

COST-EFFECTIVE STOCKPILE MEASUREMENTS FOR QUARRY AND AGGREGATE INDUSTRY

Accurate, regular and quick stockpile measurements are a must for effective inventory control and planning within the quarry and aggregates industry. At ASM, our aim is to provide our customers a solution on how to more efficiently track production and inventories and how to monitor the efficiency of the overall production cycle.

Quarry owners are seeking a new, more efficient and accurate approach to stockpile management. The stockpiles are usually actively used and there is continual traffic either dumping loads or extracting. As is the case for most quarry sites, the managers need to accurately assess the quantities in the stockpiles without compromising safety or interrupting the busy workflows.



Traditional survey methods using tripod-mounted scanners can be time-consuming and sometimes dangerous. The aerial fly-over can be expensive and depend on weather conditions. Austech Surveying & Mapping utilises land based mobile laser scanning technology which offers quarry operators a more efficient, safe and cost-effective solution to obtain a complete and accurate asset management data set. It reduces the time spent in hazardous environments and helps to increase profitability and operator safety.

Benefit of stockpile survey to the Quarry Operators:

- Through regular surveys and year end audits offers quarry owner the option to accurately monitor the inventory.
- Stockpile Reports' system adds up to better decision-making, faster inventory turn-arounds and lower operating expenses.
- Calculate and evaluate stockpile tonnage and calculations from month to month
- Ensure better business planning by reviewing and sharing current and historical volume calculations, aggregates tonnage, and other stockpile data with the production and management team.

The mobile scanner consists of high speed laser scanner, high accuracy GNSS and Internal Navigation System mounted in a portable pod. The unit's portability enables it to be mounted on a number of different quarry vehicles from site 4x4's to haul trucks. Our mobile mapping scanning technology can take only an hour to complete a stockpile survey of a medium size quarry without causing any production delays.



Example- Summary of Volumes

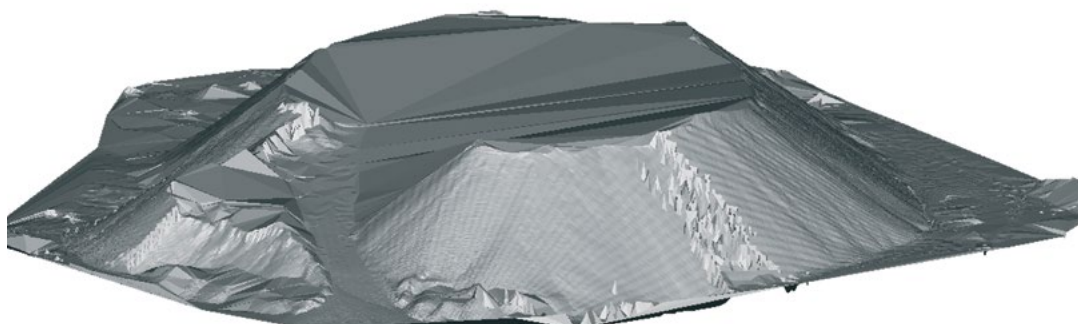
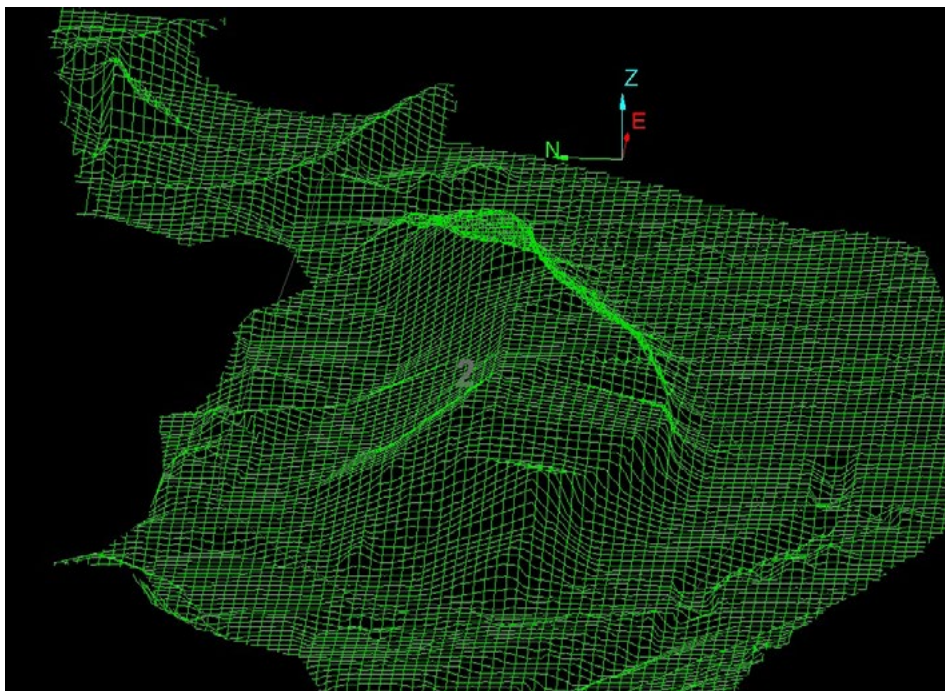
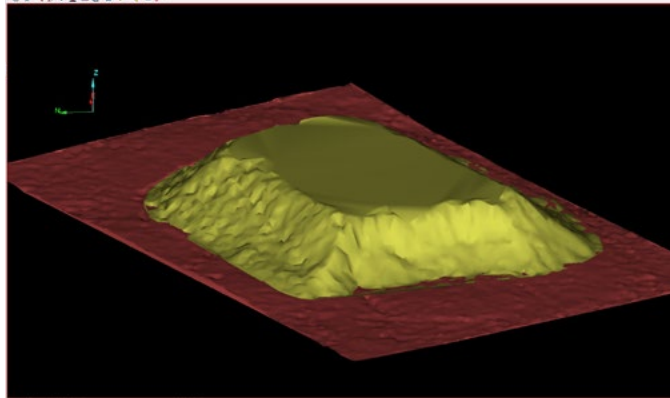
	Cut cub. M	Fill Cub. M	Area Sq. M
1	Main Sand Pile	837	1839
2		7763	3472
3	14mm GR	5975	2848
4	20 mm	10154	3686
5		734	451
6		307	271
7		2654	1530
8		778	555
9		751	286
10		598	352
11		1806	1686
12		2443	1002

Benefits:

- Time saving on field work, speed of acquisition & processing, convenience and lower relative cost
- Greater timeliness— receive stockpile calculations within hours.
- Significantly denser digital XYZ coordinates and data sampling that results in more accurate volumetric models
- Optimised production and better operational planning
- Increased efficiency throughout the overall production cycle
- Report produced in both DTM and figures.
- Provide automatic audit trails and monthly or reports
- Ensure employee safety and OH&S compliance

The system collects survey points numbering in the millions, allowing for highly accurate models and volumes to be calculated. The unwanted data is filtered out and processed into a digital terrain model along with the actual quantity of the stockpile.

These point clouds allow for highly accurate models and an enhanced visualisation tool that gives managers greater confidence in their results. The new approach has also allowed us to provide more services to our clients.





ASM delivers valuable and often inaccessible information through the use of Auto Scanning Robotic Laser Technology. Our products and services, which include LiDAR, terrestrial scanning equipment and ground based survey techniques, are among the most reliable and comprehensive in the business. Despite the advanced technology, a key emphasis of their range of services is to gain a deep understanding of the client needs and produce deliverables that match expectations.

Austech's team of highly qualified Surveyors and Mine Engineers work directly with our clients and provide them with the tools they need to confidently make critical decisions that result in increased operational safety and productivity. For additional information, please visit our website www.austechsurvey.com.au

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