

# *Textile Preservation Associates, Inc.*

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P.O. BOX 606 • SHARPSBURG, MARYLAND 21782 • PHONE (301) 432-4160 FAX (301) 432-8797

## TREATMENT REPORT

Date January 25, 1999

TPA No. 919

Object 1st Regiment Texas Vol., Hoods Army of N. VA.

Catalog No M-21-80

Client Texas State Archives  
1201 Brazos Street  
Austin, TX 78711-2927

Contact Christopher LaPlante  
Phone (512) 463-5467 FAX (512) 463-5436

### REPORT OF EXAMINATION

Object submitted for examination.

### DOCUMENTATION

7 Kodachrome 25, 35mm color slides were taken before and after treatment.  
Analysis: See attached report.

### Description

Size            Leading edge 42"            Fly 42"

The flag is constructed in the pattern of a Confederate battle flag of the Army of Northern Virginia with red cotton/wool quadrants, a blue-green wool cross appliquéd to each side of the fly, and twelve 5 1/2" stars appliquéd to the cross on each side. The stars are arranged with three in each arm. The cross arms were left intact and overlapped in the center. The perimeter is trimmed with a 1/2" orange colored cotton border wrapped around the edge. The leading edge has 37 tack holes spaced approximately 1 1/4" apart that were used for attachment.

## Condition

### Previous Treatment

The flag was previously treated with the Fowler-Richey method of stitching. The treatment consisted of lying the flag on a piece of dyed linen then stitching the flag to the linen with continuous rows of a hexagonal stitch about 3/8ths of an inch apart. This stitching was carried out over the entire surface of the flag with dyed silk threads. The stars were enhanced with radiating rows of couching stitch using a heavier silk thread. This treatment was removed in 1980 by the Panhandle Plains Center.

### Present Condition

The flag has about 10% of the fabric missing. The damage appears to be from use except for the cross which has additional damage from insects. There are numerous holes about 1/2" in diameter that have evidence of burns. They are especially evident in the cross and stars. The quadrants are severely damaged by numerous long slits. These slits were cut in the flag during the previous treatment to alleviate folds that prevented the quadrants from lying flat. The dye of the cross has turned from a blue to a pale aqua green. The red has faded slightly on the obverse. There are extensive 1/8" or less holes over the entire surface of the flag as well as distortions in the fabric created by the previous treatment. There are large holes in the center of each star and out to each point caused by the heavy silk stitches of the radiating lines of the previous treatment.

## REPORT OF TREATMENT

### *Documentation*

1. The flag, as received, was photographed on both sides (see photos 1-2).
2. The fibers, fabrics, and sewing threads were analyzed. Information about the construction of the flag, and any evidence of alterations to the original were noted. Scale drawings were made of the flag and an analysis report prepared. Particle samples were taken for the files.

### *Stabilization*

3. The flag was vacuum cleaned to remove all airborne particles and loose accumulations of soil.
4. The flag was soaked through changes of deionized water to relax the fibers and remove distortions as well as de-acidified it. The initial pH of the water was 4. The pH of the water was monitored and changed as necessary until the flag had reached a neutral state. After three soaks, the flag was removed, blotted to remove excess water, fibers aligned, and the decoration flattened under glass weights and allowed

to air dry.

5. The flag was sandwiched between two layers of appropriately colored Stabiltex<sup>1</sup>, a multifilament polyester crepeline. Blue Stabiltex was used over the cross to restore the color and cherry red over the quadrants. The layers were attached by sewing through the voids. Fragments were aligned and sewn around their perimeter to hold them in place. Care was taken to eliminate sewing through the fabric where possible but in large areas with no damage, the fabrics were secured with random rows of vertical running stitch through all the layers. Sewing was carried out with thread pulled from the Stabiltex. When encapsulation was completed, the blue Stabiltex was cut away from over the stars on the obverse side. The reverse was left intact. The Stabiltex was also cut away from the orange border around the entire perimeter on the obverse only. The flag was photographed on both sides after encapsulation (see photos 3-5).

#### *Preparation for Exhibition*

6. A buffered, acid-free panel<sup>2</sup> was prepared then covered with nonwoven polyester batting<sup>3</sup> and a previously washed, unbleached, airwing grade, fine cotton fabric<sup>4</sup>. The area under the cross was built up with additional batting and fabric to prevent the quadrants from creasing.

7. The flag was attached to the padded panel with one row of stitching across the top.

8. Appropriately colored cotton fabric was be cut to size and attached to the padded panel to fill in the color and restore the appearance of areas damaged by the previous treatment. Damage from use was left apparent. The colored fabric was attached to the panel only. The flag was photographed on the panel (see photo 6).

9. Ultra-violet filtering OP-2 Acrylite<sup>5</sup> was laid over the flag, applying a light pressure to the cross. The quadrants were only partially padded so they could "float" free and not crease. The entire unit was placed in a custom made, decorative aluminum frame, finished with an antiqued gold and an aluminum backing for support.

10. A final photo was taken and a treatment report prepared (see photo 7).

#### **PROGNOSIS**

The object should be exhibited under less than five foot-candles of light. Because any light is damaging, it is recommended that the piece be rotated between exhibit and storage, or covered with a dense cloth when not being viewed. Maximum

effort should be made to reduce the total exposure to light. Care should be taken to avoid aiming lights directly on the case, which can cause a "greenhouse" effect, or heat build up within the unit.

To best preserve the object, the temperature and humidity level should be kept fairly constant, with temperatures of less than 70 degrees Fahrenheit and a relative humidity of 45% plus or minus 5%. Avoid hanging the object against an outside wall, or place spacers between the wall and the frame to prevent humidity transfer.

If this object is ever stored, it can be placed flat or vertical. We recommend storage in the frame, since it is part of the conservation treatment and will provide a more stable environment.

#### HANGING THE FRAME

There are two metal tabs along the top of the frame for hooking onto a screw or bolt. Phillips head screws are holding the back in place.

#### CARE OF THE PLEXIGLAS

The plexiglas is soft and may scratch so care must be taken during handling. Plexiglas should not be cleaned with ammonia based window cleaners. Either plexiglas cleaner should be purchased, or water with a drop of liquid dishwasher detergent can be used along with very soft rags (diapers or gauze). If paper towels are used they should be extremely soft.

Total treatment hours: 83 hours

Signed: Fonda G. Thomsen Date: 1/25/99  
Fonda Ghiardi Thomsen, Fellow AIC,  
Director, Textile Preservation Associates, Inc.

Work on the object was carried out by Diane Kessler, Conservation Technician, Textile Preservation Associates, Inc. under the supervision of Fonda G. Thomsen, Conservator.

Reference list of materials used in the conservation of this object.

1. Stabiltex, a sheer, multifilament, plain weave, polyester: Talas, 568 Broadway, New York., NY 10012 (212) 219-0770.

2. Corrugated Board, buffered, acid free: Holinger Corporation,  
P.O. Box 8360, Fredricksburg, VA 22404 (800) 634-0491.

3. Batting, "Jasztex" a thermo bonded polyester batting: Museum Services  
Corporation, 1107 East Cliff Road, Burnsville, MN 55337.

"Poly-fil Traditional Batting" a non-woven, needle punched batting:  
Fairfield Processing Corporation, 88 Rose Hill Avenue, Danbury, CT  
06810.

4. Cotton, a 100% airwing grade fabric: Fox Reich Textiles, Inc., 54 Danbury  
Road, Suite 228, Ridgefield, CT 06877 (914) 533-2445.

5. Acrylite OP-2, a colorless cast ultraviolet filtering acrylic sheet: Cyro  
Industries, P. O. Box 950, 100 Valley Road, Mt. Arlington, NJ 07856 (416)  
675-9433.

# *Textile Preservation Associates, Inc.*

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## ADDITION TO TREATMENT REPORT

Date January 20, 2003

TPA No. 919

Object 1st Regiment Texas Vol., Hoods Army of N. VA.

Cat. No. M-21-80

Client Texas State Archives  
P. O. Box 12927  
Austin, TX 78711-2927

Contact Chris LaPlante  
Phone (512) 463-5467 FAX (512) 463-5436

### EXAMINATION

While viewing the flag on exhibit at the Museum of Fine Arts, Houston it appeared that the flag did not have sufficient support in the pressure mount. Portions of the flag in two quadrants appeared to have shifted. The flag was returned via an art shipper to Textile Preservation Assoc., Inc. to address the problem.

### REPORT OF ADDITIONAL TREATMENT

The flag was unframed and removed from the padded panel. An attempt was made to improve the appearance of the flag by repositioning the pieces in the bottom and fly quadrants. The stitching of the encapsulation in these two quadrants was cut and the Stabiltex was separated to gain access to the flag. The pieces of the flag were repositioned within the same Stabiltex fabric. The layers were attached with random running stitches using thread pulled from the Stabiltex. Excess Stabiltex fabric was cut away to the shape of the flag.

It was determined that the flag would have better support in the pressure mount if allowed to lie flat on the panel with no additional padding beneath the cross, so the additional padding was removed. Colored cotton fabric was lightly sewn to the panel to

fill in any missing areas damaged by the previous treatment. Damage from use was left apparent. The flag was then re sewn to the panel with one row of stitching across the top using a soft silk thread of appropriate color. The flag on the panel was then placed back in the custom made, decorative aluminum frame, finished with an antiqued gold and an aluminum backing for support. The flag was returned to the client via an art shipper.

Signed: Fonda G. Thomsen Date: 2/3/03  
Fonda Ghiardi Thomsen, Fellow AIC,  
Director, Textile Preservation Associates, Inc.

TKA # 719  
Cat # M-21-80

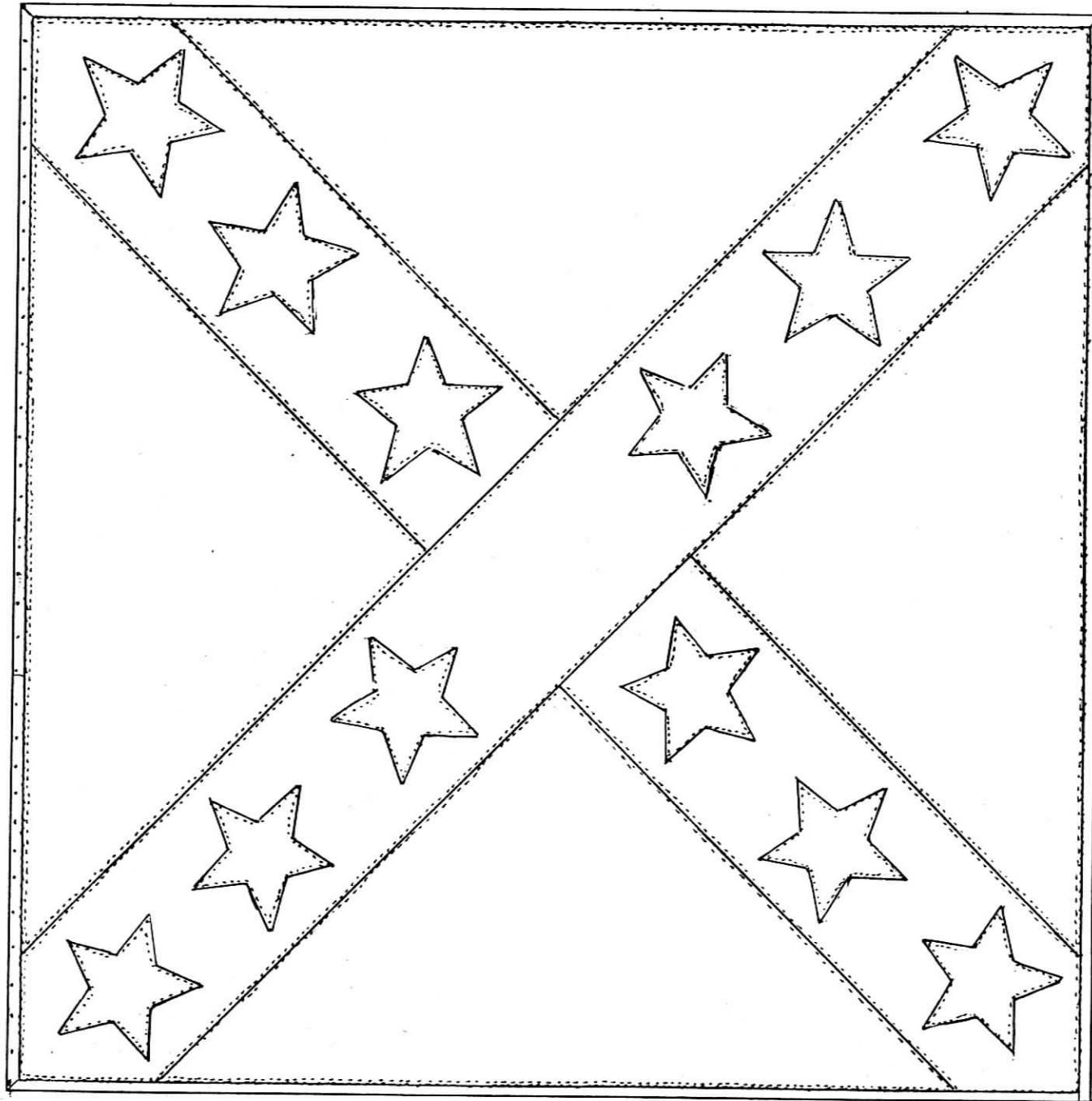
1<sup>st</sup> Regiment Texas Vol., Hood's Army of Northern Virginia  
scale: 1" = 6"  
0 3 6  
42"

OBVERSE

Diagram 1

CONSTRUCTION

42"



Star: 5 1/2"  
Cross: 7/4"

TPA # 919  
Cat # M-21-80

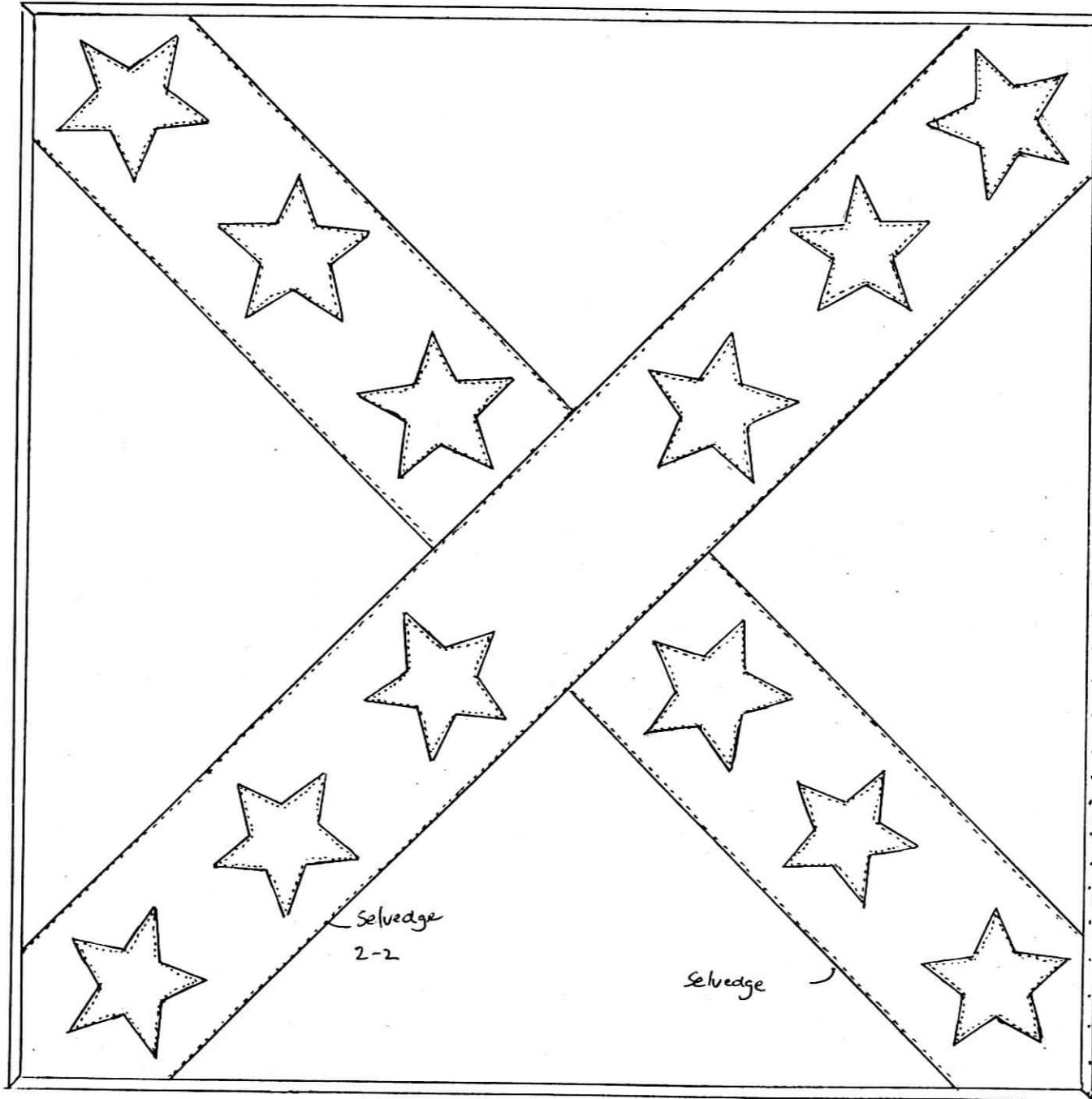
1st Regiment Texas Vol., Hood's Army of Northern Virginia

REVERSE

Diagram 2

Scale: 1" = 6"  
0 3 6

CONSTRUCTION



Star 7/16"

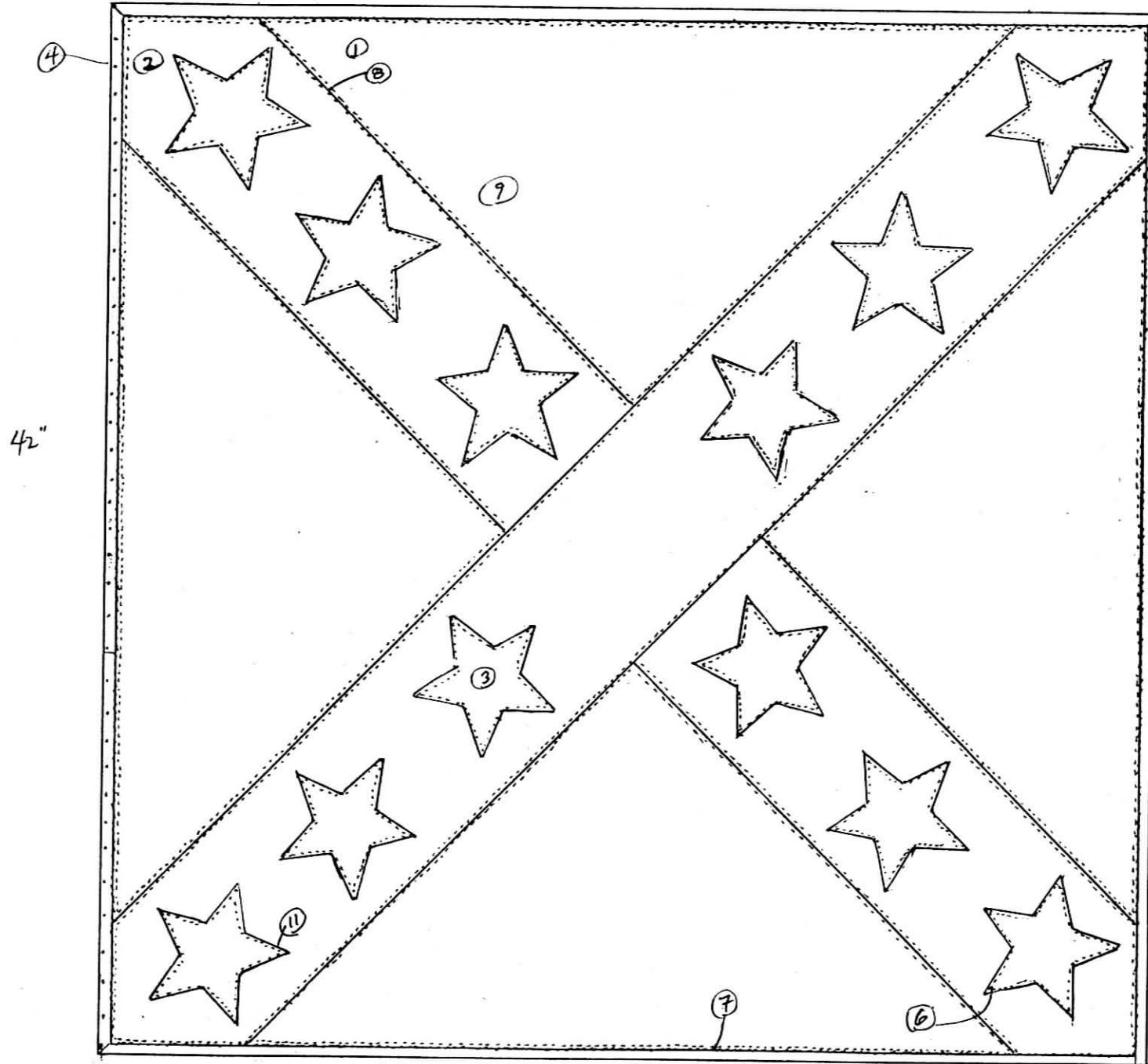
TPA # 919  
Cat # M-21-80

1<sup>st</sup> Regiment Texas Vol., Hood's Army of Northern Virginia  
scale: 1" = 6"  
0 3 6  
42"

OBVERSE

Diagram 5

SAMPLING



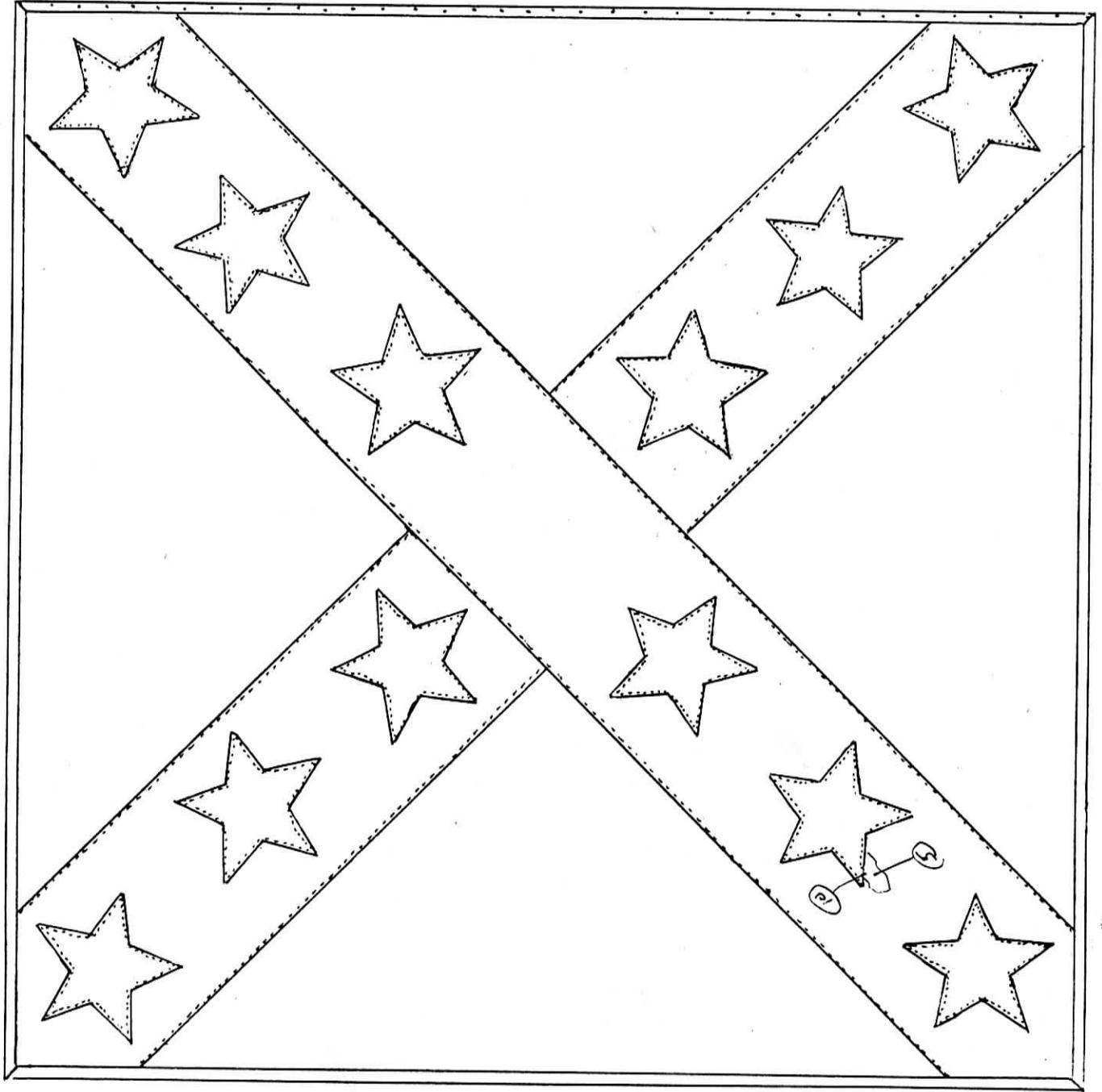
TPA # 919  
Cat # M-21-80

1st Regiment Texas Vol. 1, Hood's Army of Northern Virginia

REVERSE

Diagram 6  
SAMPLING

Scale: 1" = 6"  
0 3 6



TPT # 719  
Cat # M-21-80

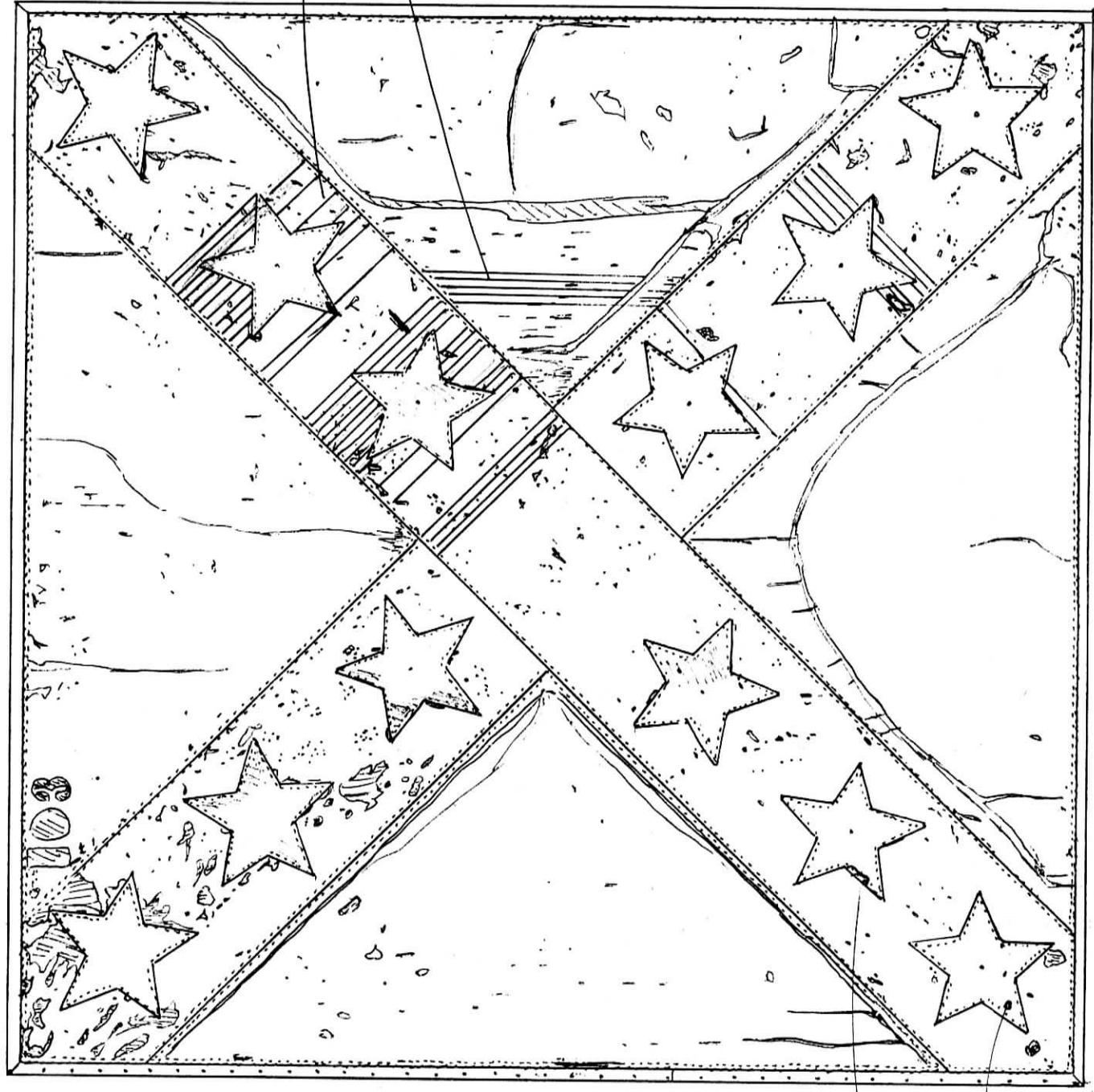
1st Regiment Texas Vol., Heads Army of Northern Virginia

Diagram 7

OBVERSE

CONDITION

scale: 1" = 6" 0 3 6 42"



lines to mark stitching rows of previous repair

hole through all layers of cross loss

burn

burn hole

42"

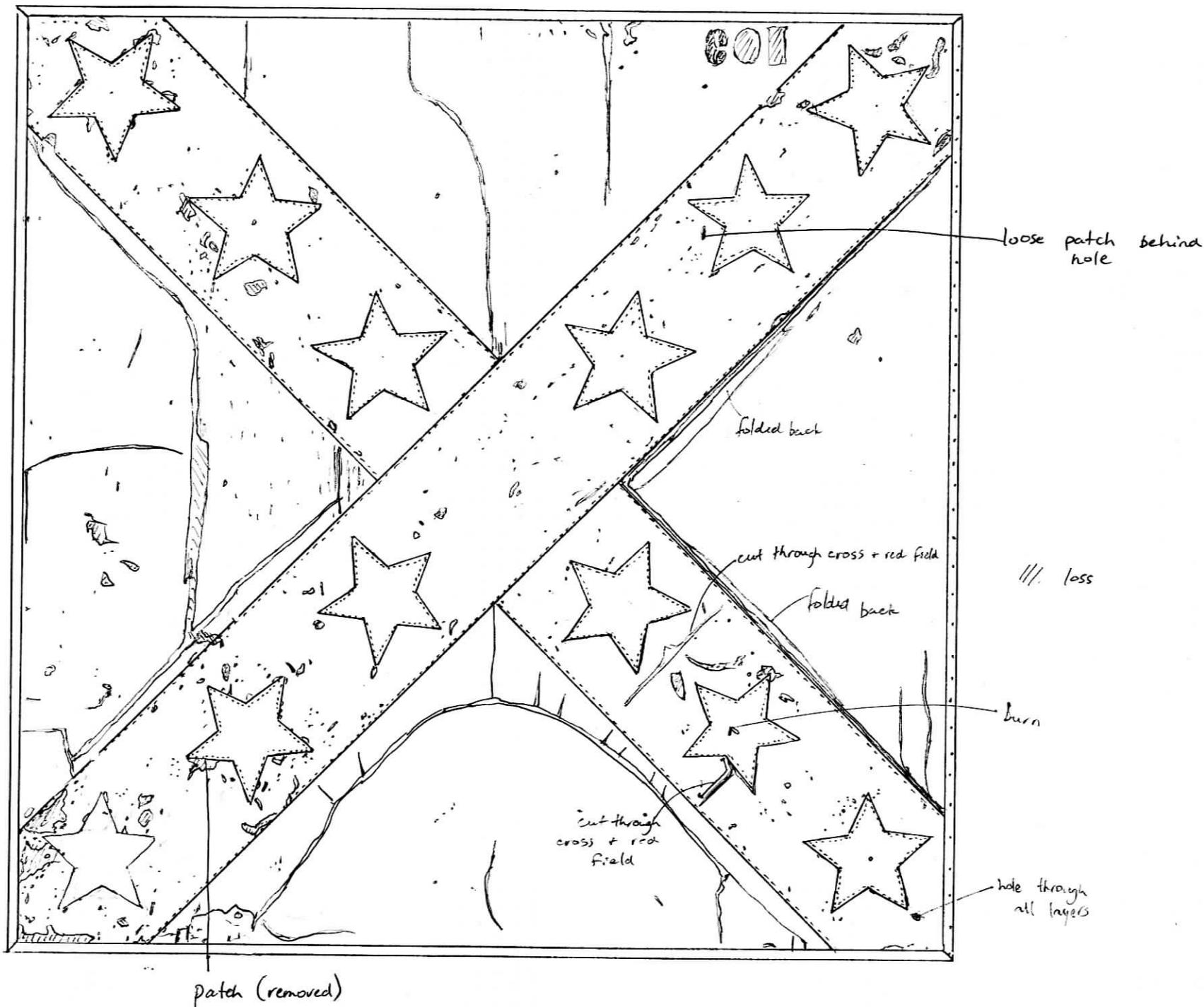
TPA # 919  
Cat # M-21-80

1st Regiment Texas Vol., Hood's Army of Northern Virginia

REVERSE

Diagram 8  
CONDITION

scale: 1" = 6"  
0 3 6



2142 Cherokee Blvd.  
Knoxville, TN, 37919  
18 Nov. 1998  
(423) 525-5941

Fionda Thomsen  
Textile Preservation Associates  
P.O. Box 606  
Sharpsburg, Md. 21782

Dear Fionda,

My findings are listed below with respect to the Teds flags:

① Sample 1, TPA #917 - Wool under the central disc and from the field.  
Opinion - I do not think that this wool was ever dyed - or the white cotton border (not sent). It would be unusual, indeed, for no traces of <sup>any</sup> color to remain on either the cotton or the wool if they had been dyed with mordanted natural dyes, or indigo or Prussian blue. Only 1 or possibly 2 synthetic blues from Germany would have been available by this date, and unlikely to be available to the Confederacy. True, one or two early synthetic dyes I have worked with did nearly fade away entirely under a couple of weeks of strong summer sunlight, but not when covered, as under the central disc. Sorry - this is my best guess - never dyed.

② Sample 2, TPA 918 <sup>green field</sup> Blue's - Contaminated sample? Under the scope I was looking at Blue cotton fibers, possibly some blue silk, and a very small number of stray? undyed woolen fibers.

(over)

With extreme care, I was able to identify this blue as Prussian blue - much used during this period on cotton, silk, and wool. The sample was barely large enough for I.D., and I was able to identify it only because no problems arose. I realize that it was all you could probably spare.

③ TPA 919 ~~green - greenish-blue~~<sup>field</sup> - Wool  
The tests confirmed Prussian Blue.  
Note: Oxygen and ozone from the air over long periods produces yellowing (or can produce yellowing). Yellow + Blue = green. One end of the fragment you sent was still blue. This can happen to light blue indigo dyed fabric, also.

④ TPA 919 Red (Dirty white cotton warp, red wool weft) & navvants.

Following several tests with my knowns of madder and cochineal, I am convinced that the dye is lac (related to cochineal and Kermes). The red did not give the characteristic madder spot tests along with my knowns, but lac did. Madder is 1-2 dihydroxyanthraquinone; cochineal, Kermes, and lac are also anthraquinone derivatives. Do you have knowns of cochineal and lac? Perhaps they, too, fluoresce orange under UV. I can send you known samples of lac & cochineal if you so desire.

I am not surprised at the

results of my analyses. Prussian blue, a mineral dye, was easy and fast to produce, and had good fade resistance. Indigo was fade resistant, but expensive, and more know-how was needed for its use. Both logwood and indigo carmine both faded badly in strong sunlight.

I am coming to believe that more lac was used than many think. For example, my Shakes Dye manual from this period gives two recipes for red on wool. One is madder red, the other lac scarlet. Cochineal is not mentioned. I do know that lac scarlet, though not quite as brilliant as cochineal scarlet, is somewhat more durable & less affected by acids and alkalis.

Also, lac was much cheaper than cochineal. The Confederates probably used whatever they could get, and I would not be surprised to find madder, cochineal, and lac to have been used, even for a particular group of flags - some dyed in this country and some abroad.

Hope I have added a bit to the puzzles.

I do not have enough of the samples to send any back - sorry -  
(over)

4

I don't know what agency has hired you to do this work, but I assume that they are paying appropriately. Summing up, I feel that I have put in \$100.00 worth. Please let me know if this is O.K.

Sincerely,  
Jim

P.S. Guessing is not worth a hoot!  
Yes, logwood, <sup>blue</sup> does often turn green in time, so does Prussian blue, light indigo, and possibly Indigo carmine. Analysis is the only answer.

For example, washing Prussian blue <sup>clothing</sup> with very alkaline soap can alter the blue to green, also. This may have occurred with some of the Hardee flags because poorly made soap of the period was often quite alkaline.

# Analysis Technical Information

TPA No. 0919

Date of Analysis: November 9, 1998

Catalogue No.: M-21-80

Client Name: Texas State Archives

Unit Designation:

Provenance:

Pattern: ANV Cotton/Wool

Status: Full Analysis

Configuration:

Conclusion: Civil War

Manufacturer:

Date of Piece: May 1862

UV Light: The red dyes fluoresced orange indicating the presence of madder dye.

## Sampling:

### Fabric Samples:

Sample Number:	Location:	Color:	Weave Pattern:	Fiber Type:	Ply/Twist:	Thread Count per inch:	Weave:
1. Quadrant		Red	Vert./Horiz.	Wool/Cotton	1plyZ/1plyZ	134/76	2/1 Twill.
2. Cross		Aqua	Vert./Horiz.	Wool/Wool	1plyZ/1plyZ	64/92	1/1 Plain.
3. Star		White	Vert./Horiz.	Cotton/Cotton	1plyZ/1plyZ	76/58	1/1 Plain.
4. Border		Orange	Warp/Weft	Cotton/Cotton	1plyZ/1plyZ	70/84	1/1 Plain.
5. Patch		Red	Vert./Horiz.	Linen/Linen	1plyZ/1plyZ	32/44	1/1 Plain.

Loom Width:

Selvage Pattern:

blue cross: 2-2

Dye Analysis: Yes

# Analysis Technical Information

## Thread Samples:

Sample Number:	Location:	Color:	Fiber:	Ply /Twist:	Method of Stitching:	Stitches per inch:
10. patch stitching		White	Mercerized Cotton	3 ply Z	Whip Stitch, Hand	
11. star repair		Off White	Mercerized Cotton	3 ply S	Running Stitch, Hand	8
6. star		Off White	Cotton	3/2 ply S	Running Stitch, Hand	8
7. border		Off White	Cotton	3/2 ply S	Hand	7
8. cross		White	Silk	2 ply S	Running Stitch, Hand	8
9. previous treatment		Red	Mercerized Cotton	3 ply Z		
no running stitch in cross		Tan	Cotton	3/2 ply S	Running Stitch, Hand	4

TFA # 719

Cat # M-21-80

1st Regiment Texas Vol., Heads Army of Northern Virginia

OBVERSE

scale 1" = 6"

42"

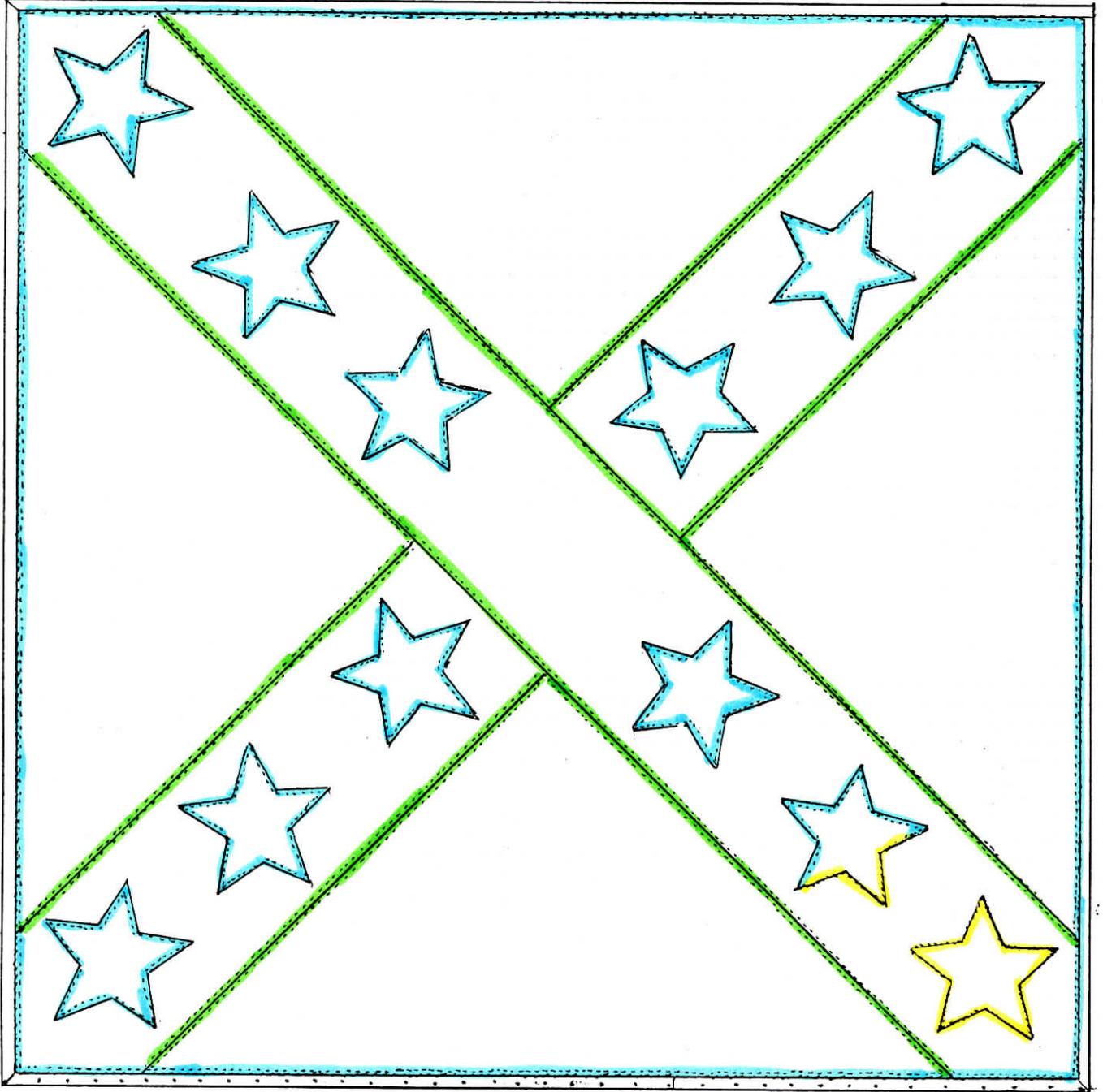
42"

Diagram 3

3/2 5 cotton

25 silk

32 cotton



TPA # 919  
Cat # M-21-80

1st Regiment Texas Vol. 1, Hoods Army of Northern Virginia

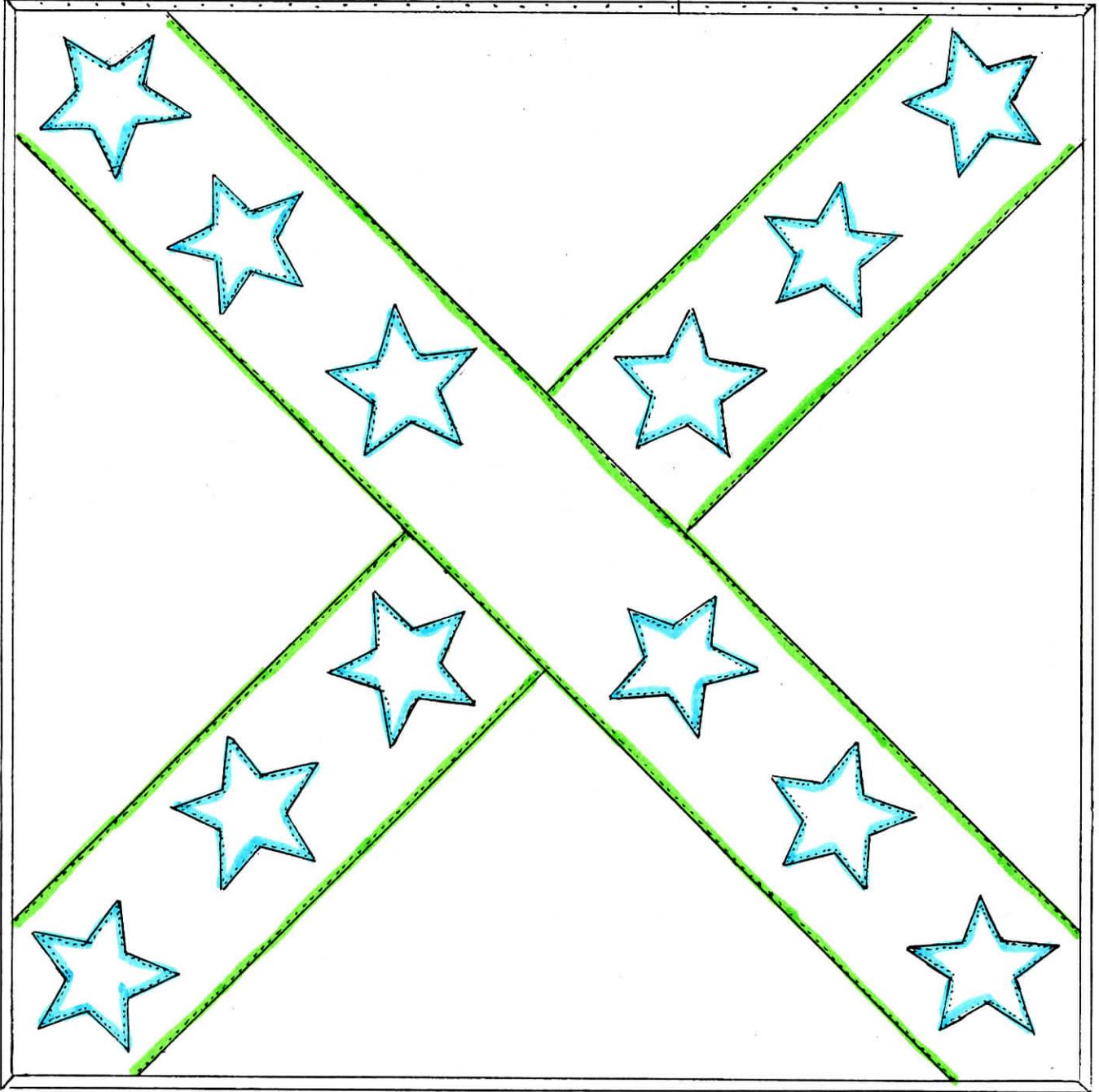
REVERSE

Diagram 4

Scale: 1" = 6"  
0 3 6

SEWING THREADS

3/25 cotton  
25 silk



## Texas Flags

Flag No.	Descrip.	Color	Fiber	Element	Fluor.	Dye	Notes
TPA917 (1)	6 <sup>th</sup> Inf. 15 <sup>th</sup> Cav. Under disk	Yellow [off-white]	Wool	S, Cl, K, Ca	Yellow Blue		No blue
TPA918 (2)	17 <sup>th</sup> & 18 <sup>th</sup> TX cavalry green field	Green [blue & white] <i>Prussian Blue (6)</i>	Cotton	Na, Mg, S, Cl, Ca, Cr	None None		It is blue
TPA919 (3)	1 <sup>st</sup> TX Infantry blue cross	Yellow [tan] <i>Prussian blue (6)</i>	Wool	S	Yellow Blue		No blue
TPA919 (4)	1 <sup>st</sup> TX Infantry red quads	Red [red] <i>lac</i>	Wool (cotton)	S, Sn	Orange Orange		
WD243	Gran- bury's Brigade	Yellow [yellow]	Wool	S, Cl, K, Ca	Yellow Blue		Like TPA917
WD201	Aqua cross	Green [aqua]	Wool	S, Cl, K, Ca, Fe, Zn	Yellow Blue		Like TPA919
WD30		Yellow [off-white]	Wool	S, Ca (no Al)	Yellow Blue		
TPA921		Black [black]	Cotton [un- merceriz- ed]	Na, S, Cl, K, Ca, Cr	None None		RTLK

Notes: All contained carbon, oxygen, aluminum, and silicon in addition to elements listed in table. Colors in brackets were observed microscopically. Fluorescence colors were observed microscopically at violet (top) and ultraviolet (bottom) excitation wavelengths.

Re: McCrone Associates Project MA32936