



Geospatial  
Commission

# NUAR:

**Data standardisation to support, promote and enable  
data quality improvement**

Fourth International Workshop on Spatial Data Quality,  
11-12 October 2023, Brussels

Neil Brammall and Amy Manefield

# What is NUAR?

**PRIVATE BETA** This is an evolving service and currently should be used to complement your existing processes, plan for future adoption, and provide valuable [feedback](#) to enhance the service further. Safe excavation practices as outlined in HSG47 should ALWAYS be followed.

453805,317942 Search Edit Area Clear Recentre map

Bookmarks and sharing

Notifications

**Layers**

Expand All Reset

Layers

- Drainage
- Telecommunications
- Electricity
- Gas
- Thermal
- Water
- Sewer
- Fuel & Chemicals
- Transport
- Non-Utility Objects
- Reference and Planning

Legend

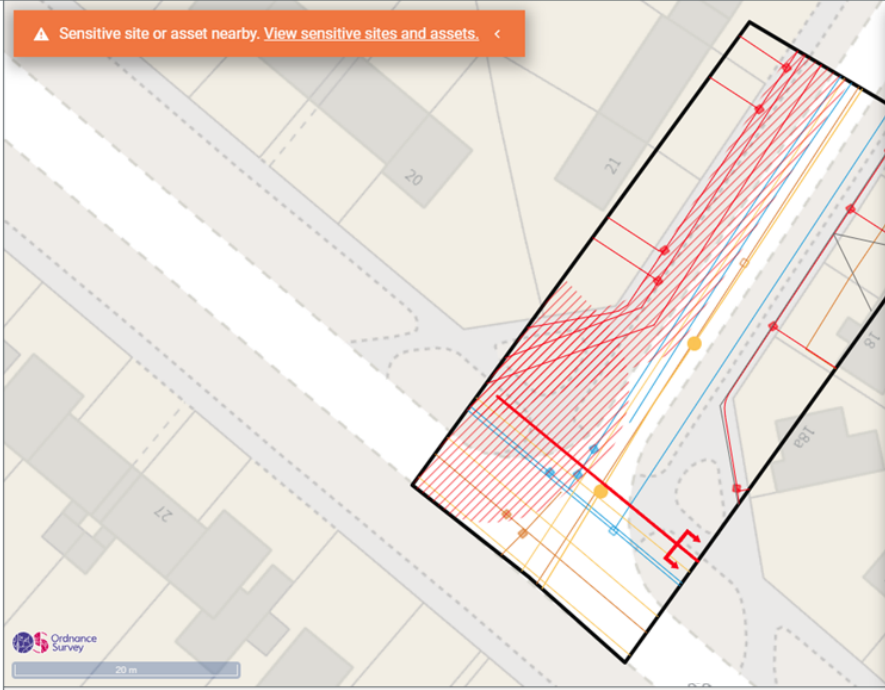
Sensitive Sites

Isolated Views

Asset Owners

Settings

Help



Previous 1 of 3 Next

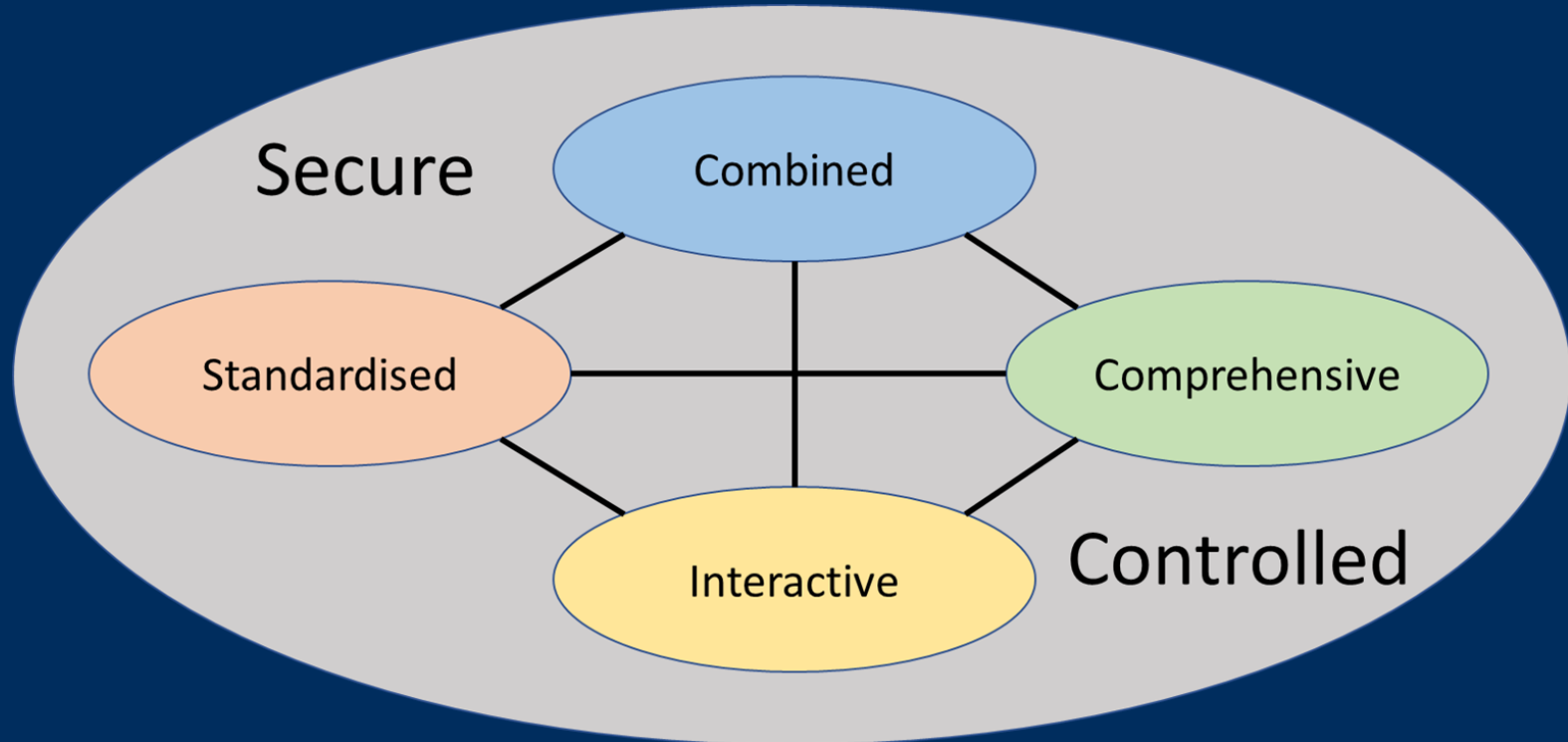
— Electricity Network Link - Underground line asset

### General Information

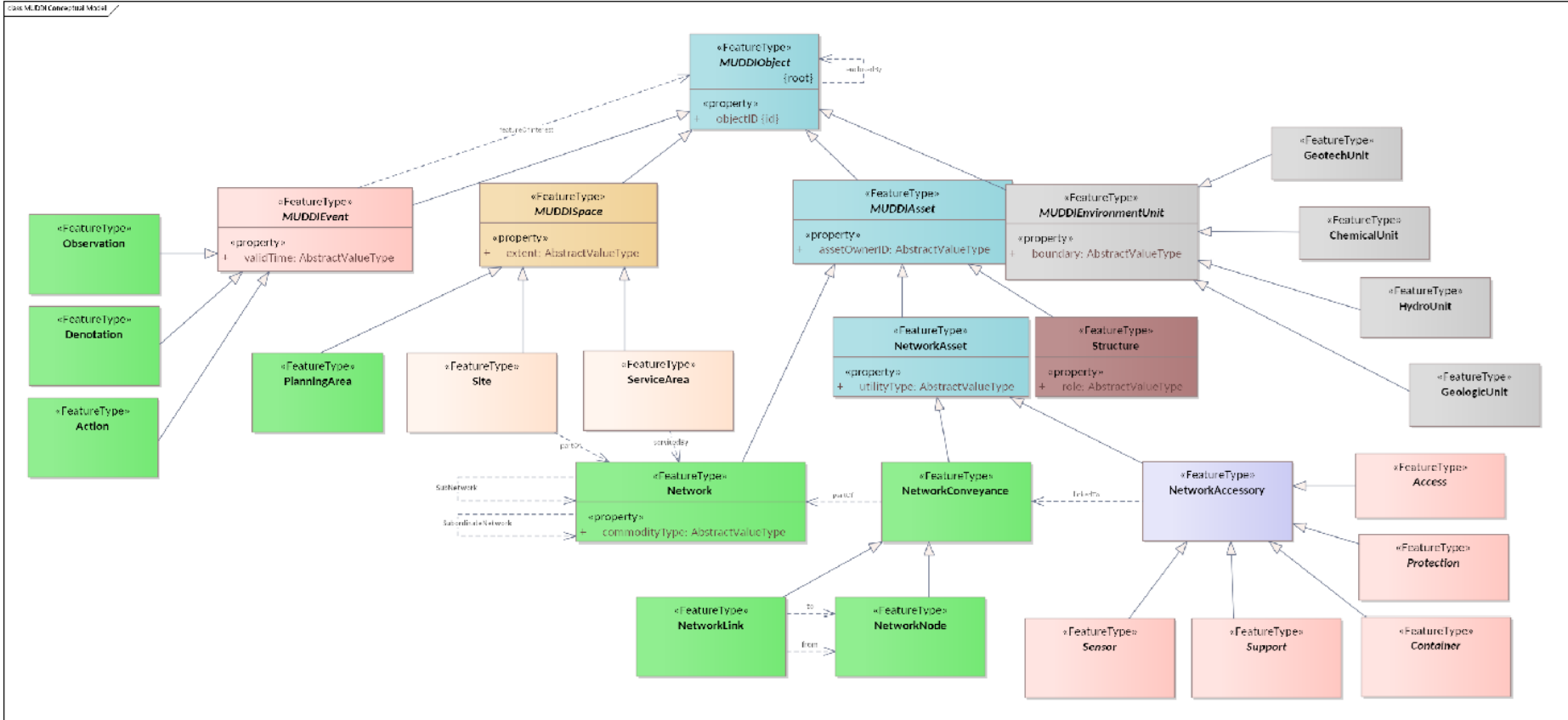
Property	Value
Data Provider	Let There Be Light
Emergency Number	123456789
Emergency Email	emergency@let-there-be-light
Business Number	123456789
Business Email	enquiries@let-there-be-light
Last Refreshed in NUAR	06/12/2022, 13:24:20
Expected Data Refresh Period	Unknown

Asset Supplementary Data

# Key Characteristics



# The MUDDI Conceptual Model



# The Model Hierarchy

- Reference Models (e.g. ISO19100)
- Core OGC MUDDI Model
- Profile: UK Excavation
- NUAR Platform Model



# UK Excavation: Room for Specialisation



# Why bother with a Data Model?

- **A Common Language:** standard, consistent representation of buried assets and their characteristics across geographies and sectors
- **Scalable:** standardised “joining instructions” for new organisations
- **Sustainable:** data load and transformation needs to be repeatable and frequent – data model provides an enduring, consistent target

## Why bother with a Data Model?

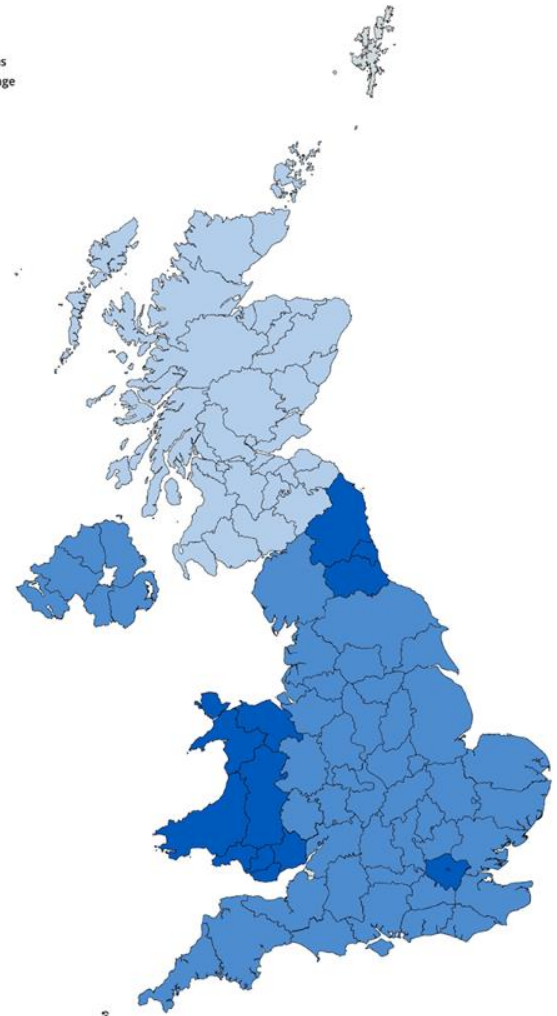
- **Data Quality Improvement:** opportunity for data quality improvement – conformance to a standard is one way of communicating data quality
- **Roadmap.** Represent what's there now, but also headroom to grow as an industry – in particular metadata about data quality
- **Open:** helps to avoid lock-in and contributes to an open eco-system



# Growing participation\*

- 500+ Asset Owners engaged across England and Wales
- 325 Data Exploration Agreements (DEAs) signed
- 220 organisations' data uploaded to NUAR
- 183 datasets' transformations agreed
- 191 Data Distribution Agreements (DDAs) signed

■ NUAR MVP regions  
■ NUAR final coverage  
■ VAULT



# NUAR Meets the Real World

“Everyone has a **Data Model**  
until they get  
**Real Data**”



# What have we observed?

Based on data published from 146 organisations

Focus on linear assets in electricity, gas, sewer and water networks

<b>Total Features</b>	53,421,228
Component Type “Other”	17% (Electricity & Sewer: 30%+)
Material “Other”	25% (Sewer 46%; Water 28%)
“Unknown” Depth	86% (variation in how recorded)
Data Quality Metadata provision	24% (Electricity: 12%)
Invalid Geometries	~0.1%

# What's Next?

- Implementation of the “Observations” feedback loop
- Data Model publication:
  - GML encoding
  - OGC Code Sprint in late 2023
  - Publication as reference model for MUDDI conceptual model
- Independent Validation service:
  - Engine for feedback on compliance and conformance
  - Currency; Completeness; Domain Consistency; Metadata
  - Maturity Model
- Mapping to the UK GEMINI geographic metadata standard
- More formal assessment of conformance performance to date and focused feedback/actions as part of maturity model implementation (including e.g. standardisation of measurements etc)

# Promote, Support, Enable

- **Promote:**
  - Metadata relating to Data Quality is captured and exposed
  - Proposed mapping to the UK GEMINI geographic metadata standard
- **Support:**
  - Transformation to a standardised form
  - Validation and Reporting on compliance/conformance
  - Maturity Model
- **Enable:**
  - Observations feedback loop
  - Potential to incorporate other sources (e.g. PAS128 survey data)



# Geospatial Commission

You can find out more about NUAR at:



[gov.uk/guidance/national-underground-asset-register-nuar](https://www.gov.uk/guidance/national-underground-asset-register-nuar)



[@GeospatialC](https://twitter.com/GeospatialC)



[company/geospatial-commission](https://www.linkedin.com/company/geospatial-commission)