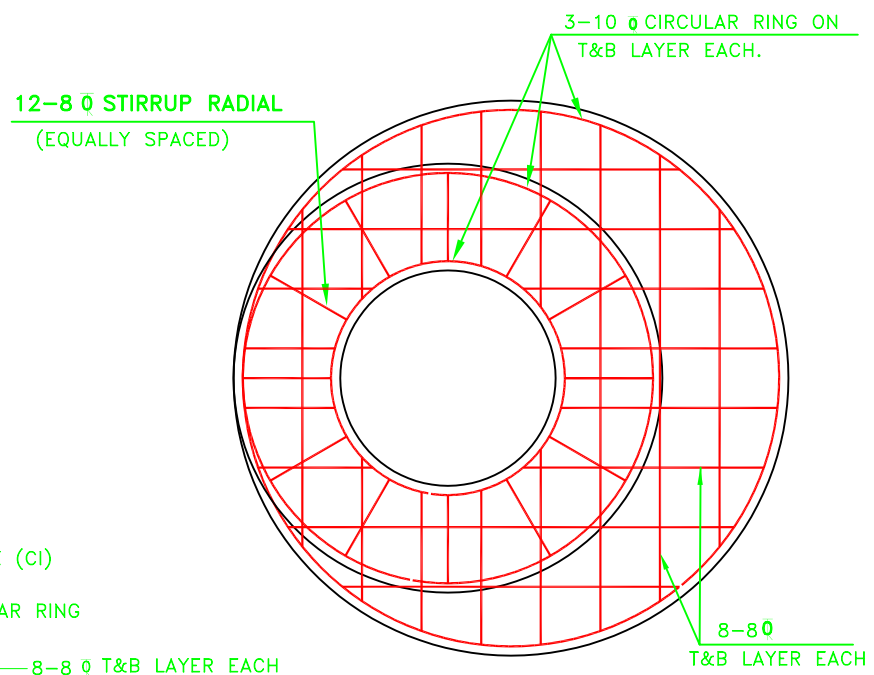
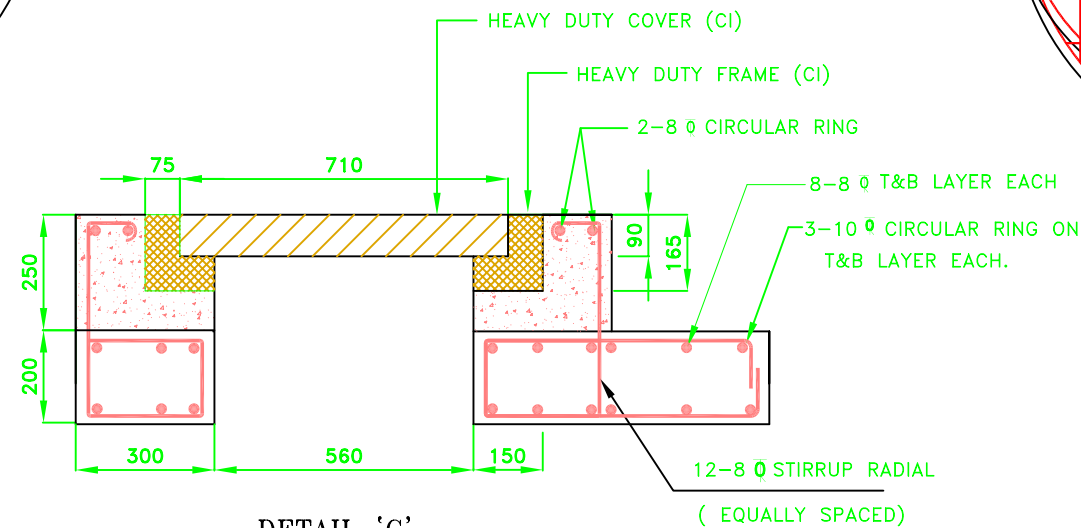


SECTION 'AA'

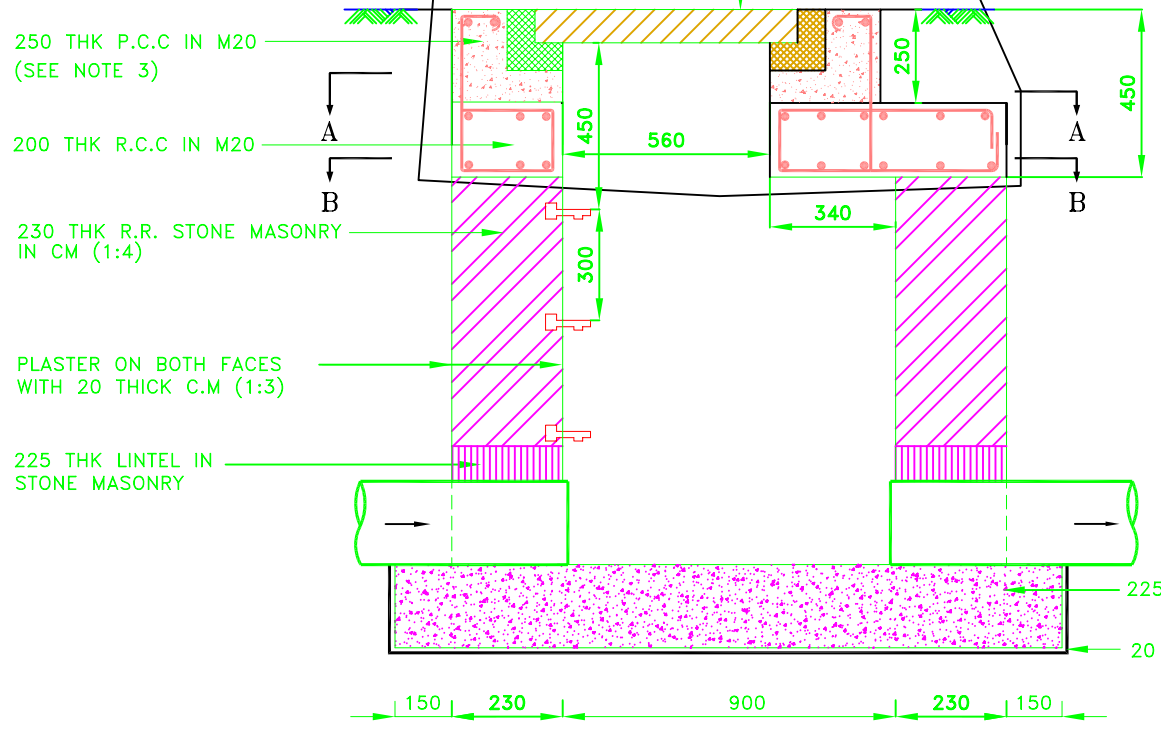


SECTION 'BB'



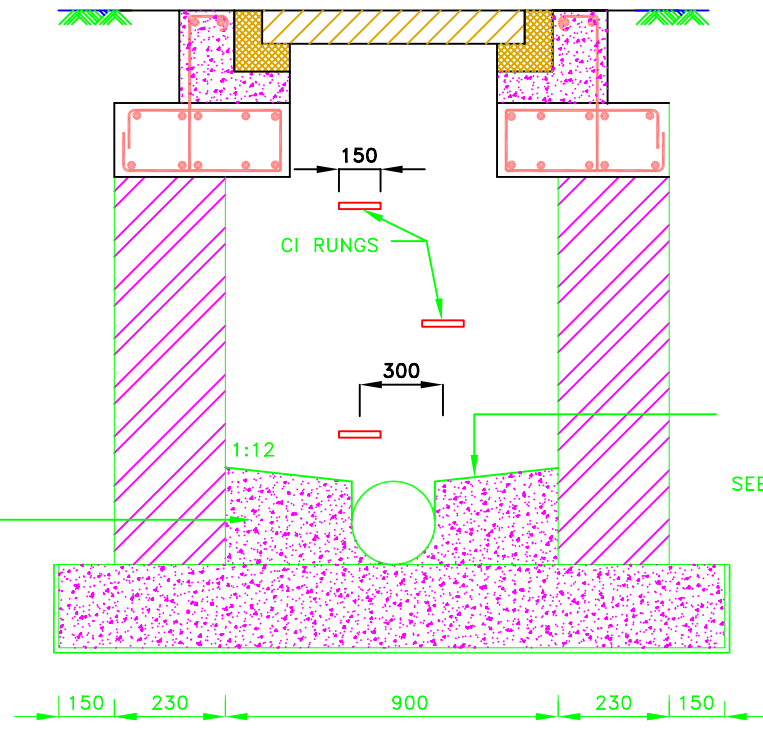
DETAIL 'C'
SCALE 1:20

560 Ø CLEAR OPENING CI
HEAVY DUTY MANHOLE FRAME &
COVER BEDDED IN 200 THK CONCRETE
SET FLUSH WITH FINISHED GRADE (SEE NOTE 5)



SECTION 'CC'
UPTO 500Ø SEWER
D < 1500

TYPE 'A'



SECTION 'DD'

(SEE NOTE 2)

SEE NOTE 6

NOTES:
1) ALL DIMENSION ARE IN MM.

REFERENCE DRAWING:

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
|----------------------------|--------------------------|--------------------------|------------|
| | | | |
| CHECKED BY: A.Bhatnagar | | APPROVED BY: D.Sarkar | |
| DRAWN | S.Mitra | APPROVE | |
| DESIGNED | R.Mittal | SCALE | 1:20 |
| SURVEYED | S.Sharma | DATE | 04-01-2005 |

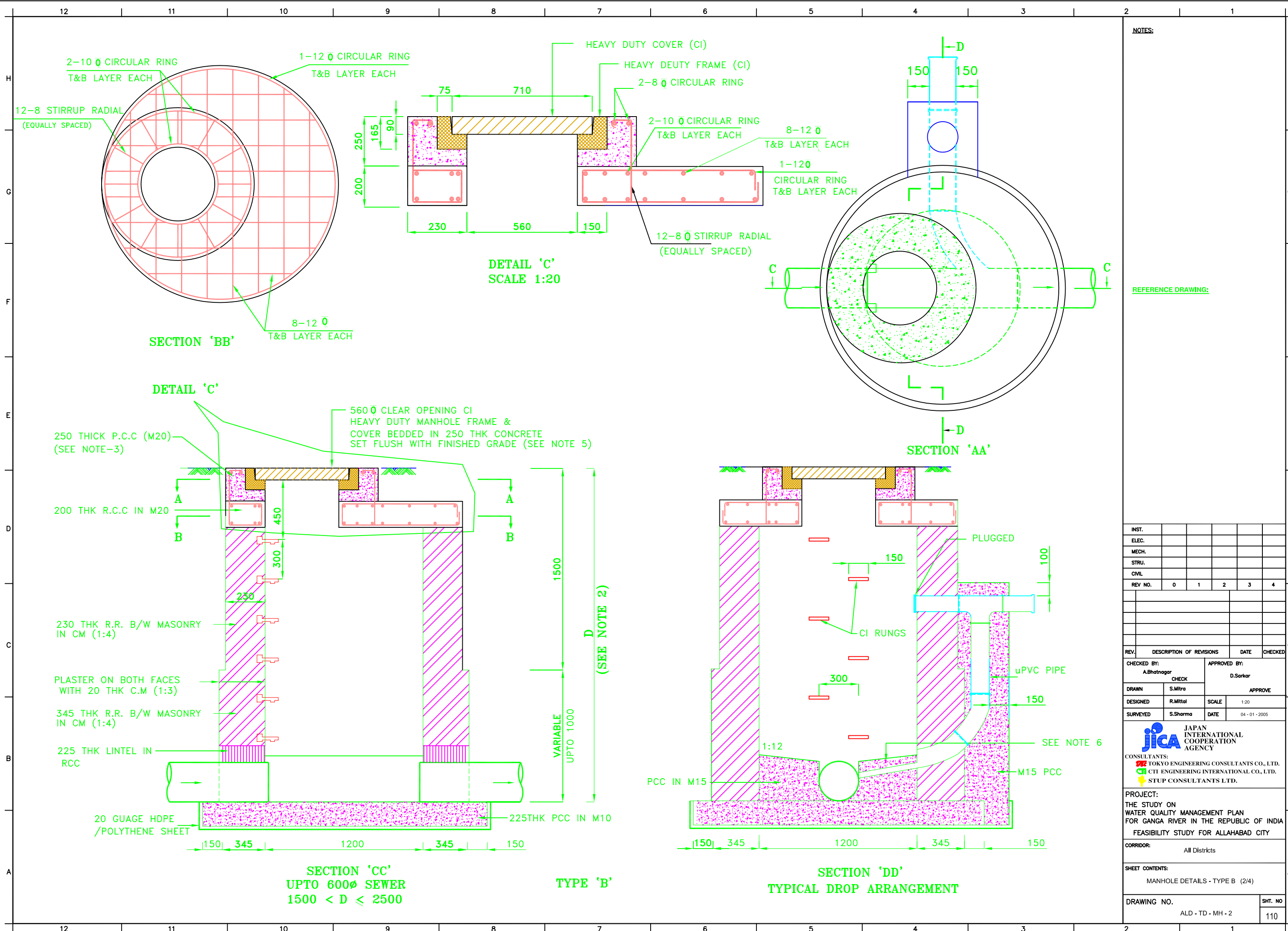
JICA JAPAN INTERNATIONAL COOPERATION AGENCY
 CONSULTANTS:
 TOKYO ENGINEERING CONSULTANTS CO., LTD.
 CTI ENGINEERING INTERNATIONAL CO., LTD.
 STUP CONSULTANTS LTD.

PROJECT:
THE STUDY ON
WATER QUALITY MANAGEMENT PLAN
FOR GANGA RIVER IN THE REPUBLIC OF INDIA
FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR:
All Districts

SHEET CONTENTS:
MANHOLE DETAILS - TYPE A (1/4)

| | | | |
|-------------|-------------------|----------|-----|
| DRAWING NO. | ALD - TD - MH - 1 | SHT. NO. | 109 |
|-------------|-------------------|----------|-----|



NOTES:

REFERENCE DRAWING:

| | | | | | |
|----------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV. NO. | 0 | 1 | 2 | 3 | 4 |

| | | | |
|-------------|--------------------------|--------------|------------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
| CHECKED BY: | A.Bhatnagar | APPROVED BY: | D.Sarkar |
| DRAWN | S.Mitra | SCALE | 1:20 |
| DESIGNED | R.Mittal | DATE | 04-01-2005 |
| SURVEYED | S.Sharma | | |

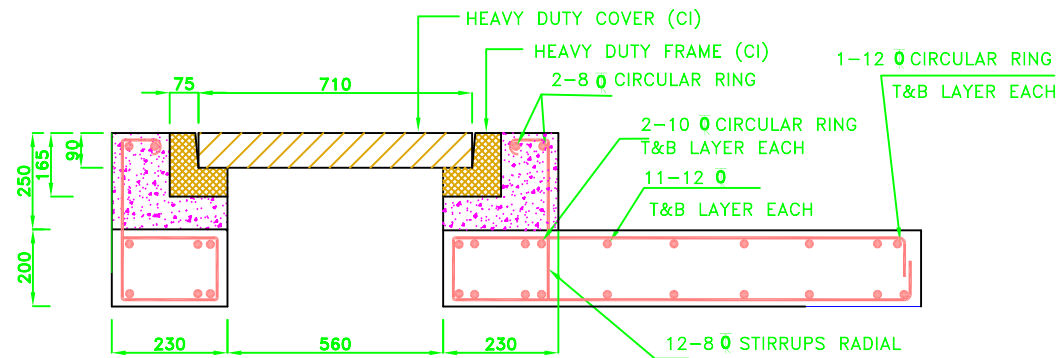
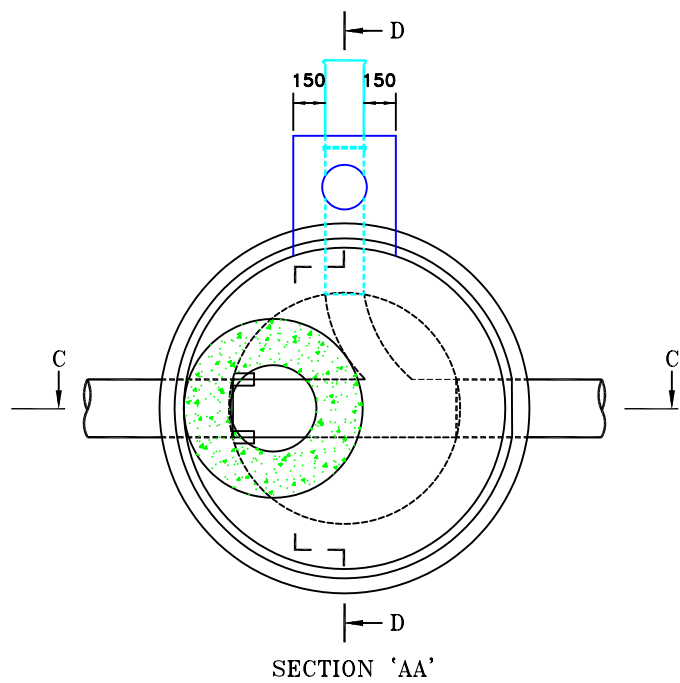
JICA JAPAN INTERNATIONAL COOPERATION AGENCY
 CONSULTANTS:
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 CTI ENGINEERING INTERNATIONAL CO., LTD.
 STUP CONSULTANTS LTD.

PROJECT:
 THE STUDY ON WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER IN THE REPUBLIC OF INDIA
 FEASIBILITY STUDY FOR ALLAHABAD CITY

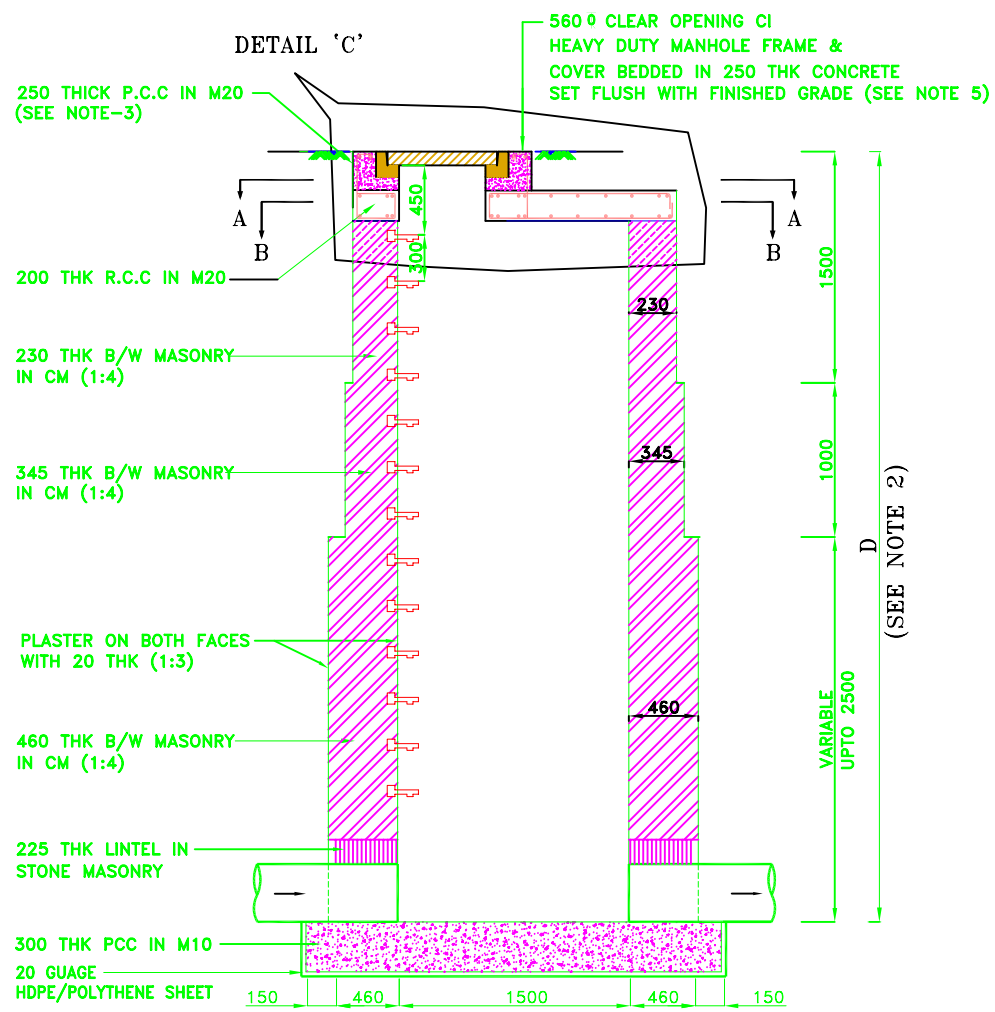
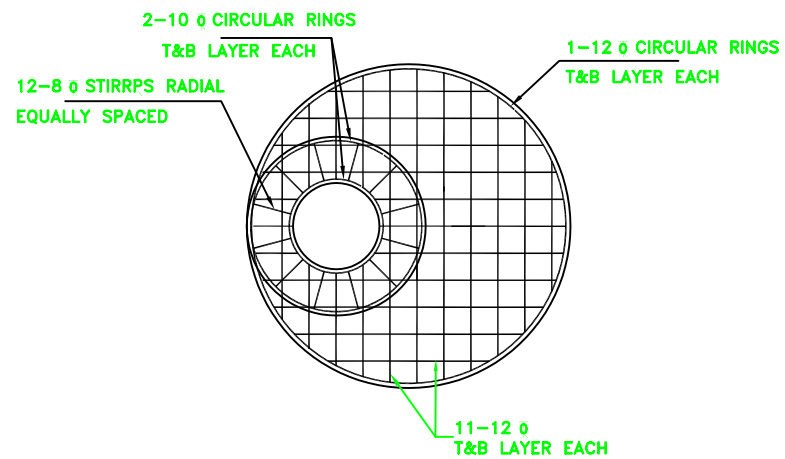
CORRIDOR: All Districts

SHEET CONTENTS:
 MANHOLE DETAILS - TYPE B (2/4)

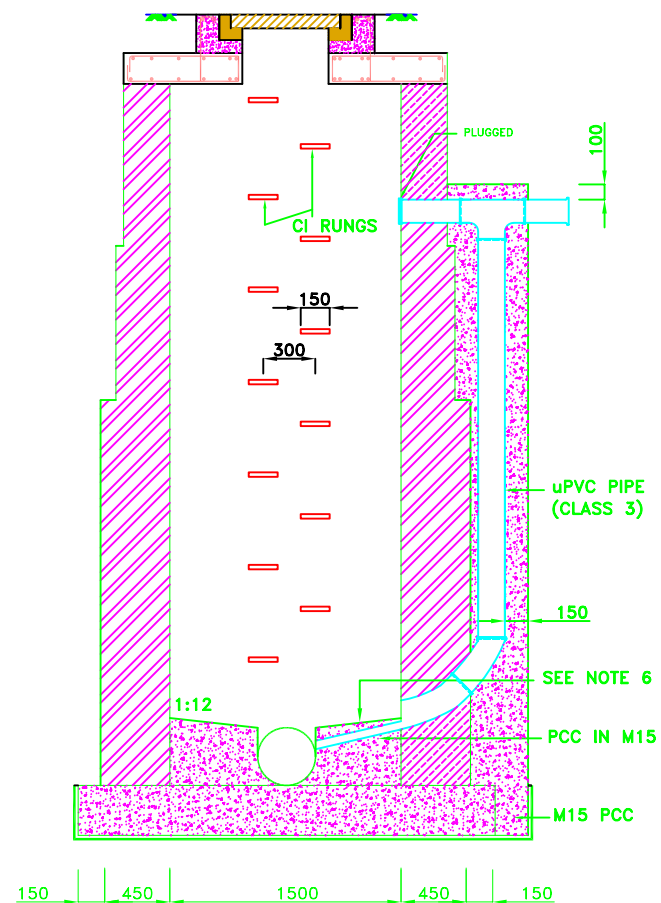
DRAWING NO. ALD - TD - MH - 2
 SHT. NO. 110



DETAIL 'C'
SCALE 1:20



SECTION 'CC'
UPTO 600Ø SEWER
2500 < D < 5000
TYPE 'C'



SECTION 'DD'
TYPICAL DROP ARRANGEMENT

NOTES:

1) ALL DIMENSION ARE IN MM.

REFERENCE DRAWING:

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

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|------|--------------------------|------|---------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
|------|--------------------------|------|---------|

| | | | | |
|-------------|-------------|-------|--------------|----------|
| CHECKED BY: | A.Bhatnagar | CHECK | APPROVED BY: | D.Sarkar |
| DRAWN | S.Mitra | SCALE | 1:20 | DATE |
| DESIGNED | R.Mittal | DATE | 05-01-2005 | |
| SURVEYED | S.Sharma | | | |

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

CONSULTANTS:

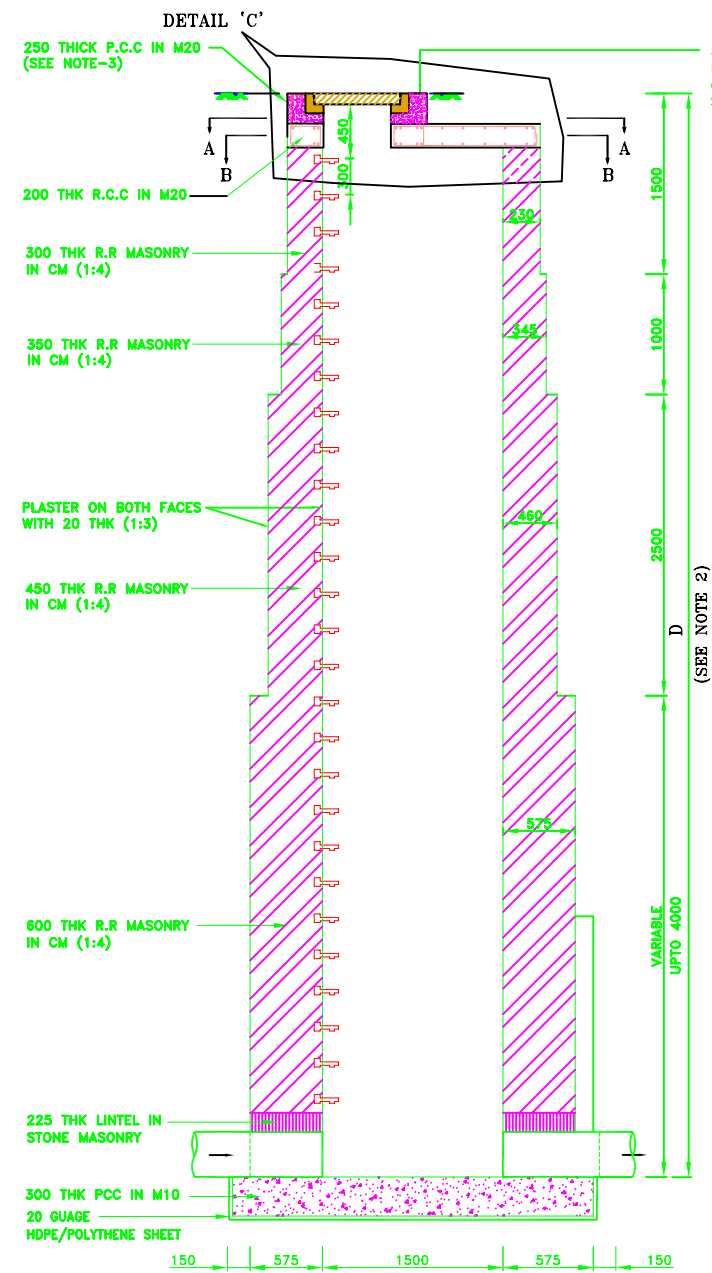
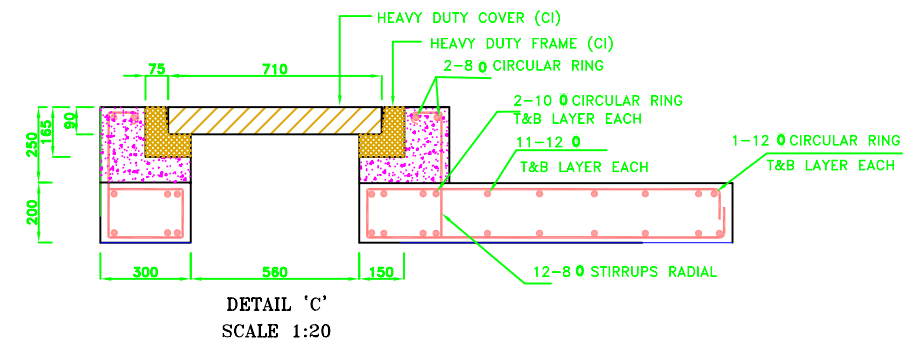
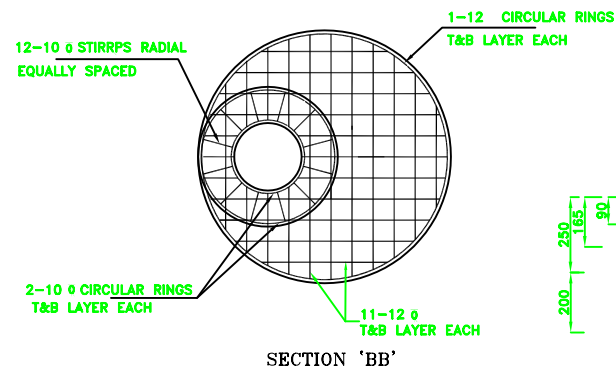
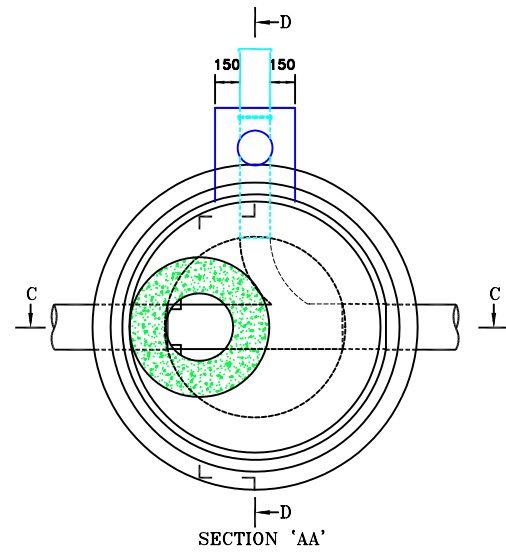
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PROJECT:
 THE STUDY ON
 WATER QUALITY MANAGEMENT PLAN
 FOR GANGA RIVER IN THE REPUBLIC OF INDIA
 FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR:
 All Districts

SHEET CONTENTS:
 MANHOLE DETAILS - TYPE C (3/4)

| | | | |
|-------------|-------------------|----------|-----|
| DRAWING NO. | ALD - TD - MH - 3 | SHT. NO. | 111 |
|-------------|-------------------|----------|-----|

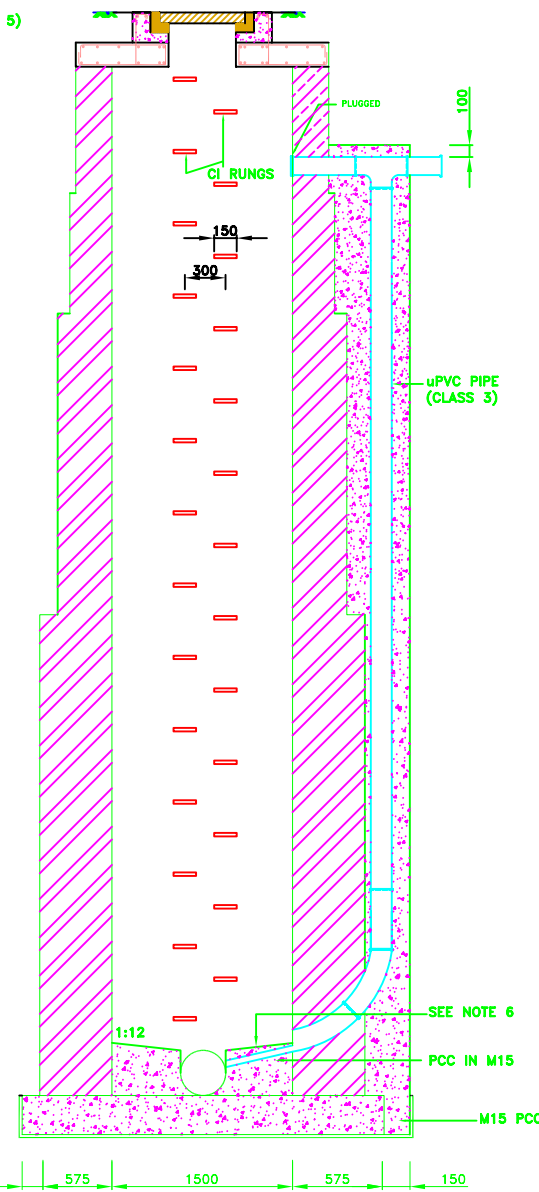


560 Ø CLEAR OPENING CI
HEAVY DUTY MANHOLE FRAME &
COVER BEDDED IN 250 THK CONCRETE
SET FLUSH WITH FINISHED GRADE (SEE NOTE 5)

(SEE NOTE 2)

VARIABLE
UPTO 4000

SECTION 'CC'
UPTO 600Ø SEWER
5000 < D ≤ 9000



SEE NOTE 6

SECTION 'DD'
TYPICAL DROP ARRANGEMENT

NOTES:
1) ALL DIMENSION ARE IN MM.

REFERENCE DRAWING:

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

| | | | |
|-------------|--------------------------|--------------|------------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
| CHECKED BY: | A.Bhatnagar | APPROVED BY: | D.Sarkar |
| DRAWN | S.Mitra | CHECK | APPROVE |
| DESIGNED | R.Mittal | SCALE | 1:20 |
| SURVEYED | S.Sharma | DATE | 05-01-2005 |

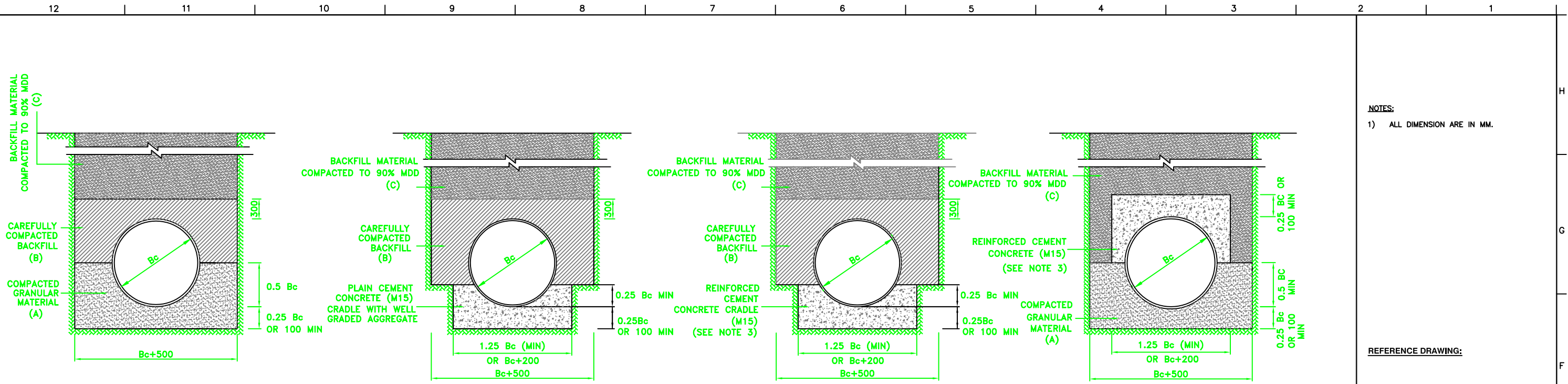
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CTI ENGINEERING INTERNATIONAL CO., LTD.
STUP CONSULTANTS LTD.

PROJECT:
THE STUDY ON
WATER QUALITY MANAGEMENT PLAN
FOR GANGA RIVER IN THE REPUBLIC OF INDIA
FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR:
All Districts

SHEET CONTENTS:
MANHOLE DETAILS - TYPE D (4/4)

DRAWING NO. ALD - TD - MH - 4
SHT. NO. 112



**GRANULAR BEDDING (GRB)
TYPE A - GRB**

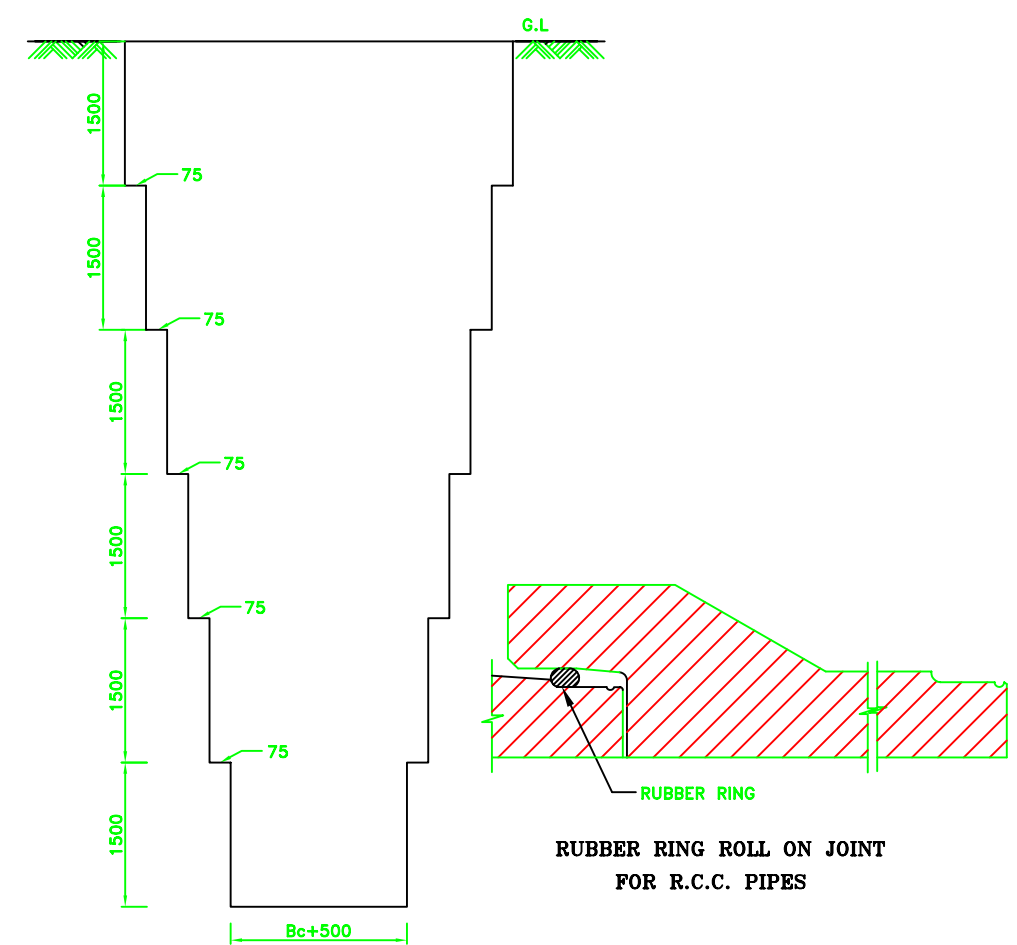
**PLAIN CEMENT CONCRETE BEDDING (PCCB)
TYPE B - PCCB**

**REINFORCED CEMENT CONCRETE BEDDING (RCCB)
WITH 0.4% STEEL
TYPE C - RCCB-0.4%**

**REINFORCED CONCRETE ARCH (RCA) BEDDING
WITH 1% STEEL
TYPE D - RCA-1%**

NOTES:
1) ALL DIMENSION ARE IN MM.

REFERENCE DRAWING:



**TYPICAL SECTION OF SEWER TRENCH
FOR 9.0m TRENCH DEPTH
(SEE NOTE 4)**

SELECTION OF BEDDING TYPE FOR CLASS 'AA' LOADING

| DIA | R.C.C. NP2 PIPES | | | | RCC NP4 PIPE | |
|-----|------------------|--------------|-------------------|------------------|------------------|--------------|
| | GRANULAR BEDDING | PCCB BEDDING | RCCB-0.4% BEDDING | RCA - 1% BEDDING | GRANULAR BEDDING | PCCB BEDDING |
| | TYPE 'A' | TYPE 'B' | TYPE 'C' | TYPE 'D' | TYPE 'A' | TYPE 'B' |
| 150 | - | - | - | - | UP TO 8.0m | - |
| 200 | - | - | - | - | UP TO 8.0m | - |
| 250 | - | - | - | - | UP TO 8.0m | - |
| 300 | - | UP TO 3.5m * | 3.5 TO 6.0m | - | 6.0 TO 8.0m | - |
| 350 | - | UP TO 3.5m | 3.5 TO 5.5m | 5.5 TO 8.0m | - | - |
| 400 | - | UP TO 3.5m | 3.5 TO 5.5m | 5.5 TO 8.0m | - | - |
| 450 | - | UP TO 3.5m | 3.5 TO 5.0m | 5.0 TO 8.0m | - | - |
| 500 | - | UP TO 3.5m | 3.5 TO 5.0m | 5.0 TO 8.0m | - | - |
| 600 | - | UP TO 3.0m | 3.0 TO 4.5m | 4.5 TO 8.0m | - | - |
| 700 | - | UP TO 3.0m | 3.0 TO 4.5m | 4.5 TO 10.0m | - | - |
| 800 | - | UP TO 3.0m | 3.0 TO 4.5m | 4.5 TO 10.0m | - | - |

* DEPTH = GROUND LEVEL - INVERT LEVEL

- LAYER A. COMPACTED GRANULAR MATERIAL** GRADED HARD CRUSHED BROKEN STONE OR GRAVEL 100% PASSING THROUGH 20 mm SEIVE, 20 TO 50% PASSING THROUGH 10mm SEIVE AND 100% RETAINED ON 6mm SEIVE
- LAYER B. CAREFULLY COMPACTED BACKFILL** BACKFILLING WITH APPROVED SELECTED EXCAVATED MATERIAL AND COMPACTION SHALL BE DONE BY HAND OR APPROVED MECHANICAL METHODS IN LAYERS OF 150mm WITH SPECIAL CARE TO AVOID DAMAGE OF THE PIPE
- LAYER C. BACKFILL MATERIAL COMPACTED TO 90% M.D.D** BACKFILLING SHALL BE DONE WITH EXCAVATED MATERIAL BY HAND OR APPROVED MECHANICAL METHODS IN LAYERS NOT EXCEEDING 15 CM THICKNESS AFTER COMPACTING, WETTED AND COMPACTED TO A DENSITY OF NOT LESS THAN 90% OF MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OF THE SURROUNDING MATERIAL.

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

| | | | |
|-------------|--------------------------|--------------|------------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
| CHECKED BY: | A.Bhatnagar | APPROVED BY: | D.Sarkar |
| DRAWN | S.Mitra | CHECK | APPROVE |
| DESIGNED | R.Mittal | SCALE | |
| SURVEYED | S.Sharma | DATE | 04-01-2005 |

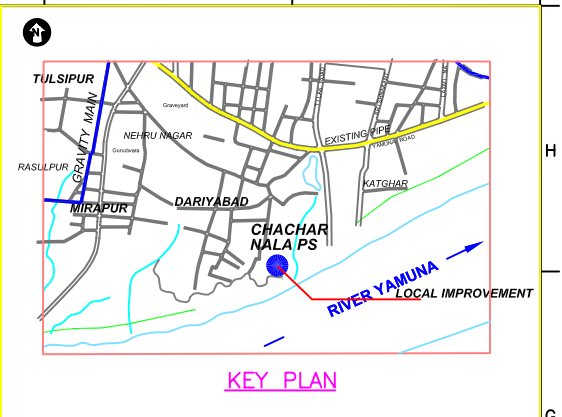
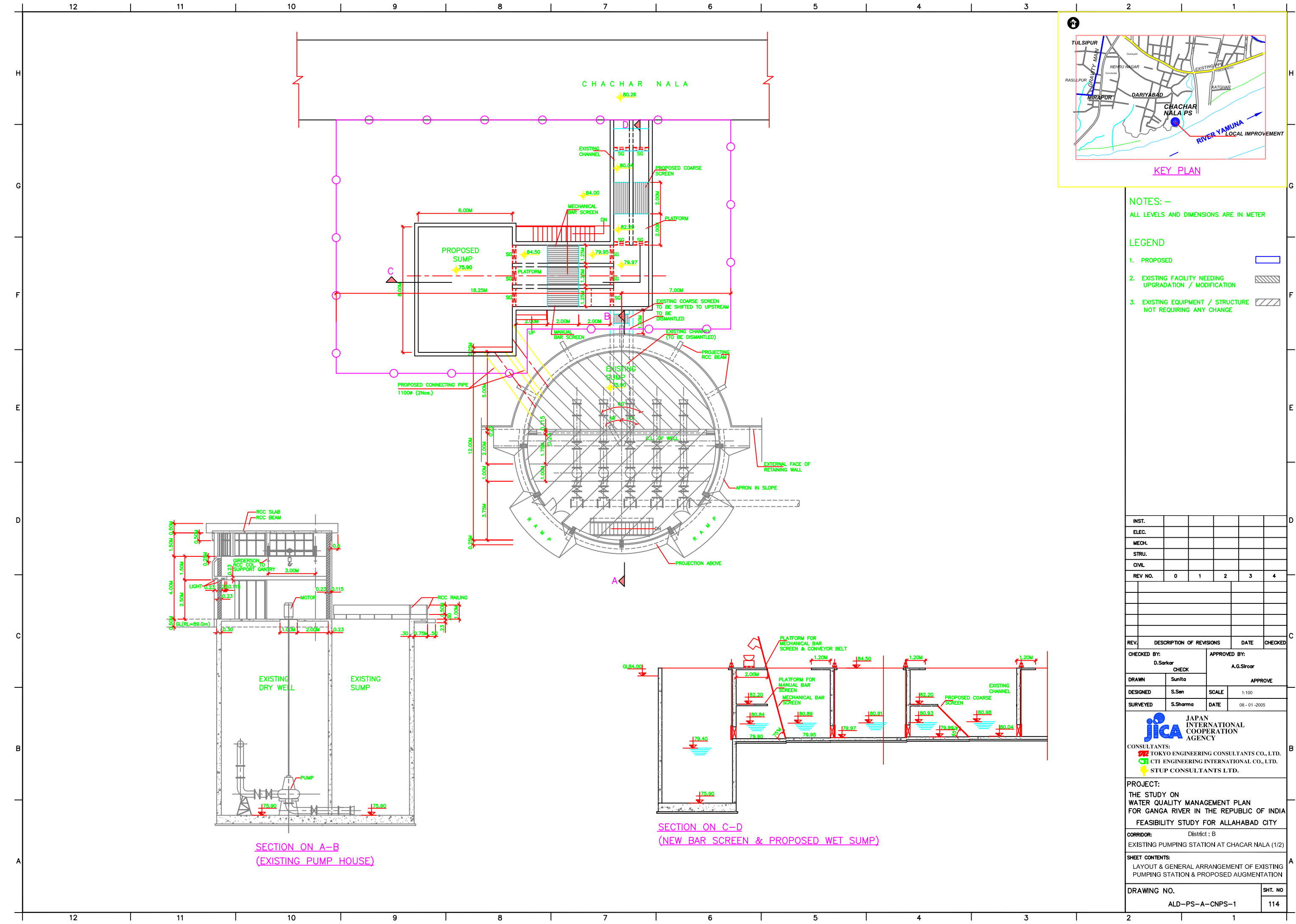
JICA JAPAN INTERNATIONAL COOPERATION AGENCY
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 CITI ENGINEERING INTERNATIONAL CO., LTD.
 STUP CONSULTANTS LTD.

PROJECT:
 THE STUDY ON WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER IN THE REPUBLIC OF INDIA
 FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR: All Districts

SHEET CONTENTS:
 TYPICAL DETAILS OF BEDDING (1/1)

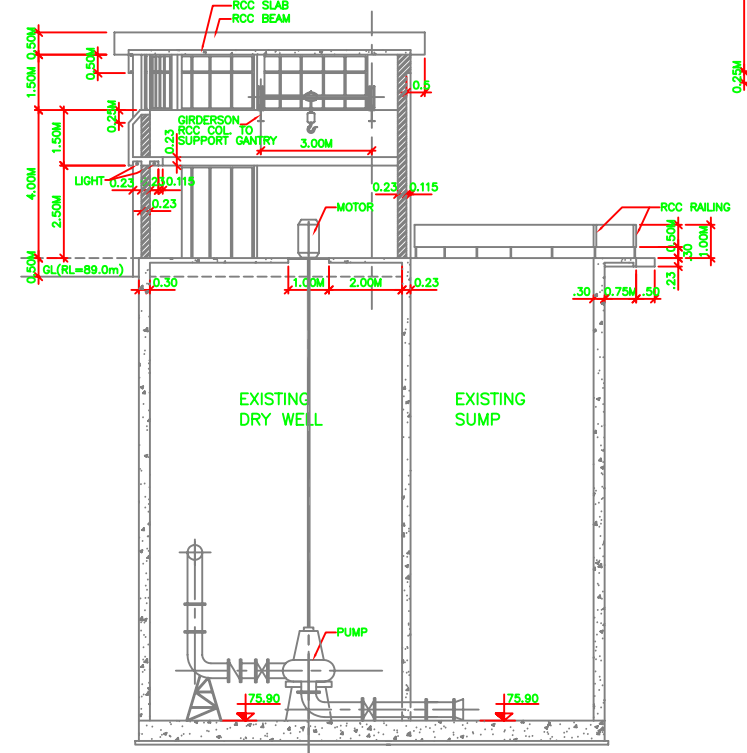
DRAWING NO. ALD - TD - B - 1
SHT. NO. 113



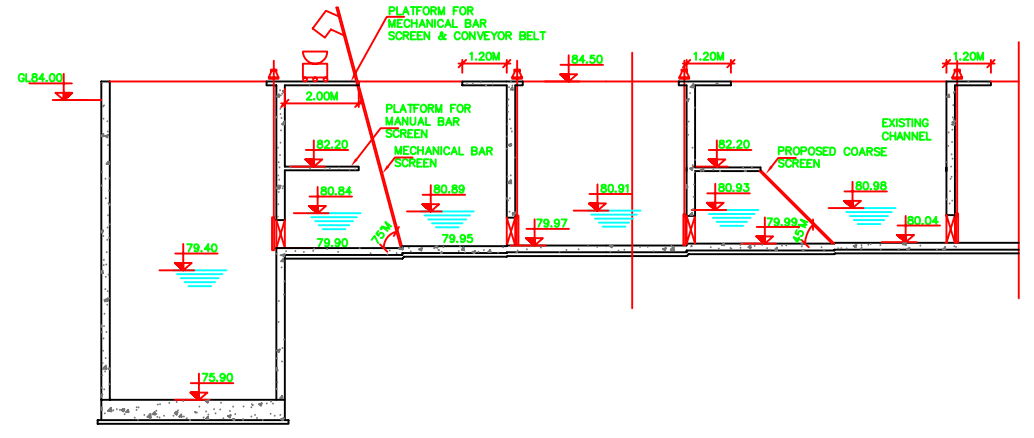
NOTES: -
 ALL LEVELS AND DIMENSIONS ARE IN METER

LEGEND

- 1. PROPOSED
- 2. EXISTING FACILITY NEEDING UPGRADATION / MODIFICATION
- 3. EXISTING EQUIPMENT / STRUCTURE NOT REQUIRING ANY CHANGE



**SECTION ON A-B
(EXISTING PUMP HOUSE)**



**SECTION ON C-D
(NEW BAR SCREEN & PROPOSED WET SUMP)**

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

| | | | |
|-------------|--------------------------|--------------|------------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
| CHECKED BY: | D.Sarkar | APPROVED BY: | A.G.Sircar |
| DRAWN | Sunita | SCALE | 1:100 |
| DESIGNED | S.Sen | DATE | 08-01-2005 |
| SURVEYED | S.Sharma | | |

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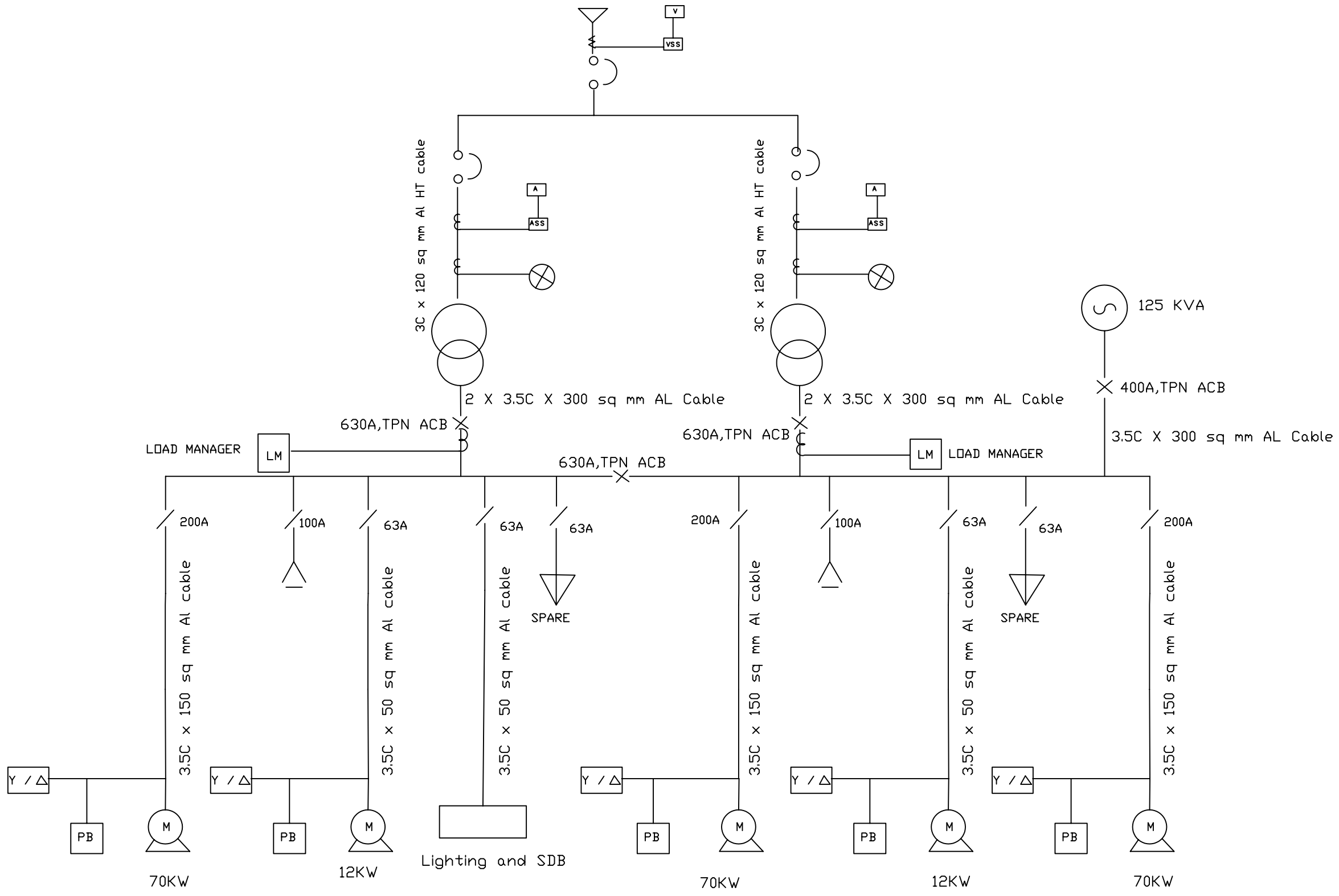
PROJECT:
 THE STUDY ON WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER IN THE REPUBLIC OF INDIA
 FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR: District : B
 EXISTING PUMPING STATION AT CHACAR NALA (1/2)

SHEET CONTENTS:
 LAYOUT & GENERAL ARRANGEMENT OF EXISTING PUMPING STATION & PROPOSED AUGMENTATION

| | |
|-----------------|----------|
| DRAWING NO. | SHT. NO. |
| ALD-PS-A-CNPS-1 | 114 |

INCOMERS FROM HT METER



SINGLE LINE DIAGRAM FOR CHACHAR NALA (EXISTING PUMP HOUSE)

- LEGEND**
- △ Capacitor Bank
 - ⊗ Protective Relay
 - A Ammeter
 - ASS Ammeter Selector Switch
 - V Voltmeter
 - VSS Voltmeter Selector Switch
 - ⌒ Current Transformer
 - ⌒ Potential Transformer
 - 630A, 250 MVA, 11 KV VCB
18.4 KA
 - ⊗ 400KVA, 11KV/415V Transformer
DY-11
 - ⊙ DG set 315 KVA, 3Ph, 415 V
 - M TEFC Squirrel Cage Motor
415 V, 3 PH, 50 HZ
 - Y/Δ Star Delta Motor Starter
 - / TPN MCCB
 - PB Remote Push Button

NOTES

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

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|------|--------------------------|------|---------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
| | | | |
| | | | |
| | | | |
| | | | |

| | |
|-------------|--------------|
| CHECKED BY: | APPROVED BY: |
| RKA | D.Sarkar |
| CHECK | APPROVE |
| | |
| DRAWN | S.Mitra |
| DESIGNED | S.Sen |
| SURVEYED | |
| | DATE |

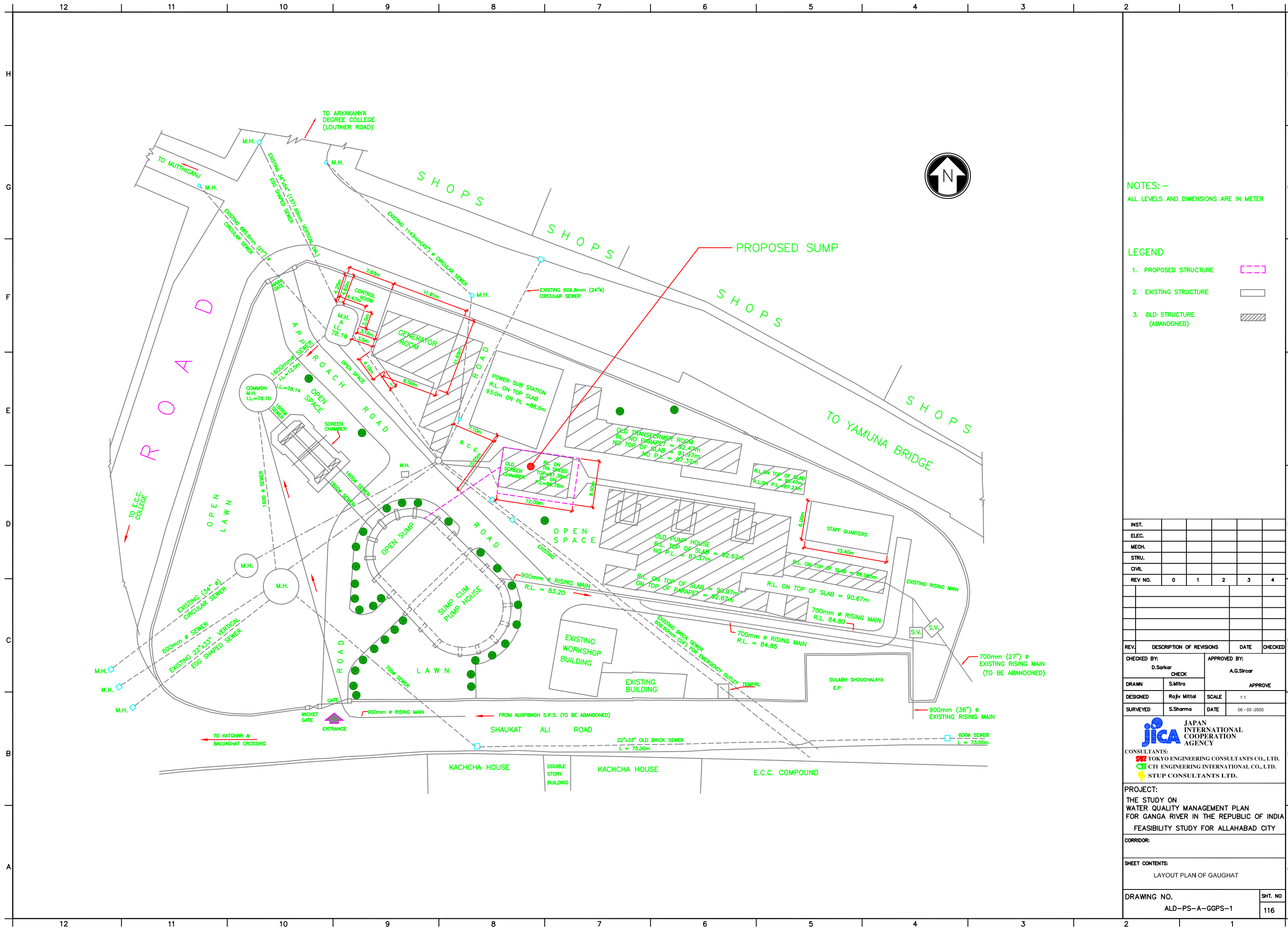
JAPAN INTERNATIONAL COOPERATION AGENCY
 CONSULTANTS:
 TOKYO ENGINEERING CONSULTANTS CO., LTD.
 CTL ENGINEERING INTERNATIONAL CO., LTD.
 STUP CONSULTANTS LTD.

PROJECT:
 THE STUDY ON WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER IN THE REPUBLIC OF INDIA
 FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR: Dist-A

SHEET CONTENTS:
SINGLE LINE DIAGRAM
 CHACHARNALA PUMPING STATION (2/2)
 (EXISTING)

| | |
|-----------------|----------|
| DRAWING NO. | SHT. NO. |
| ALD-PS-A-CNPS-2 | 115 |



NOTES:—
ALL LEVELS AND DIMENSIONS ARE IN METER

- LEGEND
- 1. PROPOSED STRUCTURE
 - 2. EXISTING STRUCTURE
 - 3. OLD STRUCTURE (ABANDONED)

| | | | | | |
|---------|---|---|---|---|---|
| INST. | | | | | |
| ELEC. | | | | | |
| MECH. | | | | | |
| STRU. | | | | | |
| CIVIL | | | | | |
| REV NO. | 0 | 1 | 2 | 3 | 4 |

| | | | |
|-------------|--------------------------|--------------|------------|
| REV. | DESCRIPTION OF REVISIONS | DATE | CHECKED |
| CHECKED BY: | D.Sarkar | APPROVED BY: | A.G.Sircar |
| DRAWN | S.Mitra | CHECK | APPROVE |
| DESIGNED | Rajiv Mittal | SCALE | 1:1 |
| SURVEYED | S.Sharma | DATE | 06-05-2005 |

JICA JAPAN INTERNATIONAL COOPERATION AGENCY

CONSULTANTS:

PROJECT:
THE STUDY ON WATER QUALITY MANAGEMENT PLAN FOR GANGA RIVER IN THE REPUBLIC OF INDIA
FEASIBILITY STUDY FOR ALLAHABAD CITY

CORRIDOR:

SHEET CONTENTS:
LAYOUT PLAN OF GAUGHAT

| | |
|-----------------|---------|
| DRAWING NO. | SH. NO. |
| ALD-PS-A-GGPS-1 | 116 |

