CT-59B Prestons Cliffs Frame Tobacco Barn — Constructed spring-summer, 1818
(Calvert Cliffs Visitor Center) — Later enlarged
on Calvert Cliffs Nuclear Power Plant Property, Calvert Cliffs Parkway
Lusby, Maryland, Calvert County. Baltimore Gas & Electric Company, owner.

Like the 1820 log barn on this farm, this frame barn is an important structure in deciphering the evolution of tobacco house architecture. Among dated barns, this is the oldest exhibiting most of the features of the fully evolved, 19th-century tobacco barn: horizontal runner framing, toe board false plates, and mitred rafter feet.

The main timbers of this 40 x 20 ft. barn are framed in a typical 18th-century "Virginia" manner. Its sills, posts, braces, plates, and tie beams are joined in much the same way as the timbers of the Brome Plantation granaries of 1785 and 1758 (see below). But the secondary members are framed differently. This barn is not vertically studded for horizontal boarding. Rather, horizontal "runners" are mortised and tenoned between the posts. These runners are both the supports for the tobacco scaffold tier poles and the nailers to which the vertical exterior planking is fastened. This elegant use of one member to perform two functions was extremely cost effective and now is almost universally employed in barn construction. It may have been either an original invention, or a modification of New England vertical plank framing. Economic and environmental factors played a role in its appearance. This kind of framing was completely impractical until mill sawn softwood plank was readily available and it may not have been economically advantageous until clapboard timber became scarce. The Prestons Cliff frame barn was built near the beginning of the transition from vertical horizontal boarding to vertical planking, as the gables of the barn were studded for horizontal boarding in the traditional manner.

The second framing innovation illustrated by this barn also is related to the abandonment of clapboard construction and the availability of sawn plank. This barn's rafter trusses are spaced not at the 24 or 30 inch distance required for clapboard roofing. Rather they are spaced at the 48 inch distance of the tobacco tier poles and collars. The shingle roof that covered the barn was applied to sawn lath that bridged the gaps between the rafters. Now that rafter couples and tie beam spacing corresponded, the hewn false plates and complicated joinery required by clapboard roofing could be abandoned. In this barn, the false plate has been reduced to a simple 1¼ x 5½ inch toe board. The rafter feet were mitred to fit the toe board and are nailed through it into the ends of the tie beams.

Although efficiently constructed, this is a high quality barn. The timbers are genersouly proportioned and excellently joined. The barn is seven tiers high and each tier is 3'6" in height. (Small, in-the-forest barns were built with only six, 3 ft. tiers until almost the 20th century.) The barn was entered by 34 inch wide doors centered in the sidewalls. The roof space was ventilated by small gable windows.

The barn frame establishes that the sidewalls were reared as completely pre-assembled units. First one frame was assembled on the future barn floor and reared onto its foundation, then the other. Rearing these heavy frames required either sheer poles and heavy tackling or a crowd of men armed with pike poles.

Three kinds of nails were used to construct the barn: wrought head framing nails, double-struck head framing nails, and early machine-cut, machine-headed plank and shingle nails. The spacing of the shingle lath suggests that the barn was covered originally with side-lapped, long shingles.

While, as discussed under CT-59A, the construction of this barn was important in replacing this plantations temporary 18th-century tobacco houses with well framed, permanent constructed, permanent buildings, this barn was preceeded by at least one well built outbuilding. The roof collars and collar braces of this

barn were cut from sawn rafters salvaged from an earlier structure.

Later in the 19th-century, both ends and the west side of this barn were extended with sheds constructed with cedar posts-in-the-ground and pine pole rafters and shingle lath. These additions are shown in a 1936 HABS photograph of the plantation. Subsequently, the south shed was removed, and the barn was extended another 36 feet.

This barn has been restored. It now houses the visitor center exhibits of the Baltimore Gas and Electric, Calvert Cliffs Nuclear Power Plant.

Sources:

Bonney, Dick. Photographs (29) 9 January 1978. Baltimore Gas and Electric Negative group 53647. Duplicate negatives on file with the Maryland Historical Trust.

Library of Congress, Historic American Building Survey, photograph 11866/Md.-4-1.

Stone. "Frame Tobacco Barn on Calvert Cliffs." 1978.

CT-59B, Architectural File, SMCC

CT-59B

THE KEY-YEAR DENDROCHRONOLOGICAL PATTERN FOR THE OAKS OF MARYLAND'S WESTERN SHORE 1570-1980

American Institute of Dendrochronology

APPENDIX

Building Descriptions

Garry Wheeler Stone

Historic St. Mary's City

1987

(Prestons Cliffs)

CT-59B ~~Wilson~~ Frame Tobacco Barn Constructed
Spring-Summer, 1818
Later enlarged

Like the c.1835-1860 log barn on this farm, this frame barn is an important structure in deciphering the evolution of tobacco house architecture. Among dated barns, this is the oldest exhibiting most of the features of the fully evolved, 19th-century tobacco barn: horizontal runner framing, toe board false plates, and mitered rafter feet.

The main timbers of this 40 x 20 ft. barn are framed in a typical 18th-century "Virginia" manner. Its sills, posts, braces, plates, and tie beams are joined in much the same way as the timbers of the Brome Plantation granaries of 1785 and 1758 (see below). But the secondary members are framed differently. This barn is not vertically studded for horizontal boarding. Rather, horizontal "runners" are mortised and tenoned between the posts. These runners are both the supports for the tobacco scaffold tier poles and the nailers to which the vertical exterior planking is fastened. This elegant use of one member to perform two functions was extremely cost effective and now is almost universally employed in barn construction. It may have been either an original invention, or a modification of New England vertical plank framing. Economic and environmental factors played a role in its appearance. This kind of framing was completely impractical until mill-sawn softwood plank was readily available and it may not have been economically advantageous until clapboard timber became scarce. The Prestons Cliff frame barn was built near the beginning of the transition from vertical horizontal boarding to vertical planking, as the gables of the barn were studded for horizontal boarding in the traditional manner.

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.../contd.

Although efficiently constructed, this is a high quality barn. The timbers are generously proportioned and excellently joined. The barn is seven tiers high and each tier is 3' 6" in height. (Small, in-the-forest barns were built with only six, 3 ft. tiers until almost the 20th century.) The barn was entered by 34 inch wide doors centered in the side walls. The roof space was ventilated by small gable windows.

The barn frame establishes that the sidewalls were reared as completely preassembled units. First one frame was assembled on the future barn floor and reared onto its foundation, then the other. Rearing these heavy frames required either sheer poles and heavy tackling or a crowd of men armed with pike poles.

Three kinds of nails were used to construct the barn: wrought-head framing nails, double-struck head framing nails, and early machine-cut, machine-headed plank and shingle nails. The spacing of the shingle lath suggests that the barn was covered originally with side-lapped, long shingles.

While the construction of this barn was important in replacing this plantation's temporary 18th-century tobacco houses with well framed, permanent buildings, this barn was preceded by at least one well-built outbuilding. The roof collars and collar braces of this barn were cut from sawn rafters salvaged from an earlier structure.

Later in the 19th-century, both ends and the west side of this barn were extended with sheds constructed with cedar posts-in-the ground and pine pole rafters and shingle lath. These additions are shown in a 1936 HABS photograph of the plantation. Subsequently, the south shed was removed, and the barn was extended another 36 feet.

This barn has been restored. It now houses the visitor center exhibits of the Baltimore Gas and Electric, Calvert Cliffs Nuclear Power Plant.

References:

Bonney, Dick. Photographs (29) 9 January 1978. Baltimore Gas and Electric Negative group 53647. Duplicate negatives on file with the Maryland Historical Trust

Library of Congress, Historical American Building Survey, photograph 11866/Md.-4-1

Stone. "Frame Tobacco Barn on Calvert Cliffs." 1978

CT-59B, Architectural File, SMCC

CT-59B

FRAME TOBACCO BARN ON CALVERT CLIFFS
(Visitors Center)

Baltimore Gas and Electric Nuclear Power Plant

CLVT-59B

Report on a Preliminary Inspection

Garry Wheeler Stone
Archaeologist
St. Mary's City Commission

24 January 1978

CT-59 B

FRAME TOBACCO BARN ON CALVERT CLIFFS

On 9 January 1978, Garry Wheeler Stone, Archaeologist, St. Mary's City Commission; Silas D. Hurry, Archaeologist; and Dick Bonney, Photographer, Baltimore Gas and Electric, spent a short day investigating and recording the tobacco barn that Baltimore Gas and Electric has used as a temporary visitor center to the Nuclear Reactor Site. It is being converted into a permanent visitor center.

The barn has attained its present form in three phases of evolution. Phase one, a forty by twenty foot barn, was constructed circa 1830. Phase two, later in the nineteenth century, consisted of the addition of sheds to the west side and gable ends of the barn. (The gable sheds--now removed--are shown in a 1936 Historic American Building Survey Photograph [Library of Congress, Historic American Building Survey: negative 11866/Md.-4-1].) Subsequent to 1936 the length of the barn was extended to seventy-five feet.

The original barn probably was constructed sometime between 1820 and 1840. The dating evidence is provided by the nails used in the barn. All the framing nails have hand-wrought "rose" heads. (It was not possible to determine whether the nail shanks were machine cut or hand wrought.) The shingles, shingle lath, and plank of the barn were attached with what Lee Nelson classifies as early machine-headed cut nails. (Lee H. Nelson, "Nail Chronology as an Aid to Dating Old Buildings," American Association of State and Local History, Technical Leaflet 48.) These nails have definite waists below their slightly sub-rectangular heads, but they are much more regular than the nails Nelson illustrates. Nelson dates early machine cut nails to c.1815-1830s, and suggests that the more regular varieties date from the 1830s. (No nails were collected. Hundreds remain in situ in the old framing stripped when the shed was added [2].)

The first barn was forty feet long, twenty feet wide, and was framed in ten foot bays. Originally the sidewalls were tied together with a central cross sill and down braces from the central posts (cross sill and braces have been removed and replaced by a girder at the height of the second tier poles [6]). The only original doors were two pedestrian doors, one on each side of the barn at the north side of the cross sill [5, 26]. The body and roof of the barn were tier-railed and poled at four foot intervals for hanging tobacco. The barn originally was covered with shingles and enclosed with plank. Much of the interest of the barn is that while its body was vertically planked (using the side tier rails as "runners" --i.e., horizontal studs), its gables were vertically studded and horizontally boarded in the traditional manner. The barn, thus, is an important transitional link between stud framing and later runner framing.

The original barn of c.1830 is an excellent example of barn carpentry. It was executed largely in hardwood* (the only material noticed was oak), with uniform materials and carefully fitted joints. The sills and corner posts were hewn. The other lumber was reciprocally sawn in a mill.

[Numbers within brackets refer to 1978 photographs. See attached list.]

*Statements marked with an asterisk need to be confirmed by additional research.

Except for the diagonal braces and end sills, all the major joints of the body of the barn are mortised and tenoned. The diagonal braces are half-lapped and pegged into notches [6, 9]. The end sills are lapped and nailed to the side frames [8, 22]. (If a tenoned joint is present, it could not be detected.* The side frames had been preassembled on the ground and pushed up as units.) All the major joints are pegged with the exception of the runners. They were slipped into their mortises while the frame was being assembled and are now locked into place by the post to either side [7]. (Check joining to diagonal braces; joints of end runners.) The joining of the corner posts and side plates is curious. Spurs were left on the inside of the corner posts, and the plates are pegged horizontally and vertically to the posts. Presumably, the horizontal peg passes through a tenon from the post as well as the spur* [9].

The present tier rails are pine poles. They do not match the other fabric of the barn and may be replacements dating from the addition of the shed.* These tier poles are supported in the center by hole-set cedar posts [10, 24, 25]. The cedar posts appear to be reused.* The chronology of the posts and tier poles needs to be determined through examination of the nails used to secure them. If the posts have been salvaged from an earlier structure, they need to be analyzed carefully to see what they could reveal about its construction. It may be that they are remnants of a temporary tobacco "pen house." No early "pen houses" survive. Even a glimpse at their construction would be significant.

The gables of the barn are vertically studded at intervals of approximately 2'6". The studs are reciprocally sawn and are of nominal 3" x 4" dimensions. (The dimensions of two were: 3 1/4" x 3 3/4"; 3 1/2" x 3 1/4".) Presently they are connected by short sections of horizontal runners [11, 13, 29]. These are insertions, as the ends of the tobacco sticks in the outside rail are supported by board (1" x 3 1/2") tier rails nailed to the inside of the studs [14]. Careful inspection of the nails fastening the runners possibly would confirm this.*

"Ghost" stains of horizontal boards were apparent. One particularly clear stain was eight inches wide. The nail pattern for the boarding was confusing--apparently each board was fastened with two nails to the first stud, one to the second, two to the third, one to the fourth, etc.*

Probable evidence for gable ventilation windows was observed. It consisted of areas of obvious water damage to the studding (in similar locations in both gables) and possible sill notches in the south gable [13, 14].

The barn has a standard nineteenth-century false plate roof constructed in tie-beam and common rafter trusses [20]. The tie-beams were notched to fit over the main plate. They project 8" beyond it to carry a board false plate [3, 4]. Each common rafter is fastened to its tie-beam with two wrought headed nails driven through the toe of the rafter and the false plate [5]. The rafters are mortised, tenoned, and pegged at their apexes.

The sawn tier-rail collars are nailed into notches in the rafters, and are vertically stiffened (except for the top rail) [illegible] down to the tie-beam. The top collar/rail is only a board.

Further examination of the barn would reveal more detail about its original construction. Under the west shed, the nail patterns exist for the original planking and shingle lath [2, 12, 18]. Some of the original shingle lath (narrow boards) may remain on the east roof, now with salvaged boards filling in the gaps [28]. Their spacing suggests that the board was covered with long shingles.* The west doorway retains a broken hinge pintle and a fragment of the door trim [1].

The shed extension of the barn is also of interest. It is constructed completely* of second growth, "old field" timber (pine and cedar) [18]. The wall frame consists of formerly hole-set cedar posts, tenoned to the plate [15]. The posts are not hewn. They were flattened only with an axe where the runners join, so that the runners would butt securely. (They are toe-nailed to the posts.) No diagonal bracing is present. The wall is now underpinned with a sill [16]. The eaves' framing is very poor. The board false plate carries the rafter toes only an inch or two beyond the wall. The roof frame consists of pine poles [19]. Even some of the shingle lath are small poles (hewn on their upper sides only [27]).

The barn and its shed illustrate one of the problems--wall post spacing--which confront archaeologists studying the timber mold evidence of earlier structures. Neither structure has posts set precisely on bay intervals. While the barn sills were marked for exactly ten foot bays, the carpenter deliberately off-set, by a few inches, the wall post mortises, possibly to roughly equalize the gaps between the posts. The plan of the barn needs to be completely measured in order to work out the rationale of the bay and post system. (The post spacing is not accidental. Some other dimensions [the height of the wall posts for example] seem accurate to 1/2".)

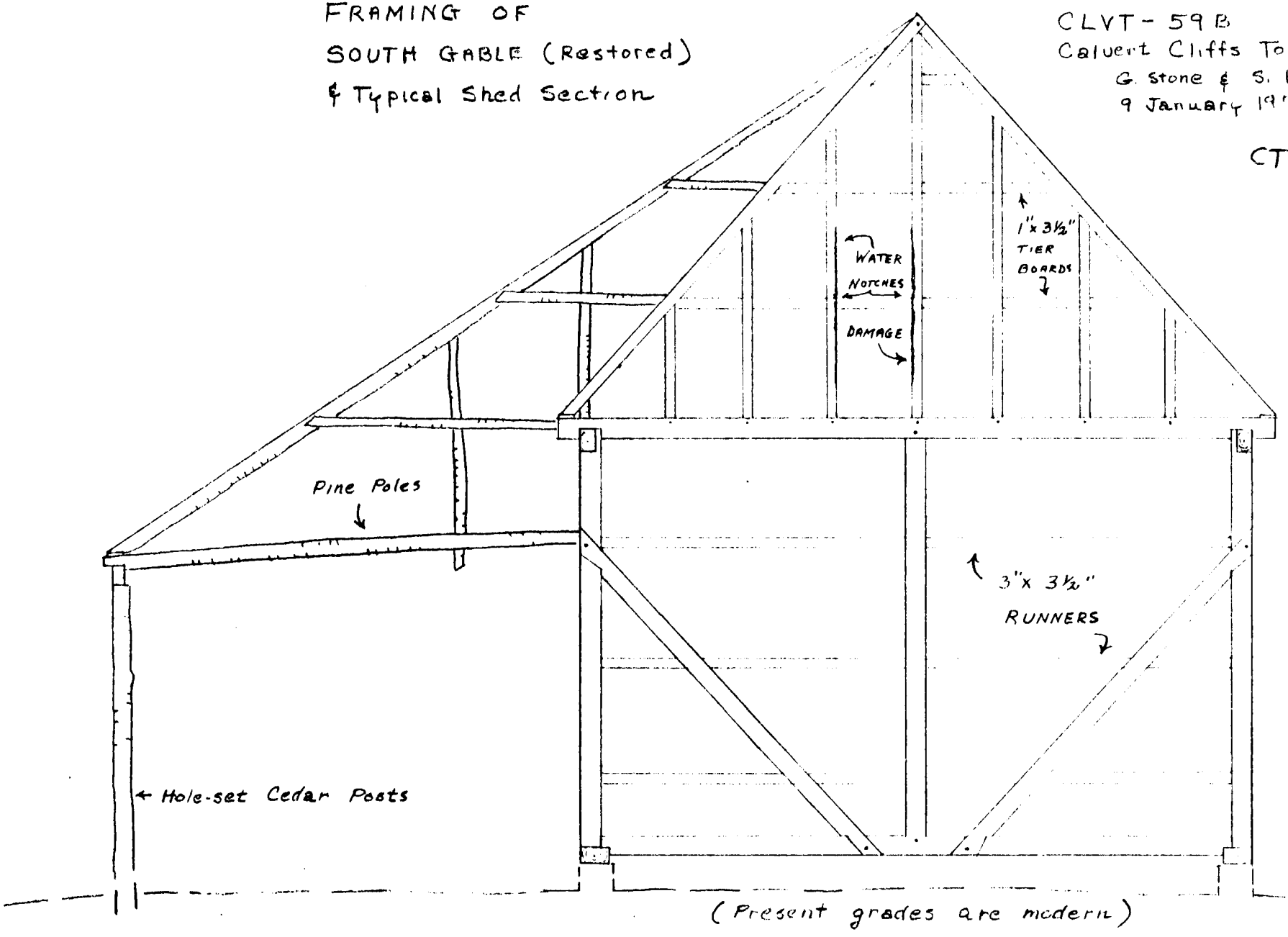
The partially framed shed exhibits another form of variability. As there are no precut interrupted sills, the posts were spaced conveniently to reinforce the shed corners and center the door. The resulting spacing varies from four to eight feet. The positions of the bottoms of the posts is even more erratic, due to irregularities in these cedar logs. (Because of the exhibit panels mounted along this wall, it was not possible to carefully measure the shed. This should be done in the future.)

The field records on which this report is based are on file with the St. Mary's City Commission.

FRAMING OF
SOUTH GABLE (Restored)
& Typical Shed Section

CLVT-59B
Calvert Cliffs Tobacco Barn
G. Stone & S. Harry
9 January 1978

CT-59B



FRAME TOBACCO BARN ON CALVERT CLIFFS (CLVT-59B)
Photographs by Dick Bonney
Baltimore Gas and Electric
9 January 1978

CT-59B

(Baltimore Gas and Electric negative group 53647. Duplicate negatives on file with the Maryland Historical Trust.)

Photo #	Kodak Frame # BG&E	MHT	Subject	Camera Orientation	Remarks; Details Shown
	Roll #1		Barn: West Side		
1	3a	4a	door head, ext.	E	Remnant door trim; broken hinge pintle; vacant notch for brace.
2	6a	5a	doorway, ext.	SE	Nail pattern of removed vertical plank.
3	8a	7a	NW corner post,ext.	NE	Joining of post, plate, tie-beam, and false plate.
4	10a	9a	plate, ext.	SE	Plates above door posts. Pine poles are part of shed framing.
5	12a	11a	false plate, ext.	SSE	Wrought nail heads fastening rafter to tie-beam.
6	14a	13a	doorway, int.	W	Sawn off tenon for cross-sill, inserted girder, vacant notch for removed diagonal brace; note sill wear, apparently from use as chopping block for sharpening tobacco sticks.
			Barn: NE Corner		
7	16a	15a	corner post, int.	NE	Axe-hewn sills and corner post, adzed and sawn east diagonal brace (north brace is a replacement), sawn runners mortised into post.
8	18a	17a	" " " lower detail	"	Lapped end sill.
	Roll #2				
9	2a	3a	corner post, int. upper detail	"	Spur of post, joining of plate, tie-beam.
10	4a	5a	Barn: Interior cedar poles	NW	Hole-set poles bracing center of tier poles.

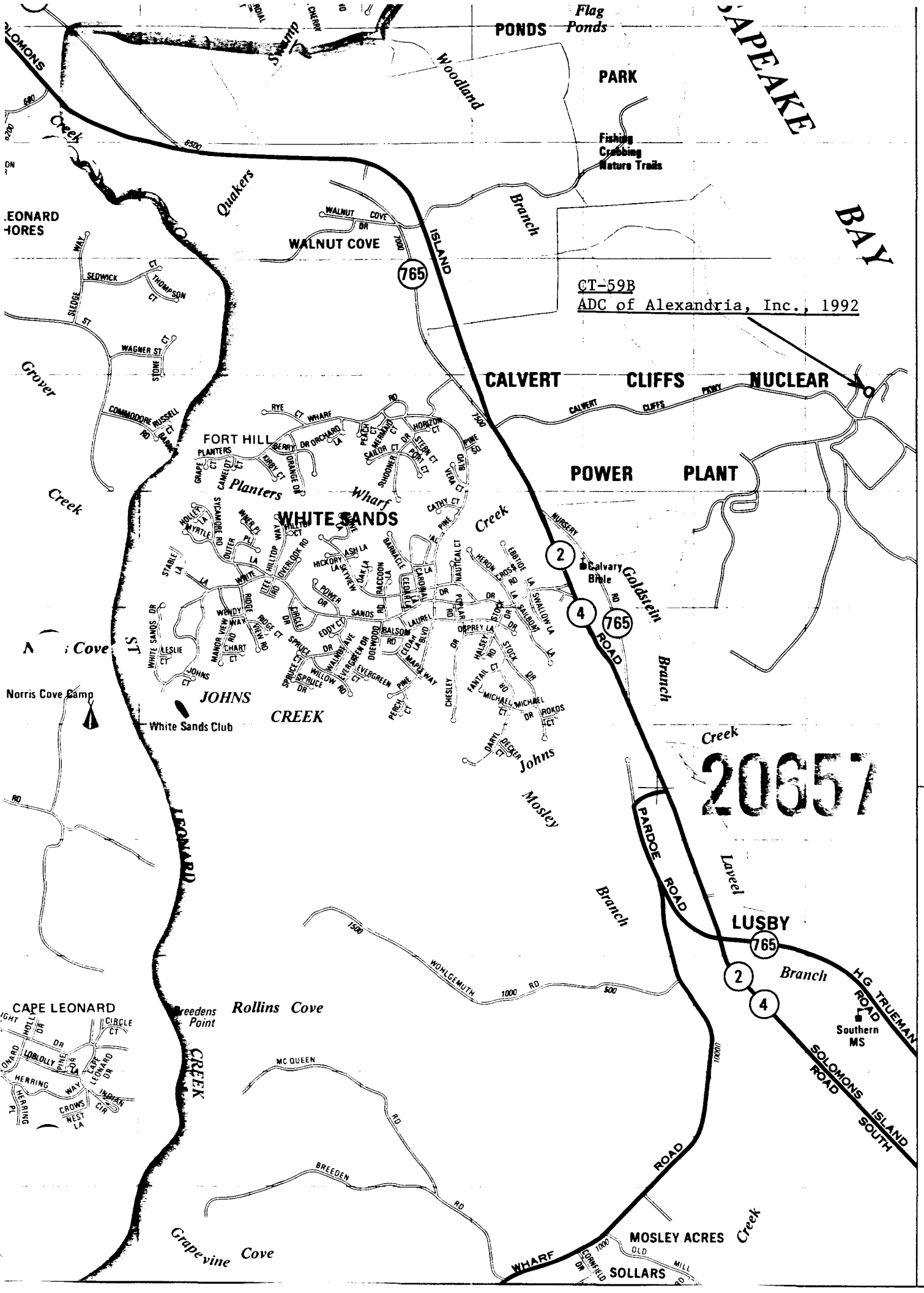
CT-59B

Photo #	Kodak Frame # BG&E	MHT	Subject	Camera Orientation	Remarks; Details Shown
11	6a	7a	Barn: south gable, ext.	NW	Original studs & rafters, inserted runners, exterior tier boards dating from modern extension.
12	8a		(duplicate)	"	(duplicate)
13	10a	9a	south gable, ext.	N	Water damage and notches locating window.
14	11a	12a	south gable, int.	SE	Water damage and notches locating window, original tier boards.
15	14a	15a	Shed 1st post south of NW corner, top int.	SW	Pegged joint of post and plate; false plate construction.
16	16a	17a	" ", btm. int.	SW	Sill inserted beneath cedar post (originally hole-set).
17	18a	19a	general interior	NNW	Shows also west wall of barn.
	Rolls #3 & 4				
18	1a	2a	(duplicate)	"	(duplicate)
19	7a	8a	Barn & Shed roofs	NW	Contrasting hewn & sawn barn roof with pole shed roof.
20	5a	6a	Barn roof	NNE	Roof trusses of tie-beams, rafters, tier-rail collars, and vertical braces.
21	3a	4a	south gable, ext.	N	Three periods of shingle lath and sheathing.
22	2a	3a	south end, west corner	N	Original sills and brace, replacement corner post.
23	4a	5a	Shed north end, int.	N	

CT-59B

Photo #	Kodak Frame # BG&E	MHT	Subject	Camera Orientation	Remarks; Details Shown
24	6a	7a	Barn NE corner, int.	N	
25	8a	9a	NE corner, int.	N	
26	11a	12a	east side, int.	SE	East doorway, SE corner (sill is replacement).
27	13a	14a	Shed roof above barn	vertical	Pine-pole shingle lath.
28	15a	16a	Barn east slope roof	"	Narrow shingle lath with reused boards filling gaps.
29	18a	19a	south gable	"	Three periods of shingle lath and sheathing.

Garry Wheeler Stone
8 February 1978


CT-59B
ADC of Alexandria, Inc., 1992
PONDS
Flag Ponds
PARK
Fishing
Crabbing
Nature Trails
CHESAPEAKE BAY
Woodland
Quakers
Branch
WALNUT COVE
ISLAND
765
CALVERT CLIFFS NUCLEAR POWER PLANT
CALVERT CLIFFS PKWY
FORT HILL
WHITE SANDS
Planters
Wharf
Creek
Grover
Creek
Goldstein
Branch
Calvary Bible
NURSERY RD
ROAD
PARDOE ROAD
Laveel
Branch
LUSBY
765
Branch
HG TRUEMAN ROAD
Southern MS
SOLOMONS ISLAND ROAD SOUTH
Norris Cove Camp
White Sands Club
JOHNS CREEK
Johns
Mosley
LEONARD
CREEK
CAPE LEONARD
Rollins Cove
Breedens Point
MC QUEEN RD
BREEDEN RD
Grapevine Cove
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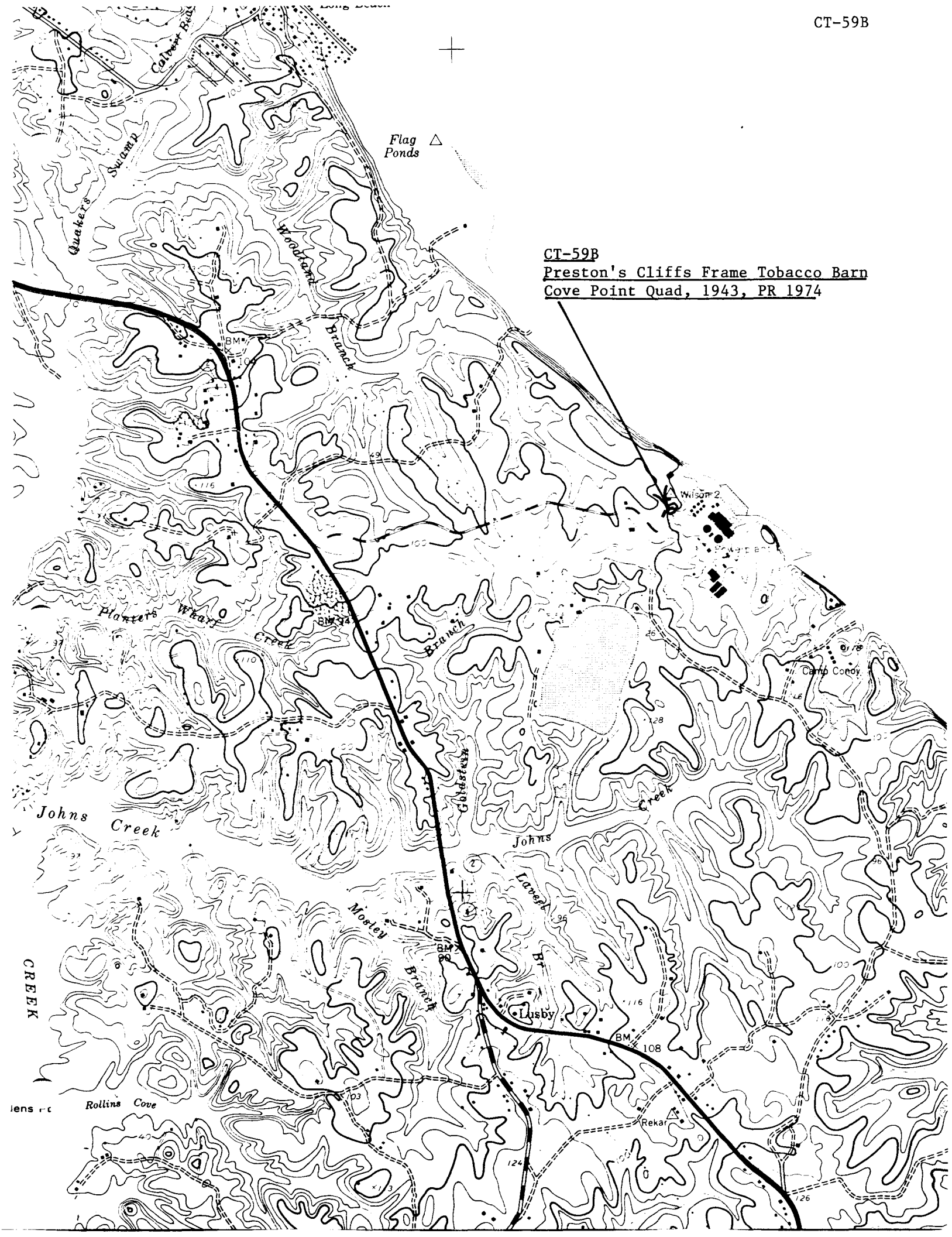
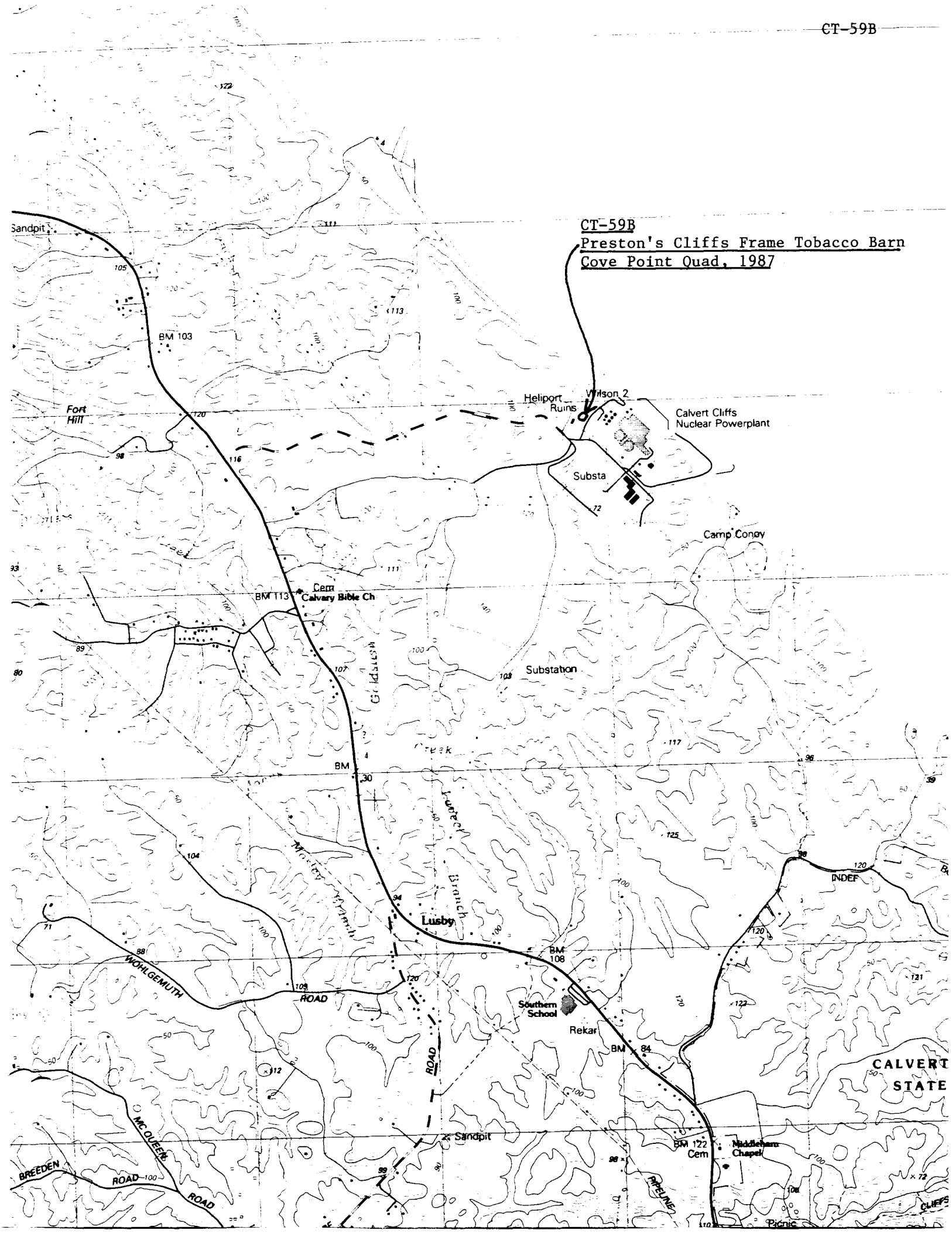
MD GRID 210,000 FT
Joins Map 17



CT-59B
Preston's Cliffs Frame Tobacco Barn
Cove Point Quad, 1943, PR 1974



CT-59B
Preston's Cliffs Frame Tobacco Barn
Cove Point Quad, 1987

Calvert Cliffs Visitor Center
BMD 12/78

CT-59b