

AGA KHAN DEVELOPMENT NETWORK  
QUTB SHAHI HERITAGE PARK  
CONSERVATION & LANDSCAPE RESTORATION



2016  
ANNUAL REPORT







# 16<sup>th</sup>-17<sup>th</sup> century

Qutb Shahi period mausoleums, mosques,  
Hamam, pavilions, garden structures and  
enclosure walls

Landscape development of **106 Acres**

Conservation of **40 mausoleums**

Conservation of **23 mosques**

Conservation and Revitalization of **7 Baolis**

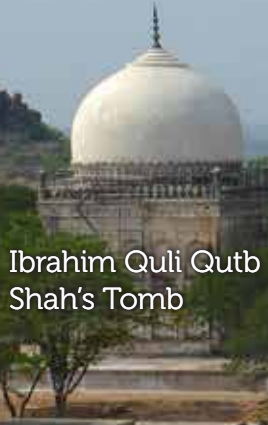


Muhammad Quli  
Qutb Shah's Tomb

Golconda Fort



Kulsum Begum's  
Tomb



Ibrahim Quli Qutb  
Shah's Tomb



QUTB SHAHI  
HERITAGE PARK

Conservation & Landscape Restoration



Nestled at the foot of the majestic Golconda Fort in Hyderabad, the Qutb Shahi Heritage Park is spread over 106 acres, and is the necropolis of the Qutb Shahi dynasty, that ruled the region for 169 years in the 16th – 17th centuries.

Major conservation and landscape restoration works are being implemented here since 2013 by the Aga Khan Trust for Culture in partnership with Department of Archaeology and Museums, Government of Telangana



Sultan Quli Qutb  
Shah's Tomb

Subhan Quli Qutb  
Shah's Tomb

Jamshed Quli Qutb  
Shah's Tomb



DEPARTMENT OF ARCHAEOLOGY &  
MUSEUM, GOVT. OF TELANGANA



AGA KHAN TRUST FOR CULTURE

*The project is grateful for partnership and co-funding received from the following agencies:*

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**TATA TRUSTS**

*For Conservation works on ten major monuments*



U.S. AMBASSADORS FUND  
FOR CULTURAL PRESERVATION

*For Archaeological Excavations*

*For regular updates on the project, visit:*  
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[https://twitter.com/qutb\\_shahi\\_park](https://twitter.com/qutb_shahi_park)

*(Cover Page) Craftsmen restoring Abdullah Mosque's minar with traditional lime plaster after removal of modern cement plaster*

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# Qutb Shahi Heritage Park

## Landscape Masterplan



*Qutb Shahi Heritage Park is listed on the tentative World Heritage List. Major conservation and landscape restoration works will be undertaken from 2013-23 to ensure long term preservation and enhance the visitor experience of this site of international significance.*

*The Qutb Shahi Heritage Park, including the Deccan Park area, is one of the most significant historic medieval necropolises anywhere in the world, comprising over 70 structures mausoleums, mosques, step-wells/ water structures, a Hamam, pavilions, garden structures – all built during the reign of the Qutb Shahi dynasty which ruled the Hyderabad region for 169 years in the 16<sup>th</sup>–17<sup>th</sup> centuries.*



## Qutb Shahi Heritage Park: A nonprofit Public – Private Partnership EXECUTIVE SUMMARY

Three years of conservation works have now been completed at the Qutb Shahi Heritage Park. Works could commence only in 2014, a year after the MoU was signed on account of litigation by vested interests claiming land ownership.

Following emergency works carried out at several monuments in the first year of works, conservation works in the first phase have commenced at key monuments in the south-western zone of the complex. Conservation works have been implemented by master craftsmen who continue to use tools and building crafts employed at these structures several centuries ago. All works have benefited from an inter-disciplinary approach and a very high level of supervision aimed at ensuring the works match the quality of the original works in all respects – material and form.

Significantly, archival research revealed the original character of many of these structures – such as the intricate splendor of Sultan Quli Qutb Shah's tomb – hidden beneath layers of 20<sup>th</sup> century cement and other alterations. Archaeological excavations also revealed the garden enclosure wall around the founder kings tomb. These are now being restored to allow visitors and scholars alike to understand the glory of the monuments standing within this necropolis.

Across all monuments similar works were needed to be undertaken – removal of 20<sup>th</sup> century cement, determining original patterns and details, restoring missing elements and repairing damaged elements. To ensure long term structural stability – building plinth protection and paving the platforms with stone – on removal of the cement. Craftsmen have had to be trained to restore the intricate stucco patterns.

The single biggest challenge of the past three years has been the reconstruction of the collapsed portion of the Badi Baoli. The structure



collapsed while we were awaiting approval to commence conservation works – clearly causing much anger in Hyderabad. Here, it was important to first understand the cause of collapse and once again, archival pictures revealed that the arcade was added only in the 19th century and with continuous water pressure during the rains, the walls caved in. To ensure this is not repeated, a water collection point was established west of the Baoli. It is a testament to craft skills and engineering prowess that this challenging job requiring over 500 cum of stone masonry could be undertaken and the baoli restored to its original function – expected to collect 3 million liters of water annually.

Coupled with the conservation works, of critical importance are the landscape restoration planned to be carried out across the 100 acre complex. From 2017 onwards this will begin in the first phase zone. The northern and southern (Idgah area) zones of the site are to be planned as ecological buffers to be planted with a variety of native flora – providing bird habitat and a visual buffer against the inappropriate development surrounding the site.

In future years, it is hoped that a Site Interpretation centre will be built for visitors as well as required visitor facilities. It would indeed be necessary to restore the original linkage with the adjacent Golconda Fort to enable visitors to visit both in a single visit.

The project hopes to demonstrate not only an appropriate conservation approach for the Indian context but also the need for greater public-private partnerships in the field of culture to safeguard India's heritage for future generations.







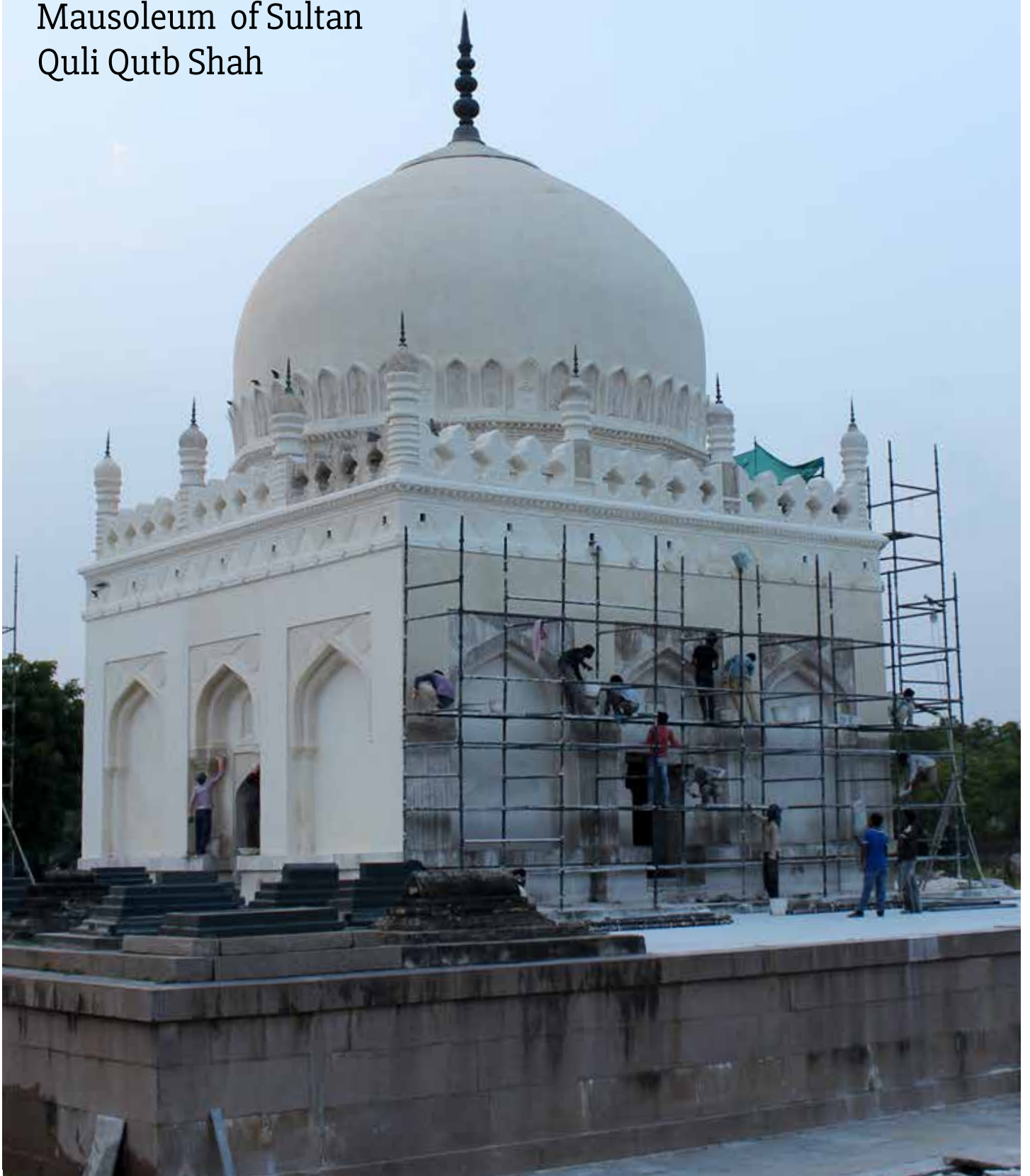
Qutb Shahi Heritage Park, listed on the tentative World Heritage List, is situated abutting the famous Golconda Fort and comprises of over 80 monuments standing within 106 acres. The necropolis consist of mausoleums, mosques, baolis (step wells), an Idgah, a hamam (mortuary bath), pavilions, tanks, wells, garden structures and enclosure walls - all built during the reign of the Qutb Shahi Dynasty. Major conservation and landscape restoration works are being undertaken since 2013 and will largely be completed by 2023. These works aim to ensure long term preservation and enhance the visitor experience of this site of international significance.



# 01

## Mausoleum of Sultan Quli Qutb Shah

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*The archival images of 1860s depicted the tomb's external surface to be covered with ornate lime stucco works on the walls. The arches were crowned with medallions. The minarets had ribbed plaster and the merlons were studded with highly ornate lime stucco.*



*However, mid-20<sup>th</sup> century repairs had obfuscated original details and the tomb was found covered with a layer of cement plaster*

## BEFORE



*As part of the conservation efforts, several layers of cement, which were added during 20<sup>th</sup> century repairs, were removed.*



*This revealed intricate stucco medallions and arch crowns on the North facade. Similar patterns were found on the arched openings.*



*Discovery of these patterns in-situ allowed a scientific restoration of the patterns where these were missing. Restoring historic details using traditional techniques and materials.*



*The restored structure rich with all the original intricate detailing.*

## AFTER

The mausoleum of the first ruler of the Qutb Shahi dynasty, Sultan Quli Qutb Shah was built in 1543 A.D., during his own lifetime. During a sustained archival research programme, archival images dating from the 1860s were discovered - revealing that the mausoleum's external surface was originally covered with ornate lime stucco works.

The arches were seen to be crowned with medallions, the minarets and ribbed plaster patterns and the merlons were studded with highly ornate lime stucco.



## Restoration of Internal Surface

On the internal surface, upon removal of later layers, many of the details were found to be damaged to the extent that their profiles were lost. Based on the suggestions provided in the 2015 Peer Review, conservation works were carried out on the internal surface.

### ACTION TAKEN:

- 20 of the 32 missing wooden pendants of the central medallion at the dome ceiling were reinstated as per evidence.
- The damaged central medallion on the dome ceiling was repaired with lime mortar and finished with lime putty and organic colors as per the physical evidence.
- The ribs on the internal dome were scrapped of the later added layers and repaired with lime plaster.
- A number of original details were obfuscated by addition of modern plaster. This was carefully removed in order to mitigate any unintended damage to the original details. The missing portions were restored based upon the existing site evidence.
- The intersecting arches above the gallery level were scrapped of later added lime wash in order to reveal the original profile and ornamentation.
- The shafts of the minarets situated above the arch gallery were covered with later added plaster layers. This was removed to reveal the chevron pattern detail on the shaft.
- Missing finials on 3 minarets were reconstructed using lime mortar as per the existing design and installed.

*(Left) Repair of the damaged central medallion on the dome ceiling*

*(Right) Restoration of the missing portions of the original details by master craftsman*







*(Clockwise from left) Missing finials on minarets reconstructed using lime mortar; later added lime wash was scrapped off from the intersecting arches above the gallery level to reveal the original profile and ornamentation; rich lime mortar applied on the entire internal surface after necessary repairs to the existing details; 30 mm thick granite stone slabs laid to appropriate slope and approved pattern*

- The bulb of one minaret was missing and had to be reconstructed using traditional lime mortar and stones.
- During investigation at the arch gallery level, an intricate rope band was revealed after the removal of later layers and this was duly restored.
- A number of medallions below the arch gallery level had partial fragments of the original ornamentation. It was decided to simply consolidate the medallions using lime mortar without restoring the missing details in absence of adequate physical evidence.
- The SW and NW alcove ceiling has been retained as per the condition found before commencement of conservation. This is to depict the stark difference between the conserved interiors and the previous condition.
- Pit marks and dark discoloration were observed on the plain wall and ceiling surfaces after dismantling the modern plaster layers. Samples of the plaster were sent for testing under stereoscopic microscope. The results obtained from X ray diffraction (XRD), Fourier Transform Infrared spectroscopy and Raman spectroscopy revealed that the discoloration over plaster layer could be a result of accumulated layers of dust and soot formed over centuries.
- To conserve the wall surfaces with pit marks it was decided to apply a 3mm layer of lime plaster over the surface so as to cover the pitted surface and yet retain the original plaster layers.
- 30 mm thick rough textured granite stone slabs were laid to appropriate slope and approved pattern on the existing lime concrete floor to withstand footfall.
- Four remaining parapet battlements were restored with patterns that had partially survived in portions on the external south facade.

#### **IMPACT:**

The conservation efforts helped in revealing the 16th century details and ornamentation thus augmenting the process to restore the architectural elements as per the intentions of the original builder. This in turn has restored the authenticity of materials and architectural aesthetics of the tomb of the founder of the Qutb Shahi dynasty.

## Conservation of the 16<sup>th</sup> century enclosure wall

The 16<sup>th</sup> century enclosure wall - 500 metres long - with the Mausoleum of Sultan Quli at the centre and surrounding the mausoleums of Sultan Quli, Jamshed Quli was one of the major find of the 1<sup>st</sup> season of archaeological investigations carried out in the site during 2014 - 2015.

The enclosure wall - built in ashlar stone masonry up to 9 feet deep at portions - has been exposed on all the sides with height varying from 1 to 1.5 metres in 2015. The ashlar wall lining was found intact on the southern side while on north, the base was found with traces of ashlar blocks. The 25 cm thick coping stone and the arcade above was missing on all sides except for the portion on the south east corner.

Based on the evidences available, works have commenced on the 16<sup>th</sup> century enclosure. In 2015, preparation of missing vertical dressed stones blocks commenced by hand chisel dressing of stones to match the existing.

### ACTION TAKEN:

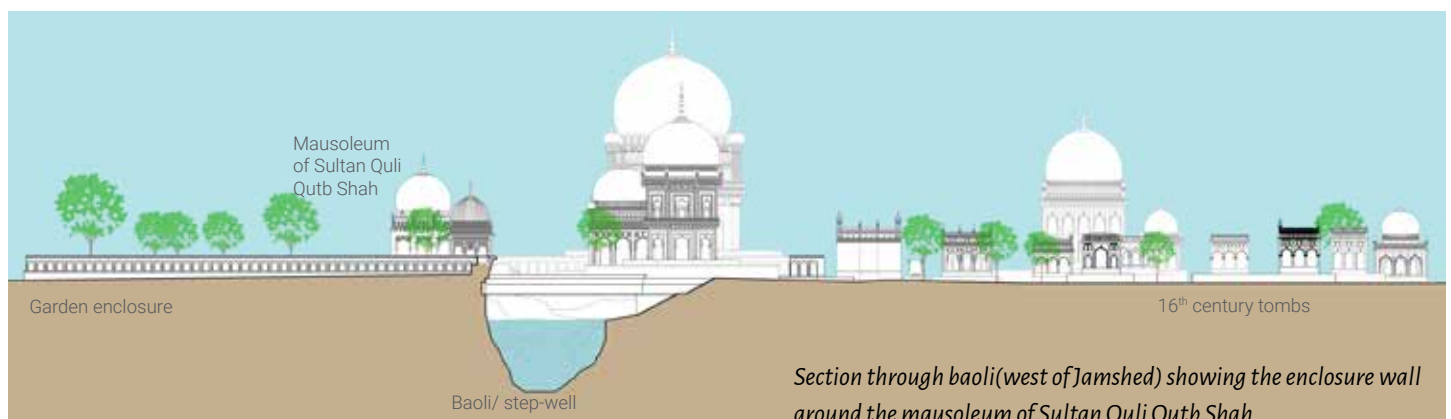
- A total of 150 stones for coping were hand chisel dressed by over 50 stone craftsmen to match the existing stones.
- The coping stones have been fixed on the enclosure wall starting from the south east corner near Mohd Quli's mausoleum to the south west corner up to the Baoli near Jamshed.
- Portions of missing dressed vertical stones on the south side have been fixed in place.
- Masonry behind the coping stone has been completed on the south side.
- The missing arcade was marked on the wall and columns for the arches were made for the south east corner of the enclosure.

### NEXT STEPS:

- The missing arcade over the 16<sup>th</sup> century enclosure wall on the south, west and north to be reconstructed thus reinstating the sense of enclosure envisaged by the original builders.
- Battlements and ornamental mouldings matching the existing on eastern arcade to be restored along the entire span of arcade to be reconstructed to reinstate the original appearance.
- Hand dressed coping stone to be installed on existing enclosure wall in the northwest corner to ensure subsequent reconstruction of the missing arcade over a length of 90 meters.

### IMPACT

The conservation of the enclosure complete with the erection of the arcade will change the perception of the complex bringing in the sense of enclosure and a formal garden which otherwise was falsely perceived to have been linked with the Mughals in India.





(Top Left) Missing coping stones were fixed on the enclosure wall;  
(Top Right) Columns for the arches were made  
(Below) Illustration showing proposed arcade on the enclosure wall



## Development of south-west quadrant

Through 2014 and 2015, the existing land profile was thoroughly studied and surveyed. Several trial pits were excavated to determine the original earth profile and the volume of filling carried out in the recent years. It was found that the earth profile was altered to an extent that the original plinth levels were covered and raised. At places the surrounding earth levels were raised by filling around the monument plinth protection leading to water accumulation near the plinth. At places, sheet rock profiles were also found around the plinth. Underlying archaeology such as terracotta water channels, tanks and aqueducts were revealed. The topographical survey of the area was subsequently updated and the Landscape plan for the area was developed. Landscape development works have commenced since 2015.

Samples of the plinth protection reusing the existing 8 cm thick granite stones were made as per the approved pattern, levels and gradient. Similarly samples of pathways with 4 cm thick natural rough yellow limestone - locally available as Tandur - were made for approval. Upon approval, landscape works have commenced with the laying of plinth protection and pathways around the monuments. The later filled in earth are being removed to attain the actual levels thereby grading the earth outwards from the monuments. In 2016, the major focus has been to develop the area within the 16th century enclosure wall.

### ACTION TAKEN:

- Local lime stones (Tandur) pathways originating from the plinth of Sultan Quli Qutb Shah's mausoleum has been laid on the south and east axis until the edge of the enclosure wall.
- Pathways along the enclosure wall has been laid on the southeast and southwest corner as per the landscape plan.
- Proposed earth levels have been attained on the southern side within the enclosure wall.
- The set of graves to the southwest of Kulsum Begum's mausoleum have been conserved duly with stone masonry and lime mortar.
- The plinth protection around the Mausoleum of Kulsum Begum has been laid to the proposed levels and slope.
- The plinth protection of the mausoleums of Jamshed Quli and Sultan Quli has been joined by a pathway as per the landscape design.
- Hand chisel dressed granite stone blocks have been installed as steps at the enclosure wall to extend the axial pathway on the south.

### IMPACT

The completion of pathways, plinth protection and the earth levels on the south side within the enclosure wall define the change proposed while standing as testimony for the proposed holistic landscape development.



*Pathways originating from the plinth of Sultan Quli Qutb Shah's mausoleum laid on south and east axis until the enclosure wall*



*Final earth profiling as per landscape plan*

# 02

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## Mausoleum of Subhan Quli Qutb Shah

A square shaped building standing on the high plinth adjacent to the mausoleum of Sultan Quli Qutb Shah is believed to have belonged to Subhan Quli Qutb Shah, who was the son of Jamshed Quli Qutb Shah. The main grave chamber is single storeyed and covered with an outer bulbous dome ornate with prominent ribs. The neck of the dome is covered with highly decorative bands, merlons and floral medallions. The stone eaves are decorated with small battlements running along the perimeter. Internally, the walls are decorated with mouldings, multi foliated arch crowns, merlon shaped features and stucco medallions. Ornate ribs run along the internal surface of the dome with a prominent medallion at the apex.





## Restoration of External Surface

Prior to commencement of conservation works, the complete external facade of the dome was covered with a layer of new finish replacing the historic lime plaster and altering the profile of the original ribs. The northern side of the drum below dome was severely affected due to vegetation growth with thick roots which needed urgent attention.

The scrapping of modern plaster layers had revealed distinct original patterns on the dome, terrace, drum, battlements, minarets and petals on neck of dome

### ACTION TAKEN:

- The later added plaster layers were dismantled on the external surface of dome revealing the original curved profile of the ribs. Subsequently the alternate thin and thick curved profile ribs were restored using lime mortar.
- A number of deep holes were observed on the external facade of the dome and these were subsequently filled up with stone and lime mortar.
- Thick plant roots were carefully removed from the drum below the dome in order to mitigate damage to the masonry. The voids formed as a result of root removal were repaired with lime mortar. Portion of the ornamental band damaged as results of root growth were restored with lime.
- 20<sup>th</sup> century cement plaster layer was carefully scrapped at the neck of dome and missing ornamental bands were restored as per the existing evidence.
- The profile of the bulb of the corner minarets was drastically altered as a result of inappropriate 20<sup>th</sup> century repairs in cement. The cemented portions were dismantled and profile of the bulb was restored as per the existing.
- A number of battlements were found to be damaged and were subsequently repaired with lime mortar.
- 6 floral medallions were partially damaged. The missing details were restored as per the original evidence.
- The ornate bands and mouldings below the merlons were restored.
- Small sized battlements on the outer edge of the stones eaves below the terrace were majorly damaged and needed urgent repairs. 75 of these were restored as per the existing site evidence and provision for rain water outlets were made.
- Missing ornamentation in incised lime plaster works on the principal facade below the chajja level was restored.
- Flaked plaster and portions of cement plaster were removed and repairs carried out using lime mortar and finished with lime punning.



*Later added plaster layers from the dome were removed to reveal the original curved profile of the ribs, and repaired using lime mortar*



*The cemented portions of minars were removed and repaired in lime mortar*



## Restoring Interiors

Scrapping of modern lime wash layer revealed the original surface with distinct details on the dome ceiling and lower alcove level.

### ACTION TAKEN:

- Minor repairs were carried out on the ceiling medallion using lime mortar.
- Dilapidated plaster on the ceiling of internal dome and the drum below was dismantled and re-plastered with lime mortar.
- Ornate ribs were scrapped of lime wash to reveal the original details.
- Moulding bands below the neck of the dome were partially restored.
- The lower surfaces were re-plastered with lime mortar and finished with lime punning.
- Most of the vertical circular moulding were found to be covered with cement and were subsequently repaired with lime mortar.
- The internal cement flooring was dismantled and replaced with 30 mm thick granite stone slabs laid to appropriate slopes and approved pattern.

### IMPACT:

Completions of conservation works at the mausoleum of Sultan Quli Qutb Shah have stalled the deterioration process that was adversely affecting the dome. Restoration of missing ornamentation and correction of 20<sup>th</sup> century inappropriate repairs has resulted in renewed significance of architectural elements. The revelation of the original curved ribs and their appropriate conservation on the external dome has resulted in restoring the architectural authenticity.



*(Left) 20<sup>th</sup> century cement flooring was dismantled  
(Below) Final lime finish of the internal surface*



## 03

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## Mausoleum of Muhammad Quli Qutb Shah

In 2015, removal of later added cement plaster and restoration with traditional lime mortar along with wall surfaces and plinth were carried out. Decorative stucco plasterwork on the internal and external facades above the upper plinth was also completed. The terrace was covered with a 5 inch thick layer of cement concrete and showed signs of deterioration permitting ingress of water and vegetation growth. Upon inspection, the original lime concrete layer was found to be in a state of partial disintegration. Water spouts were missing from the terrace. The upper plinth of the monument was covered with a 6 inch thick layer of cement concrete. Investigations were carried out and no structural cracks or cracks caused by thermal expansion were found. The south-east corner of extended plinth had collapsed and needed urgent structural repairs. During conservation of internal chamber, original doorways were found on the western and northern sides.

**ACTION TAKEN:**

- Four metal gutters were fabricated and installed on the ledge below the terrace to divert the rainwater directly onto the upper plinth situated below. Four water spouts made in granite stone were installed on the southern, northern and western side of ledge below the terrace in order to avoid water seepage.
- Cement concrete was dismantled from the upper plinth and site cleared of debris.
- 1600 square meters of top tier of upper plinth was re-laid with 30 mm thick granite stone slabs in approved layout and appropriate slopes.
- Fine dressed chiselling of a total of 120 granite blocks to be installed along the perimeter edge of upper plinth was finished.
- Two stone doorways revealed on the northern and western sides during conservation of internal chamber were repaired with lime plaster and finished with lime punning. A thin groove highlighting the profile of later filled up doorways are marked on both the internal and external facades.
- Collapsed south-west corner of the lower tier of upper plinth was reconstructed using rubble stone and lime mortar. As this corner has been historically prone to structural failure, care was taken so as to interlock the masonry at the south-west corner junction and interlocking the junction of the reconstructed masonry course-by-course individually with southern and eastern edges.
- Profiles of the arched bays and the earth levels at the crypt of Mohammed Quli Qutb Shah's mausoleum have been duly documented for further analysis and works.

**NEXT STEPS:**

- Lime concreting to be laid on the terrace after dismantling the 20<sup>th</sup> century cement concrete as per approved slopes to drain water away from the structure.
- Installation of hand chiseled parapet stones matching the original in detail to be prepared and fixed manually by traditional stone craftsmen.
- Stone slabs to be installed on upper plinth of monument in appropriate slope to drain away water away from the structure.
- 20<sup>th</sup> century brick lattice screens on crypt to be dismantled and replaced by metal grills facilitating visitor inflow and bring in ambient light inside the crypt.
- Thick edging stone to be installed below the proposed metal grills inside the alcoves surrounding the crypt.

**IMPACT:**

Reconstruction of collapsed corner and relaying of lime concrete at terrace has not only ensured long-term preservation but also revived the original intent of the builder. The indication of doorways has revealed the fact that the principal mausoleum would have been open on all the four sides and would be an important investigation in all monuments built later to this. Installation of granite stone flooring would provide a water-tight permanent surface not susceptible to wear and tear of the visitor footfall.



Restored external facade



Restoring internal surface



Restored internal surface



Conserved internal mausoleum



Restoring ornamental stucco



Removal of cement



Lime concreting of terrace



Removal of cement



Stone craftsmanship



Damaged SW corner of the tomb



Reconstructed SW corner of the tomb



Laying of stone flooring



## 04

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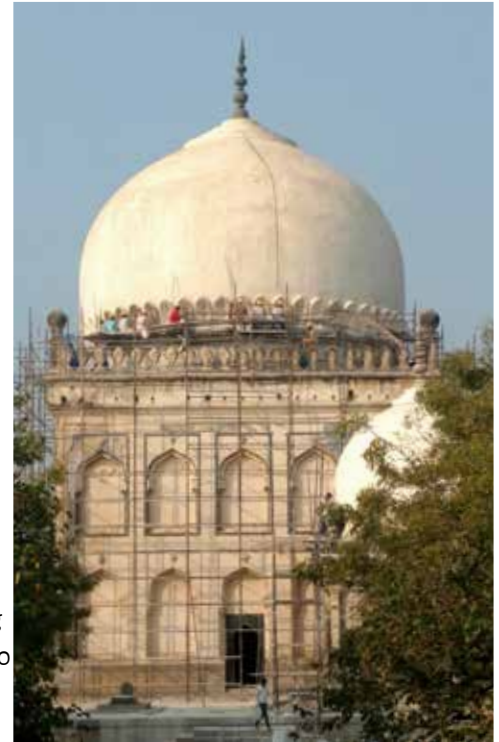
## Mausoleum of Ibrahim Quli Qutb Shah

## Restoration of External Surface

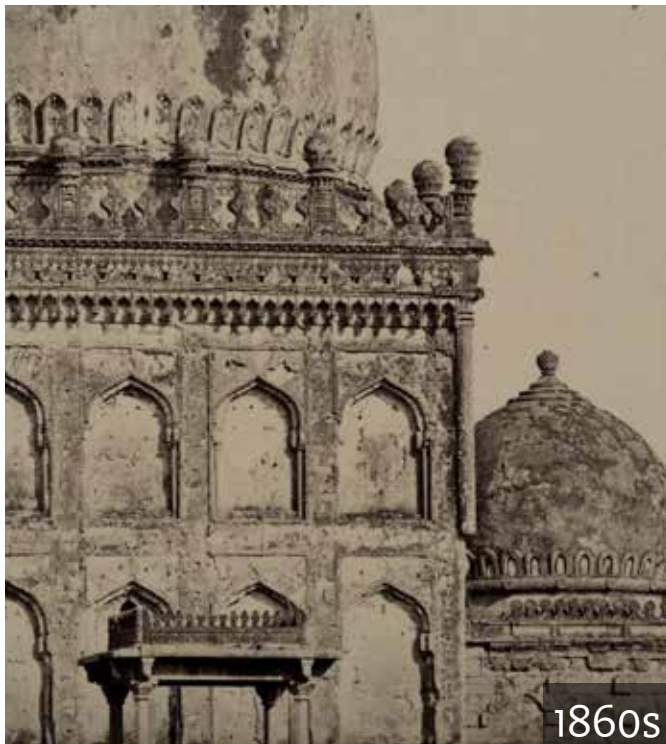
The dome over 6 meter in radius and 11 meters in height has an approximate area of 500 square meters. It clearly showed signs of deterioration with cracks on the surface permitting water ingress and vegetation growth. Upon inspection, it was found that the surface plaster was in dilapidated condition. The merlons below the dome had been covered up with later added layers of lime and original details obfuscated. The drum below the dome also showed signs of deterioration. In the internal chamber, the dome had clear signs of dampness and thin layer of lime punning was flaking at multiple spots. In addition, later added plaster layers had altered the original architectural character of the internal and external facade.

**ACTION TAKEN:**

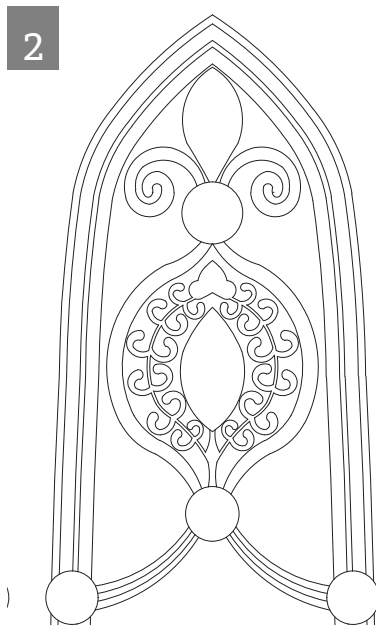
- Dismantling of multiple layers of damaged and loose cement plaster on the dome was carried out along with removal of thick plant root growth. Following this, repairs in lime plaster on the external surface of the dome measuring 5500 square feet were completed in 2 days with 24 master masons.
- Final finish of the dome with lime punning was completed in a single day to minimize joints which would have led to future ingress of water.
- Merlons below the dome were investigated for original details based on archival image as the original details had been obfuscated by covering them with later added layers of lime plaster. Upon investigation, impressions of the two distinct details were found. Based on the site evidence and archival images, details on the 53 of 56 petals have been restored and 3 have been left with the impressions of original details found.
- On the external surface, the paving in brick and cement abutting the main cenotaph was removed. This has revealed original stone edging on all sides.



*Dismantling of damaged and loose cement plaster from the dome    20<sup>th</sup> century cement and brick paving abutting the main cenotaph removed*

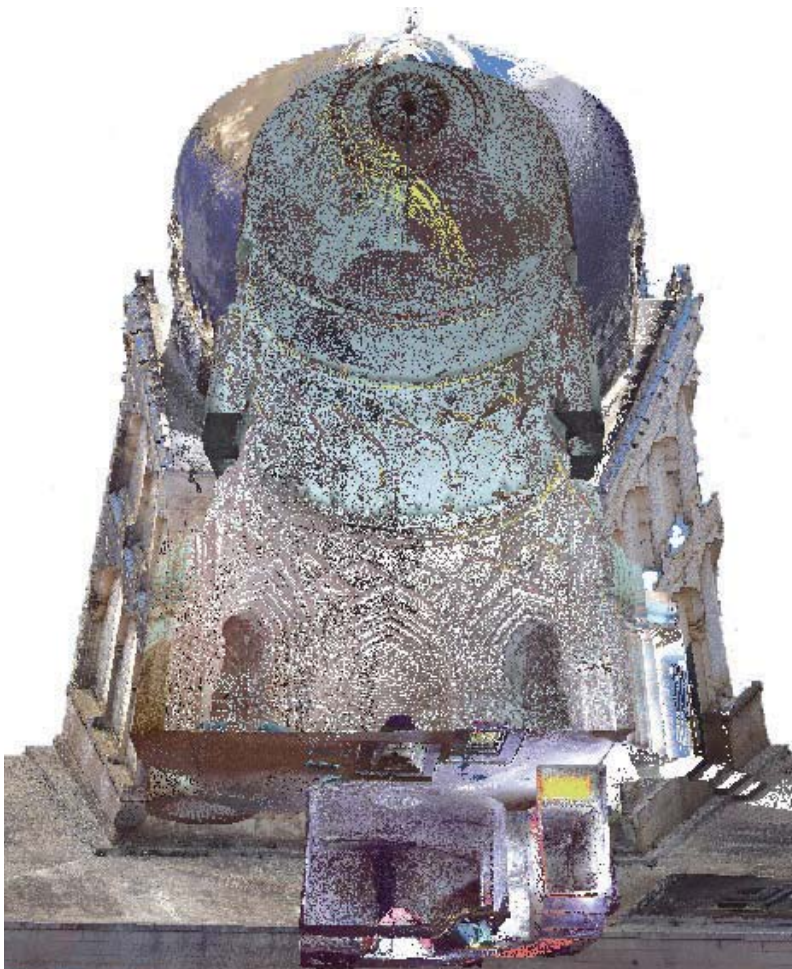


The 1860s image shows the tomb of Ibrahim Quli Qutb Shah with profuse ornamentation on the parapet - these were replaced in a later alteration, as seen in the image taken before conservation in 2013.

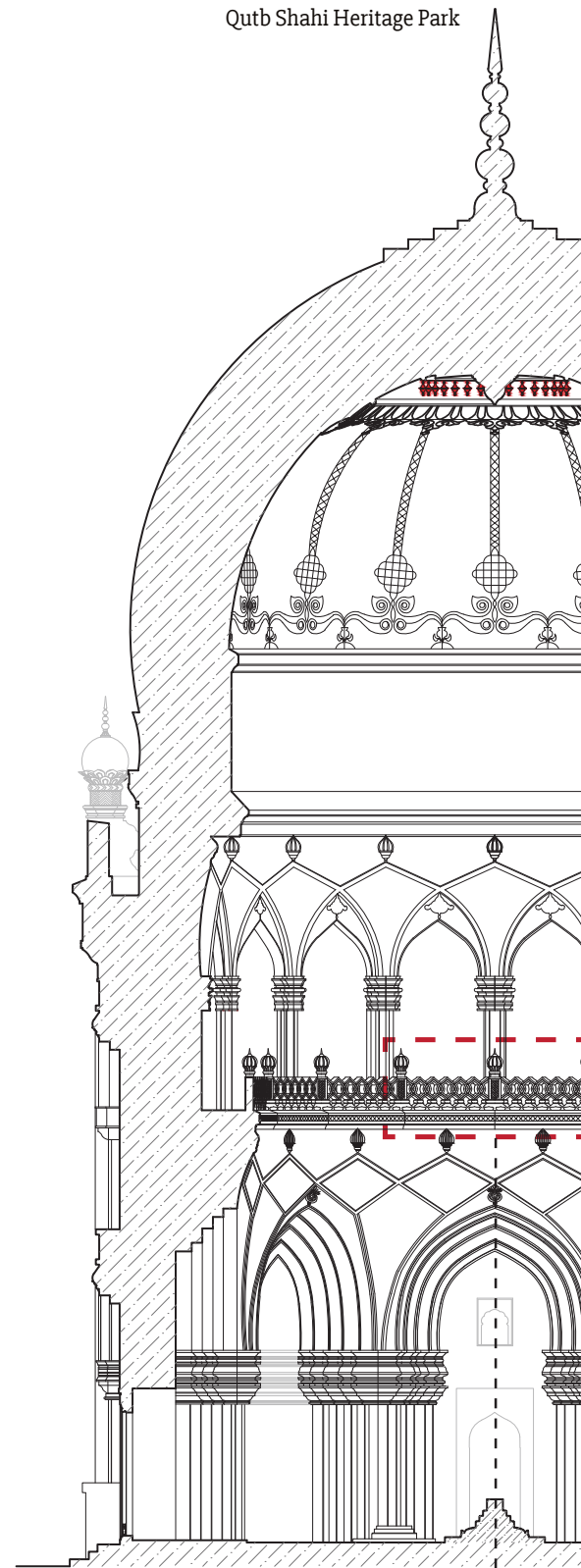


1. Investigations carried out on the basis of archival research revealed the traces of original details.
2. The detail was documented in precise detail, to create an AutoCAD drawing which is used to create a template of the pattern.
3. After carving the motif in lime plaster using the template made, craftsman finishes the pattern in the final layer of fine lime plaster.

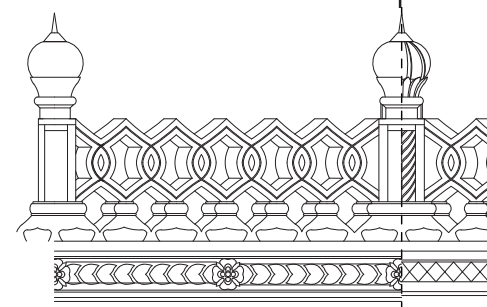




Laser scanning data showing a 3D section of the tomb

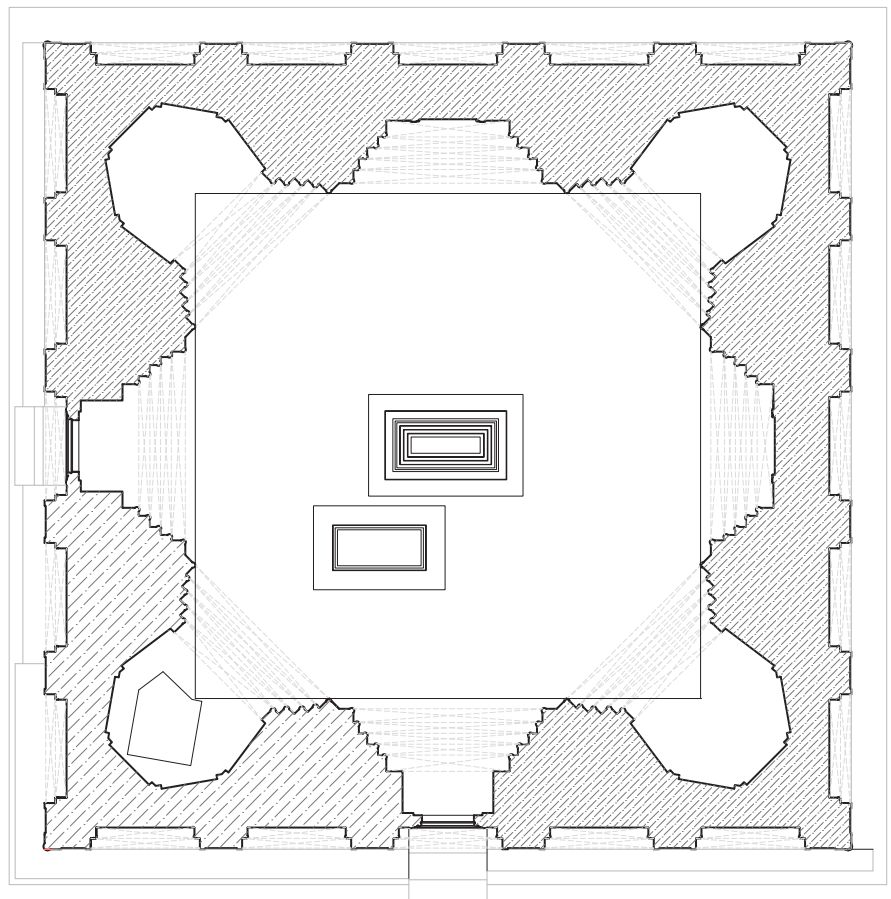


Section



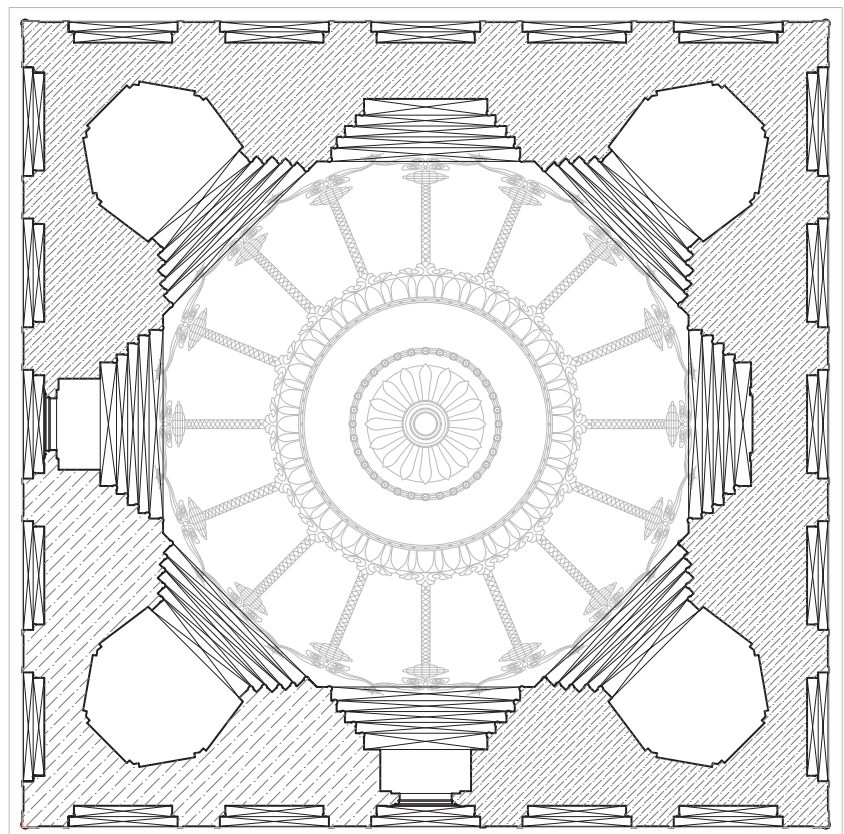
Before conservation

Details of



Main crypt chamber

0 750 2250 3750mm



Reflected ceiling plan



## Restoration of Internal Surface

### ACTION TAKEN:

- The internal dome surface and the ornamental details were carefully cleaned of modern layers and repaired and finished with lime.
- 6 missing wooden pendants of the central medallion at the dome ceiling were reinstated as per evidence on the ceiling medallion. 12 pendentives were damaged and repaired using lime traditional lime mortar matching in detail and design with the existing.
- Careful removal of modern whitewash and plaster layers revealed a number of original chevron pattern details at the shaft of the minarets situated on arch gallery level, which were then repaired and restored in lime plaster.
- Minarets and ornamental details on the internal gallery level were cleared of modern cement layers, revealing original profiles and details. Restoration of the details was done based on evidence found and the finials were crafted and installed on the 16 minarets.
- Wall surfaces and ceiling of crypt beneath the mausoleum were covered with soot and internal finish was flaking. The soot and flaked lime finish was carefully scraped and repairs were carried out using traditional lime mortar. The ornamental ceiling medallion was partially missing and it was restored as per the existing stucco evidence.



(Left) Final lime punning of the ornamental detail on the internal surface below the dome; (Top Right) The internal dome surface and the ornamental details were carefully cleaned of modern layers and repaired and finished with lime; (Bottom Right) Outline of the original detail found on dismantling of modern plaster layers on internal surfaces

- Dismantling modern layers from the internal surfaces of the cenotaph chamber revealed the original moulding and capital details. The missing and damaged portions of the moulding have been repaired as per the original evidence using traditional lime mortar and lime putty containing organic additives. Missing finials on 16 minarets were reconstructed using lime mortar as per the existing design and installed.
- Appropriate wooden doors have been fixed to the arcaded openings on the eastern and southern sides of mausoleum.
- The damaged central medallion on the dome ceiling was repaired with lime mortar and finished with lime putty and organic colors as per the physical evidence.
- The ribs on the internal dome was scrapped of the later added layers and repaired with lime plaster.
- The NE and NW alcove ceiling and central bay on the northern internal facade has been retained as per the condition found before commencement of conservation. This is to depict the stark difference between the conserved interiors and the previous condition depicting the later added plaster layers.
- The bulb of three minarets was missing and had to be reconstructed using traditional lime mortar and stones.
- A number of medallions below the arch gallery level had only partial fragments of the original ornamentation as most of ornate stucco work was damaged and only faint outer impressions exist. It was decided to simply consolidate the medallions using lime mortar without restoring the missing details in absence of adequate physical evidence.
- A number of original details were obfuscated by addition of modern plaster. This was carefully removed in order to mitigate any unintended damage to the original details. The missing portions were restored based upon the existing site evidence.
- Meticulous documentation has been carried out of the details revealed on the internal and external surfaces.

#### **NEXT STEPS:**

- Dismantling the 20th century cement concrete on terrace to remove later added additional load on the structure.
- Lime concreting to be laid on the terrace after as per approved slopes to drain water away from the structure.

#### **IMPACT:**

Reconstruction of collapsed corner and relaying of lime concrete at terrace has not only ensured long-term preservation but also revived the original intent of the builder. The indication of doorways has revealed the fact that the principal mausoleum would have been open on all the four sides and would be an important investigation in all monuments built later to this. Installation of granite stone flooring would provide a water-tight permanent surface not susceptible to wear and tear of the visitor footfall.



# 05

## Conservation of Qutb Shahi Chaukhandi

Trabeated stone beam and column structure housing a grave is situated on the western edge of the plinth of Mausoleum of Ibrahim Quli Qutb Shah. There was partial damage to the parapet battlement and bulb of corner minarets was missing at south-west and south-east corners.

### OUTCOME:

- Missing battlements and ornamental details on the parapet have been restored with traditional lime mortar and finish with lime putty as per the existing site evidence.
- Bulb of corner minarets situated on the south-west and south-east corners were missing. These were reconstructed as per the design and detail of the site evidence.

### NEXT STEPS:

In view of the partly damaged parapet, it was decided to restore the damaged portions using traditional lime mortar. Appropriate provisions for drainage of water away from terrace were made to drain water away from structure.



*The missing battlements of the chaukhandi were restored by master craftsmen along with the corner minars*

## Anastylosis of collapsed Chaukhandi

Located to the immediate west of Mausoleum 17, and an erect chaukhandi, a trabeated structure with stone beams supported by brackets and placed on beams, similar stone elements belonging a collapsed chaukhandi are lying on the ground. Careful reassembly of the stone elements lying on the ground adjacent to existing Chaukhandi structure indicate several cracks, which have resulted in detachment of contiguous parts of beams and columns. For this very purpose the stone pieces were individually documented.

### OUTCOME:

- After visual survey of the site premises, four capitals matching precisely in dimensions and architectural specifications have been discovered with size of the missing capitals.
- These capitals were found lying adjacent to Mosque 11 located near the site museum.
- The capitals will be fixed on top of the columns and the beams will rest on them.
- A comparative study with the existing Chaukhandi and reference to archival images (1860s) has aided in carrying out a detailed anastylosis of the dismantled structure.

### NEXT STEPS

In view of the partly missing column piece, it was found advisable to reconstruct the missing portion of one of the broken column. These disjointed pieces need to be attached using an appropriate anchoring system. Further research needs to be carried out on the appropriate anchoring of the broken pieces.



*(Left) Stone elements found on the ground belonging to the Qutb Shahi period Chaukhandi*

*(Below) Stone capital found near mosque no. 11*





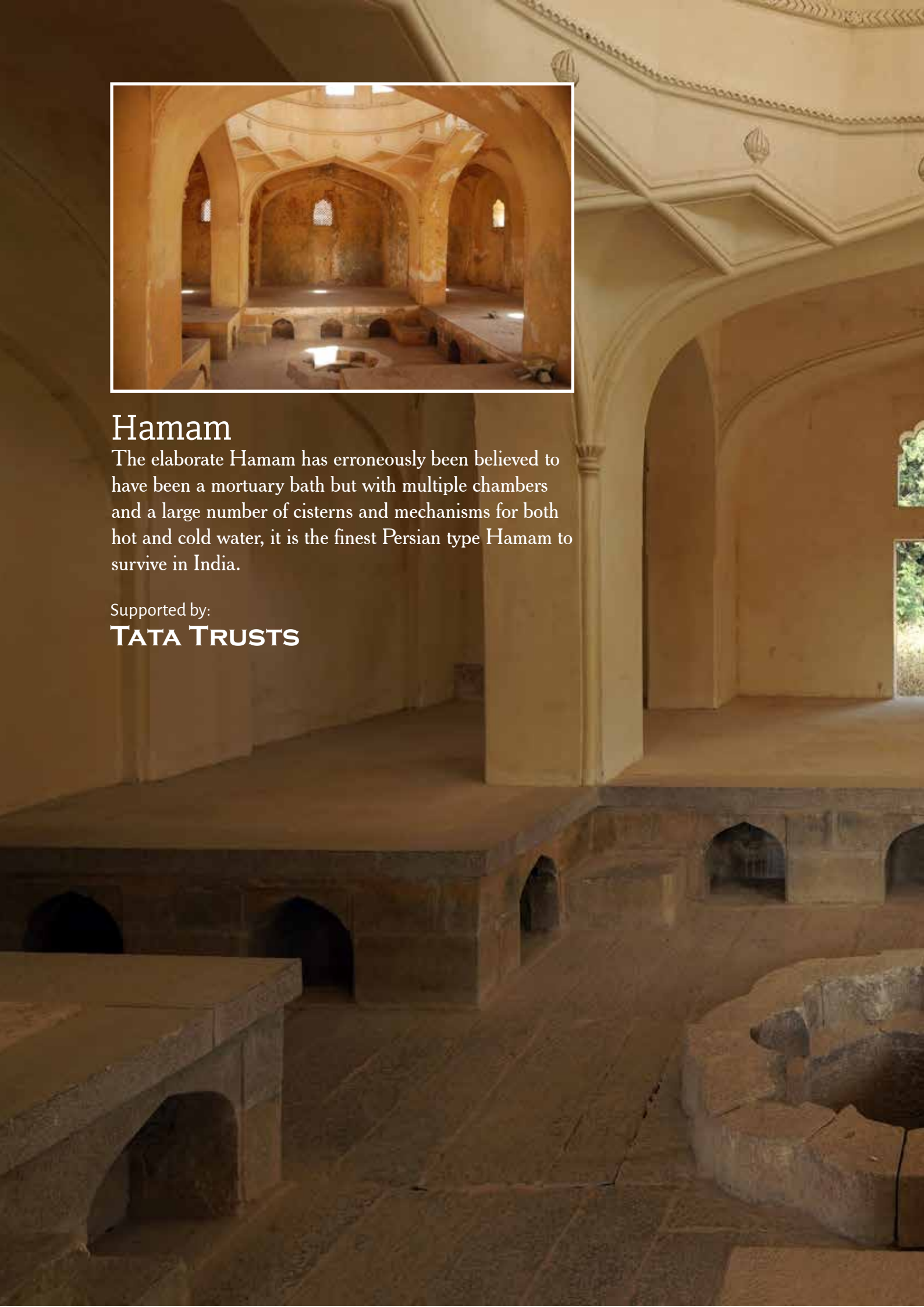


## Hamam

The elaborate Hamam has erroneously been believed to have been a mortuary bath but with multiple chambers and a large number of cisterns and mechanisms for both hot and cold water, it is the finest Persian type Hamam to survive in India.

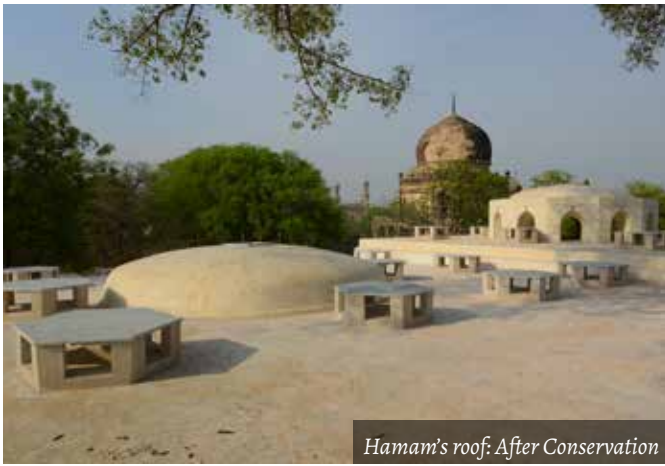
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*Hamam's roof: After Conservation*



*Dismantling of damaged and loose cement plaster from the facade*

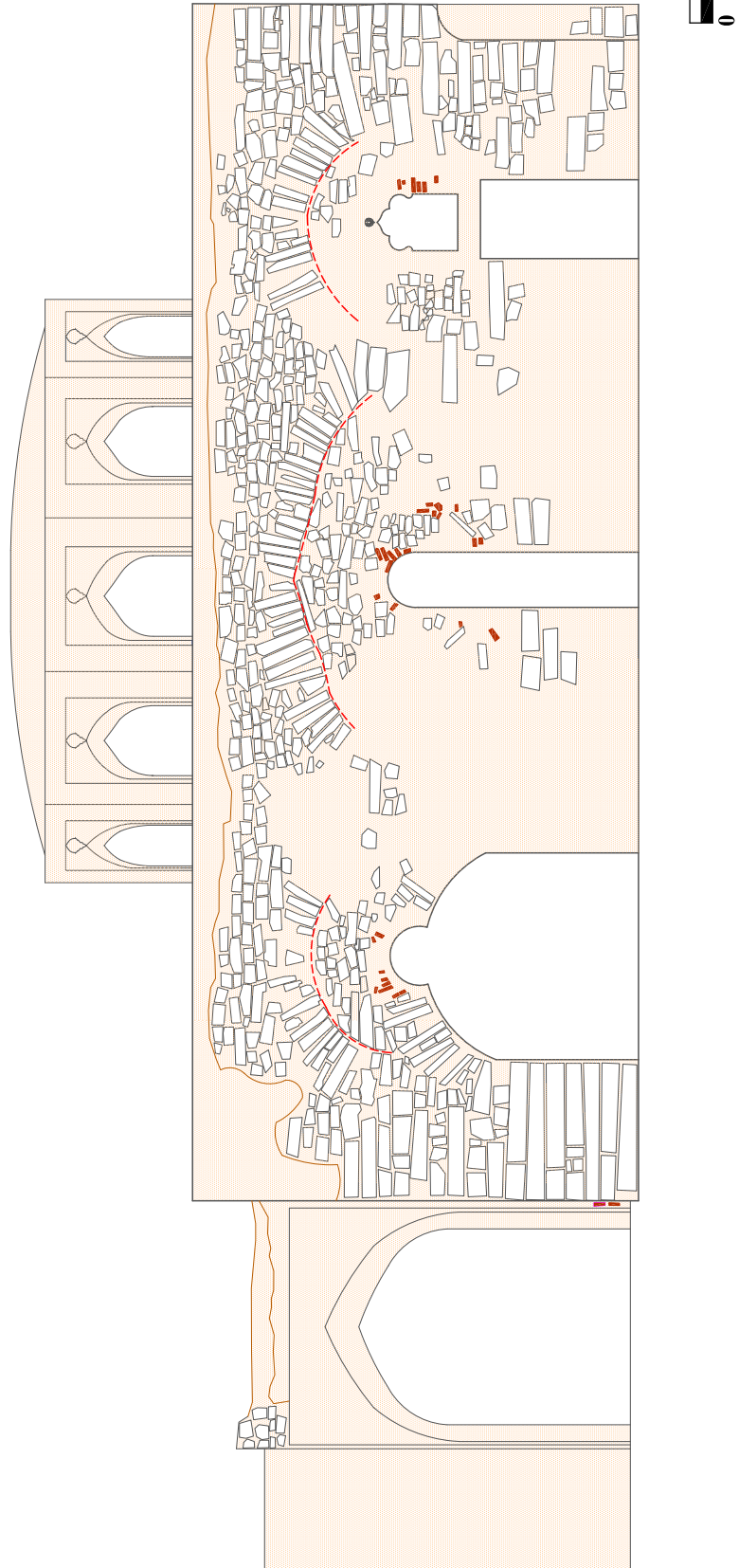
# 06

## Hamam & Serai

### Restoration of External Surface

#### ACTION TAKEN:

- Lime plaster has been applied on the eastern external facade after dismantling of modern plaster and stone-by-stone documentation of the original arch profiles.
- Cement on the northern facade was dismantled. The surface details were documented, and modern brick infill from the openings removed. Lime pointing was carried out on the surface after necessary masonry repairs and underpinning of the wall surface at portions.
- Following the removal of cement layers from the east and north facade of the main structure, detailed stone to stone measurement was carried out.
- Skylights on the roof of Hamam have been covered with brick piers and granite stone covering in octagonal and square profiles. The piers have been finished with lime putty. The projected height of the piers ensures sufficient ambient light and ventilation while restricting access of rainwater into the monument.
- The three tiered tank on the west of Hamam has been consolidated with stone masonry to match the height of reconstructed walls with the adjoining terrace level. Lime concrete has been laid at the stepped terrace to allow rainwater to drain away. Water spouts have been installed on the lower terrace for dissipation of rain water.
- Removal of cement pointing from the northern external facade of Hamam was carried out and subsequently re-pointed with traditional lime mortar.
- Projected mouldings in lime mortar were made around the openings to mitigate ingress of water through the openings into the internal chambers.
- Conservation works have commenced on the serai adjacent to the west of Hamam. This area has been proposed to be developed as an office and exhibit space which would house the artefacts and other findings revealed at site during scientific and archaeological investigations.
- Modern cement screens and brick infill walls, as well as cement and paint layers from the surfaces have been carefully removed to reveal the original structure.
- The modern upper storey Reinforced Cement Concrete structure above the existing museum block has been dismantled revealing remains of the original structure above. Lime concrete flooring with dressed edging stone has been discovered. A number of coping stones were found to missing and since been reinstated.
- Column bases of the arched corridor of serai have been revealed to north of the museum block establishing the existing museum block as a part of the serai.





- A water tank of dressed stone and a network of terracotta water channels connecting the water tanks to the collapsed ramp of Hamam Baoli have been discovered in the courtyard to the north of the museum and the earth profile lowered to the original levels.
- The existing office and artefacts from the museum have been relocated to facilitate conservation works.
- 152 chajja stones have been installed in position on the east, south arm of the serai and a part of the southern external facade based on the archival evidences.
- A 0.75 meter high random rubble masonry parapet wall has been built over these chajjas as per the archival evidence.
- The grid to raise columns for corridor of the eastern courtyard has been marked on site in the eastern courtyard to facilitate reconstruction of collapsed portions of the corridor.

#### NEXT STEPS:

- Final lime plaster and lime punning shall be applied on the southern façade below the chajja after restoration of missing details.
- Physical investigations shall be carried out on the southern forecourt of the Hamam and the adjoining Sarai to finalize the levels of earth and access to the structure.
- Proposal for the museum development and office space shall be prepared and shared with the Department of Archaeology and Museums, Government of Telangana for approval.
- Conservation works on the adjoining Serai shall commence and post completion of the conservation works shall be converted into a museum to house the archaeological findings.
- Dismantling the 20<sup>th</sup> century cement concrete on terrace shall commence.
- Lime concreting to be laid on the terrace after as per approved slopes to drain water away from the structure.
- 30mm thick granite stone flooring shall be laid in accordance to the approved flooring layout.
- Installation of steps using hand chiselled dressed granite blocks of appropriate colour inside the existing museum space shall commence.
- The arched corridor on north and east wing abutting the Hamam Baoli shall be reconstructed over the remains of the bases found, with arches spanning 3.0 metres in length and width.

#### IMPACT:

Reconstruction of collapsed corner and relaying of lime concrete at terrace has not only ensured long-term preservation but also revived the original intent of the builder. The indication of doorways has revealed the fact that the principal mausoleum would have been open on all the four sides and would be an important investigation in all monuments built later to this. Installation of granite stone flooring would provide a water-tight permanent surface not susceptible to wear and tear of the visitor footfall.



*Dismantling of modern RCC structure above the existing museum block*



*Chajja stones were installed based on archival evidences*

## 07

## Abdullah Mosque

Conservation works had been going intermittently on the mosque since its commencement in 2014 on the request of Department of Archaeology and Museums. The roof, external facade below the chajja levels on western, southern and northern sides were previously completed, ensuring no augmented deterioration of the structure. Eastern principal facade and corner minarets on the terrace required to be restored to their original form.

## ACTION TAKEN:

- The eastern facade which has the most amount of intricate ornamentation above the three principal arches was covered with paint which had to be carefully stripped. The missing details bands were restored in traditional lime mortar and finished with lime putty added with organic additives.
- The repairs to eastern facade includes repairs to the missing portions of medallions, mouldings and intricate incise plaster work.
- Repairs and reconstruction of the missing and damaged details on the multi-tier corner minars have been completed with lime plaster and final finish of lime putty.
- The bulb above the minars had multiple deep holes and they were plugged with lime mortar. The bulbs were hollow from top, probably to hold finials which are missing and no physical or archival evidence is available. These holes were plugged with hand-carved tapered granite blocks to stop the ingress of water.
- Restoration of missing ornamental details on the battlement situated around the perimeter of terrace has been completed.
- Repairs to the tear drop patterns on the shaft of corner minars below the chajja level were restored in missing portions.
- A dozen battlements were reconstructed along the parapet and below the arch gallery level on the corner minars in stone and lime plaster.
- The stairway on the north side has been repaired, first by removing the cement added as a part of the 20<sup>th</sup> century inappropriate repairs. Plaster repairs and finishing with lime putty were carried out.
- Plaster repairs and restoration of ornamental jaali work on the southern and northern external facade below the chajja level were completed as per the existing site evidence.

## IMPACT:

Abdullah Mosque following its complete restoration is accessible for worshippers. Completion of restoration works have ensured long term preservation revived the intention of the original builder and made the space pragmatically useful for the local communities again.

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*Repairs using lime plaster after removal of cement*



*Restoration of parapet minarets*



*Repairs of the ornamental stucco plaster on facade*



# 08

## Conservation of Mausoleum No. 06\*



Located to the west of the mausoleum of Ibrahim Quli Qutb Shah, set within the cluster of 10 monuments in the south west portion of the site, works were commenced to arrest the further deterioration. This included removal of modern cement, vegetation and restoration of ornamental details.

### OUTCOME:

- Repairs to the terrace surface were carried out after vegetation removal. Minor repairs to the parapet details, water outlets and corner minarets have been completed, including installation of finials.
- Modern cement layers have been carefully dismantled from the external facades, as well as the internal wall and ceiling surfaces.
- Minor repairs and final finish with lime punning has been completed on the internal surfaces.
- Plaster repairs were carried out at the parapet level, portions of the capital details, and the external plinth surface.
- 30 mm thick textured granite stone flooring has been installed as per approved layout and appropriate slope.

### IMPACT:

Though one of the minor structures in the complex, conservation works were required to be undertaken here to ensure long-term preservation.

*\*The name of the monument is unknown and hence, has been numbered in the inventory*

*(Left) Restoration of the facade; (Top Right) Plaster repairs at the parapet details;  
(Bottom Right) Final finish with lime punning at the internal portion after repairs*



# 09

## Conservation of Mausoleum No. 14\*

Located to the west of the mausoleum of Ibrahim Quli Qutb Shah, set within the cluster of 10 monuments in the south west portion of the site, works were commenced to arrest the further deterioration. This included removal of modern cement, vegetation and restoration of ornamental details.

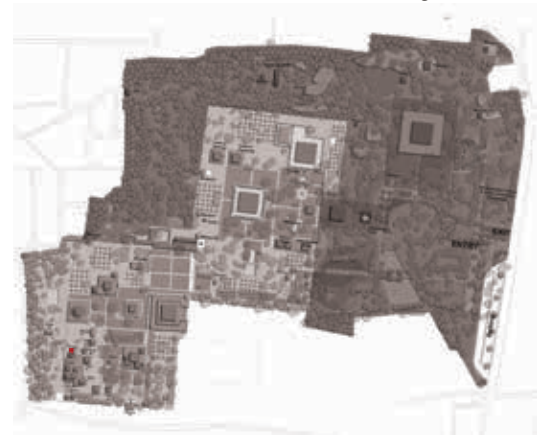
### OUTCOME:

- Dismantling of cement plaster and scraping of flaked lime wash from the terrace, external and internal surfaces has been carefully carried out.
- Cement from the internal and external surface has been replaced with traditional lime mortar and finished with lime putty with added organic additives.
- Original details revealed on dismantling modern cement and plaster layers were documented and restored to the original profiles.
- Alternate cusped and pointed arches were revealed after dismantling of later added 20<sup>th</sup> century layers on the parapet surface. They have been restored and finished with lime punning.
- Only the impressions of ornamental details exposed on the facade have been restored as sufficient site evidence depicting complete design profile was not available.
- Intersecting arches and an ornamental rhombus band below the internal dome—discovered after dismantling of cement- have been restored along with lime punning, and impressions of the original details found have been exposed.
- 30 mm thick textured granite stone flooring has been installed as per approved layout and appropriate slope.
- Minor repairs and final finish with lime punning has been completed on the internal surfaces.
- Plaster repairs were carried out at the parapet level, portions of the capital details, and the external plinth surface.
- Lime concreting using small sized aggregate was laid in appropriate slope over the terrace.

### IMPACT:

Conservation works on the structure have been completed and a plinth protection with landscaping of its setting will be carried out in year 2017.

*\*The name of the monument is unknown and hence, has been numbered in the inventory*



Final layer of lime mortar being applied on the facade



Original details revealed



# 10

## Conservation of Mausoleum No. 16\*

Located to the south of the mausoleum of Jamshed Quli Qutb Shah, set within the cluster of 10 monuments in the south west portion of the site, works were commenced to arrest the further deterioration and consolidate few remaining remnants of the original mouldings as seen in the archival images. This included removal of modern cement, vegetation and restoration of ornamental details.

### OUTCOME:

- Cement from the internal and external surface has been replaced with traditional lime mortar.
- The missing octagonal profile corner piers on all four sides have been reconstructed in stone masonry based on archival images and physical measurements at site.
- The corner minarets at the parapet level have undergone necessary repairs and restoration of missing plaster details.
- Missing finials were crafted as per the original evidence and subsequently installed.
- Ornamental details at the parapet level have been repaired and missing elements restored.
- Missing mouldings on the external facades have been restored as per traces of original details found on dismantling of modern layers.
- 10 battlements were missing at the ledge level and these had to reconstructed as per the existing design.
- Modern cement plaster from the internal surfaces was dismantled and replaced with traditional lime plaster and finished with lime punning.
- Modern cement concrete flooring was dismantled.
- To ensure long term preservation, 30 mm thick granite stone slabs were laid with lime mortar over a layer of base lime concrete in approved pattern and appropriate slope.
- Installation of 6 water spouts at the terrace level on the southern, northern and western sides has been carried out.

### IMPACT:

Though one of the minor structures in the complex, meticulous conservation works were required to be undertaken to restore the missing mouldings, capital details, arch crowns and ensure authenticity of material, form and design.

*\*The name of the monument is unknown and hence, has been numbered in the inventory*



(Middle ) Restored facade of the mausoleum; (Bottom) Reconstruction of the octagonal profile corner pier

# 11

## Conservation of Mausoleum No. 17\*

Located adjacent to mosque 14, set in close proximity to the mausoleum of Jamshed Quli Qutb Shah, conservation works needed to be carried out carefully ensuring long term preservation of the structures. At many locations, the building was covered with cement plaster added as a part of the 20<sup>th</sup> century repairs. Modern repairs have been carried out in cement which led to further damage to the underlying lime plaster. At the eastern facade, due to differential settlement of earth, a major structural crack was visible and required urgent attention.

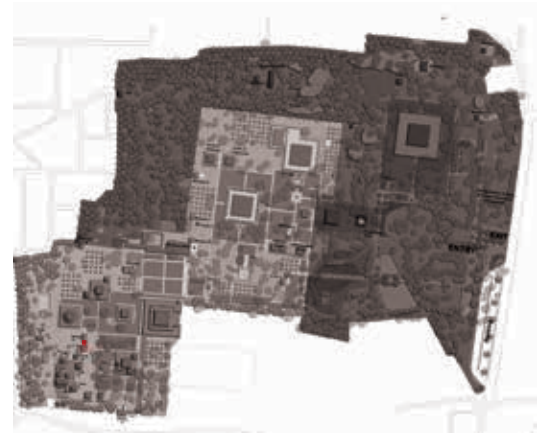
### OUTCOME:

- Modern cement plaster has been carefully dismantled from the terrace, external facades and internal surfaces.
- Re-plastering with lime mortar and lime punning has been completed on the internal surfaces along with restoring the missing moulding details and ornamental flower patterns.
- Grouting of structural cracks on terrace and external surface on east side has been completed.
- Plaster repairs and restoration of the missing ornamental elements of the minarets and ornamental details at the parapet level have been completed.
- Repairs to the shallow dome and terrace with traditional lime mortar have been completed.
- In an effort to determine the original floor levels, the cement concrete in the arcade corridor was dismantled and 30 mm thick granite stone slabs were laid as per approved pattern and appropriate slope.
- In the central octagonal chamber, upon inspection it was observed that the existing lime concrete flooring was in a reasonable state and it was left intact.
- 12 finials were crafted and installed on the minarets situated above the parapet level. The finials were based upon existing site evidence and matched in detail and design with the existing remnants of a solitary finial.

### IMPACT:

The completion of restoration works has led to long term preservation along with reviving the architectural integrity of the building. Stitching of structural cracks will mitigate any future movement.

*\*The name of the monument is unknown and hence, has been numbered in the inventory*





# 12

## Grave Enclosure of Neknaam Khan

Situated at the north-east corner of the plinth of Ibrahim's mausoleum, the open to air grave enclosure has been subjected to lot of deterioration and battlement details and corner minaret above the enclosure wall were severely damaged and required attention.

### OUTCOME:

- Cement added as a part of inappropriate 20<sup>th</sup> century repairs was removed from internal and external surfaces. Re-plastering was carried out with traditional lime mortar and finished with lime putty containing organic additives.
- Missing battlements and ornamental details on the southern entrance have been restored as per the existing site evidence.
- Modern cement flooring was laid in the open enclosure with the grave situated at the centre. Cement concrete was dismantled and site cleared of debris, revealing the original lime concrete base.
- 30 mm thick granite slab flooring was laid as per approved pattern and slope.
- Finials of approved detail and design were installed on the four corner minarets.

### IMPACT:

Conservation works were required to be undertaken here to ensure long term preservation and to reinstate missing elements and stucco ornamentation.



# 13

## Mausoleum of Muhammad Amin

Located adjacent to Mausoleum of Ibrahim Quli Qutb Shah, this square building capped by a bulbous dome and accentuated finial, works were undertaken to arrest further deterioration caused by years of neglect. The dome showed signs of deterioration with cracks on the surface resulting in water ingress and vegetation growth. Upon closer inspection dome was found to be covered with cement mortar. Significant deterioration of internal ceiling was visible. This included flaking of internal wall finish and number of missing details and ornamentation.

### Restoration of External Surfaces

#### OUTCOME:

- At the onset, all the cement and loosed lime plaster from the dome surface was carefully dismantled.
- Removal of cement revealed holes that were up to 0.6m deep in the dome surface and these were subsequently, filled up with stone and lime mortar.
- Cement added as a part of inappropriate 20<sup>th</sup> century repairs was removed from internal and external wall surfaces. Re-plastering was carried out with traditional lime mortar and finished with lime putty containing organic additives.
- Over half a dozen craftsmen were simultaneously engaged on the dome for the duration of re-plastering and finishing with lime putty, in order to minimize the joints in successive layers of plaster applied.
- Missing battlements on the northern and southern parapet were reconstructed with stone, lime mortar and finished with lime putty added with organic additives.
- The merlons were repaired with the original details cleaned and finished while missing portions restored.
- Missing portions of the ornate band and floral medallions below the merlons were also similarly restored carefully matching the original in all respects.
- Finials of approved detail and design were installed on the four corner minarets.



(Left) Mausoleum of Muhammad Amin: during conservation; (Right) Restoration of damaged and missing battlements on the parapet was carried out



## Restoration of Internal Surfaces

### ACTION TAKEN

- Upon investigation of loose plaster at cenotaph level, original details were found to be obfuscated with later added cement thereby altering the original patterns of mouldings and stucco plaster.
- From the central medallion on the ceiling of internal dome, cement, modern paint and dilapidated lime plaster were removed, repaired and restored meticulously by master craftsmen using traditional lime mortar and natural colors.
- The entire internal surface was cleaned and scrapped manually and repairs were carried out at relevant portions.
- 4 damaged merlons were carefully conserved with minor missing portions restored.
- Original details at the main cenotaph level were restored as per the available evidence revealed upon the removal of later added plaster layers. This included arch crowns, medallions, mouldings bands restored with traditional lime mortar.
- Dismantling of the cement and loose plaster at the main cenotaph level also revealed the existence of the openings on the southern internal facade as well. The entire surface was re-plastered with lime mortar and the opening marked with recessed groove.
- Modern cement flooring was laid in the internal chamber. Cement concrete was dismantled and site cleared of debris, revealing the original lime concrete base.
- To ensure long term preservation, 30 mm thick granite stone slabs were laid with lime mortar over a layer of base lime concrete in approved pattern and appropriate slope.
- The modern panel doors on the north was replaced with historically appropriate wooden doors.

### IMPACT:

Completion of conservation works after removal of 20<sup>th</sup> century cement layers and subsequent repairs using traditional lime plaster has led to long term preservation coupled with the reinstatement of the architectural integrity as envisaged by the original builders.



*(Left) Restoration of incised lime plaster details on the internal surface; (Right) Final finish with lime punning at the internal portion of the mausoleum*

# 14

## Plantation

A tree mapping exercise was carried out in 2014-15 to ensure all the existing trees are marked on the topographical map and the details of the plant along with height, size of the girth and the canopy was documented to enlist the various species growing in the complex. Nativity of the trees was ascertained. The trees have been incorporated in the landscape design to ensure no tree is being cut. The north zone and the area west of the cluster of monuments in southwest quadrant have been proposed as an ecological zone to house the existing biodiversity.

Upon clearance of building debris and wild growth on the north and west side, a need was felt in 2015 to carry out judicious plantation on the periphery with thick bushy trees.

### ACTION TAKEN

- Over 1500 saplings of 7 local varieties have been planted in the southwest quadrant.
- In the Idgah, as a part of the “Telengana ku Haritha Haram”, 1000 saplings were planted before the Id-ul-Fitr.
- The local community along with the Hon'ble Member of Legislative Assembly participated in the programme.
- 3000 tree saplings of local varieties have been procured and are being maintained in the site nursery for future plantation.
- Due care is being taken of the newly planted as well the existing trees in the site with required water, insecticides and organic manure.

### NEXT STEPS:

It is necessary to ensure that the planted saplings as well as the existing trees of the site are maintained properly. Transplantation, if necessary shall be carried out to ensure that the trees growing on the monuments are allowed to thrive.



*Preparation of pits for plantation*



*Planting saplings of native species*



# 15

## Revival of Baolis

### Badi Baoli

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Conservation of the Badi Baoli, after its collapse in 2013 required over 4000 man-days of work to clear the Baoli of collapsed masonry, under extremely dangerous conditions but the reconstruction of 600 cu.m of stone masonry has led to an annual collection of 3 million liters of water - now used for irrigation and conservation works.



Conservation works commenced only after testing the strength of the base masonry. The reconstructed base masonry was monitored for almost a year before reconstruction of collapsed arcade could be started.

#### **ACTION TAKEN:**

- At the onset all the loose mortar and debris was carefully removed before commencement of reconstruction.
- Reconstruction of masonry piers using stone and lime mortar was carried out.
- Arch profiles and details on the Badi Baoli were measured and drawings updated.
- Five collapsed arches were reconstructed using traditional honey comb brick shuttering.
- Over a dozen master masons were simultaneously engaged in the reconstruction process in order to minimize the joints.
- The missing cusped arch profiles were restored carefully using the existing arches on other three sides as physical evidence.
- The medallions on western facade of arcade were restored based upon the archival photographic and site evidence.
- Partially damaged and missing medallions on the northern, eastern and southern facades were carefully restored matching the original details.
- Raking of cement and pointing with lime mortar were carried out on the lower stone masonry below the arcade level on all the four sides.
- 68 stone beams were laid over the reconstructed arched corridor.
- Lime concrete was laid over the stone beams to provide a water-tight, even base for installation of granite stone slabs to be installed above.
- Collapsed low height parapet wall was reconstructed above the western arcade using the eastern parapet as site evidence.
- Partially damaged parapet on the southern facade was repaired with traditional lime mortar and covered with final coat of lime putty.
- Missing ornamentation in incised lime plasterwork was similarly restored carefully matching the existing and archival images.
- 5000 square feet of 30 mm thick textured granite stone flooring has been installed in arcade and terrace adjoining the low height parapet as per approved layout and appropriate slope.
- Over 90 meters of 8 inch thick solid granite stones have been installed as edging along the flooring.
- Plaster repairs of ancillary portions below the ramp have been carried out. Lime concrete has been re-laid on terrace of ramp.
- Earth around the terrace edging has been graded up to two meters width with adequate slope ensuring proper drainage of rainwater away from the structure.

#### **IMPACT:**

Reconstruction of collapsed corner and relaying of lime concrete at terrace has not only ensured long-term preservation but also revived the original intent of the builder. The indication of doorways has revealed the fact that the principal mausoleum would have been open on all the four sides and would be an important investigation in all monuments built later to this. Installation of granite stone flooring would provide a water-tight permanent surface not susceptible to wear and tear of the visitor footfall.





## Revival of Baolis

The Qutb Shahi Heritage Park has seven step wells in the complex including the 2 wells in the Deccan Park and one on the Idgah. These step wells termed as “Baolis” have been strategically located in the complex to ascertain maximum collection of rain water for further use in irrigation purposes.

However, the recent alterations to the earth profile and accumulation of silt and building debris through the years had altered the course of these step wells. The Badi Baoli faced a near total collapse of the western side and the baolis near Jamshed and Hamam had dried out due to lack of water through surface run off.

It was necessary to carry out all the required works to revive these baolis in order to collect the rain water for further use in irrigation and conservation works.

### ACTION TAKEN

- The Baoli to the west of Jamshed was cleaned of all the debris, silt and fallen materials, engaging over 250 man days of unskilled manual labour.
- Water channels leading to the Baoli were cleaned of the deposits and re-graded towards the baoli.
- Catch basins were made at appropriate location on the channels to receive rain water. The nearby earth was re-graded towards these catch basins.
- Similar efforts were taken up at the baoli north of Hamam along with removal of inappropriate vegetation causing threat to the structure.
- A channel connecting the aqueduct in archaeology north of Hamam to the baoli was made to ensure the surface water from the area runs off to the well.
- The existing channels of the Badi Baoli was cleaned and vegetation growth removed for smooth flow of water.
- In the consecutive rains of 2016, over 35 lakh liters was collected in the Badi Baoli alone. The other 2 baolis near Hamam and Jamshed Quli also collected over 15 lakh liters each.

### IMPACT

Simple yet effective measures have ensured a huge collection of rain water setting an example of water conservation for the region. The collection has ensured adequate water for irrigation and conservation works for the whole next year.



(Top) Cleaning of debris, silt and collapsed materials from Baoli to the west of Jamshed; (Middle) Cleaning up of the aqueduct leading to the Baoli to the West of Jamshed; (Bottom) Badi Baoli: after conservation



# 16

## Archaeological Excavations

The 1st season of Archaeological investigations, carried out in 2014 - 2015, mainly focussed the area north west of Hamam, area south of Sultan Quli Qutb Shah's mausoleum and area south of Ibrahim Quli Qutb Shah's mausoleum. To the south of Ibrahim Quli Qutb Shah's mausoleum, the gateway connecting the mausoleum complex to the Golconda fort was discovered. 500 metre long enclosure wall around the Mausoleum of Sultan Quli Qutb Shah was discovered clearly establishing the presence of garden enclosure for the mausoleum. In the area to the north of Hamam, remains of mosque with chambers were discovered stating the presence of settlements. Several water tanks, terracotta channels, wells and aqueducts were unearthed. Adequate conservation measures have been undertaken in 2015 at the area to ensure long term preservation of the archaeological remain.

Past experience have ascertained the presence of archaeological substances spread along the complex. It was necessary that these archaeological remains are identified and marked thoroughly in the topographical map to ensure that the proposed landscape development do not damage the same. Investigations have been carried out based on leads of evidences found at the site around the Hamam, Badi Baoli, Mausoleums of Ibrahim Quli Qutb Shah, Mohd Qutb Shah, Taramati and Premamati.

### ACTION TAKEN

- A significant wall similar to the larger lower plinth of the Idgah was discovered to the west of the Idgah. The wall was found to be built with ashlar stone lining with supporting stone masonry behind.
- Upon inspection, the dressed stone coping on the stone lining was found to be at same level as the Idgah establishing the wall as a portion of the Idgah.
- Further investigations lead to the remains of steps aligned to the main 'qibla' of the Idgah on the west.
- Over 80 metres long 30 cm diameter terracotta water channel was discovered at the area north east of the mausoleums of Taramati and Premamati.
- Several water tanks were unearthed around the mausoleum of Mohd. Qutb Shah with inlets in the wall. However, the channels beyond these inlets could not be traced as they might have been damaged during the later alterations of the complex.
- The northern edge of Badi Baoli was investigated for water channels owing to the withdrawal mechanism available.
- A 150 metres long water channel with 15 cm diameter was traced originating from one of the tanks at the Baoli and leading to the baoli located to the south east of Fatima Sultana's mausoleum.
- An aqueduct originating from the baoli west of the Hamam serai was found to have traversed along the southern forecourt of Hamam until southwest corner of the garden of Mohd Qutb Shah's mausoleum.
- Similarly, 2 more water channels were found in the garden area further south of the Hamam forecourt.
- Heaps of earthenware, Chinese pottery, terracotta figurines, glass bangles and glazed tiles were found covered in the serai.

### IMPACT

The underlying archaeology discovered will provide valuable inputs for an appropriate landscape development in the second phase. The final proposed earth levels and the orientation of the pathways will be determined by these underlying archaeology. It is also imperative that all the discovered archaeological remains may not necessarily be exposed due to issues of water stagnation and safety.



(Top) Remains of steps found aligned to the main 'qibla' of the Idgah; (Bottom left) Over 80 meters long, 30 cm diameter terracotta water channel was discovered at the area north east of the mausoleums of Taramati and Premamati; (Bottom right) Water tank found in the area north of the mausoleums of Taramati and Premamati



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## Development of Heritage Circuit in Hyderabad

The Hon'ble Union Finance Minister, in his 2015 budget speech, promised grant for the building of visitor facilities, landscape restoration and illumination for the Qutb Shahi Heritage Park. Owing to issues in channelization, the grant was put on hold for over a year. However, in 2016, the Union Ministry of Tourism reconsidered this grant to the State Tourism Development Corporation, with the development of three additional historic sites consisting of Paigah Tombs, Hayat Bakshi Begum Mosque and Raymond's Mausoleum, thereby creating a Heritage Circuit in Hyderabad. The funds were agreed to be channelized through the Swadesh Darshan scheme of the Central Ministry.

### ACTION TAKEN

- AKTC in collaboration with the Telangana State Tourism Development Corporation prepared the concept note for the development of the four sites.
- Topographical surveys and physical assessment of the all the sites were carried out to understand the existing site and prepare a holistic landscape plan for the sites.
- A Detailed Project Report was prepared for the development of the circuit. This included drawings and estimates of the proposed development.
- At Qutb Shahi Heritage Park, it is proposed to build a state of art interpretation centre showcasing the culture of the Deccan region, parking for 100 cars, visitor amenities and landscape development.
- The entire complex is proposed to be developed into 3 zones - the core heritage zone comprising of the monuments, the ecological zone on the north and around Idgah to maintain the biodiversity of the site and the visitors' zone at the existing Deccan Park area.
- At the Paigah Tombs, Hayat Bakshi Begum Mosque and Raymond's Mausoleum, it is proposed to develop visitor amenities, parking facilities and appropriate landscape to enhance tourist experience.
- AKTC has also agreed to undertake conservation works simultaneously at the Paigah Tombs as the monuments here are found to be in need of urgent attention.
- A total of Rs. 99.42 crores have been sanctioned by the Central Sanctioning and Monitoring Committee (CSMC) for the Swadesh Darshan Scheme in Ministry of Tourism.

### NEXT STEPS:

A Detailed Project Report (DPR) shall be prepared to be submitted to the Central Ministry of Tourism by the Telangana State Tourism Development Corporation (TSTDC) for Development of Heritage Circuit in Hyderabad under the Swadesh Darshan scheme.



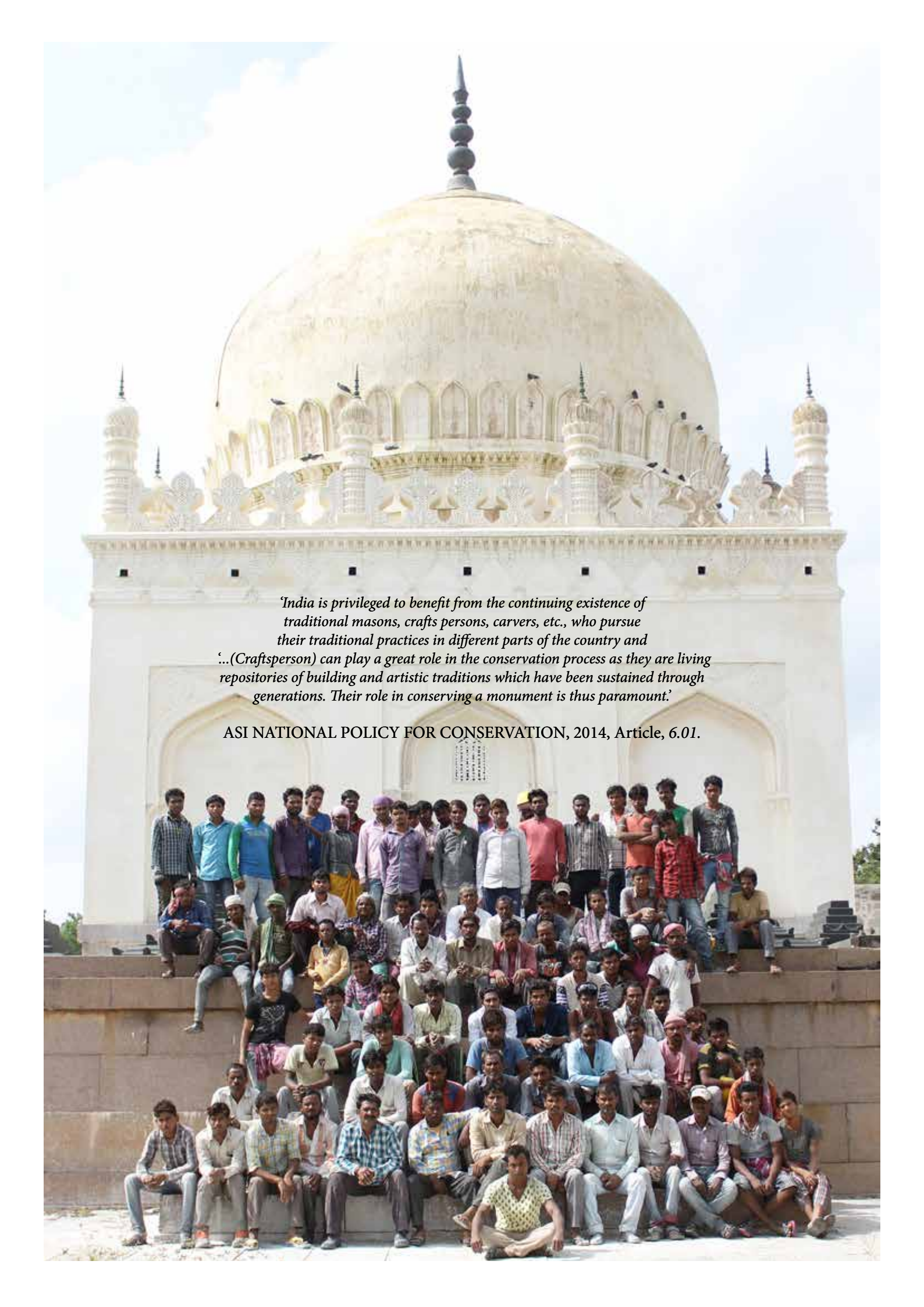
Raymond's Tomb



Hayat Bakshi Begum's Mosque



Paigah Tombs



*'India is privileged to benefit from the continuing existence of traditional masons, crafts persons, carvers, etc., who pursue their traditional practices in different parts of the country and '...(Craftsperson) can play a great role in the conservation process as they are living repositories of building and artistic traditions which have been sustained through generations. Their role in conserving a monument is thus paramount.'*

ASI NATIONAL POLICY FOR CONSERVATION, 2014, Article, 6.01.



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- Mr. Srinivas Kunapareddy, Video Consultant
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