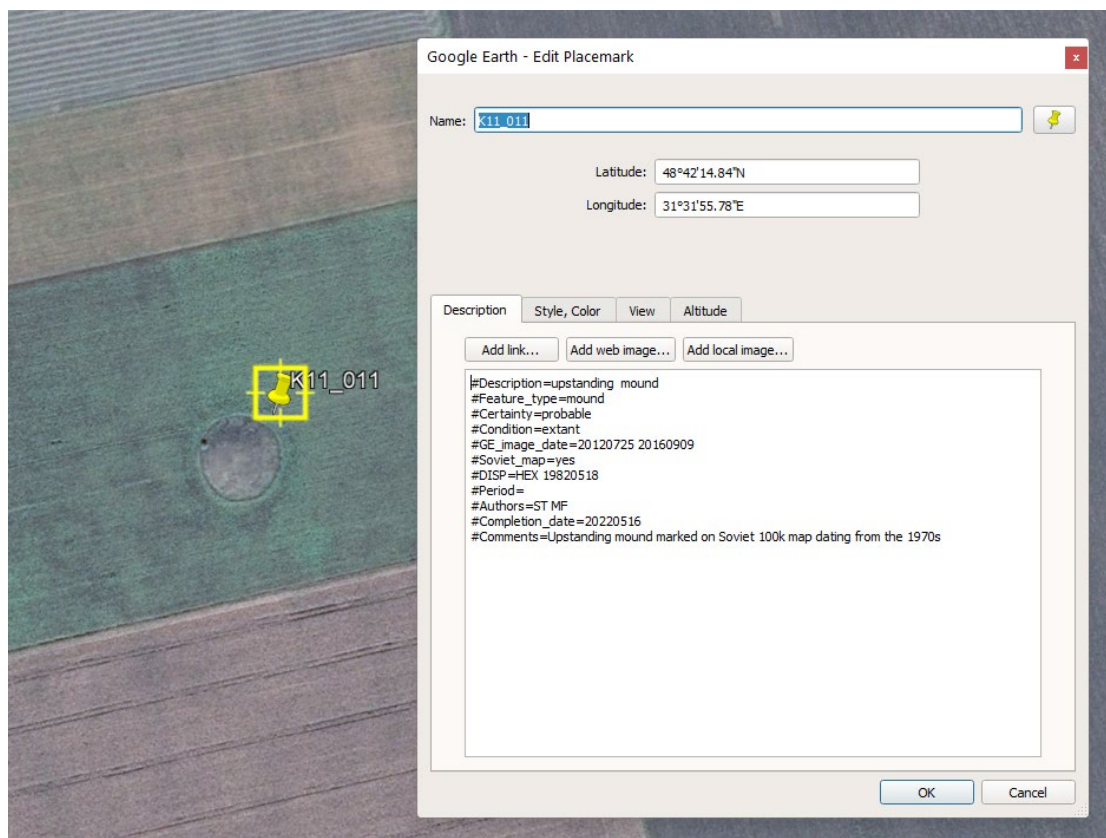


AARG UKRAINE STUDY – GUIDELINES FOR GOOGLE EARTH PLACEMARKS (VERSION 2.0.7)

Introduction

In order to transfer information relating to archaeological features identified on Google Earth (GE) images of the AARG Ukraine study area into a database, it is essential that a standardized format is used. It has been agreed that placemarks (pins) will be used to record most point features, although polygons can be used to mark some 'area' features (see below) and paths (lines) can be used to mark linear features such as tracks. Within the description panel of the placemark (see example below), the various attributes of the feature are to be recorded as a series of 'fields' defined by a hash (#) character to enable the semi-automated transfer of the data in the saved KMZ file into a database (details can be found in *AARGnews* [1]).



In the following, guidelines are provided for searching for features on GE, along with the naming convention of the placemarks and the various fields to be included in the placemark description to ensure a consistency of data recording. A set of feature types that have so far been identified is provided in a separate document on the AARG Google Drive [2] and will be updated as further types are identified.

Searching GE for features

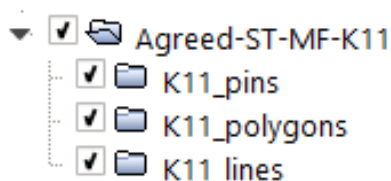
In order to systematically search GE, it is recommended that the search is started in the north-west corner of the square at a 'height' on the scale in the SW corner of the screen of around 650¹m, and systematically moved across and down the square in a 'zigzag', zooming in and out as appropriate. The various available GE images should be reviewed along with the extract from the Soviet map which is provided as a KMZ overlay. Likewise, HEXAGON images as KMZ overlays should be reviewed and any features should be recorded as placemarks as detailed below.

It should be recognised that there could be a mismatch between the locations of features seen on GE and on the Soviet map and HEXAGON image. This is because of the relatively small scale of the map (1:100,000) and slight errors in the georeferencing of the HEXAGON image. If this happens, the feature should be marked at the position shown on GE, rather than on the map or HEXAGON image.

It is recommended that the descriptions of placemarks are completed (or almost completed) as each feature is identified. This will prevent the need to populate all the placemarks, which could potentially number over 70, at the end of the search.

Folder structure in GE

For each square, pins, polygons and lines should be saved in separate sub-folders in GE prefixed by the square number as shown below:




Once you have completed your square, the main folder should be saved as a KMZ file with a filename that includes the square number, author initials and a version number (e.g. v1) that is incremented every time the KMZ is updated and saved. This is to help ensure that the data in the KMZ file and database remain in sync.

E.g.

F09-Agreed-SS-RP-v1.KMZ

KMZ files should be uploaded to the Google Earth placemarks folder on the AARG Google Drive.² Please create a subfolder for each square that you upload e.g.:

Shared with me > AARG_Ukraine > Google Earth placemarks > J11					🔗	👤	👁	🗑
Name	Owner	Last modified	↓	File size				
 J11_agreed_ST_MF_v0.2.kmz	me	11:45 me		10 KB				

¹ As a guide, this is the usual height used by RP.

² https://drive.google.com/drive/folders/1ZlbEzLX4NM5_yVQ5tp_LYInJHiGa-fJ4

Placemark pin

Pins can be placed on or adjacent to features they indicate. For a group of 'patches', a ditched feature, or trackway, the pin can be roughly centred on the group/feature. Each mound in a group of (possible) burial mounds should have its own pin so they can be visually related later in QGIS. The GE default yellow pin should be used for most features except for those features considered to be non-archaeological, but which are worthy of marking (see below). In this case they should be marked with a white pin.



Standard pin



Pin for non-archaeological feature

Linear archaeological features, such as tracks, should be marked with a yellow pin as well as with separate red line (path) to define their visible extent. A linear feature that is interrupted by field boundaries etc. should be marked by a series of lines and associated pins rather than as a single line that extends over an imagined extent. Likewise, archaeological features covering an area, such as enclosures, should be marked with a yellow pin as well as with a yellow polygon to define their extent. The placemark name of each line or polygon must be exactly the same as that of the corresponding pin to enable the pins, polygons and lines to be associated in a GIS.

For natural features that may cause confusion, white polygons can be used to outline the feature. These polygons must have an associated white pin and must be named the same as their pin. If features are too small to mark with a polygon, they can be marked with a white pin named in the square sequence.

Placemark name

The name of the placemark is defined by a combination of the square number (column and row) and the feature number within the square joined by an underscore (_):

e.g. K11_011

All pins, yellow or white, in a square must be uniquely named by incrementing the feature number part of the name. Any lines and polygons must also be named according to their associated pin.

Coordinates

The coordinates fields (Latitude and Longitude) are determined by GE and can be either in degrees-minutes-second or decimal degrees format.

Description

Field	Description	Example
#Description=	A free-text description of the feature observed at the location of the placemark. Avoid the use of commas (,) in the description as these will be removed during the transfer to the database.	#Description=Upstanding mound
#Feature_type=	The main type of feature at the location taken from a list that will be developed as we work through the study area.	#Feature_type=mound
#Certainty=	An indication of the <i>degree of certainty of the identification</i> of the pinned feature: Taken from the list: certain – supported by other evidence (e.g., marked on Soviet map, excavation, field survey) probable – most likely true as it is consistent with other known observations or examples possible – looks reasonable, but cannot say for certain doubtful – uncertain, but worth including in the database just in case.	#Certainty=probable
#Condition=	The condition of the site as observed on recent GE images. Taken from the list: extant – visible in relief on GE levelled – levelled by ploughing and no longer visible in relief, but apparent as a different tone of crop or soil. destroyed – destroyed by later development. No	#Condition=extant

Field	Description	Example
	evidence found on GE images but previously seen on Soviet maps or HEXAGON photos.	
#GE_image_date=	The date(s) of GE images on which the feature(s) can be seen. Numerical format corresponding to YYYYMMDD. Multiple dates are separated by a space. Note that the date shown at the bottom of the GE is in American format (e.g. 07/25/2012).	#GE_image_date=20120725 20160909
#Soviet_map=	Is the feature (mainly mounds) shown on Soviet maps? One of two answers: yes no	#Soviet_map=yes
#DISP=	Is the feature visible on Declassified Intelligence Satellite Photographs (DISP)? Three letter code followed by the date in numerical format YYYYMMDD. HEX (HEXAGON photo) COR (CORONA photo) GAM (GAMBIT photo) Multiple photos are separated by a space. Leave blank if not seen/no images available.	#DISP=HEX 19820518
#Period=	Period to which the feature relates (if known). Leave blank if not known.	#Period=
#Authors=	Initials of the 'authors' identifying the features separated by a space.	#Authors=ST MF
#Completion_date=	The date (YYYYMMDD) when the GE images were reviewed.	#Completion_date=20220516
#Comments=	Any further comments on the observation in free-text format. Do NOT include commas (,) as these will be removed	#Comments=Upstanding mound marked on Soviet 100k map dating from the 1970s

Field	Description	Example
	<p>during the transfer to the database.</p> <p><i>Note:</i> If you include *FLAG* as the first 6 characters of the comment, the feature will be flagged in the database. This could be useful for identifying features of note amongst the expected 7,000 that will eventually be included in the database.</p>	<p>To highlight the feature in the database:</p> <p>#Comments=*FLAG* Good example of upstanding mound marked on Soviet 100k map dating from the 1970s</p>

To help with the completion of the fields on the description part of the panel, it is suggested that the text below is saved into a text file (e.g., using Windows Notepad) and then copied and pasted into the description as each new placemark is added. The fields values can then be added to the fields:

```
#Description=
#Feature_type=
#Certainty=
#Condition=
#GE_image_date=
#Soviet_map=
#DISP=
#Period=
#Authors=
#Completion_date=
#Comments=
```

Alternatively, the Windows utility AutoHotkey[3] is a useful way to populate the description part of a placemark. A simple script is provided at the Annex which can be copied and pasted into Notepad and then saved for use with the utility. Once AutoHotkey is installed and running, the description box can be easily populated with the field list using the key combination Alt-1. The script can be populated with further hotkey commands.

References

- [1] M. J. F. Fowler, "Taming the unknown: Combining different data sources in AARG's Ukraine Project," *AARGnews*, vol. 65, pp. 29–35, 2022.
- [2] AARG Ukraine Working Group, "Feature types - descriptions and examples," 2022. <https://docs.google.com/document/d/1Lw35fhY-86DMv19y5b5TcOvVTJVREzw6/edit?usp=sharing&oid=104998669944784475965&rtpof=true&sd=true>.
- [3] "AutoHotkey." <https://www.autohotkey.com/>.

Annex

Simple script for AutoHotkey

Copy and paste the following script (starting with !1::) into Notepad and save as GE_description_fields.ahk. Note, on some systems you may need to enclose the file name in quotes (“”) to ensure the editor does not add another extension (such as .txt).

Once AutoHotkey is installed and running, the description box can be easily populated with the field list using the key combination Alt plus 1. The script can be populated with further hotkey commands.

```
!1::  
Send, {#}Description={Enter}  
Send, {#}Feature_type={Enter}  
Send, {#}Certainty={Enter}  
Send, {#}Condition={Enter}  
Send, {#}GE_image_date={Enter}  
Send, {#}Soviet_map={Enter}  
Send, {#}DISP={Enter}  
Send, {#}Period={Enter}  
Send, {#}Authors={Enter}  
Send, {#}Completion_date={Enter}  
Send, {#}Comments={Enter}  
Return
```