



Chapter 3

Querying spatial data in Munsys

Introduction

This chapter describes the various query options that are available in Munsys, with particular reference to:

- using the Munsys Query palette
- the different objects that can be queried from the database
- specifying and creating a Geographic Search Criteria (GSC)
- adding a spatial view
- querying cadastral data from the database, using both the Query palette and the Query menu
- browsing information
- showing information about spatial objects using the Munsys Info palette
- setting different coordinate systems
- creating a Munsys report

About queries

Queries can be defined as statements or logical expressions that are used to retrieve spatial data or records from a database. In Munsys, the data that you work with is queried from spatial tables in the database and displayed in the drawing area.

All users accessing the database have query privileges, although they do not necessarily have the privileges to update the spatial tables in the database.

Munsys has simplified the query process by providing a list of pre-defined (default) system queries for each application on the [Query menu](#) and the [Query Palette](#). At least one query for every spatial object exists in the MUNSYS_QUERY table in the database.

Users who have the Munsys Query and/or Munsys Edit roles assigned can query data from the database using the system queries, and also save their own user-defined queries for re-use. Users who have the MUNSYS_ADMIN and MUNSYS_POWER roles assigned can modify the system queries for use by all users.

User queries are stored in the MUNSYS_QUERY table in the database. Queried data is displayed on AutoCAD layers. When data is queried from the database, Munsys automatically generates the required layers, for example sewer nodes are queried onto the SEWNODE layer, and residential water pipes are queried onto the WATRESPIPE layer. You don't have to set up any layers before you query data from the database.

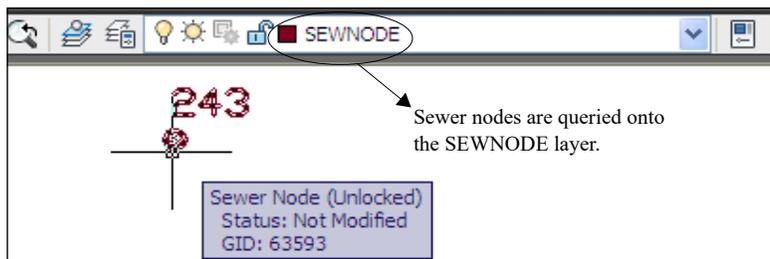


Figure 1 Each object type is displayed on its own layer

Normally, a very large amount of data is stored in the database. In Munsys, data can be requested for a specific geographical area, which is formulated by [specifying a Geographic Search Criteria \(GSC\)](#). With the GSC and various query functions, Munsys users can retrieve relevant data easily in small, “digestible” chunks to ensure a fast processing speed and small, workable areas. Before you can retrieve data for a specific area, you first have to specify the GSC. Read more about GSC in the following section.

Introducing query categories

Query categories are set in the Munsys Management Console and are used to group queries and data into an organization's recognized data categories. The following category types are available:

- **Uncategorized** – by default, any new query (not a user query) is seen as being uncategorized until it has been allocated to a category. Queries can be moved to or from the uncategorized group, but the category itself is a special case whereby the name may not be changed – only the content.
- **User** – whenever a user creates a new query, it is automatically seen as a personal query, hence called a User query. Other users cannot see any other user's queries until they are shared in the pool of Uncategorized or Categorized queries.
- **Custom Categories** – each category is provided with a unique name. When a new category is created, it is automatically granted the `MUNSYS_ALL_QUERY` role. A category may be granted multiple roles.

Munsys provides default custom categories as part of a new schema. The power user has the ability to customize these and/or add personal categories. The following categories are created in a new schema, synonymous with the Munsys applications and the default roles are granted to these categories:

- Cadastral – `MUNSYS_CMS_QUERY`
- Drainage – `MUNSYS_DMS_QUERY`
- Electricity – `MUNSYS_EMS_QUERY`
- Roads – `MUNSYS_RMS_QUERY`
- Sewer – `MUNSYS_SMS_QUERY`
- Water – `MUNSYS_WMS_QUERY`
- Spatial Data Manager - `MUNSYS_SDM_QUERY`

Introducing the Munsys Query Palette

The Munsys Query Palette provides a new, alternative interface in which queries, query categories and GSCs have been consolidated in order to provide an easy, user-friendly way to manipulate these items.

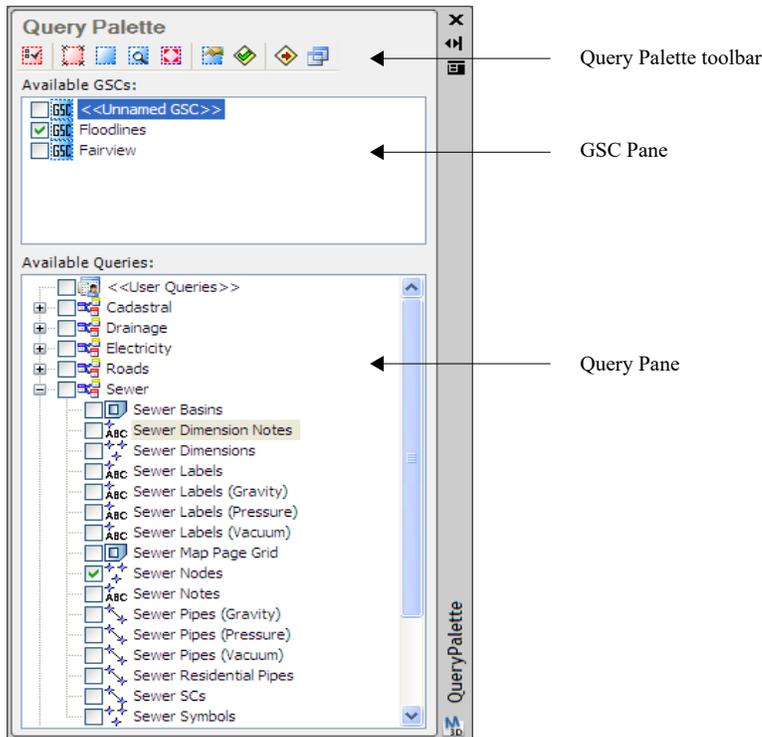


Figure 2 The Munsys Query Palette

The Query Palette is activated in the AutoCAD environment with the `MUNQRYPALLETTE` command, or checking the Query Palette item on the Query menu.



The palette is dockable and remains open until the user closes it. The position and status settings of the Query Palette are stored in the registry so that when a new session is started, the system restores the palette to the state it was in when the previous session ended.

The Query Palette consists of a toolbar, GSC pane and a Query pane.

The Query Palette toolbar provides access to functions that are common and related to the query process.



Figure 3 The Query Palette toolbar

The following buttons are available on the toolbar:

- GSC Settings – used to set properties for the active GSC
- Create New GSC – activates the Unnamed GSC and enables users to create a new GSC.
- Show Active GSC – shows the geometry of the active GSC, relative to its current zoom state
- Zoom GSC Extents – zooms to the extents of the active GSC
- Zoom DB Extents – zooms to the extents of the database
- Query Preferences – provides options to specify settings that will determine the format and conditions when spatial data is retrieved from the database
- Run Checked Queries – executes queries that have been checked in the Query pane of the Query Palette
- Run Query – displays a list of all the queries that are available to the current user. Queries can be selected and then run from this list.
- Browse Info – opens the Browse Info modeless window.

The GSC pane contains a list of System and user-created GSCs, of which certain properties can be manipulated by means of a context-sensitive (right-click) menu.

Figure 4 Query Palette GSC Pane: Context-sensitive (right-click) menu

You can do the following using the context-sensitive menu:

- Set a selected GSC as the current GSC
- Delete or rename a GSC
- Zoom to and show a selected GSC
- Create CAD objects from a GSC
- Modify certain properties of a GSC
- Add one or more objects to a GSC
- Set the query mask for a GSC

The Query Palette: Query pane

The Query Palette Query pane contains a tree with a list of queries that have been grouped into user queries, categorized queries and uncategorized queries.

Query categories and queries are manipulated from a context-sensitive (right-click) menu that is displayed when a query category or query is selected on the Query Palette.

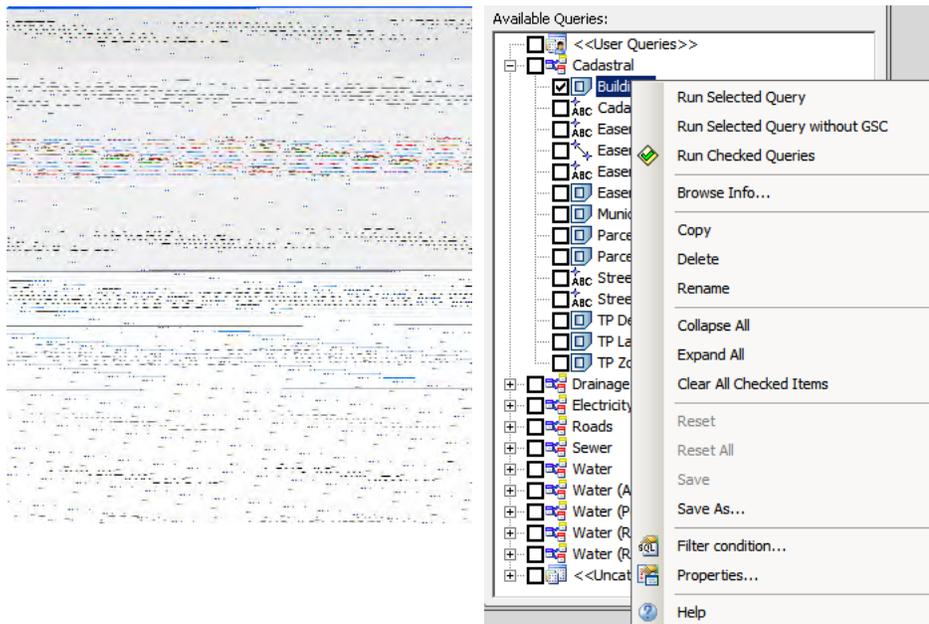


Figure 5 Query palette: Query context-sensitive menus

You can do the following using the Query and Query Category context-sensitive menus:

- Run all the queries in a query category
- Run checked queries in a query category
- Create a new user query with the Query Details dialog box
- Discard changes that have been made to queries using the Reset and Reset All options. Queries that have changed, are marked with a *.
- Run one or more selected queries in a query category.
- Copy, delete or rename a query
- Save a modified query
- Save a query under a different name and in another query category
- Set a filter condition for a query
- Change the properties of a query

Specifying Geographic Search Criteria (GSC)

GSCs can be created and manipulated from the Query Palette, the Query menu or the command line.

To simplify the retrieval of data from the database, Geographic Search Criteria (GSC) have to be defined. A GSC locates spatial objects from the database by their geographical location, making use of a polygon, window, fence, radius or object definition. The GSC settings apply restrictions on the geographical extent of spatial data extracted from the database.

Multiple GSCs can be created. Where in the past only one set of parameters could be saved to be used as a spatial filter, the GSC functionality has now been extended to save these parameters under various names. A single GSC is selected as the active GSC, which is used as the spatial criteria when spatial objects are retrieved from the database.

One GSC, the Unnamed GSC, is reserved as the default GSC. Whenever a user creates a new GSC, the parameters are saved with the Unnamed GSC until it is renamed. When this happens, the parameters are saved under the new name, and the Unnamed GSC is left with the last parameters used. A user can have as many GSCs saved as is required, but only one GSC can be active at a given time. When changing properties of a GSC, this will be applied to the active GSC. Whenever changes are made, they are saved directly into the database.

Munsys offers two types of GSCs:

- System GSCs are GSC, created by Systems Administrators, and then saved as System GSC. Saving a GSC as a System GSC effectively shares that GSC amongst all users.
- User GSC are associated with specific users; these GSCs are not shared. The list of GSCs presented to the user is filtered by user name. New User GSCs are saved with the currently logged on user name.

All GSCs are associated with a user; GSCs may not be shared. The list of GSCs presented to the user is filtered by user name. New GSCs are saved with the currently logged on user name.

When a GSC is created, a GSC mask also needs to be specified. The GSC mask determines how the GSC is applied as a spatial filter when retrieving data from the database. The following mask settings are available:

- **Approximate** – approximate conditions will retrieve data in the vicinity of the GSC, which is a very fast process. The GSC can be defined by means of a polygon, window, circle or fence. A GSC with the mask set to approximate is displayed as a dashed line.
- **Crossing** – retrieves spatial objects within and crossing a GSC. The GSC can be defined by means of a polygon, window, circle or fence. A GSC with the mask set to crossing is displayed as a dashed line. A point with a buffer can also have a mask of crossing.
- **Within** – retrieves spatial objects completely within a specified GSC. The GSC can be defined by means of a polygon, window or circle. A GSC with the mask set to within is displayed as a solid line. A fence and point GSC with a buffer can have a mask of within.

You can also place a buffer around a GSC. A buffer adds a zone of a specified width around the selected GSC, as seen in the following examples:

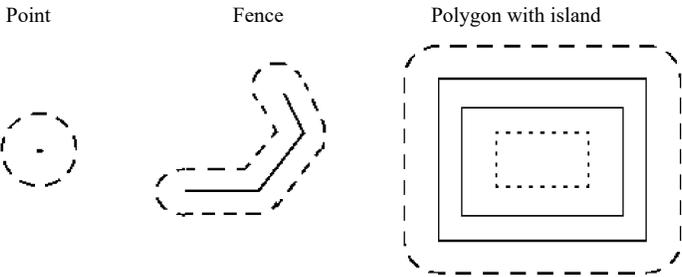


Figure 6 Buffered GSC

Specifying GSC settings

Spatial objects are retrieved from the database using a GSC (Geographic Search Criteria). GSC settings apply restrictions on the geographic extent of spatial data retrieved from the database. The GSC Settings dialog box is used to specify parameters when a new GSC is created, or to change the properties of the current GSC. The GSC Settings dialog box is divided in two tabs: GSC Definition and Options. The GSC Definition tab is used to specify the GSC mode (whether the GSC is determined by an object or defined manually). The GSC Definition tab is only available when the Unnamed GSC is active – the definition of previously saved GSCs cannot be changed.

To specify GSC settings

- 1 Do one of the following:
 - Choose **Query > GSC > GSC Settings**.
 - Click the **GSC Settings** button on the Munsys main toolbar or the **Query Palette** toolbar.The GSC Settings dialog box is displayed.

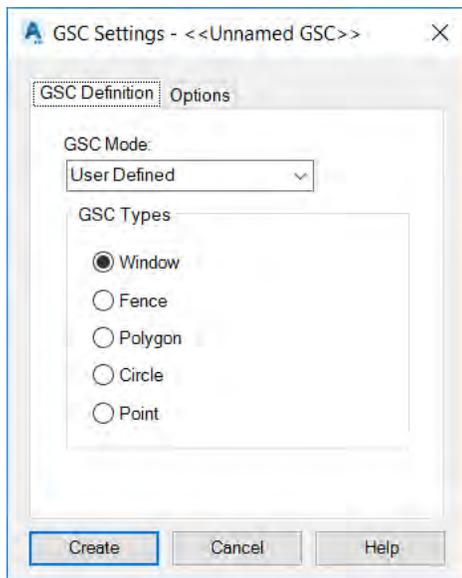


Figure 7 The GSC Settings dialog box

- 2 From the **GSC Mode** list, select one of the following:
 - User-defined – a user-defined geographic search boundary.
 - From Object – a selected spatial object is used as the GSC boundary. The command line will prompt you to select the spatial object that you want to use as a GSC when creating a new GSC. The selected object should exist in the database in order to be used as a GSC.

- 3 Select the appropriate GSC type from the **GSC Types** list if you are creating a user-defined GSC. The GSC type could be one of the following:
 - Window – a rectangle defined by two points.
 - Fence – defined as a polyline consisting of a string of points. You can use the Within mask if a buffer is specified.
 - Polygon – a polygon boundary defined by more than two points. The polygon can be any shape, but cannot cross or touch itself. Munsys draws the last segment of the polygon so that it is closed at all times.
 - Circle – a circle defined by a centre point and a radius.
 - Point – defined as a single point. You can only use the Within mask option when a buffer has been specified around the point.
- 4 When choosing **By Object**, the following table explains the type of GSC as a result of selecting an AutoCAD object:

AutoCAD object	GSC	Comment
LWPOLYLINE LINE ARC	FENCE	LWPOLYLINES with an Open status will result in a fence type GSC
MPOLYGON LWPOLYLINE CIRCLE	POLYGON	LWPOLYLINES with a Closed status will result in a polygon type GSC
POINT BLOCK TEXT	POINT	

- 5 Next, click the **Options** tab.

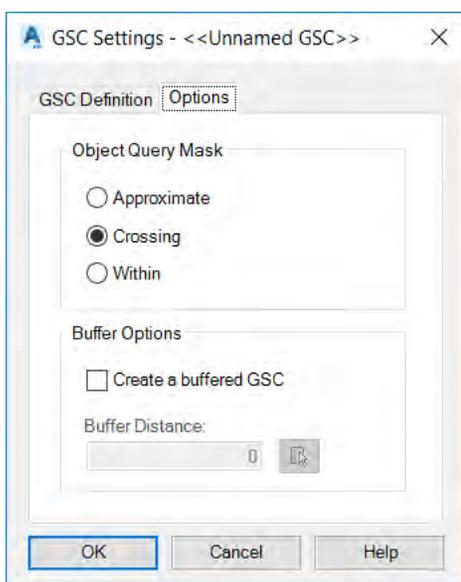


Figure 8 GSC Settings: Options

- 6 From the **Object Query Mask** group, select the mask type. This will determine the number of spatial objects to retrieve from the database.
- 7 To specify a buffer, do the following:
 - From the **Buffer Options** group, set the **Create a Buffered GSC** check box.
 - Enter the **buffer distance** in the text box or click the **Buffer Options** button to specify the buffer distance manually in the drawing. This is done by indicating two points in the drawing. The straight-line distance between the two points that you specified are populated to the text box.
- 8 Click **OK** to save the GSC settings.



Creating a GSC

A new GSC is created according to the settings that you specified on the GSC Settings dialog box. You can create a new GSC from the Query Palette toolbar, the Munsys Main, from the Query menu, or from the Munsys main toolbar.

To create a GSC from an object

- 1 Make certain that you have set the **GSC Mode** to **By Object** in the **GSC Settings** dialog box, and that you have specified the buffer options (if required) and the appropriate mask.
- 2 Do one of the following:
 - Choose **Query > GSC > Create New GSC**.
 - Click the **Create New GSC** button on the **Query Palette** toolbar.
 - Click the **Create New GSC** button on the Munsys **Main** toolbar.
- 3 Select the object that you want to use as a GSC, as prompted by the command line. You can use any spatial object (both Munsys and CAD objects) in the current drawing to create the GSC from.

The following figure shows a GSC that has been created using a community (township, municipality or suburb) boundary as GSC object, with the mask set to *Within*. Parcels have been queried from the database according to the GSC.

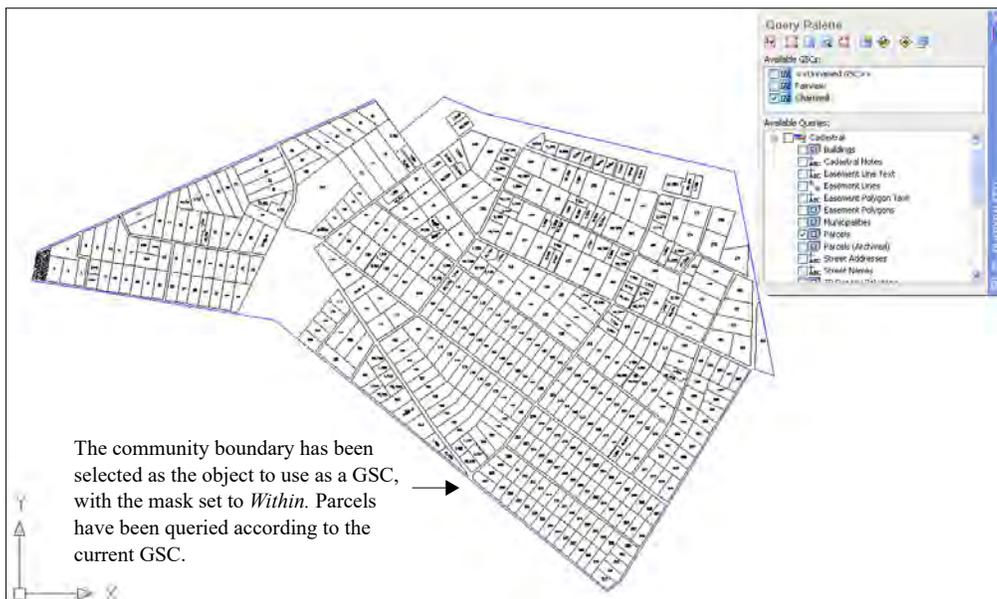


Figure 9 Example of a GSC created by Object

To create a window GSC

- 1 Make certain that you have set the GSC type to **Window** on the **GSC Settings** dialog box, and that you have specified the buffer options (if required) and the appropriate object query mask.
- 2 Do one of the following:
 - Choose **Query > GSC > Create New GSC**.
 - Click the **Create New GSC** button on the **Query Palette** toolbar.
 - Click the **Create New GSC** button on the Munsys **Main** toolbar.
- 3 Indicate the **first corner** of the window.
- 4 Using the mouse, resize the window, and then click to indicate the second corner.

The following figure shows a window GSC, which has been created with a buffer of 200, and with the mask set to *Within*. The parcels have been queried from the database according to the GSC.

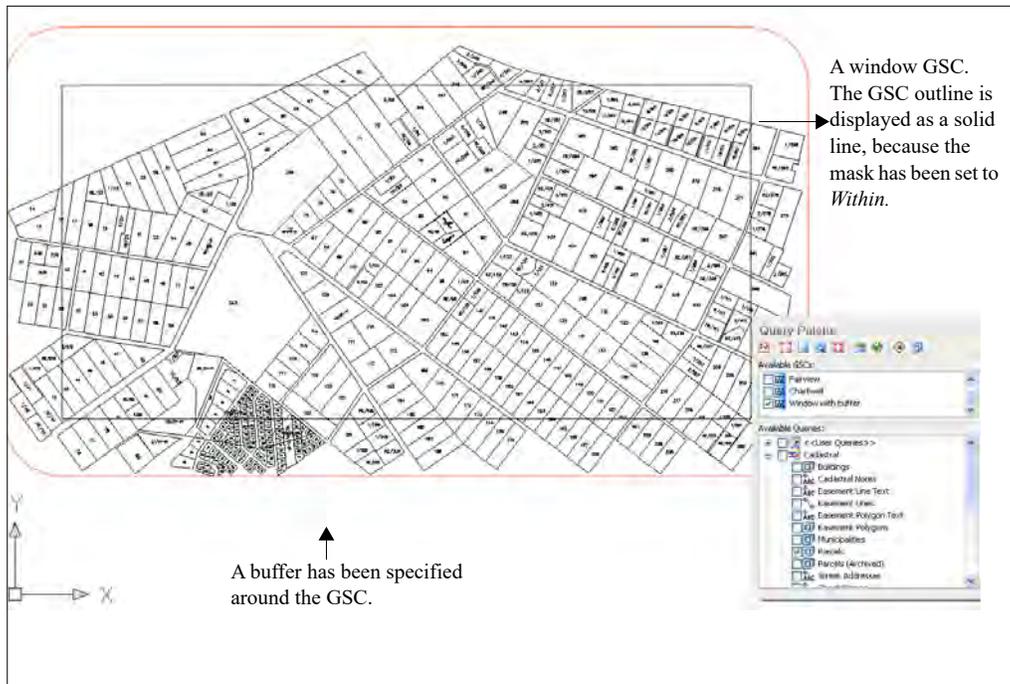


Figure 10 Example of a window GSC

To create a fence GSC

- 1 Make certain that you have set the GSC type to **Fence** on the **GSC Settings** dialog box, and that you have specified the buffer options (if required) and the appropriate object query mask.
- 2 Do one of the following:
 - Choose **Query > GSC > Create New GSC**.
 - Click the **Create New GSC** button on the **Query Palette** toolbar.
 - Click the **Create New GSC** button on the Munsys **Main** toolbar.
- 3 Indicate the first fence point.

- 4 Indicate the next point(s), and then press **ENTER** to end the fence definition.

The following figure shows a fence GSC with the mask set to *Approximate*, and with no buffer specified. The parcels have been queried from the database according to the GSC.

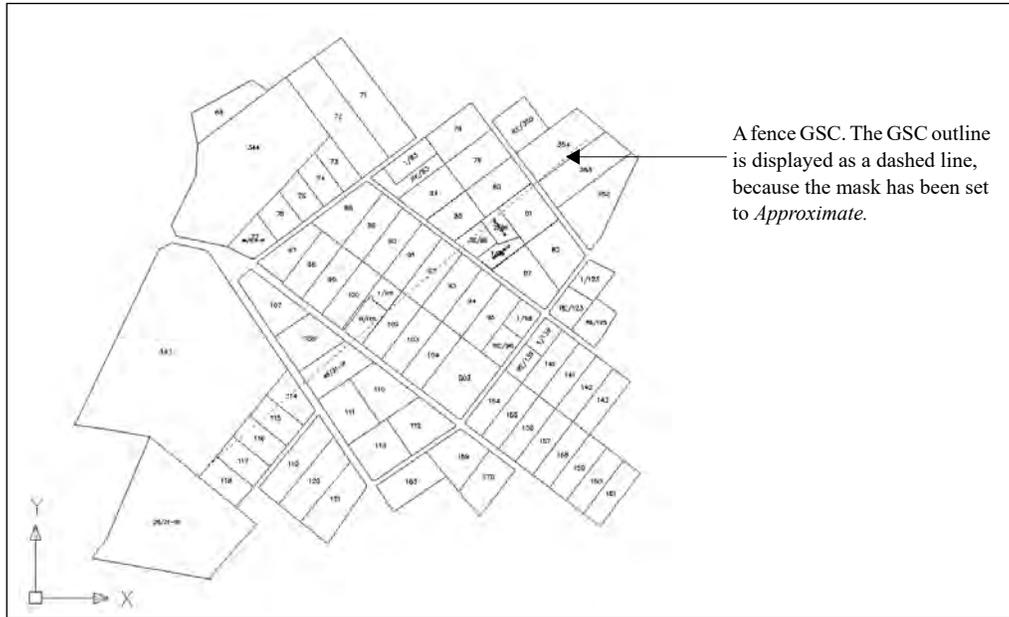


Figure 11 Example of a fence GSC

To create a polygon GSC

- 1 Make certain that you have set the GSC type to **Polygon** in the **GSC Settings** dialog box, and that you have specified the buffer options (if required) and the appropriate mask.
- 2 Do one of the following:
 - Choose **Query > GSC > Create New GSC**.
 - Click the **Create New GSC** button on the **Query Palette** toolbar.
 - Click the **Create New GSC** button on the Munsys **Main** toolbar.

- 3 Indicate the **first** polygon point.
- 4 Indicate the **next** polygon points, and then press **ENTER**.

Munsys automatically closes the polygon by snapping to the first indicated point.

The following figure shows a polygon GSC with the mask set to *Within*, and with no buffer specified. The parcels have been queried from the database according to the GSC.

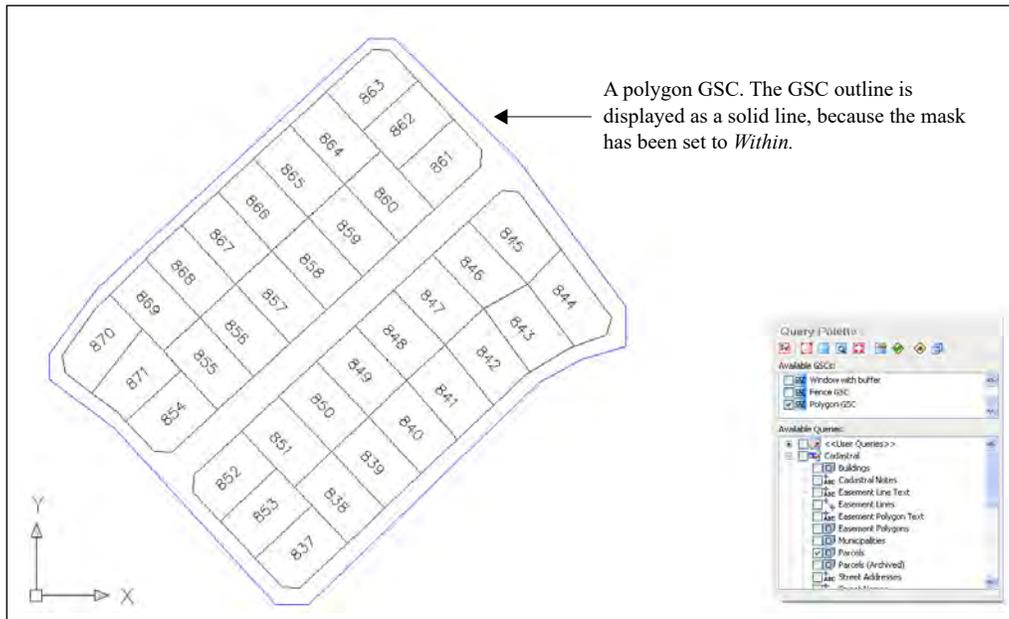


Figure 12 Example of a polygon GSC

To create a point GSC

- 1 Make certain that you have set the GSC type to **Point** in the **GSC Settings** dialog box, and you have specified the buffer options (if required) and the appropriate mask.

Tip If you do not specify a buffer around the point GSC, the **Within** mask will be unavailable.

- 2 Do one of the following:
 - Choose **Query > GSC > Create New GSC**.
 - Click the **Create New GSC** button on the **Query Palette** toolbar.
 - Click the **Create New GSC** button on the Munsys **Main** toolbar.
- 3 Indicate the point that you want to use as a GSC.

The following figure shows a point GSC, with the mask set to Within, and with a buffer of 150 specified. The parcels have been queried from the database according to the GSC.

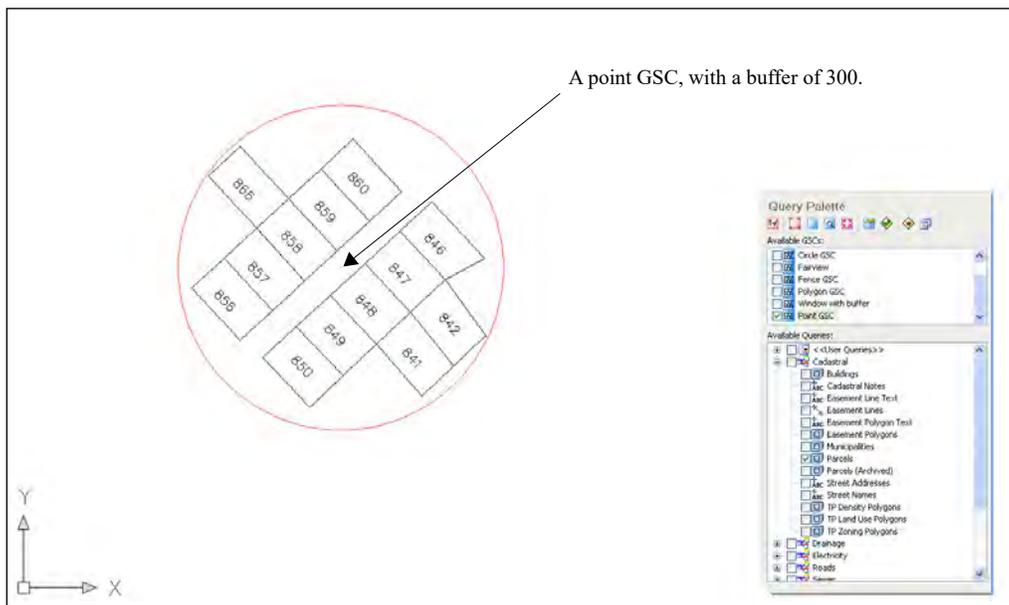


Figure 14 Example of a point GSC

To show the active GSC

- Choose **Query > GSC > Show Active GSC**.
- Click the **Show Active GSC** button on the **Query Palette** or Munsys **Main** toolbar.

The current active GSC is displayed as a dotted outline when the mask has been set to Approximate or Crossing, or as a solid outline when the mask has been set to Within. If a buffer has been specified, it is showed as a colored outline on the outside of the GSC boundary.

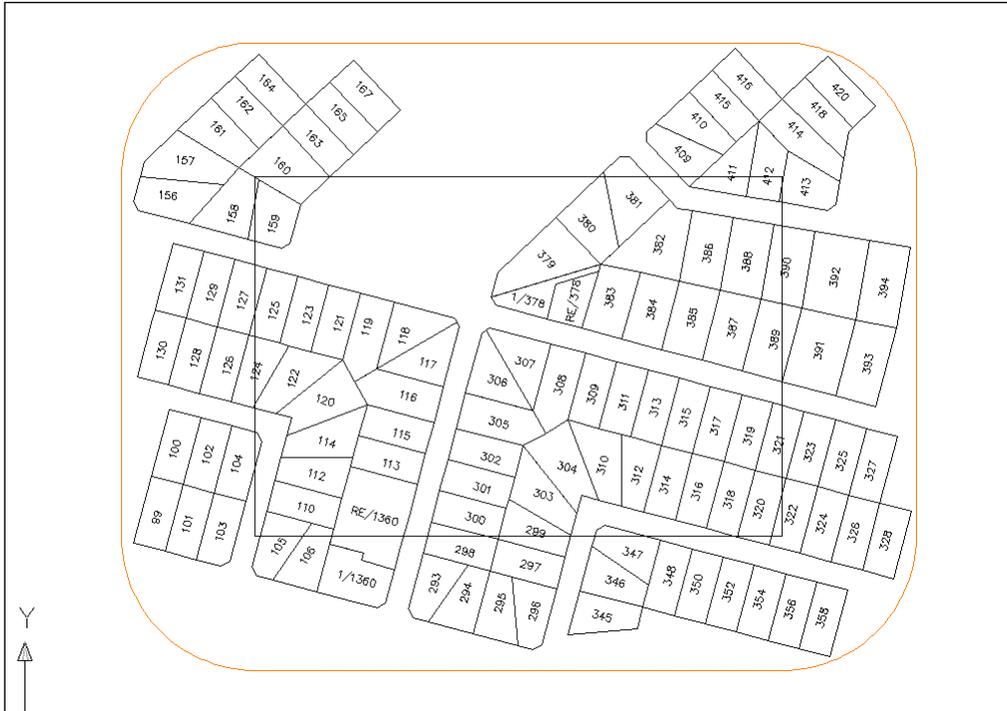


Figure 15 Showing the active GSC

To zoom to the GSC extents

- Choose **Query > GSC > Zoom to GSC Extents**.
- Click the **Zoom to GSC Extents** button on the **Query Palette** or Munsys **Main** toolbar.

This command will zoom to the full extents of the current GSC.

Converting a GSC to an AutoCAD object

With this function, the current GSC can be converted to an AutoCAD object as a Polyline or Point object type, for example if you want to display the GSC in a map. A Munsys point GSC will be converted to an AutoCAD point, while all the other GSC types will be converted to Polyline objects. If the GSC to be converted was constructed from a Munsys complex object, multiple AutoCAD objects will be created for each component of the GSC. For example, if the GSC consists of a polygon with an island, the result will be two polyline objects. The AutoCAD object is created on the GSC layer. If a buffered GSC is converted, the buffer is stored on the GSC_BUFFER layer.

To convert a GSC to an AutoCAD object

- 1 Do one of the following:
 - Choose **Query > GSC > Create Object From GSC**.
 - Choose **Query Palette**, right-click on the GSC that you want to convert, and then select the **Create CAD Objects from GSC** option on the context-sensitive menu that is displayed.
 - On the command line, enter **MUNGSCTOCAD**.

The current GSC is converted to the appropriate AutoCAD object type and placed on the GSC layer. If a buffer was specified, the buffer is placed on the GSC_BUFFER layer.

GSC functions on the Query Palette

Certain GSC functions can only be performed from the Munsys Query Palette. This section discussed these options.

Setting a GSC as current

To set a GSC as the current GSC, do the following:

- 1 On the Query Palette **GSC Pane**, select the GSC that you want to set as the current GSC, and then select the **Set as Current GSC** option from the context-sensitive menu.
- 2 The GSC is set as the current GSC and marked as such, as seen below:



Figure 16 Setting a GSC as Current

Deleting a GSC

With this function, you can delete a GSC. The Unnamed GSC or a GSC that has been set to Current cannot be deleted.

To delete a GSC, do the following:

- 1 On the Query Palette **GSC Pane**, select the GSC that you want to delete, and then select the **Delete** option from the context-sensitive menu.

The following message is displayed:

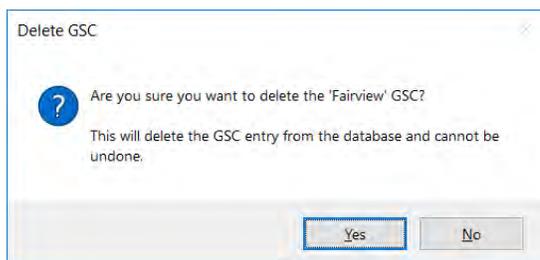


Figure 17 Deleting a GSC

- 2 Click **Yes** to delete the GSC.
The GSC entry is deleted from the database.

Renaming a GSC

To rename a GSC, do the following:

- 1 On the Query Palette **GSC Pane**, select the GSC that you want to rename, and then select the **Rename** option from the context-sensitive menu.

Rename the GSC as required.

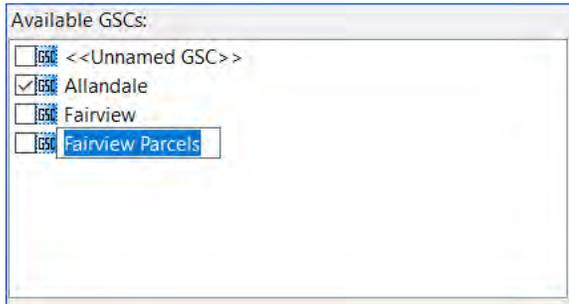


Figure 18 Renaming a GSC

Save a GSC as System GSC

Power-users and Systems administrators also have the functionality to save an existing GSC as a System GSC. A System GSC is any GSC that is shared between all users but can only be edited by admin users. To Create a System GSC follow these steps:

- Create any GSC using the functionality explained above.
- On the Query Palette GSC Pane, select the GSC that you just created (or any GSC you want to use as System GSC), and then select the select the Save as System GSC option from the context-sensitive menu. You will notice that the System GSC is now listed with a different icon.

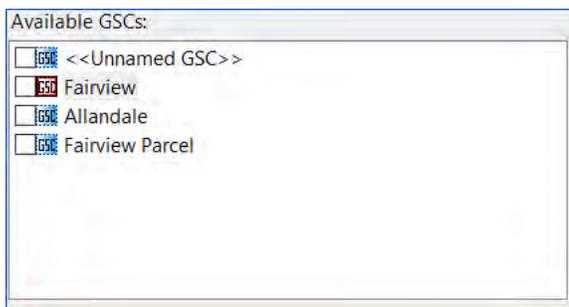


Figure 19 System GSC

Changing the properties of a GSC

Certain properties of the current GSC (unnamed or saved) can be changed using the GSC Settings dialog box. Changes to previously saved GSCs can be made to the query mask and the buffer options. The GSC Mode of saved GSCs cannot be changed, and the GSC Definition tab of the GSC Settings dialog box will remain unavailable. Changes made to the GSC properties are saved directly to the database.

- 1 On the Query Palette **GSC Pane**, select the GSC that you want to modify, and then select the **Properties...** option from the context-sensitive menu.

The GSC Settings dialog box is displayed, showing the Options tab. The name of the GSC that is being changed is displayed on the title bar.

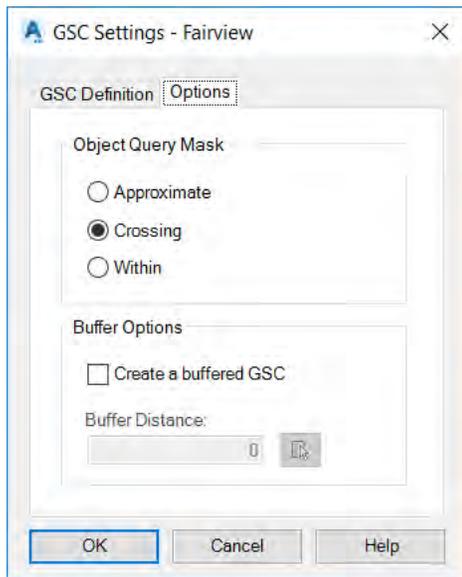


Figure 20 The GSC Settings dialog box: Options tab

- 2 Change **Object Query Mask** and/or the **Buffer Options** as required, and then click **OK**.

Adding objects to a GSC

With this function, you can add objects to the active GSC when the GSC Definition Mode has been set to From Object. When objects have been added, they cannot be removed, and a new GSC has to be created. This function can also be executed from the command line using the MUNGSCADDOBJ command. This function can only be used when Mun_DB_SETTINGS table in the Oracle database has the following row set (for Oracle EE license): Insert into MUNSYS_DB_SETTINGS the values ('S', 'MUNSYS_EE', 'T', 'Munsys Edition').

- 1 To add objects to a GSC, do one of the following:
 - On the Query Palette GSC pane, select the current GSC, and then select the Add Object(s) to GSC from the context-sensitive (right-click) menu.
 - On the command line, enter MUNGSCADDOBJ.
- 2 Select the object that you want to add to the GSC (the current GSC is highlighted), and then press **ENTER**.

- 3 Repeat **Step 2** until you have selected all the objects that you want to add to the GSC.
The object(s) that you have selected are added to the GSC.

Querying data from the database using the Query Palette

This section describes how to query data from the database using the Query Palette. You can do the following:

- Specify query preferences
- Create new queries and specify and change properties for queries
- Run queries

Specifying query preferences

The Query Preferences function is used to specify settings that will determine the format and conditions when spatial data is retrieved from the database. These options are stored in the registry and do not have to be set every time a new Munsys session is started. The following options are available:

- Use GSC – if this option is selected, the currently active GSC is applied as a spatial filter when the required objects are retrieved from the database.
- Create CAD Objects – if this option is selected, the objects are retrieved from the database as AutoCAD drawing objects instead of Munsys objects.
- Attach Object Data – if this option is selected, attributes will be attached to the objects that are retrieved from the database. The objects may be Munsys or AutoCAD related. The attributes are always obtained from the primary spatial table. If the query is associated with a data group that relates the object(s) to an attribute table, the attribute will also include the columns from the retrieves all parcels or communities according to their status. (This option is only available when Munsys is run on AutoCAD Map.)

To specify query preferences, do the following:

- 1 Click the **Query Preferences** button on the **Query Palette** toolbar. (This function is also available on the Munsys Applications **Query** menu and the Munsys **Main** toolbar).

The Query Preferences dialog box is displayed.

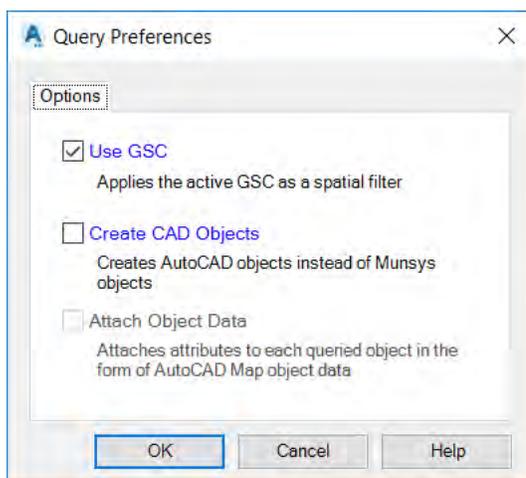


Figure 21 The Query Preferences dialog box

Select or clear any of the following check boxes:

- Use GSC – select this option if you want to apply the currently active GSC as a spatial filter when the objects are queried from the database.
- Create CAD objects – select this option to query the objects from the database as AutoCAD drawing objects instead of Munsys objects.
- Attach Object Data – this option is only available when Munsys is run on AutoCAD Map. Select this option if you want attributes to be attached to the objects that are queried from the database. The objects may be Munsys or AutoCAD related. The attributes are always obtained from the primary spatial table. If the query is associated with a data group that relates the object(s) to an attribute table, the attribute will also include the columns from the attribute table.

2 Click **OK** to apply the settings.

The settings are saved in the registry under the [HKEY_CURRENT_USER\Software\Open Spatial\Munsys[version]\Applications\Options key]

Creating a user-defined query

User-defined queries are created with the Query Details dialog box. Specific properties for each query are set using the Query Properties dialog box.

To create a user-defined query, do the following:

In the Query Palette Query pane, Select the New Query... option from the context-sensitive menu, as seen below:

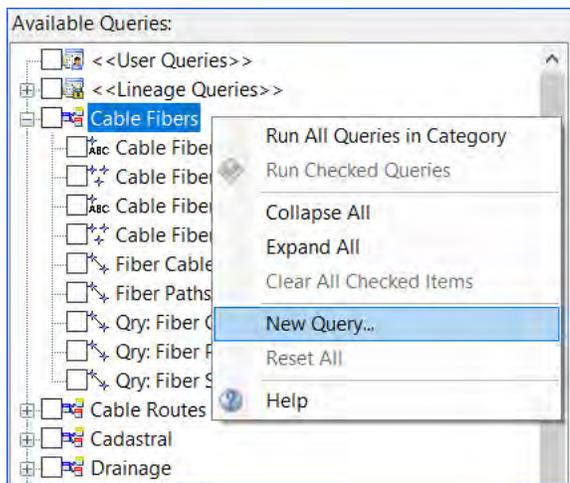


Figure 22 Create New Query

The Query Details dialog box is displayed.

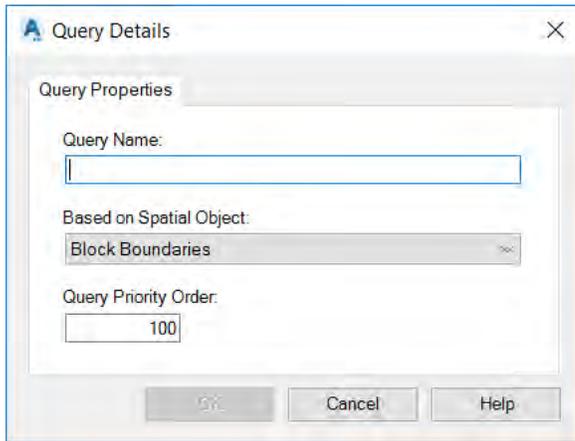


Figure 23 The Query Details dialog box

- 3 Enter the following information:
 - Query Name – enter a unique name for the new query. If a similar query already exists, you will be notified with an error message.
 - Based on Spatial Object – select a spatial object to base the query on.
 - Query Priority Order – enter a value between 0 and 100. A low number means that the query will be executed before queries with higher numbers. This means that queries with a higher number will be executed towards the end of the query process, causing the objects with a higher priority to be placed on top of the objects queried from queries with a low query priority.
- 4 Click **OK** to save the new query.

The query is saved and displayed in the list of available queries.

Specifying or changing query properties

The Query Properties dialog box is used to modify existing queries and to specify settings for user-defined queries. Using this dialog box, you can specify the formatting properties and informational data that is used as input to the query process. Because queries result in different object types, regardless of whether they are Munsys objects or AutoCAD objects, each object type has its own unique set of properties that may be changed to influence the outcome of the data that is retrieved from the database. These properties primarily include the display formatting options, but also allow the user to change the reference to data.

Because each object type has its own unique set of properties that may be modified to influence the outcome of the data, the contents of the Query Properties dialog box will vary according to the object type of the query that has been selected. These properties primarily include the display formatting options, but also allow the user to change the reference to data. Properties are changed using the context-sensitive (right-click) menu that is displayed when a property is selected.

The contents of the Query Properties dialog box is displayed two panes:

- **Property Category** – the left pane contains the names of the various property categories. Clicking a category affects the contents that are displayed in the right pane, the **Category Pane**.
- **Property Items** – the right pane, the **Property pane**, contains a list of properties that is determined by the property category being selected.

The Query Properties dialog box is displayed:

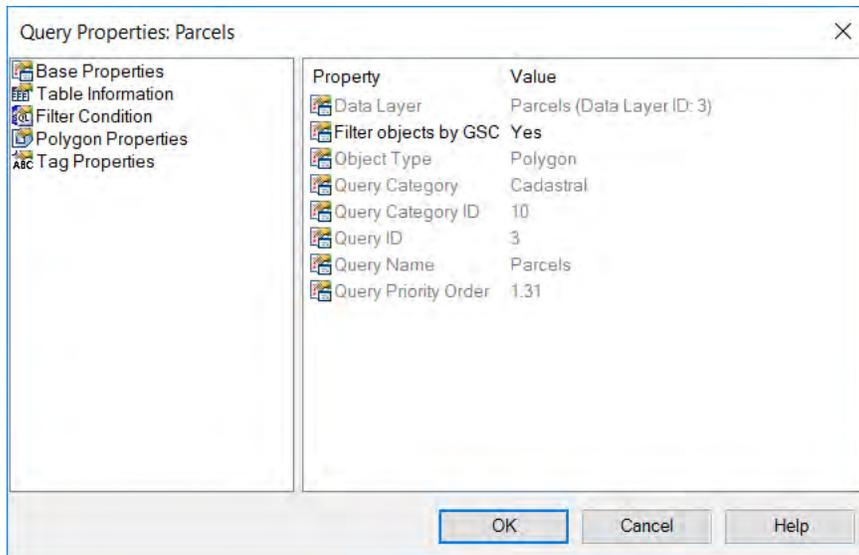


Figure 24 The Query Properties dialog box

All queries have the following properties:

- **Base Properties:** the basic properties of the query, for example the layer name, the object type, the query category of the query, the query name, the query priority order, etc.

Note

The **Base Properties** option **Filter objects by GSC** is used to specify whether you want the current GSC applied to the query. When this option is set to **Yes** (the default), the objects will be retrieved from the database according to the GSC settings of the **Current GSC**. If you change the setting to **No**, all the data from the specific spatial table will be retrieved from the database.

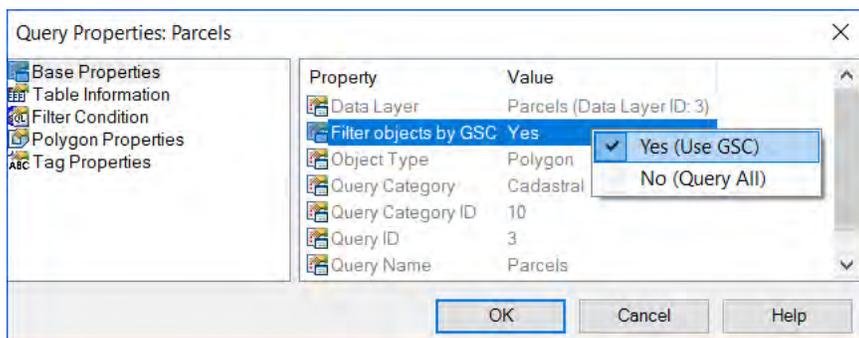


Figure 25 Query Properties: Filter by GSC

- **Filter Condition:** allows the user to specify criteria that will be used to filter the data during the query process
- **Table Information:** the Linked Table property may be changed using the context-sensitive (right-click) menu, which displays the Linked Table Information dialog box. All other tables are inherited when the query was created.

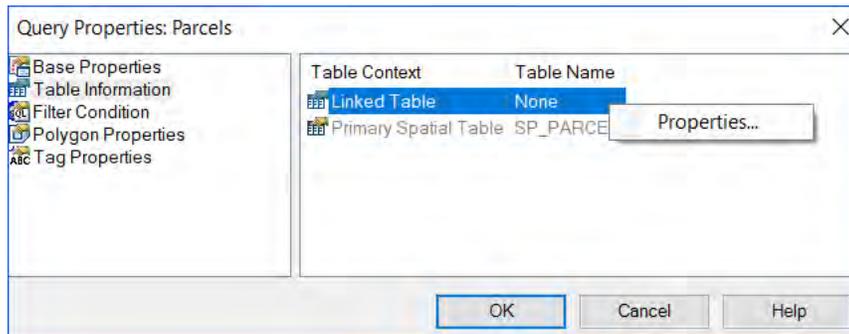


Figure 26 Table Information: Properties

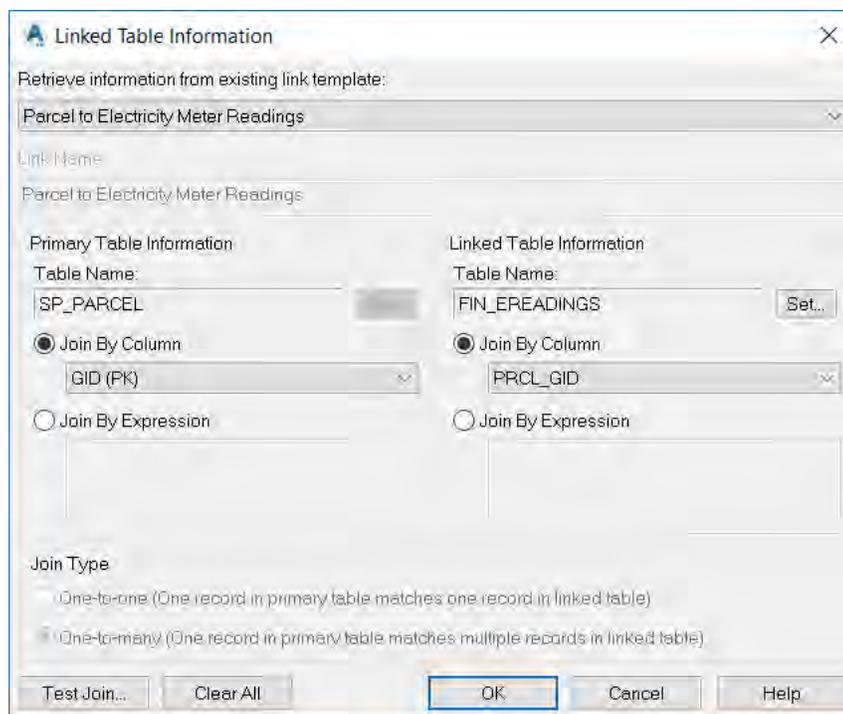


Figure 27 The Linked Table Information dialog box

Depending on the object type, various other query properties are displayed for a selected query, for example a MunPoint object will display Symbol Properties and Tag Properties, while a MunPoly object will display Polygon Properties and Tag Properties. All properties are changed using the context-sensitive (right-click) menu that is displayed when a property is selected, as seen in the following example:

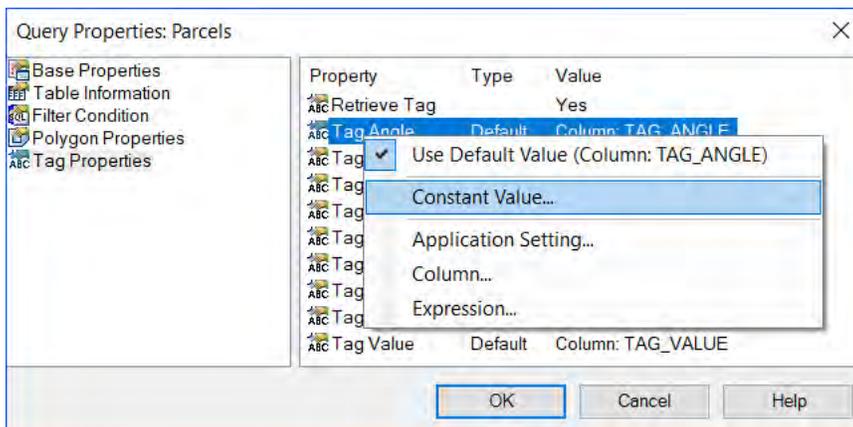


Figure 28 Query Properties: Context-sensitive menu

Specifying a filter condition for a query

A Filter Condition allows users to specify criteria that will be used to filter the data during the query process.

A filter is optional and when present, consists of one or more SQL statements that will be sent to the database. The conditions are specified using the SQL syntax. The expression syntax should be correct, otherwise the query will fail.

The conditions that apply to the query are listed in the Property Pane, as seen below:

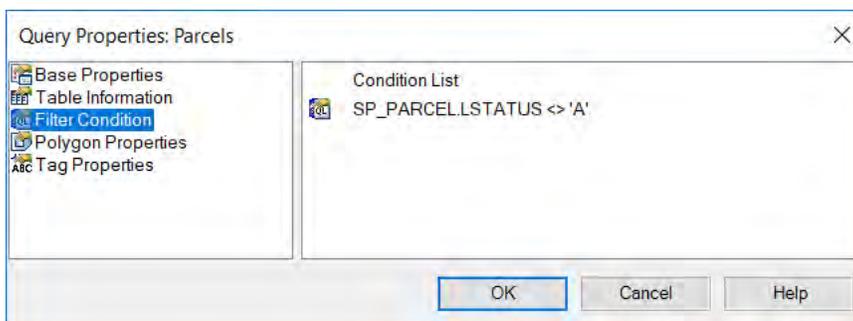


Figure 29 Filter condition: Parcels query

Conditions are added or removed using the context-sensitive (right-click) menu. The sequence in which the conditions appear (from top to bottom) is the sequence in which they will be executed.

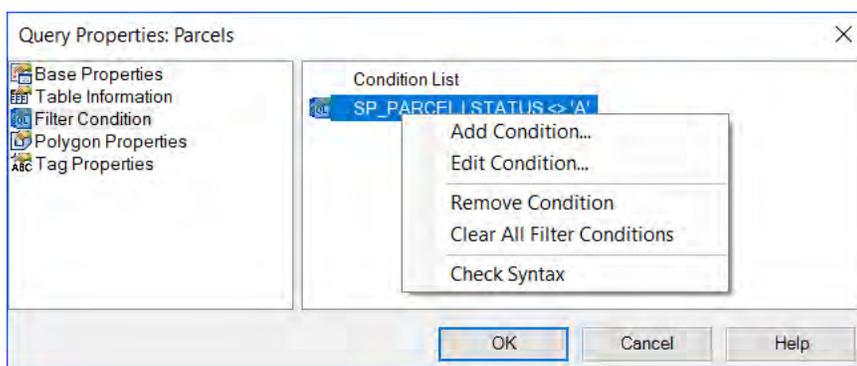


Figure 30 Filter condition: Context-sensitive menu

The first condition must not have a Joiner (AND/OR), but from the second condition on this is required. When the query is executed, the conditions are concatenated to form a single combined expression. When column names are used, they are prefixed with the table name as in: SP_WATPIPE.PIPE_MATRL

This rule applies even if there is only one table associated with the query, because the query may eventually be joined with the MUNSYS_GSC table in order to filter on spatial characteristics of the data.

The Filter Condition context-sensitive (right-click) menu is used to edit existing conditions, or add new conditions.

- Remove Condition – deletes the condition
- Edit Condition – edits the condition as a SQL expression
- Add Condition – allows the user to add a new condition to the end of the list of conditions.
- Clear All Filter Conditions – removes all conditions
- Check Syntax – verifies the syntax of the combined set of expressions

Adding a condition to a query

To add a condition, do the following:

- 1 Right-click on the query to which you want to add the condition, and then select the **Filter Condition...** option on the context-sensitive menu.

The Query Properties dialog box is displayed.

- 2 In the content pane, right-click on **Condition List**, and then select **Add Condition...** from the context-sensitive menu

The Add Condition dialog box is displayed.

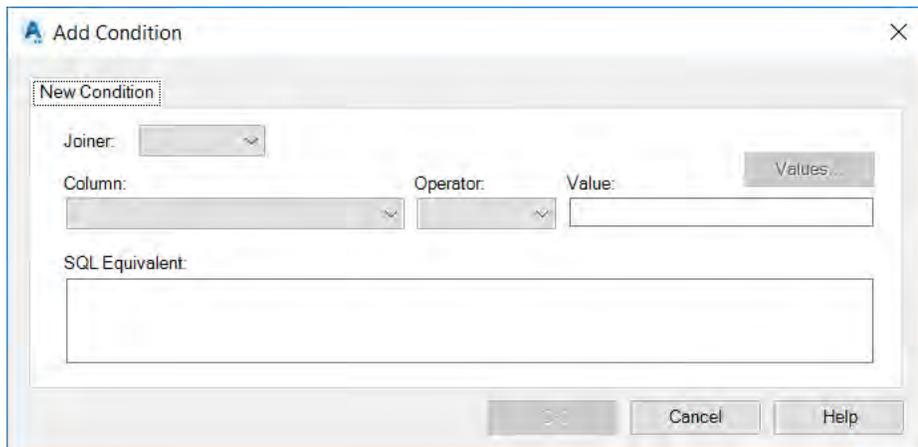


Figure 31 The Add Condition dialog box

3 Specify the following:

- A Joiner – the joiner is used to join a previous condition to a new condition, and is unavailable when the first condition is set for a query. Available values in the down list are AND and OR. When the joiner is selected, the other fields become available.
- Column – this list is populated with a list of all the columns from all the tables that may be referenced by the query. All the columns are prefixed by the table name.
- Operator – the Operator is used to specify how the value from the column will be compared to the value specified in the Value text box. This list is populated with the following values:
 - = Equal To
 - > Greater Than
 - >= Greater Than or Equal To
 - < Less Than
 - <= Less Than or Equal To
 - <> Not Equal To
 - Like SQL “LIKE” command (value to be prefixed or suffixed with %)
 - In SQL “IN” command (values to be comma delimited as in: ‘A’,’B’,’C’)
 - Is Null SQL “IS NULL” command (no value allowed)
 - Is Not Null SQL “IS NOT NULL” command (no value allowed)
- Value – select one or more values that will be used as comparison value against all values from the specified column. Use the Value button to select the value(s) from the database, as seen in the following example:

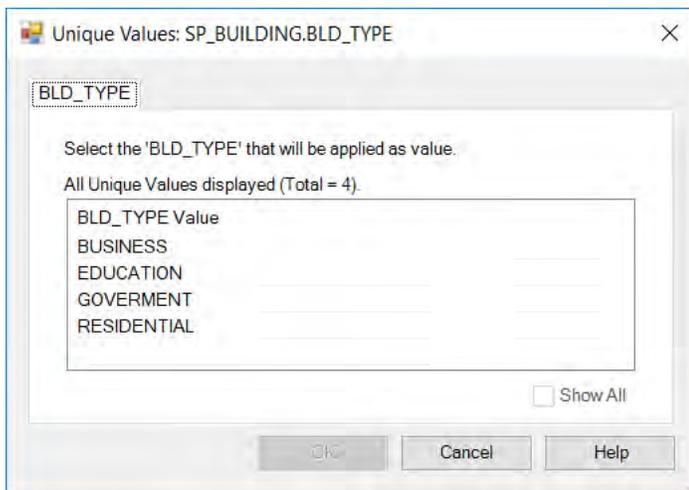


Figure 32 Add Condition: Unique values

- SQL Equivalent – this field is populated when the other field have been filled in.
- 4 Click **OK** to add the condition to the list of conditions.

The condition is added to the Condition list, and the modified query is marked with a * in the query list.

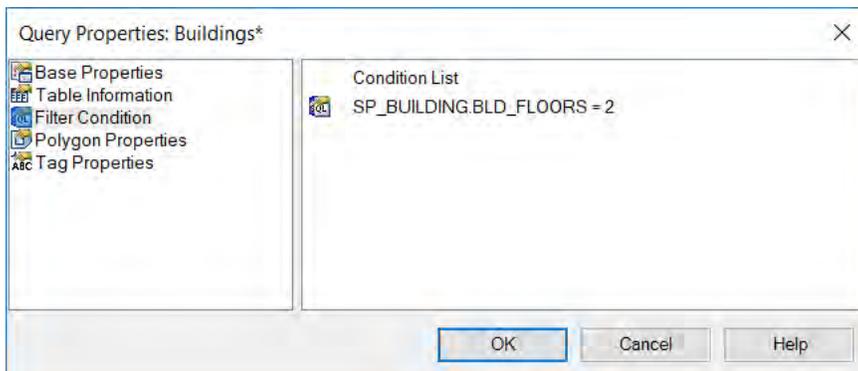


Figure 33 Condition added to the list

- 5 To save the changes to the query, right-click on the query, and then select the **Save** or **Save As...** option on the context-sensitive menu.

Figure 34 Saving changes to a query

Executing queries from the Query Palette

Queries can be executed from the Query Palette by:

- Selecting the Run All Queries in Category option from the context-sensitive menu that is displayed when a query category is selected
- Checking the queries that you want to run (you can select queries from various query categories), and then selecting the Run Checked Queries option on the context-sensitive menu
- By clicking the Run Query button on the Query Palette toolbar, and then running selected queries from the Query List dialog box (this option is also available on the Munsys Applications Query menu and Main toolbar)

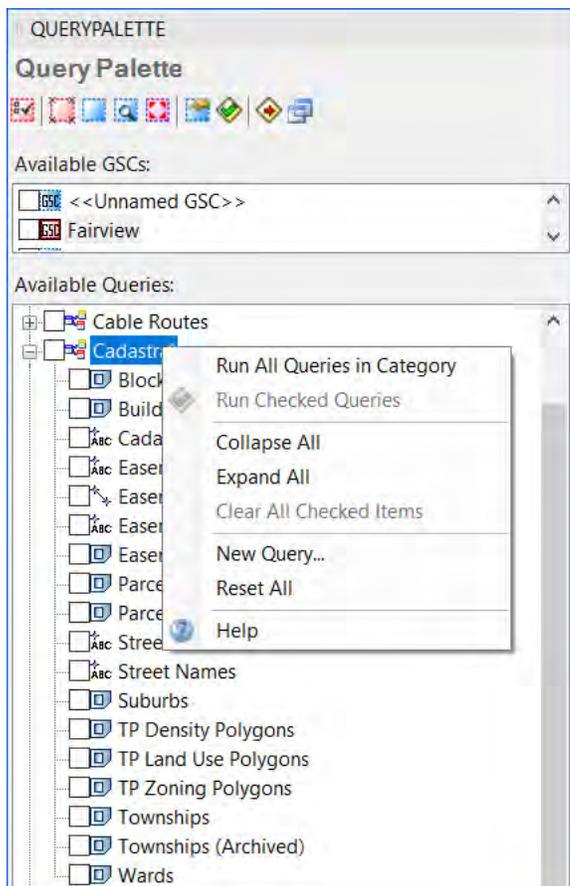


Figure 35 Query execution options

Running checked queries from the query list

On the Query Palette Query pane, you can run multiple queries by selecting the check boxes adjacent to the relevant queries. You can also use the `MUNQRYMULTIPLE` command for this purpose. Before the queries are executed, they are sorted according to their query priority query priority order.

The queries that have been selected are run in order of their query priority; queries with a priority of 0 are run first, followed by queries with a higher number. As the queries are run, feedback about the number of objects retrieved is provided on the command line.

- 1 To run multiple checked queries, do one of the following:
 - On the Query pane, select the check box(es) adjacent to the query or queries that you want to run, and then click the Run Checked Queries button on the Query Palette toolbar or the context-sensitive menu.
 - On the command line, enter `MUNQRYMULTIPLE`, and then follow the prompts.

The objects are retrieved from the database in their query priority order, and the command line shows the number of objects that are retrieved from the database for each query.

Running multiple queries using the Query List dialog box

A selection of one or more predefined queries can be run using the Query List dialog box, which can be called from the Query Palette toolbar, the Query menu, or the command line. The list of queries on the dialog box shows the name of the query, the category it belongs to and its priority, in descending order.

Tip The list can be re-sorted by clicking on the appropriate header.

The list of queries that is displayed on the dialog box is dependent on user privileges. This is firstly restricted by the roles assigned to the user, since the query categories restrict access to the queries in the category through roles. Secondly, access to queries is also restricted by the privileges assigned to the user with regard to the tables referenced in the queries.

The queries that have been selected are run in order of their query priority; queries with a priority of 0 are run first, followed by queries with a higher number. As the queries are run, feedback about the number of objects retrieved is provided on the command line.

Tip Use the **Query Preferences** button on the **Query List** dialog box to specify query preferences in the **Query Preferences** dialog box before the queries are executed.

- 1 To run multiple queries using the **Query List** dialog box, do one of the following:
 - Click the Run Query button on the Query Palette toolbar.
 - Choose Query > Run Query.
 - Click the Run Query button on the Munsys Main toolbar.
 - On the command line, enter `MUNQRYRUN`.

The Query List dialog box is displayed.

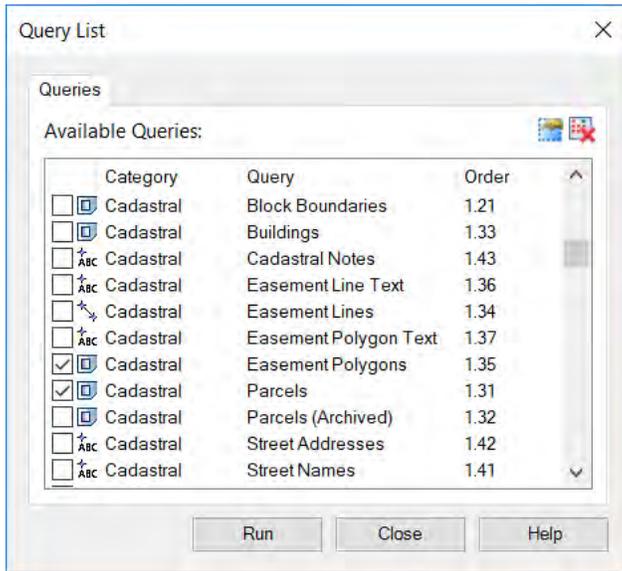


Figure 36 The Query List dialog box

- 2 Select the queries that you want to run from the list of available queries. Use the **Query Preferences** button to specify query preferences before the list of queries is run, as seen in the example above.
- 3 Click the **Run** button to run the selected queries.

The queries are run according to their query preference, and the command line displays the number of objects that were retrieved from the database for each query.

Tip You can use the context-sensitive (right-click) menu on the **Query List** dialog box to check or uncheck all the queries in a specific category.

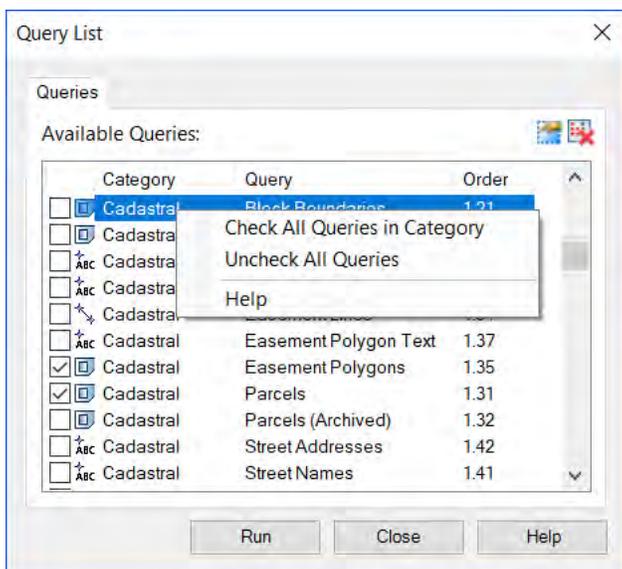


Figure 37 Query List dialog box: context-sensitive menu

Adding a spatial view

The Add Spatial View function is used to map an existing external (non-Munsys) spatial table so that Munsys may recognize it as a “Munsys table”, and that the data in the table can be queried using Munsys Applications.

Important To be able to create a view on a table that resides in another schema, you need the SELECT privilege on the view. In order to grant the SELECT privilege on the newly created view to the Munsys roles you need to have the SELECT... WITH GRANT OPTION privilege on the original table granted to you (not through a role). For more details on granting the correct privileges, consult the appropriate Oracle documentation.

To create a spatial view for an external table, the following is required:

- The name of the schema where the existing spatial table resides.
- A spatial table that contains one MDSYS.SDO_GEOMETRY column. The Add Spatial View dialog box displays a list of tables that qualify. The qualification filter ensures that the table has sufficient user privileges to create a view on the table and to grant the SELECT privilege to Munsys roles, contain an SDO_GEOMETRY column and have a unique NUMBER ID column as primary index.
- A geometry type (point, symbol, label, line or polygon) that will be used throughout the table – this means that the complete set of records encountered in the table must all share the same geometry type.
- A unique name and description string used to identify the spatial view within the Munsys schema.

When executed, the function creates a view in the Munsys Schema, adds entries to the system tables and creates a system query that may be used as the default query. This system query will not query any tag information, but can be edited for this purpose, using the query palette. A spatial view that is no longer required can be removed using the [Remove Spatial View](#) function.

Note

If the user doesn't have the required privileges to create a view on the selected table, an error message is displayed. This error normally only displays if the user doesn't have the **SELECT** privileges granted to the schema owner directly (not through a role). This error also indicates that the **WITH GRANT OPTION** is required. (The **WITH GRANT OPTION** is an additional clause that gives the necessary privileges to grant privileges on the newly created view to the default Munsys roles.) The following SQL statement is an example of the statement that should be used by the database administrator to grant the required privilege to the Munsys schema owner: **grant select on schema name.sp_tablename to schema owner with grant option;**

When this error message is displayed, you will have to cancel the creation of the view, and then reconnect to the database after the correct privileges were granted by the database administrator as indicated above.

To add a spatial view

- 1 Connect to the Oracle database as the owner of a Munsys schema. This is done by selecting the same user name and schema name when logging on to the database using the **File > Connect to Database** menu option, or the **Connect to Database** toolbar button.
- 2 On the command line, enter **MUNADDSPVIEW**.

The Add Spatial View dialog box is displayed.

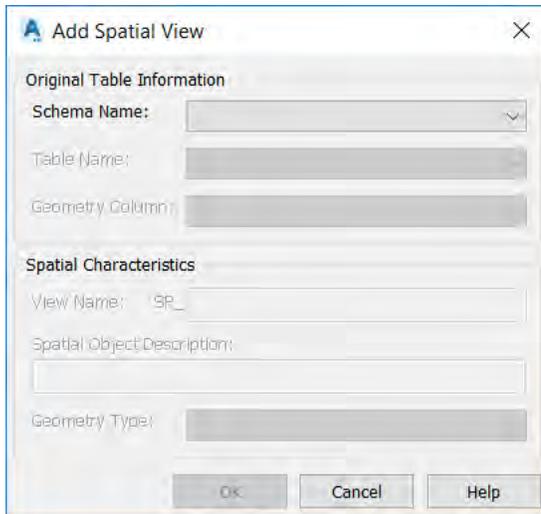


Figure 38 The Add Spatial View dialog box

- 3 In the **Original Table** group, do the following:
 - From the Schema Name list, select the schema where the spatial table resides. (Only schema names that contain tables with at least one column with a data type of SDO_GEOMETRY are displayed in this list.)

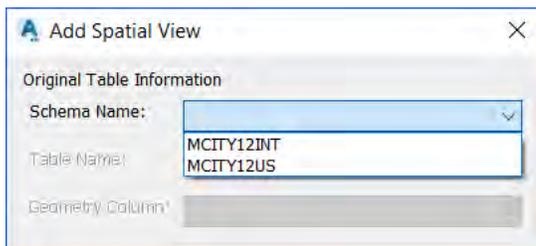


Figure 39 Selecting the schema name to create a spatial view

- From the Table Name list, select the name of the spatial table. The table must contain an SDO_GEOMETRY column. After selecting the table from the list, a check will be done to ensure that a primary index, referencing a NUMBER column, exists on the table. This column will automatically be mapped as the GID column to uniquely identify each spatial object. If this check fails, the following message is displayed: “This table does not contain an appropriate primary key constraint. A primary key constraint must exist on a numeric column to uniquely identify each individual spatial object”.

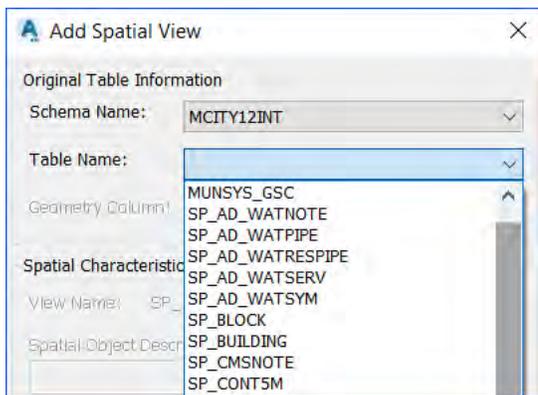


Figure 40 Selecting a spatial table name from the list

- From the Geometry Column list, select the appropriate columns that you want to use. This list only becomes available when there is more than one geometry column in the table. If only one column is present in the table, this column will be selected automatically.
- 4 In the **Spatial Characteristics** group, do the following:
- In the View Name field, enter the name of the view that you are creating. The name will be prefixed with SP_ and will have the same restrictions as are applied to a Munsys spatial table with regard to naming conventions such as length, etc.
 - In the Spatial Object Description field, enter a unique description for the spatial layer. This description will be displayed when the spatial data is queried.
 - From the Geometry Type list, select the geometry type of the objects that the table will be associated with. The options available in the list will depend on the geometry type that is currently stored in the table. The following options are available:
 - Lines – in the case of lines or polylines this option will be unavailable and will be defaulted to lines.
 - Polygons – in the case of polygons, two options will be available; Polygon and LW Polygon. The LW Polygon option allows you to query polygon objects as objects that are derived from the LWPOLYLINE object, instead of objects that are derived from the MPOLYGON object.
 - Points – if the original table contains points, these options will be available; Point, Symbol or Label. The geometry of the SDO_GEOMETRY column will be used to represent a point or a label (text). The Point and Symbol options do not differ much, but are named this way to cater for both terms, as not all users would want a symbol to represent the geometry, but rather a AutoCAD point. The Label option will use the geometry to represent the insertion point of the text.

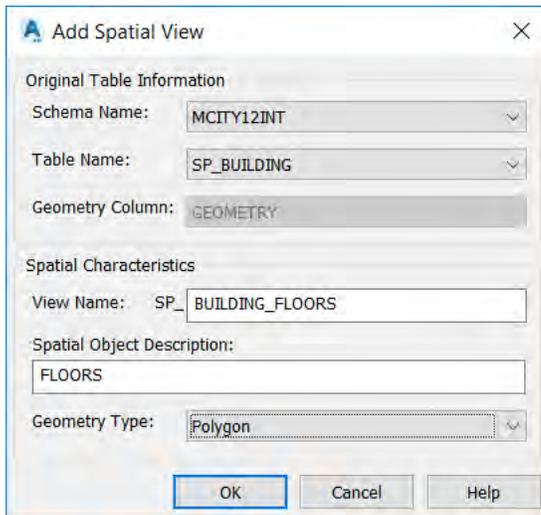


Figure 41 Specifying the spatial characteristics of the view

- 5 Click **OK** to create the spatial view as specified.

Munsys creates the view, inserts it into `MUNSYS_SP_TABLES`, creates the associated system query and grants `SELECT` privileges to the view.

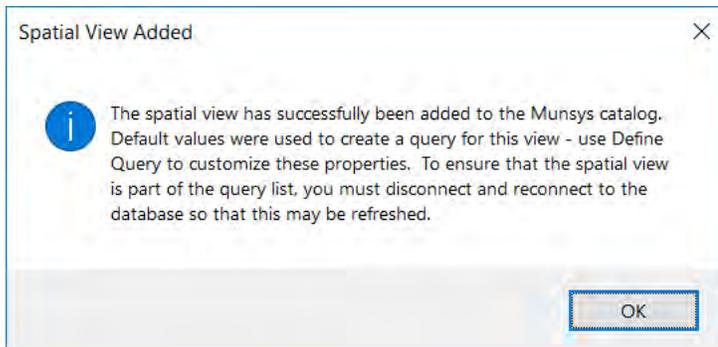


Figure 42 Spatial View Added confirmation message

Note

The process that creates the spatial view will use columns in the original table that conform to the default Munsys naming convention. All additional columns required that do not exist in the table will be added to the view. This will ensure that the structure of the view is based on the required structure as expected by Munsys. The structure of the view is determined by the type of geometry selected as explained above. The column name and data types of columns in the view are important, but the Oracle database administrator can edit the view through another interface to influence the values represented by the columns, as long as the column names and data type of the columns above the **GEOMETRY** column are not influenced. The default system query that is created can be modified using the query palette to overwrite many of the values in the view, for example **Tag Value**, **Tag Justification**, **Tag Style**, **Tag Height**, **Symbol Name**, **Symbol Scale**, etc.

Removing a spatial view

The Remove Spatial View function is used to remove previously added external spatial tables from the Munsys system tables. Entries referencing the view are removed from the `MUNSYS_SP_TABLES` and `MUNSYS_QUERY` system tables, and the view is dropped.

Note The function only removes the view, and does not drop the original spatial table to which the view refers.

To remove a spatial view

- 1 On the command line, enter `MUNREMOVESPVVIEW`.

The Remove Spatial View dialog box is displayed.

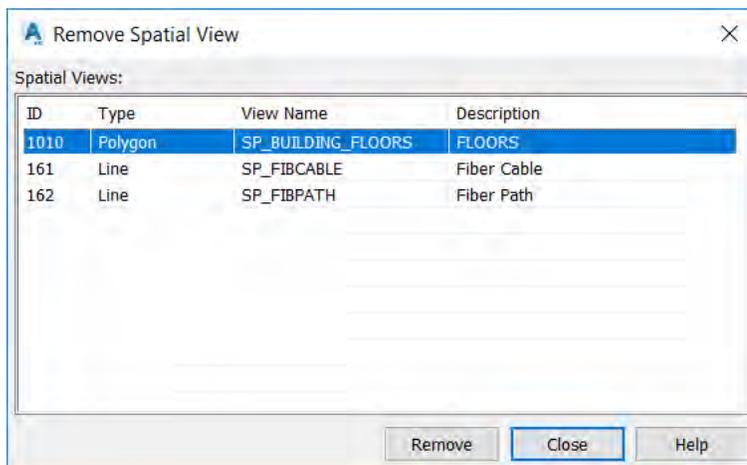


Figure 43 The Remove Spatial View dialog box

- 2 Select the spatial view that you want to remove, and then click the **Remove** button. Entries referencing the view are removed from the `MUNSYS_SP_TABLES` and `MUNSYS_QUERY` system tables, and the view is dropped.

About cadastral data

The term cadastral refers to a map or survey showing administrative boundaries and property “lines”. Cadastral data is defined as an official register of the ownership, extent and assessed value of land for a given area, and also as the geographic extent of the past, current, and future rights and interests in real property including the spatial information necessary to describe that geographic extent. In Munsys, cadastral data is used as the base data set.

Munsys uses the following cadastral base data:

- Communities – a community is a residential area containing one or more legal boundaries, and can be a township, suburb or municipality.
- Parcels – a distinct portion of land, which is captured from a registered plan by means of coordinates or angles of direction and distance. Parcels are important spatial data in the Munsys system, as many of the capture functions rely on the location of parcels.
- Blocks – a block boundary binds a group of parcels with the edges of the road reserve, and is used to represent the cadastral data on a higher scale when the detail of the parcels is not required.
- Easements – a registered area attached to a parcel for the benefit of the local authority. This area is used for the installation of services or right of way; therefore the landowner is not allowed any permanent construction.
- Buildings can be classified as different types according to the default values set up by the system administrator. New building types can be added to the list of available building types.
- Street names and addresses – legal street names are assigned to sections of the road reserve and display as text. The address information is assigned at a specific point within the parcel polygon. In some cases, parcels can have more than one point of entry, and are therefore assigned multiple address points.
- Cadastral notes – additional notes pertaining to cadastral objects.

Querying cadastral data from the database from the Query menu

The following section explains how to query cadastral data from the database using the pre-defined (default) queries that are available on the Query menu of each Munsys application. For more “refined” queries, you can use the functions on the Query Palette, with which you can create customized queries.

Querying suburbs

Communities (suburbs, townships or municipalities) are queried from the database according to the **current GSC**, or by a selected community name. Suburbs are displayed as polygons (MUNPOLY objects).

To query communities by name

- 1 Choose **Query > [Suburbs] > By Name...**

The Select [Suburb] dialog box is displayed, showing a list of all the available suburbs with their associated codes. The list of suburbs can be sorted ascending or descending, according to the municipality code or description.

- 2 From the list of suburbs, select the suburb that you want to query, and then click **OK**.

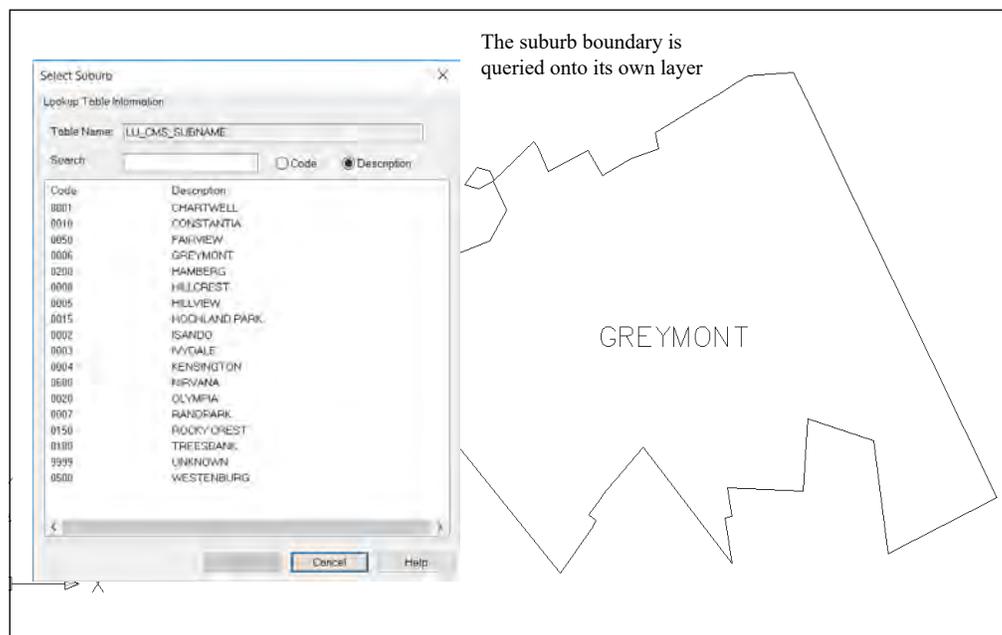


Figure 44 Querying a suburb by name

Tip If you want to query more than one suburb, press and hold down the **SHIFT** key (to select consecutive suburbs), or press and hold down the **CTRL** key, and then select each suburb that you want to query. You can also search for a specific suburb by its **name** by selecting the **Description** button, and then entering the first few letters of the name, or search for a name by its code by selecting the **Code** button, and then entering the applicable code.

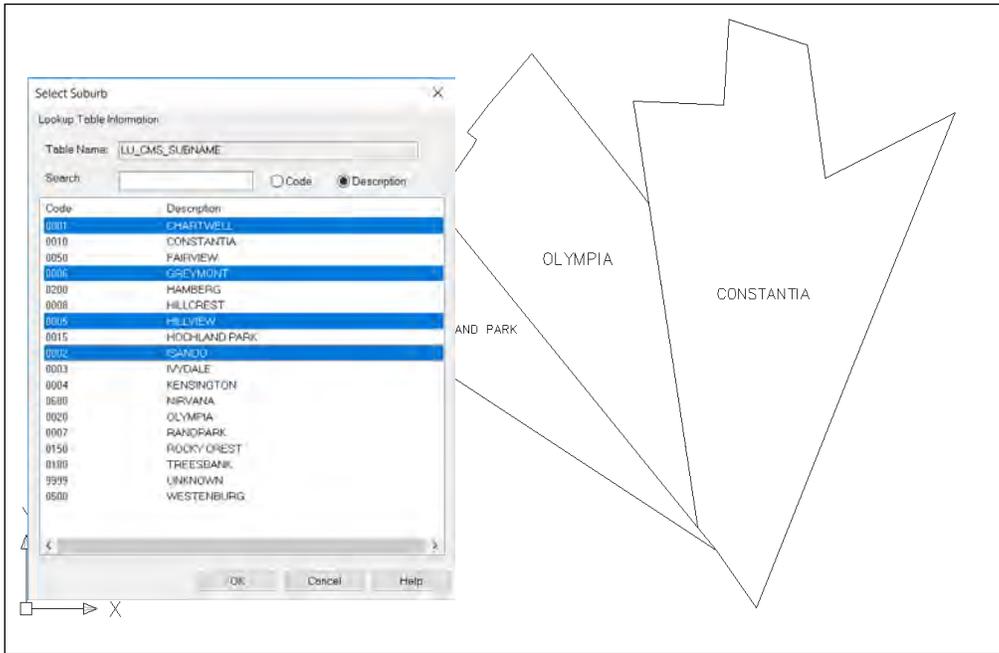


Figure 45 Querying more than one community at a time

To query suburbs by GSC

- Choose **Query** > [Suburb] > **By GSC**.

The suburb boundaries are retrieved according to the [GSC settings](#) and the current GSC.

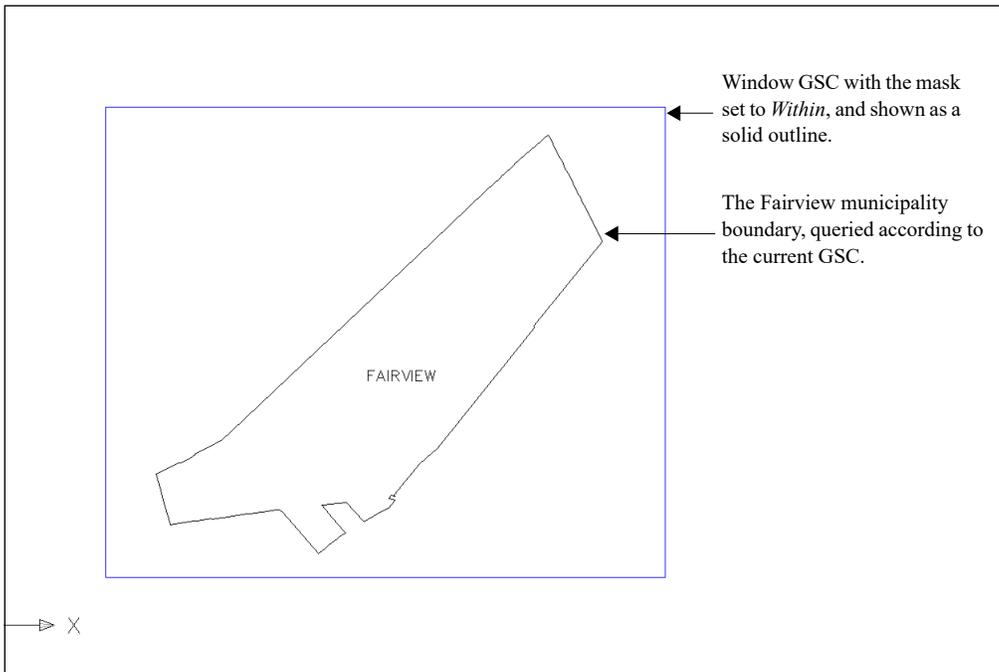


Figure 46 Querying suburbs by GSC

Querying parcels

Parcels are queried from the database according to the **current GSC**, and are displayed as polygons (MUNPOLY objects). Parcels with a legal status of Current are queried onto the PARCEL_C layer, and parcels with a legal status of Proposed are queried onto the PARCEL_P layer.

To query parcels

- Choose **Query > Parcels**.

The command line shows how many parcels were retrieved according to the current GSC.



Figure 47 Parcels queried from the database according to the current GSC

Querying block boundaries

Block boundaries are queried from the database according to the **current GSC**, and are displayed as polygons (MUNPOLY objects). Block boundaries are placed on the BLOCK layer.

- Choose **Query > Block Boundaries**.

The command line shows how many block boundaries were retrieved from the database according to the current GSC.

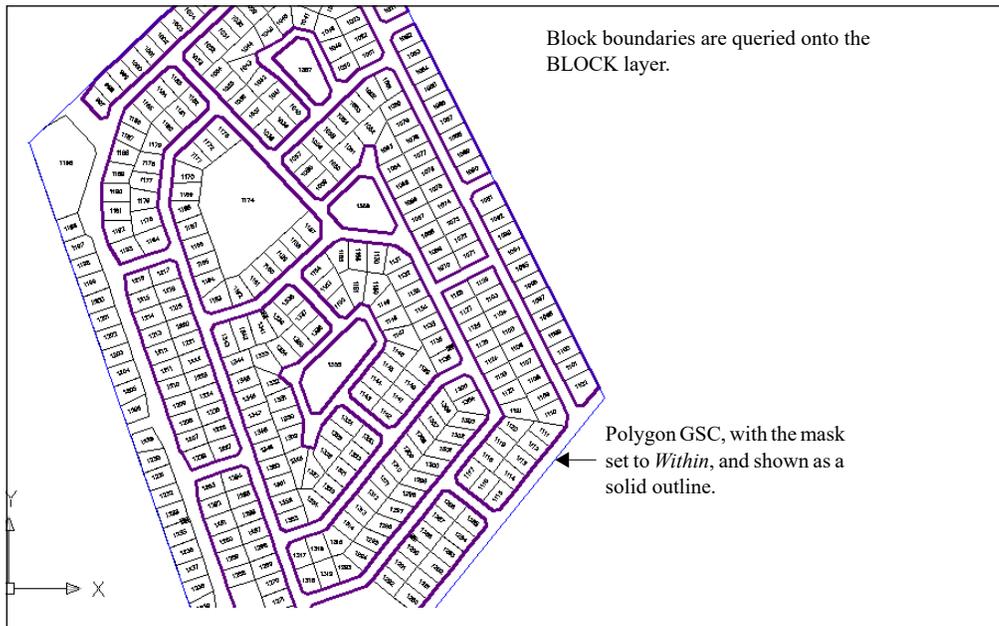


Figure 48 Querying block boundaries

Querying easements

Easements are queried from the database according to the **current GSC**, and are displayed as polygons (MUNPOLY objects) or lines (MUNLINE objects). Easements that are queried from the database are placed on layers according to their object type and easement type, for example a line-type easement with an easement type of General will be queried onto the EASELINE_GENERAL layer, while a easement polygon with an easement type of Reserve will be placed on the EASEPOLY_RESERVE layer. Easement text is queried onto either the EASEPOLYTXT or EASLINETXT layers, depending on the object type of the easement.

To query easements

- Choose **Query > Easements**.

The command line shows how many easement lines, polygons and text respectively were retrieved according to the current GSC.

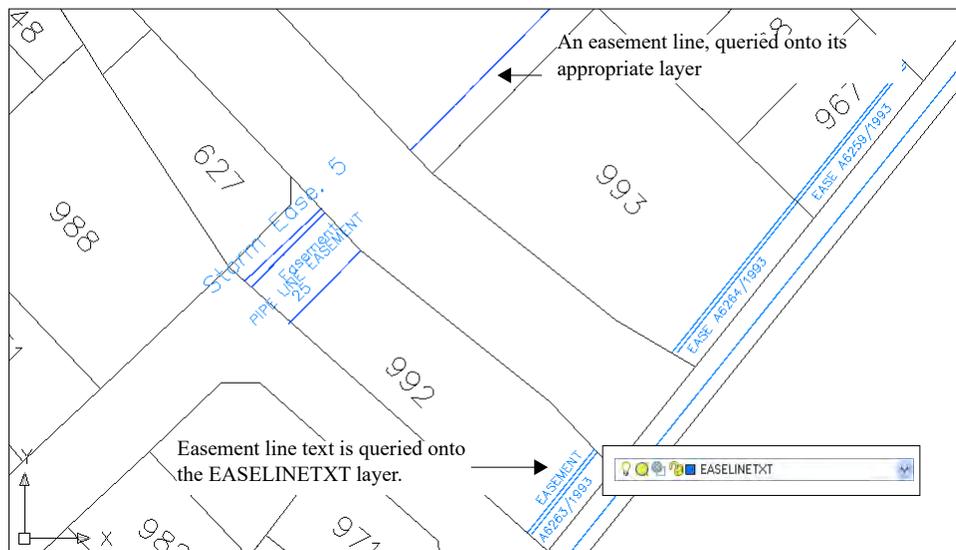


Figure 49 Querying easements

Querying street names

Street names are queried from the database according to the **current GSC**, and are displayed as labels (MUNLABEL objects). Street names are placed on the STRTXT layer.

To query street names

- Choose **Query > Street Names**.

The command line shows how many street names were retrieved from the database according to the current GSC.



Figure 50 Querying street names

Tip If the insertion point of the text falls outside the current defined GSC, the text item will not be queried from the database

Querying street addresses

Street addresses are queried from the database according to the **current GSC**, and are displayed as labels (MUNLABEL objects). Street addresses are placed on the STRADDR layer.

To query street addresses

- Choose **Query > Street Addresses**.

The command line shows how many street addresses were retrieved from the database according to the current GSC.

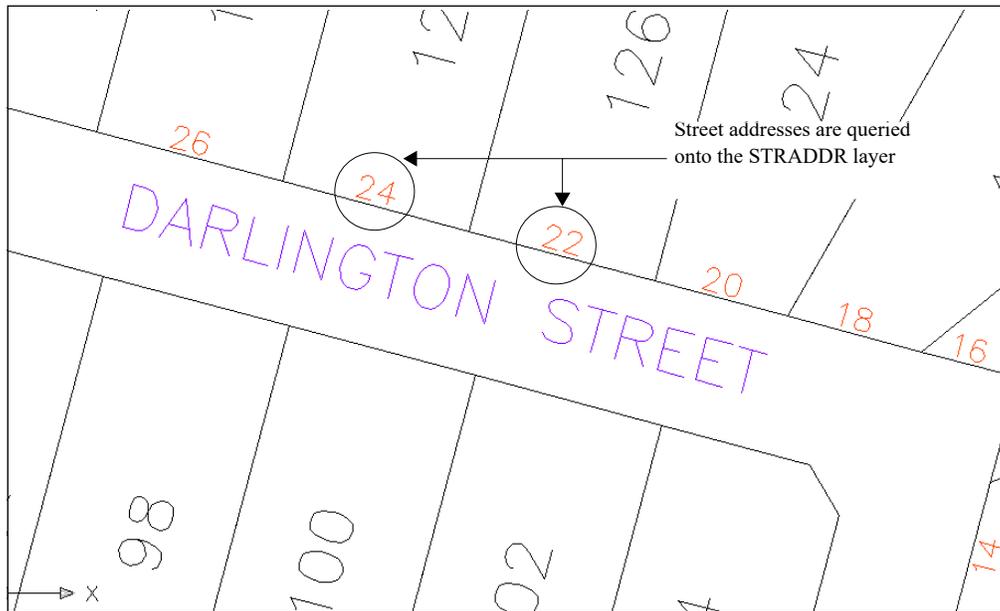


Figure 51 Querying street addresses

Tip If the insertion point of the text falls outside the current defined GSC, the text item will not be queried from the database

Querying buildings

Buildings are queried from the database according to the **current GSC**, and are displayed as polygons (MUNPOLY objects). Buildings are placed on the BUILDING layer.

To query buildings

- Choose **Query > Buildings**.

The command line shows how many buildings were retrieved from the database according to the current GSC.

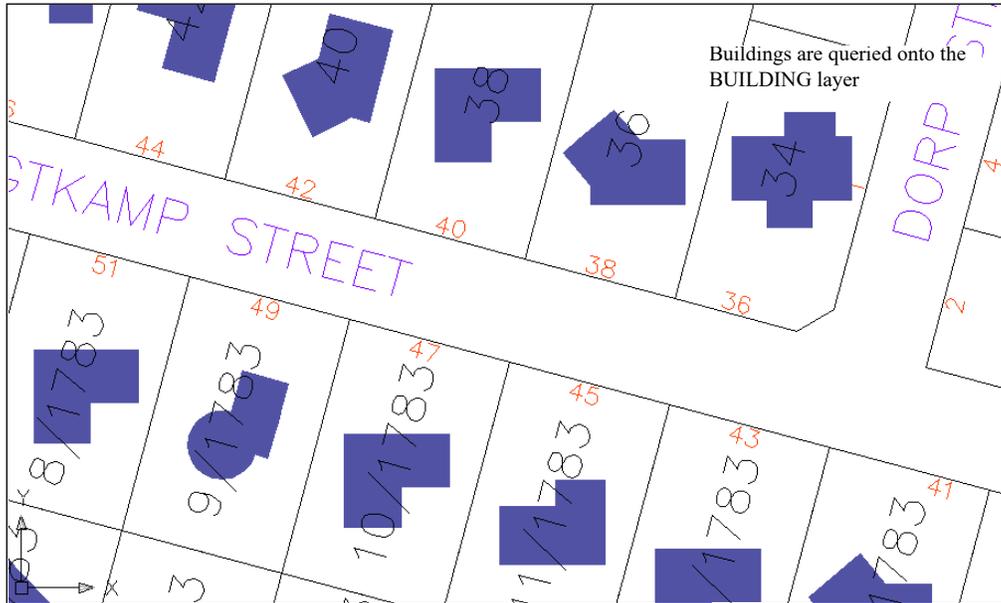


Figure 52 Querying buildings

Querying cadastral notes

Cadastral notes are queried from the database according to the **current GSC**, and are displayed as labels (MUNLABEL objects). Cadastral notes are queried onto the CMSNOTE_NOTE_TYPE_TEXT layer.

To query cadastral notes

- Choose **Query > Cadastral Notes**.

The command line shows how many cadastral notes were retrieved from the database according to the current GSC.

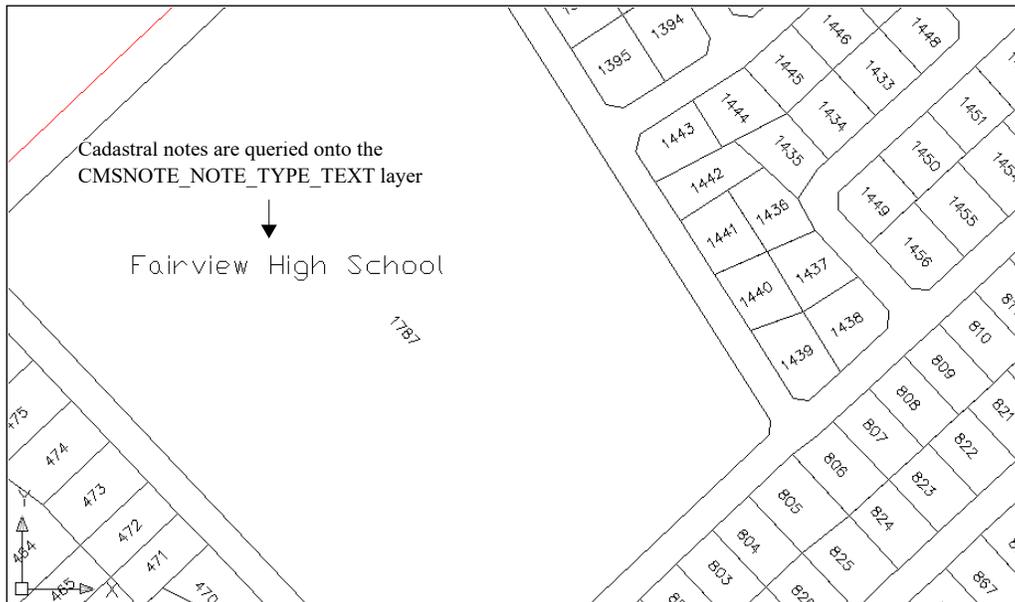


Figure 53 Querying cadastral notes

Browsing information

The Browse function is used to browse the contents of one or more tables or views of a currently logged on schema. The user privileges and access rights assigned determine the list of tables, views and queries that are available for browsing.

The browse selection opens a re-sizable mode-less browsing window so that the user can view the queried objects in the drawing while browsing the attribute information in the browsing window. Multiple Browsing windows can be opened simultaneously to view attribute data for different spatial objects, for example Sewer Pipes and Sewer Nodes.

Using the Browse Info... menu option the user is presented with the Browse Selection dialog box with a Queries tab and Table/Views tab as the first step to identifying the source of the content to browse. The Queries tab displays all system and user defined queries available to the user according to their assigned roles and privileges. The Tables/Views tab allows the user to browse information directly from tables, views, lookup tables, attribute templates or queried objects in the drawing according to their assigned roles and privileges.

Browse Selection

When initiating the browse command from the Query > Browse Info... menu item or from typing the command MUNBROWSE in the command line, the user is presented with the Browse Selection dialog box which has the following two tabs:

- **Queries tab** - displays a list of all user and default system queries available to the user dependent on their roles assigned.
- **Tables/Views tab** - displays a list of table items that are available to the user dependent on their roles assigned.

On the Queries tab the user is presented with a list of Query Categories which, when expanded, display a list of User Queries and default System Queries. The availability of query categories and their associated queries is dependent on the roles assigned to the user. A user with the role MUNSYS_ALL_QUERY will have access to view all the spatial tables in the database.

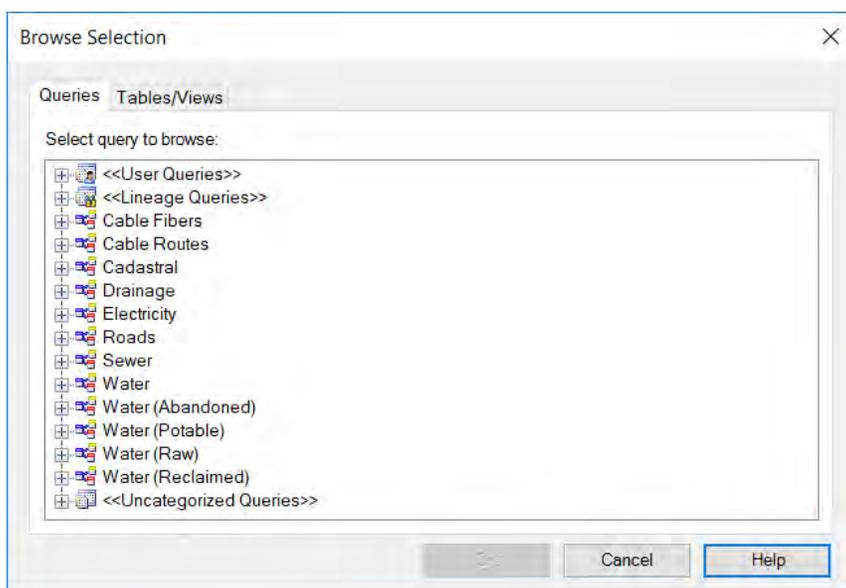


Figure 54 Browse Selection - Queries tab

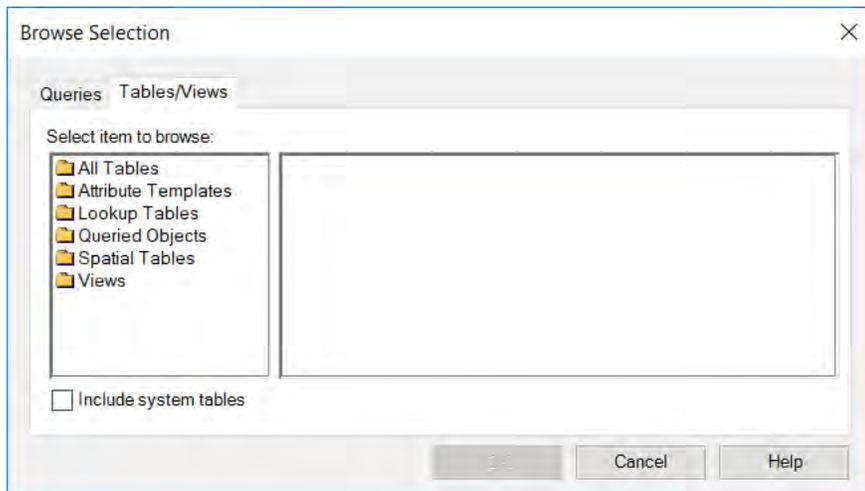


Figure 55 Browse Selection - Tables/View tab

Tip The Browse function can also be initiated by typing the command **MUNBROWSE** on the command line.

Browsing Info using predefined Queries

The user can select a user defined or system defined query to browse attribute information from the database. The query properties and filter conditions saved with the query determine what information is displayed in the Browse window.

To browse info using a predefined query

- 1 Do one of the following:
 - Choose **Query> Browse Info...**
 - or type **MUNBROWSE** on the command line
 The Browse Selection dialog box is displayed
- 2 Expand the query category required, highlight the query to browse from the list of queries on the Queries tab and then click **OK**.

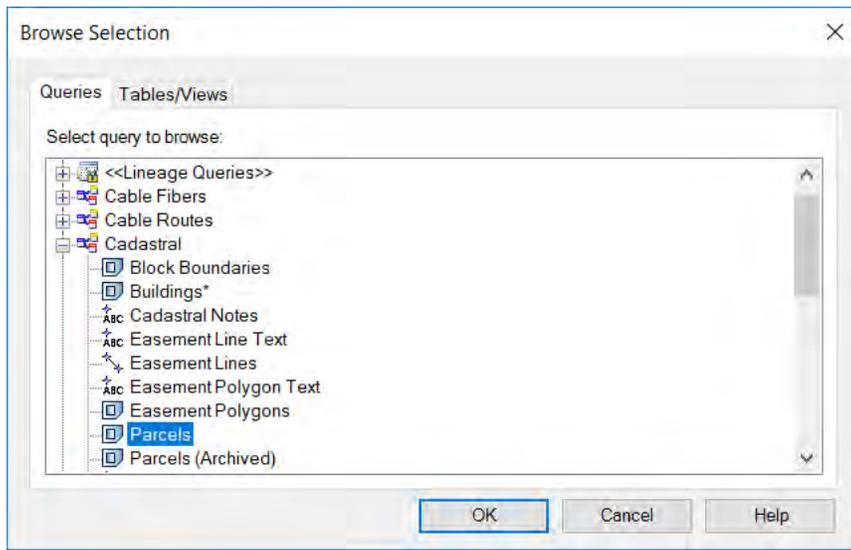


Figure 56 Selecting the table to browse from a list of predefined queries

Once the query has been selected, the result is populated to the Browsing Info window and is displayed in a table or grid format, including a row for every record and a column to specify the type of attribute information available. The Browsing window is menu driven and is sensitive to content selection. The result set can be refined by applying filters. The active result set is used at all times as input to the functions available on the menus.

The following menu items are available on the Browsing Info window:

- File – generates reports from the active result set, which allows the termination of the browse using the Close function.
- Edit – the user is allowed to copy selected rows to the clipboard, find a specific value or go to a specific record number as well as edit attributes or linked attributes for selected records.
- View – determines the result set by applying various filters and applying formatting of values.
- Records – this menu is only applicable when the primary table is a spatial table. The user can determine the spatial objects to query and once queried, can zoom to the spatial objects in the drawing and/or highlight equivalent objects.

Important This function will not allow a user to browse information from views if the join on the two tables does not consist of a primary key on any of the two tables. The user will be presented with Oracle error: **ORA-01455: cannot select ROWID from, or sample, a join view without a key-preserved table**. To prevent this error you need to add a primary key constraint or unique index to one of the tables used to define the view.

Browsing: Parcels

File Edit View Records Help

	GID	PRCL_KEY	PRCL_TYPE	LSTATUS	WSTATUS	GEOM_AREA
1	44280	000300080000...	P	R	C	16047.269
2	44603	000700010000...	P	R	C	1338.108
3	45414	000700011001...	P	R	C	1300.547
4	45209	005000020006...	P	R	C	999.872
5	45210	005000020006...	P	R	C	999.720
6	45211	005000020006...	P	R	C	999.655
7	45212	005000020006...	P	R	C	1000.667
8	45213	005000020006...	P	R	C	1093.247
9	45214	005000020006...	P	R	C	1093.977
10	45215	005000020006...	P	R	C	1093.754
11	45216	005000020006...	P	R	C	1093.718
12	45217	005000020006...	P	R	C	1092.930
13	45218	005000020007...	P	R	C	1010.396
14	45219	005000020007...	P	R	C	1100.044
15	45220	005000020007...	P	R	C	1079.503

Rows: 14690 Filtered Selected Rows: 0

Figure 57 The Browsing: Info window

Tip All column headers are sortable (toggle between ascending or descending) when selected in the Browsing result set.

The Browsing *Info* Window

Open queries for Browsing

The user can browse the contents of one or more tables or views without exiting the Browsing Info window by selecting the **File > Open...** menu item where the user will be presented with a dialog box of predefined user and system queries to select from. Selecting a query will populate the result set in the Browsing Info window and any attribute conditions assigned to the selected query will be applied to the result set.

Generating reports

This function allows the user to save the current result set to a Comma Separated Value file (CSV). The user is presented with the standard Save As dialog box, and navigates to the required path for saving the result set. The output format is a standard text file where the comma character (,) usually separates each field of text. Due to the simplicity of a CSV file, it is compatible with various other applications.

- 1 On the **Browsing Info** window, choose **File > Report to file...**
The Save As dialog box is displayed.
- 2 Navigate to the appropriate folder, and then type the file name in the **File Name** text box.
- 3 Click **Save**.
- 4 The information bar on the dialog box displays the number of records that were saved.

Note

The report is set to save as a CSV file by default, but the user has the option to save the report as a TXT or HTML file by selecting the **Save as type:** drop down list.

Editing Attributes

The **Edit > Edit Attributes...** menu item prompts the user to select one or more spatial objects from the drawing to edit. Once the selection has been made the Edit Attributes dialog box is displayed allowing the user to edit the spatial object attributes that belong to the same object type. (See Chapter 4-32)

The current application determines what object types may be selected; for example, if you are working in Munsys Sewer, only sewer objects may be selected. The command line prompts the user to select the type of object expected, for example: Select water objects:

If you select more than one object type, for example sewer pipes and sewer nodes, you will be required to choose a single object type to edit.

Editing Linked Table Attributes

The **Edit > Edit Linked Table Attributes...** menu item prompts the user to select one or more spatial objects from the drawing to edit. Once the selection has been made the Linked Table Attributes dialog box is displayed allowing the user to edit the attributes for the linked table. (See Chapter 4-35)

If no linked table has been defined a No Linked Table warning message is displayed
No attribute templates exist with appropriate linked tables.

Finding results

The Edit > Find... menu item searches through the entire result set, finds the matching record(s) and allows you to select a record from the Find Info results and locate and highlight the record in the Browsing Info results set.

On the Find dialog box, you must enter the value(s) to search for, as well as indicate the column in which to search. The columns available from the lookup list includes columns from linked tables, as well as columns that were not identified as available columns when browsing the data. The search operation can be refined by applying more search parameters including an exact or partial match.

Tip The search is affected by the **Display Formatted Values** option (available on the **View** menu). If this option is active the search will ignore the raw values and search for formatted values. **The value in the search is case sensitive at all times.**

Figure 58 Finding records by applying search criteria

Finding a row number

The Edit > Goto Row Number menu item allows the user to search for a specific row number within the result set. If the required row number is found, it is displayed and selected. Should the required row number not be found, a message to this effect will be displayed.

Copying results

The Edit > Copy menu item allows users to copy a selection from the result set to the clipboard for pasting into other applications. Column headings are copied with the selected records. Columns and records are comma delimited text and may be pasted to any application that accepts text.

Filtering by attributes

With the Filtering by attributes function, you can filter the current result set by applying an attribute filter that is constructed by attribute conditions. Once the attribute conditions are applied on the current result set, it is refreshed with the new values. The Attribute Condition dialog box is used to construct the filter that will be used to apply to the initial result set. For users who are not familiar with SQL statements, Munsys provides drop-down lists in the order required to easily construct the applicable filter. The Attribute Condition is used to construct complex filters that contain more than one attribute condition.

- 1 Choose **View > Filter by Attributes...**

The Attribute Conditions dialog box is displayed showing the existing conditions applied to the query.

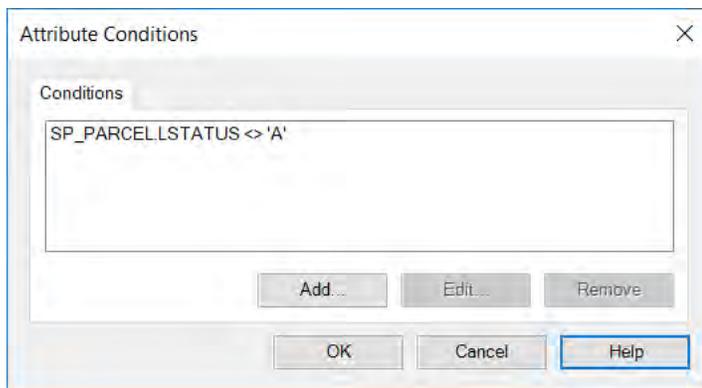


Figure 59 The Attribute Condition dialog box

- 2 To define a condition statement, the user can either edit or remove the existing attribute conditions or add additional attribute conditions. To add attribute conditions select do the following:
 - Select the **Add** button to display the **Add Condition** dialog box.

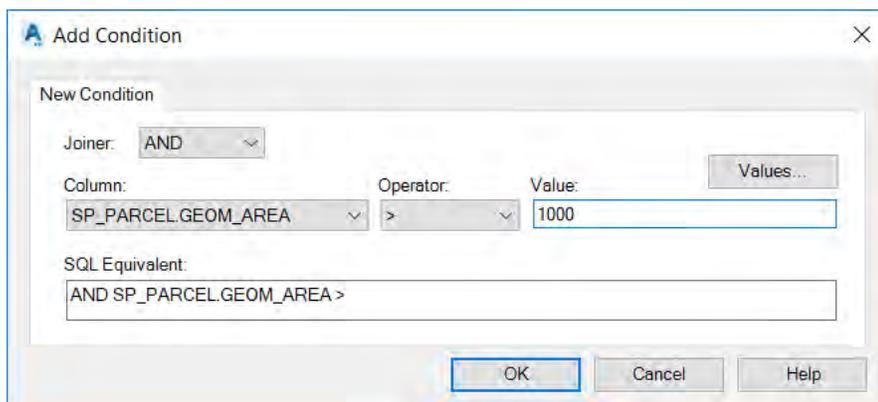


Figure 60 The Add Condition dialog box

- From the **Column** drop-down list, select the appropriate column to determine the criteria.
- From the **Operator** drop-down list, select the operator that best suits the condition that you want to check. Operators include <=, =, >=, etc. Use these operators to produce the desired spatial result.
- In the **Value** option, enter the criteria that will be tested against the value of the column and that qualifies the condition operator.

Tip You can select the **Values...** button to get a list of unique values from the database for the column selected for the criteria. The list is limited to display the first 50 records, but by checking the **Show All** check box all the values in the database for the selected column are displayed.

- Click the **OK** button to add the condition to the **Condition** dialog box.

3 To define your own criteria start typing the SQL statement in the **SQL Equivalent** box.

- Enter a SQL statement, and then click **OK**.

The condition syntax will be checked and errors reported. A valid condition statement will automatically be added to the **Condition** dialog box.

4 Click **OK** to apply the attribute filter.

The **Browsing Info** dialog box is refreshed with the new result set.

Filtering by GSC

The **View > Filter by GSC** menu item filters spatial data according to the current GSC. The current GSC is zoomed to the extents of the drawing area while the **Browse Info** dialog box is still active. This spatial filter is also applied on the current result set that is displayed in the **Browse Info** dialog box.

This function does not replace any previous defined attribute or spatial filters that are active but complement these.

Filtering by spatial objects

This function applies a spatial filter to the current result set by prompting the user to select Munsys objects in the current drawing. When activating the option, the user will be requested to select the appropriate spatial objects that are used as the filter. Once the user has selected these objects, the **Browse Info** dialog box is updated accordingly.

This filter criteria will replace all previously defined spatial filters, but complements attribute and GSC filters.

1 Choose **View > Filter by Spatial Objects**.

2 Select the appropriate spatial objects in the drawing, and then press **ENTER**.

The **Browse Info** dialog box is updated accordingly.

3 To reset the **Browse Info** dialog box, use the **Clear All Filters** option on the **View** menu.

Note

The filter by spatial objects selection is restricted to 1000 records. If more than 1000 records are selected, the user will be presented with a message and will be required to reselect the objects from the drawing. *Maximum number of selected records exceeded. Please limit the selection to 1000 spatial objects.*

Filter selected objects only

The View > Filter Selected Object Only function allows the user to select records in the Browsing window grid and use that record selection to update the results in the Browsing window. The user can select the records individually or hold down the Shift key to do a group selection, or hold down the Ctrl key to do multiple record selection.

The user highlights the records to filter on in the grid and then selects the menu item to update the resultant selection set.

Clearing all filters

The View > Clear Filter menu item is used to clear all of the previously defined filters, and is therefore only available when at least one filter has been specified. Once the function is activated, the result set is refreshed with no filters applied.

Displaying formatted values

The View > Display Formatted Values menu option is used to display more descriptive information in the result set, for example, rather display the land use description instead of a code. Column headings are also affected by this setting, headings are displayed with appropriate descriptions. If descriptions are not available the column name is prefixed with the table name.

The formatted values affect the data display in the result set, generating of reports, copying of selected records and the find function.

Viewing SQL statements

The View > SQL Windows opens a SQL window at the top of the Browsing window and displays the SQL syntax for the current selection set. This SQL statement is updated when ever filter conditions are applied. The user can copy the SQL statement from the SQL window for use within SQLPlus or for documentation purposes.

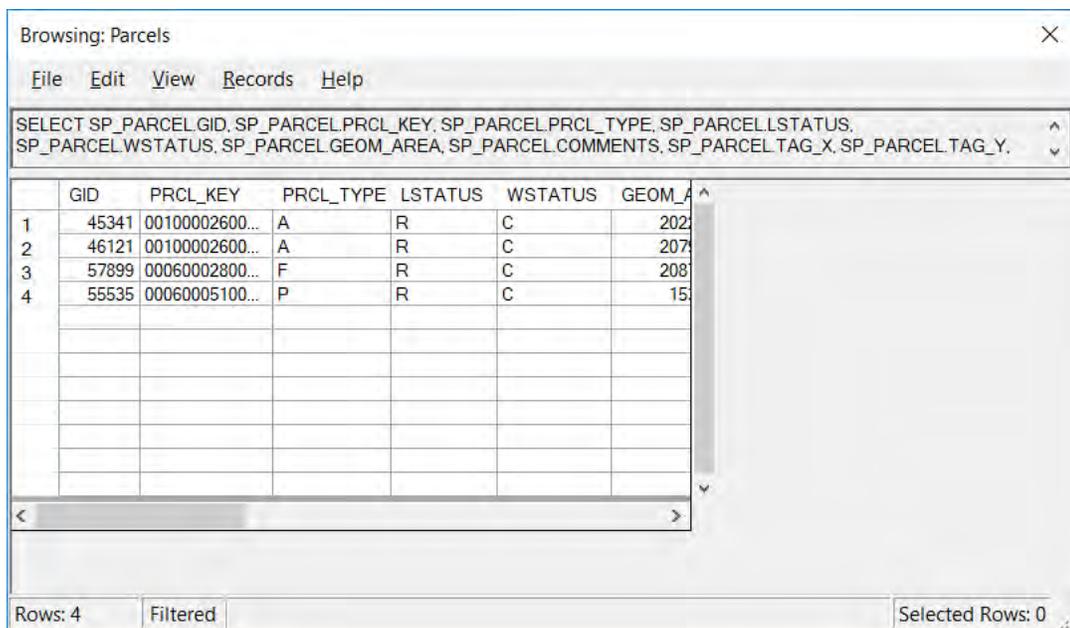


Figure 61 View > SQL Window displays the SQL syntax for the current selection set.

Setting an object query

This function is used to select a spatial query that will be used when querying spatial objects from the database. The available spatial queries are determined by the spatial table, identified on the Browse Content dialog box. The selected spatial query will be used to query the spatial objects associated with the result set.

- 1 Choose **Records > Set Object Query...**

The Available Queries dialog box is displayed and the queries relating to the selected spatial table are expanded by default.

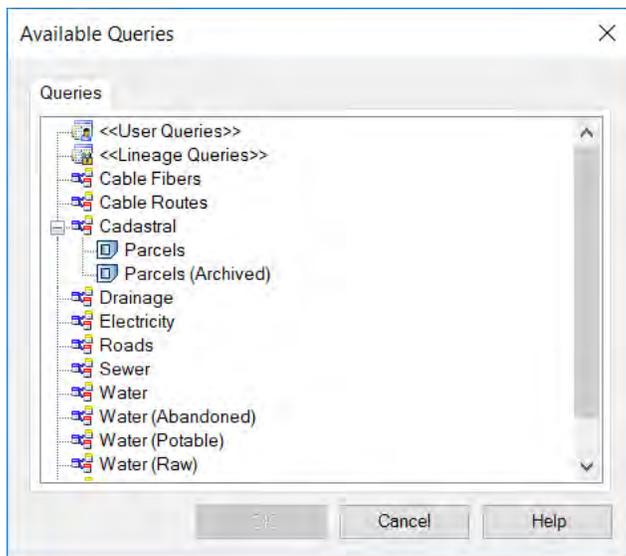


Figure 62 The Available Queries dialog box

- 2 Select the appropriate system query from the list, and then click **OK**.

The required system query is set.

Querying objects

The Query Objects function allows the user to select records in the Browsing list and then query them into the drawing. The associated Munsys objects are created in the current drawing. The system query that was identified during the Set Object Query... function is used to determine the formatting parameters when querying spatial objects from the database.

- 1 On the **Browsing Info** dialog box, select the appropriate record/s from the result set.
- 2 Choose **Records > Query Objects**.

The associated spatial record/s is queried into the current drawing onto the appropriate spatial layer.

- 3 To view the queried spatial objects, see **Zooming to objects**.

Zooming to objects

This function is used to locate queried spatial objects. Once the user has selected the appropriate record in the result set, the **Zoom to objects** function automatically zooms to the associated spatial object in the drawing. The aggregated extents of the object encountered is used to change the zoom state of the drawing.

- 1 On the **Browsing Info** dialog box, select the appropriate record from the result set.
- 2 Choose **Records > Zoom to Objects**.

The associated spatial object is zoomed to the extent of the screen.

Highlighting objects

This function is used to select a records in the result set, and then highlights the associated spatial objects in the drawing. The zoom state of the drawing remains unchanged during this operation.

- 1 On the **Browsing Info** dialog box, select the appropriate record/s from the result set.
- 2 Choose **Records > Highlight Objects**.

The associated spatial objects are highlighted in the drawing.

- 3 To zoom to the highlighted record, refer to **Zooming to objects**.

Highlighting records

This function is used to select spatial objects in the drawing and then highlights the associated records in the result set. The user is required to select at least one spatial object in the drawing. The user will only be able to select the spatial objects in the drawing associated with the primary table identified.

- 1 On the **Browsing Info** dialog box, select the appropriate record/s from the result set.
- 2 Choose **Records > Highlight Records**.

The associated records in the result set are highlighted.

- 3 Use the **Records > Clear Highlighted Records** menu item to clear the highlighted records.

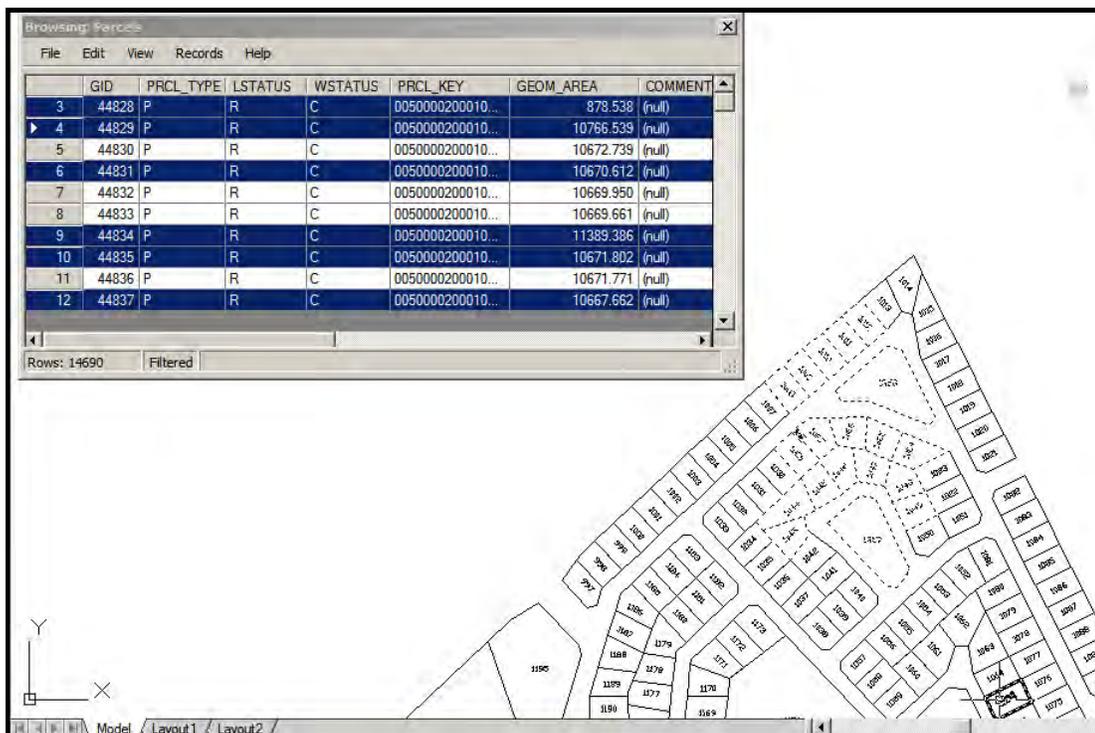


Figure 63 Combination of highlighting records and objects when browsing

Browsing Tables and Views

If the Browse Window function is initiated from either the Query > Browse Info menu item or by typing the command MUNBROWSE at the command line, Browse Info dialog box with the Tables/Views tab is displayed. The user must select one of the following items to browse:

- **All Tables** - lists all tables in the database.
- **Attribute Templates** - lists all attribute templates in the database.
- **Lookup Tables** - lists all lookup tables in the database.
- **Queried Objects** - lists the tables for objects queried into the drawing.
- **Spatial Tables** - lists all spatial tables in the database.
- **Views** - lists all spatial views in the database.

Once the user selects one of the items to browse, the Browse Selection dialog box is displayed and a list of all available tables are populated to the content pane.

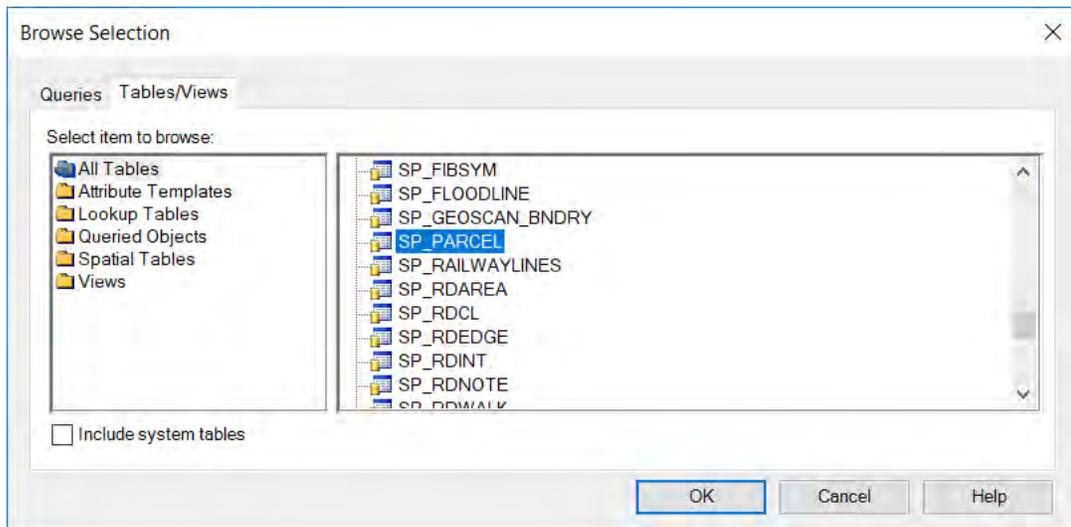


Figure 64 Tables/Views: All Tables

To select a table to browse

- 1 On the **Select item to browse** list of items, select one of the items from the list.
- 2 Once selected, the content pane on the right will be populated with a list of available tables and or views according to the roles assigned to the user.
- 3 Select a table from the content pane and then click **OK**.

The Browsing window will open and the resultant list will display all records in the table. The user can then apply filter conditions to refine the number of records in the result set. See The Browsing Info Window.

Showing information about spatial objects

Introducing the Munsys Info Palette

The Munsys Info Palette replaces the Show Info functionality (which showed spatial data and attributes connected to a selected spatial object) that was available in previous versions of Munsys.

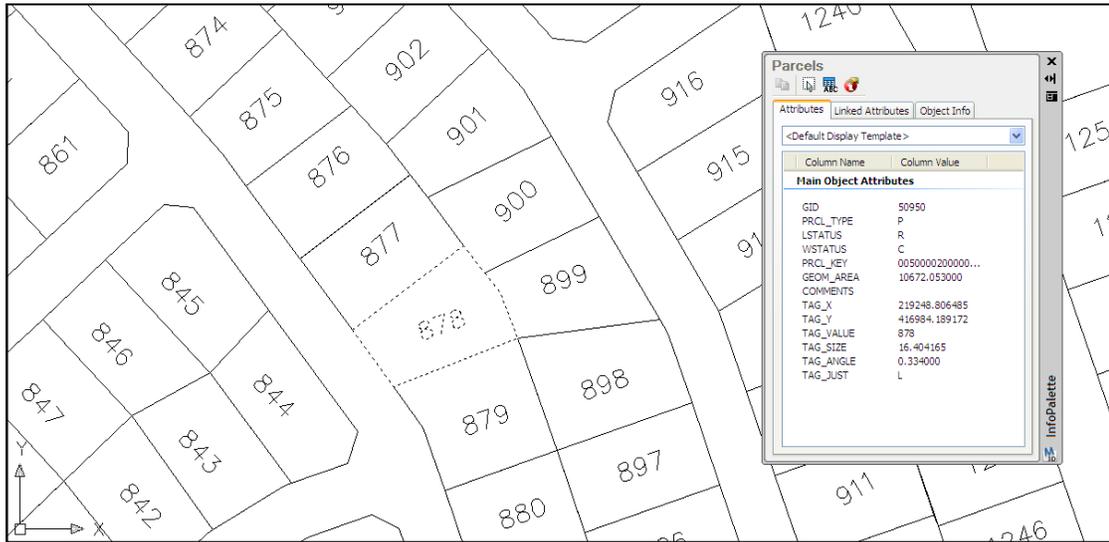


Figure 65 The Munsys Info Palette

The Info Palette is activated in the AutoCAD environment with the `MUNINFOPALETTE` command, or by selecting the Info Palette > On menu item from the Query menu. The palette is dockable and remains open until the user closes it.

The Info Palette toolbar contains the following buttons:

- Copy – allows the selection of entire rows, entire columns, or separate cells to copy.
- Edit Spatial Attributes – displays the Edit Attributes dialog box, which is used to edit the attributes of the selected object.
- Info Palette Preferences – displays the Info Preferences dialog box, which is used to set the default preferences for Modified Attributes, Data Formatting and Link Template Results.

If the Info Palette is open and a Munsys Object is selected, the palette is updated with the details of the selected object. If a non-Munsys object is selected, or more than one object (these may or may not include Munsys Objects), the content of the palette is cleared, as the Info palette is only populated upon selection of a single Munsys Object.

Important The way that objects are selected on the **Info Palette** is dependent on the **MUNINFOSELECT** command. This command is used to toggle the behavior of the auto-select option in the Info Palette. If the Info Palette auto-select is set to **On** (the default setting for each session), the Info Palette is populated with the properties of any one object that is selected in the drawing while another command is not active. If the auto-select is set to **Off**, the Info Palette is only populated when an object is selected using the **Select Object** button, as seen below:

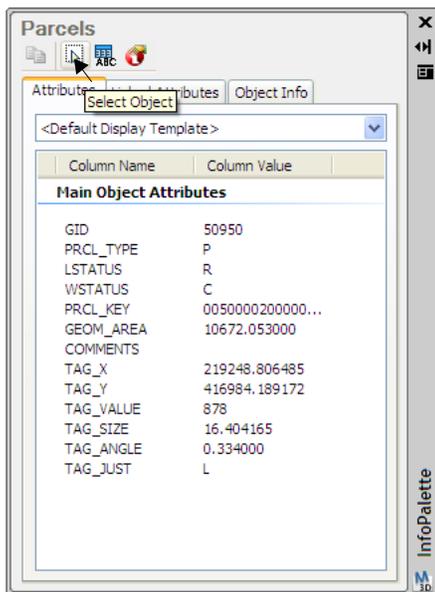


Figure 66 Show Info: Select Object

The Info Palette is divided into the following three tabs:

- Attributes – displays the attributes for the selected object. A Display Template is selected from the list of available templates.

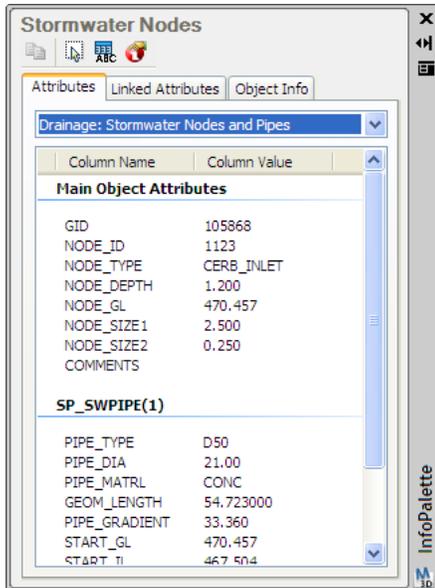


Figure 67 Info Palette: Attributes tab

- **Linked Attributes** – displays information as defined in a selected Link Template.

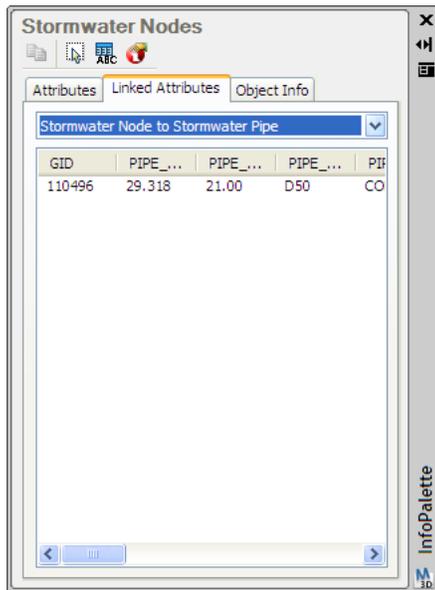


Figure 68 Info Palette: Linked Attributes tab

- Object Info – displays detailed information regarding the selected object, separated into predefined groups.

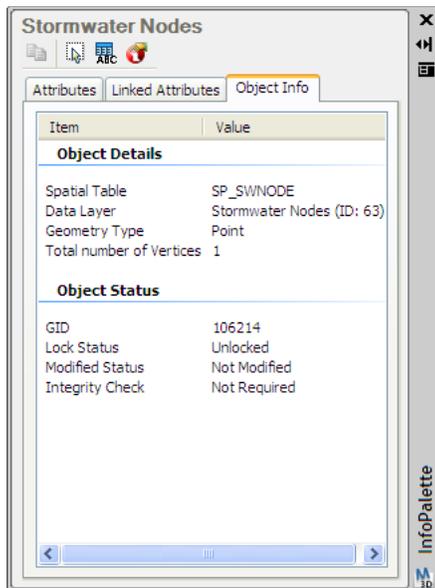


Figure 69 Info Palette: Linked Attributes tab

When you right-click on a value on the Attributes or Linked Attributes tabs, a context-sensitive menu becomes available, which is used to copy data and specify formatting options.

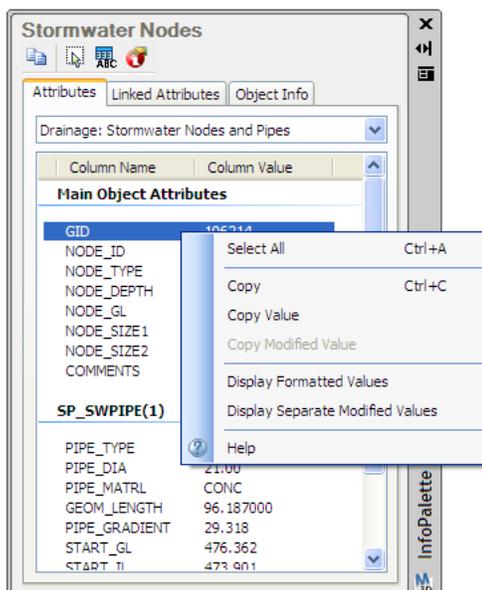


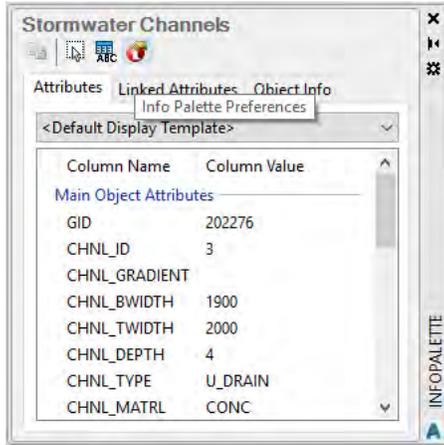
Figure 70 Info Palette: Context-sensitive menu

Specifying Info Palette preferences

The Info Preferences dialog box is used to specify default preferences for certain items on the Info Palette.

To specify Info Palette Preferences, do the following:

- 1 Click the **Info Palette Preferences** button on the **Info Palette** toolbar.



The Info Preferences dialog box is displayed, showing the Modified Attributes tab, which is used to specify the preferred view the user has on modified values.

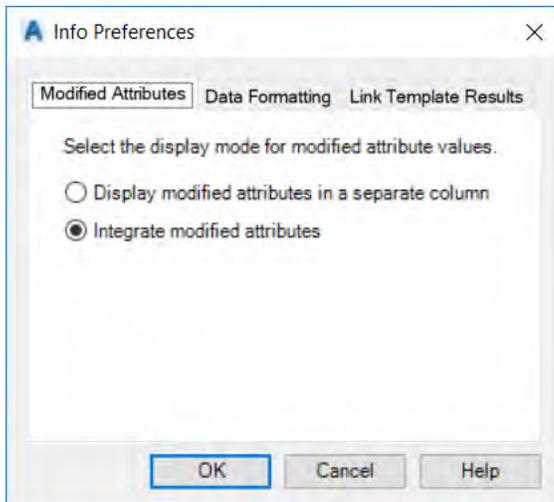


Figure 71 Info Preferences: Modified Attributes

- 2 Select one of the following options:
 - Display modified attributes in a separate column – modified attributes are displayed in a separate column.
 - Integrate modified attributes – modified attributes will not be displayed separately

- 3 Click the **Data Formatting** tab, which is used to specify the preferred data format options.

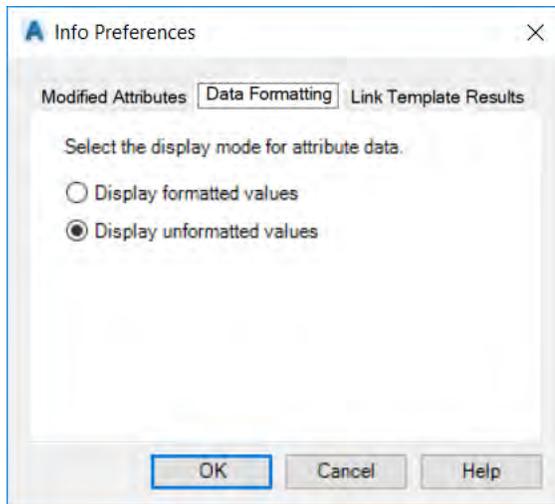


Figure 72 Info Preferences: Data Formatting

- 4 Select one of the following options:
 - Display formatted values
 - Display unformatted values
- 5 Select the **Link Template Results** tab, which is used to set the preferred size for the Link Template results.

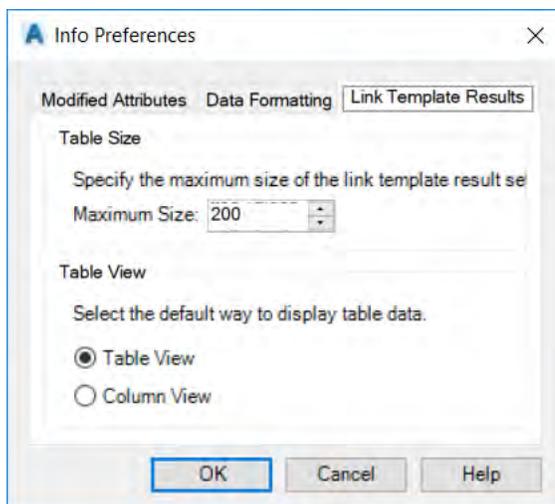


Figure 73 Info Preferences: Link Template Results

- 6 Specify the following:

- **Table Size** – specify the preferred size for the Link Template results. A value can be entered manually, or by using the arrows.
 - **Table View** – select the Table View or Column View option to specify the way in which the table data is displayed.
- 7 Click **OK** to apply the preferences to the Info Palette.

Setting a coordinate system

With Munsys, you can set the drawing coordinate system to be different from the database coordinate system. By setting the drawing coordinate system, you can query objects from the database coordinate system into a drawing coordinate system. The data transformation will be done during the query. You have to make certain that the database and drawing coordinate system are compatible for the specific area that you are working in. The administrator has the option to set the scale and rotation of text and symbols to remain as it is in the database. The settings can be verified on the Capture Settings dialog box under the General group (the Capture Settings dialog box is accessed from the first menu item of each application's Capture menu, for example Capture > Sewer Settings...). New and changed objects can be posted to the database while the drawing coordinate system is set. The data will be transformed to the database coordinate system as part of the posting process.

To set a coordinate system

- 1 Choose **Extras > Set Coordinate System...**
- 2 The **Set Coordinate System** dialog box is displayed.

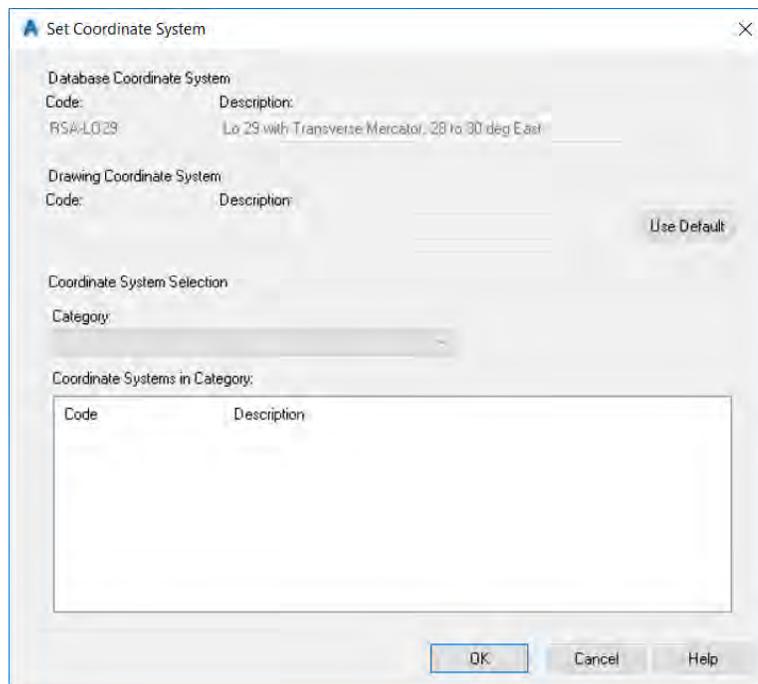


Figure 74 The Set Coordinate System dialog box

- 3 From the **Coordinate System Selection** group, select the **category** in which the required coordinate system is grouped.
- 4 From the **Coordinate Systems in Category** list, select the appropriate coordinate system, and then click **OK**.

Once the coordinate system is set, data is queried from the database and is displayed in the coordinate system set above.

Munsys reports

A Munsys report consists of information that is generated from existing attribute data. To generate a Munsys report, you have to specify for which spatial objects the report will be created, and which attribute data assigned to these spatial objects should be used.

The result of the report is saved in a text file format – CSV (comma delimited). Commas separate columns of data, and each row of data ends in a carriage return. The text file can be opened in a word processing program or spreadsheet.

A Munsys report contains the following type of information:

- The first line indicates which spatial table is used to create the report.
- The second line contains the date and time that the report was created.
- The third line contains the field names that the user selected when creating the report.
- The body of the report contains information only for the selected spatial objects.

To create a report

- 1 Choose **Extras > Report...**
- 2 Select the spatial objects to create the report from, and then press **ENTER**.

The Table Names dialog box is displayed.

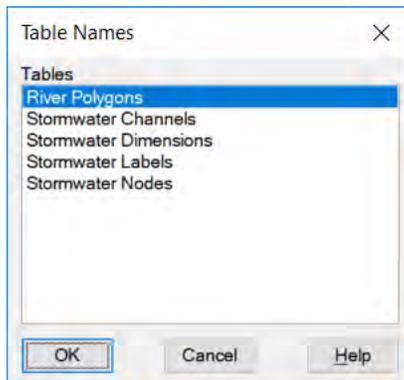


Figure 75 The Table Names dialog box

The Table Names dialog box contains a list of all the tables of the selected spatial objects.

- 3 From the list of tables, select a table, and then click **OK**.

The Column Names dialog box is displayed.

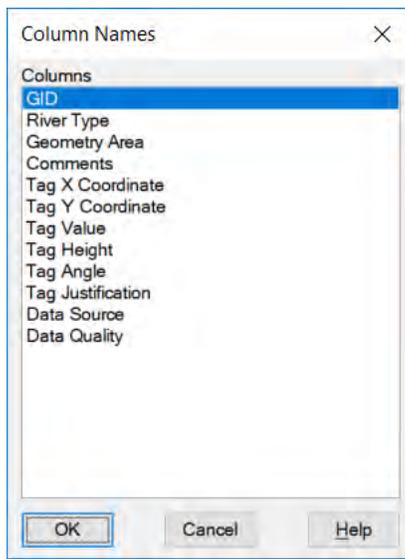


Figure 76 The Column Names dialog box

- 4 From the list, select the columns to include in the report, and then click **OK**. The Save report as dialog box is displayed.

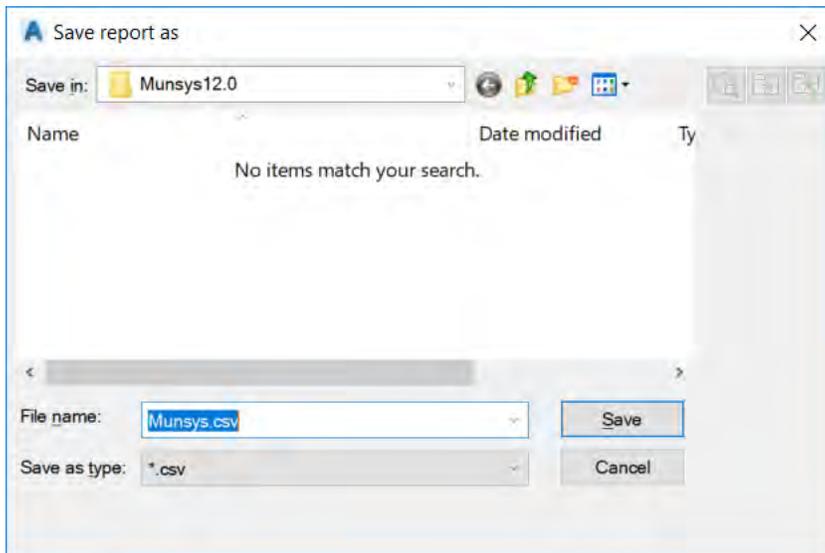


Figure 77 The Save report as dialog box

- 5 Enter a **file name** for the report, and then click **Save**. The report opens in Microsoft Notepad® as a text file.