



## Drones for Construction

Fran Mullally

Training & Support Manager



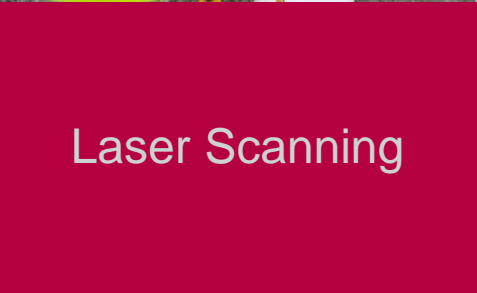
# Solutions



Total Stations



GNSS



Laser Scanning



Drones



Mobile Imaging



Rail



# Locations & Services

## Key locations

- Dublin
- Craigavon
- Liverpool
- Huntingdon

## Providing

- Sales
- Training
- Field support
- Office support
- Service & Repair
- Hire





# Award Winning Trimble Dealer

- World Class Trimble dealer
- Awarded highest level Trimble certification for workshops
- Trimble certified training and technical support team
  - Specialist field support teams
  - Office based support team
- Scheduled and bespoke training courses





# SenseFly Dealer since 2012

- Proven drone solutions
- Simplify the collection and analysis of geospatial data
- Allow professionals in surveying, construction, engineering, agriculture and humanitarian aid to make better decisions, faster





# Who's yer man?

BSc Geomatics – Dublin Institute of Technology

KOREC 12 years

Training on Survey / Mapping / Construction

Flying drones since 2012

Certified by SenseFly

Certified by Aviation Authority

Not a drone guy!





# The Drone Phenomena



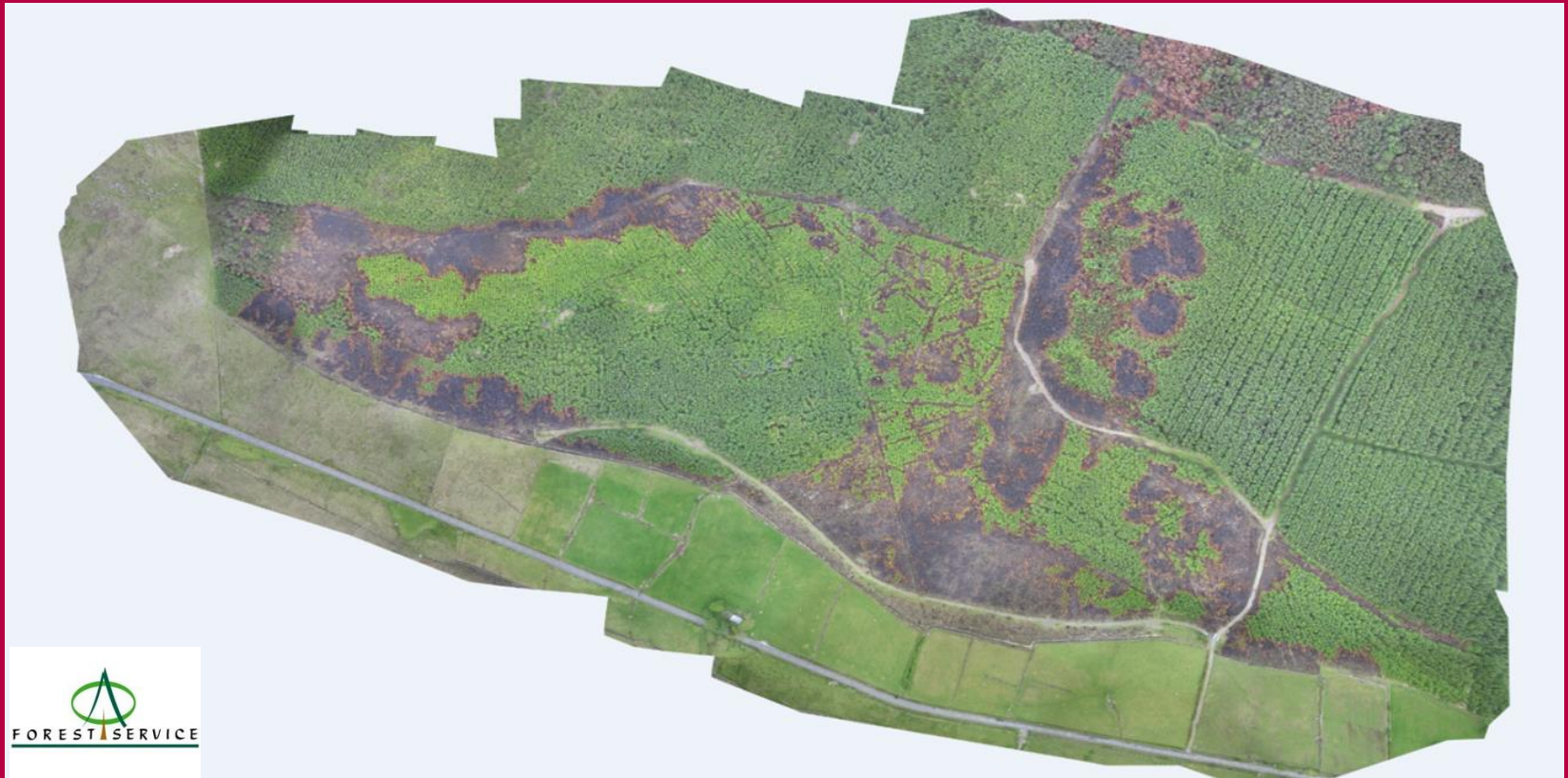


# Drones – Fixed Wing & Rotary





# How we became involved...





# Commercial vs Professional Drone

- Ease of Use
- Build Quality
- Endurance
- Safety Features
- Georeferenced Outputs
- Designed for the job!





# Just some of the Benefits...

- Aerial collection vs ground instruments
- Terrestrial 500-600 points a day
  - What do you record?
  - What did you not record!
- No picking of points
- No interpretation required
- Work off entire physical data
- 45 minute flight = 3,000,000 points





# Just some of the Benefits...

- Survey only area of interest required – when required
- Targeted field work after initial survey
- Quick resurvey ability
- Resurvey same area - weekly, monthly, yearly...
- Project / Route Planning
- Progress & Record Surveys
- Mass-Haul & Volume Calculations
- As-Built Surveys



# Just some of the Benefits...

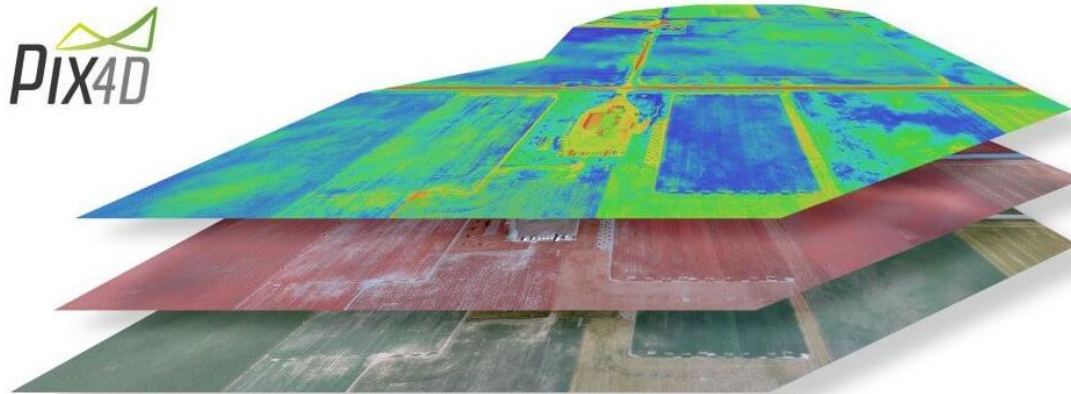
- Safety
- Pure remote sensing
- Off site take-off & landing
- No slowdown to on-site activity
- Waiting for access / permissions to site
- Less time on site collecting required data
- Less manpower / less equipment = less money!!





# Easy Data!

- Photos / Videos
- Ortho-image
- Ground Model Point Cloud
- AutoCAD / SHP / PDF  
Contour Map
- 3D PDF
- Google Maps / Google Earth
- RGB / Thermal /  
Multispectral



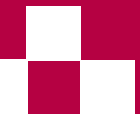


# Drones for Construction

**Drone technology to complement existing construction practices**

**Not a replacement for existing technologies**

**Another “tool in the box” to help work smarter**





# SenseFly drones

Fixed-wing



Rotary





# SenseFly Fixed-wing

**swinglet CAM**  
— senseFly



**eBee**  
— senseFly



**eBee**  
— senseFly

RTK





# eBee Plus





# eBee Plus

Weight: 1.1Kg

Autonomous flight & landing

Straight-line landing (5-10m)

59 mins flight time (220ha)

20MP camera

Use in winds up to 28mph

Compact / portable / hand launched

High Precision on Demand

RTK / PPK 1 – 3cm accuracy





# Multiple Sensors

- Interchangeable eBee Cameras





# eBee Plus





# Flight Software Demo



Easy to use open software for  
Mission Planning

Design & Save Flight Plans

Full pre-flight simulator to pre-  
check Mission

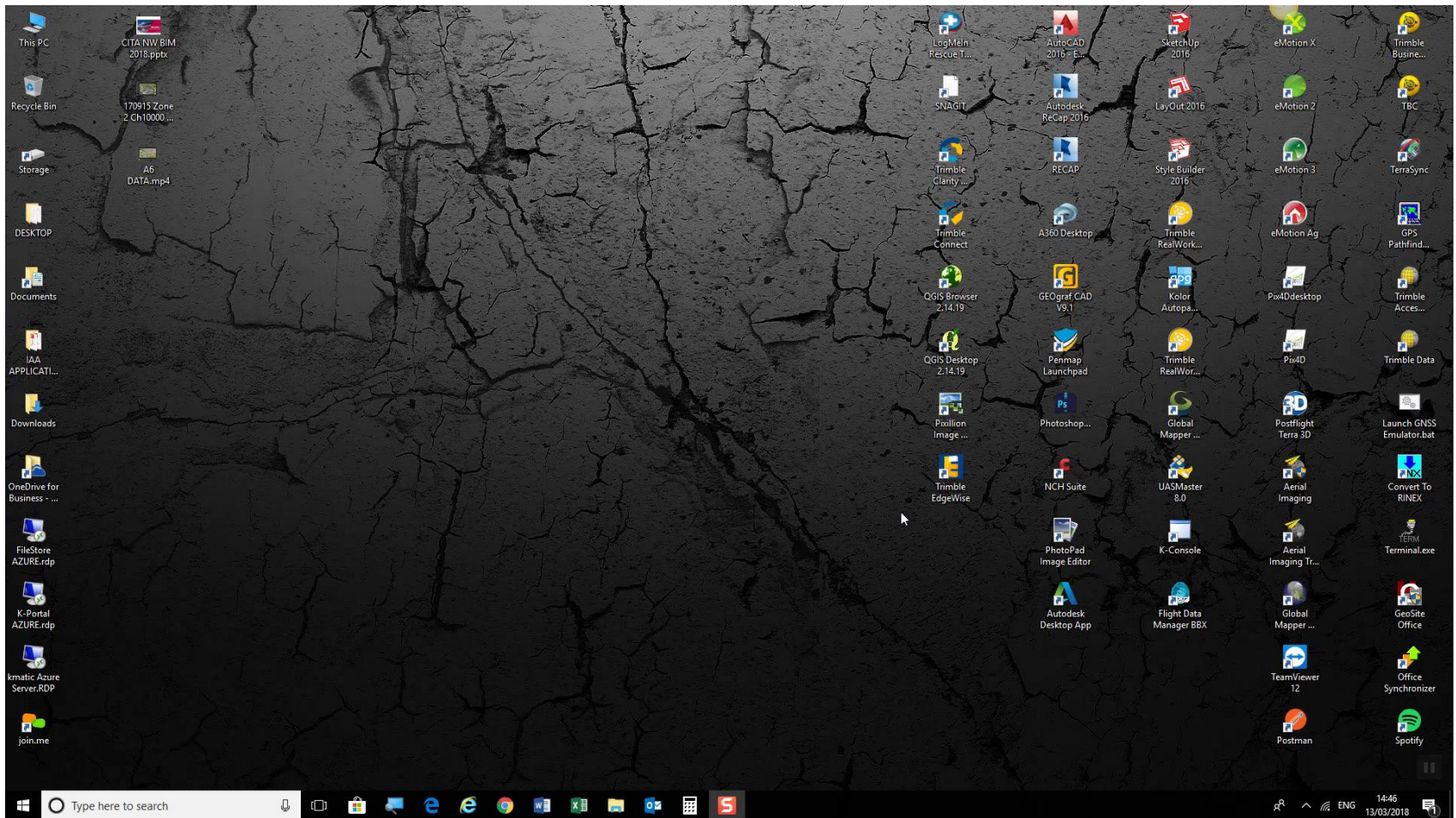


In the Office or on Site..

Fly... and Land!



# Flight Software Demo





# Processing Flight Data





# The A6 Randalstown to Castledawson





## Nick Kelly, Chief Land Surveyor, Graham Construction:

GRAHAM

*"eBee+ RTK on the new A6. Thanks to KOREC for supplying and the training. Beats walking all day with an R10"*



 KOREC™



# A6 - Borrow Pit K

- Excavated 181km<sup>3</sup> from BP K South & 75km<sup>3</sup> from K North
- Both have vertical rock faces that can't be surveyed for safety reasons
- BP's not being filled with US - not possible to walk on



**Full Topo Survey would take 3 days...**

**eBee flies it in 17 mins!**







# A6 - YouTube!

## A6 Flights:

<https://www.youtube.com/channel/UC7qq4Hmth9zxz3gTxA4D2RQ>

## Borrow Pit K:

<https://www.youtube.com/watch?v=nXTkALIFXXE>

## Mainline:

[https://www.youtube.com/watch?v=H50\\_FBdYNkc](https://www.youtube.com/watch?v=H50_FBdYNkc)



# A6 - YouTube!





# KOREC Ireland Drone Customers

- Department of Agriculture and Rural Development
- Northern Ireland Forest Services
- Northern Ireland Environmental Agency
- University of Ulster
- Agri-Food & Biosciences Institute
- Irish Rail
- Geological Survey Ireland
- The Marine Institute
- Coillte
- Mayo County Council
- Leitrim County Council
- Sligo County Council
- Donegal County Council
- Graham Construction
- Farrans Construction
- BAM Civil Engineering
- Wills Bros
- Murphy Surveys
- Six West
- E McMullan
- Coastway Surveys
- Capturingaworld
- ASM Ireland
- IO Geomatics
- Colin McLorn
- SLR Consultants
- Tullow Oil
- Sign Post Surveys
- Blackstaff Ecology
- Aerial Agritech
- Energia



# Questions?

