

PROCEEDINGS OF THE
"PERSPECTIVES ON CONTRACT ARCHAEOLOGY"
WORKSHOP

Assembled By: CARLOS GERMANN

ARCHAEOLOGICAL RESOURCE MANAGEMENT: PROBLEMS AND ISSUES TODAY

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Leslie Amundson was instrumental in organizing and coordinating the Workshop, particularly at the local level. Leslie also contributed notes which were helpful in preparing the discussion and recommendations sections of these Proceedings, and reviewed a preliminary draft. Bernd Martens and Robert Stedwill also reviewed earlier drafts of these sections and made useful comments and recommendations.

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INTRODUCTION AND OBJECTIVES

ARCHAEOLOGICAL RESOURCE MANAGEMENT: PROBLEMS & ISSUES TODAY

"PERSPECTIVES ON CONTRACT ARCHAEOLOGY"

INTRODUCTION AND OBJECTIVES (Carlos Germann)

Welcome to the first workshop of the SAPA conference on Archaeological Resource Management Problems and Issues Today. This workshop is entitled "Perspectives on Contract Archaeology". My name is Carlos Germann; I manage Saskatchewan's archaeological resource management program.

I would like to welcome, in particular, the discussants assembled here who will be sharing their views on contract archaeology. This is a diverse group representing industry, heritage resource consulting, and provincial archaeological resource management in Alberta, Saskatchewan and Manitoba. For good measure, we also have an academic researcher's perspectives (also known as "views from the Ivory Tower").

Before proceeding, I should define or at least qualify the term "contract archaeology" in the context of this workshop. There are, of course, a variety of services or activities archaeologists perform under the terms of formal contractual agreements. For our purposes, however, we shall confine ourselves to those services which specifically enable development proponents to meet regulatory requirements under provincial heritage property legislation--in other words, activities which relate to the archaeological resource impact assessment and review (aria/r) process.

Consulting, government-based, and even academic archaeologists frequently have opportunity to discuss various problems and issues affecting the discipline. But, there is rarely opportunity to hear directly from industry whose land developments are easily responsible for the majority of field archaeology performed today. In fact, this assembly is quite possibly the first of its kind in Western Canada.

In recruiting industry participation, a deliberate effort was made to involve individuals representing a range of different types of land development. We are fortunate, therefore, to have representation from the oil and gas industry, electrical power corporations, highways and road development, forestry,

and mining.

As well, we have industry representation with markedly different levels of experience or exposure to contract archaeology (at least in Saskatchewan). The Saskatchewan Power Corporation's involvement in archaeological impact assessment is especially noteworthy in this regard. Their Boundary Dam archaeological survey and subsequent Long Creek Site salvage project in 1957 was the first developer-funded archaeological impact study in Saskatchewan (and only the second in Western Canada). This was followed, in 1973, by their environmental and archaeological impact studies on the Churchill River. What's remarkable about these early archaeological contract studies is that they were undertaken in the absence of any legislative requirement to do so. The power corporation's hiring of a resident, in-house archaeological specialist in 1981 (to 1986) was also a first in Western Canada.

At the other extreme, it is the forest industry which has had surprisingly little involvement in contract archaeology throughout Canada.

That there are some sectors of the development community which have been involved in archaeological impact assessment longer than others is a reality. Ideally, all sectors should have commenced involvement in the aria/r process at the same time--for example, when the enabling heritage legislation was enacted. For reasons relating mainly to administrative and financial resource limitations, this did not occur in Saskatchewan and elsewhere. Indeed, there are still some sectors of the development community, whose operations can adversely impact archaeological resources, which are not routinely involved in the aria/r process. In Saskatchewan, for example, municipal road upgrading and development, timber harvest, and private agricultural land clearing are the most prominent omissions in the aria/r process.

Admittedly, it is a problem here, as I suspect it is in every provincial jurisdiction; a situation which is inherently unfair or inequitable to those sectors that are regularly asked to comply with regulatory requirements. Of course, significant improvements or refinements have been made over the years, and, in this sense, regulatory programs continue to improve. But under current policies of fiscal restraint, a comprehensive or satisfactory resolution to this and other problems will be even more difficult to achieve.

In any case, this is precisely the kind of issue which this workshop is intended to address. Assembled here are the key players in contract archaeology, each with distinctive roles,

responsibilities, needs and constraints. I would like to emphasize, however, that we are not here to debate the underlying rationale or justification for archaeological resource assessment or protection; we accept that the public demands heritage conservation, as evidenced by various legislation, and proceed from there. But, what we are here to do is discuss how best to make the process work; how to make it as equitable, efficient and effective as possible. At the very least we will exchange information and viewpoints. Hopefully, we will also identify what is working and what's not, and what is needed to help us meet our respective needs and responsibilities more effectively.

In the questionnaire I circulated, and which most of you returned, you indicated some expectations you personally had for this workshop. A sample of these read as follows:

- a frank exchange of views; and to initiate constructive dialogue;
- a better understanding of what we are trying to achieve with the aria/r process;
- a better understanding of the role and capabilities of archaeological resource consultants;
- a better understanding of the aria/r process in terms of regulatory requirements, compliance procedures, proponent responsibilities, and project scheduling;
- a better understanding of industry perspectives on aria/r
- to develop recommendations for improving development referral screening and impact assessment procedures;
- that the workshop constitute a basis for regular communications between industry, government, and the professional consulting community, to review and monitor impact assessment and management practise, and to respond to new issues.

Each of you have before you the workshop agenda (Appendix 1). As such, we'll now proceed with opening remarks from each discussant. These should draw out some of the specific issues we may wish to discuss in detail during the latter part of the workshop. In your presentations, I ask that you introduce yourselves and perhaps comment briefly on your involvement or experience in the provincial aria/r process.

Finally, you will note that neither the format (e.g. roundtable discussion or problem-specific workgroups) nor particular topics to be addressed later in the "issue focus" are decided. We'll return to this matter immediately following the opening presentations.

OPENING REMARKS

*Comments on the Archaeological Resource Impact Assessment
and Review Process in Saskatchewan*

CARLOS GERMANN

I would like to briefly discuss the archaeological resource impact assessment and development review process in Saskatchewan, and, in doing so, point out some basic issues common to most jurisdictions.

The Heritage Property Act is the enabling legislation in Saskatchewan which provides for archaeological resource impact assessment and management (aria/m). It specifies that if a development or operation is likely to damage or disturb archaeological property, the developer may be required to carry out an impact assessment or undertake any other protection or salvage measure deemed appropriate. Virtually all provincial and territorial governments in Canada, as well as the federal government, have enacted (or are in the process of developing) comparable legislation.

Archaeological Resource Impact Assessment & Review

The archaeological resource impact assessment and review (aria/r) process (Figure 1) is simply the process of reviewing land development proposals to determine the need for impact assessment, approving and authorizing assessment/mitigation studies, and reviewing the results of those studies for completeness and compliance. The key players (represented by those assembled here) are a) project proponents who prepare and submit development proposals for review, and pay for the required studies; b) professional consultants who perform the necessary studies under permit; and c) regulatory agencies who review development proposals, set aria/m study terms and conditions, and review reports.

Over the roughly 10 years since Saskatchewan's HPA and archaeological resource management program were introduced, the aria/r process has become reasonably well established in both public and private sectors of the development community. Although an important accomplishment in itself, the current process is not perfect and significant problems persist. My office is charged with the responsibility of balancing archaeological resource conservation in the face of on-going land use and development. By its very nature, this balance or compromise will not always satisfy all interested parties. I

will briefly work through the process, noting certain prominent trends and issues along the way.

Development Referral Review and Aria/m Recommendations

The aria/r process begins with the submission of a development proposal. Unfortunately, the legislation did not provide for an explicit mechanism enabling resource managers to be advised of and receive land use and development proposals for review. These inter-agency referral systems had to be purposefully developed (and not without considerable resistance at first from both the development community and government-based land use licensing agencies).

Now, development proposals are routinely received either directly from proponents or via licensing and approval agencies (such as SEPS, agricultural Lands Branch, land subdivision office, etc.). Figure 2 shows the percentage of development proposals, by project proponent, reviewed between 1983-90 (the total number of referrals has remained essentially the same from year to year). Provincial govt. developments (mostly by SH&T, SPRR and the Crown corporations) consistently account (except this last year) for about 40% of the total. Since 1987, private industry developments have accounted for a consistently higher percentage.

One of the important issues at this stage in the process is that in Saskatchewan, as in every jurisdiction, the referral network is incomplete. In other words, with the human and fiscal resources currently available for archaeological resource management, not all land developments which could affect heritage resources can be screened. In Saskatchewan, grid roads are recognized as a possible deficiency in our development referral program, while forestry developments are only now starting to be screened. Of course, given budgetary realities, any new referral programs will displace or otherwise affect existing programs.

Given that we have to be selective in what is reviewed, how is this best achieved? Should we focus on certain types of development judged to have the greatest adverse impact on the resource (and, perhaps only those where the proponent can assume the costs of aria/m), or on select areas, landscapes or regions of the province considered most likely to contain sites, or most likely to experience intensive land development (e.g. the oil and gas patch, timber harvest areas, etc.).

A second important issue, relating to those proposals which are reviewed, concerns the criteria used to determine whether or not impact assessment/mitigation studies are needed. Are

the criteria explicit and objective? Are they applied consistently? And, how reliable are they in predicting or conserving sites? (I will not dwell on these matters here, but I strongly recommend they be addressed during the roundtable discussion.)

If a development proposal is deemed to have no adverse effect on archaeological sites, no study is required and the development proceeds (Figure 1).

As Figure 3 shows, about 50% of our development reviews result in no impact assessment requirement. Of course, we're interested in reducing this figure; if only so many proposals can be reviewed in any year, it would seem more efficient to keep those resulting in no further concern to a minimum. Recommendations for proponent impact assessment increased to about 25% in 1990, while in-house impact assessments have dropped-off sharply since 1986.

In-house impact assessments (those we carry out at no cost to proponents) are limited to the initial reconnaissance of heritage sensitive lands proposed for development by "small-scale developers". The most common examples include agricultural Crown land sales, private agricultural land developments, and small cottage subdivisions. Applying the aria/r process to small-scale developers (like farmers), those who would not only face disproportionate financial hardship, but whose very projects could be jeopardized if even modest archaeological regulatory requirements were imposed, is a continuing problem in Saskatchewan. If we simply overlook small-scale development, we compromise the archaeological resource. On the other hand, if we impose formal study requirements, confrontation often results. The work cannot be contracted out to consultants if the internal funds are not available. Yet, if we perform the work in-house, it's sometimes called an unfair business advantage by some, and a loss of contract opportunity by others. I do not see an easy resolution to this matter.

Archaeological Investigation Permits

If, after reviewing a development proposal, an impact assessment is considered necessary, the study is contracted to a professional archaeologist and carried out under a Ministerial investigation permit (Figure 1). Upon its completion, a report is prepared and submitted for review. If the report is satisfactory and no further action (such as salvage excavation) is required, the development proceeds; otherwise, the process is repeated.

Archaeological investigation permits authorize the conduct of aria/m studies involving survey, collection or excavation. Permits have been issued in Saskatchewan, as required under the HPA, since 1981. The annual number of permits has increased noticeably since then (Figure 4). The majority have been for development-related impact assessment (still the predominant type of field archaeology practised in Saskatchewan and elsewhere), followed by amateur projects and, lastly, by professional or academic research (Figure 5).

In Alberta, Saskatchewan and Manitoba, permits are issued on a project-specific basis, but there are other models (e.g. Ontario awards annual licenses to contract archaeologists). The question here is whether there are alternative (and perhaps more efficient) means of regulating the practise of field archaeology. What are the prospects for self-regulation as practised in planning, engineering, architectural, and other professions? What alternative roles and responsibilities might there be, in this regard, for government and professional archaeological associations?

Development Planning and Aria/m Studies

While there is no time to discuss in detail what assessment studies involve, suffice to say that different types of investigation are undertaken to meet specific objectives at different stages in the development planning process. For example, impact assessment is concerned with predicting, locating and evaluating archaeological sites and impacts during the initial stages of development planning. Impact management follows directly from assessment and is concerned with managing both unavoidable and unanticipated adverse impacts either prior to and during construction and operation. For large-scale and long-term developments, assessment and impact management are approached sequentially, with each new phase of study dependent on the results and recommendations of the preceding study. For small-scale projects, different study phases may be collapsed, reduced in scope, or deleted altogether.

One of the main issues when requiring impact assessment or mitigation study concerns setting the scope-of-work. This is done by the regulatory agency often in the form of study terms-of-reference, or in the course of reviewing investigation permit proposals. Various questions may arise at this point in the process, for example: What (development-related, resource management-related, or other) factors should be considered in setting regulatory requirements? Should industry negotiate the level of study? Should consultants have greater discretion in setting scopes-of-work? What is to be considered "adequate" or enough assessment or mitigation?

Should scopes-of-work be made more flexible? And, who should be responsible for conducting post-construction assessment or monitoring studies, or assessing cumulative impacts? (These are just some of the issues which might merit discussion in this kind of forum.)

Of course, there are numerous other problems and issues in contract archaeology today:

- aria guidelines/standards; inter-provincial standards
- estimating costs
- quality control
- dissemination of assessment/mitigation results
- curation of recovered materials
- confidentiality of information
- professional ethics
- the role of native peoples
- the role of academic research

I would like to conclude with a brief comment on this latter issue. Despite the fact that archaeological resource management (ARM) studies are in the mainstream of archaeological practise today, and have been for the last 15 years or so, they continue to receive remarkably little attention or recognition from the academic community. The argument, from the academic perspective, has been that aria results contribute only marginally, if at all, to traditional or pure archaeological research. There is, of course, some validity to this, after all, the essential goals of ARM are usually quite different from those of research. In any case, the lack of academic interest in developing ARM method and theory has quite likely hindered any progressive improvement in the impact assessment and decision-making process. Interestingly, aria/m studies, which are increasingly becoming the only source of new research data, are being increasingly used for traditional research. Despite this trend, in order to ensure that the best possible data is being recovered now for future research, the academic community should be directing greater research attention to ARM issues. There is certainly no shortage of problems areas in this regard (e.g. predictive site locational modelling, impact prediction and measurement, post-impact evaluations, benefit-cost analysis, etc.). To expect government or the consulting industry to entirely fill this need is unrealistic. As well, given the scope of and increasing opportunity for contract archaeology in Canada today, serious university-level courses and programs in archaeological resource planning and management are clearly needed. Finally, in addition to ARM-related research, the academic community should play a stronger (advocacy and participatory) role vis a vis the development of ARM policy and legislation.

ARCHAEOLOGICAL IMPACT ASSESSMENT & REVIEW PROCESS

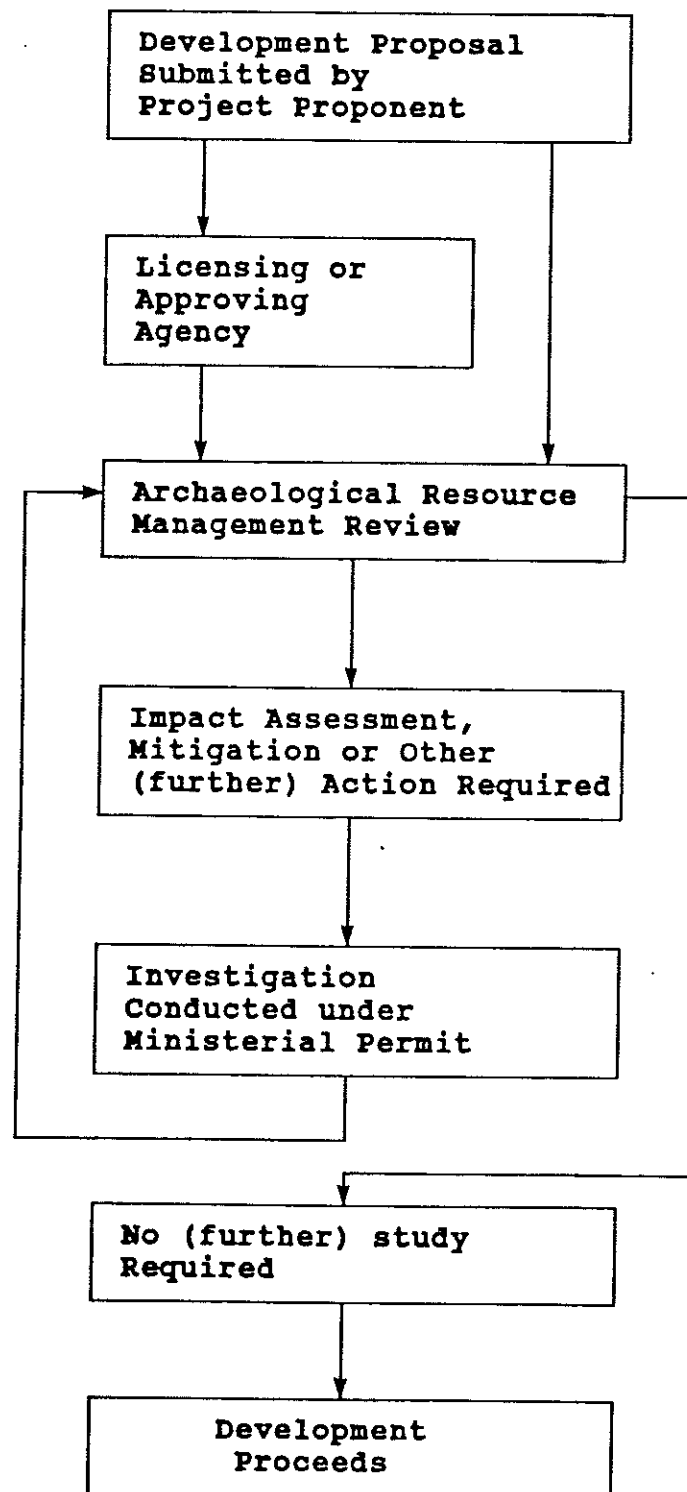


Figure 1

Development Referrals 1983-1990

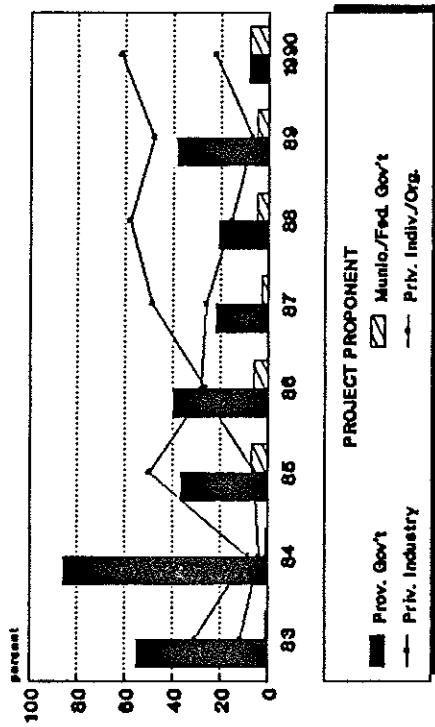


Figure 2

Archaeological Investigation Permits 1981 - 1990

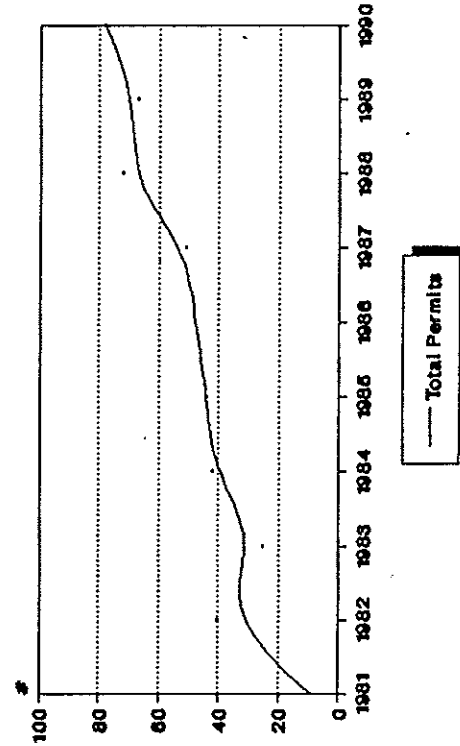


Figure 4

Hria Recommendations 1983-1990

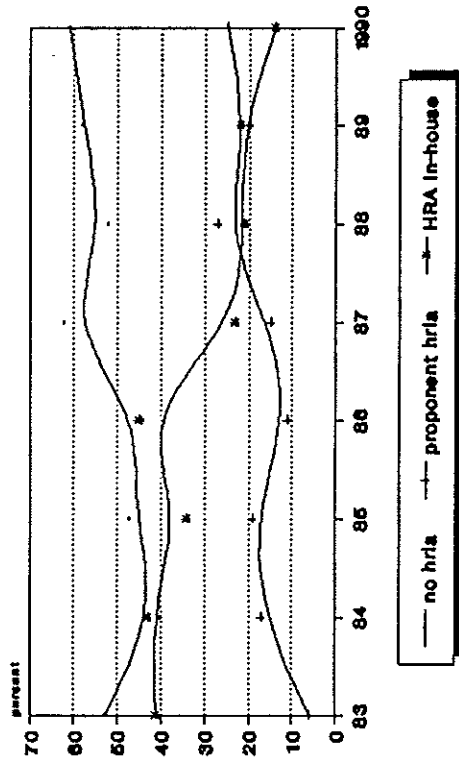


Figure 3

Archaeological Investigation Permits 1981 - 1990

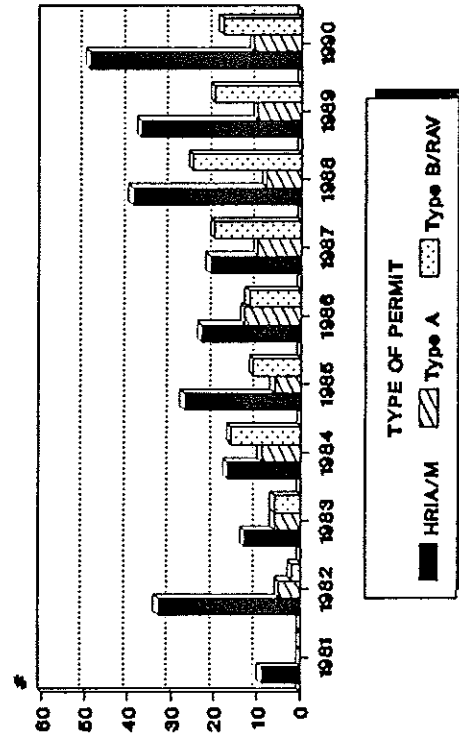


Figure 5

DEVELOPMENT PROJECT PLANNING & ARCHAEOLOGICAL RESOURCE ASSESSMENT

STAGE	PROJECT PLANNING ACTIVITY	ARCHAEOLOGICAL RESOURCE STUDY	TYPE OF REPORT
STAGE 1	FEASIBILITY/ PRELIMINARY PLANNING * assessment of alternative project designs	OVERVIEW ASSESSMENT * background research * preliminary field reconnaissance	OVERVIEW
STAGE 2	FINAL PLANNING/ PRELIMINARY DESIGN * assessment of preferred project alternative	DETAILED IMPACT ASSESSMENT * inventory survey * site evaluation * impact identification and assessment	DETAILED IMPACT ASSESSMENT
STAGE 3	FINAL DESIGN LICENSING AND APPROVAL * impact management planning * licensing and permitting	IMPACT MANAGEMENT * mitigation * compensation	MITIGATION/ COMPENSATION
STAGE 4	PROJECT IMPLEMENTATION AND OPERATION * construction and post-construction operations	IMPACT MANAGEMENT * construction monitoring * emergency impact management * post-impact monitoring	MONITORING

Figure 6

Small-Scale Development Referral Screening and Application

ROBERT STEDWILL

Good afternoon, my name is Robert Stedwill and I am the manager of Environmental Studies at SaskPower. Environmental studies at SaskPower encompass all environmental fields, including archaeological and sociological studies.

I represent a proponent of major projects in the province and I will be the first person to admit that we are not perfect. I say this because in some areas we have not done a very good job with respect to environmental protection. I dare say it will happen again. However, we as a utility will improve as time goes on; as a result of better communication and learning how to do things better. This workshop is a prime example of this. The results of this workshop will see us having flushed out a few areas such as field work techniques and organization requirements.

I've been asked to talk to you today about referral screening and its application to archaeological requirements. As you know, SaskPower is a developer of electrical transmission lines, electrical distribution lines, and electrical switching stations. Up until 1986 we also put in gas transmission and distribution lines which were taken over by SaskEnergy that year. All of these types of developments received archaeological assessments of some kind; even before proclamation of the Heritage Property Act and the Environmental Assessment Act in 1980. Since that date SaskPower has adhered to those laws accordingly.

Since 1980, we have submitted project proposals to Saskatchewan Environment and Public Safety which, in turn, referred them to the Heritage Branch of the Family Foundation for review. Following this review, SaskPower received guidelines for the implementation of heritage resource assessments, if required.

Many of our projects we are presently undertaking are not as massive as the Shand project, the Nipawin Hydroelectric project, or the recently completed Athabasca Transmission line project. We do undertake smaller projects which have an impact on heritage resources. Today, I'll talk about our Rural Underground Distribution (RUD) program. The RUD program has come about as a result of aging powerlines needing replacement, requests from farmers to reduce conflicts with

farming operations, and to reduce maintenance requirements on lines in areas where maintenance costs are high.

Some of you here may have already had some field experience with the archaeological field components of the RUD program.

This past year, SaskPower installed approximately 6000 kilometres of underground distribution into the ground which could have an impact on heritage resources. Up until this past year, those power lines would have been routed along road rights-of-way or underneath existing overhead distribution lines, and we weren't too concerned about possible impacts on heritage resources because they were in areas that had already been disturbed.

This past year, costs being of concern, we started taking short cuts across fields or across areas that were previously not impacted by development. We therefore initiated in 1990 a program whereby an area that has been identified for rural underground distribution development, will be screened through a contract archaeologist. The contract archaeologist will tell us which areas are sensitive. Having found that out, SaskPower engineers or our contract engineers will determine where the distribution lines should go, recognizing the previously identified sensitive areas. We will not be able to miss everything. This will be due to constraints which do not recognize heritage resources. In the event that heritage resources are likely to be impacted, SaskPower will contract an archaeologist to go out and determine the on-site conditions.

We have successful to date in avoiding most things. However, we haven't been able to avoid everything. We do spend great sums of money doing our best. If it can't be avoided, then time is spent on assessing the site and subsequent mitigation if required.

Going back to the concern about the screening procedures and its application, one of the reasons why I've come to this workshop is that others don't go through the same screening process. And, I am reluctant, on behalf of my company, to spend hundreds of thousands of dollars a year on studies when others don't have to screen projects in the same manner as SaskPower. Therefore, one of my aims today is to determine if there is some consistent way that all development proponents get exposed to the same guidelines and criteria.

The situation at Veregin, where we actually spent a few additional thousands of dollars avoiding a particularly sensitive area, only to find out a week later that another Crown corporation just ploughed through the area we had just

avoided at great expense, was a little disconcerting to say the least. Needless to say, I am constantly asked by my superiors whether or not the expenditure of this money is necessary when it appears that others aren't, or aren't required to.

The challenge I issue to all of you gathered here today is: should we have to go through the process? I suspect the answer will be yes, and, if that is the case, then the playing field should be level.

Heritage Resources and Forest Management

GLORIA FEDIRCHUK

I'm Gloria Fedirchuk with Fedirchuk, McCullough & Associates Ltd. which conducts heritage resource studies in Western Canada.

The point I want to make today is very brief, and that is that techniques used in forest management can and do impact archaeological resources. The technique I want to deal with is scarification, and I'm going to use one basic case study: the Hinton East Coal properties located just east of Hinton, Alberta.

This slide will give you an idea of where it is in Alberta. I should say we were not studying forest management techniques, rather conducting a project overview. This particular lease is along the McLeod River basin in the forested foothills of Alberta. McPherson Creek runs through the property. The lease area is fairly large in size, consisting of fairly rugged terrain as you can see there. Along the river itself there are some extensive wetlands.

Now the whole area has been clearcut and scarification has provided us with fairly regularly spaced disturbances to look for archaeological materials. When you look at each individual scar, they are not overly extensive as you can still see some trees standing. But, when looking at the total area that has been impacted by scarification, it's fairly large.

We discovered five sites during this project. Four of them were discovered in the scars themselves; one in a road bed. I should say that there's always two sides to a story, and although scarification itself did impact the sites, it was through the scarification that we were able to determine just how large the sites were and how much material was in them. Of course, we didn't need quite that much exposure to assess these sites.

This slide shows some of the artifacts that were recovered from those scars. Some of them had relatively fresh impact scars on them so there is more than just actual site disturbances resulting from this process.

This slide shows another lease located just east of the Obed-

Marsh Coal lease inspected by Lifeways of Canada Ltd., a heritage resource consulting firm. A few sites were located here as well. This is more of a tableland situation with wetland areas. Again, the scarification process did disturb enough that fairly extensive sites were discovered (including some Paleo-Indian material).

Thank you.

Highways Development and Contract Archaeology

R. ALLAN WIDGER

Good afternoon, I'm Allan Widger, Director of the Geotechnical & Materials Branch, with the Saskatchewan Department of Highways & Transportation. One of my areas of responsibility is coordinating all the environmental and heritage resource approvals in the department.

Just to give you some background information so you can see where we're coming from in Highways; in any one year we construct somewhere between three and five hundred kilometres of highways that could have some impact on either the environment or heritage resources. In the past, there was no real system set up to handle the approval process. So at that time it was all a reaction type process. In most cases, if some concern was identified, we were still out there trying to do the assessment or mitigation when the equipment was moving up behind, and it became more an antagonistic situation rather than cooperative.

Over the years we have established what we feel is a workable system. We've taken the approval process out of environment; we used to just deal through Environment and the projects would be referred to the Heritage Branch. Now we deal directly with the Heritage Branch, and we've set up what we refer to as a screening, assessment and mitigation system. So, in any one year Highways will have a five-year program (a rough program of what we're going to do over the next five years). If any of you are familiar with how decisions are made in government, that is just what it's called, a long term plan. A project in year five may show up next year and something in year one may end up in year five. So if you are looking and saying "well okay we're only going to get approval or check out the jobs for next year" you may find out that next year you're building other projects. In that case, all of a sudden it's a rush, and anything that's a rush turns out to be a disaster.

The system we've set up now is that as soon as projects show up in our five year program, we will submit a list of projects to the Heritage Branch. They will do a quick screening of them and say okay there may be 70% or 50% or whatever, that have potential problems and we will be required to do further work on them. At that point in time, we will hire a contract archaeologist to go out and screen these jobs (i.e. see if

there is anything there that requires further work). We have no archaeological or heritage background. There is no one in our department that has any background in that area, so we rely on the Heritage Branch to give us guidance in terms of how to write the terms of reference for commissions, and also to act on our behalf in terms of reviewing reports that are completed. We could send a consultant out and they could come back with a report, but it really doesn't mean anything to us. All we would do is turn it over to Heritage Branch since they've got to go through it anyway. Working with them we can go through the system and establish, out of maybe twenty projects that we have the consultants screen, maybe five are associated with sites or require further work. The contract would then be done.

Depending on where the projects appear in the program, or how many of them there are, we would call for an assessment proposal for say five projects. We'll try and group them together for economic benefit, because if you send somebody out for one site and there's nothing there, you're both wasting your time. If you can group them together it makes a worthwhile size contract and the consultant can spread his time out and have some idea of the amount of work ahead. The report would come in and, through cooperation with Heritage Branch, we establish what we have to do next.

Hopefully at that point, from our point of view, we've identified that there is nothing of significant value and no further work is required. If, in fact, there is something of significance, we would then proceed with a contract for any impact mitigation required. We try and bring that mitigation work as close to the start of the project as we can because we will then have more information in terms of what actual impact the highway construction will have. In our normal construction we know well in advance how wide we'll be widening the right-of-way. But in a lot of cases, we don't know where things like borrow pits or gravel is going to come from. So if we do the study too far in advance, we don't know where the borrow pits come from, and typically the easiest place to get a borrow pit from a farmer is on uncultivated land on a hilltop or something like that, and unfortunately that is the typical place where you will find heritage concerns.

That's the process we use now and have used for about the last four or five years. It still has some growing pains, but our feeling as a proponent is that the system is working quite well. Our concern now is what work is actually necessary, because it has never been spelled out what is significant and what is not significant. From our point of view, there is a lot of trust involved in the system. With tighter budgets,

everything we have to spend money on is being looked at closer. Bob Stedwill made the same comment. We have to justify where we spend our money. People out there who are designing the roads or spending money on construction question us if they have to spend a portion of those funds to assess a project where they say "well, it's just a pile of rocks". If there are better ways of doing contract archaeology (for example, grouping projects together to make it more efficient for us and consultants) that will save money, we're interested.

I guess what I want to get out of this workshop, or the message I want to pass on, is that when you're dealing as a proponent with no background in this area and there's no set guidelines, no set criteria, you're sort of at the mercy of either another department or a consultant. In the past, there has been a lot of concern. Through recent contracts, that concern has dropped a fair bit, but with tighter budgets, it's rising again.

*A Comment on Conducting Heritage Resource Impact Assessments
of Linear Developments in the North*

LESLIE J. AMUNDSON

In 1990 I was involved in two projects in the boreal forest of northern Saskatchewan. In July I examined the route for the Island Falls to Points North Landing 138kV transmission line being installed by SaskPower. In October I examined the Saw Mill West Road (Highway #943) for Weyerhaeuser. I found one small find spot in each project.

In neither case did I examine the full length of the right-of-way. Rather, I examined selected areas considered to be of high heritage potential. These locations were determined largely by intuition or judgement. There is little else to base our sampling upon as, when we examine the provincial inventory of archaeological sites, we generally find that few sites, if any, have been registered in the region of the development. This is due to less activity by developers, archaeologists and collectors in the forest. As well, in the south, agriculture is responsible for exposing buried archaeological sites, making them easy to observe. What we generally end up doing is looking at heights of land, river banks and lake shores which the road or powerline crosses, assuming that these places are where ancient peoples would have concentrated their activities. This notion is based on the fact that, on the prairie, where more archaeological research has been conducted, we often find prehistoric sites related to these types of areas. Given that there is a limited data base of archaeological sites in the north, I would like to suggest that perhaps we are being presumptuous in using intuition we have developed on the prairie and applying it to the forest.

The fact that many northern developments are linear in nature creates special problems for archaeological sampling and is the reason we opt for judgemental sampling techniques to, hopefully, increase the number of sites we will encounter. Access is the most pressing concern in the forest. Generally speaking, a helicopter is the only effective means of access to areas without roads. Helicopters have two liabilities for archaeological surveys: they are very expensive to operate; and they cannot always land near where we would like to be. Pedestrian surveys in advance of development, without at least a cut line, would be impractical and time consuming, if not impossible due to the many bodies of water one would have to

cross. All-terrain vehicles and boats are not practical without helicopter support. A second limitation imposed by linear surveys is one of chance. Archaeological sites in the north tend to be small (Saylor 1987). This reduces the chance of the development intercepting sites in such a way that they are easy to recognize. We often are tempted to walk off the development right-of-way because we think that there is a better potential to find something "over there". Add to the chance of narrowly by-passing sites that exist in or near the right-of-way the fact that we only examine perhaps 5 to 10% of the length of the right-of-way and the limited ability to give an accurate assessment of the impact on archaeological sites.

I have three suggestions to submit for discussion:

Should we be using random, rather than judgemental sampling techniques when we examine developments in the forest?

Until a large comparative sample is available, perhaps we should put more emphasis on chance and less on predictive modelling. Le Blanc and Ives (1986) found that, given the opportunity to survey large blocks of the forest rather than linear paths, they discovered archaeological sites in areas where we would generally not expect to find them. In particular, the Bezuya Site (Hh0v-73) was discovered in the Alsands Project east of the Athabasca River. The site is in heavy bush and muskeg 10 km from the river and even further from a water body capable of producing exploitable fish resources. Le Blanc and Ives suggest that people were out in this hinterland in the winter time to hunt moose. This site, and others in the hinterlands, according to Le Blanc and Ives, points to a need for rethinking intuitive sampling in the forest.

Should sampling include all terrain zones, not just prominent uplands and areas associated with water?

Two thoughts struck me while working in the bush this summer. In the forest one is never far from water so there was likely no reason for people to concentrate their activities around water bodies as they tended to do on the prairies. A height of land in the bush gives you a commanding view of the bush immediately around you. In other words there is no strategic reason for activities on heights of land in the forest as they afford no better view of the surroundings. On the prairie, heights of land were important for the board vistas they provided.

Should we consider examining linear developments during or immediately after construction rather than in advance of construction?

The advantages of this approach would be a) improved access, and b) exposure of archaeological sites by construction activities. The disadvantage is disruption of intact archaeological resources before mitigation. Improved access and exposure would greatly increase our discovery rate. The problem is how do we mitigate after the fact? Do we study an area adjacent to the development right-of-way? Is the developer responsible to conduct post-impact mitigations?

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Oil and Gas Development and Contract Archaeology

JIM IRELAND

I'm going to very briefly talk about upstream oil and gas development, some of the potential impacts, how the review process works in relation to that, and some related issues and concerns.

For those of you who don't know me, I'm Supervisor of Environmental Affairs with SaskOil. Our group handles all environmental approvals, reviews and planning for the Saskatchewan Oil and Gas Corporation.

Oil and gas development, and were looking at such things as seismic, wellsites and flowlines, road access, as well as facilities are a little different than some the others we've been hearing about. Although there are linear-type developments involved, there are a good deal of non-linear developments as well. We still view the impacts from most wellsites on archaeological resources as relatively low and isolated, certainly that's been our experience.

What we do for archaeological reviews is that when projects come into our department, whether its a wellsite, a flowline or a facility, they are reviewed. We see what type of sensitivities they would have, and if it requires an assessment we would discuss that immediately with the Heritage Branch or in Alberta with Alberta Culture. Where they're definitely recognized as being sensitive and there is some level of work required, that work is determined by the government and we contract archaeologists at that point. The work is usually standard archaeological survey. As well, the monitoring of construction may be required also.

We follow the process, which is a fairly successful process from our viewpoint. I think to most of you, you'll find that is the case. Particularly in Saskatchewan it seems to be working very well. Some of the concerns we have in projects is timing; anything that will produce substantial delays in industry has economic implications to us. The process in Saskatchewan works in a very reasonable time frames that still allow the archaeological work to be conducted, and still produces the mitigations required to protect the sites. Certainly that's the case for oil and gas for us.

The field work is easily coordinated through the consultants and to the Saskatchewan government. If any sites are found they are identified promptly, both to us and back to the government, and further mitigation is addressed at that time. Such mitigations are standard, as I am sure most of you are aware, for the most part in the development zone. And, for oil and gas development that is fairly easy to do. It is not a great problem because the moves are usually small enough that they can be accommodated quite readily.

I think the results have been very good, and I can give you some numbers that we've worked out (these are approximate numbers, they're not precise) over the last two years. For example, in southwest Saskatchewan, for SaskOil, approximately 100 wells were drilled (with two facilities constructed at the same time). Ninety of those wells had flowlines, and those flowlines would be anywhere from a few hundred feet to the longest line which was probably about three miles. Of those in southwest Saskatchewan, historic resource impact assessment was required for approximately 42 of those sites. Of those 42, approximately one dozen produced archaeological materials, and of those dozen, two had the archaeological material located where we going to be preparing sites, so we had to move. And that is about the biggest impact we have seen in Saskatchewan, in this southwest area.

I do see some issues and concerns, some of which have already been mentioned. The process, of course, is not perfect either from our viewpoint, but it certainly goes very well for the time being. One of the problems though is the question about who is screening, and are all developments screened. I know that's not the case. We know in the oil and gas work that a fair portion is screened, but we also know that there are parts that are not. And, there are things that the government will not see or will not know is going on (for example, small diameter pipelines, 3 and 4 inch flowlines). There is no governmental approval process for that unless it is on environmentally sensitive land that requires a review. So a company who is not aware of legislation, or of concerns, could easily run flowlines, or do other work, and not have to refer it back to the appropriate people.

There is a possibility, on screening, for sites being missed. Although we haven't had any problems like that in Saskatchewan, we just did have a problem like that in Alberta. This is a case where we are running a pipeline and were trying to avoid the Frog Lake massacre and burial site. In the process, working with Husky, Big Bear's camp was discovered. Our referral process had referred our site through Alberta Culture. We got a letter back from Alberta Culture essentially saying that the routing we had originally was

acceptable and that they were not aware of any sites in the area. Subsequent to that, we suggested that perhaps somebody really did know where the site was. There was a great deal of concern with the routing of our pipeline and Husky's as well, which we were able to eventually resolve to everyone's satisfaction for that particular line.

One other concern that we run across regularly, is the issue of winter construction and winter archaeology. The oil and gas industry, of course, is active year round. We are regularly involved in building facilities, running pipes, and drilling wells regardless of whether it's thirty above or thirty below, and regardless of how much snow there is on the ground. We have so far, we believe, been able to successfully mitigate archaeological concerns, particularly when there is snow cover, by having archaeologists out with construction crews and working with the crews for snow clearing and for preparing the sites. But there is still an ongoing concern about their work, particularly the wellsite preparation.

*The Manitoba Heritage Resources Impact Assessment
Process and Referral Screening*

GARY DICKSON

Good afternoon ladies and gentlemen. It is a pleasure to be here. In the few minutes that I have I would like to give you a brief overview of the heritage resource impact assessment process in Manitoba.

The relevant legislation is *The Heritage Resources Act* which was proclaimed on Manitoba Day, May 12, 1986. The Act provides for heritage resource impact assessments under Section 12. Heritage resources are defined as works of nature or human endeavour that have prehistoric, historic, cultural, natural, scientific or aesthetic value. In other words, it is a very broad definition. The Historic Resources Branch consists of four discipline areas organized into sections: Archaeology, Architectural History, History and Museums. Therefore, when I talk about the heritage resource impact assessment process, I am not just concerned about archaeological resources, but with buildings, structures, paleontological remains and industrial sites as well.

Sub-Section 12(1) of *The Heritage Resources Act* refers to designated sites which, aside from seven archaeological sites, are all buildings and structures. Sub-section 12(2), on the other hand, says "Where the Minister has reason to believe that heritage resources or human remains may be affected by any work, activity, development or project ...". The formal process under this sub-section requires the Minister to issue a written order to the owner or lessee of the site to forthwith cease the work, activity, development or project, or to refrain from commencing it, and to apply for a heritage permit authorizing the activity. Upon receipt of the application the Minister may require a H.R.I.A. be prepared at the cost of the owner or lessee.

This is not a very efficient process and could be very time consuming; however, it is effective. We have never had to use the process as set out in the act and I hope that we never will have to do so. Instead, we simply request that a heritage resource impact assessment be carried out whenever we feel that there is the potential for an activity to affect heritage resources. When a proponent questions the need for this we refer to the Act and invariably we get cooperation.

In this process the onus is upon the Historic Resources Branch to identify activities which may adversely affect heritage resources; hence, the establishment of a referral and screening process. Fortunately for us the Manitoba Government had a well established referral and review process in which we were already involved. In this system we receive notice of all proposed activities on Crown land, zoning variations and subdivision applications, weekly well activity reports, utility easements, recreation developments, etc.

Pat Badersch, our Impact Assessment Officer, screens all of these referrals to determine if there may be any impact on heritage resources. Criteria used in this process are:

- the type and size of ground disturbance,
- the location of the project/activity,
- previous land disturbance activities,
- nearness to known heritage resources or to areas that have been investigated,
- landform, and
- nearness to water.

All of these criteria were set out in a paper prepared by the Association of Manitoba Archaeologists and now incorporated into our HRIA Guidelines.

In addition to the office screening, the Branch often carries out field inspections of proposed project areas. We refer to these as pre-impact assessments. Two archaeologists, David McLeod and Gordon Hill, undertake the majority of the pre-impact assessments with other staff including Pat and myself carrying out ones from time to time. The Branch conducts approximately 35 to 40 pre-impact assessments each year. Dave and Gord also examine impact assessments being carried out by consultants, monitor construction activities and re-examine sites.

The Branch's impact assessment process received a major boost in 1988 when the province enacted *The Environment Act* which requires that all non-regulated, environmentally significant developments be assessed and receive a licence before construction or operation. I participated on a technical advisory committee that worked on the Act and I ensured that heritage resources were included in the assessment requirements.

Proponents apply to the Department of Environment for the required licence. The Department circulates the proposal to other government departments such as ourselves and places a notice in the newspaper. Based upon the concerns and objections received, either the licence is denied, an

environmental impact assessment is required, or a licence with appropriate terms and conditions is issued. The Department of Environment has been sensitive to our concerns and included conditions such as: "the archaeological excavation of significant archaeological resources within the project area shall be completed prior to construction, to the satisfaction of the Historic Resources Branch". In one recent case, the Department of Environment issued a stop work order halting all construction activity until the archaeological excavations were completed to our satisfaction.

When large projects such as hydro-electric dams, transmission lines, and forest management plans are reviewed, the province established a technical advisory committee to oversee the preparation and implementation of the environmental impact assessment. Historic Resources Branch is represented on each of these TAC's to ensure that heritage resources are given full consideration.

All in all, the HRIA and the EIA processes in Manitoba are working well. The one major gap in the system at the present time is compliance with provisions of *The Heritage Resources Act* and *The Environment Act* by rural municipalities. The R.M.'s are just learning that many of their projects must receive an Environment Act Licence and they are not happy. Some want to try and circumvent the process. However, as long as the political will to maintain the principles of *The Environment Act* remains intact, the R.M.'s will be brought into line along with other developers. For our part, we plan to carry the HRIA message to the R.M.'s during the coming year.

Contract Archaeologists as Resource Managers

JAMES T. FINNIGAN

My name is Jim Finnigan. I will be addressing the role of the contract archaeologist as resource manager. Although we technically only make recommendations, our proximity to the resource places us in a position of making a management decisions. In making these decisions we are not guided by any specific policies, just our own feelings of what is "right" or best (which may or may not be based on a project-specific research design). Is this the best approach for managing a finite resource base?

Most archaeologists were trained in kind of "research-oriented" program and although we are all aware of various criteria for examining sites, we tend to focus on this aspect only. More specifically, we rate sites in terms of our own personal research interests--some people would, for totally perplexing reasons, assign a low value to stone circle sites.

On a small project to small project basis, this problem seems insignificant--so what if one small lithic scatter is written-off. However, I've been involved in two large reservoir projects and we just don't write-off one class of site, we write-off entire classes of sites. On reservoir projects, significant mitigation may only entail between 10 and 20% of all the sites in the reservoir.

Ignoring the resource is one aspect of the problem; sometimes we give it too much attention. Working to preserve a small campsite might not be as important as looking at some broader questions of site use in an area. As an example, we recently examined a number of wellsite areas at the edges of various sandhills. The selection of areas to be examined was, among other criteria, defined by the presence of native pasture. This is logical, a site on native pasture will not have been disturbed and will have a higher scientific value than a site in a cultivated field. The problem is that in these particular areas, what we really need is more information on settlement patterns. From this perspective, it would have made more sense to select developments located on cultivated fields and write-off the individually more significant sites on native pasture.

There are a number of different approaches that might result in a better match between resource managers/contract

archaeologists' interests and concerns. One approach is to develop standards such as they have in North Dakota for tipi ring sites. The problem with standards is that they are either too rigid, as I think North Dakota's tipi ring standards are, or they are so minimal that they might as well not exist.

I personally would like to see a more area/site type approach where, on an annual basis, we might get together and discuss what's important and what's not. This might be viewed as too confusing for developers since it would appear, and rightly so, that the archaeologists were constantly changing the rules to their own benefit. This is where standards could come in and all developments would be treated equally; just the data recovery approaches would vary.

There are three negative aspects to this approach. First, archaeologists are not the only consumers of the resource, and, as some native groups might argue, it is not even our resource base to begin with. While I don't share that latter point, in truth, as a discipline, we've been remarkably insensitive to native concerns. A second negative aspect is that, given our propensity to philosophize about the past, we would conceivably spend six months of every year arguing about what to do next. While I think a more directed approach would be very difficult to establish, I think it would not be as difficult to refocus and maintain. Finally, my viewpoint is entirely consumptive--what can we learn from the past where it will be argued that cultural resource management aims for conservation and preservation of the resource. I would argue that this approach doesn't preclude preservation, and conservation means nothing more than controlled consumption. This argument presumes that in an archaeological hierarchy information recovery may sometimes be more important than site preservation.

But what of proponent concerns? I would argue that while some proponents are solely interested in meeting their obligations under the Heritage Property Act, most, as long as it does not cost extra, are interested in seeing some meaningful contributions come out of their expenditures.

The Haines Site: A TCPL Case Study

ALAN R. GLASGOW

My name is Al Glasgow, Manager for Environmental Affairs with TransCanada Pipeline. TransCanada Pipeline has a major expansion program underway at the present time, involving approximately two billion dollars and about 1600 kilometres of pipeline spread from Quebec right through to the Alberta border. Archaeology is a major part of our evaluation, before we build the pipelines and in the process of route selection. Now, in doing this, we're governed by the National Energy Board, but at the same time we try to satisfy provincial legislation and regulations. So we work very closely with Carlos and his counterpart in Quebec, Ontario and elsewhere.

What I'd like to talk about is what happens when you find a major site along the pipeline route (especially if there's only three and a half months before they want to put the pipe in the ground). We went through the process of evaluating the routes (i.e. reconnaissance survey) and we knew that we had 16 fairly important sites, but we didn't realize the extent or the size of one particular site called Haines Site. In doing this reconnaissance survey, we retained the services of Mayer, Poulton & Associates of London, Ontario.

The Haines Site is located in southern Ontario, just northwest of Hamilton. It's located along a project we call the Kirkwall Project, a small pipeline about 30 kilometres in length involving about 30 inch diameter pipe. Overall, the project costs about \$30 million. But, along these 30 kilometres we find these 16 major sites. On the one site, the Haines Site, it ended up that we had to do a major excavation. I guess I could go into some detail about the site itself, but just to give you some idea about its size, according to the archaeologists on the project, it's one of the largest ever found in Canada. In excavating the site, about 19,000 person-hours of labour were involved, and all in three and half months (so there were a lot people involved).

The Haines Site is a Neutral Indian village site dating back to about the mid-1500's and predating European contact by some 100 years. However, some European artifacts were found in the site. It's suspected that these were either brought up through the trade routes, through the Mississippi or the St. Lawrence River. When we found some of these artifacts the phonelines between archaeologists, I understand, got pretty

heated and there was lots of discussion. We were wondering if we were ever going to get this place excavated. The site itself is about two hectares in area and had a population of about one thousand people at the time (a fairly major site).

The excavation occurred only within our right-of-way, the area we're actually going to use, which was 27 metres wide by about 210 metres in length. Roughly about .57 hectares in total were excavated. The dig ran continuously from March 18 to about the end of June (for three and a half months). Regarding discoveries at this site, about ten long houses were identified as well as two intact garbage dumps which later proved to be very important.

After ordering all the pipe, and while waiting to get the pipe in the ground, the archaeologists said "well the worst thing that can happen now is you'll find burials"; well we did. Three grave pits situated within the longhouses were found, involving six individuals. So we then had to go through a long period of negotiation with the local Six Nations Indian community, which involved the Cemetery Branch of the Ontario Government, as well as the Heritage Resources Branch. The point I make about this is that the contract archaeologist was intimately involved in this whole process of negotiation, and, in fact, without him we probably wouldn't have got it done. He became the central focus, if you wish, from our particular point of view, to get all of this expedited so that we could get the pipe in the ground.

In total, about several hundred thousand artifacts were recovered from the site; well over 10,000 have been catalogued to date. So the project isn't finished. Although the pipe is now in the ground, were still cataloguing artifacts.

There are a couple of key points I'd like to talk about--one is the cost. I'm not going to tell you exactly what the project cost, but it was a lot of money. And, in fact, I think contract archaeology is a growth industry right now. There are two factors here. One, from our point of view, we're going to be looking for much more rigorous project management when it comes to large projects like this (e.g. cost control; effective and efficient management of people and staff). From a contractor's point of view, if you come across a site like this, you had better make arrangements with your client to get your billings in on a weekly basis, because your cash flow will go crazy, especially after 19,000 hours of labour in three and a half months. So for small firms, you could find yourself in a real problem.

I think the timing (we had three and a half months to do the excavation) was totally unrealistic. It's unrealistic to the

consultants, and unrealistic for government agencies doing the reviews. But, in both cases, they bent over backwards to make sure that the whole program was expedited, so I have to take my hat off to the people in the Ontario government that helped us get this through the process. What it came down to is that the contract archaeologist served as the communicator between ourselves and the Six Nations and the Ontario government--a very important role.

Regarding the burials, they were still in the ground while we were laying the pipe. We had to avoid the site where the burials were located until they could be disinterred. Be prepared for the unexpected. We almost had a D-9 drive right over the site, so we had to put small fencing around it, things like that. With all the people on-site there is a big problem in trying to keep control and to protect the site. So there's also the inspection side in which the contract archaeologist gets involved, and that's very important.

Another factor is the season of the year. We were fortunate. We obtained approval for the project in March which was just about the right time for the ground in Ontario, because it was a mild winter and we were able to get the excavation going. The season of the year becomes very important, as Jim Ireland had mentioned. When you get into winter construction it's a whole different area.

Another thing that you have to deal with is the public. All of a sudden we've got this major site. The papers find out about it, and its big headlines. The press shows up, the public shows up, and people wanting to collect their own artifacts show up. So you need policing and that can become an issue (i.e. making sure the site is protected). Contract archaeologists, on behalf of their clients, will also have to deal with the press.

I guess what concerns me the most though, having gone through all of this (and, as I say, the final report is not completed, and I suspect it's going to be about a ten-pounder), is what is going to happen with the artifacts. We have all these artifacts; we have enough boxes to fill this room. We're not going to pay for their storage. Government doesn't seem to have any policies for what's going to happen to these artifacts. Right now they're sitting in our contractor's storage room collecting dust, at least the ones that have been catalogued. We're still cataloguing as I say, and probably will be until next Spring. We are going to use some of the artifacts to put together an education program for local communities; but that still leaves over 250,000 artifacts.

Those are some key points I'd like to make, and would be pleased to talk about them later.

Coal Industry Perspectives on Archaeological Resource Assessment

BERND MARTENS

Hello, I'm Bernd Martens of Prairie Coal Ltd. in Saskatchewan. We operate three mines in Saskatchewan. These mines produce coal which is used to generate electricity. We're a stakeholder essentially in the heritage resource impact assessment and mitigation (hria/m) process. We've gone through a number of hria/m projects in Saskatchewan and Alberta in support of new coal development. I'm going to offer a series of views and perspectives which probably reflect the range of views within our company and possibly within the industry. Some of them are perceptions of problems with the process, although not insurmountable problems, and I'll follow-up with some proposals which reflect my personal views that might be considered to mitigate some of the perceived problems with the hria/m process.

Commitment

I believe it's fair to say that the coal industry appreciates that the archaeological resource base is dwindling and worthy of investigation and preservation. In popular terms, we've bought into the hria/m process and consideration of heritage resources is part of our long term planning and budgeting for new project development. For perspective, coal mining has the potential to disturb heritage resources on a scale of something up to 100 plus hectares per year for a typical mine. We are a regulated industry and we go through a very comprehensive approval process.

Perceptions

Notwithstanding Section 63 of The Heritage Property Act, we see little evidence of requirements for hria/m being applied with equanimity, as was touched on before. We have the perception that agricultural operations in particular, which affect a larger portion of the land base in Saskatchewan than does the mining industry, are exempt from hria/m. Our concern is that the responsibilities for archaeological inventory and preservation are being borne disproportionately by certain industries such as coal mining.

Another perception regarding the practice of archaeology is

that we consistently see significant differences between consultant tender documents in estimating the level of effort required to undertake hria/m for any specific project to meet Heritage Branch study terms of reference. We find the variance in cost estimation within the archaeological profession to be significantly greater at present than for the engineering or biological professions. This presents problems for budgeting since we find little apparent predictive basis for hrim planning.

Costs

Again, we need some perspective here. For our recent mine relocation project at Poplar River, the costs for hria/m exceeded the total for all other environmental studies, and there is some uncertainty in our industry whether or not these relative costs for environmental and archaeological studies reflect the values of society.

Benefits

The benefits provided by expenditures for hria/m studies, unlike other environmental studies, are difficult to identify. We find there is a public constituency that actively promotes consideration of environmental values such as soils, wildlife and fisheries as a condition of approval for coal development. Such a constituency seems to be lacking for archaeological interests. As a follow-up to that, we receive little feedback on the value of our expenditures, and throughout we don't see how the findings from studies sponsored by the industry fit into the broader picture of our archaeological heritage. In this sense, the requirements for hria/m have potentially become a burden for mining companies.

Research

A key element of our mitigation program at Poplar River, as set out by Heritage Branch, was the requirement to develop a problem-oriented research plan. Essentially, we disagree with that requirement. We view the objective of heritage resource impact mitigation work as being to retrieve and compile a reasonable number of representative samples and arrange for their preservation so that other archaeologists can use them to suit their research needs. Further research would be funded as indicated by the public interest. To close that discussion, the fine line in meaning between research and interpretation appears to be difficult for the industry to appreciate or comprehend.

A Proposal

To conclude, I would like to offer a proposal. I don't think it is anything new. It certainly presents my personal view. The present system risks the expenditure of considerable sums of money on hria/m for what could turn out to be archaeologically marginal areas. Carlos, that doesn't include Poplar River. To offset these expenditures, I suggest that the Heritage Branch levy a charge on all new land surface developments based on acreage affected (similar to reclamation security funds as applied in many jurisdictions here in Canada). This levy would contribute to a provincial heritage investment fund to sustain archaeological activity over good and bad economic times, and the Heritage Branch or the archaeological profession would decide on which areas the funds are best spent. These funds could be allocated to priority areas within the province for which research funds could otherwise be lacking, or areas adjacent to a proposed surface development for archaeological excavation. Salvage would be more orderly or long-term as results warranted. Archaeological research in such areas would not be constrained by mining schedules, or vice versa. The benefits of such a levy, as I see it, would be that costs of hria/m programs would be clearly identifiable and predictable from the point of view of the industry. Potentially, such a system would be equitable for all types of land surface disturbance activities. The allocation of funds would reflect professional judgement and public interest, and the proposed levy would be legislatively easy to establish.

Thank you.

Forest Industry Perspectives on Archaeological Impact Assessment

DON PAWSON

Good Afternoon. I have to agree with Mr. Stedwill's comments when he said those of you who are directly involved in archaeology are truly part of a growth industry. In preparing for this forum, I performed some simple calculations. The calculations were based on complying with the current minimum guidelines required in conducting a Heritage Resource Impact Assessment (HRIA) for the areas which we currently have under (timber harvest) permit. The calculations also assumed that it would take only ten minutes to dig a 40 x 40 x 40 centimetre test hole, do the necessary sieving and move on to the next test location. Even with these conservative estimations the volume of work necessary to sample the 3,500 hectares that require HRIA would take 460 (eight-hour) person days. It should be noted that this does not count travel time between sites which are often remote, the difficulties of keeping on a grid in the bush, and getting lost. This is similar to an oil company putting in 3,500 kilometres of pipeline annually or a power utility developing 600 kilometres of main transmission line every year.

To give you a bit better insight into Weyerhaeuser's operations, I have a few slides. We are the major forest products firm in Saskatchewan and operate in the eco-region known as the boreal forest (Figure 1). Weyerhaeuser signed an agreement with the province of Saskatchewan in 1986 which provides us with timber rights for a tract of Crown land north of Prince Albert. This Forest Management Agreement covers three separate land entitlements (Figure 2): a core area and two reserve timber supply areas. The total extent of the lease is approximately 5 million hectares and is made up of about half productive forested land and about half muskeg or water (Figure 3). Each year we submit for approval to the provincial government between 30 and 40 operating areas (Figure 4).

We at Weyerhaeuser are novices in the field of heritage resources and archaeology. In the past year we contracted out our first assessment on a 66 kilometre road right-of-way. The results of this work showed little in the way of artifacts. The company and its predecessors have operated in the province for 23 years. During this time some 1,300 kilometres of main all weather road have been constructed, as well as another 3

some 277,000 hectares have been harvested. To this point we have not uncovered any heritage sites (this is probably better stated as having not noticed any), or been asked to avoid any sites, or been notified that we had disturbed any sites. As Mr. Amundson illuded to in his talk, encampments may not be nearly as common in the forest as they are on the plains, and they are definitely not as easy to find. These facts make carrying out assessments following the current heritage impact guidelines a non-productive process and may be flawed. Flawed in the sense that HRIA's are being required in areas based on plains dwelling lifestyles which may or may not relate to similar historic period forest dwellers.

I believe that I can speak for most of the forestry companies working in the boreal forest and say that they view the current process in a very sceptical light. Forestry operations need to do assessments based on more defined criteria. Within 500 metres of any lake exceeding 5 kilometres in length, within 500 metres of streams, or on and adjacent to prominent uplands are not perceived as reasonable criteria to begin a study. As "area-based developers", our operations should be assessed using criteria derived from some form of sensitivity analysis (or predictive modelling) based on prehistoric forest dwelling societies.

I guess much of my talk has been leading up to a challenge to those of you who are currently involved or are working towards becoming involved in this "growth field". Your challenge is to do the great deal of research that is needed to define where and how pre-contact inhabitants of the Canadian boreal forest lived.

Thank you.

The Boreal Forest

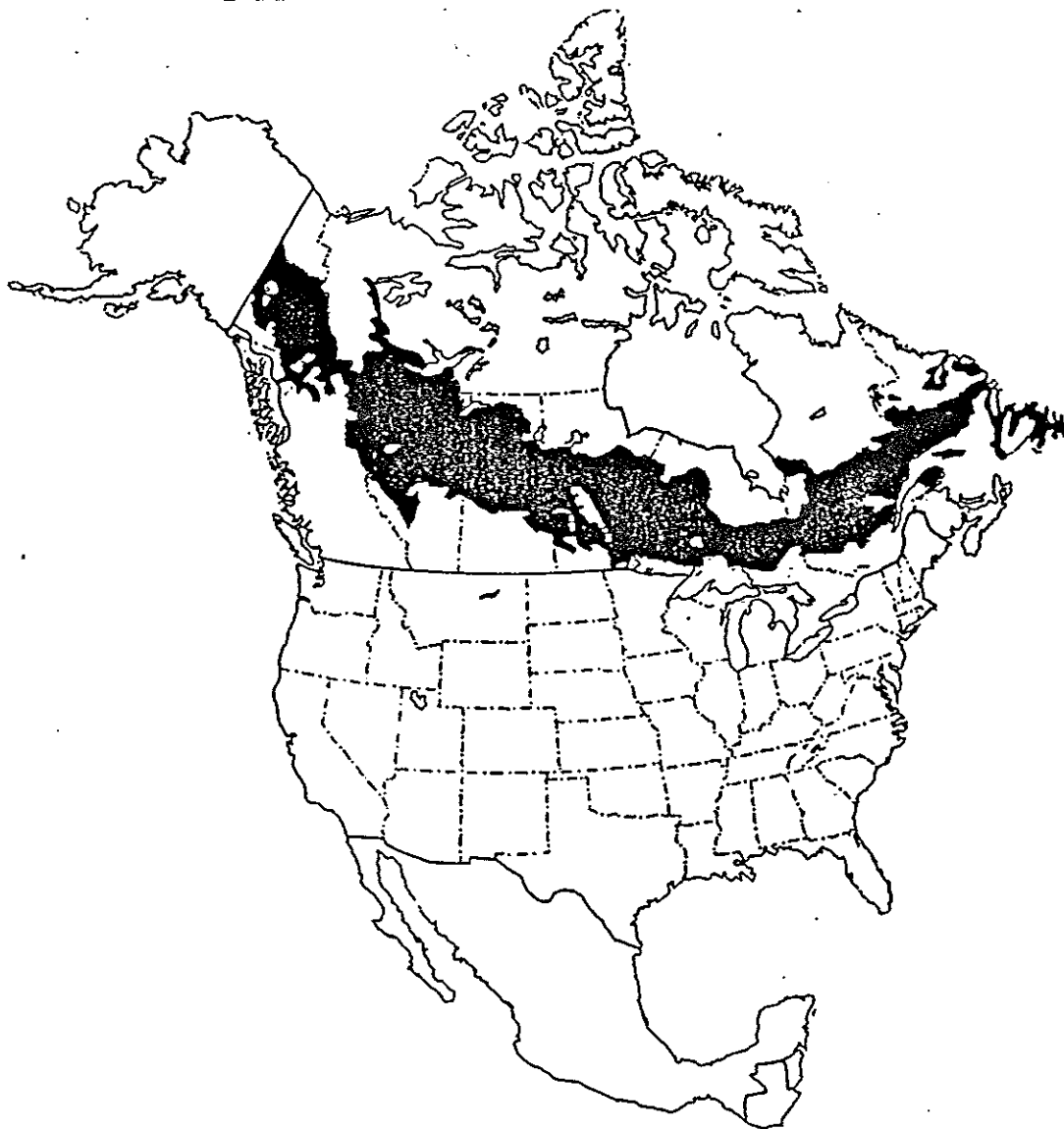


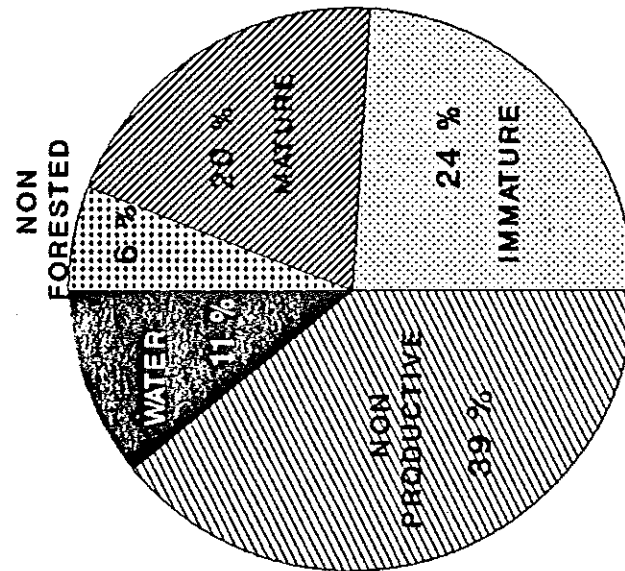
Figure 1

The map illustrates the Schedule A FMLA Area, which includes two Reserve Timber Supply Areas and a Core FMLA Area. Key features include:

- Reserve Timber Supply Area 1**: Located in the northwest, containing Lac He-a-la-Croix, Pinhouse Lake, Bernard Lake, and Churchill Lake.
- Reserve Timber Supply Area 2**: Located in the northeast, containing Deschambault Lake, Wapawette Lake, Big Sandy Lake, and Nipawin Prov Park.
- Core FMLA Area**: The central area, containing Montreal Lake, Condie Lake, Prince Albert National Park, and several smaller lakes like Lac Le Ronge, Lac La Poudre, David Lake, Smethway Lake, Cooley Lake, and Canoe Lake.
- River**: A river flows through the northern part of the area.
- Lakes**: Numerous lakes are labeled, including Cumberland Lake, Tobin Lake, and Churchill Lake.

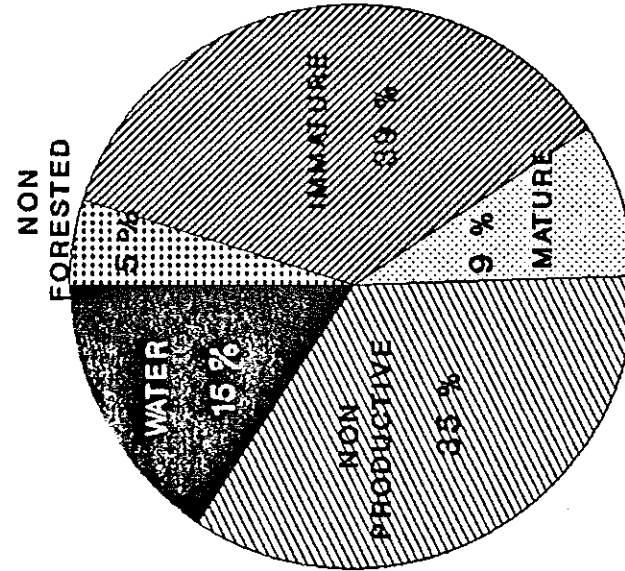
40

FMLA LAND BASE



CORE AREA

3,417,376 ha.



RESERVE AREAS

1,619,480 ha.

Figure 3

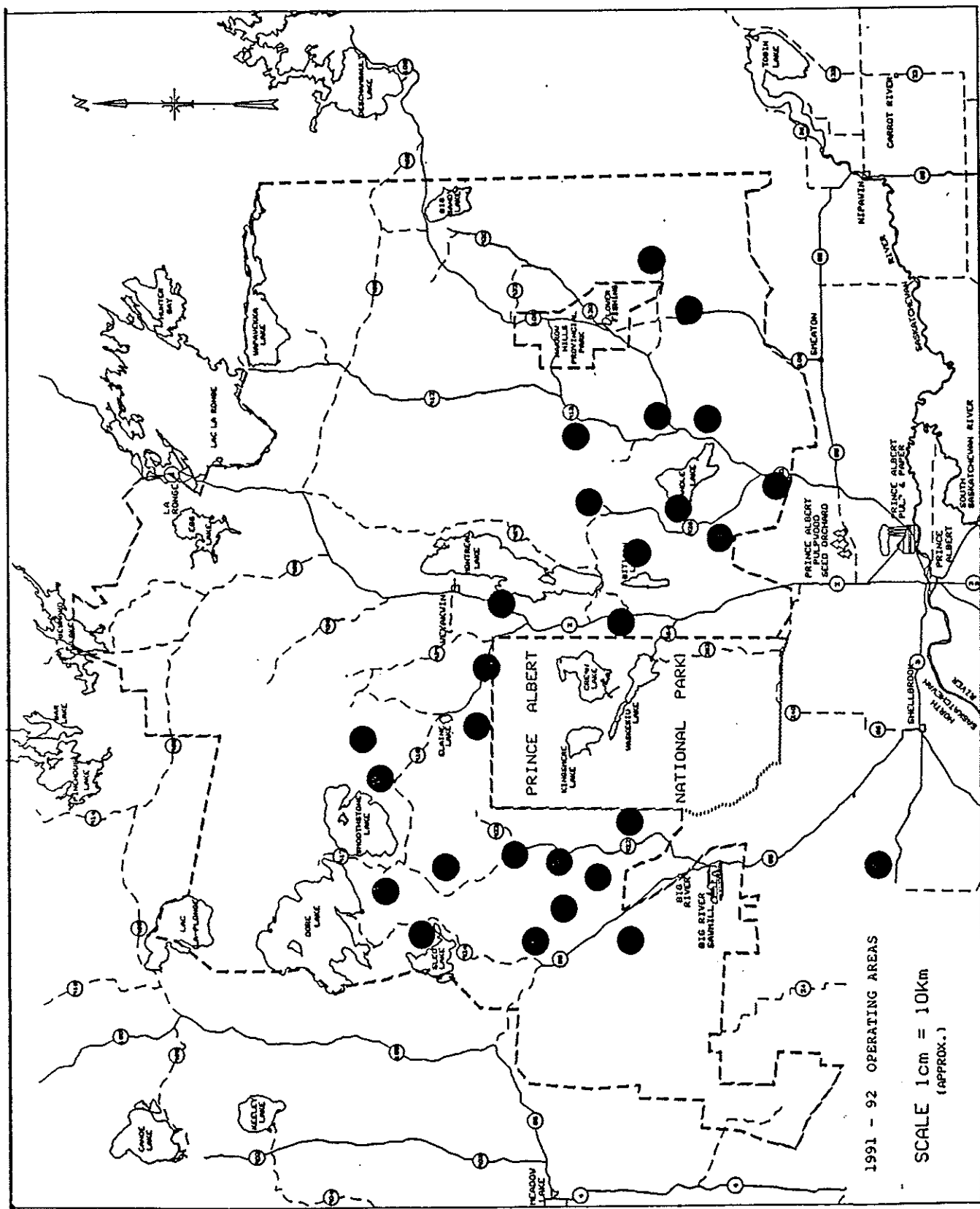


Figure 4

*Cultural Resource Management and the View
From the Ivory Tower*

BEVERLY A. NICHOLSON

The viewpoint which I am about to present is that of a research-oriented academic in a tenured position at a university. I have conducted cultural resource management (CRM) assessments so that I have some understanding of the exigencies of tendering for contracts and the problems of fulfilling the contract mandate while remaining within budget and not compromising my integrity as a professional archaeologist. My approach will be to propose four questions and answer them by submitting principles and guidelines which I believe have merit.

What is the purpose and justification for CRM? Why do it?

Let me begin with a working definition of an archaeological site: an archaeological site is a repository of cultural information in an environmental context. The key element in this statement is the recognition of the importance of sites as an archive of cultural information. Each site contains a unique, patterned deposit of material remains reflecting the activities and practices of human beings, as they interacted with each other and with their surrounding physical and biological environment. Viewed from this perspective, archaeological sites, while constantly being created, are a non-renewable resource since each site is a unique record of a segment of human experience.

Of course, not all sites are of equal importance since some activities are repeated over and over in the lifetimes of individuals and may remain relatively constant over the duration of a society.

A point which must be emphasized is that sites are fragile - they are easily destroyed by taphonomic agencies such as delayed burial, post occupational scavenging, erosion, weathering, chemical alteration, bioturbation (e.g. tree roots, rodent burrows), cultural activity (e.g. prehistoric digging, land clearing), etc. Even under ideal conditions of recovery (careful excavation by trained professionals) archaeological sites are thoroughly destroyed. Aside from the bags of artifacts or other field samples, the only product of the excavation is information. We probably have all the artifacts we need but we are woefully short of usable

information recovered through excavation.

I submit to you that the only justification for CRM projects is the protection and recovery of information which is in danger of being lost forever. I further submit that all CRM work revolves around two acceptable possibilities:

- identification of sites in danger of destructive impact from cultural or natural agencies and recovery of the information through mitigation prior to destruction;
- identification of sites which might be impacted and site protection from destructive impact by appropriate conservation procedures.

Are safeguards necessary?

Since heritage resources are unique, and non-renewable, it is essential that they be protected and, if and when, it is deemed necessary to harvest them, they must be collected with the greatest care possible under the given circumstances.

While many proponents have a genuine interest in the preservation and/or mitigation of heritage resources, seldom does the CRM aspect of a project directly enhance the development which is the proponent's primary concern. In short, there is rarely a monetary incentive inherent in CRM work for the proponent.

Usually, CRM is initiated to satisfy legislated guidelines and to address the concerns of outside interest groups who may be quite uninterested in a successful and economical achievement of the primary goals of the proponent. Because this is one of the realities faced by proponents and CRM consultants, it is not acceptable that any incentive favouring sloppy or (God forbid) dishonest work be permitted to exist within guidelines regulating CRM survey/mitigation design development or field recovery. It must be made abundantly clear to all involved in CRM, from government bureaucracies, through private sector proponents, to professional CRM consultants, that obfuscation or suppression of data is a reprehensible breach of professional ethics and public trust, and that superficial fulfilment of CRM contract requirements will be grounds for suspension of permit/license privileges.

What are the Safeguards and Responsibilities?

A basic component of responsible CRM is the standard of ethics of the professional consultants. Every jurisdiction should have a professional association to which CRM consultants must

belong in order to practice, and the association, in consultation with other interested parties, should develop a clear, well thought out code of ethics to which its members subscribe. This code of ethics should be a widely circulated document and become an integral part of all thinking related to the formulation and implementation of CRM projects. Consultants must be trained professionals who satisfy standards in the industry and meet professional standards of their discipline.

An important safeguard inherent in CRM policy development is the legitimate desire of the proponent for useful promotional data resulting from survey/mitigation. A public demonstration of respect and concern for heritage resources through published work or displays (travelling or on-site) can be a useful means of promoting goodwill for development projects. By reason of the public ownership of heritage resources, the proponent is morally obligated not to impede, beyond a reasonable period of time (perhaps two to three years), the release of CRM project data.

Public opinion can also play a role in drawing attention to the potential impact of land development or natural agencies upon selected heritage resource sites. Unfortunately, such grassroots concern is often subverted to serve private agendas (sometimes political, sometimes commercial) which have little to do with any real anxiety about the heritage resources to be impacted. While heritage sites must be either conserved or effectively mitigated on behalf of the public, taxpayers, in their own interest, must recognize that this is a costly undertaking, not only for the developer, but also for themselves. Ultimately, the public pays for CRM through taxation or increased product costs. The public has every right to insist that their interests and rights to information are met at appropriate stages in the CRM process.

The most important safeguard in the implementation of CRM is the presence of government watch dog bureaucracies. The government, as the elected agent of the people, has a right to demand that CRM be conducted within a reasonable set of guidelines implemented by a bureaucracy which has the power to require that CRM studies be initiated and the added power to initiate sanctions against proponents who do not comply. These bureaucracies also usually evaluate CRM contracts before granting permits to consultants for survey or mitigation and have the power to regulate the consultants through the granting of permits and the assessment of any reports which are submitted under the terms of CRM contracts.

Most provinces do have CRM legislation which provides some level of protection for heritage resources. Unfortunately,

implementation is often inconsistent and frequently there is a lack of will to publicize and enforce their respective acts of legislation. Similarly, the bureaucracies are often constituted in such a way as to be directly responsible to politicians, so that there may be frequent and inconsistent manipulation of day-to-day policy for short term political ends.

Since some results may be politically sensitive (that is, readily made a part of hostile political agendas) a time lag in general publication of up to three years may be justifiable in some cases. However, any such lag is justifiable only when there is public confidence that the monitoring agencies are free to exercise their trust mandate independently of short-term political agendas. The government, while respecting the proprietary rights of the proponent, has a moral obligation to make the results of CRM projects available to the public and the research community within a reasonable length of time.

The archaeological research community has an interest in all heritage resources and has a moral obligation to remain informed concerning CRM developments and practices. Since university tenure conveys some protection for the expression of politically unpopular viewpoints, academics must be prepared to take a lead in fighting for responsible CRM legislation. It may mean that they won't get CRM contracts, in some cases, but at least they will still have their 'day job'.

While consuming significant amounts of money, archaeological research is chronically under funded. Data collection is expensive and where a question can be addressed through CRM data, researchers have a moral obligation to utilize that data rather than reinvent the wheel using either public or private funds. This does not preclude fitting the wheel with pneumatic tires or improved bearings through related problem-oriented research.

Who owns the data?

In the first instance, the proponent, by right of funding the work, has a clear and incontrovertible right of access to all results of CRM assessments. The rights of the CRM contractor who has been paid to conduct the work are less certain although it is my personal belief that after a reasonable period (perhaps two years) contractors, if they wish, should be free to publish results which are, in spirit, consistent with assessments made in the reports submitted to the proponent.

Government monitoring agencies, by virtue of their public

trust function, and their mandate to oversee CRM contracts and to grant heritage investigation permits, have an unequivocal right and responsibility to receive and retain copies of all reports and documentation, and to ensure a safe storage location for all materials recovered. Similarly, monitoring agencies must have priority access to initial reports and all subsequent findings in order to determine whether further mitigation/conservation is required under their mandate.

While recognizing priority rights of proponents and monitoring agencies, it is essential that, within a reasonable time period (two to three years) the results, reports, and data, should be made readily accessible to professionals engaged in heritage research. Since the primary justification for CRM projects, and the net result of CRM studies, is the recovery of information (which is the common heritage of all citizens), it is imperative morally, as well as from a common sense viewpoint, that the information be shared with those who can most effectively utilize it as a resource in its own right--that is, the research community. Ideally, this information should be released through a report and monograph series edited by the monitoring agency and funded in a manner not subject to whims of government budgetary discretion.

The general public, whether through taxation or increased product cost, ultimately funds all CRM work and therefore has a clear-cut right to the information recovered through CRM studies. This information would be most effectively released through well illustrated and popularly written non-technical reports. The production of such reports should be funded as a part of all CRM contracts. Possibly, the proponent would wish to use these reports as a part of their promotion and advertising programs. Whoever may ultimately write these reports, they should be released under general editorship of the monitoring agency to ensure technical accuracy and to protect the public interest and ensure the right to information.

Summation

Heritage resources are in the public domain and every citizen has an interest and a right to benefit collectively from them. Individuals, or segments of the society, may wish to initiate projects which threaten these resources. These proponents have a moral and legal obligation to ensure the responsible mitigation of heritage resources or to provide for their protection. In a democratic society these resources are held in trust by the elected representatives. Legislative provisions must be made and effective implementation procedures devised to ensure that heritage resources are not

wantonly destroyed but conserved for future evaluation, or where preservation is not feasible, effectively excavated and recorded under the direct supervision of qualified professionals.

Professional CRM consultants provide services which benefit both the proponents and the citizenry at large and have a moral obligation to fulfil their mandate in a professionally responsible manner.

Since heritage resources are the common birthright of all citizens, information recovered through CRM studies must be disseminated in appropriate formats to both the scholarly community and the general public. The tax paying public must be prepared to accept the costs and to insist upon receiving value for their money.

*The Role of the Professional Organization
in Contract Archaeology*

TERRANCE H. GIBSON

*Comments on the Archaeological Resource Impact Assessment
and Development Review Process in Alberta*

MARTIN MAGNE

Greetings from the Archaeological Survey of Alberta.

This meeting is coincidental with a reorganization in the structure of our agency, which brings with it a need to consider means of creating more efficient screening mechanisms for development proposal reviews. These are necessary due to the fact that the Resource Management Section staff (now reporting to the Historic Sites Service Branch of the Historical Resources Division) has been effectively halved. Two people now face the task of handling some 5000 referrals a year.

As Carlos mentioned, each province has a different degree of "completeness" in the receipt and review of development proposals. Alberta's referral system has for some time been quite complete, lacking principally in the forest management area. So at the same time that we will be looking to reduce our referral load, we will need to continue to try and add to our list development agencies that have so far escaped it, particularly those with large-scale impact implications.

One of the areas that concerns me the most is establishing heritage resource impact assessment/mitigation procedures for areas where our inventory knowledge, and thus our predictive abilities, are quite basic and limited. In northern forested areas in particular I believe it is essential that we engage in a period of post-construction impact assessments, yet still remain under the provisions of existing legislation and continue to apply mitigation or compensation strategies even after impacts have occurred. This will be a necessary step to familiarizing the forest industry with our full suite of procedures. Milt Wright will provide a perspective on these issues during tomorrow's conference proceedings.

We need to refine our predictive abilities a great deal and GIS technology can assist us all in this regard. However, I know from recent experience that a lot of the GIS bells and whistles are irrelevant to our purposes, that we can spend an awful lot of time and manpower applying technology which can be overwhelming, but of little use. It is always tempting to go "high end" when we have the opportunity, but often we neglect the simple solutions.

In addition, I think we need to be prepared for failure with respect to predictive modelling. We could very well learn that the best predictors of site location are the knowledge and experience that professional archaeologists carry in their heads.

Other than those quite particular topics, I perceive several main issues which need to be resolved in archaeological resource management in Canada:

1. What is adequate assessment or mitigation? An old problem which might never leave us.
2. Why has Canada not developed university-based CRM programs with an archaeological focus, when resource management for other fields is very popular?
3. Will the federal government finally emplace archaeological protection legislation and procedures?
4. What will be the role of Native communities, particularly in areas where they are the population majority? Will Natives have input to archaeology in this country?

While, strictly speaking, it has become less of my concern on the job as to how these issues might be resolved, I look forward to exchanging ideas with those of you here so that, as a group of concerned managers, we might develop fair and consistent strategies.

Let me tell you that our experience in Alberta may have taught us that doing a good job can have negative consequences as well as doing a bad job. I wonder how different things would be if we had been less efficient, if we had made more enemies than friends in industry, or if we had screwed-up more seriously and more often, and therefore more noticeable, particularly if the public had been aware. In all honesty, it would be highly unethical to deliberately mismanage the resource so as to attract attention. We obviously need to do the best we can with the fiscal and personnel resources at hand to devise solutions to our resource management problems, and I firmly believe that we can find solutions that will satisfy nearly everyone.

Thank you for your time.

ISSUE FOCUS AND DISCUSSION

Development Referral Screening/Sieving

- All discussants agree that land use or development projects which adversely affect archaeological resources should be screened, and furthermore, that the field on which the archaeological resource impact assessment/mitigation (aria/m) process is administered should be level. However, some industry representatives feel that the current process is not administered equally as some developments are routinely screened and assessed for archaeological concerns while others appear to be exempt. A situation in which all land developments have the same chance of being screened for heritage concerns is not likely to be achieved under current conditions without substantially re-thinking or re-structuring the development review process. At the very least, however, similar development projects in the same general area should receive the same level of screening and regulatory treatment.
- The coal mining industry feels it has a heavier regulatory burden under provincial heritage legislation than, for example, the oil and gas industry. While this was generally recognized, most felt the difference reflected the difference in the scope of impact between large area developments and small area and linear projects. Large area developments (e.g. mines, reservoirs, subdivisions, etc.) are more likely to intercept archaeological sites than power lines or roads and, therefore, subject to more impact assessment or mitigation responsibility. As well, most area developments, particularly mines, are confined to specific locations and cannot normally avoid heritage concerns through relocation (as is routinely done for linear developments).
- Agricultural land development, which impacts the resource over a far greater area than mining (although not always as severely), appears to be entirely exempt from the aria and development review process. Although essentially correct for private agricultural land development throughout the prairie provinces, the disposition of Crown lands for agricultural sale or development is reviewed in Saskatchewan.
- Generally speaking, criteria used by regulatory agencies to determine both the need for and level of aria/m study should be made more explicit. Development proponents, in particular, wish to be better informed in this regard.

Setting ARIA/M Scopes-of-Work

- Industry and most archaeologists agree that standardized aria/m scopes-of-work (i.e. study terms of reference) would be useful, particularly as a means of levelling the "playing field" for competitive bidding purposes. However, archaeologists also recommend flexibility, even for standardized scopes-of-work, since investigation plans often require modification in the field due to unforeseen circumstances.
- Industry generally agrees it is responsible for redressing adverse impacts (including indirect or secondary impacts) on archaeological resources which result from its land development actions. However, not all industry agrees that aria/m work must always be confined to the immediate area of impact. It was suggested, for example, that some archaeological work outside a linear development right-of-way may be appropriate in certain cases. Archaeologists generally agree that in order to effectively sample (for assessment, mitigation or other purpose) that portion of a site affected by development, it is necessary to have a reasonable understanding of the entire site area. Whether these cost should be borne solely by the proponent is debateable.
- Some industry representatives feel a responsibility for basic data recovery or salvage only and should not be required to sponsor "research". In other words, although research is appropriate for academic and government archaeologists, using public funds, it should not be a developer's responsibility. Archaeologists argue that "research" is an essential component of mitigatory data recovery programs. A research design or strategy is commonly employed in larger mitigation studies to focus or give direction to the investigation. Usually this is accomplished by specifying hypotheses or problems which the affected sites can help resolve. The collection of a great deal of data that are not relevant to any particular problem might amount to a waste of time and money. Some archaeologists (although not all) argue that mitigation studies which employ the hypothetico-deductive method of scientific inquiry are an appropriate use of the resource and are generally more cost-effective. Furthermore, without some analysis and interpretation of data, the scientific, humanistic and other values of salvaged archaeological sites might never be realized.
- Contract archaeologists generally feel that guidelines respecting the conduct of aria/m studies are needed.

Standard field investigation procedures for "tipi ring" sites would be especially helpful.

- To offset the high costs of conducting industry-sponsored aria/m studies, the notion of levying a charge on major surface land developers (e.g. open pit mining, forestry, etc.) was discussed. The levy would be based on acreage affected (similar to land reclamation security deposit) and would contribute to a provincial archaeological research fund. The fund would enable unconstrained archaeological research to be carried out and sustained in priority areas (as defined by the professional judgement and public interest). The oil and gas industry expressed some difficulty with such a levy, questioning the need for yet another charge (in addition to royalty fees, etc.) when the current aria/m process is working reasonably well. The difficulty of ear-marking funds for specific purposes was also raised.

Archaeological Resource Sensitivity Mapping/Predictive Modelling

- Both industry representatives and archaeologists cautiously support the idea of developing regional predictive models to identify archaeologically sensitive areas. Studies that predict the density, distribution, and variability of sites in any specific area would assist industry in land use and development planning, and would facilitate establishing aria/m scopes-of-work. Archaeologists caution, however, that given the current level of archaeological knowledge in certain regions (especially northern Saskatchewan), only the most generalized predictive models are possible. Nevertheless, predictive modelling studies should be pursued.

Aria/m Project Management and Public Relations

- Some industry representatives recommend archaeologists sharpen their project management skills, especially in the area of budget estimation and control, invoicing, public relations, communications, site area monitoring and policing, and long term collections management. Industry generally perceives contract archaeology to be a "growth industry" and, as such, business skills will

have to equal academic skills.

- Some industry representatives suggest government could play a more effective role in facilitating communication between contract archaeologists and development proponents and construction contractors. Most also agree that construction contractors need to be better informed of development-related aria/m programs, particularly where site avoidance measures are approved. Government archaeologists generally contend that communications of this sort are more appropriately a proponent's responsibility.
- Some industry representatives have experienced significant variation in cost estimates from contract archaeologists bidding on the same project. This variation is substantially greater than in the environmental studies sector. It is not clear, however, whether this variation may be attributed to poor business or project management skills, insufficient or ambiguous aria/m study terms of reference, and/or the lack of any standardized fee schedule.
- Some industry representatives recommend contract archaeologists accentuate the public relations aspects of their work. They feel this would have positive effects for both archaeology and the development industry. Other representatives, however, raised concerns with the costs of funding public archaeology programs in the context of aria/m projects. Contract archaeologists suggested that project proposals could specify the costs for both basic study programming and public relations programming.
- Some industry representatives question whether the results of development-funded aria/m studies are contributing to improved public understanding and awareness. Typically, aria/m reports are prepared in an academic fashion to fulfil research or resource management requirements and to facilitate future research. As such, they are rarely suitable for direct consumption by the lay public. Additional funding is generally needed to prepare "popular style" reports. There is no doubt that aria/m studies contribute to the general body of scientific knowledge concerning the past.

GENERAL RECOMMENDATIONS

The following general recommendations are based on discussants' opening remarks and comments made during roundtable discussion. They are presented here in no particular order of priority, and may not necessarily represent the views of all workshop participants.

- Every effort should be made to ensure that criteria used to determine the need for and scope of aria/m study are explicit, rational, accurate and applied evenly and consistently across the development community. Certain industries should not assume a disproportionate responsibility for archaeological resource preservation. Land developments variously identified as not receiving comparable aria/m screening include: forest harvesting, agricultural land development, rural municipal development, ploughed-in communications cabling, and small-scale oil and gas developments on 'non-environmentally sensitive' lands.
- Development screening criteria not only need to be refined, but should be based, wherever possible, on competent archaeological resource sensitivity analysis (or predictive modelling).
- Because archaeologists' understanding of the density and distribution of sites in northern forested regions is currently very basic, survey and impact assessment studies should, for a period, be conducted following initial development area clearing or construction. This would provide the needed exposure to locate sites. The resultant destruction or loss of sites, however, should be compensated through post-impact research, including work performed outside the immediate impact area if needed.
- Greater emphasis should be placed on random sampling techniques for examining linear developments in northern forested regions.
- Regional master plans should be developed as a means of guiding or directing preservation decisions and research priorities.
- Comprehensive guidelines for aria/m studies should be developed or refined in consultation with industry to help standardize assessment, data recovery and other investigation methods. Guidelines might also be developed for specific types of land development (e.g. linear developments) and specific site types (e.g. "tipi

ring" standards).

- The academic community should direct greater research attention to archaeological resource management method and theory, and play a stronger role in developing resource management policy and legislation. Formal, university-based archaeological resource management programs need to be established.
- The contract archaeology profession must seriously examine ways and means of reducing the costs of aria/m studies. More rigorous project management, including cost control, human resource management and media/public relations, is recommended.
- Industry does not consider itself responsible for the long-term curation of recovered archaeological objects and records. Provincial governments should develop comprehensive policies in this regard, and must immediately address current storage limitations.
- Significant findings which result from aria/m studies should be more widely disseminated both to the academic and consulting community and the general public. Non-technical, "popular style" reports for public consumption should be funded as part of all aria/m investigations or through cost-sharing arrangements with government and the archaeological profession.
- Regular communications between industry, government and the professional archaeological community are needed to review and monitor aria/m practise, respond to issues as they arise, and to better understand each player's respective role and responsibility in the regulatory process. While participants agreed this Workshop was a useful and constructive beginning, the dialogue should be continued. Regular industry-specific meetings or workshops (e.g. on forestry, mining, etc.) should be organized to address the sorts of issues and problems listed in Appendix II.

Appendix I: Workshop Agenda

PERSPECTIVES ON CONTRACT ARCHAEOLOGY

**Friday, January 25, 1991
University of Saskatchewan
Rm 245 Commerce**

**Coordinators:
C. Germann
L. Amundson**

WORKSHOP AGENDA

1:30 - 1:40 Introduction and Objectives

1:40 - 3:30 Opening Presentations (5-10min)

1. C. Germann: Saskatchewan aria process; trends and issues
2. R. Stedwill: development referral screening; application
3. G. Fedirchuk: heritage resources; forest management
4. R. Widger: highway developments; contract archaeology
5. L. Amundson: linear developments; sampling; boreal forest
6. J. Ireland: oil and gas development; winter archaeology
7. G. Dickson: Manitoba aria process; referral screening
8. J. Finnigan: contract archaeologists; resource management
9. A. Glasgow: Haines site (TCPL) case study
10. B. Martens: mitigation studies; role of research
11. D. Pawson: sensitivity mapping; forest resource planning
12. B. Nicholson: academic perspective on ARM
13. T. Gibson: role of the professional organization
14. M. Magne: ASA perspectives; post-impact assessments

3:30 - 3:50 coffee break

3:50 - 5:00 Issue Focus (roundtable discussion)*

- a) development referral screening/seiving
- b) scopes-of-work (what's adequate mitigation?)
- c) sensitivity mapping/predictive modelling
- d) (to be determined)

5:00 - 5:30 Concluding Discussion/Recommendations*

*** option to hold issue-specific workgroups followed by presentation and discussion of workgroup recommendations to be discussed**

Appendix II

Current Issues in Contract Archaeology and Resource Management

DEVELOPMENT REFERRAL SCREENING/SIEVING

WHAT TYPES OF DEVELOPMENT SHOULD BE REVIEWED FOR HERITAGE CONCERNS? SHOULD THERE BE EXPLICIT EXEMPTIONS? WHAT SELECTIVE CRITERIA SHOULD BE USED? WHAT AGENCY OR AGENCIES SHOULD SCREEN PROPOSALS?

WHAT CRITERIA SHOULD BE USED IN DETERMINING THE NEED FOR IMPACT ASSESSMENT STUDY FOR FORESTRY, HIGHWAYS, PLOUGHED-IN PIPELINES, COTTAGE SUBDIVISIONS OR OTHER LAND DEVELOPMENTS? SHOULD THE CRITERIA BE UNIVERSALLY APPLIED?

IF THE GOVERNMENT'S OVERALL PROGRAM OF RECEIVING AND REVIEW LAND DEVELOPMENT PROPOSALS CANNOT BE COMPREHENSIVE (OWING TO BUDGETARY OR RELATED LIMITATIONS), WHO SHOULD IT BE SELECTIVE? WHAT CRITERIA OR SELECTION STRATEGIES SHOULD BE EMPLOYED?

WHAT PROBLEMS ARE PERCEIVED WITH THE CURRENT DEVELOPMENT REVIEW PROCESS? WHAT RECOMMENDATIONS ARE OFFERED? HOW SHOULD THE SCREENING PROCESS MAXIMIZE OBJECTIVITY AND EQUATABILITY?

SHOULD URBAN AND RURAL MUNICIPAL GOVERNMENTS SCREEN LOCAL LAND DEVELOPMENTS FOR HERITAGE CONCERNS? HOW MIGHT SUCH A PROGRAM BE INITIATED OR IMPLEMENTED?

ARCHAEOLOGICAL RESOURCE SENSITIVITY MAPPING/PREDICTIVE MODELLING

*IS "SENSITIVITY MAPPING" NEEDED? HOW WOULD IT FACILITATE OR IMPROVE THE
ARCHAEOLOGICAL ASSESSMENT AND REVIEW PROCESS?*

WHAT ARE THE STRENGTHS AND WEAKNESS OF SENSITIVITY MAPS?

*ARE PREDICTIVE MODELS BASED ON PREDOMINANTLY ON PROFESSIONAL INTUITION OR
JUDGMENT ADEQUATE?*

WHO SHOULD PREPARE SENSITIVITY MAPS AND HOW?

SETTING THE SCOPE OF ARIA/M WORK & ESTIMATING COSTS

WHAT FACTORS SHOULD BE CONSIDERED WHEN DETERMINING ARIA/M REGULATORY REQUIREMENTS?

SHOULD INDUSTRY NEGOTIATE THE LEVEL OF STUDY?

IN ANY SPECIFIC CASE, WHAT CONSTITUTES "ADEQUATE" OR ENOUGH MITIGATION (i.e. DATA RECOVERY)? WHAT UNDERLYING PRINCIPLES SHOULD BE CONSIDERED?

IN ANY SPECIFIC CASE, WHAT CONSTITUTES "ADEQUATE" OR ENOUGH ASSESSMENT? WHAT FACTORS SHOULD BE CONSIDERED IN THIS REGARD? SHOULD EXPLICIT LIMITATIONS BE SET?

ARE CURRENT SCOPES-OF-WORK TOO RESTRICTIVE OR INFLEXIBLE, OR TOO VAGUE OR UNDEFINED? TO WHAT EXTENT SHOULD PRINCIPAL INVESTIGATORS BE AFFORDED GREATER DISCRETION IN SETTING SCOPES-OF-WORK?

WHAT PROBLEMS ARE ROUTINELY ENCOUNTERED IN PREPARING COST ESTIMATES? WHAT RECOMMENDATIONS ARE OFFERED TO HELP ADDRESS THESE PROBLEMS?

SHOULD DEVELOPMENT PROPONENTS OR GOVERNMENT BE RESPONSIBLE FOR CONDUCTING POST-CONSTRUCTION ASSESSMENT OR MONITORING (TO FACILITATE FUTURE DEVELOPMENT, OR FOR DETERMINING THE ACCURACY OF IMPACT PREDICTIONS AND MITIGATORY MEASURES)?

OTHER ISSUES IN CONTRACT ARCHAEOLOGY AND RESOURCE MANAGEMENT

- *ARCHAEOLOGY AND THE ENVIRONMENTAL ASSESSMENT PROCESS*
- *GUIDELINES AND STANDARDS RESPECTING ARIA/M; DEVELOPMENT-SPECIFIC GUIDELINES*
- *ROLES AND RESPONSIBILITIES FOR ASSESSING CUMULATIVE IMPACTS*
- *ALTERNATIVE ROLES AND RESPONSIBILITIES FOR GOVERNMENT AND THE PROFESSION IN (AND ALTERNATIVE MEANS OF) REGULATING THE PRACTISE OF ARCHAEOLOGY*
- *THE ROLE OF RESEARCH IN CONTRACT ARCHAEOLOGY*
- *THE ROLE OF A PROFESSIONAL ASSOCIATION IN CONTRACT ARCHAEOLOGY AND RESOURCE MANAGEMENT*
- *INTER-PROVINCIAL IMPACT ASSESSMENT/MITIGATION STANDARDS*
- *THE ROLE OF NATIVE PEOPLES IN THE ARCHAEOLOGICAL RESOURCE IMPACT ASSESSMENT AND REVIEW PROCESS*
- *ARIA/M QUALITY CONTROL AND INDEPENDENT PEER REVIEW*
- *CURATION OF RECOVERED ARCHAEOLOGICAL MATERIAL*
- *DISSEMINATION OF ARIA/M REPORTS AND DATA*

