

data capture

NYC DOT Sunrise Yard Facility

Cast Study: Anchor Bolt
Laser Scan Survey



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Construction was underway, awaiting installation of the cast stone sill set under the curtain wall. Each stone unit was detailed with through holes to accept the anchor bolts used to fix the sill to the foundation then to the curtain wall.

Parameters:

- 1/4" tolerance for alignment of bolt to through hole in X and Y dimensions
- Steel columns to be set plumb behind the cast stone allowing a cavity as well.

Questions:

- Are the anchor bolts correctly located?
- Are there any conflicts with the steel columns and setting the cast stone?

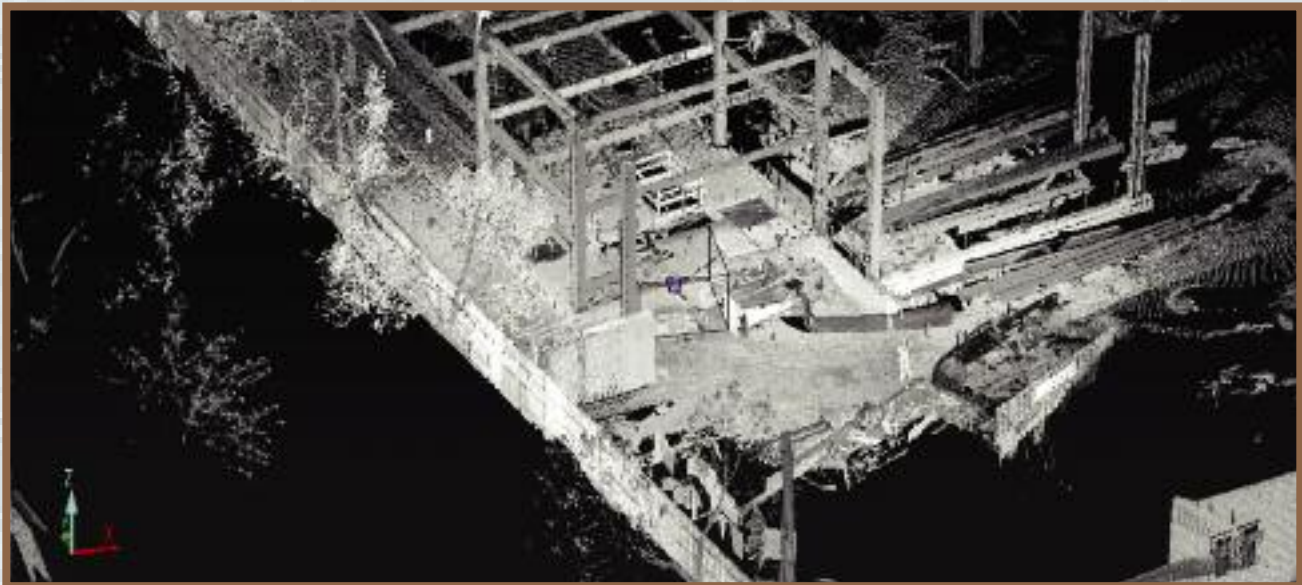


Corinthian Data Capture laser scans the entire site using phase shift laser scan metrology. We capture trillions of points of data. Although we were contracted to document the anchor bolt locations, as you can see we captured:

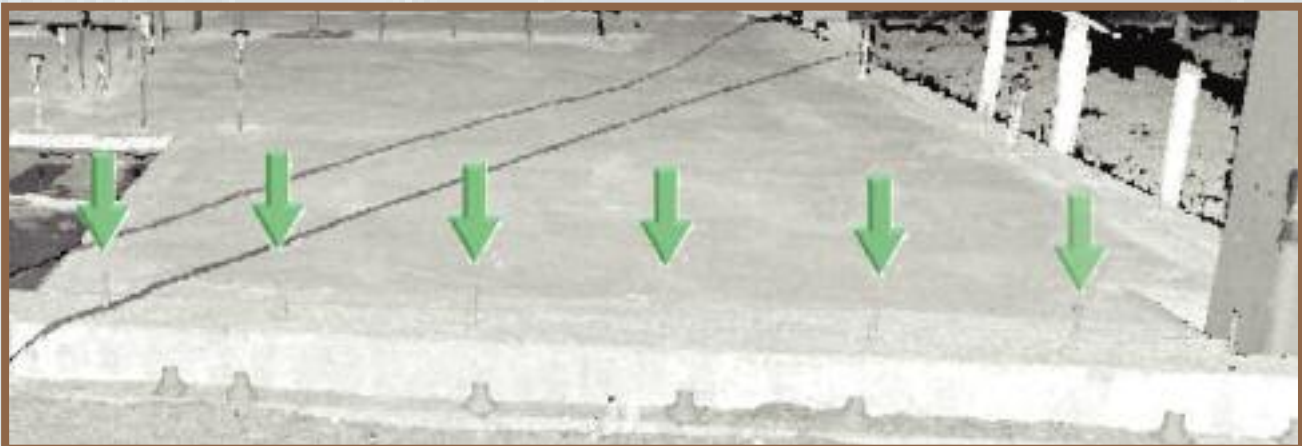
- Structural steel (plumb, level and exact location which can be compared to the structural drawings and steel shop drawings)
- Rebar placement (including rebar caps)
- Concrete geometry and flatness
- All site conditions (this acts as a safety record)



Scans can be read as Planar (photographic) or 3D view.



All scans are aligned to create comprehensive digital map of the construction site that can be measured or used as a foundation to create a BIM document for coordination of trades.

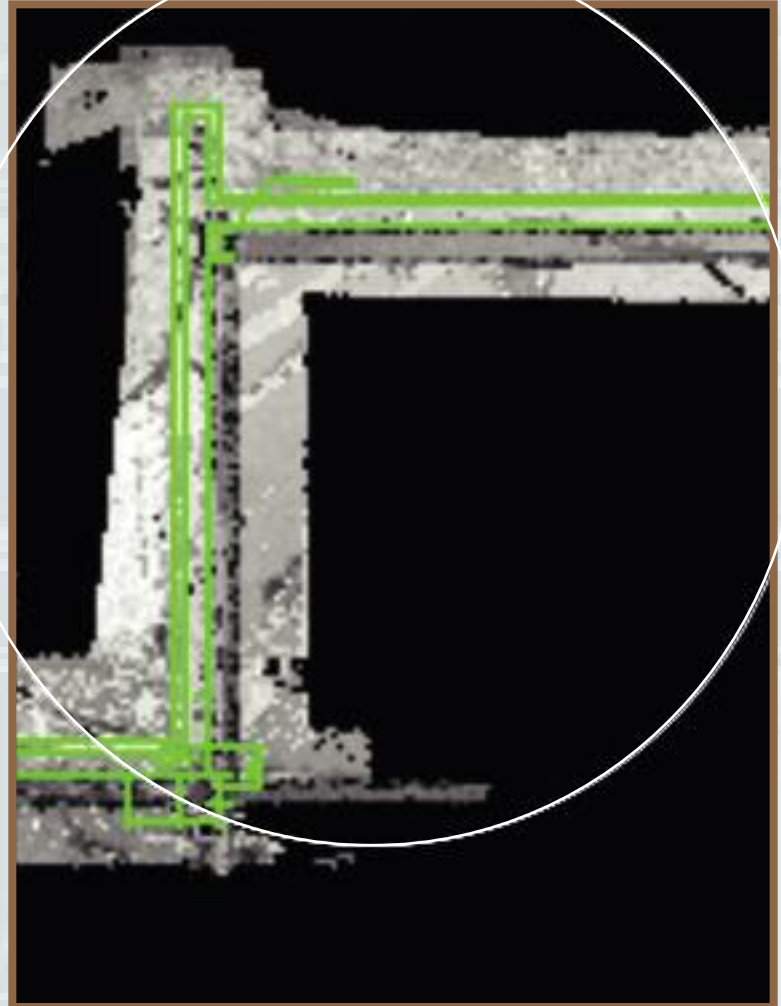
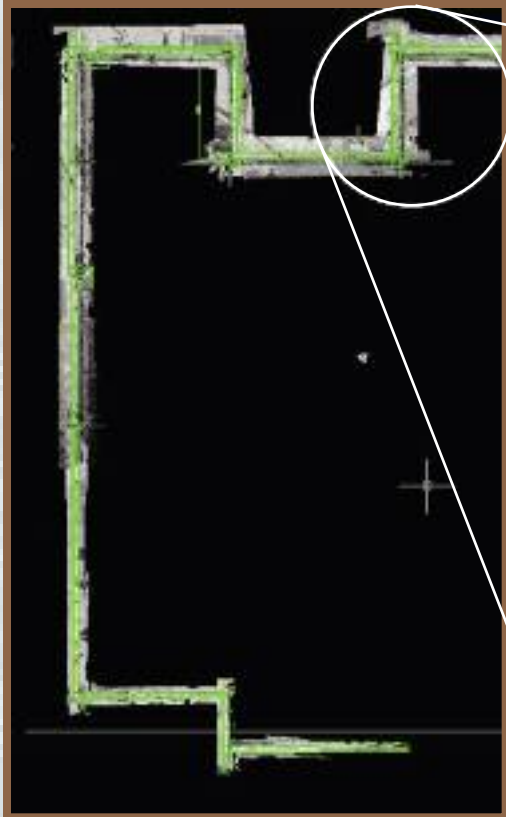


All existing anchor bolt locations are digitally captured in 3D space.

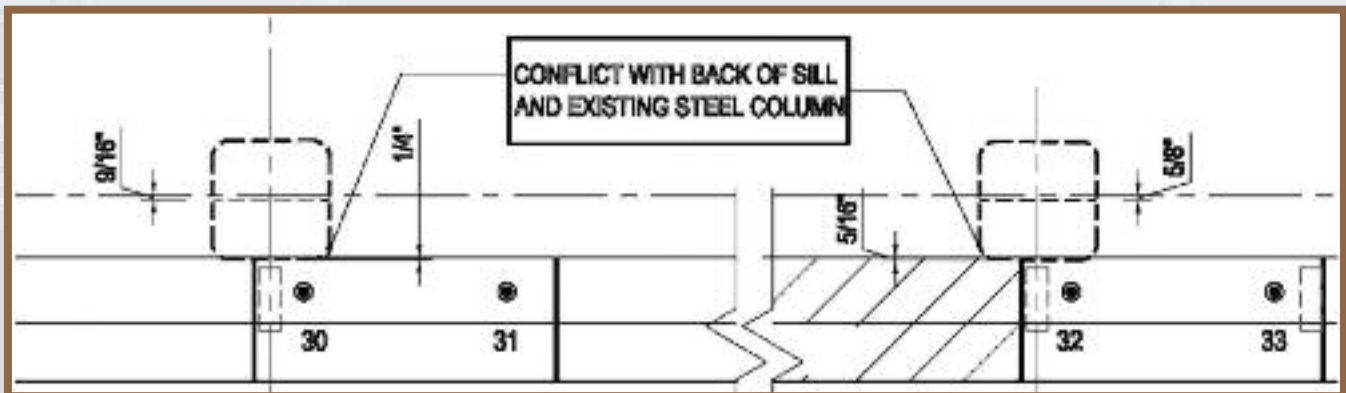
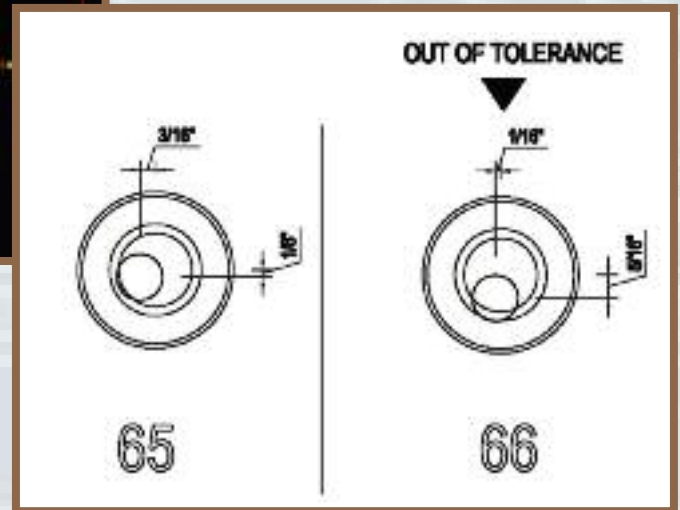
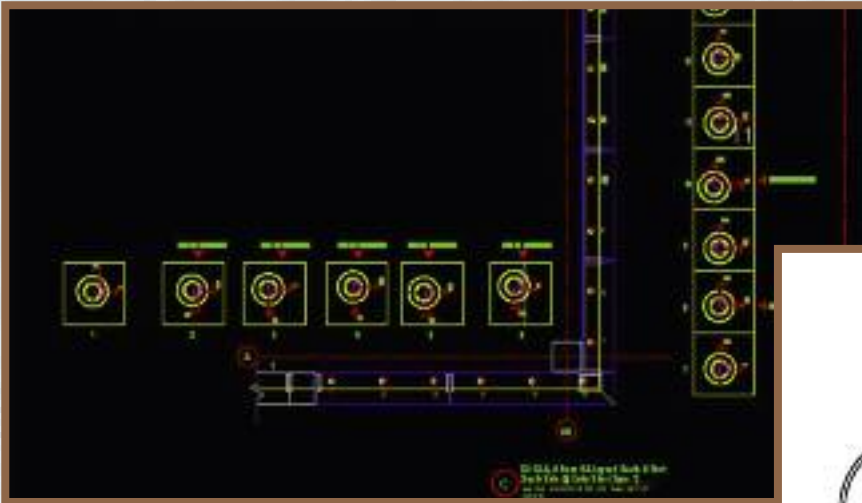


Scans files are processed in CAD software. A “slice” is taken through the 3D model and a section created one inch above concrete, where the bolt is “straight.”

This allowed us to locate the true center point of the anchor bolt and the true location of the steel columns that may infringe on the setting of the cast stone sill.



The approved shop drawing is overlaid on the scan data creating a precise existing conditions document. Which will allow analysis of the site conditions, and coordination of the various trades.



While the scope of work included only producing accurate as-built drawings of the anchor bolts, a thorough inspection of the 3D scans showed that the structural steel was placed incorrectly. An error normally not detected until the stone setter mobilized and the material was onsite.

This information allowed a NO COST solution to be achieved... the stone was simply fabricated with a knock out in the mold.

3D Laser Scanning

Corinthian Data Capture 3D Laser Scanning Services

3D Laser Scanning

the process of graphically capturing as-built physical elements of an object, facility or area and applying surveyed information to each visible point. *(Spar Point Research, 2010)*

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Corinthian Data Capture's unique blend of technology and professional expertise offers a service that allows all companies to benefit from enhanced operational support and reliable information.

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