Verification of high resolution soil sealing layer

- Qualitative assessment -

Prepared by:
Slovak Republic

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from
Slovak Environment Agency to

European Environment Agency

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List of experts involved

Expert name	Field of expertise	Institution
Jozef Novacek	landcover, GIS	Slovak Environment Agency
Jan Tobik	forestry and GIS	Slovak Environment Agency
Nada Machkova	Remote sensing, GIS and sysadmin	Slovak Environment Agency

A. Reference data

Please list the reference data that is used for this verification:

1. Topographic maps

☒No ☐Yes Year: Area: Please, select:

If only a subset, then please specify the area(s):

2. Aerial orthophotos

☐No ☒Yes Year: 2002-2003 Area: Please, select:

If only a subset, then please specify the area(s):

3. Very High Resolution satellite data

☐No ☒Yes Year: 2005-2006 Area: Please, select:

If only a subset, then please specify the area(s):

4. CLC2000

☐No ☒Yes

5. Other

Name: CLC2006 Year: 2006

Area: Subset

If only a subset, then please specify the area(s):

East from 19deg30min

Name: Year: Area: Please, select:

If only a subset, then please specify the area(s):

Name: Year: Area: Please, select:

If only a subset, then please specify the area(s):

Name: Year: Area: Please, select:

If only a subset, then please specify the area(s):

Comments concerning the reference data used (if any):

B. Geometric quality

Please provide your qualitative assessment of the geometric quality of the data. The objective of this task is to perform a visual analysis of the soil sealing dataset concerning its co-registration when put in overlay with other reference datasets.

1. Check geometric accuracy:

Is there a visible shift? ☐ Yes ☐ No

If yes:

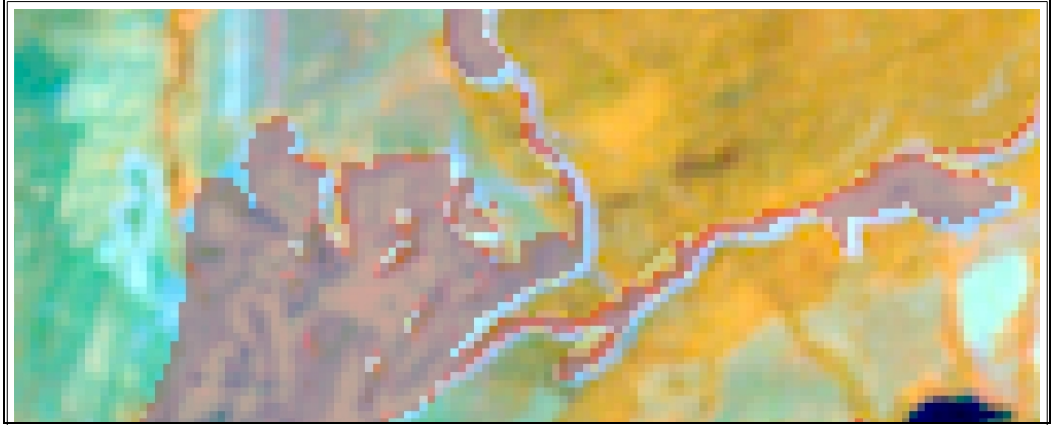
a. Is there a systematic shift? ☒ Yes ☐ No

b. Is there a local shift? ☐ Yes ☐ No

Where?

Please indicate the region, place name, coordinates or other description of location:

In general there is no shift, but in small region (around 20deg15min East and 48deg40min North) SOIL2006 is shifed approx. 2pixels NW in comparison with IMA2000 or IMA2000. See example



2. Is the used projection correct? ☒Yes ☐No

3. Comments concerning geometric issues (if any), or in case the geometric quality could not be checked, please provide a short explanation:

C. Thematic quality

Please provide your qualitative assessment of the thematic quality of the data. The objective of this task is to perform a visual comparison between available reference data and the soil sealing dataset. You are requested to verify for a number of land cover classes (similar to the CLC classes at levels 2 or 3) to check if any errors in the data can be identified. Please note that many land cover classes can include sealed surfaces, especially for features <25 ha.

For this part of the verification, it is recommended to use a binary mask (built-up/non-built-up area) that can be used in overlay with the reference data:

1. Apply a lookup table to map all pixels > 80% degree of soil sealing as built-up area;
2. Perform the checks on pixels > 80% degree of soil sealing by screening for each of the land cover classes if built-up or non built-up areas are correctly mapped. Feel free to add screenshots with examples to illustrate the quality judgement.

For your qualitative assessment, following examples of check boxes can be ticked:

☐"excellent"	meaning that you expect that the accuracy of the built-up data is reaching almost 100%; no errors could be found in the areas that were verified.
☐"good"	meaning that you are confident that the classification results are at least 85 % correct; only sporadic errors were encountered in the areas that were verified.
☐"acceptable"	meaning that you estimate that in most of the verified areas the classification results will probably reach an accuracy of 85 %; some minor errors could be detected in the areas that were verified.
☐"insufficient"	meaning that you do not expect that the classification results will reach the minimum of 85 % accuracy; you encountered several errors in different regions.
☐"very poor"	meaning that you are confident that the classification results are bad with regard to presence of built-up area; most of the areas verified are wrongly mapped.

Urban fabric:

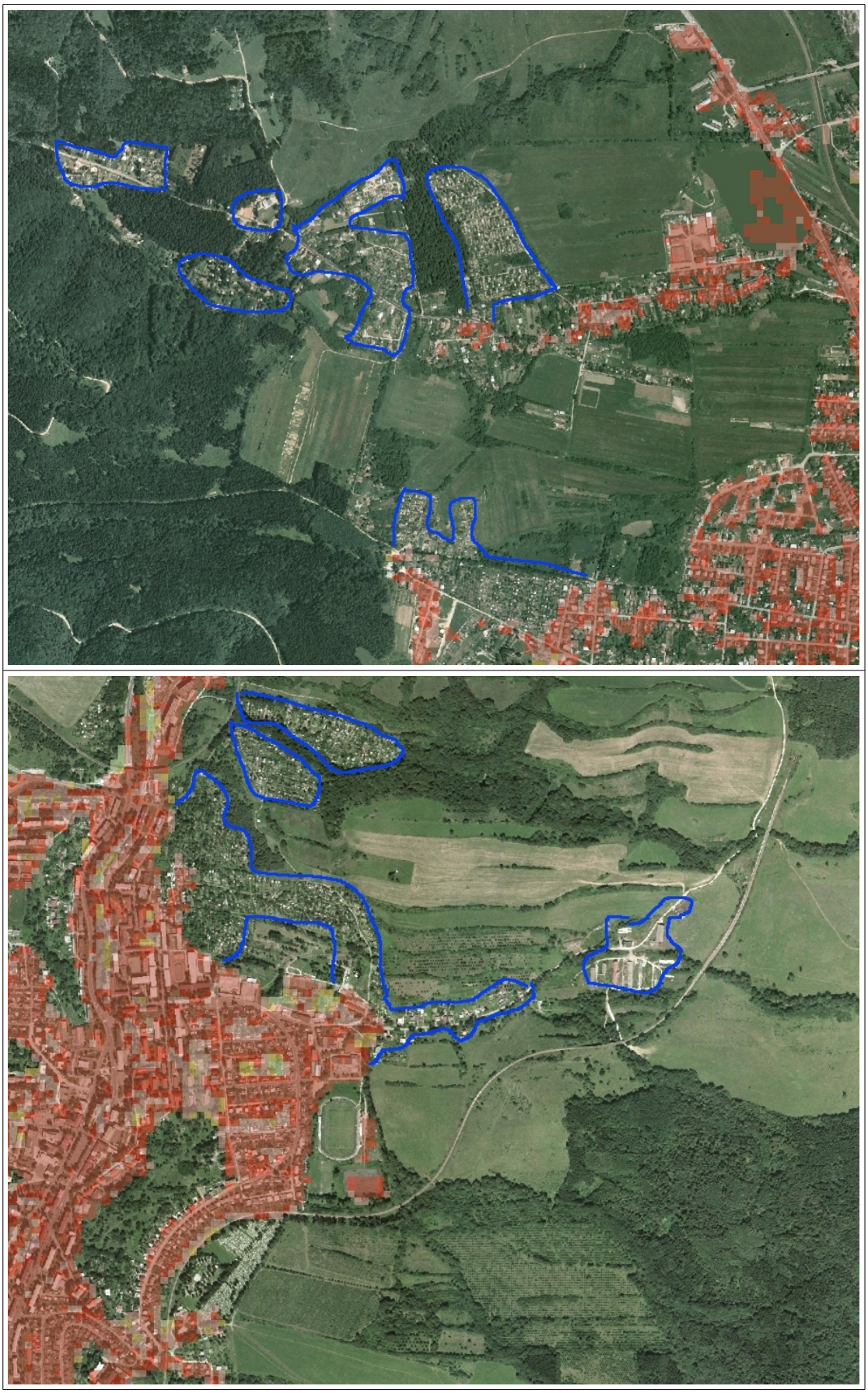
a. Did you check if built-up/non built-up areas are correctly mapped within urban fabric (e.g. houses, buildings, streets, etc.)?

☒Yes ☐No ☐Not possible

b. How would you assess the quality of the mapped built-up area within the urban fabric?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

a. Short description of errors found (if any): many new areas of clc112 near city or in the close neighbourhood of city are not classified (see enclosed 6 examples Urban Fabric)



Industrial or commercial units:

a. Did you check if built-up/non built-up areas are correctly mapped within industrial or commercial units (e.g. parking lots, buildings, etc.)?

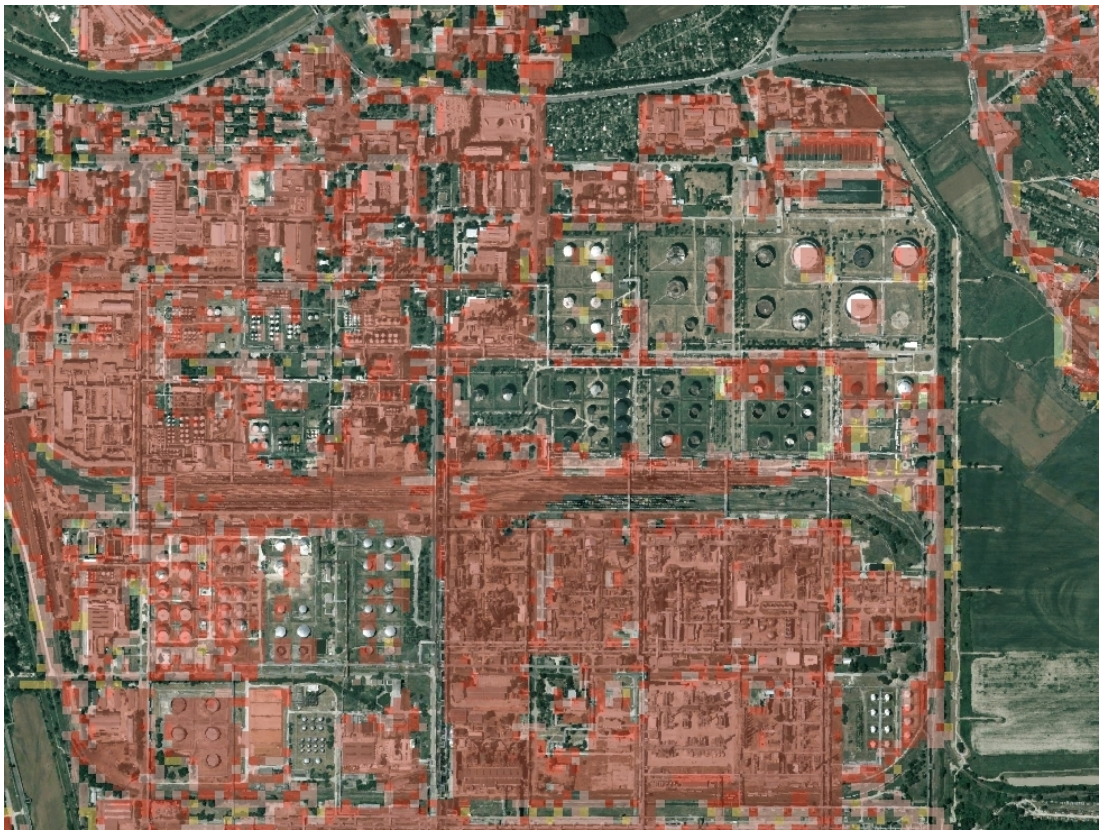
☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

b. Short description of errors found (if any): see enclosed example

Industrial units



Road and rail networks and associated land:

a. Did you check if built-up/non built-up areas within road and rail networks and associated land are correctly mapped (e.g. railway stations, highways >20 m width, etc.)?

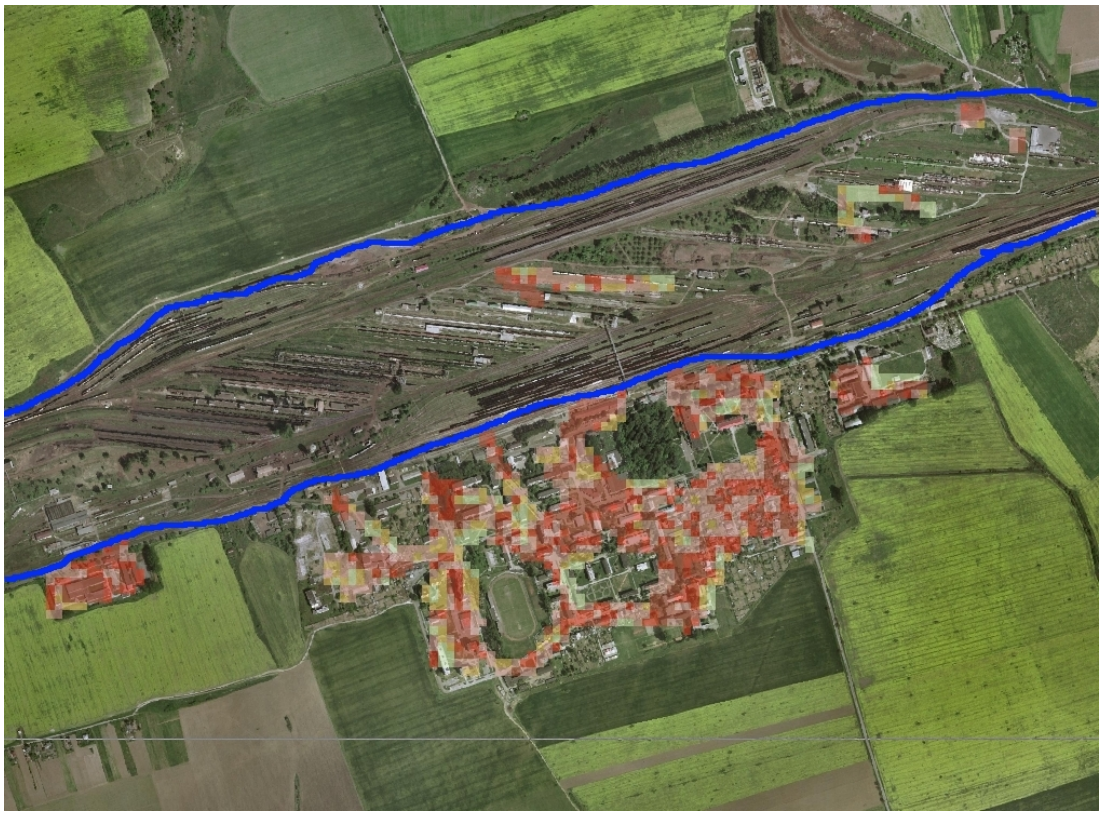
☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

c. Short description of errors found (if any): big railway stations and associated areas are missed (see enclosure Railway). Roads are acceptable, but discontinuity in classified highway routes (see enclosure Highway)

Railway



Highway

Port areas:

a. Did you check if built-up/non built-up areas in port areas are correctly mapped (e.g. installations, dykes, etc)?

☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☐acceptable ☒good ☐excellent

d. Short description of errors found (if any):

Airports:

c. Did you check if built-up/non built-up areas in airports are correctly mapped (e.g. runways, buildings, etc)?

☒Yes ☐No ☐Not possible

d. How would you assess the quality?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

e. Short description of errors found (if any): new airports are missed see enclosure

Airport

Mine, dump and construction sites:

a. Did you check if built-up/non built-up areas in mine, dump and construction sites are correctly mapped (e.g. buildings, infrastructure, etc)?

☐Yes ☐No ☐Not possible

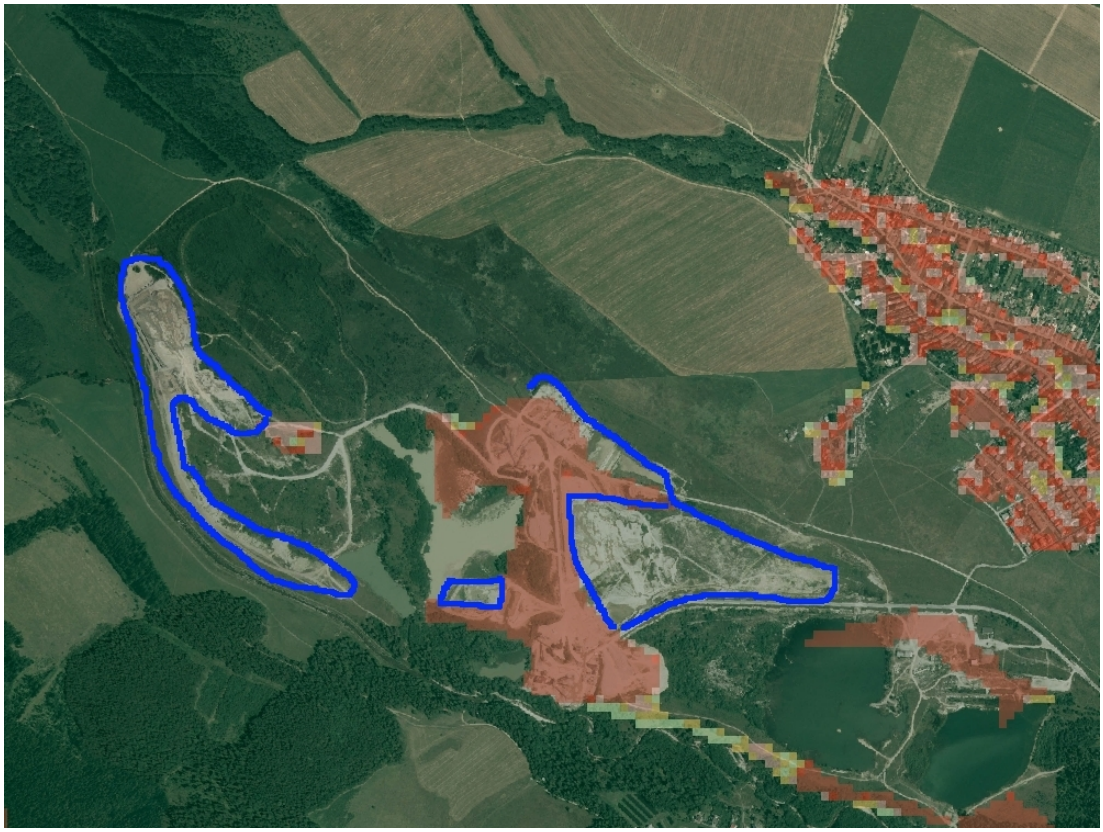
b. How would you assess the quality?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

f. Short description of errors found (if any): many sites of extraction, dump and under construction are not classified (see 4 enclosed examples 2xExcavation, Dump, Under construction)

Dump

Under construction



Excavation No.1

Excavation No.2

Arable land:

a. Did you check if built-up/non built-up areas in arable land are correctly mapped (e.g. bare soil, large farm houses, roads>20m width, etc)?

☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

g. Short description of errors found (if any): many clc112 in villages are not classified (see example Arable land)

Arables land

Heterogeneous agricultural areas:

a. Did you check if built-up/non built-up areas in heterogeneous agricultural areas are correctly mapped (e.g. buildings, roads >20m, etc)?

☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

h. Short description of errors found (if any): discontinuous urban settlements are not classified especially in cases when they does not constitute some typical structure of village and sparsely spreaded without roads (see example Heterogenous agricultural areas)

Heterogenous agricultural areas


Forest:

a. Did you check built-up/non built-up areas in forests are correctly mapped (e.g. clear-cuts, roads, etc.)?

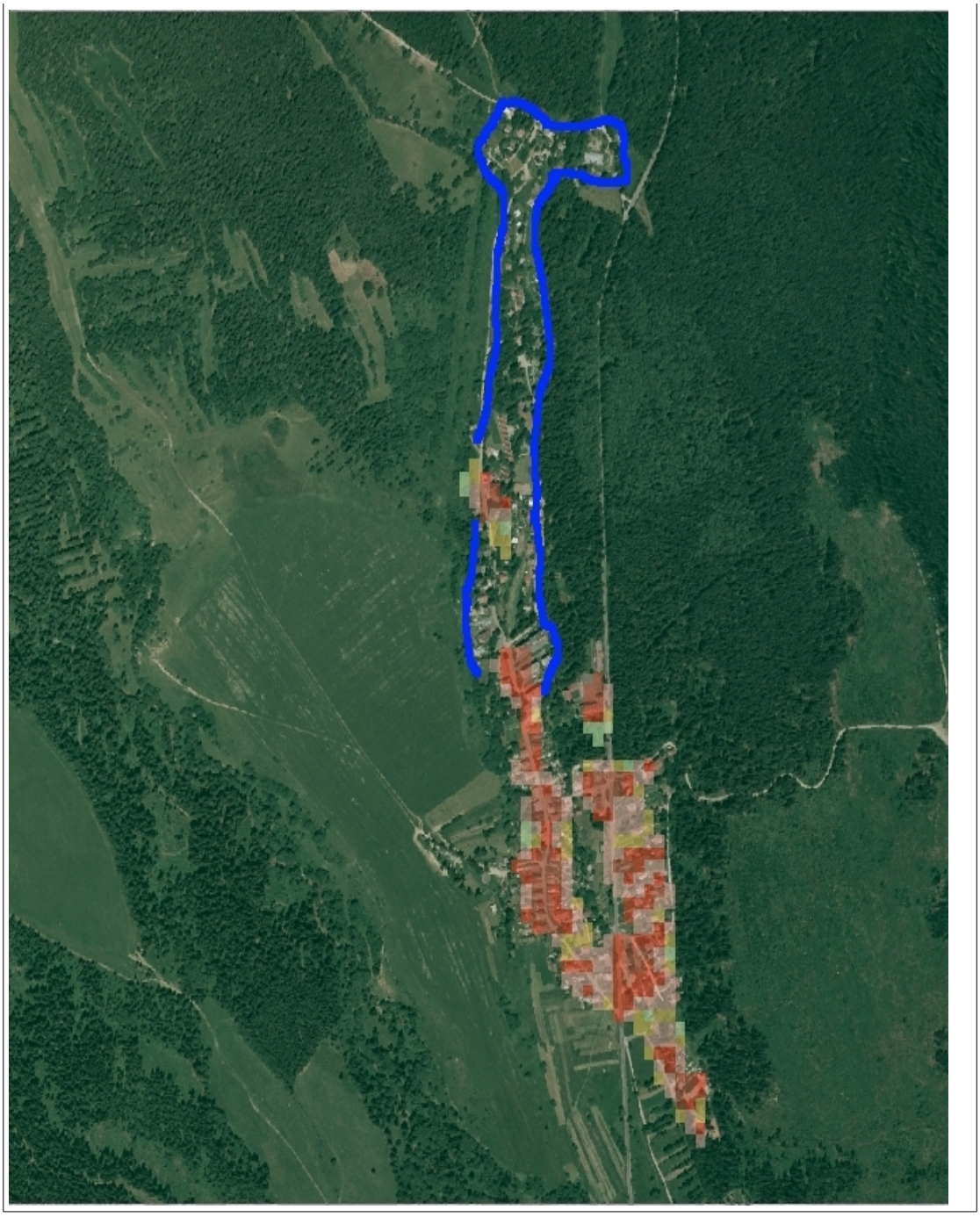
☒Yes ☐No ☐Not possible

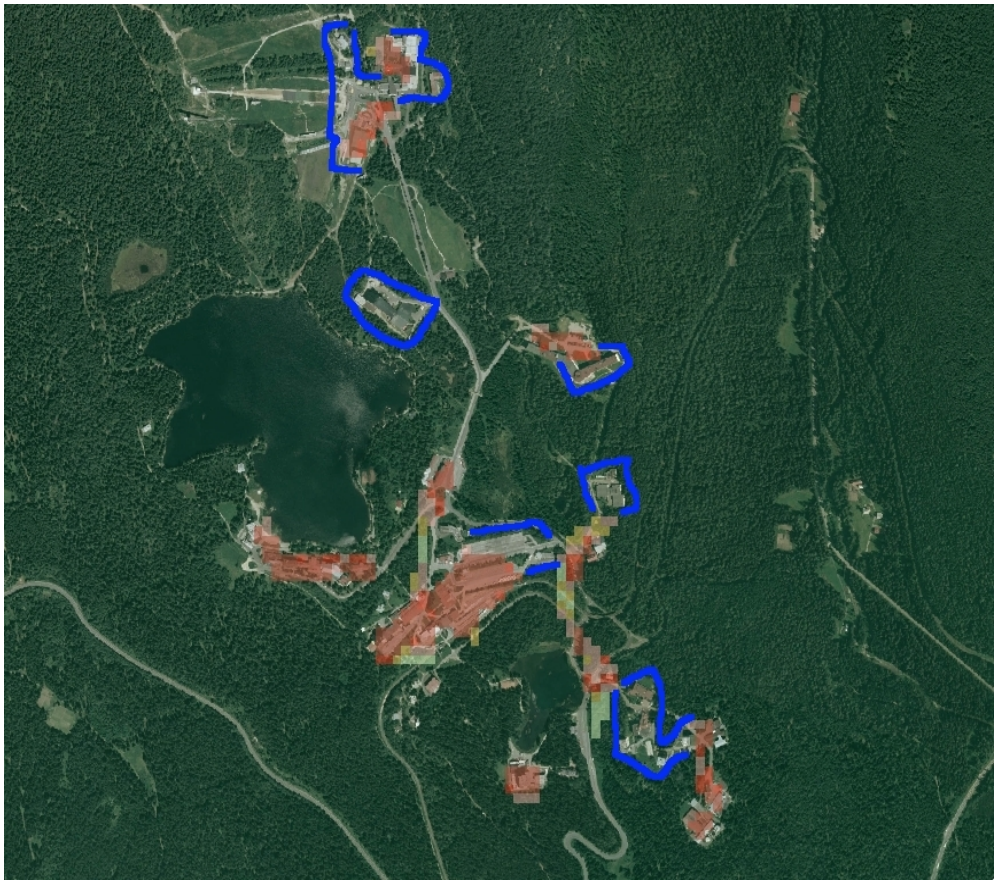
b. How would you assess the quality?

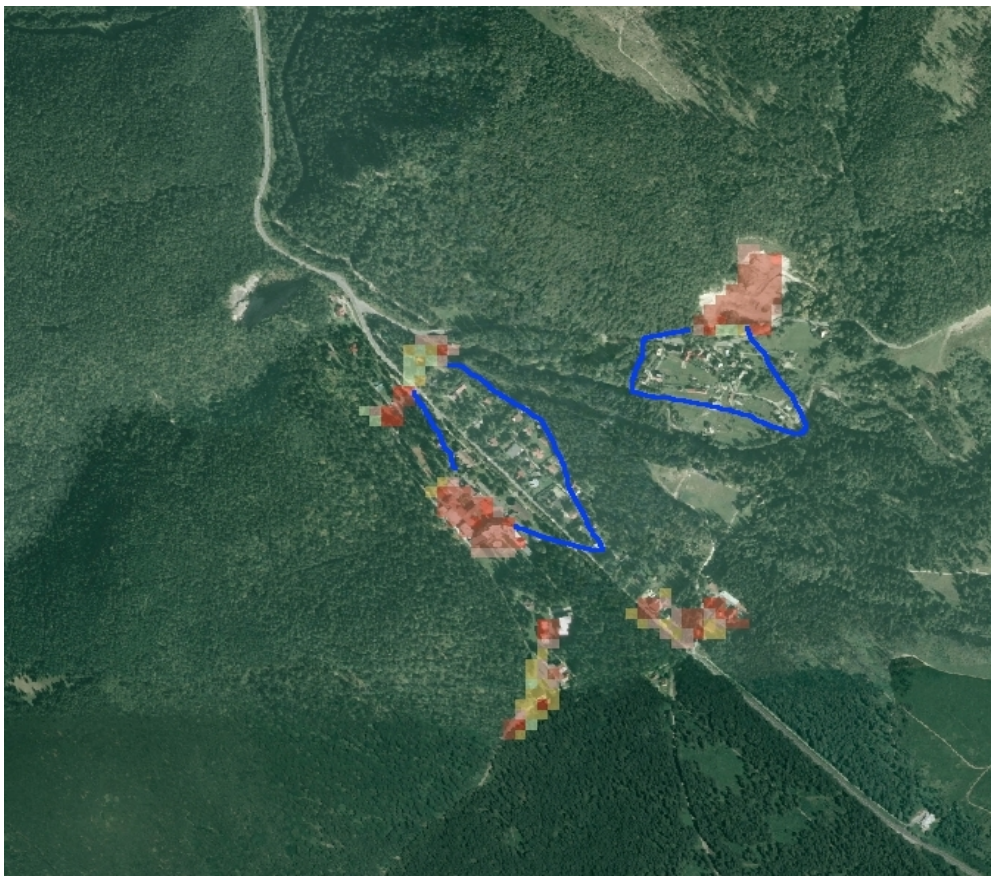
☐very poor ☒insufficient ☐acceptable ☐good ☐excellent

i. Short description of errors found (if any): please see enclosed 3 examples Forest

Forest







Scrub and/or herbaceous vegetation associations:

a. Did you check if built-up/non built-up areas in scrub and/or herbaceous vegetation areas are correctly mapped (e.g. dry vegetation, rock outcrop, etc.)?

☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☒acceptable ☐good ☐excellent

j. Short description of errors found (if any):

Beaches, dunes and sands:

a. Did you check if built-up/non built-up areas in beaches, dunes and sand areas are correctly mapped?

☐Yes ☒No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☐acceptable ☐good ☐excellent

k. Short description of errors found (if any):

Bare rocks:

a. Did you check if built-up/non built-up areas in bare rock areas are correctly mapped?

☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☒acceptable ☐good ☐excellent

l. Short description of errors found (if any):

Sparsely vegetated areas:

a. Did you check if built-up/non built-up areas in sparsely vegetated areas are correctly mapped?

☒Yes ☐No ☐Not possible

c. How would you assess the quality?

☐very poor ☐insufficient ☒acceptable ☐good ☐excellent

m. Short description of errors found (if any):

Glaciers and perpetual snow:

a. Did you check if built-up/non built-up areas in glaciers and perpetual snow areas are correctly mapped?

☐Yes ☒No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☐acceptable ☐good ☐excellent

n. Short description of errors found (if any):

Inland wetlands:

a. Did you check if built-up/non built-up areas in inland wetlands are correctly mapped?

☒Yes ☐No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☒acceptable ☐good ☐excellent

o. Short description of errors found (if any): villages are partly missing

Inland wetlands

Salines:

c. Did you check if built-up/non built-up areas in salines are correctly mapped?

☐Yes ☒No ☐Not possible

d. How would you assess the quality?

☐very poor ☐insufficient ☐acceptable ☐good ☐excellent

p. Short description of errors found (if any):

Intertidal flats:

a. Did you check if built-up/non built-up areas in intertidal flats are correctly mapped?

☐Yes ☒No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☐acceptable ☐good ☐excellent

q. Short description of errors found (if any):

Coastal lagoons:

a. Did you check if built-up/non built-up areas in coastal lagoons are correctly mapped?

☐Yes ☒No ☐Not possible

b. How would you assess the quality?

☐very poor ☐insufficient ☐acceptable ☐good ☐excellent

r. Short description of errors found (if any):

3. Comments concerning thematiccontent check (if any). Please indicate which part of the data was verified (full coverage or partial coverage, etc.):

D. Overall qualitative assessment of the dataset

The overall qualitative assessment is meant to support EEA in our contractual procedures with the service provider regarding the acceptance of the dataset. While the previous thematic quality assessment was looking at class by class, this section should provide your assessment of the quality for the whole territory.

How would you assess the overall quality of the mapped built-up/non built-up areas for the dataset provided?

☐ very poor ☒ insufficient ☐ acceptable ☐ good ☐ excellent

Please provide your final comments and additional remarks concerning overall qualitative assessment (e.g. difference in quality between regions e.g. mountains, agglomerations, coastal zones, etc), if any:

Problematic aspects of this product

- definition
- structure versus object
- overall reliability and reliability within main classes
- landuse versus landcover
- artificial objects "masked" with thin vegetation layer (dams, barrages, dumps, parking, roofs, railways etc.)

We do not recommend usage of this product for reliable modelling, GIS applications, strategic planning or regulations.

Overall checking was done in ArcMap (ESRI) at scale 1:10_000 and representative examples are enclosed.

E. Quantitative validation

Are you planning to carry out a statistical validation (quantitative assessment) of the national dataset?

☒Yes ☐No

If yes, it would be helpful to provide us information about the timing, methodological approach or any other additional information which might be available:

Detail statistical validation is planned and should be completed by the end of 2008.

Are you willing to contribute to the final validation of the European dataset (actions scheduled from the second half of 2008 onwards)?

☒Yes ☐No

Filled in by Nada Machkova

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Date: 05.05.2008

Thank you!