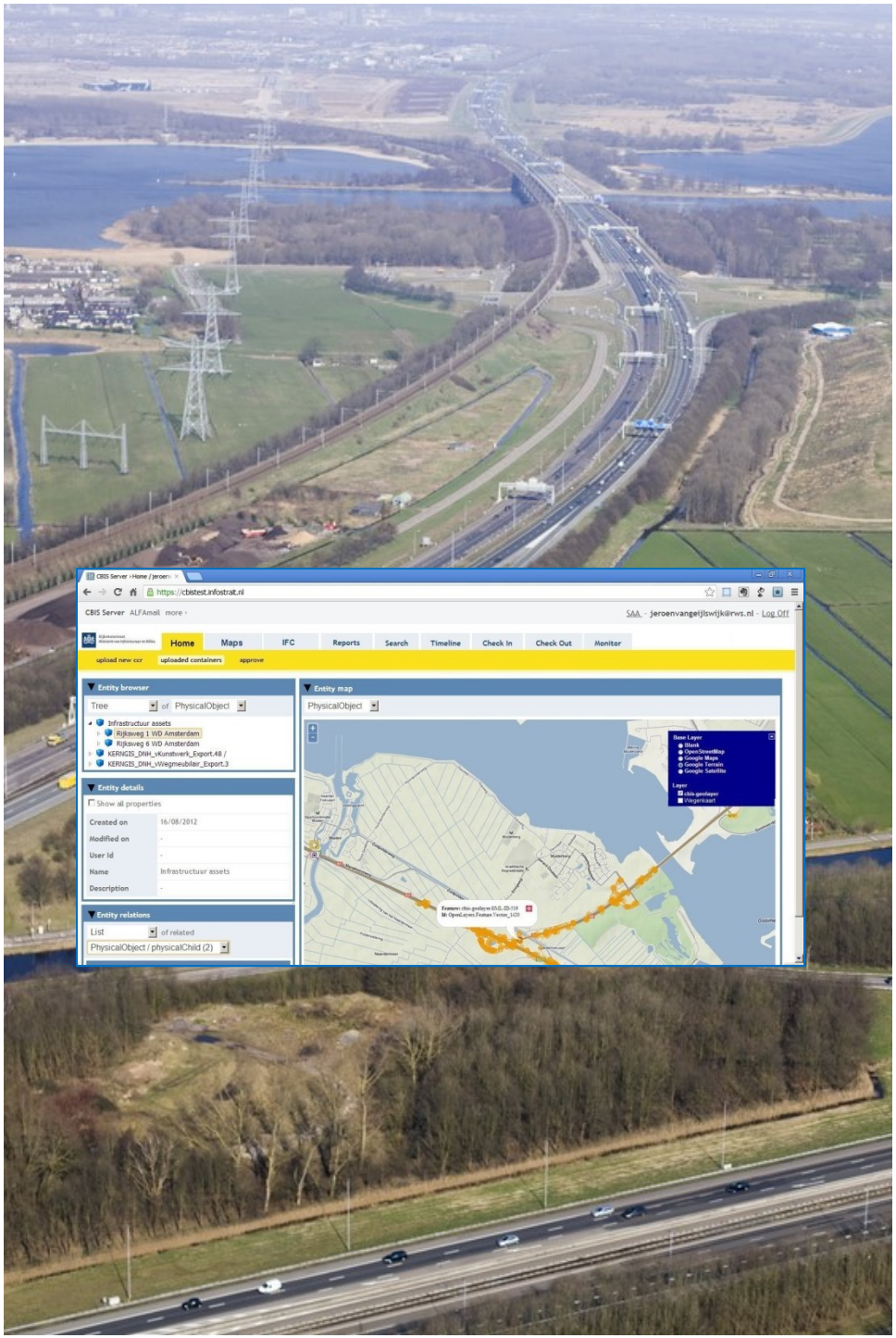


Dutch Building Information Council

COINS

The COINS standard

Introduction

November 2015

Agenda

Dutch Building Information Council

- Summary
- Why COINS
- What is COINS
- Scope
- COINS container exchange format
- Integration examples
- Integration GIS
- Integration documents
- Integration IFC and CityGML
- In practice
- Documentation

COINS

Dutch Building Information Council

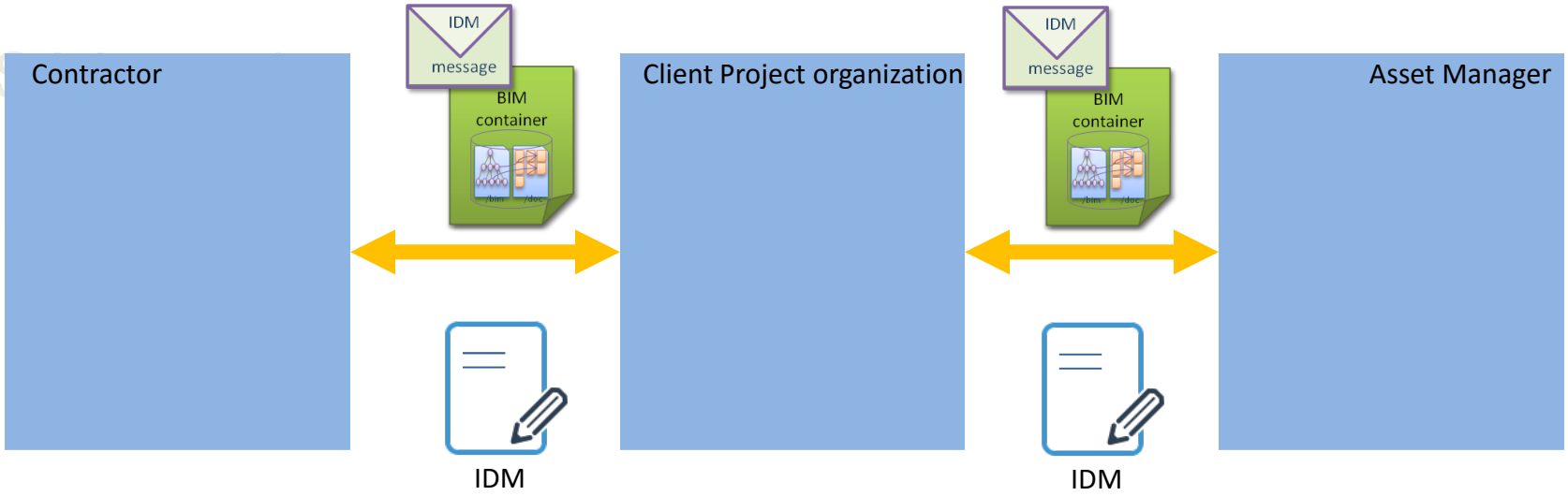
- A flexible standard for the exchange of BIM information making use of multiple existing standards
- It provides a data exchange and storage mechanism by means of a container or envelope for BIM related data/information

Why COINS

Dutch Building Information Council

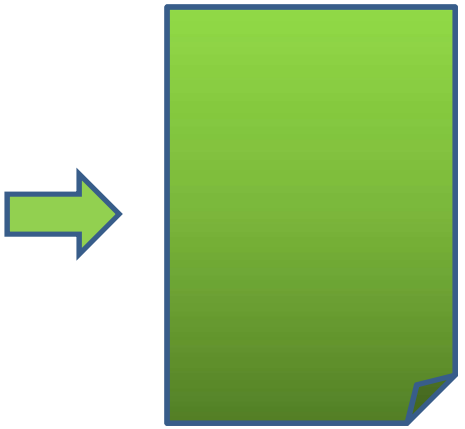
- BIM is more than 3D
- Is an answer to the needs of practice in which information delivery often consist of combinations of various data structures
- Is an answer to the need of practice to combine BIM, GIS, Systems engineering and Life Cycle Information
- Enables data drop as one information package with multiple data formats

Scope / data exchange



Information container for data drop

- Is a mix of:
  - Database structured information
  - GIS
  - Documents
    - Drawings
    - PDF
    - Text
    - Spreadsheets
    - Etc
  - 3D Models



Information container

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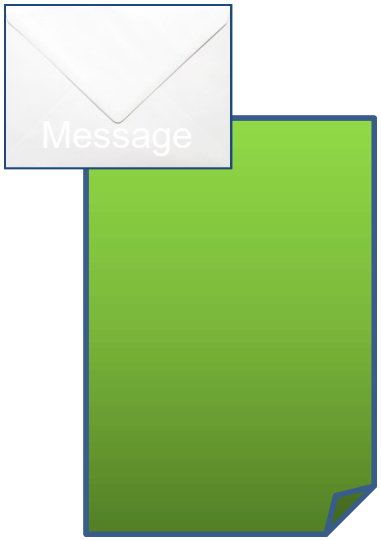

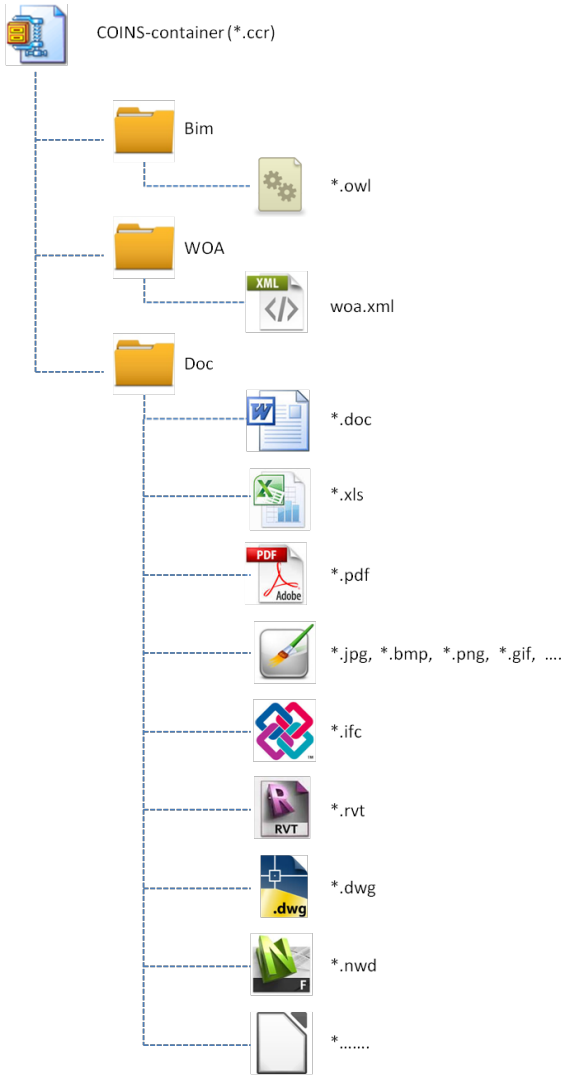

Scope / audience

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- Includes software vendors en IT individuals, working in the field of buildings and infrastructure assets, offering software for:
  - Procurement
  - Design
  - Construction
  - Delivery
  - Operation and maintenance
- Suppliers of Project hotels could implement the software
- Suppliers of Asset management databases could implement the software

Current implementations

Dutch Building Information Council

- CBIS data management software by Infostrait
- Multiple contractors in the Netherlands added support for this standard in their design and construct information systems

Current implementations

Dutch Building Information Council

- Rijkswaterstaat – DBFM project highway A1-A6
- Rijkswaterstaat – DBFM project highway A9 GDW
- Rijkswaterstaat – DBFM project highway A6
- Rijkswaterstaat – DBFM project highway A9 AMS
- Rijkswaterstaat – D&C project N31
- Rijkswaterstaat - D&C project Maas: construction sluice Limmel
- Province of Gelderland – D&C project traverse Dieren
- Province of Gelderland – DBM provincial government buildings

Rijkswaterstaat is planning 18 new projects in the coming years to support the flow of asset information from contractors on the basis of the COINS standard

Integration examples

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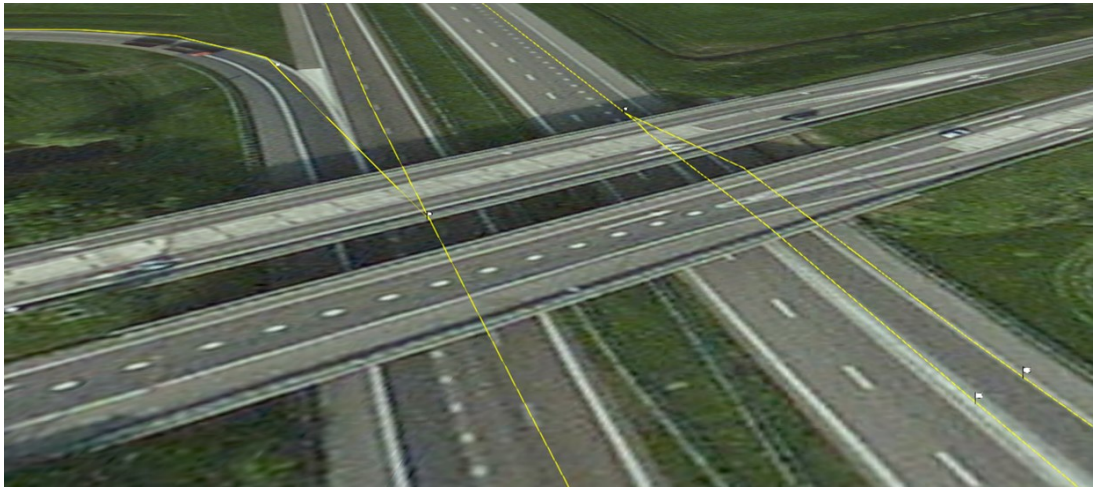
- Physical objects
- Object types
- Terrain
- Traffic network
- Requirements
- Performance
- Built environment
- Object geometry 3D
- GIS representation
- Documents

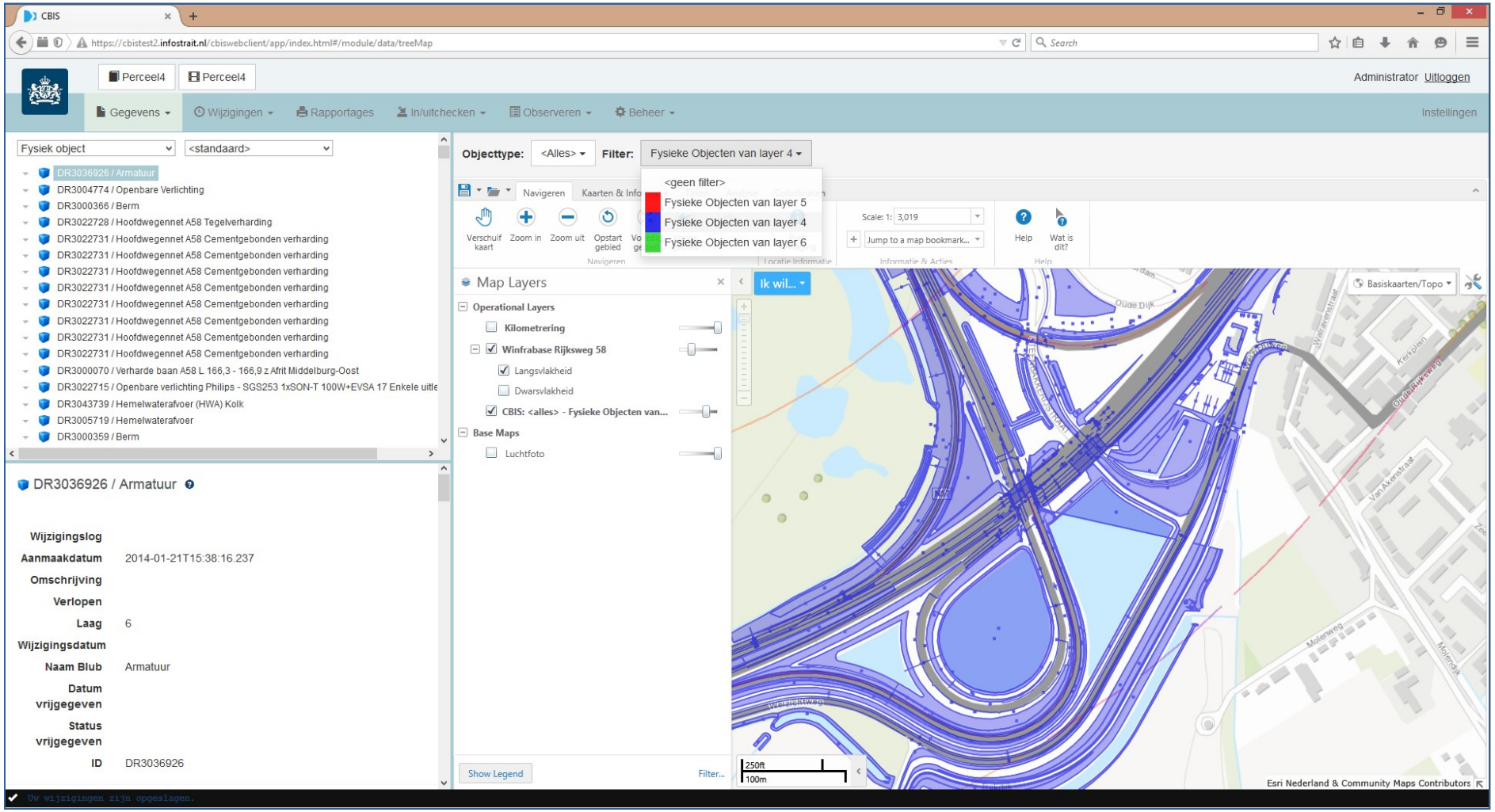
Integration GIS - 1

Dutch Building Information Council



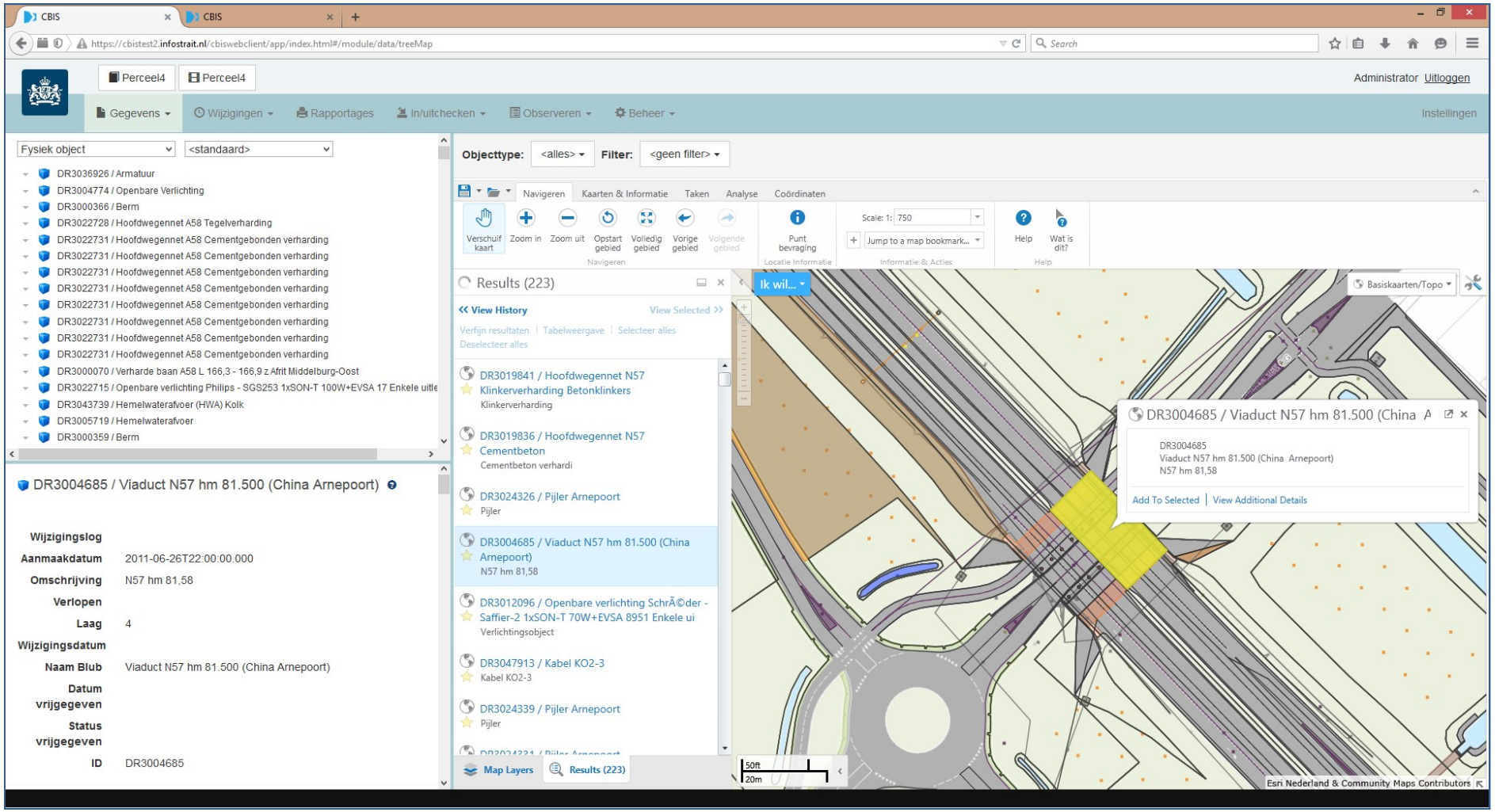
Integration GIS - 2

Dutch Building Information Council

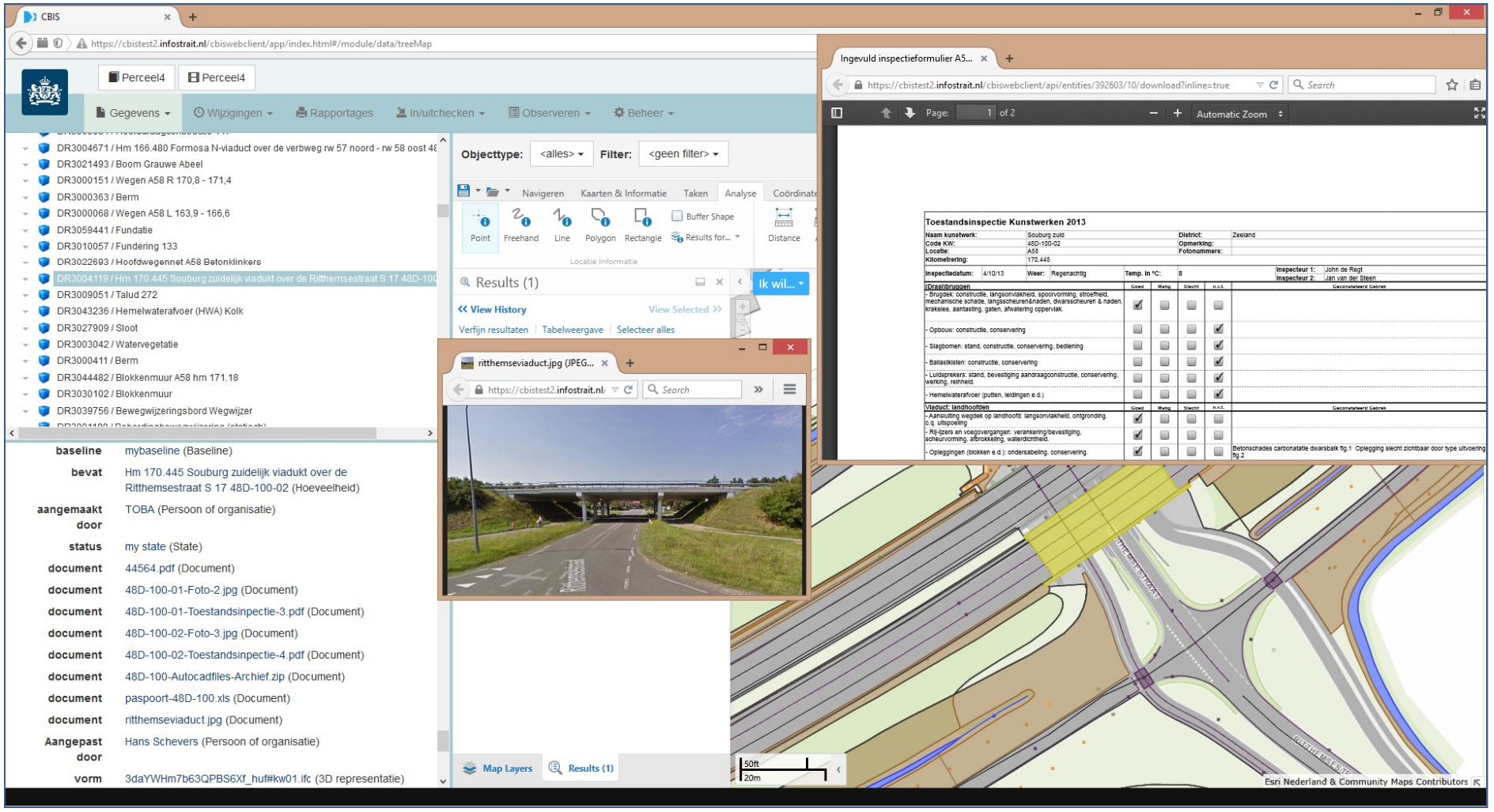


Integration GIS - 3

Dutch Building Information Council

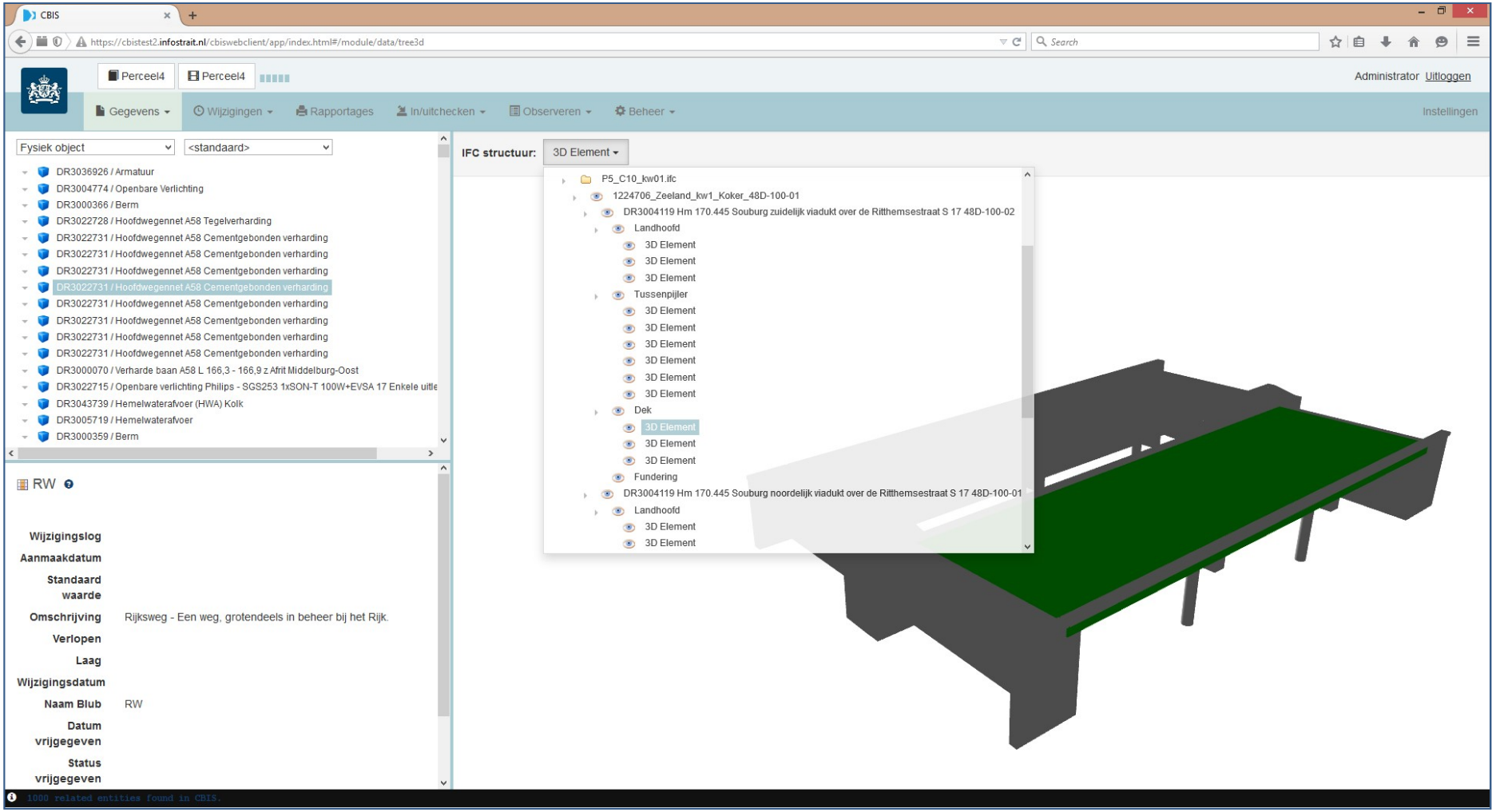


Integration documents



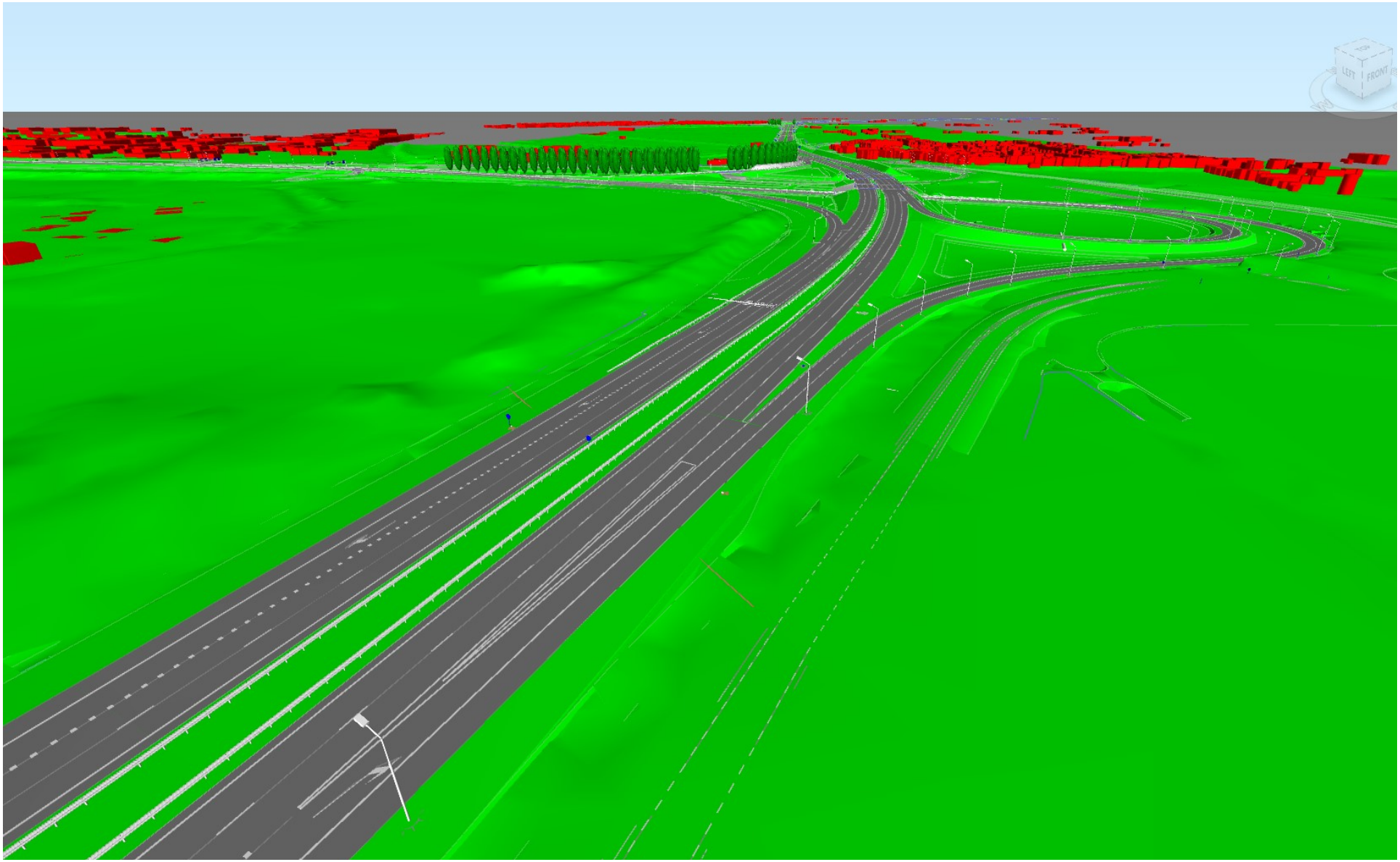
Integration IFC

Dutch Building Information Council



Integration IFC and CityGML

Dutch Building Information Council



What is COINS -1

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COINS is an open standard that provides a data exchange format by means of a container. This format enables the exchange of various datasets annotated by an OWL ontology with the following features:

- *Extendibility*. The kernel model can be extended with specialized models (reference frameworks) for various disciplines. These sub-models may address various areas of interest (company-wide, building sector, national) and therefore can be regarded as semi-standards in itself. A reference framework can also function as an incubation project to prototype new model concepts.

  An example of an extension is Systems engineering

  Instances of Reference frameworks are not included the COINS standard, only the mechanism

What is COINS -2

Dutch Building Information Council

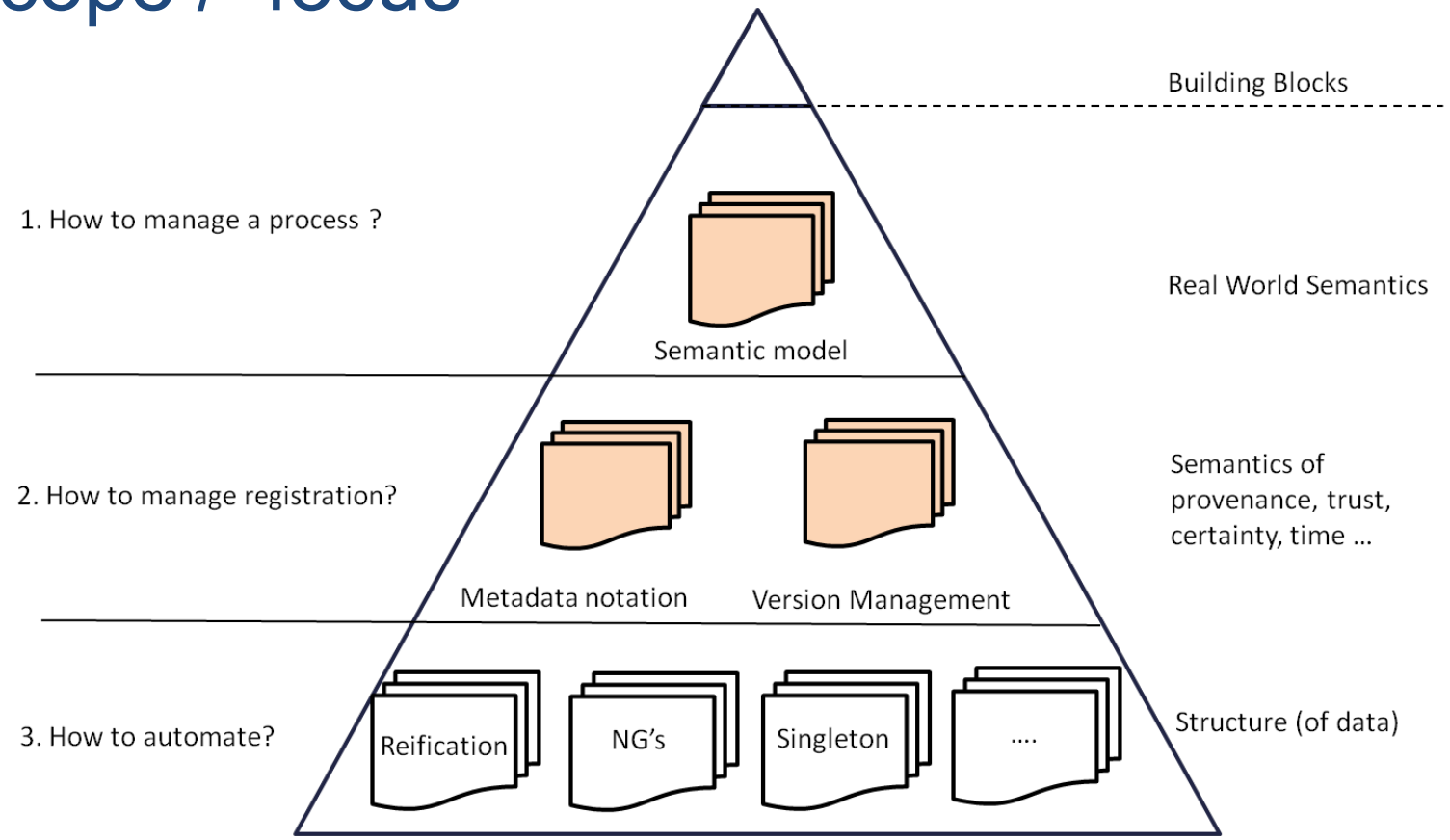
- *Dynamic semantics*. Semantics are typically recorded in libraries forming a dynamic means to add semantics to instance models. Since version 1.0 library structuring mechanisms form an integral part of COINS.
- *Integrating document oriented information with object oriented information*. The boundary between document oriented information and object oriented information areas can be moved over time. Offering parties an evolutionary path to develop in BIM maturity level.
- *Integrating adjacent standards.* COINS delegates specific modelling areas to existing standards as GML (GIS data) and IFC (3D building data). More general every relevant standard (open or not) may be used if parties involved agree mutually on using it in data exchanges.

What is COINS - 3

Dutch Building Information Council

- *Library model.* The COINS 2.0 library model is fully OWL-class based and in line with standard OWL modeling features.
- *An off-line transaction-based information exchange.* COINS information exchange can be integrated with transaction-based information exchange as for instance supported by the IDM part 2 standard for process modelling.
- *Version management.* COINS offers features to record the history of the BIM

Scope / focus

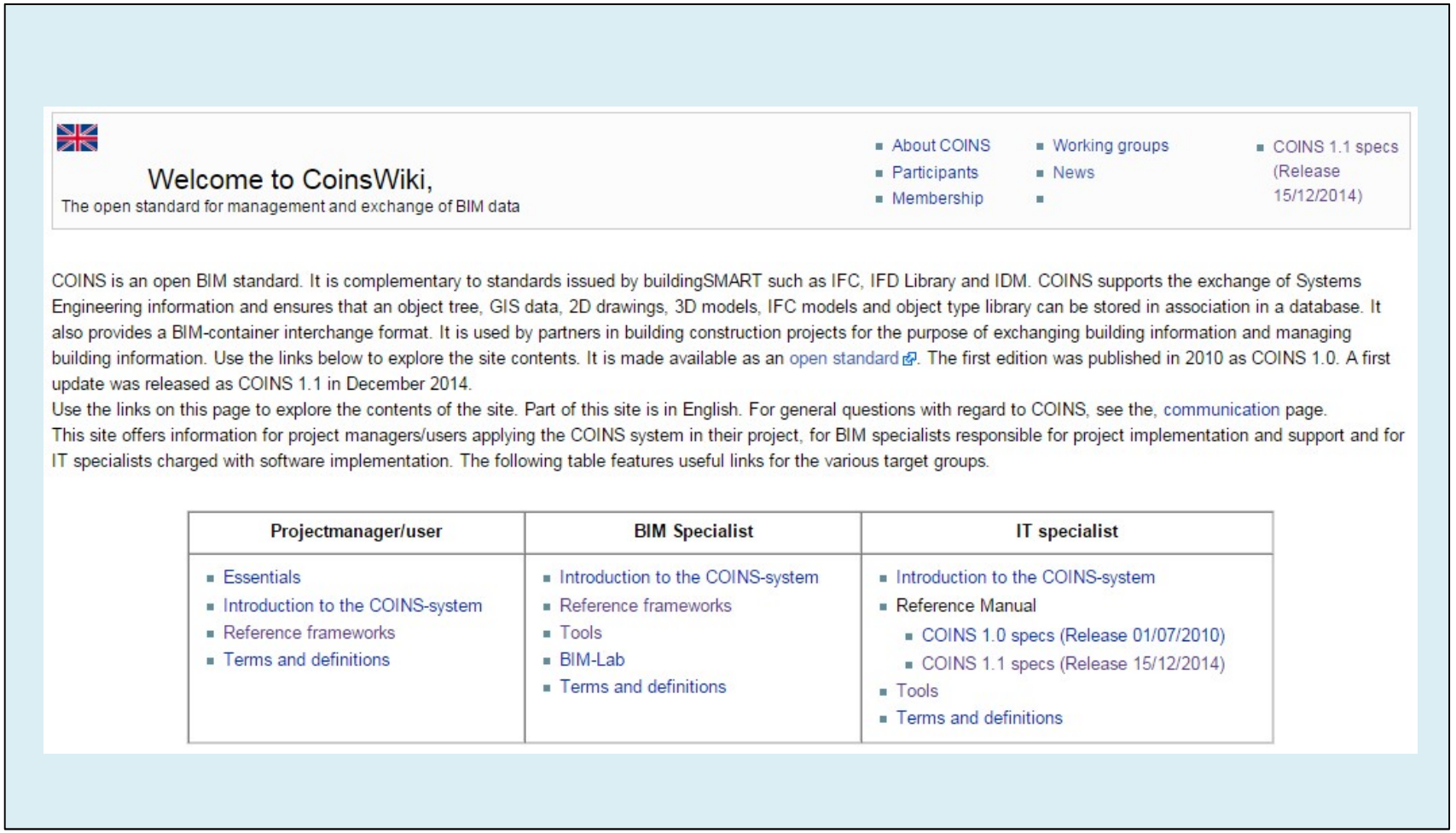


The focus of the COINS standard is on the semantic model comprising the core model and a mechanism for flexible extensions and object libraries. Also support is provided for meta data notation and version management.

Documentation

Dutch Building Information Council

www.coinsweb.nl/wiki



Welcome to CoinsWiki,

The open standard for management and exchange of BIM data

- About COINS
- Participants
- Membership
- Working groups
- News
- COINS 1.1 specs (Release 15/12/2014)

COINS is an open BIM standard. It is complementary to standards issued by buildingSMART such as IFC, IFD Library and IDM. COINS supports the exchange of Systems Engineering information and ensures that an object tree, GIS data, 2D drawings, 3D models, IFC models and object type library can be stored in association in a database. It also provides a BIM-container interchange format. It is used by partners in building construction projects for the purpose of exchanging building information and managing building information. Use the links below to explore the site contents. It is made available as an open standard. The first edition was published in 2010 as COINS 1.0. A first update was released as COINS 1.1 in December 2014.

Use the links on this page to explore the contents of the site. Part of this site is in English. For general questions with regard to COINS, see the, communication page.

This site offers information for project managers/users applying the COINS system in their project, for BIM specialists responsible for project implementation and support and for IT specialists charged with software implementation. The following table features useful links for the various target groups.

Projectmanager/user	BIM Specialist	IT specialist

▪ Essentials
▪ Introduction to the COINS-system
▪ Reference frameworks
▪ Terms and definitions
	▪ Introduction to the COINS-system
	▪ Reference frameworks
	▪ Tools
	▪ BIM-Lab
	▪ Terms and definitions
		▪ Introduction to the COINS-system
		▪ Reference Manual
		  ▪ COINS 1.0 specs (Release 01/07/2010)
		  ▪ COINS 1.1 specs (Release 15/12/2014)
		▪ Tools
		▪ Terms and definitions

COINS 1.1 (2014) technical specifications

Dutch Building Information Council

- link

COINS 1.1 (2014) Specification

December 15, 2014

Editors:

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- Henk Schaap

COINS 1.1 preparatory committee:

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- Aad Jongbloets (Tauw)
- Jeroen van Geijlswijk (Infostrait)
- Wim Verbruggen (RWS)
- Peter Willems (TNO)

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Preferences set up

COINS version

COINS 1.0

COINS 1.1

COINS 2.0

Abstract

This specification defines the 1.1 (2014) release of the COINS systematics including the COINS Building Information Model schema, the COINS Schema Architecture, the COINS semantics, the expected behavior of COINS compatible software and the COINS Container exchange format.

Status of this document

This section describes the status of this document at the time of its publication. Other documents may supersede this document.

If you wish to make comments or report errors regarding this document, please send them to mailto:peter.willems@tno.nl and/or mailto:h.schaap@gobar.nl.

Introduction

Normative References

Terms and definitions

Schema architecture

Release notes 1.1

Special topics

- Identification of CBIM information objects
- Object Tree
- Systems Engineering
- Topological relations
- Version management
- States

Exchange

- COINS container
  - COINS Delta container (Dutch)
  - COINS Delta container (English)
  - Checksum for attached documents
- Window of Authorization
- Document linking

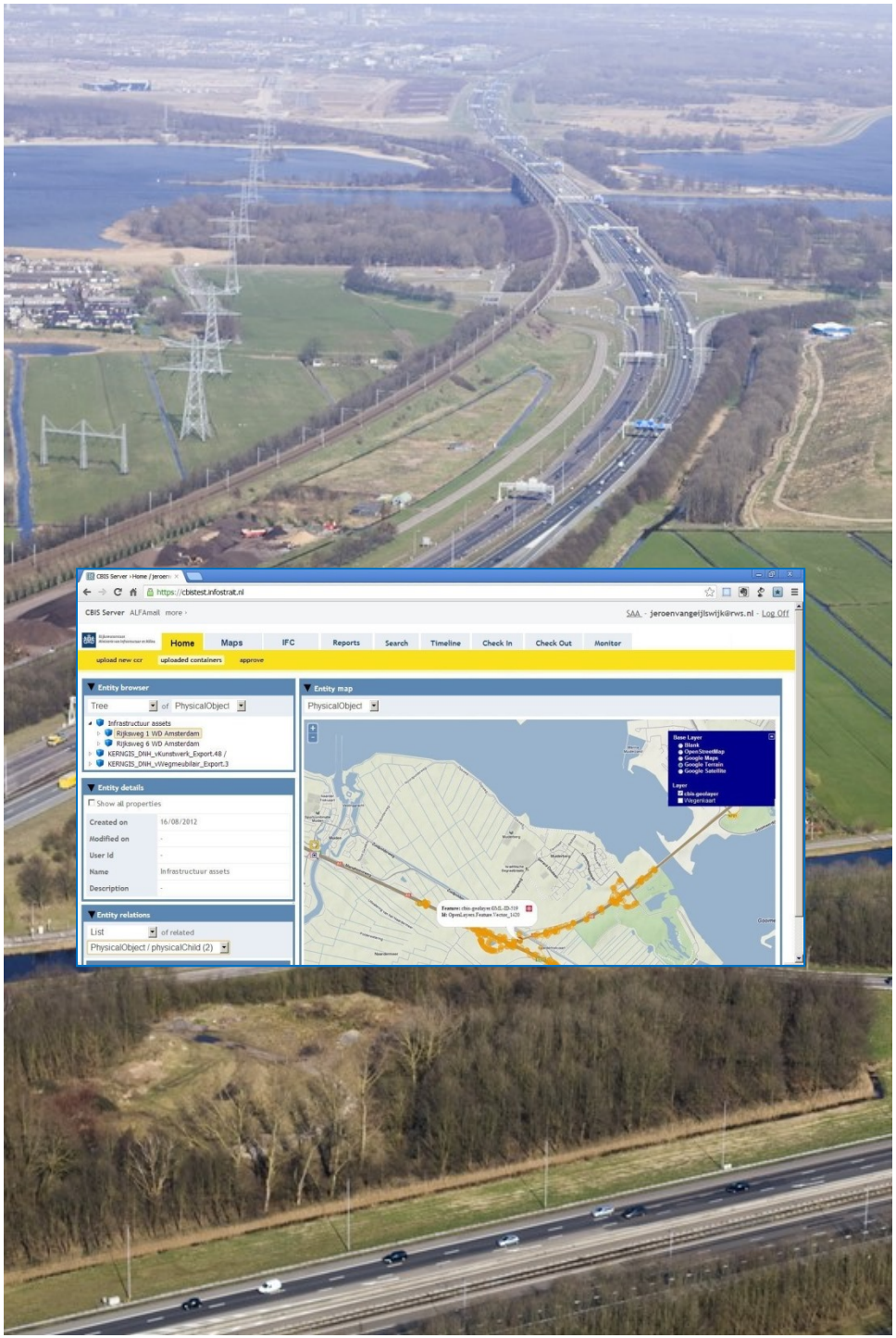
CBIM Schema http://www.coinsweb.nl/cbim-1.1.owl

Classes	Object Properties	Datatype Properties
Amount	affects	baseline status
Baseline	amount property type	change log
Building	baseline	checksum file
C-BIM Object	baseline object	checksum file algorithm
Catalogue Part	catalogue part	checksum URI
Connection	*child*	checksum URI algorithm
Document	contains	creation date
Explicit 3D Representation	creator	default value
Function	current state	description
Function Fulfiller	document	document alias file path
Library Reference	document URI	document fragment
Locator	female terminal	document type
Parameter	first parameter	*end date*
Performance	fulfills	end date actual
Person or Organisation	is affected by	
Physical Object	is fulfilled by	
Property Type	is situated in	
Property Value	locator	
Requirement	male	
Space		
State		
Task		
Task Type		

Summary

Dutch Building Information Council

- COINS is a flexible standard for the exchange of BIM information making use of existing multiple ISO-IEC standards and semantic web technology
- It provides a data exchange and storage mechanism by means of a container or envelope for BIM related data/information
- The standard provides a semantic model comprising a small core information model which can be extended with reference information models and object libraries for specific domains
- The standard provides functionality to integrate data structures which are a combination of RDF formatted, non geometric data structures and standardize data structures like IFC and GML, object type libraries and non structured documents
- It is developed by a Dutch consortium of governmental bodies, contractors, consultants, ICT-providers and educational institutes.
- Its first edition (version 1.0) was released in 2010, followed with a minor maintenance update in 2014. Version 2.0 will be released early 2016.



Dutch Building Information Council

The COINS standard

Thank you