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Gehret Ellen J. and Alan G. Keyser. "Flax Processing In Pennsylvania from Seed to Fiber."

RESOURCES

The Athenaeum of Philadelphia
219 S. Sixth Street
Philadelphia, PA 19106
(215) 925-2688
http://www.philaathenaeum.org

Fairmount Park Commission Archives
One Parkway, 1515 Arch Street
10th Floor
Philadelphia, PA 19102
(215) 683-0211
http://www.fairmountpark.org/Archives.asp

Germantown Historical Society
5501 Germantown Avenue
Philadelphia, PA 19144
(215) 844-1683
http://www.germantownhistory.org/

Historical Society of Pennsylvania
1300 Locust Street
Philadelphia, PA 19107
(215) 732-6200
http://www.hsp.org/

The Library Company of Philadelphia
1314 Locust Street
Philadelphia, PA 19107
(215) 546-3181
http://www.librarycompany.org

Free Library of Philadelphia
1901 Vine Street
Philadelphia, PA 19103
(215) 686-5322
http://www.library.phila.gov/

Philadelphia Historical Commission
City Hall
Room 576
Philadelphia, PA 19107
(215) 686-7660
http://www.mfrconsultants.com/hc/

APPENDIX A

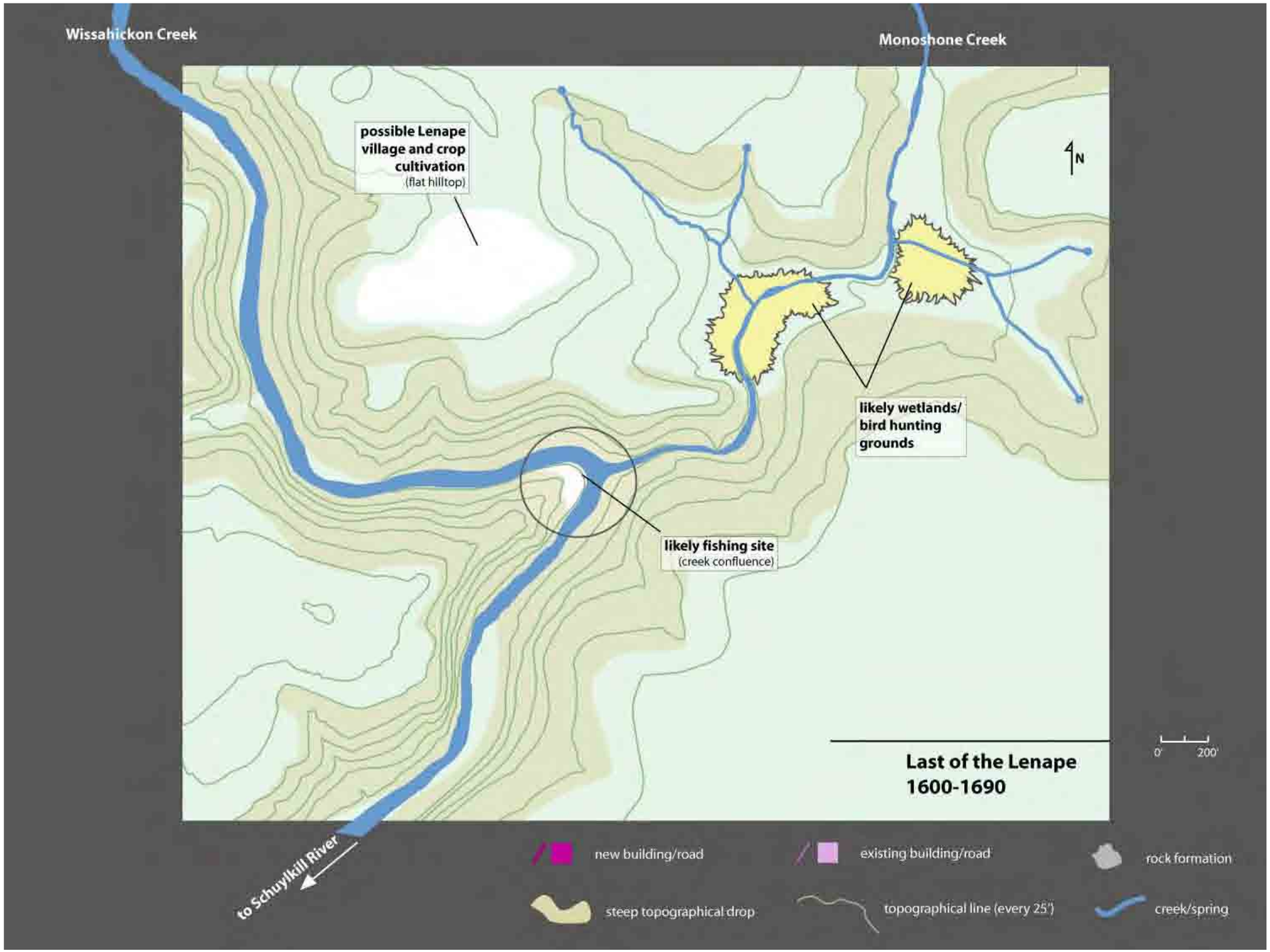
Maps

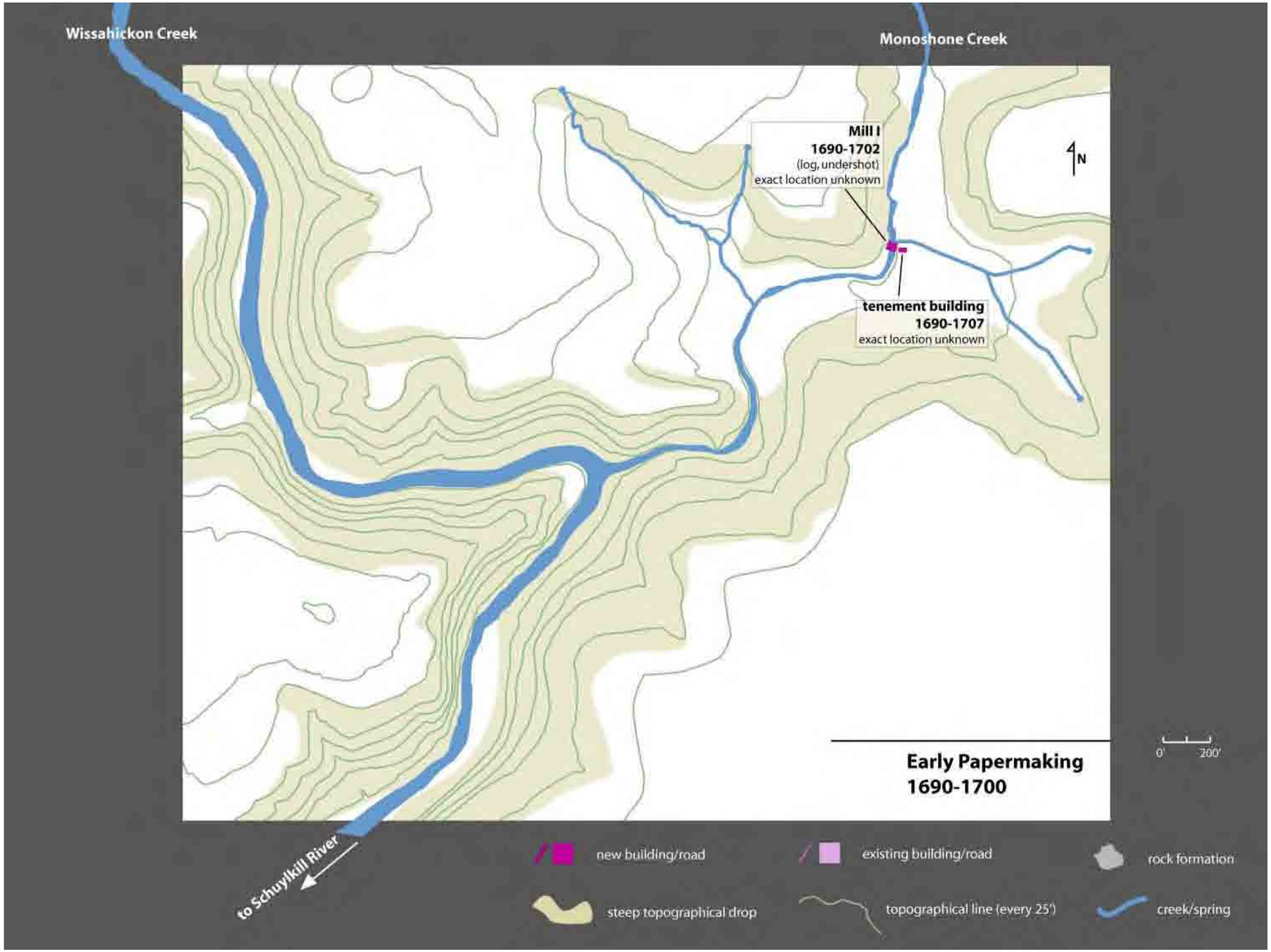
HISTORIC MAPS

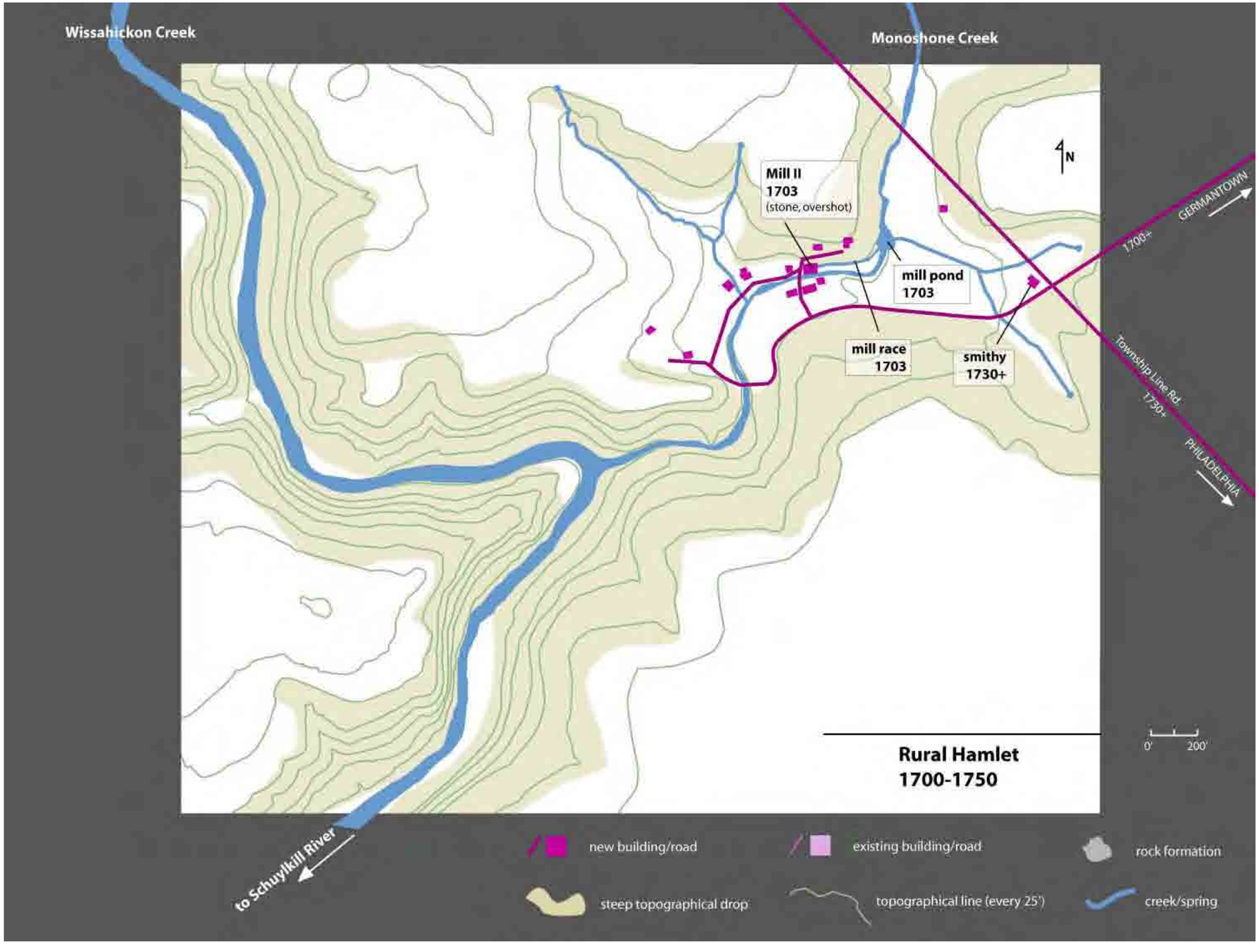
The following is a list of maps used in researching the history and landscape of the site.

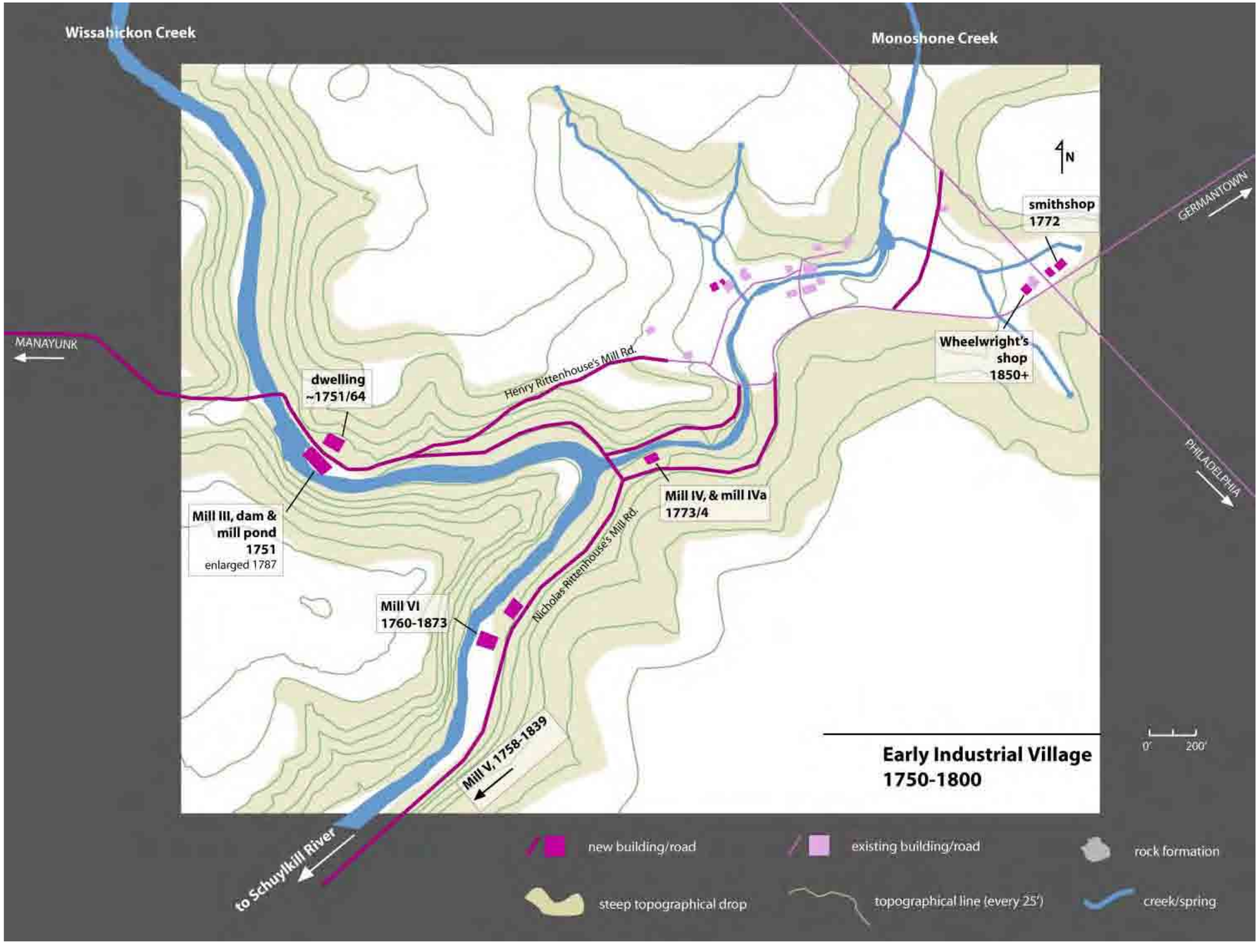
Name	Date	Company	Location
1. Map of Philadelphia	1752	Skull and Heap	www.philageo History.org
2. Map of the County of Philadelphia from Survey	1839	Charles Ellet Jr.	Library Company Philadelphia
3. Plan of Wissahickon Valley	1845	R. Thayer C.E. Fairmount Park	Free Library Philadelphia
4. Sidney's Map of Ten Miles Round	1847	J.C. Sydney C.E.	Library Company Philadelphia
5. Rittenhouse Woolen Mills Wissahickon	1866	Hexamer General Survey	www.philageo history.org
6. Survey of Wissahickon Creek	1868	J Cresson C.E. Fairmount Park	Free Library Philadelphia
7. Survey of Wissahickon Creek	1869	Fairmount Park	Library Company Philadelphia
8. Map of Fairmount Park	1870	unknown	Fairmount Park Archives
9. Insurance Map of Ward 22	1871	Hopkins	Free Library Philadelphia
10. Insurance Map of Wards 21 And 28	1875	Hopkins	Free Library Philadelphia
11. Contour Map of Rittenhouse Town	1880	unknown	Fairmount Park Archives
12. Topographic Map of RittenhouseTown	1890	unknown	Fairmount Park Archives
13. Insurance Map of Ward 22	1892	Bromley	Free Library

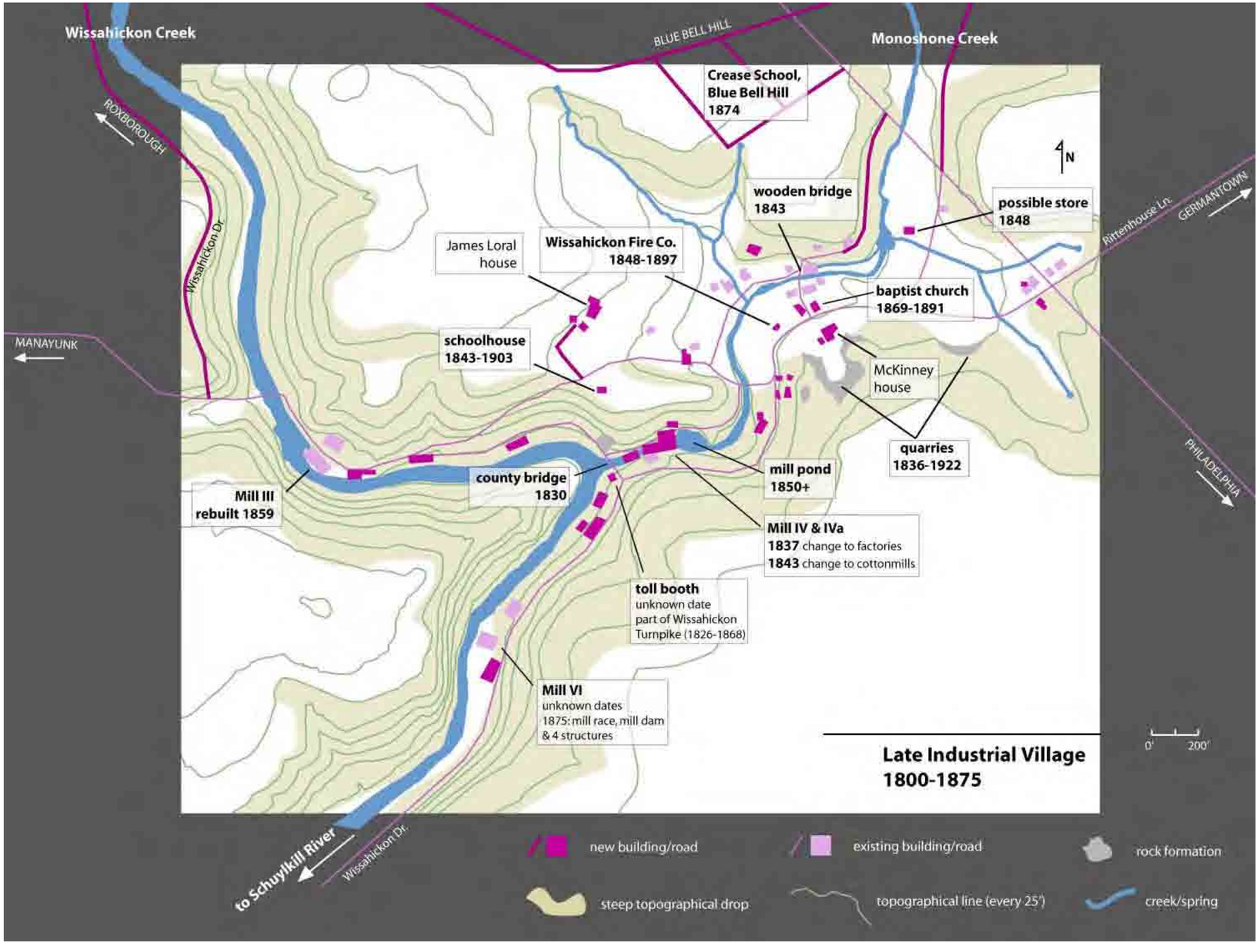
14. Map of Philadelphia	1893	unknown	Library Company Philadelphia
15. Insurance Map of Wards 21 and 28	1923	Sanbourn	Free Library Philadelphia
16. Topographic Map Wissahickon Valley	1942	Fairmount Park Commission	Fairmount Park Archives

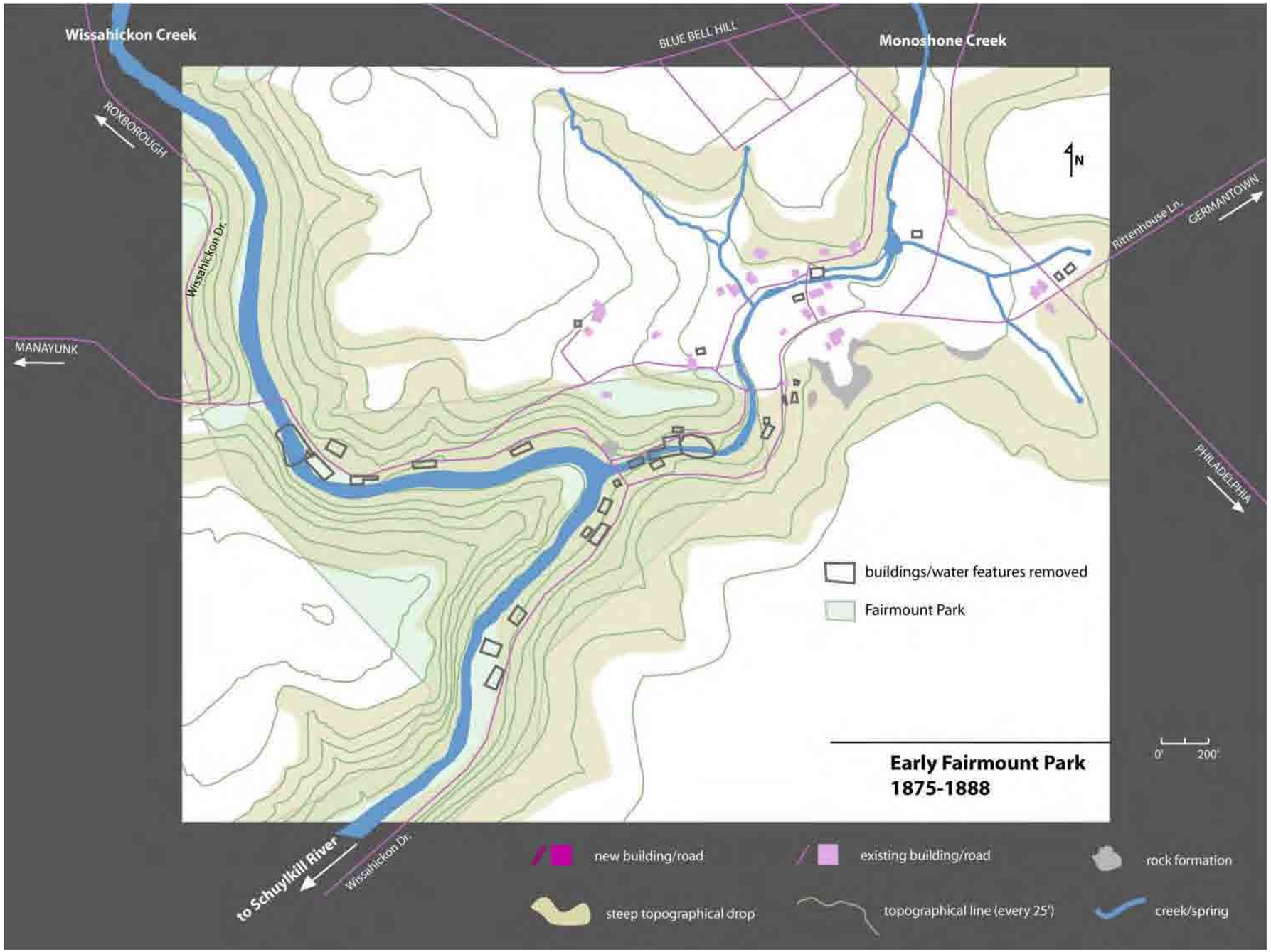

Wissahickon Creek
Monoshone Creek
possible Lenape village and crop cultivation
(flat hilltop)
N
likely wetlands/ bird hunting grounds
likely fishing site
(creek confluence)
Last of the Lenape
1600-1690
0'
200'
to Schuylkill River
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring

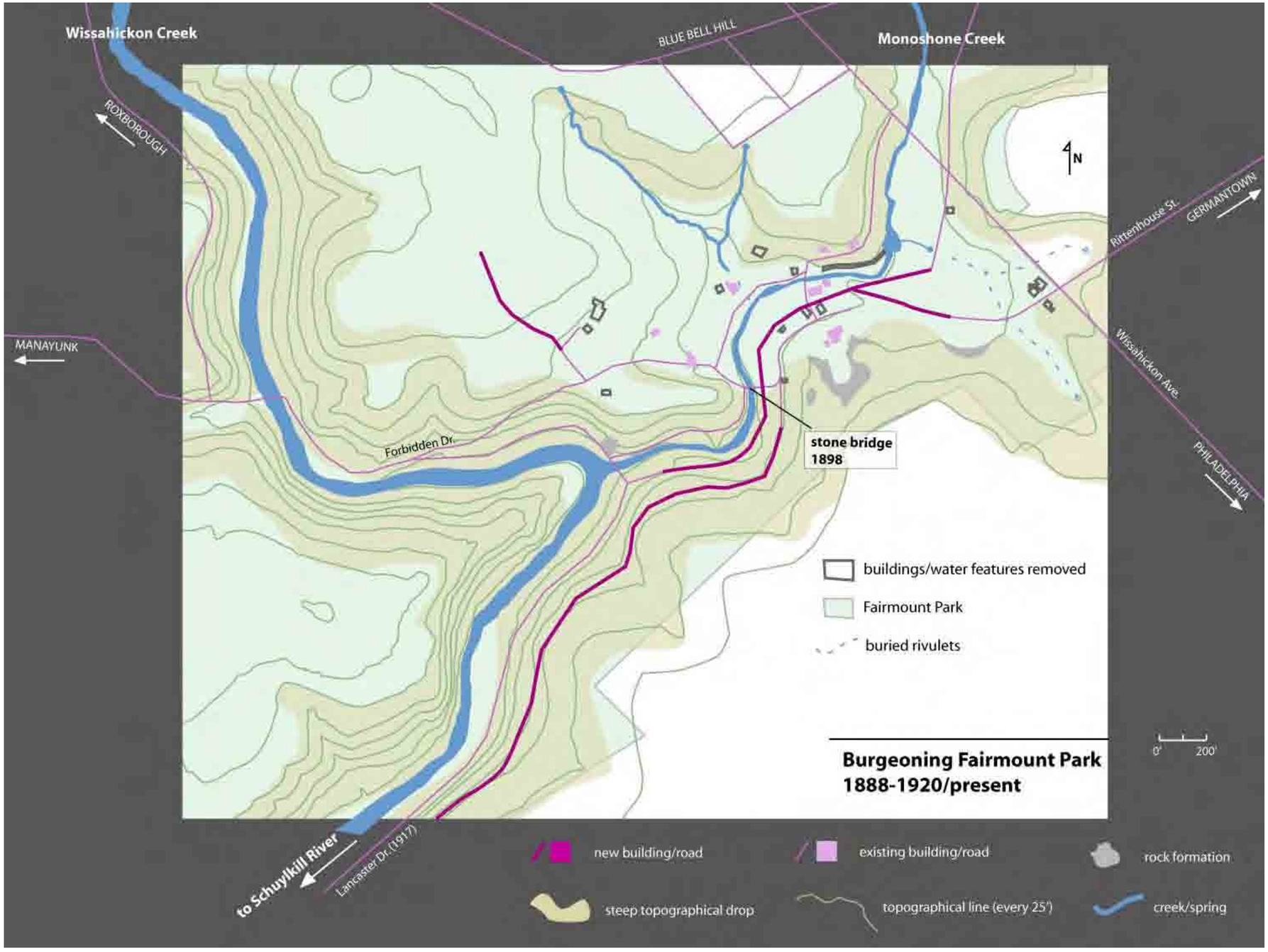

Wissahickon Creek
Monoshone Creek
Mill I
1690-1702
(log, undershot)
exact location unknown
N
tenement building
1690-1707
exact location unknown
Early Papermaking
1690-1700
0'
200'
to Schuylkill River
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring


Wissahickon Creek
Monoshone Creek
N
Mill II
1703
(stone, overshot)
mill pond
1703
mill race
1703
smithy
1730+
1700+
GERMANTOWN
Township Line Rd
1730+
PHILADELPHIA
Rural Hamlet
1700-1750
0'
200'
to Schuylkill River
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring


Wissahickon Creek
Monoshone Creek
N
MANAYUNK
GERMANTOWN
PHILADELPHIA
smithshop
1772
Wheelwright's
shop
1850+
dwelling
~1751/64
Henry Rittenhouse's Mill Rd.
Mill III, dam &
mill pond
1751
enlarged 1787
Mill IV, & mill IVa
1773/4
Nicholas Rittenhouse's Mill Rd.
Mill VI
1760-1873
Mill V, 1758-1839
to Schuylkill River
Early Industrial Village
1750-1800
0'
200'
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring


Wissahickon Creek
BLUE BELL HILL
Monoshone Creek
ROXBOROUGH
Wissahickon Dr.
Crease School, Blue Bell Hill 1874
N
wooden bridge 1843
possible store 1848
Rittenhouse Ln.
GERMANTOWN
James Loral house
Wissahickon Fire Co. 1848-1897
baptist church 1869-1891
MANAYUNK
schoolhouse 1843-1903
McKinney house
quarries 1836-1922
PHILADELPHIA
county bridge 1830
mill pond 1850+
Mill III rebuilt 1859
Mill IV & IVa
1837 change to factories
1843 change to cottonmills
toll booth
unknown date
part of Wissahickon Turnpike (1826-1868)
Mill VI
unknown dates
1875: mill race, mill dam & 4 structures
0'
200'
Late Industrial Village
1800-1875
to Schuylkill River
Wissahickon Dr.
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring


Wissahickon Creek
BLUE BELL HILL
Monoshone Creek
ROXBOROUGH
Wissahickon Dr.
MANAYUNK
N
Rittenhouse Ln.
GERMANTOWN
PHILADELPHIA
buildings/water features removed
Fairmount Park
Early Fairmount Park
1875-1888
0'
200'
to Schuylkill River
Wissahickon Dr.
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring


Wissahickon Creek
BLUE BELL HILL
Monoshone Creek
ROXBOROUGH
MANAYUNK
N
Rittenhouse St.
GERMANTOWN
Wissahickon Ave.
PHILADELPHIA
Forbidden Dr.
stone bridge
1898
buildings/water features removed
Fairmount Park
buried rivulets
0'
200'
Burgeoning Fairmount Park
1888-1920/present
to Schuylkill River
Lancaster Dr. (1917)
new building/road
existing building/road
rock formation
steep topographical drop
topographical line (every 25')
creek/spring

APPENDIX B

Historic Photographs

The following photographs are from the Philadelphia Historical Commission.

207 Lincoln Drive. Date: 1957

207 Lincoln Drive. Date: 1957

206 Lincoln Drive. Date: 1973

207 Lincoln Drive. Date: 1973

207 Lincoln Drive. Date: 1973

207A Lincoln Drive. Date: 1973

207A Lincoln Drive. Date: 1973

208 Lincoln Drive. Date: 1973

208 Lincoln Drive. Date: 1973

209 Lincoln Drive. Date: 1973

209 Lincoln Drive. Date: 1973

210 Lincoln Drive. Date: 1973

206 Lincoln Drive. Date: 1974

206 Lincoln Drive. Date: 1974

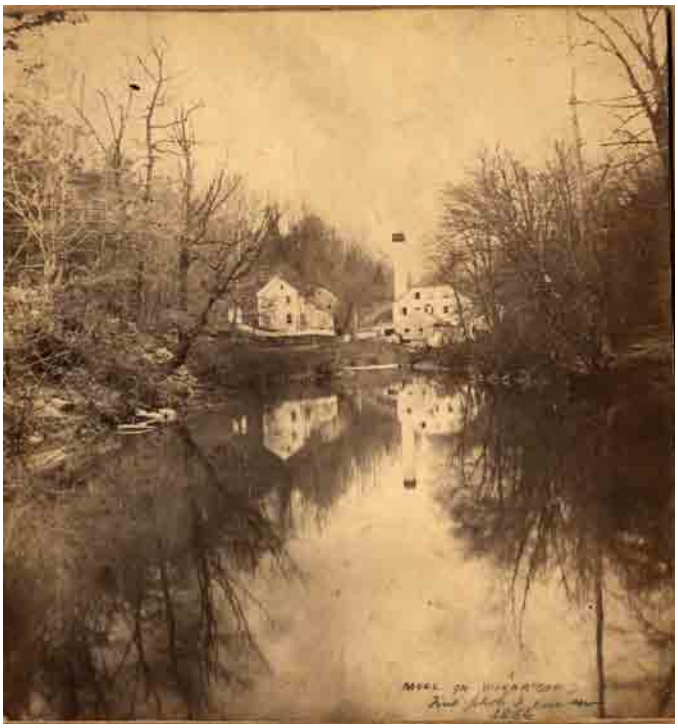
The following photogrpahs are from Carol Franklin, of Andropogon Asssociates, Ltd.

Building: Unknown. Date: Unknown

Buildings: Unknown. Date: Unknown

Buildings: Unknown. Date: Unknown

207 Lincoln Drive. Date: Unknown



Buildings: Unknown. Date: Unknown

RittenhouseTown Buildings. Date: Unknown

Houston Ramble. Date: Unknown

Quarry near RittenhouseTown. Date: Unknown

Buildings: Unknown. Date: Unknown

Stream near RittenhouseTown. Date: Unknown

The following photographs come from the Fairmount Park Commission.

Rittenhouse Street. Date: 1880s

Bridge Over Wissahickon. Date: 1870.

Panoramic Photograph of RittenhouseTown. Date: 1880s

Buildings: Unknown. Date: 1889

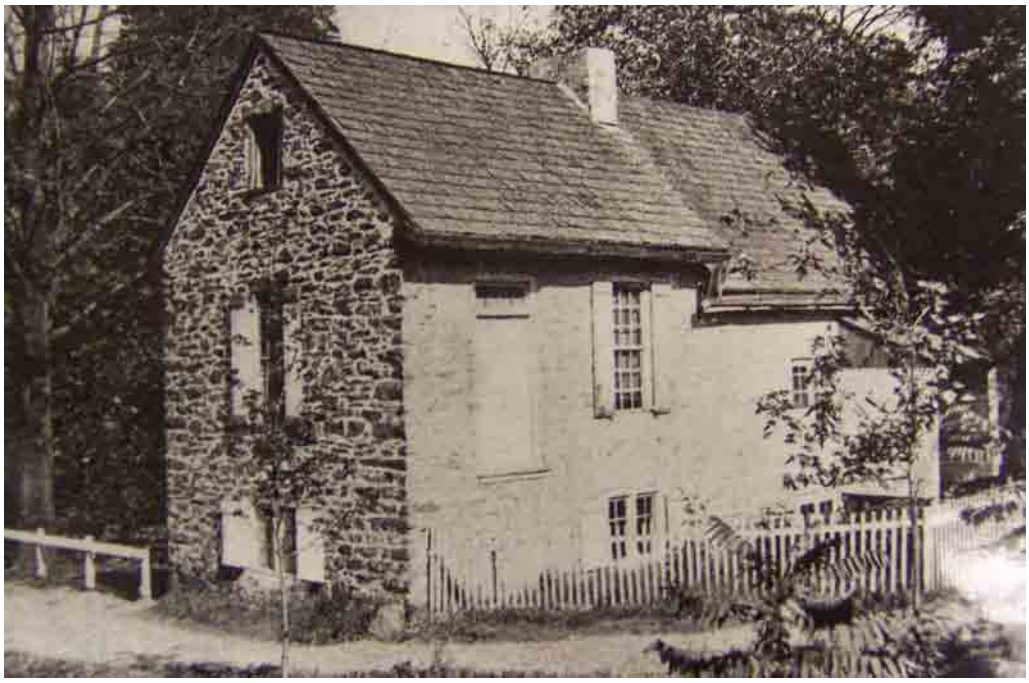
Buildings: Unknown. Date: 1889

RittenhouseTown. Date: 1959

RittenhouseTown. Date: 1975

207 Lincoln Drive. Date: 1900

207 Lincoln Drive. Date: 1880s



207 Lincoln Drive. Date: 1900

207 Lincoln Drive. Date: 1920s

207A Lincoln Drive. Date: 1935

207A Lincoln Drive. Date: 1947

207A Lincoln Drive. Date: 1900

209 Lincoln Drive. Date: 1938

209 Lincoln Drive. Date: 1947

209 Lincoln Drive. Date: 1973

210Lincoln Drive. Date: 1930

210Lincoln Drive. Date: 1930

210Lincoln Drive. Date: 1938

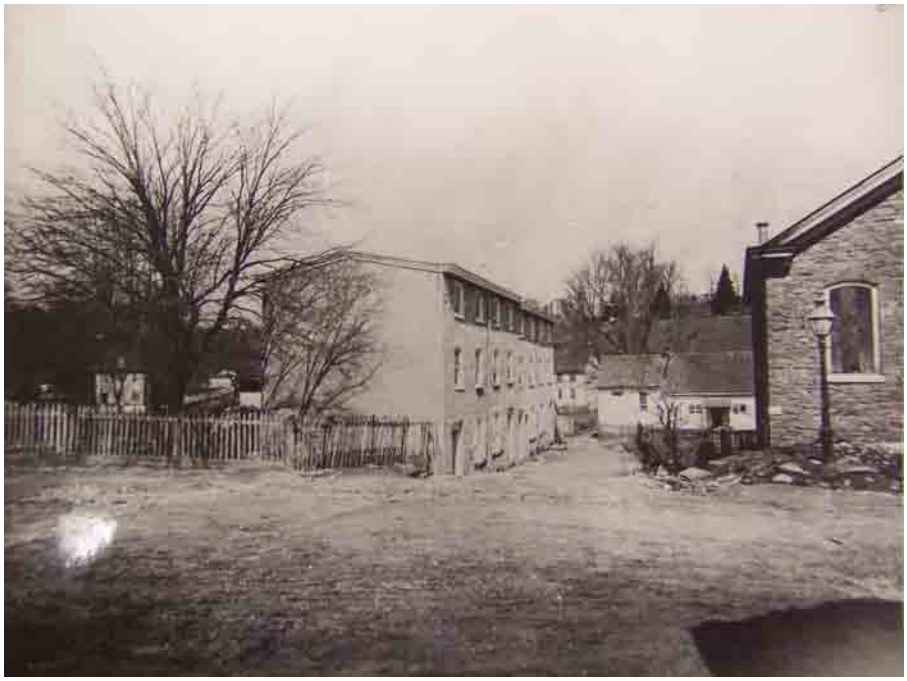
210Lincoln Drive. Date: 1947

210Lincoln Drive. Date: 1973

210Lincoln Drive. Date: 1973

Church, Location Unknown. Date: Unknown

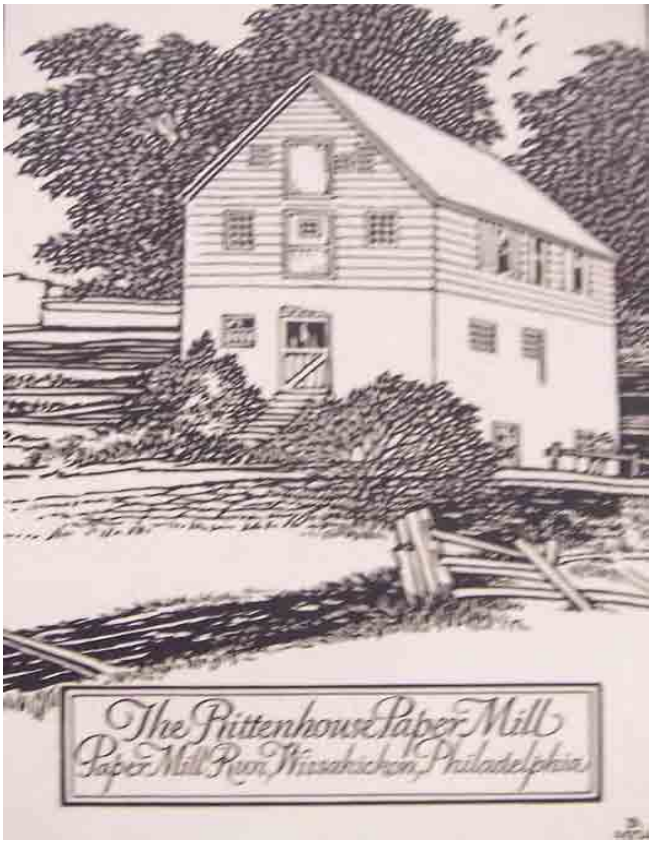
Building: Unknown. Date: Unknown



Buildings: Unknown. Date: Unknown

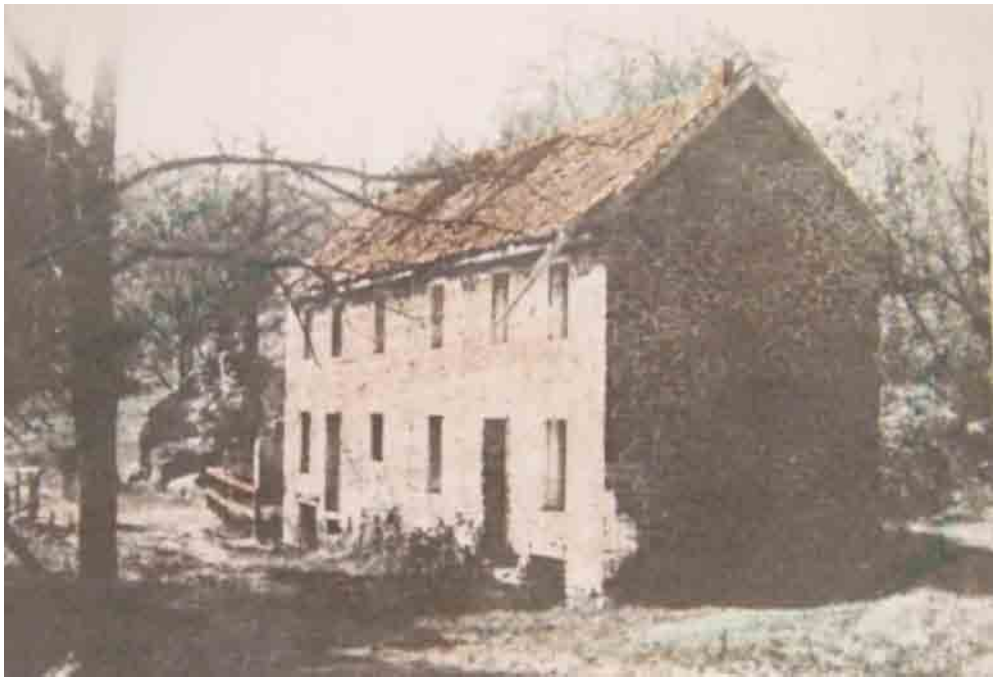
206 Lincoln Drive. Date: Unknown

The following photogrpahs come from the Free Library ofPhiladelphia.



Drawing of the Original Rittenhouse Mill. Date: 1690

Liver Mill. Date: 1889



Kitchen's Mill. Date: 1900

207 Lincoln Drive. Date: Unknown

Building: Unknown. Date: Unknown

The following photographs are from the Historic American Buildings Survey website.

207 Lincoln Drive. Date: 1933

207 Lincoln Drive. Date: 1933

207 & 207A Lincoln Drive. Date: 1933

207 Lincoln Drive. Date: 1933

207 Lincoln Drive. Date: 1933

207 Lincoln Drive. Date: 1933

207 Lincoln Drive. Date: 1933

207A Lincoln Drive. Date: 1933

207A Lincoln Drive. Date: 1933

207A Lincoln Drive. Date: 1933

207A Lincoln Drive. Date: 1933

207A Lincoln Drive. Date: 1933

207A Lincoln Drive. Date: 1933

The following photographs are from the Library Company of Philadelphia.

207 & 207A Lincoln Drive. Date: 1920

207 Lincoln Drive. Date: 1920

207 & 207A Lincoln Drive. Date: 1910

207 Lincoln Drive. Date: 1907

The following photographs are from the Pennsylvania's Historic Architecture and Archaeology website.

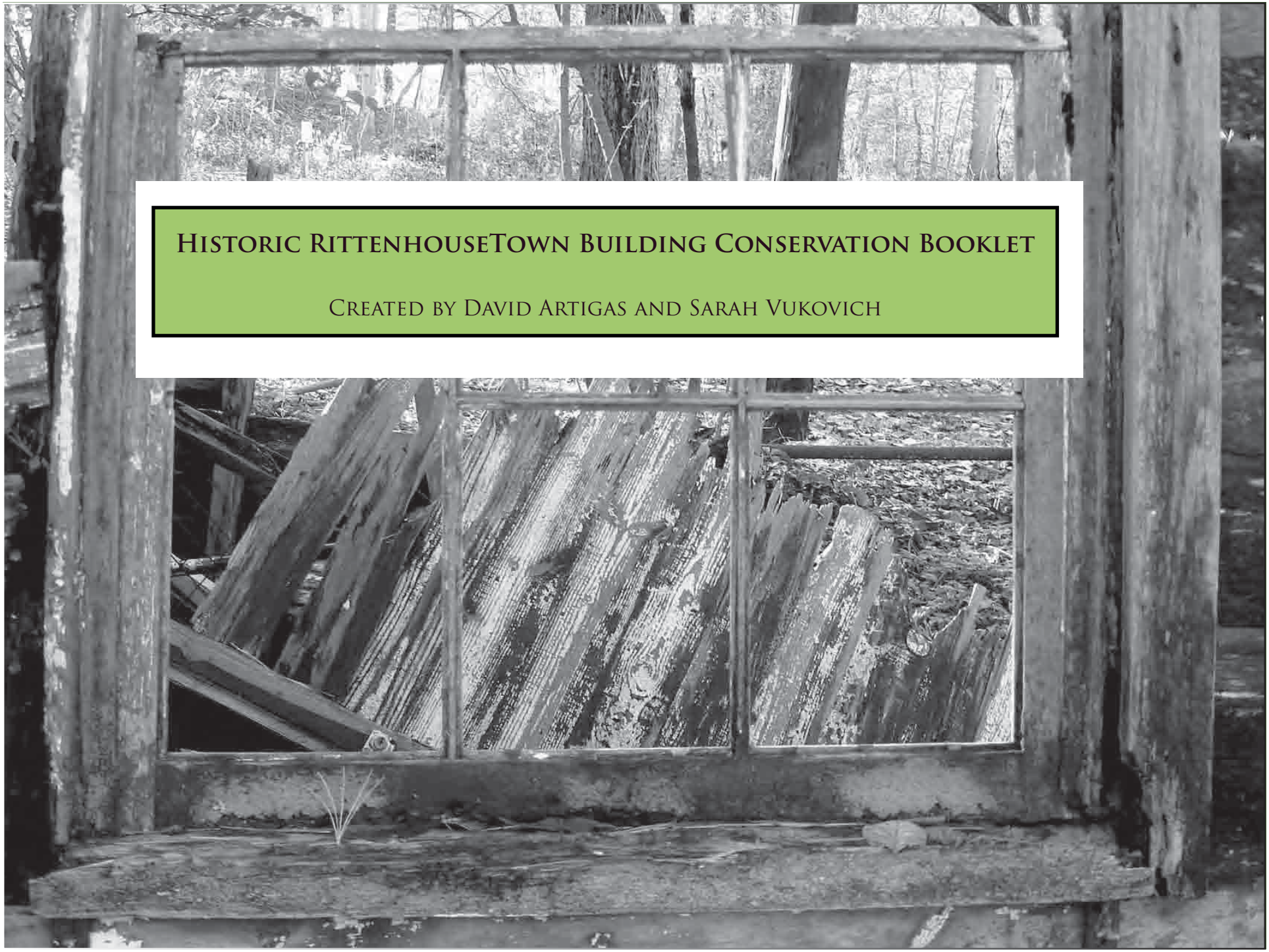
207A Lincoln Drive. Date: Unknown

207 & 207A Lincoln Drive. Date: Unknown

206 Lincoln Drive. Date: Unknown

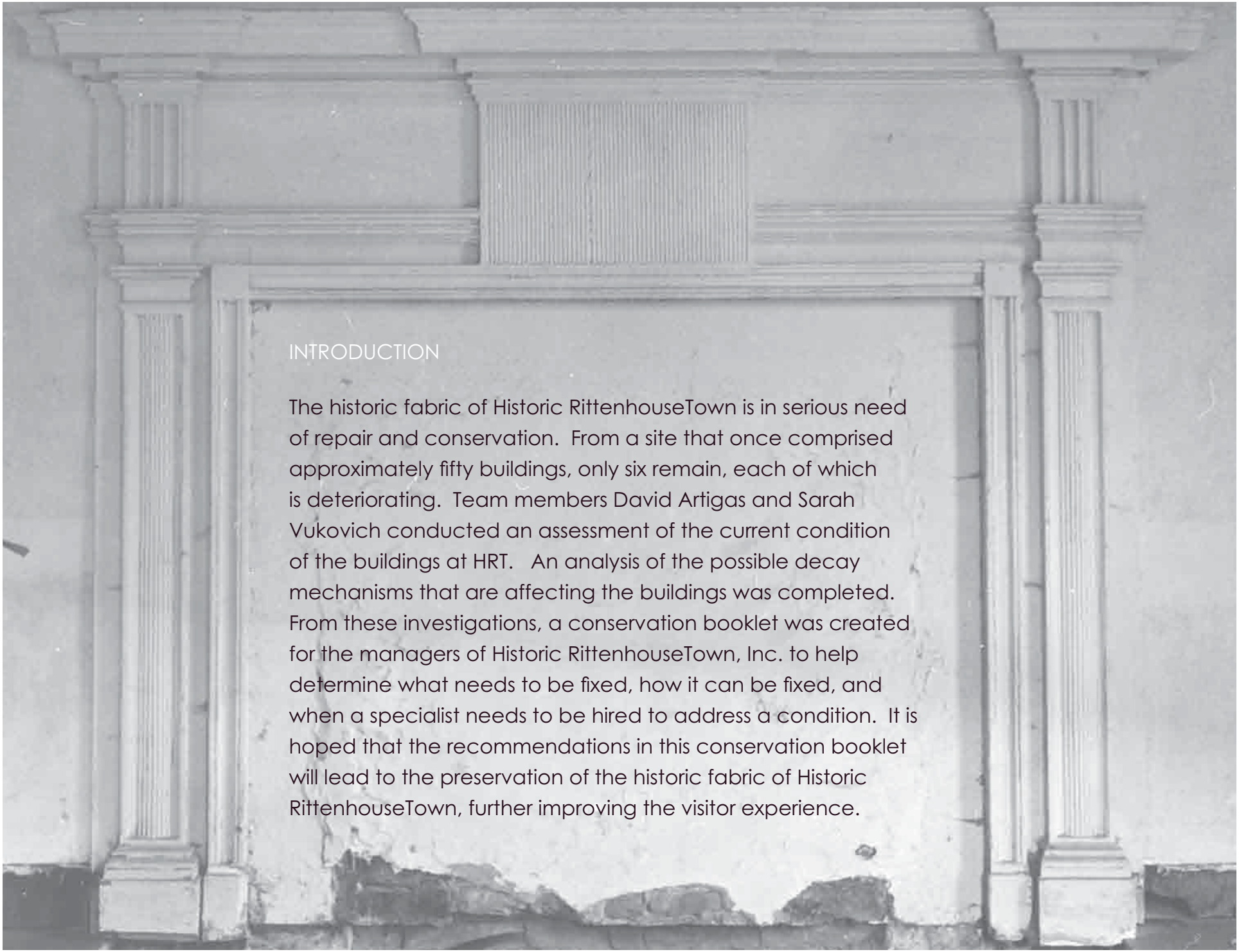
APPENDIX C

Individual Projects



Historic RittenhouseTown Building Conservation Booklet

Created by David Artigas and Sarah Vukovich



INTRODUCTION

The historic fabric of Historic RittenhouseTown is in serious need of repair and conservation. From a site that once comprised approximately fifty buildings, only six remain, each of which is deteriorating. Team members David Artigas and Sarah Vukovich conducted an assessment of the current condition of the buildings at HRT. An analysis of the possible decay mechanisms that are affecting the buildings was completed. From these investigations, a conservation booklet was created for the managers of Historic RittenhouseTown, Inc. to help determine what needs to be fixed, how it can be fixed, and when a specialist needs to be hired to address a condition. It is hoped that the recommendations in this conservation booklet will lead to the preservation of the historic fabric of Historic RittenhouseTown, further improving the visitor experience.

WHY BUILDINGS NEED TO BREATHE

Too much moisture causes a host of problems in buildings. It can cause fungal growth, which is damaging to building materials and is a health risk. It causes wood to rot. And, it causes finishes, like plaster and paint, to deteriorate.

It is all but impossible to keep moisture completely out of a historic building. Attempts to do so usually backfire and end up causing the building to hold more moisture than before. This situation often causes the buildings to decay faster, and it usually requires the destruction of a great deal of historic fabric as one tries to make them watertight. Rather than do that, it is better to understand how moisture enters and leaves a building, so that it can be controlled better. In short, historic buildings need to breathe; breathing allows moisture in the building to escape to the outdoors.

A lot of moisture enters a building through the ground. The foundation and the walls can absorb water, like a sponge. Over time, this water will rise in the buildings walls, often to a surprising height. Some of this water will stay in the building materials, causing their decay. Some will evaporate into the indoor spaces of the building, increasing the relative humidity. Most building materials can handle a relative humidity below 70% RH, but above 70% RH, mold growth in the building is likely. It can be difficult to keep ground water from entering a building. If possible, the foundation should be excavated and a vapor barrier installed around the foundation. This work is best left to a professional who has experience with historic buildings.

Rain water and surface runoff are two other sources of water. They enter a building through cracks or open seams in the roof, walls, and foundation. Once inside the building, this water can be difficult to remove, and it can wreck havoc on the building materials. Also, it can evaporate and push the indoor relative humidity above 70% RH. To reduce the amount of rain water that can get into a building, gutters and downspouts should be installed, and open cracks and seams should be repaired. Regular inspections and maintenance of the roof, guttering system, walls, windows, and doors should be made to make sure that they are not leaking and that pools of water do not form on the building after it

rains.

Moisture is in the air, both indoor and outdoor, in the form of water vapor. It will move with the air, and it will move through the air. Air carries moisture into and out of a building as it tries to balance the indoor and the outdoor temperature. Basically, air will move from a hot area to a cold area. Moisture moves by itself into and out of buildings as it tries to balance the moisture content of the air between the inside and outside. In this case, it moves from an area of high moisture content to an area of low moisture content. Moisture also can move through materials, like stone, wood, and plaster, as it tries to balance the indoor moisture content with the outdoors. The problem arises when the moisture that gets into a building is not able to escape freely. Then, it is absorbed by the building and causes decay. Allowing a building to breathe allows the moisture to escape, which prolongs the life of the materials.

To allow a building to breathe, paints and treatments that are applied to the indoor and outdoor walls need to be vapor permeable. Windows should be open when the outdoor relative humidity is below 70% RH to ventilate the indoor rooms. Doing so will reduce the relative humidity in the building. Fans placed in front of the windows, one drawing air in one window, with another fan pushing it out of another window, can increase the ventilation.

Insulation should not be placed directly against absorbent materials, such as wood, because it causes the insulation and the building materials to hold moisture. Instead, an air cavity between the insulation and the walls or the roof should be used, and that air cavity should be vented to the outside. This arrangement carries the moisture outdoors instead of it being held by the building.

Sometimes, modern building materials are used in an old building because we think that modern materials are "better" than historic materials. This is not always the case. Often, modern materials resist the movement of moisture through them. Cement is one such material. While it is strong and durable, when it is applied to a historic building, such as repointing masonry or parging a wall, it causes the historic building materials to hold water and deteriorate. When new materials are used in an old building, it is important to make sure that they breathe as well as the historic materials.

By allowing historic buildings to breathe, their life is prolonged. Also, the costs of maintenance and repair decrease. Care should be taken when working on a historic building to make sure that the changes to the building still allow it to breathe.

Identification of Problem: MILDEW

Possible Source of Problem: Rain water and water vapor

Investigation of Cause: When it is raining, look out second floor window, to the roof of the pent eave. Is the water leaking through the roof? Check the guttering system on the roof and the pent eave for leaks and blockages. To differentiate between dirt and mildew, place a drop of bleach on the affected surface, if it turns white, it is mildew.

Recommendations: The National Park Service recommends a solution for removing mildew which consists of one cup non-ammoniated detergent, one quart household bleach, and one gallon water (please refer to *Preservation Brief 10* in Appendix). The solution should be scrubbed onto the surface with a medium soft brush. Should stubborn spots persist, another quart of bleach may be added to the mixture. After cleaning, the area should be rinsed thoroughly with a hose and nozzle and allowed to dry thoroughly. It is suggested that this maintenance be done on a warm, sunny day. For repainting, specially formulated "mildew resistant" primer and finish coats should be used.

Identification of Problem: MOSS

Possible Source of Problem: Wet material, lack of sunlight for drying

Investigation of Cause: Monitor relative humidity in attic. Observe paths of water when it rains.

Recommendations: Remove with a medium soft brush, being careful not to damage the building. Power washing is common, but should not be used because it saturates the material, causing moss to grow back. A water repellant stain should be periodically applied to wood surfaces to reduce the amount of moisture the wood absorbs. Do not put insulation directly on the under side of the wood materials, because that will slow drying of the wood elements. A biocide should not be used, as it may go into solution when in the presence of water and runoff the building; harming the surrounding landscape. Gutters and downspouts should be installed to collect and direct water away from the building. When the materials are next replaced, it is suggested that strips of zinc be installed beneath the top course of shingles; this will impede moss growth.

Identification of Problem: BIOGROWTH ON MASONRY

Possible Source of Problem: Wet material, lack of sunlight for drying

Investigation of Cause: Observe paths of water when it rains.

Recommendations: Install gutters and downspouts to collect and direct water away from the building. A specialist should be hired to improve the drainage around the building, and to re-grade the surrounding area to direct surface runoff away from the building. The affected surfaces should be gently cleaned with a mixture of bleach, detergent and water (please refer *Preservation Brief 10* in Appendix for appropriate solution). Power washing is not suggested, as it will cause the masonry to become wetter. A fungicide may be used, but may not be very effective if the mold penetrates deeply into the stone. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building.

Identification of Problem: INDOOR MILDEW

Possible Source of Problem: Wet material. Indoor relative humidity above 70% RH

Investigation of Cause: Monitor indoor relative humidity. Check for leaks in the roof, walls, and plumbing. Place a drop of bleach on the substance; if it turns white, it's mildew.

Recommendations: Gently brush the affected area with a soft brush and a bleach solution (please refer to *Preservation Brief 10* in Appendix). Repair cracks and open seams in the roof and walls. Repair plumbing leaks. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building. Dehumidification and ventilation should be installed to reduce the indoor relative humidity. Heating the space will reduce the indoor relative humidity. The indoor relative humidity should be monitored to make sure it stays below 70% RH.

Identification of Problem:

INTERIOR DETERIORATION OF PLASTER AND PAINT

Possible Source of Problem: Wet material, high indoor relative humidity

Investigation of Cause: Monitor indoor relative humidity. Soil boring samples should be done to check the depth of ground water. Check for leaks in the roof, walls, and plumbing.

Recommendations: Repair cracks and open seams in the roof and walls. Repair plumbing leaks. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building. A specialist should be hired to improve the drainage around the building, and to re-grade the surrounding area to direct surface runoff away from the building. Dehumidification and ventilation should be installed to reduce the indoor relative humidity. Heating the space will reduce the indoor relative humidity. Should the materials need to be replaced, they should be replaced in-kind.

Identification of Problem: ROTTED WOOD

Possible Source of Problem: Wet material.

Investigation of Cause: Monitor indoor relative humidity. Observe paths of water when it rains. Look for leaks in the roof, walls, and plumbing.

Recommendations: Wood pocketed in masonry should have an air gap around the end to allow it to breathe (Wood elements that are mortared into the wall pocket will deteriorate more rapidly due to the inability for moisture to leave the wood materials.). Repair cracks and open seams in the roof and walls as well as leaks in the plumbing. Dehumidification and ventilation should be installed to reduce the indoor relative humidity. Heating the space will reduce the amount of moisture in the wood. A specialist should be hired to improve the drainage around the building, and to re-grade the surrounding area to direct surface runoff away from the building. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building. Deteriorated materials should be replaced in-kind.

Identification of Problem: DAMP BASEMENT

Possible Source of Problem: Ground water getting in through walls

Investigation of Cause: Check for leaks in the roof, walls, and plumbing.

Recommendations: Repair cracks and open seams in the roof and walls. Repair plumbing leaks. Dehumidification and ventilation should be installed to reduce the indoor relative humidity. Heating the space also will reduce the amount of moisture. Also, materials with low permeability, such as cement, should not be applied to the indoor walls, as they hold moisture and make the space wet. A specialist should be hired to improve the drainage around the building, and to re-grade the surrounding area to direct surface runoff away from the building. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building.

Identification of Problem: SPALLING SURFACES

Possible Source of Problem: Water trapped in material and freeze-thaw cycling.

Investigation of Cause: Observe paths of water when it rains. Look for leaks in the roof, walls, and plumbing.

Recommendations: Do not apply materials with low permeability, such as cement, to the walls of the building. The encapsulation of surfaces will cause the building materials to hold water and deteriorate. Repair cracks and open seams in the roof and walls. Repair plumbing leaks. Install gutters and downspouts to collect and direct water away from the building. A specialist should be hired to improve the drainage around the building, and to re-grade the surrounding area to direct surface runoff away from the building. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building.

Identification of Problem:

EFFLORESCENCE (SALTS ON SURFACES)

Possible Source of Problem: Wet Material

Investigation of Cause: Observe paths of water when it rains. Look for leaks in the roof, walls, and plumbing. For indoor location, monitor indoor relative humidity.

Recommendations: Salts can be gently scraped from the surface. Power washing should not be considered for treatment as it makes the material wetter. This will cause the salts to come back. Materials should be kept dry. Install gutters and downspouts to collect and direct water away from the building. Repair cracks and open seams in the roof and walls. Repair plumbing leaks. If possible, a specialist should be hired to damp proof the foundation to reduce the amount of ground water that is absorbed by the building. Dehumidification and ventilation should be installed to reduce the indoor relative humidity, if the condition is indoors.

Identification of Problem:

VEGETATION GROWING ON BUILDINGS

Possible Source of Problem: Vegetation growing too close to building or spores trapped within a moist and fertile area of the building (often gutters).

Investigation of Cause: Look for vegetation growing on buildings

Recommendations: Climbing and trailing plants, like ivy, are particularly damaging to masonry surfaces (especially brick). The plant will grow small roots which attach to the wall surfaces, affecting brick surfaces, mortar joints and delicate stone surfaces. Vegetation should be removed, taking care not to damage the building. After removal, all cracks should be sensitively repaired, in-kind. A monthly survey of the buildings should be done to look for vegetation that may be growing too close to, or on the buildings.

Identification of Problem:

DETERIORATING PAINT SURFACES

Possible Source of Problem: UV degradation, improper surface preparation, saturated substrate, and the absorption and desorption of moisture through the paint film.

Investigation of Cause: Determine moisture content of material using a hygrometer. Observe paths of water when it rains. Look for changes in the painted surface textures: bubbling, cracking, aligatoring, checking, chaulking, staining, wrinkling, peeling or complete loss of the painted surface.

Recommendations: Paint is often a materials first line of defense against the elements, without a painted surface, they will often deteriorate rapidly. It is strongly suggested that painted surfaces be retained on-site. Affected areas should be repainted using in-kind materials. Materials must be kept dry; installation of gutters and downspouts will help collect and direct water away from the building. Cracks and open seams should be repaired in the roof and walls. The deteriorated paint surfaces should be gently removed until all flaking paint is removed and the substrate is solid. Should the bare wood appear to be severely cracked or alligatored, this may indicate that the material has reached the end of its service life and needs to be replaced in-kind. A primer should be applied to bare wood and allowed to dry for 48 hours before painting can start. If the paint type is unknown, it is suggested that a paint analysis be done to verify what types of paint are appropriate for repainting. Please refer to Preservation Briefs 10 and 28 in the Appendix.

APPENDIX

WHERE IS HISTORIC RITTENHOUSETOWN?

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University of Pennsylvania
Fall 2006

WHERE IS HISTORIC RITTENHOUSETOWN?

Amila Ferron

Current understanding of Historic RittenhouseTown relies heavily upon interpretation of the existing buildings, mostly houses that are clustered along the Monoshone Creek (figure 1). These buildings are the basis of the site's distinction as a National Historic Landmark and the focus of preservation efforts thus far. Exclusive interpretation of the buildings alone, however, presents a limited perspective of the site which omits much of its history. Although this has been acknowledged both by Avi Decter's interpretive study as well as the staff of Historic RittenhouseTown, Inc., who have stated that it is the exterior of the buildings and the landscape that are of most importance to the site's interpretation, it has yet to be fully incorporated into the visitor's experience. One of the barriers to interpreting the RittenhouseTown landscape is the current ambiguity of site boundaries. Throughout initial research into the history and contexts of Historic RittenhouseTown for our studio project, no clear sense of the site's past or present boundaries was found. Thus arose the subject of study for this individual project, which seeks to develop a better understanding of the site's boundaries in an effort strengthen its interpretation and facilitate a more complete understanding of its history.

Figure 1. The Jacob Rittenhouse house, one of the remaining building in the core of RittenhouseTown.

In researching this topic, historic maps from 1772 and 1875 were imported into ArcView and georeferenced in relation to current creek beds and historic roads, namely Wissahickon Avenue, which was once Township Line Road and appears in the earliest maps used here (figures 4-7). It should be noted that the two maps used are only a sampling of those available, chosen for the time periods they represented and the detail of illustration of property boundaries. This process may be repeated for other historic surveys in order to establish a more accurate sense of the site's boundaries. From these two maps, boundaries of historic Rittenhouse property were traced and set onto a map of current buildings, roads and topography surrounding the site. Suggested boundaries of landscape interpretation and management were

then drawn based on this information (figures 8-13) and may be viewed in contrast with current administrative and interpretive boundaries (figure 9). The landscape interpretation boundaries are intended to delineate an area where historic landscape features may be used to illustrate the history of RittenhouseTown through signage, tours, or other interpretive methods (figure 2). Incorporation of this area into current interpretation may be as involved as developing guided walking tours of the RittenhouseTown landscape or as simple as making mention and giving descriptions of these features in the currently developed tours of Historic RittenhouseTown. Landscape management boundaries define an area where stewardship of the site may extend to remediation of the loss of historic landscape features, building and maintaining trails, establishing parking areas, and performing ecological restoration and maintenance. Suggested interpretive and management boundaries have been developed based on historic property boundaries and current topographic information (figure 14).

Figure 2. A large stone near the site of the former mill pond. Landscape features such as these may be used to enrich current interpretation of the site.

Based on this research, we see that there is much more to Historic RittenhouseTown than the area that is interpreted and maintained today. From serving as a Lenape fishing site, through its industrial use and formation as a water preserve, to the recreational purpose that it serves today, the terrain of the area has defined the site's use. The relationship between human inhabitants, their activities, and the landscape is an essential part of the story of Historic RittenhouseTown and should be more fully incorporated into the site's interpretation.

Recommendations

Recommendations based on this study are to expand the interpretive and management boundaries and to incorporate the historical landscape features into interpretation of the site. A more detailed set of recommendations have been set within the time frames of immediate, short-term, or long-term implementation.

Immediate:

- Expand conceptual boundaries of the site to include the historic town area (up and downstream on the Wissahickon). Include this information in tours, etc. This may be as simple as discussing the area that RittenhouseTown once included.
- Claim the landscape as essential piece of interpretation and make it part of the Historic RittenhouseTown experience.

Short-term:

- Incorporate signage into the Historic RittenhouseTown landscape (with expanded boundaries) including the Wissahickon and Bluebell Hill areas.
- Make walking tours available throughout Historic RittenhouseTown, including the hills and wider expanse of the property.

Long-term:

- Continue study of historic boundaries.
- Include Bluebell Hill in programming.
- Develop trails throughout Historic RittenhouseTown.
- Take measures to slow the loss of historic landscape features

with the help of a conservation professional (figure 2).

Figure 2. Remnants of the Amindown Mill, which are being eroded by the Monoshone Creek. Measures to slow this erosion may be taken in order to maintain this landscape feature.

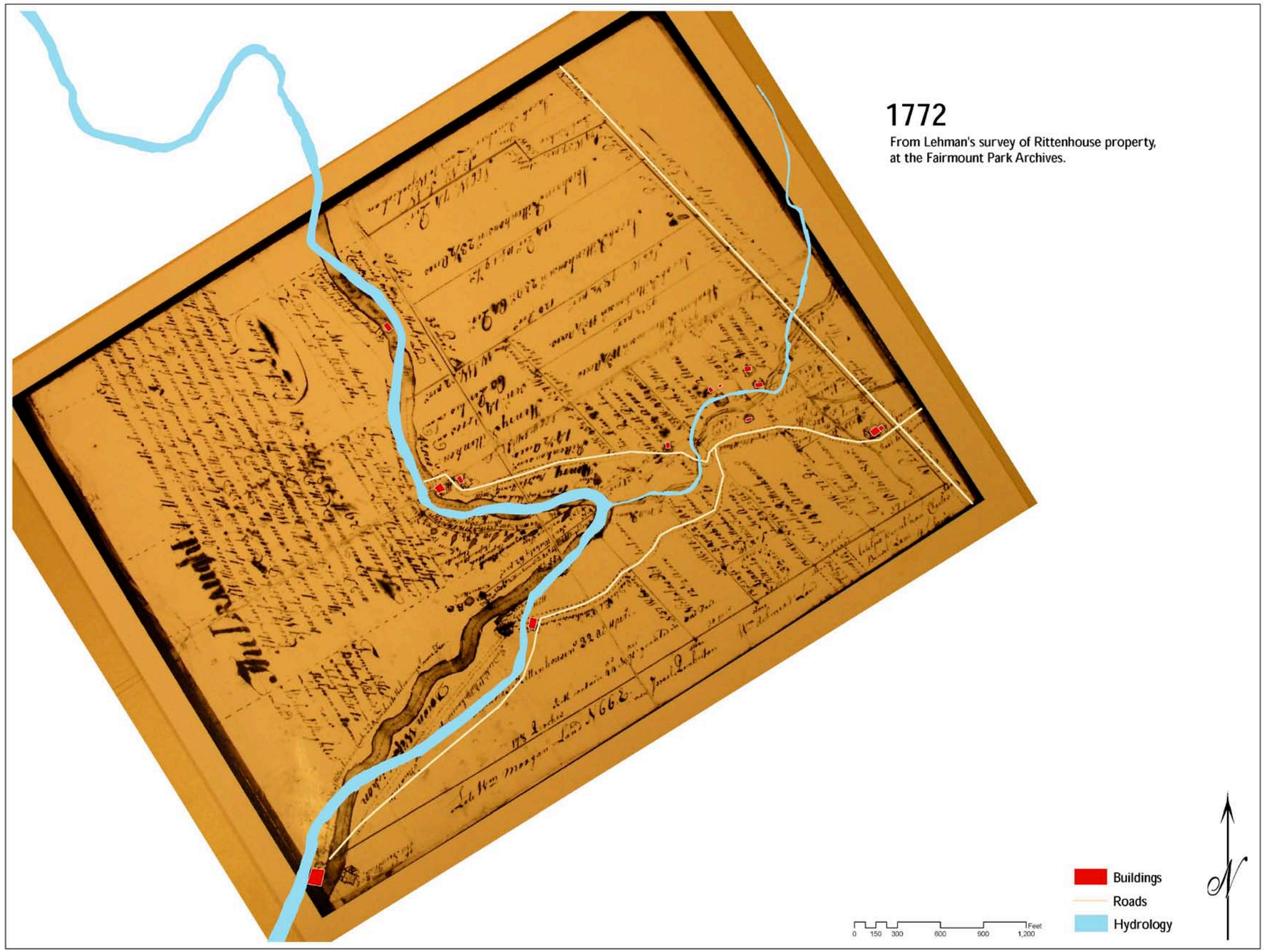

Figure 4. A survey by Christian Lehman in 1772, imported into ArcView and georeferenced in relation to current hydrology (in blue) and Wissahickon Avenue, formerly Township Line Road (upper right). Roads and buildings from 1772 have been traced into ArcView based on this map. Buildings and roads have been traced directly over their appearance on the map, excepting cases in which there would be a significant difference in their placement in relation to the creek. In these cases, their placement has been moved relative to the original map, but their relation to the creek has been maintained.

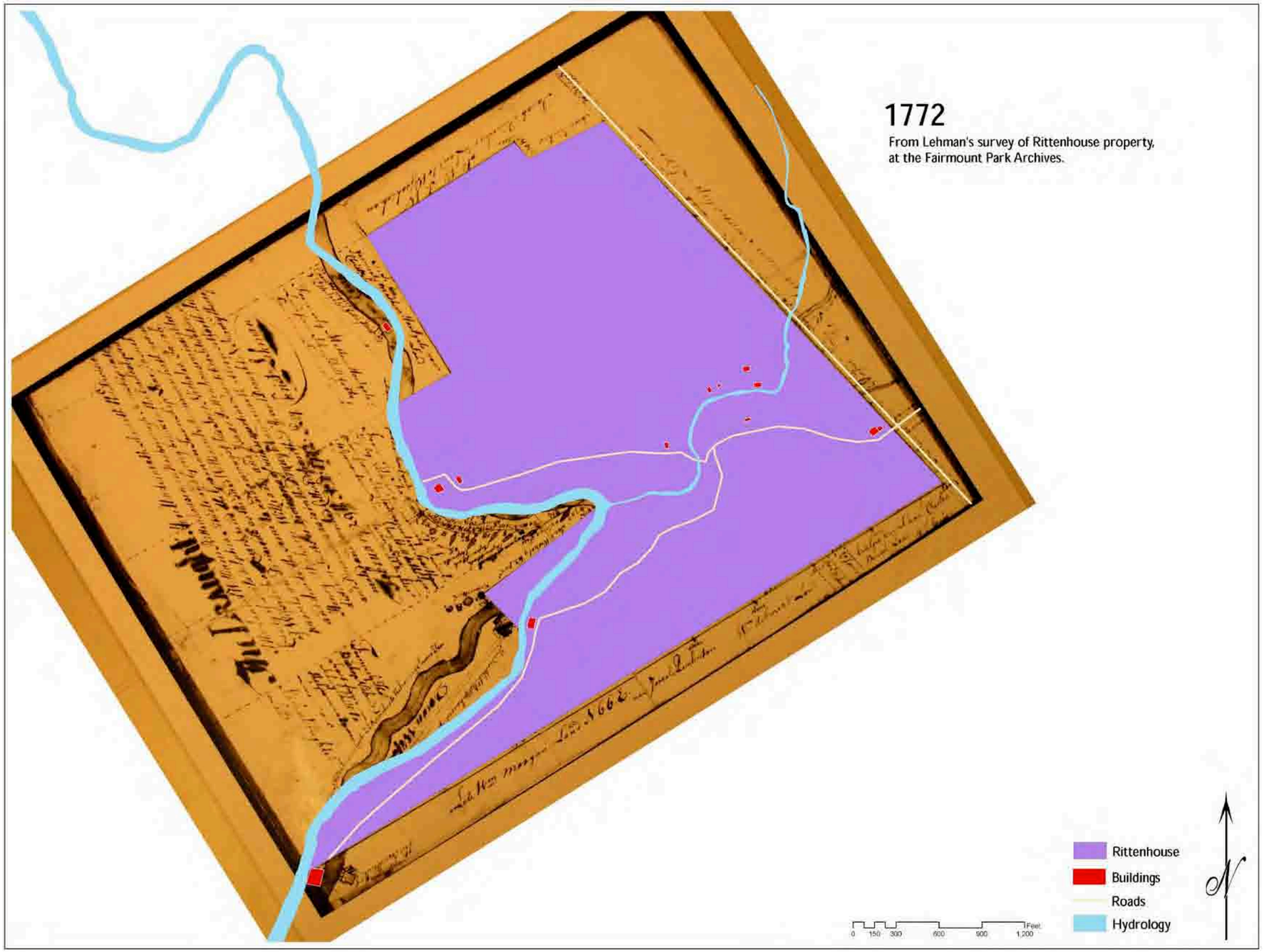

Figure 5. Rittenhouse property identified and shaded (in purple).

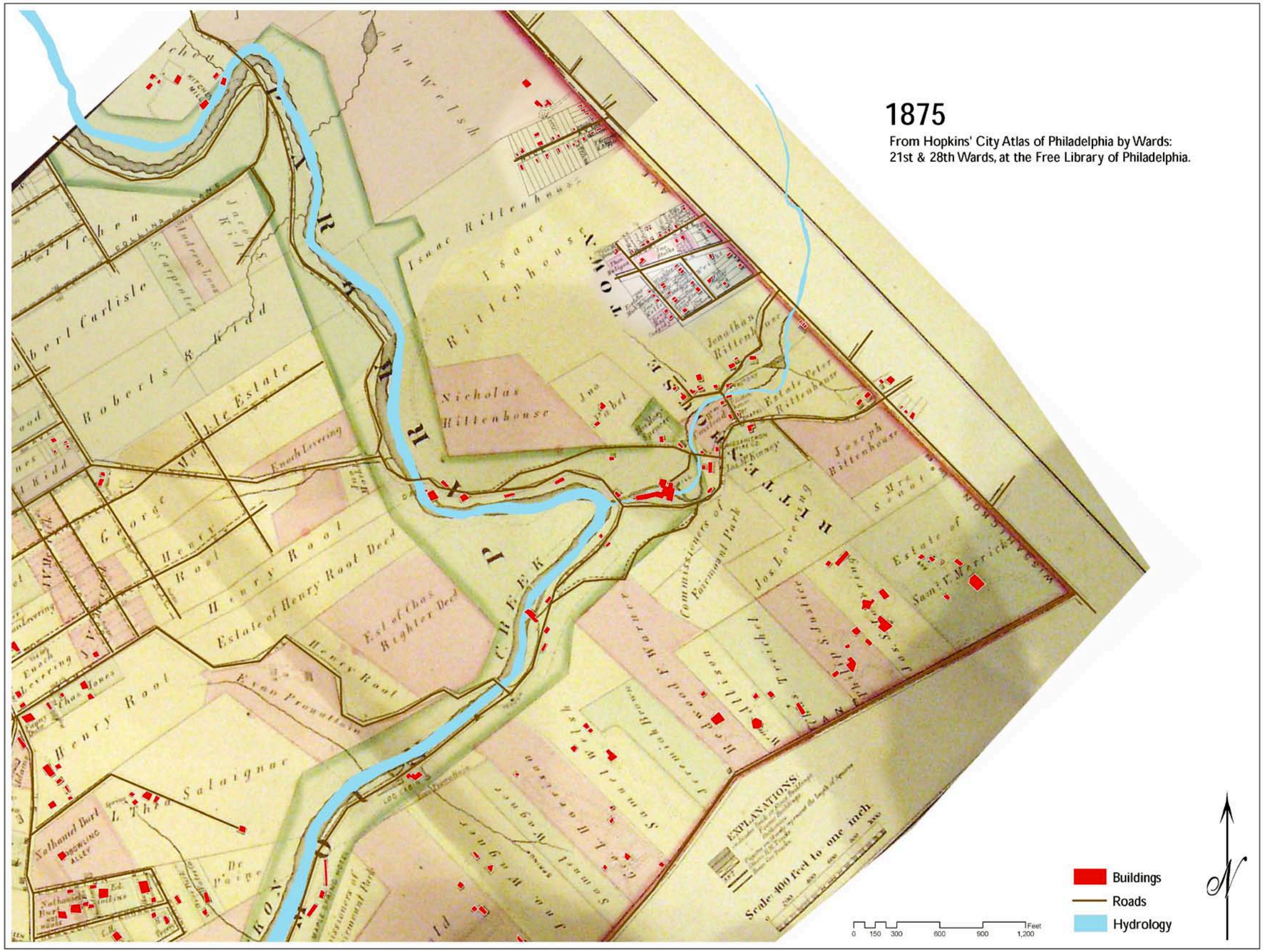

Figure 6. 1875 Hopkins survey imported into ArcView, and georeferenced in relation to current hydrology and Wissahickon Avenue. As with Lehman's 1772 map, buildings and roads have been traced directly over their appearance on the map or as close as reasonably possible while maintaining their position to the creek. This map was chosen because it is one of the first found that labels Rittenhouse Town as such. The area covered by the labeling reaches farther south and north of the town's center than is currently interpreted at the site. This map illustrates developments in what will become the Bluebell Hill area, believed to have been initially constructed for workers at the mills in Rittenhouse Town. This evidence supports claiming these developments as part of Historic RittenhouseTown.

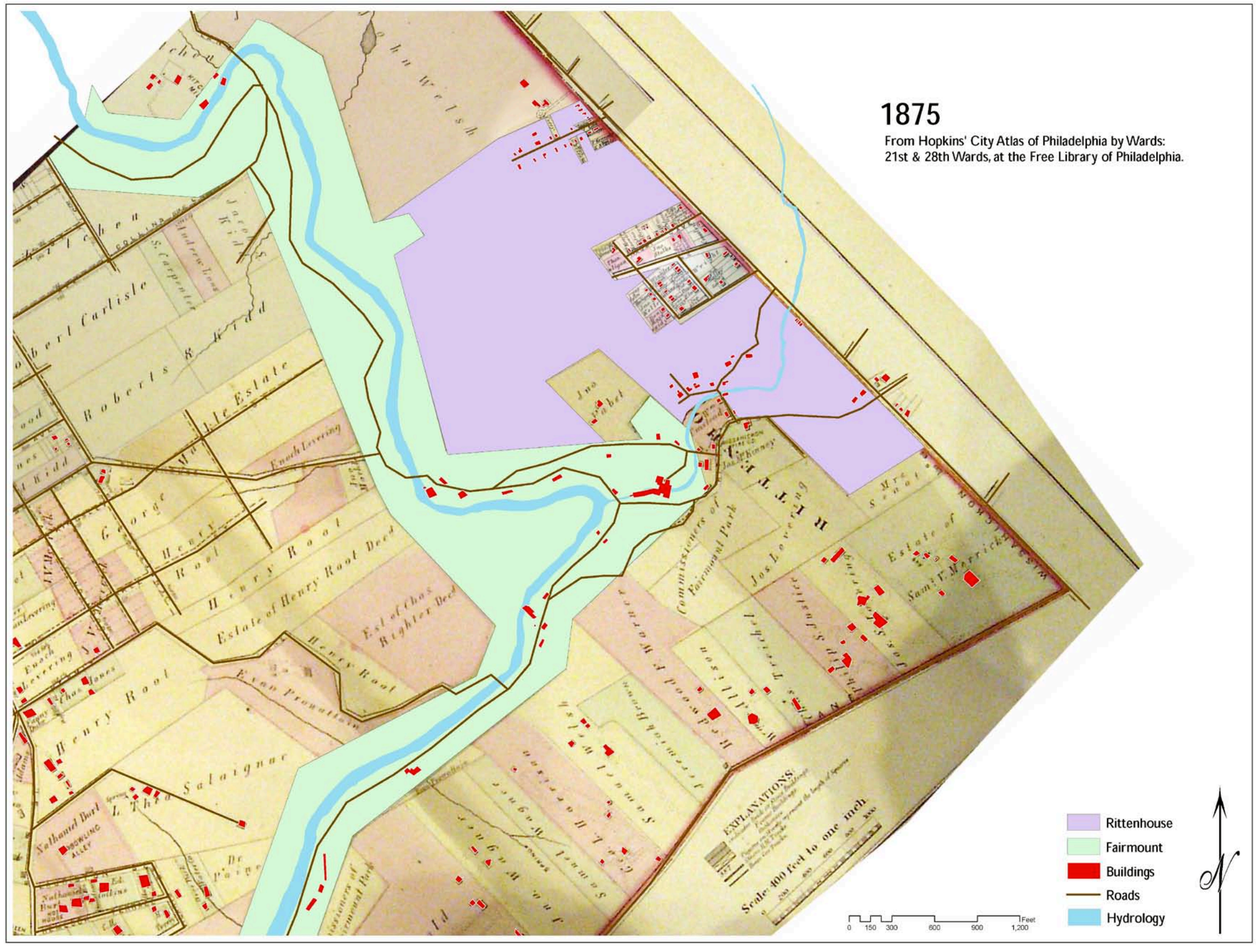

Figure 7. Rittenhouse property identified and shaded (in purple) along with Fairmount Park boundaries (in green). Rittenhouse ownership in 1875 had declined since the 1772 survey.

Figure 8. Current location of creeks, buildings and roads based on shape files from the Pennsylvania Geospatial Data Clearinghouse.

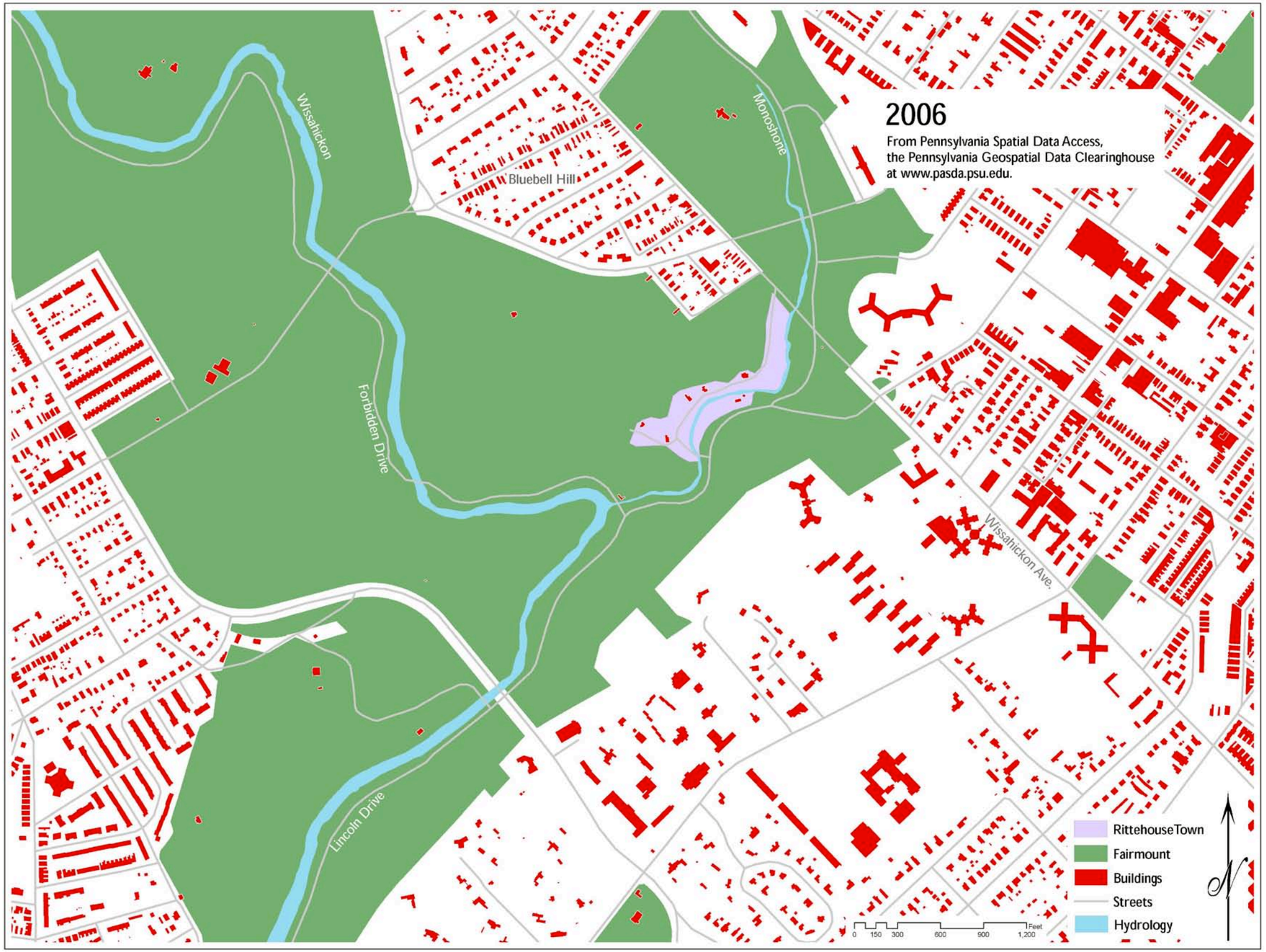

Figure 9. The approximate area currently used by Historic RittenhouseTown, Inc (in purple). Fairmount Park property is shaded in green.

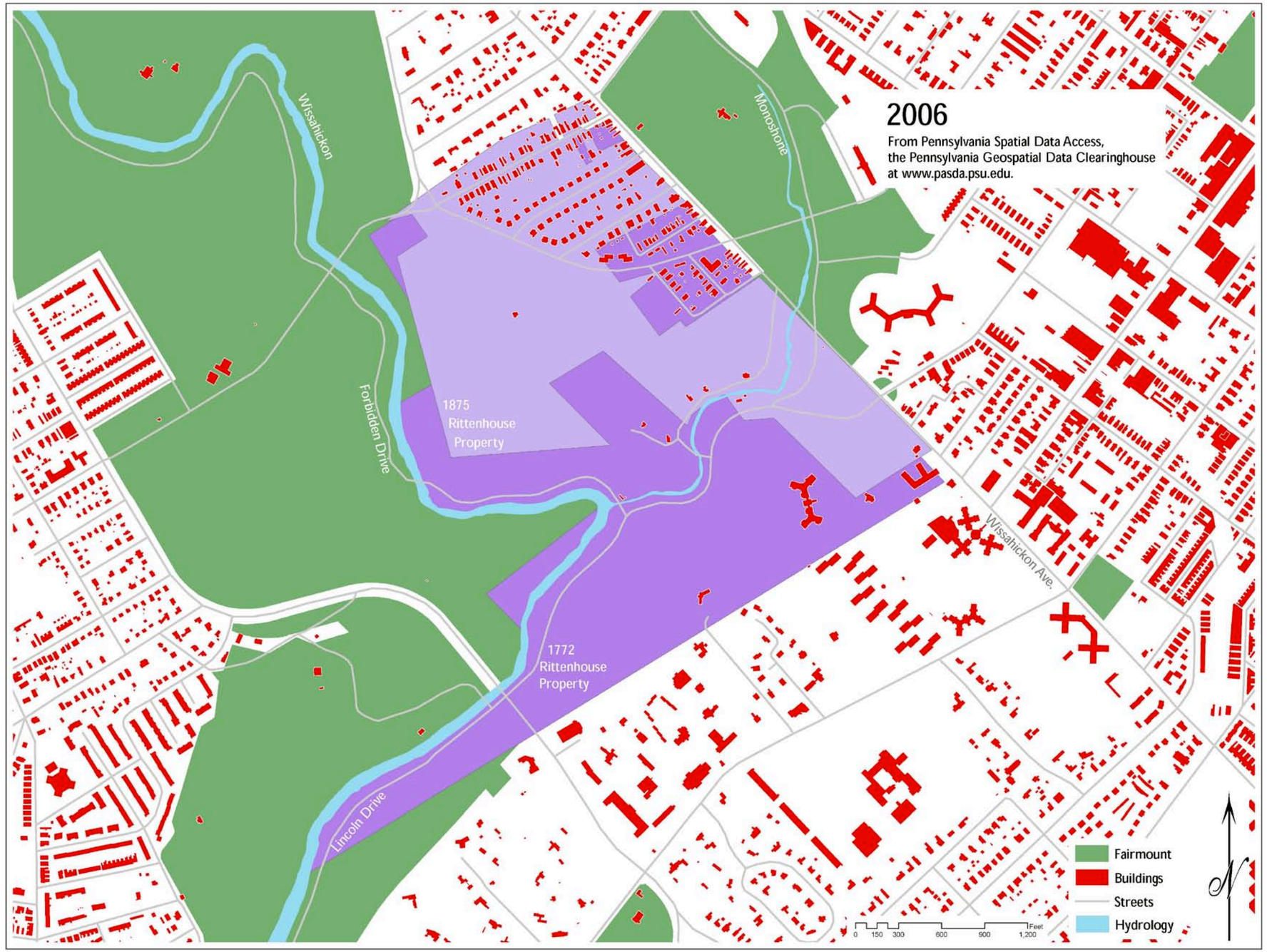

Figure 10. Historic Rittenhouse property boundaries from 1772 and 1875 superimposed on the map of current roads and buildings.

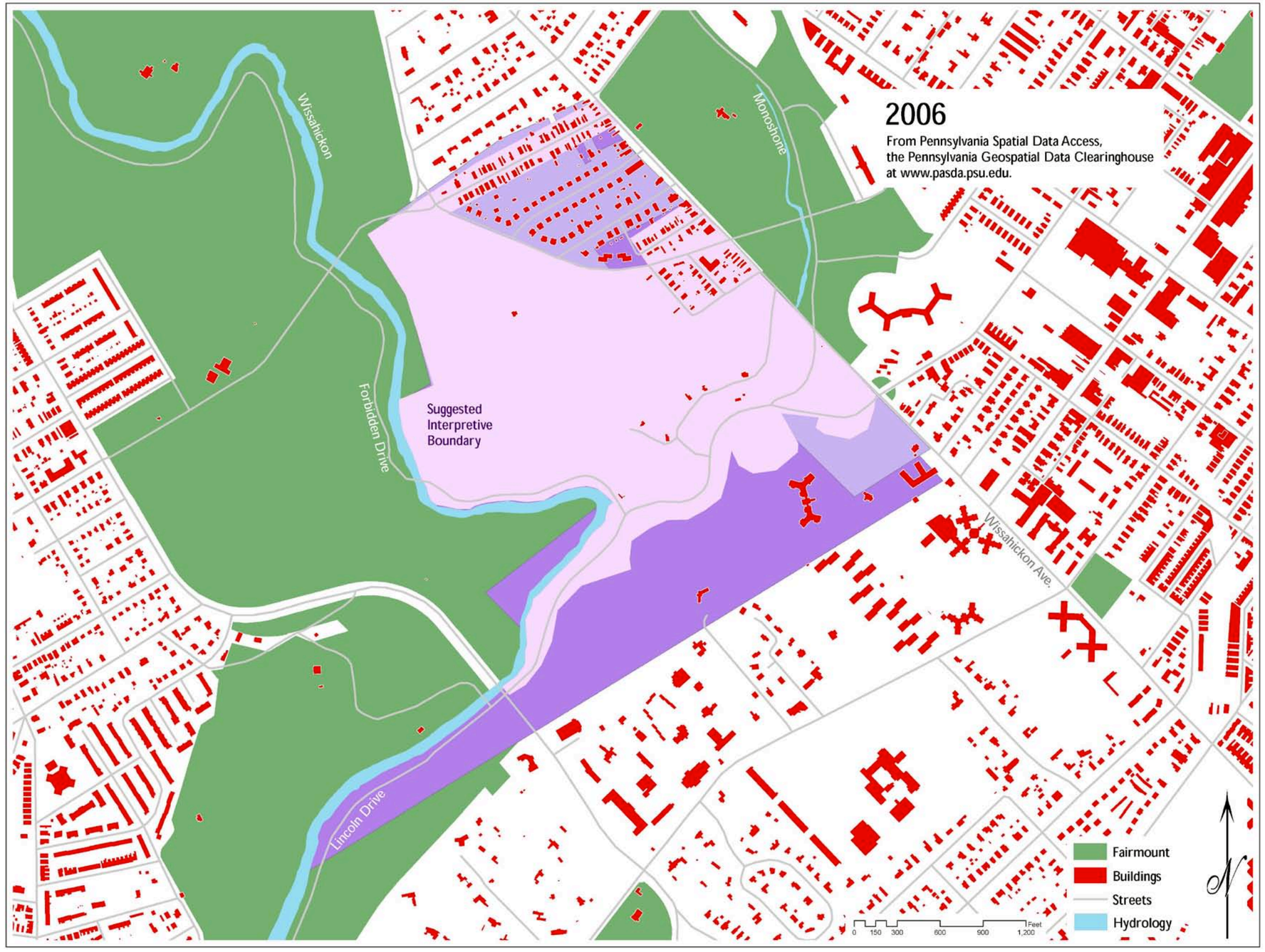

Figure 11. A suggested interpretive boundary based on historic boundaries and current topography. These boundaries have been drawn to include the quarries and historic roads south of Lincoln Drive and portions of Bluebell Hill that had been developed during the Rittenhouse presence and the operation of the mills.

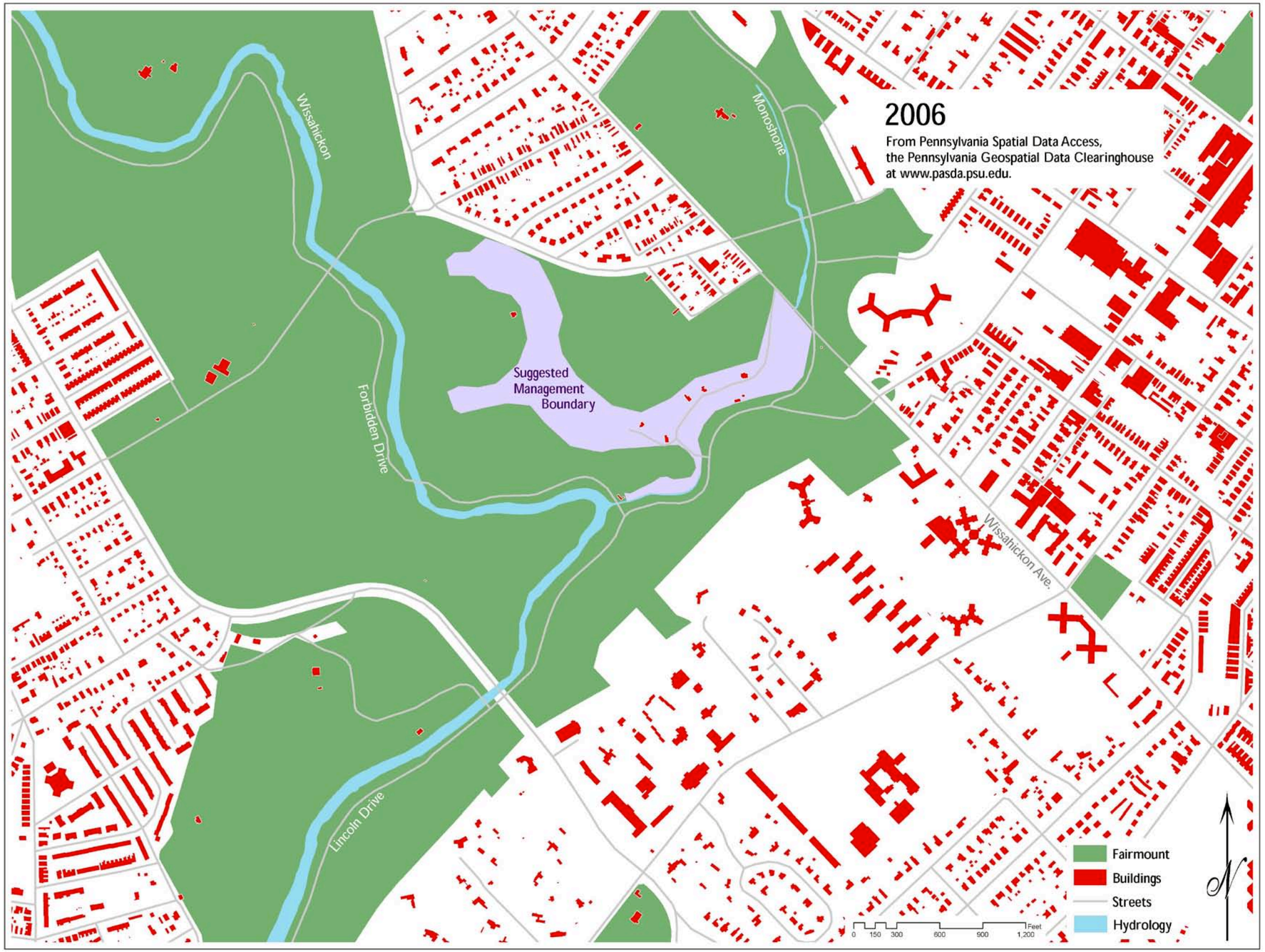

Figure 12. A suggested management boundary based on historic boundaries as well as the current topography of the site. The high, flat land to the north and west of the core of Historic RittenhouseTown have been suggested for management in order to incorporate that land for possible use as a parking area for site visitors.

Figure 13. The relation of proposed interpretive and management boundaries to the current topography of the site. The dotted white line indicates suggested interpretive boundaries and the solid white line surrounds the suggested management boundaries. The quarries can be seen here to the south of the historic core, and the high, flat land to the north and west of the core is better illustrated.

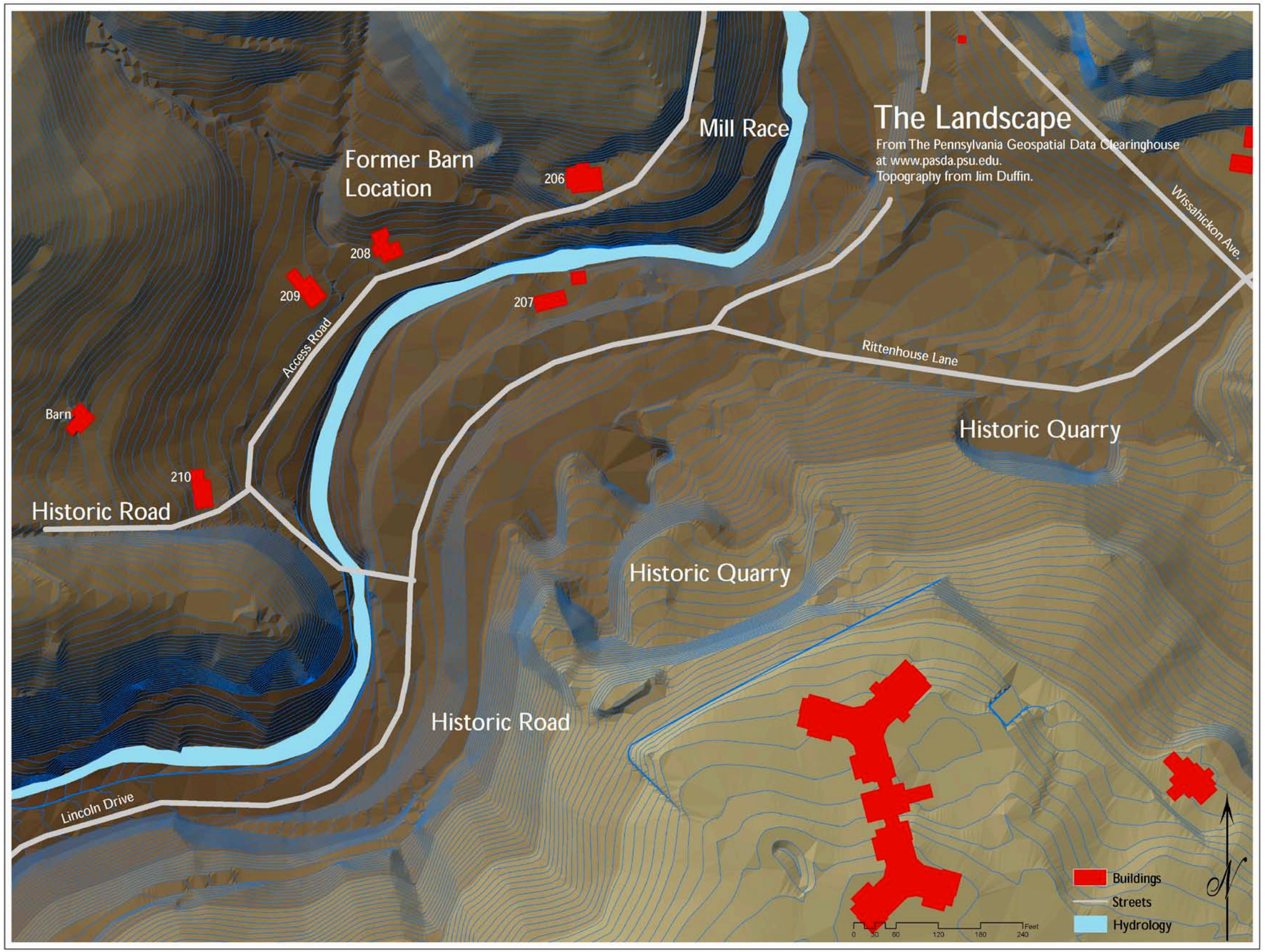

Figure 14. An illustration of some of the marks left on the topography by historic use. Moving clockwise from Rittenhouse Lane: historic quarries can be seen as indentations in the hill; an historic road runs southwest from Rittenhouse Lane, lining up nearly perfectly with the historic road seen on the 1875 map; at the southern end of the Monoshone Creek, in the lower left corner, the Amindown Mill once stood and is now seen in remnants such as protruding walls, bits of brick, and scattered, shaped stones in the creek bed (not visible here); an historic road climbs the hill westward from the main access road; a flat area above 208 Lincoln Drive is the former location of a barn; traveling westward from that location is a road that cuts toward the high, flat ground which is believed to have been used for farming; and lastly, the mill race is now a flattened path running upstream from the former mill site to the confluence of the Monoshone and one of its tributaries. Features such as these can provide insight into the historic uses of the landscape through the incorporation of landscape into the site's interpretation.

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Source: Fairmount Park Archives

Landscape Restoration and Management Plan For Historic RittenhouseTown

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HSPV 701: Studio
December 20, 2006

I. Introduction:

a. Philosophy Statement:

Currently, Historic RittenhouseTown (HRT) has a landscape in dire distress. With a past history of industrial use, the landscape suffered significant soil and vegetative disruption and has not recovered. Today, invasive vegetation has encroached upon all sectors of the historic property and HRT has unfortunately lacked the financial resources to maintain the landscape in a healthy way. HRT represents the birth, life and death of an industrial town, so therefore our goal is to evoke the feel of the landscape during its peak of the industrial period. However, it is unwise and also impossible to completely recreate this landscape, not only because it is ecologically unhealthy, but also because it would be inauthentic. Therefore, we want to evoke the sense of a clear-cut landscape through the use of meadows and trees.

b. Description of Historic Landscape:

Historically, the Wissahickon Valley, located in a "temperate biome," was a lush area and a habitat for various wildlife and plant communities. Fish and aquatic life were plentiful, while fewer deer allowed for a rich environment of trees and undergrowth. Though not "primeval," and managed by the Lenni-Lenape, the forest was still complex and very closely associated with the Wissahickon landforms, as well as the soil moisture and orientation. Prior to European settlement, chestnuts covered ridges, hemlocks were located on the steep slopes, the valleys had red maples, sycamores and ashes and the mixed oak enveloped the plateaus. There was also a great deal of wildlife including bear, moose, deer, beaver and otter. The Lenni-Lenape and later European fur traders hunted these animals for their pelts and eventually these animals were hunted so thoroughly that few if any remained in the area. Sadly, the eastern bison and the passenger pigeon were hunted to extinction. The loss of these species had ramifications so profound that it was realized to late how important they were to the health of the Wissahickon Valley. For example, the passenger pigeon played an integral part in the spreading and growth of the American Chestnut. With permanent European settlement, more drastic change was to occur within the Wissahickon. *(Please reference map 1)*

American Chestnut
Source: The American Chestnut Society

c. Description of Industrial Landscape:

Once industrialization took hold of the Wissahickon Valley, permanent and detrimental changes occurred. With the introduction of mill technology, the population of the valley

began to increase as a small hamlet developed up around the Rittenhouse mills. The need for open space led to roads, housing, as well as other buildings related to the new community which required the cutting down of hundreds of trees. Mass disturbance of the land included clear cutting, which resulted in a muddy and bleak landscape. Photographs from the late nineteenth century show us just how open and bare the hills became. The Monoshone Creek and Wissahickon Creek quickly became polluted with muddy stormwater runoff. Such stream and stream bank interference resulted in harming many fish species and aquatic life. Furthermore, with the loss of their natural habitat and the increase in hunting, many animals were driven from the area. Another blow to the area was the introduction of invasive plant and tree species. These new species adapted quickly and soon overtook the native species. Finally, the construction of Lincoln Drive changed the remaining natural contours of the land because it raised some levels with extra ground while other areas were depleted.

RittenhouseTown 1886
Source: Fairmount Park Commission

d. The Landscape of Historic RittenhouseTown Today:

Today, the ecological health of Historic RittenhouseTown is fair at best. The Monoshone and Wissahickon Creeks are severely polluted, as is the soil. The tributaries that wend their way into the Monoshone are eroded and have litter in them that block leaves and branches. One can no longer get a clear view of Bluebell Hill because trees have grown back on the slopes, ridges and plateaus, however they are not all native and are often found to be choked with invasive vines and ivy. Deer now overpopulate the area and ironically only eat native plant species while ignoring the invasives. The only areas of the landscape maintained by HRT are the lawns surrounding the homes along the main drive of the site and these lawns cause runoff into the creek. However, the lawn is one of the few places that native trees have not been taken over by invasives and have space to grow. (*Please reference map 2 & 3*)

Source: A. Casale

II. General Management Plan

a. Goals:

Create a landscape for RittenhouseTown that evokes the openness of the industrial landscape. The period of significance suggested for the site is the birth, life and death of an industrial village and the goal of the landscape general management plan is to create a healthy ecological site while evoking this period. The landscape during this time was primarily clear-cut and bare. However, it is unwise for Historic RittenshouseTown to clear-cut the land today. Not only would it cause severe soil erosion adding to storm water runoff flowing from the hills, but it would be very unpleasant in appearance. Finally, trees provide necessary carbon sinks.

b. Inventory and Survey:

Take and inventory of the landscape to identify the vegetation cover. It is then important to survey the land for type and grade of disturbance, ranging from minimal, to moderate, to heavy disturbance.

c. Action Plan:

- Identify separate units of the landscape according to their topography. For example, divide the land up by: steep slopes, stream banks, areas around houses, etc.
- Create grid systems for each topographic unit to identify and prioritize native and non-native species. (*Please reference Invasive Type Index*)
- Create a comprehensive plan to attack and improve the landscape.
  Invasives-
  - Utilize staff and coordinate volunteers for work to clear continually invasives.
  - Fairmount Park Operations and Landscape Management will remove large Norway Maples.
  - Contractors will use minimal herbicide for certain removal of invasives.

  Plants-
  - Identify and locate native plants for replanting of the landscape.
  - Research and apply for grants to purchase the necessary plants and seeds. Concentrate on small sections because it is easier to find grants for the individual topographic units rather than for the entire landscape at RittenhouseTown.
  - Volunteers and community organizations can be utilized for re-planting.
  - Continued and ongoing maintenance of the landscape.

III. Case Study: The lawn between Lincoln Drive and Monoshone Creek

Lawn Area
Source: A. Casper

a. Goals:

Provide an example of how to create a healthy site while evoking the sense of a clear-cut industrial landscape through a meadow. The meadow will generate an open feel while providing an improved filter for the storm water runoff draining into the Monoshone Creek. Such a meadow will enhance the water quality of the entire creek. This case study will focus on one of the units, encompassing the riparian corridor and floodplain on the gentle slope located between the Monoshone Creek and Lincoln Drive. Currently a grassy area, the goals of the study are to identify vegetation, suggest plantings and provide an action plan for the clearing, planting and maintenance of this study area. (*Please reference map 4*)

b. Inventory:

A grid system should be created to identify the natives and non-natives within each grid cell. The species inventoried can then be prioritized in terms of threats to the environment. Highlighted in red on the map are the major areas of invasives that need immediate attention in the study area. (*Please reference map 5*) The invasives include ivy, which is growing up the trees that border Lincoln Drive. There is also a plethora of Japanese Knotweed at the west end of the study area. Trees located within this area are Norway Mapes, a beech tree, a Slippery Elm and some Sycamores. Finally, there is a large fallen tree with many limbs.

Ivy
Source: M. Dayton

c. Action Plan:

1. **Clear Invasives**:

Ivy- Cut at the base and then pull off trees when it has dried. Do this before the spring season to allow the trees to re-bud.
Japanese Knotweed- Remove by applying foliar herbicide. Spray once or twice in the spring, manually remove dead stalks and then spray again the next summer.
Stray limbs- Prune and pull.

Man Power and Time- Most of the clearing can be done by volunteers from school groups, individuals or community organizations. It will take about 100 man hours to pull and prune the area. Groups to be contacted include the West Germantown Garden Club, the Roxborough Garden Club, the Philadelphia Garden Club, the Friends of the Wissahickon and the Senior Environmental Corporation. It will take about 1 to 2 years to remove the Japanese Knotweed, during which it is necessary to keep clearing all invasives.

Mowing- Stop mowing study area.

2. **Planting:**

Plants- Decide which plants should be put in the meadow within the study area. Suggested grasses for the meadow are Andropogon Virginicus or Little Bluestem, Elymus or Virginia Rye Grass. For the wildflowers it is suggested to plant Rudbeckia hirta or Black-Eyed Susan, Aster laevis or Showy Astor, Vernonia angustifolia or Ironweed, and Eupatorium fistulosum or Joe Pye Weed.

Bluestem Meadow
Source: www.naturewatch.ca/MixedWood?homopter/meadow.html

Trees- To reduce soil erosion along the stream bank and for better filters from storm water runoff, some trees should be introduced into the study area. It is suggested to bring back the native species from the pre-industrial landscape in the low lands of the valley, the Sycamore, Red Maple and Ash.

Grants- To find money for the plants, during the years of clearing the invasives, grants can be searched and written.

Man Power- The planting of the meadow and trees can be done with volunteers, school

groups and community organizations.

Mowing- Begin to re-mow various patches throughout the meadow to allow for picnicking and other recreational activities along the Monoshone Creek.

3. **Monitoring and Maintenance**:
Invasives- Constant removal of invasives.

Mowing- Mow entire study area twice a year. Do not mow when it is wet.

IV. Recommendations:

Short Term (Immediate)

- Identify topology units (such as house lots, stream beds, etc) and prioritize as severe to moderate disturbance
- Create grid system within each unit for identification of vegetation
- Identify period of significance to represent
- Stop mowing grass area between Lincoln Drive and the Monoshone Creek – it is being transformed into a meadow; healthier for the stream and ecology
- Solicit volunteers for non-native vegetation removal

Medium Term (1-2 Years)

- Begin clearing invasives from critical units
- Choose native plants and trees for replanting
- Begin grant search and writing for purchasing of plants
- Solicit volunteers for planting

Long Term (20 Years)

- General Management Plan
- Continued clearing of invasives
- Replant with volunteers
- Maintenance

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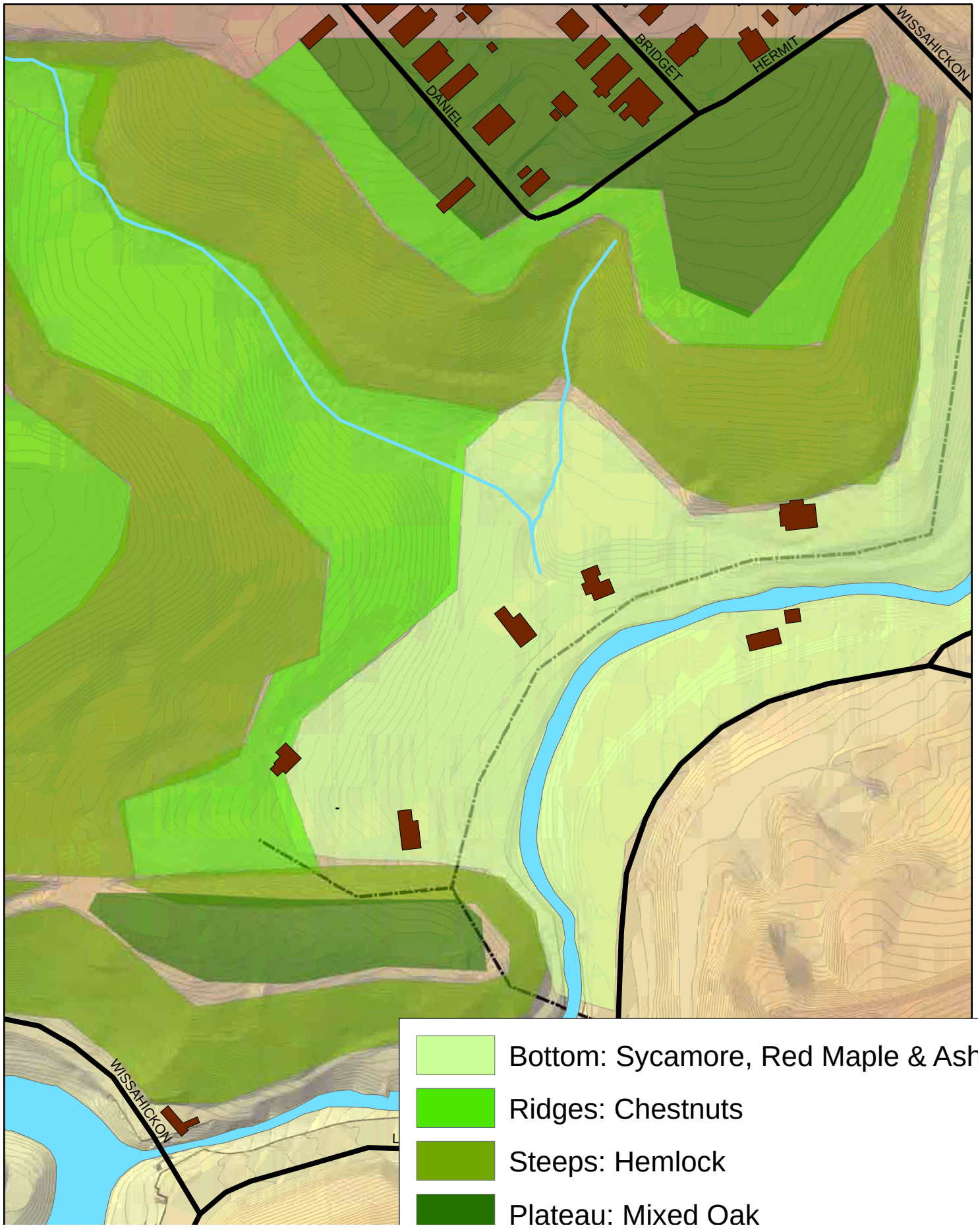
Map 1

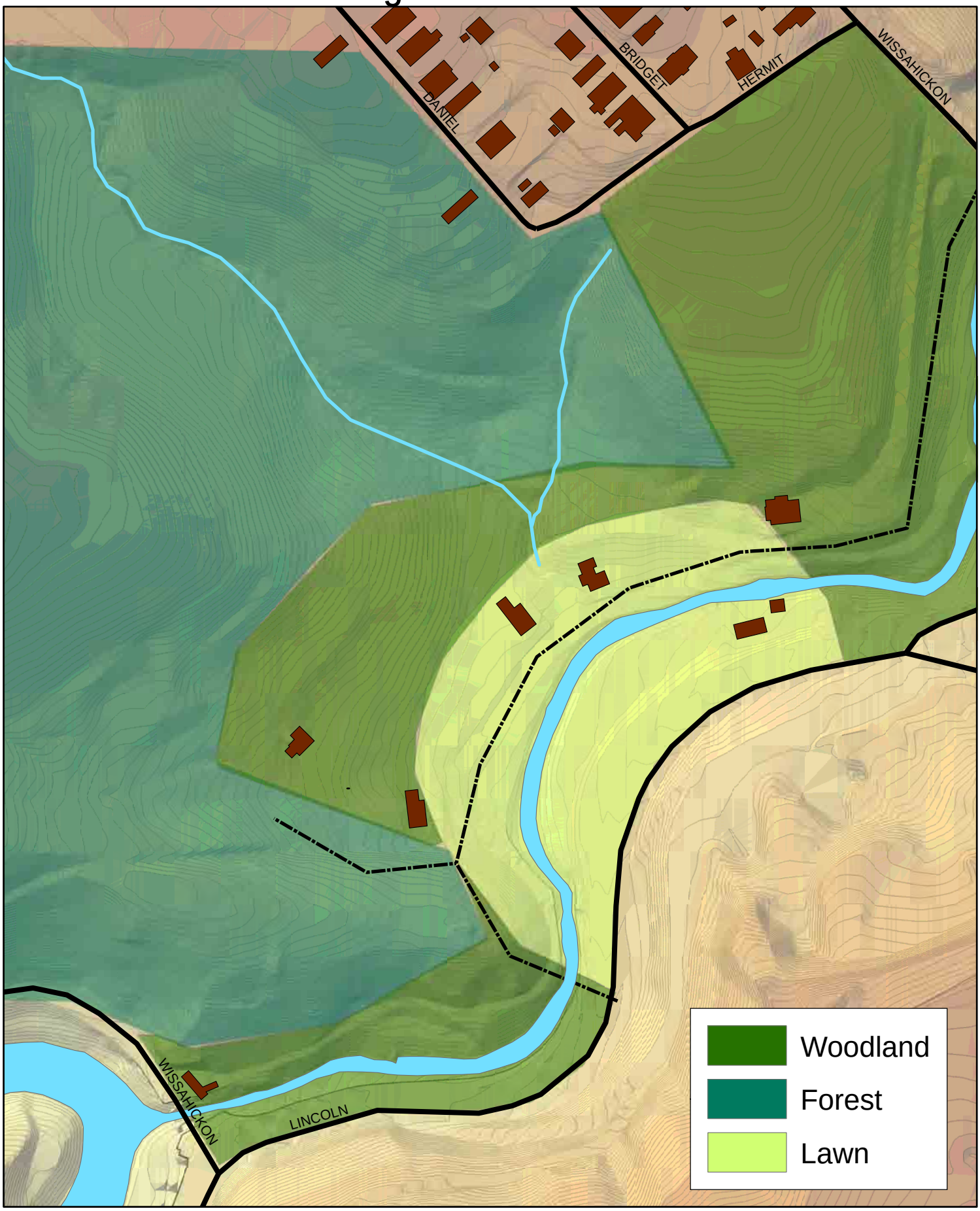
Historic RittenhouseTown
Plant Communities



Source: A. Casale

Map 2

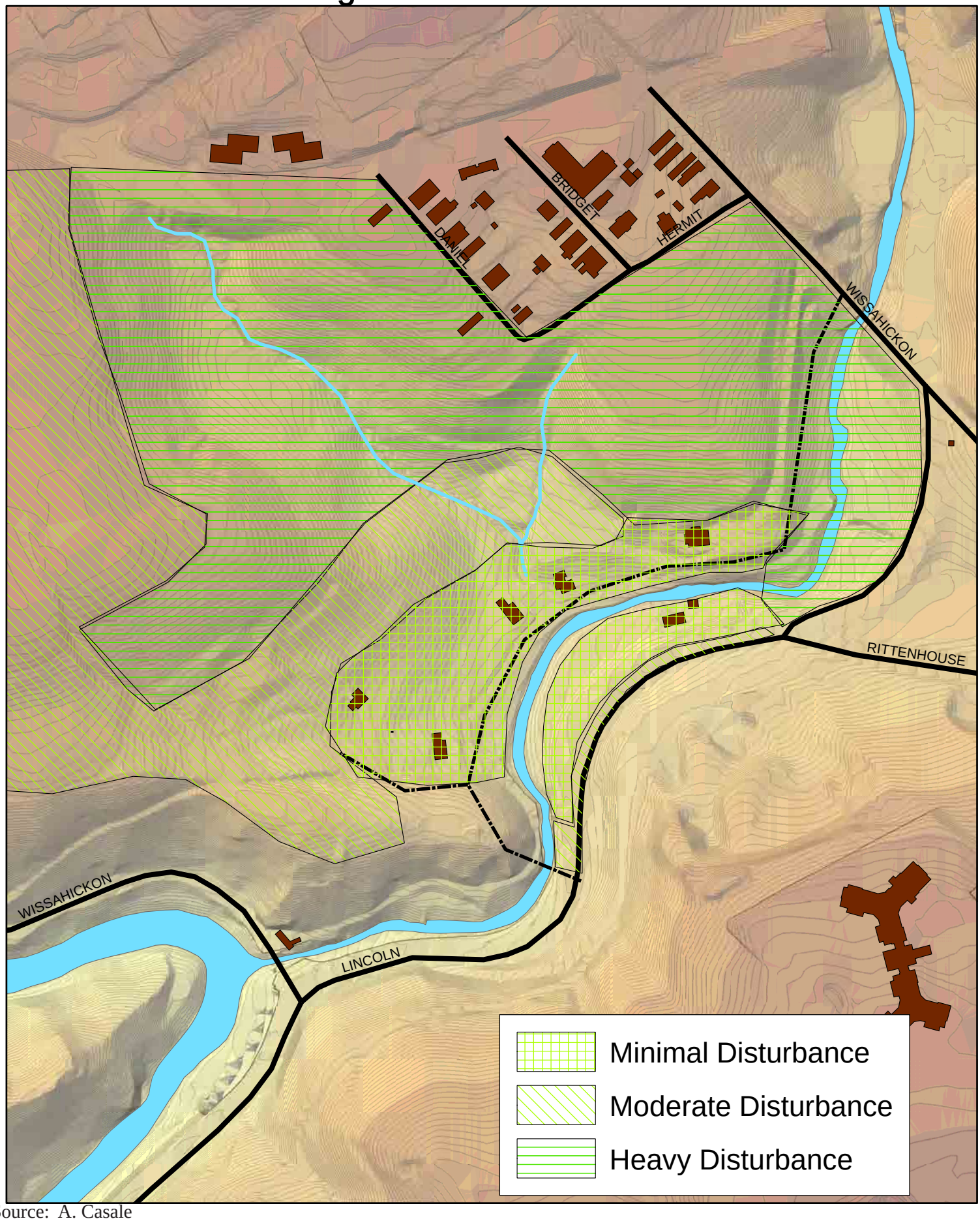
Historic RittenhouseTown
Vegetation Cover



Source: A. Casale

Map 3

Historic RittenhouseTown
Vegetation Disturbance



Source: A. Casale

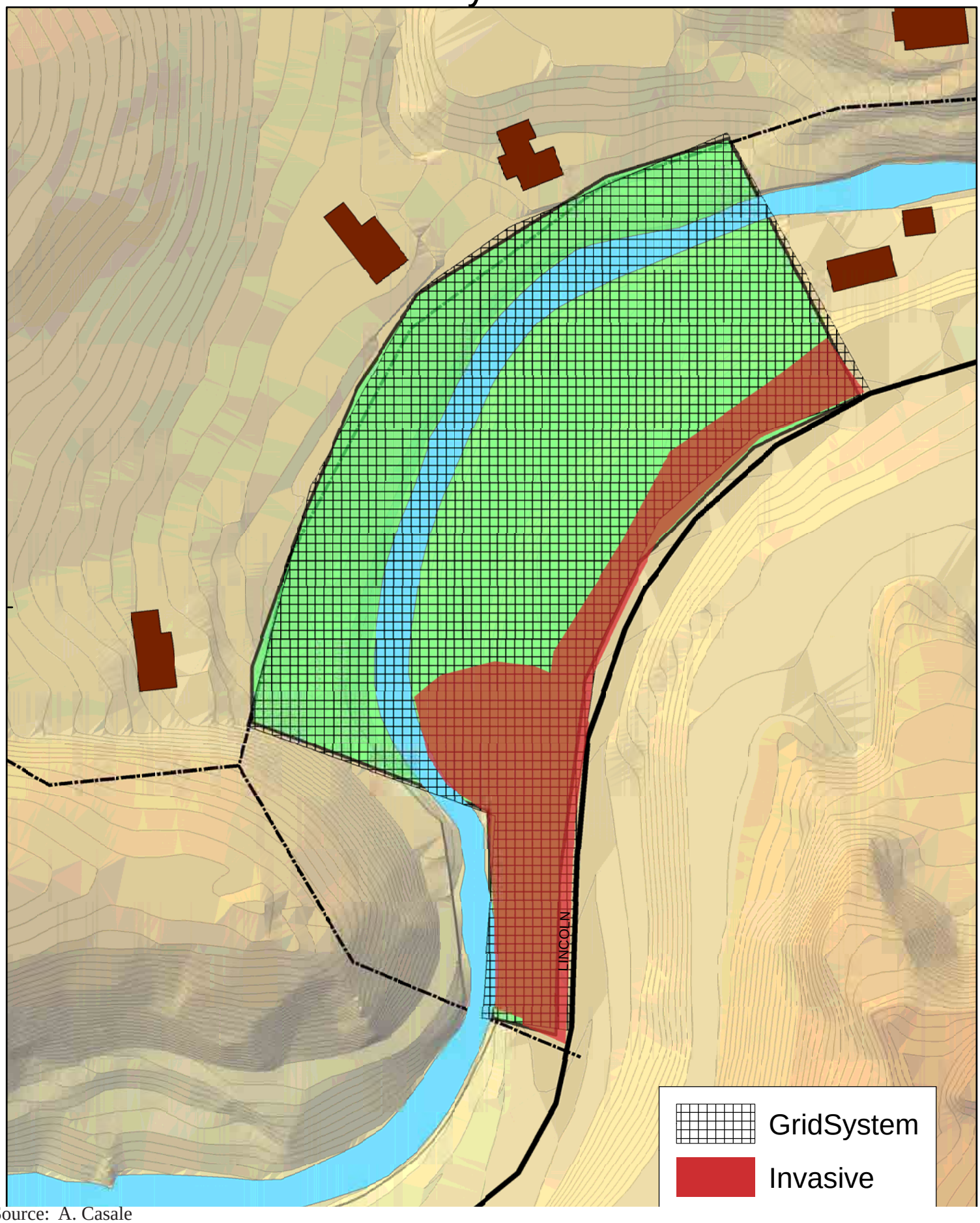
Map 4

Historic RittenhouseTown
Study Area

Source: A. Casale

Map 5

Historic RittenhouseTown Study Area



Source: A. Casale

Invasive Types at Historic RittenhouseTown

Devil's Walking Stick (Aralia spinosa)

Source: http://www.cnr.vt.edu/dendro/dendrology/syllabus/factsheet.

English Ivy (Hedera helix)

Source: Fairmount Park: Invasive Species http://www.fairmountpark.org/InvasivePlants.asp

Japanese Knotweed (Polygonum cuspidatum)

Source: Fairmount Park: Invasive Species http://www.fairmountpark.org/InvasivePlants.asp

Source: A. Casale

Japanese Honeysuckle (Lonicera japonica)

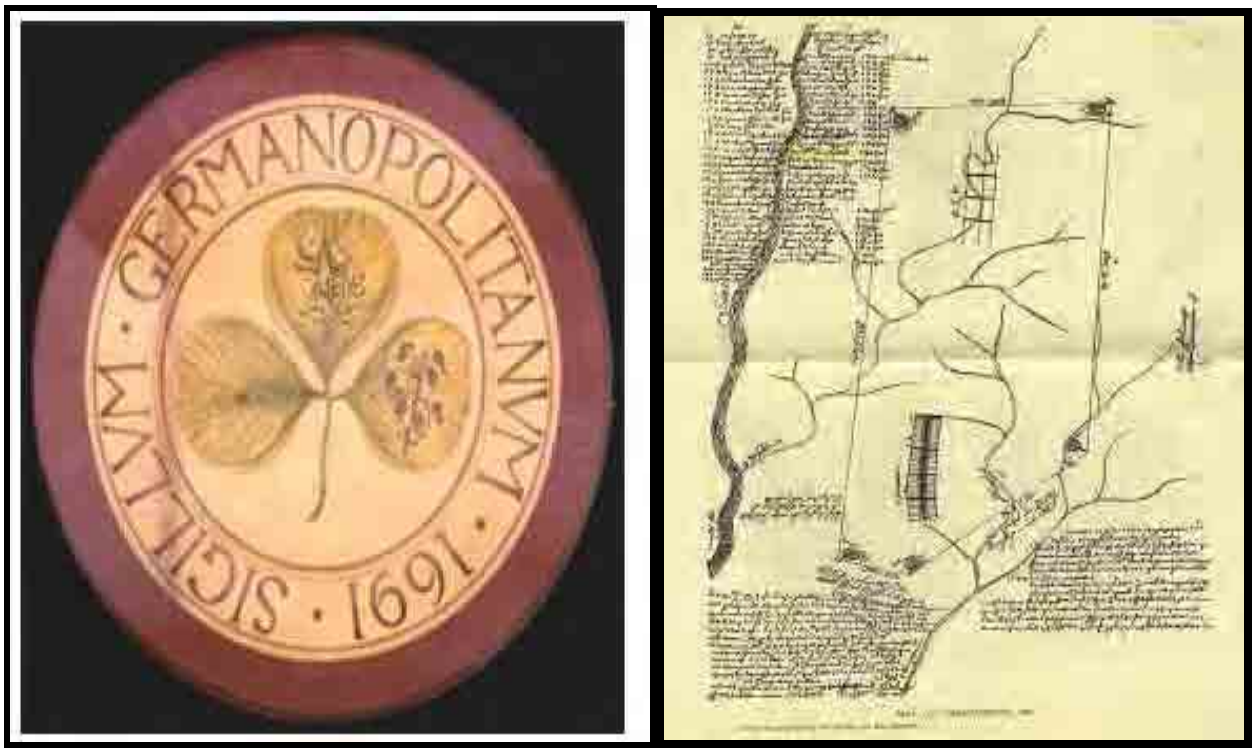
Multiflora Rose (Rosa multiflora)

Norway Maples (Acer platanoides)

Oriental Bittersweet (Celastrus orbiculatus)

Tree of Heaven (Ailanthus altissima)

All Photos Source: Fairmount Park: Invasive Species
http://www.fairmountpark.org/InvasivePlants.asp



Source: Daniel Pastorious, Seal of Germantown and Map of 1688

Plant to Paper In Colonial Germantown

A Paper Mill near German-Town doth stand,
So that the Flax, which first springs from the Land,
First Flax, then Yarn, and then they must begin,
To weave the same, which they took pains to spin.
Also, when on our backs it is well worn,
Some of the same remains Ragged and Torn;
Then of those Rags our Paper it is made,
Which in process of time doth waste and fade;
So what comes from the Earth, appeareth plain,
The same in Time returns to Earth again."

Poem by Richard Frame

CHARLENE PALMORE-LEWIS

Introduction

Over four thousand years ago the Egyptians were masters of creating fine linens from flax. The latter part of the Middle Ages it was the most commonly used textile material in Europe. The early colonists grew small fields of flax for home use and commercial production which provided fibers to make clothe in addition to oil which was extracted from the flax seeds. However, with the invention of the cotton gin in 1793, flax production began to decline.

Flax (Linum usitatissimum L.) is a broadleaf with very small, narrow leaves that are less than an inch long. The stems are branched near the base of the plant a height of 30 to 36 inches. The multiple stems or branches of a flax plant are slender and flexible, dividing at their tips into inflorescences bearing attractive blue flowers. Flax should not be planted in the same field every year but rotated with another crop to prevent disease an improve yields.

Flax Grown At Colonial Germantown

Francis Daniel Pastorious negotiated with William Penn in 1683 for the grant of Germantown's 6,000 acres. The first settlers were not skilled agriculturalist but skilled linen weavers. The women of Philadelphia were enthralled at the quality of the pure linen cloth which became in demand throughout the colonies (John L. Cotteret al.1992: 322).

The Germantowners would travel two hours to Philadelphia along the main street which was one mile long and cross in twelve dwellings set on three-acre lots (John L. Cotteret al.1992: 322)

Image: The Buried Past: An Archaeological History of Philadelphia

Publisher: University of Pennsylvania Press

Publication Date: 1992

Page No: 323

Each Germantowner grew flax on at least two acres of land. The land was plowed by horses and fertilized with the richest manure which came from the sheep stable and chicken house. It was then spread on the flax ground (Ellen J. Gehret: 11). Once the land was prepared the flax was sown. The method of sowing flax seed meant taking six steps at a time and dispersing a large handful of seed one step to empty the grain held by the thumb and first two fingers and the second step to empty the rest of the hand (Ellen J. Gehret:13). This was done by an experienced broadcaster.

Planting flax began with casting seeds into a patch of ground in the month of May, which grew into drooping blue flowering plants. At the height of three or four inches women and children would weed in their bare feet to protect the seedlings. If the weeds were of an aggressive sort i.e., thistles the woman and children

wore layers of stockings. Weeding was done towards the wind to ensure that trampled flax could be blown back into place. If the flax was grown very close few weeds crowded the plants.

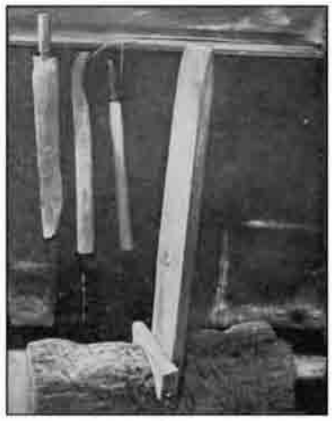
Harvested in late June and in July the flax was pulled by the roots from the soil and laid out to dry in the sun for one or two days being carefully turned. If the crop was gathered specifically for the seeds for the extraction of oil the harvesting of the plant was done when the end of the stalk turned yellow. This process was called pulling and spreading which the men and the boys usually did (Alice Morse Easle1898:168). It was then rippled with a ripplecomb which was a coarse wooden or heavy iron wire attached to a plank The stalks of flax were given a quick stroke to break the seed-bolles off the stalk which were caught on a sheet and collected for the next harvest or sold.

The stalks were tied at the seed end and staked and piled together, this process was called beats or bates (Alice Morse Easle1898: 169). The tied end is spread out to form a tent shaped stack called a stock (Alice Morse Easle1898: 169). After the stacks dried they were wet under running water to soften the fibers and rot the leaves. It was necessary that the water be running as the rotting flax would poison the fish. The bates were tied into a pile and positioned in the form of a square (steep–pool) piled in solidly, alternating each layer at right angles with one beneath it. Boards and heavy stones were placed onto the bates and after four or five days the boards were lifted to remove the rotted leaves.

Once the flax was cleaned of the rotten leaves it was dried and tied into bundles. The flax would be broken on a flax-brake, “a heavy log of wood about five feet long, either large enough so the flat top was about three feet from the ground, or set on heavy logs to bring it to that height. A portion of the top was cut down leaving a block at each end, and several long slats were set in lengthwise and held firm at each end with edges up, by being set into the end blocks. Then a similar set of slats, put in a heavy frame, was made with the slats set far enough apart to go into the spaces of the lower slats" (Alice Morse Easle1898: 170). The flax was laid on the lower slats, the upper slats were placed upon them and the men would pound the flax with a heavy wooded mallet. Flax was usually broken twice, once with an "open - tooth brake," once with a "close or strait brake," that is, one where the long, sharp-edge strips of wood were set closely together. Then it was scutched or swingled with a swingling block and knife, to take out any small particles of bark that might adhere,” (Alice Morse Easle1898: 171).

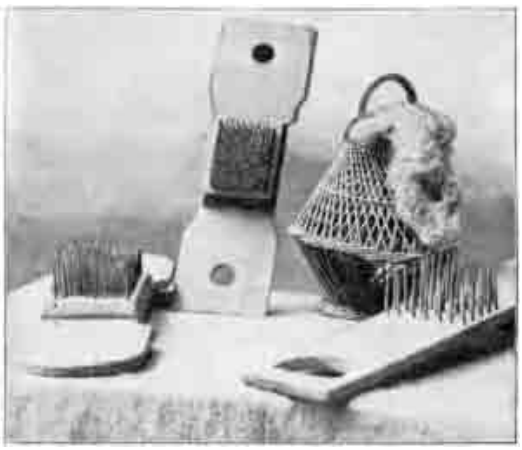
Flax Break

A man could swingle forty pounds of flax a day. It had to be done on a clear sunny day while the flax was dry as tinder. The clean fibers were made into bundles called strikes and swingled again. The result was refuse called swingle-tree hurds. The swingle- tree hurds were bagged to be spun and woven.



Swingling Block Knife

Hackling Comb

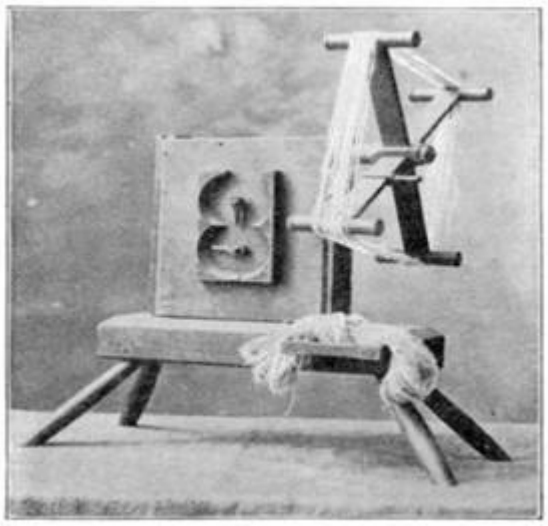


Hackling or Heckling was the next step in the process of obtaining flax fibers. The number of times and the dexterity of the person doing the hackling determined the finesses of the fibers. The hackling would be turned into tow. This method consisted of wetting the flax and pulling a bunch of it at one end through the hackler-teeth towards the hatcheller hence the fibers were laid and pulled into continuous threads and the short fibers were combed out. This process had to be done in one step. The fibers were divided into fine filaments, long threads placed in an untangled line and the tow (coarse flax fibers) separated and removed. After the first hackle, called a ruffler, six other finer hackles were often used and then sorted according to fines of the fibers. This was this was called spreading and drawing (Alice Morse Easle1898: 173). The laborious work produced a small amount of fibers but could make an abundant amount of linen thread. The flax was finally ready for spinning on the wheel.

Spinner

The spinner placed her foot at the treadle and spun the fiber into a long thread. Hung on the wheel was a small cup (a small bone, wood, earthen ware, or gored shelled) filled with water for the spinner to moisten her fingertips as she held the flax. The movement the wheel formed onto a bobbin. Once the bins were filled the thread was then wound off in knots and skeins on a reel. The clock reel counted the exact strands in a knot which was usually forty (Alice Morse Easle1898: 174.) Twenty knots was a skein.

Clock Reel



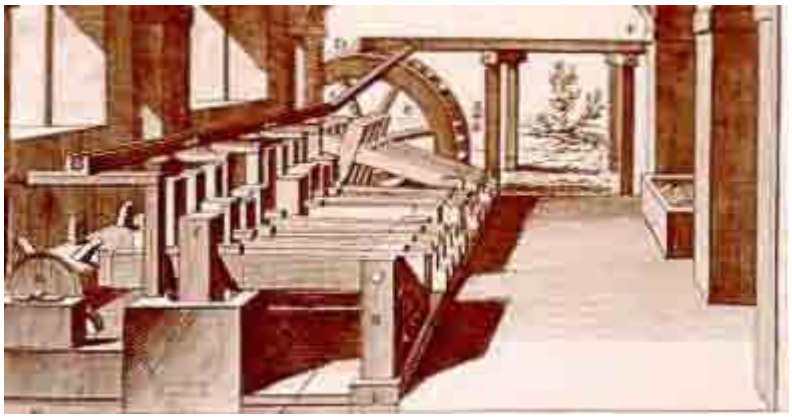
These skeins of thread had to be bleached. They were laid in warm water for four days, the water being frequently changed, and the skeins constantly wrung out. Then they were washed in the brook till the water came from them clear and pure. Then they were "bucked," that is, bleached with ashes and hot water, in a bucking-tub, over and over again, then laid in clear water for a week, and afterwards came a grand seething, rinsing, and beating, washing, drying, and winding on bobbins for the loom. Sometimes the bleaching was done with slaked lime or with buttermilk," (Alice Morse Easle1889: 175.) The linen was now ready to be weaved and sold.

Images of flax tools and Spinner: Home Life in Colonial Days: Macmillan, 1898

Rags to Paper from Rittenhouse Mill

A wagon would be loaded with discarded clothes(rags) collected from the local people and Philadelphians to make paper. The rags which were collected were transported by horseback to the Rittenhouse mill (wagons were unable to navigate into the steep Wissahickon valley).

The women would sort and cut the rags, removing buttons and other non-fibrous articles. The clothe was then cut into smaller pieces. The rags were boiled to remove wood/ash particles in shallow tanks or stone troughs. The washed rags were then disintegrated by excessive pounding with stampers for several hours, the duration and the extent of beating depended on the type or grade of paper being constructed.



Stamping Hammer

Source: http://freespace.virgin.net/iw.histhttp://freespace.virgin.net/iw.history/pm/papermill.htmory/pm/papermill.htm

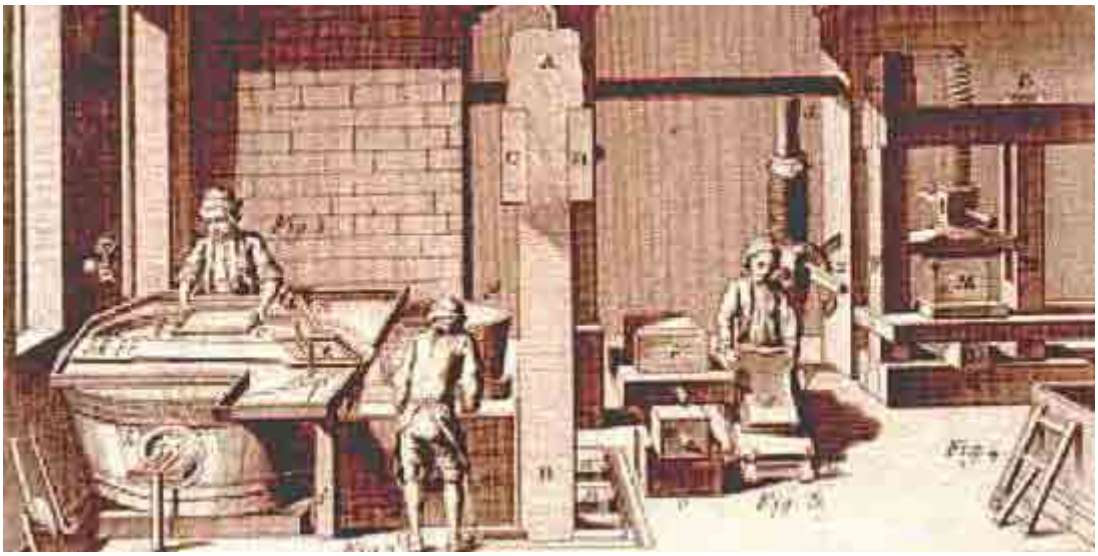
The disintegrated fabric left a fibrous residue called half-stuff. The half stuff was moved to a different set of stampers called beaters. This opened the fiber so that it would felt better during paper construction and bond better when dried. After beating, the fibrous fiber was called stuff.

The stuff was diluted with five parts of fiber and ninety-five parts of water. It as then called stock. A removable wooden frame covered the edge of the mould and contained the stock on the wire mesh surface so

that the water could drain back into the vat and wet the fibers to form a sheet on the mould surface. "The forming of the paper is the most critical stage of the papermaking process, demanding great skill and expertise. The 'vat man', as the operator is called, would have undergone a 6 or 7 year apprenticeship before becoming a qualified journeyman, allowed to carry out his *craft,"(The Island's 18th Century Paper Mill).*

The wet paper is formed, the deckle is removed and the vat man passes the full mould to his assistant and makes another sheet of paper. This term is called couching because this is the operation and craftsman is the coachman (*The Island's 18th Century Paper Mill).*

After a pile of sheets have been assembled they are sandwiched between absorbent felts and the water is squeezed out with great pressure to assure that the paper could be handled. The wet sheets are taken to a drying loft and hung over ropes or placed on flat open weave sheets. The loft has movable shutters built into the wall so that the wind could evaporate the moisture in the paper.



Paper Making Vat and Press

Source: http://freespace.virgin.net/iw.histhttp://freespace.virgin.net/iw.history/pm/papermill.htm
ory/pm/papermill.htm

The dry sheets are moved to be inspected by the women in a checking area. The substandard paper was removed and the other paper was placed into reams which consisted of 480 sheets of paper. The paper was packed and ready to be sold to the customer.

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Resource Links

http://www.rittenhousetown.org/story.html

http://freespace.virgin.net/iw.histhttp://freespace.virgin.net/iw.histo

Ruins along the Monoshone: the Metamorphosis of a Landscape

By Teresa S. Duff

Ruins along the Monoshone: the Metamorphosis of a Landscape serves as an access path to Historic RittenhouseTown. Based on the SWOT analysis, access to the site is problematic in that driving or walking along Lincoln Drive is noisy, busy and unappealing. This path provides the visitor with an alternative route to HRT by walking a historically significant trail along the Monoshone Creek. By extending the boundaries beyond the immediate site, HRT solidifies its presence in the Wissahickon Valley and trail system, making HRT a destination and not merely a detour. The landscapes ability to speak allows the visitor a deeper understanding of the importance of the creek, the land and the flora and fauna. Additionally, by providing an interesting yet planned route of access, the HRT audience is extended and broadened to include those who enjoy outdoor recreation. According to Setha Low, access is as much about economics and cultural patterns of park use as circulation and transportation. Income and visitation patterns must be taken into consideration when providing access for all social groups.[i]

The Monoshone Creek was the pulse of RittenhouseTown throughout its birth, life and death as a small industrial village. Re-establishing the landscape's significance as an integral component in the contemporary interpretation will aid the understanding of HRT's establishment near a source of power and life for the survival of the mill industry. Using the guided map as a reference, the viewer actively participates in discovering the broader site via features (hand-made and natural) in the landscape, creating a link between the past and present through the recall of memory and imagination. Understanding the context of Historic RittenhouseTown will ensure the visitor is better prepared for a more meaningful and powerful experience.

Starting from the Tulpehocken train station, one is able to casually walk along the Monoshone creek, pausing at specific view points where features in the landscape are expanded upon in the text on the map. These features denote a sense of time and place that illicit the imagination of the visitor, and as physical reminders they provide a sense of place attachment, continuity, and connectedness. [ii] A link between the past and present through the recall and creation of memories ignites the landscape's ability to speak. This link makes an intellectual and emotional connection between the visitor and the landscape. The visitor is now a beholder, personally invested in the experience of Historic RittenhouseTown.

Tulpehocken train station is the site of the Germantown Water Works, established by John Fallon in 1851. Typhoid from stagnant wells had plagued the area of Germantown, and Fallon, an entrepreneur, saw a profit to be made by providing fresh pumped water to individual's houses. A reservoir in the Monoshone was damned and a stand-pipe erected on the corner of Wayne and Tulpehocken Streets. Many of the wealthy residents of Germantown were able to afford the luxury of home delivered water via pumps and

pipes. When the GWW was incorporated into the City of Philadelphia, and the obsolete pump and stand-pipe were demolished to make way for the expansion of the Pennsylvania Railroad in 1880, funded by Henry Howard Houston.

The Washington Lane Bridge is a remnant of a traverse across the Monoshone Creek. Horses and carriages made this crossing to continue into Roxborough from Germantown and the surrounding area. The C. M. Hopkins map of 1871 depicts Washington Lane crossing the Monoshone. This was one of only a few thoroughfares through the area. Henry Howard Houston acquired much of the land in this area at a very inexpensive price, making it possible to invest in the extension of the Pennsylvania Railroad. This section of Washington Lane most likely ceased due to the extenstion of the railroad, expansion of Fairmount Park, and construction of Lincoln Drive.

Lincoln Lake serves as a recessed feature in the landscape. Though a date is unknown, this lake was an early mill pond providing much needed power for the mills down the creek. In addition to the Germantown Water Works using the reservoir, so did the designed landscape of the Houston Ramble. Lincoln Lake provided a source of recreation for the pleasure gardens located along Lincoln Drive.

Pergolas extended over the creek, and may still be seen when observing the stone wall along the Monoshone. These bridges were draped in Wisteria, lending a romantic and eclectic natural environment which the Victorians valued. Though the wood bridges have rotted away, their footprint may still be seen in the stone work along the Monoshone Creek.

The Houston Ramble was a donated estate, entailing scenic rest points, pergolas and natural features such as non-native plant species, rock gardens and waterfalls located along Lincoln Drive. As an expansion of Fairmount Park, the Ramble served as an entryway into the ‘wild exotic’ for those wishing to escape the city.

Slowly discovering the context of the site by uncovering the layers of history still visible in the landscape allow for a more powerful and memorable experience. As the visitor approaches the site by following the remnants of an old mill race, he/she may continue the path of discovery with on-site signage. This provides a transition from modern city life into early American history via a gradual and unique approach.

This map focuses on the demise of the small industrial village of RittenhouseTown through industrialization, expansion and development. In essence, what brought the first paper mill to America was also the reason for its death, industrialization. Christen Boyer states, “The issue of sustainability with respect to the conservation of the built environment lies with the art of memory. The sites and images of a city and the tourist routes that engender remembering ought to be associated with invention in the sense of “discovery” or creative thinking, not merely the reiteration of previously stored material.”[iii]

Research for this project was conducted at the Germantown Historical Society. A guided walk led by Mr. Charles Parsons, president of the Monoshone Watershed Association, denoted the path, as well as verification of the landmarks along the creek. Together, information was compiled accurately to depict the features which would be expanded upon for the map. A 1990 Fairmount Park survey map was chosen as the base map due to its topographical features. Historical photographs were then inserted and a design concept synthesized for a self-guided walk. Ideally, this map will be placed at the Tulpehocken train station, Historic RittenhouseTown, and uploaded to the HRT website for visitors to print and bring with them on their journey to Historic RittenhouseTown.

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[i] Low, Setha. M. "Social Sustainability: People, History, and Values" in *Managing Change: Sustainable Approaches to the Conservation of the Built Environment*. (Los Angeles: Getty Conservation Institute; 2003) 47 – 64.

[ii] Low, Setha. "Social Sustainability."

[iii] Boyer, M. Christine. "Sustainability and the City" in *Managing Change: Sustainable Approaches to the Conservation of the Built Environment*. (Los Angeles: Getty Conservation Institute; 2003) 65–78.

Ruins Along the Monoshone Creek

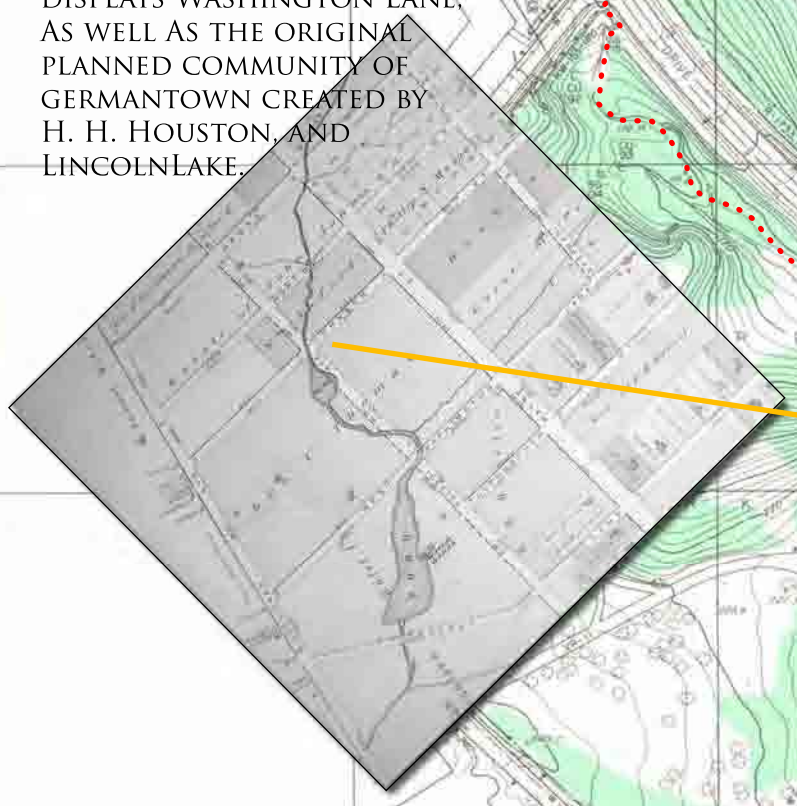
The Metamorphosis of a Landscape

1 Germantown Water Works & Tulpehocken Train Station

Tulpehocken street, named in honor of a Lenape Indian Chief, was the site of the Germantown water works established in 1851 (pump & pipe pictured above). The tulpehocken train station was built ca. 1880 by architect W. B. Powell. As an expansion of the Pennsylvania Railroad, this commuter train would serve the first suburb in America, running between Center City and Germantown.

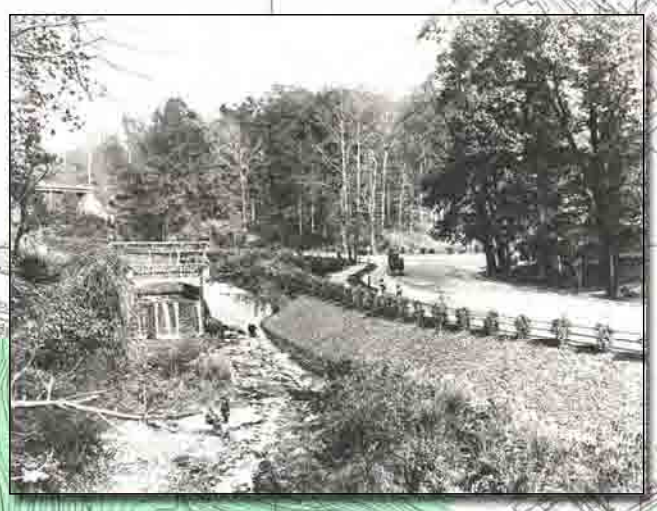
2 Washington Lane

This bridge designates the original Washington Lane, where horses and carriages crossed the monoshone. The C.M. hopkins map of 1871 displays Washington Lane, As well As the original planned community of germantown created by H. H. Houston, and LincolnLake.



3 Lincoln Lake

Now a recessed feature in the landscape, this lake once provided 14,000 gallons of fresh water to Germantown residents. Upon the incorporation of the Water Works into the City of Philadelphia, the obsolete reservoir became a lake for recreation and enjoyment. The damns along the Monoshone Creek once provided power for the mills in the valley, forming pools which would accumulate water sending force when opened. Gradually these features were transformed into pools and pleasure gardens upon the expansion of Fairmount Park.



5 Houston Ramble

The Houston Ramble was a designed landscape for visitors to experience the outdoors. As an entry way into the park, this area encompassed waterfalls and pools formed by the damning of the creek, pergolas which traversed the Monoshone, winding pathways and thick forests with scenic resting points. This area of land was donated, along with the designs for the landscape, by the Houston family. The visible features include the stone walls and footprints for pergolas, as well as the waterfalls.

4 Pergola over the Monoshone

Pergolas were built to transverse the Monoshone Creek throughout the Houston Ramble. The bridges were draped in Wisteria, providing a scenic and romantic view of nature. Cascading waterfalls accompanied these picturesque settings.

7 Historic RittenhouseTown

Historic RittenhouseTown is accessed by the remnants of a mill race, the scar of a buried stream embedded into the landscape. This water way supplied power to a once thriving industrial village for the production of paper, cotton, and grist starting in 1691. By 1871, the mills ceased operation, and Fairmount Park acquired had the land. Most buildings were demolished for the construction of Lincoln Drive and the expansion of the park. America's first paper mill was nearly erased from history.

6 Rittenhouse Street

Rittenhouse Street was the original road leading into the Rittenhouse mill. Gradually, with industrialization and expansion, the street became a bustling thoroughfare.

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