Visual Modeling Analysis Inc.
5910 - 50th Street N.W. P.O. Box 90007 Montalet PO, Beaumont, Alberta T4X 0C8
Phone: 780-918-7851 Fax: 780-352-2042

***V**isual **M**odeling **A**nalysis Inc.* specializes in the application of remote sensed data including LiDAR and aerial imagery.

For the past 8 years VMA has been providing state of the art planning services for the oil/gas, utility and civil industries. VMA provides its clients with greater scouting and planning solutions, resulting in faster, better, and more informed decisions.

VMA can order, maintain, add too, use existing LiDAR data or utilize conventional data collected from field surveys.

Case Study of Compressor Site, Plant Site, 18.5km of Gathering & Mainline

LiDAR Planning and Survey				Conventional Survey			Difference	
LiDAR Data	$15,200	$0.80/m						
Planning Session	$6,000	$0.30/m						
Ground Truth & PLA Plan Prep.	$38,290	$2.10/m						
Total for Pipeline	$59,490	$3.20/m	⟷	$166,500	$9.00/m	⟷	*$107,010*	*$5.80/m*
Compressor Site	$1,600	⟷		$5,000	⟷		*$3,400*	
Plant Site	$1,300	⟷		$10,000	⟷		*$8,700*	
Grand Total	$62,300	⟷		$181,500	⟷		*$119,200*	
Timing								
Data Acquisition	Spec. Data Available							
Prep. & Planning Session	7 Days (Planning Session 5 Hours)	⟷		Field Survey 30 Days				
Field Truthing	5 Days	⟷				⟷	*18 Days*	

Case study conducted by VMA client - $119,000 saved and 18 days quicker to approval stage compared to conventional surveying methods.

Services include but are not limited to:

- *LiDAR data orders (Mobile, Aerial, UAS)*
- *LiDAR data processing and classification*
- *On-site scouting*
- *Pre-construction pad site design*
- *Pre-construction water storage design*
- *Completions and Facilities layouts*
- *Cut/Fill volume estimates*
- *Imagery and models*
- *Equipment Layout plans for Well Locations*
- *Access road design*
- *Drainage analysis*
- *Contours*
- *Pipeline Profiles (incl. vegetation height)*
- *Spot elevations*
- *Fly-thru video*
- *3D PDF plan creation*
- *Dig Site Sketch Plan*
- *Height of wire powerline sketch*
- *Vegetation encroachment sketch*
- *Pre-Const. and post-const. site analysis*

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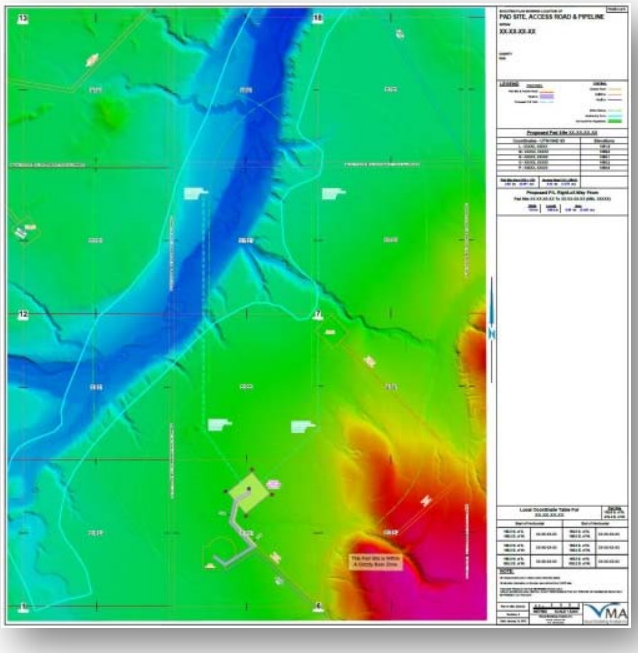
On-Site Scouting

When scouting new pad sites or right-of-ways, VMA is able to bring all of the equipment required to any location, that location is typically the clients head office where most decision makers who require input into the development of a project area are located. There are no external connections required.

Two 78" x 48" portable projector screens, two HD projectors, one laptop, and the client's input is all that's required to efficiently and successfully plan a project area in hours instead of days, from the comfort of your boardroom, not in the field, or someone else's boardroom.

Multiple views synced together to display different terrain information but in the same location. For example, we can view contours, aerial, bare earth and full feature imagery at the same time, if you pan or draw in one view it pans or draws in all views.



Once scouting has been completed, multi-layered plans are created detailing what locations were chosen.

Plans include:

- *User customizable PDF plans*
- *All imagery used during scouting*
- *UTM Coordinates to well center and well corners*
- *LiDAR derived elevations of well center and well corners*
- *Existing dispositions*
- *Contours*
- *Field crew files detailing the pad dimensions, UTM's, and elevations*

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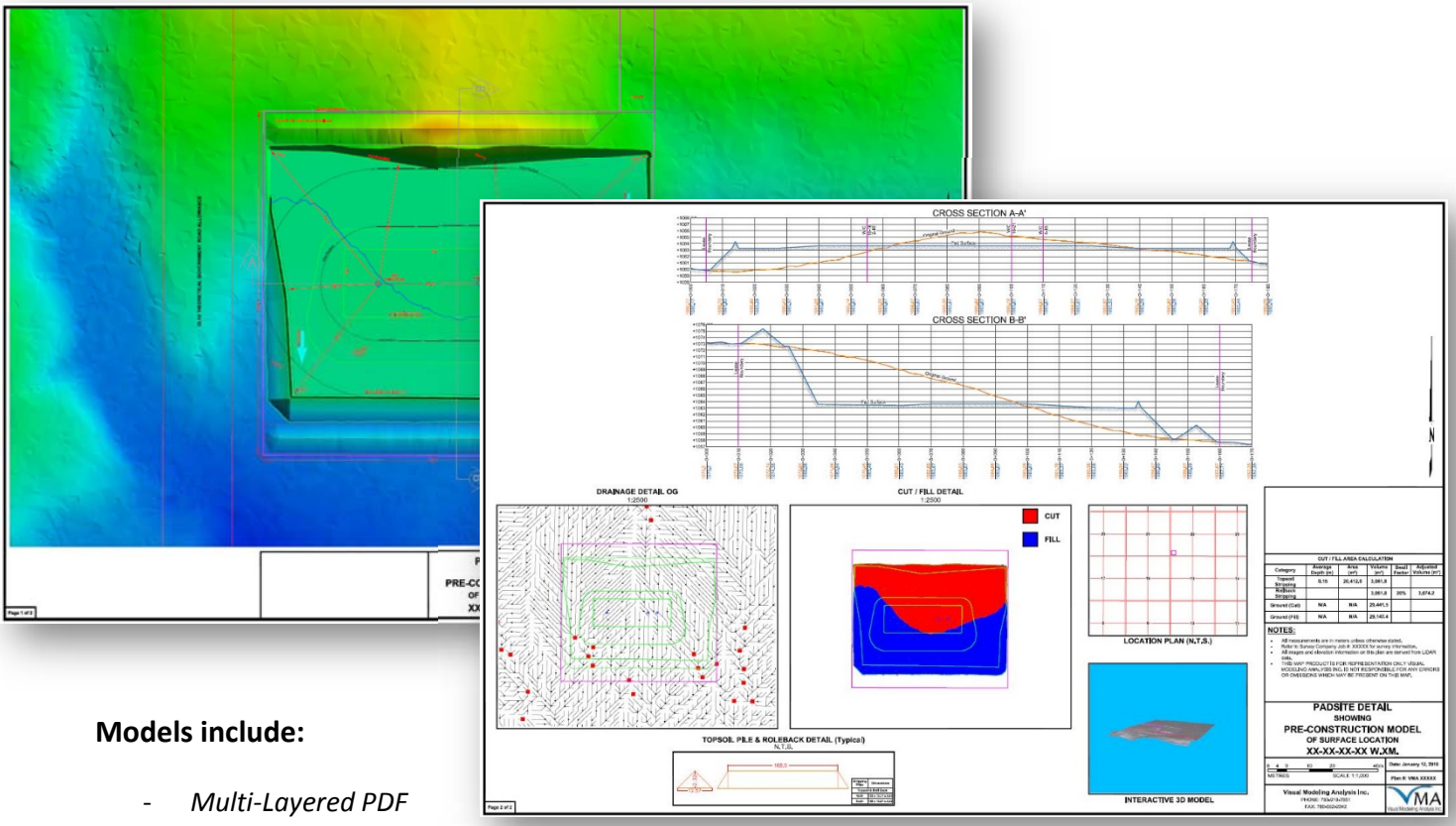
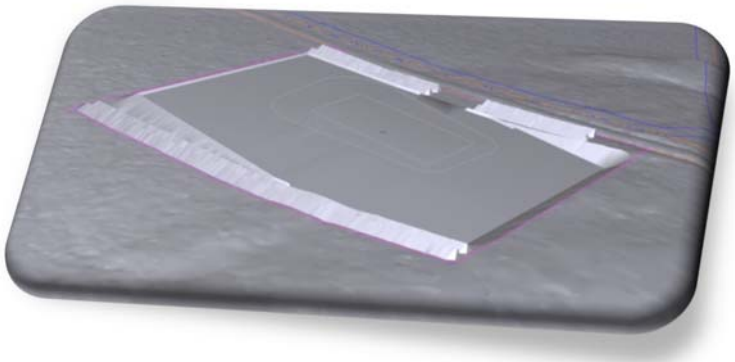
Pre-Construction Pad Models

Efficiency and foresight are the goals of the pre-construction pad models. The pad model will give project management an insight into usable space, volumes, elevations, drainage, cut/fill and issues each pad may present during construction.



Models include:

- *Multi-Layered PDF*
- *Imagery of existing terrain*
- *Imagery of designed pad merged with existing terrain*
- *Original surface drainage*
- *Contours*
- *Usable pad dimensions*
- *Depth of cut / fill to final pad elevation*
- *Original surface spot elevations*
- *Surrounding dispositions*
- *Top soil and roll back stripping volume, locations, and pile size estimates*
- *Cut/Fill volume estimates*
- *Pad design details*
- *3D interactive model of constructed pad site and surrounding terrain and dispositions*



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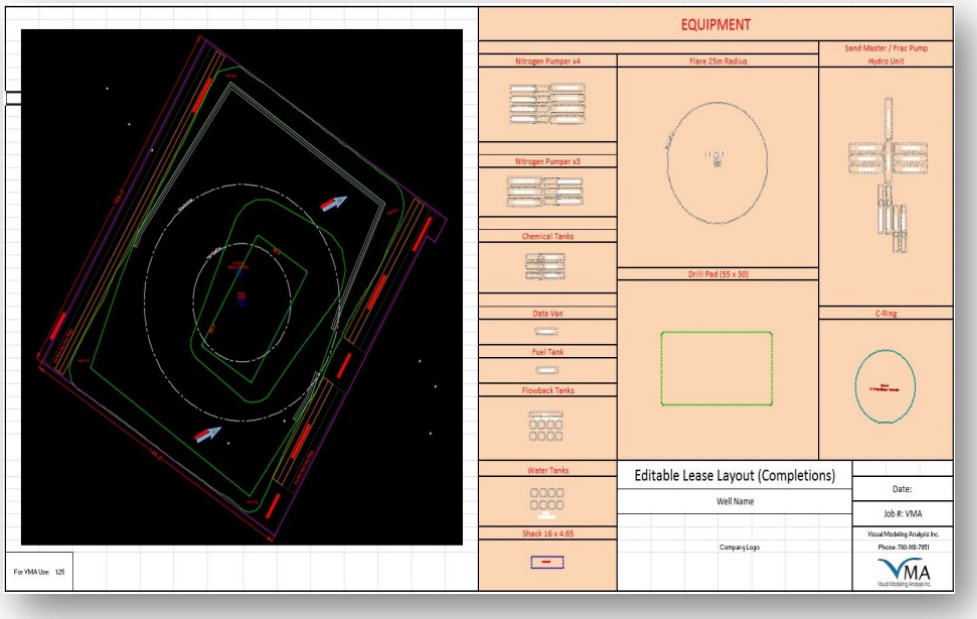
Completions and Facilities Layouts

The completions and facilities layout spreadsheet gives you, the user, the ability to test multiple scenarios and layouts before equipment arrives on-site. This tool allows the user to select, move, and rotate completions, facilities, and rig equipment onto and within the designed pad.



Access Road Design

Access road designs are a pre-planning tool aimed at discovering construction costs, requirements, and dealing with any hurdles before they are encountered in the field.

Plan, profile, and cross section deliverables include:

- *Slope stakes*
- *Free haul areas*
- *Over haul areas*
- *Cut / Fill depth*
- *Strip volume*
- *Cut / Fill volume*
- *Mass haul volume*
- *Surrounding dispositions*
- *Existing terrain details*
- *Contours*
- *Vertical curve details*
- *Horizontal curve details*