



Graffiti Mitigation at Bandelier National Monument

**Prepared for the National Park Service
by the School of Architecture and Planning
University of New Mexico, 2010**

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Graffiti Mitigation

Frijoles Canyon Cavates 2010

Introduction¹

There are approximately 1,068 cavates concentrated on the north side of Frijoles Canyon along a mile and a half stretch where the canyon widens before descending to the Rio Grande. They were occupied from the fourteenth to the sixteenth century C.E., and are the ancestral dwellings of the Pueblo people². Many cavates have original applied earthen plaster and soot finishes over the volcanic tuff substrate. Approximately 23% of them have graffiti carved into or applied onto their interior walls and ceilings. Names and dates are common, as are initials, words and images. A large span of time is represented in the graffiti, from early Spanish explorers to recent visitors, although most of it has occurred within the last 100 years. The highest concentration of graffiti is in cavates open to the public, or easily accessible from the visitor trail. To help prevent further damage and vandalism, the Vanishing Treasures Program is mitigating some of the modern graffiti.

Treatment Objectives

In urban settings, graffiti is often covered using modern paints or removed using abrasive techniques. Because of the high cultural and archaeological significance of the Bandelier sites, specialized conservation techniques have been developed to cover the graffiti and obscure it from view. Decisions about the type and extent of the mitigation are made on a case-by-case basis. Questions considered in the decision-making process include:

- Does the cavate have high integrity and retain a high percentage of original architectural materials and features?
- Is the graffiti carved into original materials and is it causing erosion around it?
- Is the graffiti pueblo, historic or modern (are there recognizable names or dates)? Is the graffiti representative of a significant person or period of use in the history of the cavates, park or region (i.e. Spanish script)?
- Is the graffiti visible by visitors or close to public trails?
- Will the treatment be successful in restoring the visual integrity of the plasters and walls?

¹ Introduction taken from previous graffiti mitigation reports and from *Draft Preliminary Data Analysis and Conservation Treatment Testing for the Frijoles Canyon Cavates* (see Select Bibliography included in this report).

² The six Pueblos that are affiliated with Bandelier National Monument are Cochiti, San Felipe, San Ildefonso, Santa Clara, Santo Domingo, and Zuñi.

The principal objectives of graffiti mitigation are to obscure modern graffiti and reduce the rate of its recurrence. Prehistoric or historic inscriptions and selected historic names with dates are not typically treated.

2010 Treatment Project

In 2010, the National Park Service and the School of Architecture and Planning at the University of New Mexico jointly conducted a project entitled "Graffiti Mitigation in the Frijoles Canyon Cavates". The project was conducted as a training workshop; participants included University faculty, professional staff, Vanishing Treasures staff employed in the park, and student trainees. Field activities took place June 14-25, 2010. Field school activities were focused on treatment of graffiti in six cavates in the B group. Graffiti damage in these cavates was typically incised in the sooted ceilings and plastered walls.

Treatment Description

Treatments followed protocols established during the Frijoles Canyon Cavate Pueblo Conservation Project (2000-2009). Prior to treatment, each cavate was photographed and reassessed for general condition and extent of graffiti damage. Areas affected by graffiti were measured and mapped on acetate sleeves over photographs. Project staff determined the extent of treatment and appropriate materials and methods. Selected sections were then filled with a combination of sieved soils mixed with water, and/or inpainted. Deep gouges in tuff were leveled with a mixture of soils, ground tuff, and, when needed in very deep incisions, hydrated hydraulic lime (HHL). Since the original plasters vary in color and texture from area to area, a range of different earthen fill materials was used. Infill materials were collected by park staff and include:

1. "Grey": Degraded tuff collected from rocks in the wash between groups D and E (scraped from rock).
2. "Trail": Collected from side of main ruins trail, sandy deposit.
3. "Red": Degraded tuff collected from rock in the wash between D and E (scraped from rock).
4. "Clay #1": Collected from exposed vertical clay deposit in wash between D and E.

5. "Wash Silt": Scraped from uppermost deposit (<1mm) in wash channel between D and E.
6. "Clay #2": Collected from horizontal clay deposit at base of cliff in wash between D and E (Scraped from rock).
7. "Floor": Wind-blown material from the cavate floor.

The general application method used for earthen fills is as follows: The dry materials were mixed together with just enough water to be cohesive. A test area was filled and allowed to dry to assess color/texture match and possible staining. The infill material was then applied to the incised graffiti with a small spatula and firmly pressed into the void. Generally the void was overfilled and later textured to match the irregular surface of the surrounding finish. Where additional color matching or inpainting was needed, a slip made from soil, water, and pigments was applied to the surface of the fill to tone the repair. In addition, fine soil collected from cavate floors was blown onto the surface to create a wind-blown, dusty surface. Commercial pigments included ivory black, Assisi grey, khaki umber, oxide black, oxide yellow, black ebony, and whiting. In general, testing revealed that mobilization of soot by the water in the infill mixture was not a problem and application of a cyclododecane layer to the surrounding plaster was not necessary.

Once completed, treatments were recorded graphically on acetate sheets (similar to the condition mapping); graphic documentation and narrative descriptions of the graffiti mitigation methods and materials are included in this report.

Results

Graffiti mitigation was carried out in 6 cavates (B009, B012, B083, B132, B148, and B151). Treatments were applied primarily to sooted ceilings in B132, B148, and B151; primarily to plasters in B009 and B083; and to plasters and sooted ceiling in B012.

In the report that follows, cavate locations are shown on B Group maps, along with a table that lists the type and extent of graffiti damage for each cavate. Treatment documentation is organized by cavate. For each cavate, there is a unit summary form that generally describes the cavate with respect to overall conditions along with each graffiti detail selected for treatment, and includes elevation

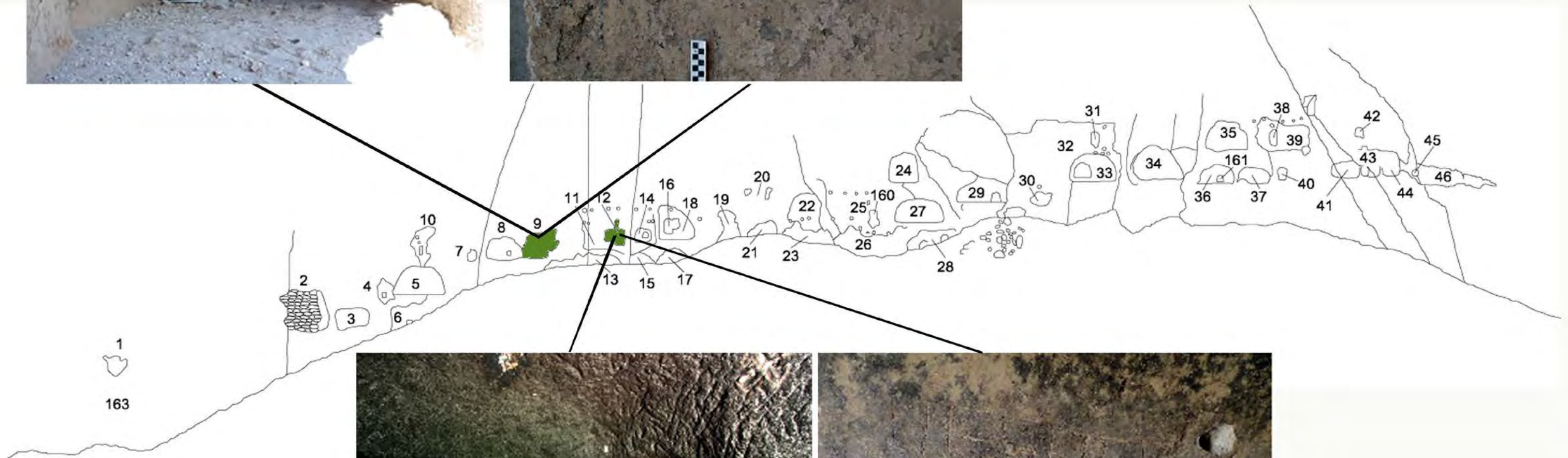
photos that capture each graffiti detail in its context. Each unit summary form is accompanied by individual detail sheets that describe specific treatments, along with before and after images and scans of pre / post treatment graphics.

Over the course of the two-week field school, six cavates were documented and treated. Students and Vanishing Treasures interns were introduced to a range of conservation materials, tools, and techniques, and developed basic skills for graffiti mitigation specifically related to infilling and inpainting. Work focused on mitigating recent graffiti, employing appropriate conservation techniques developed by the park, and restoring the visual integrity of the prehistoric interior finishes.

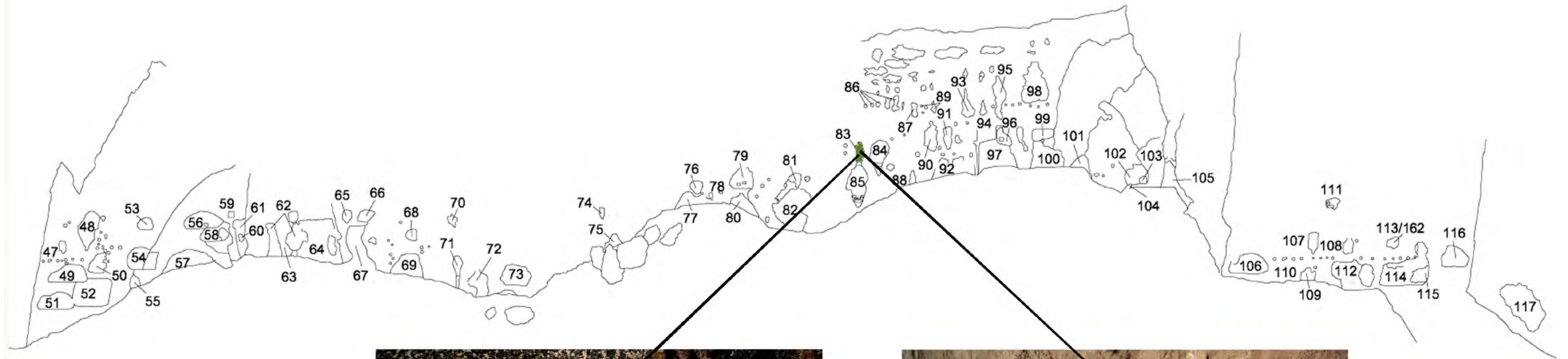
2010 Treatment Table

CAVATE #	DETAIL #	NOTES
B.009	1	"JG"; infilled
B.012	1	"CO"; infilled and inpainted
	2	"Debbie Carlos"; infilled and inpainted
	3	"Debbie Carlos"; infilled and inpainted
	4	Flowers with box; inpainted
B.083	1	"BA BUCK SPEAMAN Tex"; infilled and inpainted
	2	"PAT JANET"; infilled and inpainted
B.132	1	"RDF 16"; infilled and inpainted (cross not treated)
B.148	1	"Aaron Duran"; infilled and inpainted
B.151	1	"RL"; infilled and inpainted
	2	"RH" with indecipherable scratches; infilled and inpainted
	3	"NORA+", "CLLER+THOM", "LE + LAR" with indecipherable scratches; infilled and inpainted
	4	"DANNY" and other markings; infilled and inpainted
	5	"ESTELLE" and "HAP" with indecipherable scratches; infilled and inpainted
	6	"JK", "HP", "PS", "JB", and "1995"; infilled and inpainted

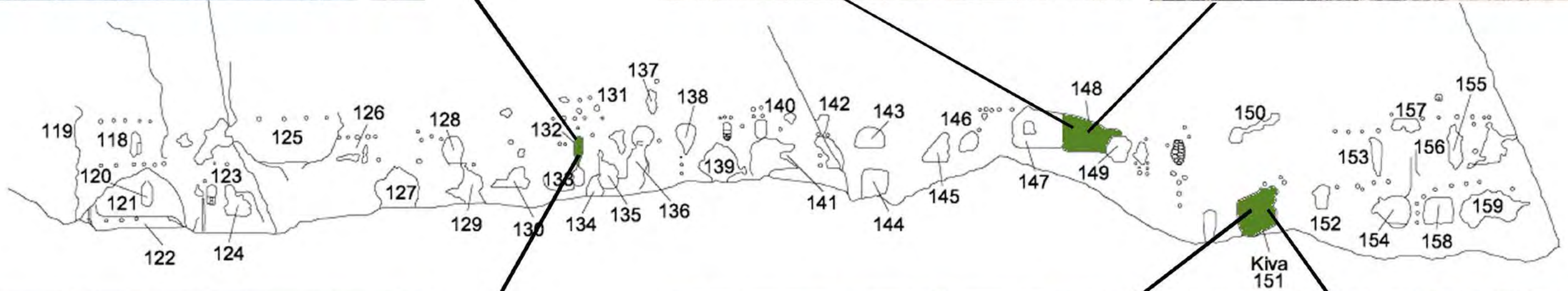
Image Maps



LA 140939	TITLE OF DRAWING GROUP B: WEST	
UNITED STATES DEPARTMENT OF THE INTERIOR	LOCATION WITHIN PARK FRIJOLE CANYON	
NATIONAL PARK SERVICE INTERMOUNTAIN SYSTEM SUPPORT OFFICE	NAME OF PARK BANDELIER NATIONAL MONUMENT	GRAFFITI MITIGATION 2010
	INTERMOUNTAIN SANDOVAL NEW MEXICO REGION COUNTY STATE	



LA 140939	TITLE OF DRAWING GROUP B: CENTRAL	GRAFFITI MITIGATION 2010
UNITED STATES DEPARTMENT OF THE INTERIOR	LOCATION WITHIN PARK FRIJoles CANYON	
NATIONAL PARK SERVICE INTERMOUNTAIN SYSTEM SUPPORT OFFICE	NAME OF PARK BANDELIER NATIONAL MONUMENT	
	INTERMOUNTAIN REGION SANDOVAL COUNTY NEW MEXICO STATE	



LA 140939 UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE INTERMOUNTAIN SYSTEM SUPPORT OFFICE		TITLE OF DRAWING GROUP B: EAST LOCATION WITHIN PARK FRIJOLE CANYON NAME OF PARK BANDELIER NATIONAL MONUMENT REGION COUNTY STATE INTERMOUNTAIN SANDOVAL NEW MEXICO	GRAFFITI MITIGATION 2010
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Cavate Treatment Forms

Cavate Treatment Summary

Location

Area: Frijoles Canyon

LA #:140939

Group: B

Room #: 009

Date: 06/21/2010

Conservator: K. Stevenson, A. Bass

Condition Assessment

Unit Description:

Room 009 is a medium-sized cavate with two complete walls, one partial wall, a floor, and a partial ceiling. Each wall has a plastered dado, partially intact, and the ceiling is sooted.

Pre-treatment condition:

Graffiti is limited to the north wall, which has the letters "J G" incised through the plaster layers and into the tuff. Incisions range in depth from 1 to 2 mm and are 1 to 5 mm wide.

Treatment Description (before and after photos taken of all treatment areas)

Location (N, S, E, W): north wall

Detail #s: 1

1. Mixed fill material consisting of clay #1 : clay #2 : wash silt (1:1:2).
2. Pre-wet incision area, then dabbed slip (watery mortar consisting of clay #1 : clay #2 : wash silt (1:1:2)) into incision.
3. Filled incision with mortar using spatula.
4. Allowed mortar to partially dry and dabbed slip alternately with a small brush and sponge to fill and texture the surface.
5. Allowed mortar to dry and finished texturing the surface with a bamboo skewer and a dry, stiff brush to match the surrounding plaster.
6. Tinted treatment area with clay to match surrounding plaster color and texture.

Results

The graffiti was largely obscured and requires no further treatment at this time.

Monitoring

Periodic comparison of the treatment area with post-treatment images is needed to evaluate change in appearance and presence of new graffiti. Since the cavate is largely exposed, the treatment area should be monitored for loss of infill or color change due to wind-blown particle abrasion. Additional plaster infill or slip may need to be reapplied if the area is exposed to sunlight or high winds.

Cavate Images



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 009**Detail#:** 1**Date:** 06/21/2010**Conservator:** A. Bass, K. Stevenson

Condition Assessment

Treatment location: south wall**Height from floor:** 43 cm**Type of graffiti:** incised**Substrate:** earthen plaster and tuff**Area of damage (l x h):**

38 cm X 25 cm

Depth of Incision (deep x across):

2-4 mm X 2-3 mm

Number of plaster layers penetrated: 3**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of plaster around incision**New graffiti since 2004? (photo comparison):** no**Notes:**

Graffiti consists of an incised "J G". Incisions are 2-4 mm deep, with scratches approximately the same width. The graffiti cuts through 3 layers of plaster, into the tuff.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: clay #2 : wash silt (1:1) and clay #2 : clay #1 : wash silt (1:1:2)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by marking it with a bamboo skewer and stiff dry brushes to match surrounding texture.
6. Applied a slip with a small sponge (clay #2 : clay #1 : wash silt (1:1:2) to match the original plaster texture and color.

Inpainting

Materials: N/A

Application Method: N/A

Before Photo



After Photo







Treatments

Key	
—	Area(s) to be treated
///	Treated areas

Cavate Treatment Summary

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 012**Date:** 06/21/2010**Conservator:** A. Bass, K. Stevenson

Condition Assessment

Unit Description:

This medium-to-large-sized cavate is in good condition and retains a plastered dado and sooted ceiling. Four areas of graffiti were treated in this room. (See details 1, 2, 3, 4.)

Pre-treatment condition:

The west wall has three instances of graffiti, consisting of "C O" and "DEBBIE + CARLOS" in the dado and another occurrence of "DEBBIE + CARLOS" in the sooted ceiling. The north wall graffiti is three 7-8 petal flowers in a horizontal row bordered by a line that boxes in each flower. The bordering line jogs up in an "M" shape between flowers 1 and 2 and flowers 2 and 3.

Treatment Description (before and after photos taken of all treatment areas)

Location (N, S, E, W): west**Detail #s:** 1, 2, 3

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by marking the surface with a bamboo skewer and dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.
6. A dry black pigment was also applied with a brush to match surrounding sooted color.

Location (N, S, E, W): north

Detail #s: 4

1. Used natural bristle brushes to apply a watery mix of dry pigment (Ivory Black) in various concentrations to match surrounding sooted plaster.
2. Stippled pigmented infill to match surrounding area.
3. Applied sieved grey tuff with a dry brush to further camouflage infill.

Results

The graffiti was largely obscured and requires no further treatment at this time.

Monitoring

Periodic comparison of treatment areas with post-treatment images is needed to evaluate change in appearance and presence of new graffiti. Additional mortar, slip, or pigment may need to be applied.

Cavate Images



Cavate Images



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 012**Detail#:** 1**Date:** 06/21/2010**Conservator:** A. Bass

Condition Assessment

Treatment location: west wall**Height from floor:** 34 cm**Type of graffiti:** incised**Substrate:** earthen plaster and tuff**Area of damage** (l x h):

27 cm X 15 cm

Depth of Incision (deep x across):

1-3 mm X 1-5 mm

Number of plaster layers penetrated: 3**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of plaster around incision**New graffiti since 2004? (photo comparison):** no

Notes:

Graffiti consists of an incised "CO" in the plaster of the dado on the west wall. The incision reaches the layer of the tuff beneath in some places. It is approximately 3 mm at its deepest and 5 mm at its widest. To the right of this carving is another instance: "DEBBIE + CARLOS".

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: clay #2 : wash silt (1:1) and clay #2 : clay #1 : wash silt (1:1:2)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by marking the surface with a bamboo skewer and dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.

Inpainting

Materials: dry pigment (Gamblin Ivory Black, PBk9), water

Application Method:

Paint (pigment in water) was lightly stippled onto the infilled treatment area to match the surrounding sooted plaster. Only the repair was inpainted.

Before Photo



After Photo



Pre-Treatment Conditions





Treatments

Key	
Area(s) to be treated	
Treated areas	

Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 012**Detail#:** 2**Date:** 06/21/2010**Conservator:** A. Bass

Condition Assessment

Treatment location: west wall**Height from floor:** 60 cm**Type of graffiti:** incised**Substrate:** earthen plaster and tuff**Area of damage** (l x h):
36 cm X 22 cm**Depth of Incision** (deep x across):
1 mm X 1-2 mm**Number of plaster layers penetrated:** 1**Is tuff exposed?** no**Additional incision damage? (describe):** none**New graffiti since 2004? (photo comparison):** no

Notes:

"Debbie Carlos" is incised into the plaster dado on the west wall. This carving is barely scratched through the topmost layer of plaster. It is approximately 1 mm at its deepest and 2 mm at its widest. Below this carving is another instance of "DEBBIE + CARLOS" – see detail #3.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: clay #2 : wash silt (1:1) and clay #2 : clay #1 : wash silt (1:1:2)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.

Inpainting

Materials: dry pigment (Gambling Ivory Black, PBk9), water

Application Method:

1. Lightly stippled the paint (pigment in water) onto the infilled treatment area to match the surrounding sooted plaster. Only the repair was inpainted.
2. Applied sieved grey tuff with a dry brush to further camouflage infill.

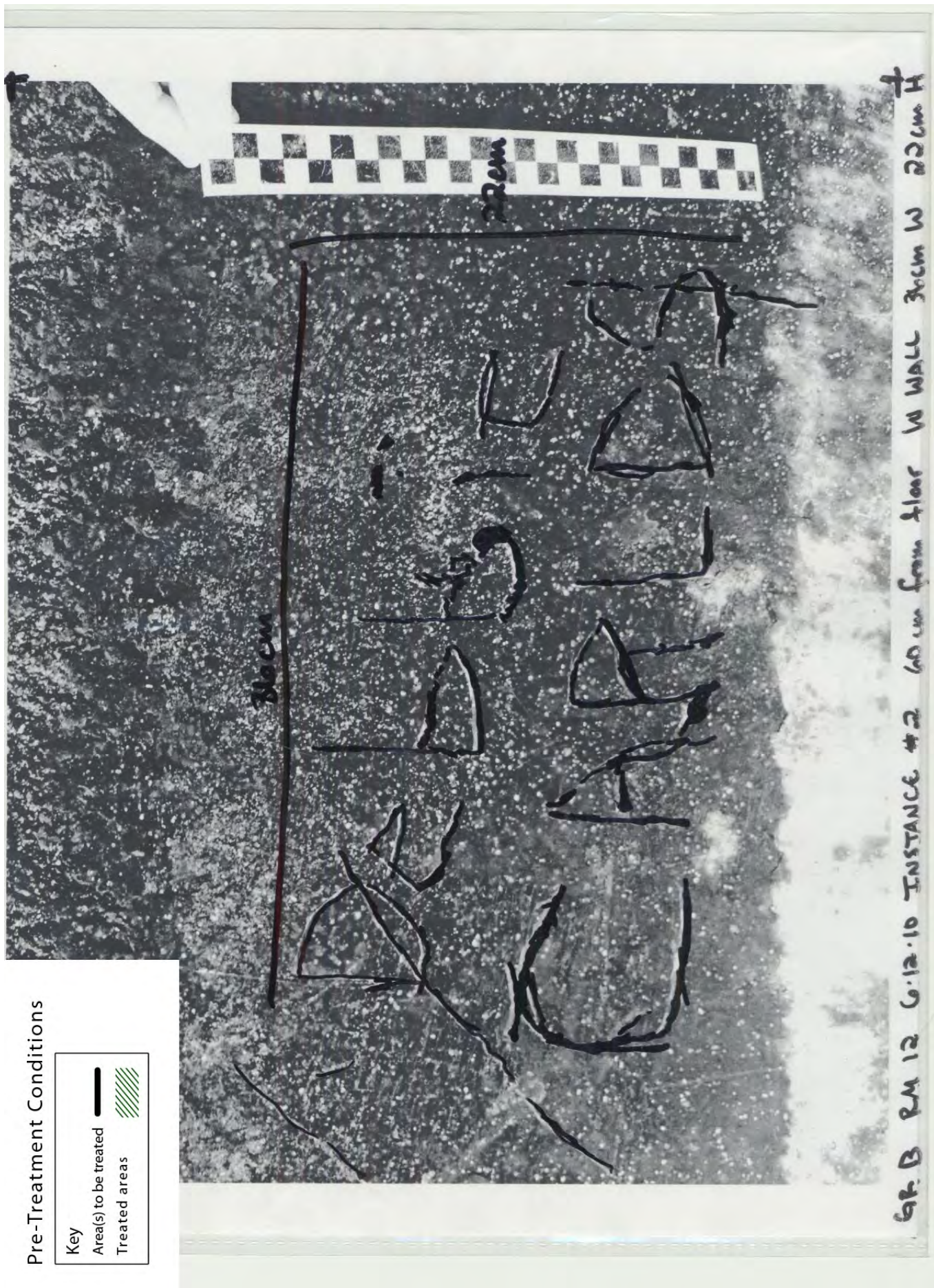
Before Photo

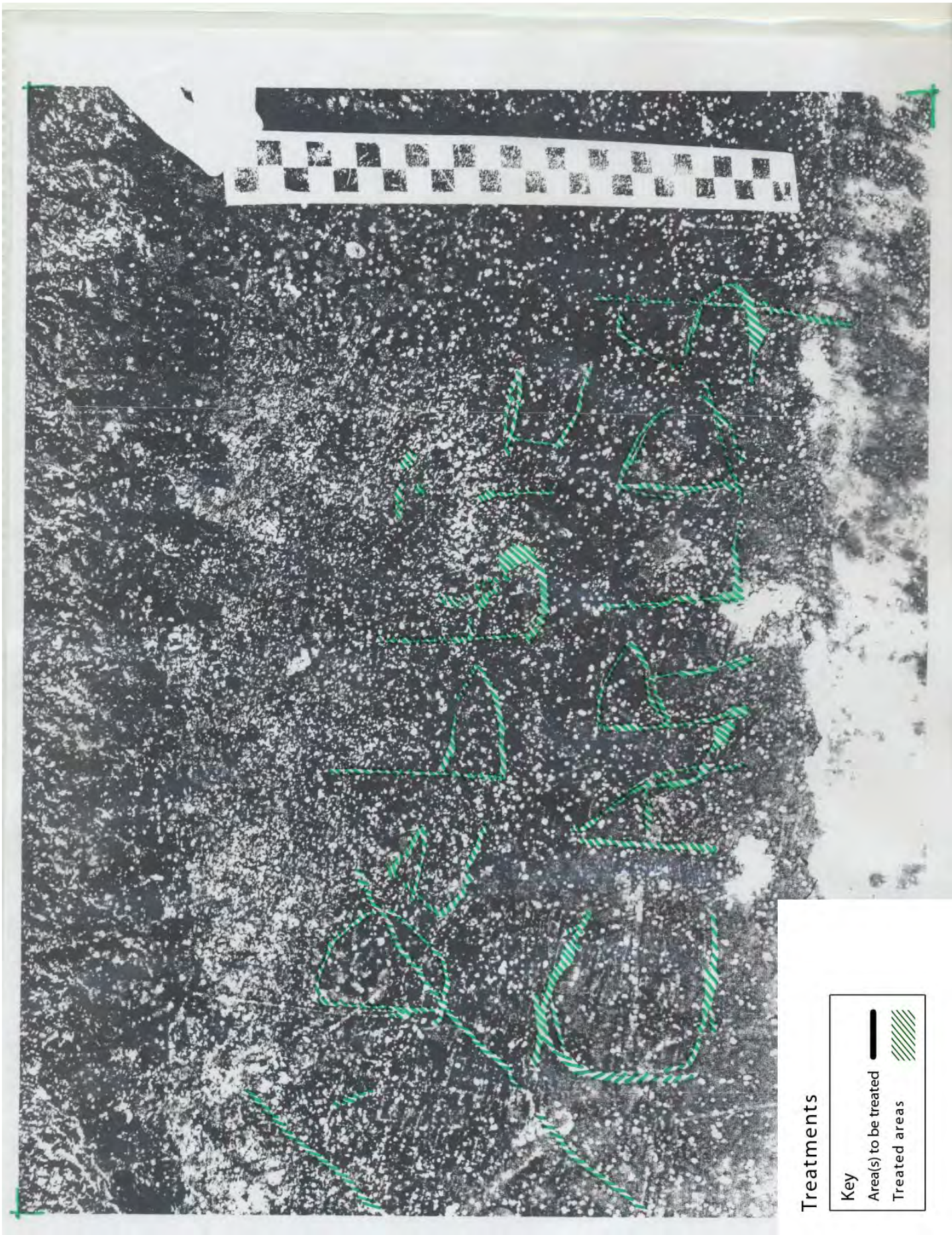


After Photo



Pre-Treatment Conditions





Treatments

Key	
Area(s) to be treated	
Treated areas	

Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 012**Detail#:** 3**Date:** 06/21/2010**Conservator:** A. Bass

Condition Assessment

Treatment location: west wall**Height from floor:** 9 cm**Type of graffiti:** incised**Substrate:** earthen plaster**Area of damage** (l x h):

54 cm X 36 cm

Depth of Incision (deep x across):

1-2 mm X 1 mm

Number of plaster layers penetrated: 1**Is tuff exposed?** no**Additional incision damage? (describe):** none**New graffiti since 2004? (photo comparison):** no

Notes:

"DEBBIE + CARLOS" was carved into the lower portion of the west wall plaster. The carving is relatively shallow and narrow, approximately 1-2 mm deep and 1 mm wide. The carving is bordered by "Debbie Carlos" (above) and "C O" (to the left). See Details #2 and #1 respectively in the same cavate.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: clay #2 : wash silt (1:1) and clay #2 : clay #1 : wash silt (1:1:2)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by marking with a rock and dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.
6. A dry black pigment was also applied with a brush for color matching.

Inpainting

Materials: dry pigment (Gamblin Ivory Black, PBk9), water

Application Method:

Paint (pigment in water) was lightly stippled onto the infilled treatment area to match the surrounding sooted plaster. Only the repair was inpainted.

Before Photo



After Photo



RM 12
6/15/10

INSTANCE #3

9 CM ABOVE FLOOR

54 cm W X 36 cm H

54 cm

36 cm



Pre-Treatment Conditions

Key

- Area(s) to be treated
- Treated areas



Treatments

Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 012**Detail#:** 4**Date:** 06/21/2010**Conservator:** A. Bass, K. Stevenson

Condition Assessment

Treatment location: north wall**Height from floor:** 63 cm**Type of graffiti:** incised**Substrate:** earthen plaster**Area of damage** (l x h):
29 cm X 9 cm**Depth of Incision** (deep x across):
<1 mm X 1-2 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** no**Additional incision damage? (describe):** none**New graffiti since 2004? (photo comparison):** no**Notes:**

Graffiti is composed of three 7-8 petal flowers in a horizontal row bordered by a line that edges each flower. The bordering line jogs up into an "M" shape between flowers 1 and 2 and flowers 2 and 3. The incisions are no more than 1 mm deep and 1-2 mm wide. The carving is in a heavily sooted dado. Plaster is clearly visible through most of the graffiti. The soot has been completely scratched away. The carving is surrounded by several other small scratches and markings.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: N/A

Application method: N/A

Inpainting

Materials: pigment (Gamblin Ivory Black, PBk9), pigment (Williamsburg Lamp Black), water

Application Method:

Paint (pigment in water) was lightly stippled onto the infilled treatment area to match the surrounding sooted plaster.

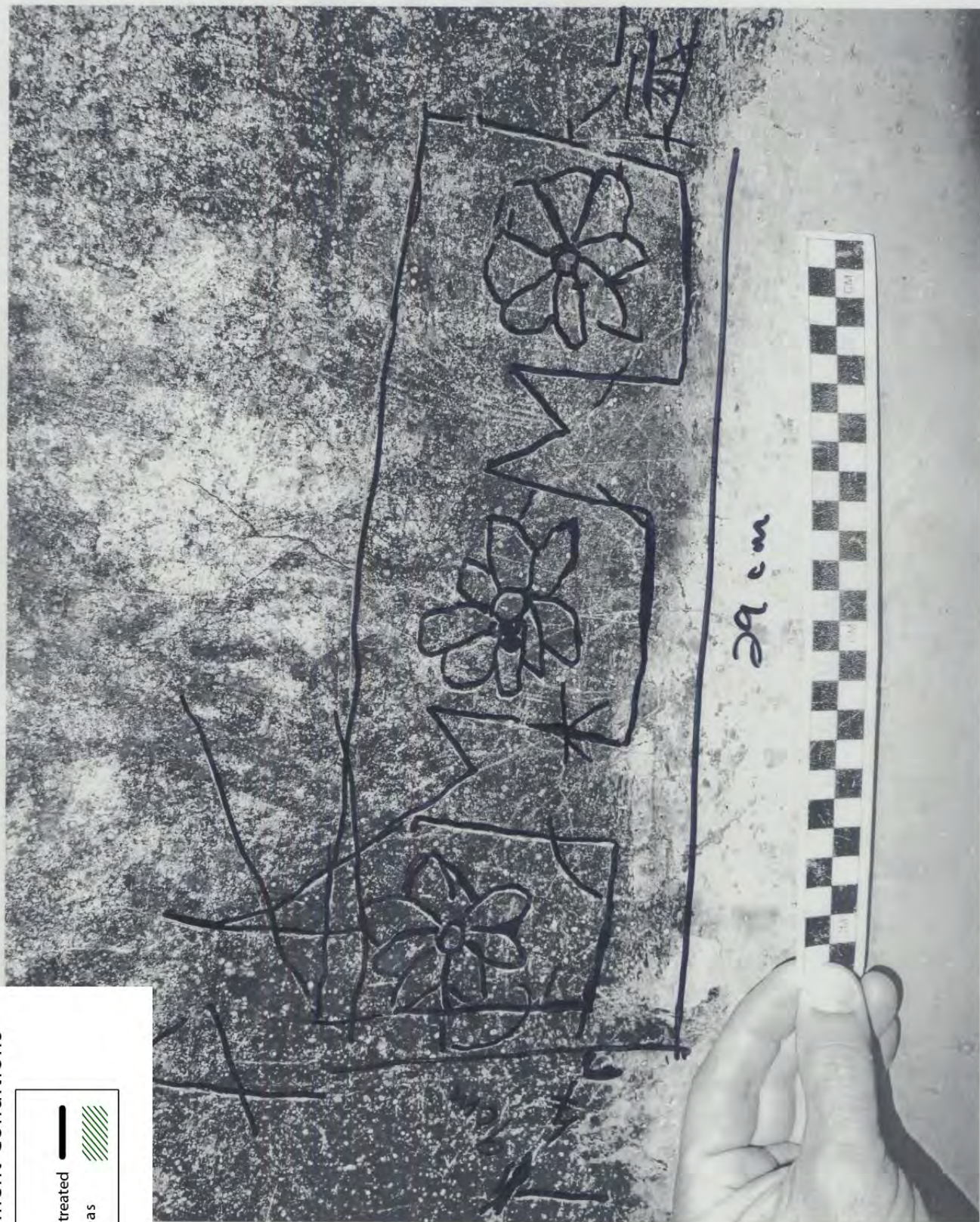
Before Photo



After Photo



Group B RM 12 INSTANCE # 4



29 cm

NORTH WALL ~ 63 cm from floor

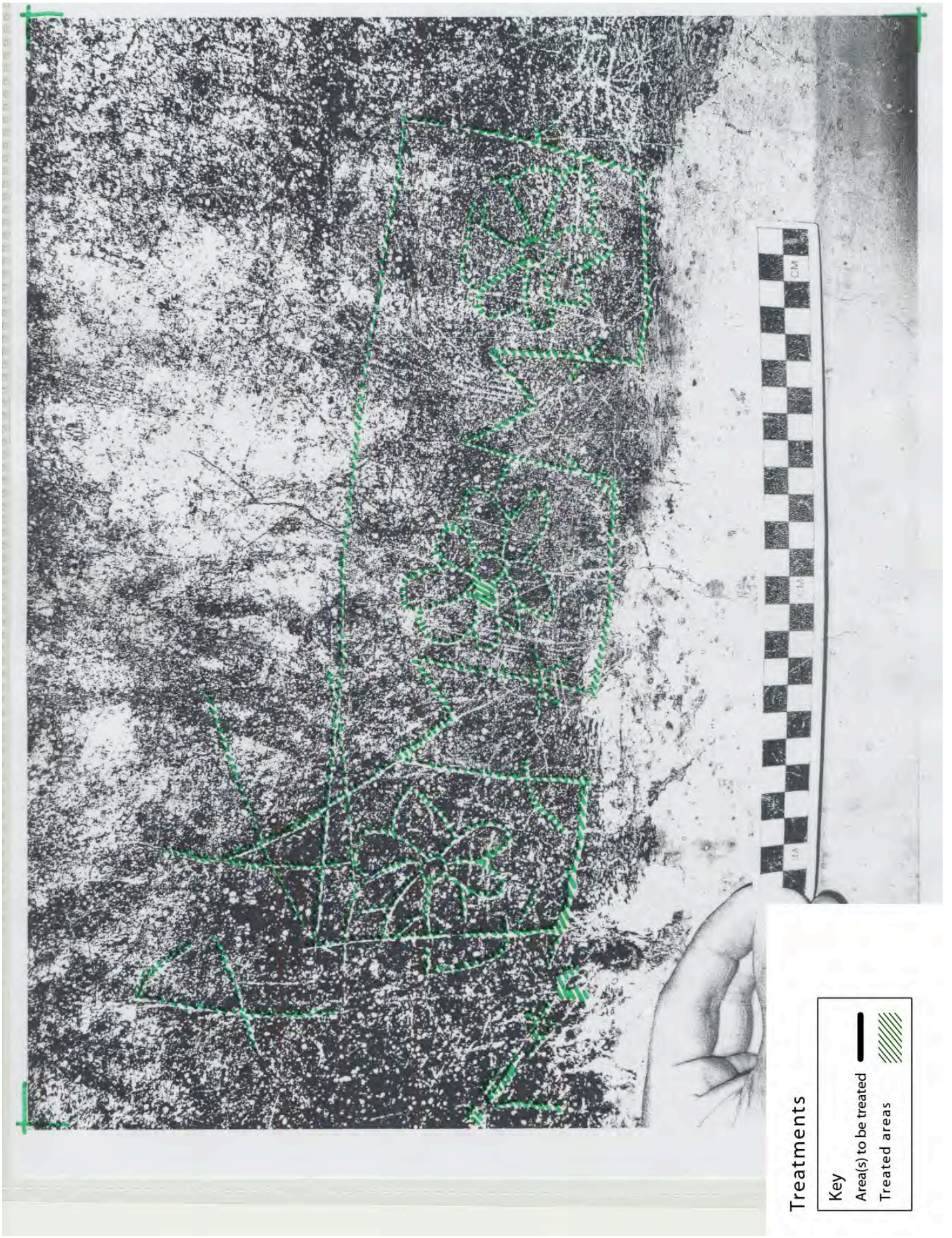
Pre-Treatment Conditions

Key

Area(s) to be treated

Treated areas





Treatments

Key

Area(s) to be treated

Treated areas



Cavate Treatment Summary

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 083**Date:** 06/21/2010**Conservator:** A. Bass, D. Porter, E. Calderon, K. Stevenson, A. Sullins

Condition Assessment

Unit Description:

This medium-sized cavate is in moderately good condition and is accessed through Cavate 84. Cavates 83 and 84 are located above and are accessed through Cavate 85. A plaster-lined hole extends through the floor of Cavate 83 to Cavate 85. Portions of the soot layer and losses of tuff are evident below the smoke hole in the connecting portion of Cavate 83. There is a plaster dado and the ceiling is sooted.

Pre-treatment condition:

The graffiti is primarily limited to the north wall, although there is one occurrence on the north end of the west wall (that was not treated). One graffiti treatment on the north wall consists of "BA BUCK SPEAMAN Tex" with other nondescript incisions scratched through the plaster to the sooted layer. The other treatment area consists of "PAT JANET" that penetrates through the plaster to the tuff.

Treatment Description (before and after photos taken of all treatment areas)

Location (N, S, E, W): north**Detail #s:** 1, 2

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by stippling with a brush and dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.
6. A dry black pigment was also applied with a brush to match surrounding sooted color.

Results

The graffiti was largely obscured and requires no further treatment at this time.

Monitoring

Periodic comparison of treatment areas with post-treatment images is needed to evaluate change in appearance and presence of new graffiti. Additional mortar, slip, or pigment may need to be applied.

Additional Comments

A third occurrence of graffiti, located on the west wall, was not treated because there was not enough time to complete it.

Cavate Images



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 083**Detail#:** 1**Date:** 06/21/2010**Conservator:** A. Bass, K. Stevenson, E. Calderon, A. Sullins

Condition Assessment

Treatment location: northeast wall**Height from floor:** 68 cm**Type of graffiti:** incised**Substrate:** earthen plaster and tuff**Area of damage** (l x h):
90 cm X 33 cm**Depth of Incision** (deep x across):
1 mm X 1-2 mm**Number of plaster layers penetrated:** 1**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of plaster around incision**New graffiti since 2004? (photo comparison):** no**Notes:**

"BA BUCK SPEAMAN Tex" is scratched through the plaster to the sooted layer underneath. Other nondescript incisions are also present.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: clay #2 : wash silt (1:1) and clay #2 : clay #1 : wash silt (1:1:2)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2 : wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.

Inpainting

Materials: earthen slip with a Munsell soil color of 7.5 YR 6/3 – 6/4

Application Method:

An earthen slip was applied alternately with a sponge and brushes to the infill to match the texture and the color of the surrounding original plaster.

Before Photo

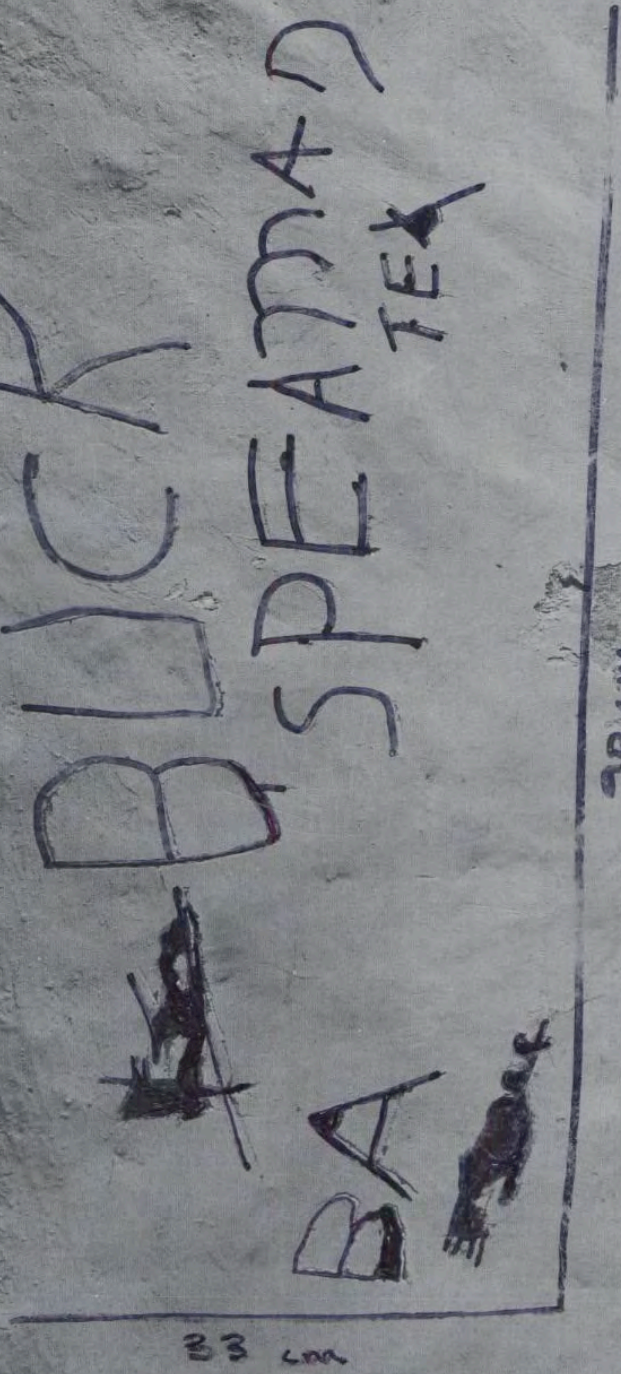


After Photo



E-83 6/15/2010 NE Wall L: 90 cm H: 83 cm HAF: 68 cm

BLACK
SPEARMAN
TEX



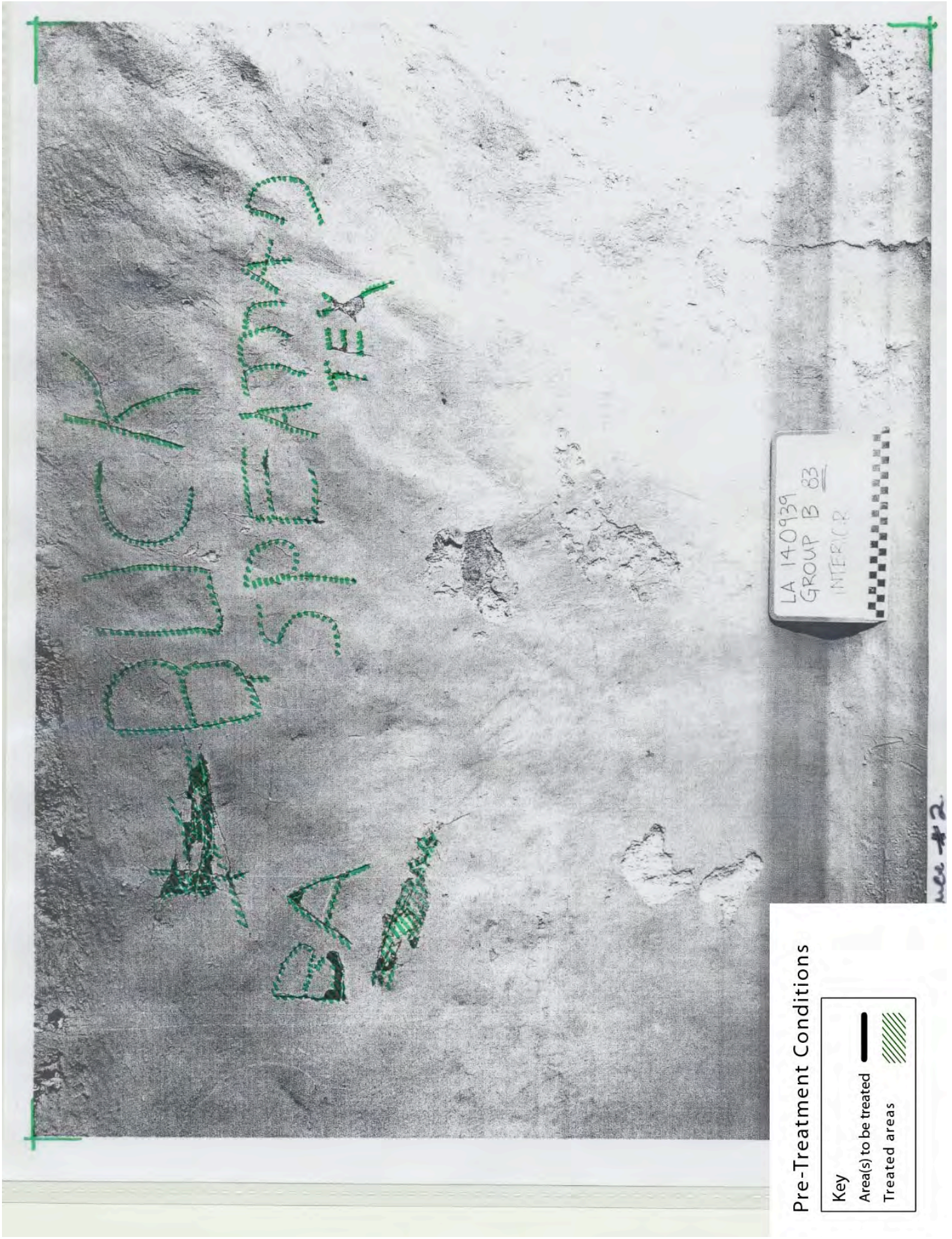
LA 140939
GROUP B 83
INTERIOR

Treatments

Key	
Area(s) to be treated	
Treated areas	

Pre-Treatment Conditions

Key	
Area(s) to be treated	
Treated areas	



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 083**Detail#:** 2**Date:** 06/21/2010**Conservator:** D. Porter, K. Stevenson, E. Calderon

Condition Assessment

Treatment location: northeast wall**Height from floor:** 39 cm**Type of graffiti:** incised**Substrate:** earthen plaster and tuff**Area of damage** (l x h):
45 cm X 32 cm**Depth of Incision** (deep x across):
4 mm X 5-15 mm**Number of plaster layers penetrated:** 3+**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of plaster around incision**New graffiti since 2004? (photo comparison):** no**Notes:**

"PAT JANET" is deeply incised in the plaster layer. The graffiti penetrates through the plaster to the tuff.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: clay #2 : wash silt (1:1) and clay #2 : clay #1 : wash silt (1:1:2)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of clay #2 : wash silt (1:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar (clay #2: wash silt (1:1) and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by dabbing a very light coating of slip onto the repair with a small sponge to match the original plaster texture and color.

Inpainting

Materials: earthen slip with a Munsell soil color of 7.5 YR 6/3 – 6/4

Application Method:

An earthen slip was applied alternately with a sponge and brushes to the infill to match the texture and the color of the surrounding original plaster.

Before Photo



After Photo



B-83 06/15/2010 Wall L: 45 cm H: 32 cm HAF: 39 cm

PATINET

32 cm

45 cm

LA 140939
GROUP B 83
INTERIOR

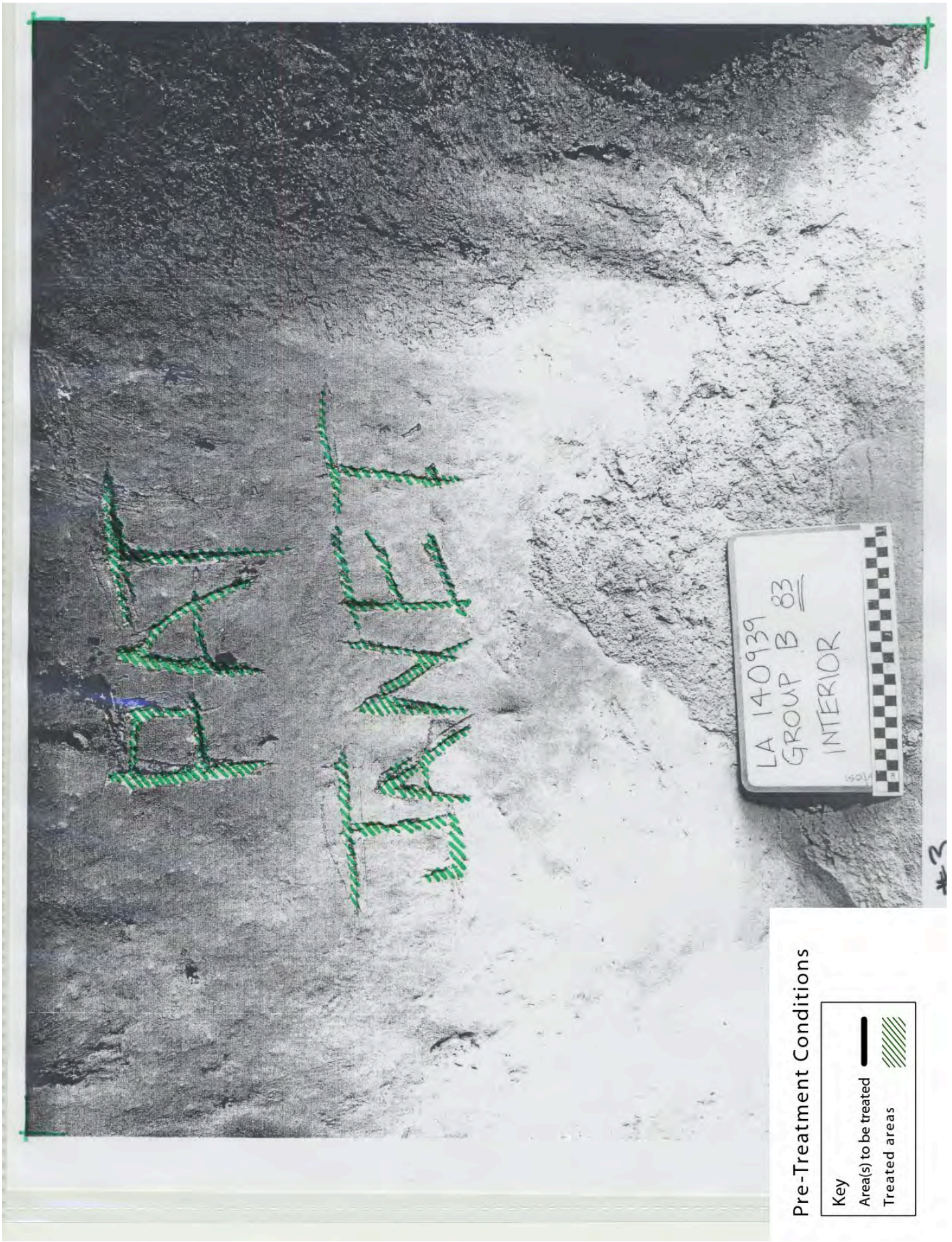
Treatments

Key

Area(s) to be treated

Treated areas





Pre-Treatment Conditions

Key	
—	Area(s) to be treated
///	Treated areas

Cavate Treatment Summary

Location

Area: Frijoles Canyon

LA #: 140939

Group: B

Room #: 132

Date: 06/21/2010

Conservator: A. Bass, R. Adler

Condition Assessment

Unit Description:

This medium-sized cavate has two instances of graffiti: one was treated, and the other, an image of a cross, was left intact because its historical significance could not be determined at this time. The cavate is in fair condition. Large areas of plaster are detached from the walls. The sooted ceiling is in moderately good condition.

Pre-treatment condition:

"RDF16" is incised into the sooted layer just below the ceiling curve. The graffiti is incised directly into tuff up to 1 mm. A cross shape is carved deeply into the tuff to the right of this instance. (The cross was not treated.)

Treatment Description (before and after photos taken of all treatment areas)

Location (N, S, E, W): east

Detail #s: 1

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a microspatula, compacting the mortar.
5. Finished plaster infill by texturing with a small rock and bamboo skewers to aid in matching the original texture.
6. Used natural bristle brushes and sponges to apply a watery mix of pigment (Williamsburg Ivory Black and Williamsburg Lamp Black) in various concentrations to match surrounding sooted tuff
7. Applied dry pigment with paintbrushes to match surrounding sooty/powdery area.
8. Applied sieved grey tuff with a dry brush to further camouflage infill.

Results

The graffiti was largely obscured and requires no further treatment at this time.

Monitoring

Periodic comparison of treatment areas with post-treatment images is needed to evaluate change in appearance and presence of new graffiti. Additional mortar, slip, or pigment may need to be applied.

Cavate Images



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 132**Detail#:** 1**Date:** 06/21/2010**Conservator:** A. Bass, R. Adler

Condition Assessment

Treatment location: east wall**Height from floor:** 118 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):

21 cm X 9 cm

Depth of Incision (deep x across):

1 mm X 1 mm

Number of plaster layers penetrated: none**Is tuff exposed?** yes**Additional incision damage? (describe):** no**New graffiti since 2004? (photo comparison):** no

Notes:

"RDF16" is incised in the sooted layer just below the ceiling curve. The graffiti is incised directly into tuff up to 1 mm. A cross shape is carved deeply into the tuff to the right of this instance. (The cross was not treated.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a microspatula to compact the mortar.
5. Finished plaster infill by texturing with a small rock and bamboo skewers to aid in matching original texture.

Inpainting

Materials: pigment (Williamsburg Ivory Black), pigment (Williamsburg Lamp Black), water, ground tuff

Application Method:

1. Used natural bristle brushes and sponges to apply a watery mix of pigment in various concentrations to match surrounding sooted tuff.
2. Applied dry pigment with paintbrushes.
3. Applied sieved grey tuff with a dry brush to further camouflage infill.

Before Photo



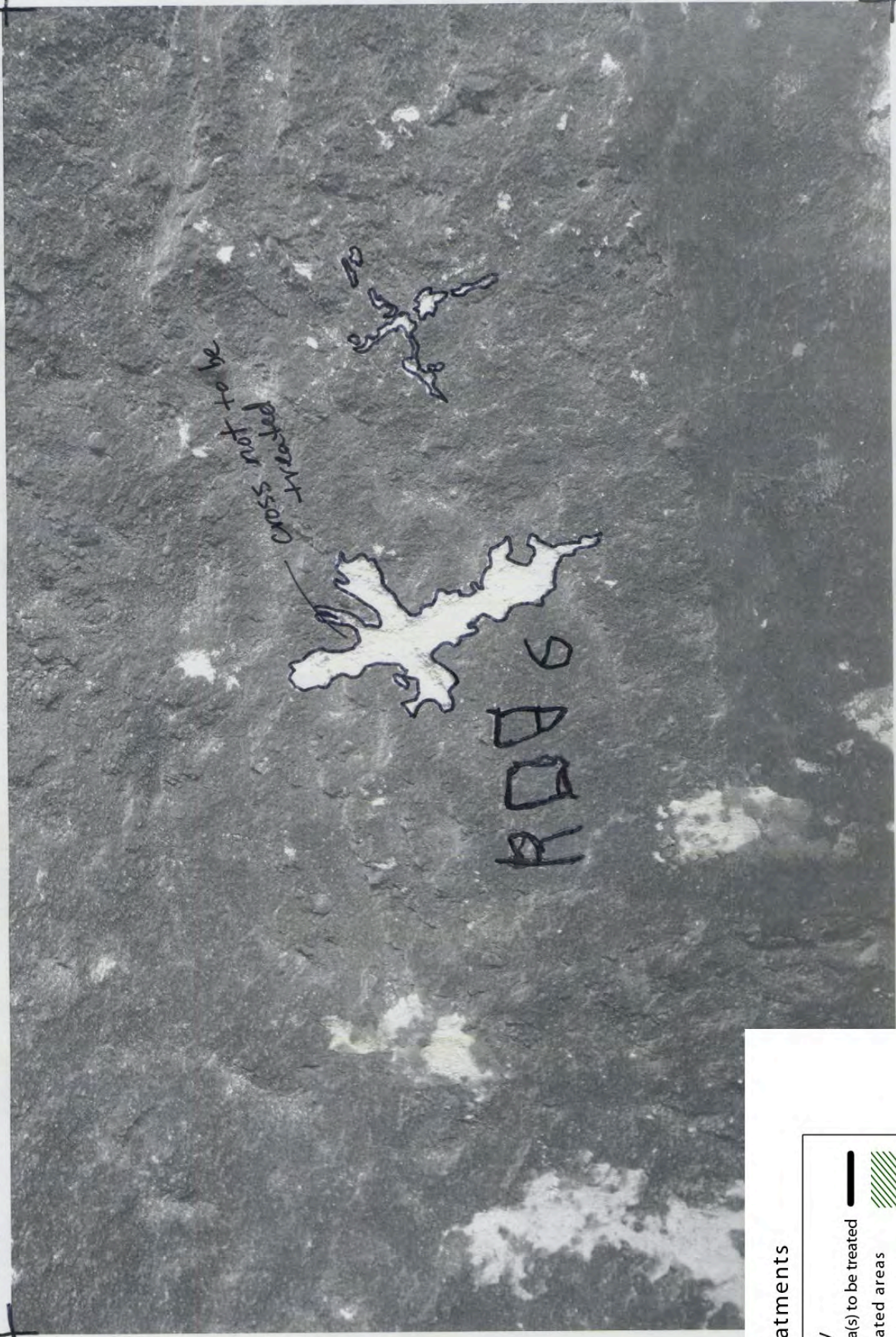
After Photo



Cavate BG132
06/16/10

East wall Graffiti
Conservator: R. Adler

118 cm from floor
21 cm L x 9 cm H

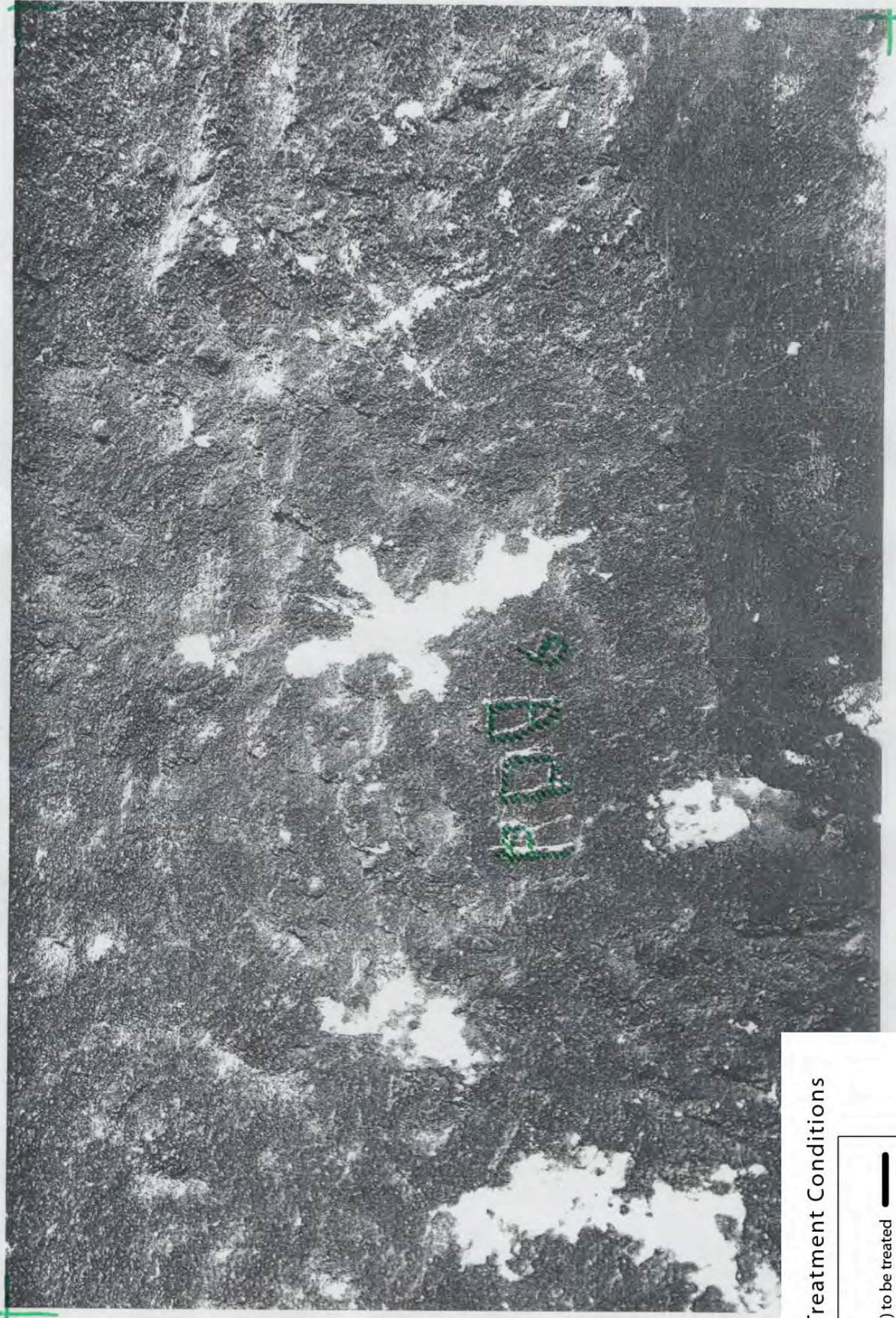


Treatments

Key

Area(s) to be treated

Treated areas



Pre-Treatment Conditions

Key	
Area(s) to be treated	—
Treated areas	///

Cavate Treatment Summary

Location

Area: Frijoles Canyon

LA #: 140939

Group: B

Room #: 148

Date: 06/17/2010

Conservator: J. Holdsworth, A. Crossen

Condition Assessment

Unit Description:

Room 148 is a small cavate in poor to fair condition. Very little of the plaster dado remains. The cavate is largely exposed with only two walls intact.

Pre-treatment condition:

"Aaron Duran" is incised into the sooted layer of plaster just above the ceiling curve. The graffiti extends through the plaster into the tuff.

Treatment Description (before and after photos taken of all treatment areas)

Location (N, S, E, W): east

Detail #s: 1

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a hydraulic lime slip to the area.
4. Filled the graffiti with multiple thin layers of hydraulic lime mortar and pressed it into the void with a microspatula to compact the mortar.
5. Finished plaster infill by texturing with a small rock and bamboo skewers to aid in matching the original texture.
6. Used natural bristle brushes and sponges to apply a watery mix of pigment (Williamsburg Ivory Black and Williamsburg Lamp Black) in various concentrations to match surrounding sooted tuff
7. Applied dry pigment with paintbrushes to match surrounding area.
8. Applied sieved grey tuff with a dry brush to further camouflage infill.

Results

The graffiti was largely obscured and requires no further treatment at this time.

Monitoring

Periodic comparison of treatment areas with post-treatment images is needed to evaluate change in appearance and presence of new graffiti. Mortar, slip, or pigment may need to be reapplied since the cavate is extremely exposed to sunlight and wind-blown particle abrasion.

Cavate Images



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 148**Detail#:** 1**Date:** 06/17/2010**Conservator:** J. Holdsworth, A. Crossen

Condition Assessment

Treatment location: east ceiling**Height from floor:** 137 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):

40 cm X 45 cm

Depth of Incision (deep x across):

1-7 mm X 1-4 mm

Number of plaster layers penetrated: ~2**Is tuff exposed?** yes**Additional incision damage? (describe):** no**New graffiti since 2004? (photo comparison):** no

Notes:

"Aaron Duran" is incised in the sooted layer of the plaster just above the ceiling curve. The graffiti extends through the plaster into the tuff.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip to the area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a microspatula to compact the mortar.
5. Finished plaster infill by texturing with a small rock and bamboo skewers to aid in matching original texture.

Inpainting

Materials: pigment (Williamsburg Ivory Black), pigment (Williamsburg Lamp Black), water, ground tuff

Application Method:

1. Used natural bristle brushes and sponges to apply a watery mix of pigment in various concentrations to match surrounding sooted tuff.
2. Applied dry pigment with paintbrushes.
3. Applied sieved grey tuff with a dry brush to further camouflage infill.

Before Photo



After Photo



Cavate BG148
06/16/10

CEILING SCARFITI
CONSERVATORS: J. HOLOSWORDY
A. CROSSEN

137 cm from ground
40 cm by x 45 cm H



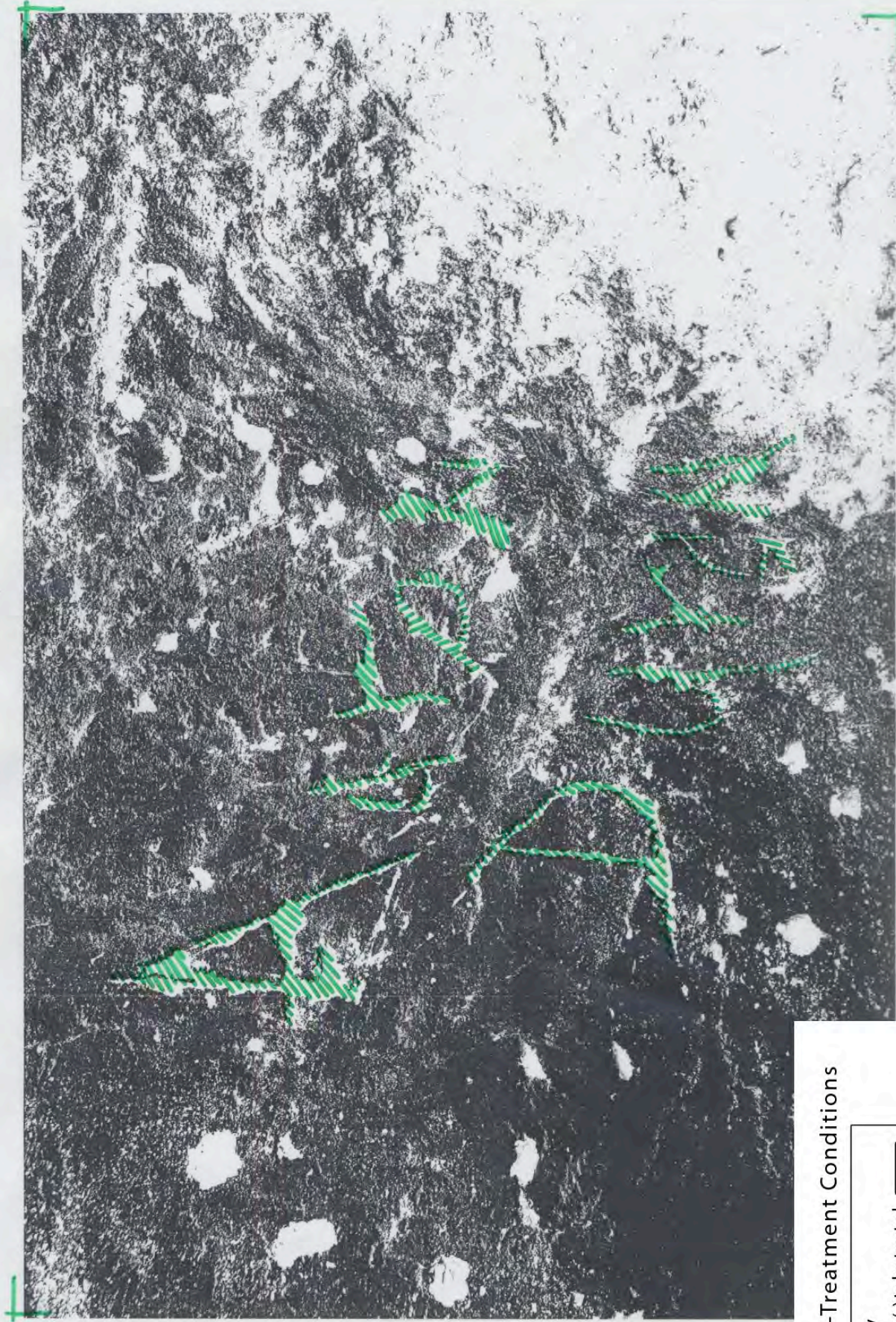
Treatments

Key

Area(s) to be treated

Treated areas





Pre-Treatment Conditions



Cavate Treatment Summary

Location

Area: Frijoles Canyon

LA #: 140939

Group: B

Room #: 151

Date: 06/18/2010

Conservator: A. Bass, D. Porter, E. Calderon, A. Crossen, A. Sullins, E. Logan, J. Holdsworth, R. Adler, K. Stevenson

Condition Assessment

Unit Description:

Cavate 151 is a large room covered in graffiti. The cavate is in poor condition, with few remnants of plaster on the walls, and several large losses on the ceiling.

Pre-treatment condition:

There is abundant graffiti on the south, north, and east sides of the cavate and along the sooted walls and ceiling. The cavate was divided into six sections to document and treat the graffiti. (See Detail sheets 1-6.)

Treatment Description (before and after photos taken of all treatment areas)

Location (N, S, E, W): east

Detail #s: 1, 2, 3, 4, 5, 6

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a hydraulic lime slip to the treatment area.
4. Filled the graffiti with multiple thin layers of hydraulic lime mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.
5. Stippled a mixture of black pigment and water along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
6. Brushed or sprayed one coat of a 25% acrylic emulsion (Rhoplex) in water (V?V) to the surface of the repair mortar to ensure paint and pigment adhesion.
7. Sponged or brushed dry pigments (black, yellow, grey) on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

Results

The graffiti was largely obscured and requires no further treatment at this time.

Monitoring

Periodic comparison of treatment areas with post-treatment images is needed to evaluate change in appearance and presence of new graffiti. Mortar, slip, or pigment may need to be reapplied since the cavate is open and exposed to sunlight and wind-blown particle abrasion.

Cavate Images



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 151**Detail#:** 1**Date:** 06/18/2010**Conservator:** A. Bass, D. Porter

Condition Assessment

Treatment location: south ceiling**Height from floor:** 184 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):
15 cm X 18 cm**Depth of Incision** (deep x across):
1-10 mm X 1-15 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** yes**Additional incision damage? (describe):** none**New graffiti since 2004? (photo comparison):** no**Notes:**

Graffiti is an "R L". The depth of the incision ranges between 1 cm and 1 mm. The incisions cut through the soot layer into the tuff.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.

Inpainting

Materials: pigment (Williamsburg Ivory Black), pigment (Williamsburg Lamp Black), 25% acrylic emulsion (EL Rey) in water (V?V)

Application Method:

1. Stippled black watercolor along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
2. Brushed or sprayed one coat of the acrylic emulsion in water to the surface of the repair mortar to ensure paint and pigment adhesion.
3. Sponged or brushed dry black pigments on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

Before Photo



After Photo



B-151

S ceiling

6-15

184 cm from floor

15 cm wide

18 cm tall

Detail 1



Treatments

Key

Area(s) to be treated

Treated areas

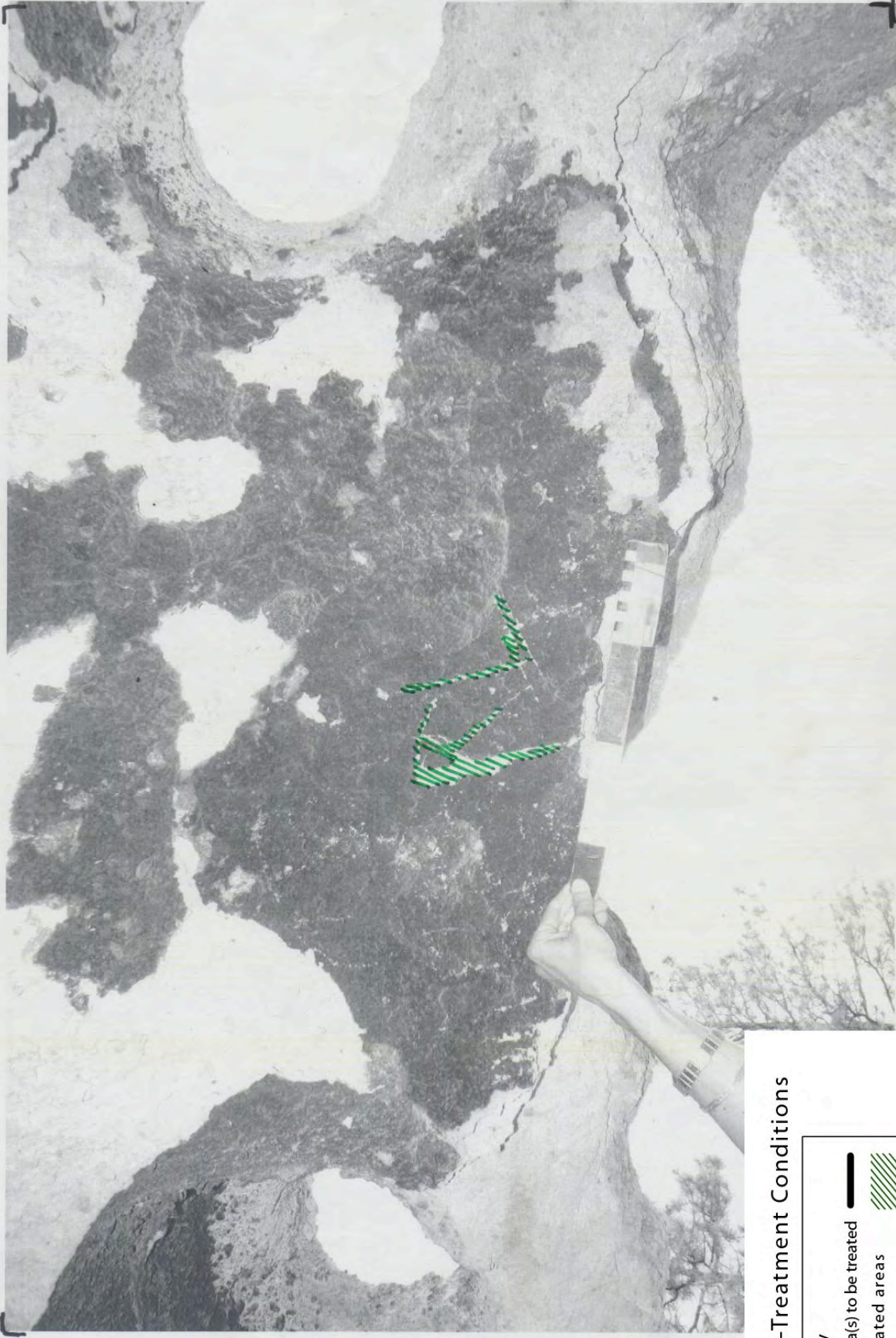


BIS1
6-22

SCILING
184 CMS FROM FLOOR

15 CM WIDE
18 CM TALL

DARTIL 1



Pre-Treatment Conditions

Key

Area(s) to be treated

Treated areas

Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 151**Detail#:** 2**Date:** 06/18/2010**Conservator:** E. Logan

Condition Assessment

Treatment location: south wall**Height from floor:** 137 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):
30 cm X 27 cm**Depth of Incision** (deep x across):
1-2 mm X 1-2 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** yes**Additional incision damage? (describe):** none**New graffiti since 2004? (photo comparison):** no**Notes:**

The graffiti is an "R" and an "H" along with other indiscriminate markings. The graffiti is shallow and barely penetrates the soot layer at 1 to 2 mm deep.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.

Inpainting

Materials: pigments – Bioshield Yellow oxide (#207), Bioshield Khaki Umber (#217), Gamblin whiting (PW18), Williamsburg Lamp Black, Gamblin Ivory Black PBk9

Application Method:

1. Stippled black watercolor along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
2. Sponged or brushed dry black pigments and watercolors on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

Before Photo



After Photo



8151

S wall

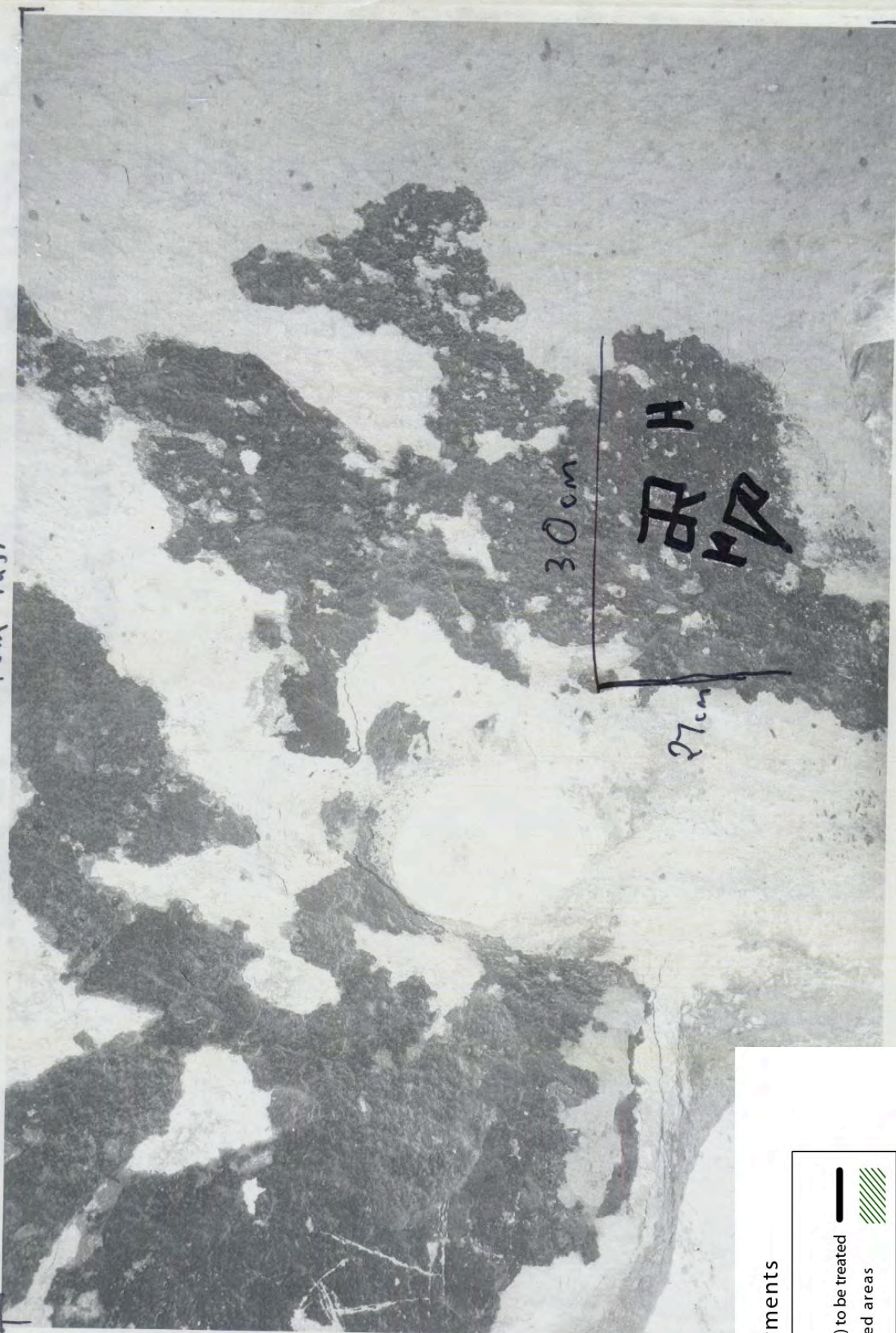
6-15

137 cm from floor

30 cm wide

27 cm tall

Detail 2



Treatments

Key

Area(s) to be treated

Treated areas

—

///

STAPLES®

B151
06-22

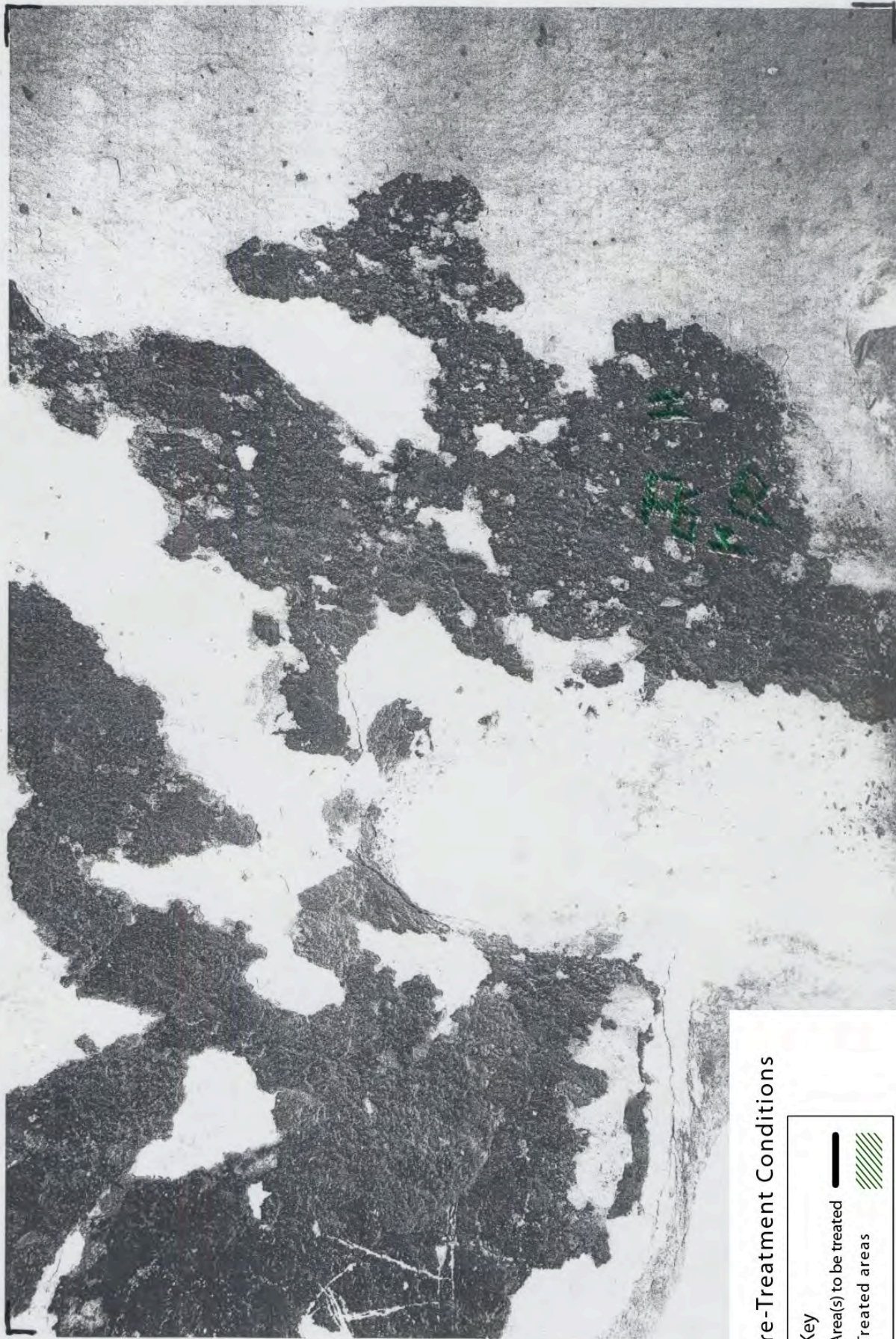
SWALL

137 CM FROM FLOOR

30 CM WIDE

27 CM TALL

DETAIL 2



Pre-Treatment Conditions

Key

Area(s) to be treated

Treated areas



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 151**Detail#:** 3**Date:** 06/18/2010**Conservator:** A. Sullins

Condition Assessment

Treatment location: north ceiling**Height from floor:** 180 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):
72 cm X 36 cm**Depth of Incision** (deep x across):
1-2 mm X 1-10 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of soot layer around incisions**New graffiti since 2004? (photo comparison):** no**Notes:**

The graffiti is "NORA +" and "CLLER + THOM" and "LE + LAR" along with other indiscriminate markings and scratches. The graffiti is shallow (1 to 2 mm) and reaches through the sooted layer.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.

Inpainting

Materials: pigments – Bioshield Yellow oxide (#207), Bioshield Khaki Umber (#217), Gamblin whiting (PW18), Williamsburg Lamp Black, Gamblin Ivory Black PBk9, 25% acrylic emulsion (El Rey) in water (V?V)

Application Method:

1. Stippled black watercolor along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
2. Brushed or sprayed one coat of the acrylic emulsion to the surface of the repair mortar to ensure paint and pigment adhesion.
3. Sponged or brushed dry black pigments and watercolors on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

Before Photo



After Photo

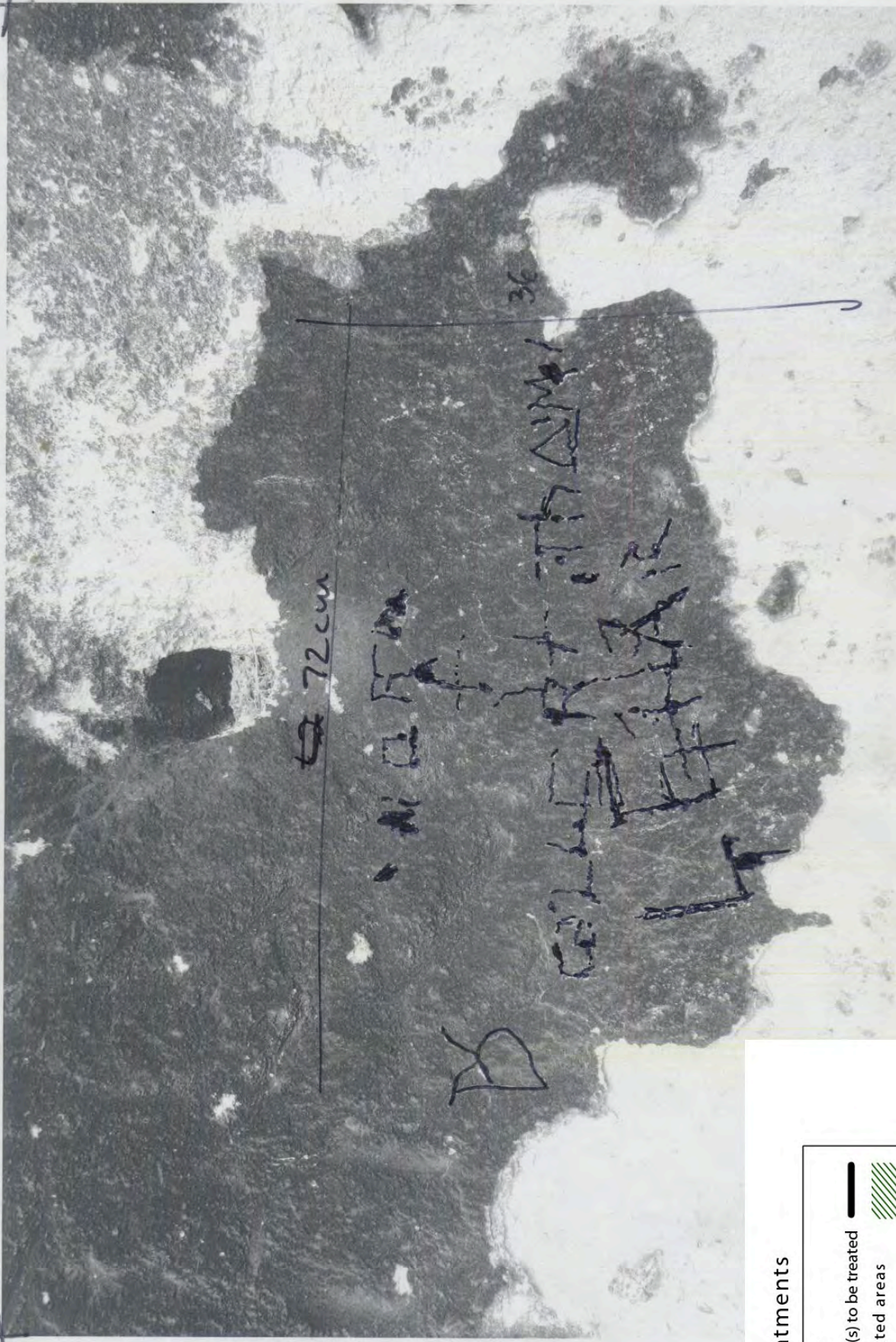


B-151
06/15

N CEILING
180 cm from floor

W 36 cm
L 72 cm

Detail 3



Treatments

Key

Area(s) to be treated

Treated areas



STAPLES

0-151

N CEILING

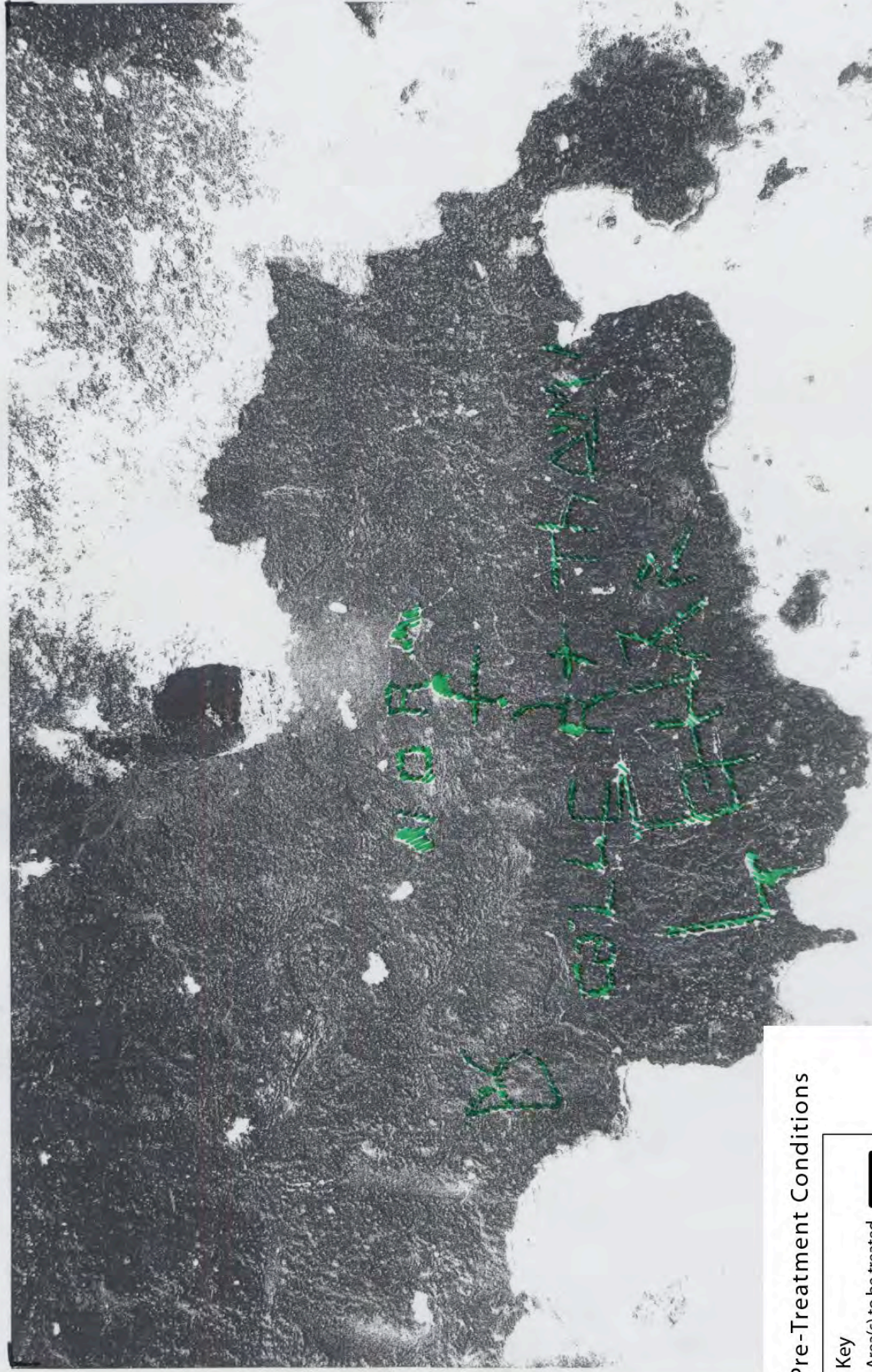
h 36cm

06-22

180cm FROM FLOOR

L 72cm

DETAIL 3



Pre-Treatment Conditions

Key

Area(s) to be treated

Treated areas



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 151**Detail#:** 4**Date:** 06/18/2010**Conservator:** E. Logan

Condition Assessment

Treatment location: northeast wall**Height from floor:** 124 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):
60 cm X 60 cm**Depth of Incision** (deep x across):
1-4 mm X 1-4 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of soot layer around incisions**New graffiti since 2004? (photo comparison):** no**Notes:**

Most of the graffiti is incised shallowly into the tuff layer. "DANNY" and other markings were treated.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.

Inpainting

Materials: pigments – Bioshield Yellow oxide (#207), Bioshield Khaki Umber (#217), Gamblin whiting (PW18), Williamsburg Lamp Black, Gamblin Ivory Black PBk9, 25% acrylic emulsion (El Rey) in water (V?V)

Application Method:

1. Stippled black watercolor along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
2. Brushed or sprayed one coat of the acrylic emulsion to the surface of the repair mortar to ensure paint and pigment adhesion.
3. Sponged or brushed dry black pigments and watercolors on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

Before Photo



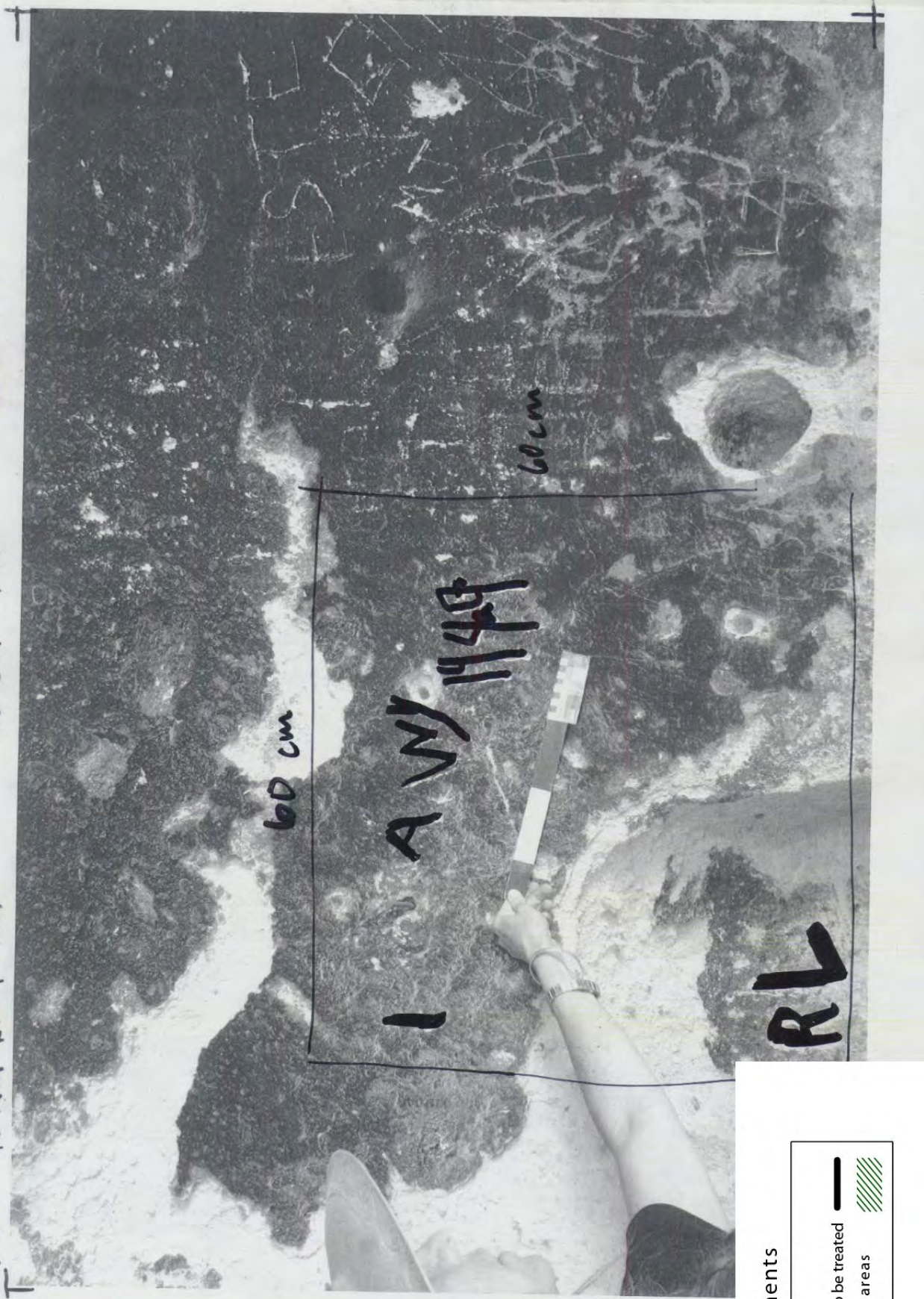
After Photo



B-151 NE Wall
6/15 124cm From Floor

60 cm wide
60 cm tall

Detail 4



Treatments

Key

Area(s) to be treated

Treated areas



B-151
06/22

NE WALL
124 CM FROM FLOOR

60CM WIDE
60CM TALL

DETAIL 4



Pre-Treatment Conditions



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 151**Detail#:** 5**Date:** 06/18/2010**Conservator:** E. Calderon

Condition Assessment

Treatment location: east wall**Height from floor:** 120 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):
110 cm X 80 cm**Depth of Incision** (deep x across):
1-5 mm X 1-2 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of soot layer around incisions**New graffiti since 2004? (photo comparison):** no**Notes:**

The graffiti is "ESTELLE" and "HAP" along with several other indiscriminate scratches and markings. The graffiti is incised into the soot layer, at a depth from 1 to 5 mm.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.

Inpainting

Materials: pigments – Bioshield Yellow oxide (#207), Bioshield Khaki Umber (#217), Gamblin whiting (PW18), Williamsburg Lamp Black, Gamblin Ivory Black PBk9, 25% acrylic emulsion (El Rey) in water (V?V)

Application Method:

1. Stippled black watercolor along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
2. Brushed or sprayed one coat of the acrylic emulsion to the surface of the repair mortar to ensure paint and pigment adhesion.
3. Sponged or brushed dry black pigments and watercolors on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

Before Photo



After Photo



B151
06/15

E WALL

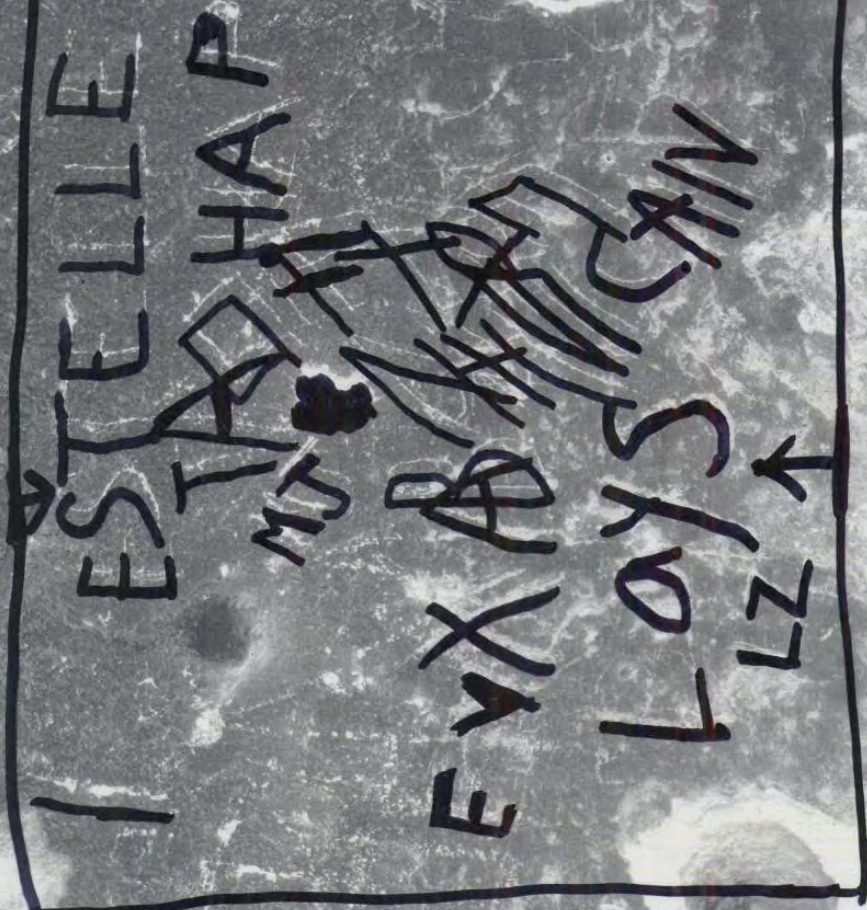
120 CMS FROM FLOOR

L 110 CMS
h 80 CMS

detail S

110 cm

80 cm



1949

Treatments

Key

Area(s) to be treated

Treated areas



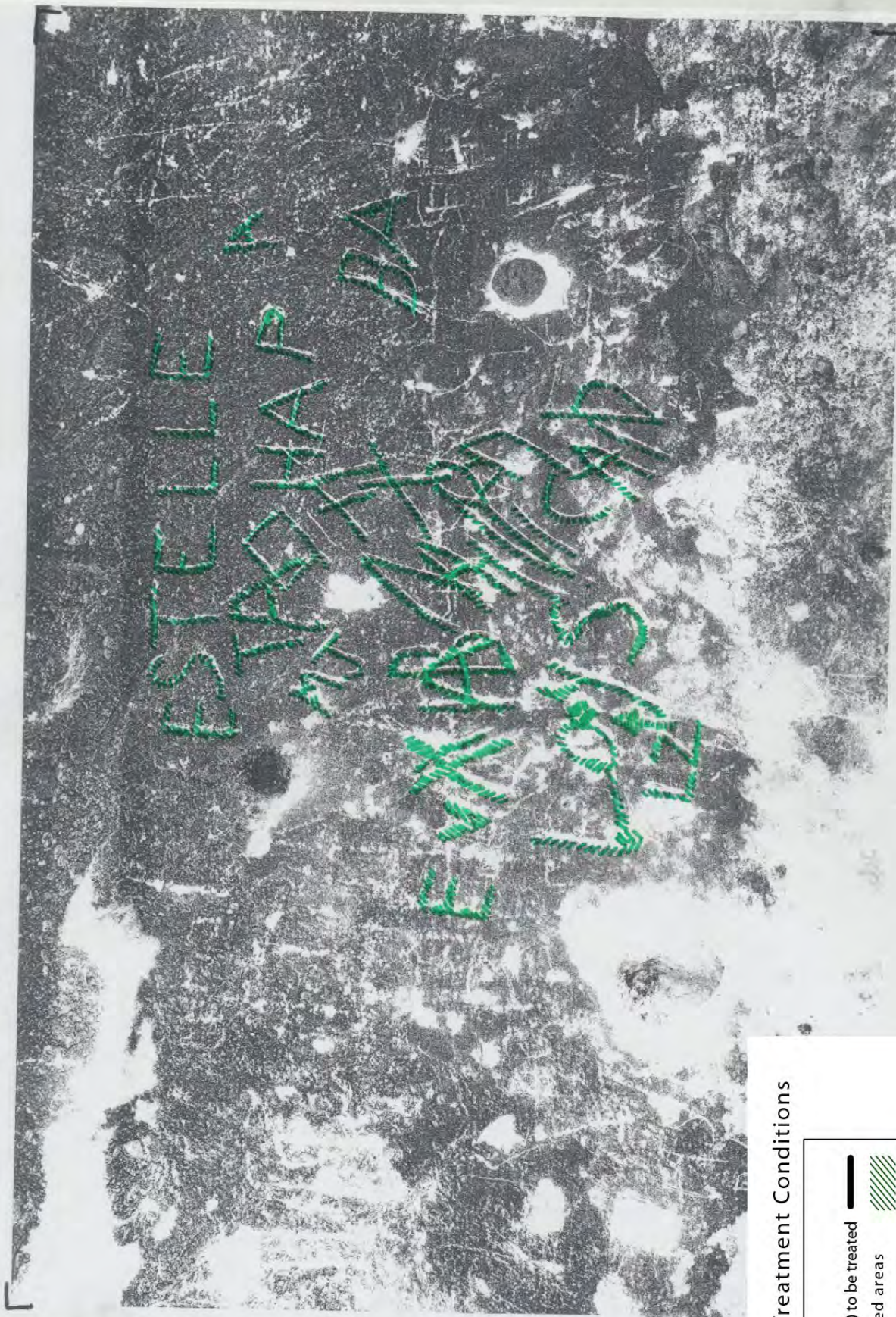
B-151 E WALL

06/15 120 CMS FROM FLOOR

L 110CMS

H 80CMS

DETAIL 5



Pre-Treatment Conditions

Key

Area(s) to be treated

Treated areas



Cavate Treatment Detail

Location

Area: Frijoles Canyon**LA #:** 140939**Group:** B**Room #:** 151**Detail#:** 6**Date:** 06/18/2010**Conservator:** K. Stevenson

Condition Assessment

Treatment location: south wall**Height from floor:** 110 cm**Type of graffiti:** incised**Substrate:** tuff**Area of damage** (l x h):
80 cm X 80 cm**Depth of Incision** (deep x across):
1-5 mm X 1-10 mm**Number of plaster layers penetrated:** none**Is tuff exposed?** yes**Additional incision damage? (describe):** flaking of soot layer around incisions**New graffiti since 2004? (photo comparison):** no**Notes:**

The graffiti includes "JK", "HP", "PS", "JB", and "1995", all of which are incised through the soot layer to the tuff. The depth of the incisions ranges from 1 to 3 mm. Some of the graffiti appears to have been pecked.

Treatment Description (before and after photos taken of all treatment areas)

Infilling

Mortar formula: wash silt : hydrated hydraulic lime (HHL) (2:1)

Application method:

1. Removed loose tuff particles and dust from incised graffiti with small brush and air bulb.
2. Wet the treatment area with water.
3. Applied a slip (watery mortar consisting of wash silt : hydrated hydraulic lime (HHL) (2:1) to the scratched area.
4. Filled the graffiti with multiple thin layers of mortar and pressed it into the void with a piece of pumice. The rock compacted the mortar and gave it an uneven texture.

Inpainting

Materials: pigments – Bioshield Yellow oxide (#207), Bioshield Khaki Umber (#217), Gamblin whiting (PW18), Williamsburg Lamp Black, Gamblin Ivory Black PBk9, 25% acrylic emulsion (El Rey) in water (V?V)

Application Method:

1. Stippled black watercolor along edges of repair mortar to blend the sharp lines with the surrounding sooted tuff.
2. Brushed or sprayed one coat of the acrylic emulsion to the surface of the repair mortar to ensure paint and pigment adhesion.
3. Sponged or brushed dry black pigments and watercolors on the repair surface to match the repair to the surrounding granular texture and color of the tuff.

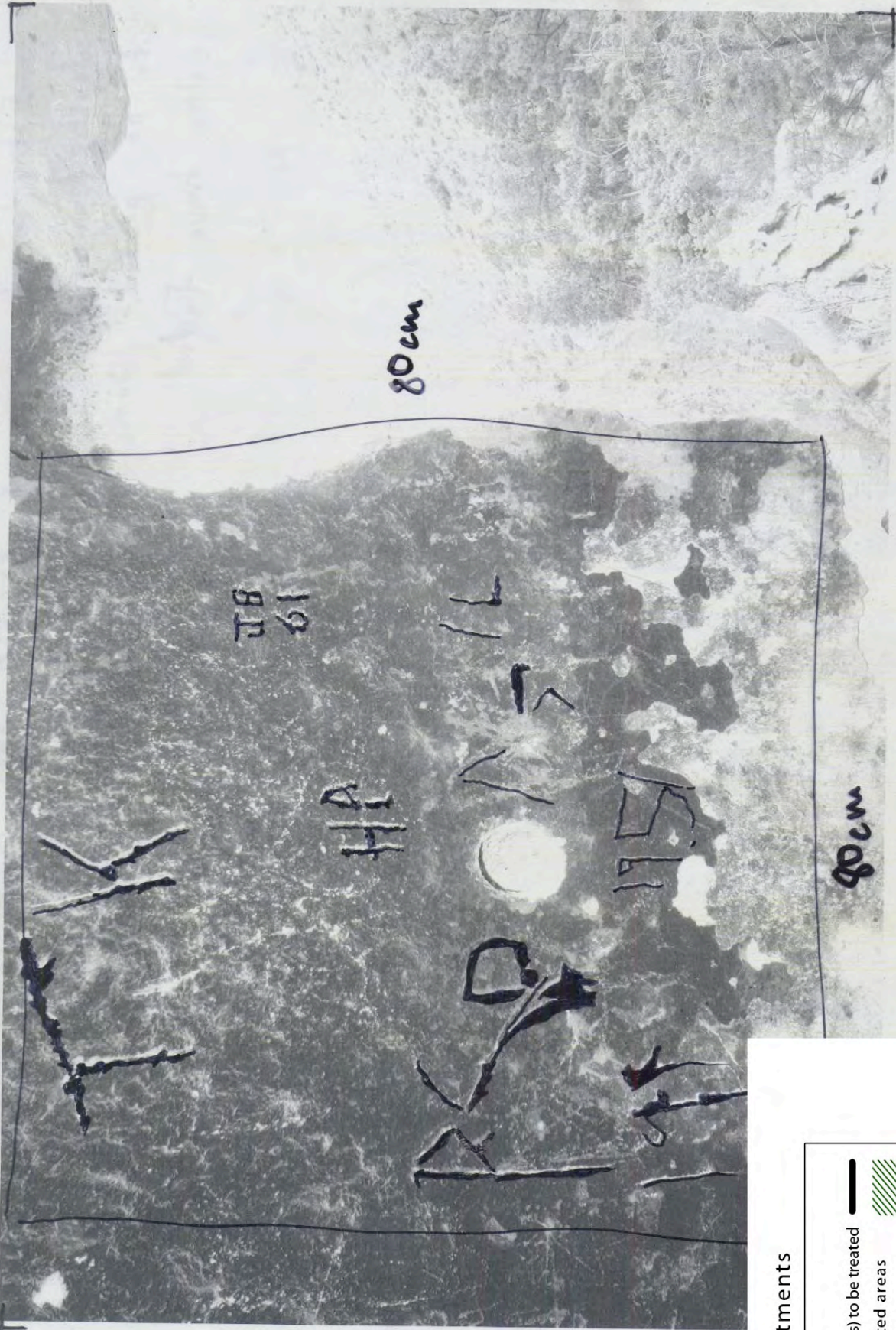
Before Photo



After Photo



B 151 S Wall 80cm wide detail
 6-15 110cm from floor 80cm tall



Treatments

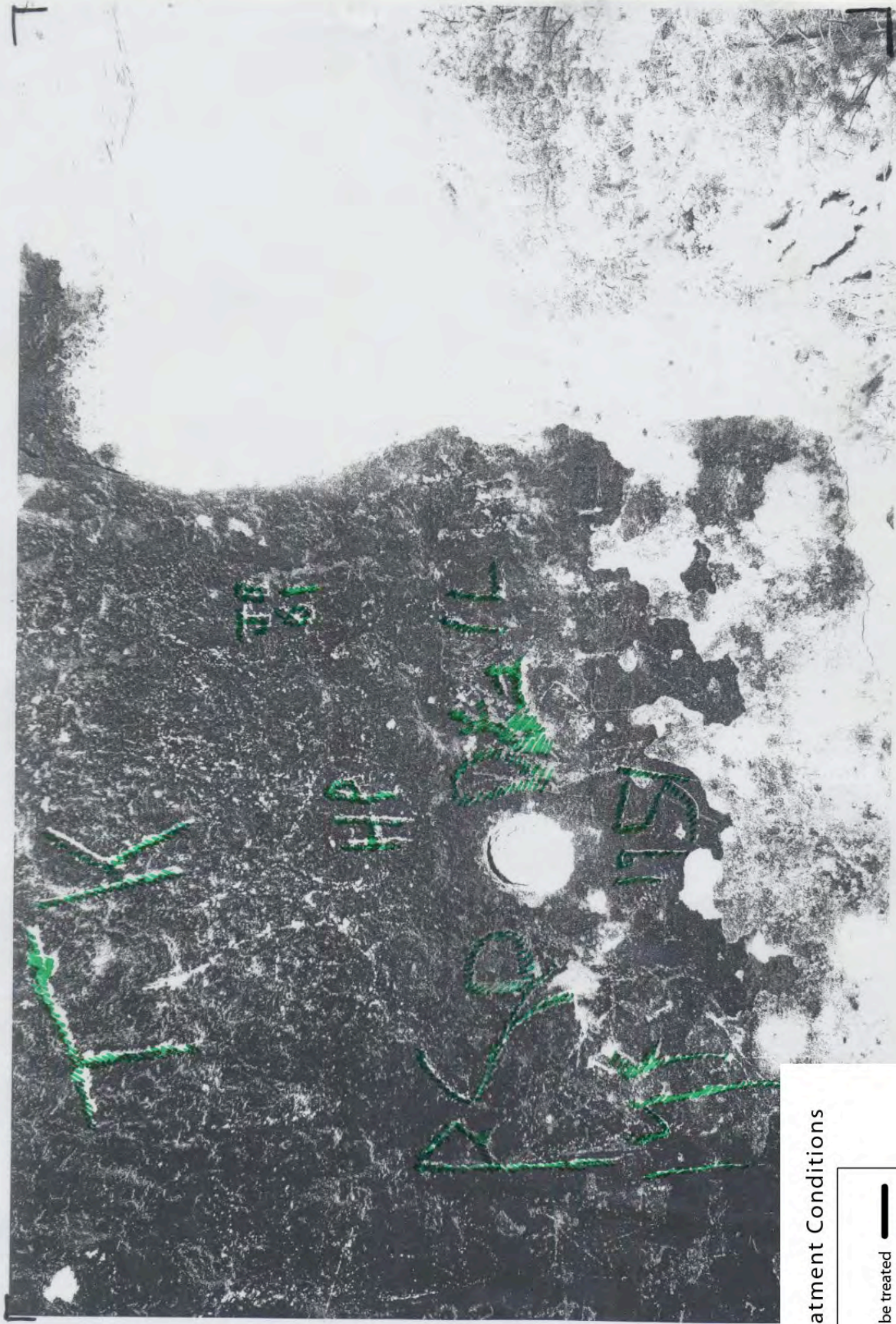
Key	
Area(s) to be treated	—
Treated areas	▨

B-151
06/22

S WALL
110 CM FROM FLOOR

80 CM WIDE
80 CM TALL

DETAIL 6



Pre-Treatment Conditions

Key	
Area(s) to be treated	—
Treated areas	///

PEPC Form



Categorical Exclusion Form

Project: Frijoles Canyon Cavates, Documentation and Conservation (continuation)

PEPC Project Number: 31118

Project Description: **This project is a continuation of documentation and conservation efforts initiated to address ongoing deterioration in the Frijoles Canyon cavates. The project will consist of four primary components in FY10: 1. Targeted architectural documentation to create a physical record of existing features, materials, and conditions. Documentation may take the form of standard photography, 3D photography, laser scanning, measured drawings, and narrative descriptions; 2. Emergency conservation measures designed to slow the deterioration process and preserve significant materials and features. Treatments may include interior and exterior erosion control, mortar infilling, plaster edging and grouting, drainage modification, backfilling exposed floors, and graffiti mitigation; 3. Limited collection of tuff samples for scientific analysis followed by infill testing; and 4. Monitoring previously treated areas to evaluate effectiveness, check for deterioration in surrounding materials, and gather data for future treatment efforts. See attached scope of work for detailed description of proposed activities.**

Project Location:

Location

County: Sandoval

State: NM

District:

Section:

Geo. Marker:

Other:

(See Attached Environmental Screening Form)

Mitigation(s):

- **At conclusion of seasonal project work, create a report that summarizes the extent of work completed, including plan and photographic documentation, and replication mortar recipes. Indicate extent of masonry replacement, where that occurs, and any other elements of the project as it develops during the season. Establish archival treatment regimen for project documentation that incorporates archival material standards for hard copy versions of documents. Place material in archival storage at both the park, NPS or Library of Congress, and state of New Mexico depositories, as feasible. Selected archives should manage appropriately for Sensitive Data.**

- The Field School working with this project is limited to one vehicle.
- The Field School vehicle shall park in tandem with the park's VT vehicle so that only one normal parking place is used.

Describe the category used to exclude action from further NEPA analysis and indicate the number of the category (see Section 3-4 of DO-12):

C.4 Routine maintenance and repairs to cultural resource sites, structures, utilities and grounds under an approved Historic Structures Preservation Guide or Cyclic Maintenance Guide; or if the action would not adversely affect the cultural resource.

(See Attached Environmental Screening Form)

On the basis of the environmental impact information in the statutory compliance file, with which I am familiar, I am categorically excluding the described project from further NEPA analysis. No exceptional circumstances or conditions in Section 3-6 apply, and the action is fully described in Section 3-4 of DO-12.

Park Superintendent / Date:

 4/27/10

NPS Contact Person:

Title:

Phone number:

Materials and Supply List

Materials and Supply List

Tools and Equipment

- beakers for mixing soil
- artist paint brushes (various sizes):
Artisan / Santa Fe
- spatulas: *Talas, Fisher Scientific*
- ASTM sieve (#40 passing particles <425 μm), #35 sieve: Forestry Suppliers
- kitchen sieve
- palettes (for mixing pigments and paints)
- spray bottles
- cosmetic sponges
- bamboo skewers, bulk cotton (swabs)
- plastic bottles

Materials

- locally collected soils
- grey tuff passing #35 sieve
- plaster inpainting color 083 (Munsell color: 10 YR 6/3-6/4 dry)
- hydrated hydraulic lime: *St. Astier*, 3.5
- pigments: Schmincke-Black Iron Oxide (18-727), Williamsburg-Lamp Black, Williamsburg-Mars Black, Williamsburg-Ivory Black, Gamblin-Ivory Black (PBk9), BioShield khaki umber (No.217), BioShield oxide yellow (No.207), Gamblin french yellow ochre deep (no #), Gamblin whiting (calcium carbonate PW18): *Artisan / Santa Fe*

Suppliers

Artisan / Santa Fe, 2601 Cerrillos Rd, Santa Fe, NM 87505, 505.954.4179

Fisher Scientific, 9999 Veterans Memorial Drive, Houston, TX 77038, 800.766.7000, www.fishersci.com

Forestry Suppliers, Inc., 205 West Rankin Street Jackson, MS 39284, 800.647.5368, www.forestry-suppliers.com

TransMineral USA, Inc. (St. Astier Natural Hydraulic Lime), 201 Purrington Road, Petaluma, CA 94952, 707.769.0661, <http://www.transmineralusa.com/>

Talas, 213 West 35th St., New York, NY 10001-1996, 212.736.7744

Soils (collected by Bandelier staff)

1. "Grey": Degraded tuff collected from rocks in the wash between groups D and E (scraped from rock) (Munsell color: 10 YR 7/1 dry).
2. "Clay #1": Collected from exposed vertical clay deposit in wash between D and E (Munsell color: 7.5 YR 7/4 dry).
3. "Wash Silt": Scraped from uppermost deposit (-1mm) in wash channel between D and E (Munsell color: 10 YR 6/2 dry).
4. "Clay #2": Collected from horizontal clay deposit at base of cliff in wash between D and E (Scraped from rock) (Munsell color: 7.5 YR 6/4 dry).

Project Participant List

Project Participants 2010

<u>Participant</u>	<u>Title</u>
Douglas Porter	Principal Investigator
Angelyn Bass	Conservator
Adam Sullins	UNM
Keri Stevenson	UNM
Edwar Calderon	UNM
Shannon Dennison	VT Program Manager
Stephen Merkel	VT Supervisor
Johnny Holdsworth	NPS
Eli Logan	NPS
Rachel Adler	NPS
Ashley Crossen	NPS

Field School Announcement

Bandelier National Monument

Graffiti Mitigation, 2010

FIELD CONSERVATION OPPORTUNITIES

Begun in 2000, the Frijoles Canyon Cavate Pueblo Conservation Project is focused on documentation and preservation of the cavates, or cliff dwellings, in Frijoles Canyon. Cavates are hand-hewn rock chambers that, together with the collapsed multi-story buildings constructed against the cliff face, were the ancestral dwellings of the Pueblo people now living in the Rio Grande Valley. The larger project included development of conservation treatments including mitigation of graffiti on interior walls and ceilings.

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The Frijoles Canyon cavates in Bandelier National Monument.

The primary objective of mitigation treatment is to obscure modern graffiti that has been carved into the tuff and/or plaster in high-priority cavates. Cavates have been selected for treatment if they have high physical integrity and retain many original features, if mitigation has the potential to restore visual integrity, and if the cavate is located near a public trail. Treatments protocols were established during the Frijoles Canyon Cavate Pueblo Conservation Project from 2000-2006.

The School of Architecture at the University of New Mexico will collaborate with National Park Service staff in a field school involving research, training and treatment implementation. Student interns and volunteers will work directly with experienced conservators.

The workshop will begin in June 2010 for approximately two weeks. Three student trainees and a limited number of volunteers will be involved. Student trainees completing the workshop will receive stipends commensurate with their skills and responsibilities. Trainee responsibilities include daily participation in conservation activities, photo documentation of the project, and preparation of completion reports and training materials. Volunteers participating in the conservation activities may qualify for a small travel allowance to help offset transportation costs. Each student will be responsible for her / his transportation to/from Los Alamos (5 days/wk during the workshop). Students and volunteers interested in participating should contact:

Doug Porter
School of Architecture
University of New Mexico
(802) 324-7528
dwporter@unm.edu



Select Bibliography

Select Bibliography

Bandelier National Monument; Draft Preliminary Data Analysis and Treatment Testing for the Frijoles Canyon Cavates; Frijoles Canyon Cavate Conservation Project, 2000-2009. Angelyn Bass Rivera, Shannon Dennison, Kathy Fiero, Stephen Merkel, and Lauren Meyer. U.S. Department of the Interior, Washington, DC, 2010. VT Field Office; Pdf available.

Bandelier National Monument; Addendum to the Final Project Report; Frijoles Canyon Cavate Pueblo Conservation Project. Angelyn Bass Rivera, Lauren Meyer, Mary Slater, and Larry Humetewa. U.S. Department of the Interior, Washington, DC, 2004. VT Field Office.

Bandelier National Monument; Final Project Report; Frijoles Canyon Cavate Pueblo Conservation Project and Field School in Site Conservation and Heritage Management, Angelyn Bass Rivera, Lauren Meyer, Mary Slater, Sophia C. Middlebrook, and others. U.S. Department of the Interior, Washington, DC, 2003. VT Field Office.

Bandelier National Monument; Interim Project Report: Frijoles Canyon Cavate Pueblo Conservation Project and Field School in Site Conservation and Heritage Management 2002, Angelyn Meyer Lauren Slater Mary Bass Rivera. U.S. Department of the Interior, Washington D.C., 2002. VT Field Office .

Bandelier National Monument Frijoles Canyon Cavate Pueblo Conservation Project: Graffiti Mitigation Lauren Meyer, Shawn McLane, Angelyn Bass Rivera, and Mary Slater. Bandelier National Monument: NPS, 2005.

———. "Frijoles Canyon, Graffiti Mitigation, Group A and Group C (Graphic Documentation)."2002.

———. "Frijoles Canyon, Graffiti Mitigation, Group A and Group E (Graphic Documentation)."2004.

———. "Frijoles Canyon, Graffiti Mitigation, Pre- and Post-Treatment Images, Cavate Groups A and C (Photographic Prints)."2004.

