

BALLARD BUNDER GATEHOUSE

CONSERVATION REPORT

DOCUMENTATION, ANALYSIS & PROCESS



FOR NAVAL DOCKYARD, MUMBAI.

K.UNWALLA ARCHITECTS, MAY 2005

OWNERS : NAVAL DOCKYARD, MUMBAI

FUNDING: NAVAL DOCKYARD & MMRDA

PROJECT DURATION:

JUNE 2004 to SEPTEMBER 2004

DOCUMENTATION:

OCTOBER 2004 to DECEMBER 2004

PROJECT PREPARATION:

FEBRUARY 2005 to MAY 2005

PROJECT EXECUTION:

DATE OF COMPLETION: MAY 28, 2005

PROJECT COST:

40 LAKHS

PROJECT CONSULTANTS:

K. UNWALLA ARCHITECTS, MUMBAI



AT THE HELM

**VADM MADANJIT SINGH PVSM, AVSM, ADC,
FLAG OFFICER COMMANDING IN CHIEF,
WESTERN NAVAL COMMAND**

RESTORATION TEAM

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**Structural Consultants - Epicons Consultants Pvt. Ltd.
Stained Glass - Swati Chandgadkar
Conservation Contractors - Savani Construction Co.
Electrical Contractors - Harshad & Co.
Landscape Contractors - Green Grower**



CONSERVATION REPORT



BALLARD BUNDER GATEHOUSE - CONSERVATION REPORT - MAY 2005

CULTURAL SIGNIFICANCE

HISTORICAL BACKGROUND

The Ballard Bunder Gatehouse was built in 1920, as a commemorative entry to the shared alignment of the 1870s at the location of the erstwhile Ballard Pier, as envisaged in the planned development of Salim's Estate, George's Road, Church Road of the Salimji Trust conceived the Ballard's Estate (1908 - 1947) in the Neo-Classical style, reminiscent with contemporary Bauhaus designs in a European setting.

The planned development with its streets layout, public roads and street furniture are a fitting tribute to the Neo-Classical style. The location of the Ballard Bunder Gatehouse along the Shore's (Vishwadevs Road (Ballard Road)) is in a contextual response to the prominent road setting, complementing the adjacent Salimji Trust's Mawani.

The Gatehouse having a scenic association with the landmark location along the harbor offers the architectural style of the Estate and forms its design and details with the contemporary triple gatehouse of the street - sets - the gatehouse establishing an access to the urban waterfront promenade into the role station and the adjacent's Dock. The bold and rich appearance of the rusticated yellow stone masonry, profiled with deep cuts indicative of Doric, adds dignity to the contemporary structures of Ballard Estate. The similar scale as demanded by its function, non-the-less early complements the European Renaissance character of the setting.

HERITAGE STATUS

The Heritage Regulations for Greater Mumbai - 1995, designates the "Fort Precinct" as a Listed Heritage Precinct. The Ballard Pier area and a part of the Naval Dockyard area are designated as Sub-Precincts of the overall Fort Precinct under the same Heritage Regulations. The Naval Dockyard Authority's scheme to designate the Ballard Bunder Gatehouse as a listed heritage structure of the Naval Dockyard Precinct has been accepted by the Heritage Conservation Committee of Municipal Corporation of Greater Mumbai.

NEED FOR RESTORATION

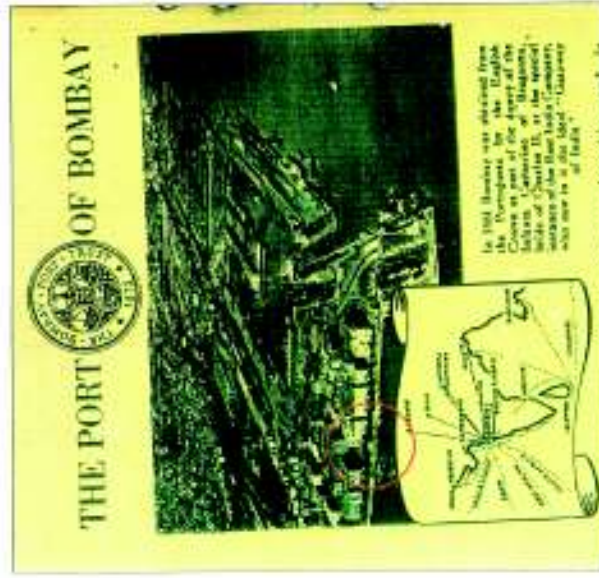
The Ballard Bunder Gatehouse having served its original function till 1950s, fell into disrepair and by virtually abandoned building, high security wall subsequent to its inclusion into the Naval Dockyard. The Gatehouse was adapted as an internal department office in the year 2002, after carrying out certain structural repairs and alterations for the new use. Some of the interventions carried out were of obstructive nature and non-conducive to the historic structure. Appreciating the importance of this structure at the Ballard Estate Precinct, the Naval Dockyard Authority initiated necessary efforts in mid 2004 for its restoration and bringing it into public view.

FUNDING

The project has been undertaken at a total cost of Rs. 36 Lakhs by the Naval Dockyard Authority with partial funding assistance from the Mumbai Metropolitan Region Heritage Conservation Society.



Source: Bombay - The Gateway to India, Journal by Ranney Club of Trade, 1909



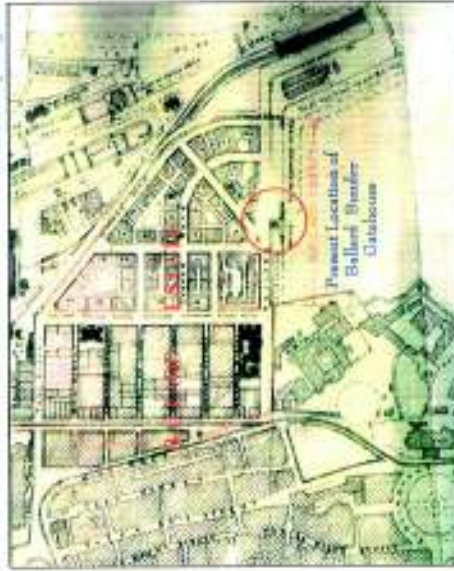
Source: The Handbook of India, Journal by Publishing Division, Govt. of India, India Railway Department (probably Date Not 1920 to 1929)



Ref. Map of Bombay (Area) by Colonel Langdon, 1871 (part). Source: Dept. of Archives, Govt. of Maharashtra

THE ADMINISTRATION REPORT (SOLIDARITY, TRADE TRAFFIC STATISTICS) QUOTE

Ballard Bunder was quite a station. The construction of the new jetty on the south of Ballard road was taken in hand and will be completed at the end of the year.



Ref. Map of Harbour of Bombay (part) by Ranney Club of Trade, 1909. Source: Dept. of Archives, Govt. of Maharashtra



PRESENTATION AND SETTING



HISTORICAL WATER FRONTAGE



PRESENT SETTING

PROPOSAL

The Ballard Bunder Gatehouse restoration project attempts to restore the building and its image, ensuring a secure future and to strengthen the visibility of the Jeddah through an appropriate landscape setting.

The monument is being adapted as a Museum exhibiting growth of the harbour and offering an opportunity for the public at large for viewing the exhibits.

CONSERVATION

The project envisaged acquiring a thorough understanding of the history, structure by carrying out architectural investigation, documentary research, recording, interpretation and assessment in the wider historic context. A methodology for repairs was designed to keep interventions to the minimum and to stabilise the building while retaining its original fabric. The conservation strategy aimed at achieving a sound structural condition that ensures long term survival, while meeting the requirements of use as a museum.

The landscape scheme involved demolition of the high security wall and its replacement with metal grill fence on the bottom of the grill gates at the Green Gate House of Jeddah Coast (Alexandria Coast). The scheme creates an elevated setting for the monument with it encloses the existing Main Tree with 13-000.

The conservation processes began with restoring the failing R.C.C. roof of structure and unearthing the original ground with stone cobbled floor that lay buried under a substantial layer of added masonry and concrete. Clearing of the stone to remove general soiling, tar, paint and cement accretions using proven conservation techniques has been undertaken substantially. The extensive use of cement plaster in the inner rooms has been replaced by lime plaster. A few random cracks in the stone masonry have been stitched with rose gum.

Additions of timber doors and windows to secure the new use of the building have been undertaken with careful design and detail. An added feature of stained glass in the main doors and windows that crowns the roof design on the frieze bands marks the face facade. General and focused interior lighting and exterior illumination of the monument are executed optimally with minimum disturbance to the historic fabric. Disposal of surface water is efficiently achieved using a 'French Drain' system which is carefully amalgamated into the historic landscape design.

THE BALLARD BUNDER MUSEUM

The Gatehouse Museum, dedicated to the city, depicts tales of its people and their contributions to the evolution of Jeddah. A story of how the city grew around its harbor is presented in the display of rare archival pictures and complementary narrative. The role of the Jeddah Navy is ably marriage in the display design within the gatehouse.

The Naval Authorities in a grand gesture have dedicated the restored Gatehouse to the city of Jeddah.



COMPARATIVE ANALYSIS HISTORIC & AS SURVEYED

COMPARATIVE ANALYSIS: HISTORIC & AS SURVEYED

1. SECURITY WALL:
THE EXISTING SECURITY WALL CUTS OFF THE VISIBILITY OF THE MONUMENT AND AS SUCH OBSCURES THIS LANDMARK LOCATION AND SETTING IN THE ORIGINAL SCHEME OF THE BALLARD PIER PRECINCT.

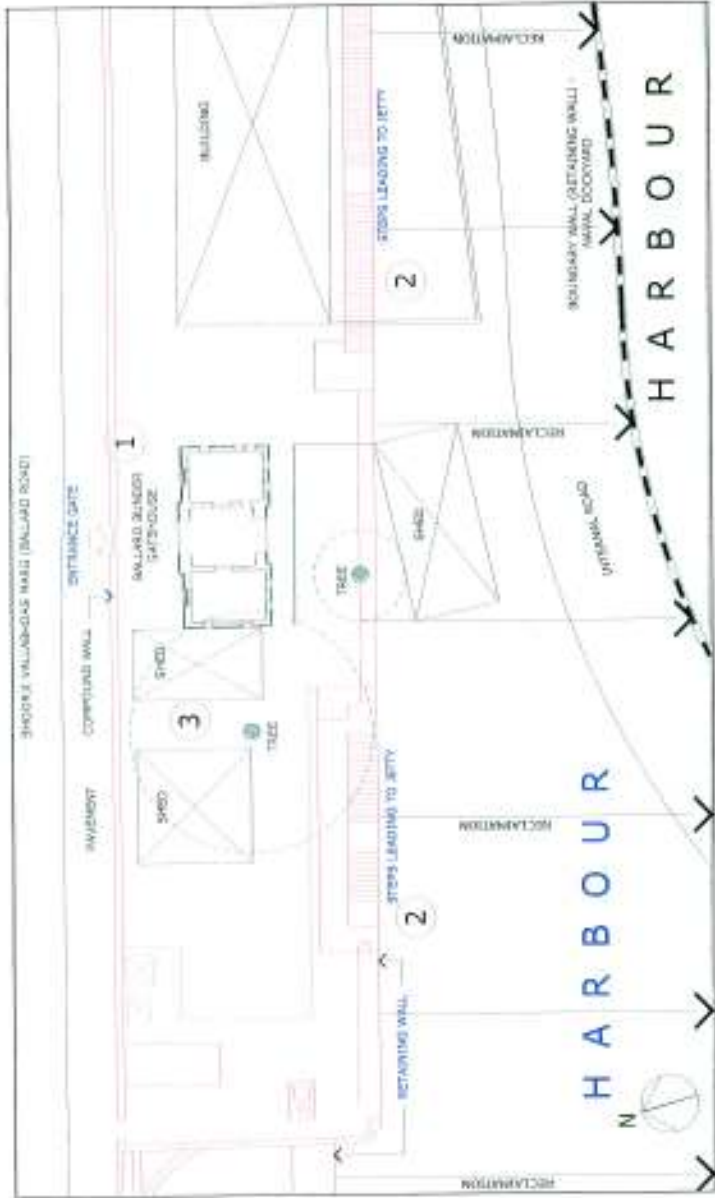
ACTION: IT IS PROPOSED TO BRING DOWN THE WALL AND REPLACE IT WITH GRILLS AND FENCING OF A DESIGN APPROPRIATE WITHIN THE NEO-CLASSICAL SETTING. THE SECURITY ASPECT OF THE NAVAL DOCKYARD I.e. IT IS DIMINISHED IN THE ABOVE ACTION IS PROPOSED TO BE RESTRICTED BY TURNING AROUND THE WALL AT THE REAR OF THE STRUCTURE. THE PROCESS AFFORDS A PROPER SETTING TO THE GATEHOUSE BY CREATION OF A PROPER PLOT AREA WITH OPEN SPACES.

2. HISTORIC ACCESS TO SEA:
HISTORIC RETAINING WALL & STEPS LEADING INTO THE SEA, TODAY LIES BURIED UNDER LAND RECLAMATION.

ACTION: STEPS MAY BE TAKEN TO UNEARTH THE ELEMENTS AT A LATER DATE SUBSEQUENT TO THE CURRENT RESTORATION PROCESS.

3. SHED:
EXISTING SHED WITH LEAN-TO-ROOF SITS ABUTTING THE HISTORIC GATEHOUSE SOILING THE STONE WALLS & ENCROACHING UPON THE SIDE OPEN SPACES.

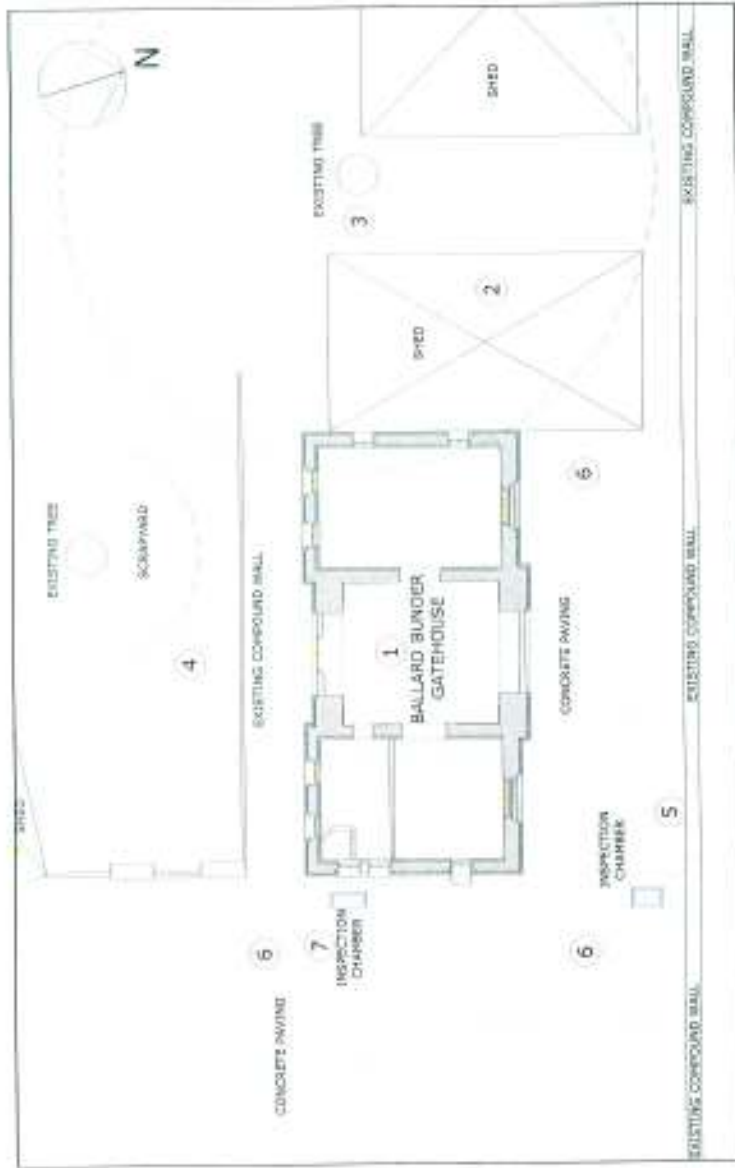
ACTION: IT IS PROPOSED TO DEMOLISH THE SHED TO CREATE THE ESSENTIAL SIDE OPEN SPACES.



Reference: City Survey Sheet No. 53



SETTING & PRESENTATION



Classic setting of the gatehouse before restoration



Security wall demolished to offer visibility to the structure and to re-establish the image of the node



Ballard Bunder Gatehouse amidst the cluster behind the high security wall



Storage shed between the Gatehouse and the tree was demolished to enable setting

1. BUILDING:
THE BUILDING HAVING BEEN ABANDONED WAS PUT TO USE AS R.S.O. QUARTERS AT NAVAL DOCKYARD HARBOR IN THE LAST DECADE AFTER MODERATE REPAIRS AND MODIFICATIONS.

ACTION: IT IS PROPOSED TO RESTORE THE AUTHENTICITY OF THE STRUCTURE AND ARCHITECTURE USING CONCEPT CONSERVATION TECHNIQUES. THE RESTORATION IS ALSO AIMED AT ADAPTING THE STRUCTURE TO A CONCLUSIVE NEW USE - AS A MUSEUM OF THE CITY AND THE NAVY.

2. SHED (DEMOLISHED):
EXISTING SHED WITH LEAK-TO-ROOF SETS ADJUTING THE HISTORIC GATEHOUSE SOILING THE STONE WALLS & ENCROACHING UPON THE SIDE OPEN SPACES. ACTION: IT IS PROPOSED TO DEMOLISH THE SHED TO CREATE THE ESSENTIAL BIOD OPEN SPACES.

3. EXISTING TREE (RAIN TREE):
PROBABLY PART OF THE ORIGINAL SETTING ACTION: RETAIN THE TREE AS FORMING A PART OF THE SIDE OPEN SPACES SO AS TO PROVIDE OPPORTUNITY TO ENHANCE THE MICRO - LANDSCAPE SETTING.

4. SCRAPYARD:
THIS AREA WOULD HAVE ORIGINALLY FORMED THE FRONTAGE OF THE GATEHOUSE ADJOINING THE HARBOUR. ACTION: THE PROPOSED WALL IS PROPOSED TO BLOCK THE OBTRUSIVE VISUAL CONTACT WITH THE AREA.

5. SECURITY WALL:
THE EXISTING SECURITY WALL CUTS OFF THE VISIBILITY OF THE MONUMENT AND AS SUCH OBSCURES THIS LANDMARK LOCATION AND SETTING IN THE ORIGINAL SCHEME OF THE BALLARD PERIENCT. THE WALL ALSO CARRIES ELECTRICAL CABLES (HTL & LTL) SUPPORTED ON BRACKETS AND ANCHORED TO THE WALL.

ACTION: IT IS PROPOSED TO BRING DOWN THE WALL AND REPLACE IT WITH GRILLS AND FENCING OF A DESIGN APPROPRIATE WITHIN THE NEO-CLASSICAL SETTING THE SECURITY ASPECT OF THE NAVAL DOCKYARD WHICH IS DIMINISHED IN THE ABOVE ACTION IS PROPOSED TO BE RESTRICTED BY TURNING AROUND THE WALL AT THE REAR OF THE STRUCTURE. THE PROCESS AFFORDS A PROPER SETTING TO THE GATEHOUSE BY CREATION OF A PROPER PLAY AREA WITH OPEN SPACES. ALSO IT IS PROPOSED TO LOWER AND DIRECT THE CABLES INTO THE SUBSOIL ALONG THE LENGTH OF THE WALL.

6. CONCRETE PAVING:
THE ORIGINAL GROUND LEVEL OF THE GENERAL SURROUNDING AREA HAS BEEN LARGELY ALTERED BY SOIL FILLING & CONCRETE PAVING.

ACTION: REMOVE THE ENTIRE CONCRETE PAVING AND GENERAL SOIL FILLING IN THE AREA ALLOCATED AS THE NEW PLOT AREA OF THE GATEHOUSE.

7. DRAINAGE SYSTEM:
EXISTING SYSTEM CARRIES THE DRAINAGE FROM THE SURROUNDING BUILDINGS AND SHEDS IN THE AREA. ACTION: WHILE MAINTAINING THE SERVICES IT IS PROPOSED TO ENHANCE ANY REDUNDANT SECTIONS.



SITE CLEARING



BALLARD BUNDER GATEHOUSE AMIDST CHAOS - BEFORE RESTORATION



ORGANISED LANDSCAPE SETTING AFTER RESTORATION

SITE CLEARING, DEMOLITION & DISMANTLING

The task of clearing the site began with removal of clutter around the monument. The store shed that lay abutting the west facade, having led to a severe soiling of the facade, was demolished, while the existing rain trees were woven into the micro setting of the proposed landscape scheme.

The prevailing usage as a scrap yard of the rear open space (original harbour frontage space) was substantially cleared to make way for the proposed setting and the complementing definition of the new security walls.

An impending rise in the surrounding ground level, alien to the origin of the monument, was built up with murrum filling and top concrete during the last decade, as an obtrusive intrusion into its life cycle. This was painstakingly removed, while seeking the original historic floor of the monument and the area of micro setting.

The much speculated cobbled floor unearthed itself in an almost pristine state, buried at a depth of 70 cms. below the top concrete paving in the central hall. The cobbled historic floor with minimal restoration has been retained as the floor finish in the central hall.

The original historic floor of the surrounding area was found intact only as a strip along the edges of the scrap yard (original harbour frontage) as 'setts' in blue basalt laid level with the floor of the hall. The setts were carefully removed and stacked for an adapted use in the project scheme.

Interestingly, a large tree trunk was unearthed along the eastern open space of the monument suggesting the existence of an old tree almost identical in size and position as the rain tree on the west. It was decided to retain the dead tree trunk and accordingly align the new security wall to accommodate the natural artifact within the landscaped setting.



Removal of debris between the structure and the tree after demolition of the shed



Layer of P.C.C. and murrum around the structure was much deeper than estimated.



Cobbles laid in continuation with the main floor of the Gatehouse were unearthed from the rear open space.



Dead tree trunk completely buried under the filling was restored and integrated in landscaped setting.



DEMOLITION & DISMANTLING



SECURITY WALL BEFORE DEMOLITION



DEMOLITION OF SECURITY WALL IN PROGRESS



Rear archway opened up after demolition of infill brick masonry.



Layers of concrete (with wire mesh reinforcement) removed from roof slab



P.C.C. floor and filling within the structure being removed



Removal of plaster exposes the composite masonry (Stone masonry with brick leaf wall)



Window frames and shutters dismantled - the dressed stone surrounds exposed.



Enhanced setting of the Gatehouse with the old rain tree forming its highlight

DEMOLITION & DISMANTLING

The overall excavation also unearthed several high and low tension electric cables, especially along the external wall (along the road), which became a scheduled item for removal of the redundant and realignment of the rest. Other services like drainage & water supply pipes, inspection chambers etc. to the monument and otherwise were provided a similar treatment after documentation.

The alignment of the security wall around the structure for creating a specific plot area with open landscaped spaces was formulated to include the tree stub. The arrangement enhances the presentation of the monument. The high wall abutting the road was demolished and the structure was thrown open to public view and restricted access from Bellard Estate.

LIST OF ITEMS: DEMOLITION / DISMANTLING

- Demolition of PCC floor and murrum fill within the structure and general surrounding.
- Demolition of brick infill masonry in arched door openings
- Removal of service pipes / fittings / fixtures from interior wall surfaces
- Removal of all electrical wiring / fittings / fixtures
- Dismantling of false ceiling and partitions from rooms
- Removal of Plaster from walls and ceilings
- Dismantling / removal of existing door & window frames
- Demolition of Security wall



ROOF



ROOF OF THE GATEHOUSE BEFORE RESTORATION



ROOF AFTER RESTORATION



Layers of loose filling material revealed after removal of tar felt.



Inspection of roof slab before removal of the layer of tar felt.



Roof slab prepared for polymer grouting



Application of polymer modified cement layer over prepared roof surface



Leveled roof surface before application of IPS layer.

ROOF SLAB: AN ASSESSMENT

The R.C.C. slab over the structure is original and designed during the inception of the structure in 1920, when the concept of steel reinforcement of cement concrete was in a yet infant stage.

Constructed so as to rest onto the chamfered jambs of the stone masonry walls at the soffit levels, the slab individually (as discontinued) spans across the central hall and the two rooms; the arrangement coordinated between the peripheral external and internal partition walls. Designed essentially as a flat form of a uniform thickness, the slab slopes down, beginning as a central ridge over the hall, and tapering to the external walls. The form thus inducing rain water discharge as a sheet flow over the triaxa bands.

The original design of the central hall slab is more sound, with the overall span broken up to rest on a grid of R.C.C beams forming a coffered soffit. The spans over the rooms are simply supported type. The design of reinforcement of the hall slab / beams was found to be sufficiently sound while that of the rooms was inadequate.

Interventions to the slab, in the past decade to afford a water proofing layer had been carried out. The interventions are of a superficial nature by an addition of a top concrete layer reinforced with steel wire mesh, covered with tar felt AND repair of the sffit concrete (reinforcement cover) of the slab.

DECISION

A detailed assessment of the condition of the slab was identified to be in an **urgent need for structural strengthening.**

A decision to afford structural strengthening in-situ, using proven techniques for water proofing and grouting, using polymer modified cement mortar, additional reinforcement and introduction of additional supports in the rooms to reduce effective existing spans was finalized.

The decision was taken in view of the load bearing structural support system of original fabric, which would be subjected to immense instability in account of the impact involved in the processes of a complete demolition and reconstruction of a new slab.



SLAB SOFFIT (HALL)



COFFERED SLAB OF CENTRAL HALL BEFORE RESTORATION



COFFERED CEILING AFTER RESTORATION



Reinforcement of coffered slab exposed after removal of loose concrete cover.



Application of Polymer modified plaster after introduction of additional reinforcement and new stirrups



Laying of electronic cables prior to Polymer treatment to coffered slab.



Strengthened coffered slab before application of Polymer modified mortar

ROOF SLAB: SOFFIT OF CENTRAL HALL

Observations:

Bulging of cover / loose cover at some locations indicating cracking of the cover, leakage stains indicating ingress of water, rusting / scaling of reinforcement. The reinforcement of an adequate design.

Processes undertaken:

- Loose, disintegrated and cracked concrete broken and removed using chipping hammer and / or light chisel upto sound core concrete.
- Loose rust from reinforcement removed by light tapping, chipping, hammering and scrubbing
- Brush application of Rusticide to rusted steel
- Additional reinforcement placed at the bottom and secured to the new stirrups
- New stirrups provided by drilling holes and anchoring the same into the rib of existing RC beam with epoxy putty.
- Application of 2 coats of Polyalk Fixoprime and cement slurry
- Application of Polyalk EP + cement slurry as Bonding coat after 45 hours to entire broken surface
- Hand application of Polymer Modified Mortar using Polyalk EP + cement + sand + water within 20 minutes after application of bonding coat (15 mm thick wet on wet application)
- Finishing the surface with steel trowel
- Air curing + sprinkling water for 3-4 days
- Plaster with cement + Sunplex
- Curing



SLAB SOFFIT (ROOMS)



SLAB SOFFIT IN ROOMS BEFORE RESTORATION



CEILING IN ROOM AFTER RESTORATION



Reinforcement of slab exposed after removal of loose concrete cover



ISMB 250 introduced to strengthen the existing slab and prevent further sagging.



Application of Polymer modified mortar after the application of rusticide treatment



Wooden frame suspended from slab with GI link chains to install lighting fixtures

ROOF SLAB: SOFFIT OF ANTE ROOMS

Observations:

Bulging of cover / loose cover at some locations indicating cracking of the cover, leakage stains indicating ingress of water, rusting / scaling of reinforcement. The reinforcement of an inadequate depth.

Processes undertaken:

- Loose, disintegrated and cracked concrete broken and removed using chipping hammer and / or light chisel upto sound core concrete.
- Loose rust from reinforcement removed by light tapping, chipping, hammering and scrubbing
- Brush application of Rusticide to rusted steel
- ISMB 250 introduced spanning across the length of the room to reduce the effective span of existing RC slab. Secured to the stone walls by special ("Hilti" make) bolts insertion of steel wedges between the steel beam and the slab.
- Application of 2 coats of Polyalk Fixoprime and cement slurry
- Application of Polyalk EP + cement slurry as Bonding coat after 46 hours to entire broken surface
- Hand application of Polymer Modified Mortar using Polyalk EP + cement + sand + water within 20 minutes after application of bonding coat (15 mm thick wet on wet application)
- Finishing the surface with steel trowel
- Air curing + sprinkling water for 3-4 days
- Plaster with cement + Sunplex
- Curing
- Wooden frame suspended on cranked hooks from slab soffit by G.I. link chains to install light fixtures.



FACADE



FACADE SOILED WITH STAINS (DUE TO WEATHERING AND TAR FROM THE TAR FELT ROOF PROTECTION) BEFORE RESTORATION



Ficus growth - a marginal problem, treated with a mixture of Hing, Jagni and unslaked lime



FACADE AFTER RESTORATION



Facade cleaning in progress



Application of petrol for removal of tar stains



Careful removal of nails embedded in the stone surfaces



An attempt at use of pressurised steam to remove stubborn tar stains from the stone surface did not prove effective.

EXTERNAL STONE WALLS RESTORATION AND CLEANING

Observations:

Robust load-bearing, coursed Ashlar masonry in yellow Basalt stone with rusticated dressing and profiled to create a depressed finely dressed border. The setting is in thin two mm flush lime-mortar joints.

Excellent craftsmanship and construction skill. The walls retain an excellent state of structural preservation while suffer from soiling/ staining/ tar and paint depositions.

Staining: Causes

- Staining of stone surface due to water ingress from the roof and rising damp from the foundations is evident.
- Staining of stone surface due to weathering.
- Stains of tar on western facade.
- Stains associated to adjoining filling / dump / P.C.C.
- Stains due to rusting of nails driven in the wall
- Paint stains due to surfaces used as a backing while painting other objects/materials - evident mainly in the plinth surfaces.

Staining: Treatment

- Removal of soiling by gentle mist spray and controlled pressure water jets.
- manual - light tapping / scrubbing / water application / Steam application
- Tar stains removed by Steam / diluted Petrol
- Careful removal of Nails / wooden blocks etc and sealing the holes / depressions with lime mortar

Vegetation Growth: Causes

Ficus growth at random locations along the decorative top frieze and walls - a marginal problem facilitated by part open joints.

Vegetation Growth: Treatment

The plant growth after careful removal, a proportionate mixture of Aśafēda (Hing), raw sugar (Jagni) and unslaked lime (kali chuna) was applied to the roots with good results.



FACADE



JOINTS AND CRACKS IN ASHLAR MASONRY SEALED WITH CEMENT



Plastic Repairs using lime mortar in locations where part stones had spalled



Damaged corner stone restored by stitching with SS pins and lime mortar jointing.



JOINTS AND CRACKS AFTER LIME POINTING



Removal of cement pointing / accretions by tapping.



Removal of cement from recessed joints and dressed stone surfaces



Deep recessed joints in stone masonry filled with cement mortar (before restoration)



Stone masonry after removal of cement accretions and cleaning.

EXTERNAL STONE WALLS JOINTING, POINTING, PLASTIC REPAIRS

Observations:

A widespread attempt to render the stone facade water proof had been attempted using hard cement mortar at:

- Randomly located fine superficial cracks in the body of the stones
- The wide, depressed border profiles of the stones having been mistaken as wide open joints had been completely sealed.
- A complete fill of open joint profiles in the masonry

Treatments:

- Cement Pointing of joints carefully removed manually by light tapping and use of fine chisels.
- Stubborn cement application removed optimally by tapping and light abrasive hammering. At a few locations the attempt was abandoned for reasons of causing undue damage to the body parent stone.
- Rejointing and pointing in lime mortar.
- Sealing Joints between Door / window frames and stone surface with Lime mortar
- Plastic Repairs using lime mortar in locations where part stones had spalled.



FAÇADE FEATURES



FRONT PEDIMENT BEFORE RESTORATION



Decorative façade features demystified by soiling / tar stains and cement application (before restoration)



Beauty of façade features restored.



FRONT PEDIMENT WITH THE NAME TABLET AFTER RESTORATION



Rear pediment being cleaned.



Cornice and frieze bands soiled by tar stains and weathering



Decorative frieze band being cleaned by scrubbing.



Restoration of façade features brings out the delicacy of the motifs.

FAÇADE FEATURES

Observations:

- The monument shares its architectural character with that of the "Green Gate Houses" at the end of the road, which shares its inception date with the monument.
- Decorative Façade features in the Frieze and cornice bands, the design motif depicting water waves. Identical details also appear in buildings of the precinct - New Customs House / BPT office in the Ballard Estate Area
- Decorative Panel depicting lotus flower identical in design Alexandria Gatehouse design)
- Name Tablet on pediment on the front & rear as shallow recessed engraving in the stone

Stains:

- Weathering stains
- Stains due to water flow
- General atmospheric soiling
- Tar

Damage due to Cement Pointing:

- Attempt to fill cracks / repair damaged portions with cement mortar
- Recessed band, an integral component of façade design along the top of the pediment filled with cement mortar

Treatment:

- Light tapping and scrubbing with nylon brushes
- Water jet (controlled) application
- Diluted Petrol applications
- Removal of cementitious layers / pointing / filling in recessed patterns
- Repointing with lime mortar



INT. WALLS (HALL)



EXPOSED ASHLAR MASONRY IN THE CENTRAL HALL BEFORE RESTORATION



RESTORED ASHLAR MASONRY IN THE CENTRAL HALL



Masking of electrical wiring with polished wood capping casing.



Fans suspended on steel beams, taking support on the vousoir of the intrados of the Bulls eye.



Lime pointing of ashlar masonry.



Structural crack in partition wall between the hall and the rooms caused due to insertion of steel beam. Note the disintegration of the stone voussoir at the beam.



Joining / pointing of ashlar masonry in progress.



INTERNAL WALLS CENTRAL HALL

Observations

- Central Hall has exposed ashlar stone masonry with fine flush lime-mortar joints.
- Lime joints filled with cement mortar in an attempt to seal them.
- The raked courses articulated to create raised & unfilled dado base which ascends around the arched openings an interesting.

Defects

Staining Causes

- Staining of stone surface due to water ingress from the roof and rising damp from the foundations is evident.
- Stains associated to adjoining filling / dump / P.C.C.
- Stains of cement applications on stone surface
- Several punctures / holes
- Electrical wiring without respecting the features and configuration of joints

Staining Treatment

- Cleaning of internal stone surfaces by appropriate method.
- Manual - light tapping / scrubbing / water application
- Careful removal of Nails / wooden blocks etc and sealing the holes / depressions with lime
- Jointing + flush pointing in lime mortar
- Sealing cracks with Lime mortar
- Minimum interventions and damage to stone walls while installing electric wiring / arranging display

Structural Crack

- Cause: Ceiling fans hung on steel angles, "L" shaped & jointed back to back, forming a beam spanning across the Hall, supported at the intrados base of the "Bulls Eye" opening in the partition wall. The off-centre support, induced pin pointed, rotational action in the masonry, and a resultant vertical through crack, travelling the full height of the walls - both partition walls.

- Treatment: The crack along its run is stretched using SS pins, grouted correctly into the parent wall structure and covered in lime plaster in the rooms.



INTERNAL WALLS

Ante-rooms



EXPOSED STONE MASONRY OF NORTH WALLS OF THE ROOMS DURING RESTORATION



Composite stone walls with brick inner leaf along three sides of the ante-rooms. Note the north wall devoid of the brick leaf, constructed in massive stones, stacked up in a single pile



LIME PLASTERED WALLS AFTER RESTORATION



Stone lintels above square headed openings in the rooms



Vertical structural crack in the masonry wall between the central hall and the rooms stitched with SS pins.



SS pins placed across opened joints of voussoirs of the ox-eye window.



Consolidation / Leveling of masonry surface with brick bats in lime mortar.

INTERNAL WALLS ANTE-ROOMS

Observations:

- Cement plastered (later intervention), last decade) painted walls
- Stains of Leakage
- Opening up of cement plaster revealed composite stone (massive stones arranged in single thickness, stacked up in horizontal courses) and Brick masonry (1/2 brick thick) wall, except the north wall, which is devoid of the brick layer.
- The structure inner brick leaf of the wall appeared to have been moderately disturbed (parts devoid of bricks) during the interventions carried out - the original lime plaster removal and re-plastering in cement plaster.
- Stone surfaces maintained undressed to provide a proper key with mortar for bricks and plaster.
- The wall constructed / set in lime mortar. The structural condition of the mortar and the overall structure in a state of good preservation.
- The wall structure is designed with massive horizontal 'through' zones in the general facade and pronounced at jambs and lintels of openings.
- The top course of stones are specifically of a more or less uniformly larger length, with a counter sunk rebate (inner top edge), to provide a support base for the R.C.C Slab.
- Vertical Cracks in walls induced by fan suspension system, as in the Hall.

Treatment

- Re-plaster brick leaf wall in lime mortar, subsequent to removal of all loose and disintegrated material, while consolidating the structure of the wall with brick bat packing.
- Stitching with Stainless Steel pins carefully designed and grouted into the parent stone wall along the line of fracture of the crack.
- Finish the surface in Lime wash (two shades).



FLOOR (HALL & ROOMS)



ORIGINAL COBBLED FLOOR EXPLORED DURING EXCAVATION



COBBLED FLOOR OF CENTRAL ROOM AFTER RESTORATION

FLOOR CENTRAL HALL AND ANTE-ROOMS

Observations:

- The original floor of Central Hall comprising of cobble stones lay buried under substantial layers of brick bat, murram and P.C.C. before it was exposed.
- Dressed Stone steps (two risers) leading to the ante-rooms were unearthed during excavation. This revealed a level difference of 20 cms between the floor levels of the hall and the rooms.
- On cleaning, the cobbled floor of the Hall was found in excellent condition hence it was decided to maintain the same with marginal restoration and cleaning.
- The original flooring in rooms comprised of Shalhad stone slabs which were fairly damaged and had lost the level. The floor in the rooms was interrupted by later additions of partition walls and hence it was decided to replace it by new Kotah stone flooring.

Treatment:

- Scrubbing / tapping to remove dirt, cement accretions from cobbles.
- Replacement of damaged cobbles (by cobbles obtained elsewhere on site)
- Painting in Lime
- Kotah stone slabs, size 33 cm x 33 cm laid in diagonal pattern
- Skirting of Kotah stone (half tile)



Removal of filling material and debris revealed the original cobbled floor in excellent condition.



Cleaning the cementitious layers of the cobbled floor was a painstaking task.



Shalhad stone flooring explored in the rooms was fairly damaged and uneven.



Laying of Kotah stone flooring in diagonal pattern (in the rooms).



Dressed stone steps between the central hall and the rooms found during excavation.



OPENINGS (MAIN & REAR DOORS)



ARCHED OPENING (FRONT) BLOCKED BY MASONRY WALL BEFORE RESTORATION



Gateway opened up during restoration.



ARCHED OPENING AFTER RESTORATION



Front door during the execution stage.



Front door design suited to the scale of the grand opening and based on fenestration design of heritage structures in the dockyard.



Stained glass panels being placed in position.



The Stained glass patterns are borrowed from the motifs on the facade. Use of blue colour reiterates its relation to the sea.

MAIN DOORS CENTRAL HALL

Observations:

- As per the original design of the structure, the doorways (Front and Rear) were open that allowed passage through the Gatehouse which was meant to be an entrance portal to the Landing Jetty at Ballard Bundar.
- The front opening probably had a Cast Iron Gate as a wicket gate hung on a pivot. This is evident from a protruding remnant of a CI rod in the stone jambs of the arched opening, at either ends, level with the springing points of the arches. The embedment lay deep into the stone walls as found on further investigation.

- Subsequent to the inclusion of the Gatehouse into the Naval Dockyard restricted zone, these openings were blocked by masonry walls to allow the use of the gatehouse as an office. The entry to the interior was provided through a doorway fixed in the rear opening (original frontage facade to the harbour).

- The openings have more or less equal widths, semicircular arched profile having varying crown heights. The pattern of dressed stone voussoirs of the arched openings are significant and different at both the openings.

The need for enclosure and security:

The new adapted use of the gatehouse dictated the need to provide secure doors that can locked as per requirement.

Design:

- The infill masonry walls blocking the openings were demolished.
- To allow the use of the structure as a museum it was essential to enclose it by doors.
- The design of doors is derived from the fenestration design of other historic structures in the Naval Dockyard area.
- The arched doorways are divided into two sections, the upper semicircular portion comprising of fixed glazing while the lower portion has partly glazed / partly paneled folding shutters.

contd...



OPENINGS (MAIN & REAR DOORS)



REAR ARCHWAY OPENING BLOCKED
(BEFORE RESTORATION)



REAR OPENING AFTER RESTORATION



Rear arch opened up during restoration



Installation of timber frame



Stain bars in the semi-circular portion of the arched opening placed in position.



Stained glass adds colour and delicacy to the otherwise robust design of doors.

MAIN DOORS CENTRAL HALL:

contd ...

Design Details:

- Uniformity in design of doors except for the modified shutter design of the rear door to adjust to the lesser height.
- Use of Jsc. Class BTC (best quality)
- Adequately sized sections for frames
- Decorative Bevelled mouldings and beading
- Cover moulding between the frame and stone surface
- Use of clear 8 mm glass with bevelled border
- Megamine polish as protection from moisture (rain)

Introduction of stained glass:

- Controlled use of stained glass in a traditional form in the fixed semi-circular portion of the doorway. The element introduces colour and an appropriate extent of delicacy to the otherwise robust design of the monument.
- The design of stained glass borrows patterns from motifs on the façade (floral motif) and frieze band (depicting sea waves). Use of blue colour depicting sea and water.



OPENINGS (EXTERNAL WINDOWS)



SEMICIRCULAR ARCHED WINDOW
OPENING BEFORE RESTORATION



WINDOW OPENING AFTER RESTORATION



Window during execution stage. Pattern
of original direction of openings retained.



Stained glass panel in the semi-circular
fixed portion of the opening.



Rectangular openings in the rooms before
restoration.



Original window frames and shutters
replaced by new windows.

WINDOWS

Observations:

- The window openings are of two types:
 - 1) Semi- Circular arched head (2 Nos.) openings in the North (front facing the road); Elevation
 - 2) Square headed (8 nos.) openings, in the other side elevations.
- All windows are fixed in stone surrounds, with the circular headed types having deep recessed moulded stone jambs. The semi-circular arches have a stepped extrados while the square headed arches are headed in stone (single) lintels.
- As found, the window openings had timber frames and glazed casement shutters in timber as an interventive replacement of the original in the last decade.
- The attempt to seal joints between the frames and stone jambs by cement pointing was an ailment common to all surrounds of the openings. Interventions to openings in form of M.S security grills and wire-mesh fixed panels.

Treatment / Design

- All windows are replaced by timber windows of new design retaining the original direction of shutter opening.
- The semi-circular arched opening relates in design to the arched doors including the use of stained glass.
- Simple mouldings
- 6 mm clear glass for shutters
- Finish in melamine polish
- Removal of cement pointing and repainting of stone joints in the jambs, cracks and window surrounds with lime mortar.
- Introduction of internal Kotah stone sill.



OPENINGS (INTERNAL)



OX EYE WINDOW BEFORE RESTORATION



RESTORED OPENINGS IN THE CENTRAL HALL



opening with broad band of architrave - Cave is taken to restore and enhance the masonry articulation while arranging the display.

Observations:

- The two internal partition stone walls, each have a 'Bulls Eye' circular arched opening located at a higher level exactly above the door openings. The voussoirs and key-stone are pronounced by marginal offsetting from the finished ashlar stone walls. The openings have timber framed, glazed & fixed shutters.
- The lower soffit of the arch, the voussoirs and keystone of both openings have been structurally affected by the placement of a steel beam, serving the suspension of a ceiling fan.
- The door openings are square headed with a wide architrave like band around the opening in stone formed by masonry offsetted from the surrounding ashlar masonry.
- The voussoirs of the bulls eye are similarly treated.

Treatment:

- The steel beam that had affected the slight displacement of the stone arch (voussoir) and caused a vertical crack through the stone wall was removed.
- Elastic repairs for damaged portion of the Bull's eye window.
- Slotting of crack with SS pins, sealing the crack with lime mortar.
- Timber frame fixed to door opening as additional support to the flat stone arch formation of the door openings.
- pointing of joints in the jamb masonry.
- Fixed Glazing (clear glass) for bull's eye window.



Voussoirs of the Ox eye window restored with lime mortar. The structural cracks were slotted with SS pins.



Inclusion of 45 degree angle through the Ox eye window caused damage to the voussoirs and lead to vertical structural cracks.



Opening restored after removal of elements causing the damage.



Ox eye window damaged by incompatible interventions.



NEW SECURITY WALL



HIGH SECURITY WALL OBSTRUCTING VIEW OF THE GATEHOUSE - BEFORE RESTORATION



Junction of old and new security walls sensitively treated to achieve a subtle transition. A Brass Plaque with a key map of Ballard Estate area is aptly placed here.



OLD SECURITY WALL REPLACED BY GRILL FENCE AND NEW SECURITY WALL



Construction of new security wall



R.C.C. Beams laid across the massive tree roots to support the masonry above



Malad creta plaster with textured finish for the security wall with the surface area broken into joints of uniform width.



Malad creta plaster being hacked manually to form serrations on the surface. Its color complements the yellow basalt stone facade of the Gatehouse.

NEW SECURITY WALL

Alignment / Height

- The alignment is dictated by constraints of structures in the immediate surrounds and land-uses.
- The height of the wall conform to security norms of the Naval Dockyard.

Design

- Load wall without fenestrations, except an entry gate for the Naval Dockyard personnel along the west face.
- Loadbearing wall 350 mm thick brick masonry and 4 meters high for the full length, topped with M.S. grill - 0.80 meters.
- The length of the wall is interspersed with R.C.C. Columns to afford structural rigidity to the overall structure.
- R.C.C. Beams span across the exposed roots of the tree, to support superimposed loads of the top brickwork.
- Adequate provisions of expansion joint in the expansive length of the wall along the southern edge.
- Finished in Malad creta plaster of a colour and texture to match the yellow basalt stone of the Security Grill above the wall - M.S. protective grill of simple design
- Junction of old and new security walls treated sensitively to achieve a subtle transition.
- The panel formed at the junction of the old and new security walls provides an ideal location for information plaques with the Key map of Ballard Estate area.



GRILL FENCE



SECURITY WALL DEPRIVED THE VIEW OF THE GATEHOUSE FROM BALLARD ESTATE



New features like stone stub wall and stub pier sensitively relate to facade features of other structures in Ballard Estate area.



Use of yellow basalt stone for the stub wall and decorative design of the stub pier attempt to relate the new elements to the historic setting.



THE GRILL FENCE OPENS THE STRUCTURE TO PUBLIC VIEW RESTORING THE IMAGE OF THE NODAL SETTING - AFTER RESTORATION



Grill Fence being placed in position. The design of the grill fence is derived from the design of triple gates at Alexandria Docks



Grand Entrance gateway placed in central alignment with the structure offers entry to the site from (Shearj) Wababooas Road



Decorative pinnacles placed on the curved profile of the grill fence.



Impressive expansive, bold curvilinear profile and moderately decorative design elements are the highlights of the grill fence.

GRILL FENCE

Design

The grill fence design is derived from the design of triple gates at Alexandria Dock down the road.

The Form and Architecture of the Alexandria Gate and built date conform wholly to that Ballard Bunder Gate House - as a deduction, they follow common scheme of design.

By this virtue the design of the new grill fence here, complements the overall setting of Ballard Estate Historic Precinct.

Alignment and details

•The 30 m. long grill fence that serves the dual purpose of providing the essential security to the structure & the site while ensuring visibility from the road, is a highlight of the Landscape scheme.

•The expansive length is divided into smaller bays for structural system, by placing metal posts at regular intervals. An impressive openable gate, centrally aligned facing the structure provides entry to the gatehouse.

•The fixed lengths of the M.S. Grills are supported on system of stub piers and walls, in stone clad (Malad stone) brick masonry. The details of the elements conforms to similar components in the precinct.



CITY MUSEUM DISPLAY



THE GATEHOUSE HAS BEEN ADAPTED FOR REUSE AS A MUSEUM EXHIBITING THE GROWTH OF THE HARBOUR AND THE CITY.



Display in the Hall respects the facade articulation. Care is taken to cause minimum damage to the historic structure. Materials and colours chosen for display boards were in complete harmony with the natural stone surfaces.



IMPRESSIVE EXHIBITS IN THE MUSEUM



Exhibits are arranged in the museum on freestanding bases and glass showcases so as to minimise interventions to the historic structure. A few brockle boards displaying vital information are hung (strictly) to avoid masonry surfaces.



Carping ceiling in polished wood serves the dual purpose of supporting brockle hooks for hanging display boards.



DISPLAY

The Gatehouse Museum, dedicated to the city, depicts tales of its people and their contributions to the evolution of Mumbai. A story of how the city grew around its harbor is presented in the display of rare archival pictures and complementary narrative. The role of the Indian Navy is aptly manifest in the display design within the Gatehouse.

The monument is being adapted as a Museum exhibiting

The monument is being adapted as a Museum exhibiting growth of the harbour and affording an opportunity for the public at large for viewing the exhibits.



LANDSCAPE



GATEHOUSE SURROUNDED BY HARD PAVING – BEFORE RESTORATION



ENHANCED LANDSCAPE SETTING - AFTER RESTORATION

LANDSCAPE

•The objective of the landscape scheme is to provide an enhanced setting for the structure.

•The approach, thus is simple and direct.

•The levels of the finished floor of the monument with respect to the existing road ground stands modified. The issue of effective surface water drainage, to maintain dry foundations became a supreme consideration.

•The design details take into consideration an integrated approach at taking care of surface drainage around the structure by a "french drain", and alignments of various other underground services such as existing soil drainage lines and electrical cables (existing cables diverted and addition of new).

•The external flood lights and information plaques are also carefully accommodated in the landscape scheme.

Layout

•Grass jointed Shahbad tiles laid in grid iron pattern (shahbad tiles chosen for their colour and natural texture).

•Flower beds- Soil retained by shahbad tile edging

•Plant material - selected for their suitability / orientation / availability of shade or sunlight. Fallage colour, texture to add interest to the monotonous surface of compound wall. Flowering shrubs used in patches provide pleasant contrast.

•The raised lawn bed - creates pleasant foreground to the robust tree trunk. The rise being envisaged to provide an enhanced background to the information plaques in the front edge.



Flood lights highlighting the structure by night are carefully integrated in the landscape scheme.



Old tree trunk explored in the excavation preserved and developed as a landscape feature.



The lawn bed provides green setting for the old rain bear. Informal planting and pebbles at the base of tree trunk add interest.



Grass jointed shahbad tile paving edged by the French drain topped with a layer of pebbles



Information plaques placed on the inclined pedestal - an important feature of the landscape design.



SERVICES



NETWORK OF SERVICES AROUND THE STRUCTURE LACKED ORGANISATION - BEFORE RESTORATION



SERVICE CHAMBERS INTEGRATED INTO LANDSCAPE SCHEME - AFTER RESTORATION



Drainage alignments explored while excavation



Junction at LT cable after it was realigned with an extension.



Organisation of the HT and LT cable network of was a challenging task



Inspection chambers and service chambers integrated with paving pattern.

SERVICES

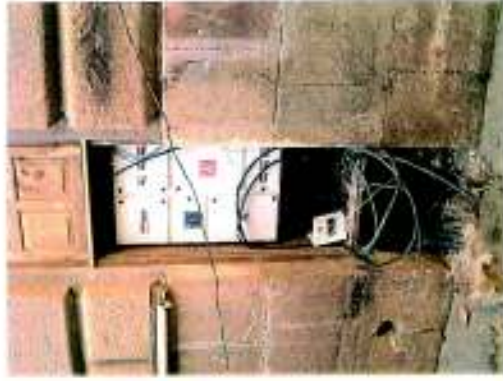
Integration of landscape and services



ELECTRICAL DESIGN & ILLUMINATION



SENSITIVE DESIGN AND LAYOUT OF ELECTRICAL WIRING AND FITTINGS - BEFORE RESTORATION



L1 Kiosk placed in the niche formed by an old doorway.



NEW ELECTRICAL WIRING AND FIXTURES IN HARMONY WITH THE HISTORIC STRUCTURE - AFTER RESTORATION.



Wooden frame hung from ceiling to fix track lights for highlighting the display.



Front lighting comprising of combination of yellow and white lights creates dramatic effect.



Capping casing in polished wood specially designed to mark the electrical wiring.



Decorative gate light adds to the beauty of gate fence.

ELECTRICAL DESIGN AND ILLUMINATION

Interior Lighting

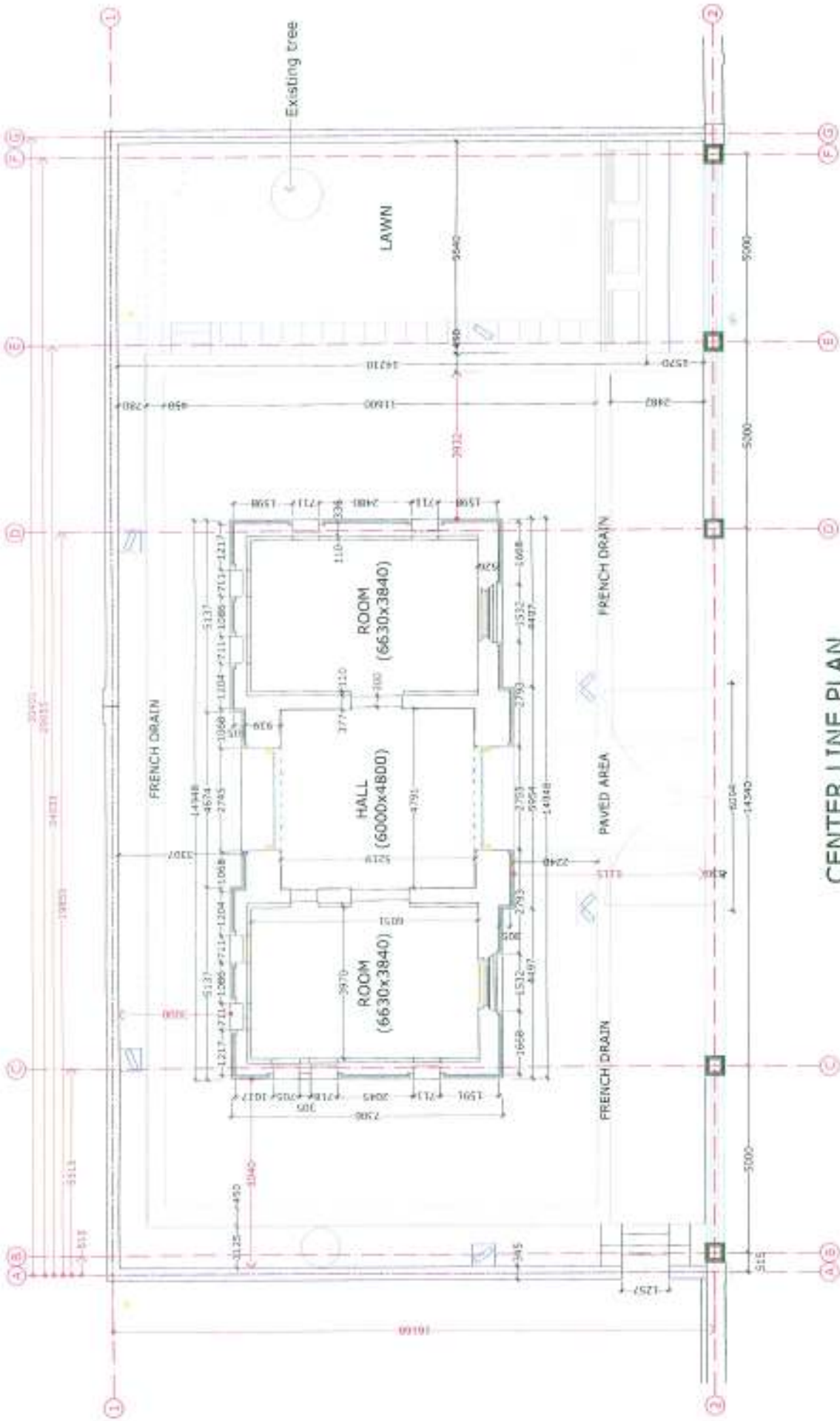
Exterior Lighting



DRAWINGS (AS EXECUTED)



BALLARD BUNDRER GATEHOUSE - CONSERVATION REPORT - MAY 2005

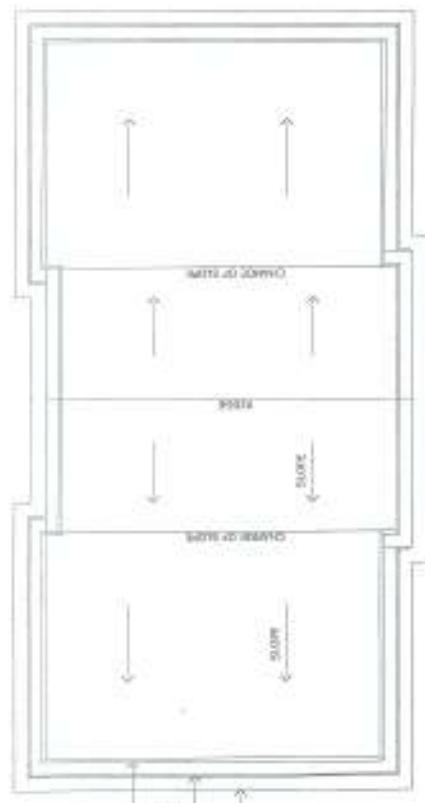


CENTER LINE PLAN

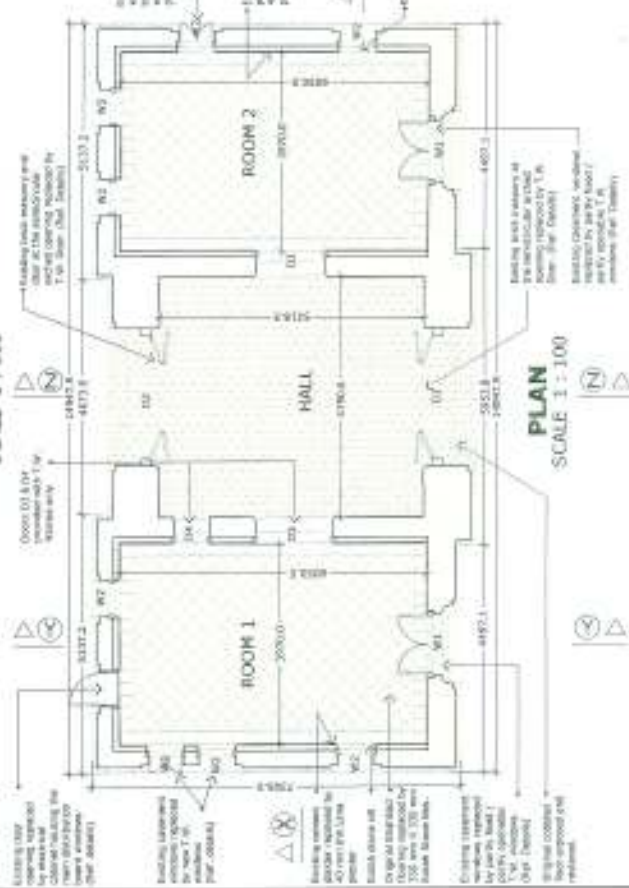
CENTER LINE PLAN	DATE
DATE: 20 MAY '18	
PROJECT: NAVAL DOCKYARD, HUMBAL	
DESIGNER: [Signature]	
SCALE: 1:100	

CONSERVATION: BALLARD BUNDER GATEHOUSE

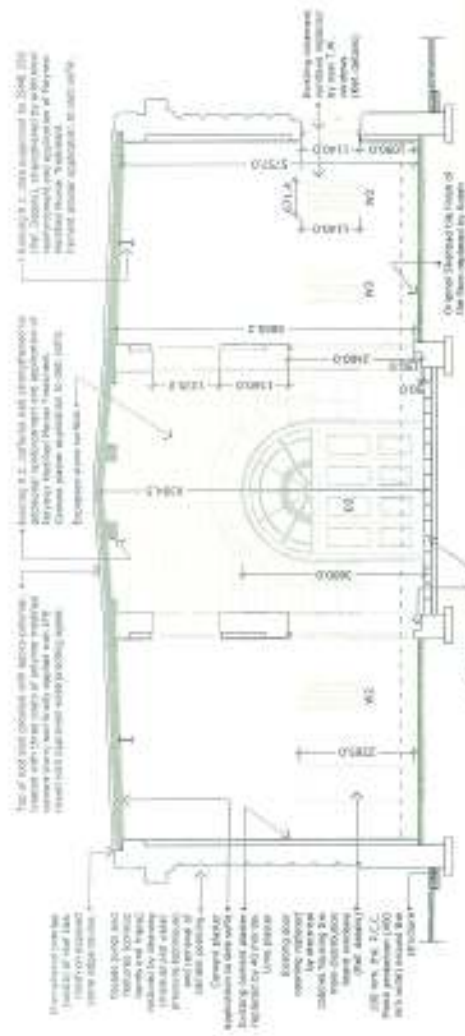
DRAWINGS AS EXECUTED



ROOF PLAN
SCALE 1 : 100



PLAN
SCALE 1 : 100



SECTION X-X
SCALE 1 : 100



SECTION Y-Y
SCALE 1 : 100

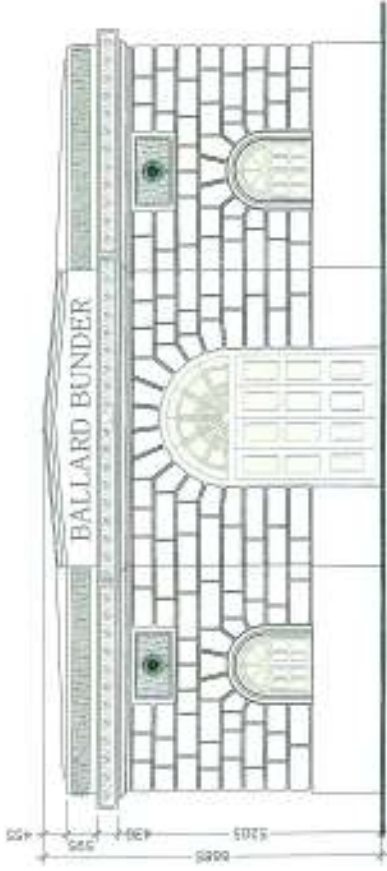
SECTION Z-Z
SCALE 1 : 100

CONSERVATION: BALLARD BUNDER GATEHOUSE

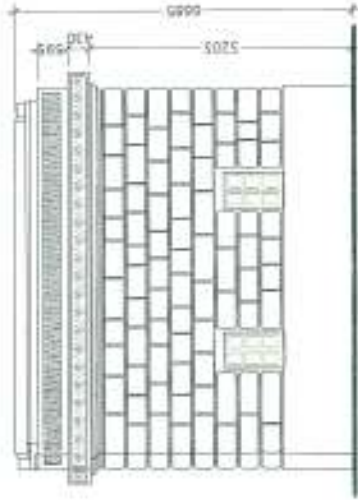
DRAWINGS AS EXECUTED

PLANS / SECTIONS	SCALE	DATE
SECTION X-X	1:100	10/2018
SECTION Y-Y	1:100	10/2018
SECTION Z-Z	1:100	10/2018
PLAN	1:100	10/2018
ROOF PLAN	1:100	10/2018

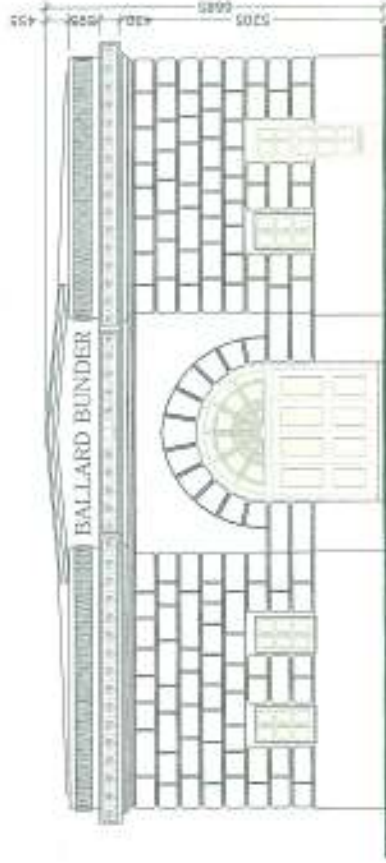
CLIENT: NAVAL DOCKYARD, MUMBAI
 PROJECT COORDINATOR:
 R. UMMAKALLA ARCHITECTURE
 11, Sakinaka Road, Sakinaka, Mumbai - 400072
 Tel: 022-26121111 Email: Ruma@rmaa.com



NORTH SIDE ELEVATION (ROAD-SIDE)
SCALE 1 : 100



WEST SIDE ELEVATION
SCALE 1 : 100



SOUTH SIDE ELEVATION
SCALE 1 : 100



EAST ELEVATION
SCALE 1 : 100

CONSERVATION: BALLARD BUNDER GATEHOUSE

DRAWINGS AS EXECUTED

ELEVATIONS

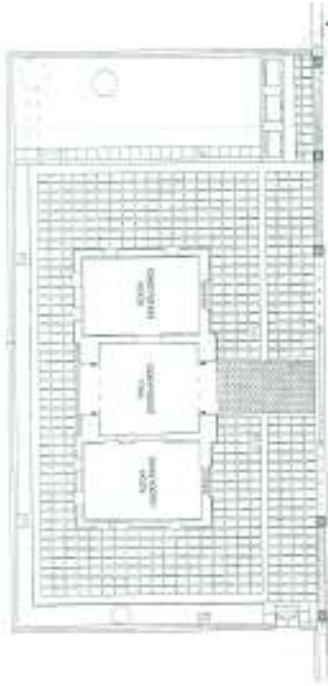
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SCALE: AS SHOWN

DATE: 11/10

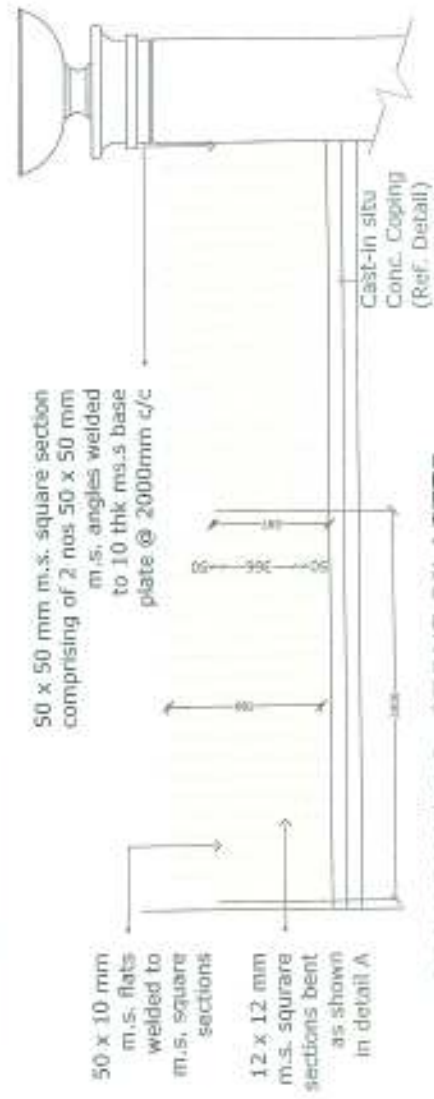
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BY: 10/10

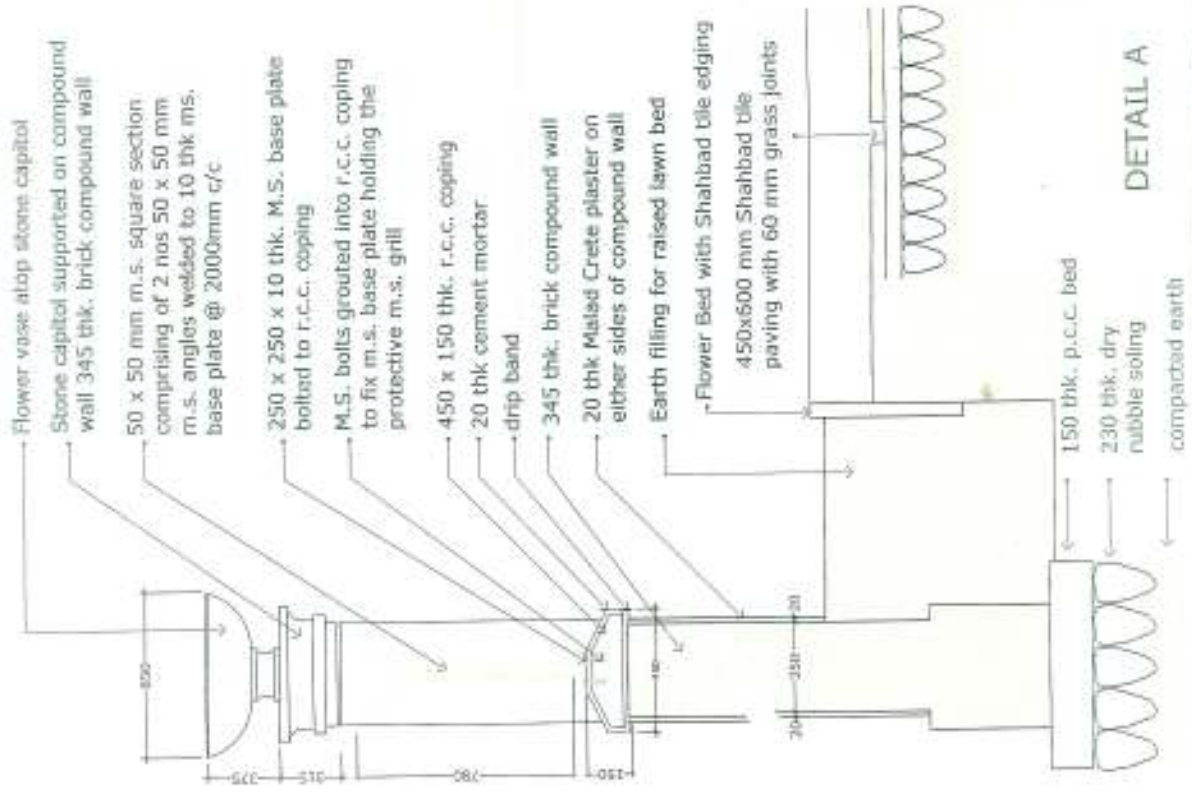




DETAIL OF COPING



SECTION THRO. STONE PILASTER

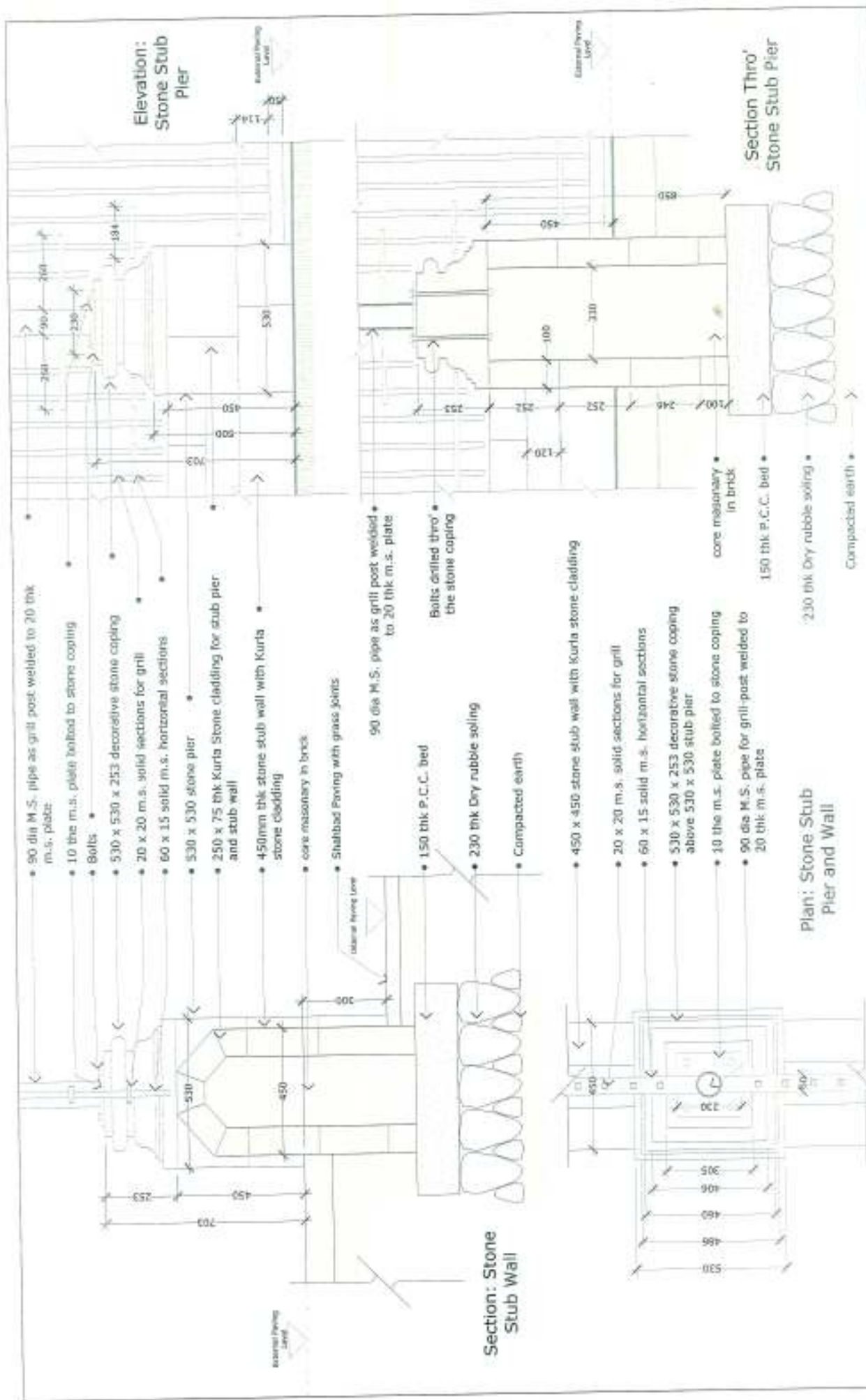


DETAIL A

DETAIL: M.S. GRILL ATOP COMPOUND WALL		SCALE: 10 METERS	DATE: 20/05/2024
PROJECT: BUNLAL DOCKYARD, AHMEDABAD		DRAWN BY: [Signature]	
DESIGNED BY: [Signature]		CHECKED BY: [Signature]	
APPROVED BY: [Signature]		DATE: 20/05/2024	

CONSERVATION: BALLARD BUNLAL DOCKYARD GATEHOUSE

DRAWINGS AS EXECUTED



- 90 dia M.S. pipe as grill post welded to 20 thk m.s. plate
- 10 thk m.s. plate bolted to stone coping
- Bolts
- 530 x 530 x 253 decorative stone coping
- 20 x 20 m.s. solid sections for grill
- 60 x 15 solid m.s. horizontal sections
- 530 x 530 stone pier
- 250 x 75 thk Kurta Stone cladding for stub pier and stub wall
- 450mm thk stone stub wall with Kurta stone cladding
- core masonry in brick
- Shalbad Paving with grass joints

- 90 dia M.S. pipe as grill post welded to 20 thk m.s. plate
- Bolts drilled thro' the stone coping
- 150 thk P.C.C. bed
- 230 thk Dry rubble soling
- Compacted earth
- 450 x 450 stone stub wall with Kurta stone cladding
- 20 x 20 m.s. solid sections for grill
- 60 x 15 solid m.s. horizontal sections
- 530 x 530 x 253 decorative stone coping above 530 x 530 stub pier
- 10 thk m.s. plate bolted to stone coping
- 90 dia M.S. pipe for grill-post welded to 20 thk m.s. plate

- core masonry in brick
- 150 thk P.C.C. bed
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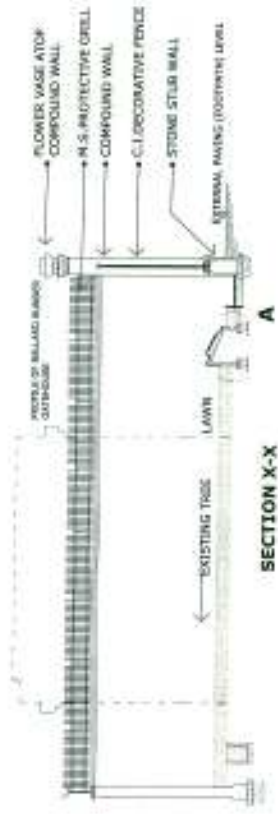
- core masonry in brick
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CONSERVATION: BALLARD BUNDER GATEHOUSE

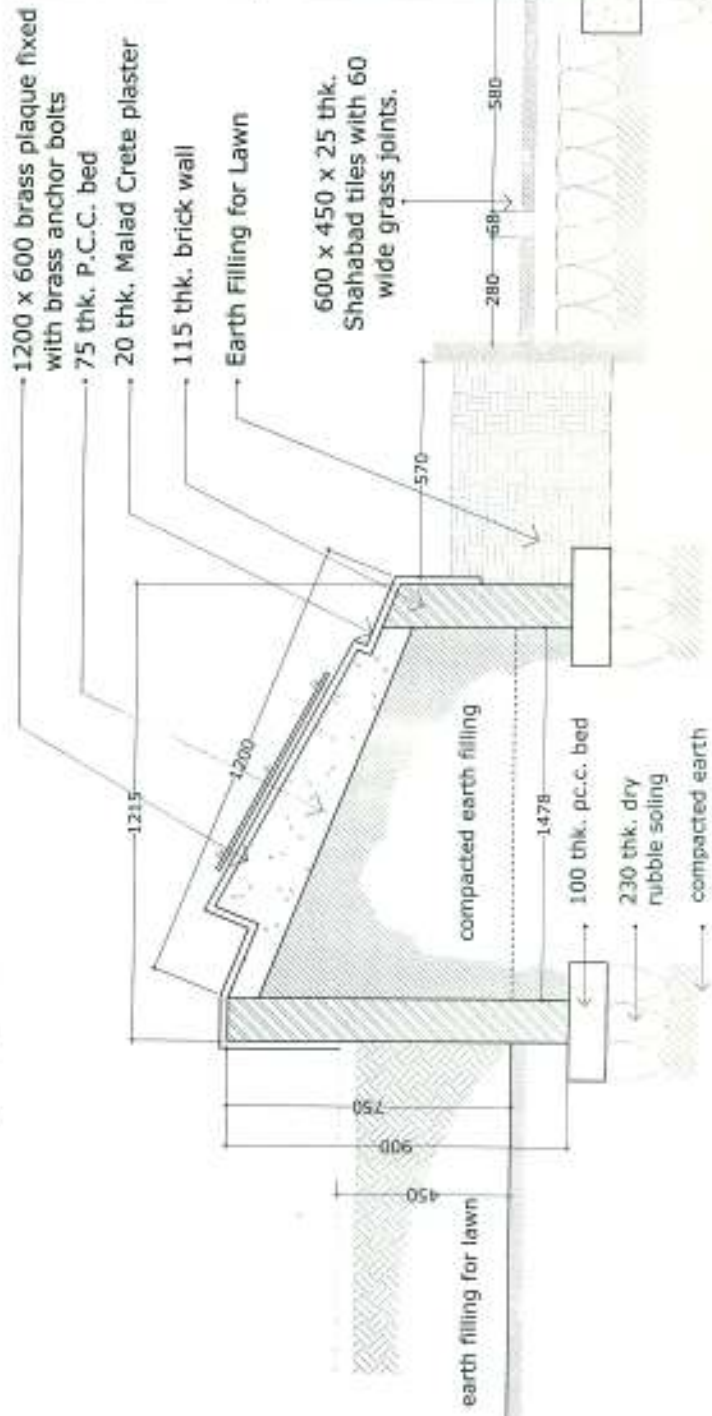
DRAWINGS AS EXECUTED

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SCALE	1:10
PROJECT NAME	DETAIL: STONE STUB PIER & WALL
CLIENT	RAJAL DOKYARD, MUMBAI
PROJECT LOCATION	RAJAL DOKYARD, MUMBAI
PROJECT NO.	11113
DATE	11.11.13
SCALE	1:10
PROJECT NAME	DETAIL: STONE STUB PIER & WALL
CLIENT	RAJAL DOKYARD, MUMBAI
PROJECT LOCATION	RAJAL DOKYARD, MUMBAI



KEY
(PART) PLAN

SECTION X-X

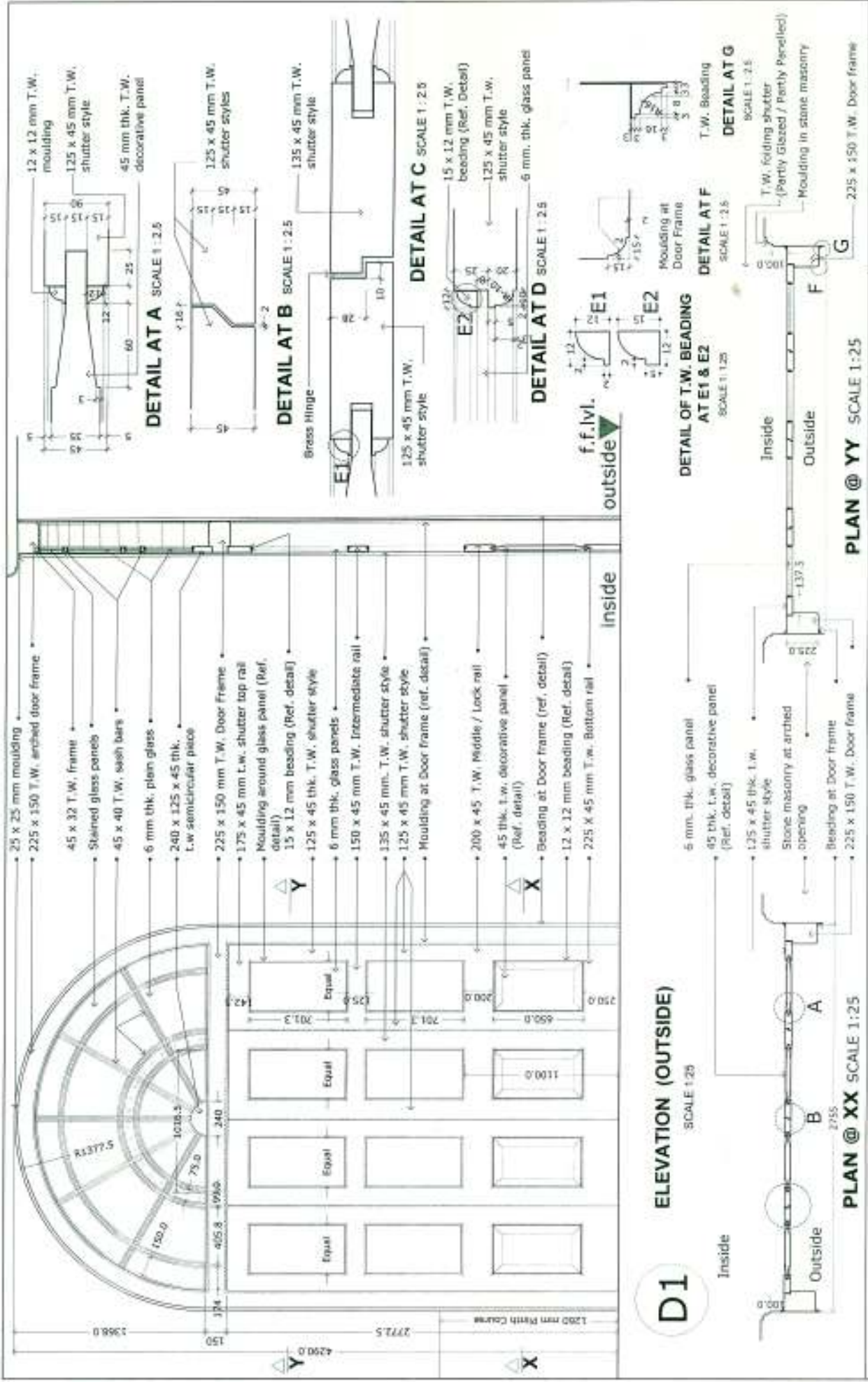


DETAIL A: PLAQUE BASE, LAWN BED AND GRASS JOINT TILES
SCALE 1:5

CONSERVATION: BALLARD BUNDR GATEHOUSE

DRAWINGS AS EXECUTED

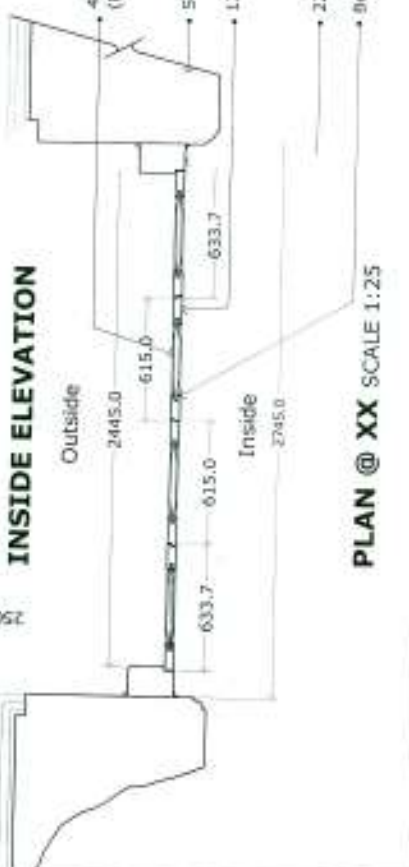
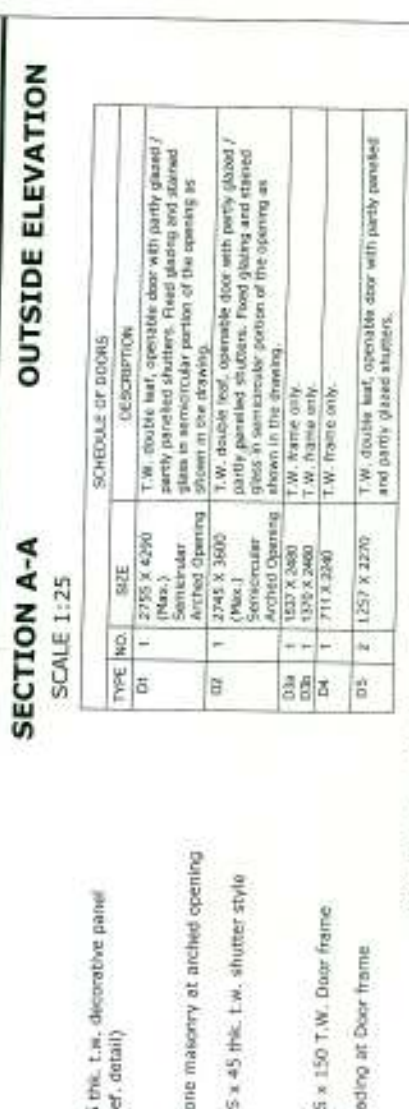
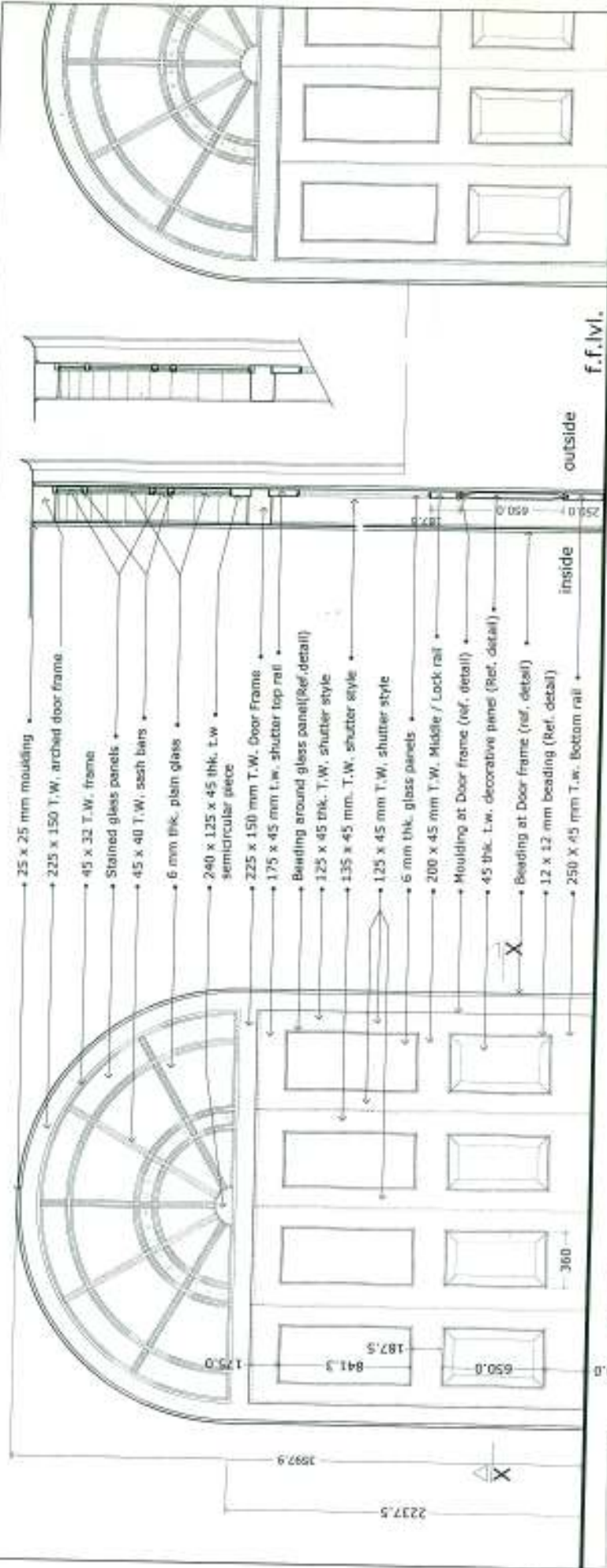
PLAQUE DETAILS	DATE	2018
	SCALE	AS EXECUTED
PROJECT LOCATION	OWNER	NAVAL DOCKYARD, MUMBAI
	ARCHITECT	M. SHIBLAL ARCHITECTS NO. 207/208B, 183/180/181, P. D. ROAD, VANDRANA
DRAWING NO.	NO.	01
	REV.	01



DATE: 01/11/20	SCALE: 1:25
PROJECT: BALLARD BUNDER GATEHOUSE	
CLIENT: RAJAL DOCKYARD, MUMBAI	
ARCHITECT: K. UNWELLA ARCHITECTS	
DRAWING NO: 1011	
DRAWING TITLE: MAIN ENTRANCE DOOR	

CONSERVATION: BALLARD BUNDER GATEHOUSE

DRAWINGS AS EXECUTED



SECTION A-A
SCALE 1:25

INSIDE ELEVATION

OUTSIDE ELEVATION

TYPE NO.	SIZE	DESCRIPTION
01	2795 X 4290 (Max.) Semicircular Arched Opening	T.W. double leaf, operable door with partly glazed / partly paneled shutters. Fixed glazing and stained glass in semicircular portion of the opening as shown in the drawing.
02	2745 X 3600 (Max.) Semicircular Arched Opening	T.W. double leaf, operable door with partly glazed / partly paneled shutters. Fixed glazing and stained glass in semicircular portion of the opening as shown in the drawing.
03a	1337 X 2680	T.W. frame only.
03b	1335 X 2680	T.W. frame only.
04	711 X 2590	T.W. frame only.
05	1257 X 2270	T.W. double leaf, operable door with partly paneled and partly glazed shutters.

NOTE: For details refer drawing of MAIN ENTRANCE DOOR No.10c

CONSERVATION: BALLARD BUNDER GATEHOUSE
DRAWINGS AS EXECUTED

DETAILS:-	REAR DOORS
DATE	REVISION/DATE
BY	BY
CHECKED	CHECKED
APPROVED	APPROVED

PROJECT CONSULTANT
SHWALA ARCHITECTS
 No. 28/2802, Ballar Road, P.O. Box No. 102,
 New Market, Bangalore - 560022

SCALE
 1:25

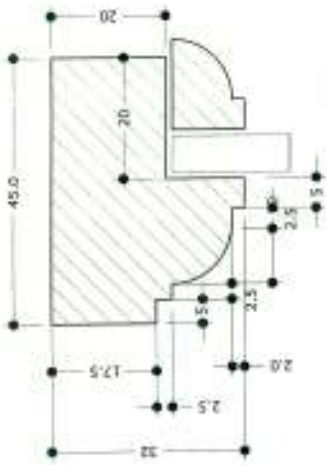
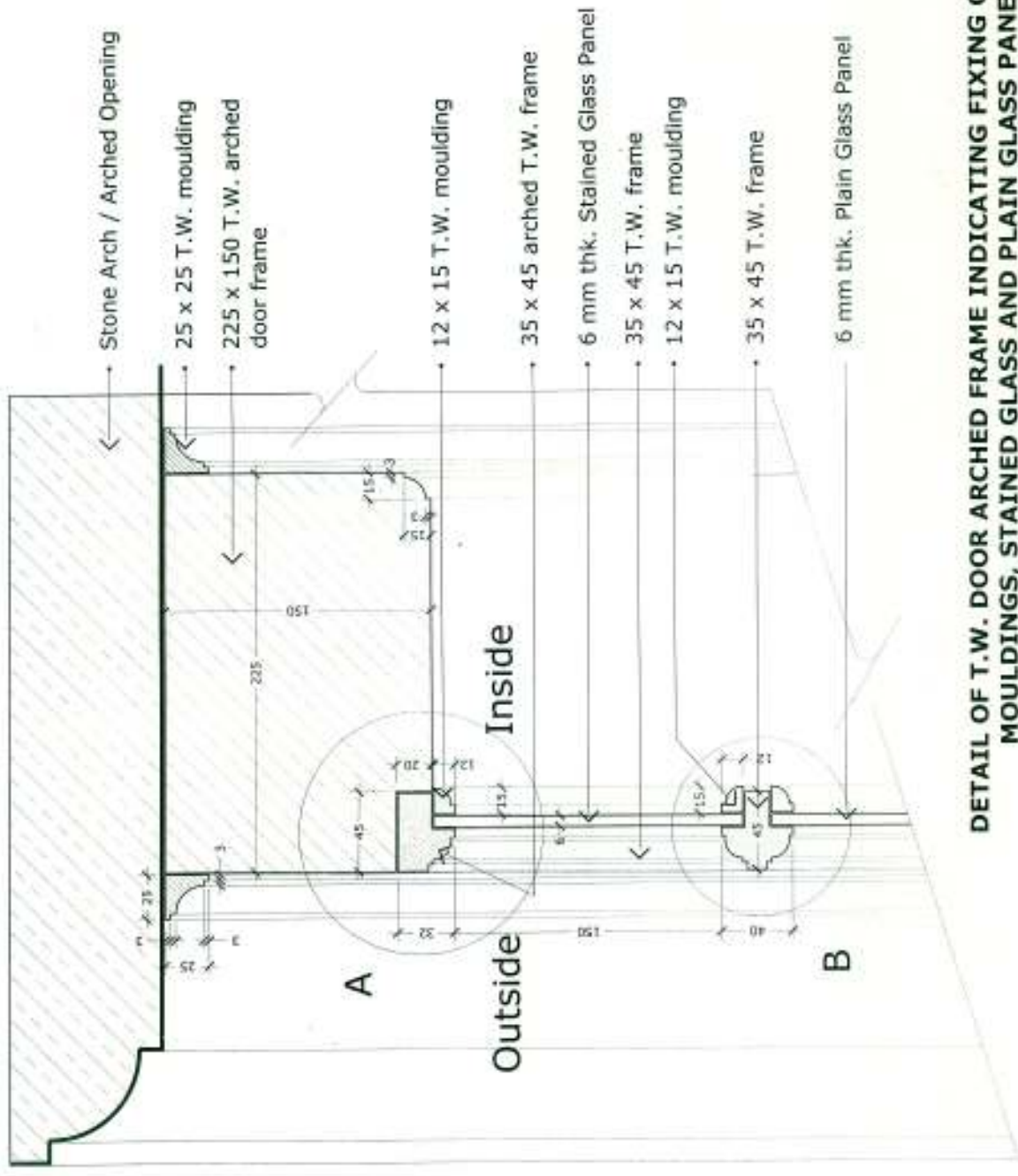
DATE
 20/08/2024

PROJECT NO.
 2024/08/01

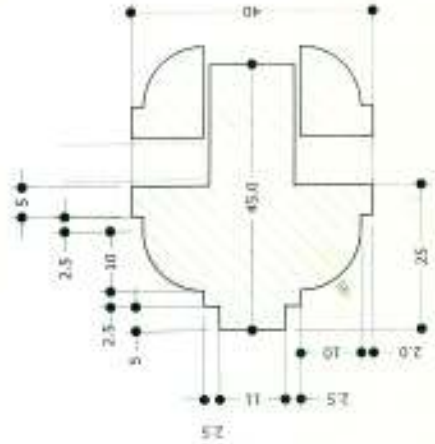
CLIENT
 BALLARD BUNDER GATEHOUSE

LOCATION
 BALLARD BUNDER GATEHOUSE

NO. OF SHEETS
 10



Detail at A

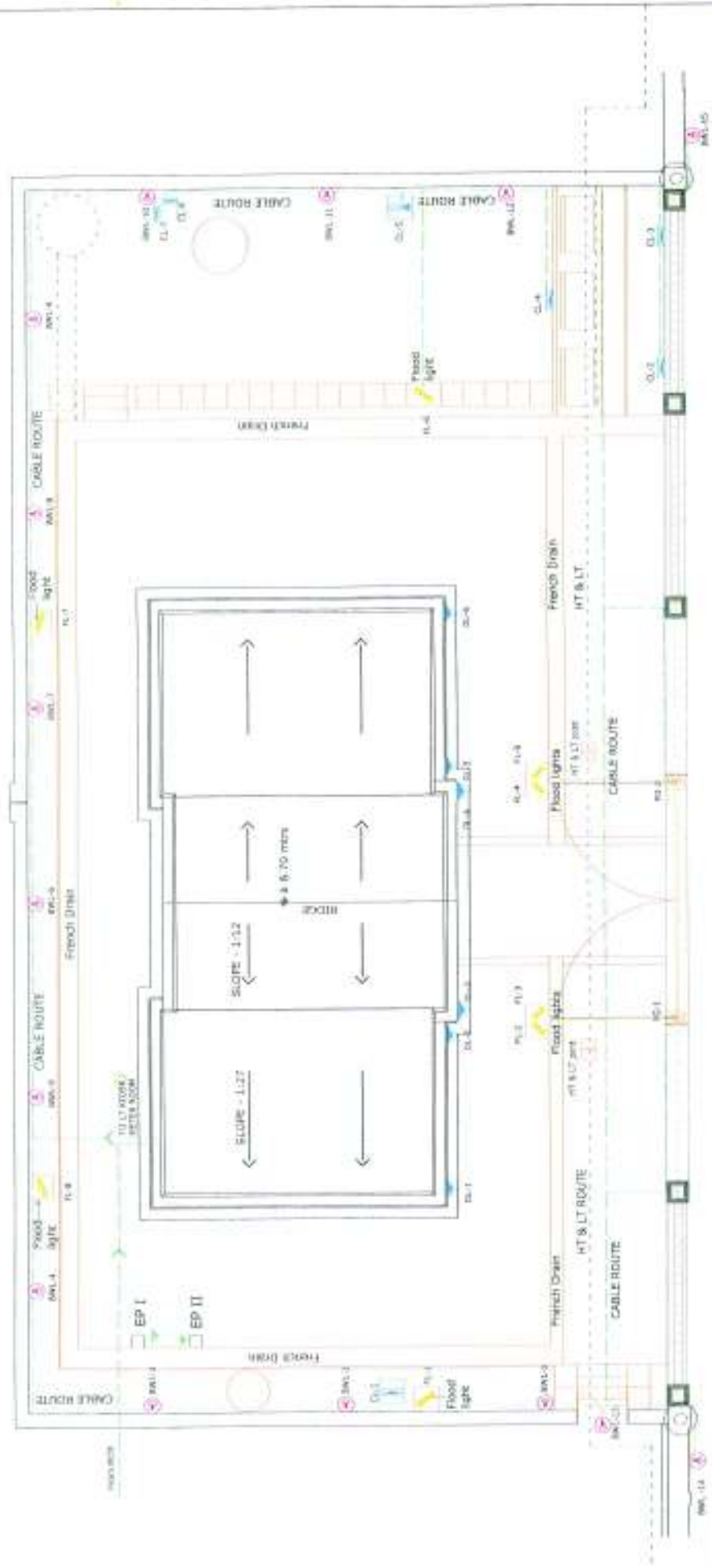


Detail at B

DETAIL OF T.W. DOOR ARCHED FRAME INDICATING FIXING OF T. W. MOULDINGS, STAINED GLASS AND PLAIN GLASS PANEL

CONSERVATION: BALLARD BUNDER GATEHOUSE
DRAWINGS AS EXECUTED

PROJECT CODE NO.	DATE
CLIENT / MAJOR DOORWARD, WEPSAI	PROJECT NO. 28 MAY 20
K. SHIBALLA ARCHITECTS	SCALE
301, SOUTH BEACH, 5TH FLOOR, THE ANANTHA 480/301	OR
TEL: 22875843, 98454263; Email: shiballa@rediffmail.com	BY
	DATE



LEGEND :-

SYMBOL	ADV	DESCRIPTION	NOS
	FL	FLOOD LIGHT	8 NOS
	DL	DOWN LIGHT	6 NOS
	BW	BOLLARD WALL LIGHT	15 NOS

SYMBOL	ADV	DESCRIPTION	NOS
	CL	CORRIDOR LIGHT	7 NOS
	PG	PATHWAY GATE LIGHT	2 NOS
	LK	LT-KITCHEN	1 NOS

SYMBOL	ADV	DESCRIPTION	NOS
	EP	EMERGENCY EXIT	2 NOS
	HT & LT	HIGH & LOW TENSION CABLES	1 NOS
		CABLE ROUTE	

GENERAL ELECTRICAL LAYOUT

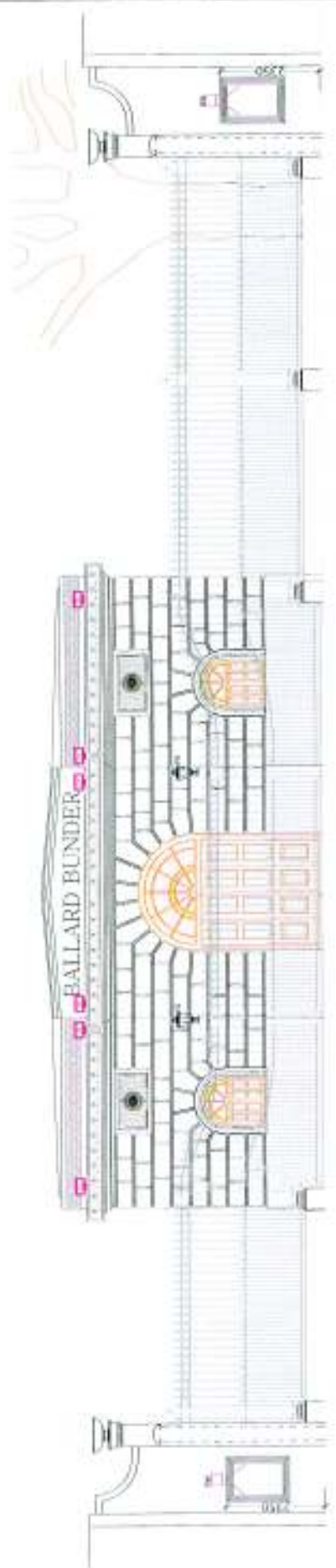
SCALE 1 : 100

DATE	REV. NO.	DESCRIPTION
28 MAR 15	01	ISSUED FOR PERMIT

ELECTRICAL LAYOUT PLAN	
OWNER :	NAVAL DOCKYARD, MUMBAI
PROJECT CONSULTANTS :	K. UMMAJALA ARCHITECTS P. J. JAYAKRISHNAN CONSULTANTS V. JAYARAMAN CONSULTANTS
SCALE :	1:100

CONSERVATION: BALLARD BUNDER GATEHOUSE

DRAWINGS AS EXECUTED



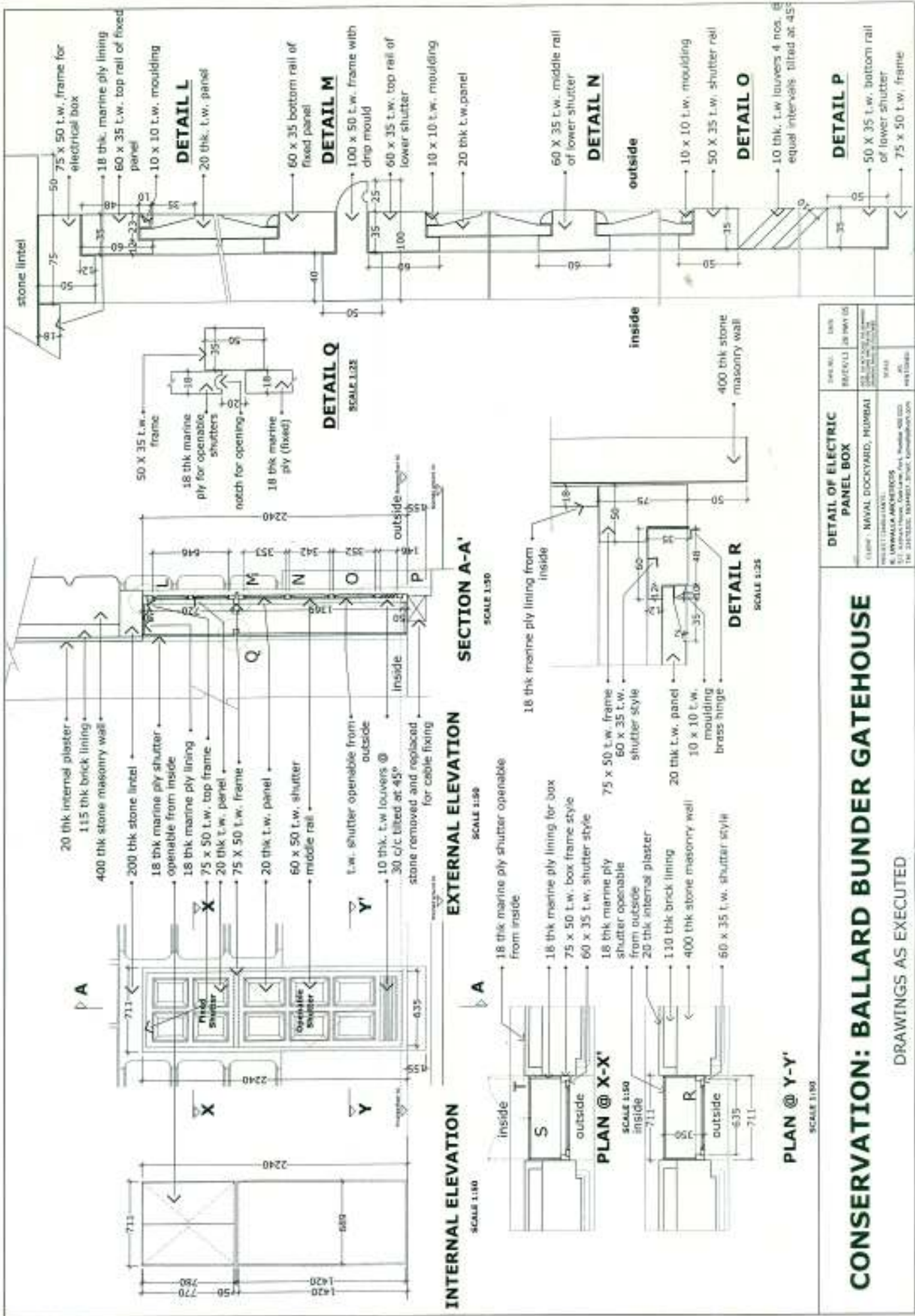
LEGEND:-

SYMBOL	ABV	DESCRIPTION
	F	CEILING FAN
	R	SWITCH TRACK LIGHT
	B	BRACKET LIGHT
	CH	CHANDLER
	S	SWITCH SOCKET OUTLET

SYMBOL	ABV	DESCRIPTION
	DL	DOWN LIGHT
	PG	ARCHWAY GATE LIGHT
	CL	CORRIDOR LIGHT
	BW	SOLID WALL LIGHT
	FL	FLOOR LIGHT

CONSERVATION: BALLARD BUNDER GATEHOUSE

DRAWINGS AS EXECUTED



INTERNAL ELEVATION
SCALE 1:100

- 20 thk internal plaster
- 115 thk brick lining
- 400 thk stone masonry wall
- 200 thk stone lintel
- 18 thk marine ply shutter operable from inside
- 18 thk marine ply lining
- 75 x 50 t.w. top frame
- 20 thk t.w. panel
- 75 x 50 t.w. frame
- 20 thk t.w. panel
- 60 x 50 t.w. shutter middle rail
- t.w. shutter operable from outside
- 10 thk. t.w louvers @ 30 c/c tilted at 45°
- stone removed and replaced for cable fixing

EXTERNAL ELEVATION
SCALE 1:50

- 18 thk marine ply shutter operable from inside
- 18 thk marine ply lining for box
- 75 x 50 t.w. box frame style
- 60 x 35 t.w. shutter style
- 18 thk marine ply shutter operable from outside
- 20 thk internal plaster
- 110 thk brick lining
- 400 thk stone masonry wall
- 60 x 35 t.w. shutter style

SECTION A-A'
SCALE 1:30

- 18 thk marine ply lining from inside
- 18 thk marine ply frame
- 60 x 35 t.w. shutter style
- 20 thk t.w. panel
- 10 x 10 t.w. moulding
- brass hinge
- 400 thk stone masonry wall

DETAIL L
SCALE 1:25

- 75 x 50 t.w. frame for electrical box
- 18 thk. marine ply lining
- 60 x 35 t.w. top rail of fixed panel
- 10 x 10 t.w. moulding
- 20 thk. t.w. panel

DETAIL M
SCALE 1:25

- 60 x 35 bottom rail of fixed panel
- 100 x 50 t.w. frame with drip mould
- 60 x 35 t.w. top rail of lower shutter
- 10 x 10 t.w. moulding
- 20 thk t.w. panel

DETAIL N
SCALE 1:25

- 60 x 35 t.w. middle rail of lower shutter
- 10 x 10 t.w. moulding
- 50 x 35 t.w. shutter rail

DETAIL O
SCALE 1:25

- 10 thk. t.w louvers 4 nos. @ equal intervals tilted at 45°

DETAIL P
SCALE 1:25

- 50 x 35 t.w. bottom rail of lower shutter
- 75 x 50 t.w. frame

DETAIL Q
SCALE 1:25

- 50 x 35 t.w. frame
- 18 thk marine ply for operable shutters
- notch for opening
- 18 thk marine ply (fixed)

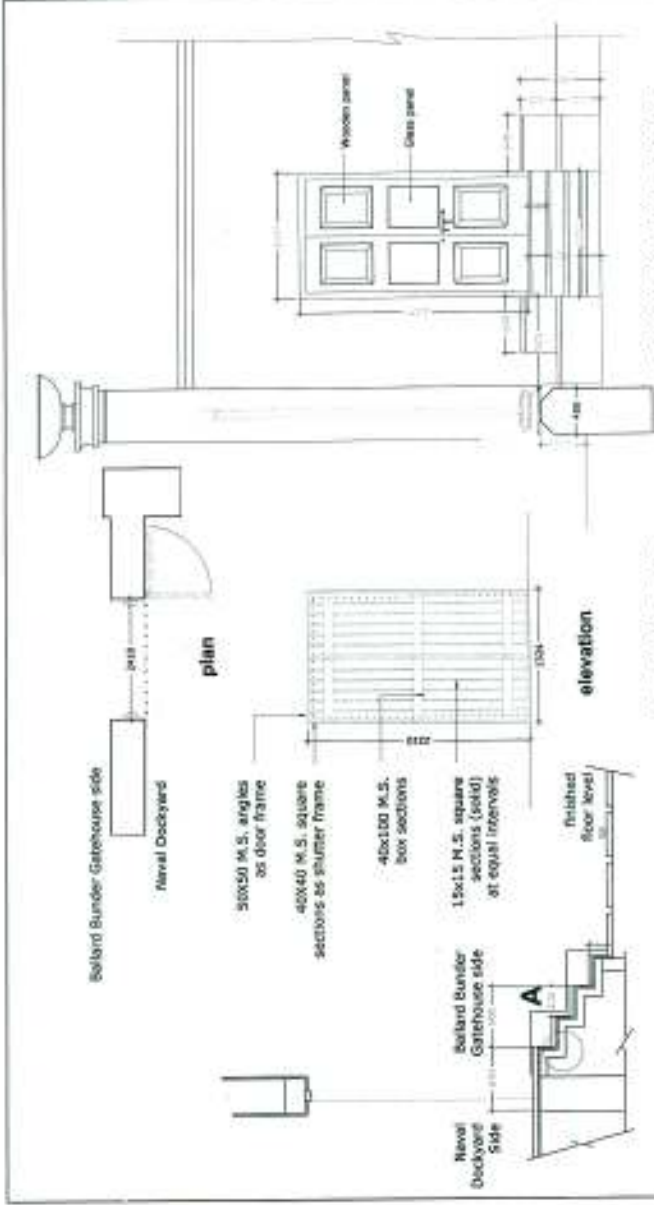
DETAIL R
SCALE 1:25

- 18 thk marine ply lining from inside
- 75 x 50 t.w. frame
- 60 x 35 t.w. shutter style
- 20 thk t.w. panel
- 10 x 10 t.w. moulding
- brass hinge

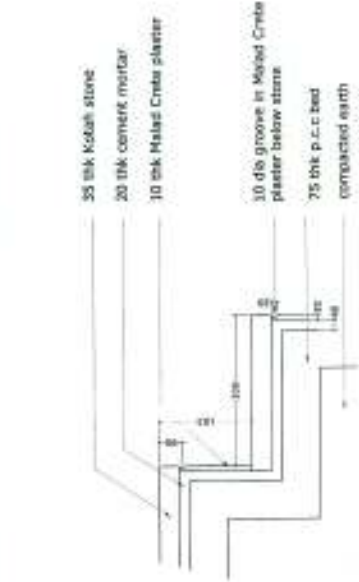
DETAIL OF ELECTRIC PANEL BOX	
PROJECT: CONSERVATION OF BALLARD BUNDER GATEHOUSE	DATE: 18 MAY 05
CLIENT: NAVAL DOCKYARD, MUMBAI	DESIGNER: ARCHITECTS
PROJECT LOCATION: BALLARD BUNDER, MUMBAI	SCALE: AS SHOWN
DESIGNER: M. UMMAKHA ARCHITECTS	DATE: 18 MAY 05
101, APPALA NAGAR, COOLIDGE PAST, MUMBAI 400 020	SCALE: AS SHOWN
TEL: 23423222, 23423223, 23423224	SCALE: AS SHOWN
FAX: 23423225	SCALE: AS SHOWN
WWW.MUMBAIARCHITECTS.COM	SCALE: AS SHOWN

CONSERVATION: BALLARD BUNDER GATEHOUSE

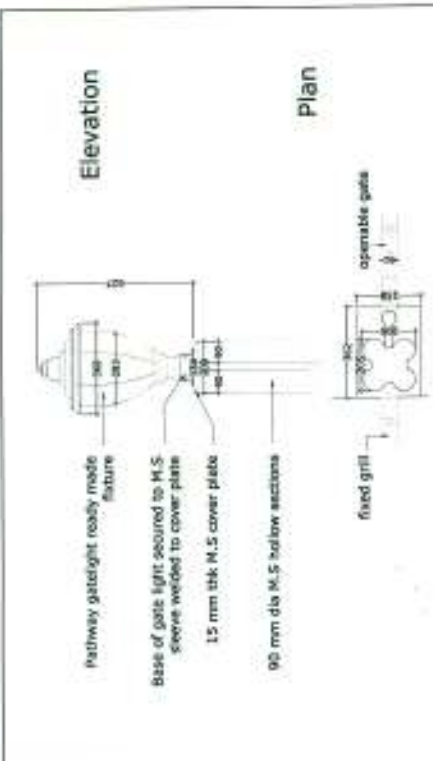
DRAWINGS AS EXECUTED



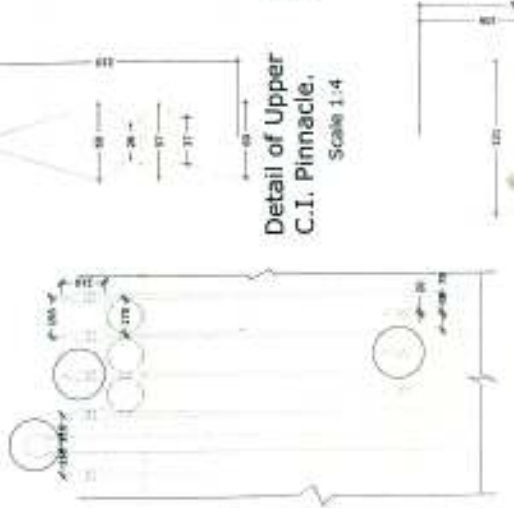
PANEL ENTRANCE DOOR (north west elevation)
scale 1:50



DETAIL A
scale 1:5



Part Plan & Part Elevation of Lamp Post in the grill fence.
Scale 1:20



Detail of C.I. spherical head
Scale 1:4

MISCELLANEOUS WORKING DETAILS		DATE
PROJECT CODE/NO.	DRW/114	12 MAR 08
CLIENT	NAVAL DOCKYARD, MUMBAI	SCALE
ARCHITECT	R. SHWALLA ARCHITECTS	SCALE
PROJECT CODE/NO.	DRW/114	DATE
CLIENT	NAVAL DOCKYARD, MUMBAI	SCALE
ARCHITECT	R. SHWALLA ARCHITECTS	SCALE
PROJECT CODE/NO.	DRW/114	DATE
CLIENT	NAVAL DOCKYARD, MUMBAI	SCALE
ARCHITECT	R. SHWALLA ARCHITECTS	SCALE

CONSERVATION: BALLARD BUNDER GATEHOUSE

DRAWINGS AS EXECUTED

