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ANALYSIS OF THE NEED FOR A NEW CITYGML EXTENSION: *OTHERCONSTRUCTION*

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Why?

- Some constructions to be modeled in 3D are neither *buildings* or *building parts*, nor *city furnitures*
 - Issue identified in Geonovum ImGeo, INSPIRE Building data spec, IGN BATI3D product, French Defense CityGML profile
- Dutch ImGeo identifies 3 types of other constructions
 - Built structures that do not match the definition of *building* (sheds, bunkers, tanks...)
 - Engineering structures, that can't be considered *city furnitures* (pylons, locks, dams, culverts...)
 - Linear separation features (fences, walls...)

Semantics

- « **other constructions** » are defined in contrast to « **buildings** »
 - CityGML does not define buildings
- **Other semantic sources**
 - ImGeo/NEN (Netherlands)
 - INSPIRE Building Data Specification
 - Ordnance Survey (Great Britain)
 - DGIWG Data Dictionary (DFDD)
 - SIG3D (Germany)
- **Building characteristics have been identified and compared**
 - Roofed
 - Permanent
 - With foundation / Connected to earth / not portable/movable
 - Enclosed (with walls)
 - Free-standing
 - Function

What is a “building”?

	<u>Ordnance Survey</u>	<u>INSPIRE</u>	<u>DGIWG</u>	<u>IMGeo / BAG</u>	<u>NEN 3610</u>	<u>BRT / Top10NL</u>	<u>Sig3D</u>
Roofed	X		X		X	X	X
Permanent	X	X		X		X	
With foundation	X						
Connected to earth / not portable/movable	X		X	X	X	X	X
Enclosed		X		X	X	X	
Function		shelter provision, production of goods	human occupancy or habitation	accessible to humans		Accommodation commerce, traffic or labor	human occupancy, habitation or shelter provision
Free-standing			X		X	X	X

Building and « Other construction »

- **Possible characteristics of a “building”**
 - With foundations / Permanent
 - Roof
 - Walls
 - Function
 - Mainly human occupancy
- **Possible characteristics of an “other construction”**
 - Not necessarily with foundations or permanent
 - Not necessarily roofed
 - Not necessarily entirely enclosed by walls
 - Free-standing/Self-supporting
 - To be distinguished from building installations
 - Function
 - Support of human activities, not for human occupancy

How?

- **Different modeling options for other constructions in CityGML**
 - Use GenericCityObject
 - +: anything can be added
 - -: semantics is not structured
 - Use CityFurniture and _AbstractBuilding anyway
 - +: Better software support than for GenericCityObject?
 - - : semantics is not structured, “messy” modeling
 - Define ADE with defined structure and semantics
 - Dutch ImGeo proposal
- **Ongoing analysis to consolidate this ADE**
 - By Geonovum (Netherlands) and IGN (France)
 - Objectives
 - Verify that ADE structure meets the community’s requirements
 - Define clear semantics and complete attribution of ADE classes
 - Draft UML and specification text

Other discussion items

■ Scope of « other constructions »

- Different classifications in INSPIRE specifications and ImGeo ADE
- What about utility types of constructions?

■ Transverse objects

- Object *Wall* could be classified in EngineeringStructurePart, Separation or CityFurniture, depending on its function

■ Attribution

- Level of attribution for “other constructions” classes to be defined

■ Guidelines for geometric modeling

- Implicit geometries, LODs...

■ Associations between other constructions and other CityGML classes

- E.g. Railway platform object in OtherConstructions → Railway object in Transportation module

Way forward

■ Objective

- Define consolidated ADE
- If relevant, include as new module in CityGML 3.0

■ Next steps

- Finalize semantics and structure
 - **Input on the approach and discussion items described in this presentation is welcome!**
- Draft UML models
- Draft specification text

- **Target date for the consolidated ADE: CityGML SWG meeting in Frascati (Sept 2013)**