Chapter 6 - Treatment Plan

Introduction

This chapter presents the treatment plan for the preservation, repair, and stewardship of the archeological landscape of Hopewell Culture National Historical Park. An evaluation of alternatives by NPS staff was conducted during a work session in May 2015 and the preferred alternative was refined through a series of work sessions. Alternative 2 was identified as the preferred alternative and represents the NPS preferred management action.

This chapter presents a detailed description and implementation of the preferred alternative (Alternative 2). The narrative and graphics presented in this chapter reflect the desired future condition of the archeological landscape.

The treatment plan emphasizes the Hopewell Culture, revealing the grand scale and monumentality of the Hopewellian constructions, and interpretation of their unique lifestyle. The archeological landscape will be rehabilitated to depict the story of earthwork creation and lifeways of the Hopewell people within their geological and ecosystem context. The treatment plan protects the archeological resources, provides a rich visitor experience, and fosters continued archeological research and investigations. This treatment plan is compatible with the GMP and Long-Range Interpretive Plan.

Treatment Approach

This plan recommends a rehabilitation approach for three of the earthwork complexes: Mound City Group, Hopewell Mound Group, and Seip Earthworks, and a preservation approach for Hopeton Earthworks and High Bank Works. This approach provides for the long-term management of the archeological landscape and focuses on preserving and protecting contributing features while providing a holistic visitor experience.

Rehabilitation and preservation are the appropriate treatment approaches for the Hopewell Culture NHP. The park has a long period of significance, has undergone few modifications, and has integrity in location, setting, materials, workmanship, feeling, and associations. A rehabilitation approach allows new additions which range from visitor orientation to trails, to marking or rehabilitation of select archeological features. Actions allowed under rehabilitation include stabilization, preservation, and repair. The visitor experience suffers from the fact that most of the mounds and earthworks are very difficult to see today because of plowing and other surface impacts. Rehabilitation permits a variety of treatments that can serve to make the primary resources more visible and enhance visitor experience.

Although rehabilitation is the overall treatment approach, the application of the treatment is individualized based on the specific characteristics of the earthwork complex. At all park units, extant below- and above-grade archeological features will be preserved.

At Mound City Group, previously reconstructed mounds will be preserved and previously unreconstructed mounds and borrow pits have the opportunity to be

marked and rehabilitated. The treatment of Mound City Group maintains this park unit as the main visitor orientation area, however non-contributing features such as the visitor center, and administrative and maintenance buildings will be removed from the immediate setting. This will focus visitor attention and respect towards the earthwork complex. Circulation routes will echo the spatial organization of the earthwork complex, and views to adjacent properties will be screened, focusing the experience inward.

Preservation at Hopeton Earthworks focuses on the protection of extant resources and allows the park unit to be a focus for archeological research. The desired outcome for the landscape is for the entire earthwork complex and adjacent setting to be protected and preserved. This includes acquisition of adjacent properties that are negatively impacting archeological resources and distract from the setting, and reinterpreting the area as a Hopewell ceremonial site. The park unit will become accessible to visitors, with a new parking area and trails that allow for understanding of the earthworks.

At Hopewell Mound Group, rehabilitation emphasizes revealing the spatial qualities of the Great Enclosure. Existing large scale intrusions, including utilities, structures, and other non-contributing features that do not reflect the Hopewellian earthwork complex will be removed and/or relocated. Archeological features will be potentially marked to increase visibility and new visitor trails will further emphasize the monumental earthwork complex.

Rehabilitation at Seip Earthworks includes preservation of previously reconstructed archeological features, and allowing for marking of features that are not currently visible. The full extent of the earthwork complex will be preserved, which includes property acquisition, and removal of the current visitor parking area, and non-contributing features that have been constructed on top of, or close to archeological features. A new visitor parking area will be located on an adjacent property, with pedestrian routes allowing for exploration of the earthwork complex.

Preservation is the treatment approach at High Bank Works, and focuses on protection of the entire earthwork complex. This will require acquisition of private inholdings, particularly at the Parallel Walls. High Bank Works will be a focus for archeological research, while also allowing visitor access. Pedestrian routes will connect across the earthwork complex, and interpretation will focus on the construction of the archeological features and their astronomical alignments.

Study Area

The treatment recommendations for the study area guide the preservation and rehabilitation of the archeological landscape of Hopewell Culture NHP. These recommendations offer guidance for the park holistically with measures for preserving extant features and qualities, and methods for rehabilitating contributing features associated with the study area as a whole.

Treatment recommendations for the study area are presented for six landscape characteristics: Natural Systems and Features, Spatial Organization/Topography/Views, Land Use, Archeological Features, Circulation, and Vegetation.

Natural Systems and Features

Treatment recommendations for natural systems and features include preserving and protecting the native ecology of rivers, streams, plants, and wildlife.

1. Preserve extant native vegetation and wildlife habitat.

2. Protect riparian corridors of the Scioto River, Paint Creek, and North Fork Paint Creek. Maintain and repair riparian vegetation, and mitigate damage from erosion, pollution, and invasive species.

3. Work with adjacent land owners and local and regional partners to protect areas of important natural vegetation and views of the Appalachian Plateau foothills.

4. Integrate and interpret the Scioto River valley and natural systems as part of the visitor experience.

Spatial Organization/Topography/Views

Treatment recommendations for the study area for the spatial organization focus on reestablishing the connection between the earthwork complexes to the river and hills largely by establishing views between these features.

The other focus is for the individual earthwork complexes to be perceived as their original discrete spaces, separate from visitor or administrative and maintenance areas. The form, alignment and relationships between archeological features of each earthwork complex will be reestablished.

1. Reestablish spatial connections between the earthwork complexes and their adjacent waterways by reestablishing views and by adding trails.

2. Preserve natural topography created by river morphology to the greatest extent possible. Work with local agencies and partners on river management.

3. Locate new facilities to not interfere with the spatial organization of the earthwork complexes.

4. Reestablish wooded areas along banks of waterways and at the edges of the earthwork complexes. Wooded edges will serve as a screen for adjacent development. Buffer zones are needed to protect the setting, and are important for establishing and maintaining World Heritage Site status.

5. Spatially depict each earthwork complex to express the original mass, form, and scale of the original spaces. Rehabilitate the spatial orientation between each earthwork complex and the surrounding

natural landscape to reflect the original relationships between earthwork complexes to rivers and hills. Work with adjacent land owners to protect views and provide visual buffers of adjacent development.

Land Use

Treatment recommendations for land use include protection of property where earthwork complexes are known to occur, and protection of adjacent areas that enrich the cultural landscape setting. Partnerships and land trusts will be established in order to preserve archeological resources and to protect the earthwork setting by establishing buffer zones around the park units. When necessary, the park may explore the acquisition of land outside of legislated boundaries by willing sellers only, following congressional action. Adjacent properties to preserve through partnerships or acquisition include:

- Hopeton Earthworks. The boundary will be expanded to the north and west, to the Scioto River. The NPS will work with adjacent land owners to protect archeological resources and provide visual protection for the earthwork setting. Additional land or easements will be necessary to connect to Mound City Group with a bridge across the Scioto River.

- Hopewell Mound Group. The boundary on the south at will be extended to North Fork Paint Creek. The NPS will work with adjacent land owners to protect these lands or purchase the land from willing sellers in order to protect significant archeological resources and to provide visual protection from future residential development.

- Seip Earthworks. Agreements with adjacent land owners will be explored to protect the whole of the earthwork complex and provide a buffer between the cultural landscape and adjacent development. Landscape buffers are desirable at Paint Creek on the west and south sides, and to the east past Dill Road to the east of Paint Valley High School. From the creek, a northern buffer is needed that will follow U.S. Highway 50 to the edge of the Paint Valley High School property. A cooperative agreement or easement will be needed to provide visitor parking and access to the park unit from the high school property.

- At High Bank Works, agreements with adjacent land owners will be explored in order to protect the entirety of the earthwork. The goal is to join the two discontiguous properties, in order to include the entire earthwork complex and to provide access to the Scioto River. Potential agreements or property acquisition will include land to the west of the Large Circle to the edge of the upper river embankment; the Parallel Walls; and west to the edge of the Scioto River. An easement will be necessary to provide access across the railroad tracks, and to provide access to private land on the lower river terrace.

Archeological Features

The treatment plan provides for the preservation, maintenance, and repair of all archeological features. General recommendations for the treatment of archeological features are presented in this section. The individual earthwork complex descriptions provide more detailed recommendations.

A summary of acceptable treatments is provided as a matrix “TABLE 6-1. Features

Treatment Matrix". The matrix indicates the preferred and optional treatment for each archeological feature, by earthwork complex. "ILLUSTRATION 6-1 Implementation Choices" graphically depicts each treatment choice.

1. Investigations and Research. Further research will continue to be a focus for the study area, which has the potential to reveal a vast amount of information about the Hopewell.

   a. Additional archeological work is needed to elucidate the nature of the occupation of the area and reveal information on the life of early peoples and the creation of the earthwork complexes.

      - Conduct further archeological research to better understand the Hopewell Culture.

      - More research is needed to reveal the daily lifestyle of the Hopewell Culture including regional settlement patterns, rituals, use of earthwork complexes, trade routes, and subsistence, etc. Little is known of early American Indian habitation sites in relationship to the earthwork complexes, and modes of circulation (waterways and overland routes) between earthwork complexes.

   b. Undertake measures to identify and preserve areas of potential archeological significance. Archeological investigation will be an on-going process, and the scope of archeological work will be expanded.

   c. Additional archeological research, investigations, and magnetic surveys are needed to locate undocumented archeological resources, especially for portions of earthwork complexes that remain on private property.

   d. Additional archeological studies are needed to confirm the accuracy of reconstructions.

      - Additional research, investigations, and surveys are needed to confirm material reconstructions and to better understand the construction methodology of the Hopewellian earthwork complexes. Reconstructions of mounds and earthen walls may not have been built with materials that match the original materials in the original compositions.

   e. Radiocarbon dating, pollen and phytolith analysis, soil micromorphological analysis, etc. may reveal historic vegetation patterns.

   f. Undertake archeological investigations for any proposed improvements that could impact above- or below-grade archeological resources in advance of any work. Integrate archeological investigations with any and all construction activities.

      - Include archeological monitoring when undertaking improvements (including trail construction) to identify potential archeological resources.

      - Excavation of any type within Hopewell Culture NHP will occur only with consultation with the park archeologist and the Midwest Archeological Center.

2. Best Practices - Preservation of Features. The vision for the archeological features

TABLE 6-1. Features Treatment Matrix

	Choice A	Choice B	Choice C	Choice D
Mound City Group				
Previously Reconstructed Mounds (Mounds 1 through 23)	**P**	O	N/A	N/A
Mounds X1 & X2; 24 & 25	O	O	**P**	N/A
Enclosure (interior space)	**P**	O	N/A	N/A
Enclosure Walls	**P**	O	N/A	N/A
Borrow pits	**P**	O	N/A	N/A
Large Mounds (1, 2, 3, 4, 5, 7, 8, 18)	O	O	N/A	**P**
Hopeton Earthworks				
Great Circle	O	**P**	N/A	N/A
Square Enclosure	O	**P**	N/A	N/A
Parallel Walls	O	**P**	N/A	N/A
Circle A	O	**P**	N/A	N/A
Circle B	O	**P**	N/A	N/A
Circle C	O	**P**	N/A	N/A
Mounds (3)	O	**P**	N/A	N/A
Borrow pits	O	**P**	N/A	N/A
Enclosure Interiors	O	**P**	N/A	N/A
Hopewell Mound Group				
Great Enclosure	O	O	**P**	N/A
Square Enclosure	O	O	**P**	N/A
D-shaped Enclosure	O	O	**P**	N/A
Great Circle	O	O	**P**	N/A
Mounds (5 verified)	O	O	**P**	N/A
Mounds (33 unverified)	O	**P**	O	N/A
Ditches	O	**P**	O	N/A
Enclosure Interiors	O	**P**	N/A	N/A

P = Preferred
O = Optional

	Choice A	Choice B	Choice C	Choice D
Seip Earthworks				
Large Circle	O	O	**P**	N/A
Seip-Pricer Mound	O	O	N/A	**P**
Seip Conjoined Mound*	O	O	N/A	**P**
Small Circle	O	O	**P**	N/A
Large Square	O	O	**P**	N/A
Borrow pits	O	**P**	O	N/A
Enclosure Interiors	O	**P**	N/A	N/A
High Bank Works				
Great Circle	**P**	O	N/A	N/A
Octagon	**P**	O	N/A	N/A
Parallel Walls	**P**	O	N/A	N/A
South Earthwork	**P**	O	N/A	N/A
Borrow pits	**P**	O	N/A	N/A
Enclosure Interiors	**P**	O	N/A	N/A

P = Preferred
O = Optional
*Optional: consider rehabilitating the feature if adequate documentation exists and if it assists in protecting resources and improving visitor experience.

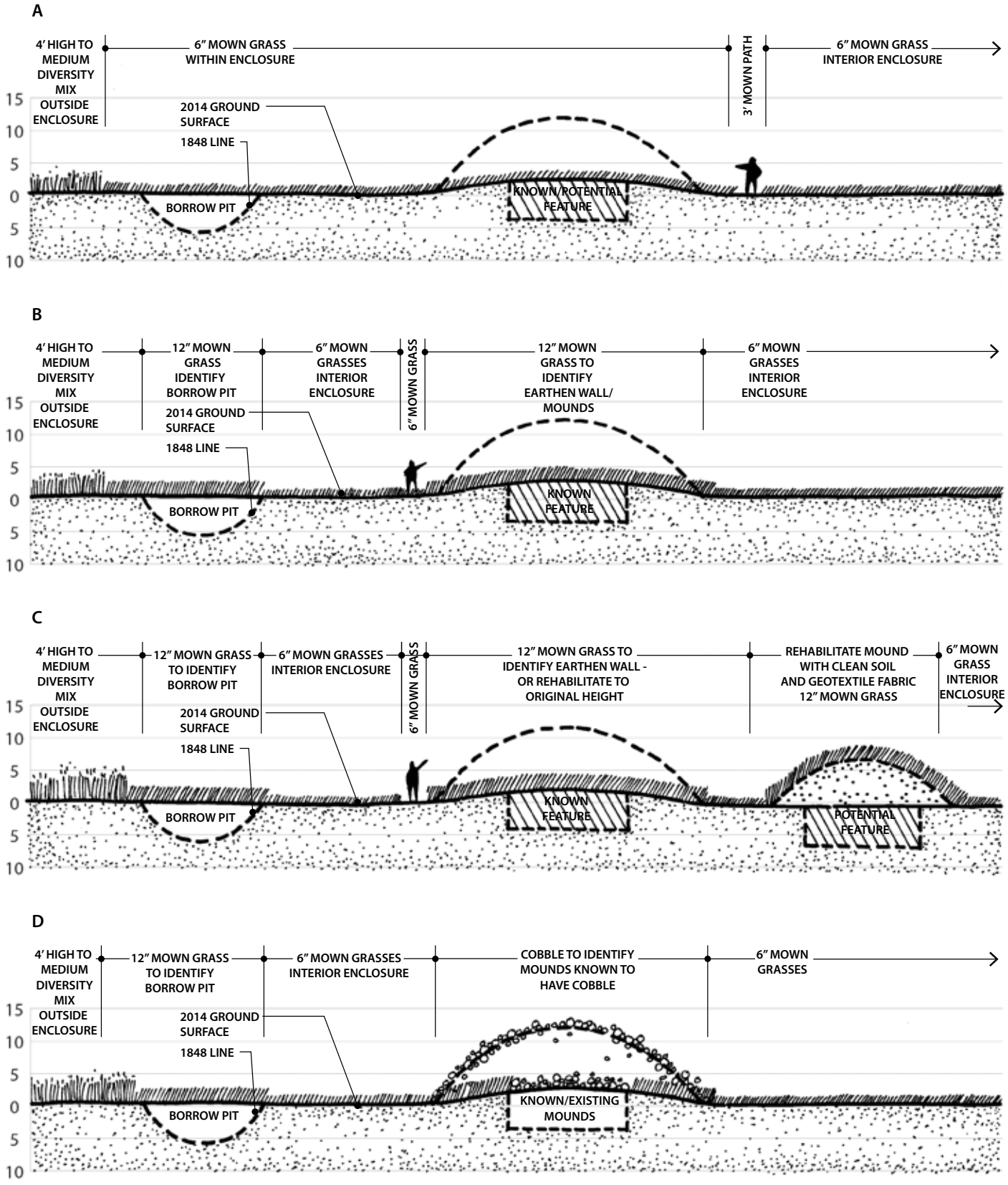

ILLUSTRATION 6-1 Implementation Choices

is preservation of all extant archeological features. Using best practices, the earthwork complexes will be cleared of any woody vegetation and repaired as necessary. Generally, visitor access will not be allowed on the earthwork complexes.

a. Preserve all extant below- and above-grade archeological features. Stabilize and repair archeological features as needed.

   - Repair scars with clean, artifact and weed-free fill dirt.

   - Use a barrier fabric to separate potential archeological artifacts and fill.

b. Remove undergrowth and trees on archeological features, taking measures to preserve the below- and above-grade features.

   - Cut trees and undergrowth. Do not forcibly remove roots as this might damage below-grade archeological features.

   - Maintain earthwork complexes free of trees and shrubs.

c. Protect archeological features from erosion. Control stormwater runoff and reduce sediment within borrow pits.

d. Protect archeological features from animal burrowing, repairing damage as necessary.

e. Remove non-contributing features from the earthwork complexes.

f. Monitor stream banks of the Scioto River, Paint Creek, and the North Fork Paint Creek for erosion that threatens archeological resources, and stabilize as necessary.

3. Rehabilitation of Archeological Spaces. Rehabilitate archeological spaces to reveal their mass, form and scale.

a. Discontinue cultivation in the archeological landscape.

b. Use a low growing grass mix (<6 to 12 inches in height) across the entire archeological space to create a consistent cover. Maintain this grass mix by mowing several times per season. The aesthetic should be an open space of mown grasses at differing heights, that assists in the visibility of the earthworks.

   - Use a taller grass / herbaceous mix at the edges of the earthwork complexes to distinguish these from the surrounding landscape.

c. Preserve areas of archeological scatter.

   - Discontinue cultivation in areas of known or potential archeological scatter.

   - Use a grass / herbaceous mix as a consistent groundcover in these areas, mown a few times per year.

   - If archeological investigations are imminent, either mow the grass / herbaceous mix more frequently to maintain a lower cover, or plant the area with a low grass mixture and mow more frequently.

4. Rehabilitation of Archeological Features. In some locations, rehabilitation of archeological features is recommended. This may include creating three-dimensional depictions using new soil or a cobble cover, or the use of vegetation.

   a. Rehabilitation of archeological features may only be considered at such time as adequate documentation is available to ensure authenticity. This may include magnetic surveys or other non-invasive methods to accurately locate features, and/or archeological excavations to verify dimensions, materials, etc.

   b. Potential markings or rehabilitation techniques must be further researched to fully understand potential impacts on below-grade archeological features.

   c. The marking / rehabilitation illustrated and described herein shows the maximum extent of change considered appropriate. The implementation of these recommendations may be applied in a gradual approach that may or may not result in application of the full extent of the recommendations.

   d. With adequate documentation, rehabilitate archeological features using these techniques (ILLUSTRATION 6-1).

Vegetation
Use vegetation to depict, mass, scale, and form of features.

- Choice A: Use a grass mix for the archeological features and archeological spaces maintained at a low height (< 6 inches). At the edge of the space (typically an earthen wall) begin plantings of taller grasses and herbaceous species to delineate the mass and scale of the earthwork complex.

- Choice B: Use a low growing grass mix (6 -12 inches height), allowing the grass to grow taller on mounds, earthen walls, and borrow pits than in surrounding archeological areas.

Earthen Markings
Rehabilitate archeological features that are not visible above-grade by creating a new earthen feature.

- Use clean, artifact and weed free fill dirt, separated by a barrier fabric to distinguish new material from old.

- Base the form, height and mass of the rehabilitation on current scholarship.

- Plant new archeological features with a grass species to match adjacent features.

Cobble Markings/ Cobble Cover
Rehabilitate select mounds with a stone cobble cover, as existed during the period of significance.

- Cover visible mounds with a new cobble layer (< 12-inches), to indicate the edges and three-dimensional form of the mound.

Circulation

Treatment recommendations for the study area circulation emphasize improved connections and wayfinding between the park units, and encouraging alternative transportation.

1. Vehicular Circulation. The vehicular circulation system within the study area will remain similar to the existing system. Modifications will include relocation of visitor and administration and maintenance facilities, requiring vehicular circulation to be relocated as well.

2. Pedestrian Circulation. Pedestrian connections are needed to link the earthwork complexes and to interpret overland and waterway routes that may have been used by the Hopewell people.

    a. An interconnected water route will be created to connect the park units, and an enhanced trail network will provide better pedestrian and bicycle access (overland routes).[6-1]

    b. Re-connect the earthwork complexes to the rivers and streams by creating an interconnected water route between all park units. This will include making river courses accessible by canoe and kayak access at select locations.

    c. Work with Ross County Park District and partners in their efforts to establish a greenway trail system that links the earthwork complexes. This could tie into the Tri-County Trail System. NPS will add trail connections, bicycle racks, and directional signs.

6-1 NPS, Hopewell NHP General Management Plan, 24.

Figure 3-1. Example of a Cobble Marking, at Fort Ancient Archeological Park, Ohio.

    d. Work with Ross County Park District in their efforts to establish bike paths along roads and along abandoned railways.[6-2]

    e. Work with partners to connect Mound City Group and Hopewell Mound Group with a bike path along state road 104 to the Tri-County Triangle Trail, or a route through the Veterans Affairs medical Center and Pleasant Valley Wildlife Area to the Tri-County Triangle Trail.[6-3]

    f. Coordinate with Ross County Park District, City of Chillicothe, and Ohio Department of Natural Resources to locate, design, and construct canoe launches and access trails at each earthwork complex.[6-4]

    g. Work with the Chillicothe Transit Company to establish a scheduled bus route system to each earthwork complex.[6-5]

6-2 NPS, Hopewell NHP General Management Plan, 26.
6-3 NPS, Hopewell NHP General Management Plan, 26.
6-4 NPS, Hopewell NHP General Management Plan, 26.
6-5 NPS, Hopewell NHP General Management Plan, 26.

h. Within each earthwork complex, the pedestrian circulation system will be improved by adding routes that allow for understanding of the earthworks.

Vegetation

Treatment recommendations for the study area are to manage vegetation to preserve the earthwork complexes, to distinguish visitor, administration, and maintenance facilities from the earthwork complexes, and to retain and manage native vegetation along waterways and in areas outside archeologically sensitive areas.

1. Vegetation types and management techniques will be used to preserve the archeological landscape, assist in framing views, and to screen adjacent land uses.

   a. Discontinue agricultural cultivation within archeological landscapes. This practice has degraded archeological features over time, leaving many features indiscernible.

   b. Remove dead and dying trees within the enclosures. Plant new trees for visitor shade only after archaeological research is completed to demonstrate these will not adversely impact archaeological resources. New plantings should be minimal so they do not interfere with the spatial organization of the earthwork complex.

   c. Test and evaluate machinery used for landscape management to ensure maintenance practices will not impact archeological features.

   d. Burning would be allowed as a vegetation management tool after sufficient research is completed to demonstrate that archeological resources or archeological research including geophysical surveys would not be negatively impacted.

   e. Vegetation within the earthwork complexes will be low (3" to 12") and periodically mown. Tall grasses (greater than 12") create habitat for destructive burrowing animals such as groundhogs, and make it difficult to monitor archeological landscapes for the presence of destructive burrowing animals.

      - In areas inside the earthwork complex where frequent mowing will take place, there is little point in seeding plant species with wildlife benefit. Here the best choice should center on sustainability, drought tolerance (especially considering the expectation of summers getting hotter and drier) and durability to foot traffic and mowing equipment. Consider a low-maintenance turf mix that is naturally short and slow-growing and requires less-frequent mowing, such as a mix that contains several cultivars of fescue.[6-6]

   f. Avoid tall grasses and shrubs within the earthworks, which limit access for archeological research, especially the new generation of large-scale geophysical survey instruments, which require low, mown vegetation for data collection.

   g. Remove heavy brush and woody vegetation from archeological features, as this may be damaging resources.

6-6 Personal communication, Dafna Reiner, Hopewell Culture NHP Biologist; 5/23/2015.

h. Some large trees may be retained or planted for visitor shade within the earthwork area after sufficient archaeological research is completed to demonstrate these will not adversely impact archaeological resources.

i. Remove vegetation for safety reasons, such as hazardous trees, and to eradicate invasive exotic species, in a manner that protects archeological resources.

j. Add vegetation to assist in distinguishing archeological features from non-features. Use vegetation to reveal mounds, walls, and borrow pits.

k. Maintain a distinct vegetation type on archeological features that is different from that used in visitor and administrative areas.

2. Maintain a mix of native herbaceous species, mown 1 to 2 times per year, in areas outside and adjacent to the earthwork complex.

   - Refer to six seed mixes that are researched, documented, and proven.[6-7] Choose management techniques that will favor native biodiversity.

   - Choose management techniques that will favor native biodiversity."

6-7 Personal communication, Dafna Reiner, Hopewell Culture NHP Biologist; 5/23/2015. See, Stubbendiek, James and Cheryl D. Dunn. *Hopewell Culture National Historical Park: Review of the Literature on the Influence of Roots on Archeological Features and Vegetation Restoration Recommendations*. (Lincoln: University of Nebraska, 2011).

3. Manage the woodland vegetation surrounding the earthwork complex. Maintain a healthy tree cover, free of invasive, exotic species.

4. Manage the vegetation associated with the waterways to preserve the native riparian vegetation along the river terraces.

Small Scale Features

Small scale features will play a minor role and will not distract from the archeological landscape.

1. Further investigation is needed to evaluate into the significance of some small scale features.

   a. Those that are found to be non-contributing and do not serve an active role in interpretation of the earthwork complex will be removed.

2. Any new small scale features will be minimal and unobtrusive.

   a. Design and situate new small scale features such as signs and interpretive panels, to be low-profile and unobtrusive.

3. Improve interpretation of the earthwork complex and cosmology.

4. Use alternative media to provide visitors with access to large amounts of research and documentation of archeological features—keyed to specific locations— to enhance visitors' understanding of the authenticity of the earthwork complexes.

   a. Explore ways to enhance interpretation, including electronic (possibly interactive) representations of what the earthwork complexes may have looked like.

Best Management Practices

The following is a list of best management practices and methodologies for the care of the cultural landscape. The best management practices are derived from current practices for earthworks preservation from the U.S. and abroad, and provide a context for decision making.

General

1. Monitoring archeological sites for damage and condition is essential site management. Maintain a periodic assessment of specific management issues and the general state and conditions of the archeological site.

    a. Monitoring methods include visual assessment; qualitative scoring (good, fair, poor condition); fixed position photography (annual, bi-annual)

    b. Inspect mounds periodically for signs of erosion, illegal tampering, or other damage.

2. Protect earthworks from erosion by preventing erosion scars. As soon as erosion develops, any scars need to be dressed with soil and re-seeded.

3. Ensure positive drainage away from archeological resources. The land drainage system should prevent surface waterlogging and the silting up of features. Standing water can damage features below-grade.

4. Any new utilities should be located away from the archeological sites. Irrigation lines should not be installed within any archaeological site.

5. Signs, barriers, fences, etc. should be movable (i.e., should not extend into the ground which would disturb below-grade features). Place fences way from archeological sites. Fence posts, signs, utility poles, etc should not be placed in or on archeological features.

6. Exterminate wildlife burrowing into, or adjacent to, know archaeological features; block up burrow entrances.

7. For erosion control, revet with sandbags, boarding or geotextile fabric while re-establishing groundcover.[6-8]

Repair and Reconstruction

1. The Wisconsin Department of Natural Resources recommends the following for mound site repairs and restoration.[6-9] Before proceeding, restoration requires extensive consultation. A general recommended procedure includes the following steps:

    a. Record the nature and extent of damage and current mound condition;

    b. Remove leaf litter from the damaged area;

    c. Lay geotextile fabric on the ground surface in the area of damage;

    d. Use hand tools to place new artifact-free soil from an off-site location on the fabric to replace missing soil. Compact new soil by hand to match the contour of the existing mound or wall;

6-8 Hadrian's Wall World Heritage Site, UK

6-9 Wisconsin Department of Natural Resources, "Burials, Earthworks, and Mounds Preservation Policy and Plan;" Wisconsin Department of Natural Resources, "Woody Invasive Vegetation Removal and Site Restoration," Aztalan State Park, August 7, 2013; and Effigy Mounds National Monument Cultural Landscape Report.

e. Soil should be obtained from an area well away from the mounds or other archeological site;

f. Do not apply chalk or lime to the ground surface to outline mounds or mound damage. Do not place contemporary objects within new soil.

2. Repair of earthworks due to animal damage, per UK recommendations.[6-10]

a. Block animal burrows with turf, earth, sand, or gravel;

b. Remove animal burrows by raking or harrowing, then reestablish vegetative cover.

3. After removal of a tree from an archeological feature, flush cut or mechanically grind the remaining portion of the trunk and stump to grade. As needed, regrade the area with soil that matches the parent soil as closely as possible in texture and composition. Use a manual tamper to gently compact the soil in the hole. Apply desired seed mix, a tackifier, fiber-mulch and, if needed a natural organic fertilizer, to enhance post germination growth. Use a fertilizer with a low salt index to minimize adverse effects on archeological resources. In areas subject to erosion, lay an erosion control blanket, made of natural materials so that it will decompose, over the disturbed site. Tack the material in place to prevent it from being shifted.[6-11]

4. If there has been damage due to falling limbs, or other occurrences that have created holes or depressions in the earthwork, cover the impact depression on the earthwork with a 2" layer of sand. The sand will serve as a tracer layer, similar to that used adjacent to underground utilities, to inform future excavations that there was ground disturbance at that depth. Fill the remaining portion of the depression with soil that matches the parent soil as closely as possible in texture and composition (texture, % sand/silt/clay, % organic matter, fertility, etc.). Use a manual tamper to gently compact the soil into the depression.[6-12]

Circulation

1. Vehicles should not be driven onto mounds or burial sites. Walking on mounds should be avoided, and trails, roads, and paths should clearly visible and situated to avoid mound or burial sites.

2. Create a single permanent route, rather than many routes.[6-13] Conversely, utilize movable interpretation panels that allow routes to alter in order to reduce wear and erosion.[6-14]

3. Do not drive vehicles across archeological sites in wet weather.

4. Minimize walking on all earthworks, as a preservation issue as well as respect for the builders and the Hopewell people.[6-15]

6-10 Hadrian's Wall World Heritage Site, UK

6-11 NPS, How to Preserve Earthworks, Case Studies for Emergency Stabilization: http://www.nps.gov/tps/how-to-preserve/currents/earthworks/case_studies.htm

6-12 NPS, How to Preserve Earthworks, Case Studies for Emergency Stabilization: http://www.nps.gov/tps/how-to-preserve/currents/earthworks/case_studies.htm

6-13 Farming the Historic Landscape, Caring for Archaeological Sites in Grassland, English Heritage, UK: 2004

6-14 Hadrian's Wall World Heritage Site, UK

6-15 Ohio Historical Society recommendations, Newark Earthworks State Memorial

5. At Wisconsin State Parks (numerous effigy and burial mounds including Aztalan State Park), trails are located a minimum of 5' from the base of the mound or mound group. A trail does not need to be built to provide access to every mound in a group. Wood chips, shredded bark, or mowing are used for trail maintenance.

Vegetation

Establishing vegetation / Seed mixes. Choose management techniques that will favor native biodiversity. Newly acquired agricultural fields should be planted in tall native grassland vegetation, favoring high biodiversity mixes where appropriate in light of considerations including long-term maintenance and weed pressure. Mounds and earthworks at other archeological sites in the U.S. are typically planted with a combination of natural and planted grasses, which are mown periodically or burned.[6-16]

1. There are three maintenance regimes that can be followed. Mowing is by far the most popular, with prescribed burning being an option where native grasses are dominant and the surrounding community allows it, or grazing, which has been successfully used in Europe but has not been a technique adopted in the United States.[6-17]

    a. The most popular management strategy for interpreted earthworks is a grass or herbaceous cover that is free of woody species. Well-protected earthworks found with this cover exhibit a healthy, continuous carpet of grasses and herbaceous plants. Bare spots, gouges from careless maintenance practices, animal burrows, and invasive exotic vegetation, which potentially threaten earthworks, should be avoided.[6-18]

2. Establishing grassland. It is desirable to select a cover seed mix in which natives dominate. Refer to six seed mixes that are researched, documented, and proven.[6-19]

    a. When re-seeding grassland, use minimal cultivation techniques, such as hydroseeding, slit seeding, direct drilling, sodding, and hand-seeding.[6-20]

    b. In areas inside the earthwork complex where frequent mowing will take place, there is little point in seeding plant species with wildlife benefit. Here the best choice should center on sustainability, drought tolerance (especially considering the expectation of summers getting hotter and drier) and durability to foot traffic and mowing equipment. Consider a low-maintenance turf mix that is naturally short and slow-growing and requires less-frequent mowing, such as a mix that contains several cultivars of fescue.[6-21]

    c. Consult a native plant specialist to determine an appropriate seed mix for the area and the unique cultural requirements of the selected mix, including soil pH, sowing season, appropriate application technique,

6-16 Wisconsin State Parks; Poverty Point, Louisiana; Etowah, Georgia; Cahokia, Illinois

6-17 NPS, Sustainable Military Earthworks Management: www.nps.gov/tps/how-to- preserve/currents/earthworks/imp_manage.htm

6-18 Shaun Eyring and Lucy Lawliss editors, Sustainable Military Earthworks Management; NPS Currents, 1998; http://www.nps.gov/tps/how-to-preserve/currents/earthworks/assess.htm

6-19 Personal communication, Dafna Reiner, Hopewell Culture NHP Biologist; 5/23/2015. See, Stubbendiek, James and Cheryl D. Dunn. *Hopewell Culture National Historical Park: Review of the Literature on the Influence of Roots on Archeological Features and Vegetation Restoration Recommendations*. (Lincoln: University of Nebraska, 2011).

6-20 Farming the Historic Landscape, Caring for Archaeological Sites in Grassland, English Heritage, UK: 2004

6-21 Personal communication, Dafna Reiner, Hopewell Culture NHP Biologist; 5/23/2015.

and germination period. Use a higher diversity mix where appropriate. Allow for seed mixes to vary, as scholarship evolves.

3. Weeds.

   a. The desired character of the landscape is as close to a restored grassland as possible. The park should remove invasive, exotic species as identified by the US Department of Agriculture and the Ohio Department of Agriculture.[6-22] Some exotic species are acceptable, maintained at less than 25 % of cover.

   b. Establishing a weed-free seedbed at the initial planting is critical to long-term weed control. More general use of herbicides may be justified at planting and in the first few years to reduce herbicide use over the long term.

   c. Control weeds by topping or targeted use of selected herbicides. Apply herbicides selectively with spot treatments, spraying specific small problem areas, or applying herbicide to individual plants with a wick applicator.

4. Mowing.

   a. Mowing dates have a pronounced effect on the growth of different grasses and affect bird nesting habitat. Mow both cool-season and warm-season grasses in late winter or early spring. Mowing at this time lays down organic mulch in the form of grass clippings, which helps in erosion control. Do not mow sites after early to mid-July that are covered predominantly by native warm-season grasses or where native grasses are being encouraged. This permits full development of the leaves and flowering stalks followed by seed maturation, which typically occurs in October.

   b. In general, when native grasses are the desired dominant species on earthworks, allow the grass to grow at least ten to twelve inches between mowing and set the minimum mower height at six inches.[6-23]

   c. When earthworks are mown, care should be taken to avoid damage by raising the blade of the mower. Avoid mowing while soil is wet, and use a hand mower or low impact tires if possible.[6-24]

   d. Test and evaluate machinery used for landscape management to ensure maintenance practices will not impact archeological features.

   e. Vegetation outside of the earthworks should be mown once to three times per year after November 1st, determined by the degree of weeds and woody vegetation. Mow only one third to one half every year thereafter, depending on invasion level of woody species. Define areas to be mowed each cycle based on the spatial organization/topography/

6-22 United States Department of Agriculture, "Federal Noxious Weeds," (USDA: Natural Resources Conservation Service, 2012); and United States Department of Agriculture, "Ohio State-listed Noxious Weeds," (USDA: Natural Resources Conservation Service, 2003).

6-23 Shaun Eyring and Lucy Lawliss editors, Sustainable Military Earthworks Management; NPS Currents, 1998; http://www.nps.gov/tps/how-to-preserve/currents/earthworks/assess.htm

6-24 Management Recommendations for Burial Sites, Iowa Office of the State Archaeologist

views of the cultural landscape, with a view toward preserving archeological features and enhancing visitor experience.

f. Burning would be allowed as a vegetation management tool after sufficient research is completed to demonstrate that archeological resources or archeological research including geophysical surveys would not be negatively impacted.

a. Ideal prescribed burning occurs in March before most bird nesting activity and before peak activity of herpetofauna, however, some mortality is possible. Early Spring burning can also adversely affect insect populations by destroying over-wintering eggs, larvae and pupae of insects. This intensity of this adverse effect is reduced by allowing significant adjacent patches of native grassland to remain unburned.

5. Removal of vegetation. Remove vegetation for safety reasons, such as hazardous trees, and to eradicate invasive exotic species, in a manner that protects archeological resources. Remove heavy brush and woody vegetation from archeological features, as this may be damaging resources. Avoid tall grasses and shrubs within the earthworks, which limit access for archeological research, especially the new generation of large-scale geophysical survey instruments, which require low, mown vegetation for data collection.

a. Removal of woody vegetation and extensive clearance should be phased.

b. Removal of vegetation should include cutting stumps close to ground level and treating with herbicide to prevent re-growth. Cut material should be disposed of well away from the archeological site.

c. Remove brush from the mounds annually and haul away from the mound area by hand.

d. Where vegetation is to be thinned for creating or maintaining views, minimize cutting to create narrow views through the forest, capturing a glimpse of the view through trunks of the largest trees.

e. Trees threaten resources due to damage by roots, and wind thrown trees can uproot archeological features.

- Many earthwork sites have removed trees from mounds, within the walls of earthen enclosures, as well as the area immediately adjacent (within 15 feet) of mounds and earthwork walls. (examples include Newark Earthworks, Ohio; Poverty Point World Heritage Site, Louisiana; Angel Mounds State Historic Site, Indiana; Toltec Mounds, Arkansas)

- Recommend only removing trees if they pose an imminent threat to the earthworks or if there is an over-riding need to remove the tree for an interpretation, preservation, or access reason.[6-25]

- Trees and brush should be removed from within 8' of a mound or earthen wall. Tree cutting is to be done when the ground is frozen to reduce damage

6-25 Ohio Historical Society recommendations, Newark Earthworks State Memorial

to archeological features. Remove trees from mound by cutting by hand down to 6" below ground level and filling the resulting cavity with clean soil, followed by reseeding. This method requires periodic soil filling as the tree decomposes. Alternately, trees may be cut to the ground level and left to decompose naturally.[6-26]

Restrict the need for irrigation to small areas or rare occasions such as extreme droughts or plant establishment periods.[6-27]

6-26 Management Recommendations for Burial Sites, Iowa Office of the State Archaeologist

6-27 NPS, Georgia Trust for Historic Preservation. Guide to Sustainable Earthworks Management, 90% Draft, 1998

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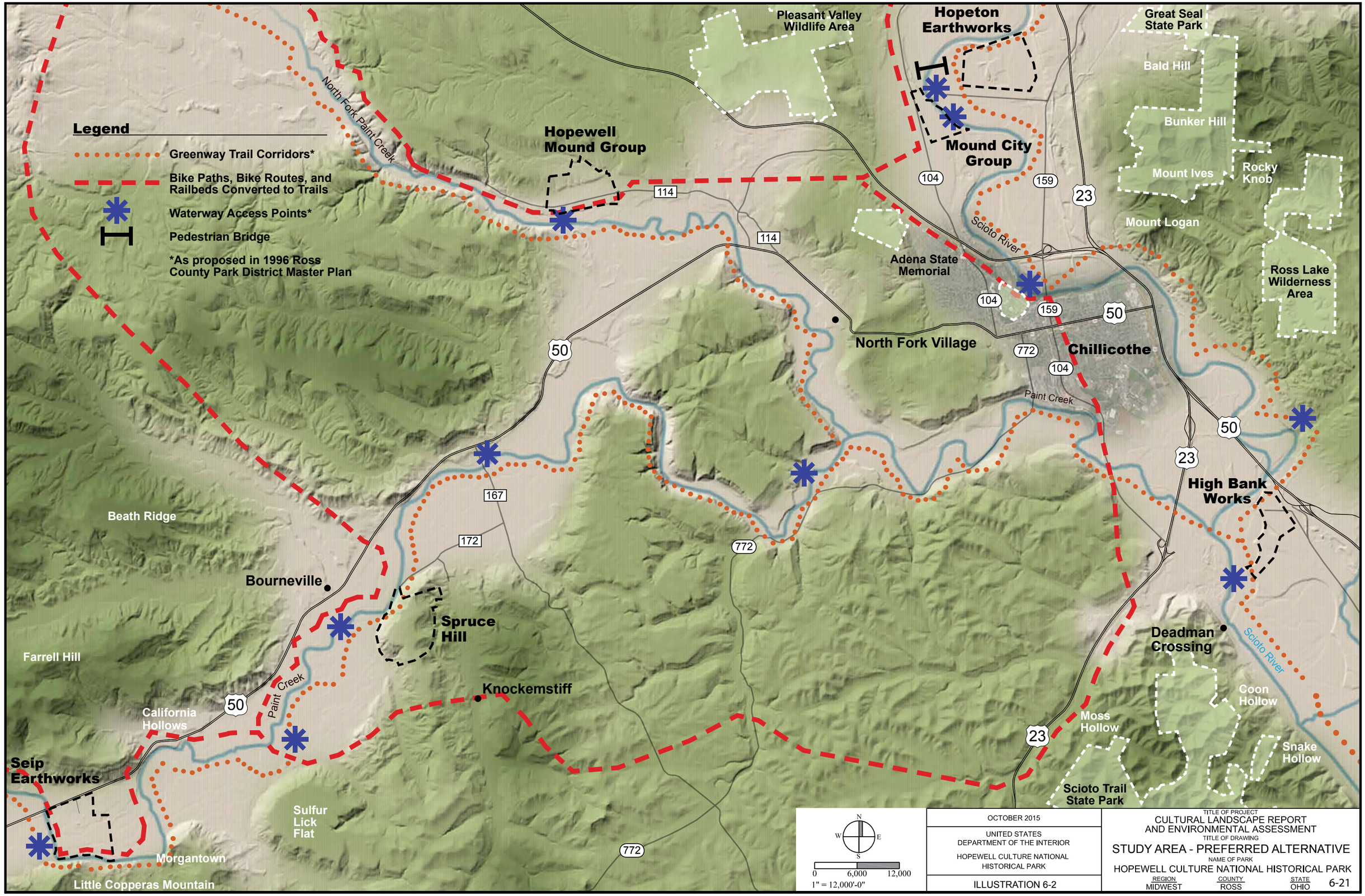
Legend
Greenway Trail Corridors*
Bike Paths, Bike Routes, and Railbeds Converted to Trails
Waterway Access Points*
Pedestrian Bridge
*As proposed in 1996 Ross County Park District Master Plan
Pleasant Valley Wildlife Area
Hopeton Earthworks
Great Seal State Park
Bald Hill
Bunker Hill
Mount Ives
Rocky Knob
Mount Logan
Ross Lake Wilderness Area
Hopewell Mound Group
Mound City Group
North Fork Paint Creek
Scioto River
Adena State Memorial
North Fork Village
Chillicothe
Paint Creek
High Bank Works
Beath Ridge
Bourneville
Spruce Hill
Farrell Hill
Knockemstiff
California Hollows
Seip Earthworks
Sulfur Lick Flat
Morgantown
Little Copperas Mountain
Deadman Crossing
Coon Hollow
Moss Hollow
Snake Hollow
Scioto Trail State Park
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OCTOBER 2015
UNITED STATES DEPARTMENT OF THE INTERIOR
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ILLUSTRATION 6-2
TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
TITLE OF DRAWING
STUDY AREA - PREFERRED ALTERNATIVE
NAME OF PARK
HOPEWELL CULTURE NATIONAL HISTORICAL PARK
REGION MIDWEST
COUNTY ROSS
STATE OHIO
6-21

Mound City Group

The treatment plan for Mound City Group emphasizes the interpretation of Hopewell ceremonialism. The archeological landscape will be rehabilitated to focus visitor experience on the creation and use of the mounds. This will be accomplished through preservation of the reconstructed mounds and earthen walls, delineation of previously unreconstructed mounds, improvements in circulation routes, removal of damaging vegetation, and separation between the visitor orientation area and the ceremonial landscape. In accordance with the GMP, Mound City Group will be the mostly highly developed, and will function as a central point for park orientation and interpretation.[6-28]

Rehabilitation is the treatment approach for Mound City Group. This approach allows for repair, alterations, and additions while preserving those features which convey its historic and cultural significance.

Treatment goals for Mound City Group include the following:

- Preserve extant above-grade archeological features.
- Spatially depict the three-dimensional earthwork complex.
- Relocate visitor facilities (building, roads, parking, etc.) away from the earthwork complex.
- Reveal the relationship to the Scioto River and Hopeton Earthworks.
- Remove non-contributing features that impact the archeological landscape.
- Provide an authentic visitor experience.

6-28 *GMP*, 30.

The treatment plan for Mound City Group illustrates the desired landscape condition (ILLUSTRATION 6-3).

Spatial Organization/Topography/Views

The vision for the spatial organization at Mound City Group is for the forms and patterns of the archeological landscape to be visible and viewed without contemporary intrusions.

1. The spatial organization will be strengthened by removal of non-contributing features; removal of vegetation that obscures the earthwork complex and archeological features; marking / rehabilitation of non-extant above-grade mounds and borrow pits; and rerouting pedestrian circulation routes to define the spatial qualities of the earthwork complex.

    a. Complete the spatial depiction of the three-dimensional form of the earthwork complex and surroundings by marking nonvisible archeological features.

    b. Remove hazardous trees and woody vegetation that impact or may impact intact archeological resources.

    c. Remove non-contributing features from the immediate surroundings of the earthwork complex, including the visitor center, park administration, maintenance, parking, roads, utilities, etc. Relocate these facilities either off-site or to less intrusive areas on-site, away from the earthwork complex.

    d. Maintain a consistent vegetation type on the archeological features to distinguish them from visitor and

administrative areas, and adjacent woodlands.

e. Maintain the enclosed space of the earthwork complex by preserving the woodland vegetation surrounding the enclosure wall. The wooded edges will also serve as a screen for adjacent development.

f. Add trees and vegetation between the earthwork complex and the adjacent properties to the west and south to screen the earthwork complex from these uses. Buffer zones are needed to protect the setting, and are important for establishing and maintaining World Heritage Site status. Work with adjacent land owners to provide visual buffers of adjacent development.

g. Create and maintain a view between the overlook and the river, by thinning vegetation along a small portion of the riverbank.

h. Thin vegetation to create a narrow view at the southeast side of the earthwork complex so the Mount Logan Range and the moonrise and solstice sunrise alignments can be observed.

Archeological Features

The treatment plan recommends preservation and rehabilitation of the extant and reconstructed archeological features at Mound City Group.

1. Investigations and Research. Continue investigations and archeological research, including the following research needs.

   a. Identify currently unknown resources at the outlying areas using magnetometry or other non-invasive archeological techniques.

   b. Evaluate features that may be significant in their own right, but that are non-contributing features to the archeological landscape, including Camp Sherman remnants.

2. Best Practices - Preservation of Features. Preserve all extant below- and above-grade archeological features. Stabilize and repair features as necessary, following best practices.

   a. Preserve all extant below- and above-grade archeological features.

   b. Preserve and maintain existing reconstructed mounds and the earthen walls as contributing features.

   c. Stabilize and repair archeological features as needed, following best practices.

   d. Do not allow visitor access on top of the mounds, borrow pits, or earthen walls.

3. Rehabilitation of Archeological Spaces. Rehabilitate archeological spaces to reveal their mass, form and scale. Delineate the earthwork complex by markings or rehabilitating archeological features when no discernible topographical relief occurs in LiDAR imagery or through visual observations.

   a. Depict the archeological space of the earthwork complex through the following techniques. Use a consistent palette of materials.

      - Use one consistent vegetation type and vegetation management

technique to depict the space of the enclosure and earthwork complex. The aesthetic should be an open space of mown grasses at differing heights that assists in the visibility of the earthworks.

- Use a different vegetation management technique for archeological features such as mounds and walls to differentiate between the three-dimensional archeological features and adjacent spaces.

- Use a taller grass / herbaceous mix at the edges of the archeological spaces and in areas of archeological scatter, to distinguish these from the surrounding landscape.

- Differentiate between the earthwork complex and visitor and administrative / maintenance areas by maintaining distinct vegetation types in the two areas. This can be accomplished by planting a mix of grass species that differs in color and texture, or by maintaining grasses at a different height.

4. Rehabilitation of Archeological Features. Rehabilitation of non-extant archeological features is recommended. This may include creating three-dimensional depictions using new soil, a cap of stone cobble, or the use of vegetation.

   a. Rehabilitate non-extant archeological features to depict their mass, form and character, as documented by Squire and Davis in 1846, Brown in 2012 and the 2010 magnetic survey, or based upon most recent archeological investigations.

      - Specific treatment for each archeological feature is provided in ILLUSTRATION 6-3. Cross section examples provided in ILLUSTRATION 6-1 represent examples of applicable rehabilitation techniques.

   b. Use earthen markings to rehabilitate outlines and dimensions of non-extant mounds.

      - Specific features to be rehabilitated include the following.

        — Extra-mural mounds X1 and X2;
        — Mounds #24 and #25.

      - Use a material that differs from the material of the previously reconstructed mounds, to distinguish new material from old.

      - Where discernible topographical relief occurs, only vegetation or non-permanent markings will be used to delineate features.

   c. Use vegetation to delineate outlines and dimensions of borrow pits.

      - Protect intact the reconstructed borrow pits and the northeast borrow pit (not reconstructed). Preserve the northeast borrow pit as is, and provide special visitor interpretation to appreciate an intact, authentic, unreconstructed borrow pit.

      - Reconstruction of the northeast borrow pit would require careful and extensive archeological excavation that should only be excavated after extraordinary justification.

   d. Use a cobble cover to rehabilitate the outlines and dimensions of large, previously-reconstructed mounds.

- Specific features to be rehabilitated with cobble cover include the following.

  — Mounds #1, 2, 3, 4, 5, 7, 8, 18

e. Consider marking other archeological features that were part of the ceremonial landscape. This may include charnel houses or other structures that would have accompanied the mounds. These could be marked with simple techniques as listed previously, or temporary installations that could be set up seasonally or for special events.

Circulation

Mound City Group will continue to serve as a primary visitor orientation facility, however the existing circulation system will be modified to add routes that foster understanding of the archeological features and connections to natural features.

1. Vehicular Circulation. The vehicular circulation system will be modified to reroute vehicular parking and access routes to less intrusive locations.

   a. Remove existing entrance drives, visitor and administrative parking areas and vehicular access routes.

   b. Relocate vehicular routes and parking area outside the earthwork complex and screen from view.

2. Pedestrian Circulation. The existing pedestrian circulation system will remain and be improved by adding routes that assist in defining the spatial qualities of the earthwork complex.

   a. Maintain the existing nature trail, and establish as a universally accessible route.

   b. Add a pedestrian trail from the new visitor center and parking area to the earthwork complex.

   c. Establish a trail to follow the edge of the river terrace, north to south, connecting to the existing nature trail.

   d. Establish a loop trail through the North Forty.

   e. Maintain informal access within the enclosure and through the mounds (i.e., no formal trails).

   f. Maintain existing river walk trail with steps, walls, and overlook at the river edge.

   g. Provide access to the river bank, and create a new kayak / canoe access point along the Scioto River.

   h. Create pedestrian routes between Mound City Group and other park units.

      - Build a pedestrian bridge over the Scioto River and a trail connection to Hopeton Earthworks.

Vegetation

Treatment of vegetation at Mound City Group will focus on preservation of the archeological features. Vegetation will be managed to assist in defining the spatial organization of the earthwork complex, and to frame views and screen adjacent development. Archeological features will be maintained as low, mown vegetation. Vegetation outside the earthwork complex will be managed as tall or woody vegetation.

1. Vegetation management techniques will be used to preserve the archeological features.

    a. Remove trees and woody vegetation that impact archeological features or diminish the earthwork's spatial qualities.

        - Maintain the woody vegetation on the northeast corner of the enclosure wall and Mound #1.

        - Maintain exiting trees within the enclosure. Consider adding trees to the enclosure for shade, provided the new trees will not negatively impact archeological features.

    b. Reintroduce grasses where trees and woody vegetation have been removed.[6-29]

2. Utilize distinct vegetation management techniques to reveal the form and spaces of the earthwork complex.

    a. Use a low growing grass mix (<6 to 12 inches in height) in spaces of the earthwork including the enclosure, mounds, and borrow pits. Archeological features may be managed as tall and less frequently mown (<12 inches in height) to further differentiate.

        - Plant the reconstructed mounds with a low mown vegetation (<6 to 12 inches in height).

        - Plant the reconstructed earthen wall with a low mown vegetation (<6 in height).

        - Plant the reconstructed borrow pits (7) with low mown vegetation (<6 in height).

        - Plant the spaces within the earthen walls with a low mown vegetation (3 to <6 in height).

        - Plant the non-extant mounds (24, 25 X1, X2) with a taller mown vegetation (<12 inches) prior to rehabilitation.

        - Plant the northeast borrow pit with a shorter mown vegetation to assist with visibility.

3. Maintain the North Forty as a mix of native herbaceous species, mown 1 to 2 times per year. Allow for mowing to accommodate planned archeological research.

4. Maintain riparian vegetation along the river edge, and existing woodland vegetation around the earthwork complex.

        - Remove exotic, invasive species as possible in the woodlands, using an integrated pest management plan.

5. Establish wooded edges at key locations and at the property boundaries to screen adjacent development.

    a. Add a screen of trees between the visitor center and the earthwork complex, prior to removal of visitor center.

    b. Add a screen of trees and shrubs at the southern property boundary, to create a buffer between the archeological landscape and adjacent use to the south. Work with adjacent land owners to establish and maintain the screen.

6-29 Stubbendiek, *Review of the Literature on the Influence of Roots*.

c. Work with Ross Correctional Institute to provide a screen of trees and shrubs as a visual buffer on the west side of SR 104.

Buildings and Structures

Mound City Group will continue as a primary visitor orientation facility, however all buildings and structures will be relocated as far from the earthwork complex as possible, in order to protect the setting of the archeological landscape.

1. Evaluate buildings and structures that may be significant in their own right, but that are non-contributing features to the archeological landscape. This includes the Mission 66 Visitor Center and the administration building.

2. Relocate the visitor center, administrative and maintenance facilities off-site or in a location that is less intrusive to the earthwork complex, to be determined.

    a. Remove existing picnic area, including picnic shelter, tables, and corresponding small scale features. Remove the wood framed shelter at the canal lock stones.

    b. Locate any new buildings or structures off-site or a less intrusive location on-site. [6-30]

Small Scale Features

The small scale features at Mound City Group will play a minor role and will not detract from the archeological landscape. Any new small scale features will be minimal and unobtrusive.

1. Further investigation is needed into the significance of some small scale features. Evaluate features that may be significant in their own right, but that are non-contributing features to the archeological landscape, including the CCC/WPA walls and steps.

    a. Remove small scale features that are found to be non-contributing and do not serve an active role in interpretation of the earthwork complex.

2. Maintain small scale features that serve an active role in visitor interpretation or experience of the earthwork complex.

    a. Maintain the WPA/CCC walls at the entrance, and repair as needed.

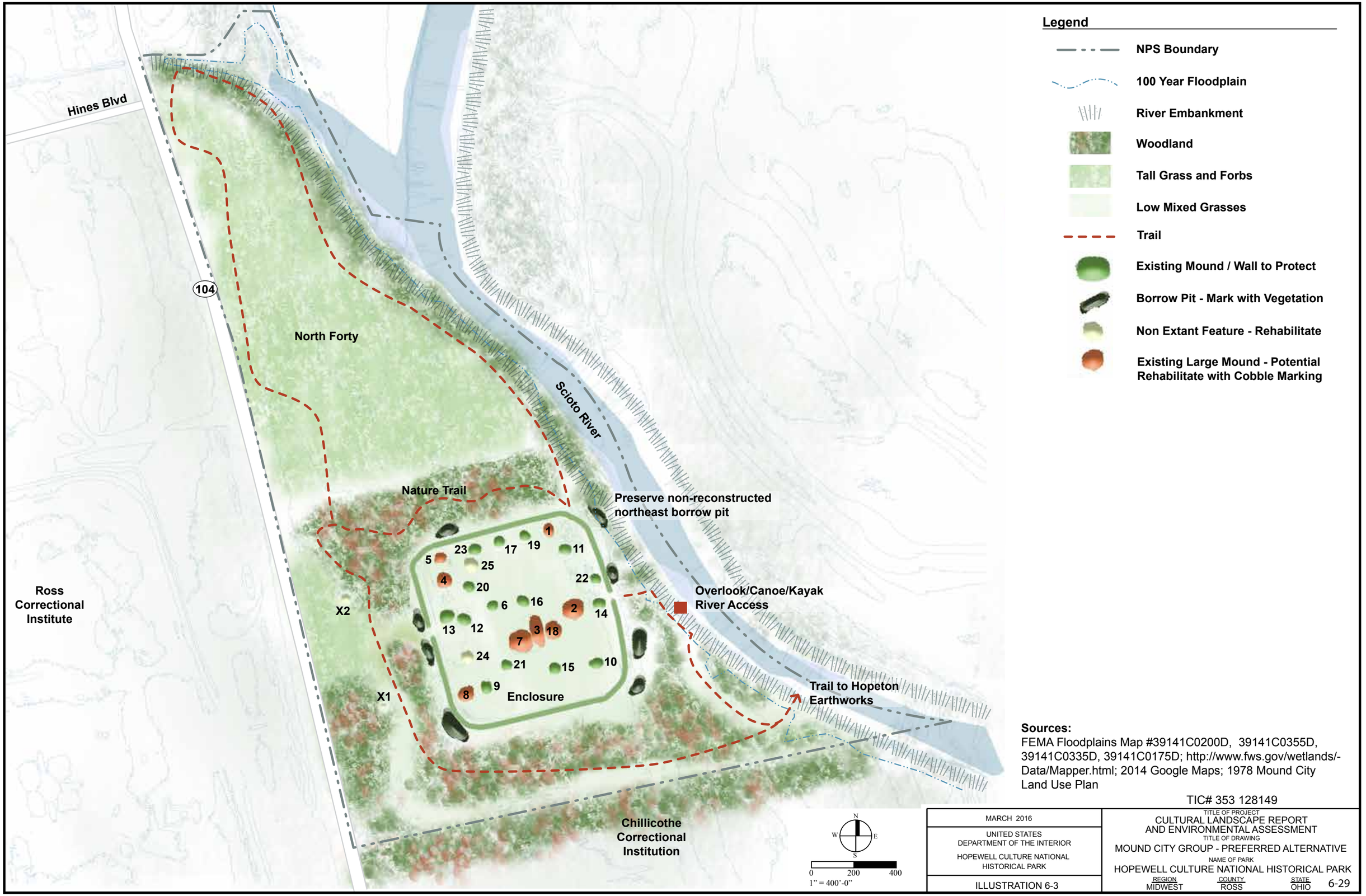
    b. Maintain the WPA/CCC walls along the river trail, and repair as needed.

    c. Maintain and repair the WPA/CCC stone grill.

    d. Preserve the canal lock stones remaining from the Ohio Erie Canal. While these are not contributing features, these stones are part of the overall history of the area and will be preserved in-situ.

3. Design and situate new small scale features such as signs and interpretive panels, to be low-profile and unobtrusive within sight of the earthwork complex.

6-30 Per the *GMP*, "Facilities will be designed, located, and managed to minimize impacts on resources and to maximize the quality of the visitor experience. ... Only the development necessary to properly guide visitors and protect resources will be allowed... and will be out of site of the earthworks" (*GMP*, 18-19).



Sources:
FEMA Floodplains Map #39141C0200D, 39141C0355D, 39141C0335D, 39141C0175D; http://www.fws.gov/wetlands/-Data/Mapper.html; 2014 Google Maps; 1978 Mound City Land Use Plan

TIC# 353 128149

MARCH 2016	TITLE OF PROJECT: CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
UNITED STATES DEPARTMENT OF THE INTERIOR HOPEWELL CULTURE NATIONAL HISTORICAL PARK	TITLE OF DRAWING: MOUND CITY GROUP - PREFERRED ALTERNATIVE NAME OF PARK: HOPEWELL CULTURE NATIONAL HISTORICAL PARK
ILLUSTRATION 6-3	REGION: MIDWEST; COUNTY: ROSS; STATE: OHIO

Hopeton Earthworks

The treatment plan for Hopeton Earthworks emphasizes research and education. The majority of the site will not be open to the general public. Limited development will allow visitors to learn about the Hopewell culture from a distance and to view the earthworks.[6-31] The archeological landscape will be protected and marked to focus visitor experience on the creation and use of the earthwork complex. This will be accomplished through preservation of extant below- and above-grade archeological features. Because Hopeton Earthworks is located within the 100-year flood zone, this includes protection of the riparian corridor vegetation and avoiding treatments that would have potential to increase flooding risks. In addition, the legibility and visibility of the earthwork complex will be increased by better delineation of the archeological features. Visitor experience will be improved by management of circulation, vegetation, and views. In addition, non-contributing features will be removed.

Preservation is the treatment approach for Hopeton Earthworks. This approach protects and preserves those features which convey its historic and cultural significance.

Treatment goals for Hopeton Earthworks include the following:

- Preserve extant above-grade archeological features.
- Spatially depict the three-dimensional earthwork complex.
- Provide opportunities for visitors to access and view the earthwork complex.
- Reveal the relationship to the river and Mound City Group.
- Remove non-contributing features that impact visitor's ability to discern the archeological landscape.
- Provide an authentic visitor experience.

The treatment plan for Hopeton Earthworks (ILLUSTRATION 6-4) illustrates the desired landscape condition.

Spatial Organization/Topography/Views

The vision for the spatial organization is for the forms and patterns of the archeological landscape to be revealed. The spatial qualities of the earthwork complex will be depicted to improve visitor's understanding.

1. The spatial organization will be repaired through removal of non-contributing features; removal of vegetation that obscures the earthwork complex and archeological features; protection and marking of non-extant above-grade archeological features; and establishing pedestrian circulation routes to provide views of the earthwork complex.

    a. Spatially depict the three-dimensional form of the earthwork complex and surroundings using vegetation or by marking nonvisible archeological features.

    b. Remove hazardous trees and woody vegetation that impact the earthwork complex or diminish the visitor's understanding of the earthwork's spatial qualities. In particular, remove vegetation impacting Circle A and fencerow vegetation north and west of the Great Circle.

    c. Delineate the mass, scale and form of the earthwork complex by using vegetation to mark non-extant above-

6-31 *GMP*, 34

grade archeological features, i.e., earthen walls, mounds, and borrow pits, and the spaces of the earthwork.

d. Work with property owners to establish protection (through acquisition, easements or other agreements) for the land within the bend of the Scioto River surrounding the Hopeton Earthworks to manage for conservation and visual consistency with the earthwork complex.

e. Create a view between the earthwork complex and the river, and between the Mound City Group and Hopeton Earthworks, by thinning vegetation along a portion of the riverbank.

f. Provide interpretive information about the earthwork complex and cosmology.

g. Consider using alternative media to provide visitors with access to large amounts of research and documentation of features at the park unit—keyed to specific locations – to enhance visitors understanding of the authenticity of the earthwork complex.

Archeological Features

The treatment plan provides for protection and marking of archeological features. All extant below- and above- grade archeological features, as well as spaces with known or potential archeological scatter will be preserved, stabilized and repaired as needed, following best practices. The archeological features will be marked with vegetation and interpreted to provide a compelling visitor experience. Non-extant archeological features will be marked with vegetation to depict their mass, form, and character, as documented by Squire and Davis in 1846, or based upon most recent archeological investigations. Refer to the cross section examples provided under Study Area for a graphic representation of applicable techniques (ILLUSTRATION 6-1).

1. Investigations and Research. Continue investigations and archeological research, including the following research needs.

   a. Identify currently unknown resources at the outlying areas using magnetometry or other non-invasive archeological techniques.

   b. Investigate techniques for marking of archeological features to fully understand potential impacts on below-grade archeological features.

2. Best Practices - Preservation of Features. Preserve all extant below- and above-grade archeological features. Stabilize and repair features as necessary, following best practices.

   a. Preserve all extant below- and above-grade archeological features.

   b. Stabilize and repair archeological features as needed, following best practices.

   c. Do not allow visitor access on top of the mounds or earthen walls or in borrow pits.

   d. Monitor the streambank and stabilize areas of erosion that threaten archeological resources.

3. Repair of Archeological Spaces. Repair archeological spaces to reveal their mass, form, and scale. Delineate the earthwork complex by marking archeological features when no discernible topographical relief occurs in LiDAR imagery or through visual observations.

   a. Depict the archeological space of the earthwork complex through the following techniques. Use a consistent palette of materials.

      - Use one consistent vegetation type and vegetation management technique to depict the space of the enclosure and earthwork complex.

      - Use a different vegetation management technique for archeological features such as mounds and earthen walls to differentiate between the three-dimensional archeological features and adjacent spaces.

      - Use a taller grass / herbaceous mix at the edges of the archeological spaces and in areas of archeological scatter, to distinguish these from the surrounding landscape.

4. Marking of Archeological Features. Marking of non-extant archeological features using vegetation is recommended.

      - Cross section examples provided in ILLUSTRATION 6-1 represent examples of applicable rehabilitation techniques.

   b. Use vegetation to depict outlines and dimensions of verified non-extant archeological and other above-grade features.

      - Verified features to be delineated include the following.

        - Portions of the Great Circle walls
        - Portions of the Square Enclosure walls
        - Portions of the Parallel Walls
        - Circle B
        - Circle C
        - Three mounds within the Square Enclosure
        - Borrow pits

      - Specific features to be delineated when verified include the following.

        - Circle A
        - Unverified portions of the Parallel Walls.

Circulation

The vision for the circulation system at Hopeton Earthworks is to establish visitor access and interpretive routes to provide visitors with an understanding of the physical earthwork complex. An entrance road, parking area, and pedestrian routes will be added. Pedestrian trails, an overlook and wayside will be established to provide access.

Access to the earthwork complex via the river will be improved to reflect this circulation route that existed at the time of the Hopewell. A new trail and bridge will be added, establishing a link to Mound City Group.

1. Vehicular Circulation. The existing vehicular circulation system at Hopeton Earthworks will be modified to provide access for visitors and to remove routes that impact the archeological landscape.

   a. Remove vehicular circulation routes that do not contribute to the significance of the archeological landscape and impact the integrity

of the known extant archeological features.

- Remove the quarry access road that runs over the Square Enclosure.

- Remove Pit Road, Overly Road, quarry service routes, and Vaughn Road.

b. Provide a parking area on the north side of Hopetown Road.

2. Pedestrian Circulation. Add pedestrian trails, an overlook, and an interpretive wayside.

a. Establish trails that allow for understanding of the earthworks.

b. Near the parking lot, construct an embankment and install a drainage pipe to allow drainage to/from Dry Run.

c. Provide an overlook east of Circles B and C to present a visual overview of the earthwork complex.

d. Create pedestrian routes between Hopeton Earthworks and Mound City Group.

- Provide a trail along Hopetown Road to Mound City Group.

- Build a pedestrian bridge across the Scioto River to connect to Mound City Group.

e. Provide access to the river bank at Mound City Group by creating a new kayak / canoe access.

f. Create an interconnected water route between all park units with new canoe / kayak access.

Vegetation

Treatment of vegetation at Hopeton Earthworks will focus on creating greater visibility and preservation of the archeological features. Vegetation will be managed to assist in defining the spatial organization of the earthwork complex, framing views and screening undesirable views.

The earthwork complex will be maintained free of woody vegetation surrounded by grassland. This appearance will be achieved by removing trees and fencerow vegetation and reintroducing grasses. Woodland will be retained along the eastern and southern property lines.

1. Vegetation types and management techniques will be used to preserve the archeological features.

a. Remove trees and woody vegetation that impact archeological features or diminish the spatial qualities of the earthwork complex. However, if vegetation is helping to stabilize archeological features, do not remove it.

- Remove woody vegetation on Circle A.

- Remove fencerow vegetation between the Great Circle and Circle A.

- Add vegetation north of Circle A to screen adjacent land use.

- Remove fencerow vegetation north and west of the Great Circle.

- Allow for shade trees, provided they do not negatively impact archeological resources.

b. Reintroduce grasses where trees and woody vegetation have been removed.

2. Utilize distinct vegetation types to reveal the form and spaces of the earthwork complex:

    a. Use a low growing grass mix (<6 to 12 inches in height) in spaces of the earthwork complex including the enclosure, mounds and borrow pits. Archeological features may be managed as tall and less frequently mown to further differentiate.

    b. Use tall grasses and forbs in areas surrounding the earthwork complex.

3. Maintain vegetation that stabilizes steep slopes or protects archeological features from impacts.

    a. Vegetation along the streambanks of Dry Run.

    b. Vegetation that screens views to the south and east of the earthwork complex.

4. Add vegetation on the north of Circle A, to screen views from the complex to adjacent land use.

Buildings and Structures

Long-term treatment recommendations are to remove all buildings and structures from the earthwork complex and surrounding area, in order to protect the setting of the archeological landscape.

1. Remove buildings and structures that do not contribute to the significance of the archeological landscape and impact the integrity of the known extant earthwork complex including the utility lines and poles adjacent to the quarry access road that crosses over the Square Enclosure.

2. NPS will work with property owners to develop a long-term plan to eventually remove the buildings and structures that are impacting the earthwork complex including: the quarry operation buildings, structures, roads, and utilities.

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Scioto River

Circle A

CSX Railroad

Second Terrace
(Kingston Outwash)

Great Circle

Circle B

Borrow Pits

River Road

W

O

Borrow Pit

Parallel Walls

Circle C

159

Square Enclosure

Borrow Pit

First Terrace
(Circleville Outwash)

Floodplain

Triangle Site

Historic Borrow Pit

Trail to Mound City Group

P

159

Walnut Grove

Hopetown Road

292

Dry Run

To Visitor's Center
5.7 miles

N
W
E
S

0 300 600
1" = 600'-0"

Legend

- Legislated Boundary
- Protect Adjacent Lands
- 100 Year Floodplain
- Creek Embankment
- Woodland
- Tall Grass and Forbs
- Low Mixed Vegetation
- Trail
- P — Parking
- Existing Feature to Protect and Mark with Vegetation
- Earthen Wall / Feature to Protect and Mark with Vegetation
- Unverified Feature to Protect and Mark with Vegetation
- Historic Borrow Pit to Protect and Mark with Vegetation
- Borrow Pit to Protect and Mark with Vegetation
- O — Overlook
- W — Wayside

Note:
Since site documentation was completed in October 2014, the parking lot at Hopetown Road and trail between the parking lot and overlook have been designed through a separate project. Therefore, these features are treated as existing conditions in the preferred alternative for the CLR/EA.

*Locations for mown trails may vary.

TIC# 353 128149

MARCH 2016

UNITED STATES
DEPARTMENT OF THE INTERIOR
HOPEWELL CULTURE NATIONAL
HISTORICAL PARK

ILLUSTRATION 6-4

TITLE OF PROJECT
CULTURAL LANDSCAPE REPORT
AND ENVIRONMENTAL ASSESSMENT
TITLE OF DRAWING
HOPETON EARTHWORKS - TREATMENT PLAN
NAME OF PARK
HOPEWELL CULTURE NATIONAL HISTORICAL PARK

REGION	COUNTY	STATE
MIDWEST	ROSS	OHIO

Hopewell Mound Group

In accordance with the GMP, visitor use and interpretation will be emphasized at the Hopewell Mound Group. Legislated boundaries will be expanded to ensure maximum protection of archaeological resources and the landscape context of the earthworks, including the viewshed.[6-32] The treatment plan for Hopewell Mound Group emphasizes the interpretation of Hopewell Culture. The archeological landscape will be rehabilitated to focus visitor experience on the creation and use of the earthwork complex. This will be accomplished through preservation of extant below- and above-grade archeological features. Also, the legibility and visibility of the earthwork complex will be improved by delineating the archeological features and the visitor experience will be enhanced by managing circulation, vegetation, and views.

Rehabilitation is the treatment approach for the Hopewell Mound Group. Rehabilitation allows for compatible use through repair, alterations, and additions while preserving those features that convey historic and cultural significance.

Treatment goals for Hopewell Mound Group include the following:

- Preserve extant above-grade archeological features.
- Spatially depict the three-dimensional earthwork complex.
- Reveal the relationship to the river and other earthwork complexes.
- Remove non-contributing features that impact visitor's ability to discern the archeological landscape.
- Provide an authentic visitor experience.

The treatment plan for Hopewell Mound Group (ILLUSTRATION 6-5) illustrates the desired landscape condition.

Spatial Organization/Topography/Views

The vision for the spatial organization is for forms and patterns of the archeological landscape to be revealed. The full spatial qualities of the earthwork complex and the relationship to the surrounding landscape will be depicted.

1. Spatial organization will be rehabilitated through removal of non-contributing features, removal of vegetation that obscures the earthwork complex and archeological features, marking of non-extant above-grade archeological features, and establishment of pedestrian circulation routes that allow for understanding of the earthworks.

    a. Spatially depict the three-dimensional form of the earthwork complex and surroundings using vegetation or by marking nonvisible archeological features.

    b. Remove hazardous trees and woody vegetation that impact the earthwork complex and diminish the visitor's understanding of the spatial qualities of the earthwork complex.

        º Selectively remove woody vegetation along the eastern portion of the north wall of the Great Enclosure to improve views of the earthwork.

    c. NPS will work with the local community and landowners to develop a long-term plan for removal of non-contributing features that impact spatial organization of the

6-32 *GMP*, 32

earthwork complex, including Sulphur Lick Road and buildings located on archeological features.

d. Delineate the mass, scale, and form of the earthwork complex by marking non-extant above-grade archeological features, i.e., earthen walls, mounds, and borrow pits, and the spaces of the earthwork.

e. Provide interpretive information about the earthwork complex and cosmology.

f. Consider using alternative media to provide visitors with access to large amounts of research and documentation of features at the park unit—keyed to specific locations – to enhance visitors understanding of the authenticity of the earthwork complex.

Archeological Features

The treatment plan provides for protection and rehabilitation of archeological features. All extant below- and above- grade archeological features, as well as spaces with known or potential archeological scatter will be preserved, stabilized and repaired as needed, following best practices. The archeological features will be marked and interpreted to provide a compelling visitor experience. Non-extant archeological features will be marked to depict their mass, form and character, as documented by Shetrone in 1922 to 1925, or based upon most recent archeological investigations. Refer to the cross section examples provided under Study Area for a graphic representation of applicable rehabilitation techniques (ILLUSTRATION 6-1).

1. Investigations and Research. Continue investigations and archeological research, including the following research needs.

a. Identify currently unknown resources at the outlying areas using magnetometry or other non-invasive archeological techniques.

b. Investigate techniques for marking or rehabilitation of archeological features to fully understand potential impacts on below-grade archeological features.

2. Best Practices - Preservation of Features. Preserve all extant below- and above-grade archeological features. Stabilize and repair features as necessary, following best practices.

a. Preserve all extant below- and above-grade archeological features.

b. Stabilize and repair archeological features as needed, following best practices.

c. Do not allow visitor access on top of the mounds or earthen walls or in borrow pits.

d. Monitor the streambank and stabilize areas of erosion that threaten archeological resources.

3. Rehabilitation of Archeological Spaces. Rehabilitate archeological spaces to reveal their mass, form and scale. Delineate the earthwork complex by marking archeological features when no discernible topographical relief occurs in LiDAR imagery or through visual observations.

a. Depict the archeological space of the earthwork complex through the following techniques. Use a consistent palette of materials.

- Use one consistent vegetation type and vegetation management technique to depict the space of the enclosure and earthwork complex.

- Use a different vegetation management technique for archeological features such as mounds and walls to differentiate between the three-dimensional archeological features and adjacent spaces.

- Use a taller grass / herbaceous mix at the edges of the archeological spaces and in areas of archeological scatter, to distinguish these from the surrounding landscape.

- Maintain a distinct vegetation management technique to differentiate between the earthwork complex and visitor and administrative / maintenance areas.

4. Rehabilitation of Archeological Features. Rehabilitation of non-extant archeological features is recommended. This may include creating three-dimensional depictions using new soil or the use of vegetation.

   a. Rehabilitate non-extant archeological features to depict their mass, form, and character, as documented by Shetrone in 1922 to 1925, or based upon most recent archeological investigations.

      - Cross section examples provided in ILLUSTRATION 6-1 represent examples of applicable rehabilitation techniques.

   b. Use markings, e.g. soil, rock cobble, gravel paths, flags, or vegetation to depict outlines and dimensions of verified non-extant archeological and other above-grade features.

      - Use a non-permanent material that differs from the extant materials of the archeological features to differentiate these as contemporary features.

      - Verified features to be delineated include the following.

        - Southern portion of the east wall of the Great Enclosure.
        - South, east and north walls of the Square Enclosure.
        - East and south walls of the D-Shaped Enclosure.
        - North, east, and south walls of the Great Circle.
        - Five mounds.

      - Specific features to be delineated when verified include the following.

        - North portion of west wall of the Great Enclosure.
        - South portion of the west wall of the Great Enclosure.
        - Portions of the north and west walls of the D-Shaped Enclosure.
        - Portion of the west wall of the Great Circle.
        - Thirty-three mounds.
        - The ditch at the southeast portion of the east wall of the Great Enclosure.
        - The ditch around the Great Circle.
        - The ditch around the D-Shaped Enclosure.
        - The ditch at the northern portion of the west wall of the Great Enclosure.

Circulation

The existing circulation system at Hopewell Mound Group will be modified to remove routes that do not relate to the archeological landscape, and add routes that foster understanding of the archeological landscape. The vision for the circulation system at Hopewell Mound Group is to improve existing pedestrian circulation by adding routes that allow for understanding of the earthwork complex and removing routes that do not support this goal. Sulphur Lick Road and the bicycle route will eventually be removed from locations where they impact the earthwork complex. The visitor parking area will remain in its current location with access provided from the east.

Access to the earthwork complex via the river will be added to reflect this circulation route that existed at the time of the Hopewell.

1. Vehicular Circulation. Remove vehicular routes that impact the earthwork complex.

    a. NPS will work with the township and other local community representatives to develop a long-range plan to remove the portions of Sulphur Lick Road and the trail that are impacting the earthwork complex. This will occur only when local access needs have been addressed.

2. Pedestrian Circulation. Add pedestrian trails and an overlook, update existing overlooks, and add links to the North Fork Paint Creek to improve visitor understanding of the earthwork complex.

    a. Retain the existing overlook and viewshed at the northeast corner of the Great Enclosure and update the wayside.

    b. Add a new overlook at a location to the west of the existing overlook that gives the best overview of the earthwork complex.

    c. Update the existing overlook on the east side of the Square Enclosure to provide improved orientation to the earthwork complex.

    d. Create pedestrian and bicycle links to the North Fork Paint Creek to improve the relationship of the earthwork complex to the river.

    e. Relocate the rails to trails path to the south of the south wall of the Great Enclosure.

    f. Create an interconnected water route between all park units with a new canoe / kayak access.

Vegetation

Treatment of vegetation at Hopewell Mound Group will focus on creating greater visibility and preservation of the archeological features. Vegetation will be managed to assist in defining the spatial organization of the earthwork complex, framing views and screening undesirable views.

In most locations, the earthwork complex will be maintained free of woody vegetation surrounded by grassland. This appearance will be achieved by removing trees and fencerow vegetation and reintroducing grasses. Woody vegetation will be maintained in locations where it is protecting archeological resources.

1. Vegetation types and management techniques will be used to preserve the archeological features.

2. Utilize distinct vegetation types to reveal the form and spaces of the earthwork complex:

    a. Use a low growing grass mix (<6 to 12 inches in height) in spaces of the earthwork complex, mounds, and borrow pits. Archeological features may be managed as tall and less frequently mown to further differentiate.

    b. Use tall grass and forbs in areas surrounding the earthwork complex.

3. Maintain vegetation that stabilizes steep slopes or protects the earthwork complex from impacts.

    a. Maintain vegetation along the west portion of the north wall of the Great Enclosure.

    b. Maintain vegetation that screens views to the visitor parking area at the east side of the earthwork complex.

4. Add vegetation to screen undesirable views at the southwest portion of the property.

Buildings and Structures

Long-term treatment recommendations are to remove all buildings and structures from the earthwork complex, in order to protect the setting of the archeological landscape.

1. The park will work with property owners to develop a long-term plan to remove buildings that impact the earthwork complex.

2. The park will work with utility companies to develop a long-term plan to mitigate the effects of the high-voltage transmission towers and overhead lines that are impacting the earthwork complex. Removal is the preferred option, but other possible choices for mitigation could include:

    a. Relocation of transmission towers and lines to a new site beyond the viewshed of the earthwork complex (off NPS property).

    b. Relocation of transmission towers and lines to a location where they do not impact the earthwork complex within NPS property.

    c. Replace transmission towers with substations outside the earthwork complex and relocate high voltage lines underground.

    d. Replace the existing lattice towers with less intrusive towers.

    e. Move the existing overlook to minimize the visual impact of the towers by orienting views to the north south rather than east west.

Small Scale Features

The small scale features at Hopewell Mound Group play a minor role and do not distract from the archeological landscape. Any new small scale features will be minimal and unobtrusive.

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TIC# 353 128149

MARCH 2015	TITLE OF PROJECT: CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
UNITED STATES DEPARTMENT OF THE INTERIOR HOPEWELL CULTURE NATIONAL HISTORICAL PARK	TITLE OF DRAWING: HOPEWELL MOUND GROUP - TREATMENT PLAN
ILLUSTRATION 6-5	NAME OF PARK: HOPEWELL CULTURE NATIONAL HISTORICAL PARK REGION: MIDWEST COUNTY: ROSS STATE: OHIO

Seip Earthworks

The treatment plan for Seip Earthworks emphasizes the interpretation of Hopewell ceremonialism. The archeological landscape will be rehabilitated to focus visitor experience on the creation and use of earthwork. This will be accomplished through delineation of previously unreconstructed mounds and earthen walls, improvements in circulation routes, removal of damaging vegetation, and separation between the visitor orientation area and the ceremonial landscape. Located within the 100-year flood zone, treatment recommendations for Seip Earthworks include protecting the riparian corridor to maintain a healthy stream corridor, and placing visitor services out of the floodplain. In accordance with the GMP, Seip Earthworks will provide a gateway for a grand tour of the Hopewell sites, with interpretive facilities and linkages with the nearby school and community.[6-33]

Rehabilitation is the treatment approach for Seip Earthworks. Rehabilitation allows for compatible uses through repair, alterations, and additions while preserving those features which convey its historic and cultural significance.

Treatment goals for Seip Earthworks include the following:

- Preserve extant above-grade archeological features.
- Spatially depict the three-dimensional earthwork complex.
- Relocate visitor facilities (buildings, roads, parking, etc.) away from the earthwork complex.
- Reveal the relationship to the river and other earthwork complexes.
- Remove non-contributing features that impact the visitor's ability to discern the archeological landscape.
- Provide an authentic visitor experience.

The preferred alternative for Seip Earthworks includes protecting all archeological features either through conservation easements or acquiring property from willing sellers, in order protect the entirety of the earthwork. Currently, portions of the Large Circle and Small Circle are in private ownership. Agreements with adjacent properties will be necessary to provide visitor access to the parking and orientation area.

The treatment plan for Seip Earthworks (ILLUSTRATION 6-6) illustrates the desired landscape condition.

Spatial Organization/Topography/Views

The vision for the spatial organization is for the forms and patterns of the archeological landscape to be revealed. The full spatial qualities of the earthwork complex and the relationship to the surrounding landscape will be depicted.

1. The spatial organization will be rehabilitated through removal of non-contributing features; removal of vegetation that obscures the earthwork complex and archeological features; rehabilitation of non-extant above-grade archeological features; and establishing pedestrian circulation routes that assist in defining the spatial qualities of the earthwork complex.

    a. Spatially depict the three-dimensional form of the earthwork complex and surroundings through markings and vegetation.

6-33 *GMP*, 36.

b. Remove hazardous trees and woody vegetation that impact archeological features or diminish the visitor's understanding of the spatial qualities of the earthwork complex and individual spaces.

- When considering the removal of trees for visitor understanding of spatial qualities, consider benefit of shade trees in some locations, provided they will not damage archeological resources.

c. Remove non-contributing features from the immediate surroundings of the earthwork complex.

- Remove the Blackstone House, and fish camp buildings.

- Relocate the picnic shelter, parking, roads and utilities either to a less intrusive area on-site further from the earthwork complex, or off-site.

d. Maintain a consistent vegetation type on the archeological features to distinguish them from visitor areas and the adjacent landscape.

e. Add a dense screen of trees and vegetation between the earthwork complex and the adjacent properties on the north and east.

f. Create a view between the earthwork complex and the river, by thinning vegetation along a portion of the riverbank.

g. Work with property owners to establish protection (through easements or other agreements) for the inholding on U.S. 50, west third of small circle and buffer around the east half of the square to manage for conservation and visual consistency with the earthwork complex.

Archeological Features

The treatment plan provides for protection and rehabilitation of the archeological features at Seip Earthworks.

1. Investigations and Research. Continue investigations and archeological research, including the following research needs.

   a. Currently, less information is available on the form and height of earthwork complex at Seip Earthworks. New research is helping to fill this gap, however the treatment recommendations favor "softer" approaches to mound and earthwork marking until such time as research informs a "harder" approach to rehabilitation.

   b. Identify currently unknown resources at the outlying areas using magnetometry or other non-invasive archeological techniques.

2. *Best Practices - Preservation of Features.* Preserve all extant below- and above-grade archeological features. Stabilize and repair features as necessary, following best practices.

   a. Preserve and maintain the existing reconstructed Seip-Pricer Mound and the reconstructed wall of the Large Circle as contributing features.

   b. Stabilize and repair archeological features as needed, following best practices.

   c. Do not allow visitor access on top of the mounds, borrow pits, or earthen walls.

3. Rehabilitation of Archeological Spaces. Rehabilitate archeological spaces to reveal their mass, form, and scale. Delineate the earthwork complex by markings or rehabilitating archeological features when no discernible topographical relief occurs in LiDAR imagery or through visual observations. The desired aesthetic should include open spaces with vegetation at different heights, that assists in the visibility of the earthworks.

   a. Depict the archeological space of the earthwork complex through the following techniques. Use a consistent palette of materials.

   b. Use vegetation types or vegetation management techniques to differentiate between different types of features and the surroundings.

   c. Maintain a different vegetation type on the earthwork complex from adjacent areas of archeological scatter and riparian areas.

4. Rehabilitation of Archeological Features. Rehabilitation of non-extant archeological features is recommended. This includes creating three-dimensional depictions using new soil or vegetation.

   a. Rehabilitate non-extant archeological features to depict their mass, form, and character, as documented by Squier and Davis in 1848, or based upon most recent archeological investigations.

      - Specific treatment for each archeological feature is provided in ILLUSTRATION 6-6 Cross section examples provided in ILLUSTRATION 6-1 represent examples of applicable rehabilitation techniques.

   b. Use earthen markings to rehabilitate outlines and dimensions of non-extant earthen walls.

      - Specific features to be rehabilitated include the following.

        – Small Circle
        – Large Circle
        – Large Square

      - Where discernible topographical relief occurs, only vegetation or non-permanent markings will be used to delineate features.

      - Use the most current, reliable archeological investigations to locate markings or rehabilitations, and to determine the size and scale. At this time, the most current information is 2015 magnetic surveys.

      - Use a non-permanent material that differs from the extant materials of the archeological features and the reconstructed Seip-Pricer Mound, to differentiate these as contemporary.

   c. Use vegetation to delineate outlines and dimensions of borrow pits.

   d. Use a cobble marking / cover to rehabilitate the outlines and dimensions of mounds.

      - Specific features to be rehabilitated with cobble include the following.

        – Seip-Pricer Mound
        – Seip Conjoined Mound (Note: additional earthen marking needed to reflect original mound mass)

Circulation

The existing circulation system at Seip Earthworks will be modified in order to protect the archeological features, and to provide an engaging visitor experience. A new parking area and visitor orientation is recommended to be located at the adjacent Paint Valley High School Property, with pedestrian trails connecting the orientation area, earthwork complex, and river.

1. Vehicular Circulation. The vehicular circulation system will be modified to relocate vehicular routes as far from the earthwork complex as possible.

    a. Remove existing parking area and adjacent pedestrian paths.

    b. Remove road and drive to the Blackstone House.

    c. Remove and relocate Dill Road where it crosses and damages archeological features.

    d. Create a new visitor parking area at the Paint Valley High School Property, with vehicular access from Highway 50.

2. Pedestrian Circulation. The existing pedestrian circulation system will be improved by adding routes that assist in defining the spatial qualities of the earthwork complex. Routes will be added that express and allow for understanding of the earthwork's geometry.

    a. Provide pedestrian access from the new visitor orientation area to the earthwork complex.

    b. Allow for informal pedestrian access inside the earthwork complex, providing access to the Small Circle, Large Circle, and the small square, connecting to the visitor orientation area.

    c. Provide a trail to Paint Creek that forms a loop trail along the creek and connects back to the earthwork. Create an overlook and canoe/kayak access point on the creek.

    - Provide access and information to the interconnected water route between all park units.

Vegetation

Treatment of vegetation at Seip Earthworks will focus on preservation of the archeological features. Vegetation will be managed to assist in defining the spatial organization of the earthwork complex, to clarify the visitor experience.

1. Vegetation management techniques will be used to preserve the archeological features.

    a. Remove trees and woody vegetation that impact archeological features or diminish the spatial qualities of the earthwork complex, specifically the fencerow vegetation around the perimeter of the previously state-owned property, and the removal of trees at the west half of the Small Circle.

2. Vegetation will be used to interpret various spaces including utilizing different grass types and mowing techniques to indicate spaces and distinct archeological features. Utilize distinct vegetation types to reveal the form and spaces of the earthwork complex:

    a. Use low mown vegetation in spaces of earthwork complexes including

the interior of the Large Circle, Small Circle, and small square (archeological features may be managed as low/mown, or tall/unmown to further differentiate).

- Plant the reconstructed Seip-Pricer Mound with taller vegetation (<6 to 12 inches in height), or marked with a stone cobble cover.

- Plant the earthen walls with taller vegetation (<6 to 12 inches in height).

- Plant the extant Seip-Conjoined Mound with taller vegetation (<6 to 12 inches in height), or marked with a stone cobble cover.

- Plant borrow pits with taller mown vegetation (<6 to 12 inches in height).

- Plant interior spaces of the enclosures with shorter mown vegetation (<6 inches in height).

b. Use a mix of native herbaceous species maintained consistently (mow 1-2 times per year) in areas surrounding earthwork complex.

3. Maintain woodland and riparian vegetation along the edge of Paint Creek and at the property boundaries.

4. Establish a wooded edge to screen negative views and impacts, specifically to the east to screen the Paint Valley High School.

5. Consider planting shade trees that can benefit visitors in summer or provide scenic landscape value. Provide trees in strategic locations where no known features exist around the earthworks.

Buildings and Structures

The preferred alternative includes assessing the historical significance of the existing structures and removal of these buildings because they negatively impact the archeological landscape. New structures will be added to provide visitor functions, sited away from the archeological features.

1. Evaluate buildings and structures that may be significant in their own right, but that are non-contributing features to the archeological landscape.

   - Prepare HABS documentation and/or a National Register evaluation for the Blackstone House to document the building prior to demolition.

   - Document the fish camp buildings prior to demolition.

2. Remove non-contributing buildings and structures from the archeological landscape, after full documentation.

   a. Remove the Blackstone House and outbuildings.

   b. Remove fish camp buildings and related structures.

   c. Remove existing picnic area, including picnic shelter, portable restroom, tables, and corresponding small scale features.

3. Add new structures and small scale features for visitor orientation to assist in the interpretation of the earthwork complex on the Paint Valley High School property.

Small Scale Features

The preferred alternative allows for small scale features that assist in visitor experience and interpretation of the earthwork complex.

Small scale features that are non-contributing and do not serve an active role in interpretation of the earthwork complex will be removed.

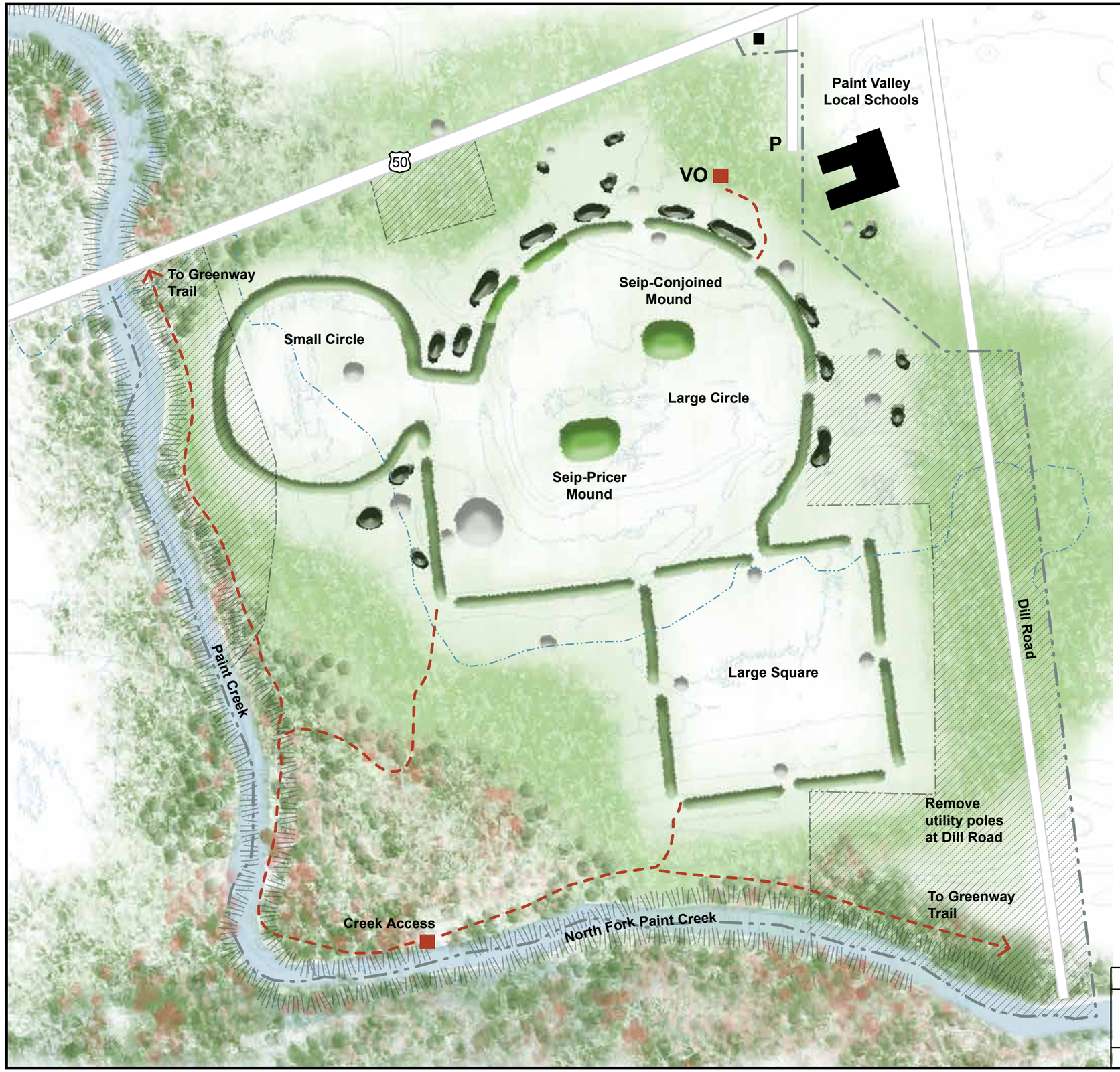
a. Remove small scale features at the picnic area, including parking area bollards, picnic tables, drinking fountain, and trash and recycling receptacles.

b. Remove small scale features at the Blackstone House, including fences and overhead utility lines.

c. Remove overhead utility lines on Dill Road.

4. New small scale features will be minimal and unobtrusive.

a. Design and situate new small scale features such as signs and interpretive panels, to be low-profile and unobtrusive. Consider movable panels that will not impact resources below-grade.



Legend

- Legislated Boundary
- Protect Adjacent Lands
- 100 Year Floodplain
- Creek Embankment
- Woodland
- Tall Grass and Forbs
- Low Mixed Vegetation
- Trail
- VO — Visitor Orientation
- P — Parking
- Existing Mound - Potential Rehabilitate with Cobble Marking
- Unverified Mound / Feature - Potential Mark / Rehabilitate
- Earthen Wall / Feature to Mark / Rehabilitate
- Borrow Pit to Mark with Vegetation

N
W E
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1" = 500'-0"

Sources:
Magnetic Survey 2015, GIS HOCU 2012 LiDAR; 1848, High Bank Works, Davis and Squire; Seip Marshall NAD83; https://msc.fema.gov/portal/search?Address Query=chillicothe; http://www.fws.gov/wetlands/Data/Mapper.html; 2014 Google Maps

TIC# 353 128149

MARCH 2016	TITLE OF PROJECT: CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
UNITED STATES DEPARTMENT OF THE INTERIOR HOPEWELL CULTURE NATIONAL HISTORICAL PARK	TITLE OF DRAWING: SEIP EARTHWORKS - PREFERRED ALTERNATIVE
ILLUSTRATION 6-6	NAME OF PARK: HOPEWELL CULTURE NATIONAL HISTORICAL PARK REGION: MIDWEST · COUNTY: ROSS · STATE: OHIO · 6-53

High Bank Works

The treatment plan for High Bank Works emphasizes the interpretation of Hopewell ceremonialism. The archeological landscape will be preserved, while allowing visitors to discover the creation and use of the mounds. This will be accomplished through delineation of unreconstructed mounds, improvements in circulation routes, and removal of damaging vegetation. In accordance with the GMP, High Bank Works will be used primarily for research and as an archeological preserve.[6-34]

Preservation is the treatment approach for High Bank Works. This approach protects and preserves those features which convey its historic and cultural significance.

Treatment goals for High Bank Works include the following:

- Preserve extant above-grade archeological features.
- Spatially depict the two-dimensional earthwork complex.
- Locate visitor facilities (roads, parking) away from earthwork complex.
- Reveal the relationship to the river and other earthwork complexes.
- Remove non-contributing features that impact the visitor's ability to discern the archeological landscape.
- Provide an authentic visitor experience.

The preferred alternative for High Bank Works includes protecting all archeological features either through conservation easements, or acquiring property from willing sellers, in order protect the entirety of the earthwork. Currently, the middle portion of the earthwork (the Parallel Walls) are in private ownership. Easements will be necessary to provide access to the lower terrace, the Scioto River, and the South Earthwork.

The treatment plan for High Bank Works (ILLUSTRATION 6-7) illustrates the desired landscape condition.

Spatial Organization/Topography/Views

The vision for the spatial organization at High Bank Works is for the forms and patterns of the archeological landscape to be revealed. The full spatial qualities of the earthwork complex and the relationship to the surrounding landscape will be depicted.

1. The spatial organization will be repaired through removal of non-contributing features; removal of vegetation that obscures the earthwork complex and archeological features; and establishing pedestrian circulation routes that assist in defining the spatial qualities of the earthwork complex.

    a. Spatially depict the three-dimensional form of the earthwork complex and surroundings through vegetation management. Delineate the mass, scale, and form of the earthwork complex by marking non-extant above-grade archeological features, i.e. earthen walls, mounds, and borrow pits, and the spaces of the earthwork.

    b. Remove hazardous trees and woody vegetation that impact the archeological features or diminish the visitor's understanding of the spatial qualities of the earthwork complex and individual spaces.

6-34 HOCU GMP, 39.

c. Remove non-contributing features from the immediate surroundings of the earthwork complex, including buildings, structures, roads, utilities, etc.

d. Maintain a consistent vegetation type on the archeological features to distinguish them from the adjacent landscape. Clarify the forms of the earthwork complex by utilizing two distinct vegetation types. One vegetation type will be used on the earthwork complex, and another type will be used in adjacent areas.

e. Create a view between the earthwork complex and the river, by thinning vegetation along a portion of the riverbank and opening select views of Paint Creek and Scioto River.

f. Add vegetative buffers to screen negative views, specifically the railroads tracks and road at the northeast property line.

Archeological Features

The treatment plan provides for protection and repair of the archeological features at High Bank Works to spatially depict the massive earthen walls, borrow pits, and mounds that are not currently visible. The desired aesthetic should include open spaces and low vegetation that assists with visibility of the earthworks.

1. Investigations and Research. Continue investigations and archeological research, including the following research needs.

   a. Identify currently unknown resources at the outlying areas using magnetometry or other non-invasive archeological techniques.

2. Best Practices - Preservation of Features. Preserve all extant below- and above-grade archeological features. Stabilize and repair features as necessary, following best practices.

3. Repair of Archeological Spaces. Repair archeological spaces to reveal their form and scale. Delineate the earthwork complex by marking with vegetation or utilizing vegetation management techniques that highlight the archeological features when no discernible topographical relief occurs in LiDAR imagery or through visual observations.

   a. Depict the three-dimensional form of the earthwork complex through the use of one or more of the following techniques. Use a consistent palette of materials.

      - Use vegetation types or vegetation management techniques to differentiate between the earthwork complex and the surrounding landscape.

      - Use a taller grass / herbaceous mix at the edges of the archeological spaces and in areas of archeological scatter, to distinguish these from the earthwork complex and woodland areas.

4. Preservation of Archeological Features. Non-extant archeological features at High Bank Works will be preserved, and marked through the use of vegetation or other impermanent methods.

   a. Repair non-extant archeological features to depict their mass, form and character, as documented by the 2013 Burks magnetic survey, or

based upon most recent archeological investigations.

- Specific treatment for each archeological feature is provided in ILLUSTRATION 6-7. Cross section examples provided in ILLUSTRATION 6-1 represent examples of applicable marking techniques.

b. Use vegetation maintained at different heights to depict outlines and dimensions of non-extant mounds and earthen walls.

- Specific features to be delineated include the following.

  - Great Circle
  - Octagon
  - Parallel Walls
  - South Earthwork
  - Borrow pits

Circulation

The vision for the circulation system at High Bank Works is to remove all non-contributing features, including roads and parking areas, and to add pedestrian routes that assist in defining the spatial qualities of the earthwork complex. Access to the earthwork complex via the river will be added to reflect the circulation route that existed at the time of the Hopewell.

1. Vehicular Circulation. The vehicular circulation system will be modified to remove vehicular routes from the earthwork complex, while providing for safe visitor and maintenance access.

   a. Remove existing gravel and dirt roads.

   b. Add a second vehicular route and parking area, open to visitors, at the South Earthwork.

2. Pedestrian Circulation. A network of pedestrian paths will provide access to the earthwork and the edge of the Scioto River.

   a. Improve pedestrian access at the north parking area into the earthwork complex. Work long-term with the railroad company to provide safe access across the railroad tracks.

   b. Improve existing pedestrian circulation by adding routes that allow for understanding of the earthwork complex.

      - Maintain informal pedestrian circulation routes throughout the interior space of the earthworks.

      - Add a path from the south vehicular entry into the South Earthwork.

   c. Create a path from the south vehicular entry to the Scioto River. Create a canoe / kayak access at the river edge. Provide a river overlook in this location.

Vegetation

Vegetation at High Bank Works will be managed to provide visibility and preservation of the earthwork complex. Trees and shrubs that grow on the earthwork complex will be removed, hardwood forest will be maintained around the earthwork complex, and riparian vegetation will remain along the river edge.

1. Vegetation management techniques will be used to preserve the archeological features.

   a. Remove hazardous trees and woody vegetation that impact contributing archeological features or diminish

the spatial qualities of the earthwork complex, specifically the area southwest of the Octagon.

b. Remove the native grassland at the Octagon.

2. Vegetation will be used to interpret various spaces including utilizing different grass types and mowing techniques to indicate spaces and distinct archeological features. Use two distinct vegetation types to reveal the form and spaces of the earthwork complex:

a. Low/mown vegetation in spaces of earthwork complex including the interior of the Great Circle, Octagon, Parallel Walls and South Earthwork (archeological features may be managed as low/mown, or tall/ unmown to further differentiate).

- Plant the Great Circle, Octagon, Parallel Walls, and South Earthwork with taller vegetation (<6 inches in height).

- Plant borrow pits with taller mown vegetation (<6 inches in height).

- Plant interior spaces of the enclosures with shorter mown vegetation (3 to <6 inches in height).

b. Use a mix of native herbaceous species maintained consistently in areas surrounding earthwork complex.

- This could be the same mix as currently used in the Octagon. Mow once a year, in the winter.

3. Maintain woodland and riparian vegetation along the edge of the Scioto River.

4. Add a vegetative buffer along the northeast property line to screen the existing railroad and road from the earthwork complex.

Small Scale Features

The preferred alternative allows for small scale features that assist in visitor experience and interpretation of the earthwork complex.

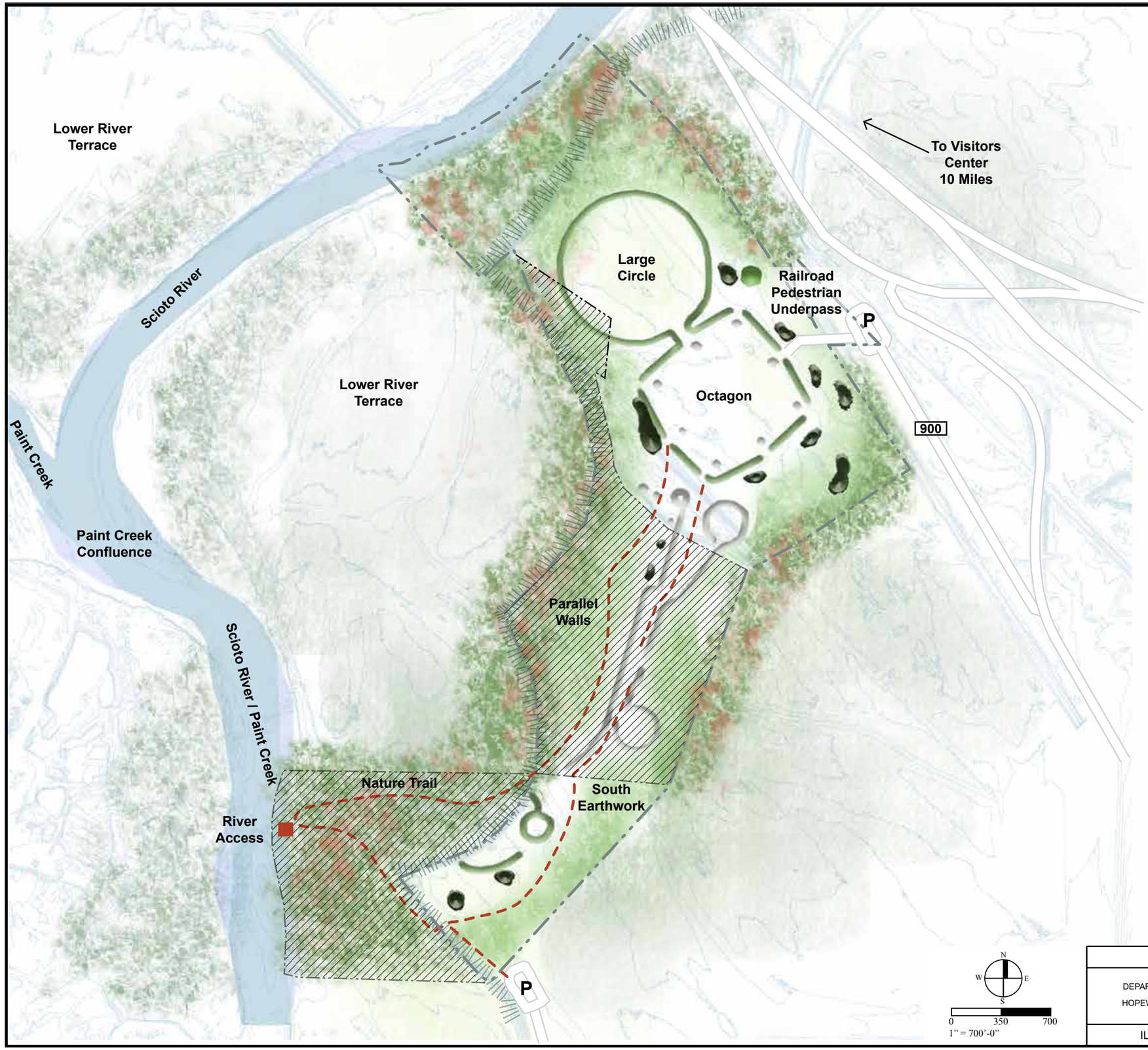
1. Small scale features that are non-contributing and do not serve an active role in interpretation of the earthwork complex will be removed.

a. Remove all non-contributing small scale features. This includes the fence adjacent the Large Circle, the utility poles and lines along the dirt access road.

2. Any new small scale features will be minimal and unobtrusive.

a. Design and situate new small scale features such as signs and interpretive panels, to be low-profile and unobtrusive.

b. Add a fence along the northeast property line to provide a separation between the earthwork and existing railroad.



Legend

- Legislated Boundary
- Protect Adjacent Lands
- 100 Year Floodplain
- Creek Embankment
- Woodland
- Tall Grass and Forbs
- Low Mixed Vegetation
- Trail
- P — Parking
- Existing Feature to Protect and Mark with Vegetation
- Unverified Feature to Protect and Mark with Vegetation
- Earthen Wall / Feature to Protect and Mark with Vegetation
- Borrow Pit to Protect and Mark with Vegetation

N
W E
S

0 350 700
1" = 700'-0"

Sources:
Burks 2013 High Bank Works Magnetic Survey; Burks 2013 Turpen Tract-High Bank Works Magnetic Survey; GIS HOCU 2012 LiDAR; 1848, High Bank Works, Davis and Squire; http://www.fws.gov/wetlands/Data/Mapper.html; https://m-sc.fema.gov/portal; 2014 Google Maps

TIC# 353 128149

MARCH 2016	TITLE OF PROJECT: CULTURAL LANDSCAPE REPORT AND ENVIRONMENTAL ASSESSMENT
UNITED STATES DEPARTMENT OF THE INTERIOR HOPEWELL CULTURE NATIONAL HISTORICAL PARK	TITLE OF DRAWING: HIGH BANK WORKS - PREFERRED ALTERNATIVE
ILLUSTRATION 6-7	NAME OF PARK: HOPEWELL CULTURE NATIONAL HISTORICAL PARK REGION: MIDWEST · COUNTY: ROSS · STATE: OHIO · 6-59

Implementation

This section provides guidance for implementing the treatment recommendations. The recommendations are organized into distinct tasks, with subtasks identified. These tasks will guide preparation of Project Management Information System (PMIS) project statements.

The tasks are presented by park unit, in table form. Each task has been assigned a phase, or priority, that indicates when implementation should occur. These phases include: Phase 1 (1 to 5 years); Phase 2 (5 to 10 years); and Phase 3 (10 to 15 years).

TABLE 6-2. Implementation

CLR Treatment Recommendation / FMSS Work Order	CLR Task Component/ FMSS Task Component	Phase / Priority Phase 1 (1 to 5 years) Phase 2 (5 to 10 years) Phase 3 (10 to 15 years)
Mound City Group		
Task 1. Protect Views	Task 1.1 Establish screen/vegetation buffer at property edges Task 1.2 Thin veg to reveal mountain views Task 1.3 Screen Visitor Center	Phase 1
Task 2. Relocate Visitor Center, Administrative, and Maintenance Buildings	Task 2.1 Determine new location for Administrative and Visitor Center Task 2.2 Remove Visitor Center, picnic shelter, Administrative, Maintenance Buildings, and relocate	Phase 3
Task 3. Remove vehicular circulation	Task 3.1 Determine new access routes Task 3.2 Remove existing roads, parking areas	Phase 3
Task 4. Investigate Small Scale Features	Task 4.1. Document features for significance Task 4.2 Repair/ remove as determined	Phase 2
Task 5. Add Trails	Task 5.1 Create river access point Task 5.2 Create new trail through North 40 Task 5.3 Extend river trail Task 5.4 Create trail and connection across river to Hopeton Earthworks Task 5.5 Extend bike path from Tri County Triangle Trail to Mound City Group	Phase 2
Task 6. Protect Soundscape	Task 6.1 Create agreement/partnership to mitigate noise	Phase 1
Task 7. Establish Native Vegetation (North Forty)	Task 7.1 Transition North Forty from haying to native grasses and forbs	Phase 1 to 3
Task 8. Maintain Previously Reconstructed Mounds (Mounds 1 through 23)	Task 8.1 Establish grass mix, mown 3-6” Task 8.2 Establish cobble marking on largest mounds (#1,2,3,4,5,7,8,18)	Phase 1 Phase 2

CLR Treatment Recommendation / FMSS Work Order	CLR Task Component/ FMSS Task Component	Phase / Priority Phase 1 (1 to 5 years) Phase 2 (5 to 10 years) Phase 3 (10 to 15 years)
Mound City Group, Cont.		
Task 9. Rehabilitate Mounds X1 & X2; 24 & 25	Task 9.1 Conduct archeological investigations to verify Task 9.2 Rehabilitate mounds	Phase 3
Task 10. Maintain Enclosure (interior space)	Task 10. Establish grass mix, mown 3-6"	Phase 1
Task 11. Maintain Enclosure Walls	Task 11. Establish grass mix, mown 6-12"	Phase 1
Task 12. Maintain Borrow pits	Task 12. Establish grass mix, mown 6-12"	Phase 1
Task 13. Maintain Non-reconstructed borrow pit	Task 13. Establish grass mix, mown 6-12"	Phase 1

CLR Treatment Recommendation / FMSS Work Order	CLR Task Component/ FMSS Task Component	Phase / Priority Phase 1 (1 to 5 years) Phase 2 (5 to 10 years) Phase 3 (10 to 15 years)
Hopeton Earthworks		
Task 1. Protect Views and Land Use	Task 1.1 Establish vegetation to screen property edges	Phase 1
Task 2. Visitor Parking, access	Task 2.1 Create visitor parking, visitor orientation	Phase 3
Task 3. Remove gravel road	Task 3.1 Remove existing road	Phase 2
Task 4. Add Trails	Task 4.1. Add a nature trail through the park unit, and connect trail to Mound City Group	Phase 3
Task 5. Establish Native Vegetation (outside of earthworks)	Task 5.1 Transition vegetation from haying to native grasses and forbs	Phase 1
Task 6. Maintain and Rehabilitate Great Circle, Square	Task 6.1 Verify extents and establish grass mix, mown 6-12"	Phase 2
Task 7. Maintain earthwork enclosures (interior spaces)	Task 7.1 Transition from haying to establish grass mix, mown 3-6"	Phase 2
Task 8. Maintain and Rehabilitate Parallel Walls, Circle A, B, and C	Task 8.1 Verify extents and establish grass mix, mown 6-12"	Phase 2
Task 9. Maintain and Rehabilitate Mounds	Task 9.1 Verify extents and establish grass mix, mown 6-12"	Phase 3
Task 10. Maintain Borrow pits	Task 10.1 Establish grass mix, mown 6-12"	Phase 2

CLR Treatment Recommendation / FMSS Work Order	CLR Task Component/ FMSS Task Component	Phase / Priority Phase 1 (1 to 5 years) Phase 2 (5 to 10 years) Phase 3 (10 to 15 years)
Hopewell Mound Group		
Task 1. Protect Views	Task 1.1 Establish vegetation to screen the adjacent land uses Task 1.2 Remove utilities that cross earthworks	Phase 1 Phase 3
Task 2. Visitor access	Task 2.1 Provide visitor parking area	Phase 2
Task 3. Remove Sulphur Lick Road	Task 3.1 Work with agencies, community to provide a new route	Phase 3
Task 4. Trails and river access	Task 4.1. Relocate Tri-County Trail away from earthworks Task 4.2 Maintain nature trail and add overlook Task 4.3 Provide creek access	Phase 2
Task 5. Establish Native Vegetation (outside of earthworks)	Task 5.1 Transition vegetation from haying to native grasses and forbs	Phase 1
Task 6. Maintain and Rehabilitate Great Enclosure, Square Enclosure, and D-shaped Enclosure	Task 6.1 Establish grass mix, mown 6-12” Task 6.2 Verify extents and rehabilitate	Phase 1 Phase 3
Task 7. Maintain earthwork enclosures (interior spaces)	Task 8.1 Transition from haying to establish grass mix, mown 3-6”	Phase 1
Task 8. Maintain and Rehabilitate Mounds (5 verified)	Task 8.1 Establish grass mix, mown 6-12” Task 8.2 Verify extents and rehabilitate	Phase 1 Phase 3
Task 9. Verify and Rehabilitate Mounds (33 unverified)	Task 9.1 Verify Mounds, archeological research Task 9.2 Establish grass mix, mown 6-12” Task 9.3 Rehabilitate	Phase 1 Phase 2 Phase 3
Task 10. Rehabilitate Ditches	Task 10.1 Establish grass mix, mown 3-6”	Phase 1 Phase 3
Task 11. Maintain Borrow pits	Task 11.1 Establish grass mix, mown 6-12”	Phase 1

CLR Treatment Recommendation / FMSS Work Order	CLR Task Component/ FMSS Task Component	Phase / Priority Phase 1 (1 to 5 years) Phase 2 (5 to 10 years) Phase 3 (10 to 15 years)
Seip Earthworks		
Task 1. Protect Views and Land Use	Task 1.1 Establish vegetation to screen the school from the earthworks	Phase 1
Task 2. Relocate Visitor Parking, picnic, access	Task 2.1 Determine new location for parking, visitor orientation Task 2.2 Remove picnic shelter, parking, and associated features.	Phase 3
Task 3. Move Dill Road	Task 3.1 Determine new route, to be located off of earthwork features. Task 3.2 Remove existing road and utility poles	Phase 3
Task 4. Add Trails	Task 4.1. Add a nature trail to follow Paint Creek and create a loop through the park unit Task 4.2 Connect trail to the greater greenway trail system	Phase 1
Task 5. Document and remove Blackstone House and Fish Camp Buildings	Task 5.1 Document the Fish Camp buildings and related structures, and remove Task 5.2 Document the Blackstone House Task 5.3 Remove the Blackstone House, outbuildings, and other associated features (road, utilities)	Phase 1 - 2
Task 6. Establish Native Vegetation (outside of earthworks)	Task 6.1 Transition vegetation from haying to native grasses and forbs	Phase 1
Task 7. Maintain and Rehabilitate Large Circle	Task 8.1 Establish grass mix, mown 6-12” Task 8.2 Verify extents and rehabilitate circle	Phase 2
Task 8. Maintain earthwork enclosures (interior spaces)	Task 8.1 Transition from haying to establish grass mix, mown 3-6”	Phase 1
Task 9. Maintain Seip-Pricer Mound	Task 09.1 Establish cobble marking on mound	Phase 3
Task 10. Maintain Conjoined Mound	Task 10.1 Verify extents, add soil to define mound, as determined necessary Task 10.2 Establish cobble marking on mound	Phase 3
Task 11. Rehabilitate Small Circle and Large Square	Task 11.1 Establish grass mix, mown 6-12” Task 11.2 Verify extents and rehabilitate	Phase 1 Phase 3
Task 12. Maintain Borrow pits	Task 12.1 Verify extents and establish grass mix, mown 6-12”	Phase 2

CLR Treatment Recommendation / FMSS Work Order	CLR Task Component/ FMSS Task Component	Phase / Priority Phase 1 (1 to 5 years) Phase 2 (5 to 10 years) Phase 3 (10 to 15 years)
High Bank Works		
Task 1. Protect Views and Land Use	Task 1.1 Establish a view to the river from the earthwork complex Task 1.2 Establish vegetation to screen the adjacent railroad tracks from the earthwork complex	Phase 1
Task 2. Provide Visitor access	Task 2.1 Provide a new parking area and visitor access to the South Earthwork Task 2.2 Provide visitor parking area and safe passage across the railroad tracks	Phase 2
Task 3. Remove gravel road	Task 3.1 Remove gravel roads and utilities that cross the earthworks	Phase 3
Task 4. Add Trails and river access	Task 4.1. Add a nature trail to the river edge, with river access. Create a looped trail through the park unit.	Phase 2
Task 5. Establish Native Vegetation (outside of earthworks)	Task 5.1 Transition vegetation from haying to native grasses and forbs	Phase 1
Task 6. Maintain and Rehabilitate Great Circle	Task 6.1 Verify extents and establish grass mix, mown 6-12”	Phase 1
Task 7. Maintain earthwork enclosures (interior spaces)	Task 8.1 Transition from haying to establish grass mix, mown 6-9”	Phase 1
Task 8. Maintain and Rehabilitate Octagon	Task 8.1 Establish grass mix, mown 6-12”	Phase 1
Task 9. Maintain and Rehabilitate Parallel Walls	Task 9.1 Verify extents and establish grass mix, mown 6-12”	Phase 2
Task 10. Rehabilitate South Earthwork	Task 10.1 Verify extents and establish grass mix, mown 6-12”	Phase 2
Task 11. Maintain Borrow pits	Task 11.1 Verify extents and establish grass mix, mown 6-12”	Phase 1

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