



# Phase II and Phase III Archaeological Database and Inventory

Site Number: 18BA139

Site Name: Bellona Powder Works

Prehistoric

Other name(s): Etna Works, Aetna Works, Battle Mill

Historic

Unknown

Brief Description:

19th century gun powder mill with earth dam and race

## Site Location and Environmental Data:

Maryland Archaeological Research Unit No. 14

SCS soil & sediment code CFA, LfD, LfE,

Latitude 39.3251

Longitude -76.7074

Physiographic province Eastern Piedmont

Terrestrial site

Underwater site

Elevation m

Site slope 0-45%

Ethnobotany profile available

Maritime site

Site setting

-Site Setting restricted

-Lat/Long accurate to within 1 sq. mile, user may need to make slight adjustments in mapping to account for sites near state/county lines or streams

### Topography

- Floodplain
- Hilltop/bluff
- Interior flat
- Upland flat
- Ridgetop
- Terrace
- Low terrace
- High terrace
- Rockshelter/cave
- Hillslope
- Unknown
- Other

### Ownership

- Private
- Federal
- State of MD
- Regional/county/city
- Unknown

### Nearest Surface Water

Name (if any) Powder Mill Run

#### Saltwater

Ocean

Estuary/tidal river

Tidewater/marsh

Spring

#### Freshwater

Stream/river

Swamp

Lake or pond

Spring

Minimum distance to water is 0 m

## Temporal & Ethnic Contextual Data:

Paleoindian site

Woodland site

Archaic site

MD Adena

Early archaic

Early woodland

Middle archaic

Mid. woodland

Late archaic

Late woodland

Unknown prehistoric context

Contact period site

ca. 1820 - 1860

Y

ca. 1630 - 1675

ca. 1860 - 1900

Y

ca. 1675 - 1720

ca. 1900 - 1930

ca. 1720 - 1780

Post 1930

ca. 1780 - 1820

Y

Unknown historic context

Unknown context

### Ethnic Associations (historic only)

Native American

Asian American

African American

Unknown

Anglo-American

Other

Hispanic

Y=Confirmed, P=Possible

## Site Function Contextual Data:

### Prehistoric

Multi-component

Misc. ceremonial

Village

Rock art

Hamlet

Shell midden

Base camp

STU/lithic scatter

Rockshelter/cave

Quarry/extraction

Earthen mound

Fish weir

Cairn

Production area

Burial area

Unknown

Other context

### Historic

Urban/Rural? Rural

#### Domestic

Homestead

Farmstead

Mansion

Plantation

Row/townhome

Cellar

Privy

#### Industrial

Mining-related

Quarry-related

Mill  gunpowder

Black/metalsmith

Furnace/forge

Other

#### Transportation

Canal-related

Road/railroad

Wharf/landing

Maritime-related

Bridge

Ford

#### Educational

Commercial

Trading post

Store

Tavern/inn

#### Military

Battlefield

Fortification

Encampment

#### Townsite

Religious

Church/mtg house

Ch support bldg

#### Burial area

Cemetery

Sepulchre

Isolated burial

#### Bldg or foundation

Possible Structure

Post-in-ground

Frame-built

Masonry

Other structure

#### Slave related

Non-domestic agri

Recreational

Midden/dump

Artifact scatter

Spring or well

Unknown

Other context

earth dam

## Interpretive Sampling Data:

### Prehistoric context samples

Soil samples taken

Flotation samples taken

Other samples taken

### Historic context samples

Soil samples taken

Flotation samples taken

Other samples taken



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## Diagnostic Artifact Data:

Projectile Point Types		Koens-Crispin	
Clovis	<input type="checkbox"/>	Perkiomen	<input type="checkbox"/>
Hardaway-Dalton	<input type="checkbox"/>	Susquehana	<input type="checkbox"/>
Palmer	<input type="checkbox"/>	Vernon	<input type="checkbox"/>
Kirk (notch)	<input type="checkbox"/>	Piscataway	<input type="checkbox"/>
Kirk (stem)	<input type="checkbox"/>	Calvert	<input type="checkbox"/>
Le Croy	<input type="checkbox"/>	Selby Bay	<input type="checkbox"/>
Morrow Mntn	<input type="checkbox"/>	Jacks Rf (notch)	<input type="checkbox"/>
Guilford	<input type="checkbox"/>	Jacks Rf (pent)	<input type="checkbox"/>
Brewerton	<input type="checkbox"/>	Madison/Potomac	<input type="checkbox"/>
Otter Creek	<input type="checkbox"/>	Levanna	<input type="checkbox"/>

### Prehistoric Sherd Types

Marcey Creek	<input type="checkbox"/>	Popes Creek	<input type="checkbox"/>	Shepard	<input type="checkbox"/>	Keyser	<input type="checkbox"/>
Dames Qtr	<input type="checkbox"/>	Coulbourn	<input type="checkbox"/>	Townsend	<input type="checkbox"/>	Yeocomico	<input type="checkbox"/>
Selden Island	<input type="checkbox"/>	Watson	<input type="checkbox"/>	Minguannan	<input type="checkbox"/>	Monongahela	<input type="checkbox"/>
Accokeek	<input type="checkbox"/>	Mockley	<input type="checkbox"/>	Sullivan Cove	<input type="checkbox"/>	Susquehannock	<input type="checkbox"/>
Wolfe Neck	<input type="checkbox"/>	Clemson Island	<input type="checkbox"/>	Shenks Ferry	<input type="checkbox"/>		
Vinette	<input type="checkbox"/>	Page	<input type="checkbox"/>	Moyaone	<input type="checkbox"/>		
				Potomac Crk	<input type="checkbox"/>		

### Historic Sherd Types

Earthenware		Ironstone		Staffordshire		Stoneware	
Astbury	<input type="checkbox"/>	Jackfield	<input type="checkbox"/>	Tin Glazed	<input type="checkbox"/>	English Brown	<input type="checkbox"/>
Borderware	<input type="checkbox"/>	Mn Mottled	<input type="checkbox"/>	Whiteware	<input type="checkbox"/>	Eng Dry-bodied	<input type="checkbox"/>
Buckley	<input type="checkbox"/>	North Devon	<input type="checkbox"/>	Porcelain	<input type="checkbox"/>	Nottingham	<input type="checkbox"/>
Creamware	<input type="checkbox"/>	Pearlware	<input type="checkbox"/>			Rhenish	<input type="checkbox"/>
						Wt Salt-glazed	<input type="checkbox"/>

All quantities exact or estimated minimal counts

## Other Artifact & Feature Types:

Prehistoric Artifacts		Other fired clay	
Flaked stone	<input type="checkbox"/>	Human remain(s)	<input type="checkbox"/>
Ground stone	<input type="checkbox"/>	Modified faunal	<input type="checkbox"/>
Stone bowls	<input type="checkbox"/>	Unmod faunal	<input type="checkbox"/>
Fire-cracked rock	<input type="checkbox"/>	Oyster shell	<input type="checkbox"/>
Other lithics (all)	<input type="checkbox"/>	Floral material	<input type="checkbox"/>
Ceramics (all)	<input type="checkbox"/>	Uncommon Obj.	<input type="checkbox"/>
Rimsherds	<input type="checkbox"/>	Other	<input type="checkbox"/>

### Prehistoric Features

Mound(s)	<input type="checkbox"/>	Storage/trash pit	<input type="checkbox"/>
Midden	<input type="checkbox"/>	Burial(s)	<input type="checkbox"/>
Shell midden	<input type="checkbox"/>	Ossuary	<input type="checkbox"/>
Postholes/molds	<input type="checkbox"/>	Unknown	<input type="checkbox"/>
House pattern(s)	<input type="checkbox"/>	Other	<input type="checkbox"/>
Palisade(s)	<input type="checkbox"/>		
Hearth(s)	<input type="checkbox"/>		
Lithic reduc area	<input type="checkbox"/>		

### Lithic Material

Fer quartzite	<input type="checkbox"/>	Sil sandstone	<input type="checkbox"/>
Jasper	<input type="checkbox"/>	Chalcedony	<input type="checkbox"/>
Chert	<input type="checkbox"/>	Ironstone	<input type="checkbox"/>
Rhyolite	<input type="checkbox"/>	Argilite	<input type="checkbox"/>
Quartz	<input type="checkbox"/>	Steatite	<input type="checkbox"/>
Quartzite	<input type="checkbox"/>	Sandstone	<input type="checkbox"/>

Dated features present at site

Historic Artifacts		Tobacco related	
Pottery (all)	<input type="checkbox"/>	Activity item(s)	<input type="checkbox"/>
Glass (all)	<input type="checkbox"/>	Human remain(s)	<input type="checkbox"/>
Architectural	<input type="checkbox"/>	Faunal material	<input type="checkbox"/>
Furniture	<input type="checkbox"/>	Misc. kitchen	<input type="checkbox"/>
Arms	<input type="checkbox"/>	Floral material	<input type="checkbox"/>
Clothing	<input type="checkbox"/>	Misc.	<input type="checkbox"/>
Personal items	<input type="checkbox"/>	Other	<input type="checkbox"/>

### Historic Features

Privy/outhouse	<input type="checkbox"/>	Depression/mound	<input type="checkbox"/>	Unknown	<input type="checkbox"/>
Const feature	<input type="checkbox"/>	Well/cistern	<input type="checkbox"/>	Burial(s)	<input type="checkbox"/>
Foundation	<input checked="" type="checkbox"/>	Trash pit/dump	<input type="checkbox"/>	Railroad bed	<input type="checkbox"/>
Cellar hole/cellar	<input type="checkbox"/>	Sheet midden	<input type="checkbox"/>	Earthworks	<input checked="" type="checkbox"/>
Hearth/chimney	<input type="checkbox"/>	Planting feature	<input type="checkbox"/>	Mill raceway	<input checked="" type="checkbox"/>
Postholes/molds	<input type="checkbox"/>	Road/walkway	<input type="checkbox"/>	Wheel pit	<input checked="" type="checkbox"/>
Paling ditch/fence	<input type="checkbox"/>				

All quantities exact or estimated minimal counts

## Radiocarbon Data:

Sample 1:  +/-  years BP Reliability  Sample 2:  +/-  years BP Reliability  Sample 3:  +/-  years BP Reliability

Sample 4:  +/-  years BP Reliability  Sample 5:  +/-  years BP Reliability  Sample 6:  +/-  years BP Reliability

Sample 7:  +/-  years BP Reliability  Sample 8:  +/-  years BP Reliability  Sample 9:  +/-  years BP Reliability

Additional radiocarbon results available



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19th century gun powder mill with earth dam and race

Unknown

## External Samples/Data:

Collection curated at No accession record at MAC Lab

Additional raw data may be available online

## Summary Description:

The Bellona Powder Works site (18BA139) represents the remains of a substantial nineteenth century gunpowder mill complex located on the Powder Mill Run tributary of the Gwynns Falls in Baltimore County, Maryland. The historic component at 18BA139 consists of 17 surface features within the 7.06- ha site and associated historic artifacts.

18BA139 is situated within the Pimlico Upland District of the Eastern Piedmont Province, north of the Patapsco River. The Pimlico Upland is generally characterized by gently rolling to flat topography. The eastern area of the Pimlico Upland is incised by Gwynns Falls and Jones Falls, and the underlying sediments consist of gravelly silts, clays, and loams, and are very stony. The 18BA139 study area is in a lowland, and the bottoms of Powder Mill Run are bounded by steep hillslopes on the east and west. The underlying geology is defined by the Baltimore Gabbro Complex. Site 18BA139 straddles both sides of Powder Mill Run, which drains into Gwynns Falls to the southwest. The area is currently covered in secondary-growth trees. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) has mapped Codorus silt loam, Fluvents, Jackland silt loam, Legore silt loam, Montalto silt loam, and modified urban land soils within the study area.

The Bellona Powder Works site was first recorded as an archaeological site in February of 1975 by George and Eleanor Wilcox, members of the Archaeological Society of Maryland. A Phase I archaeological survey of 18BA139 was conducted in February 2016 for the proposed Powder Mill sewer interceptor project between Powder Mill Lane and Gwynnmore Avenue in Baltimore County, Maryland, to identify undocumented archaeological sites and determine if 18BA139 may be impacted by the proposed undertaking. A subsequent Phase II evaluation was conducted in January 2017 to assess site 18BA139's eligibility for listing in the NRHP. Work was conducted in accordance with the National Historic Preservation Act (NHPA) and the Maryland Historical Trust Act of 1985 (State Finance and Procurement Article 5A-325 and 5A-326 of the Annotated Code of Maryland).

The objectives of the Phase I archaeological survey were to document archaeological sites within the study area, define site size and approximate site boundaries, and preliminarily assess them, if possible, for NRHP significance. The objectives of the Phase II archaeological evaluation were to evaluate 18BA139's NRHP significance, including providing additional documentation of the Bellona Powder Works site's features, enhancing its historic context, refining site size and boundaries, and investigating subsurface integrity.

Field investigations included a pedestrian survey, shovel test pit (STP), and test unit (TU) excavation. The pedestrian survey was conducted to identify areas amenable to subsurface testing and to identify surface features and artifacts associated with site 18BA139 or previously undocumented archaeological sites. Surface features were visually inspected, photographed, and recorded with GPS. As no testable areas, surface features, or artifacts were noted upstream of site 18BA139, shovel testing was confined to portions of the 18BA139 site within and adjacent to the APE.

STPs (n=15) excavated during the Phase I survey measured 40 cm in diameter while STPs (n=4) excavated during the Phase II evaluation measured 50 cm square. Phase I STPs were excavated at 10- and 20-m intervals, whereas Phase II STPs were excavated in judgmental locations within the vicinity of known or suspected archaeological features within the APE. All STPs were excavated within natural stratigraphy to a depth of 1 m or 10 cm into sterile subsoil, whichever was encountered first.

Based on the results of the pedestrian and STP surveys, two test units (TUs) were excavated in select locations within the APE to investigate potential subsurface resources associated with archaeological features observed on the surface. TUs measured 1-x-1-m or 1-x-2-m and, where possible, were excavated in 10-cm levels within natural stratigraphy to a depth of 10 cm into culturally sterile subsoil. In addition to TU excavation, a stepped, cut profile was excavated into the milldam's east elevation where the existing sewer line passes through it. Measuring up to 1 m wide and 2.2 m tall, the profile was excavated to examine the milldam's internal structure and construction techniques.

All excavated soils were screened through 0.25-inch hardware cloth in order to ensure uniform artifact recovery. Bricks were sampled from contexts in which they were recovered in large quantities and the remainder were weighed and discarded in the field. Field data were recorded on standard field forms and in general field notes. Forms included Munsell soil color, soil texture, profiles, features, artifacts recovered, excavator initials, and the date of excavation. Features, STPs, and TUs were mapped using a Trimble Nomad GPS unit.

The historical context research for the 18BA139 indicated that during its operational period as a gunpowder mill, site 18BA139 was variously owned by the Aetna Company, the Bellona Gunpowder Company, Charles Beatty and George Cole, the Smith & Rand Powder Company, and lastly the Laflin & Rand Powder Company. During its 68 years of company ownership, site 18BA139 seems to have outlasted all of its local competitors and was probably the longest-lasting, continuously occupied gunpowder mill in the Baltimore region and perhaps the state of Maryland.

The Aetna Company constructed the gunpowder mills at site 18BA139 around 1813 and operated the mills until 1833. In 1833, the Bellona Gunpowder Company acquired the Aetna mills. The mill along Powder Mill Run appears to have acquired the name "Battle Mill" at some point early in the Bellona Company's ownership. The Bellona Gunpowder Company ultimately transferred the Aetna mills to one of its directors, Charles Beatty, and his associate George B. Cole in 1859. George Cole remained a part of the mills' operation until he sold his interest to Charles Beatty in 1862. Beatty continued to operate the mills until 1867, when he sold the property to the Smith & Rand Powder Company.

On August 24, 1869 the Smith & Rand Company merged with the Laflin Powder Company. The mills at site 18BA139 were officially conveyed to the newly organized Laflin & Rand Powder Company in December 1869. The 18BA139 property was sold to a private landowner in 1882 without any mention of the gunpowder mills or machinery, suggesting that by 1882 the gunpowder mill complex was no longer operational. The sale price dropped from \$12,000 in 1869 to only \$1,800 in 1882, strongly supporting the likelihood that many of the mills' components were no longer onsite by that date.

Field investigations at 18BA139 included a pedestrian survey of the entire area of potential effect (APE) between Gwynndale Avenue to the south and Liberty Heights Avenue to the north, pedestrian survey and STP excavation within the vicinity of site 18BA139, surface feature mapping and documentation within the mill complex, and TU excavation in locations where the APE intersects archaeological surface features. In total, 19 STPs and two TUs were excavated, resulting in the recovery of 230 historic artifacts. 17 features were also documented. Based on these excavations and the distribution of archaeological surface features, the site boundaries encompass 7.06 ha.



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Description:

19th century gun powder mill with earth dam and race

Unknown

Within the vicinity of 18BA139, the Phase I pedestrian survey revealed numerous features associated with the gunpowder mill's operation, including the milldam, several structural foundations, millraces, flood control berms/channels, possible bridge abutments, and an unidentified pit. The pedestrian survey also revealed two rectilinear stone features that may not be affiliated with the mill complex.

Nineteen STPs were excavated at site 18BA139 including 15 STPs during the Phase I and 4 STPs during the Phase II. Shovel testing was restricted to 18BA139 due to the high concentration of surface features and the total absence of surface features and suitable STP locations elsewhere within the study area. No artifacts were recovered during shovel testing.

Based on the results of pedestrian survey and shovel testing, two TUs were excavated at 18BA139 to investigate the potential for subsurface archaeological resources associated with surface features that intersect the APE. TU 1 was a 1-x-1 m unit that was placed on the eastern edge of the north wall of Feature 2 (unidentified stone feature) where it intersects the APE's west boundary. The unit was placed in this location to determine the presence of any subsurface archaeological deposits associated with Feature 2. Excavation revealed that Feature 2's stonework rests on the modern floodplain surface, as no evidence for any subsurface components were identified. Two undecorated whiteware fragments were recovered from the unit and were probably deposited as incidental discards early in the mill's operational period.

TU 2 was a 1-x-2 m unit that was placed at the intersection of the APE's east boundary and the south berm of Feature 7 (possible millrace/spillway). The unit's location and orientation were selected to provide a cross section of Feature 7 in an effort to determine the nature of its subsurface integrity. Dense concentrations of small to large stones were encountered throughout the unit. Most of the larger boulders were associated with the loose rubble substructure of Feature 7's south berm, while many of the smaller rocks were external to the feature's substructure and probably represent colluvial or alluvial inclusions. Feature 13, a utility trench and spoil pile berm, was recorded in much of the northwestern third of TU 2. In total, 224 artifacts were recovered from TU 2 and four from Feature 13.

Seventeen features were identified at 18BA138. These include a variety of structures and buildings that in part comprise the larger mill complex in addition to other features that may be unaffiliated with gunpowder production. Most of the surface features are attributable to the mill complex, including the milldam (Feature 1), an overshot mill (Feature 5), an undershot mill (Feature 9), the primary millrace (Feature 4), a secondary millrace (Feature 10), a possible millrace/spillway (Feature 7), a possible drying house/tenement (Feature 6), a possible tenement (Feature 3), possible building remains (Feature 17), a historic roadway (Feature 16), bridge abutments (Feature 14), and flood control channels/berms (Features 12 and 15). A possible quarry pit (Feature 11) maybe affiliated with the industrial use of 18BA139. A partial, rectilinear surface stone feature (Feature 8) does not appear to be a building foundation and its relation to the mill complex is unknown. A similar feature erected after the millpond was drained (Feature 2) postdates the site's industrial occupation, and a utility trench/spoil mound (Feature 13) is associated with a mid-twentieth century sewer line installation.

Field investigations resulted in the recovery of 230 historic artifacts. This includes 221 brick fragments, 2 window glass sherds, 1 cut nail, 1 wrought copper tack, 1 iron fragment, 1 creamware sherd, 2 whiteware sherds, and 1 sherd of redware. Because the site is regularly subjected to flooding and refuse disposal from adjacent neighborhoods, some artifacts recovered from the floodplain's A Horizon may not be associated with the mill complex at 18BA139. However, most of the artifacts are attributed to the site's industrial period.

Brick fragments dominate the assemblage and represent the fabric of mill buildings and/or particular architectural elements (e.g., chimneys, piers). A single cut nail and wrought copper tack are probably affiliated with mill building framing and roofing members, while a single piece of window glass could be associated with a mill building or nearby dwelling. Four historic ceramics are probably affiliated with the mill complex's tenements and/or nearby dwellings. Significantly larger proportions of architectural artifacts compared to domestic artifacts are consistent with expectations for a predominantly industrial site with minor housing components. The temporally diagnostic artifact assemblage is too small to provide significant detail on the site's period of occupation, although the creamware (1762-1820), whiteware (1820+), and cut nail (1790-1900s) fit within the site's documented early to late nineteenth century operational period.

In sum, Site 18BA139 consists of the remains of a gunpowder mill, which operated under a variety of names and ownership from 1812 to 1882. Historic maps and records from the early to mid-1800s suggest that the mill complex included between seven and 14 structures in addition to the milldam. The Phase I and II investigations identified a number of mill complex features including the milldam, millraces, mills, unidentified buildings, flood control features, bridge abutments, and a road. While many of the features associated with the site have collapsed, it is possible that the internal structure of these features, as well as other undocumented features, is preserved underneath rubble and sediment post-dating the abandonment of the mill complex. Furthermore, the features in their current state collectively demonstrate the design and engineering strategies the mill builders employed, serving as the only known example of Maryland gunpowder mill design registered with the MHT. Because of the site type's rarity, 18BA139 is uniquely reflective of the arc of Baltimore's gunpowder production history, which itself is an essential component of the early historic context for the American explosives industry.

18BA139 was recommended as eligible for listing in the NRHP under Criteria A, C, and D. As the only known extant gunpowder mill registered with MHT, 18BA139 is uniquely reflective of critical component of the state and nation's industrial history. The mill features at site 18AB139 collectively represent a portion of the gunpowder production process as well as the engineering controls used to operate and protect the complex. In addition to its commentary on industrial engineering and design, site 18BA139 is unique in the context of Maryland gunpowder history as the most informative, and perhaps only, physical reflection of Baltimore's rise as a prominent manufacturing center in the early history of American gunpowder production. Due to its strong ties with national and local gunpowder production narratives, site 18BA139 is a direct embodiment of the motives, market forces, fortunes, and failures that characterize this chapter of American industrial history.

The limited nature of the Phase II archaeological excavations, which were confined to the area of potential effect (APE), precluded subsurface testing in the vicinity of many of the features identified at 18BA139. The excavations indicate, however, that extensive alluvial deposits have formed over the nineteenth century occupational surfaces. This suggests that while intact archaeological deposits are not located within the APE, they are probably present beyond the APE. Efforts should be made to minimize any adverse effects at 18BA139. If adverse effects cannot be avoided, such as avoiding all surface features then minimization and mitigation measures will be needed.

## External Reference Codes (Library ID Numbers):

18BA139 SF, 95002816