Plate 7: Typical country the both active user and the Spine would go through on Isaacs Ridge

Plate 8: Views west the Brindabella's

6.2.3 Active User trails

The active user trails include a number of more challenging cross country style recreational trails that cater for more advanced runners, walkers and bike riders (See Appendix 8.6).

- **Description:** Many of the active user trails require construction of the Spine Loop (see Appendix 8.5) and use the slope on the ridgeline to climb up and down to add a more challenging walk, ride or run.
- **Length:** up to 2500m.
- **Trail type:** Multi-use.
- **Design:** 0.9 to 1.2m, between 4% and 20%.
- **Issues:** These trails have many significant rock features, steep side slopes and several smaller gullies to cross.
- **IMBA Rating:** Blue (intermediate) if all B lines are included, Black Diamond (Advanced), Australian Walking Track Standard Grade 4.
- **Construction Rating:** 4 to 5. These sections offer significant challenges including significant slopes, many rocks and significant boulders. Construction technique for these trails should be predominately by hand to keep a more natural feel identified by the community through consultation.
- **Priority:** These are priority 3 trails.
- **Cost:** These trails could be constructed for between $60 and $75 per metre (at commercial rates). Total cost for this trail is in the vicinity of $130,000.

Plate 9 – Example of a more active trail potential finish (Alan Vogt, Kowalski Brothers TrailWorks). As well as constructed sections of trail Active User Trails will make use of existing rock features such as this.

6.2.4 Potential Extension to the Canberra Centenary Trail

The CCT Extension could occur if either the upper or lower section (the Parallel Trail) of the Spine Loop is constructed.

- **Description:** The CCT continues on from the upper section of The Spine, heading north and continuing to climb through the native sections of the Northern section of the ridge. This section has not been described in detail as it requires the construction of new trail within an area outside of the area of works and it identified as a priority 3 trail.
- **Length:** 860m (to the top of the ridge). 2000m northern face of the ridge.
- **Trail type:** Multi-use.
- **Design:** 1.8m, between 4% and 12%.
- **Issues:** This trail will need to be constructed by professional trail building company.
- **IMBA Rating:** Green (easy), Australian Walking Track Standard Grade 3.
- **Construction Rating:** 3. This section offers significant challenges including significant slopes, many rocks and significant boulders
- **Priority:** This is a priority 3 trail.
- **Cost:** The Spine could be constructed for between $35 and $45 per metre (at commercial rates). Total cost for this trail should be a maximum of $116,000. This is at the higher end of the cost estimate.

6.2.5 Equestrian Trails

All existing equestrian links within the reserve are to be retained. Trail crossing points are to be designed to ensure the safety of equestrians and other users. Further consultation with the equestrian community should be undertaken to better understand and meet their specific needs.

There is the potential for a short link between the south-eastern entry to the reserve and the lower fire road. Consideration should be given to constructing this section as a short bypass.

6.2.6 Existing management roads

Isaacs Ridge has many existing management roads, which are perfect recreational and fitness use. All of these trails should continue to be maintained to their current high standards. While not identified on the plates above these roads will be used to help make a variety of recreational loops suitable for many users including runners, walkers, riders and equestrians. Equestrian users will continue to be able to utilise the existing equestrian trails. Options for an additional equestrian trail may be further explored.

6.3 TRAIL CONSTRUCTION

6.3.1 Construction methodology and role of volunteers

Trail upgrade and construction throughout Isaacs ridge could be undertaken with a combination of professional trail builders and a team of dedicated volunteers. The preference of those who participated in the consultation was for a more natural hand built feel to the trails within Isaacs Ridge. Therefore, where possible the majority of the trails (unless otherwise specified) should be upgraded and constructed with a minimum of machinery.

The formation of a cooperative volunteer trail maintenance group (a park care group), similar to those formed for Bruce Ridge (Friends of Bruce Ridge) and Majura Pines (Majura pines Trails Alliance) is recommended. This volunteer group should undertake on-going trail maintenance. Parks and Conservation Service staff and/or trail professionals should undertake semi-regular audits of the trails to ensure that an appropriate standard of repair is maintained.

The volunteer group would primarily be responsible for the management of all non-management tracks within the reserve consistent with the Isaacs Ridge Trails Plan. In practical terms this would include the maintenance of existing trails, construction of any new trails and the closure of trails under a work plan agreed to by the land manager.

6.3.2 Initial Downhill alignments

A professional trail builder, using a combination of both machine and hand built practices, should undertake the upgrade and construction of the initial downhill alignments. Major features of these downhill trails should be constructed by professional trail builders to ensure safety and that a quality, well constructed and sustainable product is achieved. A small number of volunteer coordinators should work closely with the professional company to assist in both guiding trail design and to learn appropriate techniques for the further construction of the aspirational braided downhill trails.

Volunteer coordinators should then work closely with Parks and Conservation Service to build a core volunteer group to maintain these trails to an appropriate standard.

6.3.3 Multi-Use Trail alignment (and Possible Centenary Trail Extension)

A professional trail building company should undertake the construction of the multi-use spine. This trail should be constructed with a reasonably broad tread (~1200-1500mm tread width). As it traverses steep and rock slopes it

will require mechanised trail construction to achieve an appropriate finish. The volunteer trails group would undertake ongoing maintenance of this trail. Note: The installation of bridges or other engineered infrastructure on this trail must only be undertaken by suitably qualified and licenced professional builders.

6.3.4 Earthworks and erosion control, cut and fill, retention

Trail construction requires earthworks and vegetation clearing, both of which have the potential to result in environmental harm. Therefore erosion control and cut and fill retention must be addressed to minimise negative impacts of trail construction.

- Full bench cuts require cut and fill. As the topography of the site is predominately sloping terrain, material that is cut from the upper slope should be deposited on the downslope. The cut batter should be made to a stable grade (which will depend on the soil type the trail is running through). Given all multi-use trails should be full bench trails the need for fill batter should be minimal. However, if needed, any fill batter should be well compacted to avoid erosion and slumpage. Vegetation is not to be incorporated in any fill used on any of the trails or trail features (including berms and jumps).

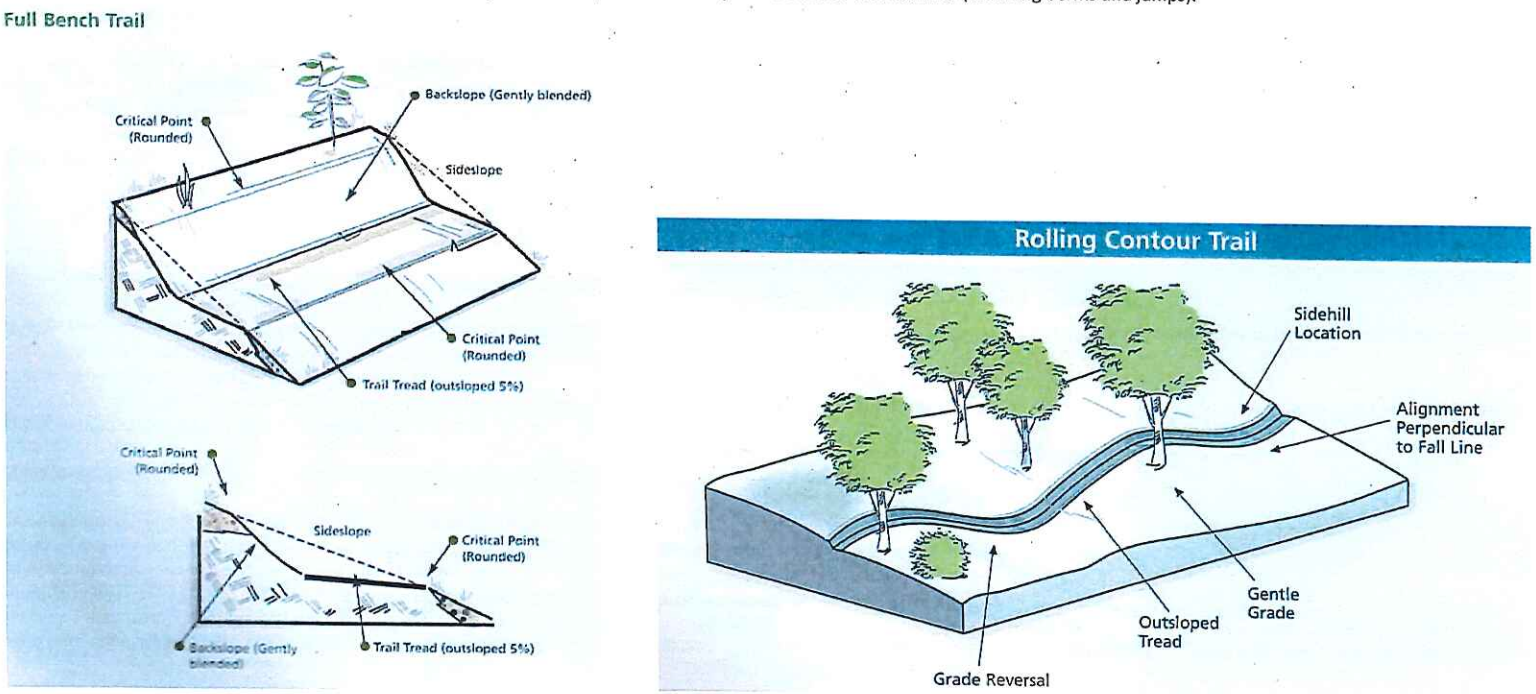


Plate 10 and Plate 12 Source: *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*, International Mountain Bicycling Association (IMBA), June 2004

- Multi-use trails should be constructed using a rolling contour design to minimise the need for physical drains. A rolling contour design is a path that gently traverses a side-slope and is characterised by gentle grade reversals (undulations). The tread of a rolling contour trail has an out-slope of ~5%. If and where drains are needed, they are to be installed during construction and where the fill batter is at the lowest height (at the lowest point of a grade reversal).
- During construction water may need to be slowed down and dispersed off the side of the trail. Where this occurs the contractor and the volunteer group will need to incorporate silt traps in conjunction with ground cover (where available). This will allow sediment and nutrients to be filtered out of the water and will reduce pollution and erosion. It will be the contractors' (and where appropriate the volunteers groups) responsibility to ensure that silt traps are secured and located appropriately.
- Approvals for significant construction may require an Environment Protection Authority-approved Erosion and Sediment Control Plan.

6.4 FACILITIES

6.4.1 Car parking

Much car parking for formal event and informal usage takes place on the road verge on Long Gully Road. This informal car park located on a fast section of road and may see users cross double white lines to either enter or exit the car park. There is a very strong recommendation that this practice be actively discouraged and parking encouraged at a different location.

This plan recommends the encouraging of parking at Shepherdson Place, Isaacs. The advantages of parking in this location include:

- An existing informal parking area with space for approximately 10-12 vehicles. This area would need to be formalised to ensure that regular parking did not impact existing trees.
- There is scope to utilise the old Long Gully Road (at the head of Shepherdson Place) for proposed minor event parking. This area is currently gated, incorporates a sealed road and has parking available for between 90 and 120 vehicles. Little work will be required in this space other than the gating of the southern end to ensure that event vehicles do not encroach on the existing community path.
- Formalisation of these areas should be considered as a Priority 1 development.

6.4.2 Signage

While the trails described here are designed for local users that does not preclude the need for good signage. Good signage can be the difference between a good trail experience and a great trail experience. It provides a level of trail safely, reassures users by reinforcing their location, lets them know how to get to their destination, provides for the rules of the trail and improves overall trail experience. Good signage lets the user form a picture of an area, links area and key landmarks in a logical way, and improves person's ability to move easily and safely between locations.
Good signage provides an appropriate level of information that allows people to;

- Get to their destination safely and understand the commitment they need in terms of time and effort to get there; and
- Get more from their journey by diminishing risk and enabling them to appreciate their surroundings.

The incorporation of signage within the reserve should be considered as a Priority 1 development.

Signage needs consistency, predictability, relevance and compatibility.
The principles for design of directional signage should incorporate the application of a flexible and rational approach, within the established framework (as defined by TAMS Design Standard 13 and TAMS Design Standard 25).
There are several standards that need to be reflected in any signage strategy.

- AS 2156.1–2001 Walking tracks classification and signage provides a classification system for walking tracks and should form the basis for trail signage.
- As per TAMS Design Standard 13, signage for pedestrians and cyclists is to be sited so as to be visible and legible with particular regard to the eye height and sight lines of these users. Signage should be placed as low as possible to permit good visibility by pedestrians and cyclists
- Signage should also meet AS1742.
- Signage guidelines developed for the Canberra Centenary Trail should also be considered as many users will be familiar with this system of signage.

Signage Principles

The principles of good signage include:
Consistency

- Trail users will look for consistency between signs from one point to the next on their journey. A consistent branding, colour, shape and format will reassure the user that they are going the right way. As such the design themes are to be consistent with those used throughout lands managed by TAMS Parks and Conservation Service.
- Type face and branding of signage is to be determined by the Parks and Conservation Service but should be consistent across the entire network (preferably across the entire Park and Conservation Service)

Predictability

- Trail users will appreciate the predictable and coherent placement of signage. Users should be able to predict with confidence when and where the next sign along their journey will be.
- Signage should be located at key decision points (defined here as the intersection of two or more routes, an example of which are trail junctions and road crossings.
- Interpretative signage (where deemed appropriate) should be located at a logical position within the forest (i.e. a rest stop or particular view).

Relevance. Signage must provide information that is at least one of the following;

- User type (i.e. multi-use, single use bike, single use equestrian or walking only)
- The directional and/or distance;
- The presence of risk factors- warning signage.
- Interpretive signage, aimed at increasing the users understanding of the local environment.

- Information on the network/orientation signage.
- Information on acceptable behaviour

Compatibility - The signage must contribute to the experience of the journey and avoid sign clutter. Signage should fulfil the following criteria:

- Meet the relevant Australian Standards (AS1742)
- Be visually attractive and sympathetic to the environment;
- Incorporate information that is easily understood;
- Use simple construction and strong materials that are vandal resistant and that age well or minimally;
- Be designed to allow a person travelling less than 15km/h to understand the meaning of the sign (directional and warning signs) from 3m away; and
- In key locations, such as trailheads, be easily accessible for people with impaired mobility or vision (AS1428.1).

Plate 13: Example of small mapping signage placed at strategic locations (Bruce Ridge)

Signage Types

There are five types of trail signs that should be incorporated into the trail system:

- Information signs provide information relating to the trail and its use, including:
  - Personal safety precautions
  - Environmental protection (minimal impact practices)
  - Skill and fitness level required
  - Specific conditions.
- Descriptive signs specify information necessary for the safe and enjoyable use of the trails. Signs should be large enough to be read at some distance and may include:
  - The type of trail (e. g. loop, or recommended direction)
  - The effect of weather conditions (i.e. trails may be slippery when wet)
  - Elements of interest, trail conditions or difficulties (e.g. facilities, slippery rocks)
  - The opening and closing hours of the trail

- The distance to designated point
- An estimated completion time
- The direction of the initial course of the track
- A graphic image/map for orientation.

- Interpretive signs add interest to the trail and conveys educational material about the reserve. The inclusion of interpretative signage along the trails within Isaacs ridge (particularly the downhill trails) is considered a lower priority but will provide interest for casual users on the shared use trails and the Canberra Centenary Trail.
- Warning or risk signs play an important role in risk and safety management of recreational areas such as trails for three principal reasons:
  - They inform users of dangers, safety issues and other relevant information
  - They offers some protection to the land manager who is required to warn users of dangers, prohibitions and other safety information
  - Further investigations through design and construction will determine specific locations for warning signage along the trail alignments.
  - Warning or risk signs advise users to particular danger or risk and should include the following information:
    - Appropriate pictogram identifying the hazard
    - statement of danger or hazard
    - statement of consequence
    - statement of precautionary action.

- Regulatory and code of conduct signs.
  - Regulatory signs specify legal requirements and regulations associated with the use of a trail.
  - Code of Conduct Signage
    - Recognising that users will join the trails at any number of points, distance and direction signs should be installed at all trail entrances. This will provide information to users joining the trail at locations other than at trailheads and will provide additional information for users already on the trail.
    - The full code of conduct signage should be installed the nominated trail head to inform all users about appropriate behaviour when sharing the trails to alleviate potential conflict between different trail users - i.e. cyclists give way to pedestrians and equestrians (when appropriate).

Trailhead Signs

TAMS have recently installed trailheads at Majura Pines and Bruce Ridge. These trail heads inform users of activities, code of conduct, the nature of the reserve and provide maps to the area. These trail heads should form the basis for trailhead signage within Isaacs Ridge.

6.4.3. Rest areas and viewing platforms

A series of low-key, rest areas placed within the reserve to allow users to rest, enjoy the view and socialize. It is anticipated that these facilities should take the form of informal seating arrangements, such as strategically placed logs and rock rather than more formal benches and tables. Consideration to the visual appeal of the site and the location of trail facilities should be given when siting rest facilities.

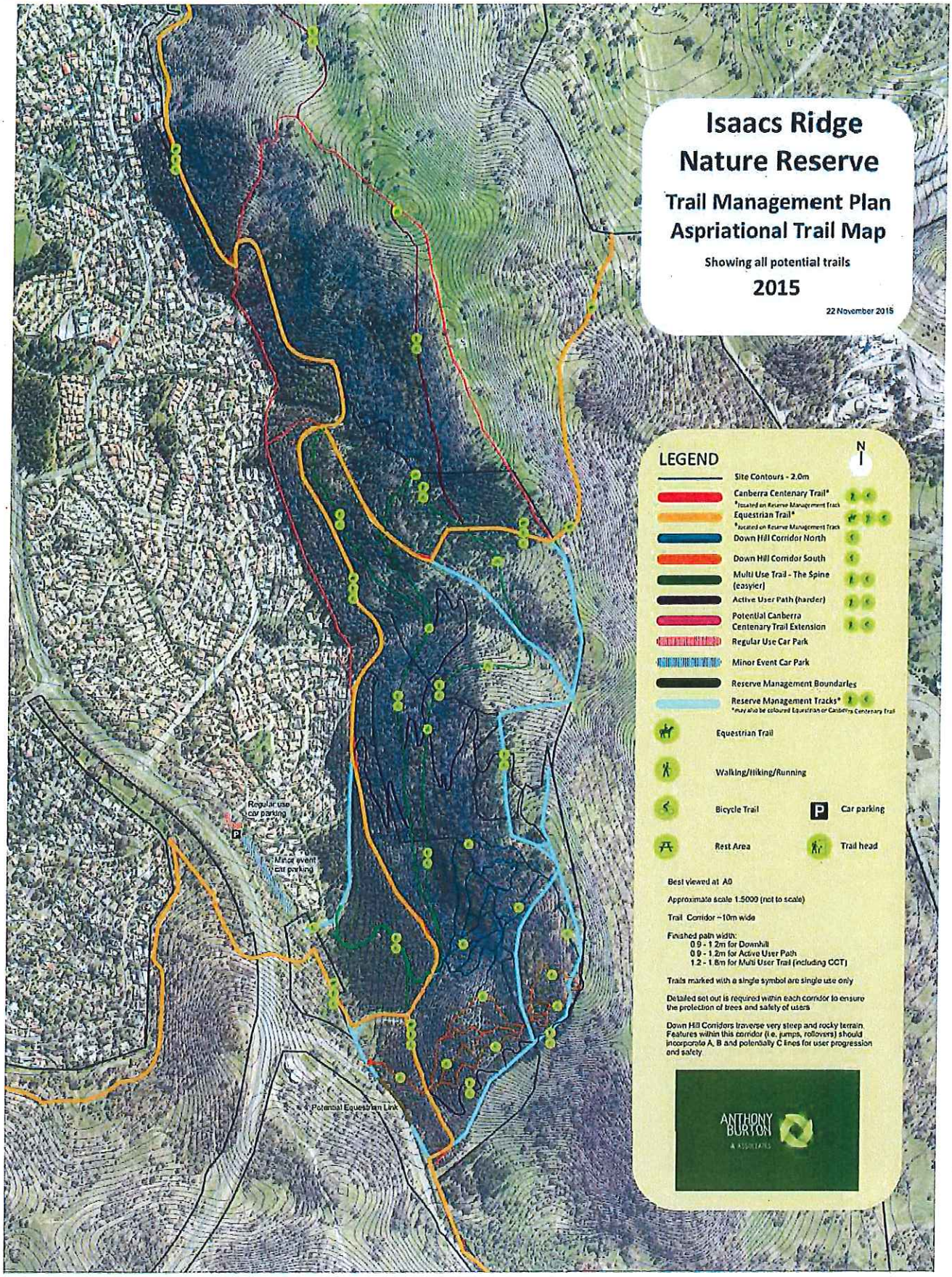
7 CONCLUSIONS

There is clearly a strong level of community support for the development of appropriate fair and equitable trails within Isaacs Ridge. The easily accessible, disturbed and sloping nature of the site, is of particular interest to active recreational users. This means that the is a demand for equestrian trails, walking, hiking and running paths and for opportunities for cross country and downhill mountain biking.
The next steps are the:

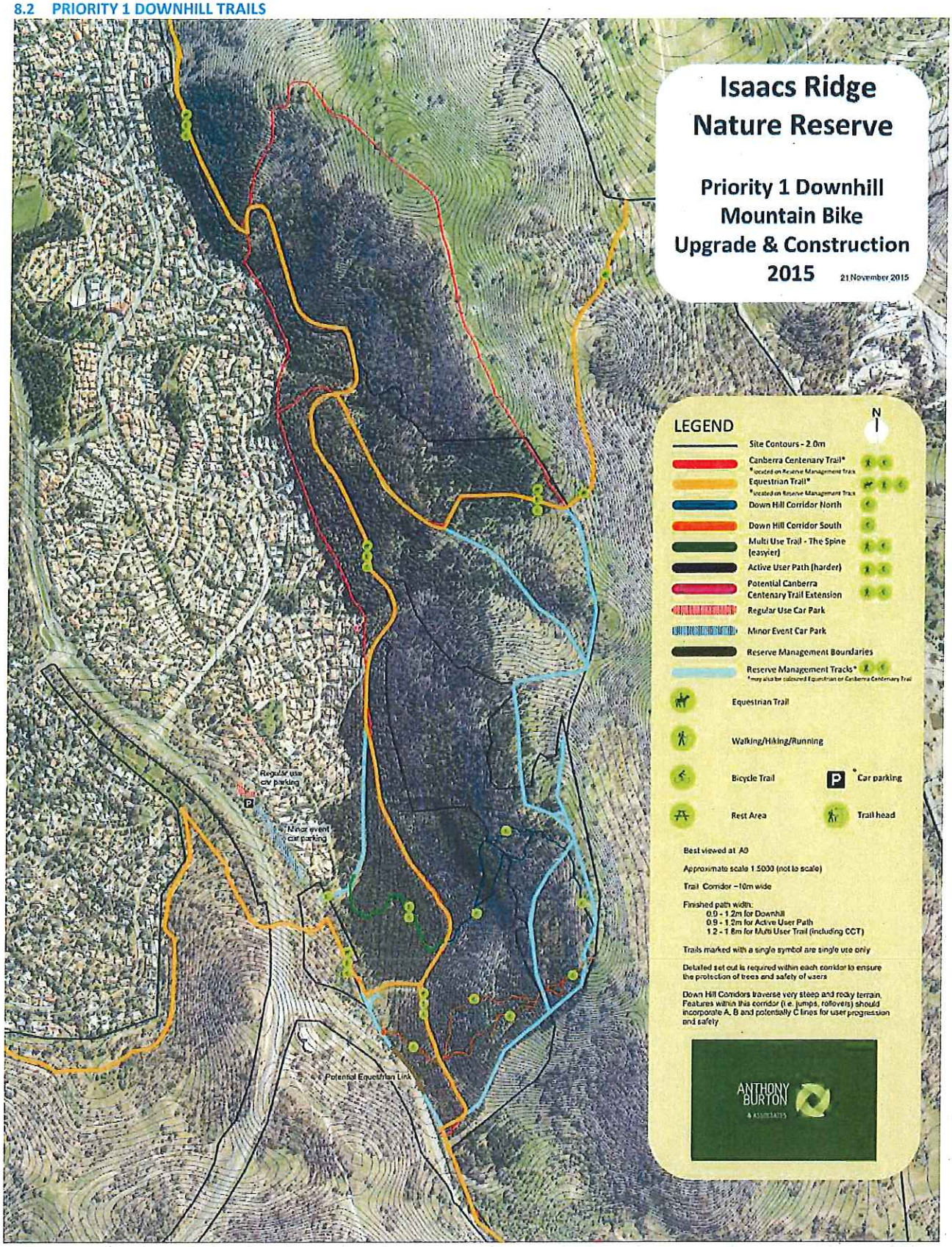
- Agreement by government and the community to the recommendations of the Isaacs Ridge Trails Plan;
- The engagement of the community to take the Trails Plan forward and implement its recommendations (including the formation of a volunteer based trails management group);
- Engagement of a suitably qualified and experienced contractor to undertake construction works; and
- The development of an implementation schedule that identifies:
  - All priority 1 recommendations, particularly the formalisation of safe and appropriate car parking, and downhill trail infrastructure should be undertaken as part works funded in the 2015/16 financial year.
  - All priority 2 and aspirational recommendations be should considered as part of this implementation schedule in the first year (if there is available funding) and, if there is no available funding in 2015/16 be undertaken (subject to funding and community support) in the out years.

8 APPENDIX

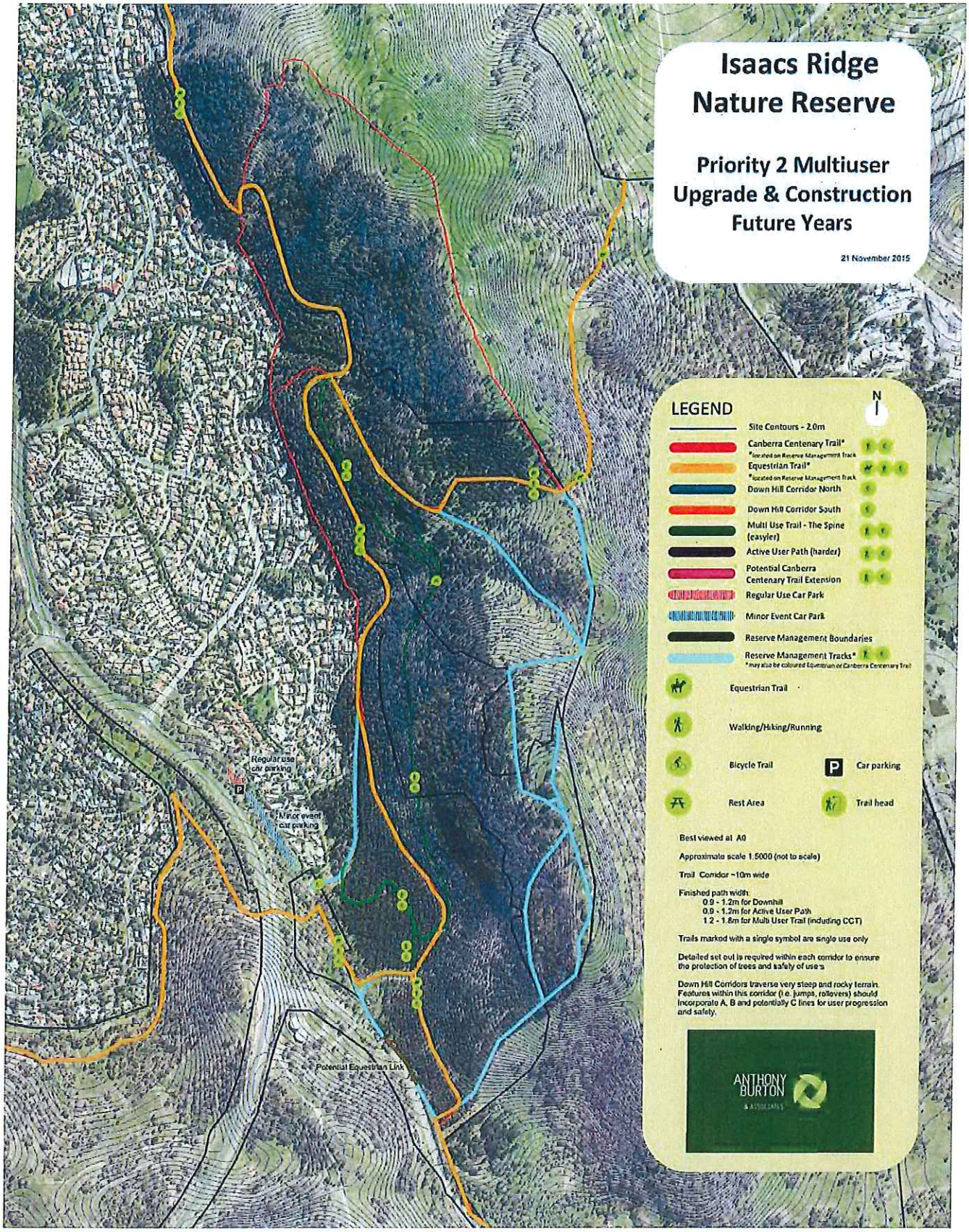
8.1 TRAILS PLAN - ASPIRATIONAL



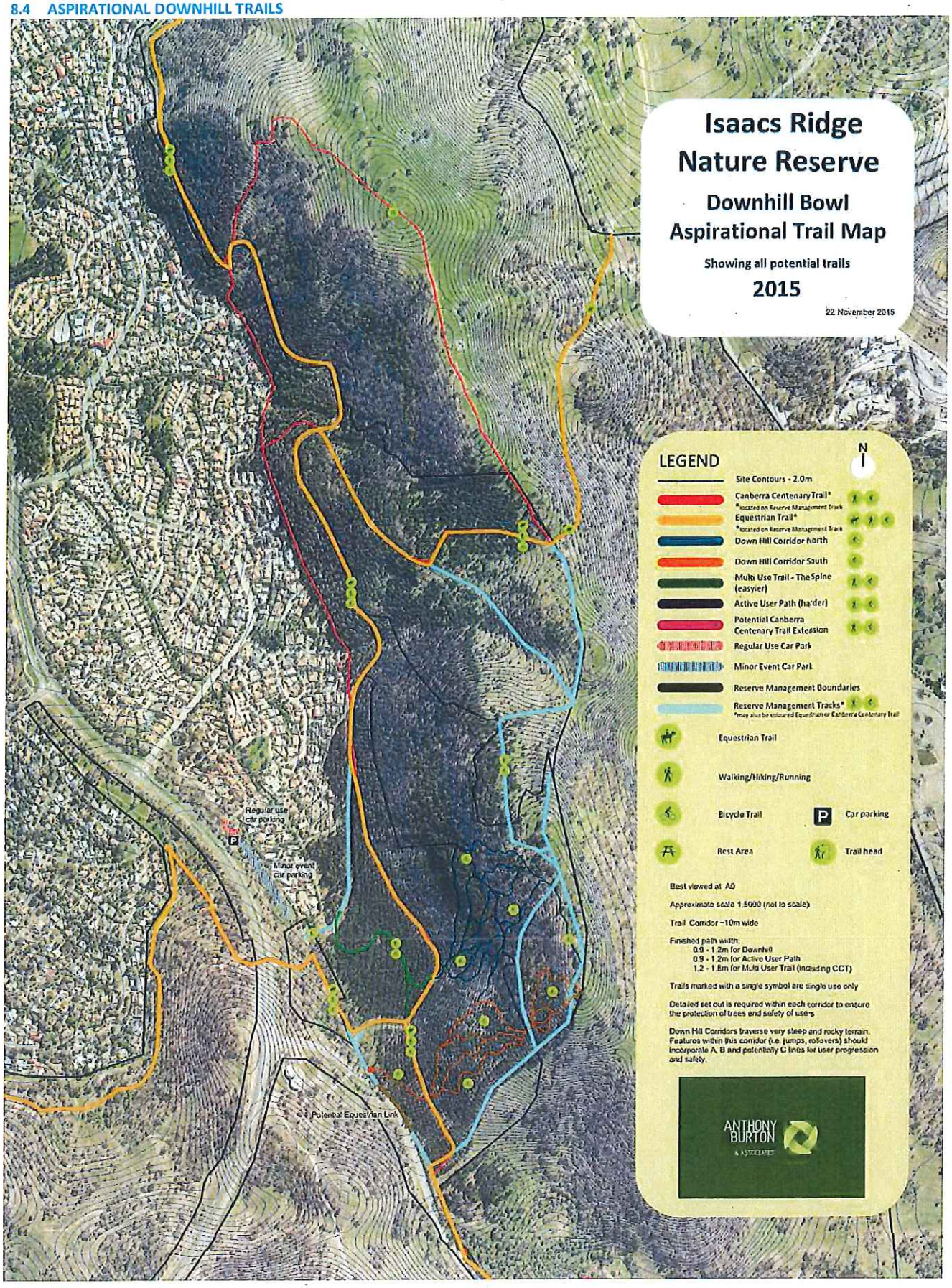
8.2 PRIORITY 1 DOWNHILL TRAILS



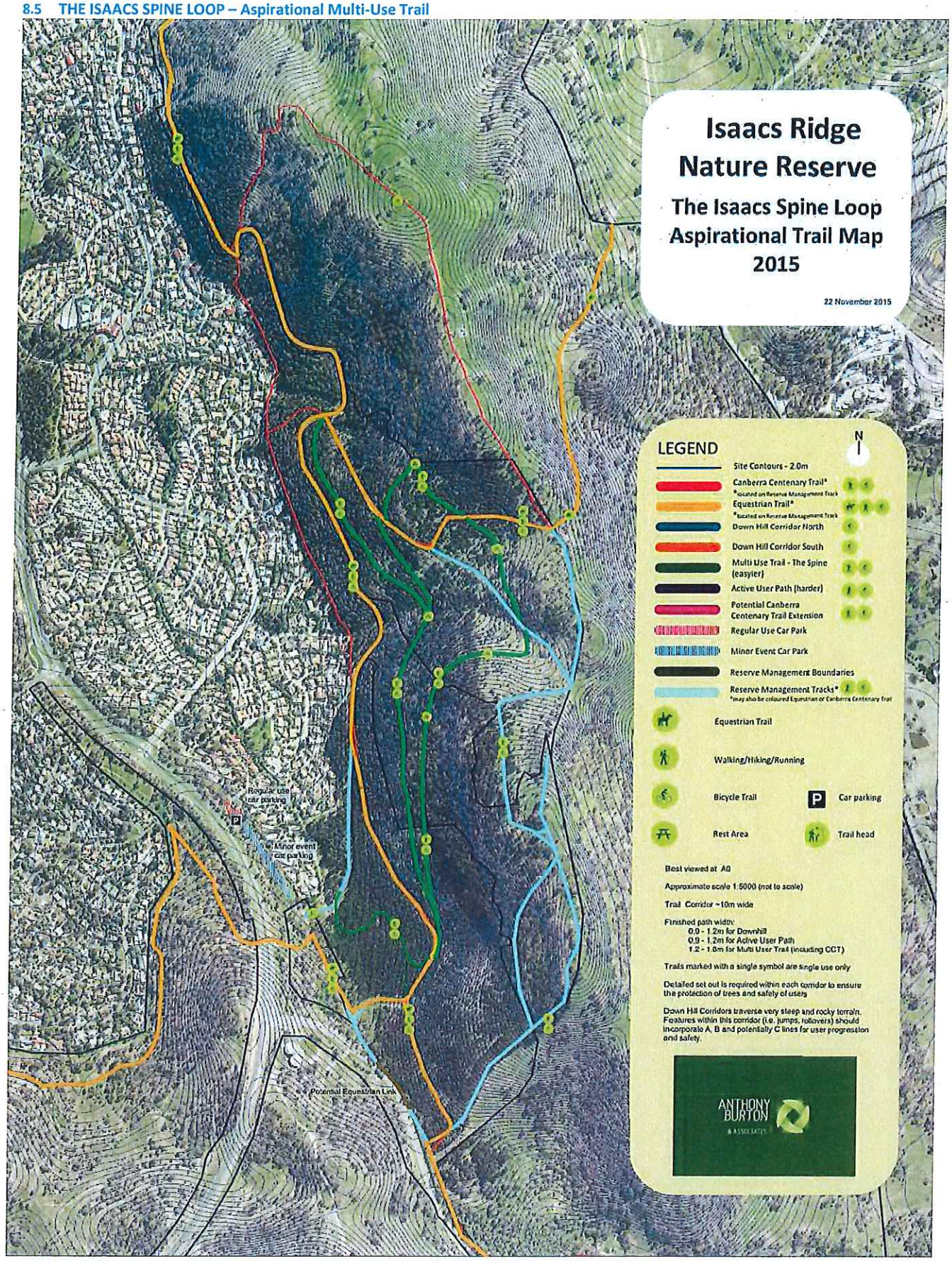
8.3 PRIORITY 2 MULTI-USE TRAILS



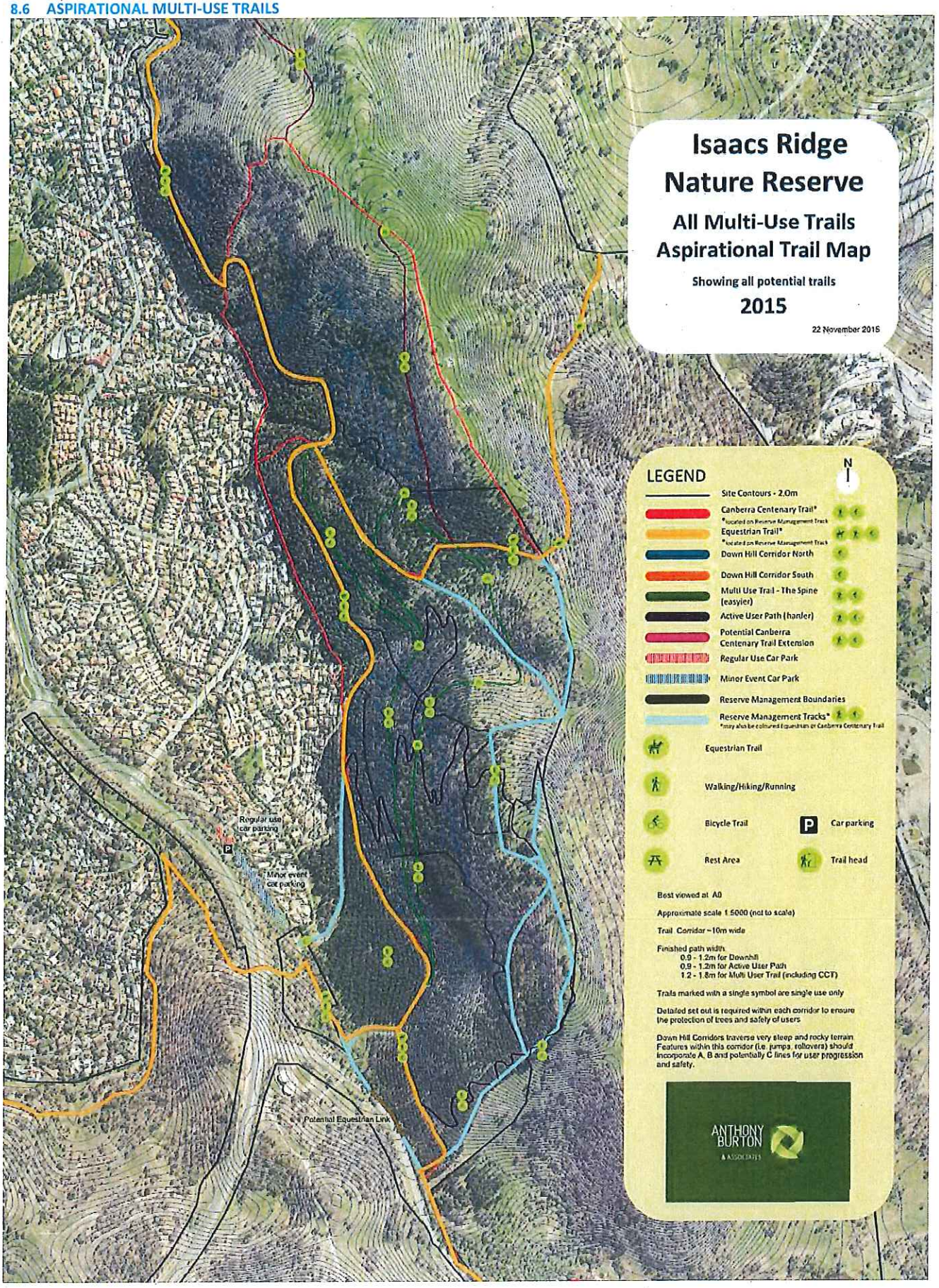
8.4 ASPIRATIONAL DOWNHILL TRAILS



8.5 THE ISAACS SPINE LOOP – Aspirational Multi-Use Trail



8.6 ASPIRATIONAL MULTI-USE TRAILS



8.7 CONSULTATION REPORT

9 REFERENCES

[1] Watson H, Tanner K. Consultation Report Isaacs Ridge Mountain Bike Trail Upgrade Project. Canberra: Territory and Municipal Services, 2015.

[2] Burton AJ. Isaacs Ridge Recreation Facility Community Engagement and Concept Plan. Canberra: Anthony Burton & Associates, 2014.

Further references including, but not limited to, the following were used to inform the plan but are not specifically referenced throughout the plan:

- Managing Mountain Biking: IMBA's Guide to Providing Great Riding
- Sustainable Recreational Trails - Guidelines for the Planning, Design, Construction and Maintenance of Recreational Trails in South Australia
- Integrating trail condition assessment with recreation demand modeling of mountain bikers in the Research Triangle, North Carolina
- Trail Solutions: IMBA's Guide to Building Sweet Singletrack
- IMBA – Australia Trail Difficulty Rating System, IMBA – Australia 2012
- Bike Parks: IMBA's Guide to New School Trails
- Design Standards for Urban Infrastructure 25: Urban Park and Open Space Signage, 2009
- Australian Standard Walking tracks Part 2: Infrastructure design
- Cycle Trail Design Guide
- Equestrian Design Guidebook for Trails, Trailheads and Campgrounds