Feb 2017 SNE SWCS

AIRSHARK

UAV Flight Services Company

A dedicated team of aviators, technologists, and engineers.

What We Do

UAV flight services for data collection, mapping, and inspection

What Sets us Apart

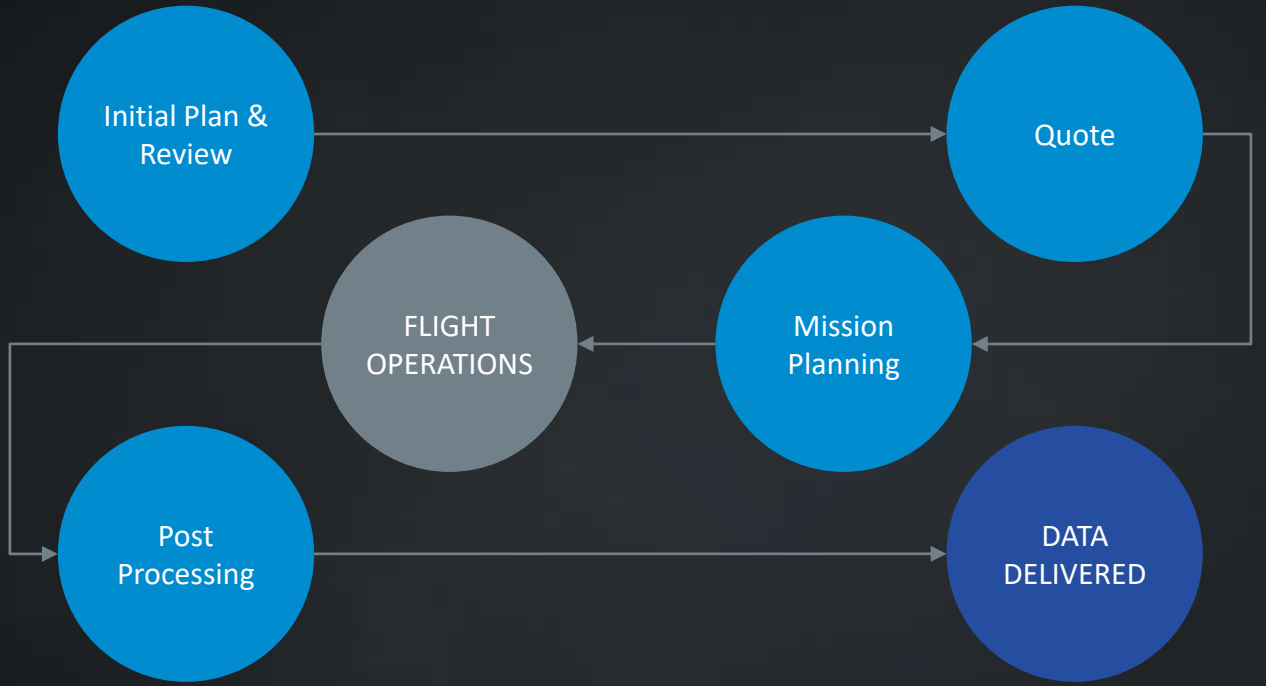
Extensive field experience, strategic partnerships, and quick turnaround custom hardware & software solutions.

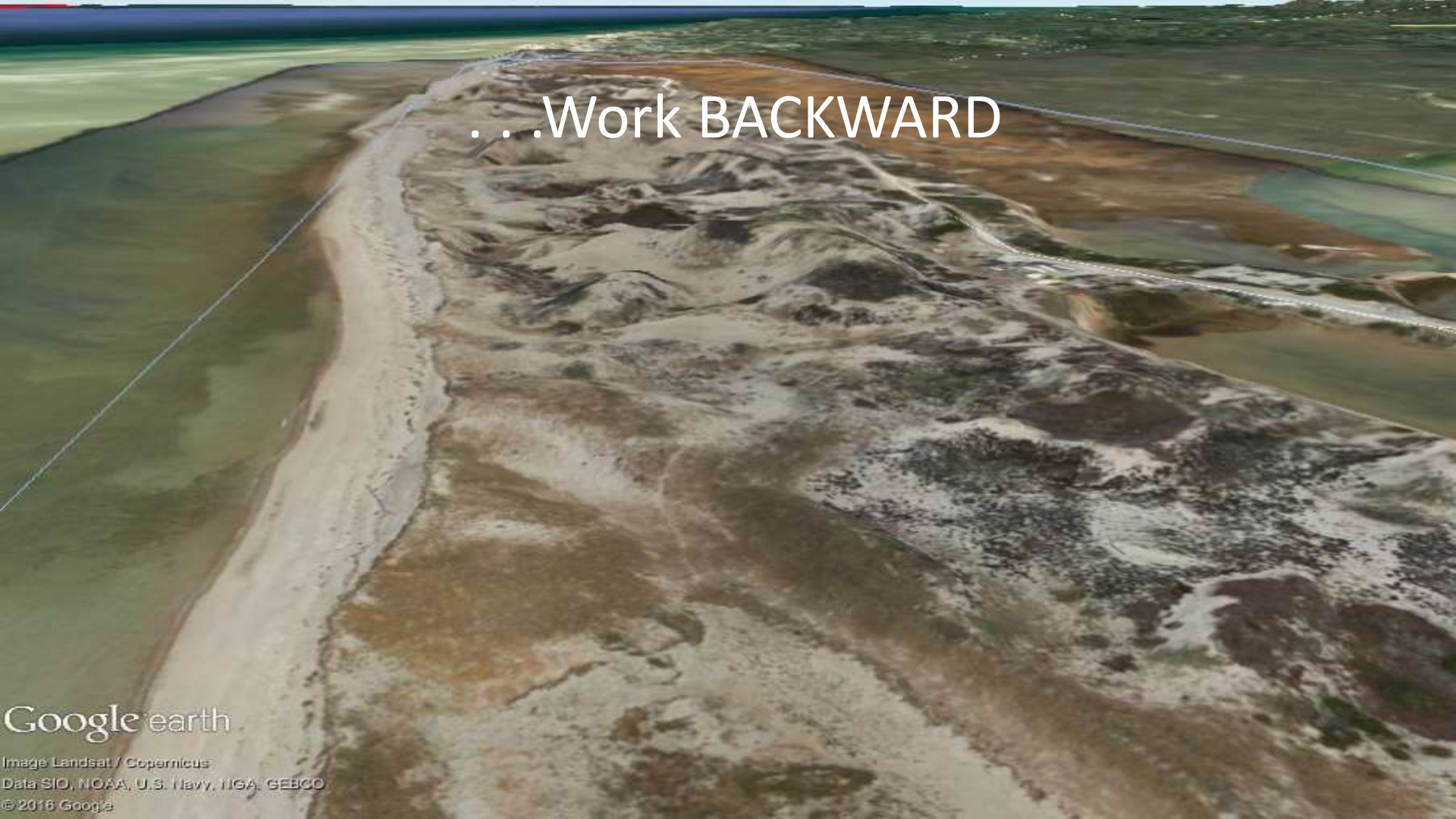
AIRSHARK

We help companies make critical business decisions faster, safer, and more cost effective through tightly integrated UAV data collection, processing, and presentation services.

THE PROCESS

How it Works




. . .Work BACKWARD
Google earth
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2016 Google

CHECKLIST

For Contracting UAS Operations

FAA Approval	Insurance & Safety	Experience	Processing
Section 333 or Part 107	Adequate Insurance Coverage	Situational Awareness	Hardware
Licensed Operators	Safety Plan & Operational Checklists	Type of Aircraft	Software
Authorizations for Specific Airspace	Pre-Flight Briefing	Application Specific	Data Types

CAPABILITIES

General Flight Considerations

WIND & PRECIP

UAV operations are best conducted on sunny or overcast days, when winds are <~15mph. Light precipitation is manageable, but avoided whenever possible.

FLIGHT TIME

Most UAV can fly for 15 – 30 minutes, and by combining flights can cover from tens to hundreds of acres. Fixed wing UAS can cover more area per flight, and should be used for larger mapping projects.

CONDITIONS

Weather & Site Considerations

TERRAIN & OBSTACLES

Flat or rolling terrain with little tree cover is ideal for UAV mapping projects. Multirotors can operate out of smaller launch areas and operate closer to structures.

TEMPERATURE

UAVs can operate year round in almost any temperature, with the human operators being the largest concern. For most cases, use 0 – 100F as a guide.

OPERATIONAL CONSTRAINTS

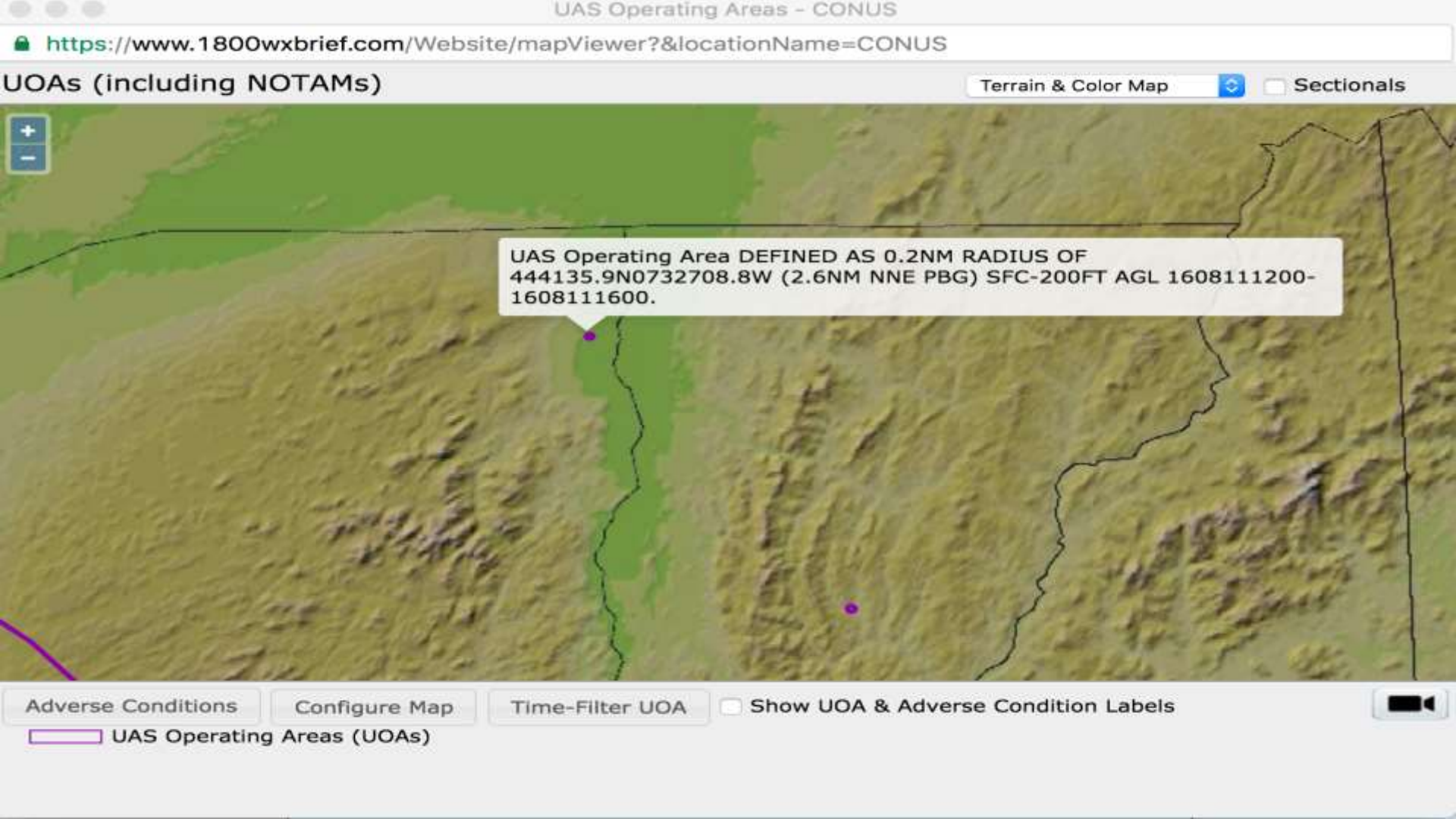
Simplified Rules for Planning Purposes

LINE OF SIGHT

UAS must remain within the operator's line of sight, in case of emergency. This also means operations must be conducted between dawn and dusk.

AIRSPACE

In most cases, commercial UAS must not operate within controlled airspace near airports, and are limited to 400FT above the ground & structures.


UAS Operating Areas - CONUS
https://www.1800wxbrief.com/Website/mapViewer?&locationName=CONUS
UOAs (including NOTAMs)
Terrain & Color Map
Sectionals
UAS Operating Area DEFINED AS 0.2NM RADIUS OF 444135.9N0732708.8W (2.6NM NNE PBG) SFC-200FT AGL 1608111200-1608111600.
Adverse Conditions
Configure Map
Time-Filter UOA
Show UOA & Adverse Condition Labels
UAS Operating Areas (UOAs)

AUTHORIZATION OR WAIVER UNDER Part 107

107.41 Operations within Class B C D E require authorization

Apply Online

Responsible Person / Contact

Certificate Number

UAS Make / Model

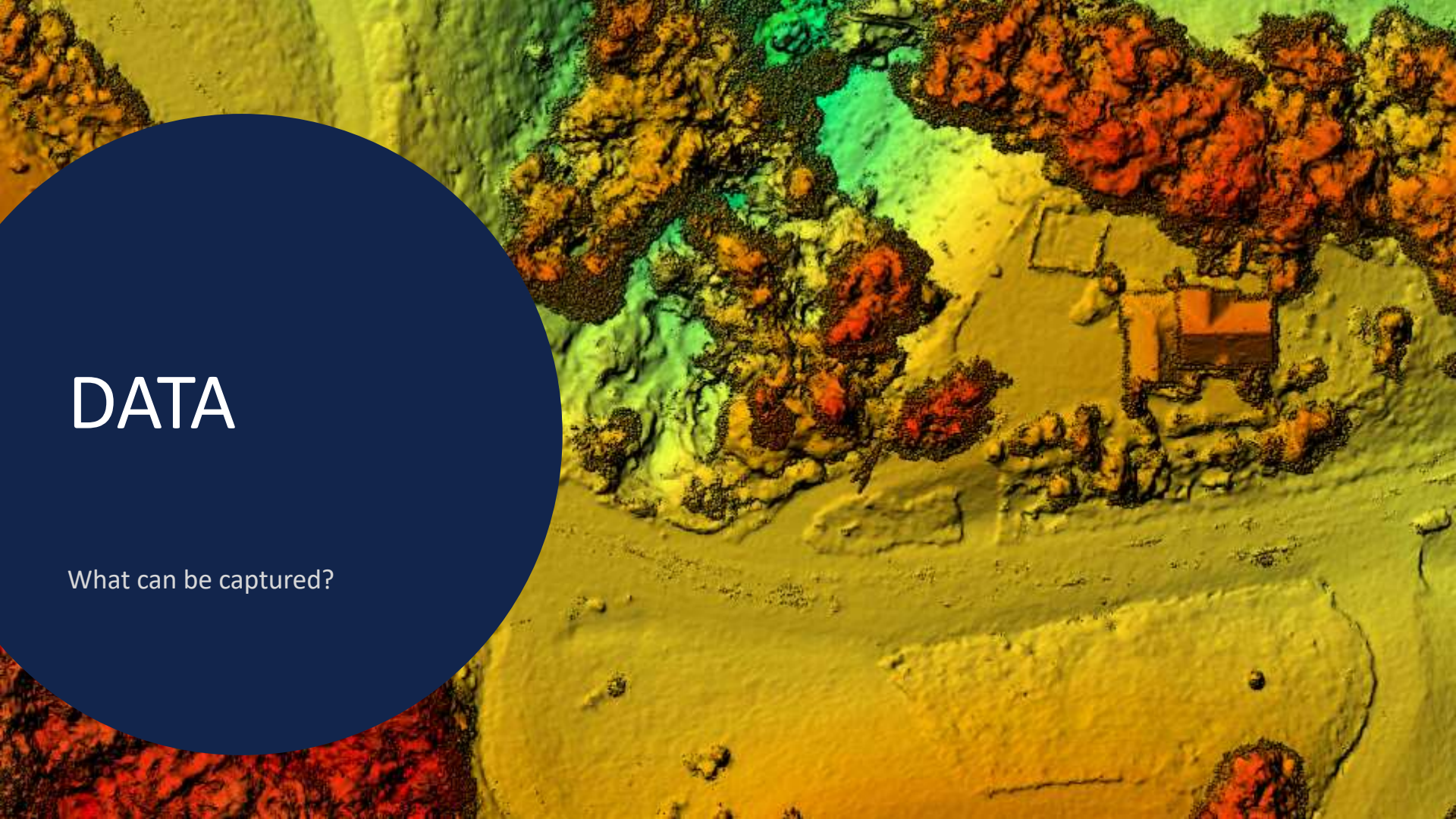
Date / Time

Lat / Long

Max Altitude

FAA SUMMARY

- Registration
- Authorization
- Air Map
- LOS Line of Site
- TRFs Temporary Flight Restrictions (ie POTUS, vPOTUS)



DATA

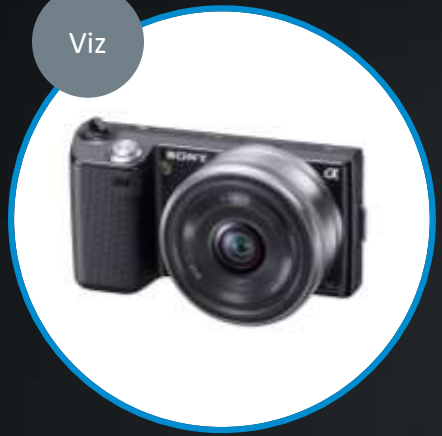
What can be captured?

Sensors

Current

Future

Viz



VISIBLE

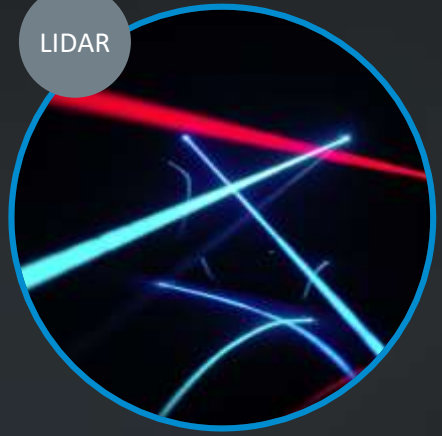
High Resolution Still & Video

IR

IR & MULTISPECTRAL

Thermal & Multispectral

LIDAR



LIDAR

Purchased Ranger MiniVUX from Phoenix LiDAR, April Delivery

?

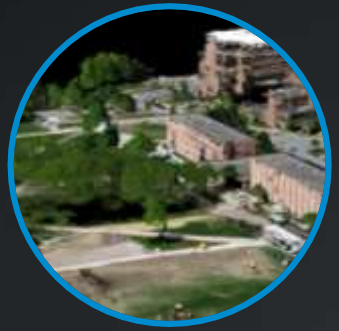
OTHER

RTK GPS
Gas Detectors
Your Sensor Here

DATA TYPES

Geotagged Imagery

Geo-referenced still & video

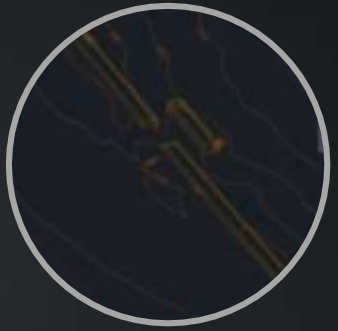


Point Clouds

Photogrammetric point clouds in standard formats

GIS

High resolution orthoimagery, multispectral & raster elevation models



CAD

Contours & Basic Feature Extraction

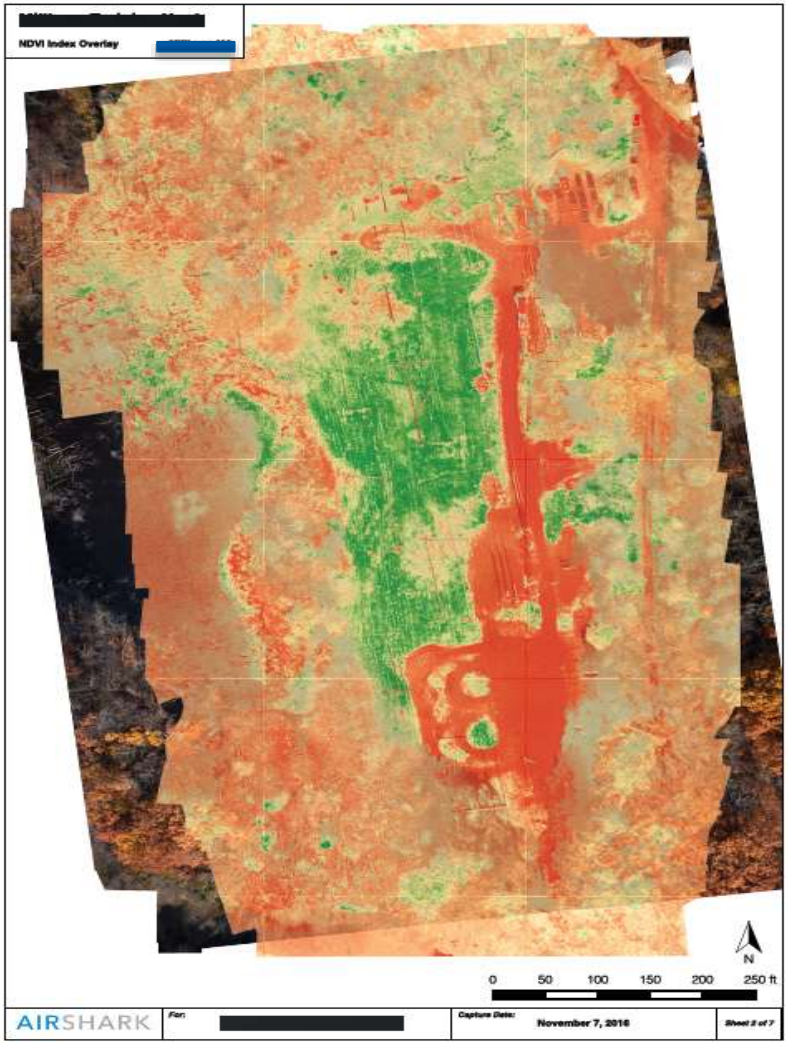
GIS Report…

Easy to Navigate

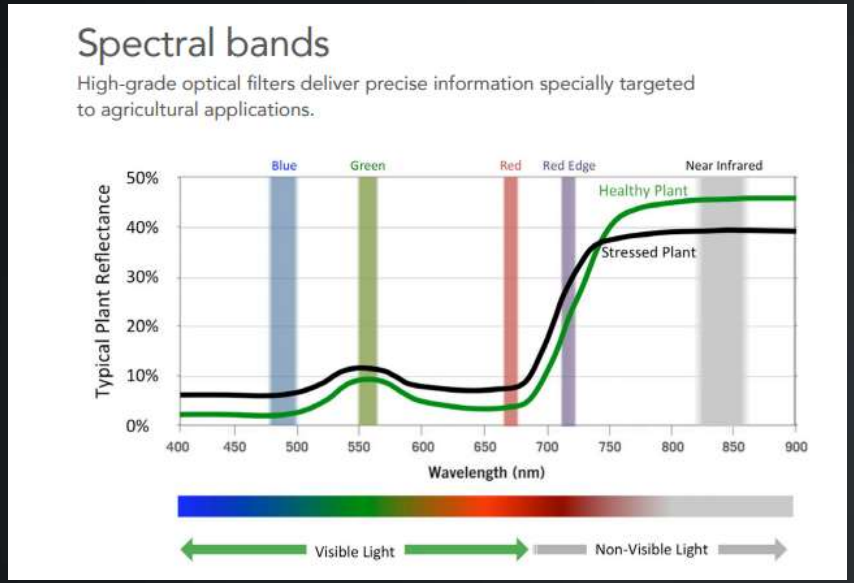
Access for Field Staff

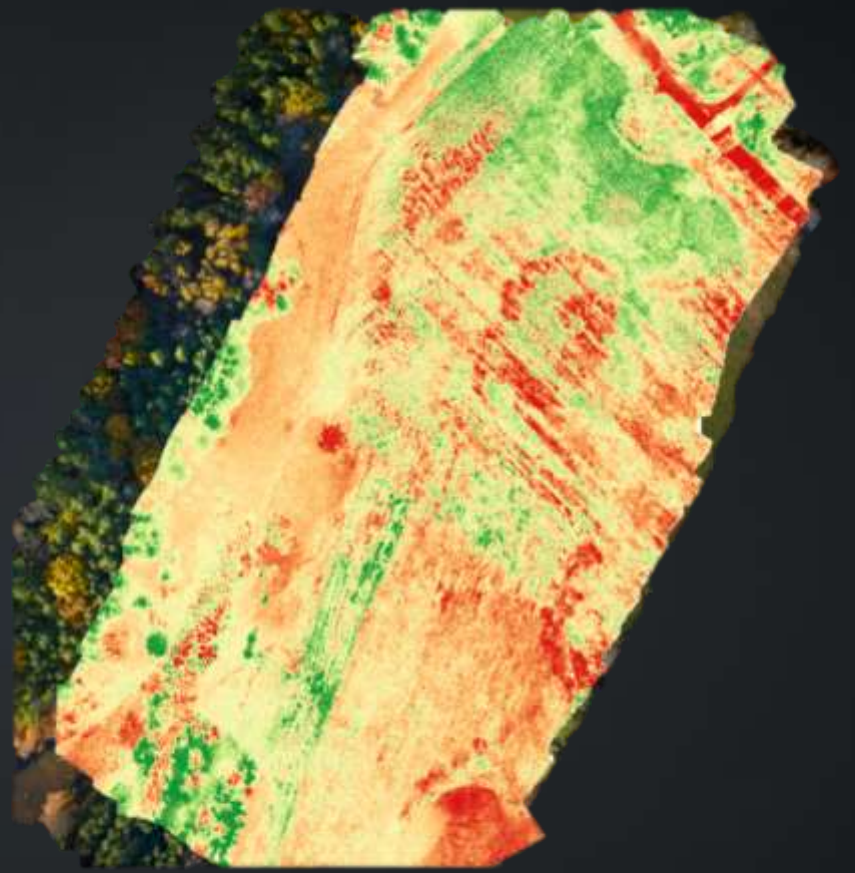
Change Detection !

Stored in queryable geodatabase



Multispectral - NDVI





USGS
Cape Cod

Sandwich, MA Beach Erosion

- Project documentation
- Community outreach
- Coastal erosion tracking
- Vegetation health

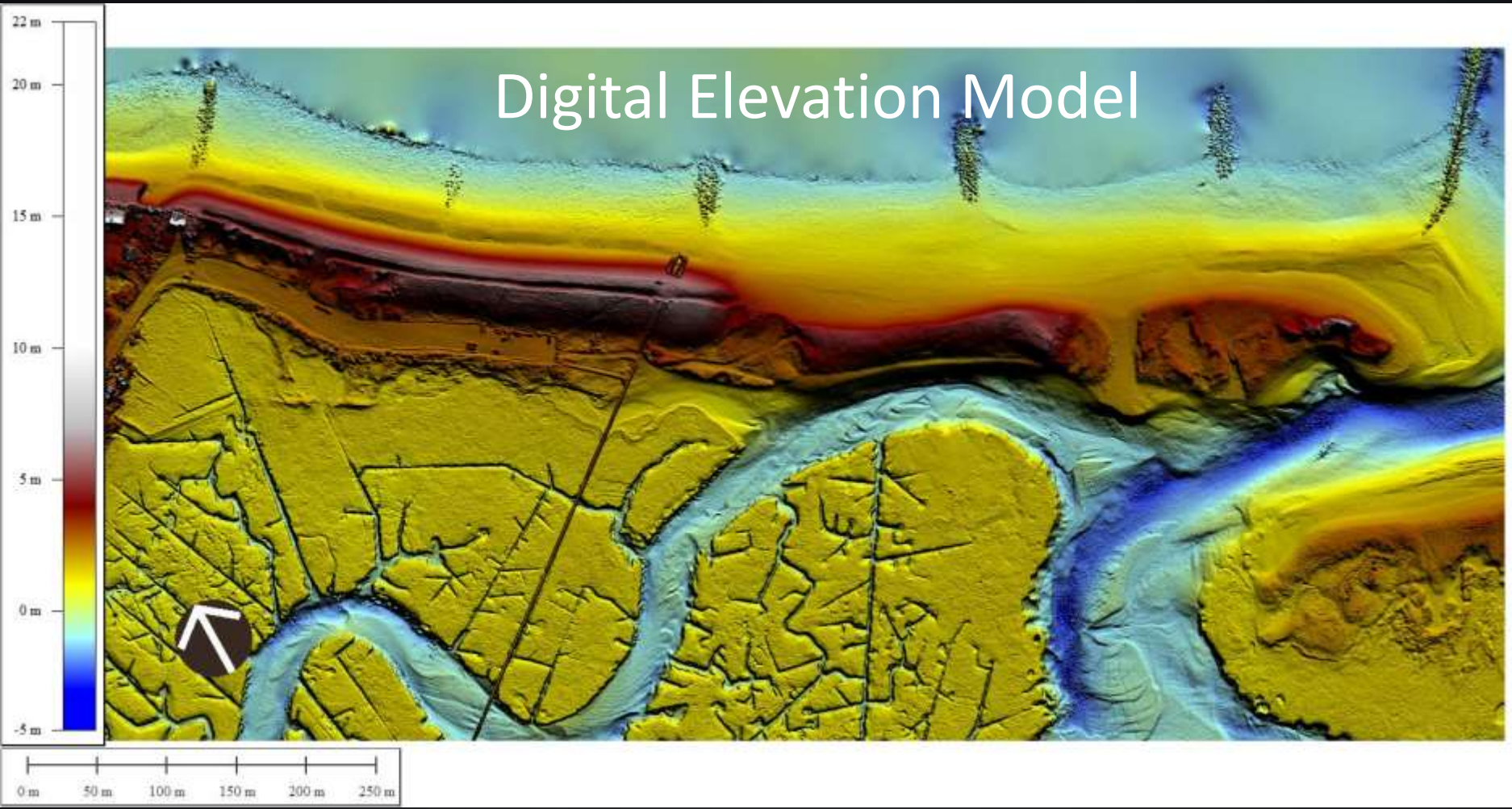

19
18
15
2
3
6
7
10
11
14
20
17
16
1
4
5
8
9
12
13

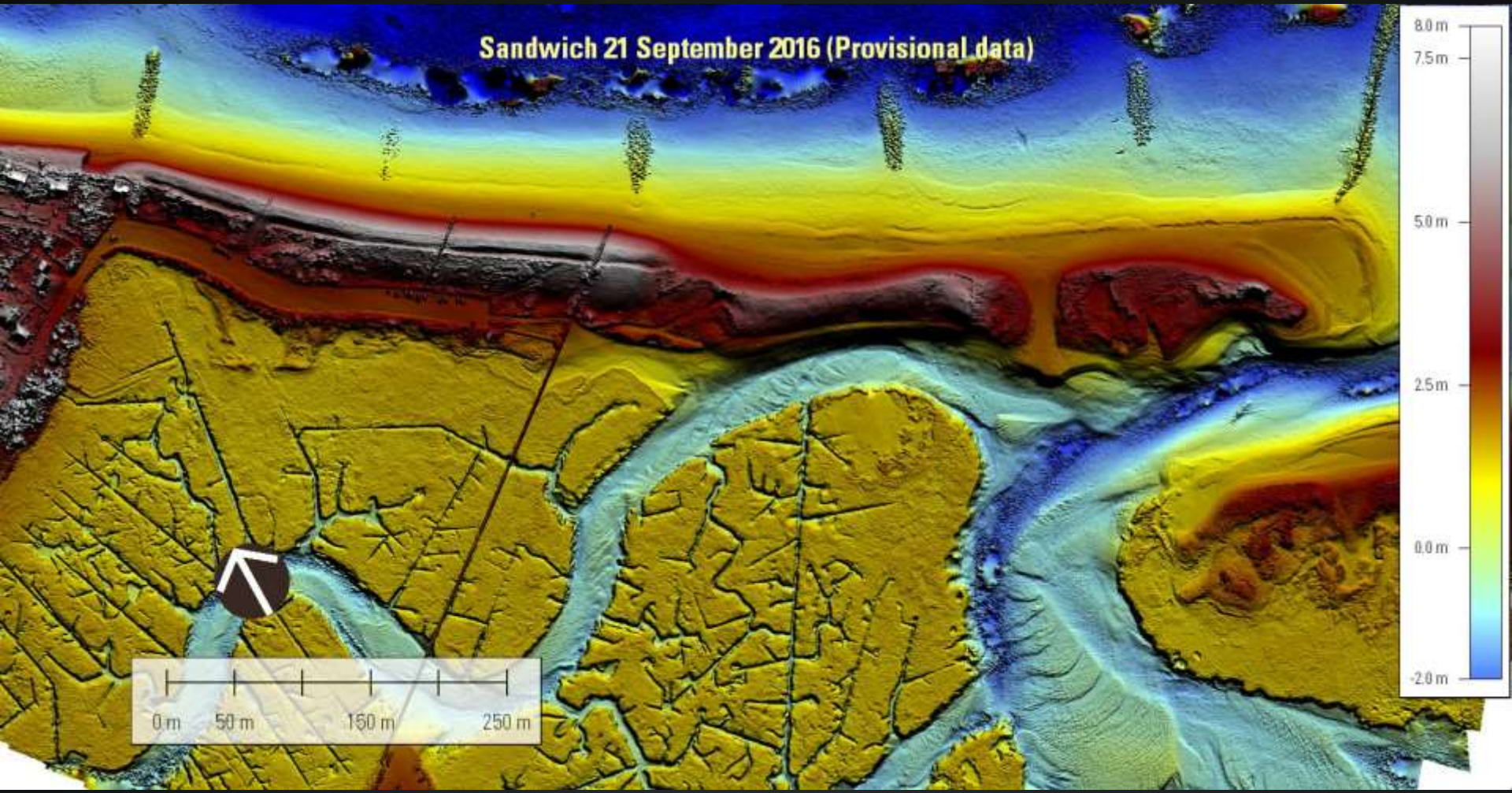
Control Point Target


CP1
P5
CP6MOVED
T4
CP4
TR5
TR6
P1
T1
P6
STK2 RM FILL 0.006
TR3
BWALK1
TR4
T22
BWALK2
TR8
T11
T12
TR2
T13
T21
T14
T15
T10
CROSS2
T20
T16
T18
T19
CROSS1
T17
TR1
88.8 m

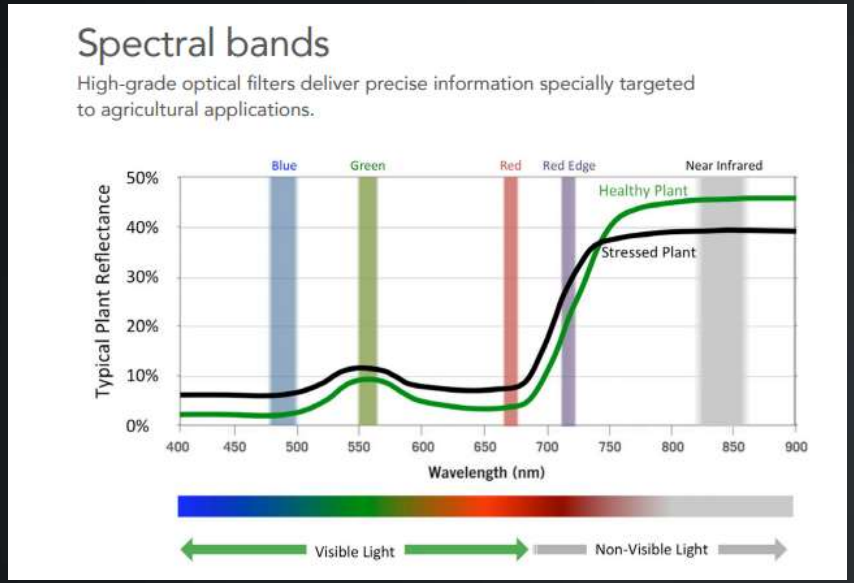
Point Cloud Measurements

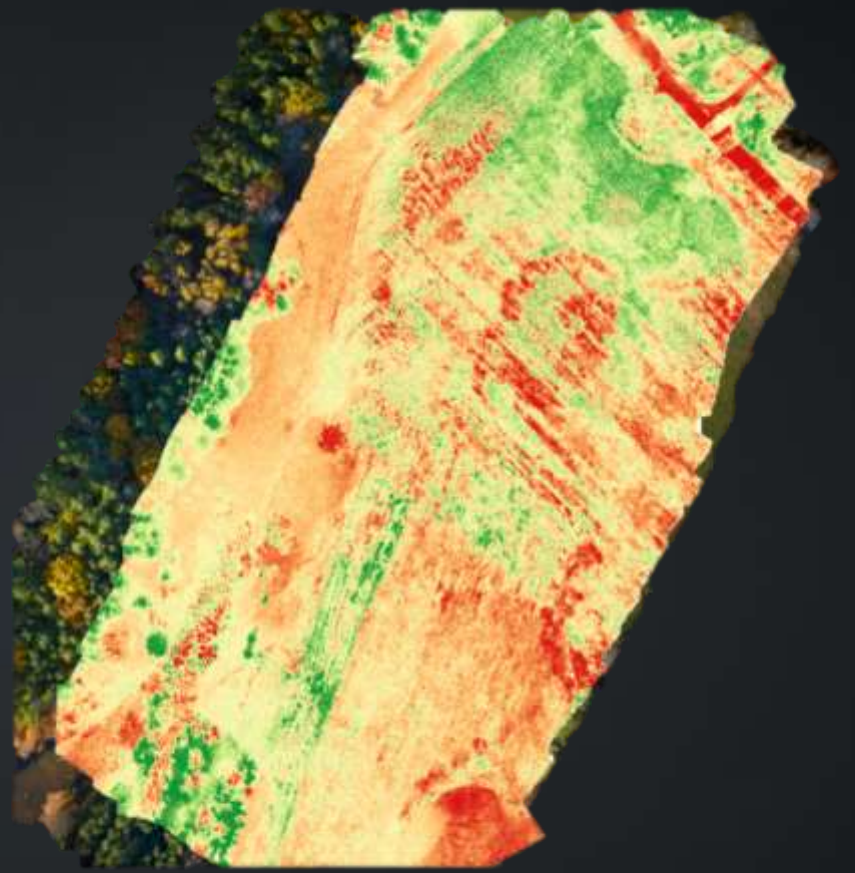
Digital Elevation Model




Sandwich 21 September 2016 (Provisional data)
8.0 m
7.5 m
5.0 m
2.5 m
0.0 m
-2.0 m
0 m
50 m
150 m
250 m

Multispectral - NDVI



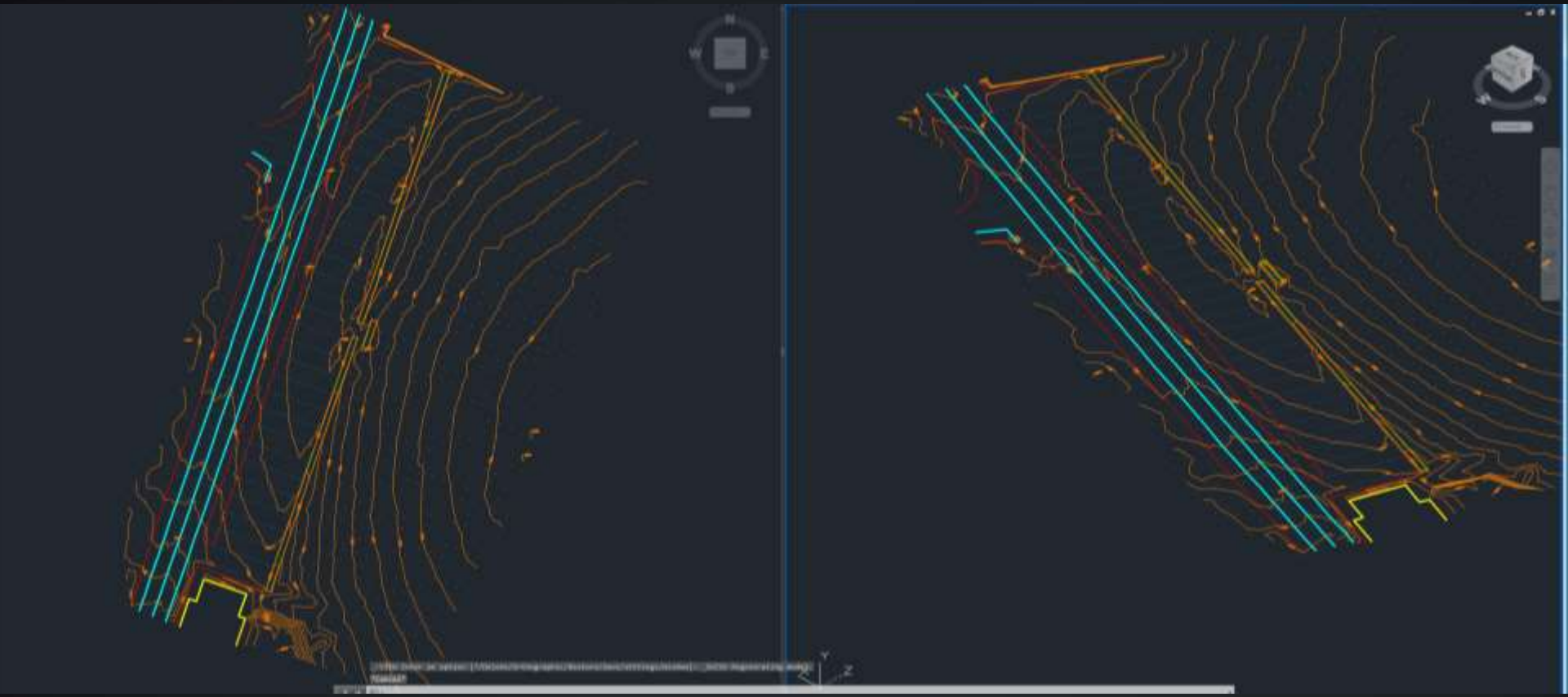


Jenness Beach

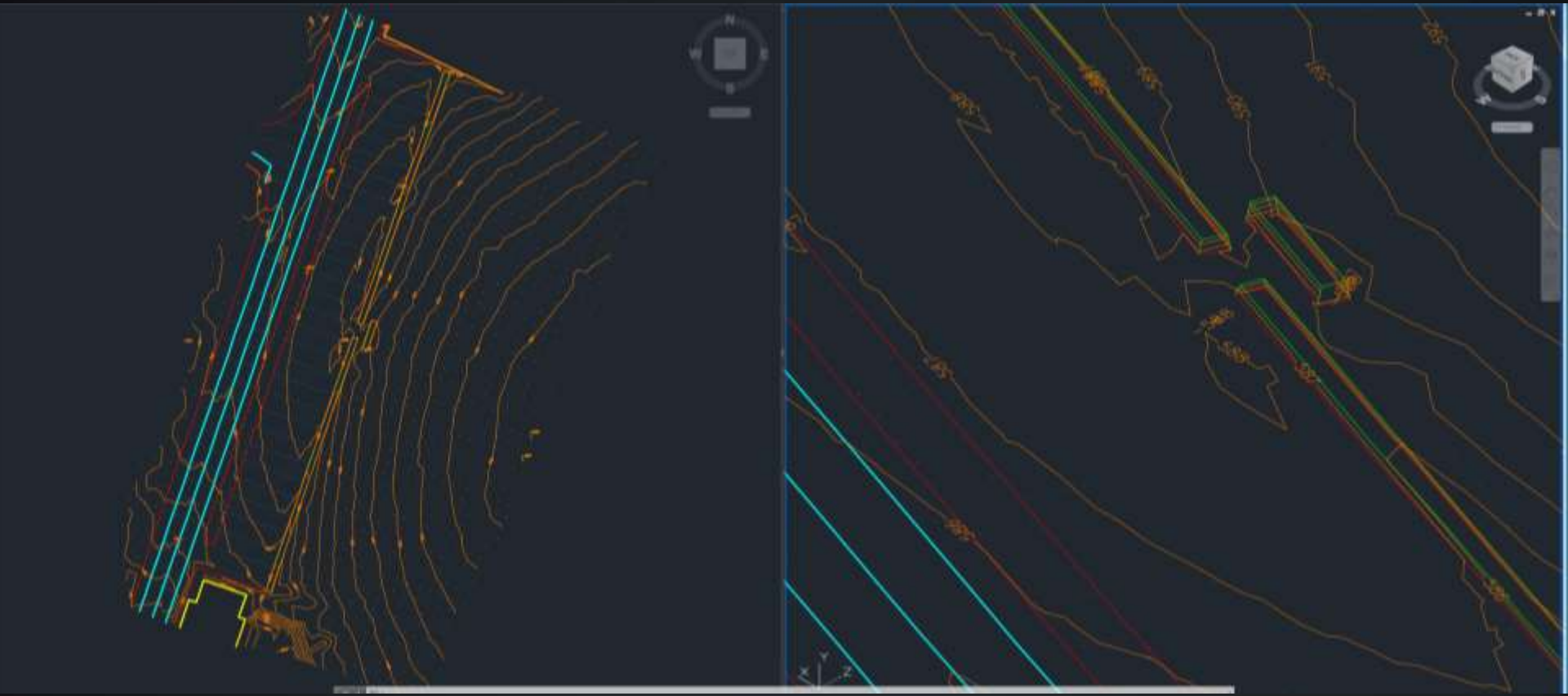
UAV comparison vs. existing dataset


Control Point Targets

Feature Extraction



Feature Extraction

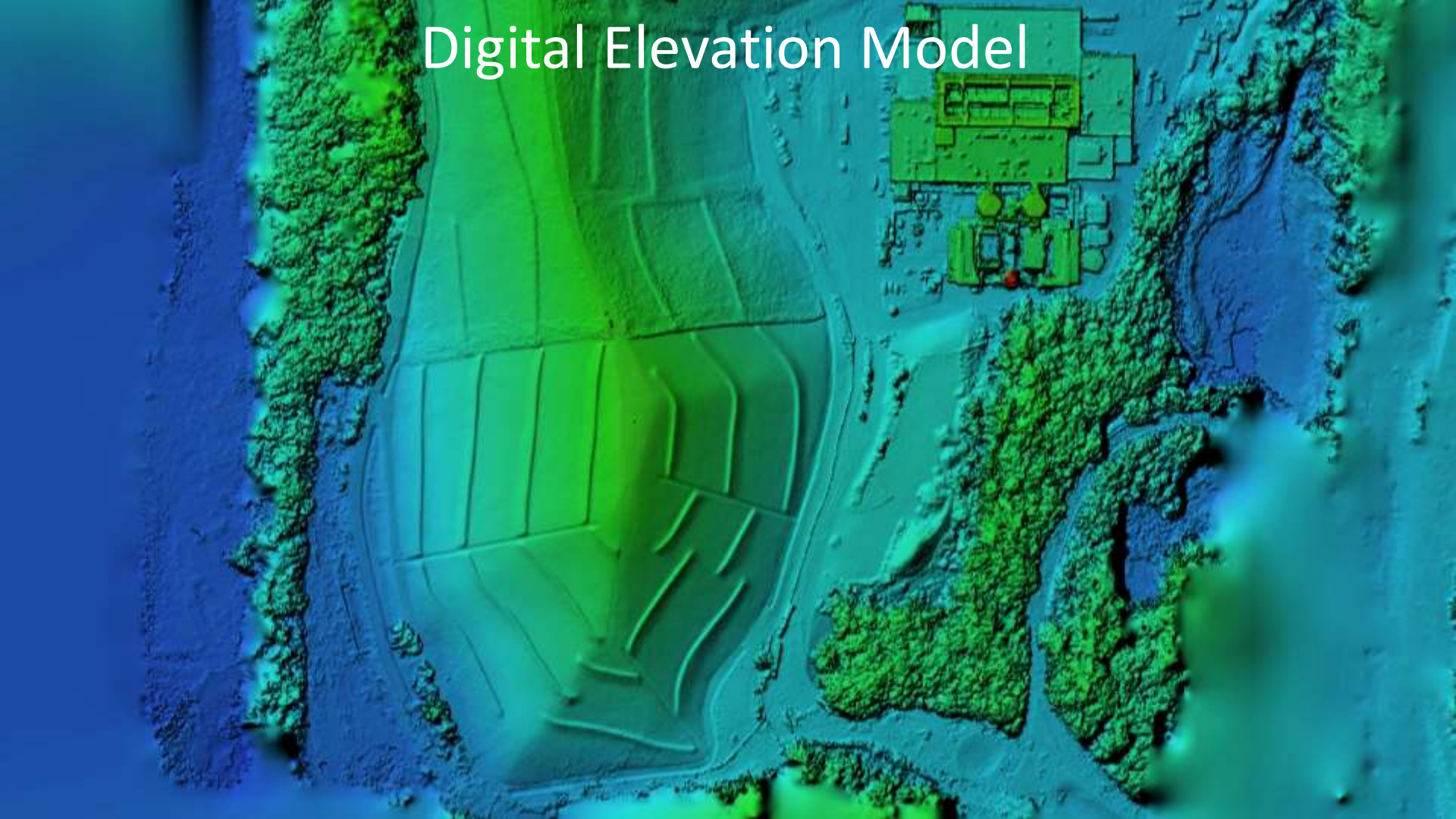


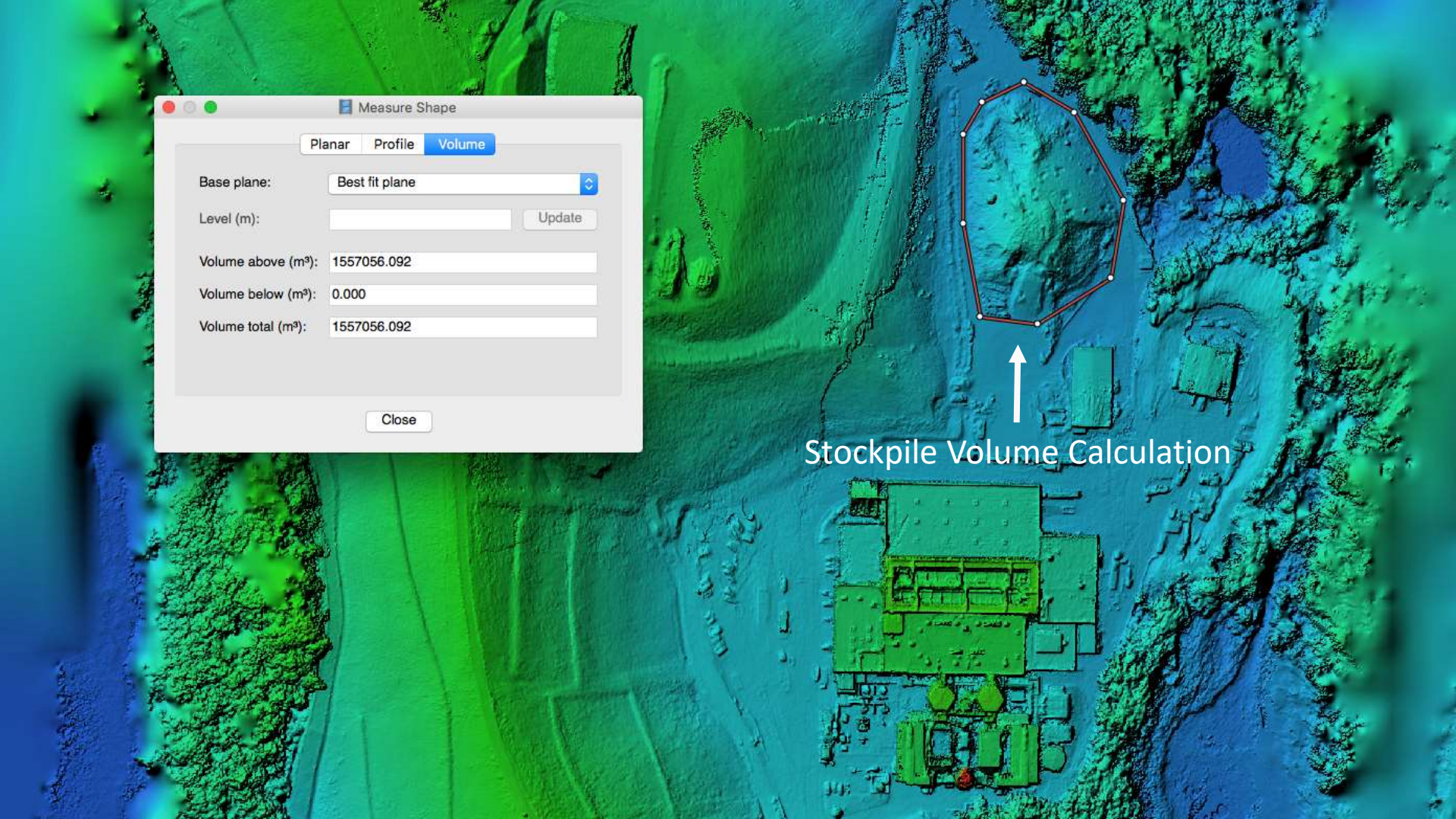
Landfill Documentation

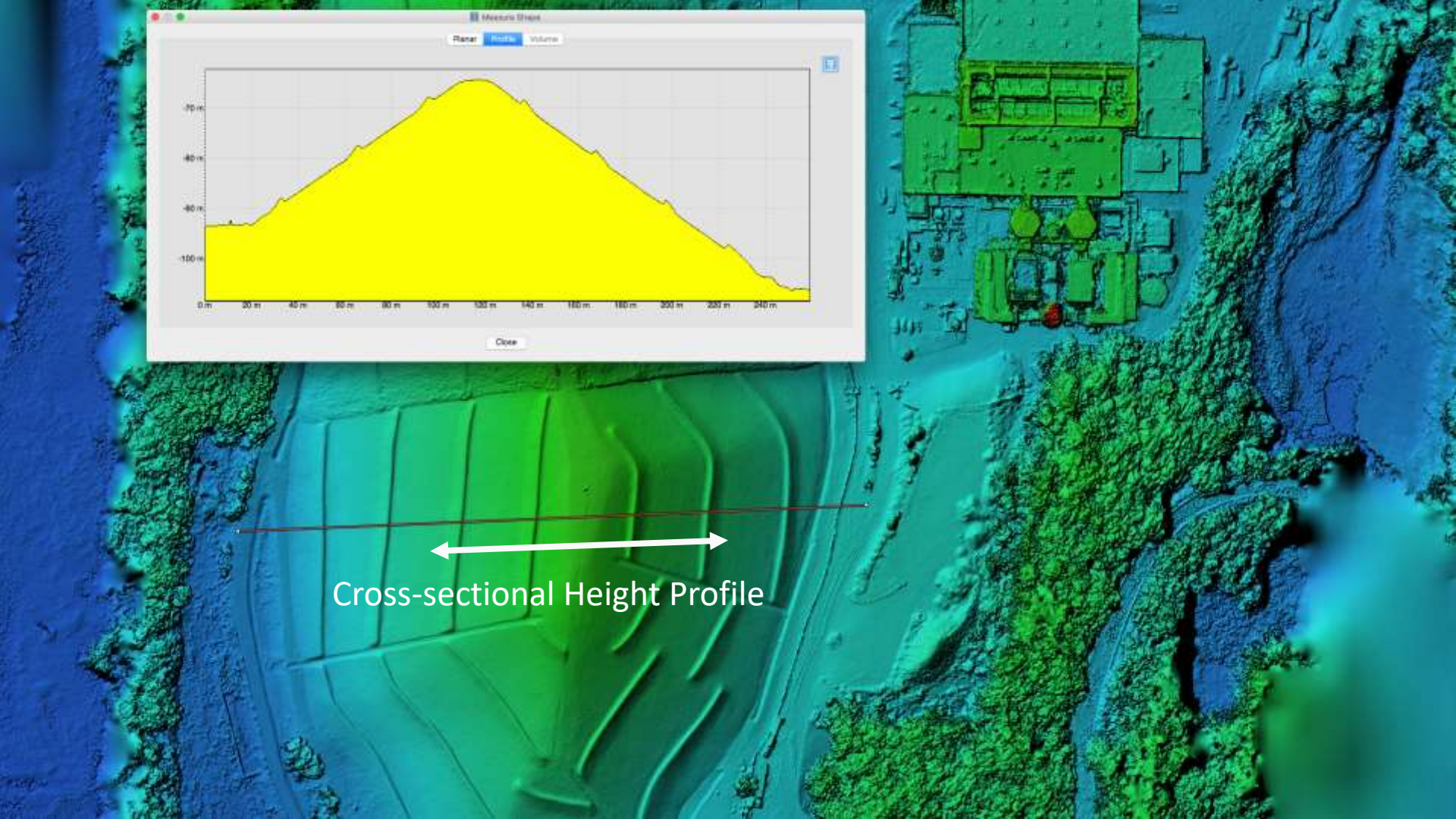
Marketing, PR… and existing conditions!

Marketing Material

Digital Elevation Model

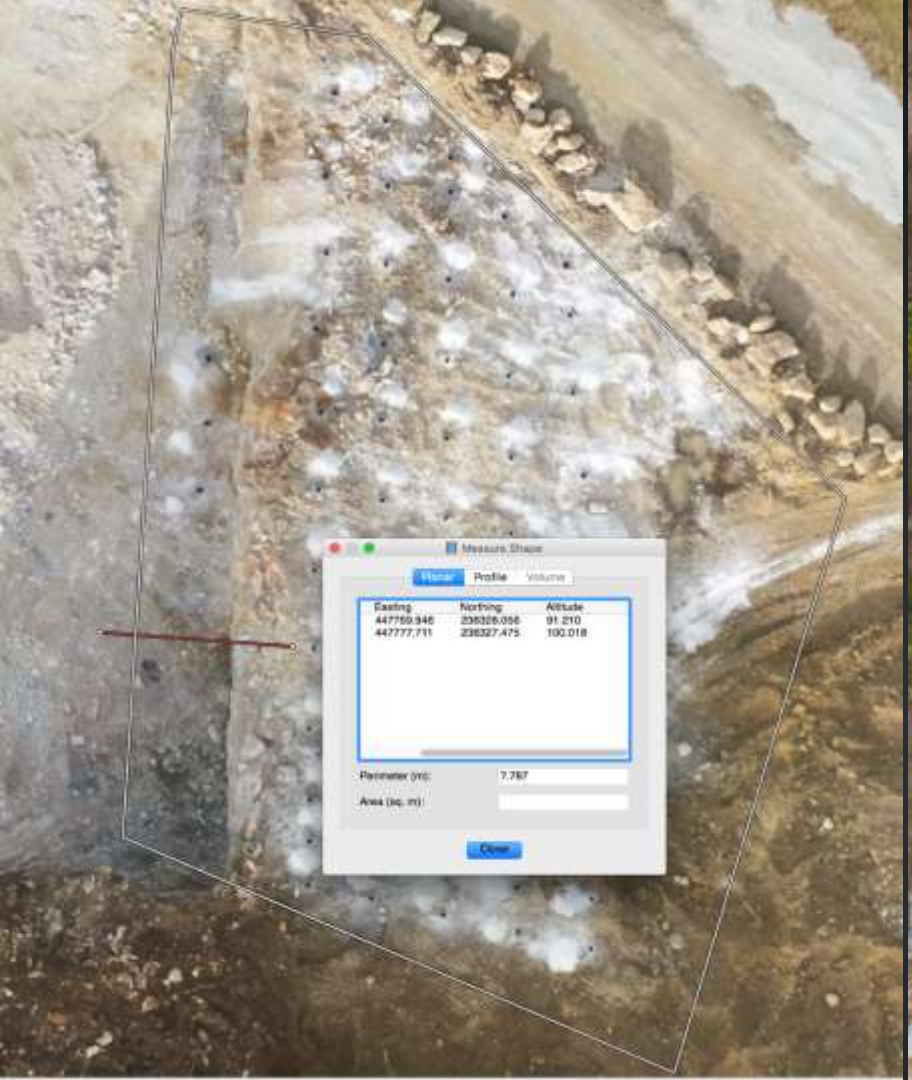


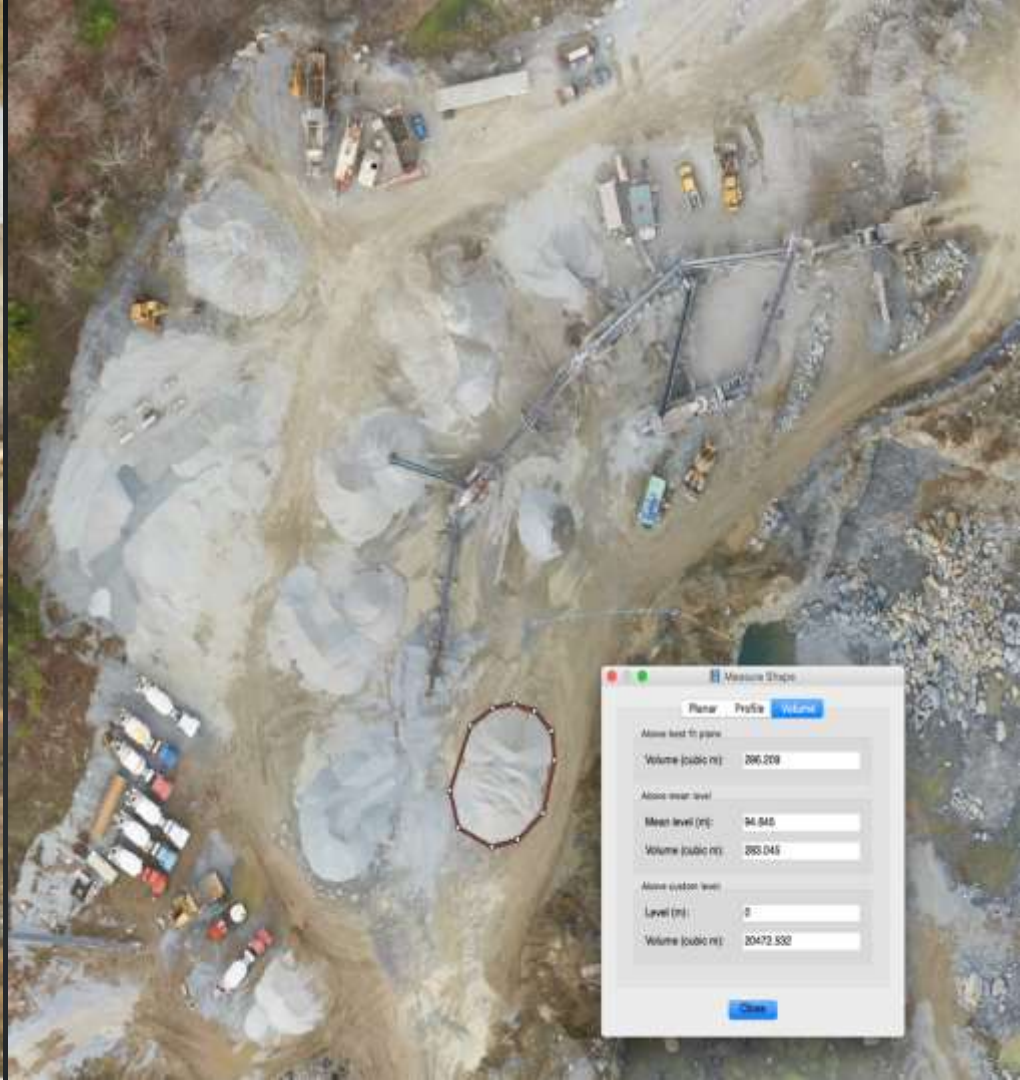

Measure Shape
Planar
Profile
Volume
Base plane:
Best fit plane
Level (m):
Update
Volume above (m³):
1557056.092
Volume below (m³):
0.000
Volume total (m³):
1557056.092
Close
Stockpile Volume Calculation


Measure Shape
Planar
Profile
Volume
-70 m
-60 m
-80 m
-100 m
0 m
20 m
40 m
60 m
80 m
100 m
120 m
140 m
160 m
180 m
200 m
220 m
240 m
Close
Cross-sectional Height Profile


CAUTION
REMOTE AIRCRAFT
IN OPERATION
AIRSHARK


Jericho Riverside Future Street Network Study Base Map
Legend
Public Drinking Water Sources
Utility Pole
Hazardous Waste Site
Vermont Gas
Electric Transmission Line
Topography - 2 ft Interval
660 - 750 Feet
752 - 850 Feet
852 - 950 Feet
952 - 1012 Feet
Stream Centerline
Water Body
Vermont Significant Wetland Inventory
Groundwater Source Protection Area
FEMA Floodplain
0.2% Annual Chance Flood Hazard
Special Flood Hazard Area
ANR River Corridor
Soil Map Unit
Tax Parcel Boundary
1:1,200
0
100
200
400 Feet
CHITTENDEN COUNTY RPC
12/02/2016


Measure Shape
Planar
Profile
Volume
Easting
Northing
Altitude
447760.946
236328.056
91.210
447777.711
236327.475
100.018
Perimeter (m):
7.767
Area (sq. m):
Close


Measure Shape
Planar
Profile
Volume
Above best fit plane
Volume (cubic m):
286.209
Above mean level
Mean level (m):
94.845
Volume (cubic m):
283.045
Above custom level
Level (m):
0
Volume (cubic m):
20472.532
Close

CONTACT

www.airshark.io

jon@airshark.io

info@airshark.io

603 427 9946