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BRACKEN MOUNTAIN

MASTER PLAN



**RECOMMENDED DRAFT
DECEMBER 4, 2006**

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1 INTRODUCTION AND PURPOSE OF THE PLAN

Between 1910 and 1915, the City of Brevard purchased four parcels of land totaling 395.64 acres¹ on the headwaters of both Brushy Creek and Brackens Creek, which form part of the headwaters of the French Broad River Basin in Transylvania County, North Carolina. This property was the first public water supply source for the City of Brevard, used until the City began to use Cathey's Creek in 1979.² According to a 1987/88 appraisal and timber examination, the City was considering either developing or selling the property. In February 2004, Brevard City Council determined that the property should be preserved from development while providing public access for low impact recreational activities.³ Council then began work to establish a permanent conservation easement on the property. In August 2005, the Clean Water Management Trust Fund (CWMTF) awarded the City of Brevard a \$1.04 million grant to fund the establishment of a permanent conservation easement on the Bracken Mountain Property.



View of the property from East Main Street, Brevard, N.C.

¹ Elbert L. Taylor, Sr., GRI, *Appraisal Report- Property Owned by: Town of Brevard, Property Address: Brackens Creek and Brushy Creek Watershed, Brevard NC 28712*, (Swannanoa, NC: Sumner and Foster Appraisals, 22 March 2004), 10).

² Altamont Environmental, Inc., *Phase I Environmental Site Assessment: Brackens and Brushy Creek Watershed, Brevard NC*, (Asheville, NC: Altamont Environmental Inc., 21 May 2004), 3.

³ City of Brevard City Council, *"A Resolution Authorizing Submittal of an Application for a North Carolina Clean Water Management Trust Fund Grant,"* Resolution No. 13-04, adopted on 16 February 2004, Brevard NC.

1.1 Purpose of this Master Plan

This Master Plan provides a framework for the preservation of the City's Bracken Mountain property (See Appendices 6 - 9), and for the development of that property for recreational purposes. This Master Plan also provides the foundation for the establishment of a conservation easement made possible through a grant from the North Carolina Clean Water Management Trust Fund (CWMTF). The easement sets forth conservation and recreation management principles for the property and defines the scope of public recreational facilities and programming.

“The purpose of the Conservation Easement is to protect wetlands, riparian areas, and surface waters within the watershed where the property is located, and to protect and preserve the forest, wildlife, natural heritage, and other Conservation Values of the property, to the end and that the waters flowing over it and the waters into which those water flow may be preserved in quality and protected in their present values, without the deleterious effects that may arise from uses of development of the property which are prohibited.”⁴

It is the objective of the City and CWMTF, by means of a conservation easement, *“to restrict the property in order to preserve, enhance, restore, and maintain the natural features and resources of the property, to provide habitat for native plants and animals, to improve, maintain, and protect water quality, and to control runoff of sediment.”⁵* The City proposes to perpetually maintain this valuable and precious space in its natural, scenic, wooded, and open condition, and restricted from any development or use that would impair or interfere with the natural qualities that make it special.

It is also the objective of the City to make this property available for the recreational enjoyment of the citizens of the City of Brevard. Brevard is blessed to have at its doorstep this unique asset, which will provide recreational opportunities that enhance the quality of life of the city's residents, and which may, in time, provide a gateway linking downtown Brevard to Pisgah National Forest, thereby enhancing the attractiveness of Brevard to residents and visitors alike.

⁴ Clean Water Management Trust Fund, “Article I – Purposes and Duration of Conservation Easement,” *Example Conservation Easement* on <http://www.cwmf.net/easement.htm> last updated on January 2005.

⁵ Clean Water Management Trust Fund, “Recitals and Conservation Purposes,” *Example Conservation Easement* on <http://www.cwmf.net/easement.htm> last updated on January 2005.

2 PROCESS

This master plan was prepared by the Bracken Mountain Master Plan Steering Committee (Appendix 1). Technical assistance was provided by Radka Chalúpková, Planner & Project Coordinator; Mike Pratt, Brevard City Attorney; Randy Burgess, District Ranger, Pisgah National Forest; Ed Schwartzman, Natural Heritage Trust Fund, the North Carolina Wildlife Resources Commission; Matt Christian, Pisgah Wildlife Education Center; Bruce McDonald, North Carolina Division of Forest Resources at DuPont State Forest; City of Brevard Public Works Department, City of Brevard Building & Grounds Department, City of Brevard Planning Department, Envision Associates, Equinox Environmental Consultation and Design, Inc., and many other valuable contributors. The public made important contributions by means of a public input session. Special thanks is given to the property owners who contributed land to provide access to the Bracken Mountain Property. Their names are listed in alphabetical order in the sidebar, left. Brevard City Council is to be credited for its commitment to protecting the Bracken Mountain property. Most importantly, the Clean Water Management Trust Fund is to be recognized for providing the generous resources to make protection of the Bracken Mountain property possible.

The process of creating this Master Plan included the following elements:

2.1 Site Assessment

- Review and evaluation of available information about the property including:
 - Phase I Environmental Assessment provided by Altamont Environmental, Inc., in May 2004.
 - Conservation Easement Baseline Documentation provided by Equinox Environmental Consultation and Design, Inc., in January 2006.
 - Botanical inventory performed by the North Carolina Natural Heritage Trust Fund in spring and summer 2006.
 - Appraisal Reports ("Pre-Easement") provided to the City in November 1988 and March 2004.

- Timber examination provided by NC Department of Natural Resources and Community Development in January 1987.
 - Surveying performed by Envision Associates in March 2006.
 - NC Division of Wildlife Resources survey conducted in the fall of 2005.
 - Appraisal Reports conducted in May 2004 and in December, 2006.
- o Review and evaluation of available maps and GIS data of the property.
 - o Site inventory and GPS mapping - inventory and evaluation of manmade features, problematic sites (debris and erosion), and possible recreational facilities location.

2.2 Needs Analysis

- o Review of Regulatory Policy and Issues: Requirements of the CWMTF, Requirements of Pisgah National Forest (based on the Land and Resource Management Plan for Nantahala and Pisgah National Forest⁶), as well as review of community plans including the Focus 2020 Community Report, the City of Brevard Land Use Plan, the Unified Development Ordinance, and City of Brevard Comprehensive Pedestrian Plan.
- o Public Input Session – A public meeting was held to gather input on property management and recreational uses.
- o A meeting of City Staff was held to gather input on property management and utilization.
- o Consultations and Recommendations from: DuPont State Forest, Pisgah National Forest, Equinox Environmental Consultation and Design, Inc.

⁶ U.S. Forest Service, *National Forests in North Carolina: Land and Resource Management Plan for Nantahala and Pisgah National Forest - Amendment 5*, (U.S. Forest Service: Asheville, NC, March 1994), III-71. Also available online at: http://www.cs.unca.edu/nfsnc/nepa/nantahala_pisgah_plan/nantahala_pisgah_94_plan_amendment.pdf.

- City Staff held negotiations of possible access to the property with residents and owners of neighboring properties.



Public Input Session hosted on December 12, 2005.

2.3 Creation and Review of the preliminary draft Master Plan

- The Preliminary Draft was prepared by the Bracken Mountain Master Plan Steering Committee with the assistance of the City of Brevard Planning Department.
- The Preliminary Draft was delivered to the Steering Committee, CWMTF, Pisgah National Forest and the City staff for review and comments.

2.4 Final Master Plan Adoption and Implementation

- The steering committee (see Appendix I) and staff prepared a preliminary draft based upon public input.
- Council adopted the Master Plan on December 4, 2006 by Resolution No. 73-06.
- Upon approval of this Master Plan and securing of the conservation easement, Staff will present Council with a proposed project budget for Master Plan implementation.

3 DESCRIPTION OF THE PROPERTY

3.1 General Property Information

The Bracken Mountain Property (Parcel Identification Number – PIN: 8576-46-6776-000) encompasses approximately 395.64 acres and is located on the outskirts of the City of Brevard within Transylvania County, North Carolina.⁷ The property lies approximately 0.25 miles northwest of Brevard.⁸ The areas to the south, southeast, and east of the property contain scattered residential homes.⁹ To the west, northwest, and north of the Bracken Mountain Property lies the Pisgah National Forest.¹⁰ In general, the property contains southeast facing slopes with undulating coves and ridges of western and eastern aspects.¹¹

The center of the subject property is located at the approximate latitude and longitude coordinates of 35° 14' 42", and 82°, 45' 58" respectively.¹²

The property is undeveloped and entirely forested. There are no buildings or other development on the property. The property is difficult to access due to geographical constraints, dense vegetation, private property boundaries, and the absence of improved access roads.¹³ An extensive network of old, logging roads exist throughout the property; however, most roads have regenerated with vegetation and are very difficult to navigate while passing through Pine-Oak/Heath and Acidic Cove forests.¹⁴ Please see Appendices 6-9 which are vicinity and site maps to use for a visual of the area.

7 Equinox Environmental Consultation & Design Inc, "Section A: Property Information – Description of the Area in the General Vicinity of the Property," *Bracken Mountain Property – Baseline Documentation, Transylvania County North Carolina* (Asheville, NC: Equinox Environmental Consultation & Design Inc, January 2006).

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

¹² Altamont, 3.

¹³ Altamont, 11.

¹⁴ Equinox, "Observations from Fieldwork – Description of Wildlife," *Section B: Conservation Values of the Protected Property*.

3.2 Historical and Current Uses of the Property and its Vicinity

The Bracken Mountain Property is comprised of four separate purchases occurring in the years 1910, 1911, and 1915.¹⁵ The Brushy Creek watershed served as the public water supply source for the City of Brevard until the City began using Cathey’s Creek as its water supply source in 1979.¹⁶ The Brushy Creek watershed provided up to one million gallons of clean drinking water per day.¹⁷

The property was logged extensively during the early 20th century, and in the 1970’s. An old City gravel quarry exists on the property. The property was almost certainly used for the grazing of livestock, hunting, and other traditional local practices.

Based upon a review of aerial photographs taken in 1953, 1980, and 1988, land use in the vicinity of the property appears to be generally agricultural, silvicultural, and residential in nature.¹⁸

Summary of current adjacent land uses	
Direction	Land Use
North - Pisgah National Forest	Open forest (recreation / forestry)
East - Burrell Mountain	Low density residential
South - Brevard Music Center	Summer camp / institutional
West – Pisgah National Forest	Open forest (recreation / forestry)

Table 1: Adjacent Land Uses¹⁹

Roads in the vicinity of the subject property include Burrell Mountain Road, Cashiers Valley Road, Trent Road, Milner Circle, Pinnacle Road, Mackey Ridge Road, and other private roads within Brevard Music Center’s property.²⁰ The vicinity of the property is served by public utilities provided

¹⁵ Taylor, 10.

¹⁶ Alamont, 3.

¹⁷ Ibid.

¹⁸ Alamont, 8-9.

¹⁹ Alamont, 4.

²⁰ Ibid.

by Duke Power (electricity), Citizens Telephone (telephone), and the City of Brevard (water and sewer).²¹

Pisgah National Forest Land – Pisgah Ranger District

Bracken Mountain is generally bounded by Pisgah National Forest to the north and west. According to the Land and Resource Management Plan for Nantahala and Pisgah National Forest,²² the forest land neighboring the Bracken Mountain property is marked as a Management Area 3B.

The management plan for Area 3B emphasizes harvesting a sustainable supply of timber, but with few open roads and limited disturbance from motorized vehicles.²³ This area also provides habitat for wildlife such as wild turkey, deer, and other species that benefit from a managed forest with limited motorized access.²⁴ Existing forest roads are accessible for wildlife management and timber harvesting.²⁵ The area is limited to non-motorized uses such as hiking, mountain biking, horseback riding, hunting, and fishing.

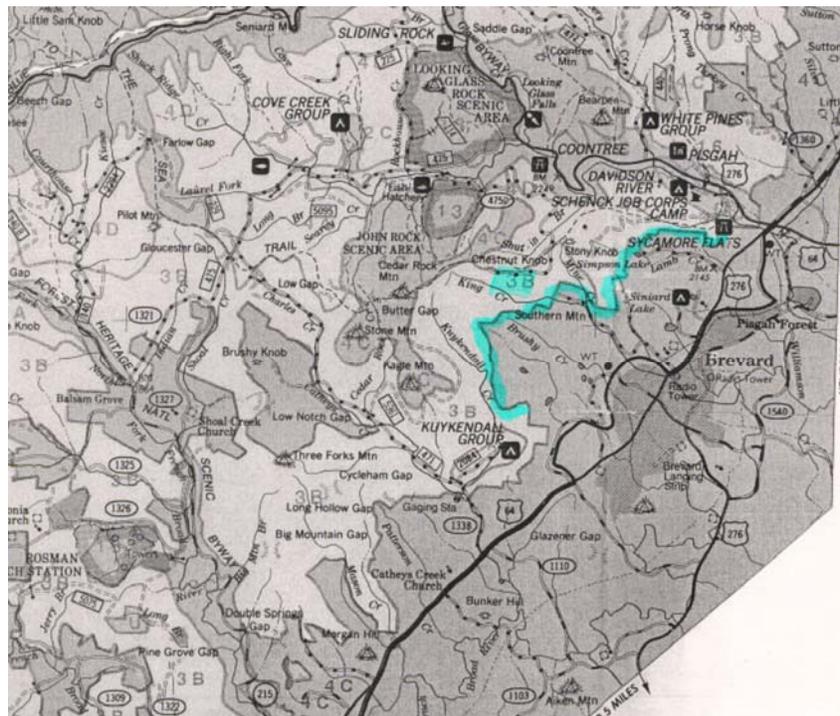


Figure 1: Pisgah National Forest Management Area 3B

²¹ Taylor, 17.

²² U.S. Forest Service, III-71.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

There are hiking trails in the vicinity of the property boundaries within Pisgah National Forest, the most notable being the Art Loeb Trail and Cat Gap Loop (sections of this trail are open for mountain bikes). Forest service road 475C, which terminates within approximately 1,650 feet of the northern boundary, goes all the way to the Pisgah Center for Wildlife Education and Fish Hatchery in the Pisgah National Forest and provides connection to the both trails mentioned above.

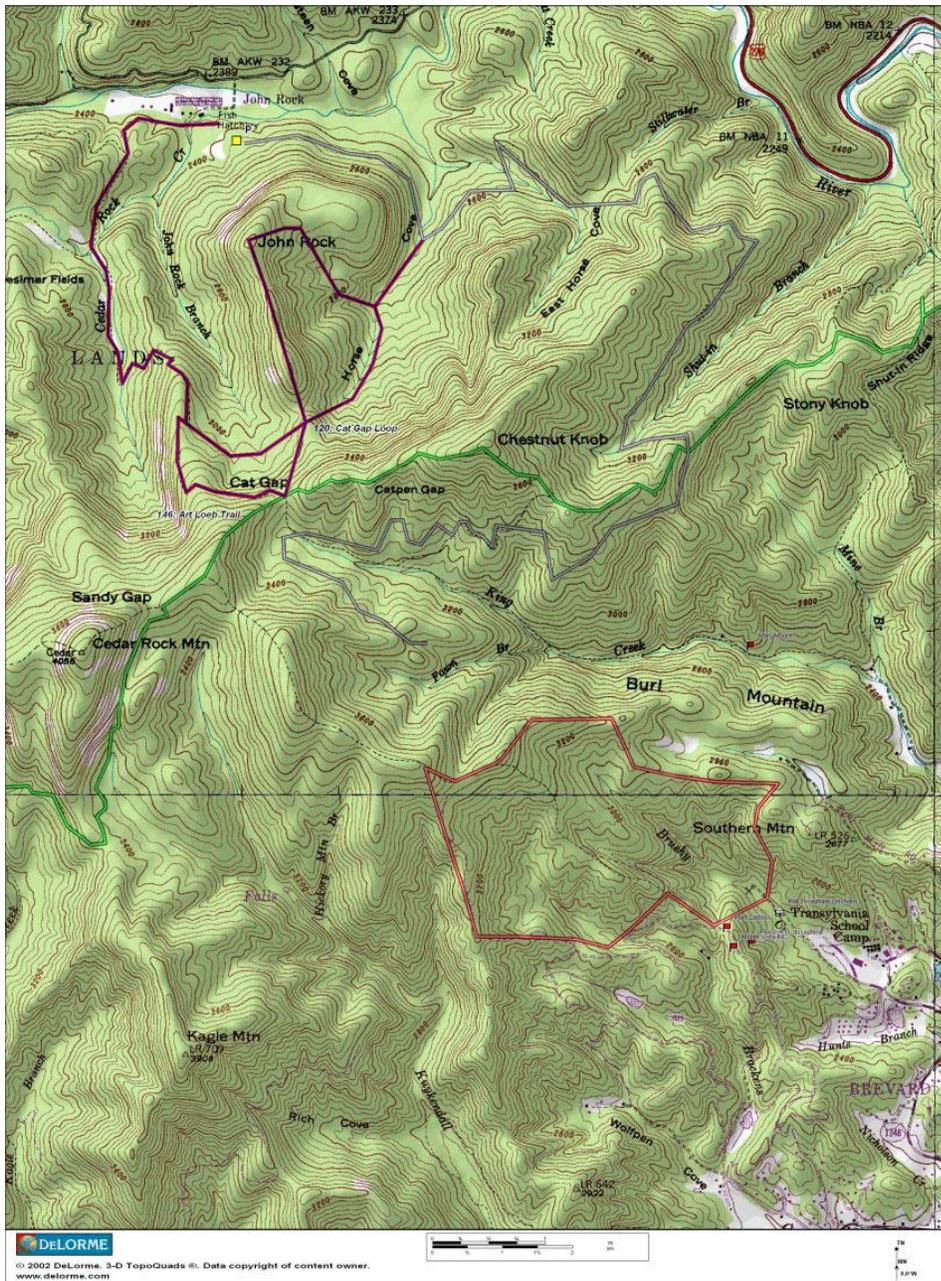


Figure 2: Pisgah National Forest Trails and Roads in Vicinity of Bracken Mountain

3.3 Topography

Elevations for the property range from 2,680 feet along the southern boundary to 3,640 feet at the northwest corner of the property.²⁶ In general, the Bracken Mountain Property contains southeast facing slopes and ridgelines, with smaller coves and ridges undulating across the landscape in all aspects²⁷. The appraisal report for the area describes it thusly,

“The property runs a ridge line along Brackens Creek on the west side of the Brackens Creek Watershed. There is a ridge line in the center of the property, as well as a ridge line on the northwest side on the Brushy Creek Watershed. The property is very steep from the ridge line down, with the bottom of the bowls being reasonably flat along Brushy Creek, as well as Brackens Creek. The most moderate slopes are from the northeast area running west and south. The areas along Brackens Creek and Brushy Creek and the west side are the steepest areas. The terrain consists of mostly steep slopes and ridges with ravines in the middle.”²⁸

The highest elevation within the subject property measures at 3,640 feet near the northern boundary.²⁹ The lowest point of 2,680 feet³⁰ on the property occurs on the southern boundary proximate to the Brevard Music Center.³¹

²⁶ Equinox, “Description of Area”.

²⁷ Ibid.

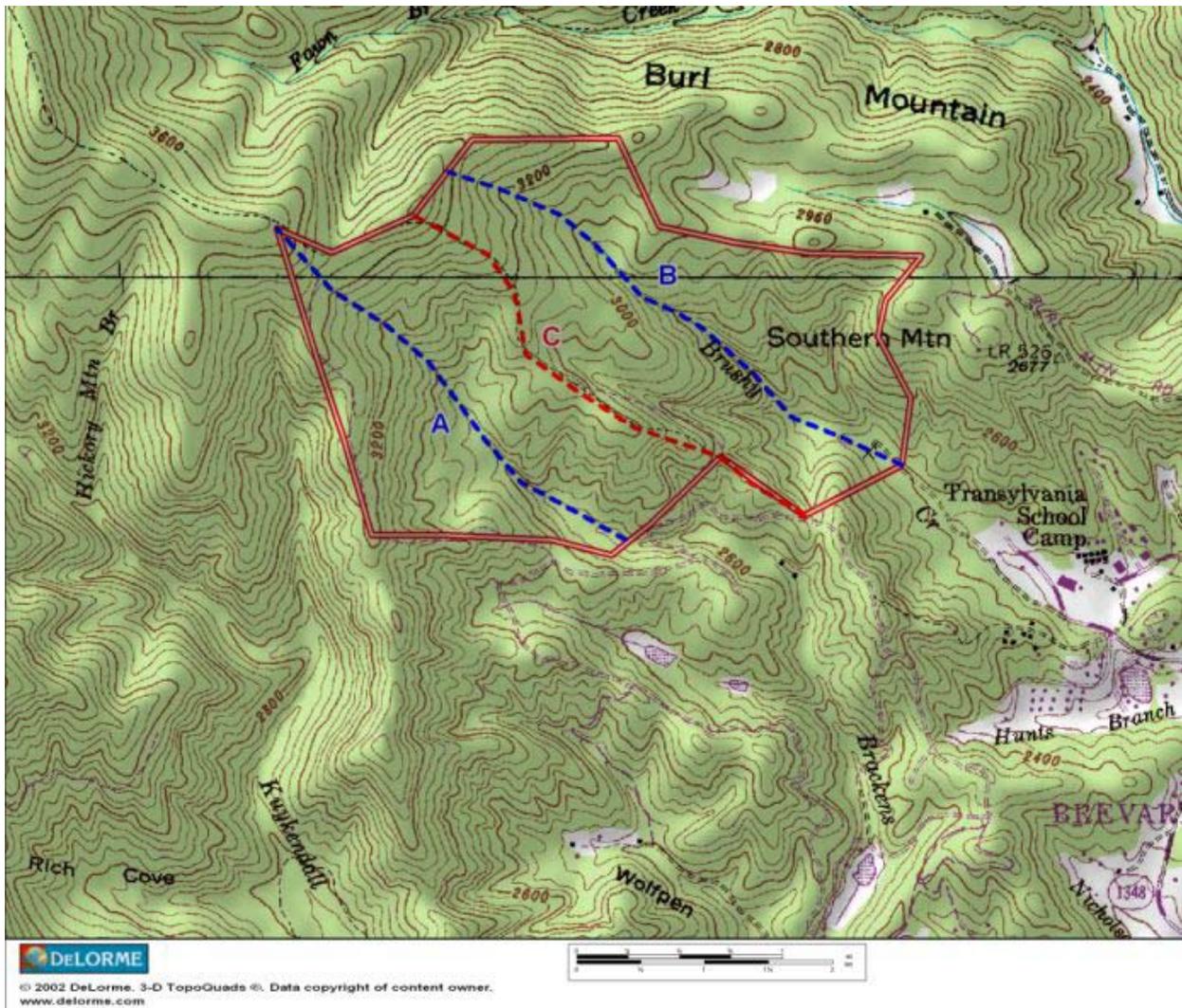
²⁸ Taylor, 15.

²⁹ Equinox, “Description of Area”.

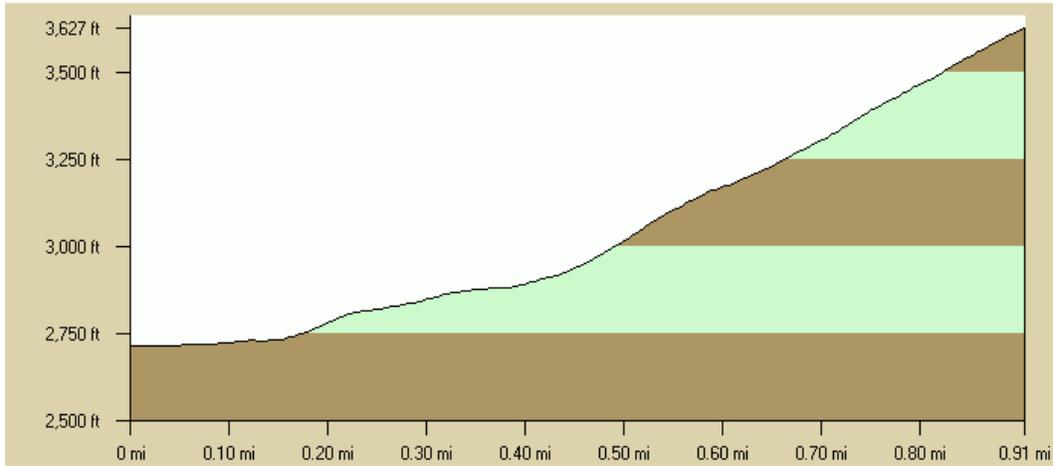
³⁰ Ibid.

³¹ Altamont, 3

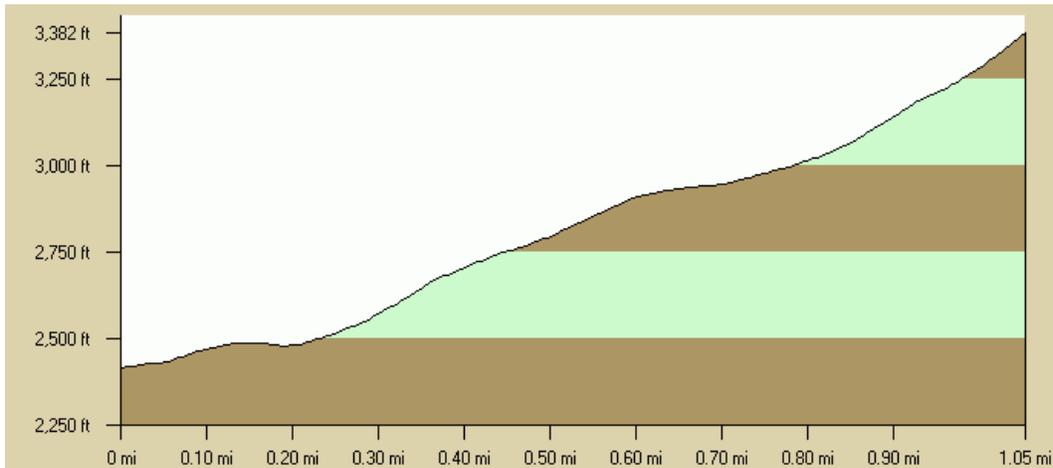
Topographic profiles below show the profile of Brackens Creek Watershed (Line A), Brushy Creek Watershed (Line B) and the ridge in the middle of the property (Line C).



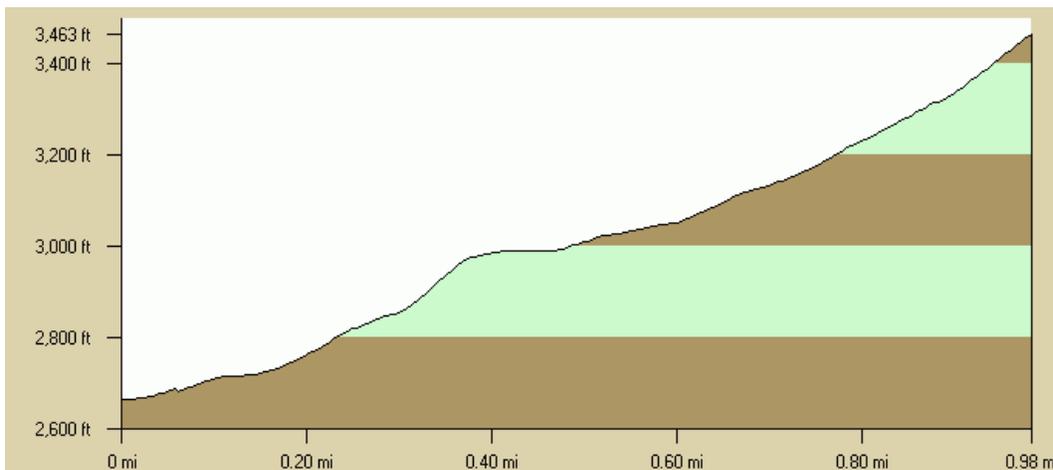
Topographic profile of Brackens Creek Watershed (Line A):



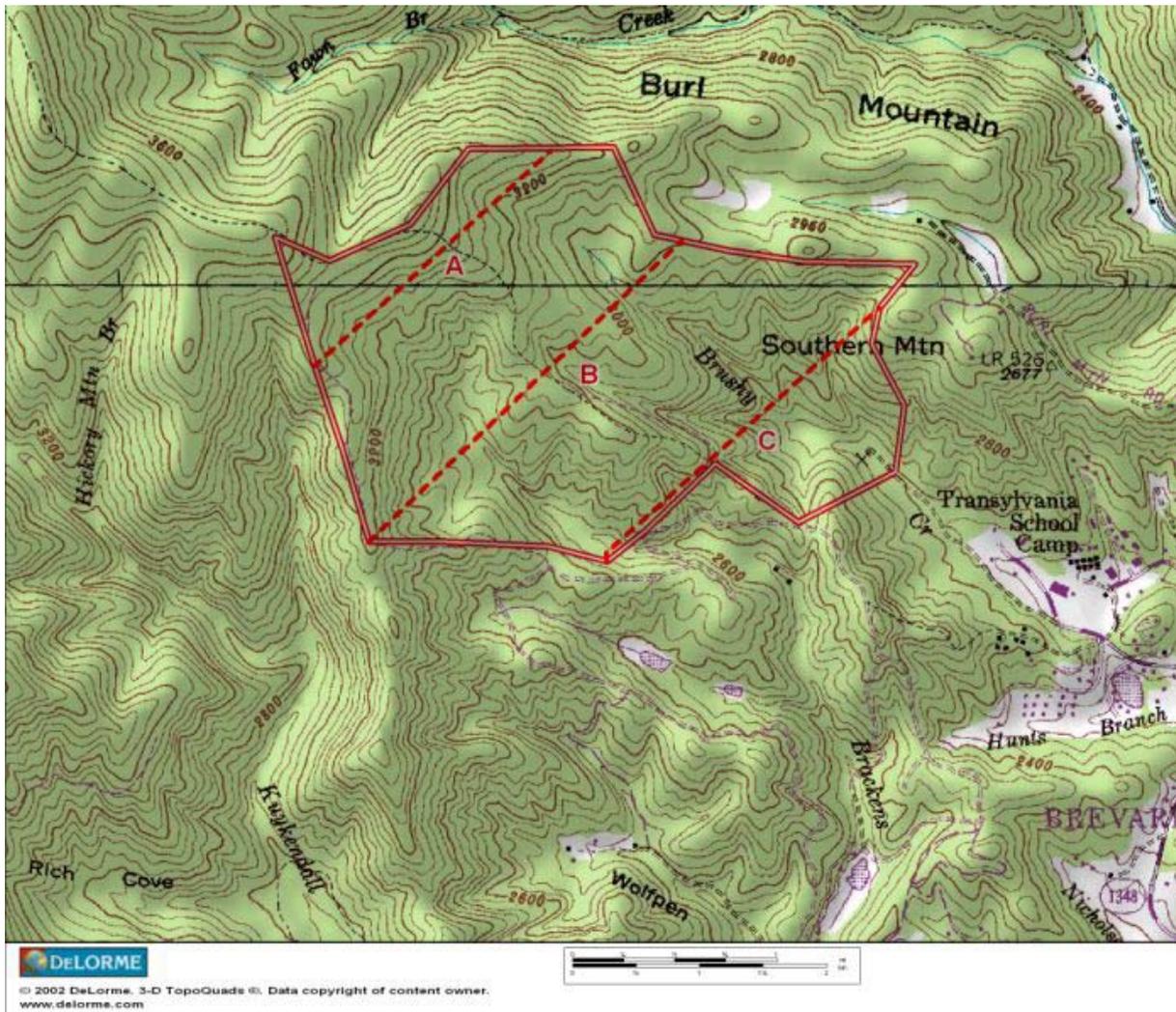
Topographic profile of Brushy Creek Watershed (Line B):



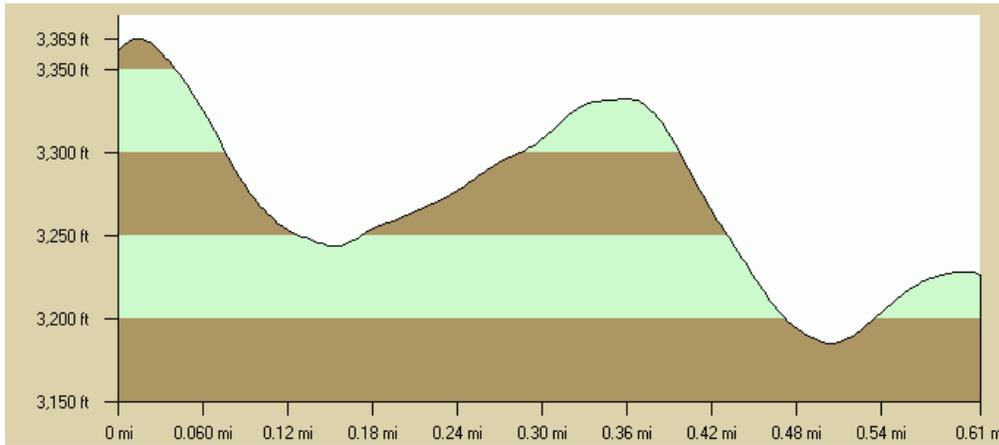
Topographic profile of the ridge in the middle of the property (Line C):



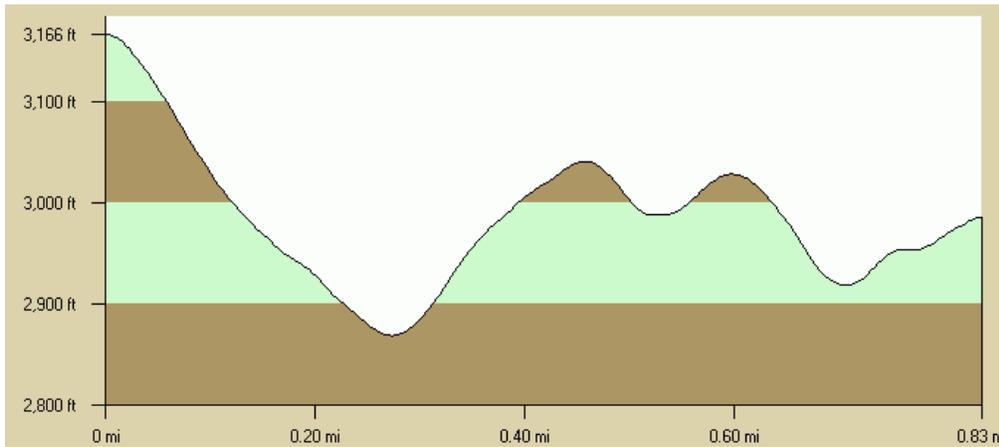
The following topographic graphs show profiles from the southwest to the northeast direction.



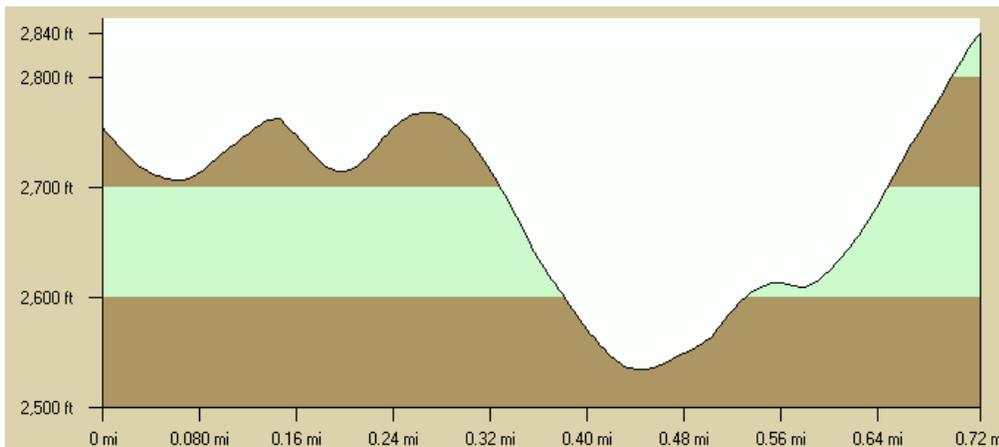
Profile A (SW – NE):



Profile B (SW – NE):



Profile C (SW – NE):



3.4 Water Resources



Brackens Creek

There is an abundance of water on the Bracken Mountain Property. All runoff eventually flows generally south and east overland into Brackens Creek and Brushy Creek, exiting the property on the southern boundary. The headwaters of both creeks are contained within the property.

Brackens Creek is classified by the North Carolina Division of Water Quality (NCDWQ) as Class C waters and Brushy Creek is NCDWQ classified Class C and Trout Waters (Tr).³² Brackens and Brushy Creeks both eventually make their way into Nicholson Creek and from there into the French Broad River.

Class C	Waters protected for secondary recreation, fishing, wildlife, fish, and aquatic life propagation and survival, agriculture and other uses suitable for Class C. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner. There are no restrictions on watershed development or types of discharges.
Supplemental Classification - Trout Waters (Tr)	Supplemental classification intended to protect freshwaters for natural trout propagation and survival of stocked trout. This designation affects wastewater quality but not the type of discharges and there are no watershed development restrictions except stream buffer zone requirements of NC Division of Land Resources. DWQ's classification is not the same as the NC Wildlife Resources Commission's Designated Public Mountain Trout Waters classification.

Table 2: NC Surface Water Classifications by the North Carolina Division of Water Quality³³

³² Equinox, "Description of Area".

³³ NC Division of Water Quality, "DWQ Primary Surface Water Classification," *CSU: Surface Water Classification* on <http://h2o.enr.state.nc.us/csu/swc.html> last updated on November 7, 2006.

Although Brushy Creek is classified as Trout water, there is no evidence of fish in either creek within the property according to the inventory conducted by the NC Division of Wildlife Resources in the spring of 2006.

Brackens Creek flows into Graham Creek (Class B and Tr waters), which flows into Nicholson Creek (Class C and Tr waters) before flowing into the French Broad River.³⁴ Brushy Creek flows into Norton Creek (Class C and Tr) before flowing into Nicholson Creek.³⁵ Also occurring on the property is an abundance of small seeps and large seepage complexes, boggy areas, and springheads.³⁶ The geology of the area consists of muscovite-biotite gneiss, a metamorphic rock belonging to the Ashe Metamorphic Suite.³⁷ The rock unit is likely to contain a number of cracks and fractures which allow water to flow underground as evidenced by the migration of water traveling above ground and underground throughout the property.³⁸

According to the National Flood Insurance Program, Flood Insurance Rate Map number 37175CO182C effective on March 2, 1998, the property is marked as ZONE X – an area determined to be outside the 500-year floodplain.³⁹

3.5 Land Cover

The property is entirely forested, comprised of primarily upland terrain with approximately 90-95% forest cover; some of the land is open due to canopy tree-falls, old logging roads, and stream beds.⁴⁰ Beneath the canopy, the surface area is approximately 2-3% streams and seeps, and 2-3% old logging roads.⁴¹ Streams occurring on the property often migrate underground when not flowing

³⁴ Equinox, "Description of Area".

³⁵ Ibid.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Ibid.

³⁹ Taylor, 10.

⁴⁰ Equinox, "Description of Land Cover," *Observations from Field Work*.

⁴¹ Ibid.

above ground in deeply cleft ravines, probably due to the joints and fractures within the bedrock.⁴² Some incised and mildly eroded ravines are present, which are evidenced by increased runoff and erosion resulting from heavy and/or poorly executed timbering or other land disturbing practices.⁴³ The geology on the property primarily consists of muscovite-biotite gneiss, a metamorphic rock, with some intermittent sedimentary rock layers.⁴⁴

3.5.1 Geologic Information⁴⁵

Rock Stratigraphic Unit:

Era: Paleozoic
System: Pennsylvanian
Series: Catacalastic rocks
Code: cat

Geological Age Identification:

Category: Metamorphic Rocks

3.5.2 Dominant Soil Composition⁴⁶

The following information is based on Soil Conservation Service STATSCO data (State Soil Geographic Database).

Soil Component Name: FANIN

Soil Surface Texture: silt loam

Hydrologic Group: Class B – Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained. Soils have intermediate water holding capacity.

⁴² Equinox, "Description of Land Cover," *Observations from Field Work*.

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Altamont, A-4.

⁴⁶ Altamont, A-4.

Depth to water table is more than 6 feet (1.8 m).

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential – Uncoated Steel: Moderate

Depth to Bedrock Min: >5 feet (1.5 m)

Depth to Bedrock Max: >5 feet

3.5.3 Erosion

An inventory of erosion sites along old logging roads was conducted in January 2006 (See Appendices 11 & 12, Erosion & Sedimentation Map and Erosion & Debris Photographs). Cut slopes along old logging roads have collapsed at several points, causing sedimentation to enter roads and streams. These sites will need to be stabilized and restored. A number of erosion points also exist on steep slopes where trees have collapsed. These sites are of little concern as sources of sedimentation.



Bank Erosion

3.6 Natural Communities

The Bracken Mountain Property is dominated by Acidic Cove Forest, Pine-Oak/Heath Forest, and Montane Oak-Hickory Forest.⁴⁷ Embedded within this matrix are two High Elevation Seep complexes, one in the Brackens Creek drainage and one in the Brushy Creek drainage.⁴⁸ These seeps are considered rare in the mountains and are tracked by NCNHP.⁴⁹ The extensive nature of both systems on this property is notable.⁵⁰

⁴⁷ Equinox, "Description of Natural Communities," *Observations from Fieldwork*.

⁴⁸ Ibid.

⁴⁹ Ibid.

⁵⁰ Ibid.

Approximately twenty-five acres of unlogged Acidic Cove and Oak-Hickory Forest is found on exceptionally steep, nearly impassible slopes in the eastern, unnamed tributary to Brushy Creek.⁵¹

A small, successional Rich Cove is found only on the lowest, flattest areas along lower Brackens Creek.⁵² Acidic Cove Forests with a heavy, dense understory of Great Rhododendron dominate most stream corridors at low to middle elevations.⁵³ Pine-Oak/Heath Forests with moderate to dense Mountain Laurel understories dominate most ridges throughout the property except the highest elevations.⁵⁴ Though pine-bark beetle damage is seen on some trees, severe damage and infestation appears not to have impacted forests onsite in any serious capacity and Pitch Pines onsite appear to be healthy, though even-aged.⁵⁵

Montane Oak-Hickory and Dry Oak-Hickory Forests fill the slopes between Acidic Cove and Pine-Oak Forests and in many coves.⁵⁶ Oak-Hickory forest zones lack dense Mountain Laurel or Rhododendron layers having dense, hip to chest-height Huckleberry colonies or herbaceous zones.⁵⁷ Dry-Mesic Oak Forests may or may not have dense Mountain Laurel zones on dry ridges and slopes, and typically contain Rhododendron in coves with northerly aspect.⁵⁸

⁵¹ Equinox, "Description of Natural Communities," *Observations from Fieldwork*.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid.

3.6.1 High Elevation Seep Complexes (S3 / G3)



High Elevation Seep Complex

Two extensive occurrences of the statewide and globally “rare” (S3, G3) high elevation seep complex were observed onsite.⁵⁹ The botanist from Equinox Environmental Inc. noted that these are the largest, highest quality upland seepage complexes he has seen up to date.

These high elevation seep complexes occur approximately between 3,200 and 3,400 feet elevations in both drainages.⁶⁰

Canopy trees found onsite include White Ash, Basswood, Silverbell, Black Birch, Northern Red Oak, Red Maple, and scattered Hemlocks.⁶¹ Understory conditions are primarily open, lacking heath shrubs but include Sweet Pepperbush, Black Alder, Highbush Blueberry, Spicebush, and Catbrier.⁶²

Herbs are richest in this community type among all sites on the property. Herbs found in high seep complexes include Mountain Rush, Three-way Sedge, Lady Ferns, Jewelweed, White Turtlehead, Bluets, Seep Rue, Great Lobelia, Branch Lettuce, Cinnamon Ferns, Royal Ferns, and numerous mosses and liverworts.⁶³



Bluets and Ferns

⁵⁹ Equinox, “High Elevation Seep Complexes” *Description of Natural Communities* in Observations from Fieldwork.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Ibid.

⁶³ Ibid.

Several specimens of what might be NCNHP listed Carolina Saxifrage or Carey's Saxifrage were observed in the uppermost outcropping of the Brushy Creek seepage.⁶⁴

Numerous mosses and liverworts cover many medium to large rocks.⁶⁵ The potential for rare bryophytes in these zones is high.⁶⁶ Habitat for numerous rare plant species is abundant in these seepage zones.⁶⁷



Mountain Rush

Rare Species: Mountain Rush (*Juncus gymnocarpus*) is found in both seepage complexes and occasionally along streams.⁶⁸ Two potentially rare mosses - Copper Moss (*Scopelophila ligulata*) and Sphagnum Moss (*Sphagnum angustifolium*; *S. subsecundum*) were observed and collected in the Brackens Creek seep complex between 3,200 and 3,400 feet in elevation.⁶⁹

⁶⁴ Equinox, "High Elevation Seep Complexes" *Description of Natural Communities* in Observations from Fieldwork.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ Ibid.

3.6.2 Rich Cove Forest, Successional (S4 / G5)

This forest type is found only in the low elevation, flat area near the outflow of Brackens Creek.⁷⁰ It is located primarily south and upslope of the stream.⁷¹

Canopy trees consist largely of Tulip Poplar, Black Birch, Northern Red Oak, Pignut Hickory, and Red Maple in this area.⁷² Silverbell is common in the understory and Rhododendrons from adjacent Acidic Cove Forest edge this zone.⁷³



Rich Cove Forest

Wildflowers and ferns will be visible in the growing season including Christmas Fern, New York Fern, Cucumber Root, and Rattlesnake Orchid.⁷⁴ Herbaceous browse for wildlife is exceptionally plentiful in this area though it is very small.⁷⁵

Rare Species: None observed.⁷⁶

⁷⁰ Equinox, "Rich Cove Forest, Successional (S4/G5)" *Description of Natural Communities* in Observations from Fieldwork.

⁷¹ Ibid.

⁷² Ibid.

⁷³ Ibid.

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ Ibid.

3.6.3 Acidic Cove Forest (S5 / G5)



Sweet Pepperbush

This common mountain forest type comprises most of the riparian zones onsite.⁷⁷

Canopy trees consist largely of Hemlock, Tulip Poplar, Black Birch, and Red Maple with a nearly uniform understory of Great Rhododendron.⁷⁸ Other understory shrubs include Sweetshrub and Sweet Pepperbush.⁷⁹

Almost no herbs are found in the deep shade of Rhododendron; however, Rattlesnake Orchid, Partridgeberry, and Marchflower can be found in open spaces.⁸⁰

Rare Species: None observed.⁸¹

3.6.4 Montane Oak-Hickory Forest (S5 / G5)

Wedged between Acidic Cove and Pine-Oak/Heath Forests is the Montane Oak-Hickory Forest which consists largely of oak and hickory species.⁸² Canopy trees may include White Oak, Scarlet Oak, Chestnut Oak, and Black Oak as well as Pignut and Mockernut Hickories.⁸³ Coves may be dominated by Tulip Poplar and Red Maple with scattered Northern Red Oaks.⁸⁴ Red Maple, Black

⁷⁷ Equinox, "Acidic Cove Forest (S5/G5)," in *Description of Natural Communities* in Observations from Fieldwork.

⁷⁸ Ibid.

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Equinox, "Montane Oak-Hickory Forest (S5/G5)," in *Description of Natural Communities* in Observations from Fieldwork.

⁸³ Ibid.

⁸⁴ Ibid.

Gum, Sourwood, and Sassafras are common throughout.⁸⁵ Oaks and Hickories in this forest type provide an exceptional amount of nut-mast for species such as turkey, bear, and deer.⁸⁶



Flame Azalea

Understory shrubs found in this zone include Buffalo Nut, Flame Azalea, Bear Huckleberry, Horse Sugar, and both Hillside and Common Blueberries.⁸⁷ Herbs are most diverse in this community type, especially along water in open coves including New York and Hayscent Fern, Christmas Fern, Bunchflower, and Halberd-leaf violet.⁸⁸

Rare Species: Biltmore Carrion-flower (*Smilax Biltmoreana*) was observed on the northern middle portion of the property.⁸⁹



Biltmore Carrion-flower (*Smilax Biltmoreana*) in early stage.

⁸⁵ Equinox, "Montane Oak-Hickory Forest (S5/G5)," *Description of Natural Communities* in Observations from Fieldwork.

⁸⁶ Ibid.

⁸⁷ Ibid.

⁸⁸ Ibid.

⁸⁹ Ed Schwartzman, "Bracken Mountain Plant Inventory," (Raleigh, NC: NC Natural Heritage Program, 29 November 2006).

3.6.5 Dry Oak Forest (S5 / G5)



Mountain Laurel trees reach their height maximum at 25 to 30 feet tall.

Two sub-types of this oak-based forest community occur onsite, resting primarily between Acidic Cove and Pine-Oak/Heath Forests and consist largely of oak species with few to no hickories.⁹⁰ On the small, north-facing pitches at the highest elevations along the northern boundary of the property, a “stunted” sub-type contains very small trees, ranging between twenty-five to forty feet tall with a dense to open understory.⁹¹

This stunted type is defined by short trees with diameters ranging between five and ten inches.⁹² Mountain Laurel trees reach their height maximum at twenty-five to thirty feet tall.⁹³ Huckleberry dominates in this zone where Laurel is absent and only Galax is found in the herb zone.⁹⁴

A heath subtype dominated by Mountain Laurel in the remainder of the property is described below.⁹⁵

Canopy trees here are largely Scarlet Oak, White Oak, Chestnut Oak, Black Oak, and the occasional Southern Red Oak.⁹⁶ Associated canopy trees, including Red Maple, Black Gum, Sourwood, and Sassafras, are common throughout.⁹⁷ Shrub zones may be open leaf litter, dense with Mountain

⁹⁰ Equinox, “Dry Oak Forest (S5/G5),” *Description of Natural Communities* in Observations from Field Work.

⁹¹ Ibid.

⁹² Ibid.

⁹³ Ibid.

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

Laurel, or a mixture Huckleberry and Hillside Blueberry.⁹⁸ Where shrubs are absent, open leaf litter and sparse herbs are common.⁹⁹

Fire scars on old oaks in this forest type indicate historical fire impacts, probably following logging in the early 20th century.¹⁰⁰ A stunted sub-type of this forest community is found on the upper slopes transitioning into National Forest lands (See Appendix 10 - Natural Communities Map).¹⁰¹ In this area, there are nearly woodland-like conditions, or less than 35% canopy cover and very large, tall Mountain Laurel trees.¹⁰²

Understory shrubs found here include Buffalo Nut, Flame Azalea, Bear Huckleberry, Horse Sugar, and both Hillside and Common Blueberries.¹⁰³ American Mistletoe was observed on two trees, Black Oak and Red Maple, on the primary ridgeline of the property bordering National Forest. Herbs are nearly absent in this community type.¹⁰⁴

Rare Species: None observed.¹⁰⁵

⁹⁸ Equinox, "Dry Oak Forest (S5/G5)," *Description of Natural Communities* in Observations from Field Work.

⁹⁹ Ibid.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² Ibid.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

3.6.6 Pine-Oak / Heath Forest (S4 / G5)



Signs of natural fire on the property

The driest ridgelines and upper adjacent slopes are dominated by this pine-based forest type.¹⁰⁶ Canopy trees include Pitch Pine, Scarlet and Chestnut Oaks, and the occasional Black Gum, Sassafras, and Sourwoods.¹⁰⁷ Shrubs are typically dense and dominated by Mountain Laurel, Huckleberry, and Hillside Blueberry. Herbs are naturally sparse in this forest type except after fire but include Striped Wintergreen and Cancer-root.¹⁰⁸ It should be noted that this forest type exists and is maintained by fire and that these areas will probably burn in the near future.¹⁰⁹

Rare Species: A single sapling of Carolina Hemlock was observed on the eco-tone of this forest type and Dry Oak Forest.¹¹⁰

¹⁰⁶ Equinox, "Pine-Oak/Heath Forest (S4/G5)," *Description of Natural Communities* in Observations from Field Work.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

3.7 Wildlife

Due to the intact and extensive forestland, extent of water, length of time since previous logging, and connectivity of the watershed with thousands of acres of contiguous forest land, the property provides excellent forest interior habitat and a refuge for wildlife.¹¹¹



The bog turtle was observed many times on the property.

Natural Heritage Elements found in the Rosman and Shining Rock Quadrangles were assessed prior to and following field inspections by Equinox Environmental Inc.¹¹² Based on previous records of rare species in the vicinity, fifteen plant and wildlife species (excluding Watch List species) have suitable habitat on the property.¹¹³ Species such as the French Broad River crayfish occur within a few miles, primarily on National Forest Land.¹¹⁴

Crayfish could be found in any streams onsite. The bog turtle was observed many times on the property.¹¹⁵

Food sources onsite include several species of oak and hickory, which provide an exceptional amount of nut-mast for species such as turkey, bear, and deer.¹¹⁶ Fraser Magnolia, Black Gum, Huckleberry, Poplar, Blueberries, Wild Grapes, Spicebush, and Greenbriers are abundant fruit-sources for wildlife onsite.¹¹⁷ Black bears are particularly drawn to Magnolia fruits.¹¹⁸ Black Birch,

¹¹¹ Equinox, "Description of Wildlife".

¹¹² Ibid.

¹¹³ Ibid.

¹¹⁴ Ibid.

¹¹⁵ Ibid.

¹¹⁶ Ibid.

¹¹⁷ Ibid.

Red Maple, White Ash, Beech, Black Alder, Basswood, and Silverbell provide additional small seed to birds and small mammals.¹¹⁹



Salamander found in Brackens Creek

The abundance of water throughout the site provides water and movement corridors for mammals as well as habitat for aquatic species such as amphibians, frogs, and crustaceans.¹²⁰ In spite of the Brushy Creek being classified as Trout water, there is no evidence of fish in either creek according to a NC Division of Wildlife Resources inventory which was performed in the fall of 2005.

White -Tailed Deer were observed onsite.¹²¹ Birds seen or heard onsite include Ruffed Grouse, White-breasted Nuthatch, Downy Woodpecker, Pileated Woodpecker, Yellow-bellied Sapsucker, Golden-crowned Kinglet, Wild Turkey, Carolina Chickadee, Titmouse, Cardinal, Crow, and Raven (flight only, no nesting habitat onsite).¹²² Common species of wildlife including red and gray fox, coyote, bear, and other medium to small mammals have abundant habitat onsite.¹²³

3.8 Exotic and Invasive Species

Equinox Environmental Inc. noted that there are no pests on the property. Staff observed a number of invasive plant species including Asiatic Bittersweet and Multi-floral Rose.

¹¹⁸ Equinox, "Description of Wildlife".

¹¹⁹ Ibid.

¹²⁰ Ibid.

¹²¹ Ibid.

¹²² Ibid.

¹²³ Ibid.

3.9 Botanical Inventory

A detailed botanical survey of the property was conducted by Ed Schwartzman of the North Carolina Natural Heritage Program during the spring and summer of 2006 as a part of a countywide inventory. This information is summarized in a list of plant species found on the property by natural communities, Appendix 2. Additional information may become available upon completion of the aforementioned Transylvania County inventory.

3.10 Man Made Features

A vast network of old logging roads was observed and mapped throughout the property.¹²⁴ Most roads have regenerated with vegetation and are very difficult to navigate when passing through Pine-Oak/Heath and Acidic Cove forests.¹²⁵ Roads through Oak-Hickory forest are often open and easy to traverse on foot.¹²⁶ Some old logging roads along streams are steeply pitched and difficult to walk.¹²⁷

The western Brackens Creek portion of the property and the western and northern boundaries of the property are bordered by a Forest Service Fire Trail that is marked with a red blaze.¹²⁸

Remnants of an old bridge crossing were observed along Brackens Creek close to the southern boundary line.¹²⁹

Three piles of debris were observed in the western portion of the property including empty 5-gallon drums, plastic tarps, empty cans and PVC pipes.¹³⁰ This debris was removed from the property in its entirety, before signing of the conservation easement.

¹²⁴ Equinox, "Additional Observations," *Description of Natural Communities* in Observations from Field Work.

¹²⁵ Ibid.

¹²⁶ Ibid.

¹²⁷ Ibid.

¹²⁸ Ibid.

¹²⁹ Ibid.

¹³⁰ Ibid.

Terracotta pipes in eroded slopes and streambeds are visible in the area surrounding an old electric station and an old quarry at the southeast boundary along Brushy Creek.¹³¹

Monuments and corner pins have been reestablished along the boundary per the recent survey of the property.¹³²

4 CONSERVATION VALUES OF THE PROPERTY

The Bracken Mountain property contains items of significant conservation value. These features critical to conservation are listed below.

4.1 Water Resources

Approximately four miles of streams flow through the Bracken Mountain Property.¹³⁵ The headwaters to both Brackens Creek and Brushy Creek begin within the property. Brackens Creek is classified by the North Carolina Division of Water Quality as Class C waters, and Brushy Creek is classified Class C and Trout (Tr) waters.¹³⁶ In addition to streams, there are several seeps existing on the property.¹³⁷ A total of twenty-seven seeps including two larger seep complexes (classified as state and globally “Rare” community

A seep is defined as an area where water trickles above or on the ground over open rocks, rock faces, or areas often wider than the normal stream channel.¹³³ Seeps provide unique habitat for amphibians and rare plants.¹³⁴



¹³¹ Alamont, 11

¹³² Equinox, “Additional Observations”.

¹³³ Equinox, “Description of Natural Communities”.

¹³⁴ Ibid.

¹³⁵ Equinox, “Observations from Fieldwork”.

¹³⁶ Ibid.

¹³⁷ Ibid.

type) were observed.¹³⁸ Seeps provide unique habitat for amphibians and rare plants.¹³⁹

4.2 Proximity to Forest and Park Lands

The Pisgah National Forest directly abuts the Bracken Mountain Property to the west, northwest, and north.¹⁴⁰ Though not directly adjacent, the Shining Rock Wilderness Area, the Middle Prong Wilderness Area, the Blue Ridge Parkway, the John's Rock Scenic Area, and the Looking Glass Scenic Area and Bear Sanctuary are within close proximity to the Bracken Mountain Property.¹⁴¹ The connectivity of all such forested land in the general vicinity of the property is profoundly important for plant and animal diversity and migration corridors of all such species.¹⁴²

4.3 Significant Natural Communities

Two extensive and excellent quality High Elevation Seep complexes and one area of possible unlogged forest were observed onsite.¹⁴³ The seeps are high ground, wetland systems, ranked both state and globally as "Rare" by NCNHP.¹⁴⁴ The low-lying, successional Rich Cove and mesic Oak-Hickory zones in the lower Brackens Creek drainage are unique due to their small size, relatively flat terrain, and potential for spring wildflowers, breeding birds, and wildlife use.¹⁴⁵

¹³⁸ Equinox, "Observations from Fieldwork".

¹³⁹ Ibid.

¹⁴⁰ Ibid.

¹⁴¹ Ibid.

¹⁴² Ibid.

¹⁴³ Ibid.

¹⁴⁴ Ibid.

¹⁴⁵ Ibid.

4.4 View Shed



View of the property from Main Street, Brevard

This property is a critical element in the view shed of downtown Brevard. The ridgeline of the Bracken Mountain Property can clearly be seen looking northwest from downtown Brevard. It is also visible from the greater Brevard area and some locations within the adjacent Pisgah National Forest.

4.5 Rare Plant Species

Four North Carolina Natural Heritage Program (NCNHP) Watch List plants were observed onsite including several occurrences of Mountain Rush and a single occurrence of Carolina Hemlock saplings.¹⁴⁶ In addition, suitable habitat exists onsite for fifteen NCNHP Rare-list species that were not observed but have available habitat to exist on the property or to exist there in the future.¹⁴⁷

Watch List species are considered rare, but are not actively monitored by the Heritage Program. There are no regulations requiring protection of these species; however, it is recommended that impact to Watch List species be avoided or minimized.

Though regionally common, Galax has been recently been added to the Watch List by NCNHP due to increasing collection and harvesting pressures. It is abundant onsite.¹⁴⁸

¹⁴⁶ Equinox, "Observations from Fieldwork".

¹⁴⁷ Ibid.

¹⁴⁸ Ibid.

Form	Common Name	Scientific Name	State Status ¹⁴⁹	Federal Status	State Rank ¹⁵⁰	Federal Rank ¹⁵¹	Habitat
Vascular Plant	Seep Rush	Juncus gymnocarpus	W1	-	S3	G4	M: bogs, seeps, stream banks
Vascular Plant	Biltmore Carrion-flower	Smilax Biltmoreana	W1	-	S3	G4	PM: dry to mesic forests, over felsic or mafic rocks
Vascular Plant	Carolina Hemlock	Tsuga caroliniana	W5A	-	S3	G3	MP: open forests on ridge tops, rocky bluffs, or gorge walls
Vascular Plant	Galax	Galax urceolata	W5B	-	S5	G5	MPC: rocky woodlands, mountain forests, and rock outcrops

Table 3: Rare Plant Status and Rank¹⁵²

Additional information regarding rare plant species may become available upon completion of the 2006 NCNHP Transylvania County Inventory, during which an inventory of the Bracken Mountain property was conducted.

¹⁴⁹ North Carolina plant Watch List status includes plant species which are rare or otherwise threatened with serious decline, but for which current information does not justify placement on the main list (Endangered, Threatened, or Significantly Rare). Watch List species are additional indicators of significant habitats, and their presence should be considered in planning natural area protection efforts, though with less weight than higher priority rare species and natural communities. W1 – rare but relatively secure in NC. W5A – rare because of severe sharp decline in NC, W5B – Exploited Plants - widespread species in commercial demand, often collected and sold in high volume.

¹⁵⁰ State Rankings are determined by The Nature Conservancy’s system of measuring rarity and threat status that refer to statewide status. S3 means rare and uncommon in North Carolina and S5 means demonstrably secure in North Carolina and essentially ineradicable under present conditions.

¹⁵¹ Federal Status – these rankings are determined by The Nature Conservancy’s system of measuring rarity and threat status. Global rank refers to worldwide standing. G3 – Either very rare and local throughout its range, or found locally in a restricted area; G4 – Apparently secure globally, although it may be quite rare in parts of its range (especially at periphery); G5 – Demonstrably secure globally, although it may be quite rare in parts of its range (especially at the periphery).

¹⁵² Equinox, “Observations from Fieldwork”.

4.6 Rock Outcroppings



Rock Outcropping

Several areas of exposed rock outcrops and slope talus exist within the Bracken Mountain Property.¹⁵³ Most of these rock outcrops are saturated with groundwater and spring seepage.¹⁵⁴ A single large outcropping occurs near the eastern boundary above Brushy Creek, though this zone appears to be bisected by the boundary of the property.¹⁵⁵

Rock outcrops may contain rare plants, including many moss and lichen species.¹⁵⁶ As well, rock outcrops may provide habitat and sunning areas for small mammals, reptiles, and amphibians.¹⁵⁷

5 GOAL AND OBJECTIVES OF THE CONSERVATION AND RECREATION PLAN

The following goal and objectives will be achieved by designation of management practices for different management areas within the property and by identification and location of recreation facilities on the property.

¹⁵³ Equinox, "Observations from Fieldwork".

¹⁵⁴ Ibid.

¹⁵⁵ Ibid.

¹⁵⁶ Ibid.

¹⁵⁷ Ibid.

5.1 Goal of the Plan

To protect and restore conservation values of the property identified on site while providing the public with recreational and educational experiences.

5.2 Objectives

- Define and protect critical and unique natural resource areas.
- Provide feasible public access areas.
- Define and provide reasonable allowable uses of the property.

6 NEEDS ANALYSIS

6.1 Regulatory and Policy Framework

6.1.1 North Carolina Clean Water Management Trust Fund – requirements for the Conservation Easement

The Clean Water Management Trust Fund (CWMTF) is an agency of the State of North Carolina authorized to finance projects and to acquire land and interests in land, including conservation easements for riparian buffers for the purpose of providing environmental protection for surface waters and urban drinking water supplies and establishing a network of riparian greenways for environmental, educational, and recreational uses. The City of Brevard and CWMTF have agreed to enter into a Conservation Easement in order to protect the water quality of Brackens and Brushy Creeks. The purpose of the Conservation Easement is described in more detail in the introductory section of this document.

To accomplish the purposes of the Easement, the CWMTF is allowed to prevent any activity or use of the property that is inconsistent with the purposes of the Easement and to require the restoration of such areas or features of the property that have been damaged or altered by such activity or use.

Upon any breach of the terms of the Easement, the CWMTF may seek the enforcement of its rights, including enforcement of the restrictions and prohibitions, in accordance with the terms of the easement.

Activities and uses typically allowed or restricted by CWMTF:

- The City can provide passive recreational use as well as public use and access including conducting educational and scientific activities. However, all amenities and improvements located on the property must receive prior written approval of CWMTF, and must comply with the terms set forth in the Easement and the Grant Agreement. The total cleared surface areas associated with all improvements (trails, boardwalks, ramps, steps, observation or viewing platform, pedestrian bridge, and convenience facilities) shall not exceed ten percent (10%) of the total area of the property, which equals approximately forty acres. This requirement is not negotiable.
- The City can construct naturally surfaced walking and hiking trails on the property. Whenever possible, trails should be located outside the 300 feet (90 m) stream buffer area. Trails that fall within this area, should be located fifteen feet from the top of the bank unless such locations are physically impracticable. In the construction of such trails and when required by the terrain, boardwalks, ramps, and handrails are permitted.
- Motorized vehicles are generally not allowed on the property. Deviation can be considered after evaluation of specific plans provided by the City.
- Construction of buildings, utilities, or other temporary or permanent structures or facilities on, above, or below the surface of the property is prohibited, including asphalt and concrete pavement. However, the City may construct and maintain park benches, litter receptacles, and trail/feature signs along the walking and hiking trails, a certain number of observation/viewing platforms and pedestrian foot bridges with prior CWMTF approval.
- No trees may be cut or removed, and the natural features of the property may not be disturbed, except for:
 - boundary marking, fencing, and allowed signage;

- selective cutting and prescribed burning or clearing of vegetation and the application of mutually approved pesticides and fire containment and protection, disease control, restoration of hydrology, wetlands enhancement and/or control of non-native plants, but all subject to prior approval of the CWMTF;
 - animal control, to include hunting and trapping, to the extent necessary to keep the animal population within numbers consistent with the ecological balance of the area and as pursuant to federal, state and local rules and regulations.
- o All industrial and commercial use, agricultural, timber harvesting, grazing and horticultural use, mineral use, excavation, dredging and dumping is prohibited.
 - o Any activities causing or contributing to pollution of or alteration of water bodies, to the detriment of water purity, or that alter natural water levels or drainage, or that contribute to sedimentation, or that alter surface water flow are prohibited.
 - o Subdivision of the property or use as a mitigation property is prohibited.

6.1.2 Brevard Land Use Plan and Unified Development Ordinance

This Master Plan is in accordance with City land use policies and regulations.

According to the Land Use Plan adopted in August 19, 2002, a recommendation for future land use of the Bracken Mountain property is for Natural Resource Area/Rural Conservation, in recognition of the fact that the property is of greater value to the community and future generations as undeveloped open space. Natural Resource Areas usually contains steep slopes, flood plains, watersheds, wildlife corridors, scenic areas, and historic lands. This type of area is critical to maintaining the quality of life for current and future generations.

The Official Zoning Map adopted on April 03, 2006 as a part of the Unified Development Ordinance of the City of Brevard is currently applicable just on the South-East part of the Bracken Mountain property that is in the City's Extraterritorial Jurisdiction (E.T.J.). The Zoning Map

designates that part of the Bracken Mountain property as General Residential (4). GR (4) is intended for medium-density residential uses.

Permitted Uses include Dwellings - Single Family and Duplex Houses, Family Care Homes (less than 6 residents), Wireless Telecommunication Facility (Stealth), Utilities (Class 1 & 2) and Agriculture; recreational uses and other limited uses permitted with a Special Use Permit. However, most such uses listed above are in contradiction to the requirements of the CWMTF.

When considered in conjunction with the steep slope and sedimentation/erosion provisions of Chapter 6 of the Unified Development Ordinance, it becomes clear that the property has very limited residential development potential. Chapter 6 contains stringent provisions that are intended to protect natural, environmentally sensitive resources such as flood plains and steep slopes, and to limit soil erosion and disturbance caused by inappropriate development activity.

Outdoor Recreational Facilities and Campground can be permitted on site with a Special Use Permit. According to the UDO, parking is permitted. Special Events are permitted with additional standards, which are set forth in Chapter 3 of the UDO.

6.1.3 Focus 2020 – Community Report

“Our citizens value the need to balance the preservation of the natural environment that surrounds us with economic health of the community. We are the architects of our fate.”¹⁵⁸

The Focus 2020 Community Report, which was completed in March 2000, is a community - based comprehensive plan for the City of Brevard that represents the community’s vision for the City of Brevard through 2020. It includes seven reports on subjects identified by the community and short-, mid-, and long-term recommendations of various Focus Groups. Each report focuses on a particular topic: Economic Development; Environmental Quality; Gateways, Corridors & Downtown; Cultural, Educational & Recreational Enrichment; Transportation; Housing & Neighborhoods; and Public Safety & Health.

¹⁵⁸ Focus 2020 Community Report, Volume I, “Vision statement,” (Brevard NC: March 2000), 208.

Development of this Master Plan meets eight goals and ten objectives included in Focus 2020 especially from the Environmental Quality report, which are summarized in Appendix 3.

6.1.4 Pisgah National Forest Management Plan and Possible Connection

This Master Plan is generally consistent with the Land and Resource Management Plan for Nantahala and Pisgah National Forests.¹⁵⁹ However, it prohibits some of the uses allowed in the PNF such as hunting and horseback riding. This fact might cause some problems connected to unintentional crossing of the property border by hunters and horseback riders. This might be prevented by the placement of signage on the border. For additional information regarding Management Area 3B, see Appendix 4.

The Art Loeb Trail, Cat Gap Loop, and forest service road 475C all lie in close proximity to proposed trails within the Bracken Mountain Property. Both trails and forest service road 475C in particular, could be easily connected to Bracken Mountain trails. This connection would provide an attractive link between downtown Brevard and Bracken Mountain and on towards the Pisgah Center for Wildlife Education, the Fish Hatchery, and the extensive Pisgah National Forest trail system.

The management plan for neighboring PNF Management Area 3B includes directions to provide some hiking opportunities and to construct new trails for horseback riding or bicycles - primarily when needed to connect existing roads or trails. This aim is a good starting point for negotiations about possible connection of trails between the property and PNF trails.

6.1.5 Possible Connection to the City

The City of Brevard Comprehensive Pedestrian Plan, adopted August 7, 2006, sets forth priorities for the future extension of public sidewalks and other public pedestrian infrastructure throughout the City. A five-foot wide concrete sidewalk connecting downtown Brevard to Brevard Music Center along Probart Street is approved as the second of ten new sidewalks. When complete, this sidewalk will nearly complete a pedestrian connection between the Bracken Mountain property and

¹⁵⁹ U.S. Forest Service, III-71-III-76.

downtown. Finding a means of connecting the property directly to this sidewalk remains a challenge.

The Pedestrian Plan also proposes the construction of a ten-foot wide asphalt multi-use path directly to Bracken Mountain. This project is not prioritized, and implementation not expected in the foreseeable future. However, the City will seek to implement this project via grants or in conjunction with future development projects that may create opportunities for such a connection.

6.2 Management Ideas and Recommendations

6.2.1 Management Ideas Identified by Public and the Steering Committee



Public input session held in December, 2005

A public input session was held in December, 2005 to discuss recreation and conservation ideas for the Bracken Mountain property. The public input session was attended by thirty-four people. Those who attended the public input session were divided into three groups and asked to discuss their recreation and conservation ideas for the property.

Most ideas discussed pertained to recreation management. Participants expressed a strong desire for hiking and biking trails within the property, which would preferably connect Pisgah National Forest trails and Downtown Brevard (also using City sidewalks and multi-use paths). Most participants preferred shared recreational trails for bikes and hikers, but some would rather have separated bike trails or seasonally limited bike trails. Most participants did not want hard surface trails constructed with asphalt. Some would also like the property to serve educational purposes. Participants expressed substantial support for picnic areas with tables and primitive shelters. Other facilities such as wilderness camping sites, overlooks, parking lots, restrooms, an amphitheatre, a dog walking area, and access roads for safety were also discussed. One group discussed the possibility of fishing. Horse back riding was discussed in two groups; however, this idea did not garner much support. Hunting on a limited basis or to prohibit hunting was discussed.

All groups would like to see the property used for recreation and natural resources preservation. In the words of one of the participants, they would like the property to be preserved as the City’s “green space with its natural beauty”. Participants were aware of the necessity to protect rare species, streams, and wetlands. Therefore, the need for limitations such as no cars, no permanent lights, limited parking, limited hunting, limited camping, etc. were also discussed.

A summary of desires and comments formulated by public and RECOMMENDED by the Steering Committee is found below.

NOTE: The following symbols mean: (priority 1, 2, 3 etc.) = priority received in three groups of participants, 2x – item received the same priority in two groups.

Public desires by priority	Steering committee review
No cars or structures (priority 1).	☑ Recommended
Access to Pisgah National Forest (priority 1, 2) –by way of forest service road, Cat Gap/Art Loeb trail.	☑ Recommended
Primitive hiking (no hard surfaces, no asphalt, a thin layer rock or wood chip, dirt only), (priority 1, 2).	☑ Recommended
No ATVs, no pavement or hard surfaces (priority 1, 2).	☑ Recommended
Mountain biking (2x priority 2).	☑ Recommended, however some <u>limitations are required</u> (seasonal limitation, some trails just for hikers and some for hikers and also bikers – multi-use recreational trails). Permits for organized races are recommended.
Multi Use Path – MUP (priority 2).	☑ Recommended - same as above. But in this case, MUP would mean multi-use recreational trails with soft surface, not MUP in the meaning of the bike path planned in the City (ten feet wide and hard surfaced).

Public desires by priority	Steering committee review
Picnic areas (with enclosed or covered shelters, easily accessible, limited but not big tables, grills, public restroom, limited amount of space), (priority 2, 3).	☑ Recommended, but simple natural rest areas, not very developed such as just small covered shelters or tables with benches (no concrete, no grills, no public restrooms), and spread throughout the property (for example on the overlooks).
Conserve habitat (priority 3) and prohibit the harvesting of rare plants, etc.	☑ Recommended as well as prohibit the harvesting of ALL plants for the general public.
Connection with town (signage, design elements, a loop to Brevard downtown), (priority 3).	☑ Recommended
Connectivity to sidewalks (priority 3).	☑ Recommended
No hunting (priority 4, 2x priority 6).	☑ Recommended
Nature trails with signs for educational purposes (natural history, regional history, for adult and also youth, self guided nature trail), (2x priority 5).	☑ Recommended
Parking lot (priority 5).	☑ Recommended, but just on the edge of the property (not within), size should be minimal and design/construction should be of the most environmentally sensitive nature possible (Access road should meet Powell Bill requirements if possible).
Environmentally friendly bridges (priority 5) – bridges over streams and wetlands to preserve riparian integrity and water quality for fragile areas especially.	☑ Recommended but with the caveat of using no culverts in the construction of any bridges.
Recreational activities with preservation in mind – “green space”, preserve the natural beauty of the mountain while allowing limited recreation activities (priority 5).	☑ Recommended

Public desires by priority	Steering committee review
Access to Blue Ridge Parkway (priority 5).	☑ Recommended, but only by hiking (same as first priority - connection to PNF).
Seasonal limited mountain biking (priority 5).	☑ Recommended, same as above.
Viewpoints/observation points/overlook points (2x priority 5).	☑ Recommended
No permanent lights (priority 6).	☑ Recommended
Public facilities – restrooms at parking areas (priority 6).	☑ Recommended, but not top priority. Should be incorporated in the conservation easement agreement and left open as an option for future.
Some asphalt (priority 6 – 1 person).	☑ Recommended for the parking area.
No horses (2x priority 7).	☑ Recommended
Notes and comments without prioritization	
<p>Biking – certain trails to Fish Hatchery.</p> <p>Trails wide enough for hiking and biking or do separate trails.</p> <p>Biking for all ages – lower areas, less difficult</p> <p>Connectivity to Multi-Use Paths in the City.</p>	☑ Recommended; however, there are no present opportunities for short easy loops for children and non skilled bikers.
<p>Need for an access road or trail leading to the park even if main road accessible by vehicle is not same road. In other words, safe pedestrian access from downtown needs to be provided.</p>	☑ Recommended, if it means another road without parking lot – be able to walk or bike there without driving a car. Perhaps, the use of sidewalks or MUPs would work.

Summary of desires and comments formulated by the public and NOT RECOMMENDED by the Steering Committee.

Public desires by priority	Steering committee review
Fishing (priority 4).	<input checked="" type="checkbox"/> Not recommended , as the creeks are small and narrow and there are no fish in the streams.
No camping (priority 4).	<input checked="" type="checkbox"/> Not recommended , camping to be permitted <u>for organized groups</u> (scouts, schools, boys and girls club ...) on limited basis with a permit only.
Wilderness camping sites (priority 4, 6).	<input checked="" type="checkbox"/> Not recommended , only <u>by permit or lottery for organized groups</u> (scouts, schools, boys and girls club ...). Permits limited to a few per month.
Limited hunting (priority 5), hunting with lottery (priority 4).	<input checked="" type="checkbox"/> Not recommended , City's parcel should be a safety zone.
Horse trail (priority 6).	<input checked="" type="checkbox"/> Not recommended.
Short trails possibility – handicap accessible ADA/loop system for all physical abilities (priority 6, 8).	<input checked="" type="checkbox"/> Not Recommended , current accessible areas are not suitable for ADA compliant trails. If future opportunities arise, this option should be reconsidered.
Primitive Amphitheatre (priority 7).	<input checked="" type="checkbox"/> Not recommended.
Dog walking area (hidden small dog park), (priority 7).	<input checked="" type="checkbox"/> Not recommended , dogs should be permitted with appropriate “dog under control” requirements such as a leash.
Access roads for safety (priority 8).	<input checked="" type="checkbox"/> Not recommended , would require paved roads cross the property. Just provide good access to the property and trails within.
Separate trail system for mountain bikes (priority 9).	<input checked="" type="checkbox"/> Not recommended , not enough space and steep slopes.

6.2.2 Management Issues and Recommendations provided by Equinox Environmental & Design, Inc.

Old Logging Roads

A vast network of old logging roads exists throughout the Bracken Mountain Property.¹⁶⁰ While most of these roads have been regenerated with vegetation, several roads may potentially provide off road vehicles access to the property.¹⁶¹ Although these roads do not influence the terms of the conservation easement, use of off road vehicles on the property should be monitored over time.¹⁶²

Access Areas

The Bracken Mountain Property is surrounded by private property to the south, southeast, east, and northeast.¹⁶³ Access to the property is limited to Burrell Mountain Road to the northeast, the Brevard Music Center to the east, and several points along the private gravel road to the south where access could be established.¹⁶⁴ These areas should be clearly marked with signs indicating the property boundary.¹⁶⁵ It is recommended that the boundary adjacent to private properties be noticeably marked and posted so landowners clearly know where the property boundary exists in order to avoid infringing on the conservation easement area.¹⁶⁶ These areas should be also monitored over time since potential violations may occur along the boundary.

Recreational Trails and Access

Activities on the property could include hiking, biking, horse back riding, bird-watching, and other similar low-impact activities.¹⁶⁷ If access is indeed granted for limited public use, it is recommended

¹⁶⁰ Equinox, "Management Issues and/or Recommendations," *Section D: Resource Management*.

¹⁶¹ Ibid.

¹⁶² Ibid.

¹⁶³ Ibid.

¹⁶⁴ Ibid.

¹⁶⁵ Ibid.

¹⁶⁶ Ibid.

¹⁶⁷ Ibid.

that activities should be low-impact, recreational, and educational while protecting the ecological integrity, species habitat, biodiversity, rare species habitats, and water quality existing on the property.¹⁶⁸

Because public access may potentially increase trash, erosion, and noise on the property, it is recommended this plan must establish monitoring of any negative impacts of recreation, education, and other uses as well as ways to minimize these negative impacts.¹⁶⁹ While old logging roads can easily be refurbished for trails, it is recommended that trail density remain minimal to reduce constant human presence onsite.¹⁷⁰ Trails could possibly be restricted to ridgelines around the perimeter and property center.¹⁷¹ High trail density will increase stress on nesting birds and denning wildlife during the breeding season.¹⁷² A monitoring program comparing current and future conditions should be established at key points where impacts might be expected once recreation uses are established.¹⁷³

Landscape improvements such as bridge crossings and culverts should be considered so that proper protective measures are undertaken that minimize or eliminate sedimentation and address aquatic species passage concerns.¹⁷⁴ Once recreation uses are established, people straying from recognized trails poses a serious threat to plant species and fragile communities, especially in seep complexes and riparian areas.¹⁷⁵ Additionally, trails must be properly maintained in order to prevent erosion and sediment from entering into the streams.¹⁷⁶ Finally, if new trails or footbridges are to be put in

¹⁶⁸ Equinox, "Management Issues".

¹⁶⁹ Ibid.

¹⁷⁰ Ibid.

¹⁷¹ Ibid.

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ Ibid.

¹⁷⁵ Ibid.

¹⁷⁶ Ibid.

place, all appropriate measures to prevent impact such as sedimentation during and after construction should be taken.¹⁷⁷

Forest Fire

Because Pine-Oak/Heath and Dry Oak Forests evolve because of fire, it can be expected that these areas will burn in the near future.¹⁷⁸ These forest types burn naturally over time resulting in flushes of under story growth that is currently suppressed by Mountain Laurel thickets.¹⁷⁹ Mountain Laurel thickets expand greatly in the absence of fire and prevent regeneration of canopy trees.¹⁸⁰



Fire suppression over the past 75 to 100 years combined with the even-aged stands due to regional clear cutting has dramatically increased fuel loads in fire-based forests and therefore, the potential for fire, fire intensity, and the ensuing damage when a fire ultimately ignites.¹⁸¹ Fire has occurred in the past on this property as evident by fire scars on dead trees.¹⁸² It is recommended that small-scale controlled burns be considered in conjunction with National or State Forest Service in order to reduce fuel loads in some stands of Pine-Oak/Heath.¹⁸³ Thinning of these areas is not equivalent nor is it recommended.¹⁸⁴

¹⁷⁷ Equinox, "Management Issues".

¹⁷⁸ Ibid.

¹⁷⁹ Ibid.

¹⁸⁰ Ibid.

¹⁸¹ Ibid.

¹⁸² Ibid.

¹⁸³ Ibid.

¹⁸⁴ Ibid.

Fire will result in flushes of oak and hickory regeneration as well as understory shrubs and herbs currently suppressed by Mountain Laurel thickets, especially in coves.¹⁸⁵ Increased browse for wildlife will also follow fires.¹⁸⁶

7 DELINEATION AND LAND USE DESIGNATIONS OF THE MANAGEMENT AREAS

The property is divided into three management areas to prevent activities and uses that would pose a threat to the conservation values of the property and that would be inconsistent with the purpose of the Conservation Easement. Please see Appendix 13 - Management Zones Map.

The management areas consist of:

- Streamside Areas
 - Inner Streamside Zones
 - Outer Streamside Zones
- Habitat Areas
 - Critical Habitat Zones
 - General Habitat Zones
- Recreational Areas

7.1 Overall management directions and uses of the entire property

The City will maintain the property in a clean, natural and undisturbed state, and will comply with all applicable land use regulations, and any other applicable laws and ordinances. The City can engage in or permit others to engage in the uses of the property that are consistent with the purpose or terms of the Conservation Easement and this Master Plan.

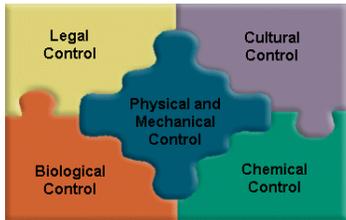
A monitoring program comparing current and future conditions shall be established at key points where impacts might be expected once plan implementation begins.

¹⁸⁵ Equinox, "Management Issues".

¹⁸⁶ Ibid.

The management guidelines, uses and activities below apply for all three management areas. Some guidelines might be specified and restricted for each management area..

☑ MANAGEMENT GUIDELINES AND ALLOWABLE USES FOR THE ENTIRE PROPERTY

Management and Maintenance by the City of Brevard	
<p>☑ Sediment and Erosion Control</p>	<p>Stabilize disturbed or actively eroding creek and trail banks.</p> <p>Proper maintenance of the trails in order to prevent erosion and sediment from entering into the streams is important. If new trails or footbridges are to be put in place, all appropriate measures to prevent impact such as sedimentation during and after construction will be taken.</p>
<p>☑ Pest Control Management</p> <div style="text-align: center; margin: 10px 0;">  </div> <p>Figure 2: IPM, source: John R. Meyer, Pest Control Tactics, Department of Entomology, NC State University</p>	<p>Equinox Environmental Inc. noted that there are no pests on the property. In case of the need to deal pests in the future, biorational pest control based on an integrated pest management program (IPM) is strongly recommended as an alternative to chemical pesticides.</p> <p>Preventative practices in combination with non-chemical and chemical pest controls should be incorporated to minimize the use of pesticides and promote the control of pest species. Common non-chemical pest control practices to limit the need for chemicals include: biological (good bugs that eat pests), cultural (handpicking of pests, removal of diseased plants, etc), and mechanical (zappers, paper collars, sticky traps, electronic killers, etc).</p> <p>Livestock can be permitted to assist with pest management outside streamside areas.</p> <p>Appropriate approved pesticides can be used only when other pest management methods failed to control noxious invasive and non-native species. In which case, pesticides must be handled away from streams and seeps. Herbicides should be hand applied only to those species identified as appropriate to remove. All pesticides are subject to prior approval of the CWMTF.</p>

Management and Maintenance by the City of Brevard	
<input checked="" type="checkbox"/> Restoration	<p>Restoration of hydrology and wetlands should be accomplished as permitted but only after the prior consent of CWMTF.</p> <p>Restoration of native vegetative communities by employing restoration and re-vegetation techniques to restore a degraded vegetative community to its natural state. Only site or region specific native vegetation will be utilized to meet the target vegetation of streamside areas.</p> <p>Adjacent landowners should also be encouraged to control target non-native vegetation on their land.</p>
<input checked="" type="checkbox"/> Wildlife Management	<p>Small-scale controlled burns should be considered in conjunction with National or State Forest Service in order to reduce fuel loads in some stands of Pine-Oak/Heath. Thinning of these areas is not equivalent nor is it recommended. Fire will result in flushes of oak and hickory regeneration as well as understory shrubs and herbs currently suppressed by Mountain Laurel thickets, especially in coves. Increased browse for wildlife will also follow fires.</p> <p>Other appropriate wildlife management practices, particularly those that encourage the protection of rare or endangered species, should be undertaken in conjunction with National or State wildlife agencies and other appropriate organizations.</p> <p>The City should make the property available to research institutions for wildlife management research.</p>
<input checked="" type="checkbox"/> Restricted Tree and Plant Removal	<p>Work with US Forest Service and NC Forest Service to develop a prescribed burn plan for appropriate areas.</p> <p>Monitor and clear vegetation as appropriate to maintain trails and access to the property.</p> <p>Monitor and remove diseased/infected vegetation as appropriate.</p> <p>Monitor and remove any non-native/invasive species.</p> <p>All are subject to prior approval of the CWMTF.</p>

Management and Maintenance by the City of Brevard	
<input checked="" type="checkbox"/> Boundaries Demarcation	<p>All boundaries adjacent to neighboring properties shall be posted with signs and maintained.</p> <p>Signs meeting CWMTF requirements must be posted along the boundary. (Signs can be provided by CWMTF for free.)</p> <p>Additional signs – “no hunting” signs, “no trespassing” signs, local, state or federal traffic or similar informational signs, educational and interpretive signs, informational signs about prohibited/allowed activities on the property - should be posted at the access areas and other appropriate locations.</p> <p>Signs at boundaries should be monitored over time for potential violations and encroachments.</p>
<input checked="" type="checkbox"/> Restricted Use of Vehicles	<p>The property can be accessed through use of all terrain vehicles or pack animals if necessary in performance of management duties or under emergency conditions concerning public safety. In no case shall there be access of motorized equipment or livestock to actual streams or seep areas.</p>
<input checked="" type="checkbox"/> Fire Safety	<p>Fire control will be coordinated with the City of Brevard Fire Department, the North Carolina Forest Service, and the US Forest Service. The City, in cooperation with the aforementioned agencies, will establish a wildfire suppression plan that is reflective of the property’s conservation values. Open fires, other than those associated with prescribed burns, are prohibited.</p>
Recreational / Educational Activities and Constructions	
<input checked="" type="checkbox"/> Low impact passive recreation	<p>Low impact, passive recreation activities are permitted, including: hiking, picnicking, bird-watching, nature photography, nature study, viewing stations, interpretive areas, limited group camping by permit, and dog walking. Mountain biking is allowed in designated areas. All permitted activities must not cause surface alteration of the land or pose any threat to the conservation values of the property.</p> <p>Allowed recreation activities specified for each management area are listed below.</p>

Recreational / Educational Activities and Constructions	
<input checked="" type="checkbox"/> Educational activities and Scientific Study	<p>The City should make the property available to research institutions for environmental, conservation, and other natural resources-related research.</p> <p>Non-destructive educational tours, scientific studies, animal or plant observations, and other research are allowed <u>with permission of the City of Brevard</u>. A written policy for that purpose should be established.</p> <p>Approval for educational activities will only be granted for organized groups. Approval for studies and research will only be granted on the condition that a written report of findings is submitted to the City upon completion of the study.</p> <p>Educational self-guided trails with educational and interpretive signs for adults and youth are allowed and recommended.</p>
<input checked="" type="checkbox"/> Amenities and Improvements	<p>All amenities and improvements must be approved by CWMTF. Any alterations, construction, and maintenance must pose no surface alteration of the land and no threat to the conservation values of the property.</p> <p>The total cleared, not re-vegetated, pervious and impervious surface areas associated with all aforesaid improvements must not exceed ten percent (10%) of the total area of the property (approximately 40 acres).</p> <p>All management activities that may affect the view shed (e.g. trail construction, fences, signs etc.) must take into account and minimize adverse visual impacts.</p>
<input checked="" type="checkbox"/> Amenities and Improvements	<p>Allowed recreational amenities and improvements include: primitive picnic shelters and rest areas, boardwalks, catwalks, decks, ramps, handrails, connecting steps, pedestrian bridges as required by terrain, observation/viewing platforms, primitive benches and tables, litter receptacles, environmentally friendly toilets, hiking and biking trails, fencing, identification labels or any other similar temporary or permanent signs, and other improvements consistent with the approved uses of the property as set forth in this Master Plan. Where feasible, environmentally friendly materials will be used.</p> <p>All subject to the prior approval of the CWMTF.</p> <p>Permissibility of some of amenities and improvements are specified for each management area stated below.</p>

☒ USES AND AMENITIES NOT ALLOWED ON THE PROPERTY

Management and Maintenance by the City of Brevard	
☒ Logging, Vegetation Thinning, Gathering	<p>No logging or tree harvesting of any kind.</p> <p>No vegetation thinning.</p> <p>Allowable uses include (subject to prior approval of the CWMTF): boundary marking, fencing, allowed or required signage, trails and other amenities construction, selective cutting and prescribed burning or clearing of vegetation, pest and disease control activities, restoration of hydrology, and wetlands enhancement.</p> <p>No collection of any plants, animals or minerals except where authorized as an integral part of the management program or for scientific study or research (with written City approval).</p>
☒ Agriculture	<p>No agricultural, horticultural, or animal husbandry operations.</p> <p>No grazing, if not necessary for the pest control as specified above.</p> <p>No planting of invasive non-native vegetation.</p>
☒ Mitigation Projects	<p>No use as Mitigation Property. There shall be no use of the property to satisfy compensatory mitigation requirements under any federal or state official law, nor may any part of the property be used or referenced so as to allow density credits to be allowed or added to any other property for purposes of development.</p>
☒ Industrial and Commercial Use	<p>No industrial and commercial use of the property is allowed. All industrial and commercial activities and uses, and any right of passage for such purposes, shall be prohibited on the property.</p>
☒ Mineral use, Excavation, Dredging	<p>No mineral use, excavation, or dredging – no filling, excavation, dredging, mining, or drilling; no removal of topsoil, sand, gravel, rock, peat, minerals, or other materials; and no change in the topography of the property in any manner, except as may be necessary for the purpose of combating erosion or incidental to any conservation management practices otherwise permitted by the Conservation Easement.</p>

Management and Maintenance by the City of Brevard	
<input checked="" type="checkbox"/> Dumping and Pollution	<p>Any dumping of soil, trash, ashes, garbage, or waste; abandonment of vehicles, appliances, or machinery, or other waste or discarded materials, is prohibited.</p> <p>No activities causing or contributing to the pollution of or alteration of water bodies shall be conducted, permitted, or allowed on the property.</p>
<input checked="" type="checkbox"/> Subdivision	<p>The property may not be subdivided or partitioned. It shall remain in its current configuration as an undivided entity or parcel of land.</p>
<input checked="" type="checkbox"/> Hunting and Trapping	<p>No animal hunting or trapping is permitted except for special circumstances to trap nuisance wildlife (i.e. wildlife posing a threat to people) or to conduct research under permission of the City.</p>
Recreational / Educational Activities and Constructions	
<input checked="" type="checkbox"/> Prohibited Recreational Activities	<p>No horseback riding, fishing, rock climbing, or public use of motorized vehicles including automobiles, motorcycles, off-road vehicles and all terrain vehicles, or other vehicles inconsistent with this Master Plan.</p> <p>No off-trail hiking or bicycle riding by the general public.</p> <p>No consumption of alcohol is allowed within property boundaries.</p> <p>No glass containers are allowed on the property.</p> <p>No collection of any plants, animals, or minerals except where authorized as an integral part of the management program or for scientific study or research (with written City approval).</p> <p>No fires are permitted except for prescribed burning.</p> <p>No camping except by group permit in specified areas.</p> <p>No special events or activities are allowed except under special permit of the City of Brevard. A written policy for that purpose should be established.</p>
<input checked="" type="checkbox"/> Constructions and Improvements	<p>No construction or placement of any building, mobile home, asphalt or concrete pavement except in specifically approved parking area, culverts, billboard or other advertising display, antenna, permanent lights, utility pole, tower, conduit, line, pier, landing, dock or other temporary or permanent structure or facility on, above, or below the surface of the property is allowed except for permitted recreational improvements listed in this Master Plan.</p>

7.2 Streamside Areas

What is a Riparian Buffer?

“The term riparian buffer is used to describe lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of green containing native grasses, flowers, shrubs and trees that line stream banks. They are also called vegetated buffer zones. A healthy riparian area is evidence of wise management.”¹⁸⁷

Since the property is not in an urban area and it is entirely forested, it will serve as an extraordinary riparian protection area. However, because recreational use of the property will be allowed, specific protection of the streamside areas is necessary. Therefore, two management zones within streamside areas (inner and outer zones) are established along Brushy and Brackens Creek and their tributaries and ephemeral streams. The width of these zones was established according to the requirements of CWMTF and recommendations of the Center for Watershed Protection.¹⁸⁸ The typical width of the streamside area is 305 feet from the stream centerline on either side of the stream, although this width does vary with changes in topography and other conditions.

Three major goals of a streamside areas system are to: maintain an unbroken corridor of riparian forest, maintain the upstream and downstream passage of wildlife in the stream channel, and provide sediment filtration and stormwater/floodwater storage and absorption.

The ideal state of vegetation for streamside areas is a mature riparian forest that can provide shade, leaf litter, woody debris, and erosion protection to the stream.¹⁸⁹ The vegetative target for the streamside area on the property is based on the present natural vegetative community which is mostly Acidic Cove and Slope Forest. If the streamside zone does not currently meet its vegetative target, it should be managed to ultimately achieve it. For example, a grassy area should be allowed to

¹⁸⁷ NC State University, Department of Biological and Agricultural Engineering, *Stream Notes 3 – Riparian Buffers Fact Sheet*, Volume 1, Number 3.

¹⁸⁸ Center for Watershed Protection, “Aquatic Buffers,” in *Designing Effective Urban Stream Buffers, A Guide to Planning for Aquatic Buffers in the Developing Landscape* (Ellicott City, MD: Center for Watershed Protection) available at http://www.cwp.org/aquatic_buffers.htm.

¹⁸⁹ S.J. Wenger and L. Flower, *Protecting Stream and River Corridors: Creating Effective Local Riparian Buffer Ordinances*, (Athens, GA: Carl Vinson Institute of Government, The University of Georgia, 2000), 11.

grow into a forest over time. Streamside area should contain only native species, and non-native or invasive tree, shrub, and vine species should be eliminated from these areas.

Values of the Riparian Buffers¹⁹⁰

Riparian buffers are important for good water quality because:

Riparian zones:

- *help to prevent sediment, nitrogen, phosphorus, pesticides, and other pollutants from reaching the stream.*
- *are effective at improving water quality as they include a native grass or herbaceous filter strip along with deep rooted trees and shrubs along the stream.*
- *are especially important in small, headwater streams where up to 99% of the energy input may be from woody debris and leaf litter.*
- *provide valuable habitat for wildlife. They are important corridors for variety of wildlife. Forested stream sides benefit game species such as deer, rabbit, and quail as well as non-game species like migratory songbirds.*

Riparian vegetation:

- *is a major source of energy and nutrients for stream communities.*
- *when overhanging streams, keeps streams cool, which is especially important for North Carolina's mountain trout populations*
- *slows floodwaters, thereby helping to maintain stable stream banks and protects downstream properties. This allows the riparian zone to function as a site of sediment deposition, trapping sediments that build stream banks and that would otherwise degrade our streams and rivers.*

7.2.1 Demarcation of Streamside Areas and Prevention of Disturbance

The limits and uses of the streamside areas system should be well defined during each stage of the recreation facilities development process. Those areas are especially vulnerable to disturbance during construction.

Steps to prevent encroachment during this stage include:

- Mark zones limits on all plans used during construction (i.e. clearing plans, and erosion and sediment control plans).
- Mark the limits of disturbance with silt or snow fence barriers, and signs to prevent the entry of construction equipment and stockpiling. Verify the streamside delineation in the field.
- Familiarize contractors with the limits of disturbance during a preconstruction walk-through.

¹⁹⁰ NC State University, Department of Biological and Agricultural Engineering, *Stream Notes*.

- Examine any streamside zone crossings for problems.

Public knowledge and appreciation of streamside natural resources should be increased through use of public interpretative services provided onsite by signs or by educational or promotional materials.

7.2.2 Inner Streamside Zone

This zone is an inner fifteen foot zone (twenty feet from the stream center on each side of the stream). The width was established, according to the CWMTF requirement, so that no trails will be within a minimum distance of fifteen feet from the top of the bank of the creeks and tributaries.

This zone protects the physical and ecological integrity of the stream ecosystem.

The general intent in this zone is to protect and maintain it in its current naturally vegetative state or successional evolutionary state free from any human disturbance or alteration.

<input checked="" type="checkbox"/> SPECIFICATION OF ALLOWABLE USES AND ACTIVITIES IN THE INNER STREAMSIDE ZONE	
<input checked="" type="checkbox"/> Conservation and Restoration	Conservation, enhancement, and restoration of native fish and amphibian populations, monitoring of fisheries resources to determine species composition, size and population is allowed.
<input checked="" type="checkbox"/> Educational activities and Scientific Study	<p>The City should make this area available to research institutions for environmental, conservation, and other natural resources-related research.</p> <p>Non-destructive water resource educational activities, studies and research including water chemistry, fish, benthic macro invertebrate, and other scientific monitoring <u>under permission of the City of Brevard</u> should be allowed.</p> <p>Approval for educational activities will only be granted for organized groups. Approval for studies and research will only be granted on the condition that a written report of findings is submitted to the City on completion of study.</p>
<input checked="" type="checkbox"/> Recreation Activities	Regulated passive recreation is allowed only on designated stream crossings. Use of the stream crossings is restricted to foot traffic i.e. hiking.

<p>Stream Crossings</p>	<p><u>Conditions under which a stream can be crossed:</u></p> <ul style="list-style-type: none"> - Streams should be traversed by trails only when no other viable option for trail location exists. - Crossing should occur at historical crossing locations whenever possible. Such existing locations may require restoration as part of the installation of bridges or other crossing structures. - Clearing near streams should be reduced to only what is required to create linear crossing. - Structural crossing will be designed for bikes also (but not encourage this use). - Non-structural crossing are to be stabilized and designed for bikes (but not encourage this use). - Use the minimum crossing width necessary to allow for maintenance access. - Direct right angles in crossing design are preferred over oblique crossing angles, since they require less clearing. - Crossing elevation and material -the use of corrugated metal pipes should be avoided, as they tend to create barriers. The use of boards is recommended.
<p>Amenities and Improvements</p>	<p><u>Allowed recreational amenities on the creek banks:</u></p> <ul style="list-style-type: none"> - <i>Pedestrian foot bridge, boardwalks, catwalks, decks</i> - construction, maintenance, repair, and access of a certain number of the pedestrian foot bridges across creeks is allowed in the Conservation Easement. Construction requirements are specified below. Any bridge must be connected to the trails permitted in the easement. All necessary care shall be taken to complete the construction in a manner so as not to cause or allow sedimentation either during or after construction. - <i>Observation/ viewing platforms</i> - construction, maintenance, and repair of a certain number of those amenities is allowed in the Conservation Easement with <i>optional connecting steps and ramps</i>, as required by terrain, to be located on the creek bank. Such platforms must be connected to the walking and hiking trails. - Provide handrails for public safety where necessary and appropriate.

☒ USES AND ACTIVITIES NOT ALLOWED IN THE INNER STREAMSIDE ZONE	
Vehicle Access	Motorized vehicles shall not be permitted to access streams and seeps.
Pest Management	No livestock or pesticides are allowed.
Pollution and Alteration of Water Bodies	<p>No activities causing or contributing to pollution of or alteration of water bodies, the detriment of water purity, or that alter natural water levels or drainage, or that contribute to sedimentation, or that alter surface water flow in or over the property or into any surface waters adjacent thereto, or that may otherwise cause soil degradation or erosion are allowed.</p> <p>No diking, dredging, draining, piping, filling, or other activity causing any alteration to wetlands is allowed except activities to restore natural hydrology, or wetlands enhancement, as permitted by state and other appropriate authorities, and then, only after and with the prior consent of CWMTF.</p>
Prohibited Recreation Activities	No picnicking or camping is allowed.
Prohibited Amenities and Improvements	<p>No primitive picnic areas, wooden benches and tables, litter receptacles, or portable toilets are allowed.</p> <p>No trails, trailheads, or parking lots should be located in this zone unless a certain location is physically practicable and necessary for a linear crossing of a trail from the vicinity.</p> <p>No stream crossings may be located within seep areas or rare plant communities.</p> <p>Conditions under which a stream can be crossed and that amenities that can be used are stated above.</p>

7.2.3 *Outer Streamside Zone*

This zone is a variable 305 feet in width from the stream center (includes fifteen foot inner zone). It varies following the topographic contour of the site and adjacent steep slopes (plus two feet per 1% of slope)¹⁹¹ or Steep slopes (four feet per 1% increase in slope over 5%) and width of wetlands and seep areas. The width was established according to the CWMTF requirement of stream buffer in a distance of 300 feet from the top of the bank of the creeks and tributaries. The buffer’s functions are to protect key components of the stream and provide further distance between the stream and activities that may have negative impact on the stream.

The general intent of this zone is that it be protected in its current, naturally vegetated state or successional evolutionary state free from any human disturbance or alteration. However, some necessarily clearing of vegetation may be allowed for trail development on established, old logging roads and for the control of invasive exotic species.

<input checked="" type="checkbox"/> SPECIFICATION OF ALLOWABLE USES AND ACTIVITIES IN THE OUTER STREAMSIDE ZONE	
Recreational Activities and Amenities	Public access on established trails is allowed as indicated herein (See Appendices 14 & 15). Use of the trails is restricted to foot and non-motorized, bicycle traffic. Trails must avoid seep areas and rare plant communities and should follow established, old logging roadbeds where such does not conflict with critical protection areas.
	Picnicking and picnic sites are allowed in simple, natural way as well as primitive resting areas with wooden covered shelters with bench seating or just wooden tables and benches (no concrete, no grills).

¹⁹¹ Note: Percent slope is the increase in elevation per unit of width. For example, if the stream valley rises by twenty feet over a width of 100 feet, slope is twenty percent.

☒ USES AND ACTIVITIES NOT ALLOWED IN THE STREAMSIDE BUFFER	
Management of this area by the City of Brevard	No access of permitted motorized equipment or livestock is permitted to stream and seep areas.
Recreation	No portable toilets, trailheads, or parking lots should be located in this zone.
	No new trails should be constructed except those shown within this Master Plan. No trails crossing the seep areas and rare plant communities are permitted.
	No camping is allowable in this area.

7.3 Habitat Areas

The primary purpose of Habitat Areas is to protect natural resources essential to the continued well-being of resident native wildlife. These areas are subject to restrictions upon, or prohibition of, public access. The conservation of resources and habitat shall be the dominant consideration in all management decisions where a choice must be made between preservation of the natural environment and recreational use. Consideration must be given to the ability of natural ecosystems to sustain visitor use, since carrying capacity or sensitivity to disturbance may vary widely between geographic areas.

Habitat areas are also divided into two zones. The inner zone is the Critical Habitat Zone that includes significant natural communities that needs to be preserved. The outer zone is the General Habitat Zone that will provide further distance between the critical habitat sites and activities that may have negative impact on them.

7.3.1 *Critical Habitat Zones*

This zone includes locations that deserve special protection due to being essential spaces for endangered, rare, native, or unique plant and animal communities or populations. These include two

extensive and excellent quality, high elevation seep complexes, rare plant communities, rock outcroppings, and successional Rich Cove and mesic Oak- Hickory forests.

Significant conservation values of those sites and their target vegetation are described in Chapter 3.6.: Description of Natural Communities and in Chapter 4: Conservation Values of the Property.

These zones are entirely preserved and reserved for natural heritage research and learning only.

<input checked="" type="checkbox"/> SPECIFICATION OF ALLOWABLE USES AND ACTIVITIES IN THE CRITICAL HABITAT ZONE	
Research and Scientific Activities	<p>Research and other scientific activities are allowed with permission of the City of Brevard. Access is limited to those academic institutions, relevant agencies, botanical societies, and associated individuals whose mission encompasses the monitoring and conservation of natural heritage.</p> <p>Approval for studies and research will only be granted on the condition that a written report of findings is submitted to the City upon completion of the study. Permission will only be granted provided the activities of the parties occur under established programs and associated protocols and under the guidance of a qualified botanical/wildlife expert.</p>
Educational Activities	<p>Younger school children and members of the general public are not encouraged in these zones unless accompanied by an authority from either of the parties listed above.</p>
<input checked="" type="checkbox"/> USES AND ACTIVITIES NOT ALLOWED IN THE CRITICAL HABITAT ZONE	
Management of this area by the City of Brevard	<p>No motorized equipment and livestock shall be permitted.</p>
Recreation	<p>No recreational activities, facilities and amenities will be permitted in this zone.</p>

7.3.2 *General Habitat Zones*

The Habitat Buffer is a variable 300 - 800 ft zone. This zone extends from the edge of Critical Habitat Zones and varies following the topographic contour of the site. The extension of the buffer also depends on a location of the critical habitats such as isolated seeps and rare plant communities. The buffer's functions are to protect key components of the Critical Habitat Zones and provide further distance between them and activities that may have negative impacts on the stream.

The general intent in this zone is also to protect it in its current native vegetated state or successional evolutionary state free from any human disturbance or alteration; however, some necessary clearing of vegetation may be allowed for trails' development.

<input checked="" type="checkbox"/> SPECIFICATION OF ALLOWABLE USES AND ACTIVITIES IN THE GENERAL HABITAT ZONES	
Recreation	Public access on established trails as indicated herein is allowed (See Appendices 14 & 15). Use of the trails is restricted to foot and non-motorized bicycle traffic. Trails should follow established logging roadbeds. Clearing of old roadbeds should be kept to minimum necessary width.
	Allowed recreational amenities and improvements include: boardwalks, ramps, handrails, connecting steps, and pedestrian bridges as required by terrain and signage. All are subject to the prior approval of the CWMTF.
<input checked="" type="checkbox"/> USES AND ACTIVITIES NOT ALLOWED IN THE GENERAL HABITAT ZONES	
Recreation	No litter receptacles, portable toilets, new side trails, trailheads, primitive tables and benches, picnic areas, observation/viewing platforms or parking lots should be located in this zone. No camping and picnicking is permitted in this zone.

7.4 Recreational Areas

Recreation Areas consist of the remainder of the property outside protected zones and their buffers. These areas are opened for general public use and enjoyment consistent with the allowable uses and activities for the entire property and terms stated in the Conservation Easement and this plan.

No trails may cross through rare plant communities, seep areas or rock outcroppings present on site.

8 PROPOSED RECREATIONAL AMENITIES AND SUPPORT FACILITIES

8.1 Specification of and recommendations for some of the recreational uses and activities

8.1.1 Public Access Areas and Parking Lots

Public access to the property is to be provided by a small, controlled parking area located on the perimeter of the property, as shown in Appendix 14 - Recreation Facilities Map. This parking area will be designed so as not to compromise the quality of the natural heritage or water resources on the site. The parking area will be constructed of pervious materials such as brick pavers, gravel, pervious asphalt, or other similar surfaces. The parking area will be constructed away from the Streamside Area and Habitat Area. It is recommended to provide portable toilet(s) as a part of the parking facility, since they are less likely to pose any threat to water resources.

Old logging roads that have been previously cleared leading from this parking lot into the property must be gated and locked to prohibit any vehicular traffic other than non-motorized bicycle access and pedestrian traffic. Furthermore, the access road leading to the property should be gated and closed during evening hours at an appropriate location to secure the parking lot during evening hours. The City of Brevard will maintain the locks and keys so that public safety officials and maintenance crews can access the property if necessary (to check on campers, clean and maintain

facilities, respond to emergencies etc.). It is recommended to use more than one lock to provide independent access for different city officials and crews.

8.1.2 Trails and Old Logging Roads

This plan strives to offer a variety of trails with varying levels of difficulty to meet the range of abilities and preferences of visitors. Please see Appendices 14 – Recreational Facilities & 15 – Trail Map. A network of trails in this plan is mostly based upon utilization of existing logging roads in order to comply with CWMTF stream setback requirements while preserving access to topographically suitable trail sites. Trails are meant for bicycle or pedestrian use only. Approximately five miles of trails are proposed, of which approximately four miles are reserved strictly for pedestrian use. Minimal trail density is proposed in order to reduce constant human presence onsite. No trails can cross through rare plant communities, seep areas, or rock outcroppings present on site. Intensive management will be required in order to maintain trail quality, particularly on mixed-use trails.

The old logging roads are mostly regenerated with vegetation (thick four – seven foot tall bushes), and will require some clearing. Some of the old logging roads will not be utilized, and should remain undisturbed so the natural re-vegetating process can continue. Some sections of the roads will need to be reconstructed and stabilized since the road banks are collapsing (See Appendices 11 & 12). Non-pressure treated boardwalks, catwalks, or decks to cross wet and muddy sections of the roads are desirable. Open-bottomed culverts may be used upon approval of the CWMTF.

Since this plan is conceptual, details on trail design are not included. Therefore, only general recommendations and standards for new trails constructed on site are provided below. Problematic sites and sites of special concern (while planning a construction of trails, clearing and reconstruction of old roads) are shown in Appendices 10 - 15.

Typical trail construction standards and recommendations¹⁹²	
Clearing Width	7-9 feet Within one foot of the edge of the threat, plant material and debris should be cleared all the way to the ground. Farther than 1.5 feet from the trail edge, plants do not have to be cleared unless they are taller than 1.5 feet.
Tread Width	3-5 feet
Treat Surface	Natural /native soil – local supplies of natural bark, mulch, wood chips, sand, and gravel, consistent with those that can be found on the tract shall be used. In wet areas, use boardwalks, catwalks, decks, or log bridges.
Percent Grade¹⁹³	Trails should not exceed 12% grade where possible because they become difficult for trail users and may lead to trail erosion problems. Desired Easy Grade: 0 – 5 % Maximum Grade: 5 – 10% sustained, 15% (shorter then 50 yards) Outslope Grade : 4% maximum
Clearing Height	At least 7 feet for hiking and 8 feet for biking.
Edge, curbs, and railings	Provide 3 inch curb and 32 inch railings at dangerous and difficult locations.

Maintenance of the trails can be accomplished with:¹⁹⁴

- 1) Periodic monitoring of the trails and periodic removal of vegetation to maintain clearance.
- 2) Correction of unsafe situations such as repairing impassable washouts, removing blow down from steep sections, removal of fallen trees, etc.
- 3) Correction of issues causing significant trail damage – erosion, sedimentation, off- site trampling, etc.
- 4) Restoration of the trails to the planned design standard (signage, bush removal etc.).

Doing maintenance when the need is first noticed will help prevent more severe and costly damage later.

The City should consider securing the services of a trail construction specialist and utilize a design-build approach to achieve appropriate trail design.

¹⁹² US Forest Service, *Trail Construction and Maintenance Notebook*, (Forest Service Technology and Development Program: Raleigh, NC, 28 September 2004), available at <http://www.fhwa.dot.gov/environment/fspubs/00232839/page02.htm#plan> .

¹⁹³ NC Cooperative Extension Service, *Recreational Forest Trails: Plan for Success*, (NC State University: Raleigh, NC, October 1995), available at <http://www.ces.ncsu.edu/nreos/rrea/construct.html>.

¹⁹⁴ US Forest Service, *Trail Construction and Maintenance Notebook*.

8.1.3 Campsites

Overnight use of the property is allowable by special permit for organized groups on a very limited basis. Large groups tend to be easier to manage and are more likely to be responsible stewards. Restricting camping to large groups will minimize camping demand and will minimize security, monitoring, and maintenance responsibilities of City agencies.

One proposed campsite is shown in Appendix 14 - Recreational Facilities map. This site is located far from the parking area and will require hiking or biking to get there. This will eliminate car campers and reduce prohibited use by the general public, litter, vandalism, and other problems associated with easily accessible campsites. This campsite is primitive and will be provided with no amenities other than dedicated tent pads. The campsite is located outside sensitive Streamside and Natural Heritage areas, as well as Pine-Oak/Heath and Dry Oak Forests due to the likelihood of natural fire and recommended small-scale controlled burns in those areas. No campsites other than those proposed by this plan should be constructed on the property. No fires are permitted in this or other areas of the property, and cooking is restricted to pack stoves. This prohibition upon open fires should be strictly enforced by City personnel.

Example of camping regulations and permission for organized groups provided by DuPont State Park are part of this document as Appendix 5.

8.1.4 Picnic / Rest Areas, Observation / Viewing Platforms

Picnic, rest stations, and observation or viewing stations are intended to be small, simple, low impact structures such as small, wooden platforms or covered shelters with bench seating or simple wooden tables and benches (no concrete or grills). These areas are intended to provide rest and relaxation at key logical points or to highlight important scenic vistas on the property. Such areas are shown in the Appendix 9 - Recreational Facilities map.

8.1.5 Signage

Signage should be limited due to aesthetic concerns (natural materials where possible). In addition to signage required by CWMTF and City policy for property identification and demarcation, educational, interpretive, and directional signage should be provided at appropriate locations.

8.1.6 *Bridges and Boardwalks*

Bridges and boardwalks should be five to ten feet in width and should comply with common and accepted design standards for trail recreational structures. These structures must be limited to those trails permitted in the easement. All necessary care shall be taken to complete the construction of such features in a manner so as not to cause or allow sedimentation either during or after construction. Please see the Appendix 9 - Recreational Facilities map.

9 IMPLEMENTATION STRATEGY – ACTION PLAN

Upon securing the conservation easement with the CWMTF, staff will prepare a detailed budget and implementation strategy for Council's consideration. This budget will provide for both short-term plan implementation and long-term property maintenance and management. Several key issues and opportunities should be considered in order to minimize implementation costs and leverage other community assets for plan implementation, which are summarized as follows:

1. The City should consider establishing a permanent endowment for the perpetual maintenance and management of the property.
2. The City should establish a "Friends of Bracken Mountain" (or similar) organization to provide a pool of volunteers for property management and maintenance. This organization should be modeled on similar groups established for the benefit of National and State parks and other local recreational facilities, and could draw volunteers from a number of other established hiking and outdoors organizations.
3. The City should seek the assistance of Boy Scouts, Brevard College, and other organizations with a service component in their mission statement for property maintenance and improvement.
4. The City should seek opportunities to coordinate implementation and maintenance with other governmental agencies such as the US Forest Service, NC Fish and Wildlife Service, and similar organizations, where appropriate.

5. A part-time warden may be required within the Building and Grounds or another appropriate City Department. This individual should be responsible for plan implementation, regular monitoring of property use, enforcement of use policies in cooperation with the City Police Department, coordination of property maintenance with the City Building & Grounds and Public Works Departments, the coordination of volunteers, and other appropriate responsibilities.
6. The City should establish a camping permitting system. Such a system could easily be administered through the City Police Dispatch window, Utilities window, Clerk's office, Planning Department, or other regularly staffed permitting or informational office.
7. The City should seek NC Department of Transportation participation in the construction of the access road from Pinnacle Drive to the property.
8. The City should strive to complete planned recreational improvements by June 31, 2009, and should continually strive to protect, restore, and improve the quality of the natural environment in and around the property.

Bracken Mountain Master Plan

APPENDICES

Appendix 1

Bracken Mountain Master Plan Steering Committee

Name	Position		Address	City, ZIP
Mac Morrow	City Council	Ad Hoc Chairman	563 East Main Street	Brevard, NC 28712
Karla Atkinson	Planning Board Chairman		506 Stone Dr.	Brevard, NC 28712
Don Byers	Utility Director		151 West Main Street	Brevard, NC 28712
Lynn Goldsmith	Public Works Department, Buildings and Grounds		151 West Main Street	Brevard, NC 28712
Joshua Freeman	Planning Director		151 West Main Street	Brevard, NC 28712
Radka Chalupkova	Planner	Staff Coordinator	151 West Main Street	Brevard, NC 28712
Matt Christian	Pisgah Centre for Wildlife Education	Citizen Representative (Outdoor educator / wildlife specialist)	111 Robinson Street	Brevard, NC 28712
Seyl Park		Citizen Representative (Outdoor educator / business owner)	315 Maple Street	Brevard, NC 28712
Randy Burgess	District Ranger - Pisgah Ranger District, Pisgah National Forest, US Forest Services		1001 Pisgah Hwy.	Pisgah Forest, NC 28768
Russ Knights	Recreation Advisory Committee		316 Whitmire Street	Brevard, NC 28712
John M. G. McLeod		Citizen Representative / Conservation Attorney	35 Park Avenue	Brevard, NC 28712
Glenda Sansosti	City Clerk/ City Manager		151 West Main Street	Brevard, NC 28712

Appendix 2

List of Plant Species found on the property by Natural Communities

Plant Species	Rich Cove	Mt. Oak/Hickory	Dry Oak Hickory	Pine Oak Heath	Seeps	Acidic Cove
<i>Acer rubrum</i>	X	X	X		Dominant	X
<i>Ageratina altissima</i>	X	X			X	
<i>Alnus serrulata</i>					X	
<i>Amelanchier arborea</i>		X				
<i>Amianthium muscaetoxicum</i>	X					
<i>Amorpha fruticosa</i>		X				
<i>Anemone quinquefolia</i>	X	X			X	X
<i>Anemone virginiana</i>		X				
<i>Arisaema triphyllum</i>	X				X	
<i>Aster cordifolius</i>	X	X			X	
<i>Athyrium asplenoides</i>	X	X			X	
<i>Betula lenta</i>	Dominant				X	
<i>Carex gynandra</i>					X	
<i>Carex pensylvanica</i>	X	X				
<i>Carya cordiformis</i>		X				
<i>Carya glabra</i>	X	X				
<i>Carya tomentosa</i>						X
<i>Castanea dentata</i>		X				
<i>Castanea pumila</i>			X			
<i>Chamaelirium luteum</i>		X	X			
<i>Chelone glabra</i>					X	
<i>Chimaphilia maculata</i>		X	X	X		
<i>Circaea canadensis</i>	X					
<i>Clethra acuminata</i>					X	X
<i>Comptonia peregrina</i>				X		

Plant Species	Rich Cove	Mt. Oak/Hickory	Dry Oak Hickory	Pine Oak Heath	Seeps	Acidic Cove
<i>Conopholis americana</i>					X	
<i>Coreopsis major var. major</i>			X			
<i>Cornus florida</i>		X				
<i>Cunila origanoides</i>	X	X				
<i>Dendrolycopodium obscurum</i>		X				
<i>Dennstaedtia punctilobula</i>		X	X			
<i>Dichantherium spp.</i>	X	X			X	
<i>Dioscorea villosa</i>	X					
<i>Diphysastrum digitatum</i>		X				
<i>Epigea repens</i>		X				
<i>Erigeron pulchellus</i>	X					
<i>Erythronium umbilicatum</i>	X					
<i>Euonymus americana</i>	X					X
<i>Euphorbia corollata</i>		X				
<i>Eutrochium maculatum</i>					X	
<i>Fagus grandifolia</i>		X				
<i>Fragaria virginiana</i>		X				
<i>Fraxinus americana</i>					Common	X
<i>Galax urceolata</i>		X	X		X	
<i>Galearis spectabilis</i>	X					
<i>Galium circaezcans</i>	X					
<i>Gaylussacia frondosa</i>			X			
<i>Gaylussacia baccata</i>		X				
<i>Gaylussacia ursina</i>	X	X	X			
<i>Goodyera pubescens</i>	X					X
<i>Halesia tetraptera</i>	X	X			X	
<i>Hamamelis virginiana</i>						X
<i>Hieracium paniculatum</i>	X					
<i>Hieracium venosum</i>		X				
<i>Houstonia purpurea</i>		X				

Plant Species	Rich Cove	Mt. Oak/Hickory	Dry Oak Hickory	Pine Oak Heath	Seeps	Acidic Cove
<i>Houstonia serpyllifolia</i>	X				X	
<i>Hydrangea cinerea</i>					X	
<i>Hydrangea radiata</i>					X	X
<i>Hypoxis hirsuta</i>		X				
<i>Iris verna</i>			X			
<i>Juncus gymnocarpus</i>					X	
<i>Kalmia latifolia</i>		X	X	X		X
<i>Leucothoe fontanesianum</i>						X
<i>Lindera benzoin</i>						Dominant
<i>Liriodendron tulipifera</i>	Dominant	X	X		X	
<i>Lobelia amoena</i>					X	
<i>Luzula acuminata</i>					X	
<i>Lycopus virginicus</i>	X				X	
<i>Lyonia ligustrina</i>						X
<i>Lysimachia quadrifolia</i>	X	X	X			
<i>Magnolia fraseri</i>	X	X			X	
<i>Maianthemum canadense</i>	X					
<i>Maianthemum racemosum</i>						X
<i>Medola virginiana</i>	X				X	X
<i>Melanthium parviflorum</i>	X				X	
<i>Nyssa sylvatica</i>	R					
<i>Osmunda cinnamomea</i>	X	X			X	
<i>Osmunda regalis var. spectabilis</i>					X	
<i>Oxalis stricta</i>					X	
<i>Oxydendrum arboreum</i>	X	X	X			
<i>Parthenocissus quinquefolia</i>	X					
<i>Pinus rigida</i>			X	X		
<i>Pinus strobus</i>	X	X				
<i>Platanthera clavellata</i>					X	
<i>Poa sp.</i>					X	

Plant Species	Rich Cove	Mt. Oak/Hickory	Dry Oak Hickory	Pine Oak Heath	Seeps	Acidic Cove
<i>Polystichum acrostichoides</i>	X					
<i>Potentilla canadensis</i>		X				
<i>Prenanthes trifoliolata</i>		X				X
<i>Pteridium aquilinum</i>		X		X		
<i>Pyrularia pubera</i>		X				X
<i>Quercus alba</i>		X	X		X	X
<i>Quercus coccinea</i>		X	Dominant			
<i>Quercus montana</i>	X	X	Dominant			
<i>Quercus rubra</i>		X			X	X
<i>Quercus velutina</i>	X	X				
<i>Rhododendron calendulacea</i>	X	X	X			
<i>Rhododendron maximum</i>					X	X
<i>Rhododendron minus</i>						X
<i>Robinia pseudoacacia</i>		X				
<i>Sanicula marilandica</i>	X					
<i>Sasafras albidum</i>		X	X			
<i>Saxifraga micranthidifolia</i>					X	
<i>Schizachyrum scoparius</i>		X				
<i>Smilax biltmoreana</i>		X	X			
<i>Smilax rotundifolia</i>			x	X		X
<i>Solidago sp.</i>	X	X	X		X	
<i>Streptopus amplexicaulis</i>		X				
<i>Symplocos tinctoria</i>			X			
<i>Thalictrum clavatum</i>					X	
<i>Thapsium trifoliatum</i>		X				
<i>Thelypteris noveboracensis</i>	X	X			X	X
<i>Trillium sp.</i>		X			X	
<i>Tsuga canadensis</i>	X	X				
<i>Uvularia sessifolia</i>			X			
<i>Vaccinium corumbosum</i>						X

Plant Species	Rich Cove	Mt. Oak/Hickory	Dry Oak Hickory	Pine Oak Heath	Seeps	Acidic Cove
<i>Vaccinium palidum</i>		X	X			
<i>Vaccinium stamineum</i>		X				
<i>Viola hastata</i>		X	X			X
<i>Viola mackloseyi</i>	X	X			X	
<i>Viola pedata</i>				X		
<i>Viola rotundifolia</i>		X				X
<i>Viola soraria</i>	X				X	
<i>Vitis aestivalis</i>	X		X			

Appendix 3

Focus 2020 – Community Report Goals and Objectives met by the Bracken Mountain Master Plan

Economic Development

Goal	Objectives	Short term 2000-2002	Mid-Term 2003-2010
I. Promote managed economic growth while preserving the natural environment and ambience that make Brevard a desirable place to live, work, and play.	Reduce the sensitivity of our local economy to a severe downturn of the major employer.		
	Mange the City's infrastructure growth and provide services to those places that enhance the City's ability to help existing businesses and attract new businesses.	Support the efforts of nontraditional businesses (Brevard Music Centre, Brevard College, Blue Ridge Community College,... camps) to explore new opportunities and help them thrive.	
	Maintain Brevard's current environmental quality while promoting economic development (balance development with the preservation of natural resources).		Revise the Land Use Plan to balance development with the preservation of natural resources.
			Address, with County, land conservation issue as to promote green spaces and recreational areas.

Environmental Quality

Goal	Objectives	Short term 2000-2002	Mid-Term 2003-2010
II. Maintain and improve natural water resources in Brevard and Transylvania County	Reduce siltation and sedimentation of our streams - better control of soil erosion incident to development		
VII. Ensure efficient and appropriate use of available land	Encourage environmentally sensitive urban development - use available land efficiently - avoid additional flooding and additional soil erosion		
IX. Control environmentally sensitive development on mountain slopes and ridges	Avoid additional flooding and additional soil erosion.		
	Preserve aesthetically and economically valuable views and green spaces.	Assist and encourage owners of steep lands to put these lands into conservation easement.	
X. Protect open space and forest cover in and around Brevard	Direct growth away from areas to be protected.	Use appropriate “tools” to protect the integrity of Brevard’s character and whatever open space and forest cover we can preserve (See Zoning, Clustering, Conservation Easements, Government Incentives, etc.).	

Cultural, Educational & Recreational Enrichment

Goal	Objectives	Short term 2000-2002	Mid-Term 2003-2010
VI. Provide a variety of recreational activities and programs to meet the needs of diverse population (race, age, gender) and especially our youth.			
VII. Provide safe places & opportunities for social interaction, as well as appropriate gathering places for youth.	Create a Bike/Hike Path in Brevard.		
	Create a network of greenways and parks throughout the community.	Develop a Parks and Greenways Plan.	

Housing and Neighborhoods

Goal	Objectives	Short term 2000-2002	Mid-Term 2003-2010
V. Preserve, with controlled, proactive planning, the existing qualities of Brevard neighborhoods and set qualitative standards for new development which provides individual freedom without sacrificing community cohesiveness and common good.	Improve & maintain parks, storm drainage, sidewalks & public landscaping.		

Appendix 4

Land and Resource Management Plan, Nantahala and Pisgah National Forest, NC, Amendment 5, Chosen Directions and Standards for Management Area 3B

Activities	General Direction	Standards
Dispersed Recreation Management	1. Provide nonmotorized recreation opportunities including hunting, access for fishing, wildlife viewing, horseback riding, bicycle riding, and hiking.	a. Manage for "roaded" natural conditions, including a low level of private vehicular access on system roads. b. Provide for horseback and bicycle riding on closed system roads.
Trail Management	1. Provide trails that emphasize hunting and fishing access. Provide some hiking opportunities. 2. Construct new trails for horseback riding or bicycles primarily when needed to connect existing roads or trails. 3. Maintain trails for the intended use.	a. Maintain trails to maintenance levels 1-3
Wildlife and Fish Resource Management	1. Provide conditions for the large group of game and nongame animals that benefit from young- to middle-aged forests and can not tolerate motorized vehicular disturbance. Emphasize habitat for specific Management Indicator Species which represent this group. 2. Use timber management	a. Manage habitat primarily for eastern wild turkey b. Use a desired density of 3% for permanent grass and forb openings c. Manage compartments to maintain at least 70% in hardwood management types except where pine management types presently exceed 30%.

	practices as the primary tool to create desirable habitat.	<ul style="list-style-type: none"> d. Seed temporary logging roads and skid roads with appropriate wildlife seed mixtures to provide temporary linear strip opening. Restore temporary and skid roads to forest conditions. e. Seed closed maintenance level 1 roads with appropriate seed mixtures to provide linear strip openings.
Transportation System Management	1. Provide limited access for motorized vehicles.	<ul style="list-style-type: none"> a. Manage access through an approximate density of 0.5 miles of open road per square mile. Include four-wheel-drive ways in this density exceed 0.5 miles per square mile, and, if closure of existing road is prohibitive for administrative or legal reasons, then document these exceptions to the standard and investigate strategies to reduce the open road density.
Road Planning Construction and Maintenance	<ul style="list-style-type: none"> 1. Plan and construct the transportation system to provide access for timber. 2. Maintain roads to accommodate the intended use and to protect resources. Identify where existing designated four-wheel drive ways do not meet water quality standards and develop strategies to bring them into compliance unless physical conditions preclude complete correction and road cannot be legally closed. 	

Appendix 5

DuPont State Park Campsite regulations and permissions

Camping at Dupont State Forest

Dupont State Forest Rules state, “No person shall spend the night or maintain a camp in DuPont State Forest except under permit.” We are not equipped to offer public camping. We have permitted a limited amount of camping by organized groups, primarily to conduct trail work. We recommend visitors camp at the following campgrounds that are nearby:

Black Forest Family Camping Resort, (828) 884-2267
Cascade Lake Recreation Area, (828) 877-4475
Holmes Educational State Forest (group camping only) (828) 692-0100
Pisgah National Forest (about 12 miles away) (828) 877-3265
The Ultimate Ride Campground (offers equestrian camping) (828) 696-3504

David R. Brown, Forest Supervisor
Dupont State Forest
PO Box 300
Cedar Mountain, NC 28718-0300
Phone: (828) 877-6527

Designee Release

Release executed on (date) _____ by (name) _____,
of (address) _____

_____ in
_____ County, (state) _____, herein referred to as Releaser.

In consideration of being permitted to use as indicated above the DuPont State Forest, releaser, for himself or herself and personal representatives, heirs, and next of kin, hereby releases, waives, discharges and covenants not to sue the State of North Carolina, the Department of Environment and Natural Resources, the Division of Forest Resources, or their officers and employees, all for the purpose herein referred to as releasers, from all liability to the releaser, his personal representatives, assigns, heirs and next of kin for all loss or damage, and any claim or damage therefor, on account of injury to the person or property or resulting in death of the releaser, whether caused by the negligence of releases or otherwise while the releaser is for any purpose participating in activities on the forest.

Releaser hereby assumes full responsibility for and risk of bodily injury, death or property damage due to negligence of releases or otherwise while in or upon the DuPont State Forest, and/or while competing, officiating in, working or for any purpose participating in activities on the forest.

Releaser, expressly agrees that this release, waiver, and indemnify agreement is intended to be as broad and inclusive as permitted by the laws of the State of North Carolina, and that if any portion thereof is held invalid, it is agreed that the balance shall, notwithstanding, continue in full legal force and effect.

Releaser, being of lawful age, in consideration of being permitted to participate in permitted activities, do for myself, my heirs, executors, administrators, and assigns, hereby release and forever discharges the State of North Carolina, the Department of Environment and Natural Resources, the Division of Forest Resources, and their officers and employees, their heirs, administrators, and executors of and from any and every claim, demand, action or right of action, or whatever kind of nature, either in law or in equity arising from or by reason of any bodily injury or personal injuries known or unknown, death and/or property damage resulting or to result from any accident which may occur as a result of participation in activities on the forest, or any activities in connection with that use, whether by negligence or not.

I further release all officials and professional personnel from any claim whatsoever on account of first aid, treatment or service rendered me during my participation in activities on the forest.

This release contains the entire agreement between the parties hereto and the terms of this release are contractual and not a mere recital. Releaser further states that he has carefully read the foregoing release and know the contents thereof and signs this release, as his own free act.

In witness whereof, releaser has executed this release the day and year first above written.

Releaser

Witness

Special Use Permit Information Sheet

Name of organization or individual _____

Contact person _____ Phone # _____
e-mail _____

Description of activity to be permitted _____

Date(s) and Time(s) _____

Number of persons to be involved _____

Number of vehicles _____

Gate key issued? _____

Area of forest in which activity is to be conducted _____

Fee(s) _____

*Reservations require a thirty day notification of cancellation.

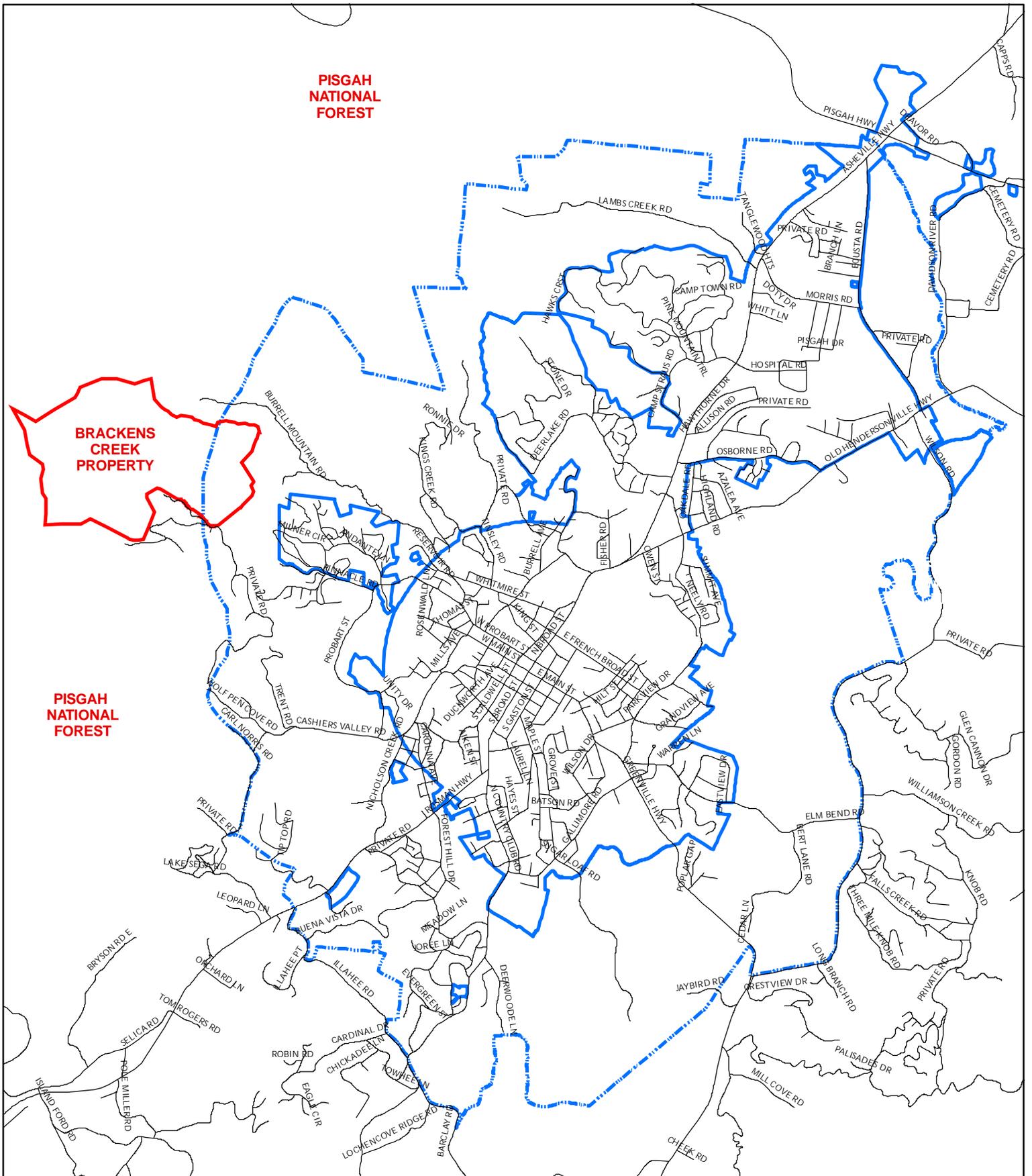
*Permit(s) issued upon receipt of payment.

Make checks payable to DENR

Mail to: DuPont State Forest

PO Box 300

Cedar Mtn., NC 28718



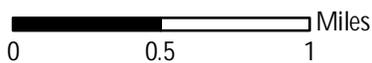
-  Brackens Creek Property
-  Roads
-  City Limits
-  Extra Territorial Jurisdiction

2

Brackens Creek Watershed
Property Master Plan

Vicinity Map

City of Brevard, NC



RESOLUTION NO. X

A RESOLUTION ADOPTING
THE BRACKEN MOUNTAIN
MASTER PLAN

WHEREAS, the City of Brevard owns property variously known as the Bracken & Brushy Creek Watershed and the Bracken Mountain Property (hereafter, the "property"), which is described in the Bracken Mountain Master Plan; and,

WHEREAS, Brevard City Council intends to preserve, enhance, restore, and maintain the natural features and resources of the property, to provide habitat for native plants and animals on the property, to improve, maintain and protect water quality within the property, and to control runoff of sediment within and from the property; and,

WHEREAS, Brevard City Council intends to make the property available for the use and enjoyment of the Citizens of the City of Brevard for low-impact recreational purposes consistent with the aforementioned goals; and,

WHEREAS, the City of Brevard applied for and has been awarded a grant from the North Carolina Clean Water Management Trust Fund (CWMTF Project No. 2004B-002) for the establishment of a Conservation Easement on the property in order to achieve the aforementioned goals; and,

WHEREAS, Brevard City Council has appointed a Steering Committee and charged the Committee with the task of preparing a master plan for the conservation, preservation, and recreational use of the property; and,

WHEREAS, the Committee has presented the Bracken Mountain Master Plan to City Council; and,

WHEREAS, the Committee has unanimously recommended that City Council adopt and implement the Bracken Mountain Master Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF BREVARD, NORTH CAROLINA, THAT:

Section 1. The Bracken Mountain Master Plan (December 4, 2006) is hereby adopted as policy of the City of Brevard, as a guide to the conservation, preservation, and recreational use of the property. Further, such Master Plan shall serve as the foundational document for the Clean Water Management Trust Fund conservation easement (CWMTF Project No. 2004B-002).

Section 2. The Bracken Mountain Master Plan is hereby referred to the City Manager for implementation. The City Manager is authorized to prepare a project budget and implementation strategy for consideration by Council, as appropriate.

Section 3. The City Manager is hereby directed to forward the North Carolina Clean Water Management Trust Fund for review in and comment, and is authorized to make such amendments and modifications thereto as are required by the North Carolina Clean Water Management Trust Fund for compliance with agency and grant requirements associated with CWMTF Project No. 2004B-002.

Section 4. The City Manager is hereby authorized to fully execute any documents and take other appropriate and necessary action to satisfy all specific restrictions and expectations associated with CWMTF Project No. 2004B-002 necessary to secure the conservation easement on the property and for receipt and encumbrance of the North Carolina Clean Water Management Trust Fund grant.

Section 2. This Resolution shall become effective upon its adoption and approval.

Adopted and Approved this the 4th day of December, 2006

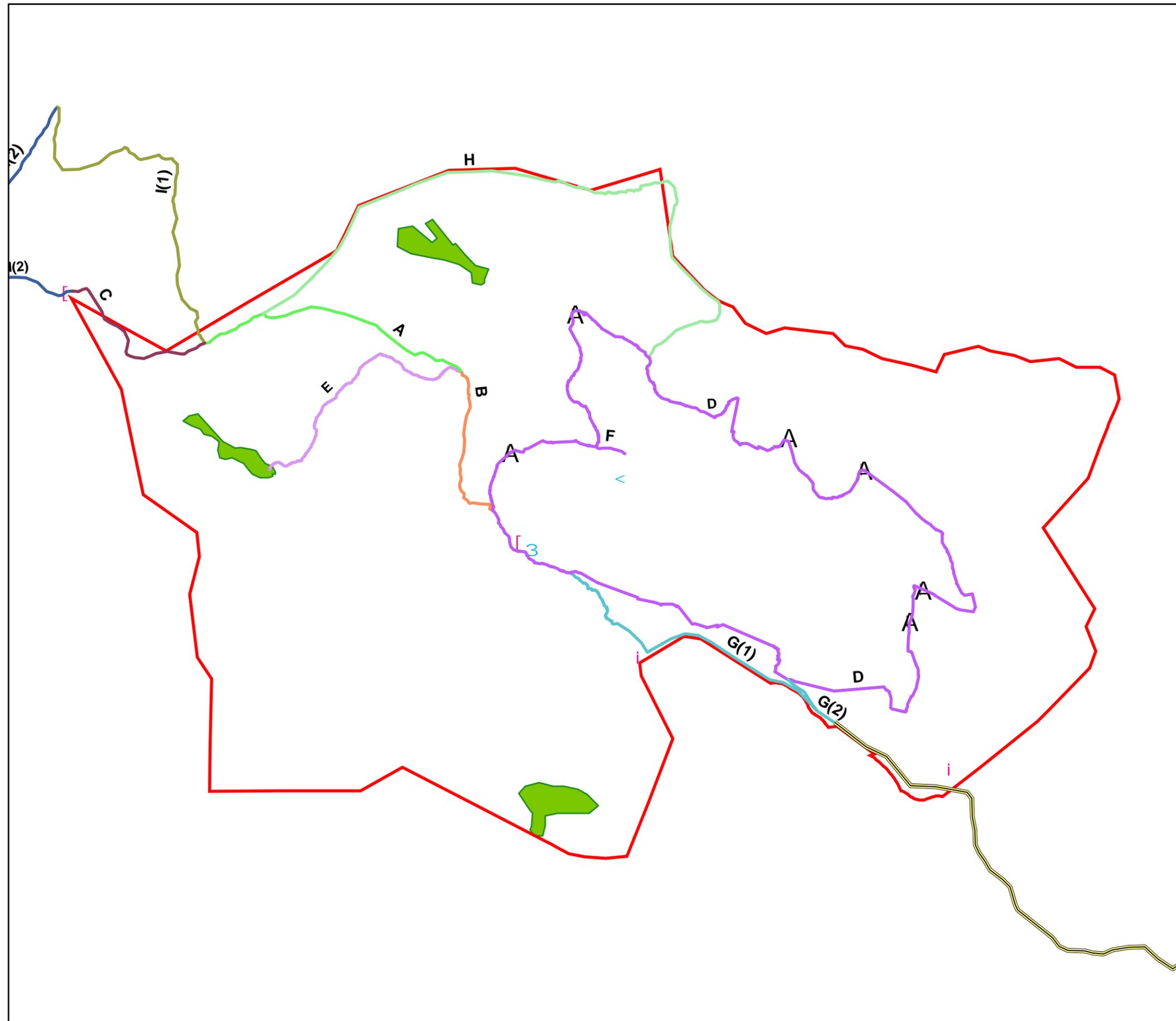
Jimmy Harris
Mayor

ATTEST:

Glenda W. Sansosti, MMC
City Clerk

Appendix 15

Bracken Mountain Master Plan Trail Use Detail & Construction Prioritization



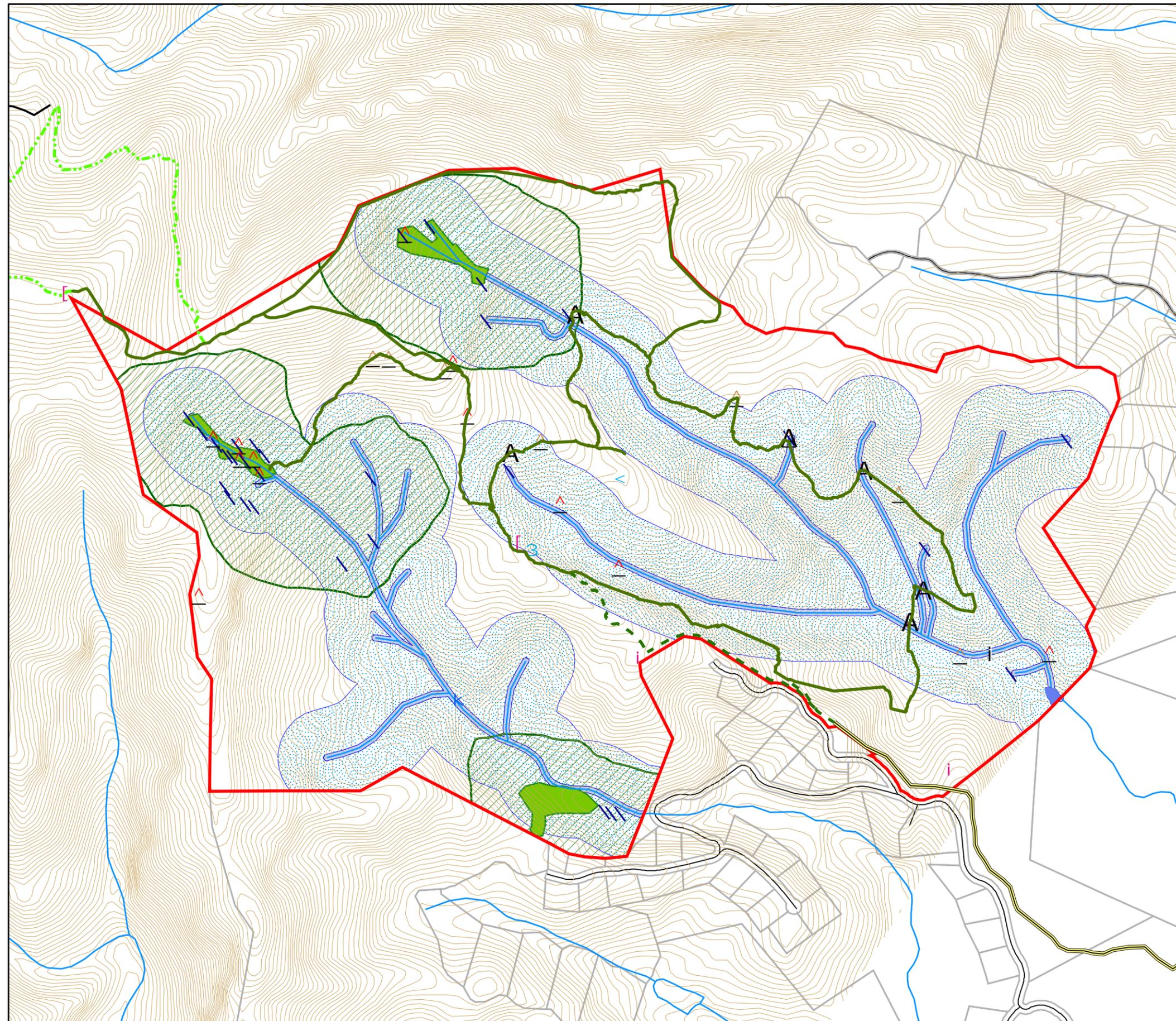
Legend

- Property Access
- Bracken Mountain Property
- Critical Habitat Zone
- Future Trails**
- Construction Priority, Use
- 1, Potential Property Access Road Connector
- 2, Hiking Trail
- 3, Hiking / Biking Trail
- 4, Hiking / Biking Trail
- 5, Hiking Trail
- 5, Potential Connector to Pisgah National Forest Hiking / Biking
- 5, Potential Connector to Pisgah National Forest Hiking Only
- 6, Hiking Trail
- 7, Hiking Trail
- Type of crossing**
- Boardwalk
- Bridge
- Reroute
- Possible Parking
- Picnic Site (rest area)
- Overlook
- Primitive Campsite

2



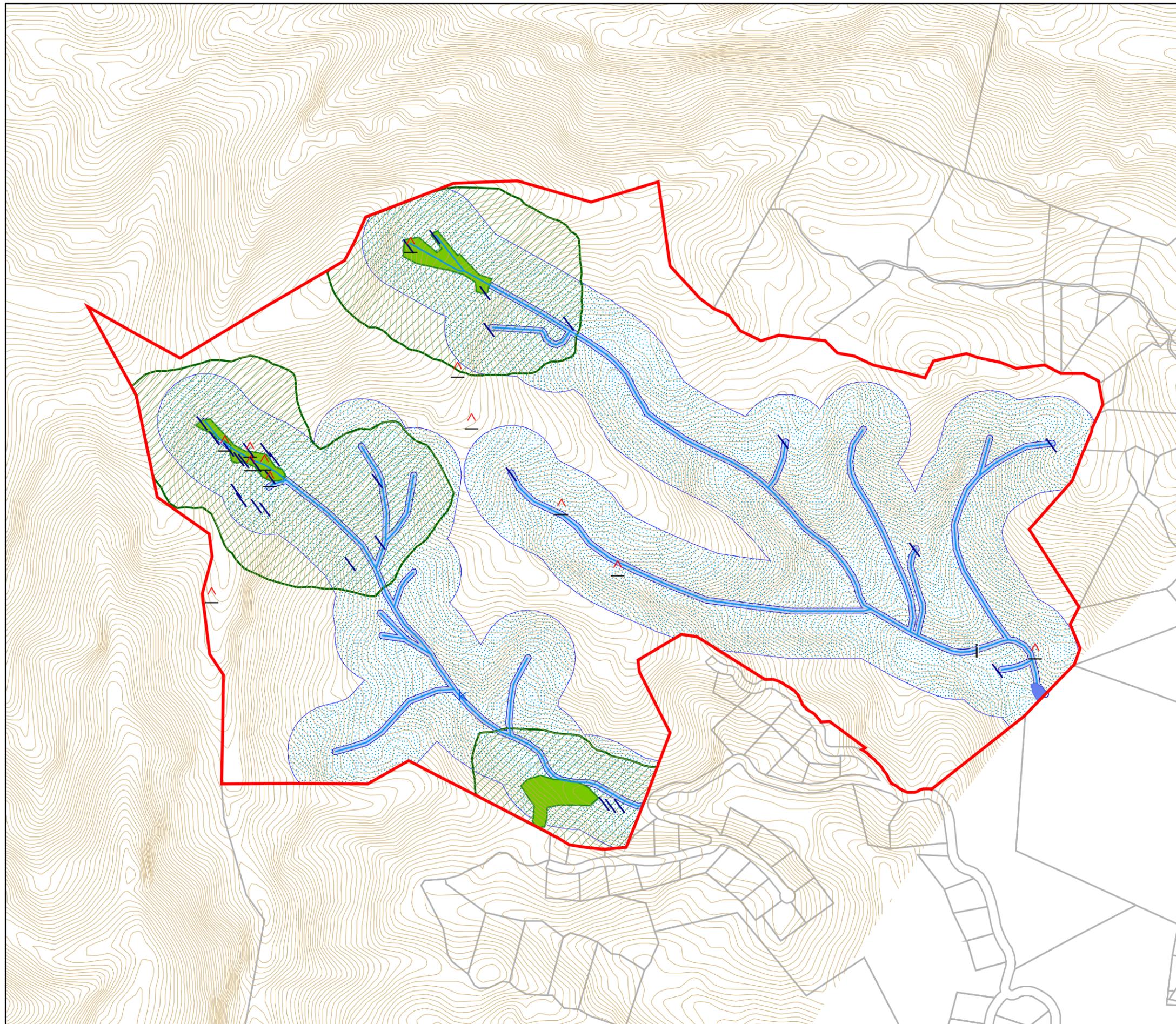
Appendix 14: Recreational Areas



Legend

- Property Access
- Parcels
- Topography (vicinity, 10' intervals)
- Streets
- Streams (vicinity)
- Forest Service Road 475C Rough Draft
- Bracken Mountain Property
- Water Fall
- Pond
- Abandoned Quarry
- Erosion
- Seeps
- Rare Plants
- Critical Habitat Zone
- General Habitat Zone
- Streamside Areas**
- Inner Streamside Zone
- Outer Streamside Zone
- Future Trails**
- Recreation Trail
- Potential Property Access Road Connector
- Potential Connector to Pisgah National Forest
- Type of crossing**
- Boardwalk
- Bridge
- Reroute
- Possible Parking
- Picnic Site (rest area)
- Overlook
- Primitive Campsite

Bracken Mountain Master Plan Management Zones & Critical Features



Legend

- Parcels
- Topography (10' intervals)
- Bracken Mountain Property
- Water Fall
- Pond
- Abandoned Quarry
- Seeps
- Rare Plants
- Critical Habitat Zone
- General Habitat Zone
- Streamside Areas**
- Inner Streamside Zone
- Outer Streamside Zone
- Streams



Debris found on the Bracken Mountain Property

	
A: Camping debris – mostly cans.	B1: Camping debris – plastic.
	
B2: Camping debris.	B3: Camping debris.
	
B4: Camping debris – plastic.	C1: Barrel in the Brushy Creek streambed.
	
C2: Terracotta pipes.	C2: Terracotta pipes in an eroded slope

	
C2: Terracotta pipes in the Brushy Creek streambed.	D: Barrel close to Brackens Creek.
	
E: Black plastic.	F: Abandoned Barrel.
	
G: Black plastic.	H: Paper.

Erosion problems on the Bracken Mountain Property

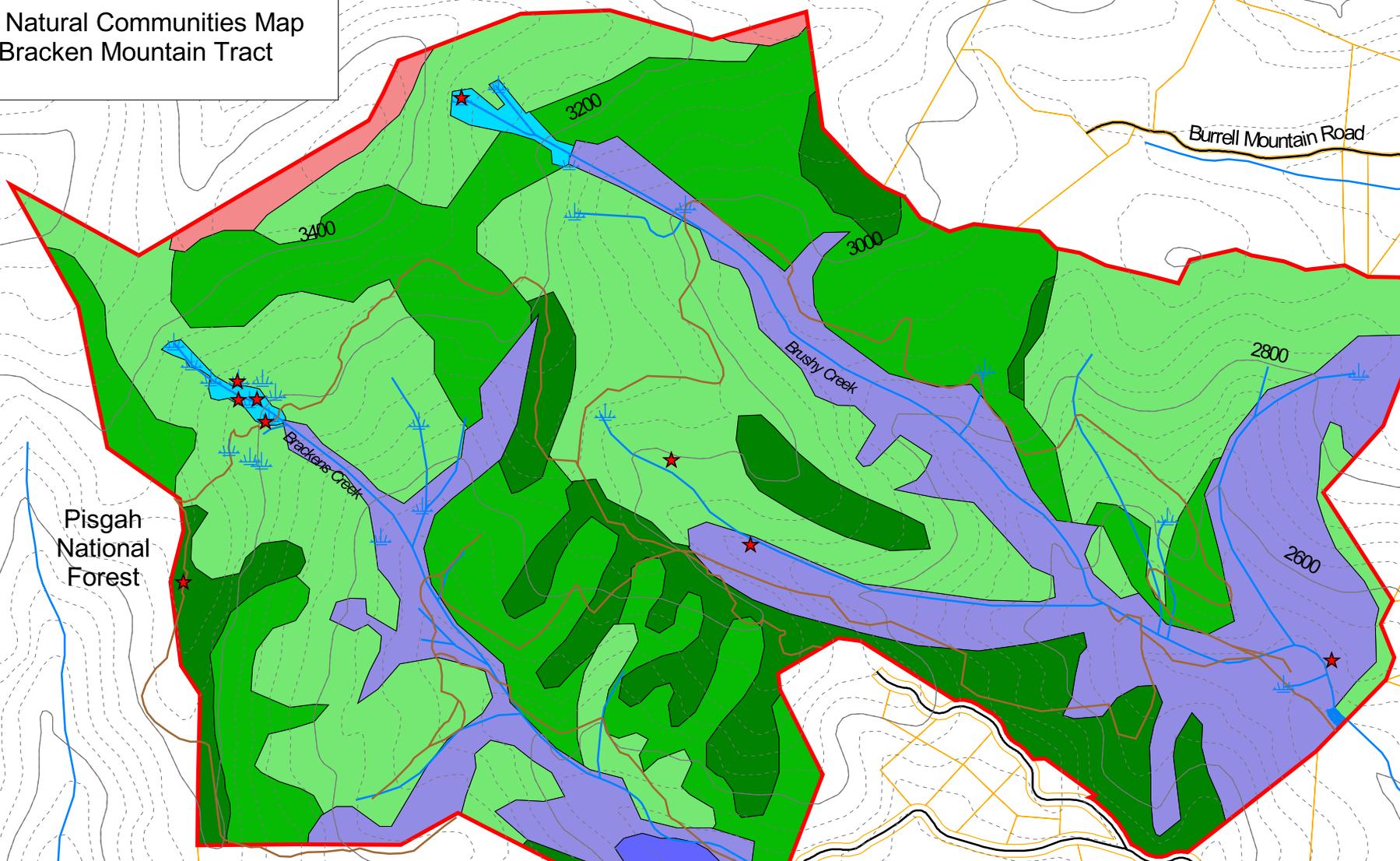
	
1: Slope collapse, erosion – road.	2: Slope collapse, erosion – road.
	
3: Slope collapse, erosion – road.	3: Slope collapse, erosion – road.
	
5: Slope collapse, erosion – road.	7. Steep Slope Erosion – falling trees.



8: Slope collapse, erosion entering stream.



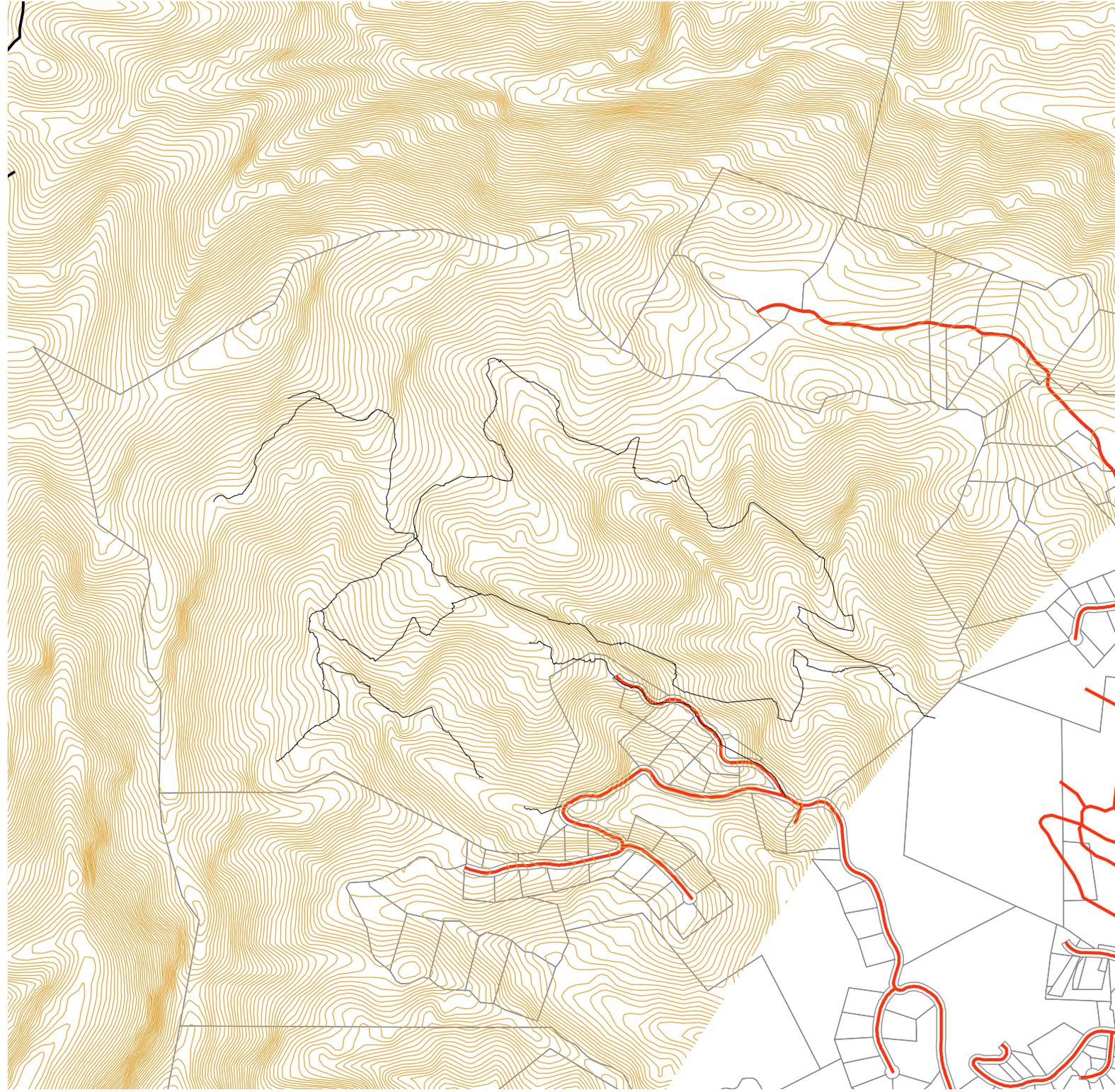
3 - Natural Communities Map Bracken Mountain Tract

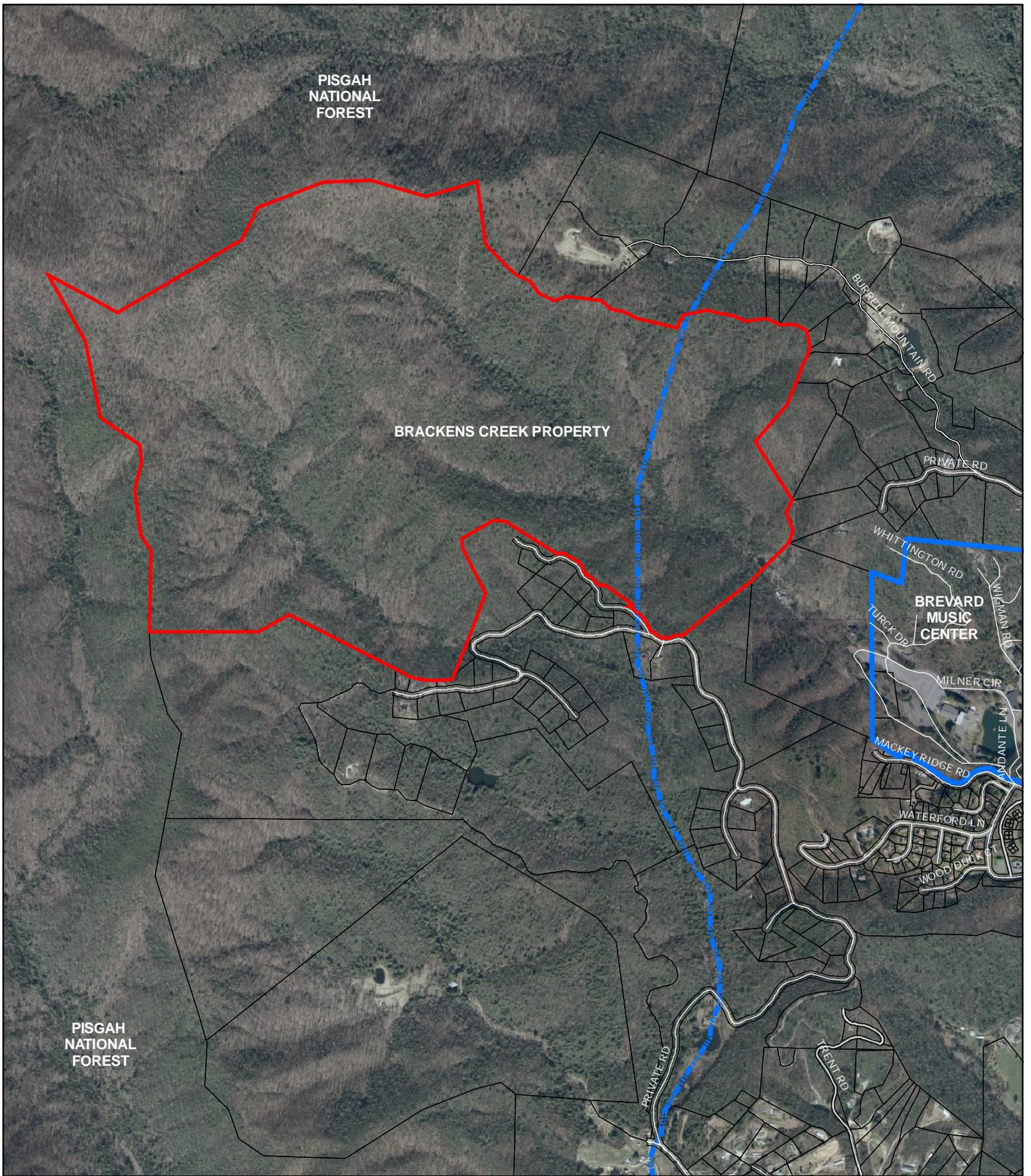


Legend

- | | | | |
|--|-------------------|---|---------------------------------|
| ★ | Rare Plants | | |
| ⚡ | Seeps |  | Montane Oak-Hickory Forest |
|  | Streams |  | Dry Oak Forest |
|  | Old Logging Roads |  | Acidic Cove and Slope Forest |
|  | Roads |  | Pine-Oak/Heath Forest |
|  | Property Boundary |  | Rich Cove Forest (Successional) |
|  | Adjacent Parcels |  | High Elevation Seep Complex |
| | |  | Stunted Dry Oak Forest |

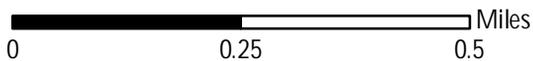






- Brackens Creek Property
- Roads
- Parcel Boundaries
- City Limits
- Extra Territorial Jurisdiction

2



Brackens Creek Watershed
Property Master Plan

Site Map

City of Brevard, NC