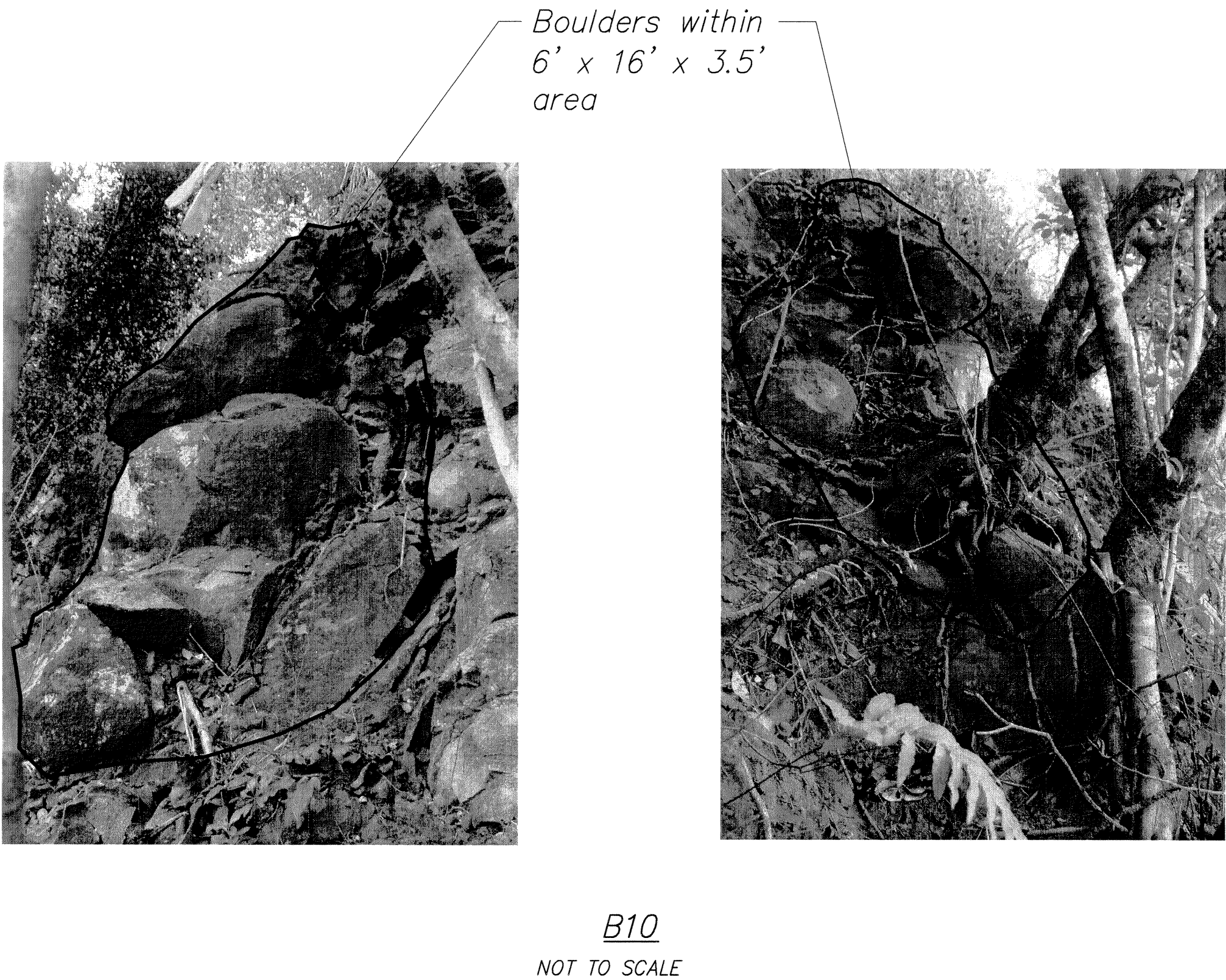
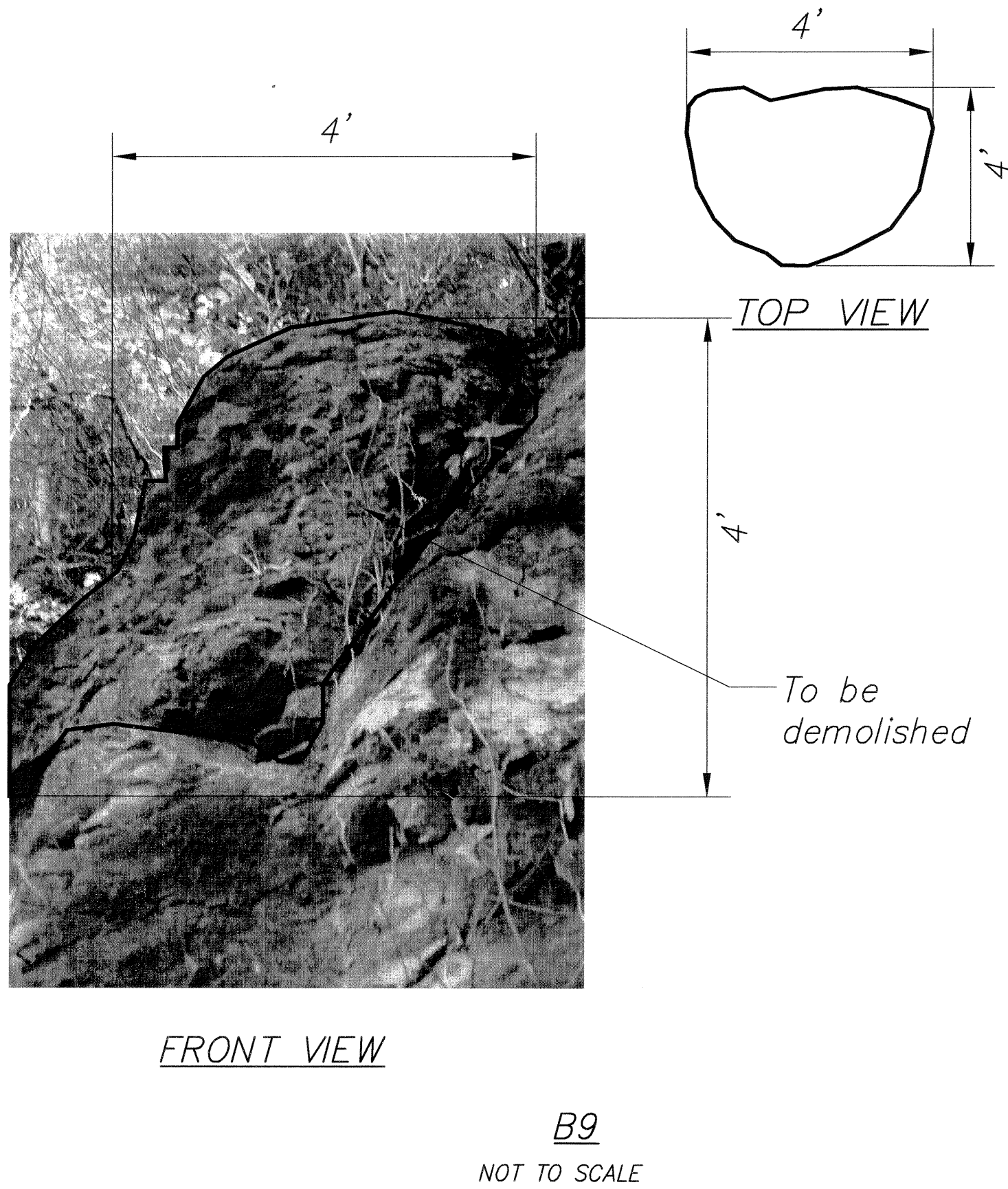
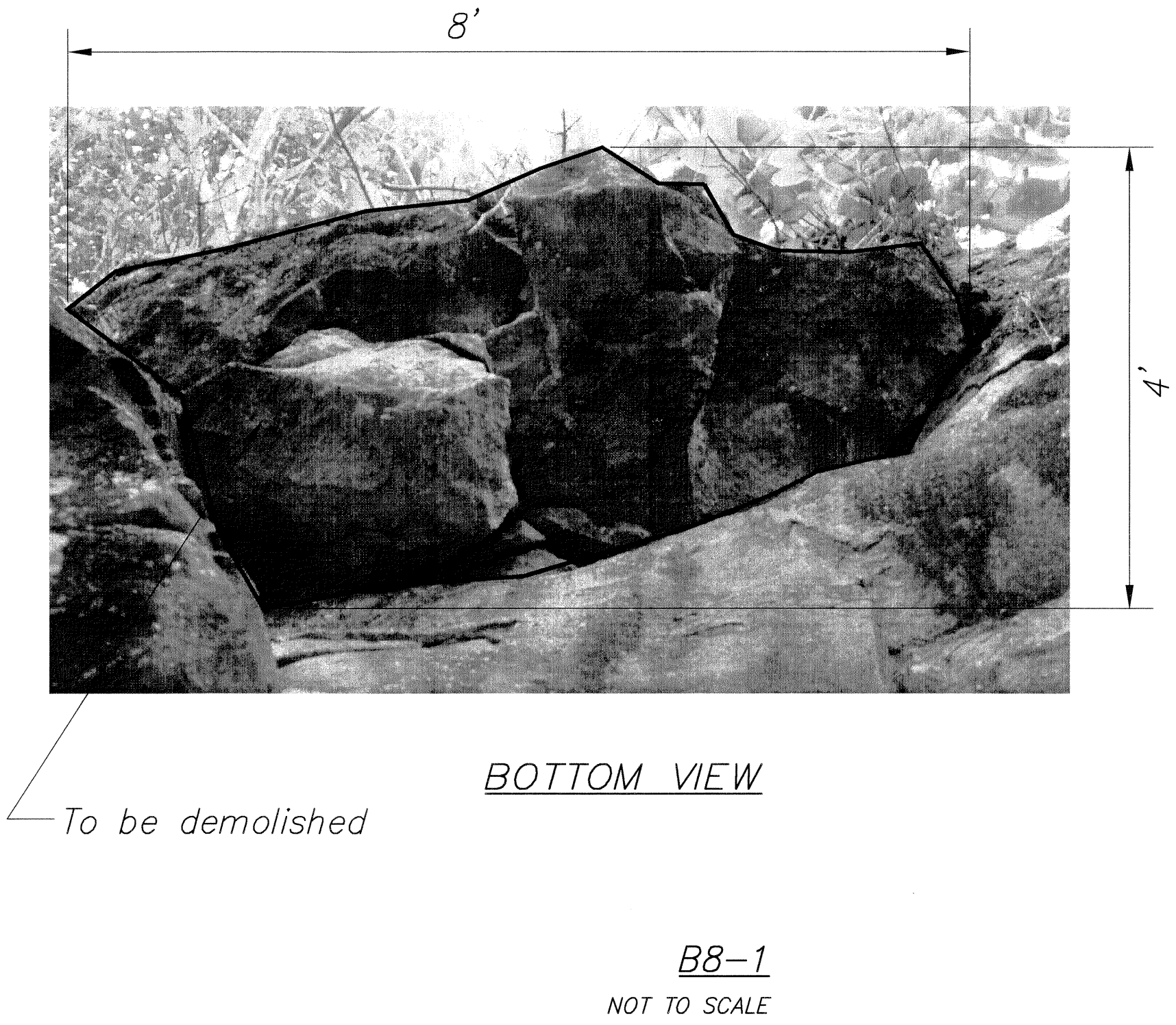
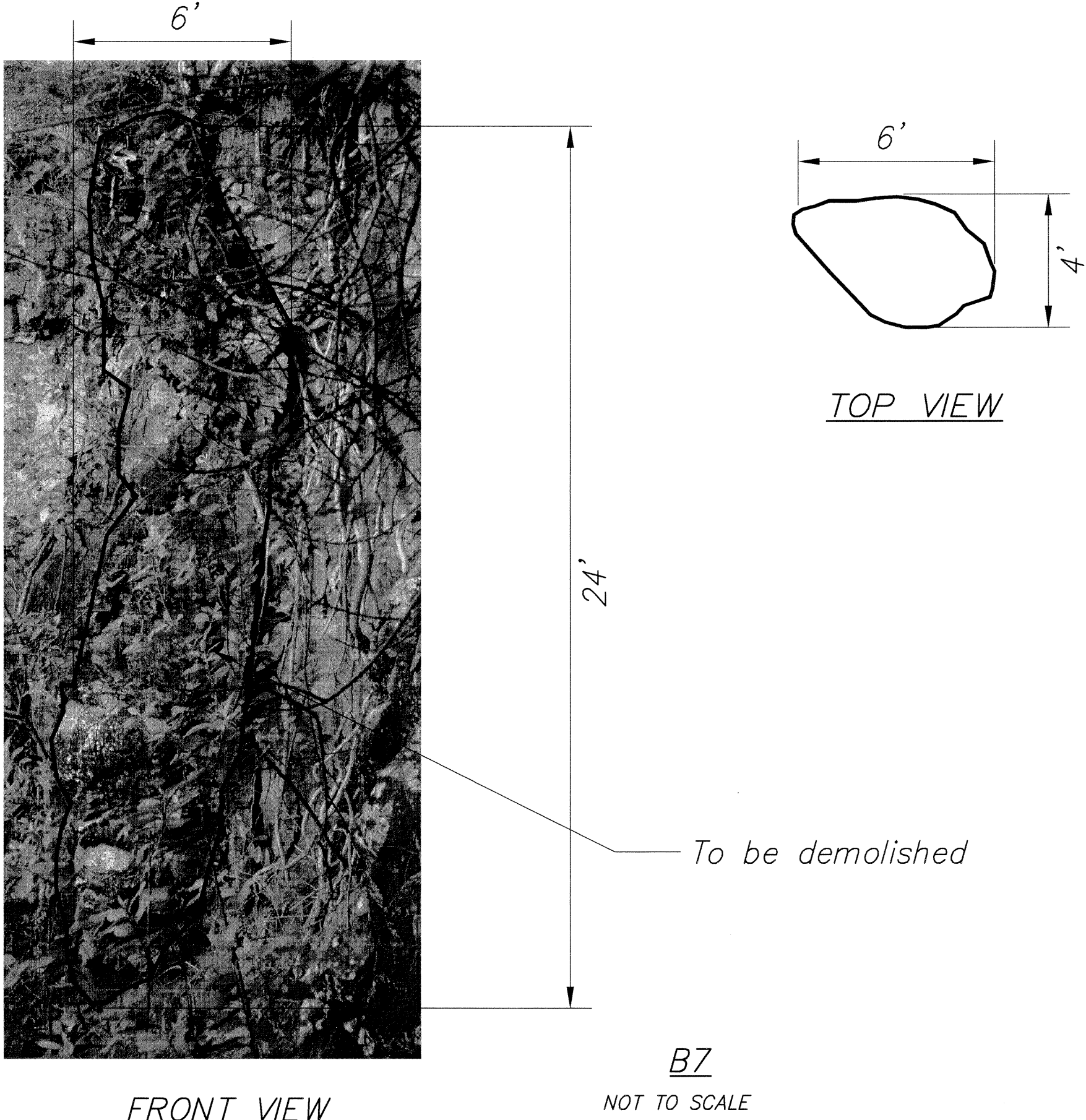
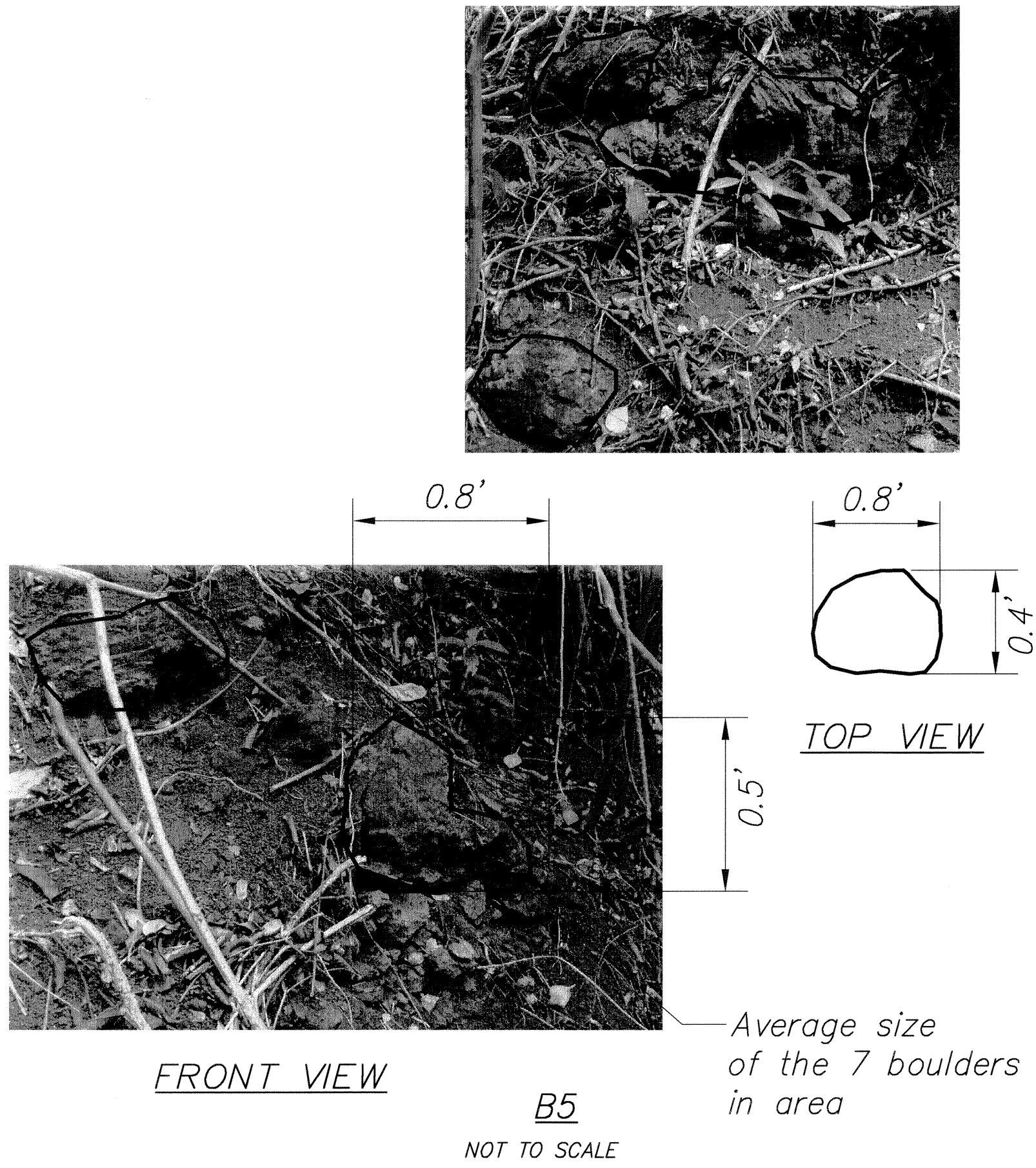


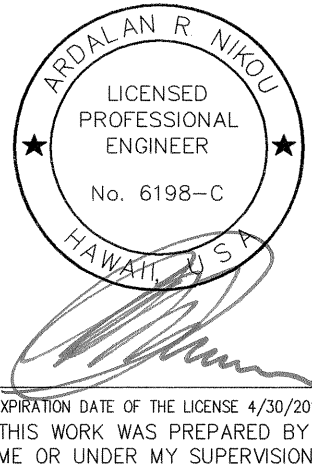
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	16	32



NOTE:
Boulder photographs and dimensions shown on Sheets 16 thru 23 are for information only and to assist the Contractor in identifying the worksite. The Contractor shall perform his/her own site inspection to verify the existing site conditions that may be encountered during construction.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	DESIGNED BY	
	QUANTITIES BY	
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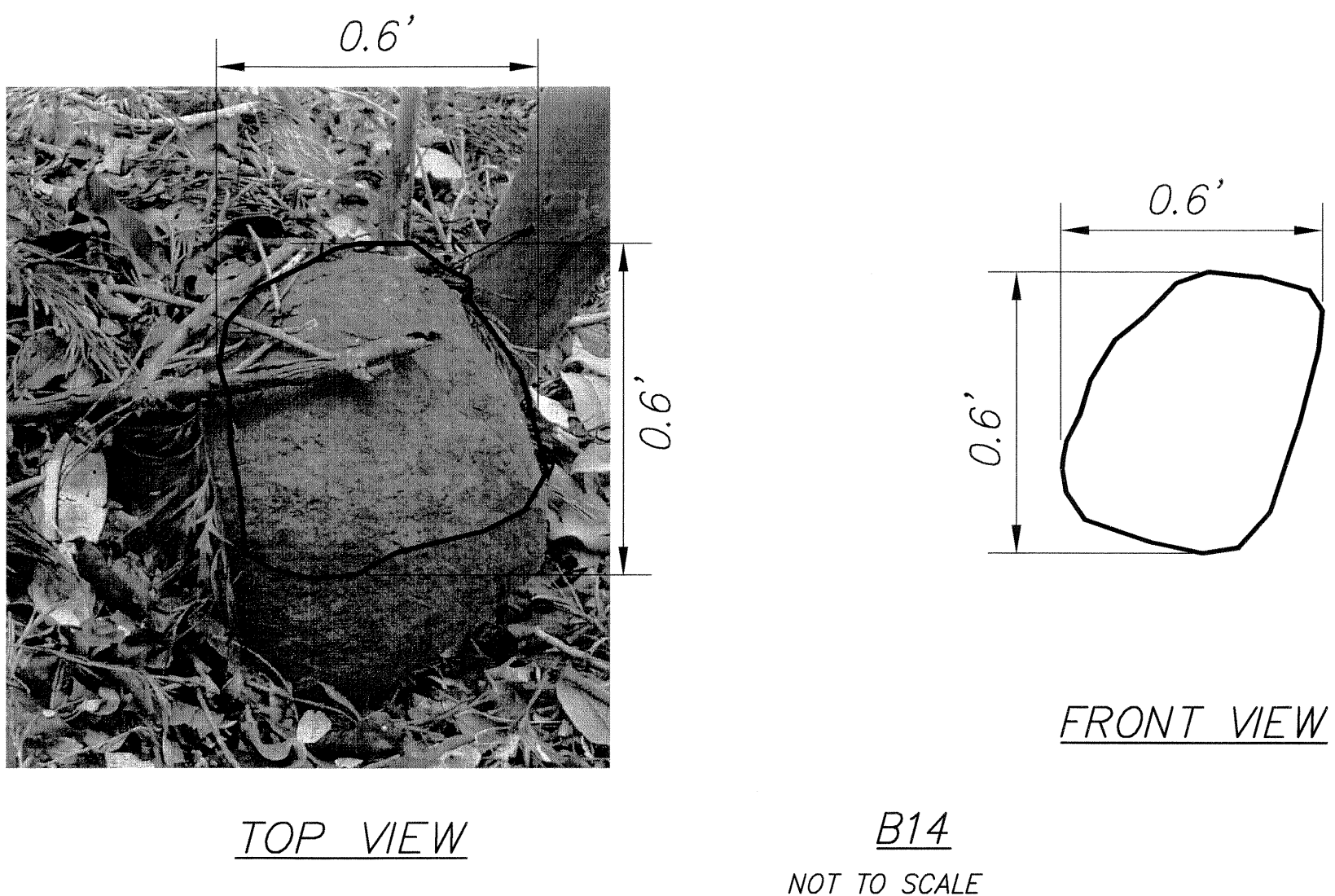
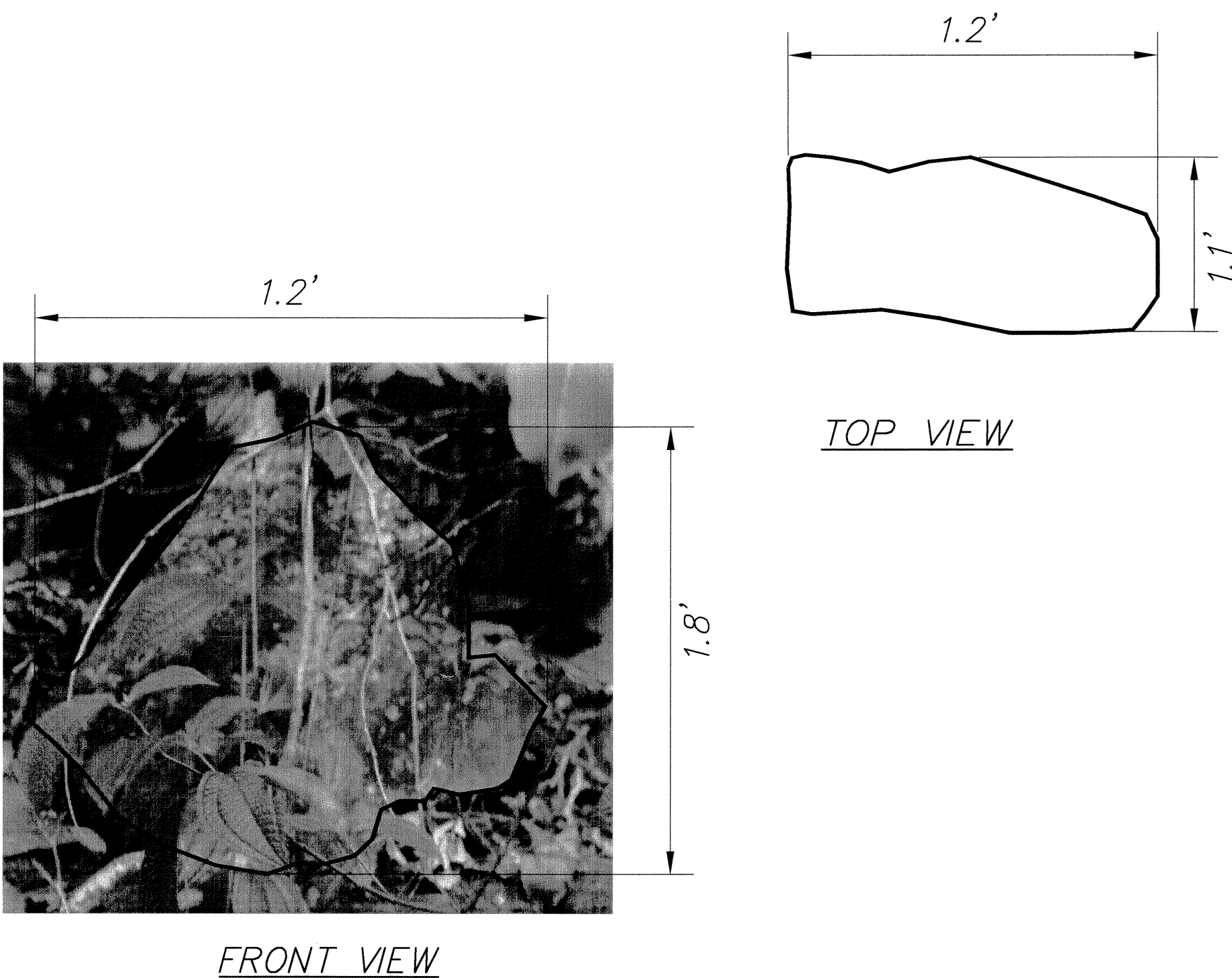
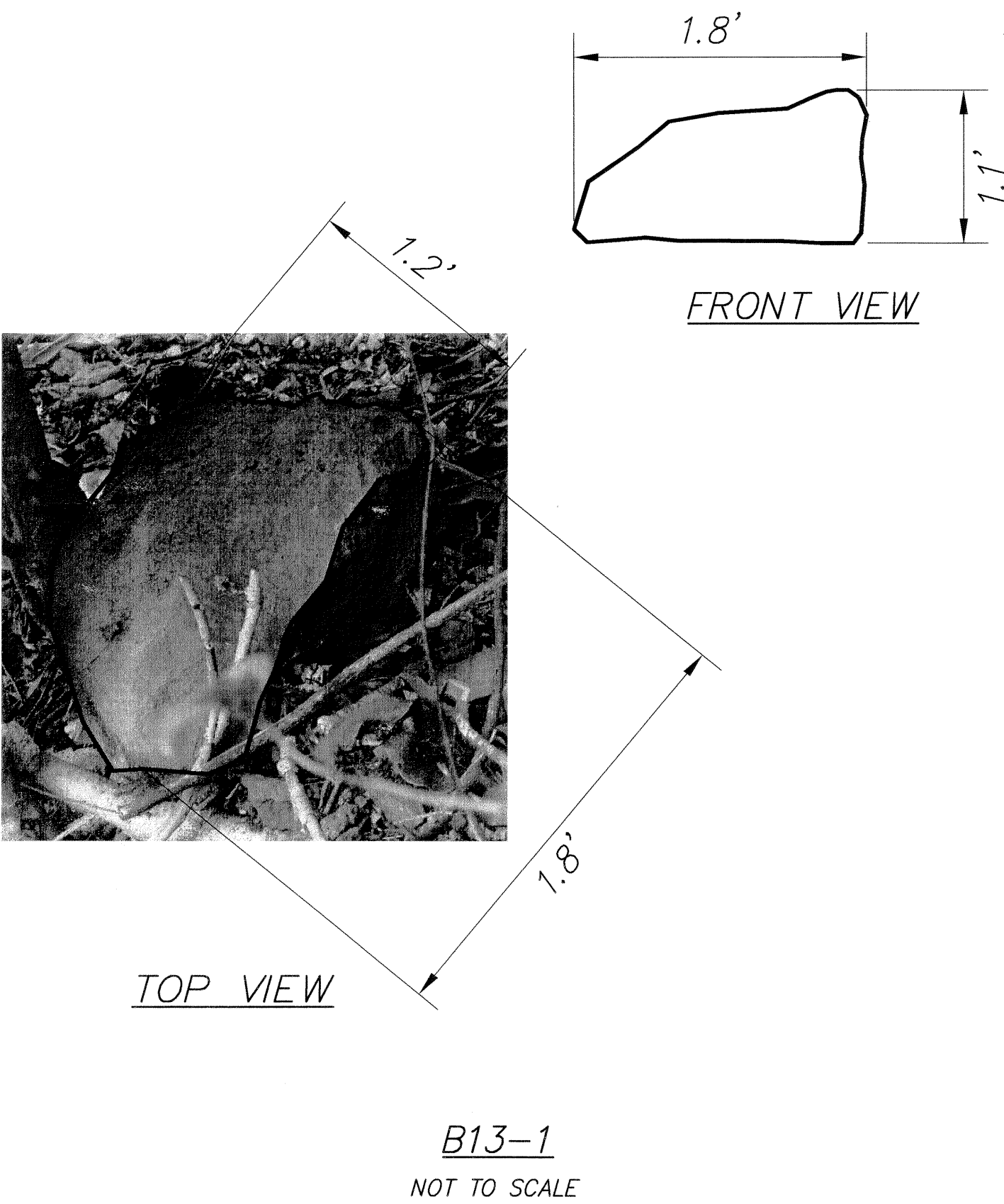
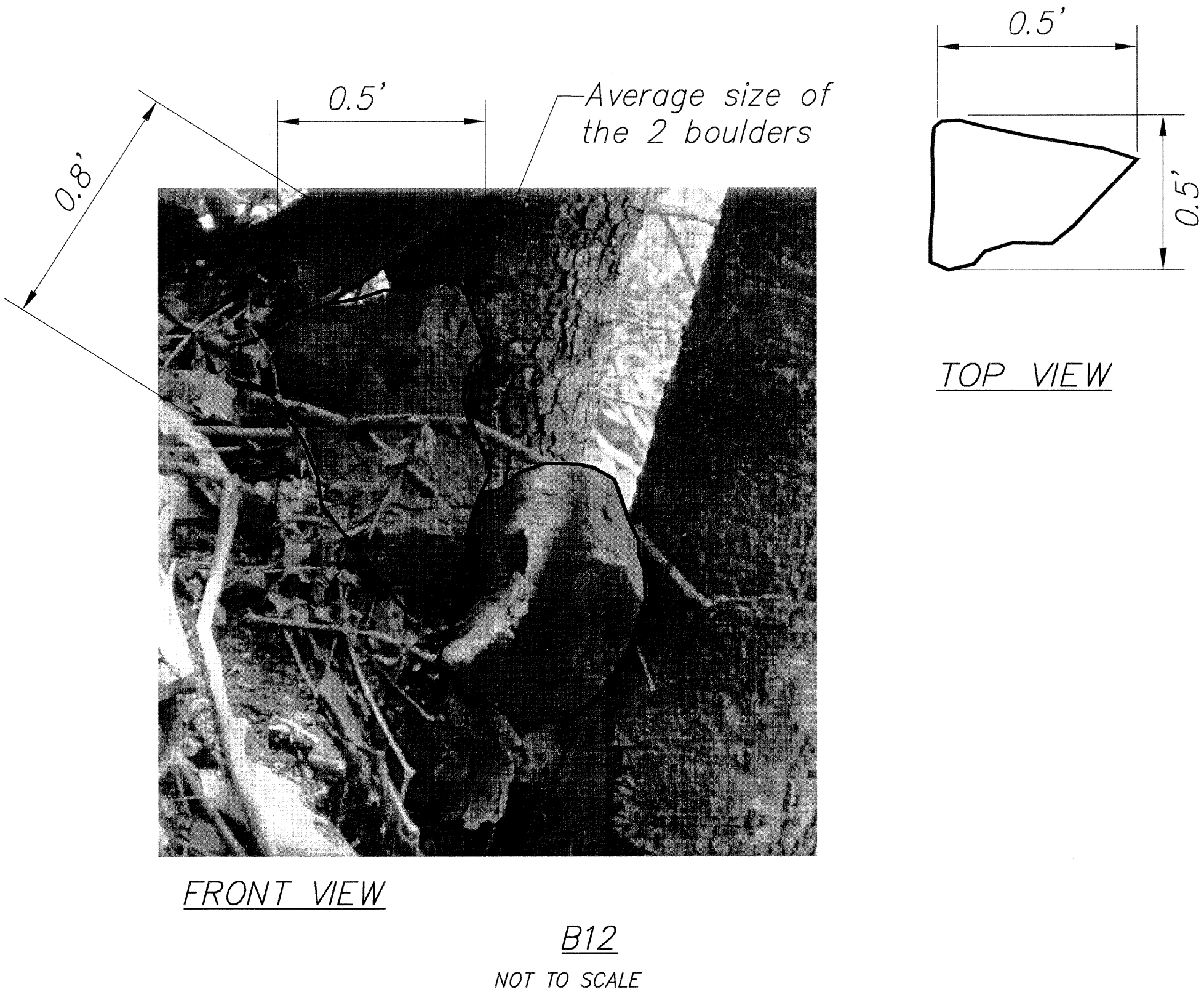
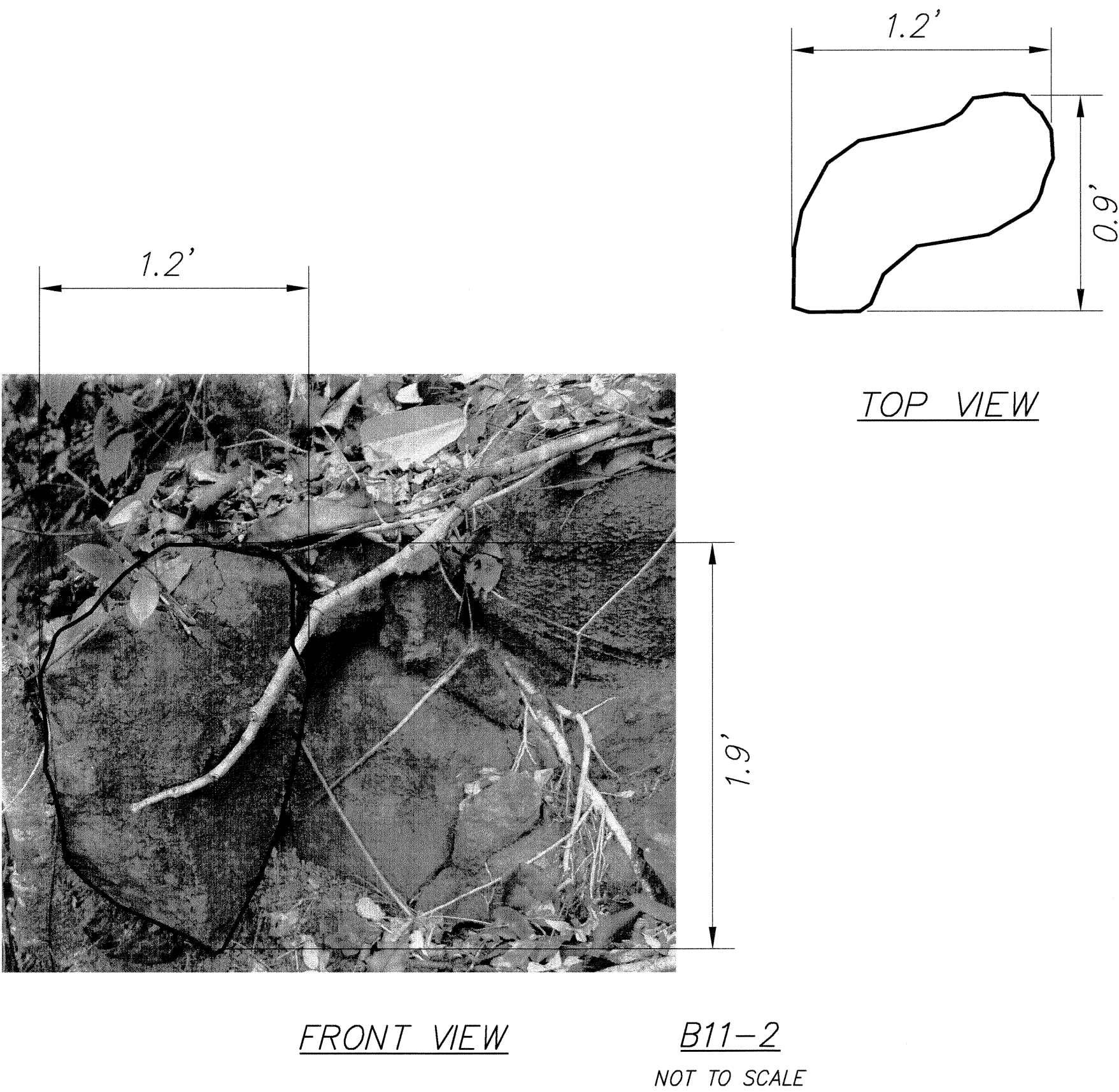
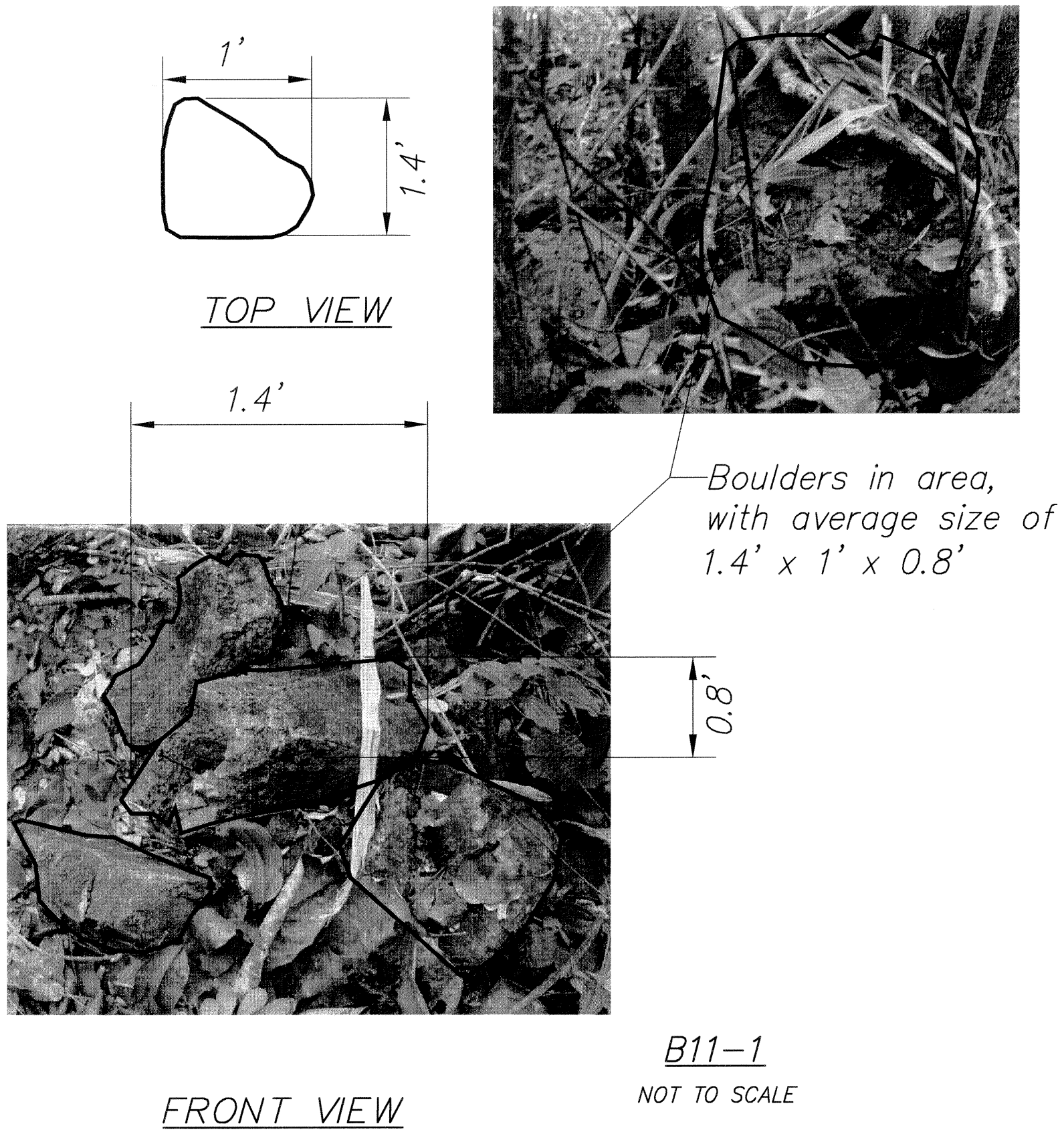
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOULDER DETAILS
B5 THRU B10
KUHIO HIGHWAY SLOPE STABILIZATION
VICINITY OF HANAIEI BRIDGE
PROJECT NO. 560A-02-03

Scale: As Noted
Date: July 2009

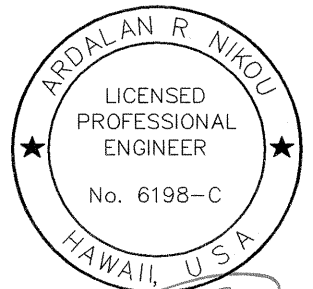
SHEET No. 1 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	17	32



SURVEY PLOTTED BY	DATE
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QUANTITIES BY	
CHECKED BY	
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NOTE BOOK	
No.	

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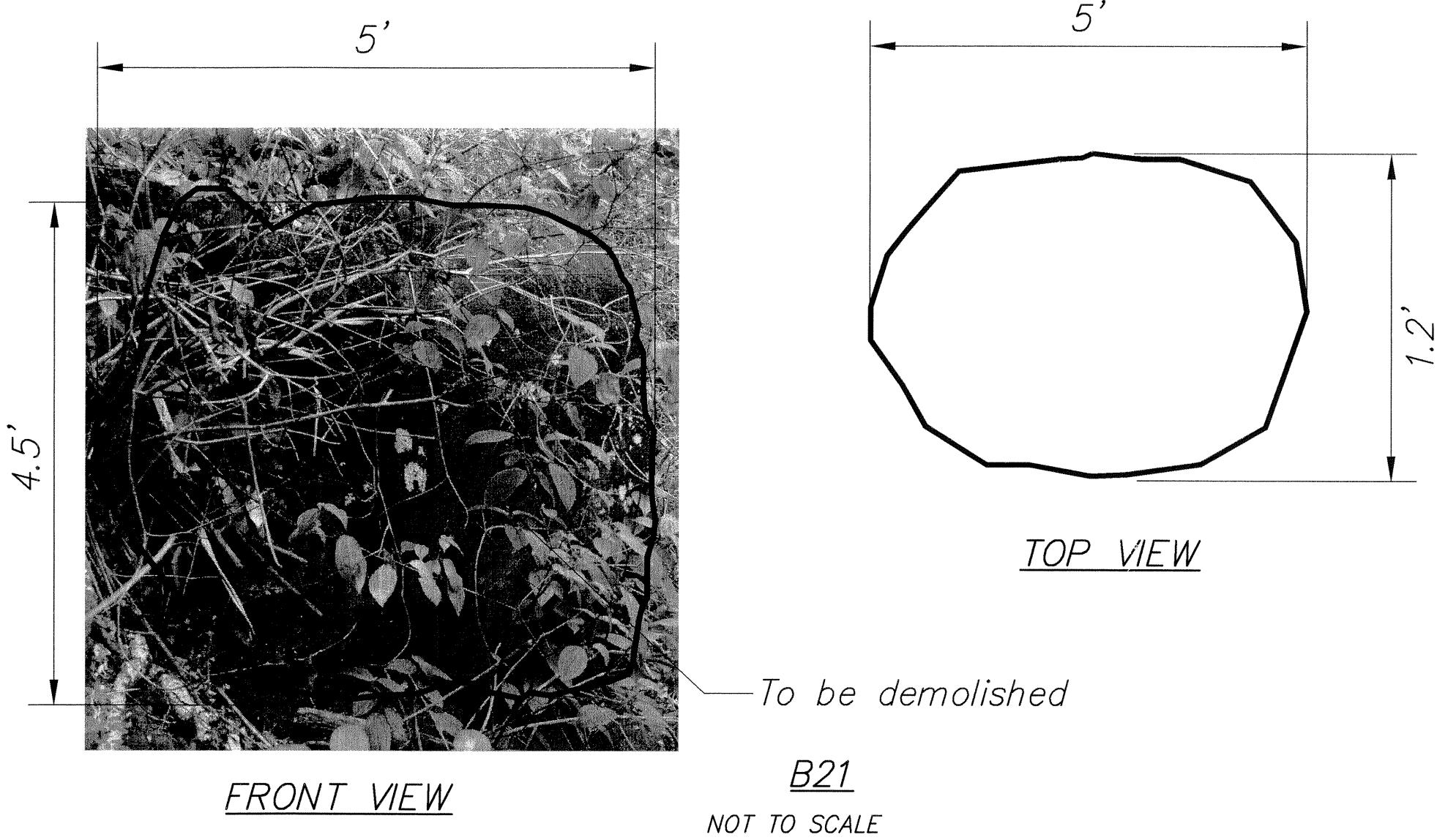
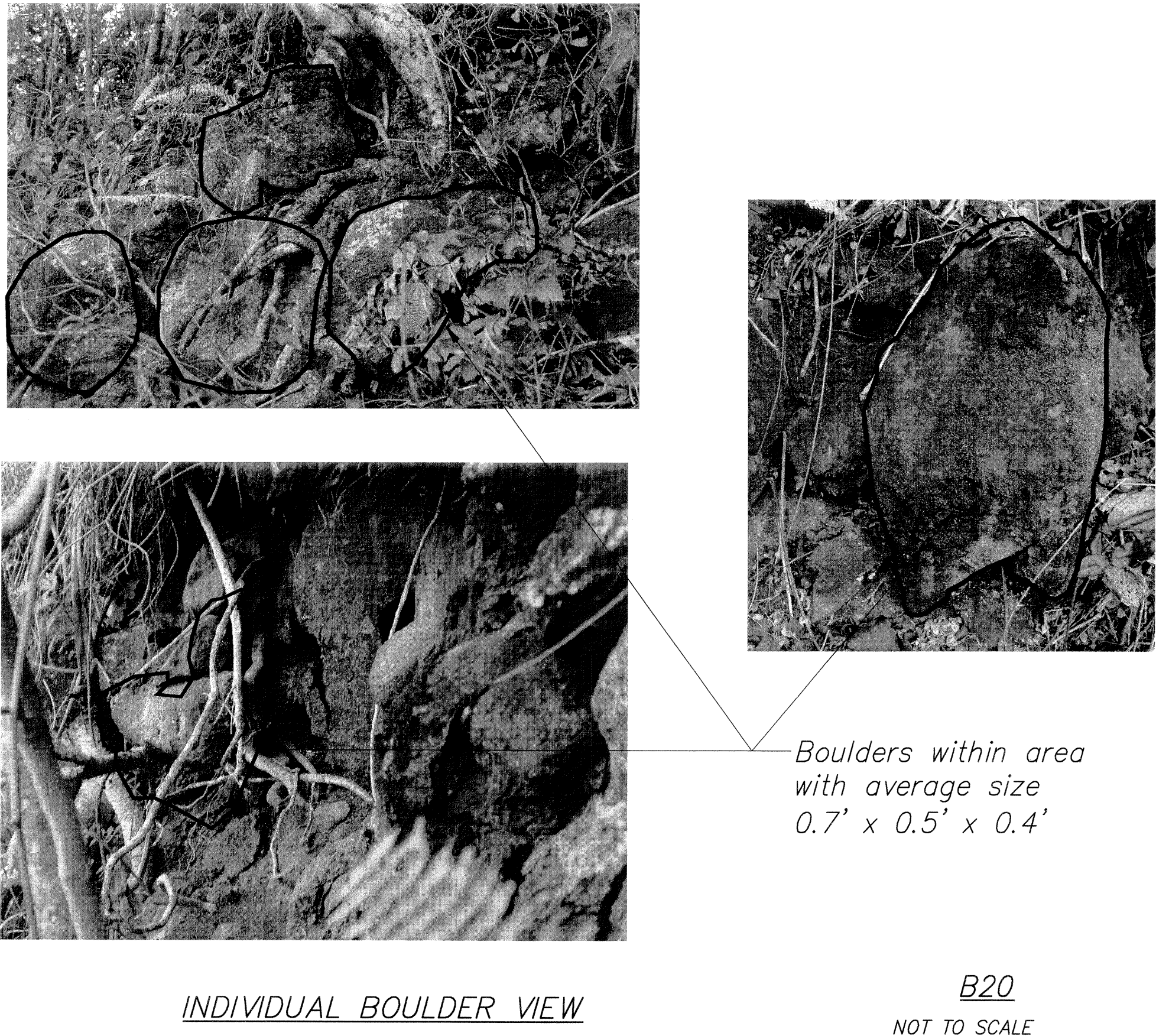
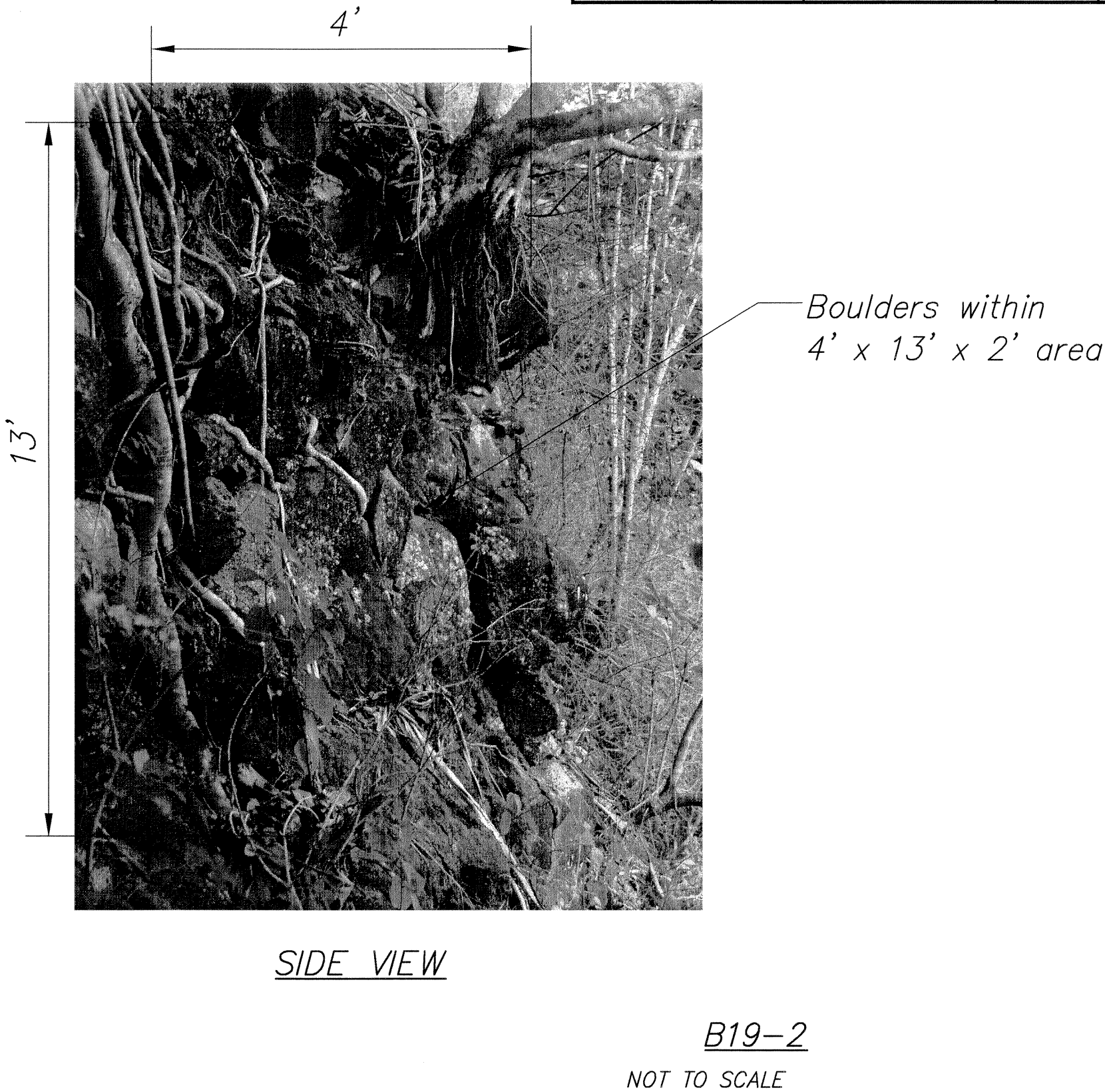
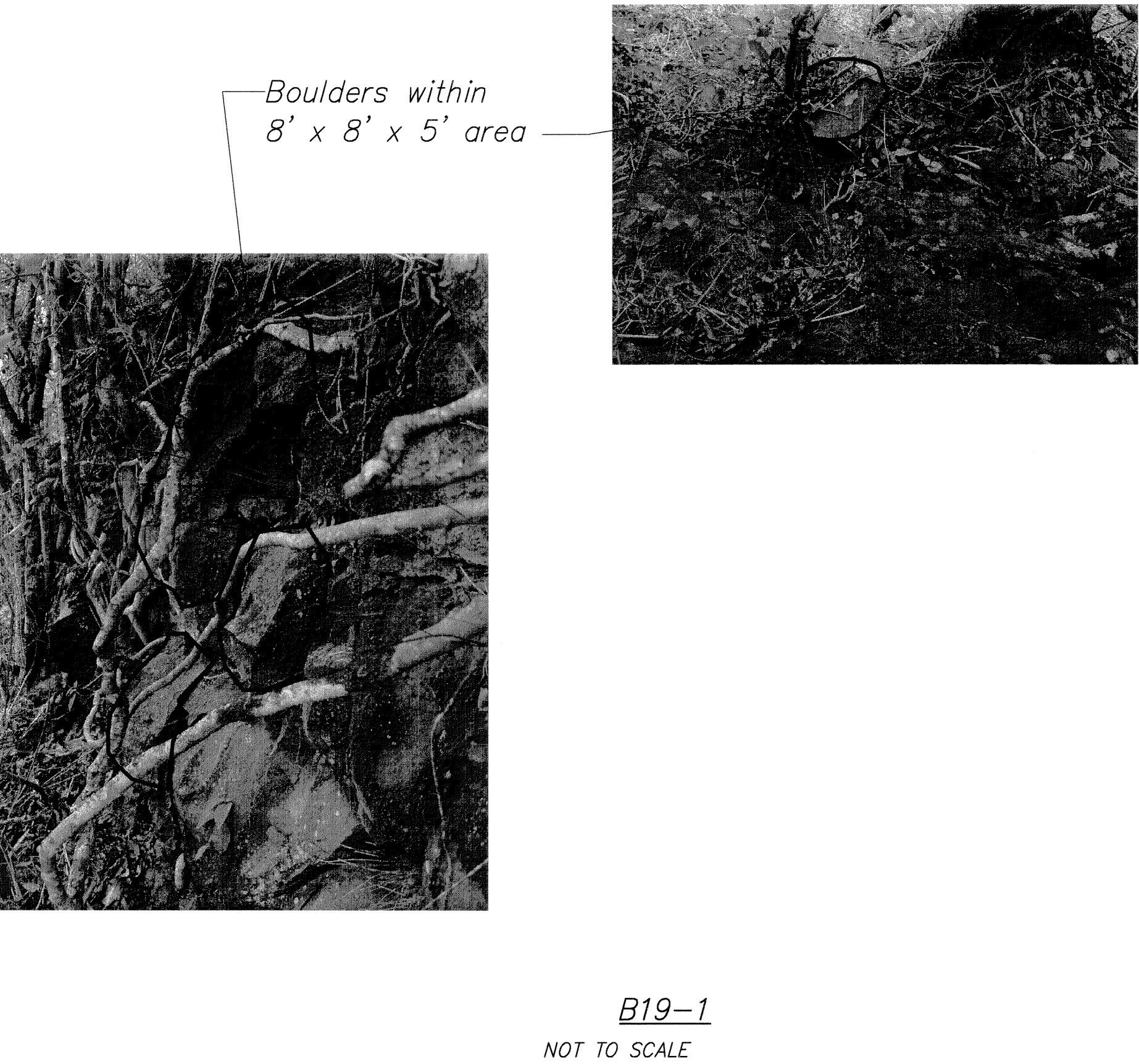
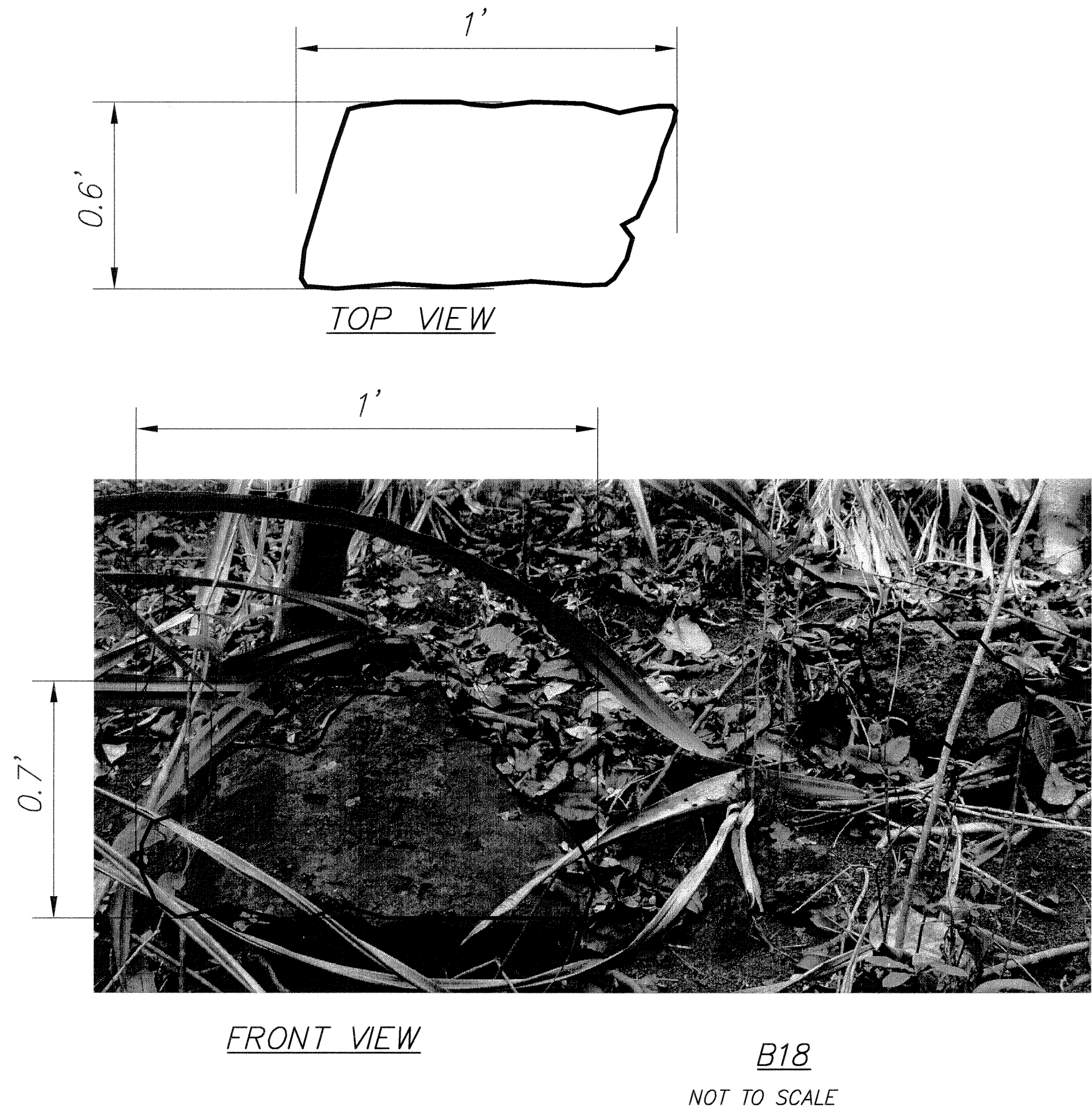
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BOULDER DETAILS
B11-1 THRU B14
KUHIO HIGHWAY SLOPE STABILIZATION
VICINITY OF HANAIEI BRIDGE
PROJECT NO. 560A-02-03

Scale: As Noted
Date: July 2009

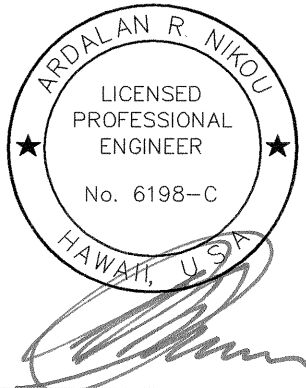
SHEET No. 2 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	18	32



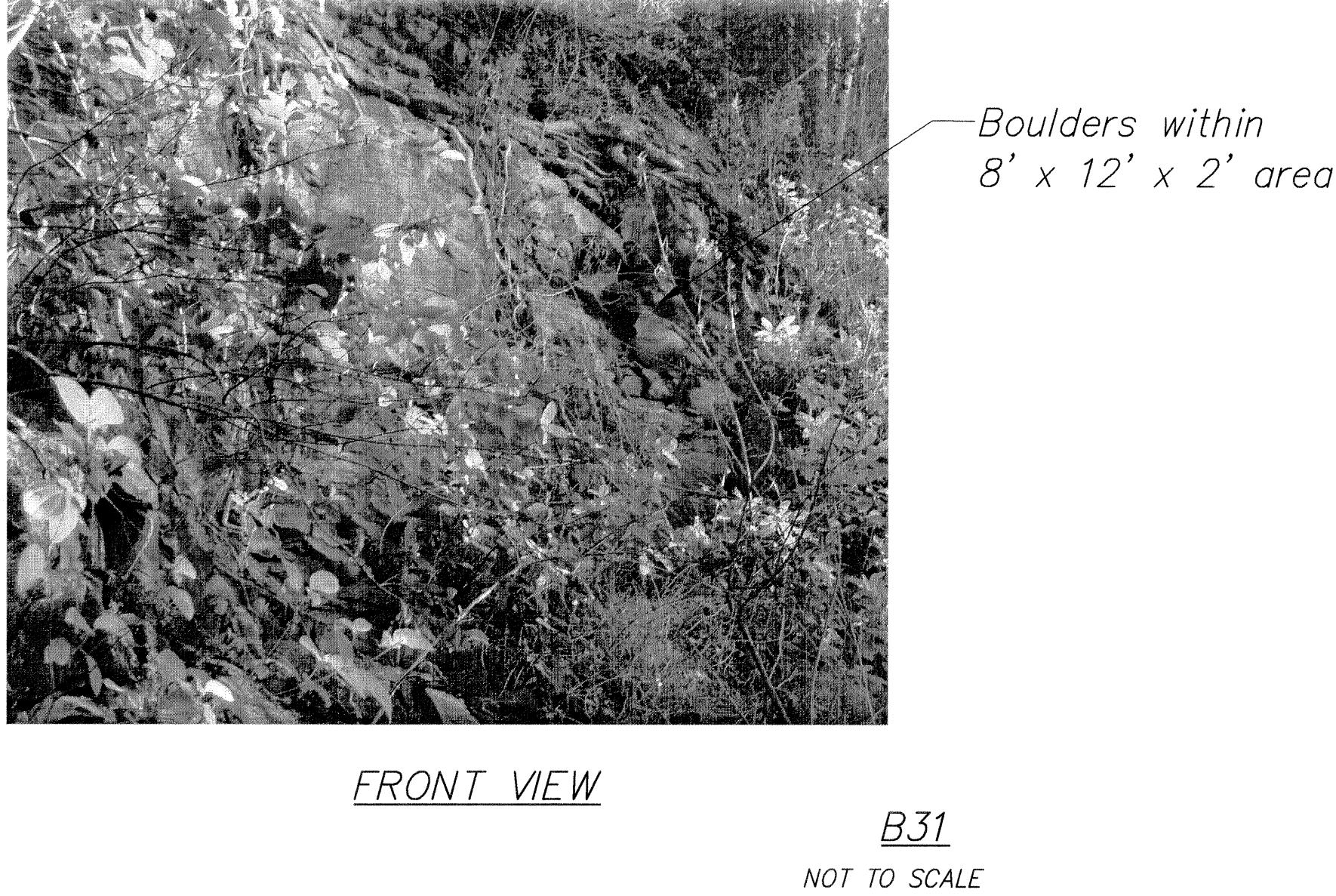
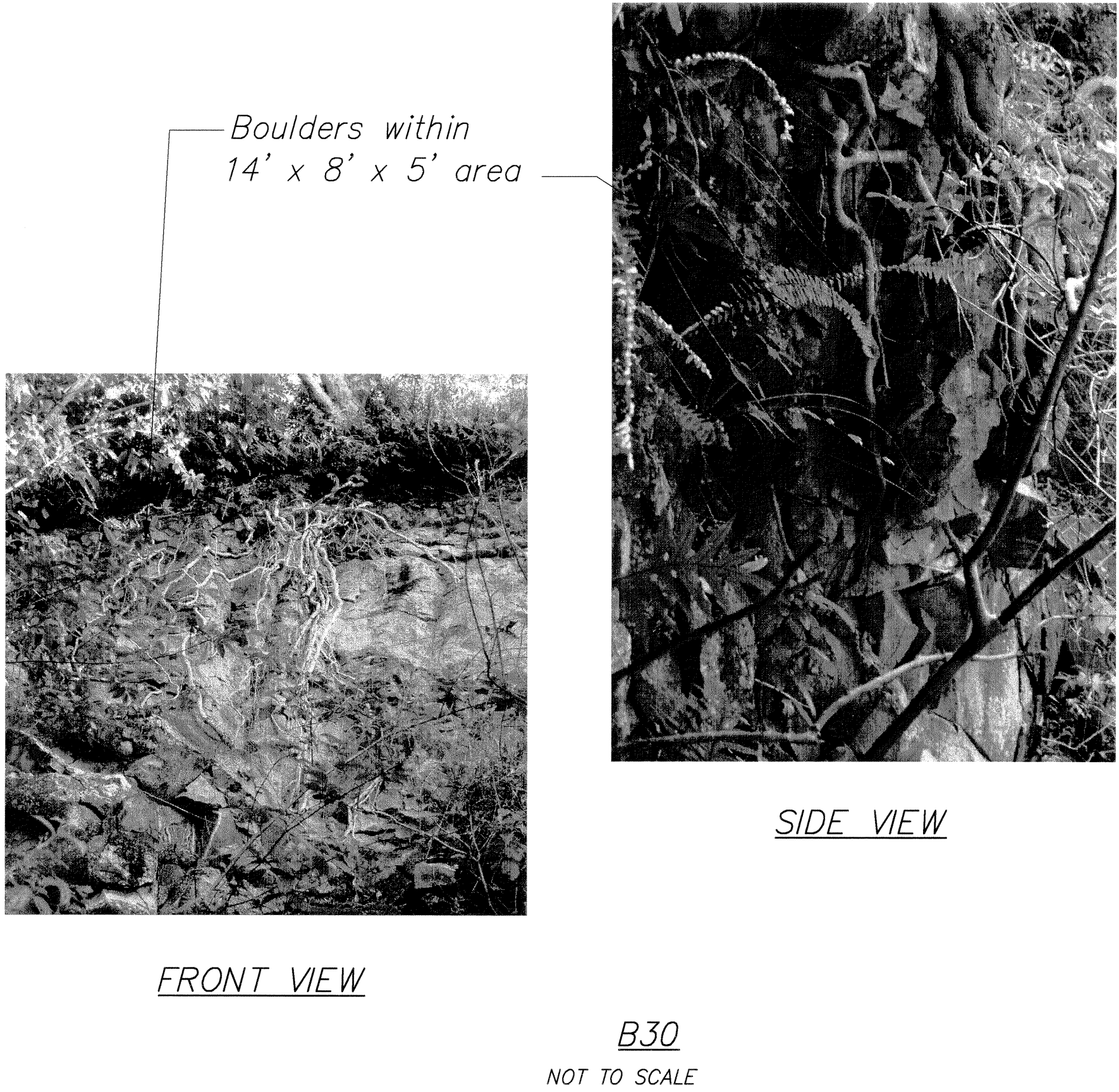
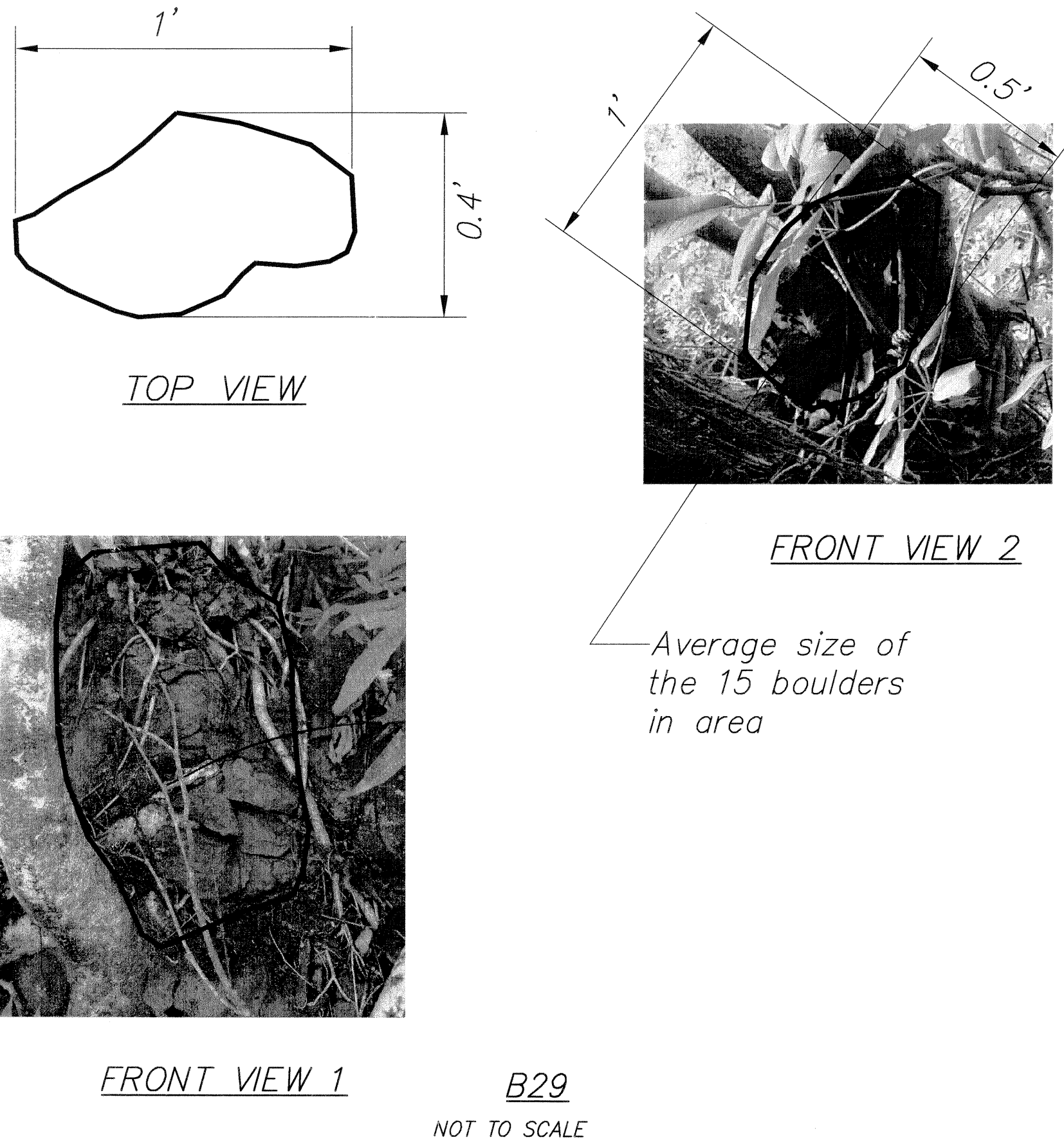
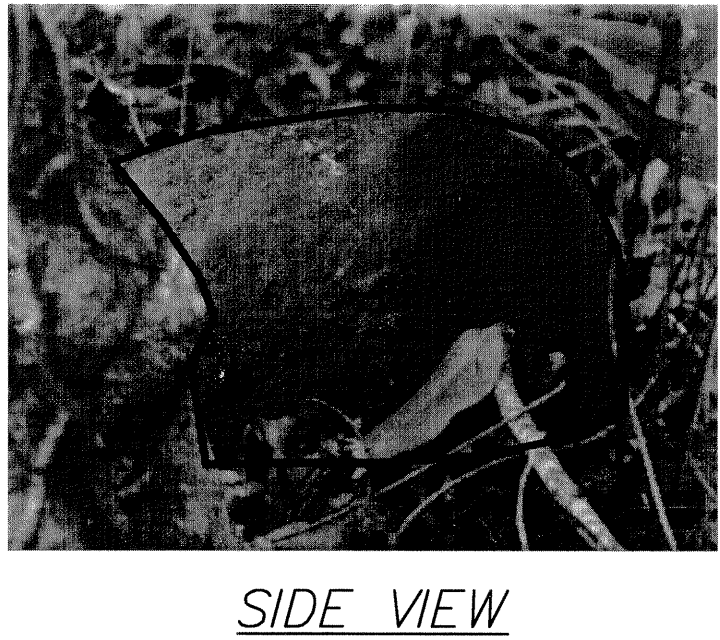
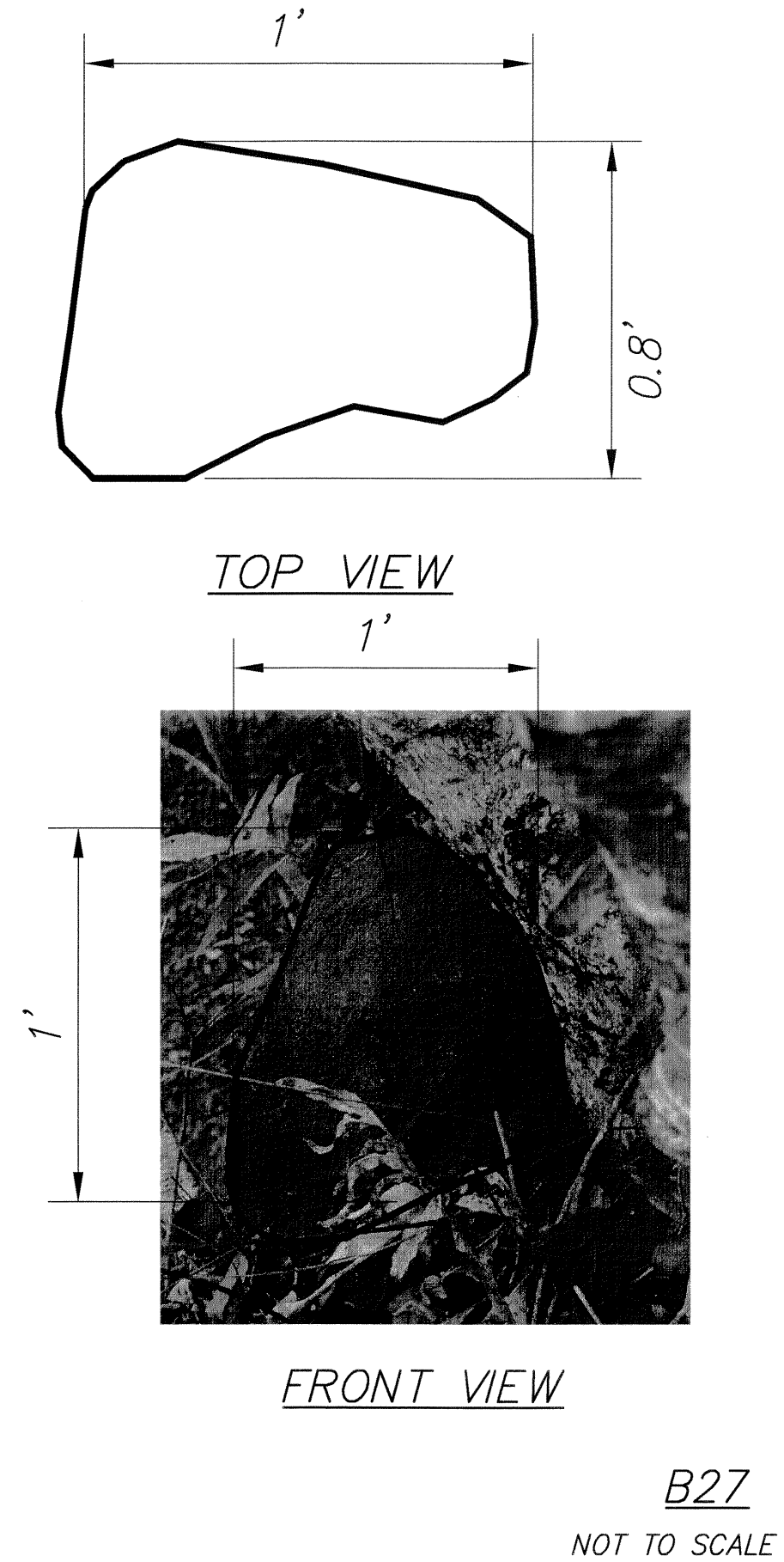
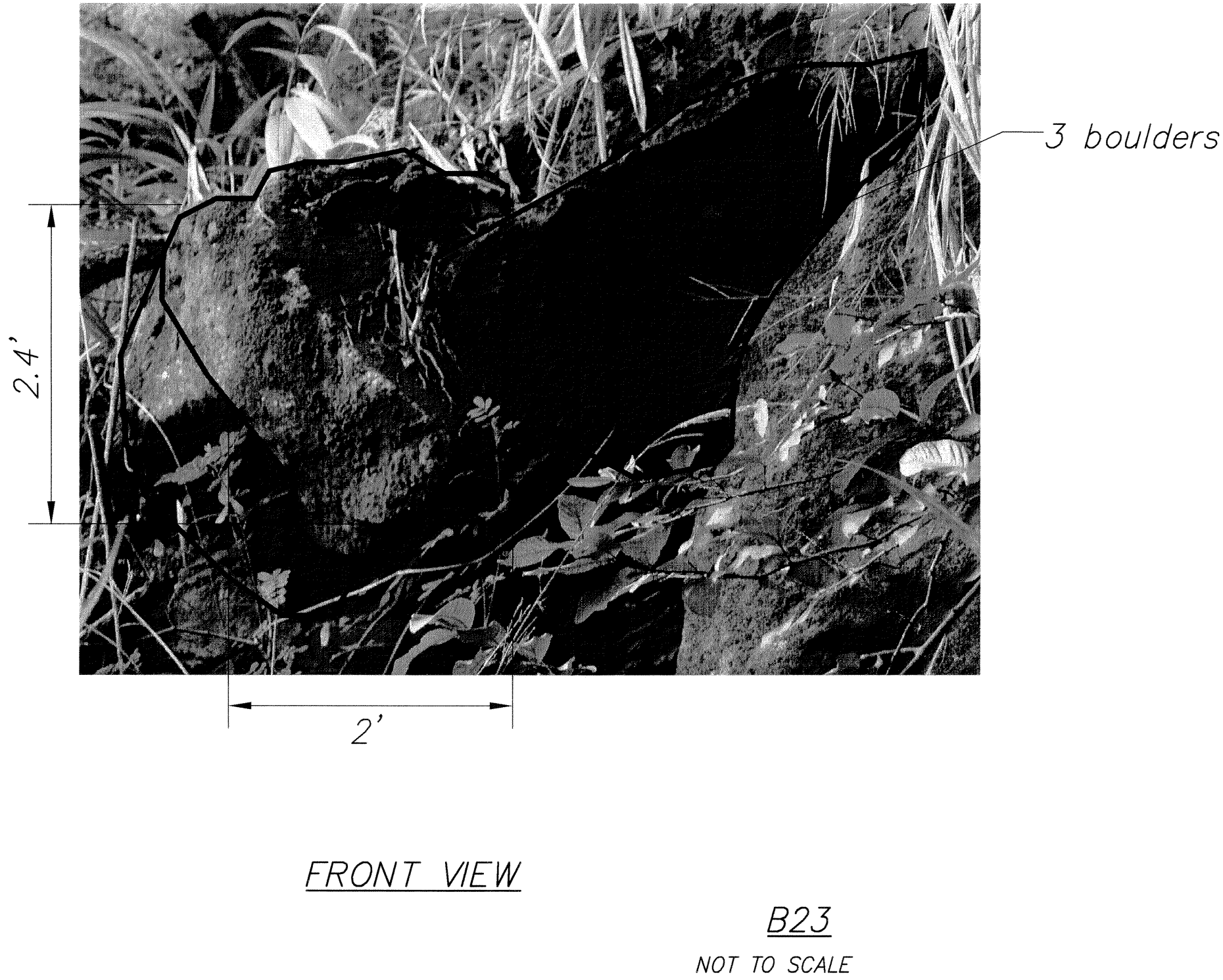
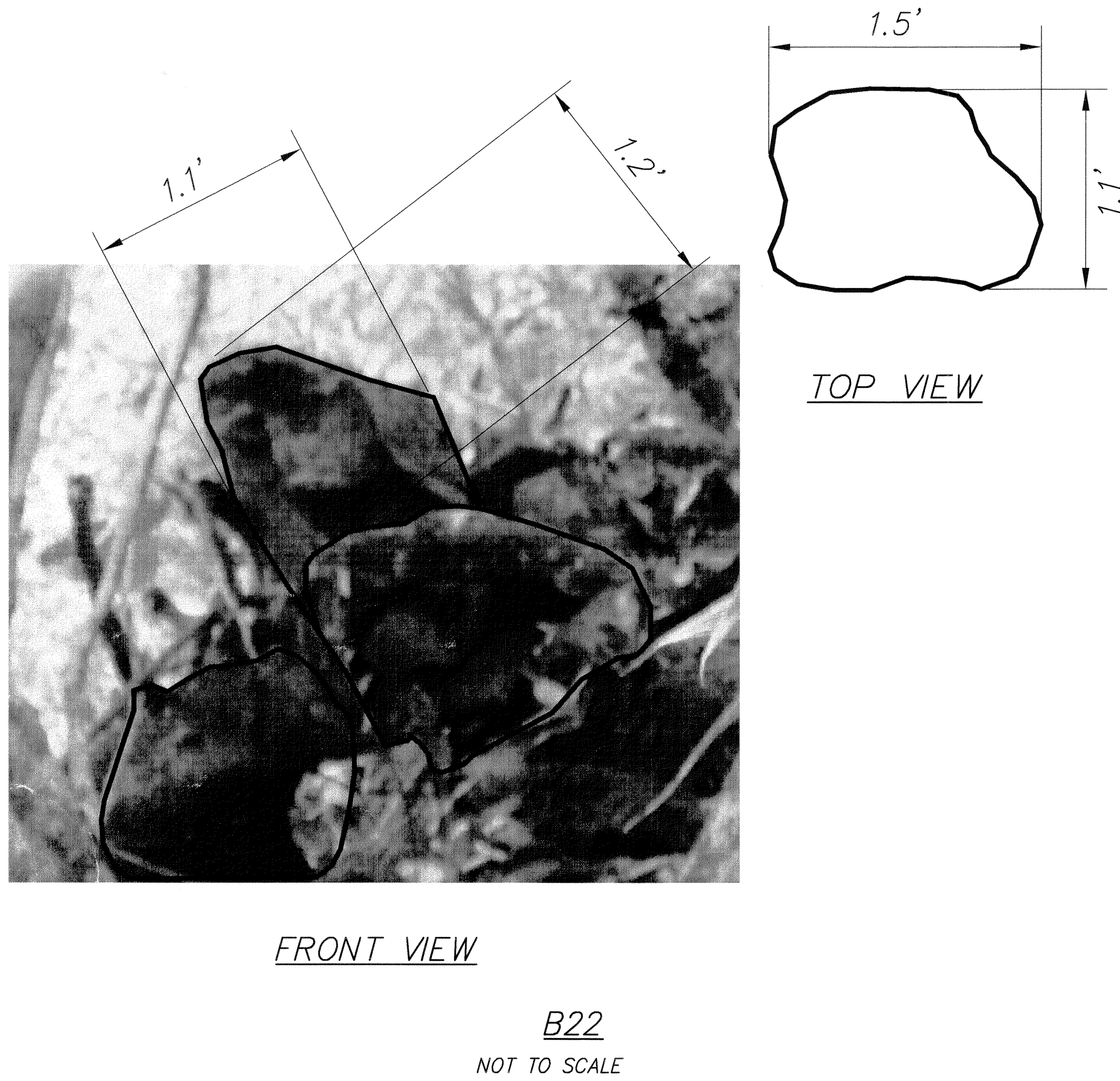
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	" "
No.	DESIGNED BY	" "
	QUANTITIES BY	" "
	CHECKED BY	" "

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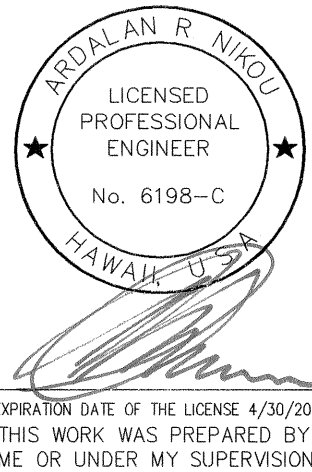
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOULDER DETAILS
B18-1 THRU B21
KUHIO HIGHWAY SLOPE STABILIZATION
VICINITY OF HANAIEI BRIDGE
PROJECT NO. 560A-02-03
Scale: As Noted Date: July 2009
SHEET No. 3 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	19	32



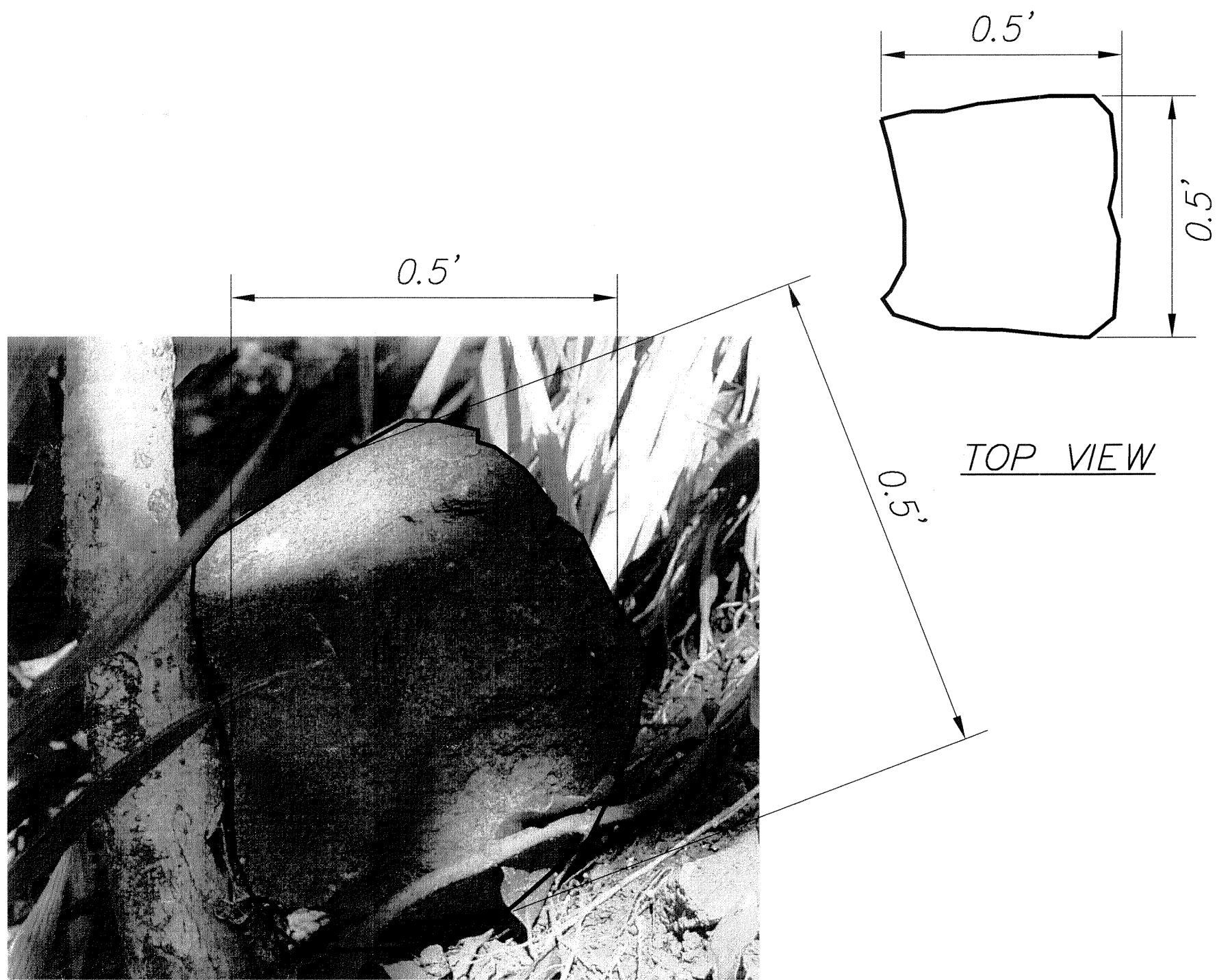
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NOTE BOOK	DRAWN BY	
	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

EARTH TECH | AECOM



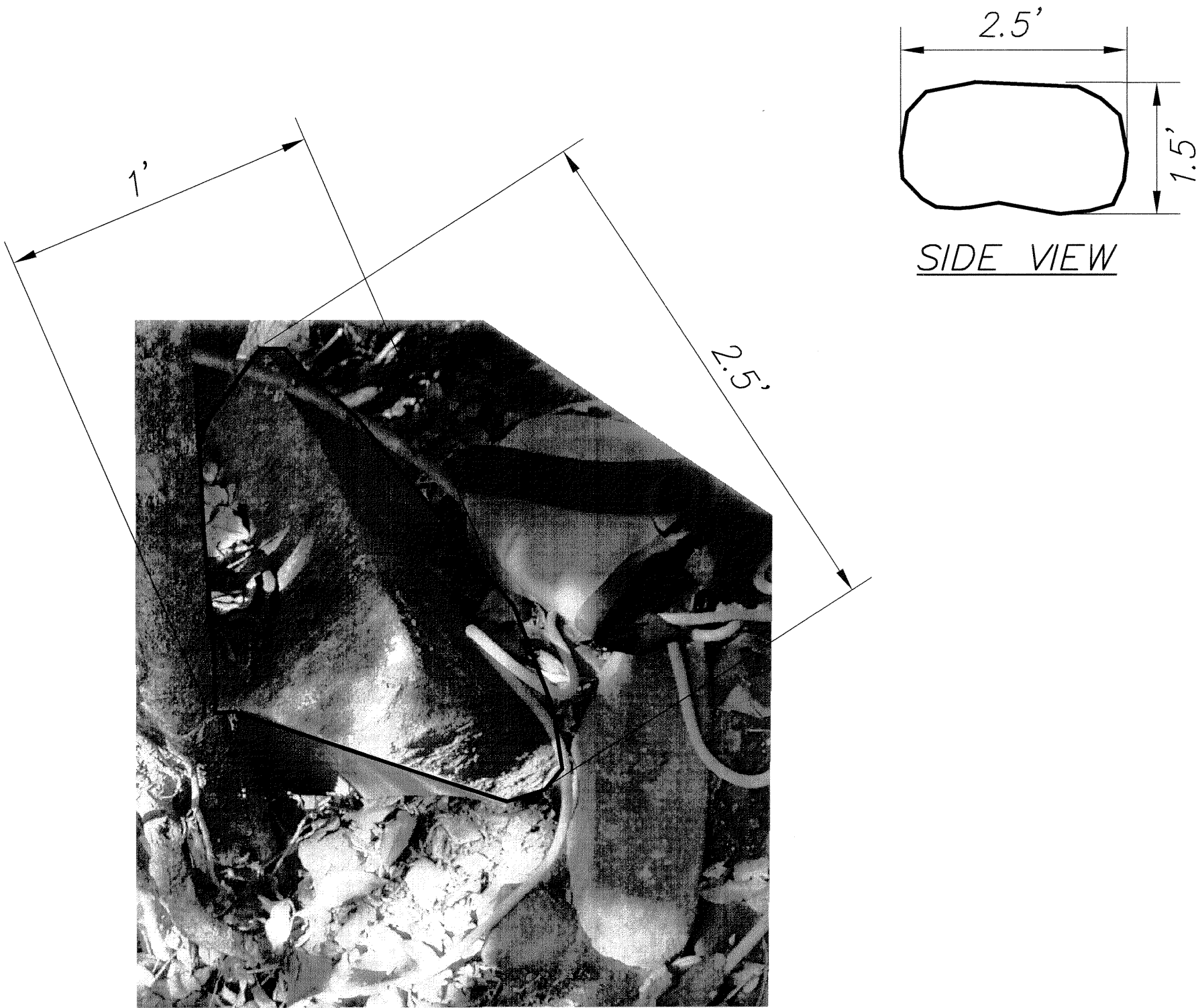
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOULDER DETAILS
B22 THRU B31
KUHIU HIGHWAY SLOPE STABILIZATION
VICINITY OF HANAIEI BRIDGE
PROJECT NO. 560A-02-03
Scale: As Noted Date: July 2009
SHEET No. 4 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	20	32

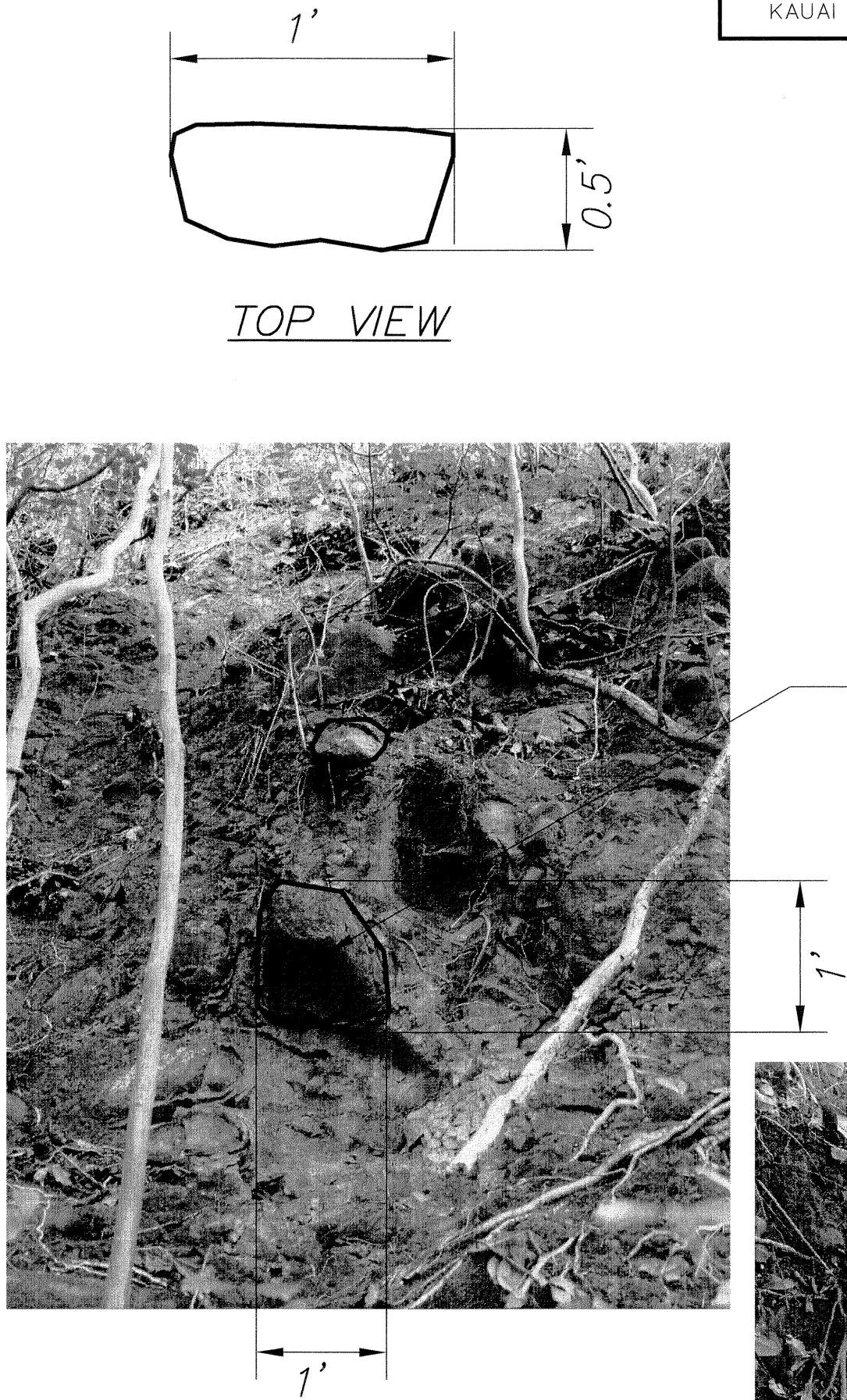


FRONT VIEW

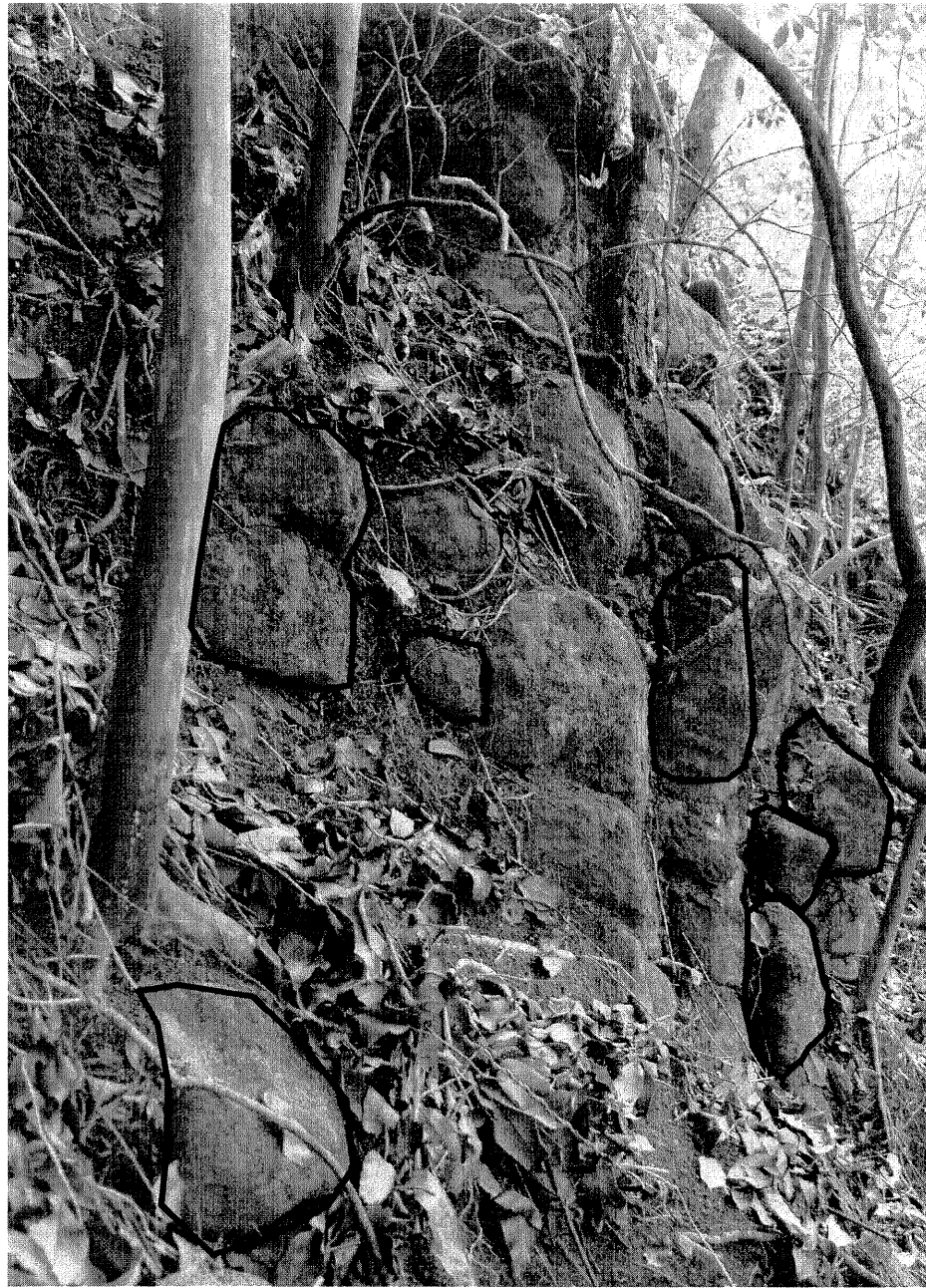
B33-1
NOT TO SCALE



B33-2
NOT TO SCALE



Average size of the 40 boulders in area



FRONT VIEW

B37
NOT TO SCALE

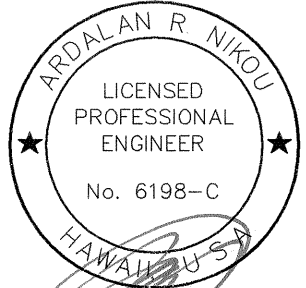


FRONT VIEW

B35
NOT TO SCALE

ORIGINAL PLAN	SURVEY PLATTED BY	DATE
NOTE BOOK	DRAWN BY	
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	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	
No.		

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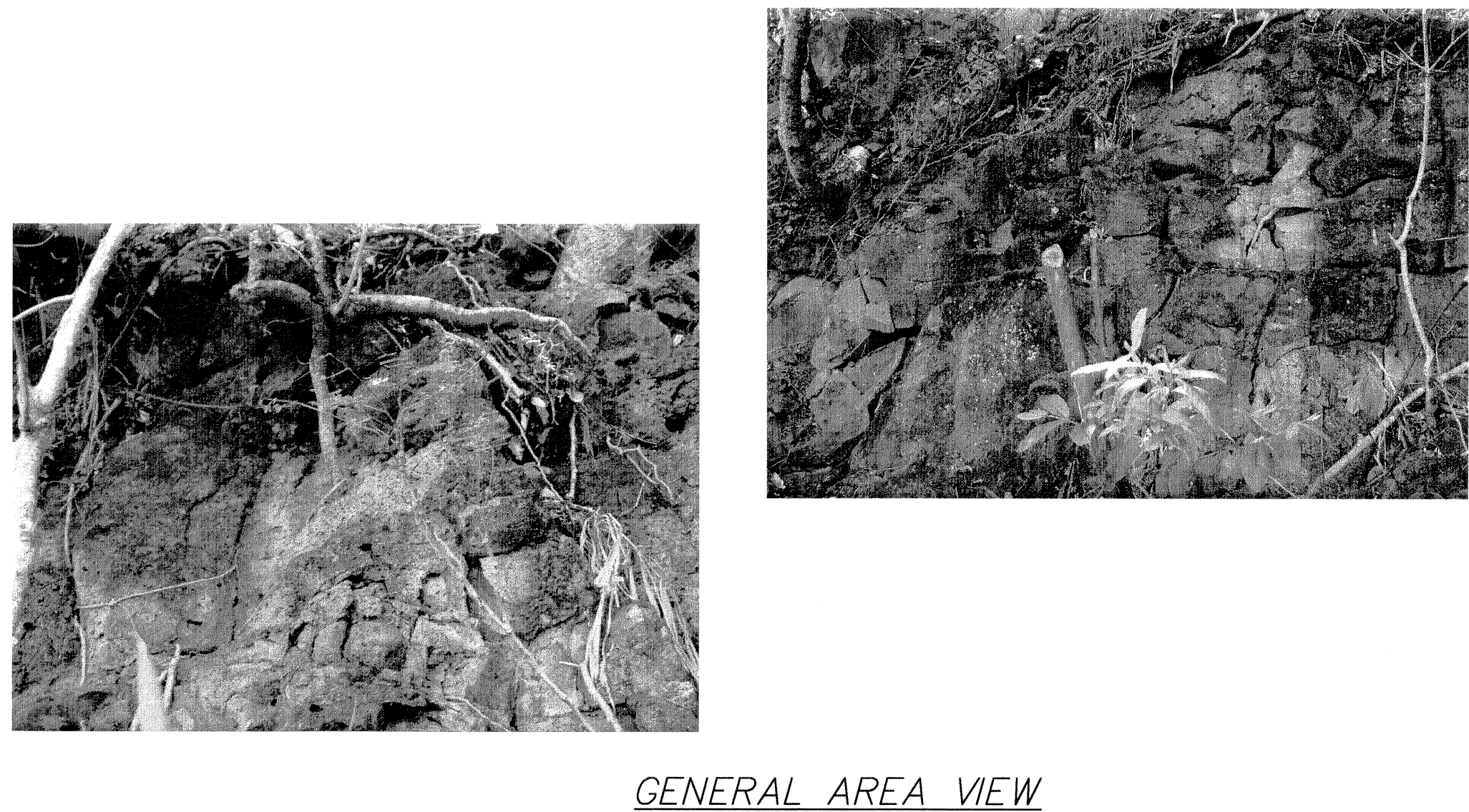
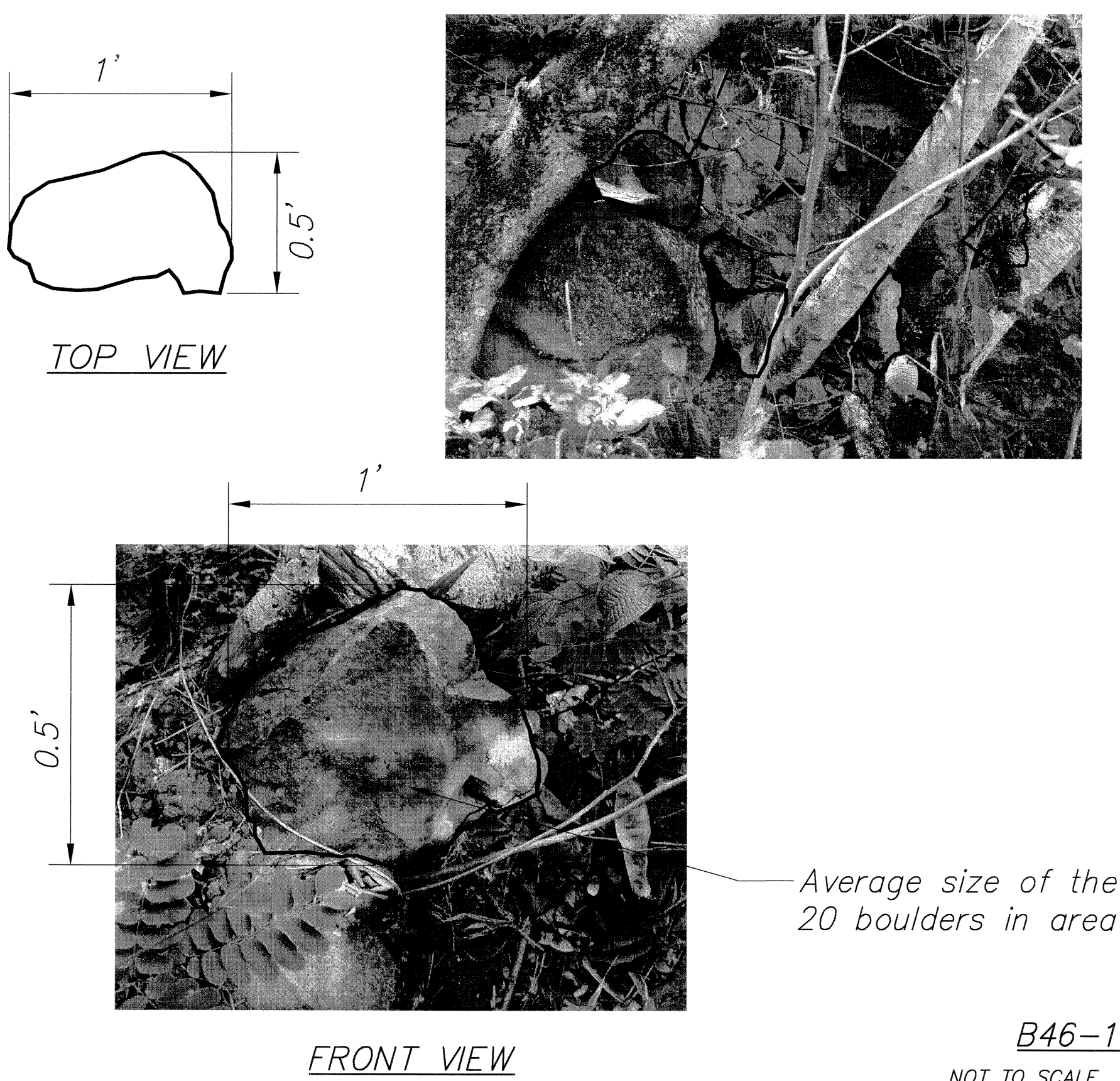
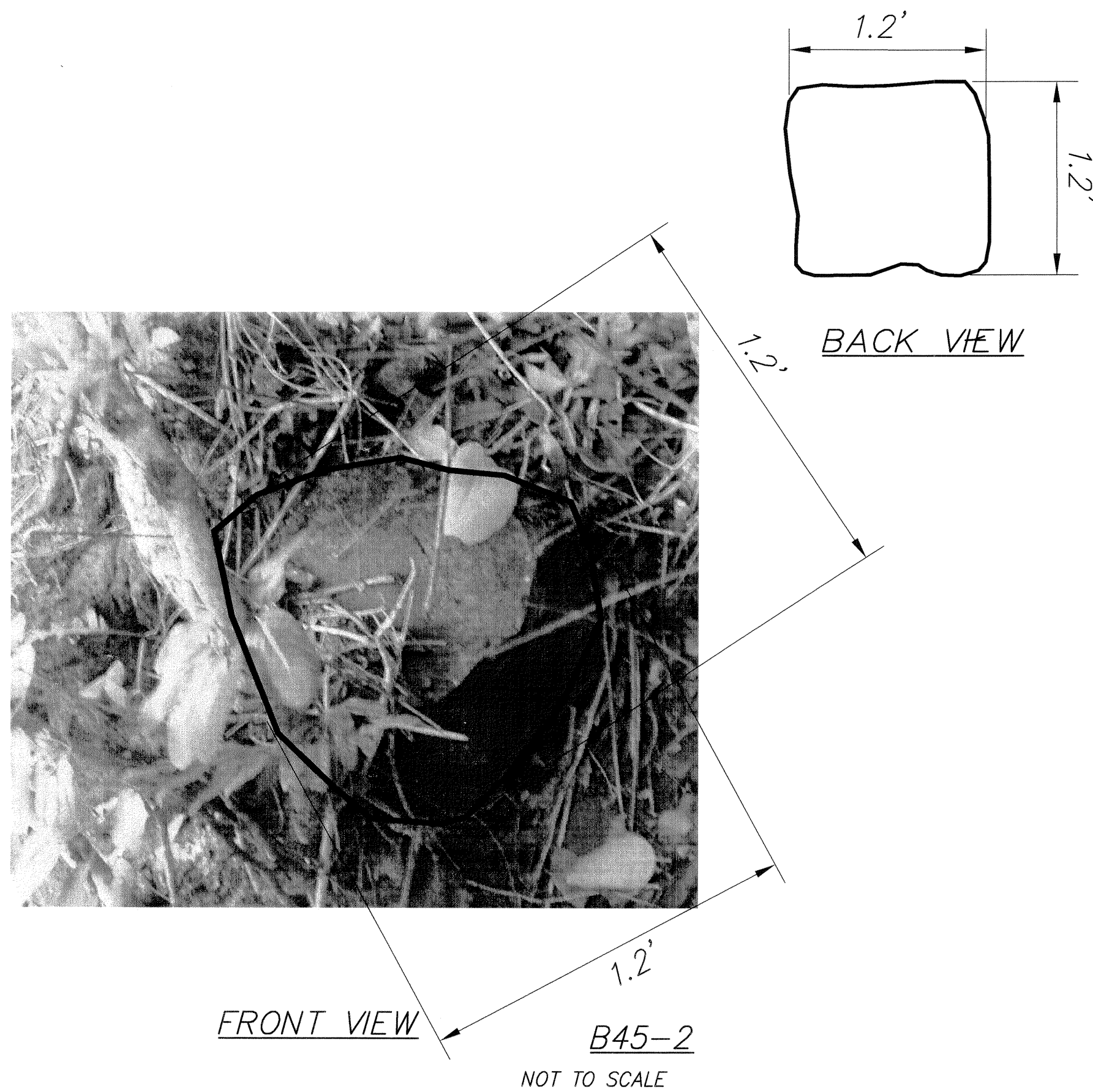
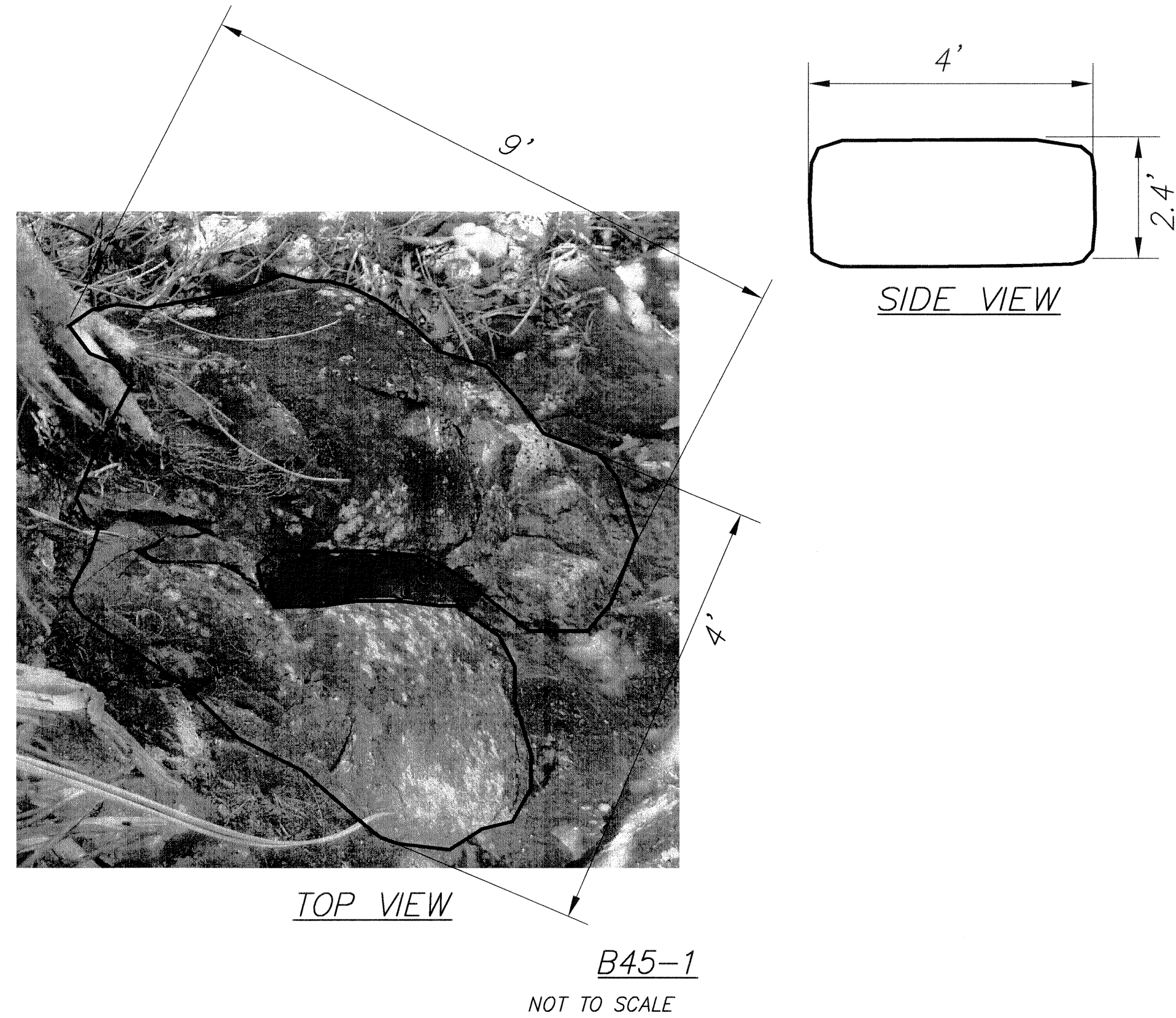
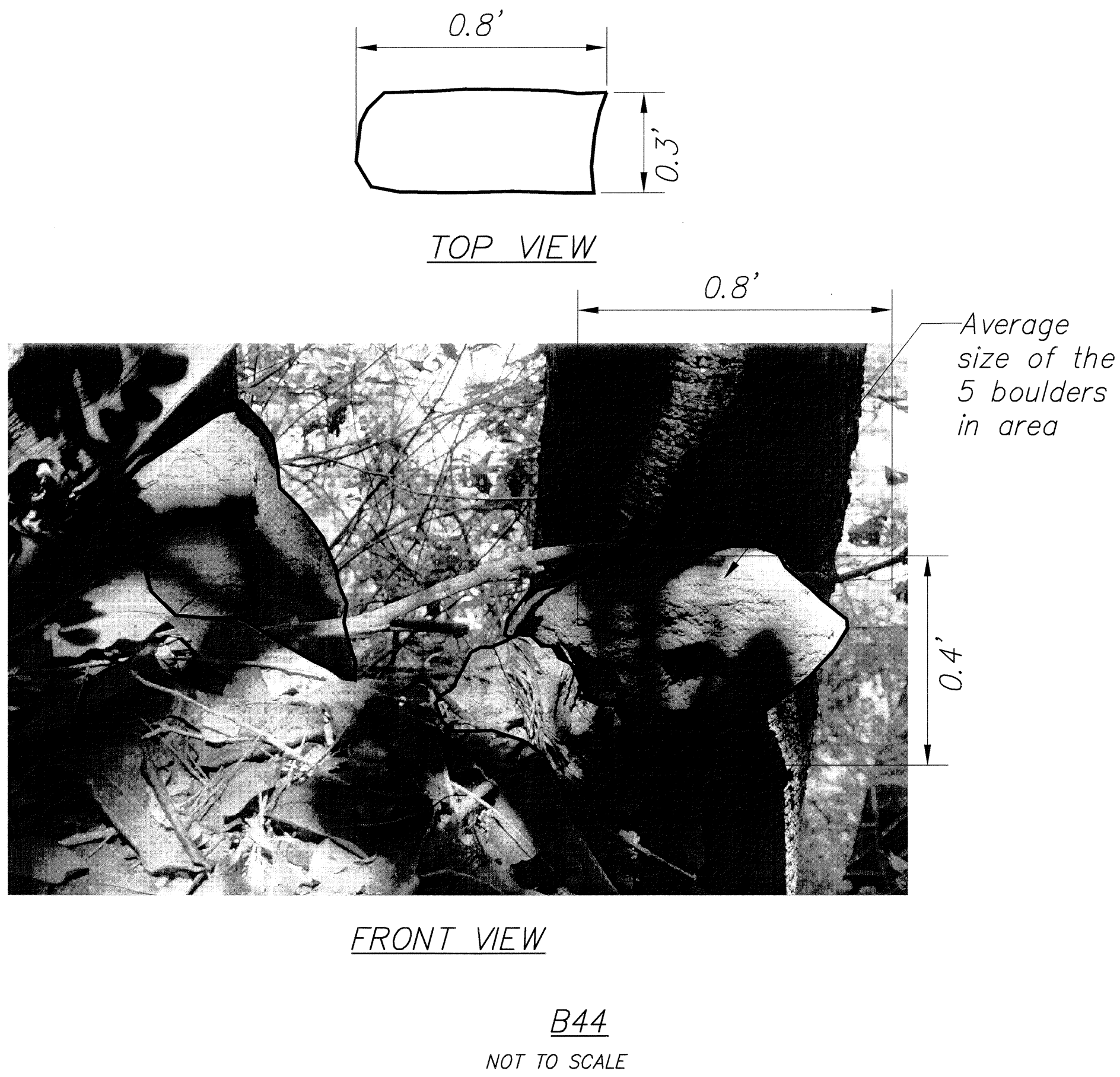
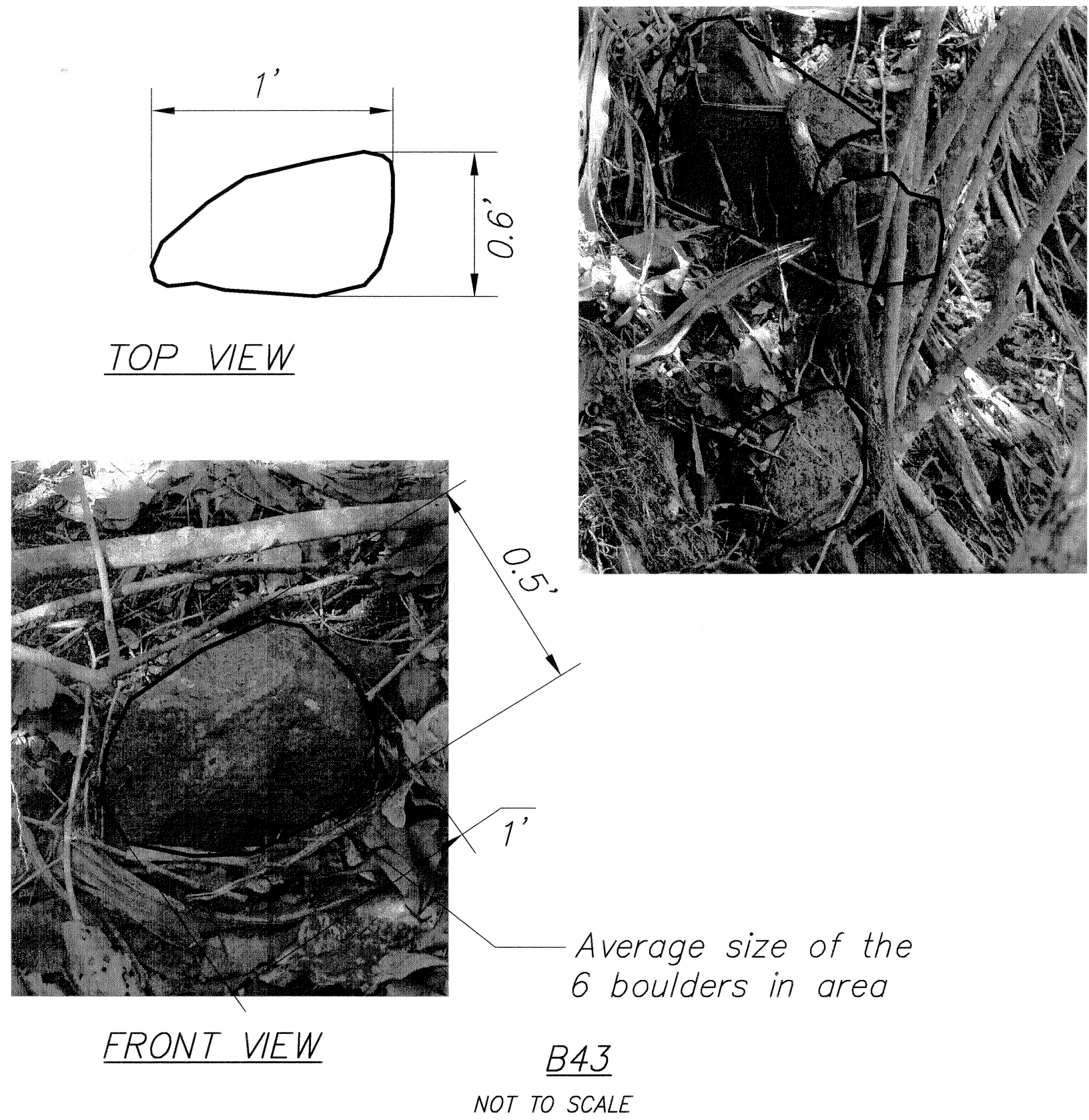
EXPIRATION DATE OF THE LICENSE 4/30/2010
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOULDER DETAILS
B33-1 THRU B37
KUHIO HIGHWAY SLOPE STABILIZATION
VICINITY OF HANAIEI BRIDGE
PROJECT NO. 560A-02-03

Scale: As Noted
Date: July 2009

SHEET No. 5 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	21	32



SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

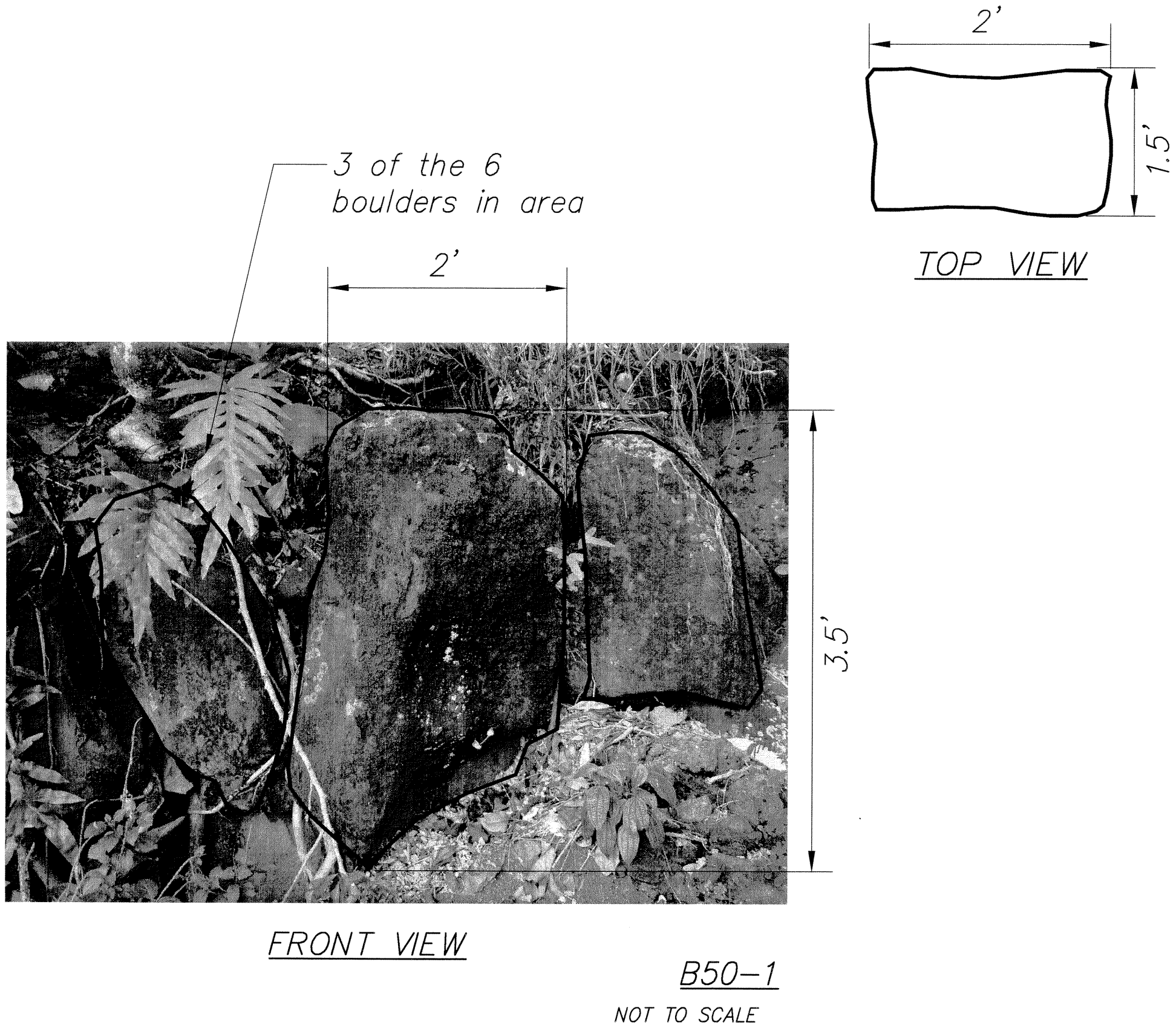
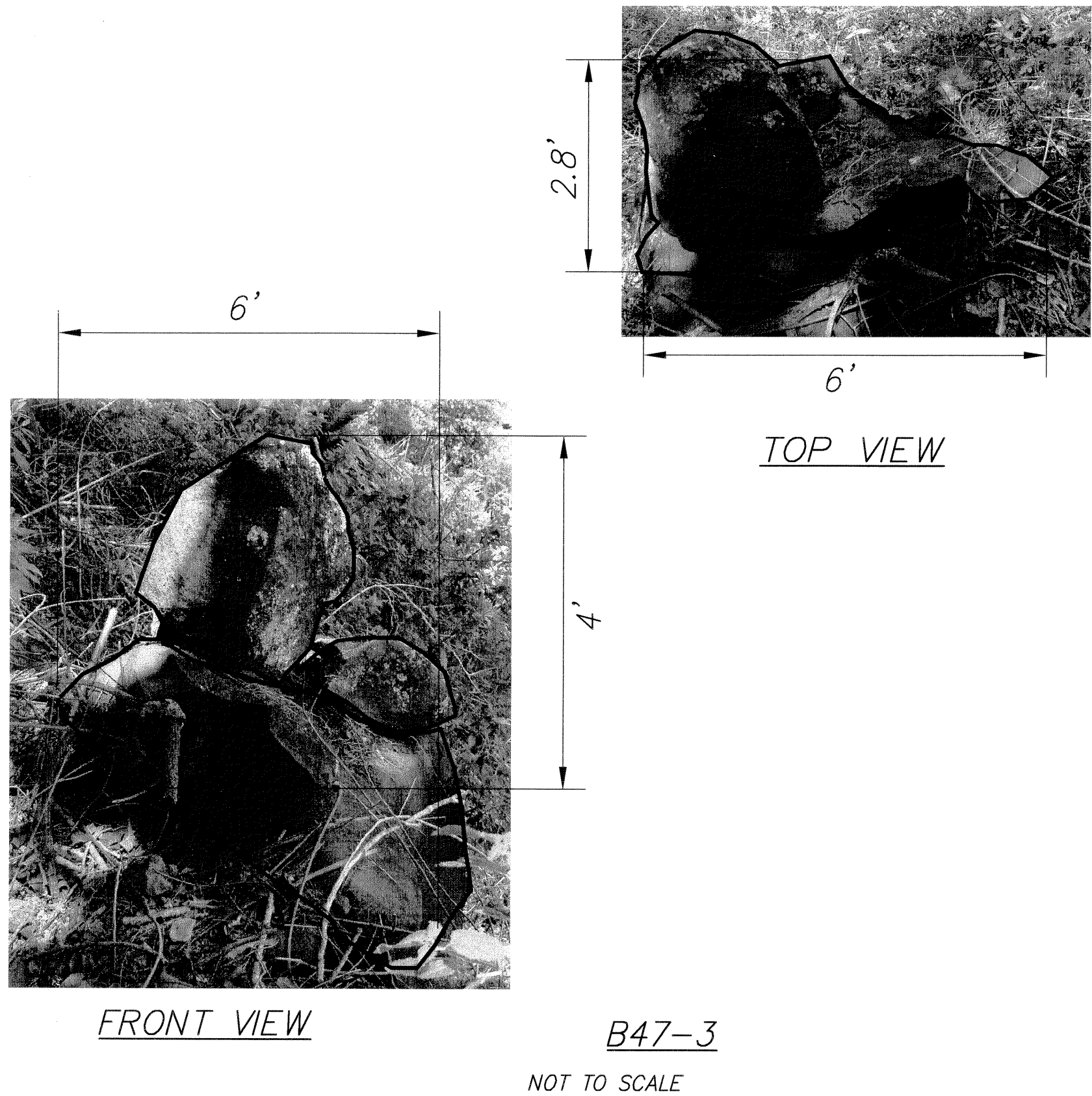
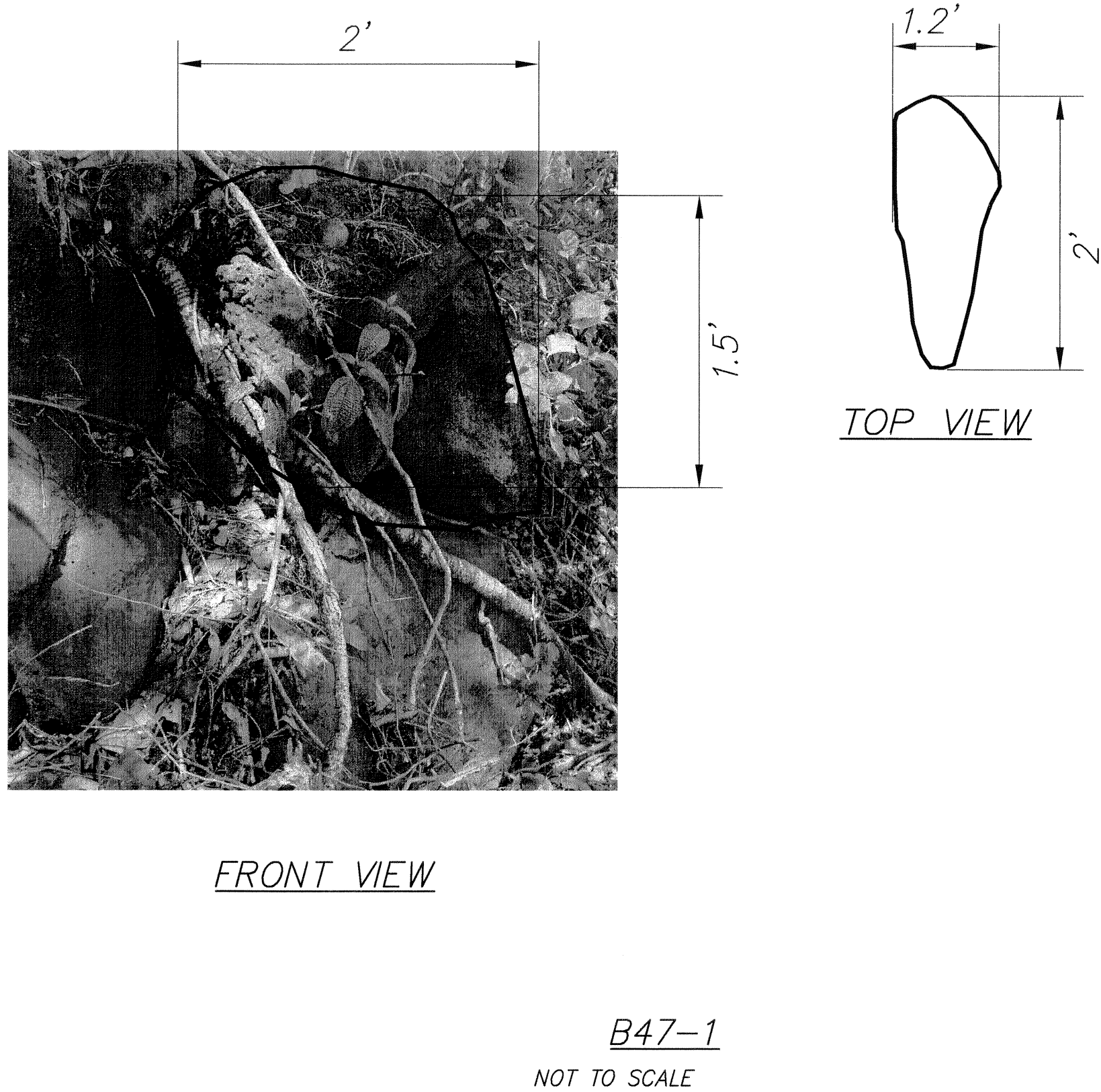
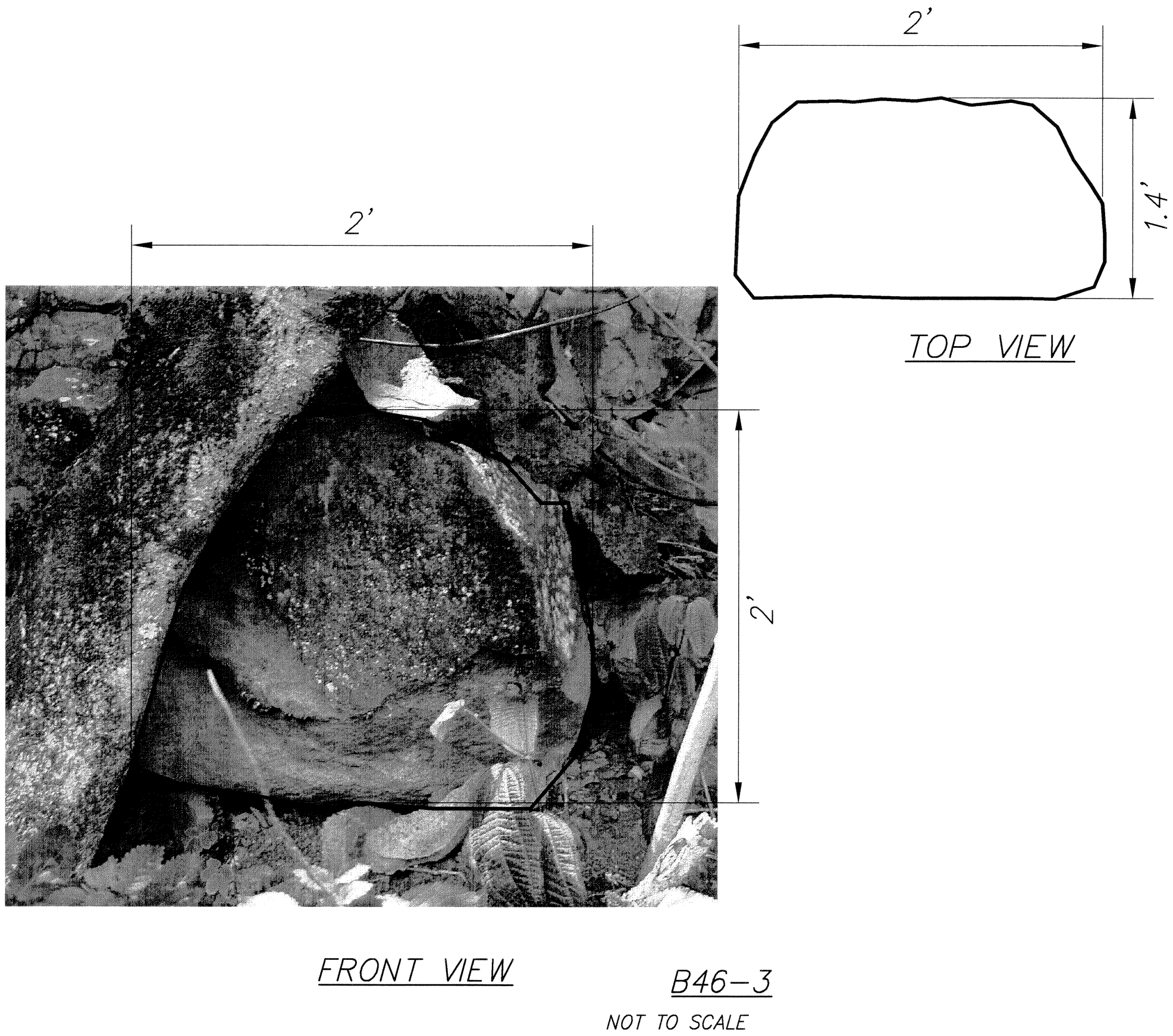
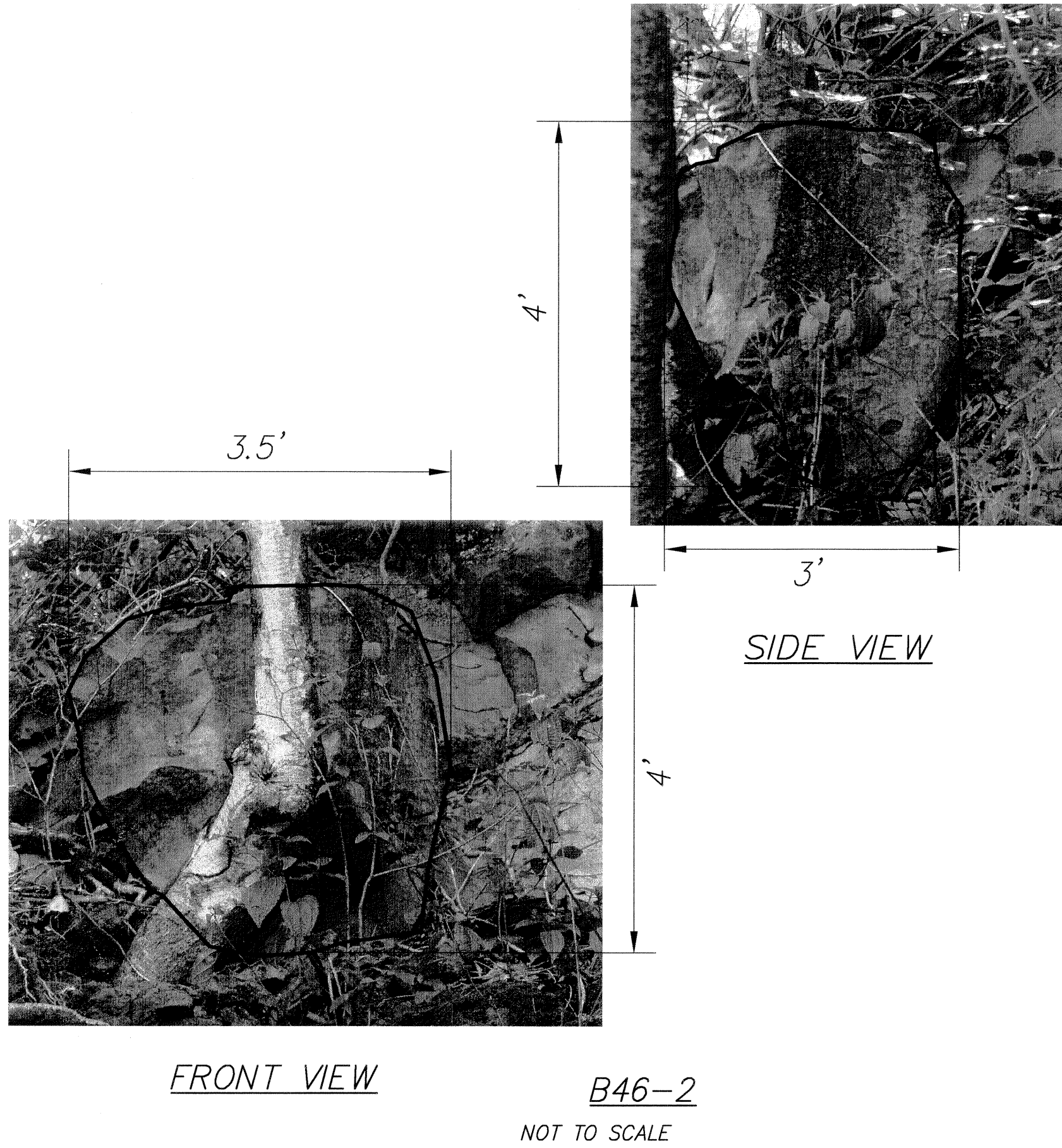
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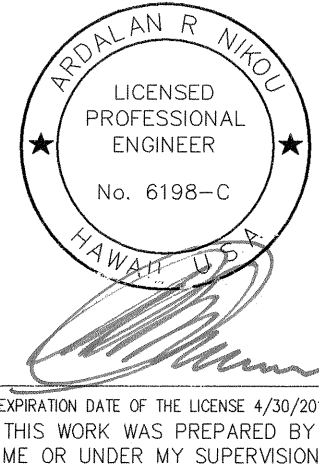
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOULDER DETAILS
B43 THRU B46-1
KUHIU HIGHWAY SLOPE STABILIZATION
VICINITY OF HANAIEI BRIDGE
PROJECT NO. 560A-02-03
Scale: As Noted
Date: July 2009
SHEET No. 6 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	22	32



ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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No.	DESIGNED BY	
	QUANTITIES BY	
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BOULDER DETAILS
B46-2 THRU B50-1
KUHIU HIGHWAY SLOPE STABILIZATION
VICINITY OF HANALEI BRIDGE
PROJECT NO. 560A-02-03
Scale: As Noted Date: July 2009
SHEET No. 7 OF 8 SHEETS

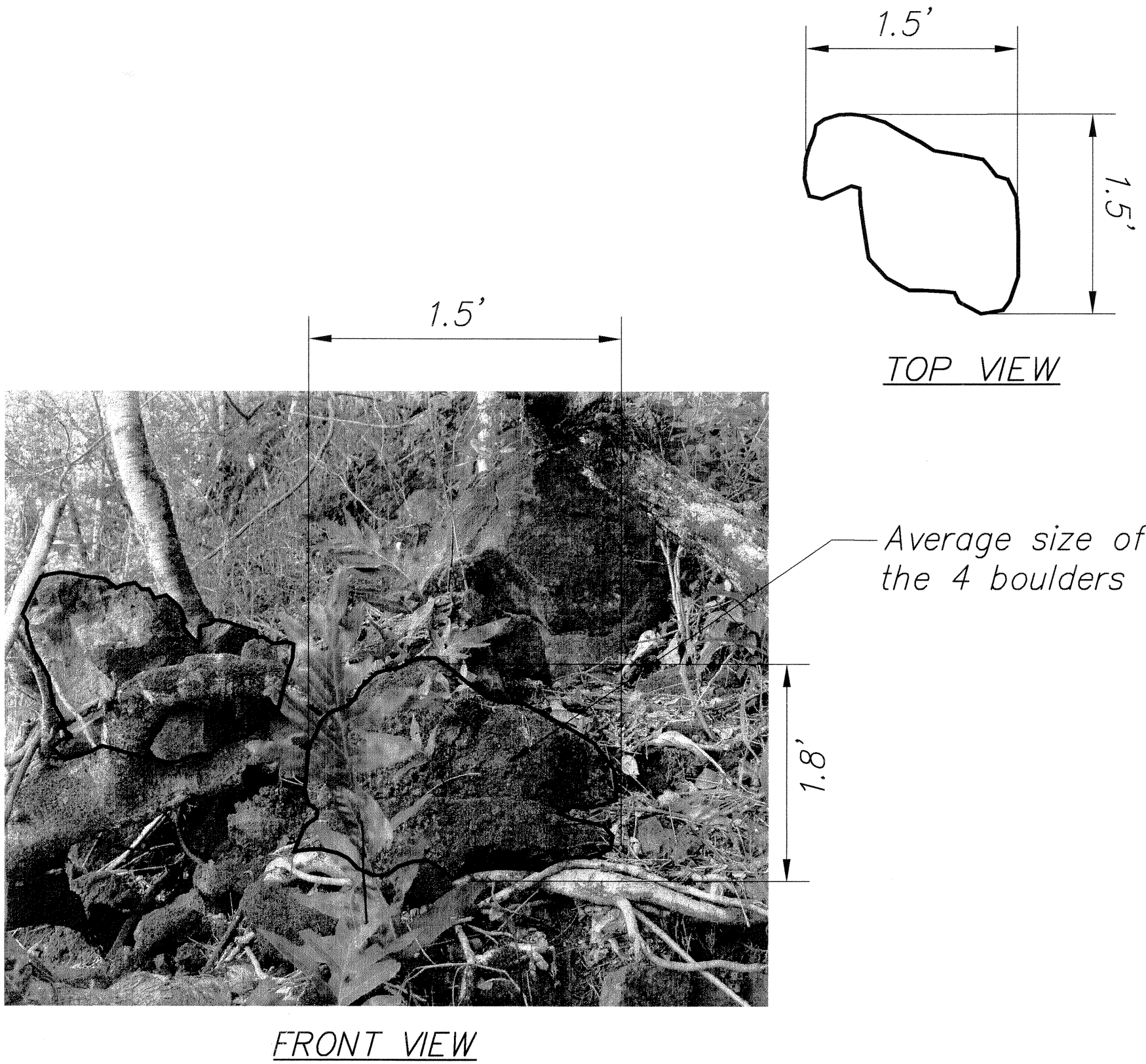
ACDALAN R. NIROU
LICENSED PROFESSIONAL ENGINEER
No. 6198-C
HAWAII, U.S.A.

EXPIRATION DATE OF THE LICENSE 4/30/2010
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
KAUAI	HAWAII	560A-02-03	2010	23	32

GENERAL ROCKFALL MITIGATION AND SLOPE SCALING NOTES:

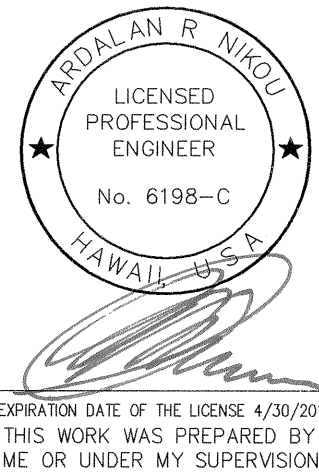
1. The scope of work is to remove loose rocks, hazardous out-crops and debris that may dislodge during construction activities. Also included in this work is the cutting, removal, and disposal of trees and shrubs. Removal of rocks measuring up to 24 inches in largest dimension shall be considered incidental to scaling operation.
2. The Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones and other protective facilities and shall take all necessary precautions for the protection, convenience and safety of the public.
3. Contractor shall exercise care when performing work in or adjacent to exist structures. All exposed surfaces of the structures shall be protected from damage by rock scaling operation. All damages shall be repaired immediately by the contractor to satisfaction of engineer at no additional cost to the owner.
4. Indemnity:
The Contractor shall indemnify, defend and hold harmless Earth Tech, Inc., and the State of Hawaii, their officers, and employees from and against all losses, damages, claims and actions, all expenses incidental to such losses, damages, claims or action, based upon or arising out of damage to property or injuries to persons, or other tortuous acts caused or contributed to by the Contractor or anyone acting under its direction or control or on its behalf.
5. Contractor shall have in their employment a qualified person as "spotter" full time during scaling operations. The spotter shall be a geologist trained in field work or someone experienced in rockfall mitigation procedures. The spotter shall have no other responsibility except for continually monitoring the upper slopes and for sounding of an alarm in case of possible rockfall during rock scaling operations.
6. Contractor shall submit a work plan for review and approval by the Engineer before commencing any construction work. No construction work shall begin before a written approval for the work plan is issued by the Engineer.
7. Tree cutting and slope scaling work shall begin only after the public protection measures are put in place at the beginning of each work shift. The contractor shall protect the public from any rockfall and debris hazards at all times during the Contractor's activities.
8. Start all slope scaling at the top of the slope and proceed down slope, removing loose rock and other debris as the work progresses. All material on the slope face that is loose, hanging or creates a safety hazard to the public must be removed or stabilized, to the Engineer's satisfaction, during or on completion of the section of slope.
9. The Contractor shall exercise extra care in the slope scaling work and shall avoid over-steepening the slope face that may cause instability of the slope. If during the slope scaling work, the contractor encounters unsafe slope conditions that may constitute a potential slide, immediately notify the Engineer.
10. Blocks of rock or debris that hang up on the slope during scaling operation shall be removed upon completion of the first pass of the slope scaling. The Contractor shall continue scaling of the slopes until the slope scaling has been completed to the satisfaction of the Engineer.
11. The Contractor shall excavate and remove the rock outcrops. After clearing the slope of vegetation, if the Engineer determines that certain rock outcrops are unstable and hazardous, Contractor shall repair cliff by means of expansive grout or by hydraulic expander equipment. Blasting shall not be permitted.
12. The Contractor shall clear the area of rocks and debris at the end of each slope scaling shift.
13. Removed rocks and debris shall be the property of the Contractor and shall be disposed of out side of the State property in an authorized location. The Contractor shall not remove more rocks than required by the contract documents unless otherwise directed by the Engineer.



B50-2
NOT TO SCALE

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STATE OF HAWAII	
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HIGHWAYS DIVISION	
<u>BOULDER DETAILS</u>	
<u>B50-2</u>	
<u>KUHIO HIGHWAY SLOPE STABILIZATION</u>	
<u>VICINITY OF HANAIEI BRIDGE</u>	
<u>PROJECT NO. 560A-02-03</u>	
Scale: As Noted	Date: July 2009
SHEET No. 8 OF 8 SHEETS	