PATHWAYS FOR RADFORD

Wildwood Park Conceptual Master Plan

Prepared for:
Pathways of Radford & the City of Radford

August 1999

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LIST OF PLATES

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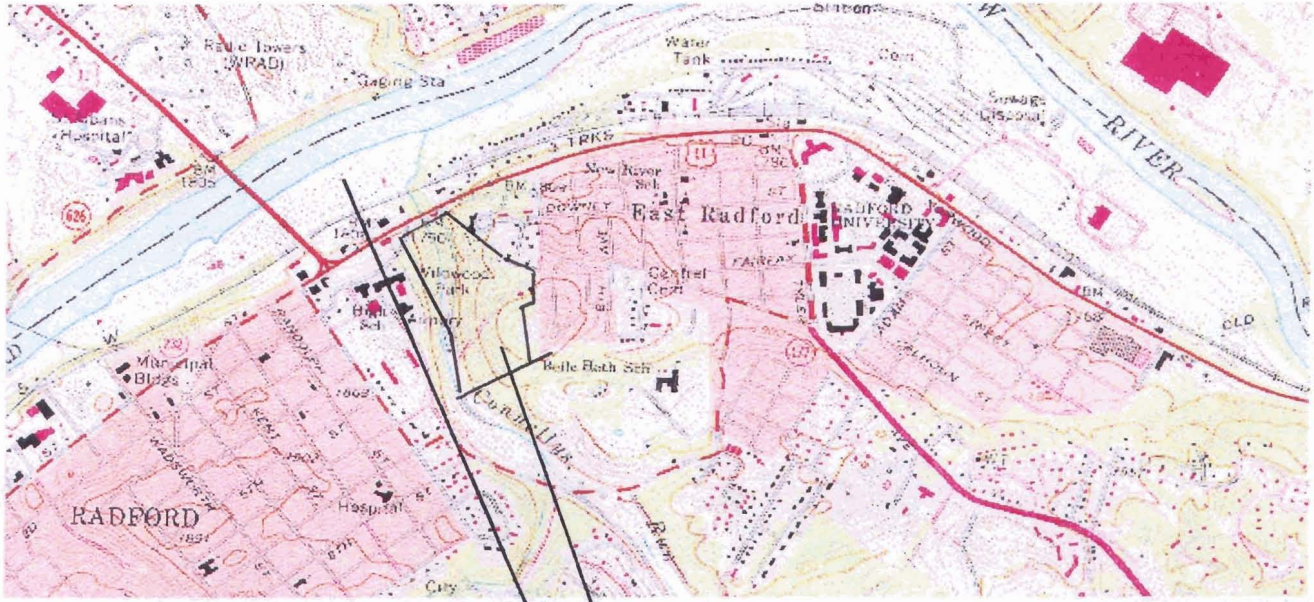
CONTEXT MAP



I. INTRODUCTION

Wildwood Park, a 50-acre riparian forest located in the heart of Radford, is suffering from disrepair. The park is a natural looking area with an extensive trail system, a stream, and an 80% coverage of wooded area. Norwood Street bound it to the north. An open private land bounds the park to the south. Scott Street, the Armory, Radford High School, and the Amheim House border to the west and Prospect Street and a residential area bound the east.

"Pathways for Radford" is a volunteer group concerned with the deteriorating condition of the park. The group is proposing a network of bikeways and pathways through the city of Radford that would connect to adjacent areas and neighborhoods as well. Wildwood Park is one of the designated sections in the network of pedestrian pathway route established by "Pathways for Radford". The natural characteristic of the park makes this a particularly interesting location for the pathway route as it offers and invites different route experiences and promotes pedestrian use.

The vision of the volunteer group is to maintain the park as a natural area with wildlife and revive the historical value of the park. Other parks in the city are designated for more intensive recreation purposes such as ball fields, picnic areas, biking, and so forth. These uses set Wildwood Park apart from the other parks because of two differences: a) education and b) a more passive recreation place. The design objectives were to provide multi-functional spaces that can accommodate different type of users.

The goal of this project was to prepare a conceptual master plan for the site that maintains the natural environment for wildlife conservation, develops the educational potentials of the forest, protects and promotes the site's historic value, and connects the park to different areas in Radford through bikeways and walkways. In addition, the park will serve as a linkage for other existing parks and open spaces adjacent to the city (see Appendix A).

Contract Description

The Community Design Assistance Center (CDAC) was approached in the summer of 1998 to evaluate the park in order to develop a conceptual master plan for the site. The City of Radford, on behalf of "Pathways for Radford" received an Urban Community Forestry Grant from the Department of Forestry to hire the Design Center to carry out the work. The first stage of the project consisted of site inventory which included site visits. Sophomore year students in a studio class in Landscape Architecture Department at Virginia Tech undertook initial design work.

The second stage was taken over by CDAC who went into additional site inventory and analysis work. At every stage of the design process presentations were done to elicit feedback from the client and other relevant groups. Final products included a conceptual master plan, perspective sketches of each area, and a short descriptive report that includes reduced copies of the plan (see Appendix B).

Design Process

The first stage of the design process started with several trips to Wildwood Park to gather site analysis information in October 1998. A site inventory of soils, vegetation, slope, hydrology, geology, infrastructure, land use and zoning, existing trail system, and historical elements (refer section II), were made and studied by the sophomore students of Trenda Leavitt's studio class. A composite of all the inventory information produced the site analysis map. The first conceptual design and maps were presented to the "Pathways for Radford" and city officials.

The second stage of the project was taken over by CDAC who continued the process to the conceptual master plan stage of the project based on the comments of first presentation. The process consisted of additional site visits to Wildwood Park, site visits of other park precedents within the region, and research on subjects such as handicapped accessibility, trails, outdoor classrooms, wetlands, children's play areas, and natural amphitheaters (see pages 19-21). Concurrently, a 1"- 60' scale mat board model of the park was built to help understand the topographical character of the site (see page 3). This was followed by a series of site visits during different seasons to get a feel of the changing character of the site. In conjunction with this, other parks visits in Virginia were visited to observe existing park facilities and maintenance. These included: Cherokee Flats in Jefferson National Forest; Ivy Creek Natural Area in Charlottesville; and Rockwood Park in Chesterfield. The Virginia Tech amphitheater was visited as well.

Meanwhile, a survey about the park use, and residents' desires for Wildwood Park was carried out by the Marketing Department of Radford University through the local newspaper (see Appendix C). The results of the community survey were taken in consideration in the development of the design concepts.

The information accumulated and the guidelines "Pathways for Radford" thought important for the integrity of the park gave a basis for general design objectives:

> ***To create spaces that will foster education, recreation, and social congregation with out undermining the integrity of the natural features of the site.***

The culmination of the second stage of study was the development of the two conceptual master plans that were presented to "Pathways for Radford" and city officials on April 7, 1999. After incorporating the comments and advice of the previous presentation, a final presentation to "Pathways for Radford" and the public was done in August 18, 1999. The group shared their comments resulting in minor revisions to the design.

II. WILDWOOD PARK HISTORY

Wildwood Park shares many interesting facts about Radford and the surrounding areas. The shape of the park reflects many economic stages the city went through.

Connelly's Run, a creek that the north/south line through Wildwood Park was defined as a border for Central City in 1885. In 1887 the Central City name was changed to Radford in honor of Dr. John Blair Radford, a very prominent member of the community. Amhiem House (Radford House) borders Wildwood Park on the south slope at the intersection of Norwood and First Street. The high school was built in 1928 in the same general location. A fire destroyed the high school in 1970, and was rebuilt in 1972.

The creek flowed through Wildwood Park and underneath Norwood Street into the New River. The City of Radford purchased the land for Wildwood Park in 1923. After the land was purchased a private club constructed a swimming pool; eventually the city took over and maintained the pool after 1932. The Municipal Pool was a stream fed system that was filled by Connelly's Run. In 1934, during the Depression, the department of Public Welfare was established. One of their projects was to fill across Connelly's Run under Norwood Street. This significantly changed the stream and improved the street. The original Norwood Street was built in 1890.

With mounting concerns for the preserving the integrity of the park, "Pathways for Radford", a volunteer group composed of Radford citizens, approached CDAC in October 1998 to develop a conceptual master plan for the park.

Plate 2. Norwood Street 1911

Plate 3. Norwood Street before the fill

Slope and Hydrology

The park has slopes ranging from five percent to over twenty percent. The topography provides limited access to the park and a generally difficult trail system. The steepness of the site also lends itself to erosion problems, especially where new trails are built. The flood plain is based on a one hundred-year storm.

Extra runoff occurs sporadically from the water towers as an emergency over flow system. The chlorinated water flushed from the tanks can be as much as 75,000 to 100,000 gallons which overflows down the ravine and across the paved area at the beginning of the park, eventually flowing into the creek.

The tufa, a porous rock formation is formed when water seeps through the thin, shale dolomite of the rock formation, which extends from the intersection of Norwood Street and Wildwood Drive to the base of the ravine. The tufa has a constant water seepage that collects on Wildwood Drive. The collected water from the ravine eventually flows down to another ravine that leads to Connelly's Run. The growth of a rare algae in this general location may be a result of the distinct conditions and geography of the site (see page 6).

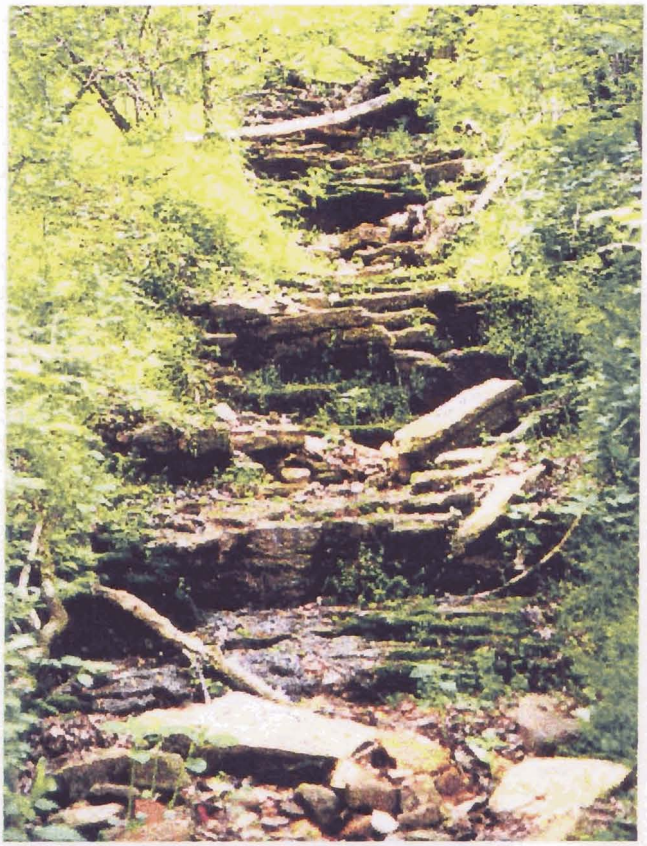
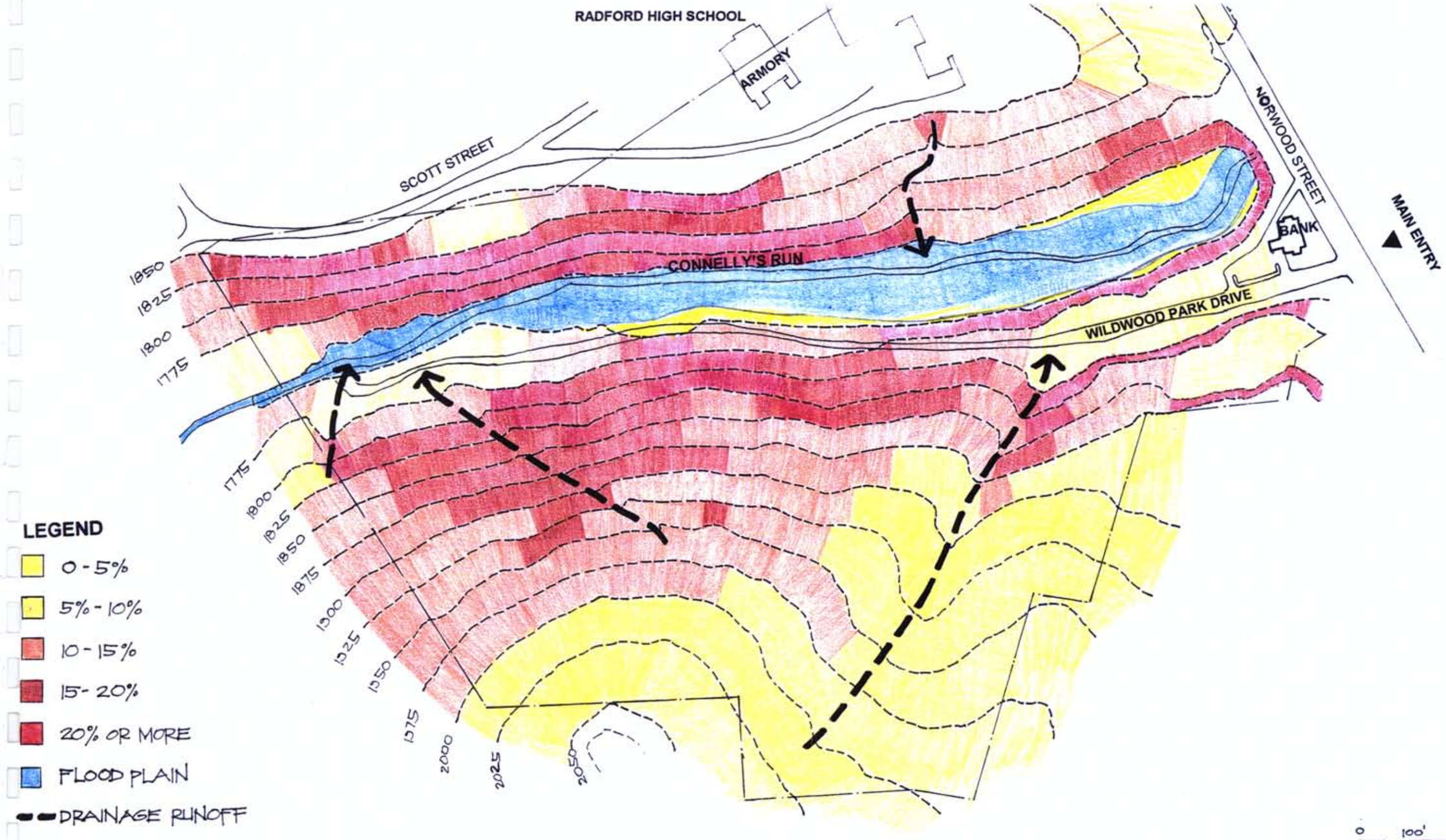


Plate 4. Natural water cascade on eastern slope

Plate 5. Flood plain

Plate 6. South view of rock formation



SLOPE & HYDROLOGY MAP

WILDWOOD PARK, RADFORD

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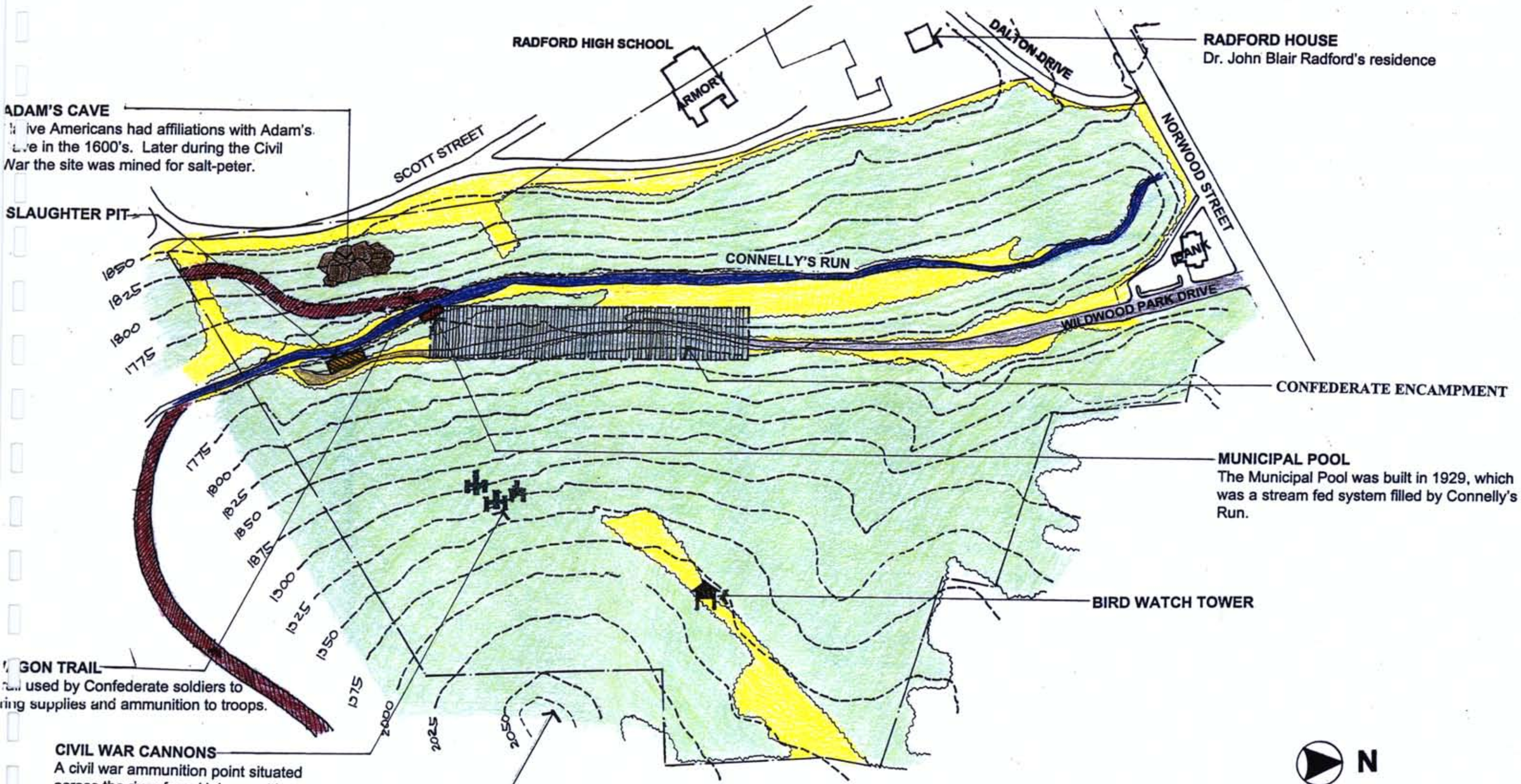
Adam's Cave located on the south-west slope of Wildwood Park had affiliations with Native Americans in the 1600's. Later during the Civil War the cave was mined for salt-peter. Confederate soldiers camped in the park during the Civil War. Their encampment and slaughter pit were located on the south end of Connelly's Run. Civil war cannons situated towards Union troops left behind sink holes on the east slope of Wildwood Park (see page 8).

Geology

The geology of the site is very rocky with numerous rock outcroppings. The most sensitive rock formation is near the main entrance of the park. The tufa is formed when water seeps through the thin, shale dolomite of the rock formation. While in the rock, the calcite dissolves in the water. When the water hits the surface of the rock and starts to cascade down, tufa starts to form. The water hits another surface such as another set of rock and evaporates into the sun. The calcite that dissolved later is left behind over time; the tufa grows because of the collection of calcite. The tufa location was the old quarry that supplied the material for an old bridge on Norwood Street (see page 9).

Plate 7. Tufa formation

Plate 8. Slate formation



HISTORY MAP

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RADFORD HIGH SCHOOL

ARMORY

SCOTT STREET

DALTON DRIVE

NORWOOD STREET

MAIN ENTRY

CONNELLY'S RUN

WILDWOOD PARK DRIVE

1850
1825
1800
1775
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
2025
2050

LEGEND

- ROME FORMATION
- ELBROOK FORMATION
- PARTIALLY COVERED ROCK FORMATION
- EXISTING ROCK OUT CROP

N

0 100' 400'
50' 200'

GEOLOGY

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Existing Infrastructure

Wildwood Drive is the only vehicular access into the park and runs parallel to Connelly's Run. The road traverses from the northern (Norwood Street) to the southern portion and terminates into a dead end. Norwood Street is the main vehicular entry of the property. Another service road (Prospect Road) on the eastern side of the property serves as a service entry for the water tanks and radio tower.

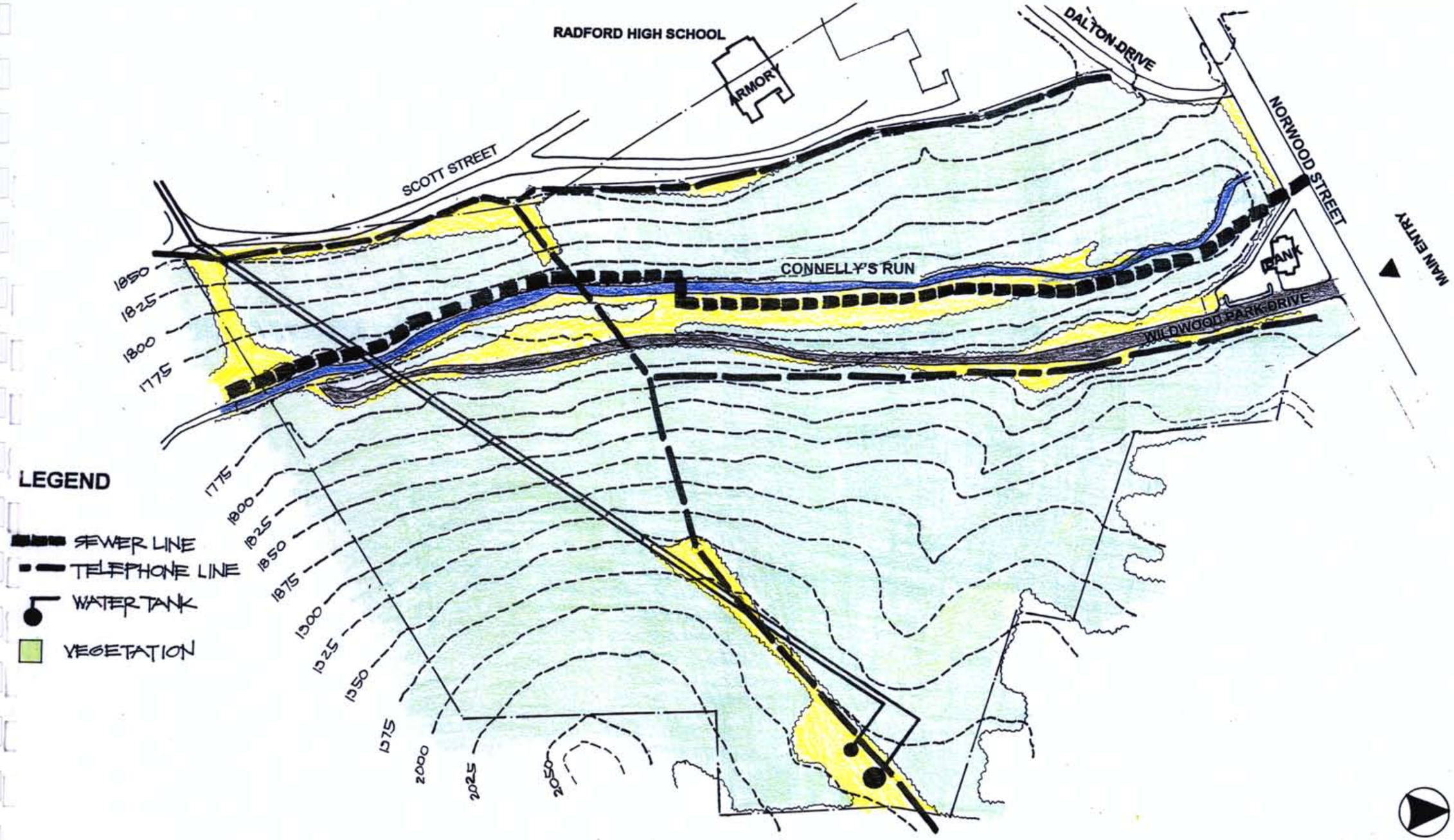
Plate 11. South end of Connelly's Run

Two large water towers and a radio tower dominate the service entry on the eastern slope. Water lines run from the water towers down the hill across the stream. Telephone lines are located near the water towers and continue down the slope eventually branching in different directions through the park. The sewer line runs parallel to the stream, crossing it once near the termination of Wildwood Park Drive.

Plate 12. Northeast view of service road

General infrastructure locations are noted on the infrastructure map (see page 11).

Plate 10. Southwest view of service road



EXISTING INFRASTRUCTURE

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Soils

Wildwood Park is composed of three main soil groups: a) Guernsey Silt Loam, b)Udorthents c) Urban Land, and d) Unison-Urban Land Complex. Guernsey Silt Loam is predominate in one section of the park, somewhat adjacent to Connelly's Run. It consists of a top layer of dark brown silt loam followed by subsequent layers of a yellow silty clay loam and sticky plastic clay. The next group, Udorthents and Urban Land, consists of 30% somewhat developed land, 45% original soils, and 25% fill materials. Classification of this soil is difficult because of lack of consistency in its composition. The final group Unison-Urban Land Complex, can be subdivided into three groups based upon low, moderate, and steep slopes. It is composed of 50% Unison Soils group, which have a surface layer of brown loam and subsequent layers of yellow/red sticky plastic and red sandy clay loam. The other 50% of this soil group consists of 30% somewhat developed and and 20% fill materials. In general, all the soils are acidic except for the Guernersey Silt Loam which perk fairly well (see Appendix D).

General locations of soils are noted on soils map (see page 14).

Wildlife and Vegetation

The various vegetated areas of the site are noted and located on the Vegetation and Wildlife site analysis map on the following page. The main areas include two types of deciduous canopies on either side of the stream. The upland moist deciduous canopy is on the west side of the stream. The majority of vegetation in this area consists of Maples, Buckeye, Spicebush, and five species of ferns. Increased moisture and humidity allow fungi to thrive. This area provides a unique contrast to the more dry eastern slopes. Some of the dominant vegetation in the eastern upland deciduous canopy are White Ash, Yellow chestnut, Red Oak, Scarlet Oak, Slippery Elm, Virginia Pine, and White Oak. The majority of the understory consists of Redbuds and Dogwoods.

The area is also characterized by the remnants of a limestone quarry. Therefore, vegetation types in this area prefer slightly acidic to alkaline soils.

Herbaceous vegetation and field trees such as Staghorn Sumac dominate the low lying vegetation bordering Connelly's Run. Being the lowest point of the eastern slopes, this serves as a drainage and ground water recharge area. Considerable care must be undertaken to ensure that there is no contamination and pollution in the creek.

Though the eastern slopes are typically dry, the ravine located on the eastern slope is a very moist area. Vegetation such as spice bush thrive in this location due to its moist conditions.

At one point in time a pasture was located at the top of the eastern slope. There used to be grazing and herding of cattle in this area, creating lower growing vegetation.

Connelly's Run must be kept clear of pollution if bird species are to survive. Many birds find protection and nesting areas in rocks throughout the site. Human impact in the bird's habitat should be kept to a minimum.

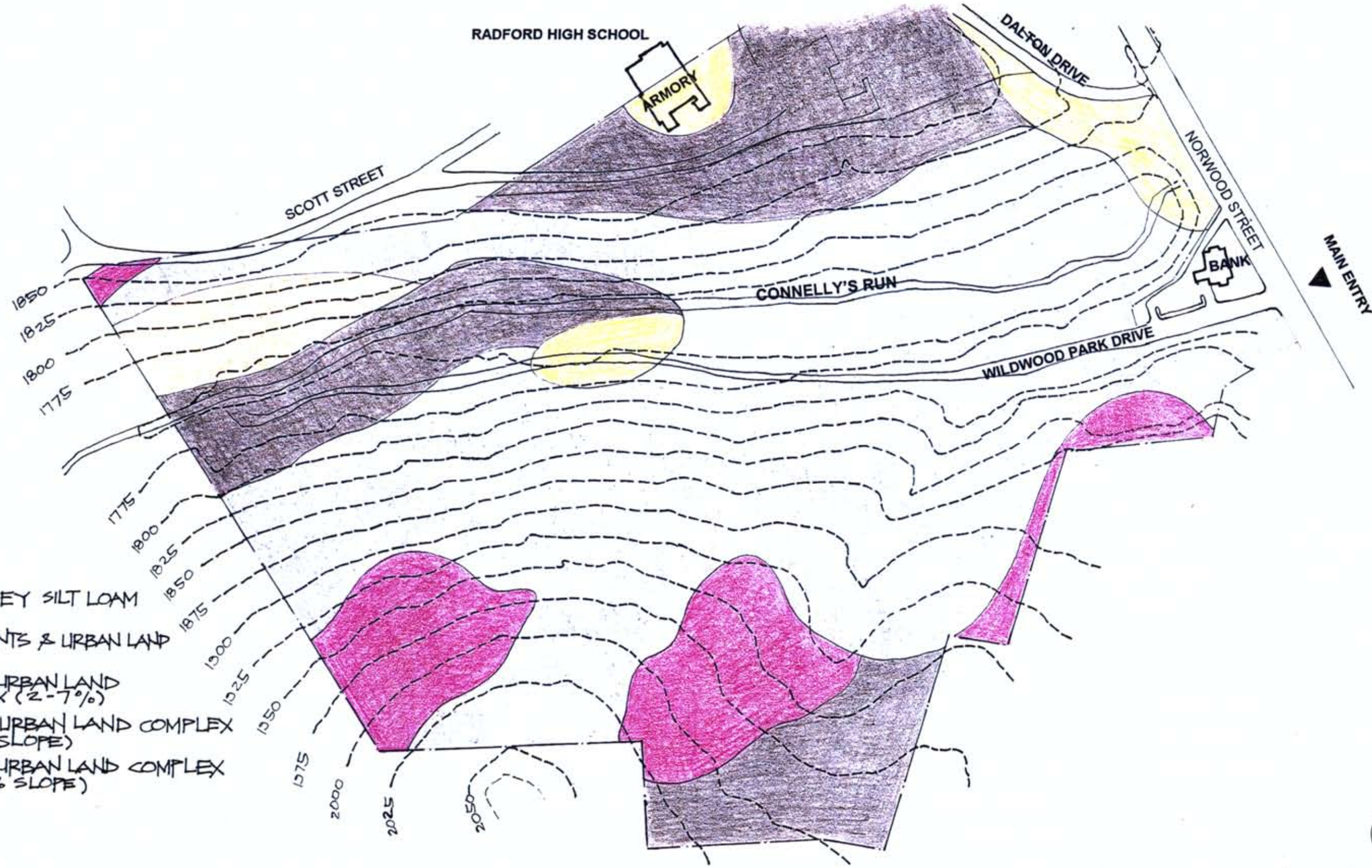
According to wildlife specialist in "Pathways for Radford", rare species of butterflies have been found on the cliff area southeast of the property (see Appendix F). Siting of a tortoise was encountered on the southern section of the park at approximately 1900 feet elevation.

Another concern in the park is the unusual growth of algae. This specific kind of algae is (not native to this area.) The algae is growing at the base of the ravine, where water collects. Precautions should be taken during construction to preserve this unusual growth pattern.

The wildlife of the park has a variety of bird populations (see Appendix E). The main concentration is found in the vegetation along the banks of the creek running through the park. The creek is the most important aspect of the bird habitat. Connelly's Run must be kept clear of pollution if bird species are to survive. Many birds find protection and nesting areas in rocks through out the site. Human impact in the bird's habitat should be kept to a minimum (See page 15).

Plate 12. Algae

Plate 13. Wildflowers



SOIL MAP

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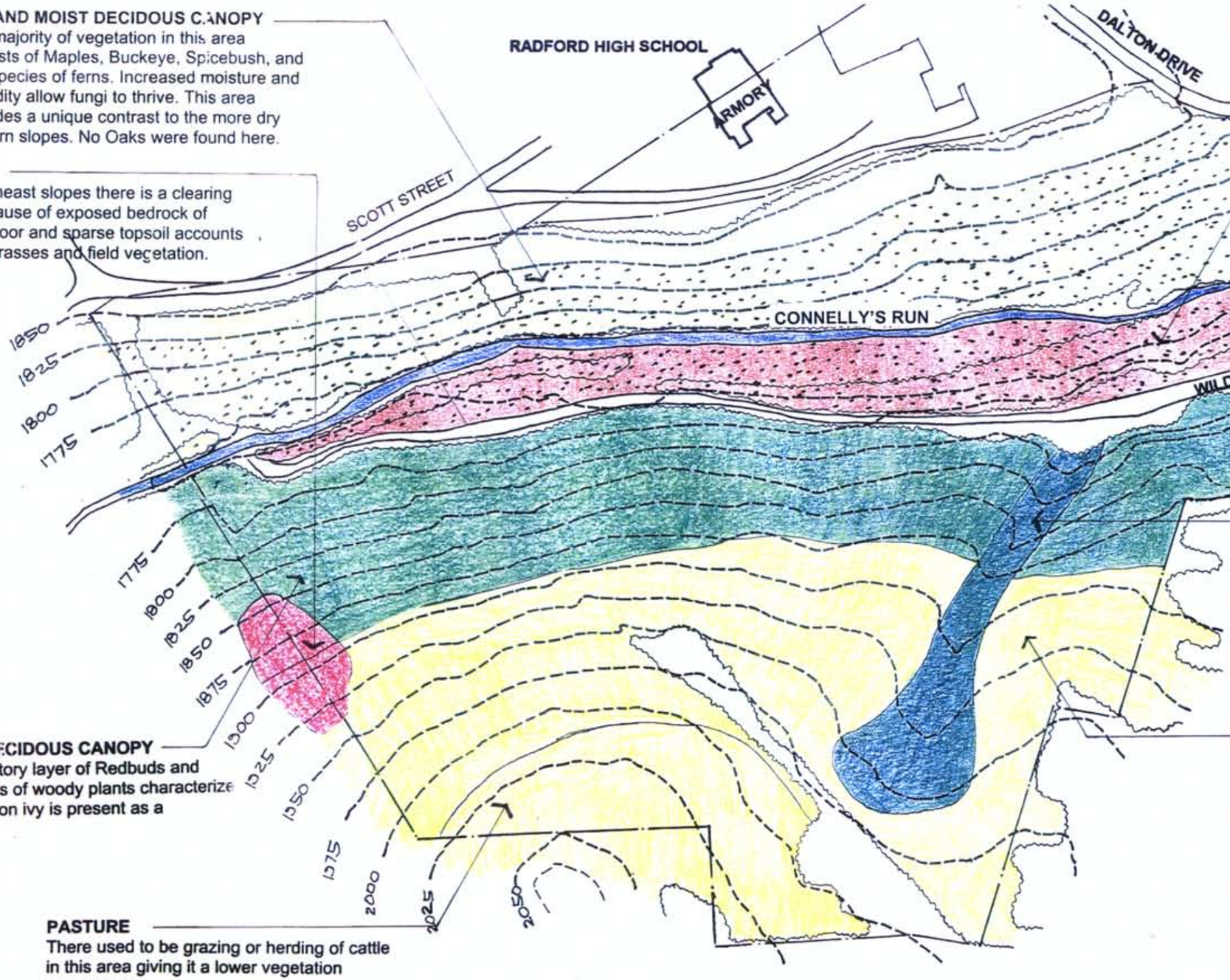
UPLAND MOIST DECIDOUS CANOPY
The majority of vegetation in this area consists of Maples, Buckeye, Spicebush, and five species of ferns. Increased moisture and humidity allow fungi to thrive. This area provides a unique contrast to the more dry eastern slopes. No Oaks were found here.

CLEARING
On the southeast slopes there is a clearing present because of exposed bedrock of limestone. Poor and sparse topsoil accounts for the low grasses and field vegetation.

YOUNGER DECIDOUS CANOPY
A thick understory layer of Redbuds and various species of woody plants characterize this area. Poison ivy is present as a groundcover.

PASTURE
There used to be grazing or herding of cattle in this area giving it a lower vegetation appearance.



LOW LYING VEGETATION
Bordering Connelly's Creek, vegetation here is dominated by herbaceous vegetation and field trees such as Staghorn Sumac. Being the lowest point of the east slopes, this serves as a drainage and ground water recharge. Considerable care must be undertaken to ensure that there is no contamination and pollution of the creek

RAVINE
Vegetation such as Spicebush (Lindera benzion) thrives in this location due to its moist condition. Other areas of the site revealed little abundance of the spicebush. A spectacular splash of bright yellow foliage along the ravine is evident during the fall season.

UPLAND DECIDOUS CANOPY
White Ash, Yellowchestnut Oak, Red Oak, Scarlet Oak, Slippery Elm, shortleaf pine, Virginia Pine and White Pine are some of the dominant vegetation in the upper forest. Majority of the understorey canopy consists of Redbuds and Dogwood.

N

0 100' 400'
50' 200'

VEGETATION AND WILDLIFE

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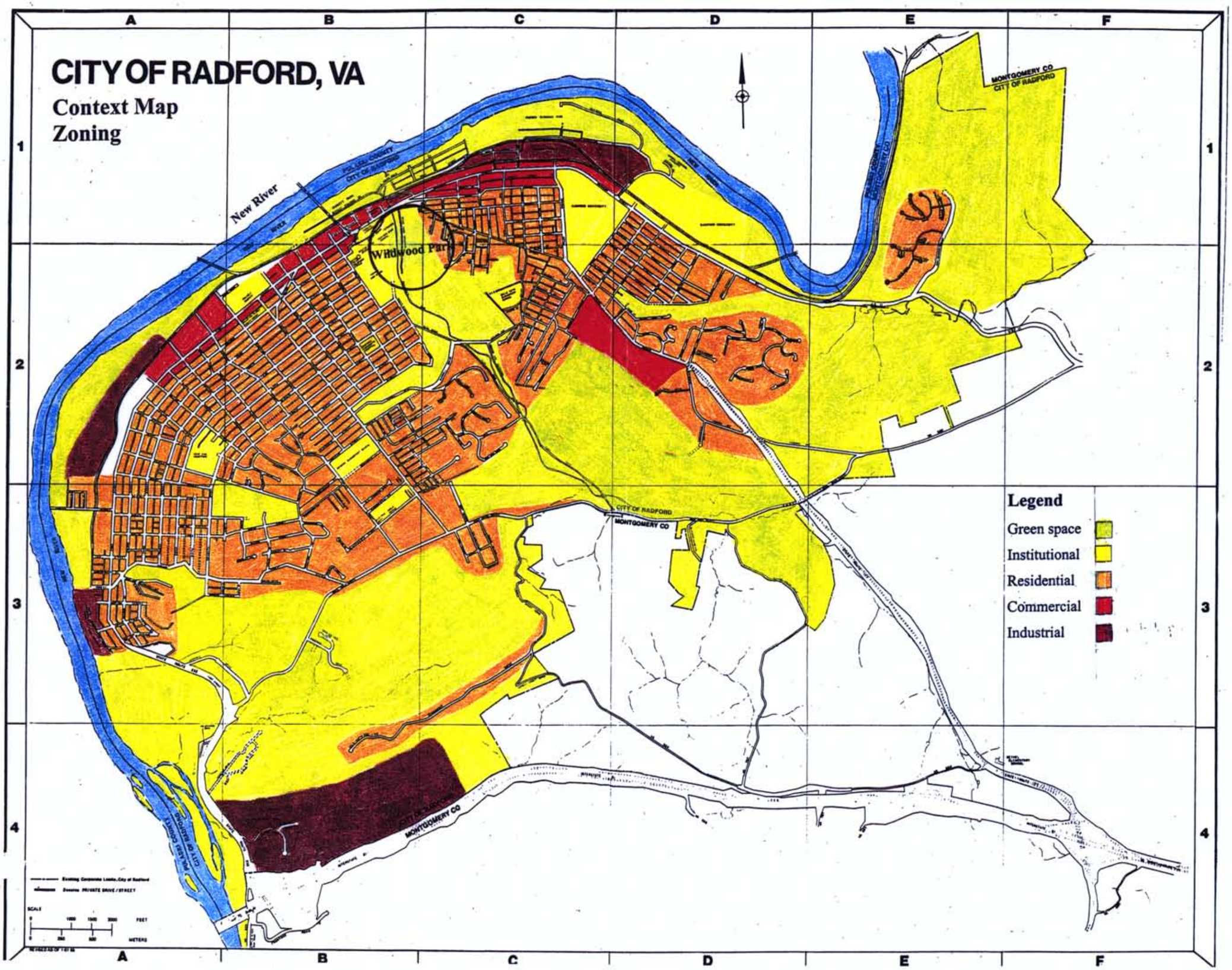
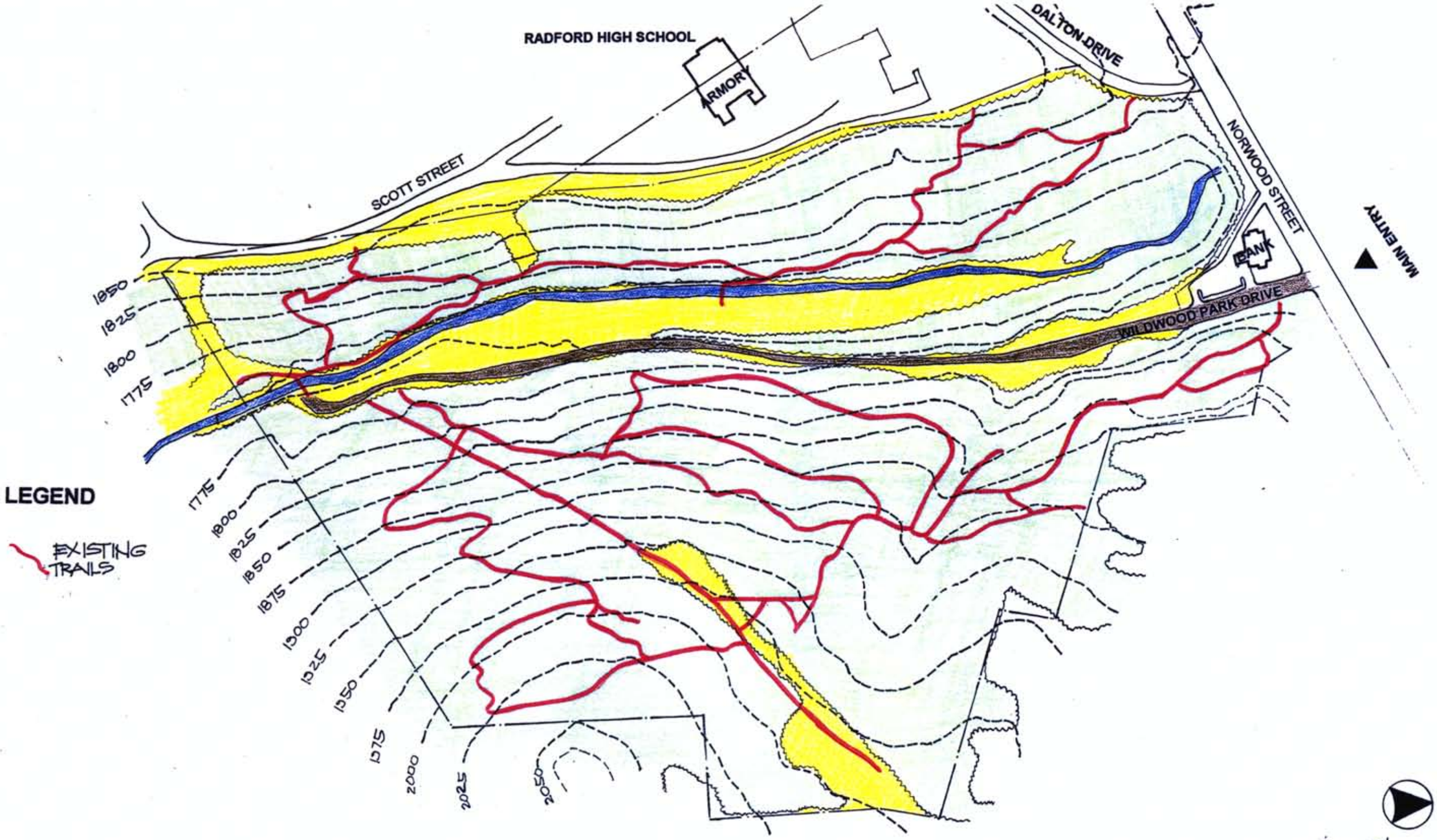
CITY OF RADFORD, VA

Context Map
Zoning





EXISTING TRAILS

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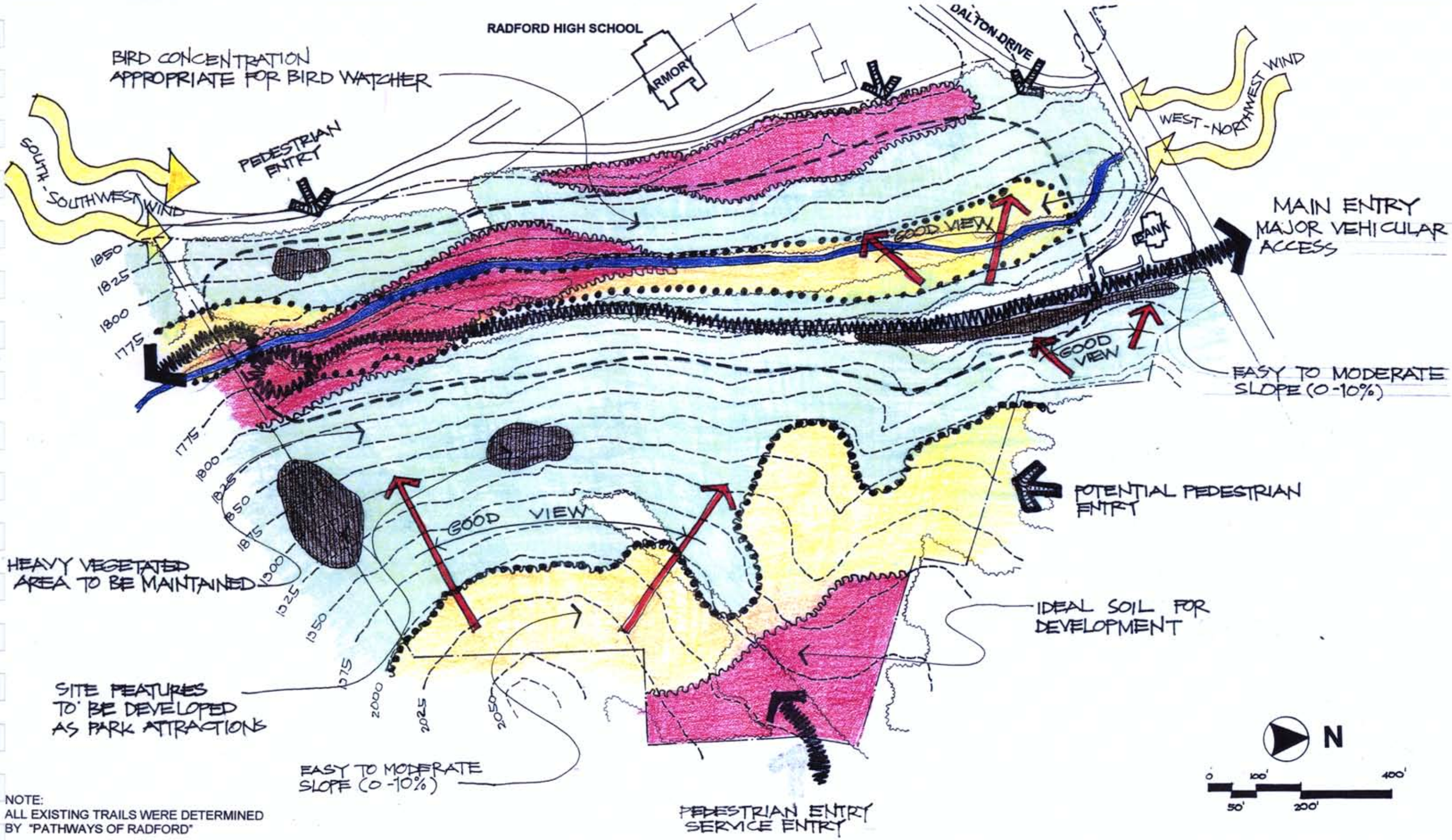

NOTE:
ALL EXISTING TRAILS WERE DETERMINED BY "PATHWAYS OF RADFORD"

SITE ANALYSIS

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IV. RESEARCH

The research carried out helped to develop ideas and provide standard specifications. The references noted in the Work Cited can be used as a guide for planning the final design. The major subjects of interest are accessible trail, signs, wetlands, outdoor classrooms, and amphitheaters.

Trails

Accessibility in the wilderness or outdoor environment is made possible by trails or paths. There are distinct types of paths. "Outdoor recreation routes are paths that provide access to primary activities and elements at a site and recreation trails are paths that provide access to the site's other, or non-primary, recreation activities and elements."

Paths should be designed to blend with the site's topography as much as possible to protect the natural environment. Paths also need to be designed and constructed to provide a stable and maintainable structure. It is important to have paths that provide circulation for all types of users. Both the design team and client team wanted to have trails that appealed to a more rigorous user as well as a moderate or more conservative user (refer to Table 1).

Table 1. Summary of Design Standards for Outdoor Recreation Access Routes

	Easy	Moderate	Difficult
Clear width (minimum):	48 inches	36 inches	36 inches
Sustained running slope (max.):	5 percent	5 percent	8.3 percent
Maximum grade allowed:	8.3 percent	10 percent	10 percent
—for a maximum distance of:	30 feet	50 feet	50 feet
Cross slope (max.):	3 percent	3 percent	3 percent
Rest area interval:	400 feet	900 feet	1200 feet
Small level changes (max.):	1/2 inch	1/2 inch	1/2 inch

Recommended Handicap slopes

Easy	*3%*
Moderate	*5%*
Difficult	*8.3%*

PLAE Inc.1993, 61, 173

Table 2. Different types of trail surfacing materials used for access routes are:

Concrete	*Asphalt*
Brick set in concrete	*Brick set in sand*
Chip seal	*Wood decking*
Compacted gravel	*Soil cement*
Crushed stone with cement binder	*Grass*
Native soil	

Note: Not all of these materials are appropriate or suitable for every level of accessibility.

Signs

Signs are crucial visual information in outdoor recreation routes. They direct and communicate users to trails and facilities. Outdoor recreation design guidelines classified three types of signs similar to sign types applied by the Americans with Disabilities Act (ADA) for the built environment: (1) signs at site entrances; (2) signs that convey permanent identification of site elements and spaces; and (3) signs that gives directions and information.

W e t l a n d s

According to Chambers Concise Dictionary wetlands are marshy land. Awetland is defined as a transition between terrestrial and aquatic systems, where water is the dominant factor determining development of soils and associated biological communities and where, at leastperiodically, the water table is at or near the surface, or the land is covered by shallow water. Specifically, a'wetland must have one or more of the following characteristics:

- at least periodically, the land supports predominantly hydrophytes
- the substrate is predominantly undrained hydric soil

- *the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year'.*

Hammer 1997, 5

One type of wetland is the constructed wetlands that can be used to control flooding caused by storm water runoff. Water runoff has increased effects of stream flooding, erosion, and transport of contaminants into surface water. Natural wetlands are located between upland and open water habitats. The constructed wetlands should mimic this same location so the system can work to its maximum potential. There are many benefits for constructed wetlands: moderate water flow extremes, improve water quality, aesthetic appeal, and low construction costs. Before the construction of the wetland, estimate the storm water runoff and contaminants the wetland will be able to hold, the watershed characteristics, and know the area's soil type, topography, and water table depth. In extreme storm events an emergency by pass channel will redirect high water flows to protect the function of the wetland. Three types of plant species are recommended: aquatics (submerged and floating), herbaceous emergence, and shrubs and trees. (Educational Television Center Media and Technology Services at Cornell University 1999).

Outdoor classroom

Outdoor classrooms are spaces with or without structures that provide an area for lectures and encourage hands on activities for students. The objectives for the park involve a learning atmosphere to promote education. The high school requested a outdoor class room beside the stream, during class field trips there is a designated congregation point. The research of outdoor classroom does not necessarily focus on unused plot of playground has been reborn as an outdoor classroom and garden that teaches children about art and the environment" (qtd. Landscape Architecture Magazine 87, 26-28). The structure of the classroom can be equally as important. The composition of the classroom must be able to with stand climatic conditions. 'The space provides more versatility and aesthetic value that a basketball court or playground could ever offer. The 1,160-square-foot structure has no walls, but its cantilevered roof offers the necessary protection from climate that is alternatively scorching and stormy. We need a structure that was low maintenance,' says principal Maureen Huff (qtd. Landscape Architecture Magazine 87, 26-28).

V. CONCEPTUAL PLAN

The site inventory, site visits, park precedents, research and client feedback determined the design objectives and guidelines to designate certain areas for more specifies uses.

In addition to the site requirements specified by "Pathways for Radford" (see Appendix G), the following objective stated earlier in the introduction was used to create the proposed development by the CDAC design team:

> ***General objective:***
> ***To create spaces that will foster education, recreation, and social congregation with out undermining the integrity of the natural features of the site.***
>
> ***Specific objective:***
> ***To provide multi-functional spaces that can accommodate different type of users.***

By providing and developing such spaces that can enhance the experience of nature, the wildlife and the restoration of the park's civil war history, community pride can be enhanced as well as stewardship and care for Wildwood Park by its citizens. This ensures the protection and integrity of the park that will benefit of future generations.

Conceptual Plan 1

The plan has a hierical trail system through the park accommodating different levels of users. Outdoor classrooms were designated along Connelly's Run and on the east side of Wildwood Park. The park has many historical features that are highlighted.

Adam's Cave, the Civil War site, Cannon Trail, and Wagon Trail are key historical areas accessible by designated trails. The main entrance has an information kiosk and a multi -functional entrance feature. A gathering point designated at the end of the property as a cul de sac. This will serve as a gathering point and a place where people can turn around in vehicles and on foot.

Conceptual Plan 2

The second concept is similar to the first. The main entrance includes parking, utilizing the rock formation as an environmental art piece, and having an entrance feature. The end of Wildwood drive turns into a natural amphitheater to promote a place for people to congregate and engage in social activies.

These plans were presented to the city officials and members of "Pathways for Radford" on March 1999. Revisions were made to the concepts and the conceptual master plan was created.

VI. CONCEPTUAL MASTER PLAN

After incorporating the comments/suggestions of the client into the preliminary conceptual plan, a conceptual master plan was developed. With the design objectives in mind, the following areas/ features of the site were either preserved, restored, or enhanced. The first consideration for the conceptual master plan development is the integration and linkage of Wildwood Park to the larger open spaces such as Bisset park and other circulation networks such as the large pathways system. The second consideration is the detailed implementation of the design objective to the site. We have divided the site into four main sections namely: a) the entrance hub, b) the assembly point, c) the wooded area, and d) the bird sanctuary (see page 15). The following explains the coverage and specific uses of the areas of the park. For many of these areas, such as the timber cladded bridgeand the wetland area, a professional should be consulted.

Pedestrian and Vehicular Access

There are two vehicular access points to Wildwood Park, both with parking. These point the main entrance area near the intersection of Norwood Street and Wildwood Drive and along Scott Street. Trail type, and wildlife information should be placed on signs at each entrance notifying the user of park hours, directions to trails, or historical features.

The main entrance should have a kiosk and an official Wildwood sign. Restroom facilities are conveniently located in the entrance hub area, yet set with in the landscape so as to not be intrusive. Lighting should be installed at the entrance hub since it provides a variety of uses. Moreover, park user can see the facility clearly; patrolling the area is easier; which may discourage illicit behavior after park hours. The main entrance has a viewing area that highlights the view down to Connelly's Run.

Pedestrian Circulation

Circulation through the park consists of a hierarchical trail system. This offers a variety of trail types to a diversity of users. Wildwood Park Drive is the main paved path extending through the park. The drive is likewise a portion of a larger network of pathways and bikeways "Pathways for Radford" has suggested through Radford. The path will be at least twelve feet wide, enough space for an emergency vehicle to drive down. Gay Engineering has mapped out another portion of the pathway suggested by "Pathways for Radford" (see Appendix A). This pathway, Radford River Trail, along Bisset Park will connect to Wildwood Park in the future.

Handicapped accessibility is possible through certain sections of the park based on topographic constraints. The entrance hub and around the wetland area is accessible.

Entrance Hub

The entrance hub is like a lobby or visitor center with an entrance landscape feature. It features a 13 car parking area, an information kiosk, a restroom facility, a children's exploration area, viewing area, boardwalk, a wetland area, and a timber-cladded bridge. This area encompasses the Wildwood Park Drive entrance to the timber-cladded bridge.

The main entrance of the park also has a constructed wetland area. This area is more sensitive than other features in the park. The wetland habitat will attract other animals, giving them an environment to live in. There is a boardwalk over the area provides limited access to park users that will let people experience a wetland environment without disturbing it. Connecting to the wetland area is the Children's Wetland Exploration Area 1. This play environment is located where the tufa naturally seeps water making the area potentially appropriate for a created wetland It will provide many opportunities for children to explore nature.

Wildwood Park Drive and Children's Free Play Area

Wildwood Park Drive will serve as the main access route and serve as the emergency access road for vehicles (i.e. fire trucks, ambulance, maintenance, etc.). Likewise, this road will be utilized as a pedestrian access route that is linked to the network of pathways proposed by Gay Engineering. The recommended width is 12 ft. The slope will need to cater as best as possible to the ease of movement and maneuvering for the physically impaired and elderly. On the western side of the road are trails that lead to the outdoor classroom and children's free play area. The outdoor classroom is a timber structure provided with a covered roof, tables, and benches made from indigenous materials of the site. The free play area is located at the location of the old swimming pool. The swimming pool wall is at Connelly's Run, and is utilized to build a cantilever deck for observation purposes.

Outdoor Classroom

The high school requested a classroom near the stream with easy access to high school trail. The structure is located in the flood plain area and offers seating for thirty students. Several outdoor classrooms are likewise placed throughout the park. These rooms offer a variety of experiences: views to the surrounding areas; a place to learn about a new environment; and a place to remeber a segment of Radford's history.

Assembly Point

A natural amphitheater placed at the end of Wildwood Drive offers a place of rest and congregation. Informal log arrangement around the assembly serves as benches. This area can be used by schools as an outdoor classroom and by the community for outdoor exhibits of artworks.

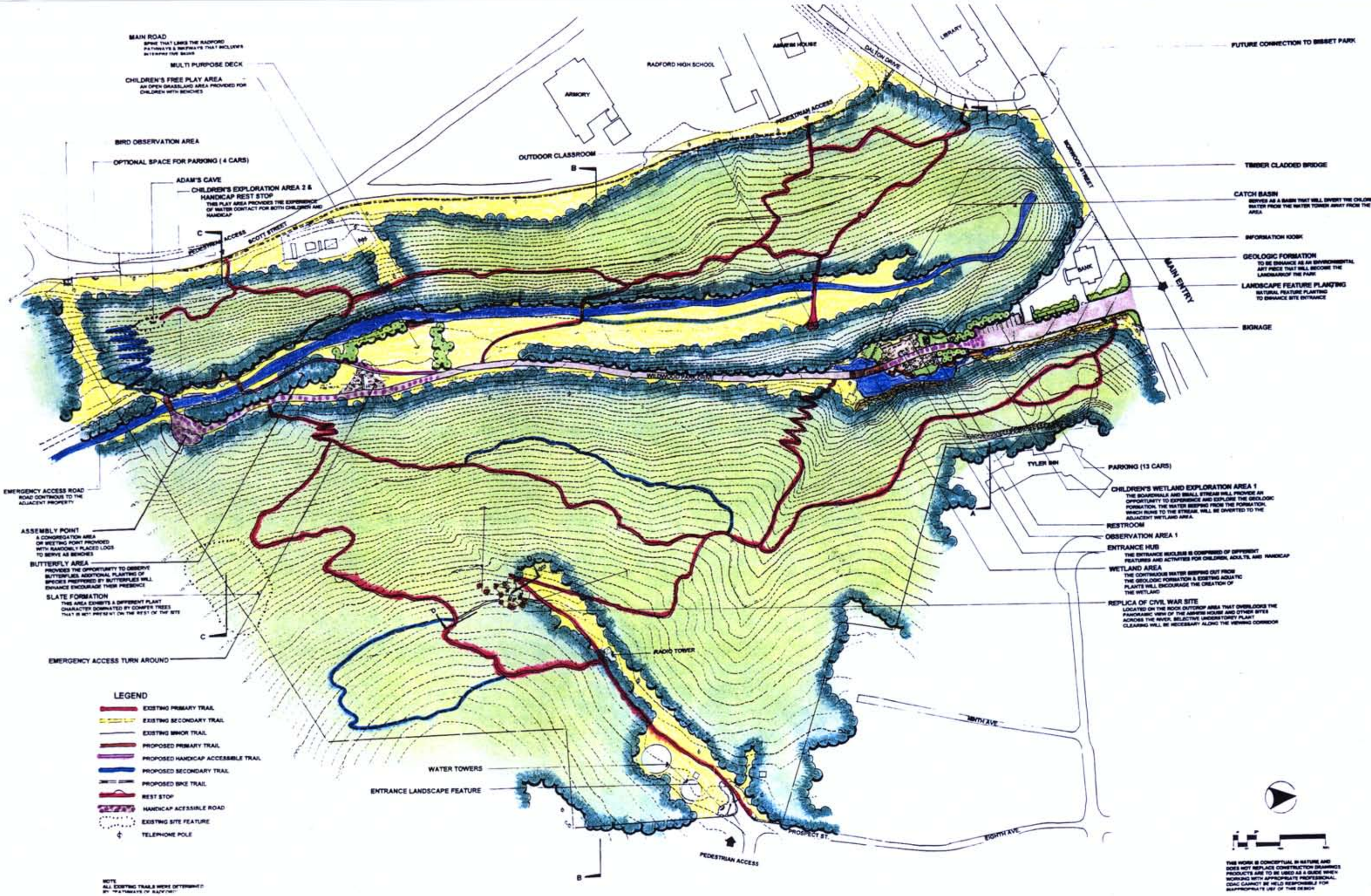
Children's Exploration Area 2 and Handicap Rest Stop

Other than the entrance hub there are two more places for children, the handicap, and other users to experience nature. The first is the butterfly garden adjacent to the children free play area and the other is the children's exploration area 2. With the presence of different plant types, water and butterflies, another level of experience is offered. The trail that is loops to Wildwood Park Drive enables the handicap to explore the area on their own.

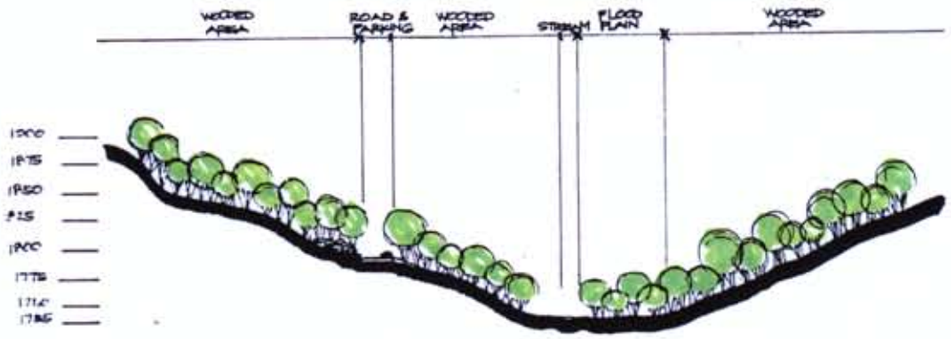
Re-Creation of Civil War Site

The site is located on the eastern section of the park where there are groups of rock outcropping. It is set back slightly from the trail and faces northwest offering views of the Amhiem House, Radford High School, and the hospital. This is the view orientation that the cannons historically faced. Selective thinning of the existing trees will frame and dramatize its effect.

The revised final conceptual master plan, supporting cross-section drawings, and perspective sketches follow on the next several pages.



CONCEPTUAL MASTER PLAN



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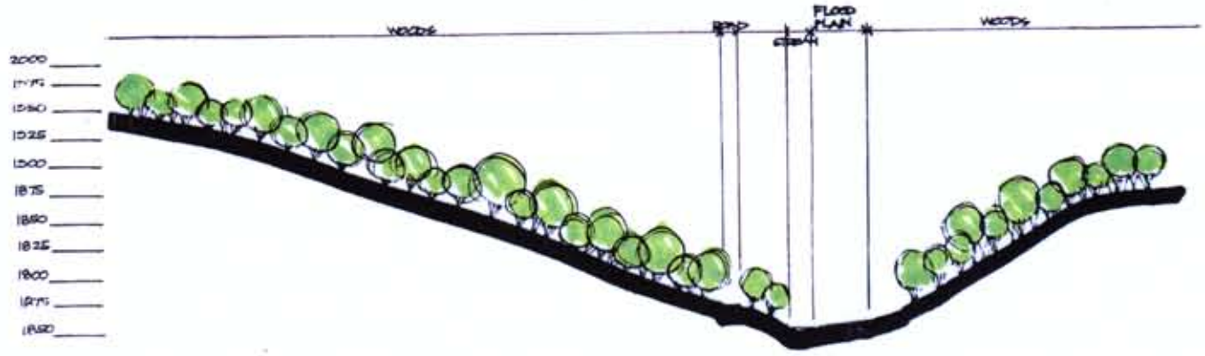

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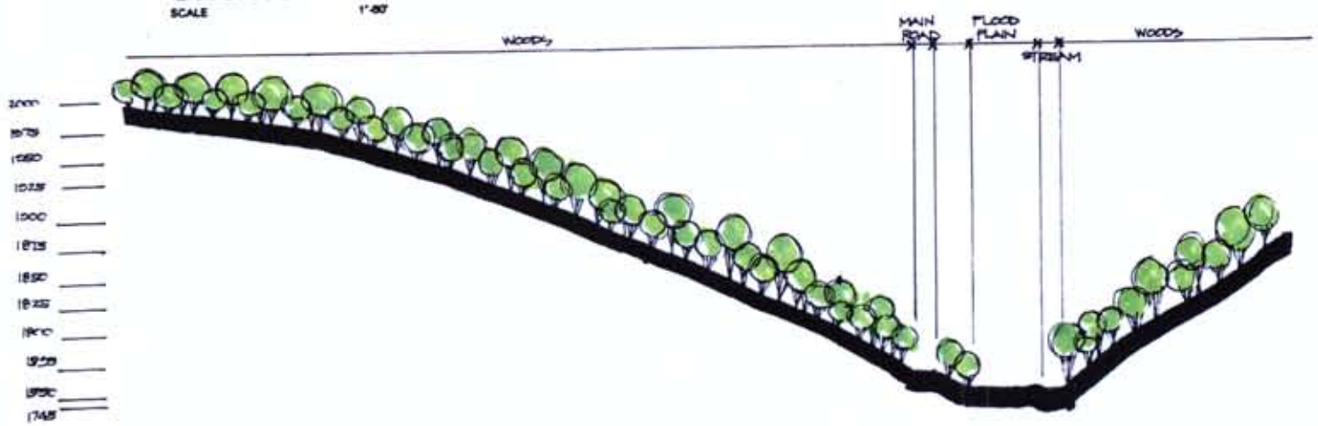
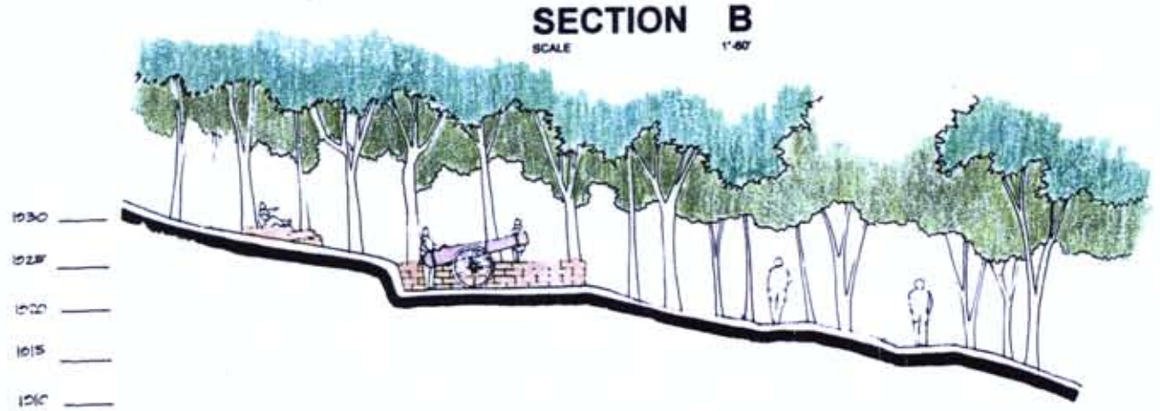
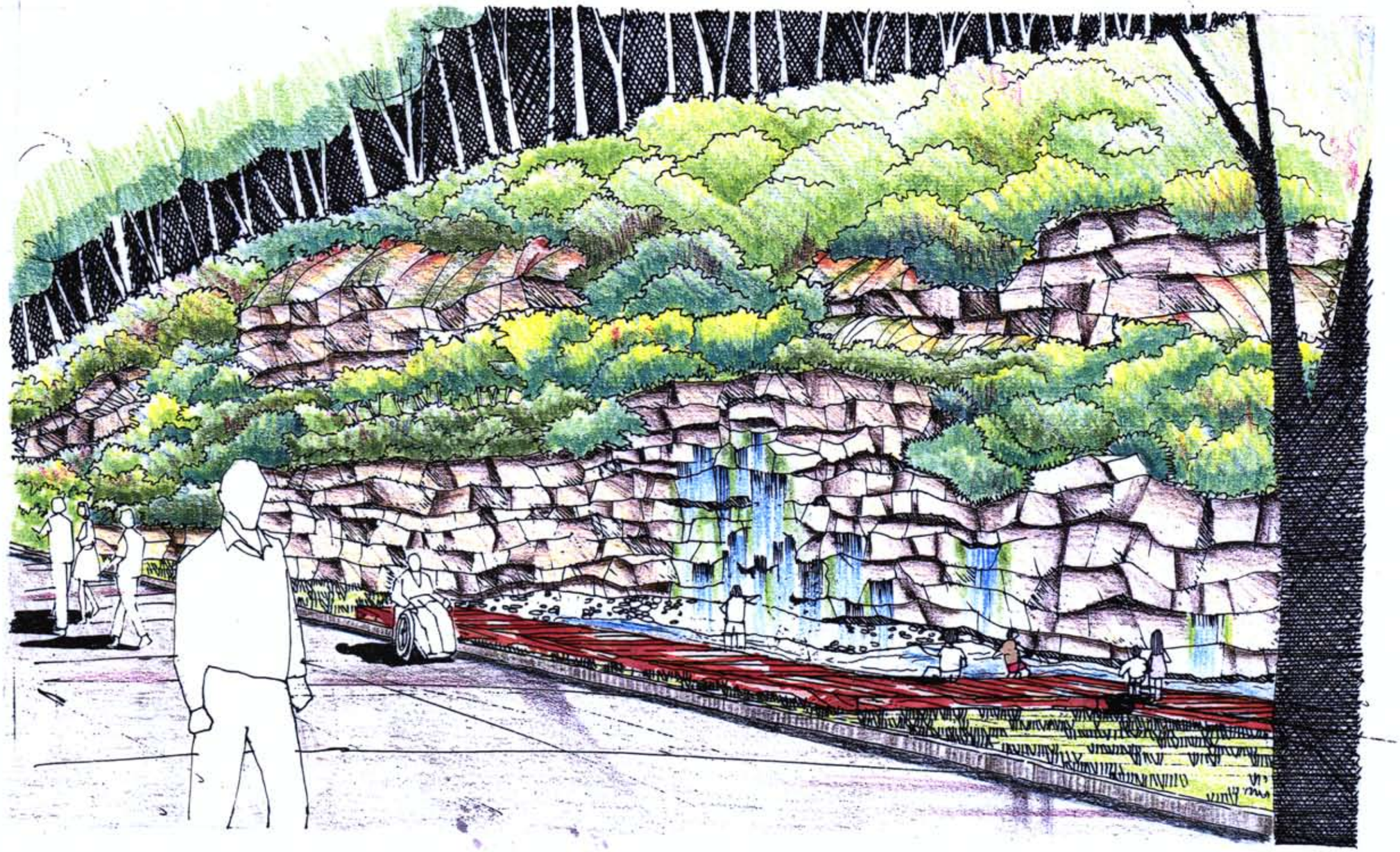


SECTION B
SCALE 1"=60'



SECTION D – CIVIL WAR SITE
SCALE



CHILDREN'S WETLAND EXPLORATION AREA 1

NORTHERN VIEW OF ENTRANCE HUB

NORTHERN VIEW OF OUTDOOR CLASSROOM

WESTERN VIEW OF ASSEMBLY POINT

VII. PARK MAINTENANCE

Trails are recreational access routes which provides us with experiences in the park. Therefore, it is essential to clear trails to adequate height and cut woody or overgrowth off the trail. Disposal of unnatural brush reduces the chance of fires. Clearing is normally done twice a year. Usually in the spring and late fall (Birchard and Proudman 1981).

For controlling trail erosion on steep slopes (20% or more), waterbars are adequate prevention. Waterbars deposits such as soil leaf litter, and organic matter should be cleaned yearly. Annual inspection of all bridges crossing Connelly's Run must be conducted. Wood condition of the posts, beams, floorings, and railing should be checked for structural soundness (Proudman and Rajala 1981) (See Appendix H).

Wetlands are natural ecosystems that undergo successional states like forests. The creation of a wetland takes time, which is why an active management of this system is necessary. The most important factor in the success of A wetland is manipulation of hydrology. During the first year proper manipulation of water level is critical in the first growing season. This is crucial in the generation of emergent vegetation. Water levels are raised and lowered depending on the evidence of new growth.

During the second year the water level must be raised to flood transition zones in the first warm spell in the spring. The water level should be left constant until the warm weather sets in. Water levels will need to be lowered when below the emergent substrates and raised again to encourage new growth of plants. A gradual raising and lowering again of the water level from 1 to 2 cm over and below the substrates is desirable for new growth. During the summer a depth of 8 to 18 cm of water should be maintained.

In subsequent years fall and winter operations are similar from the previous year. It may be possible for weeds to dominate, but this can be controlled by mowing, burning, or reflooding.

"Mosquito problems can be controlled by suitable system designs, minor vegetation or water level management, and the introduction of *Gambusia* are inexpensive preventive measures that should be incorporated in any system where minor mosquito production will cause adverse reactions by society" (Hammer 1997, 326).

To understand the changes in the wetland, a long term monitoring program is advised to establish an information base of the system. Monitoring enables a comparative basis for management of the wetland in the future (Hammer 1997, 327) (See Appendix I).

IX. RECOMMEMDATION

Wildwood Park an outstanding legacy of the City of Radford future generations. To continue its legacy, stewardship of the park is an essential component to the park's preservation and sustainability. In order to nurture the residents' sense of stewardship toward the park, provisions must be provided to develop an understanding of the symbiotic relationship between the park and its citizens. This can be facilitated through the provision of educational, and recreational experiences that the park can provide.

The entrance hub, children's play areas, wetland, assembly point, the natural amphitheater and the recreated civil war site are all multi-functional spaces that incubates educational and social experiences.

The next step to carry out the fruition of the conceptual design stage is to proceed to the design development stage. Additional test/study and information of the following will be needed to help determine design decisions for the next stage of development:

- a comprehensive soil test to determine the suitability of trail location and construction.
- a survey of all existing trails.
- a survey of the potential views of the park at different times of the year (summer, spring, fall and winter) to determine potential views during each season

We likewise recommend that the following be addressed :

a) Entrance Hub

The timber cladded bridge shall be structurally sound for emergency vehicles such as a firetrucks and ambulances. A pool of professionals should to be consulted in the creation of the wetland and other areas of the sit. In addition, we recommend that the hydrological pattern of the chlorinated water coming from the water towers be studied so as not affect the wetland area. Parking should not be allowed beside the Children's Exploration Area 1 to provide more room for children to move around and for safety reasons.

b) Re-created of Civil War Site

The site is located on the eastern section of the park where there are groups of rock outcrops. It is setback slightly from the trail and faces northwest, offering views of the Amheim House and hospital, the canons historically faced. Selectively thinning will frame and dramatize its effect.

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Project Location and Description

The Radford River Trail is proposed as a pedestrian and bicycle linkage between the City of Radford properties and Hunter Ridge communities in east Radford and Bissett Park in central Radford. Ultimately, the pathway would extend to the Ingle's Ferry site in west Radford. The trail will consist of separate 1.7 mile long pathways for walking and biking following the corridor along the scenic frontage of the New River. Much like a parkway is for leisurely auto travel, the Radford River Trail is envisioned as a pathway for non-motorized movement along the River with associated facilities and points of interest for recreation, picnicking, education, exercise and relaxation.

To accomplish this vision as a touring "parkway system" will require that the Radford River Trail be designed by a recognized set of aesthetic principles of trailway design.

The essential form of the trail should express its function which is to move people safely and leisurely along the river. The trail should have a pleasing appearance, should fit gracefully into its surroundings, and become an integral part of the landscape.

The Radford River Trail will be laid out to provide a variety of outward views and take advantage of the finest vistas across the River. The trail itself should appear smooth, continuous, and predictable. Abrupt changes in direction or elevation should be avoided.

Necessary structures and improvements, such as bridges and culverts, should be unobtrusive and should be of pleasing and appropriate design.

Existing desirable vegetation will be preserved to the greatest extent possible. Trees should be selectively trimmed or planted to maximize views and vistas and help merge the trail into its surroundings.

Given its location, the Radford River Trail offers the potential for water oriented recreation. Possible water based recreation activities range from sight seeing and picnicking to more active like boating and fishing.

Appendix B

A Conceptual Master Plan for Wildwood Park
Radford, Virginia

A Proposal Submitted to:
Pathways for Radford
Radford Forestry and Wildlife

23 September 1998

Submitted by:
Elizabeth Gilboy, Assistant Director

Community Design Assistance Center
College of Architecture & Urban Studies
Virginia Polytechnic Institute & State University

Appendix B

Virginia Tech
VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

Community Design Assistance Center

College of Architecture and Urban Studies
100 North Main Street (0450), Blacksburg, Virginia 24061
(540) 231-5644 Fax: (540) 231-6089
Email: cdac@vt.edu
http://www.lar.arch.vt.edu/program/cdac/main.htm

9 February 1999

Mr. David Ridpath, Director
Planning and Community Development
619 2nd Street
Radford, VA 24141

RE: Wildwood Park Conceptual Design Status Report

Dear David,

As we had a span of down time through the holidays and the students have now been back at work for about three weeks now, I thought it might be advantageous to all, if I forwarded a project update along with a revised timeline.

As you recall, Trenda Leavitt's second year studio conducted the site analysis and developed several very preliminary conceptual designs. Mary Hall has had slides taken of these boards and has returned the boards to the Design Center. Ris Masangkay, a masters degree student in landscape architecture, was brought on in a paid position during the course of the studio work to take over where the students' left off in there work and carry it to fruition. In December I hired Nori Shepperd, one of the students fro Trenda's class, to work with Ris.

The following is a description of project work to date.

Model
The Design Center team felt that a model, though not budgeted in the project, would be extremely important in understanding the site (assessment and analysis of site characteristics) and aiding in design. The study model (scale 1:60) is made of chip board material is 90% finished. A portion of the site and its topography was inadvertently left off the original base map work. This information was recently sent to us by Jim Hurt, City Engineer, and will complete the site boundaries and contours information until the edge of Norwood Drive. An approximate existing trail location based from information which is to be supplied by Maurice Hall and will be added on to the model and base maps. The anticipated completion date of the model is the third week of February.

Research
Research entails gathering information on anything from wildflowers, handicapped accessibility, and soils to making site visits to other similar parks. Our research agenda includes the following.

For example, at the Jefferson National Forest in Pearisburg we looked at handicapped accessible trails and ramps located near a stream. Mary Hall has suggested Rockwood Park in Richmond as a place for us to investigate and will be visited next week to look at similar characteristics. Likewise, research on the following subjects is ongoing: trails, trail materials, outdoor classrooms, American Disabilities Act, amphitheaters, and playgrounds. The target date for acquiring all research information is by mid-February. Furthermore, we are looking into the cost of actual soil testing for the site that will determine the suitability of trail location/construction and erosion. Jim Baker, a Professor in Crop and Soil Environmental Sciences at VA Tech recommended an engineer with whom we may discuss the cost of such tests. We are in the process of contacting the engineer. Efforts to locate Richard McWhorter, who made a study of butterflies on the site, is in progress. However, searches to date have been fruitless. There is no record of Mr. McWhorter at the University of Arkansas. A national search on the World Wide Web turned up no such person in the United States. We plan to contact the department he was in at Radford University to see if

they have more detailed information as to his whereabouts. Please let us know if you have further information that may help direct our search. Otherwise we may need to forgo this so that we may continue with the project in a timely manner. The list of bird species was mailed to us last week by Clyde Kessler.

Survey
According to Mary Hall and Chuck Kuglar, the results are due to arrive to the Design Center during the second week of February. It maybe helpful to all involved to hold a meeting, perhaps the third week of February, to discuss the survey results and to touch base prior to design development.

Conceptual Design/Design Development
Design work will commence after the research phase is finished. The target get to start design work is the third week of February. After the two draft designs are developed, we plan to meet with you and the other key project people for review and comment. At this time we can also discuss whether the design(s) will be presented to the community and if so what type of format will be appropriate. If need be, the designs can be left with you for further review, reflection, and comment. The designs will be revised and finalized into one design after comments are received.

Report
The analysis maps and design will be reduced to 11" x 17" for the report. The report will also include written information about the design process and supporting information about the design and design decisions.

Please call Ris, Nori, or me if you have any questions, information about any of the above, or any project related information.

Sincerely,

Elizabeth T. Gilboy
Assistant Director

c: Paul Revell, Dept of Forestry
Mary Hall, Planner, NRV PDC
Chuck Kuglar, Professor of Biology, RU
Ken Goodyear, Director, Parks and Recreation, City of Radford
Jim Hurt, Director, Engineering, City of Radford
Ris Masangkay, CDAC
Nori Shepperd, CDAC

OPINIONS REGARDING WALKING AND BICYCLING TRAILS AND WILDWOOD PARK IN RADFORD, VIRGINIA

A Residential Survey

conducted by

Radford University
Radford, Virginia 24142

Duncan Herrington
Assoc. Professor of Marketing
(Principal Investigator)

F.B. "Fess" Green
Professor of Management

Bruce Chase
Assoc. Professor of Accounting

Fred Singer
Assoc. Professor of Biology

with the assistance of
(and on behalf of)

"Pathways for Radford"
Radford Citizens Pathways Committee
Mary Hall, Coordinator

and

The City of Radford
David Ridpath, Community Development Director

supported by

The Department of Management and Marketing
Radford University
Allen Bures, Chairman

and

The Urban and Community Forestry Grant Program
State Department of Forestry
David Ridpath & Charles Kugler, Grant Coordinators

JANUARY 1999

BACKGROUND

Pathways for Radford is a group of residents formed to encourage the development and use of pathways in the City of Radford. Its mission is to:

> Facilitate the City's development of a network of pathways, including bikeways, walkways, and trails, throughout the City of Radford, and to connect schools, parks, neighborhoods, the University, businesses, and surrounding communities in the New River Valley. These pathways would provide additional transportation, recreation and economic opportunities, while enhancing access to and preserving the City's unique natural resources.

Three preliminary goals had been selected as priorities in this endeavor. They are:

1. Support the City's effort to develop a walking and bicycling trail along the New River from the Dedmon Center to Bissett Park.

2. Establish a bikeway/walkway along Sundell Road and Connelly's Run from Wadsworth to Bissett Park.

3. Develop a master plan for trails, walkways, and other amenities in Wildwood Park.

To support these efforts, a sub-committee met to discuss the framework for a **needs assessment** which would, if successful, determine citizen support for the goals listed, establish priorities, and provide input for one or more grant requests to obtain requisite funding. Along these lines, a survey was recommended and conducted by faculty and students from Radford University.

The target population was Radford residents, with a scientifically valid sample derived from mailed questionnaires. The overall focus of the survey was to determine the extent to which Radford citizens would be likely to benefit from the pathways described, their anticipated frequency of use, the nature of their use (recreation, transportation, education...), and the level of support they would consider making toward the effort. A questionnaire was developed, tested, and mailed to a geographical cross-section of Radford citizens. Support for the survey was provided from several sources.

Out of 435 Radford residents to whom the survey was mailed, 117 questionnaires were returned, a response rate of 27 percent. All geographic areas of the City of Radford were represented. The sample size is such that percentages allow for a sampling error of up to 8 percent.

HIGHLIGHTS OF SURVEY RESULTS

(All percentages subject to plus or minus 8 percent sampling error)

I. The following results apply specifically to the proposed paved walking and bicycling paths along New River from Dedmon Center and from Bissett Park through Wildwood Park and along Sundell Drive:

1. The paved walking and bicycling paths proposed would be used, in some capacity, by 81 percent of the population.

2. Of those who would use the trails, the predominant use would be recreational with 93 percent walking or running and 73 percent riding bicycles. Up to 29 percent would use the trails for transportation.

3. Of those who would use the trails, 49 percent would use them a few times per week, 36 percent would use them a few times per month.

4. Support for both trail sections was high with 80 percent of respondents likely to use the Bissett to Wadsworth section and 72 percent likely to use the Dedmon to Bissett section.

5. A total of 85 percent indicated that they were supportive or very supportive of the pathways initiative. Those opposed constituted 3 percent.

6. A total of 82 percent of respondents indicated that one or more additional persons in the household would be likely to use the trails.

II. A second set of questions related specifically to Wildwood Park, the undeveloped 50-acre wooded valley in the center of Radford along Connelly's Run.

1. If Wildwood Park were to be revitalized, the amenities favored by indicated percentages of respondents are as follows:

a. Walking trails	(93%)
b. Rest rooms	(90%)
c. Nature/history interpretive signs	(84%)
d. Education/information center	(73%)
e. Picnic tables	(69%)
f. Bird observation tower	(66%)
g. Bike trail connecting to city trail network	(64%)
h. Covered pavilions	(63%)

2. Receiving less support (under 50 percent) were amenities such as:

a. Barbecue grills	(47%)
b. Playground equipment	(42%)

c. Paved handicapped accessible trails (38%)
d. Mountain bike trails (31%)
e. Roller blade/skateboard ramps (16%)

3. With regard to park access, 22 percent wanted no motor vehicles in the park. Another 42 percent favored parking adjacent to, but not within the park. Alternatively, 36 percent favored vehicle access and parking within the park.

4. The primary emphases of the park preferred by percentages of respondents are indicated as follows:

a. Recreational area with educational components (56%)
b. Natural area with few or no facilities (43%)
c. Educational and interpretive area (30%)
d. Should not be restored at all (03%)

(Note: Percentages total more than 100 due to multiple responses from some participants.)

5. Support for the park and trail efforts are favored in the following ways by the indicated percentage of respondents:

a. Through the city government, encouraging community financing (59%)
b. Financially with a donation (29%)
c Voluntarily with a time commitment (27%)

III. To get a sense of those who participated in the survey and took the time to fill out the questionnaire, the following demographics apply:

Males (58%) Females (42%)

Age: 40 or under (20%)
41 to 60 (39%)
over 60 (41%)

Education: High school only (13%)
Some college, less than four years (27%)
Bachelor's degree (25%)
Graduate or professional degree (35%)

Household income: Up to $25,000 annually (13%)
$25,000 to $50,000 (36%)
$50,000 to $75,000 (25%)
Over $75,000 (26%)

Percentage with children in household (27%)
Percentage with more than one adult in household (99%)

Demographic and Geographic Representation

Characteristics of the sample were compared to the characteristics for the population (1990 Census, Radford, VA). Based on the comparison it would seem that the sample is somewhat ***underrepresented*** in terms of females, people under the age of 35, people with high school degrees or less, lower income households (under $25k), and households with more than two adults living at home. From a geographic standpoint, all areas of the city were adequately represented in the sample.

Wildwood Park

Soils

Wildwood Park is composed of three main soil groups: Guernsey Silt Loam, Udorthents and Urban Land, and Unison-Urban Land Complex. Guernsey Silt Loam is predominant in one section of the park, pretty much adjacent to Connelly's Run. It consists of a top layer of dark brown silt loam followed by subsequent layers of a yellowish brown silty clay loam and a sticky, plastic clay. The next group, Udorthents and Urban Land, consists of 30% somewhat developed land, 45% original soils, and 25% fill materials. Classification of this soil is difficult because of the lack of consistency in its composition. The final group, Unison-Urban Land Complex, can be subdivided into three groups based upon low, moderate, and steep slopes. It is composed of 1/2 Unison Soils, which have a surface layer of brown loam and subsequent layers of yellow/red sticky plastic clay and red sandy clay loam. The other 1/2 of this soil group consists of 30% somewhat developed land and 20% fill materials. In general, all of the soils are acidic and all, except for the Guernsey Silt Loam, perk fairly well.

Temperature, Precipitation, and Winds

Wildwood Park is exposed to a wide range of temperatures throughout the year, generally within the range of 32 - 72 degrees F. Precipitation in this park measures, on average, 43.3" per year. The wind pattern of the park involves two main wind directions: West-Northwest and South-Southwest. These winds are strongest in late fall, winter, and early spring. They are weakest throughout late spring, summer, and early fall.

Solar Orientation

Wildwood Park consists of two slopes; an Easterly facing slope and a Westerly facing slope. The Easterly facing slope is exposed to strong morning sun while the Westerly slope receives mid-day and afternoon sun. The overall strength of the sun throughout the year corresponds with the four seasons. Summer provides greatest solar intensity and winter the least amount of solar intensity. During both spring and fall, solar intensity is moderate.

19B - Guernsey Silt Loam: A moderately well drained, somewhat deep soil which occurs on stream terraces. Size ranges from 3 to 25 acres. The surface layer is dark brown silt loam to about 10 inches deep. The subsoil consists of two layers: (1) a 24 - 34 inch deep yellowish brown silty clay loam (2) a sticky and plastic clay 20 - 53 inches deep. Permeability is slow and the available water capacity is high. Medium surface runoff. The seasonal high water table ranges from 24 - 42 inches. Frost action is moderate, so shrink-swell potential of the soil is also moderate. High natural fertility but low amounts of organic matter. This soil is naturally very acid to mildly alkaline. Because of its slow permeability, clayey subsoil, and low strength, this soil is not suited for heavy development and/or permanent structures.

29 - Udorthents and Urban Land: Well to poorly drained soils which range from shallow to steep. The original soil has been so altered that it is impossible to classify it. In this soil class, about 30% is urban land, 45% some form of the original soil, and 25% other soils. Surface layer is 5 - 15 inches deep and variable in color and texture. Water capacity and permeability are variable. Acidity ranges from strongly acidic to moderately alkaline. Surface runoff is variable. Potential frost action is variable. In general, these soils are fill used in grading and construction.

32B - Unison-Urban Land Complex (2-7%) : These soils are gently sloping and are characteristic on the ridgetops in Radford. They consist of 50% well drained Unison soils, 30% urban land, and 20% other soils. The Unison aspect has a surface layer of brown loam about 15 inches deep. The subsoil is yellowish red, sticky and plastic clay about 43 inches deep. The substratum is red sandy clay loam below a depth of 58 inches. The urban land and other soils are so altered that identification is near impossible. For strictly Unison soils, permeability is usually moderate, water capacity is moderate, surface runoff is medium, potential frost action and shrink-swell potential are moderate, natural fertility and organic content are low, and acidity ranges from strongly to moderately acidic. For the more developed areas of this soil, the previous conditions are variable. However, in general, more developed soil areas have lower water capacity and more clay in the surface layer. Erosion hazard is moderate. Urban development is limited by by the clay content, moderate permeability, low strength, and moderate shrink-swell potential.

32C - Unison-Urban Land Complex (7-15%): Strongly sloping soils which are characteristic of side slopes in Radford. All information is the same as in 32B except that surface runoff is rapid.

32D - Unison-Urban Land Complex (15-25%): Moderately steep slopes characteristic of side slopes in Radford. These soils consist of 45% Unison soils, 20% urban land, and 35% other soils. Erosion hazard is quite severe and surface runoff is very rapid. All other information which appears in 32B (excluding these exceptions) applies to these soils.

Wildwood Park Percolation, pH, and Shrink-Swell Potential

Soil Class	Soil Depth (in)	Percolation Rate (in/hr)	pH	Shrink-Swell Potential
19B	0-10	.6-2	4.5-6	Low
	10-20	.2-2	4.5-6	Moderate
	20-53	.06-.6	5.1-7.8	Moderate
	53-83	.06-.6	5.1-7.8	Moderate
29		Unlisted		
32B, 32C, and 32D	0-15	.6-6	4.5-6	Low
	15-58	.6-2	4.5-6	Moderate
	58-72	.6-6	4.5-6	Moderate

United States Department of Agriculture, Soil Conservation Service in cooperation with Virginia Polytechnic Institute and State University. Soil Survey of Montgomery County, Virginia. Washington, D.C.: September 1985.

Wildwood Park Climatic Conditions - Temperature and Precipitation

TEMPERATURE AND PRECIPITATION FOR RADFORD AND THE SURROUNDING SOUTHWESTERN MOUNTAIN REGION (1997)

Temperatures are in degrees F and precipitation is in inches

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Avg. Temp	32	39.1	46.5	46.7	54.6	65.3	71.9	68	63	52.7	39	35.1
Departure from Normal	+.3	+4.4	+2.4	-5.6	-6	-2.4	+.8	-2.3	-1.2	-.8	-5.4	-.5
Avg. Min Temp	26.5	29.1	33.9	34.1	41.2	55.3	60.2	55.3	50.4	39.1	29.5	26
Avg. Max Temp	42.5	49	59.1	59.3	67.9	75.3	83.5	80.6	75.5	61.2	48.4	44.1
Avg. Precip.	3.23	3.06	5.43	2.79	3.08	3.84	3.42	1.63	2.69	1.32	2.16	2.69
Snow	5.7	5.3	0	.3	0	0	0	0	0	0	.8	11.5
Departure from Normal	+.18	-.24	+1.68	-.85	-1.22	+.07	-1.03	-2.05	-.79	-2.13	-1.07	-.51

National Oceanic and Atmospheric Administration and the United States Department of Commerce. Climatological Data - Virginia 1997. vol. 107, books #1-12. North Carolina, 1997, ISSN 0364-5630.

Wildwood Park Development Potential

Soil Class	Development Categories			
	Campgrounds	Picnic Areas	Playgrounds	Paths and Trails
19B	M	M	M	M
29		Unlisted		
32B	S	S	M	S
32C	M	M	Sev	S
32D	Sev	Sev	Sev	M

(S = favorable for development with few problematic areas; M = suitable for development, but some limitations will occur; Sev = not at all favorable for development)

United States Department of Agriculture, Soil Conservation Service in cooperation with Virginia Polytechnic Institute and State University. Soil Survey of Montgomery County, Virginia. Washington, D.C.: September 1985.

Birds of Wildwood Park/Connelly's Run
January, 99

Cormorant, Double-crested – flyover
Heron, Great Blue
Heron, Green
Vulture, Black
Vulture, Turkey
Goose, Canada – flyover
Mallard
Hawk, Sharp-shinned
Hawk, Cooper's
Hawk, Broad-winged
Hawk, Red-tailed
Kestrel, American
Killdeer – flyover
Snipe, Common
Gull, Ring-billed – flyover
Dove, Rock
Dove, Mourning
Cuckoo, Yellow-billed
Screech-Owl, Eastern
Owl, Barred
Nighthawk, Common – flyover
Swift, Chimney
Hummingbird, Ruby-throated
Kingfisher, Belted
Woodpecker, Red-bellied – nests
Sapsucker, Yellow-bellied
Woodpecker, Downy
Woodpecker, Hairy
Flicker, Northern
Woodpecker, Pileated
Wood-pewee, Eastern
Flycatcher, Acadian – uncommon
Flycatcher, Willow – former
Phoebe, Eastern
Flycatcher, Great Crested
Kingbird, Eastern
Vireo, White-eyed – uncommon
Vireo, Yellow-throated
Vireo, Blue-headed – migrant
Vireo, Red-eyed
Jay, Blue
Crow, American
Raven, Common – flyover
Martin, Purple – flyover
Swallow, Tree
Swallow, Rough-winged
Swallow, Barn
Chickadee, Carolina
Titmouse, Tufted

Sparrow, Chipping
Sparrow, Field
Sparrow, Song
Sparrow, Swamp – transient, winter, rare
Sparrow, White-throated
Junco, Dark-eyed
Cardinal, Northern
Bunting, Indigo
Blackbird, Red-winged
Grackle, Common
Cowbird, Brown-headed
Oriole, Orchard – uncommon
Oriole, Baltimore – uncommon
Finch, Purple – sometimes winter, common
Finch, House
Siskin, Pine – uncommon
Goldfinch, American
Grosbeak, Evening – uncommon
Sparrow, House

Wildwood Park

Wildflower Inventory

Biennial Gaura	Gaura biennis
Giant Lobelia [blue]	Lobelia siphilitica
New York Ironweed	Vernonia noveboracensis
Orange Jewelweed	Impatiens capensis
Yellow Jewelweed	Impatiens pallida
Smooth Ruellia; Wild Petunia	Ruellia strepens
Cowbane	Oxypolis rigidior
Silverrod	Solidago bicolor
Brown-eyed Susan; Three-lobed Rudbeckia	Rudbeckia triloba
White Rattlesnake Root; White Lettuce	Prenanthes alba
Boneset	Eupatorium perfoliatum
Joe Pye Weed	Eupatorium fistulosum
White Snakeroot	Eupatorium rugosum
Sneezeweed	Helenium autumnale
Wingstem	Actinomeris alternifolia
Clammy Cuphea; Blue Waxweed	Cuphea petiolata
Spanish Needle; Devil's Beggartick	Bidens frondosa
Common Ragweed	Ambrosia artemisiifolia
Giant Ragweed	Ambrosia trifolia
White Melilot	Melilotus alba
Common Milkweed	Asclepias syriaca
Butterfly Weed	Asclepias tuberosa
Perplexed Ticktrefoil	Desmodium perplexum
New England Aster	Aster novae
Calico Aster	Aster lateriflorus
Arrow-leaved Aster	Aster cordifolium Var. sagittifolius
Clasping Heart-leaved Aster	Aster undulatus
Smooth Aster	Aster laevis
Horse Balm; Richweed; Stone Root	Collinsonia candensis
Heal All	Prunella vulgaris
Autumn Clematis	Clematis virginiana
Bergamot	Monarda fistulosa
Golden Ragwort	Senecio aureus
Common Ragwort	Senecio obovatus
Daisy Fleabane	Erigeron annuus
Hoary Puccoon	
Black Cohosh	Cimicifuga racemosa
Sweet Cicely	
Queen-Ann's Lace	Daucus carota
Crown Vetch	Coronilla varia
Stiff Gentian; Agueweed; Gall-of-the-earth;	Gentianella quinquefolia

Chickory	Cichorium intybus
Spotted knapweed	Centaurea maculosa
Solomon Seal	Polygonatum biflorum
False Solomon seal	
Carrion Flower	
Green Brier	
Asparagus	
Pokeweed	Phytolaca americana
Red Clover	Trifolium pratense
Lambs Quarters	Chenopodium album
Sheep Sorrel	Rumex acetosa
Dogbane	Apocynum cannabinum
Watercress	
Wild Ginger species	
Hepatica species	
Broad-leaved Goldenrod	Solidago flexicaulis
Elm-leaved Goldenrod	Solidago ulmifolia
Autumn Goldenrod	Solidago sphacelata
Veiny-leaved Goldenrod	Solidago rugosa
Goldenrod	Solidago altissima
Common St. Johnswort	Hpericum punctatum
Shrubby St. Johnswort	Hypericum prolificum
Climbing False Buckwheat	Polygonum scandens
Lady's Thumb; Redshank	Polygonum persicaria
Carpenter's Square	Scrophularia marilandica
Oneseed Bur-Cucumber	Sicyos angulatus
Nightshade	Solanum ptycanthum
Bittersweet Nightshade	Solanum dulcamara
Horse Nettle	Solanum carolinense
Sunflower Heliopsis	Heliopsis helianthoides
Paleleaf Woodland Sunflower	Helianthus strumosus
Small Woodland Sunflower	Helianthus microcephalus
Whorled Rosinweed	Silphium trifoliatum
Kuhnia	Kuhnia eupatorioides
Water Speedwell	Veronica anagallis-aquatica
Purpleleaf Willowherb	Epilobium coloratum
Burnweed; Fireweed	Erechtites hieracifolia
Nettle-leaved Verbena	Verbena urticifolia
Wild Yam	Dioscorea villosa
Yellow Trout Lily	Erythronium americanum
Cutleaf Toothwort	Dentaria lactiniata
Tall Meadow-Rue	Thalictrum polyganum
Columbine	Aquilegia canadensis
Golden Alexanders	Zizia aptera
Garlic Mustard	Allaria officinalis
Larkspur	Delphinium tricorne
Common Mullein	Verbascum thapsus
Moth Mullein	Verbascum blattaria
Spiderwort	Tradescantia virginiana
Spring Beauty	Claytonia virginica
Japanese Honeysuckle	Lonicera japonica
Tartarian Honeysuckle	Lonicera tartarica
Poison Ivy	Rhus radicans
Smooth Sumac	
Oxalis	
Buckhorn Plantain	Plantago lancelata
Broadleaf Plantain	Plantago major
Multiflora Rose	
Wineberry	
Black Raspberry	
Mock Strawberry	
Large Hop Clover	Trefolium campestre
Burdock	Arctium minus
Firethorn	
Jack-in-the-Pulpit	Arum maculatum
Partridge Berry	Mitchella repens
Whorled Loosestrife	Lysimachia quadrifolia
Horse Gentian	Triosteum perfoliatum

Upland Boneset; Thoroughwort	Eupatorium sessilifolium
Tall Anemone	Anemone virginiana
Deptford Pink	Dianthus armeria
Star Chickweed	Stellaria pubera
Blue Cohosh	Caulophyllum thalictroides
Cleavers	Galium aparine
Mayapple	Podophyllum peltatum
Common Bluets	Houstonia caerulea
Swamp Milkweed	Asclepias incarnata
Common Evening Primrose	Oenothera biennis
Sericea Lespedeza (Chinese)	Lespedeza cuneata
Yarrow	Achillea millefolium
Scarlet Pimpernel	Anagallis arvensis
Dandelion	Taraxacum officinale
Cocklebur	Xanthium strumarium
Ground Ivy	Glechoma hederacea
Cheeses; Round-leaf Mallow	Malva rotundifolia
Virginia Creeper	Parthenocissus quinquefolia
Canada Thistle	Cirsium arvense
Field Chickweed	Cerastium arvense

Butterflies

Pipevine Swallowtail
Black Swallowtail
Giant Swallowtail
Eastern Tiger Swallowtail
Spicebush Swallowtail
Cabbage White
Clouded Sulphur
Orange Sulphur
Little Yellow
Harvester
Coral Hairstreak
Gray Hairstreak
Eastern Tailed-Blue
Spring Azure
Northern Metalmark
Variegated Fritillary
Great Spangled Fritillary
Silvery Checkerspot
Pearl Crescent
Question Mark
Eastern Comma
Mourning Cloak
American Lady
Painted Lady
Red Admiral
Red-spotted Purple
Hackberry Emperor
Tawny Emperor
Northern Pearly-Eye
Little Wood-Satyr
Common Wood-Nymph
Monarch
Silver-spotted Skipper
Southern Cloudywing
Northern Cloudywing
Wild Indigo Duskywing
Common Checkered-Skipper
Common Sootywing
Least Skipper
Peck's Skipper
Sachem
Zabulon Skipper
Dun Skipper

RECOMMENDATIONS FROM PATHWAYS FOR RADFORD FOR THE WILDWOOD MASTER PLAN

based on a review of
student preliminary student concept maps, community surveys.
Revised after a meeting with the
Community Design Assistance Center, April 7, 1999

Pathways for Radford's vision for Wildwood Park is to maintain the park as a wild area for the people of Radford and visitors to enjoy wildlife and sites of historical interest. The City has other parks for intensive recreation. Wildwood should be for peaceful walking, biking and nature study. It should also be attractive to and educational for children.

The following recommendations are based on the assumption that the City of Radford will agree to budget the necessary funds and personnel and maintenance of the renovations of Wildwood Park. We have considered the problems of maintenance in these recommendations.

I VEHICLES

We are strongly opposed to motorized vehicle within the park, except emergency and service vehicles. There must be some barrier to vehicular traffic that will not restrict bicycle, wheelchair, or pedestrian traffic.

Vehicles will enter the main entrance. It is undecided whether to have a turn around at the other end of the park or a drive through.

II ENTRANCES

We did not try to reach a decision on how many or where the entrances should go, but most preferred they be kept to a minimum, i.e. fewer than on the student concept maps. The following were suggested, though not universally agreed on:

A. Entrances at each end of the paved bike trail (Wildwood Drive)
B. A hiking entrance at the high school.
C. A hiking entrance near the Scott Street observation deck.
D. A hiking entrance near the Tyler Inn or 8th avenue.

III PARKING

Several locations were identified.

A. We agreed on a main entrance parking area as near the bank as possible. Some liked the idea of the curved entrance way to isolate the park from First Street. But we agreed that we should not disrupt the vegetation in the sheet water flow area below the cliff south of the tufa.
B. Another possible parking area for a hiking entrance was on Scott Street near the existing bird observation platform. Probably no street alteration would be necessary.
C. A third possible parking area for hiking entrance might be at the Tyler Inn or 8th Avenue near the water tower. A concern by residents in that areas is that it could be more of a night time attraction for lovers or vandals.

IV TRAILS

A. Biking.
   1. One narrow paved transportation trail through valley bottom on existing Wildwood Drive.
   2. No mountain biking areas.
   3. No fitness trail.

B. Hiking.
General agreement that the number of trails should be kept to a minimum due to the small size of the park. But we made no attempt to reach agreement on exactly how many or where they should go. Some recommendations:
1. A trail between the high school and Connelly's Run.
2. A trail along Connelly's run.
3. A main trail on each hillside.
4. Some liked the idea of minor connecting trails to make some smaller loop possibilities within the larger loop, but even they want fewer than on the student concept map depicting this idea.
5. Some suggested spur trails or small loops to see particular things.
6. Avoid over-grooming or much disruption. Keep them simple. But some trails for wheel chairs should be paved.
7. Occasional benches are probably necessary.
8. Keep foot and bicycle traffic from damaging biologically, geologically, historically sensitive areas-e.g. the tufa cliff face. Perhaps boardwalks to keep people from touching the tufa or walking in wetland areas.
9. A main trail should not go directly to the civil war gun sites, which could be damaged by people digging for artifacts. Instead, a trail might go to a nearby reconstruction of the civil war emplacement.
10. Trails could go near, but keep people away from sensitive habitats for flowers and butterflies.
11. Investigate trails and bridges that camouflage the storm sewer pipe.
12. Investigate bridges and trail features that have some novelty/interest for youngsters scattered throughout the park.

C. Handicap trail
We agreed that a trail in the flat area should have a paved or boardwalk trail accessible by wheelchairs. An additional wheel chair accessible areas might be at the main entrance feature and an overlook/historical site near the water towers.

V EDUCATIONAL/INTERPRETATION OPPORTUNITIES

A. An "entrance feature" for the park was discussed. Ideas were to enhance and feature the wetland near the entrance. We discussed possibilities of making a portion of making it especially attractive for children to discover stream and wetland life. We discussed possibilities of using boardwalks.

B. It was thought that a separate education/information building was not needed for such a small park, but a small, unobtrusive information kiosk would be useful. Most thought it should be near the main entrance parking area. We ask the design team to investigate the possibility of a touch-screen monitor in a kiosk to allow visitors to identify flowers, birds, bird calls, etc.

C. Interpretive signs are needed along the trails and at historic, etc. sites.
1. They should be noticeable, but unobtrusive.
2. They must be sturdy to resist vandals, but funds must be budgeted for periodic renewal.
3. Some expressed interest in numbered sites with pamphlets, but others pointed out the problems of trash and keeping them in stock.

D. An outdoor classroom is desirable.
1. The location should be on the flat by the Connelly's Run and close to the high school.
2. It should be as unobtrusive as possible, perhaps just a slab and roof with open sides.
3. Size for about 20-30 people.
4. We debated about the need for benches and tables.
5. Trash cans and recycling receptacles should be present if the City will agree to collect as needed.

E. A natural amphitheater (not a building, and low maintenance) at the other end of the trail through the park could also serve as an outdoor classroom and incorporate a turnaround for vehicles.

VI PICNIC FACILITIES

Pathways is very concerned about the trash and noise problems that picnic facilities could cause. Nearby Bisset Park should be the main picnicking park in Radford. However, one or two picnic tables might be necessary at the entrance and the outdoor classroom.

VII PLAYGROUND FACILITIES / FITNESS TRAIL

There was strong unanimous sentiment against playground and fitness trail equipment. Bissel and other parks meet those needs.

VIII LIGHTING

It was agreed that lighting was not desirable. the park should be closed at night to protect wildlife, and to prevent illicit activity.

IX PLANTINGS

A. Some restoration plantings may be necessary near the main entrance and Adam's Cave.
B. Part of the flood plain should feature the natural flood plain forest. Existing trees might be supplemented for shade and erosion control. Several successional stages might be featured.
C. Part of the flood plain might be mowed in the late fall each year to allow for growth of herbaceous plants that attract birds and butterflies. Milkweeds and other native plants might be added.
D. Plants should be of native species and be determined by a qualified horticulturist.

X MOWING AND MAINTENANCE OF THE VALLEY

Given our vision of Wildwood as a managed natural area, we agreed that mowing should be minimized, perhaps just along the bike trail and in one area to encourage growth of plants that attract butterflies.

XI BIRD OBSERVATION PLATFORM

No additional platform is needed. Birders walk around to find birds.

XII OBSERVATION DECKS

No unanimity--just ideas:
A. Some felt none were needed or desired.
B. Some suggested a boardwalk and/or wider observation deck near wetlands.
C. A scenic overlook below the overlook was discussed, possibly associated with a civil war feature

XIII DOGS

A. We were divided about whether to allow dogs in the park, but most agreed we would not be able to keep them out, confine them to specified trails, or keep them on leashes. The City's leash law should apply to Wildwood Park.
B. Consider signs to educate dog owners about controlling and cleaning up after their dogs.

XIV TELEPHONES

Consult safety officials about how many and where emergency call boxes should be placed.

TO: Charles Kugler, Pathways for Radford Grant Coordinator
FROM: Thomas Kelly
DATE: April 23, 1999

I have just spoken with Jim Hurt, the Radford City Engineer, in connection with the proposed bike-roadway through Wildwood and, in particular, the requirements for a turn-around near the projected bike and pedestrian bridge over Connely's Run close to the upstream boundary of the present Park. On the understanding that we were each exchanging information informally and that neither of us was making firm commitments about future decisions, Mr. Hurt made the following points:

1) There are no City Ordinances which *Pathways* must comply with in its design for the proposed bike-roadway. Even though the route may be constructed so as to provide emergency access for fire trucks and ambulances and service access for trail maintenance and light trash pickup vehicles, it will not be regarded as a public roadway. This is not to say that the City will impose no conditions on the design of the bikeway. The point, rather, is that the design of the bike-roadway will have to be appropriate, in the judgment of the City Engineer's office, to its function.
2) Based on *Pathways* present conceptual framework for Wildwood, the bike-roadway should have a *minimum* width of 12'. This could be a fully paved surface; it might be a six-foot wide paved bike path with compacted and gravelled shoulders to accommodate trucks; or it might be something in between.
3) A turn-around at the upstream end of the bike-roadway is not *mandatory*, but it would seem prudent to design a way for an ambulance or service truck to turn around rather than be obliged to back all the way out. The turning radius for the largest vehicles we anticipate being in Wildwood is approximately 35'. This would suggest a cul-de-sac (not necessarily paved) with a minimum 75' diameter. However, a "T" turnaround with an arm long enough to accommodate a 25' vehicle might be fully adequate, would give the designers some flexibility about the precise location, and would be, overall, less intrusive than a traditional cul-de-sac.
4) The City's current plans contemplate a stop light in the near future on Norwood at Dalton Street. For this reason, the City might prefer that access to Wildwood from Bisset be planned for this crossing point, rather than at the Grove Street light. (Were the Recreation Center to be relocated at some time in the future, the need for a light at Dalton might dissipate and Grove might become the preferred crossing point from the Bisset side of Norwood for both the Library and Wildwood.)

cc. J. Hurt