

Checklist for calculating Sequestered Carbon (SOC) in Soil from Removed Greenhouse Gas Carbon Dioxide (CO₂) Emissions

1	Project:	BCCR-6-00002-AGR Carbonate carbon farming project – South Bulgaria - CSBG-BG-5
2	Project code:	CSBG-BG-5
3	Project start date (dd/mm/yyyy):	17.5.2023
4	Project Monitoring period beginning (dd/mm/yyyy):	23.1.2024
5	Project Monitoring period end (dd/mm/yyyy):	15.5.2025
6	Farm beginning soil sampling date for reporting period (dd/mm/yyyy):	5.12.2023 BASE Retrospective data
7	Farm soil sampling end date for reporting period (dd/mm/yyyy):	5.12.2024 K1 In period
8	Farm contract date (dd/mm/yyyy):	13.11.2023
9	Farmer (Legal Entity):	VUKI OOD
10	UIC:	115536357

1	Gross amount of removed GHG emissions carbon dioxide (CO ₂) (note 4)	17 604	
2	Uncertainty deduction (¹ 20.7% % of Gross amount of removed GHG emissions carbon dioxide 1 (CO ₂ eq))	3 645	20.70%
3	N ₂ O emissions from mineral fertilizers (E CO ₂ eq)	300	
4	Total fuel consumption CO ₂ equivalent (note 6)	232	
5	Emissions from leakage (E CO ₂ eq)	13	
6	Adjustments to reduce removals from GHG (I CO ₂ eq)	0	
7	Net amount of GHG removed carbon dioxide (I CO ₂ eq)	13 244	
8	Refer contribution amount (2% of credits):	671	5.00%

Cell data										BASE YEAR data										1st CONTROL YEAR data										Calculations										Fuel emission factors from production equipment		21	
No	Contract data (dd/mm/yyyy)	Contract No	ERP farm ID*	EXATTE on land	Longitude	Latitude	Plot name	ERP cell ID	Depth	Area (note 1)	Crop	Date of sampling	Date of acceptance in laboratory (note 2)	LAB No	Measured organic carbon (OC)	Area (note 1)	Crop	Date of sampling	Date of acceptance in laboratory	LAB No	Bulk density (note 2)	Soil ton	Measured organic carbon (OC)	Difference in organic carbon (OC)	Content (OC) in soil	Total content (OC) in the soil	Gross amount of removed greenhouse gas emissions Carbon dioxide (note 4)	Average fuel consumption (note 5)	Total fuel consumption per hectare	Total fuel consumption CO2 equivalent	Removed emissions of greenhouse gas carbon dioxide CO ₂ when Fuel emission	ERP ID	Difference between sampling dates expressed in months (± 30 months)										
									cm	BP ha					mg/kg	BP ha					g/cm ³	ton	mg/kg	mg/kg	g/ton	ton	ton	ton/ha	ton/ha	ton/ha	ton		new	new									
																						4 800,95	4 800,95	0,000	4 800,95	17 604,95	17 604,95	64,85	225,79	17 383													
1	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45513804	42,38111776	Стеновая саважка 23426-138-2-1	002126508429	0,30	17,98	sunflower	11.12.2023	13.12.2023	iso-47-1	7490	17,98	soil wheat - winter	7.11.2024	11.11.2024	iso-106-28	1,79	96 552,60	7490	0,000	19,60									002126508429	10								
2	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45513804	42,38111776	Стеновая саважка 23426-138-2-1	002126508429	0,30	17,98	sunflower	11.12.2023	13.12.2023	iso-47-2	7630	17,98	soil wheat - winter	7.11.2024	11.11.2024	iso-106-29	1,90	102 486,00	7630	-0,003	-260,95	-228	838	0,0766	1,3773	4,7103	-843		002126508429	10									
3	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45513804	42,38111776	Стеновая саважка 23426-138-2-1	002126508429	60,90	17,98	sunflower	11.12.2023	13.12.2023	iso-47-3	3920	17,98	soil wheat - winter	7.11.2024	11.11.2024	iso-106-30	1,92	103 564,80	3920	0,000	21,85									002126508429	10								
4	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45144613	42,39057398	Бастыянык 23426-49-1-1	003126508429	0,30	18,13	oats	12.12.2023	13.12.2023	iso-47-37	7130	18,13	coriander	6.11.2024	11.11.2024	iso-106-10	1,79	97 358,10	7130	0,000	68,93									003126508429	10								
5	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45144613	42,39057398	Бастыянык 23426-49-1-1	003126508429	0,30	18,13	oats	12.12.2023	13.12.2023	iso-47-38	3360	18,13	coriander	6.11.2024	11.11.2024	iso-106-11	1,90	103 341,00	3360	0,000	0,31	-77	-281	0,0090	1,2510	4,2783	-385		003126508429	10									
6	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45144613	42,39057398	Бастыянык 23426-49-1-1	003126508429	60,90	18,13	oats	12.12.2023	13.12.2023	iso-47-39	3200	18,13	coriander	6.11.2024	11.11.2024	iso-106-12	1,92	104 428,00	3200	0,000	-145,78									003126508429	10								
7	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,48502181	42,37299076	Поляна 23426-69-1-5	005126508429	0,30	21,45	sunflower	12.12.2023	13.12.2023	iso-47-52	8550	21,45	soil wheat - winter	7.11.2024	11.11.2024	iso-106-25	1,79	115 186,50	8550	0,000	-18,31									005126508429	10								
8	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,48502181	42,37299076	Поляна 23426-69-1-5	005126508429	0,30	21,45	sunflower	12.12.2023	13.12.2023	iso-47-53	5380	21,45	soil wheat - winter	7.11.2024	11.11.2024	iso-106-26	1,90	122 265,00	4791	0,000	-80,21	-16	40	0,0766	1,6431	5,6193	-45		005126508429	10									
9	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,48502181	42,37299076	Поляна 23426-69-1-5	005126508429	60,90	21,45	sunflower	12.12.2023	13.12.2023	iso-47-54	3290	21,45	soil wheat - winter	7.11.2024	11.11.2024	iso-106-27	1,92	123 552,00	3290	0,000	82,29									005126508429	10								
10	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,48159851	42,37493987	Поляна 23426-69-1-5	006126508429	0,30	12,31	sunflower	12.12.2023	13.12.2023	iso-47-49	8830	12,31	soil wheat - winter	7.11.2024	11.11.2024	iso-106-22	1,79	66 104,70	8830	0,006	377,33									006126508429	10								
11	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,48159851	42,37493987	Поляна 23426-69-1-5	006126508429	0,30	12,31	sunflower	12.12.2023	13.12.2023	iso-47-50	3250	12,31	soil wheat - winter	7.11.2024	11.11.2024	iso-106-23	1,90	70 167,00	3250	0,007	0,91	511	1 874	0,0766	0,8429	3,2249	1 871		006126508429	10									
12	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,48159851	42,37493987	Поляна 23426-69-1-5	006126508429	60,90	12,31	sunflower	12.12.2023	13.12.2023	iso-47-51	2300	12,31	soil wheat - winter	7.11.2024	11.11.2024	iso-106-24	1,92	70 905,60	2302	0,000	41,98									006126508429	10								
13	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	70528	24,52230168	42,31466524	Немская брест 3, 70528-105-3-1	007126508429	0,30	17,26	rapeseed	13.12.2023	13.12.2023	iso-47-82	10790	17,26	grain maize	9.11.2024	11.11.2024	iso-106-124	1,74	90 297,20	10790	0,002	206,45									007126508429	10								
14	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	70528	24,52230168	42,31466524	Немская брест 3, 70528-105-3-1	007126508429	0,30	17,26	rapeseed	13.12.2023	13.12.2023	iso-47-83	9860	17,26	grain maize	9.11.2024	11.11.2024	iso-106-125	1,57	85 294,60	9860	0,001	74,63	426	1 564	0,0814	1,4050	4,8050	1 559		007126508429	10									
15	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	70528	24,52230168	42,31466524	Немская брест 3, 70528-105-3-1	007126508429	60,90	17,26	rapeseed	13.12.2023	13.12.2023	iso-47-84	6990	17,26	grain maize	9.11.2024	11.11.2024	iso-106-126	1,63	84 530,30	6990	0,002	145,42									007126508429	10								
16	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,46189074	42,38294332	Медведь норка 23426-697-1-1	008126508429	0,30	17,79	sunflower	12.12.2023	13.12.2023	iso-47-46	6005	17,79	soil wheat - winter	6.11.2024	11.11.2024	iso-106-19	1,79	95 332,40	6005	0,000	68,97									008126508429	10								
17	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,46189074	42,38294332	Медведь норка 23426-697-1-1	008126508429	0,30	17,79	sunflower	12.12.2023	13.12.2023	iso-47-47	3280	17,79	soil wheat - winter	6.11.2024	11.11.2024	iso-106-20	1,90	105 403,00	3280	0,000	16,73	105	386	0,0766	1,3827	4,6605	381		008126508429	10									
18	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,46189074	42,38294332	Медведь норка 23426-697-1-1	008126508429	60,90	17,79	sunflower	12.12.2023	13.12.2023	iso-47-48	1920	17,79	soil wheat - winter	6.11.2024	11.11.2024	iso-106-21	1,92	102 470,40	2140	0,000	19,47									008126508429	10								
19	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45979915	42,39913838	Мангустия 23426-105-1-1	009126508429	0,30	14,97	sunflower	12.12.2023	13.12.2023	iso-47-22	8210	14,97	winter barley	7.11.2024	11.11.2024	iso-106-46	1,79	89 388,90	8210	0,000	50,73									009126508429	10								
20	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45979915	42,39913838	Мангустия 23426-105-1-1	009126508429	0,30	14,97	sunflower	12.12.2023	13.12.2023	iso-47-23	5830	14,97	winter barley	7.11.2024	11.11.2024	iso-106-47	1,90	85 329,00	4765	-0,001	-91,73	-35	-129	0,0766	1,1467	3,9217	-132		009126508429	10									
21	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45979915	42,39913838	Мангустия 23426-105-1-1	009126508429	60,90	14,97	sunflower	12.12.2023	13.12.2023	iso-47-24	3480	14,97	winter barley	7.11.2024	11.11.2024	iso-106-48	1,92	86 227,20	3500	0,000	5,95									009126508429	10								
22	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45391683	42,41312324	Балкан 23426-57-1-1	010126508429	0,30	16,18	sunflower	12.12.2023	13.12.2023	iso-47-25	15510	16,18	soil wheat - winter	6.11.2024	11.11.2024	iso-106-1	1,79	86 886,00	17230	0,006	496,56									010126508429	10								
23	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45391683	42,41312324	Балкан 23426-57-1-1	010126508429	0,30	16,18	sunflower	12.12.2023	13.12.2023	iso-47-26	5910	16,18	soil wheat - winter	6.11.2024	11.11.2024	iso-106-2	1,90	87 226,00	6330	0,000	38,56	602	2 208	0,0766	1,2394	4,2387	2 203		010126508429	10									
24	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,45391683	42,41312324	Балкан 23426-57-1-1	010126508429	60,90	16,18	sunflower	12.12.2023	13.12.2023	iso-47-27	3670	16,18	soil wheat - winter	6.11.2024	11.11.2024	iso-106-3	1,92	91 596,80	3707	0,001	65,99									010126508429	10								
25	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,44445638	42,39797620	Терпентин 23426-46-1-1	011126508429	0,30	15,50	spring peas	12.12.2023	13.12.2023	iso-47-34	8830	15,50	soil wheat - winter	6.11.2024	11.11.2024	iso-106-7	1,79	89 235,00	8830	0,000	-55,90									011126508429	10								
26	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,44445638	42,39797620	Терпентин 23426-46-1-1	011126508429	60,90	15,50	spring peas	12.12.2023	13.12.2023	iso-47-35	3750	15,50	soil wheat - winter	6.11.2024	11.11.2024	iso-106-8	1,90	88 350,00	4296	0,000	30,57	99	364	0,0766	1,1873	4,0006	360		011126508429	10									
27	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,44445638	42,39797620	Терпентин 23426-46-1-1	011126508429	0,30	15,50	spring peas	12.12.2023	13.12.2023	iso-47-36	2440	15,50	soil wheat - winter	6.11.2024	11.11.2024	iso-106-9	1,92	89 280,00	2308	0,001	84,64									011126508429	10								
28	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,4619004	42,38881382	Бастыянык 2, 23426-17-5-1	012126508429	0,30	21,91	winter peas	12.12.2023	13.12.2023	iso-47-43	8810	21,91	spring oats	6.11.2024	11.11.2024	iso-106-16	1,79	117 656,70	8810	0,000	5,65									012126508429	10								
29	13.11.2022	CSBG-425C-23/EN-AGR-0008	0000000004	23426	24,4619004	42,38881382	Бастыянык 2, 23426-17-5-1	012126508429	0,30	21,91	winter peas	12.12.2023	13.12.2023	iso-47-44	4490	21,91	spring oats	6.11.2024	11.																								

Стр. 2

119	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,44338741	42,37672865	гггггггггг 1, 23426-111	042126508429	30,60	20,34	oats		11.12.2023	13.12.2023	isa-47-17	4100	20,34	oats		7.11.2024	11.11.2024	isa-106-35	1,90	115 938,00	4073	0,000	-8,93	183	670	0,0574	1,1675	3,9920	666	042126508429	10
120	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,44338741	42,37672865	гггггггггг 1, 23426-111	042126508429	60,90	20,34	oats		11.12.2023	13.12.2023	isa-47-18	3600	20,34	oats		7.11.2024	11.11.2024	isa-106-36	1,92	117 158,40	3402	0,000	-33,74						042126508429	10	
121	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,44818941	42,37537977	гггггггггг 2, 23426-111	043126508429	0,30	21,30	oats		11.12.2023	13.12.2023	isa-47-19	9680	21,30	oats		7.11.2024	11.11.2024	isa-106-37	1,79	114 381,00	15286	0,006	641,22						043126508429	10	
122	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,44818941	42,37537977	гггггггггг 2, 23426-111	043126508429	30,60	21,30	oats		11.12.2023	13.12.2023	isa-47-20	5090	21,30	oats		7.11.2024	11.11.2024	isa-106-38	1,90	121 410,00	5323	0,000	28,29	622	2 281	0,0814	1,7338	5,9297	2 275	043126508429	10
123	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,44818941	42,37537977	гггггггггг 2, 23426-111	043126508429	60,90	21,30	oats		11.12.2023	13.12.2023	isa-47-21	3210	21,30	oats		7.11.2024	11.11.2024	isa-106-39	1,92	122 688,00	2823	0,000	-47,48						043126508429	10	
124	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,45356572	42,37284709	гггггггггг 3, 23426-111	044126508429	0,30	22,98	oats		11.12.2023	13.12.2023	isa-47-13	6920	22,98	oats		7.11.2024	11.11.2024	isa-106-40	1,79	123 402,60	7295	0,000	46,28						044126508429	10	
125	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,45356572	42,37284709	гггггггггг 3, 23426-111	044126508429	30,60	22,98	oats		11.12.2023	13.12.2023	isa-47-14	4410	22,98	oats		7.11.2024	11.11.2024	isa-106-41	1,90	130 986,00	2981	-0,001	-187,18	-259	-850	0,0766	1,7603	6,0201	-856	044126508429	10
126	13.11.2023	CSBG-425C-23/28-AGRI-0008	0000000104	23426	24,45356572	42,37284709	гггггггггг 3, 23426-111	044126508429	60,90	22,98	oats		11.12.2023	13.12.2023	isa-47-15	5120	22,98	oats		7.11.2024	11.11.2024	isa-106-42	1,92	132 364,80	2228	-0,001	-118,07						044126508429	10	

Note:

¹² In case of area reduction, calculations are made on the basis of current hectares.

¹³ The volumetric density is examined once, during the first control year, and is used for calculation until the end of the monitoring period.

¹⁴ Clarification:

1st CONTROL YEAR (+) BASE YEAR apply to all cell

¹⁵ ± t sequestered organic carbon (OC) in the soil (+) 3.667 t, removed carbon dioxide (CO2) from the atmosphere in the soil (+) 3.667 carbon credits. [See Methodology].

¹⁶ Average fuel consumption (tons/ha) is calculated according to the "METHODOLOGY of the MZM".

¹⁷ 1 t of diesel is equal to 36 MJ (Ordinance No. H-18 of August 6, 2016). 1MJ is equivalent to 95.1 g CO2 [Methodology for determining the intensity of greenhouse gas emissions from the entire life cycle of fuels and energy of non-biological origin in transport]. Therefore 36 * 95.1 / 1000 = 3.42 [See Methodology].

¹⁸ ± t, removed carbon dioxide (CO2) from the atmosphere (+) 0.27248 t, sequestered organic carbon (OC) in the soil (+) 1 carbon credit. [See Methodology].

¹⁹ equal to (SAC2019-7551)

²⁰ Sources of uncertainty = 20.7 %

1. Sampling 15 % Sampling uncertainty is estimated using the RANOVA 3 approach based on Analysis of Variance (ANOVA). The total variability is partitioned into between-sample and within-sample variance components. The between-sample variance represents the sampling effect, which is then used to quantify the sampling uncertainty

2. Organic carbon analysis 8.4 % and 3. Bulk density analysis 10.3 %

Uncertainty for organic carbon and bulk density is estimated by combining precision, recovery, and bias components. The mean (average) and standard deviation are first calculated to describe repeatability. Relative standard uncertainty, u(n) (%), is derived from the standard deviation.

Recovery (wt%, %) is used to assess method performance, and bias (%) is calculated as the deviation from the reference value. The standard uncertainty of bias (5 bias) is determined from replicate measurements.

The combined bias uncertainty is then calculated as

$u_{bias} = \sqrt{v_{bias}^2 + u_{com}^2 + u_{ref}^2}$

where u_{com} represents the uncertainty of the reference or certified material.

Finally, the combined standard uncertainty (U) is expanded using a coverage factor k = 2 to obtain the expanded uncertainty, corresponding to approximately 95% confidence.

4. Software (Google Earth) 5 % Google Earth does not provide a formally specified measurement uncertainty. Published studies indicate positional accuracy on the order of tens of meters (e.g., "50 m RMSE globally). Therefore, uncertainty associated with spatial measurements is estimated based on literature values and the scale of the measured features.

	Name	Code	Date
Prepared:	D. KIROVA	DK0722CS	22.4.2025
Checked:	K. SEMERDZHEVA	KS0223CS	22.4.2025
Edited:	K. SEMERDZHEVA	KS0223CS	7.5.2026
Edited:	K. SEMERDZHEVA	KS0223CS	20.6.2026
Checked:	L. ALEXANDROVA	LA0424CS	20.6.2026