

4. Project Procedures

4.1 Standard Procedures for Producing, Reviewing, and Curating Archaeological Records - Sara Rivers Cofield

Before discussion of the procedures followed for purposes of the ECAMDAR project, it is important to understand how DoD archaeological projects are conducted and how the collections that result from these projects are currently handled. Procedures vary somewhat by department and installation, but all Federal agencies share regulations that guide the process, so current practice can be described in general terms (Figure 6).

In accordance with Federal laws (DoD 2005), DoD installations initiate archaeological surveys (Phase I studies) to determine whether archaeological resources are present, and if so, assess the significance of the resources (Phase II). When sites are identified as eligible for nomination to the National Register of Historic Places, they tend to be preserved in place unless development is unavoidable, in which case a data recovery (Phase III) is undertaken. All three phases are subject to review by State Historic Preservation Offices (SHPOs).

The laws that require this archaeology do so because the protection of cultural resources is considered a public good, so ultimately the public is the intended beneficiary of all archaeological undertakings. While archaeological site location information is protected by SHPO offices, all other information generated by archaeologists should be publicly accessible as long as it will not have some kind of adverse impact. The SHPOs that oversee compliance archaeology act as custodians of public information. The DoD must therefore consider the public its audience when undertaking archaeological studies.

Installations hire archaeological contractors, generally known as Cultural Resource Management (CRM) firms, to conduct Phase I, II, and III studies by writing Scopes of Work (SOWs) and putting the projects out to bid. The responsibilities of the CRM firms are defined at this stage, including the curatorial processes that are followed. Each SHPO typically has its own standards for archaeological work and curation, and Federal agencies can follow the State standards or standards they have established for themselves. With regard to the appropriate documentation of sites and the adequate processing and submission of that documentation, installations may use Federal regulations and/or State standards and guidelines to outline the work required. The standards followed are often dictated by the curatorial repository to be used. For example, the MAC Lab is a State facility that accepts Federal collections, provided these collections meet Maryland's standards as defined by *Technical Update No. 1 of the Standards and Guidelines for Archeological Investigations in Maryland: Collections and Conservation Standards* (Seifert 2005).

Workflow Overview for DoD Archaeology Projects

Installations

- Define project requirements
- Hire and screen archaeologists

- Review documents and photos for security

- Review first draft of report

- Approve/reject final project results and payments

Repositories vary and may include:

- DoD facilities
- SHPO facilities
- Universities
- Museums
- Other

CRM Firms

- Conduct archaeological work
- Accumulate documentation

- Write report draft
- Submit report to installation for first review

- Edit report after installation review
- Submit 2nd report draft to SHPO

- Finalize report and submit it to the client and the SHPO

- Submit artifacts and documents for curation

Security Checks

SHPOs

- Review compliance reports
- Provide feedback to CRM firms and Installations

- Maintain records of archaeological projects
- Provide public access to information on cultural resources

Figure 6: This workflow offers a summary of how archaeological projects are conducted on DoD property. Documents and photos generated should go through several levels of screening before they are submitted to SHPOs and repositories as public information.

Ideally, the future disposition of archaeological collections is decided before excavations ever take place so that processing standards and fees can be taken into account in advance.

Many repositories charge one-time or annual fees for their services, and the easiest way to fund curation is often to include it as a line item in the budget of the archaeological project. This covers the initial cost of curation as just one part of the overall archaeological undertaking, and allows cultural resource programs some time to incorporate the growth of their collections into the next annual budget when yearly fees apply. With curation funding built into their budgets, CRM firms can submit collections directly to repositories that will check to ensure that all standards were followed in packaging and processing the collection. Sometimes, however, collections are left with CRM firms or given directly to the landowner. This is typical where no professional archaeological repository is available to accept collections, or the owner agency has not established a relationship with such a repository.

Just as each installation instigates the archaeological work and defines the work to be done through SOWs, each installation must also address the issue of security as it pertains to each project. Archaeologists should not be allowed onto secure installations if they do not meet the general screening applied to any civilian seeking access to DoD property. Such screening varies greatly though. Access to the US Naval Academy campus store and gift shop, for example, triggers only the inspection of a driver's license. Access to more sensitive areas might require background checks, escorts, and daily inspections of people, vehicles, and archaeological equipment (Case Study #3).

Since photo documentation is a standard requirement for archaeological work, camera use and inspection policies must be defined before access is given so that archaeologists cannot inadvertently leave an installation with security-sensitive images. However, if an archaeologist accidentally exits an installation with a compromising photo or map, there is generally a second level of security check whereby installations require report drafts and photos to be reviewed by a security office or public affairs office before they are allowed to go to SHPOs and curatorial repositories. SHPOs are not subject to DoD security clearance screening, nor are they equipped to protect confidential information other than site location, so DoD installations and SHPO offices should already have well-established procedures to ensure that archaeological compliance work does not result in the careless deposition of sensitive photos and maps in SHPO libraries and curatorial repositories.

If secure information has inadvertently been filed with archaeological records outside of a secure DoD installation, then security has already been breached. This may or may not have gone without notice. Historically, public access to the reports (also known as "gray literature") and collections generated by compliance archaeology has been limited, so some sensitive images or maps may have been filed without anyone realizing that they are a security concern. Because of that possibility, the ECAMDAR project includes additional review by installation representatives.

Moving forward, the increased use of digital reports and records is likely to facilitate unprecedented levels of public access to archaeological data, making it that much more important to ensure that sensitive materials are screened at the installation level. If that is

successfully enforced then the inclusion of digital archaeological records in tDAR will represent no threat to DoD security, while ensuring that the public has access to the archaeological discoveries their tax dollars paid for.

CASE STUDY #3

Mission-Sensitive Photographs and Security Requirements

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Naval Installations are commonly confronted with the need for archaeological investigations that take place in areas where there are classified and/or sensitive activities, equipment, and facilities. Therefore, the review and control of photographs of classified or mission-sensitive items becomes important. Typically individual Navy installations have their own general photographic policies that might require a photo permit, specialized training, and/or government escorts. Additionally there are often more secure areas within larger installations that have more restrictive photography policies.

Archaeologists working on the installations are normally instructed at the beginning of a project on what is allowed to be photographed and what might be considered mission-sensitive, and therefore not allowed. In some cases local personnel are required to escort and oversee photographic activities. Where there are on-going photographic needs, such as at an archaeological site investigation, an end-of-the-day review of the photographs taken might be made by facility personnel. Generally in sensitive areas, cell phones are also not allowed.

An example of the daily photographic review procedure is at the NAS Patuxent River munitions compound where there are a large number of significant archaeological sites, including the 17th century Anketills Neck Site included in this project. All photographs taken by the archaeologists were reviewed at the end of the work day by facility personnel to assure that no mission-sensitive photographs had been taken.

Such front-end restrictions on photographic activities assure that classified or mission-sensitive photographs are unlikely to be included in published reports or unpublished field records.

4.2 Identifying, Organizing and Ingesting the Digital Materials into tDAR

4.2.1 Standard Digital Antiquity Procedure- Jodi Reeves Flores

Digital Antiquity has two main models for its digital curation services. One of these is referred to as “self-service” digital curation, the other is “full-service.” The “self-service” model involves clients using tDAR’s Web-based forms to upload files and provide metadata that describes

each file. These forms were designed to be simple and user-friendly—with this “self-service” use in mind. Prior to uploading, the client pays a fee to cover the cost of the deposit. The fee is dependent on the number of files and file space needed and can be paid by credit card. Alternatively, a client can ask Digital Antiquity to create an account in tDAR with a certain amount of credit for uploading files and pay for the account through a simple contract.

The second model is referred to as “full-service” digital curation. Typical clients are offices of large public agencies that provide Digital Antiquity with digital files and background information that are used to create the metadata records for the files. Then Digital Antiquity staff perform some or all of the following, as dictated by the circumstances: organize the digital collection; convert files to up-to-date and/or archival standards; compose and enter metadata; redact confidential information and upload files (see Appendix B, Part 5). Full-service curation is generally done under a contract that includes hourly charges for professional service and fees for the upload.

For this project, procedure followed the full service model. However, as described in the Recommendations, the organizational system and curatorial approach developed as part of this pilot project can be applied to other DoD materials in the future—either as part of the self-service or the full service model.

4.2.2 Transferring Digital Materials from RACF to Digital Antiquity -Jodi Reeves Flores

At the beginning of the project, Amanda Vtipil, Curator, Regional Archaeological Curation Facility, sent Digital Antiquity a list of digital files from Fort Lee held by RACF, with files being organized by accession number and categorized as “upload”, “consider uploading” and “do not upload.” None of the files sent in this sample had been redacted or marked as confidential. Digital Antiquity Staff then requested a selection of those files to upload to tDAR. Vtipil transferred the requested files to Digital Antiquity using the AMRDEC SAFE (U. S. Army Aviation and Missile Research Development and Engineering Center - Safe Access File Exchange) on 30 September 2013. Digital Antiquity curators reviewed the sample files, created an organizational method and uploaded the files to tDAR. The samples were then used as examples to show to the project members during the 8 October 2013 meeting.

The rest of the files from RACF—which were from the facilities of Fort Lee, Quantico, Fort Monroe and Fort A.P. Hill—were sent by Amy Wood, Cultural Resource Manager, on a flash drive through the mail. The files were received by Digital Antiquity on 28 February 2014. This second batch of files from RACF had been reviewed before being sent, and many of the reports had been redacted before they were sent to Digital Antiquity. Digital Antiquity did not receive the original, non-redacted copies of these files. Therefore, only the redacted copies are available in tDAR as part of this current project. No descriptive list or additional metadata accompanied this second batch of files. They were primarily organized by facility, then by accession number or what usually appeared to be archaeological projects.

4.2.3 Transferring Digital Materials from the MAC Lab to Digital Antiquity -Jodi Reeves Flores

Sara Rivers Cofield sent the MAC Lab's digital files via mail on a flash drive which was received by Digital Antiquity on 28 October 2013. The flash drive contained 83 folders named by accession number, each of which contained the digital records from a single project. Additionally, the flash drive held a copy of the MAC Lab's accession database which contains metadata about each archaeological project. Unlike the files from Fort Lee, the reports and other materials from the MAC Lab were not redacted before they were sent to Digital Antiquity.

4.2.4 tDAR's Organizational Framework -Jodi Reeves Flores

tDAR makes it possible for contributors to organize, describe, and make their digital materials accessible using Collections, Projects, and Resources.

Collections. Collections are a convenient way to organize and display resources and to more easily manage permissions on groups of resources. Collections can be stacked or nested to allow you to group and embed projects, independent resources, and other collections. As Figure 7 shows, any combination of projects, resources, and collections can be placed under a parent collection.

Projects. Projects allow users to move from the Resource level and find other resources from the same project as well as set general metadata at the project level. Resources that are grouped under a Project can "inherit" the Project-level metadata automatically, saving users from having to enter repetitious metadata at the Resource level. Resource level metadata can be customized for each resource, allowing more specific information to be used for individual files or resources.

Resources. tDAR currently supports eight kinds of resources: Documents, Datasets, Images, Sensory Data, Geospatial Files, Coding Sheets, Ontologies, and Projects. Each resource type has defined file types that are accepted; for example a contributor or curator can upload a .pdf or .doc file to a Document Resource page. For more information on the accepted file types, see Appendix B, Part 6.

4.2.5 Organizational Framework for the ECAMDAR Project -Jodi Reeves Flores

Digital curators developed the organizational scheme based on how the materials are organized within the existing MAC Lab and RACF collections and in consultation with Rivers-Cofield. The judicious use of collections and child collections (sub-collections within larger collections) enables the organization of the materials by repository, installation/facility, and accession number/investigation. In addition to grouping the materials, these collections within tDAR also enable the control of access to the materials at each collection level. For example, MAC Lab staff can have the ability to edit all the materials within their collection, while the installation cultural resource managers will have editorial rights to only the materials from their installation. Editorial rights or access to confidential or draft files can then be given at the

resource level, the accession number level, the installation level, or for the whole of the MAC Lab's collections (see Figure 7).

The majority of materials easily fit into the organizational schema outlined in Figure 7. There were a couple of exceptions to the general rule. For example, several of the materials sent by Wood from RACF were not organized by accession number, but instead by what seemed to be discrete investigations. However, this closely mirrored other child collections so that they were easy to fit into the existing organizational scheme.

A more complicated example is outlined in Figure 8. In this case, several different accession numbers from the MAC Lab contained data and information from investigations conducted in relation to the Mattapan Site (18ST390). In consultation with Rivers Cofield, Digital Curators decided to combine these materials under one child collection, "Mattapany", within the

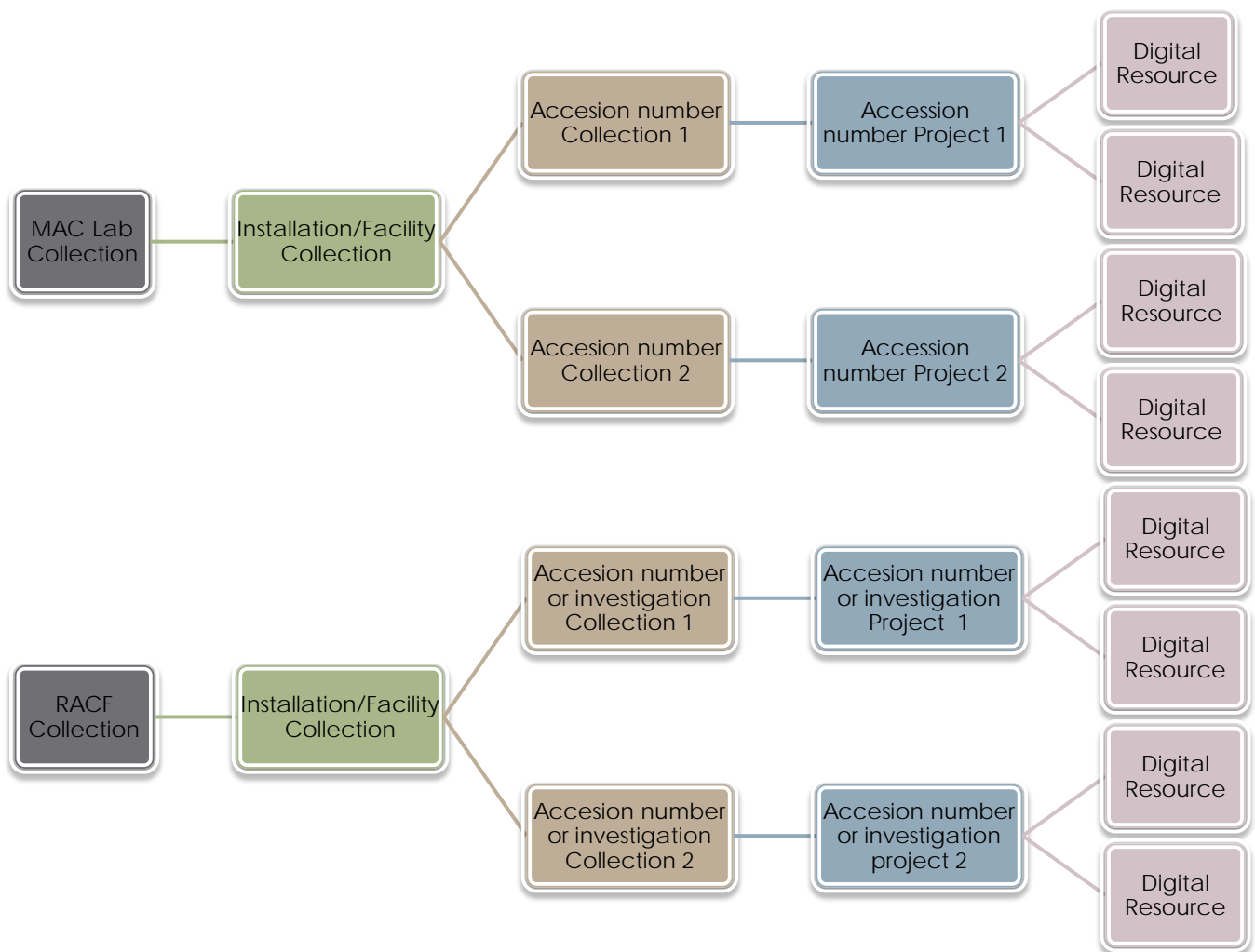


Figure 7: Organizational framework for the ECAMDAR project

Naval Air Station Patuxent River Collection. Additionally, Rivers Cofield had the opportunity to include new artifact photographs and artifact catalogs from three different sites: Posey (18CH281); Old Chapel Field (18ST233), and Mattapany (18ST390), as part of this curation project. The new photographs and artifact catalogs were produced as part of “Colonial Encounters: The Lower Potomac River Valley at Contact, 1500-1720 AD”, an NEH-funded research project led by Dr. Julia King of St. Mary’s College of Maryland. The digital materials produced for the Colonial Encounters project were designated as another tDAR child collection, enabling King to review the digital resources and to ensure proper administrative data was included for them while they were in draft form. The files were still included in the child collection for the relevant installation, but King was only allowed access to the installation records that belonged to the Colonial Encounters child collection.

The organizational schema developed for this project was applied to all of the RACF and MAC Lab collections and the system proved to be flexible enough to account for multiple levels of access. Individual projects and resources can be grouped within any number of child collections for ease of navigation. Additionally, grouping the collections in this way facilitates accessibility by multiple reviewers. Authority to modify files can therefore be granted in a hierarchical manner to mirror the internal structure of DoD organizations.

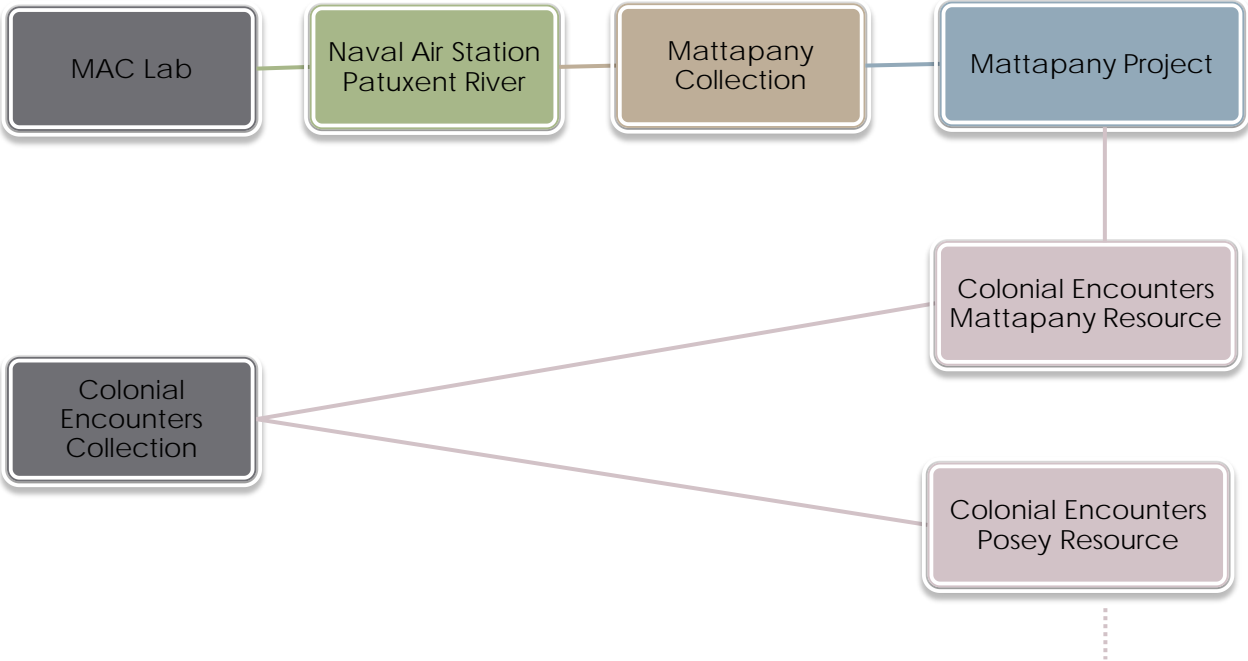


Figure 8: Organizing collections, projects, and resources in tDAR. This example shows how Digital Curators were able to use the flexibility within tDAR to place resources from the Colonial Encounters NEH-funded project into the appropriate Naval Air Station Patuxent River collections while also giving the principal investigator of the NEH project, Julia King, access to just those materials through a separate Colonial Encounters Collection.

4.2.6 Cleaning Up Old Files -Sara Rivers Cofield and Jodi Reeves Flores

As Digital Antiquity curators worked to organize the data submitted and prepare it for upload, MAC Lab curators worked on cleaning up particularly problematic sets of data (Case Study #4). The mere existence of a digital file does not warrant its curation in perpetuity, and the ECAMDAR project forced curators to make decisions about files that originally accumulated without much thought. Many files did not need permanent curation at all, while others could be consolidated for more efficient curation. Some problems were specific to the MAC Lab's digital files, but others were more general and affected materials received from RACF as well.

The unworthy files fell into the following categories:

- **Administrative forms:** When collections are submitted to a repository, several forms are typically required to accession the collection. For the MAC Lab, the forms include a transmittal form, a box inventory, a list of records, and a conservation checklist. Sometimes these forms are included on CDs submitted with collections, so they get transferred to the MAC Lab's digital media folders along with images, digital reports, and artifacts inventories. These forms comprise the accession files kept at the MAC Lab, but they are not needed in digital form because the information they contain is all entered into an Accession database upon delivery (Figure 9). The MAC Lab's forms were therefore not uploaded to tDAR. However, the equivalent forms were sometimes included from RACF collections because they contained potentially useful metadata for some of the projects that was not available elsewhere in the information supplied to Digital Antiquity.
- **Work Product.** Files that were more difficult to identify and sort through were those that were essentially 'work product' files and parts of datasets generated during the production of the project report, but not intended to be final products in themselves.
 - "Surfer feeders": Several of the projects were conducted by MAC Lab archaeologists in the 1990s and early 2000s when a software program known as Surfer was a commonly used standard for making report figures. Surfer is a program that builds maps by connecting different data sets, such as grid coordinates and artifact distributions, and the components that feed each figure are saved as separate files. The MAC Lab data therefore included hundreds of files with the suffixes .DXF, .GRD, and .SRF, all of which Rivers Cofield dubbed "Surfer feeders". These files could not be opened individually, so the only way to determine their content and viability was to use Surfer. There may be an advantage to keeping Surfer feeders so that someone can manipulate figures and maps when data changes, but the projects that generated these files are complete. However, Surfer is a proprietary software that, unlike something such as Microsoft Word, is not widely available. This limits the ability to access the files, especially as Surfer software changes over time, so preserving the feeder files seems unnecessary. Instead, the resulting figures and the quantitative data that created them were saved in more accessible file formats,

CASE STUDY #4

The MAC Lab's 'Problem Children'

Sara Rivers Cofield

Curator of Federal Collections

Maryland Archaeological Conservation Laboratory

Among the consequences of pursuing the ECAMDAR project is the fact that I had to clean up the messes in my digital data folders. Initially, I gave everything to tDAR in the hope that their expertise would allow them to do all that needed to be done, but tDAR has to know what a file was created for and what it contains before they can determine what to do with it. Files that lacked this key metadata bounced back to me as my 'problem children,' since I'm the person who should know what they were for, where they came from, and how they were relevant.

Fortunately, a lot of the files were just curation forms that CRM firms are required to send us so that we can fill out our accession database. tDAR already had the accession database, so they didn't need the forms. I marked them "DO NOT UPLOAD." Other files were not so easily tamed though. Some of the accessions represent projects conducted by archaeologists within the MAC Lab in the 1990s and they had a lot of raw data; distribution tables, Surfer maps, and unfinished draft reports. These were the old files from the 3.5" floppies that led to ECAMDAR.

The main problem with these files was their age. Some just needed consolidation because size limits once led people to save parts of reports in separate files for title pages, text, appendices, etc. Other files lacked crucial metadata, often because character limits for file names limited explanations of content. "POSEYBM.xls" for example, was a spreadsheet full of numbers, but it had no column headings. Eventually I determined it was distribution data for the Posey site's "building materials," but since I still didn't know which column represented brick, mortar, daub, or nails, the file was not usable.

Essentially, addressing these 'problem children' was a matter of doing a lot of research and cleaning up after past projects. This is the kind of work that emphasizes the importance of being efficient and organized in the first place. If we do not adopt standards and policies now, new 'problem children' will continue to accumulate, wasting time and resources down the road.

Project and Site Information

Accession # 2000.030.001 Acknowledement Letter Sent

Date Accessioned 12/12/2000

Date Deaccessioned

Project Information

Project Name PHASE I/II AT SITE W

Project Type COMPLIANCE

Investigation Type PHASE I, II

Sponsor ARMY

Consultant GARROW AND ASSOCIATES

Date Collected 8/1995

MHT Shelf # PR 182

Site Information

Site# or X-# 18PR465

Site Name WHITE OAK

First Lot 1

Last Lot 39

of Artifacts 87

Comments COLLECTION #5

State Ownership

Federal Ownership

Box Information

Record: 5211 of 8172 No Filter Search

Figure 9: Example of metadata received from the MAC Lab. This image is a screen shot of the Accession database.

- such as those accepted by tDAR (see Appendix B, Part 6). Files that could only be opened using Surfer were not uploaded to tDAR.
- o Report Components: Reports written in the 1990s and early 2000s could be very long and include many figures, but computer capabilities of the time did not allow whole reports to be saved as one file without slowing programs down too much to make work possible. To prevent program freezing and crashes, the reports were saved in different components such as the cover page, table of contents, report text, and appendices. Figures were not necessarily embedded within these files either, and were instead added at the time of printing. Thus one report could require four or more word processing files and many image files to be complete. Computers in 2014 are capable of combining all components in one file without great risk of crashes and slow programs. For tDAR upload, Rivers Cofield therefore consolidated report components into a single word file per report. This not only makes the upload and subsequent access to reports more efficient, but it also eliminates the need to keep individual figures as image files.
 - o Distribution Data: Much archaeological analysis is based on the location of different artifacts across a site, so many spreadsheets and tables are created

that list grid coordinates and the number of shells, nails, brick, etc. found there. This data is worth saving, but it can be consolidated. Many of the MAC Lab projects had separate Excel spreadsheets for every artifact type. However, including all artifacts in one spreadsheet is possible, and where such all-encompassing files exist, additional files with just a component of the same data are redundant. Additionally, multiple Excel files could be consolidated by copying each separate distribution table into its own worksheet within a single Excel file. By naming the worksheets according to content, metadata is preserved but the number of files to be uploaded is significantly reduced.

- ***Redundancies and versioning issues:*** In the short term it is easier and faster to save digital files and keep them all. However, when several pictures are taken of the same artifact in an effort to get good focus, light, and angle, quickly dumping everything into a catch-all folder leads to unnecessary redundancies. The same takes place when two or more copies or versions of a file is preserved, such as multiple copies of an artifact catalog, with one copy being an Excel file and the other being a PDF, or one being an older, less complete version. At some point it is necessary to choose the best images and most current or complete versions of redundant files. Such extraneous files can be retained in a less expensive offline archive or discarded, depending on their potential long-term utility. The ECAMDAR project prompted curators to finally make such decisions.
- ***Technical or Data Issues:*** Some files were plagued by technical issues or metadata issues, or sometimes both.
 - The file could not be opened and could not be migrated to an accessible format: Digital Curators and IT Staff made every attempt to identify obsolete or proprietary formats and migrate the files to a format that could be accessible and preserved. However, some files were irretrievable. See Case Study #5 for an example.
 - The content within the file lacked key metadata: This was the case with several datasets, where the file name did not indicate the content and there were no column headers within the data itself. Again, see Case Study #5.
 - The file's content was not relevant or contained only metadata that could be included on the resource/project page: Examples are images of archaeological crews not doing archaeological work and images of sandbags (Figure 10). An example of the second is images of photo boards not within the context of a trench or feature, as well as internal curation documents (Figure 11). This issue and the issue of redundant files are explored more fully below as problems that should be addressed in data submission guidelines.

Curator Sara Rivers Cofield worked to clean up the MAC Lab's digital files as described while Digital Antiquity curators uploaded projects that were already well-suited for ingestion. As Rivers Cofield cleaned up each project, she sent updated folders to tDAR, often significantly reduced in terms of number of files and storage space.

CASE STUDY #5

2000.030: The need for proper management and curation of digital files

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Grant Snitker
Digital Curators
DA-tDAR

Accession number 2000.030 from Adelphi proved to be a particularly difficult collection to process. When we first opened the folder, the majority of the files lacked file extensions and could not be opened due to several issues related to the age of the files (as early as 1995). Eventually we were able to successfully migrate most of the files so they could be opened. The accession also contained 'work product'—such as interim artifact analysis data that was eventually used to produce figures for the report—some of which had not been clearly labelled and described and/or had been produced with proprietary software (see above for more information of the issues regarding 'work product').

A report and two artifact inventories were migrated to newer file types, but in the case of the report, several key figures and illustrations were missing from the 'final' version. Of the artifact analysis files produced using proprietary software (e.g., DeltaGraph and SPSS), we were able to salvage some of the images—a few were included in the report, while others were not. Things were further confused by multiple versions of documents—for example there were several versions of the report, one of which could only be opened using Notepad++. Much of this may have, again, been due to the fact that the files were actually work product and had been generated to include in the final report.

These are issues that could have been prevented with proper data management (such as keeping well organized, final versions of files in nonproprietary format) and proper digital curation (updating file formats as standards changed over time). However, this can be difficult if there are no existing guidelines on what digital files to preserve and if those files are then only stored on a CD or server.

Despite these issues, we were able to preserve some of the materials for future use, including the report and artifact inventories. Out of the 57 files originally received from 2000.030, 9 files (1.3 MB) were uploaded into tDAR. Several working data sets were condensed into one file or were identified as duplicates or already present in the report. Additionally, we organized the files, included valuable metadata about the project and, most importantly, the files that were salvaged will now be consistently evaluated for degradation and migrated to newer, accessible file types if needed in the future (See Figure 15).



Figure 10: When the images are not culled prior to submission for curation, many unnecessary files are stored as if they warrant in-perpetuity curation. These are examples of irrelevant photos sent to the MAC Lab as site documentation. Top: A project at the Washington Navy Yard included several pictures of orange sandbags and bicycles on some kind of brick patio. Since no images showed excavation taking place anywhere near this patio, there is no indication that they have any research value. Bottom left: Photography accidents happen, but images with fingers and camera straps in front of lenses should be deleted, not curated. Middle right: The turtle picture is cute, but not worthy of long-term curation. Bottom right: It is fun to have pictures of archaeologists at play, but for personal use, not for preservation.

In the case of RACF files, Amanda Vtipil went through the material intensely before the project started because she had to complete her portion of the work before leaving for a new position. Additionally, most of the materials received from RACF were final 'products' consisting of photographs, final reports and final artifact catalogs. One exception was the materials from the Phase I survey of Fort A. P. Hill conducted by Mid-Atlantic Archaeological Research. This project had only scanned field notes and draft documents. Digital Curators decided to upload the materials anyway, since it was the only record of this survey sent by the RACF. This decision proved to be helpful since the PoC from Fort A. P. Hill cited the records of this early project as one of the most useful resources for his work (see Appendix C). Sometimes the oldest projects are particularly useful to have in digital form because they are the most likely to have fallen out of institutional memory.

Overall, Vtipil's prep work ensured that the materials from RACF were generally straight forward when it came to accessibility/viability of files. However, both Ft. Lee and the MAC Lab suffered from some general problems that plague digital materials submitted by CRM firms to curation facilities as described above, and it was not always possible to weed out poorly collected digital files.

The files that could not be 'cleaned up' before they were added to tDAR were usually those that were simply not created or managed with in-perpetuity preservation in mind. These include:

- **Floating Photos Boards:** Some archaeologists use the ease of digital photography as a quick method for collecting metadata. Usually photo boards are in photos of excavations in-progress to explain what the picture is about. For some projects, however stand-alone images were taken of photo boards that held information about the next picture to be taken (Figure 11). In such cases, the metadata should be recorded in photo logs or file names for the actual excavation images, making the retention of floating photo board images unnecessary.



Figure 11: Sometimes "floating" photo board pictures are taken for the sake of expediency. Instead of having the photo board in the image of the archaeological excavation underway, it is photographed separately with information about the photo that will be taken next. This technique is not a problem when the information on the photo board is later used to rename the photo it represents or to record information in photo logs, but floating photo board image files should be deleted once the metadata has been recorded where it really belongs.

- Images of questionable relevance: Some images are not obvious irreplaceable records of excavations in progress, but are instead enthusiastic documentation of landscapes and vegetation that may or may not ever prove to have any value to future researchers (Figure 12). The need to keep such images is dubious, especially when many similar shots are taken, but it is problematic to have curators decide what is and is not relevant when they were not involved in the initial project. Archaeologists should critically evaluate such images before submitting them for curation.
- Images of unquestionable irrelevance: Digital photography has effectively removed the film and processing costs that once motivated archaeologists to limit photos to essential documentation, so many photos that are clearly not relevant site documentation creep into repositories (Figure 10). Keeping all photos taken is easier than making thoughtful decisions about what is and is not necessary, so photos are often dumped into folders for submission regardless of their content. Unfortunately, the photos



Figure 12: There are situations when images landscapes and vegetation have long-term value for research, but archaeologists should eliminate redundancies before submitting such photos for curation. All of the photos above were submitted as part of a single accession, but the necessity of keeping them in perpetuity is debatable.

submitted are generally included in photo logs, making simple deletion problematic. The photo logs and photos submitted should match to prevent the appearance of data loss. The ECAMDAR team tested whether generating contact sheets showing all photos, while eliminating particularly bad photos for upload as individual image files, would address this issue. This process proved not to be the space or time-saver it was intended to be, but even this process was informative for developing guidelines for future submission of images.

While the extra work of cleaning up old projects was necessary for the ECAMDAR project, and will be necessary for anyone who decides to send old digital files to tDAR, the process helped ECAMDAR curators develop procedures for eliminating unnecessary digital data and consolidating records for efficient archiving. The lessons learned are therefore reflected in the recommendations and standards discussed below.

4.2.7 Ingesting the Digital Materials into tDAR -Jodi Reeves Flores

Once the organizational framework was constructed, Digital Antiquity staff, based on input from Rivers-Cofield and observations from the files and internal project names, established a general naming convention for collections, projects, and resources. Digital Curators then began to upload the files into tDAR and add the descriptive metadata.

MAC Lab Data

Thanks to the catalog database provided by the MAC Lab, Digital Antiquity technology staff was able to automatically generate the collections and projects, as well as automatically include administrative metadata, including the project name, installation, sponsor, investigation phase, and a list of physical collections held by the MAC Lab (Figure 13). Digital Curators then reviewed the resulting collection and project pages as they ingested materials from each accession number, evaluating whether any changes were required to accommodate the digital materials. Curators also gathered additional metadata from the content of the files by reading through reports and reviewing datasets and photographs for important, descriptive, or administrative information. This metadata was added to the applicable resource and project pages, as well as to the collection pages where appropriate. Contact information for the MAC Lab—which included Rivers Cofield’s email address—was added to each resource. Some metadata was specific to the MAC Lab collections, such as lot numbers and MAC Lab accession numbers, while other metadata included information that is present in all tDAR records: title, date, and description, and optional metadata such as creator/author, temporal keywords, investigation types, etc. (Appendix B, Part 1).

RACF Data

The collections and projects for the materials from Fort Lee Curators were created manually within tDAR by Digital Curators based on installation, then accession number and/or how the digital files were organized when they were delivered to Digital Antiquity. Curators gathered metadata from how the files were organized, file/directory names, and the content of the files

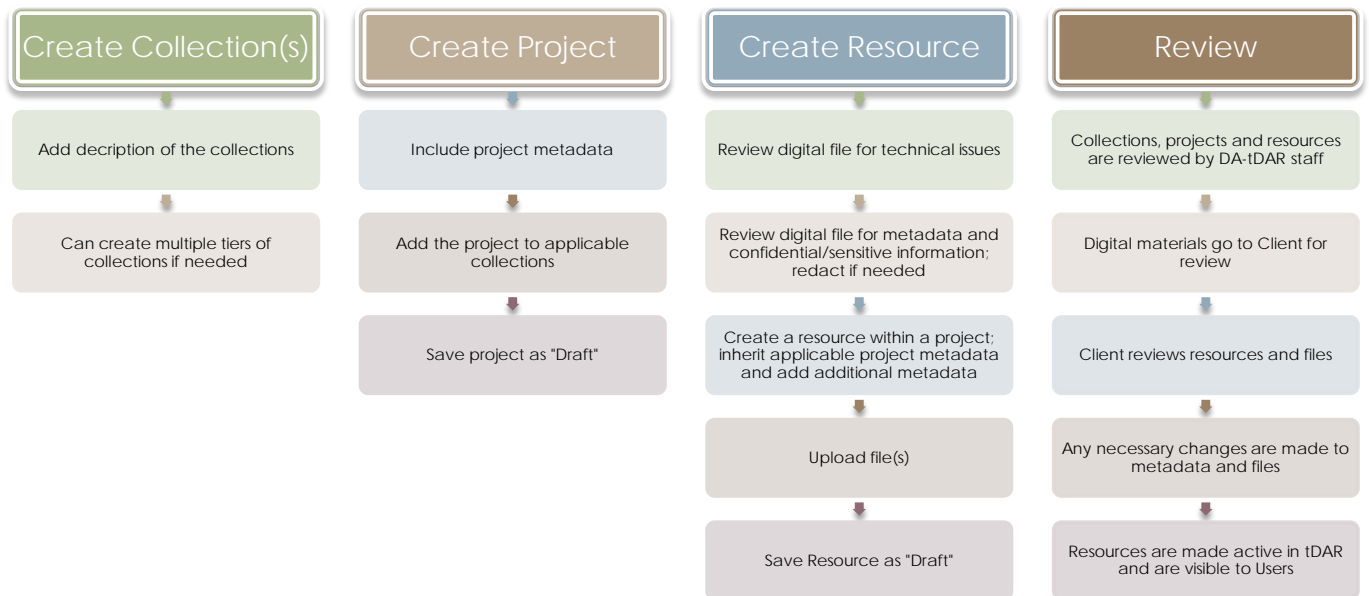


Figure 13: Standard Digital Antiquity-tDAR Digital Curation Process. Based on the established organizational schema, Digital Curators or IT staff creates the collection and project pages in tDAR. Digital Curators add descriptive information, upload files, and review them for metadata and confidential/sensitive information.

by reading through reports and reviewing datasets and photographs for important, descriptive, or administrative information. This metadata was added to the applicable resource and project pages, as well as to the collection pages where appropriate. Contact information for RACF—which included Wood’s email address—was added to each resource. Some metadata was specific to the RACF collections, such as accession numbers, while other metadata included information that is present in all tDAR records and optional metadata fields.

Addressing Issues Encountered

Once the metadata was complete and the file uploaded to the resource page, the resource was saved as a “draft” so that those with appropriate access could view/modify the resource. The majority of files that were reviewed and consolidated by the MAC Lab and RACF were ingested into tDAR. Where a file was plagued by one of the problems mentioned above or a technical problem, Digital Antiquity staff was often able to salvage the information from the file by working with the repository staff to address the relevant issue.

- *The file's content was not relevant or contained only metadata that could be included on the resource/project page:* Non-relevant files were not uploaded into the repository. For materials that contained just metadata, such as internal documents (administrative

forms) or photographs of photo boards, that metadata was transferred to the applicable resource and/or project page.

- *Duplicate content and versioning issues:* With files such as documents and datasets, Digital Curators identified the most up-to-date and/or complete version of the data that would be most useful for reuse in the future to upload. For duplicate images, Digital Curators selected the highest quality image for upload. This was the approach for cleaning up the issues created by digital “work product” being sent to the original repository.
- *The file could not be opened and could not be migrated to an accessible format:* Digital Curators and technology staff made every attempt to identify obsolete or proprietary formats and migrate the files to a format that could be accessible and preserved.
- *The content within the file lacked key metadata:* Digital Antiquity Digital Curators work with Repository staff to identify the file and the data so as to make it as useful as possible. When the data was identified or deemed possibly useful in the future, the file was uploaded.

Between September 2013 and June 2014, Digital Antiquity uploaded and created metadata for over 7,000 files from the 23 installations that contributed data for the ECAMDAR project (Table 3).

4.3 Reviewing Digital Materials in tDAR & Making Them Accessible -Jodi Reeves Flores

When the project pages within tDAR were complete for each installation, the process of reviewing the materials could begin (See Figures 14 and 15 for example project pages). Jodi Reeves Flores, a Digital Curator at Digital Antiquity, coordinated each step of the review. First the projects were checked internally by Digital Antiquity staff. The next step was to contact the installation PoCs and get them to register as tDAR users. Each installation PoC was only given access to their own ‘draft’ project pages, but they had to be registered and authorized to view their files before they could engage in the review process.

At the beginning of the review stage, Rivers Cofield and Reeves Flores compiled a two-part survey to solicit feedback from the participating installations. The first part of the survey was designed to collect background information on how each program managed their archaeological data, while the second part of the survey was about the materials that were added to tDAR as part of the ECAMDAR project. The results of both surveys are summarized in Appendix C.

Reeves Flores coordinated with the PoCs from each installation/facility to set up a phone call to introduce the materials to installation staff. During these phone calls, Reeves Flores discussed the draft materials uploaded to tDAR and their organization, as well as some of the challenges and successes of the project and how to edit materials, control access to materials, and search within the collection.

Table 3: The number of files uploaded from each installation was affected by the issues discussed in sections 4.2.6 and 4.2.7. Some files were migrated to newer and/or more accessible file types, others were redacted or multiple files were combined into one file for upload. This changed the file numbers and size of the files uploaded.

Installation	Data (nearest MB) Submitted	Data (nearest MB) Uploaded	Approx. # Files Submitted	Approx. # Files Uploaded
Naval Air Station Patuxent River	1,229	828	2,327	1,188
Naval Air Station Patuxent River, Webster Field Annex	1,462	884	1,202	570
Point Lookout	1,286	82	224	54
Bloodsworth Island	1	1	6	3
Solomons Naval Recreation Center	276	224	111	62
Naval Support Facility, Indian Head	145	193	425	176
Naval Observatory	74	34	43	31
Potomac Annex	10	10	37	30
Washington Navy Yard	354	211	93	81
Joint Base Anacostia Bolling	790	781	346	335
Nebraska Avenue Complex	126	78	61	56
Walter Reed National Military Medical Center	121	63	67	63
U.S. Naval Academy	394	304	217	210
USNA Dairy Farm	177	109	64	62
North Severn	386	384	124	121
U.S. Army Garrison Aberdeen Proving Ground	1,666	2,780	1,625	669
U.S. Army Garrison Adelphi Laboratory Center	934	183	638	265
Fort George G. Meade	1,448	900	1,003	469
Fort Detrick	20	22	30	28
Fort Lee	1,331	1,035	665	492
Fort Monroe	1,745	1,579	146	137
Quantico Marine Corps Base	862	504	516	391
Fort A.P. Hill	7,813	6,428	1,653	1,396
TOTALS	22650	17617	11623	6,889

Some issues arose during the phone calls, most of which centered on the review process, access to the materials, modifying the materials in tDAR, and adding other digital materials to tDAR:

- Several PoCs asked whether some of their co-workers could get access to the materials to help with the review process. This was subsequently addressed either by the PoC or Reeves Flores.
- One installation stated that they would want to talk to Sara Rivers Cofield, MAC Lab, about the best way to approach access to the materials that are in tDAR.
- Some PoCs from the Navy expressed the wish to confer with other Navy participants about how they would proceed in the review process and in making the materials active in tDAR.
- Most asked about possible levels of access to the digital files in tDAR.
- Only one installation suggested changes to the way the materials in tDAR had been described or organized (such as moving a project from one collection to another or modifying collection titles/descriptions). These issues were addressed easily by Reeves Flores.
- One PoC suggested that the inclusion of data on watersheds would make the materials more helpful. Such information can easily be added by using the keyword feature in tDAR.
- Other PoCs requested to be added as “Contacts” on the resource and project pages. This request was easily met by Digital Antiquity IT staff.
- Two PoCs expressed an interest in adding additional digital materials as part of this project, primarily archaeological survey reports that were not included in the digital materials received from the MAC Lab and RACF. Another PoC expressed interest in storing and preserving the installation’s new artifact inventory when it is completed. This request could also easily be met, since tDAR is able to store and preserve datasets. Additionally, contributors are able to replace files in tDAR as new versions become available without paying an additional charge.

After the initial introductory phone calls, installation PoCs had time to continue going through their tDAR content as they worked on responding to the second part of the feedback survey. This led to the following additional comments:

- Two PoCs asked about the submission of GIS data, as this data is typically required by installations and stored in DoD systems when archaeological projects are conducted. While tDAR can accept GIS data, none had been submitted to the MAC Lab or RACF, so the ECAMDAR project did not have GIS data to include. This may be something installations will want to consider in future.
- One PoC asked that several photographs of buildings used for sensitive purposes be removed from the materials initially curated into tDAR. Because of the flexibility of the

This record has been marked as Draft.

Phase I Archaeological Investigations at Fort A. P. Hill

Summary

This project includes materials produced as part of Phase I archaeological investigations at multiple sites at Fort A. P. Hill conducted by Mid-Atlantic Archaeological Research.

The materials in this project are primarily field notes, reports and draft artifact inventories. Most of the materials are divided by archaeological site or investigation area.

Cite this Record

Phase I Archaeological Investigations at Fort A. P. Hill. (tDAR ID: 393513)

Tweet this Share on Facebook Email a link to a Friend

Keywords

Culture Historic	General Phase I
Site Name 44CE0001 • 44CE0031 • 44CE0032 • 44CE0039 • 44CE0047 • 44CE0049 • 44CE0050 • 44CE0053 • 44CE0055 • 44CE0059 • 44CE0061 • 44CE0065 • 44CE0072 • 44CE0074 • 44CE0076 • 44CE0077 • 44CE0085 • 44CE0123 • Cook Camp • Windsor Mansion	Geographic Keywords Caroline County (County) • Fort A. P. Hill • Virginia (State / Territory)
Investigation Types Data Recovery / Excavation • Heritage Management • Reconnaissance / Survey	Temporal Keywords Historic

Spatial Coverage

min long: -77.401; min lat: 38.026; max long: -77.151; max lat: 38.236

Individual & Institutional Roles

Contact(s): Fort Lee Regional Archaeological Curation Facility

Contributor(s): Antony F. Opperman

Principal Investigator(s): Ronald A. Thomas

Repository(s): Fort Lee Regional Archaeological Curation Facility

Prepared By(s): Mid-Atlantic Archaeological Research, Inc.

Submitted To(s): Facility Engineer, Fort A. P. Hill

Record Identifiers

Contract #(s): DACA65-82-C-0116

Notes

General Note: Archaeological Investigations at Fort A. P. Hill, Caroline County, Virginia. Antony F. Opperman, Ronald A. Thomas. 1983 (tDAR ID: 145032)

system and the ability to save resources in 'draft' format for review, this request was easily met.

It was requested that Installation PoCs confirm that information included on the draft tDAR metadata record created by Digital Antiquity curators was correct. They also were invited to add to the description or summary of the file(s) in the tDAR metadata record if more information would be appropriate or useful. They were also asked to inspect files to see if anything needed to be redacted that had not yet been redacted by repository staff or Digital Curators. They were then asked to inform Reeves Flores by 30 September 2014 as to whether the materials had been reviewed and/or whether the files should be marked as confidential or if any other changes were required. Digital Antiquity would make the materials active and publically available at the end of the review process, unless directed otherwise.

Figure 14: Example Project Page for a Phase I Investigation at Fort A. P. Hill.

This record has been marked as Draft

Phase I and II Investigations at Site W, Adelphi Laboratory Center (2000.030)

Summary

Garrow & Associates, Inc., conducted Phase II archaeological fieldwork at Site W on the Naval Surface Warfare Center in Prince George's County, Maryland. The project was conducted for the Baltimore District, U.S. Army Corps of Engineers in August 1995 for the Army Adelphi Laboratories, which has acquired a portion of the naval facility. The project tested two archaeological sites (18PF465 and 18PF466) within a parcel to be used for a wastewater containment pond, an administrative building, and a parking lot. The studies were done to assist the Army in their compliance with 36 CFR 800 and 36 CFR 66 of the National Historic Preservation Act of 1966, as amended. This document also provides the results of a previously unreported Phase I survey of Site W.

This project contains an artifact inventory and a final report, as well as material distributions, and a record of photographs taken during the investigation.

Cite this Record

Phase I and II Investigations at Site W, Adelphi Laboratory Center (2000.030). (DOIAR ID: 593654)

Twitter this | Share on Facebook | Email a link to a friend

Keywords

- Culture**
 - Archae • Bare Island/Holmes • Colonial Period • Early
 - Archae • Historic • Late Archaic • Middle Archaic • Yorktown Stomped
- Material**
 - Building Materials • Ceramic • Chipped Stone • Glass • Metal • Mineral
- Site Name**
 - 18PF465 • 18PF466 • White Oak
- Site Type**
 - Archaeological Feature • Artifact Scatter • Domestic Structure or Architectural Complex • Domestic Structures • Settlements
- Investigation Types**
 - Data Recovery / Excavation • Site Evaluation / Testing
- General**
 - ARMY • Compliance • Phase I • Phase II • Shadrach Beall homeplace
- Geographic Keywords**
 - Adelphi Laboratory Center • Chesapeake Bay • Maryland (State / Territory) • Naval Surface Warfare Center • Prince George's County (County) • White Oak Naval Surface Warfare Center
- Temporal Keywords**
 - Historical • Prehistoric

Spatial Coverage



Individual & Institutional Roles

Contact(s): Maryland Archaeological Conservation Laboratory Federal Curator

Sponsor(s): Army

Repository(s): Maryland Archaeological Conservation Laboratory

Prepared By(s): Garrow and Associates

Record Identifiers

Maryland Historical Trust Report #(s): PR 182

MAC Lab Accession Number(s): 2000.030

Notes

General Note: The following physical records are held at MAC Lab: Artifact Catalog, Black & White Prints, Black and White Contact Sheets, Fodochrome Slides, Photographs, List of Documentation

General Note: Date Collected: 8/1995

This Resource is Part of the Following Collections

- Adelphi Laboratory Center
- Phase I and II Investigations at Site W, Adelphi Laboratory Center (2000.030)
- Maryland Archaeological Conservation Laboratory

Figure 15: Example Project Page for MAC Lab Accession 2000.030.