

PROJECT: PROPOSED DESIGN OF SECURITY QUARTERS AT GELEPHU AIRPORT.
CLIENT: DEPARTMENT OF AIR TRANSPORT.
BUILDING: OFFICER'S RESIDENCE

PLUMBING AND SEWER DRAWINGS

SUBMITTED BY:

Gyaltshen consultancy



**ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT**



ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT

NOTE:
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
- ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
- ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OTI
- ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
- ANY DISCREPANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
THE CONSULTANTS/SUPERVISION TEAM
- MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH
BUILDING

Legend

No.	Revision	Date

Client
Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals
Civil Engineering Consultant
Gyaltshen Consultancy

Project Title

GELEPHU DOMESTIC AIRP
DESIGN & SUPERVISION

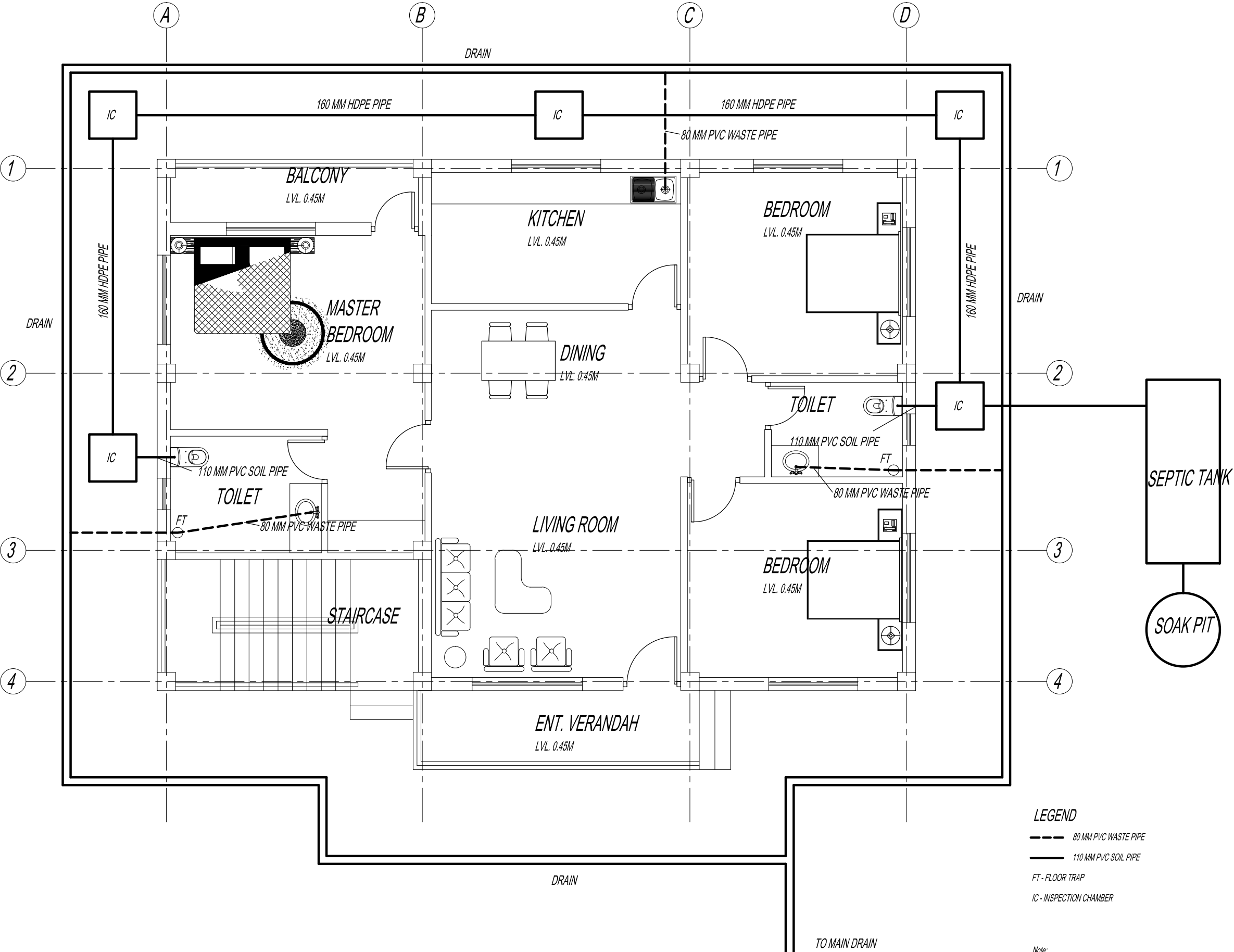
DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

SEWERAGE LAYOUT

Scale	1:75
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR SW01
LEAPP Project Code	-----



LEGEND

- 80 MM PVC WASTE PIPE
- 110 MM PVC SOIL PIPE
- FT - FLOOR TRAP
- IC - INSPECTION CHAMBER

Note:
- All internal Sewerage pipes shall be 110mm dia heavy duty PVC pipes & external 160mm dia HDPE pipe, 4kg/sqcm pressure.
- All waste water pipes shall be 90MM dia PVC heavy duty pipes.
- All joints shall be done with standard PVC fittings with application of PVC solutions.
- All pipe work and fittings shall be tested after installation.
- The size of manholes shall be 600x600 upto to the depth of 1m and 900x900 for depth more than 1m.
- All manholes shall be RCC round with smooth finish inside fitted with C1 manhole cover and frame medium duty.
- The pipe gradient shall be 1 in 50 minimum.

GROUND FLOOR SEWER LAYOUT

NOTE:

-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
 -ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
 -ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OT
 -ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
 -ANY DISCREPANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
 THE CONSULTANTS/SUPERVISION TEAM
 -MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH
 BUILDING

Legend

No.	Revision	Date

Client
Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals
Civil Engineering Consultant
Gyaltshen Consultancy
Project Title

GELEPHU DOMESTIC AIRP
DESIGN & SUPERVISION

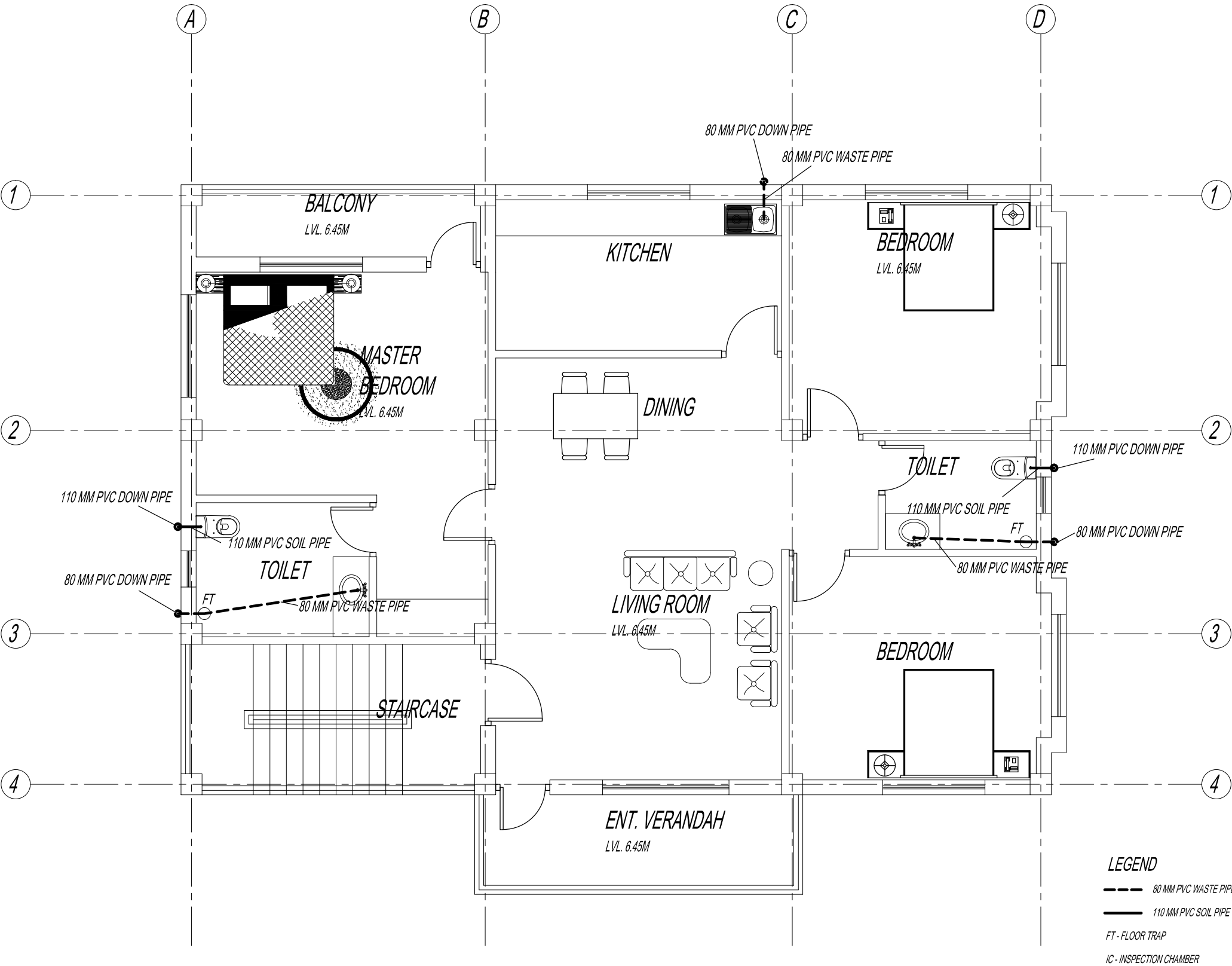
DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

SEWERAGE LAYOUT

Scale	1:75
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR SW02
LEAPP Project Code	-----



LEGEND

- 80 MM PVC WASTE PIPE
 --- 110 MM PVC SOIL PIPE
 FT - FLOOR TRAP
 IC - INSPECTION CHAMBER

Note:

- All internal Sewerage pipes shall be 110mm dia heavy duty PVC pipes & external 160mm dia HDPE pipe, 4kg/sqcm pressure.
 - All waste water pipes shall be 90MM dia PVC heavy duty pipes.
 - All joints shall be done with standard PVC fittings with application of PVC solutions.
 - All pipe work and fittings shall be tested after installation.
 - The size of manholes shall be 600x600 upto to the depth of 1m and 900x900 for depth more than 1m.
 - All manholes shall be RCC round with smooth finish inside fitted with CI manhole cover and frame medium duty.
 - The pipe gradient shall be 1 in 50 minimum.

FIRST FLOOR SEWER LAYOUT

NOTE:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
- ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
- ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OTI
- ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
- ANY DISCREPANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
- THE CONSULTANTS/SUPERVISION TEAM
- MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH BUILDING

Legend

No.	Revision	Date

Client
Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals
Civil Engineering Consultant
Gyaltshen Consultancy
Project Title

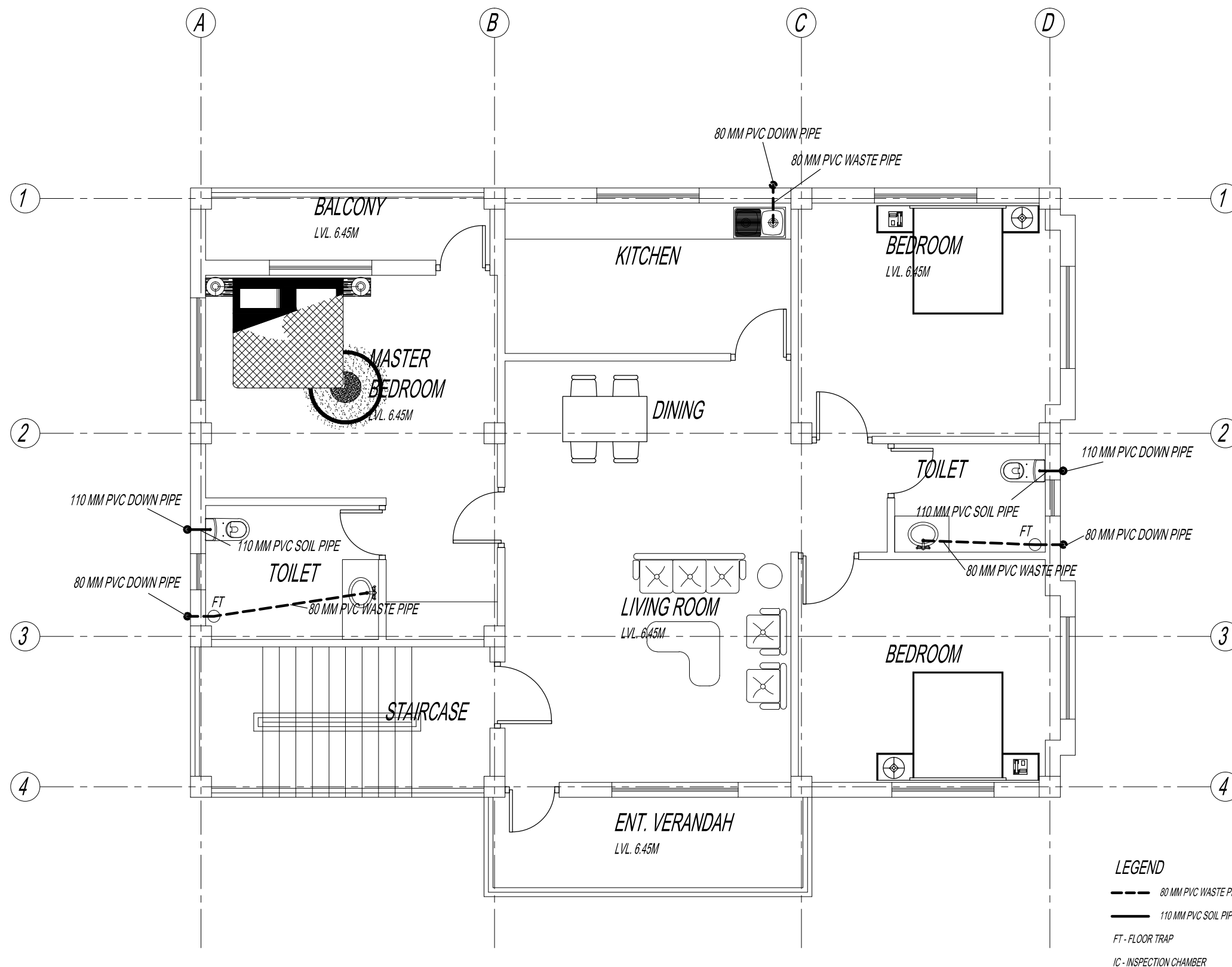
GELEPHU DOMESTIC AIRPORT
DESIGN & SUPERVISIONDESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

SEWERAGE LAYOUT

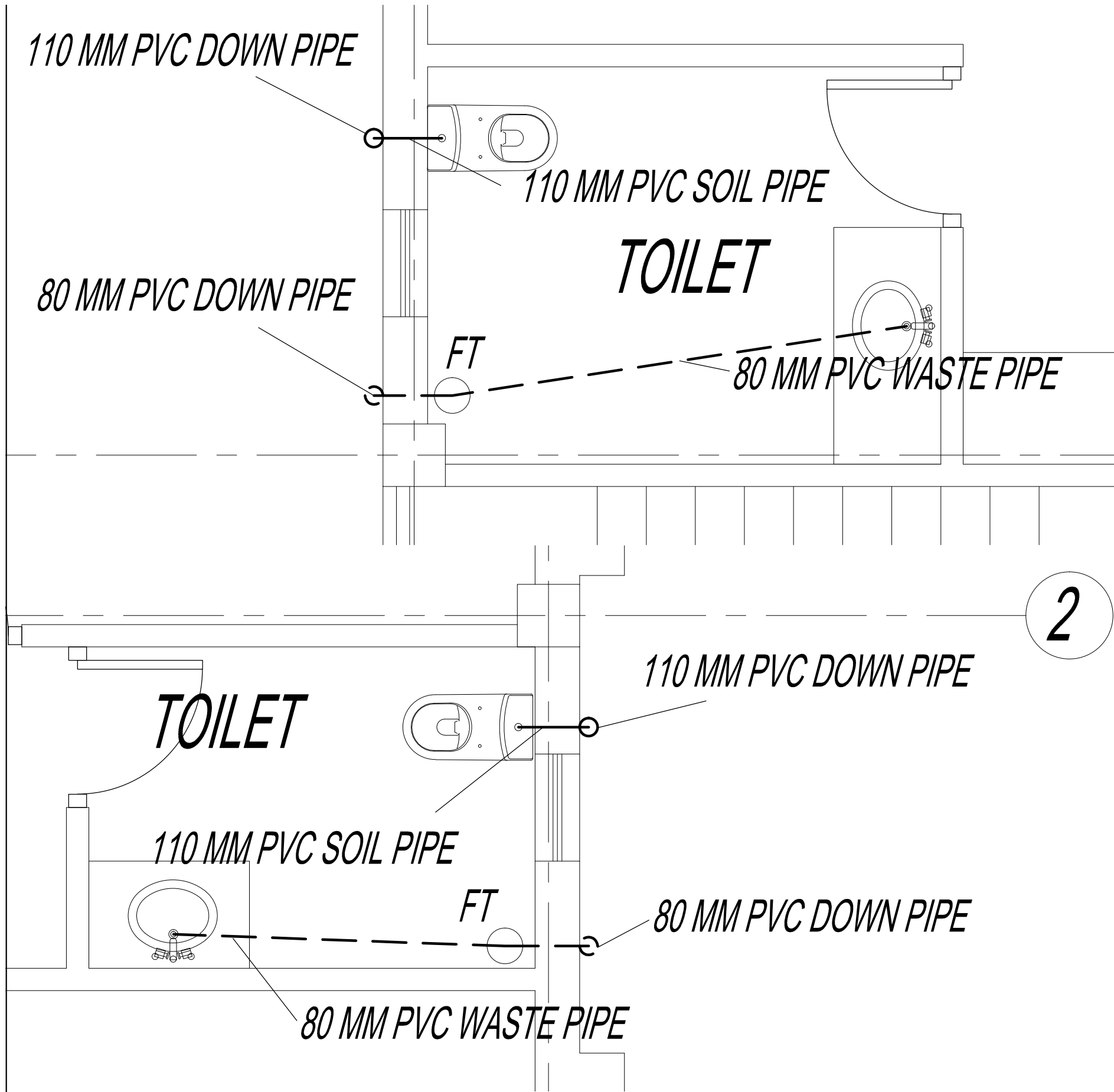
Scale	1:75
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR SW03
LEAPP Project Code	-----



SECOND FLOOR SEWER LAYOUT

Note:

- All internal Sewerage pipes shall be 110mm dia heavy duty PVC pipes & external 160mm dia HDPE pipe, 4kg/sqcm pressure.
- All waste water pipes shall be 90MM dia PVC heavy duty pipes.
- All joints shall be done with standard PVC fittings with application of PVC solutions.
- All pipe work and fittings shall be tested after installation.
- The size of manholes shall be 600x600 upto to the depth of 1m and 900x900 for depth more than 1m.
- All manholes shall be RCC round with smooth finish inside fitted with CI manhole cover and frame medium duty.
- The pipe gradient shall be 1 in 50 minimum.



TYPICAL SEWER LAYOUT DETAIL

LEGEND

- 80 MM PVC WASTE PIPE
- 110 MM PVC SOIL PIPE
- FT - FLOOR TRAP
- IC - INSPECTION CHAMBER

Note:

- All internal Sewerage pipes shall be 110mm dia heavy duty PVC pipes & external 160mm dia HDPE pipe, 4kg/sqcm pressure.
- All waste water pipes shall be 90MM dia PVC heavy duty pipes.
- All joints shall be done with standard PVC fittings with application of PVC solutions.
- All pipe work and fittings shall be tested after installation.
- The size of manholes shall be 600x600 upto to the depth of 1m and 900x900 for depth more than 1m.
- All manholes shall be RCC round with smooth finish inside fitted with CI manhole cover and frame medium duty.
- The pipe gradient shall be 1 in 50 minimum.



ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT

NOTE:

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
- ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
- ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OTI
- ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
- ANY DISCREPANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
- THE CONSULTANTS/SUPERVISION TEAM
- MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH BUILDING

Legend

No.	Revision	Date

Client	Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers	Leading Edge Aviation Planning Professionals
Civil Engineering Consultant	Gyaltshen Consultancy
Project Title	

GELEPHU DOMESTIC AIRP
DESIGN & SUPERVISION

DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

SEWERAGE LAYOUT

Scale	1:25
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR SW04
LEAPP Project Code	-----



ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT

NOTE:
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
-ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
-ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OTI
-ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
-ANY DISCREPANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
THE CONSULTANTS/SUPERVISION TEAM
-MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH
BUILDING

Legend

No.	Revision	Date

Client
Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals
Civil Engineering Consultant
Gyaltshen Consultancy

Project Title

GELEPHU DOMESTIC AIRPORT
DESIGN & SUPERVISION

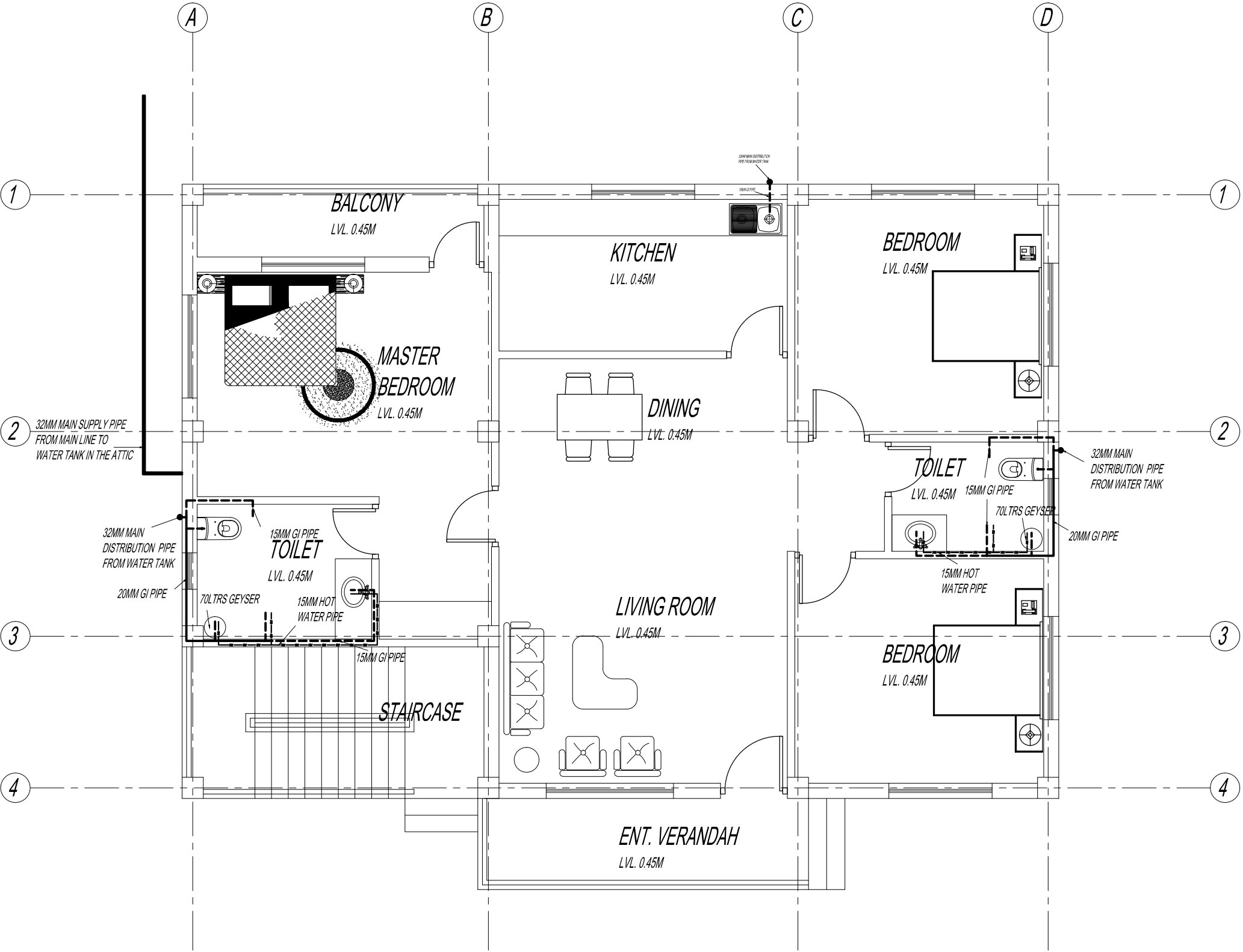
DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

PLUMBING LAYOUT

Scale	1:75
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR PL01
LEAPP Project Code	-----



LEGEND

- Main Supply Pipe from Water Tank (32mm dia)
- Main Distribution Pipe (20mm dia)
- Distribution Pipe (15mm dia)
- Hot Water Pipe (15mm dia)

Notes for plumbing:
1. Pipes shall be GI, medium duty.
3. Provide separate connections for GF & FF
4. All inlets shall be controlled with gate valve as shown in site plan
5. Pressure testing shall be done before concealing the pipes

GROUND FLOOR PLUMBING LAYOUT



ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT

NOTE:
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
-ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
-ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OT
-ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
-ANY DESCREPCANY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
THE CONSULTANTS/SUPERVISION TEAM
-MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH
BUILDING

Legend

No.	Revision	Date

Client
Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals
Civil Engineering Consultant
Gyaltshen Consultancy

Project Title

GELEPHU DOMESTIC AIRP
DESIGN & SUPERVISION

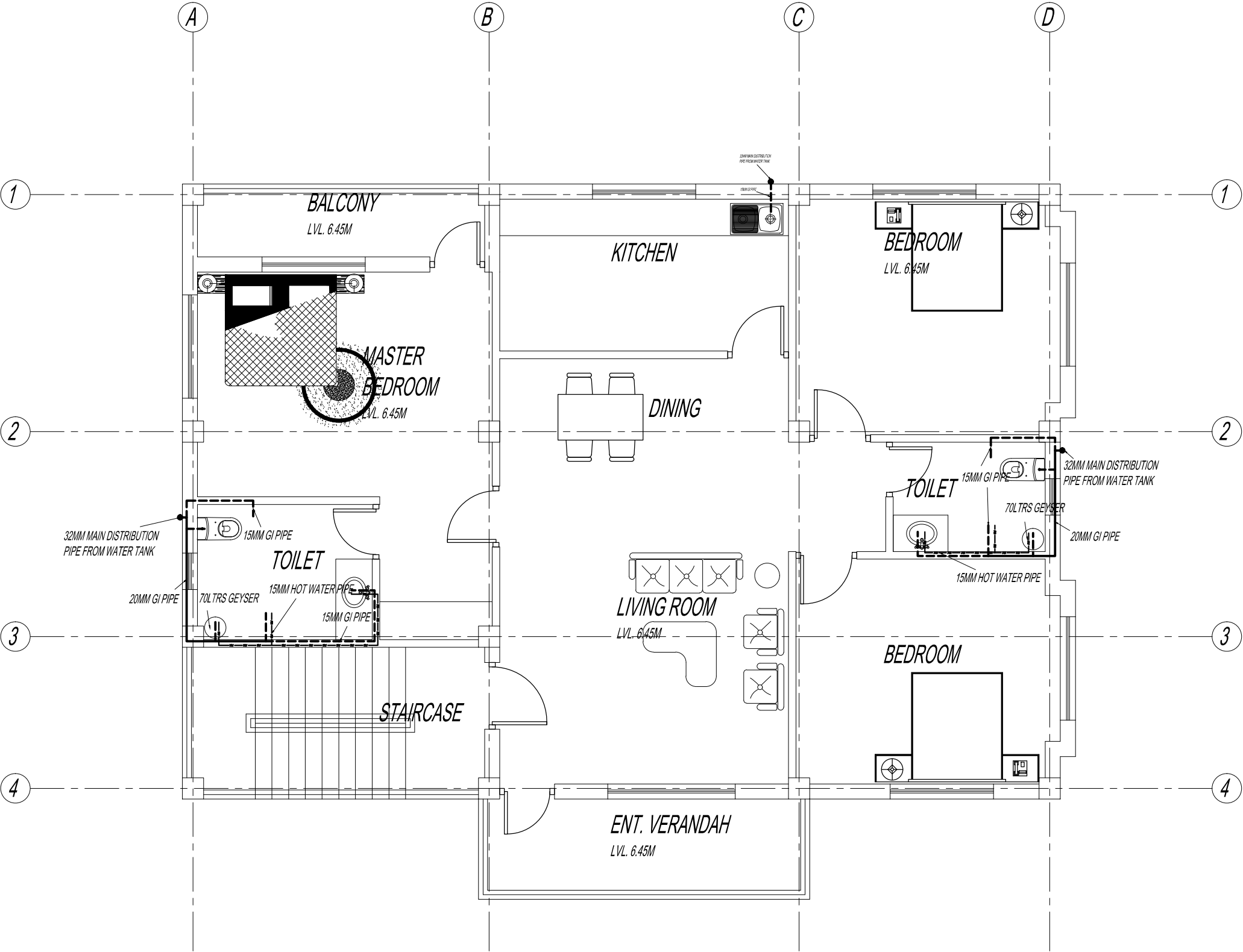
DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

PLUMBING LAYOUT

Scale	1:75
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR PL02
LEAPP Project Code	-----



LEGEND

- Main Supply Pipe from Water Tank (32mm dia)
- Main Distribution Pipe (20mm dia)
- Distribution Pipe (15mm dia)
- Hot Water Pipe (15mm dia)

Notes for plumbing:
1. Pipes shall be GI, medium duty.
3. Provide separe connections for GF & FF
4. All inlets shall be controlled with gate valve as shown in site plan
5. Pressure testing shall be done before concealing the pipes

FIRST FLOOR PLUMBING LAYOUT



ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT

NOTE:
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
-ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
-ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OT
-ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
-ANY DISCREPANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
THE CONSULTANTS/SUPERVISION TEAM
-MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH
BUILDING

Legend

No.	Revision	Date

Client	Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers	Leading Edge Aviation Planning Professionals
Civil Engineering Consultant	Gyaltshen Consultancy
Project Title	GELEPHU DOMESTIC AIRP DESIGN & SUPERVISION

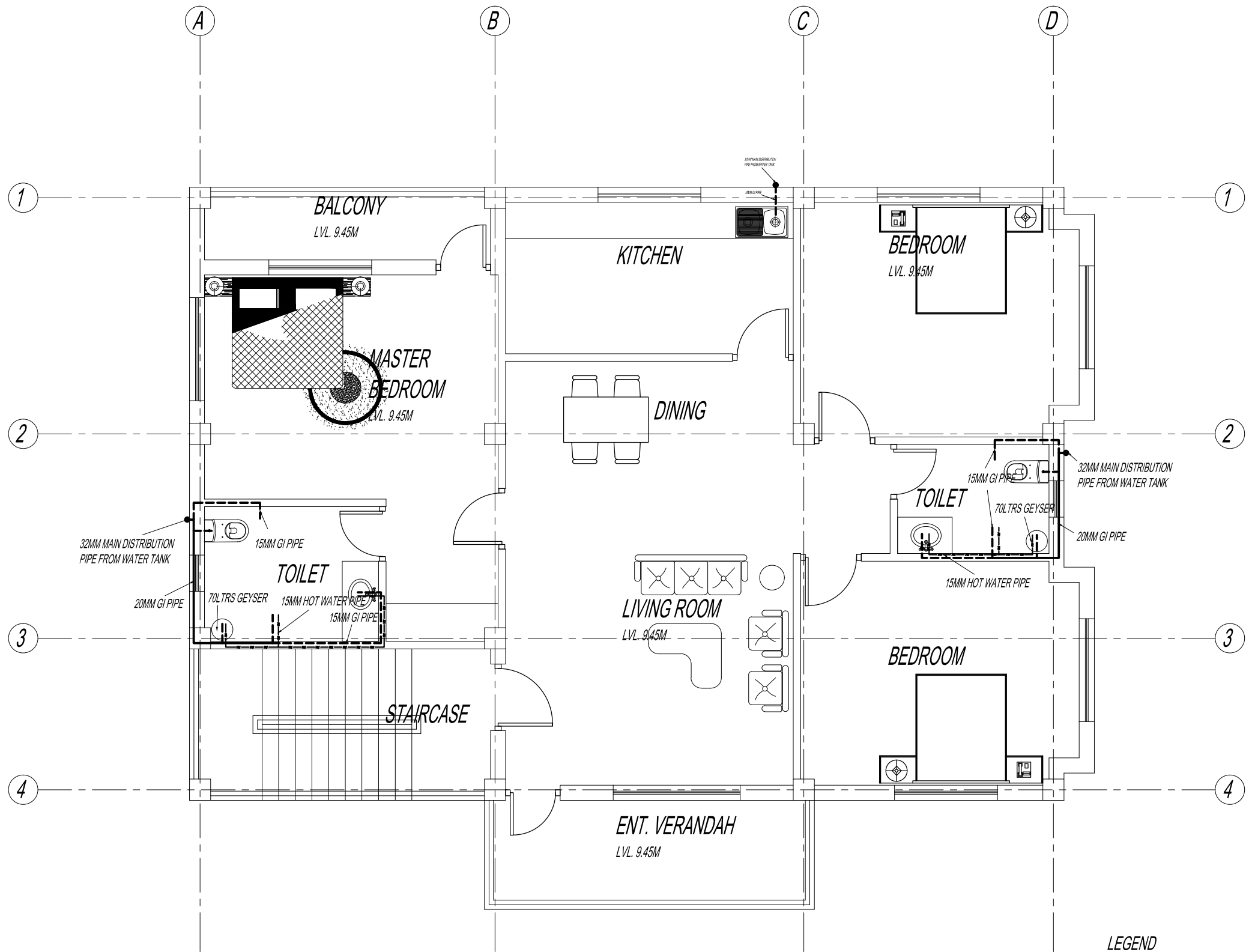
DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

PLUMBING LAYOUT

Scale	1:75
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR PL03
LEAPP Project Code	-----



LEGEND

- Main Supply Pipe from Water Tank (32mm dia)
- Main Distribution Pipe (20mm dia)
- Distribution Pipe (15mm dia)
- Hot Water Pipe (15mm dia)

Notes for plumbing:
1. Pipes shall be GI, medium duty.
3. Provide separate connections for GF & FF
4. All inlets shall be controlled with gate valve as shown in site plan
5. Pressure testing shall be done before concealing the pipes

SECOND FLOOR PLUMBING LAYOUT



ROYAL GOVERNMENT OF BHUTAN
CIVIL AVIATION DEPARTMENT

NOTE:
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SPECIFIED OTHERWISE
-ALL RELATIVE LEVELS ARE IN METERS UNLESS SPECIFIED OTHERWISE
-ALL DIMENSIONS MEASURE UNFINISHED SURFACES UNLESS SPECIFIED OTI
-ALL DIMENSIONS ARE TO BE READ AND NOT SCALED OFF
-ANY DESCREPCANCY IN DRAWING IS TO BE BROUGHT TO THE IMMEDIATE NC
THE CONSULTANTS/SUPERVISION TEAM
-MINOR ADJUSTMENTS NEED TO BE CARRIED OUT ON SITE TO MATCH WITH
BUILDING

Legend

No.	Revision	Date

Client
Royal Government of Bhutan Civil Aviation Dep
Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals
Civil Engineering Consultant
Gyaltshen Consultancy
Project Title

GELEPHU DOMESTIC AIRPC
DESIGN & SUPERVISION

DESIGN OF SECURITY
QUARTERS.

Drawing Title

OFFICER'S RESIDENCE

PLUMBING LAYOUT

Scale	1:25
Date	SEPTEMBER 1ST 2016
Drawn By	TSHEWANG GYELTSHEN
Design By	DINESH
Drawing Number	GEL AIRPORT OR PL04
LEAPP Project Code	-----

LEGEND

- Main Supply Pipe from Water Tank (32mm dia)
- Main Distribution Pipe (20mm dia)
- Distribution Pipe (15mm dia)
- Hot Water Pipe (15mm dia)

Notes for plumbing:
1. Pipes shall be GI, medium duty.
3. Provide separet connections for GF & FF
4. All inlets shall be controlled with gate valve as shown in site plan
5. Pressure testing shall be done before concealing the pipes

TYPICAL PLUMBING LAYOUT DETAIL

