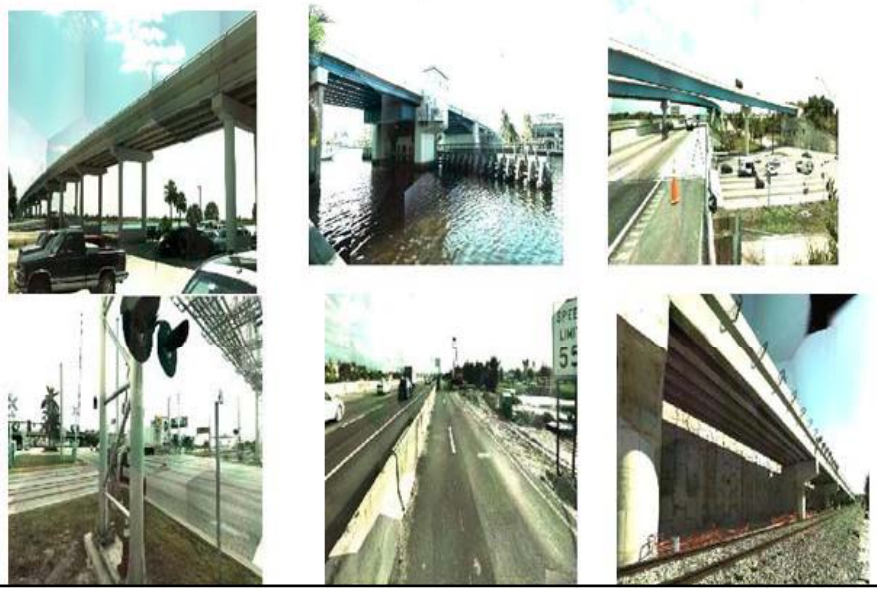
District Four HDS Projects

Target placement

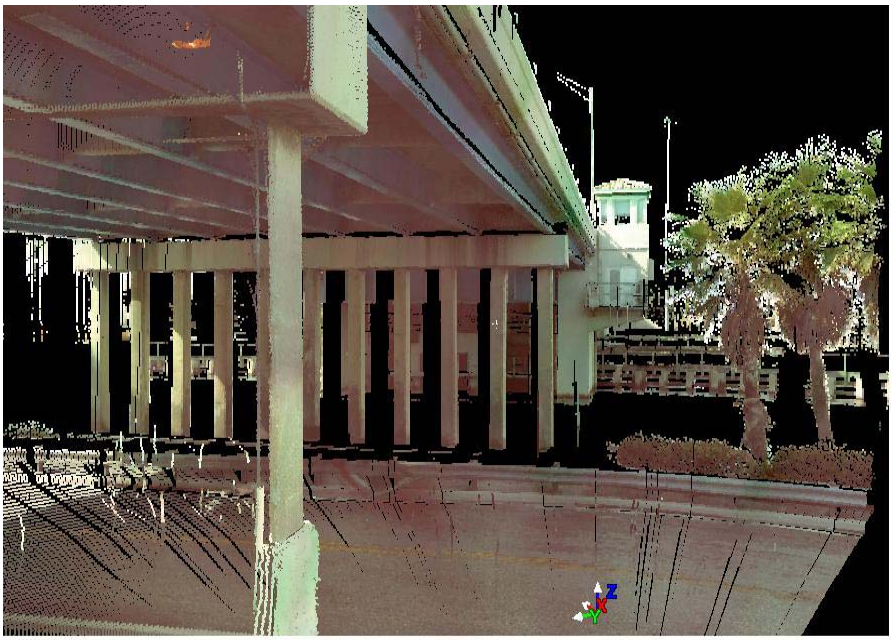
Leica HDS3000 IS WHAT DOT USES

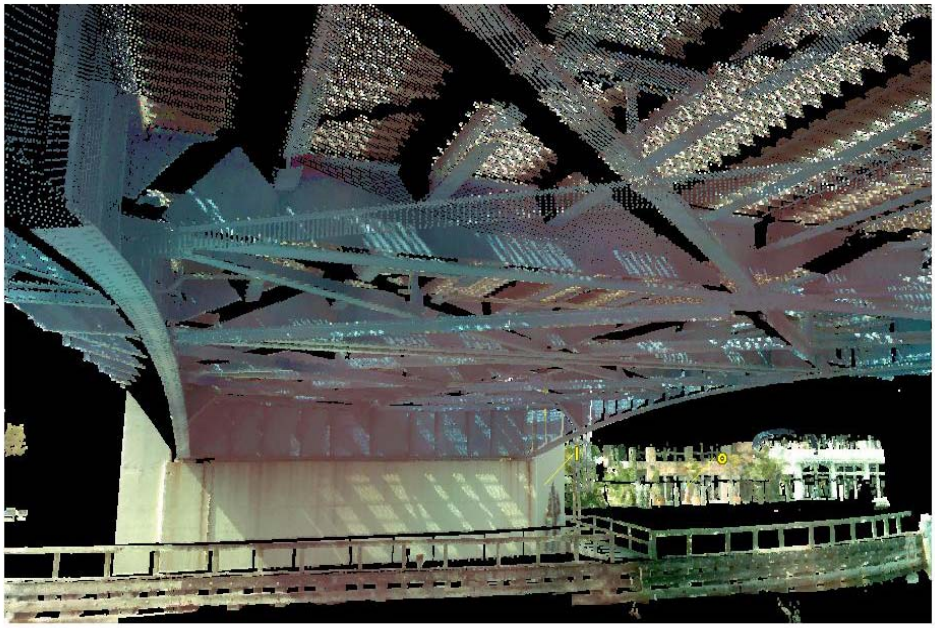
Projects using the Scanner by FDOT



Oakland Park Blvd. Bridge

Oakland Park Blvd Bridge





H
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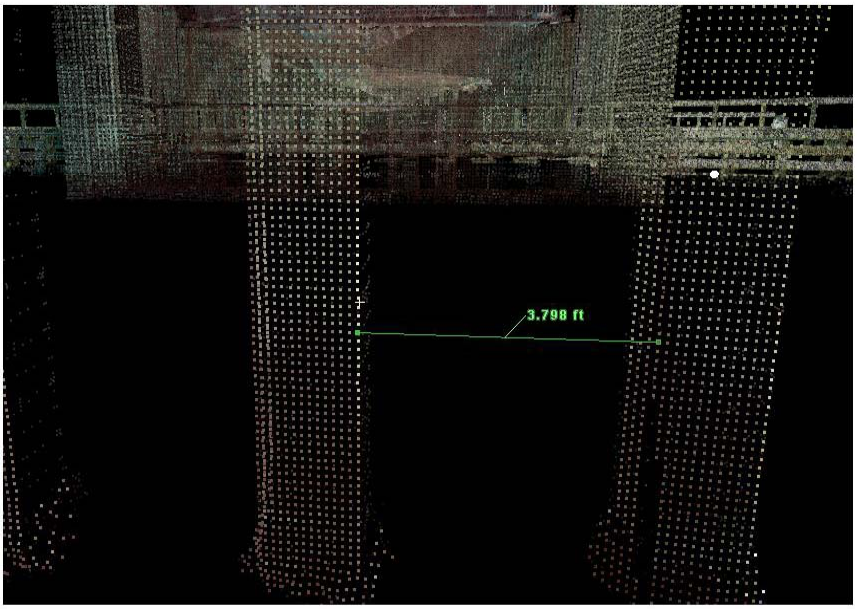
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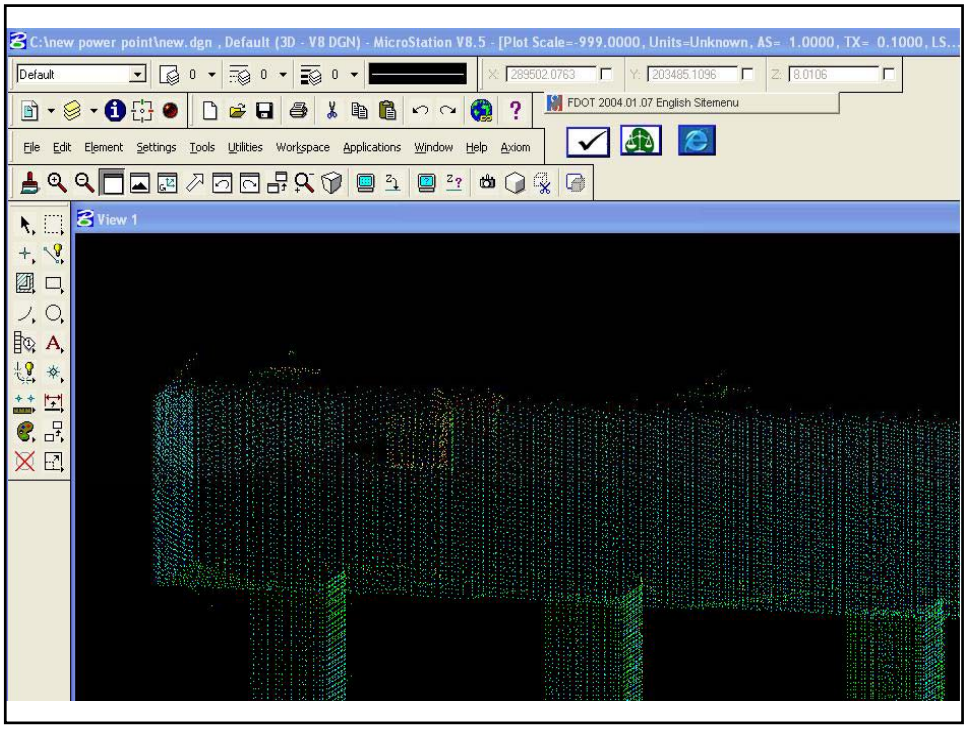
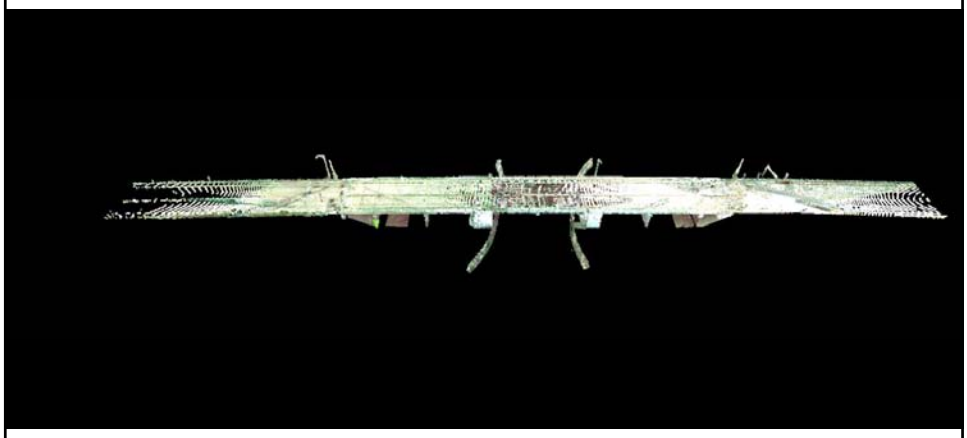
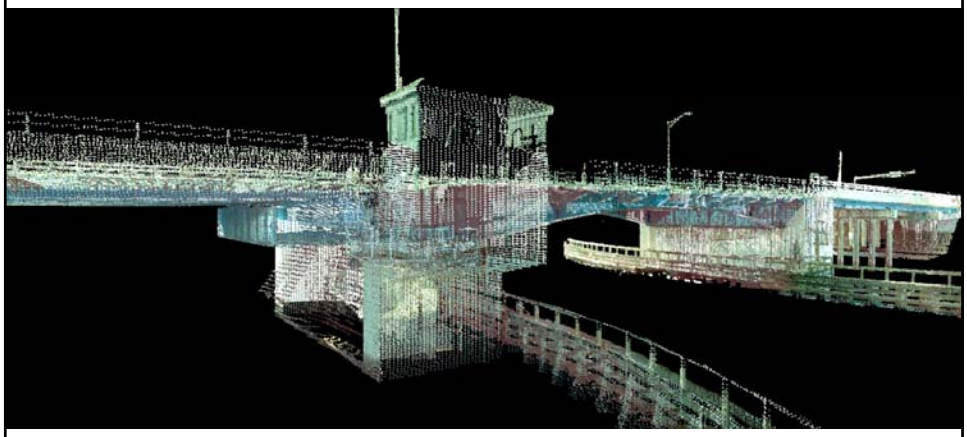


Unified Scans of Oakland Park



Side view of Oakland Park



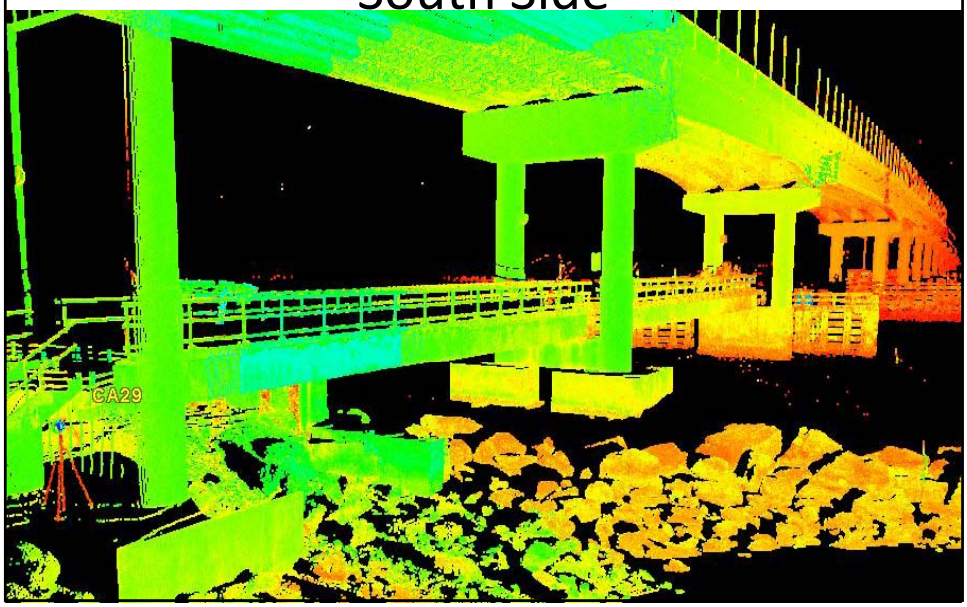
Sebastian Inlet Bridge

Sebastian Inlet Bridge

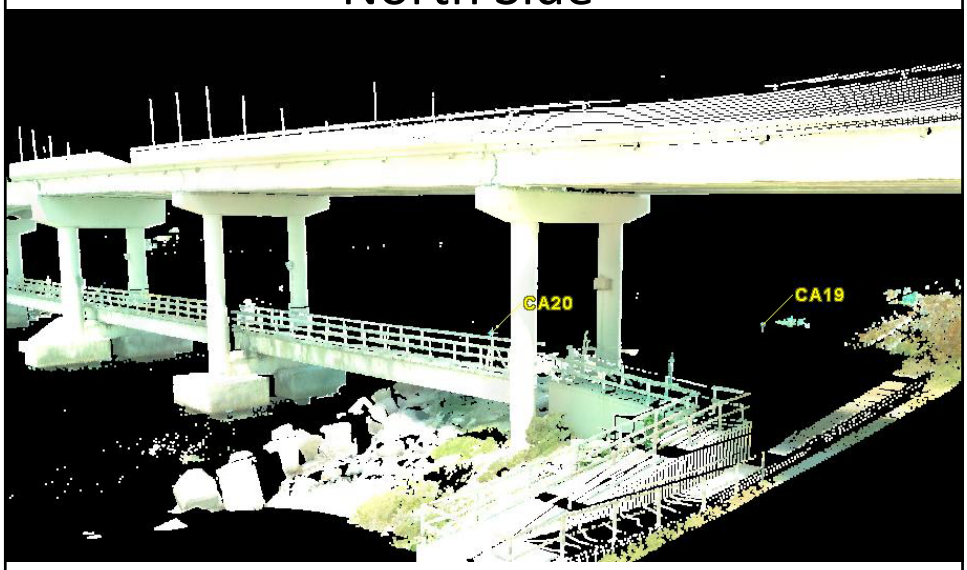
Top

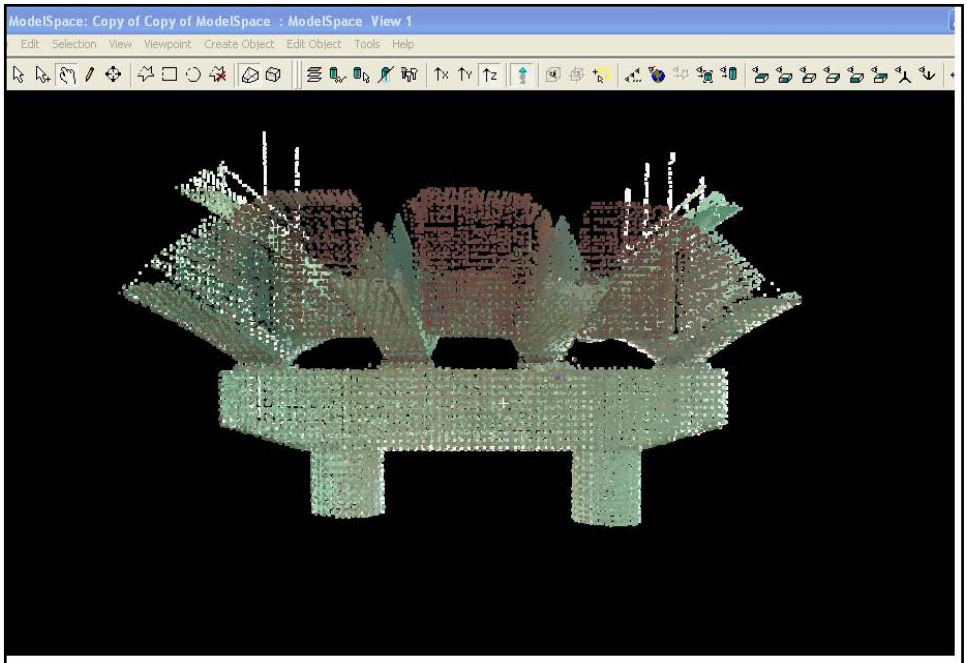
Z
X
Y

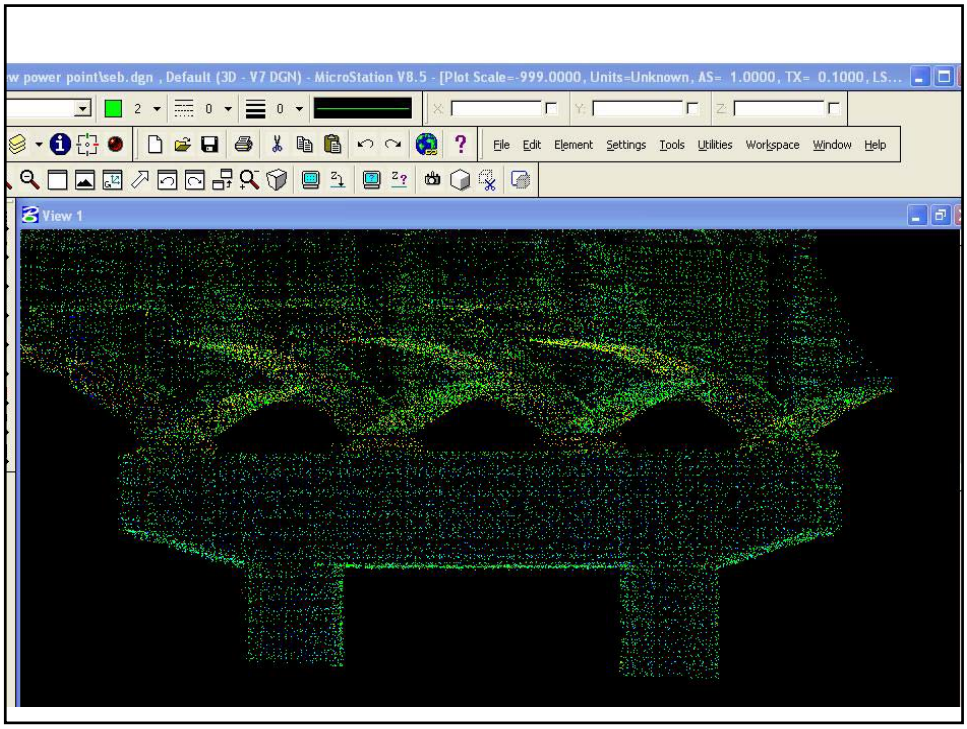
Scan of Sebastian Inlet Bridge
South Side



Scan of Sebastian Inlet Bridge North Side



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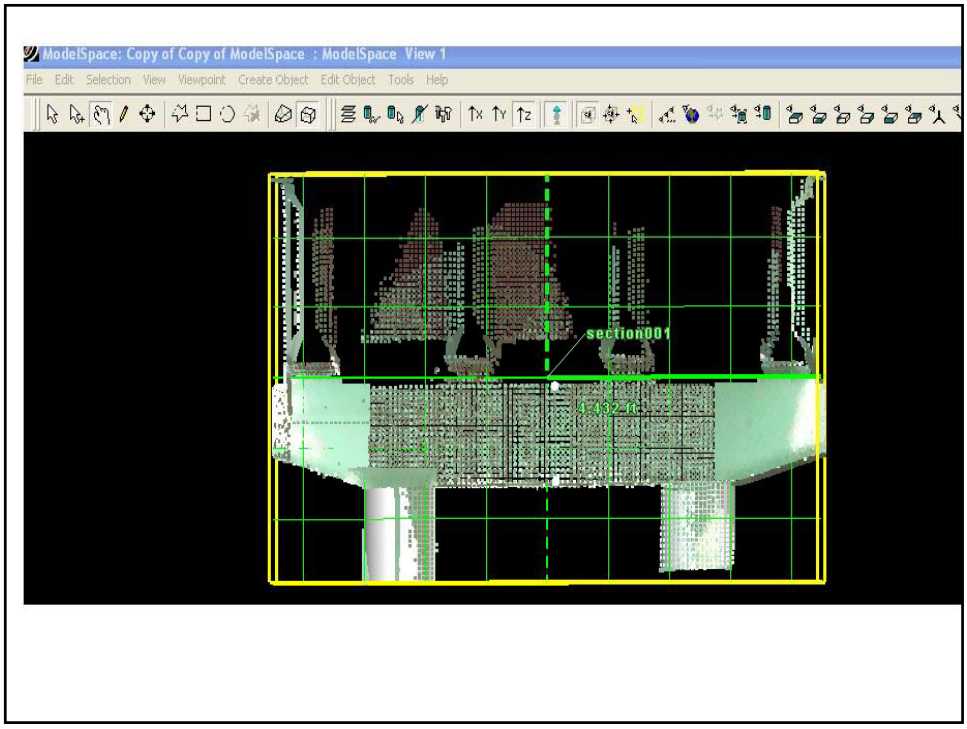
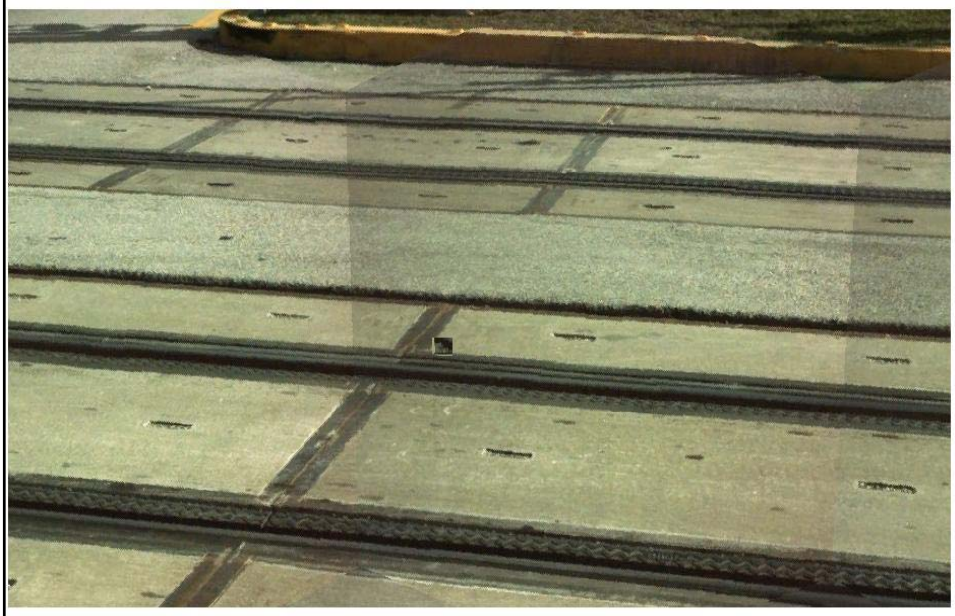
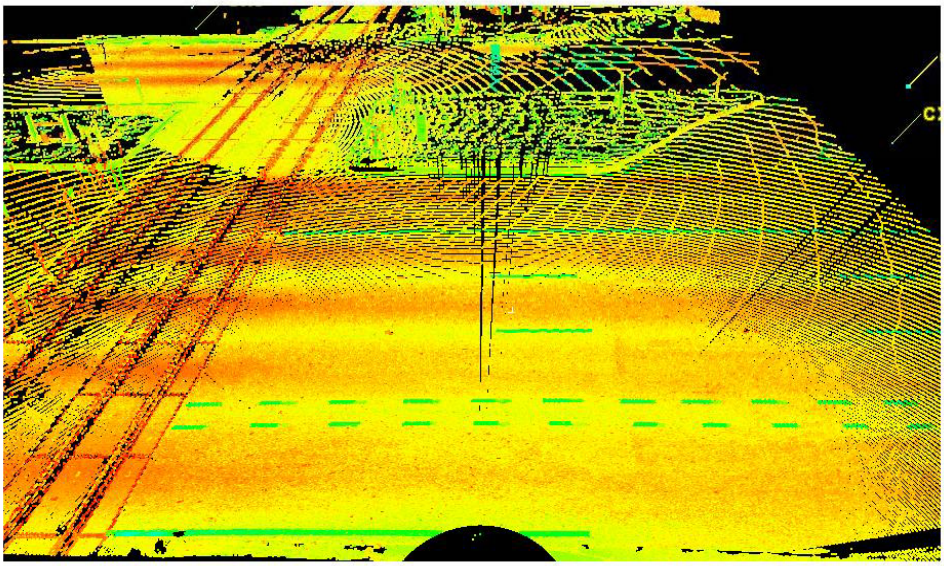
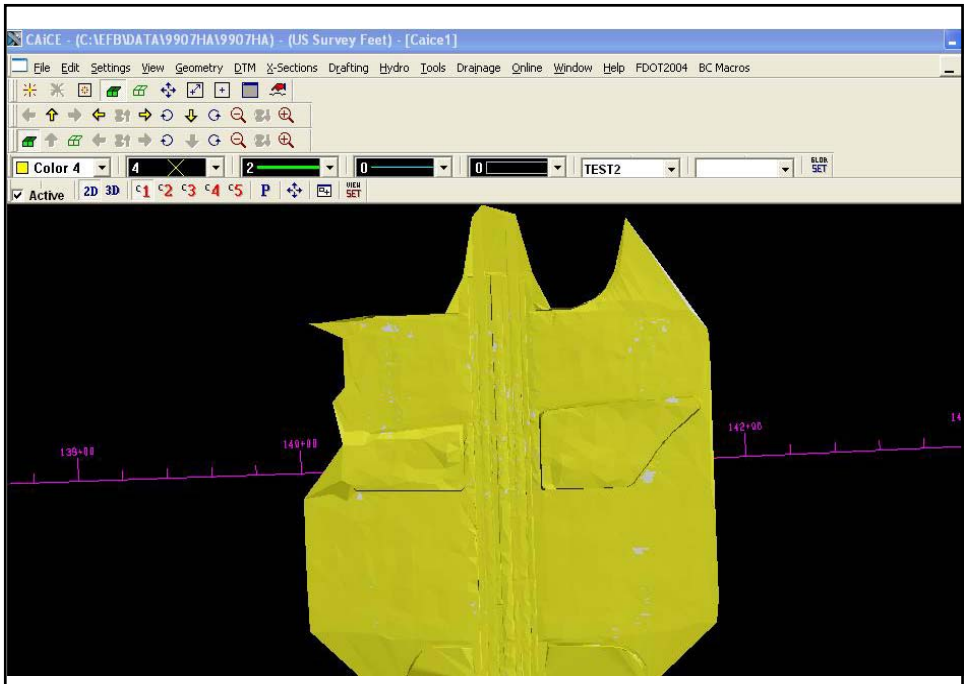
File Edit Element Settings Tools Utilities Workspace Window Help
View 1


ModelSpace: Copy of Copy of ModelSpace : ModelSpace View 1
File Edit Selection View Viewpoint Create Object Edit Object Tools Help
section001

Hallendale Beach Blvd.






CAiCE - (C:\EFB\DATA\9907HA\9907HA) - (US Survey Feet) - [Caice1]
File Edit Settings View Geometry DTM X-Sections Drafting Hydro Tools Drainage Online Window Help FDOT2004 BC Macros
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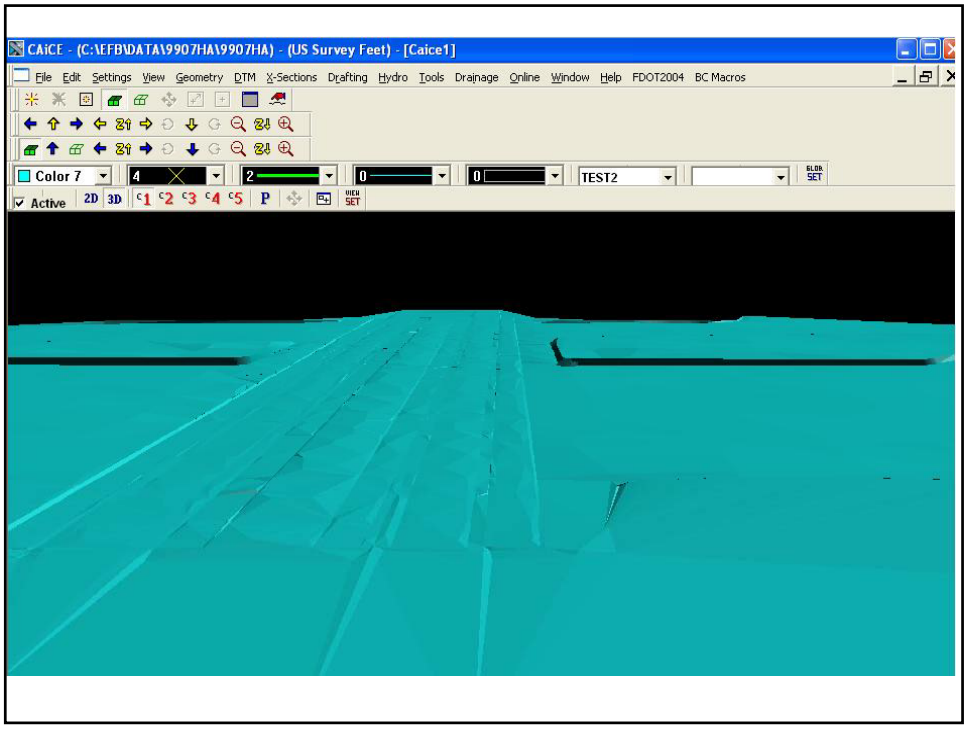
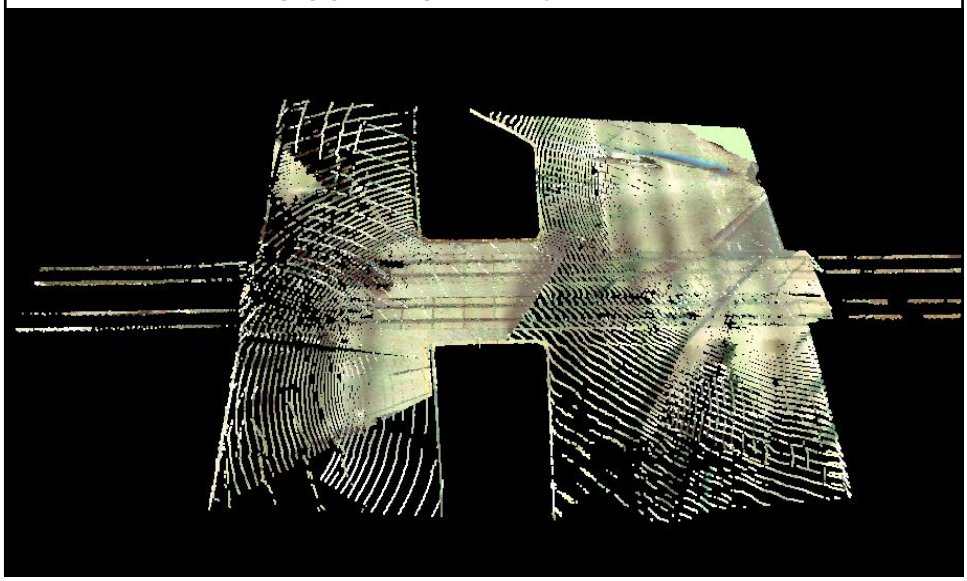
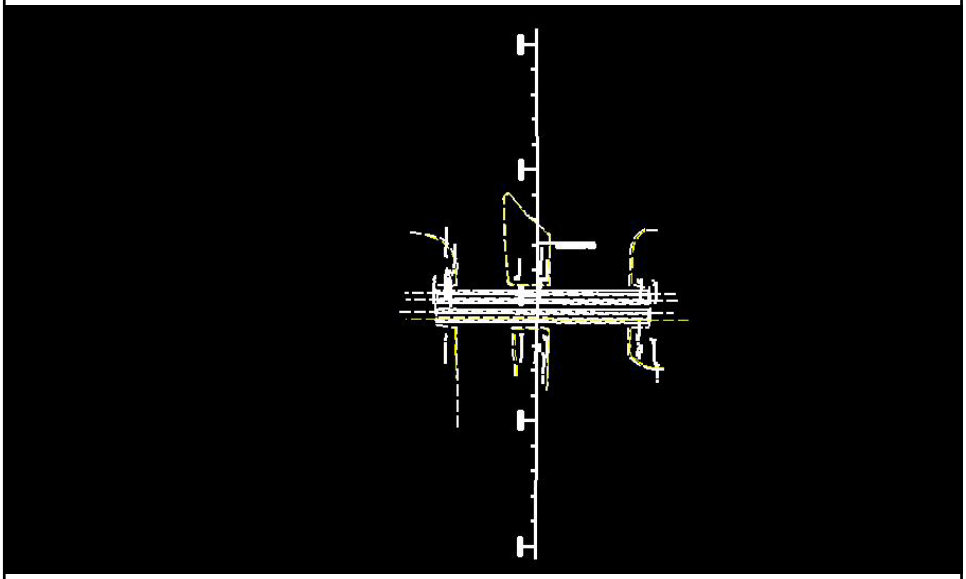


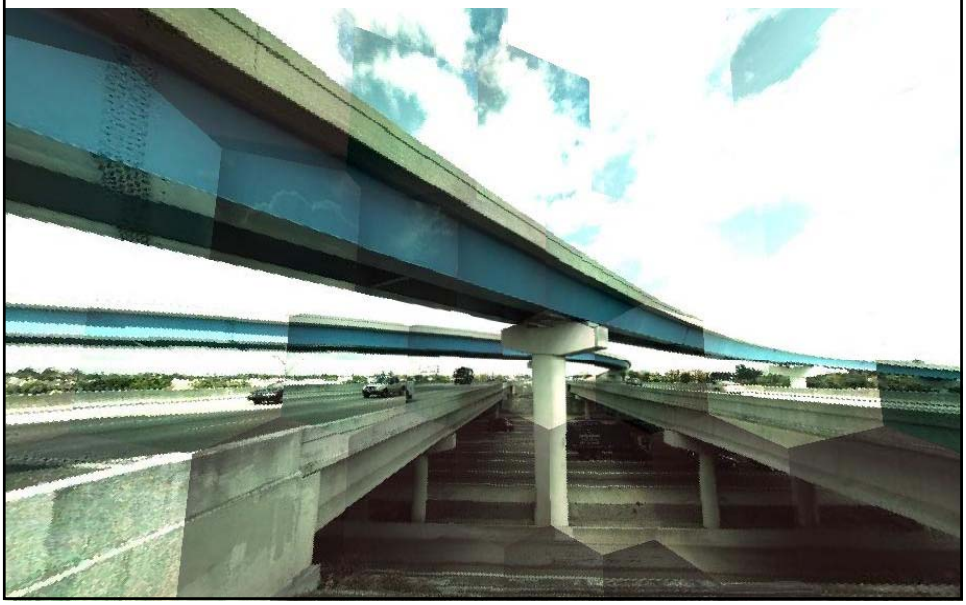
Hallendale Beach Blvd.
Scan for Pvt. DTM



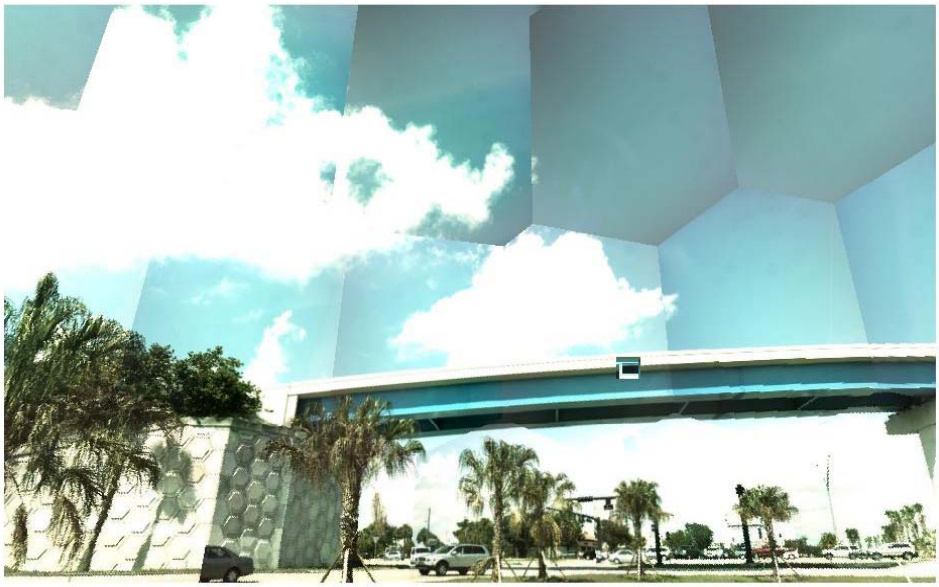
Topo.dgn
Hallendale Beach Blvd.

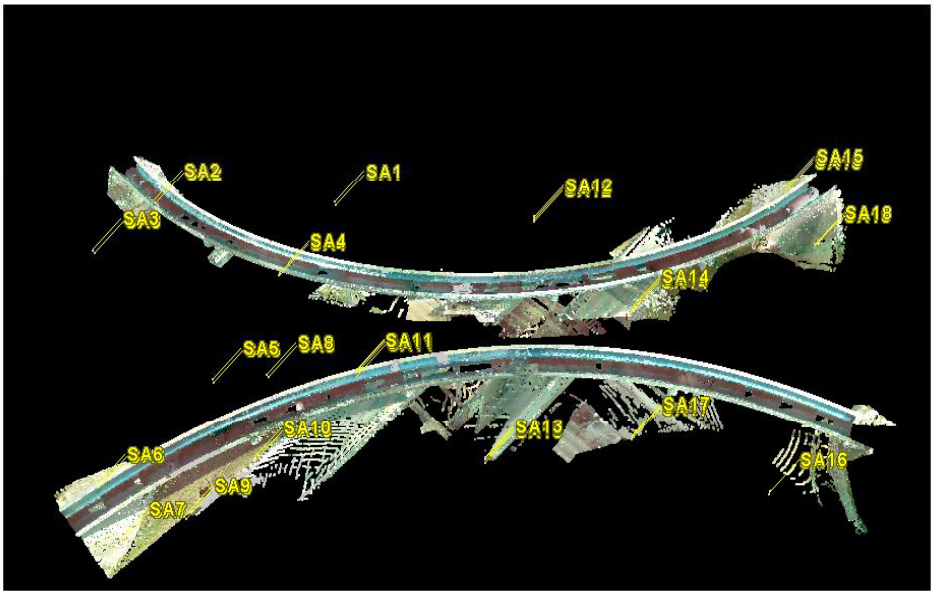


University Dr. & I-595



University Dr. & I-595

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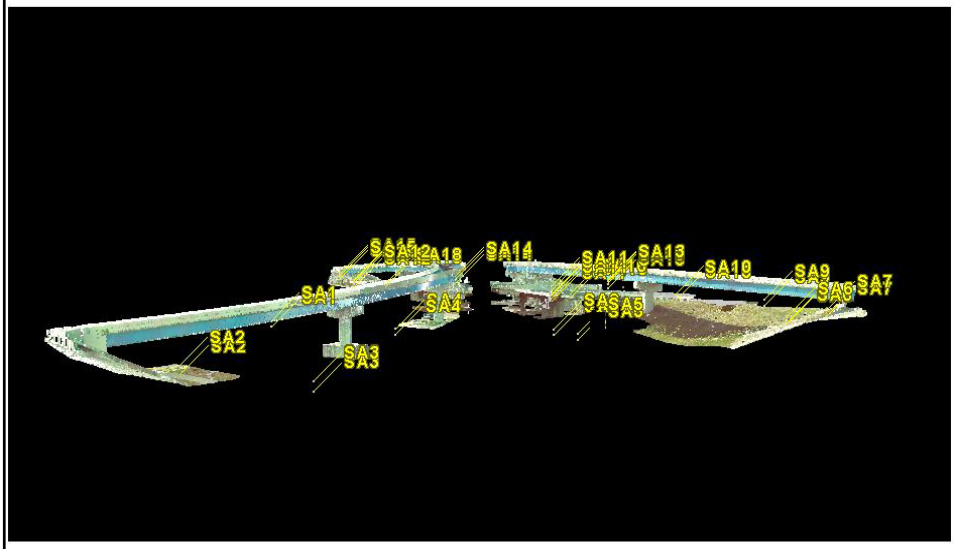
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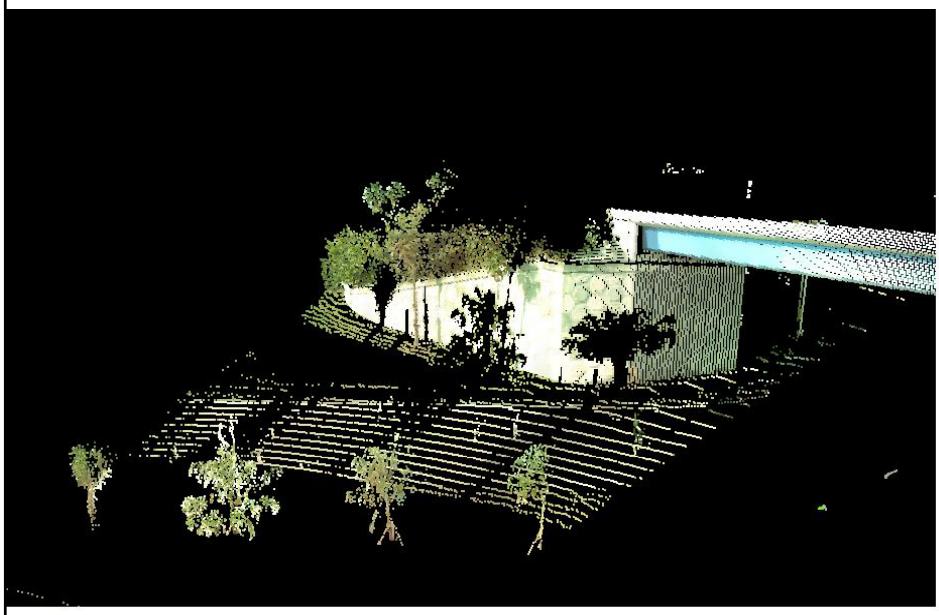
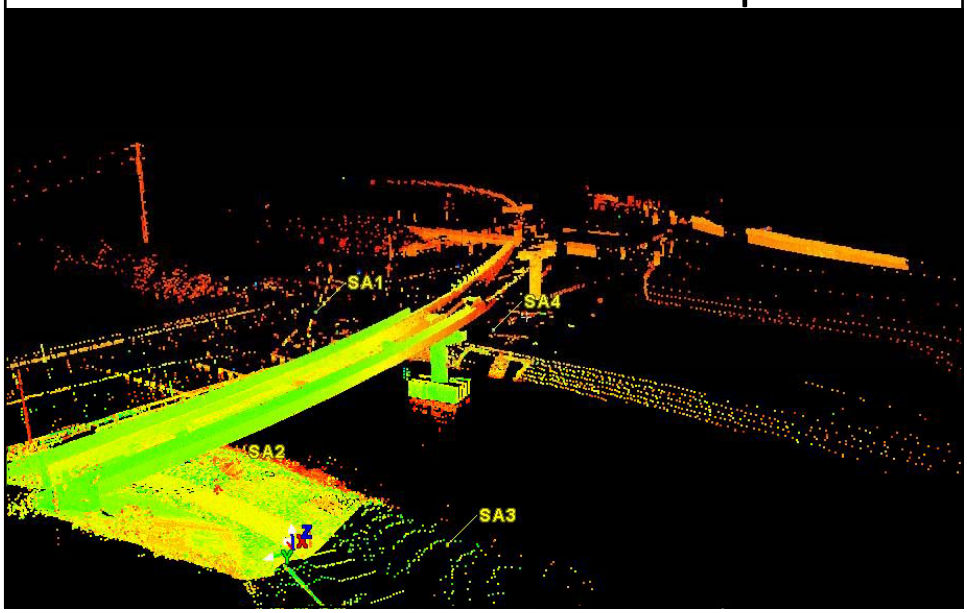
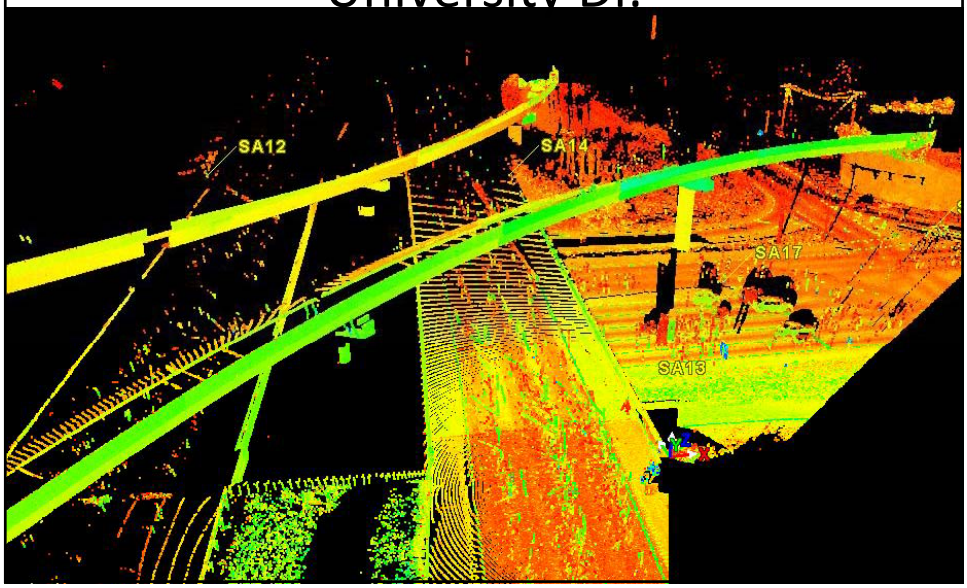


Scan of Overhead Ramp



Overhead Ramps,I-595& University Dr.

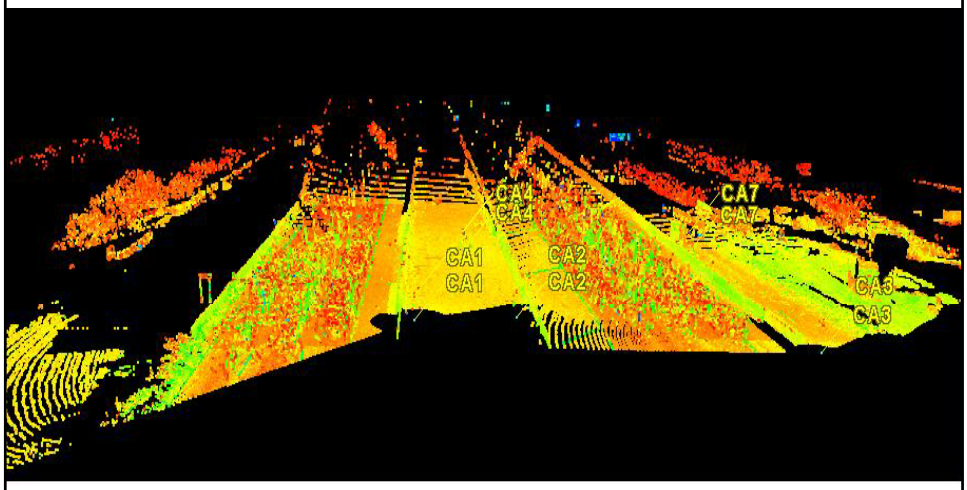


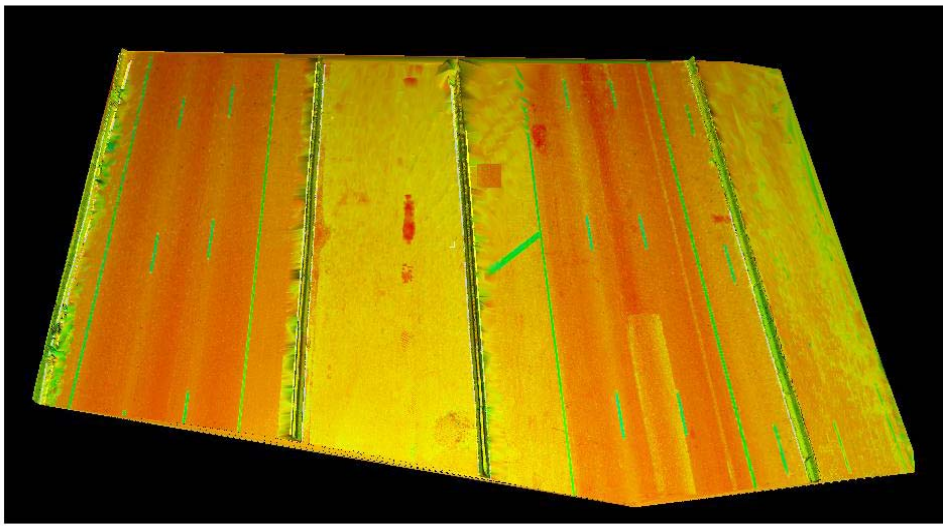
I-95 P.B.C. South Bound

I-95 North Bound

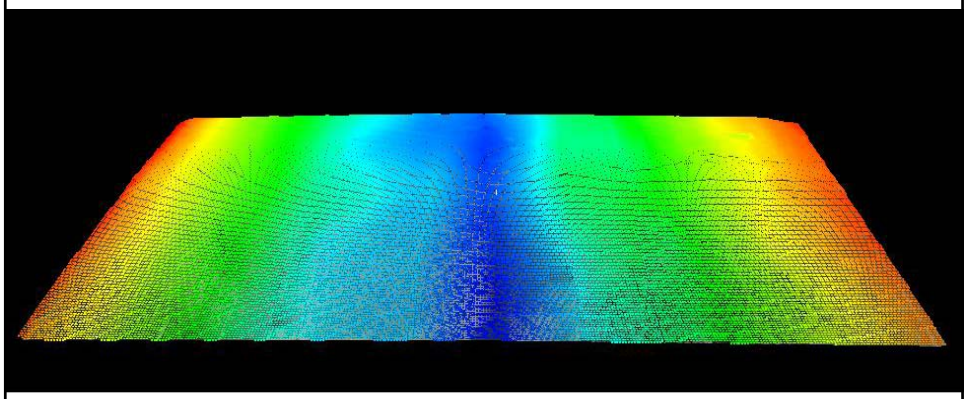
SPEED
LIMIT
55

I-95 Scan for monitoring pavement

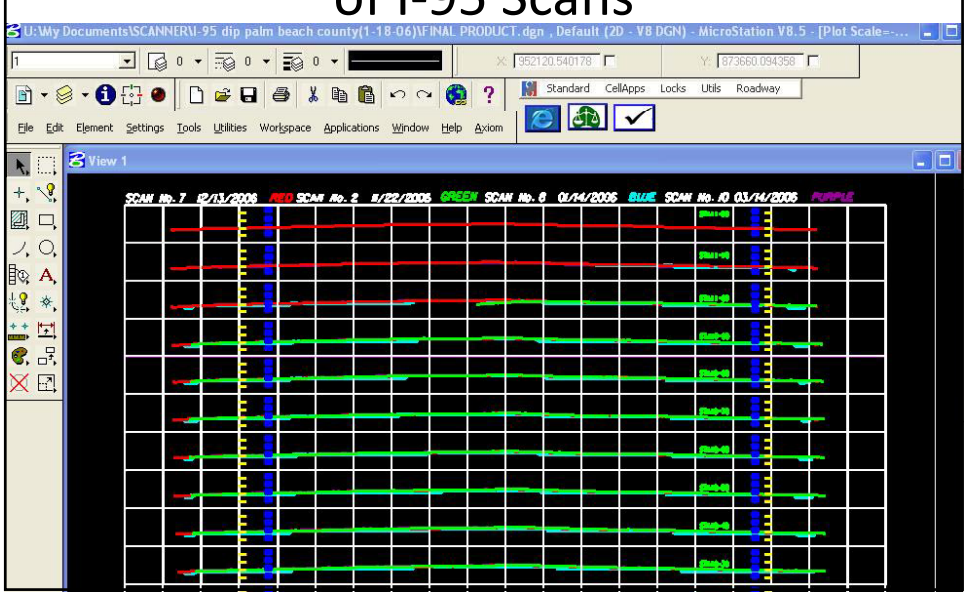




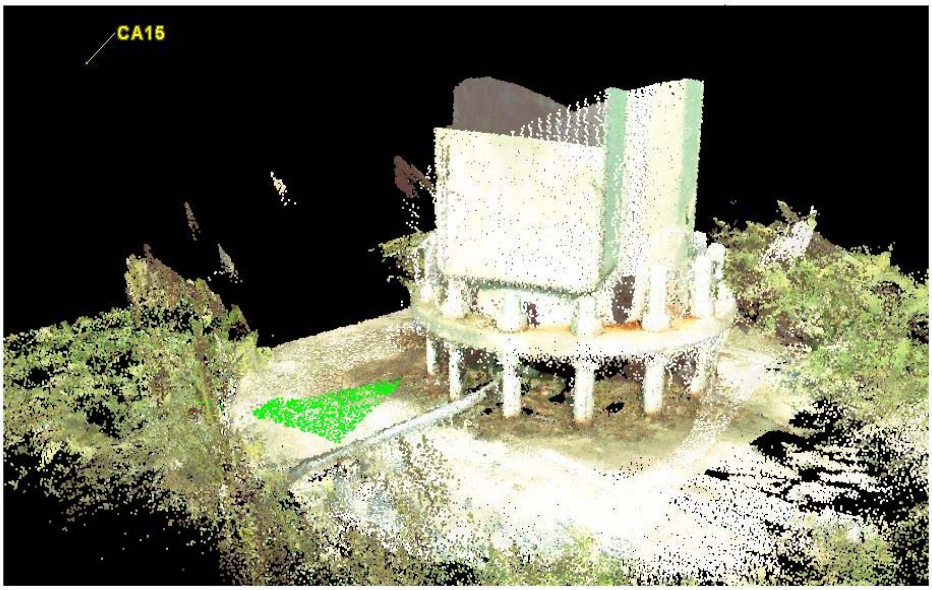
I-95 P.B.C. Mesh

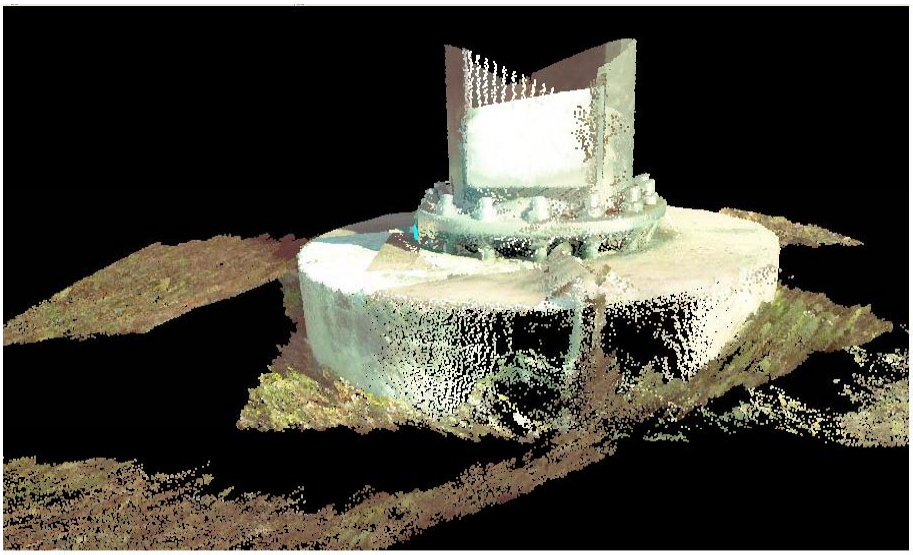


Cross Section Sheet of I-95 Scans



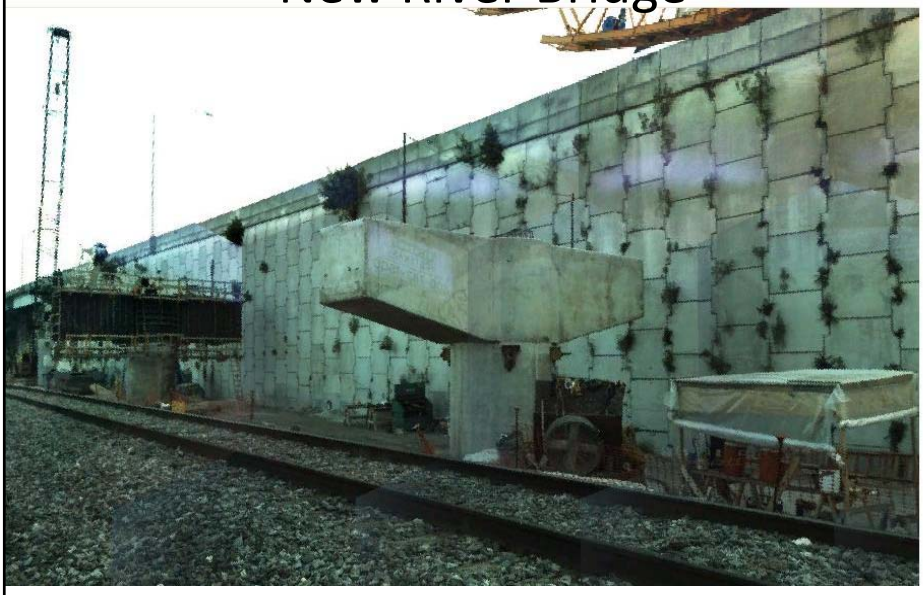
I-75 Light Pole Bases



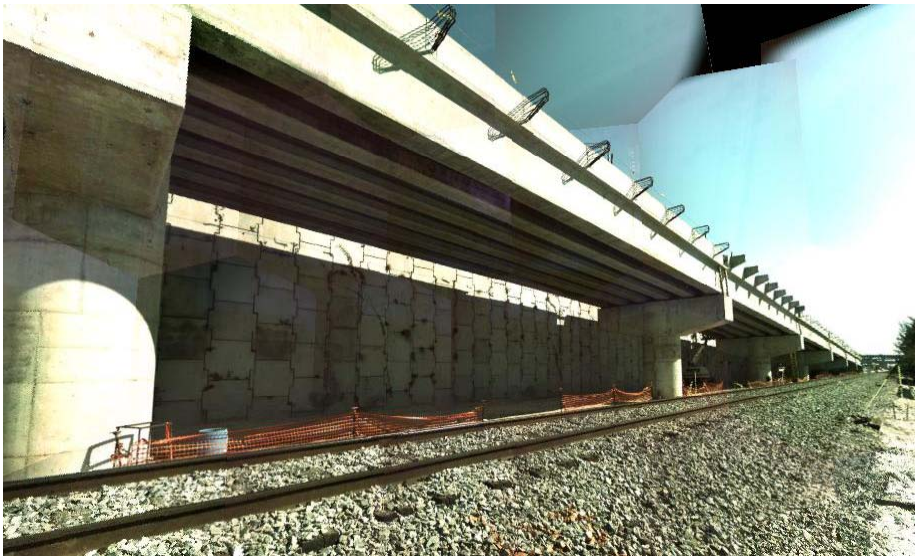


New River Bridge

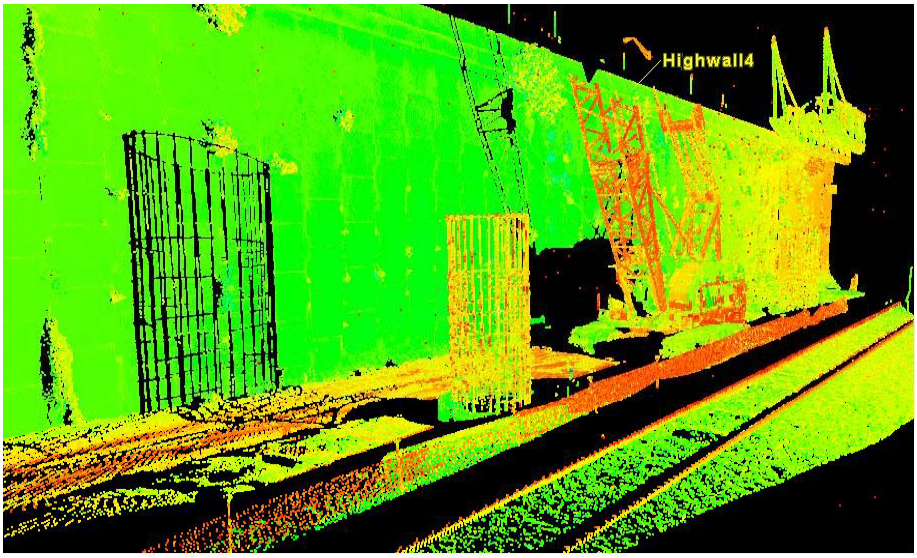
New River Bridge



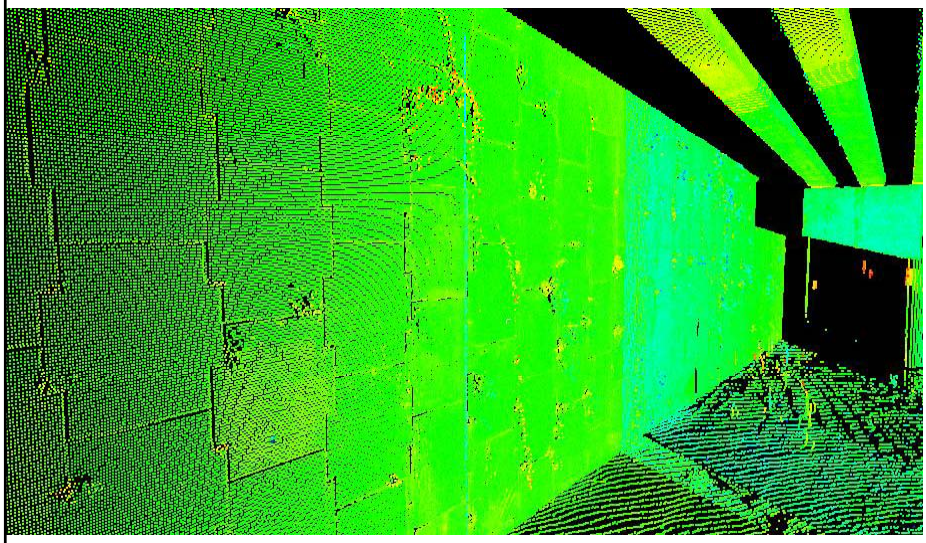
New River Bridge

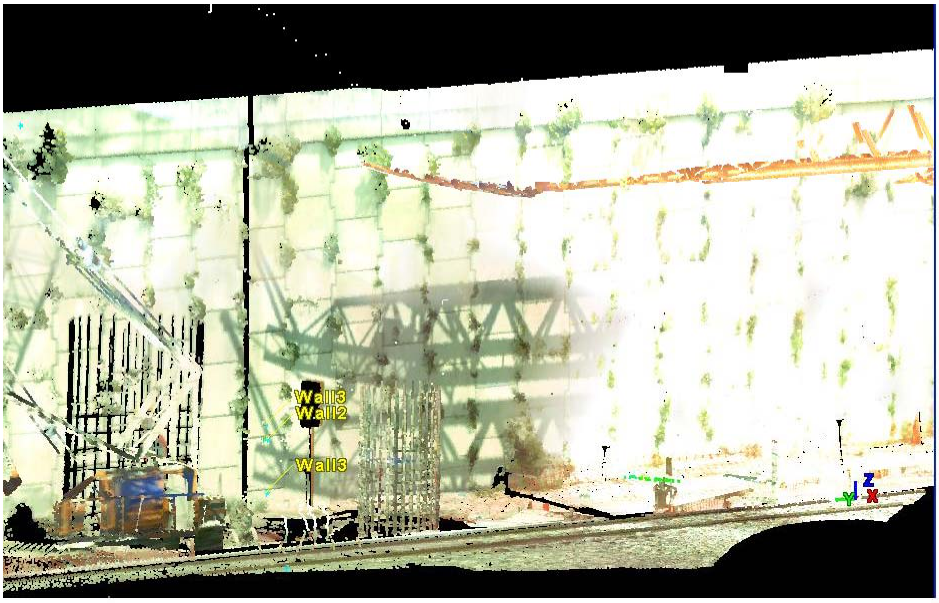


New River Bridge

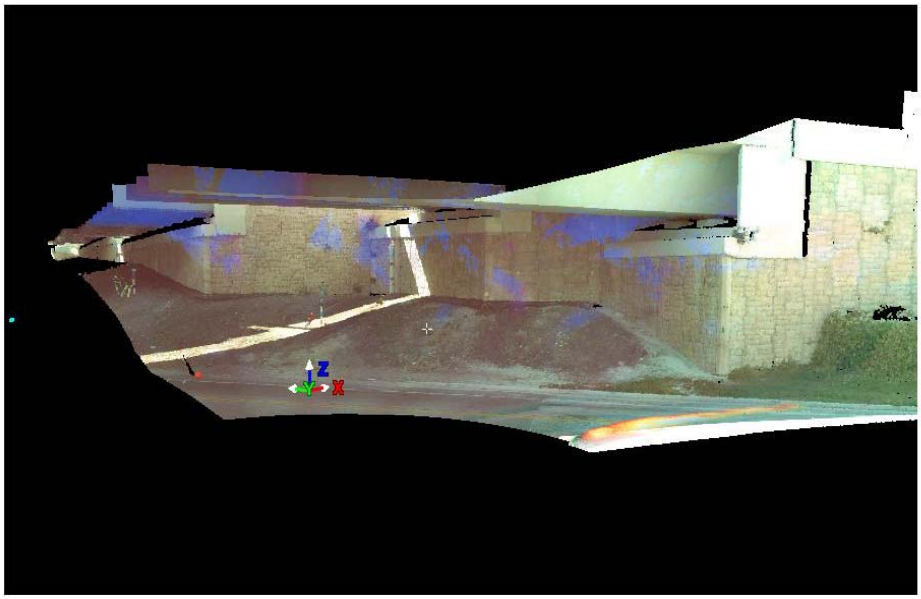


New River Bridge Retaining Wall



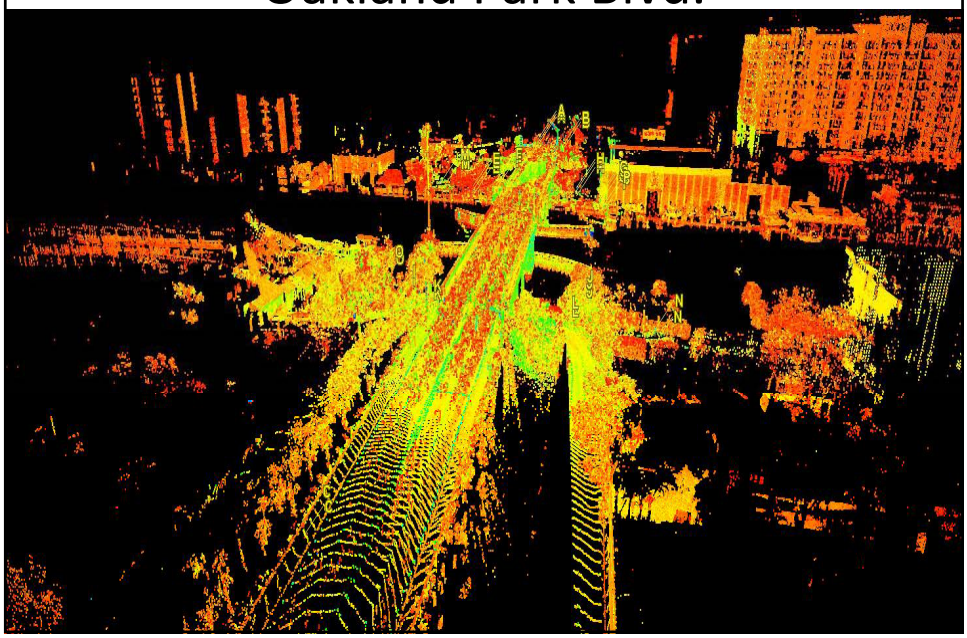


I-95 & Mercer Ave.
Palm Beach County

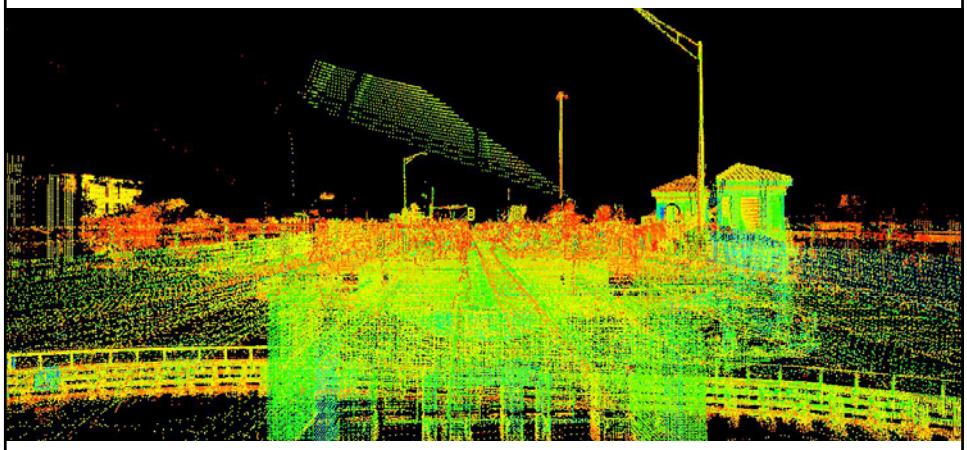

Z
Y
X

Lessons Learned

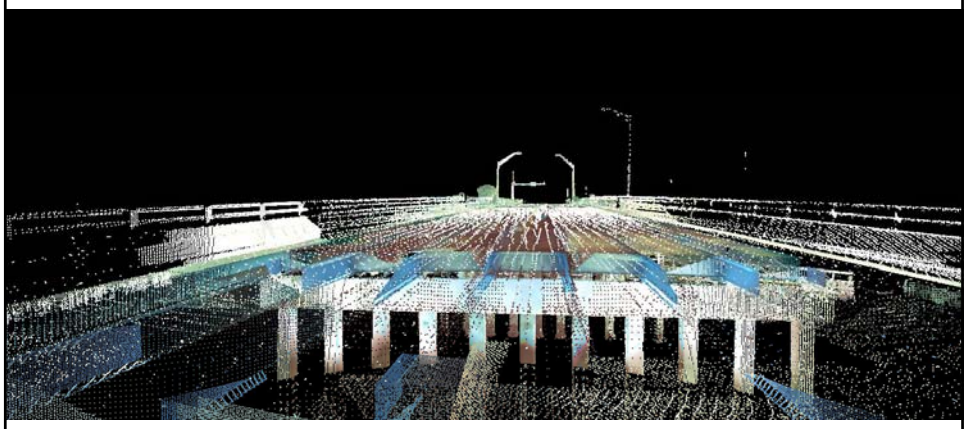
Oakland Park Blvd.



Cleaning unified scans

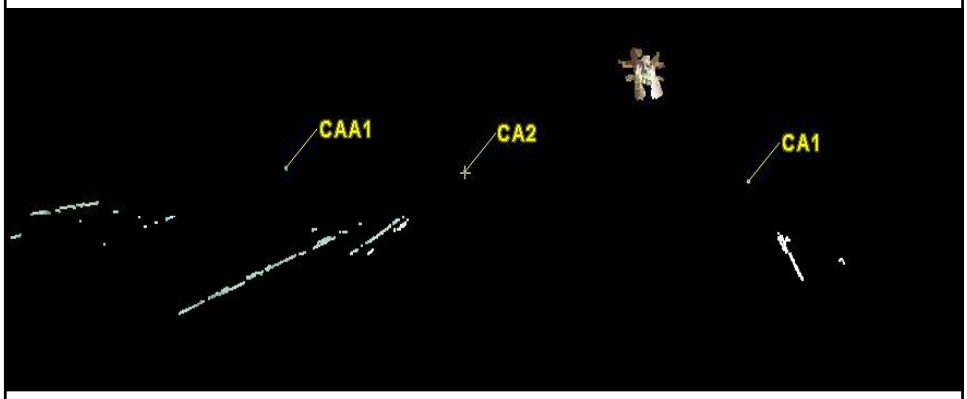


Noise removed

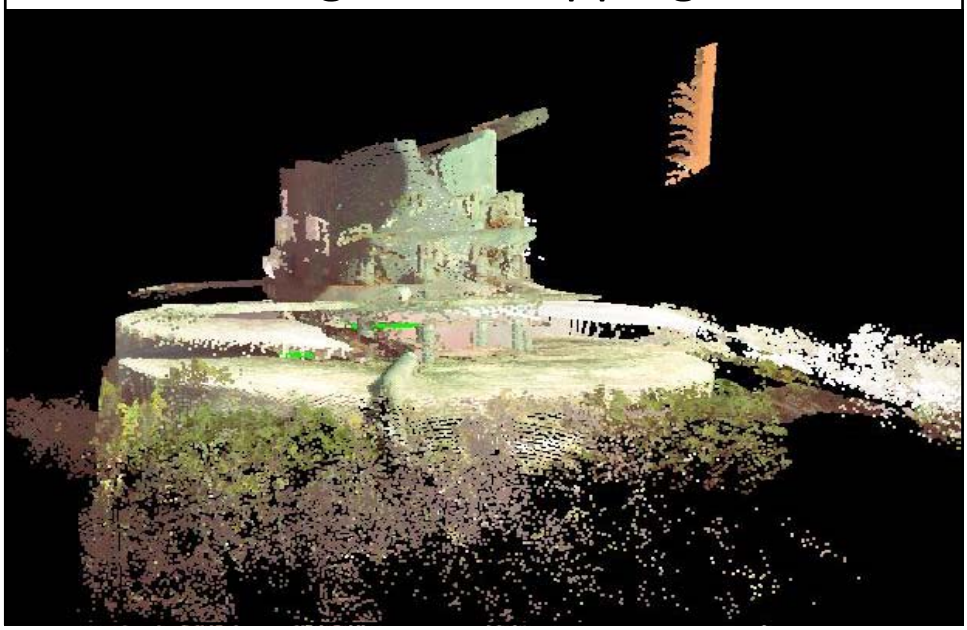


Placement of Control

Control on a straight line results in registration problems

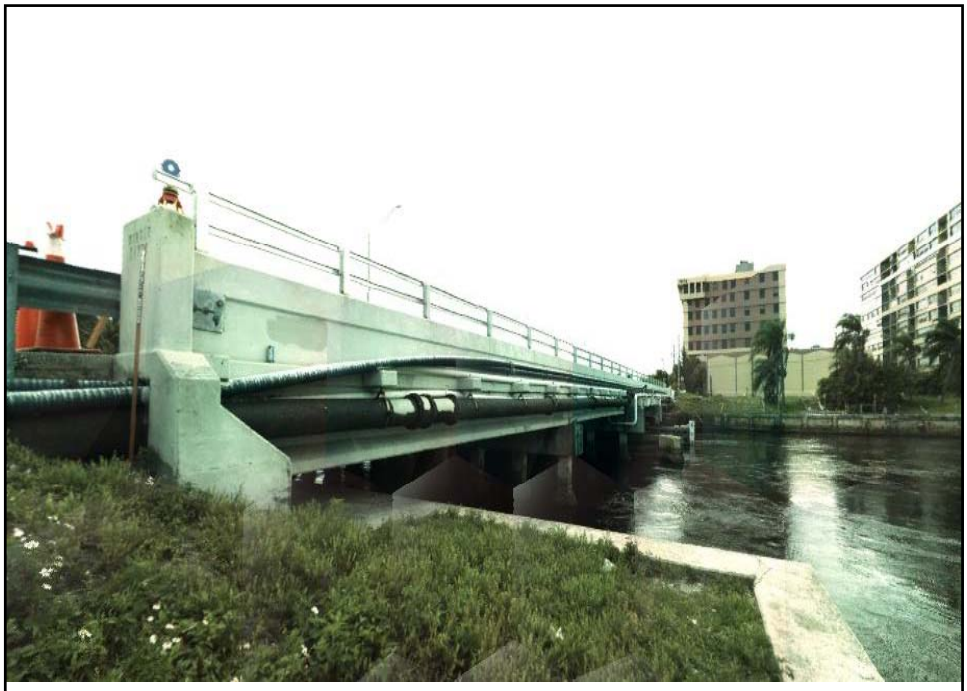


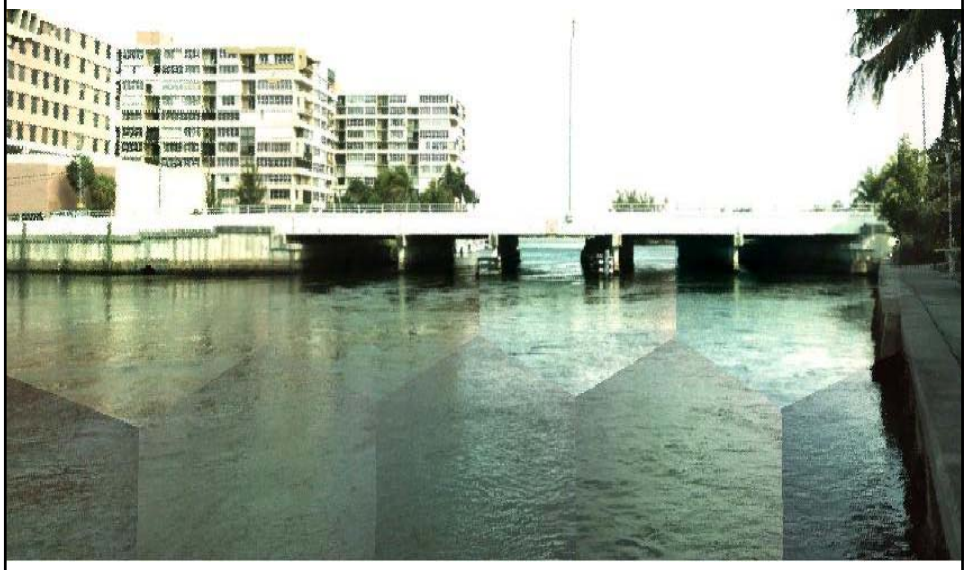
Resulting in overlapping scans

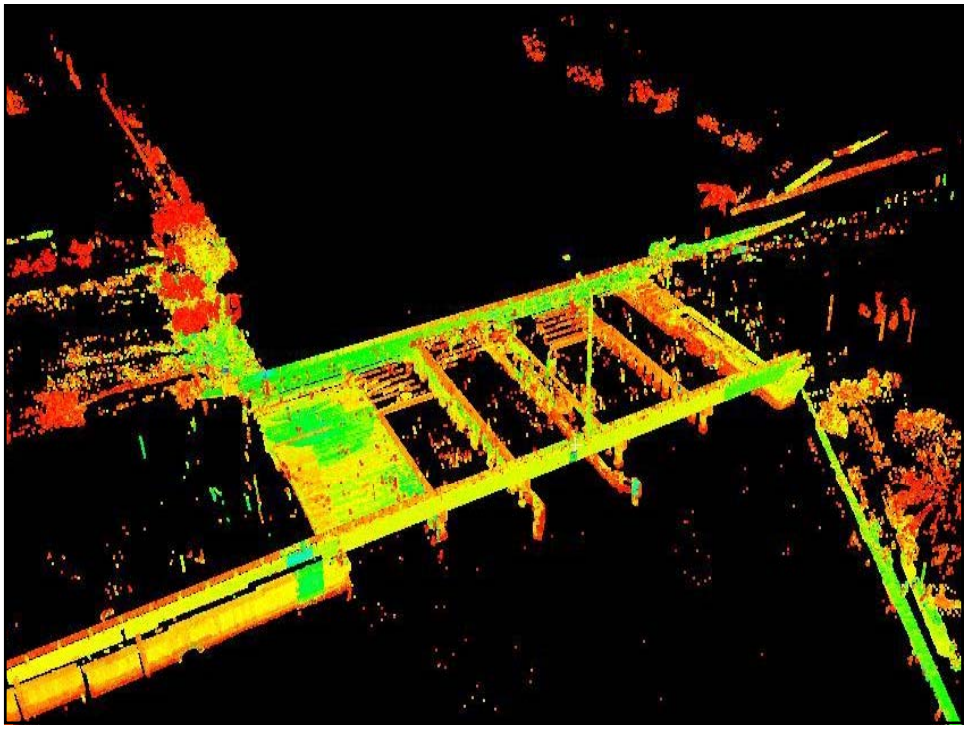


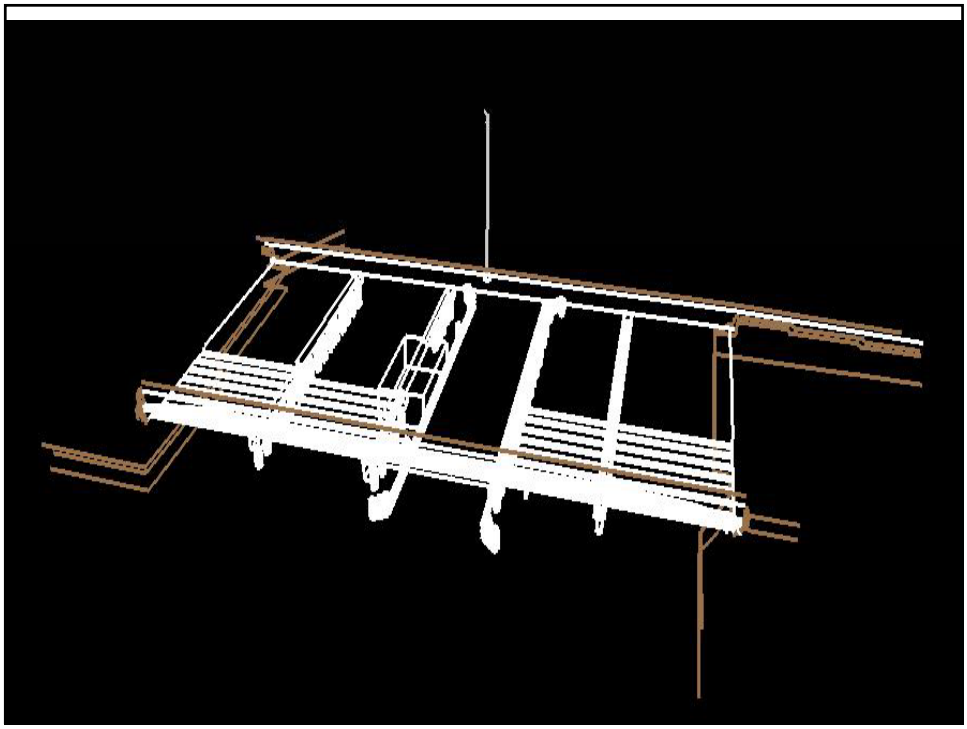
Control placed in proper position

Sunrise Bridge copleted by Wantman Group









Registration: Registration 1

Registration Edit ScanWorld Constraint Cloud Constraint Viewers Help

ScanWorlds' Constraints | Constraint List | ModelSpaces

Constraint ID	ScanWorld	ScanWorld	Type	Status	Weight	Error	Error Vector
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TargetID: T6	NORTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.018 ft	(-0.014, 0.004, 0.011) ft
TargetID: T8	NORTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.009 ft	(-0.002, -0.003, 0.009) ft
TargetID: ...	NORTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.041 ft	(0.002, -0.012, 0.039) ft
TargetID: ...	NORTH-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.015 ft	(0.008, -0.008, 0.010) ft
TargetID: T6	NORTH-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.011 ft	(0.001, -0.003, -0.011) ft
TargetID: T5	NORTH-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.024 ft	(0.001, -0.004, -0.023) ft
TargetID: T8	NORTH-WES...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.025 ft	(-0.001, 0.005, 0.024) ft
TargetID: T5	NORTH-WES...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.026 ft	(-0.010, -0.004, 0.024) ft
TargetID: T6	NORTH-WES...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.027 ft	(0.014, -0.007, -0.022) ft
TargetID: T9	NORTH-WES...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.020 ft	(-0.017, 0.010, 0.004) ft
TargetID: ...	NORTH-WES...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.030 ft	(0.006, 0.004, -0.030) ft
TargetID: T8	NORTH-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.033 ft	(-0.002, 0.001, 0.033) ft
TargetID: T4	SOUTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.020 ft	(-0.001, 0.006, 0.019) ft
TargetID: T2	SOUTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.037 ft	(-0.004, 0.006, -0.036) ft
TargetID: T5	SOUTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.015 ft	(0.004, 0.001, -0.014) ft
TargetID: T1	SOUTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.012 ft	(0.010, -0.007, -0.002) ft
TargetID: T5	SOUTH-EAST...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.034 ft	(-0.007, 0.000, 0.033) ft
TargetID: T5	SOUTH-EAST...	NORTH-WES...	Coincident: Vertex-Vertex	On	1.0000	0.011 ft	(0.003, 0.004, 0.009) ft
TargetID: T1	SOUTH-EAST...	UNDER-WES...	Coincident: Vertex-Vertex	On	1.0000	0.019 ft	(-0.001, -0.011, -0.016) ft
TargetID: T2	SOUTH-EAST...	UNDER-WES...	Coincident: Vertex-Vertex	On	1.0000	0.023 ft	(0.002, 0.009, -0.021) ft
TargetID: T3	SOUTH-EAST...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.020 ft	(-0.006, 0.007, 0.017) ft
TargetID: T3	SOUTH-EAST...	UNDER-WES...	Coincident: Vertex-Vertex	On	1.0000	0.019 ft	(0.002, -0.016, 0.010) ft
TargetID: T2	UNDER-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.017 ft	(-0.006, -0.003, -0.015) ft
TargetID: T1	UNDER-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.018 ft	(0.011, 0.004, 0.014) ft
TargetID: T6	UNDER-WES...	NORTH-EAST...	Coincident: Vertex-Vertex	On	1.0000	0.030 ft	(0.011, -0.018, -0.022) ft
TargetID: T6	UNDER-WES...	NORTH-WES...	Coincident: Vertex-Vertex	On	1.0000	0.011 ft	(-0.003, -0.011, 0.000) ft
TargetID: T3	UNDER-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.026 ft	(-0.008, 0.023, 0.007) ft
TargetID: T6	UNDER-WES...	Control-w- Tgt...	Coincident: Vertex-Vertex	On	1.0000	0.018 ft	(-0.003, -0.014, -0.011) ft

References: District IV Surveying Office Guidelines and Standards, v.1, May 31, 2006

Laser Scanning Standards

1.1 These guidelines and standards are based on District Four's use of Leica scanners and scanning software. Any use of other scanner hardware and software will be addressed on a case-by-case basis.

2.0 Appropriate Uses of Scanning

Structures

- Bridges
- Box culverts
- Overpasses
- Walls
- Overhead signs
- Mast arms
- Heritage preservation

Hard Surfaces

- Intersections
- Localized pavement collapse
- Railroad crossings

All other uses will be decided on a case-by-case basis.

3.0 Precision (Accuracy)

- Minimum hardware requirement for single point precision – 8mm at 50 m
- Residuals from the target registration may not exceed .05 feet

4.0 Tolerances from District IV Guidelines and Standards.

- Hard surface – 0.05 foot
- Soft surface - 0.3 foot

5.0 Project Control

- Secondary control or better as specified in District IV Guidelines and Standards.
- Horizontal: NAD83 1990 readjustment or newer. Assumed datums may be permitted on a case-by-case basis.

- Vertical: NAVD 88 or newer. Assumed datums may be permitted on a case-by-case basis.

6.0 Targeting

- Minimum number of targets in a scan world is no less than five. Targets must be arranged so that no more than two are colinear.
- Each project must be tied to a minimum of three project control points.
- Targets must be of the type recommended by the specific scanner manufacturer.

7.0 QA/QC

- Slices
- Check cross sections

8.0 Deliverables

Delivery will be in accordance with contract requirements. Deliverables will include:

- The .IMP database. The database name will be the 6-digit segment number from the project financial management number.
- A signed and sealed surveyor's report, including but not limited to the least squares adjustment summaries of targets.
- Any other data required in the scope of services.
- Files required for delivery will be placed in the appropriately named sub-directory, according to Chapter Four of the CADD Production Criteria Handbook.