Australian Government
Clean Energy Regulator

EMISSIONS REDUCTION FUND

Sampling guidance for measurement-based soil carbon methods

This guidance is designed to clarify and improve sampling assurance processes and controls for projects using the measurement-based soil carbon methods under the Emissions Reduction Fund, including the Carbon Credits (Carbon Farming Initiative – Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

Purpose of this guidance

The Emissions Reduction Fund has three measurement-based soil carbon methods:

- The *Carbon Credits (Carbon Farming Initiative – Sequestering Carbon in Soils in Grazing Systems) Methodology Determination 2014* (the 2014 method) (closed); which incorporates the Carbon Farming Initiative Soil Sampling Design Method and Guidelines and the Carbon Farming Initiative Soil Sampling and Analysis (subsidiary documents);
- The *Carbon Credits (Carbon Farming Initiative — Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018* (the 2018 method) (closed) which incorporates The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 (a subsidiary document); and
- The *Carbon Credits (Carbon Farming Initiative – Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021* (the 2021 method); which incorporates The Supplement to the Carbon Credits (Carbon Farming Initiative – Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021 (a subsidiary document).

Each of the three methods rely on random allocation of sampling locations to be undertaken without bias to estimate changes in carbon stocks. The general steps involved in using soil samples to estimate changes in carbon stocks are[1]:

1. Develop a sampling plan for the project area
2. Sample collection
3. Sample preparation
4. Laboratory analysis
5. Calculation of the organic carbon stock from the soil samples

[1] For soil carbon projects using *model-only estimates* or *model-assisted estimates* to estimate changes in carbon stocks in accordance with schedule 2 of the 2021 method, the steps involved in sampling are different. Specific guidance for these projects is detailed in section I of this document.

6. Calculation of the change in soil organic carbon stocks over time within each carbon estimation area (CEA).

This document outlines relevant requirements and accompanying guidance designed to clarify and improve processes of developing sampling plans for soil carbon projects as well as assurance processes and controls for participants and the Clean Energy Regulator. Importantly, for participants, this can help prevent sampling rounds being invalid due to inadequate processes or record keeping.

This document is divided into the following areas of discussion:

A. Preparing for a sampling round

B. Mapping your project area

C. Ensuring random sampling in CEAs

D. Preparing your sampling plan

E. Notifying the Regulator of sampling locations

F. Preventing re-allocation of sampling points by abandoning sampling rounds

G. Independence requirements

H. Legitimacy of obstacles

I. Guidance for soil carbon projects using hybrid approaches under schedule 2 of the 2021 soil carbon method

Each section in this document identifies the relevant legislative requirements and guidance on meeting these requirements.

A. Preparing for a sampling round

The table below provides high-level guidance on how to prepare for a sampling round or the sampling component of estimation events. Further guidance on each of these steps is included in subsequent sections of this document. It is important to note that that the legislative requirements associated with these steps do differ between each of the three methods. It is critical that you review the requirements of the specific method under which your project is registered in order to understand the specific requirements that apply to your project and your obligations.

Step	Details
1. Prepare a map of your project area	You will need to prepare a geospatial map of your project area that identifies each CEA, exclusion zone, emissions accounting area and for each sampling round, strata boundaries. As part of this process, you need to think carefully about how you will delineate CEAs in your project area and stratify your CEAs to achieve your sampling objectives.
2. Determine your approach to random sampling	You will need to decide on your approach for generating and using random sampling locations.
3. Prepare and submit a sampling plan	Your sampling plan must include: • The geospatial map prepared under step 1

	• Your intended process for randomly assigning sampling locations (including reserve locations for 2018 or 2021 soil carbon projects)
4. Notify the **Regulator** of the intended location of each sample to be taken	For projects using the 2018 or 2021 method: Once you have randomly assigned your sampling locations, provide the Regulator with your intended sampling locations prior to sampling.
5. Undertake sampling	Undertake sampling for your sampling round. Ensure you consider the requirements that apply to the person undertaking the sampling and understand the requirements for sampling where an obstacle is encountered that prevents sampling.

B. Mapping your project area

Method requirements

- Each of the three methods require you to divide your project area into CEAs and where relevant, exclusion areas and emissions accounting areas[i].
- Each of the three methods require you to stratify your carbon estimation areas into at least 3 strata for each sampling round or estimation event[ii].

Guidance on meeting requirements

CEAs are used to define the areas within a project where the new or materially different management activities are undertaken, and abatement is estimated. Decisions about mapping CEAs and strata boundaries have direct implications on sampling processes and sampling costs, and should be considered carefully by project proponents. In the first instance, project proponents will need to decide:

1. Whether the project area should be split into more than one CEA; and
2. How many strata your CEAs will be split into (you are required to define at least 3 strata); and
3. The number of soil samples (cores and composites) to take from each strata (you are required to take at least 3 from each strata).

These decisions are interdependent, and it is recommended that they are considered together. The key factors influencing these decisions are discussed generally below, but there are likely to be other factors for a proponent to consider that relate to the project's particular circumstances.

Decisions about mapping exclusion areas and emissions accounting areas will depend on the eligibility requirements of the relevant method as well as broader considerations about how the requirements of the method relate to your broader land management objectives.

Deciding on the number of Carbon Estimation Areas

When preparing a map of the project area, project proponents need to consider whether to use one CEA for the entire project area or whether to divide the project area into two or more CEAs.

The size and boundaries of CEAs are typically chosen according to their land use prior to commencing the project, biophysical characteristics of the land, and management activities undertaken as part of the project. If one part of the project area is very different to another it may be better to establish more than one CEA

because the likelihood of detecting change in soil carbon stocks is greater in more homogeneous CEAs. Differences in land use, land-use history, landform, and soil type all affect the soil carbon stocks.

In addition, if one part of the project area is more at risk from a natural disturbance (e.g. erosion) then it may be worthwhile defining separate CEAs so that changes to soil carbon stocks in the disturbance-prone CEA are measured separately from the rest of the project area. If a disturbance event occurred in the disturbance-prone CEA, it may not impact the ability to detect change in soil carbon stocks over time in other CEAs.

Reasons to divide the project area into more than one CEA include:

- Parts of the project area have been subject to different land use histories.
- Different management actions are going to be applied in different parts of the project area.
- A project proponent has knowledge of how soil carbon stocks vary in the project area and they wish to incorporate this into their soil sampling plan.
- To help manage the impacts of a potential natural disturbance event.
- If it is elected to attempt to sample to the deeper soil (e.g. 1 metre), shallow soils should be separated from deeper soils.
- The cost of sampling also needs to be considered when deciding whether to divide the project area into more than one CEA. The project proponent will need to reach a compromise between the cost of sampling and the desired precision of the soil carbon stock estimates. If a project area has two CEAs, then two separate estimates of soil carbon stocks will be determined. This is likely to increase sampling costs because each CEA will need to have a certain sampling density to detect change over time. However, it could lead to increased crediting on the basis of reduced variance in carbon stocks within CEAs.

Stratification

If samples are composited across strata, the strata must be of equal area. Strata are considered to have an equal area if there is no more than 5% difference in area between the smallest and largest stratum in a CEA.

Deciding on Sampling density in each CEA

Your decision on sampling density should consider two key factors:

1. The magnitude of change over time that the sampling regime is trying to detect. More samples need to be taken to detect smaller changes in soil carbon stocks. The magnitude of change to be detected is dependent on the time between sampling rounds and the expected rate of soil carbon stocks sequestration and the way the methodology determination calculates change in soil carbon stocks; and
2. The variation in soil carbon stocks across the CEA. To detect a particular change in soil carbon stocks, more soil samples will need to be taken in CEAs which have large variation in soil carbon stocks compared to CEAs with small variation in soil carbon stocks.

The spatial variation in soil carbon stocks is one of the most important factors influencing the sampling density that will be adequate for a CEA, and spatial variation in soil carbon stocks can vary by an order of magnitude from place to place. For a given location in Australia, a larger CEA will tend to have more variation in soil carbon stocks than a smaller CEA (though the impact on precision and crediting can be mitigated through stratification).

C. Ensuring random sampling in the Carbon Estimation Areas

Method requirements

- Each of the three methods require spatial locations of soil sampling points to be allocated randomly for the baseline and subsequent sampling rounds[iii] (noting that electing offset sampling avoids the need for subsequent sample re-allocation under the 2014 method[iv]).
- Each of the three methods require the use of a pseudo-random number generator with a defined or known seed number to allocate the random spatial locations[v].
- Processes for generating and using random sampling locations for sampling rounds will need to meet the following requirements for each of the methods. Participants can choose from two options to meet the requirements – a **default assurance approach (option a)** and a **pre-approved assurance approach (option b)**[vi]. The requirements of each approach are paraphrased below (from the relevant document for each of the three methods):

  A pseudo-random number generator with a defined seed number must be used to assign the sampling locations for each stratum, where either:

  a. *all of the following apply:*

     i. *the process and plan to link the numbers generated by the pseudo-random number generator to sampling locations, and determine which samples are combined into composites, is prepared and documented.*

     ii. *the prepared process and plan (from I. above) are provided to, and receipt acknowledged by, the Clean Energy Regulator before random numbers are generated and applied.*

     Note: As at 301 November 2021, an automatic email inbox has been provided by the Clean Energy Regulator for this purpose. Receipt is acknowledged with an email. The address of this inbox is ERF-SoilSamplingPlans@cer.gov.au.

     iii. *the outputs of the pseudo-random number generator used are verifiable and suitable evidence of this is maintained.*

     iv. *the process and plan use a defined unpredictable seed number which is not known at the time the process and plan is developed (such as the ASX 200 index reported by asx.com.au at a future specified date/time).*

     v. *evidence the plan (from iv. above) was followed for sampling is recorded and included in offset reports.*

     vi. *after the plan is provided to the Regulator, the boundaries of CEAs and strata must not be varied for the sampling rounds covered by the plan.*

     vii. *the approach is transparent, reproducible and auditable.*

     viii. *the approach achieves a genuinely random allocation of sampling locations; or*

  b. *the process applies an approach pre-approved by the Regulator for generating and using random sampling locations. Such approaches may be approved for individual projects or generally in guidance published by the Regulator for the purposes of this subparagraph. Applications for individual approvals must be made by the project proponent for the project.*

Guidance on meeting requirements for the default assurance approach (option a)

- Sampling processes that follow the default assurance approach do not require prior approval from the Regulator.
- Participants should consider that submitting a sampling plan to the Regulator will lock in the CEA and strata boundaries for sampling rounds covered by that plan (whether baseline or subsequent sampling rounds).
  - » Where sampling plans cover more than one sampling round it will remove the opportunity to adjust strata in response to sampling results of the first, or subsequent, sampling rounds covered by the plan.
  - » Adjusting strata between sampling rounds is only permitted under the 2018 and 2021 methods.
  - » While the 2014 method does not allow for changing strata for the project duration[vii], covering too many sampling rounds in a sampling plan could reduce strata flexibility if the project transitions to the 2021 method for those sampling rounds.
- Participants can consider using a sampling process and plan that includes the ability to include additional sampling points beyond the minimum requirements if they wish to have the ability to increase sampling density.
  - » Changing sampling density needs to be performed in accordance with the methods and their subsidiary documents.
- Participants can provide sampling processes and plans to the Regulator for compliance with part (ii) of the default approach by emailing the process and plan to: ERF-SoilSamplingPlans@cer.gov.au
  - » Receipt is considered acknowledged by the Regulator with an email.
  - » Participants should be confident that the process for assigning locations meets the requirements in part a above prior to submitting their sampling processes and plans.
  - » It is therefore recommended that participants still discuss the consistency of their approach with the default assurance approach with the Regulator prior to submitting their sampling plan to the above inbox. To arrange a discussion about the default assurance approach, contact: CER-ERFSoilSavannaandAgriculture@cer.gov.au.
  - » Multiple sampling plans for the same sampling round in a project should not be created as this would conflict with part (viii) of the default assurance approach.
- Proponents will need to demonstrate their compliance with the plan in the subsequent offset report (including baseline and subsequent sampling rounds). The evidence will depend on the particulars of the approach but could include:
  - » How the unpredictable seed number was obtained.
  - » The outputs of the pseudo random number generator for that seed number, which could include output logs, screenshots, etc.
  - » If suitable outputs cannot be extracted from the generator (which should be done at the time the samples are allocated), the software may still need to be available to the Regulator and auditors.
  - » Outputs from sampling software which show the process to link this number followed the sampling plan.
  - » The allocated sampling locations.

- Participants should contact the Regulator as soon as possible if exceptional circumstances prevent a sampling plan from being followed to discuss remedial steps to ensure principles of random allocations are maintained.
    - » If sampling is conducted in a manner inconsistent with the default assurance approach, it may be considered ineligible when reporting years later.

Guidance on meeting requirements for the pre-approval of random sampling approaches (option b)

- As new business systems and processes develop, the Regulator may publish new pre-approved approaches that simplify assurance processes for participants.
- Participants may propose alternative approaches for generating and using random sampling locations for sampling rounds for either publication or individual application in their project(s).
- Participants must demonstrate that they have a robust approach that assures that once spatial locations are allocated using a pseudo-random number generator, they are not able to be re-allocated, including removing opportunities after initial sample allocation to redefine:
    - » random seed numbers and how random numbers are produced;
    - » CEA or strata boundaries; or
    - » the means by which random numbers are related to sampling locations.
- Approaches must also be transparent, reproducible and auditable and achieve a genuinely random allocation of sampling locations.
- Proposed approaches should also consider appropriate accompanying reporting requirements to demonstrate that the sampling plans have been followed.
- Participants can request that pre-approved approaches be published for use by other participants (as an alternative to the default approach).
    - » Publishing approaches for use across different projects and participants may reduce audit costs and reduce the need for project-specific consideration of the approach by auditors.
    - » Participants that do not elect for their approach to be published will have their approach protected under the scheme's usual project information disclosure requirements.

D. Preparing your sampling plan

Method requirements

- Each of the three methods requires that a sampling plan is prepared for the baseline sampling round and updated for subsequent sampling rounds[viii].
- Each of the three methods requires that the sampling plan includes geospatial information that identifies the boundaries of the project area, CEAs, strata, emissions accounting areas and exclusion areas[ix].
- Projects using the 2014 method are also required to include intended sampling locations in the sampling plan[x].
- If composite sampling is used, it is a requirement that the sampling plan include how composites will be combined prior to undertaking sampling[xi]

Guidance on meeting requirements

- To streamline the process of preparing for a sampling round, it is recommended that projects using the 2018 and 2021 methods also include their process for assigning random locations in their sampling plan. Sampling plans should be submitted to: ERF-SoilSamplingPlans@cer.gov.au.

E. Notifying the regulator of sampling locations

Method requirements

- Projects using the 2018 and 2021 methods are required to notify the Regulator of their intended sampling locations prior to commencing the sampling round[xii].
- Projects using the 2014 method are required to include their process for assigning random locations in their offsets reports[xiii].

Guidance on meeting requirements

- For projects using the 2018 and 2021 methods, the submission of a final sampling plan can include the sampling locations (after the process for allocating sampling locations has been completed), avoiding the need for a separate notification.

  »

- Participants that will be finalising their strata boundaries in-field prior to allocating sampling locations will need to ensure that they can access the internet such that the process for allocating sampling locations and the sampling plan can be provided to the Regulator prior to commencing sampling.

  » If internet access is not available, strata boundaries must be finalised and samples allocated before going in-field, or an alternative approach for allocating sampling locations (not the default assurance approach) must be pre-approved by the Regulator.

F. Preventing re-allocation of sampling points by abandoning sampling rounds

Method requirements

- The assigned locations of sampling rounds must be set out in the sampling plan for projects[xiv].
- Unless exceptional circumstances apply, sampling in accordance with a proposed process and plan must not be abandoned and started again[xv]. Exceptional circumstances would include unforeseen events that make carrying out the process and plan impossible, or other circumstances that the agency agrees, in writing, are exceptional[xvi].

Guidance on meeting requirements

There is the possibility that unfavourable sampling rounds could be discarded and result in bias in the sampling process. To provide assurance that this does not occur:

- Once sampling locations are allocated in sampling plans, the results from the allocated (or offset/reserve) locations must be included in offset reports.
- It is not acceptable to re-allocate sampling locations if the sampling round is postponed or ceased part-way through—though exceptional circumstances may be discussed with the Regulator in advance of the sampling window closing.
- When following the **default assurance process** for the random sampling in the CEA (see option a in section C. above), participants must provide sampling plans to the Regulator prior to sampling. This

commits the proponent to undertake and report on sampling rounds for which they allocated sampling locations, assuring that sampling rounds will not be abandoned.

- When following the **pre-approved assurance approach** (option b in section C above), participants will need to provide alternative assurance to the Regulator that show all sampling rounds have been reported.

G. Requirements for the person undertaking sampling

Method requirements

- Each of the three methods require that a qualified person undertake sampling[xvii].
- The 2018 and 2021 methods also require that the person who undertakes the sampling has no financial interest in the project and is different to the person who prepared or reviewed the land management strategy for that project[xviii].
- Projects using the 2014 method are required to provide a statutory declaration signed by the person carrying out sample collection stating that the sample collection and preparation has been undertaken in accordance with the CFI soil sampling and analysis method[xix].

H. Legitimacy of obstacles

Method requirements

- For the 2014 method: If the sampling location is obstructed by a tree, a large immovable rock or any other obstruction that prevents soil sampling at the intended sampling location, then the actual sampling location is to be located by moving north (0 degrees) until the obstacle is cleared (an offset location)[xx]. Further instructions apply if this falls outside the stratum boundaries. The coordinates of the actual sampling location must be recorded (see s3.6 of the Carbon Farming Initiative Soil Sampling Design Method and Guidelines).
- For the 2018 and 2021 methods: Proponents can either offset the allocated sampling location (similar to the above process) or use a reserve list of sampling locations allocated at the same time as the sampling locations are assigned[xxi].
- Samplers must ensure that any offset sample points are still taken within the strata and/or CEA that the sample was assigned to, or may risk the sample, or entire sampling round, being non-compliant[xxii].
- Time and location-stamped photographic or video evidence of obstacles that changed the intended sampling location(s) of a sample must be provided with each offset report[xxiii].

Guidance on meeting requirements

- Projects using the 2018 or 2021 methods that are unable to extract a core to the nominated depth (or baseline nominated depth for the latter method) are permitted to re-attempt extraction in a proximate location (as per the requirements set out in each method).
  - » This is to ensure the soil depth is not under-estimated due to dispersed rocks, etc.
  - » Further attempts at extraction will need to be justified and documented.
- Where evidence is needed of underground obstacles (shallow rocks, etc.), it is suggested to film core extraction attempts or readings on core extraction equipment (e.g. pressure gauges, etc.).
- For projects using the 2018 or 2021 methods where the core extraction fails to reach the nominated depth (or baseline nominated depth for the latter method) for several attempts the final sample should

be analysed, and the actual sampling depth reported (noting that all attempts will need to be justified and documented)

  - This prevents soil depth from being over-estimated in the strata (e.g. by not accounting for areas of bedrock) by moving away from areas of bedrock.

- Should there be any doubt in the method requirements, hazards are considered obstacles.
  - This could include trees with overhanging limbs, powerlines, and other hazards that were unintentionally missed from exclusion areas, such as pipelines etc.
- Using GPS-enabled video or photo devices with time and location turned on is preferable for obstacle evidence.

I. Guidance for soil carbon projects using hybrid approaches under schedule 2 of the 2021 soil carbon method

Method requirements

- As per measurement-based (or Schedule 1) approaches, sampling locations are determined prior to any core extraction in a given stratum for a given sampling round, with the following exception:
  - Allocation of new sampling locations for the purposes of collecting model-validation samples if the CEA is selected for sampling (when model-only approaches have been used and a previous sampling plan has been submitted for calibration sampling). However, the model-validation sampling locations must be determined before the collection of those samples and a revised sampling plan submitted to the Regulator for this purpose.
- The sampling plan must have identical strata to the geospatial model estimation map (for calibration or validation sampling).
- Calibration samples must be collected before modelled carbon stock estimates are provided to the Regulator[xxiv].
- The model-validation sampling locations must be allocated after the modelled carbon stock estimates have been provided to the Regulator[xxv].
- Model validation samples must not be composite samples[xxvi].
- If calibration sampling has occurred in a CEA, the model-validation samples must be collected within a period where the first calibration sample and the last model-validation sample are collected within 120 days.
  - **Note**: The two-part sampling round is divided by the provision of model estimates to the Regulator. If calibration sampling has occurred in a CEA, sample allocation must reoccur for the model-validation samples.
- Enough samples must be collected from each stratum to compare three unique model estimations to three unique sampling locations where each sampling location corresponds to one of the modelled areas (polygon or raster units within each stratum).

Guidance – calibration sampling

- Calibration sampling may be used to calibrate models to provide better model estimations.
- Calibration sampling can occur using the method's protocols (that is be included in sampling plans which are provided to the Regulator) or more bespoke protocols which may be better suited to the calibration

needs of the model (in which case the samples cannot contribute to a measurement-based estimate should the model estimates be too uncertain to enable crediting).

- Calibration samples that may contribute to measurement-based estimates (and so are included in sampling plans) cannot be composite samples as model validation samples cannot be composites[xxvii] and both must be included in a sampling plan and contribute to the same estimation event.
- Undertaking calibration sampling using the method's protocols means that a measurement-based estimate using both the calibration and validation samples may have lower sampling variance than a model-assisted estimate using only the validation samples due to the higher number of samples in the calibration and validation sampling round. In this case, a measurement-based estimate will be used to calculate net abatement consistent with method's requirement to use the estimate with lowest sampling variance[xxviii].

Guidance – model-validation sampling

- Allocation of model-validation sampling locations occurs after modelled carbon stock estimates have been provided to the Regulator and the CEA has been selected for sampling in a model validation sub-group to result in a model-only estimate, or have been nominated for sampling to result in a model-assisted estimate.
- Participants will need to allocate (but not necessarily collect) more sampling locations than the minimum number of samples in each strata to compare three unique model estimations to three unique sampling locations where each sampling location corresponds to one of the modelled areas (polygon or raster units). This is because two or more sampling locations could land in the same modelled areas
  - » The finer the scale of modelled areas, the less likely this is to occur.
  - » Allocating more sampling locations than are intended to be collected is also necessary to allow for reserve locations should samples not be able to be collected from some sampling locations (in accordance with Section H. Legitimacy of obstacles).
- Participants should consider that as per the measurement-only approach, collecting more samples than the minimum both:
  - » should result in a mean carbon stock estimate that is closer to the underlying (true) mean of the strata, and
  - » reduced sampling variance of a model-assisted or measurement-based estimate — and extrapolated estimates of sampling variance in model-only CEAs (reducing discounting).

Disclaimer

This document does not address all requirements in the legislation and subsidiary materials (guidelines and supplements) that must be met by participants.

[i] Section 3.1 of the Carbon Credits (Carbon Farming Initiative) (Sequestering Carbon in Soils in Grazing Systems) Methodology Determination 2014, section (17) of the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, and section (5) of schedule 1 and section (6) of schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[ii] Section 4.2 of the Carbon Credits (Carbon Farming Initiative) (Sequestering Carbon in Soils in Grazing Systems) Methodology Determination 2014, section (18) of the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, Part B section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, and Part B section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[iii] Clause E.2 of the CFI Soil sampling design method and guidelines, Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[iv] Clause F.2 of the CFI Soil sampling design method and guidelines

[v] Clause E.2 of the CFI Soil sampling design method and guidelines, Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[vi] Clause E.2 of the CFI Soil sampling design method and guidelines, Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[viii] Clause A.1 of the CFI Soil sampling design method and guidelines, Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[ix] Clause A.1 of the CFI Soil sampling design method and guidelines, Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[x] Clause A.1 of the CFI Soil sampling design method and guidelines

[xi] Clause A.1 of the CFI Soil sampling design method and guidelines, Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xii] Section (31) of the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, and section (34) of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021

[xiii] Clause H.2 of the CFI Soil sampling design method and guidelines

[xiv] Clause A.1 of the CFI Soil sampling design method and guidelines, Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xv] Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part B section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xvi] Section 4.11 of the Carbon Credits (Carbon Farming Initiative) (Sequestering Carbon in Soils in Grazing Systems) Methodology Determination 2014, section (16) of the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, and section (4) of schedule 1 and section (5) of schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xvii] Clause A.1 of the CFI Soil sampling and analysis guidelines, section (19) of the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, and

section (7) of schedule 1 and section (8) of schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xviii] Section (19) of the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018, and section (7) of schedule 1 and section (8) of schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xix] Clause A.5 of the CFI Soil sampling and analysis guidelines

[xx] Clause E.3 of the CFI Soil sampling and analysis guidelines

[xxi] Part C section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part C section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xxii] Clause E.3 of the CFI Soil sampling and analysis guidelines, Part C section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part C section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xxiii] Clause G.1 of the CFI Soil sampling and analysis guidelines, Part C section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018 and Part C section 1.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xxiv] Subsection (3)(4) of Schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xxv] Part E section 2.0 of The Supplement to the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xxvi] Subsection (3)(3) of Schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.

[xxvii] Subsection (3)(3)(b) of Schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021

[xxviii] Subsection (14)(2) of Schedule 2 of the Carbon Credits (Carbon Farming Initiative—Estimation of Soil Organic Carbon Sequestration using Measurement and Models) Methodology Determination 2021.