later. See “Updating Site Localization” on page 2-27 and “Finding & Downloading The Localization Currently In Use” on page 2-42 for more information.

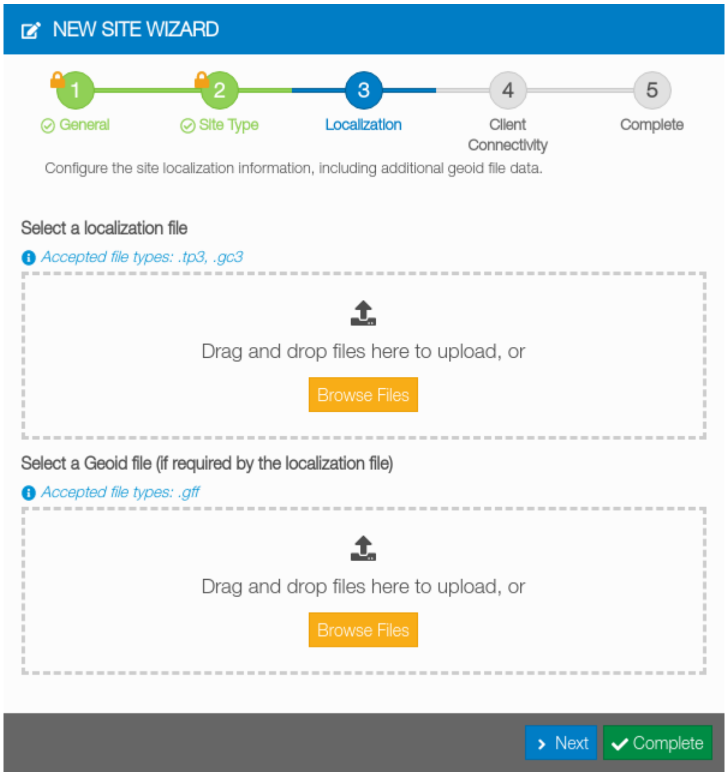

Figure 2-10: The Localization Step on the New Site Wizard

Uploading TP3 & GC3 Files

The **New Site Wizard** will interrogate and import Localization data from TP3 and GC3 files once uploaded. Successful imports are identified as shown in Figure 2-11.

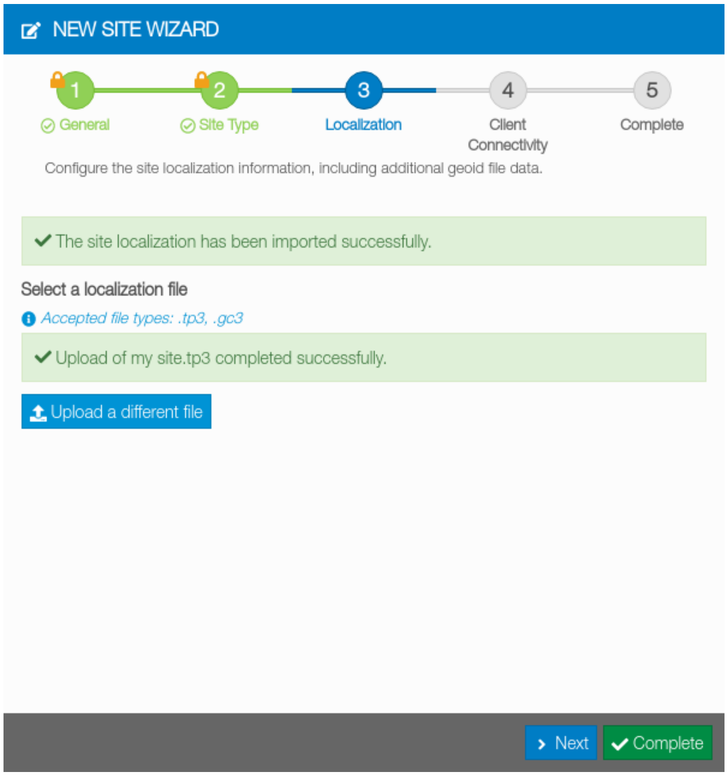

Figure 2-11: A Processed TP3 File on the New Site Wizard Localization Step

Uploading Optional GFF Files

Sitelink3D v2 will detect when an uploaded Localization file requires additional geoid information. The User will be prompted to upload a supporting GFF file in such cases as shown in Figure 2-12. Successful geoid imports are identified as shown in Figure 2-13.

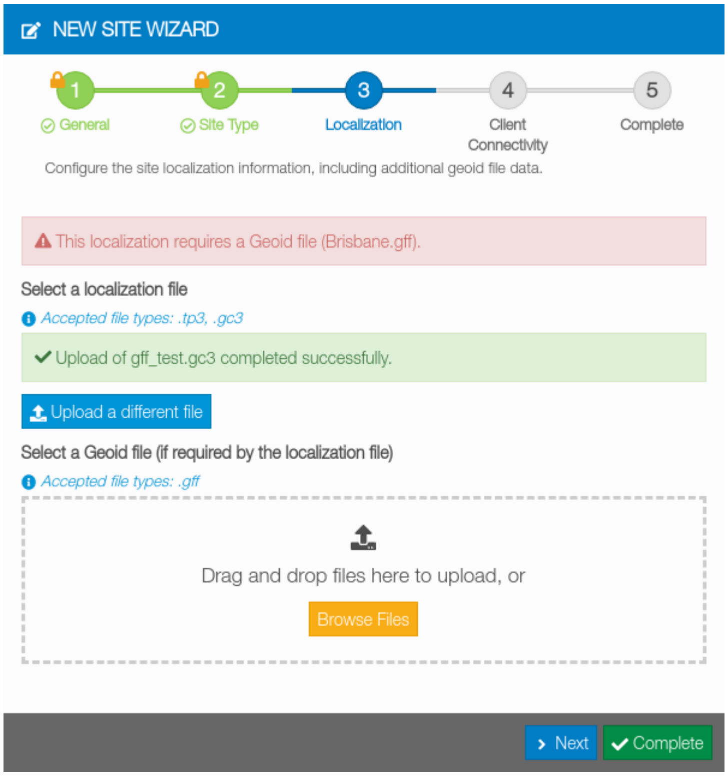

Figure 2-12: A Geoid Prompt on the New Site Wizard Localization Step

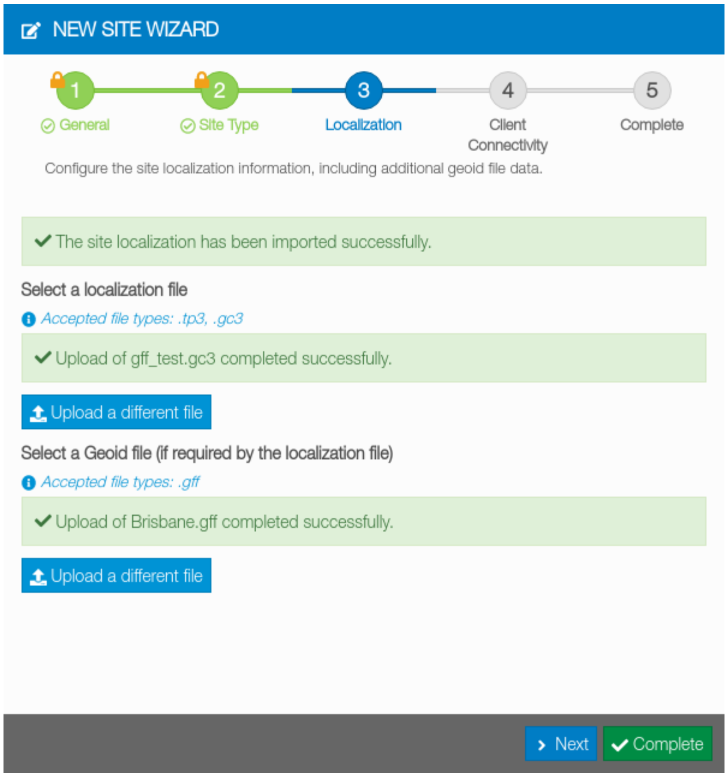

Figure 2-13: A Processed Geoid File on the New Site Wizard Localization Step

Enabling Client Connectivity

Site Discovery can be enabled for new Sites on the **Client Connectivity** step in the **New Site Wizard** as shown in Figure 2-14. The settings entered here greatly simplify the process of connecting applications such as 3DMC and the Haul Truck mobile application to the new Site. Any configuration made on the **Client Connectivity** step can be edited later. See "Site Discovery" on page 1-1 for more information.

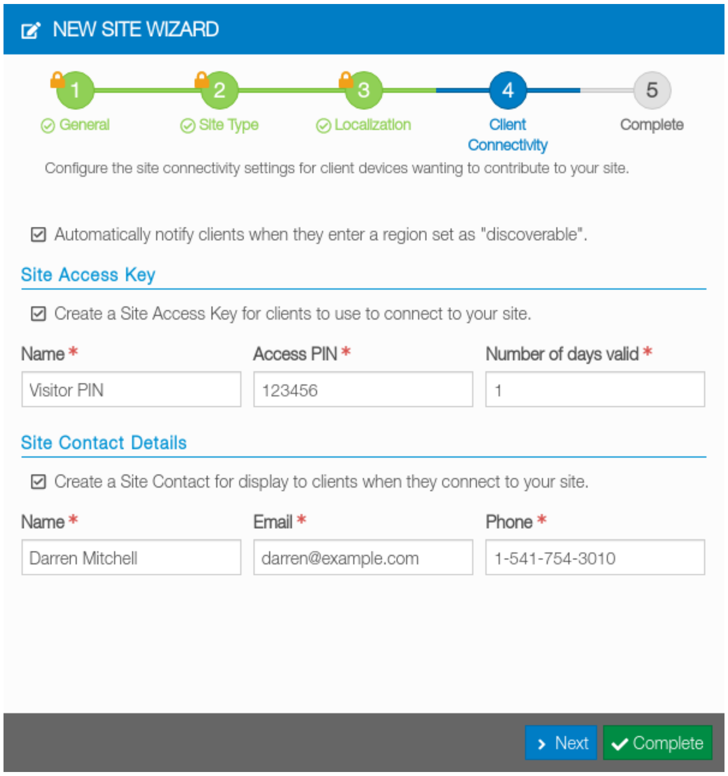

Figure 2-14: The Client Connectivity Step on the New Site Wizard

NOTICE At least one discoverable Region will need to be added to the new Site to complete the configuration of Site Discovery. See "Managing Client Connectivity For Site Discovery" on page 2-27 for more information.

Enabling Site Discovery For Clients

A new Site is marked as discoverable by selecting the **Automatically notify clients when they enter a region set as "discoverable"** checkbox as shown in Figure 2-15. This is equivalent to selecting the **Site is discoverable** checkbox on the **Edit Site Settings** dialog after the Site has been created.

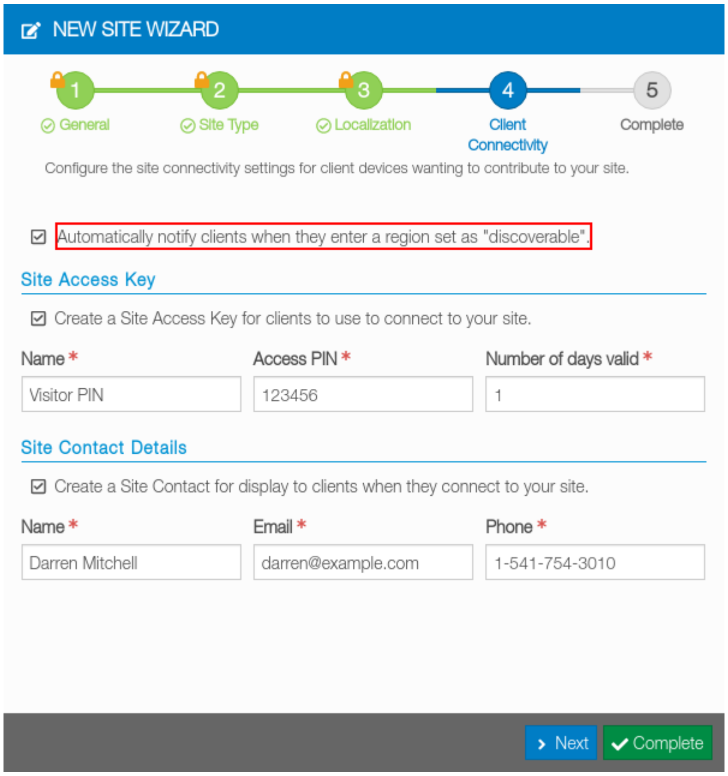

Figure 2-15: The Site Discovery Setting on the New Site Wizard Client Connectivity Step

Creating A Site Key For Clients

A Site Key can be configured for a new Site by selecting the **Create a Site Access Key for clients to use to connect to your site** checkbox as shown in Figure 2-16 and populating the provided fields:

- Name
- Access PIN
- Number of days valid.

NOTE The Access PIN is a numeric code which must be between 6 and 18 digits.

The Site Key configured here will be visible in the **Site Key Manager** once the wizard is complete. Adding a Site Key in the **New Site Wizard** is identical to adding a Site Key in the **Site Key Manager**. See "Creating A Site Key For An Existing Site" on page 2-29 for more information.

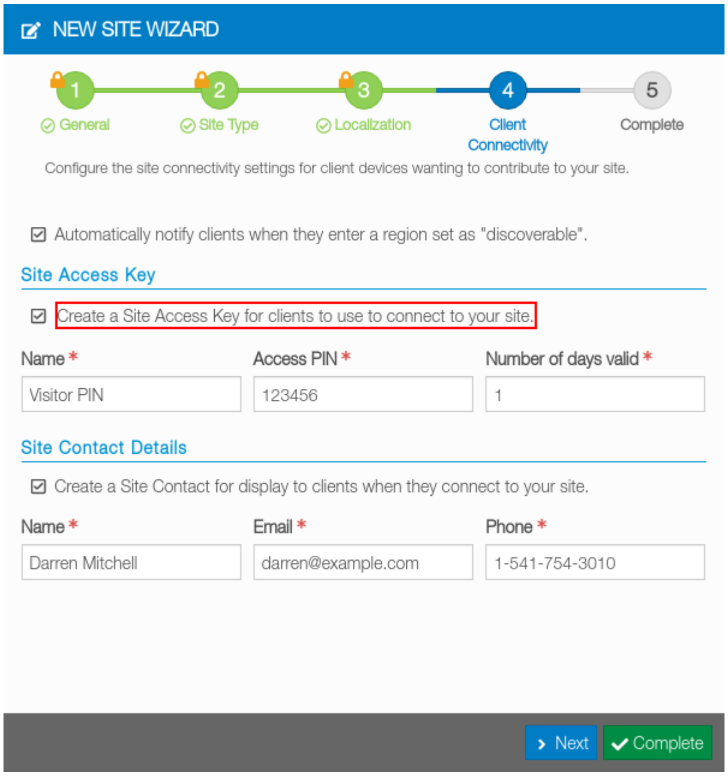

Figure 2-16: Creating A Site Access Key on the New Site Wizard Client Connectivity Step

Specifying Site Contact Details For Clients

Appropriate Site contact information can be configured by selecting the **Create a Site Contact for display to clients when they connect to your site** checkbox as shown in Figure 2-17 and populating the provided fields:

- Name
- Email
- Phone.

The details added here are displayed on Site Discovery enabled clients to provide a helpful point of contact when joining a Site. This is equivalent to populating the **Contact** fields on the **Edit Site Settings** dialog after the Site has been created.

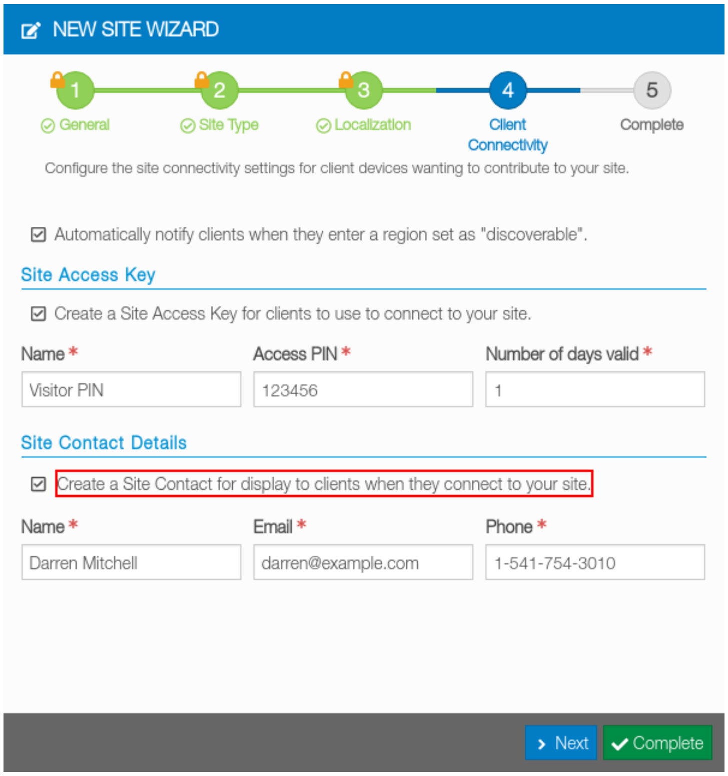

Figure 2-17: Entering Site Contact Details on the New Site Wizard Client Connectivity Step

Completing The New Site Wizard

The final wizard step confirms that the Site has been created successfully as shown in Figure 2-18

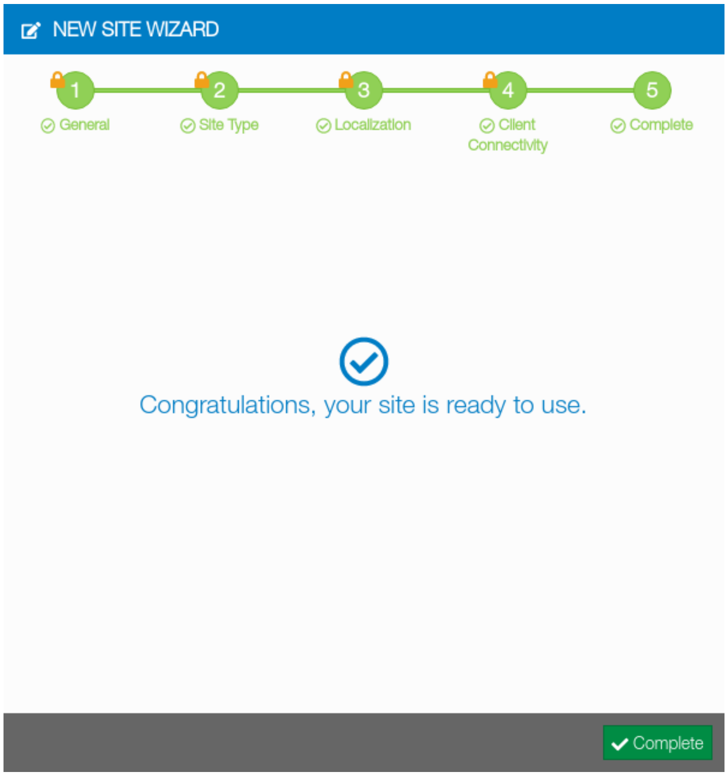

Figure 2-18: Finishing the New Site Wizard

Managing Existing Sites

Existing Sites generally require little maintenance. On occasions however, existing Sites will need to be located and updated. This section describes the various ways that Users can interact with Sites in Sitelink3D v2.

Viewing, Filtering & Sorting Sites On The Site Manager

The Sites owned by an Organization can be easily viewed, filtered and sorted using the **Site Manager**. This may be necessary for a number of reasons including:

- Finding a Site requiring a Localization update
- Filtering on Sites with a common name or modified date
- Sorting Sites by age to ease archiving and cleanup.

This section describes how Sites are viewed in Sitelink3D v2.

NOTE Member Users require the "View Site" Site Action to see a Site in the **Site Manager**. See "Selecting Site Role Actions" on page 3-35 for more information.

Opening The Site Manager

Access the **Site Manager** using the following process:

1. Click on the **Sitelink Menu Selector** to show the **Sitelink Menu**

2. Click on **Site Manager** as shown in Figure 2-19

The **Site Manager** will open.

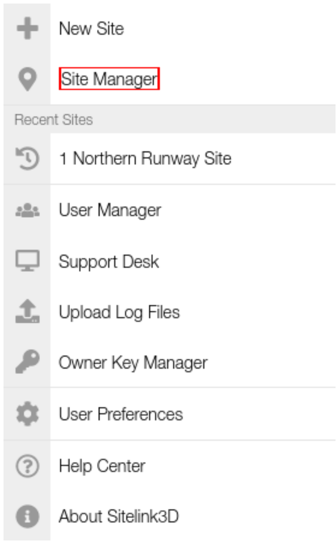

Figure 2-19: Accessing the Site Manager in the Sitelink Menu

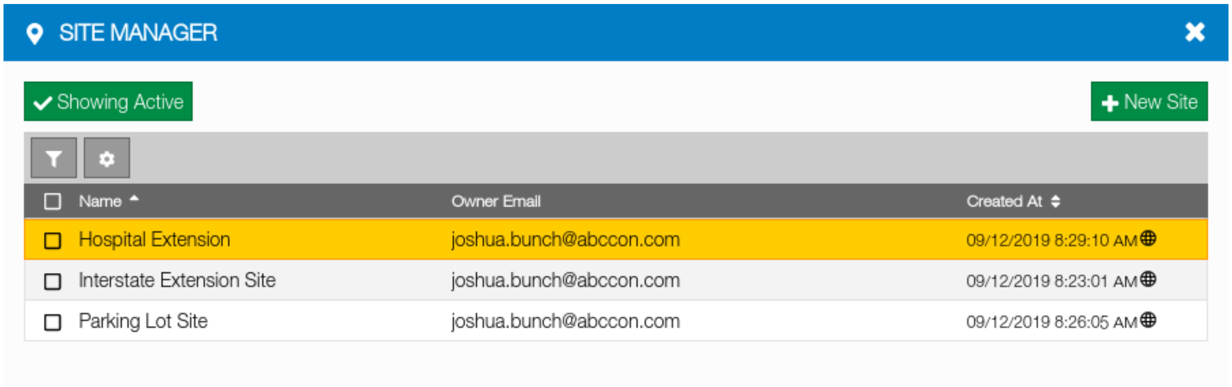

Figure 2-20: The Site Manager

Viewing Sites Belonging To The Current Organization

The available Sites can be viewed on the **Site Manager** as shown in Figure 2-20. Access the **Site Manager** as described in “Opening The Site Manager” on page 2-16. The **Site Manager** displays a list of Sites including the following information for each Site:

- Name
- Owner Email
- Created At
- Cell Size
- Data Center

- Identifier.

NOTE The Identifier field can be used to uniquely identify a Site in the **Site Manager**. See "Finding The Unique Site Identifier" on page 2-43.

The columns displayed when viewing Sites can be configured as shown in Figure 2-22. The following process describes how to configure the appearance of the **Site Manager** list:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16

2. Click on the cog icon to the left of the action bar to access the popup configuration as shown in Figure 2-21. This allows customization of the following:

    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable

    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder

    c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.

3. Click the **Apply** button to save the selections.

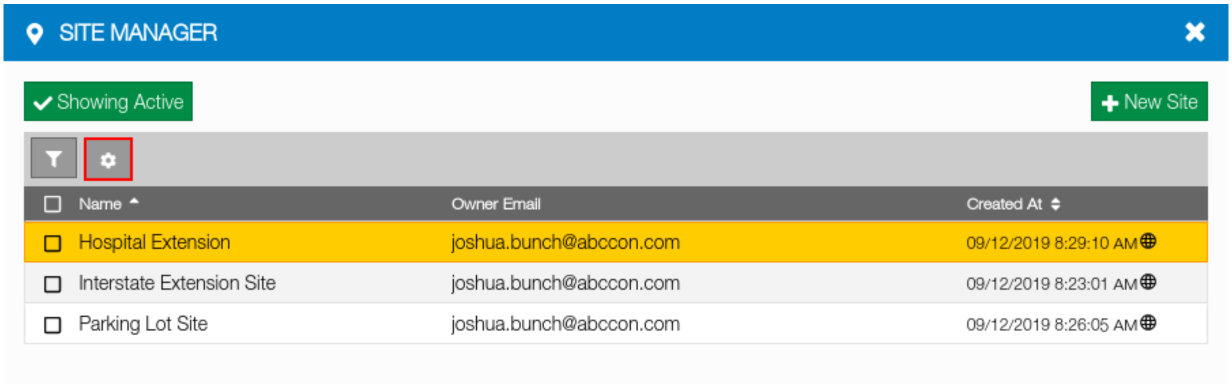

Figure 2-21: The Site Manager List Configuration Button

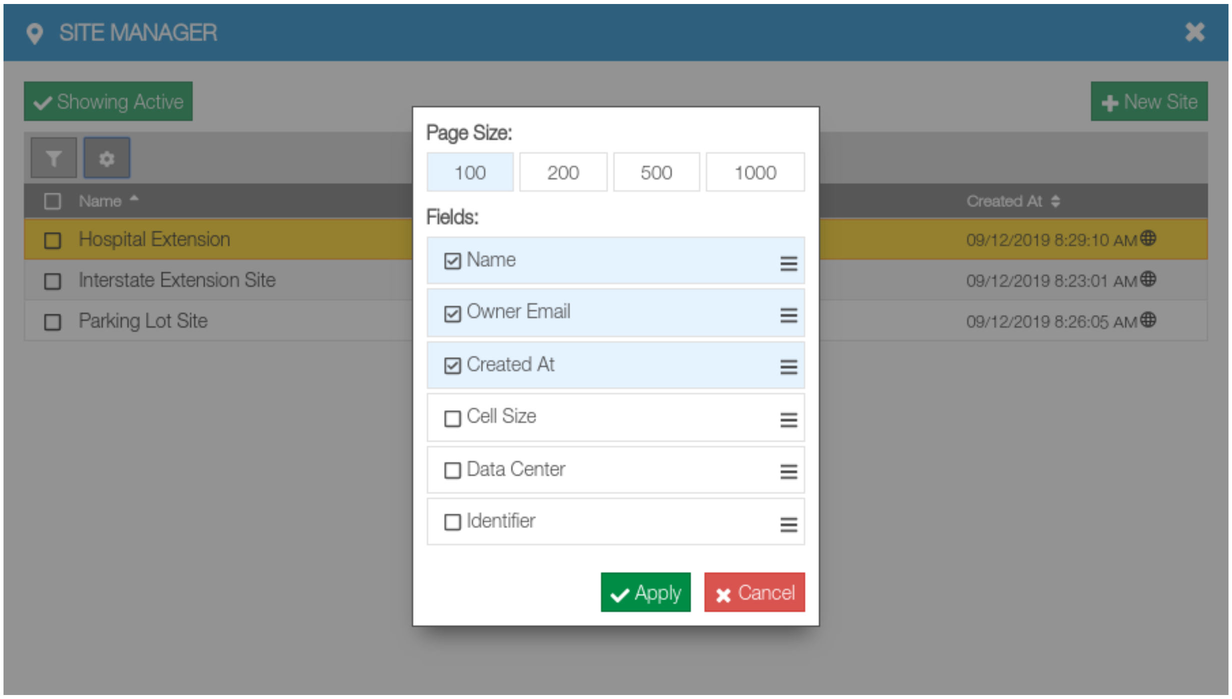

Figure 2-22: Configuring the Site Manager List

Viewing Active Sites

By default, the **Site Manager** displays the active Sites when opened. Active Sites are available for selection. The active Site view is indicated by the presence of the green **Showing Active** button at the top left of the **Site Manager**.

Viewing Archived Sites

The **Site Manager** displays all archived Sites as a separate view. Archived Sites are available for restoration at any time. Archived Sites cannot be selected for use without first being restored. The archived Site view is indicated by the presence of the red **Showing Archived** button at the top left of the **Site Manager**.

NOTE The **Showing Active** and **Showing Archived** buttons toggle between the active and archived views on the **Site Manager**.

Using A Filter To Narrow The Site List

As an Organization may potentially own a large number of Sites, Sitelink3D v2 allows the Sites in the **Site Manager** to be filtered for clarity. Filtering allows Sites to be eliminated, based upon values entered for specific fields. The fields provided for filtering are:

- Name
- Owner Email
- Cell Size
- Data Center
- Created At.

Complex filtering is possible by chaining multiple filter terms together as described in "Using Filter Chaining To Further Narrow The Site List" on page 2-22. The following process describes how to restrict a Site list using a single filter term:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16

2. Click on the filter icon to the left of the action bar to display the filter box as shown in Figure 2-23

3. Click on the **Click to add filter** area in the filter box above the list to display the fields that support filtering as shown in Figure 2-23

4. Click on the desired field to filter on as shown in Figure 2-24

5. Enter the term that the selected field should be narrowed by

   – For simple string types such as names and email addresses, type the filter term in the filter box as shown in Figure 2-25

   – For complex types such as date and time fields, enter the filter term on the field specific popup provided.

6. Apply the filter

   – For simple string types such as names and email addresses, press the enter key

   – For complex types such as date and time fields, click the **Apply** button.

The **Site Manager** will update the Site list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 2-26.

NOTE The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

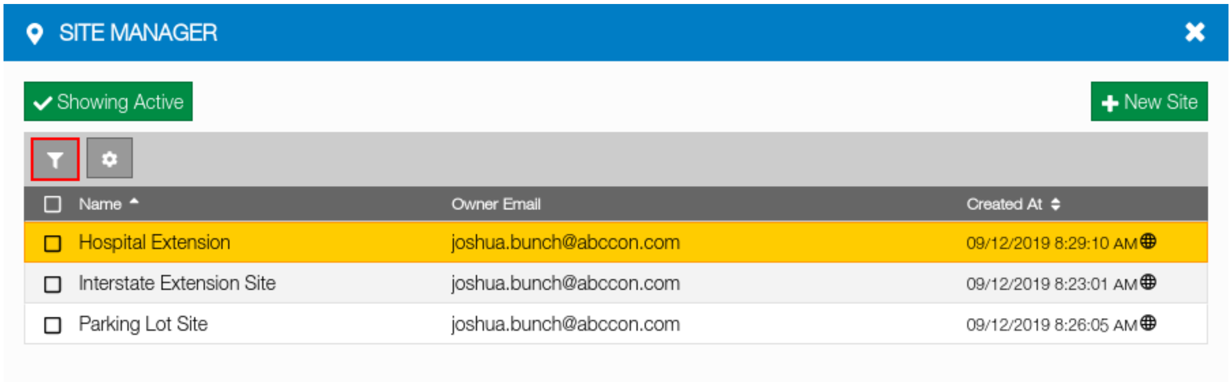

Figure 2-23: The Site Manager Filter Button

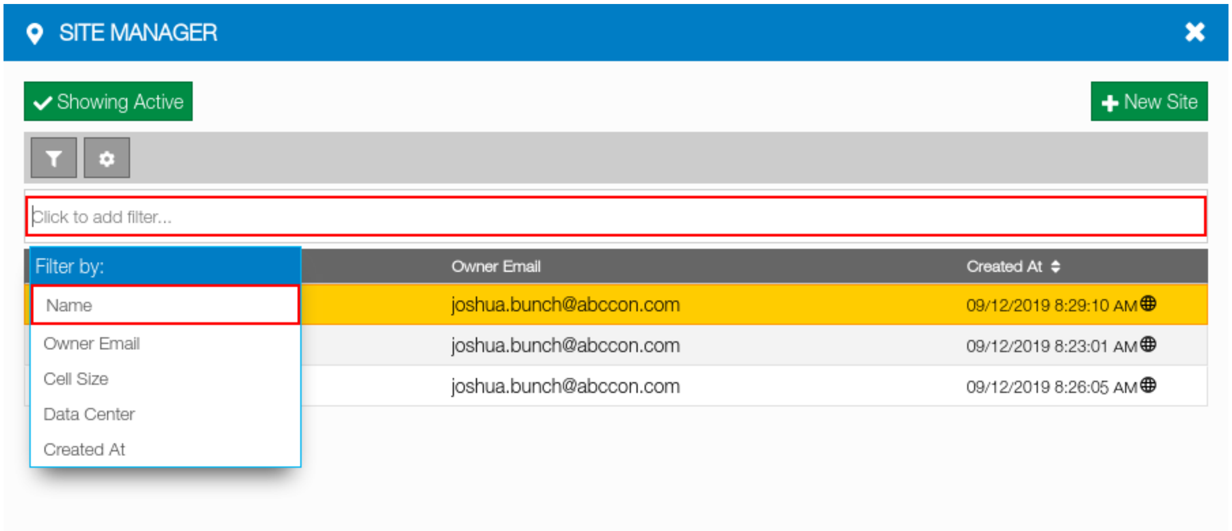

Figure 2-24: Selecting Filter Fields on the Site Manager

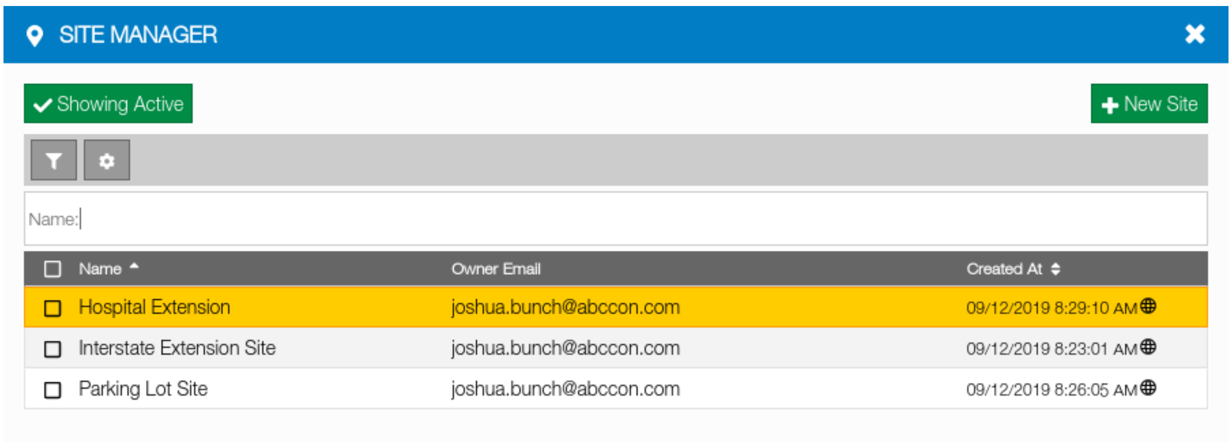

Figure 2-25: Entering a Site Name to Filter By on the Site Manager

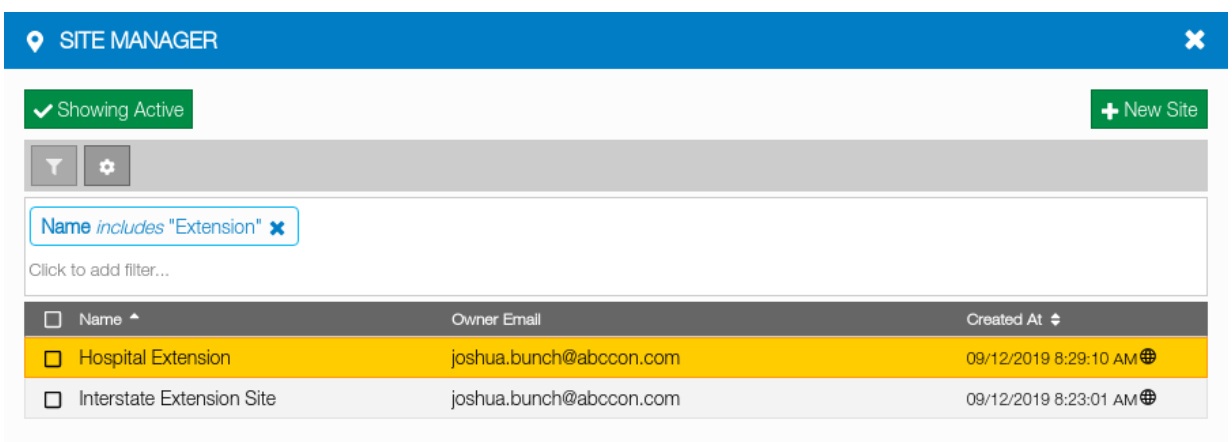

Figure 2-26: A Single Name Filter Applied to the Site Manager List

Using Filter Chaining To Further Narrow The Site List

The use of a single filter term as discussed in "Using A Filter To Narrow The Site List" on page 2-19 is suitable for most purposes. For times when more granular searches are required however, the **Site Manager** allows multiple search terms to be chained together.

Multiple search terms are applied with an "and" clause and hence act to restrict rather than broaden search results. The following process describes how to apply more than one filter term in the **Site Manager**:

1. Apply a single **Site Manager** filter as described in "Using A Filter To Narrow The Site List" on page 2-19
2. Click on the **Click to add filter** area in the filter box below the existing filter term to display the remaining fields that support filtering as shown in Figure 2-27
3. Click on the desired field to filter on noting that fields cannot be reused when chaining
4. Enter the term that the selected field should be narrowed by
   – For simple string types such as names and email addresses, type the filter term in the filter box
   – For complex types such as date and time fields, enter the filter term on the field specific popup provided as shown in Figure 2-28.
5. Apply the filter
   – For simple string types such as names and email addresses, press the enter key
   – For complex types such as date and time fields, click the **Apply** button as shown in Figure 2-28.

The **Site Manager** will update the Site list in accordance with the active filter terms. For clarity, the chained filter terms are displayed in blue in the filter box as shown in Figure 2-29.

NOTE Each filter parameter can only appear once in a filter chain. Once active in an expression, a filter term is edited if selected again when clicking in the filter box.

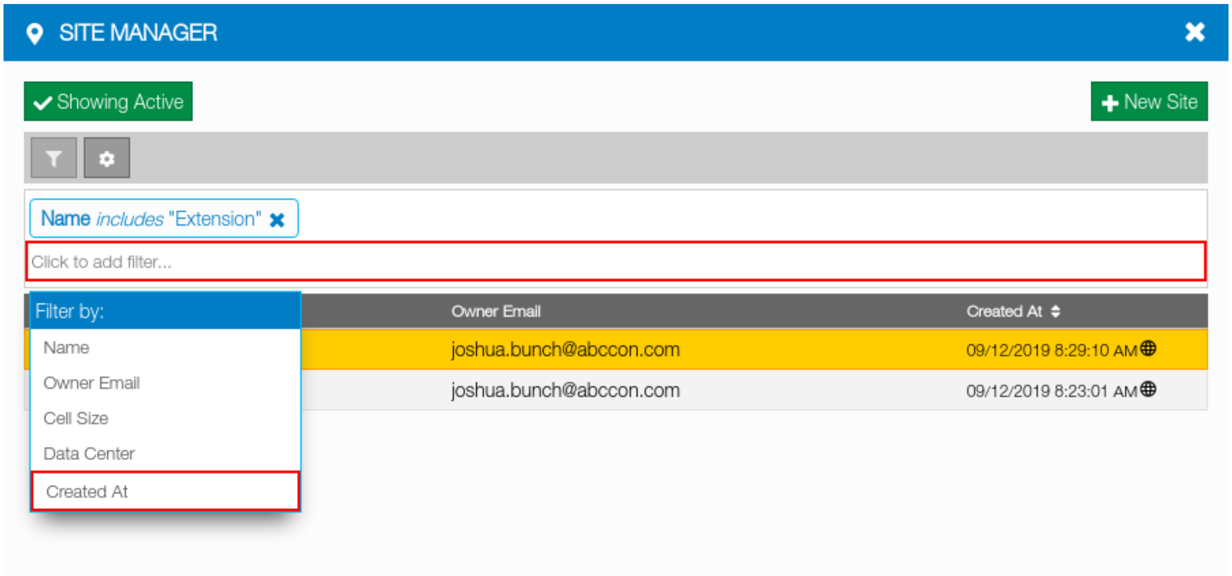

Figure 2-27: Adding a Second Filter Expression on the Site Manager

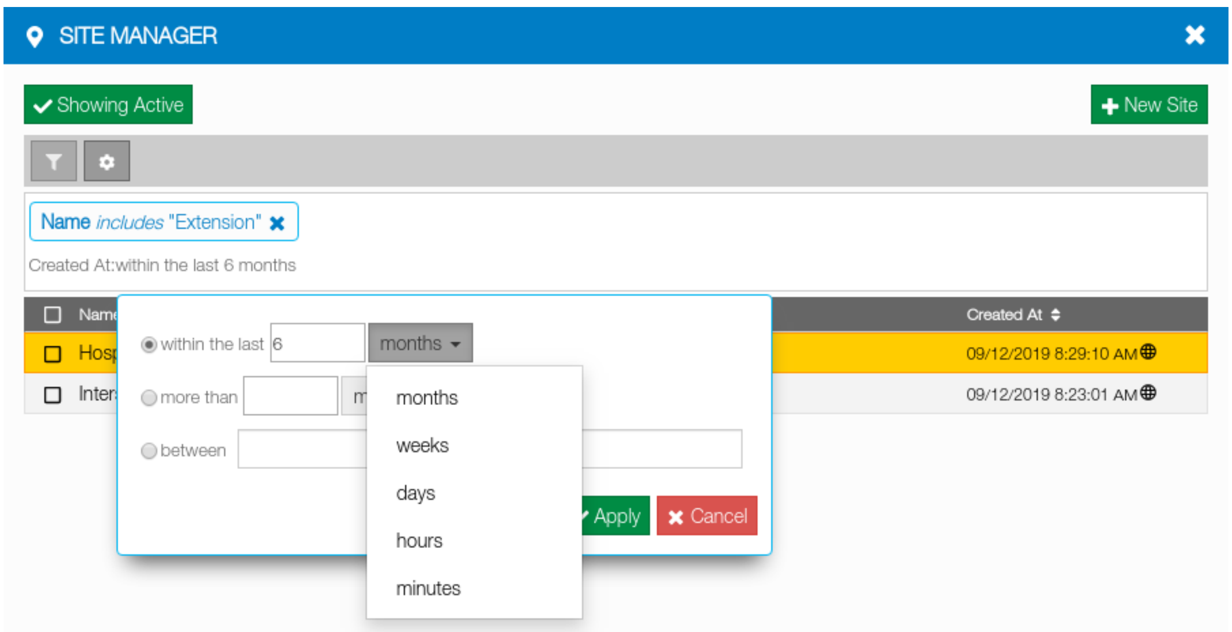

Figure 2-28: Entering a Site Creation Period to Filter by on the Site Manager

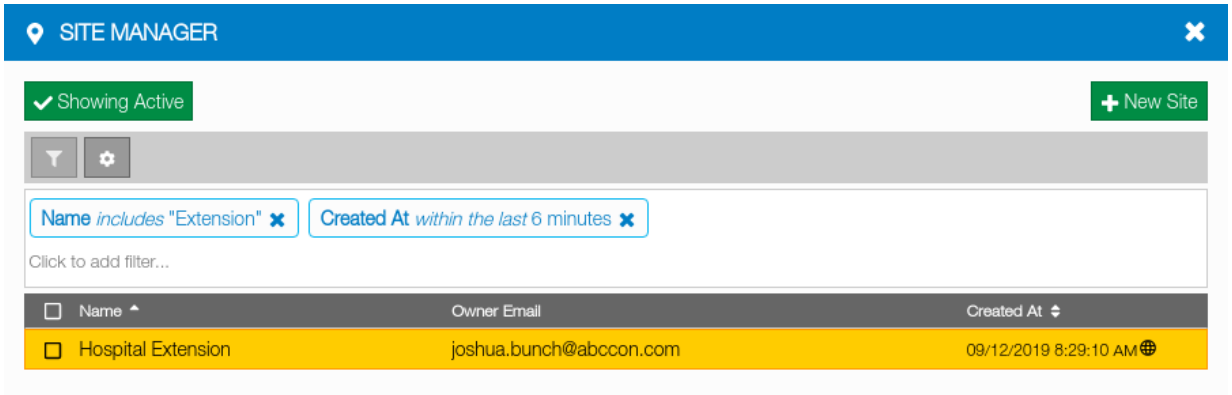

Figure 2-29: Filter Chaining on the Site Manager

Sorting The Site List

By default, the **Site Manager** lists Sites in alphabetical order as shown in Figure 2-30. It can be useful however to list Sites in an alternative ascending or descending order. Examples of such scenarios include:

- Finding the Sites that have been most recently created
- Displaying all Sites hosted on the United States data center first.

The following process describes how to sort the Site list:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16
2. Click on the column title matching the field to sort on as shown in Figure 2-31
3. Click again on the column title to switch between ascending and descending sort order.

The **Site Manager** will update the Site list in accordance with the selected sort field and order. The direction of the arrow next to the column title indicates the current sort order.

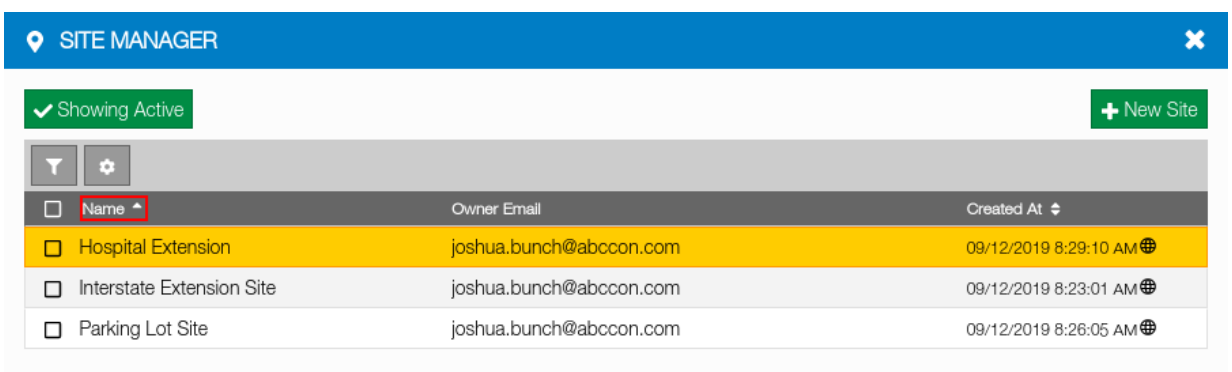

Figure 2-30: Sites Sorted By Name By Default on the Site Manager

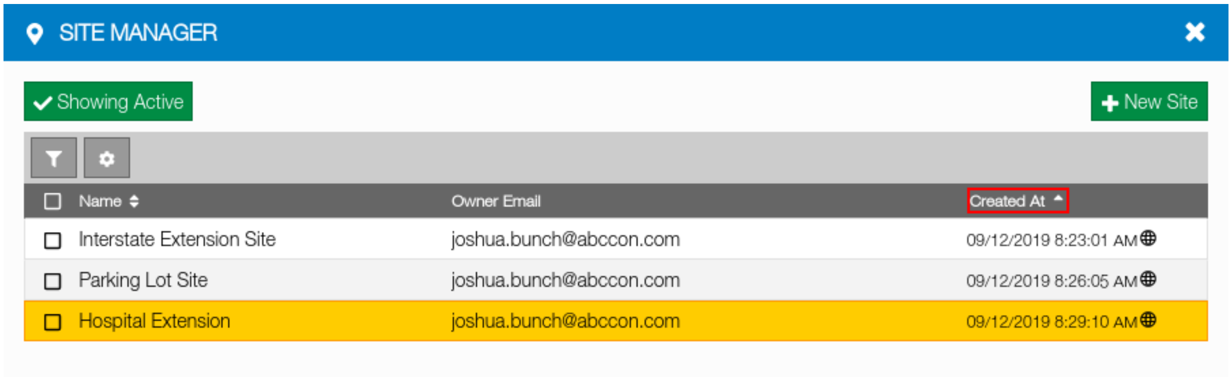

Figure 2-31: Sites Sorted By Ascending Creation Time on the Site Manager

Editing Sites

Sitelink3D v2 Site details are viewed and edited on the **Edit Site Settings** dialog. All aspects of a Site's configuration can be edited at any time here with the exception of the following two fields which are fixed once entered on the **New Site Wizard**:

- Data Center
- Cell Size.

NOTE Only the selected Site can be edited. To edit another Site, it must first be selected. See "Selecting An Existing Site" on page 2-38 for more information.

Opening The Edit Site Settings Dialog Via The Site Menu

The **Edit Site Settings** dialog is accessible via the **Site Menu** using the following process:

1. Select the Site to be edited as described in "Selecting An Existing Site" on page 2-38
2. Open the **Site Menu** using the process described in "Opening The Site Menu" on page 2-33
3. Click on **Site Settings** as shown in Figure 2-32.

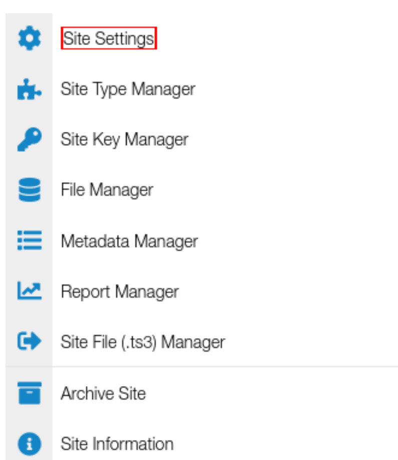

Figure 2-32: Accessing the Edit Site Settings Dialog in the Site Menu

Opening The Edit Site Settings Dialog Via The Site Manager

The **Edit Site Settings** dialog is accessible via the **Site Manager** for the selected Site using the following process:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16
2. Click on the selected Site highlighted in yellow to enable the action buttons in the action bar
3. Click on the purple cog icon to the right of the action bar.

The **Edit Site Settings** dialog will open.

Using The Edit Site Settings Dialog

Attributes describing a Site are viewed and edited using the **Edit Site Settings** dialog as shown in Figure 2-33. This dialog allows editing of the following information:

- Data entered on the **General Details** step of the **New Site Wizard** as described in "Entering General Site Information" on page 2-6
- Data entered on the **Client Connectivity** step of the **New Site Wizard** as described in "Enabling Client Connectivity" on page 2-12 with the exception of Site Keys
- Site units and precision
- Stationing.

Configuring Site Location & Timezone

The location of the Site marker can be edited under the **Marker Location** heading either by typing in latitude and longitude coordinates or by selecting a location on the map with the mouse as discussed in "Entering General Site Information" on page 2-6.

The Site timezone can be edited under the **Timezone** heading by clicking on the blue edit button and selecting the appropriate GMT offset as described in "Entering General Site Information" on page 2-6.

Configuring Site Units & Display Precision

The units that quantities are displayed in along with their precision are configurable under the **Site Units** heading. Distance units for example impact the display of altitudes and driven distances in Haul Reports as described in "Columns Related To Loading Material Into Beds" on page 7-43 and "Columns Related To Hauling Material" on page 7-44.

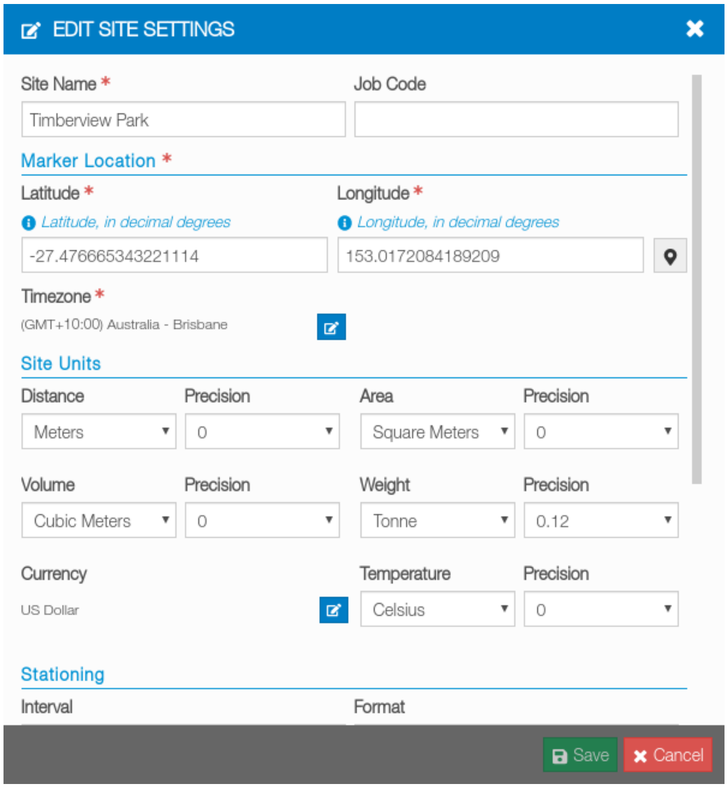

Figure 2-33: The Edit Site Settings Dialog

Updating Site Localization

Site Localization in Sitelink3D v2 is distinct from the management of Site settings. Localizing a Site is achieved by uploading and importing Localization files. See "Extracting Localization Data From A File" on page 4-8 for more information.

Managing Client Connectivity For Site Discovery

Aside from client specific requirements (such as Site Localization for 3DMC v13 and above), only three conditions need to be met for compatible clients to connect to a Site using Site Discovery:

- Site Discovery must be enabled for the Site
- The Site must have at least one discoverable Region
- The Site must have at least one Site Key.

Enabling Site Discovery For An Existing Site

This selection can be made at the bottom of the **Edit Site Settings** dialog for existing Sites by selecting the **Site is discoverable** checkbox as shown in Figure 2-34. This is a Site-wide setting and can be used to turn Site Discovery on or off. See "Enabling Client Connectivity" on page 2-12 for information on enabling Site Discovery in the **New Site Wizard**.

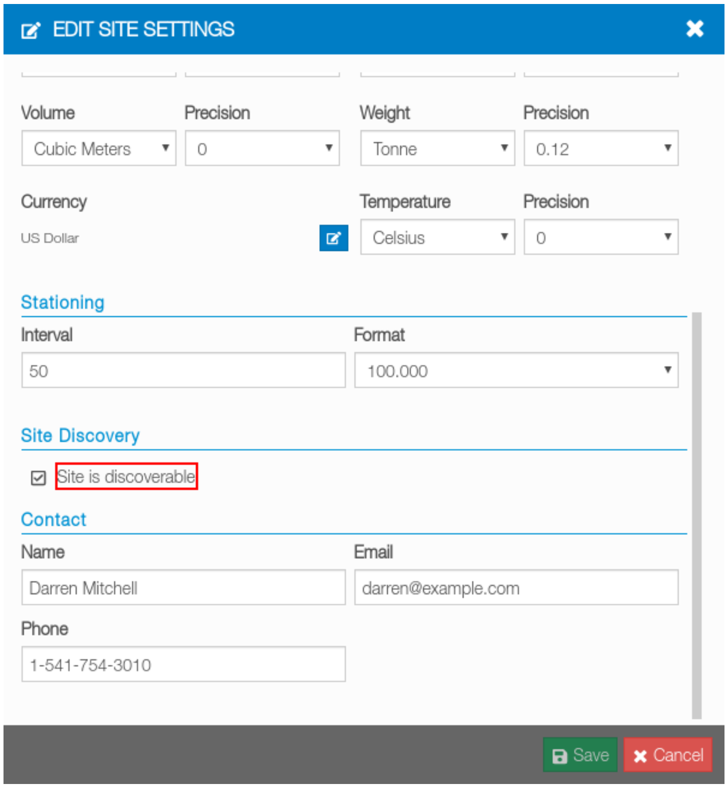

Figure 2-34: The Site Discovery Checkbox on the Edit Site Settings Dialog

Creating A Discoverable Region For An Existing Site

Like Sites, Regions can be made discoverable when they are created or at any subsequent time by editing them. Only Regions defined within the Sitelink3D v2 web portal can be made discoverable. The setting required to make a Region discoverable is found on the **New Region** and **Edit Region** dialogs for new and existing Regions respectively as shown in Figure 2-35. See "Working With Regions" on page 5-9 for more information.

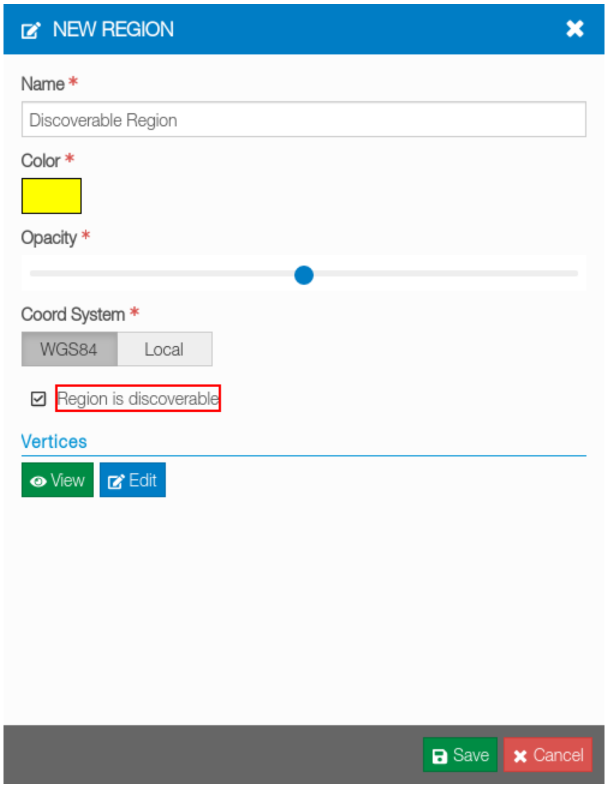

Figure 2-35: The New Region Dialog With The Discoverable Checkbox Enabled

Creating A Site Key For An Existing Site

Site Keys are named, time limited PIN codes that allow clients to connect to Sitelink3D v2 Sites. Site Keys are managed on the **Site Key Manager** and are treated in the same manner as Metadata in the **Metadata Manager**. Create a new Site Key using the following process:

1. Open the **Site Menu** using the process described in "Opening The Site Menu" on page 2-33
2. Click on **Site Key Manager** as shown in Figure 2-36
3. Click the green **New** button at the top right of the **Site Key Manager** to open the **New Site Key** dialog
4. Enter a name for in the **Name** field
5. Enter a numeric code in the **Access Code** field
6. Enter the number of days that the Access Code can be used in the **Number of days valid** field.
7. Click the green **Save** button.

Sitelink3D v2 will return to the **Site Key Manager** as shown in Figure 2-38. The new Site Key will be immediately available for use by clients connecting to the Site.

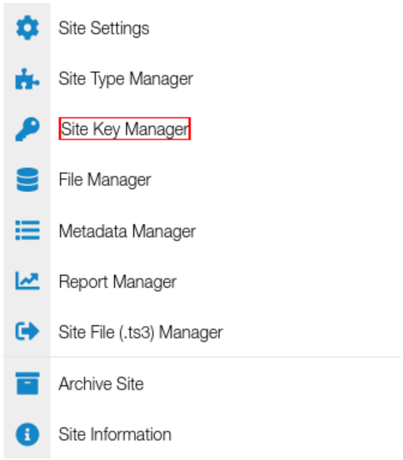

Figure 2-36: The Site Menu Site Key Manager Button

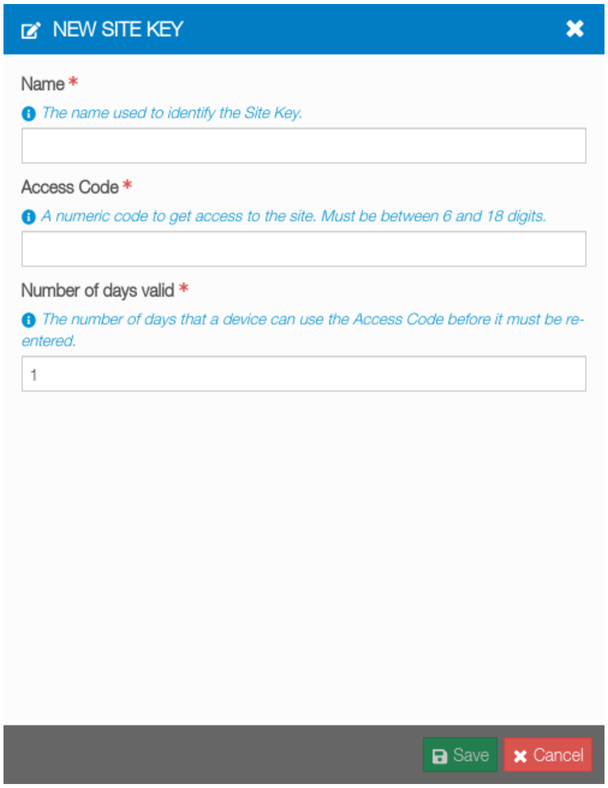

Figure 2-37: The New Site Key Dialog

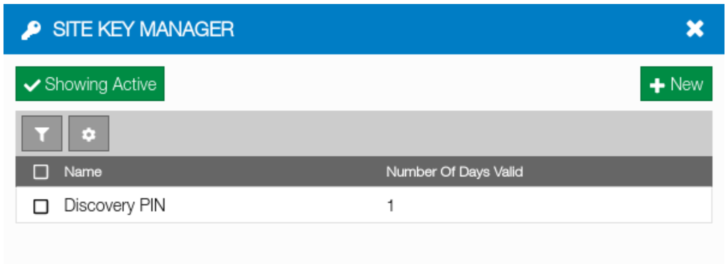

Figure 2-38: The Site Key Manager

Identifying The Currently Selected Site

Viewing The Selected Site Name On The Site Menu Selector

The name of the currently selected Site is always displayed on the **Site Menu Selector** above the map as shown in Figure 2-39. In cases where no Site is selected, the **Site Menu Selector** will display `No site selected` as shown in Figure 2-40.

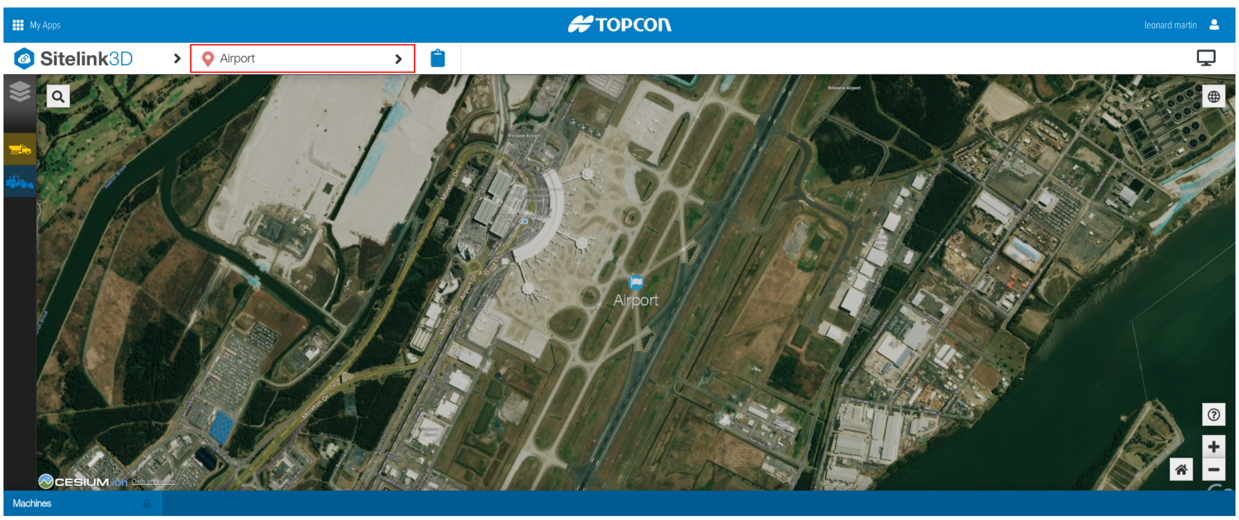

Figure 2-39: The Selected Site Name Displayed on the Site Menu Selector

Figure 2-40: The Site Menu Selector When No Site Is Selected

Viewing The Selected Site In The Site Manager

The currently selected Site is identified by the row with a yellow background in the **Site Manager** as shown in Figure 2-41.

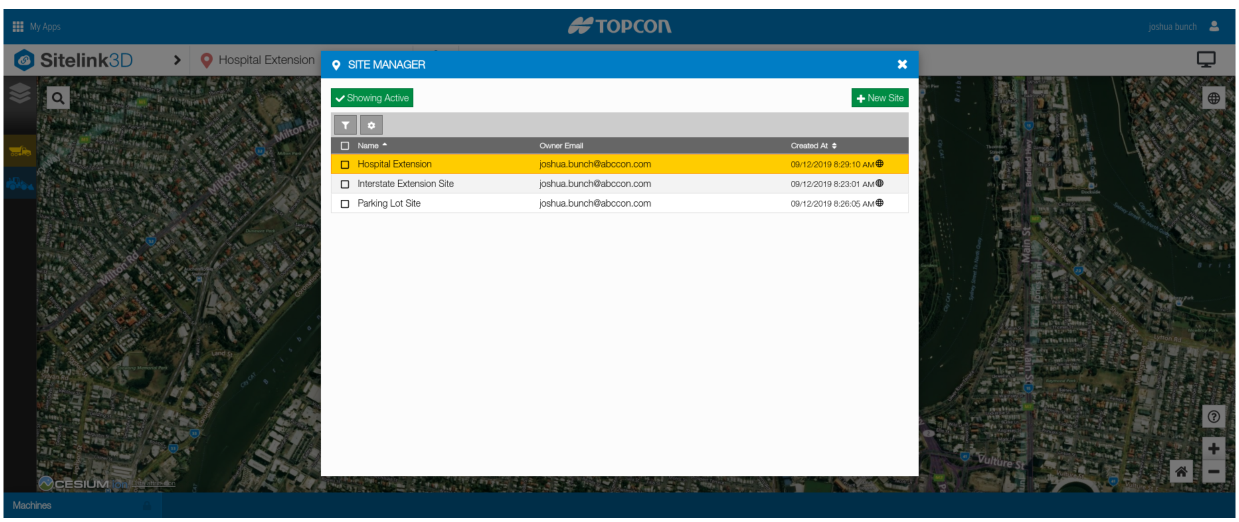

Figure 2-41: The Site Manager Displaying the Currently Selected Site in Yellow

Centering The Map On The Selected Site

The map can be easily centered on the selected Site location at any time. This is achieved by clicking on the home button in the map control button group found at the bottom right of the map as shown in Figure 2-42. The Site will be viewed directly from above.

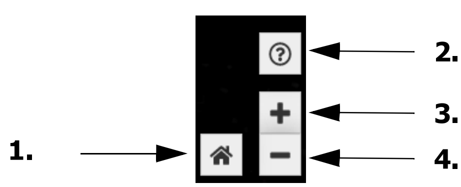

Figure 2-42: The Map Control Button Group

1. Center map on selected Site
2. Navigation help
3. Zoom map in
4. Zoom map out

Working With Site Menus

Opening The Site Menu

The **Site Menu** is accessed using the following process:

1. Ensure that a Site is selected by either creating a new one or selecting an existing one. See "Creating A New Site" on page 2-4 and "Selecting An Existing Site" on page 2-38 respectively

2. Click on the **Site Menu Selector** above the map. See "Viewing The Selected Site Name On The Site Menu Selector" on page 2-31.

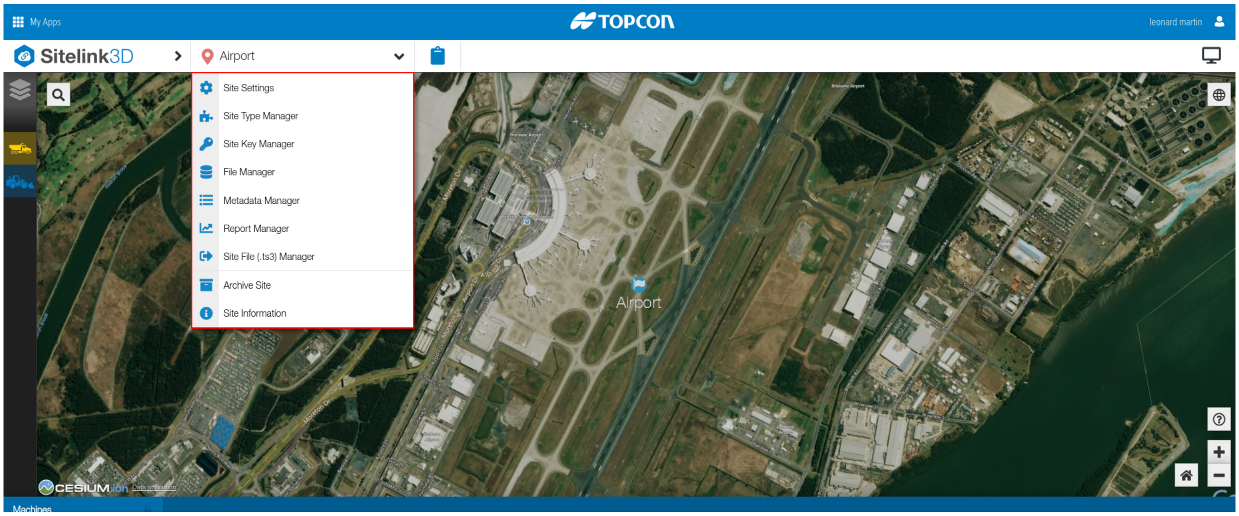

Figure 2-43: The Site Menu

Opening The Site Context Menu

The **Site Context Menu** is a map popup that is displayed when a Site map marker is right-clicked. Basic options are provided to allow simple Site management via the map. The **Site Context Menu** is dependent upon the state of the Site.

The Site Context Menu For The Selected Site

When right-clicking on the currently selected Site map marker the menu is as shown in Figure 2-44. The available operations are:

- **Focus:** Orient the map to be centered on this Site
- **Site Settings:** Open the **Edit Site Settings** dialog
- **Archive:** Archive the Site. See "Archiving Sites" on page 2-35

- **Show Site Information:** Display the **Site Information** dialog. See "Viewing Site Information" on page 2-40.

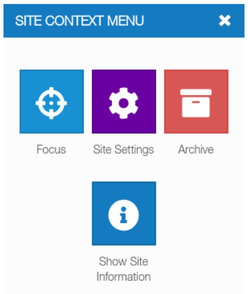

Figure 2-44: The Site Context Menu Displayed for the Selected Site

The Site Context Menu For Active Sites

When right-clicking on an active Site map marker, the menu is as shown in Figure 2-45. The available operations are:

- **Focus:** Orient the map to be centered on this Site
- **Activate:** Make this Site the selected Site
- **Archive:** Archive the Site. See "Archiving Sites" on page 2-35
- **Show Site Information:** Display the **Site Information** dialog. See "Viewing Site Information" on page 2-40.

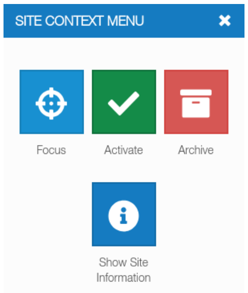

Figure 2-45: The Site Context Menu Displayed For an Active Site

The Site Context Menu For Archived Sites

When right-clicking on an archived Site map marker, the menu is as shown in Figure 2-46. The available operations are:

- **Focus:** Orient the map to be centered on this Site
- **Restore:** Restore the Site. See "Restoring Sites" on page 2-37
- **Show Site Information:** Display the **Site Information** dialog. See "Viewing Site Information" on page 2-40.

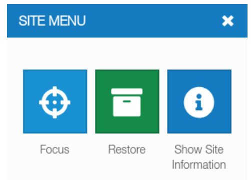

Figure 2-46: The Site Context Menu Displayed for an Archived Site

Archiving & Restoring Sites

Sitelink3D v2 supports soft deletion. This defines a scheme where data is flagged as inactive and hidden from view rather than being deleted. Sitelink3D v2 refers to this process as archiving.

NOTE Site archival and restoration are only available to Administrator Users. See “Understanding User Types” on page 3-1 for more information.

Archiving Sites

Sites can be archived from three locations. These are:

- Via the **Site Menu** for the currently selected Site
- Via the **Site Manager** for all Sites including the currently selected Site
- Via the **Site Context Menu** for all Sites visible on the map.

Regardless of the method, User confirmation is required when archiving a Site as shown in Figure 2-47.

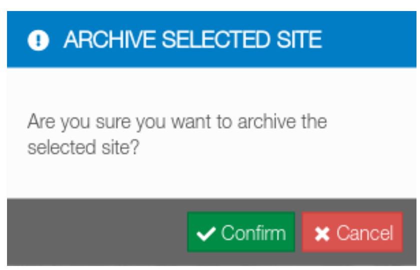

Figure 2-47: The Archive Site Confirmation Dialog

Archiving The Currently Selected Site Via The Site Menu

The currently selected Site can be archived via the **Site Menu** as described by the following process:

1. Click on the **Site Menu Selector**
2. Click on **Archive Site** as shown in Figure 2-48
3. Click on **Confirm** when prompted to confirm the archive operation as shown in Figure 2-47.

The following will occur:

- The Site will be immediately archived
- The **Site Menu Selector** will display “No site selected”

- The archived Site will be removed from the Recent Sites list in the **Sitelink Menu**. See "Selecting A Recently Used Site Via The Sitelink Menu" on page 2-38 for more information.

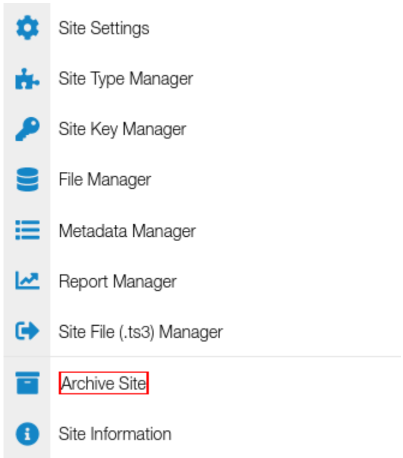

Figure 2-48: The Site Menu Archive Site Option

Archiving Any Site Via The Site Manager

Sites are archived using the **Site Manager** as described by the following process:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16
2. Find the Site to be archived. See "Using A Filter To Narrow The Site List" on page 2-19
3. Click on the Site to select it in the list and enable the action buttons in the action bar
4. Click on the red storage box icon to the right of the action bar to archive the Site as shown in Figure 2-49.

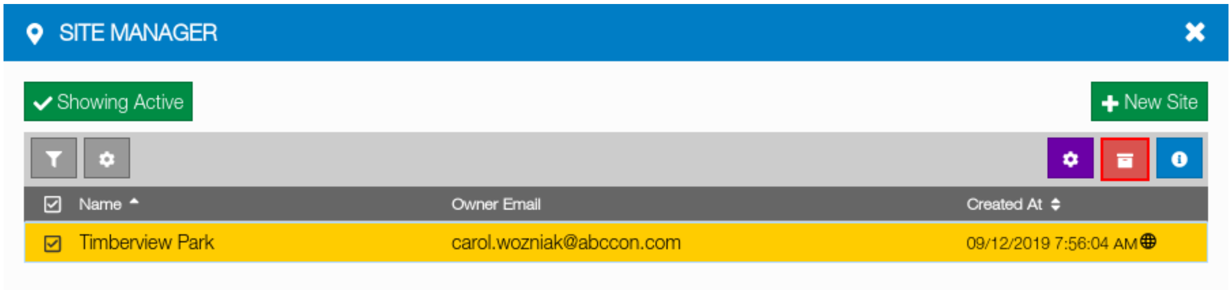

Figure 2-49: The Archive Site Link on the Site Manager

The following will occur:

- The Site will be immediately archived
- The Site will be removed from the active view list in the **Site Manager**
- The Site will be added to the archived view list in the **Site Manager**
- The archived Site will be removed from the Recent Sites list in the **Sitelink Menu**. See "Selecting A Recently Used Site Via The Sitelink Menu" on page 2-38 for more information.

Archiving An Active Site Via The Site Context Menu

1. Find the Site of interest on the map
2. Right-click on the Site map marker to display the **Site Context Menu** for that Site
3. Click the **Archive** button as shown in Figure 2-50 to archive the Site.

See "Opening The Site Context Menu" on page 2-33 for more information.

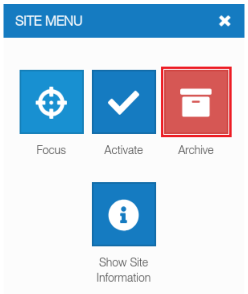

Figure 2-50: The Archive Link on the Site Context Menu

Restoring Sites

Restoring Sites Via The Site Manager

Sites can be restored using the **Site Manager** as described by the following process:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16
2. Click on the **Showing Active** button to display the list of archived Sites
3. Find the Site to be restored. See "Using A Filter To Narrow The Site List" on page 2-19
4. Click on the Site to select it in the list and enable the action buttons in the action bar
5. Click on the green storage box icon to the right of the action bar to restore the Site.

The following will occur:

- The Site will be immediately restored but not selected
- The Site will be removed from the archived view list in the **Site Manager**
- The Site will be added to the active view list in the **Site Manager**.

Restoring Sites Via The Site Context Menu

1. Find the archived Site of interest on the map
2. Right-click on the Site map marker to display the **Site Context Menu** for that Site
3. Click the **Restore** button as shown in Figure 2-51 to restore the Site.

See "Opening The Site Context Menu" on page 2-33 for more information.

NOTE The Site context menu is only available for archived Sites if Sitelink3D v2 has been configured to display archived Site map markers on the map. See "Specifying Map Preferences" on page 3-60 for more information.

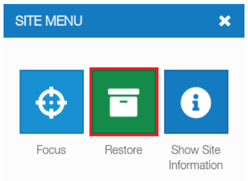

Figure 2-51: The Restore Link on the Site Context Menu

Selecting An Existing Site

Sites can be selected from three locations. These are:

- Via the **Sitelink Menu** for the three most recently selected Sites
- Via the **Site Manager** for all Sites
- Via the **Site Context Menu** for all Sites visible on the map.

Selecting A Recently Used Site Via The Sitelink Menu

Sitelink3D v2 tracks the last three active selected Sites. These Sites can be easily reselected via shortcut links in the **Sitelink Menu** as shown in Figure 2-52.

1. Click on the **Sitelink Menu Selector** to show the **Sitelink Menu**

2. Click on the Site name to select a recently used Site from the list provided.

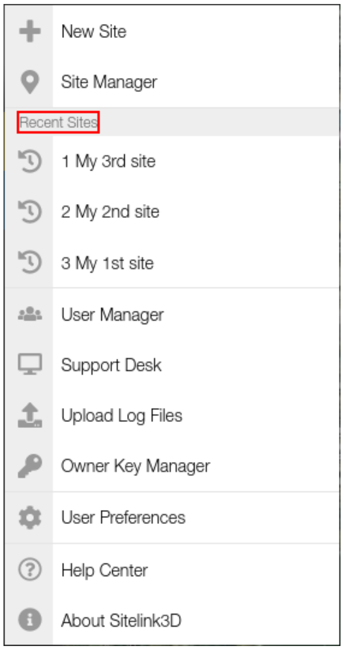

Figure 2-52: The Recently Used Site List in the Sitelink Menu

Selecting An Existing Site Via The Site Manager

Selecting a Site using the **Site Manager** is achieved using the following process:

1. Open the **Site Manager** as described in "Opening The Site Manager" on page 2-16
2. Find the Site to be selected. See "Using A Filter To Narrow The Site List" on page 2-19
3. Click on the Site to select it in the list and enable the action buttons in the action bar
4. Click on the green tick icon to the right of the action bar to select the Site.

Sitelink3D v2 will set the Site as selected and focus the map on its location.

Selecting An Existing Site Via The Site Context Menu

1. Find the Site of interest on the map
2. Right-click on the Site map marker to display the **Site Context Menu** for that Site
3. Click the **Activate** as shown in Figure 2-53 to select the Site.

See "Opening The Site Context Menu" on page 2-33 for more information.

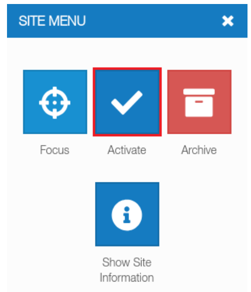

Figure 2-53: The Activate Button on the Site Context Menu

Viewing Site Information

Sitelink3D v2 provides access to a Site information on the **Site Information** dialog as shown in Figure 2-54. Users may wish to view this Site specific information for various reasons including the following:

- To provide diagnostic information when requesting support
- To access the Site Discovery Identifier for manually connecting clients to a Site
- To view the current Site Localization.

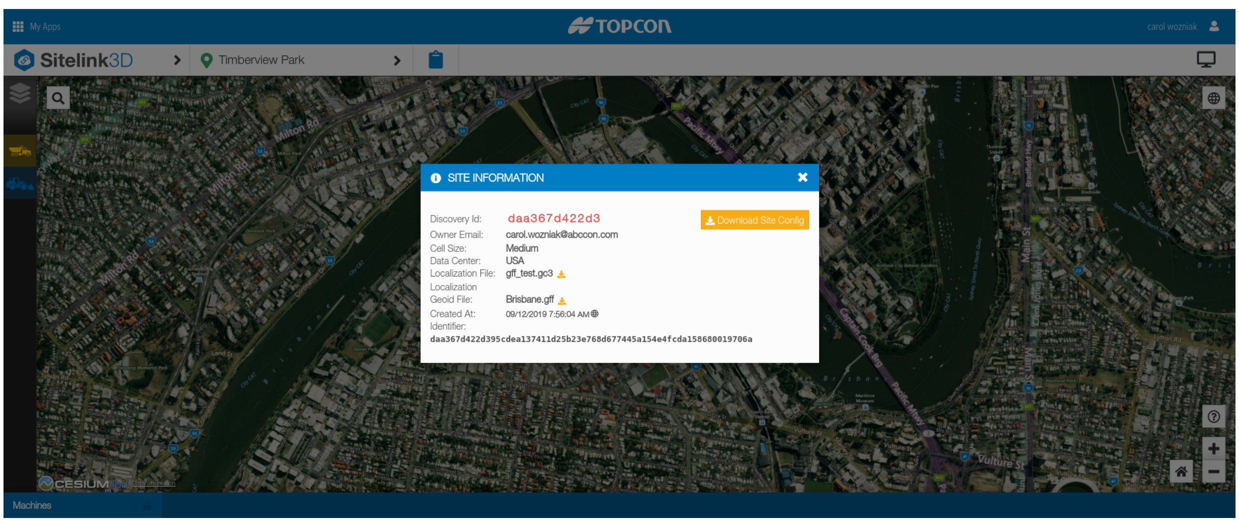

Figure 2-54: The Site Information Dialog

Opening The Site Information Dialog

The **Site Information** dialog can be accessed from three locations:

- Via the **Site Menu** for the selected Site
- Via the **Site Manager** for all Sites including the selected Site
- Via the **Site Context Menu** for all Sites visible on the map.

Opening The Site Information Dialog Via The Site Menu

Information about the selected Site can be accessed via the **Site Information** dialog as described by the following process:

1. Click on the **Site Menu Selector**
2. Click on **Site Information** as shown in Figure 2-55 to open the **Site Information** dialog.

The Site information related to the selected Site will be displayed.

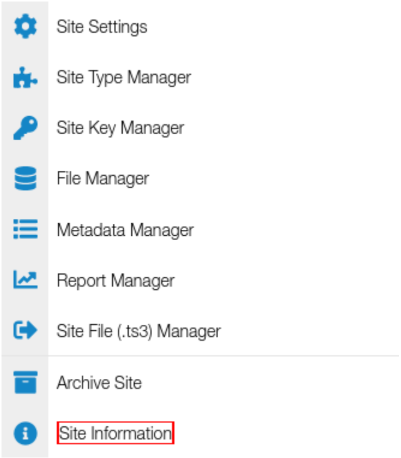

Figure 2-55: The Site Menu Site Information Option

Opening The Site Information Dialog Via The Site Manager

1. Open the **Site Manager** as described in “Opening The Site Manager” on page 2-16
2. Find the Site of interest. See “Using A Filter To Narrow The Site List” on page 2-19.
3. Click on the blue info icon to the right of the action barvas shown in Figure 2-56 to open the **Site Information** dialog.

The Site information related to the particular Site will be displayed.

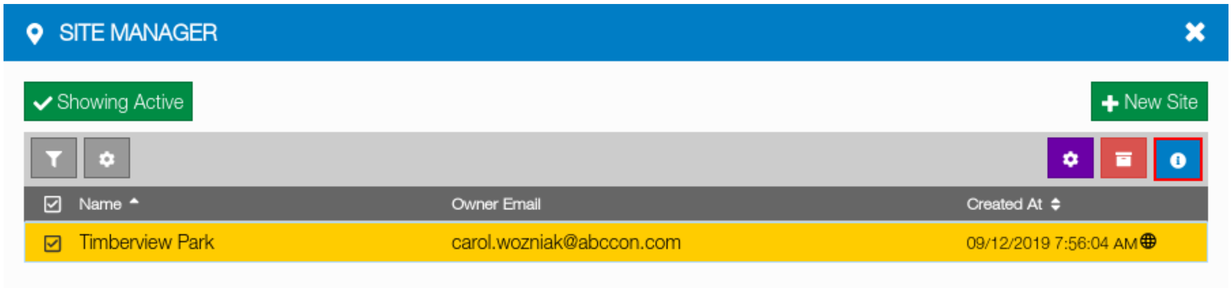

Figure 2-56: The Site Information Link on the Site Manager

Opening The Site Information Dialog Via The Site Context Menu

1. Find the Site of interest on the map
2. Right-click on the Site map marker to display the **Site Context Menu** for that Site
3. Click on the **Show Site Information** button as shown in Figure 2-57 to display the **Site Information** dialog for that Site.

See “Opening The Site Context Menu” on page 2-33 for more information.

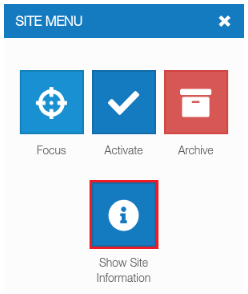

Figure 2-57: The Site Information Link on the Site Context Menu

Using The Site Information Dialog

The **Site Information** dialog displays the following:

- The Site Discovery identifier
- The email address associated with the Site owner
- The cell size selected when the Site was created. See “Entering General Site Information” on page 2-6 for more information
- The data center selected when the Site was created. See “Entering General Site Information” on page 2-6 for more information
- The GC3 file name (and download link) used for Site Localization if applicable
- The geoid file name (and download link) used for Site Localization if applicable
- The date and time that the Site was created
- The Site identifier that uniquely identifies the Site.

Finding & Downloading The Localization Currently In Use

The Localization and geoid files currently applied to the selected Site can be viewed and downloaded at any time on the **Site Information** dialog. The following process describes how to access the Site Localization:

1. Open the **Site Information** dialog as described in “Opening The Site Information Dialog” on page 2-40
2. The currently used Localization file is displayed in the **Localization File** field as shown in Figure 2-58 and can be downloaded by clicking on the yellow download icon
3. Any currently used geoid file is displayed in the **Localization Geoid File** field as shown in Figure 2-58 and can be downloaded by clicking on the yellow download icon.

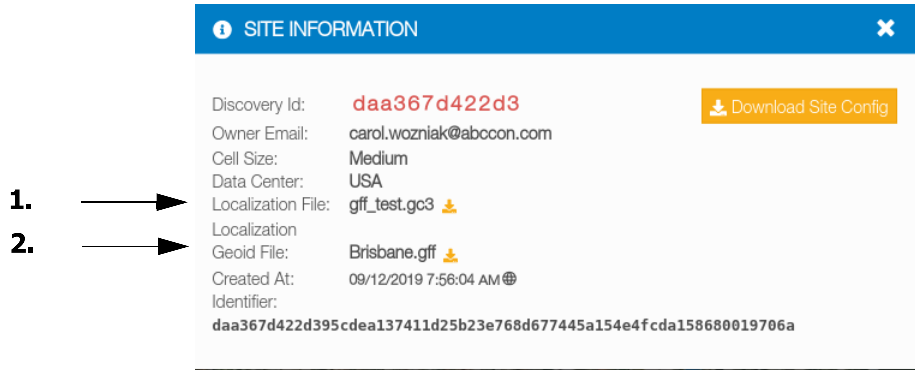

Figure 2-58: Site Localization Information on the Site Information Dialog

1. The Site Localization file currently in use if applicable.
2. The geoid file currently in use if applicable.

Finding The Unique Site Identifier

The Site Identifier is used to uniquely identify a Site. This can be useful in cases where different Sites share the same name and are not easily distinguished in the **Site Manager**. The identifier is a 64 digit alphanumeric value found on the **Site Information** dialog as shown in Figure 2-59. The following process describes how to obtain the Site Identifier:

1. Open the **Site Information** dialog as described in "Opening The Site Information Dialog" on page 2-40

2. The Site Identifier is displayed in the **Identifier** field.

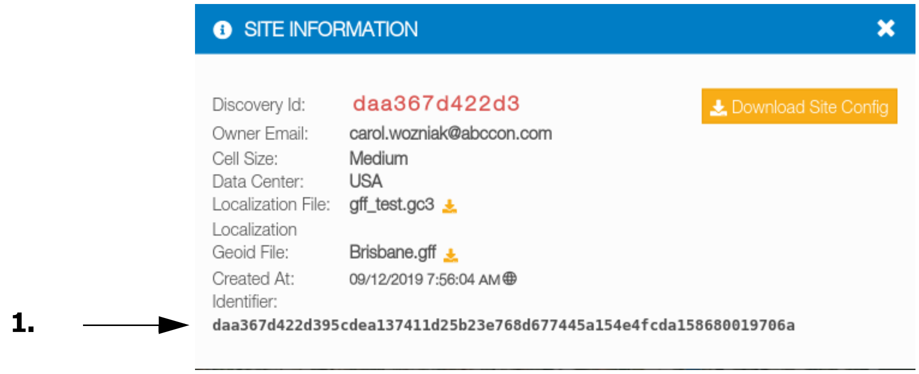

Figure 2-59: The Site Identifier on the Site Information Dialog

1. The Site Identifier.

Finding The Site Discovery Identifier

The Site Discovery Identifier is used to connect client devices to a Site where Site Discovery is not in use. The identifier is a 12 digit alphanumeric value found highlighted in red on the **Site Information** dialog as shown in Figure 2-60. The following process describes how to obtain the Site Discovery Identifier:

1. Open the Site Information dialog as described in "Opening The Site Information Dialog" on page 2-40

2. The Site Discovery Identifier is displayed in the **Discovery Id** field.

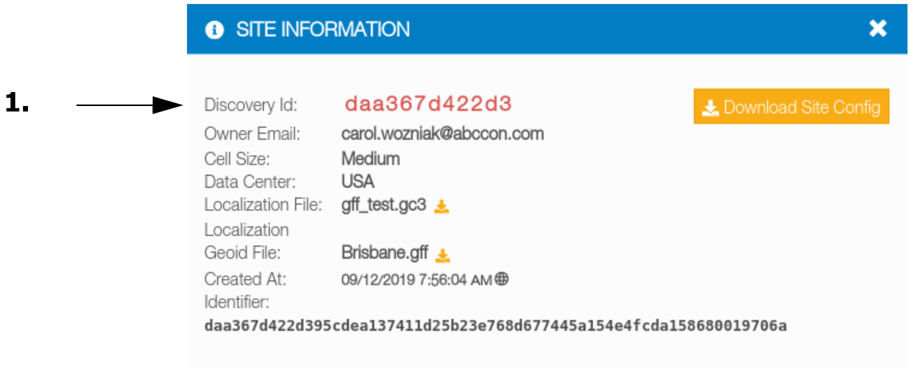

Figure 2-60: The Site Discovery Identifier on the Site Information Dialog

1. The Site Discovery Identifier.

Downloading Secure Site Configuration Details

Every Sitelink3D v2 is represented by securely encoded data that can be downloaded on the **Site Information** dialog. This file does not allow delegation of Site ownership or access and hence does not pose a security threat.

The following process describes how to obtain the Site configuration file:

1. Open the **Site Information** dialog as described in "Opening The Site Information Dialog" on page 2-40

2. Click the yellow **Download Site Config** button as shown in Figure 2-61.

The Site configuration file will be downloaded with an sl3 extension.

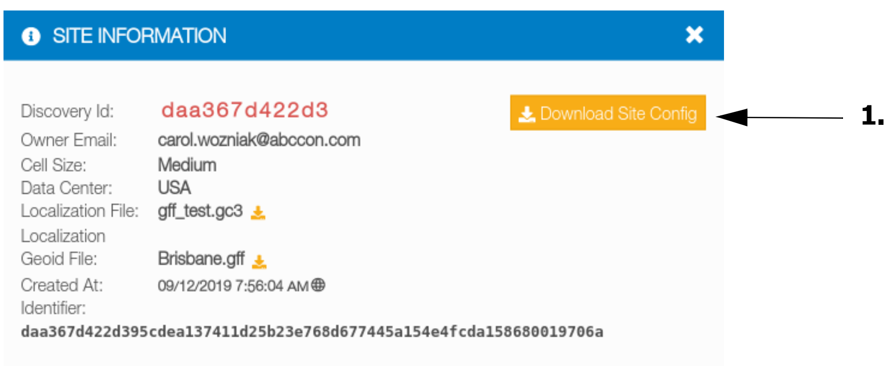

Figure 2-61: The Download Site Config Button on the Site Information Dialog

1. The Download Site Config button provides access to technical Site configuration data.

Determining Site Localization Status On The Site Menu Selector

The Site Localization status is determined by the color of the pin on the **Site Menu Selector**. Localized Sites display a green pin and unlocalized Sites display a red pin as shown in Figure 2-62 and Figure 2-63 respectively.

Figure 2-62: The Site Menu Selector Displaying a Green Pin to Indicate a Localized Site

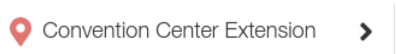

Figure 2-63: The Site Menu Selector Displaying a Red Pin to Indicate an Unlocalized Site

NOTE Missing Localization data is also identified by the absence of the **Localization File** and **Localization Geoid File** fields on the **Site Information** dialog. See "Finding & Downloading The Localization Currently In Use" on page 2-42.

Viewing Live Machine Activity

The following sections describe how connected machines are displayed within Sitelink3D v2.

Locating Connected Machines

All machines that have connected to a Site are listed in the **Machines** tab in the Footer Bar as shown in Figure 2-64. If currently connected, machines are also visible on the map and display additional state. This section describes the processes for identifying machine positions on a Sitelink3D v2 Site.

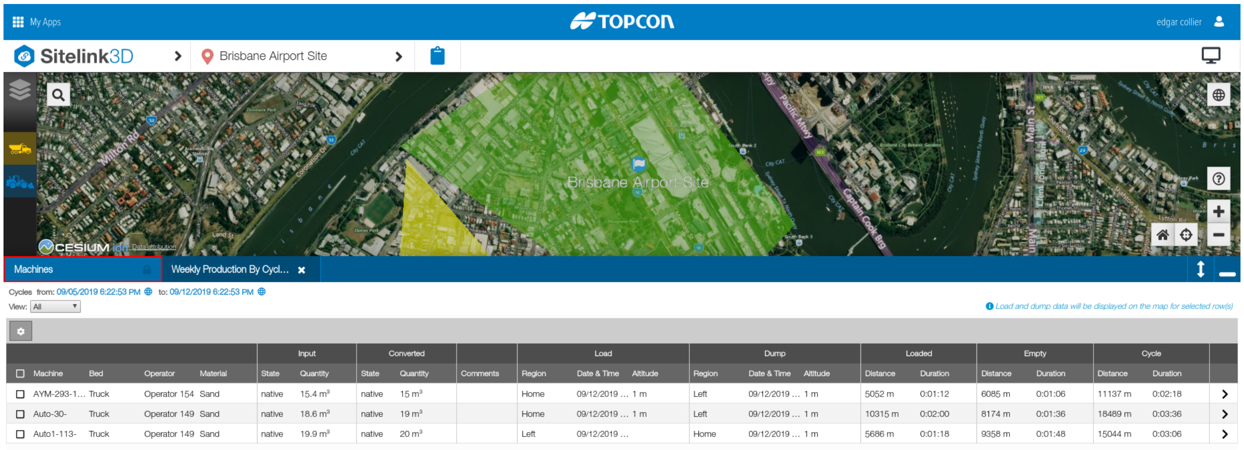

Figure 2-64: The Machines Tab in the Footer Bar

Identifying Machine Positions In The Machines Tab

The following process describes how to list the machines known to a Site.

1. Open the Site of interest as described in "Selecting An Existing Site" on page 2-38
2. Click on the **Machines** tab in the Footer Bar to expand the machine list

3. Locate the machine of interest in the list noting that a filter is available to ease this task

The position of the machine is displayed under the Position column. Note that this column will need to be enabled in the **Machines** tab list configuration to be visible.

Locating Machines On The Map

The following process describes how to locate a machine connected to the selected Site on the map:

1. Locate the machine under the **Machines** tab as described in "Identifying Machine Positions In The Machines Tab" on page 2-45

2. Select the machine by clicking its associated checkbox in the list

3. Click on the locate icon that appears in the action bar when the machine is selected.

The map will center on the machine and zoom to a distance appropriate for viewing.

Viewing Connected Machine Details

Detailed information about all machines connected to a Sitelink3D v2 Site is provided in real time. The information available includes the following:

- Machine connected state
- Machine position
- Machine name
- Machine trust status
- Client selected values
  - Working Set
  - Surface
  - Alignment
  - Activity
  - Material
  - Delay
  - Operator
  - Elevation Offset
- Device name
- Device trust status

The following sections describe how this information is accessed.

Watching Specific Machines As They Work

The dynamic position and articulation of machines is displayed on the Sitelink3D v2 map in real time. This feature allows unmatched insight into machine activity on the ground from a remote location. Example uses including:

- Watching an excavator dig and swing when loading a haul truck
- Following a compactor as it performs passes.

The following process describes how to watch a specific machine as it works:

1. Locate the machine of interest using one of the methods described in “Locating Connected Machines” on page 2-45
2. Zoom, pan or otherwise orient the map to provide the best view of the machine.

NOTE Map navigation help is accessed by clicking on the question mark button at the bottom right of the map screen.

Viewing Connected Machine Details In The Machines Tab

The following process describes how information about connected machines can be displayed in the **Machines** tab in the Footer Bar:

1. Locate the machine in the **Machines** tab as described in “Identifying Machine Positions In The Machines Tab” on page 2-45
2. View the columns of data associated with the row represented by the machine.

NOTE The column data displayed in the Machines list is configurable by clicking the cog.

Viewing Connected Machine Details On The Map

The following process describes how information about connected machines can be displayed on the map:

1. Locate a machine on the map using the process described in “Locating Machines On The Map” on page 2-46
2. Click on the machine.

A machine information box will be drawn on the map with information relating to the selected machine.

Exporting Site Files For Offline Client Use

Site Files At A Glance

Site files provide a convenient way to package Working Sets so that they can be downloaded and installed on a Sitelink3D v2 compatible client. Site files are identified by a TS3 extension and are useful when machines are required to operate offline. This section describes how Site files are created and downloaded within Sitelink3D v2.

Opening The Site File Manager

The **Site File Manager** can be opened via the **Sitelink Menu** as described by the following process:

1. Click on the **Site Menu Selector** to show the **Site Menu** as shown in Figure 2-65
2. Click on **Site File (.ts3) Manager** to open the **Site File Manager** as shown in Figure 2-66

The **Site File Manager** will open.

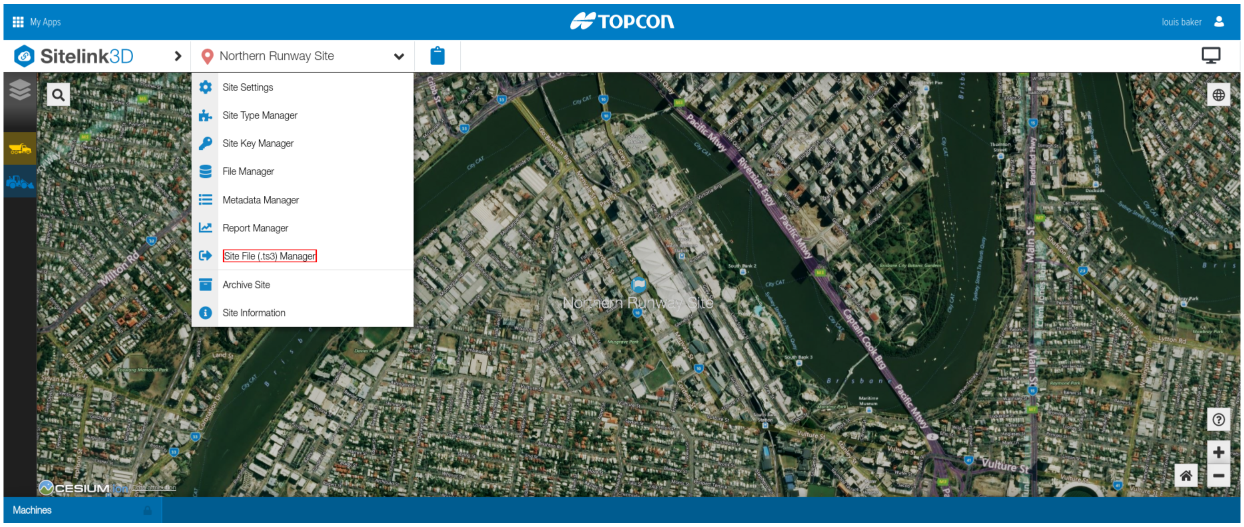

Figure 2-65: Accessing the Site File Manager in the Site Menu

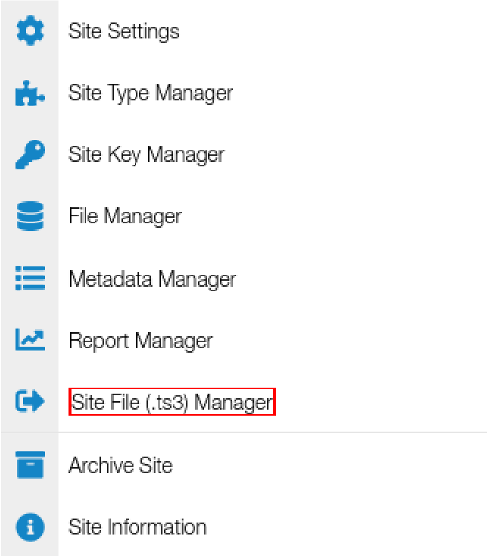

Figure 2-66: Accessing the Site File Manager in the Site Menu

Creating A New Site File

A new Site file is created using the following process:

1. Open the **Site File Manager** as described in “Opening The Site File Manager” on page 2-48
2. Click the **New** button to open the **New Site File** dialog as shown in Figure 2-67
3. Select a target client from the list provided
4. Select the Working Sets to be included in the Site file from the list provided
5. Optionally add a description for easy identification of this Site file in the **Site File Manager**
6. Click the **Save** button.

The **New Site File** dialog will close and the Site file will appear listed in the **Site File Manager**.

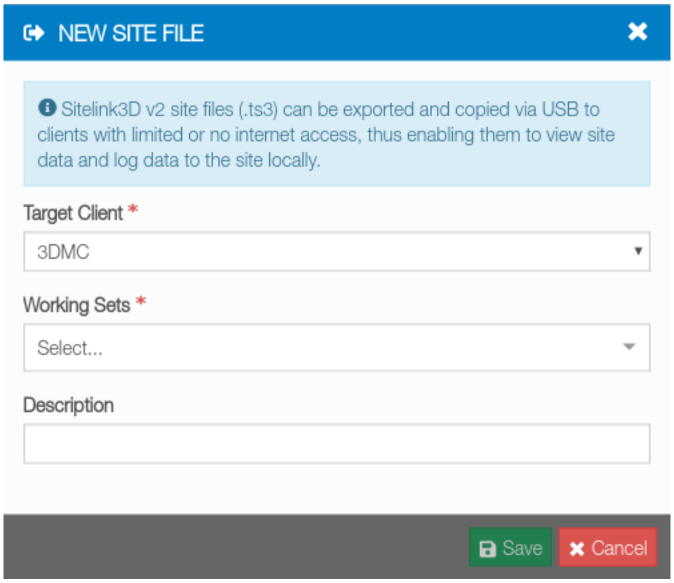

Figure 2-67: The New Site File Dialog

NOTE Site files cannot be edited.

Viewing, Filtering & Sorting The Site File List

Site files can be easily viewed, filtered and sorted using the **Site File Manager**. This may be necessary for a number of reasons including:

- Finding the most recently created Site file
- Filtering on Site files with a common creation date
- Sorting Site files by description.

This section describes how Site files are viewed in Sitelink3D v2.

Viewing The Site Files Associated With A Site

The Site files associated with the selected Site can be viewed on the **Site File Manager** as shown in Figure 2-68. Access the **Site File Manager** as described in “Opening The Site File Manager” on page 2-48. The **Site File Manager** displays a list of Site files including the following information for each file:

- Target Client
- Working Sets
- Description
- File Size
- Created At

- Status
- Processing Message.

The columns displayed when viewing Site files can be configured as shown in Figure 2-69. The following process describes how to configure the appearance of the **Site File Manager** list:

1. Open the **Site File Manager** as described in “Opening The Site File Manager” on page 2-48

2. Click on the cog icon to the left of the action bar to access the popup configuration as shown in Figure 2-68. This allows customization of the following:

    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable

    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder

    c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.

3. Click the **Apply** button to save the selections.

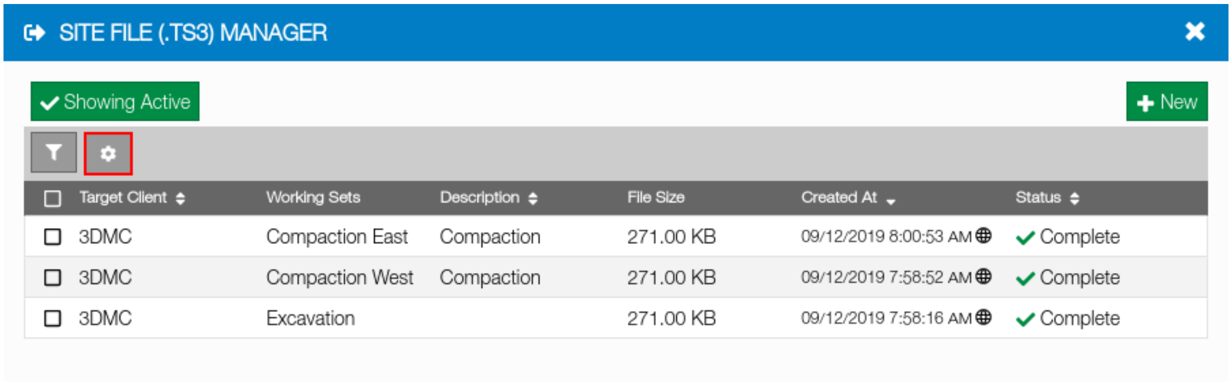

Figure 2-68: The Site File Manager List Configuration Button

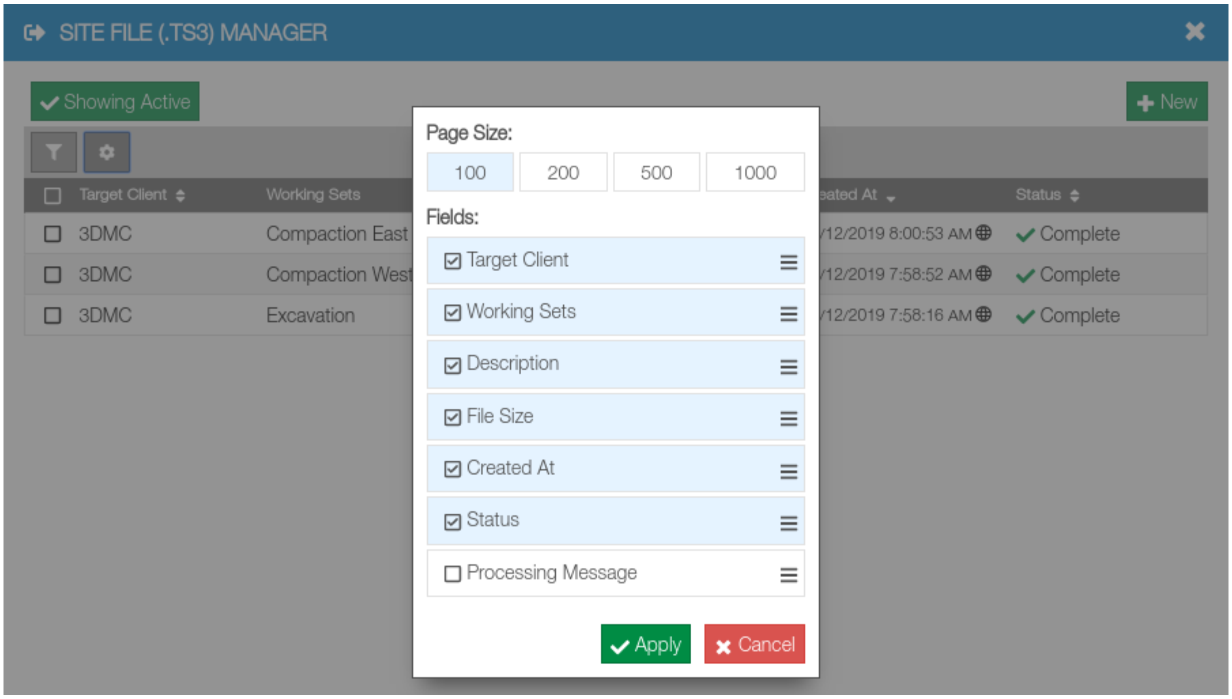

Figure 2-69: Configuring The Site File Manager List

Viewing Active Site Files

By default, the **Site File Manager** displays the active Site files when opened. Active Site files are available for download at any time. The active Site file view is indicated by the presence of the green **Showing Active** button at the top left of the **Site File Manager**.

Viewing Archived Site Files

The **Site File Manager** displays archived Site files as a separate view. Archived Site files are available for restoration at any time and cannot be accessed without first being restored. The archived Site file view is indicated by the presence of the red **Showing Archived** button at the top left of the **Site File Manager**.

NOTE The **Showing Active** and **Showing Archived** buttons toggle between the active and archived views on the **Site File Manager**.

Using A Filter To Narrow The Site File List

As a Site may potentially have run a large number of Site files, Sitelink3D v2 allows the visible Site files in the **Site File Manager** to be filtered for clarity. Filtering allows Site files to be eliminated, based upon values entered for specific fields. The fields provided for filtering are:

- Created At
- Status.

Complex filtering is possible by chaining multiple filter terms together as described in “Using Filter Chaining To Further Narrow The Site File List” on page 2-55. The following process describes how to restrict a Site file list using a single filter term:

1. Open the **Site File Manager** as described in “Opening The Site File Manager” on page 2-48
2. Click on the filter icon to the left of the action bar to display the filter box as shown in Figure 2-70
3. Click on the **Click to add filter** area in the filter box above the list to display the fields that support filtering as shown in Figure 2-71
4. Click on the desired field to filter on as shown in Figure 2-72
5. Enter the term that the selected field should be narrowed by
   – For names, type the filter term in the filter box as shown in Figure 2-25
   – For complex types such as date and time fields, enter the filter term on the field specific popup provided.
6. Apply the filter
   – For names, press the enter key
   – For complex types such as date and time fields, click the **Apply** button.

The **Site File Manager** will update the Site file list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 2-26.

NOTE The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

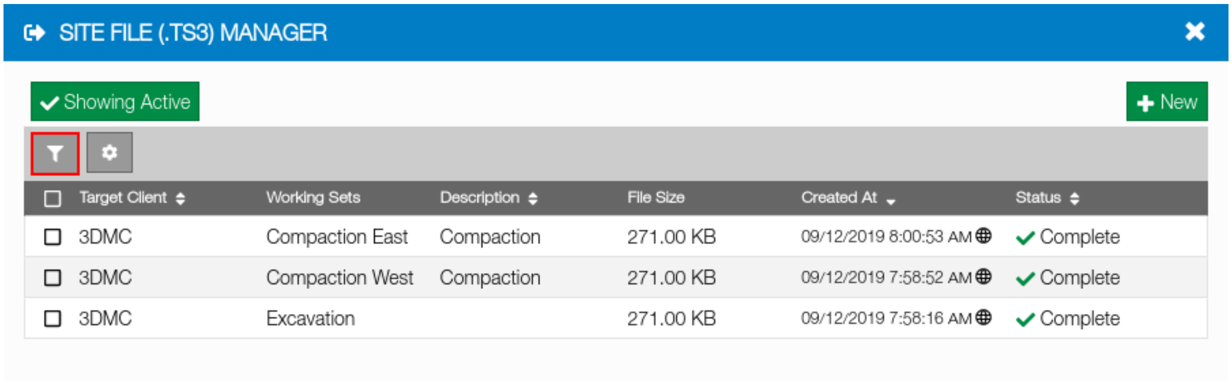

Figure 2-70: The Site File Manager Filter Button

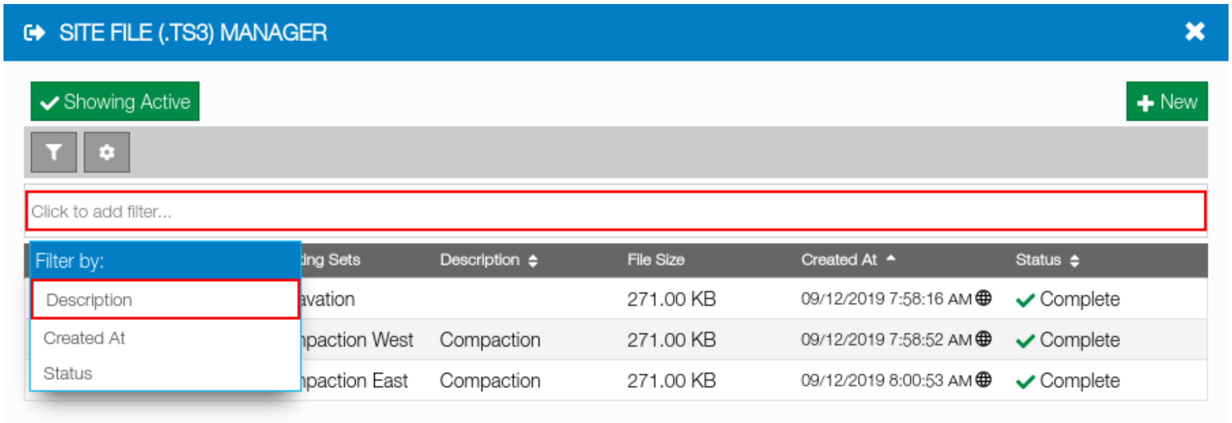

Figure 2-71: Selecting Filter Fields on the Site File Manager

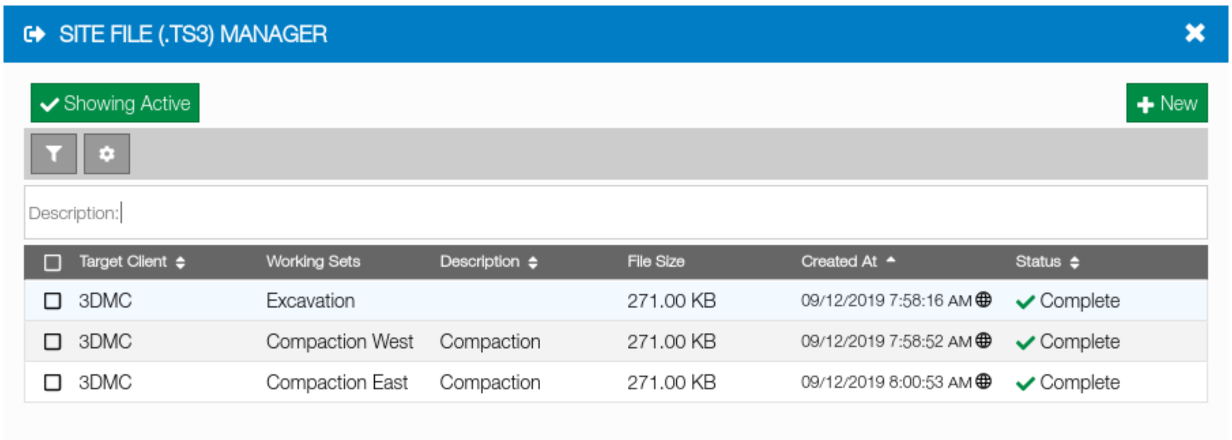

Figure 2-72: Entering a Description to Filter By on the Site File Manager

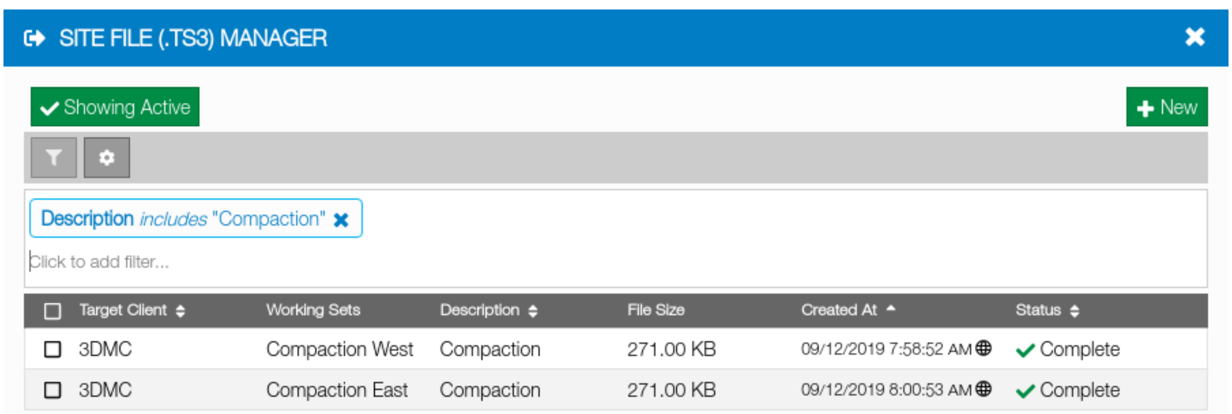

Figure 2-73: A Single Description Filter Applied to the Site File Manager List

Using Filter Chaining To Further Narrow The Site File List

The use of a single filter term as discussed in "Using A Filter To Narrow The Site File List" on page 2-52 is suitable for most purposes. For times where more granular searches are required however, the **Site File Manager** allows multiple search terms to be chained together.

Multiple search terms are applied with an "and" clause and hence act to restrict rather than broaden search results. The following process describes how to apply more than one filter term in the **Site File Manager**:

1. Apply a single **Site File Manager** filter as described in "Using A Filter To Narrow The Site File List" on page 2-52
2. Click on the **Click to add filter** area in the filter box below the existing filter term to display the remaining fields that support filtering as shown in Figure 2-74
3. Click on the desired field to filter on noting that fields cannot be reused when chaining
4. Enter the term that the selected field should be narrowed by
   – For names, type the filter term in the filter box
   – For complex types such as date and time fields, enter the filter term on the field specific popup provided as shown in Figure 2-28.
5. Apply the filter
   – For names, press the enter key
   – For complex types such as date and time fields, click the **Apply** button as shown in Figure 2-28.

The **Site File Manager** will update the Site file list in accordance with the active filter terms. For clarity, the chained filter terms are displayed in blue in the filter box as shown in Figure 2-29.

NOTE Each filter parameter can only appear once in a filter chain. Once active in an expression, a filter term is edited if selected again when clicking in the filter box.

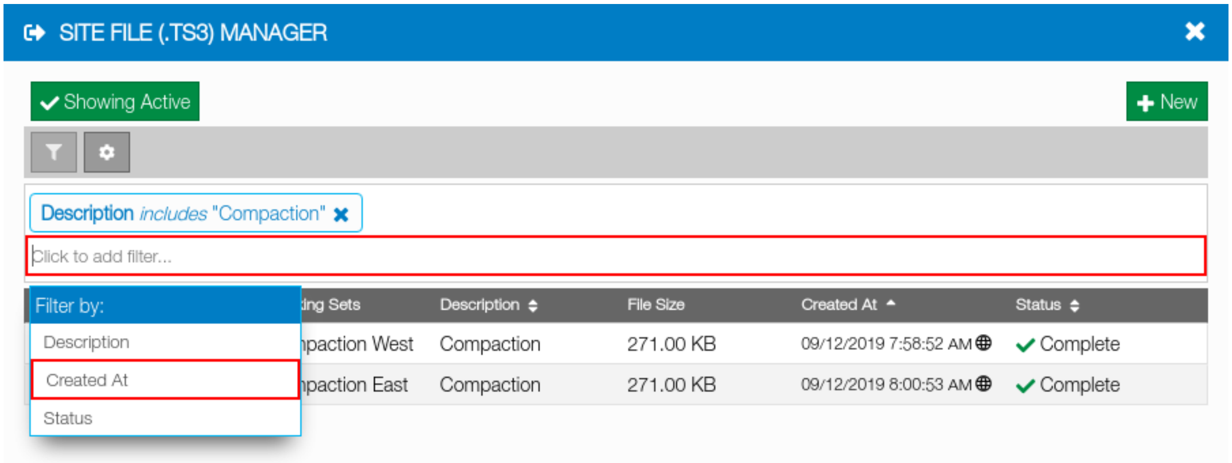

Figure 2-74: Adding A Second Filter Expression on the Site File Manager

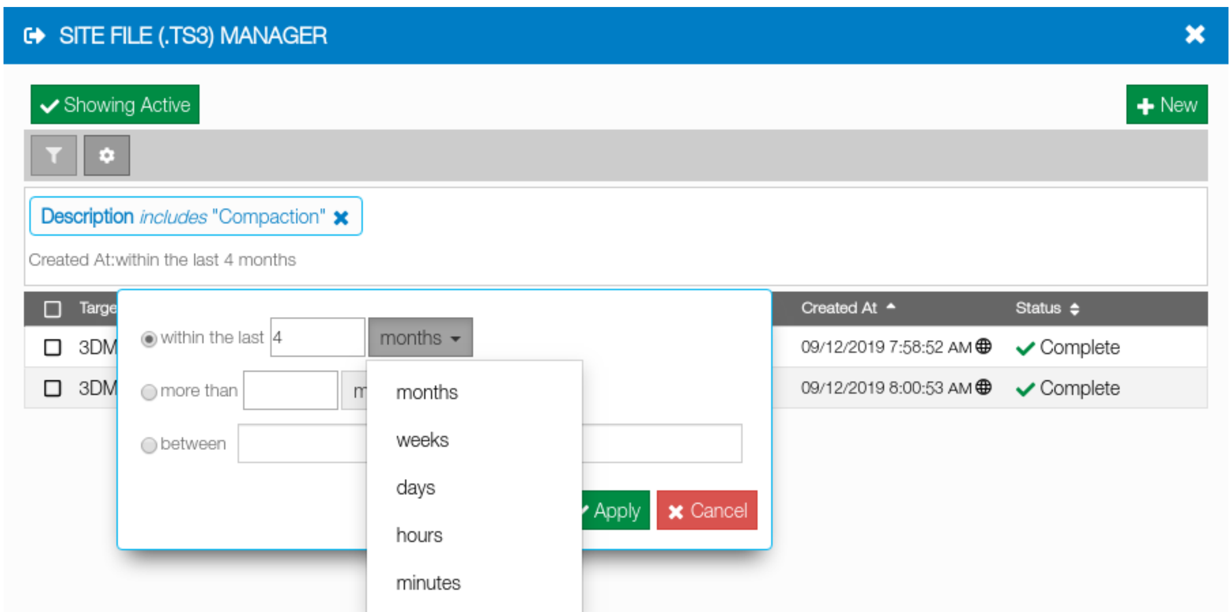

Figure 2-75: Entering a Created At Filter on the Site File Manager

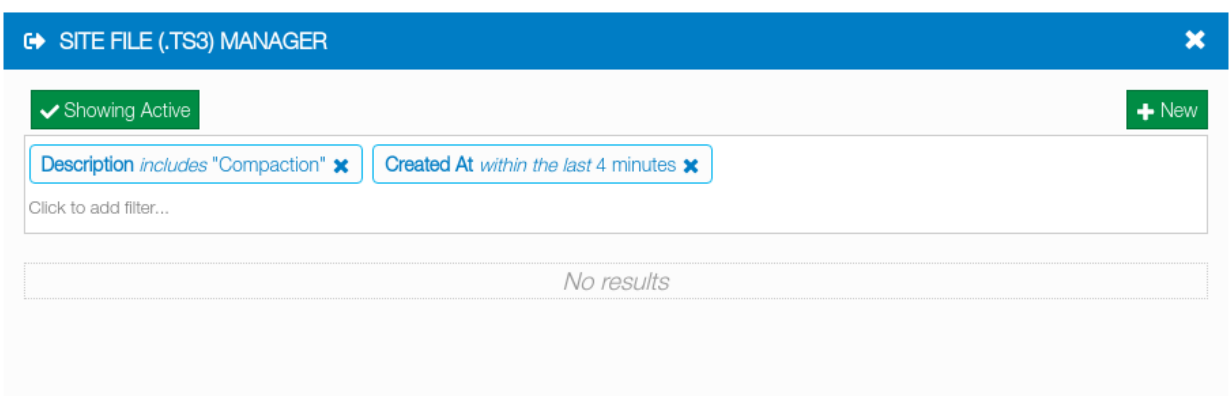

Figure 2-76: Filter Chaining on the Site File Manager

Sorting The Site File List

By default, the **Site File Manager** lists Site files in descending creation order as shown in Figure 2-77. It can be useful however to list Site files in an alternative ascending or descending order. Examples of such scenarios include:

- Finding the oldest Site files for archival
- Displaying all Site files of a particular status first.

The following process describes how to sort a Site file list:

1. Open the **Site File Manager** as described in "Opening The Site File Manager" on page 2-48
2. Click on the column title matching the field to sort on as shown in Figure 2-78
3. Click again on the column title to switch between ascending and descending sort order.

The **Site File Manager** will update the Site file list in accordance with the selected sort field and order. The direction of the arrow next to the column title indicates the current sort order.

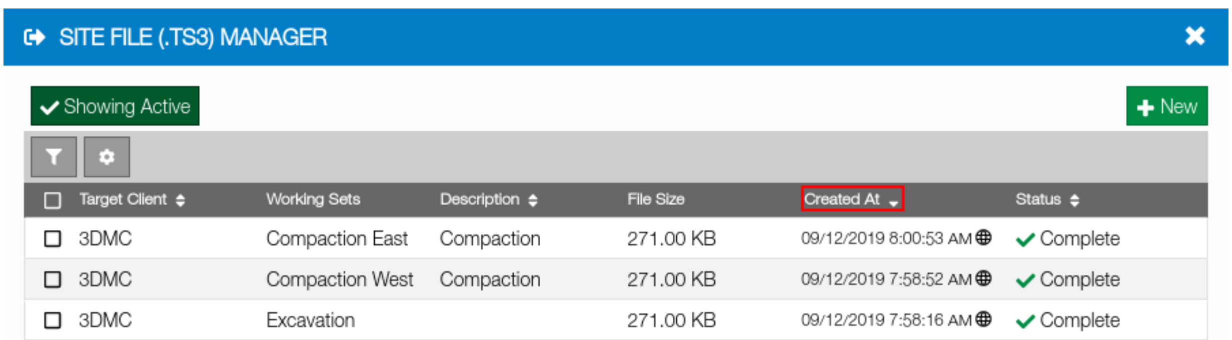

Figure 2-77: Site Files Sorted By Created At Time By Default on the Site File Manager

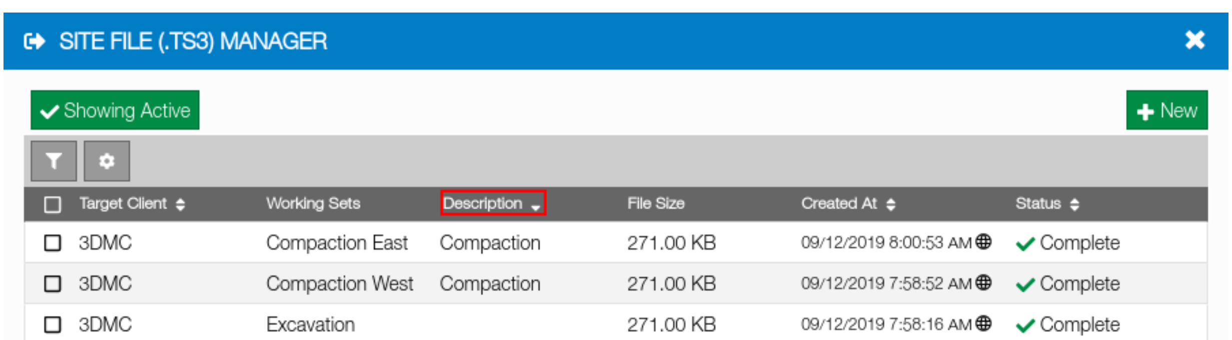

Figure 2-78: Site Files Sorted By Description on the Site File Manager

Downloading Exported Site Files

Completed Site files can be downloaded as described by the following process:

1. Open the **Site File Manager** as described in "Opening The Site File Manager" on page 2-48
2. Find the Site file to be downloaded. See "Using A Filter To Narrow The Site File List" on page 2-52
3. Click on the Site file to select it in the list and enable the action buttons in the action bar
4. Click on the yellow download icon to the right of the action bar to as shown in Figure 2-79 to start the download.

The Site file will be downloaded in the browser.

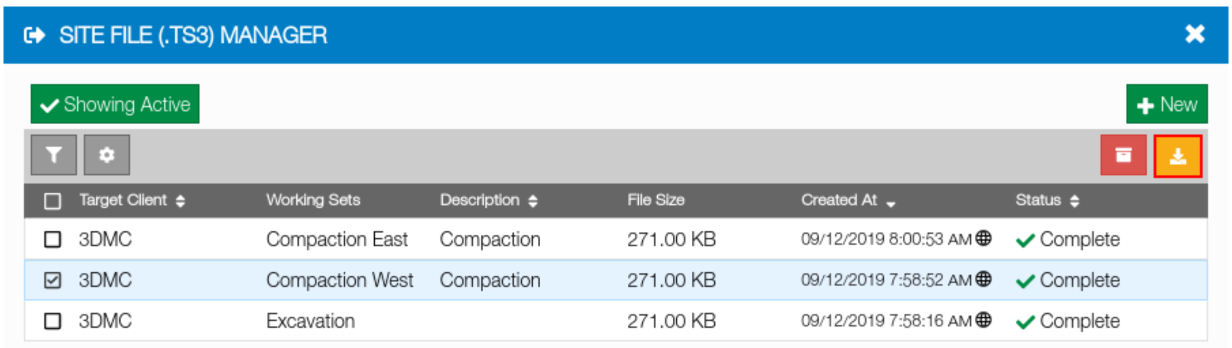

Figure 2-79: The Download Button on the Site File Manager

Providing Site Level Remote Support

Sitelink3D v2 provides two levels of Remote Support:

- Organization level
- Site level.

Organization level Remote Support is covered in the *Remote Support Client User's Manual P/N: 1031236-01*. This section describes how Site level Remote Support is provided to machines connected to a Sitelink3D v2 Site.

Understanding Site Level Support

Site and Organization Remote Support vary as detailed in Table 2-1.

Table 2-1. Differences Between Site & Organization Level Remote Support Functionality

Category	Site Remote Support	Organization Remote Support
Accessible Machines	Only machines on a Site	Any machine
Support Availability	Only when connected to Site	Always available

Table 2-1. Differences Between Site & Organization Level Remote Support Functionality

Category	Site Remote Support	Organization Remote Support
Support Desks	Unavailable	Available
Desk Pairings	Automatic on Site connection	Manual
Client Policies	Fixed	Configurable
Support Requests	Unavailable	Available

Benefits of Site level Remote Support include:

- No manual pairing required
- Easy to access any compatible client on Site.

Site Remote Support Prerequisites

Site Type

Because Site support is integral to the operation of a Site, it can be accessed on Sites of any type. See “Understanding Site Types” on page 2-1 for more information.

Required Permissions

Administrator Users have unrestricted access to Site Remote Support. Member Users require access to the following Site actions as described in “Selecting Site Role Actions” on page 3-35:

- View Site
- View Live Machine Data
- Manage Site Remote Support.

For convenience, the following default Site Roles provide Site Remote Support permissions:

- Administrator
- Site Manager.

Users can be assigned to these default Site Roles to easily delegate access to Site Remote Support. See “Using Default Site Roles” on page 3-34 for more information.

NOTE See “Understanding User Types” on page 3-1 for more information on User types.

Providing Site Remote Support

Site level Remote Support is provided using the following process:

1. Locate the machine in the machine list as described in "Identifying Machine Positions In The Machines Tab" on page 2-45

2. Select the machine by clicking its associated checkbox in the list as shown in Figure 2-80

3. Click on the support button representing the desired session type from those that appear in the action bar when the machine is selected as shown in Figure 2-80.

A support session to the selected machine will be initiated.

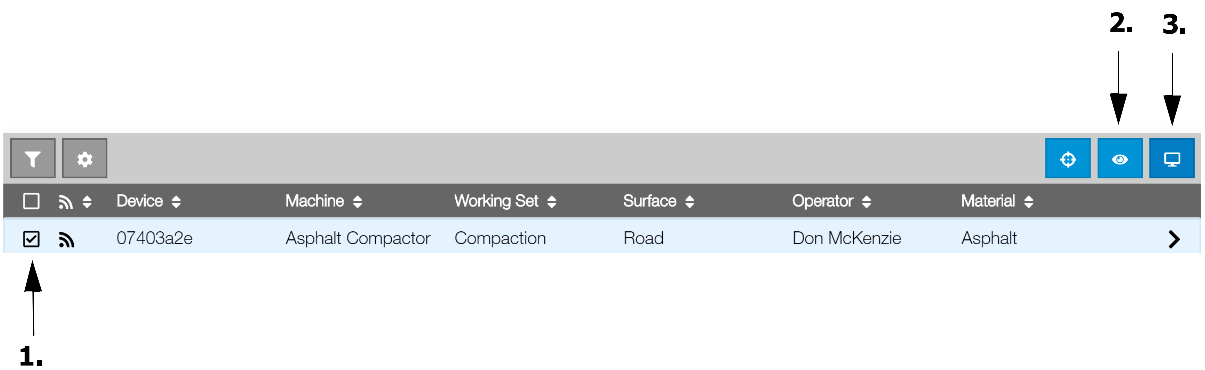

Figure 2-80: The Site Remote Support Options for a Machine in the Machine List

1. Machine selection checkbox in the machine list
2. Site remote view
3. Site remote control.

User Management

Overview

Sitelink3D v2 provides fine grained control over what Users can do. An Administrator User may wish to be selective about who is able to access and modify information about their Site or Organization. Restricting access to certain parts of Sitelink3D v2 based on Role or responsibility may be desirable for many reasons including the following:

- Reduce usage costs by ensuring that Sitelink3D v2 services are only available to those who need them
- Protect Users from blame by restricting abilities to only those appropriate to their job description
- Limit or eliminate the chance of damage, malicious or otherwise, that an individual can cause to the data integrity and operation of a Site.

This chapter describes how specific functionality within Sitelink3D v2 can be enabled and disabled for particular Users and User Groups.

NOTE User management is only available to Administrator Users. See “Understanding User Types” on page 3-1 for more information

Understanding User Types

Sitelink3D v2 behaves differently depending on the type of Topcon Enterprise Account being used.

Administrator Users

Administrator Users have full access to Sitelink3D v2 functionality. No Role assignments are required for Administrator Users as no functionality is restricted for this User type. Certain functionality cannot be delegated. The following is available to Administrator Users only:

- Site creation as described in “Creating A New Site” on page 2-4
- Site archival and restoration as described in “Archiving & Restoring Sites” on page 2-35
- Role control as described in “Using Roles To Define What Users Can Do” on page 3-15
- User Group control as described in “Simplifying Role Assignments With User Groups” on page 3-51.

Member Users

Unlike Administrator Users, Member Users have few default capabilities when joining an Organization. The default capabilities for Member Users are as follows:

- Configure User preferences as described in “User Preferences” on page 3-59
- Access Sitelink3D v2 documentation
- Access the **About Sitelink3D** dialog.

Member Users need to be assigned to Roles for them to work. See "Using Roles To Define What Users Can Do" on page 3-15 for more information.

Listing The Users & Their Types For An Organization

The access level for a particular Organization is determined using the Topcon Positioning website. The following process describes how the current User type is found:

1. Sign in to Topcon Positioning at https://www.topconpositioning.com
2. Click on the User name at the right of the Blue Bar
3. Click **View Organization** in the resulting menu as shown in Figure 3-1
4. Locate the User of interest and observe the User type in the **Role** field as shown in Figure 3-2

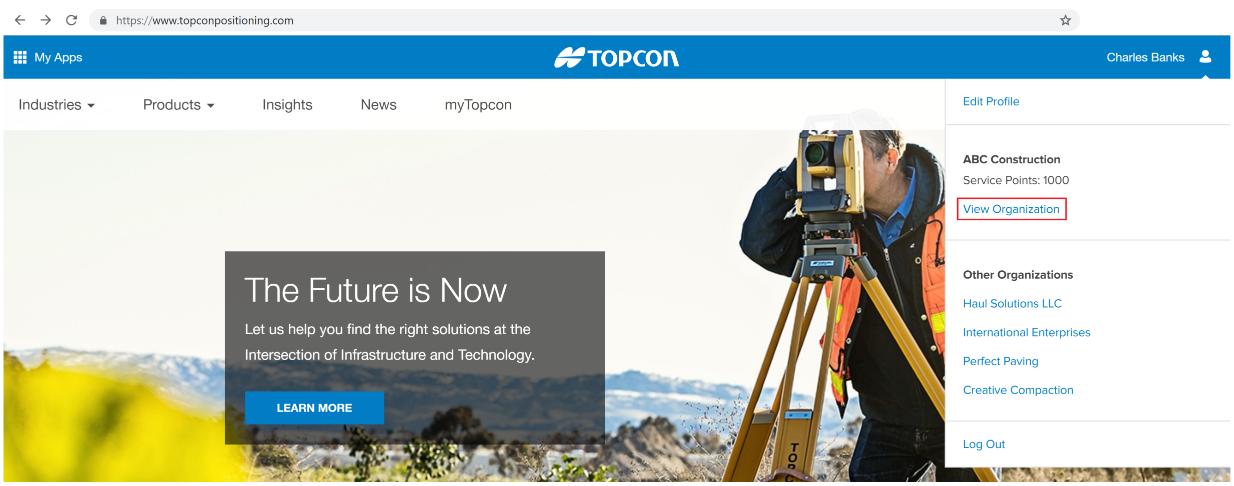

Figure 3-1: Selecting the View Organization Link on the Topcon Positioning Website

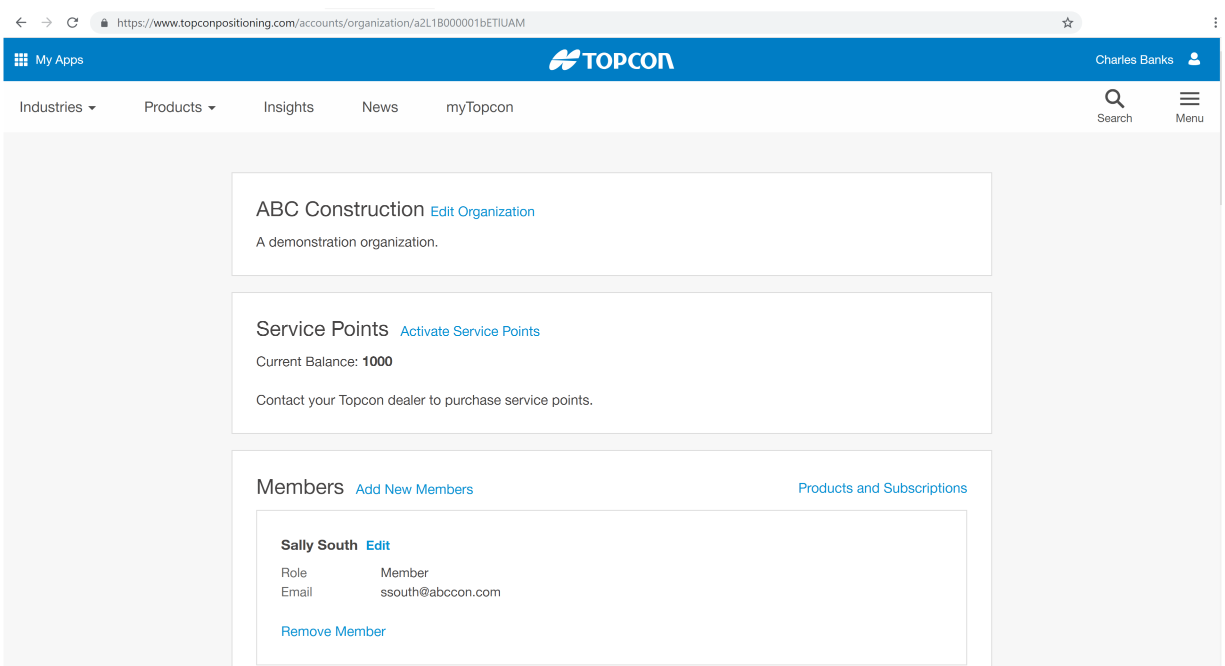

Figure 3-2: Member List With Role Type for an Organization in Topcon Positioning

Controlling User Access With The User Manager

The User Manager At A Glance

All User access is controlled by the **User Manager**. It has the following purposes:

- Select a Site or Organization to manage
- Create & manage Roles for Sites and Organizations
- Create & manage User Groups
- Assign Users and User Groups to Site and Organization Roles to grant access to actions.

The **User Manager** consolidates management of how Sitelink3D v2 is accessed and is useful for enforcing policies that safeguard data integrity and ensure smooth operation of the system. Granting access to predefined Roles is achieved in the **User Manager** in only three steps as shown in Figure 3-3:

1. Select a Site or Organization
2. Select the Role to be delegated
3. Click the yellow **Manage Members** button and follow the prompts to complete the assignment.

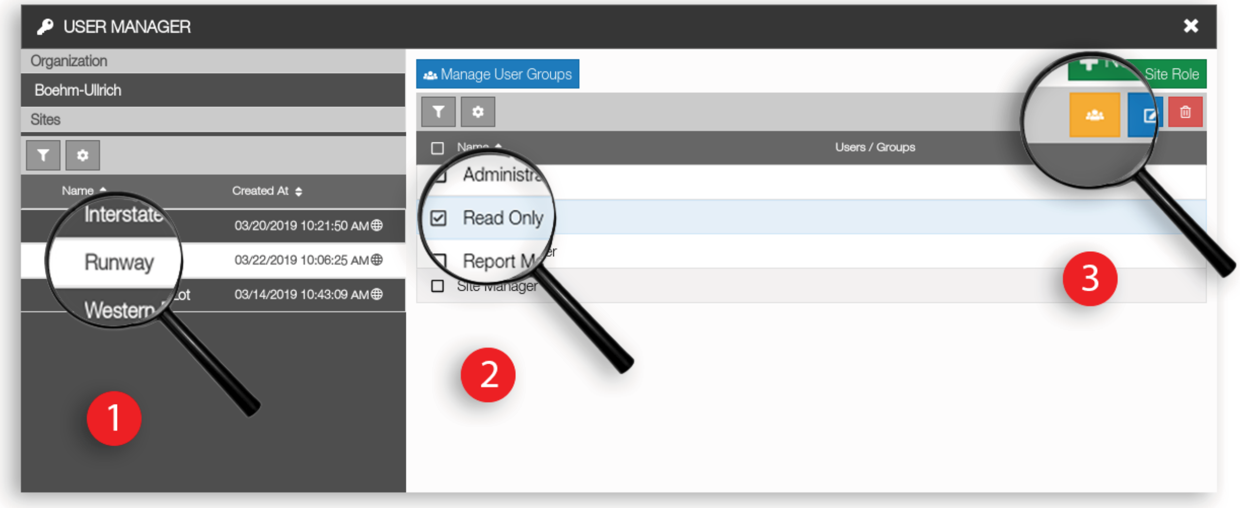

Figure 3-3: Visualization of Assigning Users to Roles in Three Steps

The **User Manger** consists of two parts:

- The sidebar
- The content panel.

The Sidebar At A Glance

The sidebar is the area to the left of the **User Manager** that allows for selection of either the current Organization or one of any number of Sites for that Organization. The Sites header in the sidebar provides access to a filter which can ease the task of finding a particular Site in a large list. See "Selecting Organizations & Sites With The Sidebar" on page 3-5 for more information.

The Content Panel At A Glance

Once either the Organization or a Site is selected in the sidebar, the Organization or Site name is highlighted with a white background and the content panel to the right of the **User Manager** is populated with the Roles appropriate to the sidebar selection.

The Roles available within the selected scope are displayed along with any Users or User Groups assigned to that Role. Selecting a Role displays buttons in the action bar for editing the assigned Users, editing the Role itself or deleting the Role. See "Using The Content Panel" on page 3-12 for more information.

Opening The User Manager

The **User Manager** is accessed via the **Sitelink Menu** as described by the following process:

1. Click on the **Sitelink Menu Selector** to show the **Sitelink Menu** as shown in Figure 3-1
2. Click on **User Manager** to open the **User Manager** as shown in Figure 3-2

The **User Manager** will open.

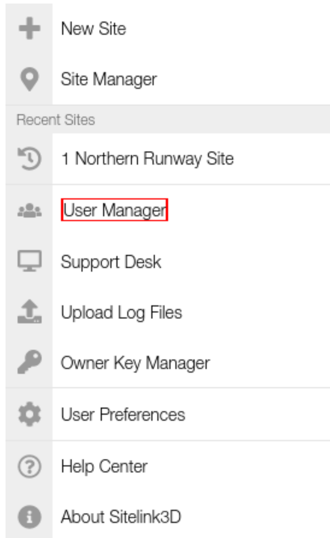

Figure 3-1: Accessing The User Manager in the Sitelink Menu

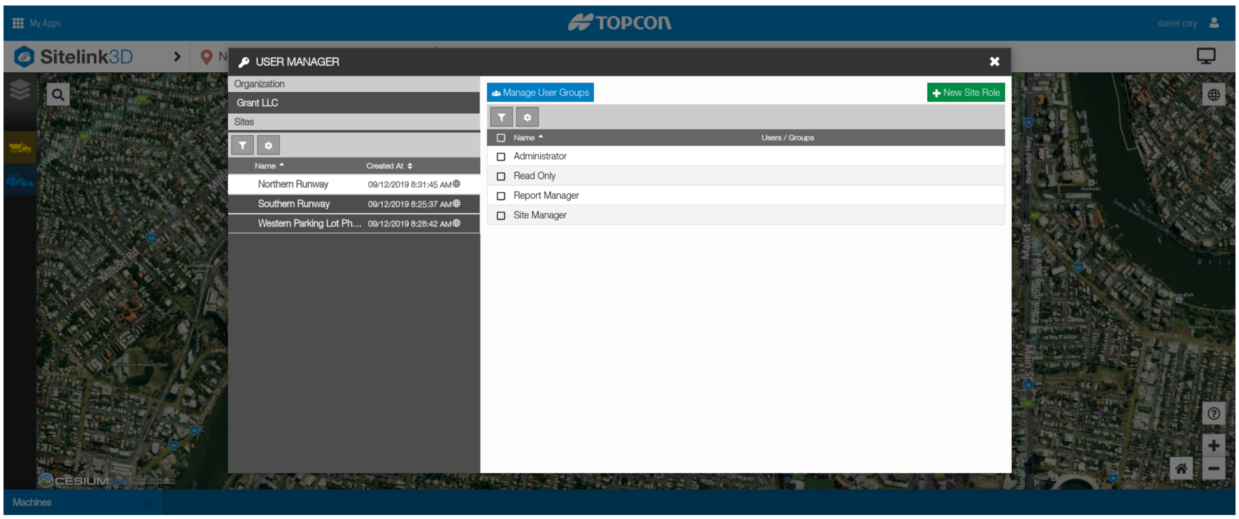

Figure 3-2: The User Manager Displaying Default Site Roles

Selecting Organizations & Sites With The Sidebar

The **User Manager** sidebar allows an Organization or Site to be selected for User management. To achieve this, the sidebar is divided into two sections:

- Organization Section
- Site Section.

The selection made on the sidebar determines what is displayed on the adjacent content panel. This is necessary because each Organization and Site will potentially have different User and Role assignments. When selected, an item in the sidebar is displayed with a white background.

Sidebar Organization Section

The Organization section displays the name of the Organization associated with the current User login and consequently only one Organization is available for selection at a time.

Clicking on the Organization name displays the Roles available for that Organization and the list of assignees for each Role in the content panel. See "Working With Organization Roles" on page 3-36 for more information.

Sidebar Site Section

The Sites section displays all Sites visible to the currently logged in User. Many Sites may be available for selection. The selected Site is highlighted by default as shown in Figure 3-3. Filtering and configuration of the Site list is made available via the action bar as shown in Figure 3-3.

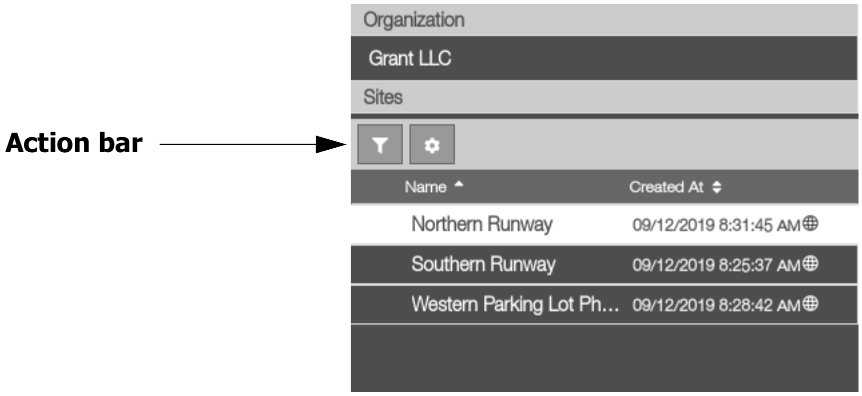

Figure 3-3: The User Manager Sidebar With a Site Highlighted

Selecting Sites On The User Manager Sidebar

Clicking on each Site name displays the Roles available for that Site and the list of assignees for each Role in the content panel. See "Working With Site Roles" on page 3-19 for more information.

Using A Filter To Narrow The Sidebar Site List

As the **User Manager** sidebar can potentially display a large number of Site names, Sitelink3D v2 allows the Site list to be filtered for clarity. Filtering allows Sites to be eliminated, based upon values entered for specific fields. The fields provided for filtering are:

- Name
- Created At Date & Time.

Complex filtering is possible by chaining multiple filter terms together described in "Using Filter Chaining To Further Narrow The Sidebar Site List" on page 3-9. The following process describes how to restrict a Site list on the **User Manager** sidebar using a single filter term:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4

2. Click on the filter icon directly under the Sites header in the sidebar to display the filter box as shown in Figure 3-4

3. Click on the **Click to add filter** area in the filter box above the list to display the fields that support filtering as shown in Figure 3-5

4. Click on the desired field to filter on as shown in Figure 3-6

5. Enter the term that the selected field should be narrowed by

   – For names, type the filter term in the filter box

   – For creation times, enter the filter term on the field specific popup provided.

6. Apply the filter

   – For names, press the enter key

   – For creation times, click the **Apply** button.

The **User Manager** will update the Site list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 3-7.

NOTE The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

Filter box

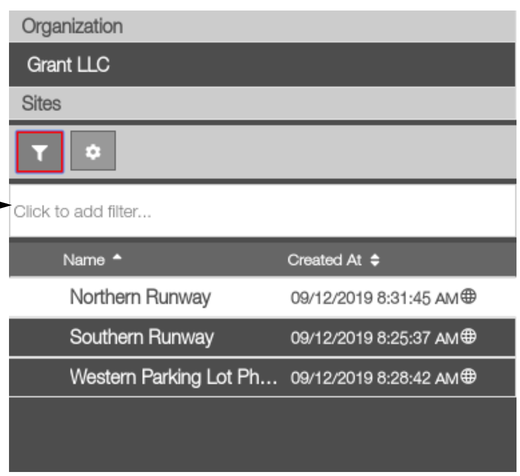

Figure 3-4: The User Manager Dialog Sidebar Filter Box

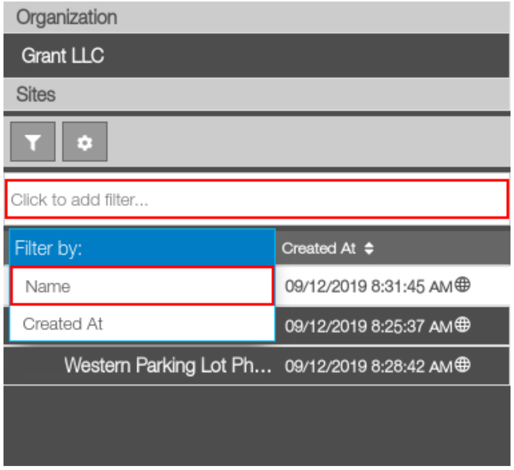

Figure 3-5: Selecting Filter Fields on the User Manager Sidebar

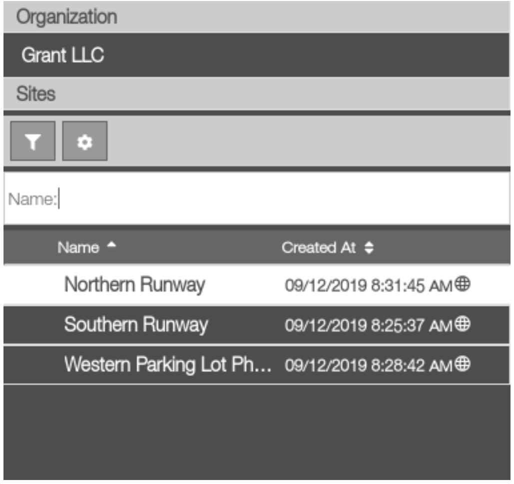

Figure 3-6: Entering a Site Name to Filter By on the User Manager Sidebar

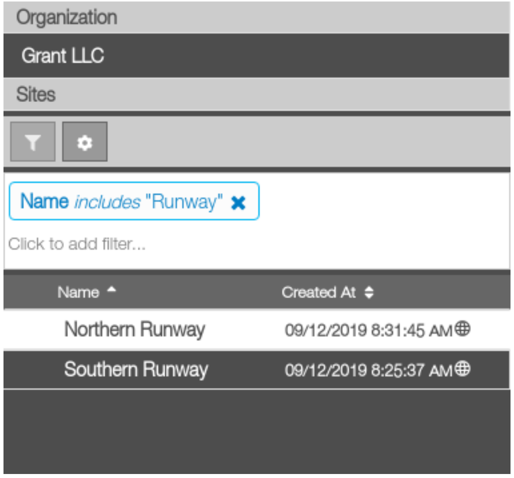

Figure 3-7: A Single Name Filter Applied to the User Manager Sidebar List

Using Filter Chaining To Further Narrow The Sidebar Site List

The use of a single filter term as discussed in "Using A Filter To Narrow The Sidebar Site List" on page 3-6 is suitable for most purposes. For times where more granular searches are required however, the **User Manager** sidebar allows multiple search terms to be chained together.

Multiple search terms are applied with an "and" clause and hence act to restrict rather than broaden search results. The following process describes how to apply more than one filter term in the **User Manager** sidebar:

1. Apply a single sidebar filter as described in "Using A Filter To Narrow The Sidebar Site List" on page 3-6

2. Click on the **Click to add filter** area in the filter box below the existing filter term to display the remaining fields that support filtering as shown in Figure 3-8

3. Click on the desired field to filter on noting that fields cannot be reused when chaining

4. Enter the term that the selected field should be narrowed by

   – For names, type the filter term in the filter box

   – For creation times, enter the filter term on the field specific popup provided as shown in Figure 3-9.

5. Apply the filter

   – For names, press the enter key

   – For creation times, click the **Apply** button.

The **User Manager** will update the sidebar Site list in accordance with the active filter terms. For clarity, the chained filter terms are displayed in blue in the filter box as shown in Figure 3-10.

NOTE Each filter parameter can only appear once in a filter chain. Once active in an expression, a filter term is edited if selected again when clicking in the filter box.

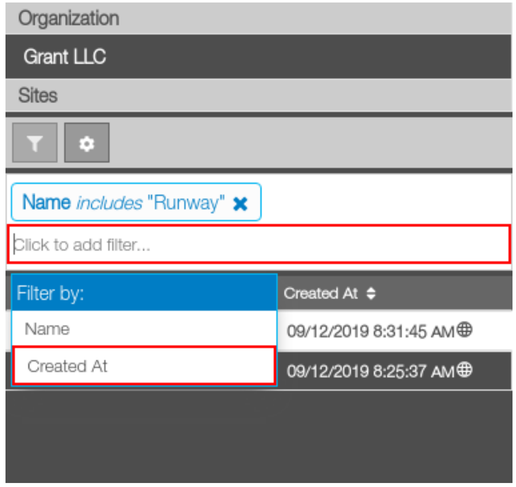

Figure 3-8: Adding A Second Filter Expression on the Site Manager

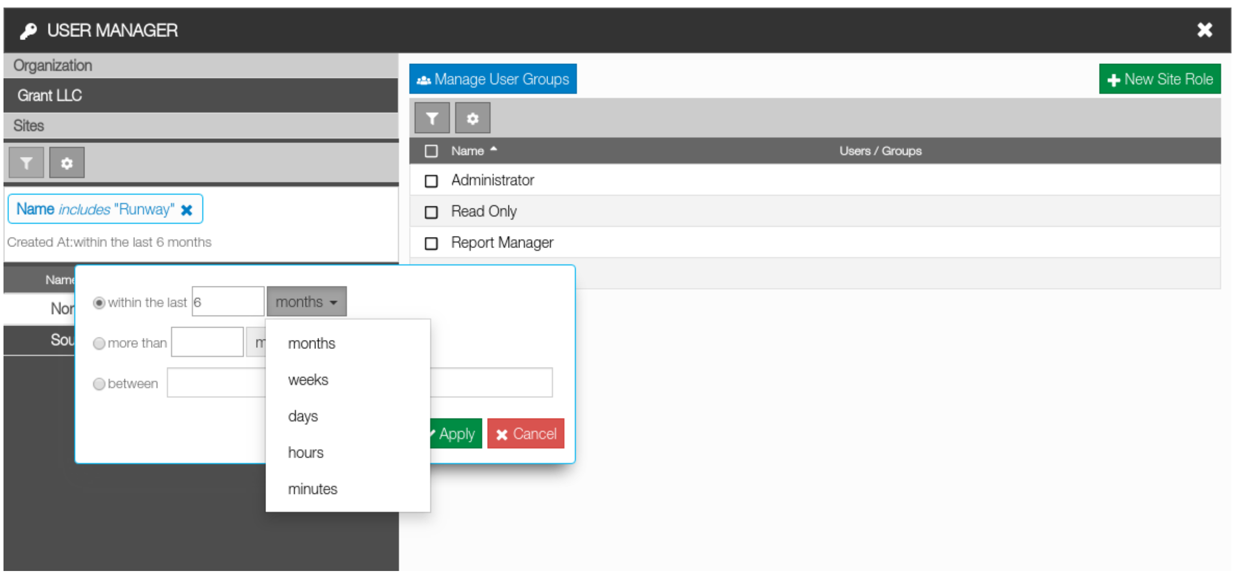

Figure 3-9: Filtering Sites on the User Manager Sidebar

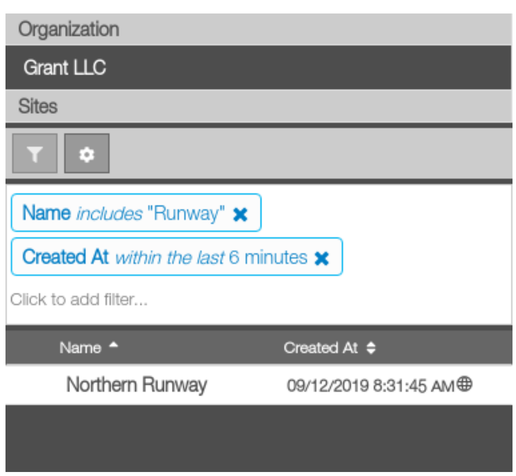

Figure 3-10: Filter Chaining on the Site Manager

Sorting The Sidebar Site List

By default, the **User Manager** sidebar lists Sites in alphabetical order as shown in Figure 3-11. It can be useful however to list Sites in an alternative ascending or descending order. Examples of such scenarios include:

- Finding the Sites that have been most recently created
- Displaying Sites in reverse alphabetical order.

The following process describes how to sort a Site list in the sidebar:

1. Open the **User Manager** as described in “Opening The User Manager” on page 3-4
2. Click on the column title matching the field to sort on as shown in Figure 3-12
3. Click again on the column title to switch between ascending and descending sort order.

The **User Manager** will update the sidebar Site list in accordance with the selected sort field and order. The direction of the arrow next to the column title indicates the current sort order.

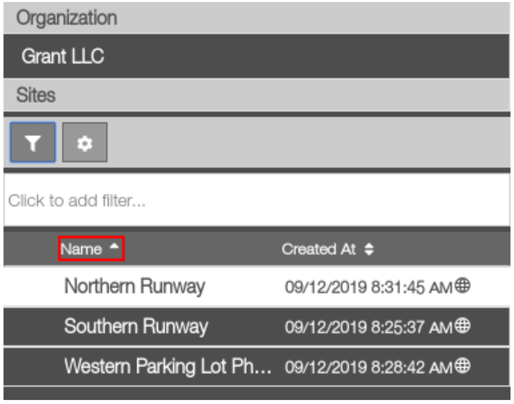

Figure 3-11: Sites Sorted By Name By Default on the User Manager Sidebar

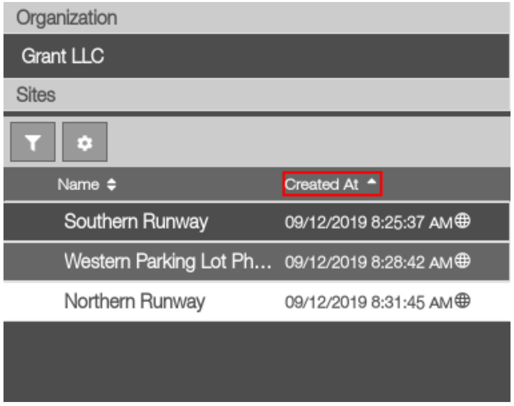

Figure 3-12: Sites Sorted By Ascending Creation Time on the User Manager Sidebar

Using The Content Panel

The content panel is the area to the right of the **User Manager** that provides the following functionality:

- Displays the Roles for the Site or Organization selected in the sidebar
- Displays any Users or User Groups assigned to these Roles
- Allows Role management as described in "Using Roles To Define What Users Can Do" on page 3-15
- Allows User Group management as described in "Simplifying Role Assignments With User Groups" on page 3-51.

The content panel reflects the highlighted selection on the adjacent sidebar. This is required because each Organization and Site can have different User and Role assignments. The content panel contains an action bar for management of the Role list.

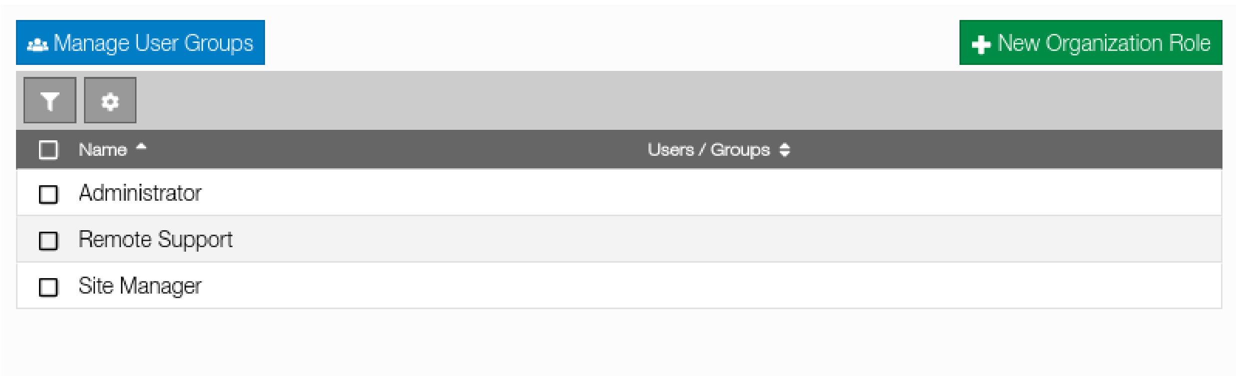

Figure 3-13: The User Manager Content Panel Displaying Default Organization Roles

Managing User Groups

User Group management is accessed via the blue **Manage User Groups** button to the top left of the content panel as shown in Figure 3-14. Group management is independent of whether the content panel is displaying Site or Organization Roles. See "Simplifying Role Assignments With User Groups" on page 3-51 for more information.

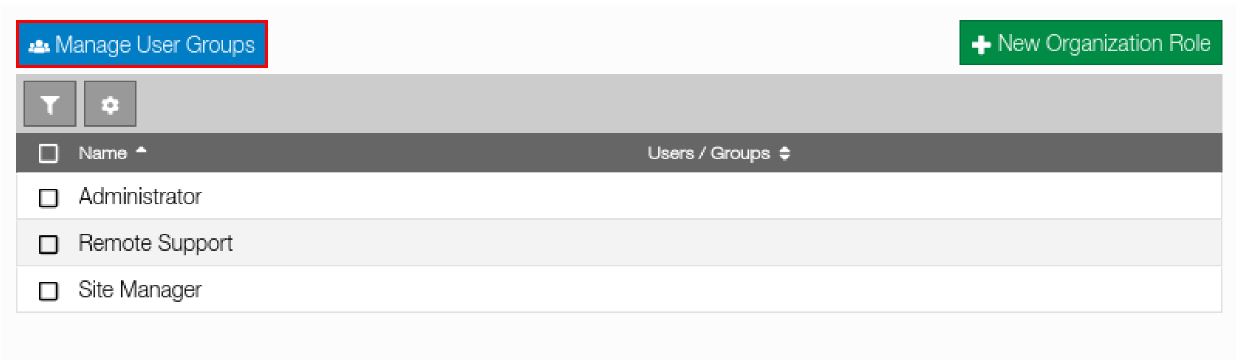

Figure 3-14: The Manage User Groups Button on the User Manager Content Panel

Using The Role List

The **User Manager** content panel can display lists of both Site and Organization Roles. This is determined by the sidebar selection as described in "Selecting Organizations & Sites With The Sidebar" on page 3-5.

Sitelink3D v2 tracks Site Roles independently for each Site. Selecting different Sites in the sidebar will potentially display different Roles and Role assignments in the content panel. The Role list supports the following functionality:

- Filtering as described in "Using A Filter To Narrow The Site Role List" on page 3-24
- Sorting as described in "Sorting The Site Role List" on page 3-28

The Organization Role list supports the following functionality:

- Filtering as described in "Using A Filter To Narrow The Organization Role List" on page 3-40
- Sorting as described in "Sorting The Organization Role List" on page 3-43

Configuring The User Manager

Configuring The User Manager Sidebar

The columns displayed when viewing Sites in the sidebar can be configured as shown in Figure 3-16. The following process describes how to configure the appearance of the **User Manager** sidebar Site list:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the cog icon directly under the Sites header in the sidebar to access the popup configuration as shown in Figure 3-15. This allows customization of the following:
    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable
    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder
    c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.
3. Click the **Apply** button to save the selections.

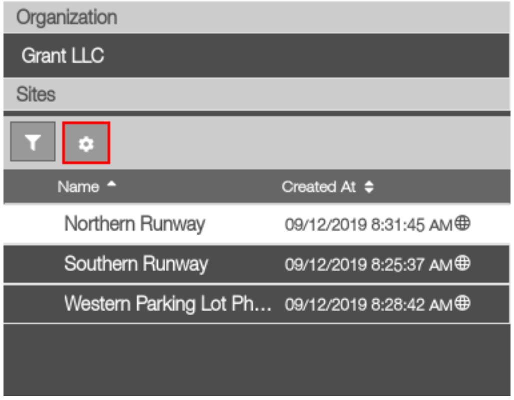

Figure 3-15: The User Manager Sidebar Site List Configuration Button

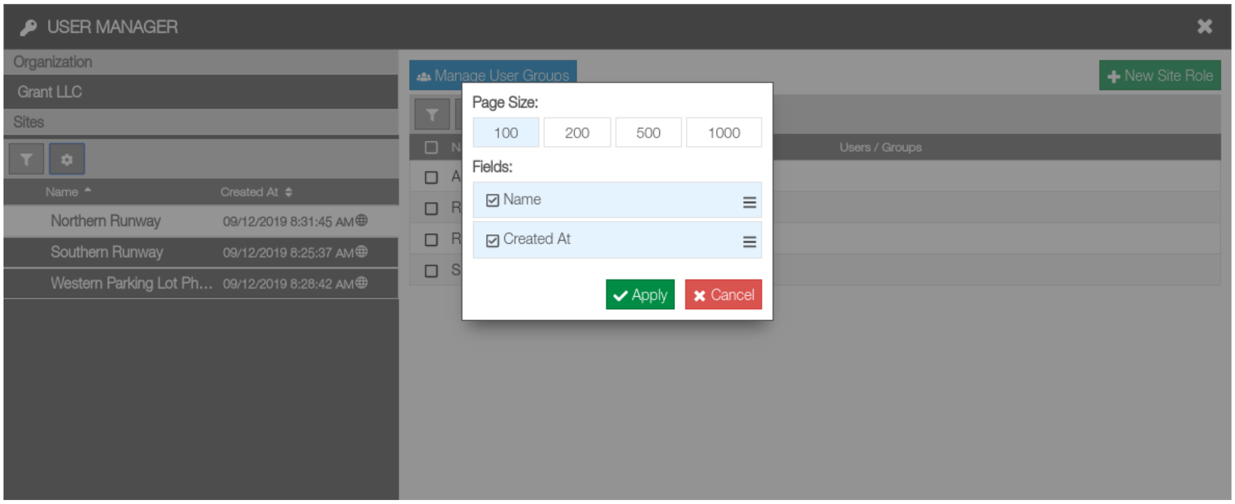

Figure 3-16: Configuring The User Manager Sidebar Site List

Configuring The User Manager Content Panel

The columns displayed when viewing Roles in the content panel can be configured as shown in Figure 3-18. The following process describes how to configure the appearance of the **User Manager** content panel Role list:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4

2. Click on the cog icon directly under the blue **Manage User Groups** button to access the popup configuration as shown in Figure 3-17. This allows customization of the following:

    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable

    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder

c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.

3. Click the **Apply** button to save the selections.

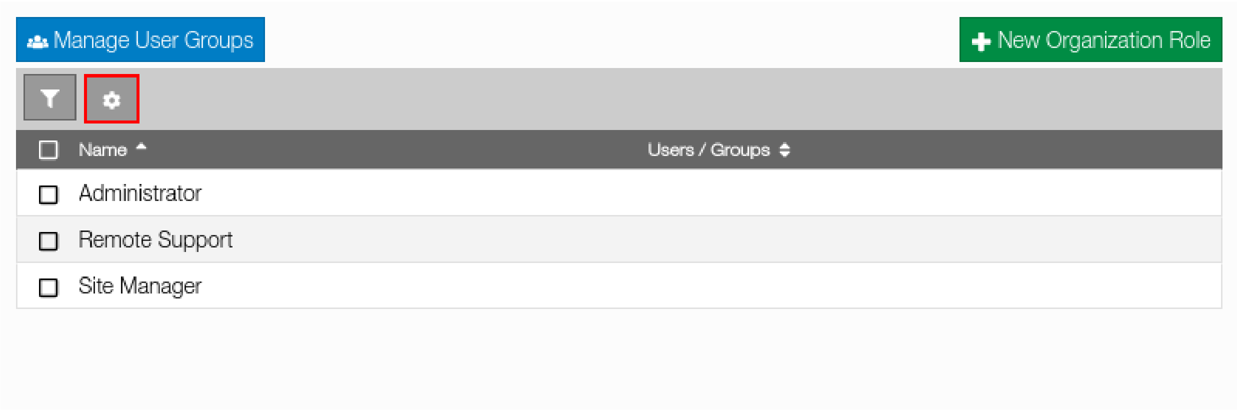

Figure 3-17: The User Manager Content Panel Role List Configuration Button

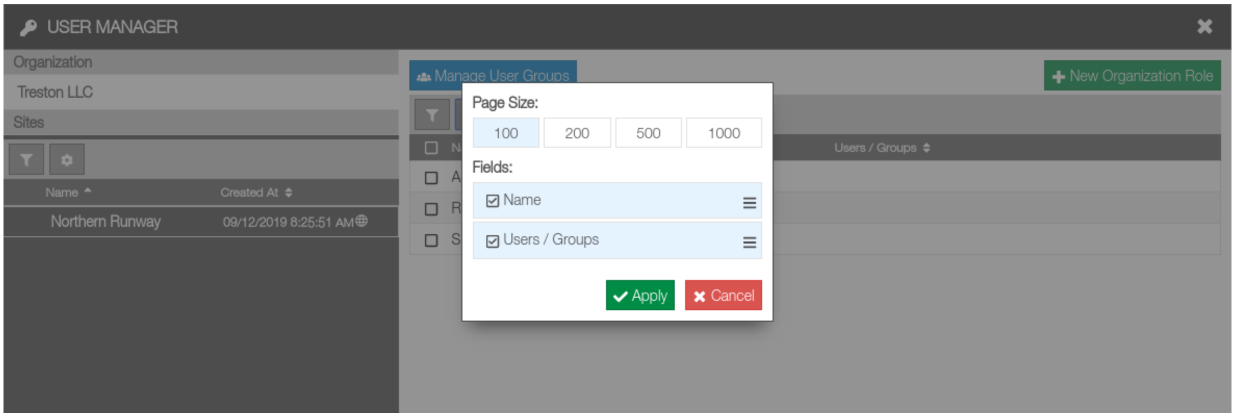

Figure 3-18: Configuring The User Manager Content Panel Role List

Using Roles To Define What Users Can Do

Roles At A Glance

User management is achieved by applying Users to Roles in the **User Manager**. Roles are a convenient way to define a set of permissible actions. A Role can be created once and then assigned to multiple Users as shown in Figure 3-19. Without Roles, each individual User would need to have the same set of actions assigned to them.

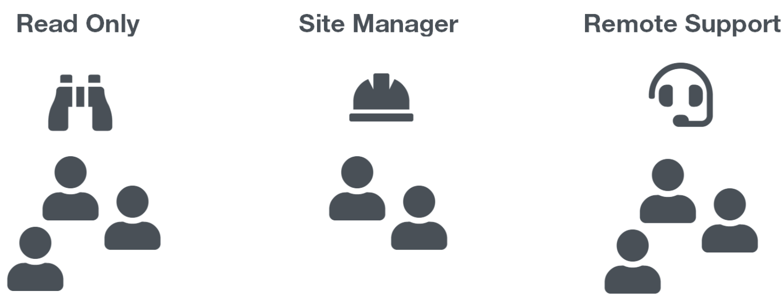

Figure 3-19: Visualization of Users Assigned to Roles

Sitelink3D v2 provides a number of predefined Roles for convenience as described in “Using Default Site Roles” on page 3-34 and “Using Default Organization Roles” on page 3-50. Custom Roles can be easily created.

Users and User Groups are assigned to Roles with the following process:

1. Ensure the User has already logged in to Sitelink3D v2 once so that the system can identify the account

2. Open the **User Manager** as described in “Opening The User Manager” on page 3-4

3. Select the Organization or Site as described in “Selecting Organizations & Sites With The Sidebar” on page 3-5

4. Identify the action to be assigned to the User

   – See Table 3-1 for the list of actions available at Sites

   – See Table 3-3 for the list of actions available at Organizations.

5. Identify or create a Role that includes the desired action

   – See “Editing Existing Site Roles” on page 3-30 to inspect and identify candidates among existing Site Roles

   – See “Creating New Site Roles” on page 3-28 to create a new Site Role with the desired Site action

   – See “Editing Existing Organization Roles” on page 3-46 to inspect and identify candidates among existing Organization Roles

   – See “Creating New Organization Roles” on page 3-44 to create a new Organization Role with the desired Organization action.

6. Assign the User to the identified Role

   – See “Assigning Users & User Groups To Site Roles” on page 3-21 for Site Role assignments

– See "Assigning Users & User Groups To Organization Roles" on page 3-38 for Organization Role assignments

NOTE The processes described in this section are independent of which Site is currently selected. See "Selecting An Existing Site" on page 2-38 for context.

Role Types

Roles and the actions that comprise them are categorized into two levels. The Organization level relates to functionality unrelated to Sites. Examples of Organization level actions include the ability to manage Owner Keys and Datalog files. The Site level relates to functionality specific to each Site. Examples of Site level actions includes the ability to create and view reports, edit Site settings and view live machine data.

NOTE Roles are required for Member Users. Although Administrator Users can be added to Roles, they will gain no additional permissions. See "Understanding User Types" on page 3-1 for more information.

Site Roles

Site Roles define how a Site can be used and have the following properties:

- Are identified by name in the **User Manager** as described in "Using The Content Panel" on page 3-12
- Contain a list of actions that members of the Role can perform as listed in Table 3-1 and Table 3-2
- Contain a list of members that all have access to the actions defined in the Role
- Are unique to a Site.

Site Roles created for one Site will not be visible when another Site is selected. Any number of Site Roles can be added to a Site.

Table 3-1. Site Actions Available in Sitelink3D v2

Action Name	Ability Provided
View Site	Allows the Site to be visible and selectable. See "Selecting An Existing Site" on page 2-38.
Edit Site Settings	Enables access to the **Edit Site Settings** dialog. See "Editing Sites" on page 2-25.
Download Site Config	Enables access to the Site configuration file. See "Downloading Secure Site Configuration Details" on page 2-44.
Manage Site Metadata	Enables access to the **Metadata Manager** as described in "Managing Metadata With The Metadata Manager" on page 5-2.
Manage Site Files (.ts3)	Enables Site file management. See "Exporting Site Files For Offline Client Use" on page 2-48.
Manage Files & Design Objects	Enables access to the **File Manager** as described in "Managing Files With The File Manager" on page 4-2. Enables access to the **Map Overlays** panel and the **Design Object Manager**. See "Working With Design Objects" on page 5-19.
View Live Machine Data	Enables access to the **Machines** tab data and associated map content. See "Viewing Live Machine Activity" on page 2-45.
Manage Site Remote Support	Enables access to Site level Remote Support. See "Providing Site Level Remote Support" on page 2-58.
Manage Working Sets	Enables access to the **Working Set Manager**. See "Using Working Sets To Sync Data To Machines" on page 5-22
Manage Site Keys	Enables access to the **Site Key Manager**. See "Creating A Site Key For An Existing Site" on page 2-29

Table 3-2. Haul Truck Actions Available in Sitelink3D v2

Action Name	Ability Provided
View Haul Live Statistics	Allows haul related Live Statistics to be viewed as described in "Understanding Live Statistics Widget Types" on page 6-3.
Manage Haul Live Statistics	Allows haul related Live Statistics to be managed as described in "Understanding Live Statistics Widget Types" on page 6-3.
Create Haul Reports	Allows haul related reports to be created. See "Understanding Report Types" on page 7-1.
View Haul Reports	Allows existing haul related reports to be viewed.
Archive Haul Reports	Allows existing haul related reports to be archived and restored.

Organization Roles

Organization Roles define how an Organization can be used and have the following properties:

- Are identified by name in the **User Manager** as described in "Using The Content Panel" on page 3-12
- Contain a list of actions that members of the Role can perform as described in "Selecting Organization Role Actions" on page 3-51
- Contain a list of members that all have access to the actions defined in the Role
- Are unique to an Organization and apply regardless of which Site is selected.

Any number of Organization Roles can be added to an Organization.

Working With Site Roles

This section details the various ways that Site Roles can be used within Sitelink3D v2.

Viewing The Users & Groups Assigned To A Site Role

It is often useful to determine the current Role assignments for a particular Site. Sitelink3D v2 provides this information in two ways:

- By viewing the Site Role assignee list directly on the **User Manager**
- By managing the member assignment details of each individual Role.

Each method has certain advantages as detailed in the following sections.

Viewing Site Role Assignees Via The User Manager

Viewing Site Role assignees via the **User Manager** is a convenient way to get an overview of the current Site permissions without having to edit Roles individually as described in "Viewing Site Role Assignees By Managing Its Members" on page 3-20.

The following process describes how to view the Users and User Groups assigned to each Site Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. View the contents of the **Users / Groups** column to determine the assignments for each listed Role as shown in Figure 3-20.

The **User Manager** displays all Users and User Groups assigned to each Site Role. Where the assignee list is truncated, hovering over the text with the mouse will display the complete list.

NOTE Finding specific Site Roles can be easier with the use of filtering. See "Using A Filter To Narrow The Site Role List" on page 3-24 for more information.

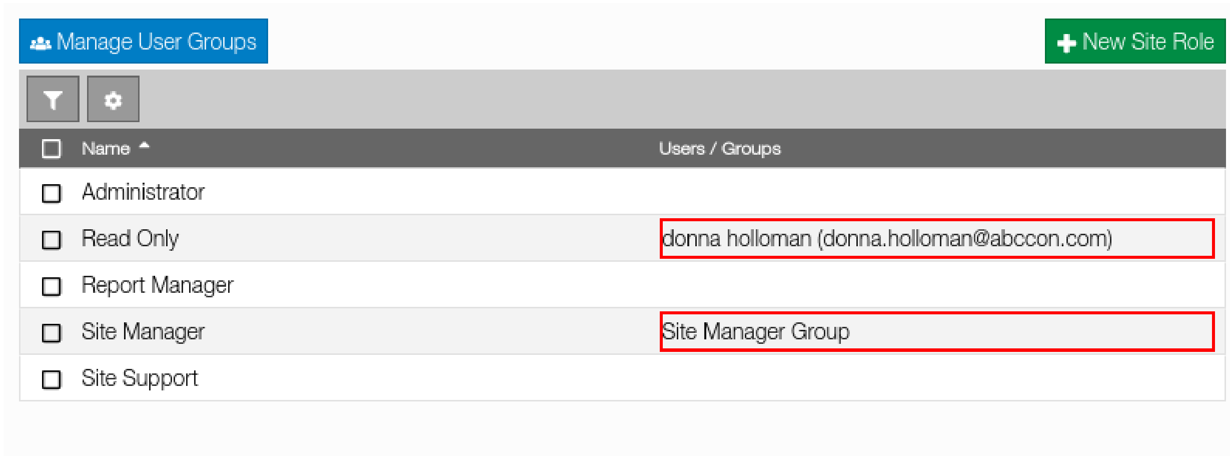

Figure 3-20: A Group and User Assigned to Site Roles on the User Manager

Viewing Site Role Assignees By Managing Its Members

Viewing Site Role assignees by managing the Role member list provides a complete picture of the User and User Group assignments without having to hover the mouse over column entires on the **User Manager** as is done in "Viewing Site Role Assignees Via The User Manager" on page 3-19.

The following process describes how to view the Users and User Groups assigned to each Site Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click the checkbox associated with the desired Role in the content panel as described in "Viewing Roles Associated With A Site" on page 3-24
4. Click the yellow **Manage Members** button in the action bar to open the **Edit Site Role Members** dialog as shown in Figure 3-21
5. Identify the list entries with a selected checkbox as shown in Figure 3-21
6. Click the **Cancel** button to return to the **User Manager** without altering the Role assignments.

Figure 3-21: Viewing Role Assignees on the Edit Site Role Members Dialog

Assigning Users & User Groups To Site Roles

Users obtain access to Site level functionality via two means:

- By being assigned to a Site Role directly
- By being a member of a User Group that is assigned to a Site Role.

In both cases, a User is granted permission to perform the actions defined by each Role they are associated with. The following process describes how to assign a User or a User Group to a Site Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click the checkbox associated with the desired Role in the content panel as described in "Viewing Roles Associated With A Site" on page 3-24
4. Click the yellow **Manage Members** button in the list action bar to open the **Edit Site Role Members** dialog as shown in Figure 3-22
5. Click the checkboxes associated with the Users and User Groups to be assigned to the Role as shown in Figure 3-23

a. Users are identified by User name and email address

b. User Groups are identified by User Group name and the term **Group**.

6. Click the **Save** button.

The **Edit Site Role Members** dialog will close. The updated User and User Group assignment will appear in the **Users / Groups** column for the edited Site Role in the **User Manger** as shown in Figure 3-24.

See "Using Default Site Roles" on page 3-34 and "Selecting Site Role Actions" on page 3-35 for more information.

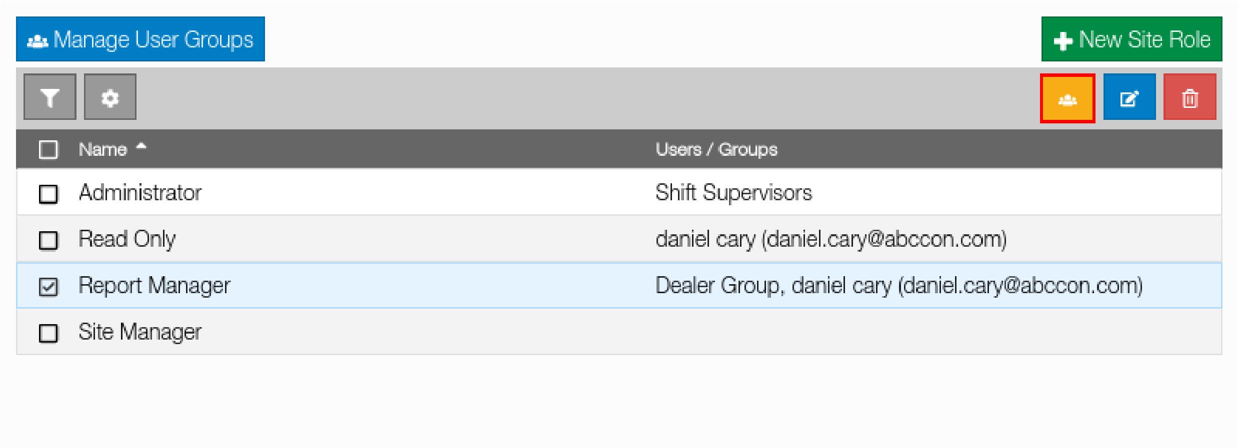

Figure 3-22: Selecting a Site Role for Member Management on the User Manager

Figure 3-23: Member Assignment on the Edit Site Role Members Dialog

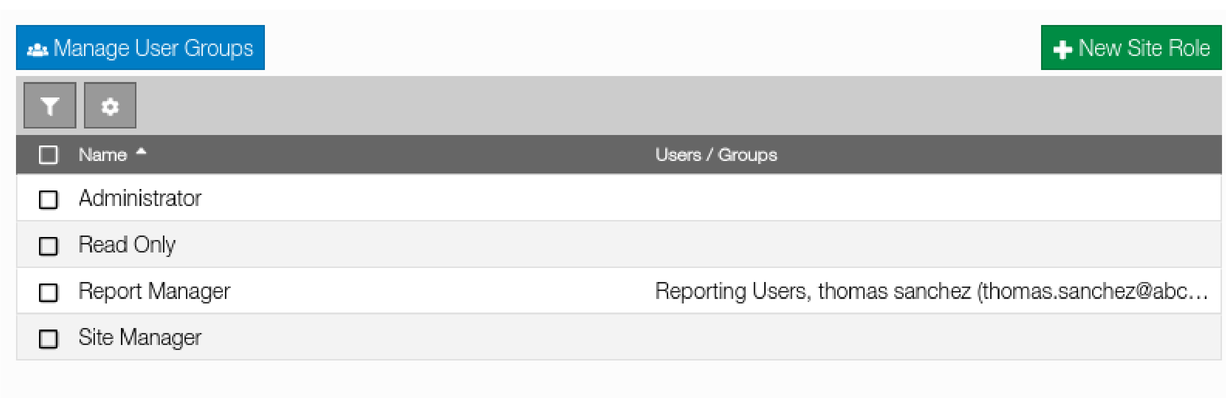

Figure 3-24: A User Assigned to the Site Manager Organization Role in the User Manager

NOTE Site Role changes are applied immediately. Impacted Users are notified as described in “Receiving Role Update Notifications” on page 3-51.

Viewing, Filtering & Sorting Site Roles

Viewing Roles Associated With A Site

Roles associated with the Site selected in the **User Manager** sidebar are displayed on the **User Manager** content panel. The **User Manager** is opened as described in "Opening The User Manager" on page 3-4.

See "Using The Content Panel" on page 3-12 and "Sidebar Site Section" on page 3-6 for more information.

Using A Filter To Narrow The Site Role List

As a Site may potentially own a large number of Roles, Sitelink3D v2 allows the Roles in the **User Manager** to be filtered for clarity. Filtering allows Roles to be eliminated, based upon values entered for specific fields. The fields provided for filtering are:

- Name
- Users / Groups.

Complex filtering is possible by chaining multiple filter terms together as described in "Using Filter Chaining To Further Narrow The Site Role List" on page 3-26. The following process describes how to restrict a Site Role list using a single filter term:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click on the filter icon to the left of the action bar to display the filter box as shown in Figure 3-25
4. Click on the **Click to add filter** area in the filter box above the list to display the fields that support filtering as shown in Figure 3-26
5. Click on the desired field to filter on as shown in Figure 3-27
6. Enter the term that the selected field should be narrowed by
7. Press the enter key to apply the filter.

The **User Manager** will update the Site Role list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 3-28.

NOTE	The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

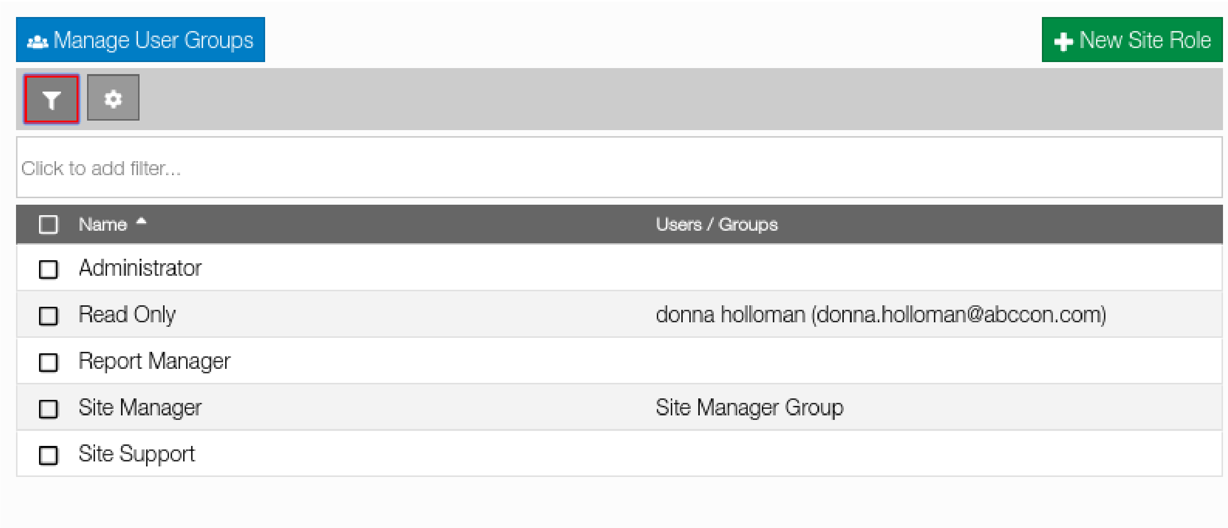

Figure 3-25: The User Manager Site Role Filter Button

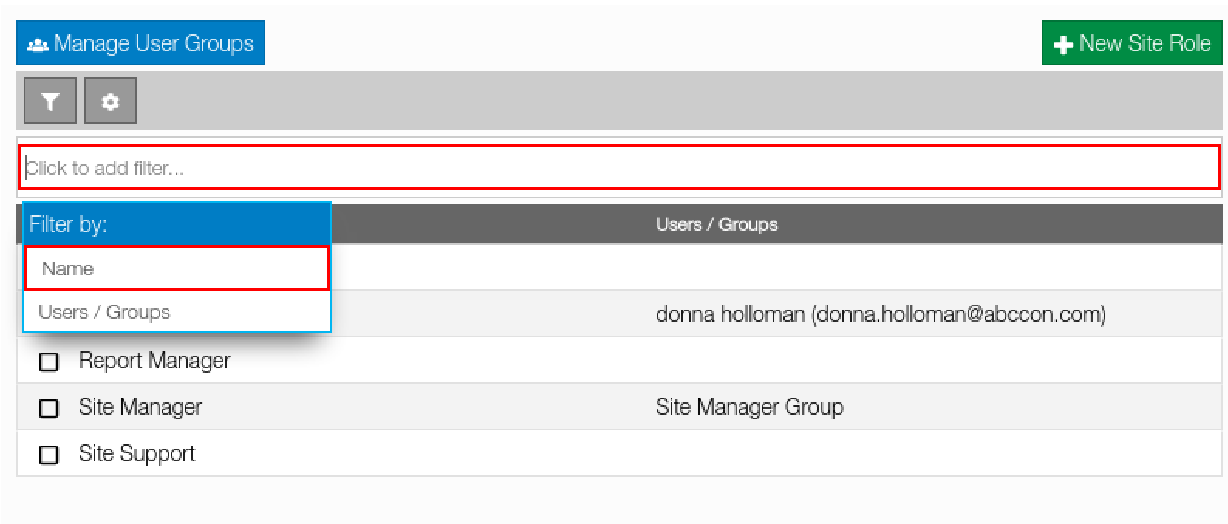

Figure 3-26: Selecting Filter Fields on the User Manager

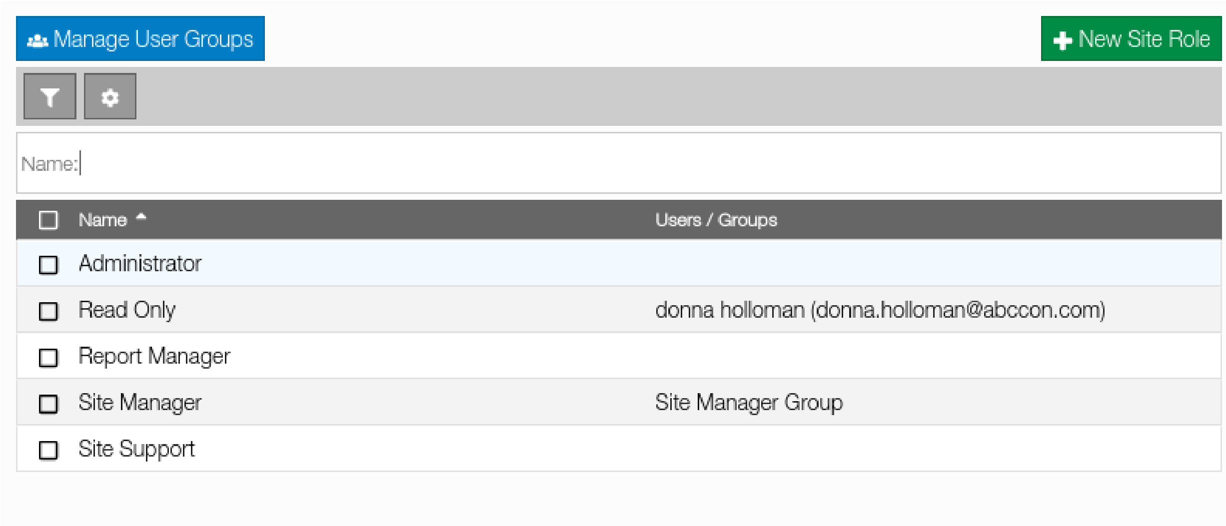

Figure 3-27: Entering a Site Role Name to Filter By on the User Manager

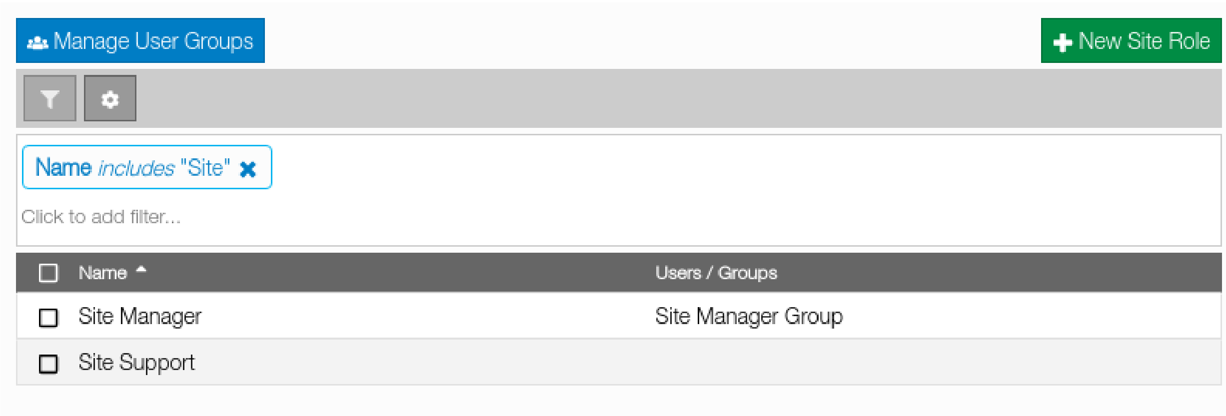

Figure 3-28: A Single Site Role Name Filter Applied to the User Manager List

Using Filter Chaining To Further Narrow The Site Role List

The use of a single filter term as discussed in "Using A Filter To Narrow The Site Role List" on page 3-24 is suitable for most purposes. For times where more granular searches are required however, the **User Manager** content panel allows multiple search terms to be chained together.

Multiple search terms are applied with an "and" clause and hence act to restrict rather than broaden search results. The following process describes how to apply more than one filter term in the **User Manager** content panel:

1. Apply a filter as described in "Using A Filter To Narrow The Site Role List" on page 3-24
2. Click on the **Click to add filter** area in the filter box below the existing filter term to display the remaining fields that support filtering as shown in Figure 3-29
3. Click on the desired field to filter on as shown in Figure 3-30 noting that fields cannot be reused when chaining

4. Enter the term that the selected field should be narrowed by

5. Press the enter key to apply the filter.

The **User Manager** will update the Site Role list in accordance with the active filter terms. For clarity, the chained filter terms are displayed in blue in the filter box as shown in Figure 3-53.

NOTE Each filter parameter can only appear once in a filter chain. Once active in an expression, a filter term is edited if selected again.

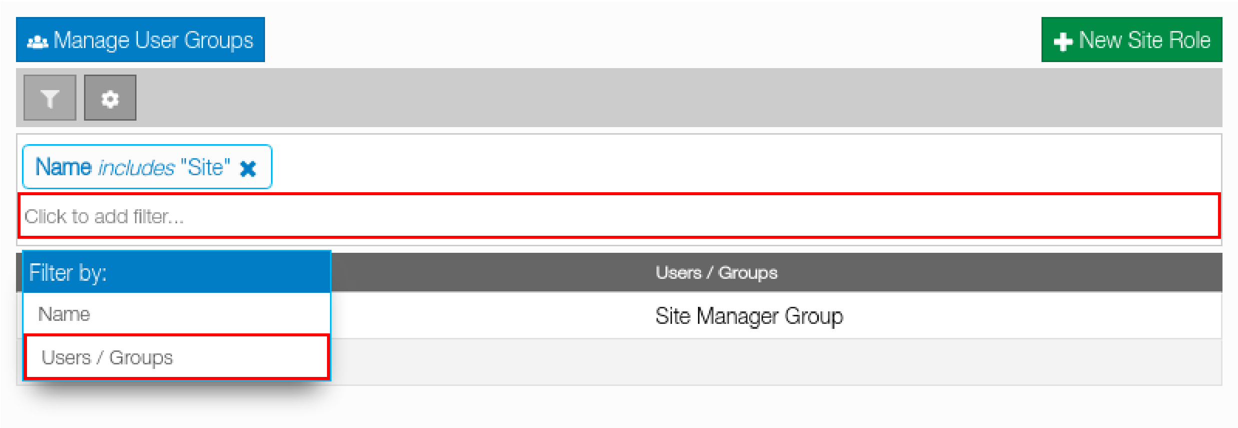

Figure 3-29: Adding A Second Filter Expression on the User Manager

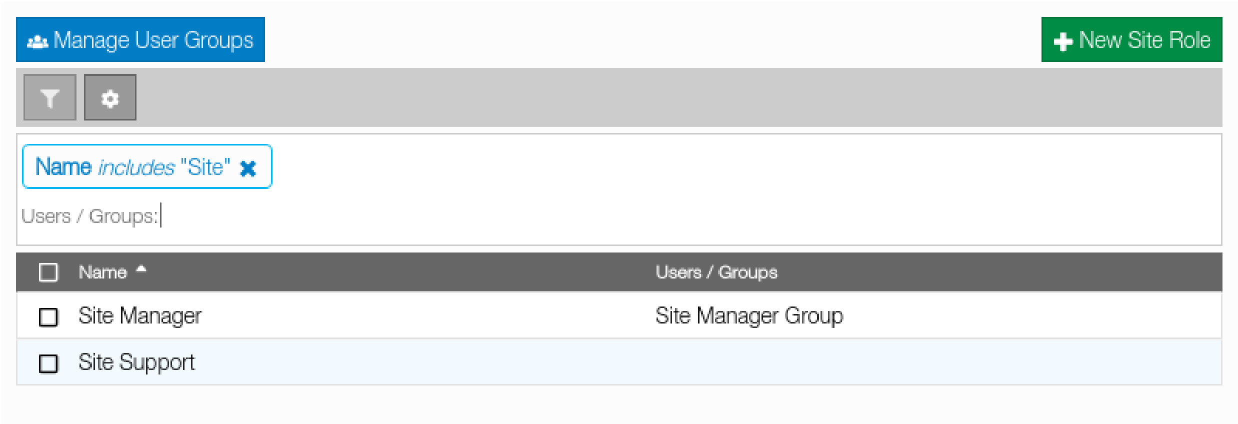

Figure 3-30: Entering a Users / Groups Term to Filter By on the User Manager

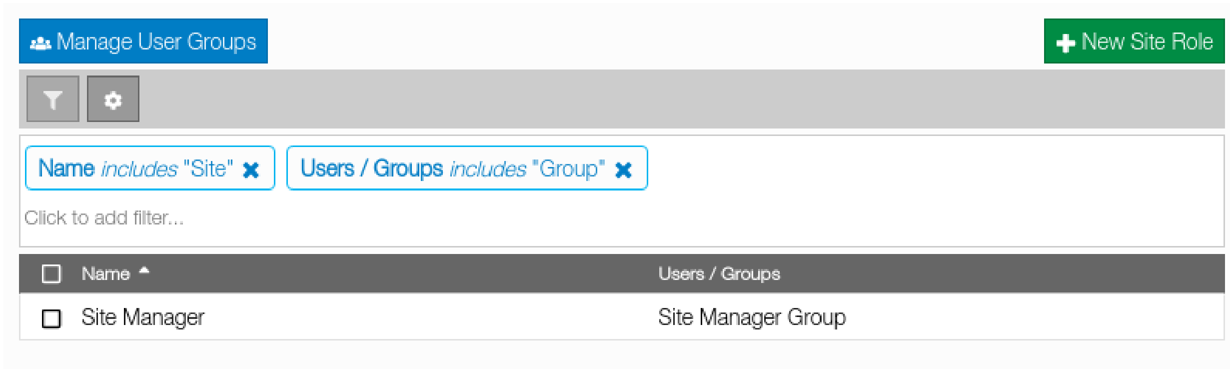

Figure 3-31: Filter Chaining on the User Manager

Sorting The Site Role List

By default, the **User Manager** content panel lists Roles in ascending alphabetical order. It can be useful however to sort Roles by descending order instead. The following process describes how to toggle the sort order of the Site Role list:

1. Open the **User Manager** as described in “Opening The User Manager” on page 3-4

2. Click on the desired Site in the sidebar as described in “Selecting Sites On The User Manager Sidebar” on page 3-6

3. Click on the **Name** column title to switch between ascending and descending sort order as shown in Figure 3-54.

The **User Manager** will update the Role list in accordance with the selected sort order. The direction of the arrow next to the column title indicates the current sort order.

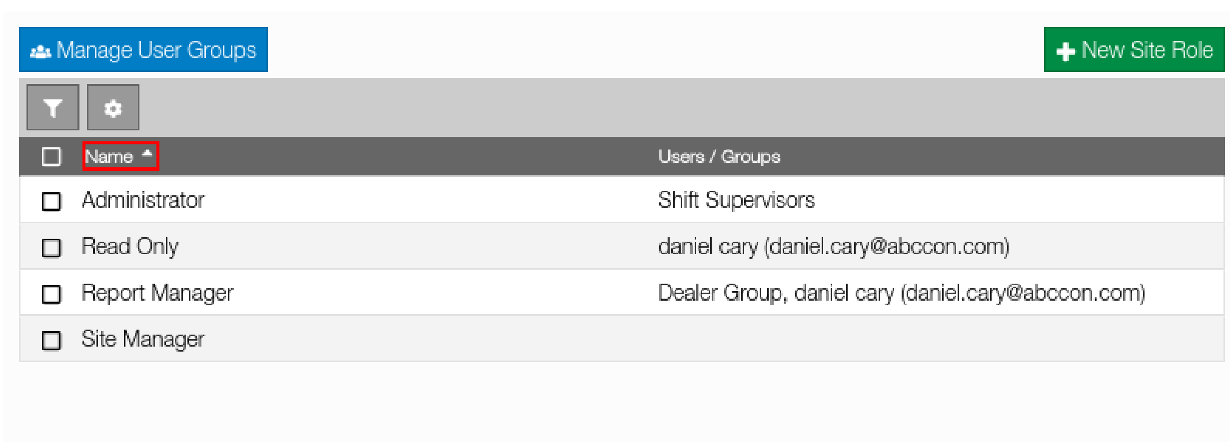

Figure 3-32: Site Roles Sorted by Ascending Name on the User Manager

Creating New Site Roles

New Site Roles can be created at any time. New Roles must be named uniquely but can contain actions that duplicate existing Roles. A new Role may be created for a number of reasons including:

- To define customized access to the Site not possible with the provided default Roles
- To replace a default Site Role that has been deleted.

The following process describes how to create a new Site Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click on the green **New Site Role** button to the top right of the content panel as shown in Figure 3-33 to open the **New Site Role** dialog as shown in Figure 3-34
4. Enter a name for the new Site Role in the **Name** field noting that Role names must be unique
5. Select the actions that assignees of this new Role will have access to. See "Selecting Site Role Actions" on page 3-35 for more information
6. Click the **Save** button.

The **New Site Role** dialog will close. The new Site Role will appear in the **User Manger** as shown in Figure 3-35.

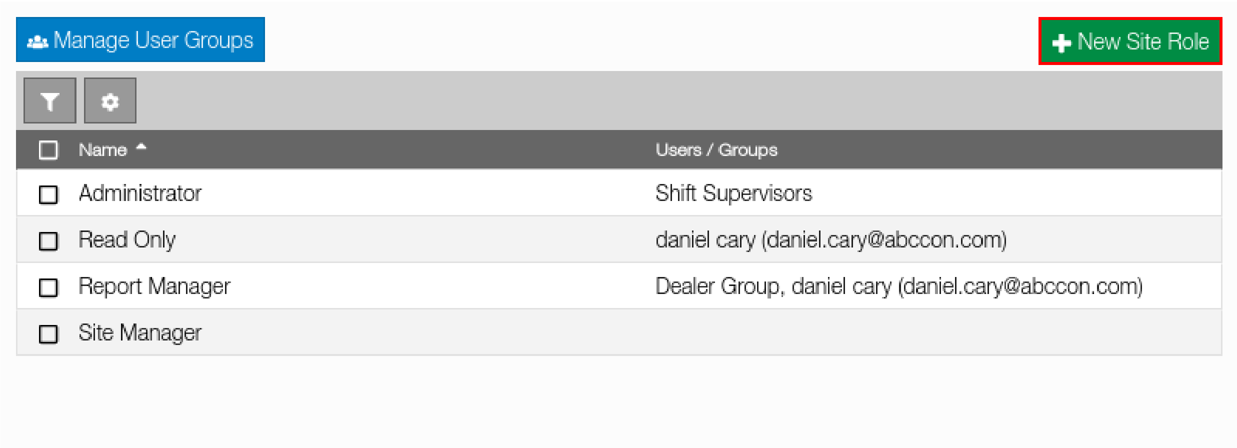

Figure 3-33: The New Site Role Button on the User Manager Content Panel

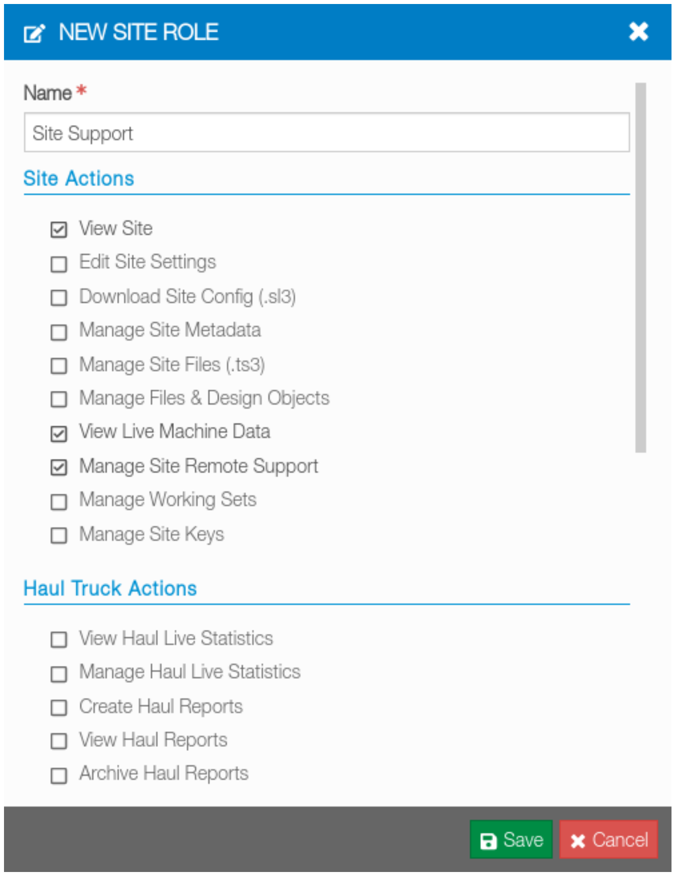

Figure 3-34: The New Site Role Dialog

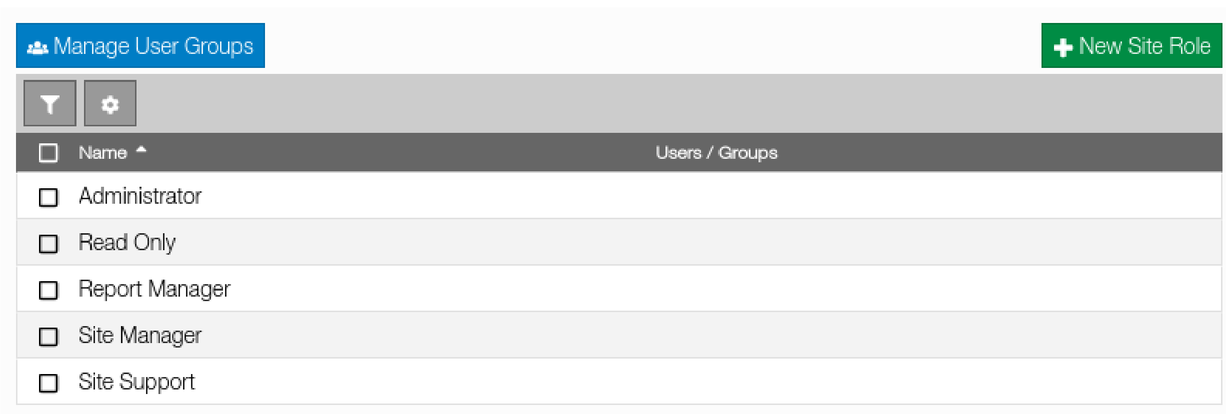

Figure 3-35: A Newly Created "Site Support" Site Role on the User Manager Content Panel

Editing Existing Site Roles

Existing Site Roles can be edited at any time. A Site Role may be edited for a number of reasons including:

- To rename the Site Role so that it is more descriptive
- To update the permissions of all Role assignees by modifying its actions.

The following process describes how to edit an existing Site Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click the checkbox associated with the desired Site Role in the content panel
4. Click the blue **Edit** button in the list action bar to open the **Edit Site Role** dialog as shown in Figure 3-36
5. Make the required modifications as shown in Figure 3-37 noting that Site Role names must be unique
6. Click the **Save** button.

The **Edit Site Role** dialog will close and all assignees of the Site Role will receive access to the edited actions.

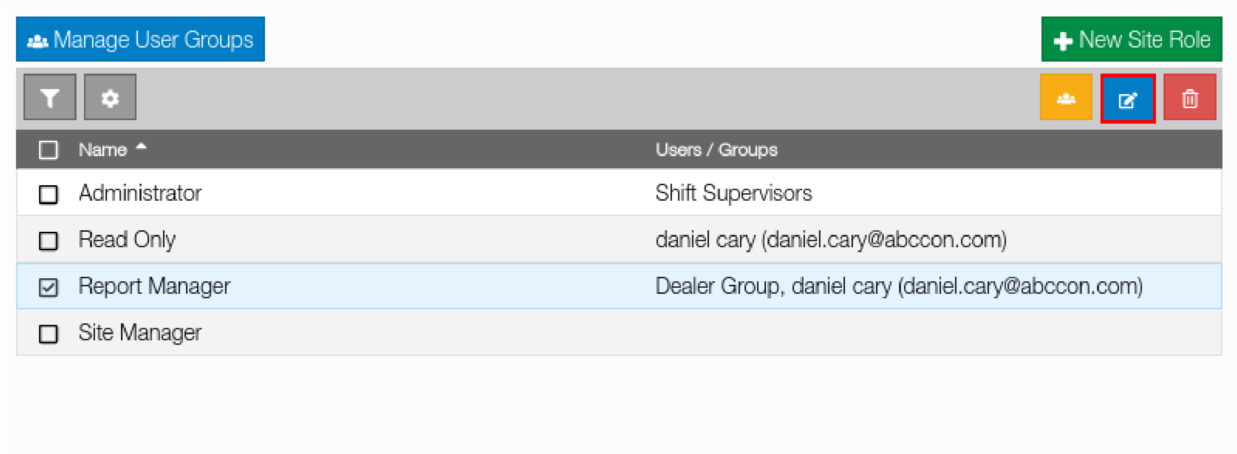

Figure 3-36: Selecting a Site Role for Editing on the User Manager

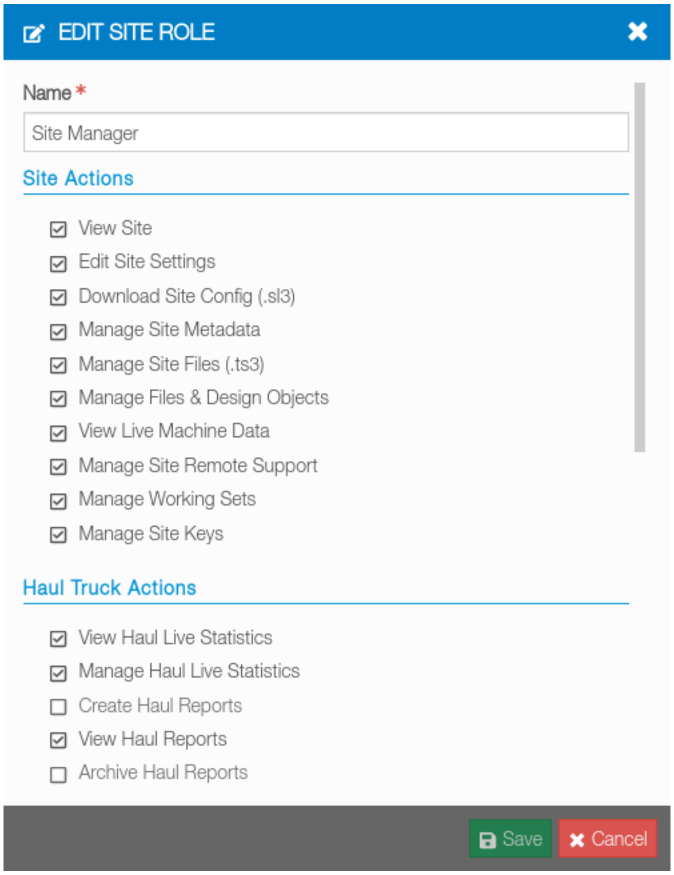

Figure 3-37: The Edit Site Role Dialog

Deleting Site Roles

Deleting A Single Site Role

Site Roles can be deleted at any time. Both default and User added Site Roles can be deleted. A Site Role may be deleted for a number of reasons including:

- To eliminate unnecessary or duplicate Site Roles in the **User Manager**
- To easily revoke permissions provided by a single Site Role.

The following process describes how to delete an existing Site Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click the checkbox associated with the desired Site Role in the content panel as described in "Viewing Roles Associated With A Site" on page 3-24
4. Click the red **Delete** button in the list action bar
5. Click the **Confirm** button on the resulting dialog as shown in Figure 3-38.

The confirmation dialog will close. The updated Site Role list will appear in the **User Manger**.

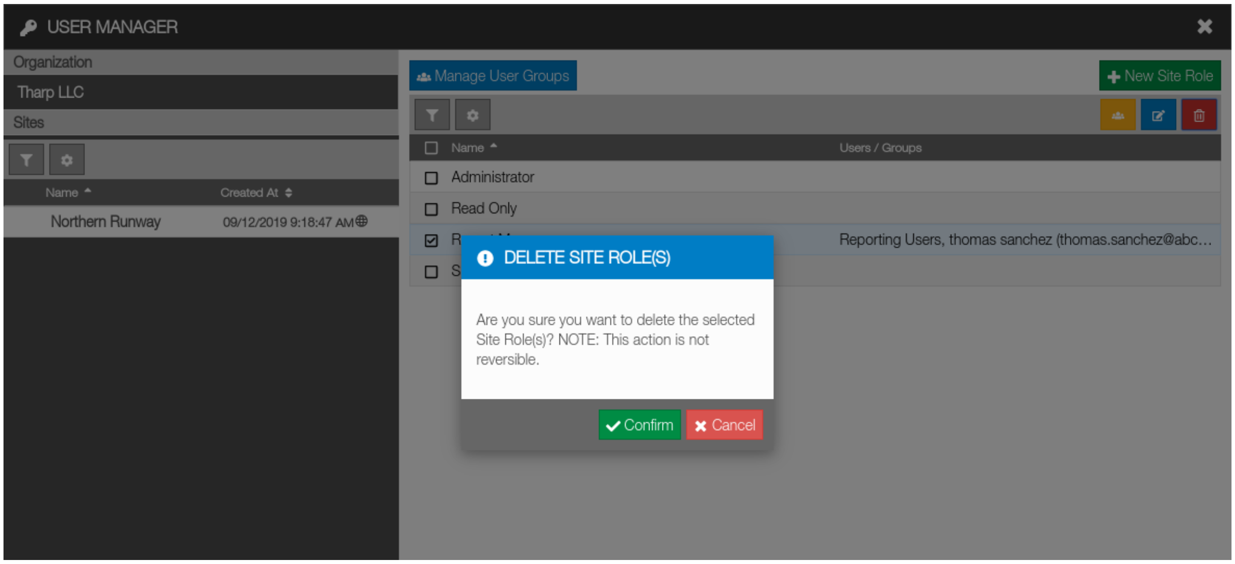

Figure 3-38: Confirming Deletion of a Single Site Role on the User Manager

Deleting Multiple Site Roles

Existing Site Roles can be deleted in bulk at any time. Both default and User added Site Roles can be deleted. Multiple Site Roles may be deleted for a number of reasons including:

- To delete all Site Roles that match a filter term
- To easily revoke all Site level permissions.

The following process describes how to delete a multiple Site Roles:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the desired Site in the sidebar as described in "Selecting Sites On The User Manager Sidebar" on page 3-6
3. Click the checkboxes associated with the desired Site Roles in the content panel as described in "Viewing Roles Associated With A Site" on page 3-24. Note that all Site Roles can be selected by clicking on the checkbox in the list header as shown in Figure 3-39
4. Click the red **Delete** button in the list action bar
5. Click the **Confirm** button on the resulting dialog as shown in Figure 3-40.

The confirmation dialog will close. The updated Site Role list will appear in the **User Manger**.

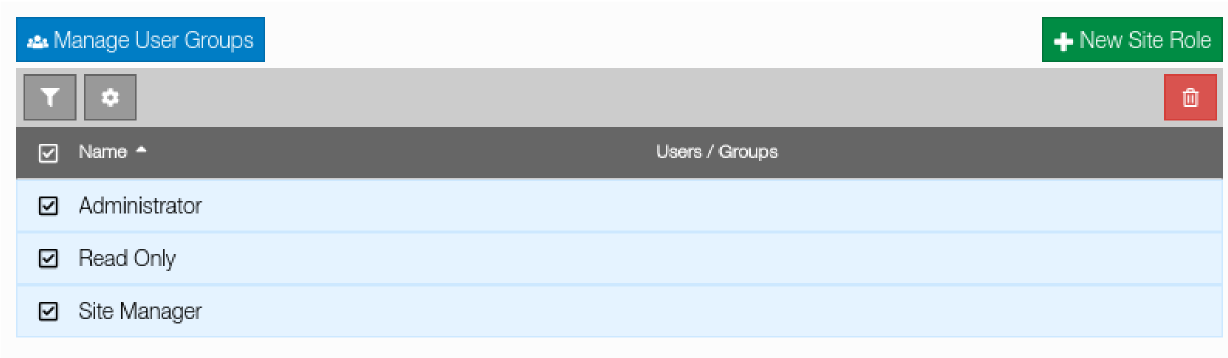

Figure 3-39: Selecting Multiple Site Roles for Deletion on the User Manager

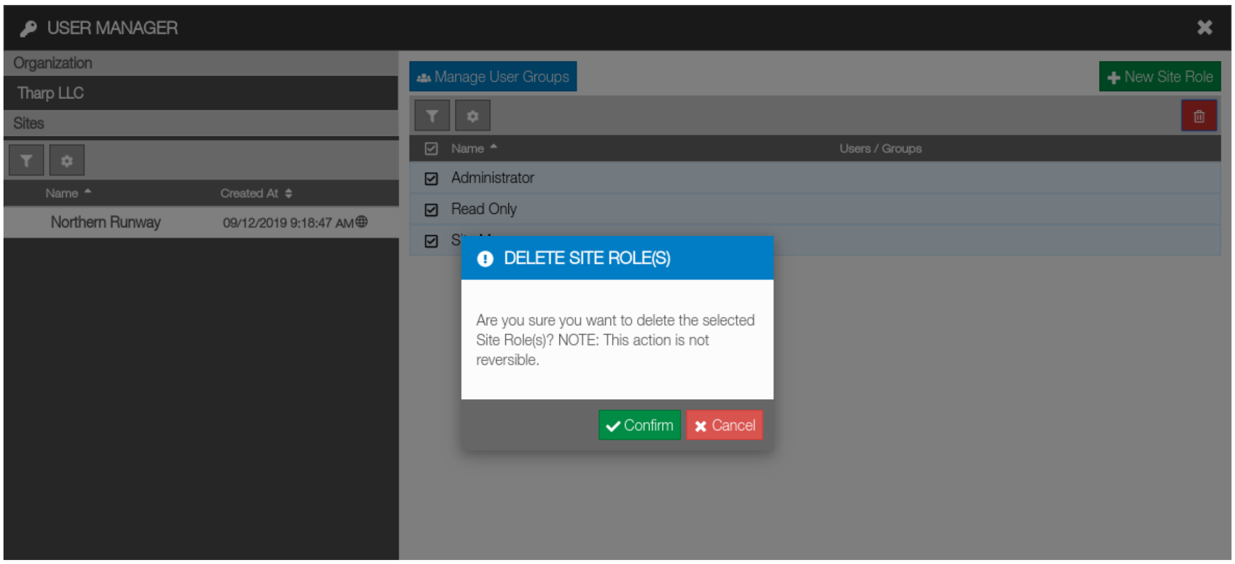

Figure 3-40: Confirming Deletion of Multiple Site Roles on the User Manager

Using Default Site Roles

Sitelink3D v2 provides a default set of Site Roles for convenience as shown in Figure 3-41. Default Site Roles provide the following advantages:

- Allow Users to assign permissions immediately without needing to create Site Roles first
- Provide sensible Site action groupings for typical usage
- Support customization as described in “Editing Existing Site Roles” on page 3-30

No distinction is made between default and User defined Site Roles. Default Site Roles can be edited or deleted as desired.

The default Site Roles are:

- Administrator
- Read Only

- Report Manager
- Site Manager.

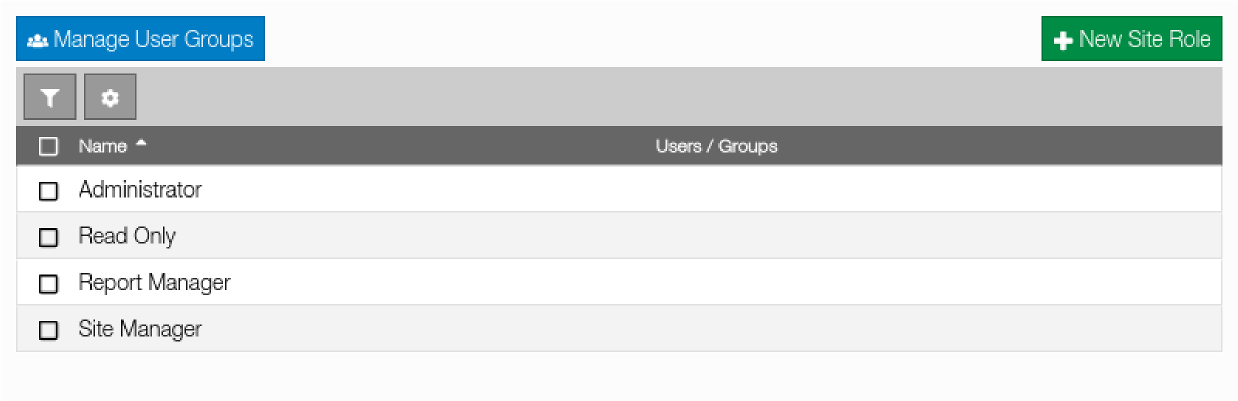

Figure 3-41: The User Manager Content Panel Displaying Default Site Roles

Selecting Site Role Actions

All Site Roles are comprised of one or more of the following actions:

- View Site
- Edit Site Settings
- Download Site Config
- Manage Site Metadata
- Manage Site Files (.ts3)
- Manage Files & Design Objects
- View Live Machine Data
- Manage Site Remote Support
- Manage Working Sets
- Manage Site Keys
- View Haul Live Statistics
- Manage Haul Live Statistics
- Create Haul Reports
- View Haul Reports
- Archive Haul Reports

See Table 3-1 and Table 3-2 for more information.

Working With Organization Roles

This section details the various ways that Organization Roles can be used within Sitelink3D v2.

Viewing The Users & Groups Assigned To An Organization Role

It is often useful to determine the Organization Role assignments for the current Organization. Sitelink3D v2 provides this information in two ways:

- By viewing the Organization Role assignee list directly on the **User Manager**
- By managing the member assignment details of each individual Organization Role.

Each method has certain advantages as detailed in the following sections.

Viewing Organization Role Assignees Via The User Manager

Viewing Organization Role assignees via the **User Manager** is a convenient way to get an overview of the current Organization permissions without having to edit Organization Roles individually as described in "Viewing Organization Role Assignees By Managing Its Members" on page 3-37.

The following process describes how to view the Users and User Groups assigned to each Organization Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4

2. View the contents of the **Users / Groups** column to determine the assignments for each listed Organization Role as shown in Figure 3-42.

The **User Manager** displays all Users and User Groups assigned to each Organization Role. Where the assignee list is truncated, hovering over the text with the mouse will display the complete list.

NOTE Finding specific Organization Roles can be easier with the use of filtering. See "Using A Filter To Narrow The Organization Role List" on page 3-40 for more information.

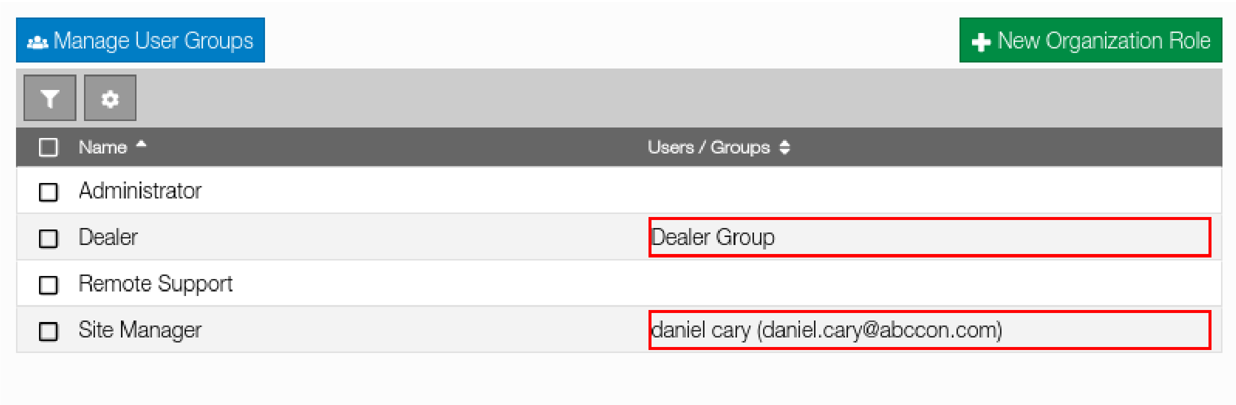

Figure 3-42: A Group and User Assigned to Organization Roles on the User Manager

Viewing Organization Role Assignees By Managing Its Members

Viewing Organization Role assignees by managing the Organization Role member list provides a complete picture of the User and User Group assignments without having to hover the mouse over column entires on the **User Manager** as is done in "Viewing Organization Role Assignees Via The User Manager" on page 3-36.

The following process describes how to view the Users and User Groups assigned to each Organization Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the Organization name in the sidebar
3. Click the checkbox associated with the desired Organization Role in the content panel as described in "Viewing Roles Associated With The Current Organization" on page 3-40
4. Click the yellow **Manage Members** button in the list action bar to open the **Edit Organization Role Members** dialog as shown in Figure 3-44
5. Identify the list entries with a selected checkbox as shown in Figure 3-43
6. Click the **Cancel** button to return to the **User Manager** without altering the Organization Role assignments.

Figure 3-43: Viewing Role Assignees on the Edit Organization Role Members Dialog

Assigning Users & User Groups To Organization Roles

Users obtain access to Organization level functionality via two means:

- By being assigned to an Organization Role directly
- By being a member of a User Group that is assigned to an Organization Role.

In both cases, a User is granted permission to perform the actions defined by each Organization Role they are associated with. The following process describes how to assign a User or a User Group to an Organization Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the Organization name in the sidebar
3. Click the checkbox associated with the desired Organization Role in the content panel as described in "Viewing Roles Associated With The Current Organization" on page 3-40
4. Click the yellow **Manage Members** button in the list action bar to open the **Edit Organization Role Members** dialog as shown in Figure 3-44
5. Click the checkboxes associated with the Users and User Groups to be assigned to the Organization Role as shown in Figure 3-45
    a. Users are identified by User name and email address
    b. User Groups are identified by User Group name and the term **Group**.
6. Click the **Save** button.

The **Edit Organization Role Members** dialog will close. The updated User and User Group assignment will appear in the **Users / Groups** column for the edited Organization Role in the **User Manger** dialog as shown in Figure 3-46.

In the example pictured, the User has been granted access to the default Site Manager Organization Role and can now perform the following actions:

- Manage Owner Keys
- Manage Datalog Files.

See "Using Default Organization Roles" on page 3-50 and "Selecting Organization Role Actions" on page 3-51 for more information.

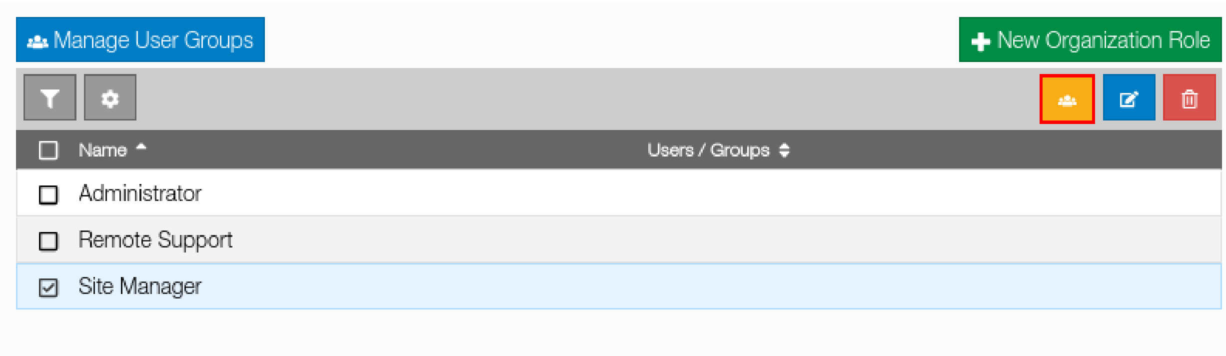

Figure 3-44: Selecting an Organization Role for Member Management on the User Manager

Figure 3-45: Member Assignment on the Edit Organization Role Members Dialog

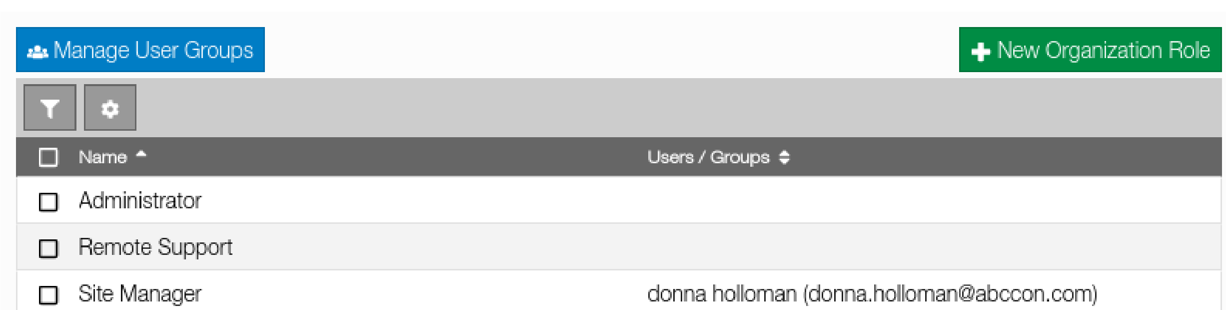

Figure 3-46: A User Assigned To The Site Manager Organization Role in the User Manager

NOTE Organization Role changes are applied immediately. Impacted Users are notified as described in "Receiving Role Update Notifications" on page 3-51.

Viewing, Filtering & Sorting Organization Roles

Viewing Roles Associated With The Current Organization

Organization Roles are displayed on the **User Manager** content panel when the Organization is selected in the **User Manager** sidebar. The **User Manager** is opened as described in "Opening The User Manager" on page 3-4.

See "Using The Content Panel" on page 3-12 and "Sidebar Organization Section" on page 3-6 for more information.

Using A Filter To Narrow The Organization Role List

As an Organization may potentially own a large number of Roles, Sitelink3D v2 allows the Organization Roles in the **User Manager** to be filtered for clarity. Filtering allows Organization Roles to be eliminated, based upon values entered for specific fields. The fields provided for filtering are:

- Name
- Users / Groups.

Complex filtering is possible by chaining multiple filter terms together as described in "Using Filter Chaining To Further Narrow The Organization Role List" on page 3-42. The following process describes how to restrict an Organization Role list using a single filter term:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click on the filter icon to the left of the action bar to display the filter box as shown in Figure 3-47
3. Click on the **Click to add filter** area in the filter box above the list to display the fields that support filtering as shown in Figure 3-48
4. Click on the desired field to filter on as shown in Figure 3-49
5. Enter the term that the selected field should be narrowed by
6. Press the enter key to apply the filter.

The **User Manager** will update the Organization Role list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 3-50.

NOTE The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

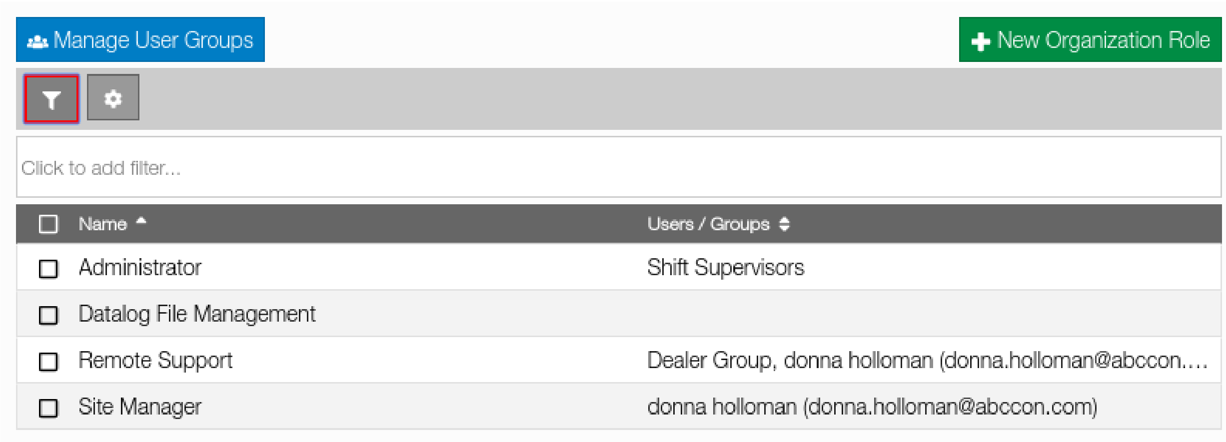

Figure 3-47: The User Manager Organization Role Filter Button

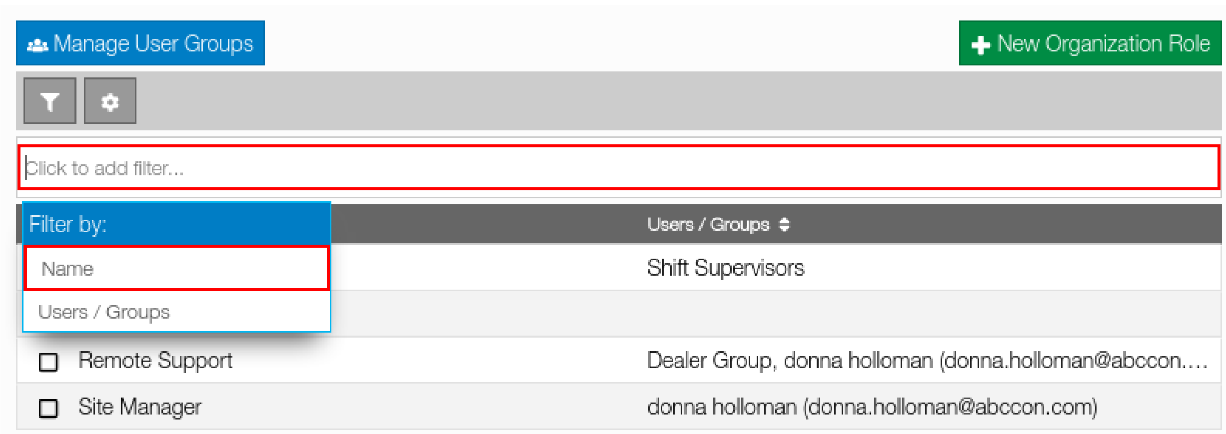

Figure 3-48: Selecting Filter Fields on the User Manager

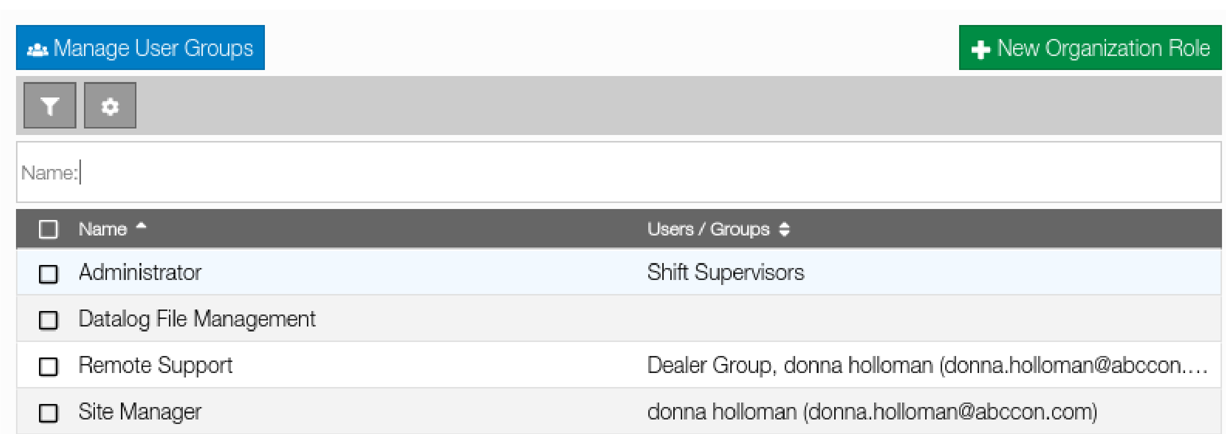

Figure 3-49: Entering an Organization Role Name to Filter By on the User Manager

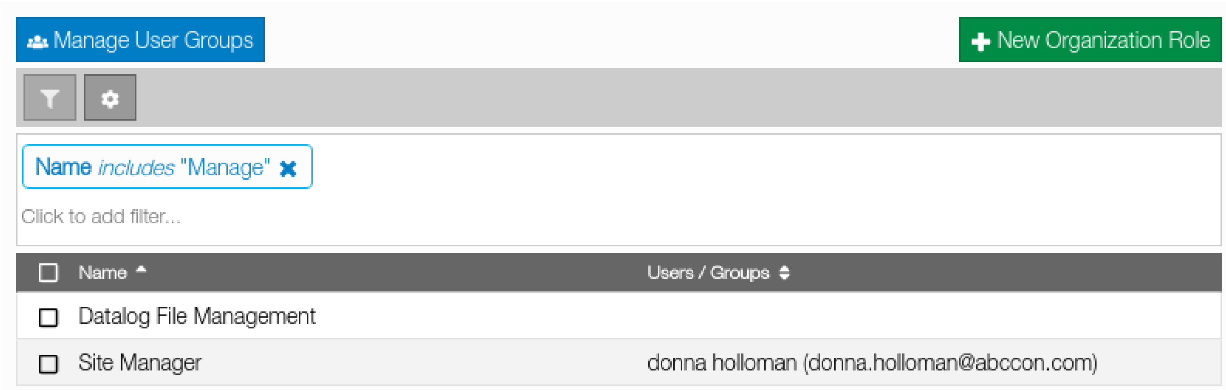

Figure 3-50: A Single Organization Role Name Filter Applied to the User Manager List

Using Filter Chaining To Further Narrow The Organization Role List

The use of a single filter term as discussed in "Using A Filter To Narrow The Organization Role List" on page 3-40 is suitable for most purposes. For times where more granular searches are required however, the **User Manager** content panel allows multiple search terms to be chained together.

Multiple search terms are applied with an "and" clause and hence act to restrict rather than broaden search results. The following process describes how to apply more than one filter term in the **User Manager** content panel:

1. Apply a filter as described in "Using A Filter To Narrow The Organization Role List" on page 3-40
2. Click on the **Click to add filter** area in the filter box below the existing filter term to display the remaining fields that support filtering as shown in Figure 3-51
3. Click on the desired field to filter on as shown in Figure 3-52 noting that fields cannot be reused when chaining
4. Enter the term that the selected field should be narrowed by
5. Press the **Enter** key to apply the filter.

The **User Manager** will update the Organization Role list in accordance with the active filter terms. For clarity, the chained filter terms are displayed in blue in the filter box as shown in Figure 3-53.

NOTE Each filter parameter can only appear once in a filter chain. Once active in an expression, a filter term is edited if selected again.

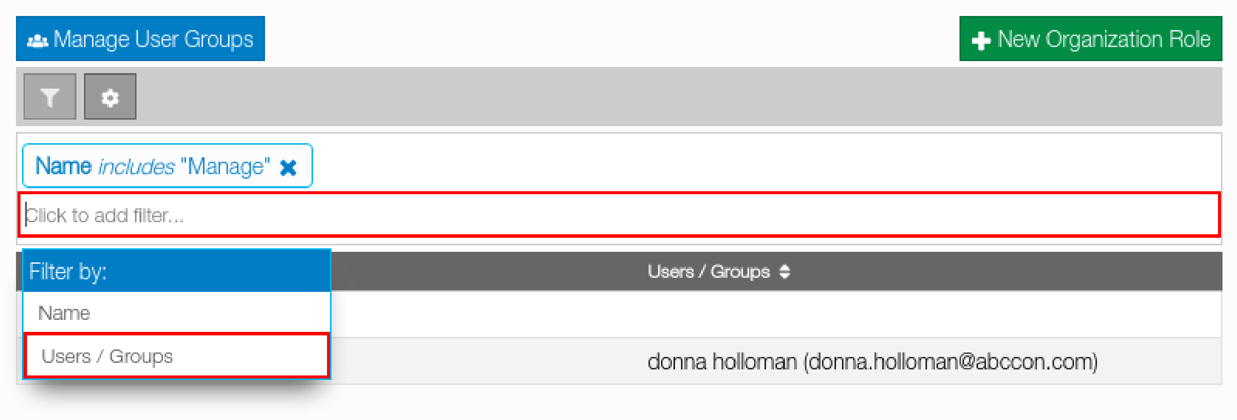

Figure 3-51: Adding a Second Filter Expression on the User Manager

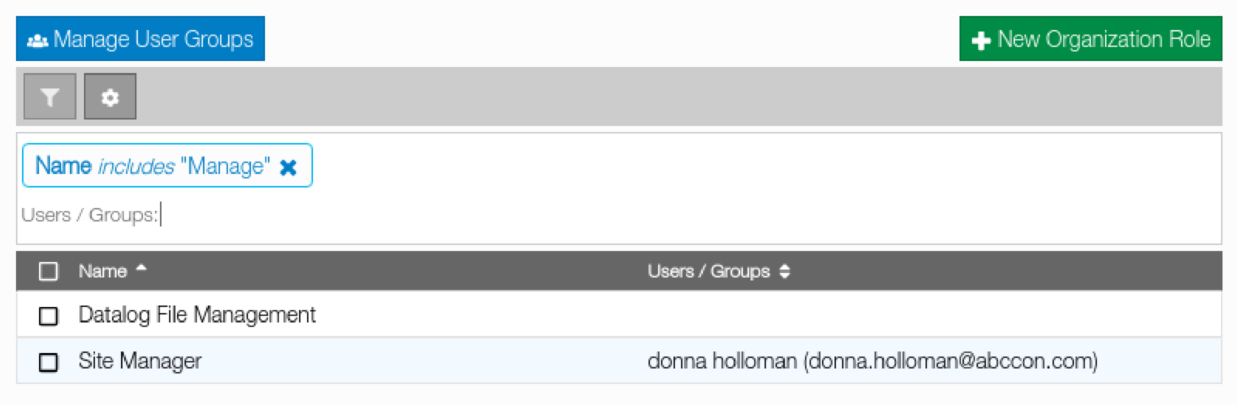

Figure 3-52: Entering a Users / Groups Term to Filter By on the User Manager

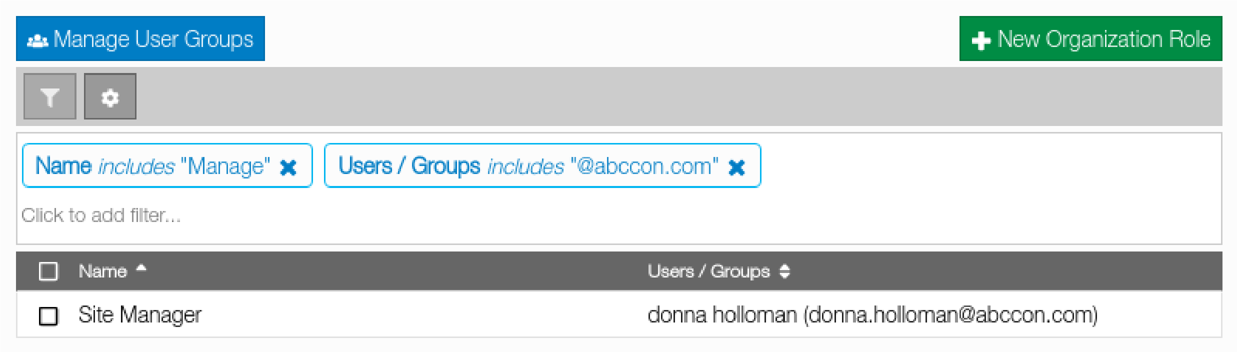

Figure 3-53: Filter Chaining on the User Manager

Sorting The Organization Role List

By default, the **User Manager** content panel lists Organization Roles in ascending alphabetical order. It can be useful however to sort Organization Roles in an alternative ascending or descending order. The following process describes how to toggle the sort order of the Organization Role list:

1. Open the **User Manager** as described in “Opening The User Manager” on page 3-4

2. Click on the **Name** column title to switch between ascending and descending sort order as shown in Figure 3-54.

The **User Manager** will update the Organization Role list in accordance with the selected sort order. The direction of the arrow next to the column title indicates the current sort order.

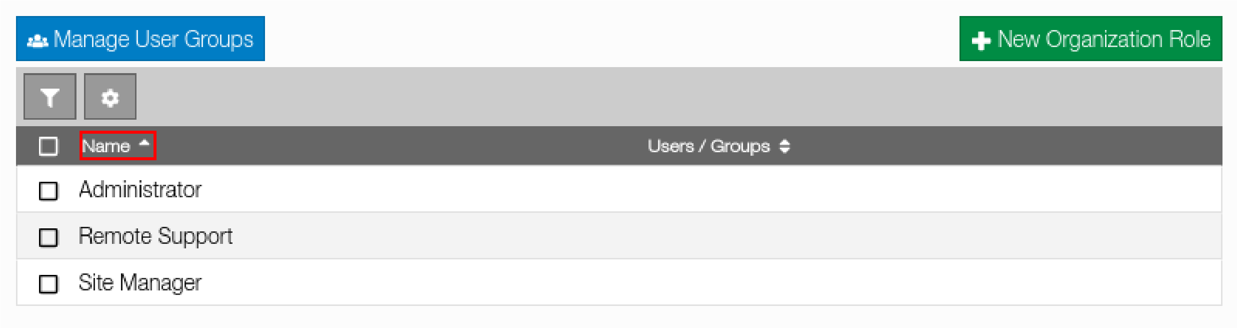

Figure 3-54: Organization Roles Sorted by Ascending Name on the User Manager

Creating New Organization Roles

New Organization Roles can be created at any time. New Organization Roles must be named uniquely but can contain actions that duplicate existing Organization Roles. A new Organization Role may be created for a number of reasons including:

- To define customized access to the Organization not possible with the provided default Organization Roles
- To replace a default Organization Role that has been deleted.

The following process describes how to create a new Organization Role:

1. Open the **User Manager** as described in “Opening The User Manager” on page 3-4

2. Click on the green **New Organization Role** button to the top right of the content panel as shown in Figure 3-55 to open the **New Organization Role** dialog as shown in Figure 3-56

3. Enter a name for the new Organization Role in the **Name** field noting that Organization Role names must be unique

4. Select the actions that assignees of this new Organization Role will have access to. See “Selecting Organization Role Actions” on page 3-51 for more information

5. Click the **Save** button.

The **New Organization Role** dialog will close. The new Organization Role will appear in the **User Manger** as shown in Figure 3-57.

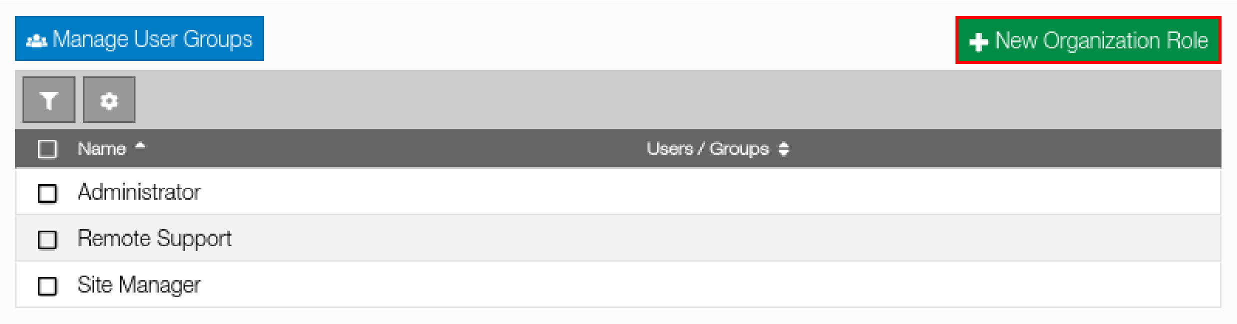

Figure 3-55: The New Organization Role Button on the User Manager Content Panel

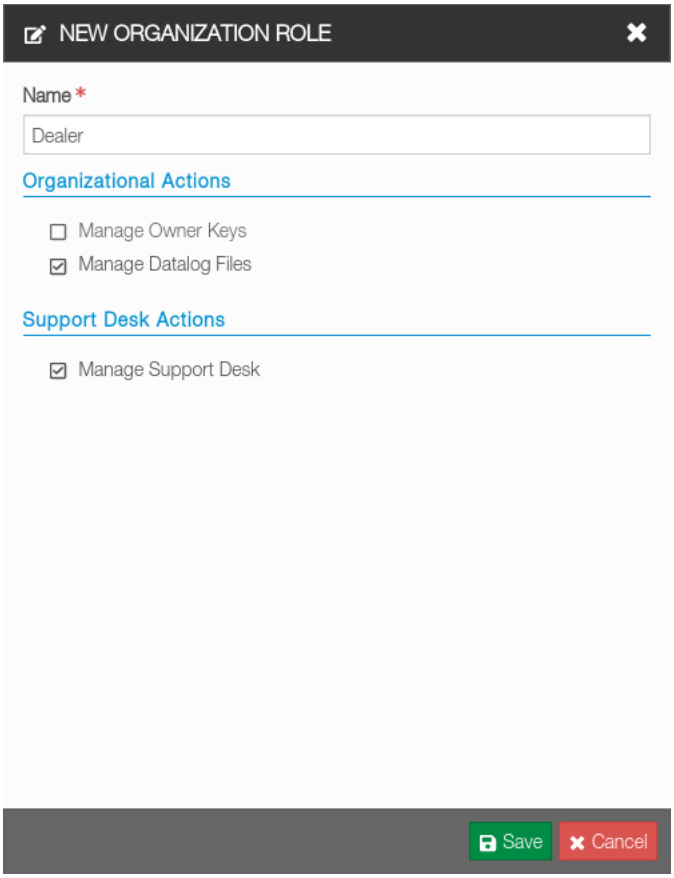

Figure 3-56: The New Organization Role Dialog

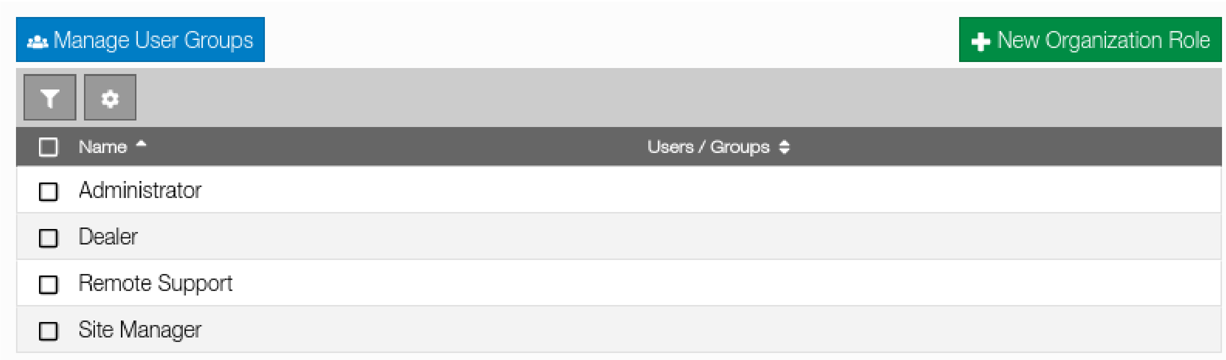

Figure 3-57: A Newly Created "Dealer" Organization Role on the User Manager Content Panel

Editing Existing Organization Roles

Organization Roles can be edited at any time. An Organization Role may be edited for a number of reasons including:

- To rename the Organization Role so that it is more descriptive
- To update the permissions of all Organization Role assignees by modifying its actions.

The following process describes how to edit an existing Organization Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click the checkbox associated with the desired Organization Role in the content panel as described in "Viewing Roles Associated With The Current Organization" on page 3-40
3. Click the blue **Edit** button in the list action bar to open the **Edit Organization Role** dialog as shown in Figure 3-58
4. Make the required modifications as shown in Figure 3-59 noting that Organization Role names must be unique
5. Click the **Save** button.

The **Edit Organization Role** dialog will close and all assignees of the Organization Role will receive access to the edited actions.

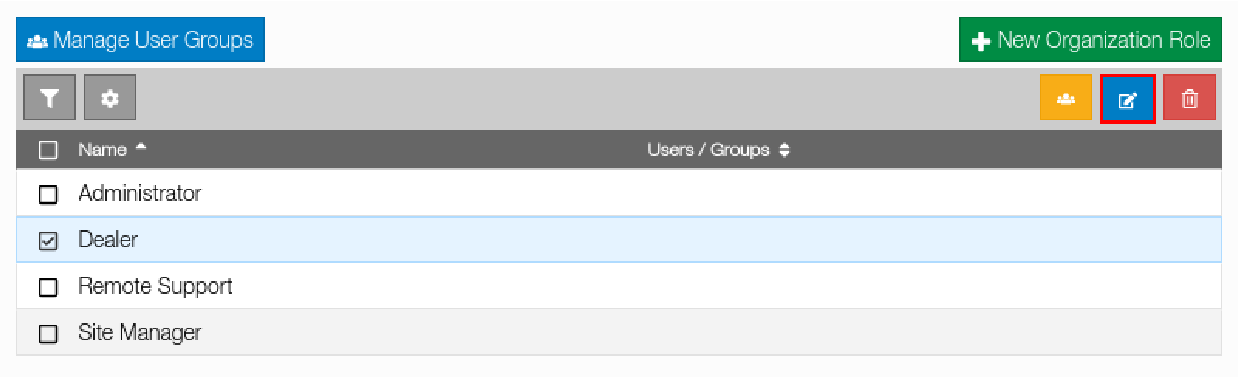

Figure 3-58: Selecting an Organization Role for Editing on the User Manager

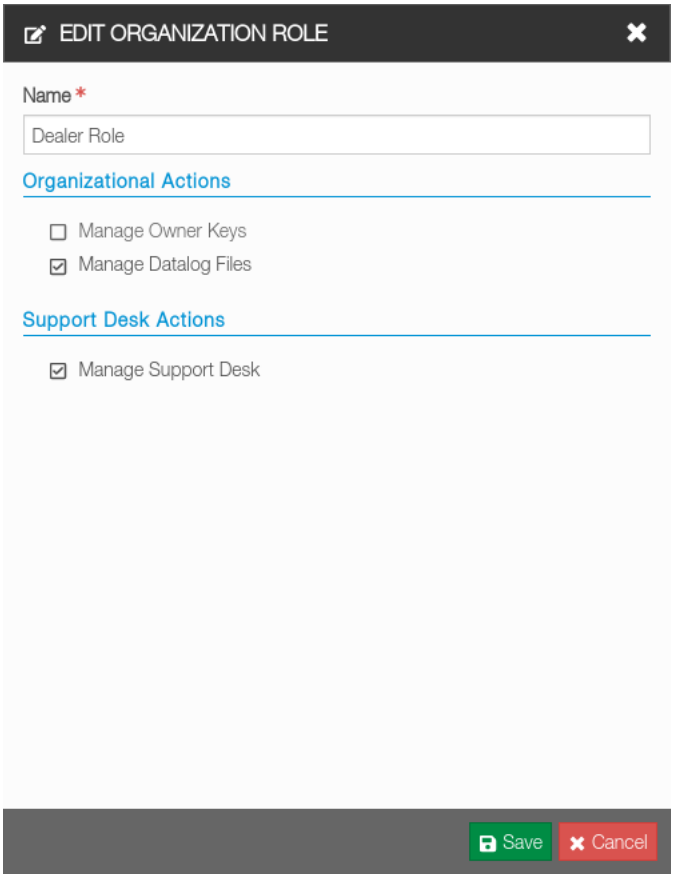

Figure 3-59: The Edit Organization Role Dialog

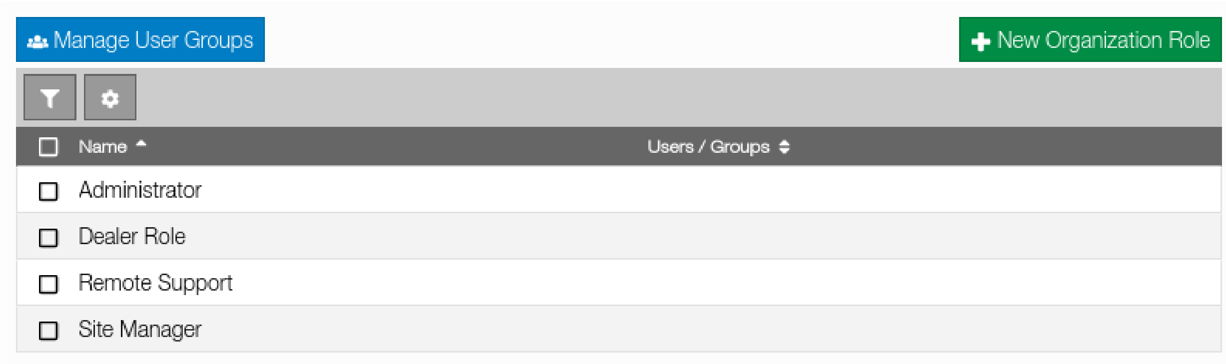

Figure 3-60: An Edited "Dealer Group" Organization Role on the User Manager Content Panel

Deleting Organization Roles

Deleting A Single Organization Role

Organization Roles can be deleted at any time. Both default and User added Organization Roles can be deleted. An Organization Role may be deleted for a number of reasons including:

- To eliminate unnecessary or duplicate Organization Roles in the **User Manager**
- To easily revoke permissions provided by a single Organization Role.

The following process describes how to delete an existing Organization Role:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click the checkbox associated with the desired Organization Role in the content panel as described in "Viewing Roles Associated With The Current Organization" on page 3-40
3. Click the red **Delete** button in the list action bar
4. Click the **Confirm** button on the resulting dialog as shown in Figure 3-61.

The confirmation dialog will close. The updated Organization Role list will appear in the **User Manger**.

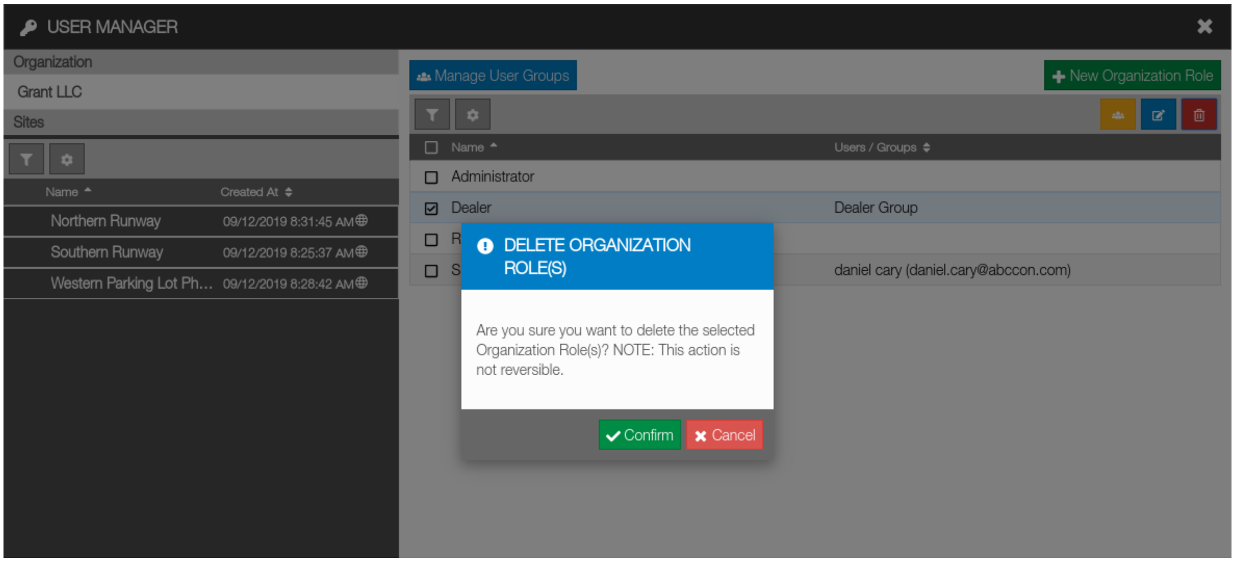

Figure 3-61: Confirming Deletion of a Single Organization Role on the User Manager

Deleting Multiple Organization Roles

Organization Roles can be deleted in bulk at any time. Both default and User added Organization Roles can be deleted. Multiple Organization Roles may be deleted for a number of reasons including:

- To delete all Organization Roles that match a filter term
- To easily revoke all Organization level permissions.

The following process describes how to delete multiple Organization Roles:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click the checkboxes associated with the desired Organization Roles in the content panel as described in "Viewing Roles Associated With The Current Organization" on page 3-40. Note that all Organization Roles can be selected by clicking on the checkbox in the list header as shown in Figure 3-62
3. Click the red **Delete** button in the list action bar
4. Click the **Confirm** button on the resulting dialog as shown in Figure 3-63.

The confirmation dialog will close. The updated Organization Role list will appear in the **User Manger**.

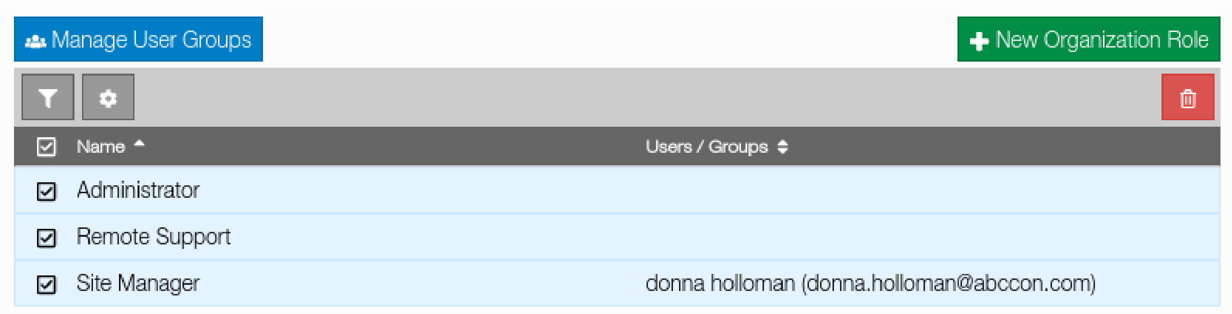

Figure 3-62: Selecting Multiple Organization Roles for Deletion on the User Manager

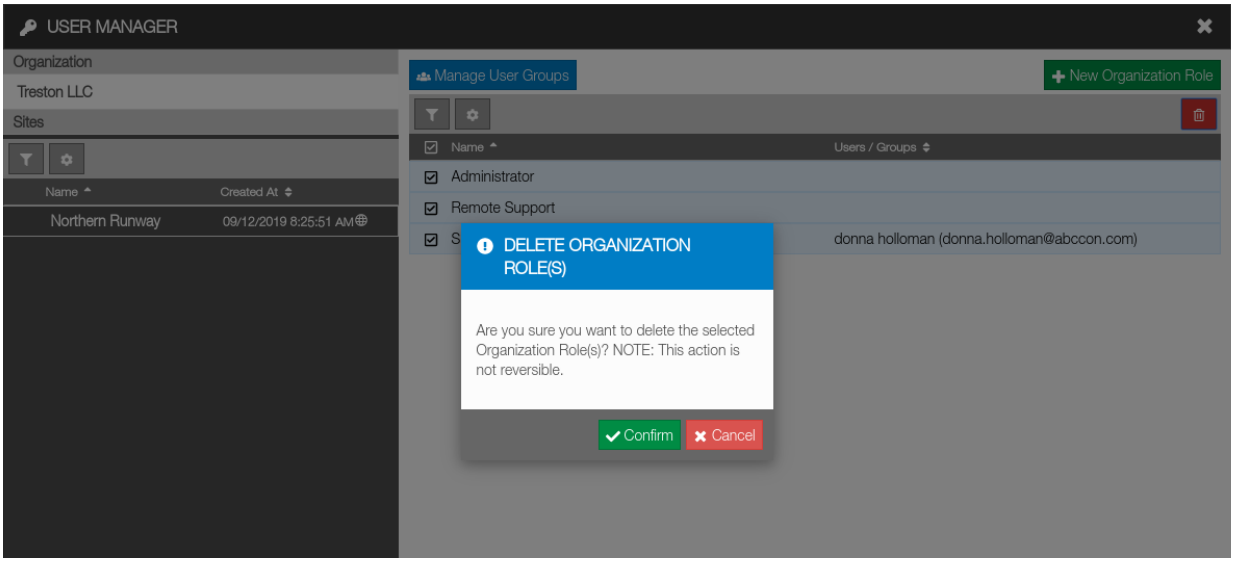

Figure 3-63: Confirming Deletion of Multiple Organization Roles on the User Manager

Using Default Organization Roles

Sitelink3D v2 provides a default set of Organization Roles as shown in Figure 3-64. Default Organization Roles provide the following advantages:

- Allow Users to assign permissions immediately without needing to create Organization Roles first
- Provide sensible Organization action User Groupings for typical usage
- Support customization as described in "Editing Existing Organization Roles" on page 3-46

No distinction is made between default and User defined Organization Roles. Default Organization Roles can be edited or deleted as desired.

The default Organization Roles are:

- Administrator
- Remote Support
- Site Manager.

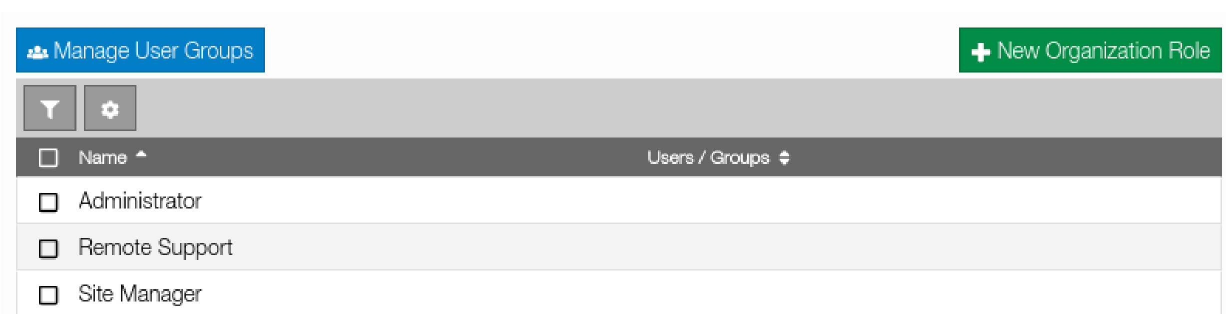

Figure 3-64: The User Manager Content Panel Displaying Default Organization Roles

Selecting Organization Role Actions

All Organization Roles are comprised of one or more of the actions listed in Table 3-3.

Table 3-3. Organization Actions Available in Sitelink3D v2

Action Name	Ability Provided
Manage Owner Keys	Allows the Owner Keys that prove Site ownership to be managed on the **Owner Key Manager**.
Manage Datalog Files	Enables offline machine work to be uploaded regardless of whether the Site exists yet.
Manage Support Desk	Enables access to the Organization Support Desk. Refer to the *Remote Support Client Software User's Manual* for more information.

Receiving Role Update Notifications

Changes to Role assignments are immediately applied. In cases where Roles are revoked from logged in Users currently using the revoked features, the notification shown in Figure 3-65 is displayed and no further work can be performed until the browser is refreshed.

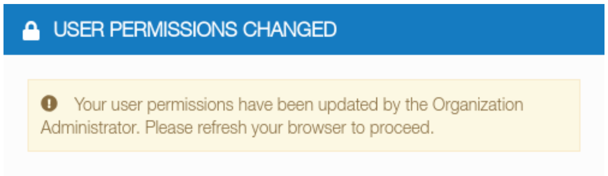

Figure 3-65: The Notification of Updated Role Assignments

Simplifying Role Assignments With User Groups

User Groups At A Glance

A User Group is an optional collection of Sitelink3D v2 Users who share some common attribute. User Groups are represented by a descriptive name and can represent any categorization that makes sense at a Site or within an Organization.

A User Group for example may be created to represent Users with the following shared characteristics:

- A particular geographic region
- A particular Site
- Work shift times
- Job description.

The benefits of using User Groups include the ability to:

- Easily categorize multiple Users
- Assign Roles only once for a User Group rather than once for each User in the User Group.

Conceptually there is no difference between a User and a User Group aside from the fact that a User Group references multiple Users. Both Users and User Groups are assigned to Roles.

Because User Groups are common to Sites and Organizations, the blue **Manage User Groups** button in the **User Manager** is unaffected by sidebar selections. For convenience, User Groups are sometimes simply referred to as Groups.

NOTE Unlike Roles, User Groups are not categorized by Site and Organization. A single User Group can be applied to a Site Role and an Organization Role.

Viewing Existing User Groups

The list of existing User Groups can be viewed using the following process:

1. Open the **User Manager** as described in "Opening The User Manager" on page 3-4
2. Click the blue **Manage User Groups** button at the top of the content panel as shown in Figure 3-66 to open the **User Groups** dialog as shown in Figure 3-67.

The current list of User Groups will be displayed.

NOTE Unlike Roles, Sitelink3D v2 provides no default User Groups.

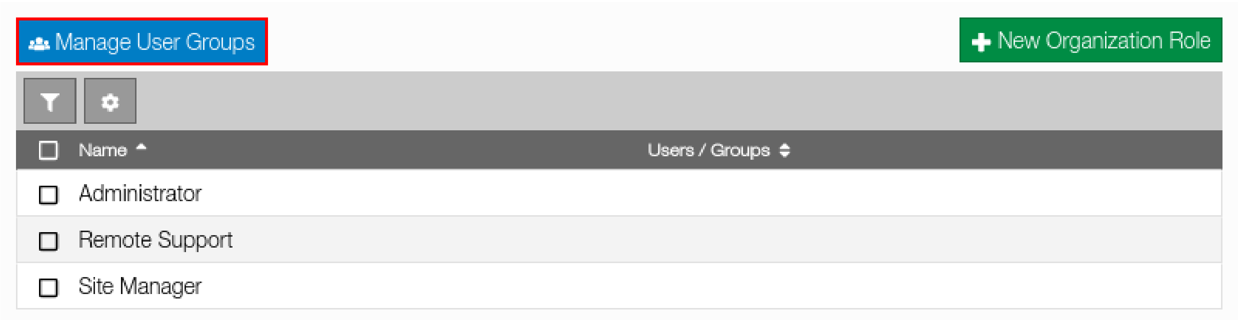

Figure 3-66: The Manage User Groups Button on the User Manager Content Panel

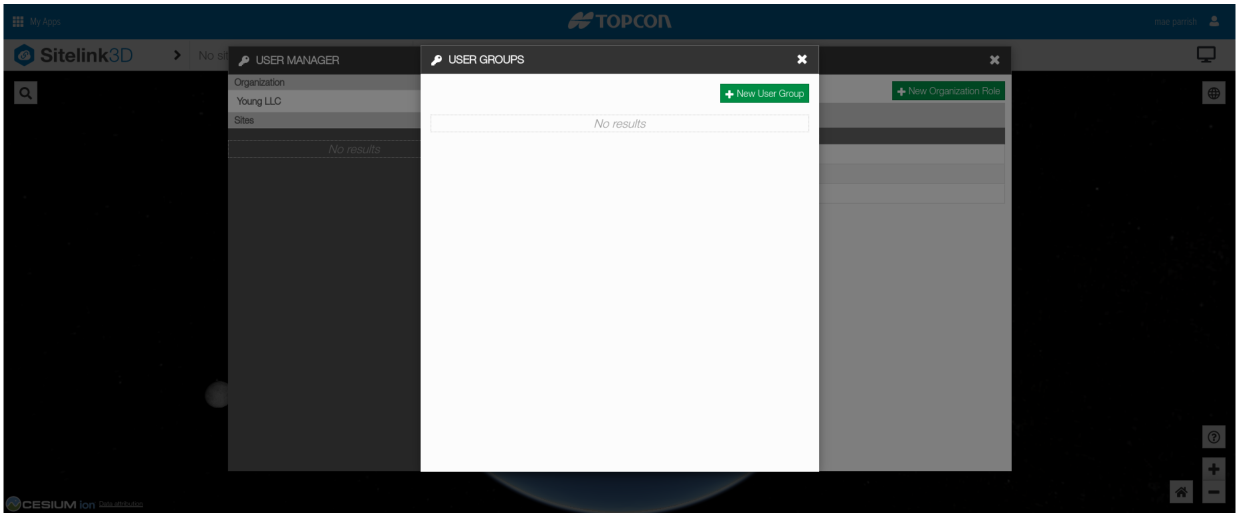

Figure 3-67: The User Groups Dialog Accessed Via the User Manager

Creating New User Groups

A new User Group is created using the following process:

1. Open the **User Groups** dialog as described in “Viewing Existing User Groups” on page 3-52
2. Click the **New User Group** button to open the **New User Group** dialog as shown in Figure 3-68
3. Add a name for the new User Group as shown in Figure 3-69
4. Select the checkboxes associated with the Users to be included in the User Group as shown in Figure 3-69
5. Click the **Save** button.

The **New User Group** dialog will close and the User Group will appear listed in the **User Groups** dialog.

NOTE For simplicity, User Groups cannot be nested in other User Groups. A User Group is comprised of Users only.

Figure 3-68: The New User Group Button on the User Groups Dialog

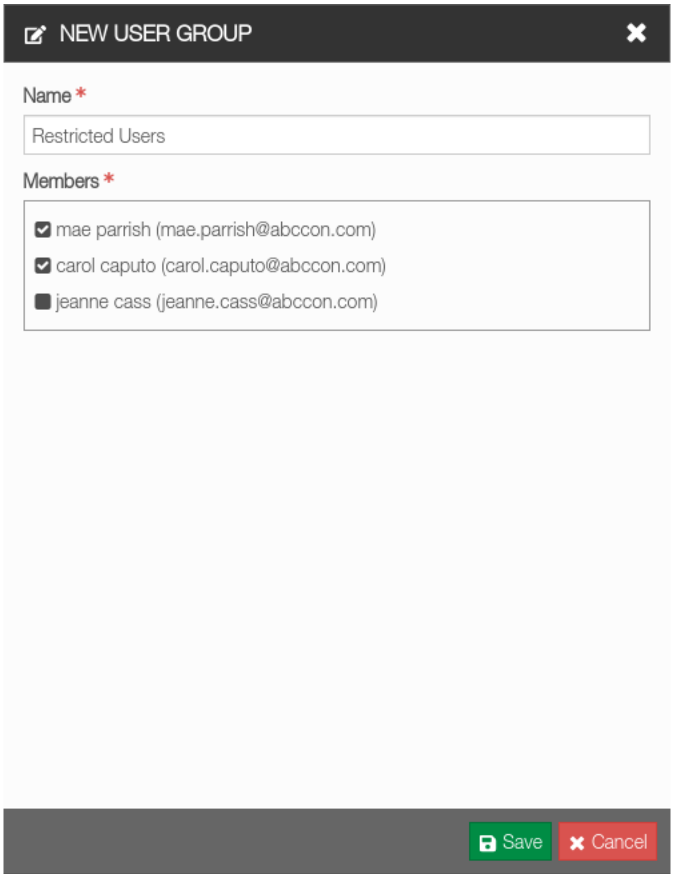

Figure 3-69: The New User Group Dialog

Using A Filter To Narrow The User Group List

The following process describes how to restrict a User Group list using a single filter term:

1. Open the **User Groups** dialog as described in "Viewing Existing User Groups" on page 3-52
2. Click on the filter icon to the left of the action bar to display the filter box as shown in Figure 3-70
3. Click on the **Click to add filter** area in the filter box above the list
4. Click on the **Name** field as shown in Figure 3-71
5. Enter the term that the name should be narrowed by as shown in Figure 3-72
6. Press the enter key to apply the filter.

The **User Group** dialog will update the User Group list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 3-73.

NOTE The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

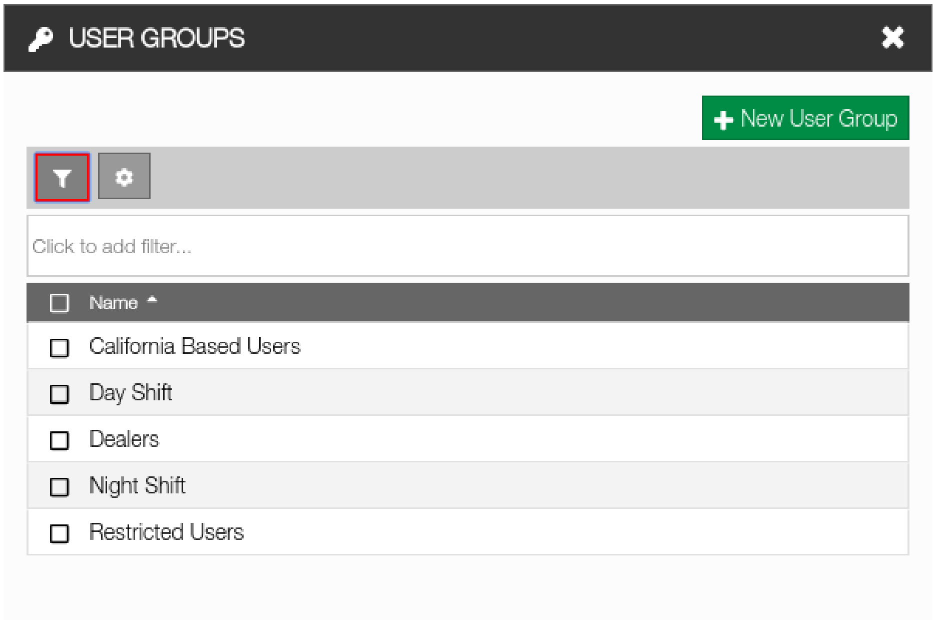

Figure 3-70: The User Groups Filter Button

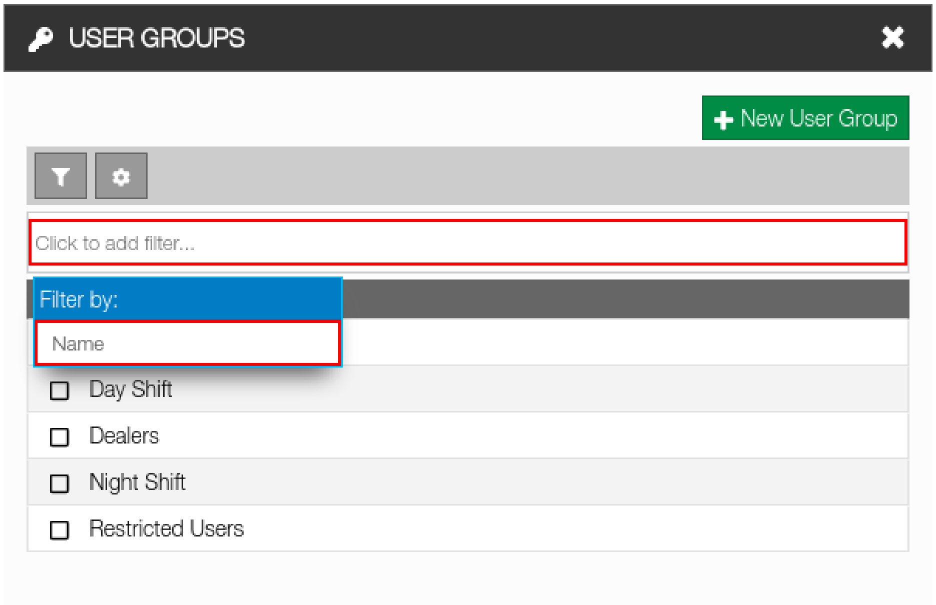

Figure 3-71: Selecting A Name Filter on the User Groups Dialog

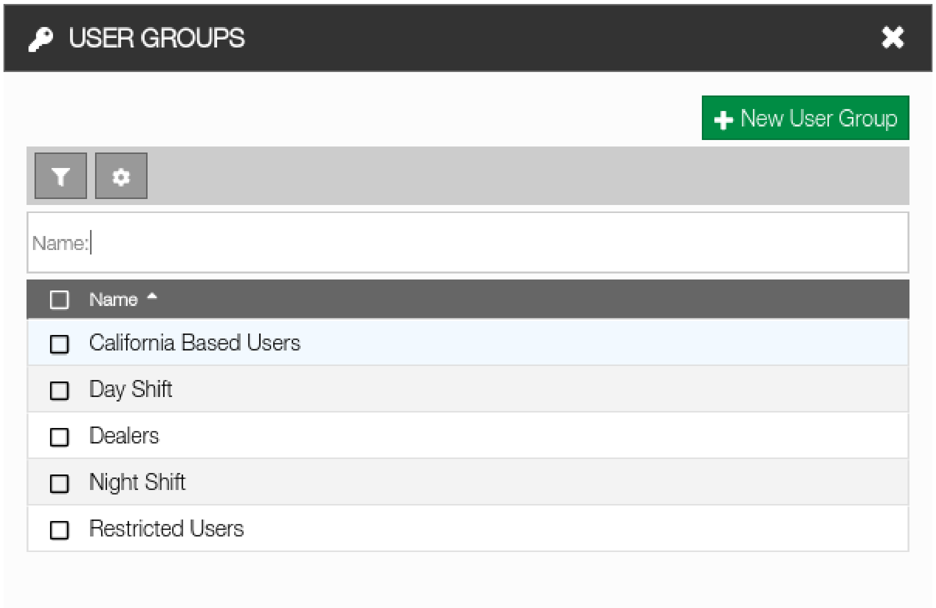

Figure 3-72: Entering a User Group Name to Filter By on the User Group Dialog

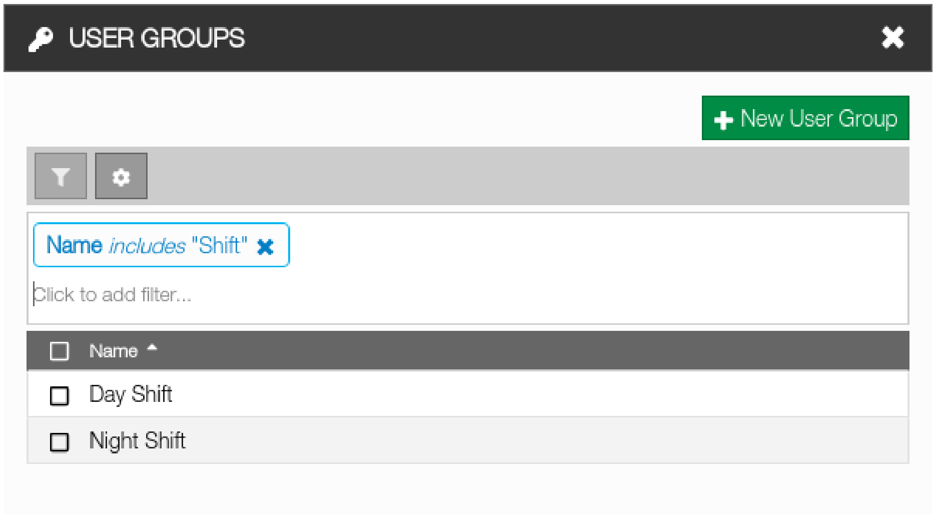

Figure 3-73: A User Group Name Filter Applied to the User Group List

Viewing The Users Assigned To A User Group

The members of a User Group can be identified using the following process:

1. Open the **User Groups** dialog as described in “Viewing Existing User Groups” on page 3-52
2. Click the checkbox associated with the desired User Group
3. Click the blue **Edit** button in the list action bar to open the **Edit User Group** dialog as shown in Figure 3-74

The **Edit User Group** dialog will open and the members of the User Group will be displayed with selected checkboxes as shown in Figure 3-75.

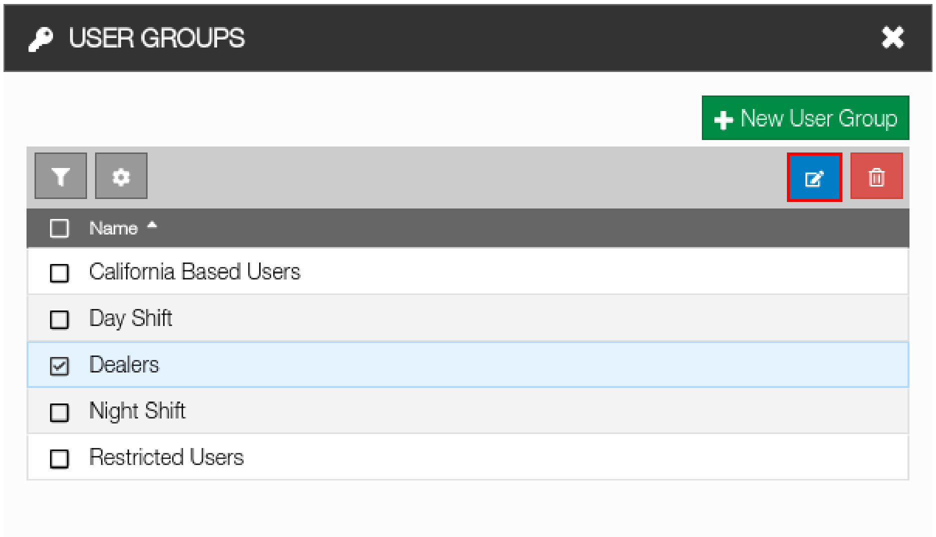

Figure 3-74: Selecting a User Group For Editing on the User Groups Dialog

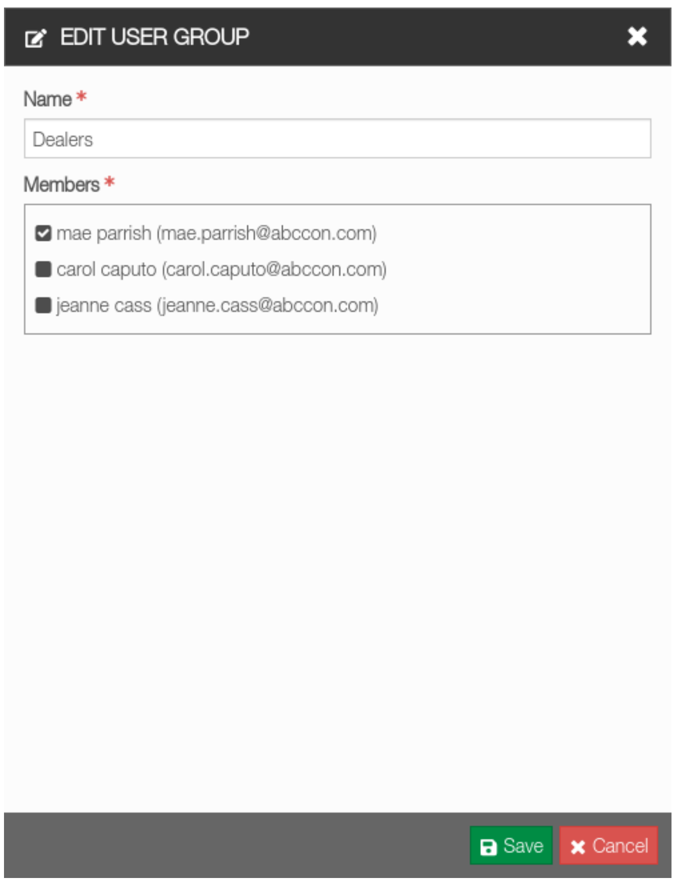

Figure 3-75: The Edit User Groups Dialog

Editing Existing User Groups

The name and members of a User Group can be edited using the following process:

1. Open the **Edit User Group** dialog as described in “Viewing The Users Assigned To A User Group” on page 3-56
2. Make the required modifications noting that User Group names must be unique
3. Click the **Save** button.

The **Edit User Group** dialog will close. The updated User Group list will appear in the **User Groups** dialog.

Deleting User Groups

User Groups can be deleted at any time. The following process describes how to delete a User Group:

1. Open the **User Groups** dialog as described in “Viewing Existing User Groups” on page 3-52
2. Click the checkbox associated with the User Groups to be deleted
3. Click the red **Delete** button in the list action bar
4. Click the **Confirm** button on the resulting dialog as shown in Figure 3-76.

The following will occur:

- The confirmation dialog will close
- The updated User Group list will appear in the **User Groups** dialog
- Any Site or Organization Role assignment that the User Group participated in will be removed
- Any actions that Users relied on the User Group to access will be revoked. See “Receiving Role Update Notifications” on page 3-51 for more information.

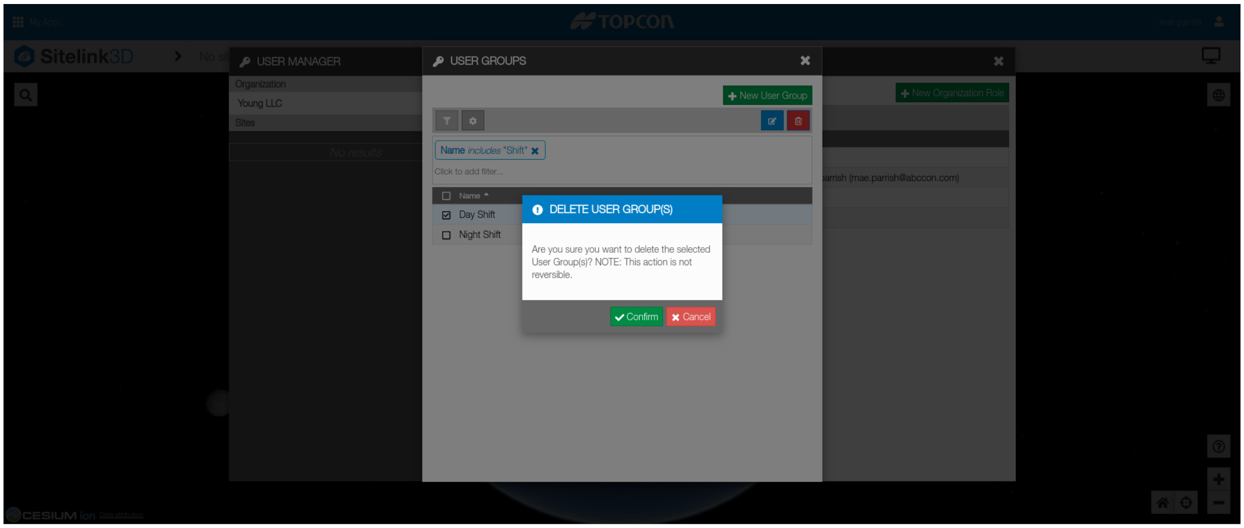

Figure 3-76: Confirming Deletion of User Groups

Assigning Groups To Roles

Groups are assigned to both Organization and Site Roles in exactly the same way as Users are. See "Assigning Users & User Groups To Site Roles" on page 3-21 and "Assigning Users & User Groups To Organization Roles" on page 3-38 for more information.

User Preferences

Various Sitelink3D v2 User specific display characteristics can be customized on the **User Preferences** dialog as shown in Figure 3-77.

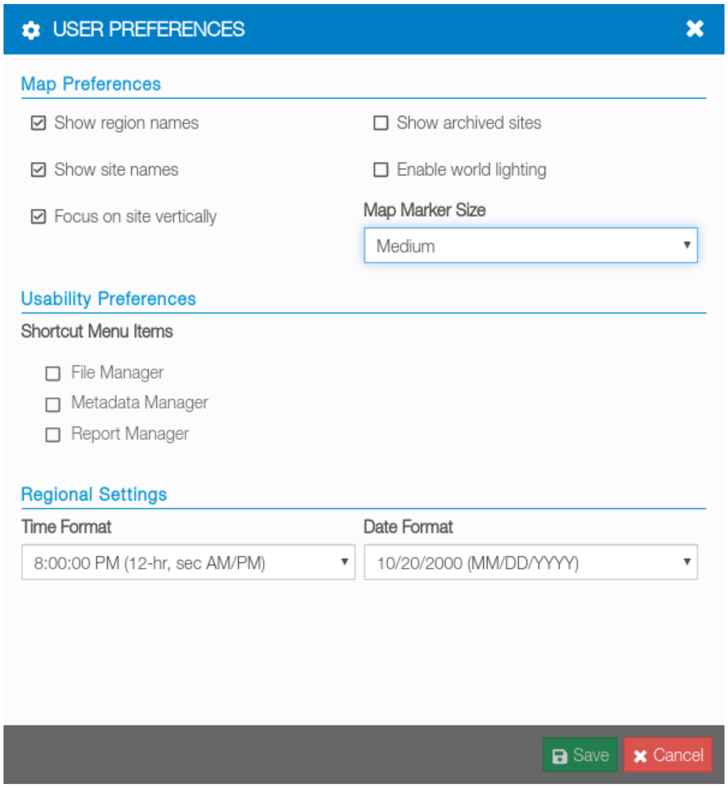

Figure 3-77: The User Preferences Dialog

Opening The User Preferences Dialog

The **User Preferences** dialog is accessed via the **Sitelink Menu** as described by the following process:

1. Click on the **Sitelink Menu Selector** to show the **Sitelink Menu** as shown in Figure 3-78
2. Click on **User Preferences**

The **User Preferences** dialog will open.

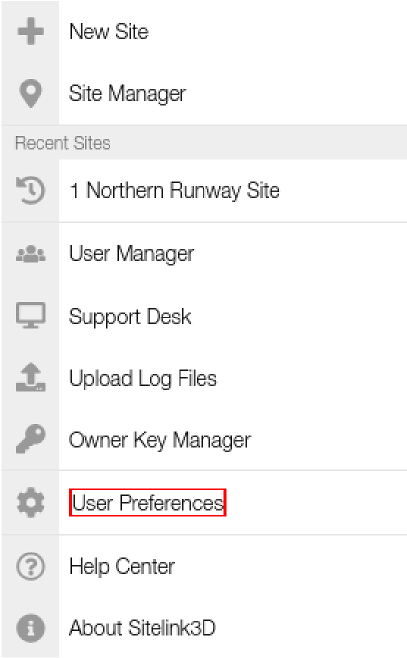

Figure 3-78: Accessing User Preferences in the Sitelink Menu

Specifying Map Preferences

The map preferences available on the **User Preferences** dialog are listed in Table 3-4.

Table 3-4. Map Configuration Preferences

Option	Behavior
Show region names	Region representations are annotated with the corresponding Region name on the map.
Show archived sites	Archived Sites are shown in red on the map rather than being removed from view.
Show site names	Site map markers are annotated with the Site name on the map.
Enable world lighting	The area of the Earth currently lit by the sun is represented on the globe.
Focus on site vertically	Sites are viewed from directly above when focused on as opposed to moving the point of view to provide an elevated perspective.
Map Marker Size	Adjusts the size of the map location marker on the map.

Enabling Shortcut Menu Items

Shortcuts to commonly used features can be added to the home page for convenience as shown in Figure 3-79. These shortcuts are displayed in blue and are disabled by default. The name of the shortcut can be viewed by hovering the mouse over each icon. The available shortcuts are:

- File Manager
- Metadata Manager

- Report Manager.

All Users can configure shortcuts regardless of User Type or Role delegation. The visibility of any enabled shortcuts however depends on the following conditions:

- A Site must be selected. See "Selecting An Existing Site" on page 2-38 for more information
- The User must be assigned to a Site Role that permits access to each shortcut. See "Selecting Site Role Actions" on page 3-35 for more information.

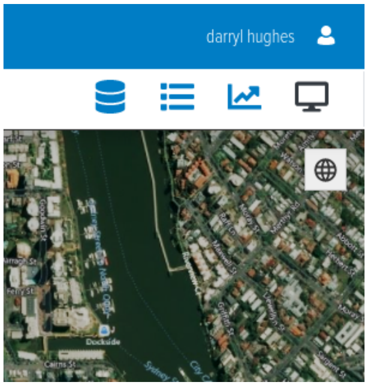

Figure 3-79: Home Page Shortcuts with Configurable Items Shown in Blue.

NOTE The black **Support Desk** shortcut on the home screen is not configurable in this way. It is conditional upon the User's Organization Role assignments.

Configuring Regional Settings

The representation of dates and times can be customized on the **User Preferences** dialog. The selections made here impact many areas including the following:

- Dates and times of events in reports
- Site creation timestamps in the **Site Manager**
- Last updated date and time displayed at the bottom of Live Statistics Widgets.

The available time representation options are:

- Hours, minutes & seconds in 24 hour time
- Hours & minutes in 24 hour time
- Hours, minutes & seconds in 12 hour time
- Hours & minutes in 12 hour time

The available date representation options are:

- Month, day & year represented numerically
- Day, month & year represented numerically
- Day, month & year comma separated with the month represented textually.

File Management

Overview

Sitelink3D v2 provides the ability to upload files, create folder hierarchies and track historical versions of files used at Sites. Although certain uploads are required for particular Sitelink3D v2 functionality, files of a general nature such as Site procedure documents can also be conveniently stored and managed within Sitelink3D v2.

NOTICE Files uploaded to Sitelink3D v2 should be backed up to ensure data integrity.

File Management Prerequisites

This section describes the conditions under which files can be managed for a Site.

Site Type

Because files and their relation to Localization and Design Objects are integral to the operation of a Site, they can be associated with Sites of any type. See "Understanding Site Types" on page 2-1 for more information.

Required Permissions

Administrator Users have unrestricted access to file management. Member Users require access to the following Site actions as described in "Selecting Site Role Actions" on page 3-35:

- View Site
- Manage Site Metadata
- Manage File & Design Objects.

For convenience, the following default Site Roles provide file management permissions:

- Administrator
- Site Manager.

Users can be assigned to these default Site Roles to easily delegate access to file management. See "Using Default Site Roles" on page 3-34 for more information.

NOTE See "Understanding User Types" on page 3-1 for more information on User types.

Managing Files With The File Manager

Files are uploaded and managed in the **File Manager**. A Site manager will typically use the **File Manager** to upload Localization and Design Object files although files of any nature can be stored. Once uploaded, files can be inspected for Design Objects and imported into Working Sets as described in "Importing Design Objects From A File" on page 4-9 and "Extracting Localization Data From A File" on page 4-8.

The File Manager At A Glance

The **File Manager** allows Users to upload files, download files and extract data from files to the Site. Files in the **File Manager** support the following operations:

- Import Regions
- Import Design Objects
- Extract Localization
- Move
- History
- Download
- Archive.

Opening The File Manager

The **File Manager** can be accessed from two locations for convenience. These are:

- Via the **Site Menu**
- Via the shortcut bar.

Opening The File Manager Via The Site Menu

The **File Manager** is accessed via the **Site Menu** as described by the following process:

1. Click on the **Site Menu Selector** to show the **Site Menu** as shown in Figure 4-1
2. Click on **File Manager** to open the **File Manager**.

The **File Manager** will open.

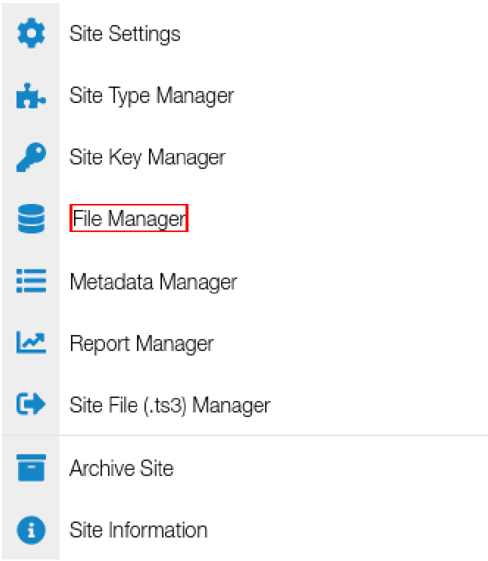

Figure 4-1: Accessing the File Manager in the Site Menu

Opening The File Manager Via The Shortcut Bar

The **File Manager** can be opened via the database icon in the shortcut bar as shown in Figure 4-2. This shortcut needs to be enabled to access this button. See "Enabling Shortcut Menu Items" on page 3-60 for more information.

1. Enable the **File Manager** shortcut as described in "Enabling Shortcut Menu Items" on page 3-60 to display the Shortcut Menu Item as shown in Figure 4-2
2. Click on the database icon in the Shortcut Menu as shown in Figure 4-3

The **File Manager** will open.

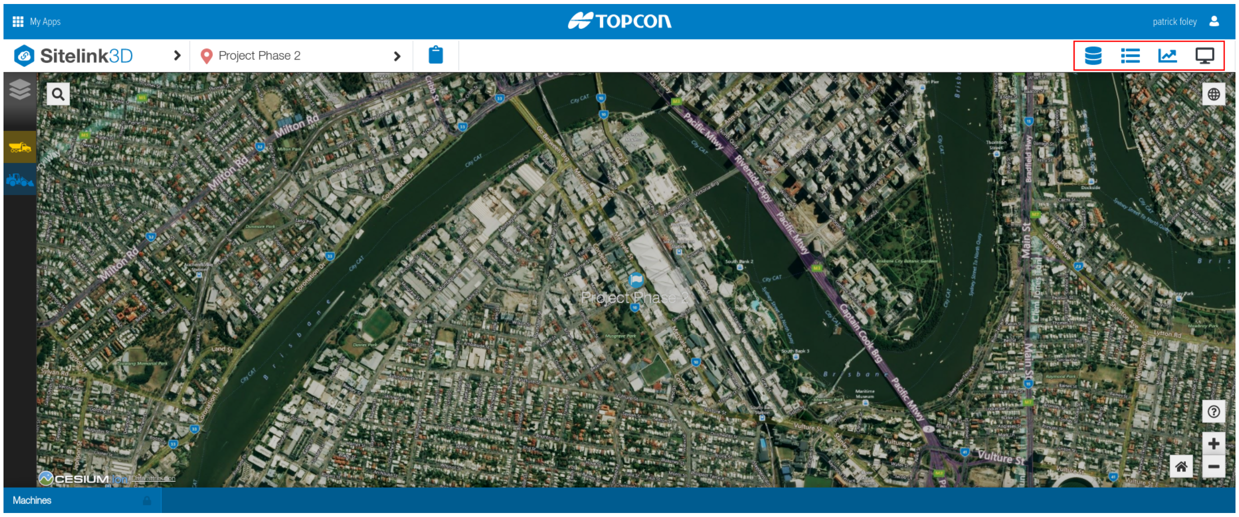

Figure 4-2: The Shortcut Bar at the Top Right of the Home Screen

Figure 4-3: Accessing the File Manager in the Shortcut Bar

Viewing The Files Associated With A Site

Files are associated with Sites rather than Users. Users can hence interact with files regardless of who uploaded them. The files associated with a Site can be viewed using the following process:

1. Select a Site as described in "Selecting An Existing Site" on page 2-38

2. Open the **File Manager** as described in "Opening The File Manager" on page 4-2.

The files for the Site will be displayed.

Working With Folders

The **File Manager** allows files to be structured under folders for better organization. This section describes folder management within Sitelink3D v2.

NOTE Unlike files, folders are not versioned.

Creating Folders

Folders are creating in the **File Manager** using the following process:

1. Open the **File Manager** as described in "Opening The File Manager" on page 4-2.

2. Navigate to where the folder will be created as described in "Moving Between Folders" on page 4-5

3. Click the blue **New Folder** button at the top of the **File Manager**

4. Enter the folder name

5. Confirm the folder creation

   – Click the green **Create** button to create the folder as shown in Figure 4-5

   – Click the red **Cancel** button to abandon the folder creation.

The following with occur:

- A new folder of the specified name will be created
- The **File Manager** will enter the new folder to ease subsequent file uploads as shown in Figure 4-6.

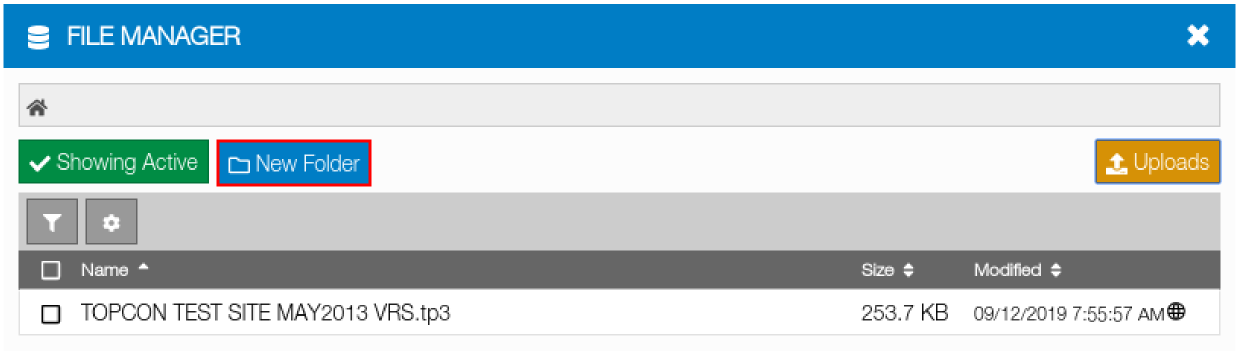

Figure 4-4: The New Folder Button on the File Manager

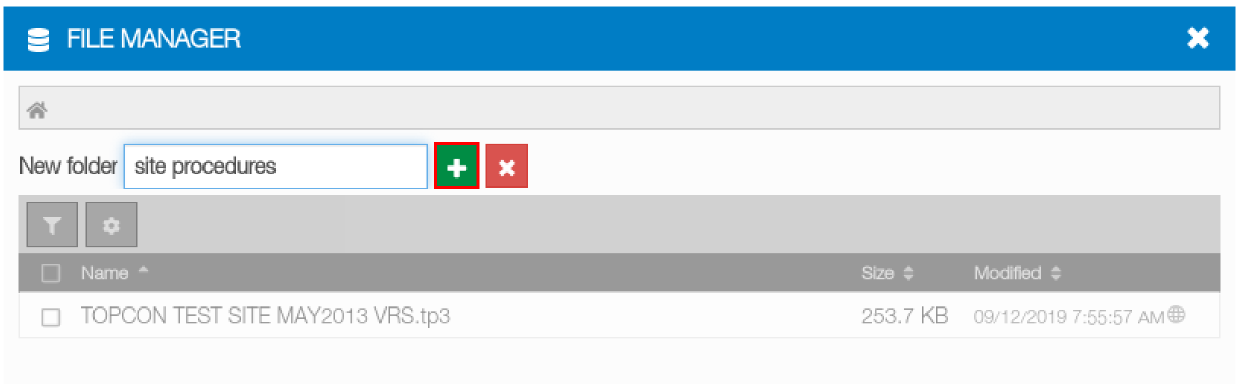

Figure 4-5: Creating a Folder in the File Manager

Figure 4-6: An Empty Folder in the File Manager

Moving Between Folders

Navigate the folder structure within the **File Manager** using the following process:

1. Open the **File Manager** as described in "Opening The File Manager" on page 4-2.
2. Navigate up and down the folder structure

   – Enter a folder by clicking on the folder name in the file list

   – Enter any folder in the current path by clicking the bread crumbs above the file list

Moving Files & Folders To Other Folders

Files can be moved to other folders in the **File Manager** using the following process:

1. Open the **File Manager** as described in “Opening The File Manager” on page 4-2.
2. Locate the file or folder to be moved
3. Click on the checkbox to the left of the entry to select it and enable the move button
4. Click on the teal **Move** button to the right of the action bar
5. Select the destination folder

   – Start typing the destination folder name to dynamically search the provided tree control

   – Expand the provided tree control to manually select the destination folder.
6. Confirm the folder move

   – Click the teal **Move** button to move the folder

   – Click the red **Cancel** button to abandon the folder move.

Uploading Files

Files are uploaded to a Site using the **File Manager** in two ways:

- Drag & drop
- Manual browse and select.

A new file is added to the Site via drag & drop using the following process:

1. Open the **File Manager** as described in “Opening The File Manager” on page 4-2.
2. Navigate to where the file will be uploaded as described in “Moving Between Folders” on page 4-5
3. Drag the file or files to upload into the **File Manager** file list.

A new file is added to the Site via manual selection using the following process:

1. Open the **File Manager** as described in “Opening The File Manager” on page 4-2.
2. Navigate to where the file will be uploaded as described in “Moving Between Folders” on page 4-5
3. Click on the yellow **Uploads** button to open the Uploads side panel
4. Click on the yellow **Select Files** button to open the file browser

5. Browse and select the file or files to upload.

The following will occur using either upload process:

- The Uploads side panel will be shown at the right of the **File Manager**
- The dropped file or files will be uploaded
- The status of the upload will be displayed in the Uploads side panel as described in "Viewing Uploaded Files" on page 4-7
- Upload conflicts will be automatically identified and presented for resolution as described in "Detecting File Updates When Uploading" on page 4-7.

Viewing Uploaded Files

Completed or in progress uploads can be viewed in the Uploads side panel to the right hand side of the File Manager using the following process:

1. Open the **File Manager** as described in "Opening The File Manager" on page 4-2.

2. Click the yellow **Uploads** button to open the Uploads side panel

The list of uploads along with their status will be displayed.

Detecting File Updates When Uploading

Sitelink3D v2 automatically detects when a file is likely to be an update to an existing file in the **File Manager** rather than a new uploaded file. This detection is particularly useful when uploading updated Design Objects in files with similar names.

The **File Uploader** dialog conditionally prompts the User to select whether files are to be considered new or revisions of existing files as shown in Figure 4-7 and Figure 4-8.

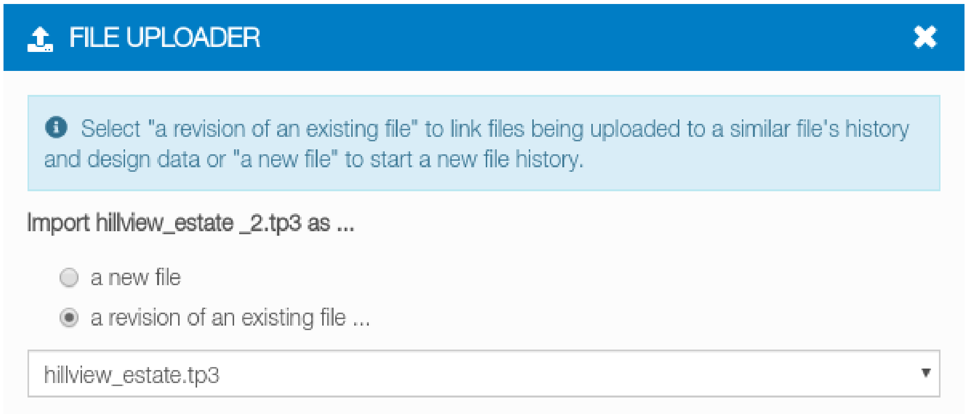

Figure 4-7: The File Uploader Suggesting a Revision Based on a Count in the File Name

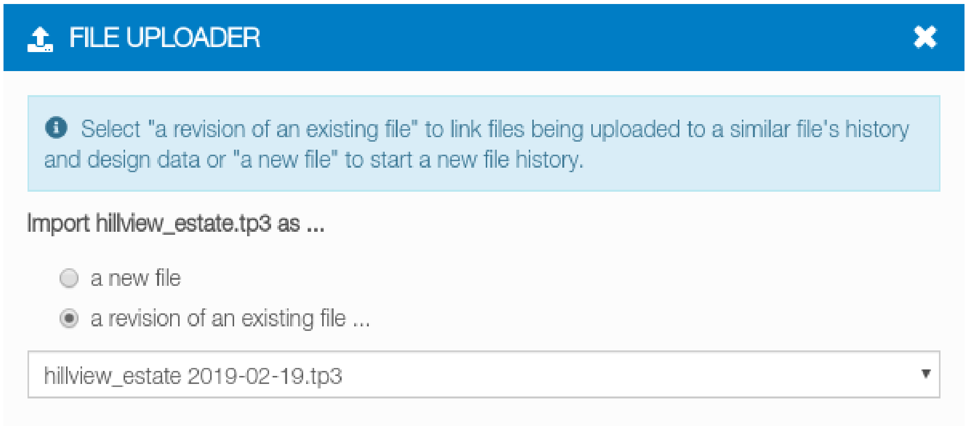

Figure 4-8: The File Uploader Suggesting a Revision Based on a Date in the File Name

Files identified as versions of previously uploaded files appear in the **File Manager** as a new revision of the existing file and form part of that file's version history. The latest file name will be adopted.

File update detection can be controlled using the following process:

1. Upload a file using one of the methods described in "Uploading Files" on page 4-6
2. Select the desired upload behavior when prompted by the automatic **File Uploader**

   – Click "a new file" to upload the specified file as a new file with a fresh history

   – Click "a revision of an existing file" to update the selected existing file and update its history.

Extracting Localization Data From A File

Localization data is extracted from a supported GC3 or TP3 Localization file once uploaded to the **File Manager** using the following process:

1. Upload a Localization file using one of the methods described in "Uploading Files" on page 4-6
2. Click on the checkbox to the left of the entry to select it
3. Click on the purple **Localization** button to the right of the action bar
4. Click **Apply** when prompted to extract and apply the Localization data from the file.

The following will occur:

- The Localization will be extracted from the file and immediately applied to the Site
- The new Localization file will be identifiable as described in "Finding & Downloading The Localization Currently In Use" on page 2-42
- The marker on the **Site Menu Selector** will display in green as described in "Determining Site Localization Status On The Site Menu Selector" on page 2-44.

Importing Design Objects From A File

Design Objects are extracted from a file once uploaded to the **File Manager** using the following process:

1. Upload a Design Object file using one of the methods described in "Uploading Files" on page 4-6
2. Click on the checkbox to the left of the entry to select it
3. Click on the green **Import** button to the right of the action bar as shown in Figure 4-9
4. Select the Design Object to import on the **Import Design Objects** dialog
   – Expand the tree control in the left hand panel to inspect the available Design Objects
   – Select the Design Objects or categories to import using the provided checkboxes
   – Move the Design Objects to import using the blue arrow buttons
5. Click the green **Import Selected** button to import the Design Objects in the right hand panel.

The Design Objects will be imported from the file.

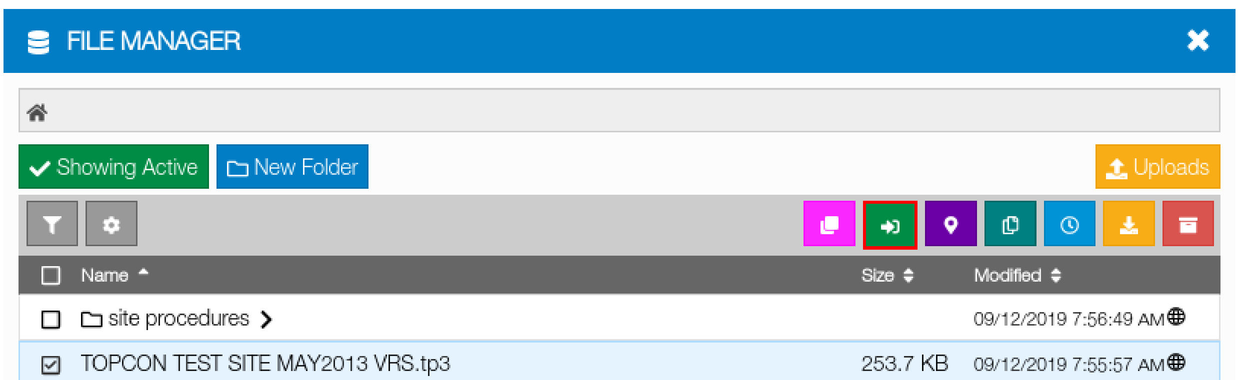

Figure 4-9: The Import Design Objects Button on the File Manager

Importing Regions From A File

Region Metadata is extracted from a TP3 file once uploaded to the **File Manager** using the following process:

1. Upload a file containing Region information using one of the methods described in "Uploading Files" on page 4-6
2. Click on the checkbox to the left of the entry to select it
3. Click on the pink **Import Regions** button to the right of the action bar

The following will occur:

- The Regions will be imported from the file
- The Regions will become visible in the **Metadata Manager** as described in "Viewing Regions In The Metadata Manager" on page 5-10.

NOTICE Some Region properties are read only when imported from a file. Correctly configure the Region prior to import.

Data Management

Overview

Sitelink3D v2 is built around three categories of data:

- Metadata
- Design Objects
- Working Sets.

Metadata describes the characteristics and context of Site operation and in some domains is known as database data. Metadata is used on Clients and in reporting. Examples of Metadata include:

- Regions
- Delays
- Materials
- Operators
- Shift Plans.

Design Objects represent imported survey data that can be displayed on the map including:

- Layers
- Alignments
- TIN surfaces.

Working Sets allow Metadata and Design Objects to be encapsulated and sent to Client Devices for targeted work.

This chapter describes how these data categories are managed within the Sitelink3D v2.

Data Management Prerequisites

This section describes the conditions under which data can be managed for a Site.

Site Type

Because data is integral to the operation of a Site, it can be associated with Sites of any type. See “Understanding Site Types” on page 2-1 for more information.

Required Permissions

This section describes the minimum Site Actions required to access the various categories of data on a Sitelink3D v2 Site. See “Creating New Site Roles” on page 3-28 for information on how to create Site Roles and “Assigning Users & User Groups To Site Roles” on page 3-21 for information on how to assign Users and User Groups to Site Roles.

Metadata Permissions

Administrator Users have unrestricted access to Metadata management. Member Users require access to the following Site Actions as described in "Selecting Site Role Actions" on page 3-35:

- View Site
- Manage Site Metadata.

Design Object Permissions

Administrator Users have unrestricted access to Design Object management. Member Users require access to the following Site Actions as described in "Selecting Site Role Actions" on page 3-35:

- View Site
- Manage Site Metadata
- Manage Files & Design Objects.

Working Set Permissions

Administrator Users have unrestricted access to Working Set management. Member Users require access to the following Site Actions as described in "Selecting Site Role Actions" on page 3-35:

- View Site
- Manage Site Metadata
- Manage Working Sets.

For convenience, the following default Site Role provides data management permissions:

- Site Manager.

Users can be assigned to this default Site Role to easily delegate access to data management. See "Using Default Site Roles" on page 3-34 for more information.

NOTICE The Site Manager default Site Role provides access to more than just data management. If this is unsuitable, a customized Site Role should be used.

Managing Metadata With The Metadata Manager

The Metadata Manager At A Glance

The **Metadata Manager** allows for the creation and management of data that describes or provides context to the selected Site. The **Metadata Manager** consists of two parts:

- The sidebar
- The content panel.

The Metadata Manager Sidebar

The sidebar lists the categories of available Metadata in alphabetical order. Once a type is selected in the sidebar, it is highlighted with a white background and the content panel to the right of the **Metadata Manager** is populated as appropriate.

The Metadata Manager Content Panel

To the right of the **Metadata Manager** is the content panel. This area is used to display and provide operations for the type of data selected in the sidebar.

Opening The Metadata Manager

The **Metadata Manager** can be accessed from two locations for convenience. These are:

- Via the **Site Menu**
- Via the shortcut bar.

Opening The Metadata Manager Via The Site Menu

The **Metadata Manager** can be opened via the **Site Menu** as described by the following process:

1. Click on the **Site Menu Selector** to show the **Site Menu** as shown in Figure 5-1
2. Click on **Metadata Manager** to open the **Metadata Manager** as shown in Figure 5-2.

The **Metadata Manager** will open as shown in Figure 5-5.

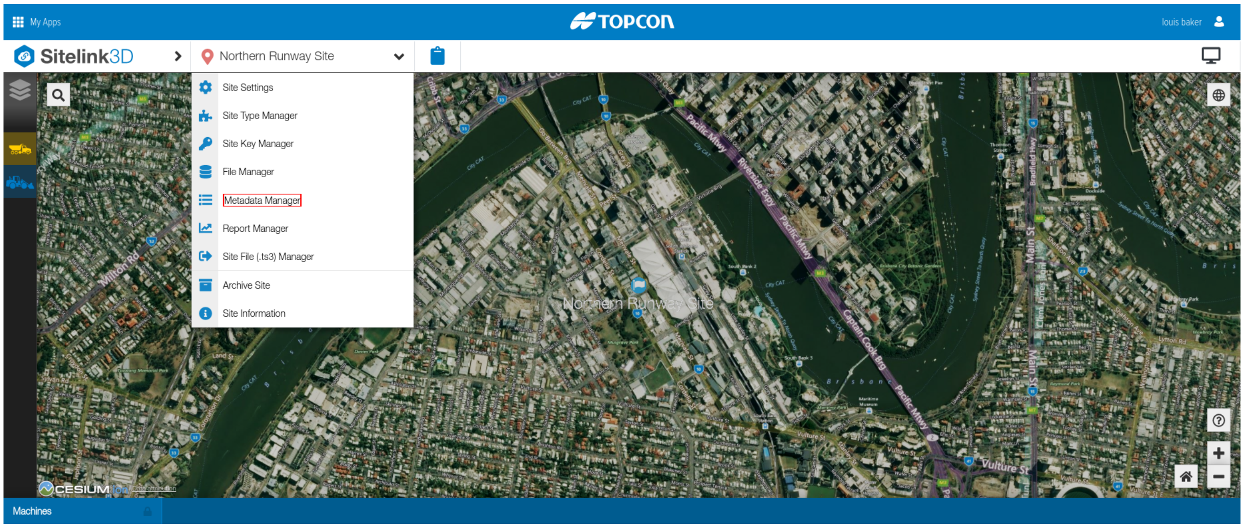

Figure 5-1: Accessing the Metadata Manager in the Site Menu

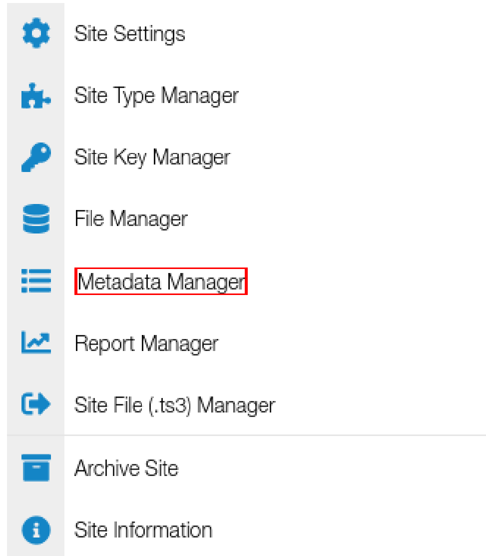

Figure 5-2: Accessing the Metadata Manager in the Site Menu

Opening The Metadata Manager Via The Shortcut Bar

The **Metadata Manager** can be opened via the list icon in the shortcut bar as shown in Figure 5-3. This shortcut needs to be enabled to access this button. See "Enabling Shortcut Menu Items" on page 3-60 for more information.

1. Enable the **Metadata Manager** shortcut as described in "Enabling Shortcut Menu Items" on page 3-60 to display the Shortcut Menu Item as shown in Figure 5-3
2. Click on the striped icon in the Shortcut Menu as shown in Figure 5-4

The **Metadata Manager** will open as shown in Figure 5-5.

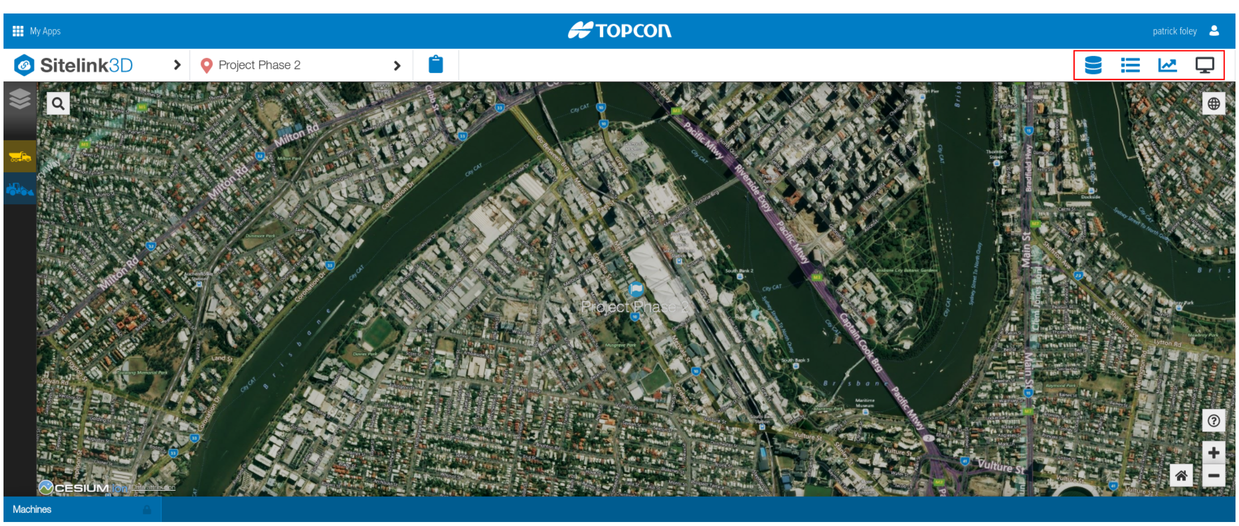

Figure 5-3: Accessing the Report Manager in the Shortcut Bar

Figure 5-4: Accessing the Metadata Manager in the Site Menu

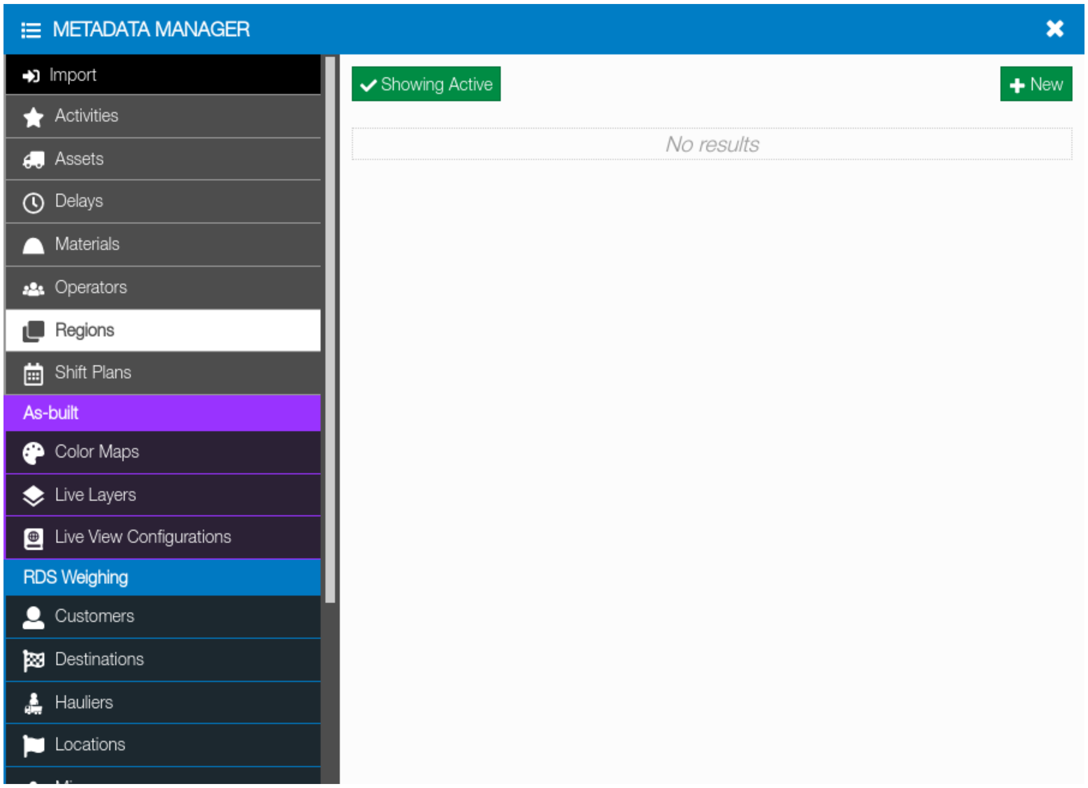

Figure 5-5: The Metadata Manager

Archiving & Restoring Metadata

Archiving allows Metadata to be organized into two views. The active view only displays relevant or current Metadata. It is identified by a green **Showing Active** button at the top left of the **Metadata Manager**. The archived view only displays irrelevant or dated Metadata. It is identified by a red **Showing Archived** button at the top left of the **Metadata Manager**. The view is toggled by clicking on these buttons.

Archiving Metadata

Metadata is archived using the **Metadata Manager** as described by the following process:

1. Open the **Metadata Manager** as described in “Opening The Metadata Manager” on page 5-3
2. Select the type of Metadata on the sidebar
3. Find the specific Metadata object to be archived in the content panel
4. Click on the checkbox to the left of the relevant object to select it and enable the **Archive** button

5. Click on the red **Archive** button to the right of the action bar
6. Click **Confirm** when prompted to confirm the archival.

The following will occur:

- The selected Metadata will be immediately archived
- The Metadata will be removed from the active view in the **Metadata Manager**
- The Metadata will be added to the archived view in the **Metadata Manager**.

Restoring Metadata

Metadata is restored using the **Metadata Manager** as described by the following process:

1. Open the **Metadata Manager** as described in “Opening The Metadata Manager” on page 5-3
2. Select the type of Metadata on the sidebar
3. Click on the green **Showing Active** button to display the list of archived Metadata
4. Find the specific Metadata object to be restored in the content panel
5. Click on the checkbox to the left of the relevant object to select it and enable the **Restore** button
6. Click on the green **Restore** Button to the right of the action bar.

The following will occur:

- The selected Metadata will be immediately restored
- The Metadata will be removed from the archived view in the **Metadata Manager**
- The Metadata will be added to the active view in the **Metadata Manager**.

Reverting To Previous Versions Of Metadata

Sitelink3D v2 saves all changes to Metadata. This allows older versions of Metadata to be reloaded and used as described by the following process:

1. Open the **Metadata Manager** as described in “Opening The Metadata Manager” on page 5-3
2. Select the type of Metadata on the sidebar
3. Find the specific Metadata object to be archived in the content panel
4. Click on the checkbox to the left of the relevant object to select it and enable the **Edit** button
5. Click on the blue **Edit** button to the right of the action bar to open the relevant edit dialog

6. Select the version to revert to in the **Version** control at the bottom of the dialog as shown in Figure 5-6

7. Click **Revert**.

The object will be reverted to the selected revision and the edit dialog will be closed.

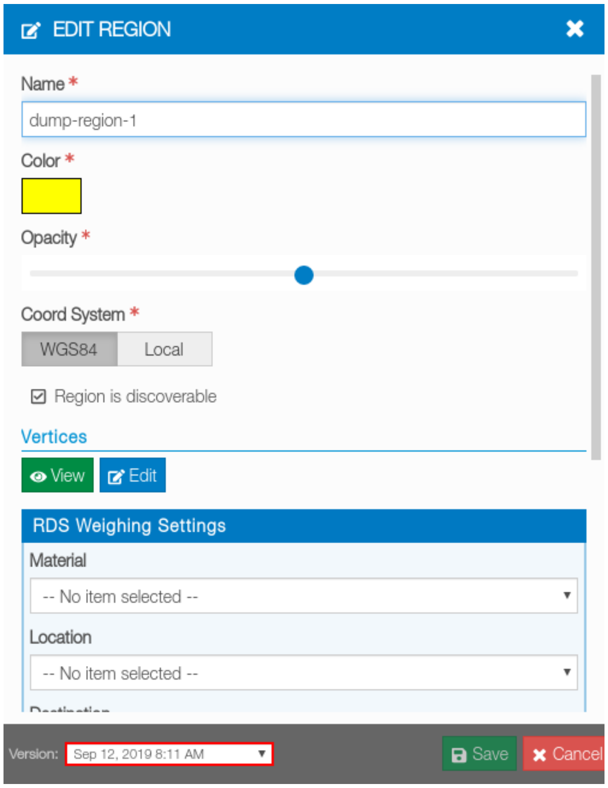

Figure 5-6: The Edit Region Dialog Displaying Version Options

Working With Delays

Delays are a category of Metadata and are treated by Sitelink3D v2 as descriptive explanations for disruptions on a Site. Delays can be expected or unexpected and can be viewed in a Delay Report as described in “Delay Reports” on page 7-8. This section describes how delays are created and used within Sitelink3D v2.

Creating A New Delay

Delays are added to a Site via Sitelin3D v2 and are automatically propagated to Client Devices connected to the Site. A new Delay is added using the following process:

1. Open the Metadata Manager using one of the processes described in “Opening The Metadata Manager” on page 5-3

2. Click on `Delays` in the sidebar

3. Click the green **New** button to the top right of the content panel to open the **New Delay** dialog as shown in Figure 5-7

4. Enter a descriptive name for the delay in the **Name** field
5. Optionally enter a code in the **Code** field to uniquely identify or disambiguate the delay
6. Click the green **Save** button.

Sitelink3D v2 will return to the **Metadata Manager**. The new Delay will become available for selection in Clients and other web sessions connected to the selected Site.

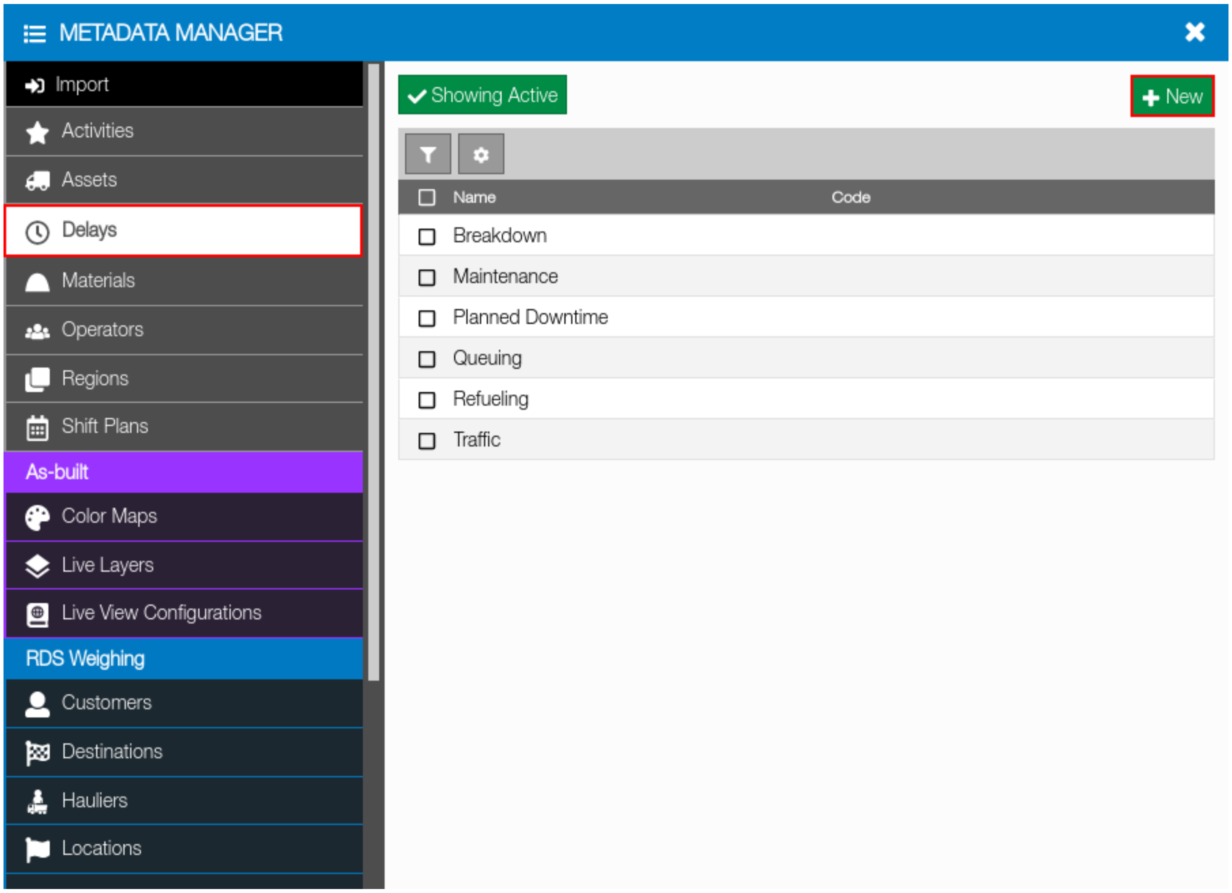

Figure 5-7: The New Delay Button on the Metadata Manager

Using Delays On Site

Monitoring Delays accurately at a Site can yield great benefits including:

- Identifying bottlenecks on haul routes
- Observing inefficiencies related to operating procedures
- Addressing causes of planned or unplanned plant downtime.

When an operator selects a Delay in a Client such as the Haul Truck mobile application, this will be visible in Sitelink3D v2 as described in “Viewing Connected Machine Details” on page 2-46 and in Delay Reports as described in “Viewing Delay Report Results” on page 7-49.

Working With Operators

Operators are a category of Metadata and are treated by Sitelink3D v2 as names that can be optionally used at a Site to better annotate Site activity. This section describes how Operators are created and used within Sitelink3D v2.

Creating A New Operator

Operators are added to a Site in two ways:

- Via Sitelink3D v2
- On Client Devices.

A new Operator is added via Sitelink3D v2 using the following process:

1. Open the **Metadata Manager** using one of the processes described in "Opening The Metadata Manager" on page 5-3
2. Click on `Operators` in the sidebar
3. Click the green **New** button to the top right of the content panel to open the **New Operator** dialog
4. Enter a name for the Operator in the **First Name** and **Last Name** fields
5. Optionally enter a code in the **Code** field to uniquely identify or disambiguate the operator
6. Click the green **Save** button.

Sitelink3D v2 will return to the **Metadata Manager**. The new Operator will become available for selection in Clients and other web sessions connected to the selected Site.

NOTE Refer to the appropriate client device manual for information relating to creating operators on a client device.

Using Operators On Site

Operators added via Sitelink3D v2 are automatically propagated to devices connected to the Site. Operators added on a client devices are automatically propagate to Sitelink3D v2. Operator information can be viewed in Sitelink3D v2 as follows:

- In Haul Reports as described in "Haul Reports" on page 7-2
- In Delay Reports as described in "Delay Reports" on page 7-8
- In the live machine list as described in "Viewing Connected Machine Details" on page 2-46.

Working With Regions

Regions are a category of Metadata and are treated by Sitelink3D v2 as colored areas on the map that support various usage properties. Defining Regions at a Sitelink3D v2 Site provides many benefits including:

- Identify areas on Site visually in the web portal and on Client Devices
- Allow seamless Client connection when physically entering Regions designated as discoverable
- Associate names with areas on Site for safety or productivity purposes
- Automate haul load and dump detection when associated with a material definition
- Track shift targets and material movement between Regions using Live Statistics Widgets.

Regions can be viewed in a Haul Report as described in "Haul Reports" on page 7-2. This section describes how Regions are created, configured and used within Sitelink3D v2.

Viewing Regions Belonging To The Current Site

Regions belonging to the current Site can be viewed in two ways:

- By visually inspecting the web portal map
- By opening the **Metadata Manager**.

Viewing Regions On The Map

Regions at a Site are always displayed in their configured color on the map. Pan and zoom the map to visually inspect the Regions at a Site.

Viewing Regions In The Metadata Manager

The existing Regions at a Site are listed using the following process:

1. Open the **Metadata Manager** using one of the processes described in "Opening The Metadata Manager" on page 5-3
2. Click on `Regions` in the sidebar

The list of Regions defined at the Site will be displayed in the content panel.

Creating A New Region

A new Region is added via Sitelink3D v2 using the following process:

1. Open the Region list in the **Metadata Manager** as described in "Viewing Regions In The Metadata Manager" on page 5-10
2. Click the green **New** button to the top right of the content panel to display the map
3. Define the Region boundary on the map
    a. Click on the map to create a series of points that define the Region boundary
    b. Click again on the first point to close the boundary and shade the Region
    c. Click the green tick button to the top right of the map to open the **New Region** dialog.

4. Enter a descriptive name for the Region in the **Name** field

5. Optionally select a Region color from the color picker control by clicking on the shaded box

6. Optionally adjust the Region opacity by moving the slider control

7. Click the "Region is discoverable" checkbox if the Region is to support Site Discovery as described in "Creating A Discoverable Region For An Existing Site" on page 2-28

8. Optionally configure Haul Truck mobile application settings as described in "Configuring Haul Settings For A Region" on page 5-11

9. Click the green **Save** button.

Sitelink3D v2 will return to the **Metadata Manager**. The new Region will be displayed.

Importing An Existing Region

Regions can be imported in the File Manager as described in "Importing Regions From A File" on page 4-9.

Configuring Haul Settings For A Region

Regions can be configured to automate load and dump identification in the Haul Truck mobile application. This configuration is available in the yellow **Haul Settings** section on both the **New Region** and **Edit Region** dialogs as shown in Figure 5-8. Advantages of configuring haul settings for a Region include:

- Provide hands free Client usage by eliminating the need to manually record hauls and dumps
- Reduce lost cycles resulting from missing operator input when loading and dumping
- Eliminate incorrect material selection when loading
- Prohibit recording the dumping of material in an inappropriate Region
- Improve consistency of haul and cycle timing metrics by triggering L Events oad and Dump Events after a fixed time within the Region rather than at any point within a Region.

Regions can be configured to identify load and dump behavior simultaneously. This section describes the Region configuration required for automatic load and dump identification.

Figure 5-8: Haul Settings Selection As A Region Property

NOTE Haul Truck mobile application configuration is also required to enable automatic load and dump identification. Refer to the Haul Truck mobile application manual.

Automating Haul Truck Load Detection Within A Region

Sitelink3D v2 Regions can be configured to automate load identification as described in "Loading Beds" on page 7-4. This is achieved by associating a Material with the Region which can be done when creating or editing a Region as shown in Figure 5-8.

- The Haul Truck mobile application uses this setting to record the Material loaded within this Region
- The state of the Material selected here is automatically populated as described in "Recording Loaded Material State As Input In A Haul Report" on page 7-46.

NOTICE Certain Haul Truck mobile application criteria must be met to trigger load automation. Automated load identification may introduce assumptions including Material volume. Refer to the Haul Truck mobile application manual.

A Region is configured to automatically identify a load in the Haul Truck mobile application using the following process:

1. Create a Material to be associated with the Region as described in "Creating A New Material" on page 5-17
2. Create, edit or import a Region as described in "Working With Regions" on page 5-9
3. Select the material in the **Auto-load Material** field
4. Create or edit a Working Set to include the Region and Material as described in "Using Working Sets To Sync Data To Machines" on page 5-22.

The following behavior is typical of automatic Material load identification:

1. A haul truck enters a Sitelink3D v2 Region as described in "Recording Loaded Material State As Input In A Haul Report" on page 7-46
2. The haul truck stops at a loader or excavator for a period of time within that Region
   - The time that the haul truck must remain stationary is determined by the Haul Truck mobile application.
3. Sitelink3D v2 automatically records Load Events for all empty beds with the Material configured for that Region.

Automating Haul Truck Dump Detection Within A Region

Sitelink3D v2 Regions can be configured to automate dump identification as described in "Dumping Beds" on page 7-5. This is achieved by associating a Material with the Region which can be done when creating or editing a Region as shown in Figure 5-8.

- The Haul Truck mobile application uses this setting to record the Material dumped within this location
- Haul trucks not loaded with the specified Material do not trigger automatic dumps withinthe Region.

NOTICE Certain Haul Truck mobile application criteria must be met to trigger dump automation. Refer to the Haul Truck mobile application manual.

A Region is configured to automatically identify a dump in the Haul Truck mobile application using the following process:

1. Create a Material to be associated with the Region as described in "Creating A New Material" on page 5-17
2. Create, edit or import a Region as described in "Working With Regions" on page 5-9
3. Select the material in the **Auto-dump Material** field
4. Create or edit a Working Set to include the Region and Material as described in "Using Working Sets To Sync Data To Machines" on page 5-22.

The following behavior is typical of automatic Material dump identification:

1. A haul truck enters a Sitelink3D v2 Region as described in "Converting Loaded Material State To Output In A Haul Report" on page 7-46
2. The haul truck stops for a period of time within that Region
   – The time that the haul truck must remain stationary is determined by the Haul Truck mobile application.
3. Sitelink3D v2 automatically records Dump Events for all beds loaded with the Material configured for that Region.

Working With Materials

Materials are a category of Metadata and are treated by Sitelink3D v2 as a named representation of physical material properties handled on Site. Materials at a Sitelink3D v2 Site can:

- Document the states that Site materials take such as wet, compacted or excavated
- Specify the bulking factors that apply to physical materials
- Define the units and unit conversions that are used to quantify materials in various states
- Configure Haul Truck mobile application operator measurement and state entry requirements
- Record the quantities of materials hauled accurately for reporting

- Incorporate weighing properties including density and price for RDS integration
- Accommodate custom discrete measurements such as pallets or dollars

Understanding Material Bulking Factors & States

Material can expand when excavated for haulage meaning that a cubic yard of native material may not necessarily equal a cubic yard when dumped. Environmental factors such as water content can furthermore impact material weight. To accommodate these phenomena and provide accurate reporting, Sitelink3D v2 provides the following features. Materials can be:

- Defined with additional states accommodating bulking factors & environment
- Associated with a number of measurement types
- Configured with specific units for each measurement type
- Configured such that the Haul Truck mobile application records loaded quantities in a specific state
- Aggregated in a default state for consistent and accurate reporting of quantities.

These features provide a powerful way to accurately track Material states and quantities consistently at a Site. See "Understanding Input & Converted Material Quantities" on page 7-45 for information on how to track Material states in a Haul Report.

Demonstrating A Material Definition

The power of specifying Material states can be demonstrated by considering the haulage of clay as an example. Clay volume typically swells by approximately 40% when excavated.

A Material Clay could be created with the following states:

- Native
- Excavated Dry
- Wet.

Clay could be configured to support the following measurement types:

- Volume
- Weight.

These measurement types could be quantified in the following units:

- Cubic Yards for volume
- US Tons for weight.

Demonstrating Material Volume Normalization

To demonstrate volume normalization, consider a haul truck hauling excavated clay at the volume capacity of the truck bed. In this example, Material is being measured by volume and is limited by the size of the truck bed.

The truck to the left of Figure 5-9 shows the bed at its volumetric limit. The large spacing between the dots indicates that this Material is excavated and is hence less dense than native clay pictured on the right. This truck represents what was actually hauled.

The truck to the right of Figure 5-9 shows the bed loaded with the equivalent quantity of native clay after the 40% swell factor has been removed by Sitelink3D v2. The small spacing between the dots indicates that this Material is native and is hence more dense than excavated clay. This truck represents what will be reported.

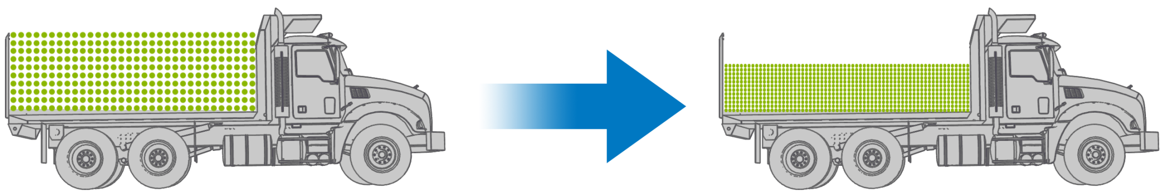

Figure 5-9: Visualizing Loose Material Converted to a Consistent Default State for Reporting

The Material is configured to record Haul Truck mobile application Load Events in the following measurement type and units as described in "Configuring Operator Input Measurement Types" on page 5-18:

- Volume (Cubic Yards).

The Material is configured to record Haul Truck mobile application Load Events in the following state as described in "Configuring Operator Input States" on page 5-18

- Excavated Dry.

With this configuration, Sitelink3D v2 records Material as being loaded in the Excavated Dry state and will convert the volume to an equivalent quantity in the default state when generating Haul Reports or Live Statistics Widgets. This conversion is indicated by the arrow in Figure 5-9.

In this example, both trucks are hauling an equivalent weight of clay but different total volume. Figure 5-10 shows this scenario configured in Sitelink3D v2.

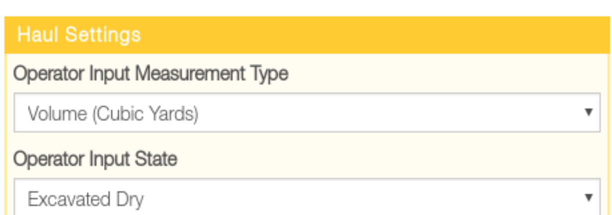

Figure 5-10: Material Configuration for Excavated Dry Material Measured in Cubic Yards

Demonstrating Material Weight Normalization

To demonstrate weight normalization, consider a haul truck hauling wet clay at the carrying weight capacity of the truck bed. In this example, Material is being measured by the weight as determined by a loader or weigh bridge.

The truck to the left of Figure 5-11 shows the bed at its weight limit which in this case is less than its volume limit. The color of the dots indicates that this material is wet and is hence heavier than native clay pictured on the right. This truck represents what was actually hauled.

The truck to the right of Figure 5-11 shows the bed loaded with the equivalent quantity of native clay after the water weight has been removed by Sitelink3D v2. The yellow dots indicate that this material is native and is hence lighter than wet clay. This truck represents what will be reported.

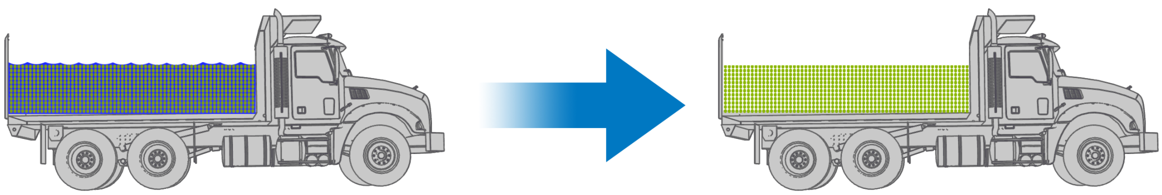

Figure 5-11: Visualizing Wet Material Converted to a Consistent Default State for Reporting

The Material is configured to record Haul Truck mobile application Load Events in the following measurement type and units as described in "Configuring Operator Input Measurement Types" on page 5-18:

- Weight (US Tons).

The Material is configured to record Haul Truck mobile application Load Events in the following state as described in "Configuring Operator Input States" on page 5-18

- Wet.

With this configuration, Sitelink3D v2 records Material as being loaded in the Wet state and will convert the weight to an equivalent quantity in the default state when generating Haul Reports or Live Statistics Widgets. This conversion is indicated by the arrow in Figure 5-11.

In this example, both trucks are hauling a similar volume of clay but different total weight. Figure 5-12 shows this scenario configured in Sitelink3D v2.

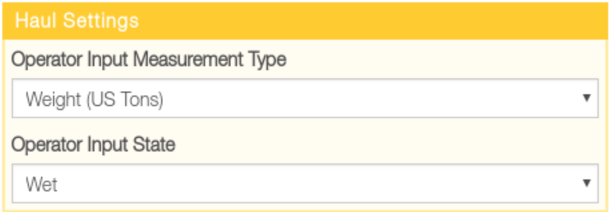

Figure 5-12: Material Configuration for Wet Material Measured in US Tons

Creating A New Material

A new Material is added using the following process:

1. Open the **Metadata Manager** using one of the processes described in "Opening The Metadata Manager" on page 5-3

2. Click on `Materials` in the sidebar

3. Click the green **New** button to the top right of the content panel to open the **New Material** dialog

4. Enter a descriptive name for the material in the **Name** field

   – Be careful not to include state in the material name such as *"Wet Gravel"*

5. Optionally enter a code in the **Code** field to uniquely identify or disambiguate the material

6. Select all the measurement types that will be used to represent this Material in all its states in the **Accepted Measurement Types** field

7. For each Accepted Measurement selected, specify the units that will be used to represent that quantity in the provided combo boxes

   – For example, volume would be expressed in cubic meters on metric Sites.

8. Add a name for the default state which will be used for reporting converted quantities

   – Dirt at the borrow for example may have a default state name of `Native`.

9. Add any appropriate default state conversion coefficients for the **Measurement Type Conversion** fields

   – For example, one cubic meter of gravel in its default state may weigh 1.8 tonnes. Note that not all measurement pairs will necessarily be convertible.

10. Optionally click the blue **Plus** button under the **Additional State** title to add any number of additional state representations for the Material

11. Specify the Haul Settings for the material as described in "Configuring Haul Settings For A Material" on page 5-17

12. Click the green **Save** button.

Sitelink3D v2 will return to the **Metadata Manager**. The new Material will become available for selection in Clients and other web sessions connected to the selected Site.

Configuring Haul Settings For A Material

Haul Settings for a Material control aspects of the Haul Truck mobile application when a truck is loaded as shown in Figure 5-12. See "Columns Related To Loading Material Into Beds" on page 7-43 for more information.

Configuring Operator Input Measurement Types

The Operator Input Measurement Type forces the Haul Truck mobile application to record haul truck Load Events in the selected measurement type and units. The selections here are determined by the selections made under the **Accepted Measurement Types** section when creating or editing a Material.

Configuring Operator Input States

The Operator Input State forces the Haul Truck mobile application to record haul truck Load Events to be of the specified Material state. For any selection other than Default, Sitelink3D v2 will apply mathematical state conversions on loaded quantities when reporting on haul activity. The selections here are determined by the presence of additional state definitions made under the **Additional State** section when creating or editing a Material.

Working With Shift Plans

Shift Plans allow the breakdown of a working week at a Site to be specified within Sitelink3D v2. Shift Plans are then used to configure Live Statistics Widgets for the display of live Site activity. A Shift Plan is comprised of the following:

- A descriptive name
- The days of the week that work is conducted
- The start time for each day that work is conducted
- The duration of the work shift for each day that work is conducted.

Any number of Shift Plans can be configured to represent the working windows at a Site but a Shift Plan only supports one work shift per day. Users may for example create Shift Plans to define work times for the following:

- Day shifts
- Night shifts
- Weekend shifts
- Continuous 24/7 shifts

Creating A New Shift Plan

A new Shift Plan is added using the following process:

1. Open the **Metadata Manager** using one of the processes described in "Opening The Metadata Manager" on page 5-3
2. Click on `Shift Plans` in the sidebar
3. Click the green **New** button to the top right of the content panel to open the **New Shift Plan** dialog

4. For each day that work will be conducted under this Shift Plan:

    a. Click the checkbox associated with the day

    b. Enter the time of day that the shift will commence

    c. Enter the duration of the shift in hours and minutes

5. Click the green **Save** button.

Sitelink3D v2 will return to the **Metadata Manager**. The new Shift Plan will become available for selection when configuring Live Statistics Widgets.

Working With Design Objects

Design Objects for a Site can be imported using the **File Manager** as described in "Importing Design Objects From A File" on page 4-9. This section describes how Design Objects are used once imported into a Sitelink3D v2 Site.

Managing Design Objects On The Sidebar

This section describes how Design Objects are accessed and viewed on the map.

The Sidebar At A Glance

Once imported via the **File Manager**, Design Objects for a Site are viewed and managed via a slide out panel to the left of the web portal.

Opening The Design Object Sidebar

Open the sidebar by clicking on the layer icon on the left hand side of the web portal directly underneath the Sitelink3D logo as shown in Figure 5-13.

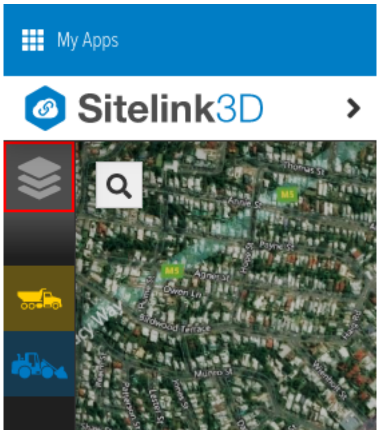

Figure 5-13: Design Object Layer Button Highlighted in Red on the Sidebar

Grouping Design Objects By Type

Design Objects are listed by type by default when the Design Objects slide sidebar is opened. Explicitly selecting this grouping is achieved by toggling the grouping button to the right of the Design Objects header next to the configuration button as shown in Figure 5-14. Design Object types include:

- Layers
- Alignments
- TIN Surfaces.

When grouped by type, a tree control allows Design Object nesting to be inspected by clicking the plus icon associated with entries of interest. The file that each Design Object was imported from is displayed in blue for ease of identification.

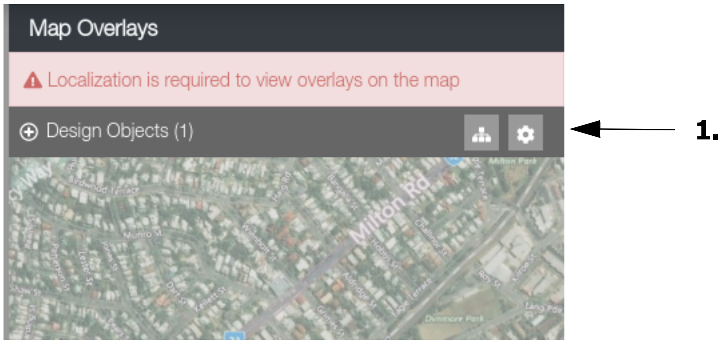

Figure 5-14: The Design Object Sidebar

1. The grouping and configuration buttons to the right of the Design Objects header in the sidebar.

Grouping Design Objects By Import File

Often it can be convenient to view Design Objects grouped by the file that they were imported from in the **File Manager**. Explicitly selecting this grouping is achieved by toggling the grouping button to the right of the Design Objects header next to the configuration button.

When grouped by file, a tree control allows Design Object nesting to be inspected by clicking the plus icon associated with entries of interest. The file that each Design Object was imported from is displayed at the top of each tree.

Displaying Design Objects On The Map

The Design Objects sidebar provides the ability to display or hide Design Objects on the map using the following process:

1. Open the Design Object sidebar as described in "Opening The Design Object Sidebar" on page 5-19
2. Optionally select a grouping as described in "Grouping Design Objects By Type" on page 5-20 and "Grouping Design Objects By Import File" on page 5-20

3. Navigate the tree structure to locate the type, file or individual Design Object to be displayed on the map

4. Click the red eye icon to the right of the selection to be displayed on the map

The eye icon will turn green and the Design Objects will render on the map. Hiding Design Objects is achieved by clicking on green eye icons using the same process.

Archiving & Restoring Design Objects

Archiving allows Design Objects to be organized into two views. The active view only displays relevant or current Design Objects. It is identified by a green **Showing Active** button at the top left of the **Design Object Manager**. The archived view only displays irrelevant or dated Design Objects. It is identified by a red **Showing Archived** button at the top left of the **Design Object Manager**. The view is toggled by clicking on these buttons.

The distinction between active and archived Design Objects is entirely at the User's discretion but archiving can be considered similar to deletion. Design Objects can be archived and restored without restriction but can only be viewed or added to Working Sets when active. This section describes how to archive and restore Design Objects on the **Design Object Manager**.

Opening The Design Object Manager

The **Design Object Manager** is opened using the following process:

1. Open the Design Object sidebar as described in "Opening The Design Object Sidebar" on page 5-19

2. Click the cog icon to the right of the Design Objects header in the sidebar.

The **Design Object Manager** will open.

Archiving Design Objects

Design Objects are archived using the **Design Object Manager** as described by the following process:

1. Open the **Design Object Manager** as described in "Opening The Design Object Manager" on page 5-21

2. Find the Design Objects to be archived

3. Click on the checkbox to the right of the relevant Design Objects to select them and enable the **Archive** button

4. Click on the red **Archive** button at the top right of the **Design Object Manager**

5. Click **Confirm** when prompted to confirm the archival.

The following will occur:

- The selected Design Objects will be immediately archived

- The Design Objects will be removed from the active view in the **Design Object Manager**
- The Design Objects will be added to the archived view in the **Design Object Manager**
- The Design Objects will be removed from the Design Objects sidebar.

Restoring Design Objects

Design objects are restored using the **Design Object Manager** as described by the following process:

1. Open the **Design Object Manager** as described in “Opening The Design Object Manager” on page 5-21
2. Click on the green **Showing Active** button to display the list of archived Design Objects
3. Find the Design Objects to be restored
4. Click on the checkbox to the right of the relevant Design Objects to select them and enable the **Restore** button
5. Click on the green **Restore** button at the top right of the **Design Object Manager**.

The following will occur:

- The selected Design Objects will be immediately restored
- The Design Objects will be removed from the archived view in the **Design Object Manager**
- The Design Objects will be added to the active view in the **Design Object Manager**
- The Design Objects will be added to the Design Objects sidebar.

Using Working Sets To Sync Data To Machines

Working Sets At A Glance

Working Sets package the Metadata and Design Objects required to perform work on a Client Device. Working Sets also form the basis of Site Files that can be exported for offline usage. See “Exporting Site Files For Offline Client Use” on page 2-48 for more information.

Working Sets are useful for restricting the view of a Site based on:

- Job
- Shift
- Work flow
- Machine type.

The types of Metadata that can be included in a Working Set:

- Activities

- Delays
- Materials
- Regions
- Topo Point Layers
- As-built Live Layers
- As-built Live View Configurations

Opening The Working Set Manager

The **Working Set Manager** can be opened by clicking on the clip board icon to the right of the **Site Menu Selector**.

Creating New Working Sets

A new Working Set is added via Sitelink3D v2 using the following process:

1. Open the **Working Set Manager** as described in “Opening The Working Set Manager” on page 5-23
2. Click the green **New** button to the top right of the **Working Set Manager** to open the **New Working Set** dialog
3. Enter a descriptive name for the Working Set in the **Name** field for selection on Clients
4. Optionally exclude or selectively include Metadata including:
    a. Activities using the **Activities** controls
    b. Delays using the **Delays** controls
    c. Materials using the **Materials** controls
    d. Regions using the **Regions** controls
    e. Topo point layers using the **Topo Point Layers** controls
    f. As-built live layers using the **As-built Live Layers** controls
    g. As-built view configurations using the **As-built View Configurations** controls
5. Selectively include Design Objects using the **Design Objects** arrow buttons
6. Click the green **Save** button.

Sitelink3D v2 will return to the **Working Set Manager.** The new Working Set will become available for selection in Clients and other web sessions connected to the selected Site

NOTE By default all Site Metadata is included in new Working Sets.

Editing Existing Working Sets

The following process describes how to edit an existing Working Set:

1. Open the **Working Set Manager** as described in "Opening The Working Set Manager" on page 5-23
2. Click the checkbox associated with the desired Working Set
3. Click the blue **Edit** button in the list action bar to open the **Edit Working Set** dialog
4. Make the required modifications
5. Click the **Save** button to close the **Edit Working Set** dialog

The **Edit Working Set** dialog will close.

Synchronizing Working Set Changes To Machines

Working Sets are automatically distributed to Clients when created and updated. To avoid interrupting machines and operators currently working with existing Working Sets however, changes to Design Objects referenced by Working Sets are put in a pending state and need to be manually flushed to Clients as described in this section.

Automatically Applying Working Set Changes

Working Sets are automatically synchronized to Clients when changes to any of the following are made:

- Working Set name
- Properties of Metadata included in the Working Set

  – For example, an existing Region is synchronized to the client if its color is updated
- More Metadata becomes available

  – For example, new delays are synchronized to the client if Include all Delays is configured
- Metadata inclusion criteria.

  – For example, selecting Include only the following Materials will update the client accordingly

Manually Applying Pending Working Set Changes

Working Set changes require manual synchronization to clients when changes to any of the following are made:

- The Design Objects are archived
- The version of the Design Objects referenced is updated.

Manual application of Working Set Design Object changes avoids interrupting machine guidance that may be active at the time the changes are made. Pending Working Set changes are identified by a red refresh icon to the right of the **Site Menu Selector** on the main web portal. Apply the changes by clicking on the icon.

NOTICE Care must be taken when applying Working Set changes as Design Objects currently being used by machines may be updated.

Archiving & Restoring Working Sets

Archiving allows Working Sets to be organized into two views. The active view only displays relevant or current Working Sets. It is identified by a green **Showing Active** button at the top left of the **Working Set Manager**. The archived view only displays irrelevant or dated Working Sets. It is identified by a red **Showing Archived** button at the top left of the **Working Set Manager**. The view is toggled by clicking on these buttons.

Archiving Working Sets

Working Sets are archived using the **Working Set Manager** as described by the following process:

1. Open the **Working Set Manager** as described in "Opening The Working Set Manager" on page 5-23
2. Find the Working Set to be archived
3. Click on the checkbox to the left of the Working Set to select it and enable the **Archive** button
4. Click on the red **Archive** button to the right of the action bar
5. Click **Confirm** when prompted to confirm the archival.

The following will occur:

- The selected Working Set will be immediately archived
- The Working Set will be removed from the active view in the **Working Set Manager**
- The Working Set will be added to the archived view in the **Working Set Manager**
- Impacted Clients will be notified of the change in Working Set state.

Restoring Working Sets

Working Sets are restored using the **Working Set Manager** as described by the following process:

1. Open the **Working Set Manager** as described in "Opening The Working Set Manager" on page 5-23
2. Click on the green **Showing Active** button to display the list of archived Working Sets

3. Find the Working Set to be restored
4. Click on the checkbox to the left of the Working Set to select it and enable the **Restore** button
5. Click on the green **Restore** button to the right of the action bar.

The following will occur:

- The selected Working Set will be immediately restored
- The Working Set will be removed from the archived view in the **Working Set Manager**
- The Working Set will be added to the active view in the **Working Set Manager**
- The Working Set will become available for selection on Clients.

Live Statistics

Overview

Sitelink3D v2 allows Users to monitor live productivity on the physical job site and visually determine that the rate of work is as expected. This is achieved by comparing specific work metrics with expected shift targets using a technology known as Live Statistics. Shift supervisors can use Live Statistics to quickly identify when work falls behind schedule and implement solutions before targets are negatively impacted.

Comparing Live Statistics To Reporting

Live Statistics in Sitelink3D v2 can be thought of as continuously updating graphical reports. Where reports are viewed under tabs in the bottom bar, Live Statistics are viewed in configurable windows called Widgets accessible via the sidebar. In the same way that reports are grouped by Site and report type, Live Statistics are grouped by Site and Widget type.

Like reports, Widgets are named and the data they display can be filtered. Unlike reports however, Widgets can be color coded for easy identification and multiple Widgets can be displayed at once to provide the Site visibility required.

Getting To Know Live Statistics Widgets

Regardless of type, every Widget has a header containing common controls. To the left of the header is a circular button that allows the body of the Widget to be hidden or displayed. In the center of the header the Widget name, type and Shift Plan interpretation are displayed. On the right of the header are **Edit**, **Copy** and **Delete** buttons as shown in Figure 6-1.

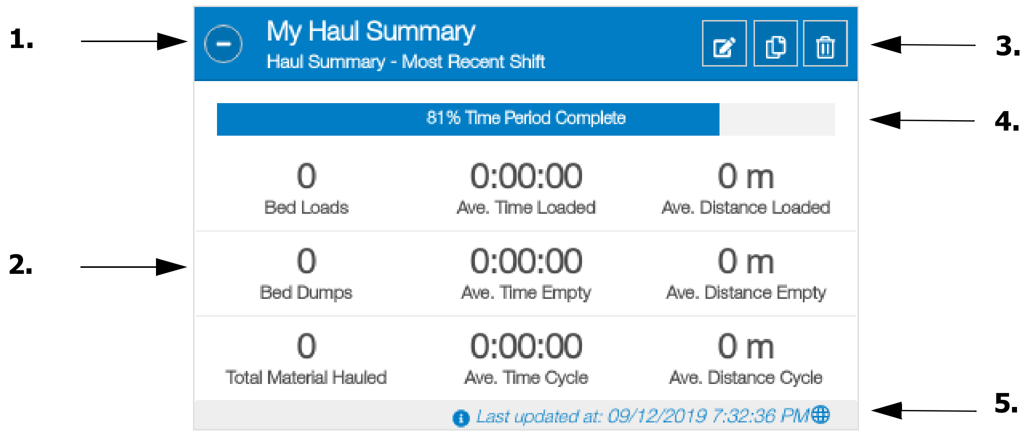

Figure 6-1: A Haul Summary Widget

1. The Widget header with Expand / Contract toggle button, Widget name, type & Shift Plan interpretation
2. Data display grid
3. Widget Edit, Copy & Delete buttons
4. The Time Progress Bar
5. The Widget last updated date & time.

Below the header and also common to all Widget types is the Time Progress Bar as described in "Understanding The Time Period Progress Bar" on page 6-10. This bar indicates the progress of time with respect to the Shift Plan configuration.

The body of the Widget contains a grid of data specific to the type of Widget. For each metric displayed in a Widget, the User can opt for one of two modes. The first is a raw numerical value and the second is a target based gauge. See "Configuring Widget Display States" on page 6-14 for more information.

The Widget footer provides information relating to the last time live data was received by the Widget.

Live Statistics Prerequisites

This section describes the conditions under which Live Statistics can be used at a Site.

Site Type

Live Statistics are only supported on Advanced Sites. See "Understanding Site Types" on page 2-1 for more information. Basic Sites can be easily upgraded to support Live Statistics. See "Upgrading A Basic Site To An Advanced Site" on page 2-3 for more information.

Required Permissions

Access to Live Statistics can be delegated in one of two ways:

- View
- Manage.

View permissions allow read only access to existing Live Statistics Widgets at a Site where manage permissions additionally allow creation and alteration of Live Statistics Widgets at a Site.

Administrator Users have unrestricted access to Live Statistics. Member Users require access to the following Site actions as described in "Selecting Site Role Actions" on page 3-35:

- View Site
- Manage Site Metadata.

For Haul Summary Widgets, Member Users additionally require access to the following Haul Truck actions appropriate to the capabilities described in "Selecting Site Role Actions" on page 3-35:

- View Haul Live Statistics
- Manage Haul Live Statistics.

For convenience, the following default Site Roles provide Live Statistics view permissions:

- Read Only
- Report Manager.

For convenience, the following default Site Roles provide Live Statistics management permissions:

- Administrator

- Site Manager.

Users can be assigned to these default Site Roles to easily delegate access to Live Statistics. See "Using Default Site Roles" on page 3-34 for more information.

Understanding Live Statistics Widget Types

This section describes the types of Live Statistics Widgets available in Sitelink3D v2.

Live Statistics Widget Types At A Glance

Every Sitelink3D v2 Live Statistics Widget is identified by type. The Widget type determines the following:

- The purpose of the Widget
- The Widget configuration options
- The parameters that can be used to filter the Widget
- The resulting data returned.

The available haul related Widget types are:

- Haul Summary Widget

The available RDS weighing related Widget types are:

- Weight Region Summary
- Weight Summary
- Weight Contract Summary.

Haul Summary Widgets

The Haul Summary Widget provides general information about Material movement during a work shift. Material movement relates to hauls and cycles as described in "Defining A Haul" on page 7-3 and "Defining A Cycle" on page 7-6. This data is produced by the Haul Truck mobile application and includes the following fields:

- Bed Loads
- Bed Dumps
- Average Time Loaded
- Average Distance Loaded
- Average Time Empty
- Average Distance Empty
- Average Time Cycle
- Average Distance Cycle
- Total Material Hauled.

Typical Usage

The Haul Summary Widget is primarily used to identify deviations from expected shift progress for corrective action. Use the Haul Summary Widget for any of the following scenarios:

- Track the live load and dump count for particular Machines, Material, Operators or Regions
- Identify unusually slow haul or return times which may indicate delays or inefficiencies
- Identify routes that produce faster haul cycles or reduced haul distances
- Identify times, days, operators or shifts that are more efficient
- Tune production efficiency by comparing activity over different Shift Plans.

Defining Available Metrics

Bed Loads

Bed loads represent the sum of all bed Load Events matching the Widget configuration as described in “Loading Beds” on page 7-4. When configured as a gauge, this field uses dynamic targeting. See as described in “Understanding Dynamic Targets” on page 6-20.

Bed Dumps

Bed dumps represent the sum of all bed Dump Events matching the Widget configuration as described in “Dumping Beds” on page 7-5. When configured as a gauge, this field uses dynamic targeting. See as described in “Understanding Dynamic Targets” on page 6-20.

Average Time Loaded

The average time loaded represents the total time that each bed was loaded with Material divided by the number of bed hauls. See “Defining A Haul” on page 7-3 and “Hauling Beds To A Dump Region” on page 7-5 for more information. When configured as a gauge, this field uses static targeting. See as described in “Understanding Static Targets” on page 6-20.

Average Distance Loaded

The average distance loaded represents the total distance that each bed traveled while loaded with Material divided by the number of bed hauls. See “Defining A Haul” on page 7-3 and “Hauling Beds To A Dump Region” on page 7-5 for more information. When configured as a gauge, this field uses static targeting. See as described in “Understanding Static Targets” on page 6-20.

Average Time Empty

The average time empty represents the total time that each bed was not loaded with Material divided by the number of bed returns. See “Defining A Cycle” on page 7-6 and “Returning To A Load Region” on page 7-6 for more information. When configured as a gauge, this field uses static targeting. See as described in “Understanding Static Targets” on page 6-20.

Average Distance Empty

The average distance empty represents the total distance that each bed traveled while not loaded with Material divided by the number of bed returns. See “Defining A Cycle” on page 7-6 and “Returning To A Load Region” on page 7-6 for more information. When configured as a gauge, this field uses static targeting. See as described in “Understanding Static Targets” on page 6-20.

Average Time Cycle

The average time cycle represents the total time that each bed participated in a cycle divided by the number of bed cycles. See “Defining A Cycle” on page 7-6 and “Reloading Beds” on page 7-7 for more information. When configured as a gauge, this field uses static targeting. See as described in “Understanding Static Targets” on page 6-20.

Average Distance Cycle

The average distance cycle represents the total distance that each bed traveled divided by the number of cycles. See “Defining A Cycle” on page 7-6 and “Returning To A Load Region” on page 7-6 for more information. When configured as a gauge, this field uses static targeting. See as described in “Understanding Static Targets” on page 6-20.

Total Material Hauled

The total material hauled provides an aggregation of the Material movement displayed by the Widget in the configured Material Unit System for the configured Shift Plan. When configured as a gauge, this field uses dynamic targeting. See as described in “Understanding Dynamic Targets” on page 6-20.

Managing Live Statistics Widgets On The Sidebar

The Sidebar At A Glance

The Live Statistics sidebar is used to configure and monitor Live Statistics Widgets.

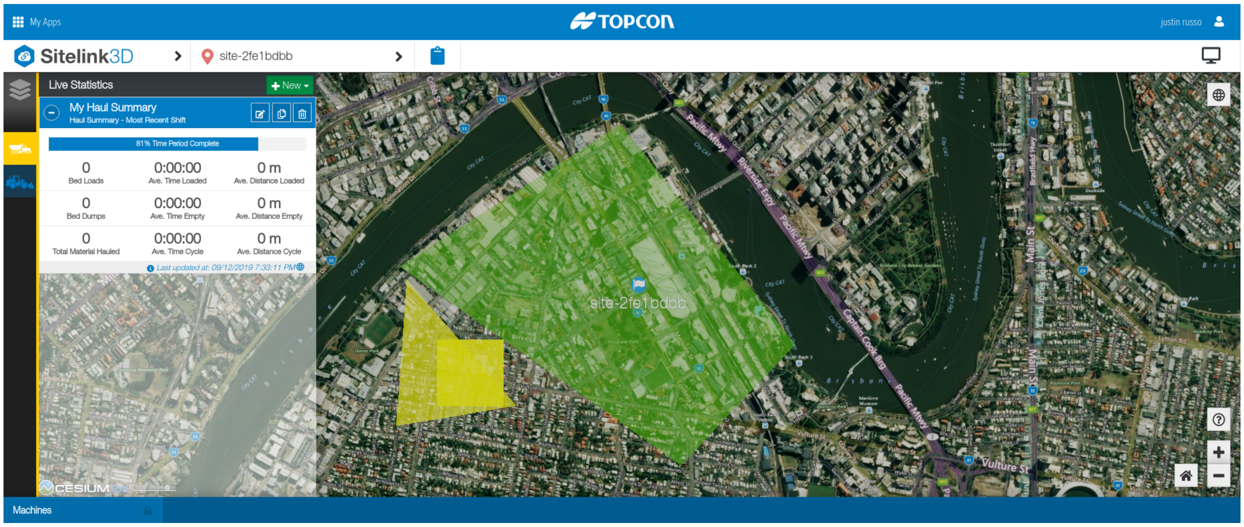

Figure 6-2: A Live Statistics Widget in the Sidebar

Opening The Sidebar

Live Statistics Widgets are accessed via colored icons on the sidebar found to the left of the Sitelink3D v2 web portal. Haul related Widgets are configured and viewed by clicking the yellow haul truck button. RDS weight related Widgets are configured and viewed by clicking on the blue loader button.

Creating A New Widget

Once a new Live Statistics Widget is created in Sitelink3D v2, it automatically connects and begins displaying live data. The following sections describe how new Widgets are created in Sitelink3D v2.

Creating A New Haul Summary Widget

New Haul Summary Widgets can be created in two ways:

- By configuring the Widget parameters from scratch on the **New Live Statistics Widget** dialog
- By copying the configuration of an existing haul summary Widget and using it as a template on the **New Live Statistics Widget** dialog.

Creating a new Haul Summary Widget from scratch is required if no Haul Summary Widgets exist yet at a Site. This approach prohibits stale values from being copied from other Widgets but can require more configuration.

Creating a new Haul Summary Widget by copying an existing Widget is a faster approach but introduces the chance of error if the configuration is not correctly updated. The following sections detail these two approaches.

Creating A New Haul Summary Widget From Scratch

New Haul Summary Widgets are created from scratch from the sidebar as described by the following process:

1. Open the Widget sidebar as described in “Opening The Sidebar” on page 6-6.
2. Click the **New** button
3. Click **Haul Summary** in the resulting drop down menu to open the **New Live Statistics Widget** dialog as shown in Figure 6-3
4. Enter a title for the Widget in the **Title** field noting that Widget names can be duplicated
5. Optionally select a title bar color from the color picker control by clicking on the shaded box
6. Optionally enable any available Parameter Filters to narrow the Widget criteria as described in “Restricting Widgets With Parameter Filters” on page 6-9
7. Select the Shift Plan that the Widget will use to generate a time period to display live data for as described in “Interpreting Shift Plans As Time Periods” on page 6-10
8. Select the way in which shifts are to be interpreted by the Widget

   – Click **Most recently started shift** to display live data for only the shift last commenced

– Click **Shifts starting since** to display live data for shifts that start between the selected day and now

– Click **Shifts starting between** to display live data for shifts that start between the selected dates.

9. Optionally configure Widget targets as described in “Displaying Data With Target Based Gauges” on page 6-14

10. Click the **Save** button.

The following will occur:

- The **New Live Statistics Widget** dialog will close
- The new Widget will appear below any existing Widgets in the sidebar
- The Widget will connect and begin displaying data appropriate to its configuration.

Creating A New Haul Summary Widget By Copying An Existing One

New Haul Summary Widgets are created by copying existing Widgets as described by the following process:

1. Open the Widget sidebar as described in “Opening The Sidebar” on page 6-6

2. Find an existing Haul Summary Widget to be used as a template for the new Widget

3. Click on the **Copy** button in the Widget header to open the **New Live Statistics Widget** dialog as shown in Figure 6-3

4. Enter a title for the Widget in the **Title** field noting that Widget names can be duplicated

5. Optionally select a title bar color from the color picker control by clicking on the shaded box

6. Select a Region within which Load Events will be monitored in the **Load Region** field

   – Only loads inside this Region & ultimately dumped in the specified dump Region will be counted by the Widget

7. Select a Region within which beds loaded in the load Region will be monitored for Dump Events in the **Dump Region** field

   – Only dumps inside this Region by beds loaded in the load Region will be counted by the Widget

8. Select the Material to be monitored

9. Optionally specify the unit system used to quantify total Material hauled in the **Material Unit System** field

10. Optionally enable any available Parameter Filters to narrow the Widget criteria as described in “Restricting Widgets With Parameter Filters” on page 6-9

11. Select the Shift Plan that the Widget will use to generate a time period to display live data for as described in "Interpreting Shift Plans As Time Periods" on page 6-10

12. Select the way in which shifts are to be interpreted by the Widget

    – Click **Most recently started shift** to display live data for only the shift last commenced

    – Click **Shifts starting since** to display live data for shifts that start between the selected day and now

    – Click **Shifts starting between** to display live data for shifts that start between the selected dates.

13. Optionally configure Widget targets as described in "Displaying Data With Target Based Gauges" on page 6-14

14. Click the **Save** button.

The following will occur:

- The **New Live Statistics Widget** dialog will close
- The new Widget will appear below any existing Widgets in the sidebar
- The Widget will connect and begin displaying data appropriate to its configuration.

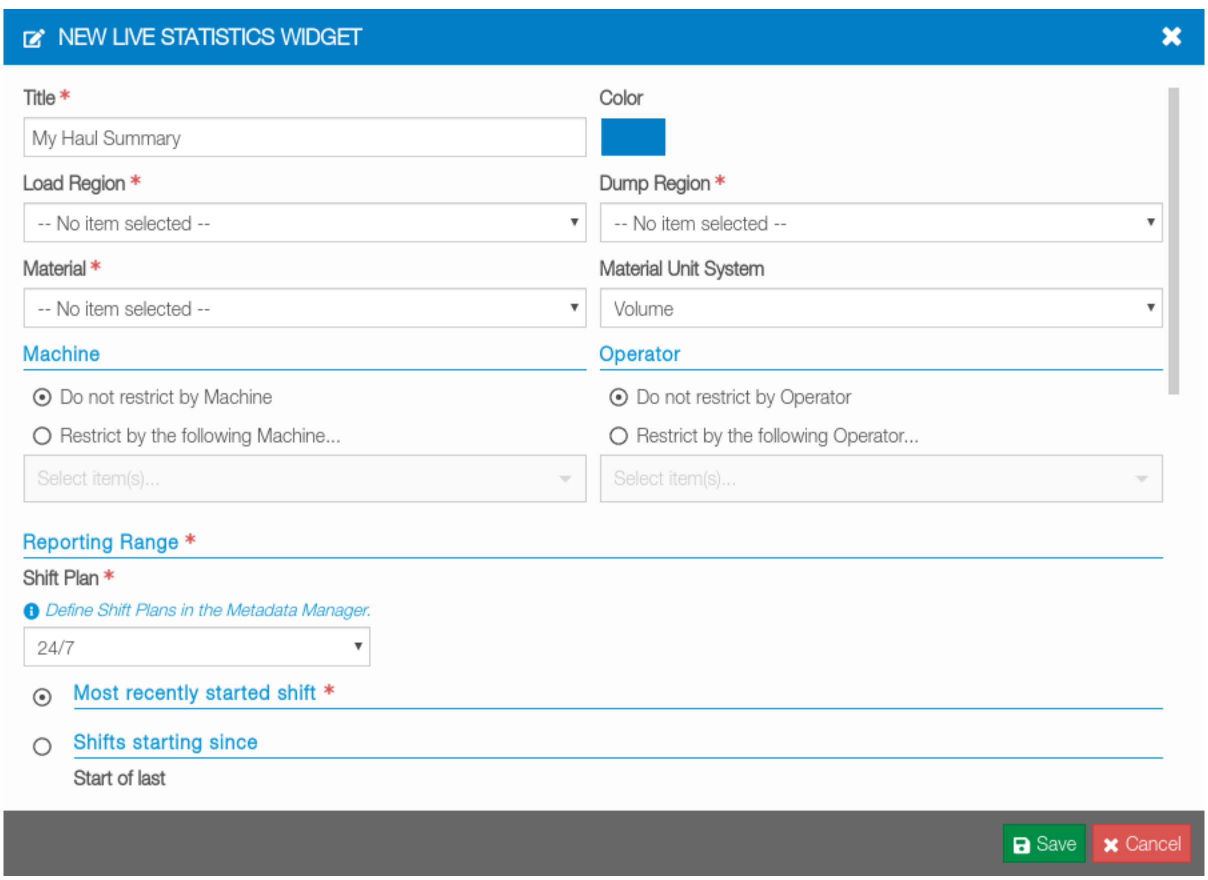

Figure 6-3: The New Live Statistics Widget Dialog

Restricting Widgets With Parameter Filters

Live Statistics Widgets support filtering. This enables Users to display data related only to specific attributes of a Site. Filters are applied when creating new or editing existing Widgets using the following process:

1. Select a parameter such as Machine or Material to filter on

2. Click the **Restrict by the following** radio button to enable the item selection control

   – Select `<Empty Value>` to include data that has no value for this parameter. An example may be for a Widget that only displays data for Machines that have no Operator selected.

   – Select any number of the listed values to display data only for those entries.

- Click the **Save** button.

The Widget will reconnect and display only the filtered data.

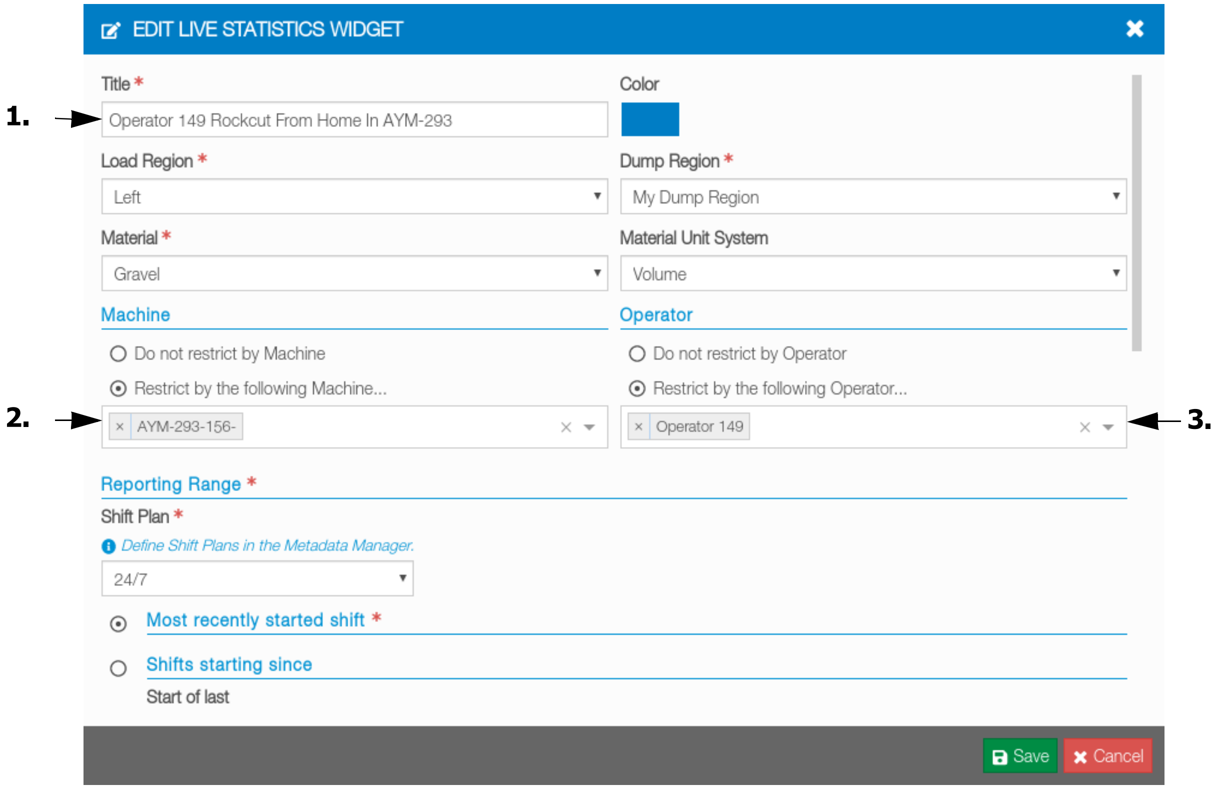

Figure 6-4: The New Live Statistics Widget Dialog

1. An appropriate title for a Widget with active filters
2. A specific Machine selection that the Widget uses to filter data
3. A specific Operator selection that the Widget uses to filter data.

Understanding The Time Period Progress Bar

The time progress bar indicates the following for each Live Statistics Widget:

- The time period that the Widget has been configured to display live data for
- The expired percentage of the configured time period.

As time progresses, the bar moves from left to right. The longer the configured time period, the longer the bar will take to complete. Data will cease to stream when the progress bar completes.

The range of the progress bar and the time to complete depends on the following:

- The selected Shift Plan
- The interpretation of the Shift Plan.

Interpreting Shift Plans As Time Periods

When creating or editing a Widget, the configured Shift Plan will be used to build a time period that can be displayed in a Widget as a progress bar.

Interpreting a Shift Plan consists of the following:

1. Determine the shifts within a Shift Plan to include in the time period
    a. For "Most recently started shift" calculate the shift that has started most recently
    b. For "Shifts starting since" calculate all shifts that start between the selected day and now
    c. For "Shifts starting between" calculate all shifts that start between the selected dates.
2. Add the hours for the shifts being included in the time period
    a. For single shifts, the time period will equal the length of the shift
    b. For multiple shifts, the time period will be the sum of the included shift durations and any dead time between shifts. This is equivalent to the time from the start of the first shift to the end of the last shift.
3. Calculate the current percentage complete.
    a. Calculate the number of hours from the start of the first included shift to now
    b. Divide that by the total hours in the time period.

Demonstrating The Time Progress Bar With A Single Shift

The time progress bar is easily demonstrated using a single shift. Consider a Shift Plan consisting of a single 8 hour shift starting at 8AM. No other shifts occur for the week. A Widget using this single shift Shift Plan can be configured in the following ways:

- "Most recently started shift" if it has already started
- "Shifts starting since" if selecting the day the shift starts on or earlier in the week
- "Shifts starting between" if the start of the shift is within the window.

Prior to the start of the shift:

- The time progress bar will display "0% Time Period Complete"
- No Live Statistics data will be received by the Widget.

During the shift:

- The time progress bar will increase from 0% at 8AM to 100% at 4PM
- Live Statistics data will be received and updated by the Widget.

After the shift:

- The time progress bar will remain at 100%
- The Widget will display the data present at shift completion and won't apply updates.

Demonstrating The Time Progress Bar With Multiple Shifts

Widgets configured to span multiple shifts within a Shift Plan act the same as those spanning a single shift with the exception of time periods in between shifts. Consider a Shift Plan comprised of a two hour shift commencing at the start of Tuesday and a two hour shift commencing at the start of Wednesday.

In this case, Sitelink3D v2 calculates the time progress bar to span 26 hours. This is derived from the start of the first shift to the end of the last shift and includes time gaps where no shifts are working.

Prior to the start of the first shift:

- The time progress bar will display "0% Time Period Complete"
- No Live Statistics data will be received by the Widget.

During the first shift:

- The time progress bar will increase from 0% at midnight Tuesday to 8% at 2AM
- Live Statistics data will be received and updated by the Widget.

Between shifts:

- The time progress bar will increase from 8% at 2AM on Tuesday to 92% at midnight Wednesday
- The Widget will display the data present at the completion of Tuesday's shift and won't apply updates.

During the second shift:

- The time progress bar will increase from 92% at midnight Wednesday to 100% at 2AM
- Live Statistics data will be received and updated by the Widget.

After the second shift:

- The time progress bar will remain at 100%
- The Widget will display the data present at shift completion and won't apply updates.

More complicated Shift Plans behave in the same manner.

Demonstrating The Time Progress Bar With Continuous Shifts

A continuous shift is one that spans an entire day for one or more consecutive days of the week. Sitelink3D v2 provides a default Shift Plan comprised of continuous shifts called "24/7". This Shift Plan can be used to allow Widgets to run continuously. When configured with a continuous shift, a Widget will always display data and the progress bar will move from 0% at midnight to 100% at the following midnight.

Determining When A Widget Was Last Updated

All Live Statistics Widgets display the time that they last checked for updated data. Typically Widgets are updated every five seconds. The last updated timestamps will refresh even if no data is available to be shown. The following process describes how the updated time for a Widget is found:

1. Locate and expand the Widget of interest as discussed in "Viewing Widgets Associated With A Site" on page 6-12

2. Observe the last updated time stamp in the info text at the bottom bar of the individual Widget.

Expanding & Collapsing An Existing Widget

Widgets are normally viewed in an expanded state. This state displays both the Widget title bar and the data grid. It can however be convenient to vertically collapse a Widget such that only its title bar is displayed. This section describes how to toggle a Widget between an expanded and collapsed state.

Expanding A Widget

Collapsed Widgets are identified by the presence of a plus icon to the left of the Widget's title bar. Expand any Widget by clicking on the plus icon.

Collapsing A Widget

A Widget is expanded when created. Expanded Widgets are identified by the presence of a minus icon to the left of the Widget's title bar. Collapse any Widget by clicking on the minus icon.

Viewing & Ordering Widgets In The Sidebar

Viewing Widgets Associated With A Site

Widgets are associated with Sites rather than Users. Users with the permissions described in "Required Permissions" on page 6-2 can hence interact with Widgets regardless of who created them. The Widgets associated with a Site can be viewed using the following process:

1. Select a Site as described in “Selecting An Existing Site” on page 2-38
2. Open the Widget sidebar as described in “Opening The Sidebar” on page 6-6.

The Widgets for the Site will be displayed in the sidebar.

Identifying Common Widget Types By Color

Live statistics Widget types that relate to common work flows or purposes at a Site are color coded in the sidebar for easy identification.

The following Widget types relate to material haulage and are colored in yellow:

- Haul Summary

The following Widget types relate to RDS weighing and are colored in blue:

- Weight Region Summary
- Weight Summary
- Weight Contract Summary.

Reordering Widgets In The Sidebar

New Widgets are added beneath existing Widgets in the sidebar. On occasion however, it can be convenient to vertically reorder the Widgets at a Site. This may be desirable to achieve the following outcomes:

- Prioritize Widgets tracking the current shift by displaying them at the top of the sidebar
- Avoid deleting Widgets not immediately relevant by collapsing them and dropping their order
- Group Widgets of similar purposes or title bar color.

Widgets are ordered as described by the following process:

1. Access the Widgets as described in “Viewing Widgets Associated With A Site” on page 6-12
2. Click and hold a blank area on the title bar of the Widget to be moved
3. Drag the mouse up or down to reposition the Widget vertically in relation to others.

The Widget will snap to possible positions as it is dragged up and down the sidebar.

NOTE Both expanded and collapsed Widgets can be repositioned in this way.

Editing Widgets

Widgets can be edited at any time using the following process:

1. Access the Widgets as described in "Viewing Widgets Associated With A Site" on page 6-12
2. Click on the **Edit** button in the title bar of the Widget to be edited to open the **Edit Live Statistics Widget** dialog as shown in Figure 6-6
3. Make the appropriate edits
4. Click the **Save** button

The Widget will refresh and apply the configuration changes.

NOTE Both expanded and collapsed Widgets can be edited.

Deleting Widgets

Existing Widgets can be deleted at any time. A Widget may be deleted for a number of reasons including:

- To eliminate unnecessary or duplicate Widgets in the sidebar
- To easily revoke visibility of certain data.

The following process describes how to delete an existing Live Statistics Widget:

1. Access the Widgets as described in "Viewing Widgets Associated With A Site" on page 6-12
2. Click on the **Delete** button in the title bar of the Widget to be deleted
3. Click the **Confirm** button on the resulting dialog.

The confirmation dialog will close. The updated Widget list will appear in the sidebar.

NOTICE Widget deletion is not reversible.

Configuring Widget Display States

Displaying Data Numerically

Widgets display numerical data with appropriate units by default. Numerical data is displayed when a gauge is not configured.

Displaying Data With Target Based Gauges

Widgets display data numerically by default. On occasion however, it can be convenient to visually compare live data with expected data. This visualization is useful for a number of reasons including:

- Continually verify that the rate of change of monitored data is as expected
- Set tolerances to visually identify when work deviates by certain percentages.

Gauges are enabled individually for each available Widget metric. This allows raw values and target gauges to coexist on a Widget as shown in "A Haul Summary Widget With Multiple Display States" on page 6-15.

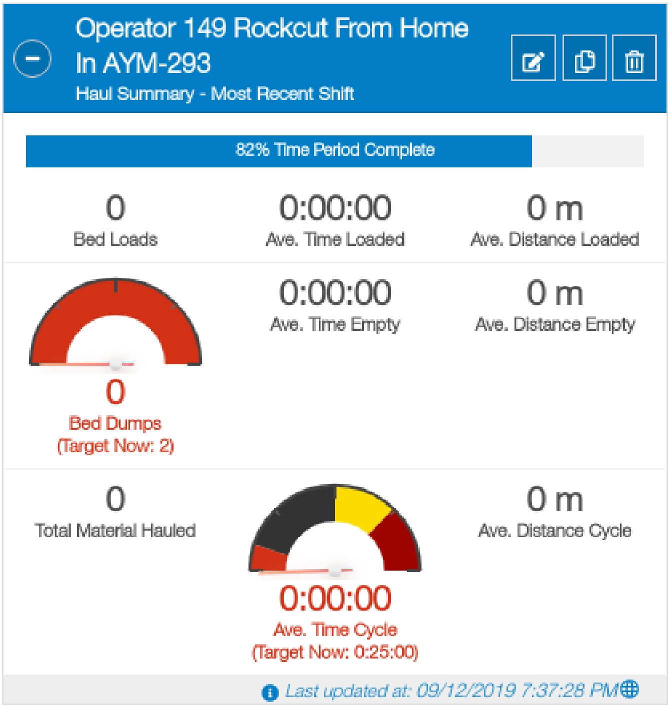

Figure 6-5: A Haul Summary Widget With Multiple Display States

The following process describes how to display Widget data with target based gauges:

1. Open the **New Live Statistics Widget** or **Edit Live Statistics Widget** dialogs by following the process in described in "Creating A New Haul Summary Widget" on page 6-6 or "Editing Widgets" on page 6-13 respectively

2. Click on a target metric from the those listed under "Targets" as shown in Figure 6-6

3. Select a Color Map Type as shown in Figure 6-6

   – Click **Asymmetric** to support different color bands above and below the target as described in "Using Gauges With Asymmetric Color Maps" on page 6-21

   – Click **Symmetric** to support identical color bands above and below the target as described in "Using Gauges With Asymmetric Color Maps" on page 6-21.

4. Enter a target value suitable for the quantity being measured as shown in Figure 6-7

   – Discrete values are displayed without units

   – Time and Distance targets are displayed with the units selected for the Site.

5. Add color bands as required as shown in Figure 6-7

   – For asymmetric gagues, click the blue **Add** button above or below the target as appropriate

– For symmetric gagues, click the blue **Add** button below the target

– Bands can be removed by clicking on the red **Remove** button as shown in Figure 6-8

6. Apply colors to the color bands by clicking on the shaded color control as shown in Figure 6-9 and Figure 6-10
7. Confirm the gauge appears as intended in the gauge preview as shown in Figure 6-11
8. Click the **Save** button.

The dialog with close and the new Widget display will appear as shown in Figure 6-5.

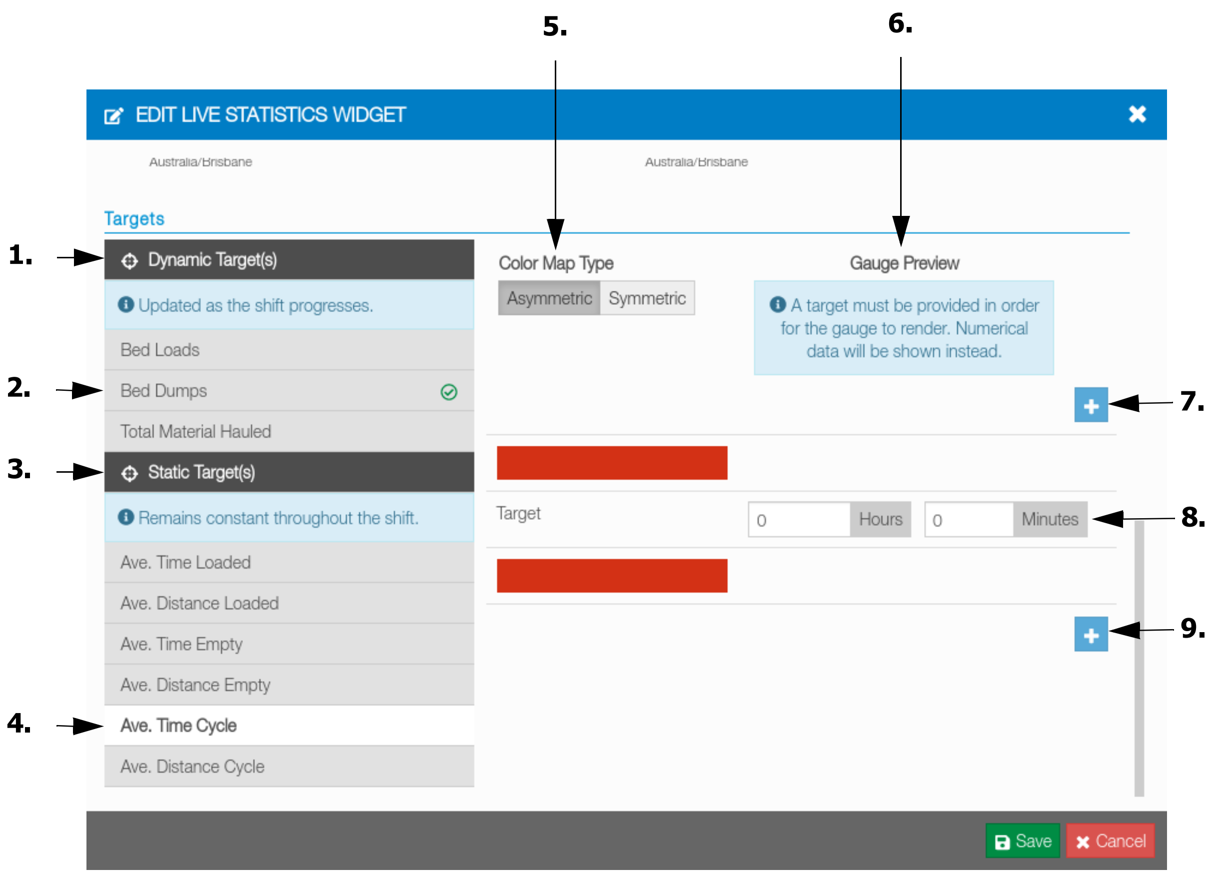

Figure 6-6: The Edit Live Statistics Widget Dialog

1. Dynamic gauge target header. Dynamically targeted metrics are listed here. See "Understanding Dynamic Targets" on page 6-20
2. Metrics that are configured with a gauge appear with a green tick
3. Static gauge target header. Statically targeted metrics are listed here. See "Understanding Static Targets" on page 6-20
4. The currently selected metric is displayed with a white background in the list and its configuration shown to the right of the dialog
5. Color map type for the currently selected metric. See "Using Gauges With Symmetric Color Maps" on page 6-21 and "Using Gauges With Asymmetric Color Maps" on page 6-21
6. Gauge preview if target information has been entered for the currently selected metric
7. Add a new color band above the target. Only available for asymmetric color maps
8. The gauge target displayed in the units appropriate for the currently selected metric
9. Add a new color band below the target for asymmetric color maps or above and below the target for symmetric color maps.

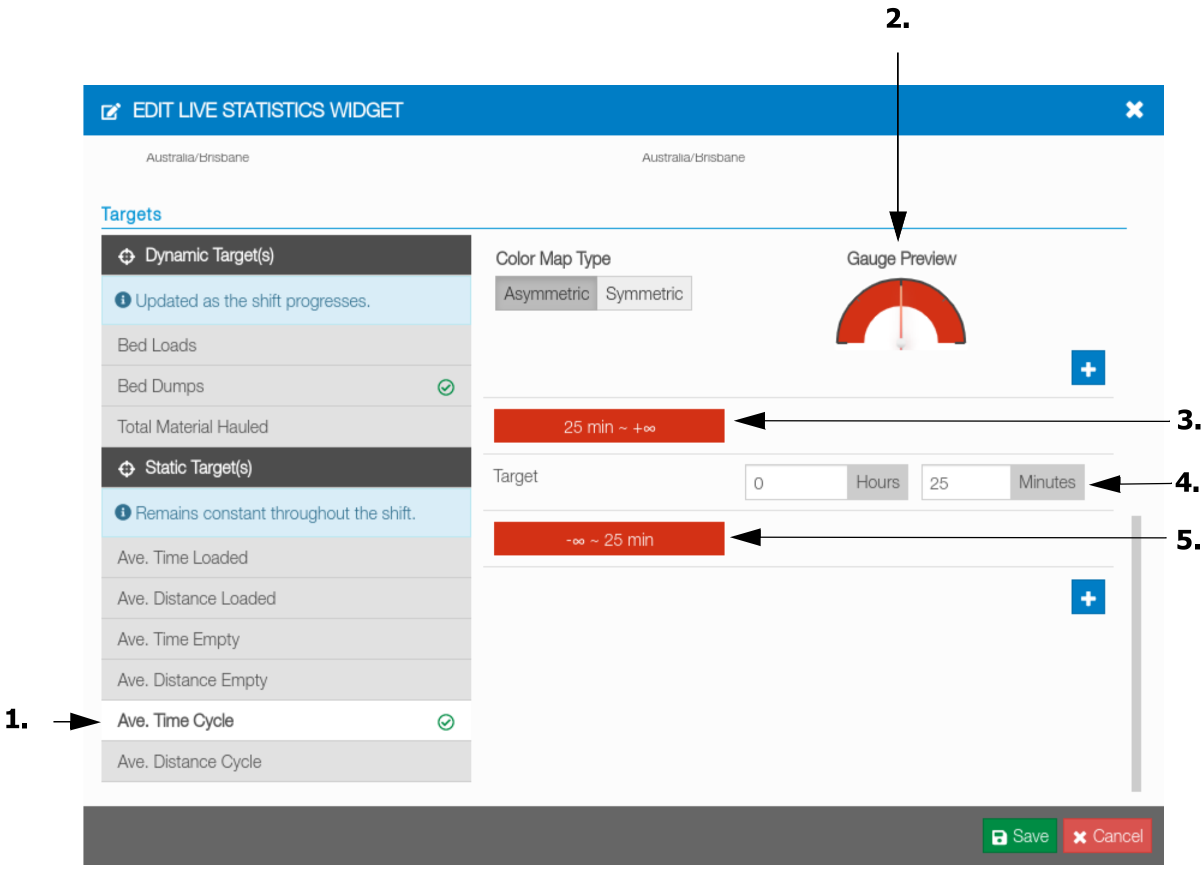

Figure 6-7: The Edit Live Statistics Widget Dialog

1. The currently selected metric displaying a green tick representative of a gauge being active
2. The gauge preview enabled when target information is added for the currently selected metric
3. Annotated upper color band
4. The gauge target
5. Annotated lower color band.

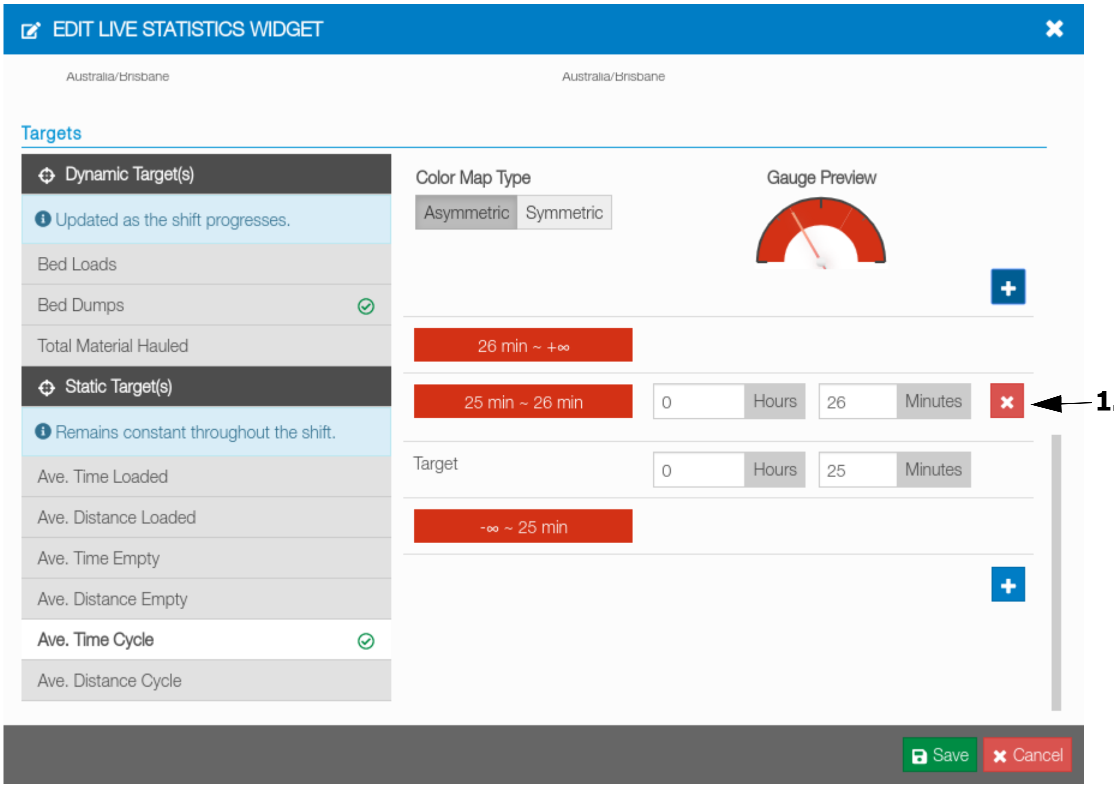

Figure 6-8: The Edit Live Statistics Widget Dialog

1. The delete color band button

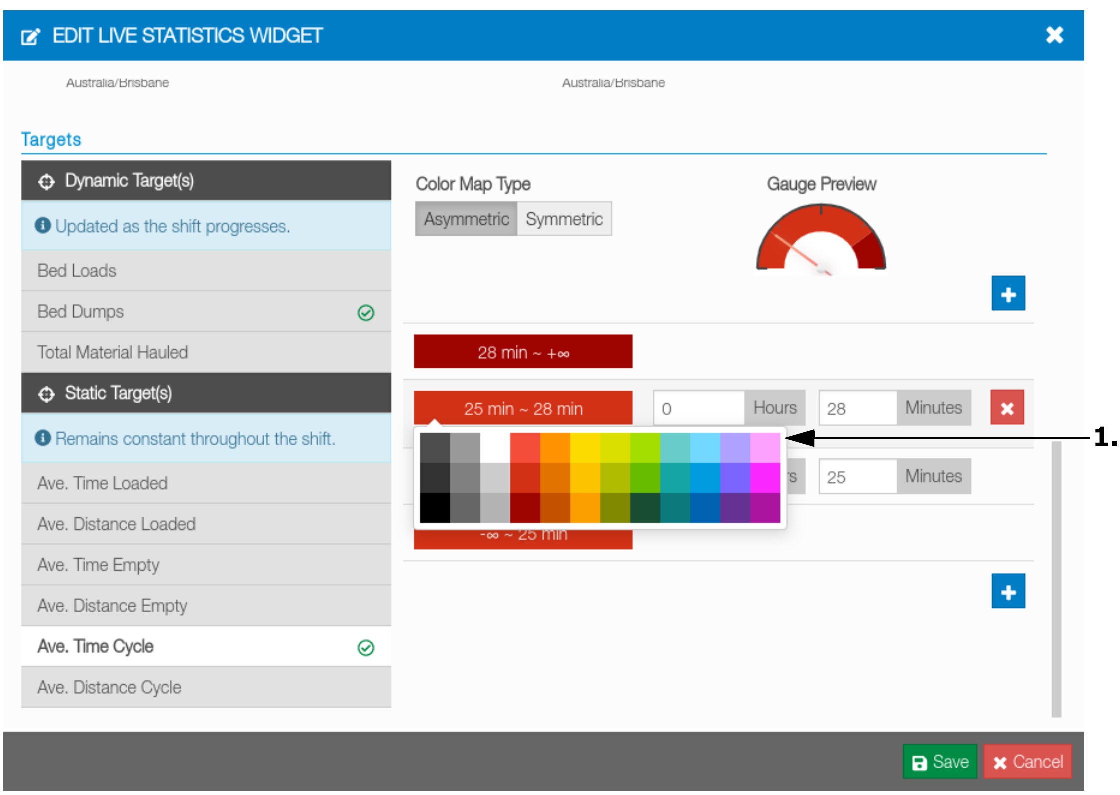

Figure 6-9: The Edit Live Statistics Widget Dialog

1. The color band palette accessed by clicking on the color band control above the target

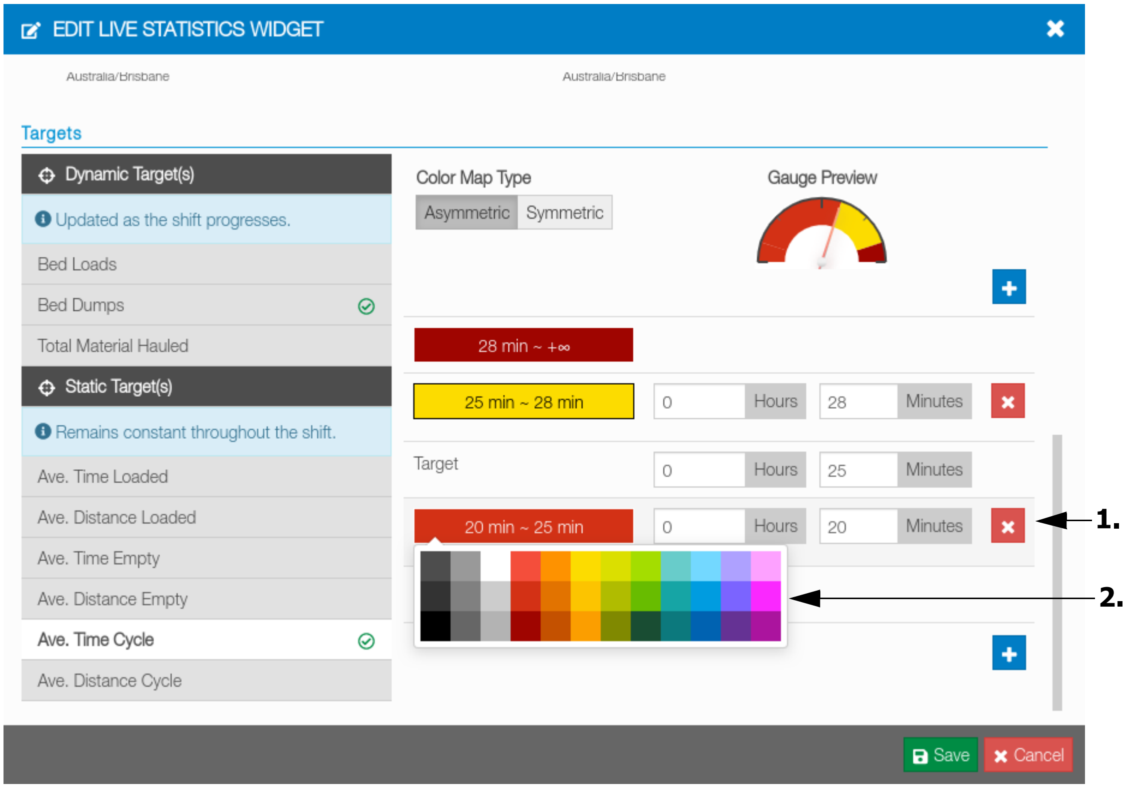

Figure 6-10: The Edit Live Statistics Widget Dialog

1. The delete color band button
2. The color band palette accessed by clicking on the color band control below the target.

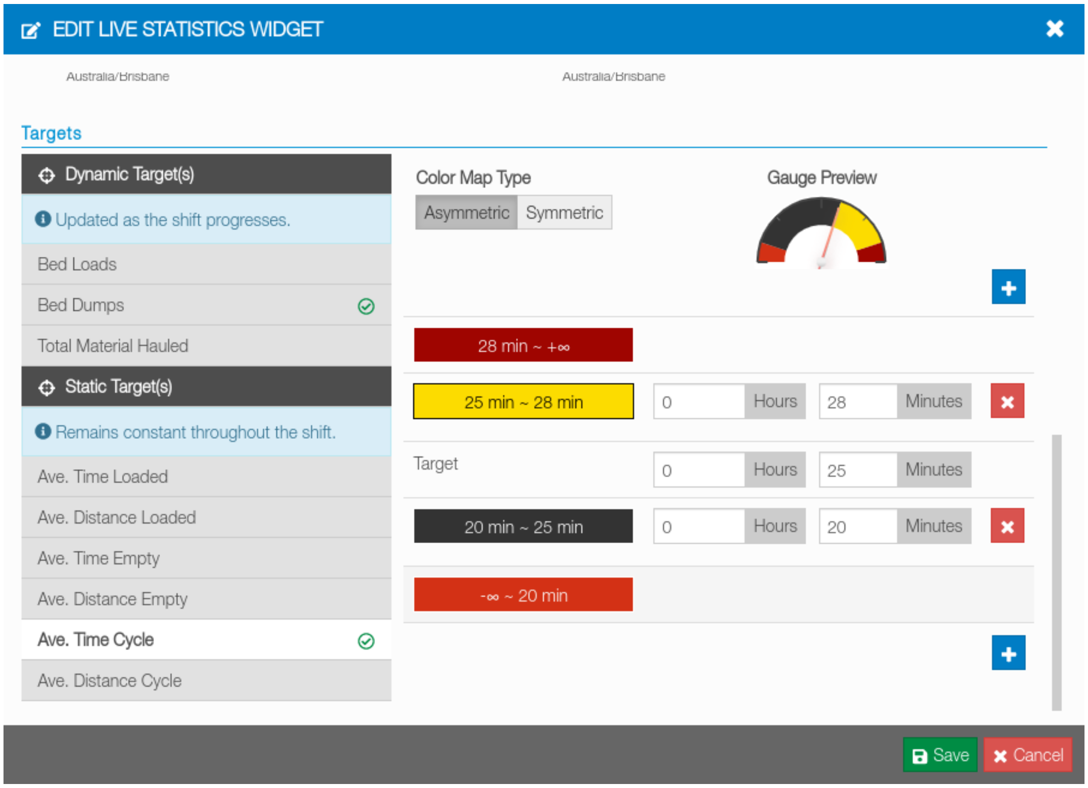

Figure 6-11: The Edit Live Statistics Widget Dialog With an Asymmetric Gauge

Understanding Dynamic Targets

Dynamic targets are those that are automatically adjusted as the Widget progresses through its configured time period. Dynamic targets typically apply to data that is accumulated rather than averaged because expected values depend on how long a shift has been working. The following are examples of fields that use dynamic targets:

- Bed Loads
- Bed Dumps.

Dynamic targets are configured in terms of the expected value at the end of a Widget's time period. For example, a Widget configured to expect 100 bed loads at the end of a 10 hour shift would be on target if 10 bed loads have occurred one hour into the shift.

To clarify the dynamic target at any point, gauges that use dynamic targets are annotated with "Target Now" in the Widget to disambiguate them from the target configured for the end of the time period.

Understanding Static Targets

Static targets are those that are fixed regardless of how far through its configured time period a Widget is. Static targets typically apply to data that is averaged rather than accumulated because expected values can always be compared to live averages. The following are examples of fields that use static targets:

- Average Time Loaded

- Average Distance Cycle.

Static targets are configured in terms of the expected value at any time within a Widget's time period. For example, a Widget configured to expect an average time loaded of 15 minutes would be on target if the first haul of the shift took 15 minutes and equally if the average was 15 minutes for the whole fleet at the end of the shift.

Using Gauges With Symmetric Color Maps

Symmetric color maps provide a simple way of defining colored tolerance bands on a gauge. Color bands are configured once and applied symmetrically above and below the specified target. The number of color bands above and below the target is necessarily equal.

For example, a gauge may be configured with a yellow color band for values that deviate from the target by up to 10% and a red band that deviate from the target by more than 10%. The gauge needle will be in the yellow band in the following scenarios:

- Gauge needle is 9% below target
- Gauge needle is 9% above target

Using Gauges With Asymmetric Color Maps

Asymmetric color maps provide a flexible way of defining colored tolerance bands on a gauge. Color bands are configured separately above and below the specified target. The number of color bands above and below the target can differ.

For example, a gauge may be configured with the following color map:

- A yellow color band for values that deviate below the target by up to 10%
- A yellow color band for values that deviate above the target by up to 4%
- A blue color band for values that deviate above the target by more than 4%and a red band that deviate from the target by more than 10%.

Confirming Gauge Configuration Using The Gauge Preview

The **New Live Statistics Widget** and **Edit Live Statistics Widget** dialogs provide a gauge preview graphic that updates as color maps are configured. This avoids the need to save a Widget configuration to verify the gauge appearance in the Widget body.

Reporting

Overview

Sitelink3D v2 can generate detailed reports relating to activity on Sites. Reports are generated, managed and downloaded via the **Report Manager** and can be downloaded or interactively viewed in the browser. This chapter describes how reports are generated, managed and viewed.

Reporting Prerequisites

This section describes the conditions under which reports can be used at a Site.

Site Type

Reporting is only supported on Advanced Sites. See "Understanding Site Types" on page 2-1 for more information. Basic Sites can be easily upgraded to support reporting. See "Upgrading A Basic Site To An Advanced Site" on page 2-3 for more information.

Required Permissions

Administrator Users have unrestricted access to reporting. Member Users require access to the following Site actions as described in "Selecting Site Role Actions" on page 3-35:

- View Site
- Download Site Config
- View Live Machine Data.

For Haul and Delay Reports, Member Users additionally require access to the following Haul Truck actions as described in "Selecting Site Role Actions" on page 3-35:

- Create Haul Reports
- View Haul Reports
- Archive Haul Reports.

For convenience, the default Report Manager Site Role is provided. Users can be assigned to this default Site Role to easily delegate access to reporting. See "Using Default Site Roles" on page 3-34 for more information.

NOTE See "Understanding User Types" on page 3-1 for more information on User types.

Understanding Report Types

This section describes the types of reports available in Sitelink3D v2.

Report Types At A Glance

Every Sitelink3D v2 report is identified by type. The report type determines the following:

- The purpose of the report
- The parameters that can be used to filter the report
- The resulting data returned
- The operations available when report results are viewed in a report tab in the Footer Bar.

The available report types are:

- Haul Report
- Delay Report

Haul Reports

The Haul Report provides information about Material movement at a Site. This data is produced by the Haul Truck mobile application and includes the following fields:

- Machine name
- Bed name
- Machine operator
- Material hauled
- Operator comments at load and dump times
- Material state and quantity when loaded
- Material quantity when normalized for variations in state
- Load Region, date, time and altitude
- Dump Region, date, time and altitude
- Duration and distance traveled when loaded
- Duration and distance traveled when empty
- Total cycle distance and duration.

NOTICE Although Haul Reports provide valuable insight into Site productivity, real-world quantities should be accurately measured and verified independently to ensure reported results are as expected.

Typical Usage

Use the Haul Report for any of the following scenarios:

- Monitor quantities of hauled Material for invoicing
- Track the source and destination of hauled Material
- Identify routes that produce faster haul cycles or reduced haul distances
- Identify times, days, operators or shifts that are more efficient
- Track Material movement progress to validate estimates.

Referring To Trucks & Trailers As Beds

To simplify reporting, Sitelink3D v2 records hauls in terms of beds. A bed carries material and can be either a truck or a trailer. A haul completed by a truck towing two trailers for example will produce three Haul Report rows for the single haul or cycle. This allows the following flexibility:

- Different beds can be loaded with different Materials measured in different units
- Different beds can be loaded with different quantities
- Beds can be loaded and dumped at different times and different locations.

Defining A Haul

A haul operator on Site will typically complete work by repeating a sequence of tasks as shown in Figure 7-1. The tasks that define a haul are:

- Loading beds at a Load Region
- Hauling beds to a Dump Region
- Dumping beds.

These tasks are identified by Sitelink3D v2 in the following ways:

- Manual operator interaction with the Haul Truck mobile application
- Automatic detection of loads and dumps by the Haul Truck mobile application.

Sitelink3D v2 uses this information to generate Haul Reports.

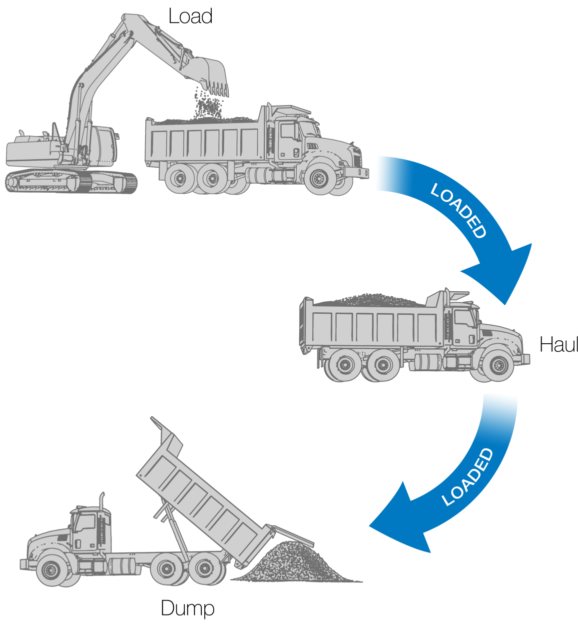

Figure 7-1: Visualizing Haul Tasks

Loading Beds

Sitelink3D v2 identifies when a loader or excavator partially or completely fills a bed. This task is detected by the Haul Truck mobile application in one of two ways:

- Automatically by detecting certain specific conditions
- Manually by recording operator input.

Automatic load identification is only available when configured on the Haul Truck mobile application. Loads identified automatically assume that each bed is loaded to its configured volume capacity with a preconfigured Material type. See "Configuring Haul Settings For A Region" on page 5-11 for information on automating load identification.

Manual load identification requires operator input but allows different Materials, Regions and partial loads to be recorded for each bed.

Regardless of the identification method, Sitelink3D v2 identifies this task as a Load Event and records the following information per bed:

- The time and date of the load
- The location of the load
- The altitude at the load location
- The Material that was loaded
- The quantity of Material loaded
- The state of the Material before and after applying any applicable bulking or unit conversion
- The Machine and Operator name
- Any Operator comments entered into the Haul Truck mobile application at load time.

Once a Load Event is identified, Sitelink3D v2 flags the truck as loaded and starts recording time and distance associated with the material in transit. This information is visible in a Haul Report under the following columns:

- Machine
- Operator
- Material
- Input state
- Input quantity
- Converted state
- Converted quantity
- Comments
- Load Region
- Load date & time
- Load altitude.

See "Columns Related To Loading Material Into Beds" on page 7-43 to see how these fields appear in a Haul Report.

Hauling Beds To A Dump Region

Once Sitelink3D v2 detects a Load Event as described in "Loading Beds" on page 7-4, the bed is considered to be in the loaded state. Sitelink3D v2 monitors the following metrics for every bed in this state:

- The time elapsed since the load
- The cumulative distance traveled while loaded
- The position history of the beds while carrying the Material.

This information is visible in a Haul Report under the following columns:

- Loaded distance
- Loaded duration.

See "Columns Related To Hauling Material" on page 7-44 to see how these fields appear in a Haul Report. The position history of loaded beds can be viewed on the map by clicking on a row in a Haul Report. See "Viewing Loads, Hauls & Dumps On The Map" on page 7-47 for more information.

NOTE The loaded distance and duration values are only meaningful once Sitelink3D v2 detects a Dump Event. See "Dumping Beds" on page 7-5 for more information.

Dumping Beds

Sitelink3D v2 identifies when the Material in a bed is dumped. This task is detected by the Haul Truck mobile application in one of two ways:

- Automatically by detecting certain specific conditions
- Manually by recording driver input.

Automatic dump identification is only available if configured on the Haul Truck mobile application. See "Configuring Haul Settings For A Region" on page 5-11 for information on automating dump detection.

Manual dump detection requires operator input but allows the beds to be dumped independently at different times and locations.

NOTE Although beds can be dumped at different times and locations, a bed cannot be partially dumped. Once dumped, a bed is considered to be completely empty.

Regardless of the identification method, Sitelink3D v2 recognizes this task as a Dump Event and records the following information:

- The time and date of the dump
- The location of the dump
- The altitude at the dump location
- Any operator comments entered into the Haul Truck mobile application to describe the dump.

Once a Dump Event is identified, Sitelink3D v2 flags the truck as empty and starts recording time and distance associated with the bed until it is next loaded. This information is visible in a Haul Report under the following columns:

- Dump Region
- Dump date & time
- Dump altitude.

See "Columns Related To Dumping Material From Beds" on page 7-44 to see how these fields appear in a Haul Report.

Defining A Cycle

A cycle is a more complete perspective of repeated Material haulage tasks as shown in Figure 7-2. Cycles include all of the tasks described in "Defining A Haul" on page 7-3 but additionally track bed movement back to a load Region.

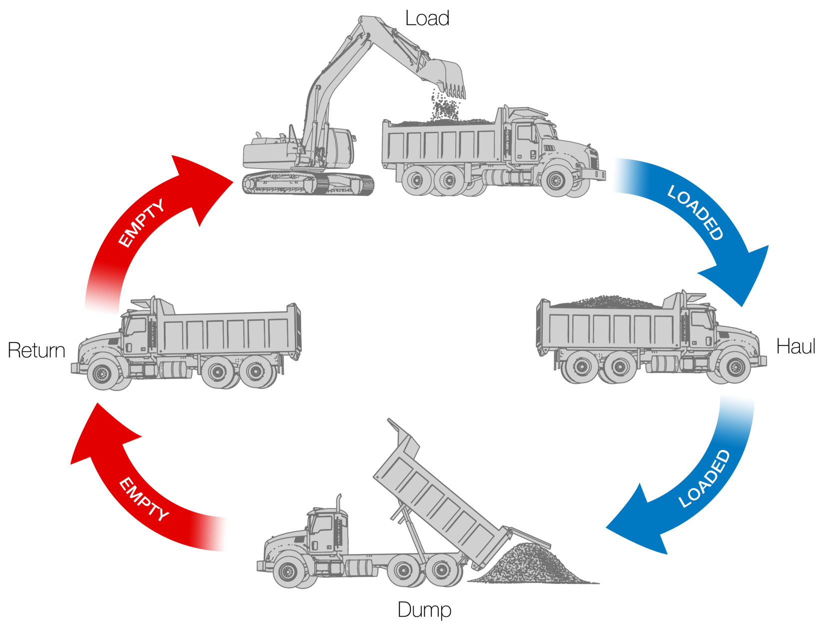

Figure 7-2: Visualizing Cycle Tasks

Returning To A Load Region

Once Sitelink3D v2 identifies a Dump Event as described in "Dumping Beds" on page 7-5, the bed is considered to be in the empty state. Sitelink3D v2 monitors the following metrics for every bed in this state:

- The time elapsed since the dump
- The cumulative distance traveled while empty
- The position history of the beds while empty.

This information is visible in a Haul Report under the following columns:

- Empty distance
- Empty duration.

See "Columns Related To Returning For Reload" on page 7-44 to see how these fields appear in a Haul Report. The position history of empty beds can be viewed on the map by clicking on a row in a Haul Report. See "Viewing Loads, Hauls & Dumps On The Map" on page 7-47

NOTE The empty distance and duration values are only meaningful once Sitelink3D v2 detects another Load Event. See "Loading Beds" on page 7-4 for more information.

Reloading Beds

The task of reloading beds completes the haul cycle. Reloading is identical to loading as described in "Loading Beds" on page 7-4 except that Sitelink3D v2 additionally records the following information:

- The time elapsed for the whole cycle
- The cumulative distance for the whole cycle.

This information is visible in a Haul Report under the following columns:

- Cycle distance
- Cycle duration.

See "Columns Related To Reloading Material Into Beds" on page 7-45 to see how these fields appear in a Haul Report.

Selecting Haul Report Parameter Filters

Haul Reports can be narrowed by using any combination of the following Parameter Filters:

- Machines
- Materials
- Operators
- Regions.

These Parameter Filters allow certain aspects of the haul cycle described in "Defining A Cycle" on page 7-6 to be targeted by a report. Using Parameter Filters can reduce the size of a report and make the data easier to interpret. See "Restricting New Reports With Parameter Filters" on page 7-21 for more information.

Haul Report Best Practice

The best quality report data is achieved by incorporating the following considerations into training:

- Confirm that Regions are correctly configured for the Site as described in "Working With Regions" on page 5-9

- Confirm that Materials are correctly configured for the Site as described in "Working With Materials" on page 5-13
- Verify that the Haul Truck mobile application vehicle configuration matches the physical beds being used for each shift
- Ensure that all Load and Dump Events are captured by the Haul Truck mobile application at the correct time and location
- Confirm that the Material type and quantity being physically loaded into beds is accurately recorded by the Haul Truck mobile application
- Close the Haul Truck mobile application when completing a shift to ensure that all data is sent to Sitelink3D v2.

Delay Reports

The Delay Report provides information about work disruptions at a Site. Incorporating the use of descriptively named Delays can help identify bottlenecks and improve efficiency of Site operation. This data is produced by Client Devices and includes the following fields:

- Delay name
- Machine name
- Machine Operator
- Date and time of the start of the delay
- Date and time of the end of the delay
- Duration and distance traveled when in the delay.

NOTICE The quality of Delay Report data relies on implementing recommended best practice. See "Delay Report Best Practice" on page 7-9 for more information.

Typical Usage

Use the Delay Report for any of the following scenarios:

- Identify common causes of Delays to implement mitigations
- Avoid congestion or other issues that are problematic at certain times of day
- Quantify downtime related to unscheduled maintenance or plant breakdown for accounting.

Defining Delays

Sitelink3D v2 treats Delays as labels that describe the reason for a period of unexpectedly low productivity. Delays may result in the cessation of work entirely as would be expected with a breakdown, or may result in slowdowns as would be expected when encountering traffic.

Examples of delays that may be available for selection at a Site include:

- Breakdown
- Maintenance
- Planned Downtime
- Queuing
- Meal Break
- Refueling
- Traffic.

Every Delay that an operator encounters has a start time and an end time. This allows the impact of a delay at a Site to be quantified in a Delay Report. The Delays that an Operator can select from are entirely at the Site manager's discretion.

NOTICE Delay Reports are independent of Haul Reports. A Haul Report can identify symptoms of unusually long hauls and a Delay Report can identify the cause.

Selecting Delay Report Parameter Filters

Delay reports can be narrowed by using any combination of the following Parameter Filters:

- Machines
- Operators.

These Parameter Filters allow certain aspects of Site operation to be targeted by a report. Using Parameter Filters can reduce the size of a report and make the data easier to interpret. See "Restricting New Reports With Parameter Filters" on page 7-21 for more information.

Delay Report Best Practice

Delay Reports rely on Operator input and hence the quality of the data is a reflection of Operator behavior. The best quality report data is achieved by incorporating the following considerations into training:

- Ensure an adequate amount of descriptive Delays are available for Operators to select at a Site as described in "Working With Delays" on page 5-7
- Identify Delays when they occur on Site and record them with the Client software
- Identify when Delays finish on Site and clear them with the Client software.

Managing Reporting With The Report Manager

This section describes how reports are managed for a Site.

The Report Manager At A Glance

All report activity for a Site is controlled by the **Report Manager** as shown in Figure 7-3. It has the following purposes:

- Create new reports
- View existing reports
- Download existing reports
- Archive and restore existing reports

The **Report Manager** allows various types of reports to be run for the selected Site. Each row in the **Report Manager** represents a report. Reports can be viewed or downloaded once completed.

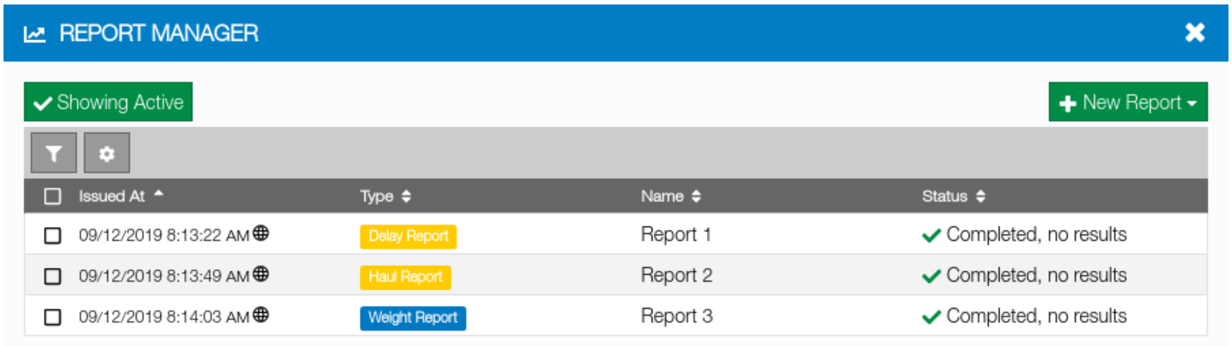

Figure 7-3: The Report Manager Displaying Reports of Different Types

Opening The Report Manager

The **Report Manager** can be accessed from two locations for convenience. These are:

- Via the **Site Menu**
- Via the shortcut bar.

Opening The Report Manager Via The Site Menu

The **Report Manager** can be opened via the **Site Menu** as described by the following process:

1. Click on the **Site Menu Selector** to show the **Site Menu** as shown in Figure 7-4
2. Click on **Report Manager** to open the **Report Manager** as shown in Figure 7-5.

The **Report Manager** will be opened.

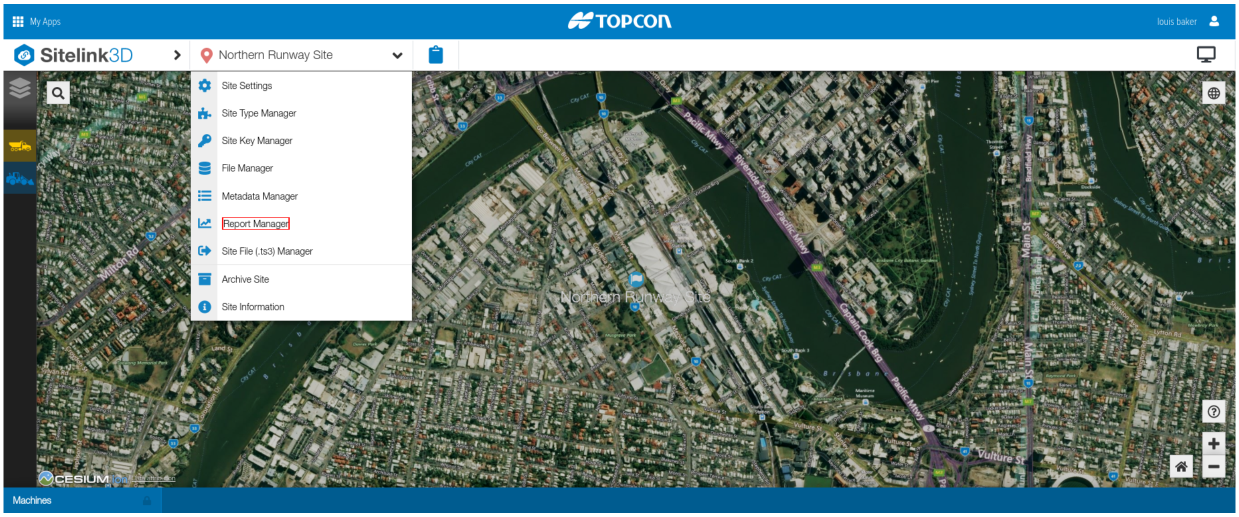

Figure 7-4: Accessing the Report Manager in the Site Menu

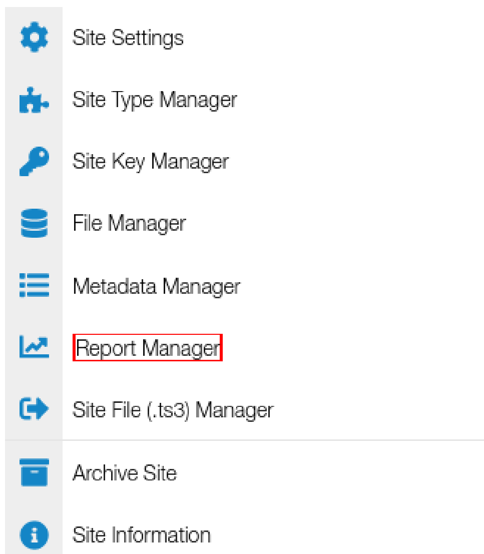

Figure 7-5: Accessing the Report Manager in the Site Menu

Opening The Report Manager Via The Shortcut Bar

The **Report Manager** can be opened via the graph icon in the shortcut bar as shown in Figure 7-7. This shortcut needs to be enabled to access this button. See "Enabling Shortcut Menu Items" on page 3-60 for more information.

1. Enable the **Report Manager** shortcut as described in "Enabling Shortcut Menu Items" on page 3-60 to display the Shortcut Menu Item as shown in Figure 7-6

2. Click on the graph icon in the Shortcut Menu as shown in Figure 7-7.

The **Report Manager** will be opened.

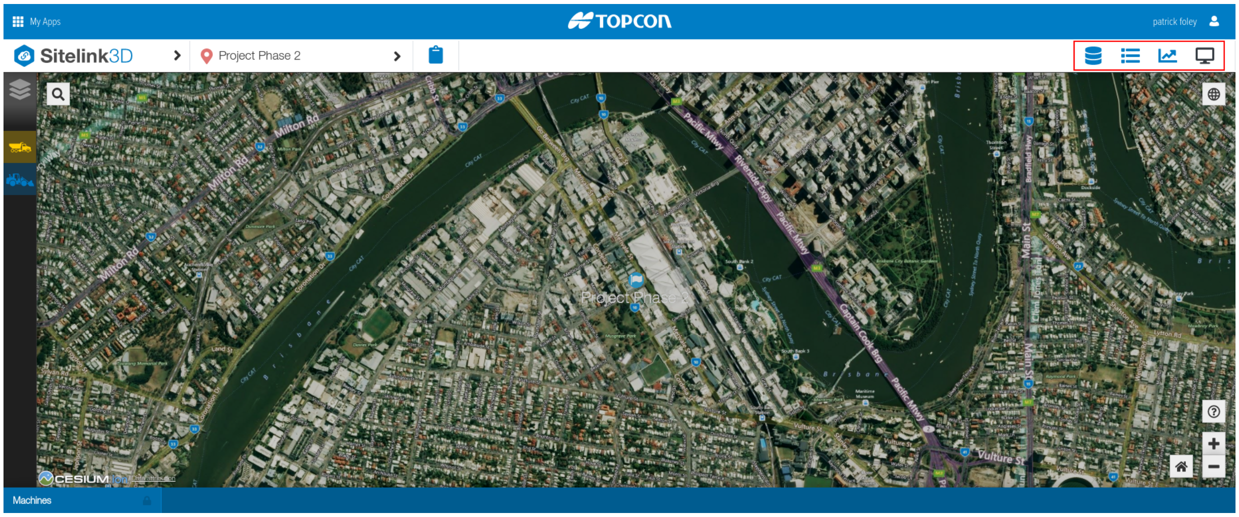

Figure 7-6: The Shortcut Bar At The Top Right Of The Home Screen

Figure 7-7: Accessing the Report Manager in the Shortcut Bar

Creating A New Report

Once a new report is created in Sitelink3D v2, it automatically progresses through the following states:

- Pending
- Submitted
- Queued
- Running
- Completed.

The following sections describe how new reports are created in Sitelink3D v2.

NOTE Reports cannot be edited.

Creating A New Haul Report

New Haul Reports can be created in two ways:

- By configuring the report parameters from scratch on the **New Haul Report** dialog
- By copying an existing Haul Report and using it as a template on the **New Haul Report** dialog.

Creating a new Haul Report from scratch is required if no Haul Reports exist yet at a Site. This approach prohibits stale values from being copied from other reports but can require more configuration.

Creating a new Haul Report by copying an existing report is a faster approach but introduces the chance of error if the configuration is not correctly updated. The following sections detail these two approaches.

Creating A New Haul Report From Scratch

New Haul Reports are created from scratch from the **Report Manager** as described by the following process:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Click the **New** button as shown in Figure 7-8
3. Click **Haul Report** in the resulting drop down menu to open the **New Haul Report** dialog as shown in Figure 7-9
4. Enter a name for the report in the **Name** field noting that report names can be duplicated
5. Select a format option

   – Click **Hauls** to generate results formatted as described in "Defining A Haul" on page 7-3

   – Click **Cycles** to generate results formatted as described in "Defining A Cycle" on page 7-6.
6. Specify the date and time range for the report
   a. Click on the globe icon associated with the **From** field to specify the start of the report period using the resulting date and time selector
   b. Click on the globe icon associated with the **To** field to specify the end of the report period using the resulting date and time selector.
7. Optionally enable any available Parameter Filters to narrow the report criteria as described in "Selecting Haul Report Parameter Filters" on page 7-7
8. Click the **Save** button.

The following will occur:

- The **New Haul Report** dialog will close
- The new report will appear as a row in the **Report Manager**
- The report will run
- The status will update in the **Status** column as described in "Report States" on page 7-25

NOTE New Haul Reports are configured to include data for the last seven days by default. The timezone associated with the **From** and **To** selections are displayed for clarity.

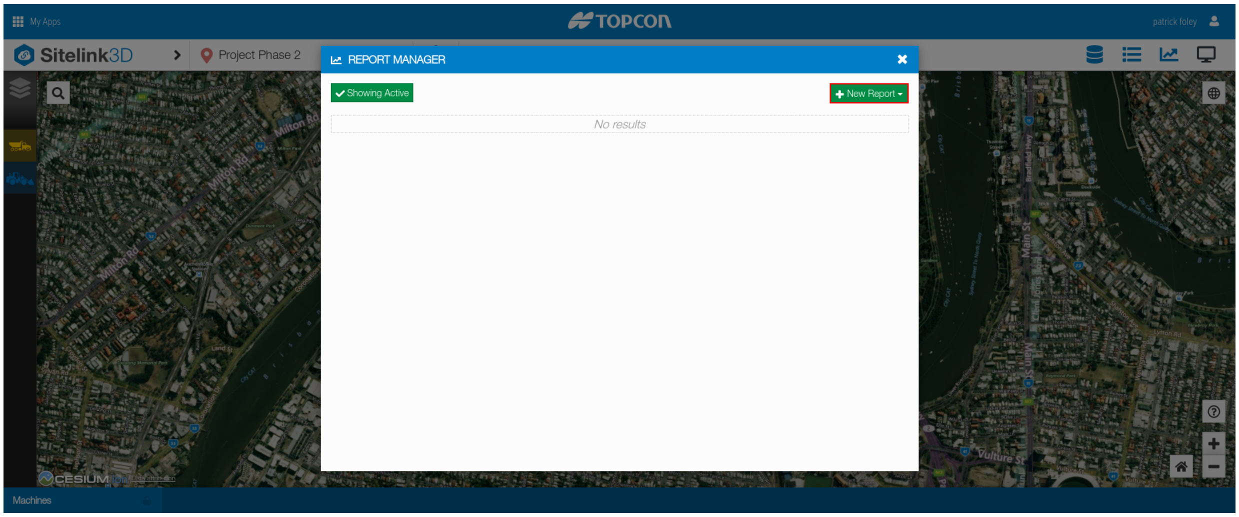

Figure 7-8: The New Button On The Report Manager

Figure 7-9: The New Haul Report Selection on the Report Manager

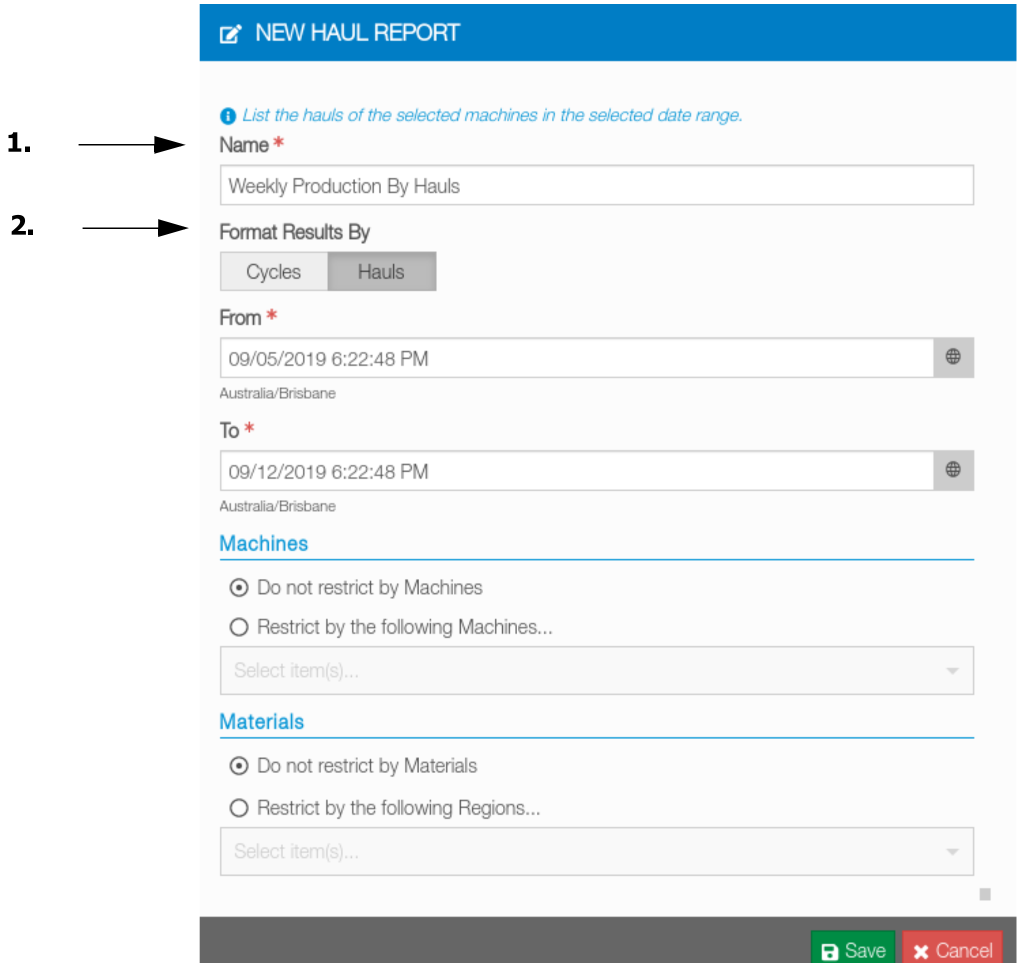

Figure 7-10: The New Haul Report Dialog

1. Because report summaries do not specify whether results were narrowed by the use of Parameter Filters, it can be useful to name reports accordingly when active Parameter Filters are in use.
2. Results are formatted as described in "Defining A Haul" on page 7-3 or "Defining A Cycle" on page 7-6

Creating A New Haul Report By Copying An Existing One

New Haul Reports are created by copying existing reports from the **Report Manager** as described by the following process:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Find an existing Haul Report to be used as a template for the new report. See "Using A Filter To Narrow The Report List" on page 7-26 for more information
3. Click the checkbox associated with the desired report to select it in the list and enable the action buttons in the action bar
4. Click on the blue **Copy** button to the right of the action bar as shown in Figure 7-11 to open the **New Haul Report** dialog as shown in Figure 7-10
5. Enter a new name for the report in the **Name** field if required
6. Adjust the date and time range for the report if required

a. Click on the globe icon associated with the **From** field to specify the start of the report period using the resulting date and time selector

b. Click on the globe icon associated with the **To** field to specify the end of the report period using the resulting date and time selector.

7. Optionally adjust any available Parameter Filters to narrow the report criteria as described in “Selecting Haul Report Parameter Filters” on page 7-7

8. Click the **Save** button.

The following will occur:

- The **New Haul Report** dialog will close
- The new report will appear as a row in the **Report Manager**
- The report will run
- The status will update in the **Status** column as described in “Report States” on page 7-25

NOTE New Haul Reports are configured to include data for the same period as the template report by default. The timezone associated with the **From** and **To** selections are displayed for clarity.

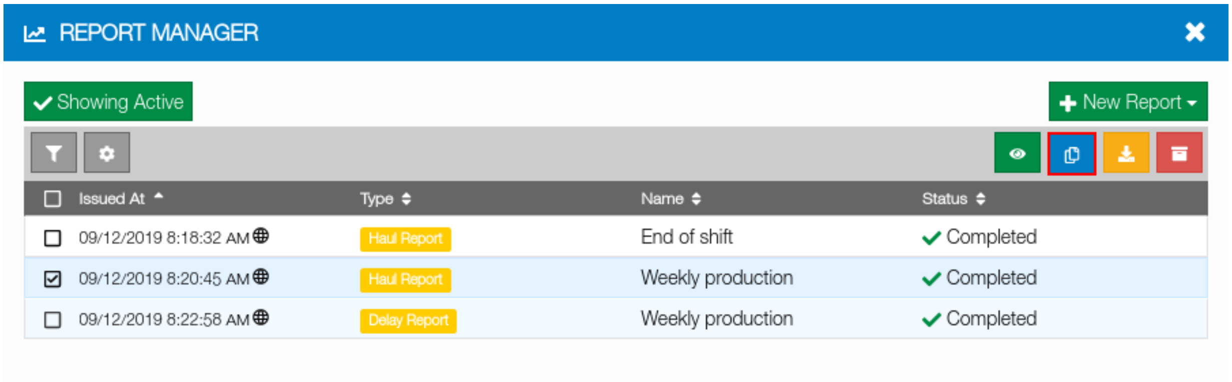

Figure 7-11: The Copy Button on the Report Manager

Creating A New Delay Report

New Delay Reports can be created in two ways:

- By configuring the report parameters from scratch on the **New Delay Report** dialog
- By copying an existing Delay Report and using it as a template on the **New Delay Report** dialog.

Creating a new Delay Report from scratch is required if no Delay Reports exist yet at a Site. This approach prohibits stale values from being copied from other reports but can require more configuration.

Creating a new Delay Report by copying an existing report is a faster approach but introduces the chance of error if the configuration is not correctly updated. The following sections detail these two approaches.

Creating A New Delay Report From Scratch

New Delay Reports are created from scratch from the **Report Manager** as described by the following process:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Click the **New** button as shown in Figure 7-12
3. Click **Delay Report** in the resulting drop down menu to open the **New Delay Report** dialog as shown in Figure 7-13
4. Enter a name for the report in the **Name** field noting that report names can be duplicated
5. Specify the date and time range for the report
    a. Click on the **From** field to specify the start of the report period using the resulting date and time selector
    b. Click on the **To** field to specify the end of the report period using the resulting date and time selector.
6. Optionally enable the available Parameter Filters as described in "Selecting Delay Report Parameter Filters" on page 7-9
7. Click the **Save** button.

The following will occur:

- The **New Delay Report** dialog will close
- The new report will appear as a row in the **Report Manager**
- The report will run
- The status will update in the **Status** column as described in "Report States" on page 7-25

NOTE New Delay Reports are configured to include data for the last seven days by default. The timezone associated with the **From** and **To** selections are displayed for clarity.

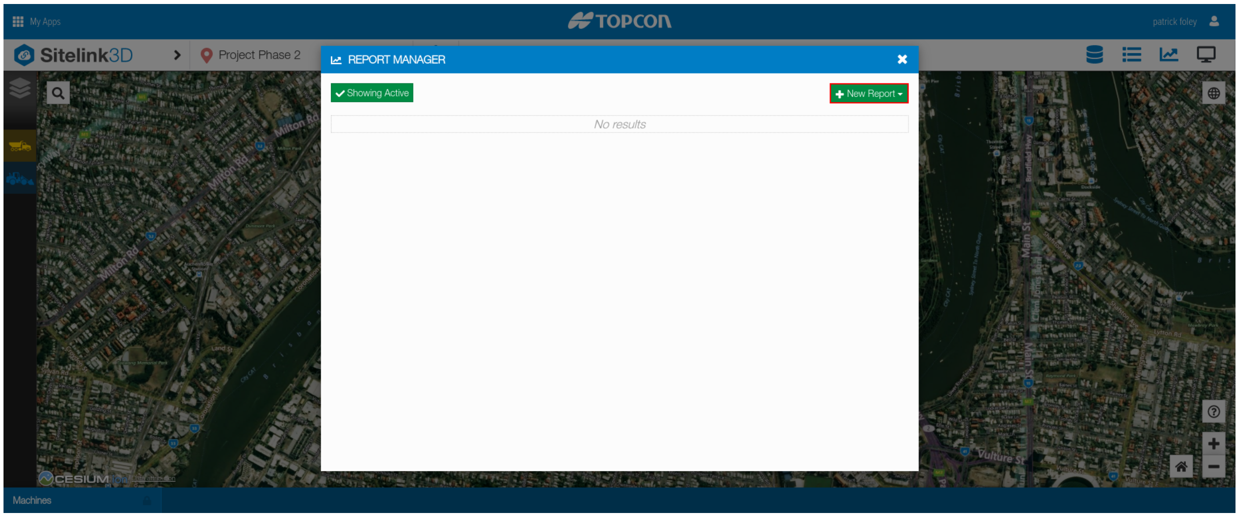

Figure 7-12: The New Button on the Report Manager

Figure 7-13: The New Delay Report Selection on the Report Manager

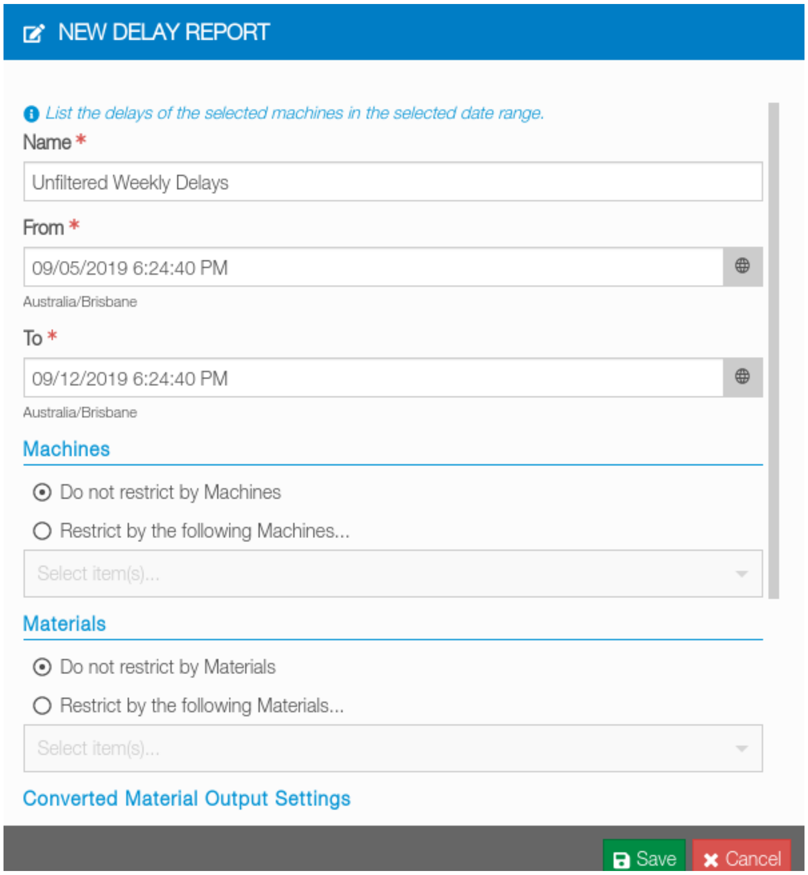

Figure 7-14: The New Delay Report Dialog

Creating A New Delay Report By Copying An Existing One

New Delay Reports are created by copying existing reports from the **Report Manager** as described by the following process:

1. Open the **Report Manager** as described in “Opening The Report Manager” on page 7-10

2. Find an existing Delay Report to be used as a template for the new report. See “Using A Filter To Narrow The Report List” on page 7-26 for more information

3. Click the checkbox associated with the desired report to select it in the list and enable the action buttons in the action bar

4. Click on the blue **Copy** button to the right of the action bar as shown in Figure 7-15 to open the **New Delay Report** dialog as shown in Figure 7-15

5. Enter a new name for the report in the **Name** field if required

6. Adjust the date and time range for the report if required

    a. Click on the globe icon associated with the **From** field to specify the start of the report period using the resulting date and time selector

b. Click on the globe icon associated with the **To** field to specify the end of the report period using the resulting date and time selector.

7. Optionally adjust any available Parameter Filters to narrow the report criteria as described in "Selecting Delay Report Parameter Filters" on page 7-9

8. Click the **Save** button.

The following will occur:

- The **New Delay Report** dialog will close
- The new report will appear as a row in the **Report Manager**
- The report will run
- The status will update in the **Status** column as described in "Report States" on page 7-25

NOTE New Delay Reports are configured to include data for the same period as the template report by default. The timezone associated with the **From** and **To** selections are displayed for clarity.

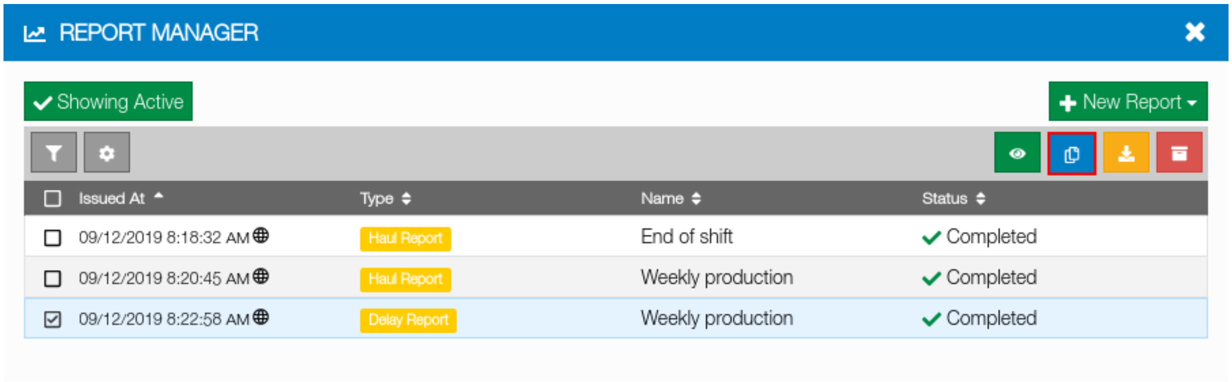

Figure 7-15: The Copy Button on the Report Manager

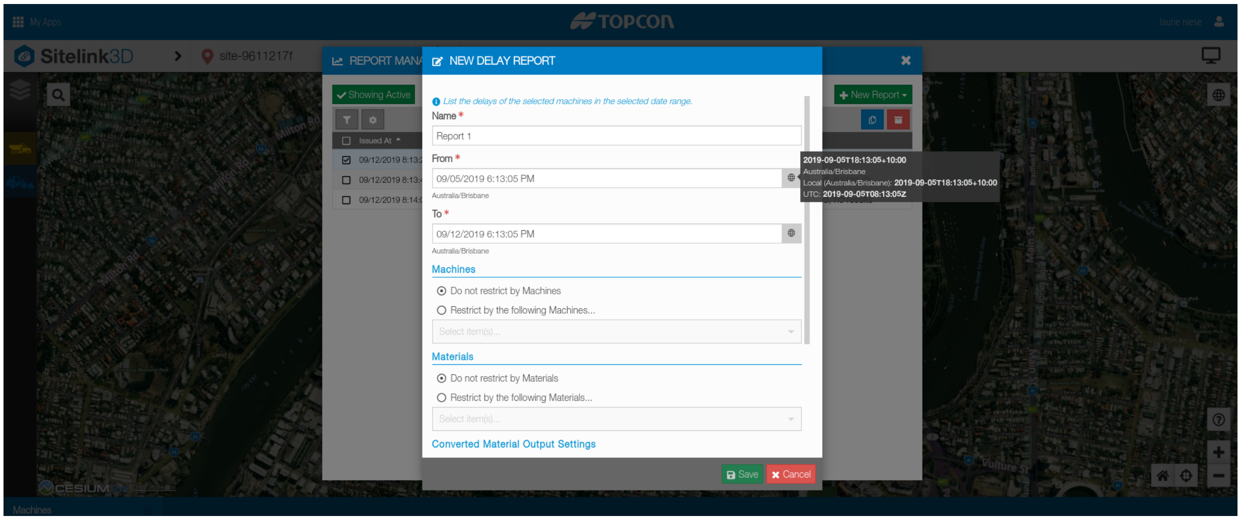

Figure 7-16: Timezone Information Accessed Via the Globe Icon When Creating a New Report

Restricting New Reports With Parameter Filters

Various parameters can be specified to filter results when creating a report. These filters are configured using controls know as Parameter Filters. Parameter Filters take one of two states:

- Disabled
- Enabled.

Disabled Parameter Filters do not restrict report results. Enabled Parameter Filters do restrict report results. The following sections describe these states using the Machine Parameter Filter as an example.

Disabled Parameter Filters

Parameter Filters are disabled when “Do not restrict by” is selected as shown in Figure 7-17. This is the default option for Parameter Filters.

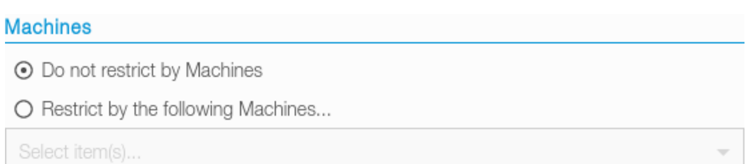

Figure 7-17: A Machine Parameter Filter in the Disabled State

Enabled Parameter Filters

Parameter Filters are enabled when “Restrict by the following” is selected as shown in Figure 7-18.

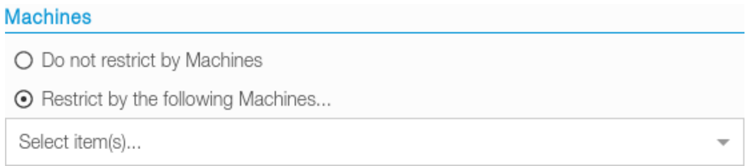

Figure 7-18: A Machine Parameter Filter in the Enabled State

Two types of values can be selected for enabled Parameter Filters:

- Empty values
- Specific values.

Empty values are included in reports where no data is available. An example of an empty value is a haul where no Operator was selected. This haul would appear in a report with an empty cell for the operator value. Empty values are included in reports by selecting `<Empty Value>`. Selecting this value is a convenient way to identify missing data for correction.

Specific values are those entries that appear with valid data in reports. As many of these values as required can be selected. Specific values can be selected in addition to empty values.

NOTE Because report summaries do not specify whether results were narrowed by the use of Parameter Filters, it can be useful to name reports accordingly when active Parameter Filters are in use.

Canceling A Running Report

Reports can be canceled when in any of the following states:

- Pending
- Submitted
- Queued
- Running.

Canceled reports appear in the **Report Manager** with a canceled status. Canceled reports can still be archived and copied to create new reports. See “Creating A New Haul Report By Copying An Existing One” on page 7-15, “Creating A New Delay Report By Copying An Existing One” on page 7-19 and “Archiving Reports” on page 7-32 for more information.

Reports are canceled as described by the following process:

1. Create a new report as described in “Creating A New Report” on page 7-12
2. Click on the report in the **Report Manager** to select it in the list and enable the action buttons in the action bar
3. Click on the red **Cancel** button to the right of the action bar before the report completes.

The report will be canceled and no results will be available.

Opening Existing Reports

All Sitelink3D v2 reports are accessed via the **Report Manager**. Report data can be accessed in one of two ways:

- Viewed directly in Sitelink3D v2
- Downloaded in xlsx format.

The following sections describe how reports are accessed using each method.

Viewing Reports

Completed reports of any type can be viewed directly in the Sitelink3D v2 web portal. Report results are made available as a tab in the blue Footer Bar as described in "Opening An Existing Footer Bar Tab" on page 7-37. The following process describes how report results are opened in this manner:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Find the report to be viewed. See "Using A Filter To Narrow The Report List" on page 7-26
3. Click on the report to select it in the list and enable the action buttons in the action bar
4. Click on the green **View** button to the right of the action bar to as shown in Figure 7-19 to open the selected report in a Footer Bar tab.

A new Footer Bar tab is created if the report is not already opened in a tab. If the selected report is already opened for viewing, the existing tab will be focused on.

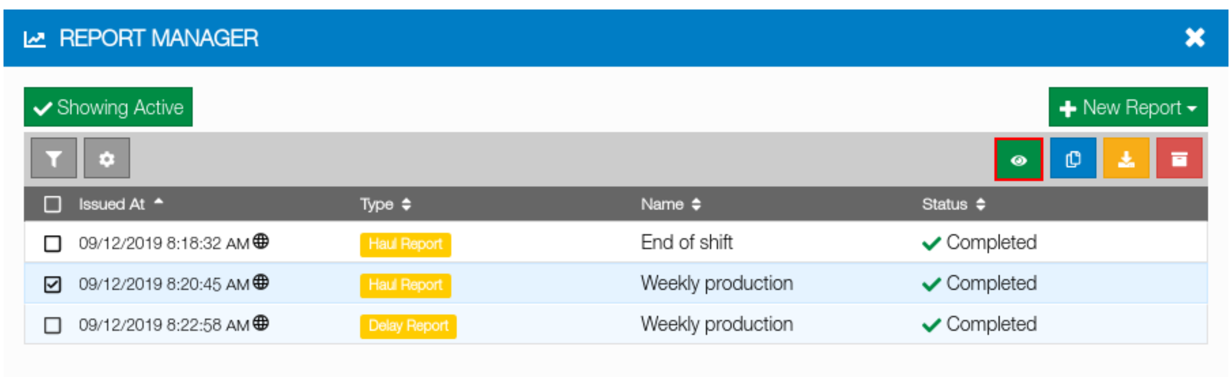

Figure 7-19: The View Button on the Report Manager

Downloading Reports

Completed reports of any type can be downloaded in xlsx format as described by the following process:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10

2. Find the report to be downloaded. See "Using A Filter To Narrow The Report List" on page 7-26

3. Click on the report to select it in the list and enable the action buttons in the action bar

4. Click on the yellow **Download** button to the right of the action bar to as shown in Figure 7-20 to start the download.

The report will be downloaded in the browser.

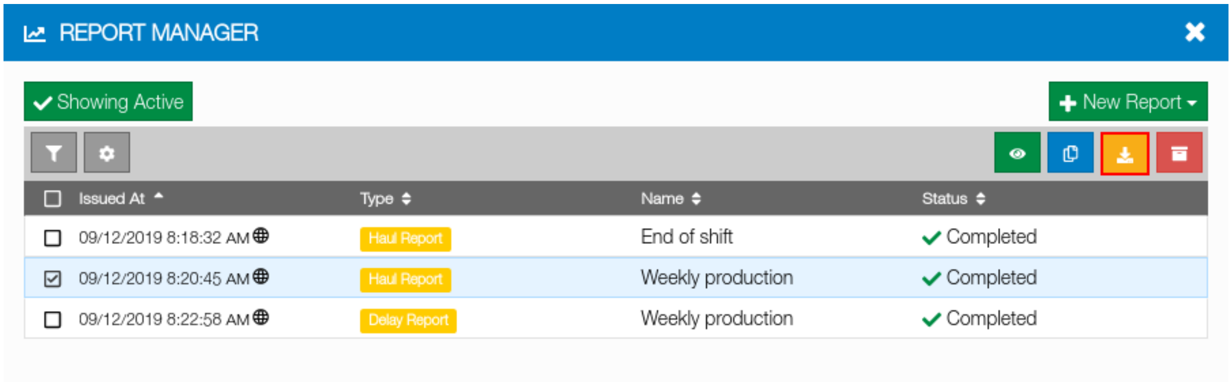

Figure 7-20: The Download Button on the Report Manager

Viewing, Filtering & Sorting The Report List

This section describes the various ways that Users can find, sort, archive and restore reports in **Report Manager**.

Viewing Reports Associated With A Site

The reports associated with the current Site can be viewed on the **Report Manager**. Access the **Report Manager** as described in "Opening The Report Manager" on page 7-10. The **Report Manager** displays a list of reports including the following information for each report:

- Name
- Type
- Issued At Date & Time
- Issued By Name & Email Address
- Status.

The columns displayed when viewing reports can be configured as described in "Configuring The Report Manager" on page 7-34

Viewing Active Reports

By default, the **Report Manager** displays the active reports when opened. Active reports are available for viewing and downloading at any time. The active report view is indicated by the presence of the green **Showing Active** button at the top left of the **Report Manager**. See

Viewing Archived Reports

The **Report Manager** displays all archived reports as a separate view. Archived reports are available for restoration at any time. Archived reports cannot be accessed without first being restored. The archived report view is indicated by the presence of the red **Showing Archived** button at the top left of the **Report Manager**.

NOTE The **Showing Active** and **Showing Archived** buttons toggle between the active and archived views on the **Report Manager**. See "Archiving & Restoring Reports" on page 7-31 for more information.

Report States

Reports progress through various states after they are created. These states are listed in Table 1. The status of a report is displayed in the **Report Manager** under the **Status** column. See "Viewing, Filtering & Sorting The Report List" on page 7-24 for more information.

Table 1. Report States in the Sitelink3D v2 Report Manager

Report Status	Description
Pending	The report parameters entered on the relevant new report dialog are being collated for submission.
Submitted	The report has been submitted to Sitelink3D v2 for processing.
Queued	The report has been received by Sitelink3D v2 and is waiting to be processed.
Running	The report is running.
Canceled	The report was canceled by the User prior to completion.
Failed	An error occurred when running the report.
Completed	The report is finished and data is available to be viewed.
Completed, no results	The report is finished but no data matched the report parameters.

Identifying Common Report Types By Color

Report types that relate to common applications or purposes at a Site are color coded in the **Report Manager** for easy identification.

The following report types are colored in yellow under the Type column:

- Haul Report

- Delay Report.

Using A Filter To Narrow The Report List

As a Site may potentially have run a large number of reports, Sitelink3D v2 allows the visible reports in the **Report Manager** to be filtered for clarity. Filtering allows reports to be eliminated, based upon values entered for specific fields. The fields provided for filtering are:

- Issued At Date & Time
- Report Type
- Name
- Issued By
- Status.

Complex filtering is possible by chaining multiple filter terms together as described in "Using Filter Chaining To Further Narrow The Report List" on page 7-28. The following process describes how to restrict a report list using a single filter term:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Click on the filter icon to the left of the action bar to display the filter box as shown in Figure 7-21
3. Click on the **Click to add filter** area in the filter box above the list to display the fields that support filtering as shown in Figure 7-22
4. Click on the desired field to filter on as shown in Figure 7-22
5. Enter the term that the selected field should be narrowed by
   – For names, type the filter term in the filter box as shown in Figure 7-23
   – For complex types such as date and time fields, enter the filter term on the field specific popup provided.
6. Apply the filter
   – For names, press the enter key
   – For complex types such as date and time fields, click the **Apply** button.

The **Report Manager** will update the report list in accordance with the active filter term. For clarity, the filter term is displayed in blue in the filter box as shown in Figure 7-24.

NOTE The filter box cannot be hidden by clicking the filter icon when a filter is active. This avoids confusion arising from a filtered list being displayed without the associated filter expression also being visible.

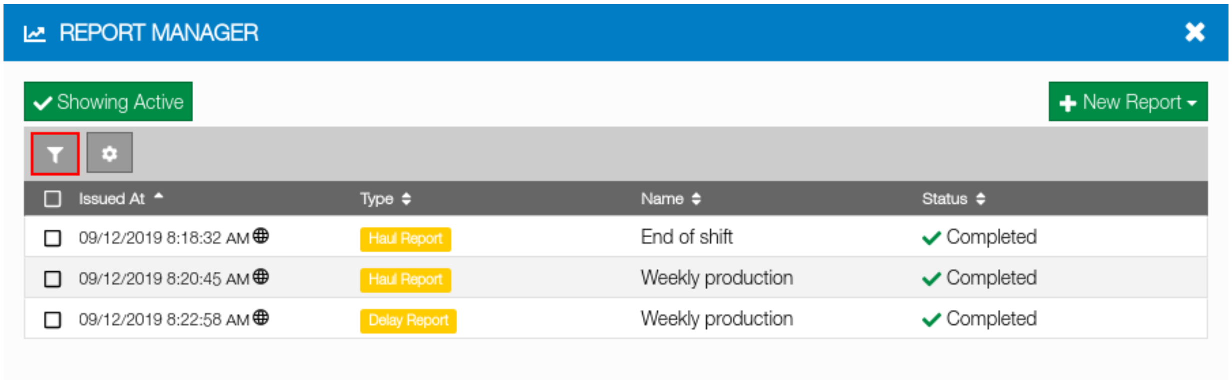

Figure 7-21: The Report Manager Filter Button

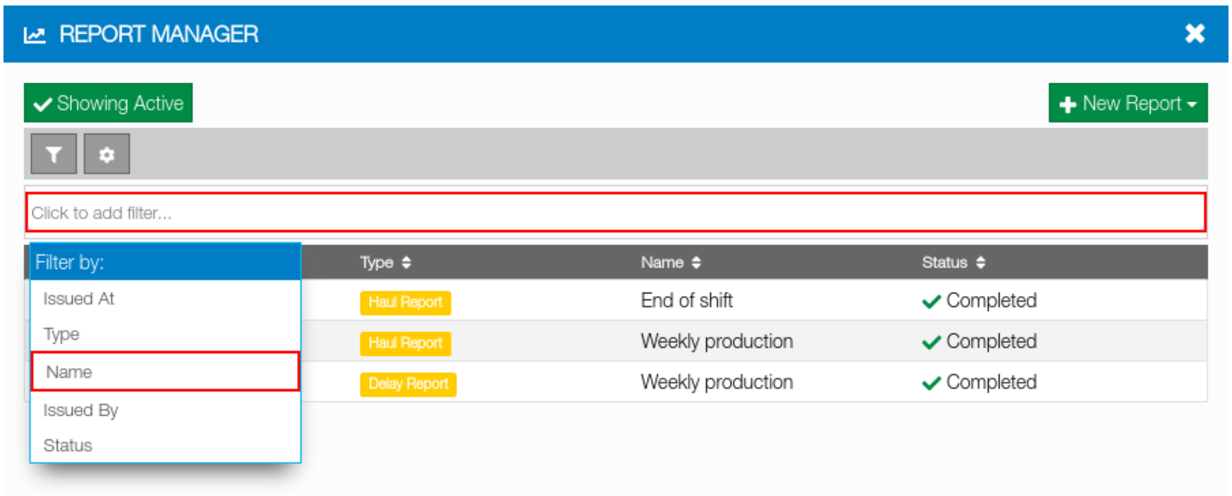

Figure 7-22: Selecting Filter Fields on the Report Manager

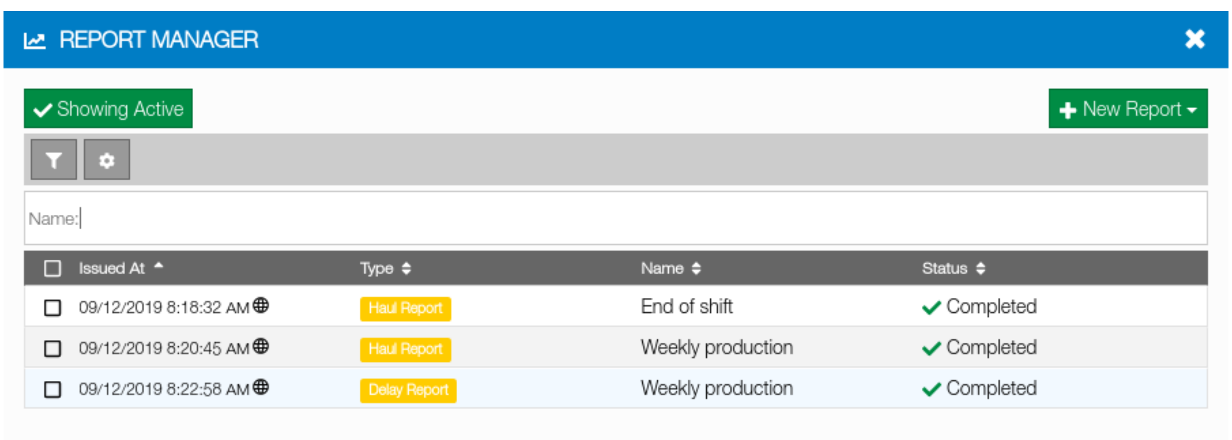

Figure 7-23: Entering a Report Name to Filter By on the Report Manager

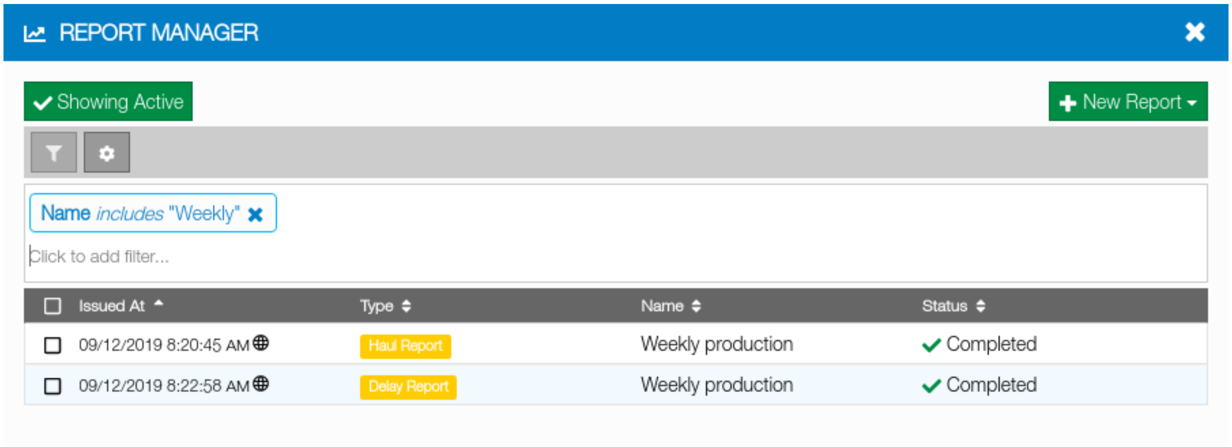

Figure 7-24: A Single Name Filter Applied to the Report Manager List

Using Filter Chaining To Further Narrow The Report List

The use of a single filter term as discussed in "Using A Filter To Narrow The Report List" on page 7-26 is suitable for most purposes. For times where more granular searches are required however, the **Report Manager** allows multiple search terms to be chained together.

Multiple search terms are applied with an "and" clause and hence act to restrict rather than broaden search results. The following process describes how to apply more than one filter term in the **Report Manager**:

1. Apply a single **Report Manager** filter as described in "Using A Filter To Narrow The Report List" on page 7-26
2. Click on the **Click to add filter** area in the filter box below the existing filter term to display the remaining fields that support filtering as shown in Figure 7-25
3. Click on the desired field to filter on noting that fields cannot be reused when chaining
4. Enter the term that the selected field should be narrowed by
   – For names, type the filter term in the filter box
   – For complex types such as date and time fields, enter the filter term on the field specific popup provided as shown in Figure 7-26.
5. Apply the filter
   – For names, press the enter key
   – For complex types such as date and time fields, click the **Apply** button as shown in Figure 7-26.

The **Report Manager** will update the report list in accordance with the active filter terms. For clarity, the chained filter terms are displayed in blue in the filter box as shown in Figure 7-27.

NOTE Each filter parameter can only appear once in a filter chain. Once active in an expression, a filter term is edited if selected again when clicking in the filter box.

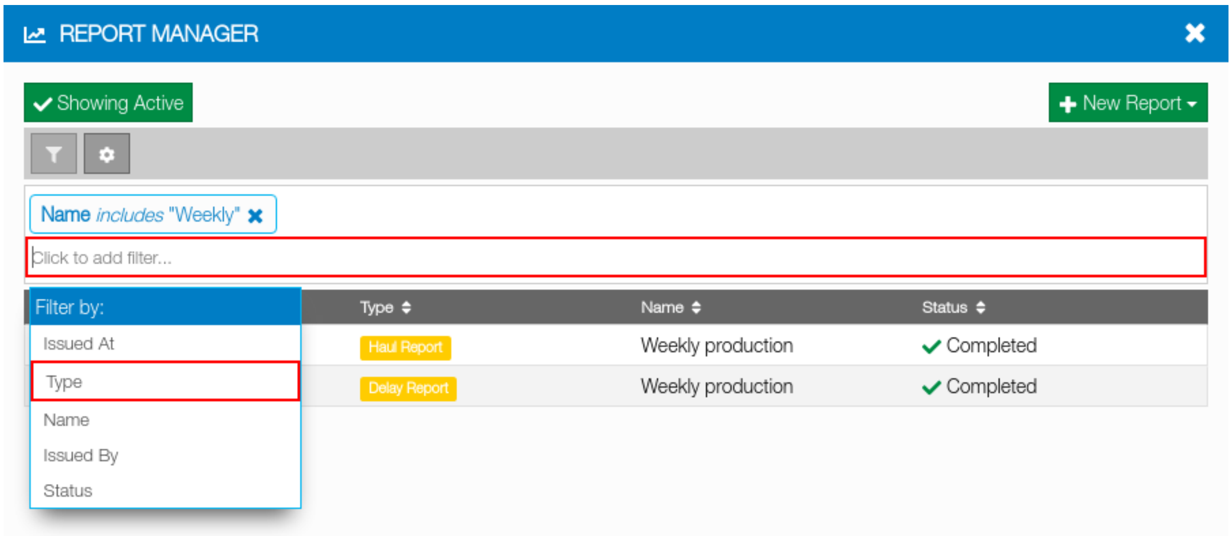

Figure 7-25: Adding a Second Filter Expression on the Report Manager

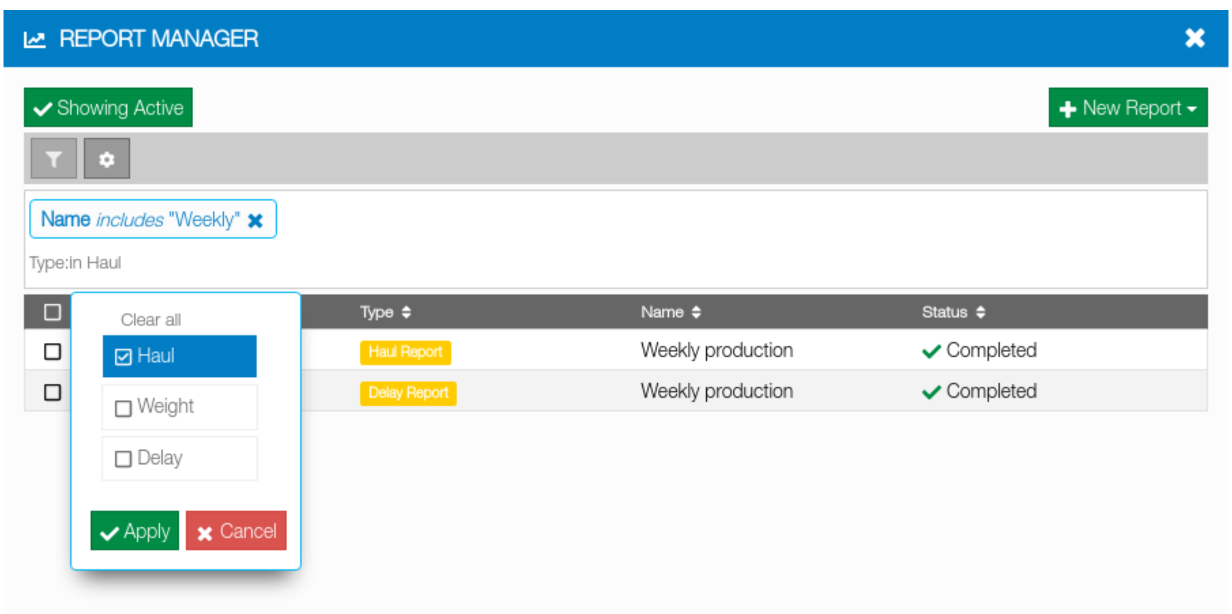

Figure 7-26: Entering a Report Type to Filter By on the Report Manager

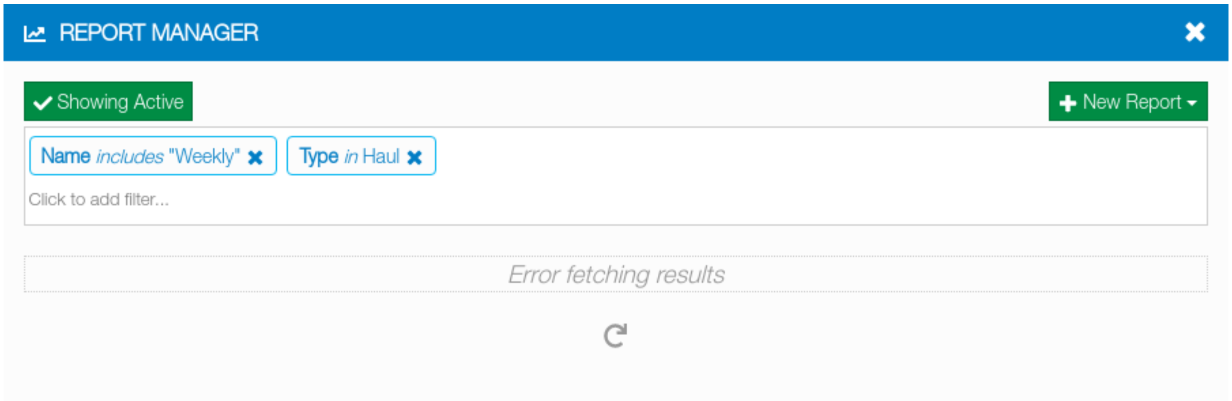

Figure 7-27: Filter Chaining on the Report Manager

Sorting The Report List

By default, the **Report Manager** lists reports in ascending issued order as shown in Figure 7-28. It can be useful however to list reports in an alternative ascending or descending order. Examples of such scenarios include:

- Finding the oldest reports for archival
- Displaying all reports of a particular type first.

The following process describes how to sort a report list:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Click on the column title matching the field to sort on as shown in Figure 7-28
3. Click again on the column title to switch between ascending and descending sort order.

The **Report Manager** will update the report list in accordance with the selected sort field and order. The direction of the arrow next to the column title indicates the current sort order.

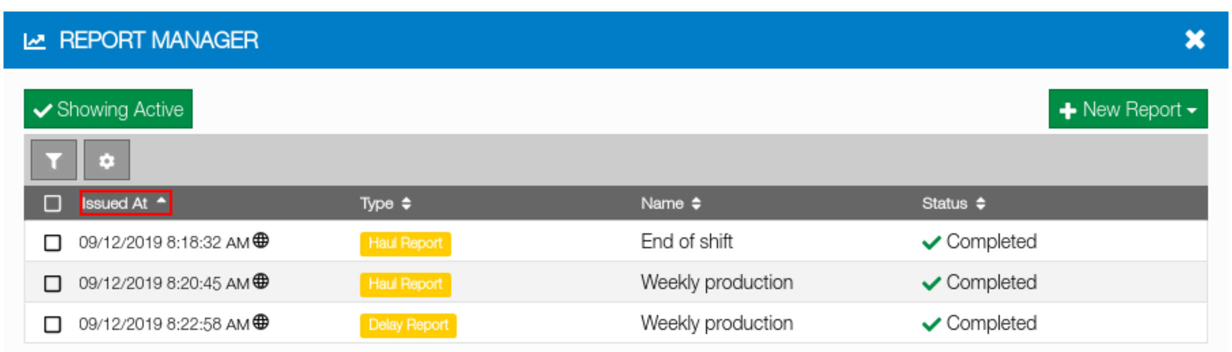

Figure 7-28: Reports Sorted By Issued At Time By Default on the Report Manager

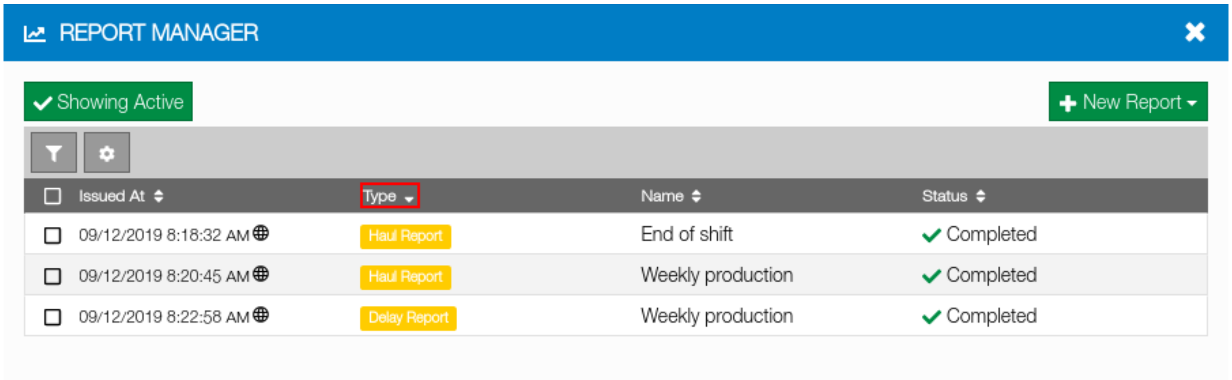

Figure 7-29: Reports Sorted By Descending Type on the Report Manager

Archiving & Restoring Reports

Archiving allows reports to be organized into two views. The active view only displays relevant or current reports. It is identified by a green **Showing Active** button at the top left of the **Report Manager** as shown in Figure 7-30. The archived view only displays irrelevant or dated reports. It is identified by a red **Showing Archived** button at the top left of the **Report Manager** as shown in Figure 7-31. The view is toggled by clicking on these buttons.

The distinction between active and archived reports is entirely at the User's discretion but archiving can be considered similar to deletion. Reports can be archived and restored without restriction but can only be viewed, copied and downloaded when active. This section describes how to archive and restore reports between these two views on the **Report Manager**.

NOTE Report archival and restoration is only available to Users with certain permissions. See "Understanding User Types" on page 3-1 for more information.

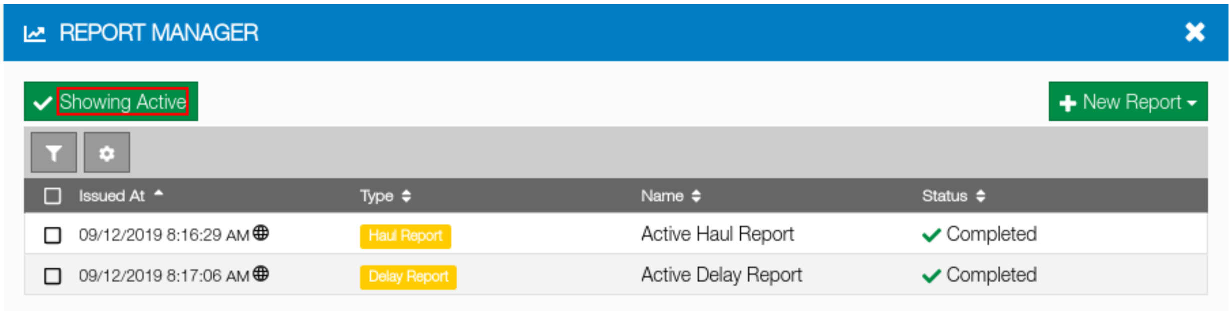

Figure 7-30: The Showing Active Button on the Report Manager

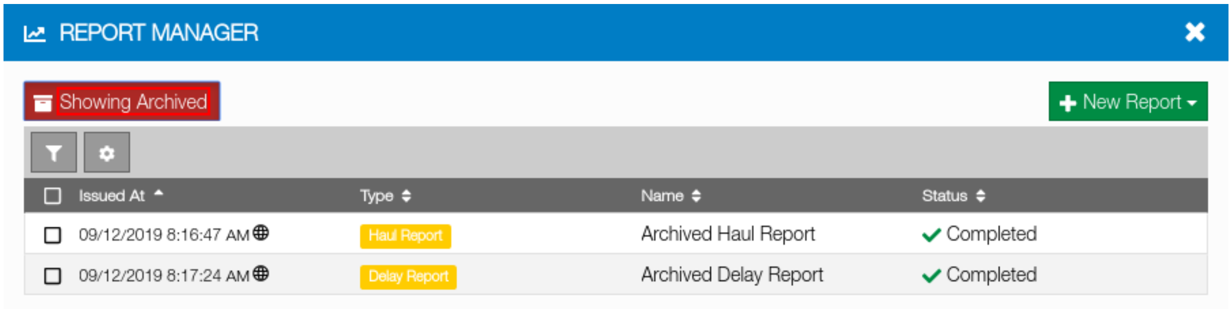

Figure 7-31: The Showing Archived Button on the Report Manager

Archiving Reports

Reports are archived using the **Report Manager** as described by the following process:

1. Open the **Report Manager** as described in “Opening The Report Manager” on page 7-10
2. Find the report to be archived
3. Click on the report to select it in the list and enable the action buttons in the action bar
4. Click on the red **Archive** button to the right of the action bar to as shown in Figure 7-32 to archive the report
5. Click **Confirm** when prompted to confirm the archival as shown in Figure 7-33.

The following will occur:

- The report will be immediately archived
- The report name will be removed from the active view in the **Report Manager**
- The report name will be added to the archived view in the **Report Manager**.

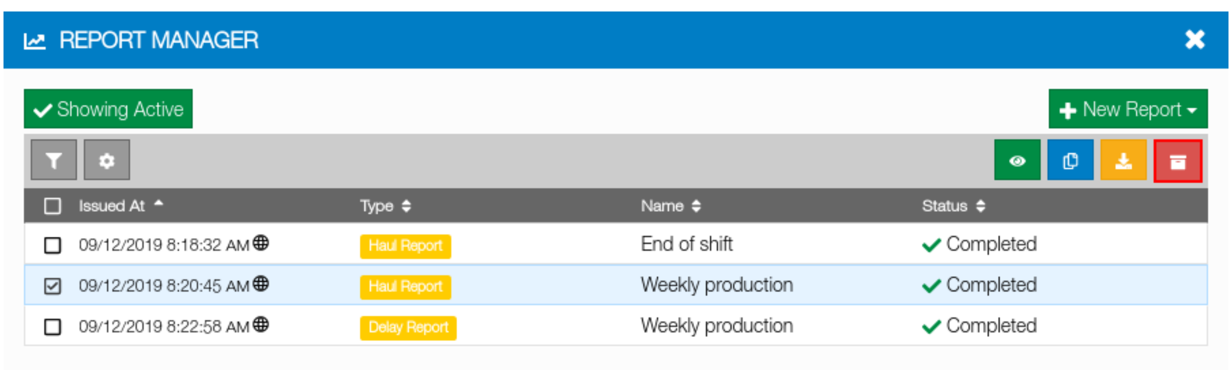

Figure 7-32: The Archive Report Button on the Report Manager

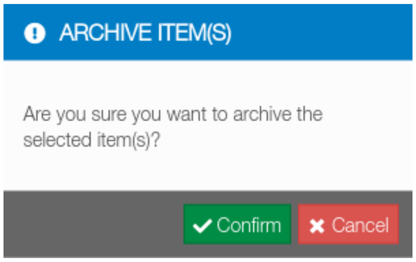

Figure 7-33: The Archive Report Confirmation Dialog

Restoring Reports

Reports can be restored using the **Report Manager** as described by the following process:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10
2. Click on the green **Showing Active** button as shown in Figure 7-30 to display the list of archived reports
3. Find the report to be restored
4. Click on the report to select it in the list and enable the action buttons in the action bar
5. Click on the green **Restore** button to the right of the action bar as shown in Figure 7-34 to restore the report
6. Click **Confirm** when prompted to confirm the restoration as shown in Figure 7-35.

The following will occur:

- The report will be immediately restored
- The report name will be removed from the archived view in the **Report Manager**
- The report name will be added to the active view in the **Report Manager**.

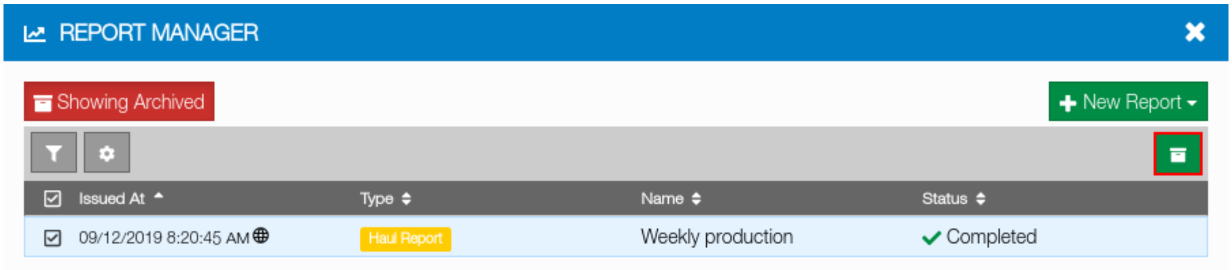

Figure 7-34: The Restore Report Link on the Report Manager

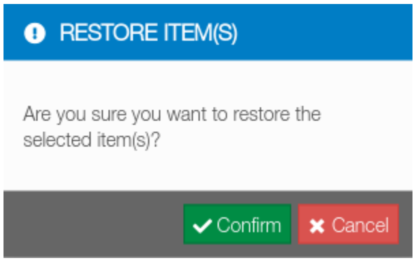

Figure 7-35: The Restore Report Confirmation Dialog

Configuring The Report Manager

The columns displayed when viewing reports in the **Report Manager** can be configured as shown in Figure 7-37. The following process describes how to configure the appearance of the **Report Manager** content panel Role list:

1. Open the **Report Manager** as described in "Opening The Report Manager" on page 7-10

2. Click on the cog icon to the left of the action bar to access the popup configuration as shown in Figure 7-36. This allows customization of the following:

    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable

    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder as shown in Figure 7-38

    c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection as shown in Figure 7-39.

3. Click the **Apply** button to save the selections.

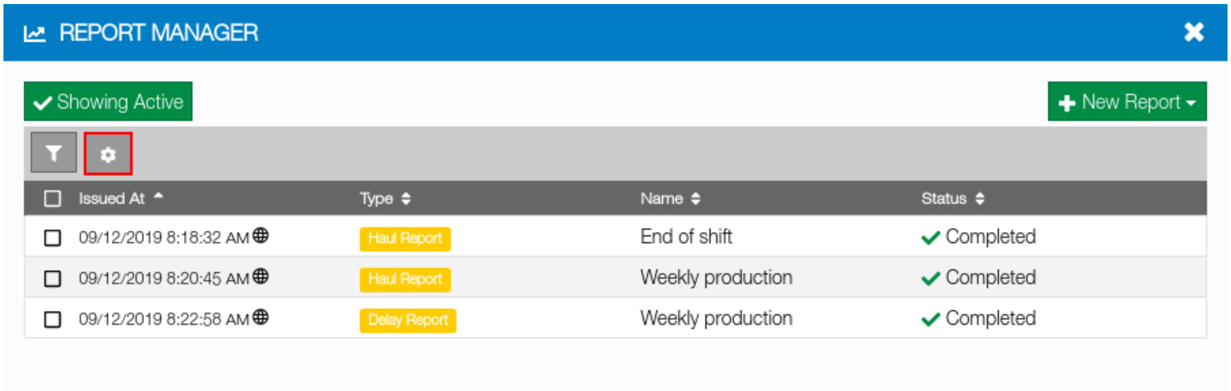

Figure 7-36: The Report Manager List Configuration Button

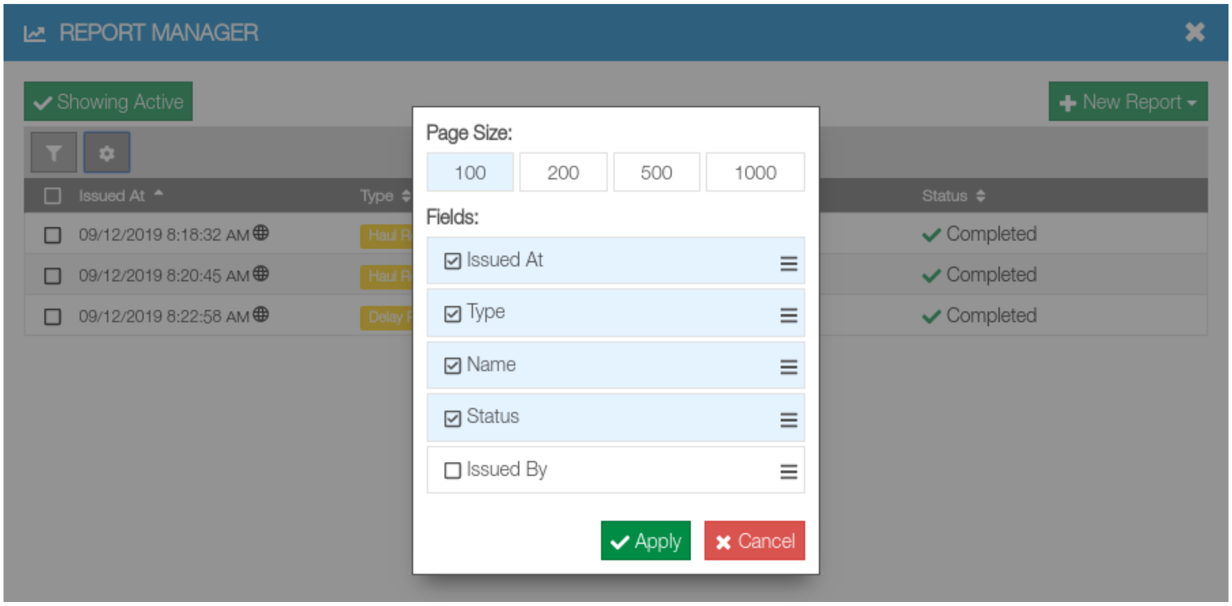

Figure 7-37: Configuring The Report Manager List

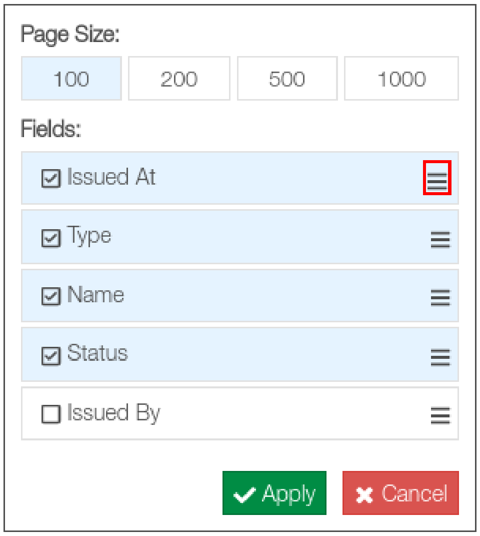

Figure 7-38: The Drag Handle for Configuring the Report Manager List Column Order

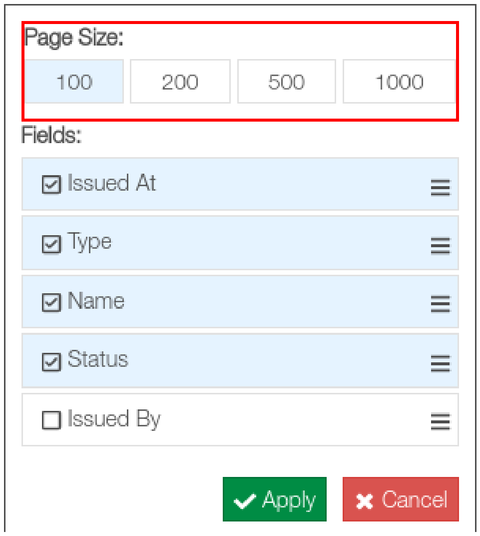

Figure 7-39: Configuring Pagination for the Report Manager List

Opening Report Results In The Browser

The most convenient way to view report results of any type is in the browser. Sitelink3D v2 displays report results under tabs in the Footer Bar. Depending on the report type, results viewed in this way support User interaction. This section describes how to open and interact with report results in a Footer Bar tab.

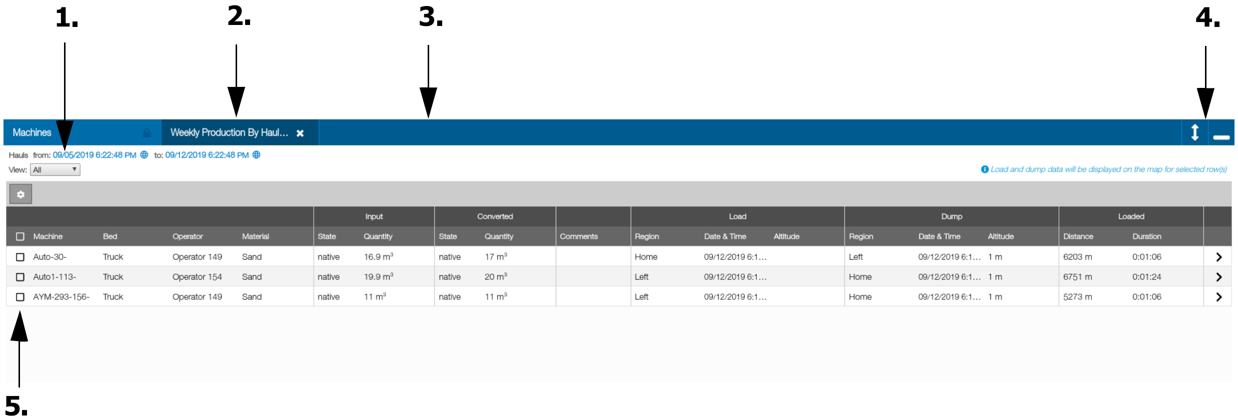

Figure 7-40: A Haul Report Viewed in the Footer Panel

1. The Report summary text and View Mode selection
2. A report tab
3. The Footer Bar
4. Footer Bar resize and minimize buttons
5. Report row selection checkboxes.

Opening Report Tabs In The Footer Bar

Report results are viewed under tabs in the Footer Bar. Every report that has produced results in the **Report Manager** can be viewed in this way. The Footer Bar can be collapsed or expanded. A collapsed Footer Bar saves space and allows better interaction with the map whereas an expanded Footer Bar allows report data to be viewed in the Footer Panel.

Open a report in the Footer Bar by clicking on the green **View** button in the **Report Manager**.

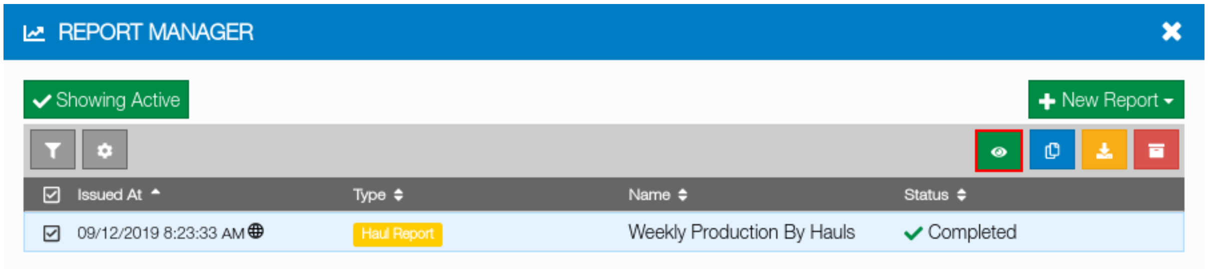

Figure 7-41: A row in the Report Manager with the view button highlighted in red

Opening An Existing Footer Bar Tab

An existing Footer Bar tab can be opened by clicking on the tab title. The Footer Bar will expand vertically to display the contents of the tab in the Footer Panel. The Footer Panel can then be resized if desired using the process described in "Resizing The Footer Panel" on page 7-37.

Opening A New Footer Bar Tab

A new Footer Bar tab is opened by clicking on the **View** button in the **Report Manager** as described in "Viewing Reports" on page 7-23

Closing Footer Tabs

Any tab that doesn't display a padlock icon can be closed by clicking on the cross button to the right of the tab. No data is deleted when a Footer Bar tab is closed.

Resizing The Footer Panel

The Footer Panel can be vertically resized by clicking and dragging the vertical arrow button to the right of the Footer Bar. The minimum and maximum vertical size is limited to allow for a responsive map.

Minimizing The Footer Panel

The Footer Panel can be minimized by clicking the minimize button to the far right of the Footer Bar. Minimizing the Footer Panel collapses the data displayed in the Footer Panel and maximizes the size of the map.

Viewing Haul Report Results

The purpose of viewing Haul Report data within Sitelink3D v2 is to visualize the Site wide activity of the tasks described in “Defining A Cycle” on page 7-6 at the time the report was run.

It is important to note that reports are valid at the time they are run and are not updated to accommodate changes such as new Metadata definitions or offline data becoming available.

The Haul Report is a sequence of rows representing each bed that was loaded and dumped and columns that jointly describe the details of the cycle as described in “Defining A Cycle” on page 7-6. This allows detailed inspection of bed activity as described in “Referring To Trucks & Trailers As Beds” on page 7-3

This section describes how to interpret Haul Report results viewed in Sitelink3D v2.

Viewing Haul Report Summaries

The top of every Haul Report displays a summary of its configuration as shown in Figure 7-42, Figure 7-43, Figure 7-44 and Figure 7-45. This includes

- The report type as described in “Understanding Report Types” on page 7-1
- The date and time range and the relevant timezone covered by the report
- Any applicable Operation and Grouped By selections as described in “Viewing Aggregated Results” on page 7-41

Hauls from: 09/05/2019 6:22:48 PM to: 09/12/2019 6:22:48 PM

Figure 7-42: A Haul Report Summary Formatted By Hauls in “View All” Mode

Cycles from: 09/05/2019 6:22:53 PM to: 09/12/2019 6:22:53 PM

Figure 7-43: A Haul Report Summary Formatted By Cycles in “View All” Mode

Average Hauls by Machine from: 09/05/2019 6:22:48 PM to: 09/12/2019 6:22:48 PM

Figure 7-44: A Haul Report Summary Formatted By Hauls in “View Aggregate” Mode

Average Cycles by Machine from: 09/05/2019 6:22:53 PM to: 09/12/2019 6:22:53 PM

Figure 7-45: A Haul Report Summary Formatted By Cycles in “View Aggregate” Mode

Using Haul Report View Modes

Haul Report results can be viewed in two different modes. These modes are selected by controls underneath the report summary text when viewed in the Footer Panel and are labeled:

- All
- Aggregate.

The View Mode selection is represented in the report summary text as described in "Viewing Haul Report Summaries" on page 7-38.

Viewing All Results

The "View All" mode allows the complete content of the Haul Report to be viewed directly. This mode is best used when a detailed view of report results is required.

The data displayed for each haul is configurable as described in "Configuring The Report View" on page 7-39 and contains all fields listed in "Haul Reports" on page 7-2.

Converted quantities are always displayed in the default state in the Site units appropriate for the report. The Report summary text will start with either Hauls or Cycles depending on the report configuration as shown in Figure 7-46.

Figure 7-46: A Haul Report Summary in "View All" Mode

Configuring The Report View

The columns displayed when viewing all Haul Report results can be configured as shown in Figure 7-47. The following process describes how to configure the appearance of the Haul Report list:

1. Open the Haul Report as described in "Viewing Reports" on page 7-23
2. Select `All` as the View Mode
3. Click on the cog icon to the left of the action bar to access the popup configuration as shown in Figure 7-47. This allows customization of the following:
    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable
    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder
    c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.
4. Click the **Apply** button to save the selections.

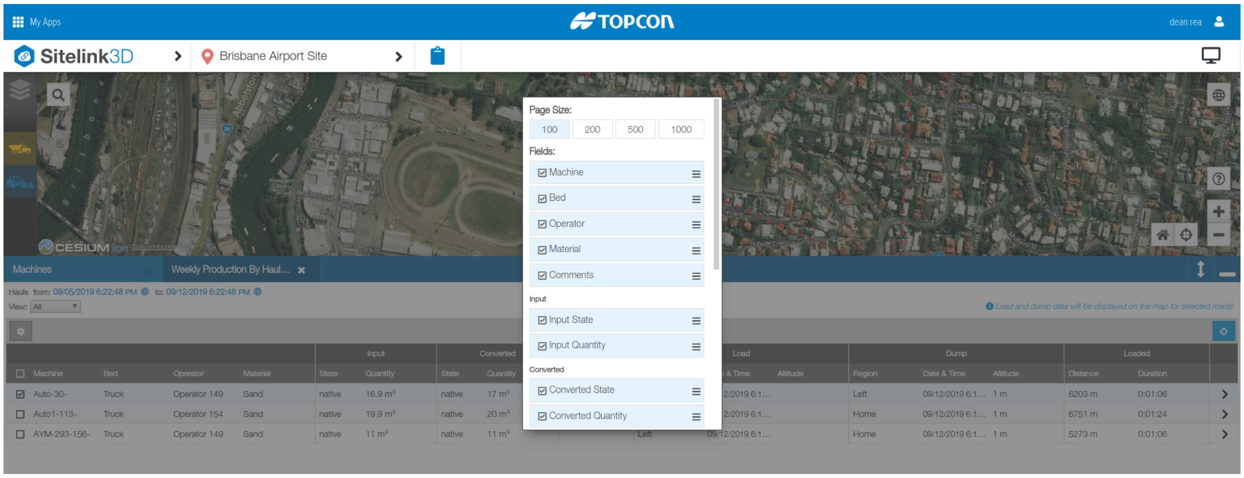

Figure 7-47: Haul Report View Configuration

Identifying Matched Beds

Each row of data represents a haul that an individual bed participated in. A haul truck configured with two trailers would hence produce three rows per haul.

Because there is a relationship between beds that travel together, Sitelink3D v2 matches these rows in the following ways:

- Row colors are alternated according to how they are matched
- Matched rows are selected together when clicked.

Expanding Rows To Display Haul Details

The visible columns in a Haul Report can be restricted using the process described in "Configuring The Report View" on page 7-39. Reducing the visible columns can make reports easier to view but comes at the cost of eliminating the information immediately at hand.

To accommodate this, the full data associated with any Haul Report row can be viewed by clicking on the arrow to the right of any Haul Report row as shown in . Doing so expands a details area underneath the row as shown in Figure 7-49.

This feature allows detailed haul data to be easily toggled into view without requiring all available columns to be constantly visible.

Each report row can be expanded for access to full detail irrespective of the column filtering currently applied. This is achieved by clicking on the expand chevron at the right of the appropriate row.

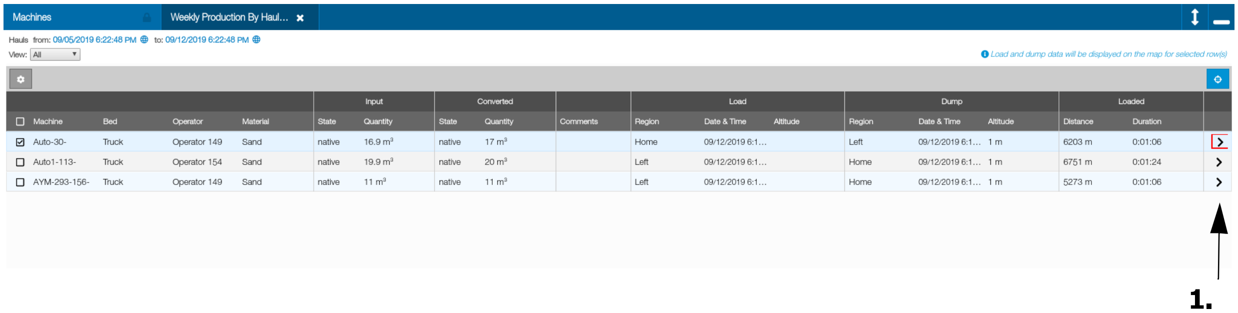

Figure 7-48: Report Row Expand Button Highlighted in Red to the Right of the Selected Row

1. Row expansion arrow buttons allow grouped report rows to be vertically expanded to show haul details.

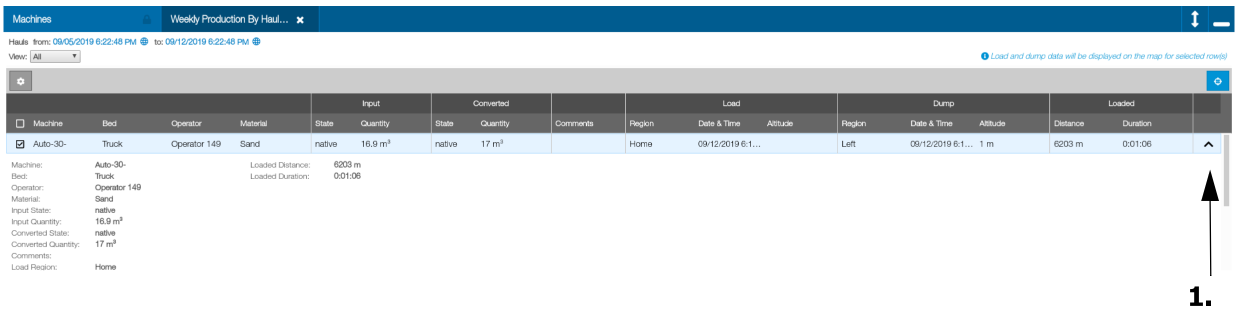

Figure 7-49: Report Row Expanded

1. Row contraction arrow buttons allow grouped report rows to be vertically contracted to hide haul details.

Viewing Aggregated Results

The “View Aggregate” mode allows Haul Report results to be grouped in various ways to provide logical views of the activity within the report. Aggregate mode allows the following selections to be made:

- Group By
- Operation

When viewing aggregated results, report data is packaged into the following column bundles:

- Information about the parameter that data is being grouped by
- The distance and duration that the grouped parameter was in the loaded state
- Distance and duration when in the empty state if applicable
- Information about the grouped parameter

The Report summary text will start with “Average” and will indicate the group by selection as shown in Figure 7-50.

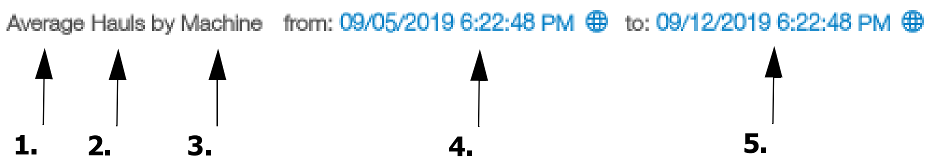

Figure 7-50: A Haul Report Summary in Aggregate Mode Grouped By Machine

1. "View Aggregate" mode is indicated by "Average" appearing at the start of the Report summary text
2. Report format option as described in "Creating A New Haul Report" on page 7-12
3. The aggregate grouping as described in "Selecting An Aggregate Grouping" on page 7-42
4. The start date and time for the report data
5. The end date and time for the report data.

Configuring The Aggregated Haul Report View

The following process describes how to configure the appearance of the Haul Report list when viewing aggregated Haul Report results:

1. Open the Haul Report as described in "Viewing Reports" on page 7-23
2. Select `Aggregate` as the View Mode
3. Click on the cog icon to the left of the action bar to access the popup configuration. This allows customization of the following:
    a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable
    b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder
    c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.

Click the **Apply** button to save the selections.

Selecting An Aggregate Grouping

Grouping is a way to view Haul Report results indexed by a selected parameter. Haul Report results can be grouped by the following parameters:

- Machine
- Material
- Operator
- Load Region
- Dump Region.

Selecting An Aggregate Operation

When viewing aggregated results, the operation selection allows distances and durations to be viewed cumulatively or averaged by the value in the count column. The available operation options are:

- Average
- Total.

Expanding Rows To Display Rows That Were Aggregated

The data that contributes to aggregated result rows can be displayed by clicking on the magnifying glass icon to the right of the aggregated row.

Relating Haul Report Columns To Haul Cycle Activity

Haul Report results allow the tasks described in "Defining A Haul" on page 7-3 and "Defining A Cycle" on page 7-6 to be quantified and visualized. This section describes how to relate Haul Report results to activity at a Site.

NOTE Refer to "Configuring The Report View" on page 7-39 to ensure that the columns referenced in this section are visible.

Columns Related To Loading Material Into Beds

Data associated with loading beds as described in "Loading Beds" on page 7-4 can be viewed in the following Haul Report columns:

- Material
- Operator
- Machine
- Load Comments
- Input State
- Input Quantity
- Load Region
- Load Date & Time
- Load Altitude.

The Material input quantity, measurement system and units are determined as described in "Recording Loaded Material State As Input In A Haul Report" on page 7-46. The altitude of the load is displayed in the unit system and precision configured for distance at the Site. See "Configuring Site Units & Display Precision" on page 2-26.

NOTE See "Understanding Input & Converted Material Quantities" on page 7-45 for information on how Materials are tracked in Sitelink3D v2.

The load time is referenced to the Site timezone as described in "Configuring Site Location & Timezone" on page 2-26. This timezone can be identified by hovering the mouse over the globe icon next to the load time.

Columns Related To Hauling Material

Data associated with hauling beds as described in "Hauling Beds To A Dump Region" on page 7-5 can be viewed in the following Haul Report columns:

- Loaded Distance
- Loaded Duration.

The distance of the haul is displayed in the unit system and precision configured for distance at the Site. See "Configuring Site Units & Display Precision" on page 2-26. The duration of the haul is displayed in hours, minutes and seconds.

Columns Related To Dumping Material From Beds

Data associated with dumping material from beds as described in "Dumping Beds" on page 7-5 can be viewed in the following Haul Report columns:

- Converted State
- Converted Quantity
- Dump Comments
- Dump Region
- Dump Date & Time
- Dump Altitude.

The converted Material quantity and units are determined as described in "Converting Loaded Material State To Output In A Haul Report" on page 7-46 and are displayed in the measurement type selected when the Report was created. The altitude of the dump is displayed in the unit system and precision configured for distance at the Site. See "Configuring Site Units & Display Precision" on page 2-26.

The load time is referenced to the Site timezone as described in "Configuring Site Location & Timezone" on page 2-26. This timezone can be identified by hovering the mouse over the globe icon next to the load time.

NOTE See "Understanding Input & Converted Material Quantities" on page 7-45 for information on how Materials are tracked in Sitelink3D v2.

Columns Related To Returning For Reload

Data associated with returning empty beds to be loaded as described in "Returning To A Load Region" on page 7-6 can be viewed in the following Haul Report columns:

- Empty Distance

- Empty Duration.

The distance of the return is displayed in the unit system and precision configured for distance at the Site. See "Configuring Site Units & Display Precision" on page 2-26. The duration of the return is displayed in hours, minutes and seconds.

NOTE These columns are only available when reports are formatted by cycles. See "Creating A New Haul Report" on page 7-12 for more information.

Columns Related To Reloading Material Into Beds

Data associated with reloading beds as described in "Reloading Beds" on page 7-7 can be viewed in the following Haul Report columns:

- Cycle Distance
- Cycle Duration.

The distance of the entire cycle is displayed in the unit system and precision configured for distance at the Site. See "Configuring Site Units & Display Precision" on page 2-26. The duration of the entire cycle is displayed in hours, minutes and seconds.

NOTE These columns are only available when reports are formatted by cycles. See "Creating A New Haul Report" on page 7-12 for more information.

Understanding Input & Converted Material Quantities

The physical state of a Material impacts how it is quantified. For example:

- Wet Material weighs more than dry Material
- Loose Material occupies more volume than compacted Material.

Sitelink3D v2 accommodates the various states a single Material can take in the following ways:

- Recording the state a Material is in when loaded into a bed
- Converting these varied Material states into a consistent default state for reporting.

Converting variable and inconsistent states when Material is hauled into a uniform default state in a Haul Report allows Material movement to be compared and quantified consistently. This conversion removes the effects of weather conditions, bulking factors and other physical considerations at the time the Material was hauled.

This section describes how Sitelink3D v2 calculates and displays consistent default Material states and quantities in Haul Reports. See "Working With Materials" on page 5-13 for information about configuring Materials to support state conversion in the **Metadata Manager**.

Recording Loaded Material State As Input In A Haul Report

Material state and quantity is recorded by the Haul Truck mobile application when a bed is loaded as shown in Figure 7-51. This information populates the Input State and Input Quantity Haul Report columns as described in "Columns Related To Loading Material Into Beds" on page 7-43. Material inputs are hence raw measurements that have not had any conversions applied.

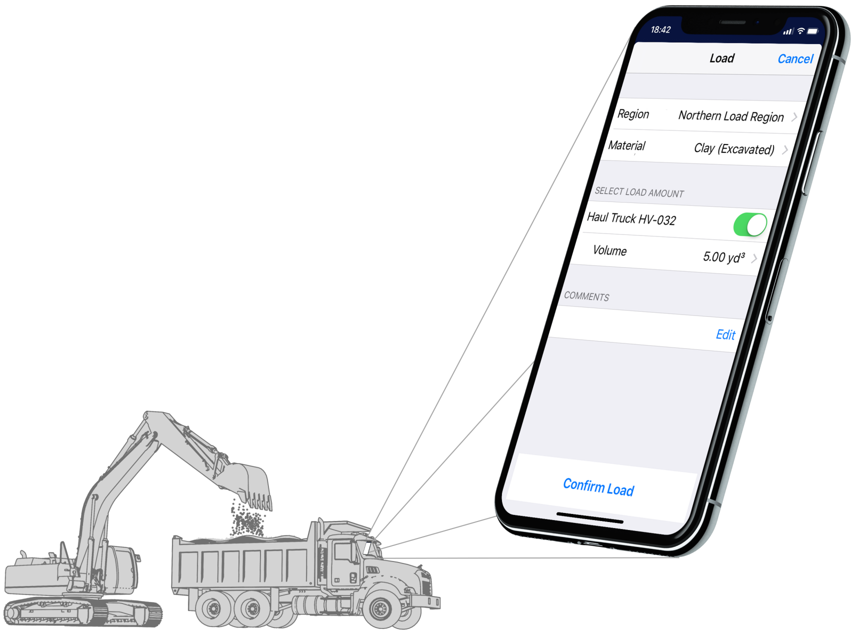

Figure 7-51: Material Inputs Reported By the Haul Truck Mobile Application Load Screen

Because Material inputs reflect what is actually being hauled at a Site, they are useful for many purposes including the following:

- Understanding the condition of Material being hauled for quality assurance purposes
- Mitigating environmental factors, such as dust, associated with the Material state
- Monitoring fuel usage by measuring real world quantities rather that converted equivalents.

The input state and measurement units for a Material are configured as a property of the material in the **Metadata Manager**. See "Configuring Haul Settings For A Material" on page 5-17 for more information.

Converting Loaded Material State To Output In A Haul Report

Sitelink3D v2 removes the effects of Material bulking and input state variation to provide a consistent view of Material movement at Site. This information populates the Converted State and Converted Quantity Haul Report columns as described in "Columns Related To Dumping Material From Beds" on page 7-44.

Normalization by Material state is achieved by applying the state's conversion factor configured when a Material is created or edited. Material outputs are hence conditioned quantities that have had conversions applied and are suitable for comparison between hauls.

Because Material outputs reflect a corrected view of Material being hauled at a Site, they are useful for many purposes including the following:

- Measuring absolute quantities of homogeneous Material for invoicing purposes
- Monitoring shift activity to track production estimates.

The purpose of the converted quantities is to refer to Materials in a consistent homogeneous reference state referred to as the Default State.

NOTICE	Converted Haul Report results will be blank for hauls where a conversion from the input state to the Default State has not been configured.

Viewing Loads, Hauls & Dumps On The Map

The haul tasks as described in "Defining A Haul" on page 7-3 and "Defining A Cycle" on page 7-6 can be pictured on the Sitelink3D v2 map directly from a Haul Report.

This is an effectively way to visualize the following for every haul on Site:

- Where beds were loaded
- The path the beds traveled when loaded
- Where beds were dumped
- The path the beds traveled when empty

The physical locations of Load and Dump Events are visualized on the map using blue up arrows and red down arrows respectively. The paths beds travel when loaded and empty are visualized on the map with blue and red dashed lines respectively.

The physical locations at which a bed was loaded and dumped can be pictured on the map directly from the report using the following process:

1. Create a new Haul Report as described in "Creating A New Haul Report" on page 7-12
2. Open the Haul Report in the browser as described in "Opening Report Results In The Browser" on page 7-36
3. Click on a report row that represents the haul or cycle to be displayed on the map

Sitelink3D v2 will overlay the selected haul activity on the map as shown in Figure 7-52 and Figure 7-53. The map can be zoomed and panned as desired to best visualize these overlays.

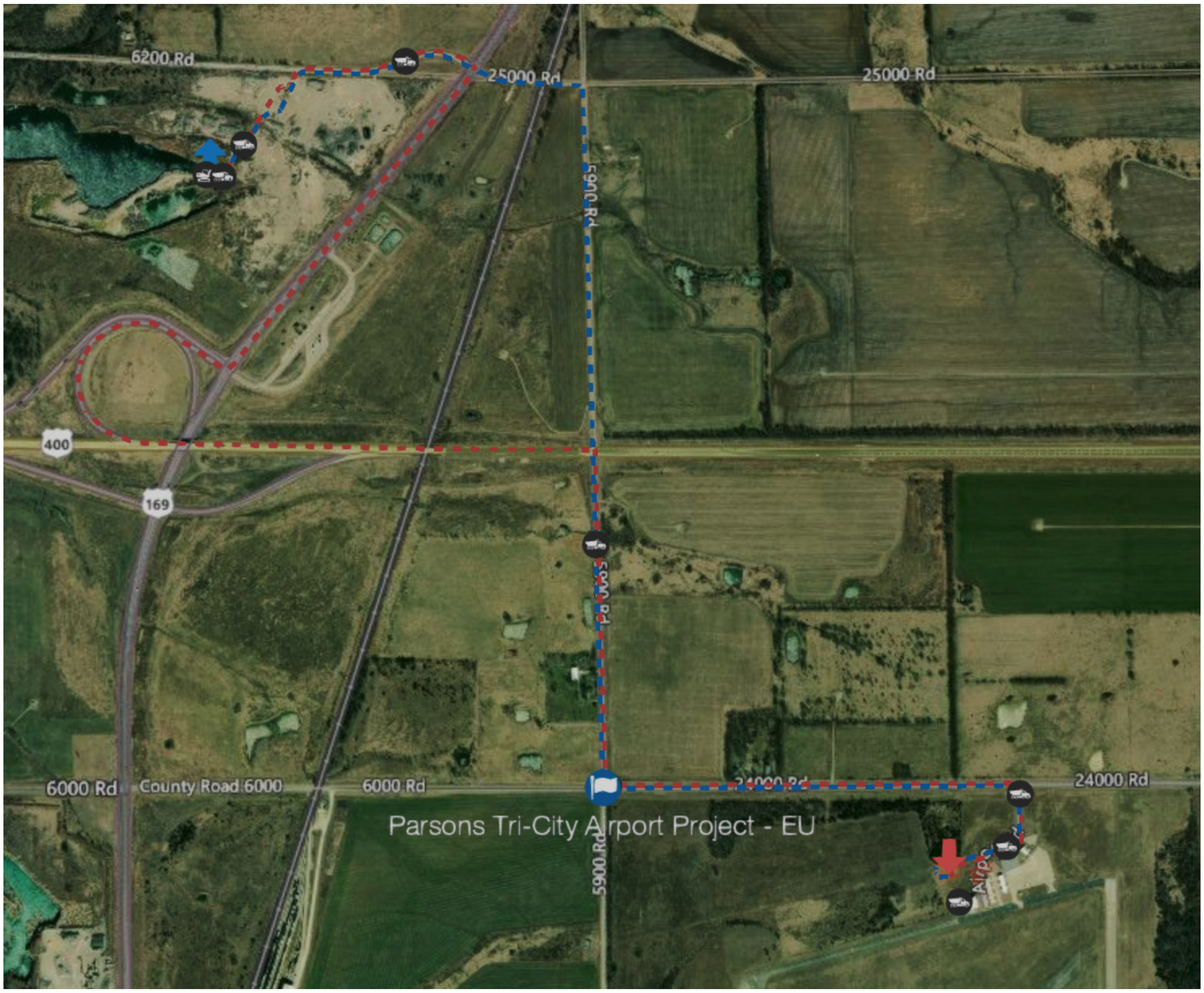

Figure 7-52: Visualizing Haul Report Load, Dump & Haul Route Locations on the Map

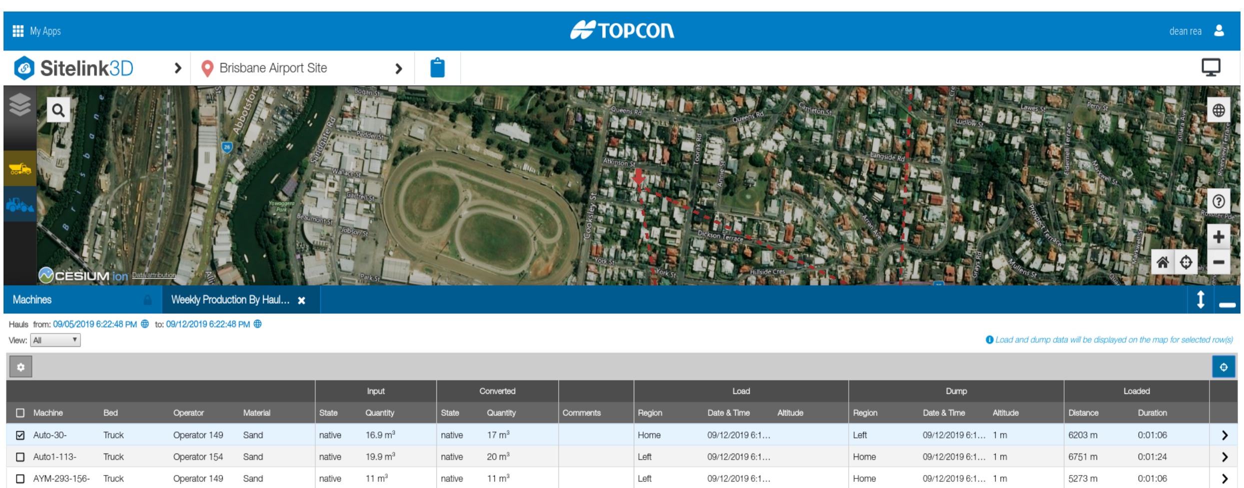

Figure 7-53: A Haul Report Showing a Specific Haul Selected and Viewed on the Map

Viewing Delay Report Results

The purpose of viewing Delay Report data within Sitelink3D v2 is to easily identify work flow stoppages. The Delay Report is a sequence of rows representing each occurrence of a Delay and columns that jointly describe the details of the Delay. This section describes how to interpret Delay Report results viewed in Sitelink3D v2

Viewing A Report Summary

The top of every Delay Report displays a summary of its configuration. This includes

- The report type as described in “Understanding Report Types” on page 7-1
- The date and time range and the relevant timezone covered by the report

Viewing Results

Unlike Haul Reports, Delay Reports do not require a View Mode to be selected. Delay reports always display the complete content of the Delay Report.

The data displayed for each delay is configurable as described in “Configuring The Delay Report View” on page 7-49 and contains the following:

- The Delay name
- The Machine name
- The Machine operator
- The date and time that the Delay started
- The date and time that the Delay ended
- The cumulative distance that the machine moved while in the Delay
- The duration that the machine was in the Delay.

Configuring The Delay Report View

The columns displayed when viewing all Delay Report results can be configured. The following process describes how to configure the appearance of the Delay Report list:

1. Open the Delay Report as described in “Viewing Reports” on page 7-23
2. Click on the cog icon to the left of the action bar to access the popup configuration. This allows customization of the following:
   a. **The columns displayed:** Click on the checkbox associated with a column to enable or disable

b. **The order in which the columns appear:** Click and drag the horizontal bars associated with a column to reorder

c. **The number of list entries fetched from the server at once:** Click on the appropriate Page Size selection.

3. Click the **Apply** button to save the selections.

Expanding Rows To Display Delay Details

The visible columns in a Delay Report can be restricted using the process described in "Configuring The Delay Report View" on page 7-49. Reducing the visible columns can make reports easier to view but comes at the cost of eliminating the information immediately at hand.

To accommodate this, the full data associated with any Delay Report row can be viewed by clicking on the chevron to the right of any Delay Report row. Doing so expands a details area underneath the row. This feature allows detailed delay data to be easily toggled into view without requiring all available columns to be constantly visible.

Glossary

A

Access Code – The numeric Site Key field used to gain access to Sites on client devices. See "Creating A Site Key For An Existing Site" on page 2-29.

Action – The minimum granularity of security access that comprises Site and Organization Roles for the purpose of granting Users and User Groups access to Sitelink3D v2 functionality in the **User Manager**.

Activity – A description of a task added in the **Metadata Manager** and selected on a Client Device.

Administrator User – A type of Topcon Enterprise User with unrestricted Sitelink3D v2 access. See "Understanding User Types" on page 3-1

Archiving – A scheme where data is flagged as inactive and hidden from view rather than being deleted.

As-built – A technology for tracking live surface manipulation as machines work to a design.

Asset – A category of Metadata that describes a resource connected to a Sitelink3D v2 Site. Assets are distinguished by type such as Machine or Device.

Auto-load – The automatic detection of Material being loaded into a haul truck by the Haul Truck mobile application when in suitably configured Regions. See "Configuring Haul Settings For A Region" on page 5-11

Auto-dump – The automatic detection of Material being dumped from a haul truck by the Haul Truck mobile application when in suitably configured Regions. See "Configuring Haul Settings For A Region" on page 5-11

B

Bed – A truck or trailer capable of carrying Material. Beds carry homogeneous material, can be partly filled but are always considered fully dumped.

Bulking Factor – See Swell Factor.

C

Cell Size – An As-built configuration determined by work type. See "Entering General Site Information" on page 2-6.

Client – The Device running Sitelink3D v2 compatible software. Examples include 3DMC and the Haul Truck mobile application.

Color Map – A color range definition used to display target based gauges on Live Statistics Widgets.

Color Map Type – An interpretation of a Color Map where color bands can be either symmetric or asymmetric around a target value.

Converted State – A Material state normalized for Swell Factor and environment used to represent compatible quantities in Haul Reports and Live Statistics Widgets. See "Converting Loaded Material State To Output In A Haul Report" on page 7-46.

D

Database – See Metadata.

Default State – (Material)

Delay – A category of Metadata describing disruptions on a Site. See "Working With Delays" on page 5-7

Design Object – Surveyed data used for site visualization or Machine control.

Device – A type of asset representing the platform running Sitelink3D v2 enabled software. Devices are distinguished by class and include iOS, Android and on-board-weighing.

Discovery ID – The alphanumeric string used to connect devices to a Site without Site Discovery. See "Finding The Site Discovery Identifier" on page 2-43.

Dump Event – An occurrence of a haul truck dumping Material which is represented by a message sent by the Haul Truck mobile application to Sitelink3D v2.

Dump Region – A Region configured for the purpose of being a source of Dump Events.

F

File Manager – The Sitelink3D v2 dialog where files can be uploaded and design objects, Localization and Regions imported.

Footer Bar – The blue bar at the bottom of the web portal containing tabs for viewing Machine and report details.

Footer Panel – The area under the Footer Bar that displays Machine and report data when the Footer Bar is expanded.

H

Haul Settings – Color coded configurations that add additional haul specific functionality to some categories of Metadata. See "Configuring Haul Settings For A Region" on page 5-11 and "Configuring Haul Settings For A Material" on page 5-17

Haul Truck – The vehicle with a bed for Material movement or capable of hauling trailers with Material beds.

L

Live Statistics – A technology for visually comparing specific work metrics with expected shift targets.

Load Event – An occurrence of a haul truck being loaded with Material which is represented by a message sent by the Haul Truck mobile application to Sitelink3D v2.

Load Region – A Region configured for the purpose of being a source of Load Events.

Localization – The mathematical mapping relating the GPS earth centered, earth fixed reference frame to local grid coordinates used by devices on Site.

M

Machine – A type of asset representing plant capable of doing work. Machines are distinguished by class and include compacting roller, excavator or truck.

Map Overlay – A category of visual annotation that adds context to the map. See "Displaying Design Objects On The Map" on page 5-20.

Material – A category of Metadata describing the physical properties of material handled on Site.

Member User – A type of Topcon Enterprise User with restricted Sitelink3D v2 access. See "Understanding User Types" on page 3-1.

Metadata – Data such as Region and Operator definitions that provides context to a Site. See "Overview" on page 5-1 for more information.

O

Opacity – The range of color transparency that a Region is displayed with on the map.

Operator – A category of Metadata describing the name of an individual that can be optionally used to better annotate Site activity.

Organization – A legal entity that creates Sitelink3D v2 Sites and consumes Sitelink3D v2 services.

Organization Role – A collection of Actions that permit Users to access Organization level Sitelink3D v2 functionality. See "Working With Organization Roles" on page 3-36.

Owner Key – A code that proves Site ownership and allows consumption of Sitelink3D v2 services.

P

Parameter Filter – A control that allows reports and Live Statistics Widget data to be restricted based on a selection of Metadata of various types. See "Restricting New Reports With Parameter Filters" on page 7-21

Permission – The ability to access certain Sitelink3D v2 functionality as the result of assigning a User or a User Group to a Role.

R

Region – A category of Metadata describing colored areas on the map that support various usage properties. See "Working With Regions" on page 5-9.

Remote Control – A Remote Support action enabling access to a Client Device for the purpose of remotely controlling the software from the support desk.

Remote View – A Remote Support action enabling access to a Client Device for the purpose of viewing the software display from the support desk.

Report Manager – The Sitelink3D v2 dialog where reports can be generated and downloaded.

Revert – The process of loading a previous version of Metadata.

Role – A collection of Actions. See Organization Role and Site Role.

S

Service Points – The unit of billing used by Sitelink3D v2. Consumption of Service Points as services are used replaces the old subscription based billing model.

Shift Plan – A category of Metadata describing the breakdown of a working week and used to configure Live Statistics Widgets that know how to interpret live Site activity.

Site Discovery – Technology new to Sitelink3D v2 that allows Clients to browse and connect to Sites in their vicinity using GPS enabled equipment such as a mobile phone. See "Site Discovery" on page 1-1.

Site File – A file with a TS3 extension that packages Site Working Sets and Metadata for installation into an offline Client Device. See "Exporting Site Files For Offline Client Use" on page 2-48.

Site Key – Named, time limited PIN codes that allow Clients to connect to Sitelink3D v2 Sites. See "Creating A Site Key For An Existing Site" on page 2-29.

Site Remote Support – A category of Remote Support providing automatic desk pairing when a Device joins a Sitelink3D v2 Site but is unavailable when the device joins another Site. See "Providing Site Remote Support" on page 2-60

Site Role – A collection of Actions that permit Users to access various Sitelink3D v2 functionality at a specific Site. See "Working With Site Roles" on page 3-19.

Site Settings – The configuration available on the **Edit Site Settings** dialog.

Site Type – A categorization of Site allowing Administrator Users to favor either economy or functionality. See "Understanding Site Types" on page 2-1.

Support Desk – A term used to describe parties wishing to remotely access Client Devices for the purposes of providing support. These parties could range from OEMs to after-market sellers to support partners.

Swell Factor – See "Understanding Material Bulking Factors & States" on page 5-14

T

Target – A value quantifying expected work on a Live Statistics Widget.

Target Client – The device type selected when generating an SL3 Site file.

U

User – An individual authorized to use the Sitelink3D v2 web portal. See "Understanding User Types" on page 3-1.

User Group – An optional collection of Sitelink3D v2 Users who share some common attribute. See "Simplifying Role Assignments With User Groups" on page 3-51

Site Manager – A default Site Role. See "Using Default Site Roles" on page 3-34

User Preference – User customizable settings that tailor the look and behavior of Sitelink3D v2. See "User Preferences" on page 3-59.

V

View Mode – A Haul Report feature that allows data to be viewed with various aggregation options.

W

Widget – A configurable window accessible via the sidebar used to view Live Statistics. See "Getting To Know Live Statistics Widgets" on page 6-1.

Working Set – A collection of Site data required to perform work on a Client Device. See "Using Working Sets To Sync Data To Machines" on page 5-22 for more information.

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