

附件四、美國國會圖書館國家視聽資料保存中心(NAVCC)規劃圖

Packard Campus Guideplan: Site Overviews & Floor Drawings



NAVCC Site on Mount Pony

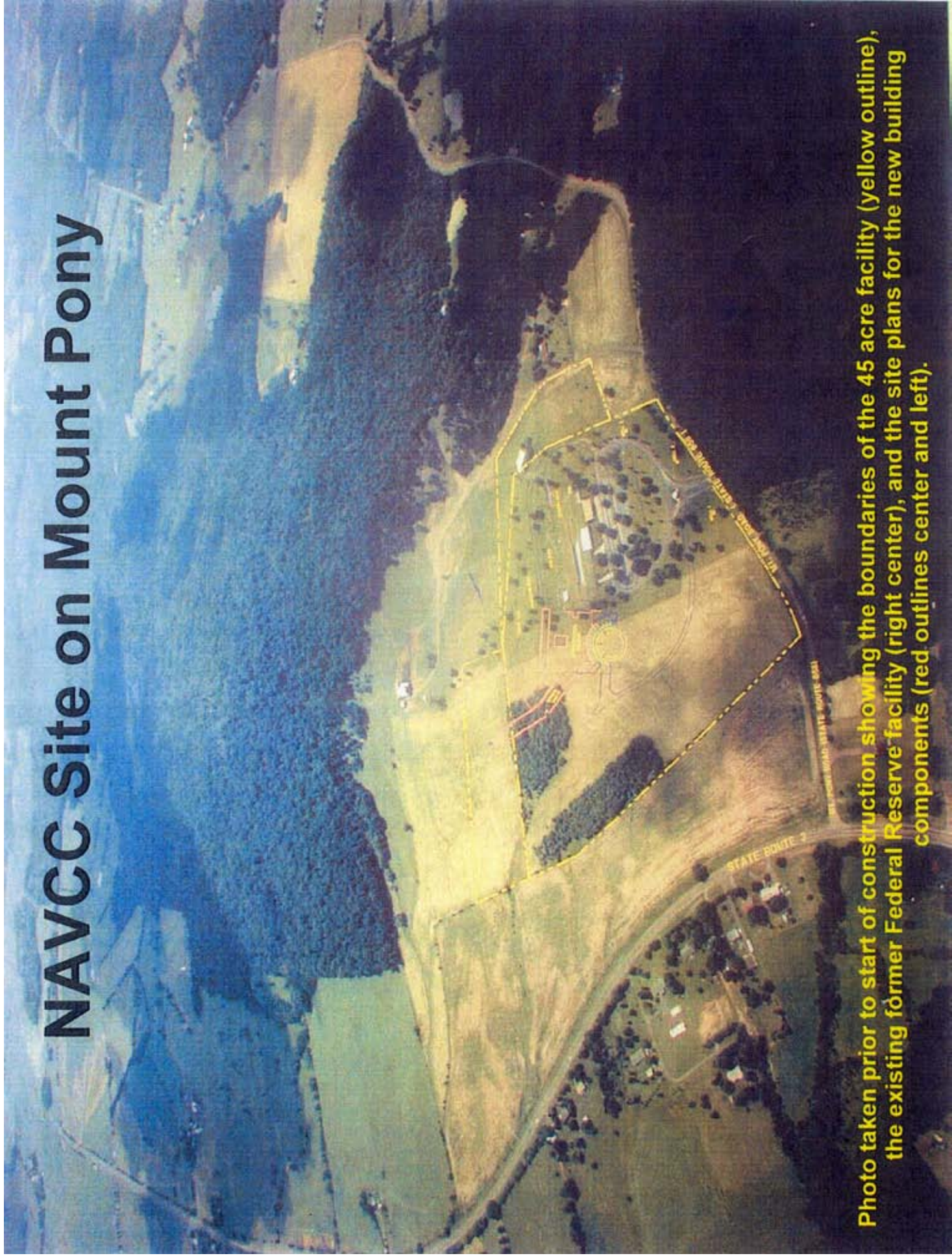


Photo taken prior to start of construction showing the boundaries of the 45 acre facility (yellow outline), the existing former Federal Reserve facility (right center), and the site plans for the new building components (red outlines center and left).

NAVCC Site Overview & Components

Central Plant / AOC
(50,000 sq ft)

Nitrate
Vaults
(55,000 sq ft)

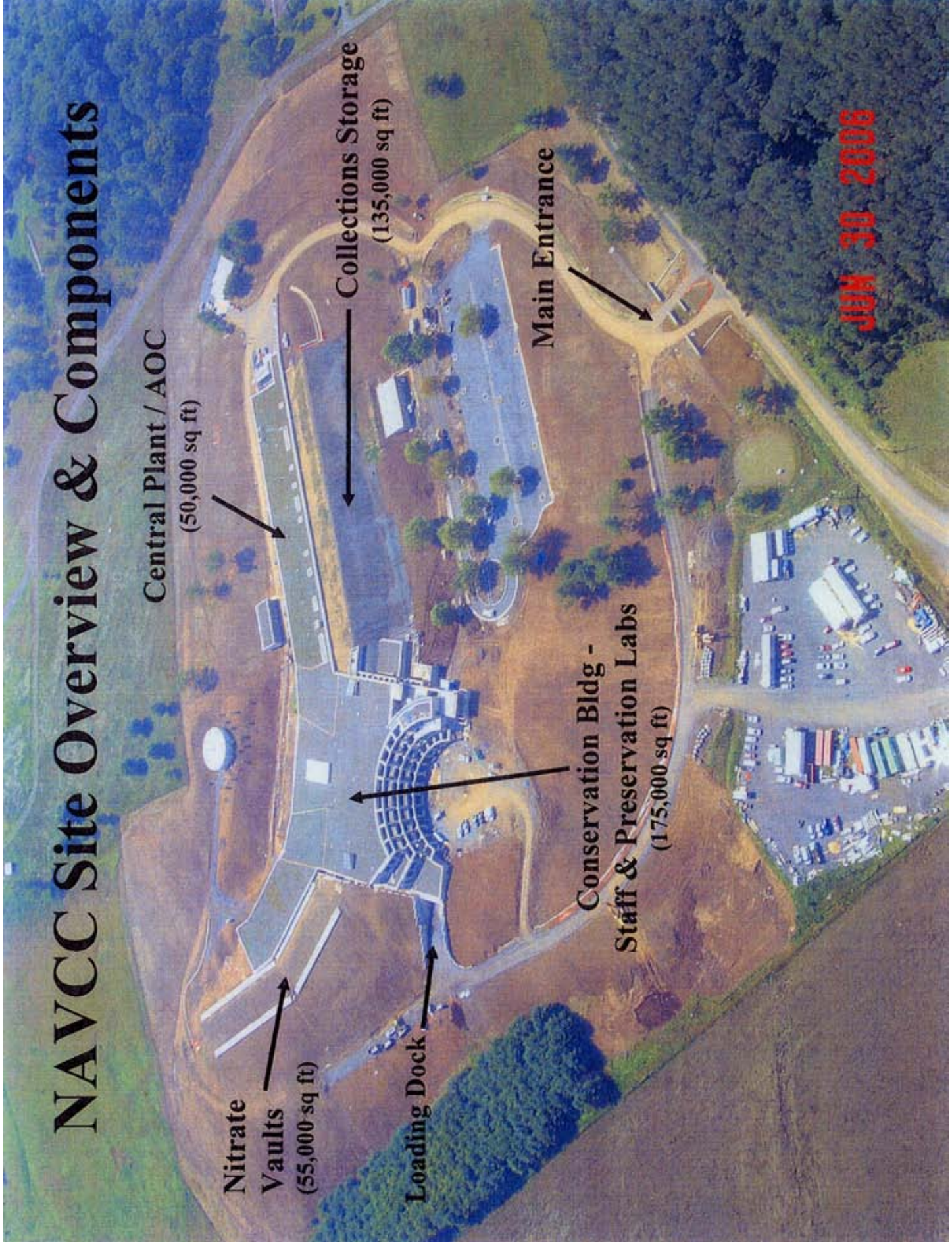
Loading Dock

Collections Storage
(135,000 sq ft)

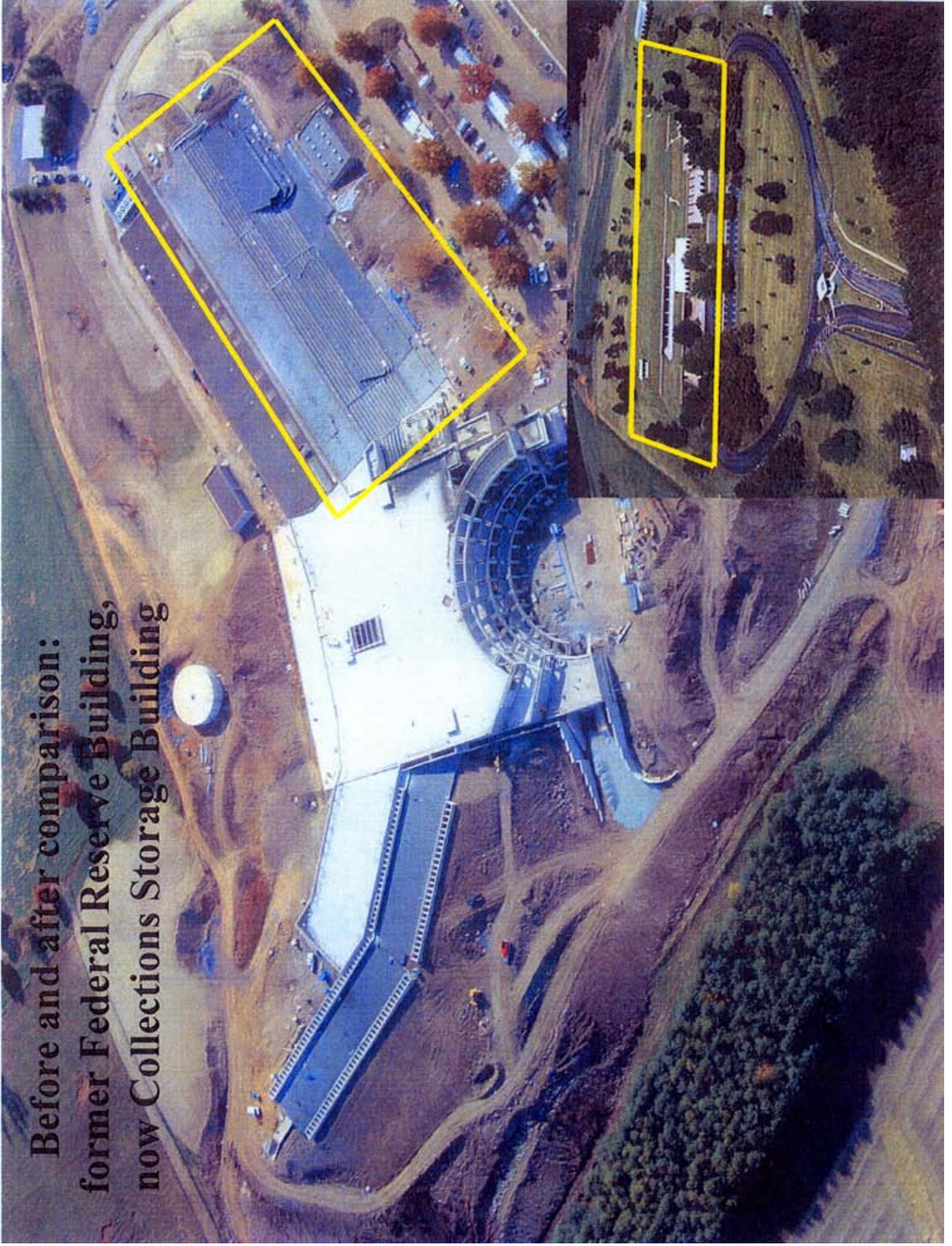
Main Entrance

Conservation Bldg -
Staff & Preservation Labs
(175,000 sq ft)

JUN 30 2008

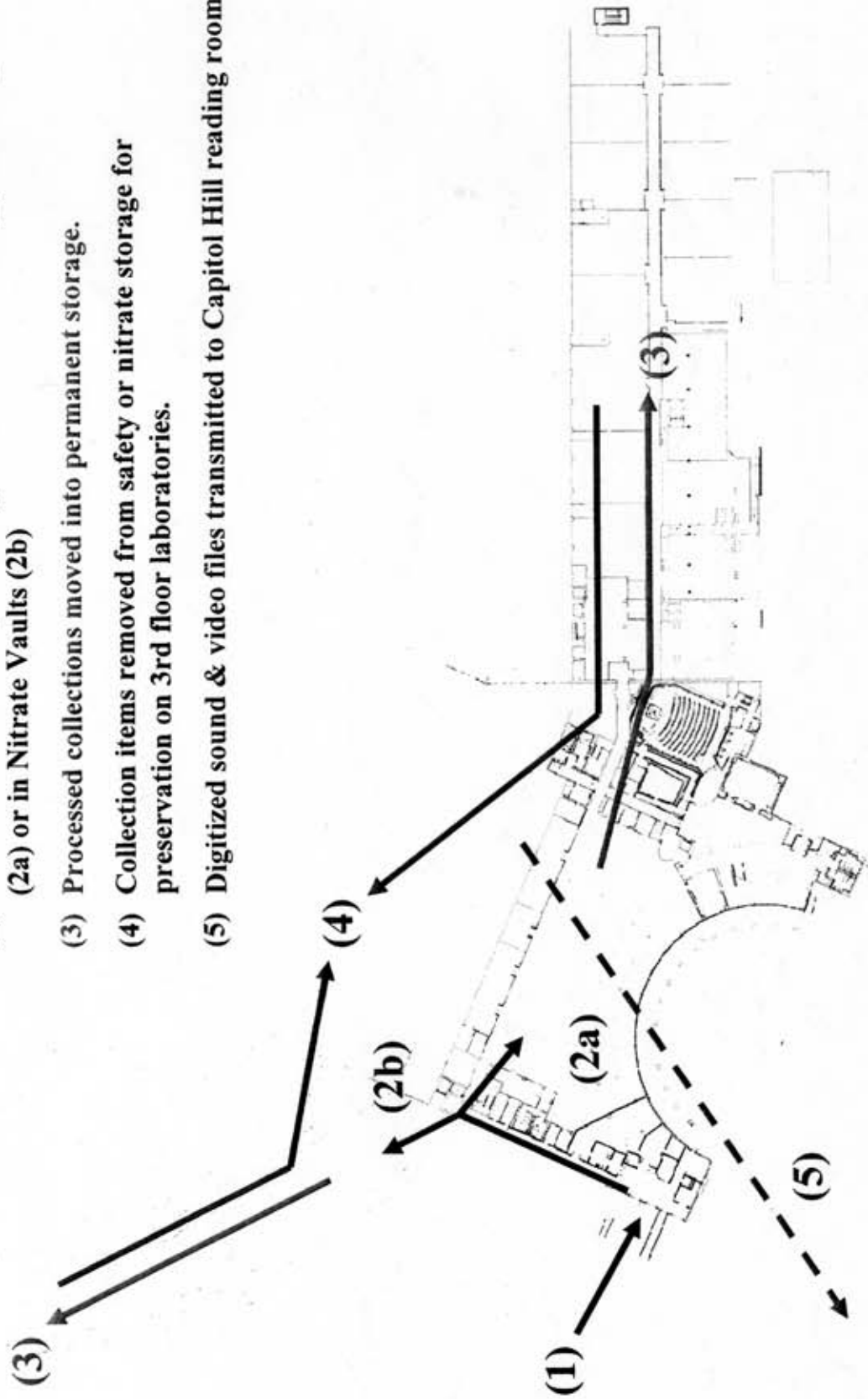


**Before and after comparison:
former Federal Reserve Building,
now Collections Storage Building**

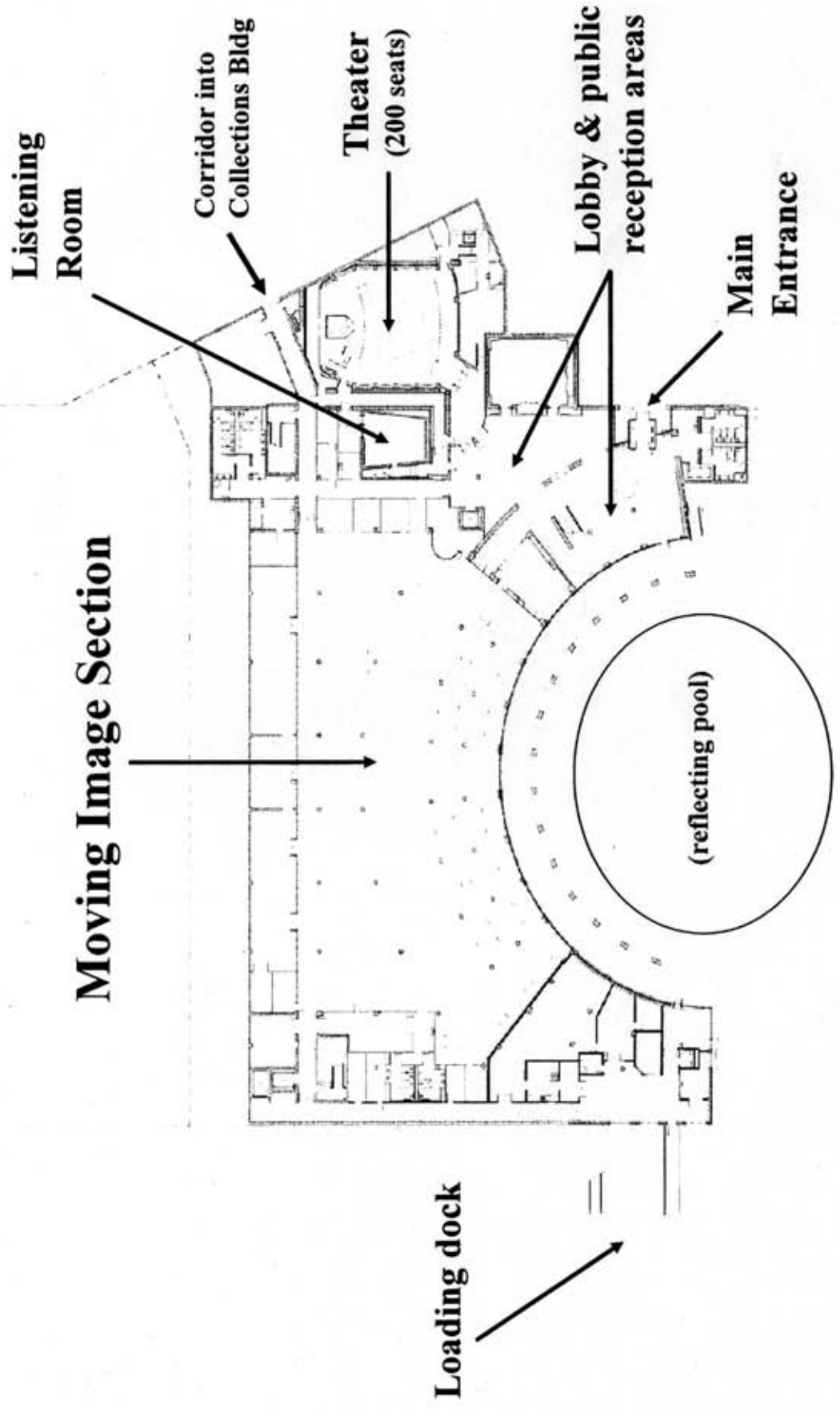


Master Workflow for Entire Facility:

- (1) Collections delivered to Loading Dock
- (2) Collections move for processing in Conservation Bldg processing area (2a) or in Nitrate Vaults (2b)
- (3) Processed collections moved into permanent storage.
- (4) Collection items removed from safety or nitrate storage for preservation on 3rd floor laboratories.
- (5) Digitized sound & video files transmitted to Capitol Hill reading rooms.

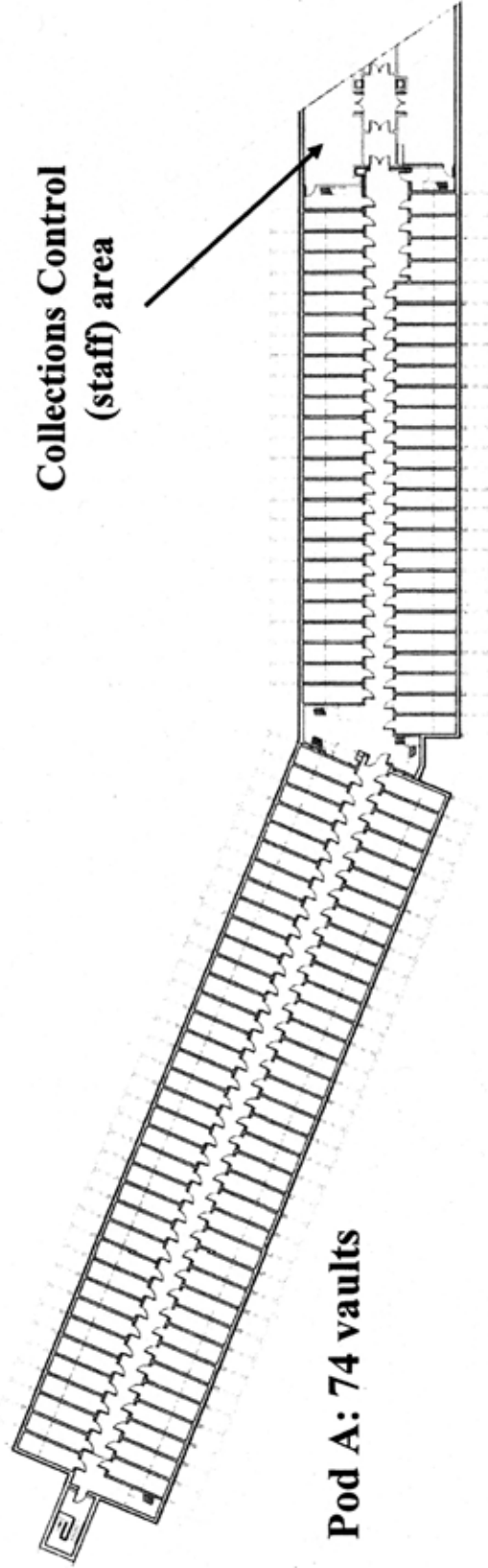


Conservation Building 1st Floor



Nitrate Film Storage: 124 Vaults

All vaults 39°F and 30% RH



1000' can vault capacity = 1360 cans

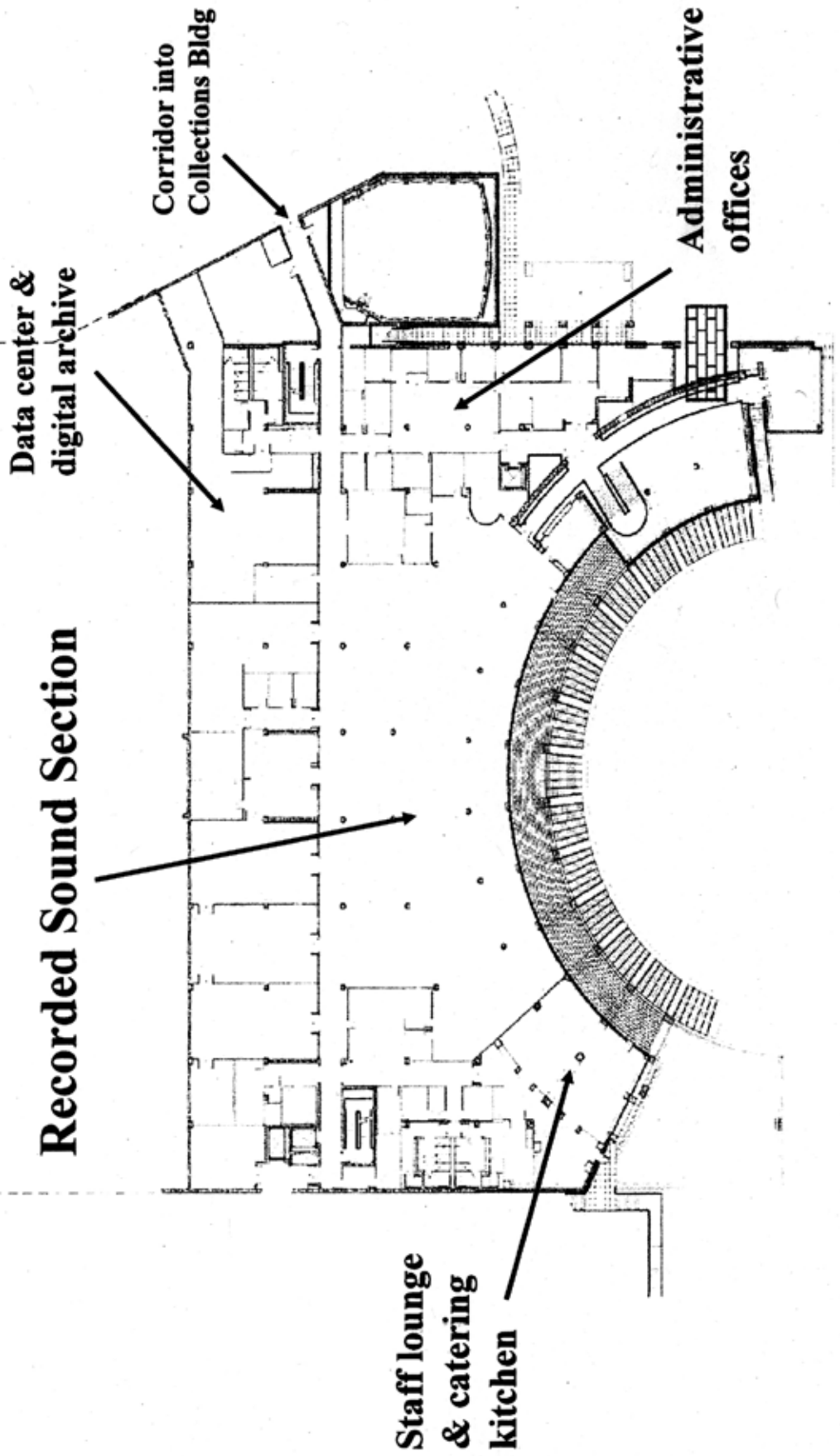
Mixed vault capacity: 880 (1000' cans) + 288 (2000' cans) = 1168 cans

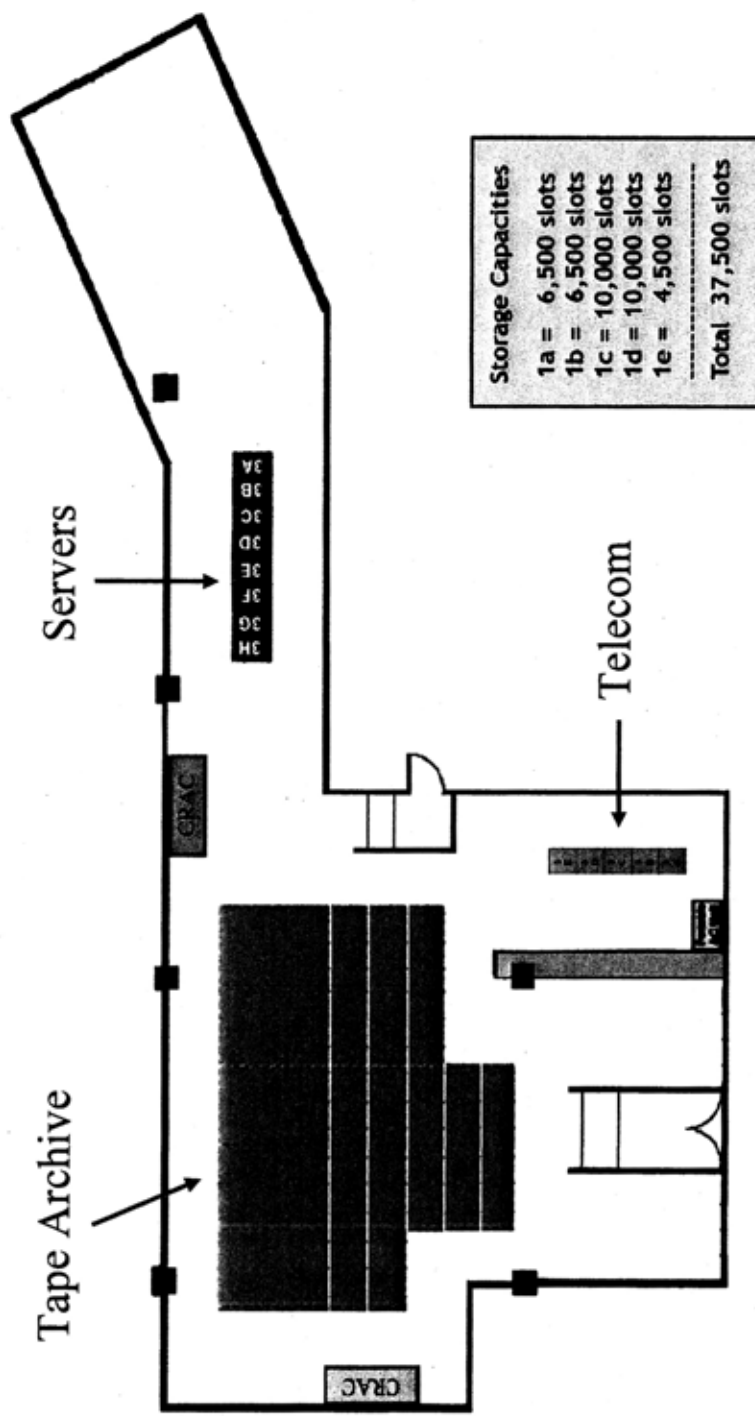
Total 1000' nitrate can capacity: 1360 x 62 vaults (84,320) + 880 x 52 vaults (45,760) = 130,080 total

Total 2000' nitrate can capacity: 288 x 52 vaults = 14,976

Total capacity = 145,056 cans

Conservation Building 2nd Floor



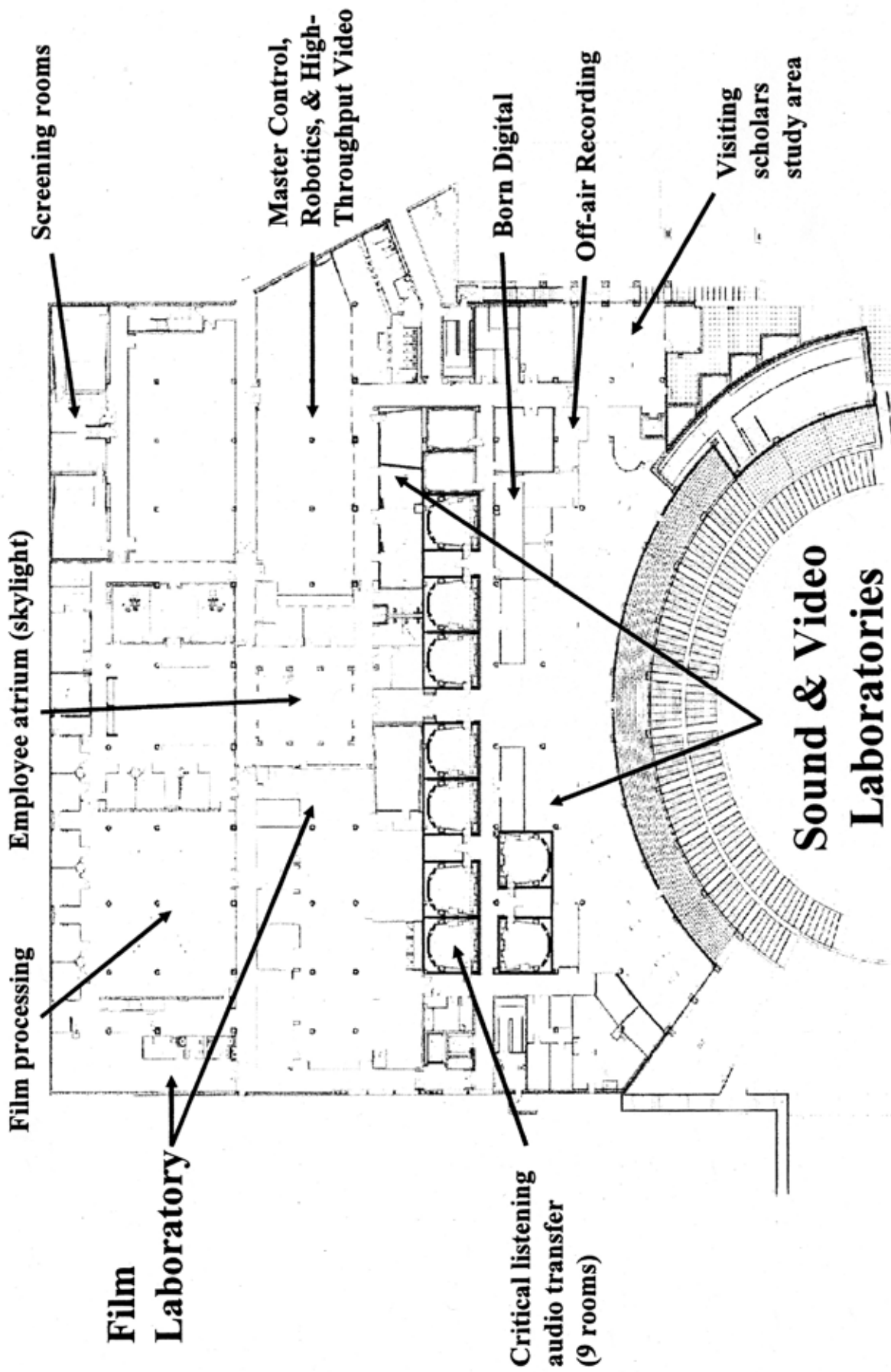


Storage Capacities	
1a =	6,500 slots
1b =	6,500 slots
1c =	10,000 slots
1d =	10,000 slots
1e =	4,500 slots

Total	37,500 slots

Data Center

LIBRARY OF CONGRESS
Phase II Data Center Layout

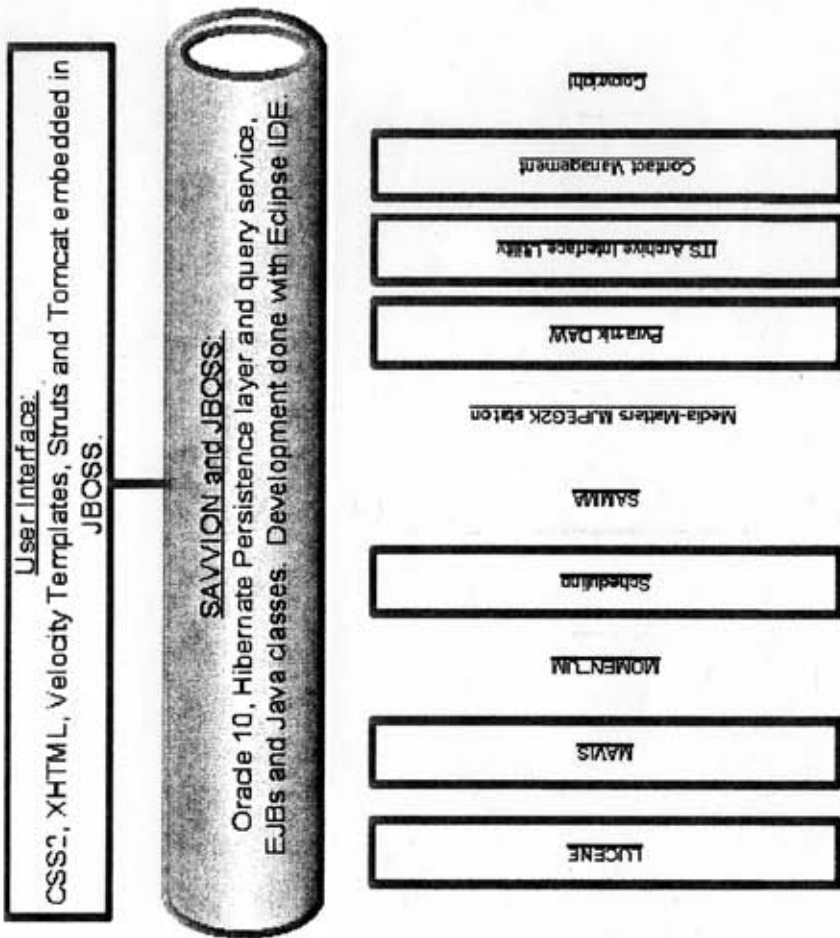


Conservation Building 3rd Floor

What we wanted to do at NAVCC (Requirements Document v2.4)

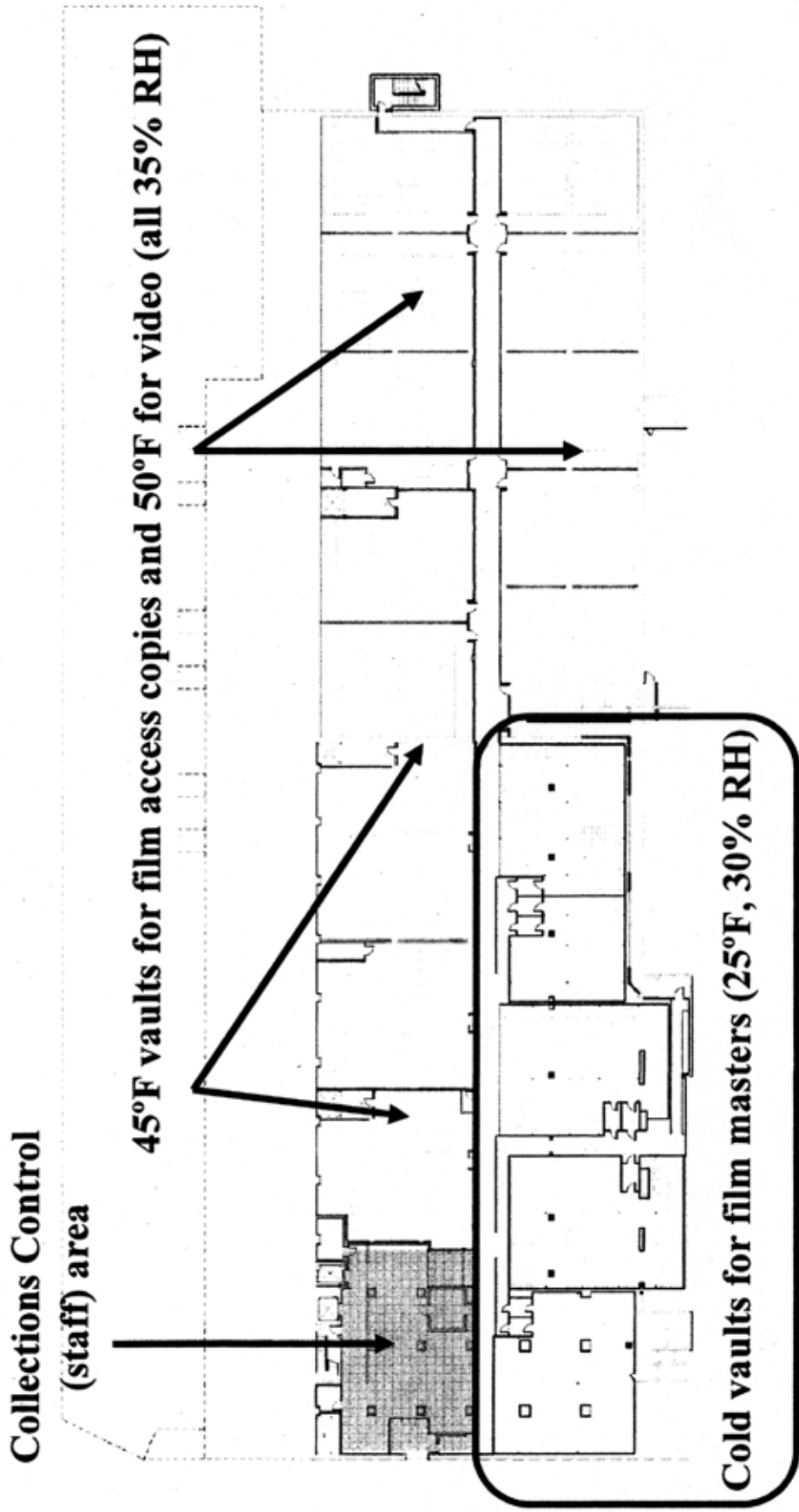
<p>Workflow</p> <ul style="list-style-type: none"> Copyright Acquisitions Cataloging Fulfillment Reference Request Born Digital Processing Non-copyright Acquisitions 	<ul style="list-style-type: none"> Accessioning Film Preservation Reformatting Video Preservation Reformatting Audio Preservation Reformatting Paper Collections
<p>Services</p> <ul style="list-style-type: none"> Copyright Siebel System LoC Name Authority File Online Computer Library Center Audio and Video Servers Proprietary Database Access Library Catalog System Integration Research Libraries Information Network 	<ul style="list-style-type: none"> LCCN Assignment MUZE Interface MAVIS Interface Labeling Tool Cuadraster Object Builder
<p>Software Systems</p> <ul style="list-style-type: none"> Workflow Management Digital Conversion PODs Work Order Digital Deposit Customer Relations Management 	<ul style="list-style-type: none"> Collections Management Label Management Raw Deposit Business Management Archive Backup
<p>Hardware</p> <ul style="list-style-type: none"> Digital Ingest Storage Cache Storage Backup Storage Business Network Backup Network AV Equipment 	<ul style="list-style-type: none"> POD Storage Archive Storage Internet Connectivity Production Network Servers External Access Network

How we are doing it



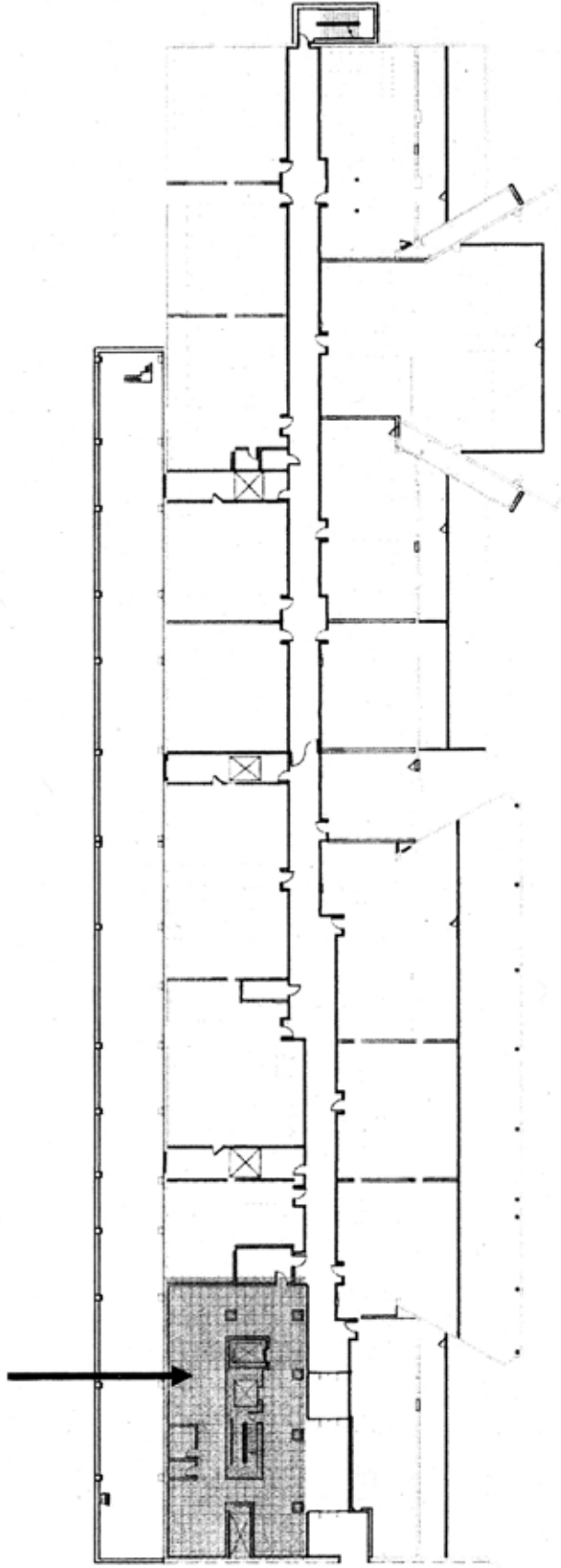
CSS2 for integrating look and feel with HTML - <http://www.w3.org/TR/REC-CSS2/>
 XHTML - F or HTML extensibility and content integration - <http://www.w3.org/TR/xhtml1/>
 Velocity Templates for Java HTML integration - <http://jakarta.apache.org/velocity/>
 Struts - Overall Java integration tool - <http://struts.apache.org/>
 Tomcat - Servlet and JSP deployment for JBOSS application code - <http://tomcat.apache.org/>
 JBOSS - Application deployment environment with EJBs and Java - <http://www.jboss.com>
 Hibernate Object/Relational persistence and development for Java - <http://www.hibernate.org/>
 Eclipse - P programming framework - <http://www.eclipse.org/>

Collections Building 1st Floor: Film & Video



Collections Building 2nd Floor: Sound Recordings

Collections Control
(staff) area



Entire floor: 50°F and 35% RH

Overview of NAVCC data center Hardware, software and processes

The Library of Congress (LC), a Legislative Branch agency of the Federal government, is the world's largest and most comprehensive library, maintaining a collection of more than 124 million items – many of them unique and irreplaceable – in more than 450 languages. It directly serves not only the Congress, but also the entire nation. Enterprise Systems Engineering (ESE) is a service unit of ITS and is responsible for the general support systems (GSS), which are used to manage the Library's applications and databases. The National Audio-Visual Conservation Center (NAVCC) of the Library of Congress is the first centralized facility in America especially planned and designed for the acquisition, cataloging, storage and preservation of the nation's heritage collections of moving images and recorded sounds. The Library's Motion Picture, Broadcasting and Recorded Sound Division (MBRS) holds the world's largest collections of films, television, radio, and recorded sound and is responsible for the preservation of more than half of America's audio-visual heritage. The collections are the most comprehensive of their kind ever assembled by a research institution, and are unparalleled in the depth and breadth of their international and historical scope.

All assets being digitized by NAVCC are processed and stored in this room. Digitizing Stations upstairs feed this room via the Workflow software. The system is designed to process a maximum of 2Gb/s of data.

Data comes in to the Archive Servers (lower disk arrays) where the data is protected (via RAID 5 technology). There is 100 TB of storage in this room to receive the content being digitized throughout the building.

Next the data is stored at a primary and secondary facility. Primary storage is here in the SL 8500 Tape Storage devices. We currently store 3,300 TB/3.3 Petabytes of data here (3,300 tapes @ 1TB/tape). Total planned capacity is 35 PB (35,000 tapes @ 1TB/tape). Secondary storage is at the ACF (Alternate Computing Facility) where we have an equivalent set of Tape Storage devices. The ACF has 10TB of disk cache to facilitate the copy process.

There is also derivative storage (20TB) here to receive audio and video in a smaller, portable format, and then serve it to the reading rooms.

Video MJPEG2000 @ 83Mb/s => MPEG2 @ 4Mb/s
Audio WAV 96khz/24bit @ 2.3Mb/s => WAV @ 700Kb/s

All data is verified (via cksum / SHA-1) once created. This cksum is used throughout the digital asset/object/file's life to ensure its integrity. There are two copies of every file until the data is written and verified. Verification of two copies is required before any copy on disk can be deleted. The final two copies exist at the primary and secondary locations in the Tape Storage devices.