Cultural Resource Management

A Case Study of Applied Standards using the M3 Motorway Project at the Hill of Tara, Ireland

ANTH 4601 – DR. FUENTES
November 30, 2012
Authored by: James Tauber
Abstract

Cultural Resource Management is the primary employer of archaeologists in American and Western Europe (King, 2005). The projects worked are part of a business model rather than the academic approach of research. This paper provides an analysis of the archaeology and CRM of the M3 Motorway Project in Tara, Ireland as a sample of project management. I include how the project succeeded, struggles encountered and areas of CRM improvement for future projects. It will draw on contrasting projects to highlight these features. Emphasis is placed on the archaeology and historic preservation efforts and well as the management of communications to the public. My conclusion is that the project was managed according to law and best practices for success. However, the public interaction and the perception of the project were inadequate for successful support by the community.
Introduction

In 1999, the National Roads Authority (NRA) of Ireland began the process of planning for a new highway connecting North Kells and Dublin, named the M3 motorway. I have selected this project to evaluate due to its high visibility, archaeology, and its intersection with Irish cultural and social issues.

Developed in response to National regulations, the Cultural Resource Management industry is an amalgamation of academic practices combined with business and government requirements regarding management of historic sites in the context of pending construction. In the United States, the field originated as a response to Section 106 of the National Historic Preservation Act (NHPA) [16 U.S.C. § 470f] and its regulations. These regulations require that “Responsibilities for archaeology under Section 106 extend to undertakings such as construction projects and land and resource planning efforts occurring on federal lands, as well as those where federal agencies provide funding or issue licenses, permits, or approvals for actions on non-federal lands, including tribal, state, municipal, and private property.” (106th Congress of the United States 2012, 1). In Ireland, the equivalent discipline is called Cultural Resource and Heritage Management, reflecting its origins in preservation of historical sites. The importance of heritage preservation was recognized from the founding of the modern Irish nation and is defined under the National Monuments Act of 1930 (Office of the Attorney General, Ireland 2012). As this paper is directed at an American audience, I will use CRM as an umbrella term to refer to the general field that fulfills these needs in their respective countries.
Archaeology is a field of study that is often accused of fixating on the smallest details of the past. From tiny shards of pottery, to looking at the rings of trees in ancient lumber, the science is able to gain volumes of information about the lives of past civilizations. As archaeology moved from antiquarian collectors through academic rigor, its evolution now includes the addition of general business practices. Cultural Resource Management is the discipline and subfield of archaeology that applies the practices of academic research to the management of resources in conjunction with construction projects (King 2005) (Thomas Neumann 2010). The involvement is limited to projects that require governmental approval, as in funding, construction on government land or licensing by a government agency. The CRM industry employs more archaeologists than any other single sub-field of archaeology (King 2005). As the two disciplines overlap, it is useful to begin to take the best practices from each one to evaluate how the merger is progressing. In modern American business, it is common for the project management team to provide a review of a completed project. This process generates a lessons learned document for review by the stakeholders, and gives the participants the opportunity to understand the aspects of the project that were successful, that offered struggles for the team, and in some cases, that caused outright failures (Project Management Institute 2000).

It is always easy, in both academia and a corporate setting, to point out what went wrong or procedures that were not followed correctly with a project. The goal of this paper is not to criticize the work that went into this project, but to provide an example for future improvements that can be made by all project managers. The world of CRM project management resides in real world, with all the unplanned and unexpected events that occur,
from nature to human involvement. The best planning and management can only provide a framework that will be available for project use. The goal of this paper is to perform a standard business project review and identify successes of the CRM team as well as areas for future improvement of the processes used in the engagement model. I do this by examining the publically available project information, compare it to project management and technical archaeology standards, and include comparisons with other CRM projects.

Theoretical Context

Project Management

I rely on a formal business approach to project management in this report to evaluate the M3 motorway project and extract recommendations for process improvements. This methodology is called the Project Management Institute (PMI) framework. Based in the United States, the PMI is a member of the open standards community, a group designed for the free exchange of business and computing standards to facilitate the interoperability of information and best practices. PMI developed the project management business standards approach for project control and execution (Project Management Institute 2000). The PMI is a not-for-profit organization that has become the de facto standard for Project Management, gaining pervasive acceptance during the mid-1990s, when they introduced a structured and repeatable framework for companies to apply project structure. Today, the PMI certifications are recognized and accepted by many mid and upper level corporate project managers as the standard framework for corporate projects. The PMI is also recognized by the American National Standards (ANSI) as an American National Standard (ANSI/PMI 99-001-2008). The Project Management Body of Knowledge (PMBOK) is a guide to general project standards and
provides a phased approach for project guidance. The risk management process within the PMI methodology utilizes a post project analysis, commonly referred to as a post-mortem. This phase generates a report to inform stakeholders of successes, problems, proposed process improvements and exposure to ongoing risks after the project is completed (ibid). I have chosen to use this model as a guide in evaluating the M3 CRM Project due to its robust documented risk management approach. Other models are available and my selection is based on personal familiarity.

Risk Management, under the PMBOK model, is an ongoing process that runs parallel to all phases of project management and provides an iterative feedback process. The following list is provided to highlight to portions of the PMBOK that I have used to examine the CRM engagement on the M3 Motorway project. This is not a complete listing of the activities recommended, since I did not have access to all project information for a full evaluation.

- Project Communication – Process for the distribution of work products and project records that provide information within the project and external to the project. This will include the processes necessary for the exchange of information and documentation.
- Additional Risk Identification and Analysis – Process to address new risks identified as the project progresses and a standard method for addressing the issues.
- Scope Changes – Process for addressing and modifying the original scope of work.
- Risk Reviews – Process for periodic review of all known risks which the project is tracking.
- Earned Value analysis – Procedures for the monitoring over-all project performance and highlighting risks within the project.
- Corrective Action – Structured approach with an iterative process for continuous improvement to project milestones, phase completion and adjustments to project knowledge.
- Project Change Requests – Process for the project to document changes and methodology for implementing changes across the project plan.
Archaeology

The evaluation of technical execution of archaeology under CRM is based on the methods described by Drs. Thomas King (King 2005), Thomas Neumann, Robert Sanford and Karen Harry (Thomas Neumann 2010). The general process of CRM engagement in a project is as follows:¹

- Project Background – Using known information about the site and area to determine areas for field visits and developing an approach to the work.
- Identification of Historic Sites - Develop project structure and execute a field visit to identify “hot spots” for further investigation.
- Testing and Evaluation – Site testing to confirm or narrow excavation needed
- Data Recovery – Field excavation and documentation
- Report Preparation and Production – Processing of data recovered in the field, artifacts and lab results and their compilation into a report for the stakeholders and the project owner.

It is an old axiom that archaeology destroys, (King 2005) and the very basis of involvement in a construction project dictates that destruction of the site will occur. The archaeology performed by a CRM team in advance of construction is salvage and conservation (Ibid). The scope of work, those activities that will be part of the work product delivered by the CRM company, is not defined by either the American or Irish regulations.

The decision as to what will be done during the CRM engagement is made by the project owner. The decision is normally based on input from responsible parties, including state and federal agencies, the CRM company, and affected parties (Thomas Neumann 2010). The archaeology performed is, perhaps, best described by borrowing term from modern quantum

¹ Note: each phase of the project may be contracted or sub-contracted to a separate CRM firm, there is no guarantee one firm will execute all phases of a project.
physics -- the probability wave (See Figure1). At any given site, there are an abundance of possible archaeological approaches that can be applied to gather data, samples, conserve or salvage. All of the possible approaches converge into the choices that are made based on what is likely important at the site. As CRM is not an academic process that approaches a site to answer a question or offers the possibility of revisiting the site year after year to refine the process as discoveries are made, the probability wave of this work is, as King points out, the blunt tool approach. Salvage, document and extract with the high efficiency, while being responsible to the discipline of archaeology (King 2005).

Methods

Data

Data for this paper were selected in two sections. The first collection was chosen to provide specific contrasts to the M3 Motorway project. These five CRM projects highlight points I propose are necessary for the maturity of the CRM industry. The remaining two projects provide comparative examples of aspects of the CRM project that are highly successful. Were this paper to be taken to a level of providing a compressive study, a more robust sample size would be required as well as access to original project plans, reports and results. The selected data does provide a cross section of projects in the US, U.K., and Ireland. The selection of these countries is applicable for specific reasons. The U.S. provides the reader with local context and comparisons. I selected the United Kingdom due to the strong links between the

![Figure 1 – Probability Wave -Selection based on the most probable occurring events](image-url)
Irish academic approaches, originating in the UK university system. I have listed the projects by the names used in the media and public relations documents, as the technical government names would not provide any context for the reader and a brief description as follows:

1. The African Burial Ground (ABG) in lower Manhattan, New York City. This project provides a rare example of a CRM engagement that culminated in significant changes to the original construction project. During the construction of a Federal office building the discovery of a vast burial site for African slaves from the 16th – 17th century. The unexpected extent of the site led to community protests and the redesign of the building and eventually the designation of the location as a nation historic site. (Lessons from the African Burial Ground 2005)

2. Shakespeare’s Lost Playhouse, Shoreditch, England. The site of Shakespeare’s plays while the Globe was being built, the site was lost and no one was looking for it. However the Museum of London Archaeology (MOLA) stumbled into a find that excited the arts and history groups. Unlike the African Burial Grounds, this site was quickly repurposed and development stopped. Unlike the ABG this project was converted to private control. (Hilts 2012)

3. Publix American Indians remains, Anniston Alabama. An example of a ‘textbook’ CRM project. The construction of a Publix shopping center was executed under the section 106 rules. As soon as artifacts were discovered the project owners worked out an agreement with the U.S. Army Corps of Engineers (performing the design), the Alabama Historic Preservation Office (having state level jurisdiction) and the Muscogee
Creek Nation (the Tribal authority) in Oklahoma. The agreement set out rules for dealing with Indian remains and artifacts discovered at the site. (McCreless 2011)

4. Roman Remains, London England. The discovery of 20 bodies, eventually dated to the Roman occupation of Britain, drew a construction project to a screeching halt. The remains were discovered as the CRM crew performed exploratory test digs as part of their engagement. While the project was delayed by the unexpected find, effective archaeology and partnership with the public and project management team moved the project forward to compellation. (Building and Design Corporation 2005)

5. Anonymous Viking Warrior, Dublin Ireland. When the discovery of a Viking body was made at South Great George's Street in Dublin during structural improvements CR South Great George's Street in Dublin CRM resourced were engaged. There was a delay in the project, however all groups were efficient in excavation and data collection. The project completed with minor delay to the plan (Friends of Medieval Dublin 2008).

In addition to the comparative archaeological sites I have used several reports pertaining to the M3 motorway project. These include official public records provided by the NRA, archaeological reports from periodicals (U.S., U.K. and Irish), protest web sites and newspaper coverage from Ireland. Please see Bibliography for a full listing.

**Data Analysis**

By comparing these CRM project with archaeology of Section 2 of the M3 Motorway project several process improvements become apparent for future CRM activities. First, the Publix Indian remains and Roman remains projects provide examples of how an engagement model can be developed in advance of potential archaeological finds to aggressively address government, public and construction
concerns. The African Burial Ground displays the same non-engagement model with limited communication to the public. However, the M3 Project saw the importance of the actual archaeology ahead of the construction design and could have avoided some of the public perception problems if the actual work had been communicated to the public. Shakespeare’s Lost Playhouse and the Viking Warrior each highlight an awareness of the emotional response the general public can have to historical sites. In the case of the Playhouse, archaeologists used the public response to convert the site to a preservation site. The Viking showed the longevity of perceptions of the history of a location. There is an important lesson in common with the M3 project, it is not to the advantage of the project to attempt a reeducation program, but to be sensitive to the shared beliefs of the population and work within them.

**Background and History**

**Hill of Tara**

The Hill of Tara is part of a landscape that is considered to be a National Heritage Site in Ireland. The designation is derived from the historical accounts of the area as well as the archaeological evidence of occupation dating back to early as the 4th millennium BC (United Nations 2012). The early political system of Ireland, 2nd century thru the 9th century, divided Ireland into five ruling kingdoms. Division of the political structure can be seen in the documentary evidence of the structure of rulers. “The vernacular law tracts describe three grades of king: the *ri tu’aithe*, king of a local petty kingdom; the *ruiri* ‘great king’, who was overlord of a number of petty kings; and the *ri ruirech* ‘king of overkings’, who was king of a province.” (Foster 1989, 25) Each of these five regions had a capitol and today these sites are
referred to as the five “Royal Site” of Ireland. The fifth region, known in ancient times as Mide \(^2\) and today as Count Meath, is considered in some texts as the High King of Ireland. There is considerable debate over the wholeness of the claim of Tara as the center of high-kingship over the whole of Ireland. However, there is evidence from the end of the seventh century that the king sitting in Tara made such a claim. Muirchu’ (a contemporary of St. Patrick) refers to king Loegaire as “a great king, fierce and pagan, and emperor of non-Romans, with his seat at Tara, which is the capital of the realm of the Irish” (Foster 1989, 27).

The reality of Tara’s history is perhaps less important than the image of what it conveyed to the Irish people. At the end of the 19\(^{th}\) century an effort was made by those who considered themselves native Irish to assert the history of Ireland as a land of “Gods and Fighting Men”\(^3\). These efforts were in response to both repressive laws imposed by the British for the prior hundred years and the movement underway in Europe to define countries as nations (Kiberd 1989). Writers and scholars, like Lady Augusta Gregory and W.B. Yeats, used a combination of history, ancient writings \(^4\), and folklore to craft a past that could be used to inspire a people with national pride. It was not until the 1980s, fifty years after becoming an independent nation, that the histories were questioned for their authenticity (MacCraith 2002). However, it is important to recognize the emotional attachment that exists with the general public to some of these ancient sites.

\(^2\) Meaning ‘middle’ – Foster 1989  
\(^3\) Gods and Fighting men: the story of Tuatha De Danaan and the Fianna of Ireland, Lady Gregory  
\(^4\) Annals of the Kingdom of Ireland – The Four Masters
An antidotal example of the public feelings about the past can be seen in another archaeological dig that occurred in Dublin in 2006. A Viking skeleton that was uncovered at South Great George’s Street in Dublin raised public ire when the discussion of the impact of Vikings on Irish culture was discussed (Friends of Medieval Dublin 2008). It was well known that the city of Dublin was built by the Vikings. However, comments by scholars referring to cultural advancements and the introduction of technologies by the Vikings, brought cries of demeaning the Irish heritage from several public groups (Ibid).

**M3 Motorway**

The national Development Plan, 2000-2006 and the Meath County Development Plan each identified the need to improve the N3 motorway due to increased traffic patterns. The analysis of the demographic information, the development of sub-urban growth and the economic growth of the 1990s provided the basis for this decision (National Roads Design Office, Ireland 2012). Referring to the NRA FAQ, the question of Why do we need a new road: “The M3 Motorway is a key part of the plan to upgrade the overall roads network for the country. It will significantly improve road transport connections between the North West and the East of the country. The transport corridor that links the North West, Cavan and North Meath with Dublin City is one of the busiest in the country. The existing road is struggling to cope with the hugely increased volumes brought about by the population explosion in towns such as Dunshaughlin, Navan and Kells, as well as other areas of County Meath.” (National Roads Authority (Ireland) 2012) The proposed motorway would originate in Cloonee (outside Dublin) and terminate in North of Kells, about 51 Km/ 31.7 miles of new road would be
constructed (See Figure 4 - Full M3 Route divided by Archaeological Sections). This segment was named the M3 motorway.

For archaeological determinations, the project was divided into five sections. For the purposes of this paper I will focus on Section 2 (See Figure 5 - Section 2 of Archaeological map, Hill of Tara area), which runs from Dunshaughlin to Navan, and includes the Hill of Tara. Once the route was proposed the NRA and County Meath Authority published the proposal and the Environmental Impact Study in 200 and 2001. This was followed by twenty-eight days of public hearings in 2003. Project approval was granted in August 2003. Archaeological site work began in 2005 and CRM activities continue as of the writing of this paper (ibid).

**Finding and Discussion**

**Project Analysis**

The first step in the project evaluation is to document the success criteria for the archaeological portion of the M3 project as stated by the National Roads Authority of Ireland (NRA), from their master project design document. The need for engaging archaeologists was acknowledged from the outset of this assignment. Two functions were identified to be the initial focus of the needed scientific skills: 1) route selection and 2) environmental impact. These functions would be explored through the first three phases of the NRA project plan. Performance of academic archaeology would not occur for five years after the project began. The NRA was obligated to adhere to the National Monuments Act of
1930/1994 (Office of the Attorney General, Ireland 2012) in the structuring of the project, and used these laws as the scope for archaeological engagement during the project. The Monuments Act was written to create the laws for engagement of private and public efforts with areas in Ireland that are, or could have, historical or archaeological significance. Modification was made in 1994 and 2004 to address new technologies and advancements in the international standards for treatment of archaeological sites and the preservation of historical locations. As the project began in 1999 the application of the 1994 Act will be used to outline the goals of archaeological involvement in the roads project.

The inclusion of archaeology was incorporated in project planning from the very onset of the project. Once the need for the M3 roadway was established, and the pre-study of the project began, archaeologists were engaged in a Cultural Resource Management (CRM) role. The first phase of the CRM effort was the Desktop Survey study. This phase, part on of route selection, was a process that evaluated existing information including: topographical records, site records from past archaeological work, field surveys, satellite records and files from the Sites and Monument Record (SMR). These records were reviewed for potential impact on the proposed road path as the project feasibility stage began. During this phase, it was identified that two known archaeological sites would be impacted by the proposed route, ME038-001 and 002 (National Roads Design Office, Ireland 2012). Neither of these two sites contained features that were above ground and would pose obstructions for the project. The both could be conserved and construction would occur over them. The first technique used for this phase of the project was the process of desktop survey, which is an archaeological best practice. Although differently named, the process is defined by Brian Fagan (2007), Thomas King (2005)
and others. Additionally, non-field research, to brow King’s term (2005), is essential to evaluating the known elements of the project scope.

The next application of archaeology occurred during the early planning phase of the project. Once the general route had been conditionally approved by the planning committee, a comprehensive field walk was executed of the entire route. This phase of archaeological research is somewhat unusual in its scope. Budgetary constraints usually limit archaeologists to conducting field visits to suspected ‘hot spots’ identified during the records research process (Thomas Neumann 2010). These ‘hot spot’ locations are places in which archaeologists believe there might be additional or un-catalogued site potential. Given the politically and socially sensitive nature of the project, the NRA conducted a full walking examination of the route and surrounding areas. This additional effort and expense should be considered an investment in placing the public at ease that nothing of archaeological value would be missed along the proposed route. The historical and archaeological payoff was the identification of fifteen (15) possible additional archaeological sites. Nine of these sites were located on the Clonee-Dunshaughlin section (Section 1 of the project plan) including a possible early modern tree ring at Derrockstown and five possible earthworks at Dunboyne (1), Piercetown (1) and Knocks (3). Four possible sites were identified on the Navan Bypass section (Section 3). A possible earthwork was identified at Boolies on the Kells-North of Kells section (Section 5) (National Roads Design Office, Ireland 2012). By exceeding ordinary best practices, the project made unexpected discoveries.

However, this is also an example of the NRA failing to publicize the efforts of the project to the public. Rather than creating a public awareness that could have bolstered sympathies
for the efforts of the road project, the limited publicity of the extraordinary efforts made by the government and the CRM team, missed an opportunity for improving public. Consideration should be given to the timeframe of the pre-planning and planning phase of the project, which was from late 1990s and early 2000s. The use of internet web sites was available, but not fully utilized by either the government or the public, as a primary source for information. The CRM group properly reported the discoveries within the project, but little external communication was present to allow public understanding of the archaeological effort, or benefit, of the project during this phase. This critical, missed opportunity began a pattern of communication issues that would plague the project as it progressed for the next ten years. The chance to garner credit for work above the call would have also provided the chance for the NRA to improve public education of the role of archaeologists and the obligation of the government in the process of public projects, while potentially avoiding some of the legal protests that were cleared up via education.

During this time, an organized effort began to form against the proposed route passing through County Meath. Public groups, historical societies, tourist commissions and commerce committees raised questions about the route selection and the impact on the areas adjacent to the route. Notable institutions, including National University of Ireland, Galway (NUIG), University of Dublin and The National Museum of Ireland, publically objected to portions of the project as it passed through County Meath. More importantly, they severely objected to the work in proximity to Hill of Tara Historic Site, one of the five ‘Royal Sites’ of Ireland. Local groups, from business concerns to preservation societies, also objected to the project passing near Tara.
Advertised as Ireland’s Heritage Capital, (County Meath 2012) the county residents expressed concern over changes to Tara, one of the top tourist sites in the area. As tourism comprised about 22% of the income (direct and indirect) (Gorman 2005) for the county in 2002, any impact or change would be seen as detrimental to the economy. Again, placing the events into the context of time, the rapid expansion of Ireland as an economic player in the EU and internal economic and social growth, for the first time in their modern history, made this a highly charged issue. The “Celtic Tiger”, as this economic event was being called generated the demand for the M3 through urban sprawl, while at the same time it created sensitivity to the expanding tourist trade (Share, Tovey and Corcoran 2007). The dissenters of the M3 road project were able to frame the discussion about the project in the media with only a slow response from the NRA. This allowed the public opinion to be formed, and pieces of arguments to be conflated into a larger issue, without a formal response from the project.

As already identified, the infrastructure need for the M3 was clearly presented and agreed upon by the public service groups responsible for transportation. This report will not delve into the legal and political issues that occurred. The complexity of these arguments and as they did not actually pertain to the archaeology of the project would expand this paper without benefit of the CRM analysis. Academic difference in approaches that were brought out in the press did not indicate that the CRM work was suspect or mismanaged. I will progress to the third phase of the project, the final planning. After input from concerned groups, the NRA returned to the Section 2 route, the portion of the M3 that would pass near Tara, to propose alternate routes. Four (4) alternate routes were investigated for feasibility and named Orange, Pink, Green, and Blue (see Figure 3 – route options). Three of these routes also included
variations, bringing the total routes to be evaluated to ten (10). The routes were geographical situated as follows: Orange route west of the Hill of Tara; three Green route options between the Hill of Tara and the existing N3; four Blue route options between the existing N3 and Skryne; and two Pink route options east of Skryne (Deevy 2005). Each route underwent a full field visit and archaeological walk to determine its impact. The effect of the M3 in causing damage to archaeological sites became the primary focus of the media, at this time. *The Smithsonian* and the *European Journal of Archaeology* published several articles with an emphasis on ‘saving Tara’. This theme was picked up by other news media, and even after the legal agreements of the stakeholders in 2004, public pressure continued throughout the project.

The change in scope for Section 2 also changed the CRM approach to executing its responsibilities. As noted before, the function of CRM is to execute salvage and stabilization archaeology in advance of construction. Given the project samples used for this paper, these activities are usually confined to.\(^5\)

- Project background – a structured

\(^5\) Compiled using King 2005, Newman 2010, Combers 2001 and project reports from the data component of this paper.
process to gather archaeological and historical information. Includes research and documentation the areas affected

- Field survey – Site visit that includes a walk of the planned construction area and gathering samples from ‘hot spots’ to determine if additional archaeological sites are present in the site.

- Impact analysis – This process is done in accordance of federal and local regulations to determine if the identified archaeological sites are “significant” as defined by regulators. If the site meets the threshold accommodations must be making in the next phase for archaeological research.

- Salvage and stabilization – Archaeological process designed to extract or stabilize artifacts and data relevant to the preservation of the site. This process is executed under an agreed methodology by the stakeholders.

- Report preparation and submission – The final phase of the CRM engagement is designed to generate a final report to the proper authorities. This activity also includes lab analysis of data points, the preparation of required government reports and a project archaeology report for stakeholder(s).

In the case of Section 2 of the M3 project, the CRM team was also required to engage in the project feedback process, in selection of the final route. Through this channel, the project team received increased the visibility from the public for its work. The final selection was based on several factors, environmental, engineering and economic; however it was the historical and archaeological factors that garnered the attention of the public. By 2005, as this was occurring, the CRM team was working on improving the public communications.
Route selection near the Hill of Tara became one of the primary points of contention.

As indicated above, ten options were proposed and researched with archaeological input from the CRM teams, the National Museum of Ireland and concerned academics. The following lists the final selection criteria as issued by the NRA with comments:

- **Engineering considerations**
  There is little to choose from between the ten (east and west of Navan) Route Options in terms of design standards and safety. The Pink, Green 2 and Blue 3 routes were longer and disrupt the greatest number of side roads (all of which would need upgrading) and as such, are less desirable from an engineering viewpoint.

- **Economic considerations**
  All routes provide very high economic benefits due to traffic travelling towards and away from Dublin/M50. The Pink and Orange routes are best for through traffic, although the remoteness of the interchanges may discourage local drivers from using them. The Blue Route, with junctions on the existing main road network, would catch more local (Navan) traffic.

- **Environmental considerations**
  A major environmental consideration is the Hill of Tara, undoubtedly one of the most significant archaeological sites in Ireland. The proximity of the Green and Blue 1 routes, together with the associated interchanges, make these options very undesirable. In addition, the Orange Route would have a severe impact on the visual landscape around Tara and would, consequently, be very damaging to the setting of the Hill.

Environmental issues and the effects on the local population were really the key route selection criteria. In this respect, the Orange and Pink route options suffer significantly through their location relative to the existing road network. In both cases the country roads running between the proposed Orange or Pink interchanges and the existing N3 would experience very significant traffic increases. Also, both Orange and Pink routes impact severely on populated areas such as Dunsany, Kilmessan, Skryne, Collierstown and Philpotstown, all of which would suffer severance and increased air/noise pollution due to increased traffic flows.

- **Conclusion**
  The Blue Route 2 was selected as the preferred option as it was considered to have the least impact on the local community and to be viable from an archaeological perspective, compared to the alternatives. Blue Route 2 did not have remote junction locations and thus there was no requirement to provide connections to such junctions. It also had least impact on minor roads.

Since the Blue Route 2 was approved by An Bord Pleanála after the Motorway Scheme and EIS Oral Hearing, it now has legal status as the most appropriate route for the proposed road, taking everything into consideration. The archaeological test trenching undertaken in 2004 has not revealed any archaeological sites that would be considered unexpected on any similar sized road scheme anywhere in Meath. As such Blue Route 2 is still considered the best option between Dunshaughlin and Navan.

(National Roads Design Office, Ireland 2012)
Excavation and Salvage
The archaeology work was carried out under standards set by the regulatory authorities - the Department of the Environment, Heritage and Local Government and the National Museum of Ireland (National Roads Design Office, Ireland 2012). The method of approach is described as ‘deconstruction’ of the 39 sites. Each site was subject to a two phase top soil exploration. First, small grid field walks were executed and second, a systematic metal detector examination. Following this process, topsoil depth was measured and removed using a flat bladed excavator to prepare the site for manual study. On two occasions, Castletown 1 and Skreen 3, the removal of top soil caused a disruption to artifacts and a skeleton. Conservation efforts were immediately implemented and the top soil was sifted to ensure the retrieval of artifacts. These are the only two accounts of significant breaks with the archaeological plan as reported by the NRA to the public. When damage to the skeleton was reported to the public, it was via the Smithsonian magazine, not the project information center (Bensen 2009). This created a public relations problem and generated more misinformation between the project and the public.

By using the Publix and Roman Remains in London as comparisons, the technical activities of site work were carried out using the best practices of archaeological engagement. Considerable lead time was included in the project plan and a flexible workforce was implemented to allow for a redirection of effort as discoveries were made (McCreless 2011). Site designations were coded using a project naming scheme and reported internally with names that indicated location by town and number increasing going south to north (eg. Dunboyne 1, Dunboyne 2 etc.). The sites were reported to the Department of Environment, Heritage, and Local Government and the National Museum of Ireland using the national naming scheme.
Conclusion

The Cultural Resource Management for the M3 Project
The evaluation of the Cultural Resource Management of archaeology for Section 2 of the M3 motorway project has three components for final review in this paper: 1) the adherence to Irish law 2) the application of international standards for CRM archaeology and 3) the management of unplanned events. The National Roads Authority and contracted CRM groups fulfilled all legal requirements as set forth in the National Monuments Act (Office of the Attorney General, Ireland 2012). In fact the project extended the scope of the project, in some cases by 4 or 5 times required excavation, to ensure that all salvage and conservation were complete.

By comparing the project to Thomas King’s archaeology model (King 2005) and examples of recognized CRM successes (McCreless 2011) (Building and Design Corporation 2005) indicate the archaeology of the project was executed properly. The 40 sites (see Table 1 – Archaeological sites excavated with brief description) were well excavated, salvage of artifacts properly extracted and documented and conserved (National Museum of Ireland 2012). Research continues on data collected and lab work is active on the numerous artifacts extracted. NRA is continuing to fund adjacent archaeological site research through 2013 (National Roads Authority (Ireland) 2012).

The final category is where a split of success is documented. The project management team did well with the scope change of both new sites and expanded requirements for route selection (National Roads Design Office, Ireland 2012). The most obvious problem was with
addressing the public relations’ changes that occurred throughout the project. Access to internal project documentation was limited during my research. However by observing the communication from the project, the protest communications and news coverage, it is clear that the project CRM and NRA did not sufficiently manage changes as they occurred. Public relations were addressed as a response to external pressure (Bensen 2009). Given the robust archaeological and historic preservation efforts that were incorporated into the project from the start, it was a missed opportunity for improved public education and a reduction of community resistance to the project.

In general it would also be useful for CRM administrators to undertake the application of the PMI post mortem process in their standard project methodology. In the reviewed projects, while they contained a final project document, there was great attention to the archaeological results and information on the adherence to applicable laws. None of the available projects showed any effort in project management, public communication or maturity model improvements for the betterment of the field.
Bibliography


Share, Perry, Hilary Tovey, and Mary Corcoran. *A Sociology of Ireland*. Dublin: Gill & Macmillan, 2007.


Figure 4 - Full M3 Route divided by Archaeological Sections (National Roads Authority (Ireland) 2012)
Figure 5 - Section 2 of Archaeological map, Hill of Tara area (National Roads Authority (Ireland) 2012)
<table>
<thead>
<tr>
<th>Site Name</th>
<th>Description</th>
<th>Provisional site type</th>
<th>Provisional dating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ardsallagh 1</td>
<td>Ring-ditch, cremations and inhumations</td>
<td>Burial site</td>
<td>Possible Iron Age</td>
</tr>
<tr>
<td>Ardsallagh 2</td>
<td>Possible round house and nearby possible cremation pits</td>
<td>Possible building &amp; possible burial site</td>
<td>Possible Bronze Age</td>
</tr>
<tr>
<td>Ardsallagh 4</td>
<td>Possible cremation pit</td>
<td>Possible burial site</td>
<td>Prehistoric</td>
</tr>
<tr>
<td>Ardsallagh 5</td>
<td>Possible cremation pit and ditch</td>
<td>Possible burial site</td>
<td>Prehistoric</td>
</tr>
<tr>
<td>Ardsallagh</td>
<td>Hearth with millstone</td>
<td>Settlement/Industrial</td>
<td>Post-medieval</td>
</tr>
<tr>
<td>Ballinter 1</td>
<td>Bowl hearth</td>
<td>Industrial</td>
<td>Possible Prehistoric</td>
</tr>
<tr>
<td>Ballinter 2</td>
<td>Burnt spreads</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Baronstown 1</td>
<td>Large ditched enclosure complex</td>
<td>Possible ritual enclosure or settlement complex</td>
<td>Possible Prehistoric and Early Medieval</td>
</tr>
<tr>
<td>Berrillstown 1</td>
<td>Probable cremation pits adjacent a ring ditch</td>
<td>Burial site</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Berrillstown 2</td>
<td>Pit and burnt spread</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Blundelstown 1</td>
<td>2 burnt spreads</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Blundelstown 2 &amp; 3</td>
<td>2 ditches, bowl furnace, charcoal spread &amp; possible cremated bone</td>
<td>Industrial &amp; possible burial</td>
<td>Possible Prehistoric</td>
</tr>
<tr>
<td>Castletown Tara 1</td>
<td>Possible cremation pits/ditches</td>
<td>Possible burial site</td>
<td>Prehistoric</td>
</tr>
<tr>
<td>Castletown Tara 2</td>
<td>Pits and ditches</td>
<td>Occupation activity</td>
<td>Possible Prehistoric</td>
</tr>
<tr>
<td>Castletown Tara 3</td>
<td>Burnt mounds</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Clownanstown 1</td>
<td>Pits and small burnt spreads</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Clownanstown 2</td>
<td>Pit and burnt spread</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Clownanstown 3</td>
<td>Three stone lined cist graves adjacent an upstanding mound</td>
<td>Burial site</td>
<td>Possible Prehistoric and Early Medieval</td>
</tr>
<tr>
<td>Collierstown 1</td>
<td>Single pit with intact pot</td>
<td>Burial site</td>
<td>Prehistoric</td>
</tr>
<tr>
<td>Collierstown 2</td>
<td>Stone building debris</td>
<td>Vernacular building</td>
<td>Early Modern</td>
</tr>
<tr>
<td>Cooksland</td>
<td>Possible charcoal manufacturing kiln</td>
<td>Industrial</td>
<td>Possible Medieval</td>
</tr>
<tr>
<td>Cooksland 1</td>
<td>Burnt spread</td>
<td>Burnt mound</td>
<td>Bronze Age</td>
</tr>
<tr>
<td>Cooksland 2</td>
<td>Large ditched enclosure complex</td>
<td>Settlement complex</td>
<td>Early Medieval</td>
</tr>
<tr>
<td>Dodstown 2</td>
<td>Building foundations and laneway</td>
<td>Vernacular building</td>
<td>Early Modern</td>
</tr>
<tr>
<td>Dowdstown 1</td>
<td>Possible cremation pits and hearth, pit and posthole</td>
<td>Possible burial site &amp; possible settlement</td>
<td>Possible Prehistoric</td>
</tr>
<tr>
<td>Garretstown 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Listing of M3  Project Administrators
Consulting Engineers - N3 Meath Consult

- Engineer – Peter Thorne and Thomas Meagher
- Engineer’s Representative – Gillian Cogan

Meath County Council, National Roads Design Office

- Senior Engineer – John McGrath
- Project Archaeologist – Mary Deevy
- Project Liaison Officer – Ambrose Clarke

National Monuments, Department of the Environment, Heritage and Local Government

- Archaeologist – Martin Reid

Irish Antiquities Division, National Museum of Ireland

- Keeper – Nessa O’Connor