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Architecture of Illusion: An Investigation into Cinematic Deception in Camden Town, London

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May 2014

Architecture of Illusion:

An Investigation into Cinematic Deception in Camden Town, London

Graduate Thesis Project submitted to:
Roger Williams University, School of Architecture, Art and Historic Preservation
In fulfillment of the requirements of the Master of Architecture Degree
May 2014

Roger Williams University
School of Architecture, Art and Historic Preservation
Bristol, Rhode Island

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Abstract

This thesis project departs from Guy Debord's *Society of the Spectacle* by claiming that architecture temporarily supports a passive acceptance of the environment. Architecture has the ability to confront its own crisis of spectacle by offering a different illusion. This thesis project proposes to create an architectural device through which an illusion can occur that aids in altering the perception of reality and counter the illusion of spectacle described by Debord. The illusion to act as a model for this project will be the cinematic illusion. An architecture of cinematic illusion seeks to question how reality can be perceived through a focus on persistence of vision and suspension of disbelief.

The resulting design solution for this thesis presents a sequence of spaces representing the descriptions of Heaven, Hell, and Purgatory and movements of Dante in Dante Alighieri's *The Divine Comedy*. The spaces are integrated into the chosen site in Camden Town, London.

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0 Preface

Manifesto for an Architecture of Cinematic Illusion

1. Architecture has the ability to create a narrative for the user. What results from the movement through this narrative is an active understanding of the environment.
2. Architecture is then derived from sculpting time and space with materials and light. The experience that comes out of this sculpting of time and space is then the essence of what makes architecture rich.
3. Of concern today is a built environment where the experience of space is neglected. Architectural objects concerned with image are at the present occupying the field. These architectural objects and spectacular images encourage the user to consume their surroundings in a passive state.
4. Cinematic devices when introduced to architecture bring out and reinforce the qualities that once again make for an rich architectural experience. The cinematic experience is formed by a narrative and movement of a still image. When these are applied to the design of space an active awareness of space and time can once again be achieved.

1 Prologue



1. Cover image of 1983 edition of *Society of Spectacle*



2. Film clip of 1973 *Society of the Spectacle* film

Society of the Spectacle

In his book the *Society of the Spectacle* Guy Debord aims “to wake up the spectator who has been drugged by spectacular images...through radical action in the form of the construction of situations.” Social life has been replaced with its representation and experiencing the environment has become passive. The spectacle does not refer to a collection of images but rather a social relationship between people that is mediated by images.

“In societies where modern conditions of production prevail, all of life presents itself as an immense accumulation of spectacles. Everything that was directly lived has moved away into a representation.” Chap 1. Sect 1.

“The spectacle is not a collection of images, but a social relation among people, mediated by images.” Chap 1. Sect 4.

“In a world which really is topsy-turvy, the true is a moment of the false” Chap 1. Sect 9.

“The spectacle presents itself as something enormously positive, indisputable and inaccessible. It says nothing more than “that which appears is good, that which is good appears. The attitude which it demands in principle is passive acceptance which in fact it already obtained by its manner of appearing without reply, by its monopoly of appearance.” Chap 1. Sect. 12

Architecture and Spectacle

Architecture has temporarily become subject to this spectacle, built as image and consumed as object. As the site of spectacle, architecture supports the illusion created by a society of capitalism, one in which a passive acceptance of the environment occurs.

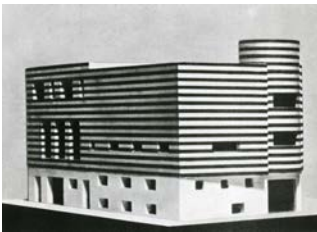
The framework of this investigation centers on criticisms outlined by Guy Debord in the *Society of the Spectacle*. In the *Society of the Spectacle*, Debord critiques the illusion presented by a society mediated by capitalism. This illusion is one in which representation replaces reality resulting in a false reality. This bombardment of imagery in this environment makes truth become fiction and fiction truth.

The result of this new reality is that the environment is experienced in a passive state and things become objectified, Architecture has temporarily become subject to this spectacle, built as image and consumed as object. As the site of spectacle, architecture supports illusion created by a society of capitalism one in which a passive acceptance of the environment occurs.

Architecture is appropriated by habit and tactile experience. It thus has the ability to confront its own crisis of spectacle by offering a different illusion. This illusion has the ability to present an altered perception of reality. The aim of presenting an illusion of this nature is to create a transcendent condition where temporarily, the user is brought out of reality as it exists and into an immersive experience. The end result of this temporary state of transcendent experience is to simultaneously become less aware and more aware of the truths of the present illusion created by the society of spectacle.



3. Viollet le Duc , Concert Hall , 1866



4. Baker House, Adolf Loos



5. Lou Ruvo Center for Brain Health, Frank Gehry

2 Cinematic Illusion

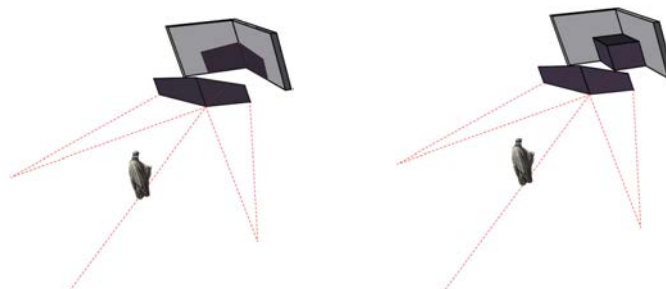
Illusionism in Architecture

Illusions have been used to deceive, entertain, conceal, and overcome spatial and economic restraints. In architecture, illusionism transforms an experience by manipulating the user's perception of reality. Impressions of space and structure can be controlled by altering proportions and appearances of building elements. These alterations give illusions of weightlessness of elements, dematerialization of planes, symmetry, larger or smaller scales and varying distances of space.

In art, a common visual illusion is the perspective. Perspectives represent a 3D scene which is inferred from a 2D image. The deception of the perspective is that it persuades the viewer that the 2 dimensional image is 3 dimensional.

Artist James Turrell creates illusions by working with light and space. He creates artworks that "engage viewers with the limits of human perception". Turrell's work became of interest due to his use of projected light as a medium to modify the viewer's perception of the space he was projecting in. Also of interest was Turrell's notion that "we are living in a reality of our own creation, subject to our own sensory limitations as well as contextual and cultural norms." This notion was seen as supporting the intent of this thesis to create a transcendent condition where temporarily, the user is brought out of reality as it exists and into an immersive experience.

6. Turrell's Afrum (White) as it exists in reality a 2D plane of light is projected onto the corner of a wall
7. Turrell's Afrum (White) as the spectator sees 2D planes of light projected on a corner of a wall to give the appearance that the light is a 3D object



7



8. Photo of Turrell's Afrum (White) exhibit. The illusion he creates of making 2D plane of projected light appear 3D is clearly shown here.

Cinema



9. Film clip from Buster Keaton's *Sherlock Jr.* 1924



10. Film clip from Buster Keaton's *Sherlock Jr.* 1924

The examination of DeBorg's critique of an image mediated society coupled with the assertion that architecture has the ability to create a transcendent condition which temporarily brings the user out of reality as it exists and into an immersive environment leads to the consideration of using cinema as a model for an architectural illusion. Cinema offers an effective way of commenting on the illusion of the spectacle because it uses moving images to replace reality with a representation of that reality and presents a transcendent condition to its spectator. If the photographed or painted representation of reality is compared with the representation of reality by film, there are tremendous differences that make the representation of reality by film more significant for the "contemporary man" (Benjamin 234).

The first difference is the distance the artists maintain between themselves and the reality they capture. The painter maintains a natural distance from reality where as the cameraman is able to penetrate reality and obtain pictures that suggests simultaneous collective experiences. The camera is able to give precise statements of a situation and reveal perspectives that are otherwise concealed from the naked eye.

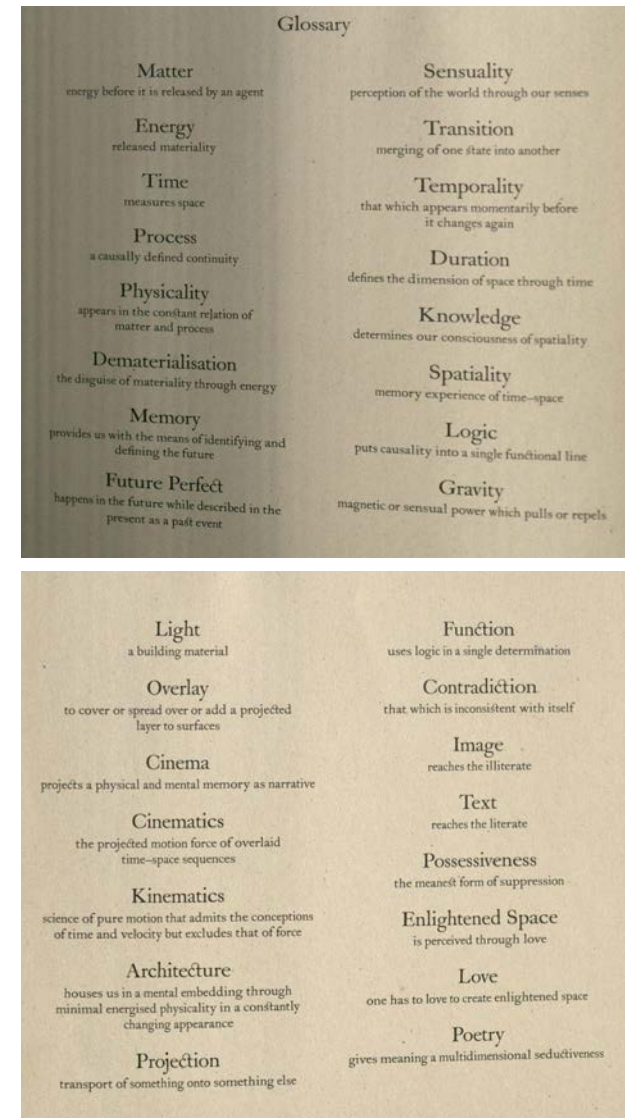
The second difference is in how the painted or photographed representation of reality and representation of reality by film are consumed by the spectator. The painting invites the spectator to contemplate the representation and, before it, he can “abandon himself in his associations” (Benjamin 238). Before the movie frame the spectator cannot contemplate the image because his association of view is interrupted by constant change...”no sooner has the eye grasped a scene than it is already changed. It cannot be arrested, his thought has been replaced by moving images” (Benjamin 238). The camera’s ability to penetrate reality and reveal different perspectives and the constant change of images makes cinema a powerful choice of illusion to help create an immersive environment.

Cinematic Architecture

Through the process of trying to define an architecture of cinematic illusion the work of Pascal Schroning and his diploma unit 3 at the AA school in London was looked at as a source of inspiration. Schroning's work which includes "Manifesto for Cinematic Architecture" provides insight into creating an ephemeral architecture. Schroning's and Diploma Unit 3's research brings into questions the capacity of architecture to extend itself beyond its surface appearance. The group confronts a stable architecture with a temporal architecture by using medias such as video and film as a way of creating forms that aim to dissolve the concept of a static material world. The result of their examination is a definition of cinematic architecture.

Their research relates to this thesis proposal in three important ways. First, "cinematic architecture reveals the illusiveness of the house as a reliable and constant factor, and shifts the focus instead to life narration itself." In this thesis proposal, constant change and narrative are seen as components to create an illusion in architecture and construct an immersive environment.

Secondly, Schroning explains that "the perception of a space is as much defined by its associations as by its physical qualities. Spatial permanence can only be justified if it registers all the mental, sensual and physical facilities that are engaged



11. Schroning's "Manifesto for a Cinematic Architecture" key terms

in a particular space at a particular time. Such permanence does not have to be a ‘building’ that is recognizable by its material appearance” (Schroning 25). This idea that the defining a perception of space depends on stimulating mental, physical, and sensual faculties at a particular time in space provides a basis for how to create an architecture of illusion for this thesis.

Finally, Schroning’s comparison of cinema to architecture supports using the cinematic illusion as a model for creating an illusion in architecture that will expand the user’s perception of reality and create a transcendent condition...

If architecture is often compared to cinema, it is because of their shared relation to both the visual world and the material world: the way they magnify... the dimension of the physical universe: its surface, frame, light and depth....The production of images by cinema is the epitome of the physical construction of space by architecture (Schroning 27)



12. Diploma Unit 3's image of a house made of light

Architecture of Cinematic Illusion

The project proposes to create a device through which an illusion can occur that aids in altering the perception of reality. The device will be the architecture. The illusion of choice to act as a model for this project will be the cinematic illusion.

Cinematic illusion becomes the model for an architectural illusion because, unlike painting, film has the ability to permeate reality by means of its apparatus and temporarily offer a different reading of a situation that the naked eye can otherwise not conceive. The cinematic experience offers a solution to the suppressive nature of physical reality by providing an expanded reality for the viewer to become immersed in. The viewer willingly forgoes truth to believe the deception. The purpose of a cinematic illusion then is to momentarily transcend the ordinary and experience an extraordinary.

The illusion that is achieved in cinema is constructed in two parts. First, the sensation of movement through a space is presented to the viewer. This sensation of movement is not true movement through a space but only an illusion of movement. This sensation of movement is the result of the phenomena of persistence of vision where, when a series of still images is run through the projector at a certain rate an after image is left on the eye. This after image dissolves into the new image and is read as continuous. The series of still images even though not continuous appear to be linked and moving. When translating this into creating an architectural device, the focus will become how to construct and overlap a series of moments in order to give the sensation that space is continuously moving and shifting.

The second component of the cinematic illusion is suspension of disbelief that is achieved through a narrative. In watching a film the audience is presented with a story. This story is not the present reality but in order for the illusion to be achieved the viewer must be willing to accept, temporarily, the story being presented as truth. In film, script, editing, light and movement help to construct the story that allows for a suspension of disbelief. When the condition of suspension of disbelief is translated to an architectural solution, the result is a scripted space.

The components of cinematic illusion help to reinforce the elements that make architecture rich including light, movement, material. The objective of creating an architecture of cinematic illusion is to present an altered reality through a focus on persistence of vision and suspension of disbelief that allows for a temporary transcendence of the immediate environment in order to gain different perception of reality and reestablish an active participation in environment.

Glossary

An **A**rchitecture of **C**inematic **I**llusion seeks to question how **R**eality can be **P**erceived through a focus on
Persistence of **V**ision and **S**uspension of **D**isbelief

Architecture: the device through which illusion occurs

Cinematic **I**llusion: deception through visual and narrative devices

Reality: what is known to be true and actual

Perception: an interpretation of sensory information in order to understand the environment

Persistence of **V**ision: A series of single ideas or motions overlapped to give a sense of continuity

Suspension of **D**isbelief: narrative that allows for the brief willingness to believe an altered reality

cinema: device for viewing life

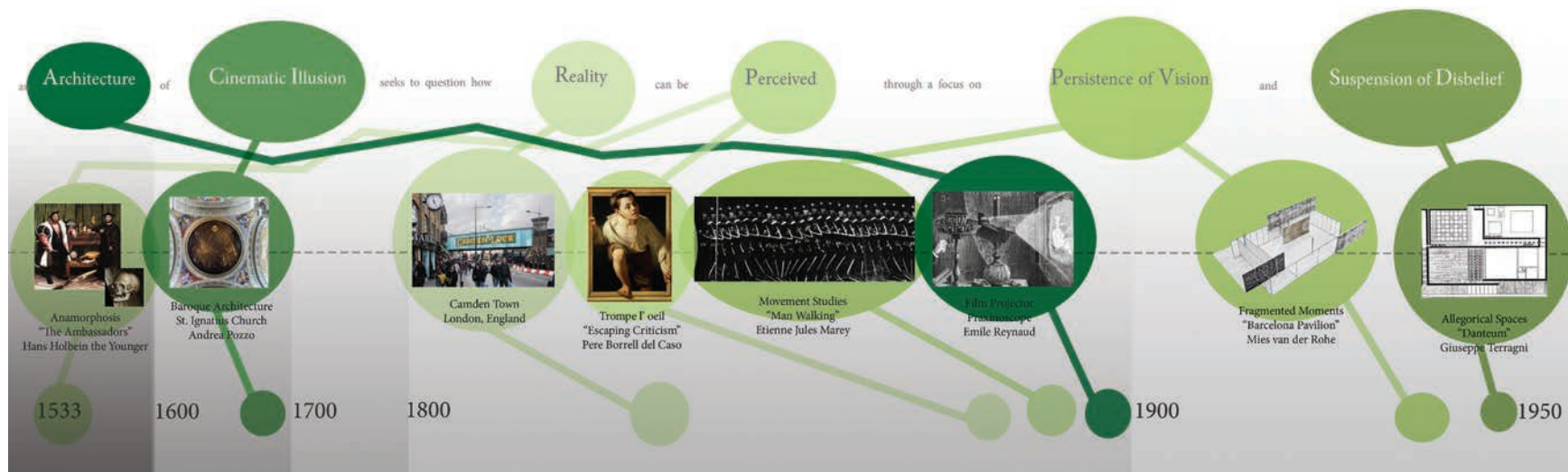
deception: willingly led to wrongly believe something to be honest and true, wanting to momentarily believe something to be true so as to distract from reality

truth: possesses expected qualities of a thing

narrative: scripted space

Precedents

An illusion is a deception of the intellectual perception of something existing in such a way that a misinterpretation of its actual nature takes place. The purpose of an illusion can vary depending on its implementation. In some cases such as cinema and magic the purpose of the illusion is to momentarily transcend reality in order to believe in the trick for entertainment. Other illusions such as in art and architecture present an illusion in order to give a different optical perception of the environment. Religion can be considered yet a different type of illusion in which a idea or image is presented in order to offer a belief system or give an explanation of what exists. This section looks at various illusionary devices and precedents in both art and architecture that help to further define an architecture of cinematic illusion.

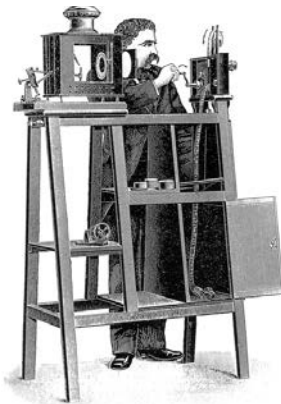


13. Timeline of precedents

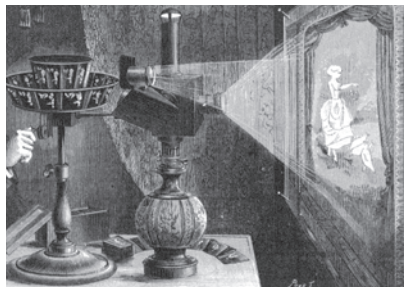
Architecture: the device through which illusion occurs

Film Projector

The film projector is the device in cinema that allows for the illusion of movement in a movie to occur. Early examples of the movie projector such as the praxinoscope invented in 1877 by Charles-Emile Reynaud used a strip of pictures placed in the inner surface of the spinning cylinder. Light was shown through the images as the wheel spun and projected off a stationary mirror at the center of the wheel. The reversed images on the mirror would be reflected into a lens and projected on a screen. The 35 mm film movie projector used as the primary projector in theaters until 2008 drags a series of individual frames through a gate shutter and past the projector's intense light source. The gated shutter interrupts the light during the time the film advances to the next frame. The eye does not catch the flicker and instead thinks the still image is continuously moving on screen. The proposal of this project can be compared to the film projector in that the project seeks to make an architectural device that facilitates an illusion of a different reality. Light, material, sounds and directed movement through space will all play an important role in how this device is constructed and the type of altered experience that results.



14. Lumiere projector 1894

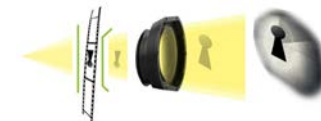
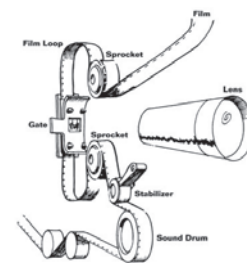


15. Praxinoscope 1877 Charles Emile Reynaud



16

16. 1909 35 mm projector

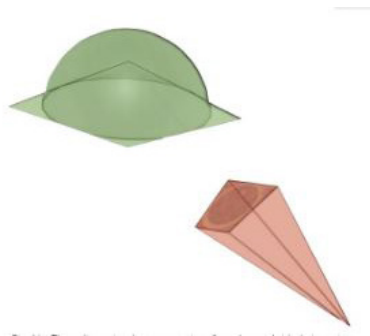


Cinematic Illusion: deception through visual and narrative devices

Baroque Architecture

Andrea Pozzo, St. Ignatius Church, Rome 1685

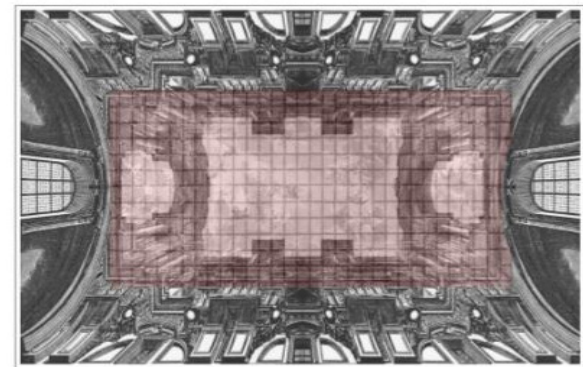
The Baroque era of architecture began in the late 16th century Italy. This period of work used the vocabulary of Renaissance architecture in a rhetorical and theatrical fashion. It was characterized as exploring new forms of light and shadow with dramatic intensity. The special effects used in baroque architecture often presented a spectacle as a way of inverting the instability of the church and state. The scripted spaces complete with apparatuses of trompe l'oeil ceilings, animated sculptures, and painted domes transformed space into an immersive narrative.



17. 3-D representation of an observer's ideal viewport to perceive the illusion of the cupola



18. view of the false cupola



19. Representation of Pozzo's designed ceiling divided into a grid

Reality: what is known to be true and actual

Camden Town, London

The site chosen as the point of reality is Camden Town in London. The site compliments the investigation into cinematic deception because the site as it exists today already possesses layers of movement and history that read as cinematic when experiencing the space. At its present day, the site contains a labyrinth of vaults, arches, tunnels, basements, train tracks, stables and a canal that contain market places. It is difficult when immersed within the layers of the market to orient oneself.



20. Camden Lock railway bridge



21. Eastern Horse Tunnel Market

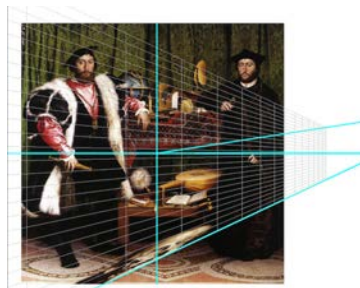
Perception: an interpretation of sensory information in order to understand the environment

The understanding of reality relies on a perception that is based on known sensory information. In order to alter the perception of a reality an understanding of space becomes important. Two devices used that effect the understanding of a space are trompe l'oeil and anamorphosis. These two techniques give the illusion of 3D space even through the painting is 2D. Although the project will clearly be dealing with 3D space the study of these techniques are useful in understanding how space can seemingly be expanded.

Anamorphosis

“The Ambassadors” Hans Holbein the Younger

An anamorphosis is a distortion of an image which, when viewed from a certain point, can be seen clearly. Whereas the trompe l'oeil requires the spectator to be passive, the anamorphosis technique demands an active participation of the viewer to find the correct perspective. In the painting of “The Ambassadors” the human skull depicted can only be viewed from an extremely oblique angle.



22. Perspective grid of anamorphosis



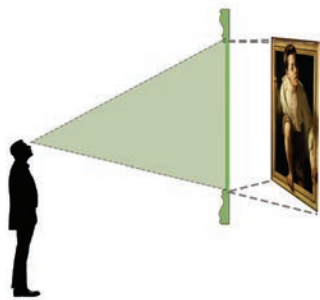
23. painting viewed straight on

24. painting viewed from anamorphic perspective

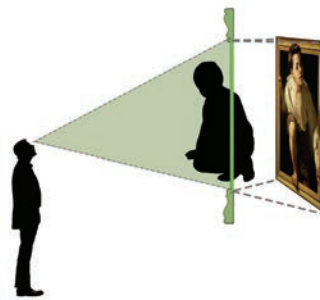
Trompe l'oeil

“Escaping Criticism” by Pere Borrell del Caso

The application of the trompe l'oeil technique is used to mislead the viewer into believing that the painted scenes or images are reality. The technique of trompe l'oeil was introduced during the Renaissance and became the principle method of realistic visual representation. In the painting “Escaping Criticism”, the boy appears to be coming out of the space behind the frame, through the frame, and into the space occupied by the viewer. In actuality the surface flat.



25. painting as it exists



26. illusion the viewer sees
in the painting



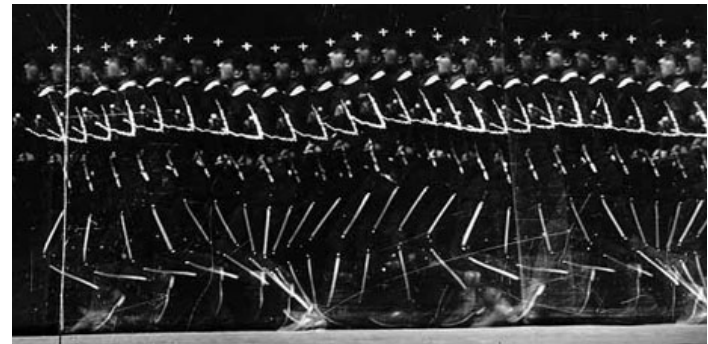
27. *Escaping Criticism* painting by Pere Borrell del Caso

Persistence of Vision: A series of single ideas or motions overlapped to give a sense of continuity

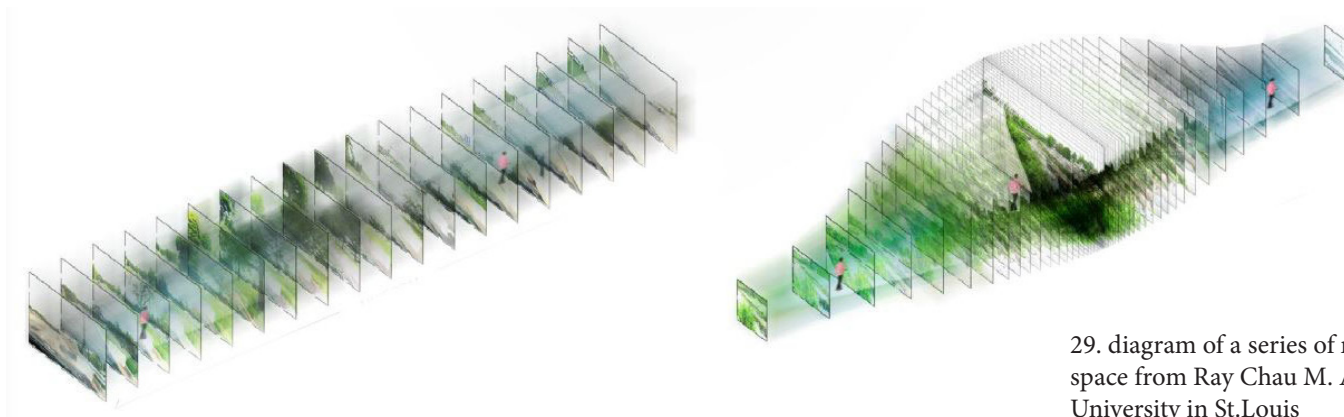
Early Studies of Motion to Mies

A key component of the cinematic illusion as mentioned is persistence of vision. When translating this into an architectural device, the focus becomes how to construct and overlap a series of moments in order to give the sensation that space is continuously moving and shifting.

Because architecture and as film are comprised of static elements (for film the single frame is considered static), early studies of animation and motion were looked at as precedents to understand how overlay and repetition can give a sensation of movement.



28. Early Motion Studies by Etienne Jules Marey



29. diagram of a series of movements through space from Ray Chau M. Arch thesis, Washington University in St.Louis

Barcelona Pavilion

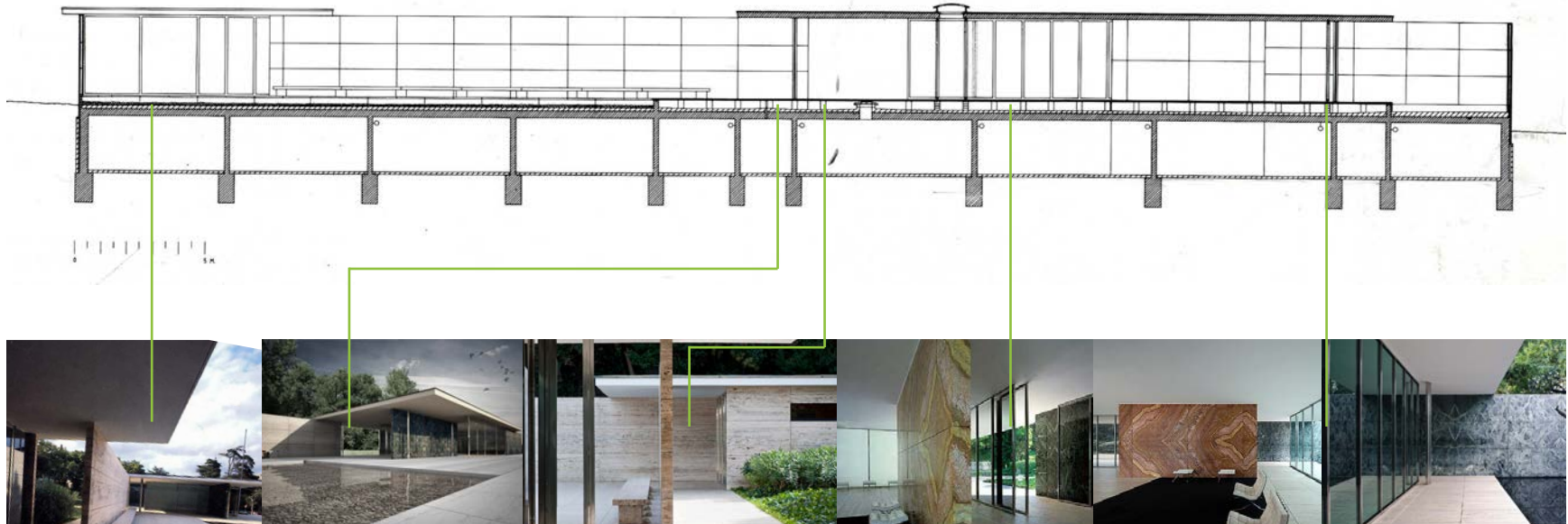
Mies Van der Rohe

The chosen architectural example looked at for achieving a persistence of vision within space is Mies Van der Rohe's Barcelona Pavilion. The way in which Mies layers walls and moments in time gives the sensation that space and the elements that construct it are constantly shifting and moving as you move through space.



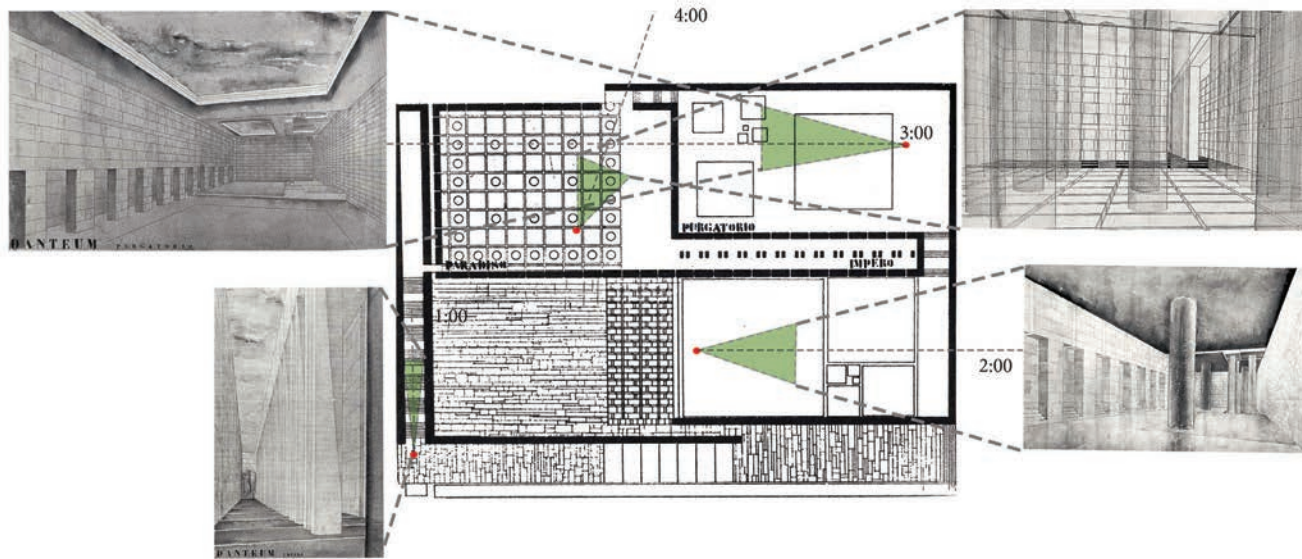
30. Above: Axon of Barcelona Walls emphasizing materiality

31. Below: Section through Barcelona Pavilion showing photos of spaces



Suspension of Disbelief: narrative that allows for the brief willingness to believe an altered reality

This investigation proposes that the cinematic illusion is composed of persistence of vision coupled with a suspension of disbelief. The condition of suspension of disbelief asks the viewer to have a willingness to believe something that is not real. In cinema this suspension of disbelief is primarily a narrative created by editing sequences together. When the condition of suspension of disbelief is translated to an architectural solution, the result is a scripted space.



32. Cinematics plan of the *Danteum*

Danteum

Danteum is an architectural representation of Dante Alighieri's "The Divine Comedy" by Giuseppe Terragni. Unlike the built project of Palazzo Barolo, Danteum is a theoretical project that was intended to be carried out in Rome in 1942. The project was meant to glorify Imperial Rome and extol the virtues of the fascist state. It consists of a sequence of monumental spaces that represent Dante's journey through Hell, Purgatory, and Heaven. Rather than illustrating the narrative, Terragni focuses on translating the rhyme and structure of the poem into proportional spaces.

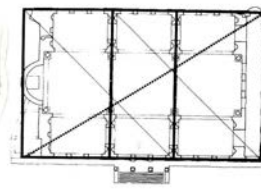


FIG. 90. Basilica of Maxentius.
Overlapping squares.

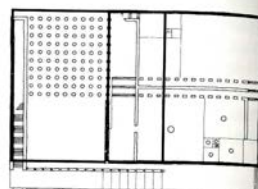


FIG. 91. Danteum, initial phase
of the displacement.

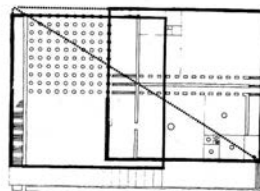


FIG. 92. Danteum, second shift.

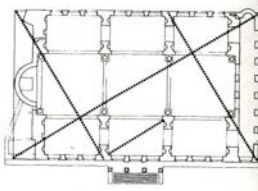


FIG. 93. Basilica of Maxentius, breakdown
of golden section rectangles.

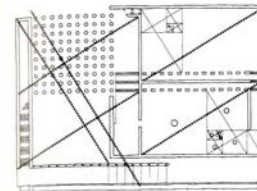


FIG. 94. Danteum, breakdown of
golden-section rectangles.

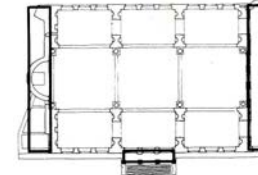


FIG. 95. Basilica of Maxentius, end zones.

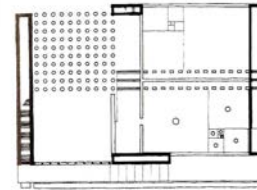


FIG. 96. Danteum, end zones.

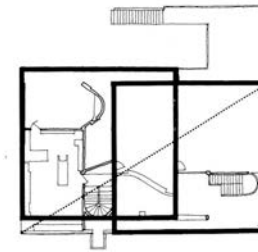


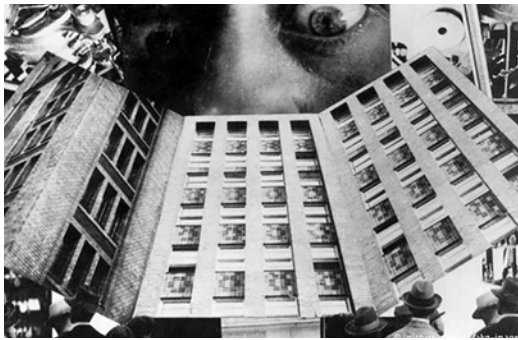
FIG. 97. Le Corbusier, Villa Stein at Garches,
1927, plan. The overall golden section and
the squares of the plan can be read as a
two-directional slippage of squares.

33. Analyzed plans of *Danteum*

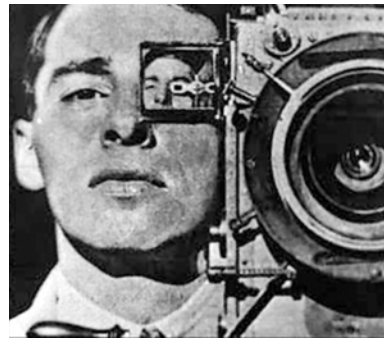
3 Setting

City of Spectacle

The city was selected as the place to create an architecture of cinematic illusion. The urban condition suits the proposal for this thesis for a few reasons. Firstly, the city is comprised of spatial fragments that lend themselves to being experienced in a cinematic way. These fragmented spaces can also easily be integrated into the series of scripted spaces this project intends to create. Secondly, the city more clearly facilitates the spectacle Debord describes where social relations between people are mediated by image than a rural or suburban condition. Thirdly, the city contains constant rapid movement. All supporting reasons for using an urban setting as a location for a device of cinematic illusion are illustrated in the genre of “city-symphony” which includes the films “Berlin: Symphony of a Great City”, “Man with a Movie Camera”, and “Nothing but Time”. These films were studied as a way of understanding how events can be montaged together to give the impression of a city and to see how people are represented as a product of their environment.



34. Walter Ruttmann's *Berlin: Symphony of a Great City*



35. Dziga Vertov's *Man with a Movie Camera*



36. Alberto Cavalcanti's *Nothing but Time*

Buenos Aires vs London

Two cities were considered as sites for an architecture of cinematic illusion, Buenos Aires, Argentina, and London, England. When this project proposal was initially being formed the works of Jorge Luis Borges were considered for providing the narrative that would create the condition of suspension of disbelief in architecture. London as a site would support one specific story of Borges, “The Garden of Forking Paths”, which is set in an unknown British town and contains several spaces including a labyrinth and a house that could be translated into immersive environments. London would also be a suitable site for an architecture of cinematic illusion because it is one of the leading global cities and is a leading financial, arts, theater, and cultural center. These qualities support Debord’s description of a image mediated society.

Buenos Aires as a site would support using Borges’ narratives because it is the city in which the author was born. Additionally, Argentina was often used as either the backdrop or inspiration for Borges’ stories. Although it not a leading global city compared to London, Buenos Aires possess unique spatial fragments which lend themselves to being integrated into the projects intention of creating a series of scripted spaces.

Buenos Aires



37. Street in San Telmo



39. Casa Rosada

38. Avenida 9 de Julio

London



40. Street in Notting Hill



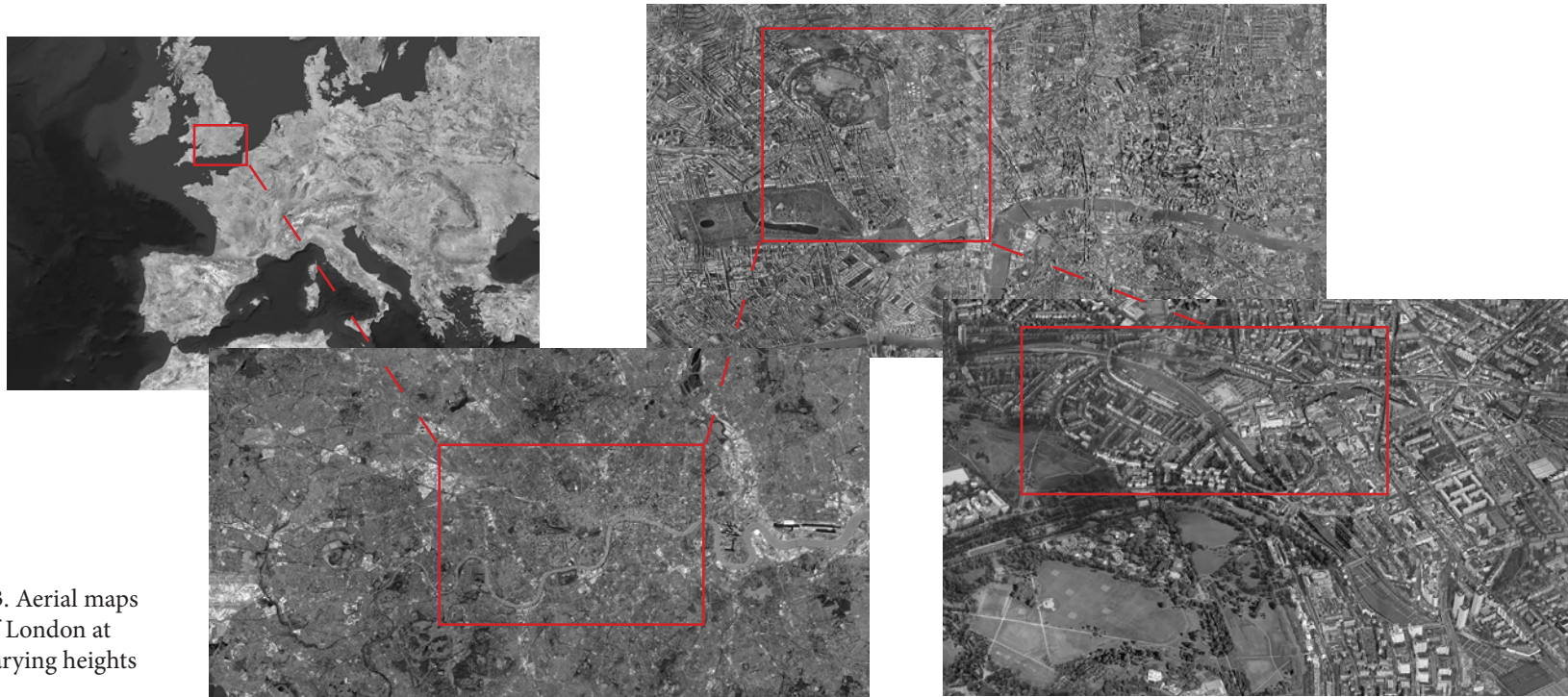
41. London Tube



42. Big Ben

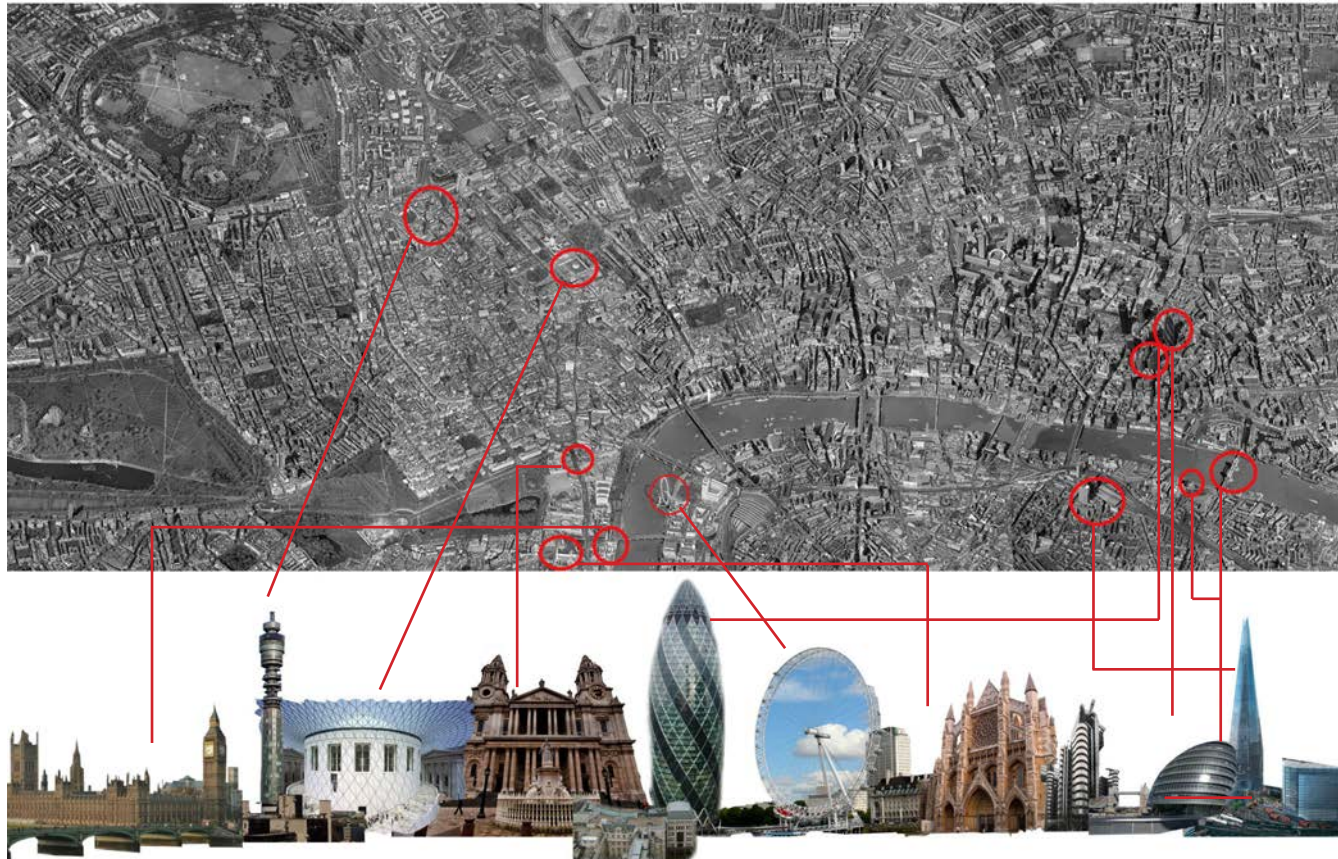
London

London was chosen as the city to investigate an architecture of cinematic illusion over Buenos Aires because it more strongly fosters Deborg's description of a society of the spectacle. Additionally, by placing Borges' narratives in London, a city the author has no connection to, there is a potential to create spaces that heavily contrast the surrounding urban context.



43. Aerial maps of London at varying heights

The following are examples of architecture of spectacle that exist in city of London. These examples were chosen based on how each is read as image or objects either due its facade construction, its historic significance as an icon of London, or its contrasting relationship to its surrounding urban fabric.



Big Ben BT Tower British Museum St. Pauls Church Gherkin London Eye Wesminster Abbey Loyde Building London City Hall The Shard

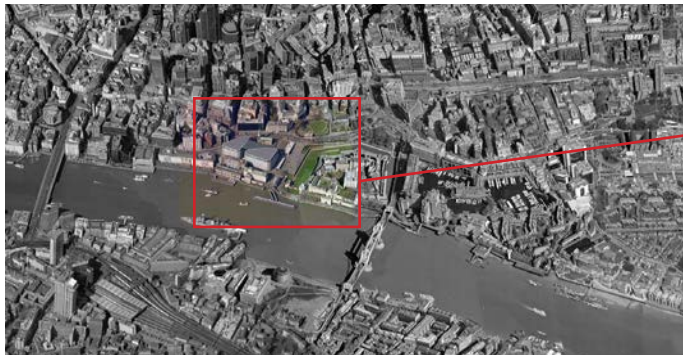
44. Location map of spectacle Architecture in London

Prospective Site Locations

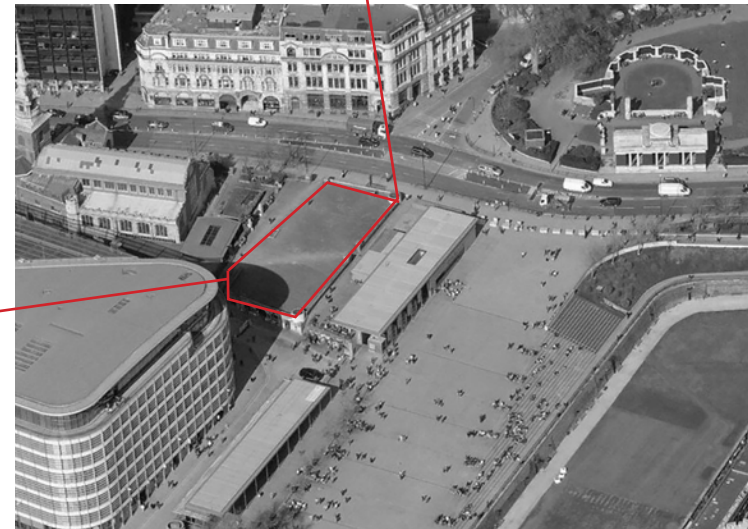
Tower of London

sq ft: 15, 000

Various site conditions and locations were considered within the city fabric of London. One site condition considered was a tourist area near the Tower of London. The intent of using this area as the project's site was to make the architectural device of cinematic illusion an attraction. The device in this context would interrupt the surrounding tourist destinations by offering an internally immersive attraction that takes the user out of the immediate area. The specific site looked at was the current rooftop/courtyard of the ticket booth to the Tower of London. The site was ultimately discarded because it did not offer the desired cinematic layers and movements that could support a cinematic illusion.



45. Different perspectives of Tower of London site



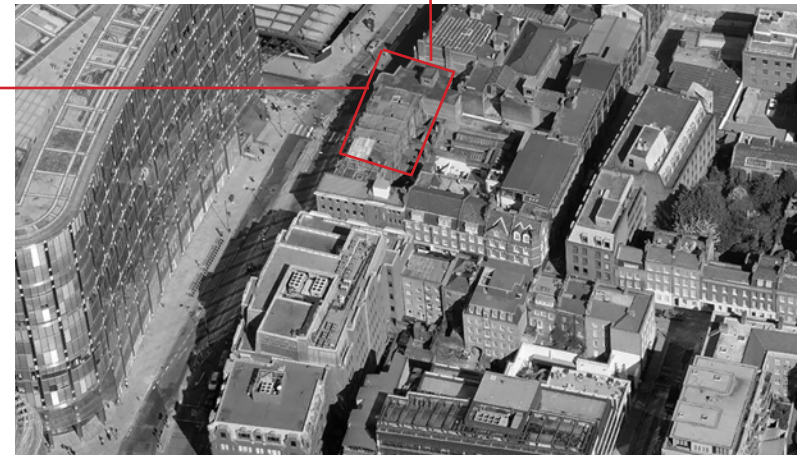
Hackney Neighborhood

sq ft: 3,000

The second site considered was in the Hackney Neighborhood. This neighborhood was considered because of its strong artists presence. This project's proposal of creating an architectural device of cinematic illusion would suit the area. The condition being considered was an infill condition in which currently dilapidated buildings would be knocked down leaving a void for the project to fill. This site was ultimately discarded because it did not possess the characteristics that would reinforce the investigation of the project.



46. Different perspectives of the Hackney Neighborhood site

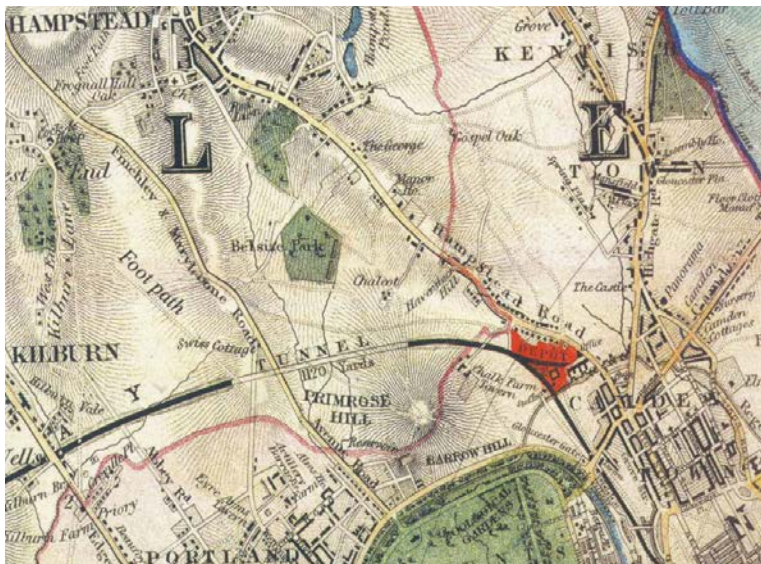


4 Camden Town

Camden Town, London

Camden Town was chosen as the specific site of this investigation. The site as it exists today already possesses layers of movement and history that can be experienced in a cinematic way. Today the site contains a labyrinth of vaults, arches, tunnels, basements, train tracks, stables and a market places. Locating the device of cinematic illusion within the already established labyrinth of spaces and layers of different conditions presents the opportunity potential for the project to expand this character. In particular the underground can be integrated into the series of scripted space that will be designed.

Additionally, the choice of Camden Town compliments the initial framework of the investigation regarding to the “Society of Spectacle”. The “Society of Spectacle” critiques a consumerist culture where images and goods are passively absorbed...



47. Davies Map of London and its environs, 1841

The images detached from every aspect of life fuse in a common stream in which the unity of this life can no longer be reestablished... The specialization of images of the world is completed in the world of the autonomous image, where the liar has lied to himself.

This condition creates a false reality. The area of Camden Lock has a history of consumerism as it was a transit point of goods and people from London to north of London. The site still possess the structures that were used for the transport of goods. The following section outlines the historic layers, features, movement on the site, climate, and typical dimensions of Camden Town.

Social and Industrial History

The Hampstead Road was an ancient thoroughfare. With the arrival of the Regent's Canal in 1816, businesses were established in Camden alongside Hampstead Road.

The London & Birmingham Railway started operating from Euston for passenger traffic in 1837. Camden Goods Depot was established in 1839 on 30 acres of Lord Southampton's land as the terminus for goods trains, in anticipation of further extension of the railway to London's docks.

From Camden passengers continued their journey by locomotive under Chalk Farm Lane Bridge and through Primrose Hill Tunnel.

The location of Camden Goods Depot alongside the Regent's Canal and the Hampstead Road stimulated its commercial and industrial development. Pickford, as the largest agent for the railway company, were the first to respond to this opportunity. Pickford goods interchange shed was established on the south bank of the Regent's Canal in 1841, soon to be followed by LNWR goods interchange facilities. The Camden Goods Depot from its inception had to provide stabling for the many horses that worked in the depot or in the carriage of goods to and from the depot.



48. Chalk Farm Lane Bridge



49. Primrose Hill Tunnel East Portal, c1840

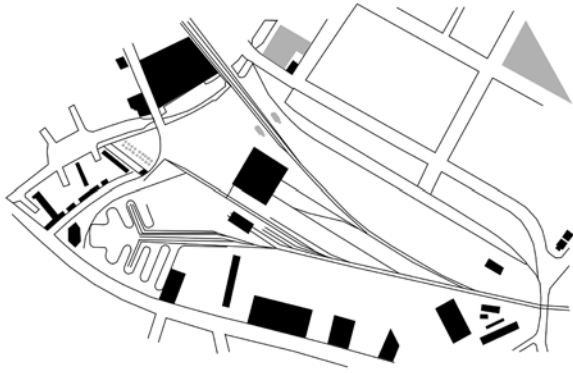
The Victorian working horse was a vital factor in Goods Depot operations and many of the facilities in the depot directly reflected the need to accommodate, feed and ensure the health and safety of horses. Vaults under the railway were used for storage.

One of the most important businesses attracted to the Goods Depot was the wine, beer and spirits trade. Gilbeys, the largest firm in the world in the wine and spirits trade in the last quarter of the 19th century. The beer trade served the needs of London as well as a growing local community, including thirsty railway workers.

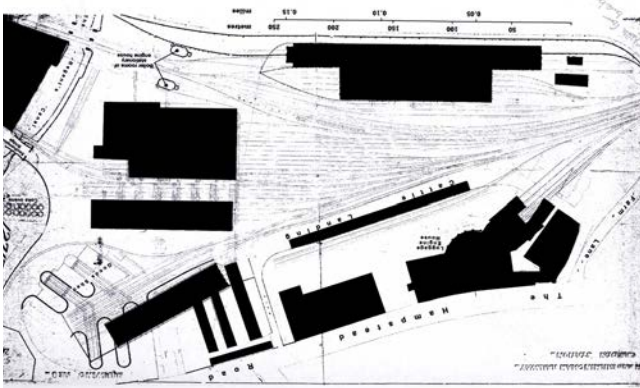
Layers of History

For more than a century Camden Goods Depot was the terminus for goods traffic. In 1851 the rail freight connection to London docks was made with the completion of the East and West India Docks and Birmingham Junction Railway. This became the North London Railway (NLR) in 1853 and was realigned in 1854. The NLR at Camden Goods Depot has remained essentially unchanged since.

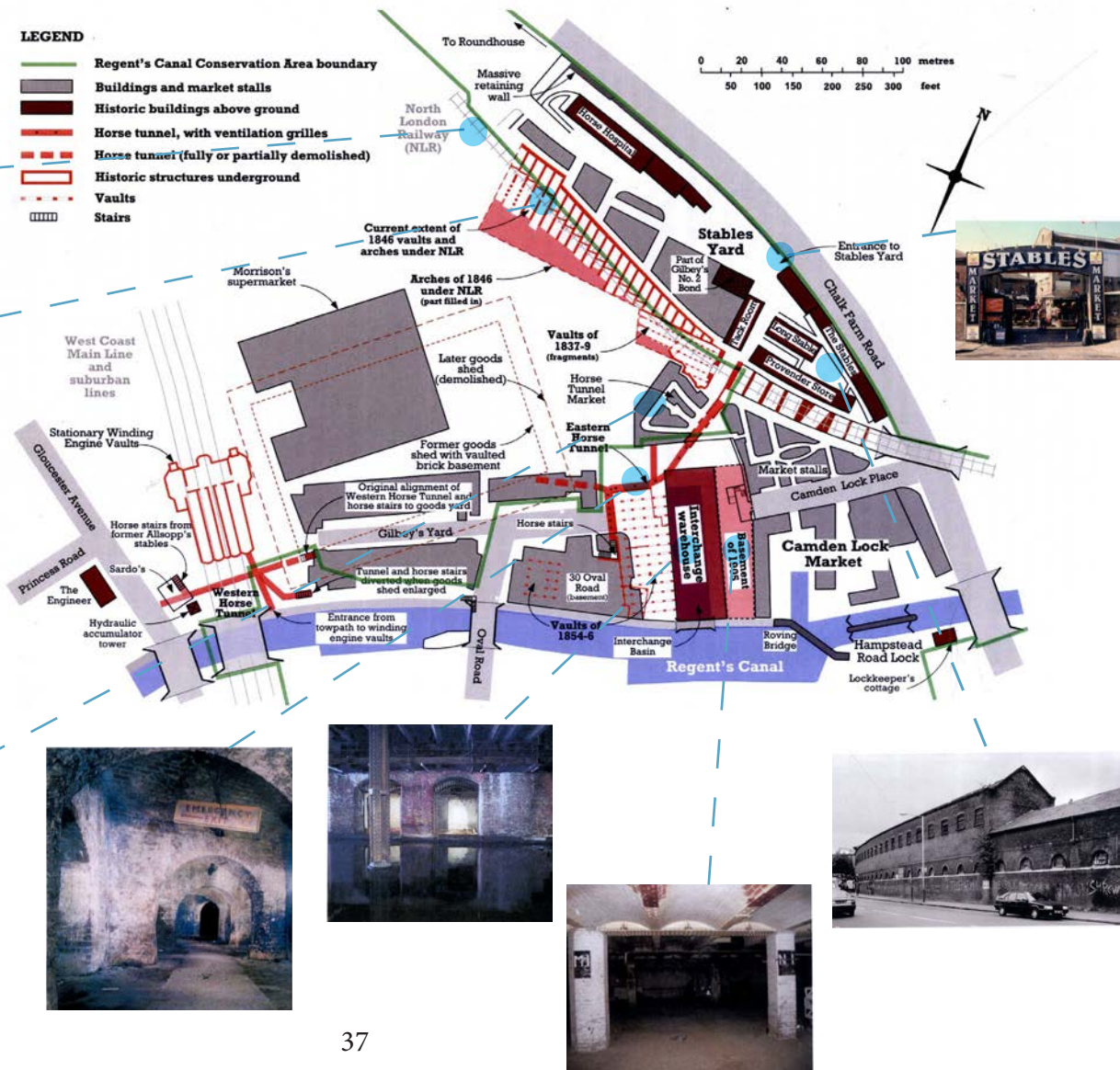
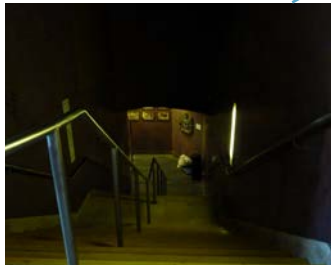
The growth of mainline and suburban traffic has required periodic track additions and realignment, but these have taken place outside the main area of the Goods Depot, the area of which was therefore little affected by the railway for over 100 years from the middle of the 19th century to the end of the steam era in the 1960s.



50. Figure ground of original Goods Depot of 1839



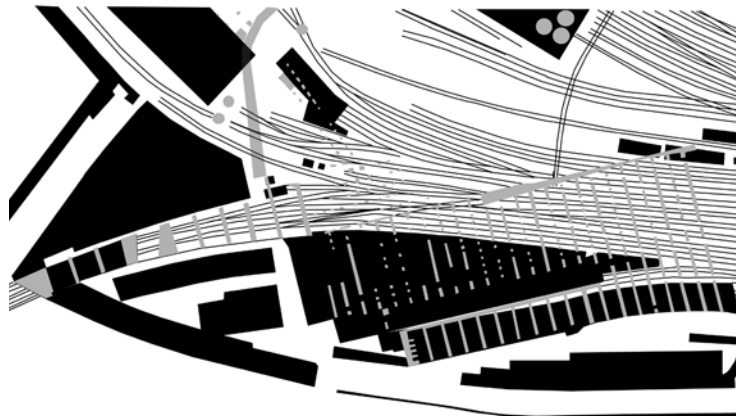
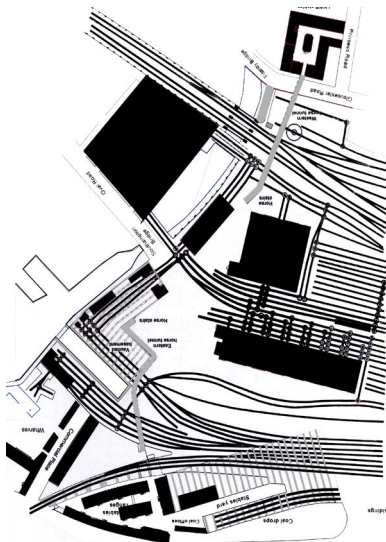
51. Figure ground of Camden Goods Depot: Reconstruction of 1846-47



Topography and Area

Vast quantities of material, , predominantly blue London Clay, excavated from Primrose Hill Tunnel from its 40 ft (12 m) deep approach were used as fill in the Camden Depot area, between the Regent's Canal, Gloucester Road (now Gloucester Avenue), the western edge of Stables Yard and Chalk Farm Lane (now Regent's Park Road). This created a difference in level of up to 15 ft (4.5 m) between the "railway level" and the former ground level. The raising of land to the railway level was not only a practical way of using waste material from construction, it was also required by the Regent's Canal Company to carry the main line over the Regent's Canal with sufficient height for the passage of barges.

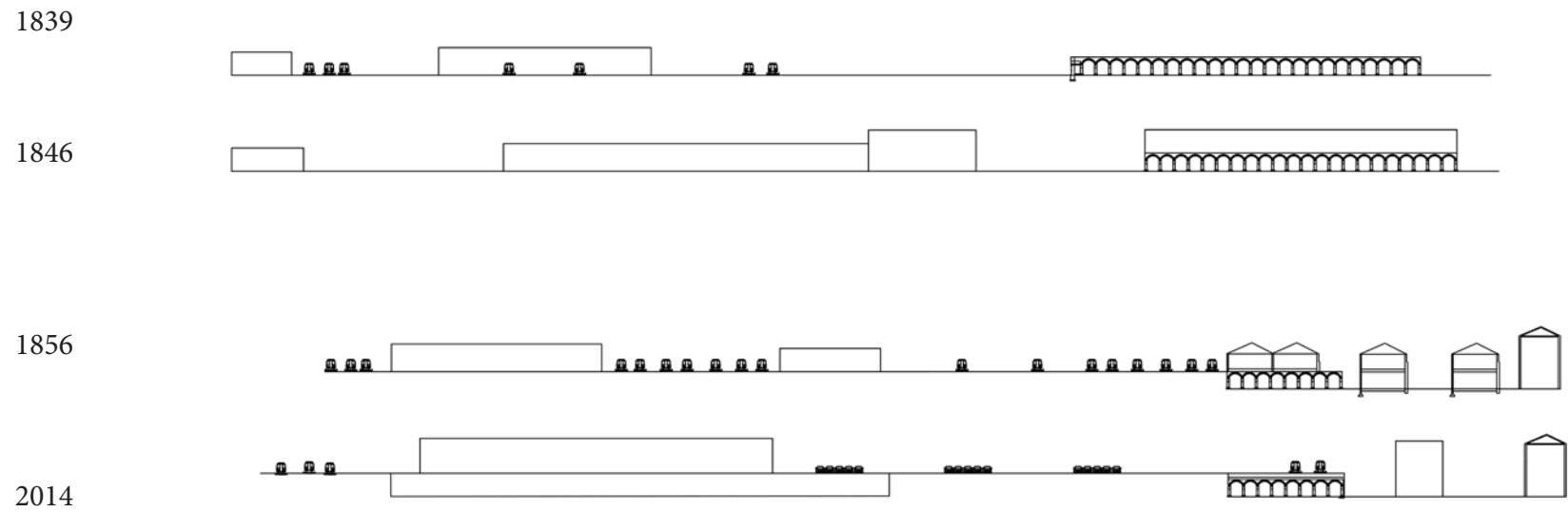
The difference in level was also created by vaults, generally erected to support various buildings at the level of the railway embankment, and carry their loads down to foundations in the natural ground.



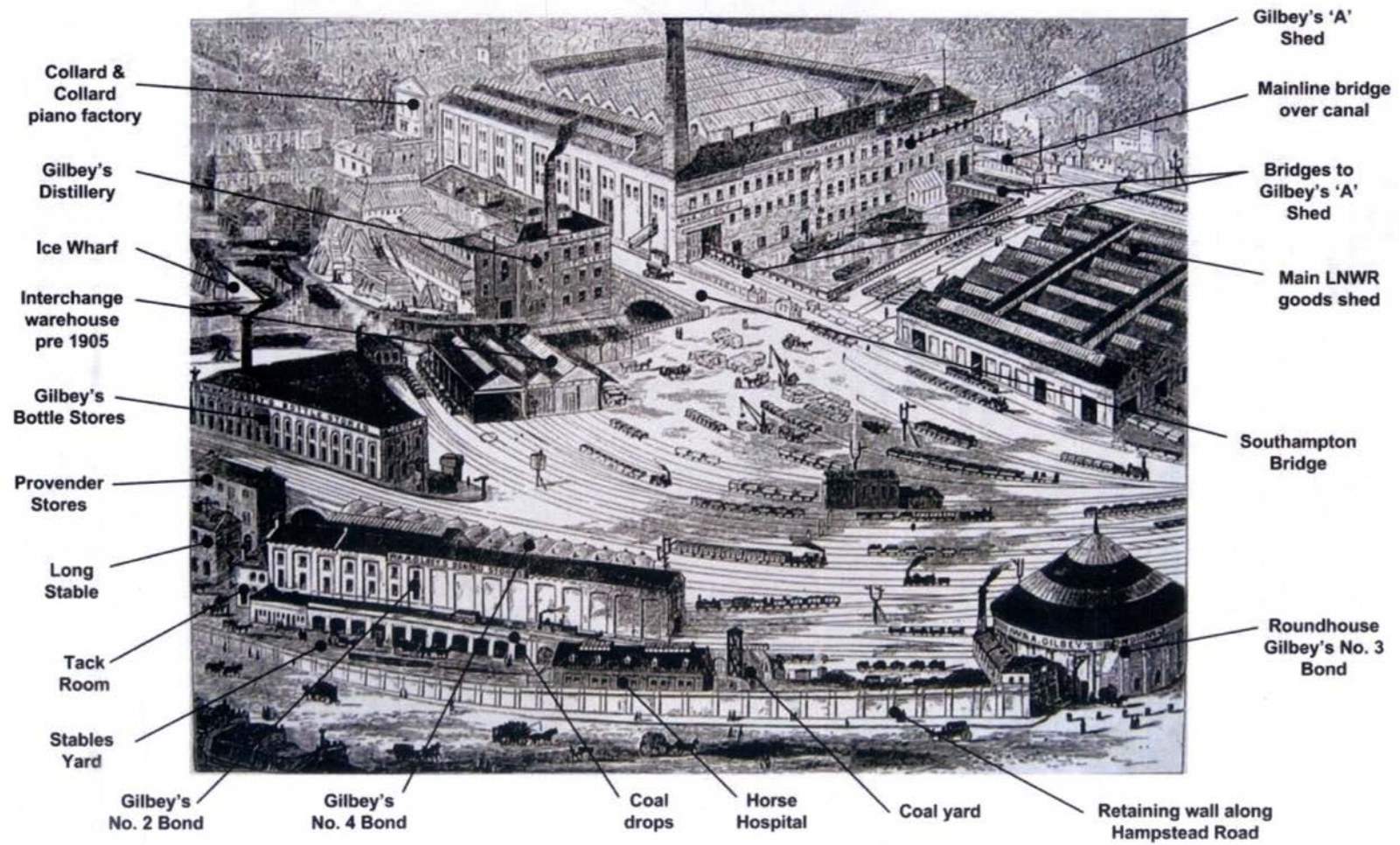
53. Left: Camden Goods Depot: Reconstruction of 1854-56

54. Right: Stabling in Stable Yard, 1925

Levels of History



55. Site section through former Goods Shed/Morrisons' parking lot and the Stable Yard



56. Camden Goods Depot: Aerial view in 1948

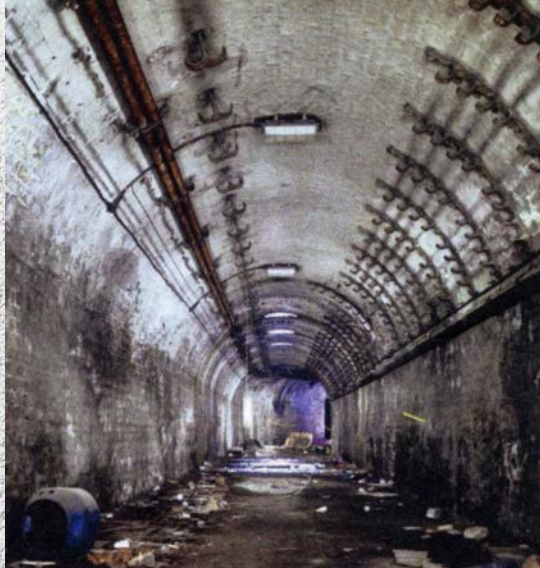
Layers of Material

Concrete

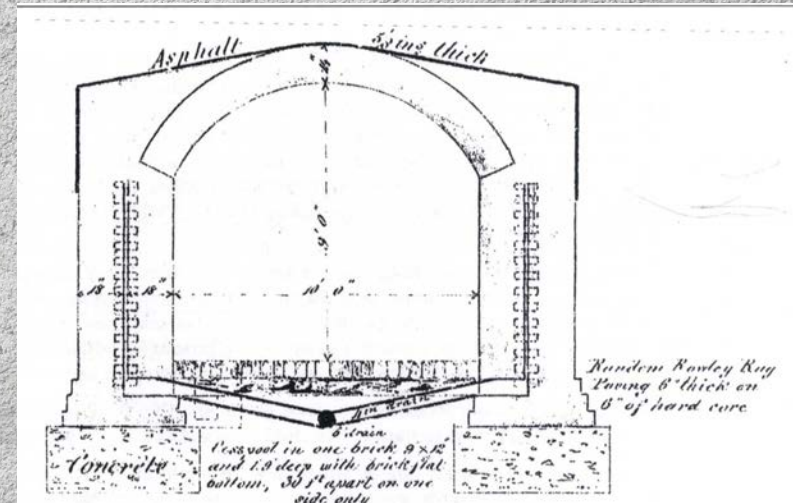
The site mainly contains the materials of brick, concrete, iron and wood. The majority of the structures that still exist today are in Victorian style. The London Rail that runs through the Depot is carried on a concrete embankment above the local street level. Other early railway buildings were raised on foundation vaults made of concrete. Some of the other underground features made of this material include the Eastern and Western Horse Tunnels and the structural columns in the basement of 1905.



57. Transverse arched openings running NW-SE 2009



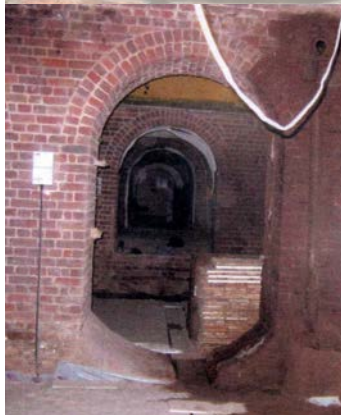
58. Eastern Horse Tunnel 1987



59. Cross Section of horse tunnel

Brick

The use of plain yellow stock brick is clearly apparent in the facades all of the Stable Market buildings including the Horse Hospital, the Long Stable, the Tack Room, the Stables, and the Provender Store. The Interchange Warehouse and the Camden Lock Market also have brick facades. Other structural uses of brick can be seen in the retaining wall that runs along Chalk Farm Road, the Vaults of 1846-47, the Vaults in the Basement of 1905, the Vaults of 1855, and the Vaults that supported the Roundhouse turntable. Non structural uses of brick in the site include paving in some parts of the Markets.



60. Transverse openings showing inverted arch 2009



61. Horse road on north side 2007



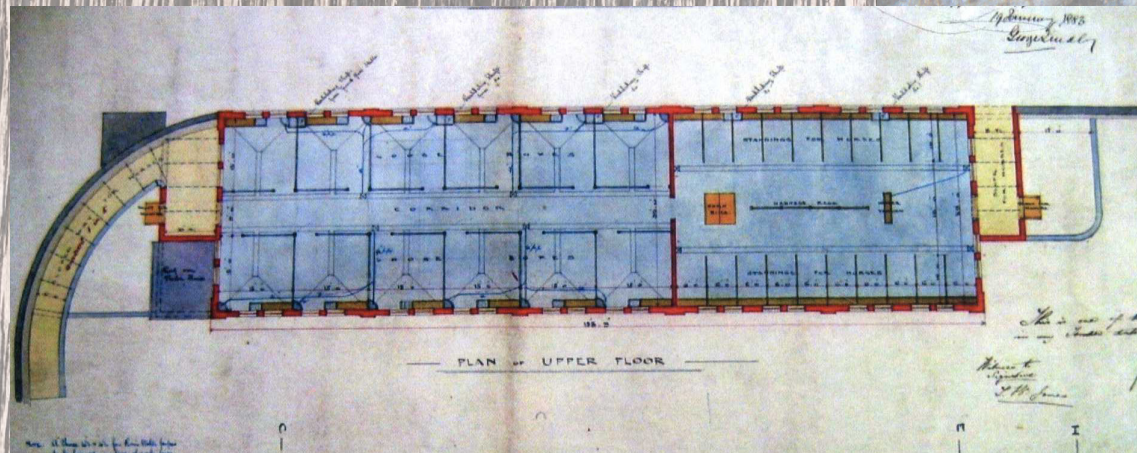
62. Transverse arched openings in vaults 1987



63. Steel column of Interchange Warehouse

Iron and Wood

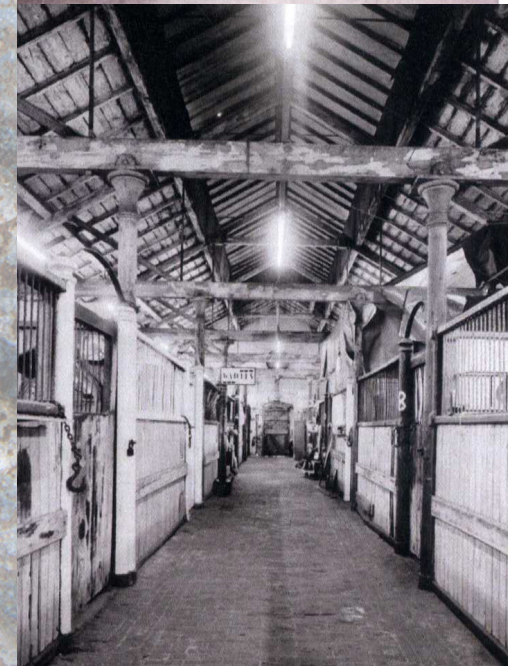
The former horse stables and Horse Hospital all use iron columns and wood trusses as part of their structure. These elements can clearly be seen in the interior photographs of these buildings. Iron columns are also present in the basement of 1905, Interchange Warehouse, and inside the Dead Dog Basin. The columns on the exterior of the Interchange Warehouse were exposed during the renovation of the warehouse. Iron was heavily used in many of the North London Railway edifices. The railway tracks, Camden Lock bridge, Roving Bridge, and the Roundhouse are all structured using iron.



64. Horse Hospital plans of upper and ground floors

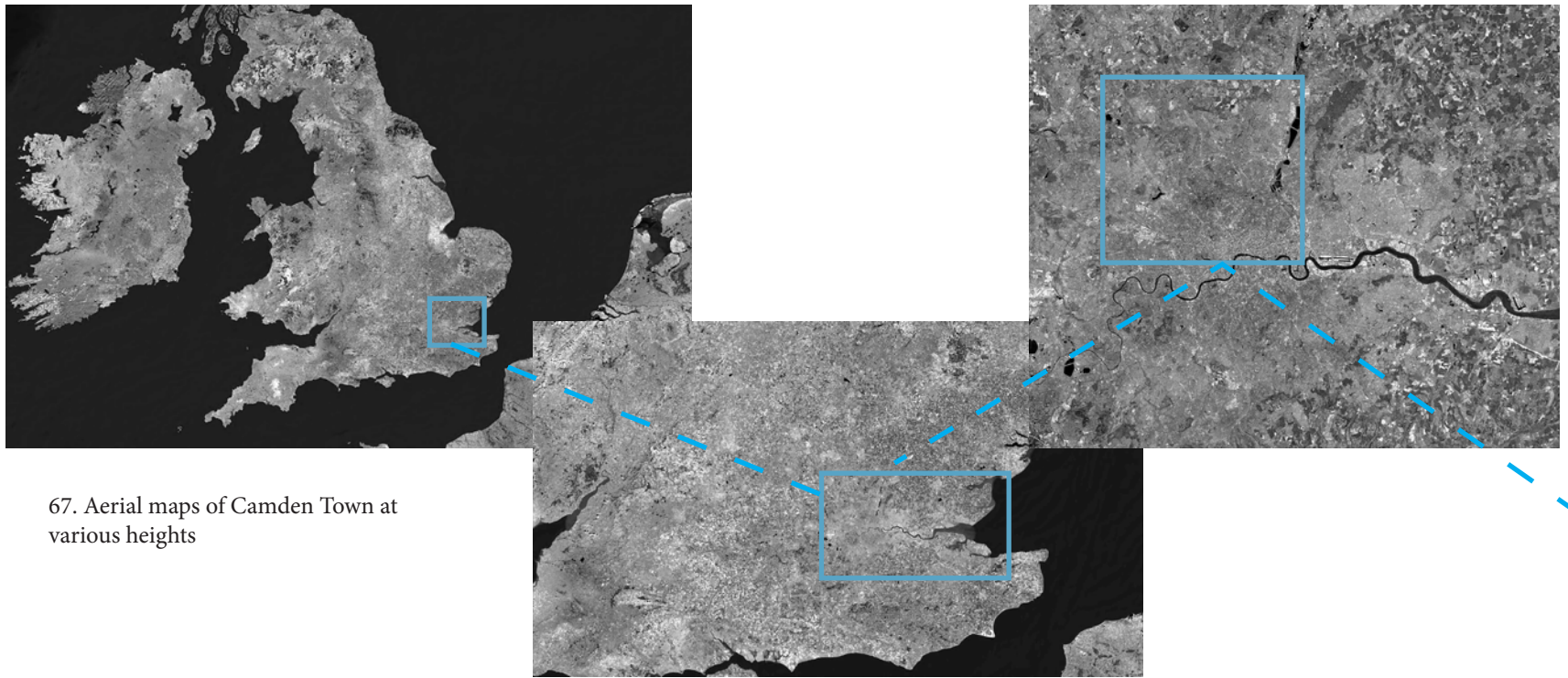
65. Right Top: Eastern bays of 1883 stable in 1975, showing wooden bale separating stalls and manger (1975)

66. Right Bottom: Western bays of upper floor with loose boxes and cast iron columns supporting roof truss



Present Day

The proposed site of the cinematic illusion will be the Morrisons parking lot. This lot was chosen because it is entirely surrounded by features of the site (horse tunnel, train track, vaults, Dead Dog Basin, and basements) that can be integrated into the designed scripted spaces. Additionally, the lot contains a staircase which leads down to the Stable Markets. This is an established connection between the parking lot and the underground features.



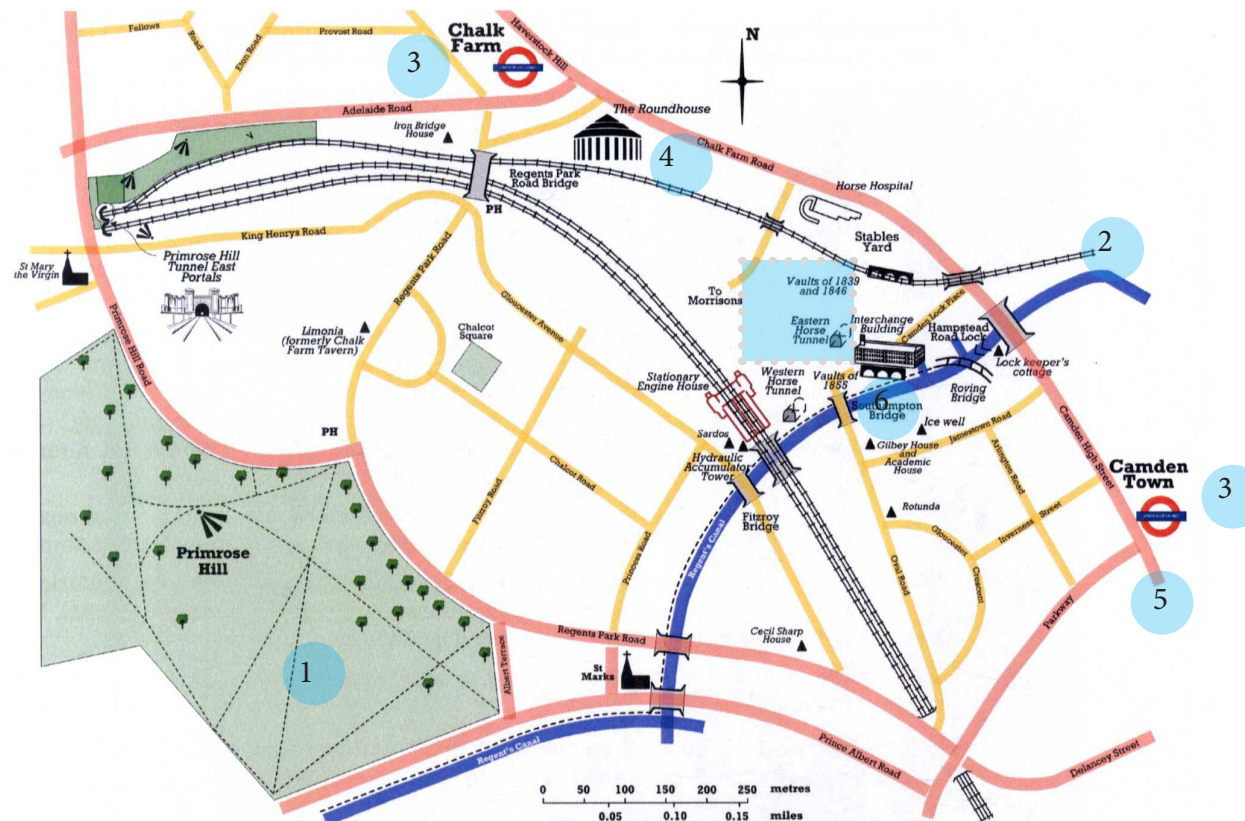
67. Aerial maps of Camden Town at various heights



Surrounding Features

The following are significant features surrounding the Morrison parking lot site.

1. Primrose Hill/Regent's Park
2. London and North Western Railway
3. Camden Town/Chalk Farm Rd Tube Stop
4. Roundhouse and Stationary Engine House
5. Chalk Farm Rd
6. Regent's Canal



68. Key features in and around Camden Goods Depot

1 Primrose Hill/ Regent's Park

The Regent's Park was designed by John Nash and covers 395 acres of land including Queen Mary's Garden with over 12,000 roses. The park also houses an Open Air Theater, The London Zoo, and Primrose Hill. Like Regent's Park, Primrose Hill was once a part of a chase appropriated by Henry VIII. The hill was purchased from Eton College in 1841 to extend the parkland available to the public. The top of the hill has a clear view of central London, one of the 6 protected viewpoints in the city.

Primrose Hill Tunnel was London's first railway tunnel and the first tunnel nationally to negotiate competing claims of the urban land use. The Tunnel was completed in 1837 and was considered a great architectural and engineering feat (Darley 63)



69. East Portal of Primrose Hill Tunnel today



70. Protected view from Primrose Hill



71. Regent's Park



72. East Portal of Primrose Hill Tunnel

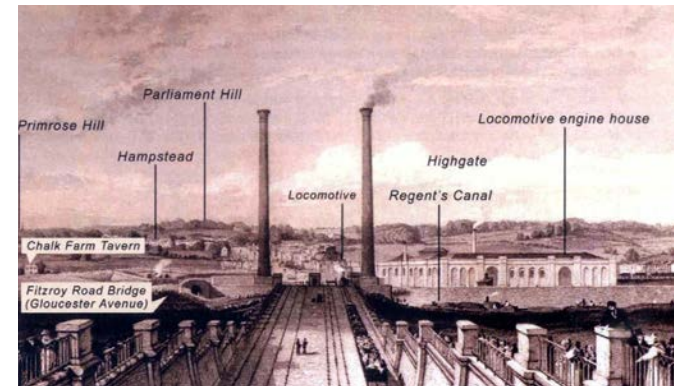
2 London and North Western Railway

The London and Birmingham Railway (L&BR) was London's first main line and the largest civil engineering project yet attempted. The London rail terminus was Camden Town at a depot by the side of Regent's Canal. In 1834 L&BR extended the railway to Euston Grove. With this expansion, the ground of Camden Depot had to be raised to allow for an over pass of Chalk Farm Road while the ground of Hampstead Road lowered to a height that allowed boats to pass below on the Regent's Canal.

In July 1846 the L&BR combined with the Grand Junction Railway and Manchester and Birmingham Railway to become the London and North Western Railway (LNWR) the largest of the Victorian era companies. When the rail freight connection to the docks was finally completed the line was renamed North London Railway (NLR). The LNWR was a main line railway and local traffic was left to the NLR. (Darley 54-55)



73. North London Railway view from Morrisons' parking lot



74. Camden Incline and Stationary Engine Chimneys, 1838

75. Right bottom: Primrose Hill Tunnel East Portal, 1840



3 Camden Town/ Chalk Farm Road Tube Stations

The Camden Town tube station is a London Underground station on the Northern line particularly busy with visitors to the Camden Markets. The station began as part of the Charing Cross, Euston, and Hampstead Railway route. The design of the station is a “V” shape because the line here originally branched into two routes, one to Hampstead and one to High Gate. The northbound Northern line is directly above the southbound Northern line to accommodate for the narrowness of the road above.

Chalk Farm station is the next stop north on the Edgware branch of the London Underground Northern line. Chalk Farm station lies at the intersection of Chalk Farm Road, Haverstock Hill, and Adelaide Street giving the station’s building a narrow wedge shape. The station’s building was designed by architect Leslie Green.



76. Chalk Farm Underground Station



77. Camden Town Underground Station

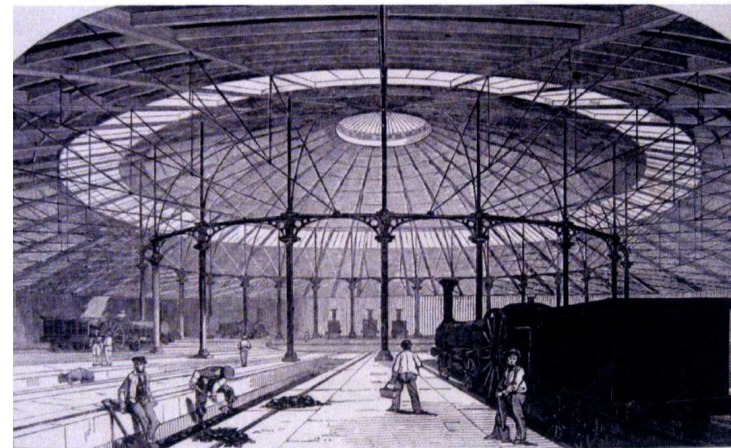
4. Roundhouse and Stationary Engine House

The Roundhouse was built as an engine shed and turntable for goods locomotives from 1846-47 because locomotives at the time were passing through the station at speed instead of stopping. Its diameter is 160 ft. The building is the first true example of a circular engine shed. Its shape was influenced by the limited space on the site. The shed was abandoned by L&NWR in 1854. From 1869 to 1963 it became a bonded store for Gilbey's wines and spirits. Since 1963 it has been through several transformations as a performing arts center.

The Stationary Engine House forms a large vaulted underground structure, located under the main line of Fritzy Bridge where the railway crosses the Regent's Canal. It housed the winding engines and other equipment from 1837 to 1844. In 1847 the equipment was sold and the vaults today remain and are generally in sound condition though filled with debris and partially flooded (Darley 66).



78. Roundhouse today



79. Roundhouse, c1847

5. Chalk Farm Road

In the 1700's Euston Road and the surrounding St. Pancras neighborhood was considered a quiet retreat from the city center for Londoners with fresh air and a lot of open land. Hampstead Road was a broad thoroughfare that connected Euston Rd with areas north including Tottenham Court Rd, High Street, and Camden Town. Hampstead Road during this time was described as having had a "business like appearance" being transverse by tramways. The road was later renamed to Chalk Farm Road with the expansion of the London and Birmingham Railway and the development of the Camden Depot area in the 1800s.



80. Chalk Farm Road



81. Camden Lock Place entry



82. Camden Market

6. Regent's Canal

The Regent's Canal was built between 1812 and 1820 to link the Grand Junction Canal's arm at Paddington Basin to a new basin at City Road and to the Thames and docks at Limehouse. Camden became an interchange center for transfer of goods between canal and road with the arrival of the Canal in 1816. The first basin on the Regent's Canal was built above the Hampstead Lock by James Morgan. The arrival of the railway connecting London to industry centers of the northwest stimulated growth of the Depot area. The LNWR purchased the westernmost of three wharves and docks on the north bank and some of the land behind creating the first interchange basin. The first canal-rail-road interchange was created at Camden Goods Depot at Pickford's warehouse in 1841. The present Interchange Warehouse took its place in 1903 (Darley 20, 57)

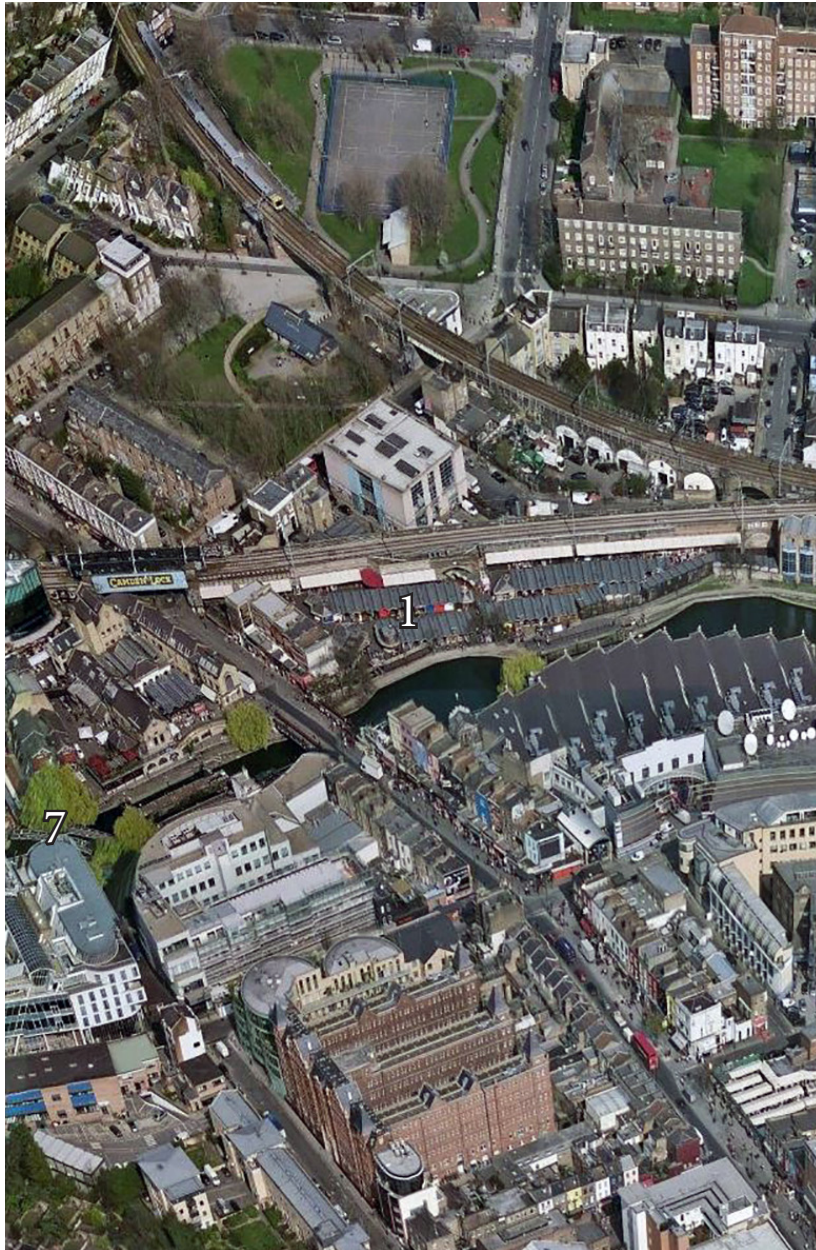


83. Regent's Canal



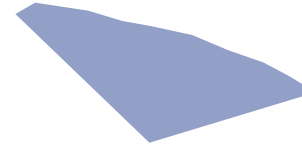
84. Hampstead Rd lock





Immediate Features

The following section describes the immediate features boarding the chosen site of the Morrisons parking lot.



Morrisons parking lot site

1 Camden Markets

2 Vaults

3 Horse Tunnel

4 Stables

5 Horse Hospital

6 Interchange Warehouse/Dead Dog Basin/Base-ment of 1095

7 Bridges

8 Morrisons Supermarket

85. Left: Aerial view of Camden Town as it is today

8. Morrisons Supermarket

The Morrisons Supermarket is a relatively new addition to the Camden Lock area. It is located on the raised embankment to the west of the Stables Market and the NLR.. Underneath the Morrisons Parking lot is the former goods shed with vaulted brick basements used by Allsopp's Ales to store beer. bordering the Morrisons parking lot perimeter underground are several remaining features including the Eastern Horse Tunnel and Horse Tunnel Market, Vaults of 1837-39 ns 1855-56, and Dead Dog Basin. (Darley 23)

6. Interchange Warehouse/ Dead Dog Basin/Basement of 1905

The towpath crosses the Interchange Basin, known as Dead Dog Hole, by a bridge dating from 1845. The bridge was built when the LNWR started planning their first interchange facility. The red brick building now called the Interchange Warehouse was designed to straddle the Interchange Basin and was completed by 1905. Vaults built between 1854-56 sit west of the warehouse and basin and were formerly used to store wine and beer. Gilbeys used the basement under the east side of the warehouse as a bottle store. The brick pillars encasing steel columns and brick jack-arch vaulting in the basement support the railway level above. Both the basement and the vaults survive today but are not in use. The Interchange Warehouse was converted to offices and refurbished in the 1980s. (Darley 29,67)



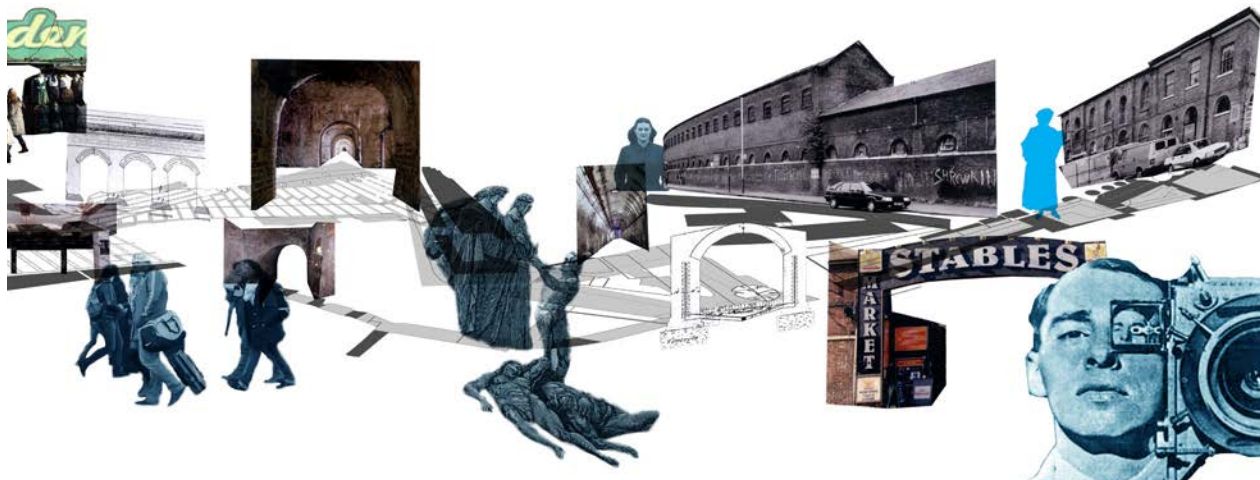
1. Camden Market

A number of adjoining large retail markets in Camden Town near the Hampstead Road Lock comprise the Camden Markets. The markets were originally only open on Sundays. The three markets closest to the chosen site of Morrisons' parking lot include the Stable Markets, the Camden Lock Markets, and the Camden Lock Village. The Camden Lock Market was originally established as a temporary market around 1974. It is situated by the Regent's Canal to the east of the Interchange Basin and Basement of 1905. The Stable Markets are located in the former Pickford horse stables, horse hospital, and horse tunnel. Many of the stalls are set in the arches of the railway viaducts. The Camden Lock Village, formally known as the Canal Market, is located along the canal to the east of Chalk Farm Road.

7. Bridges

There are four bridges in the Camden Depot area that surround the Morrisons' parking lot. The two bridges that span the Regent's Canal at Hampstead Road Lock are the double lock itself and the Roving Bridge which connects the Camden Lock Markets to the other side of the canal. The Roving Bridge has an elegant cast iron profile and dates back to 1845. Also in this area is the iconic iron Camden Lock Railway bridge which spans over Chalk Farm Road and was added when the LNWR expanded north. Further west down the canal is Southampton Bridge which had connected the goods sheds that formally occupied the area (Darley 12,68).

86. Collage of immediate features



3. Horse Tunnel

Between 1854-56 the remodeling of the Goods Depot extended the land at railway level to its present boundaries. Two horse tunnels were provided under the railway embankment so that the horses could move to and from their stables more safely beneath the tracks. These tunnels are referred to as the Eastern Horse Tunnel and the Western Horse Tunnel. The Eastern Horse Tunnel is connected to an extensive system of vaults west of the Interchange Warehouse and the 1839 vaults. The Western Horse Tunnel served to connect the new stables to the west side of Gloucester Road with the good shed when it was built 10 years later. Recent developments include incorporating part of the western end of the Western Horse Tunnel into a restaurant. The northern end of the Eastern Horse Tunnel has been incorporated into Horse Tunnel Market (Darley 46, 48).

2. Vaults

The L&BR/LNWR and its siding were carried on an embankment above the local street level. Other railway buildings in Camden Depot, however, were raised on foundation vaults. These created an extensive network of underground arches in the north-eastern area of the Depot. The vaults were used for railway purposes, not only as stables but later as bonded stores. The first vaults constructed at the Camden Town Depot were under the locomotive engine house, built by William & Lewis Cubitt in 1837. The vaults of 1846-1847 were used to support the Construction Shop and later the North London Rail. The vaults of 1855 were built on the west side of Interchange Basin for Allsopp's Ales. Some of the vaults today are incorporated into the Stable Markets (Darley 21).

4 & 5. Horse Hospital and Stables

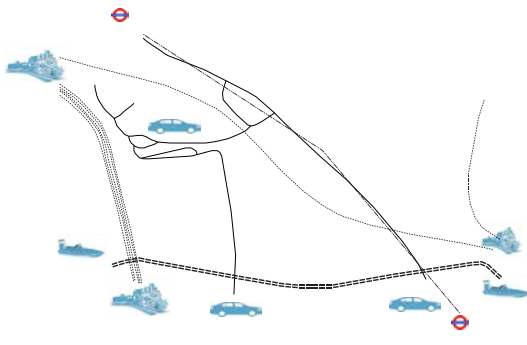
The four blocks of stables now known as The Stables, Long Stables, the Provender Stores, and the Tack Room, were added to the goods yard in 1854-56 to house the railway company's horses in the wedge of land formed by Chalk Farm Road and the NLR viaduct south of the road entrance to Stables Yard. The stable blocks were originally 1.5 stories high with haylofts and are built with plain yellow stock brick. A fifth stable block was added a little further north in 1882-83 known as the Horse Hospital. This two storey stable range was built in two phases: the western and larger part in 1883, whilst the eastern third was added in 1897. All parts are built of yellow stock brick with red brick floor bands, cornices and segmental window heads. The roof is a slate pitched roof. The existing main entrance to Stables Yard has been the main entrance since the mid 19th century. (Darley 24,46)

Site Information

Approaches

The primary approaches to the Camden Market area include the London Underground with stops at Chalk Farm and Camden Town, by boat on the Regents Canal, by the Overground Train, and by either Chalk Farm Rd or Oval Road. To approach the parking lot there are four main routes, Oval Road, the Canal walkway, a staircase within the Horse Tunnel Market or Chalk Farm Road.

87. Below: Diagram of major routes of transportation in Camden Town



Canal



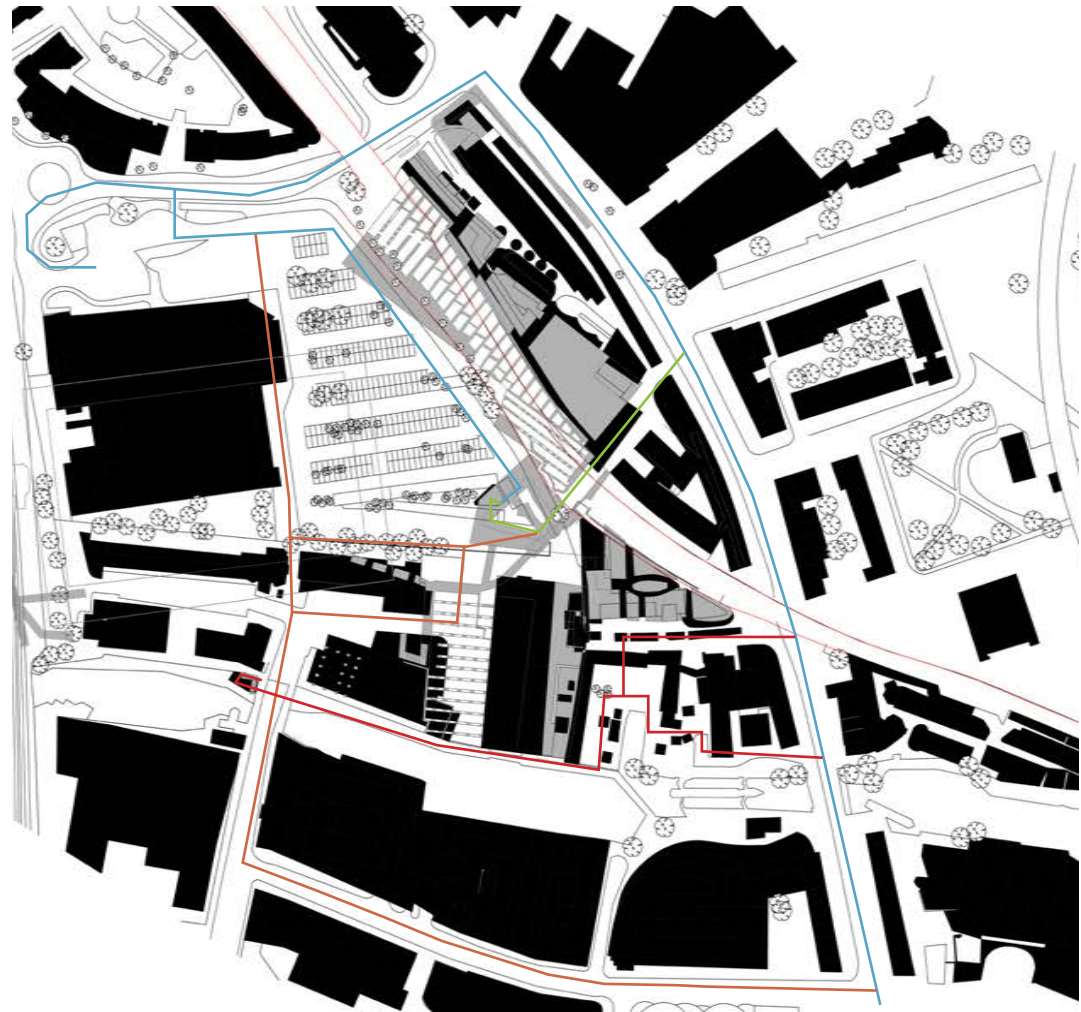
Train

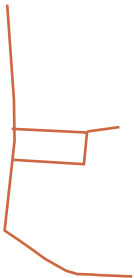
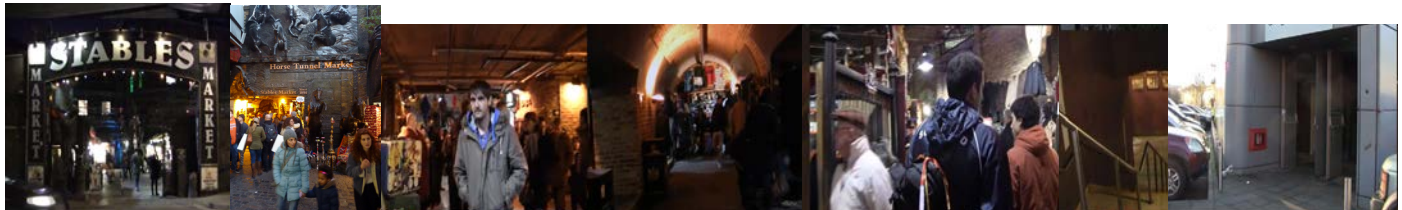
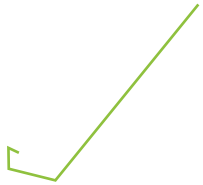
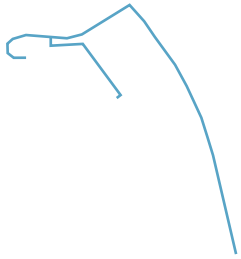


Tube



Road

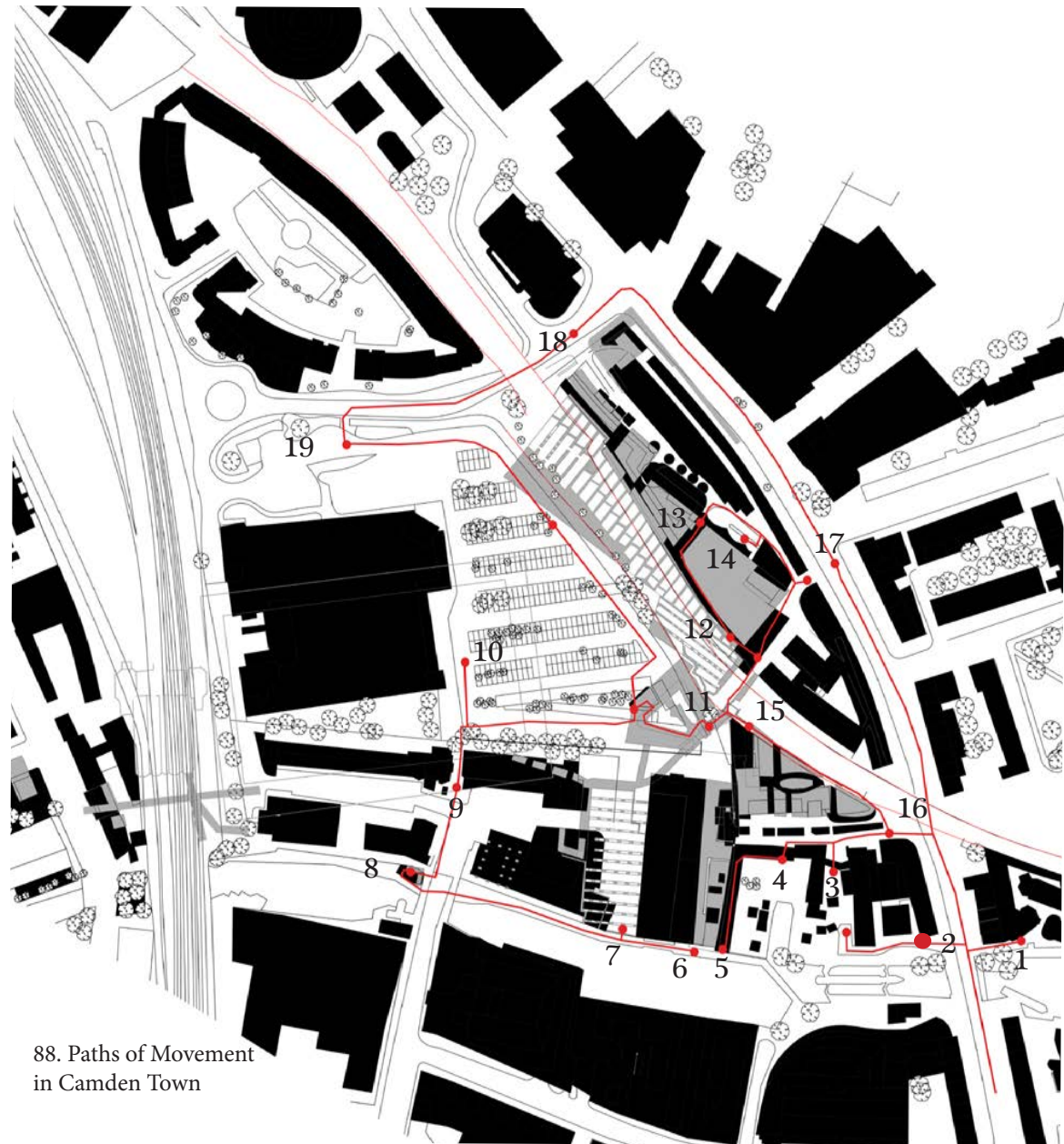




Movement

The Camden Market consists of a labyrinth of spaces that can be moved through in a variety of ways. The following shows the actions at various points throughout the site.

1. Camden Markets
2. Lock Markets
3. Entry point to where indoor markets are.
- 4.
5. Markets near Roving bridge
6. Dead Dog Basin
7. Canal Walk
8. Stairs from Canal Walk up to Oval Road
9. Cut through from apartment complex to Morrisons parking lot
10. Staircase connecting parking lot to Horse Tunnel Markets
11. Horse Tunnel Markets
12. Alleyway separating train tracks and Stable Markets
13. Stable Markets ground level
14. Staircase in Stable Markets
15. Alley between train tracks and market stalls
16. Chalk Farm Rd
17. Stable Market Entry
18. Approach to Morrisons by car
19. Pedestrian ramp up to Morrisons Parking Lot



1



2



3



4

5



6



7



8



9



10



11



12



13



14



15



16



17



18



19



Site Dimensions

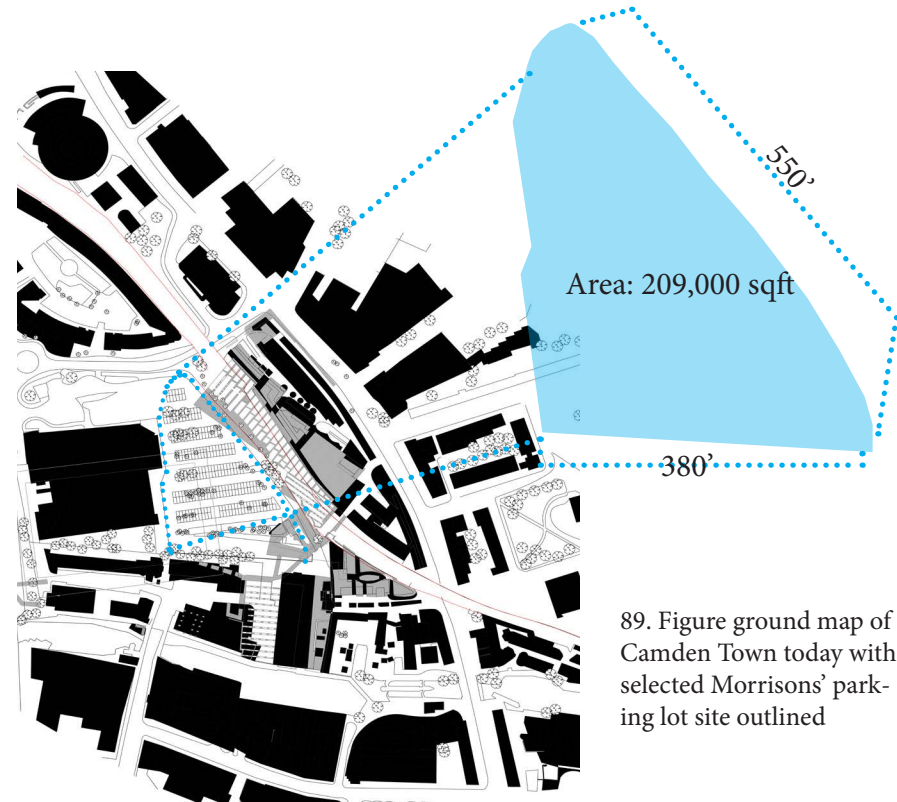
Typical Vault: 9' high x 6' 3" wide with 18" abutments

Typical Horse Stable (one story): 20' high

Parking lot: 550' x 380' = 209,000 sq ft

Elevation changes:

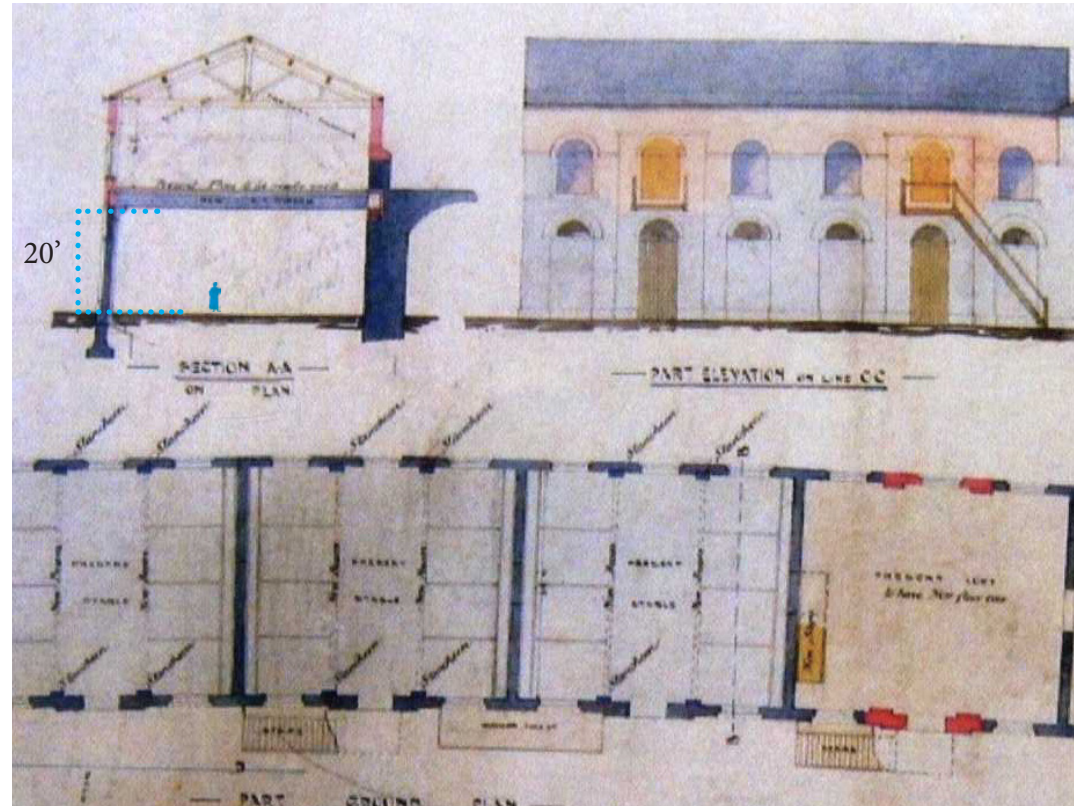
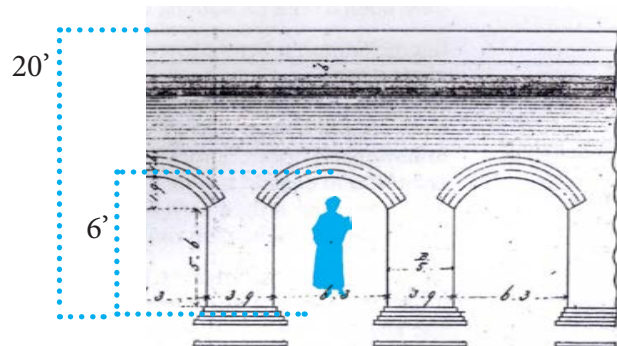
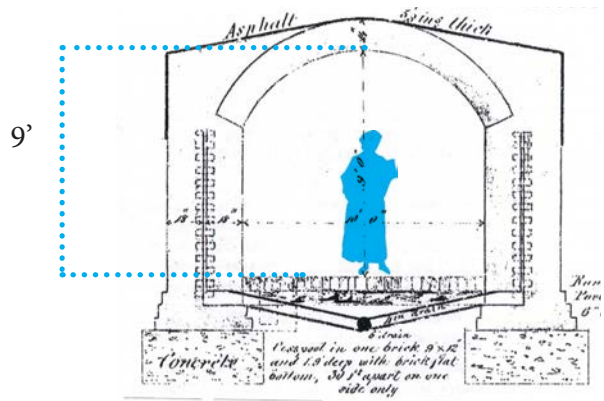
There is a 15-20' drop in grade from the plateau that the parking lot sits on to the street level of the Stable Markets and Canal.



89. Figure ground map of Camden Town today with selected Morrisons' parking lot site outlined



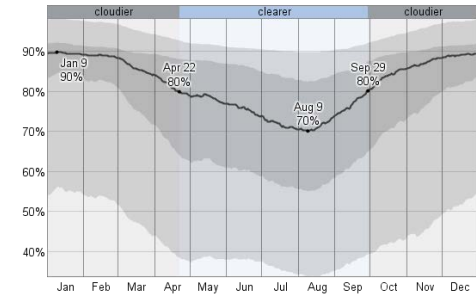
90. Below: Cross section of site through Morrisons' parking lot and Stable Yard



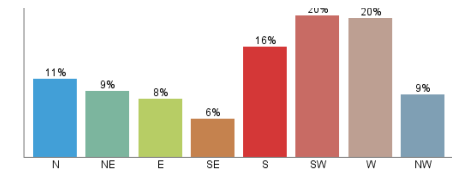
91. Top Right: Dimensions of horse tunnel
 92. Bottom Right: Dimensions of Vaults of 1837-39
 93. Left: Provender Store 1881 alterations

Climate Data

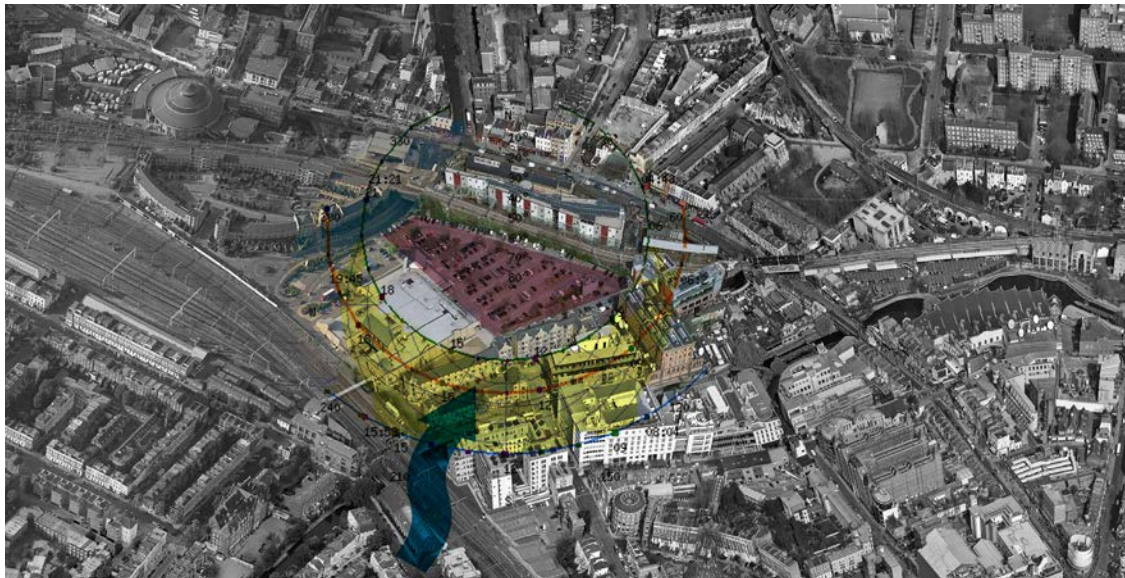
The concerning climate factors for the site will be sunlight, wind and precipitation. The climate typically experienced in London is mild to cool temperatures with mostly cloudy days. Wind tends to come in from the Southwest and West.



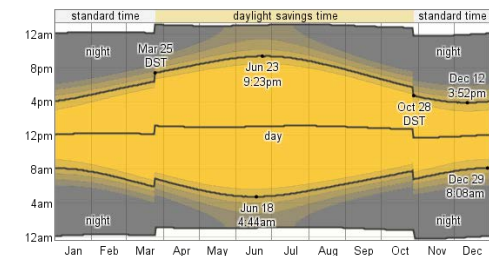
95. Yearly cloud coverage London



96. Wind Direction over a year in London



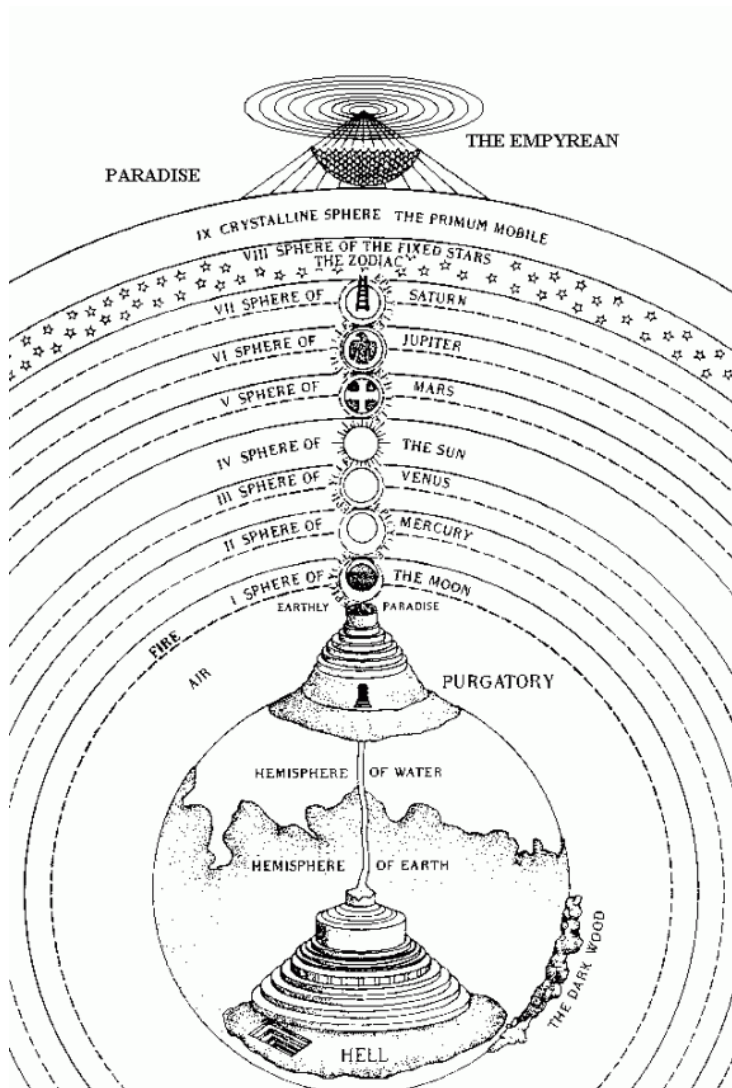
94. Morrisons' parking lot site with climate condition overlay



97. Sunlight during a day over a year

5 Script

Suspension of Disbelief



98. Diagram of the three levels of The Divine Comedy, Inferno, Purgatorio, Paradiso

Essential to developing an architecture of cinematic illusion is to effectively create a condition of suspension of disbelief where the user temporarily believes in another constructed reality. When the condition of suspension of disbelief is translated to an architectural solution, the result is a series of scripted spaces. It was necessary for this thesis to pick a narrative to construct that would evoke the condition of suspension of disbelief and compliment the characteristics of Camden Town

Two authors were initially examined as options for finding literary works to insert into the site and translate architecturally. The first author considered was Jorge Luis Borges. Borges' short stories were considered because they possess magical realistic qualities that strongly supports creating an illusion and the condition of suspension of disbelief. Borges' stories proved difficult to translate into scripted spaces due to the breadth of his work. It was challenging to choose which of his stories and descriptions of places to add to the site. Additionally, it was difficult to make a connection between Borges and the Camden Town site.

Charles Dickens was the second author considered for finding a narrative to insert into the site. In his stories, Dickens placed various characters and settings in Camden Town. Additionally, Dickens was once a resident of Camden Town. His narratives were discarded as an option for translating into scripted spaces because their structure and descriptions were not seen as complimenting the cinematic investigation of this thesis.

The Divine Comedy by Dante Alighieri was ultimately chosen as the narrative to create the condition of suspension of disbelief in the site.

The Divine Comedy was chosen for a few reasons. Firstly, the structure of poem establishes a rhythm and sequence of movements that pertains to creating a condition of persistence of vision. The structure of the poem also lends itself to constructing an architectural order. For instance, there are three parts to the poem, Inferno, Purgatorio, and Paradiso. Within each part Dante travels through 10 sub-levels. In terms of the cantos structure, each part is divided into 33 cantos (34 for Inferno) totaling to 100 cantos. The cantos are 22 meters.

Secondly, the descriptions of the spatial qualities of Hell, Purgatory, and Heaven could translate into rich architectural experiences.

Lastly, The Divine Comedy suites the character of the site. The spaces within the Camden Depot possess labyrinthine quality that could very easily be integrated into the sequence of spaces scripted from the poem.

The “program” of this project is a qualitative program based on the experiences of Dante in The Divine Comedy. The spaces or rooms in this final project reflect the descriptions of places and movements in the poem through designed light, material and spatial qualities. This approach differs from the usual quantitative programmatic approach in which the thesis project building design is based off of a program centered on function and square footage.

Inferno

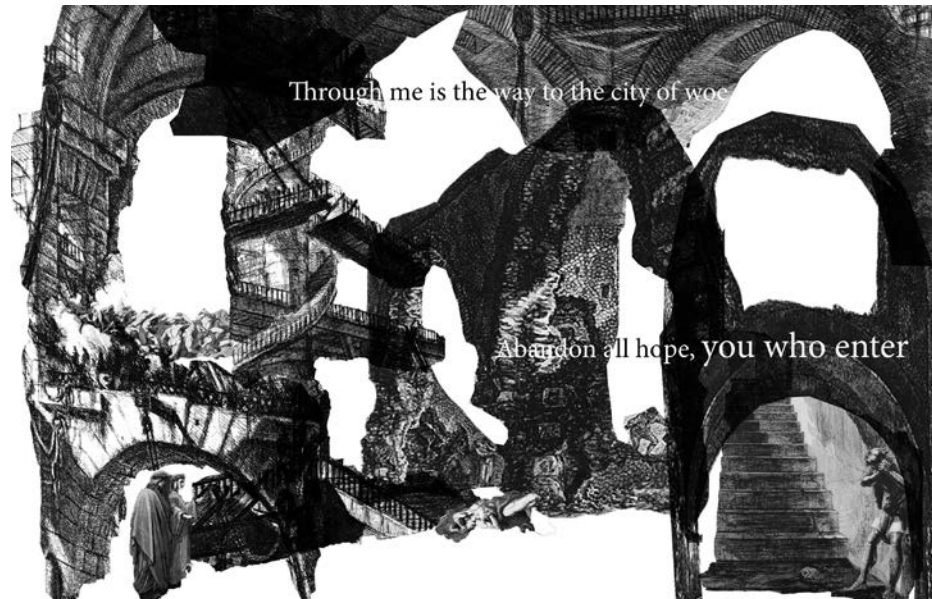
Inferno is the first level Dante travels through in Dante Alighieri's *The Divine Comedy*. Inferno is an allegory telling the journey of Dante through Hell guided by the Roman poet Virgil. It represents the recognition and rejection of sin. In Inferno, Hell is depicted as nine circles, representing different types of sins, leading down to the Pit of Hell where Satan sits waist deep in ice. It was necessary for this thesis project to generate an image that encompasses the general architectural qualities the spaces of hell would have. The architectural qualities of the different spaces in Hell were conceptualized as being dense, dark, cavernous, places that descend underground. To help generate a conceptual image for Hell catacombs and the *Carceri d'invenzione* drawing by Giovanni Battista Piranesi were looked to get a sense of how spaces and circulation could be represented.



99. Concept sketch of Inferno



100. Concept cast of Inferno



1 **Limbo** non-baptized and virtuous pagans

2 **Lust** allow appetite to sway reason, souls blown back and forth by terrible winds

3 **Gluttony** forced to lie in a vile slush produced by ceaseless rain

4 **Greed** those whose attitude toward material goods deviated from the appropriate means, forced to push heavy boulders

5 **Anger** forced to fight on a muddy bank

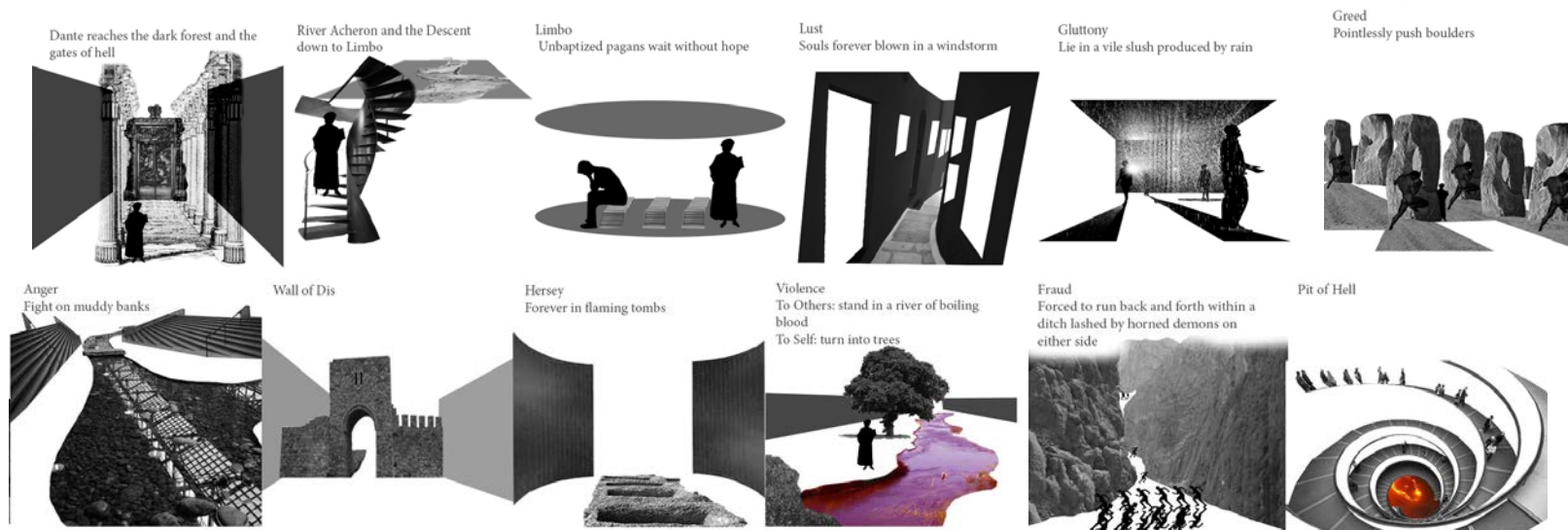
6. **Wall of Dis** contains the lower parts of Hell and the city of Dis

7. **Hersey** forever lie in flaming tombs

8. **Violence** To Others: must stand in a river of boiling blood. To Self: turn into a tree

9. **Fraud** forced to run back and forth within a ditch lashed by horned demons on each side.

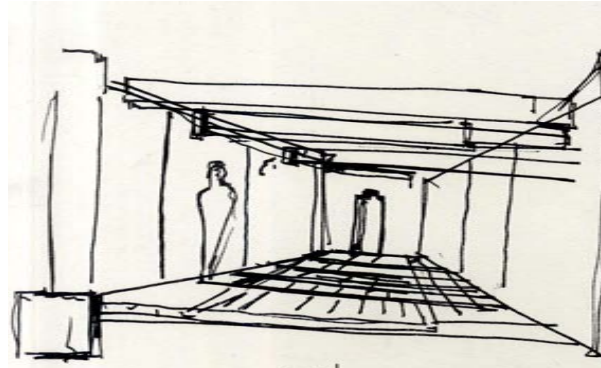
10. **Pit of Hell** where Satan sits, waist deep, in ice blocking the hole to the center of Earth



102. Story boarded levels of Inferno

Purgatorio

Purgatorio is the second level Dante travels through in *The Divine Comedy*. Purgatorio is an allegory telling of Dante's climb up the Mount of Purgatory guided by Virgil and Beatrice. Purgatory is depicted as a mountain in the Southern Hemisphere consisting of an Ante-Purgatory, seven levels associated with the seven deadly sins, and an Earthly Paradise on top. It represents the nature of sin and examples of vice and virtue. For this thesis project the general architectural qualities of the spaces in Purgatory are conceptualized as being isolated, earthly terraced spaces, that are outdoors and open to the sky above.



103. Concept sketch Purgatorio

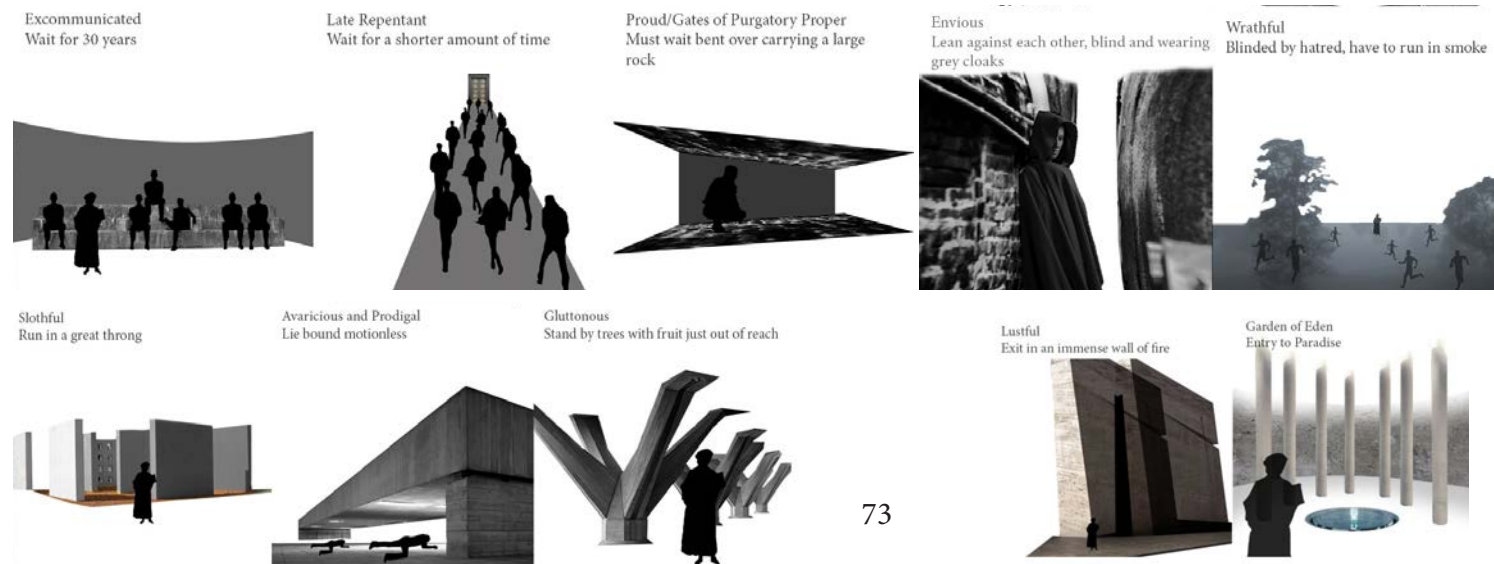


104. Concept cast of Purgatorio

105. Left: Concept collage of Purgatorio



- 1 **Excommunicated** part of Ante-Purgatory, sinners must wait for 30 years before entering Purgatory proper
- 2 **Late Repentant** part of Ante-Purgatory, wait for a shorter amount of time to get into Purgatory proper
- 3 **The Proud** gates of Purgatory, must wait bent over carrying a large rock
- 4 **The Envious** lean against each other, blind and wearing grey cloaks
- 5 **The Wrathful** blinded by hatred, have to run in smoke
- 6 **The Slothful** run in a great throng
- 7 **The Avaricious and Prodigal** lie bound motionless
- 8 **The Gluttonous** stand with trees with fruit just out of reach
- 9 **The Lustful** exit Purgatory in an immense wall of fire
- 10 **Garden of Eden /Earthly Paradise** entry to paradise



106. Story boarded levels of Purgatorio

Paradiso

Paradiso is the third and final level Dante travels through in the Divine Comedy. Paradiso is an allegory telling of Dante's journey through Heaven guided by Beatrice. In the poem Heaven is depicted as nine concentric spheres surrounding Earth leading to the Empyrean where God resides. The poem represents the soul's ascension to Heaven. The architectural qualities of the different spaces in Heaven for this thesis project are conceptualized as being beyond earth, light in weight and flooded with light. The spaces are grand, similar to spaces in Catholic Cathedrals.



107. Above: Concept sketch of Paradiso



108. Below: Concept collage of Paradiso

1 **The Moon: The Inconstant** experiment with optics; constant change

2 **Mercury: The Ambitious** hard to see

3 **Venus: The Lovers** hope and love

4 **The Sun: The Wise** source of illumination

5. **Mars: The Warriors of the Faith** souls appear in sparks

6 **Jupiter: The Just Rulers** king of the gods; appears as a giant eagle

7 **Saturn: The Contemplatives** temperance

8 **The Fixed Stars: Faith, Hope, Love** looks back on all other

spheres of Paradise

9 **The Primum Mobile: The Angles** sphere is in constant motion

10 **The Empyrean: Where God Resides** where God resides

109. Below: Story boarded levels of Paradiso

Moon
Experiment with optics; constant change



Mercury
The ambitious, hard to see



Venus
The lovers faith, hope and love



Sun
Source of illumination



Mars
Warriors; souls appear in sparks



Jupiter
King of the gods; appears as giant eagle



Saturn
Contemplative; temperance



Fixed Stars
Represent hope, faith, and love.
Looks back on all other spheres of Paradise



The Angles
Sphere is in constant motion



Empyrean
Where God reside



6 Reading Camden Town

Site Mapping

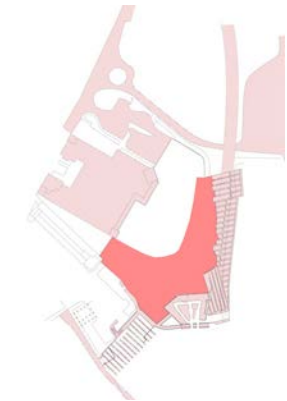
Camden Town contains many unique features that surround the chosen site of Morrisons' parking lot including the Stable Markets, the Camden Lock Markets, the Eastern Horse Tunnel Markets, the basement of 1905, the Dead Dog Basin and Interchange Warehouse, the Vaults of 1846-47, Vaults of 1855, Vaults of 1837-39, the North London Railway, and the Regent's Canal. The attitude taken towards the site was to preserve and incorporate the existing features into this thesis project's designed sequence of spaces. The intent was to have these existing features aid in the telling of The Divine Comedy by keeping them in tact rather than demolishing them or building in them. The new intervention would use the existing features as entry points into the designed sequence of spaces. For example, the vaults of 1855 could become the first space in the Hell sequence.



110. Collaged aerial view of Camden Town



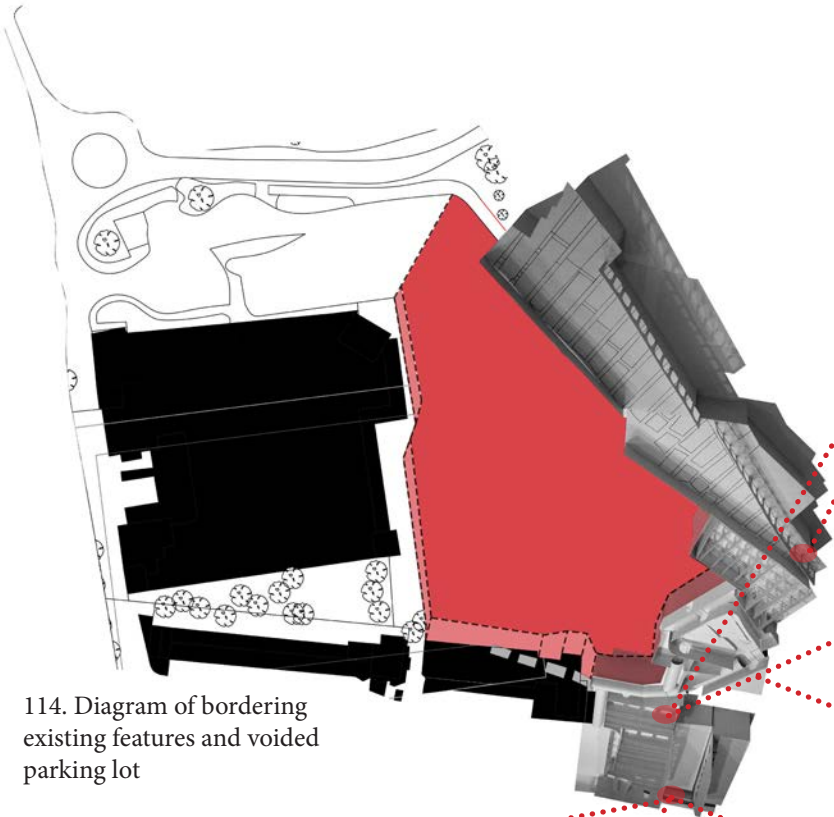
111. Diagram of nodes and movement in Camden Town



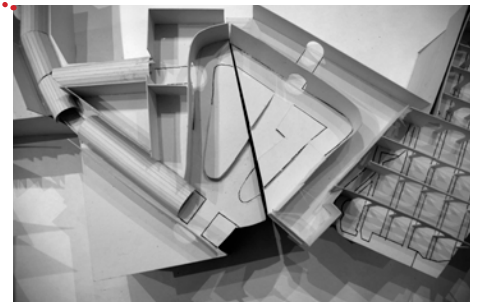
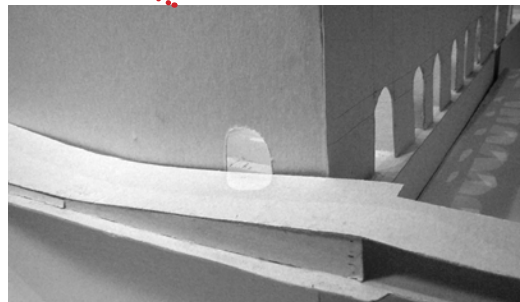
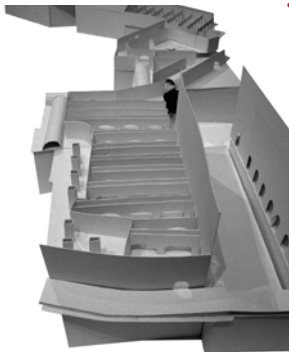
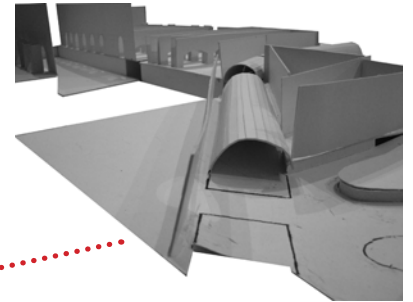
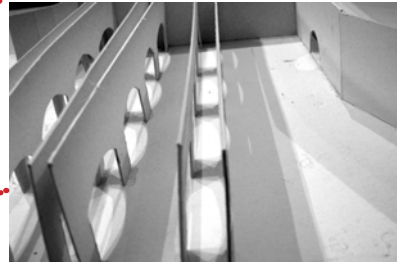
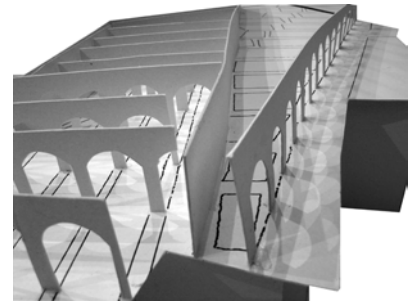
112. Diagram of proposed site (red) and bordering existing features (hatched red)



113. Concept diagram of new features reflecting old features



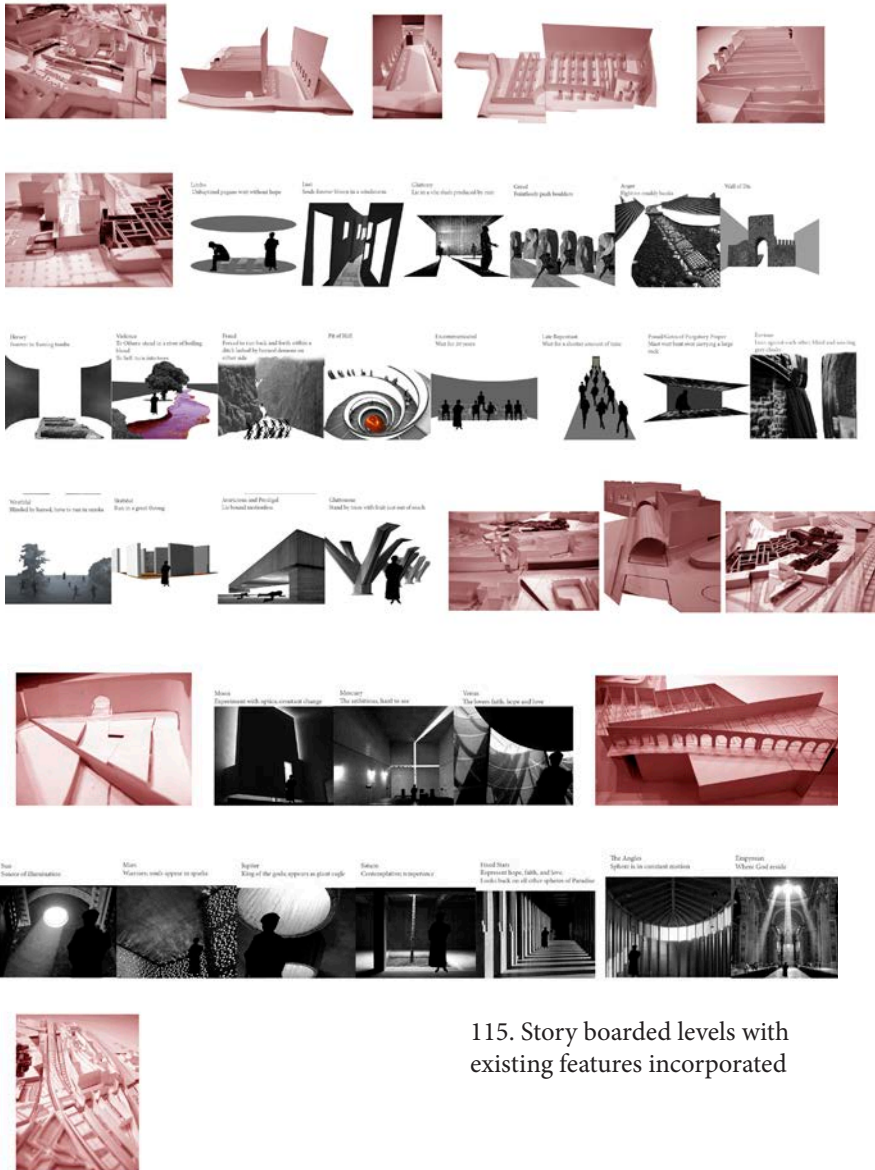
114. Diagram of bordering existing features and voided parking lot



When diagramming the site the existing features were treated as a porous border surrounding the parking lot. By treating the existing features as a border, the parking lot was seen as a void that could be excavated and filled with new spaces. Instead of covering these designed spaces with a new parking lot that would replace the excavated existing one, the idea to remove the cars from the area and create a green roof scape was developed. Replacing the lot with a green roofscape that could be used as a park was a plausible response to the site for a few reasons. Firstly, there are scarce opportunities to create new urban green space in London due to overdevelopment. Although the Regent's Park and Primrose Hill are in close proximity to Camden Town, very little green space exists in the immediate Camden Depot area. Converting the parking lot into a green roof scape and park would support the efforts of the Greater London Authority to expand the green space in London and improve the living environment of Camden Town for visitors and residents. The addition of a green space and park to the Depot would also improve air quality and urban cooling.

Secondly, there are a number of alternative transportation options to the car available to visitors. The availability of the London Underground Camden Town and Chalk Farm stations, the NLR, and bus line that run along Chalk Farm Rd make the car parking lot dispensable. Additionally, if the Morrisons supermarket did require that the parking spaces remain, an underground parking garage could be built in the northern half of the existing lot whilst the southern half of the lot contained this project's intervention. An access point to the new underground parking could be created at Juniper Crescent Road.

Mapping the different nodes and movements through the Camden Depot was also important to creating the early conceptual designs for this thesis project. There are a variety of ways to move through the Camden Depot. In particular the multitude of access points allows for different ways of experiencing the Camden Markets. This diversity of experiences in the Markets later informed the spatial journey of this project.



7 Interpreting the Divine Comedy

Layering Features

After mapping the site, The Divine Comedy was interpreted . It had been determined this thesis would translate all three parts of the poem (Inferno, Purgatorio, and Paradiso) into a sequence of spaces within the site. The question became how would the three parts fit into the site. In order to determine the general forms and positions of Inferno, Purgatorio, and Paradiso, three zones were located within the parking lot site. Each zone represented where the spaces of Inferno, Purgatorio, and Paradiso could be placed . The form and placement of the zones was developed by layering the current figure ground map on top of itself. The idea to use this technique to find a form and determine the position of the zones was generated from the studied images of double and long exposure photography used as precedents earlier in this thesis to define persistence of vision.



118. Concept diagram of overlaying existing features to create forms of the zones of Inferno, Purgatorio, and Paradiso



119. Map of 1846-47 overlaid onto current figure ground



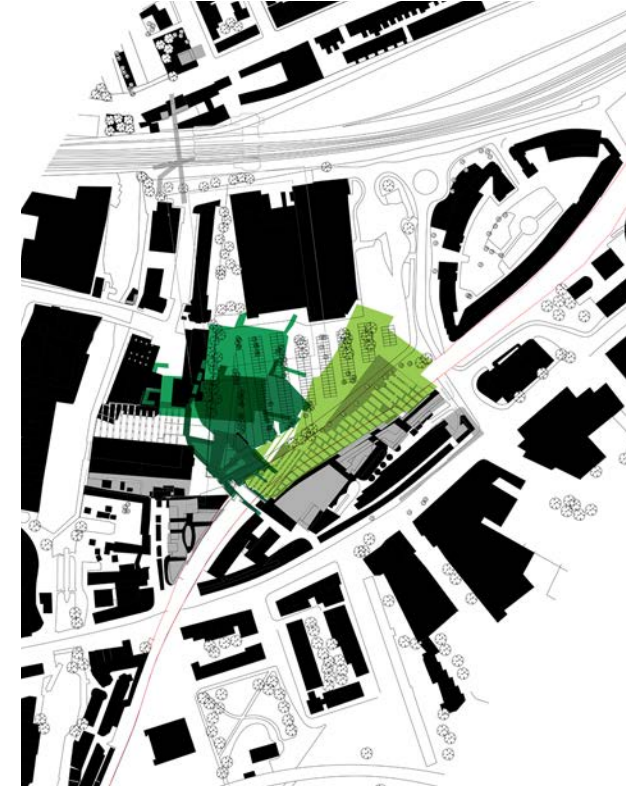
120. Map of 1848-52 overlaid onto current figure ground



121. Map of 1948 overlaid onto current figure ground

Zones

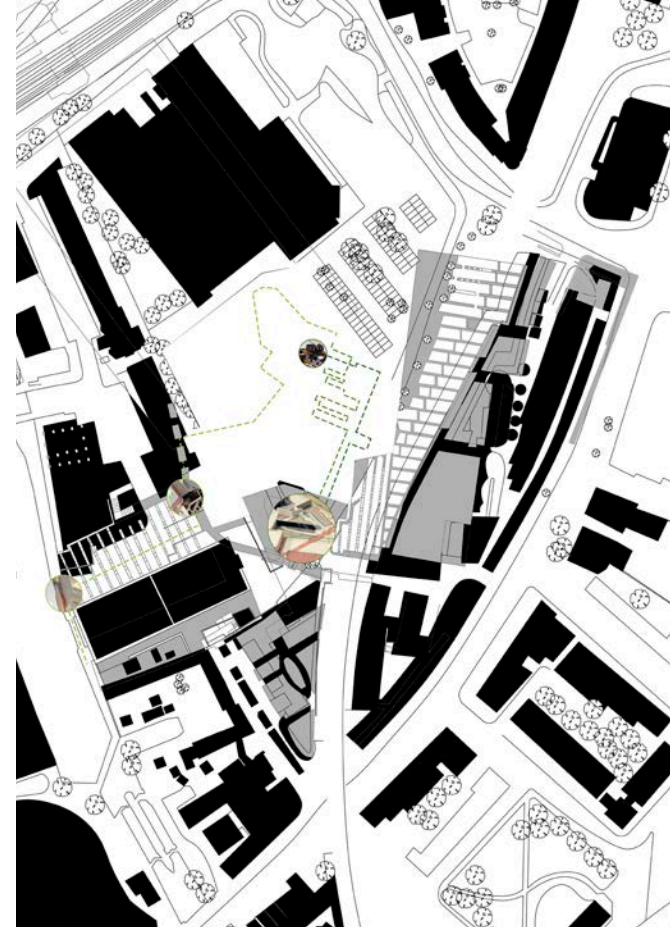
Once the positions of the zones were placed in the site, the entries and circulation through the zones were determined. As mentioned in the previous section, it was desired that the existing features be incorporated into the designed sequence of spaces. It was necessary to decide how many entries there should be into the project and where these entries should be placed. One logical entry point was the Eastern Horse Tunnel Market. In the market there is an existing staircase that leads up to the Morrisons' parking lot. Utilizing the existing staircase would create a transition between spaces above and below ground. Another possible entry point into the project was the towpath along the canal. Using the towpath as an entry point allows for the potential to incorporate the Dead Dog Basin, the basement of 1905, the horse tunnel, and the vaults of 1855 into the project's designed sequence of spaces.



122. Diagram of zones in site: Inferno (medium green), Purgatorio (dark green), Paradiso (light green)

Entries

During the process of developing the positions of the entry points it was debated whether there should be two entries/exits or three. The amount of entries/exits would affect how the story line and sequence of spaces would be experienced. Putting two entries/exit points, one leading into the first space in the Inferno sequence and one leading into the last space of the Paradiso sequence, would force the user to experience project in a linear fashion. This option would best reflect Dante's journey which started in Hell and ended in Heaven. Putting three entries into the project, one at the beginning of each zone, would allow for multiple ways of reading the sequences. The visitor, for example, could chose to start in Purgatory and end in Hell. It was decided that there should be three entries/exits to allow a diversity in experiencing the project. The entry into Inferno would be through a door that leads from the towpath to vaults of 1855 then into the first room of Inferno. The entry into Purgatorio would be placed in the Eastern Horse Market Tunnel near the existing staircase. The entry into heaven would be accessed at the level of the Morrisons' parking lot.



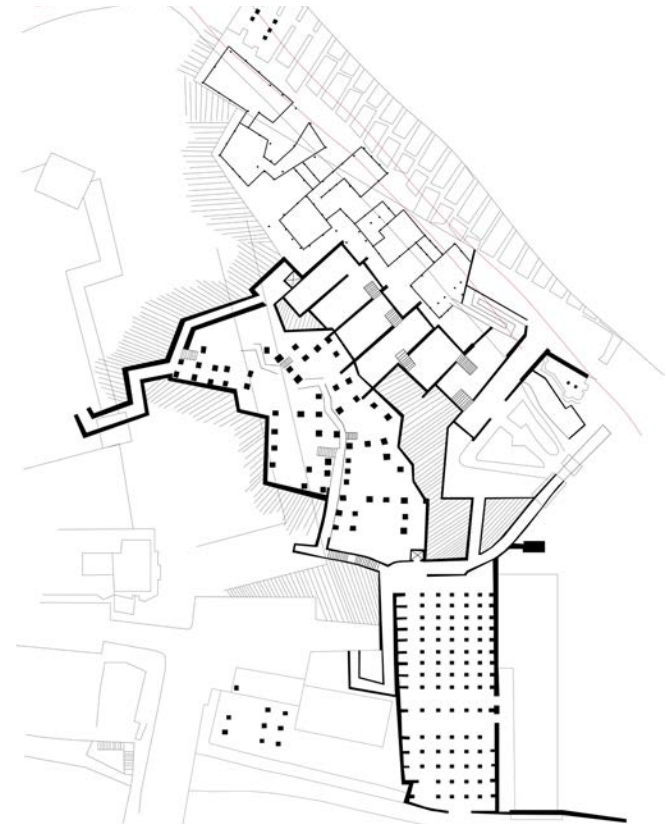
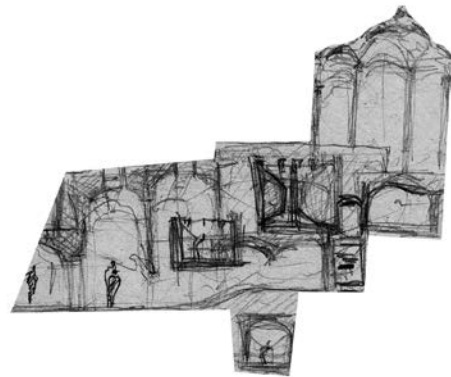
123. Diagram of path through Inferno, Purgatorio, and Paradiso and entries into the zones

Movement

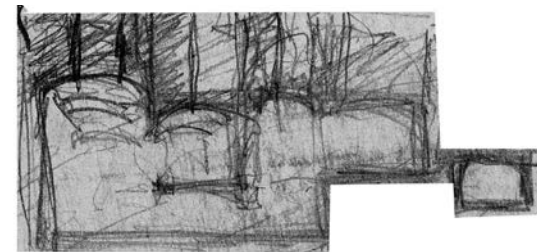
After the entries were placed in the site, the general circulation through the zones was outlined. It was desired that the circulation through the zones reflect the movement of Dante through *Inferno*, *Purgatorio*, and *Paradiso*. In the poem Dante descended through Hell, ascended the Mount of Purgatory, then ascended through the circles of Heaven to get to the Empyrean. Starting at the vaults of 1855 the sequence of spaces representing Hell would descend further underground 33 feet to represent the 33 cantos of *Inferno*. The spaces representing Purgatory would then ascend upward toward the level of the Eastern Horse Tunnel Market. From the horse tunnel market the spaces representing Heaven would ascent further upward toward the level of the Morrisons' parking lot.



124. Concept of sectional movement through the project



126. Preliminary plan of the three zones



125. Conceptual section sketches project

Spatial Qualities

The final step taken to interpret The Divine Comedy was to begin defining the spaces within each zone. The architectural qualities of each level in Inferno, Purgatorio, and Paradiso had previously been storyboarded. It was now necessary to step away from the individual storyboarded levels and develop an overall language for each zone. For the Inferno zone, as mentioned before, the architectural qualities of the different spaces in Hell were conceptualized as being dense, dark ,cavernous, places that descend underground. Using the structural language of vaults of 1855 ten spaces were sketched out in the demarcated zone for Inferno. The general architectural qualities of the spaces in the Purgatorio zone were conceptualized as being isolated, earthly terraced spaces, that are outdoors and open to the sky above. A series of lines were drawn within the demarcated Purgatorio zone. The voids in between the lines (representing walls) became the 10 spaces of Purgatory. Finally, the architectural qualities of the spaces in Paradiso were conceptualized as being beyond earth, light in weight and flooded with light. In order to achieve a light feeling, columns were chosen as the structural element to create spaces. Points were placed within the demarcated Paradiso zone. Within this matrix of points (representing columns) would fit the 10 spaces of Heaven.



127. Precedent image for Inferno

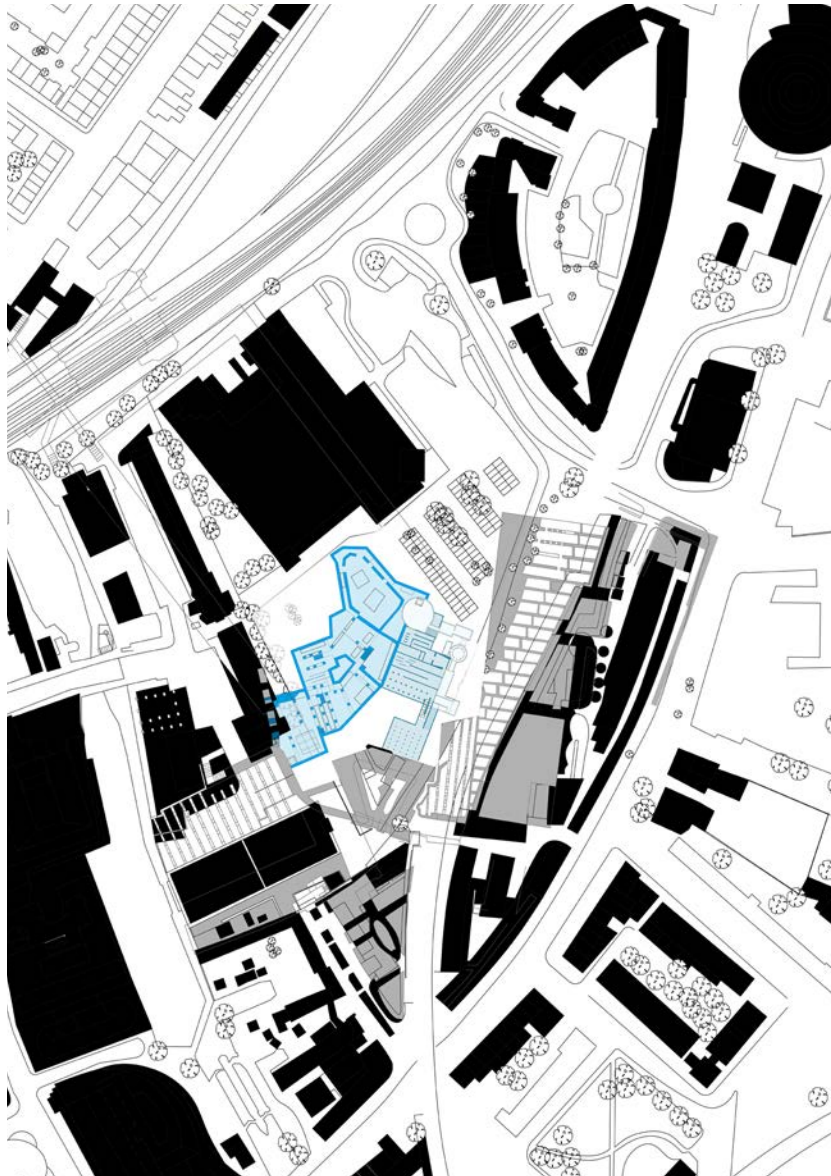


128. Precedent image for Purgatorio



129. Precedent image for Paradiso

8 Design Solution

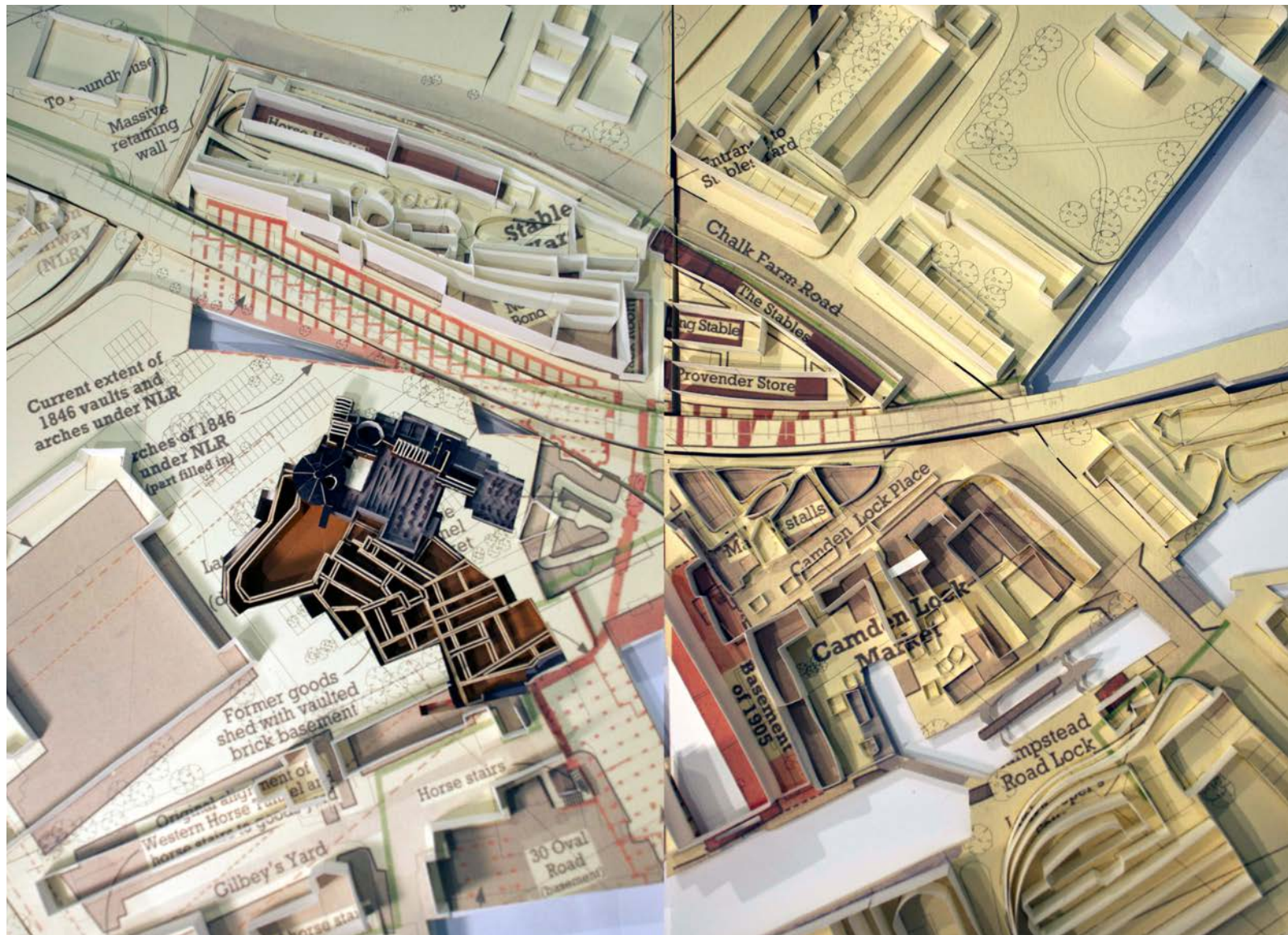


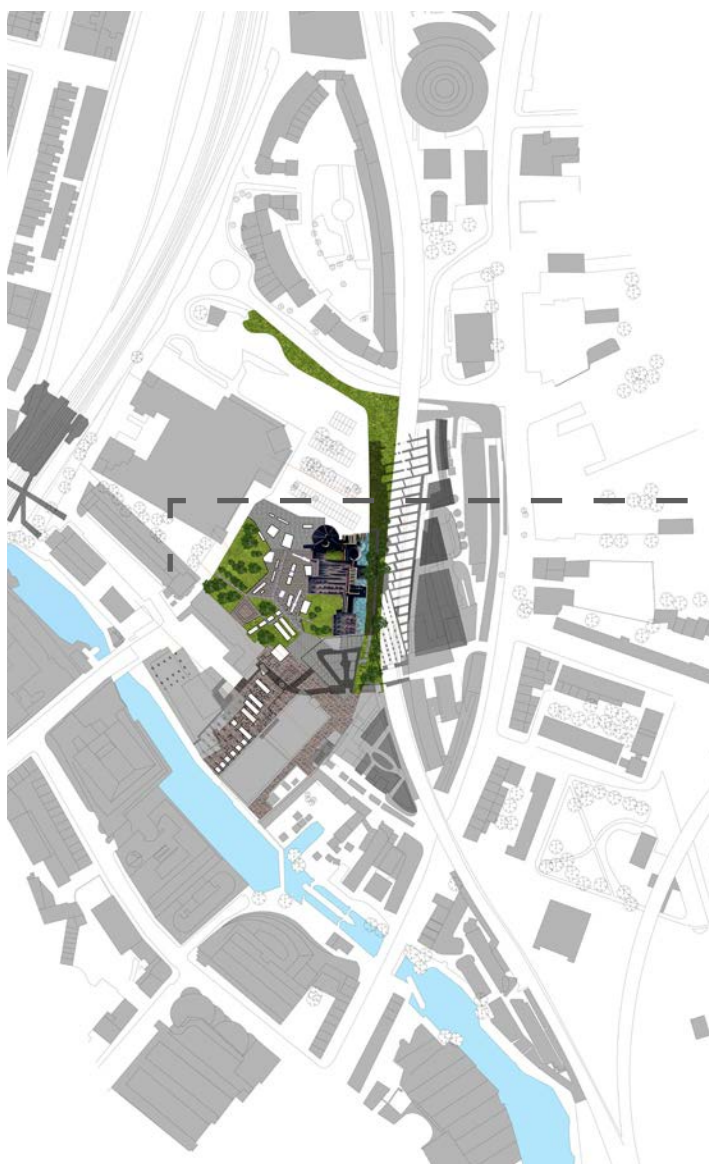
130. Master Plan with project intervention (blue)

Master Plan

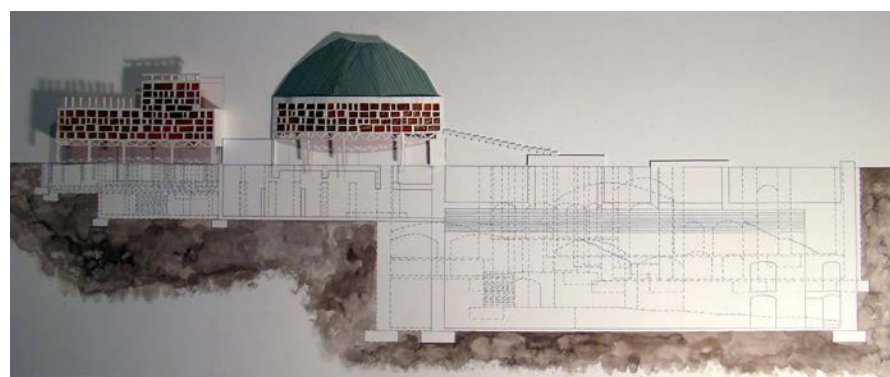
The objective of this thesis project was to create an architecture of cinematic illusion using persistence of vision and suspension of disbelief as the main components to construct an immersive environment. The following section displays the final design of this project.

The resulting master plan situates the three zones representing Inferno, Purgatorio, and Paradiso in the southern half of the Morrisons' parking lot. These zones are bordered by the existing features of Camden Depot. The ground level of Inferno lies completely underground and is covered by a green roofscape. Light wells present at the level of the green roof suggest that Inferno exists below. The ground level of Purgatorio also lies underground but is completely uncovered and open to the sky. A visitor standing in the green roof can look down into the spaces of Purgatorio. The ground level of Paradiso begins at the level of the Eastern Horse Tunnel Market. The floor levels of spaces in Paradiso gradually rise upward to reach a terminating level of 10 ft above the surface of the green roof.





132. Above: Master Plan of Camden Town with final intervention



There are three separate entries into this project. One entry is located through a door along the towpath. Once a visitor enters through this door they must travel along a path through the vaults of 1855 to arrive at a lobby and entry into the Inferno sequence. Another entry is located through a portal in the Eastern Horse Tunnel Market. When the visitor enters through this portal they arrive in the last space of the Purgatorio sequence, the Garden of Eden. From here, the visitor has a choice to continue through a tunnel to the remaining spaces in Purgatorio or through a door that leads the Paradiso sequence of spaces. The last entry is located at the top of a set of staircase from in the green roof. At the top of the staircase is a door that leads into the last space in the Paradiso sequence, Empyrean.



134. Above: Roof plan of intervention

Entries



135. Above: Entry into Paradiso



136. Above: Entry into Purgatorio



137 Above: Entry into Inferno

Roofscape



1 Jubilee Celebration Rose



2. Water Feature



3. English Oak



4. Slate Path



5. Turf Ryegrass



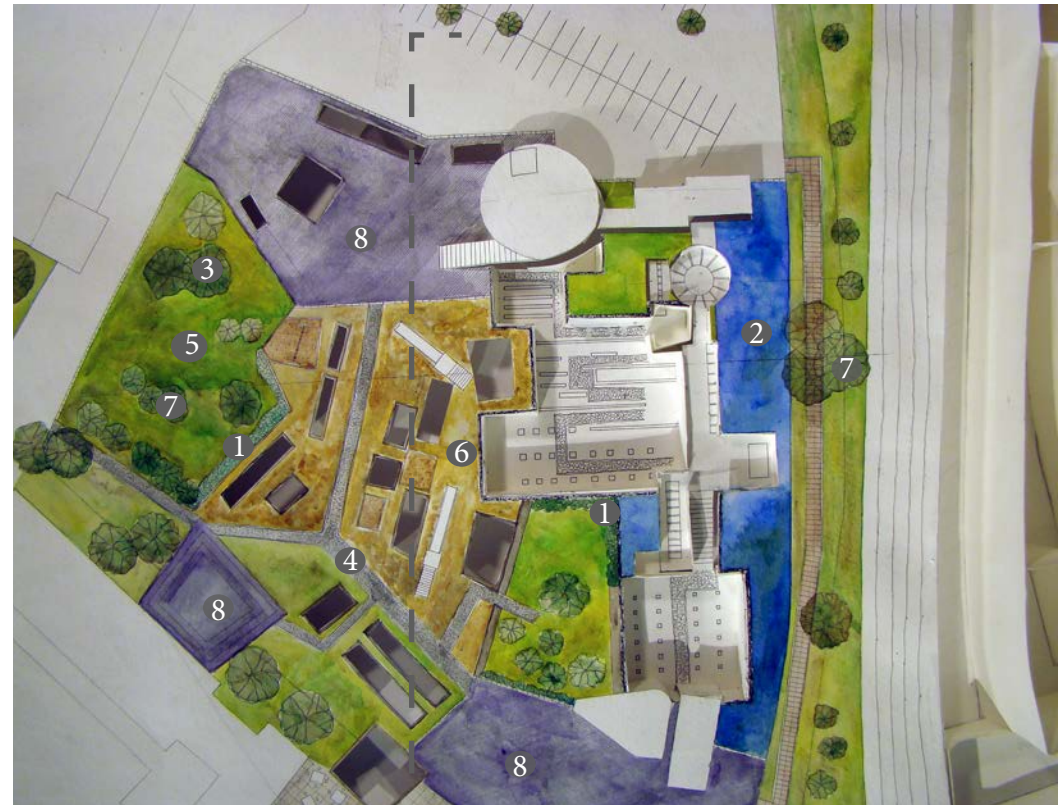
6. Gravel



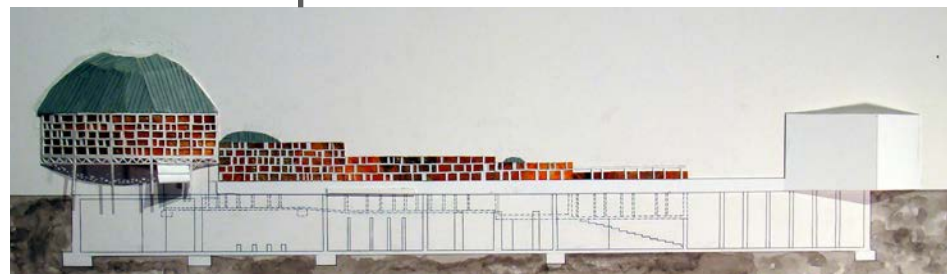
7. Wild Cherry



8. Stone paving



138. Above: Detailed view of roof plan



139. Above: West elevation of Paradiso

In the final design of the Morrisons' parking lot and green roof, the northern half of the lot is kept in its existing condition with the car spaces while the southern half of the lot that covers the underground portions of this project is converted into a green roof and park. The approach to the green roof was to allow the position of the light wells from Inferno control the placement of the other features of the green roof. Doing so gives the green roof a hodgepodge characteristic that reflects the organization of the Stable Markets.

Hardscape plazas surround the two staircases located in the green roof. One of these staircases leads up to the entry into Paradiso. The other staircase is an existing staircase that leads down into the Eastern Horse Tunnel Market. A third hardscape plaza that uses a different paving material, covers the area above the vaults of 1855 to the west of the Interchange Warehouse. This area is currently used as a parking lot for the offices in the warehouse. The project's proposed design would convert this area into a larger plaza containing urban seating. A slate path connects the two staircase plazas, small amphitheater, and existing sidewalk. This slate paving is also used to mark the central circulation path through the spaces in Inferno, Purgatorio, and Paradiso. Areas of grass, gravel and water fill the rest of the green roofscape. The vegetation chosen for the roof can be found throughout England. The four main vegetation types chosen for this green roofscape are the Wild Cherry tree, the English Oak tree, Turf Ryegrass, and the Jubilee Celebration Rose. Benches, tables, and playground equipment are intended to be placed throughout the areas of grass and gravel.

Inferno

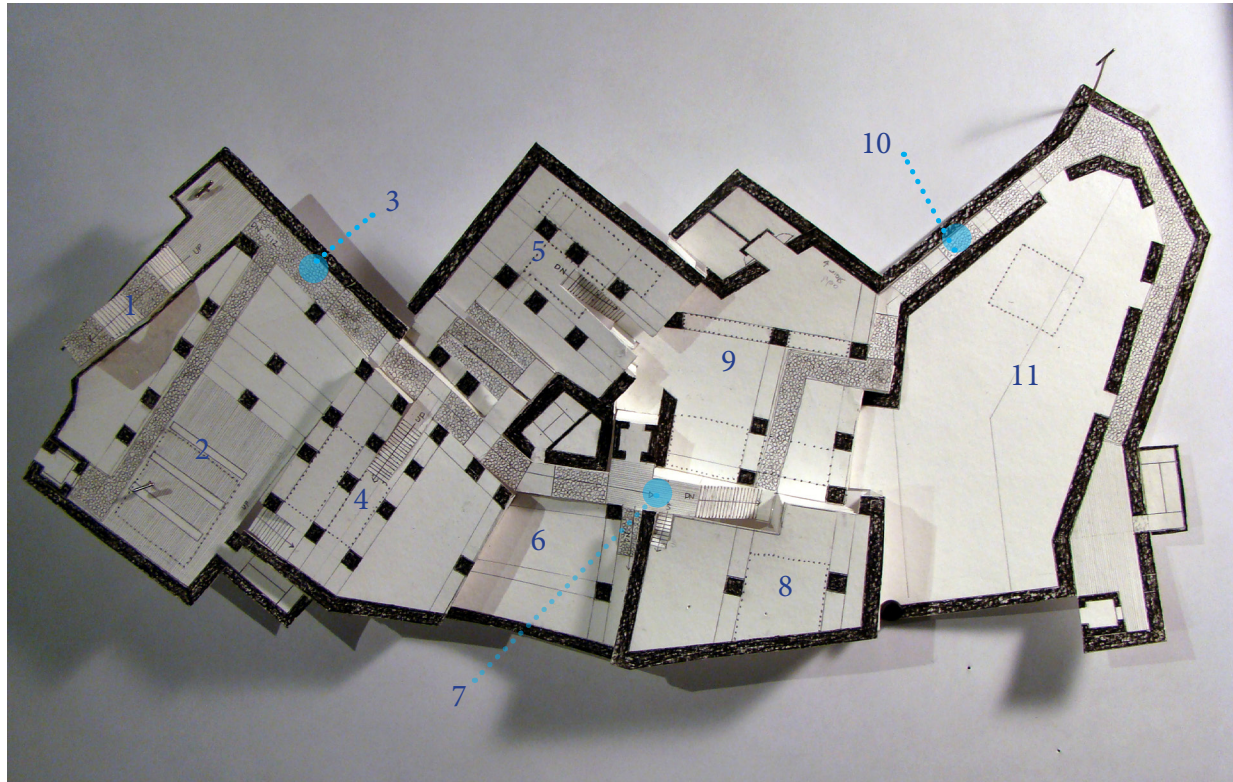
The Inferno zone consists of a sequence of 11 spaces that represent the levels Dante travels through in Inferno. The organization of the spaces is similar to that of catacombs in which there is a central path that rooms branching off of. The visitor starts his or her journey through Inferno by either taking an elevator down to Limbo from the lobby or passing through a doorway in the lobby, descending down a staircase, and arriving at the central path through Inferno. From this central path the visitor can continue his or her descent down through Inferno. Spaces representing the levels of Inferno branch off from this central path. The path terminates in a small circulation space with an elevator leading up to the Purgatorio zone. The perception of space in Inferno is controlled by variations in ceiling heights. It was desired that the spaces in Inferno be dark, cavernous places. These desired architectural qualities were achieved by using light wells to allow diffused light into certain spaces and constructing the spaces with heavy masonry vaults. This structural language reflects some of the existing features in the site.



140. Model of Inferno in site model showing entry



141. Model of Inferno



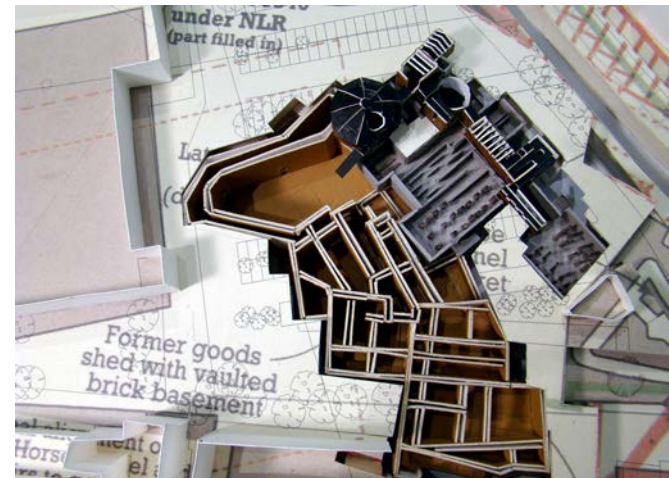
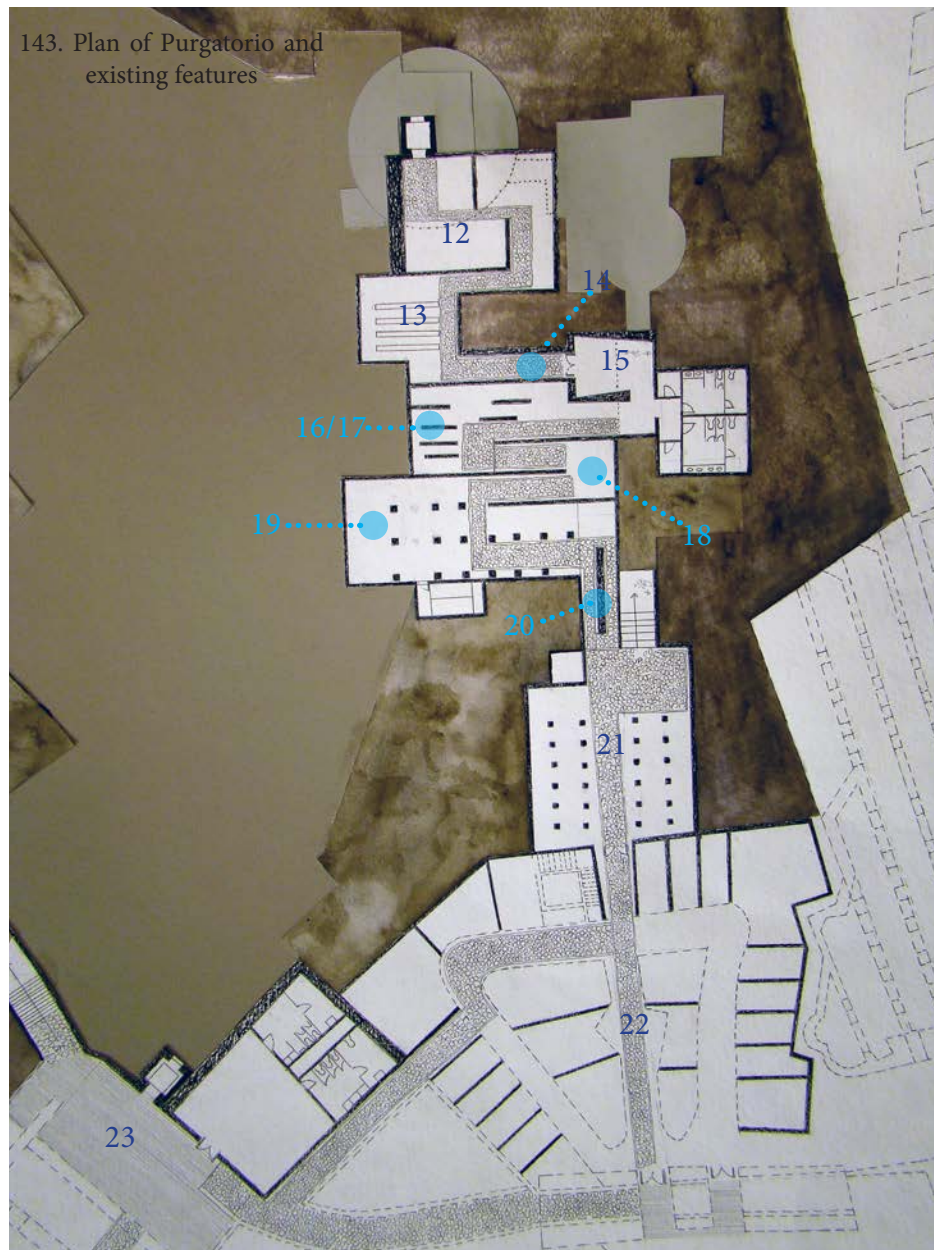
1. Descent to Limbo
2. Limbo
3. Lust
4. Gluttony
5. Greed
6. Anger

7. Wall of Dis
8. Violence
9. Hersey
10. Fraud
11. Pit of Hell

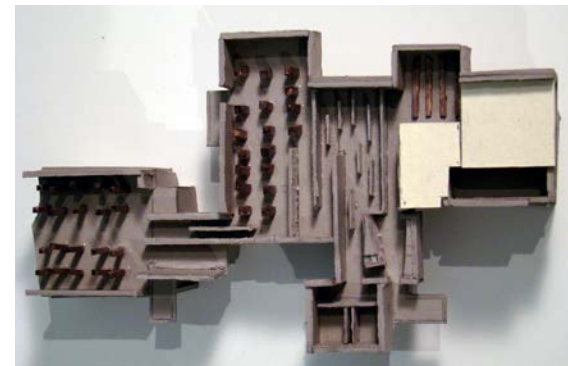
142. Plan of Inferno

Purgatorio

The Purgatorio zone consists of a sequence of 10 spaces representing the levels Dante travels through in Purgatorio. Unlike the circulation in Inferno where the visitor can choose to wander off the central path into a room in the Inferno sequence, the path in Purgatorio forces the visitor to move through each space in the sequence. The central path in Purgatorio meanders in and out a labyrinth of walls with moments of open space for rest. The visitor starts his or her journey through Purgatorio from either an elevator leading up from the last space in the Inferno sequence to the first room in the Purgatorio sequence, the Excommunicated, or from the last room in the Purgatorio sequence, the Garden of Eden. Walking along the central path from either the Garden of Eden or the Excommunicated the visitor experiences the rest of the spaces in Purgatorio. The perception of space in Purgatorio is controlled by variations in the horizontal field of vision rather than vertical field. Walls and other objects such as benches and vegetation are placed along the path to interrupt the horizontal field of vision. There is never an indication of what is to come next in the sequence. Sectionally, the spaces in Purgatorio remain on the same floor level. This differs from the spaces in Inferno which gradually descend further underground, and Paradiso, which ascend upward toward the sky. To portray the description of the Mount of Purgatorio, the spaces in Purgatorio are daylighted and outdoors. The material chosen to construct Purgatorio is site cast rough concrete. Concrete was chosen as a material because it was desired that the weight of the spaces feel moderately heavy, falling somewhere between the light steel that would be used to construct Paradiso and the heavy masonry used to construct Inferno. Additionally, concrete is already used to structure some of the existing features in the site.



144. Model of Purgatorio in Site Model

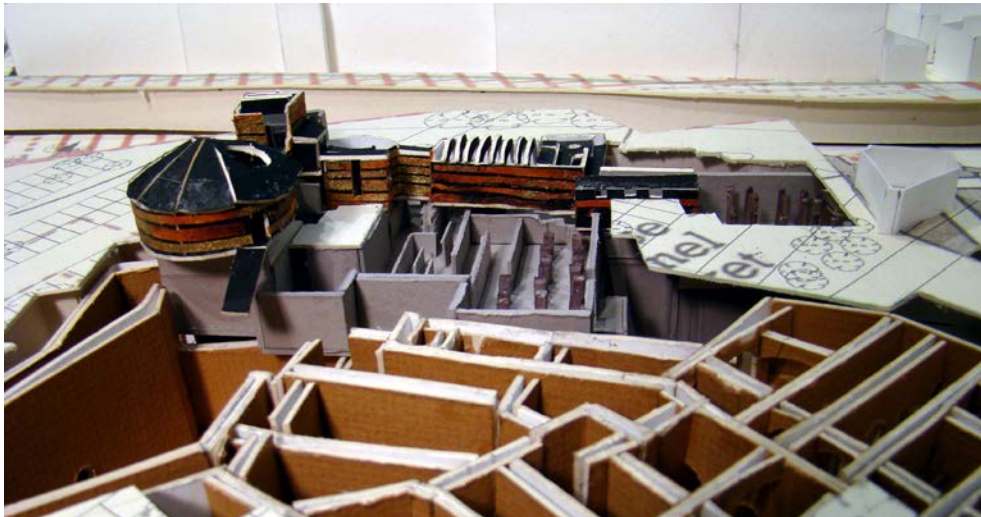


145. Model of Purgatorio

- | | |
|---------------------------|---------------------------------|
| 12. Excommunicated | 20. Lustful |
| 13. Late Repentant | 21. Garden of Eden |
| 14. Proud | 22. Eastern Market Horse Tunnel |
| 15. Envious | 23. Ticket Booth/Vaults of 1855 |
| 16. Wrathful | |
| 17. Slothful | |
| 18. Avarices and Prodigal | |
| 19. Gluttonous | |

Paradiso

This final zone consists of a sequence of ten spaces representing the levels Dante travels through in Paradiso. The central circulation path through Paradiso is perhaps most direct out of the three zones. Apart from one moment in which an elevator is needed to get to the next space, each room in Paradiso leads immediately into the next. The visitor begins his or her journey through Paradiso by either entering a door in the Garden of Eden and climbing up a flight of stairs or climbing up a staircase in the green roof and entering through a door. The greenroof staircase leads to the last room in the Paradiso sequence, the Empyrean, and the staircase in the Garden of Eden leads to the first space in the Paradiso sequence, The Moon. The visitor can continue through the remaining spaces in the Paradiso sequence. The perception of spaces in Paradiso is defined by variations in lighting. Each room in Paradiso is lighted with different zenithal lighting techniques. The different techniques diversely affect the perception of their respective spaces. The change in lighting represents a new level in Paradiso. In addition to having a particular treatment of light, it was desired that the materiality of the spaces in Paradiso feel light in weight. To achieve a lightness in material, steel framing systems were chosen to structure the rooms. For the facade of the rooms, the use of glass was considered because of its transparency. Glass was ultimately replaced with the idea of using a thin, translucent marble facade because it was desired that the visitor remain isolated from the surrounding context while experiencing the sequence of spaces.



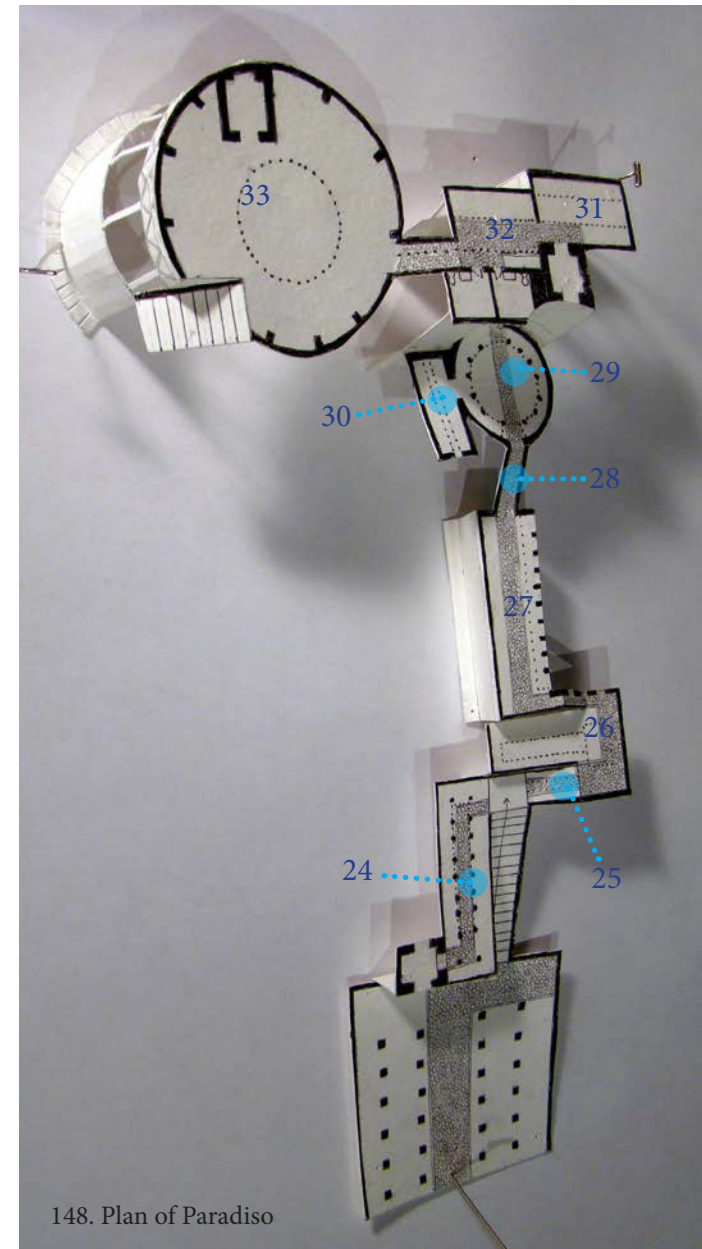
146. Model of Paradiso in Site Model



147. Model of Paradiso

24. The Moon
25. Mercury
26. Venus
27. The Sun
28. Mars

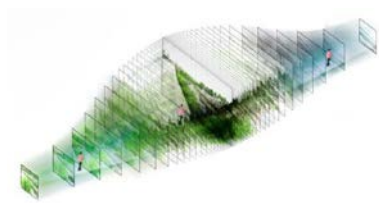
29. Jupiter
30. Saturn
31. The Fixed Stars
32. The Primum Mobile: The Angles
33. The Empyrean



148. Plan of Paradiso

Persistence of Vision and Sections

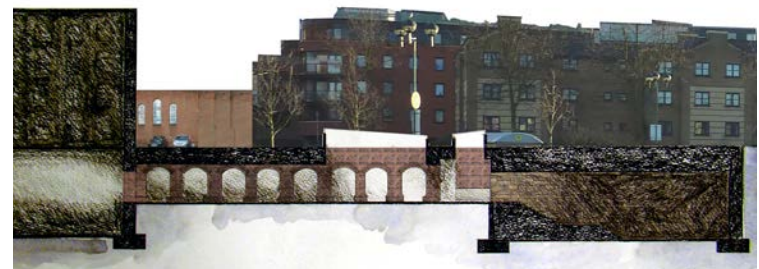
One of the cinematic devices utilized in this thesis to construct an architecture of illusion was persistence of vision. When this device is translated into an architectural solution the result is a series of fragmented movements that appear continuous when strung together. This result is most clearly represented in the sectional drawings of this project. In particular, the long movement section, which follows the central path the visitor would take through the spaces, illustrates the fragmented moves, lighting changes, and spatial variations the visitor experiences in the project. When the moments are pieced together, this section gives a sense of a continuous story. The larger cross sections give a detailed sense of lighting, material, spatial volumes, and the dialogue the zones have with each other and the existing features.



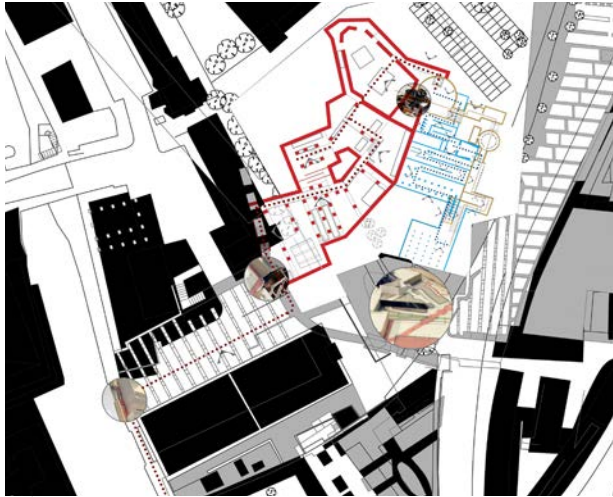
149. diagram of a series of movements through space from Ray Chau M. Arch thesis, Washington University in St. Louis
150. Below: movement section on central path through project



151. Cross Section B



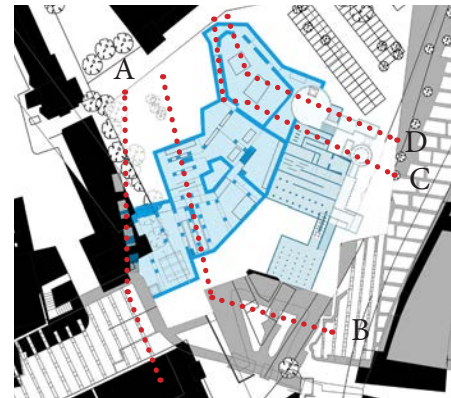
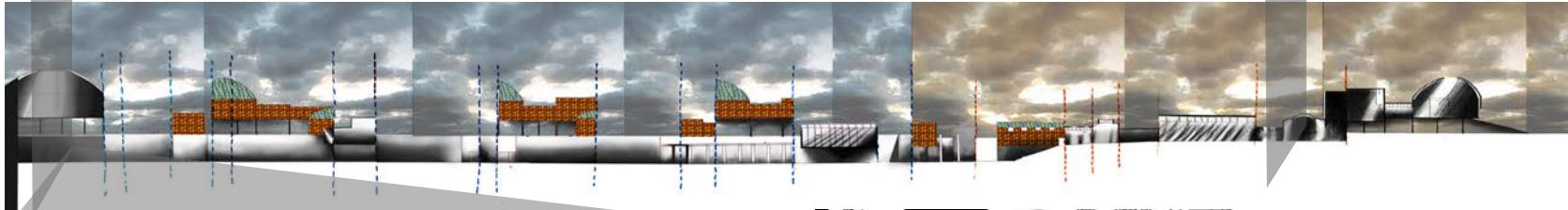
152. Cross Section A



153. Diagram of movement section cut



154. Cross Section C

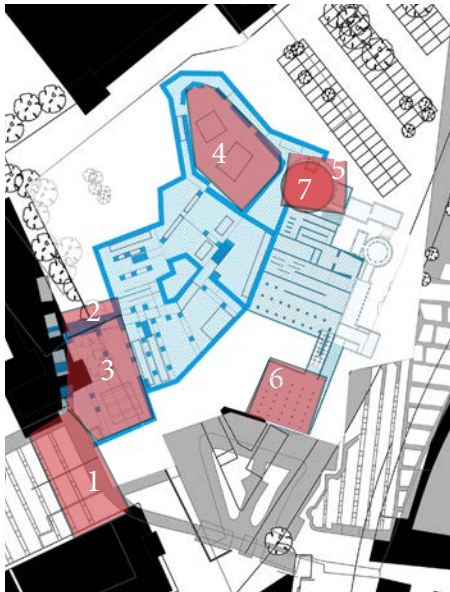


155. Below Left: Cross Section D
156. Diagram of cross section cuts

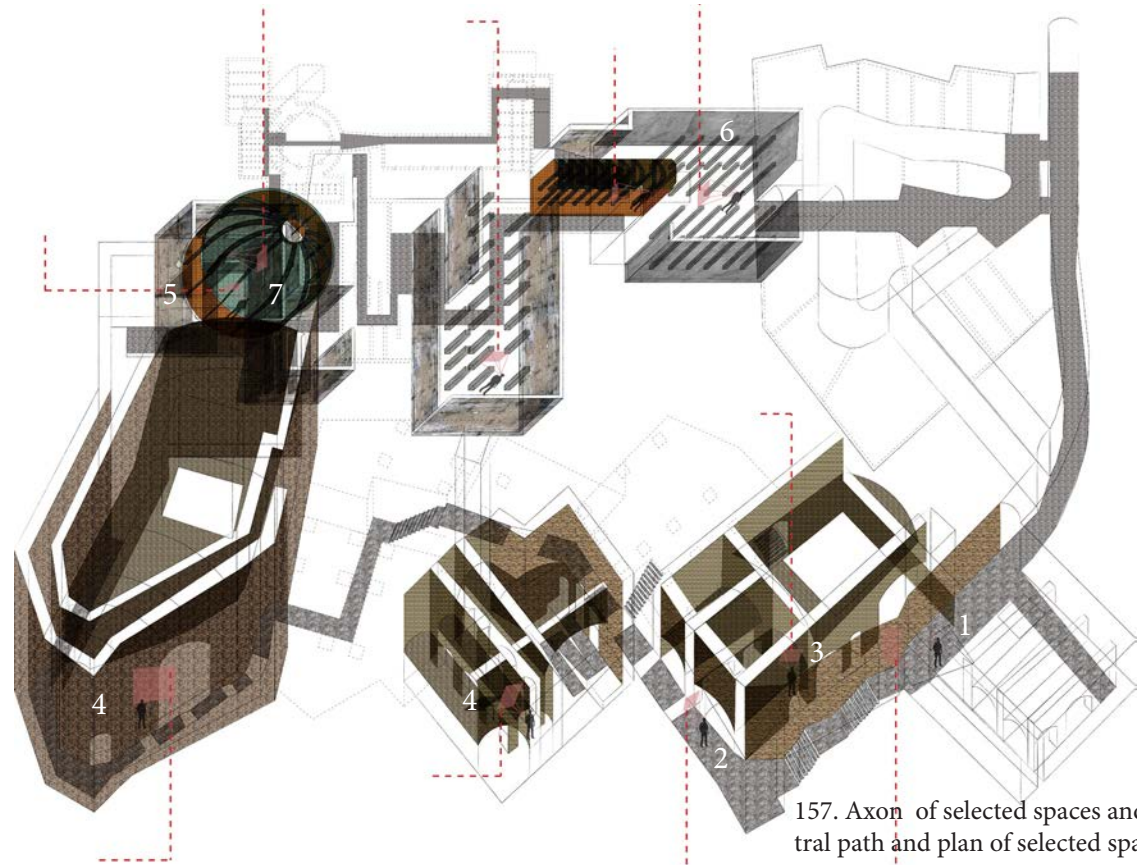
9 Spatial Experience

Spatial Experience and Suspension of Disbelief

This thesis attempted to translate the *Divine Comedy* into a sequence of spaces. The intent was to create a condition of suspension of disbelief that allowed the visitor to become immersed in the new constructed environment. The result of creating this condition coupled with the fragmented movements described earlier would be an architecture of cinematic illusion. A total of 33 spaces were outlined in a master plan. This section develops and discusses 7 of these spaces in further detail. The positions of these spaces along the central path is illustrated in the axon below.



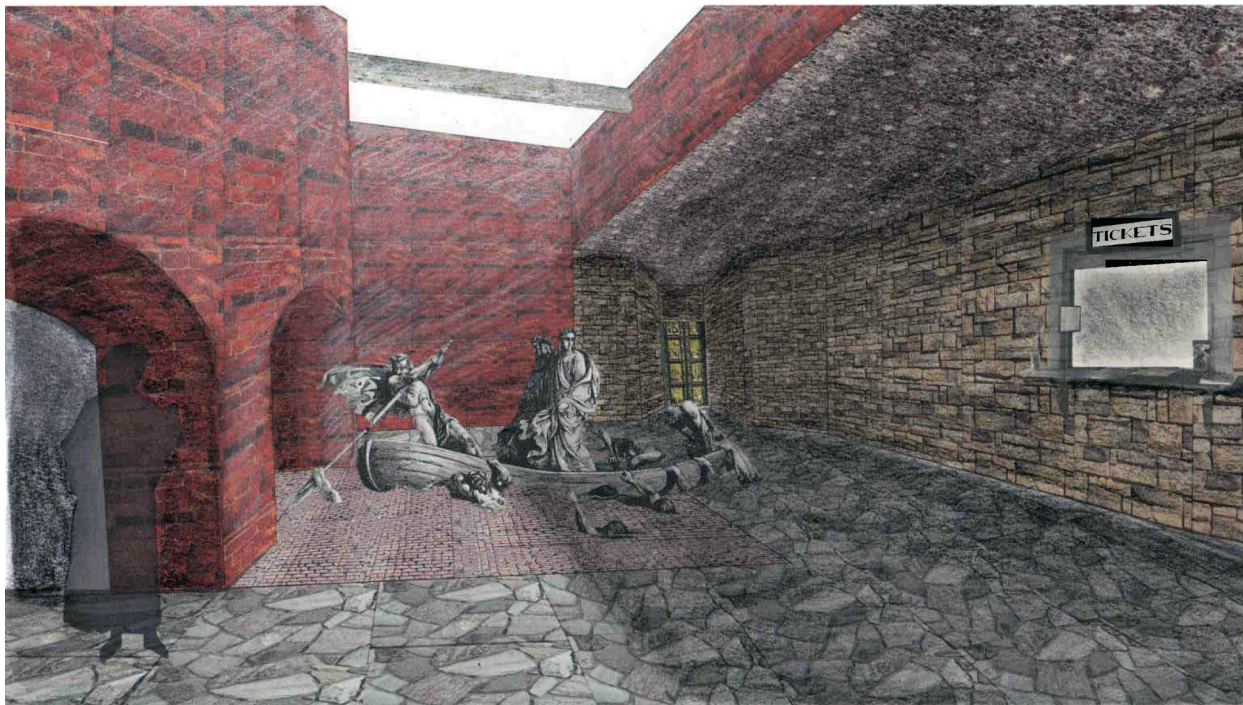
1. Ticket Booth/Entry into Hell
2. Lust
3. Limbo
4. Pit of Hell
5. Excommunicated
6. Garden of Eden
7. Empyrean



157. Axon of selected spaces and central path and plan of selected spaces

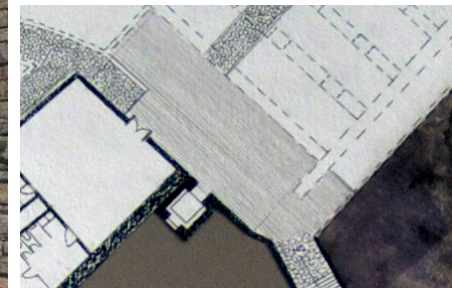
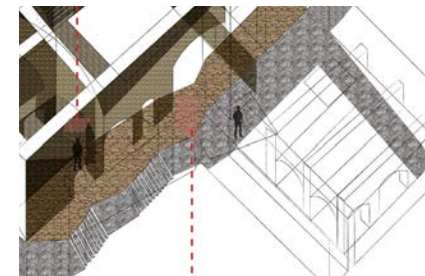
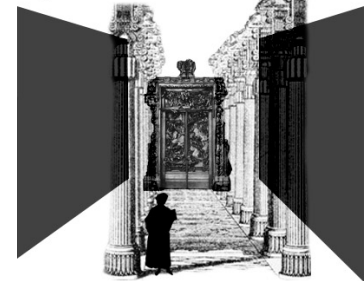
Dark Forest/Ticket Booth/Gates of Inferno

The following space depicted below represents the dark forest and the gates of Hell. This is the first space the visitor enters after walking through the vaults of 1855 from the towpath. It is intended to act as a lobby and ticket booth area. From here the visitor continues onward through the rest of the Inferno sequence. Sandstone masonry blocks help differentiate new construction from existing features (built with red brick). The paving is a slate stone. This slate stone marks the central path the visitor takes through the rest of the project.



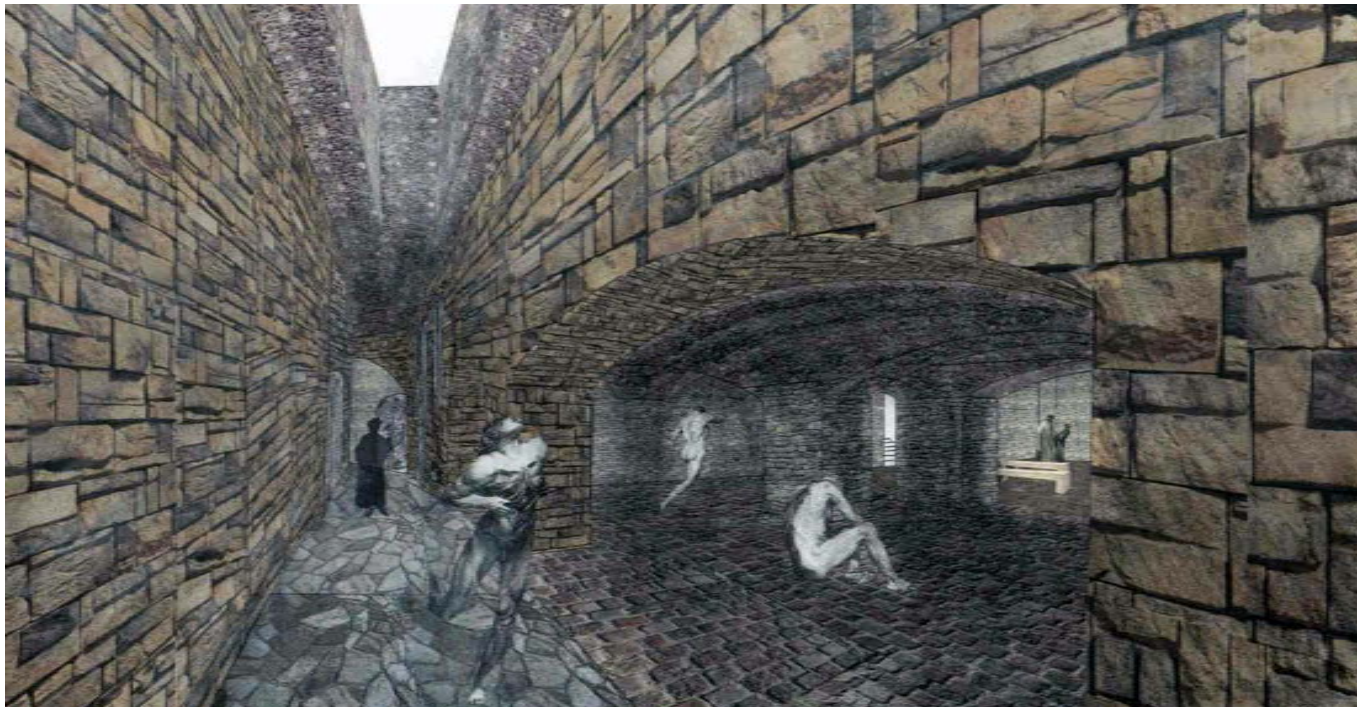
158. Rendering of Gates of Inferno space

Dante reaches the dark forest and the gates of hell



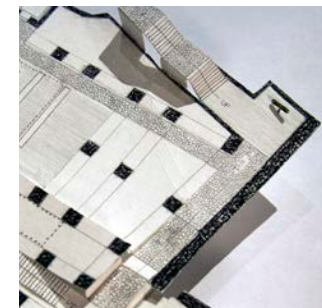
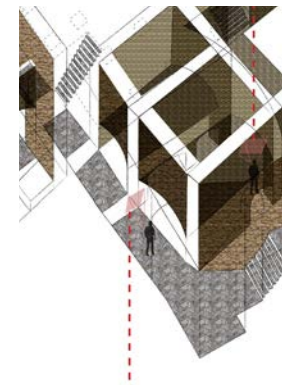
Lust

This space represents Lust in the Inferno sequence. Lust was storyboarded to be a corridor space with many openings in the corridor walls (seen to the right). In the final designed space, Lust is a corridor containing the central path through Inferno. As mentioned, the slate paving continues to mark the central path the visitor should travel on. Sandstone masonry is used once again for a wall material to indicate a main space. The light well leading up to the green roof can also be seen. The room immediately to the right is part of the space representing Limbo.



159. Rendering of Lust

Lust
Souls forever blown in a windstorm



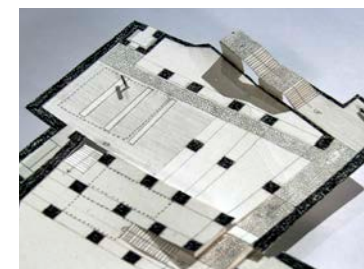
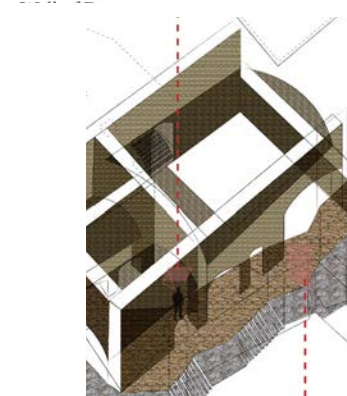
Limbo

This space represents Limbo, the first level of Inferno Dante experiences. In Limbo, unbaptized pagans wait without hope. The space is intended to be a space to sit and contemplate on benches. Here the stone used in the wall has changed from sandstone to a schist stone. The paving has also changed from slate to brick. This was done to differentiate the a main space from a secondary space.



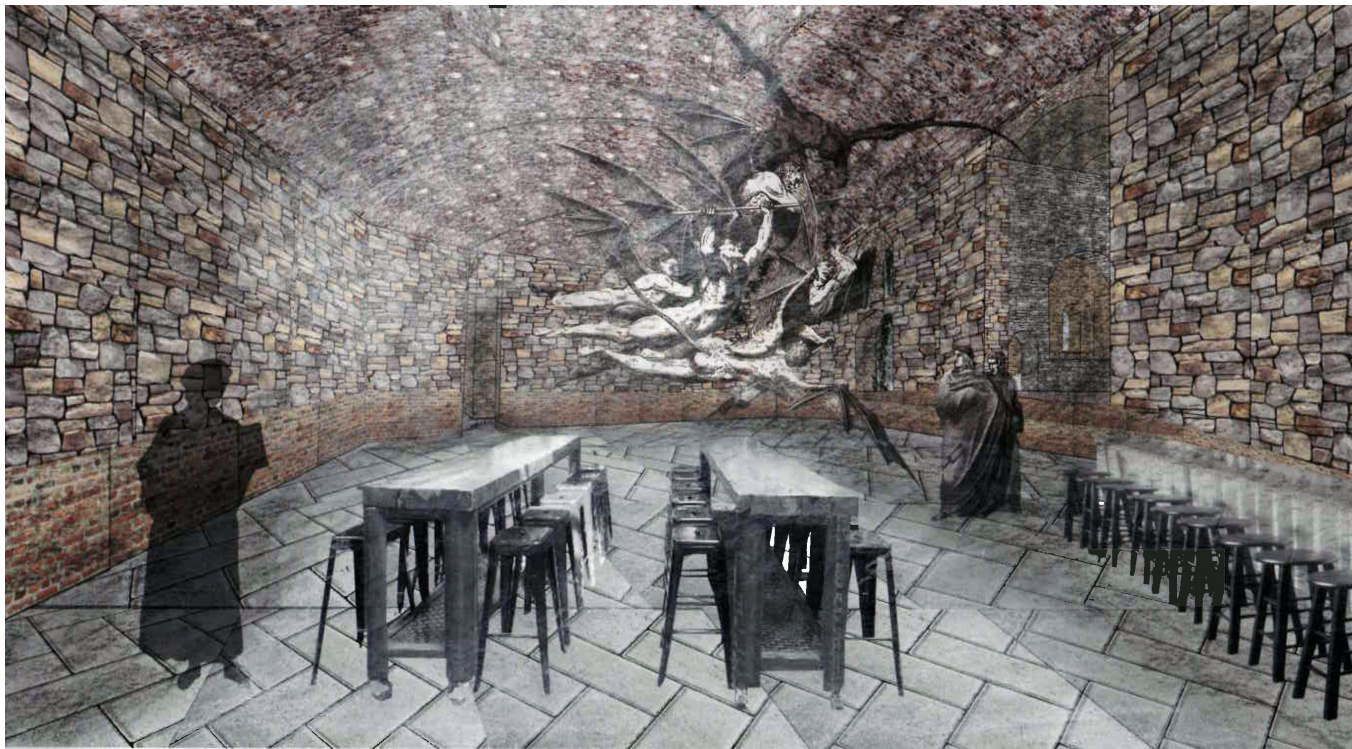
160. Rendering of Limbo

Limbo
Unbaptized pagans wait without hope



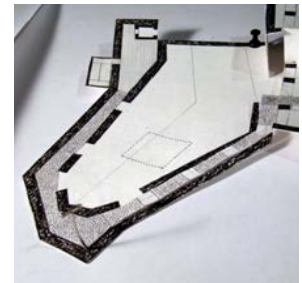
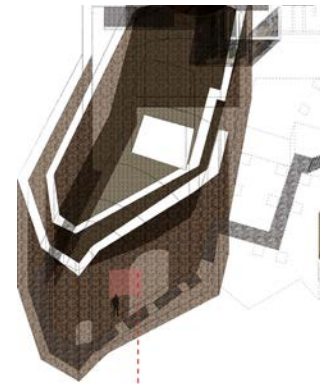
Pit of Hell

This space represents Pit of Hell. It is the last space in the Inferno sequence and is set furthest underground. It is intended to be a small tap room. There is a large light well in the center of the room. The stone used for the wall and the paving differs from that used in main corridor and other rooms in the Inferno sequence to indicate that Pit of Hell is special space in Inferno.



161. Rendering of Pit of Hell

Pit of Hell



Excommunicated

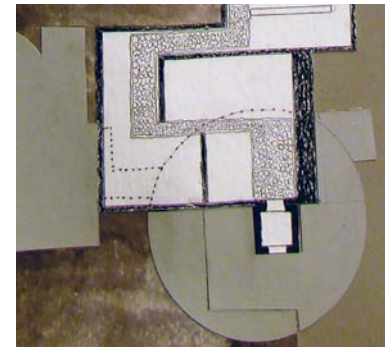
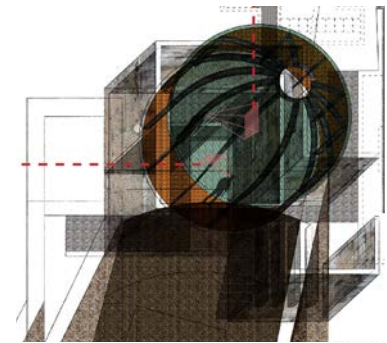
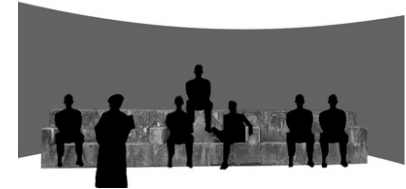
This space represents the first level in Ante-Purgatory, Excommunicated. Similar to Limbo, benches appear for visitors to sit. The space, as with other spaces in the Purgatory sequence is outdoors and contains vegetation. The slate path appears here and continues to run through each room. The walls structural walls are stin rough site cast wood formed concrete. non structural wall are textured concrete. Above this space in the last rom in Paradiso sequence, Emphyrean the decking of which is visible.



162. Rendering of Excommunicated space

108

Excommunicated
Wait for 30 years

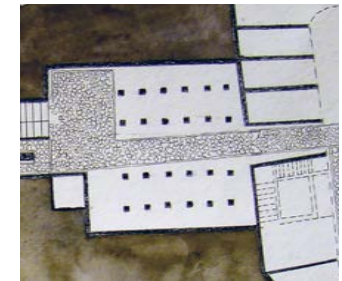
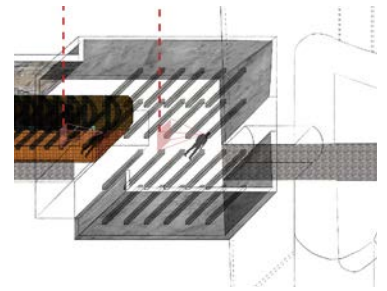


Garden of Eden/ Entry into Paradiso

The space below represents the Garden of Eden, the last space in the Purgatorio sequence. It can be accessed through a portal in the Eastern Horse tunnel. This space contains a door that leads to the first room in Paradiso. The treatment of the structural concrete in the Garden of Eden differs from that used in other spaces. Rather than rough finish, the concrete here is smooth and unstained to mark that it is a special space. As with the other spaces in Purgatorio, the central slate path is visible. Grass and vegetation also fill the space.



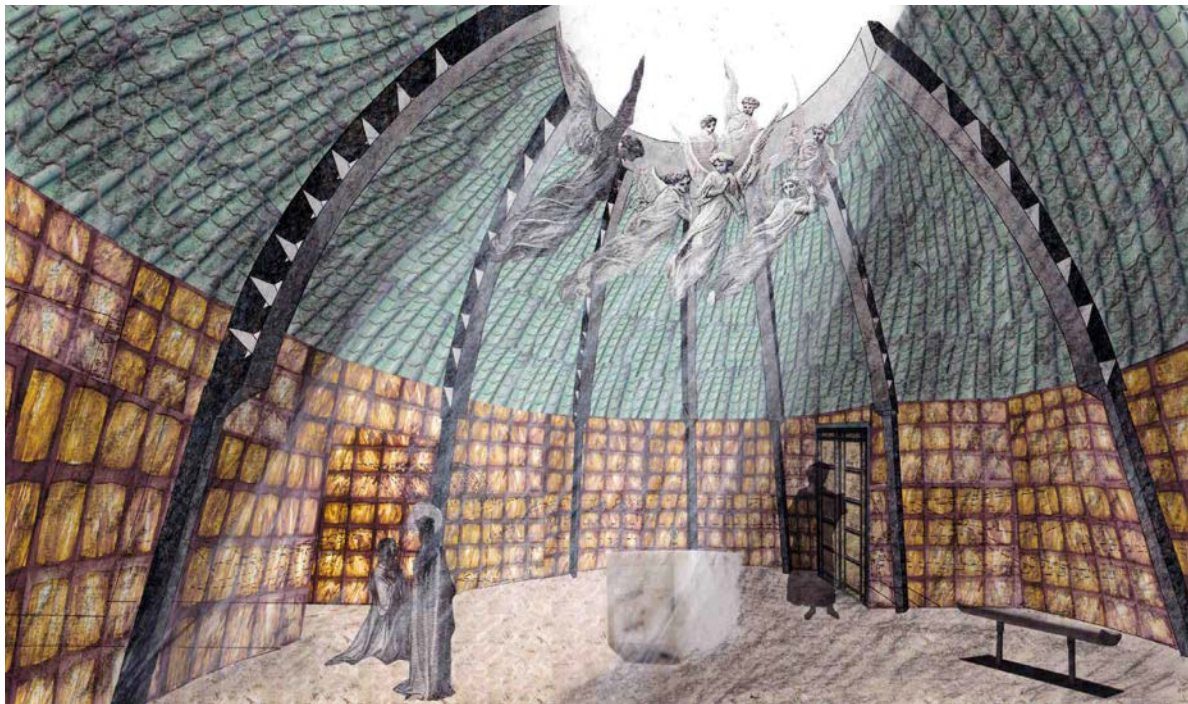
163. Rendering of Garden of Eden



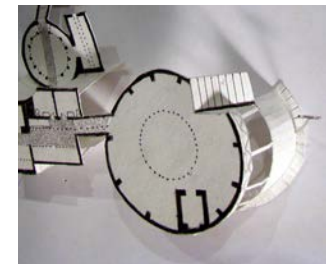
Empyrean

The space below is the last room in the Paradiso sequence., the Empyrean. In Paradiso, the Empyrean is where the Gods reside. Empyrean was storyboarded as being filled with light and having a high ceiling. In the final designed space, the Empyrean is a large circular room with a large dome. An oculus fills the space with light. The facade is a translucent marble to further fill the space with light. The space is structured in a steel frame and truss and the paving of the floor is a cream marble to give a lightness to the materiality of the space. The space contains an alter and benches for prayer and reflection.

Empyrean
Where God reside



164. Rendering of Empyrean



10 Conclusion

This thesis was a departure from Guy Debord's *Society of the Spectacle*, claiming that architecture temporarily supports a passive acceptance of the environment. Architecture has the ability to confront its own crisis of spectacle. This thesis project proposed to use the cinematic illusion as a model for creating an architectural device through which an illusion could occur that would aid in altering the perception of reality and counter the illusion of spectacle. The project focused on translating two components of cinema to achieve an architecture of cinematic illusion, persistence of vision and suspension of disbelief. When persistence of vision is translated to an architectural solution the result is a series of fragmented movements that appear continuous. When suspension of disbelief is transferred to an architectural solution the result is a sequence of scripted spaces based on a narrative.

Dante Alighieri's *The Divine Comedy* was used as a catalyst for constructing an architecture of cinematic illusion. The narrative descriptions of Inferno, Purgatorio, and Paradiso in the poem were used to create the condition of suspension of disbelief. The movements of Dante through the three parts of *The Divine Comedy* helped orchestrate the circulation and organization of the design. The resulting final design for this thesis project is a sequence of spaces representing Inferno, Purgatorio, and Paradiso set into the chosen site of Camden Town, London. Unique features of Camden Town were incorporated into the designed sequence to aid in the telling of the poem.

In reflecting on this thesis process I think that the chosen thesis problem and the investigation into an architecture of cinematic illusion was an important journey to undertake and was, perhaps, the most successful part of this thesis. I strongly believe that the application of cinematic devices to an architectural solution can aid in creating rich environments. Additionally, I feel that Camden Town, London was truly the proper site for this project and supports the perusal of construction and architectural device of illusion. Camden Town possess a hodgepodge of unique spaces and powerful experience that support the quest to define an architecture of illusion.

The thesis project was, at its core, seeking to be a theoretical investigation into designing a series of spaces that would facilitate an illusion. The resulting design was caught in between this and being a functioning museum. If this thesis project were attempted again I would limit the projects scope to designing one of the three levels of The Divine Comedy. I would focus on developing the experience of the visitor for that one level in greater detail. Another suggestion would be to understand the goal of the project as designing a series of rooms connected by a path.

11 Appendix 1 - 6

Appendix 1: Program

The hotel, bookstore and pub were chosen as potential program elements when the work of Jorge Luis Borges' was considered to provide the narrative that would create the condition of suspension of disbelief. These three elements were chosen specifically because they each possess an ability to create an illusion. The hotel in particular would play a key role in developing a device through which a perception can be altered because hotels usually offer guests a neutral space to come and go. There is opportunity to develop a hotel that becomes an immersive environment . Quantities programmatic elements were eventually discarded all together as the thesis developed. The programmatic elements eventually became qualitative meaning that the program would become the light, materials, an spatial experience of Dante's architecturally translated journey through Inferno, Purgatorio, and Paradiso.

Hotel- 12230 sq ft

Room 1: 2 person (single)- bedroom, private bathroom	300 sq ft
Room 2: 2 person (single)-bedroom, private bathroom	300 sq ft
Room 3: 3 to 4 person (doubles)- bedroom, private bathroom, sitting area	500 sq ft
Room 4: 3 to 4 person (double)- bedroom, private bathroom, sitting area	500 sq ft
Room 5: 3 to 4 person (double)- bedroom, private bathroom, sitting area	500 sq ft
Room 6: 4 to 6 person (suit) living room, private large bathroom, bedroom, hallway, patio	700 sq ft
Room 7: 4 to 6 person (suit) living room, private large bathroom, bedroom, hallway, patio	700 sq ft
Room 8: 6-7 people (studio) hallway, living room, dining room, guest toilet, large bathroom, bedroom, walk in closet, patio	1000 sq ft
Room 9: 2 person (single)-bedroom, private bathroom	300 sq ft
Room 10: 3 to 4 person (doubles)- bedroom, private bathroom, sitting area	500 sq ft

Kitchen- 600 sq ft

Walk-in refrigerator	150 sq ft
Kitchen Storage	300 sq ft
Garbage	100 sq ft
Linen Room	350 sq ft
Laundry	400 sq ft
Mechanical	800 sq ft
General Storage	600 sq ft
Ballroom	800 sq ft
Lounge	500 sq ft
Reception/Office	1000 sq ft
Guest Toilet Men	120 sq ft
Guest Toilet Women	140 sq ft
Coat Checkroom	120 sq ft
Living	500 sq ft
Dining	700 sq ft
Staff Room	250 sq ft

Pub- 1300 sq ft

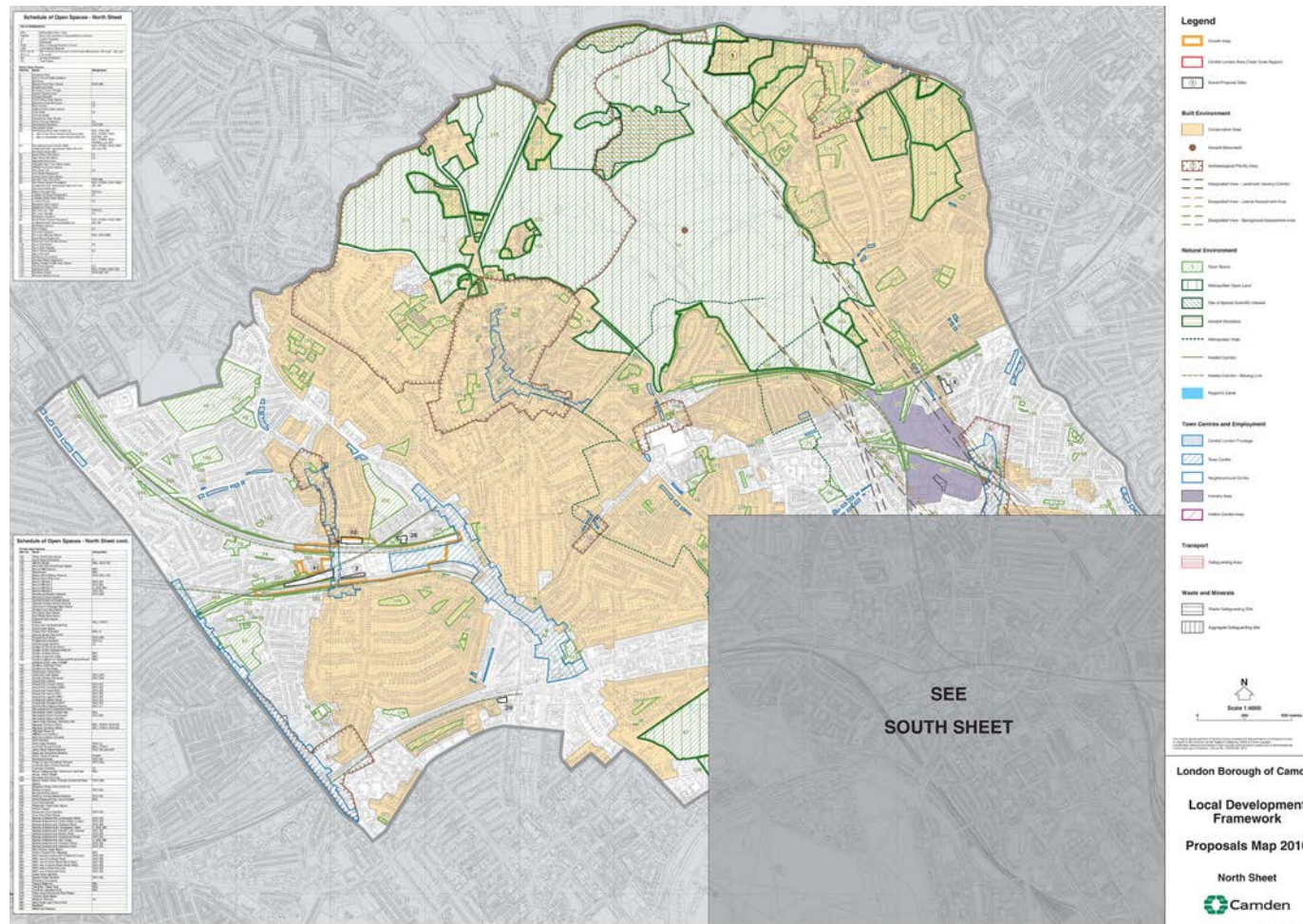
Kitchen	300 sq ft
Bar Area	700 sq ft
Sitting Room	300 sq ft

Bookstore 3850 sq ft

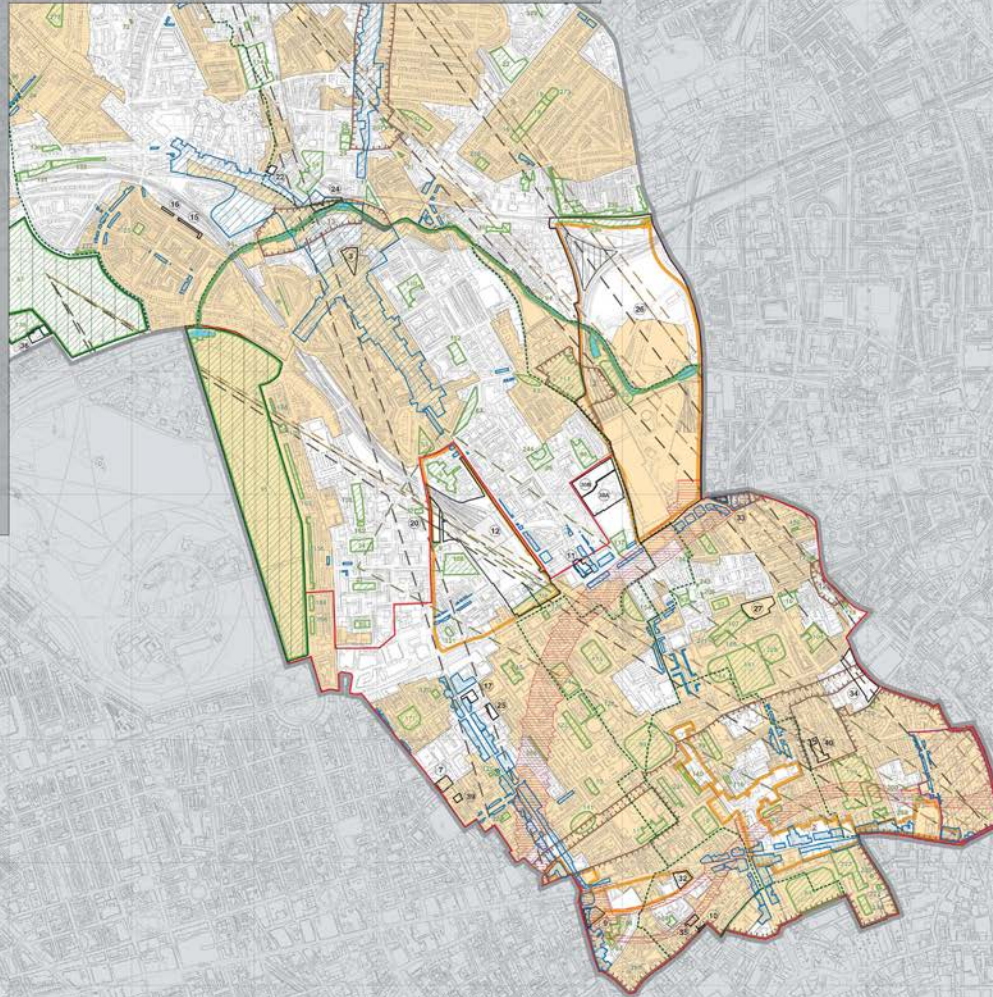
Cashier	500
Reading Room	1000
Reading Room	1000
Reading Room	1000
Storage	350

Appendix 2: Zoning

Camden has over 5,600 listed buildings in a variety of ages, types and architectural styles. Listed buildings in Camden range from the 11th century St Pancras Old Church to the Alexandra Road Estate built between 1972 and 1978.



SEE
NORTH SHEET

[illegible]

- Legend**

 - Growth Area
 - Central London Area (Core Zone Region)
 - 30 Second Physical Miles

Built Environment

 - Circumlocution
 - Arcuate Movement
 - 100 Accelerated Priority Area
 - 100 Ecological Value (Localised Cloning Control)
 - 100 Ecological Value (Localised Assessment Area)
 - 100 Ecological Value (Background Assessment Area)

Natural Environment

 - Open Space
 - Metropolitan Open Land
 - Site of Special Scientific Interest
 - Arcuate Potential
 - Metropolitan Park
 - Inland Corridor
 - Postal Corridor (Bearing Line)
 - Regional Corridor

Town Centres and Employment

 - Central London Heritage
 - Town Centre
 - Metropolitan Centre
 - Industrial Area
 - Major Garden Area

Transport

 - Suburban Area

Waste and Minerals

 - Waste Suburban Site
 - Aggregate Suburban Site



London Borough of Camden

Local Development Framework

Proposals Map 2010

South Sheet

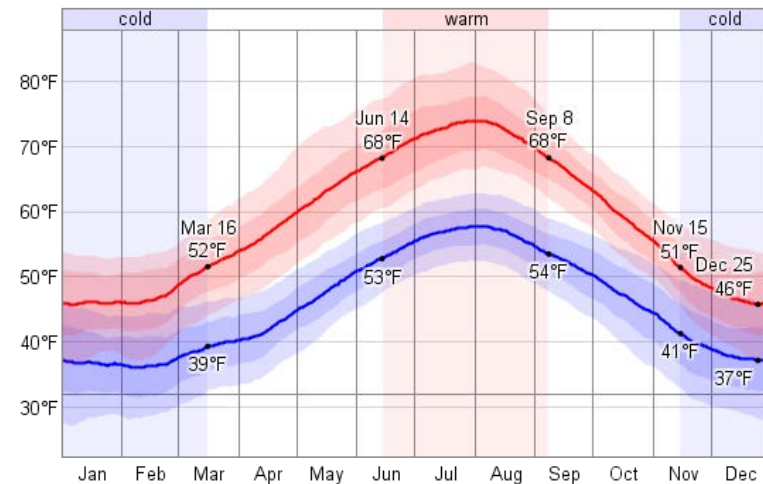


Appendix 3: Climate

London has a mild humid temperature climate with warm summers and no dry season. The climate is influenced by the Atlantic Ocean and latitude. England has warmer temperatures, more sunnier days, and fewer days with rain than other areas in the UK.

Temperature

The temperature of London typically varies from 36 F to 74 F and rarely below 27 F or above 83 F. The warm season lasts from June to September with an average daily temperature of 68 F. The hottest days of which are in August. The cold season lasts from November to March with average daily high temperature below 51F with the coldest days in February.

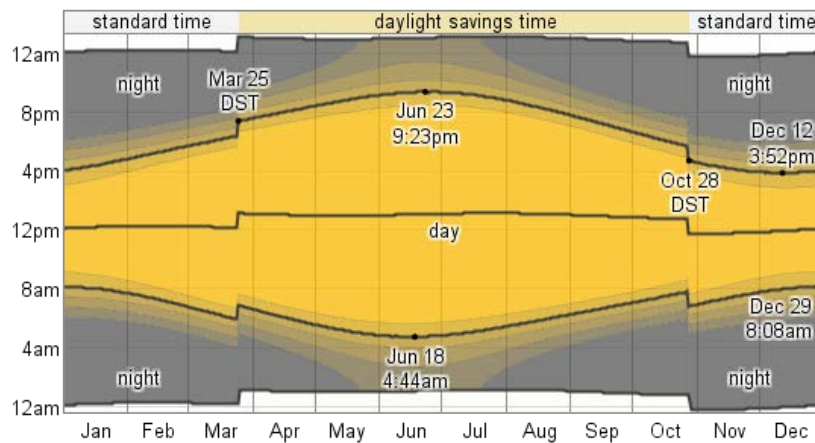


Daily High and Low Temperature
Daily average low (blue) and high (red) temperature with percentile bands

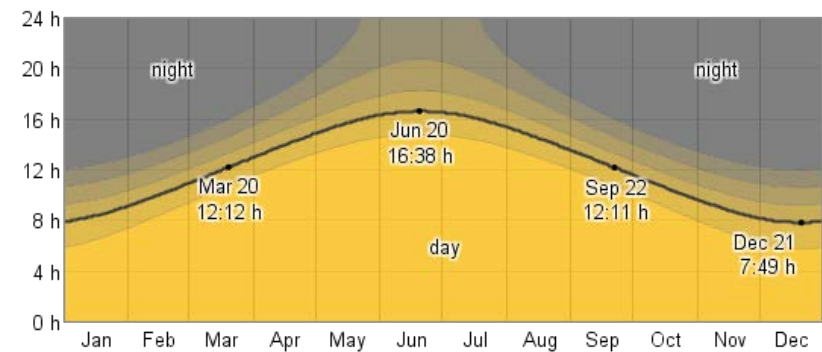
Sun

Daily Hours of Daylight and Twilight

The number of hours during which the Sun is visible (black line), with various degrees of daylight, twilight, and night, indicated by the color bands. From bottom (most yellow) to top (most gray): full daylight, solar twilight (Sun is visible but less than 6° from the horizon), civil twilight (Sun is not visible but is less than 6° below the horizon), nautical twilight (Sun is between 6° and 12° below the horizon), astronomical twilight (Sun is between 12° and 18° below the horizon), and full night.

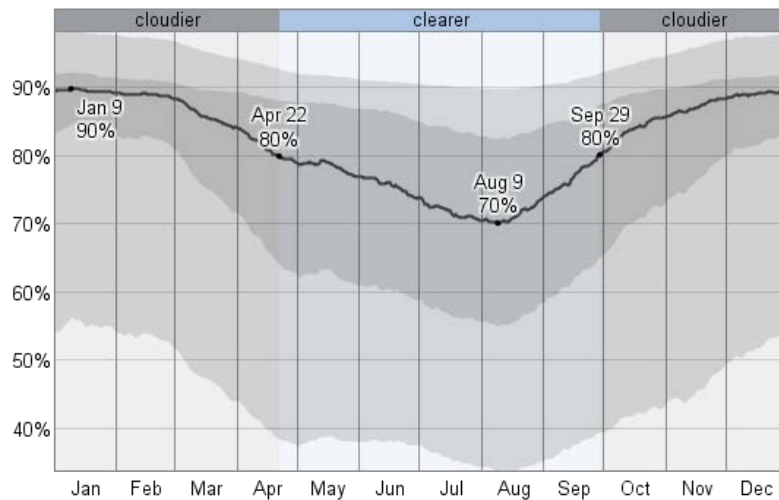


The length of the day varies significantly over the course of the year. The shortest day is December 21 and the longest day is June 20.



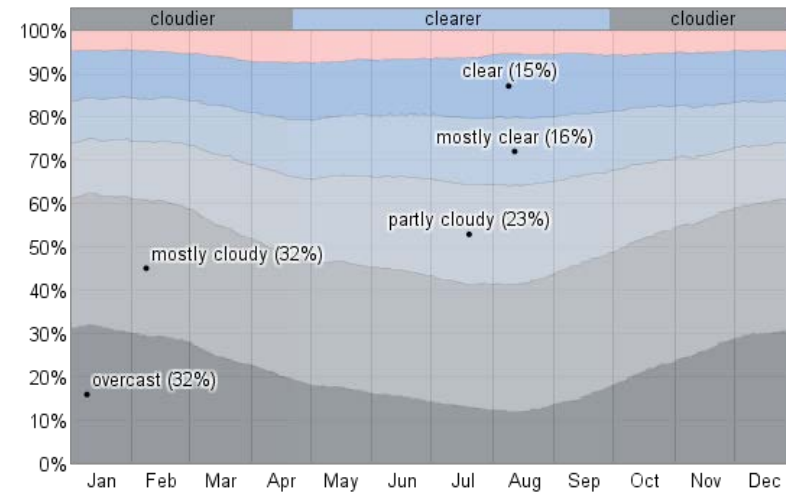
The solar day over the course of the year 2012 .

Cloud Coverage



Median Cloud Cover

The median daily cloud cover (black line) with percentile bands (inner band from 40th to 60th percentile, outer band from 25th to 75th percentile)

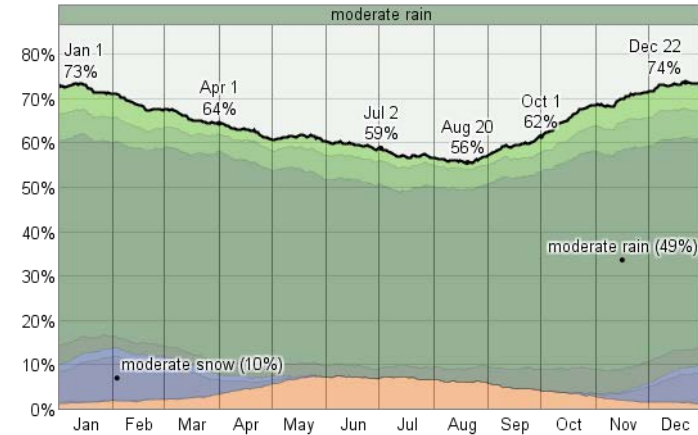


Cloud Cover Types

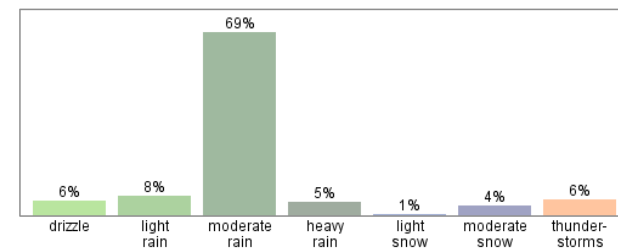
The median cloud cover ranges from 70% (partly cloudy) to 90% (mostly cloudy). The sky is cloudiest on January 9 and clearest on August 9. The clearer part of the year begins around April 22. The cloudier part of the year begins around September 29.

Precipitation

The probability that precipitation will be observed in London varies throughout the year. Precipitation is most likely around December 22, occurring in 74% of days. Precipitation is least likely around August 20, occurring in 56% of days. Over the entire year, the most common forms of precipitation are moderate rain. Moderate rain is the most severe precipitation observed during 69% of those days with precipitation. It is most likely around November 16, when it is observed during 49% of all days. During the warm season, which lasts from June 14 to September 8, there is a 57% average chance that precipitation will be observed at some point during a given day. When precipitation does occur it is most often in the form of moderate rain (71% of days with precipitation have at worst moderate rain), thunderstorms (12%), and light rain (9%). During the cold season, which lasts from November 15 to March 16, there is a 71% average chance that precipitation will be observed at some point during a given day. When precipitation does occur it is most often in the form of moderate rain (65% of days with precipitation have at worst moderate rain), moderate snow (10%), light rain (8%), and drizzle (8%).



The fraction of days in which various types of precipitation are observed. If more than one type of precipitation is reported in a given day, the more severe precipitation is counted. For example, if light rain is observed in the same day as a thunderstorm, that day counts towards the thunderstorm totals. The order of severity is from the top down in this graph, with the most severe at the bottom.

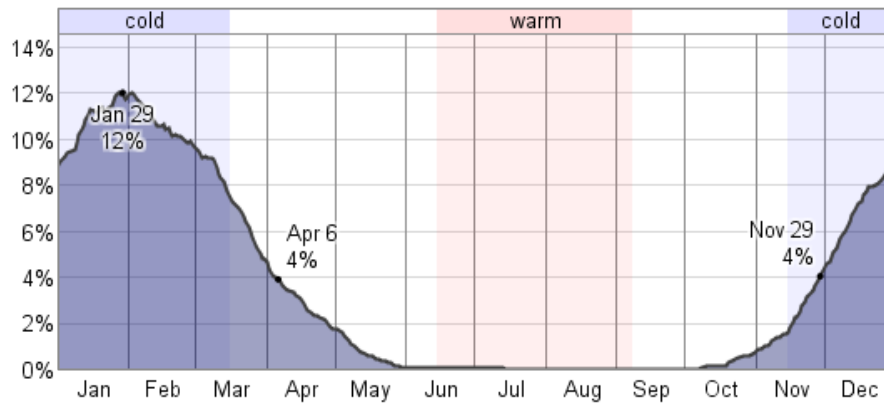


Relative frequency of various types of precipitation over the course of a typical year

Snow

Probability of Snow Fall

The likelihood of snow falling is highest around January 29, occurring in 12% of days. The season in which it is relatively likely for snow to fall spans from November 29 to April 6.

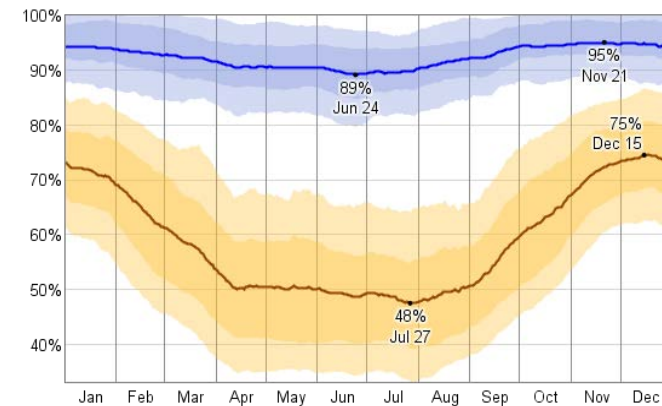


Probability that snow will be reported at least once in a given day. The season is defined as the period during which the probability is greater than one third the maximum probability.

Humidity

Relative Humidity

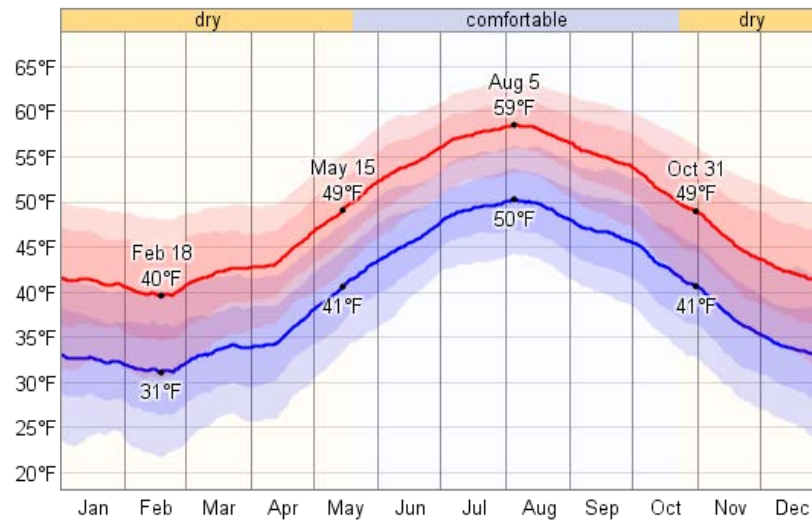
The relative humidity typically ranges from 48% (comfortable) to 95% (very humid) over the course of the year, rarely dropping below 33% (comfortable) and reaching as high as 100% (very humid). The air is driest around July 27, at which time the relative humidity drops below 55% (mildly humid) three days out of four; it is most humid around November 21, exceeding 93% (very humid) three days out of four.



The average daily high (blue) and low (brown) relative humidity with percentile bands (inner bands from 25th to 75th percentile, outer bands from 10th to 90th percentile).

Dew Point

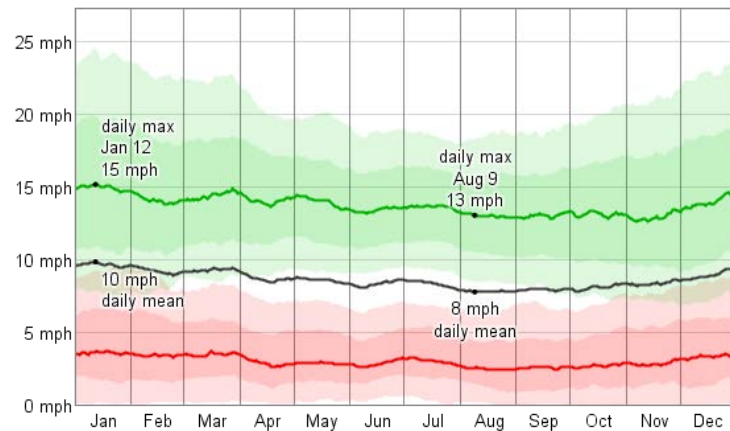
Dew point is often a better measure of how comfortable a person will find the weather than relative humidity because it more directly relates to whether perspiration will evaporate from the skin, thereby cooling the body. Lower dew points feel drier and higher dew points feel more humid. Over the course of a year, the dew point typically varies from 31°F (dry) to 59°F (comfortable) and is rarely below 22°F (dry) or above 63°F (mildly humid). The time of the year between May 20 and October 23 is the most comfortable, with dew points that are neither too dry nor too muggy.



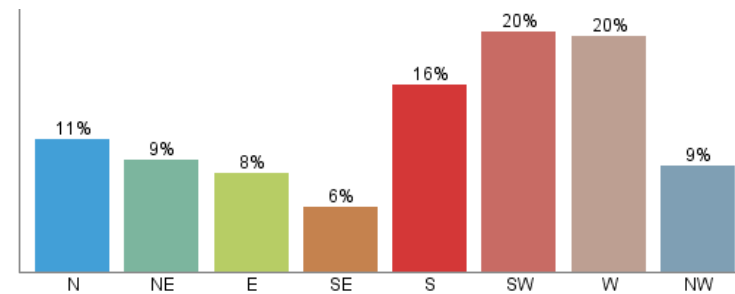
The daily average low (blue) and high (red) dew point with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile).

Wind

Over the course of the year typical wind speeds vary from 2 mph to 15 mph (light air to moderate breeze), rarely exceeding 25 mph (strong breeze). The highest average wind speed of 10 mph (gentle breeze) occurs around January 12, at which time the average daily maximum wind speed is 15 mph (moderate breeze). The lowest average wind speed of 8 mph (gentle breeze) occurs around August 9, at which time the average daily maximum wind speed is 13 mph (moderate breeze). The wind is most often out of the south west (20% of the time), west (20% of the time), south (16% of the time), and north (11% of the time).



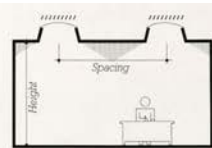
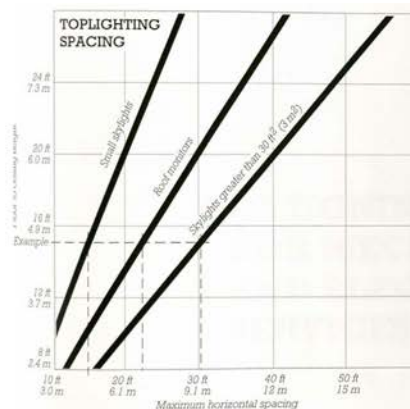
The average daily minimum (red), maximum (green), and average (black) wind speed with percentile bands (inner band from 25th to 75th percentile, outer band from 10th to 90th percentile).



Wind Directions Over the Entire Year

Appendix 4: Regulatory Report

The programmatic elements of the project are based in the qualitative components of the *Divine Comedy* rather than a specific building type. For the purpose of designing to International Building Code, an Assembly type will be used to calculate loads, egress and sizing. The following are excerpts of the *Studio Companion* that relate to the project. The project will have a maximum occupancy of between 800 to 1000 people.

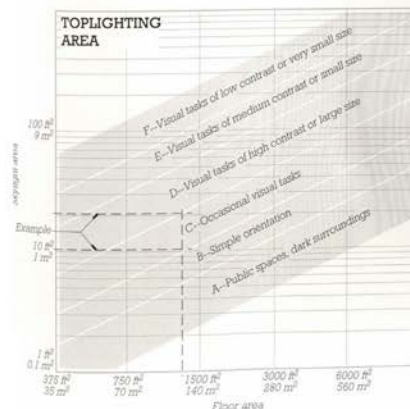


Use the top chart to determine maximum horizontal spacing for skylights and roof monitors so as to maintain acceptably even lighting levels throughout a space.

Use the bottom chart to determine the skylight or roof monitor opening area necessary for daylighting various tasks over a given floor area. To determine the most appropriate illumination category for the space under consideration, see the table on page 150. For floor areas larger than those tabulated on the chart, read the chart using a smaller area and then multiply the result proportionally.

■ For skylights and south-facing roof monitors, read directly from the chart. For roof monitors facing other than south, use twice the indicated area.

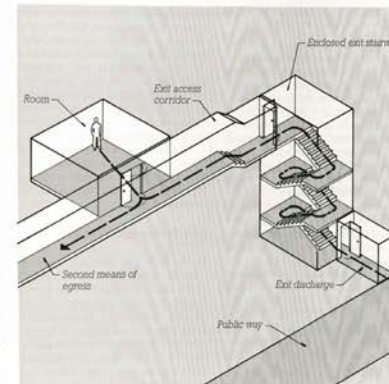
■ For buildings in predominantly clear sky areas, read low in the ranges indicated on the chart. For buildings in heavily covered sky areas, read high in the indicated ranges. See page 141 to determine sky cover conditions for the project's location.



The function of a building egress system is to conduct building occupants to a safe place in case of a fire or another emergency. In most instances, that safe place is a public way or other large, open space at ground level. For the occupants of the upper floors of a tall building, or for people who are incapacitated or physically restrained, the safe place may be a fire-protected area of refuge within the building itself.

A building egress system has three major parts:

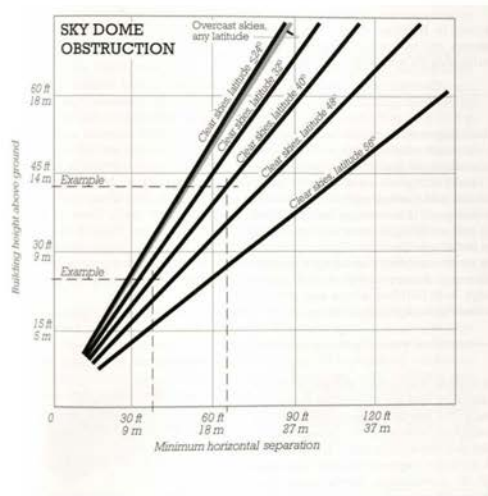
1. The exit access begins at any point in the building accessible to its occupants and continues up to the portion of the egress system termed the exit. The exit access may include pathways within a room, aisles between fixed seating, hallways, corridors, ramps, unenclosed stairways, and other spaces.
2. The exit is the protected portion of the egress system that connects the exit access to the exterior of the building. Most commonly, it is an enclosed, fire-protected stairway that conducts occupants from multiple floors of a building to a door opening to the outside. It may also include similarly enclosed, protected passageways. Or from a ground floor room, the exit may consist of nothing more than a door opening from that room directly to the outside.
3. The exit discharge is the final portion of the egress system that



connects the exit to the public way or another place of safety. In many cases, the exit discharge may consist only of exterior elements, such as sidewalks, stairs, ramps, or courts that lead from the building exit to the public sidewalk or street. In other cases, the exit discharge may include limited portions of the building interior, such as when the egress path leaves an exit stair

and passes through a vestibule or ground floor lobby before reaching the building exterior.

These three parts of an egress system are discussed in greater detail on the pages that follow. Also included are simplified standards for the preliminary design of these components, condensed from the model building codes treated in this book.



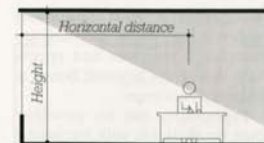
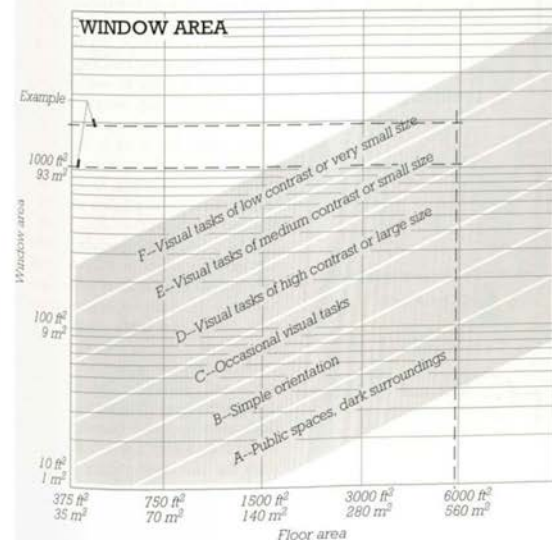
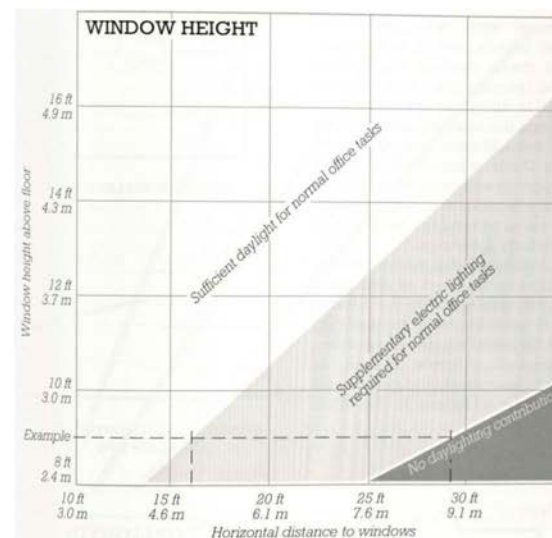
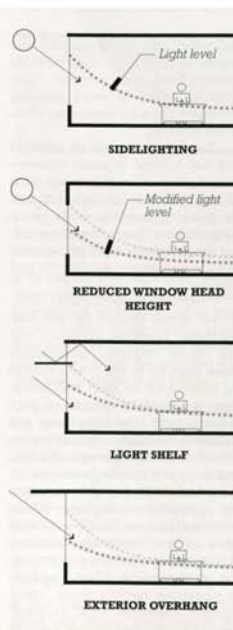
With the exception of large single-story structures, sidelighting through windows and clerestories is the predominant means of providing daylight illumination in buildings.

The intensity of sidelighting is highest near the opening and diminishes with increasing distance from the opening. The depth to which sidelighting can provide illumination within a building is largely dependent on the height of the opening. Under typical conditions, sidelighting can provide effective illumination for depths up to approximately $2\frac{1}{2}$ times the height of the opening above the plane of the work surface. For example, in an office with 9-ft (2.7-m)-high windows and 30-in. (760-mm)-high desks, the top of the window is $6\frac{1}{2}$ ft (2.0 m) above the work plane, and daylight should be able to provide full illumination up to a depth of approximately 16 ft (5 m) ($6.5 \text{ ft} \times 2.5 = 16.25 \text{ ft}$). For more detailed information on the depth of sidelighting penetration for various illumination levels and opening heights, see page 153.

In designing with sidelighting, attention must be given to maximizing its reach deep into the

structure, as well as minimizing excessive brightness close to the wall openings. A variety of techniques are possible. *Light shelves* create more evenly distributed illumination levels throughout a space. Though light shelves may reflect some light deeper into the interior, their primary benefit comes from reducing brightness levels close to the window. By reducing the highest illumination levels, more uniform lighting is achieved overall, giving the impression of an improved lighting environment. Light shelves can also prevent direct sunlight from falling directly within the work area.

Exterior overhangs may be solid or louvered. Extending a solid overhang beyond the building wall is essentially the same as increasing the depth of the room, and illumination is reduced comparably. If light levels are adequate, this can be an effective way to block direct sun as well as reduce excessive brightness close to the window. Louvered overhangs, if designed with attention to prevailing sun angles, can block direct sunlight selectively while admitting indirect light.



Use the top chart to determine the minimum wall opening height for adequate horizontal daylight penetration for normal office tasks.

■ To ensure even light distribution throughout a space, window openings should be at least half as wide as the length of the wall in which they are located. For more detailed help in estimating the required window area, see the chart below.

Use the bottom chart to determine the total wall opening area necessary for full daylighting of various tasks occupying a given floor area. To determine the most appropriate illumination category for the space under consideration, see page 150. For floor areas larger than those tabulated on the chart, read the chart using a smaller area and then multiply the result proportionally.

■ For buildings in predominantly clear sky areas, read low in the ranges indicated on the chart. For buildings in heavily covered sky areas, read high in the indicated ranges. See page 141 to determine the sky cover conditions for your project's location.

OCCUPANT LOADS

Use	Floor Area per Occupant
Accessory storage area	300 ft ² (28 m ²) gross
Agricultural buildings	300 ft ² (28 m ²) gross
Aircraft hangers	500 ft ² (46 m ²) gross
Airport terminal baggage claim	20 ft ² (1.86 m ²) gross
Airport terminal baggage handling	300 ft ² (28 m ²) gross
Airport terminal concourses	100 ft ² (9.3 m ²) gross
Airport terminal waiting areas	15 ft ² (1.4 m ²) gross
Assembly Occupancy, gaming floors	11 ft ² (1.0 m ²) gross
Assembly Occupancy, concentrated seating (chairs only, not fixed)	7 ft ² (0.65 m ²) net
Assembly Occupancy, standing space	5 ft ² (0.46 m ²) net
Assembly Occupancy, unconcentrated seating (tables, chairs, stages, platforms)	15 ft ² (1.4 m ²) net For booth seating without dividing arms, use an 18" (457-mm) width per occupant.

DETERMINING WIDTHS OF EGRESS COMPONENTS

Use the following chart to determine the minimum required width for the various parts of an egress system based on the occupant load served.

An Example Egress System Sizing Exercise

The Problem: Design the egress system for a department store basement, sprinklered, dimensions 105 × 292 ft.

The Solution: From the index on page 10, we find that a department store is classified as an M

Mercantile Occupancy. Multiplying the dimensions of the floor, we arrive at a gross area of 30,660 sq ft. From the Occupant Loads table on page 299, we see that for purposes of egress design, we must allocate at least 30 sq ft per occupant to arrive at an occupant load of 1022 persons for this floor. According to the information on page 272, a minimum of four exits is required. Assuming the occupant load is divided equally among the four, each exit must serve 256 persons.

From the Egress Component Capacity table on this page, we find that we must provide 0.20 in. of width per occupant in corri-

dors and doorways and 0.3 in. per occupant in stairways. Moving to the chart on the facing page, we read horizontally from 256 occupants to the 0.20-in. line and then down to find that a width of 52 in. is required for the corridor. We compare this with the 44-in. minimum width indicated on page 301 and choose the larger of the two, 52 in. in this example. Extending this line farther downward, we select either two 3-ft doors or a pair of 3-ft doors without center mullion.

Reading horizontally from 256 occupants to the 0.3-in. line, then downward, we arrive at a required stair width of 77 in. (For stair design charts, see pages 315–325.)

OCCUPANT LOADS

Use	Floor Area per Occupant
Accessory storage area	300 ft ² (28 m ²) gross
Agricultural buildings	300 ft ² (28 m ²) gross
Aircraft hangers	500 ft ² (46 m ²) gross
Airport terminal baggage claim	20 ft ² (1.86 m ²) gross
Airport terminal baggage handling	300 ft ² (28 m ²) gross
Airport terminal concourses	100 ft ² (9.3 m ²) gross
Airport terminal waiting areas	15 ft ² (1.4 m ²) gross
Assembly Occupancy, gaming floors	11 ft ² (1.0 m ²) gross
Assembly Occupancy, concentrated seating (chairs only, not fixed)	7 ft ² (0.65 m ²) net
Assembly Occupancy, standing space	5 ft ² (0.46 m ²) net
Assembly Occupancy, unconcentrated seating (tables, chairs, stages, platforms)	15 ft ² (1.4 m ²) net For booth seating without dividing arms, use an 18" (457-mm) width per occupant.

Underground Building Egress

Underground buildings are defined as those with occupied floors more than 30 ft (9 m) below grade, excluding fully sprinklered enclosed garages, stadiums, arenas, and similar facilities, fixed guideway transit systems, fully sprinklered one- and two-family dwellings, and buildings in which only the lowest story is more than 30 ft (9 m) below grade and that story is no more than 1500 sq ft (139 m²) in area, with an occupant load of less than 10. Special egress requirements for underground buildings include the following:

Number of Exits: At least two exits are required from every floor.

Smokeproof Exit Enclosures: Exit stairs must be protected by smokeproof enclosures, as described on page 276.

Smoke Compartmentation: Buildings with floors more than 60 ft (18 m) below grade must have each floor, up to the highest level of exit discharge, divided into at least two compartments with a 1-hour separation between them. Where elevators are provided, each compartment must have direct access to an elevator. Or, where one elevator serves multiple compartments, a lobby with a 1-hour separation from each compartment must be provided.

EGRESS COMPONENT CAPACITY

Occupancy	Width per Occupant	
	Doorways, Corridors, Ramps, and Other Components	Stairs
All occupancies	0.2" (5 mm) per person	0.3" (8 mm)

OCCUPANCY CRITERIA

Occupancy (pp. 6–17)	Maximum Travel Distance (p. 267)		Maximum Common Path of Egress Travel (p. 266)	Largest Area with Single Exit (p. 271)	Minimum Length of Dead End Corridor (p. 270)	For minimum widths based on occupant load, see pages 298–299. For minimum dimensions of accessible routes, see pages 281–282.			Other Requirements
	Unsprinklered	Sprinklered				Minimum Door Width (p. 271)	Minimum Corridor Width	Minimum Stair Width	
A: Assembly	200' (61 m) 400' (122 m) for open-air seating with combustible construction or unlimited distance with noncombustible construction	250' (76 m)	30' (9 m) for assembly fixed seating with 60 or more occupants 75' (23 m) for others	49 occupants	Greater of 20' (6 m) or 11 × width of corridor	Min. 32" (813 mm) net clear Max. 48" (1220 mm) nominal	44" (1118 mm) serving more than 49 occupants 36" (914 mm) serving 49 or fewer	44" (1118 mm) serving more than 49 occupants 36" (914 mm) serving 49 or fewer	For special egress requirements in assembly seating areas, see pages 287–289.
B: Business	200' (61 m)	300' (91 m)	75' (23 m) unsprinklered 100' (30 m) sprinklered or for unsprinklered areas with an occupant load of 30 or less	49 occupants	Greater of 20' (6 m) unsprinklered, 50' (15 m) sprinklered, or 11 × width of corridor	Same as above	Same as above	Same as above	
E: Educational	200' (61 m)	250' (76 m)	75' (23 m)	49 occupants	Same as above	Same as above	Same as above, except 72" (1829 mm) for 100 or more occupants	Same as above	

Occupancy	General Description
A ASSEMBLY	<p>Assembly Occupancies include social, recreational, entertainment, and civic gatherings of 50 or more persons. Assembly Occupancy includes five subgroups:</p> <p>A-1: This group includes theaters for the viewing of motion pictures and performing arts, usually with fixed seating.</p> <p>A-2: This group includes food and drink establishments.</p> <p>A-3: This group includes recreational, amusement, and worship uses not specifically covered by other Assembly subgroups, including, for example, galleries, churches, community halls, courtrooms, dance halls, indoor sports facilities without fixed seating, lecture halls, libraries, museums, passenger station waiting areas, and the like.</p> <p>A-4: This group includes indoor sports facilities with spectator seating.</p> <p>A-5: This group includes outdoor sports arenas.</p> <p>Gathering spaces less than 750 sq ft (70 m²) in area or accommodating fewer than 50 persons are treated as Group B, Business Occupancies, or, when located within other occupancies, as part of the surrounding Occupancy.</p> <p>Assembly spaces located within Group E Educational facilities are treated as part of the Group E Occupancy.</p>

M MERCANTILE Mercantile Occupancies include the display and sale of retail and wholesale merchandise and the related stocking of such goods.

Building Use	Occupancy
Agricultural buildings, barns, live-stock shelters	U
Aircraft hangars, accessory to one- or two-family residences	U
Aircraft hangars, storage and repair	S-1
Aircraft manufacturing	F-1
Airport traffic control towers	B
Alcohol and drug centers, 24-hour care	I-1; see also Institutional and Residential Care Occupancies, p. 12
Amusement arcades	A-3
Amusement park structures	A-5
Animal hospitals, kennels, pounds	B
Apartment houses	R-2
Art galleries	A-3 or B, depending on the number of occupants

Latitude	Hours of Daylight (sunrise to sunset)	Altitude of Noon Sun	Azimuth of Rising or Setting Sun
24° North			
Summer Solstice	14	90°	115°
Winter Solstice	10	42°	68°
32° North			
Summer Solstice	14	81°	115°
Winter Solstice	10	36°	62°
40° North			
Summer Solstice	14	74°	120°
Winter Solstice	9	28°	60°
48° North			
Summer Solstice	15	66°	125°
Winter Solstice	8	20°	55°
52° North			
Summer Solstice	16	62°	130°
Winter Solstice	8	16°	50°

THERMAL MASS COOLING

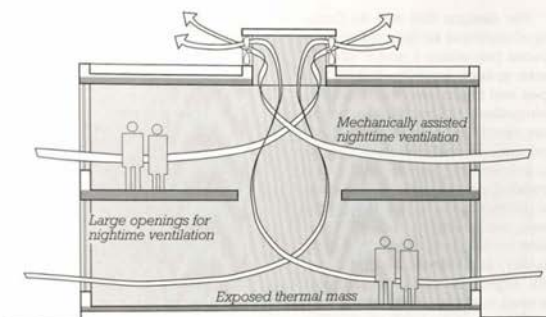
Variations

1. In thermal mass with natural nighttime ventilation, heat stored during the day by interior mass is flushed from the building at night using natural ventilation strategies. Stack ventilation, which is not dependent on nighttime winds, may be preferred over cross ventilation. Open floor plans are required to ensure thorough flushing of the thermal mass surfaces. For more information on design for natural ventilation, see pages 225-227.

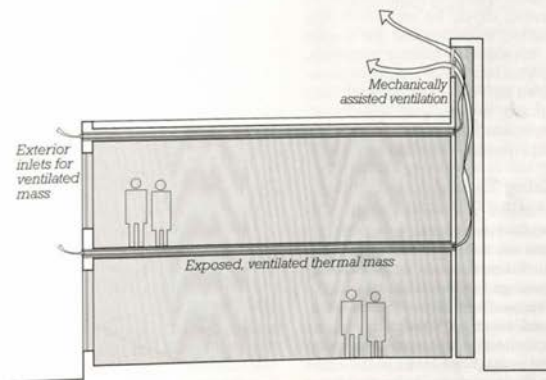
2. In thermal mass without nighttime ventilation, heat stored by building mass during hot days is released directly back into interior spaces during cooler nights. This strategy is most suitable for relatively small buildings located in cooler climates. The heat accumulated during the day either serves to keep the building comfortably warm during the night or is lost through the building skin without the aid of nighttime ventilation. See the chart on page 220 for conditions suitable to this strategy.

3. Thermal mass with mechanically assisted nighttime ventilation works similarly to variation 1. But the reliance on mechanical systems rather than natural ventilation to move nighttime air through the building makes this variation practical for a greater variety of building sizes and configurations.

4. Thermal ventilated mass is another mechanically assisted variation in which the thermal mass components are hollow, and nighttime air is drawn by fans directly through the mass components themselves rather than through the interior spaces of the building. Hollow core concrete planks (see pages 132-133) are one example of a structural component adaptable to this application. This variation reduces the need for open floor plans and large, operable exterior openings.



THERMAL MASS WITH MECHANICALLY ASSISTED NIGHTTIME VENTILATION

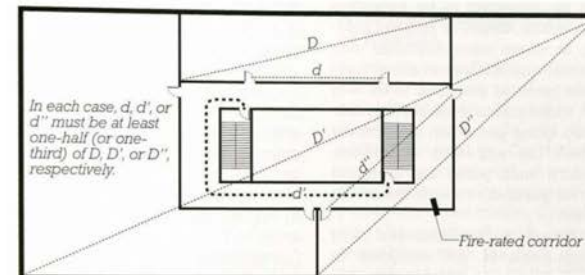


THERMAL VENTILATED MASS

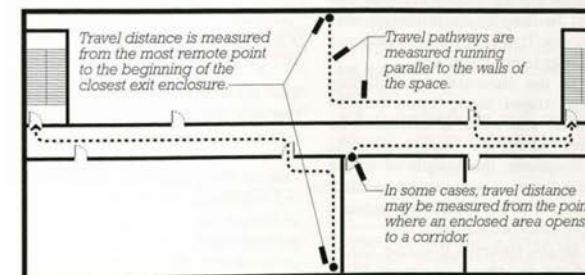
Design

The thermal mass surfaces must be located within the occupied areas of the building and must be situated in the direct path of the nighttime ventilation airflow. Where possible, these surfaces should be in the direct line of sight of building occupants so that occupants may also benefit from

radiant cooling effects. Building thermal insulation must be positioned to the exterior side of the thermal mass. For buildings constructed of lighter-weight structural systems, special wallboard or other materials formulated with encapsulated phase change materials may provide the needed thermal capacity.



DISTANCE BETWEEN EXITS



TRAVEL DISTANCE

exits is required where a floor is subdivided by fire separations into two or more major areas, each containing its own exit.

In this code, distance between doorways or exits is measured as a straight line when open areas are served. Where spaces are subdivided, the distance is measured as the shortest pathway that smoke can take to travel between the doorways or exits, such as along corridors or through other confined spaces.

MAXIMUM TRAVEL DISTANCE TO THE EXIT

Travel distance is measured from the most remote occupied point in a building to the nearest enclosed exit stairway, enclosed exit pas-

sageway, or direct exit from the building. Both model building codes limit travel distance so that in the event of an emergency, the amount of time that persons may be exposed to smoke from fire or other hazardous conditions is limited. For common building occupancies, travel distance limits range from 200 to 400 ft (61 to 122 m) in the International Building Code and from 30 to 60 m (98 to 197 ft) in the National Building Code of Canada. See pages 300-301 and 306-307 for more information.

Travel distance must be measured along the actual path an occupant will take to reach the exit portion of the egress system. For example, where a room or space

Appendix 5: Planning and Development in Camden

The following are excerpts from the *Camden Planning Guidance* report produced by the Camden Council that apply to this project. Of specific interest are regulations on design of commercial space.

1 Introduction

What is Camden Planning Guidance?

- 1.1 We have prepared this Camden Planning Guidance to support the policies in our Local Development Framework (LDF). This guidance is therefore consistent with the Core Strategy and the Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. The Council formally adopted CPG1 – Design on 6 April 2011 following statutory consultation. This document was updated on 4 September 2013 following statutory consultation to include Section 12 on artworks, statues and memorials. The Camden Planning Guidance documents (CPG1 to CPG8) replace Camden Planning Guidance 2006.
- 1.2 The Camden Planning Guidance covers a range of topics (such as housing, sustainability, amenity and planning obligations) and so all of the sections should be read in conjunction, and within the context of Camden's LDF.

Design in Camden

- 1.3 Camden has many attractive and historic neighbourhoods as well as both traditional and modern buildings of the highest quality. These are a significant reason that the borough is such a popular place to live, work and visit. As well as conserving our rich heritage we should also contribute towards it by ensuring that we create equally high quality buildings and spaces which will be appreciated by future generations.
- 1.4 This objective of achieving high quality design does not just concern new development or large-scale schemes, but also includes the replacement, extension or conversion of existing buildings. The detailed guidance contained within this section therefore considers a range of design-related issues for both residential and commercial property and the spaces around them.

2 Design excellence

KEY MESSAGES

Camden is committed to excellence in design and schemes should consider:

- The context of a development and its surrounding area;
- The design of the building itself;
- The use of the building;
- The materials used; and
- Public spaces.

- 2.1 High quality design makes a significant contribution to the success of a development and the community in which it is located. Design of the built environment affects many things about the way we use spaces and interact with each other, comfort and enjoyment, safety and security and our sense of inclusion.
- 2.2 The purpose of this guidance is to promote design excellence and to outline the ways in which you can achieve high quality design within your development.
- 2.3 This guidance primarily relates to Core Strategy Policy CS14 Promoting high quality places and conserving our heritage and Development Policies DP24 Securing high quality design.

Building design

- 2.10 Good design should:
 - ensure buildings do not significantly overshadow existing/proposed outdoor spaces (especially designated open spaces), amenity areas or existing or approved renewable energy facilities (such as solar panels). For further information, refer to CPG3 Sustainability Renewable energy (A shadowing exercise may be required for tall buildings or where they are near open spaces);
 - consider the extent to which developments may overlook the windows or private garden area of another dwelling;
 - consider views, both local and London wide, and particularly where the site is within a recognised strategic viewing corridor (as shown on the policy Proposals Map);
 - consider the degree of openness of an area and of open spaces, including gardens including views in and out of these spaces
 - contributions to the character of certain parts of the borough;
 - provide visual interest for onlookers, from all aspects and distances. This will involve attention to be given to both form and detail;
 - consider opportunities for overlooking of the street and, where appropriate, provide windows, doors and other 'active' features at ground floor; and
 - incorporate external facilities such as renewable energy installations, access ramps, plant and machinery, waste storage facilities and shading devices into the design of the development. Careful consideration must be given to ensure that the facility does not harm the built environment.

Land use

2.11 The use of a building should:

- take into account the proposed use, and the needs of the expected occupants of the buildings and other users of the site and development; and
- provide clear indication of the use of the building. It is noted, however, that reuse of existing buildings, as well as the accommodation of possible future changes of use, can make this difficult.

Materials

- 2.12 Materials should form an integral part of the design process and should relate to the character and appearance of the area, particularly in conservation areas or within the setting of listed buildings. The durability of materials and understanding of how they will weather should be taken into consideration. The quality of a well designed building can be easily reduced by the use of poor quality or an unsympathetic palette of materials. We will encourage re-used and recycled materials, and further guidance is contained within CPG3 Sustainability (Sustainable use of materials).

Tall buildings

- 2.13 Tall buildings in Camden (i.e. those which are substantially taller than their neighbours and/or which significantly change the skyline) will be assessed against a range of design issues, including:
- how the building relates to its surroundings, both in terms of how the base of the building fits in with the streetscape, and how the top of a tall building affects the skyline;
 - the contribution a building makes to pedestrian permeability and improved public accessibility;
 - the relationship between the building and hills and views;
 - the degree to which the building overshadows public spaces, especially open spaces and watercourses; and
 - the historic context of the building's surroundings.
- 2.14 In addition to these design considerations tall buildings will be assessed against a range of other relevant policies concerning amenity, mixed use and sustainability. Reference should be made to this CPG (Heritage chapter), CPG3 Sustainability (Climate change adaptation chapter) and CPG6 Protecting and improving quality of life (Overlooking and privacy and Wind/microclimate chapters).
- 2.15 Where a proposal includes a development that creates a landmark or visual statement, particular care must be taken to ensure that the location is appropriate (such as a particular destination within a townscape, or a particular functional node) and that the development is sensitive to its wider context. This will be especially important where the

development is likely to impact upon heritage assets and their settings (including protected views).

- 2.16 Design should consider safety and access. Guidance on these issues is contained within this CPG (Designing safer environments chapter) and CPG4 Protecting and improving quality of life (Access for all chapter). Schemes over 90m should be referred to the Civil Aviation Authority.

Design of public space

- 2.17 The design of public spaces, and the materials used, is very important. The size, layout and materials used in the spaces around buildings will influence how people use them, and help to create spaces that are welcoming, attractive, safe and useful. They can also contribute to other objectives such as reducing the impact of climate change (e.g. the use of trees and planters to reduce run-off and provide shading), biodiversity, local food production and Sustainable Urban Drainage Systems (SUDs), and provide useful amenity space. In Conservation Areas there may be particular traditional approaches to landscaping/boundary treatments that should be respected in new designs.
- 2.18 The spaces around new developments should be considered at the same time as the developments themselves and hard / soft landscaping and boundary treatments should be considered as part of wider cohesive design. The landscaping and trees chapter in this CPG, and individual Conservation Area Appraisals, provide further guidance on this issue.
- 2.19 Public art can be a catalyst for improved environmental quality by upgrading and animating public space and enhancing local character and identity through helping create a sense of place. The Council will therefore encourage the provision of art and decorative features as an integral part of public spaces, where they are appropriate to their location and enhance the character and environment.
- 2.20 It is important that public spaces and streets are maintained to a high standard and so, in line with the Local Implementation Plan, the Council will continue to undertake public space enhancement works through specifically targeted programmes. The Designing safer environments chapter in this CPG provides more detailed guidance on the incorporation of safety and security considerations in public spaces.

Design and access statements

- 2.21 Design and Access Statements are documents that explain the design ideas and rationale behind a scheme. They should show that you have thought carefully about how everyone, including disabled people, older people and children, will be able to use the places you want to build.
- 2.22 Design and Access Statements should include a written description and justification of the planning application and sometimes photos, maps and drawings may be useful to further illustrate the points made. The length and detail of a Design and Access Statement should be related to the

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3 Heritage

KEY MESSAGES

Camden has a rich architectural heritage and we have a responsibility to preserve, and where possible, enhance these areas and buildings.

- We will only permit development within conservation areas that preserves and enhances the character and appearance of the area
- Our conservation area statements, appraisals and management plans contain more information on all the conservation areas
- Most works to alter a listed building are likely to require listed building consent
- Historic buildings can and should address sustainability

- 3.1 This section provides guidance on our identified heritage assets (which include conservation areas, listed buildings and registered parks and gardens), including what they are and the implications of their status and designation. This section also sets out details on how historic buildings can address sustainability.
- 3.2 This section sets out further guidance on how we will apply Core Strategy Policy CS14 Promoting high quality places and conserving our heritage and Development Policy DP25 Conserving Camden's Heritage.

When does this apply?

- 3.3 This guidance applies to all applications which may affect any element of the historic environment and therefore may require planning permission, or conservation area or listed building consent.

- 3.30 More detailed guidance on how to modify buildings without compromising their significance is contained within CPG3 Sustainability (Energy efficiency: new buildings, Energy efficiency: existing buildings, Renewable energy, Climate change adaptation, Water efficiency, Flooding and Sustainable use of materials). For further information see the links at the end of this chapter.

Planning obligations relating to heritage assets

- 3.31 Many of the potential impacts of development on historic buildings and in archaeological priority and conservation areas can be covered through design and by conditions on the planning permission, for example the need to carry out surveys or the storage and restoration of artefacts. Some objectives for building and area conservation or archaeology are unlikely to be satisfactorily controlled by a condition or in such cases and where impacts are off-site, or involve a particularly sensitive or complex programme of works, involving phasing, the Council may require implementation of these measures through a Section 106 Agreement.

Employment space

Net increase in floorspace / 19sqm [space requirement per full time employee] = full time jobs created

Full time jobs created x 23% [%of Camden residents in the workforce] x 35 [% of employees requiring training] x £1,500 [£ per employee requiring training]

Hospitality

No of bedrooms / 0.5 [number of employees per bedroom] = full time jobs created

Full time jobs created x 23% [%of Camden residents in the workforce] x 35 [% of employees requiring training] x £1,500 [£ per employee requiring training]

Note: The cost of employment and recruitment training and support per employee is based on the amount asked for by KX construction centre (£1,500)

8.22

Where the end use occupier is known, as part of the s106 we will seek an agreement with the developer to provide a specified number of apprentice or trainee places within the development. Where the end use occupier is not known, the Council will seek an agreement to ensure that its aims and objectives, in respect of employment and skills, are promoted by brokering a meeting between the new occupier and the Economic Development team.

which will result in an increase of 1,000 sq m or more employment space, including office, hotel and retail developments.

- 8.16 The strategy will involve the developer/point of contact meeting with Camden Council and their nominated partner at pre-tender stage/pre-implementation to discuss an Employment and Skills Plan for every phase of the development and liaising with local employment providers to fill vacancies.
- 8.17 Developments over £3 million will be required to recruit one construction apprentice through Camden Council, or its nominated partner, for every £3million of build where the length of the project allows (generally, where the contract is 52 weeks or more) A support fee of £1,500 per apprentice placement will also be payable in order to cover:
- pre-employment;
 - recruitment process;
 - training provider brokerage; and
 - post-employment mentoring and support.
- 8.18 Where the length of the project/build does not allow for an apprenticeship placement, a £7,000 fee per apprentice will be payable to allow for the creation of training opportunities elsewhere in the borough.
- 8.19 Developers will also be required through a legal agreement to sign up to the Camden Local Procurement Code where the value of the scheme exceeds £1,000,000. This will involve the developer/point of contact meeting with Camden Council and their nominated partner prior to the implementation of their scheme to discuss potential for local businesses becoming part of the supply chain and to draw up a Local Procurement plan in line with the Local Procurement Code.

Employment in development after completion

- 8.20 Camden Council encourages the creation of apprenticeships and training placements to help to close the skills gaps between the jobs on offer in the borough and the skills of the local workforce, allowing companies to recruit and retain local people into work. This approach is supported through policy CS8 of the LDF and applies to major commercial developments which will result in a NET increase of 1,000sq m or more of employment space including office, hotel and leisure developments.
- 8.21 The Council will seek to negotiate a s106 contribution to be used by the Council's Economic Development service to support training and provide employment advice to help local residents access local jobs and to support local procurement initiatives in Camden. The contribution is lower than for developments involving a loss of employment space. To reflect the fact these developments are providing new employment opportunities will be calculated as follows:

Development involving heritage assets

- 5.30 Camden has a rich architectural heritage with many special places and buildings from many different eras in the area's history. These places and buildings add to the quality of our lives by giving a sense of local distinctiveness, identity and history. Core Strategy policy CS14 - *Promoting high quality places and conserving our heritage* and Development Policy DP25 – *Conserving Camden's Heritage* recognise our responsibility to preserve and enhance the Borough's heritage assets. Further guidance on how these policies will be applied is provided in Camden planning Guidance 1 – Design, in particular chapter 2 - Heritage.



- 5.31 Many of the potential impacts of development on historic buildings and in archaeological priority and conservation areas can be covered through design and by conditions on the planning permission, for example the need to carry out surveys or the storage and restoration of artefacts. Some objectives for building and area conservation or archaeology may not be satisfactorily controlled by a condition. Where impacts are off-site, or involve a particularly sensitive or complex programme of works, involving phasing, the Council may require implementation of these measures through a Section 106 Agreement. This would be in accordance with policy DP25.
- 5.32 Depending on the nature of the scheme, the Council may require a developer to:
- put measures in place so that work can be stopped if the developer finds some archaeological artefacts during construction;
 - provide, implement and maintain a suitable historic landscape management plan;
 - draw up a listed building or conservation maintenance, repair and/or management plan;
 - provide and implement a restoration scheme for historic buildings and features perhaps to a set timescale and an agreed specification;
 - provide and financially support an information centre including the resourcing of staff;

- night and/or are substantial enough to generate significant increases in visitor numbers and use of local public transport facilities;
- Major residential developments (over 10 units) that suffer from poor public transport accessibility and/or poor pedestrian routes and linkages to public transport facilities, local shops and community facilities;
 - Developments located in the vicinity of a canal or waterway; and
 - Developments that have specific user or design requirements, such as secured rear servicing, that have implications for the quality of pedestrian routes and streets (e.g. high, blank walls and blank elevations).
- 5.28 Planning obligations (which could take the form of financial or non-financial agreements) may be sought to address a range of issues including:
- Improving and creating safer routes for pedestrians directly serving and in the vicinity of the development;
 - Improving and creating safer routes for cyclists directly serving and in the vicinity of the development;
 - Improvement or provision of lighting to established or proposed pedestrian routes and cycle routes to make them safer;
 - Rerouting of or controlling access to underused and potentially dangerous paths and links such as subways and alleyways which serve a limited purpose;
 - Improvements to housing estates in the vicinity of the development at risk of an increase of Anti social behaviour and crime as a result of it;
 - Environmental improvements that contribute towards improving safety in town centres, Central London areas and other areas affected by a development, e.g. landscaping works to improve visibility and removing areas of concealment;
 - Improvements to the accessibility, safety and quality of transport infrastructure and facilities serving the development;
 - Works to improve the accessibility and safety of waterways and towpaths in the vicinity of the development;
 - Community initiatives which may form one strand of crime prevention e.g. youth projects, provision of community safety officers/street wardens;
 - Safety improvements to existing or proposed public facilities and car parks where new developments may be located; and
 - Providing new and supplementing existing CCTV schemes including management and maintenance.
- 5.29 The provision of local management plans including community safety management plans to manage the impact of the development on the surroundings. This could include plans for the construction and/or post construction phases of the development.
- carefully record, remove, store, display and maintain specifically identified artefacts or remnants from demolition as part of a new development or in another location;
 - safeguard in perpetuity an area containing significant remains and incorporate it into the design of the scheme and allow and manage public access;
 - undertake and complete specified works prior to implementation or occupation of any new or enabling development; and
 - carry out related surveys.
- 5.33 A financial contribution or works in kind may also be required for a range of works. For example:
- to secure the investigation and protection of archaeological remains and ancient monuments in advance of development;
 - to investigate, record and remove any archaeological finds and/or allow and manage public access;
 - to reinstate and repair historic features (such as streetlights, bollards and surfaces, such as granite setts, cobblestones and York stone paving) directly affected by the development and its construction impacts;
 - off-site improvements, for example installing new paving, lighting or bollards to complement and enhance conservation areas and existing features and, furniture and surface materials; and
 - improvements and enhancement of canals and other industrial heritage feature.

8 Employment and business support

- 8.1 Local businesses can provide employment for local people and new business development can benefit the local economy and existing businesses through the use of local shops, facilities and services. Core Strategy Policy CS8 – *Promoting a successful and inclusive Camden economy* and Development Policy DP13 – *Employment premises and sites* aims to ensure that the borough's economy will be strong and diverse and that Camden's residents can play a role in this by supporting training and employment opportunities.
- 8.2 There is an identified skills gap between Camden residents and the jobs on offer in the Borough. Currently, only 23% of the workforce in Camden is resident in the Borough. Local employment and training initiatives can open up job opportunities for people from many sectors of the community, who may otherwise find it difficult to access employment offered by existing and new businesses, helping to bridge the identified skills gap.
- 8.3 The Council may require developers to assist with training and employment initiatives via section 106 Agreements where the development impacts on the availability of jobs for Camden residents, including the following types of development:
- Any commercial land use where the proposed development could offer local employment opportunities, or would have the potential to provide it on account of its floorspace (i.e. greater than 1000 square metres or 50 jobs);
 - A development in a location where there are identified employment and training issues (e.g. higher than Borough-average levels of unemployment, lower than Borough-average levels of skills/education attainment);
 - Where major developments result in the loss or displacement of existing employment opportunities; and
 - Major infrastructure or development projects involving significant construction contracts (e.g. over £3 million).
- 8.4 A financial contribution to assist local residents to receive training in the skills that would enable them to access the types of job created by new development may be sought. These monies will be held by the Council and used in suitable partnership projects with recognised training and employment organisations and partnerships.
- 8.5 The contributions would be paid to the Council and then allocated by the Council's Economic Development Team to a recognised local and/or specialist training provider. Alternatively, developers and/or occupiers of development may, in conjunction with the Council's Economic Development Team, be able to develop and offer tailored in-house training or work experience schemes for local residents (this could be offered through local schools and colleges).

- 5.11 In very limited circumstances (e.g. where a Borough Road is not maintainable at the public expense, or in large scale developments), a scheme could be designed and implemented by the developer, although the Council's Engineering Service would still need to instruct and approve the scheme. The Council will always have the right to intervene (at the developer's expense) if any works are not to the Council's reasonable satisfaction.

- 5.12 For planning applications located on or affecting GLA roads (Transport for London Network - TLRN), the local planning authority will consult with Transport for London regarding the suitability of the proposed scheme. Where the development would involve an alteration to or a new access onto the TLRN, Transport for London has ultimate responsibility for indicating what is acceptable.

- 5.13 The particular approach to be followed will need to be agreed with the Council before the obligation can be completed. In all cases the works will need to be completed within an agreed timescale. In some situations where highway works are necessary to allow the development to commence, the works will need to be completed before the works approved by the planning permission are started though in many circumstances any highways or public realm works will tend to follow on from the main construction.

Payment for highways works

- 5.14 The Council will secure payment of required works by preparing an estimate (including fees) for the scheme that the developer will be required to pay before commencing development. It is inevitable that, sometimes, unforeseen costs can arise during more detailed design and implementation. The agreement can provide for a subsequent adjustment to be made if actual costs exceed the amount paid, up to a maximum figure, usually agreed through the planning obligation.
- 5.15 The Council will provide an indicative cost of the proposed works prior to the determination of the application and this will be included in the agreement. On completion of the works the Council will certify how much money was expended in undertaking the works.
- 5.16 If the expenditure exceeds the contribution paid through the s106 agreement, the Council will require the developer to pay the excess amount. An option may be for developers to pay a one-off negotiated returnable bond or contingency sum in addition to the estimated cost, the size of which will be based on the nature, scale and risk associated with the particular works (e.g. up to 60% as per HM Treasury Green Book guidance).



Highway works

- 5.7 The Council, as the local highways authority, is responsible for the maintenance, safety and quality of the borough's roads and highways and other adopted public spaces. It will determine how highway and/or other related works should be designed and implemented, in consultation with developers, to ensure that they are carried out in accordance with Council procedures and standards. Developers should refer to the Council's Streetscape Design Manual. (Note: the Transport for London Road Network is the exception where TfL are the highway Authority).

Level plans

- 5.8 The design of any development needs to take account of the surrounding topography and in particular the levels of site where it adjoins the public highway. The Council will not adjust highway levels to meet accesses that do not sit at the required level. It will be a requirement of a Section 106/278 agreement for the developer to submit level plans to the Council for approval prior to implementation. These plans will need show existing and proposed levels for channel, top of kerb, back of footway and any other features of relevance. They will also need to clearly show that any accesses or adjoining open areas will match the back of footway levels required.

Agreement of highway works

- 5.9 There are two main ways for public highways works on Borough Roads to be undertaken through a section 106 / 278 obligation. The Council can design and carry out these works at the developer's expense; or the developer can (with the Council's agreement) design the works themselves to a specification set by the Council. The Council will then undertake these works at the developer's expense. Occasionally where very minor works are involved, the Council may allow the developer to undertake the works on the Council's behalf (under Council supervision).
- 5.10 In both cases, the Council will exercise control over the design of the works and be involved in the implementation of the scheme. Any works

- 5.1 The Council's planning policies seek to ensure that Camden's places and buildings are attractive, safe, healthy and easy to use. Core Strategy policy CS14 - *Promoting high quality places and conserving our heritage* requires development to be of the highest standard of design that respects local context and character, including improving the spaces around buildings and achieving high quality landscaping in schemes. More information about our detailed approach to the design of new developments and alterations and extensions can be found in Development Policy DP24 - *Securing high quality design*.
- 5.2 The Core Strategy also sets out our approach to other matters related to design, such as tackling climate change through promoting higher standards (CS13), the importance of community safety and security (CS17) and protecting amenity from new development (CS5). Further guidance on design is contained in our Camden Planning Guidance 1 – Design

Landscaping

- 5.3 There is a general need for more greenery in the borough and to enhance wildlife habitats in the urban environment. Planning obligations may be required for landscaping and planting if the potential impacts of a development on nearby parks and other green spaces are substantial enough to require mitigation measures.
- 5.4 Landscaping is an essential element of design. If high quality landscaping cannot be provided on-site or enhancements carried out to affected landscaping of value, either on or off site, works in kind or a financial contribution may be required by way of a legal agreement for the appropriate compensatory or mitigating landscaping works.
- 5.5 The Council will specify the scope of the requisite measures and will calculate the cost of new planting, new features and associated works based on the cost of implementation by Council contractors. As part of a Section 106 Agreement the Council may require a developer to submit for approval a landscape management plan setting out measures and standards in relation to the management and maintenance of affected wildlife habitats and/or landscapes.

Works to streets, highways and public realm

- 5.6 A whole range of developments may require works to be carried out to the surrounding streets and public spaces to ensure that the site can be safely accessed, and to allow a new development to properly and safely function. Some works may also need to be carried out to mitigate the impacts of development and could include the following:

- 5.23 A new development, particularly one which is large enough to attract significant numbers of visitors or to change its context, may be expected to incorporate public art as part of the necessary measures proposed to enhance public spaces and the surrounding townscape. Public art initiatives may be provided or funded either through the use of section 106 agreement or planning conditions.
- 5.24 The Council will only seek a planning obligation in circumstances which are appropriate and directly related to the proposed development, and where it is not possible to deal with the matter through the imposition of a planning condition. The circumstances where an agreement may be required will be determined by factors such as the precise location, nature and scale of a development, taking into account the nature of the site, the scale of associated public realm schemes and the extent of public accessibility.

Community Safety

- 5.25 Achieving community safety in all new developments is an important objective for the Council which is reflected in Core Strategy policy CS17 – Making Camden a safer place. Crime preventive design is an important aspect of achieving community safety and should be considered from the earliest stages of a development proposal and integrated into the design. More information on designing safer environments is provided in CPG1 – Design, chapter 09. Designing safer environments.
- 5.26 Where an otherwise acceptable development could have potentially negative impacts on local community safety, either through its uses or hours of operation, or its design, the Council will require the developer to undertake or fund appropriate and related works or measures to minimise these impacts, which will be secured through a Section 106 Agreement.
- 5.27 Developments of the following types may require a planning obligation to address community safety issues:
- New proposals (generally those considered “major” or over 1000 square metres) for leisure facilities and venues including uses such as gyms, leisure centres and cinemas that are likely to operate late at night. Any development proposals for entertainment venues will be expected to contribute to improving local safety (e.g. through CCTV coverage);
 - Most cafes, restaurants, public houses and clubs with late night opening (generally those that could hold 100 or more people). With applications for new licensed premises (including clubs), the use of security measures around entrances and vicinity management may be required. This will be especially important in the areas identified as having relatively high levels of crime;
 - Major town centre and high street developments including retail, hotel, office and mixed use developments that may be open into the

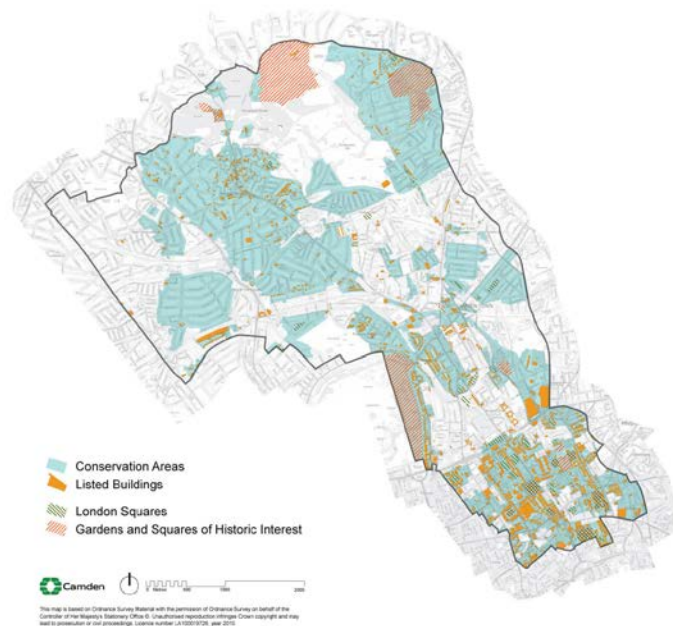
- 5.17 If the contribution is not fully utilised and the agreement of the developer or landowner has not been obtained so that funds can be spent on complementary and similar works in the vicinity of the site, then the Council will repay any unspent monies.
- 5.18 Scheme costings include design, supervision and contract fees will be indexed linked from the date the agreement is signed. The developer will also be required to pay the Council's costs in respect of any necessary traffic management orders or other appropriate costs related to the works.
- 5.19 In occasional situations, it may be appropriate for other accountable parties to implement works or expend funds under the supervision of the Council. Examples of this may include works to canals/waterways or other areas of land over which the Council does not have control.

Public Art

- 5.20 The Council encourages the use of public art, either as a permanent or temporary feature, within the urban design process. Public art can be a catalyst for improved environmental quality by upgrading and animating public space, enhancing local character and identity through helping create a ‘sense of place’, and promoting better visual ‘legibility’ of the local area by contributing to more recognisable and distinctive places and townscape.
- 5.21 Public art can also serve as an emblem of civic pride or corporate image. It can further improve the marketability of a property and add to the process of urban regeneration. In this sense public art can be seen, both in the short and long term, to add value to a development and to enhance the visual quality of an area.
- 5.22 Examples could include painting, sculpture, photography, film and video, projections, installations, murals, tapestry, decorative ironwork, glass engravings, street and performance art, and elements integral to buildings and surrounding public spaces themselves. Many developers will be committed to public art and high quality design and will positively incorporate public art plans and works when new major developments are being designed and commissioned.

historic interest, the character or appearance of which it is desirable to preserve and, where possible, enhance. PPS5 identifies conservation areas as "heritage assets" and requires that proposals in conservation areas are assessed for their impacts on their historic significance. There are 39 conservation areas in Camden, which vary greatly in appearance, size, character and style and these are identified on the LDF Proposals Map.

Figure 1. Conservation Areas



- 3.5 Conservation area designation is a way to recognise the importance of the quality of an area as a whole, as well as giving some protection to individual buildings within it. Conservation areas are not designated to stop all future development or change but to ensure that change is managed to conserve the historic significance of the area as a whole.
- 3.6 Conservation area designation is shown on the proposals map and further information on heritage is available on the 'Conservation and Design' section of the Council's website www.camden.gov.uk and on English Heritage's website www.english-heritage.org.uk.

Effects of conservation area status

- 3.7 We will only permit development within conservation areas, and development affecting the setting of conservation areas, that preserves and enhances the character and appearance of the area (see Planning Policy Statement 5 (PPS5), policy HE8).
- 3.8 The Council has greater control over building work in conservation areas, including demolition, materials and detailed design. Planning permission may be required for alterations or extensions that would not normally need planning permission elsewhere, such as minor roof alterations, dormer windows, renewable energy installations or installation of a satellite dish.

Renewable energy technology

Renewable energy technologies generate energy from natural resources such as sunlight, wind, rain and heat in the ground, which are naturally replenished.

Demolition in conservation areas

- 3.9 Conservation Area Consent is required to demolish or substantially demolish a building over 115 cubic metres or a structure such as a wall over 1 metre high that adjoins a highway, or more than 2 metres high elsewhere. When determining your application we will follow the guidance in PPS5, Core Strategy policy CS14 and Development Policy DP24 as well as that in our conservation area statements, appraisals and management plans (see below). It is an offence to totally or substantially demolish a building or structure in a conservation area without first getting consent from us and we would not normally allow their demolition without substantial justification, in accordance with criteria set out in government guidance PPS5 – Planning for the Historic Environment.

Trees

- 3.10 Planning legislation makes special provision for trees in conservation areas. Prior to pruning or felling a tree in a conservation area you must provide the Council six weeks notice in writing. All trees that contribute to the character and appearance of a conservation area should be retained and protected. For further information on trees, please see Landscape Design and Trees chapter in this CPG.

How can I alter a listed building?

- 3.20 Most works to alter a listed building are likely to require listed building consent and this is assessed on a case by case basis, taking into account the individual features of a building, its historic significance and the cumulative impact of small alterations. The listing description is not intended to be exhaustive and the absence of any particular feature in the description does not imply that it is not of significance, or that it can be removed or altered without consent. Listed status also extends to any object or structure fixed to the listed building, and any object or structure within its curtilage which forms part of the land. You should contact the Council at the earliest opportunity to discuss proposals and to establish whether listed building consent is required.
- 3.21 Some 'like for like' repairs and maintenance do not require listed building consent. However, where these would involve the removal of historic materials or architectural features, or would have an impact on the special architectural or historic interest of the building, consent will be required. If in doubt applicants should contact the Council for advice.
- 3.22 In assessing applications for listed building consent we have a statutory requirement to have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses. We will consider the impact of proposals on the historic significance of the building, including its features, such as:
- original and historic materials and architectural features;
 - original layout of rooms;
 - structural integrity; and
 - character and appearance.
- 3.23 We will expect original or historic features to be retained and repairs to be in matching material. Proposals should seek to respond to the special historic and architectural constraints of the listed building, rather than significantly change them.
- 3.24 Applications for listed building consent should be fully justified and should demonstrate how proposals would affect the significance of a listed building and why the works or changes are desirable or necessary. In addition to listed building consent, some proposals may also require planning permission. These applications should be submitted together and will be assessed concurrently.

Site accessibility improvements

- a connection to a public highway;
- alterations and improvements to junctions;
- new or improved footways and pedestrian facilities;
- new or improved cycle routes and cycle stands;
- new traffic islands/refuges;
- pavement reinstatement and resurfacing;
- new or improved crossings and traffic control signals;
- crossovers;
- road closures / stopping up;
- road realignment and/or widening;
- bridge works;
- traffic reduction and calming measures e.g. clear zone strategy, "Home zones" and "safer routes to schools" initiatives;
- parking management schemes/revisions to a CPZ;
- Traffic Regulation Orders, e.g. loading areas;
- shopmobility and scootability schemes (loan of scooters or electric wheelchairs to assist movement in the area around a home or destination from the initial point of arrival); and
- works and improvements to canals and waterways.

Public space improvement hard and soft landscaping treatment

- retention, repair and reinstatement of historic surface treatments;
- making access to new development easier and safer for disabled people;
- trees on streets, public or private open spaces;
- street furniture (in some cases removal/rationalisation of street furniture would be appropriate);
- improved street lighting;
- associated signage;
- public art – either within public areas or on private land visible from the street;
- CCTV;
- associated drainage works;
- specific site related conservation area enhancement; and
- specific area initiatives, e.g. town centre improvements, canal towpath improvements.

Article 4 directions

- 3.11 A range of minor changes can be made to buildings without the need to apply for planning permission as these have a general permission through planning legislation. These changes are known as permitted development. However, the character of a conservation area depends on the presence of specific original details and where these are lost the historic interest and attractive character of the area deteriorates.
- 3.12 In these situations we can issue an Article 4 direction through Article 4 of the Town and Country Planning (General Permitted Development) Order 1995 (as amended). This removes permitted development rights and means a planning application has to be made for minor works that usually do not need one.
- 3.13 Further information on Article 4 directions, including where they apply in Camden is available on the 'Advice and help with planning applications' section of the Council's website www.camden.gov.uk and English Heritage has published Guidance on making Article 4 Directions, available at www.english-heritage.org.uk/publications/guidance-on-making-article-4-directions/

Conservation area statements, appraisals and management plans

- 3.14 We have published a series of conservation area statements, appraisals and management plans that set out our approach to preserving and enhancing the historic significance of each individual conservation area. Many of these conservation area statements are available for download on our website.
- 3.15 Conservation area statements, appraisals and management plans help guide the design of development in conservation areas and we take these into account when assessing planning applications.
- 3.16 Each conservation area statement, appraisal or management plan contains the following:
- A summary of the location and the historical development of an area;
 - A description of its character;

- An outline of the key issues and development pressures that are currently of concern;
- The key policy framework for that particular conservation area, and specific guidance for it;
- An identification of heritage assets and elements of the wider historic environment which give an area its historic significance; and
- An identification of sites and features that have a negative impact on the conservation area, or where an opportunity exists for enhancement of the area by redevelopment of a building or site.



Listed Buildings

What is a listed building?

- 3.17 A listed building is defined in the Planning (Listed Buildings and Conservation Areas) Act 1990 as a structure or building of special architectural or historic interest. These are included on the Statutory List of Buildings of Architectural or Historic Interest managed by English Heritage. Listed buildings are identified as heritage assets within the LDF and the Council is required to assess the impact that proposals to a listed building, or within their setting, may have on the historic significance of the building.
- 3.18 Listed buildings are graded according to their relative importance as either Grade I, Grade II* or Grade II. Grades I and II* are considered of outstanding architectural or historic interest and are of particularly great importance to the nation's heritage. The majority of listed buildings (about 94% nationally) are Grade II. However, the statutory controls on alterations apply equally to all listed buildings irrespective of their grade and cover the interior as well as the exterior and any object or structure fixed to or within their curtilage.

Appendix 6: Vegetation and Fauna

The following are excerpts taken from the Royal Parks website describing the vegetation and fauna of England and Regent's Park



Vegetation

England is a relatively green country with meadows and gardens and a varied flora ranging from towering trees flowers fruit trees and shrubbery. The large forested areas throughout England adding a distinctive beauty to the landscape. The main tree species are Oak, Beech, Pine, Elm, Ash, Crab Apple, Maple, and Willow. A large proportion of land comprises farming or agriculture and include crops such as wheat, barley, oats, cherry orchards, apple orchards and plum orchards. Roses are the national flower and can be seen throughout England. Some of the most popular plants are below. The major significant green spaces near the Camden Lock site are the Primrose Hill and Regents Parks.

English Oak (*Quercus robur*)

Also known as the English Oak, this tree is an important member of the English flora as its acorns are the chief source of food for squirrels, and similar animals. It usually grows to between 25 and 35 meters in height, but can exceed 40 meters in some cases. Flowering takes place during spring and the acorn fruits appear in the following autumn. This tree enjoys a long lifespan of several hundred years.

Field Rose (*Rosa arvensis*)

The Field Rose is far less ornate than ordinary roses and has white or cream flowers. Its red fruits are favored as quick snacks for many animals and birds, making them important resources for the fauna of England too. This wild rose can be grown as a hedge or as a creeper. If left unattended, it will sprawl extensively. The Field Rose is not fussy about the soil in which it grows, making it a particularly easy plant to grow.

St John's Wort (*Hypericum olympicum*)

The bright yellow flowers characterize this shrub, acclaimed for its medicinal properties. It is also known as Tipton's Weed, Chase-devil, or Klamath Weed. It usually grows to about 250 millimeters high and 500 millimeters wide. It is probably best known for the treatment of depression, but has also been used to treat alcoholism and ADHD. However, before using this plant as treatment, it is crucial that you first consult with a medical practitioner.

Queen Mary's Garden

This is a world-famous garden named after the wife of King George V. In 1932 when Queen Mary's Gardens. The rose garden is London's largest collection of roses with approximately 12,000 roses planted within the gardens. There are 85 single variety beds on display, including one which is home to our very own 'Royal Parks' rose. Examples of most rose varieties, from the classics to the most modern English roses, are present in the gardens.

England Fauna

England is home to a diverse and abundant array mammals and insects. Some common animals in England include red deer, rabbits, common frog, tawny owl, common seal, and the otter. The Regents Park, located not far from the site contains a zoon and bird park.

The Red Deer

Known also by its scientific name, *Cervus elaphus*, the Red Deer is one of the biggest of the many deer species. As well as England, Red Deer also live in Europe, Asia Minor, western Asia (select areas) and central Asia (select areas). In addition, it is the only deer living in Africa and can be found in the Atlas Mountains between Morocco and Tunisia. They have been introduced by humans into Australia, New Zealand and Argentina.

The Hazel Dormouse

The Hazel Dormouse is also known, is especially significant because it is the only living species in the *Muscardinus* genus. These little rodents grow to a maximum of about nine centimeters (or 3.5 inches) long, excluding their tails, which reach about six or seven centimeters (approximately 2.5 to three inches). The Hazel Dormouse hibernates from October all the way through to April or May and will usually double its weight in preparation.

Managing for Wildlife

There are many wildlife conservation projects being carried out in the park. These include the creation of 'dead hedges' within woodland areas, the planting and management of reed bed areas, the creation of a wetland and wildflower area in the Silt Pen, the planting of native trees such as English Oak and Birch, the coppicing of Elm on the canal banks, and the planting of native-species hedgerows along fence-lines.

Zoo and Bird Park

People have been keenly observing bird life in The Regent's Park since the middle of the 19th century. The Regent's Park boasts an impressive list of at least 200 species and an annual list of around 114 species. This is all the more impressive given its location in the very heart of London.

Take a short bird walk around Regent's Park and find out about the types of birds you are likely to encounter.

The park consists of formal gardens, shrubberies, sports pitches, rough grassland, a large lake with several reed beds and islands, a small, enclosed wood and a canal with embankments. These areas can offer food and nest sites for the 47 park resident and summer visiting species. Mature trees provide nest sites for species like Tawny Owl, Green Woodpecker and Kestrel and secluded shrubbery provide nesting opportunities for tits, Robins, Blackbirds and other small birds.

Kestrel There is a noticeable movement of birds flying from south-west to north-east in the spring, and in the opposite direction in the autumn. These are migrant birds following the larger green spaces across London, namely:

Richmond Park

The London Wetland Centre in Barnes

Hyde Park

The Regent's Park

Hampstead Heath

Alexandra Palace.

These sites allow the birds to connect between the large water bodies to the south west of London and the Lea Valley to the north-east. These green spaces enable birds to feed en route or seek shelter in bad weather. The Regent's Park offers a sanctuary to many passage migrants and winter visitors. The open grasslands are great places to observe, amongst others, Redwing, Mistle Thrush and Pied Wagtail. In spring, migrant warblers arrive to breed - Reed Warblers can be heard chattering from the reed beds around the lake and the melodious song of the Blackcap can be heard from the trees.

London Peregrine Partnership One of our special birds to look out for is the spectacular Peregrine Falcon, a pair of which has nested on a building close to the edge of the park since 2003. With some help from Royal Parks Wildlife Officers (who twice rescued chicks) they managed to successfully rear two young in 2004. This was the first successful Peregrine nest in central London.



www.landuse.co.uk

Opportunities for Greening Camden Town

A Green Infrastructure Audit of the Camden Town Unlimited Business Improvement District

Prepared by LUC in association with The Green Roof Consultancy, and
Engineering Design and Analysis
March 2012

3 Key Opportunities

- 3.1 The audit identified **12 areas existing green areas with potential for further enhancement** (2.95ha), and **30 areas of mostly hardstanding suitable for greening**, comprising 3.35 ha.
- 3.2 The majority of opportunity areas comprised tree planting (26 sites), shrub planting (21 sites) and the creation of wetland or rain garden features (12 sites). In addition, of 1220 roofs assessed, **176 roofs were identified as with high potential for conversion to green roofs** (those classified as with a priority rating of 4 and 5 roofs – see Appendix 1 for definition).
- 3.3 Further detail is provided below regarding the key opportunities identified for greening of the public realm, with key areas shown on **Figure 3.1**.

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2 Audit Results

Study Area

- 2.1 The study area, shown in **Figure 2.1**, covers an area of 35.4ha. It focuses on the north-south corridor formed by Camden High Street and Chalk Farm Road, with the northern extent at Chalk Farm London Underground Station and Mornington Crescent at the south. The study area also includes other major roads, including Jamestown Road, Parkway and Pratt Street, with other larger blocks of land also included.

Existing Green Infrastructure

- 2.2 This area has **very little existing open green space**, with about three quarters of the study area comprising impermeable surfaces (**Figure 2.1**). The **Regent's Canal** and associated towpaths form the largest single block of public open space within the study area, with **Saint Martin's Gardens** partly included (**Figure 2.2**). Both of these open spaces are designated as **Sites of Importance for Nature Conservation** within local planning policy. **Twelve of the existing green spaces were identified as with potential for enhancement**, with only one recorded as with no or limited potential (St. Martin's Gardens given its existing high value and as it was considered more appropriate to focus resources elsewhere).
- 2.3 Compared with other parts of London, **the study area has few street trees and some parts have no trees**. The consequential benefits of tree cover are therefore limited. This may be a result of a perceived lack of space for tree planting, and the high footfall within many of the pedestrian areas. **Ninety five trees were recorded within data provided by Camden Council (Figure 2.2)**, with the majority of these comprising London plane, species

of *Acer*, and Turkish hazel (32 species in total were recorded). However, it is important to note that this data is relatively old (2008), with **178 trees recorded during the terrestrial GI audit** undertaken as part of this study. This is likely, in part, to relate to recent tree planting associated with streetscape enhancements (including implementation of the Camden Town First Streetscape Strategy) and as landscaping and public realm improvements as part of built developments.



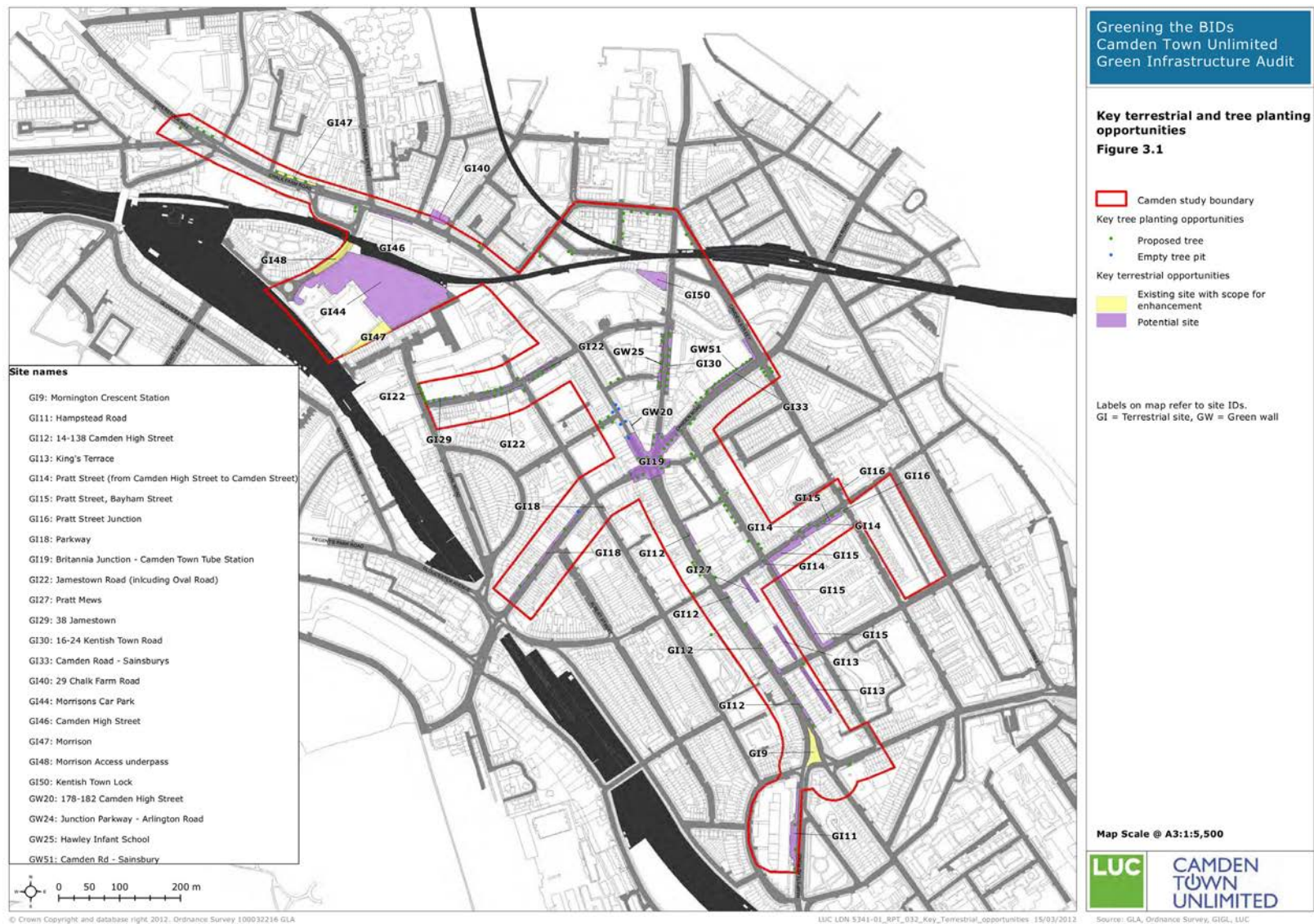
The Regent's Canal

Flood Risk

- 2.4 Data provided by Drain London² highlights a number of pockets across the study area at **risk of surface flooding**, with particular areas identified at the following locations:
- Entrance road to Morrisons Supermarket, below the rail bridge.
 - Locations along the Regent's Canal.
 - East of Camden Town, between Camden Road and Kentish Town Road.
 - Locations near Mornington Crescent London Underground Station.

² Note that this data is not yet publically available





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