MAKING THE PAST MEANINGFUL TO THE FUTURE: REVISED FIELD NOTES AND FIELD PROCEDURES

CHICORA RESEARCH CONTRIBUTION 413

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July 30, 2004

ISBN 1-58317-063-4

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ABSTRACT

This Research Contribution provides detailed instructions for field operations by Chicora archaeologists. It outlines how critical forms should be completed and how daily field activities should be conducted to ensure consistency and quality in data collection. While no written document can take the place of experience, this information provides a solid foundation. It helps to ensure that experience is not gained at the expense of irreplaceable archaeological resources.

The original Research Contribution, published in 1998. This new document is an updated version with additional information, discussions, and details.

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FIELD FORMS

General Observations

▪ Be neat — neatness ***does*** count, notes must be legible and understandable. Use only pencil. The lead should be soft enough to be legible on copies, but hard enough to prevent smudges and smears. Sweat stains are ok, but avoid leaving paper work out in the rain. Remember, it reflects on your professionalism.

▪ Be consistent — notes that reflect consistency suggest attention to detail in the field and are easier to use later. If you can't be bothered to keep good, detailed notes, who is to believe whatever your conclusions may be later?

▪ Be methodical — this also reflects attention to detail. Record your information in a consistent fashion, being sure that everything is there, and that it makes sense.

▪ Keep up with your notes — don't wait, don't put them off. Doing one day's notes is hard, doing two or three days' worth is virtually impossible. Far too much will be happening on a site for you to remember details from one day to the next. You might be able to put off doing notes until after supper, but don't get caught up in other activities, putting off your responsibilities to the archaeological site on which you are working.

▪ Be accurate — don't guess; record correct, accurate data. If you must guess, state it as such in the notes. If a correct figure can be obtained the following day, make yourself a note to do so — and follow up on it. When you have the correct information, put it in the notes and cross reference the original entry with something like "For further information, see notes of [date]."

▪ Don't change recommended note taking practices — these procedures are the result of 21 years of note taking and report production. They are based on formats that were originally developed during the 1930s by archaeologists using ten or hundreds of WPA laborers. You may have a good idea, but the odds are that it has been tried and either integrated (in some way) into the current procedures or has been abandoned as impractical or unnecessary.

▪ **Remember, in the real world outside the luxury of academia, you get one, and only one chance to excavate a site and collect its data. After that one chance it is usually bulldozed, built on, or paved over. The effort, the energy, you put into the site is what is reflected by your notes. Your notes become your legacy to the future.**

DAILY REPORTS

General Observations

Field notes, as strange as it may seem, are not written for you — they are written for everyone else. Field notes are primarily intended to help *others* understand what you did, why you did it, and what the outcome was. Consequently, ***field notes must be written daily***. You must keep up with activities at the site.

You ***cannot*** attempt to prepare field notes every few days — too many important decisions will be forgotten, too many details will be glossed over. In addition, at times your field notes will be used by those in the lab to either correct errors in proveniencing or to figure out when certain activities were undertaken. If your field notes aren't detailed and accurate, they will be useless for solving such problems. Field notes need to be done either as the work day progresses, or in the evening.

Field notes must be written neatly and legibly. The details and information you provide in your field notes will do no one any good if they can't be read. This means that field notes must be carefully prepared and must be carefully guarded from soiling and water. Field notes should only be prepared in pencil. Never use ink — even so called "archival" ink. If you erase, do so completely but without damaging the paper.

Field notes must be written to be understood by individuals who have absolutely no idea of the site, its location, or the purpose of your work. Don't *assume* anything. Your first day of field notes should indicate the name of your field crew (that will be needed when the acknowledgements for the report are prepared). You should carefully indicate the location of your horizontal and vertical datums and the measurements you assign to them. You must indicate how the grid was set out. Virtually every decision you make must be recorded in detail.

Do not allow yourself to fall into the trap of subconsciously thinking that because you know how such-and-such was done everyone else will also. Don't "assume" that because you "always" do something a certain way, everyone will realize that was the way it was done this time.

While some introspection may be appropriate in your field notes to help others understand the reasons behind your decisions, field notes are not the place for a running commentary. Field notes are not "dear diary." They are designed to record important information. It is always appropriate to think carefully about the process before you begin to write. Recognize that field notes are permanently curated – be very careful what you say and how you say it.

Be sure to include sketch drawings in your field notes to explain details, such as the placement of datums or the stratigraphy of the site. Don't rely on readers to pick this kind of information up from either other sections of your field notes or from verbal descriptions. Use sketch maps to show the layout of the grid. Also be sure to include graph paper maps showing the location of units and overall site data. ***Remember, your field notes should be sufficient to form the basis of a report written by someone totally unfamiliar with the site.***

Daily Reports — Item by Item Instructions

1. *Supervisor* is self explanatory, but remember to also provide the names of the crew on the first day and when there are changes, or individuals are ill, or when someone has the day off.

2. *Site* should always be the standard site designation (i.e., 38BU968) not a site name. Standard site designations have permanency, whereas site names will mean little or nothing 10 years later. The site designation is usually shorter and provides consistency throughout the field notes.

3. *Date* should include not only the month, day, and year (in that order, not the military approach of day, month, and year), but also the day of the week. Projects longer than a week can begin to blur together. Using the day of the week will help you remember when important things happened.

4. *Total men reported* is a politically incorrect phase for total persons. It should include the supervisor and should be a whole number. In other words, if someone works only a half day, there should be two numbers: the number of individuals working a full day and the number working a half day.

5. *Total hours worked* may be a single number, if everyone worked the same number of hours, or it may be several numbers (as noted in number 4 above). It should not include lunch time, only the time worked (which is the time actually paid). For example if work begins at 7:30 am and continues to 5:30 pm with ½-hour for lunch, that is a 9.5 hour day. Remember, labor laws prevent any employee from working more than 40 hours in a week without the payment of overtime.

6. *Total man-hours* or *Total person-hours* is the sum of total persons, times total hours worked. Four people working 9.5 hours would yield 38 person hours.

7. *Primary Excavation* is, as indicated, shovel work, such as excavating units or flat shoveling. It does not include shovel tests, or features, or backfilling, or clearing woods. Indicate each unit individually. This demonstrates, on a daily basis, what you were doing and may help straighten out the occasional problems that will certainly creep in. If you have a variety of unit sizes being excavated at your site it will be helpful to place the unit dimensions in parentheses after the designation: 100R250 (10x10). If you have used a separate line for each unit, indicating the square feet will be a simple matter (this is another reason not to list multiple units per line). Depth may be estimated, but should be done with care and with as much accuracy as is reasonably possible. The depth may be an "average" of the four unit corners, or may be standardized to one consistent corner (such as the southeast corner). Cubic feet is simply the sum of the square feet multiplied by the depth. The designation "St." means that the unit was started on that day, "Ct." means that it had been begun earlier in the week and is being continued, "Cp." means that the unit was completed. The appropriate designation or designations should be checked. This is critical to allow you to track the progress of the unit excavations.

8. Provide the total number of square feet opened during the day.

9. Provide the total number of cubic feet moved during the day.

10. Divide the total square feet in #8 by the total number of persons engaged in primary excavations to yield the total square feet worked per person. The total number of people engaged in excavations may be estimated, but will be a whole number (no half persons). In other words, someone may have worked a half day, then troweled — round up your total number of people. This provides a general indication of fatigue.

DAILY REPORT

Supervisor 1 Site 2

Date 3

Total men reported 4 x total hours worked 5 = total man-hours 6

Primary Excavation: (shovel work)

Unit (horizontal and vertical location)	Sq. Ft. x Depth = Cu. Ft.			St.	Ct.	Cp.
7						
Total	8	xxxxxx	9	xxx	xxx	xxx

10 Total sq. ft. worked _____ ÷ total men _____ = total sq. ft. worked per man _____

11 Total cu. ft. moved _____ ÷ total m-hrs. _____ = total cu. ft. moved per m-hr. _____

Secondary Excavation: (cleaning and preparation of burials and/or features)

Unit	No.	St.	Ct.	Cp.	M-hrs
12					

Weather: 13

Soil: 14

15 *Backfill:* (any movement of earth other than original excavation above)
Total cu. ft. moved _____ ÷ total man-hrs. _____ = total cu. ft. moved per m-hr _____

16 *Sifting:*
Cu. ft. sifted _____ ÷ total man-hours _____ = total cu. ft. sifted per m-hr _____

Man-hours not otherwise accounted for: 17

18

11. Divide the total cubic feet in #9 by the total number of person-hours engaged in primary excavations to yield the total cubic feet worked per person. You will find it helpful if, first off, you apportion the total number of person hours between primary excavations, secondary excavations, backfill, sifting, and other. This will ensure that you are working with the correct number of person hours — that you don't wind up with too many or too few person hours. This figure provides a very good indication of how diligent the crew is working. Figures of 5 to 10 cubic feet per person hour are good and appropriate. Figures lower than 2 to 4 suggest that the crew is not even coming close to an appropriate level of work.

12. Secondary excavations are the excavation of features or post holes. For features you need not indicate the unit, only the feature number and its zone or half being excavated (i.e., Fea. 5, S ½) . For post holes you must, of course, indicate the unit designation, as well as the inclusive post holes numbers (don't try to itemize time by post hole, it probably won't be more than a quarter person hour per post hole) (i.e., 100R150, ph1-3). Like primary excavations you need to indicate if the excavations were started, continued, or completed and also assign the amount of person hours that went into the work.

13. *Weather* should always be indicated since it will affect the level of crew effort — hot, humid days will slow work, while cool, mild days will maximize the level of effort. This information will also help explain your "other" hours — which might be spent covering/uncovering the site, or washing artifacts. But keep it simple: “hot, humid am, cooling pm,” or “cloudy am, light rain in pm.”

14. *Soil* should be a general category that helps others understand the conditions that the crew was facing. Plow zone is easy digging compared to dense shell midden or heavy urban rubble. Therefore, statements such as “sandy pz,” “dense heavy clay,” or “moderate shell midden” are appropriately descriptive.

15. *Backfill* as explained on the form is "any movement of earth other than original excavation." It may include moving backfill to allow new units to be opened or it may involve closing the site down. You will need to estimate the total cubic feet and divide it by the total person hours involved in the operation to yield total cubic feet moved per person hour. You will find that you move more backfill per person hour than primary excavation since the soil is loose and easy to move.

16. *Sifting* includes both mechanical sifting and use of hand screens, although you should indicate which is being used (or that it represents a combination). Hand screens require constant attention — shaking them to sift soil and sorting them to remove artifacts. Mechanical screens require much less attention. So, you will need to estimate the person hours spent screening or sifting.

17. *Person-hours not otherwise accounted for* is the listing for "other." It will likely include: opening and closing the site (the time spent getting out tools, getting organized, pulling back plastic, etc.), supervision, repair of equipment, talking to site visitors, setting out the grid, shovel testing, clearing units, laying out squares, photography, drawing units, transit work — virtually any activity that isn’t covered elsewhere on the Daily Report. These activities should be listed with person hours itemized.

18. Discussions — after everything else is completed, use the rest of the page bottom and the back for narrative notes. Remember to keep the notes concise, but detailed.

PHOTOGRAPHIC DATA

General Observations

Your photographic data sheet must be keep up carefully, otherwise you will wind up with a mass of photographs not identified, scribbled notes that are meaningless, and units which may or may not have been appropriately photographed. This is not hard, it only requires careful attention to detail. Take a set of photographs and immediately enter them. Then, and only then, take your next set. Do not rely on someone else to write your photographs down. If they make a mistake it is **your** mistake and **you** are responsible for sorting the mess out.

Remember that you must have two sheets — one for B/W and one for Color Slides. Usually, but not always, they will be identical. But regardless, you must have two separate sheets, each labeled with roll number. The appropriate way to indicate this is to clearly write, on the left hand of the form, above the double line, the type of film and the roll number: B/W, Roll 1, for example.

Try to get an entire roll on one page. Although you can continue on a second sheet, this creates a hassle for both you and those trying to deal with the notes later. Writing small, and neatly, will allow you to get 36 exposures on one page — and this is clearly the best approach.

Remember that you must have two exposure of each view. Two exposures are made to provide some safety margin — if one is damaged in processing, the other may survive, or if you move the camera on one, the other may be steady. The first shot should be fully entered, while the second shot should be indicated only by a field number and, under the subject heading, the term "as above." Do not use "ditto" or ditto marks ("), or other designations. These can be confusing or may not reproduce in photocopies.

No investigator ever takes enough photographs. Remember that while views of square holes may be "scientific," they are also very boring. Take photographs of individuals excavating, screening, troweling, using the transit/stadia, and excavating features. Even photographs of individuals filling out bags may be appropriate in some slide shows. When you take "overall" photographs, have some without individuals, and then take others with people in them. For every week in the field, you should have at least 1 to 2 rolls of both B/W and color slides. Film is cheap and the views can be taken only once.

Sooner or later you will get photographs out of order. When that happens, clearly indicate with an arrow (as well as correct numbers) the order of the images. There is no need to rewrite the form, but you must make the order clear. Likewise, sooner or later you will forget a set of images — this will throw your numbering off and result in fewer than 36 images on a roll. If you remember, or figure out, the forgotten images, add them with their correct numbers, and draw an arrow to where they belong. If you can't figure them out until the rolls are processed, make a note on the form that you are x-number of shots short and immediately figure out the problem when the materials are process — don't leave the problem for someone else or "forget" about it until it becomes a curatorial nightmare. It is your responsibility, handle it.

Film should be processed immediately. You need to return to Columbia or make arrangements with an appropriate processing facility (i.e., one with good quality assurance programs, not a local drug store) to have film processed on weekends. There are several reasons for this. First, it helps prevent loss or misplacing of film. Second, it also helps ensure that if there is a camera or operator problem, it is noticed early. Third, it allows you to keep your film notes up to date; if you miss some shots or get them out of order, you'll have plenty of opportunity to correct the problem. Fourth, if you have missed shots or if the film is not usable, you may have an opportunity to correct the problem (an opportunity you certainly won't have once out of the field). So, keep up with film processing.

Photographic Data — Item by Item Instructions

1. *Site Number* should always be the standard site designation (i.e., 38BU968) not a site name. Standard site designations have permanency, whereas site names mean little 10 years later. The site designation is usually shorter and provides consistency throughout the field notes.

2. *Accession Number* will usually be assigned after the field work, so this should be left blank.

3. *Field Number* should begin with 1 for each roll and should reflect the exposure number.

4. *File Number* should be left blank.

5. *Subject* should be carefully detailed and consistent. It should also be worded to accurately reflect what is being seen. For example: 300R450, base of pz or 250R600, base of Z.1, or Fea. 2, S ½, before excavation, Feature 3, N ½ excavated. Keep the descriptions accurate, but yet simple. Don't go into needless data. Indicate what and its stage of excavation.

6. *Date* is self-explanatory. Enter only once for each shot. Do not use dittos.

7. *Direction* is also self-explanatory. Use letter abbreviations, for example, N for north, or ESE for east-southeast. Your directions should reflect your overall site approach. If you are using grid north on all of your drawings, don't suddenly start using magnetic north in your photographic data directions.

8. *Comments* is the spot to indicate additional, important data. It is also the spot to indicate the name of individuals in photographs, but be sure to use last names, not initials or first names. Twenty years from now, someone in your photographs may be famous! The Comment section is also the place to indicate problems, such as "bad exposure."

PHOTOGRAPHIC DATA

Site Number 1

Accession Number 2

Field No.	File No.	Subject	Date	Direction	Comments
3	4	5	6	7	8

LEVEL FORM

General Observations

The level form provides the single most important opportunity to outline unit by unit interpretations. Do not try to condense information in the daily reports that ought to be dealt with in greater detail in the level forms. **It is absolutely essential that these forms be kept current.**

This form is called a *level* form, not a *unit* form. As originally designed each level, or zone, for a unit received its own sheet. This was of particular importance if each level had to be plotted. It is not nearly as important if units are only drawn at the base of the excavations (for example, in a situation where you have a plow zone over subsoil). In such cases, multiple levels can be described on a single sheet. **Just make it clear what you are doing**.

Beyond the verbal data on the front of the form, field directors should be particularly careful to record detailed, neat, and accurate drawings on the reverse.

Drawings for 5-foot and 10-foot units must ***always*** be at a horizontal scale of 1-inch to 2-feet. ***DO NOT*** alter this scale. All drawings, for the simple sake of uniformity, are done at this scale and **no other scale**.

This unit drawing should go one inch from the left edge of the page and one inch from the top, regardless of whether it is a 5- or 10-foot unit. To the right of the unit should be a north arrow. **North should *always* be toward the top of the page**. At times you will make a mistake and draw the unit with some other orientation. ***These drawings must be redrawn***. Usually the easiest approach is to trace the original drawing on a new sheet and then transcribe the narrative information.

The top of each page should be clearly labeled with the following information:

Site number	38BU101
Unit designation, zone	100R450, base Z. 1
Date	5/3/97
Your name (not initials)	Trinkley
Horizontal scale	Scale: 1" - 1' Horiz.
Vertical scale	1" - 2' Vert.

The plan drawing should be in pencil. There is a tendency to use Munsell colors with no additional information. This tells your audience nothing (except what color the soil was). You need to also indicate the nature of the soil: sandy loam, clay, dense rubble, sparse shell, etc., as well as something about the its function or meaning: is it subsoil? a feature? tree stain? Anyone can determine a Munsell color. As the field director, you are responsible for ***reading*** the soil.

All features are numbered sequentially by site and all features should be labeled with the number. Only items of cultural origin are features. Tree roots/stains, rodent holes, and so forth are *not*

features. If you assign a feature number and latter determine that the stain is not a feature, the number should be returned to the pool and re-used. Do not leave feature numbers in the middle of your sequence unused.

If you don't follow this rule – if you leave, for example, a tree with a feature number – then it is no longer possible to quickly refer to your feature forms, see that there are 12 and state the site produced 12 features. It didn't – careful reading would reveal that there were only 11, with a tree stain incorrectly given a feature number. Remember, you aren't preparing these notes just for yourself – you are preparing them for researchers 50 years from now.

An easy way to prevent this from happening is to only assign feature numbers once you are certain what you have. Once the excavation has gotten far enough to reveal that a stain is a tree – or a pit – you can assign a number if appropriate. The only downside of this is that you must make certain all bags are accounted for and appropriately labeled – but that has to be done regardless.

All post holes are numbered sequentially by unit — so that you will start over with post hole 1 in each unit. It is always best to only number post holes once they have been excavated and you are sure that they are, in fact, post holes (just like features).

After features and post holes are excavated, they must be redrawn in plan. You will almost always discover that their position and/or shape has changed. Sometimes (probably often) the change will be minor, but at times poorly defined features will change shape dramatically as you excavate them. These replots must somehow be distinguished from the original feature plots. This is done by replotting ***only*** in red. You leave the original pencil lines and add a red replot. Once done, you add the following to the caption in the upper right hand corner of the sheet:

Red by [your name]	Red by Trinkley
Date	5/20/97

All profiles are drawn at the same horizontal scale, ***with an exaggerated vertical scale of 1-inch to 1-foot***. The exaggerated vertical scale allows for shallow profiles to still have enough depth to allow adequate definition. Even very shallow zones can be accurately incorporated into the profiles. The result may, at first, appear odd to your eye, but you will get used to this convention. Similar vertical exaggeration is very common in geological research, for exactly the same reason.

The profile should be placed about an inch or two below the unit plan view. The left margin of the profile should have either AMSL (above mean sea level) or AE (assumed elevations) elevations clearly identified. Be sure to correlate the foot with a heavy grid line.

East, west, and north profiles should be labeled: "[direction] looking [direction]," for example, "East Profile Looking East." **South profiles, on the other hand, must be drawn as though you were looking north** and should be labeled, "South Profile Looking North." The approach allows the profile to be easily correlated with the unit and its plan view. When drawing a south profile looking north, it is simply a matter of reversing the measurements, so that the right edge of the profile is drawn on the left edge of the paper and vice versa.

Every lens or zone in the profile must be carefully drawn and reflect exactly what is seen in the soil — these are *not* schematics, but actual views. At times it will be necessary to take intermediate elevations to ensure that the drawings are accurate and include sufficient detail.

It is of critical importance that units in a block and profiles in a line match. There is no way to explain stains in two adjoining features which don't match. Nor is there any way to explain why the profiles of two adjoining units don't match. Such problems indicate that insufficient time was spent to either (1) draw/prepare the plan or profiles and/or (2) check the plan or profiles. Spend a few extra moments to double check all drawings. If they don't match up, determine why and make the necessary corrections in the field – it is much easier (and more professional) to do there than to guess back in the lab.

Remember that your drawings will form the basis of all drawings in the final report. This means that they must be accurate, readable, and ***understandable***. No one but you was at the site. No one but you saw the profile. What you have drawn will form to basis of all interpretations, observations, and publication drawings. Make sure that your drawings are correct the first time.

Level Form— Item by Item Instructions

1. *Site Number* should always be the standard site designation (i.e., 38BU968) not a site name. Standard site designations have permanency, whereas site names mean little 10 years later. The site designation is usually shorter and provides consistency throughout the field notes.

2. *Date* should include not only the month, day, and year (in that order, not the military approach of day, month, and year), but also the day of the week. Projects longer than a week can begin to blur together. Using the day of the week will help you remember when important things happened.

3. *Square* should be the formal designation, such as 100R350.

4. *Zone/Level* is self-explanatory and should be consistent for each unit. As previously discussed, you may use this form for multiple levels within the same unit. If so, be sure to indicate all of the levels in this space, e.g., Lv. 1-3.

5. *Elevations* may be either assumed elevations (AE) or elevations above mean sea level (AMSL). You must indicate which is being used. Assumed elevations are based on an arbitrary (i.e., assumed) elevation datum point, while mean sea level elevations are tied into some defined sea level datum point. This information should be more fully described/discussed in your daily report. For both 10-foot and 5-foot units, you must indicate the elevations at each of the four corners. When several units join, as in a block, **be sure that the common elevations are identical** — you can't have two joining units beginning and/or ending at different elevations (unless, of course, the base of one unit steps up). If you have more than one zone or level on the form, you must have sets of elevations for the base of each one. You must also clearly indicate what each set of elevations relates to. Other elevations should also be listed (and carefully identified) in this section. You might have elevations for the top of a brick pier, or an elevation on a pipe running through the unit. *It is always better to have more elevations than not enough*. As you add elevations to the form, be sure that they make sense. You can't, for example, have a top elevation of 5.30 feet and a bottom elevation of 5.80 feet (whether AE or AMSL, lower elevations are *always* a smaller number). **It is always easier to catch, *and correct*, mistakes in the field than it is back in the lab.**

6. *Stratigraphic Notes* is the ideal section to include information on the overall stratigraphic appearance of the unit. This should provide an overall picture of the unit's stratigraphy. It may be appropriate to also provide a sketch of a typical profile.

7. *Level Description* should provide specific information concerning either the particular zone or level dealt with by the form or concerning each of the various zones or levels. It should include information on the

CHICORA FOUNDATION, INC.
LEVEL FORM

SITE NUMBER 1

DATE 2

SQUARE 3 ZONE/LEVEL 4

ELEVATION

5 At top of zone/level: NE_____ NW_____ SW_____ SE_____

At base of zone/level: NE_____ NW_____ SW_____ SE_____

Other elevations:

STRATIGRAPHIC NOTES

6

LEVEL DESCRIPTION

7

SIZE 8

FEATURE NUMBER(S) AND TYPES (if applicable)

9

SIGNIFICANT ARTIFACTS

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INTERPRETATIVE REMARKS

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Plan _____
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B & W: Roll____ Frame____
Color: Roll____ Frame____

EXCAVATED BY: 14

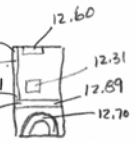
RECORDED BY: 15

CHICORA FOUNDATION, INC.
LEVEL FORM

SITE NUMBER 38LX1644

DATE MON 12/8/97

SQUARE Unit 2 ZONE/LEVEL 1, 2, 3, 4, 5



ELEVATION

At top of ~~zone/level~~ concrete:	NE 13.88	NW 14.21	SW 14.15	SE 13.92
At ~~base~~ top of ~~zone/level~~ Level 1:	NE 13.26	NW 13.26	SW 13.35	SE 12.80
top Lv.2	12.73	12.98	12.65	12.33
Other elevations:				
top Lv.3	11.49	11.44	11.24	11.26
top Lv.4	10.48	10.45	10.72	10.52
top Lv.5	10.30	10.15	10.12	10.08
	9.53	9.77	9.89	9.65
			10.17	11.03

STRATIGRAPHIC NOTES

base Lv.5
base Lv.5 (south of wall)

Based on post sockets along west wall top of floor in bldg was about 13.96'

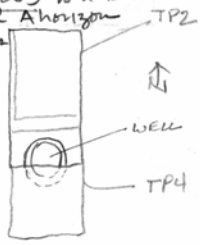
LEVEL DESCRIPTION On top of unit was concrete - thicker to the S (different pour). Below was Lv.1 - a dark brown sand w/ abundant rubble. Much of this rubble was adhered to concrete slab. Below to N of wall is Level 2 a brown loose, friable sand w/ abundant artifacts. A wall was encountered in level 1 running E-W took out area to N first - this is the dense artifact zone. A brick pier was encountered along the N wall. A building wall is to the west, just outside the unit. A second pier was found & we determined that both originally formed an arch, such as those used to support fireplaces. Began looking at the area S of the wall, finding a well (see drawing) ½ in unit. Laid out Unit 4 (a 5x5) to south to expose rest of this feature. Level 3 is an ashy layer w/ much charcoal, but relatively few artifacts - bag drop from Level 2. Level 4 is a light brown sand with some rubble. Level 5 is a brown sand that appears to be original A horizon at the site. This grades into a yellow sand that is sterile.

SIZE 5x10

FEATURE NUMBER(S) AND TYPES (if applicable)

- wall along W profile, running N-S
- wall running E-W about ⅔ of the way S
- well in S ⅓ of unit, bisected by S wall

SIGNIFICANT ARTIFACTS



Munsel colors aren't indicated!

INTERPRETATIVE REMARKS

Photo numbers need to be added!

DRAWINGS

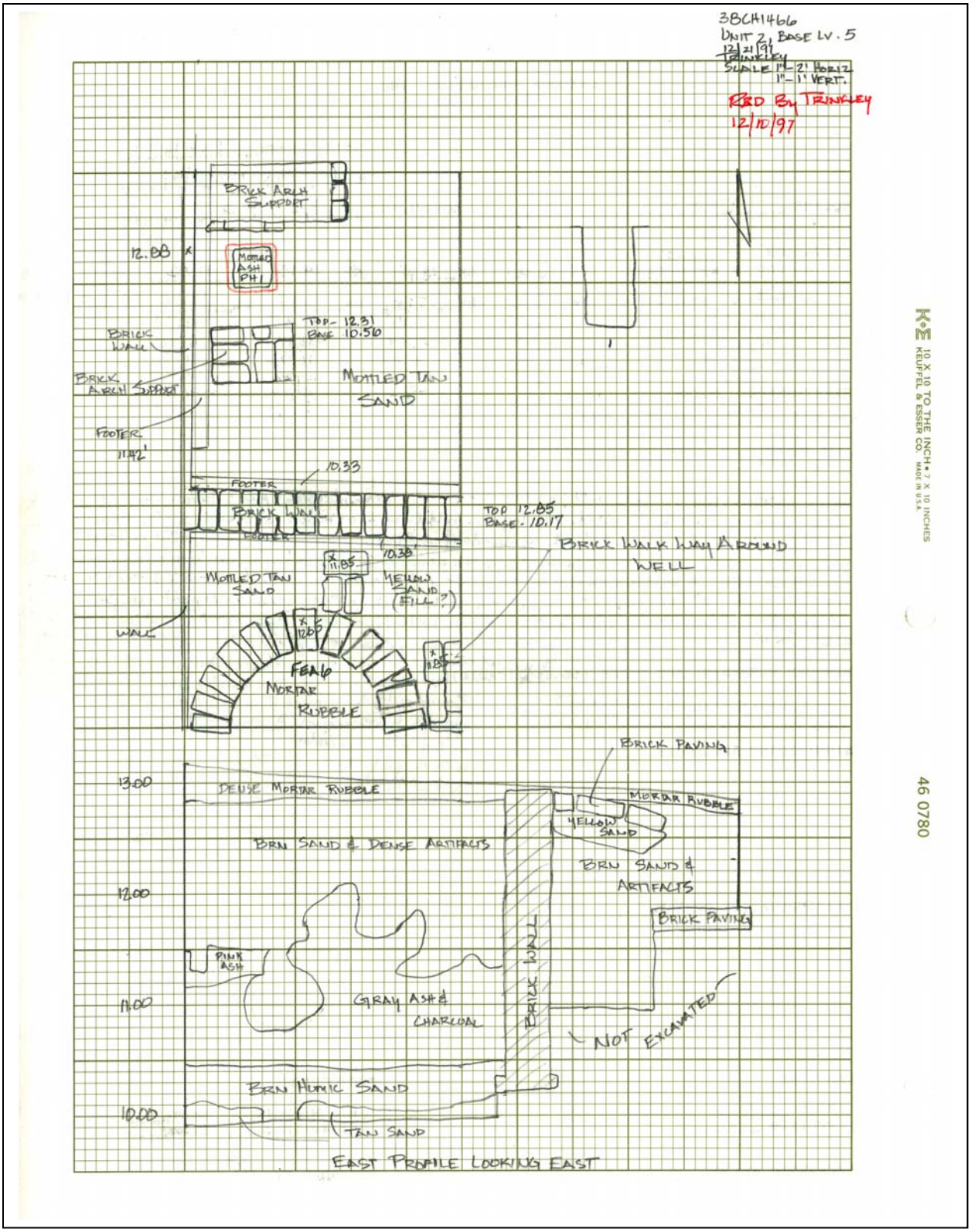
Plan ✓
Profile ✓

PHOTOGRAPHS

B & W: Roll____ Frame____
Color: Roll____ Frame____

EXCAVATED BY: RC

RECORDED BY: MT


38CH1466
UNIT 2; BASE LV. 5
12/21/97 TRINKLEY
SCALE 1"=2' HORIZ.
1"=1' VERT.
RED BY TRINKLEY
12/10/97
BRICK ARCH SUPPORT
12.00
MOTTLED ASH PH
TOP- 12.31
BASE 10.56
BRICK WALL
BRICK ARCH SUPPORT
MOTTLED TAN SAND
FOOTER
11.92'
10.33
FOOTER
BRICK WALL
FOOTER
TOP 12.85
BASE 10.17
BRICK WALK WAY AROUND WELL
11.85
10.38'
MOTTLED TAN SAND
YELLOW SAND (FILL?)
WALL
12.05
FEAT
MORTAR RUBBLE
11.85
13.00
DENSE MORTAR RUBBLE
BRICK PAVING
MORTAR RUBBLE
YELLOW SAND
BRN SAND & DENSE ARTIFACTS
BRN SAND & ARTIFACTS
12.00
BRICK PAVING
PINK ASH
11.00
GRAY ASH & CHARCOAL
BRICK WALL
NOT EXCAVATED
BRN HUMIC SAND
10.00
TAN SAND
EAST PROFILE LOOKING EAST
K&E 10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.
46 0780

color, texture, and nature of the level. This description should be as detailed as possible and should be written to provide an individual with no real knowledge of the site with some understanding. Avoid descriptions like "brown sand." That doesn't really help explain why this level was distinguished from those above and below; or how it was recognized in the field; or what this particular level means in/to the archaeology of the site. Make certain to include Munsell colors for all soils. Off the to right you should include any appropriate shell, brick, tabby, or rubble weights and surround the weights with a squiggly line. Also be sure to indicate whether the measurements are in ounces, pounds, grams, etc.

8. *Size* should indicate the size of the unit — 5x5, 10x10, 5x10, etc. This is also an appropriate location to indicate the location of the unit, if that is necessary (for example, at some urban sites units are not tied into a grid, but rather are tied into buildings).

9. *Feature Number(s) and Types (if applicable)* is the space to provide the feature numbers and a brief indication of the nature of the feature. For example: "Feature 3, builder's trench; Feature 5, chimney block."

10. *Significant Artifacts* may include anything you feel worthy of note. It isn't necessary to itemize artifacts (even if that were possible). This space may be used to mention special items, to make notes of items that need additional research, or to help qualify intra-site differences.

11. *Interpretative Remarks* may be used to record any special comments, especially those what will help better understand what is happening in the unit. Like the daily report, this is not the time or place for extensive narrative ramblings, but rather cogent, carefully reasoned observations. In other words, think about the unit and then record your observations and logical conclusions. While these notes may be used to help "jog" your memory, the will also be used by others to either understand the site, or your synthesis of the site.

12. The *Drawings* line is followed by "plan" and "profile." You should check which are provided on the reverse of the form. Typically a plan will *always* be provided and a profile will commonly be made (about the only time a profile might not be offered is when there is absolutely nothing to show). The reason these are checked is that often these double-sided forms will be copied on two different sheets of paper. The check will indicate that another sheet (the back graph paper) should be associated with the front of the form. These check marks also help you make certain all of the necessary information is recorded as you review your notes.

13. Under *Photographs* there are spaces to indicate the roll and frame number of both B/W and Color transparencies of the unit. If there are multiple photographs (perhaps of different zones, or showing features before and after excavation), then all should be indicated (for example, 1:1-2, 3:15-16, 17-18). You need to do this at the same time photographs are being recorded on the Photograph Data Sheets or as part of your evening clean-up of the daily notes.

14. *Excavated By* may be filled in with the excavators' initials and is useful in tracking down problems. If you have two bags with mistakes in the unit designation, either the date or the excavators' names may be enough to assign it a correct provenience. This information may even be of importance if there is a workers' compensation claim relating to specific job tasks — it will allow the Foundation to determine exactly what work an employee was assigned.

15. *Recorded By* will likely be you, the field director. At times, however, you may have to be off-site with someone else entering information. This should always be clearly indicated.

Reverse of Form: It is on the back of the form that the unit drawing is made. Remember the critical issues mentioned earlier:

- The drawing is labeled in the upper right corner of the sheet.
- North is always indicated and is always at the top of the page.
- The scale is always 1-inch to 10-feet horizontal and 1-inch to 1-foot vertical.
- All soils are clearly indicated with verbal color (brown), Munsell color (2.5YR3/5), texture (sand) and function (plowzone).
- All drawings are neat, legible, and clearly shown.

FEATURE DATA FORM

General Observations

Features have only cultural origins and do not include tree stains, tree roots, animal burrows, and other natural or non-cultural stains. Consequently, while it is ok to assign feature numbers when units are drawn, be sure to "retract" feature numbers if excavation reveals that they are not, in fact, cultural (it's better to assign feature numbers only once you are certain they are actually features). Post holes, however, are never features — they are post holes.

Always be sure to assign feature numbers when they are appropriate. For example, at a historic site features are not only piers, but also builder's trenches, and other pits. At prehistoric sites features are hearths, pits, and so forth.

In addition to the narrative form, you should also include a separate drawing of the feature in plan and profile. If it is a very simple feature (and you are especially pressed for time) you may be able to simply refer to the plan sheet drawing, but you must always have a profile. Usually it is better to redraw the feature, so the profile will make better sense and the plan and profile drawings are associated with each other on the same piece of paper.

Plan views of features should be drawn at a scale of 1-inch to 1-foot — double the size of the unit plan. You can often scale up the plan drawing, although sometimes you might be better off redrawing the feature, especially if it is very complex (redrawing at the larger scale will allow you to include more details). The plan must indicate one or two grid coordinates to help place the feature in the context of the site grid — otherwise you have a beautiful drawing floating in space.

Profiles should be at a scale of 1-inch to 1-foot horizontal and vertical (there is no exaggerated vertical scale since you are using a very large scale to begin with). Profiles should also be identified as: "Profile along E360 looking east [or west]" or "Profile along N400 looking north [or south]." This profile should include all of the zones, levels, lenses, and other information. Each should be carefully labeled and identified.

Like all other drawings, neatness counts. It is especially important for features since they are small scale and mistakes or sloppiness can be especially difficult to correct once in the lab.

Feature Data Form — Item by Item Instructions

1. *Date* should include not only the month, day, and year (in that order, not the military approach of day, month, and year), but also the day of the week. Projects longer than a week can begin to blur together. Using the day of the week will help you remember when important things happened.

2. *Observer* will likely be you, the field director. At times, however, you may have to be off-site with someone else entering information. This should always be clearly indicated.

3. *Site Number* should always be the standard site designation (i.e., 38BU968) not a site name. Standard site designations have permanency, whereas site names mean little 10 years later. The site designation is usually shorter and provides consistency throughout the field notes.

4. *Feature Number*, as discussed will be sequentially assigned for the site.

5. *Category* should be as descriptive, and accurate, as possible. At times this will be easy: builder's trench, hearth, pier. At other times, the category will be more vague: pit or shallow basin.

6. *Photo Number* should include B/W and Color photographs (one line for each). You should include both before excavation and after excavation photographs. Your before excavation photos may be the unit photos, but at times the feature will be sufficiently complex that you want (or need) close-up views prior to excavation.

7. *Placement* includes both horizontal and vertical information for the feature. Horizontal information is the central location of the feature using the site grid designation: 456.8R321.4, for example. Be sure this is accurate, since it will be used in the report to describe the location of the feature. For urban and other sites where there is no grid, you must indicate the location of the feature from two walls: 3.4 feet north of the south profile and 5.7 feet east of the west profile, for example. Sometimes it may be adequate to just note in what quadrant of the unit a feature is found in. Vertical information includes a line for establishing the instrument height, which you won't use with a direct reading rod, but will use with a normal stadia or even a total station. Following this are four lines. You need to indicate top elevations at a variety of different points, which you number. These four lines provide you with a place for this information. If you are using AMSL elevations, rather than AE elevations, then the AE designation should be scratched through and AMSL added in its place.

8. *Measurements* are typically after excavation, although max. length and max. width should be completed even if the feature is not excavated. If the total size of the feature is not exposed (for example, if the feature continues under a profile), then the max width or length should indicate that the dimension is that of "exposed." Once excavated, and you have obtained bottom elevations, you can also complete "vertical thickness," which is simply the depth of the feature. The lines for "Interior depth" allow you to take and record elevations at the same numbered spots for which you obtained top elevations.

9. *Drawing block* should include a sketch of the feature. Be sure to indicate a north arrow and at least one or two unit coordinates. Also indicate at least some of the more important aspects of the plan view of the feature. The drawing should be good enough for someone not familiar with the site to be able to recognize the feature in the scale drawings or in a photograph. Be sure to also complete the "For scale drawing see" statement with the unit designation or, if you have a drawing other than the unit drawing, something like “see attached sheet”.

10. *Associated Objects* should include a brief list of the more important categories of materials, such as sherds, nails, animal bone — whatever seems to best characterize the feature. Also be sure to indicate special samples, such as soil samples, flotation samples, tabby samples, brick samples, shell samples, and so forth. Also be sure to indicate the zone or section of the feature (i.e., north ½, zone 1; north ½, zone 2, etc.).

11. *Relationship of feature* should provide information on the where the feature is found, such as, "Feature 1 is found in the SE quad of 100R300 and was encountered at the base of the plow zone." It should help the reader understand where the feature was found and at what point in the excavations. It might also be appropriate to indicate how the feature is associated with or related to other features on the site, for

FEATURE DATA FORM

Date 1

Observer 2

Site Number 3

Feature Number 4

Category 5

Photo Number 6

Placement: 7

Horizontal: location of center (absolute from 0) .....

Vertical: at R.P. ..... B.S. is ..... +R.P.A.E. ..... =H.I. .....

H.I. ..... —Reading at ..... =A.E. .....

H.I. ..... —Reading at ..... =A.E. .....

H.I. ..... —Reading at ..... =A.E. .....

H.I. ..... —Reading at ..... =A.E. .....

Measurements: 8

Max. length .....

Max. width .....

Vertical thickness .....

Interior depth .....

Sketch

9

For scale drawing see .....

Associated objects: 10

Description	Location	Cat. No.

Relationships of feature: 11

Additional observations: 12

FEATURE DATA FORM

Date WED 12/17/97
Observer TRINKLEY

Site Number 3BCH 1644
Feature Number 6
Category well
Photo Number B/W 1:31-34; 2:9-12
COLOR SLIDES 1:31-34; 2:9-12

Placement:

Found in S½ of Unit 2 & N½ of Unit 4, bisected by unit line

Horizontal: location of center (absolute from 0) .....

Vertical: at R.P. ..... B.S. is ..... +R.P.A.E. ..... =H.I. .....

H.I. ..... —Reading at (1) ..... =~~A.E.~~ 12.47' AMSL

H.I. ..... —Reading at ..... =A.E. .....

H.I. ..... —Reading at ..... =A.E. .....

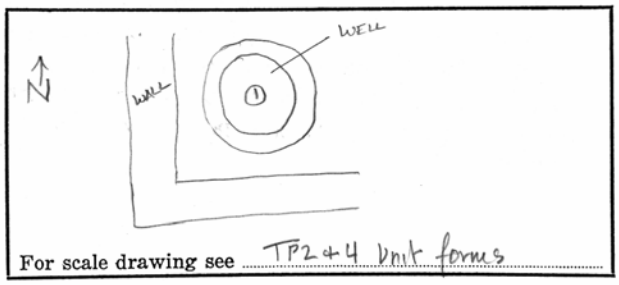
H.I. ..... —Reading at ..... =A.E. .....

Measurements:

Max. length } Ext. 4.3'
Max. width } Int. 2.7'
Vertical thickness .....
Interior depth ca. 11'

base Lv. 1 11.24 base Lv. 7 2.31'
base Lv. 2 9.55 excav. terminated
base Lv. 3 8.53 1.25'
base Lv. 4 7.63
~~base Lv. 5~~ 7.17
base Lv. 6 4.37

Sketch



For scale drawing see TP2+4 Unit forms

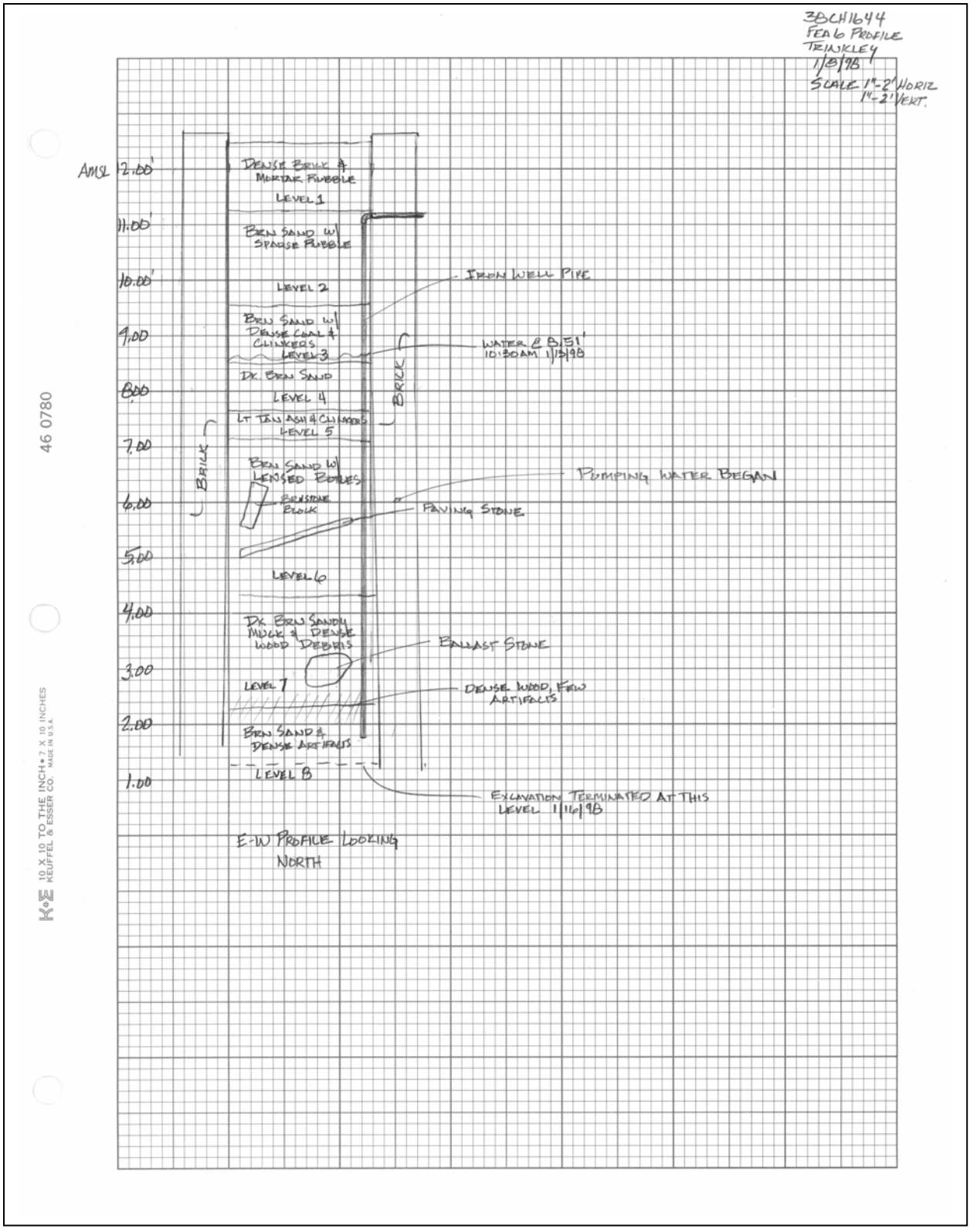
Associated objects:

Description	Location	Cat. No.

Relationships of feature: Fea is found in Units 2 + 4 + was encountered w/in Level 2

Additional observations: Level 1 - dense brick + mortar rubble - not screened, Level 2 brown sand + some rubble, much less dense. Screened through ¼". Level 3 - dense coal + clinkers w/ only minor soil - a brown loam. Level 4 is a dk. brown sand. Level 5 is a thin lens of light tan ash + clinkers. Level 6 is a thick layer of brown sand + coal w/ clinkers. In this level was a large brownstone block. About a foot down we hit a large miscaceous paving stone in the well. This was about at the water level. Used a chain hoist to remove + began to muck out material. I decided to stop until we get lifeline + body harness. Also need to be about some better (i.e higher) cheap boots. Level 6

CONT. ON REVERSE →


3BCH1644
FEA 6 PROFILE
TRINKLEY
1/13/98
SCALE 1"-2' HORIZ
1"-2' VERT.
AMSL
12.00'
11.00'
10.00'
9.00'
8.00'
7.00'
6.00'
5.00'
4.00'
3.00'
2.00'
1.00'
DENSE BRICK & MORTAR RUBBLE
LEVEL 1
BRN SAND W/ SPARSE RUBBLE
LEVEL 2
BRN SAND W/ DENSE COAL & CLINKERS
LEVEL 3
DK. BRN SAND
LEVEL 4
LT TAN ASH & CLINKERS
LEVEL 5
BRN SAND W/ LENSED PEBBLES
SANDSTONE BLOCK
LEVEL 6
DK BRN SANDY MUCK & DENSE WOOD DEBRIS
LEVEL 7
BRN SAND & DENSE ARTIFACTS
LEVEL 8
BRICK
BRICK
IRON WELL PIPE
WATER @ 8.51'
10:30AM 1/13/98
PUMPING WATER BEGAN
PAVING STONE
BALLAST STONE
DENSE WOOD, FEW ARTIFACTS
EXCAVATION TERMINATED AT THIS LEVEL 1/16/98
E-W PROFILE LOOKING NORTH
46 0780
10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

example that the feature is a hearth associated with a series of post holes. Keep this simple, but descriptive.

12. *Additional observations* provides you with an opportunity to deal with a broad range of other issues. You should indicate, in a narrative feature, how the feature was excavated — N ½ first, taken out by natural layers, with the S ½ then removed by natural zones — for example. You should indicate what was found during this process, what the fill was like, how the different zones were recognized, and you should include information (where appropriate) on shell weights, brick weights, brick sizes, and so forth. Any data you collect should be included in this narrative. This means that you will need to pay very close attention to the crew and their work excavating features. You don't have time to excavate every feature, but you must spend enough time at each feature to understand what is happening, and be able to describe the process. You should also synthesize the data, offering an explanation for the feature. You are at the site, you have seen the feature. You must come up with an explanation for it. Don't ever leave a feature without your best possible explanation — if you can't explain what you saw and what it was, how will someone else a month or year later be able to do this? Where appropriate include small sketch maps to help readers understand what you did and how the feature may have functioned. It is very important that you spend some time thinking about the feature — describe the bricks of a chimney or pier, describe the bonding pattern, provide a range of measurements, relate the feature to the builder's trench, look at the feature and be sure that you have collected as much data as possible. Think about how the feature will be drawn in the final report and make sure you have all the measurements necessary. If you have any doubts, remember that now is the time to collect information — not a month later when you are no longer in the field.

BOX LIST

General Observations

The purpose of the box list is four-fold.

- First, it insures that all bag are inventoried. This allows you to know what you have when you leave the field. You also have the opportunity to make sure that all bags from the field are brought into the lab.

- Second, it places the bags in the order in which they should be cataloged. Although there is a standard order of cataloging, as field director there may be variations in this order which only you understand the importance of. You are responsible for organizing the collections — no one else.

- Third, it itemizes which bags have been washed in the field, ensuring that time isn't wasted in the lab sorting through collections to find those which are dirty, and ensuring that time isn't lost by stopping cataloging to wash unwashed materials.

- And fourth, the box list allows the catalogers to quickly put their hands on the all of the bags from a provenience. This way there won't be any missing bags, or that are only found after all of the cataloging is complete.

Even this brief overview should clearly reveal why the box list is so important. It must be kept up to date and it must be correct. There is no room for error — any error made in the field will be compounded in the lab, resulting in substantial delays. **Do it right the first time**.

Preparing a proper inventory begins in the field. All bags must be completed using the same system and must be deposited in one central location when complete. One easy approach is to **ensure that all bags are stamped**, since the stamp forces crew to provide essential information in a standard format. **The stamp should be placed in the central third of the bag, allowing bags not filled up to be rolled up with the provenience information remaining legible**.

It's essential that accuracy begin in the field. It is easy to drop numbers or reverse designations. As field director it is your responsibility to make sure that every bag is correct. You may find it easier to prepare bags for each excavation unit yourself. Regardless, labels must be legible, consistent, and accurate. Only Sharpies® or similar waterproof, permanent markers should be used. Pens and pencils are unacceptable – they are not permanent and fade with time, the ink may run if exposed to water, and thin lines make the information difficult to read.

All information should be provided:

Site Number	38BU100
Provenience	100R340

Level	PZ
Depth (if appropriate)	
Contents of the bag	Artifacts (or soil sample, or animal bone, etc.)
Crew	Trinkley
Date	4/7/97

Make certain that if a unit requires several bags you label the bags: bag 1 of __, bag 2 of __, going back after the unit is complete to fill in the total number of bags. This will help prevent the misplacing of a bag while doing inventory.

It's also important to establish a central deposit area — a reasonable approach is to use a plastic crate to collect completed bags. Bags which are ***not*** complete, and which need to be used the next day, should be kept with the tools (perhaps in a bucket) to be used the following day.

The easiest approach to conducting the box inventory is to do it every evening, immediately after coming in from the field. Any bags which appear to be missing should be immediately identified — *and found*. All the bags should be entered on the box list and put in sequentially numbered boxes.

The type of box you use is important. For smaller projects we have several collapsible plastic crates that are perfect. On larger projects, where you are likely to have more than four or five boxes of artifacts, you will need to obtain locally available boxes. The type you use isn't terribly important with several exceptions:

- All boxes should be identical in size – this assists in stacking and storage.
- All boxes should have closable tops – this ensures that nothing is lost or blows out on the road.
- All boxes should be sturdy enough to permit packing, carrying, and storage, without falling apart.

Each box should be labeled (preferably in the upper right hand corner of the short end) with:

Site Number	38BU101
Box Number	Box 1 of
Running list of units	100R400
	110R400
	120R450

It isn't necessary that the boxes be packed in any particular order. In other words, you need not ensure that all of the bags from a particular unit are packed in the same box (although that is always pleasant). What is important is that each box be very carefully inventoried and that whatever is supposed to be in a box is actually present.

It is particularly important to pack a box loosely, especially if you expect to wash and sort artifacts in the field. Bag volume increases as you sort and place artifacts in plastic bags – so allow a little extra space in each box. **Remember – if you can't fit everything back in that box, you must re-do your inventory** – and you will find that an unpleasant chore.

Box List — Item by Item Instructions

1. *Site Number* should always be the standard site designation (i.e., 38BU968) not a site name. Standard site designations have permanency, whereas site names mean little 10 years later. The site designation is usually shorter and provides consistency throughout the field notes.

2. *Unit* is the unit designation, such as 200R450. ***Always*** double-check the unit listed on the bag to make sure that it is correct. Common mistakes include transposed numbers (both individual numbers and also the N designation transposed with the R designation, i.e., 200R400 for 400R200). Be sure that you enter the designation correctly on the form. Features are entered as a unit. In other words, Feature 2 is listed as unit and everything for Feature 2 is itemized by level. For example, on the Feature 2 box form you might have Zone 1, N ½ artifacts; Zone 1, N ½, soil sample; Zone 2, N ½ artifacts; Zone 2 N ½ soil sample; Zone 2, N ½ pollen sample, etc.

3. *Level* is the provenience, such as Zone 1, plow zone, troweling base of Zone 1, post hole 1, or N½ (in the case of a feature). These ***must*** always be in order (i.e., zone 1, troweling base zone 1, zone 2, troweling base of unit, post hole 1, post hole 3 or in the case of a feature N½, Zone 1; N½, Zone 2; cleaning base of feature for photograph; S½, Zone 1; S½ Zone 2; cleaning feature for photograph).

4. *Depth* is usually left blank.

5. *Sacks* should indicate the number of bags for each provenience. This must be very accurate — don't list two if there is only one. A great deal of lab time will be wasted looking for this "missing" bag. Likewise, don't list three bags if there are actually four. A similarly great amount of time will be spent attempting to figure out where that one "extra" bag is supposed to go. Problems are often created when bags are washed in the field and either consolidated or new bags are added (when washed and rebagged materials take up more room). Consequently, it is always important to caution crew that if there is supposed to be one bag, there must be no more or no less than one bag. Some items will not fit in bags; this, too, should be indicated, such as "1 + 2 hinge fragments loose."

6. *Checked* should always contain the initials of the individual responsible for inventorying the materials. This may be the field director or someone else designated to perform this duty. This is the individual we will go back to if there is a problem. Beside the initials should be the date of the inventory.

7. *Washed* should always contain the initials of the individual washing the artifacts, as well as the date the materials were washed.

8. *Cataloged* should be left blank. This will be filled in with catalog numbers by the individual who catalogs the collection.

9. *Filed* should be used to indicate the box in which the bag has been filed in the field. This is especially important when a single unit, because of its different excavation dates, must be split between several different boxes. When this is accurate it allows the individual cataloging the collections to quickly pull boxes, identify the bags necessary, and pull them for cataloging. Otherwise, a large number of boxes will need to be searched for the appropriate bags.

Site 1 Unit 2

Level	Depth	Sacks	Checked	Washed	Catalogued	Filed
3	4	5	6	7	8	9

Form No. 2525

PROFILE ELEVATION FORM

General Information

This is what might be called a "supplemental" form — one that is available for your use as appropriate. It may help you collect the data you need to prepare accurate profiles of complex units. But you don't have to use it for every profile, or even any profiles.

If you choose to use the form, however, it must be completely filled out and properly prepared. Otherwise, you may find that the resulting profiles are far from accurate.

The form is used by assigning grid points to each "stake" on the form and then sketching in the profile with as much detail as possible. Each vertical "stake" may be assigned any grid point — they may be 10-feet apart, 5-feet apart, or any other measure.

Once drawn, you should identify critical points where elevations are absolutely essential to your transferring this profile to graph paper. The elevation points will provide your vertical control. Horizontal control will be maintained by using a tape, stadia, or any other measuring device along the top of the profile to guide you as you actually incorporate the profile elevation form information on the graph paper.

The points you identify as essential for vertical control should be numbered on the profile elevation form. These numbers will correspond with those at the bottom of the sheet.

Simply put, this form may help you collect complex data and then transfer that data to a standard graph paper format.

Profile Elevation Form — Item by Item Instructions

1. *Date* should include not only the month, day, and year (in that order, not the military approach of day, month, and year), but also the day of the week. Projects longer than a week can begin to blur together. Using the day of the week will help you remember when important things happened.

2. *Observer* will likely be you, the field director. At times, however, you may have to be off-site with someone else entering information. This should always be clearly indicated.

3. *Site Number* should always be the standard site designation (i.e., 38BU968) not a site name. Standard site designations have permanency, whereas site names mean little 10 years later. The site designation is usually shorter and provides consistency throughout the field notes.

4. *Profile Number* should be used to identify what profile is being recorded. It is essential that the information here is correct, complete, and impossible to misinterpret. For example, "North 400R500" likely means that the north profile is being drawn for 400R500, but is it drawn looking north or south? A better approach would be to describe it as "400R500, north profile, looking north."

5. *Photo Number* should include B/W and Color photographs. It is necessary to combine both on the one line, but indicate which is being referenced. For example: B/W Roll 1:31-32; Color Roll 1:31-32.

6. *Stake*, as discussed above, should be a designation such as (reading from left to right), 200R100, 200R105, 200R110, 200R115, 200R120. This covers a 20 foot area of the profile along the N200 line from R100 to R120. The "Profile Number" (discussed as item 4) will tell us if we are looking north or south.

7. This line can be used if we are using an optical transit to calculate the instrument height and, hence, the various elevations.

8. This section of the form provides defined spaces for 20 elevation points. If more points are needed they should be itemized (if possible) on the front of the form, rather than the back (it is a real inconvenience to keep flipping the form over to compare the drawing to the elevations on the reverse).

PROFILE ELEVATION FORM

Date 1

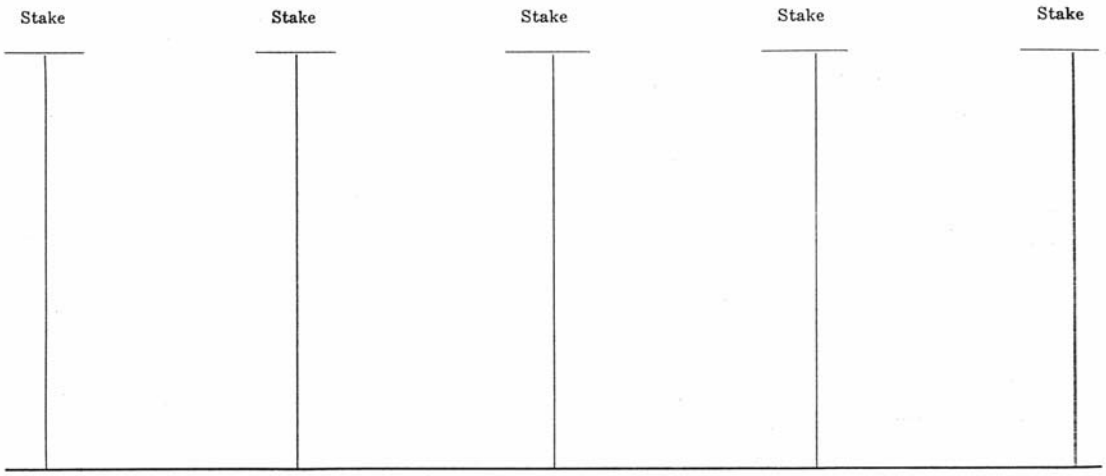
Observer 2

Site Number 3

Profile Number 4

Photo Number 5

Sketch: 6



7 At R. P. _____ B. S. is _____ +R. P. A. E. _____ = H. I. _____

8

Point	H. I. — Reading = Pt. A. E.			Point	H. I. — Reading = Pt. A. E.		
1				11			
2				12			
3				13			
4				14			
5				15			
6				16			
7				17			
8				18			
9				19			
10				20			

PROFILE ELEVATION FORM

Site Number 38CH1644

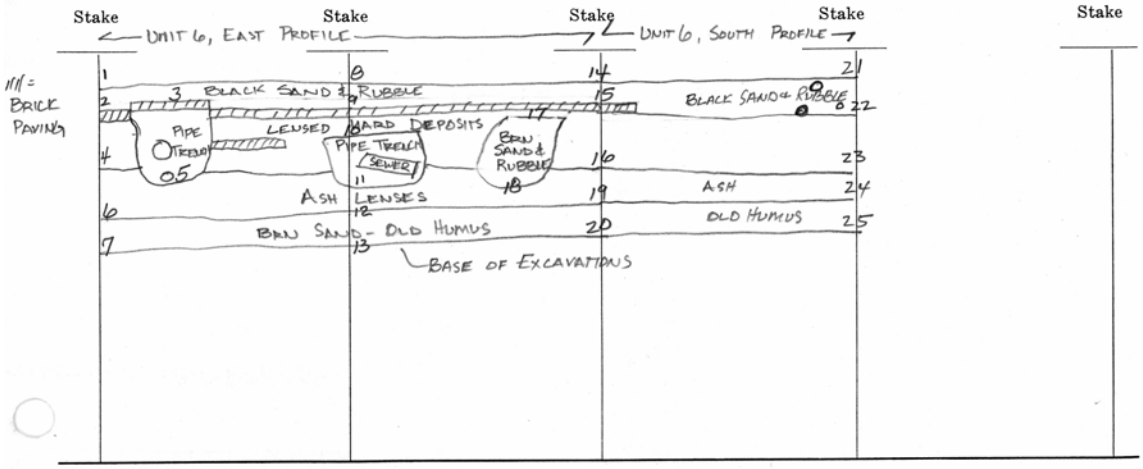
Date TUES 12/23/97

Profile Number UNIT 6 E + S

Observer TRINKLEY

Photo Number B/W
COLOR

Sketch:



At R. P. _____ B. S. is _____ +R. P. A. E. _____ = H. I. 13.14

Point	H. I. — Reading =	Pt. A. E.	Point	H. I. — Reading =	Pt. A. E.
1	.18	13.32	11	-2.14	11.00
2	-.27	12.87	12	-2.25	10.89
3	-.15	12.99	13	-3.03	10.11
4	-1.24	11.90	14	-.14	13.00
5	-2.01	11.13	15	-.38	12.76
6	-2.15	10.99	16	-2.17	10.97
7	-3.12	10.02	17	-.86	12.28
8	-0.12	13.02	18	-1.99	11.15
9	-0.30	12.84	19	-2.43	10.71
10	-1.18	12.04	20	-3.22	9.92
21	-0.08	13.06	24	-2.56	10.58
22	-.78	12.36	25	-3.24	9.90
23	-1.83	11.31			

RECONNAISSANCE FORM

General Information

This form may be used for small surveys. It provides ample room to identify where you surveyed, what you found, and with whom you may have spoken. It is critical that you carefully record as much information as possible on a daily basis. This form will help ensure that you are able to write up detailed surveys that last for multiple days. Often it will be necessary to expand discussions on the reverse of the form, especially focusing on information concerning the area surveyed. Information on the sites encountered should be as complete as possible, especially if you are not completing site forms on a daily basis (which is the best policy).

You will need to include sketch maps of sites with your reconnaissance reports. These may be on the reverse of this form, although often you will discover it is better to record that information on separate graph paper sheets (one for each site). You must also be certain, somewhere on the form, to indicate pertinent site information, such as UTM coordinates for the site(s), site size, type of site, and so forth. All of this information will help you quickly complete the necessary state site form.

RECONNAISSANCE REPORT

Date_____ County_____

Observer_____ Site Nos._____

Area Examined:

Sites Recorded:

Number	Location

Persons Interviewed:

Name	Address	Attitude

Summary of Interviews (over):

SHOVEL TEST LOG

General Information

This form should be used whenever there are shovel tests, either during a survey or during excavation. The primary tendency is for field crew to provide too little data. Routine recordation of similar, and negative, data is difficult and wears on the patience — but some data is absolutely essential. The research design may well specify when detailed data are recorded, but it is essential that occasionally (i.e., at least three times on every page of shovel tests), a detailed profile is provided). Crew are not to alter this form — it is to be completed as it is designed.

Shovel Test Log — Item by Item Instructions

1. *Project* is self-explanatory. If the forms are being used during a survey, what is the name of the survey? If it is being used as part of a data recovery project, the "project" might be better completed as a site number.

2. *Date* should include not only the month, day, and year (in that order, not the military approach of day, month, and year), but also the day of the week. Projects longer than a week can begin to blur together. Using the day of the week will help you remember when important things happened.

3. *Crew* should be filled out with the initials of those conducting the shovel testing.

4. *Transect* refers to the designated transect number. This must always be completed and carefully checked by the field director to avoid accidental duplications.

5. *Location* allows you to specify additional information concerning the placement of the transect. For example, you may know that Transect 1 was situated at the northeastern corner of the project at the road and ran to the west. This may even be shown on a map. But 10 years from now all of this information will only be available ***if*** you ensure that it is recorded. "Transect 1" by itself won't help anyone. You must indicate something about where Transect 1 is located.

6. *Shovel Test Number* is self-explanatory. Numbers are usually sequential along each transect.

7. *Location* allows you to clearly indicate where the shovel test is along the transect. ST 1 doesn't tell us if the test was at the north or south end of the line. ST 2, by itself, doesn't tell us if the tests were 20, 50, 100, or 200 feet apart. This information must be provided, at least for an initial test or two, every time. It is again up to the field director to ensure that this data is present, and correct. For example, ST 1, at road; ST 2, 100' W of ST 1; ST 3, 200" W of ST 1. You need not continue this throughout, but be certain to note any changes, or problems.

8. *Check if present* provides information on the presence of shell and brick. Do not change this to reflect other information. There may be times, however, when it is appropriate to indicate density. If so, be certain that your terms are defined, for example, ""H = heavy, M = moderate, L = light, A = absent." Also

CHICORA FOUNDATION, INC.
SHOVEL TEST LOG

PROJECT: 1 DATE: 2 CREW: 3

TRANSECT: 4 LOCATION: 5

SHOVEL TEST #	LOCATION	✔ IF PRESENT SHELL	BRICK	MATERIAL RECOVERED	PROFILE INFORMATION	SITE # ASSIGNED
6	7	-8-		9	10	11

be certain to define what these terms mean. For example, H = difficult to dig through, little soil; M = screen is about half brick half soil; L = handful or less of brick; A = either no brick or only 1 or 2 very small fragments. Whatever terms are used, they must be consistent between field crew members.

9. *Material Recovered* does not mean a detailed list. In fact, detailed lists are not only unnecessary, but should be avoided as the information is often inaccurate and time consuming. Instead, provide a general list of items. For example: "nails, glass, ceramics" should be used, ***not*** "bottle glass, cut nails, whiteware, blue, transfer printed pearlware." Likewise, indicate "pottery and flakes," ***not*** "Deptford Check Stamped and chert flake." The primary purpose of this list is to help identify mislabeled bags. General lists of contents are often all that is needed.

10. *Profile Information* should be provided for all positive shovel tests (this may be modified by the field director in dense sites, perhaps with every fifth shovel test profile recorded, or perhaps with only unique profiles recorded). In addition, as previously discussed, that profile information should also be provided occasionally, at least two times per page, even for negative shovel tests. The profile information can be simple, especially for negative tests. Something like this is usually more than adequate:

0-1.0' brn sand		1.0′ brn sand
1.0-1.2' tan sand	OR	0.2′ tan sand
1.2-1.3' yellow sand		0.1′ yellow sand

This would indicate that the top 1.0 foot was brown sand, followed by 0.2 foot (from 1.0 to 1.2 foot) of a tan sand. Finally, the shovel test penetrated 0.1 foot into what is probably the subsoil — a yellow sand. This kind of shorthand description can easily fit into the space provided and can help the investigator better understand the nature of the soils being tested. Wet can be used to identify areas not shovel tested, but should never be overused.

11. *Site Number Assigned* should be completed either by the crew or the field director for every shovel test for which material was found. The site may be identified using either a field number or permanent number, depending on what is available at the time. It can even be identified as an isolated find. But every shovel test with material must somehow be identified. We must be able to associated the bag from that shovel test on that transect with something.

If an area is not shovel tested, some reason must be provided – "standing water," "heavy erosion with red clay on surface," "roadway," etc. are examples of why an area could not be legitimately tested. **Steep slopes or heavy vegetation may, or may not, be acceptable – that will depend on the field director and will require justification in the daily reports.**

DAILY SURVEY LOG

General Information

This form is intended to be used on larger survey projects – for example, those over a week in duration. On such projects there are a large number of transects and shovel tests to keep track of and the Reconnaissance Form simply doesn't provide enough space. Nor is there adequate space to detail site information. In addition, on these larger projects it is critical that the work progresses in an efficient manner. The Daily Survey Log is designed to track the pace of the survey and determine if there are problems that may affect the project's timely completion.

Daily Survey Log — Item by Item Instructions

1. *Supervisor* is self explanatory, but remember to also provide the names of the crew on the first day and when there are changes, or individuals are ill, or when someone has the day off.

2. *Project* is self-explanatory. If the forms are being used during a survey, what is the name of the survey? If it is being used as part of a data recovery project, the "project" might be better completed as a site number.

3. *Date* should include not only the month, day, and year (in that order, not the military approach of day, month, and year), but also the day of the week. Projects longer than a week can begin to blur together. Using the day of the week will help you remember when important things happened.

4. This section is largely self-explanatory.

- On the first line you list the number of crew and multiple that number by the hours worked that day (excluding lunch) to get the total person hours spent on-site.

- On the second line you itemize different activities, breaking your total person hrs. into several categories that take up much of the time in a survey – shovel testing, laying out transects, and site testing.

- On the third line you list all the hours not otherwise accounted for in line 2 above. This may well include your time supervising, time meeting with clients or site visitors, time spent walking the survey area to get oriented, or other activities.

The second and third lines, when added together, should give the same number as listed on the first line as "total person hours."

5. In this section you need to list each transect that was shovel tested, either completely or incompletely, providing the number, the length of the transect in feet, and the total number of shovel tests on the transect. This information will come from the site plan and the crews' Shovel Test Logs (the site plan will tell you how long the transect is supposed to be and the Shovel Test Logs will tell you how many shovel

CHICORA FOUNDATION, INC.

DAILY SURVEY LOG

Project 2

Supervisor 1 Date 3

4 Total Persons reported _____ x total hours worked _____ = total person hrs. _____

5 Person hrs. shovel testing ____ Person hrs. laying out transects ____ Person hrs. site testing ___

6 Person hrs. not other accounted for ____ (itemize activities and associated person hrs.)

Shovel Test Survey: 5

Transect #	Length of Transect	# ST on Transect

Area Surveyed: 6

Weather: 7

Soil Conditions: 8

Vegetation: 9

Meetings: 10

Total ST Examined Today. . . . . _____

11 Total ST examined _____ ÷ total persons _____ = total ST examined per person _____

12 Total ST examined _____ ÷ total person hrs. _____ = total ST examined per person hr.____

13 Total ac examined _____ ÷ total persons _____ = total acres examined per person _____

14 Total ac examined _____ ÷ total person hrs. _____ = total ac examined per person hr. ____

Sites Recorded: 15

Number	Location	Materials Associated	UTM Coordinates

Continue Daily Notes on Reverse

16

tests were on that transect. Keep in mind that if you are shovel testing at 100 foot intervals and you have a transect 350 feet in length, you must have four shovel tests: one at the beginning (0 feet), one at 100 feet, one at 200 feet, and a final test at 300 feet – for a total of four tests. If you have a transect of 1,000 feet and you only have eight shovel tests, this is a clear indication that something is wrong and you need to determine what happened. At the end of the section, be certain to total the shovel tests that were excavated that day (you'll need the information to complete lines 11 and 12 (see below).

6. *Area Surveyed* provides general information on where you were in the survey tract. For example, you might say something like, "N ½ of tract, adjacent to Smith Road." This will help you (and others) reconstruct the survey once back in the lab.

7. *Weather* should always be indicated since it will affect the level of crew effort — hot, humid days will slow work, while cool, mild days will maximize the level of effort. This information will also help explain your "other" hours — which might be spent covering/uncovering the site, or washing artifacts. But keep it simple: "hot, humid am, cooling pm," or "cloudy am, light rain in pm."

8. *Soil Conditions* should be a general category that helps others understand the conditions that the crew was facing. A fallow field is easy digging compared to dense shell midden or heavy urban rubble. Therefore, statements such as "sandy pz," "dense heavy clay," or "moderate shell midden" are appropriately descriptive.

9. *Vegetation* is another general category that also helps explain the rate of the survey. "Open fields" can be very quickly maneuvered through and transects should be straight and well defined. "Dense woods with heavy undergrowth," should indicate a slower pace and the potential for greater error in transect and shovel test spacing. Be honest, but don't make excuses for yourself or the crew.

10. *Meetings* provides a category to briefly mention visits by clients, regulatory agencies, collectors or anyone who needs to be noted on a permanent basis. Be certain to get the names (and if necessary addresses or telephone numbers) of visitors.

11. On this line you first enter the total number of shovel tests (you got that total from 5 above). Divide that number by the total number of crew conducting shovel tests. This will yield the STs excavated per person. For example, if there were 200 shovel tests excavated, and there were 3 individuals conducting shovel testing the result would be 66 tests per person. In most circumstances each individual should be able to excavate at least 50 shovel tests per 8 hour day (that is about one test every 9 minutes – that should provide adequate time to excavate the test, screen the soil, jot down a few critical notes, take a compass bearing, and pace out 100 feet to the next test). Obviously, the total number increases with good conditions (light soil, little or no vegetation) and decreases with poor conditions (heavy clay, many roots, dense vegetation) – and these factors are indicated above in 8 and 9.

12. On this line you again enter the total number of shovel tests (you got that total from 5 above). Divide that number by the total person hours ***shovel testing*** (you listed that number in line 5) to equal the total shovel tests examined per person hour. Using the figures above (one test about every 9 minutes), this should be around 6 or 7. Under good circumstances it is possible to get upwards of 10. Rarely should the number slip below 4.

13. On this line you enter the acres examined. This is an estimate that you obtain from the USGS (for example, estimating length in feet by width in feet will provide square feet; divide that by 43,560 to yield acres). Divide the total acres by total persons shovel testing to determine how many acres each individual should have covered.

14. On this line you again enter the acres examined (see item 13 above) and divide the acreage by total person hours ***shovel testing*** (you listed that number in line 5) to equal the total acres examined per person hour.

15. This area provides you with space to list the sites identified during that day. You should indicate the temporary or field number, the location in reference to transect(s) and shovel test(s), the materials found (such as sherds and flakes, bricks and ceramics, etc.), and the UTM coordinates. Tests may be tested either when found or at the end of the survey – the decision depends on local circumstances. But each site should have UTMs gathered when initially found. This will ensure that the task isn't overlooked and may help you return to a small site that is in the middle of the woods. It is often appropriate to list this critical information on the front of the form and then continue discussions about each site on the reverse. Each site should also be accompanied by a sketch map showing transects, shovel tests (positive and negative), and other features (such as roads, creeks, steep slopes, anything that might help future researchers better understand the site, where it is located, and what you did there).

16. *Daily Notes* like the Daily Report discussed earlier should be concise and cogent remarks on the day: who, what, when, where, and how. It should provide critical information that you will need to complete the study and report, as well as information that future researchers may need to understand your methods. These notes should include such critical information as how your transects were set out, where testing began on each transect, how far apart shovel tests were placed, and so forth.

HELPFUL HINTS FOR DRAWINGS

You don't have to take a drafting class in order to record profiles or other field notes. What is important is neatness on one hand and having something worthwhile to say or draw on the other. Here are some simple drafting hints to help improve your work.

- Pencil lead is graded by its hardness, from very soft (8B) to very hard (9H). See below for some idea of how these leads appear on paper. Depending on your writing style, you want a lead that will be crisp and sharp. Typically HB – about in the middle of the range – is used.

- Recognize how the hardness of a lead – and sharpness of the point – will affect the width of the line. Compare the width of your line to your scale. Using a scale of 1-inch to 10-foot, the 8B lead in the chart below would have a width of 0.5 foot, while the 9H lead would be less than 0.1 foot.

- Never use a scale as a straight edge.

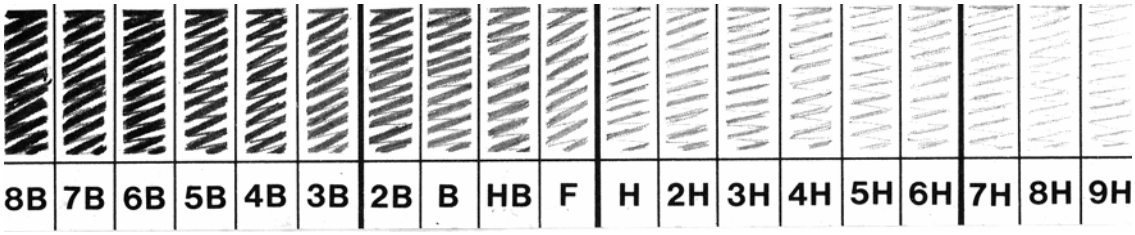
- Never work with a dull pencil.

- Never run backward over a line with a pencil or pen – it will substantially increase the width of the line.

- Use soft, white erasers. Avoid hard and colored erasers. Never erase damp paper – it will tear.

- Remember that drawings will be photocopied and some may eventually be microfilmed or digitized. Ensure that lettering is of a size that it won't break up or disappear.

- Even photocopying may distinctly degrade drawings. Ensure that lines and text are dark enough not to fade out. And make certain that there is no writing within ¼" of the paper edge – many photocopiers will cut off edges.



Of course legibility is of greatest concern. Consequently, you need to practice printing and making every letter and every letter legible. On the following page is a chart that was once used to standardize lettering when maps were hand lettered. While field notes don't require this level of precision, the chart should give you a good idea of how to make your lettering more legible.

A FEW NOTES ON SOIL RECORDATION

While having taken a college-level soils course helps when recording soil information, it isn't essential. What is essential is consistency and understanding a few basic definitions.

It has been a convention to use Munsell colors when recording soils. The thought is that such efforts provide consistency and therefore, replicability that is critical in scientific inquiry. The problem is that even with Munsell books it is difficult to get consistency. In fact, in the explanatory material published by Munsell, it is stated:

> Rarely will the color of the samples b perfectly matched by any color in the chart. The probability of having a perfect matching of the sample color is less than one in one hundred.

Nevertheless, we should strive to make the best match possible. Here are some steps that will help:

- It is preferable for one person to take all color readings. This will help make errors more consistent.
- Hold the soil sample directly behind the apertures separating the closest matching color chips – not in front of the chips.
- It sometimes helps to use the masks that come with the Munsell book. Two masks are included – one dark mask for dark samples and a gray mask for lighter samples. The opening in the mask allows for the exposure of four adjacent color chips – the remaining colors are covered to present disturbing contrasts.
- All colors should be read under direct, but not glaring, light. The interpreter should not be wearing sun glasses.
- The soil should be moist (but not wet).
- The Munsell color patches should be clean and unfaded (Munsell recommends replacing their books every few years, a rather expensive undertaking).
- Avoid long, involved color descriptions that attempt to itemize every variegation or mottling. Your goal should be to get at the basic colors present.

Munsell colors should be entered with their associated verbal description (for example, 7.5YR5/2, brown or 7.5YR2.5/3, very dark brown).

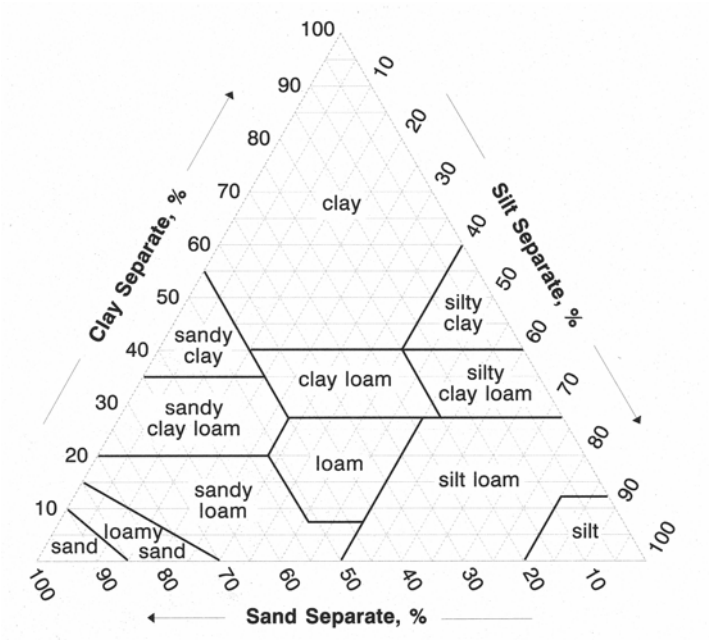
Colors, however, are only part of the soil description. Knowing that a soil is weak red is useful at one level, but it is missing information on the other characteristics of the soil. A useful companion volume is the *Field Book for Describing and Sampling Soils* published by the National Soil Survey Center. One of the

most critical details to include in your description is information concerning **soil texture**. This is the numerical proportion (percent by weight) of sand, silt, and clay in the soil. This information can be measured quantitatively in the lab, but it is usually adequate to estimate it in the field.

In estimating soil texture the first step is to simply handle a moist sample of the soil and judging the proportions of sand, silt and clay:

- Gritty feel, incoherence, cleanliness (not staining the hands) – sand (particles between 2 and 0.06 mm)
- Silky feel, incoherence, staining hands – silt (0.06 to 0.002 mm)
- Coherence, resistance to deformation, polish obtained by smoothing with the finger – clay (<0.0002 mm)
- None of the main qualities of grittiness, silkiness, or stickiness is especially apparent, the soil is a loam – a fair mixture of all three.

Of course natural soils are rarely, if ever "pure" sand, silt, or clay. The handling test aims at estimating rapidly the approximate proportions of each present. Below is a chart that will help you do this.



SETTING UP THE SITE GRID AND TRANSIT WORK

Important Considerations

Before setting up the grid there are a variety of very important considerations, the foremost of which is "why is the grid being set up?" We ask this since it may help us answer the related question, "how accurate must the grid be?" There is no sense in using precision to two places (x.xx) if the grid is to only be used for auger testing. On the other hand, if the grid is being set up on a site which we expect to come back to every year, then being off as little as 0.05 foot is likely too much error, especially if it will be compounded as the grid is expanded in future years.

Avoid, at all cost, rote approaches. **Real archaeology is not the cloister of academia, or that of field school**. The real world requires real answers and, often, compromises. In the real world, time is money. And time spent laying in a perfect grid might better be used digging more units, if the site is to be bulldozed in a week.

With time, it will become easier to set up good grids, regardless of the circumstances, or the needs; but you must always ask yourself the purpose of your work.

The field director must also be prepared to assign a variety of tasks on the first day. Typically setting up a grid requires no more than two or perhaps three assistants. Do not allow the remainder of the crew to sit around taking a long break. That is not only demoralizing to those working, and stressful to you, but it is wasteful of very scarce resources. Find tasks for everyone — setting up equipment, locating datums, clearing site areas, changing the oil in the mechanical sifter, whatever may be necessary. Determine tasks the night before, don't wait until you are in the field and then try to figure out what needs to be done. It is also important that you establish tasks and not allow crew to set their agendas.

Survey and setting out a grid can be intimidating. But it is really very simple and depends on really very simple principles. It is important, however, that you understand these principles and be able to adapt them to different field situations.

A good place to always begin is to look over the site. Understand the topography and obstacles to the survey. It's always a good idea to look over the site before the crew arrives. This gives you the opportunity to solve grid and survey problems without crew delays.

It's always a good idea to begin with the grid outline and fill it in, then to do a small section in great detail and then try to expand outward. This may not always be possible, but it will be much easier to go from the whole to the part than the other way around.

It's also very important to frequently check your grid. Several methods are possible, but one is to measure diagonals of squares and rectangles. If correctly (i.e., squarely) laid out, then the diagonals will be equal to at least 0.05 foot.

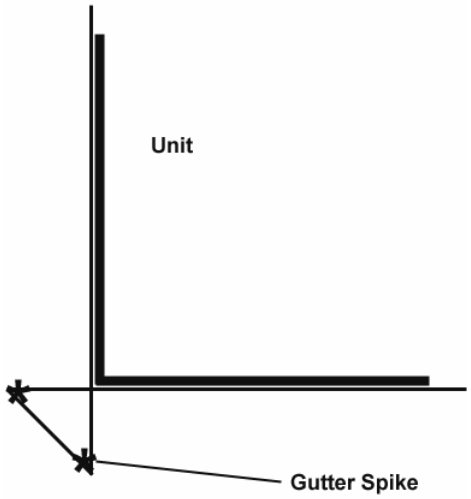
Units and Datums

While not all excavations will have a formal grid, most will. The convention at Chicora is to use what is called a modified Chicago grid. Our typical grid is in feet and tenths of feet (known as an engineer's scale). Thus, you will have 5-feet, three-tenths (0.3) foot, **not** 5-feet 3-inches. It is critical that you understand the tape you are using!

Units are ***always*** designated by their southeast corner coordinates. The coordinate system is expressed in designations such as 200R500. This point would be 200 feet north and 500 feet right (or east) of a set point. This set point, known as 0R0, is almost always placed off the site to the southwest. In fact, it doesn't even really need to exist — you may just begin your grid designations with something like 500R500, if you are sure that will give you enough "room" to expand to the south and west.

Occasionally, however, you will find that your grid is expanded south all the way to the N0 line (i.e., 0R100, for example). If you must continue to the south you are forced to assign negative numbers. In such a case, the 10-foot unit immediately south of 0R100 would be -10R100. It should be obvious that you need to be very careful when you begin using negative numbers; it's easy to forget to include the "-" sign or to make it so small that it is easily overlooked – then you suddenly have unit duplications and they can be very difficult to correct.

Sometimes it may also be necessary to expand your grid west, past the R0 line. In such a case, you designate the units with an L (for left) rather than R. For example, moving from east to west you might have 100R20, 100R10, 100R0, 100L10, and 100L20. Again, you must be very careful when using "L" designated units that your crew completely understands the system.



Example of two secondary nails set back from loose profiles to prevent the nails from being pulled out .

Although it is always easier to maintain units at 5 or 10 foot intervals within the grid, this isn't absolutely necessary. You may set in units at "odd" foot marks, for example at 3R450 or 4R54. The most common reason for this is that you use an "insert" off an existing grid to allow a feature to be completely exposed and you chose not to use a formal 5- or 10-foot unit. This approach, however, should be minimized and used only when and where it is well justified. Certainly it should be carefully explained in the field notes.

Units are typically laid out using iron nails called gutter spikes. These nails are commonly available, are usually long enough to hold adequately even in plow zone, and are easy to place. If string is used on these nails it is ***always*** wrapped around the inside of the nail. This pulls the profiles toward the unit and provides a little more soil to hold the nail. The only appropriate string to use is cotton twine. Never use nylon — it stretches and needs constant tightening. As you continue to tighten, sooner or later you will pull the nail out into the unit.

If the soil is especially loose, then it may be appropriate to use secondary nails at each corner to hold the strong over the center of unit nails. These secondary nails should be at least 0.5 foot from the profile. This allows the strings to be relaid, periodically restretched, or even replaced, without fear that the profile will collapse.

We do not use stakes. They rot, even over the course of a season. Wood stakes are very large and difficult to place accurately. They are virtually impossible to accurately replace, if put in incorrectly or accidentally knocked out. There is no way to wrap string around a stake and have it accurately reflect the unit size. There is no way to place a nail on top of the stake and project that string line to the ground (unless the stake is completely buried). Furthermore, stakes are costly, cannot be salvaged at the end of a project and look ugly in photographs.

We do not use baulks at corners. They are rarely cut in a uniform manner, are difficult to maintain, and look bad in photographs. Profiles should be cut back to or very near the string. If by accident you pull a nail out, it can be replaced at a slight angle, angling the gutter spike into the soil beyond the unit. Just be certain that the head is placed correctly.

Pin flags should be used in lieu of nails if the grid is being set up only for auger testing or surface collecting or some other non-excavation study. In fact, pin flags may be appropriate if there is to only very limited testing. Normally pin flags with metal stakes will be used since they are the least expensive. However, if remote sensing is anticipated at the site, then only pin flags with fiberglass or plastic stakes are to be used. Metal stakes, rebar, and nails are to be carefully avoided.

Pin flags may be designated with consecutive numbers, if there is to be only limited testing. But try to think ahead. If there is a good chance that we (or someone else) may be doing work at this site in the near future, it may be worth using more formal designations for these pin flags. And if the site is likely to receive more investigation, be sure that your pin flags are tied into several long-term datums. It won't do anyone any good to have a great artifact density map or resistivity map of the site using these pin flags, if their location has been lost. It would probably never be possible to duplicate a poorly recorded grid a second time — and all of your data will become meaningless.

Consequently, datums must be installed at all sites where either testing or data recovery is being undertaken. Even if the site itself is to be destroyed, some effort should be made to place permanent site datums. While this is not always possible, every effort should be made to locate datums on pavements, bridge abutments, sidewalks, or other permanent areas. Nails can be driven into asphalt. Concrete can be chipped with a cold chisel. You can also set pipes and rebar. If you have lengths of over 4 feet they may be safely driven into the ground. For lengths under 4 feet you should use at least one bag of cement. Avoid the use of only paint since this has a life span of only a year or so under the best conditions. You may be fortunate enough to be able to tie your grid into some datums set by the developer's surveyors on CRM jobs.

These datums should have two purposes. First, they should be used to control the site grid. Best is to expand the grid a known distance off the site to the north and south or the east and west, providing base points off the site from which the entire grid can be reconstructed (including the orientation). Next best is to extend one line off site in one direction a known distance, allowing the grid to be reconstructed if the orientation is known. Next best is to place at least one (preferably two) points off site and record their location using bearing and distance to a known grid point.

This order is based on what is most accurate. With two points off the site area, it is easy to create a line between these two points to reconstruct the grid. The other two techniques require bearings, which are difficult to take with any accuracy. Remember that what is magnetic north today *won't* be magnetic north a year from now since this points slowly shifts position.

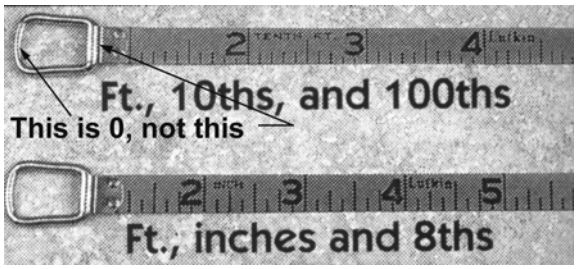
Second, these off-site datums should be used to preserve the vertical control you are using on the

site. Even if you are using mean sea level datums established by professional survey companies there can be errors. And sometimes even professional surveyors only estimate their datums and fail to tie them into USGS datums. Consequently, it's very important that we leave behind evidence of what we based our elevations on.

These datums should be very clearly recorded in your field notes. Provide distances and bearings from multiple locations to these points. Remember, for the datums to be used to reconstruction your grid, someone has to first be able to find the datums. Ten years from now, when the topography has changed, the neighborhood has expanded, and the roads have changed, it may be very difficult to find that "oak tree" where the datum was. Think ahead and try to ensure that your work will be recoverable.

Measurements and Tapes

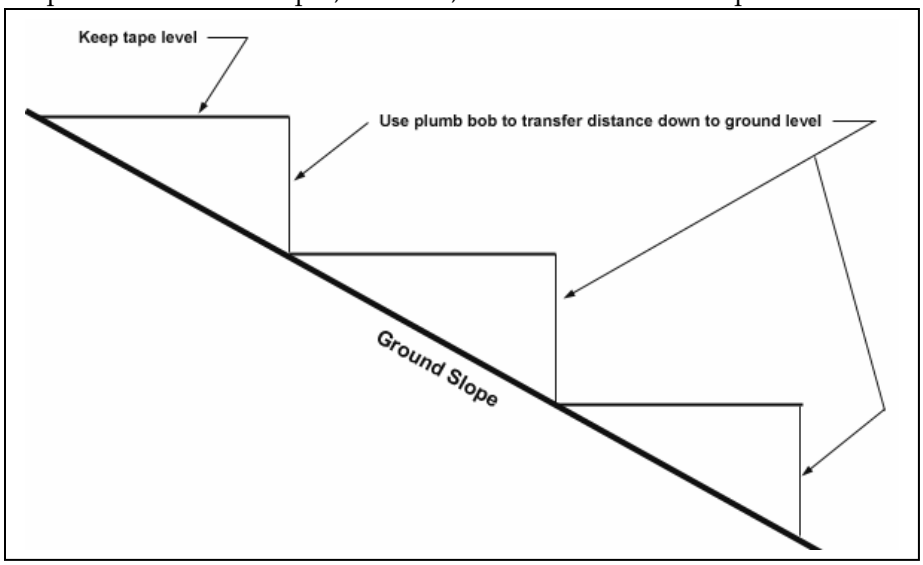
As previously mentioned, Chicora Foundation typically uses grids set in feet and tenths of feet — the so-called "engineer's measurement." Be very careful to understand the system being used and insist that your crew also understands. It is very easy to cause serious errors by having individuals mix up different systems (1.1 feet ***is not the same as*** 1 foot 1 inch). It is also possible for crew members to hold tapes incorrectly. Be sure that you understand where the zero is on the "dumb end" of the tape and show this to crew before they begin work. It is also important to periodically check your grid for accuracy — it's much easier to make corrections half-way through than once the entire grid is laid in.



Recognize the difference between inch and tenth tapes – and also check to make certain you know where 0 *really* is.

The crew should also be instructed in the proper way to read the tape, and to call out numbers. Always do work to two decimal places. Avoid calling measures as, "one point three," since this may be taken as either 1.03 or 1.30. Instead, it should be called out as "one point three zero [or o]." This allows no misunderstanding.

Measuring over level ground is relatively simple and straight forward. With a little care to avoid obstacles and ensure that the tape is straight and not held up in vegetation, the measurement will be quite accurate. On slopes, however, much more effort is required since all measurements must be horizontal. To measure horizontally on a slope, suspend a plumb-bob to give the planned position on the ground. If necessary repeat this to establish longer distances.



There are tables that will calculate the inclination correction necessary for most situations. They reveal that if the difference in elevation between the two points 150 feet apart

is only 0.2 feet, no correction is necessary. At a difference of 1 foot over 150 feet the correction is less than 0.01 foot. At a difference of 3 feet the correction is 0.02 foot. At a difference of 5 feet in elevation between two points 150 feet apart the correction is about 0.08 – not quite a tenth of an inch. The point is that for most work, if you are careful and keep the tape relatively straight and level, there will be only very minor errors.

Care of tapes is especially important. Metal tapes can rust, be kinked, and break. Fiberglass tapes can stretch and be wound with kinks. Carefully use of tapes is critically important, if for no other reason than their cost. A 50' metal tape costs about $70. A 100' fiberglass tape costs over $90. With care, either kind of tape will last 15 or more years. Abused, neither type will last a field season.

All tapes should be used, and then returned to their tool box. Tapes must not be left out — they will be forgotten, rained on, or covered with back dirt.

Metal tapes should not be twisted. If a kink is set in the tape it is ruined — there is no way to get it out of the tape without breakage. When rewinding, let it run through your fingers, keeping a little tension on it; this removes dirt and ensures that it is properly rewound in the case. Fiberglass tapes should not be pulled too tightly and should be carefully rewound to avoid kinking. If kinked, the tapes should be pull back out and rewound. Otherwise the kink will be set into the tape.

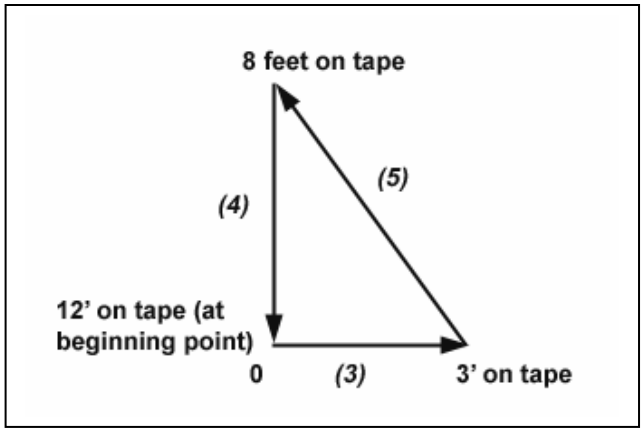
At the end of the project remember to completely unwind all tapes and clean them. Metal tapes should be cleaned and very lightly oiled before being rewound.

Setting Out Right Angles

Surveying instruments can set out right angles very easily. A total station system can achieve a right angle with very little error — assuming it is properly leveled. An optical instrument can also achieve a right angle. The accuracy of these will depend on the instrument (a transit is typically more accurate than a dumpy level) and its condition (a warped base plate, for example, can cause tremendous problems).

There are, however, other approaches which while very low tech are also very accurate. As field director, you should be able to integrate these other techniques into your work as appropriate. There are two basic methods — Pythagoras and isosceles triangles.

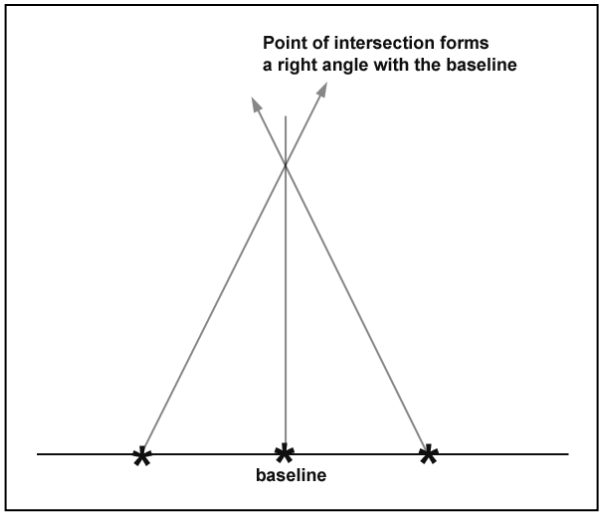
Pythagoras



A Pythagoras is the 3-4-5 triangle which contains a right angle. There are several ways of using this method. With one tape begin on the point from which you want to run out a right angle, then take the tape 3 feet (or 30 is often easier) along the baseline. Have someone hold the 3 (or 30) foot point tightly and extend the tape at an approximately 30° angle to the 8 (or 80) foot mark. Have someone else point this point. Then extend the tape to the 12 (or 120) foot mark back to the baseline at the zero point. The person holding the 8 (or 80) foot point will need to

adjust position, but when you are back to the zero point you now have a perfect right angle.

This technique works as long as each side is some consistent multiple of 3-4-5 (6-8-10, 9-12-15, 15-20-25, and so forth). The bigger the measurements the more accurate the right angle. The greatest inaccuracies will be introduced by topography and human error.



Isosceles Triangle

An isosceles can achieve the same goal. Measure an equal distance along the baseline on either side of the selected point. From these two points strike two arcs of equal length. The point where they intersect gives you a right angle with the original point.

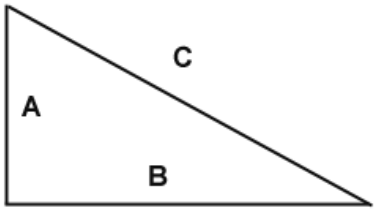
This approach is particularly useful since it doesn't rely on using any specific figures or multiples. All it requires is that the marks on both sides of the prime point be the same distance and that the arcs be of equal length. The only disadvantage is that this approach does require two tapes.

Hypotenuse Lengths

It is also very important to know the measurements of some basic hypotenuse lengths. A chart is provided below.

Unit Size	Hypotenuse
1x1	1.41
2x2	2.82
3x3	4.24
4x4	5.66
5x5	7.07
5x10	11.18
10x10	14.14

For those not listed, the formula is very simple:



$A^2 + B^2 = C^2$; to find the length of C, take the square root

Checking Square

It's unfortunately easy to establish units that are out of square (i.e., a parallelogram). An easy way to determine if a unit is true (square) is to take both diagonal measurements (hypotenuse lengths). They should be equal.

Taking Elevations

There are lots of ways of taking elevations, most of which are inaccurate and should not be used on Chicora sites. Most especially the use of line levels should be avoided. They are inaccurate and the technique takes a great deal of time.

Appropriate techniques include the use of an optical transit (or level) or the use of a laser transit. Both can provide very accurate information, assuming the equipment is in good order, correctly set up, and the techniques are correctly implemented.

Using an optical transit you need a stadia, of which there are two principle types. One is simple a rod with numbers running from 0 (at the ground) upward to whatever its fully extended height may be. The other is a direct reading rod which has a movable metal tape which rotates around the length of the rod.

Regardless of the type it is absolutely essential that you spend a minute to look at how feet and tenths of feet are shown on the rod. Some use alternating black and white fiducials or ticks, some use lines. Check and make sure you understand the one you are using. This isn't a sign of "weakness," it's a sign of a competent field director!

The typical approach is to set the instrument up somewhere in a position from which both the datum and the points needing an elevation can be read. It doesn't matter, regardless of the stadia being used, what the vertical relationship of these three points may be, except that the transit scope when locked level should not shoot over or under the stadia (in other words, you want to be able to read the stadia when it is set on both the datum and the point for which an elevation is desired with the transit scope set at 0°).

Using a regular stadia, you train the scope on the stadia and read the number. Let's say that number is 2.12 feet. Let's also say that we have determined that our datum has a mean sea level elevation of 23.47 feet AMSL. Consequently, our instrument height (HI) is 2.12' + 23.47' or 25.59'. In the context of some of the field forms we will discuss, this is often recorded as:

B.S. is _2.12'_ + R.P.A.E. _23.47'_ = H.I. _25.59'_ or

Back Sight is 2.12 feet + Reference Point Assumed Elevation (or actual elevation) of 23.47 feet = height of instrument (or instrument height) of 25.59 feet.

Then the transit scope is trained in on the stadia on top of the point requiring an elevation. This might be the corner of a unit (either before or after excavation), the top or bottom of a feature, or just a spot on the ground for a topo map. This reading, let's say, is 5.46' according to the stadia. We now subtract this reading from the previously determined HI to yield the elevation of 20.13 feet. In the context of some of the field forms we will discuss, this is often recorded as:

Point HI _25.59'_ - Reading _5.46'_ = Point A.E. _20.13'_ or

Instrument Height point is 25.59 feet minus the reading of 5.46 feet =
assumed elevation (or actual mean sea level) of 20.13 feet.

In other words, you first obtain the vertical position of the instrument relative to the elevation of the datum. Then you compare the vertical position of the instrument (which is now known) to the position of the point.

For the direct reading stadia the work is even more simple since there is no math involved! You train the leveled scope on the stadia which is set on top of the datum. Recall that we know this datum has (or has been assigned) the elevation of 23.47 feet. You instruct the individual holding the stadia to move the tape either up or down until 3.47 is split by the scope crosshairs. Once the tape is in this position, it is locked in placed. Now the tape cannot move.

Then the stadia is moved to the second point and the scope, still locked level, is trained on the stadia. Using our previous example, we will read 0.13' on the stadia. All that we need to remember is that our "prefix" was 20 feet. Thus, our unknown point is at an elevation of 20.13'.

Using a direct reading rod, it is only necessary to complete that portion of our field forms which calls for the Point A.E. (in this case 20.13').

A laser transit is essentially the same as an optical instrument, except that the measurements are provided for us electronically. The instrument is set up somewhere off the datum and the point for which we need an elevation and the scope is locked in a horizontal position (i.e., the transit scope set at 0°). The prism on top of the range pole is taken to the point for which an elevation is needed. The transit is directed toward the prism, which is raised until the scope's cross hairs intersect the prism triangle. The range rod is then locked at that height.

Once set, the prism and rod are moved to the point needing an elevation. The instrument scope is raised or lowered for the cross hairs will bisect the prism and the elevation button is hit. Within seconds you have a difference in elevation between the instrument and the unknown point. If the difference is positive (i.e., 2.34') you add it to the HI to yield your elevation. In this example, it would be 23.47 + 2.34, or 25.81' AMSL. If the difference is negative (i.e., -2.34') you subtract it from the HI. In this example, it would be 23.47 - 2.34, or 21.13' AMSL.

In the context of some of the field forms we will discuss, this is often recorded as:

B.S. is ___ + R.P.A.E. ____ = H.I. *23.47'* and
Point HI *23.47'* _ reading *+2.34'* = Point A.E. *25.81'* or
Point HI *23.47'* - reading *-2.34'* = Point A.E. *21.13'*.

A Note About Accuracy

You probably learned somewhere in math about false accuracy. If you aren't measuring beyond tenths of feet, it's false accuracy to show points in hundredths of feet. In other words, it is important to drop digits that would otherwise give a false or erroneous impression of the meaningfulness, or accuracy, of a value. In rounding, the typical approach is to round up if the digit to be dropped is greater than 5 (i.e., 13.36 becomes 13.4), and round down if the digit is 4 or less (i.e., 13.33 becomes 13.3). If the digit to be dropped is exactly 5, then round so the last number is an even number (i.e., 13.35 becomes 13.4, while 13.25 becomes 13.2).

Remember also *why* you taking a measurement. If you are measuring 1,000 feet and it is part of a map that will be scaled down to fit on an 8½ by 11 inch piece of paper (say a figure in a final report), then a couple of feet one way or the other doesn't really matter — it's the equivalent of the width of a pencil lead. This of course assumes that no one will need to come behind you and use your measurement *in the field*, for example, to locate a buried grid datum. In that case, a couple of feet one way or the other do matter. Likewise, if you are drawing a small feature that will be shown a scale of 1-inch to 1-foot in the final report, an error of a couple of tenths of a foot will matter — they will be obvious on the scale of the final drawing.

Remember also that there are lots of outside errors. Tapes stretch and shrink, depending on the ambient temperature and also the force being applied. The atmosphere causes errors in both optical and laser transits. Some of these errors you can control, others you can't, at least not easily.

The point here is to think about what you are measuring and be realistic (*not sloppy or lazy)*. What is the importance of the measurement, how will it be used, and what degree of accuracy do I need to accomplish the job.

Transferring Elevations

It is often necessary to transfer a benchmark elevation from a datum somewhere off the site, onto the portion of the site you are working. This typically requires multiple set-ups and elevations. This also requires extraordinary attention to detail and care in setting up the instrument.

To transfer an elevation from one point to another, use a similar technique with either an optical or laser transit. With an optical transit:

▪ Step 1: Set up the transit where you can see the known datum, as well as some distance toward your site. Have your rod person go to the datum with the stadia set up over the datum. Take your reading of elevation. Let's say the datum is at a known mean sea level elevation of 5.37 feet and the reading you have from the transit is +2.03 feet:

B.S. 2.03' + R.P.A.E. 5.37' = H.I. 7.40'.

▪ Step 2: Stay set up at your original location and have your rod person "hopscotch" over you toward your site. Rotate the eyepiece to the new location of the rod person and take a new reading of the elevation. You now have a forward sight (F.S.) of 3.09'. The elevation of the current rod position (which we'll call Temporary Bench Mark A or T.B.M. A) is:

H.I 7.40' - F.S. 3.09' = T.B.M. A 4.31'.

▪ Step 3: Have your rod person stay in this exact position (in fact, it's a good idea to spray paint the spot, in case you have to go back to it, since you now know it has an elevation of 4.31'). Move your instrument to the next location, forward of T.B.M. A, toward the site. Level, and then back sight to T.B.M. A. We know it is at an elevation of 4.31 feet and the reading you have from the transit is +3.20 feet:

B.S. 3.20' + T.B.M. A 4.31' = H.I. 7.51'.

You'll notice that this is essentially a repeat of Step 1.

You continue repeating this process until you arrive at the site. Your last temporary bench mark should be whatever point you want to establish as the main elevation control point for your work at the site.

With a laser transit, the process is slightly different, since you will need to adjust the prism height every time you set up the instrument and back sight, but otherwise it is the same process of just keeping track of elevations:

▪ Step 1. You set up your transit at a point where you can see the known datum, as well as some distance toward your site. Have your rod person go to the datum with the prism and set up over the datum. Level your scope and have the rod person raise or lower the prism until the cross hairs of the prism are centered on the prism. Lock down the rod height. The prism is now set at the instrument height and effectively can be used to measure the elevation of any spot, relative to the known datum of 5.37' AMSL.

▪ Step 2. Stay set up at your original location and have your rod person "hopscotch" over you toward your site. Rotate the eyepiece to the new location of the rod person and take a reading of the elevation. You obtain a reading of -1.06. The elevation of the current rod position (which we'll call Temporary Bench Mark A or T.B.M. A) is:

H.I 5.37' - F.S. 1.06' = T.B.M. A 4.31'.

▪ Step 3. Have your rod person stay in this exact position (in fact, it's a good idea to spray paint the spot, in case you have to go back to it, since you now know it has an elevation of 4.31'). Move your instrument to the next location, forward of T.B.M. A, toward the site. Level, and then back sight to T.B.M. A. Have the rod person raise or lower the prism until it is in the leveled cross hairs. The instrument and rod are now set to the T.B.M. A elevation of 4.31'. Have the rod person lock in the prism elevation and hopscotch over you again.

You'll notice that this is essentially a repeat of Step 1.

You continue repeating this process until you arrive at the site. Your last temporary bench mark should be whatever point you want to establish as the main elevation control point for your work at the site.

There is yet another technique for using the laser transit and transferring elevations. You may have noted that the prism rod has etched on it measurements in both feet and meters. You can set the prism to a standard height and use it much like a stadia.

▪ Step 1: Set up the transit where you can see the known datum, as well as some distance toward your site. Have your rod person go to the datum with the prism extended to some known height, let's say 4 feet. Take your reading of elevation and it is -1.97'. We also know that the prism height is the combination of the datum elevation (5.37') and the rod (4.00') or 9.37'. Therefore add or subtract the reading from the prism height:

Height of prism 9.37' combined with current elevation reading -1.97 = H.I. 7.40'

▪ Step 2: Stay set up at your original location and have your rod person "hopscotch" over you toward your site. Rotate the eyepiece to the new location of the rod person and take a new

reading of the elevation. You now have a new reading of - 0.91'. You know that the prism rod is at 4.00', so this is 4.00' - 0.91' to yield a forward sight (F.S.) of 3.09'. Consequently:

H.I 7.40' - F.S. 3.09' = T.B.M. A 4.31'.

▪ Step 3: Have your rod person stay in this exact position (in fact, it's a good idea to spray paint the spot, in case you have to go back to it, since you now know it has an elevation of 4.31'). Move your instrument to the next location, forward of T.B.M. A, toward the site. Level, and then back sight to T.B.M. A. We know it is at an elevation of 4.31 feet, plus the prism height of 4.00', for a total of 8.31'. We get a reading of -0.80. Therefore:

B.S. -0.80' + combination of T.B.M. A and prism height of 8.31 = H.I. 7.51'.

Again, you'll notice that this is essentially a repeat of Step 1.

You continue repeating this process until you arrive at the site. Your last temporary bench mark should be whatever point you want to establish as the main elevation control point for your work at the site.

A Few Notes About Laser Transits

Although all are different, there are a few common points that are worth mentioning. The first and most obvious is that they are pretty useless without battery power. Always be sure that batteries are recharged. Also, as the power drops from two bars to one bar, you increase the chance of "Ed Error" readings on the Topcon. Consequently, when the power gets to one bar, go ahead and change out the battery.

Realize, however, that these batteries have a "memory" and should be recharged, if possible, only when pretty completely drained. Consequently, if you can, leave the transit on with a near drained battery, allowing it to further discharge.

Also, in terms of power usage, there are two modes. One is continuous, where the transit is always "searching" for the prism, sending out a laser beam. This allows you to obtain continuous readings of elevational or distance change. This also used up tremendous quantities of power. Much better for most work is to set the instrument for individual readings. This will require that you "prompt" it for individual measurements, but that is relatively little effort and will provide you with at least twice the battery power.

Remember also that the laser transit uses three, not four leveling screws (more typical of optical instruments). There is a difference in the way they are leveled. Instruments with four leveling screws are leveled by turning opposite screws, at the same time, either both inward, or both outward. The leveling bubble is placed midway between the two screws. With three leveling screws, you still place the bubble midway between two screens, but you turn only one screw at a time.

A few pointers in terms of setting up:

- get the tripod as level as possible, to begin with;

- make sure that the transit leveling screws all begin at about the same position (be sure that they are set this way when taking the instrument down — it avoids pressure on the

leveling plate and will make set-up easier);

▪ use the centering bubble to roughly level the instrument first. If you discover that you are forced to extend one or more of the leveling screws more than a third of the way, you should start over by releveling the tripod. Return the leveling screw(s) to a start position (all at about the same position) and then adjust the legs.

▪ never, ever, adjust the leveling screws to the point they are difficult to move. This warps the base plate. This is an impossible condition to correct. Once warped, the instrument will never set up level again. And, at $500 for an optical instrument and $8,000 for a laser instrument, that is a lot of money for being careless.

DRIVING AND VEHICLE ISSUES

Driving Habits

Relatively few individuals today have experience driving in adverse field conditions and too often there is a belief that the solution – regardless of the terrain or problem – is the use of a 4-wheel drive vehicle. Consequently, it may be helpful to briefly examine some driving habits.

There are some initial obvious points:

- All vehicles are to be properly maintained. This means that all scheduled maintenance is to be performed in a timely manner. In addition, at least once a week the primary driver is responsible for (1) checking the oil, (2) checking fluid levels (especially water, brake, and transmission), and (3) checking tire pressure.

- Only individuals 21 years or older, possessing a valid driver's license are eligible to operate any Chicora vehicle. These are the requirements of our insurance carrier – no exceptions, no excuses.

- No one is to ever ride in the rear of a pick-up on the open road. This is a violation of most state laws and is not covered by our insurance carrier.

- Seat belt use by all passengers is mandatory. The driver is responsible for ensuring that every one complies.

- On dirt roads and other off-road situations, crew may be transported in the rear bed – but only for short distances. In addition, it is the responsibility of the driver to (1) ensure that everyone is seated and in a safe position and (2) that the speed and driving technique are such that everyone arrives safely. If there is any doubt that these two conditions can be met, then no one should be riding in the back of the vehicle. No excuses.

Lack of Traction

A lack of traction on unpaved road surfaces is generally caused by the surface being too soft to support the weight of the vehicle. As a result, the vehicle gets stuck. Once stuck it is very rare that anything you do inside the vehicle will get it unstuck – it will almost always be necessary to get out and improve the road, jack the vehicle, deflate the tires to improve traction, or use some pulling device.

Soft surfaces can normally be driven if the vehicle is kept rolling steadily in low gear with no rapid changes in acceleration or braking (these actions cause the tires to break through the surface and become mired). This involves "reading" the road in front of you – you get out of the vehicle and walk the road. If you get mired in the mud, it's a good bet that the vehicle will too. If you find that the sand is so loose that it is difficult to walk in, the chances are that a vehicle won't make it through. In such cases, it is usually more productive to find an alternate route or walk.

But if you attempt it, the key is always to **maintain momentum**. Figure out where you want to go and how to get there – before you gun the engine and take off. Avoid sharp turns and anything (like trees) that might require braking. Once you stop moving forward and begin moving downward, consider yourself stuck and immediately get off the gas – you aren't going to fix the problem inside the vehicle (see the first paragraph of this section).

High Center

High center occurs when the vehicle with 10-inches of clearance comes to rest on a 14-inch diameter log. It can also occur if you cross a ridge or embankment squarely. These situations can usually be avoided by judicious planning. For example, high center can be avoided by crossing the embankment of ridge at a 45^{o} angle rather than straight on.

Sometimes you can back off a high center hang-up, but not usually. Typically what it takes is jacking the vehicle as high as practical and building up the footing under one wheel at a time until you can drive out.

Using a Come-Along

The come-along is a poor man's winch – which is why Chicora uses them rather than an electric winch. While slow, they are easy to use and can get a vehicle unstuck if used correctly. A few critical points:

- Be sure to attach it to something that will take the pull – avoid the suspension and look for solid bumper connections or, even better, the tow bar or hooks.

- Generally cable breaks slowly and you will see warning signs – such as the cable starting to part and small wires sprouting in the area that will soon give way. If this happens – STOP immediately. Although you get plenty of warning, keep yourself and others as far back as possible. If you have any doubts, tie blankets or tarps on the cable near the end away from the vehicle – if it does snap, all of this cloth will keep it from moving very far or very fast.

- Always wear gloves when handling come-alongs.

- Different models operate slightly differently – read the instructions!

- Make certain that your anchor is steady – something like a very large tree. The goal is to get the vehicle unstuck, not uproot a tree. If you aren't certain about the stability of a tree, two trees can be lashed together with a length of chain. You may also be able to create a land anchor using a large diameter pipe driven into the ground several feet.

DAILY OPERATIONS

This manual can't be a replacement for experience (and field school, typically, doesn't provide much experience), but this section will offer some general guidance for daily activities.

Excavations

In so far as possible, use natural strata. There has been an increasing tendency to use arbitrary levels. I suspect this is a by-product of field schools no longer teaching students to read the soil. Knowing that an artifact came from the 1.50 to 1.70 foot level is not nearly as revealing of past human lifeways as knowing that it came from Zone 2, which is a dark stained sheet midden. If a particular zone is thick and you have some reason to believe that it built up over a long period of time, then the use of arbitrary levels, within that zone, is appropriate (i.e., Zone 2, Level 1; Zone 2, Level 2). But don't use levels simply because it's easier than reading, and interpreting, the soil.

When making zone decisions, be sure to be consistent. Try to make sure that Zone 1 in one part of the site is the same as Zone 1 in another part. Sometimes this just isn't possible, such as on major urban historical sites. When you are dealing with different zones from different locations, you must be able to "put them all together," so as you continue working one of your goals must be to figure out how all of the zones integrate with one another. Don't just dig and expect to be able to figure it out in the lab — chances are it won't work out that way.

Think ahead and read the available survey reports. What do the soils look like? Do you have a plowzone? If so, just strip it all off as PZ. Don't try to divide plow zone into different level — what would this data tell you? Maybe you have a recent PZ over an old PZ. Do you combine them, or excavate them separately? The answer depends on the goals of the project and what you hope to accomplish. Don't make something simple complex, just to "do science." You must constantly balance precision against time.

You must be able to know, or quickly determine, when to slow down for better data recovery, and when to speed up to move more soil. The real world is not a field school. You don't have an indefinite length of time to get a project done. You can't view every feature as an opportunity for extensive recordation. You can't prevent mistakes by going slowly. There is "x" amount of dollars and those have to be budgeted to extract the best possible archaeology. As field director you carry a heavy burden — it's up to you to make sure that at the end of the project that site can be bulldozed.

As field director it's up to you to periodically set the pace. You have to be able to shovel better, and faster, than anyone else. You have to be able to do your work, while also periodically walking around and ensuring that others are also doing their work. You have to keep notes complete as three or four features are being excavated.

Bags and Samples

The appropriate way to label bags has been discussed under **Box Cards**. You should review it with crew and make certain they understand the grid system and what is expected in bag labeling. And

you must check behind them.

Unit bags are to be double bagged, unless the excavation is producing very small collections. Associated with every unit should be a soil sample. The soil sample should be collected in a 5x7 zip lock and then placed in a labeled paper bag. Do not label the zip lock — it will receive cataloging information in the lab. Just label the outer paper bag. Other samples may be collected as appropriate. Under most circumstances it is far better to bring back too many samples (let's say of bricks at a historic site) than to bring back none. They can typically be discarded, but you can't go back and get more. In shell middens you may want to collect shell samples — either representative oysters, representative species, or perhaps clams for seasonal dating.

Fragile items, including hand picked charcoal should go into film vials. These vials should go into the general artifact bag. They should be opened during washing to allow some drying, but closed before repacking.

At times there is enough bone that you may want to separate bone from artifacts in the field. This can be helpful by not only preventing damage and fragmentation to the bone, but also allowing it to be quickly pulled, processed, and shipped to our faunal specialist.

Basic Site Security

This isn't intended to be a primer on security. Some issues are covered in the employee manual and the field manual for employees and volunteers. But there are a couple of issues worth noting.

First, it is your responsibility to protect and safeguard the site. The property is owned by someone else, but like on the high seas, you are the captain of the ship and it is your responsibility. This means you have near complete control over what goes on. If there are construction workers also present and they are looting the site, picking up artifacts, or being abusive to crew members, **it is your responsibility to handle the problem**. Tacit is necessary, but so is the willingness to take control. You set the standard of acceptable behavior. If that standard can't be maintained by the foreman, you go to his/her supervisor, and so forth up the chain of command to the property owner.

Chicora will not work at a site where looting or collecting is taking place. Nor will Chicora work at a site where other workers engage in catcalls, rude remarks, or any other form of unacceptable social behavior.

Second, it is your responsibility to protect others — crew, other workers, and the public. Think worst case — think how you will explain someone getting hurt. Did you do everything you reasonably could to prevent the accident? Or were you in a hurry to leave the site, so you didn't take the steps that were within your reach to provide safeguards? Essentially you need to think about how you'd feel if you had to go to court to justify what you did, or didn't, do.

The degree of protection depends on the site setting. If an urban area you need more barricades and caution tape than out in the middle of a field. But, if there is an apartment complex on the other side of the field you can bet there are kids, and you can bet they will explore. So, you had better take steps to warn them of hazards.

Third, it is also your responsibility to protect the equipment. The client doesn't pay us extra if a sifter engine is stolen and the screen was out of commission for three days. We don't stop paying per diem and hotel bills. We end up eating the cost of new equipment, as well as down time. That means

there is less time for field work, or less time for lab work, or less money to publish the report. In a real sense, such losses come out of everyone's pocket.

Vandalism seems to be an increasing problem. Always assume the worst until that fear seems unjustified. Initially lock up screens and motor housings every night. If after a week the site seems secure, then secure the motor housing every night, but only lock up the screens on the weekend. Be alert to what is happening around you and judge the risk.

As field director you are also responsible for checking the site after it's closed. You are responsible to make sure all of the shovels are gathered up. You are responsible to make sure tapes are put back in the tool box. You are responsible to ensure that all bags have been gathered up. You are responsible for checking that equipment, gates, and so forth are locked. And you are responsible that no one is left behind.

Part of closing the site is typically covering units. Plastic is routinely used to cover excavations, both in progress and even once completed. Do not use soil to weight down the plastic. It is a real pain to remove and the crew will eventually rip the plastic shoveling soil off. With a little extra effort you can find logs, rocks, bricks, or something else to hold the plastic down.

I have seen some pretty sorry jobs of weighing down plastic. If it blows up at night and the units get wet, that means is that they can't be worked the next day. Where are you going to work? Make sure that the site can be worked efficiently at all times.

Site Upkeep

It seems that lots of folks don't have much pride in how their site looks. After all, they say, it's going to be bulldozed in a week — what does it matter? You have to find that answer somewhere in yourself, but I expect all Chicora sites to be neat, clean, and well-kept.

You should have a trash bag available and replace it as needed. Trash is never to be thrown down, even in an urban site already littered with other's trash. This is part of a mind set — this site is our data source and we are going to treat it with respect, even if no one else does.

Back dirt must always be at least three feet from the edge of units (more if required by OSHA for deep excavations). I want to be able to walk along the side of the unit without tripping on back dirt. I don't want to see back dirt dribbling into units. I don't want to see backdirt dribbling onto plastic up down over units. What this means is setting up screens a little further from the edge and periodically moving back dirt. Make this a daily maintenance chore. As field director, it's your responsibility to see that it is done — begin the task and then direct others to help you. By participating in this task you reinforce its importance.

Keep units covered when not being worked on. This prevents them from drying out. And the plastic keeps them from turning into seas of mud or erosional gullies. Even if you "think" that you are finished with a unit, keep it covered and keep it in good shape. You may discover that you have to go back to it.

Keep your excavations looking neat and clean — archaeology is like surgery. You wouldn't trust a surgeon who performed operations amidst blood and gore. Likewise, you shouldn't trust an archaeologist whose units look like he plowed them up in anticipation of planting cotton. Units should look like they are important and that some effort is being made to do science.

Not only is this important to the recovery of meaning, but it is also important to the public's perception of archaeology. If your excavations have fallen profiles, sagging string, back dirt falling into units, half dug features, random piles of dirt, and a generally untidy appearance, what is the public to think? Chances are they will think that this doesn't look so hard and that anyone can do it.

You can't keep all parts of a site looking pristine. But if the media arrives and wants photographs, be absolutely certain that you direct them to those portions of the site that are presentable, that haven't suffered natural wear and tear. The public perception is important and it is up to you as field director to ensure the correct image is presented.

It is also your responsibility — quite apart from health, safety, and employee discipline issues — to ensure that the crew looks and behaves professionally. If want the public to think of archaeologists as professionals, we must act the role.

Site Visitors

Although this issue is covered in the employee manuals, it is worth mentioning again. There was a time when one professional, visiting another professional's site, understood the etiquette of checking in, introducing themselves, and asking permission to visit. It seems that increasingly people just drop in and begin talking to acquaintances or friends. As field director, you should emphasize the importance of checking in. It is critical that you know who is on-site and why. Professional colleagues should be treated with respect, but they should also give you the respect you deserve of introducing themselves, explaining their interest, and asking if this is a convenient time. Frankly, there are times that aren't convenient — when you are first arriving and getting the site organized, when you are packing up at the end of the day, when there are a great many features open which you must keep track of, and so forth. Don't allow your obligations to the site to be compromised by an inclination to be cordial.

Non-professional visitors may include the client (who is always welcome), the media (who likewise is always welcome, but must be directed to appropriate portions of the site), the avocational archaeologist or interested member of the public (who must be screened and evaluated on an individual basis), other contractors (who are typically just interested and to whom you should be cordial, but not spend an inordinate amount of time), and potential pothunters or privy looters (who should be quickly escorted off-site). Given the wide range of potential visitors and their motives, you can see why it is critical that you know who is on-site and why they are present.

Handling Collections

Chicora is a small organization. It helps tremendously if you are able to get collections washed in the field. There are often rain days where washing can be conducted in a field lab. Sometimes, it is even better to break early and use a half-day to wash, then to bring large collections back completely unprocessed. These in-lab days or half-days can also break the boredom of long field projects.

As you wash, be sure that collections are not intermingled. Also be sure that the number of bags stays the same (see discussion under box list). Be sure to replace bags that are torn or damaged. Most especially be sure materials are dry before rebagging – opening a bag in the lab to find wet and corroding metals, damp bone, or moist pottery slows down the analysis and may cause damage to the collections – so emphasize that all materials must be dry before rebagging.

Also, remind crew that washing to "field school" standards are not necessary. A toothbrush need

not be taken to every sherd, every piece of glass, every nail. The goal is to remove gross adhering soil that would impact analysis. This can be done pretty quickly and keeps the process moving. The typical appropriate rate of washing is a full bag of artifacts of average size per hour to hour and a quarter.

Be aware of materials that should not be washed. Obviously soil samples should not be washed. Neither should charcoal samples, or pollen samples. Shell and brick samples should be washed.

During the field processing, have the crew separate materials — sherds from lithics; ceramics from glass, from nails. The different materials can be rebagged in zip locks and then placed back in the paper bags. Whatever degree of preliminary separation you can do will speed the analysis time in the lab.

At the End of the Field Project

At the end of the field project we typically attempt to ensure that the client is responsible for backfilling excavations. There really isn't any need for them to pay for this hand labor when it can be done more quickly, and more inexpensively, by mechanical equipment. However, you may be responsible for securing the plastic and "baulking the profiles." Typically we leave plastic in the field. Dirty, wet plastic is a pain to deal with and you take more time and energy trying to clean it, pack it, and transport it then it is worth. Also, leaving it in place makes the site look a little less deserted.

So, leave the plastic in place, but be certain that it will stay down. Baulk the profiles by throwing backdirt up against them, creating a 45° slope up. This prevents, or discourages, the curious from poking into the profiles or trying to get out bits and pieces. It also helps secure the plastic.

Likewise, if you have deep features or post holes, they should be filled in, either before the plastic is put down or afterwards (if there is enough on the sides to ensure that the plastic can be draped into the holes and still be kept on the profiles. Filling these deep holes in helps keep water from collecting in them and also helps ensure no one falls in and hurts themselves.

We typically pull all of the nails, leaving in a select few, just in case in a couple of weeks we have to go back because the client, or the SHPO, raises some concern.

You must also ensure that all tools are cleaned, sharpened as appropriate, and oiled as appropriate before packing up. It is also your responsibility to keep the equipment and supplies in good condition while in the field — this will significantly reduce your efforts on the last day.

Do not bring dirty, broken, dull equipment back in from the field. You take it out in good, immediately useable condition. Ensure that the next person has this same ability. You will typically find that on the last day you can finish a feature or two, take your photographs, clean the equipment, and close down the site without any real problem — just plan ahead. Likewise, keep supply boxes neat and well organized while in the field. If crew members want to be slobs in their personal lives that is their business, they will not, however, be slobs with Chicora equipment and supplies. Their mothers do not work at Chicora and no one should have to go behind others cleaning up after them. Such individuals will almost certainly be happier working elsewhere.

You will notice a lot of shiny, but not sharpened, shovels and trowels. It appears that the art of sharpening equipment is slowly being lost. It will be up to you to teach people the appropriate sharpening techniques and ensure that they are successful. Keep them at it until it is correct. You will also need to periodically insist that 30 minutes or so be spent on sharpening or other chores.

A Few Words About Human Skeletal Material

The laws and practical handling of human remains vary from state to state. It is Chicora policy to be certain that a feature does, in fact, contain human remains before implementing any procedures. This means, as field director, you will need to have some practical knowledge of human skeletal material. Do not try or rely on the opinions of crew members. If you are uncertain, call in an expert.

In South Carolina the identification of human remains starts a required process of notification. First, contact the Chicora office. We will make contact with the client and explain the circumstances and implications. Absolutely no one is to be notified before the client — nor is any additional excavation to be done until all procedures have been completed. Realize, however, that you may need to do substantial excavation in order to verify that the remains are human. Once this determination has been made, however, all work on the feature should stop. The feature should be covered by plywood or some other protective covering, and then covered with plastic. Crew must be directed to speak to no one about the discovery. We must avoid site looters throughout the project. And also media attention until the client has been notified (we do not want the client reading about the burial in the newspaper before they receive a call from us).

Once the client has been notified, the next step is to simultaneously notify both the county coroner, the SHPO Archaeologist responsible for the work, and the State Archaeologist at the S.C. Institute of Archaeology and Anthropology. The coroner should be informed that we believe the burial to be archaeological, and that we are notifying the SHPO and SCIAA. Further, you should explain that we realize they may still take jurisdiction of the find and would they like to do so. Do not argue with the coroner — they have the power of law.

At the same time, notify the SHPO and SCIAA, proposing action: is this an isolated burial, do there appear to be others, can it/they be removed within the scope of the current project, what is the response of the client, and so forth. It may be necessary to make tribal notifications – but this should be done only if there is convincing evidence that the remains are Native American, rather than African American or Euro-American.

If the media is alerted, you should respond honestly and candidly. You should emphasize the respect the remains are being shown and that Chicora is working with the Coroner, SHPO, and SCIAA to assure proper treatment. You should emphasize that if there is any Native American group with an interest in the material, they should contact SCIAA and that we welcome the opportunity to work with them. In other words, you must be a master of public relations.

Throughout all of this, you must, in fact, assure the security of the remains and that they are treated with respect. Outside of official photographs by Chicora, the coroner, SHPO, or SCIAA, ***absolutely no photographs are to be allowed of the burial. This means that no crew member may take photographs, nor may the media. You need to explain that it is Chicora policy to afford human remains the utmost respect and that photographs for public consumption violate this policy. Any problems should be referred to the Director of the Foundation***.

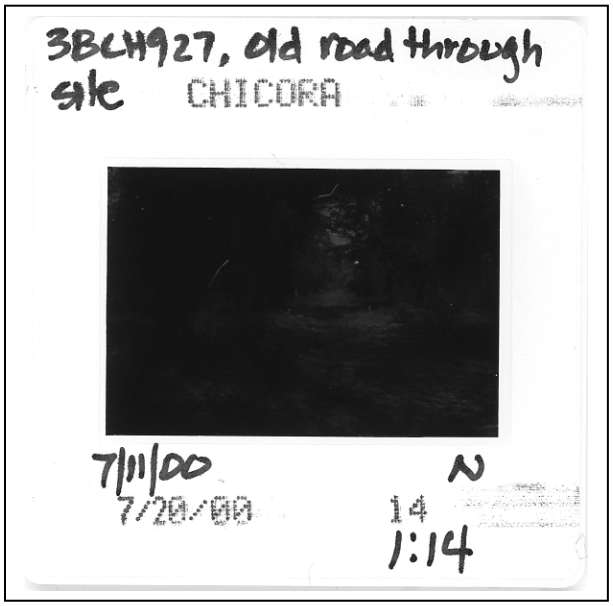
COMING IN FROM THE FIELD

Just like the classic spy movies where an agent can face challenges "coming in from the cold" of an assignment, coming in from the field can be tough. There are personal and social adjustments. And there is the adjustment of being back in an office setting. And there are a whole range of responsibilities you face to quickly and accurately get the project organized.

Once in from the field, you should immediately unload equipment. If there are supplies that need to be replaced (bags, string, nails, insect spray, etc.), do so immediately. Don't wait — you'll eventually forget. If there are items that need reworking (shovel handles replaced, tape inserts replaced, screens replaced), that, too, is your responsibility. Deal with it immediately.

At the same time, be sure to drop film for processing. Color slides should always be imprinted "Chicora," along with a date and imagine number. B/W processing should typically include three proof sheets (two for the curatorial facility and one for our files). This can be done while you are dealing with equipment and other chores.

You should also unload all of your notes and begin the process of first checking them to insure they are complete. Then they must be copied and filed. Make two copies of the field notes (the original and one copy typically goes to the curatorial facility, one copy has holes punched in it and goes into an AccoPress Binder for our use).



As soon as the film comes back, you should ensure that each roll matches your photo log — image by image. Film and slides should be handled as appropriate for the curatorial facility. This typically means that B/W negative holders should be labeled with site number, accession number, and roll number. B/W negatives go into an "original" file. B/W proof sheets should be similarly labeled on the back using an archival film pen. One copy should go into the "original" file, while the other should go into the "duplicate file." The third should go into the Chicora file. Slides should be labeled with basic information in a neat and consistent fashion (see illustration). The pertinent information includes, at the top, the site number and description. In the lower left, write the date of the image. In the lower right, write the direction and, below that, the roll and image number.

Since you have taken two images of each view, one should be filed in slide pages as an "original," the other as a "duplicate." In those rare cases where there is only one image, it should always be treated as an "original."

The distinction between "original" and "duplicate" is, of course, up to the curatorial facility, but generally "original materials" are not used — they are stored separately and are the back-ups, handed with the greatest care. The "duplicate materials" would be what the institution allows researchers to use on a regular basis.

You should also quickly pass the box lists to the Lab Supervisor, who will be responsible for cataloging and analysis. All boxes should be stored. Arrangements should be made immediately to complete the washing of any collections not thus far washed.

Get a tracking form from the Lab Supervisor, complete it, and forward it back to the Lab Supervisor with curation copies of the field notes and photographs.

Having dealt with the administrative issues of the curatorial process, you are now ready to beginning writing the report.

Archaeological Investigations

Historical Research

Preservation

Education

Interpretation

Heritage Marketing

Museum Support Programs

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