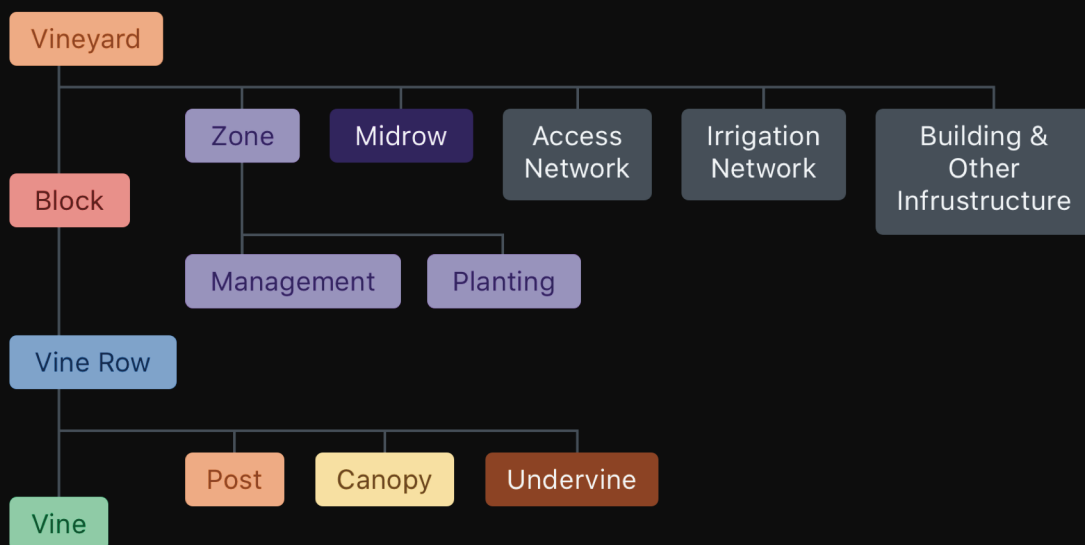


Introduction

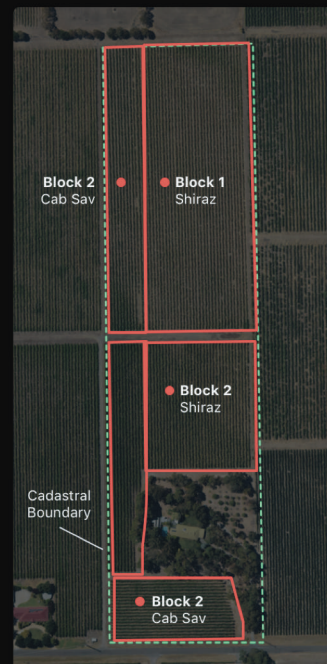
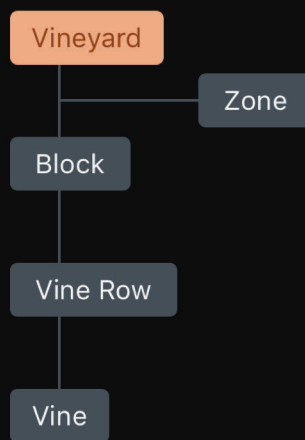
Developed as a part of the #collabriculture project, this document is designed to be a high level overview of the core features of a Vineyard that members of the grape and wine community have identified as being most important for a common and shared understanding .



Vineyard

A Vineyard is a property that includes a plantation of grape bearing vines, typically being made up of a collection of individual Vineyard Blocks

A Vineyard is an agricultural property used for viticulture. Its extent is typically defined by one or more cadastral parcels or land titles. It contains grape vines, usually organised into a number of blocks of vine rows. It also contains other features, such as access tracks, headlands, buildings, and other infrastructure.



How it's related to other features

The Vineyard is the top-level parent of all other features in this schema, and the boundary of a Vineyard feature is the "envelope", ie. it spatially contains all other objects related to the Vineyard.

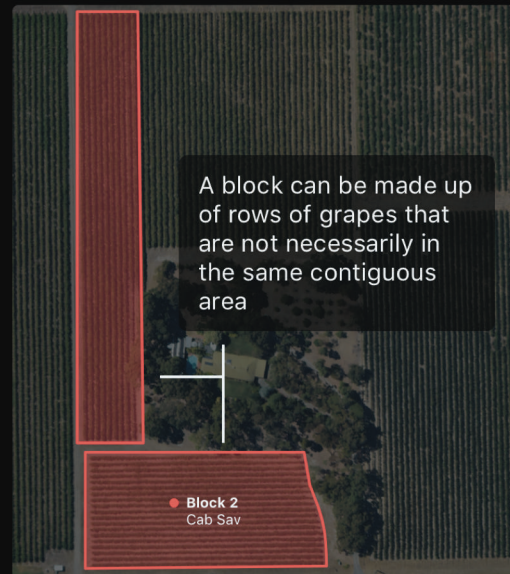
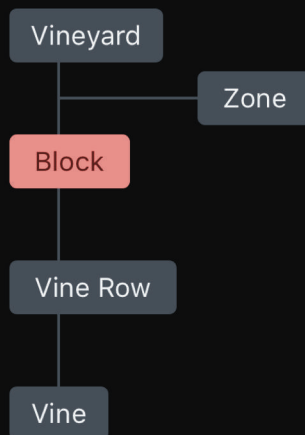
A Vineyard may be the parent of:

- any number of blocks
- any number of zones
- any number of midrows
- an access network: tracks, access points, and headlands
- an irrigation network: pumps, submains, dripper lines, filters, field valves etc
- buildings and other infrastructure such as environmental sensors, frost fans, and hazards such as overhead power lines

Block

A Block is an area planted with vines, which is managed as the basic operational unit by the grape grower.

A block feature need not be a single contiguous area; it could actually be composed of more than one distinct area.



A block is a theoretical feature: its boundary can't necessarily be discerned on the ground. It can be defined as a collection of vine row features, and its boundary must contain all of these features.

Typically, a block will contain a single grape variety. Small changes to a block (e.g. the removal or addition of a few vines or a single vine row) may be resolved with minor adjustments to the block's boundary. More significant changes (e.g. grafting a new variety onto a part of the Block, or removing vines and replanting with different varieties) would typically result in the creation of a new Block object(s), with a unique identity, and the retirement of the previously existing Block. This new "descendant" Block may have a large amount of spatial overlap with its "ancestor".

The definition reflects Blocks as a primary unit for management in the wine industry, in terms of being centrally referenced for activities such as grape supply contracts, winery intake bookings, and spray record keeping.

In terms of creating accurate and useful block boundary polygons that contain the relevant Undervine and Canopy areas, the recommendation from the #Collabiculture community is to set block boundaries that extend outside of any outermost vine rows (for example by half a row width) and up to the last strainer post at the end of each vine row (and if it was a block of bush vines without a trellis structure, then the block boundary

How it's related to other features

The boundary of a block:

- is entirely within exactly one Vineyard
- contains any number of vine rows
- does not overlap other blocks

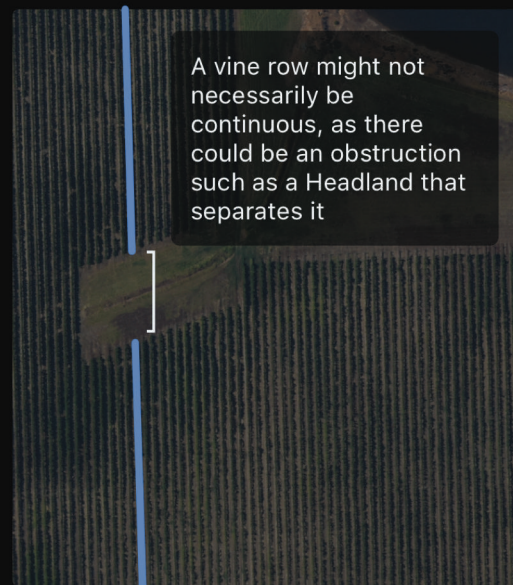
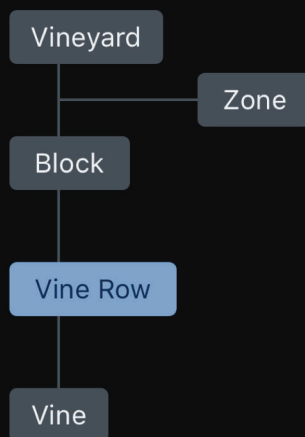
Vine Row

A vine row is an arrangement of vines laid out in a linear or curvilinear pattern, with defined row ends, such that they can be accessed by the Headlands and Midrows.

A vine row is a curvilinear feature (and with the exception of Bush vines), it is typically made of posts and wires (the "trellis"), as well as vines. It has a canopy, which is the ephemeral extent of the leafy cover of the vines during the growing season.

A vine row is typically identified by a row number, with numbering incrementing to traverse the block.

The location of features along the row, such as posts and vines, could be usefully defined using linear referencing methods, with the vine spacing being used to identify the segment of the Vine Row which is relevant to that particular Vine



How it's related to other features

A vine row is:

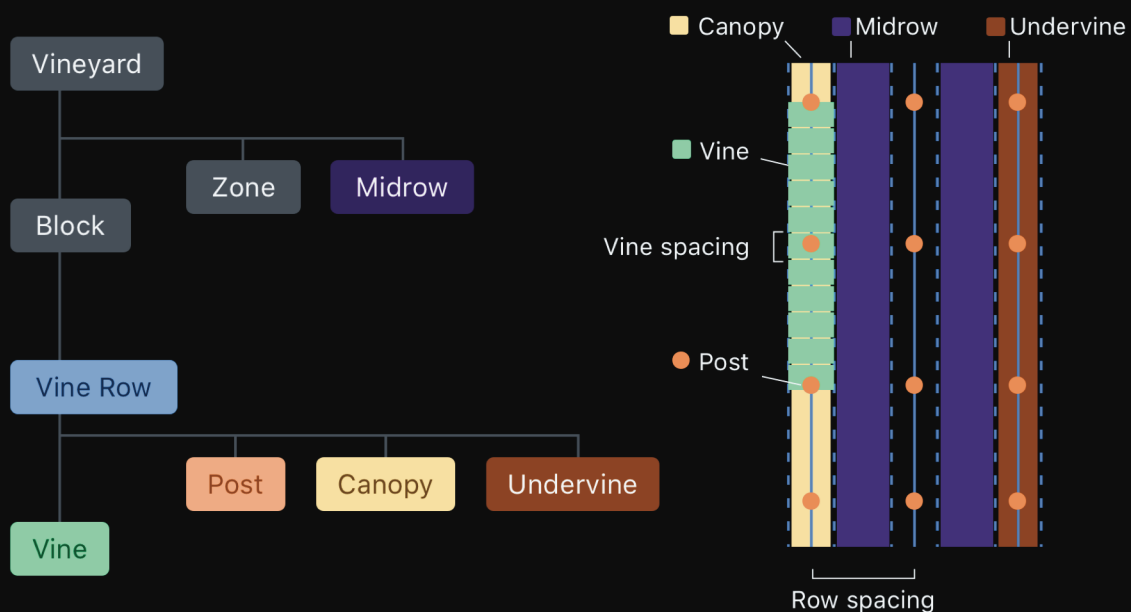
- a child of, and contained by, exactly one block
- disjoint from (doesn't intersect) other vine rows or mid rows
- a parent of any number of vines, typically evenly spaced along its length

Vine

A vine is a single grape bearing plant, grown along a vine row with regular spacing between trunks, and an above-ground structure (trunk, cordon, canes) which is typically trained along a trellis.

Not all viticulture data managers will choose to manage their Vineyard data at the vine level; for some, the vine row or Block level provides a sufficient level of detail. Those capturing individual vines would typically use point features to identify their locations.

The point location of a vine could be referenced in different ways:
geographic coordinates (eg. lat/long or another coordinate system)
linear referencing - the position of the vine in relation to its distance along the vine row (eg. 42 m from the start of the row), or its relative position in the sequence of vines (eg. vine #20)



How it's related to other features

A Vine belongs to exactly one vine row, and is located on that row

Zone

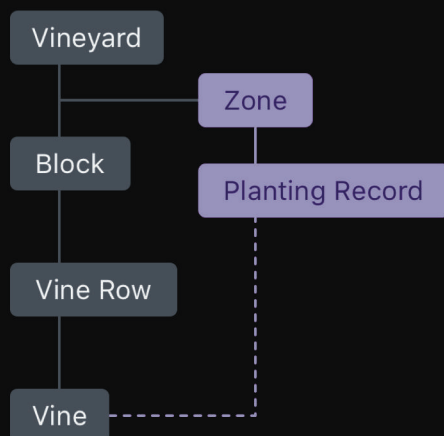
A Zone is an area within a Vineyard that is the subject of a specific activity. Examples include:

- an area that is irrigated on a schedule, with a fixed watering infrastructure
- an area planted with a specific variety in one planting event
- an area requiring specific management practices

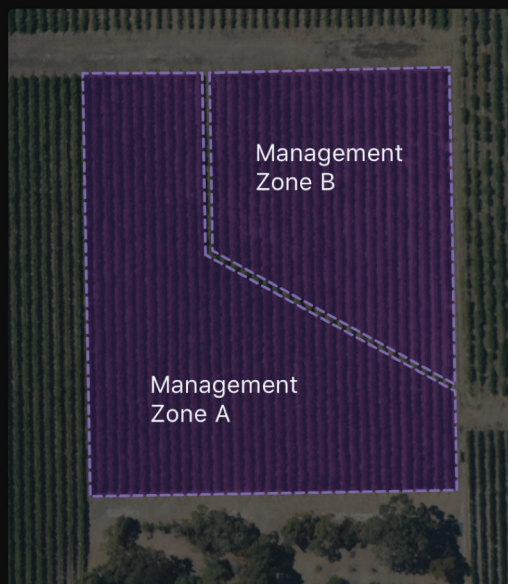
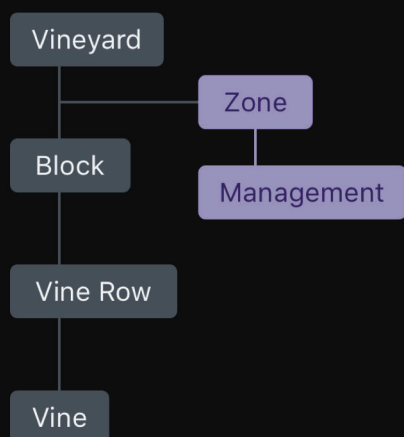
This is a flexible concept, and allows for any activity with a spatial extent to be captured in space and time.

It may also be associated with specific site features (soil gradient, texture, depth etc), inducing significantly differentiated impact, relative to other areas within the block, on vine performance such that differential management is required or is chosen to be applied

In the case of a "planting" zone, the zone would be associated with a single planting event (the planting record), which would be attributed with information such as the date of planting. It would also be associated with specific vines, which would be attributed with things like variety, clone, and rootstock.



A zone may be associated with specific management intentions for grade, yield, style or other outcome (cost reduction etc) a single event (or instance of an activity), or could be associated with repeated or ongoing activities.



How it's related to other features

A Zone

- may overlap with, and be related to, any number of Vineyards, Blocks, Vine Rows, and Vines

References

Spatial predicates: https://en.wikipedia.org/wiki/DE-9IM#Spatial_predicates

For any feedback or questions, please email hello@collabriculture.com