# How to Coordinate Drone Captures Across Multiple Construction Sites

Managing progress documentation across several construction sites at once can feel like a logistics puzzle. Each site has its own schedule, access rules, and physical constraints. When you add drone captures into the mix, the challenge multiplies: you need to plan flight times around weather, site activity, and pilot availability. Done well, a coordinated approach gives you consistent data that actually helps compare progress from one week to the next.

This guide walks through the main steps for setting up a multi-site drone capture program. The focus is on practical decisions at each stage, from initial planning through to data delivery. Whether you are a project manager or a site supervisor, the aim is to give you a clear sequence of actions and the key things to watch for at every point.

## Step 1: Define the capture objectives for each site

Before any drone takes off, you need to know what you are collecting and why. A capture objective might be a weekly orthophoto for volume calculations, a monthly 3D model for structural progress, or a set of 360 panoramas for remote site walkthroughs. Each site may have different needs depending on its construction phase. A site in early earthworks will require different data than one where steelwork is going up.

Write down the specific deliverables for each location. Note the required resolution, the area to cover, and the frequency. This step prevents confusion later and helps pilots prepare the right flight plans. Watch out for scope creep: it is tempting to ask for everything at once, but that can slow down the whole schedule. Stick to what is actually useful for decision-making on each site.

## Step 2: Assess site conditions and constraints

Every construction site has its own physical and operational boundaries. You need to review each one before you can plan captures. Start with the site boundary and the designated flight area. Check for obstacles such as tall cranes, power lines, or neighbouring buildings that could affect flight paths. Also note the location of access roads: they determine where the pilot can set up and how equipment gets in.

Weather conditions matter a lot. Wind speed, visibility, and rain all affect whether a drone can fly safely and capture usable data. If a site is in a coastal area or near hills, microclimates may mean conditions change quickly. Build weather buffers into your schedule, especially if you are coordinating multiple sites on the same day.



Site safety is non-negotiable. Each site will have its own safety protocols. The drone pilot must be briefed on them before arrival. Common requirements include wearing personal protective equipment, staying within marked walkways, and avoiding active work zones during lifting operations. Make sure the pilot knows the site contact person and the emergency procedures.

## Step 3: Build a realistic capture schedule

With objectives and site constraints in hand, you can start building a capture schedule. This is where pilot coordination becomes essential. If you have multiple sites to cover, you need to decide whether one pilot can visit them all in a day or whether you need several pilots working in parallel. Consider travel time between sites, setup time, and the actual flight time for each location.

A common mistake is to pack too many sites into one day. A single capture might take 30 minutes of flight, but setup, safety checks, and packing up can add another hour. If a site is large or complex, expect longer. Build in contingency time for weather delays or unexpected site activity. It is better to schedule fewer sites per day and get consistent data than to rush and miss a capture window.

Think about the construction phase of each site. A site that is pouring concrete or erecting steel might need captures early in the morning before work starts, to avoid interference and get

clear views. Another site might be fine for a midday flight. Align the schedule with site activity to minimise disruption and maximise data quality.

For a coordinated program across multiple sites, a centralised system helps. National Drone Services provides a project portal where all captures are organised: aerial maps, 3D models, site imagery, and 360 panoramas in one place. This kind of setup makes it easy to compare progress across sites without hunting through separate folders.

## Step 4: Standardise the capture process

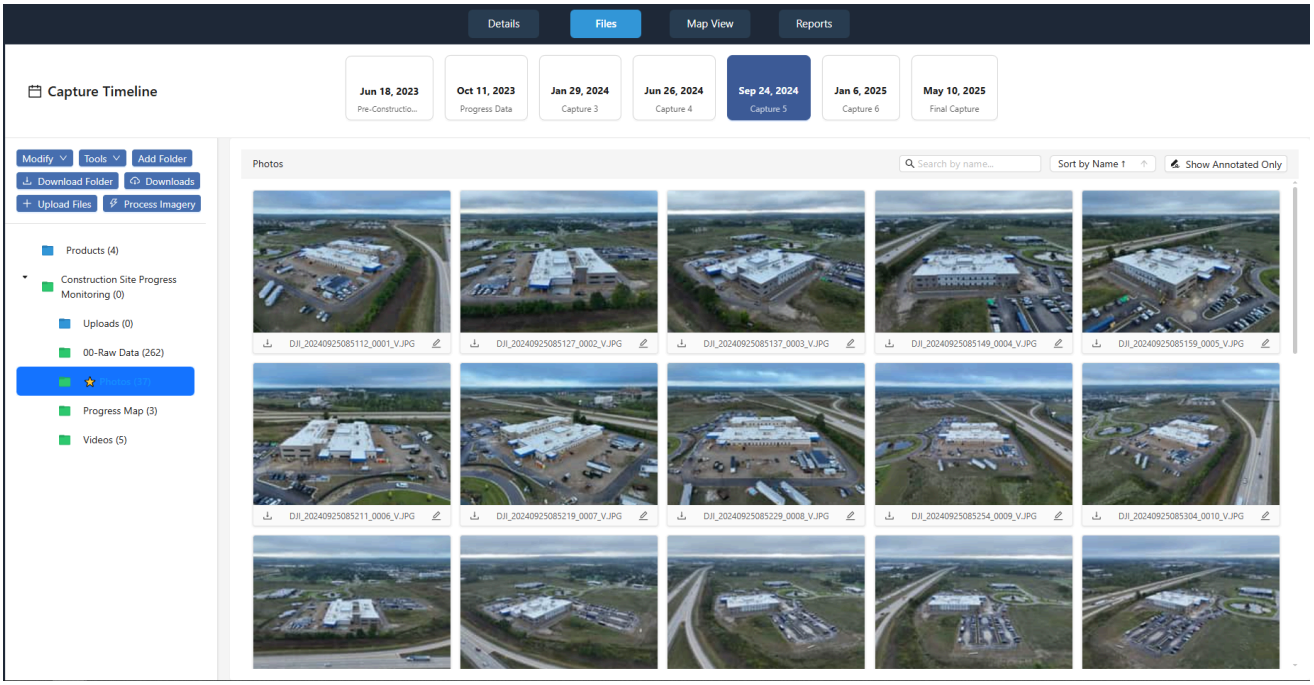
Consistency is the goal. If each site is captured with different settings or flight patterns, comparing data becomes unreliable. Standardise as much as possible across all sites. Define the same flight altitude, overlap percentages for photogrammetry, and camera settings. Use ground control points or known reference markers in each site so the data can be georeferenced accurately.

Create a simple checklist for each capture. It should include pre-flight checks, weather verification, battery status, and data storage. The checklist helps pilots work methodically, especially when they are moving between sites and fatigue can set in. It also creates a record that the capture was done correctly.

Watch out for variations in lighting. A site captured at 10 AM in summer will look very different from one captured at 4 PM in winter. For progress tracking, try to keep the time of day consistent across captures. This makes it easier to spot real changes rather than just shadows or glare.

## Step 5: Manage data delivery and review

Once the captures are done, the data needs to get to the people who will use it. This is where a project portal shines. It keeps everything organised and accessible. Set up a folder structure by site and by date. Include raw images, processed outputs like orthophotos and 3D models, and any notes from the pilot about conditions or issues.




Plan a review cycle. After each capture round, have someone check the data for quality. Look for blurry images, gaps in coverage, or processing errors. If something is wrong, you need to know fast so you can schedule a re-capture before the site changes. A weekly review meeting, even a short one, keeps everyone aligned.

## Step 6: Learn and adjust for the next round

No plan survives first contact with reality. After a few capture rounds, review what worked and what did not. Maybe one site consistently has windy afternoons, so you move its capture to the morning. Maybe a particular flight path is causing gaps near the site boundary. Adjust the plan based on actual experience.

Keep a log of issues and solutions. Over time, this becomes a reference that makes coordination smoother. The more you refine the process, the more reliable the data becomes. And reliable data is what lets you track progress, spot delays early, and keep stakeholders informed.

For teams running coordinated construction site capture programs, a structured approach saves time and reduces headaches. Start with clear objectives, assess each site's constraints, build a realistic schedule, standardise the work, and review the results. These steps apply whether you are covering two sites or twenty. The key is to treat each capture as part of a system, not an isolated event.