

2008 Annual Progress Report

Date: January 2009

Project Site: Chandramauleshwar Temple, Aneundi, Hampi World Heritage Site, Karnataka, INDIA

Project Director: Abha Narain Lambah

Project Team Members: Mr. Sudhir Deshpande Structural Engineer, Dr. Thippeyswamy Site Archaeologist, Ms. Annu Sehgal, Site Architect, Mr. Krishna Iyer, Abhijit Ekbote & Ms. Kruti Garg, Architects assisting Ms. Abha Narain Lambah

Project Partners: Hampi Foundation & JSW Foundation

Project Contact Information: abha@anlassociates.com

Abha Narain Lambah _____
Project Director

Date: _____ Date: _____

Executive Summary

The restoration of Chandramauleshwar Temple, Anegundi is the first pilot project in Karnataka for the restoration of a State Protected Monument in the Hampi UNESCO World Heritage Site. Undertaken through an MOU signed between the Government of Karnataka and the Hampi Foundation (that is partnering with GHF in the project) in 2006, this is a pioneering initiative of public private partnership by the Government of Karnataka.

This pioneering model of an Indian and International NGO working in tandem with the Karnataka Government towards establishing best practices for restoration and conservation of a cultural property and heritage site is meant to serve as a pilot project for future restoration projects in the area by setting an example through high standards of conservation practice following internationally accepted principles of conservation.



Summary of Work: Planned and Completed

1. Master Conservation / Management Planning

The Conservation Masterplan for the entire site that consists of a 15th Century Shiva Temple on a river island in the Tungabhadra river, was prepared in 2004 by Abha Narain Lambah Associates: Conservation Architects & Historic Building Consultants for GHF and the Hampi Foundation and submitted to the Government of Karnataka. A season of archaeological exploration was conducted under Dr. Balasubramaniya in 2005 and in 2006 the Government of Karnataka signed an MoU with the Hampi Foundation, GHF's partner on the project.

The works began on site in January 2006 and the initial mobilization works of setting up a site office, providing support bracings and shoring for the temple proper and embankment walls were undertaken in the first half of 2007.

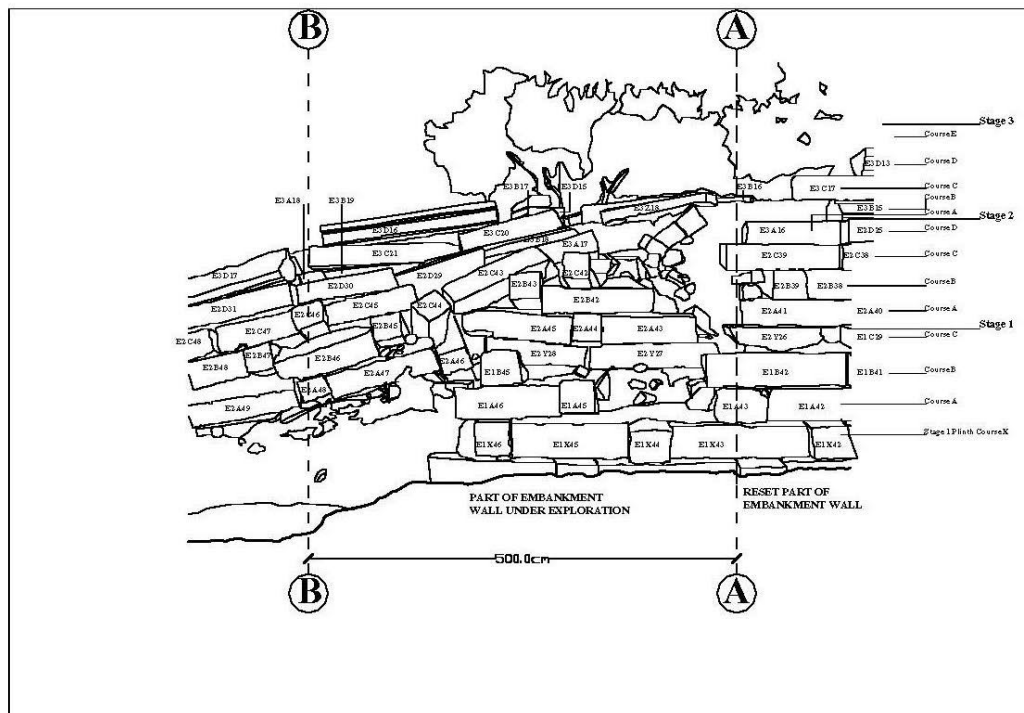


2. Site Conservation & Documentation

Where as the architectural team prepared detailed numbering drawings of each stone element, the day to day recording is to be maintained by the site archaeologist. Where as the architectural drawings and structural drawings are prepared by the conservation architects and structural engineer and issued to site, the site archaeologists were appointed fro day to day reporting of site work and archaeological documentation. Mr. Krishna, architect from Abha Narain Lambah Associates stayed on at site in the initial period of Ms. Anu Sehgal's appointment to explain to her the system to be followed for documentation of each stone and numbering system adopted as done in the lower embankment wall.

At the very signing of the MoU ceremony, the lead archaeologist Dr. Balasubramaniya suffered a fatal heart attack at the Signing Function. The conservation guidelines that outlined the policy for Archaeological investigations was handed over to Dr. Thippeyswamy, who had assisted Dr. Balasubramaniya during the earlier excavations and he was appointed as site archaeologist with his scope of work outlined with a clear mandate to maintain a daily log book on site, record all archaeological finds and document this thoroughly.

In March 2008, to ensure better site co-ordination, a full time site architect was appointed. Ms. Anu Sehgal was stationed on site in addition to Dr. Thippeyswamy to ensure better site management. The Architect in site placed Mrs. Anu Sehgal along with Mr. Thippeswamy, the site archeologist to document sequentially, 5 mts of the upper east embankment from the 43 mts already re set and to produce necessary drawings of detailed mapping of section and plan of upper embankment.



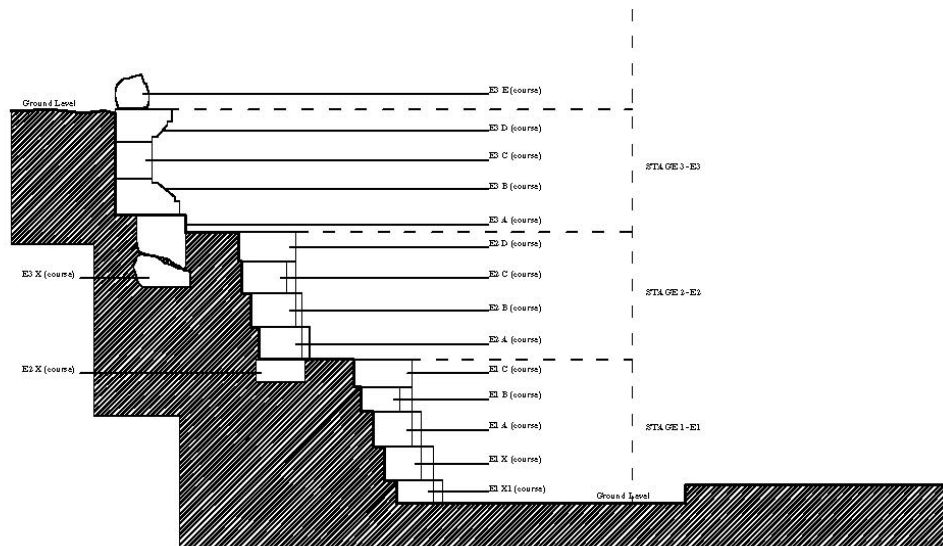
2. Site Conservation & Documentation

The major thrust of the works in 2008 season of March to August 2008 have been the consolidation of the upper embankment wall supporting the temple platform after careful numbering, dis-assembling and re-assembling (after numbering of each stone). This was done with a view to stabilize the temple as the shifting embankment wall had caused severe cracking and stresses in the temple.

Until the next flooding of the site during the monsoon of 13th August 2008, the team worked on a 45 m stretch of re setting the embankment wall using the original stone material found on site and that no new stone has been introduced into this section of work so the original stones were numbered and reset. The stabilization of the stone retaining walls was imperative for the structural integrity of the site as it was found necessary to establish the geo technical stability of the site by ensuring the structural stability of the two retaining walls. With constant flooding on the site, the granular material had been swept off, leaving behind a silty soil that offered minimal friction to hold together the soil, thereby causing the geotechnical issues with the site and slippage of the temple.

The plan to number, dis-assemble and reassemble the sections of lower and upper retaining walls has been part of the earliest tender documents and site planning works since the inception of the implementation stage and has formed part of the sequencing and project works and has been discussed with GHF and Mr. John Hurd on his last visit to the site in May 2008.

Below: Sectional drawing showing the constructional details of the Upper Embankment Wall



3. Site Conservation & Sequence

Whereas the structural engineer and Conservation Architect as the consultants had prioritized work on the lower retaining wall to begin first, this was not allowed to begin on the recommendation of Dr. B. Narasimaiah, Member of the High Level Technical Committee of Govt. of Karnataka who mentioned in fact suggested that the temple proper be taken up for disassembling and anastylosis before the embankment walls. This idea was opposed by the team who felt that it would be unwise to take up any major work on the temple proper unless the root of the problem of soil stabilization and stabilization of the embankment walls was undertaken to prevent any future ground movement.

In the view of the team's senior structural engineer Mr. Sudhir Deshpande, a geo technology expert, the present soil is too fine and silty and as an integral part of the soil stabilization, it would be necessary to introduce granular material made of particle size greater than 2 mms to increase the soil stability and lend friction to the sub soil to prevent further slippage. The project team, is clear that the interventions to the temple proper for aesthetic reasons was not the objective, but that of stabilizing the stone retaining walls at the site.



Feb to March 2008: New Findings on Site

1. Investigations around the platform to the East Side

The team found another spur indicating some sort of platform on the eastern face of the temple with an interesting visual connection between the bridge and the temple. This was an interesting development, raising issues that suggest a possible linkage between the bridge and east face of temple



2. Investigations around Upper Embankment Wall along East Face of Temple

- Current numbering shows 4 courses of type E 1 missing in this section
- Is this indicative of a 'step down' in embankment wall level at this section? Or steps leading to the temple platform? Is it a turning or merely indicative of 'scavenging' for construction works?
- Review of explorations around the east side showing 'base course' stone but mud and rubble above that. Indicative of debris build up or construction detail against rise of steps from East platform?



'base course' stone but mud and rubble above that

Feb to March 2008: New Findings on Site

3. Establishing the height of the Upper Embankment Wall for the remaining section

- Current numbering shows E 1 stone courses missing in this section
- Is this indicative of a 'step down' in embankment wall level at this section? Or steps leading to the temple platform? Is it a turning or merely indicative of 'scavenging' for construction works?
- Documentation work
- Review of explorations around the east side showing 'base course' stone but mud and rubble above that



4. Investigations around Upper platform along South Face of Temple

- Evidence of some stone construction similar to an 'aqueduct', drainage chamber or construction for steps
- Evidence of the southern edge of the upper embankment.
- Review of explorations around the south side to establish line

Feb to March 2008: New Findings on Site

5. Establishing the height of the Upper Embankment Wall for the remaining section

- Another aspect that has continued to intrigue the team is the cistern like arrangement of stones at the southern section of the site upper platform that is indicative of a water trough or channel. The embankment walls in this section are also visible on rock face.



Feb to March 2008: Consolidation and Resetting of stairways



April 2008: Explorations & Discovery: Eastern Platform facing Temple



May – June 2008:

Temporary Trolley Track to Transport material

In order to transport material and tools to the site was one of the greatest challenges in the project mobilization. The site is located on an island, only accessible by crossing the river on a 'coracle' basket boat. To transport granular sand required for the soil consolidation and other tools and equipment to site, was impossible on these medieval transportation methods and the team spent a considerable amount of effort in discussing the various alternatives of creating temporary culvert bridge/ rope wires, cranes, or temporary bridging systems to transport the material over the river. Moreover, these methods had to be approved both from the point of view of minimal impact to the site, reversibility and the fact that the district administration did not want to create any temporary bridge/walkway that could be used by villagers to cross over as this would then become a convenience to the pedestrians who would oppose the dismantling of the bridge at the completion of the project.

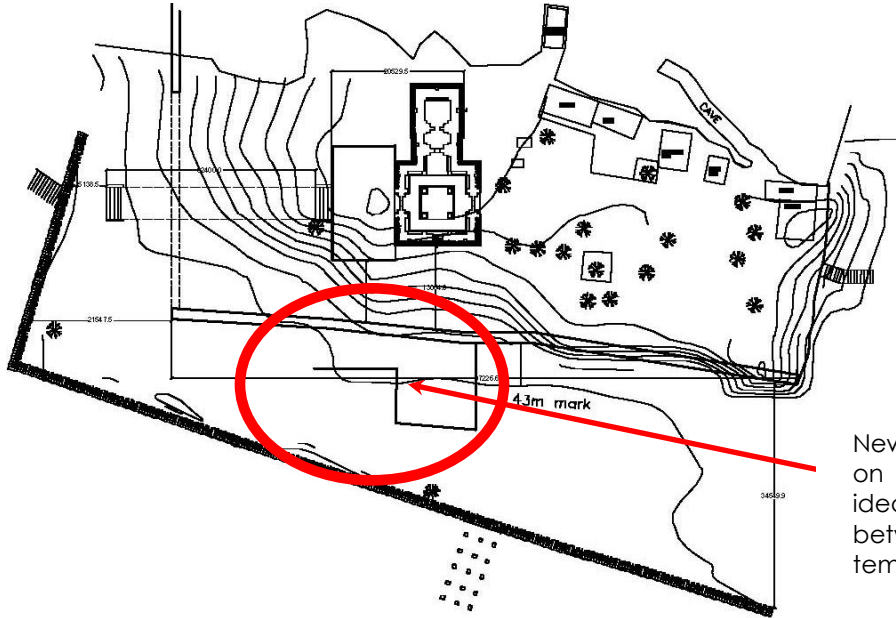
The team explored a range of options and was acutely aware of the fact that the site was of immense archaeological importance and was clear that there should be no threat of damage to the archaeology of the medieval stone bridge through the construction of a temporary bridge. It was therefore worth the additional cost of a greater span of the proposed temporary bridge if this was going to ensure protection of the historic archaeology. Moreover, the alternative option of providing a rope pulley system to transport material would require the installation of two metal towers on either bank of nearly 7 mt height and would be unadvisable due to the visual impact on the view corridor from Vithhala and would have a visually unwelcome impact on the site. Finally, the selected method approved by the Government bodies, was one of creating a temporary rail track mechanism on steel girders, to transport the materials on a mechanized track and barrow system.



July - August 2008:

The work on re setting the original stones in the 45 mt. identified stretch of the upper embankment wall begun in April continued in this period. An additional 17 meters of resetting of the original stone materials on site was completed. The stones have been reset in the traditional and historically appropriate technique, with no mortar but dry joints. The consolidation of the soil has been done by introducing sand mixed with granular *murrum* to ensure that the granular soil facilitates a good angle of repose to prevent further slippage of the embankment wall. The earth work and exploration around the eastern side *Mandapa* (Plat Form) and tracing the E¹ wall base was undertaken and the Next 5Mtr Earth work & tracing of the the E¹ & E² base was undertaken.

An incongruous accretion that had long defaced the monument, a power transmission line and concrete pole in front of the Temple was finally removed by re routing the entire electrical transmission cables and lines for this area.



New Eastern platform discovered on site leading us to explore the idea of a pedestrian linkage between the stone bridge and the temple.

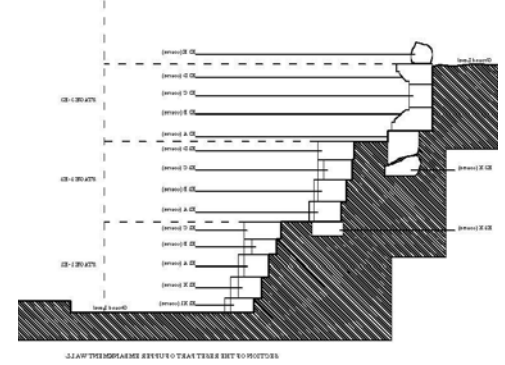
July - August 2008:

Re setting of the stone blocks along the 45 mt stretch of phase 1 of the upper embankment continued with original stones on site. New quarries for matching petrography of stone for replacement of missing sections of stone wall were also sourced from a quarry outside the Hampi World Heritage Buffer Zone.



Chandramauleshwar Temple, Anegundi, Hampi

July - August 2008:



July - August 2008:



A new bend in the upper stone embankment is now visible that was earlier not seen. This leads to new light on the original construction of the upper embankment wall.

July - August 2008:



The Project Director took the picture above on 12th August after the Site Inspection. On the next morning, the entire site (picture below) was flooded as the monsoon water was released from the Tungabhadra Dam on account of heavy rains and the entire river was in spate. The entire trolley track was submerged in the river for the next 2 months making the site completely inaccessible.

October 2008:



Once the flood waters receded, the transportation rail track was repaired and missing/damaged sections rebuilt to make the transportation of material possible.



November - December 2008:



The site excavations have exposed the extant plinth level of the South East corner of the upper embankment clearly showing E1 course of the upper embankment wall extending till the SE corner. This clearly provides evidence and validates the earlier hypothesis of the site team about the turn of the upper embankment. Also exposed, is the offset at the South face of the upper embankment wall indicated steps. These are in line with the logical sequence of progression of approach to the temple along the South North axis of the temple from the lower embankment steps to the upper embankment and then with steps leading to the mandap and South entrance of the temple proper. This clearly provides evidence and validates the earlier hypothesis of the site team about the turn of the upper embankment.



November - December 2008:



Nearly 70 metres of East face wall has been reset to E1, E2 and E3 courses as found on site. Of this, the first phase of 43 mts length relies completely on reusing and resetting old stone found on site and the next stretch of 33 mts employs partial new stone work wherever old stones were found missing or broken.

Padma stone coping course has been found extant on the South East side of the exposed plinth course and this indicates that E1 course at the platform after the E2 and E1 courses end continues the padma stone detail as a finishing cornice course. Site supervisor has photographs and documentation to support this. This clearly provides evidence and validates the earlier hypothesis of the site team about the turn of the upper embankment.



East face upper embankment wall

New stone being used in the East face upper embankment wall 92.13 cu m

Old Stone being reused in the East face upper embankment wall 315.66 cu m

Therefore roughly 22% of new stone has been introduced in the resetting of the East face upper embankment wall

Lower embankment wall

New stone being used in the East face upper embankment wall is estimated to be less than 10%

Therefore roughly 15% new stone is estimated to be introduced in the resetting of the East face upper and lower embankment walls



4. Community Development

The local community has benefited from the project through employment on the site. The local boatmen get daily employment as the project team are ferried up and down the river on coracle boats.

Local stone masons, craftsmen and labour have been employed on site.

The other group of stakeholders are the religious pilgrims and the religious *sadhus* living in the *ashram* on the site, who have benefited by the steps leading up to the temple being reset and therefore making it easier for them to access the ashram.



Challenges

1. Problematic Issues & Potential Solutions

The Site access, has been a major challenge and the location of the site on a river island, only accessible by basket boats has been the greatest challenge in order to transport material and tools to site.

The other issue, again related to the location of the site, is the issue of constant flooding between August and September, when work on site comes to a standstill each year as the site is flooded and the river is in spate.



The Project Director took the picture above left on 12th August after the Site Inspection. On the next morning, the entire site (pictures above right and below) was flooded as the monsoon water was released from the Tungabhadra Dam on account of heavy rains and the entire river was in spate. The entire trolley track was submerged in the river for the next 2 months making the site completely inaccessible.

