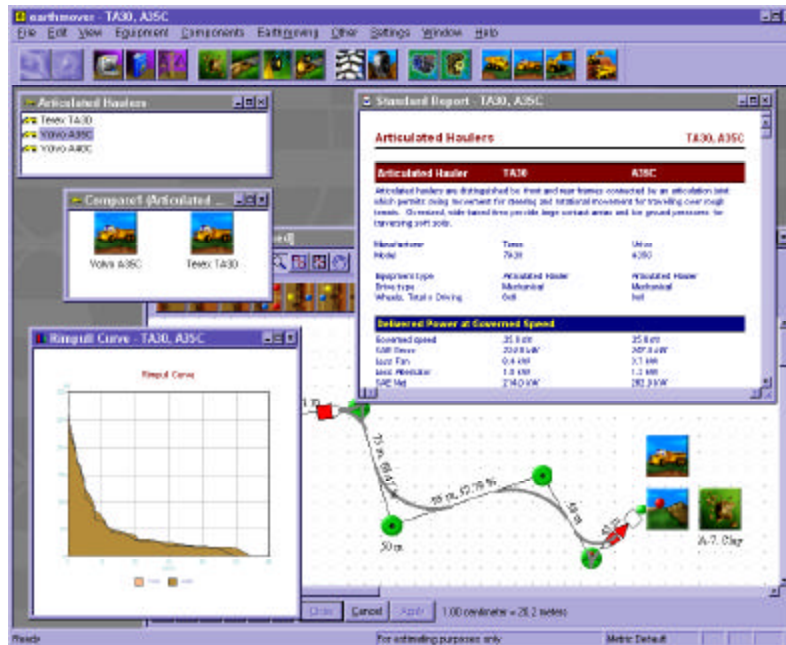




earthmover™ software
decision making at the cutting edge

Project Site Wizard and the Single Simulation Report



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Project Site Wizard

Using the Project Site Wizard the project site can be built in 5 steps.

To begin, click on the Project Site button.



This will bring up the Project Site tree. Now click on the Wizards button on the toolbar to build a new site.

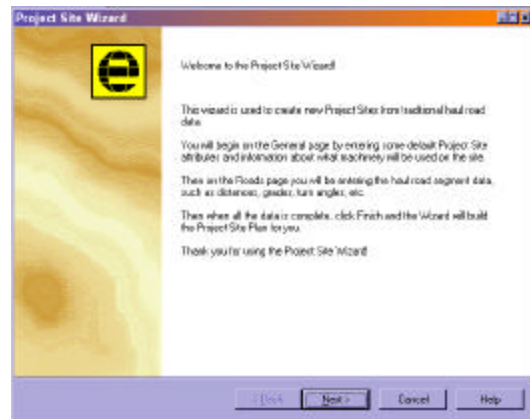


You now see the Project Site Wizard window. This wizard is used to create new Project Sites from traditional haul road data.

You will begin on the General page by entering some default Project Site attributes and information about what machinery will be used on the site.

Then on the Roads page, you will be entering the haul road segment data, such as distance, grades, turn angles, etc.

Then, when all the data is complete, click Finish and the Wizard will build the Project Site Plan for you.



Step 1: General Information

On the first page of the Project Site Wizard, you are asked to provide some basic information about the site.

Company: select the company for whom this site is being generated.

Site Description: provide a name which will be used to identify the site.

Weather: select the weather conditions that describe the environment at the project site on a typical day.

Project Site Wizard	
General	
Company	Brantley
Site Description	Example Project Site
Weather	Chilly and dry
Material	Sandstone
Haul road cross-section	Clay borrow pit
Starting angle of path leaving loading area	90°

Material: select the material that will be loaded, hauled, and dumped on the site.

Haul road cross-section: select the road description which most closely describe the material and condition of the road at the site.

Starting angle of path leaving loading area: adjust the angle from which the project site diagram will be drawn in reference to the loading area (Not necessary to adjust for this initial tutorial).

After you have completed this page of the Wizard, click the Next button.

Step 2: Equipment

On the second page of the Project Site Wizard, you are asked to provide some information about the equipment operation on the project site.

Load area configuration: select the loading configuration at your site.

Dump area configuration: select the method the material is dumped at your site.

Loading equipment: select the loader that will be used at your site.

Loader operator: select the type of operator who will be driving the loader.

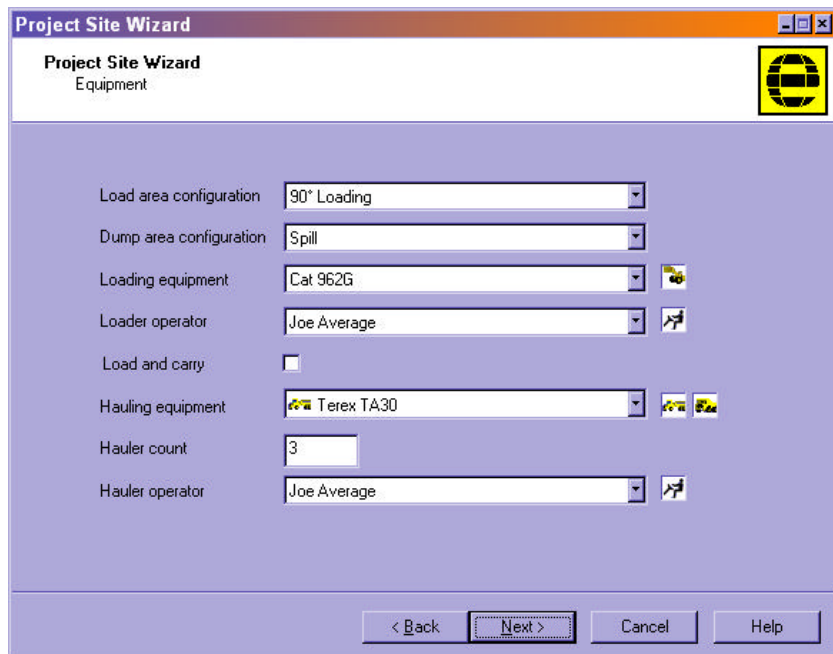
Load and carry: check this box if the loader will be used at the hauler. (This feature will is not yet activated.)

Hauling equipment: select the hauler(s) that will be used to move material on your site.

Hauler count: enter the number of loaders that will be used on your site.

Hauler operator: select the type of operator who will be driving the hauler.

After you have completed this page of the Wizard, click the Next button.



The screenshot shows a software window titled "Project Site Wizard" with a subtitle "Equipment". The window contains several configuration options:

- Load area configuration: 90° Loading
- Dump area configuration: Spill
- Loading equipment: Cat 962G
- Loader operator: Joe Average
- Load and carry:
- Hauling equipment: Terex TA30
- Hauler count: 3
- Hauler operator: Joe Average

At the bottom of the window, there are four buttons: "< Back", "Next >", "Cancel", and "Help". The "Next >" button is highlighted with a dashed border.

Step 3: Road Profile

On the third page of the Project Site Wizard is where you enter information about the haul road at the project site.

The road profile page consists of a spreadsheet style grid in which data is entered to describe the haul road beginning with the road as the hauler leaves the loading area.

The first column is used to name the road segment. In the example below, the first part of the haul road is described as "Haul road segment 1."

The second column is used to indicate the length of each road segment. In our example below, Haul road segment 1 is 100 ft long.

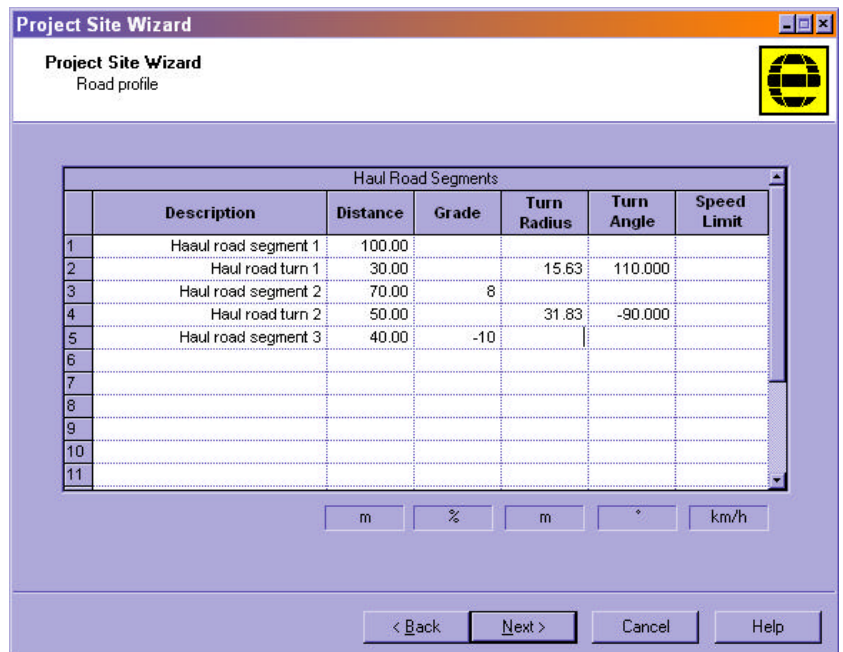
The third column is used to indicate any percent grade of the haul road for each segment. In our example below, Haul road segment 1 is flat (no percent grade).

The fourth and fifth columns are used in cases where the segment is a turn. The distance, turn radius, and turn angle together form the turn. The turn radius describes the distance from the center point of the turn to the turn arc. The turn angle describes the turn in degrees. Negative numbers are used to indicate counter-clockwise turns. If you can estimate the turn angle, but are not sure of the turn radius, fill in the turn angle only, and Earthmover will compute the turn radius on-the-fly. In our example, there are two turns.

The sixth column is used to indicate any speed limit posted on that segment. In our example, there are no speed limits on the segments.

A brief description of our example below:

1. Haul road segment 1 is 100 meters long, has no change in direction (turn), has no grade change, and has no speed limit change.
2. Haul road turn 1 is a section of the road which is 30 meters long over which there is no change in elevation (grade), and the road turn 110 degrees



The screenshot shows a software window titled "Project Site Wizard" with a sub-header "Road profile". It contains a table with the following data:

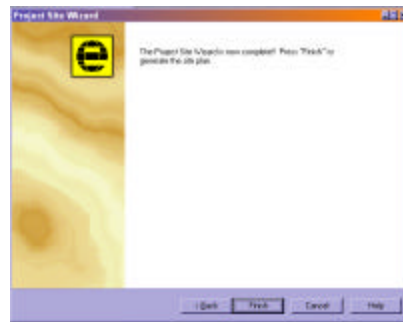
	Description	Distance	Grade	Turn Radius	Turn Angle	Speed Limit
1	Haul road segment 1	100.00				
2	Haul road turn 1	30.00		15.63	110.000	
3	Haul road segment 2	70.00	8			
4	Haul road turn 2	50.00		31.83	-90.000	
5	Haul road segment 3	40.00	-10			
6						
7						
8						
9						
10						
11						

Below the table are unit selection buttons: m, %, m, °, km/h. At the bottom are navigation buttons: < Back, Next >, Cancel, and Help.

- clockwise. This turn has a turn radius of 15.63 meters.
3. Haul road segment 2 is 70 meters long, has an 8 percent grade, is not a turn, and there is no posted speed limit.
 4. Haul road turn 2 is a section of the road with is 50 meters long, has no grade, has a 90 degree left turn (counter-clockwise) with a 31.83 meter turn radius, and has no posted speed limit.
 5. Haul road segment 3 is 40 meters long, has a 10 percent grade down, has no turn or speed limit.

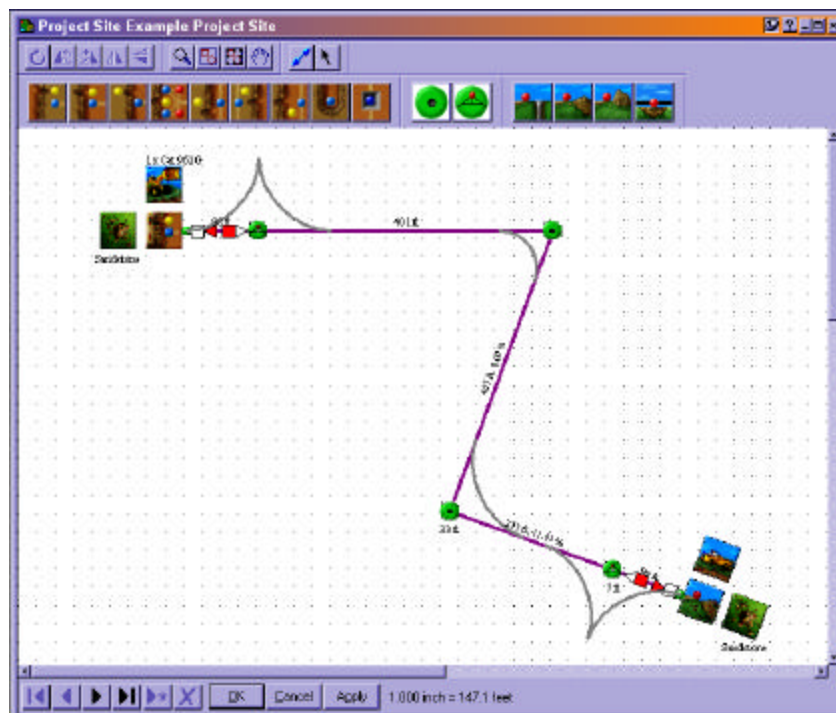
Step 4: Finish

That's it, you have provided all the necessary information needed by the Project Site Wizard. Click Finish to generate the Site Plan.



With the Project Site Wizard complete, you see the Site Plan below:

will

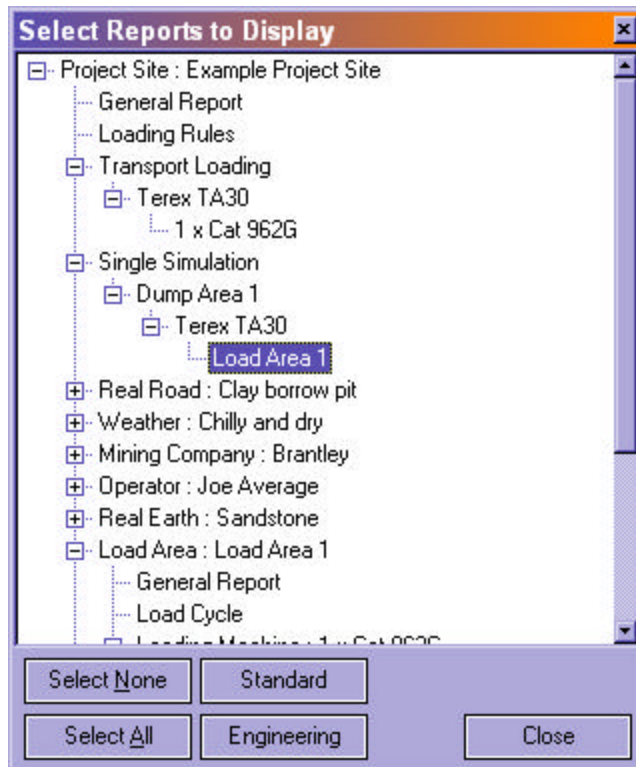


Simulation Reports

With the simulation report complete, we can now generate a simulation report. To do this, click on the Reports button on the toolbar.



This will display the Report Tree shown here:



Under the Single Simulation section, select Load Area 1. This allows us to generate a simulation report for activity originating at Load Area 1.

Now, click the button labeled Engineering to display the report.

When the report is generated, click on the Close button on the Report Tree window to examine the Simulation report.

The Single Simulation Report

A single simulation estimates the productivity between a single load area and a single dump area for a single transport machine for one trip cycle.

The single simulation report includes the following sections:

- ?? Cycle Times- the simulation estimates the travel loaded and empty times as well as both maneuver times. Average load times are computed in a separate section. Dump time is per the transport machine specifications. This provides the following numbers:
 - Loading time
 - ~~○~~ Average load time
 - ~~○~~ Maneuvering at load
 - Dumping time
 - ~~○~~ Maneuver at dump

- ~~///~~ Dump
 - Traveling time
 - ~~///~~ Travel loaded
 - ~~///~~ Travel empty
 - Cycle time
- ?? Transport Production – hourly transport production is derived from the estimated cycle time and average payload. Job efficiency is a rating of overall operation effectiveness.
This provides the following data:
 - Minutes per hour
 - Job efficiency
 - Effective minutes
 - Cycles per hour
 - Payload bank and loose volume
 - Weight production
 - Band production
 - Loose production
- ?? Charts
 - Speed vs. Distance
 - Road Profile
 - Braking requirements vs. distance
 - Cycle time pie chart

This is an introduction to the simulation reporting engine of Earthmover. In our next “Getting Started” lesson we will give detailed analysis and explanation of the rich simulation reports you can generate with Earthmover.