Phase II and Phase III Archaeological Database and Inventory

MARYLAND HISTORICAL TRUST

Site Number: 18FR331 **Site Name:** Catoctin Raceway

Other name(s) Orr's "Check 17"

Prehistoric ☐ Historic ☑ Unknown ☐

Brief Description: possibly late 18th and 19th century raceway

Site Location and Environmental Data:

Latitude 39.5677 Longitude -77.4240

Elevation m Site slope 11-20%

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

Maryland Archaeological Research Unit No. 17 SCS soil & sediment code EcC3

Physiographic province Blue Ridge Terrestrial site ☑ Underwater site ☐

Ethnobotany profile available ☐ Maritime site ☐

Topography

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

Ownership

Private	☑
Federal	☐
State of MD	☐
Regional/ county/city	☐
Unknown	☐

Nearest Surface Water

Name (if any) Little Hunting Creek

Saltwater		Freshwater	
Ocean	☐	Stream/river	☐
Estuary/tidal river	☐	Swamp	☑
Tidewater/marsh	☐	Lake or pond	☐
		Spring	☐

Minimum distance to water is 300 m

Temporal & Ethnic Contextual Data:

Paleoindian site	☐	Woodland site	☐	Contact period site	☐	ca. 1820 - 1860	Y
Archaic site	☐	MD Adena	☐	ca. 1630 - 1675	☐	ca. 1860 - 1900	Y
Early archaic	☐	Early woodland	☐	ca. 1675 - 1720	☐	ca. 1900 - 1930	☐
MIddle archaic	☐	Mid. woodland	☐	ca. 1720 - 1780	☐	Post 1930	☐
Late archaic	☐	Late woodland	☐	ca. 1780 - 1820	P		

Unknown prehistoric context ☐ Unknown historic context ☐ Unknown context ☐

Ethnic Associations (historic only)

Native American	☐	Asian American	☐
African American	☐	Unknown	Y
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	☐	Furnace/forge	☐	**Military**	☐	Post-in-ground	☐
Homestead	☐	Other	☐	Battlefield	☐	Frame-built	☐
Farmstead	☐	**Transportation**	☐	Fortification	☐	Masonry	☐
Mansion	☐	Canal-related	☐	Encampment	☐	Other structure	☐
Plantation	☐	Road/railroad	☐	**Townsite**	☐	**Slave related**	☐
Row/townhome	☐	Wharf/landing	☐	**Religious**	☐	**Non-domestic agri**	☐
Cellar	☐	Maritime-related	☐	Church/mtg house	☐	**Recreational**	☐
Privy	☐	Bridge	☐	Ch support bldg	☐	**Midden/dump**	☐
Industrial	☑	Ford	☐	**Burial area**	☐	**Artifact scatter**	☐
Mining-related	☐	**Educational**	☐	Cemetery	☐	**Spring or well**	☐
Quarry-related	☐	**Commercial**	☐	Sepulchre	☐	**Unknown**	☐
Mill	☑	Trading post	☐	Isolated burial	☐	**Other context**	☐
Black/metalsmith	☐	Store	☐	**Bldg or foundation**	☐		
		Tavern/inn	☐	Possible Structure	☐		

Interpretive Sampling Data:

Prehistoric context samples			
Soil samples taken	☐	Flotation samples taken	☐
Other samples taken			

Historic context samples			
Soil samples taken	N	Flotation samples taken	N
Other samples taken			

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Diagnostic Artifact Data:

Projectile Point Types

Clovis		Koens-Crispin	
Hardaway-Dalton		Perkiomen	
Palmer		Susquehana	
Kirk (notch)		Vernon	
Kirk (stem)		Piscataway	
Le Croy		Calvert	
Morrow Mntn		Selby Bay	
Guilford		Jacks Rf (notch)	
Brewerton		Jacks Rf (pent)	
Otter Creek		Levanna	

All quantities exact or estimated minimal counts

Prehistoric Sherd Types

Marcey Creek		Popes Creek		Shepard		Keyser	
Dames Qtr		Coulbourn		Townsend		Yeocomico	
Selden Island		Watson		Minguannan		Monongahela	
Accokeek		Mockley		Sullivan Cove		Susquehannock	
Wolfe Neck		Clemson Island		Shenks Ferry			
Vinette		Page		Moyaone			
				Potomac Crk			

Historic Sherd Types

Earthenware		Ironstone		Staffordshire	
Astbury		Jackfield		Tin Glazed	
Borderware		Mn Mottled		Whiteware	7
Buckley		North Devon		**Porcelain**	
Creamware		Pearlware	1		

Stoneware

English Brown	
Eng Dry-bodied	
Nottingham	
Rhenish	
Wt Salt-glazed	

Other Artifact & Feature Types:

Prehistoric Artifacts

Flaked stone		Other fired clay	
Ground stone		Human remain(s)	☐
Stone bowls		Modified faunal	
Fire-cracked rock		Unmod faunal	
Other lithics (all)		Oyster shell	☐
Ceramics (all)		Floral material	☐
Rimsherds		Uncommon Obj.	
		Other ☐	

Prehistoric Features

Mound(s)		Storage/trash pit	☐
Midden	☐	Burial(s)	☐
Shell midden	☐	Ossuary	☐
Postholes/molds	☐	Unknown	☐
House pattern(s)	☐	Other	☐
Palisade(s)	☐		
Hearth(s)	☐		
Lithic reduc area	☐		

Lithic Material

Fer quartzite	☐	Sil sandstone	☐		
Jasper	☐	Chalcedony	☐	European flint	☐
Chert	☐	Ironstone	☐	Basalt	☐
Rhyolite	☐	Argilite	☐	Unknown	☐
Quartz	☐	Steatite	☐	Other	☐
Quartzite	☐	Sandstone	☐		

☐ **Dated features present at site**

Historic Artifacts

		Tobacco related	
Pottery (all)	16	Activity item(s)	103
Glass (all)	6	Human remain(s)	☐
Architectural	14	Faunal material	☐
Furniture		Misc. kitchen	3
Arms		Floral material	☐
Clothing		Misc.	26
Personal items	1	Other ☐	

Historic Features

Const feature	☐	Privy/outhouse	☐	Depression/mound	☐
Foundation	☐	Well/cistern	☐	Burial(s)	☐
Cellar hole/cellar	☐	Trash pit/dump	☐	Railroad bed	☐
Hearth/chimney	☐	Sheet midden	☐	Earthworks	☐
Postholes/molds	☐	Planting feature	☐	Mill raceway	☑
Paling ditch/fence	☐	Road/walkway	☐	Wheel pit	☐

Unknown	☐
Other	☑
retaining wall,dam	

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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Brief Description: possibly late 18th and 19th century raceway

External Samples/Data:

Collection curated at MAC

☐ Additional raw data may be available online

Summary Description:

Site 18FR331 consists primarily of apparent 18th and 19th century features associated with a series of raceways which played various roles in the hydraulic power system at Catoctin Furnace. The site is located in the southern portion of the Catoctin Furnace Historic District along US Route 15 in Frederick County, Maryland. Excavations at the site revealed at least three hydraulic power systems for the total time period of the furnace. Although primarily devoid of artifact concentrations, a sufficient number of diagnostic artifacts were recovered to work out the basic chronology of the three hydraulic systems. In addition to the hydraulic systems, some evidence was uncovered at the site pointing to the possibility that an iron furnace built in the 1770s is located at the northeast end of the site.

The site was first examined by archeologists in 1977 during a Phase I survey through the Catoctin Furnace Historic District and environs prior to the dualization of US Route 15. During the investigations, the area was extensively surveyed on foot and the presence of a U-shaped section of raceway was noted. An area at the north end of the site and directly to the east of the raceway was also brought to the attention of the researchers by a long-time resident of the area. Mr. William Renner had played a role in WPA excavations in the main furnace area ½ mile north of the site in 1936. These excavations focused on the area surrounding the extant ruins of the mid-19th century "Isabella" furnace stack (now restored). Renner noted that during the construction of his son-in-law's garage, stratigraphy was encountered that closely matched that encountered by Renner in the Isabella stack's casting shed. This consisted of numerous superimposed layers of red and yellow sand interspersed with charcoal and other casting house debris. He also recalled that several 1.22 meter-long (4 ft) iron bolts for holding stones together were found in the site area, but had since disappeared. It was speculated that the deposits observed by Renner could be the remains of the very first iron blast furnace constructed at Catoctin around 1774, and that the nearby raceway supplied water power for the furnace bellows and other machinery. The conjectured stack/casting floor location was designated Feature 1 and the raceway was designated Feature 2. As Feature 1 was located beneath a standing garage and was outside the easement area for the highway project, archeological testing was not conducted in this area in 1979 when Phase II testing took place at 18FR331. Very limited testing was eventually conducted in the spring of 1980. Several backhoe trench excavations were undertaken in the raceway area in 1979, which revealed a more complex hydraulic system than previously envisioned. Archival and oral history research also played a role at the Phase I and Phase II stages in 1977 and 1979 respectively. A brief overview of this research will be provided, prior to an overview of the archeological excavations.

Archival and oral history research revealed that in the year 1774, James, Thomas, Baker, and Roger Johnson constructed the first iron furnace at Catoctin. In 1776, they began producing pig iron under the name of James Johnson and Company. Hematite ore from the Catoctin Mountains provided the raw material for production of the iron while the Catoctin forests provided charcoal for fuel. In addition, water from the local springs and streams provided the energy to power enormous bellows blowing air into the furnace, as well as power for forge hammers, mills, and other machines. A complex system of ponds, races, ditches, dams, and aqueducts ensured that the water wheels were supplied with sufficient "drop" to maintain the power levels needed. One of the most important early products of the furnace is rumored to have been supplies (including cannon and cannonballs) for George Washington's Army. While pig iron continued to be produced at the furnace, other important products were machine parts, foundry rolling mills, iron car/cart wheels, cast-iron stoves, and other materials. During the Civil War, iron from the furnace was used to armor the famous iron-clad ship, the Monitor. Over the course of history a number of additional furnace stacks, support structures, quarries, casting areas, and other structures were constructed in the area. Some structures were demolished and improved facilities were built.

No issue is more contentious in the interpretation of the Catoctin Furnace area than the location of the original stack built by the Johnsons. Many researchers have argued that all of the furnaces at Catoctin were located in the same general area. This is the main furnace area to the north; site number 18FR29. Archival evidence clearly indicates that a hot blast charcoal furnace (called "Isabella") was built in 1856 near the site of an already extant charcoal furnace dating back to the 18th century. Much of Isabella was dismantled in 1893, but some ruins were left and the stack and casting house were eventually restored for interpretive purposes. The old 18th century stack near Isabella had been dismantled a few years prior (ca. 1890) after being deemed obsolete. The last furnace to be constructed at Catoctin was "Deborah", built in 1873. This was a steam and water operated hot blast, anthracite coke furnace encompassing the latest improvements in furnace technology. Its annual capacity for producing pig iron was 3 times that of the other two furnaces combined. It was dismantled in the early 20th century following the last blast at Catoctin and salvageable parts were shipped to iron furnaces in Pennsylvania. What is less certain historically is whether the old charcoal furnace near Isabella (see above) was the original (ca. 1774) stack, a later 18th century stack constructed on the same site as the original, or a later 18th century stack constructed approximately ¾ mile north of the original (ca. 1774) furnace. The key piece of historical evidence for a furnace stack outside the confines of 18FR29, is a statement by J.H. Alexander concerning information he had received directly from James Johnson, descendent of the founders of Catoctin Furnace. In 1840 Alexander wrote that, "The original furnace was built in 1774 by James Johnson & Co. within a mile of the present furnace stack, and carried on successfully until 1787, in which year the same company erected the present furnace about three-fourths of a mile further up the Little Hunting Creek and nearer the ore banks". Since Alexander's informant was a Johnson, he is probably correct and the 18th century stack standing in 1840 at 18FR29 was the second Johnson stack constructed in 1787. While Site 18FR331 is located well south of the main furnace areas at 18FR29, it should be noted that it is also far short of ¾ mile to the south (it is just under ½ mile away from Isabella). Archival evidence and oral history can reveal little else to confirm the Alexander account and archeological excavation is warranted to solve this mystery.

The raceway (Feature 2) at 18FR331 was the primary subject of archeological testing at the site in 1979. In surface appearance, it is a continuation of the raceway noted at several points throughout the US Route 15 survey area, and appeared to originate in the Racepond (18FR327) north of the main furnace area and next to the Little Hunting Creek. It eventually led to the former Auburn pond area to the south. In some places the raceway is blurred and no longer stands out from the surrounding landscape, but in others it is quite evident and even supported by significant stone retaining walls (such as the one noted at 18FR321). At 18FR331, the exposed portions of the raceway were 91 cm to 1.22 meters (3 to 4 ft) deep and ran for sections of 15.24 meters (50 ft) or more at a time. It was supported by a stone wall facing eastward, over much of the distance between the location of Feature 1 (east of the wall and at the far north end of the defined site) and the old Auburn Dam some 137.16 meters (450 ft) to the south. It should be noted that next to Feature 1, the raceway is nearly level with the surrounding ground surface. It is difficult to see how it could have powered an overshot wheel at this point to work furnace bellows.

Eight large trenches and at least 3 smaller trenches/test pits were excavated at the site to expose a vertical profile through the raceway. A backhoe was used to remove fill, while features and trenching in significant deposits was expanded and modified by hand excavation with shovel and trowel. Precise details regarding the size of units and the excavation procedures for each are not provided in the full site report, but trenches typically cut across Feature 2 (the raceway) in a general east-west direction. Feature 3 was exposed in some of the trenches and constituted a continuation of a stone retaining wall resting on residuum (the same wall noted at the surface above). It also became evident that at least two raceway channels were superimposed or entwined throughout

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Feature 2 of 18FR331. A third, also appears evident, but seems to have followed a slightly different course. Thus, the “raceway” is actually three raceways; components of three different hydraulic power systems in operation during different periods at Catoctin Furnace.

The first power system, Hydraulic System A, was constructed sometime around 1760 and appears to have run from a dam to the southeast of 18FR29 on Little Hunting Creek (according to Renner), flowing southwest until just before the area that would eventually become known as “The Big Ore Bank” (see synopsis report for 18FR328). It then turned abruptly south following the same general route that the other two raceways would eventually follow to the northern edge of 18FR331, where the conjectured 1774 furnace may have been located. Archeology reveals that it then continued south, below the Auburn Dam at a time when the dam had not yet been constructed. Excavations at site 18FR320 reveal that the “tailrace” (if indeed Hydraulic System A powered bellows at Feature 1) made an abrupt turn to the east and flowed through an area where there is some evidence of ancillary iron-working activities at a later date (see the synopsis report for 18FR320), but where nothing else is located at this early date. These waters could have powered forges, foundries, mills, or other iron working facilities and support industries as yet undiscovered to the east of 18FR320 (and outside the US-15 project right-of-way). Oral history and some scant archival evidence does suggest that the area around the Auburn dam was the site of some early iron working activity (usually thought to be a forge or foundry). Alternatively, the 1774 stack may have actually been located in these unexcavated areas east of 18FR320. The race would not have been a tailrace, but a headrace dropping rapidly from west to east to power the bellows of the 1774 stack before flowing back to Little Hunting Creek. Such a location would be much closer to the ¾ mile south of the main furnace area referenced in Alexander’s 1840 letter. The Auburn ore bank is located just to the west of the point where the race made its turn, which is also suggestive.

Within most of 18FR331, Hydraulic System B was cut directly into the raceway for System A at a time prior to the construction of the Auburn dam. System B was probably constructed around 1787 when the Johnson’s supposedly built the old charcoal stack to the north (the 1787 stack). The existing raceway and dam were not situated to supply sufficient water “drop” to this area and, thus, the new racepond at site 18FR327 was constructed and Hydraulic System B flowed south from there to the new stack. It then joined up with the earlier raceway to head south towards Auburn. It more-or-less followed the same route as System A (as stated previously, evidence within the site suggests B was cut directly into A in many areas) until it reached the area just south of the eventual Auburn Dam. Instead of following System A south before turning abruptly east, System B branched off gradually to the southeast to some unknown destination. Perhaps it fueled some of the 19th century ironworking activities in evidence here (18FR320). Or it may have simply flowed gradually back to Little Hunting Creek. System A to the east apparently continued to flow at least into the early 1830s. Significant silting of the System A raceway appears to have taken place from about 1774 to 1831 indicating a probable period for the lifespan of that structure. The Auburn dam was built sometime between 1831 and 1856, after Hydraulic System B, but before C. Most historical research has suggested (but not proved) a date sometime shortly after Peregrine Fitzhugh’s 1843 purchase of the property for the construction of the dam. It is well-documented that Fitzhugh made several other improvements during the period from about 1843-1845 and the dam may have been a part of this general redevelopment. Water from the Auburn pond was held back by a dam bank which begins at the northeast edge of the site (near Feature 1) and wraps around to a significant retaining wall on the south. A water wheel niche appears to be cut into this retaining wall near its eastern end. Perhaps this waterwheel powered the conjectured 19th century forge, foundry, or other iron-working structure(s) thought to be located east of 18FR320. An “old forge” is located near here on an 1858 map. This structure, if it existed, may have been in operation between 1831 and about 1850 (assuming an early date for the dam and the 1858 reference to it being “old” meaning it was abandoned a few years earlier) or between 1843/1845 and 1850 (assuming the theories about Fitzhugh building the dam are correct). There is also evidence at 18FR320 of a charcoal house and ancillary iron working activity areas dating to between about 1830 and 1850. The activity area appears to have been a locale for the finishing and final assembly of cast-iron goods produced elsewhere. Such activities usually took place near forges, foundries, or furnaces and a charcoal house would have normally been located near the point of consumption.

Hydraulic System C was built around 1856, when significant improvements were made at Catoctin and the Isabella stack was built next to the old 18th century charcoal stack. The walls of Hydraulic System B between the racepond at 18FR327 and the two furnace stacks were raised on both sides to produce a channel that carried double the original load of water. A new dam was installed further south on Little Hunting Creek, just above the stacks and Raceway C ran south from this dam to join up with the improved System B just before reaching the waterwheels for the two furnaces. A greatly expanded tailrace was needed to divert all of the additional water south, and thus Raceway C continues south towards the Auburn area following its own course. It runs parallel to System A/B, just to the east of it until reaching the Big Ore bank area (see synopsis report for 18FR328). It then crosses over to the west side of System A/B and enters Auburn Pond at its northwest edge.

Artifacts encountered during the 1979 Phase II excavations include 103 activity items, all of which except a single horseshoe are clearly related to the iron industry at Catoctin. These include a wedge gate, a piece of ash, 16 fragments of iron ore, 59 fragments of slag, 6 iron waste pieces, 18 fragments of charcoal, and a piece of clay with charcoal. Fourteen architectural objects were encountered; 3 pieces of brick, 2 flagstones, 7 fieldstone pieces, and 2 nails. The only personal object recovered was a clasp knife with a tortoise shell handle. Kitchen-related objects in the raceway fill included 16 ceramic sherds (1 pearlware, 4 miscellaneous stoneware, 7 whiteware, and 4 redware), 6 glass bottle fragments (at least 1 is hand-blown), a piece of tin can, 1 shell fragment and a walnut shell. The only other objects reported were 26 rocks which may or may not have been components of the raceway structures.

Archeologists returned to the site in the spring of 1980 to conduct limited archeological testing in the area at the north end of the site where Feature 1(a possible location of the 1774 furnace) was situated. A small test unit of unspecified size was excavated by hand. Strata were encountered which were similar to casting floors in other areas throughout Catoctin (18FR320 and 18FR333). Slag was encountered, but no other artifacts are described. The location warrants additional examination and likely would have been excavated further if funding had been available for work outside the highway project right-of-way.

Site 18FR331 revealed evidence which is extremely helpful in interpreting the activities at Catoctin Furnace. It reveals several stages in the evolution of the hydraulic systems that powered the furnaces and other industrial structures in the area. Unfortunately, many questions remain. Interpretation would certainly be improved through additional excavation at the northeast edge of the site in the area of Feature 1. Determining if this is the remains of the 1774 furnace built by the Johnsons remains the most significant research question concerning the area’s history. Additional work outside the site boundaries, in the area east of 18FR320 would also probably be necessary to adequately address this issue.

External Reference Codes (Library ID Numbers):

00005963, 00005972, 00005973