



# **A Digital Information Management System for Excavation Recording**

**Peter Holt**

**3H Consulting Ltd**



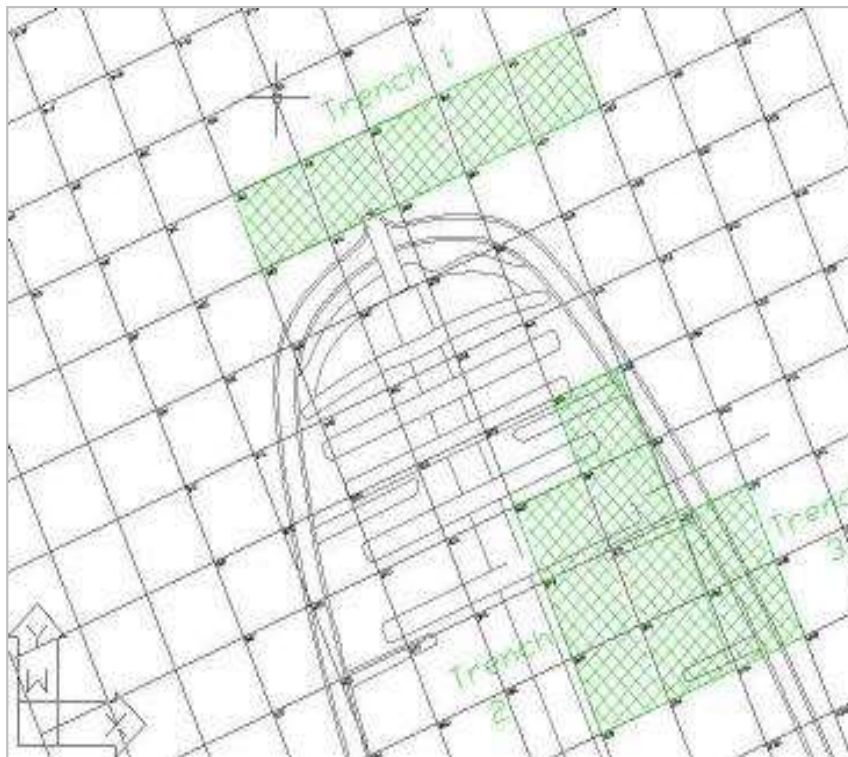
## Motivation – Vliegent Hart 2000-2001

- Dutch East Indiaman
- Sank off Holland in 1721



## Motivation – *Vliegent Hart* 2000-2001

- MS Access database
- AutoCAD mapping
- PhotoShop for images
- 3H *Site Surveyor* processing

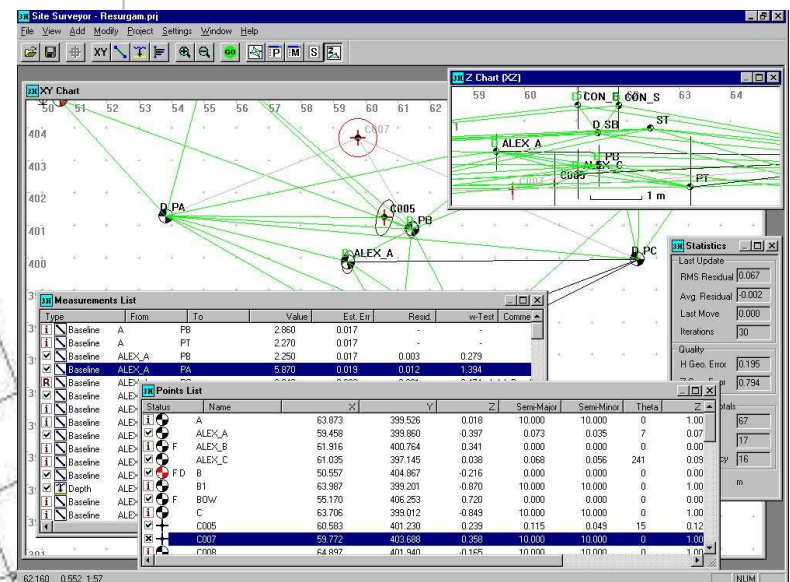


**Artifact**

### Artefact Record Form

Site Code	TVH1735 00	Fix Number		Pre-Treatment	Untouched
Artefact Number	2000 A0024	X		Storage Medium	Wrapped
Part Number		Y		Location on Boat	
Simple Name	Knife-handle	Z		Sent Ashore Date	
Full Name	Tools and Eqpt.	Diver Sketch		U/W Photo	
Classification		Context	Outboard - Post Wreck	Photo 1	\\Pictures\\Camera\\Artefa
Material	Organic - Wood	Collection Met'd	Sieve	Photo 2	\\Pictures\\Camera\\Artefa
Crate No		Length	95mm	Photo 3	
Associated With	2000 A 0025, cu ferrule	Width / Diameter	35mm - 14m	Object Drawing	
Feature Number	#Name?	Height / Thickness		Radiograph	
Recovered	02 August 2000	Weight		Sample	
Dive Reference	TVH-2000-0057	Condition	Excellent	Notes	Geometric patterns on handle. Concreted. Part of tang may still be in handle as concrete extruding from top. Very stained.
Seabed Type	Sand	Completeness	100%		
Loc'n Reference	B1B				
Loc'n Desc.	Trench 1, north west				

Record: 24 of 592

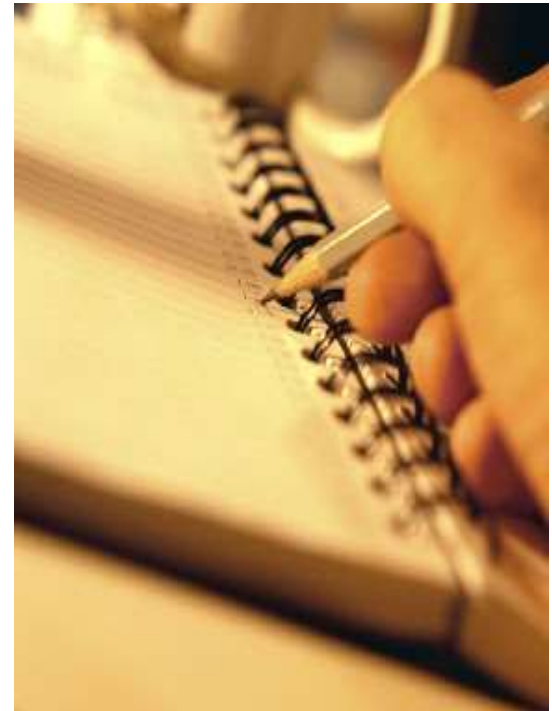






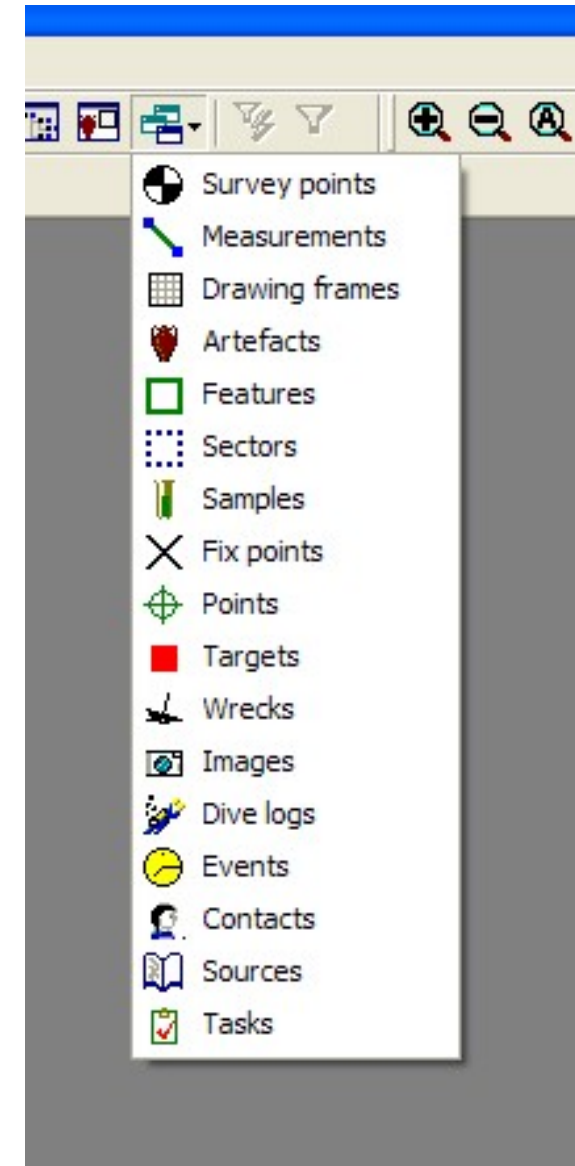
## Requirements – What Should it Do?

- Records data from a generic maritime or intertidal site
- Allows integrated recording in 2.5 dimensions
- Simple - easy to learn and use
- Scalable - survey to excavation
- Secure electronic publishing
- Allows data exchange
- Records associations between objects
- Minimise cost



# Site Recorder 4

- Site plans
- Artefacts (finds) & Features
- Sectors (trenches, areas)
- Survey points & measurements
- Drawing frames
- Targets & Wrecks
- Images, Video & Image Basemaps (raster)
- Events & Dive Logs
- Contacts (people & organisations)
- Samples & Sources (documents)
- Tasks & Logbooks
- Sites, Projects & Layers

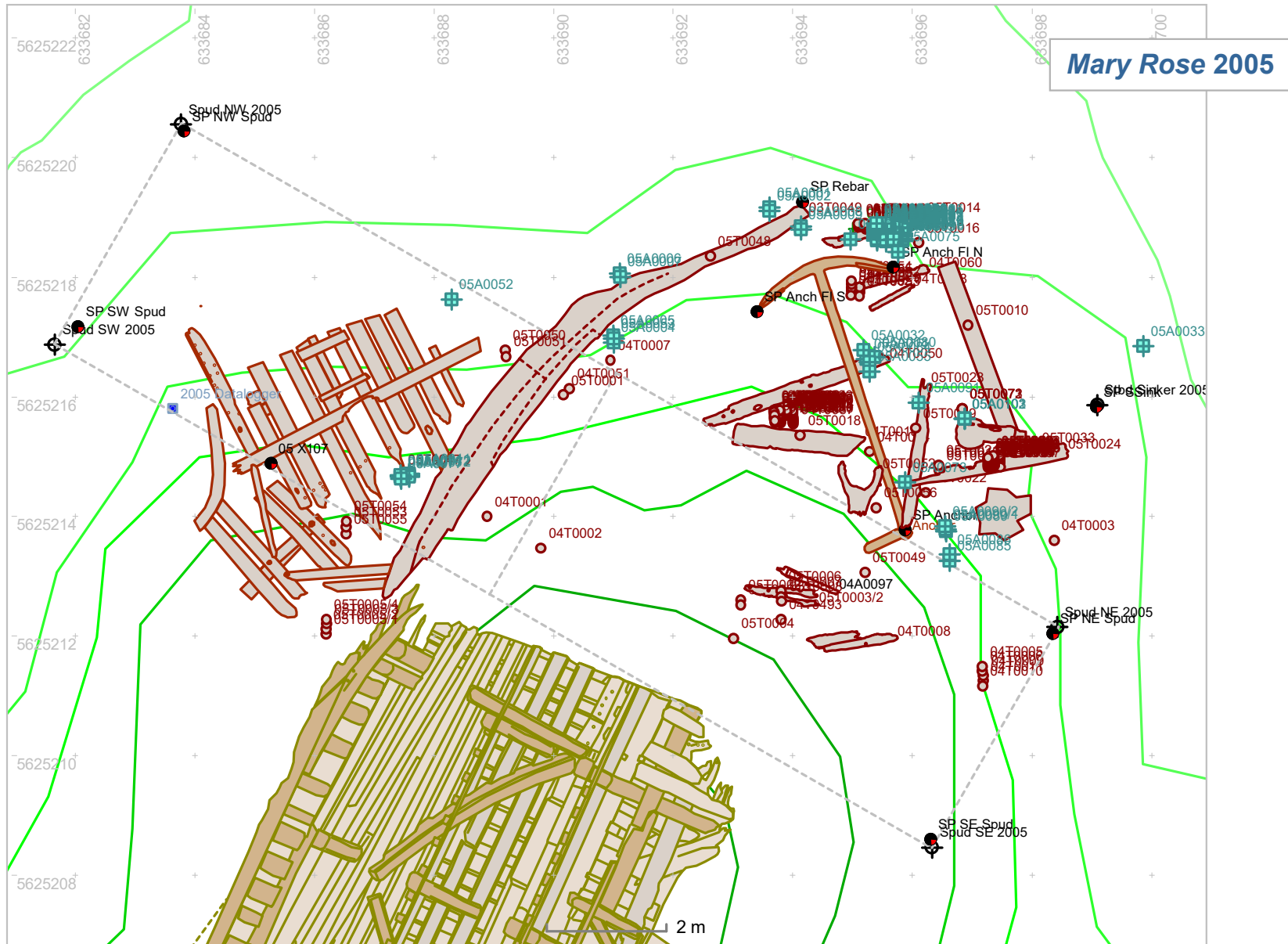


## Field Trials – Mary Rose 2003-2005





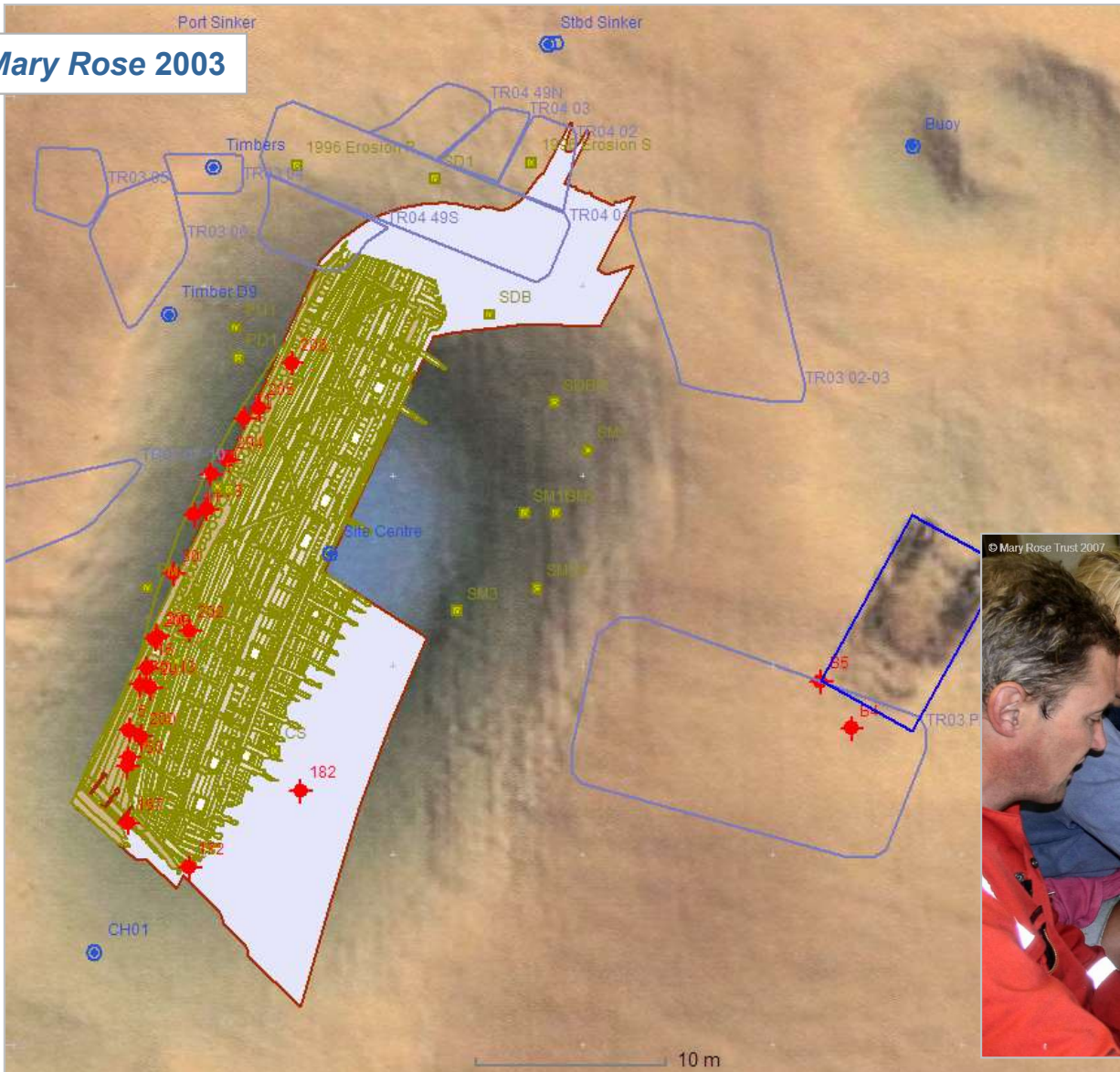
## Integrated Digital Site Plans



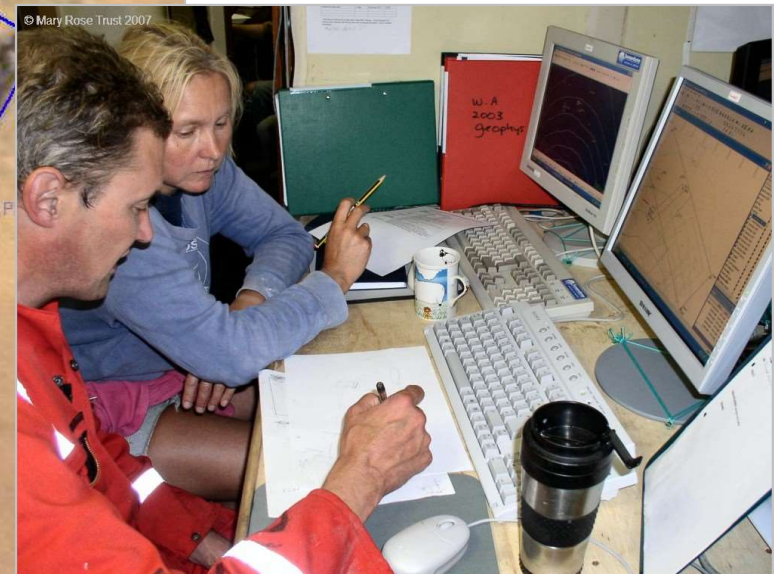


## Pre-excavation Planning

**Mary Rose 2003**



- Plan all project phases
- Define survey tasks
- Identify work sequence
- Identify bottlenecks

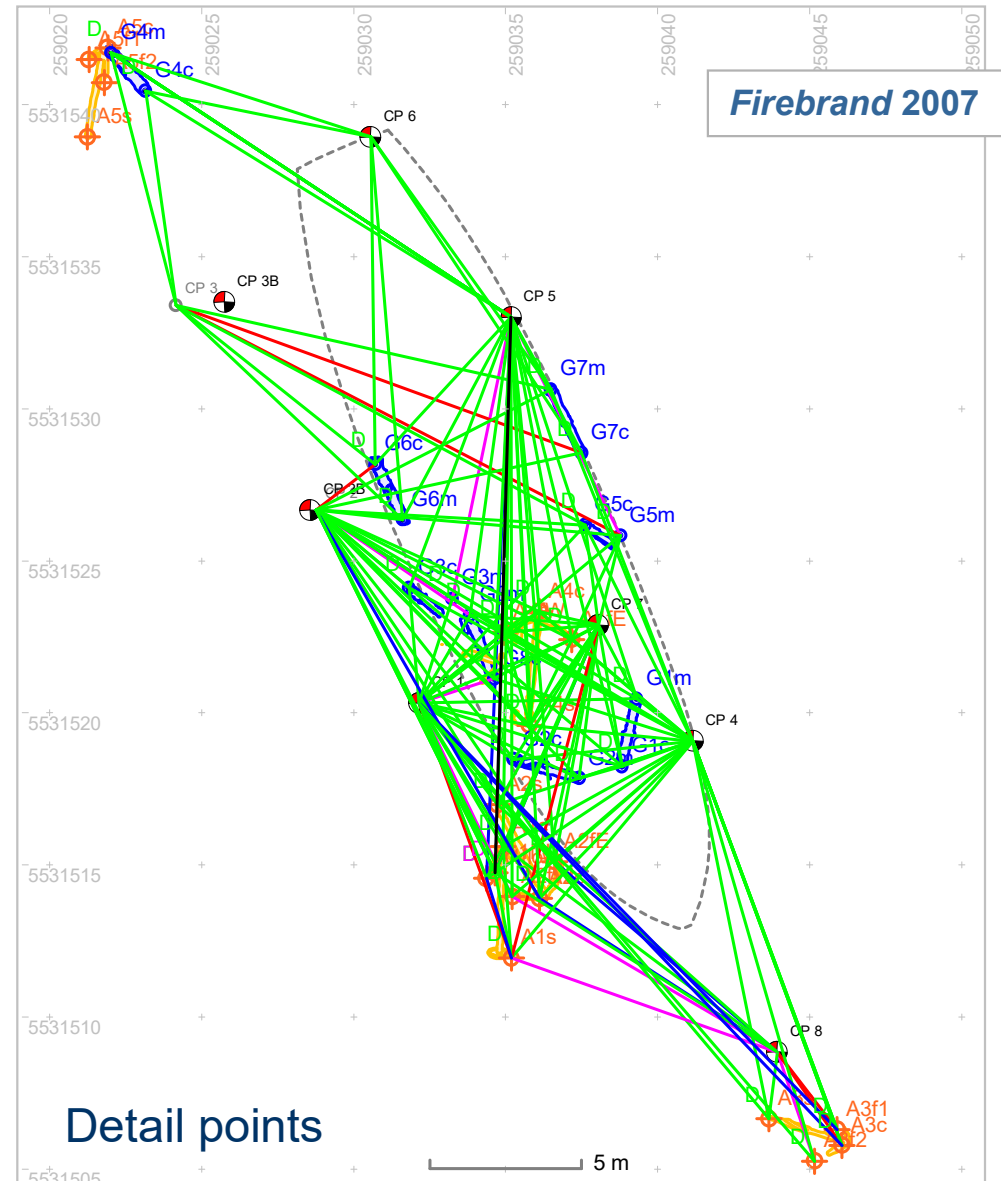
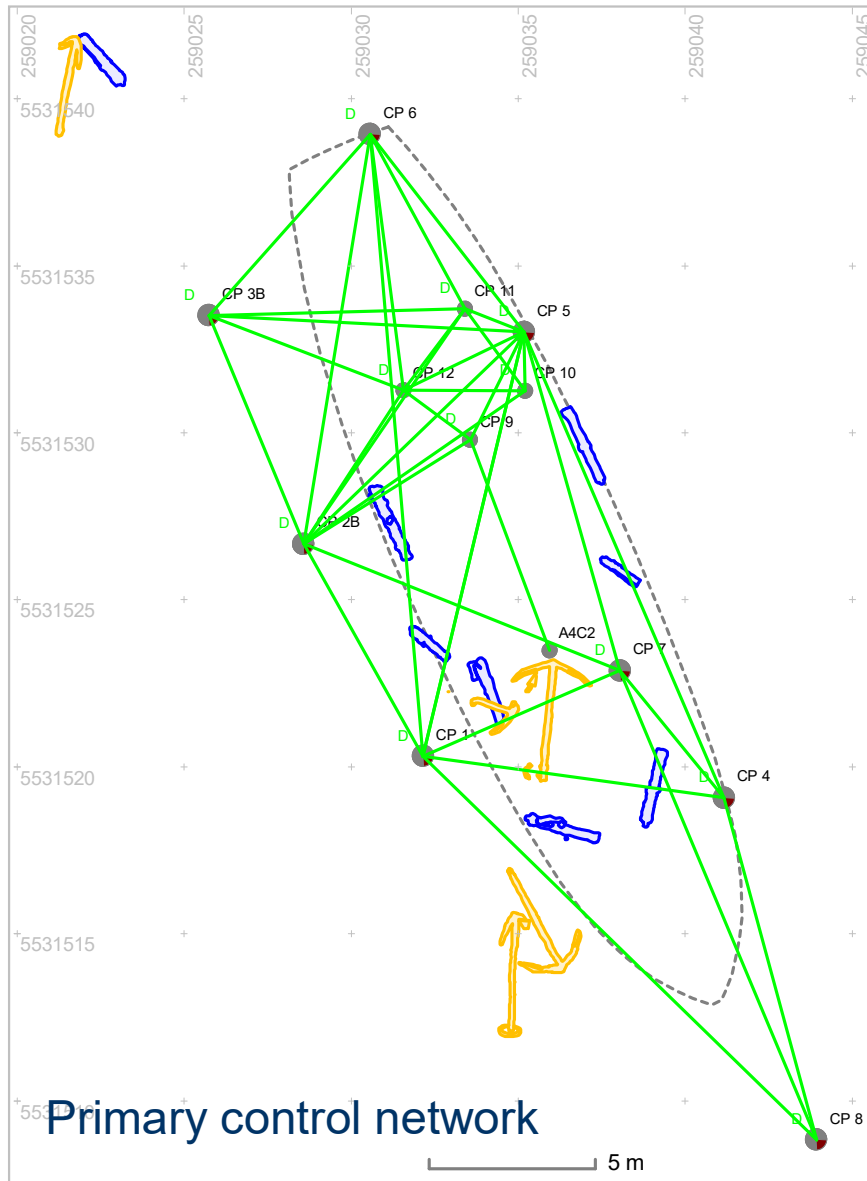








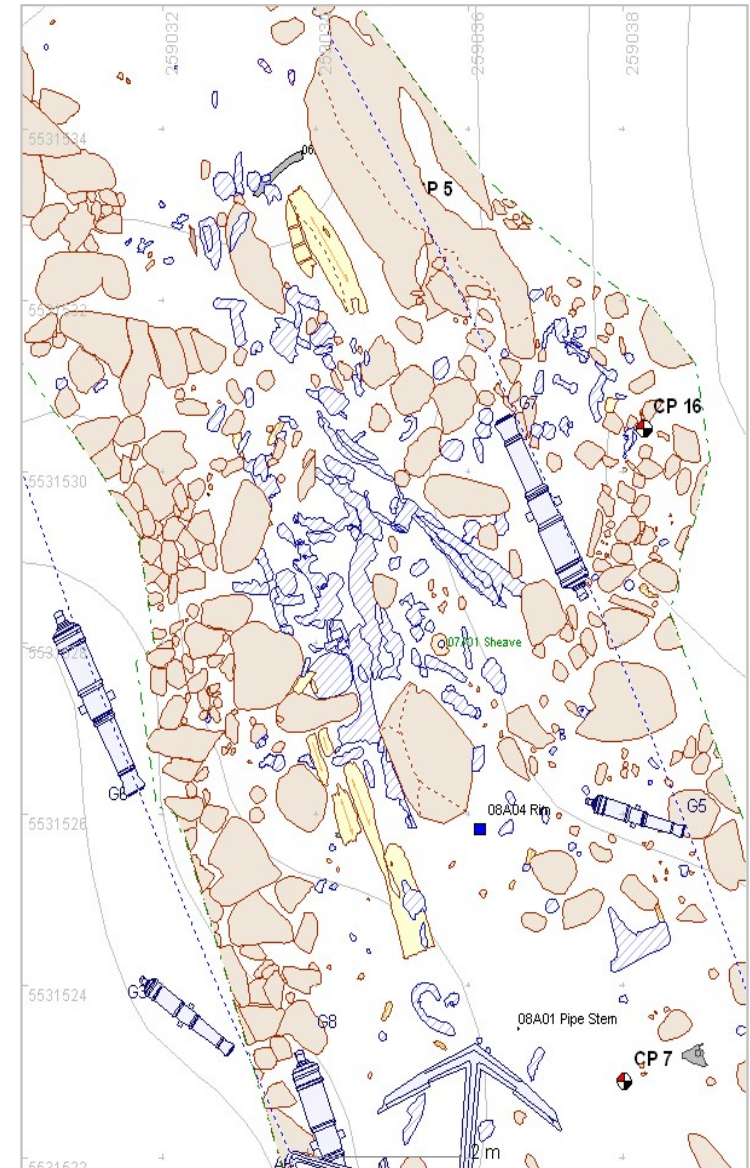
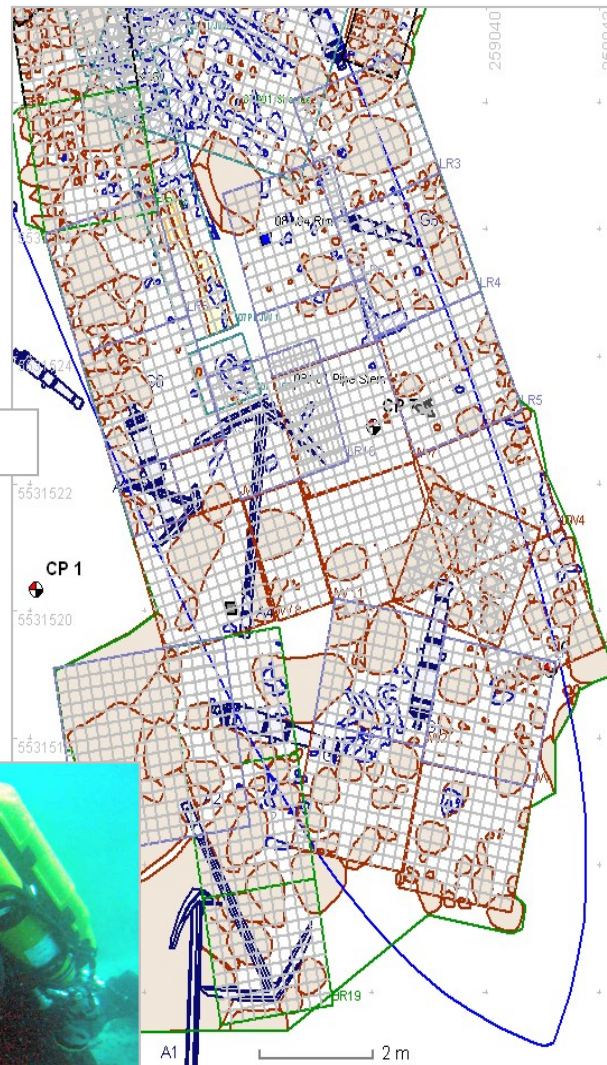
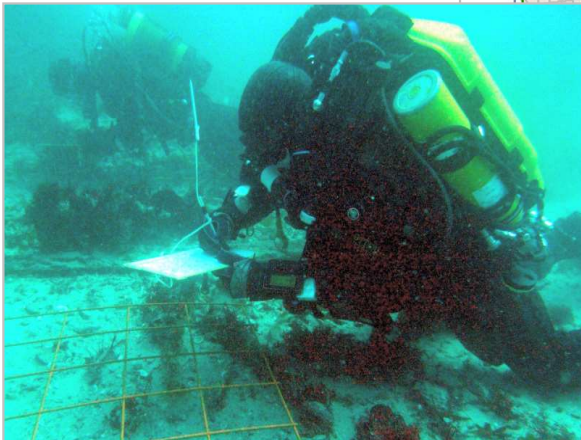
# Surveying: Tape Trilateration





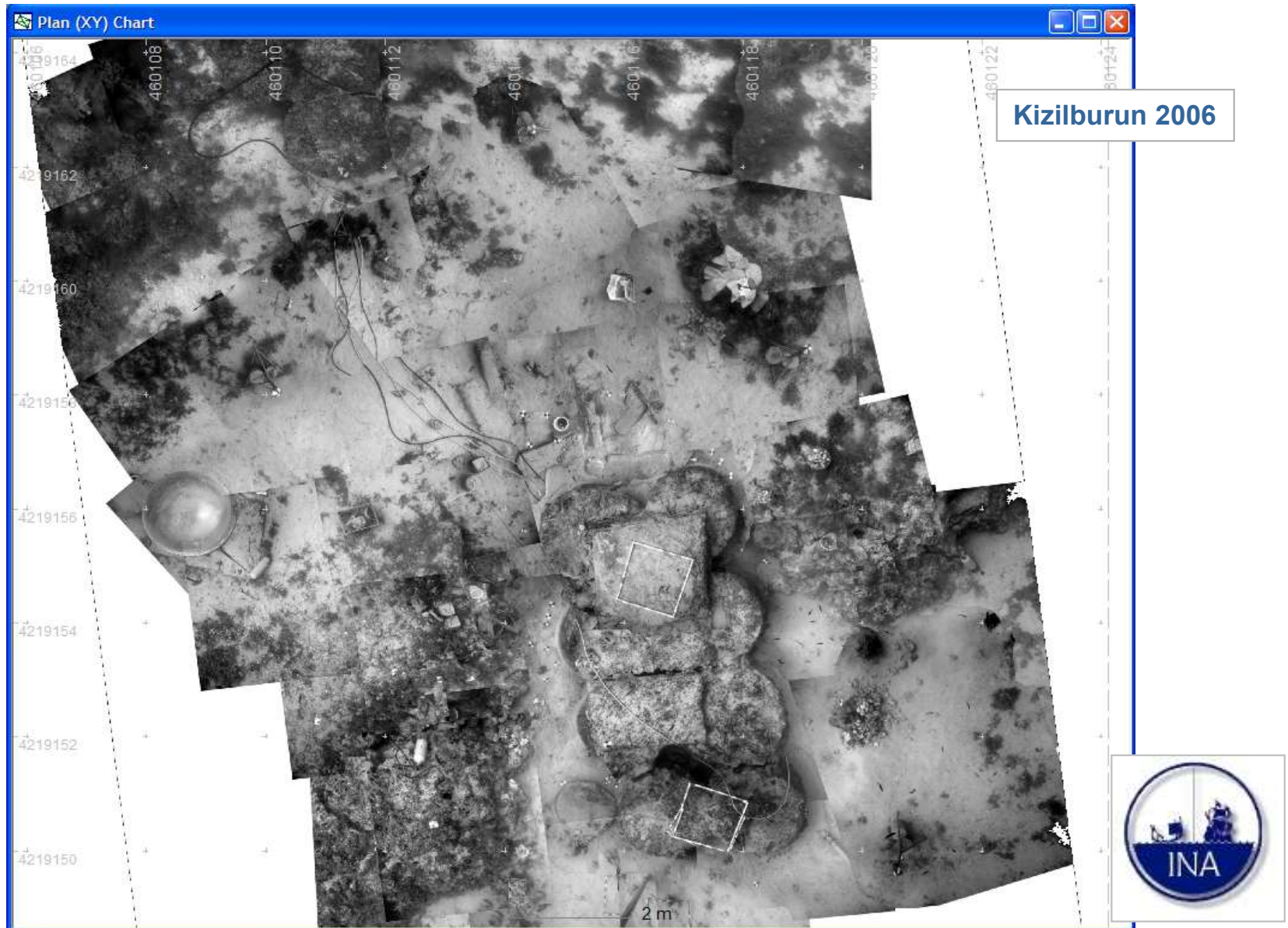
## Detail Recording using Planning Frames

*Firebrand 2008*



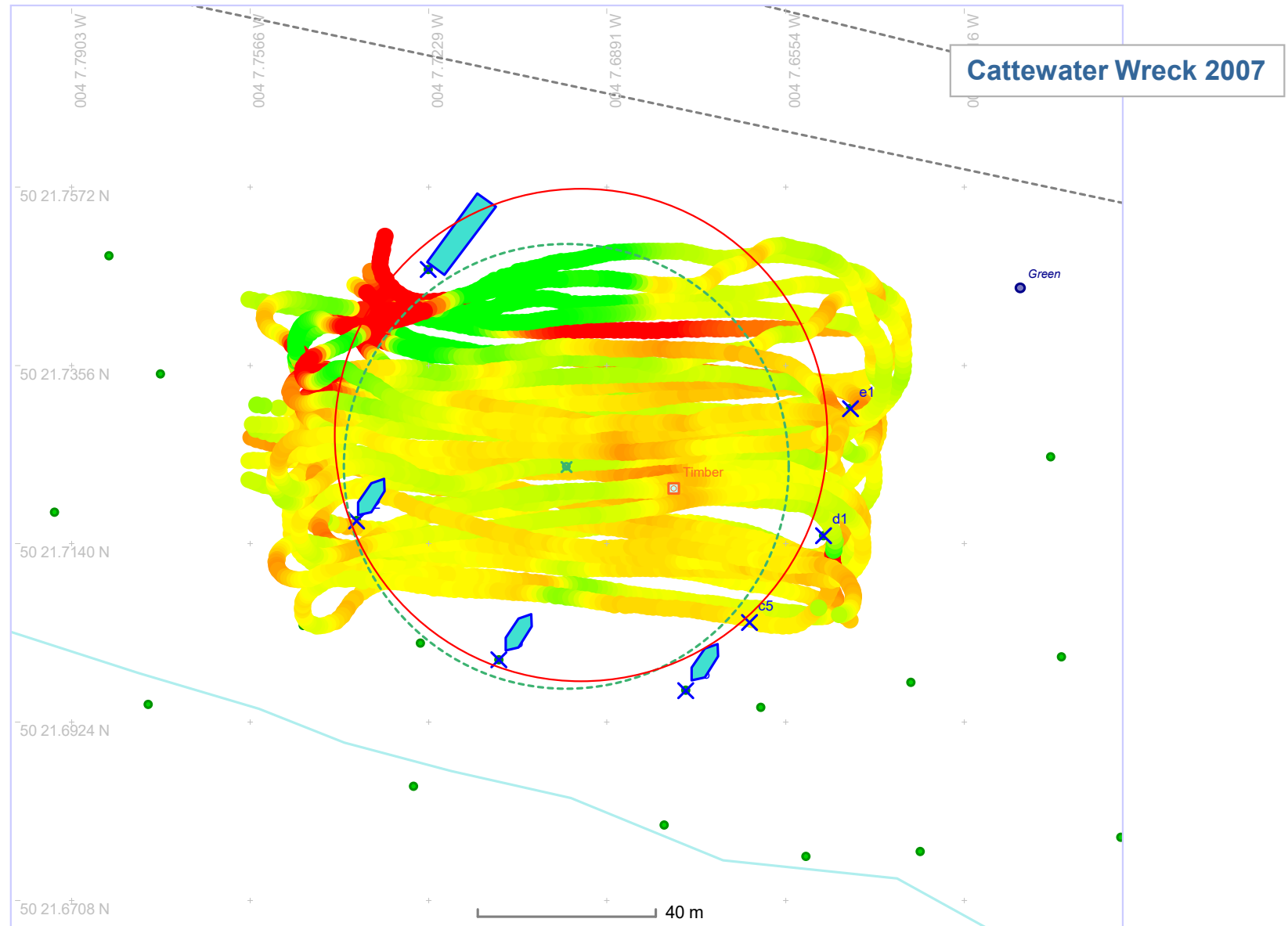


## Photomosaics

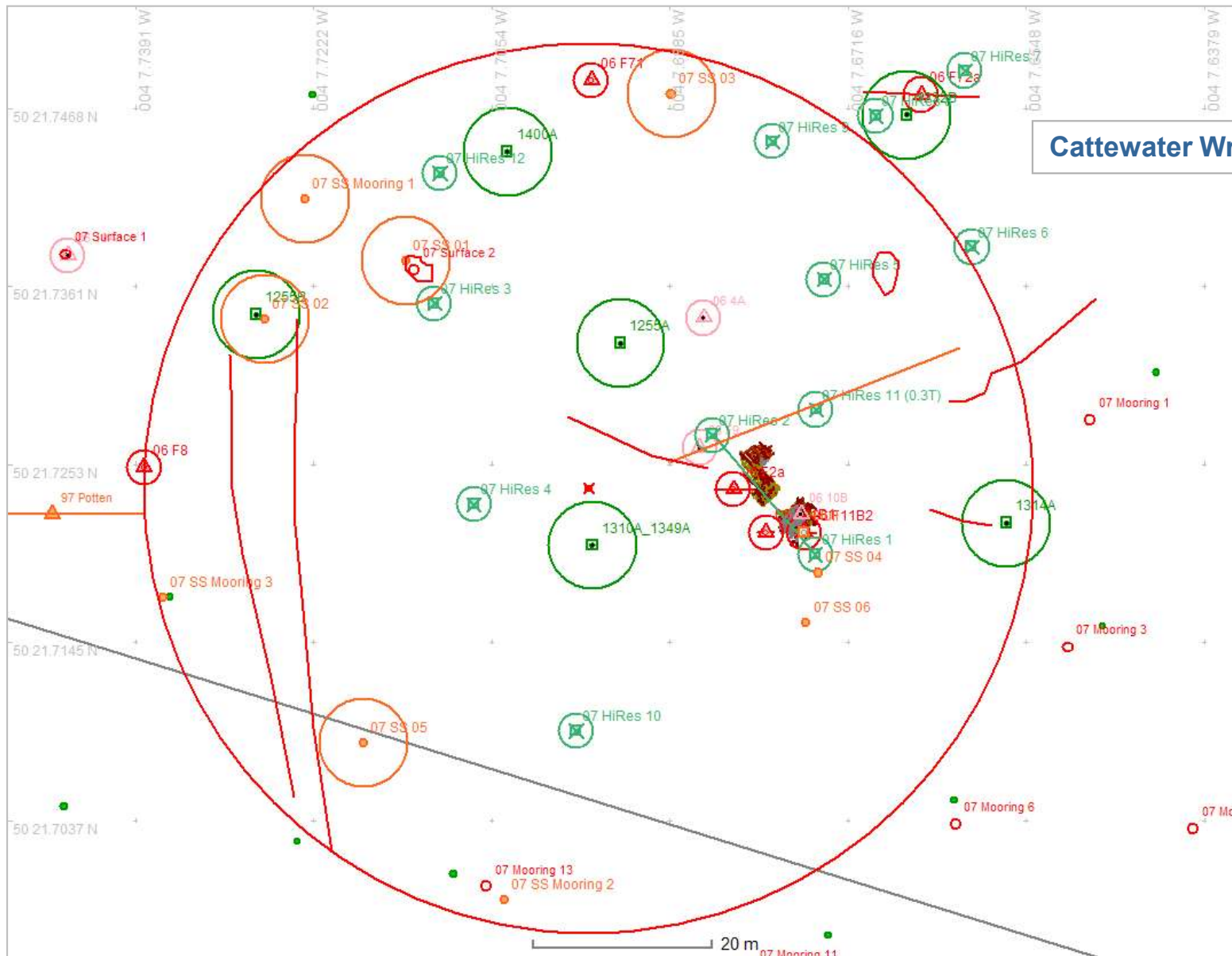




## Geophysics: Hi-Res Magnetometer Survey



# Geophysics: Integrated Analysis

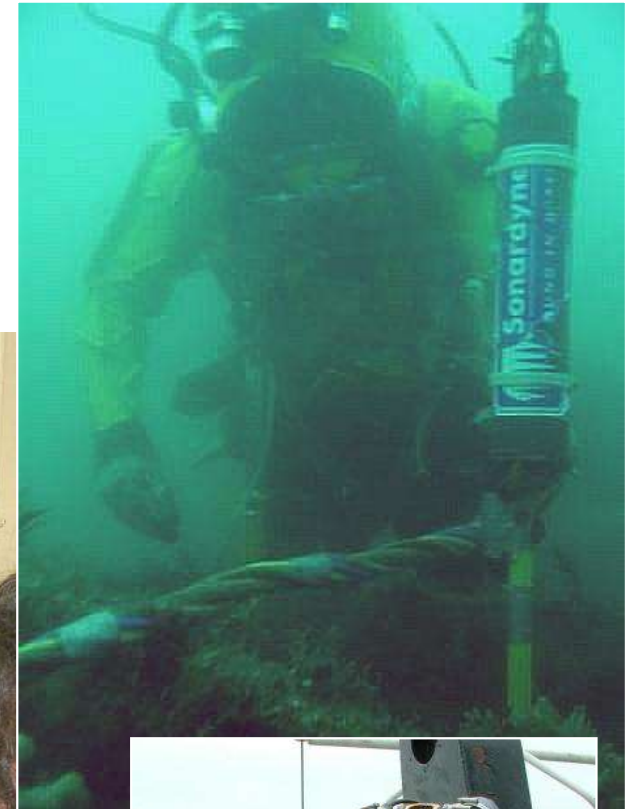






## Real Time Data Collection

- Connect to GPS and Acoustic positioning systems
- Track divers, ROVs and boat



Site Recorder - Monitor MASTER.rcd

File Edit View Tools Tours Window Help

Plan (XY) Chart

Artefact - MNMS- 79-1

Recording Properties Notes Position Images Sources Samples Links

**Recording**

Name	79-1
Previous name(s)	116
Object Class	Ship Stores
Object Type	Bottle
Material	Glass : Bottle
Description	Bottle, Dark Green Glass, 11.25H
Dive Found	79 Area E
Date Found	Not set
Dive Recovered	
Date Recovered	3 Aug 1979

Preview

Print

Record: [ < > > ]

OK Cancel Help

Artefacts [119]

Tr	Im	Name	Previous name(s)	Object Class	Object Type
		77-1	118	Tools and Equi...	Lamp
		77-2	117	Ship Structure	Hull : Plate
		79-1	116	Ship Stores	Bottle
		79-2	115	Ship Stores	Bottle
		79-3	114	Miscellaneous	Unidentified
		79-4	113	Miscellaneous	Concretion
		79-5	112	Miscellaneous	Unidentified
		79-6	111	Miscellaneous	Unidentified
		79-7	110	Ship Stores	Bottle

Layers

Name	On	Lock	Line
USS Monitor			
1994 Season			
1993 Season			
1983 Season			
1979 Season			
1979 Areas			
1979 Test Excavation L			
1979 Artefacts			
1977 Season			
General			
ARCGIS			
Hull Drawing			
Hull Fouling			
Hull Plating			
Hull Bottom Plating			
Hull Port Armor Belt			
Hull Misc.			
Hull Propeller			
Hull Internal			
Hull Turret			
Basemaps			
Location			
Wreck L			
Seabed Features			
Sanctuary			
Moorings			
20MileContour			
Coastline			
Sea			

Preview : MON001.TIF

GPS Tracking OFF Logging OFF









## Secure Electronic Publication

- Free viewer program – *Site Reader*
- Full data set available on CD from 3H Consulting Ltd
- Download lo-res version free from web - [www.3HConsulting.com](http://www.3HConsulting.com)

**Mary Rose - Opera**

File Edit View Bookmarks Widgets Tools Help






New tab 3H Mary Rose

http://www.3hconsulting.com/SitesMaryRoseMain.htm

Google search

**3H Consulting** [Home](#) [Site Map](#)

**Sites : Mary Rose Excavation 2003-2005**


<b>Location - The Solent, Hampshire, UK</b> Coordinates : 49 52.2628N 005 26.5928W (WGS84) Depth : 12m Conditions : Sheltered, strong tides, poor visibility Type : Warship, 90 guns Built : 1509 Lost : 1545 Designated under the <a href="#">UK Protection of Wrecks Act (1973)</a> National Monuments Record No.: 1121974		<a href="#">Download Site file</a>  <a href="#">Show Site in Google Earth</a>  <a href="#">Photo Album</a> 	
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The *Mary Rose* was one of the first ships built during the early years of the reign of King Henry VIII, probably in Portsmouth. She served as Flagship during Henry's First French War and was substantially refitted and rebuilt during her 36 year long life. The *Mary Rose* sank in 1545 whilst defending Portsmouth from the largest invasion fleet ever known, estimated at between 30,000 and 50,000 individuals and between 150 and 200 vessels. This number is nearly twice the number estimated within the fleet of 1588, latterly known as the Spanish Armada. At this time *Mary Rose* was the second largest and most heavily armed vessel within the fleet; she carried 91 guns deployed over three decks, her main gun deck carried fourteen large guns including two cannons which fired 64lb cast iron shot. The *Mary Rose* marks a transition between the use of a vessel to support guns and a vessel built to carry large guns close to the waterline, her structure is undocumented in historical sources and there are no shipwright's plans. The *Mary Rose* is an extremely important vessel to study in order to understand the evolution of the fighting ship.


In 1965 Alexander McKee started Project Solent Ships and one of the wrecks they hoped to find was the *Mary Rose*. In 1967 pioneering sidescan and sub-bottom survey work by EG&G and Doc Edgerton found a 'flattened W' shaped target in the area where the ship was thought to have sunk. The years 1968-1971 were spent by 'Mad Mac's' Marauders' finding proof of the ship's identity with few funds and little resources, success was achieved in 1971 with the discovery of the first three of the ship's frames.

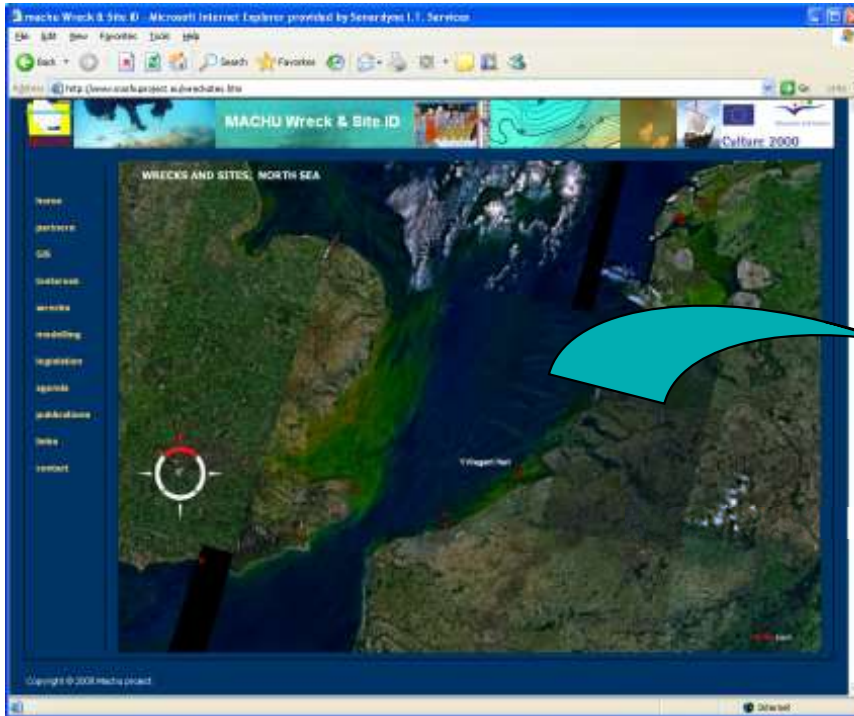
Excavation work between 1979 and 1982 took 28000 dives and 12 man years on the bottom but culminated in the recovery of a large part of the starboard side of the hull. The recovery itself was shown on live television and was watched by 60 million people worldwide. At that time it was not known that site was not fully excavated and a portion of the bow remained under the mud of the Solent.

The UK Ministry of Defence may need to widen and straighten the channel approach to Portsmouth Harbour to accommodate their new aircraft carriers. The dredging works could affect the site of the *Mary Rose* historic wreck site.



Artists impression of the *Mary Rose*

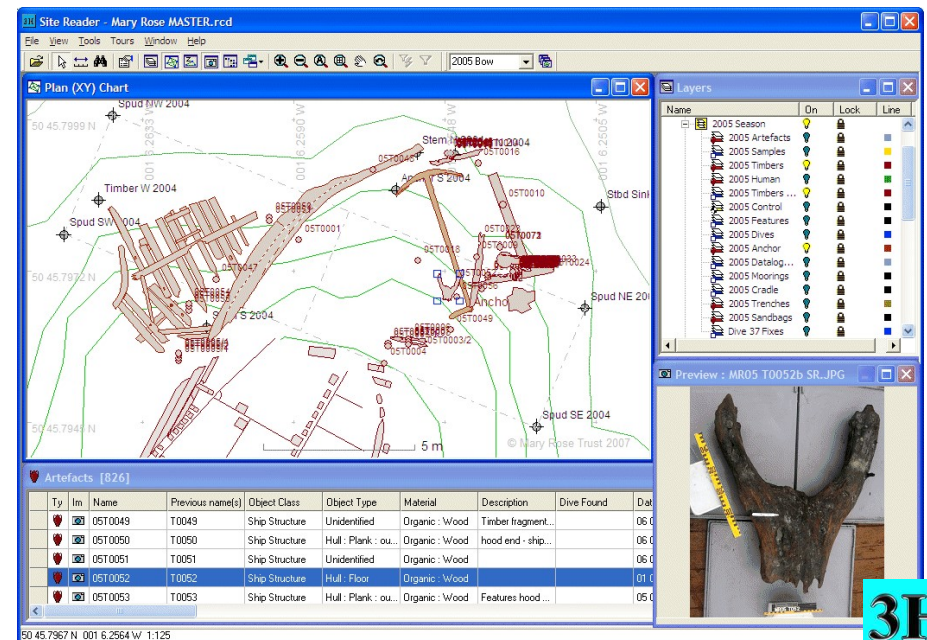




MACHU Project

1. Click web link
2. Download SR4 file
3. (Download free Reader program)
4. Open SR4 file

Allows public access to primary site data via a web site







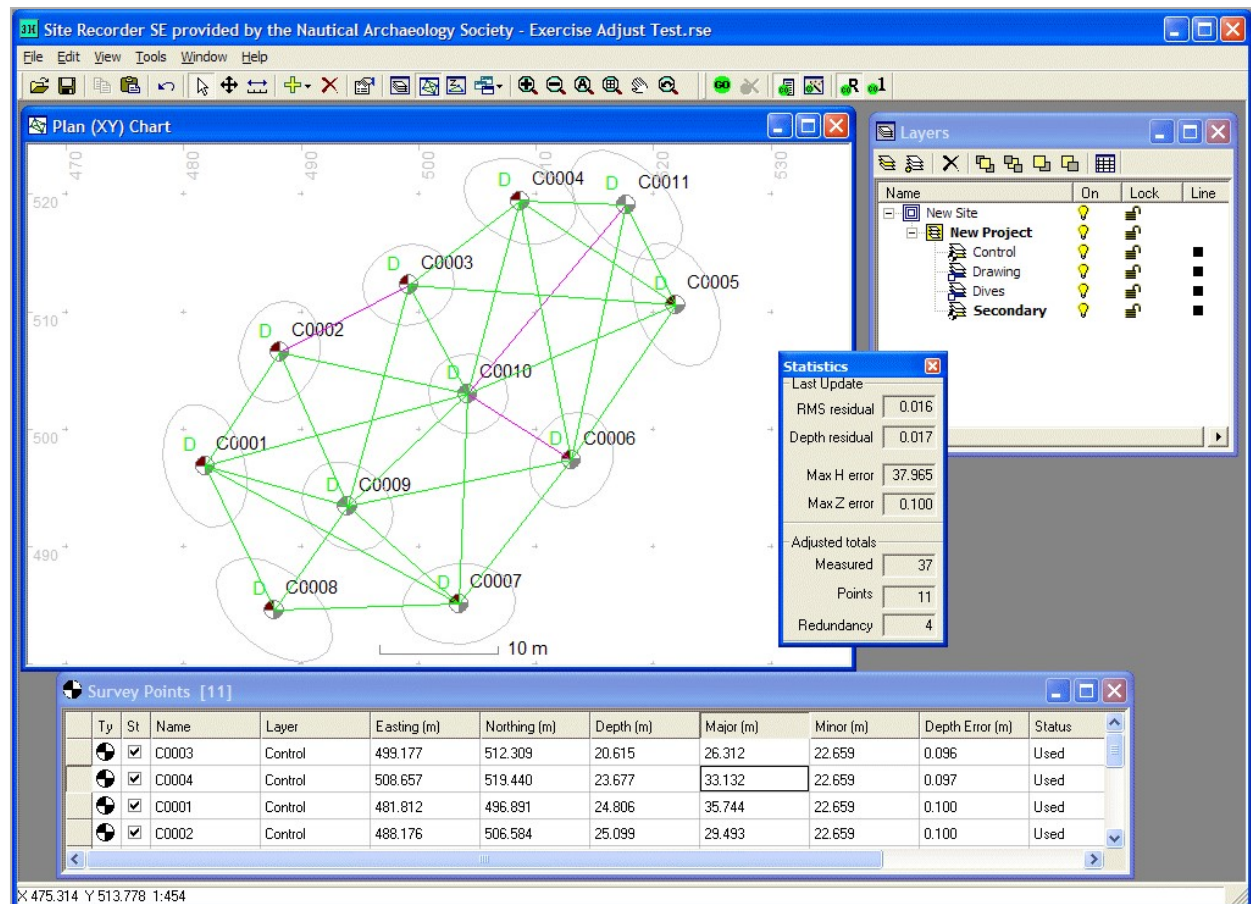
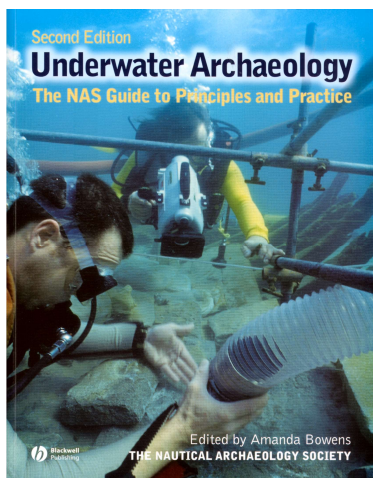
## Site Recorder 4 SE (Student Edition)

Free survey data processing and mapping software



- Offset, ties and radial measurements
- 3D Trilateration adjustment
- Dive logs

[www.3HConsulting.com](http://www.3HConsulting.com)







## Archaeology / IT 'Bridge'

Archaeology  
Data collection  
Archaeology professionals  
'Dirty' data

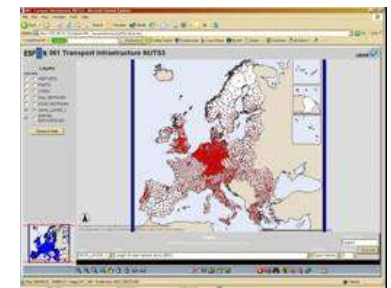
Information Technology (IT)  
Data use  
Information Technology professionals  
'Clean' data



Site Recorder 4



- (Inter) National GIS
- Web GIS
- Desktop GIS
- ePublication
- Google Earth



**Thank You**

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