



Campus Park

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Contents

Part I: Development

Introduction

Overview and project scope	6
Thesis	7
Goals and objectives	8

School In America

Introduction and history	10
Current approaches to school design	13
Current research in the field	15
Small schools movement	16
Conclusion	17

Site Analysis

Introduction	20
United States of America	22
Alabama	24
Birmingham	28
Redmont neighbourhood	32
Description of location and existing conditions	36
History of Red Mountain and the Discovery Museum	38
Surrounding Neighbourhoods	40
Photos	42
Accessibility: Climate considerations, physical and environmental constraints and SWOT Analysis	44

Context

Private schools in Birmingham metropolitan area	46
Parks in Birmingham	48
Site visitors	50
Photos of The Arlington Schools current campus	51
History of The Arlington School and Saint Rose Academy	52
Precedents	

Part II: Project

Introduction

Typology	60
Program	62
Envelope	63

Design

Site plan	64
Building structure and form	66
Ground floor plan	68
Lower level plan	70
Upper level plan	72
Sections	74
Elevations	78
Axonometric views	80
Materiality	82
Interior visualisations	84
Exterior visualisations	88

Resources

Introduction

Part I: Development

Introduction

Overview and project scope	20
Thesis	22
Goals and objectives	26
	30

School In America

Introduction and history	34
Current approaches to school design	36
Current research in the field	
Small schools movement	38
Conclusion	

Campus Park Project

The Campus Park project seeks to provide a shared campus park for the Arlington School in Birmingham, Alabama. This project will address several needs for the nearby schools and local community. It will consist of safe and accessible outdoor and indoor spaces for education and community needs while being sustainable and environmentally conscious. It will also react to its historically significant site by reopening access to long closed educational trails along an important geological cut.

Campus Park will occur in three main steps. These steps will include urban and site analysis, program development and design development. An overview of the final deliverables will follow the key objectives and outcomes expected from each step. Overall, Campus Park will aim to create a positive impact on the local community and environment while also meeting the needs for a variety of safe and accessible indoor and outdoor spaces for community and educational needs.

Project Scope

Campus Park seeks to create spaces in an iconic location that helps to foster a more inclusive community by blurring the lines between public and private spaces. It will provide sustainable and versatile indoor and outdoor venues for diverse groups to create connections by sharing spaces. The park will reconnect the community to an important part of geological history.

The scope of the project will take place in several parts. It will include site analysis, program development, conceptual design, schematic design, sustainability measures and landscape design.

Thesis

Campus Park will be a new type of community and educational space in Birmingham, Alabama. The project site is historically significant and also the site of a former museum. It is on a mountainside overlooking the downtown Birmingham skyline. In the 1970s, the neighbourhood was separated from the main parts of the city by an interstate cut through the mountain. The site rests above this interstate cut on the city (north) side of the mountain.

The Campus Park site is located at the intersection of the two current campuses of the Arlington School and Saint Rose Academy. The Arlington School will move permanently to the new site and the Saint Rose Academy campus will remain otherwise unchanged. As it relates to the physical environment, Campus Park is simply what the name suggests, a campus within a park. The park will be made up of outdoor and indoor spaces that can be used for community events such as fundraisers, exhibitions, gatherings and community classes. The project will take advantage of the visibility and historic notoriety of the new site by becoming a welcoming new space that benefits the larger community and all of the users of the new campus and park. This open and welcoming private school campus within a park will not have the traditional barriers between private institutions and the larger community. This will be achieved by providing a well maintained public space for a diverse blend of programming and users.

Goals and Objectives

Educational

- provide high quality spaces and resources for students, faculty and staff
- create an environment that allows for hands on learning, research and collaboration
- provide non traditional classroom educational spaces that can be used by the community as well

Community

- provide safe and high quality community gathering spaces
- help to relieve the stress placed on the few current available community spaces
- promote diverse interactions between groups by hosting community led initiatives and events
- reconnect and reintroduce the historic site to the community

Design

- create a visible new building with a strong visual identity
- utilize a contemporary sculptural approach to the design of the form to highlight the dramatic sloping site and views
- increase the projects usable life by creating accessible, flexible and easily adaptable spaces using a hybrid mass timber construction

Sustainability

- create a sustainable building that reduces its environmental impact
- utilize as many local materials to reduce carbon footprint
- employ sustainable design methods and technologies to allow for as much natural lighting with a minimal climate impact

Introduction to American Childhood Education

The history of children's education in America has been largely influenced and driven by modernisation, urban design changes and experimental education theory and practice. From its humble origins in one room school houses to the more typical large and specialised buildings seen today, school design has gone through numerous changes. While many call for larger schools to concentrate already limited resources, others are pushing for smaller schools that allow for more flexible and individualised education. School funding is another major concerns for many schools due to the way public education is funded in America, many wealthier communities can offer much better funded educational opportunities than their neighbours. Architecture certainly can not design away many of these problems, but it can provide a high quality environment to better support the non design aspects of education. A framework of meaningful connections between physical design elements and non physical is a vital, if small, component of a high quality education. Many attempts at improving education through design have come and gone and many are still to come. However, one thing has always remained true, a well educated population is essential to a countries continued development and growth.

History

In the beginning of formal childrens education in America, all ages, grades and levels of ability were taught at the same time in a one room schoolhouse. Often the city would employ one schoolteacher. During lessons, older students would assist the teacher in instructing the younger pupils. Gradually, between 1798 and 1921, multiple grade schoolhouses and one room schoolhouses were phased out, often consolidated, and replaced with single grade classrooms in larger school buildings. Interest in non traditional educational practices has inspired many architects to propose and develop many different experimental design solutions over the years. Many have come to the conclusion that innovation in school design does not have to mean a fundamental shake-up of the entire educational institution.

Schools became larger and larger as policy-makers and cities tried to minimize costs. Putting more students into larger buildings to reduce costs has led to the very large schools commonly seen in America today. The diversified curriculum meant that new spaces for more specialized education had to be provided and led to campuses having more purposes than just education.



Homewood Middle School, 2004. A large, well funded public middle school in Homewood, Alabama, USA.,



Sample School, 1874. One room school house in Cranberry Township, Pennsylvania, USA.

School design has been largely shaped by modernisation, urban design and new experiments in educational design. Richard Neutra's design for the Corona Avenue School is an excellent example of this. It was one of the first schools designed to exemplify and incorporate designs based on new theories in education. The school is designed as an open air and flexible use plan. It is grouped according to the finger plan arrangement.



Richard J. Neutra: Experimental School, Bell Avenue at Bear Avenue, Los Angeles, California. 1935

Built as an addition to an existing school, this carefully studied arrangement of classrooms and kindergarten has been recognized as a classic in its field.

Each classroom gets light and air from two sides, through high windows over the covered passage and through a great wall of glass at the west, where sliding doors open to an outdoor class area. Walls and roof project to exclude rain, over-abundant sunlight and the noise of neighboring classrooms, and external canvas sunblinds can give additional protection. The kindergarten, however, deliberately faces the south and the sun.

The light wood frame was specially designed for earthquake safety, and the deep wood-truss roof is ventilated by lowered openings in its tapered overhangs.

The horizontality of the east side of the building, emphasized by the lightly supported canopy of the passage, contrasts with the west side, where classrooms are expressed as a repetition of wholly distinct units.

Richard Neutra's Corona Avenue School, 1935. This plan allowed for every classroom to have ample sunlight and outdoor access to take advantage of California's favorable climate.

One glaring and omnipresent issue with schools in America, is funding sources. A disproportionately large portion of the school budget comes from local sources, typically income from property taxes. This has led to a vicious cycle where wealthier communities with much better funded schools and resources contribute to their own rising property values and subsequently their own rising budgets. This has the unintended effect of lowering the desirability and property values of neighbouring communities as upwardly mobile residents move out.

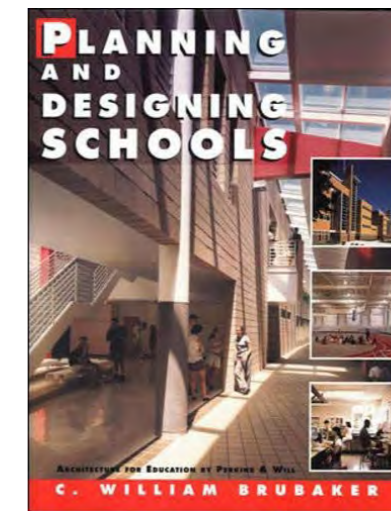
As schools have grown larger and systemic failures have become more apparent, there is a growing school of thought arguing for smaller schools. The supporters of small schools often reject the rigidity and formality of the larger "one-size-fits-most" approach that larger schools are often forced to take. They argue that schools with more flexible and individualized curricula provide a better educational outcome.

Supporters of larger schools, often much more economically minded, argue that the larger schools with greater resources and economies of scale, provide an ideal learning environment.

This has led to many new types of schools in America. Typically, publicly funded schools are larger and less specialized and smaller or experimental schools are created from public funds, private funds or a mixture of both to attempt to fill the needs of students not met by larger institutions.

Current Approaches to School Design

Current research does not point to any strongly verifiable positive effect that facilities design has on improved educational abilities. But the current approaches to design do cover important design issues and needs. Architectural handbooks, statistical studies and research, observational studies and research on school design and educational programming provide helpful resources as to the current discourse. Many school design handbooks contain the "promotional discourse" of architecture where it is viewed more as an art rather than a science. However some handbooks do provide concrete planning and construction particularities of school design.



William Brubaker's "Planning and Designing Schools." First Ed. 1997.

One of the most thorough texts about school design is William Brubaker's Handbook of School Design. It covers modern school building design, layouts and typology. Open space floor plans and traditional layouts of schools are popular. Open space floor plans in schools have shared, open classrooms and enclosed specialty spaces such as computer labs and libraries.

While a definitively proven, positive relationship between school building design elements and its impact on student's ability to learn may never be proven, many experts agree that a good learning environment requires several elements. Most importantly good acoustics, good sources of artificial and natural lighting and room temperatures between 20-23 Celsius.

Many architects may have very limited knowledge of educational programming, making it harder to effectively communicate solutions to educator's needs. Oftentimes, architectural guides will address school design but not necessarily how the plans relate to the educational programming.

Currently, it seems that research on facility quality ignores large school organization and communication needs. Large school designs are difficult to fine tune and often require many trade offs in design. This illuminates one of the reasons for the need for non traditional school architecture and smaller schools. The current approaches point to a need for a unifying framework and communication between physical design and the non-physical elements such as teaching, programming, and curriculum.

Current Research in the Field

Teaching and learning at schools can be affected by non-architectural elements as much as design aspects. Current research shows some overarching similarities found to be applicable to most contemporary American public schools.

Organizationally, the Principal coordinates the school program and implements official policies while managing and supporting a staff of educators and support staff. Lower performing schools will often have a disorganized curriculum, schedule and unreliable support staffing. It is the Principals duty to lead and incorporate institution wide changes to the teaching, scheduling, curriculum and educational missions.

Principals can only force so much implementation of new programs. If the educators, administration and policymakers don't work to support non traditional and innovative new programming and initiatives, they are likely to fail quickly. Due to this lack of support, many lower funded urban schools have unfortunately reverted to traditional classroom based learning in large schools with weak organizational structures.

A common and shared school culture can give a more diverse experience to all users and gives more educational purpose to many activities. Oftentimes, it is mainly on the teachers, usually not really the school or the district to implement new reforms. These reforms inevitably get watered down when realistically implemented. Having a strongly defined and shared school wide and even district wide culture will help teachers to better implement innovations in the spirit in which they were intended.

Architecture can influence facility design by implementing institutionalized values and beliefs and how they favor one educational model. A strong school culture will help to define and support school organization. A disjointed school culture could lead to conflict and possible decline.

Research has shown that it can be difficult to support on task activity in very open plan environments. While there are many benefits to development by using open plan design, there can also be a need for separated learning environments occasionally. This is often accomplished by flexible partitions or furniture to create spaces or using a secondary, easily separated space when needed.

Much of the research into school design comes from data obtained by qualitative environmental research methods. The physical and in person observation of peoples activities, behaviors and connections provides most data used today. Data revealing the failures and successes of performance, learning, curriculum and scheduling largely came from examples of student work and assignments.

Small Schools Movement

The small schools movement is a growing trend in education to reduce the sizes of schools. Small schools are defined as having less than 400 pupils. The Arlington School and Saint Rose Academy fall well within this movement. Small schools are growing in popularity thanks to research illustrating many benefits over larger schools. Some of the main benefits touted by current research involve safety. Safety, along with support and belonging, seem to be some of the key components driving student enthusiasm in small schools. Smaller schools have less fighting, feel safer, have higher attendance rates and are easier to keep secure.

After the Columbine school shooting and with every new example of gun violence in American schools, the need for safer and potentially smaller schools is growing more evident. Smaller schools are statistically safer than their medium to larger sized counterparts.

Advocates for larger schools often mention greater social choices and greater diversity as positive hallmarks of larger schools. However, large and consolidated schools may actually have served to increase the problems they were trying to solve through creating more chance for isolation. Smaller schools give more opportunities for a larger percentage of students to participate in more activities. The smaller environment brings together more students, fosters more formal and informal interaction between students and educators and reduces social and racial isolation.

Some other benefits of smaller schools include more involved advising, leaner administrative structures and smaller environments to manage. While no study has found that larger schools are as safe, safer or more successful than smaller schools, personal interaction with educators and students leads to the most successful outcomes for the pupils education regardless of school size. Smaller schools have been proven to be able to better provide the environment needed to foster these interactions.

Conclusion

The Campus Park project seeks to fulfill unmet needs of The Arlington School and the greater Birmingham community by creating a shared campus park. It seeks to create high quality indoor and outdoor space to create venues for diverse groups to meet in versatile and sustainable shared spaces. This project will contribute to creating a more inclusive community by blurring lines between public and private space and by reopening access to a long closed cliffside. Campus Park will reconnect the community to the sites important geological history. The project will take advantage of its visible, hillside location by taking a visually strong, contemporary sculptural approach to its form, massing and design. The building is intended to have a long life by being easily adaptable to new users as needed. It will be constructed of a hybrid timber frame construction supported by a lower level base crafted from reinforced concrete base

Site Analysis

Introduction

The site analysis of Campus Park is presented in three stages. The location, history and current conditions. The analysis moves in scale from large to small and broad overview to more detailed.

Site Analysis

Site Analysis

Introduction

United States of America

Alabama

Birmingham

Redmont neighbourhood

Description of location and existing conditions

History of Red Mountain and the Discovery Museum

Surrounding Neighbourhoods

Photos

Accessibility: Climate considerations, physical and environmental constraints and SWOT Analysis

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Private schools in Birmingham metropolitan area

Parks in Birmingham

Site visitors

Photos of The Arlington Schools current campus

History of The Arlington School and Saint Rose Academy

Precedents

United States of America

The United States of America is a relatively young and diverse country. In its less than three centuries of existence, it has gone from a rural country to highly developed urban country. Urban settlement by Europeans began on the eastern and southeastern coasts and gradually developed westward.

Today, many regional identities are shaped by their history, geography and climate.

Northeast

This region was the dominant region in Americas formative years. It developed a strong regional culture that is most apparent in regards to dialects, folk architecture and dense urban development. Greater numbers of immigrants, beginning in the 1830s, have changed and somewhat diluted the current New England identity. Its major population centers such as Boston, MA, New York, NY, Philadelphia, PA and Pittsburgh, PA greatly define their large metros areas' culture and regional identities.

South

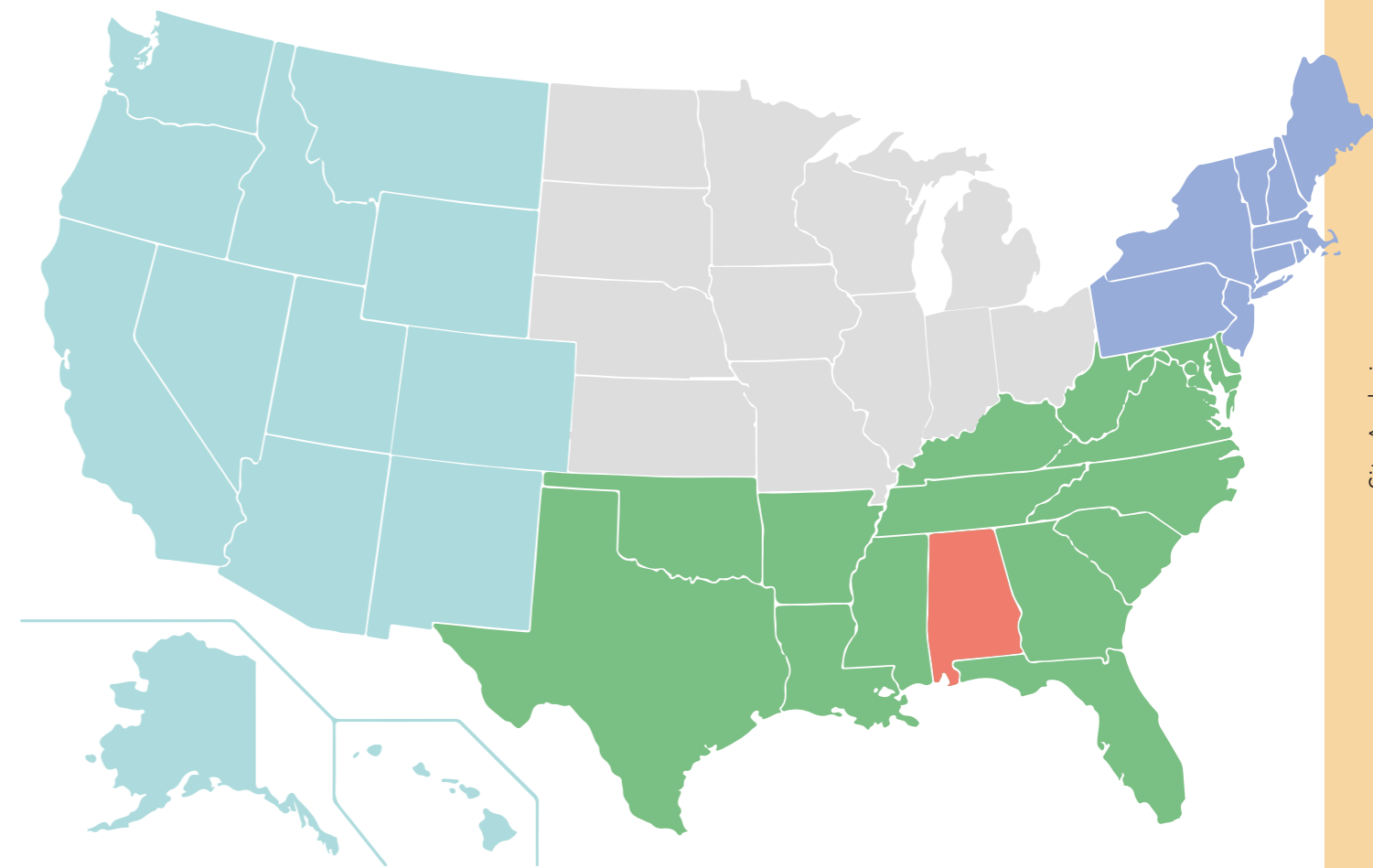
Due to its slowness to adapt to changes in the national mainstream, until the twentieth century, the south was the most culturally distinct region of America. It is traditionally the most conservative of all regions of America. It was also the largest cultural center of Anglo American culture. While it has large urban areas such as Nashville, TN, Atlanta, GA, and Miami, FL, most are not as dense as their Northeastern counterparts.

Midwest

This region is in known for its agricultural development, flat, open nature and a diverse range of population centers from small farming towns to big cities such as Chicago, IL, and Minneappolis, MN. It is often known as the heartland of America and is an integral part of the nation's culture and economy.

West

The western regions of America are harder to quantify as a single distinct regional identity or group. Unlike the eastern half, the main population centers in the west are much less connected and tend to operate more independently. Cities such as Los Angeles, San Francisco and Las Vegas are relatively far from each other. Much of modern western culture owes its origins to indigeneous, hispanic and Anglo cultural roots. The region is better know for suburban sprawl and rural areas, rather than its more densely populated cities.



Alabama

History

The land that Alabama is on today was originally densely inhabited by different indigenous peoples. The state saw its first European settlements from the Spanish, starting along the coast in 1519. Alabama wasn't incorporated as a state until 1819. However in 1861, Alabama seceded from the United States of America and joined the Confederate States of America, becoming part of the start of the American Civil War. Originally a primarily agricultural state, Alabama has been one of the more highly industrialised southern states since 1900. At one point, it was even one of the largest steel producers in the world.

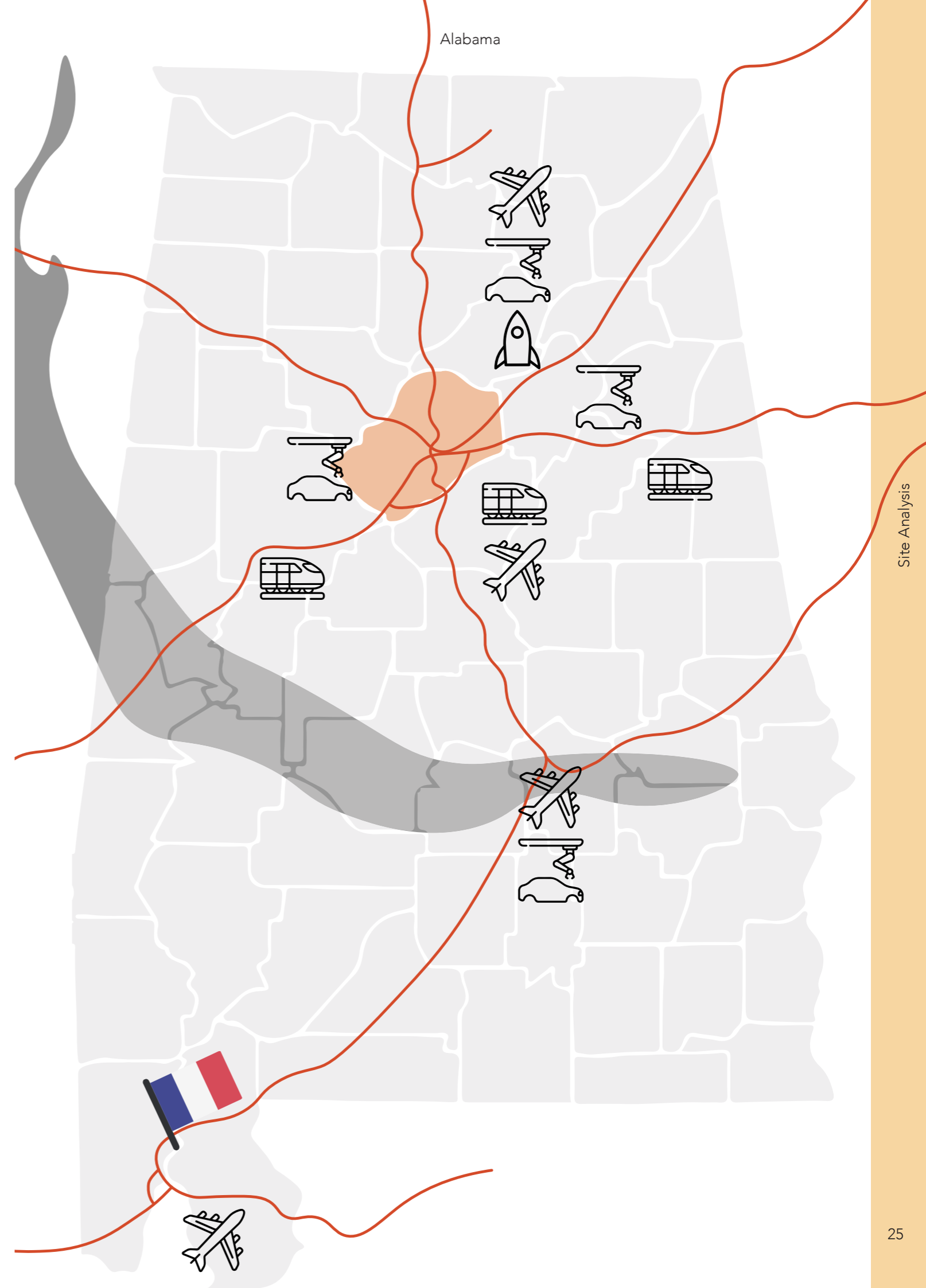
Population

The population of Alabama is mostly white. Many current residents are descendants of early 19th Century English Americans. Religious affiliations in Alabama are predominantly Christian and mostly protestant.

By the end of the 20th century, Alabamas population had been shifting from a predominantly rural character outside of its larger cities to a primarily urban and suburban nature.

Economy

The metropolitan areas surrounding Huntsville, Birmingham, Mobile and the state capitol of Montgomery have been gaining population rapidly. The urban and suburban increases have left poorer regions in decline. Many residents of the old agricultural area called the Black Belt have relocated to larger cities with more opportunity. The state sees extremes in terms of wealth. Many counties in the southern agricultural regions rank among the countrys poorest and least educated. On the other end, some suburbs of Birmingham are consistently ranked among the highest income in America and the city of Huntsville is one of the most educated per capita in the world. It should be noted that these are outliers. The median family income still remains far below the national average. While most urban areas are trending upwards in most respects, many poorer and more rural areas are in declines that have lasted decades.



Development

As the state has transitioned away from a dependency on cotton, it has tried to modernise and diversify its economy and opportunities. The state has low property taxes but high consumption taxes. Rural areas saw a boost in the 1990s with the arrival of the states first automobile manufacturing plants. Today, companies such as Mercedes-Benz, Toyota and Hyundai have some of their largest manufacturing facilities in the state. Another large economic contributor to the state is the George C. Marshall Space Flight Center in Huntsville.

As the home of major state banks, regional utilities, national insurance companies, international construction companies and Time Magazines southern headquarters, Birmingham has emerged as one of the major commercial and financial centres of the Southern United States.

In the southernmost part of the state, Mobile has developed into one of the United States top seaports.

Transportation

Alabamas major population centres are connected via Interstate Highways that connect the state to the national highway system. As with most of America, railroad traffic in Alabama has suffered a steep decline, however, bus, truck and airline traffic have increased.

Education

Alabamas public schools improved significantly in the later half of the twentieth century. Even with general improvements, schools continue to suffer local funding shortages due to the state low property taxes. Educators' salaries are rising but still are among the lowest in the United States and rural schools receive much less federal and state support than the larger urban and suburban schools.

Birmingham

History

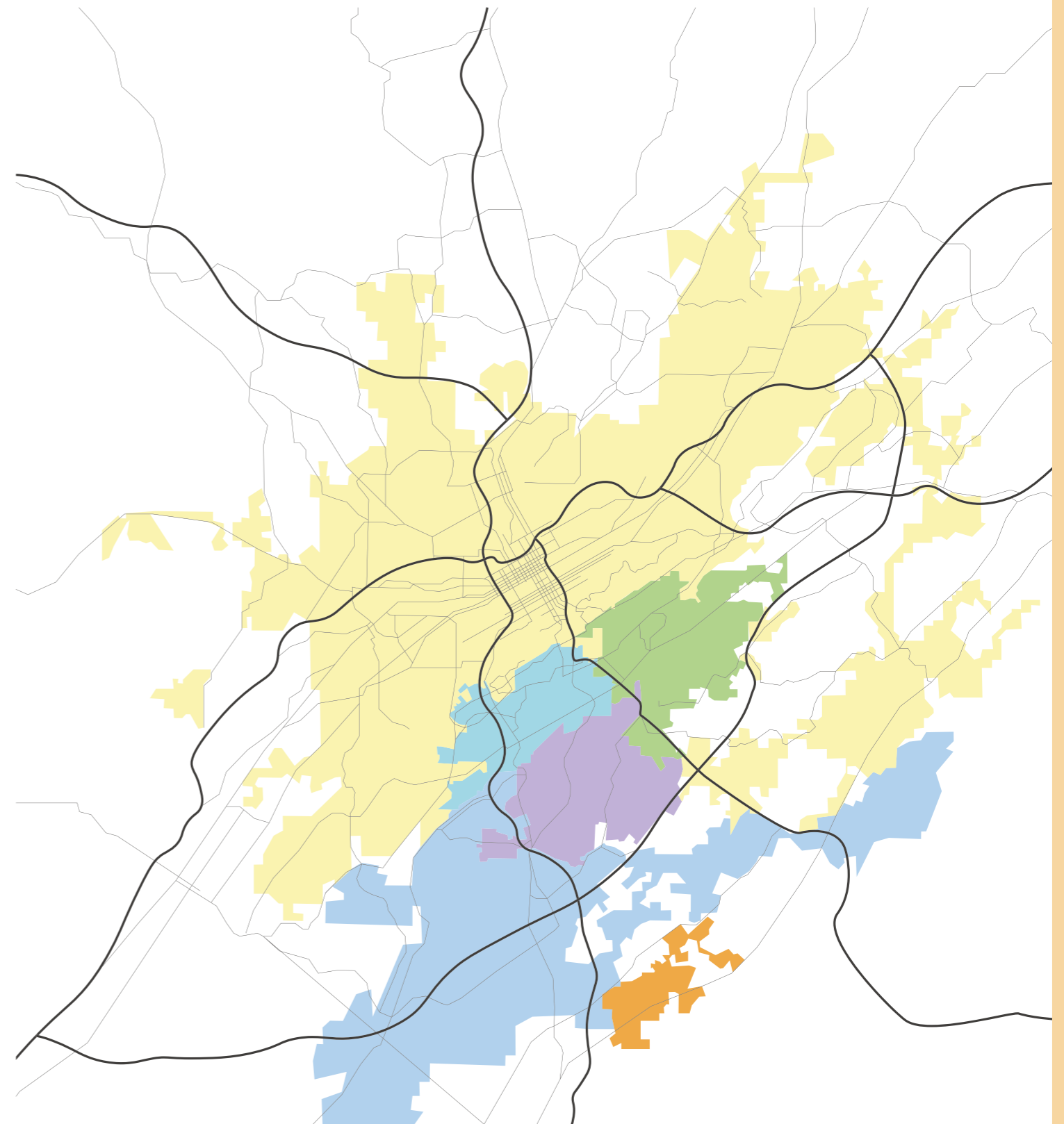
Birmingham, Alabama's rich and complicated history began at its founding in 1871. It was quickly nicknamed the Magic City due to its explosive growth as a transportation, industry and commerce hub. Much of the city's early 20th century prosperity came from its role as one of the world's major steel manufacturers. In the middle of the 20th century it became nationally infamous for its role in the Civil Rights Movement. Today, Birmingham is a thriving modern city with a large metropolitan area, a diverse population and strong interest in its history.

Population

Today Birmingham is part of the Birmingham-Hoover Metropolitan area which, with a population of 1,14 million people, ranks as the 50th largest metropolitan area in the United States as of 2021. Due to fragmented annexing, the Birmingham city boundaries are unevenly spread out over the metropolitan area and have a population of 197,575 people as of 2021. Making it the third largest city in Alabama after Huntsville and Montgomery. The city population is made up of a socioeconomically and racially diverse population significantly consisting of young educated professionals, university students and retirees.

Economy

After the steel industries left for other countries and the sinking national reputation during the civil rights era, Birmingham was in decline for much of the latter part of the twentieth century. Fortunately in recent years, Birmingham has diversified its economy with a blend of industries such as healthcare, finance, higher education, technology and manufacturing. Many companies have established large operations and even corporate headquarters in Birmingham. Some of the major contributors to the city economy and largest employers are Regions Financial Corporation, University of Alabama at Birmingham (UAB) Health System and Honda Manufacturing of Alabama. In a smaller but growing role, Birmingham is beginning to attract more tech startups and already has a flourishing small business economy.



Development

Recent decades have seen great leaps in the city's development. Many large revitalization efforts and new construction projects are happening in downtown and the nearby historic neighborhoods. Birmingham has recently made significant investments in new or refurbished public spaces and parks. The area is home to some of the state's major cultural attractions such as the Birmingham Zoo, Birmingham Museum of Art and the historic Theater District. The growing downtown population is spurring a diverse array of new developments ranging from subsidized housing units to luxury apartment developments.

Transportation

As with most of the United States of America, Birmingham is very automobile oriented. It is at the merger of several major highways and interstates that connect it to other major southern cities. The Birmingham-Shuttlesworth International Airport offers daily direct flights to further smaller regions and major cities around the nation. The Birmingham-Jefferson County Transit Authority has recently redeveloped and reimagined a new fleet of buses and new routes that better reflect the contemporary dynamics of the city. There is one daily train route, offered by Amtrak, that connects Birmingham to New Orleans to the south and New York to the north.

Education

Birmingham's education system overall is strong. There are several highly ranked public, private and magnet secondary schools. However, some of the lower income areas' public schools unfortunately are declining due to major funding cuts. The city also boasts several well-respected universities and colleges including the University of Alabama at Birmingham (UAB), a major research university with a student population of 21,000.

Redmont Park

History

Redmont Park is a historic, mainly residential neighbourhood on the northern slopes of Red Mountain in the southern area of Birmingham. It quickly became a fashionable residential area for Birmingham's upper class after it was established in the late 19th century. It featured many large homes in a range of architectural styles. They were predominantly built in the Mediterranean Revival, Tudor Revival and Colonial Revival styles. It was named after Red Mountain and the upper ridges were known for their extensive views of the city skyline. The neighbourhood was cleaved and lost many of its connections and a significant percentage of its historic neighbourhood fabric in the 1960s when the Red Mountain Expressway was cut. Today it is still mostly residential with few commercial areas.

Population

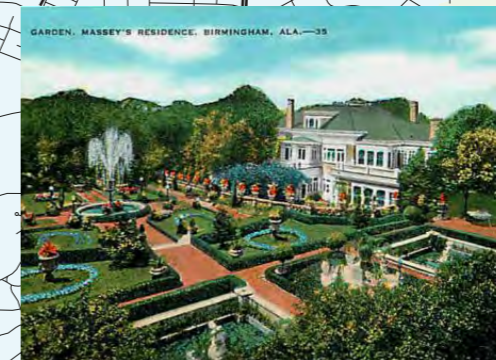
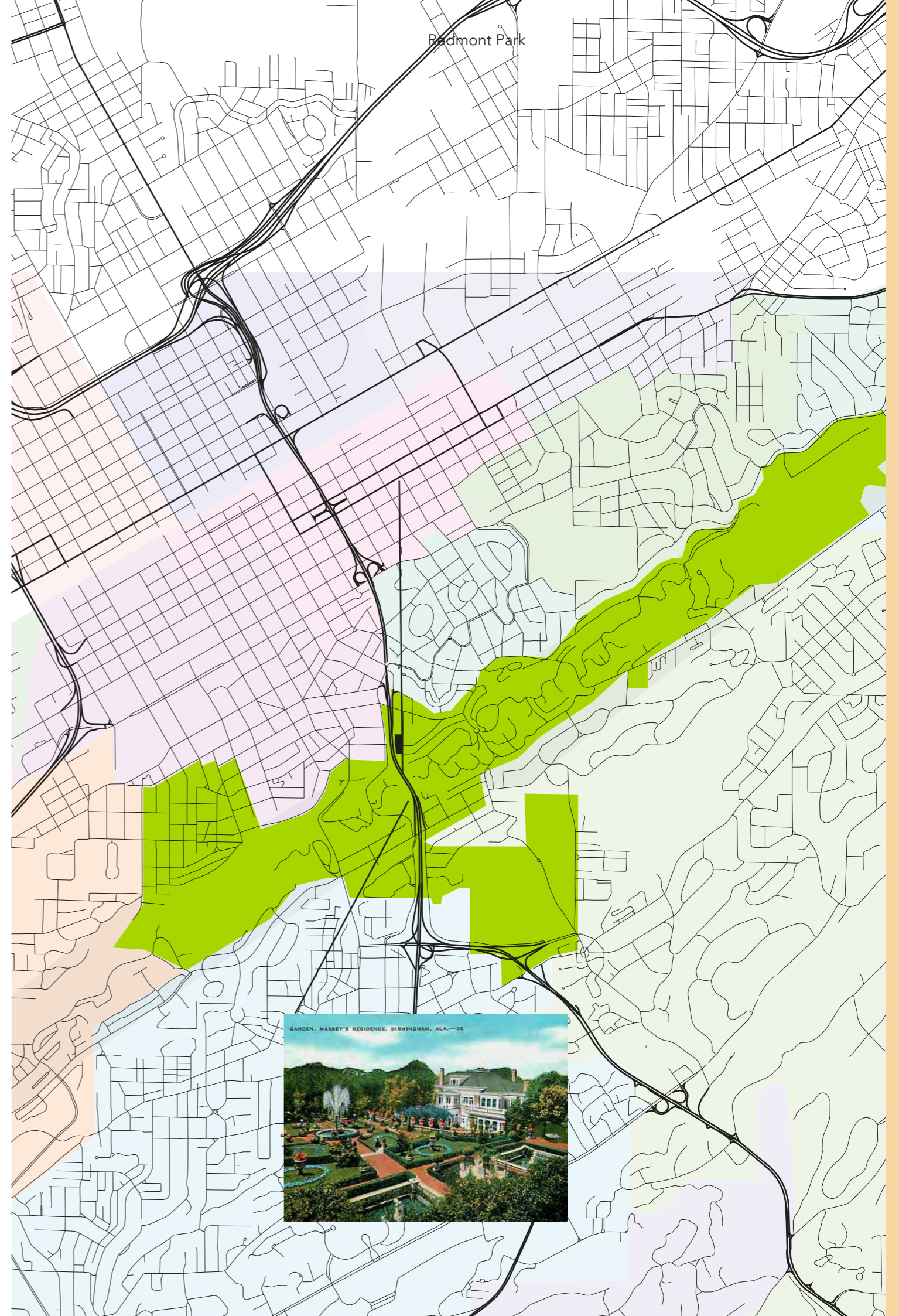
Redmont's population is estimated to be around 1,000 people and ranks among Birmingham's most affluent neighbourhoods with a median income well above average for the city. It is comprised mainly of young professionals and many older residents who have lived in or near Redmont for most of their lives.

Economy

There isn't significant commercial activity in the neighbourhood beyond small shops and services. Redmont is located a short walking distance from the busy commercial, entertainment, and shopping districts along Highland Avenue and in nearby Five Points South. Most homeowners work nearby in the financial sector, law or medicine.

Development

Even after the Red Mountain Expressway Cut took away a large chunk of the neighbourhood, what remains has largely kept its historic charm. Many of the homes are well preserved and have had historically respectful alterations when needed. The present day area that was most altered is the area directly next to the cut. After the significant geological findings were uncovered, the museum erected on the site altered the character of the neighbourhood during its existence and created the opportunity for the immediate area to change to a slightly more commercial development to the north and an educational and school zone to the south ending at the paths to the manmade cliff-sides.



Transportation

Even though many of its residents own and regularly use cars due to its proximity to major connecting roads, it is also a highly walkable urban area. Many residents do walk or use one of several bus routes for shorter trips nearby. Ride sharing services are popular to use as well.

Education

School age Redmont residents are zoned to attend Birmingham City Schools and have the opportunity to apply for magnet, charter, or specialised arts high schools in the city. In addition to public school, Redmont is also home to some of the best regarded private schools serving the region, such as the Altamont School and The Arlington School.

Description of Location and Existing Conditions

Site

The site that Campus Park will occupy encompasses an entrance to the long closed cliffside trails, a park with some mature plantings and some open spaces and the topography of the usable land has a gentle slope and is immediately above a much steeper slope terminating in the expressway below. Because of the terrain of the site and curved angle of the expressway near the site, the view is primarily of the city skyline and much of the busy road is obscured from view when at the higher elevations of the existing topography.

Current Development

Besides the designated access points and the trails owned by the city, the site is entirely owned by the Saint Rose of Lima Catholic Congregation which owns and operates the Saint Rose Academy surrounding the site. They have maintained the extant landscaping well. Since tearing down the old Red Mountain Science Museum building, they have done minimal modifications other than smoothing the terrain and removing all structural debris. It has left a large empty plot of grassy land on most of the northern end of the site. Most of the mature plantings and landscaping that should be kept on site if possible are clustered at the uppermost level where a small entrance park to the museum used to be and at the perimeter of the site. The current vegetation does a decent job of sound mitigation for the nearby roadway but could certainly use improvement to ensure the quality of the site.

Ecological Conditions

The site faces north to the city skyline. The Saint Rose Campus and mostly residential neighbourhood are across the quiet road to the east. The southern side with the old park area and trail entrance receives some shading throughout the day from the steep climb of Red Mountain immediately behind it. It is also shaded partially during the morning by 6 story, historic apartment buildings directly to the east. The western side features the steep edge where the comparatively gentle slope of the former landscaped area around the old museum meets the city owned steep cliffside. Due to most of the tree tops on the steeper terrain being lower than the edge, it can take full advantage of afternoon and evening sun.

Accessibility

Historically, the site has been graded in a way that will allow for easy accessibility for people with limited mobility, it is located near several bus routes and has ample room for some parking. In the past the site has featured relatively large paved areas for parking that could accommodate buses and large groups as needed but sat largely unused otherwise. This site is located near enough free street parking and public transit options that it should not require too much paved surface. For event overflow or large bus parking for other schools using the site, drivers could use Saint Roses designated parking lot across the street.

History

Redmont Birmingham sits on three iron ore seams. These seams were the source of its wealth and industrial power in the first half of the twentieth century. Red Mountain contains much of this iron ore, which lends the mountain ground a deep red colour and its name. The first commercial iron ore mines were established in 1863. Birmingham grew so rapidly from a small victorian town to a major industrial centre that it became known as "The Magic City." The great depression of 1929 erased some of the magic. However, Birmingham's economy was revitalised with the increased steel production needed for World War II. Unfortunately, American produced steel saw increasing international competition and by the 1970s, most iron ore came from Venezuela and Birmingham was reduced to one active iron ore mine.

Red Mountain divides the southern suburbs from downtown Birmingham. To significantly reduce travel times and complete a critical connection between interstates and highways, Birmingham city leaders decided to cut an expressway through the mountain instead of preserving the neighbourhoods on the crest by creating a tunnel. The excavation work began in 1963 and uncovered significant geological finds. Geologists discovered a previously unknown species of trilobite and a 4.2 meter long aquatic lizard. The Red Mountain Expressway exposed Alabama as one of the most geologically diverse places in America.



Red Mountain Museum before demolition

The Red Mountain Expressway was completed in 1970. The cut left large exposed sections of the mountain. The city allowed the exposed cut to remain uncovered due to the significance of the discoveries. The Red Mountain Museum was established in 1971 on the Eastern side of the Expressway closest to the exposed cuts. This museum included interpretive walking trails along the ridges left by the excavation. The Red Mountain Cut received National Landmark status in 1987. The museum grew in popularity and eventually merged with another natural science museum and moved to a much larger site in downtown Birmingham in 1994. The site and the old museum building were eventually razed in the early 2000s and the property is now owned by St. Rose Academy. Most of the site today is covered in grass and trees and is empty of buildings. The entrance to the interpretive trails has been closed since the museum left. The trails were vandalised and eventually fell into a ruinous state. Recently local community groups volunteered to deep clean the trails and prepare them to hopefully be reopened to the public soon.



The original interpretive trails blasted out by the 1970s cuts.



1973 Birmingham News article about the new concept for the museum



The Red Mountain cut shortly before the expressway opened

Surrounding Neighbourhoods

Campus Park is located in the Redmont Park neighbourhood. This area of Birmingham is long established and many parts still have their historic character. While Redmont Park does not have a main commercial center of its own, it is close to several others nearby. Each neighbourhood maintains its own unique identity, now forged over several generations.

Redmont Park

Five Points South

Highland Park

Southside

Forest Park

Avondale

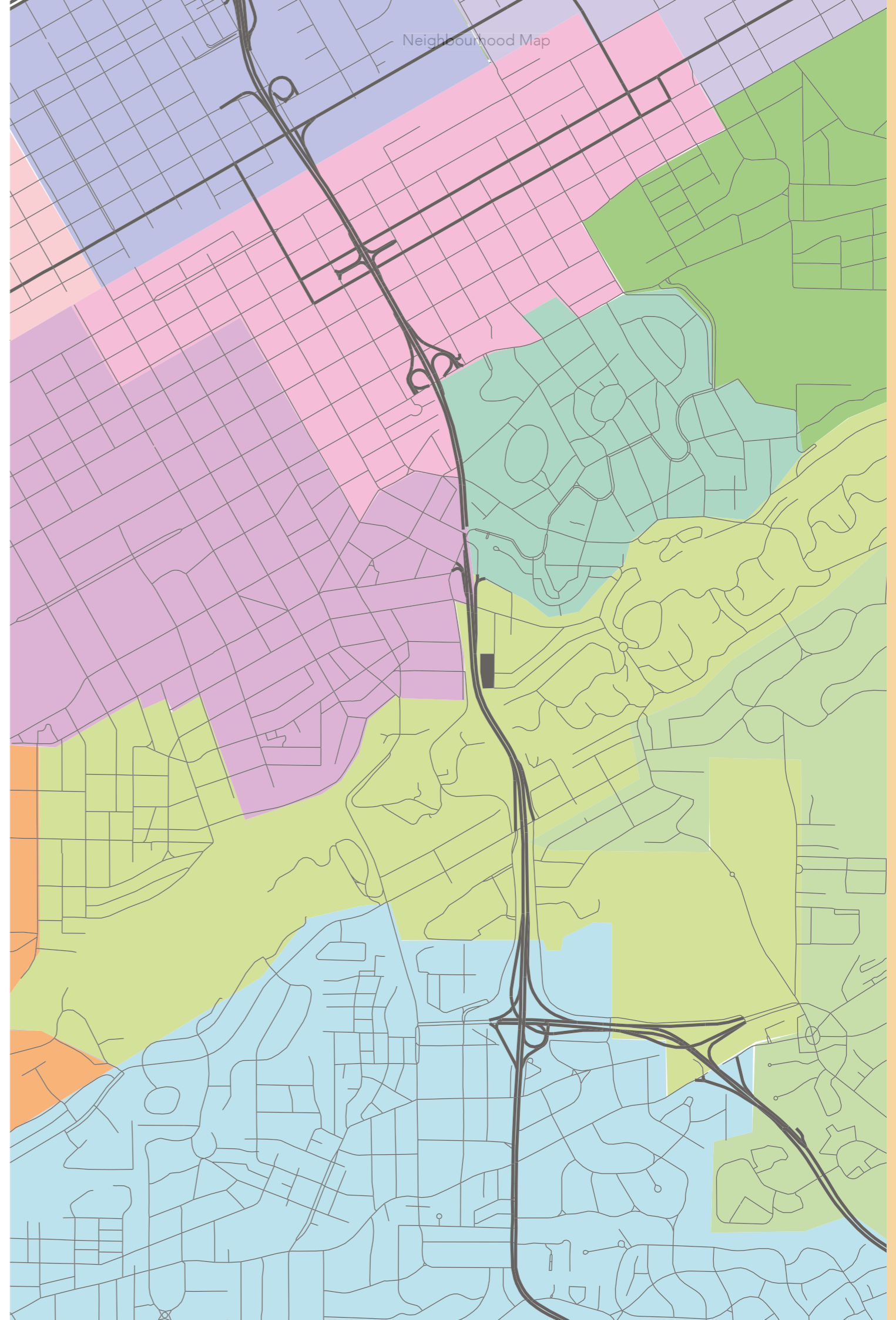
Central City

Fountain Heights

Homewood (separate city)

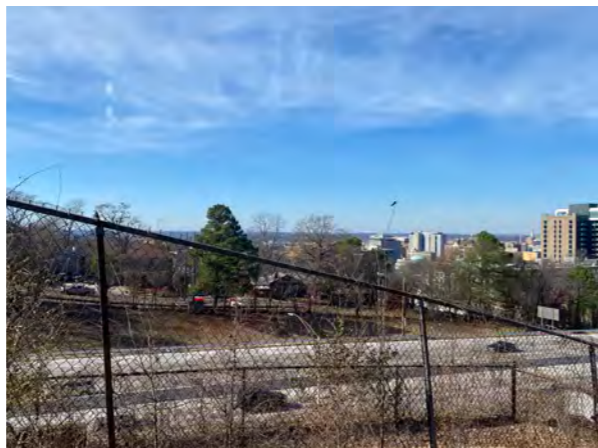
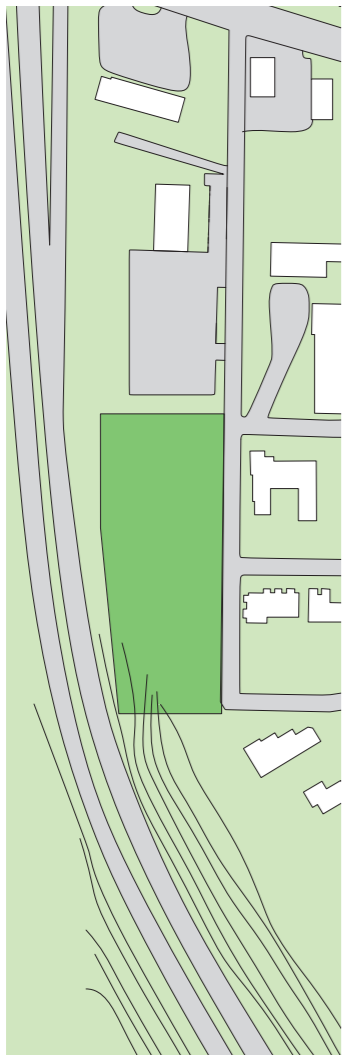
Glen Iris

Mountain Brook (separate city)



Site Analysis

Site Analysis



Climate, Physical, and Environmental Constraints

Climate

Birmingham is located in a humid subtropical climate zone. Summers are long, hot and humid and feature occasional rainfall. Winters are generally mild with several days below freezing. In addition to humidity and heat, buildings in Birmingham also have to take into account shading methods to deal with strong sunlight.

Physical Constraints

The site is long and has a relatively narrow buildable area. It is 131 meters long and 51 meters wide at its widest. A long strip of the site closest to the Red Mountain Expressway is a hillside, planted buffer between the site and the busy roadway. The site has a mild slope from its southern boundary on Red Mountain down to its northern edge towards the city skyline.

Environmental Constraints

This site, like much of the area, mostly features a dense clay soil. Its proximity to the mountainside and shallow soil layer atop bedrock could require additional remediation efforts to improve the quality of the ground for plantings and water drainage.

Strengths, Weaknesses, Opportunities and Threats

- convenient location near downtown Birmingham
- scenic views
- visible location
- well known historical site
- located in a well established historic neighbourhood

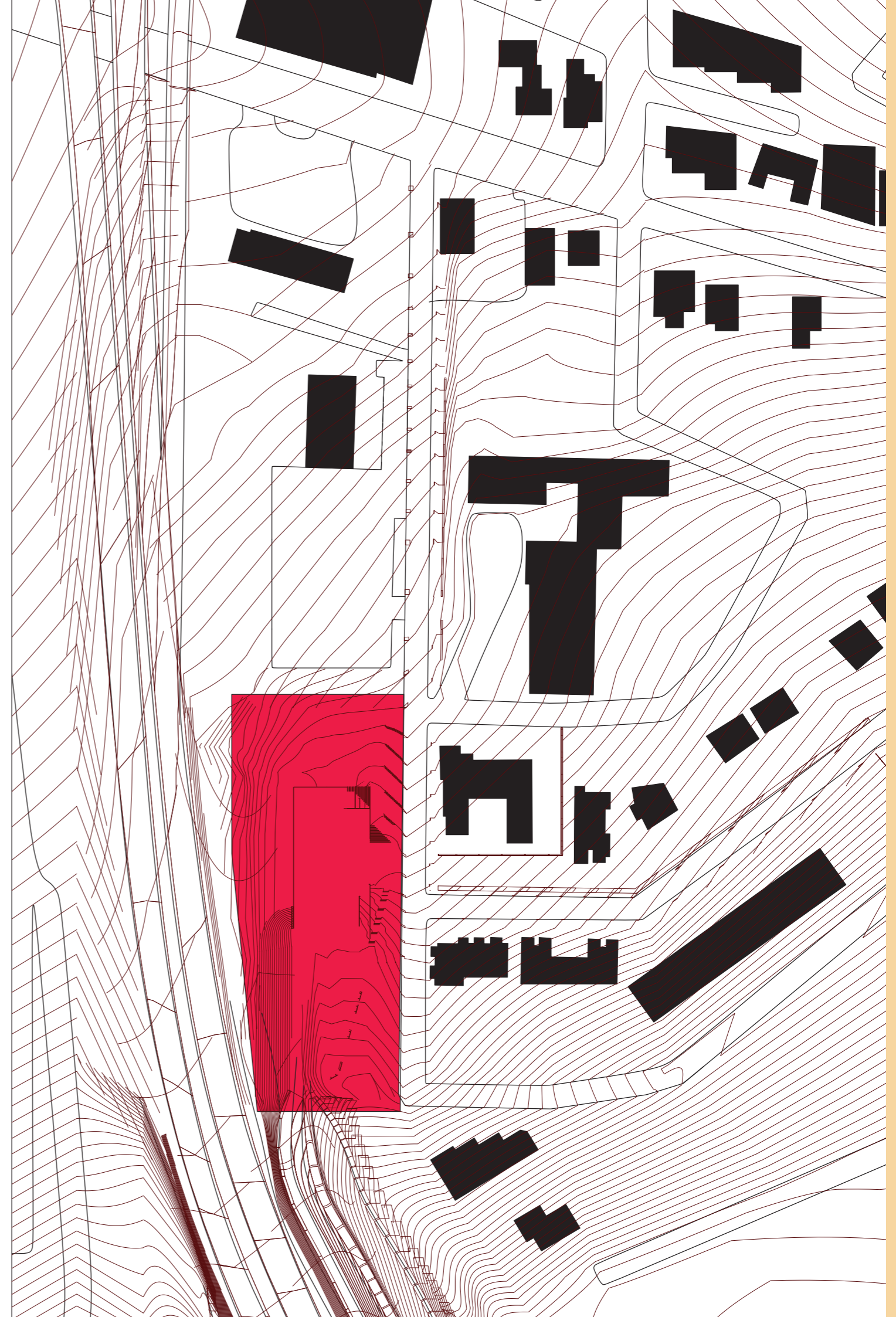
- heavy noise and traffic from nearby interstate
- limited public transit options
- rising costs in the area

S W
O T

- proximity to other nearby parks and cultural institutions allows for larger shared programming
- growing interest in sustainable architecture could provide another attraction for some visitors
- reopening the cliffside trails will create a new tourist attraction

- increasing development in the area could encourage a change to the city's building code

1:1500



Private Schools in Birmingham

Saint Rose Academy

Saint Rose Academy was established in 1956 by the Dominican Sisters of Nashville. It is a coeducational school serving grades pre-kindergarten through 8th grade. Saint Rose Academy is the owner of the building that The Arlington School is currently in.

Altamont School

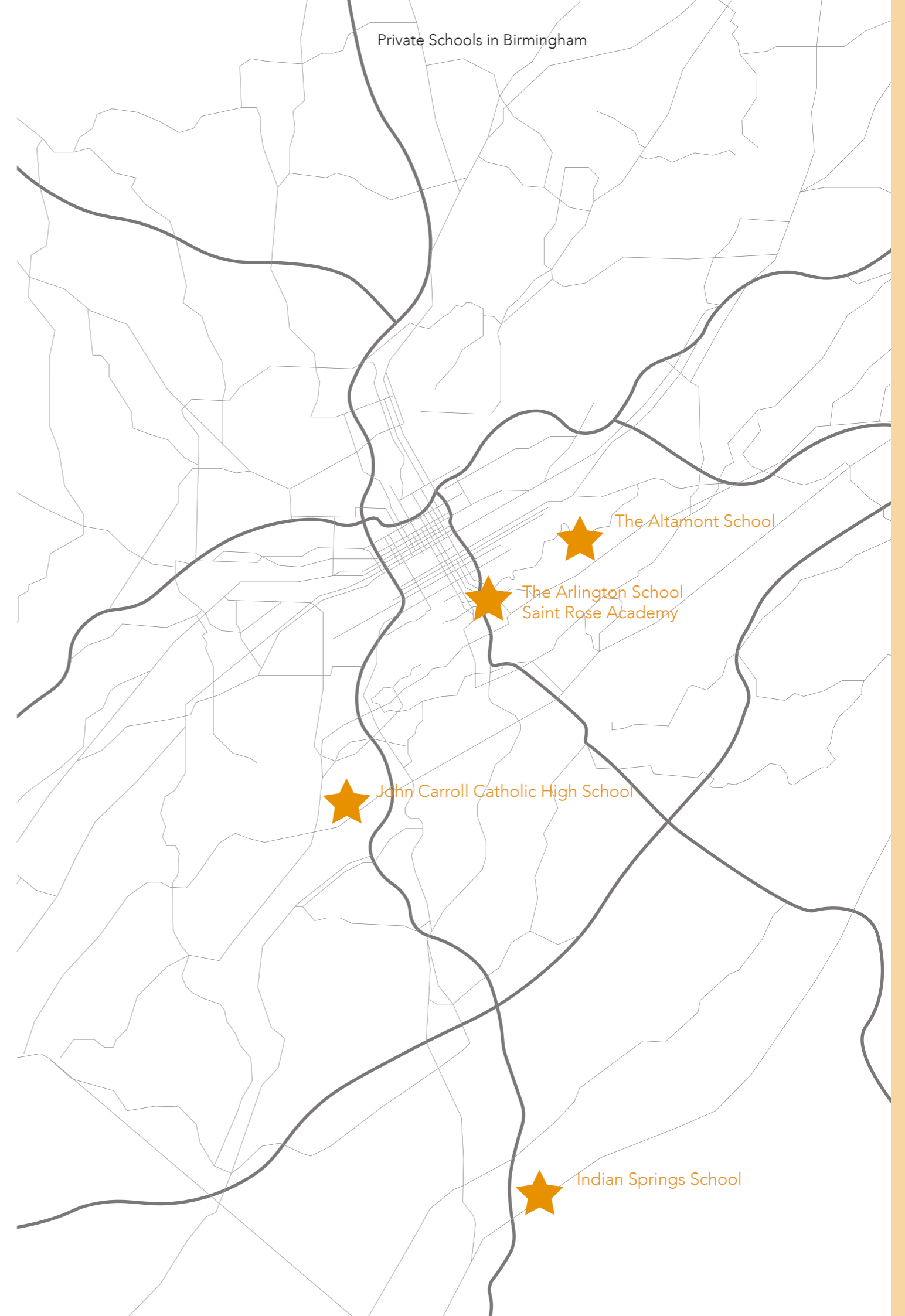
The Altamont School is a college preparatory day school with coeducational enrollment of grades 5–12. It was established in 1975 as a merger between the Brooke Hill School for girls and the Birmingham University School. The main campus is located on 11 hectares on the crest of Red Mountain just south of downtown Birmingham.

John Carroll Catholic School

John Carroll Catholic High School is one of six Catholic high schools serving the Roman Catholic Diocese of Birmingham in Alabama. It was dedicated by Archbishop Thomas J. Toolen on September 8, 1947. John Carroll Catholic moved to a new site in Homewood and began school there in 1992.

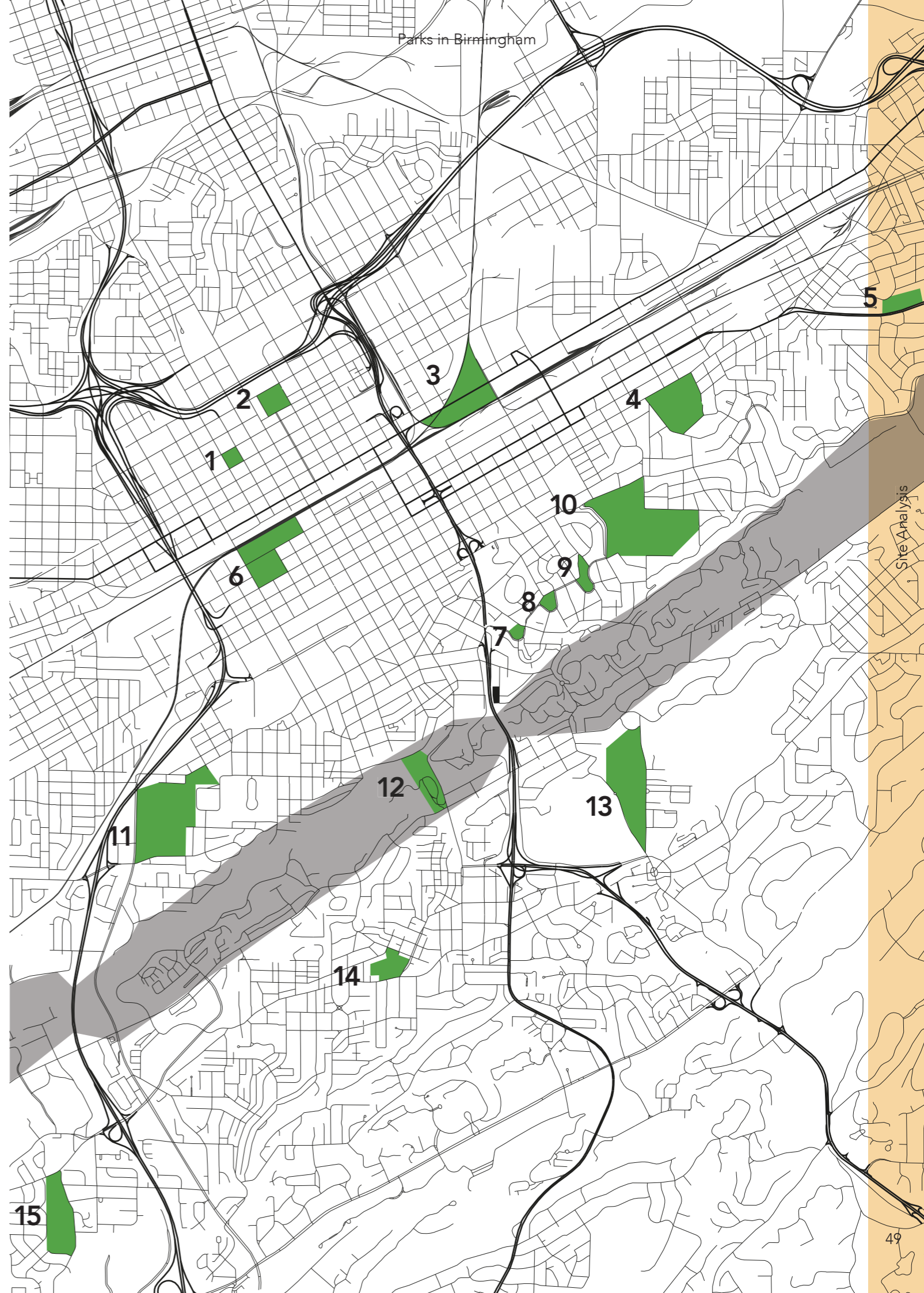
Indian Springs School

Indian Springs School is a rural private school for grades 8-12. Founded in 1952 and endowed by businessman Harvey G. Woodward, an alumnus of MIT. Woodward stipulated that the school could admit only Christian, white boys, at a time when racial segregation was still widespread in public facilities. Indian Springs School's campus is on 140 hectares in northern Shelby County, 24 km south of downtown Birmingham. Through the 1970s, the school was remote and surrounded by the woodlands of its campus, in addition to Oak Mountain State Park abutting its southern boundary. The area is much more developed now and is suburban instead of rural.



Parks in Birmingham

- | | |
|---|--|
| 1 Kelly Ingram Park
Distance: 4 km away
Size: 16 ha | 9 Rushton Park
Distance: 4 km away
Size: 16 ha |
| 2 Linn Park
Distance: 2,7 km away
Size: 7,6 ha | 10 Highland Golf Course
Distance: 2,7 km away
Size: 7,6 ha |
| 3 Sloss Furnace Park and Museum
Distance: 2,4 km away
Size: 2 ha | 11 George Ward Park
Distance: 2,4 km away
Size: 2 ha |
| 4 Avondale Park
Distance: 3,7 km away
Size: 1,6 ha
Features: | 12 Vulcan Park and Museum
Distance: 3,7 km away
Size: 1,6 ha |
| 5 Crestwood Park
Distance: 2,4 km away
Size: 27,3 ha | 13 Birmingham Botanical Gardens
Distance: 2,4 km away
Size: 27,3 ha |
| 6 Railroad Park and Regions Field
Distance: 1 km away
Size: 1 ha | 14 Homewood Central Park
Distance: 1 km away
Size: 1 ha |
| 7 Caldwell Park
Distance: 1,6 km away
Size: 1.3 ha | 15 Patriot Park
Distance: 1,6 km away
Size: 1.3 ha |
| 8 Rhodes Park
Distance: 1,6 km away
Size: 1.3 ha | |



Site Visitors

Campus Park seeks to provide a welcoming space for a wide range of visitors with different needs and interests. The visitors to Campus Park can be broadly broken down into four groups: students, educators, community members and park visitors.

Students

Students in grades 6-12 who attend The Arlington School will be the most frequent everyday users of the site. The project will also host many other students from other schools for a variety of different educational needs.

Educators

The primary educators at Campus Park will be teachers at The Arlington School. The flexible layout and variety of spaces and resources such as demonstration kitchens and a multimedia lab, will allow for many different opportunities for educators.

Community Members

These include the frequent users of the site from the surrounding area and those from further away who remain engaged with events. The accessible layout and wide range of public spaces indoors and outdoors allow for community members of all ages to use the project.

Park Visitors

These are the visitors who use the park less frequently. The infrequent visitors may be mainly interested in using the park spaces when the weather is pleasant or interested in seeing the interpretive trails along the cliffside. They interact with the non physical programming of Campus Park the least.

Photos of Arlington Schools Current Campus

The Arlington Schools current campus consists of one large class room, an administrative office, a kitchen, two single WCs and a student storage room. The exterior space consists of a large screened porch and a small garden. It is in the basement of the St Rose Academy Secondary school. Students individual desks are situated in the middle of the space. Classes are held at tables surrounding the desk area and there is a row of computers on one wall. There are several whiteboards and wall mounted monitors near the tables. The space has been made to work for the school since its founding in 1999, however it has its limitations. It is small and must be fairly drastically rearranged to accommodate non school functions such as community dinners, bake sales and school or community events. There are only two exterior windows and their light source is obscured by the covered porch.



History of The Arlington School and Saint Rose Academy

The Arlington School dates back to 1998, when a developer named Tom Lowder purchased the site containing the Discovery Museum and several lots immediately surrounding it. He developed the lots into a campus for the Saint Rose Academy and endowed spaced for The Arlington School to operate as an independent school.

In an agreement held since the founding, The Arlington School has had the option to use a relatively small part of one of the Saint Rose Academy buildings for as long as the school principal wants. The Arlington School is in the basement of the lower grades school building while the rest of the site is used exclusively by Saint Rose Academy.

In the beginning, The Arlington School started with ten students from the founder and principal, Debbie Petitto's, former school. Within a year the school had grown to eighteen students. With the exception of a few extracurricular classes, Ms. Petitto taught all of the classes herself.

Originally, the two schools were closer. Ms. Petitto even offered tutoring for many Saint Rose students. Unfortunately over time, the relationship weakened. The relationship became more strained when a Saint Rose Academy principal began requiring The Arlington School to pay its utilities.

At times, Saint Rose has not understood The Arlington Schools unique needs and has even tried to evict the school from its long held premises. Thanks to Debbie Petitto and Tom Lowders perseverance in fighting back, The Arlington School has been able to maintain its space. The relationship between the two schools today is civil. The two schools operate as two separate institutions without a lot of interaction between them.

Campus Layout

- 1 Outline of property developed by Tom Lowder
- 2 Saint Rose Academy Lower School
The Arlington School (current location)
- 3 Saint Rose Academy main building
- 4 Saint Rose Academy Convent
- 5 New Campus Park site



Precedents

The precedents I chose for this project met one or more of several criteria. They all feature harmonious connections with nature, integrated landscapes and most primarily use timber as a building material.

Pocket Park, Shanghai, China



Pocket Park in Shanghai is a reclaimed small pocket of wilderness in a busy urban area. The developers transformed the former vacant site into a natural site by mimicking wild plantings with varied heights, colors and textures.

M Central, Sydney, Australia



M Central is a large roof garden for residents of an apartment building in Sydney. It is composed of meandering paths in a rooftop meadow. The intersections of these paths form the seating areas.

Yountville Town Center, Yountville, California



The Yountville Town Center is a local community center in California. It weaves a large new structure into an older structure and landscape. The project utilizes locally sourced/grown and recycled materials where possible to minimize its impact and lengthen its useful lifespan.

Weeksville, Brooklyn, New York



The Weeksville project created a new center to display and interpret the history of the historically black Weeksville neighbourhoods remaining structure. The landscape connects the new structures to the historic ones through reusing historic and new paths. The structure features a laminated and insulated glass panel roof with a grid pattern echoing traditional African motifs.

Newbern Town Hall, Auburn, Alabama



Newbern Town Hall is a student designed, Rural Studios project in a small historic southern town. The structure is comprised of an 8'x8' grid from locally sourced old growth timber to allow for larger unsupported spans. It is connected to the local firehouse by a barbecue pit and porch with floor to ceiling mesh screens to allow for plantings to provide shade.

Indian Springs School, Indian Springs, Alabama



The original Olmsted Brothers designed landscape at Indian Springs School was redesigned in a way that the landscape and the building intertwined and defined each other. The four new timber buildings on the campus face the existing library and each help to define outdoor spaces. These outdoor spaces create grand yet usable multi-functional relationships between indoor and outdoor spaces.

Part II: Project

Introduction

Typology
Program
Envelope

Design

Site plan
Building structure and form
Ground floor plan
Lower level plan
Upper level plan
Sections
Elevations
Axonometric views
Materiality
Interior visualisations
Exterior visualisations

Resources

Typology

While Campus Park is intended to be owned and operated by The Arlington School, only a small portion of the building will actually be dedicated for exclusive daily use by the students. The rest of the site will contain spaces that are shared with the community. Students will be free to use any space for scheduled classes or as needed at designated times. Unfortunately, many of the local public schools have had to cut their arts and extracurricular programs. One significant way that Campus Park could contribute to Birmingham's educational community is by allowing local schools to use the spaces regularly for extracurricular classes that they are no longer able to offer. These would be taught by either Arlington school teachers or community volunteers to strengthen the connections and give back more.

Campus park will contain one relatively large mass timber frame building that incorporates all of the different interior programming of the site. It will be situated in a park with an entrance to cliffside trails. The types of spaces needed in the Campus Park structure are as follows:

Classrooms

These contain movable individual student workstations, tables and smartboards for instruction purposes and desks for teachers. They are arranged in an open configuration with furniture that is easy to move and adapt the space to different class sizes and needs. One classroom is reserved for daily use by The Arlington School and the others classrooms are shared as needed.

Library

In addition to books and journals, the library also contains spaces for reading areas, study areas and public computer stations.

Media and fabrication lab

This space is designed for producing or modifying multimedia and other physical objects. It contains workspaces and space for production tools such as laser cutters and 3d printers or other machinery.

Administrative and security offices

These spaces are designed for the management and safety of Campus Park. They contain four workstations and a reception window.

Multipurpose and exhibition room

These spaces are designed to be adaptable and flexible to be used for a variety of school and community related events such as exhibitions, gatherings, performances or assemblies.

Kitchens and dining room

The kitchens are designed to be used for classes and as a catering facility when needed. It will contain commercial grade cooking equipment, countertop workspaces and dining spaces.

Meeting rooms

These are designed to be used for small to medium sized meetings. The walls between the rooms are movable to allow for larger meetings. They contain presentation equipment such as projectors or smartboards.

Service rooms

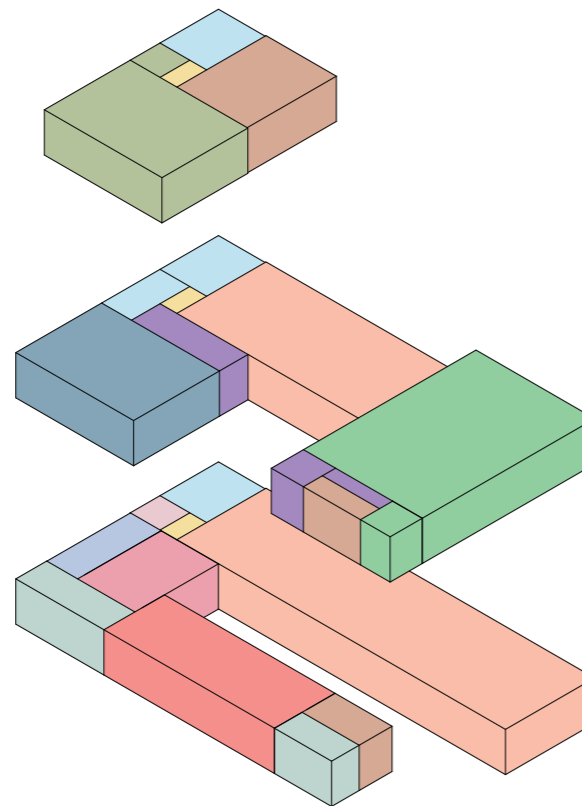
These spaces are designed for necessary functions such as toilets, mechanical and storage rooms.

Outdoor spaces

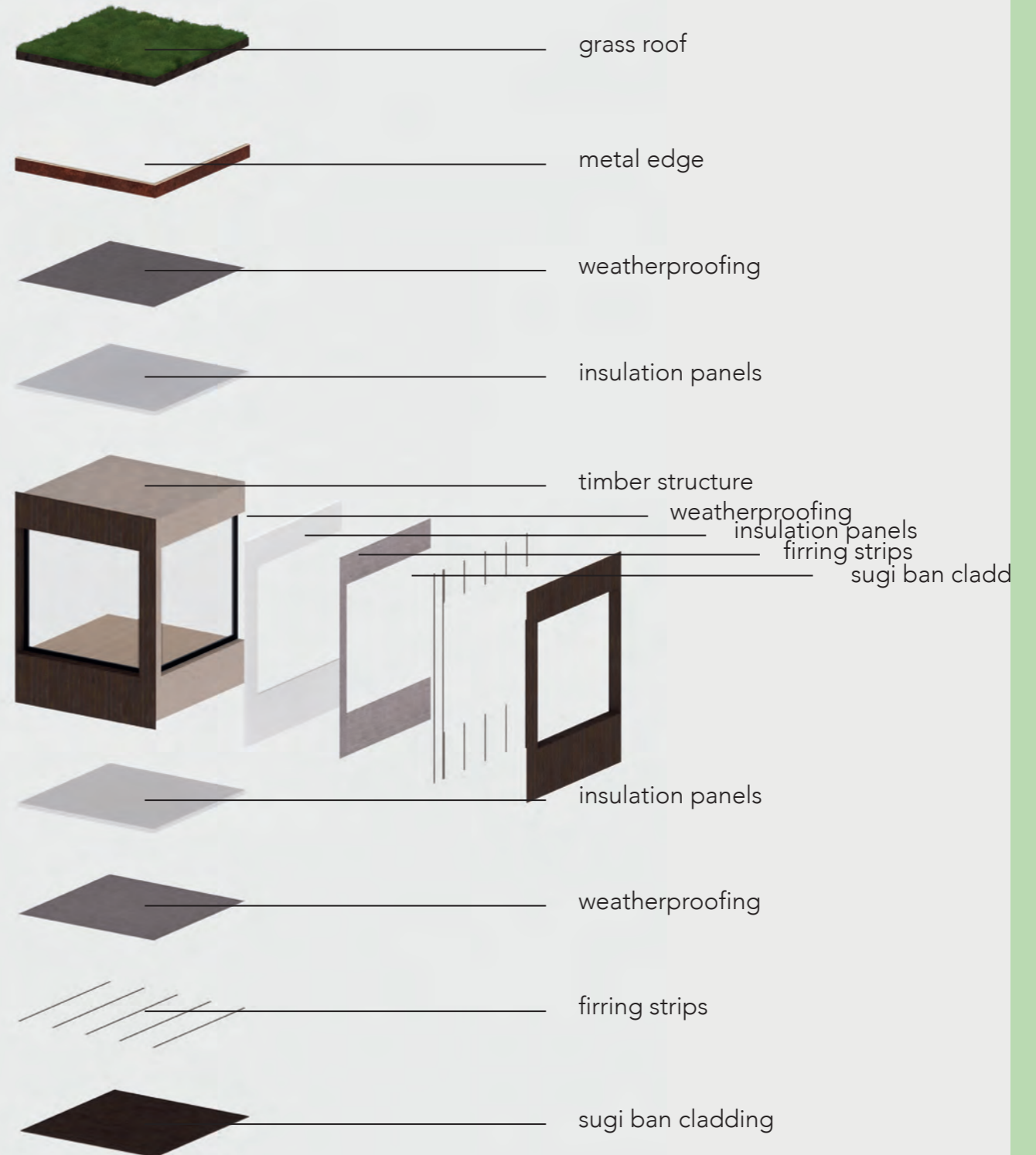
Most of the park will be uncovered by structures, except for a defined space underneath the cantilevers of the building. There will be a large grassy area to the north of the site and an area with more tree coverage to the southern edge.

Program

Meeting Space
The Arlington School
Toilets
Exhibition and Multi Purpose Space
Library
Mechanical
Lounge
Media Fabrication Lab
Storage
Elevator
Circulation
Kitchens
Administrative and Security

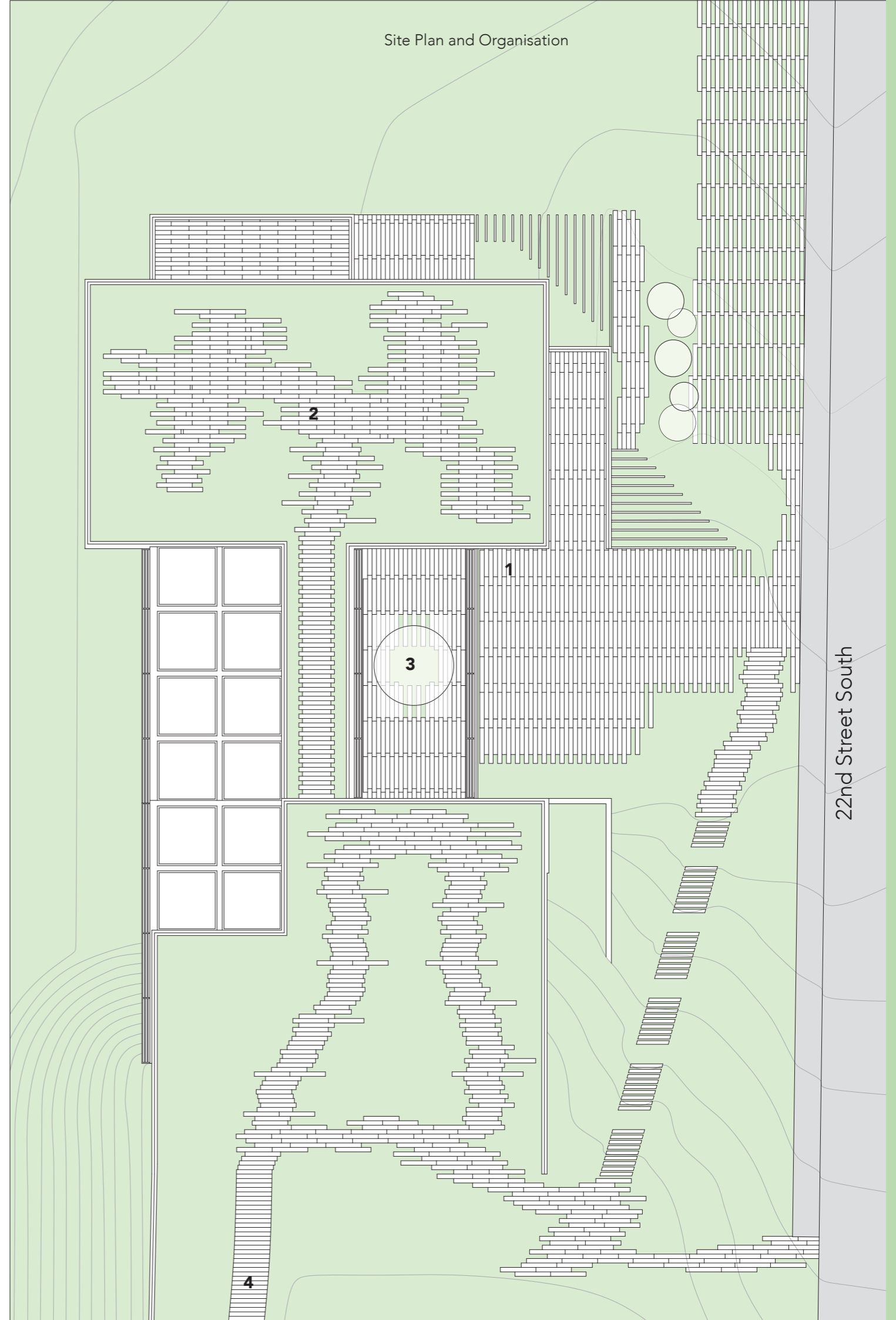


Envelope

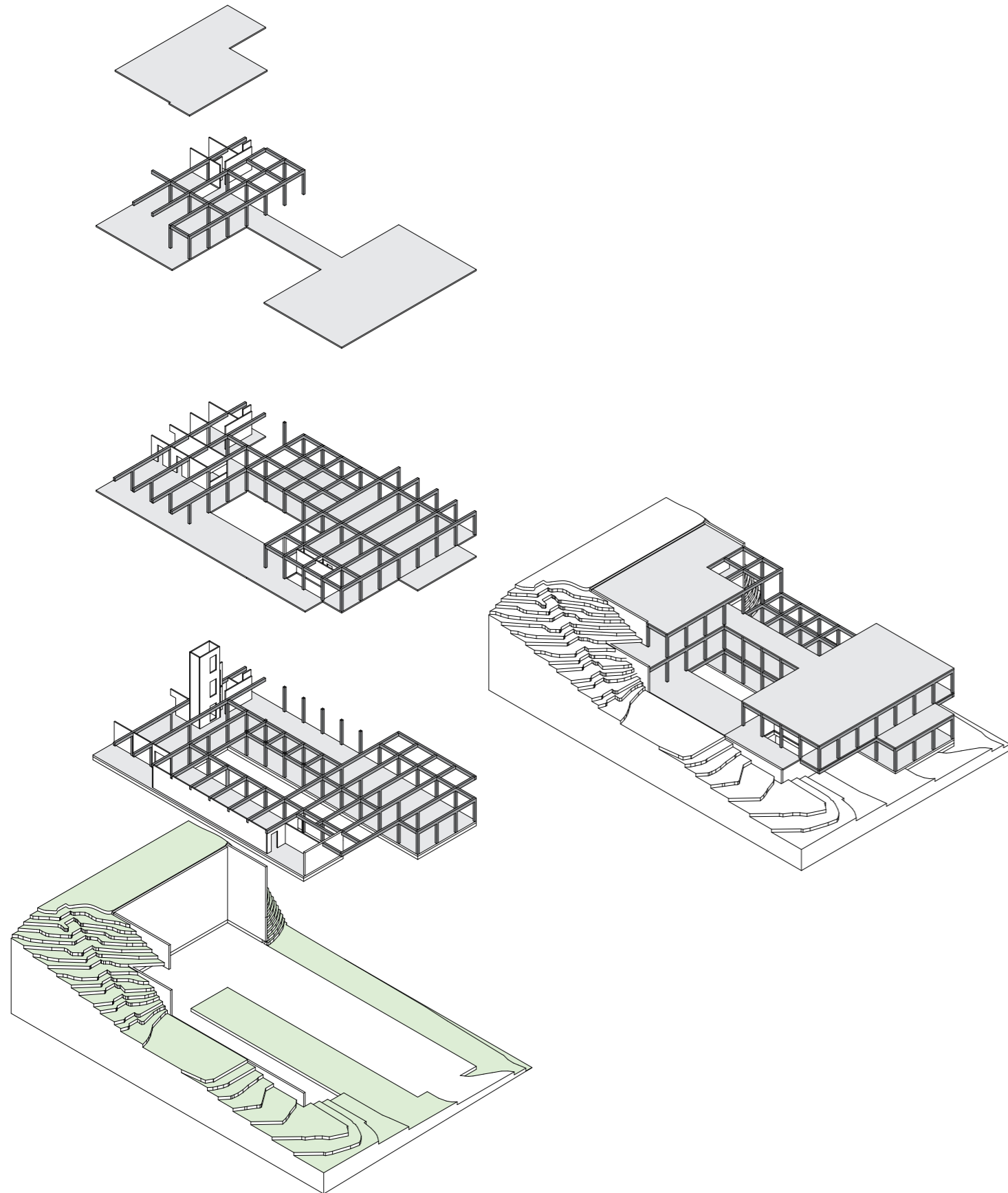


Site Plan

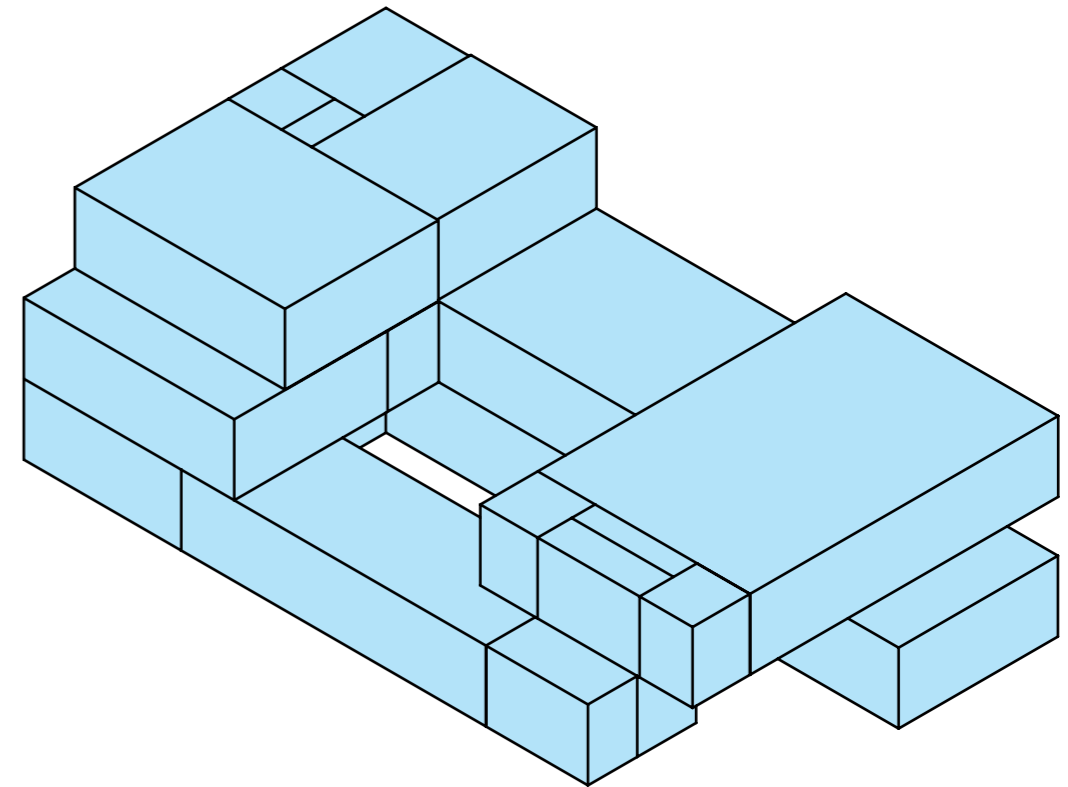
- 1** Entrance to building
- 2** Roof garden
- 3** Lower level courtyard
- 4** Path to cliffside trails



Structure



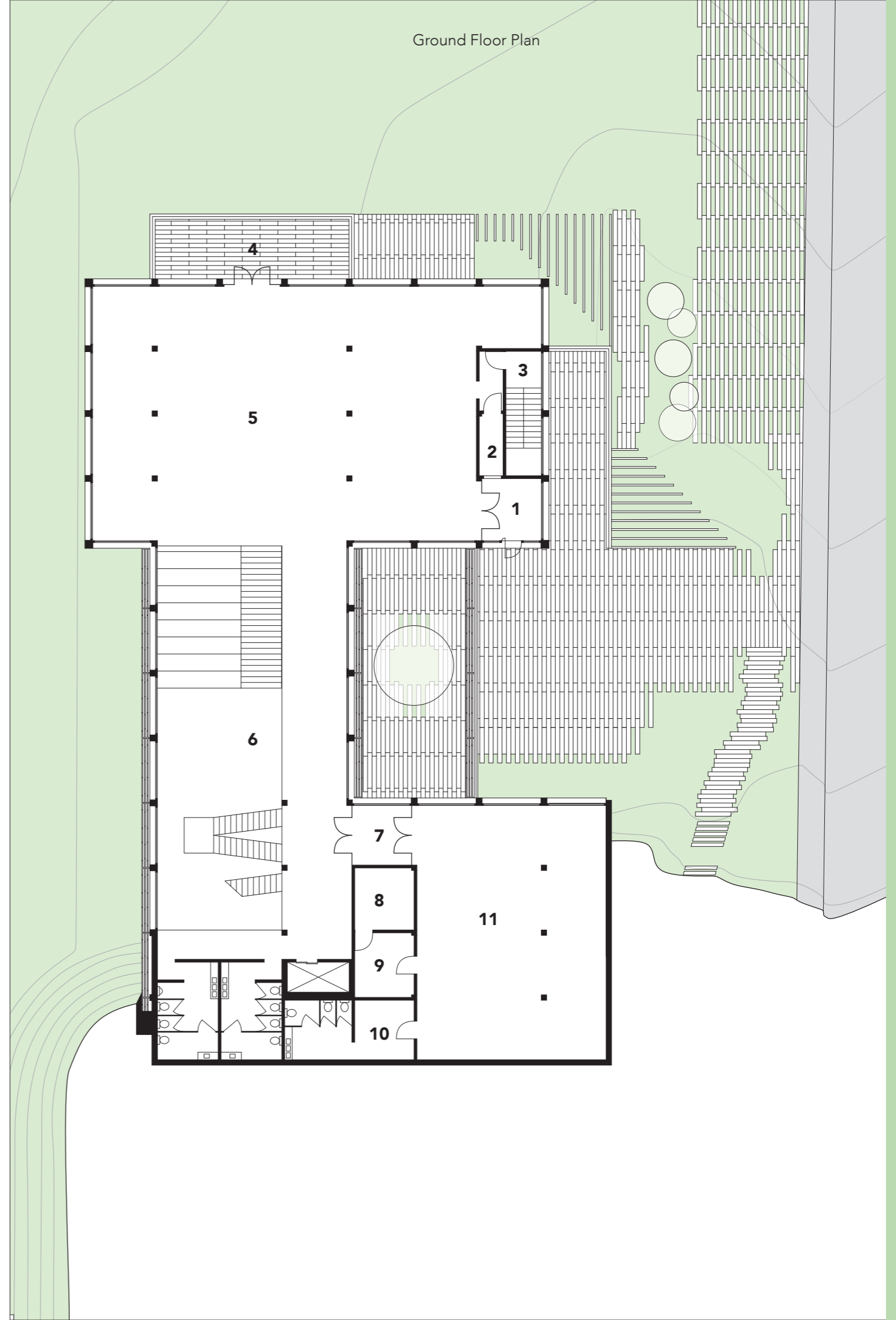
Form



Gound Floor Plan

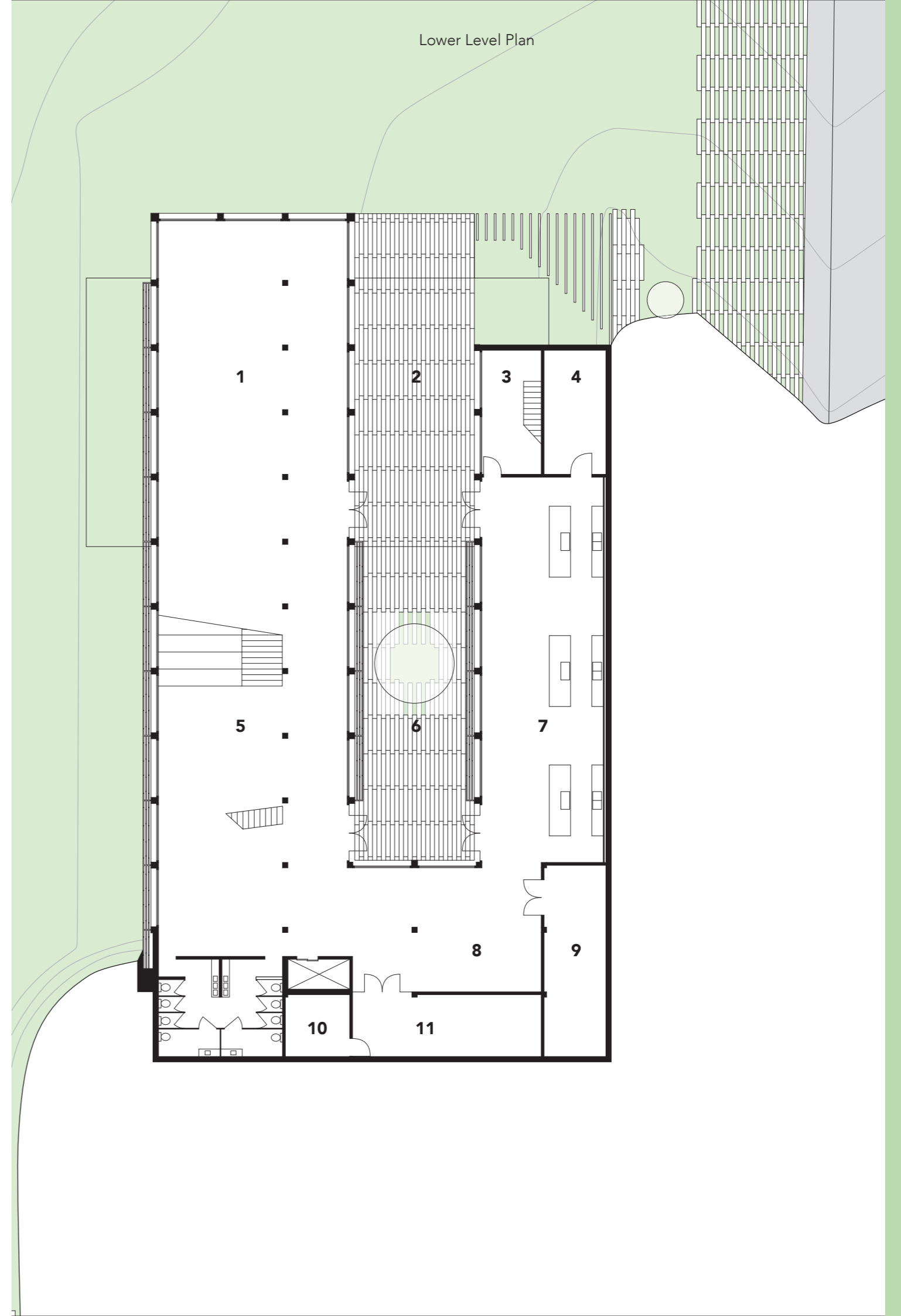
- 1 Entrance vestibule
- 2 Security office
- 3 Service stairs to kitchen below
- 4 Porch
- 5 Exhibition and multipurpose space
- 6 Library atrium, open to below
- 7 Entrance vestibule to The Arlington School
- 8 Security and front desk office
- 9 Administrative office
- 10 Student storage and toilets
- 11 Classroom

Ground Floor Plan



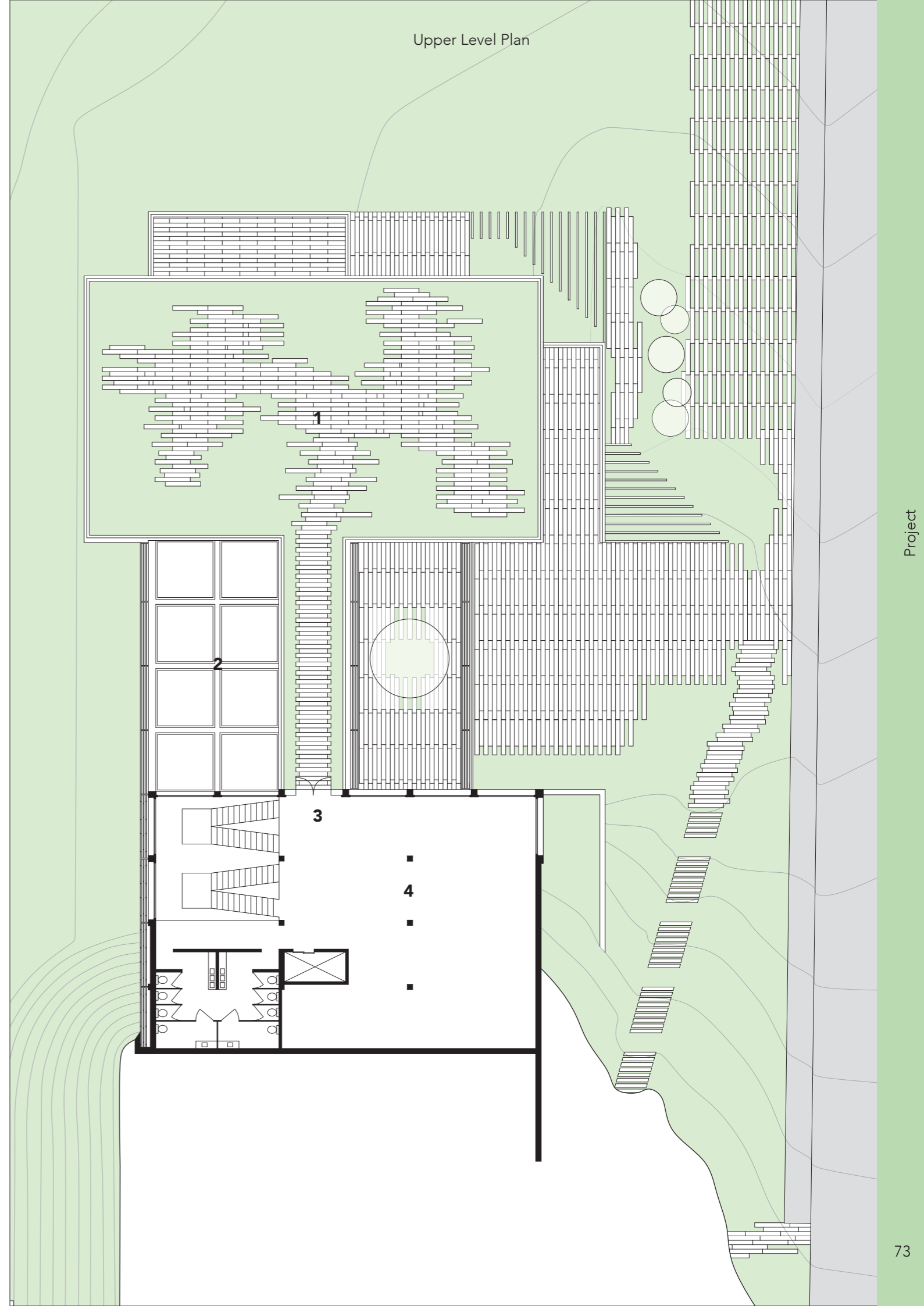
Lower Level Floor Plan

- 1 Library
- 2 Covered courtyard
- 3 Service stairs to exhibition and multipurpose space above
- 4 Storage
- 5 Double height library atrium
- 6 Open courtyard
- 7 Kitchens
- 8 Lounge
- 9 Storage
- 10 Mechanical room
- 11 Multi media fabrication lab



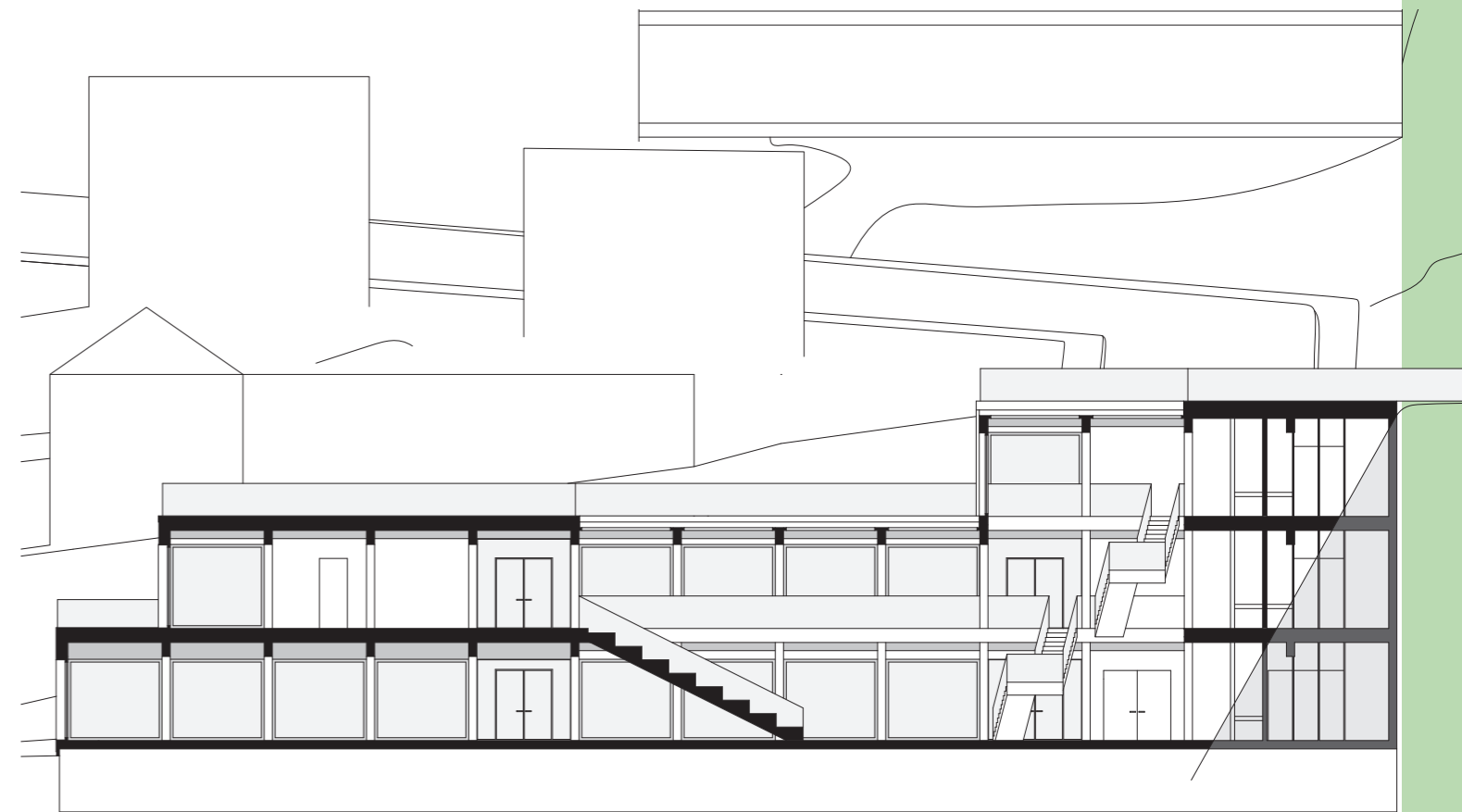
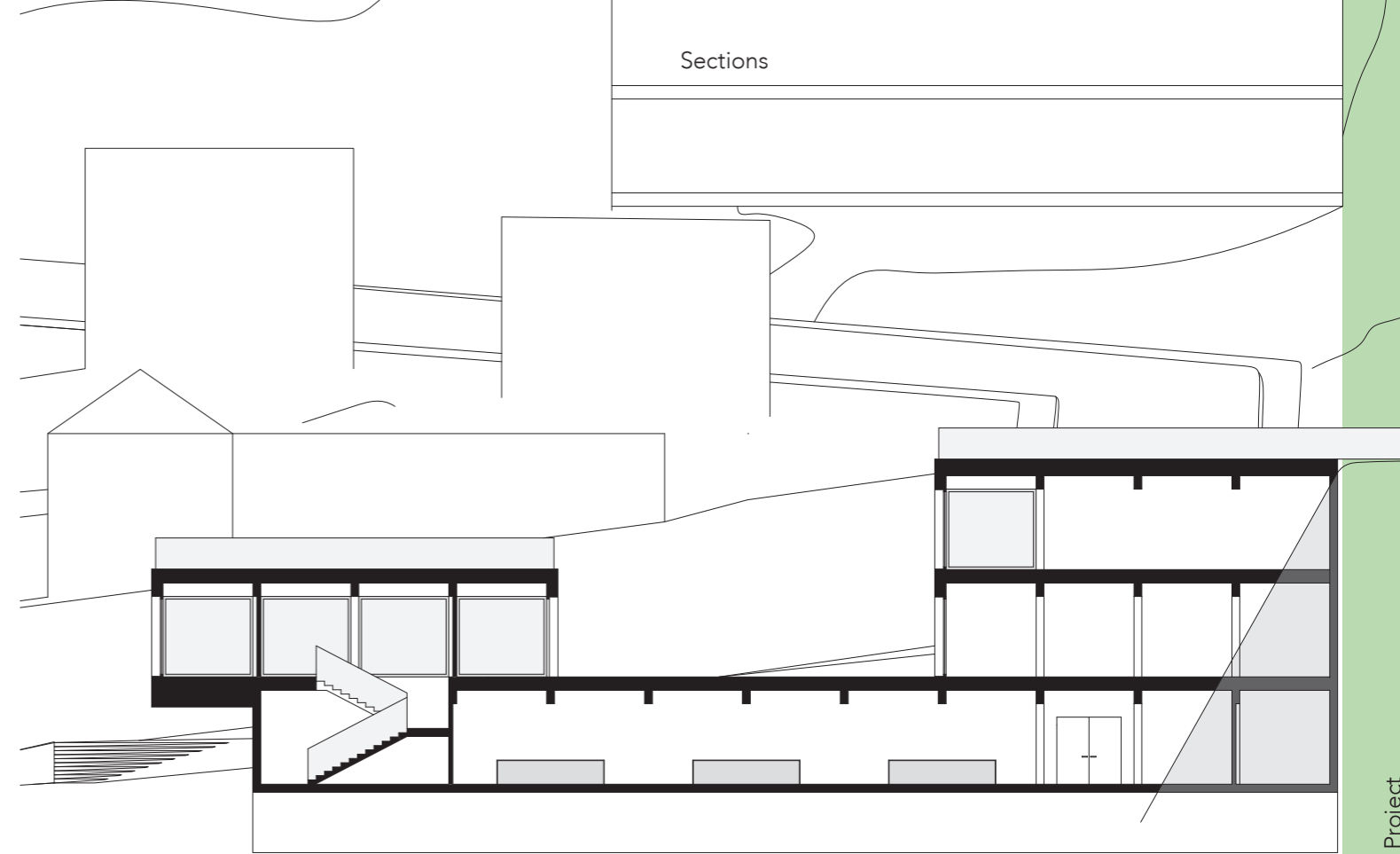
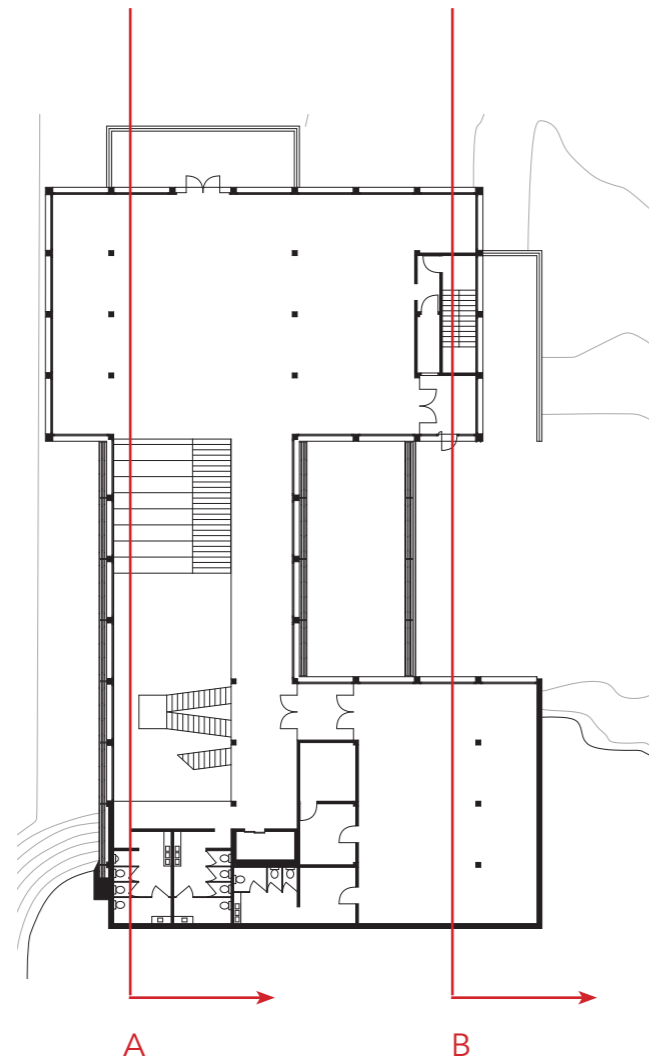
Upper Level Floor Plan

- 1 Roof garden
- 2 Skylights over library atrium
- 3 Entrance to roof garden
- 4 Meeting spaces



North South Sections

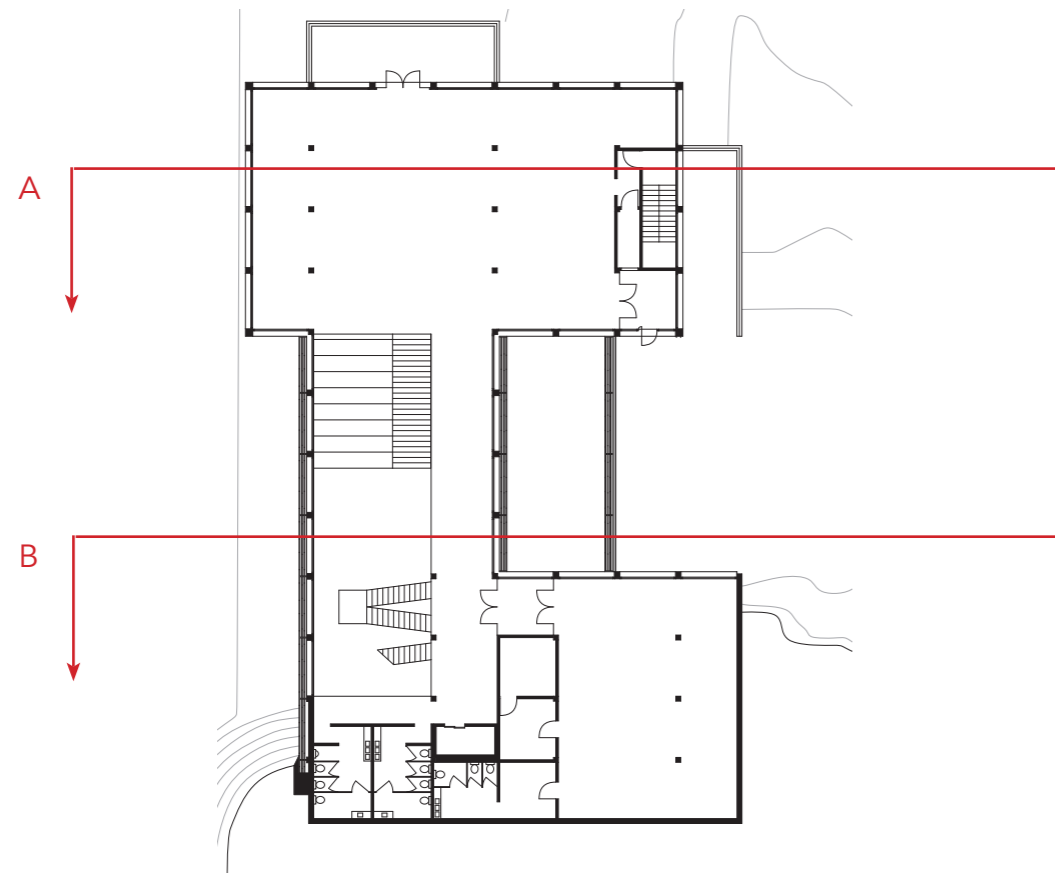
- 1 Roof garden
- 2 Skylights over library atrium
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- 4 Meeting spaces



Sections

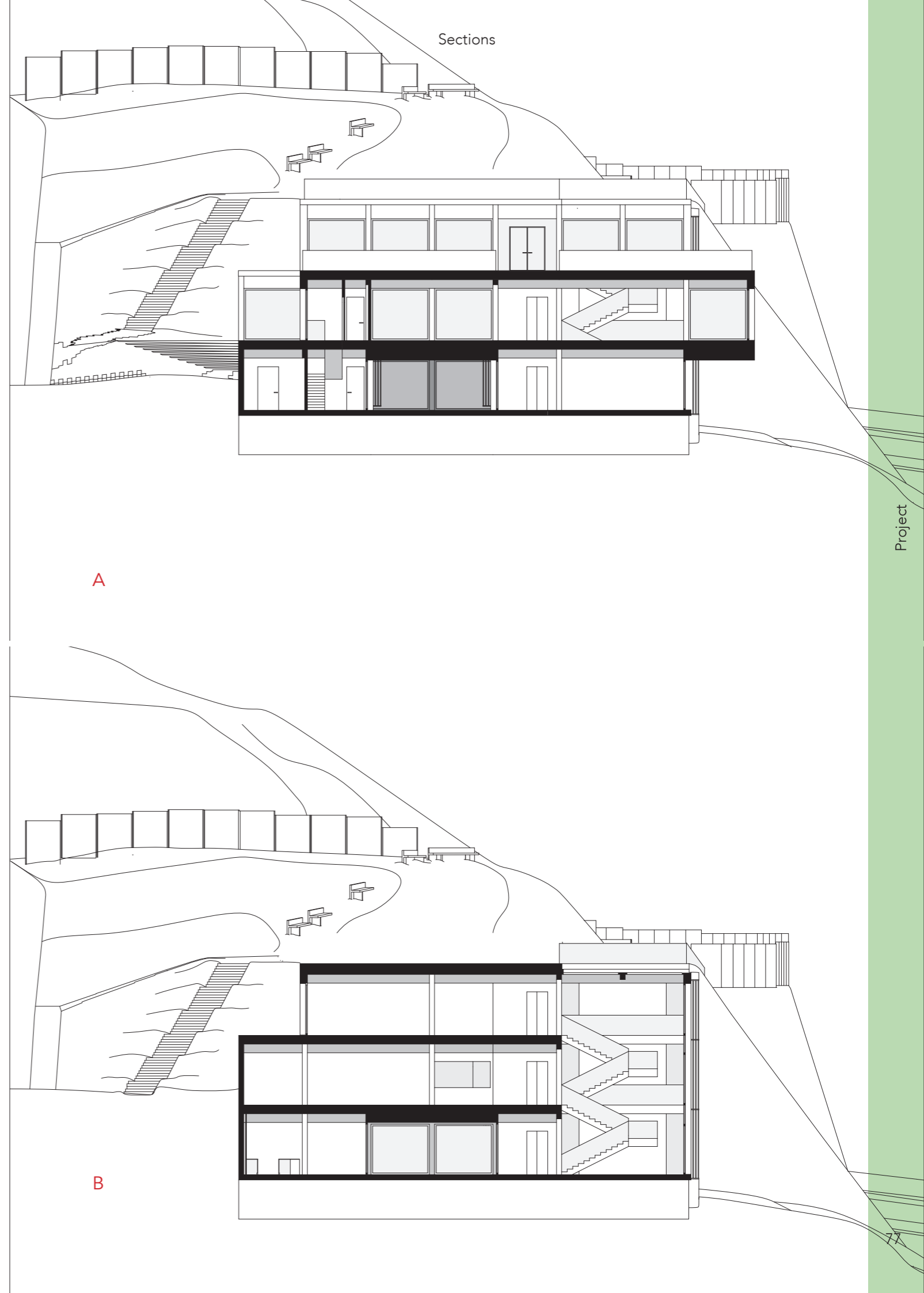
East West Sections

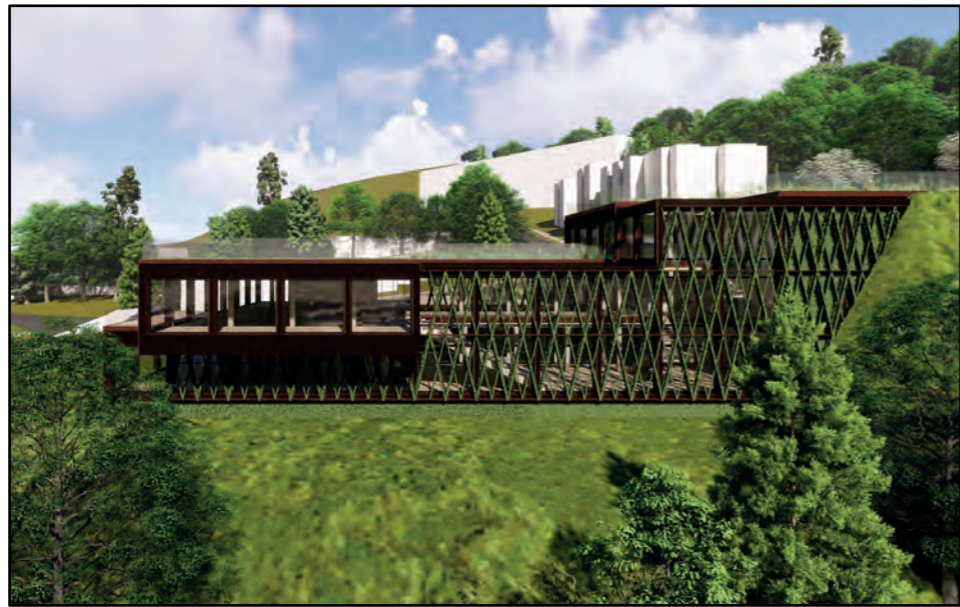
- 1 Roof garden
- 2 Skylights over library atrium
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- 4 Meeting spaces

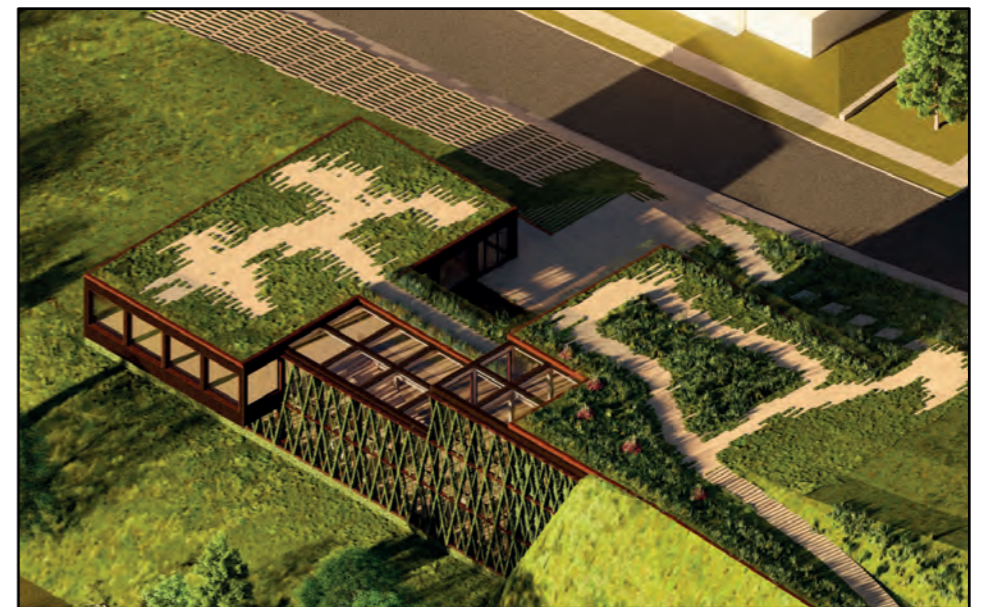


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Sections





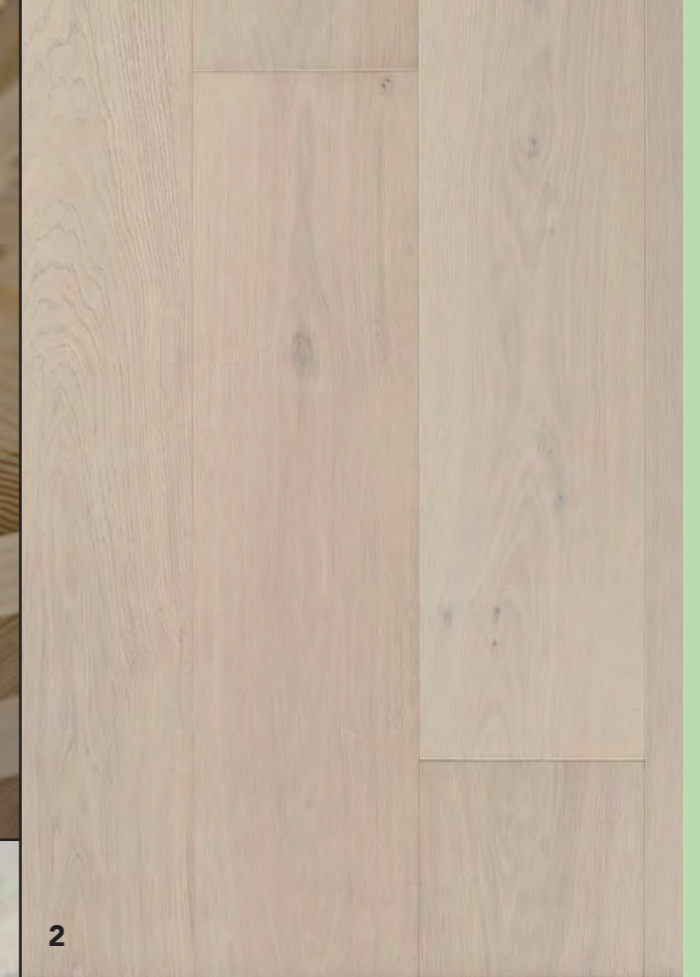


Materials used

- 1 CLT and GluLam
- 2 Wide plank wood flooring
- 3 Reinforced concrete
- 4 Alabama white marble
- 5 Corten steel
- 6 Board formed concrete
- 7 Sugi Ban



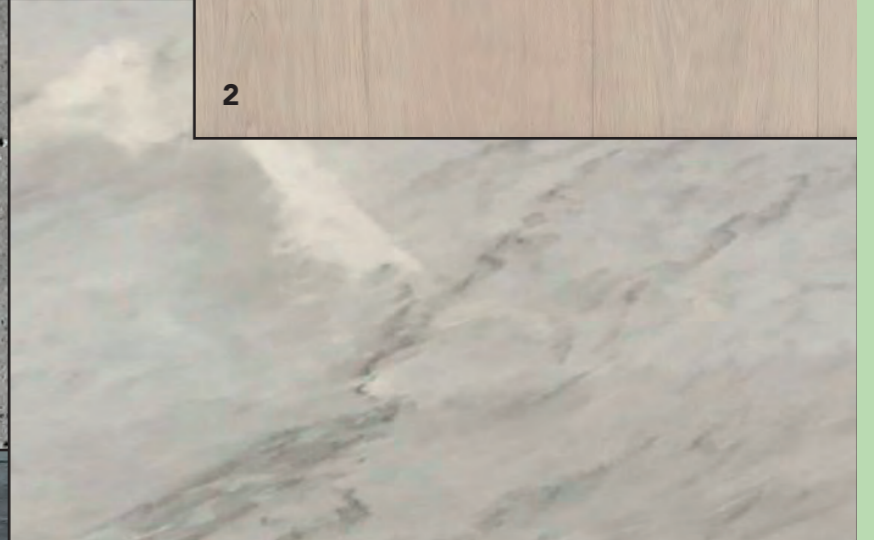
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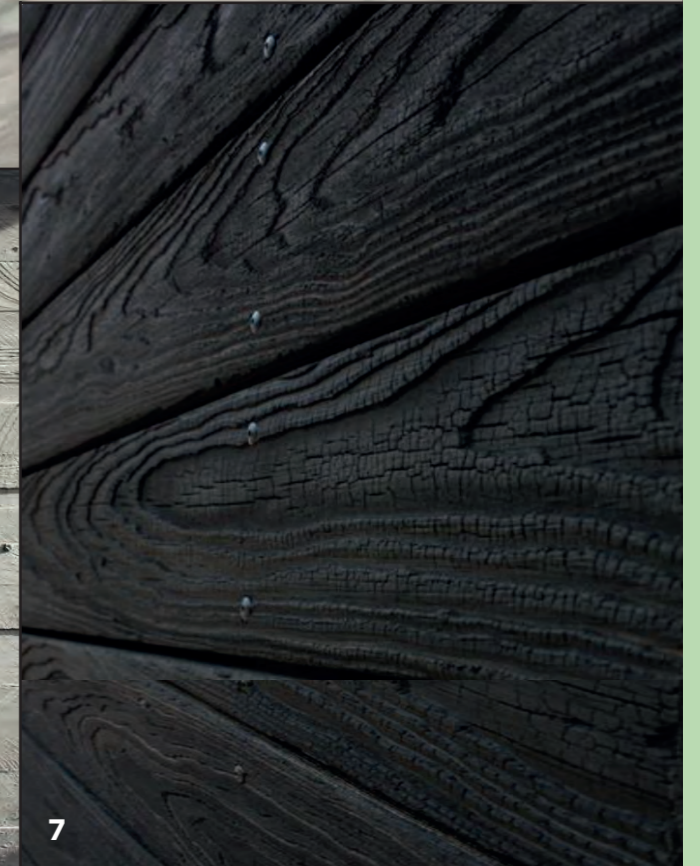
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5



6



7





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