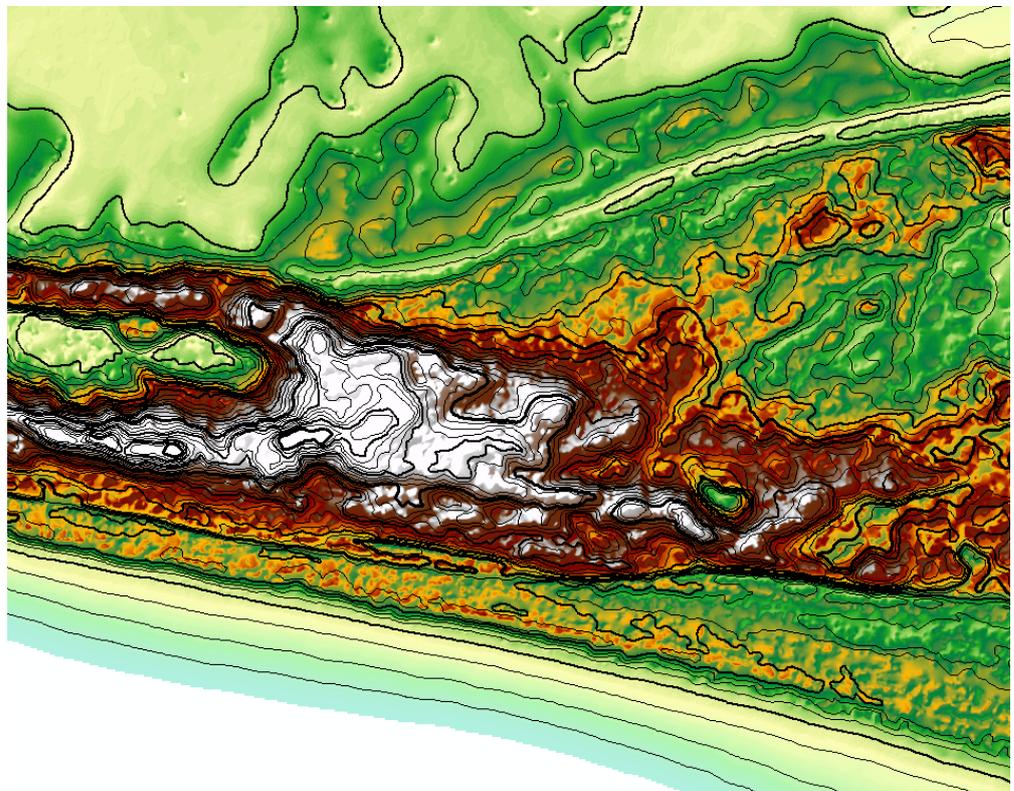


# PRODUCT DESCRIPTION

## VICMAP ELEVATION *Coastal 1m DEM & 0.5m Contours*



### **Disclaimer**

Spatial Information Infrastructure does not warrant that this Product Description and the data are free from errors or omissions. Also, Spatial Information Infrastructure shall not be in any way liable for any loss, damage or injury suffered by the licensed user of the data of this Product Description or any other person or organisation consequent upon or incidental to the existence of errors or omissions in the data or this Product Description.



**Spatial Information Infrastructure**  
**Department of Sustainability and Environment**  
**Document version 2.0 December 2009**



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# 1. PRODUCT DESCRIPTION

## CUSTODIAN

Spatial Information Infrastructure  
Department of Sustainability and Environment

## JURISDICTION

State of Victoria

## CONTACT INFORMATION

### Custodian

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### Supply Enquiries

This Vicmap Product is available through our Data Service Providers, listed at  
[www.dse.vic.gov.au/vicmapdsp](http://www.dse.vic.gov.au/vicmapdsp)

### E-mail Enquiries

[vicmap.info@dse.vic.gov.au](mailto:vicmap.info@dse.vic.gov.au)

### Internet Site for Information

[www.dse.vic.gov.au/spatial](http://www.dse.vic.gov.au/spatial)

## DESCRIPTION

### Geographic Extent

Vicmap Elevation Coastal 1m DEM & 0.5m Contours geographic extent covers Victoria's entire coast including Phillip Island and French Island. The extent of coverage across the coastal zone is generally from the waterline until the terrain reaches approximately 10m in height. In steep coastal areas the dataset extends inland from the waterline for a distance of approximately 500m. Maps showing the extent can be seen in APPENDIX B - EXTENT MAPS.

### Content

Vicmap Elevation contains several datasets:

- 10-20 Contours & Relief represents Victoria's elevations in the form of contours, spot heights and surface features including cliffs, embankments and rock outcrops among others. The 10-20 metre contours and spot heights are the source datasets used to create Vicmap DTM 20m and DTM 10m.
- 1-5 Contours & Relief is an elevation dataset sourced from Melbourne Metropolitan Board of Works surveys conducted in from 1974 until the 1980s. This dataset enables a more detailed contour overlay of the Melbourne metropolitan area.
- DTM 20m & DTM 10m digital terrain model (DTM) representing Victoria's terrain surface at 20 & 10m grid resolution. The DTM20m is a statewide, with DTM10m at 70% coverage)
- Coastal 1m DEM & 0.5m Contours

This product description details the Coastal 1m DEM & 0.5m Contours product only. For more information on the other elevation products please see their respective product descriptions and metadata entries.

Vicmap Elevation - Coastal 1m DEM & 0.5m Contours provides an accurate representation of natural relief features along the coast of Victoria. It is used for a variety of applications including planning, hazard mitigation and environmental modelling.

The Vicmap Elevation Coastal 1m DEM & 0.5m Contours dataset is comprised of:

- 0.5m Contours which represents Victoria's coastal elevations in the form of contour lines at 0.5m intervals.
- 1m DEM has a spatial resolution (pixel size) of 1m on a regular grid.

### Structure

The Coastal 1m DEM is raster dataset where each pixel has a value representing elevation. The DEM's are stored in two file formats; ASCII XYZ (.xyz) or ESRI ASCII Grid (.asc)

The Coastal 0.5m Contours consists of vector data lines/arcs attributed with an elevation. The contours are stored in two formats; ESRI 3D Shapefile or Mapinfo Tab.

---

## Features

- Captured through the Coordinated Imagery Program (CIP) 2007-09, the Coastal 1m DEM & 0.5m Contours have been constructed from high-resolution LIDAR data gathered specifically for this product.
- The vertical accuracy for the DEM is +/- 10cm @ 1 sigma (68% Conf. Level) in bare ground.
- The Coastal 1m DEM & 0.5m Contours are available only in their native projection of GDA 94 MGA Zone 54 or Zone 55.
- The Coastal 1m DEM & 0.5m Contours are available only in their native file formats as stated in this document.
- The Coastal 1m DEM & 0.5m Contours are available only in 2x2km tiles for ease of use and distribution but is seamless between tiles.
- Vicmap Elevation Coastal 1m DEM & 0.5m Contours have undergone basic quality assurance procedures
- The irregular LiDAR points used to derive this product are not currently available.

## Reference Systems

The datum used in the construction and maintenance of Vicmap data is the Geocentric Datum of Australia. Data is held in MGA Zone 54 (eastings/northings) or MGA Zone 55 (eastings/northings) computed in terms of the GDA at 01 January 1994 (GDA94).

The ellipsoid heights have been corrected to AHD using AUSGeoid98 with local corrections as required.

## Related Datasets

These Vicmap Product are part of the State of Victoria's framework information. VSIS framework information datasets have been delivered into the following Vicmap Products, identified below:

- Vicmap Address,
- Vicmap Admin,
- Vicmap Crown Land Tenure,
- Vicmap Elevation,
- Vicmap Features,
- Vicmap Hydro,
- Vicmap Imagery- Aerial Photography from 2005
- Vicmap Imagery- Satellite,
- Vicmap Lite,
- Vicmap Planning,
- Vicmap Position,
- Vicmap Property,
- Vicmap Topographic,
- Vicmap Transport,
- Vicmap Vegetation.

## PRODUCTION AND/OR ACQUISITION METHODS

### SOURCE

The Vicmap Elevation – Coastal 1m DEM & 0.5m Contours was derived from airborne LIDAR specifically acquired for this dataset. All the survey data has been prepared and validated for inclusion in the DEM. This includes identifying gross errors in height values, removing stepping within the DEM and ensuring all contours are correctly edge matched.

The irregular LiDAR points used to derive this product are not currently available.

This data has been acquired through the Coordinated Imagery Program to support the Victorian Government's Future Coasts Project.

### GENERALISATIONS WITHIN THE DATA

Data interpolation has been used to generate the Coastal 1m DEM & 0.5m Contours. More interpolation is required in areas underneath vegetation and infrastructure. The interpolation distance does not extend over areas of water or significant gaps in the dataset.

The Coastal 0.5m Contours has been subjected to cartographic generalisation to ensure cartographic clarity. This is achieved by minimising the number of vertices used to depict the contour while still preserving the natural look of the line.

### DATA CREATION DATES

The source data used to generate Coastal 1m DEM & 0.5m Contours was acquired between September 2007 and September 2009.

### MAINTENANCE AND UPDATE FREQUENCY

Currently there is no ongoing program to routinely maintain or update Vicmap Elevation Coastal 1m DEM & 0.5m Contours.

### STANDARDS AND SPECIFICATIONS

Conformity is sought with relevant proportions of existing and draft standards and specifications. For example:

- Relevant Australian (AS/NZS) Standards.
- ISO 19100 series as they become adapted by Standards Australia and the user community.
- The outputs of working groups under the auspices of ICSM, ANZLIC and other industry organisations.

Where these standards have been found to be deficient or non-existent to Spatial Information Infrastructure requirements suitable modifications will have been made.

### LEGISLATIVE REQUIREMENTS

- This dataset has not been constructed as the requirement of any Commonwealth or State legislation.
- The use and distribution of Vicmap Elevation must comply with the *Information Privacy Act 2000 (Victoria)* and the *Privacy Act 1988 (Commonwealth)*.

## CURRENT DATA DEVELOPMENT

The geographical extent of this product will be increased seaward as the bathymetric DEM & contours become available in 2010. The anticipated release for the entire Victorian Coastline bathymetric datasets is mid-2010.

## FUTURE PLANS

Future data may be incorporated into Vicmap Elevation - Coastal 1m DEM & 0.5m Contours to further expand the coverage inland. This will only occur after consultation with the Coordinated Imagery Program partners or data custodian.

## DATA SCHEMA

### Data Structure

#### Digital Elevation Model (DEM)

The **1m DEM** is a raster which is composed of an array (rows and columns) of square pixels each representing an equal area defined by the separation of the points. The pixel size is 1m.

The DEM is available in two formats;

1. ASCII XYZ (.xyz) where one line contains horizontal and height information for each pixel. When converted into a raster format the value of the pixel represents the average height across the individual pixel. The combination of these pixels produces a surface representing elevation and does not require interpolation. Only cells with valid heights are listed.

Example ASCII XYZ:

```
403857.5,5701999.5,-0.969
403858.5,5701999.5,-0.972
403859.5,5701999.5,-0.97
403860.5,5701999.5,-0.982
403861.5,5701999.5,-0.99
403862.5,5701999.5,-0.991
403863.5,5701999.5,-0.989
403864.5,5701999.5,-0.989
403865.5,5701999.5,-0.994
403866.5,5701999.5,-0.999
403867.5,5701999.5,-0.997
```

2. A Floating ESRI ASCII Grid (.asc). The ASCII file begins with header information which defines the properties of the grid followed by pixel values listed in row-major order.

ESRI ASCII Grid Format:

```
<ncols xxx>
<nrows xxx>
<xllcorner xxx | xllcorner xxx>
<yllcorner xxx | yllcorner xxx>
<cellsize xxx>
{nodata_value xxx}
row 1
row 2
row 3
row n
```

Example ESRI ASCII Grid Format:

```
ncols 4
nrows 5
xllcorner 395806.000
yllcorner 5795995.000
cellsize 1.000
nodata_value -9999
172.06 172.48 172.75 173.11
185.26 185.66 186.13 186.49
175.86 176.18 176.69 177.00
-9999 -9999 -9999 -9999 -
```

## Contours

The **0.5m Contours** is a vector spatial dataset consisting of a series of lines. Each line represents an imaginary line joining all places of equal height above a fixed datum line. These lines are spaced at intervals of 0.5m in height.

The contours are available in ESRI 3D Shapefile and Mapinfo TAB format.

## Naming Convention

Both the Coastal 1m DEM and 0.5m Contours are only available the formats listed above and has been tiled in to 2km tiles which use a standard naming convention.

Example of Standard naming Convention:

Name :	<b>e604n5760_coastal_dem_1m_mga54.xyz</b>
Where :	<b>e604n5760</b> The 2km tile index number
	<b>coastal</b> The Vicmap product (Vicmap Elevation 1m DEM & 0.5m Contours)
	<b>dem</b> The data type ('DEM' or 'contours')
	<b>1m</b> The spatial resolution (pixel size) or contour interval
	<b>mga54</b> The projection of the data
	<b>xyz</b> The data format

The 2km tile shown in the file name represents the individual tile origin. Therefore the e604n5760 2km tile has a lower left easting origin of 604000, and a lower left northing origin of 5760000.

It is not guaranteed that all 2x2km tiles have complete data coverage.

## **Spatial Data Integrity**

Vicmap Elevation - Coastal 1m DEM & 0.5m Contours are correct when used in its native projection and formats.

Reprojecting, changing format or resampling may cause changes in the DEM and therefore the DEM may not remain as accurate as stated in this document. The best solution is to reproject other vector datasets to match the DEM and reproject the end result back to required projection.

As this product has been derived from LiDAR additional processing has been undertaken to model the ground surface. The LiDAR laser strikes have been classified into ground using a series of algorithms tailored for major terrain and vegetation combinations. It is accepted that there will be isolated pockets of dissimilar terrain and vegetation which do not fit within the algorithm. This data set has undergone a quality assurance assessment and it has been determined that the algorithms have successfully removed the majority of vegetation and buildings required to produce data at the vertical accuracy specified in the metadata for each project area.

## DATA DICTIONARY

68% Accuracy	See Root Mean Square Error.
ASCII Data	Data which is stored in an ASCII or Text format where each line represents a record. Usually will have a set of coordinates to accompany each line.
Bilinear Interpolation	A resampling method that uses a weighted average of the four nearest cells to determine a new cell value. This will smooth the resulting DEM and is used for resampling continuous datasets.
Date of Acquisition	The date on which the elevation data was captured
Image, Grid, Raster	A dataset composed of rows and columns of data cells
Nearest Neighbour	A technique for resampling raster data in which the value of each cell in an output raster is calculated using the value of the nearest cell in an input raster. This technique is often used for the resampling of thematic raster data.
Resampling Kernel	Mathematical filtering model or pixel array used to modify the values of a DEM eg. Bilinear Interpolation
Resolution	A measure of the amount of detail that can be seen in a DEM.
Root Mean Square Error (RMSE)	Indicates how accurate a dataset is both horizontally and vertically by measuring the difference between the outputs to an input (base). The lower the error the more accurate the data. This is sometimes known as accuracy at 68% Confidence Level.
Source Data	Dataset representing the original elevation files. These may be vector, raster or ASCII files.
Vector Data	Spatial data in which the location of features is defined in the terms of points, lines and polygons (vector).

## BUSINESS REQUIREMENTS

### Usage or Availability Restrictions

Product/s will be provided under the terms and conditions of an ongoing licence.

### Licence Restrictions / Conditions

Vicmap Elevation - Coastal 1m DEM & 0.5m Contours will be supplied under licence with a once off licence fee determined by the coverage. Details are recorded in a Schedule appended to the Licence. The Licensee may use the Data only for internal business use. There is no transfer of title or ownership in the Data, and the copyright and intellectual property in the Data remains the property of the State.

Vicmap products are protected by copyright under the Copyright Act 1968 (Commonwealth). The dataset is appropriately labelled with copyright information and the removal or degradation of this labelling is an offence under the Copyright Amendment (Digital Agenda) Act 2000 (Commonwealth).

### Access Constraints

All digital data issued to customers is subject to licence conditions. A copy of the terms and conditions of the Licence can be viewed on the Land Channel website at <http://www.dse.vic.gov.au/vicmap> under *About Vicmap* and then under *Licencing*

In general, the User Licence allows licensees to use the data within their own business but does not permit data to be provided to third parties. There is no transfer of intellectual property in the data to customers.

## Exclusion of Liability

Spatial Information Infrastructure makes every effort to provide and maintain accurate, complete, useable and timely digital land information. However, some product versions may be preliminary in nature and presented prior to final review and approval by the Director of SII. The data and information are provided with the understanding that they are not guaranteed to be correct or complete. Users are cautioned to consider carefully the provisional nature of the data before using it for decisions that concern personal or public safety or the conduct of business that involves substantial monetary or operational consequences. Conclusions drawn from or actions undertaken on the basis of this data are the sole responsibility of the user.

Spatial Information Infrastructure does not warrant that this Product Description and the data are free from errors or omissions. Also, Spatial Information Infrastructure shall not be in any way liable for any loss, damage or injury suffered by the licensed user of the data of this Product Description or any other person or organisation consequent upon or incidental to the existence of errors or omissions in the data or this Product Description.

## Privacy Statement

This Vicmap product is protected by copyright under the *Copyright Act 1968 (Commonwealth)*. The dataset is appropriately labelled with copyright information and the removal or degradation of this labelling is an offence under the *Copyright Amendment (Digital Agenda) Act 2000 (Commonwealth)*.

## Supply Format

Both Coastal 1m DEM & 0.5m Contours data will be supplied in 2x2km tiles and supplied in the following formats:

- Coastal 1m DEM – XYZ ASCII (comma delimited), Floating ESRI ASCII Grid
- 0.5m Contours – ESRI shapefile or MapInfo TAB

## Media Format

- DVD or Hard Disk Only

## Projections

Both Coastal 1m DEM & 0.5m Contours data will be supplied MGA Zones ONLY projection:

- Native projection MGA Zone 54 or Zone 55
  - Geocentric Datum of Australia – 1994 Adjustment (GDA94)
  - Eastings and Northing

## AREAS OF APPLICATION

- Catchment Hydrological Modelling
- Terrain Visualisation
- Erosion Risk
- Strategic planning
- Project planning
- Reference framework
- Research systems
- Geocoding
- Asset management
- Valuations analysis
- Property analysis
- Ortho-rectification of imagery

Note: Many applications will require the input of user specific data, eg. Watercourse lines, planning polygons, land use information, etc

## 2A. QUALITY OF VICMAP ELEVATION COASTAL 1M DEM & 0.5M CONTOURS

### LINEAGE / HISTORY

The Vicmap Elevation Coastal 1m DEM & 0.5m Contours product has been derived from LiDAR acquired between September 2007 and September 2009. Additional processing is undertaken to model the ground surface. To achieve this the LiDAR laser strikes have been classified into ground and non-ground using a series of algorithms tailored for major terrain and vegetation combinations across entire project areas. The quality of the classification is further improved by manual checking and editing of the ground LiDAR data using intensity imagery and orthophotography as a reference. It is accepted that there will be isolated pockets of dissimilar terrain and vegetation which do not fit within the algorithm. This data set has undergone a quality assurance assessment and it has been determined that the algorithms have successfully removed the majority of vegetation and buildings required to produce data at the vertical accuracy specified in the metadata for each project area.

To generate the Coastal 1m DEM, the classified ground points are interpolated into a TIN then converted regularly spaced 1m grids, before being output to ASCII XYZ and ESRI Ascii formats.

The generation of the Coastal 0.5m Contours are created by referencing the all ground LiDAR strikes. A number of macros are applied to the all ground strikes before contour generation. These macros thin and smooth the LiDAR ground strikes. Contours are then generated automatically from the smoothed LiDAR strikes. Contours are derived by interpolation of a surface model generated from LiDAR ground points using process parameters optimized to suit the terrain. The contours are then checked using any available imagery as a backdrop and line work cleaned where required. Final macros are applied to the contour lines that check for dangles, loops, spikes etc.

### DATA QUALITY STATEMENT

#### Fitness for Purpose

- The quality of Vicmap Elevation Coastal 1m DEM & 0.5m Contours are compliant with its technical specification for the original raw data capture and creation of the derived products (contours, DEM) as well as being dependant upon scale limitations brought about by topography and visual impedance due to vegetations cover and man-made cover.
- Vicmap Elevation - Coastal 1m DEM are correct when used in its native projection. Reprojecting, changing format or resampling may cause changes in the DEM and therefore it may not remain as accurate as stated in this document. The best option is to reproject other vector datasets to the relevant zonal projection and reproject the end result back to required projection.
- Vicmap Elevation Coastal 1m DEM & 0.5m Contours have undergone basic QA procedures aimed at testing the product against its technical specifications. Tests include a series of manual, visual and automated procedures.
- The Coastal 1m DEM & 0.5m Contours are stored in 2x2km tiles for easy distribution and is not guaranteed that all 2x2km tiles have complete data coverage within the tile extent.

#### Non Standard Validation Exercises Undertaken to Test Conformity and Accuracy

Vicmap Elevation Coastal 1m DEM & 0.5m Contours has undergone basic level quality assurance (QA) to ensure with reasonable confidence that the product meets the acquisition specifications.

A basic level of QA aimed at identifying any obvious or extensive problems present in the data product has been undertaken to assess; the data's fit-for-purpose, identify invalid gaps, edge matching between tiles, checking vector topology and attributes and most importantly, verifying the vertical accuracy. These are undertaken by using both automated programs and visual checks. Such QA checks are undertaken on all CIP elevation data acquisitions.

## Proposed / Required Quality Assurance Applications

SII is continually improving and extending the quality and content of the base. SII will continue to undertake and improve its quality assurance processes to ensure that they conform to Australian and International Standards, and continue to improve the quality of the data within the Products.

The following procedures are undertaken as normal update/maintenance routines, to ensure conformity of the data to Specification:

- Virus check software for digitally supplied input data;
- Automated quality routines, reflecting business rules for data population, to ensure data consistency;

## SPATIAL ACCURACY

### Positional Accuracy

The positional (horizontal) accuracy of spatial data is a statistical estimate of the degree to which planimetric coordinates and elevations of features agree with their real-world values.

The minimum planimetric accuracy attainable will be the sum of errors from three sources:

1. The positional accuracy of source material;
2. Errors due to the conversion process;
3. Errors due to the manipulation process.

The positional accuracy of Coastal 1m DEM is expressed as Root Mean Square Error (RMSE). In this case it is  $\pm 35\text{cm}$ ,

The positional accuracy of Coastal 0.5m Contours inherits the accuracy of the source material and therefore is  $\pm 35\text{cm}$

## ATTRIBUTE ACCURACY / RELIABILITY

The vertical accuracy for the DEM is  $\pm 10\text{cm}$ .

### FEATURE AND ATTRIBUTE ACCURACY (THEMATIC ACCURACY)

The vertical accuracy associated with the DEM is  $\pm 0.10\text{m}$  @ 68% confidence. Reprojecting, changing format of resampling causes changes to the height values in the DEM

The vertical accuracy associated with the contours is such that 95% of "well defined" points along the contour line have a value that must not differ to the "true" ground surface by any more than half of the contour interval, in this case  $\pm 0.25\text{m}$ .

## COMPLETENESS

Vicmap Elevation Coastal 1m DEM & 0.5m Contours is a seamless storage of data along Victoria's coast. It only includes islands with sufficient elevation data to support the creation of a 1m DEM and associated contours and excludes areas where significant surface water is present.

Although it is stored in 2x2km tiles, the data has been designed to be joined to produce a seamless dataset, however often software capabilities and file size limits often prevent this from occurring.

---

## LOGICAL CONSISTENCY

Vicmap Elevation Coastal 1m DEM & 0.5m Contours values across tile boundaries have been constructed to ensure smooth consistent elevation is achieved.

## 2B. MINIMUM QUALITY STANDARD

### PROPOSED / REQUIRED QUALITY ASSURANCE APPLICATIONS

Once prepared and passed all required quality assurance checks, no further validation procedures are required.

## 3. METADATA

Metadata at Page 0, and Page 1 levels has been created using a compliant metadata entry tool, and has been added to the Victorian Spatial Data Directory (VSDD). VSDD entries may be viewed via Spatial Information Infrastructure's website at [www.dse.vic.gov.au/spatial](http://www.dse.vic.gov.au/spatial) or via the Australian Spatial Data Directory site at [www.erin.gov.au/net/asdd/](http://www.erin.gov.au/net/asdd/)

The metadata complies with the *Geospatial Information Metadata Guidelines for Victoria* – part of the Victorian Geospatial Information Strategy 2000-2003.

## 4. PRICING

Under the Government pricing policy, data is supplied to customers in this case as on an ongoing right to use basis for a one off licence fee. The pricing of the data is dependent on the volume of data required, measured by geographical area and intensity of use of the data, measured by the number of user-seats/terminals upon which the data may be simultaneously used/viewed. The Government pricing policy also contains provision for subsidies and credits.

- Credits may be granted on licence fees in recognition for substantive contributions to the dataset by licensed users.
- Subsidies may be applied to meet community or social objectives determined by government or arising from agreed outcomes.

## 5. ACCESS

To facilitate more widespread and ready access, Vicmap data is distributed by Data Service Providers, with Department of Sustainability and Environment (DSE) taking a wholesale role. The objective of this approach is to promote industry development, allowing DSE to focus on production and development while DSPs focus on marketing and sales. There is a small group of users who obtain Vicmap products directly from DSE, generally as a result of an existing contractual arrangement or agreement. Multiple DSPs have been engaged to provide a competitive market. DSP's are listed on the Land Channel website on [www.dse.vic.gov.au/vicmapdsp](http://www.dse.vic.gov.au/vicmapdsp)

All digital data issued to customers is subject to licence conditions. A copy of the terms and conditions of the Licence can be viewed on the Land Channel website at [www.dse.vic.gov.au/spatial](http://www.dse.vic.gov.au/spatial) under *Products* and then under *Licence for use of Vicmap*

In general, the User Licence allows licensees to use the data within their own business but does not permit data to be provided to third parties. There is no transfer of intellectual property in the data to customers.

Commercial or DSP licences are separate to user licences.

## APPENDIX A- REFERENCE TABLES

### COASTAL 0.5M CONTOURS (LINE)

#### Summary information

<b>Description</b>	Artificial lines representing points of equal altitude on the earth's surface using a vertical interval of 0.5m.
<b>Entity</b>	<b>Contour</b>
<b>Included terms</b>	Contour, height, altitude, elevation
<b>Entity Type</b>	Spatial
<b>ICSM Conformance</b>	New entity

#### TABLE DESCRIPTION:

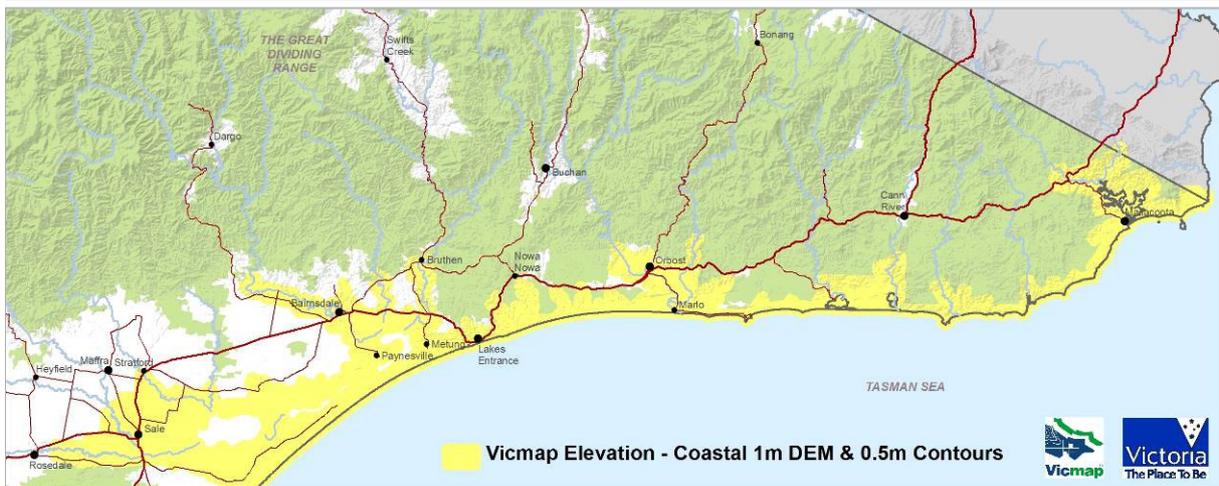
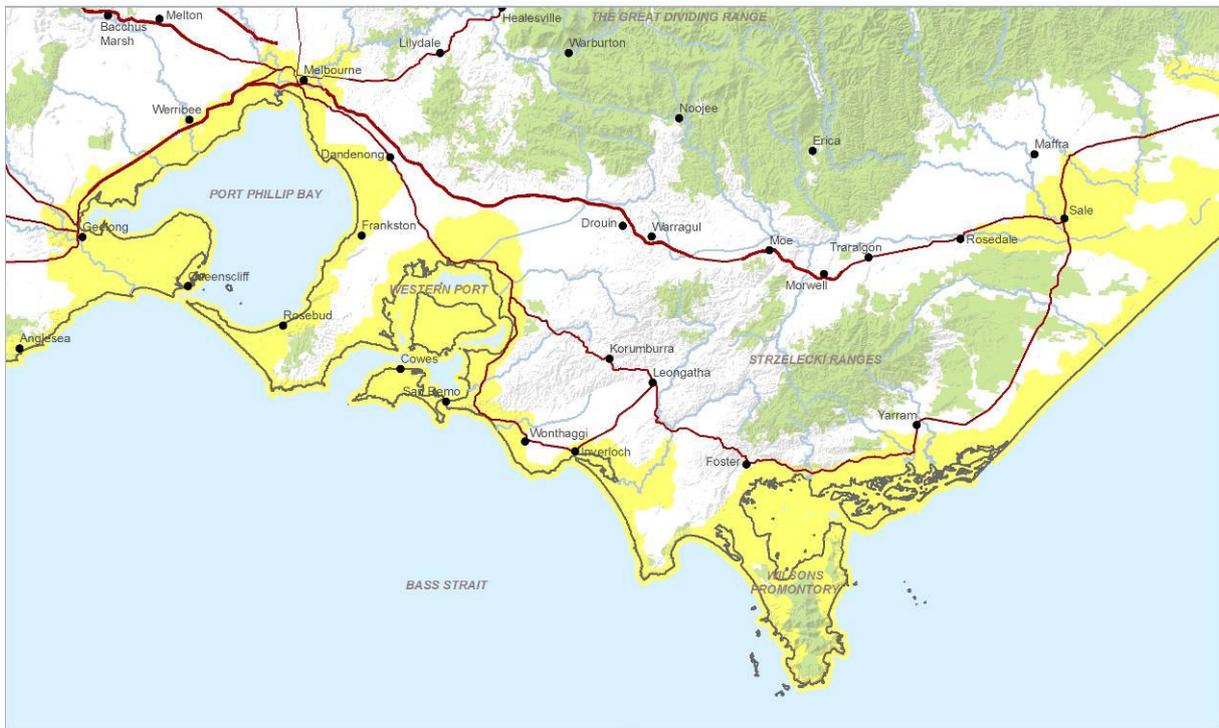
COLUMN NAME	DATA TYPE	FIELD SIZE	NULL	COLUMN DESCRIPTION
ALTITUDE	NUMBER	(8,1)	N	Height above sea level [Australian Height Datum]
FEATURE_TY	STRING	30	N	Feature Type

#### FEATURE CODES RANGES:

FEATURE_TY	Description
<b>contour</b>	An artificial line joining points of equal altitude on the earth's surface of a known height.
<b>contour_index</b>	Every 5 <sup>th</sup> Contour

#### LOOK UP TABLE CODELISTS APPLICABLE: NONE

## APPENDIX B - EXTENT MAPS



---

# GLOSSARY

## Address

*The conventional form by which the location of a property is described.*

Definition from Draft AS4271.Y 'Geographic Information – Data Dictionary Part Y: Cadastre'

## AGD66

*Australian Geodetic Datum 1966*

## AMG

*Australian Map Grid. A cartesian coordinate system based on the Universal Transverse Mercator projection on the Australian Geodetic Datum. The unit of measure is the metre.*

## Area Feature

*A feature which is portrayed as a region or surface. An area feature is bounded by one or more polygons.*

## AS2482

*Australian Standard 2482 defines Geographic information systems – Geographic data – Interchange of feature-coded digital mapping data.*

## Attribute

*A particular characteristic or property of an entity. Attributes can be spatial (or locational) and aspatial (or non-locational).*

## Attribute object

*The attribute object holds the non-locational information about the feature instance.*

## AT

*A Crown special description for a localised administrative area identified and surveyed by the State's early government surveyors as a further breakdown to a larger urban area, eg AT HAWTHORN, PARISH OF BOROONDARA.*

## Attribute Value

*The value assigned to an attribute for a specific feature instance.*

## BEST

*Bureau of Emergency Services Telecommunications. A committee set up by the Government of Victoria to investigate and establish a centralised computer aided emergency services dispatching system.*

## CAD

*Computer-Aided Design is the production of drawings, specifications, parts lists, and other design-related elements using special graphics- and calculations-intensive computer programs. CAD systems originally merely automated drafting but now often include three-dimensional modelling and computer-simulated operation of the model.*

## Cadastre, Cadastral Base

*A public register usually recording the quantity, value and ownership of land parcels in a country or jurisdiction.*

## Chain

*A line composed of a sequence of non-intersecting line segments bounded by nodes. Chains reference the polygons to the left and right of the chain.*

## Connector feature

*An artificial linear feature used to connect a linear network across an area feature.*

AUSSII at [www.aussii.gov.au](http://www.aussii.gov.au)

## Crown Land

*All land owned and held by the State.*

## Crown Land Management

*The group within Land Victoria, DSE responsible for policy, strategy and management associated with all use of Crown Land. Crown Land Management maintains the Crown Land tenure database and coordinates land use planning and native title issues.*

## Data

*The base level of information stored in electronic databases. Generally, "raw" data has not been value-added.*

AUSSII at [www.aussii.gov.au](http://www.aussii.gov.au)

## DEM or DTM

*A Digital Elevation Model (DEM) or Digital Terrain Model (DTM) is a representation of continuous elevation values over a topographic surface by a regular array of z-values, which represents the earth's terrain.*

## Entity

*A real world phenomenon not divided into phenomena of the same kind.*

## Feature instance

*An abstraction of an entity. The description of a feature instance encompasses only selected properties of that entity. Feature instances can also be referred to as features.*

## Feature Type

*A class of real world phenomena with common properties.*

*A group of feature instances defined by a set of rules and having common attributes and relationships that are properties of the corresponding real world phenomena. Within the Oracle tables that comprise Vicmap Digital Property, classes may refer to "link" tables, which establish direct relationships between the point and/or line and/or polygon structures that may be used as spatial objects.*

*The feature structure of the feature based data model can be summarised as:*

*feature instance = [spatial object + attribute object]*

*Where:*

**Spatial Object** *is the addition of all of the locational attributes of the feature instance and may comprise geometrical objects such as points, lines and polygons. Spatial objects carry a spatial address that consists of one or more couplets (x, y) or triplets (x, y, z) of coordinates. In the feature based data model topological relationships will be carried as part of the spatial object whenever the transfer formats support them.*

**Attribute Object** *is the addition of non-locational information about a feature instance. These data identify the feature class and the aspatial attributes of a specific instance of the feature type. The attribute object is composed of one or more attributes.*

## GDA94

*The Geocentric Datum of Australia 1994 is based on the Australian Fiducial Network (AFN) which fits into a global geodetic framework. The AFN comprises eight highly accurate survey marks across Australia each with a permanently tracking Global Positioning System (GPS) receiver. It has been established by AUSSII for geodetic surveying and scientific purposes.*

## **GeoCASE**

*The modelling tool is a proprietary computer-aided software engineering product called GeoCASE. It is based on the entity–relationship (E–R) model extended to suit an object-oriented approach to representing the real world.*

## **GIS**

*Geographic Information System. A spatial database which is manipulated with a set of spatial operators or commands.*

## **Spatial Object**

*The addition of all of the locational attributes of the feature instance and may comprise geometrical objects such as points, lines and polygons. Spatial objects carry a spatial address that consists of one or more couplets (x, y) or triplets (x, y, z) of co-ordinates. In the feature based data model topological relationships will be carried as part of the spatial object whenever the transfer formats support them.*

## **Attribute Object**

*The addition of non-locational information about a feature instance. These data identify the feature class and the aspatial attributes of a specific instance of the feature type. The attribute object is composed of one or more attributes.*

## **ICSM**

*Intergovernmental Committee on Survey and Mapping. ICSM's role is to provide leadership through coordination and cooperation in surveying, mapping and charting. ICSM's core function is to coordinate and promote the development and maintenance of key national spatial data including geodetic, topographic, cadastral, street addressing, tides & sea level, and geographical names. ICSM carries out its role by meeting its objectives in the areas of:*

## **III**

*Information Infrastructure Initiative – a national funding program to improve the quality of information infrastructure.*

## **IUF : “Incremental Update Format”**

*A system whereby maintenance updates are provided as change only, add/modify/delete incremental update files, between nominated dates/times.*

## **Land Registry**

*The group within Spatial Information Infrastructure responsible for providing systems for Victoria's property market including; the Land Titles Office, Valuer Generals Office, Surveyor Generals Office and Landata.*

## **Spatial Information Infrastructure**

*A body within Information Business Technology, Department of Sustainability & Environment, responsible for spatial policy for the State and for providing and maintaining a statewide spatial infrastructure, including the Victorian Geodetic Framework and Vicmap Digital.*

## **Layer**

*Subdivision of a theme into one or more layers of data on the basis of topological relationships. Linear networks, polygons and point/line features are placed in separate layers.*

## **Linear Network**

*A theme layer consisting of linear features which are connected forming a pathway along which movement is possible.*

## **Metadata**

*Metadata, defined as ‘information about information’, provides fundamental information management tools at three levels:*

- *Discovery: enabling users to locate and evaluate information.*
- *Management: enabling custodians to better manage their spatial information.*

- *Utilisation: enabling users to access and manipulate information by means of automated / distributed systems.*

## **Node**

*A point that is a junction of two or more chains or which is the end point of a chain.*

## **Node/chain Structure**

*The structuring of linear features in a theme layer so that they consist of chains broken by nodes at intersections or at the point where an attribute of the feature changes.*

## **Oracle**

*Relational Data Base Management System used by the Spatial Information Infrastructure and Logica CMG to store and manage Vicmap Digital data.*

## **Parcel**

*The smallest area of land capable of sale without further approval to subdivide. It may consist of more than one piece.*

Definition from Draft AS4271.Y 'Geographic Information – Data Dictionary Part Y: Cadastre'

*The smallest unit of land able to be transferred within Victoria's cadastral system – usually has one proprietor or owner – is described by its parcel description (either lot/plan or allotment/section/parish). Parcel description are not unique, ie. two parcels can have the same parcel descriptions.*

Definition from 'LAND CHANNEL – VICMAP DISPLAY – GLOSSARY'

## **Parish**

*A Crown description for a larger administrative area identified and surveyed by the State's early government surveyors as a means of rational sub-division, settlement and alienation of Crown Land, eg PARISH OF ULUPNA.*

## **Persistent Feature identifier (PFI)**

*Unique Feature Identification (each feature is uniquely identified for change management) is managed through the use of two identifier attributes; namely the Persistent Feature identifier (PFI) and the Unique Feature Identifier (UFI).*

*See also Unique Feature Identifier(UFI)*

## **Polygon**

*A set of chains used to define the boundaries of an area. There is one external polygon and there may be one or more internal, non-nested polygons.*

## **Positional Accuracy**

*Statistical estimate of the degree to which planimetric coordinates and elevations of features agree with their real world values.*

## **Property**

*Land, usually contiguous, under one ownership, and of a common class and tenure. (Where "contiguous" sometimes ignores intervening roads and reserves).*

Definition from Draft AS4271.Y 'Geographic Information – Data Dictionary Part Y: Cadastre'

*The description applied to land under common occupation particularly for the purpose of rating, billing or habitation. Properties are typically described by street address or a 'rate assessment number' allocated by an authority, eg. local government or utility. A property can consist of one parcel (eg. a suburban house block); many parcels (eg. a farm); or part of a parcel (eg. a shop in a development). Council's view of property is usually seen as being definitive and is described by a Council Property Number (CPN).*

Definition from 'LAND CHANNEL – VICMAP DISPLAY – GLOSSARY'

## **Reserve**

*Land set aside for a specific use.*

Definition from Draft AS4271.Y 'Geographic Information – Data Dictionary Part Y: Cadastre'

## **RNDB**

*The VicRoads Road Network Data Base.*

## **Road**

*A corridor of land set aside for access purposes.*

Definition from Draft AS4271.Y 'Geographic Information – Data Dictionary Part Y: Cadastre'

## **Rural addressing**

*Systematic allocation of address to properties in rural areas which have not been previously addressed. Requires Localities to be defined, roads to be named and numbers to be allocated based upon distance from a predefined 'start' of the road. Approximately 60,000 properties in Victoria are yet to be numbered.*

Definition from 'LAND CHANNEL – VICMAP DISPLAY – GLOSSARY'

*Within the State of Victoria, Local Councils, under the provisions of the Local Government Act, allocate street address.*

## **SDE**

*Spatial Data Engine – an ESRI product*

*Software used by Spatial Information Infrastructure to manage the spatial component of it's Unified Data Store, which includes copies of the whole of the Vicmap Digital product suite.*

## **SDM**

*Spatial Data Manager – a product of Sinclair, Knight & Merz.*

*Software used by SKM to manage the spatial component of Vicmap Digital Property*

## **SDMB**

*State Digital Map Base – the first whole of State digital map base of Victoria formed from Melbourne Metropolitan Board of Works digital data and the digitising of hard copy maps. Constantly updated and improved and became the basis of Vicmap Digital products.*

## **SDRN**

*The State Digital Road Network database.*

## **SDTS**

*The United States Spatial Data Transfer Standard. This standard is to be the basis of the new Australian Standard for the transfer of spatial digital data.*

## **Segment**

*A direct line between a pair of points, or a point and a node.*

## **Sinclair, Knight & Merz (SKM)**

*A mapping and land information company chosen by Spatial Information Infrastructure to maintain selected Vicmap Transport*

## **Sliver**

*Long, thin triangle or polygon of very small area formed by overlaying of almost-coincident lines. Often a result of twice-digitising the same linear feature.*

## **Spatial Object**

*The spatial object holds the locational information of a feature instance. For BEST/SDRN Vector Data, it is composed of a point, node, line or polygon.*

## **Street address**

*Allocated by Councils to describe their properties. Consists of a House Number, a Road Name, and a Locality or Suburb.*

Definition from 'LAND CHANNEL – VICMAP DISPLAY – GLOSSARY'

## Title

*A certified document sealed by the Registrar-General certifying that an estate of freehold land is vested in the registered proprietor subject to registered encumbrances, liens, estates, or interests endorsed thereon.*

Definition from Draft AS4271.Y 'Geographic Information – Data Dictionary Part Y: Cadastre'

*The document issued by the land Registry (a part of Spatial Information Infrastructure) in registering a proprietor's land ownership details – issued a unique volume/folio number. A title can relate to one parcel, many parcels or an interest in a parcel, eg. 1/250<sup>th</sup> interest in a parcel(s).*

Definition from 'LAND CHANNEL – VICMAP DISPLAY – GLOSSARY'

## Theme

*The information contained in the map production material can be divided into themes which contain logically-related geographic information, each theme capable of being used as a dataset in its own right. Vicmap Transport contains a single theme: "Roads".*

## Tile

*A discrete spatial unit that defines a specific area of the database, eg a 1:25000 map sheet area. Tiles are normally unique areas which when combined will form the total area covered by the database.*

## Township

*A localised administrative area used in the formal sub-division and identification of Crown Land and in determination of general location, eg TOWNSHIP OF KIATA. Township boundaries are formally defined under the Land Act through Government gazettal. They usually defined areas originally identified and surveyed for the establishment and settlement of towns, where smaller parcels of land (allotments) were marked for alienation or reservation as housing, education, recreation, infrastructure and related sites.*

## Unique Feature identifier (UFI)

*Unique Feature Identification (each feature is uniquely identified for change management) is managed through the use of two identifier attributes; namely the Persistent Feature identifier (PFI) and the Unique Feature Identifier (UFI).*

*See also Persistent Feature Identifier (PFI)*

## Valency

*Valency in the context of this document refers to the number of chains attached to a node, eg a node which has three chains attached would be referred to as a valence-3 node.*

## VICGRID

*Coordinate system adopted by Spatial Information Infrastructure as the basis for Victorian GIS databases. VICGRID is derived from Lambert's conformal conic projection of latitudes and longitudes on AGD66 with standard parallels of latitude at 36° S and 38° S and a central meridian of longitude at 145° E. Co-ordinates are in metres. The origin of VICGRID coordinates is 2,500,000 metres west and 4,500,000 metres south of the intersection of the parallel of latitude 37° S and the central meridian.*

## VGIS

*The objective of the Victorian Spatial Information Strategy (VGIS) is to contribute to Victoria's development, wealth creation and environment protection by:*

- developing and maintaining a comprehensive spatial information resource — the infrastructure; and*
- driving, to the fullest extent, the value and capability of this spatial information resource into Victoria's information systems and processes — the benefit.*

## VSIS 2008-10

*Through this Strategy, the Victorian Spatial Council paints the emerging landscape for spatial information in Victoria and sets the broad themes for facilitating the whole spatial information community's participation in that landscape. These themes will be the focus for engagement in 2008-2010. This document does not set targets. The Council expects that all sectors will develop appropriate responses during the life of the Strategy that address prevailing circumstances, and adapt*

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*them as required. The VSC will therefore be looking to its stakeholders and partners to develop fuller responses to the challenges and Strategic Directions set out in this document.*

*Traditionally the spatial information community has been associated with data collection, maintenance and GIS development. The increase in technology development during the past decade has meant that, while there are still opportunities to improve practice, many of the issues associated with data now have viable solutions. As such, user demand has shifted to seeking improved services and delivery tools.*

*This will be achieved by creating an environment so that we can:*

- *Locate people, places, services, businesses and points of interest*
- *Connect systems, services, businesses, partnerships and link with other industries*
- *Deliver quality services, standards, frameworks and what users want.*

### **Vicmap Digital**

*Vicmap Digital is a set of spatially related data products made up from individual datasets. They are the underlying foundation to Victoria's primary mapping and geographic information systems.*

*Vicmap products are produced and managed by Spatial Information Infrastructure, Department of Sustainability and Environment. Further Information- [www.dse.vic.gov.au/spatial](http://www.dse.vic.gov.au/spatial)*

### **WGS 84**

*World Geodetic System 1984. A geocentric datum used for the determination of geographic coordinates.*