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Trimble Business Center

Heavy Construction Edition Part 2—Takeoff

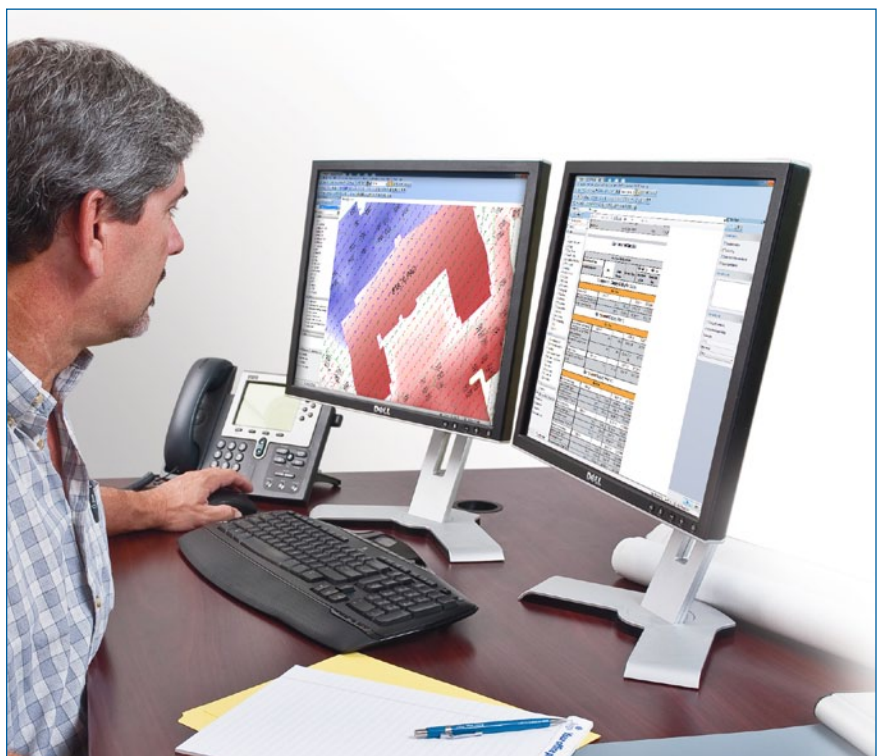
This is not an article about rockets or airplanes; it deals with dirt and items needed to submit a bid for a construction site. This is where it begins for the contractor, you must get the project. To win the bid for the project, a thorough, accurate, timely and competitive bid is critical.

Takeoff is Trimble's next generation software offering to replace Paydirt. Paydirt has been around for probably 20 years, give or take, similar to surveyors more or less. I was very impressed with the options available in the new product.

Being part of the main program, Business Center, is a real plus. This is the same platform for Field Data, Data Review, Data Prep, Construction and Survey. You can move around these programs at will, provided you own the modules where the commands reside. The nice thing is that the base program is FREE, yes I said free. You can go to the Trimble website and download the entire program at anytime. It will take a rather high speed internet connection since the program is quite large. Once on your hard drive, instructions are included to unpack and install.

There are a very large number of commands that are not controlled by the UBS lock (there is a network version available also). It handles AutoCAD and Microstation files very well.

The Takeoff product is developed to aid the contractor in the bidding



Trimble Business Center Takeoff using dual monitor system with the site on one monitor and reports on second monitor.

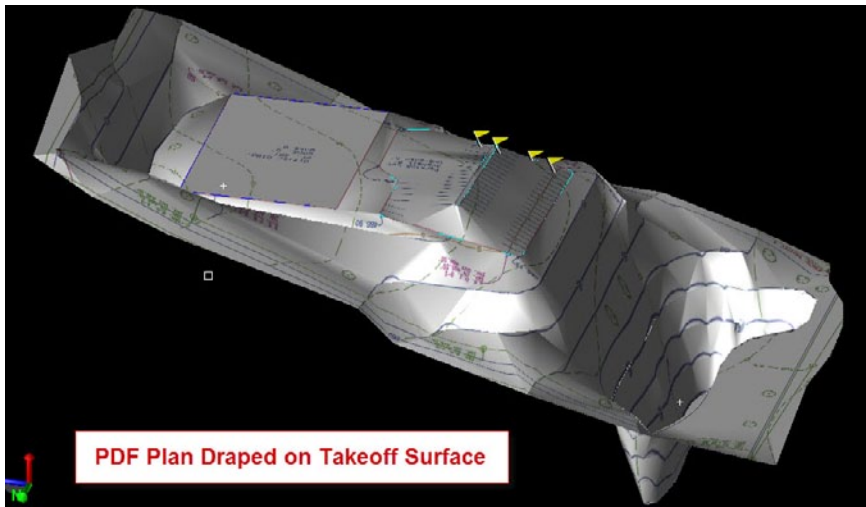
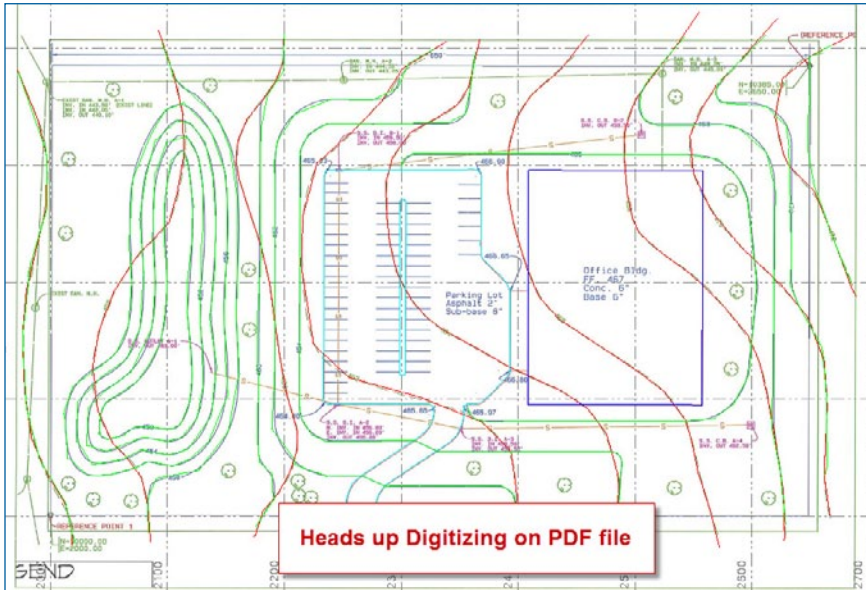
process to thoroughly analyze a project to produce a complete bid.

To write this article, I interviewed the 'legendary' Jay McGregor with JAYMC Services, Inc. Jay has trained a large number of people in the use of software for bid takeoff, data preparation, and CADD data preparation for surveying, engineering and construction in the US and around the world. We have worked together for almost 20 years.

Takeoff will create an itemized list of quantities, counts, and associated costs for preparation of a bid proposal. It generates a report that includes the cost of installation, transportation, etc. The level of detail is controlled by the user.

Earthwork

Initially, Takeoff will probably be used for earthwork quantities. Takeoff will allow traditional digitizing of



paper plans, heads up digitizing with electronic plans (PDF files) or can use contours from a CAD file. The use of heads up digitizing or CAD data is what most use if the information is available.

I will discuss the use of CAD information. Once the user has imported the CAD file, the user will develop a list of layers for the existing ground and the

same for the proposed. It may take more than one layer to develop a surface. Quite often the interval and index contours are on different layers. Also, spot elevations could be on a third layer. These layers are brought together in a list and the surface is made.

The surface can be explored with the Surface Slice command. You will be

able to display at random a profile of the various surfaces. There is a dynamic 3D View where the data can be viewed, rotated, tilted and even edited! Bore hole data can be added to show different strata of existing material that may have a unique cost for moving.

Takeoff will report quantities, areas in user defined units, and the cost.

Paving

Once the outline of the curb or edge of pave is established on a layer, the length and cost of curbing and concrete can immediate be obtained. The perimeter can also be used to develop the paving quantities with the various levels of materials, such as asphalt, base, and aggregate. The quantities and cost for this are now available. Also, the true sub-grade is being developed for a more accurate quantity of earth work volumes.

Building footprints can be used to develop the quantities for concrete, and aggregate and again establishing true sub-grade for the site.

At anytime the Surface Slicer or 3D View can be used to examine the project for a sanity check.

Once the user has developed their unique settings for paving, this can be part of a prototype project that will automatically produce values when the appropriate lines and points a place on the layers. This makes the Takeoff program extremely dynamic.

Infrastructure

Takeoff can also be used for any sort of infrastructure items on the project, storm drain, sanitary, water, and so on.

The linework can be used to develop the lineal length of pipe and the associated costs to build. If the pipe changes size, place those lines on another layer

with those values applied to any line on that layer. For valves, create a layer and place a point for every valve to be included in the bid. Takeoff will compute the count and the cost for installation as long as this quantity value is setup in the table that is linked to that layer.

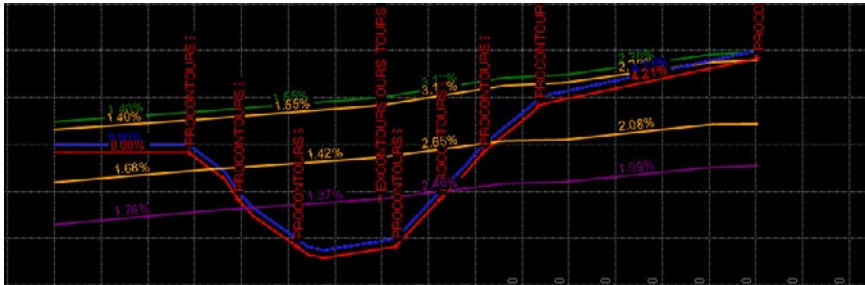
Again, a well developed prototype will make a huge increase in accomplishing the takeoff.

Reporting

Takeoff gives a very complete and thorough report of all the items that are

being used to estimate the project. It will allow the individual tasked with the bid to easily format and apply the values to a bid document.

So, in conclusion, Trimble BC-HC has done its homework in producing Takeoff. It is head and shoulders above the previous offering and can be use simply or with great detail. A quote from Pete Rapp, Support Engineer for Spectra integrated Systems, (a Trimble dealer in NC), "The costing and detail information is a huge step for the takeoff specialist." □



Surface Slice that also shows subsurface depths for existing and proposed

Ron Ciccarone, LS, has been involved in survey automation since the 60s, data preparation and 3D modeling since the late 90s, and owns his own business building data files.