



Geospatial Mapping Information Standard

Emissions Trading Scheme (Forestry) ETSMAPS.8

3 August 2023

TITLE

MPI Standard: Geospatial Mapping Information Standard

COMMENCEMENT

This MPI Standard was prescribed on 28 July 2023, and comes into force on 9 August 2023

REVOCATION

This Standard revokes and replaces the *Geospatial Mapping Information Standard* issued 9 January 2023.

ISSUING AUTHORITY

This *Geospatial Mapping Information Standard* (the Standard) is issued pursuant to regulation 14(1) and (2) of the Climate Change (Forestry) Regulations 2022 (the Regulations), which are authorised under section 163(1)(d)(ii) of the Climate Change Response Act 2002 (the Act).

Dated at Wellington, 3 August 2023



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Introduction

This introduction is not part of the MPI Standard, but is intended to indicate its general effect.

Purpose

This Standard prescribes the method for determining, and format of, the geospatial mapping information that a person must provide to comply with the requirements of the Act and the Regulations.

The Standard includes:

- A summary of the circumstances in which geospatial mapping information must be supplied under the Regulations.
- A description of the geospatial mapping information that must be supplied under the Regulations.
- Specification of the procedure for mapping an area of ETS forest land when required by the Regulations.
- Requirements for mapping within land title legal boundaries.
- Specification of the options available for creating and submitting digital geospatial mapping information.
- Specification of the format for digital geospatial mapping information.
- A description of how the spatial extent of the clear-felled land will be determined

Background

Regulation 13 of the Climate Change (Forestry) Regulations 2022 (“the Regulations”) states that if the regulations require a document to be submitted with geospatial mapping information about an area of land, the information must include the spatial extent of the area of land determined in accordance with guidelines or standards issued. This Standard is issued under regulation 14(1) and (2) and must be provided in the format prescribed by the Director of Forestry & Land Management in Te Uru Rākau – New Zealand Forest Service at MPI

acting under delegated authority of the Director-General of MPI, who has delegated authority from the Environmental Protection Authority (EPA).

Who should read this MPI Standard?

This Standard should be read by Emissions Trading Scheme (ETS) participants, those considering registering land in the ETS, forestry consultants and other industry professionals.

Why is this important?

The information contained in this Standard is required to complete actions participants must undertake, or instruct a representative to undertake on their behalf, while registered in the ETS.

Document History

Version Date	Section Changed	Change(s) Description
24 June 2015		
1 January 2023	Entire document	All sections of the Standard have been updated in line with the new regulations and the development of the new online ETS system, Tupu-ake. The Standard was

		also reformatted to meet updated MPI branding guidelines.
3 August 2023	Various sections throughout document	Table 1 in section 1.8 was replaced in line with the second major release of the new online ETS system, Tupu-ake. All sections of the Standard have been updated to align with this change.

Other information

- Guidance on practical implementation of this Standard can be obtained from [A guide to Mapping Forest Land for the ETS](https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/mapping-and-managing-forest-land-in-the-ets/how-to-map-forestry-for-the-emissions-trading-scheme/) and [How To Map Forest Land In The ETS](https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/mapping-and-managing-forest-land-in-the-ets/how-to-map-forestry-for-the-emissions-trading-scheme/). These are both available at: <https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/mapping-and-managing-forest-land-in-the-ets/how-to-map-forestry-for-the-emissions-trading-scheme/>
- The Tupu-ake¹ system utilises geodesic area calculation to ensure consistent calculations across New Zealand, which includes the Chatham Islands. Participants providing mapping outside of Tupu-ake should continue to use the Chatham Islands Transverse Mercator 2000 when appropriate.
- The Ministry for Primary Industries (MPI) holds delegated authority from the Environmental Protection Authority (EPA) to make and issue this Standard. Te Uru Rākau – New Zealand Forest Service is the branch of MPI responsible for forestry in the Emissions Trading Scheme (ETS). Guidance documents, web content and forms will be issued by Te Uru Rākau – New Zealand Forest Service.
- Guidance on the shapefile schema for P89 forest land registration applications can be obtained from: <https://www.mpi.govt.nz/dmsdocument/58147-shapefile-schema-for-post-1989-forest-land-entering-the-ETS->
- Guidance on the shapefile schema for areas of clearing and replanting can be obtained from: <https://www.mpi.govt.nz/dmsdocument/54613-Shapefile-schema-clearing-and-replanting>

References

- The Climate Change (Forestry) Regulations 2022 can be found at: <https://www.legislation.govt.nz/>
- The Climate Change Response Act 2002 can be found at: <https://www.legislation.govt.nz/>
- The Environmental Systems Research Institute (ESRI) Shapefile Technical Description White Paper, dated July 1998, contains technical specifications for GIS files. The Paper can be found at: <https://support.esri.com/en/white-paper/279>

¹ Tupu-ake became the ETS online system from January 2023, replacing CCIS for ETS participants.

Part 1: Requirements

1.1 Definitions

- (1) In this Standard, unless the context requires otherwise

Coincident means points that have the same x-, y-, and z-coordinates.

Land parcel boundary means the spatial boundaries as recorded in Landonline.

Line segment means a straight line bounded by end points with distinct map coordinates.

Non-eligible land means land that is not pre-1990 forest land, or not post-1989 forest land, as applicable.

Polyline means a continuous line composed of one or more line segments.

Polygon means a closed shape bounded by sequentially connected polylines that do not cross, such that the map co-ordinates of the end point of one polyline are the same as the map coordinates of the start of the next polyline.

Tree crown edge means the estimated spatial location of the outer edge of the foliage of a tree at the time of maturity, for an individual tree that is a **forest species**.

- (2) Any word or expression defined in the Act or the Regulations and used in this Standard has the same meaning as it has in the Act or the Regulations.
- (3) In this Standard a reference to:
- a) a part means a part in this standard; and
 - b) a clause means a clause in a part; and
 - c) a paragraph or sub-paragraph means a paragraph or sub-paragraph in a clause; and
 - d) a section means a section of the Act.

1.2 Circumstances Requiring Submission of Geospatial Mapping Information: P90

- (1) For pre-1990 (P90) forest land, the Regulations state that geospatial mapping info must be provided when:
- a) An application is submitted in relation to an exemption from deforestation liabilities for areas less than 50 hectares (under section 180B, regulation 26).
 - b) An application is submitted in relation to an exemption from deforestation liabilities for Māori land or land with more than 10 owners (under section 180D, regulation 26).
 - c) An application is submitted in relation to an exemption from liabilities for deforestation of tree weeds (under section 180E, regulation 29).
 - d) An emissions return is submitted in relation to deforestation (under section 65, regulation 25).
- (2) For P90 offsetting land, the Regulations state that geospatial mapping information must be provided when:
- a) An emissions return is submitted in relation to clearing or deforestation P90 offsetting land (under Section 181R(1)(b)(ii) or 181S(1)(b)(i), regulation 45).
 - b) An application is submitted to offset deforestation of pre-1990 forest land (under section 181A(1), regulation 38).
 - c) Notice is given of release criteria (under section 181G(1), regulation 40).
 - d) An application is submitted to add more land to area 2 (approved) land with a P90 release criteria notice (under section 181H(1), regulation 41).

- (3) Geospatial mapping information is also required (unless another format is prescribed pursuant to section 115(4) and 116(4)) when;
 - a) An input return is submitted in relation to deforesting P90 forest land (under section 194, regulation 115).
 - b) An input return is submitted in relation to deforesting P90 offsetting land (under section 181R(1)(b)(ii) or 181S(1)(b)(i), regulation 116).
- (4) Geospatial mapping information may also be provided as evidence or required when an application is submitted, such as an application for emissions ruling (under Sections 107 and 107A).

1.3 Circumstances Requiring Submission of Geospatial Mapping Information: P89

- (1) For post-1989 (P89) forest land (for both permanent and standard forestry activities), the Regulations state that geospatial mapping information must be provided in accordance with regulation 48 for the range of circumstances described in Schedule 7 of the Regulations. These circumstances are set out below:
 - a) An application to be registered as a participant in the ETS (under section 57 and 182C(1)).
 - b) An application by an existing participant to add a carbon accounting area (under section 182C(3)).
 - c) An application to remove land from a carbon accounting area (under section 182F(4)(a)(ii)).
 - d) Notice is given by an existing participant that they have ceased to carry out an activity of standard forestry or permanent forestry on part of a carbon accounting area (under section 182F(4)(b)(ii)).
 - e) Notice is given of a natural event that permanently prevents re-establishing a forest, or that land meets section 179A(1)(c) of the Act (land cleared for best practice forest management) (under section 182G).
 - f) Notice is given of a transfer of P89 forest land, or of the transfer of a registered forestry right or registered lease or Crown conservation contract in relation to P89 forest land, for part of a carbon accounting area (under section 187(4)).
 - g) Notice is given of a grant of a registered forestry right or registered lease over P89 forest land, or entry into a Crown conservation contract in relation to P89 forest land, where these relate to part of a carbon accounting area (under section 187(4)).
 - h) Notice is given of expiry or termination of a registered forestry right, a registered lease or a Crown conservation contract that relates to part of a carbon accounting area (under section 187(4)).
 - i) An application is submitted to reconfigure any carbon accounting areas (under section 188).
 - j) An application to change activity from standard or permanent forestry to another activity (under section 189(3)).
 - k) An application to change activity from Permanent Forest Sink Initiative (PFSI) to another activity (under Section 189(4)).
 - l) Notice given of clear-felling of any land on which a participant carries out permanent forestry (under section 190D(2)(a)).
 - m) An application is submitted to offset other land for carbon accounting areas (averaging) (under section 192A, regulation 95).
 - n) A P89 release criteria notice is given (under section 192J, regulation 97)
 - o) An application is submitted to substitute other land for non-complaint land (under 192Q, regulation 98).
 - p) An application is submitted in relation to a temporary adverse event (under section 193A, regulation 107).
 - q) A notice of re-establishment after a temporary adverse event (under section 193K).
- (2) In addition to Schedule 7, geospatial mapping information is also required when:

- a) An input return is submitted relating to post-1989 forest land (under section 194, regulation 117).
 - b) An input return is submitted relating to attributing removals to grant-funded forests (under section 194, regulation 119).
- (3) Geospatial mapping information may also be provided as evidence or required when an application is submitted, such as an application for emissions ruling (under sections 107 and 107A).

1.4 Description of the Required Geospatial Mapping Information

- (1) Where geospatial mapping information is required to be submitted with a document, the following information is required:
- a) One or more polygons that spatially delineate each area of forest land required to be identified under the Act or the Regulations; and
 - b) For P89 forest land (standard and permanent forestry activities), a number used to identify the carbon accounting area that each polygon is to be associated with.
- (2) The geospatial mapping information for each polygon that delineates an area of P89 forest land must include the attributes from Table 1 below and include any further information that is required in accordance with the Act and/or Regulations.

1.5 Specification of the Procedure for Mapping Forest Land

- (1) The geospatial mapping information must include one or more polygons that define the area of forest land in the relevant document.
- (2) The polygons must be defined by:
- a) Spatially delineating as polylines the forest land edges of the outer boundary of each area of contiguous forest land; and
 - b) Constructing as a polygon the outer boundary of each area of contiguous forest land from the polylines that comprise the forest land edges, provided that each resultant polygon has an area of at least one hectare; and
 - c) For each polygon constructed in step (2)(b) above, spatially delineating as polylines any forest land edges within the polygon and adjacent to any contiguous area of non-eligible land that has both an area of more than one hectare and an average width of at least 15 metres measured between tree crown edges; and
 - d) Constructing as a polygon the boundary of any non-eligible land from the polylines identified in step (2)(c) above that comprise the forest land edges adjacent to each identified area of contiguous non-eligible land; and
 - e) Removing the polygons of non-eligible land.
- (3) Each forest land polygon may be further spatially subdivided, provided each resultant polygon has an area of at least one hectare.
- (4) Forest land edges are determined as follows:
- a) If the tree crown edge of an area of forest land adjoins or overlaps a land parcel boundary; by drawing a polyline coincident with the land parcel boundary, except if the land parcel boundary is common to another land parcel to which the document also applies; or
 - b) if (a) does not apply; for an area of P90 forest land that adjoins an area of P89 forest land, by drawing a polyline to separate the P90 forest land and the P89 forest land; or
 - c) If (a) or (b) do not apply; by drawing a polyline to separate forest land from non-eligible land, with the polyline constructed so that:
 - i) Line segments intersect tree crown edges that are adjacent to the non-eligible land, and are drawn as close as practicable to the adjacent non-eligible land; and

- ii) No point within any line segment shall be more than 15 metres from a point at which that line segment intersects a tree crown edge.

1.6 Mapping within Legal Boundaries

- (1) A person must not submit geospatial mapping information for any area of forest land that falls outside the area of forest land for which a document is submitted under the Act and the Regulations.

1.7 Specification of Options for Creating and Submitting Digital Geospatial Mapping Information

- (1) The geospatial mapping information that must be submitted in accordance with this standard.
 - a) In the case of an online application, notice, emissions return or input return; must be a single shapefile that:
 - i) Is created using the applicant's own GIS, or that of a consultant or their representative, and
 - ii) Is uploaded electronically as part of the on-line application process available at <https://www.mpi.govt.nz/forestry/forestry-in-the-emissions-trading-scheme/ets-online-system/>
 - b) In the case of an application, notice or emissions return where the data is too large or there are accessibility issues; must be one or more shapefiles where each shapefile:
 - i) Is created by using the applicant's own Geographic Information System (GIS), or that of a consultant or their representative, and
 - ii) Submitted by emailing ForestryETS@mpi.govt.nz for a link to a secure file upload system.

1.8 Specification of the Format for Digital Geospatial Mapping Information

- (1) For the purposes of submitting geospatial mapping information on forest land for the ETS, a shapefile:
 - a) Must comprise the following four digital files:
 - i) A .shp file – shape format file; the feature geometry in the shapefile (i.e. the map coordinates of the polyline segments that make up the forest land polygons)
 - ii) A .shx file – shape index format file; a positional index of the feature geometry in the shapefile (i.e. the location within the .shp file of the start of the data for each forest land polygon)
 - iii) A .dbf file – attribute format file; the attributes for each forest land polygon in the shapefile
 - iv) A .prj file – projection format file; the coordinate system and map projection information for the shapefile
 - b) Must not include multi-part polygons.
- (2) The projection format file must contain information compliant with the New Zealand Transverse Mercator 2000 Projection, or the Chatham Islands Transverse Mercator 2000 (if applicable). This projection is specified in the document attached as Appendix A.
- (3) When submitted as part of a shapefile for a forest area, the attribute format file (i.e. the .dbf file) must include as attributes the information specified in Table 1 below, except that:
 - a) The attribute that records the number of a carbon accounting area:
 - i) Is only included when registering P89 forest land; and

- ii) Must be a whole number selected sequentially from the set of positive whole numbers beginning at 1; and
 - iii) Must be a number that is unique for each set of forest land polygons assigned to a given carbon accounting area; and
 - iv) Must not be a number used as the carbon accounting area number of a set of forest land polygons that were previously chosen when the participant registered, but are no longer in the ETS; and
- (4) When uploading shapefiles in Tupu-ake for P89 forest land applications, the information set out in Table 1 will be required by the system as applicable.
- (5) When uploading shapefiles or creating mapping layers in Tupu-ake to record areas of clearing and replanting, attributes from Table 2 below will be required by the system as applicable.
- (6) The shapefile must otherwise conform to the specification given in the Environmental Systems Research Institute (ESRI) Shapefile Technical Description White Paper dated July 1998.

Table 1. Specifications for polygon attributes in the attribute format file for P89 forest areas as required under this Mapping Standard.

In addition to the information set out in Table 1 below, further information is required to be submitted as part of a P89 forest land application, in accordance with the Act and/or Regulations, as outlined in guidance: <https://www.mpi.govt.nz/dmsdocument/58147-shapefile-schema-for-post-1989-forest-land-entering-the-ETS-> .

Attribute	Field name required in shapefile	Data type	Mandatory / or Optional / Conditional
Shapefile ID	SID	Unique integer	Mandatory
Global ID	GLOBALID	GLOBALID	Conditional
CAA Number	CAA_NUMBER	String	Mandatory
Compartment identifier	COMPARTMEN	String	Optional
Forest identifier	FOREST_NUM	String	Optional

Table 2. Polygon attributes as required by Tupu-ake for areas of clearing and planting of P89 forest land

Field name in Tupu-ake interface	Field name required in shapefile	Data type	Mandatory / Optional / Conditional
Global ID	GlobalID	Global ID	Mandatory
Shapefile ID	SID	Integer	Mandatory
Type of operation	OPERATION_TYPE_ID	Integer	Mandatory
Current rotation establishment method	ESTABLISHMENT_METH_CURR_ROT_N_ID	Integer	Conditional
Forest type	FOREST_TYPE_ID	Integer	Conditional
Main species	PREDOMINANT_SPECIES_ID	Integer	Conditional
Main species – other	OTHER_PREDOMINANT_SPECIES	String	Conditional
Tree species name	TREE_SPECIES_NAME_ID	Integer	Conditional
Tree species – other	OTHER_TREE_SPECIES_NAME	String	Conditional
Compartment identifier	COMPARTMENT_NUM	String	Optional
Forest identifier	FOREST_NUMBER	String	Optional
Clearance method	CLEARANCE_TYPE_ID	Integer	Conditional
Start Date	START_DATE	Date	Mandatory
End Date	END_DATE	Date	Mandatory
Harvest age	HARVEST_AGE	Double	Conditional

Download further guidance on uploading of information about areas of clearing and planting in your registered P89 forest land into Tupu-ake:

<https://www.mpi.govt.nz/dmsdocument/54613-Shapefile-schema-clearing-and-replanting>

Mapping spatial extent of clear-felling

- (1) To calculate the deemed value of clear-felled permanent forestry land under regulation 77, the spatial extent of the clear-felled land must be determined in accordance with this Standard.
- (2) When permanent forestry has been cleared by any form of human activity to the extent that the crown cover from forests species becomes less than 30% in each hectare, the spatial extent of the clear-felling will be determined by;
 - a) When the clear-felling takes place at the edge of a polygon, the edges of the remaining forest will be mapped in accordance with 1.5(4) of this Standard. The spatial difference between the registered polygon and the remaining forest land will be treated as clear-felled.
 - b) When clear-felling takes place inside a polygon, the spatial extent will be determined in accordance with 1.5(4)(c), with the clear-felled land being treated as if it was non-eligible land for the purposes of mapping.
- (3) When an area of clear-felling includes or is contiguous to an existing internal gap;
 - a) When the internal gap is less than one hectare in size, the gap will be included in the mapping of the clear-felled area.
 - b) When the internal gap is greater than one hectare in size, the gap will not be included in the mapping of the clear-felled area.

Appendix A: Standard for New Zealand Geodetic Datum 2000 Projections: Version 2

[Standard for New Zealand Geodetic Datum 2000 Projections: Version 2 - LINZS25002](#)