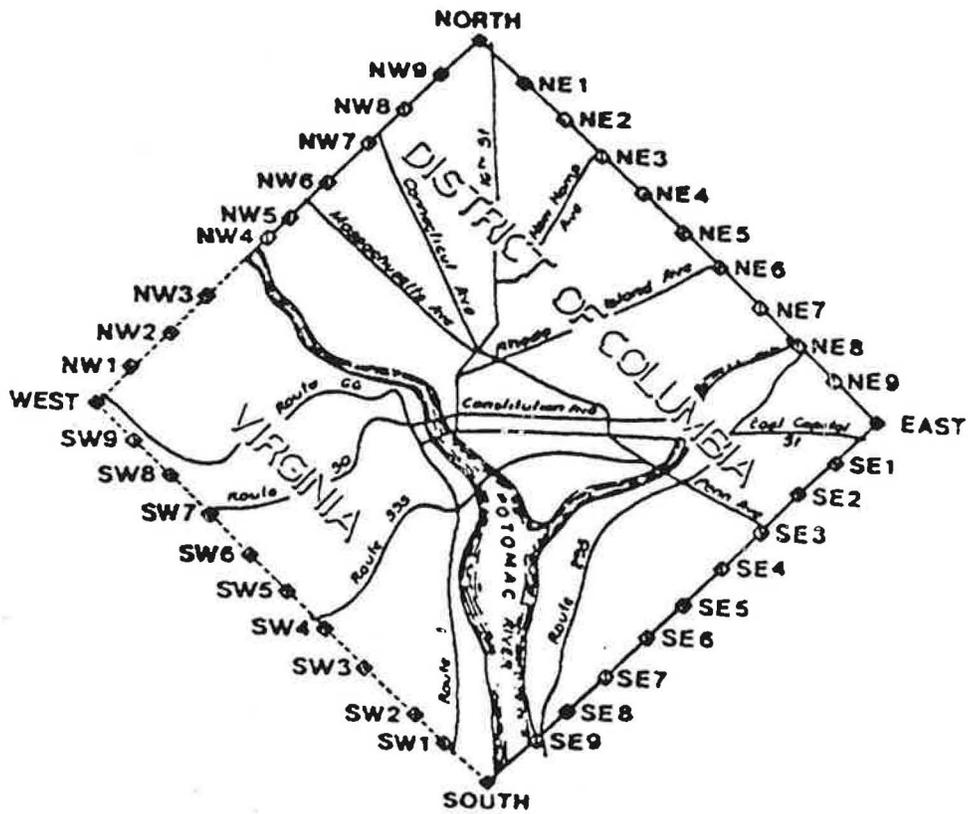


1994 - 1995 FINDINGS AND RECOMMENDATIONS
OF THE
NORTHERN VIRGINIA BOUNDARY STONES COMMITTEE



Prepared by the
Committee
September 1995

TABLE OF CONTENTS

Executive Summary	1
Background And Operations	2
Past Activities	3
Recommended Future Activities	6
Meeting Participation Matrix	8

Attachments

1. NOVABOSTCO Site Recommendation Summary
2. NOVABOSTCO Site Maintenance Guidelines
3. NCPC 1976 Status Report on the Boundary Stones
4. NCPC 1976 Recommendations
5. Extracted Data from the National Register Forms
6. Proposal for NOVABOSTCO under NVPDC
7. Ownership of the Boundary Stones
8. Plats for Privately Owned Boundary Stones [sample]
9. Plats for Publicly Owned Boundary Stones [sample]
10. GPS Resurvey of the D.C. Boundary Stones
11. VDHR Proposed Deed of Easement
12. VDHR January 1995 Letter to NOVABOSTCO
13. Field Status Notes for each Site [sample]
14. February 1995 Status Report of Boundary Stones
15. Status Diagram of Stone Inscriptions [sample]
16. Earlier Photos of Boundary Stones
17. USGS 1974 Report on the Aquia Creek Sandstone
18. USGS Open File Report 94-592
19. DOI 1980 Standards for Rehabilitation
20. NPS Preservation Assistance Division Publications
21. Accepted Design for Protective Fences
22. Cost Estimates for Fence Replacement and Repair
23. Suggested Signs for West Cornerstone Park
24. 1991 Brochure by the D.C. Boundary Bicentennial Committee
25. Minutes for all meetings (Available on Request)

Appendices (For Jurisdiction Entities and Virginia Rooms)

Notebook of All Available Data for Each Boundary Stone including:

- National Capital Planning Commission Location Maps
- Ground Survey Plat Maps
- Field Survey Forms
- Status Diagrams of Stone Faces
- Plaque Descriptions
- Photos

EXECUTIVE SUMMARY

At the invitation of the Northern Virginia Planning District Commission, nominees from four jurisdictions and other concerned organizations participated in the Northern Virginia Boundary Stones Committee which held fifteen meetings and two field surveys between March 17, 1994, and August 28, 1995. The Committee

- accepted the property-law dictum that the boundary stones belong to whoever owns the land on which they are located;
- acquired ground-survey plats of all boundary stones (except for South Cornerstone which is owned by the National Park Service);
- requested assistance from the District of Columbia Bicentennial Boundary Commission and the National Geodetic Survey to complete a resurvey of all stones to learn their accurate position in space;
- agreed that the Virginia Department of Historic Resources is the preferable grantee and holder of easement deeds, recommends that attorneys for the local jurisdictions consult with each other on appropriate language for public owner easements, and recommends that the jurisdictions work with VDHR to acquire voluntary signatures from private stone owners;
- conducted a field survey of the current status of the boundary stones, and found that eleven are accessible, ten are original, eight have a correct position and orientation, but only three are considered in good shape with completely readable inscriptions;
- prepared a Site Recommendation Summary (attachment 1) which it recommends be supplemented by current-condition site reports with photos for all sides to be prepared by a conservator as baseline data for the granting of easements and for future maintenance;
- prepared Site Maintenance Guidelines (attachment 2) emphasizing that only the least intrusive preservation techniques be utilized;
- recommends that no stone be moved or reoriented except for the resetting of SW9 to alleviate settlement, but that consideration be given to appropriate conservator repair and/or movement of SW6;
- recommends acceptance of site stewardship and maintenance assignments by Alexandria (for SW1, SW2, SW3, and SW5), Arlington (for SW6, SW7, and NW1), Fairfax (for SW8, NW2, and NW3), Falls Church (for SW9 and WC), VDOT (for SW4), and NPS (for SC); and further recommends that each jurisdiction identify a lead entity to monitor and maintain the assigned stones;
- recommends that the local jurisdictions work with the Daughters of the American Revolution to refurbish or replace the DAR protective fences insofar as possible (see fence priorities in attachment 1), and suggests adding bollards to SW2, SW3, SW6 (if not moved), and SW8;
- recommends development of greater public understanding and appreciation of all of the boundary stones and their history through a brochure, selected signs, a highway marker at SW3, and a traveling educational exhibit;

- recommends that the Committee work with the NPS, DAR, District of Columbia and Maryland officials to seek National Historic Landmark status for all existing boundary stones; and

- recommends that the Committee continue under NVPDC auspices to meet annually and review the implementation of their current recommendations, to make any new necessary recommendations, and to ensure coordination of the preservation and protection for the boundary stones and their fences.

BACKGROUND AND OPERATIONS OF THE NORTHERN VIRGINIA BOUNDARY STONES COMMITTEE (NOVABOSTCO)

In 1976, the National Capital Planning Commission prepared a 46-page report on the "Boundary Markers of the Nation's Capital", and included a status report on the stones (attachment 3) and ten recommendations for their preservation and protection (attachment 4); unfortunately, no progress was made on their implementation. Recently it seemed timely to review their recommendations and to actually implement them insofar as possible for the 14 markers along the southwest (SW) and northwest (NW) lines of stones in northern Virginia (see cover map). It should be noted that also in 1976, marker SW9 was placed on the National Register of Historic Places; in 1980, this stone was denoted as a National Historic Landmark to honor Benjamin Banneker, and the South Cornerstone (SC) was added to the National Register. By 1991, Barbara Hynak and her colleagues in the Daughters of the American Revolution (DAR) were instrumental in adding all the other 12 markers to the Virginia Landmarks Register and subsequently to the National Register of Historic Places (attachment 5 presents data extracted from NRHP forms and two pertinent reference lists).

The Falls Church Historical Commission (attachment 6) on September 17, 1993, outlined a brief history of the markers and petitioned the Falls Church City Council to suggest the creation of a NOVABOSTCO under the auspices of the Northern Virginia Planning District Commission (NVPDC). The City Council on November 8, 1993, requested NVPDC to consider this proposal. The Commission on December 9, 1993 unanimously voted to do so, and on February 8, 1994, invited the four concerned jurisdictions and other interested organizations, such as the DAR and local historical societies, to forward appropriate participant nominations by March 11. The first meeting was held March 17, 1994. Since then, fourteen other meetings and two field surveys have been held, and membership has remained essentially constant (see page 10 at end of report) with staff support from NVPDC (Doug Pickford) and the Northern Virginia Regional Park Authority (Charles Smith), and with occasional guidance from outside consultants (see page 10). Ric Terman and Karl VanNewkirk (since 4/95) have served as Chairman; Pickford, Terman, and Phyllis Wolfteich (since 4/95) have acted as Secretary; Smith has been the principal key compiler of site data and with Jean Federico has authored the site maintenance guidelines.

This report summarizes the Committee findings and recommendations. The initial objectives were to update the 1976 NCPC recommendations by establishing three subcommittees to deal respectively with jurisdictional, site, and promotional issues. Over time these issues became subdivided and more detailed, and are covered here in the following ten categories:

Ownership	Preservation
Survey Plats	Restoration Options
GPS Survey	Stewardship and Maintenance
Easements	Protection
Current Status	Public Promotion

PAST ACTIVITIES OF THE NOVABOSTCO

1. Legal Status/Ownership of the Virginia Boundary Stones

The boundary milestones were placed in northern Virginia during 1791 at the direct order of the President to delimit a federal territory established by an Act of Congress in fulfillment of Section 8 of Article 1 of the Constitution. They appear to be the first federal monuments created by the United States. In 1846 the federal district west and south of the Potomac River was retroceded to the state of Virginia. However, in spite of such an impressive background for the markers, an informal legal opinion dated March 16, 1994, by consultant Peter H. Maier, the Falls Church City Attorney, states that in the absence of any identifiable statute specifying ownership, the general rule of property law would consider the stones as fixtures on the land and thus "the stones belong to whoever owns the property on which they are located", including both private and public owners (attachment 7).

2. Ground Survey Plats of the Virginia Boundary Stones

The Committee placed paramount importance on developing information on the land ownership at each stone site. Committee member Burt Sours, the Fairfax County Surveyor, after obtaining approval from appropriate county officials, undertook to perform the requisite field work and prepare a ground survey plat for the stones on private property. In November 1994, Mr. Sours presented to the Committee plats for the following stones: SW3, SW7, SW8, NW2, and NW3 (attachment 8); NW1 was not surveyed at that time because an easement exists. The Committee subsequently agreed that plat maps for all stones, except SC which belongs to the National Park Service (NPS), were needed, and such maps for public properties (attachment 9) are now available.

3. Global Positioning System (GPS) Resurvey of All Boundary Stones

Committee member Alan Dragoo, Maryland Society of Surveyors, has been cooperating for some time with his Virginia colleagues under the District of Columbia Bicentennial Boundary Committee to finish the field work for a GPS resurvey of 37 of the 40 original boundary stones; they are completing the basic "Blue Book" data on the stones. On June 2, 1994, NVPDC, acting on behalf of NOVABOSTCO, requested technical assistance (attachment 10) from the National Geodetic Survey (NGS) to adjust the combined classical and GPS data and incorporate the information into its Integrated Data Base. NGS has agreed and is expected to complete this work during the second half of 1995, and thus permit a full understanding of the interrelationship in space of all boundary stones.

4. Historic Preservation Easements for the Virginia Boundary Stones

In May 1994, at the invitation of Barbara Hynak, easement lawyer Virginia McConnell of the Virginia Department of Historic Resources (VDHR) attended a Committee meeting. She stated that in 1991 the Board of Historic Resources voted unanimously to accept historic preservation easements on the stones, and she confirmed continuing VDHR interest in working with NOVABOSTCO. After much discussion of options, including NVRPA, DAR, or individual jurisdictions, the Committee agreed that VDHR is the preferable grantee and holder of easements for the stones. VDHR subsequently provided a draft of the proposed easement deed (attachment 11). In January 1995, a VDHR letter (attachment 12) indicated that the Sours plat surveys were entirely adequate as attachments to the deeds, suggested that the Committee initially contact all private and public owners and work to seek their concurrence to the deeds, possibly with some subsequent VDHR support, and in conclusion agreed to join together with NOVABOSTCO and the easement grantors in a public ceremony to celebrate the signing of the deeds.

The Committee must now confirm that all jurisdictions and Virginia Department of Transportation (VDOT) will participate as grantors. The Falls Church City and Arlington County attorneys have suggested changes to the wording of the easements so that they are more appropriate for a public entity to sign. Thus, the Committee recommends that these changes be circulated to seek concurrence from the other jurisdictions on an agreed-upon draft of public easements to submit to VDHR for review.

The Committee also recommends that the appropriate jurisdictional personnel (see paragraph 8) should approach the individual private grantors to obtain their voluntary signatures.

5. Current Status of the Virginia Boundary Stones

On July 20, 1994, a NOVABOSTCO field team visited 13 of the marker sites (all except NW3) and compiled status notes for each site (attachment 13). In February 1995, a tabular status report was prepared to summarize their findings (see attachment 14). Some of the principal conclusions are as follows:

a) Ten stones are believed to be those originally placed in 1791: SC was replaced in 1794; the stump of SW4 may be part of an original stone, but the stump of SW5 may not be; and SW2 is not an original stone.

b) Eight stones appear to be in their original position and orientation, but the other six (SW1, SW2, SW4, SW5, SW6, and SW8) have all been moved; in the 1890s, NW3 was discovered broken and then believed reassembled in its original position.

c) Five stones are completely on private property and one is partly on private property, four are in jurisdictional right-of-ways (ROW), one in VDOT ROW, two in multi-jurisdictional public parks, and one is owned by the NPS.

d) Eleven stones are generally accessible, and two on private property have limited access, and SC is very difficult to view.

e) Only three stones (SW1, SW9, and NW3) are rated in good shape, nine are in fair to poor condition, and two (SW4 and SW5) are only stumps.

f) Only three stones (SW1, SW9, and NW3) have completely or nearly completely visible inscriptions, eight stones exhibit some or few words, and three (SW2, SW4, and SW5) show none; the final status report needs to show the original and missing inscriptions (attachment 15).

Numerous photos of the Virginia stones have been taken, beginning with a few in the 1890s, some by Fred Woodward published in 1907 and 1908 and by NCPC in 1976 (attachment 16), 43 by Barbara Hynak to accompany the DAR 1990 nominations for 12 stones to the National Register of Historic Places, and more than 200 by the field team. However, none of the stones have been fully documented as strongly advocated by NPS consultant Nick Veloz.

From all of the Committee deliberations, Charles Smith has prepared a Site Recommendation Summary (attachment 1) which the Committee recommends be supplemented by current-condition reports with complete photo documentation of all sides of each stone to be prepared by a professional conservator as baseline data for the VDHR easements and future jurisdiction maintenance; one estimate received by the Committee indicated such reports would cost about \$80 per stone.

6. Preservation of the Virginia Boundary Stones

In June 1994, at the invitation of Ric Terman, geologist Elaine McGee of the U.S. Geological Survey (USGS) attended a Committee meeting and discussed her experiences with stone preservation and characteristics of the Aquia Creek sandstone. This gray to buff rock from which the boundary stones are cut is made up of small grains of quartz, feldspar, and clay with a silica cement (see attachment 17, USGS 1974 report). Ms. McGee was a member of the NOVABOSTCO field team in July and reviewed her observations with the Committee in September; she also summarized them in USGS Open File Report 94-592 entitled "Federal District Boundary Markers in Northern Virginia: Condition and Preservation Issues" (attachment 18). The markers are obviously comprised of strong, good quality rock; weathering and human interference has created some rounded edges, missing pieces, and pits or pock marks; cracks occur in a few stones but are not severe. Surficial features of the stones include dark crusts, patches of organic growth, some paint drips and occasional bird droppings. Overall they are in fairly good condition considering that they have received minimal attention for more than two centuries; the changes through time differ from stone to stone and actually constitute part of the historic significance of each stone.

Ms. McGee also provided the Committee with a copy of the DOI 1980 "Standards for Rehabilitation" (attachment 19), and Phyllis Wolfeich collected documents from the NPS Preservation Assistance Division (attachment 20). NPS consultant Nick Veloz attended the March 1995 meeting and further endorsed minimal stone preservation techniques, such as gentle cleaning with water only, or possibly with mild non-ionic detergent after testing on small areas of the stumps at SW4 or SW5. Chemical consolidation by a surface coating does not appear necessary, although it was reportedly carried out on some stones by Arlington County in the 1950s. Conditions such as dampness or erosion that cause deterioration should be eliminated insofar as possible. In all cases, regular monitoring of the markers is a key to continued preservation. The Committee has prepared guidelines for future inspection and maintenance of the stones outlining appropriate techniques (attachment 2).

7. Restoration Options for Virginia Boundary Stones

The Committee meeting in April 1995 was attended by historic preservationists John Salmon, VDHR, and Bruce Krivisky, Director of Fairfax County Heritage Resources Branch, to offer advice and counsel on restoration options while maintaining the historic integrity of the markers. Both consultants stressed the need for the Committee to clearly focus on its goals and priorities, particularly in relation to preservation, protection, access, and repositioning; whatever the selected goals, minimal restoration was suggested. After extensive discussion, the Committee consensus focussed on preservation and protection as paramount, and recommends that no stone be moved or reoriented, except for the resetting of SW9 to alleviate settlement and possible conservator repair and/or movement of SW6 to prevent further damage.

8. Stewardship and Maintenance of the Virginia Boundary Stones

No systematic maintenance of the stones is known to have ever taken place. Through time, six stones (SW1, SW2, SW4, SW5, SW6, and SW8) have been subject to some significant prior dislocation; SW2 was never recovered and a substitute was provided. SW6 required additional emergency care following a vehicular accident in 1989. Thus, the Committee recommends regular monitoring of both fence and stone at marker sites, preferably in conjunction with continued but enhanced DAR stewardship, and that any needed physical maintenance be carried out by designated jurisdictions, with VDHR agreement if appropriate, as follows: Alexandria City for SW1, SW2, SW3, and SW5; Arlington County for SW6, SW7, and NW1; Fairfax County for SW8, NW2, and NW3; Falls Church City for SW9 and WC; VDOT for SW4, and the NPS for SC. The Committee

further recommends that each jurisdiction identify a lead entity to be responsible for the monitoring and maintenance of their assigned boundary stones.

9. Protection of the Virginia Boundary Stones

Beginning in July 1915, the DAR erected fences around all of the existing boundary stones. These were generally about three feet square and five feet high and the corner posts were to be set in concrete. These fences undoubtedly have assisted in the protection of the stones and in their public recognition. During the July 1994 survey, the NOVABOSTCO field team found that only a few of these fences were in good condition, and the others were in fair or poor shape; SC is in a concrete enclosure. Consultants from Hercules Iron Works and Long Fence Co. visited some fences, offered general advice at the meeting of February 1995, endorsed the proposed standard fence design (attachment 21), and, for a single fence, have estimated costs for complete renovation at \$2500 and for replacement at \$2200 (attachment 22). In May 1995, a second survey team evaluated with an industry expert the status of each fence and identified the individual problems. From such contractor findings, the Committee has prepared a priority list for future actions by each jurisdiction (attachment 1). The Committee recommends that the jurisdictions work with the DAR to refurbish or replace the fences as necessary, and also suggests that additional protection be afforded the fences by adding new bollards or wheel stops at SW2, SW3, SW6 (in its current location), and SW8.

10. Public Promotion of the Virginia Boundary Stones

Committee member Karl VanNewkirk has conducted annual tours in recent years of the Virginia boundary stones for the Arlington Historical Society, and he has taken the lead in NOVABOSTCO to examine other promotional opportunities. He reported to the Committee in November 1994 that it is unlikely that the Jones Point Lighthouse will evolve into a museum for the stones. Furthermore, the Committee does not endorse the 1976 NCPC proposal to move an original marker to the Smithsonian Institution for permanent preservation. However, as funds become available, the Committee recommends the preparation of an information brochure on the stones (attachment 23), historical signs at selected sites (attachment 24), an historical highway marker at SW3, and of the development of a traveling educational exhibit. The Committee further recommends that it work with others to seek National Historic Landmark status for all of the existing boundary markers.

RECOMMENDED FUTURE ACTIVITIES OF THE NOVABOSTCO

Similar to the National Capital Planning Commission report of 1976, this document makes a number of recommendations. But with hope and optimism, this Committee further recommends that NOVABOSTCO will continue to function under the auspices of NVPDC, and will meet annually to review the implementation of its recommendations, to make any new recommendations deemed essential, and to ensure the best possible coordination for the future preservation and protection of the boundary marker sites.

The Committee obviously has made significant contributions (for a more detailed review of deliberations, see minutes for all meetings, available at NVPDC), but the recommendations in this report not yet implemented are as follows:

- prepare current condition reports for each stone;
- reach a consensus on wording for public-owner easements and acquire jurisdiction approval;
- acquire private-owner easement approval;

- seek jurisdiction concurrence on stone assignments, and have each identify a lead entity to monitor and maintain the marker sites;
- encourage appropriate jurisdictions to reset SW9, to repair SW6, and to work with the DAR on the fences as needed;
- work on public promotion of the stones, particularly a traveling exhibit; and
- work with others to seek National Historic Landmark status for all existing stones.

The Committee members will maintain contact with their parent organizations to benefit from any comments on this report or any further advice and counsel that might be offered.

NOVABOSTCO MEMBERS AND MEETINGS

[x - present; o - absent]

<u>Jurisdiction</u>	Meetings and Attendance 1994/1995															
Organization	Month	3	4	5	6	8	9	11	1	2	3	4	5	6	8	8
Member	Day	17	28	19	28	30	26	26	24	27	27	24	22	26	14	28
<u>Alexandria City</u>																
For jurisdiction																
<i>Jean Taylor Federico</i>		x	o	o	o	x	o	o	x	x	o	x	o	x	x	x
<i>Ruth Lincoln Kaye</i>		x	x	o	x	x	x	x	x	x	o	x	o	x	o	o
<i>Leona Kemper</i>		o	x	o	x	x	x	x	x	x	o	x	o	x	x	x
<i>Phyllis Wolfeich</i>		o	x	x	x	x	x	x	o	x	x	o	x	x	x	x
<u>Arlington County</u>																
Heritage Alliance Inc.																
<i>D. Cannan/David DeVito</i>		x	x	o	x	o	o	o	o	o	o	o	o	o	o	o
Historic Society																
<i>W. Karl VanNewkirk</i>		x	o	x	x	x	x	x	x	x	x	x	o	x	x	x
His. Aff. & Ldmk. Rev. Bd.																
<i>Michael Gick</i>		o	o	x	o	o	o	o	o	o	o	x	o	o	o	o
<u>Fairfax County</u>																
History Commission																
<i>Lea A. Coryell</i>		x	o	x	o	x	x	o	o	o	x	o	o	o	o	x
Historical Society																
<i>Milburn F. Sanders</i>												x	o	o	o	o
Survey Office																
<i>Burton O. Sours, Jr.</i>		x	x	x	o	x	o	x	o	o	o	x	o	o	o	o
<u>Falls Church City</u>																
Historical Commission																
<i>Maurice J. Terman</i>		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
<u>Maryland</u>																
Society of Surveyors																
<i>Alan R. Dragoo</i>		x	x	x	x	o	o	x	x	o	x	o	o	o	x	o
<u>Northern Virginia</u>																
Association for History																
<i>Thomas H. Bland</i>												x	o	o	o	o
Daughters of the Am. Rev.																
<i>Barbara Hynak</i>		x	x	o	x	x	o	x	x	x	x	x	x	x	x	x
Planning District Comm.																
<i>Douglas A. Pickford</i>		x	o	x	x	o	x	o	o	x	x	x	x	x	x	o
Regional Park Authority																
<i>Charles E. Smith</i>				x	x	o	x	x	x	x	x	x	x	x	x	x
<u>Consultants (Chronologic)</u>																
<i>Virginia E. McConnell</i> VDHR				x												
<i>Elaine S. McGee</i> USGS					x		x									
<i>Paul H. Rose</i> Long Fence											x					
<i>John Myseros</i> Hercules Iron											x					
<i>Nicholas Veloz</i> NPS												x				
<i>John Salmon</i> VDHR													x			
x																
<i>Andrew Baxter</i> Conservator																x
<hr/>																
Total Participants [26]		11	8	10	11	9	9	9	8	11	11	12	5	10	9	8

NOVABOSTCO Site Recommendation Summary

Stone	Owner (Public/Private)	Location	Associated DAR Chapter	Recommended Steward/Caretaker	Access	Stone Position, Orientation, & Recommendation	Stone Dimensions (in inches)	Stone Condition & Inscriptions	Stone Maintenance Recommendations	Fence Dimensions (in inches), Age, Color & Plaque	Fence Condition	Contractor's Fence Maintenance Recommendations and Committee's Priorities	Special Site Conditions & Recommendations
South Cornerstone (SC)	Public: National Park Service (Contact: Creg Howland, 285-2598)	Jones' Point Lighthouse, George Washington Memorial Parkway	Mount Vernon	National Park Service	Good site access; stone access very difficult; no easement necessary	Position: original Orientation: correct Recommendation: Do Not Move	Height From Ground: 35 Sides: 9 and 13	Stone from 1794. Poor: stone itself in OK shape, but inscription basically non-existent Inscription: few words	Work with NPS to explore options (see Special Site Conditions); Photo-Document Stone and Develop Current Condition Report; Obtain Access/Maintenance Easement; Monitor *	Dimensions of Enclosure (no fence): 62 (high), 30 (deep) and 60 (long) Age: 1926 Color: Brick and Cement Plaque: 6 x 9 (inches)	No fence; stone enclosed in wall with concrete slab on top and gate on river side (enclosure dimensions: 6' long, 4' high, 2.5' deep)	Priority: 14**	Stone subject to degradation from wave action from Potomac River; recommend improving existing breakwater and/or erecting permanent barrier (wall) along sea wall; also recommend removing concrete slab from above stone and erecting fence similar to others
Southwest #1 (SW1)	Public: City of Alexandria	1220 Wilkes Street Alexandria, VA (public road right of way)	Mount Vernon	City of Alexandria	Fair: stone easy to see from sidewalk, but double fenced and hard to approach. May wish to obtain easement from City in future	Position: 350 feet long Orientation: incorrect Recommendation: Do Not Move	Height From Ground: 19 Sides: 11.25 and 11.5	Good: stone shows crack (apparently along original bedding lines) but in good condition. inscription in good shape - legible Inscription: all words present	Photo-Document Stone and Develop Current Condition Report; Obtain Access/Maintenance Easement; Monitor *	Dimensions: 60 (high), 37 and 37 (sides) Age: ? (not original; maybe 1950's) Color: White Plaque: 4 x 8 (inches), 1916 Mount Vernon Chapter DAR	Fence not original. Solid - doesn't shake; some rust with flaking of paint. *One of posts and several pickets heavily corroded near ground	Recommendation: cut off near ground; weld new extension pieces on; dip, prime and repaint; set in new footers. Priority: 8**	
Southwest #2 (SW2)	Public: City of Alexandria	7 Russell Road Alexandria, VA (public road right of way)	Mount Vernon	City of Alexandria	Good: may wish to obtain easement from City in future	Position: 1700 feet short Orientation: incorrect Recommendation: Do Not Move	Height From Ground: 29.5 Sides: 11 and 17	Good: stone in good shape, set in cement, but not original and lacks inscription	Protect with bollards; Photo-Document Stone and Develop Current Condition Report; Obtain Access/Maintenance Easement; Monitor *	Dimensions: 60 (high), 37 and 37 (sides) Age: ? (not original; 1980's) Color: Black Plaque: 4 x 8 (inches), 1916 Mount Vernon Chapter DAR	Excellent: fence new; set in concrete; some minor rust and flaking paint	Recommendation: prepare fence with wire brush, prime and paint Priority: 13**	
Southwest #3 (SW3)	Private: First Baptist Church (684-3720)	2932 King Street Alexandria, VA 22302 (church parking lot)	VA - Captain John Smith; DC - Colonel John Washington	City of Alexandria	Good: recommend obtain access/maintenance easement	Position: original Orientation: correct Recommendation: Do Not Move	Height From Ground: 18.5 Sides: 11 and 11	Fair: generally good shape but partially buried, set in cement Inscription: some words visible	Seek maintenance/access easement; Photo-Document Stone and Develop Current Condition Report; Obtain Access/Maintenance Easement; Monitor *	Dimensions: 64 (high), 36 and 36 (sides) Age: 1916 (original) Color: Black Plaque: 4 x 8 (inches), no DAR plaque	Fair: original fence (punched and riveted; later welded); has concrete footer; many layers of paint; rust on welds and other areas; one corner broken and poorly repaired	Recommendation: cut off near ground; core existing posts out of footers; set new 1" posts; straighten bent round verticals (may replace some); replace bottom rail on one side; dip, prime and repaint; weld back onto new posts. Priority: 7**	Consider the placement of a State Highway marker; place four new bollards in addition to and in between existing ones (additional contractor recommendation)
Southwest #4 (SW4)	Public: Virginia Department of Transportation 3565 Chainbridge Road, Fairfax, VA 22030 (359-1220)	Route 7 (King Street) (State road right of way)	VA - Freedom Hill; DC - Continental	Virginia Department of Transportation and Arlington County	Good: may wish to obtain easement from VDOT in future	Position: not original (?) Orientation: incorrect Recommendation: Do Not Move	(Stump Only) Height From Ground: 5 Sides: 6.5 and 8	Stump only	Excavate to expose any additional stone; may use to experiment with methods for paint removal and cleaning; Photo-Document Stone and Develop Current Condition Report; Obtain Access/Maintenance Easement; Monitor *	Dimensions: 60 (high), 36 and 36 (sides) Age: 1916 Color: Green Plaque: 4 x 8 (inches), 1916 DAR plaque	Fair: Original fence: lead paint protected metal, but rusting now; one post and one rail badly corroded at ground level; has bent pickets	Recommendation: cut off near ground; replace one post - weld new extension pieces on; straighten bent round verticals; replace bottom rail on one side; dip, prime and repaint; set in new footers. Priority: 3**	

*Monitor Stones for Signs of Wear, Weathering or Physical Damage. Refer to NOVABOSTCO Final Report for Maintenance Guidelines. **Priorities established without regard to jurisdiction.

NOVABOSTCO Site Recommendation Summary

Stone	Owner (Public/Private)	Location	Associated DAR Chapter	Recommended Steward/Caretaker	Access	Stone Position, Orientation, & Recommendation	Stone Dimensions (in inches)	Stone Condition & Inscriptions	Stone Maintenance Recommendations	Fence Dimensions (in inches), Age, Color & Plaque	Fence Condition	Contractor's Fence Maintenance Recommendations and Committee's Priorities	Special Site Conditions & Recommendations
Southwest #5 (SW5)	Public: City of Alexandria	South Walter Reed Drive (public road right of way)	Anna Maria Fitzhugh	City of Alexandria	Good: may wish to obtain easement from City of Alexandria in future	Position: not original Orientation: incorrect Recommendation: Do Not Move	Height From Ground: 9 Sides: 13 and 18.5	Stump only	Excavate to expose any additional stone: Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easement: Monitor *	Dimensions: 58 (high), 36 and 37 (sides) Age: probably 1950's Color: White Plaque: 4 x 8 (inches). reproduction DAR plaque (1952)	Excellent: fence probably from 1950's. has third rail	Recommendation: remove loose paint with wire brush. prime and paint: wire brush. plaque and paint with acrylic lacquer. place gravel around base of fence to keep vegetation down. Priority: 12**	
Southwest #6 (SW6)	Public: Arlington County	S. Jefferson Street (public road right of way)	Fairfax County	Arlington County	Good: may wish to obtain easement from County in future	Position: moved during apartment building construction Orientation: incorrect Recommendation: Do Not Move	Height From Ground: 25 Sides: 12 and 12	Fair to Poor: stone has been consolidated with cement Inscription: some words and letters legible	Explore moving stone within county right of way: Conservator recommends reconsolidation: Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easement: Monitor *	Dimensions: 63 (high), 37 and 37 (sides) Age: probably 1950's or 60's (maybe 1965) Color: Blue Plaque: odd sized	Fair: has third rail - same style and age as fence on SW5; has been repaired (decent weld); loose - no footers	Recommendation: remove: cut off old posts near bottom - weld new extension pieces on: dip, prime and repaint: set in new footers. Priority: 4**	Committee recommends placement of bollards if stone remains in current location.
Southwest #7 (SW7)	Public and Private: Arlington County (School Board, 358-6015) and Woodlake Tower Condominium Association (931-2900)	Kenmore Middle School, 200 Carlyn Springs Road, Arlington, VA 22204 and 3100 S. Manchester St. Falls Church, VA 22044 (half in private parcel/half on public school parcel)	Fairfax County	Arlington County	Good: recommend obtain access maintenance easement from private parcel owner: may wish to obtain easement from Arlington Co. in future	Position: original Orientation: correct Recommendation: Do Not Move	Height From Ground: 23 Sides: 1 and 11.5	Poor: large chunk missing from south corner of stone Inscription: a few words legible	Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easements: Monitor *	Dimensions: 65 (high), 46 and 48 (sides) Age: 1916 Color: Green Plaque: none	Bad: original, hand forged fence: extensive damage probably from falling tree limb: one post missing completely: poorly anchored and being held together with hose clamp at one corner	Recommend replace fence as per NOVABOSTCO specification Priority: 1**	
Southwest #8 (SW8)	Private: Patrick Henry Apartments, Ltd	2921 McKinley Road Falls Church, VA 22044 (next to parking lot in apartment complex)	Dr. Elisha Dick	Fairfax County	Good: recommend obtain access/maintenance easement	Position: moved Orientation: incorrect (rotated approximately 90 degrees) Recommendation: Do Not Move	Height From Ground: 24.5 Sides: 12 and 13.5	Poor: stone poorly set and base partially exposed Inscription: a few words legible	Place wheel stop and bollard at edge of parking lot to protect stone and fence: Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easement: Monitor *	Dimensions: 48 (high), 36 and 36 (sides) Age: 1950's Color: Green Plaque: 6 x 5 (inches)	Bad: 1950's fence: badly bent from automobile impacts	Recommend replace fence as per NOVABOSTCO specification Priority: 2**	May wish to install wheel stop to prevent future automobile impacts: stone is improperly oriented - may wish to move several feet away from parking lot and orient correctly to prevent future automobile impacts since fence needs to be replaced anyway

*Monitor Stones for Signs of Wear, Weathering or Physical Damage. Refer to NOVABOSTCO Final Report for Maintenance Guidelines. **Priorities established without regard to jurisdiction.

NOVABOSTCO Site Recommendation Summary

Stone	Owner (Public/Private)	Location	Associated DAR Chapter	Recommended Steward/Caretaker	Access	Stone Position, Orientation, & Recommendation	Stone Dimensions (in inches)	Stone Condition & Inscriptions	Stone Maintenance Recommendations	Fence Dimensions (in inches), Age, Color & Plaque	Fence Condition	Contractor's Fence Maintenance Recommendations and Committee's Priorities	Special Site Conditions & Recommendations
Southwest #9 (SW9)	Public: Falls Church City and Arlington County	Four Mile Run Park (Van Buren Street)	Falls Church	Falls Church City	Good: may wish to obtain easement from jurisdictions in future	Position: original (but sinking in place) Orientation: correct Recommendation: Raise and reset in place with same position and orientation	Height From Ground: 12 Sides: 11 and 11	Good: stone intact with all inscription legible: stone sinking and partially buried	Raise stone and place gravel-concrete footer underneath: Photo-Document Stone and Develop Current Condition Report: Monitor *	Dimensions: 62 (high), 36 and 36 (sides) Age: original (1916) or early reproduction Color: Brown Plaque: 12 x 8 (inches)	Poor: May be original or later reproduction; a lot of bad picket bends: one missing picket: one bottom rail severely damaged and poorly welded: welds poor	Recommendation: If not original then replace: "would be a challenge to repair" - about \$3,000; remove, dip, prime, paint, put on extensions. (repair: replace pickets and rails) set in new footers (24" to 36" - independent of stone footer). Priority: 6**	
West Cornerstone (WC)	Public: Arlington and Fairfax Counties and Falls Church City	West Cornerstone Park (N. Arizona St.)	Falls Church	Existing Maintenance Agreement identifies Arlington - Recommend change to Falls Church City	Good: may wish to obtain easement from jurisdictions in future	Position: original Orientation: correct Recommendation: Do Not Move	Height From Ground: 24 Sides: 12.5 and 13	Poor: large chunk missing inscription: a few words and some letters legible	Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easement: Monitor *	Dimensions: 62 (high), 88 and 102 (sides) Age: 1952 (?) Color: Brown Plaque: ?	Good: new fence: no footers - not very stable: very unusual size and design	Recommend: replace fence as per NOVABOSTCO specification: if retain fence then place additional posts, pour footers, brush, prime and paint. Priority: 11**	
Northwest #1 (NW1)	Private: Dorothy R. Hall (Fairfax Owner Not Known)	3607 Powhatan Street, Arlington, VA 22213 (single family residence)	VA - Freedom Hill; DC - Richard Arnold	Arlington County	Fair: may wish to replace existing easement to ensure that it allows for proper access: maintenance rights by holder and design	Position: original Orientation: correct Recommendation: Do Not Move	Height From Ground: 24.625 Sides: 11 and 11	Fair: site subject to erosion and part of base exposed Inscription: some words legible	Shore up and re-inter base on sw side: Photo-Document Stone and Develop Current Condition Report: Replace Access/Maintenance Easement: Monitor *	Dimensions: 69 (high), 37 and 37 (sides) Age: 1916 Color: Green Plaque: 4 x 8 (inches), original DAR	Fair: Original fence; in footers but loose: one post rusted away at base (repaired with angle iron), another post rusted through, good shape otherwise with rust	Recommendation: remove; cut off old posts near bottom - weld new extension pieces on: dip, prime and repaint: set in new footers. Priority: 5**	
Northwest #2 (NW2)	Private: Charles B. Warden (Trust)(538-7169): (Fairfax Owner Not Known)	5145 N. 38th St. Arlington, VA 22207 (single family residence)	Thomas Nelson	Fairfax County	Poor: park in private drive and cross side and front yards of private residence: recommend obtain access maintenance easement	Position: original Orientation: correct Recommendation: Do Not Move	Height From Ground: 23.25 Sides: 11 and 11.5	Fair: stone intact but site moist Inscription: some words legible	Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easement: Monitor *	Dimensions: 58 (high), 36 and 36 (sides) Age: 1969 Color: Blue Plaque: 6 x 9 (inches)	Fair:	Priority: 9**	
Northwest #3 (NW3)	Private: Carrol E. and Susan B. Burtner (516-4460)	4013 N Tazewell St. Fairfax, VA 22101 (single family residence)	Arlington House	Fairfax County	Poor: must cross front, side and back yard (thru gate) of private residence: recommend obtain access maintenance easement	Position: original (discovered broken and reassembled in original position in 1890's) Orientation: correct Recommendation: Do Not Move	Height From Ground: ? Sides: ?	Good: Inscription, most words legible	Photo-Document Stone and Develop Current Condition Report: Obtain Access/Maintenance Easement: Monitor *	Dimensions: ? (high), ? and ? (sides) Age: ? Color: Black Plaque: ?	Fair to Good?	Priority: 10**	

*Monitor Stones for Signs of Wear, Weathering or Physical Damage. Refer to NOVABOSTCO Final Report for Maintenance Guidelines. **Priorities established without regard to jurisdiction.

Site Maintenance and Preservation Guidelines
for the
Northern Virginia Boundary Stones

The Northern Virginia Planning District Commission (NVPDC or the Commission) established the Northern Virginia Boundary Stones Committee (NOVABOSTCO or the Committee) in early 1994 to review the condition of the Northern Virginia Boundary Stones (boundary stones or stones), originally erected in 1791, designating the boundaries of the new District of Columbia. This Committee reviewed these conditions and made a number of recommendations which are included in the report to the Commission. Local jurisdictions have also received that report.

The most significant recommendations of the Committee deal with the maintenance and long-term preservation of these boundary stones. Listed below are the Guidelines recommended by the Committee. These have been prepared to assist local jurisdictions and those tasked with the care and maintenance of the individual stones. These are (as designated in the NOVABOSTCO final report): Alexandria (for SW1, SW2, SW3 and SW5), Arlington (for SW6, SW7 and NW1), Fairfax (for SW8, NW2 and NW3), Falls Church (for SW9 and WC), the Virginia Department of Transportation (for SW4) and the National Park Service (for SC). Each jurisdiction is expected to have a lead department or agency with oversight for their boundary stones. Questions should be directed to the NVPDC.

These guidelines consist of definitions of commonly used terms, as well as specific sections dealing with short-term and long-term maintenance concerns. Before attempting any maintenance or preservation, each responsible jurisdiction must insure that the following actions occur:

1. Preparation of a regular cyclical maintenance schedule for routine care.
2. Preparation of a long term preservation plan to include photo documentation;
3. Consideration of effects of any actions on the long-term preservation of the stones.
4. Removal of the cause of a problem, not just the symptom.
5. Use of only the gentlest, least invasive, methods of care in order to avoid negative impacts to the stones;
6. Consultation with well informed professionals on a regular basis in order to employ only the most current acceptable preservation techniques.
7. Adoption of methods to share information with other jurisdictions.

Maintenance

The term maintenance here is intended to encompass both preservation and maintenance, since maintenance actions are intended to preserve the condition of the boundary stones and their fences and plaques (associated structures). Maintenance must be considered in terms of long-term measures and short-term measures. Short-term measures are those to be done on an annual basis and are generally inexpensive. Long-term measures are those required to preserve the boundary stones and associated structures in perpetuity and can be very expensive.

Short-Term Maintenance Measures

These activities need to take place on at least an annual basis and they need to be incorporated within other, regularly scheduled, maintenance activities.

- a) **Annual Site Inspection/Assessment:** Conduct an annual inspection of each Stone site to assess conditions and conduct basic maintenance. Inspections must be consistent in the manner in which each site is assessed and the information that is recorded. Attachment 3 is a copy of the form used by the Committee in its June 1994 inspection and is recommended for use by the jurisdictions. Inspection information must be retained permanently. This will assist in monitoring the stones and developing short-term and long-term maintenance plans.
- b) **Clean Out Enclosures:** Remove trash and vegetation by hand or with simple tools (like rakes or trowels).
- c) **Clean Stones:** Cleaning of stones should be done only with the gentlest means possible (see Specific Maintenance Techniques below) and only as necessary to prevent deterioration of the Stones. Use water and a non-ionic detergent (Orvus). This product is available from archival supply catalogues. Call Office of Historic Alexandria (703) 838-4554.
- d) **Brush, Prime and Paint Fences:** The iron fences can be preserved by keeping the paint in good repair to prevent oxidation. Fences must be periodically brushed, primed and painted (see Specific Maintenance Techniques below).
- e) **Clean and Lacquer Plaques:** Plaques may need to be periodically cleaned and coated to preserve them (see Specific Maintenance Techniques below)
- f) **Add or Replace Gravel Around Stones:** The gravel is attractive, keeping vegetative growth to a minimum, reducing the amount of moisture directly around the Stones (helping to prevent growth of organic material and possibly slow the effects of spalling [see Attachment 19 to NOVABOSTCO final report, page 3, "Weathering"]) (see Specific Maintenance Techniques below).

g) Shore Up Stones and Fences Against Erosion: Some stone sites are subject to soil erosion. Soil erosion may contribute to the deterioration of stones or fences by exposing below-ground portions to the above-ground effects of wind and water. Shoring up the site to prevent erosion may prevent additional deterioration of the stones and fences.

h) Respond to Inquiries, Requests and Emergency Calls: Publicize the telephone number for the department or agency having responsibility for the boundary stones.

Long-term Maintenance Measures

Long-term measures are intended to be carried out over the life of the boundary stones. Any measures not included in these guidelines should be addressed to the Committee before action is taken. Long-term measures could be expensive and may include:

a) Photodocumentation: This process must be done according to an established standard which is well documented and reproducible. A professional photographer should be commissioned, preferably a photographer with experience in producing archival quality records of historic structures. This person's services may be expensive. This documentation of all sides of all stones is critical for establishing baseline data and a long-term maintenance plan. This documentation is an important first step. After the initial set of photographs is commissioned and completed, photodocumentation should be repeated at a regular interval to document change in the stones and their associated structures over time. This interval should be set forth in the long-term maintenance plan and may be every five to ten years. A record copy and the negatives should be retained by each jurisdiction in archival/permanent storage.

b) Conservator Consultant: Jurisdictions may wish to engage a professional conservator with experience in stone and iron preservation to assess the stones. The conservator would assess each stone, document existing conditions, provide treatment options and make recommendations as to possible courses of action. The conservator's recommendations may assist in formulating short-term and long-term maintenance plans. The conservator may also conduct photodocumentation.

c) Fence Renovation: Iron fences surrounding the stones vary in age from as much as eighty years to as little as five years. Many of these fences are in need of renovation. Long Fence company provided an estimate for a basic renovation (see NOVABOSTCO final report, Attachment 23) which begins at approximately \$2,500.00 and involves temporary removal of the fence. It should be noted that the cost for this renovation method is more than the estimated replacement cost for a fence. A fence should always be renovated rather than replaced whenever possible since the fences themselves are historic.

d) Fence Replacement: Some of the fences surrounding the stones are in very poor condition. Two in particular (Southwest 7 and Southwest 8) are potentially dangerous. These fences should be replaced. Replacement fences should closely resemble the original

1916 fences and may be built to the specification provided with these guidelines (see NOVABOSTCO final report, Attachment 22). Long Fence company estimated that it would cost approximately \$2,200.00 (see NOVABOSTCO final report, Attachment 23) to replace a fence with this specification.

The following measures should be done in consultation with all other jurisdictions and the Committee:

- e) Stone Reconsolidation: Reconsolidation is the process of putting the broken or separated pieces of stones back together. Reconsolidation involves using a mortar or some adhesive compound to "cement" the pieces of the stone back together. If done incorrectly, reconsolidation may cause extensive damage to the pieces of the stone. Reconsolidation should be done only by a professional with experience in stone preservation.
- f) Stone Reorientation or Relocation: Some of the stones have been moved over time. SW9 is the only stone that the Committee has recommended for movement of any kind (see NOVABOSTCO Site Recommendation Summary). However, jurisdictions may need to move or reorient a stone to put it back in alignment with the other stones. The moving of a stone should be conducted with the utmost care. The process should include as a minimum: proper measures to safeguard the stone, supervision by a surveyor to properly place and orient the stone, and preparation of the new site to receive the stone and its enclosure. When a relocated or reoriented stone is finally set in place, it must be set at the proper height (approximately 36" below ground and 24" above ground) as well as the proper alignment and orientation.

Specific Maintenance Techniques

It is critical that jurisdictions update their information on stone maintenance techniques on a regular basis. Maintenance may be broken down into five areas: 1) stone protection during maintenance, 2) stone maintenance, 3) fence maintenance, 4) plaque maintenance, and 5) site maintenance.

- 1) Stone Protection During Maintenance: When conducting any maintenance on site, it is critical to protect the stones. The protection method used should enclose the stone to prevent damage from impact of tools and/or debris and the deposit of paint and other substances on the stone surface. The simplest way to protect a stone from damage during restoration or maintenance work is probably to place a large, plastic trash can upside down over the stone.
- 2) Stone Maintenance: Stone maintenance should be done with the utmost care and consideration. Maintenance should be done in accordance with an established maintenance plan. Short-term stone maintenance may involve cleaning or stabilizing a stone. However, if a stone should be damaged or experience rapid, unexpected deterioration, it may be necessary to take more extreme and expensive measures to protect it. All stone preservation measures should be

conducted with the most recent information available and under the guidance of a professional conservator and/or person with expertise in sandstone preservation. Stone maintenance may include:

- a) Cleaning: "Clean" is a relative term. The stones are not new and will never be so again. Cleaning should be done only as necessary with the goal of removing organic matter, crusts, paint drops or other materials which may cause damage to a stone or threaten its integrity. Cleaning should be done with a non-ionic liquid to dissolve compounds. This liquid should be applied with a soft toothbrush or sponge and rubbed gently to remove the offending substance. The surface should then be rinsed with the non-ionic liquid.
 - b) Filling-in Depressions: Several stones have depressions on their flat, top surface which collect water and contribute to deterioration. These depressions should be filled in so that water will run off and not collect. This work must be conducted by qualified stone workers. The Committee recommends the use of a material such as "Jahn" under the supervision of a professional conservator.
 - c) Reconsolidation: If a stone is broken or separates into pieces, it may become necessary to reconsolidate the stone. Use extreme caution when considering reconsolidation. The only Virginia stone which has been reconsolidated to date is Southwest 6. It was cemented together with hard mortar (possibly Portland cement) which is not adhering to the stone and is a cause for concern. The composition of the material used to cement stone pieces back together must be as close as possible to that of the parent material. A cement which is too hard or too soft or of the wrong texture may cause extensive damage to the remaining pieces of a stone. Do not attempt any reconsolidation without a professional stone conservator. Call NVPDC for information. Contact other jurisdictions.
- 3) Fence Maintenance: The fences surrounding the boundary stones have helped protect the stones over time and are themselves (in the majority) historic in nature. These fences are in need of regular maintenance. Maintenance will generally involve painting, but may involve extensive repair or replacement.
- a) Painting: Before painting a fence, cover the stone with a plastic trash can. Use a wire brush to remove all loose paint from the metal. Prime the fence with a rust inhibitor (this will bond with the corroded metal and prevent further deterioration). Then paint the fence with a high quality, outdoor, black enamel paint designed for painting over metals (iron).
 - b) Restoration: Fences with heavily corroded corner posts, bent uprights, broken welds or other structural problems need to be restored by a contractor experienced in working with iron. Generally, fences in need of restoration will have to be temporarily removed and taken to a shop facility. Removal involves cutting a fence off near the

ground; transporting it; dipping it in a tank with solvents to remove old paint and corrosion; repairing welds, bent uprights and other structural problems; welding on new, 1" square extensions on the bottom end of the corner posts; priming and painting the fence; drilling the old, corroded corner posts out of the ground; setting new footers for the fence (24" to 36" deep); and replacing the fence (see NOVABOSTCO final report, Attachment 23). Fence restoration can be expected to begin at \$2,500.00 (estimates prepared April 1995).

Temporary protection measures must be provided for stones during the fence restoration process. This will involve protection during work on site (an upside-down plastic trash can) and a temporary barricade while the fence is absent.

c) Replacement: Some fences may be damaged/deteriorated beyond repair. In addition, it may be less expensive to replace a fence than repair it. With few exceptions, the fences are historic in nature and should be restored rather than replaced. Attachment 2 is a replacement specification for boundary stone fences which conforms to the dimensions and materials of the 1916 fences. Removing an old fence and manufacturing and installing a new fence to this specification would cost about \$2,200.00 (see NOVABOSTCO final report, Attachment 23). It is also recommended that a third horizontal rail be added to the fence design (midway between the existing two rails) to add strength and rigidity and prevent bending of the half inch, round verticals.

4) Plaque Maintenance: Before doing any plaque maintenance, it is important to first determine the material out of which the plaque is made. Many plaques, including the 1916 plaques, are bronze and generally in good condition. However, they may need to be cleaned in the future. Jurisdictions should consult with a conservator (with experience in their plaques' specific materials) on how to best preserve a plaque. Special caution should be used when considering preservation and maintenance options for the 1916 plaques.

Some of the plaques are not constructed out of bronze. A good example is the reproduction plaque at Southwest 5. This plaque may be cleaned with a wire brush to remove any deposits and then painted with a clear, acrylic lacquer.

5) Site Maintenance: There are many site conditions which may promote the decay of Stones and their enclosures. Jurisdictions and caretaking agencies should closely monitor sites for negative signs and trends. Site maintenance measures may include:

a) Removing Vegetation: Plant roots or clinging parts may damage stone or iron. In addition, vegetation keeps the soil more moist by accumulating organic material. Remove vegetation by hand (since chemical treatments may have negative effects). The Stone should first be covered with a plastic trash can to avoid damage from tools. Vegetation should be removed by cutting and pulling above ground growth. Roots should then be removed using a hand trowel. Do not disturb the stone.

b) Drainage and Site Cleaning. All impediments to drainage from a site should be removed. Impediments may include vegetation, large stones or sticks, or accumulated debris such as trash or organic matter which prevent water flow. Regardless of drainage issues, trash and debris should be removed from the sites on a regular basis.

c) Erosion Control: Several sites demonstrate the negative effects of erosion. Erosion can undermine and expose the foundations of stones and fences and promote weathering. Erosion can be prevented with the use of timbers, stones and/or vegetation. When installing erosion control measures, it is important not to prevent drainage, but rather to lessen the steepness of slopes and slow surface water flow in order to prevent soil from being moved off site. All erosion control measures should be attractive in nature and designed in consultation with the property owner.

On sites with existing erosion there will generally not be a problem with excess moisture, so vegetation can be effectively employed to stabilize soils outside of the enclosure. When using vegetation, be careful not to plant too close to the enclosure. Do not plant vegetation which will obscure the view of a stone and its enclosure.

Timbers or stones are another method of erosion control. Stone or timber structures may be placed perpendicular or diagonal to the direction of water flow down a slope. The stones or timbers should be entrenched at their base and secured with wooden or metal stakes as necessary. It is often most effective to place retaining or water diversion structures almost flush with the ground. It is important to address the erosion problem down an entire slope, as erosion control structures can individually increase slope steepness and themselves be undermined by future erosion.

Erosion control and water diversion structures must also be considered for the area up-slope of the stone site. Water diversion may be the most important measure taken when there is an up-slope erosion problem.

d) Gravel: Gravel can be placed within the fences and around the bases of the stones. Gravel can discourage vegetative growth and improve the overall site drainage. A plastic trash can should be placed over the stone before introducing any gravel. Vegetation should be removed and any necessary measures taken to prevent erosion. Gravel should then be added to the entire area within the enclosure to a depth of two to four inches and compacted with a tamping bar. Use Virginia Department of Transportation grade 21-A gravel.

Attachment: NOVABOSTCO Field Observation Form

Northern Virginia Boundary Marker Field Observation Form

Marker #/Name: _____ Marker Location: _____
 Observer Name/Agency: _____ Date: _____
 Recorder Name/Agency: _____ Weather: _____
 Photographs Taken: Yes/No If Yes, Photographer Name/Agency: _____

General Site Conditions

What is the closest public thoroughfare to the marker?

Is the marker visible from this thoroughfare?

Is the marker legally accessible from this thoroughfare? (if known)

Is the marker located on public or private property?

What is the property currently used for?

Is the marker present?

Is the marker original? (if known)

If not original, of what material is the marker constructed? (if known)

Is the marker coated?

If yes, with what is it coated? (the texture at least if material/brand name not known)

Specific Site Conditions

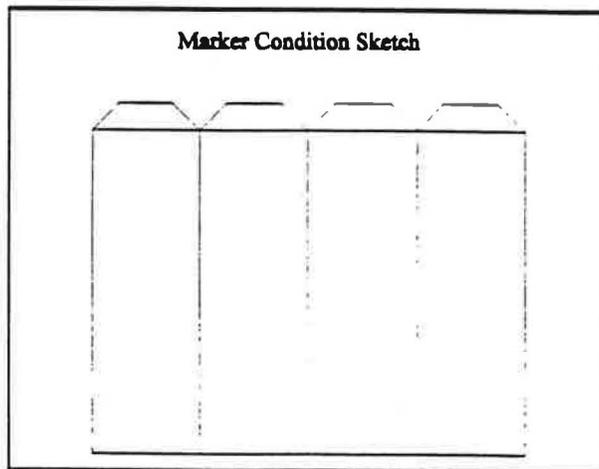
1. Marker Condition: (see sketch)

a. Top:

b. Four Vertical Faces:

c. Inscriptions (show on sketch):

d. Base:



Marker Field Form
page 2

2. Condition of Fence:

3. Condition of Plaque:

4. Site Conditions:

SUMMARY OF BOUNDARY STONE LOCATIONS, OWNERSHIP AND CONDITION

STONE	OWNERSHIP **	CONDITION	ORIGINAL STONE	MOVED	LOCATION
SOUTH STONE *	Public	Fair/Poor	Yes	No	Encased in Seawall before front door of Jones Point Lighthouse, Alexandria, Va.
SW-1	Public	Fair	Yes	Yes	S. Payne and Wilkes Sts., Alexandria, Va.
SW-2	Public	Poor	No	Yes	East side of Russell Road near King Street, Alexandria, Va.
SW-3	Private	Good	Yes	No	Parking lot, First Baptist Church of Alexandria, 2932 King Street, Alexandria, Va.
SW-4 *	Public	Broken off to the Ground	Yes	No	Wakefield and King Streets, Alexandria, Va.
SW-5 *	Public	Broken off near the Ground	Yes	No	100 feet east of Route 7 on Walter Reed Drive, Arlington, Va.
SW-6	Public	Fair	Yes	Yes	On median of Jefferson Street, 300 feet south of Columbia Pike, Arlington, Va.
SW-7	Public	Poor	Yes	No	30 feet east of path leading to athletic field from Carlyn Spring Road and Olds Street, Arlington, Va.
SW-8	Private	Fair/Poor	Yes	Yes	On edge of parking area, 100 feet from water tower behind apartment building at John Marshall and Wilson Boulevard, Arlington, Va.
SW-9	Public	Good	Yes	No	In park at 18th and Van Buren Streets Falls Church, Va.
WEST STONE	Public	Poor	Yes	No	West side of Meridian Street, 200 feet south of West Street, Falls Church, Va.
NW-1	Private	Badly Chipped	Yes	No	Back yard of 3607 Powatton Street, Fairfax Co., Va.
NW-2	Private	Fair/Poor	Yes	No	Side yard of 5298 Old Dominion Drive, Fairfax, Va.
NW-3	Private	Good/Fair	Yes	No(?)	Back yard of 4013 Tazwell Street, Fairfax, Va.

* Indicates special need for immediate attention.

**The ownership column in this chart refers to ownership of the land upon which each stone sits.

CURRENT D.A.R. STEWARDSHIP RESPONSIBILITIES

<u>Original Responsibility</u>	<u>Date of Dedication of Fences</u>	<u>Changes in Responsibility</u>
D.C. DAR Mt. Vernon Chapter, VA Mt. Vernon Chapter, VA American Liberty Chapter, DC	April 30, 1926	Mt. Vernon Chapter, VA
Continental Chapter, DC Keystone Chapter, DC Fairfax Co., Va. Chapter Fairfax Co., Va. Chapter Unmarked Falls Church Chapter, VA	June 23, 1917 November 6, 1921 June 15, 1916	Col. John Warburton DC Our Flag Chapter DC
Virginia DAR Richard Arnold Chapter, DC Old Dominion, Va. Chapter Sarah St. Clair, Va. Chapter	May 19, 1916 November 1, 1916	Dr. Elisha Dick Crisp, Va. Thomas Nelson Chapter, Va. Arlington House Chapter, Va.

RECOMMENDATIONS

- 1 All boundary stones should be in the ownership of the U.S. Government. There appears to be some confusion as to the ownership of the boundary markers. Some are now on privately owned land. In Virginia the problem is further compounded by the Retrocession Act of 1846. Therefore, Congress should adopt legislation that provides for acquisition of the land and easements required to provide for the protection and maintenance of these historic markers. The amount of land required would have to be determined on an individual basis for each of the stones. Also the siting and location of each stone requires an individual assessment as to the lands needed to properly protect them and easements required to assure access for maintenance and public viewing. The amount of land acquired at each of the corner stones should be such as to create "Cornerstone Parks."
- 2 The boundary stones should be placed on the National Register of Historic Places. Currently the boundary markers are designated as Category II Landmarks by the Joint Committee on Landmarks of the National Capital. Because the markers are located in three different jurisdictions, a nomination form should be prepared jointly by the State Historic Preservation Offices in Md., Va., and D.C. and forwarded to the Department of Interior.
- 3 An appropriate land managing agency or agencies should be given specific responsibility for the preservation and maintenance of the boundary stones and fences. An "Office of the Keeper of the Boundary Stones" should be created. Initially this office would be responsible for determining the amount of land needed as suggested in the first recommendation and would prepare the landscape plans for these lands. The importance of creating this office is to provide a control point regarding the boundary stones. Maintenance now occurs on a "catch as catch can" basis, and specific responsibility for the condition of these historic markers is difficult to identify.
- 4 A "Cornerstone Park" should be created at each of the four cornerstone markers. The corner stones should be on larger land plots than the mile stones. Land set aside in these locations should be sufficient to create a "Cornerstone Park" similar to the West Stone Park. It may be desirable to place at the site of the South Cornerstone, as Maj. L'Enfant suggested to President Washington, "a majestic column or a grand pyramid . . . (to) produce the happiest effect and completely finish the landscape."
- 5 Create a "Boundary Stone Museum." The lighthouse at Jones' Point could be converted into such a museum, because this is the site of the South Cornerstone which was the first stone put in place during the survey. Secondly, this lighthouse is one of few remaining on the Potomac, and its restoration for museum purposes would preserve an important building type that might not otherwise survive.
- 6 For historical integrity all boundary markers that have been moved should be placed in their original location. If this is not possible, a plaque should be placed at the stone site stating its original location i.e., "This stone has been relocated 150 yards southeast of its original site."
- 7 One of the mile markers should be acquired by the Smithsonian Institution for permanent preservation. Because of deterioration of the mile stones due to weathering (the sandstone used does not weather well in the Washington climate), it is suggested that the best of the remaining mile markers, probably Southeast No. 6, should be given to the Smithsonian Institution for permanent preservation and display. This is a reluctant recommendation. However, unless at least one stone is permanently preserved future generations may never see an "original" boundary marker. This stone would be replaced in the manner suggested in the following recommendation.
- 8 Each of the missing, badly decayed stones or broken stumps should be replaced. A number of the mile markers are either missing or have been badly mutilated by weather, vandalism, etc. It is recommended that these stones be replaced by duplicates with appropriate inscriptions. Sandstone used in the original markers came from a quarry in Aquia, Va. The DAR fences should be restored and missing DAR plaques replaced. Any of the stone fragments removed should be carefully catalogued and placed in the Boundary Stone Museum as suggested in recommendation five.
- 9 All of the stones should be treated with a protective coating. All of the existing or replaced boundary stones should be treated with a protective coating that does not change the color or character of the stone. A number of chemical finishes exist that can be applied to stone to make it virtually weatherproof. However, some experimentation will probably be necessary to determine the proper product, method of application and protective nature of the material.
- 10 The DAR's role in the stewardship of these monuments should be continued. Each of the DAR Chapters responsible for one or more of the boundary markers should continue in its stewardship function. Each Chapter should inspect the stone site annually and prepare a report thereon which would be transmitted to the "Keeper of the Stones" for his files and to inform him of conditions that require attention.

United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form , 1991

- SW 1. In approximately 1904, it was dug up and carried to the edge of the field, about 225 feet from its proper location; in 1906 it was found lying on the ground.¹ At some point later, it was placed upright and rotated from its correct positioning. The letters are smaller than those of the other stones and are in a different script. The speculation is that a different stone carver carved this stone than carved all the rest of the stones.²
- SW 2 In both the surveys done in 1894-97¹ and 1906, the original stone could not be found. It was apparently placed on the east side of and very close to the Alexandria and Leesburg turnpike, on the eastern slope of Shuter's Hill, in a subdivision known, in 1906, as Spring Park, and within a stone's throw of Fort Ellsworth, built by federal forces in May 1861. When the inquiry was made in 1906, there were a number of workmen carting away loam and gravel for new roads. The road foreman said a strange condition was known to exist there, called 'creeping down hill', a movement of the surface of the earth, which may have had something to do with the loss of the stone.² In 1921, the annual report of Mount Vernon Chapter to the Virginia Daughters of the American Revolution stated that the stone was relocated and fenced in 1920.³ It is believed that the relocated stone was not the original stone but was the replica that stands within the fence today. Due to its size, shape and total lack of inscriptions, the stone is obviously not the original. The stone was indicated on a 1927 aerial survey map located in the archives of the George Washington Masonic Memorial. Another source indicates that the marker was there in 1929.⁴ Although not original, this stone has marked the area of the second mile stone for approximately seventy years.
- SW 3 This marker was the first marker placed at other than equal miles from the other markers. The end of the mile would have ended in a ravine, so it was placed on higher ground, less than three miles from the South Cornerstone.¹ The inscription was listed as 2 miles 302p, which means it was placed 2 miles and 302 poles or rods from the South Cornerstone.² (297' short)
- SW 4 In the early surveys of 1894-1897¹ and 1906, the entire top of this stone was missing, and remains missing today. It had what appeared to be plow marks on it. In 1906, it was located with the help a farmer who said, "By gum, I've run the plow into that stone times enough to know where it is."² It was in the immediate vicinity of three federal forts marking the line of the defenses of the District of Columbia in the Civil War. Later, it was almost buried when Route 7 was regraded.³
- SW 5 In the early surveys of 1894-97¹ and 1906², the entire top of this stone was missing, and remains missing today. It was moved approximately 44.90' from its original location.³

equal miles from the South Cornerstone. It was marked 5 miles 304 Poles, which means it was placed 5 miles and 304 poles or rods from the South Cornerstone.

Its wrought iron fence, placed in 1916, was gone by 1949, when the stone sat on the edge of a large gravel pit.²

Threatened by construction of roads and apartments, the stone was removed and stored by Arlington County for three years. It was then placed in the middle of a median strip on South Jefferson Street, this being the closest public land next to its original site. It was given a new iron fence and rededicated in its new location in June 1965.³

In December 1989 this stone was hit and broken; its fence was also broken. In response to calls from members of the Virginia Daughters of the American Revolution, Arlington County personnel picked up the stone so that it would not be further broken or lost. The stone sat on an Arlington County truck for a month, until the weather warmed up enough to repair the stone and fence. Arlington County personnel did the necessary repairs.

SW 7. In the early survey of 1906, the stone showed scars from bullets or grapeshot. It was close to Fort Ramsay and Fort Buffalo, which may account for the scars. Apparently the markers were used for target practice during the Civil War.¹

SW 8. In the survey of 1894-97 it was missing; Mr. Morgan Steeves, a resident of Falls Church for forty years, said it stood near the road on the side of Throckmorton or Upton Hill, fell into a caving bank, lay there where it fell, and finally disappeared in the 1880s.¹ By 1906, it had been found and reset, although rotated and not in its proper location. Fort Ramsay occupied the western portion of the hill upon which the stone is placed.²

W/C. It is, however, actually 10 miles and 230.6 feet from the South Cornerstone.¹

In the 1894-97² and 1906³ surveys, it was badly broken, but the pieces were lying together.

The marker is only two feet high, the size of the intermediate stones, not three feet high as the north and east cornerstones are. The cornerstones were supposed to have been marked "Jurisdiction of the United States" vertically on one side, in contrast to the intermediate stones where the "Jurisdiction of the United States" runs horizontally on one side of the stone.⁴ The stone lettering on the West Cornerstone is different, with the words "Jurisdiction of the United States" being carved horizontally around two sides of the stone. This is the only stone so marked. Now worn away, on two of its bevelled edges at the top, the "West Corner" was engraved, also unlike any of the other stones. Southeast #3 is a three foot stone, the size the East and North cornerstones are and the size that all the cornerstones were supposed to have been. It therefore appears that the present day West Cornerstone and the Southeast #3 stone were mixed up in 1791. This would also account for the fact of the two-sided horizontal writing, as the smaller size stone used as the West Cornerstone couldn't accommodate the vertical writing that was to have been carved on the cornerstones.

The marker has grooves on the top, indicating that the center of the stone is the corner of the District of Columbia.

- NW 1. It was noted in the 1894-97 survey that part of the top was broken off.
- NW 2 The 1894-97 survey noted that it was partially broken off with pieces being carried off to be used as whetstones.¹ The words "of the" appear in italics for the first time, and continue to be in italics on the stones placed after NW2.
- NW 3 In 1897 it was found broken off below the ground, with the broken part lying twenty to thirty feet from the base which was long buried and out of sight. It was thought to have been broken by an army wagon during the Civil War. Surveyors developing the water power at Little Falls diligently searched for the stump in 1894 and found it after much difficulty. The inscription reads 3 Miles & 14P, which means it was placed three miles and fourteen poles or rods from the West Cornerstone.²

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number H Page 1

Baker, Marcus. "The Boundary Monuments of the District of Columbia." Records of the Columbia Historical Society. Vol. 1 (1897): 215-224.

Chase, Louise Coflin. "Boundary Stones of the District of Columbia." Manuscript on file, Washingtonian Collection, District of Columbia Public Library. (1930).

Columbia Historical Society. "The Writings of George Washington Relating to the National Capital." Records of the Columbia Historical Society. Vol. 17 (1914): 4-7.

Lawrence, Kenneth D. "Letter from Kenneth D. Lawrence to Mr. Stuntz." Manuscript on file, Virginia Collection Files, Fairfax County Public Library. 1967.

National Capital Planning Commission. Boundary Markers of the Nation's Capital. (1976).

Nye, Edwin Darby. "Boundary Stones". The Washington Star Sunday Magazine. (June 23, 1963).

Nye, Edwin Darby. "Revisiting Washington's Forty Boundary Stones, 1972." Records of the Columbia Historical Society. Vol. 48 (1973): 740-751.

Proctor, John Clagett. "Proctor's Washington and Environs." (1949).

Robinson, June. "The Arlington Boundary Stones." Arlington Historical Magazine. (October 1989): 5-19.

Shuster, Ernest A., Jr. "The Original Boundary Stones of the District of Columbia." The National Geographic Magazine, Vol. XX (April 1909): 356-359.

Statutes at Large and Treaties of the United States of America From December 1, 1845 to March 3, 1851. Vol. IX (1862): 35-37.

Terman, Mark J. "The 'Jurisdiction Stones' and Cornerstone Park." Manuscript on file in Virginia Collection, Falls Church Public Library. (1972).

United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number H Page 2

Waters, Frances W. and Lt. Col. Robert P. The Boundary Stones. Manuscript on file, Thomas Nelson Chapter, National Society Daughters of the American Revolution, Arlington, Virginia. (1963).

Woodward, Fred E. "A Ramble Along The Boundary Stones of the District of Columbia with A Camera." Records of the Columbia Historical Society. Vol. 10 (1907): 63-87.

Woodward, Fred. E. "With A Camera Over The Old District Boundary Lines." Records of the Columbia Historical Society. Vol. 11 (1908): 1-15.

BIBLIOGRAPHY

- Alexander, Sally Kennedy, 1899, A sketch of the life of Major Andrew Ellicott, Columbia Historical Society, Records, v. 2, p. 158-202.
- Baker, Marcus, 1897, The boundary monuments of the District of Columbia, Columbia Historical Society, Records, v. 1, p. 215-224.
- Bedini, Silvio A., 1972, The life of Benjamin Banneker, Charles Scribner's Sons, New York, 434 p.
- Bryan, W. B., 1914, A history of the National Capital, v. 1, 1790-1814, Macmillan Company, New York, 669 p.
- Caemmerer, H. Paul, 1939, A manual on the origin and development of Washington, 75th Congress, 3rd Session, Senate Document no. 178, 365 p.
- Columbia Historical Society, 1914, The writings of George Washington relating to the National Capital, Records, v. 17, 232 p.
- Deane, James G., 1950, Some forgotten stones mark D.C.'s first outline, Washington News, Monday, January 2.
- Ellicott, Andrew, 1799, A letter from Mr. Andrew Ellicott to Robert Patterson, in two parts. Part first contains a number of Astronomical Observations, American Philosophical Society, Transactions, v. IV, p. 32-51.
- Forbes-Lindsay, 1908, Washington, the city and the seat of government, John C. Winston Company, New York, 441 p.
- Geddes, Jean, 1967, Fairfax County, historical highlights from 1607.
- Graham, Shirley, 1949, Your most humble servant: the story of Benjamin Banneker, Julian Messner, New York.

- Mathews, Catherine V. C., 1908, Andrew Ellicott, his life and letters,
The Grafton Press, New York, 86 p.
- Montague, Ludwell Lee, 1968, Historic Arlington 1608-1932, The Arlington
Historical Committee, 28 p.
- Morris, S., 1854, A sketch of the life of Benjamin Banneker, Maryland
Historical Society, Proceedings.
- National Archives, 1915, Record Group 42, Public Grounds File 295.
- Office of the County Manager, 1967, A history of the boundaries of
Arlington County, Virginia, 42 p.
- Padover, Saul K., ed., 1946, Thomas Jefferson and the National Capital,
1783-1818, U.S. Department of the Interior, National Park Service,
Source Book Series no. 4, 522 p.
- Phillips, P. Lee, 1917, The negro Benjamin Banneker; astronomer and
mathematician, plea for universal peace, Columbia Historical
Society, Records, v. 20, p. 114-120.
- Proctor, J. C., ed., 1930, Washington, past and present, a history,
v. 1, Lewis Historical Publishing Co., New York, 494 p.
- Shuster, Ernest A., Jr., 1909, The original boundary stones of the
District of Columbia, The National Geographic, v. 20, April,
p. 356-359.
- Spofford, A. R., 1900, Report of the committee of the Columbia Historical
Society upon the removal of the Government to the District of
Columbia in 1800, Columbia Historical Society, Records, v. 3,
p. 349-364.
- Steadman, Melvin Lee, Jr., 1964, Falls Church by fence and fireside, Falls
Church Public Library, 552 p.

Wheeler, Richard C., and Waters, Robert P., 1963, The boundary stones,
Cultural Heritage Commission, Arlington County Board (manuscript).

Woodward, Fred E., 1907, A ramble along the boundary stones of the
District of Columbia with a camera, Columbia Historical Society,
Records, v. 10, p. 63-87.

Woodward Fred E., 1908, With a camera over the old District boundary lines,
Columbia Historical Society, Records, v. 11, p. 1-15.

Woodward, Fred E., 1915, The recovery of the southern corner stone of the
District, Columbia Historical Society, v. 18, p. 16-24.

THE HISTORICAL COMMISSION
of the
CITY OF FALLS CHURCH



300 Park Avenue - Falls Church, Virginia 22046

MEMORANDUM

DATE: September 17, 1993

TO: Merni Fitzgerald, City Council Representative to NVPDC

FROM: Maurice J. Terman, Chairman, Historical Commission

SUBJECT: Proposed Northern Virginia Boundary Stones Committee under NVPDC

On December 3, 1789, the Virginia legislature offered to cede any area in the state up to 10 miles square to serve as the site of a permanent capital for the United States. On July 16, 1790, an Act of Congress established that such a Federal District would be on the Potomac River, and, on January 24, 1791, President Washington proclaimed that the survey for such a district should be made beginning at a point on Hunting Creek, running due northwest for ten miles, thence into Maryland due northeast for ten miles, thence due southeast for ten miles, and finally due southwest for ten miles to the beginning on Hunting Creek.

Major Andrew Ellicott was invited to conduct the survey; he began his first rough reconnaissance from Alexandria on February 14, 1791, and crossed the Potomac into Maryland on February 22. On March 30, 1791, the President issued a Proclamation identifying the boundaries of the Federal Territory, and ordered them to be permanently marked. On April 15, 1791, the South Cornerstone was dedicated at Jones Point in Alexandria, and later in 1791 an additional 13 one-foot-square milestones were engraved and put in place in Virginia.

On September 7, 1846, Congress and President Polk, in response to requests from Virginians, retroceded the 31 square miles of the District of Columbia in Virginia, and on March 20, 1847, state laws again were in force within the new Alexandria County, part of which became in 1870 the independent city of Alexandria, and the remainder of which became in 1920 Arlington County. Part of the former District boundary also became in 1936 the boundary between Arlington and the town of Falls Church.

For a long time, the stones were generally ignored. Beginning in 1915, the DAR began erecting an iron picket fence around each stone. Boundary Stone SW 9 was recognized on the National Register of Historic Places on May 11, 1976, and became in 1980 a National Historic Landmark to honor Benjamin Banneker, the Negro astronomer on the Ellicott survey team. The South Cornerstone was placed on the National Register on May 19, 1980, and the other 12 stones in Virginia were added to the Register on February 1, 1991, with documentation provided by the DAR. Also during the bicentennial year of 1991, an ad-hoc interjurisdictional committee discussed the potential future of the stones at three meetings before disbanding.

At this time, four Virginia jurisdictions share responsibility for the 14 boundary stones. Falls Church has direct interest in SW 9 and West Cornerstone, two of the three Virginia stones set within public parks. The Historical Commission suggests that it now would be highly desirable for official representatives of Alexandria City, Arlington County, Fairfax County, and Falls Church City to create under the auspices of the NVPDC a new Northern Virginia Boundary Stones Committee which could also include authorized participants from other organizations, such as the DAR, National Park Service, and local historical societies. The Committee's mandate should be to determine:

- a) the legal status of the stones,
- b) the potential ownership and/or easement possibilities, including the option for national legislation,
- c) the exact location and past and present status of each stone,
- d) the future protection, preservation, restoration and/or relocation options,
- and e) the mechanisms for achieving wider public recognition and appreciation for the stones, including the formulation and installation of historic markers.

CITY OF FALLS CHURCH

INTEROFFICE MEMORANDUM



DATE: March 16, 1994

TO: Ric Terman, Boundary Stones Committee

FROM: Peter H. Maier, City Attorney *PHM*

SUBJECT: The Jurisdiction Stones

This is written in response to your request for an opinion as to the ownership of the boundary marker stones. Please consider this an informal legal opinion.

I could locate no statute which specifically discussed ownership of the Virginia-Washington, DC boundary stones. The Federal Retrocession Statute (9 Stat. 35) provided that following referendum approval "full and absolute right and jurisdiction" of the retroceded land would be in Virginia. Although I personally have not examined the deed of retrocession which is located in Alexandria, I have been told by Barbara Hynak that the deed contains no mention of ownership of the stones.

As a general rule of property law, when real property is transferred, fixtures are transferred along with the property unless a contrary intent is shown, either in the instrument of transfer or in some other manner. The boundary markers are, in my opinion, in the nature of fixtures and were effectively transferred at the time of retrocession to Virginia. Because they are fixtures, the stones belong to whoever owns the property on which they are located.

In reviewing the paper drafted by your son in 1972, there is reference to a letter written in July 1963 by T. Sutton Jett, the Regional Director of the National Park Service, to Robert W. Wilson of the Arlington County Historical Commission, where Mr. Jett stated that the retrocession apparently "included the boundary stones and it was proper for the Arlington County government to assume the responsibility for maintaining and protecting them." Mr. Jett's letter is consistent with my opinion.¹

¹ *I'm trying to obtain a copy of this letter from the Arlington County Historical Commission to see if it can shed further light on this question. If I can obtain it, I'll forward it to you. If any of the Committee members have a copy of the letter or know where one can be found, I'd like to review it to see if it can provide additional information on this subject.*

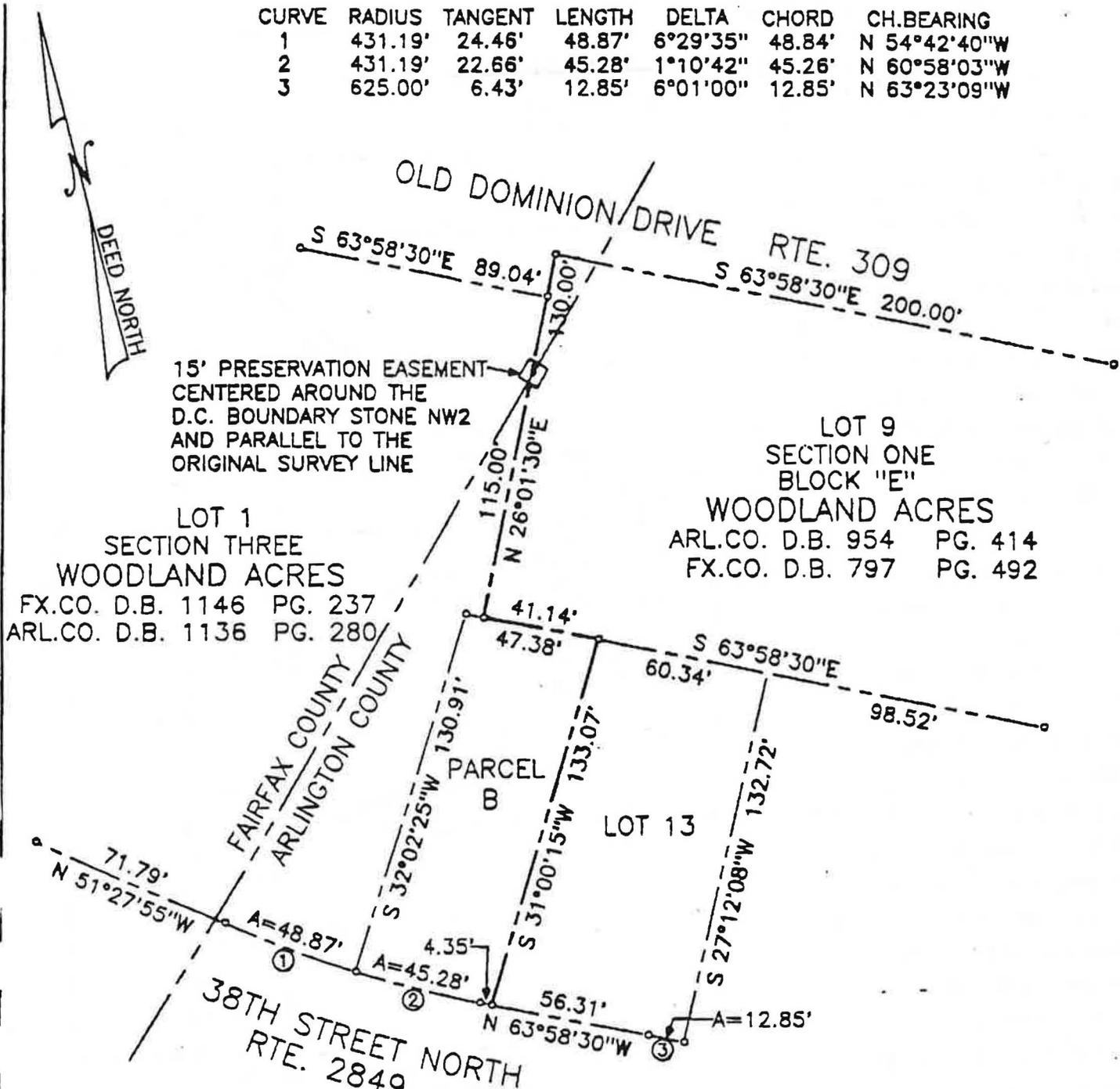
Barbara Hynak also tells me she believes there is an opinion, perhaps 20 years old, written by the Arlington County Attorney's office indicating that the stones in Arlington County on public property belong to Arlington County. I'm trying to locate a copy of this opinion in order to confirm its contents.

There is some indication in the history of the stones which seems to indicate that, before Mr. Jett's letter to Mr. Wilson in July 1963, the Federal government felt they owned the stones. For example, I note that in 1915 the U. S. Army Corps of Engineers granted authority for the stones to be enclosed by iron picket fences by the Daughters of the American Revolution. However, whatever the case was before, it appears that subsequent to 1963 the Federal government believed that the boundary stones were not owned by it.²

I hope that this information proves useful. It seems to me that the best approach to take is to obtain easements or other agreements from the property owners concerning maintenance and access to the boundary stones. As a practical matter, regardless of who owns the stones themselves, the property owners would have to grant an easement for anyone to have access to the stones located on private property.

² *The fact that some or all of the stones are inscribed "Jurisdiction of the United States" does not, in my opinion, provide insight into ownership of the stones. The word "jurisdiction" in the context of a boundary marker clearly is intended to indicate boundary line jurisdiction and not ownership-of-the-stone type jurisdiction.*

CURVE	RADIUS	TANGENT	LENGTH	DELTA	CHORD	CH. BEARING
1	431.19'	24.46'	48.87'	6°29'35"	48.84'	N 54°42'40"W
2	431.19'	22.66'	45.28'	1°10'42"	45.26'	N 60°58'03"W
3	625.00'	6.43'	12.85'	6°01'00"	12.85'	N 63°23'09"W



15' PRESERVATION EASEMENT
 CENTERED AROUND THE
 D.C. BOUNDARY STONE NW2
 AND PARALLEL TO THE
 ORIGINAL SURVEY LINE

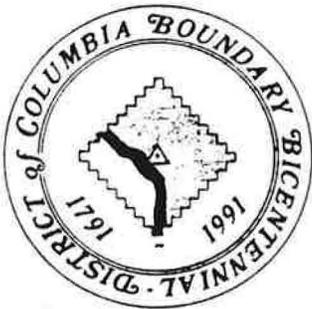
LOT 1
 SECTION THREE
 WOODLAND ACRES
 FX.CO. D.B. 1146 PG. 237
 ARL.CO. D.B. 1136 PG. 280

LOT 9
 SECTION ONE
 BLOCK "E"
 WOODLAND ACRES
 ARL.CO. D.B. 954 PG. 414
 FX.CO. D.B. 797 PG. 492

PLAT SHOWING
 LOCATION AND EASEMENT
 FOR
 DISTRICT OF COLUMBIA BOUNDARY STONE
 NORTHWEST TWO
 AS LOCATED ON
 LOT 1, SECTION THREE, WOODLAND ACRES,
 DRANESVILLE DISTRICT FAIRFAX COUNTY, VIRGINIA
 AND LOCATED ON
 LOT 9, BLOCK E, SECTION ONE, WOODLAND ACRES
 ARLINGTON COUNTY, VIRGINIA
 SCALE: 1"=50' NOVEMBER 28, 1994

GPS Resurvey of the D.C. Boundary Stones

By Michael G. Shackelford
and David R. Doyle



Northwest No. 5 mile marker, set in 1792, was the second boundary stone set in Maryland. Located deep in a wooded area within the fenced Dalecarlia Reservation, this stone is one of many that cannot be observed directly by GPS methods. (Photo by Richard Wiltmer, D.C. Boundary Bicentennial Committee)

American Association for Geodetic Surveying (AAGS) is proceeding with celebration plans. The District of Columbia Boundary Bicentennial Committee's program includes a Global Positioning System (GPS) resurvey of the original boundary stones marking the borders of the District of Columbia, Maryland, and Virginia. Surveyors from both the public and private sector, representing the National Geodetic Survey (NGS), the Washington Suburban Sanitary Commission (WSSC), Fairfax County, Virginia, and numerous private consulting firms in the greater Washington, D.C., metropolitan area have already begun the preliminary recovery phase of the project.

In September 1989, Dexter M. Brinker of Durango, Colorado, presented a paper at the ACSM/ASPRS Fall Convention entitled "District of Columbia Boundary Bicentennial." In his account of the history of the survey that delineated the original boundaries of the Federal Territory, Brinker noted its special significance to surveyors nationwide. He also suggested that it would be appropriate for ACSM to participate in planning activities to commemorate the 200th anniversary of this important survey.

A joint committee of the National Society of Professional Surveyors (NSPS) and the

GPS resurvey of the D.C. boundary stones is to be done by a method similar to that used by the National Oceanic and Atmospheric Administration (NOAA) and NGS in the 1970s to resurvey the original boundary stones set by Charles Mason and Jeremiah Dixon in the 1760s on the Maryland-Delaware state line. Those boundaries are part of the Mason-Dixon Line. Local surveyors in the Washington, D.C., area have volunteered to perform the boundary stone resurvey.

The original boundary stones were set at 1-mile intervals during the survey of the 10-mile-square Federal Territory begun February 1791 by Major Andrew Ellicott with the help of Benjamin Banneker. The original boundary survey took nearly two years to complete, while this new survey will take only a few months.

The resurvey will locate the monuments marking the original boundary survey of the District of Columbia, but will not determine the boundary lines. The committee has decided that this is a legal question to be resolved later by the proper authorities.

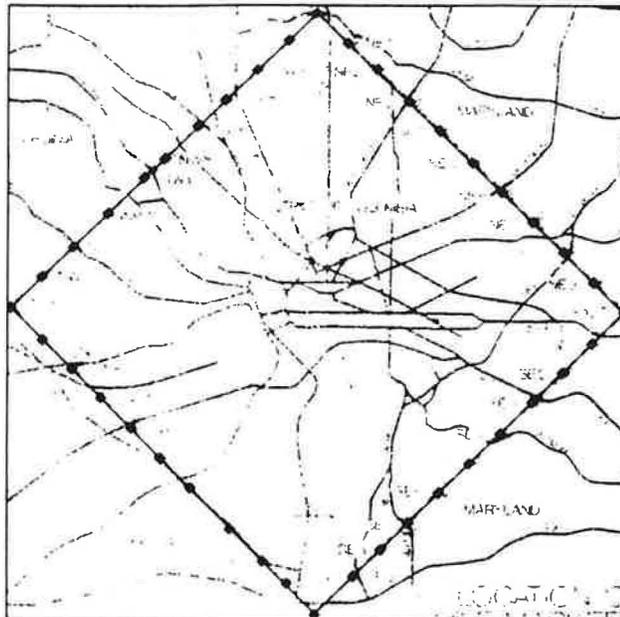
DETERMINING PRECISE COORDINATES

A major part of this project is to determine the precise coordinates of each of the boundary stones with respect to the North American Datum of 1983 (NAD 83) to at least third-order accuracy as defined by the Federal Geodetic Control Committee (FGCC). The data will be given to NGS to incorporate into the National Geodetic Reference System (NGRS). The committee decided to use GPS to

obtain first-order positions wherever possible, and where necessary, perform terrestrial surveys by conventional methods to tie the boundary monuments to existing or newly established offset stations.

The following steps will be required:

1. Recover the existing boundary stones to determine their suitability for direct GPS observations.
2. Recover existing NGRS



This map shows location of the mile markers that delineate the original boundary of the District of Columbia. The stones on the Virginia side of the Potomac River were set in 1791; the stones in Maryland were set in 1792. (Map courtesy National Capital Planning Commission, Washington, D.C.; reprinted from Boundary Markers of the Nation's Capital, U.S. Government Printing Office, Washington, D.C., 1976)

horizontal and vertical control points to be used to tie the boundary stones to the network.

3. Select sites for new monumentation offsets from boundary stones that cannot be positioned directly with GPS, and reference stones that can be occupied with GPS.

4. Write descriptions for all marks used in the survey and ensure that they are in the proper format to submit to NGS.

5. Perform GPS observations.

6. Perform conventional terrestrial observations.

7. Prepare "Blue Book" data set for all observations and descriptions to be submitted to NGS.

8. Adjust the combined GPS and classical data set by NGS and incorporate the data into the NGS Integrated Data Base.

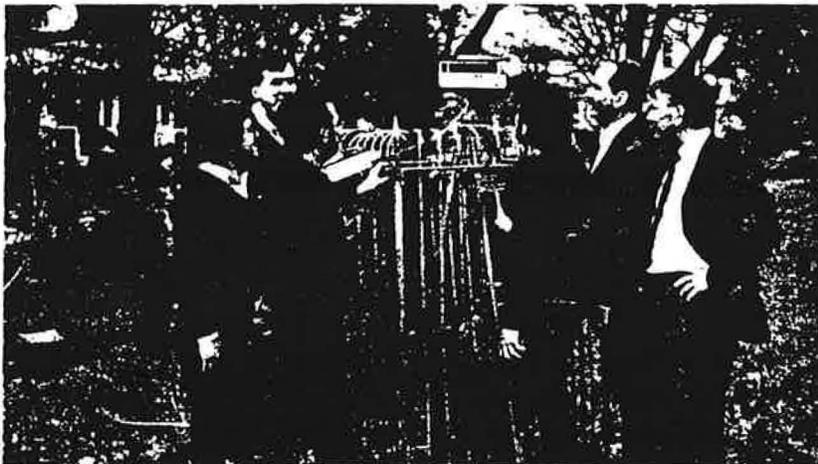
How the horizontal control survey ties the boundary stones into the NGRS poses some interesting problems. Unlike most control surveys, where the monumentation is placed where it is needed and most available to the user community, this project requires that either the boundary stones be "GPSed" directly, or tied by conventional traverse techniques to existing control or to newly established GPS stations. Since the boundary stones are located on both public and private properties, many land owners or property managers must be contacted to ensure proper access to monuments and control points, or to permit the establishment of new stations.

New monuments will consist of 3.25-inch domed brass disks identifying the stations as having been established by the District of Columbia Boundary Bicentennial Committee. The disks will be set in concrete poured 3.5 to 4 feet deep, flush with the ground. No underground or reference marks will be set.

PRELIMINARY RECOVERY OF STONES

To date, a preliminary recovery of the four sides of the boundary has been completed. Of the 40 monuments set originally, 37 have

been recovered. One of the non-recovered stations is known to have been buried by a landfill, and an attempt to uncover this stone is being made by the District of Columbia Surveyor's Office.



A Trimble 4000ST receiver was used to perform GPS observations at Northwest No. 6 mile marker on Western Avenue. Pictured are members of the D.C. Boundary Bicentennial Committee: (left to right) David Doyle, Richard Witmer, Alan Dragoo, Douglas Richmond, Michael Shackelford, and Burton Sours Jr. (Photo by Richard Witmer, D.C. Boundary Bicentennial Committee)

Preliminary recovery of the stones was done to determine how many were still in existence and to inspect the physical condition of the monuments and their protective cages. We are also in the process of recovering published control points that are within one mile of the stones and selecting potential sites for new stations needed to control conventional ties to monuments that are not accessible by GPS.

POSITIONING BY GPS

Due to the many obstructions around the monuments, only about 10 of the boundary stones can be positioned directly by GPS methods. Monuments not observed directly with GPS will be tied to the network with at least two existing control points by means of classical traverse techniques.

In cases where it is impossible

to establish two new intervisible GPS stations at least a quarter of a mile apart, more convenient stations will be set and second-order astronomic azimuth observations and traverse procedures will be used to control the posi-

tions of the boundary stones. However, in many cases the nearest NGRS station is either too far away to be a convenient tie, or has been destroyed.

The two newly established control points at ACSM headquarters in Bethesda, Maryland, will also be used (see February *ACSM Bulletin*, p. 11; April *ACSM Bulletin*, p. 15). The Glascock Building, where ACSM offices are located, is about four miles from the north point of the District of Columbia boundary. These points can be observed with GPS and will be tied to the primary network by first-order standards.

Even in cases where the stones can be positioned directly with GPS, a new station will be established nearby, if possible, as an offset to ensure greater permanence. Completion of this project will provide accurate positions for the existing boundary stones

and for the approximately 85 new GPS stations that will be required. This will help increase the density of control available to surveyors in the Washington, D.C., area for other cadastral, surveying, and engineering projects.

The committee has had great success in obtaining "loaner" GPS and other geodetic equipment to conduct the field operations. WSSC, Rinker-Detwiler & Associates, a private consulting firm in Virginia, and the Howard County, Maryland, Department of Public Works have offered the use of 10 Trimble 4000ST single-frequency GPS receivers. These will be used to establish the control network, while the conventional surveys will be conducted with a Wild T-3, 0.1-second theodolite from NGS, and a Wild TC2000 total station, courtesy of Wild Leitz USA Inc.

Volunteers from both the Potomac Chapter of the Maryland Society of Surveyors and the Mount Vernon Chapter of the Virginia Association of Surveyors began new mark setting and observations in April. Completion of all survey operations is anticipated by July and the final adjustment by NGS should be completed by October.

The final evaluation of this survey will allow accurate mathematical determination of the Maryland-District of Columbia boundary, as well as of the northern line between Arlington and Fairfax counties in Virginia, which was the original boundary between Virginia and the District of Columbia until the Retrocession Act of 1846.

BOUNDARY BICENTENNIAL EVENTS

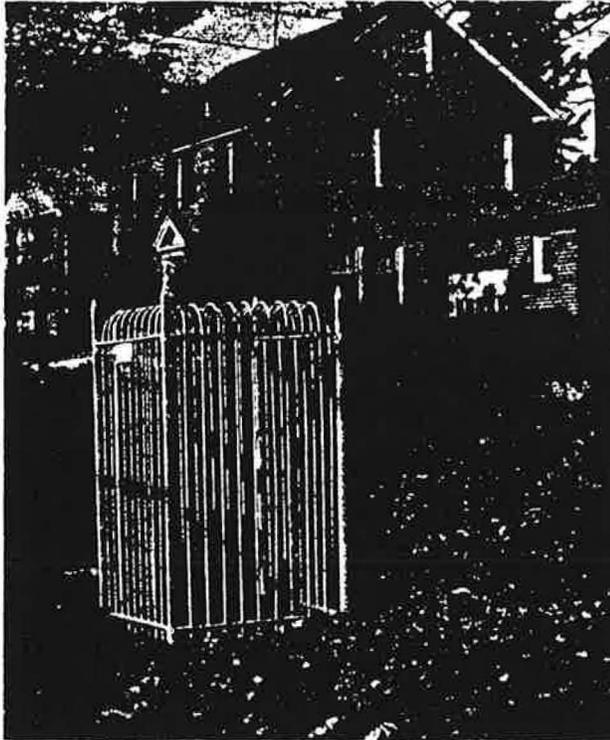
After the final adjustments are released by NGS, the results will be published in a book being written by committee members. The volume will include a section

on the history of the original survey by Silvio A. Bedini of the Smithsonian Institution in Washington, D.C.

Among other activities proposed by the committee are restoration and preservation of the Daughters of the American Revolution's (D.A.R.) iron cages that protect the monuments. A re-enactment survey and ceremony is scheduled at the initial or south point located at Jones Point Park in Alexandria, Virginia, March 24, 1991, the Sunday immediately preceding the ACSM/ASPRS Annual Convention in Baltimore, Maryland.

Realization of these plans depends on obtaining permission and cooperation from many local, county, state, and federal agencies, as well as such organizations and committees as the ACSM 50th Anniversary Committee, D.A.R., and the District of Columbia's Bicentennial Commission. Much effort will be required to coordinate the many interested

historic groups, archaeological commissions, and Masons, to name a few, that have similar activities planned to celebrate this historic event.



Northeast No. 5 mile marker is located on a well-maintained private lawn on Eastern Avenue. Even though this stone and its protective cage are in good condition, the stone cannot be observed directly by GPS methods. (Photo courtesy National Capital Planning Commission, Washington, D.C.)

The final scope of the project will also depend on the funds raised. A proposed project budget, estimated at nearly \$90,000, and fund-raising activities will be announced in the near future.

Donations are greatly appreciated and should be sent to Richard Witmer, Treasurer, District of Columbia Boundary Bicentennial Committee, Box 9300, Silver Spring, MD 20906. If you have questions, comments, or suggestions regarding the project, you are encouraged to write directly to the committee or, if you prefer, contact ACSM headquarters for information. ■

Michael G. Shackelford is registered as a land surveyor in five states and works in private practice in the Washington, D.C., area.

David R. Doyle is senior geodesist for the Horizontal Network Branch, National Geodetic Survey, Rockville, Maryland.

SHAREWARE COordinate GeOmetry

SHAREWARE COGO (with CADD support). GeoCalc Software Systems presents a full-featured, command-oriented "power" COGO program for IBM PC/ST/ATs and compatibles using CGA or EGA graphics. Almost 100 commands comprise the complete function table, including spirals, figure storage and geometry, batch processing via word processor, 999 points per file, and 999 figures per file. Registered users may expand to 10,000 points per file, traverse balancing, an interactive help feature, a RAM-resident word processor, and generation of CADD drawing files for export to Generic Cadd with labeling of point numbers, bearings and distances, and arc lengths and radii of curves (to user-specified scales).

The complete 270 Kb program and 140-page reference manual are included on a 5¼-inch disk. This is NOT a demonstration, but a complete, functional shareware program.

Send \$30.00 or call after 6:00 p.m.

GeoCalc Software Systems Co., Inc.

P.O. Box 5308 • Philadelphia, Pennsylvania 19142 • Telephone (215) 365-5585

Exempted from recordation taxes
under the Code of Virginia (1950) as amended,
section 58.1-811(A)

DEED OF EASEMENT

THIS DEED OF EASEMENT, made this _____ day of _____, 1994 by _____ and his/her/their heirs, successors and assigns, herein collectively referred to as the Grantor, and the **COMMONWEALTH of VIRGINIA, VIRGINIA BOARD OF HISTORIC RESOURCES**, herein referred to as the Grantee,

WITNESSETH:

WHEREAS, Chapter 22 of Title 10.1 of the Code of Virginia of 1950, as amended, was enacted to preserve historic and architectural landmarks in the Commonwealth of Virginia, and charges the Virginia Board of Historic Resources to designate as historic landmarks such buildings, structures, and sites as it determines to be of historical, architectural, or archaeological significance and to receive properties and interests in properties for the purpose, among other things, of the preservation of such landmarks and their settings; and

WHEREAS, the Grantor is owner of a tract of land, herein described, on which is located one of the original stone boundary markers for the District of Columbia; and

WHEREAS, such boundary marker is of historic importance and is listed on the Virginia Landmarks Register and the National Register of Historic Places; and

WHEREAS, both the Grantor and the Grantee desire to ensure the preservation of the boundary marker;

NOW THEREFORE, in recognition of the foregoing and in consideration of the sum of Ten Dollars (\$10.00) and other valuable consideration, the receipt of which is already acknowledged, the Grantor does hereby grant and convey to the Grantee an easement in perpetuity in gross (with right in perpetuity to restrict the use of as described below), over the property described in "Attachment A" (hereinafter called the Easement Property).

The restrictions hereby imposed on the use of the Easement Property are in accord with the policy of the Commonwealth of Virginia, as set forth in Chapter 22 of Title 10.1 of the Code of Virginia of 1950, as amended, to preserve the principal historical, architectural, and archaeological landmarks in the Commonwealth of Virginia. Acts which the Grantor covenants to do and not to do upon the Easement Property, and restrictions which the Grantee is hereby

entitled to enforce, shall be as follows:

1. The parties agree that the photographs of the Easement Property taken by _____ of the Department of Historic Resources (DHR negative number _____) on _____, accurately document the appearance and condition of the boundary marker as of the date of this easement. The negatives of the said documentary photographs shall be stored permanently in the picture collection of the Virginia State Library.
2. The boundary marker shall not be demolished or removed from the Easement Property, nor shall it be intentionally altered in any way. No cleaning, waterproofing, or other chemical treatment of the boundary marker shall be undertaken unless the prior written approval of the Grantee shall have been obtained.
3. The Grantor shall take reasonable precautions to protect the boundary marker from looting, vandalism, erosion, mutilation, or destruction from any cause.
4. The Grantor agrees that the boundary marker may be viewed by members of the public on a reasonable basis, which shall include, at a minimum, allowing persons affiliated with educational organizations or historical societies to view the boundary marker by appointment with the Grantor. Such appointments shall be scheduled upon at least one week's notice, at times which are convenient to the Grantor.
5. No permanent dump of ashes, sawdust, bark, trash, rubbish, or other unsightly or offensive material shall be permitted on the Easement Property.
6. No sign, billboard, or outdoor advertising structure shall be displayed on the property without the consent of the Grantee, other than signs not exceeding three feet by three feet for any or all of the following purposes: (i) to provide information necessary for the normal conduct of any permitted activity (ii) to advertise the property for sale or rental, and (iii) to provide notice necessary for the protection of the property and for giving information and directions to visitors.
7. The Grantee and its representatives may enter the property (i) from time to time, upon 10 days' written notice to the Grantor, for the sole purpose of inspections and enforcement of the terms of the easement granted herein, and (ii) in its discretion, to erect at a location acceptable to the Grantor a single marker or sign, not exceeding two feet by two feet, which states the name of the Grantee and advises that the Grantee owns the easement granted herein.
8. In the event of a violation of this Easement, the Grantee shall have the right to seek all appropriate legal and equitable relief, including but not limited to the right to secure the Easement Property against threatened destruction or disturbance of the boundary marker and to assert the cost thereof as a lien against the Easement Property.

9. Prior to any inter vivos transfer of the Easement Property, excluding deeds of trust given for the purpose of securing loans, the Grantor shall notify the Grantee in writing.

Although this easement in gross will benefit the public in the ways recited above, nothing herein shall be construed to convey a right to the public of access to or use of the property, and the Grantor shall retain exclusive rights to such access and use, subject only to the provisions herein recited.

Acceptance by the Virginia Board of Historic Resources of this conveyance is authorized by sections 10.1-2204 and 10.1-1701 of the Code of Virginia of 1950, as amended.

Witness the following signatures and seal:

_____ (SEAL)

_____ (SEAL)

Accepted:
VIRGINIA BOARD OF HISTORIC RESOURCES

By: _____
H. Alexander Wise, Jr.
Director, Department of Historic Resources

Date: _____

STATE of VIRGINIA)
of) To wit:

The foregoing instrument was acknowledged before me this ____ day of _____, 1994, by _____, the Grantor therein.

Notary Public

My commission expires: _____

STATE of VIRGINIA)
CITY of RICHMOND) To wit:

The foregoing instrument was acknowledged before me this ____ day of _____, 1994, by H. Alexander Wise, Jr., Director, Department of Historic Resources, on behalf of the Virginia Board of Historic Resources, Grantee therein.

Notary Public

My commission expires: _____



COMMONWEALTH of VIRGINIA

H. Alexander Wise, Jr., Director

January 23, 1995

Department of Historic Resources

221 Governor Street
Richmond, Virginia 23219

Maurice J. Terman
Chairman, NOVABOSTCO
616 Poplar Drive
Falls Church, VA 22046

RE: Northern Virginia Boundary Stones

Dear Mr. Terman:

As we discussed in our recent conversations by telephone, the Virginia Department of Historic Resources is very interested in cooperating with NOVABOSTCO on your important project to preserve and protect the fourteen Federal boundary markers placed in Virginia during George Washington's administration. Because the stones are already listed on the state and national registers, and are associated with important events in our state and national history, the markers make excellent candidates for easement protection, provided the owners are willing to grant an easement donation to the state.

Donation of a historic easement would involve the permanent legal transfer of some of the property rights of a landowner to the Commonwealth. For tax purposes, an easement donation is considered a charitable donation. DHR's policy is to work with willing property owners who enter into these legal transactions completely voluntarily, with their eyes and ears open. Your organization can be most helpful to us by individually contacting the landowners, whether private or public, to solicit their possible interest in considering a voluntary easement donation. Once you have approached the landowners and determined who is truly interested in learning more about our easement program, please contact Calder Loth, senior architectural historian on our staff, to set up a schedule for meetings with the interested landowners. Your suggestion of setting up a series of individual appointments to be held consecutively on the same day is an excellent one.

Please be advised that the sample plat your sent us is more than adequate for the purpose of giving an accurate legal description of the boundary stone's location for which the plat is drawn.

The Virginia Board of Historic Resources is the public body with authority to accept easements on behalf of the Commonwealth. DHR serves as the Board's staff. DHR's Director, Alex Wise, has authority to sign easement deeds on the Board's behalf. The Board meets every other month. Its next meeting will be held on February 22, with the following meeting

scheduled for April 19. Both dates are auspicious for the occasion of discussing NOVABOSTCO's mission and to inform the Board of the progress of our work together; however, the April date is probably more realistic. Your suggestion of having a public ceremony to observe the signing of any easement deeds that emerge from our collaboration is, again, an excellent idea. We will be happy to pursue it at the appropriate time.

I hope this summary is consistent with your understanding of our discussions to date. You have our every good wish for success. I am glad to hear that you received a copy of our RFP for the establishment of additional DHR field offices. We are encouraged by the strong interest shown by communities in Northern Virginia and around the state in the RFP.

If we can be of further assistance, please let us know. I remain,

Yours sincerely,

A handwritten signature in cursive script, reading "Robert Allen Carter", followed by a horizontal line extending to the right.

Robert Allen Carter
Senior Program Manager, Special Projects

c: H. Alexander Wise, Jr., Calder C. Loth

NORTHERN VIRGINIA BOUNDARY STONE SURVEY

MARKER #/NAME:	West Corner Stone
MARKER LOCATION:	West Corner Stone Park
OBSERVER NAME/A GENCY:	Doug Pickford (NVPDC), Charles Smith (NVRPA), Maurice Terman (No. Va. Boundary Stones Committee), Elaine McGee, Barbara Hynak (DAR)
RECORDER NAME/A GENCY:	Doug Pickford (NVPDC)
PHOTOGRAPHS TAKEN:	Yes
PHOTOGRAPHER NAME/A GENCY:	Charles Smith (NVRPA)
DATE:	7/20/94
WEATHER:	Clear - 90 Degrees and Humid
Closest public thoroughfare?	Arizona
Is the marker visible from this thoroughfare?	Yes
Is the marker legally accessible?	Yes
Is the marker on public or private property?	Public
What is the property currently used for?	Parkland - West Cornerstone Park
Is the marker present?	Yes
Is the marker original?	Yes
If no - type of material used?	NA
Is the marker coated?	No
If yes, with what is it coated?	NA
Marker Condition:	Stone is chipped and pitted. Stone is in it's original position and orientation representing the boundary of the City of Falls Church, Fairfax County, and Arlington County. Stone is tilting towards the east.
Top:	(See Terman notes)
Four Vertical Faces:	(See Terman notes)

NORTHERN VIRGINIA BOUNDARY STONE SURVEY

Inscriptions:	Legible where stone has not been chipped away.
Base:	In ground - tilting towards the east.
Condition of Cage:	Not of the 1916 variety. The largest of all cages. Painted brown, in good condition and stable.
Condition of Plaque:	
Site Conditions:	Located in a small, quiet, tree shaded park with benches located nearby. Excellent setting with easy access.
Dimension of Stone:	Height - 2' Width - SE 13" SW 12 1/2"
Dimension of Cage:	Height - 5' 2" Width - S 8' 6 1/2" W 7' 3 3/4"
No. of Pictures:	4

EXHIBIT 14

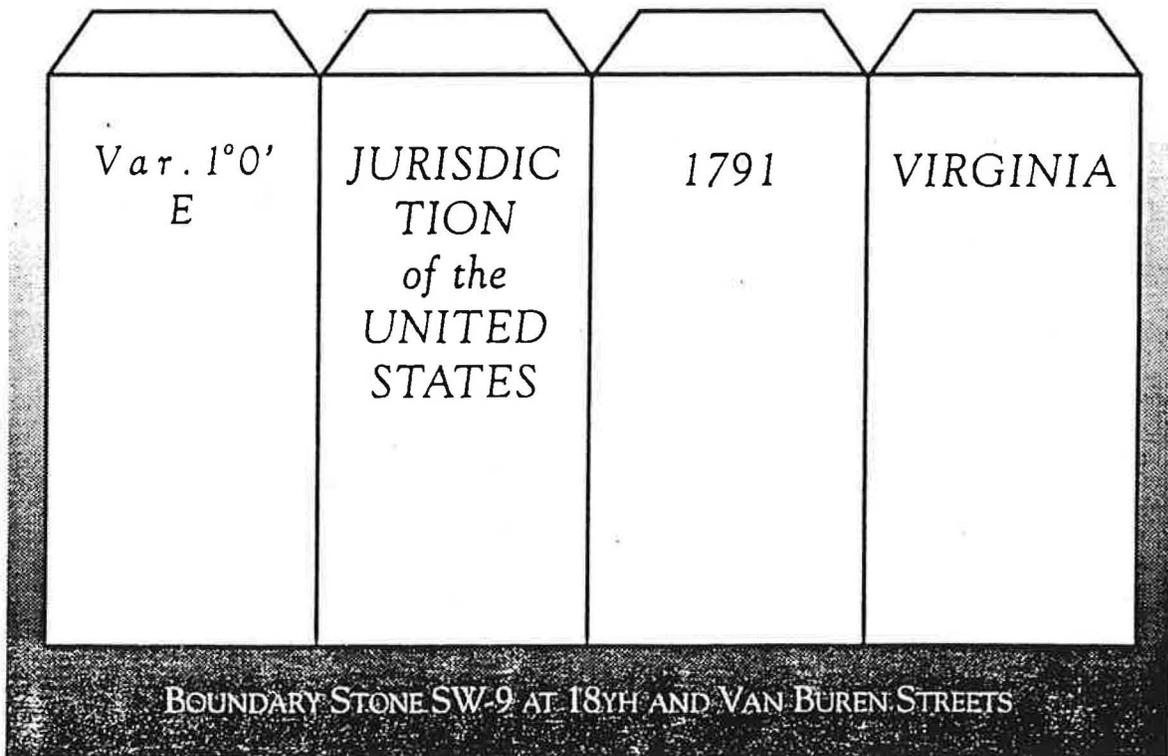
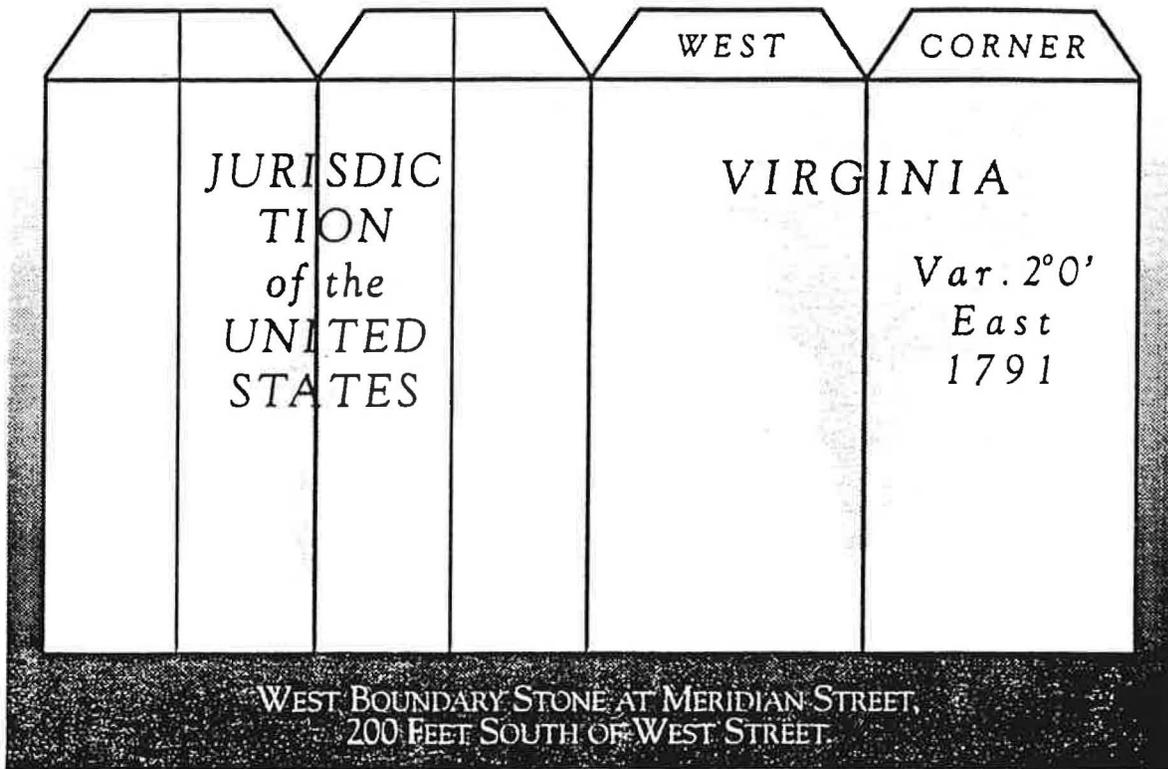
NORTHERN VIRGINIA BOUNDARY STONES COMMITTEE
SUMMARY STATUS REPORT ON THE NORTHERN VIRGINIA BOUNDARY STONES

February 1995

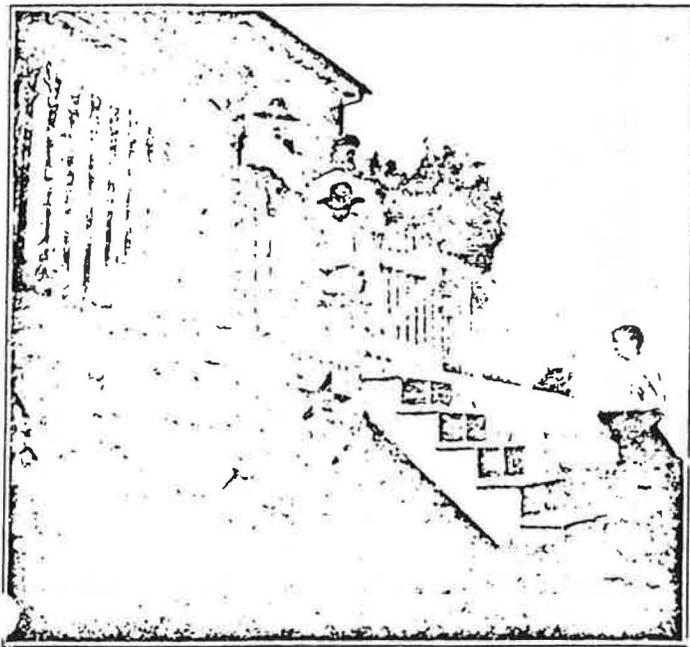
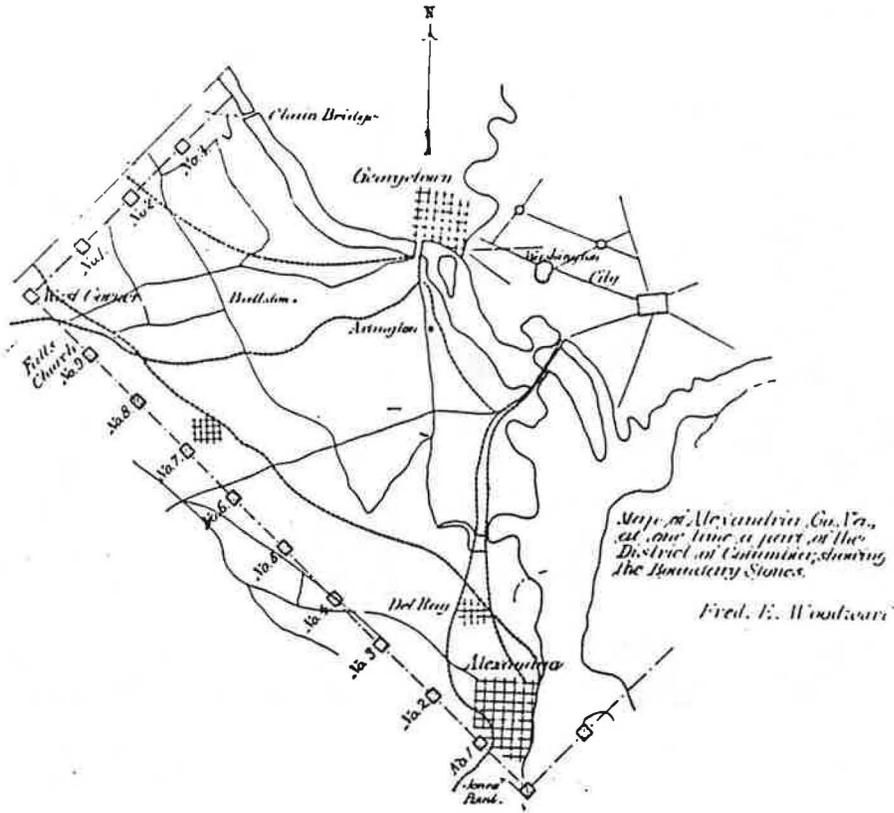
A field survey of the Northern Virginia Boundary Stones was conducted on July 20, 1994, by a team composed of Committee members Barbara Hynak (Arlington, DAR), Doug Pickford (NVPDC), Charles Smith (NVRPA), and Ric Terman (Falls Church), and consultant Elaine McGee (USGS). They visited 13 of the 14 stones (all except NW3) and systematically recorded basic data and took a number of photos at each site. These data were put on a word-processing disc by Pickford and combined with the photos by Smith to create a permanent loose-leaf notebook file. Terman has now compiled the following tabular summaries of some of the key data from that status survey. At subsequent meetings, it is suggested that this data will serve as a basis for formulating Committee recommendations for future action by the jurisdictions at each stone:

Stone	Origi	Orien	Size: HxWxW	Position	Owner	Plat	Access	In:	Shape	Words
SC	NO	YES	35X9X13"	OK	NPS PARK	NO	POOR	GROUND	POOR	FEW
SW1	YES	NO	19X11.25X11.5"	350' LONG	CITY ROW	YES	FAIR	GROUND	GOOD	ALL
SW2	NO	NO	29.5X11X17"	1700' SHORT	CITY ROW	NO	GOOD	CEMENT	POOR	NONE
SW3	YES	YES	18.5X11X11"	OK	PRIVATE	YES	GOOD	CEMENT	FAIR	SOME
SW4	YES?	NO	5X6.5X8"	MOVED	VDOT ROW	YES	GOOD	GROUND	STUMP	NONE
SW5	NO?	NO	9X13X18.5"	250' LONG	CITY? ROW	NO	GOOD	GROUND	STUMP	NONE
SW6	YES	NO	25X12X12"	MOVED	ARL. ROW	NO	GOOD	GROUND	PATCHED	SOME
SW7	YES	YES	23X11X11.5"	OK	PRIV/SCH	YES	FAIR	GROUND	POOR	FEW
SW8	YES	NO	24+8X12X13.5"	MOVED	PRIVATE	YES	GOOD	GROUND	POOR	FEW
SW9	YES	YES	12X11X11"	OK	PUB. PARK	YES	GOOD	GROUND	GOOD	ALL
WC	YES	YES	24X12.5X13"	OK	PUB. PARK	YES	GOOD	GROUND	BROKEN	FEW
NW1	YES	YES	24+10X11X11"	OK	PRIVATE	YES	GOOD	GROUND	FAIR	SOME
NW2	YES	YES	23+4X11X11.5"	OK	PRIVATE	YES	LIMITED	GROUND	FAIR	SOME
NW3	YES	YES	?	OK	PRIVATE	YES	LIMITED	GROUND	GOOD	MOST

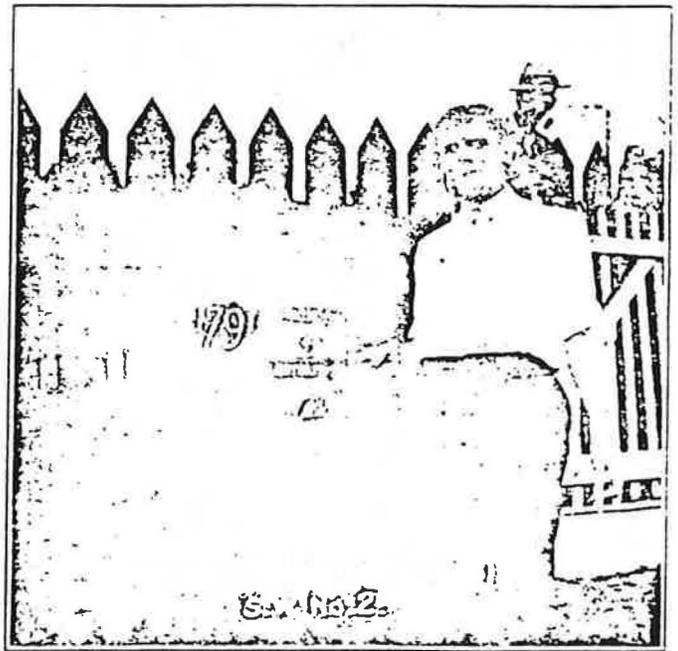
Stone	Fence Size	Fence: Color	Date	Plaque	Past Photos	New Photos	Comments
SC	62X30X60"?	GOOD; CEMENT	1926	6HX9W"	97/08/15/76	0H/6S/6M	DIFFICULT TO SEE
SW1	60X37X37"	GOOD; WHITE	1916	4X8"	1908	2H/5S/9M	DOUBLE FENCED
SW2	60X37X37"	GOOD; BLACK	1920	4X8"	NONE	1H/5S/7M	NOT ORIGINAL
SW3	64x36x36"	FAIR; BLACK	1991	4X8"	1908, 1976	2H/6S/9M	PARTLY BURIED
SW4	60X36X36"	FAIR; GREEN	1916	4X8"	1908	2H/1S/3M	BROKEN OFF
SW5	58X36X37"	FAIR; WHITE	1921	4X8"	1908	1H/2S/6M	BROKEN OFF
SW6	63X37X37	POOR; BLUE	1965	ODD	1908	2H/4S/10M	BADLY PATCHED
SW7	65X46X48"	POOR; GREEN	NONE	NONE	1908	2H/4S/8M	POORLY SET
SW8	48X36X36"	FAIR; GREEN	1950	6X5"	1908	1H/4S/7M	POORLY SET
SW9	62X36X36"	GOOD; BROWN	1989?	12X8"	1908	1H/5S/7M	PARTLY BURIED
WC	62X88X102"	GOOD; BROWN	1952?	?	94/08/76	3H/4S/7M	MISSING PIECE
NW1	69X37X37"	FAIR; GREEN	1916	4X8"	1908	2H/3S/7M	MUCH EROSION
NW2	58X36X36"	FAIR; BLUE	1969	6X9"	1908	1H/4S/8M	HARD TO VISIT
NW3	?	?	?	?	1908, 1976	2H/0S/0M	HARD TO VISIT



19. Fred. E. Woodward's pictures of the "Jurisdiction Stones" :
 taken in 1907 (?) and published in 1908:



SUPPOSED LOCATION OF THE SOUTH CORNER-STONE.

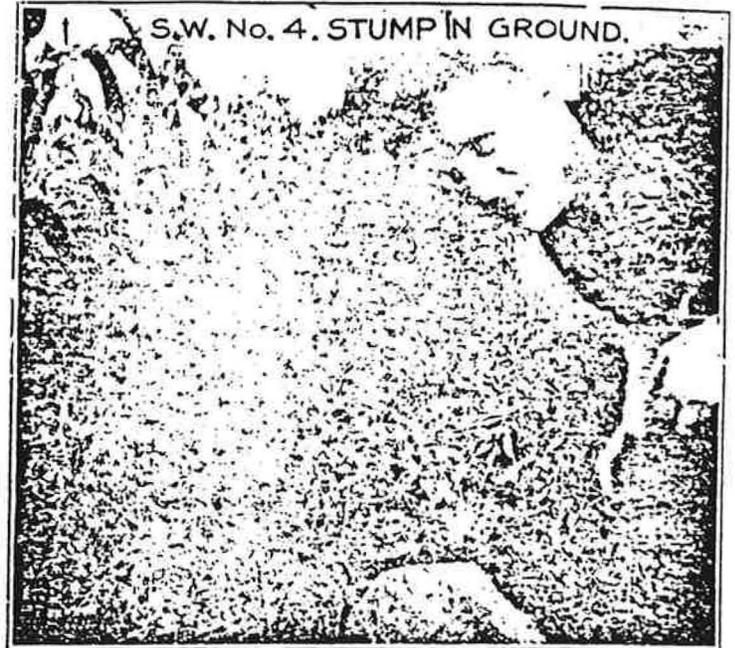


IN YARD OF MR. O. BAGGETT.
 Note the small size of letters and the large size of date figures.
 (Compare the 1790 date with the 1791 date on the wall.)

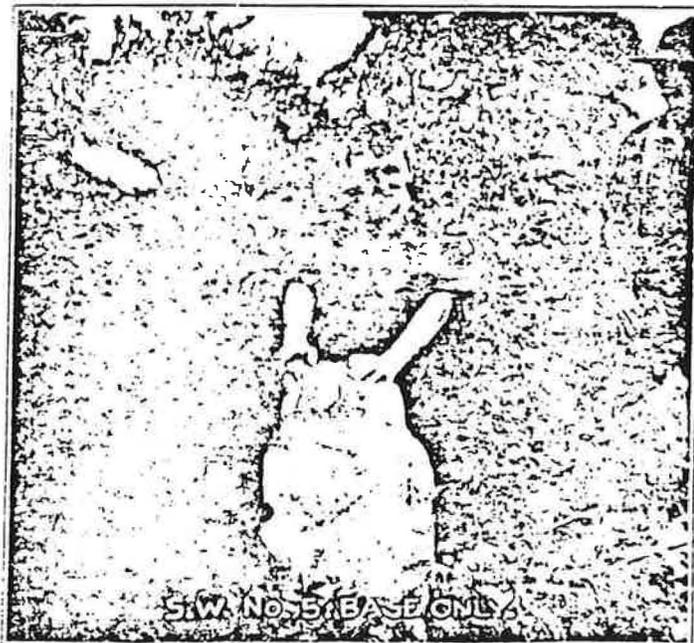
19. (continued)



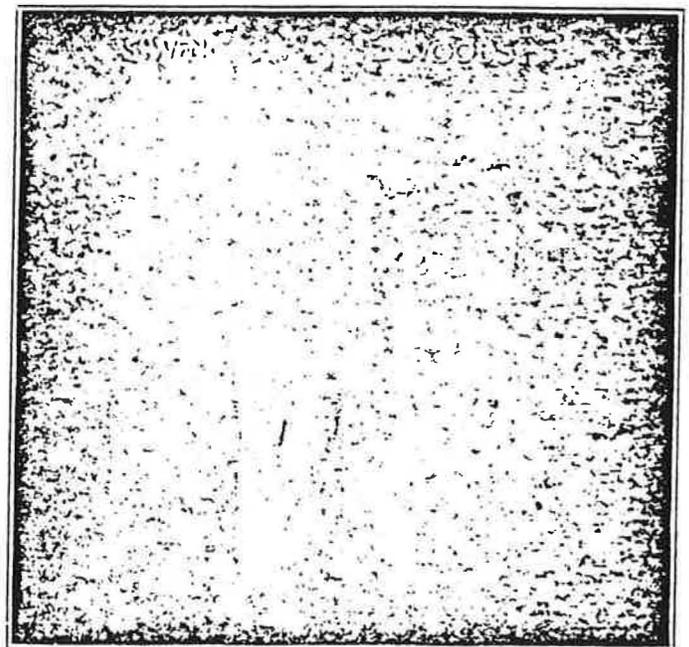
ON LAND OF P. CURNINGHAM.
Theological Seminary in the distance



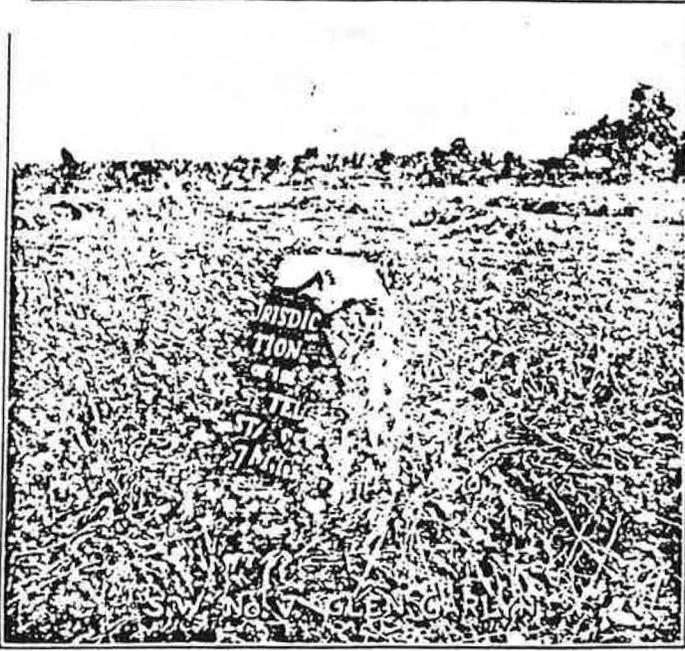
ON LAND OF CORTLAND SMITH.
Stump, in original position.



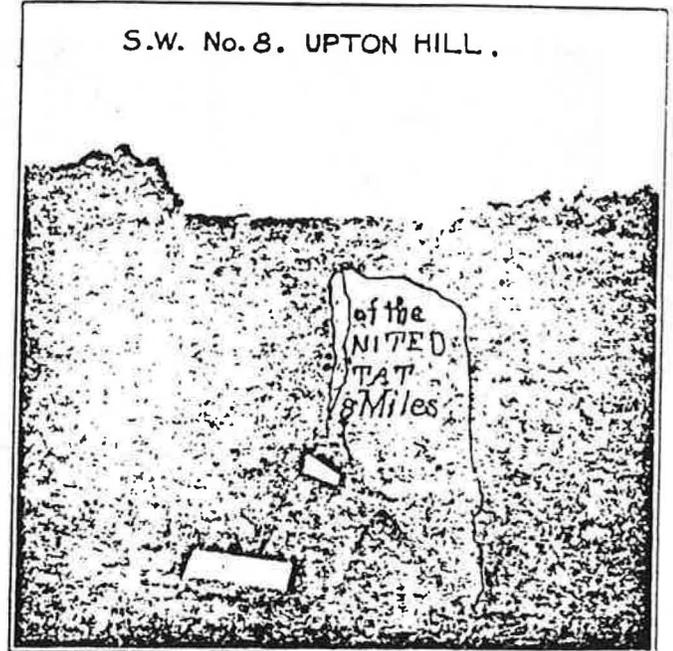
ON LAND OF FRANCIS SMITH.
Stump and a few inches of finished top.



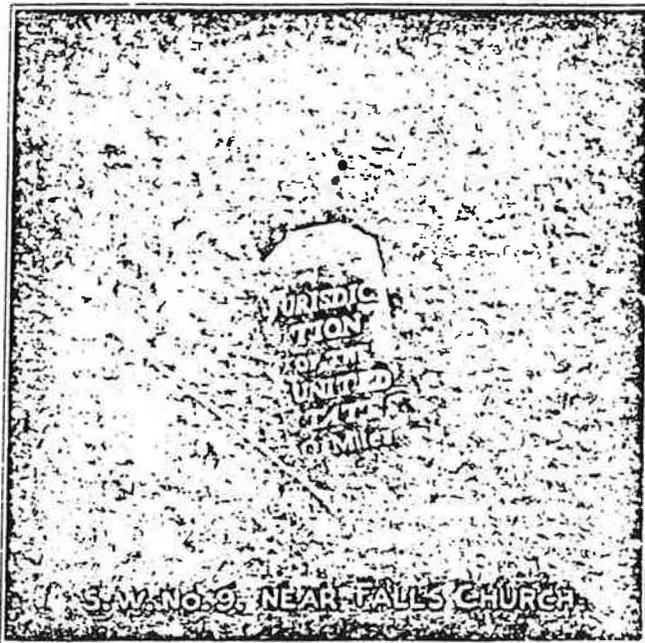
IN THE PAYNE WOODS, NEAR BAILEY'S CROSS-ROADS.
In poor condition



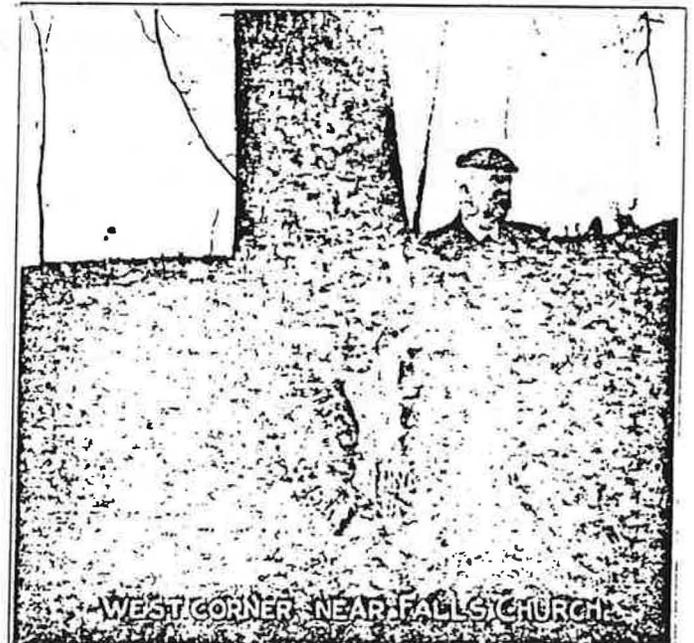
ON LAND OF W. H. TORRISON.
In bad condition.



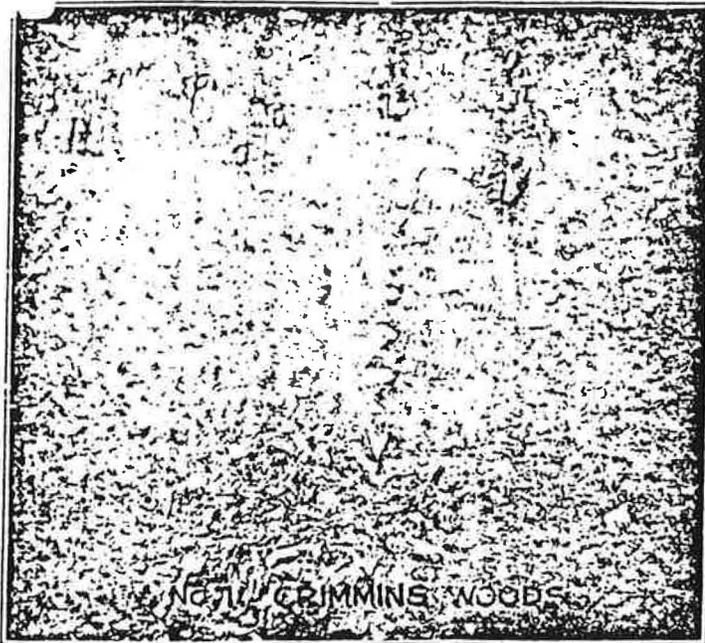
ON LAND OF G. E. BROSS.
Stone in very poor condition.



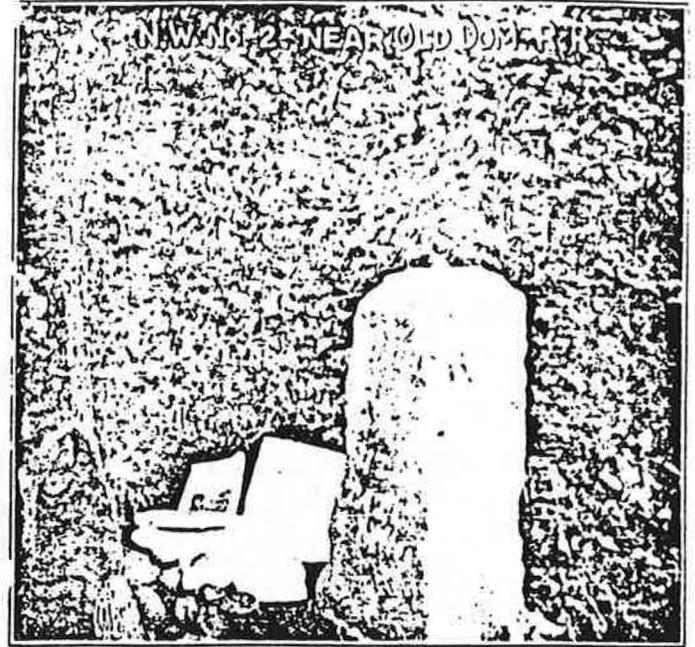
NEAR FALLS CHURCH R. R. STATION.
The only stone in good condition.



WEST CORNER-STONE.
This shows its broken condition.

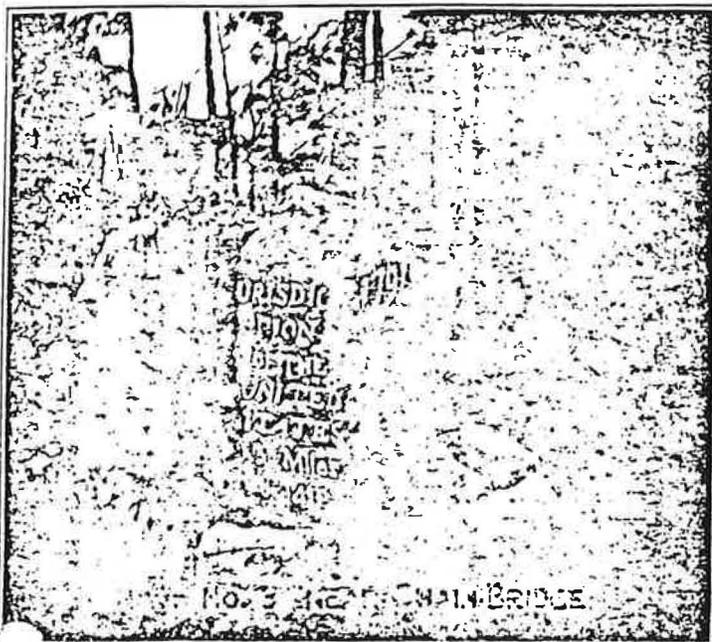


IN THE CRIMMINS WOODS.
Badly broken and scarred.

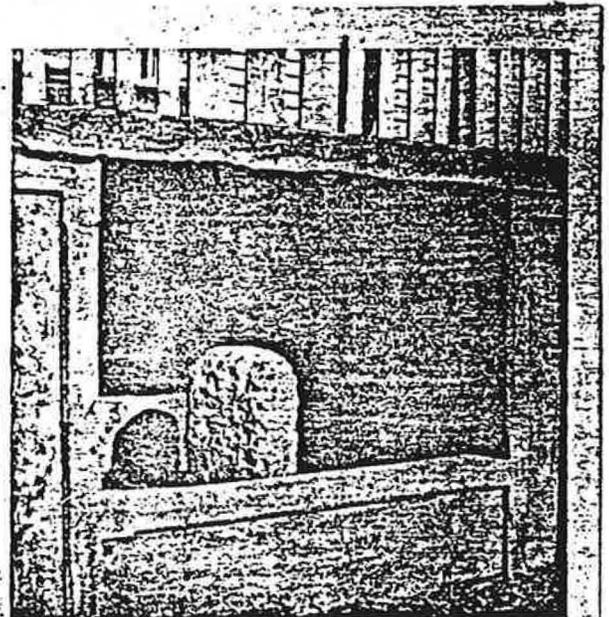


ON THE JAMES PAYNE ESTATE.
Near the line of Old Dominion Electric R. R.

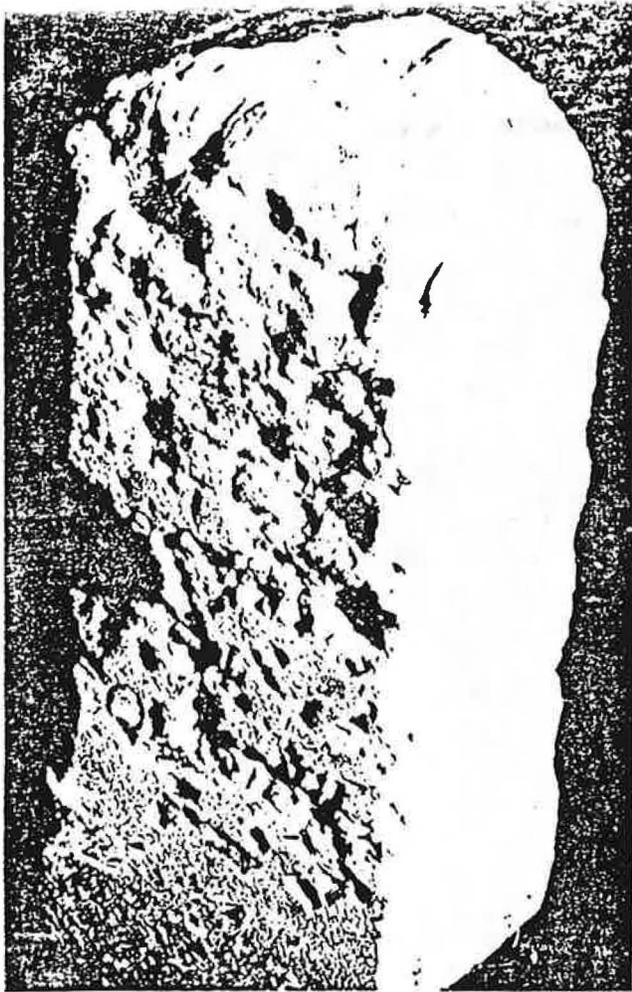
26. Fred E. Woodward's picture of the recovered south cornerstone; published in 1915:



ON LAND OF HENRY STROHMAN.
Broken below the surface.

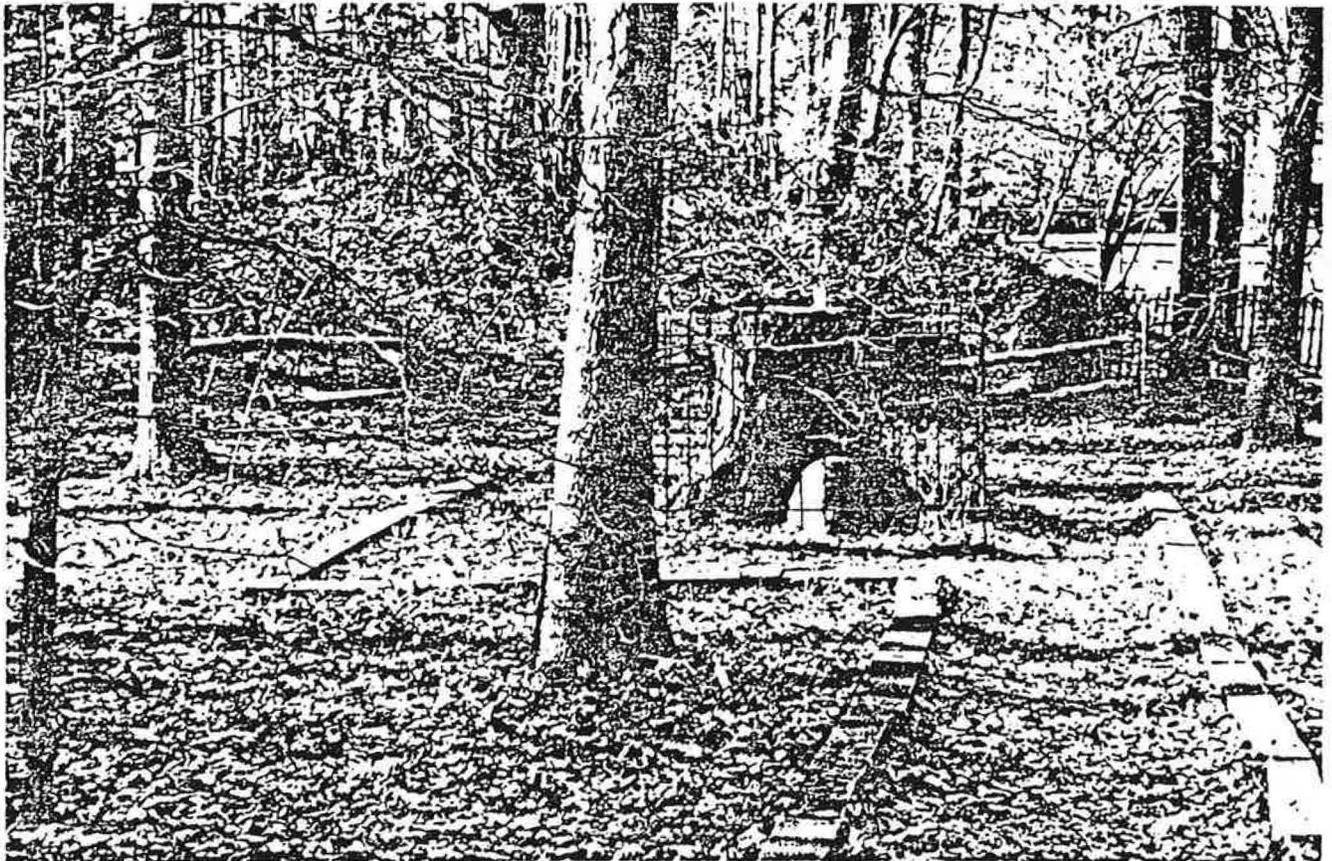
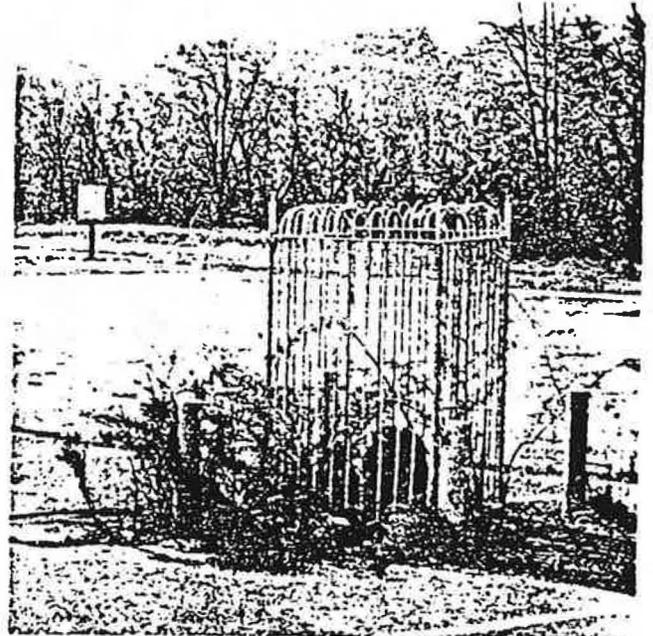


THE CONCRETE CAGE OVER THE STONE
Erected in 1912.

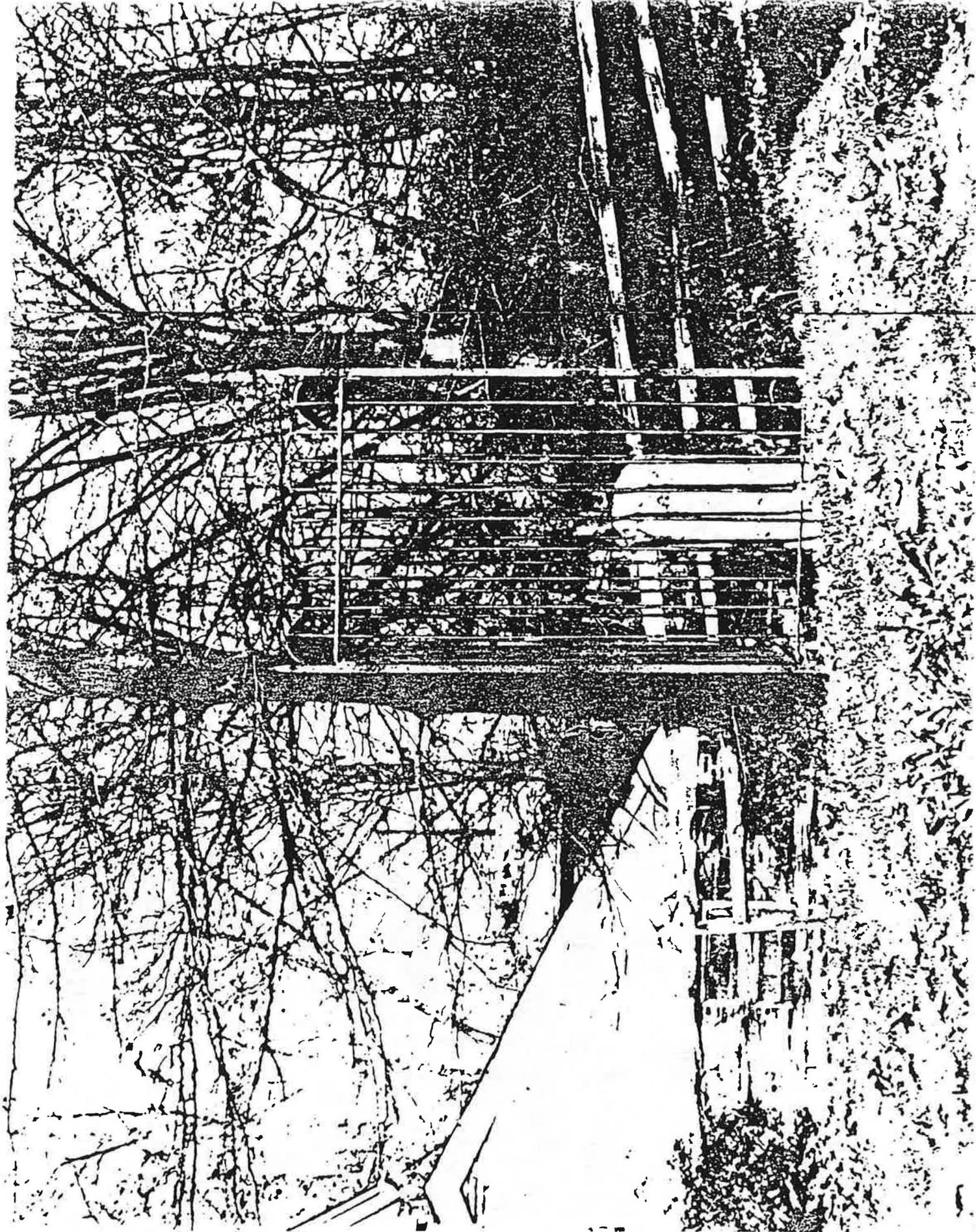


PICTURES FROM NCPIC REPORT
1976

SW 3



West Corner Stone Park, Falls Church, Va.



Aquia Creek sandstone was also a popular construction material for public buildings between 1790 and 1840. It was used for the White House, the older parts of the Capitol, the Treasury Building, and the Old Patent Office, now the National Portrait Gallery. This rock, of Lower Cretaceous age, is an unusual stone composed principally of quartz sand, pebbles, and clay pellets, cemented by silica. The sandstone received its name from Aquia Creek in Stafford County, Virginia, near where it was quarried. The stone is unique because only here are the Coastal Plain sediments in the vicinity of Washington cemented sufficiently to be useful as a building stone. This stone is also called Virginia freestone, a term applied to sandstone that splits with equal ease in any desired direction and dresses easily because of the incomplete cementation of the sand grains. Aquia Creek sandstone, although easier to work and more esthetic than the Piedmont rocks, was ill-suited for use as building stone because it was full of troublesome flaws. Its popularity resulted simply from the lack of other readily available building material in the Washington area. Furthermore, the quarries were situated near water transportation, the best available at that time, about 40 miles from Washington on the Virginia shore of the Potomac. Thus, the poor quality of the stone was overlooked.

In February 1807 Benjamin Latrobe, second Architect of the Capitol, gave a detailed account of the Aquia Creek sandstone in an address to the American Philosophical Society. He listed the components of the stone as sand:

... generally sharp; clay, in nodules, . . . rounded pebbles of quartz, sandstone, and granite; . . . pyrite or lumps of marsh mud mixed with sulphat (sic) or sulphuret of iron, efflorescing in the air; nodules of iron ore in sand

... [which] . . . dissolve in air and water, and stain the stone disagreeably . . .; wood . . . from trunks and branches of trees of large size, to small twigs . . . at places entirely carbonized, or the wood carbonized and the bark fibrous so that it appears as a net, or the bark fibrous and the wood friable, or the wood replaced by pyrite, which effloresce in air . . . the color of the stone varies from white to a dark rusty tint . . . the degree of hardness is very various. When moderately hard, its fracture is rough and irregular, when very hard, concave and even, when breathed upon, it has a strong earthy, and somewhat hepatic smell.

Latrobe pointed out that the size of the sandstone blocks sent to Washington was limited to 4 tons because of transportation difficulties. The best quarry was 2 miles southwest of Aquia Creek, where the rock contained no joint ". . . horizontal or perpendicular, and columns of any size, not exceeding 15 feet in diameter, might be got out of it, if they could afterward be removed . . ." The stone was used successfully in the construction of the Capitol and other early public buildings, but it was soon found that the stone was poorly cemented, and much of it had to be painted or replaced soon after it was installed.

Aquia Creek sandstone was also used in the boundary stones of the District of Columbia. The cornerstone marking the southern limit of the Federal City was set in place by Major Pierre Charles L'Enfant, the planner of the city of Washington, at Jones Point, Alexandria, Virginia, in April 1791. This stone and all but a few of the 40 original boundary stones of the 10-mile-square District may be seen at or near their original locations. The sides are engraved to show the jurisdiction of the United States and of the

States of Virginia and Maryland, the year, and the magnetic declination of the compass. Some of these stones are badly weathered, even though they are only 4 feet long by 1 foot square and therefore small enough to have been cut from the hardest and soundest part of this "exceedingly various" Aquia Creek sandstone.

The best places to see the stone as it was used indoors are in the older parts of the Capitol and the Old Patent Office, between 7th and 9th Streets and F and G Streets NW. The sandstone gallery of the Old Patent Office, with its plain squat columns, is particularly impressive. In the Capitol Building, Aquia Creek sandstone may be seen in the walls and columns of the rooms adjoining the rotunda. Latrobe's graceful Little Rotunda tobacco column colonnade in the Senate wing on this floor is especially attractive. Downstairs, the simple Doric sandstone columns of the crypt have a brownish cast, while the famous cornstalk columns in a nearby entrance hall are decidedly gray. Latrobe was especially proud of his original design for these six small cornstalk columns, but even for these he was unable to obtain unflawed stone from the Aquia Creek quarry.

An outstanding example of Aquia Creek sandstone still in use outdoors is the original section of the Old Patent Office. This part of the building, with its pedimented Doric portico copied from the Parthenon and built between 1836 and 1840, was designed by W. P. Elliott and was executed by Robert Mills, who served for a time as Architect of Public Buildings. The rest of the building, which was built during the 1850's and 1860's, is of marble from Cockeysville, Maryland, in the Piedmont province. On each facade there is a marble portico to match the older sandstone portico on the south. The warm brownish tones of the sandstone contrast with the cold grays and whites of the marble. On the whole, the flaws in this sandstone are minor. They have been repaired, and the facade and the great portico look reassuringly sound.

The part of the Treasury Building built by Mills—the middle of the east facade along 15th Street NW., with its long Ionic colonnade, and the central corridor—was completed in 1842. The other wings, which are of Maine granite, were built between 1855 and 1869. The columns of the later wings are granite monoliths, quarried on Dix Island, Maine, and brought to Washington in sailing vessels. Each of these 30-ton columns was set in place by block and tackle and a team of 16 oxen. The columns were designed by Thomas U. Walter, who was also the Architect of the Capitol, and under whose stewardship the great iron dome and wings of the Capitol were built. For years the east facade of the Treasury with its sandstone columns stood in incongruous contrast to the gray granite of the newer wings. Finally, in 1907, the sandstone facing and the columns of the east front were replaced by granite from Milford, Massachusetts, which closely resembles the Maine granite. The weathered sandstone drums of the original columns were placed in the landfill for the new ground of the Lincoln Memorial.

Poor-quality Aquia Creek sandstone was used in the Capitol gatehouses and gateposts built by Charles Bulfinch about 1829. These structures show how "treacherous" this stone can be when exposed to the elements. They were moved from the Capitol grounds in 1874. Some are on Constitution Avenue near the Washington Monument; one gatehouse and three gateposts are located at 15th Street and Constitution Avenue NW., and another gatehouse farther west at 17th Street NW. Two more of the gateposts are in Fort Totten Park in northeast Washington.

DEPARTMENT OF THE INTERIOR

U. S. GEOLOGICAL SURVEY

**Federal District Boundary Markers in Northern Virginia:
Condition and Preservation Issues**

by

Elaine S. McGee

U. S. Geological Survey, Mail Stop 959, Reston VA 22092

Open-File Report 94-592

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code.

1994

Federal District Boundary Markers in Northern Virginia: Condition and Preservation Issues

Background

The capital of the United States of America was established on 100 square miles of land ceded by Maryland and Virginia to the Federal government in 1790. In 1791 and 1792 the new Federal area was surveyed and marked with gray sandstone boundary markers, typically four feet long and one foot square in size, that were taken from ledges at the Aquia Creek quarry located in Stafford County, Virginia. The boundary markers were placed at one mile intervals around the perimeter of the Federal area, beginning at Jones Point in Alexandria, Virginia at the southern corner of the area.

In 1846, the part of the District located south and west of the Potomac River was ceded back to Virginia. Thus, fourteen of the original markers for the Federal District boundary are located in Northern Virginia. Over the years, responsibility for maintenance of the boundary markers, particularly those in Northern Virginia, has been uncertain (Terman, 1972). However, from 1915 to 1920 various chapters of the Daughters of the American Revolution (DAR) located, restored, and fenced most of the stones. In 1963, the National Park Service, who had responsibility for the Boundary stones along the Maryland - District line, determined that when the Federal land was retroceded to Virginia in 1846, it included the boundary stones so the National Park Service was not responsible for maintaining or protecting the stones that were located in Virginia (Terman, 1972). Through the efforts of the Daughters of the American Revolution, the Federal District Boundary markers were placed on the National Register of Historic Places in 1991.

In 1994, the Northern Virginia Boundary Stones Committee (NVBSC) was formed at the invitation of, and with staff support from the Northern Virginia Planning District Commission. One of the objectives of the Northern Virginia Boundary Stones Committee is to develop a long term plan for the preservation of the fourteen original Federal District survey markers located in Northern Virginia. The committee asked me to speak in general about the Aquia Creek sandstone and about stone preservation issues. As a mineralogist-petrologist with the U.S. Geological Survey, I have been studying stone deterioration due to acid rain and air pollution. I am also working with the National Park Service on their on-going preservation projects at the Lincoln and Jefferson Memorials in Washington D.C. On June 28, 1994 I attended a meeting of the Northern Virginia Boundary Stones Committee in order to provide background information about features and weathering characteristics of the Aquia Creek sandstone and to speak generally about stone preservation issues. On July 21, 1994 I joined several members of the Northern Virginia Boundary Stones Committee in a field trip to examine the condition of the stones. This report summarizes my comments at the committee meeting, summarizes my observations of the condition of the boundary stones, and suggests elements to include in plans for the preservation of the markers.

Aquia Creek sandstone

The Aquia Creek sandstone was quarried from the late 1700s to the early 1800s in Stafford County, Virginia, at a site about 40 miles south of Washington, D.C., where Aquia Creek joins the Potomac. The sandstone was used for many of the early Federal buildings, most notably the White House and the center portion of the U.S. Capitol building. The Aquia Creek sandstone is described in some detail by Withington (1975). McGee and Woodruff (1992) also describe characteristics of the stone and discuss some of the typical weathering features that it exhibits.

Characteristics: The sandstone is light gray to buff in color and it is mostly composed of quartz (SiO_2) with some potassium feldspar (KAlSi_3O_8) and clays. The cement that holds the quartz (sand) grains together is a silica composition cement, thus it is more resistant to the effects of acid precipitation than a sandstone that contains carbonate cement. Stone from the Aquia Creek quarry was not entirely homogeneous. Some of it was strong and of good quality, but some of the Aquia Creek stone taken from the quarry was of such poor quality that its use as a building material was discontinued in the late 1830s. Most of the sand grains in the stone are equally sized (averaging about 0.5 mm in diameter), but in some layers of the stone rounded pebble inclusions may be 1 to 3 cm in diameter. Pockets of clay have also been mentioned in the literature describing this Aquia Creek stone.

Weathering: Some typical weathering features of this sandstone include pock marks (rounded holes) where the pebble inclusions have come out, accentuated layers (slightly harder lineations of red-orange grains), and spalling of portions of the stone. The spalling occurs because the clay in the stone expands when it gets wet and causes layers of the stone near a clay concentration to be gradually pushed outward until the layer breaks off. Hard black surficial crusts are another typical weathering feature that may develop on the stone in areas where there is air pollution. These crusts are amorphous on a microscopic scale and they probably form as a reaction between the stone, dirt, and air pollutants. The crusts may pose a problem for preservation because if they adhere tightly to the stone surface they may be difficult to remove without damaging the stone underneath.

Preservation / Treatment

Before any preservation or treatment effort is made on the boundary stones, it is important to identify and evaluate the problems of stone deterioration that need to be addressed. Such an evaluation will help guide the selection of an appropriate treatment that takes into consideration the stone characteristics, the deterioration problems, and the exposure of the stone to weather and pollution. Three main categories of treatment are likely to be considered: cleaning, chemical consolidation, and repair or replacement of the stone.

Cleaning: Stone surfaces may be washed, preferably by the gentlest means possible, such as water alone, to remove accumulated dirt, grime, and crusts. Care

needs to be taken to choose a method that will preserve the stone surface and its markings.

Chemical consolidation: Loose, granulated surfaces can be bound or protected by surface coatings or by injecting an organic or organic-inorganic complex into the pore spaces of the stone. This type of treatment may pose several dangers to the stone in that the consolidant may not bind well with the stone, or if not carefully selected for the stone, the treatment may accelerate damage to the stone. However, some Europeans working in stone preservation have reported successes on sandstones using alkoxysilanes.

Repair or replacement: Where larger pieces of stone are missing or loosened and may come off, the stone can be repaired with epoxy or with a combination of pinning and epoxy. Replacement stone, if necessary, should be as similar to the original as possible.

It is likely that not all of the stones will require the same treatments, and it is possible that some stones may presently need no treatment. Any information that is known about previous treatments to the stone will be valuable when the condition of the stones is evaluated and may affect the treatment decisions that are made. Another important component of a preservation program should be to consider monitoring the condition of the stones and developing a maintenance plan for them.

The National Park Service (NPS) provides guidelines for preservation of historic structures through their Preservation Assistance Division (located at 800 North Capital St, Washington, D.C.) and through published guidelines (Preservation Assistance Division, 1989; U.S. Department of Interior, 1992). The NPS policy for preservation emphasizes the historic value of the material and architectural features and recommends repair rather than replacement if possible. NPS policy also recommends that any surface cleaning should be done by the gentlest means possible.

Features of the Boundary Markers

Two sizes of stones were used for the original markers: the corner stones were specified to be five feet long and one foot square and the markers, that were placed at one mile intervals, were four feet long and one foot square (Terman and Terman, 1972). The markers and corner stones were placed so that two feet of the stone was buried and the remaining two (or three) feet was above ground. The buried portion of the stone was roughly hewn. The portion of the marker or corner stone above ground had a sawn finish and the top was cut with a bevel edge. A standard inscription (National Capital Planning Commission, 1976) was placed on each of the four sides (Fig. 1) of the marker; the cornerstone inscriptions differed from the mile marker inscriptions (Terman and Terman, 1972). The Virginia boundary markers were placed in 1791. A photographic record was made of the boundary stones in 1908 (Woodward), and between 1915 and 1920 various chapters of the Daughters of the

American Revolution restored and fenced most of the boundary stones (Terman and Terman, 1972). In 1952 Arlington County appropriated money to have the 10 stones on its borders coated with a preservative called "Weatherlox" (Terman and Terman, 1972).

There are fourteen boundary markers in Virginia. Two of these are cornerstones. The South Cornerstone (the first stone in Virginia) is located at Jones Point in Alexandria and the West Cornerstone is located in Falls Church. The remaining markers are numbered consecutively along the sides of the square formed by lines between the cornerstones and they are designated by the compass direction for the side of the square. Thus, markers located between the South and West Cornerstones are designated as "Southwest #" with # being a number from 1-9; markers between the West Cornerstone and the North Cornerstone are designated as "Northwest #". Along the northwest side of the original boundary, only markers numbered 1-3 are located in Virginia.

Current Condition of the Boundary Markers

On our trip to examine the boundary markers, we saw 13 of the 14 markers that are located in Virginia. We photographed, measured, recorded the legible portions of the inscriptions, and visually examined the stones. The fences that surround the markers make it difficult to examine details on the stones very closely. We did not take samples from any parts of the stones.

The boundary markers appear to have been made of some of the best quality and strongest stone from the Aquia Creek quarry. They are solid and mostly intact; some have minor pebble inclusions, but pockets of clay that were such a problem for the Aquia Creek stone at other sites are not present in the boundary markers that we observed. Missing chips, rounded edges, and missing corners and portions of the top or sides are typical deterioration features on the stones. Cracks are present in some of the stones, but they are not particularly severe or common. Many portions of the inscriptions are still legible; where the face of the stone is mostly intact, the letters of the inscription are still quite crisp. Darkening of the surfaces of the stones is fairly common and seems to be especially prominent on broken, uneven surfaces. Organic growth, such as moss, algae, or fungus is present on many stones, as are paint drips that probably resulted from maintenance work on the fences that surround the markers.

The following notes summarize some of the observations made about the characteristic features and current condition of each of the boundary stones. Features that might be relevant to future preservation of the markers were noted in particular.

South Cornerstone: This stone is located in a small concrete enclosure that is part of a seawall constructed at the Jones Point Lighthouse. The marker is visible from the river bank, but it is not accessible at high tide. Most of the original surfaces of the stone are missing, the edges are so rounded and pitted that it is difficult to discern the original shape and size of the stone. The lower portion of the stone has

been undercut compared to the upper portion. Although most portions of the inscription are gone, some letters are still visible and they appear to have some sharp edges. The stone has some algae or other organic growth on the surfaces.

Southwest 1: The overall shape of this stone is still intact. Most of the surfaces are blackened and there is some organic growth on chipped portions of the surface. Pitting and missing chips are concentrated on the edges and there is a small vertical crack that cuts across the top and at least one side of the stone. The inscriptions are somewhat obscured by the surficial coating, but the edges of the inscriptions are still crisp.

Southwest 2: This stone appears very different in size, shape, and surface finish compared to the other boundary markers. It is most likely not an original stone. (Moore and Jackson (1979) note that the Southwest 2 marker is one of the two markers that have been lost from the original 40.) The stone appears to be a sandstone, but close examination of the stone is hindered by the surrounding fence, and surficial blackening makes it difficult to see texture and grains in the stone. There are many slightly elongated grooves on the vertical faces of the stone that resemble pitting but may be a tooling mark finish that was applied to the stone. Closer examination of this stone might be necessary to determine if it is sandstone from the Aquia Creek quarry and to determine if the irregular surfaces on the faces of the stone are weathering features or applied features.

Southwest 3: Most of the edges on this stone are rounded and pitted. Two of the four vertical edges are worn or broken off and the other two edges are only partly remaining. A few areas of the stone surface are blackened, mostly on the rounded top and in the pitted and broken areas. There are drips of paint and possibly primer on the stone. Only in the broken areas is the graininess of the sandstone apparent; on the original vertical faces the inscriptions are distinct and the stone surface appears to retain a smooth finish.

Southwest 4: All that remains of this marker is a rounded stub with no apparent original surfaces. The stone may be a sandstone, but it is difficult to be sure because the pitted surface is almost completely covered with a light colored coating that looks like paint.

Southwest 5: The size and shape of this stone is not like the other markers. The stone appears to be a sandstone. It resembles the Aquia Creek stone in color, in texture, and in some of the slight pitting that is visible. There are no visible inscriptions. The surfaces of the stone appear to be slightly rougher than the finished surfaces on the carved boundary markers. There is some organic growth like moss or algae on parts of the stone surface.

Southwest 6: This stone has several large patches and crack repairs that were poorly done. The edges and top surfaces of the stone are rounded, pitted, and blackened while the vertical faces retain much of the original finish and inscriptions. Some of the faces have rounded indentations like pock marks that are slightly blackened compared to the rest of the face.

Southwest 7: The top and edges of this stone are rounded but most of the vertical faces of the stone are relatively intact. The stone is blackened where it is

rounded and broken; the intact vertical faces remain light in color and portions of the inscription are still quite visible. There is a large spot of white paint near the top of one of the broken, rounded sides of the stone.

Southwest 8: About 6-8 inches of the unfinished base of this marker is exposed. The top and edges of the marker are rounded, pitted, and chipped and the uneven surfaces are blackened. Some portions of the original vertical faces are intact, retain a light color and smooth surface finish and still have readily visible inscriptions. Pock mark indentations are common on both broken and finished surfaces, and pebble inclusions are visible in some broken areas of the stone.

Southwest 9: Only a portion (perhaps half, but it is uneven) of the original 2 feet of this stone is exposed. The original smooth surface finish of the faces and part of the top of the stone is preserved. The inscriptions are very crisp. There are no blackened areas on the surface of this stone but there are some lichens and moss or algae present.

West Cornerstone: A large portion comprising one corner and most of two sides is missing on this marker. Also, although this marker is a cornerstone, its size is like one of the mile marker stones. The vertical and top edges are slightly rounded and have some pitted indentations. The inscriptions are still crisp where the vertical faces are intact. There is little surficial blackening on this stone, although there are organic accumulations on some of the broken surfaces.

Northwest 1: A portion of one side and much of the top part are missing on this marker. The vertical edges are worn and broken but three of the faces of the stone are nearly intact, with crisp inscriptions. The stone is slightly blackened on the broken areas; it has some lichen (and possibly algae or moss) growths and a few drops of paint on some surfaces. There are some carved letters on one face of the stone that are not part of the original inscription. Part of the unfinished base is exposed.

Northwest 2: The top of this marker is rounded, the edges are also rounded with indented pits on the edges and faces. One face of the stone is in good condition, with the inscription clearly visible; the other faces are pitted and somewhat broken. Blackening of the stone surface is concentrated on the broken areas; there are growths of moss or lichens on some surfaces too.

Northwest 3: We did not examine this stone because it is located on private property in a fenced yard. The owners of the property were not at home, so we were not able to ask permission to see the stone.

Although all of the stones appear to be solid, there is a range to their condition that probably reflects the amount and type of care that each marker has received. The most common feature of deterioration is rounding of the top and broken or pitted vertical edges. Curiously many of the faces seem to be at least in partially good condition; where the stone has not been broken, the inscriptions remain quite visible. There is a range in the surface coloration of the stones, particularly on the finished faces compared to any broken or rough surfaces. Some of the range of color may be due to natural variations in the color of the stone, but some of the marker faces (for

example on Southwest 6) appear unusually yellow. It is possible that the "Weatherlox" that was applied to some of the markers in the 1950s has contributed to the variations in the color that we see now.

Pitting or slight pock mark indentations are much more common on the markers than are cracks or surficial discoloration. The pits may come from loss of pebble inclusions that were an original part of the stone. However, pebble inclusions are not a frequent feature on the stones, perhaps because the ones closest to the stone surface have already disappeared as the stones weathered.

There is organic growth such as moss, lichen, and algae on many of the markers, but most of the growths are on broken or rough areas of the stone surface. Plant growth can contribute to stone deterioration, but this sandstone is likely to be resistant to deterioration from organic acids that plants produce as a product of their growth.

Overall, the stones do not appear to be weathering at a very fast rate. The surfaces do not feel grainy and crumble as you would expect if the surface was severely deteriorating. Where the stone surface is rough, the blackened coating does not appear to be contributing to disaggregation of the stone. Cracks are rare, and based on the general appearance of the stones and the cracks, the ones we saw may have been there for a long time. Although small and large pieces of the markers were missing in many places, loose pieces or crumbling stone is not evident on any of the markers. There is some evidence that a lack of maintenance has contributed to problems for the stones, such as paint drips (several stones: SW-3,4, and NW-1), marks from recent vandalism (SW-7), and poorly done repairs (SW-6).

Recommendations

The following recommendations should be considered as the Northern Virginia Boundary Stones Committee begins to evaluate various preservation actions to take for the Federal District Boundary Stones.

- Examine the stones and document their current condition. Evaluate their condition and the rate of changes by referring to earlier documentation that is available about the condition of the stones. Comparison and examination of photographs, such as those taken by committee members, Woodward (1908), and the Daughters of the American Revolution can help you identify large physical changes in the stones. Key elements to look for are: Were cracks or missing pieces that are visible now, present earlier? Can you track changes in any cracks? Can you see variations in the stone faces that occur with time?

- Ensure that the markers are protected when maintenance work is done nearby. Some particular concerns are: protecting the stones from paint and primer when the fences that surround them are maintained, protecting the stones from lawn maintenance, and protecting the stones if road or utility improvements are made nearby.

References

- McGee, Elaine S. and Woodruff, Mary E., 1992, Characteristics and Weathering Features of Sandstone Quoins at Fort McHenry, Baltimore Maryland. U.S. Geological Survey Open-File Report 92-541, 10p.
- Moore, John E. and Jackson, Julia A. (eds.), 1989, Boundary Stones of the District of Columbia. *in* Geology, Hydrology, and History of the Washington, DC Area. American Geological Institute, Alexandria, Virginia. 114p.
- National Capital Planning Commission, 1976, Boundary Markers of the Nation's Capital: A Proposal for Their Preservation and Protection. National Capital Planning Commission Bicentennial Report, Washington, D.C. 45p.
- Preservation Assistance Division of the U.S. Department of Interior National Park Service, 1989, The Secretary of the Interior's Standards for Rehabilitation: and Guidelines for Rehabilitating Historic Buildings. Government Printing Office, Washington, D.C., 0-230-394, 59p.
- Terman, Mark J., 1972, The "Jurisdiction Stones" and Cornerstone Park. Unpublished manuscript; copy available at the Mary Riley Styles Public Library in Falls Church, Virginia.
- Terman, Mark J. and Terman, Maurice J., 1972, The "Jurisdiction Stones" and Cornerstone Park. *Echos of History*, v 11, n 1, p 1, 14-16.
- U.S. Department of Interior National Park Service, 1992, The Secretary of the Interior's Standards for the Treatment of Historic Properties 1992. U.S. Department of Interior National Park Service, Cultural Resources and Preservation Assistance publication.
- Withington, Charles F., 1975, Building Stones of our Nation's Capital. U.S. Geological Survey, INF 74-35, 44p.
- Woodward, Fred E., 1908, With a camera over the old District boundary lines. Columbia Historical Society, Records, v 11, p 1-15.

Appendix IV

*The Secretary of the Interior's 'Standards for Rehabilitation' and Guidelines for Rehabilitating Historic Buildings**

'Rehabilitation means the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values.'

The following 'Standards for Rehabilitation' shall be used by the Secretary of the Interior when determining if a rehabilitation project qualifies as 'certified rehabilitation' pursuant to the Tax Reform Act of 1976 and the Revenue Act of 1978. These standards are a section of the Secretary's 'Standards for Historic Preservation Projects' and appear in Title 36 of the Code of Federal Regulations, Part 1208 (formerly 36 CFR Part 67).

1. Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.

2. The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.

3. All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.

4. Changes which may have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired

significance in their own right, and this significance shall be recognized and respected.

5. Distinctive stylistic features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.

6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.

8. Every reasonable effort shall be made to protect and preserve archeological resources affected by, or adjacent to any project.

9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural or cultural material, and such design is compatible with the size, scale, color, material, and character of the property, neighborhood or environment.

10. Wherever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

*By courtesy of the U.S. Department of the Interior, Heritage Conservation and Recreation Service, Washington D.C. 20243 (January 1980 rev.).

Preservation Assistance Division Documents

The documents received from the NPS Preservation Assistance Division have been reviewed. Those that will provide some insight, information or concerns that we may need to address are listed below. They fall into six categories: general information on sandstone; preservation problems and treatments; substitute materials; cleaning; waterproof coatings and grants.

General information on sandstone:

"Maintenance and Repair of Architectural Sandstone" by Michael Lynch and William Higgins

Preservation Problems and Treatments:

"A Glossary of Historic Masonry Deterioration Problems and Preservation Treatments" compiled by Anne E. Grimmer

Substitute Materials

"Preservation Briefs 16: The Use of Substitute Materials on Historic Building Exteriors" by Sharon C. Park

Preservation Tech Notes, Masonry Number 1. "Substitute Materials: Replacing Deteriorated Serpentine Stone with Pre-Cast Concrete" by Robert Powers.

Most of the article does not apply. However, there is a portion of page 2, column 2, subtitle "Solution" that addresses considerations when thinking of using a substitute material.

Cleaning:

"Preservation Briefs 1: The Cleaning and Waterproof coating of Masonry Buildings" by Robert Mack

"Preservation Briefs 6: Dangers of Abrasive Cleaning to Historic Buildings" by Anne Grimmer

"Preservation Tech Notes, Masonry Number 3: Water Soak Cleaning of Limestone" by Robert Powers.

Although not exactly on point as it concerns a limestone building, it does contain an excellent description of the water soak method of cleaning masonry.

Waterproof coatings:

"Preservation Briefs 1: The Cleaning and Waterproof coating of Masonry Buildings" by Robert Mack

Grants:

Historic Preservation Fund Grants-in-Aid Factsheet

-submitted by Phyllis Wolfteich



United States Department of the Interior



NATIONAL PARK SERVICE

P.O. Box 37127

Washington, D.C. 20013-7127

IN REPLY REFER TO:

HISTORIC PRESERVATION FUND GRANTS-IN-AID FACTSHEET

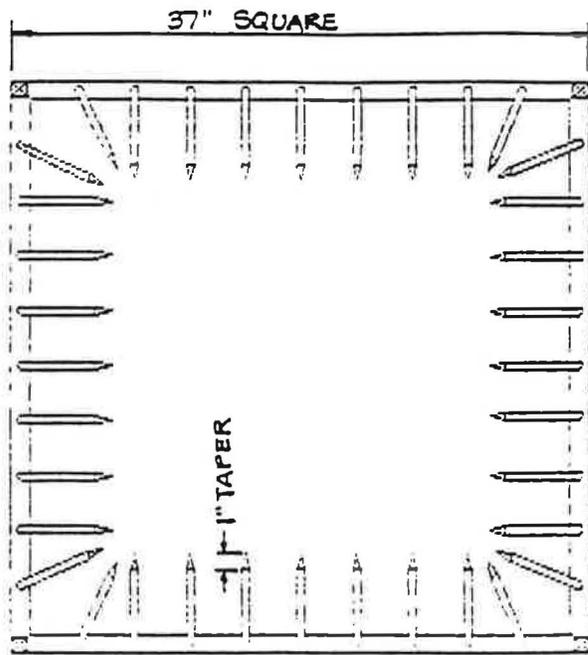
The National Historic Preservation Act authorizes the Secretary of the Interior to grant funds to the States and Territories and the National Trust for Historic Preservation for the purposes of preparing comprehensive statewide historic surveys and plans, and for preserving and protecting properties listed in the National Register of Historic Places. Funds may be provided by the States for subgrants to private organizations, individuals, or governmental subdivisions for purposes specified in the Act. Enclosed is a leaflet that explains the National Register program in more detail.

In each State, the selection of preservation activities for financial assistance is determined by the State Historic Preservation Officer, appointed by the Governor.

The Historic Preservation Officer should be contacted regarding the National Register nomination process, the State's application procedures, and Federal and State requirements for grants. It should be noted that the portion a State receives of the \$31 million appropriated in fiscal year 1994 allows very little, if any, money for subgrant projects and not every State may be able to respond to such requests. The Historic Preservation Fund grants may be used to assist the costs of architectural plans and specifications, historic structure reports and engineering studies which are necessary to restore properties listed on the National Register of Historic Places, and the costs of acquiring or restoring historic properties. No funding for historic preservation loans, or for direct grants, has been appropriated.

State Historic Preservation Officers also make recommendations to the National Park Service on the certification of work done with nonfederal funds to rehabilitate historic commercial properties for tax benefits under Section 48(g) and 170(h) of the Internal Revenue Code of 1986. These benefits include an investment tax credit for the rehabilitation of historic commercial, industrial, and rental residential buildings. We have enclosed a leaflet explaining these preservation tax incentives.

Enclosures
wp/factsheet.94



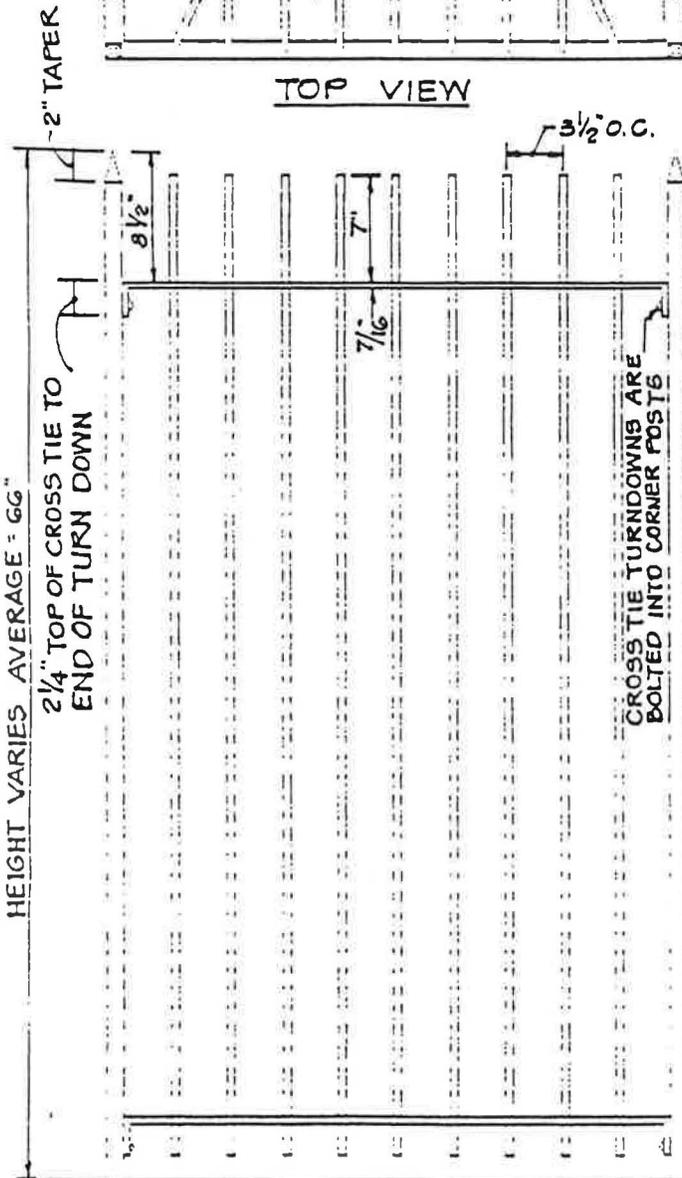
TOP VIEW

CROSS TIES ARE SET WITH OUTSIDE EDGE FLUSH TO FACE OF CORNER POSTS

TYPICAL CROSS TIE

TOP VIEW
7/16" THICK x 1 1/4" WIDE

TYPICAL DRILL HOLE FOR ROUND PICKET



SIDE VIEW

CORNER POSTS ARE 1" SQUARE (SOLID)
DISTANCE SET INTO GROUND UNKNOWN
POSTS ARE SET IN CONCRETE

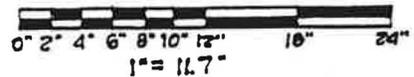
PICKET ROUNDING BEGINS 1/4" ABOVE CROSS TIE

TYPICAL PICKET

SIDE VIEW
1/2" ROUND (SOLID)

CAGES ARE PAINTED EITHER LIME GREEN OR BLACK

SCALE



TYPICAL BOUNDARY STONE CAGE

LONG FENCE

P.O. BOX 220429
 Chantilly, VA 22022-0429
 (703) 471-0960
 Fax (703) 478-3545

FACSIMILE COVERSHEET

DATE: 4/18/95 NUMBER OF PAGES: 1

Please deliver the following to:

Charles Smith

From: Paul Rose

Re: Northern Va Boundary Stone Enclosures

Message: Budget pricing FOR replacement and repair of iron enclosures

Replacement: Remove + haul existing enclosure
Install 37" x 37" x 60" ± 4 iron enclosure
per enclosed cut sheet. Iron to be painted
with one coat primer, one coat finish paint
Total price per enclosure \$ 2200.⁰⁰

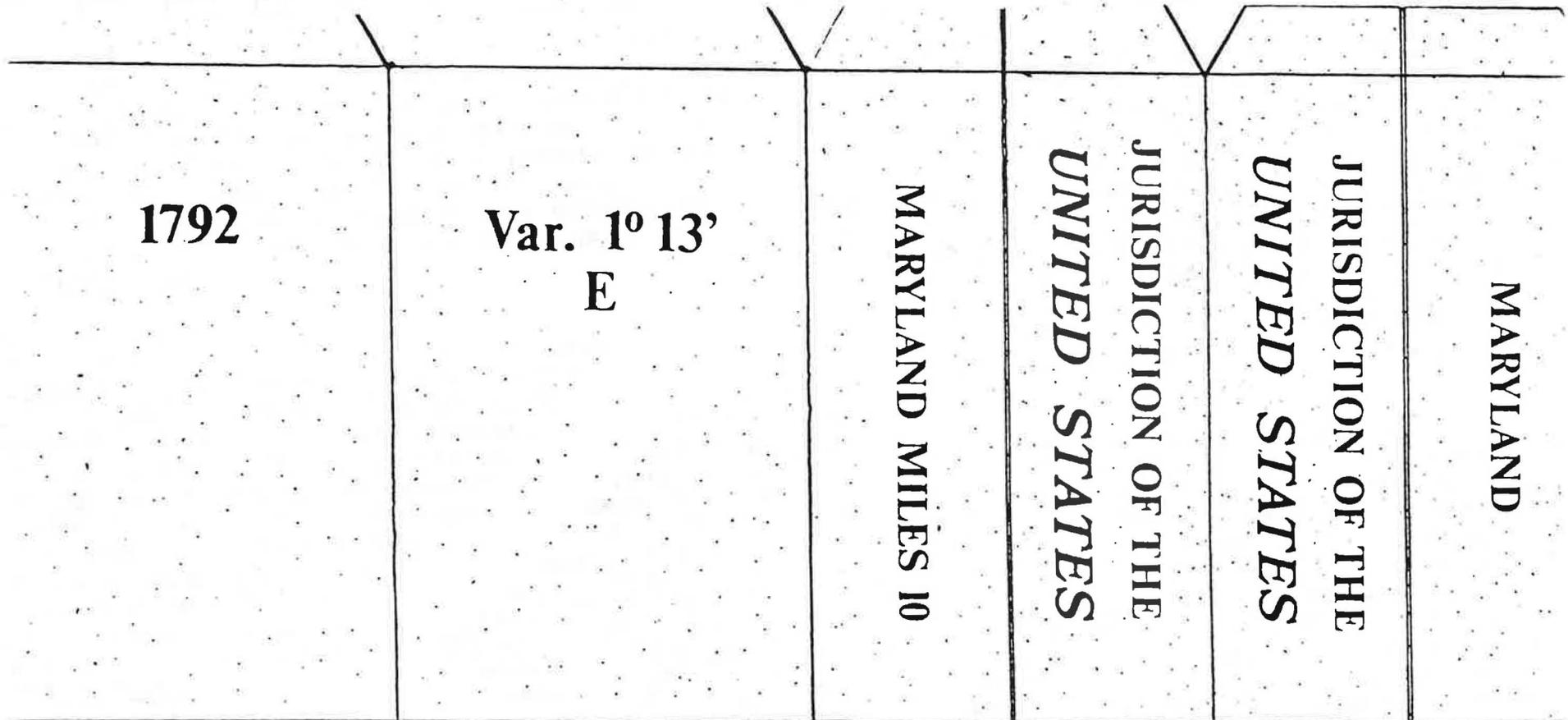
Repair: Cut existing posts flush with grade.
Transport enclosure to refinisher. All paint
to be stripped, rust to be removed for a paintable
surface. Prime and paint enclosure. Reinstall (weld)
enclosure on new posts set in 10" x 30" D concrete
footers.

Total price per enclosure \$ 2500.⁰⁰

If there are any problems receiving this document(s), please call
 (703) 471-0960.

Our fax number is (703) 478-3545

Paul H. Rose, Jr.
 Paul H. Rose, Jr.
 Virginia Division Commercial Manager



THE BOUNDARY STONES:

The original boundaries of the Federal Territory were marked with forty stones set at one mile intervals. Fourteen of the monuments were placed along Virginia's new border during 1791 and twenty-six upon Maryland's in the following year.

The boundary stones were approximately one foot square with beveled tops and set to protrude two feet above the ground. They were made of brown sandstone from quarries leased by the Federal Government at Acquia Creek in Stafford County, Va. Inscriptions on the stones include the year set, magnetic variation at that place and time, distance from the previous corner, and the name of the territory and adjoining State on the appropriate face. Each stone is identified based upon its location. The corners are called the North, East, South and West points. Intermediate stones along each side of the boundary are numbered clockwise from the previous corner.

The four faces of a Maryland corner stone are diagramed above.



**DISTRICT OF COLUMBIA BOUNDARY
BICENTENNIAL COMMITTEE**

P. O. Box 9300
Silver Spring, Maryland 20906

A COOPERATIVE PROJECT BY:

- The American Congress on Surveying and Mapping*
- The National Society of Professional Surveyors*
- The American Association for Geodetic Surveying*
- The Surveyors Historical Society*
- The Maryland Society of Surveyors*
- The Virginia Association of Surveyors*
- The Potomac Chapter of the Maryland Society of Surveyors*
- The Mount Vernon Chapter of the Virginia Association of Surveyors*

THE COMMITTEE:

The District of Columbia Boundary Bicentennial Committee was formed to plan events and activities to commemorate the 200th Anniversary of the survey establishing the boundaries of our nation's capital. The committee, representing the professional organizations listed in this brochure, is comprised of volunteers employed in both the private and public sectors.

COMMITTEE OBJECTIVES:

1. Plan a re-enactment survey and dedication ceremony.
2. Recover the remaining boundary stone monuments.
3. Locate the stones by a Global Positioning System (GPS) survey.
4. Repair or restore many of the protective iron cages placed around the stones by the Daughters of the American Revolution.
5. Publish the GPS results and a history of the original survey.

CELEBRATION:

A re-enactment survey and dedication ceremony are planned to take place at the initial or south point of the survey. The celebration, co-sponsored by the Office of Historic Alexandria, is scheduled for Sunday, March 24, 1991 at Jones' Point Park in Alexandria, Virginia. This event will coincide with the American Congress on Surveying and Mapping's 50th Anniversary celebration during the ACSM-ASPRS/Auto Carto 10 Annual Convention and Exposition being held, March 24-29, 1991 in nearby Baltimore, Maryland.

PROJECT FUNDING:

A budget of \$90,000 has been established to complete the committee's objectives. Funding for the project is solely dependent upon donations. Anyone interested in supporting this historic event should send their contributions to the District of Columbia Boundary Bicentennial Committee, P.O. Box 9300, Silver Spring, Maryland 20906. Commemorative souvenirs are offered to those who donate certain amounts to this endeavor. Contact the committee for details.

THE FEDERAL TERRITORY:

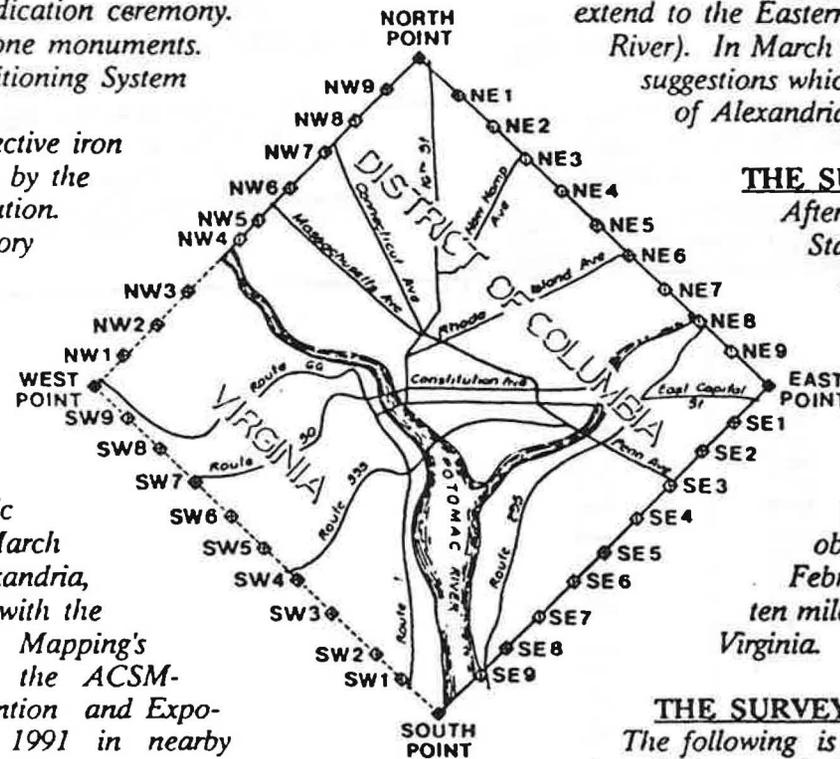
The Residence Act of July, 1790 authorized the establishment of a permanent seat for the United States Government to be located on the Potomac River. Both Maryland and Virginia had agreed to cede a portion of their lands to the federal government for this purpose. The act assigned the responsibility of selecting a specific ten mile square site to President George Washington. After touring the area of the river, he recommended to include land on both sides of the Potomac encompassing Georgetown in Maryland and to extend to the Eastern Branch (now known as the Anacostia River). In March of 1791, Congress adopted Washington's suggestions which were amended to also include the City of Alexandria in Virginia.

THE SURVEY:

After the site had been selected, Secretary of State Thomas Jefferson sent a letter in February of 1791 to Major Andrew Ellicott, a surveyor in Philadelphia, Pennsylvania, requesting that he begin a survey of the Federal Territory at once. Benjamin Banneker, a free black astronomer from Ellicott Mills, Maryland was selected to assist in making celestial observations. The survey was begun, February 12, 1791 at the south point of the ten mile square on Jones' Point near Alexandria, Virginia.

THE SURVEY CERTIFICATE:

The following is a portion of the certificate Major Ellicott issued, January 1, 1793 upon completing the survey:
"...These lines are opened, and cleared forty feet wide, that is twenty feet on each side of the lines limiting the territory: And in order to perpetuate the work, I have set up squared mile stones, marked progressively with the number of miles from the beginning on Jones' Point, to the West corner, thence from the West corner to the North corner...to the East corner and from thence to the place of beginning on Jones' Point: except in a few cases where the miles terminated on declivities...the stones are placed on the first firm ground, and their true distances in miles and poles marked on them..."



SUGGESTED SIGNS FOR WEST CORNERSTONE PARK

1. Suggested sign (metal or painted wood) that is applicable to all 40 boundary stone sites:

ORIGINAL D.C. BOUNDARY STONES

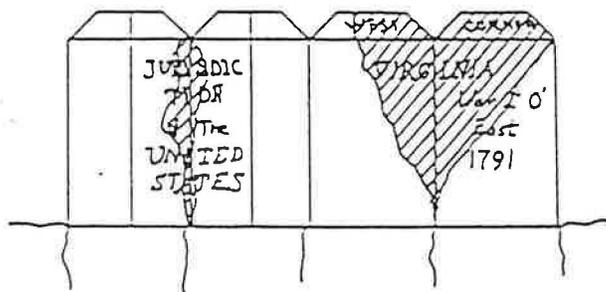
This stone is one of 40 milestones erected in 1791-92 along the original boundary line of the 10-mile square territory selected as the permanent site of the Federal Government. These stones are the first historic monuments of the District of Columbia. Such a territory was specified in the Constitution in 1787, and the necessary land was ceded by Maryland in 1788 and Virginia in 1789. The authorization was given by Congress in 1790, and the specific area was chosen by President Washington in 1791. The line was surveyed and the stones were erected under the supervision of Major Andrew Ellicott. The Virginia part of the District of Columbia and its 14 stones were retroceded to the State by Congress in 1846.

2. Suggested sign (metal or painted wood) that is applicable only to this specific boundary stone site:

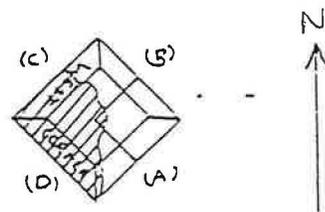
WEST CORNERSTONE

This stone was erected in 1791 to mark the west corner of the 10-mile square Federal District. The Falls Church Chapter of the Daughters of the American Revolution erected the protective fence in 1952. Arlington County, the City of Falls Church, and Fairfax County established the surrounding park in 1956. The white blocks marking the original boundary line were added during the renovation of the park by the City of Falls Church and Boy Scouts of America Troop 186 in 1971. The DAR fence was refurbished and rededicated in 1989. The stone was placed on the National Register of Historic Places February 1, 1991, and commemorated by the DAR on May 25, 1991. The cornerstone originally appeared as follows:

View of the four sides:



Top view:



Scale 1:20

