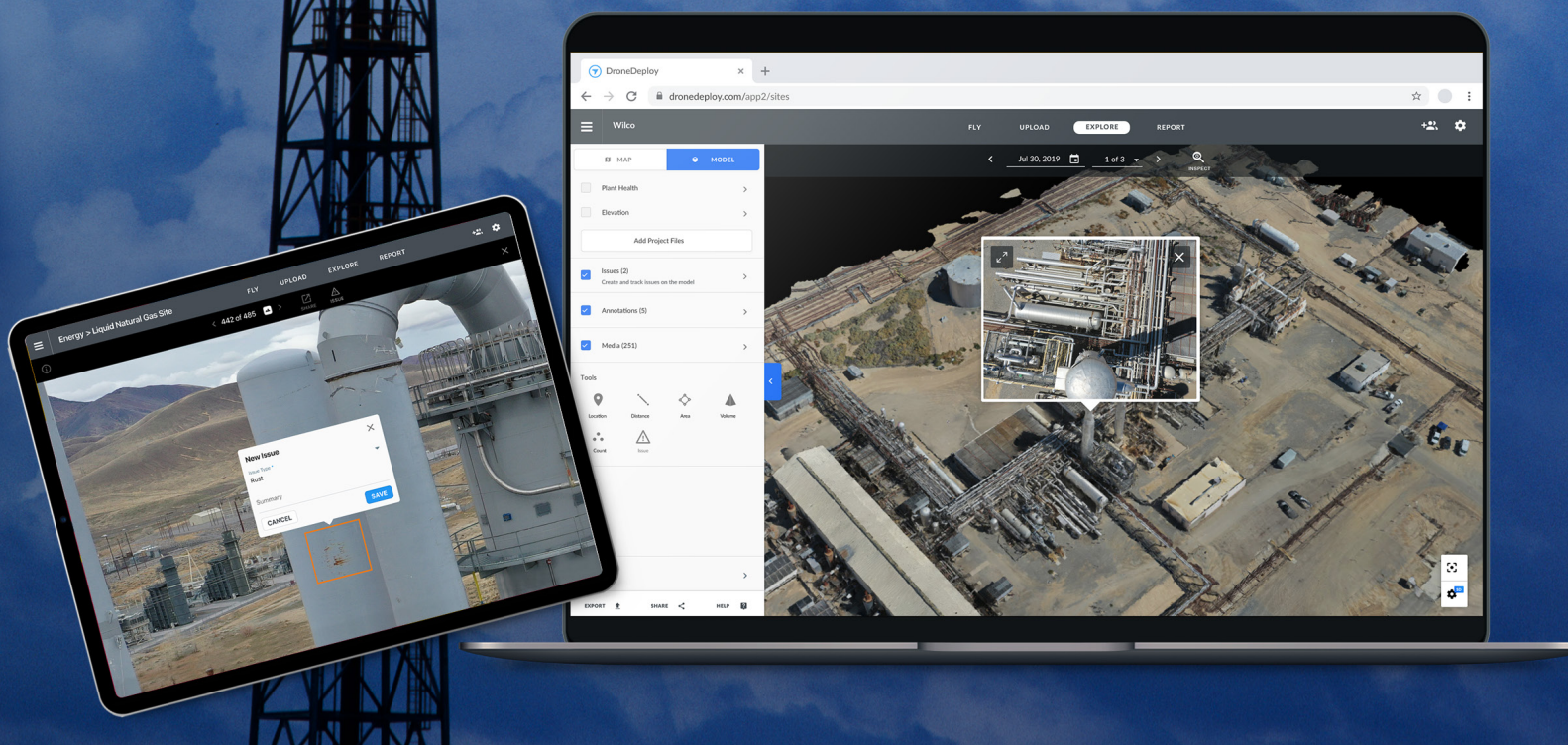
DroneDeploy

The Drone Solution for **Inspections**



Introduction

Today, thousands of industry professionals use drone data solutions like DroneDeploy to reduce the time and money spent on manual inspections. And it's no wonder why: drone software enables inspection professionals to become more efficient on the jobsite, increase worker safety, and better document critical site or asset inspections.

DroneDeploy allows you to conduct inspections from the ground, identify and document issues from the office, and collaborate with teammates to ensure problems are resolved.

Whether you already have a drone solution in place on your jobsite, or you are just starting to consider one, this ebook provides you with everything you need to know to successfully establish a drone data solution.

In this eBook, we will examine:

- **What is a drone data solution?**
- **Key benefits of using drone data in an inspection**
- **The key workflows where a drone data solution provides value for:**
  - Oil & Gas
  - Property Management
  - Construction
  - Mining
- **How to get started with DroneDeploy**

Let's dive in.

Drone Data Solution

For a wide array of industries, drones can capture an enormous amount of data through photos, videos, panoramas, and even multispectral and thermal imagery. But once all of this information has been captured – which can be hundreds to thousands of files – it is imperative companies use a software solution that can comprehend this information and make it digestible for your field engineers, project managers, and clients. DroneDeploy, the only complete drone solution, interprets all drone data by helping companies capture, analyze, and take action.

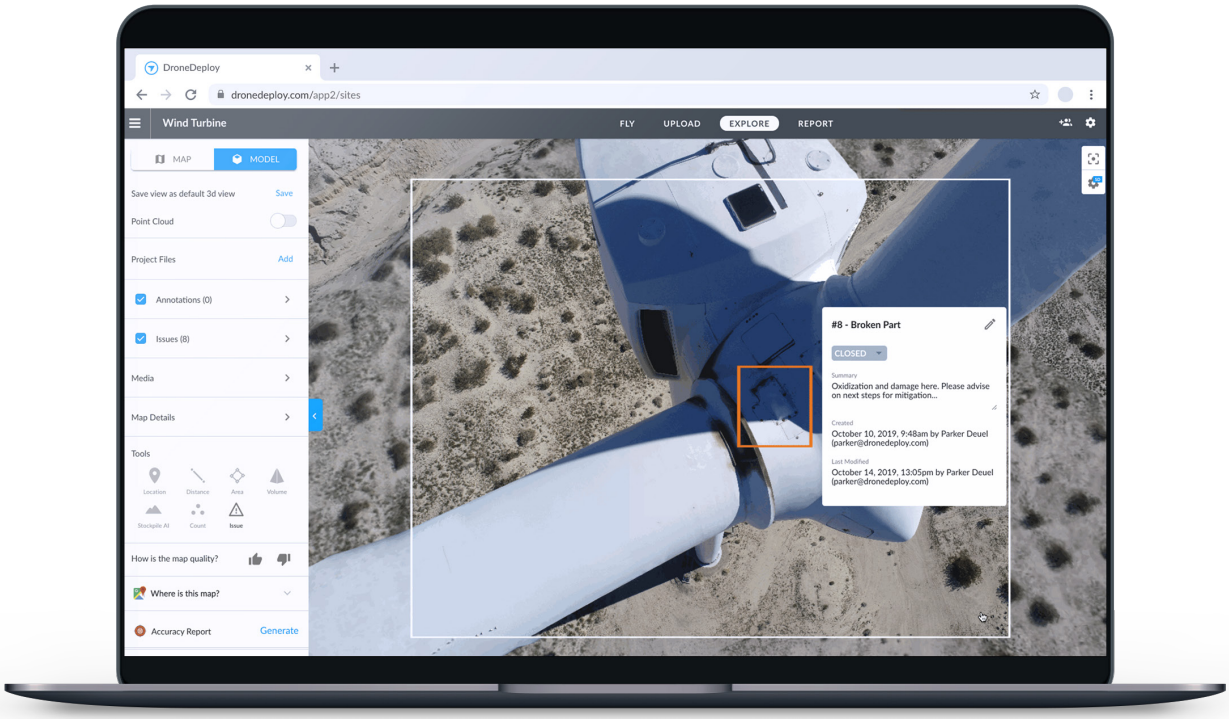


Figure 1. Capture, process, analyze and take action with DroneDeploy

Key Benefits of Using Drone Data for Inspections

EFFICIENCY & COSTS:

Decrease the time and money spent on manual inspections

Manual inspections can take hours, if not days of employee time, which equates to a huge loss of company resources. The longer it takes to conduct an inspection of a critical asset or a part of the site, the longer the shutdown period or higher likelihood of missing something due to human error, which can result in thousands to millions of dollars in lost productivity and revenue.

Drone data solutions, on the other hand, enable aerial inspections which can be completed in a matter of minutes, with processed datasets available in just a few hours. Powerful inspection and analysis tools, such as those built directly into DroneDeploy, allow you to significantly decrease the resources previously dedicated to manual inspections. No more costly waiting periods, just actionable data in real-time.

WORKER SAFETY:

Keep employees safe by conducting remote inspections

In every industry, it is imperative to keep your field employees safe. Inspections often take place on scaffolding at great heights, or in environmental conditions that are potentially hazardous. It's critical to reduce or completely remove the amount of time your employees spend conducting inspections in dangerous environments. DroneDeploy is equipped with a variety of flight modes to ensure you capture every angle of the asset you need to inspect, while keeping employees safely on the ground.

DOCUMENTATION & COLLABORATION:

Track issue identification, progression, and closure with physical evidence

Once issues have been identified during the inspection, it's important to be able to track their progress and collaborate with team members to ensure their closure. There are a number of steps in this process that could lead to miscommunication, issues worsening, and a lack of general site knowledge. The DroneDeploy solution includes tools that allow for collaboration between teammates, and ultimately provides the documentation necessary to remain up to speed on each stage of the inspection process.

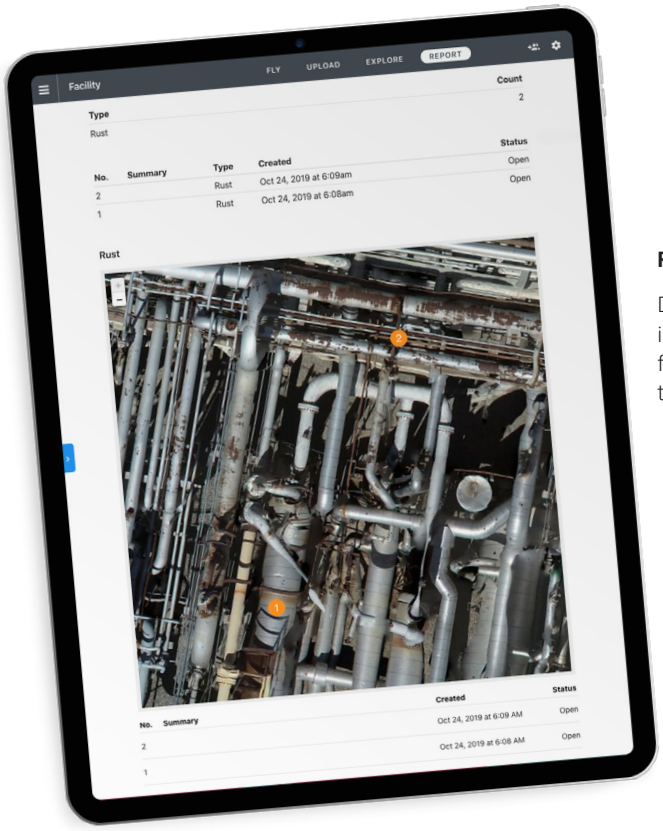


Figure 2.

DroneDeploy solution includes tools that allow for collaboration between teammates.

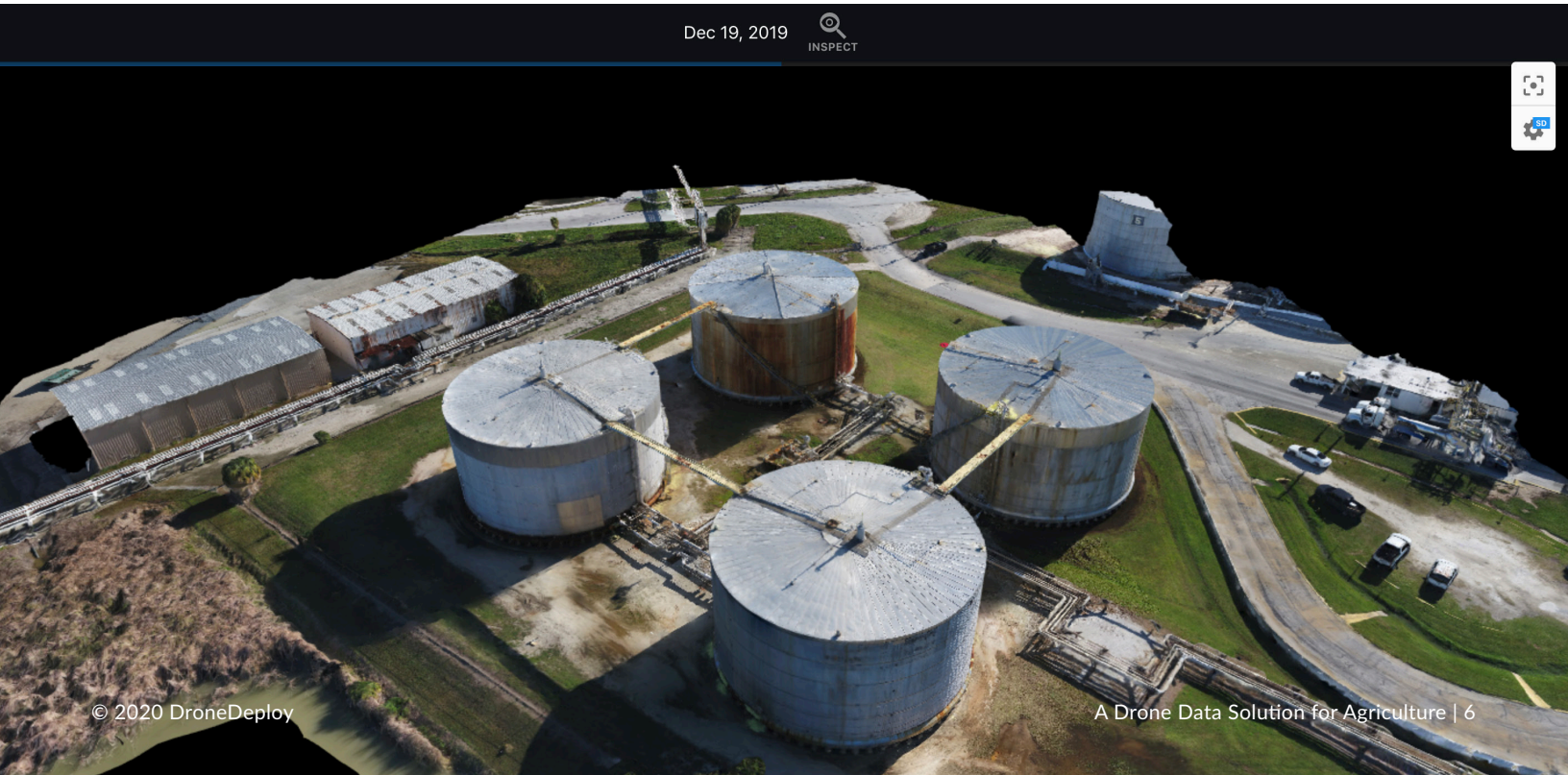
Key Inspection Use Cases Across Industries

OIL & GAS

Whether you're upstream, midstream, or downstream, oil and gas inspections require a significant amount of manual effort from all parties involved. Multiple teams must arrive on-site and work in potentially dangerous conditions to verify equipment is working properly and is in compliance with government regulation. This can cost companies hundreds of thousands of dollars in lost productivity and equipment rentals, and, oftentimes, can put workers at risk. By using drones operated with DroneDeploy, companies such as **California Resources Corporation** have saved hundreds of thousands of dollars by improving inspections and communications.

Asset Inspections

Some of the most common assets needing inspection are tanks, pipelines, well pads, and flare stacks. Historically, this equipment is shut off so that workers can go in and perform an inspection. Without this asset in operation, money is lost on halted production. For a large oil and gas company, this can mean millions of dollars in lost revenue. DroneDeploy's advanced technology can make these operations easier, faster, and safer for all involved.



With features such as Thermal Live Map, Radiometric Thermal processing, and Manual flight mode, site engineers can detect leaks or corrosion in real time, pause planned missions to get a closer look, and ultimately ensure assets are maintained and in compliance.

Bruin E&P Partners uses DroneDeploy's thermal Live Map features to run inspections on nearby sites. Because of this, they avoided sending staff into potentially dangerous situations, enabling them to make critical decisions about pressure points or mitigating factors that need more analysis or a fix.

Site Documentation

Another important part of the inspection process is site documentation. Whether prepping new sites, conducting remediation, or cleaning up after spills, sites need to be inspected and documented accordingly. With 2D and 3D Inspection tools, Annotations, and @mentions, site engineers can track site progress, quantify affected areas, and ensure timely collaboration and resolution.

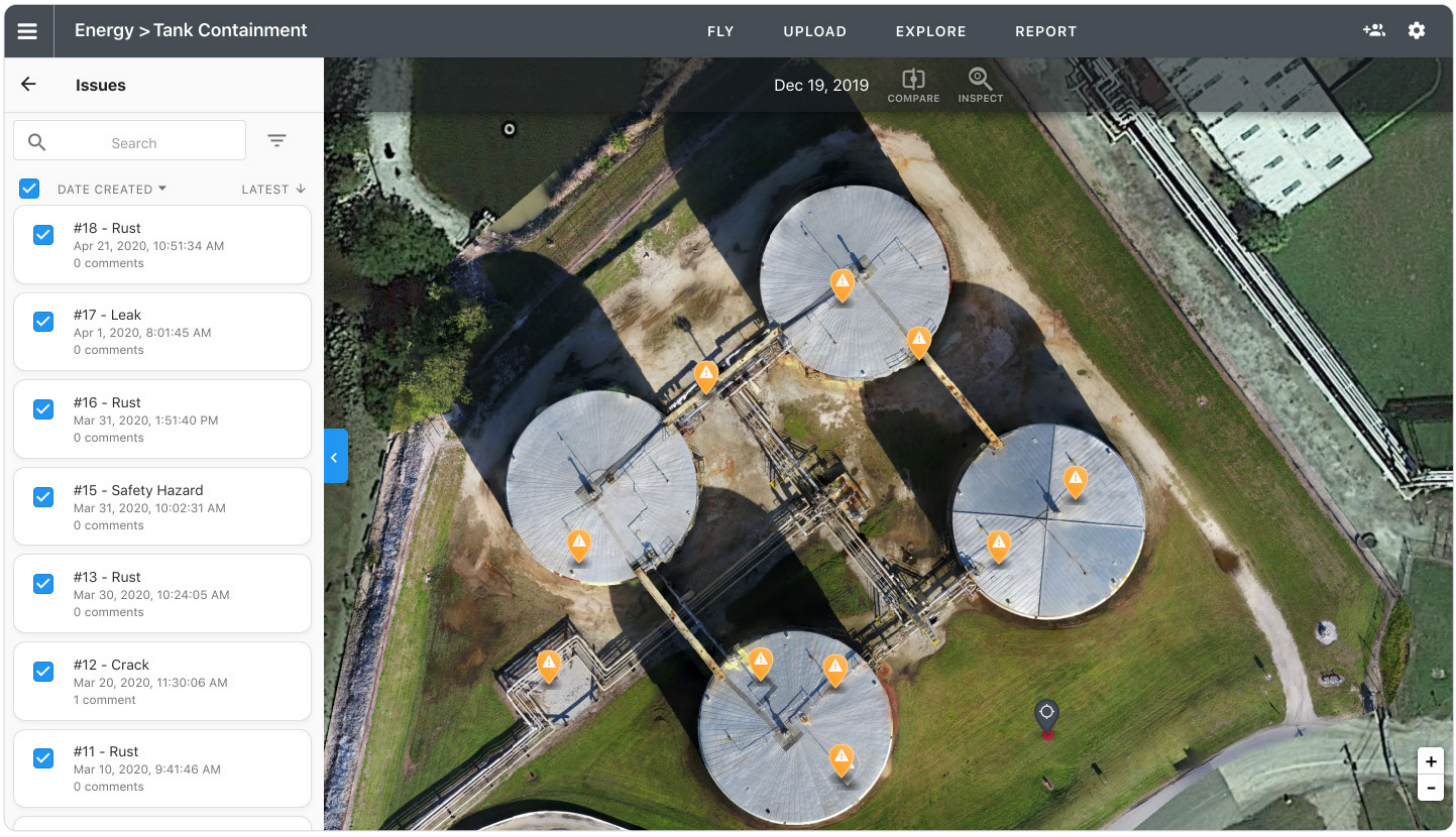


Figure 3. With 2D and 3D Inspection tools, Annotations, and @mentions, site engineers can track site progress, quantify affected areas, and ensure timely collaboration and resolution.

PROPERTY MANAGEMENT

Property Managers frequently juggle multiple projects and competing priorities. With time and resources spread thin, it's important to find ways to cut costs and improve efficiencies across their portfolios. Eliminating the need for manual surveys and prioritizing safe, expeditious inspections can be instrumental in these regards.

Pavement Inspections

It's important to maintain pavement conditions for parking lots, sidewalks, and driveways. Drone solutions can save money and manual labor by surveying pavement in a fraction of the time, then conducting the pavement inspection remotely. Document the location, size, and type of issue using DroneDeploy's comprehensive reporting toolkit.

Roof Inspections

Roof inspections are traditionally dangerous and time consuming. Drones and software solutions can drastically reduce the amount of time employees need to spend off the ground. With tools like Roof Reports, you can easily document roof measurements and components. Thermal processing, Annotations, and the Inspection workflow can help you detect defects and issues such as standing water, document the extent of the damage, and ensure collaboration for full resolution.

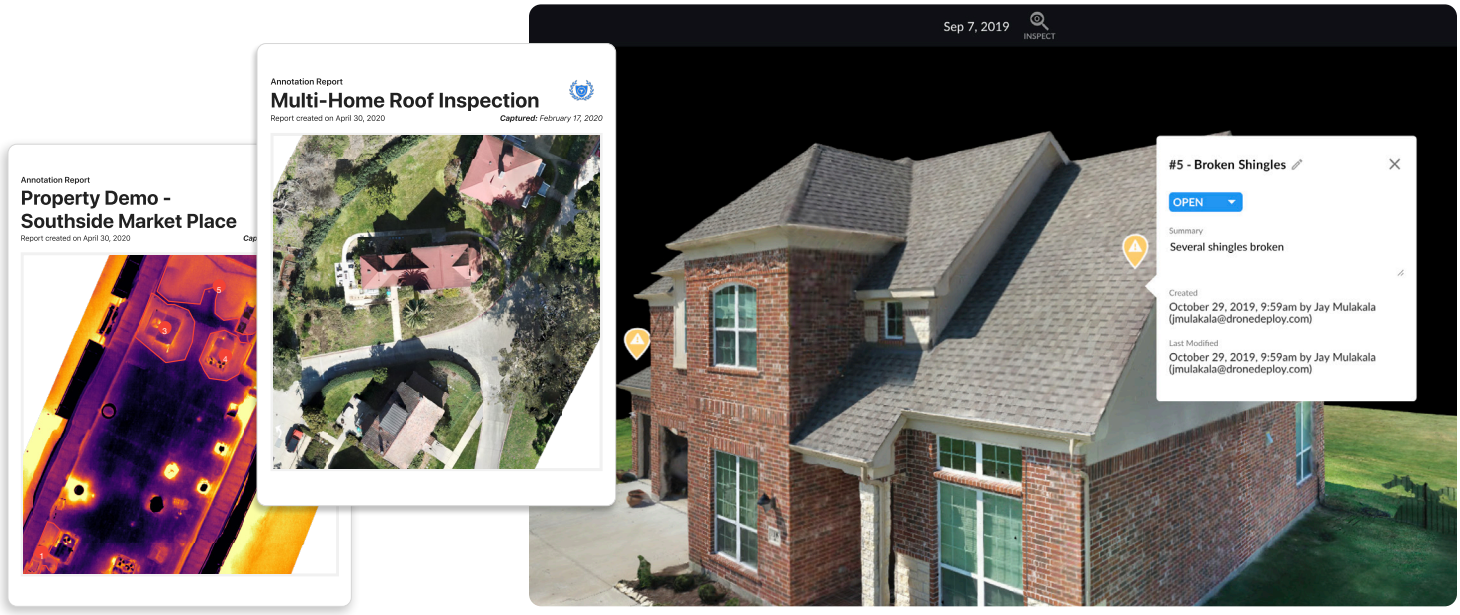


Figure 4. With thermal processing and 2D and 3D rendering, inspectors can quickly detect issues during roof inspections.

CONSTRUCTION

On any construction site, time is of the essence. Since over 60% of construction projects finish behind schedule, stakeholders are continually looking for ways to streamline operations and save money. With so many people involved in a project at one time, it can be difficult to keep workers informed while also communicating with owners and subcontractors. DroneDeploy fixes these issues by centralizing project maps into one app that's easily accessible across teams. Regardless of your location, in the DroneDeploy app, users can track progress, take measurements, adjust designs, and conduct inspections.

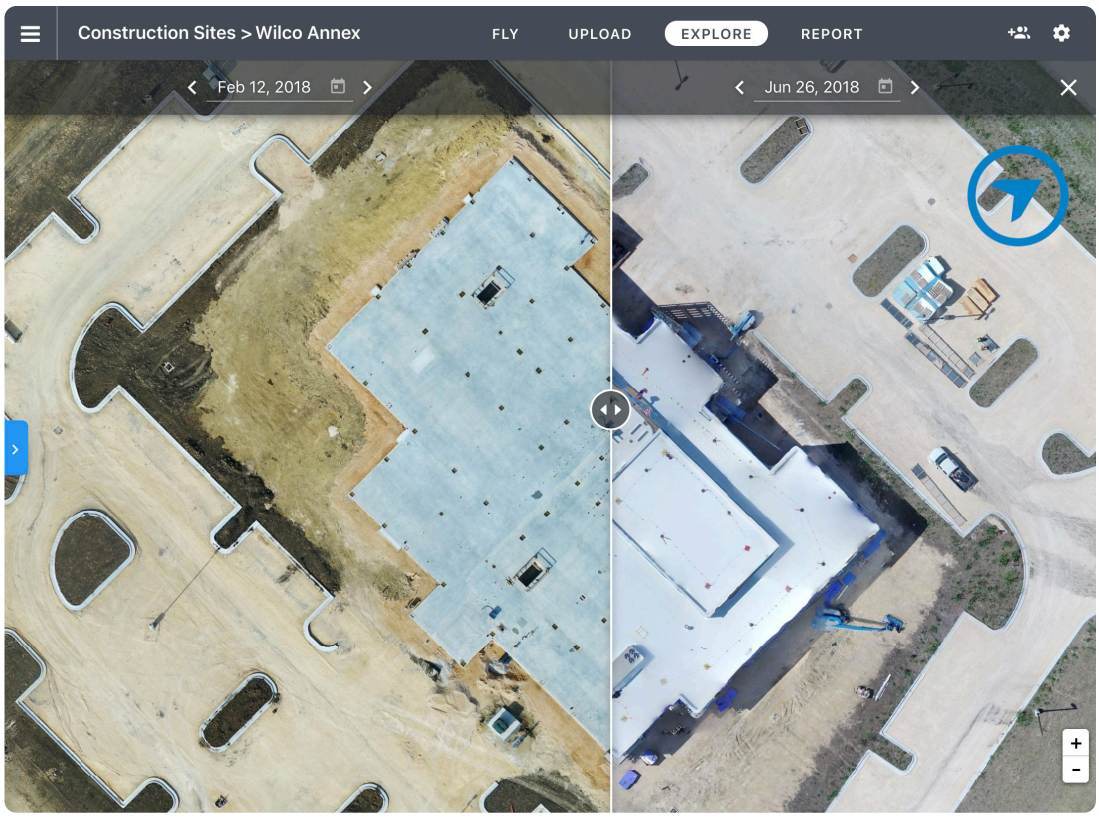


Figure 5. DroneDeploy provides the necessary visual documentation to confirm installation timelines, identify hazards, and ensure everyone is kept up to speed on the project's progress.

Building Inspections

Throughout the lifecycle of a construction project, buildings and structures must be inspected for recent installations, defects, and potential safety hazards. Conducting these inspections on foot or scaffolding are costly, time intensive, potentially dangerous, and might be lacking proper photographic evidence. This can lead to miscommunications, unnecessary costs, and projects falling behind schedule.

DroneDeploy provides a variety of capture tools such as videos, panoramas, and photo flights, in addition to providing the processing tools to best analyze this data as maps, models, or reports. Conducting drone inspection missions around buildings and utilizing DroneDeploy collaboration tools such as Annotations and the Inspection Workflow provides the necessary visual documentation to confirm installation timelines, identify hazards, and ensure everyone is kept up to speed on the project's progress.

Facade Inspections

In addition to building inspections, many construction companies must also conduct specific facade inspections. Facades need to be regularly inspected to check for defects, issues with facade foundations, and to document the progress of specific installations such as windows.

Conducting these inspections from the ground or on scaffolding is difficult, dangerous, and costly, and drone solutions provide the necessary technology to construct virtual, 3D twins of the building in order to conduct the inspection safely from your office. Pan around the 3D model and select from the hi-res photo dataset to pinpoint issues and collaborate with your team on a resolution.

Equipment Inspections

Buildings and structures aren't the only things that need to be inspected on construction sites. Pieces of equipment such as cranes need to regularly be inspected to ensure they're in compliance and in proper working order. Rather than sending an employee up onto the crane to conduct the inspection, DroneDeploy enables virtual reconstruction and remote inspection using a variety of flight modes, Inspection Workflows, and reporting capabilities.

Site Documentation

Finally, once you've completed all of the necessary inspections on site, you need a platform to centralize and view all of the site documentation. DroneDeploy acts as a central repository for all of your project's maps, models, photos, videos, and panoramas, allowing anyone on your team to access the most up to date project information. DroneDeploy is integrated with a number of industry-leading construction softwares, which ensures you can access the latest project maps alongside all other critical project data. Having access to project maps is highly valuable for insurance claims, owner documentation, and subcontractor verification.

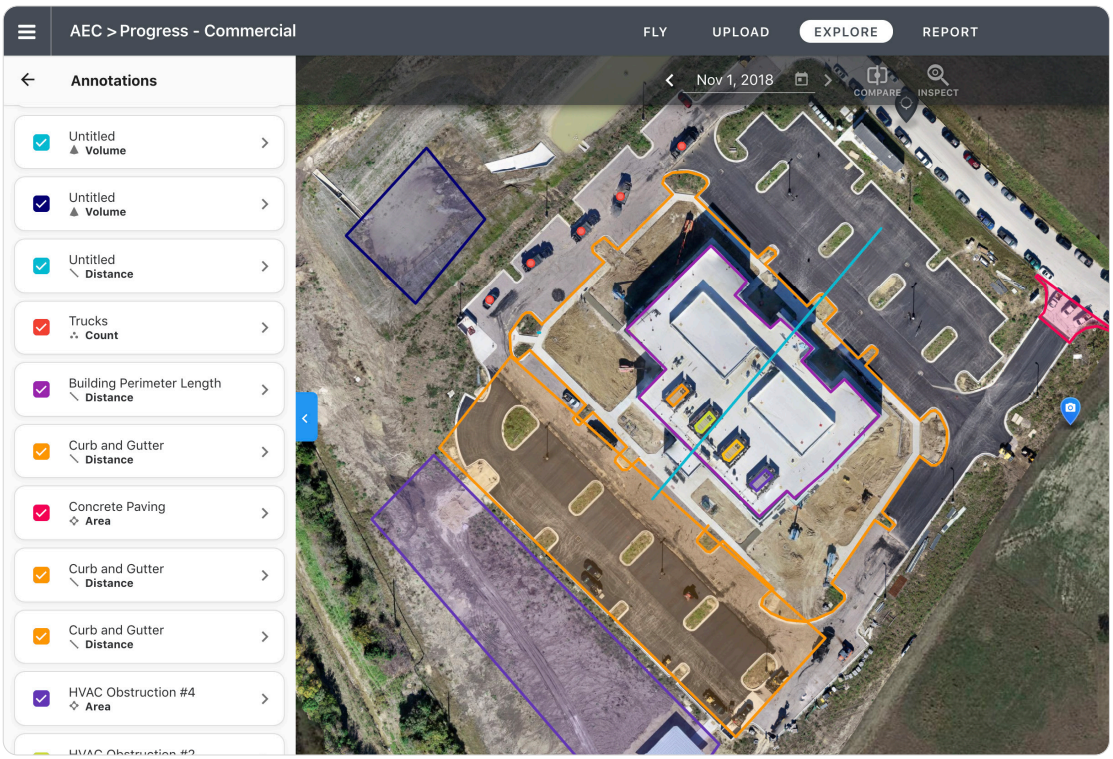
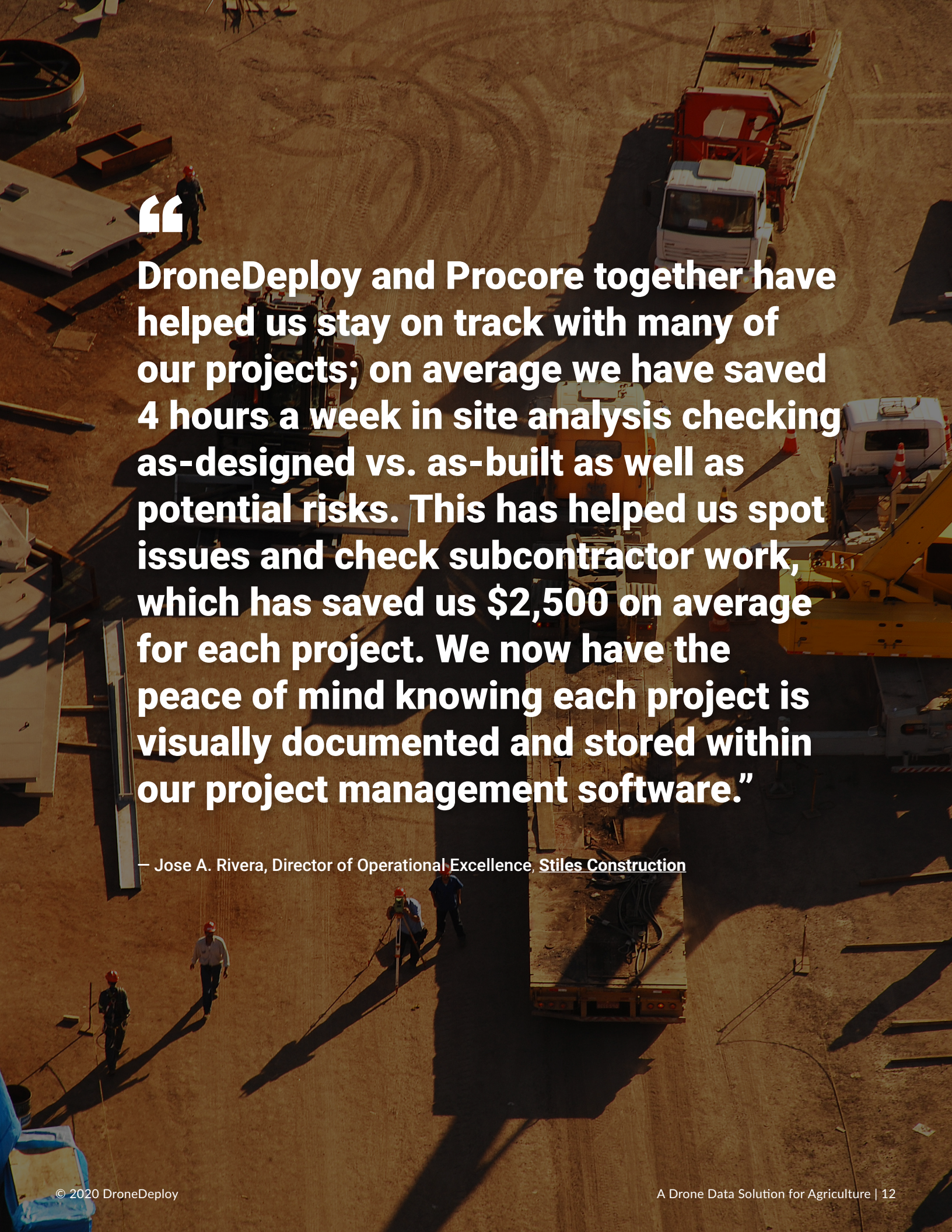


Figure 6. A platform to centralize and view all of the site documentation.



“DroneDeploy and Procore together have helped us stay on track with many of our projects; on average we have saved 4 hours a week in site analysis checking as-designed vs. as-built as well as potential risks. This has helped us spot issues and check subcontractor work, which has saved us $2,500 on average for each project. We now have the peace of mind knowing each project is visually documented and stored within our project management software.”

— Jose A. Rivera, Director of Operational Excellence, Stiles Construction

MINING

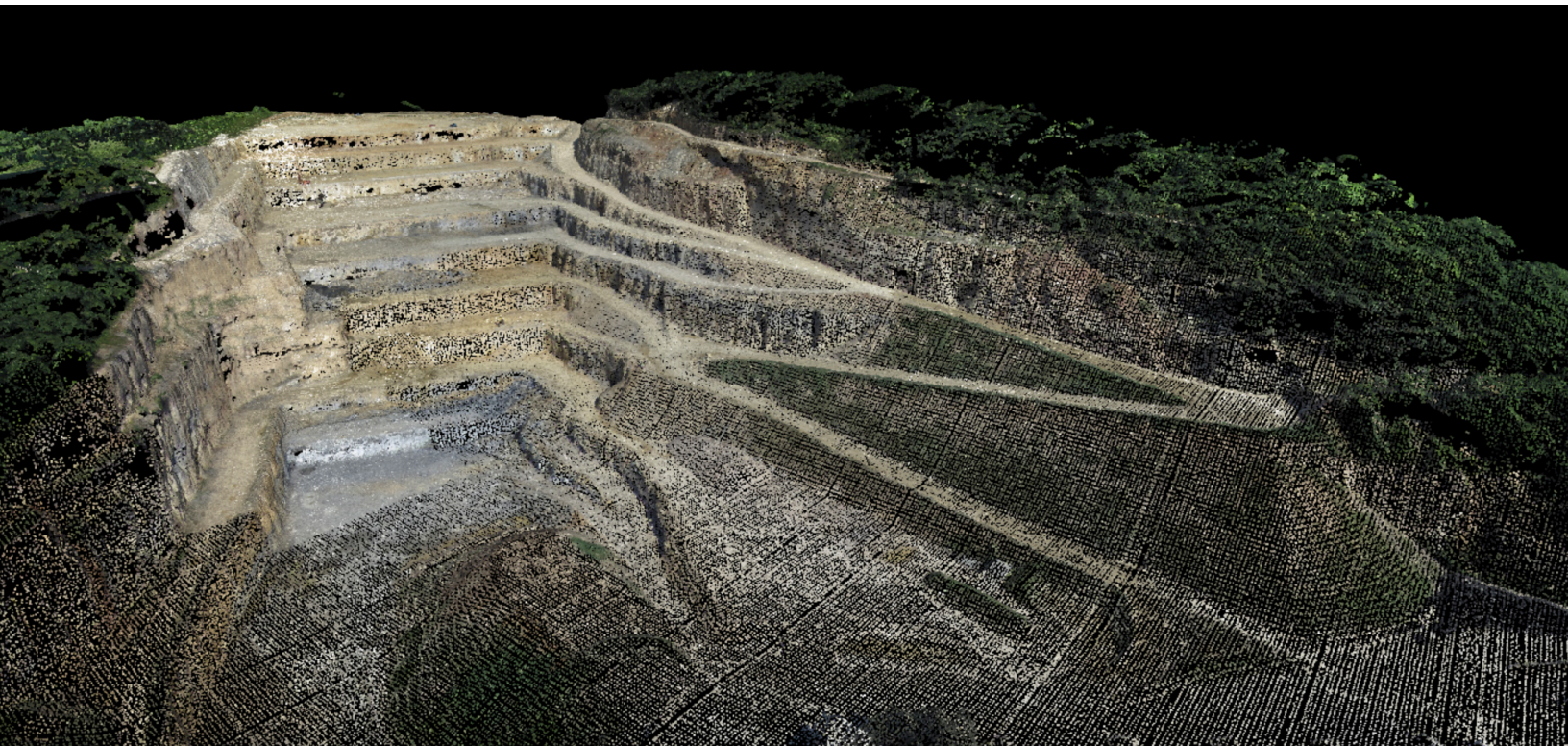
As one of the fastest commercial adopters of drones, the mining industry has a myriad of use cases showcasing the benefits of drone technology. In an industry with many dangerous worksites, drones provide a quick alternative to manual surveying while keeping workers safe. Without drones, these time-consuming and frequently unsafe tasks are subject to human error and unexpected safety hazards. DroneDeploy enables miners to inspect their assets and terrain in every stage of the mineral resources development cycle.

Environmental Assessments

Environmental assessments, before mines are even constructed, are crucial when protecting potential vegetation, landmarks, or waterways. For detailed plant health analysis, DroneDeploy's Plant Health layers provide precise vegetative data to quantify areas of vegetation. By mapping out sensitive areas, users can ensure compliance with local regulations and governing bodies - and avoid hefty fines. This quantified information on the processed map can be viewed as an Annotation Report for easy sharing later on.

Site Documentation

During construction, it is essential to document all equipment, site hazards, and stockpiles. While a standard map can provide this information, DroneDeploy features like Stockpile Reports and side-by-side comparisons make it easy to track progress over time. In a Stockpile Report, users receive a complete PDF document listing the total amounts of various materials on-site.



After regular operations have completed and the mine is ready to be closed, drone surveying confirms to the appropriate bodies the removal of all equipment or assets. From there, the process of remediation begins, including replanting vegetation, counting trees, and the like.

Operating Inspections

During standard operations are where we see many of the most practical uses for drone technology. A bird's-eye view is necessary when locating equipment, stability hazards, or illegal mining activity. Routine, periodic flights can be performed for grade monitoring and pit or dump management. To minimize safety risks, drones can be used to inspect blast walls or terracing, with DroneDeploy's Live Map displaying these insights in real-time. Drainage and water management, resource calculation, and erosion risk are also easily detected with Elevation layers and Earthworks tools.

Talk with DroneDeploy Expert

DroneDeploy has worked with thousands of businesses to bring drones to their job sites, farms, mines, and properties. We know how to assist your team in getting a successful operation off the ground.

Our solution is easy to use, and a one-stop-shop, so you can start monitoring your sites today, by flying, processing, analyzing, and acting on drone data.

Want to learn how DroneDeploy can help your business? Visit **https://www.dronedeploy.com/solutions/** to learn more or request a consultation with one of our team members.

DroneDeploy is the leading drone software solution trusted by over 5,000 companies across a variety of industries, including construction, energy, agriculture, and mining. From drone fleet management to data analysis, DroneDeploy makes aerial data accessible and productive for everyone. Simple by design, DroneDeploy enables professional mapping, 3D modeling, and reporting from any drone on any device.