SYMBOLS

SYMBOL	DESCRIPTION
	SANITARY PIPING BELOW GRADE
	SANITARY PIPING ABOVE GRADE
	VENT PIPING
——ST——	STORM WATER PIPING
—— S ——	SANITARY PIPING
——ED——	EJECTOR DISCHARGE
——SD——	SUMP DISCHARGE
—— CW ——	COLD WATER PIPING
—— HW ——	HOT WATER PIPING
——HWR——	HOT WATER RETURN PIPING
—— W ——	WASTE PIPING
—— GW ——	GREY WATER PIPING
——CD——	CONDENSATE DRAIN PIPING
—— IW ——	IRRIGATION WATER PIPING
	SHUT–OFF VALVE / ISOLATION VALVES
	CHECK VALVE / NON RETURN VALVES
	PRESSURE REDUCING VALVE
	BALANCING VALVE ASSEMBLY
	BALANCING VALVE
	COCK VALVE
	VALVE / ISOLATION VALVE
	VALVE IN VERTICAL
	MIXING VALVE
G	PIPE DROP OR DOWN
	PIPE CONNECTION, TOP
	PIPE CONNECTION, BOTTOM
O	PIPE RISE OR UP
oc	"P" TRAP
	CLEANOUT
	CLEANOUT DECK PLATE
C	CAPPED OUTLET
	VENT THROUGH ROOF
AAV	AUTOMATIC AIR VENT
	FLOOR DRAIN
	FLOOR SINK
	ROOF DRAIN, AREA DRAIN
	HOSE BIBB
	VACUUM BREAKER ASSEMBLY
	THERMOMETER
	PRESSURE GAUGE W/VALVE
BFP	BACKFLOW PREVENTER
	WATER FILTER
FD	FLOOR, AREA DRAIN (RISER)
RD	ROOF DRAIN (RISER)
W	WATER METER
	PUMP
	DIRECTION OF FLOW
	PIPE BREAK
	EXPANSION JOINT
	RISER DESIGNATION
	LEADER DESIGNATION
	EQUIPMENT DESIGNATION
	SPOOL PIECE
	STRAINER

PIPE LEGEND:-

S = SOIL FROM ABOVE TO BELOW
3S = SOIL FOR BOTTOM 3 FLOOR TO BELOW
SV = SOIL VENT TO ABOVE

W = WASTE FROM ABOVE TO BELOW
3W = WASTE FOR BOTTOM 3 FLOOR TO BELOW
WV = WASTE VENT TO ABOVE

C = COLD WATER RISER WITH PRV STATION FROM ABOVE TO BELOW
SC = SUB MAIN RISER (COLD)

G = GREY WATER RISER WITH PRV STATION FROM ABOVE TO BELOW
SG = SUB MAIN RISER (GREY)
GA = GAS RISER
S.S = SERVICE SLAB
TPC = TRANSFER PIPE RISER FOR COLD WATER
TPG = TRANSFER PIPE RISER FOR GREY WATER
RWP = RAIN WATER RISER
HW = HOT WATER PIPE

ABBREVIATIONS

SYMBOL	DESCRIPTION
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECTURAL
BD	BIDET
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BV	BALL VALVE
MV	MOTORIZED VALVE
CD	CONDENSATE DRAIN
CLG	CEILING
CODP	CLEANOUT DECK PLATE
COWP	CLEANOUT WALL PLATE
CONN	CONNECTION
CONT	CONTINUATION
CW	DOMESTIC COLD WATER PIPING
DB	DOMESTIC BOOSTER PUMP
DC	DOMESTIC COLD WATER
DCW	DOMESTIC COLD WATER
DIA	DIAMETER
DN	DOWN
DR	DRAIN
DS	FOUNTAIN INFLUENT
DT	DOMESTIC WATER TANK
DWG	DRAWING
D/W	DISH WASHER
ED	EJECTOR DISCHARGE
EA	EACH
EL	ELEVATION
EQ	EQUAL
EWC	ELECTRICAL WATER COOLER
EXIST	EXISTING
F/A	FROM ABOVE
FAI	FRESH AIR INLET
F/B	FROM BELOW
FD	FLOOR DRAIN
FE	FOUNTAIN EFFLUENT
F.F.	FINISH FLOOR
FCO	FLOOR CLEAN OUT
FI	FOUNTAIN INFLUENT
FL	FLOOR
FM	FORCED MAIN
FS	FLOOR SINK
FT	FEET
GB	GREY WATER BOOSTER PUMP
GF	GROUND FLOOR
GI	GREASE INTERCEPTOR
GT	GREY WATER TANK
GW	GREY WATER
HB	HOSE BIBB
H/L	HIGH LEVEL
HP	HORSEPOWER
HWS	HOT WATER PIPING SUPPLY
HWH	HOT WATER HEATER
IE	INVERT ELEVATION
INV.EL.	INVERT ELEVATION
IV	ISOLATING VALVE
IRW	IRRIGATION WATER
IT	IRRIGATION TANK
IW	IRRIGATION WATER
K/S	KITCHEN SINK
LAV	LAVATORY
L/S	LITERS PER SECONDS
L/M	LITERS PER MINUTES
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MM	MILLIMETERS
M	METERS
NTS	NOT TO SCALE
OD	OVERFLOW DRAIN
OI	OIL INTERCEPTOR
PD	PUMP DISCHARGE
PRV	PRESSURE REDUCING VALVE
RD	ROOF DRAIN
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
S	SANITARY WASTE
SD	SUMP (PUMP) DISCHARGE
SE	SEWEGE EJECTOR
SF	SQUARE FEET
SH	SHOWER
SP	SUMP PUMP
SR	SANITERY RISER RESIDENTIAL BUILDING
SS	SANITARY SEWER
ST	STORM WATER PIPING
So	SANITARY RISER OFFICE BUILDING
T/A	TO ABOVE
T/B	TO BELOW
F/A	FROM ABOVE
F/B	FROM BELOW
TD	TRENCH DRAIN
TF	TANK FILL
TR	GRAVITY TRANSFER
TYP	TYPICAL
U/G	UNDER GROUND
W/	WITH
W/D	WASHER/DRYER
W/O	WITHOUT
WC	WATER CLOSET
WF	WATER FILTER
WP	WATER PURIFIER
WH	WATER HEATER

GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS INCLUDING BUT NOT LIMITED TO ENTERING MANHOLES, USE OF WATER FROM LOW PRESSURE HYDRANTS, DEMOLITION AND NEW WORK, ETC. PRIOR TO COMMENCE OF WORK.
2. ALL FLOOR DRAINS SHALL HAVE TRAP PRIMERS EXCEPT FOR THOSE INDIRECTLY FED FROM ANOTHER FLOOR DRAIN WITH A TRAP PRIMER OR THOSE RECEIVING WALK-IN COOLER/FREEZER COIL CONDENSATE DRAIN WATER.
3. ALL INDIRECT DRAINS AND PUMPED DISCHARGE SHALL HAVE 45 DEGREE CHAMFER CUT AT OUTLET
4. SANITARY AND VENT PIPING INDICATED IS ABOVE CEILING. REFER TO INDIVIDUAL STACK DIAGRAMS FOR WASTE AND VENT PIPING RUN WITHIN WALLS/SHAFTS
5. ALL TIE-INS TO EXISTING POTABLE WATER SYSTEMS SHALL BE PURGED AND DISINFECTED PER PLUMBING CODE PRIOR TO USE.
6. INSTALL BRANCH WATER PIPING HORIZONTALLY WITHIN WALL FOR FIXTURE GROUPINGS. REFER TO FIXTURE CONNECTION SCHEDULE FOR SIZING REQUIREMENTS.
7. ALL CUTTING AND PATCHING, OF WALLS AND FLOORS, SHALL BE DONE BY THE CONTRACTOR PERFORMING THE WORK REQUIRING THE PENETRATION. ALL MATERIALS SHALL MATCH THE EXISTING CONDITIONS. ALL FINISH PAINTING TO BE BY THE GENERAL TRADES.
8. ALL FIRE-STOPPING SHALL BE DONE BY THE CONTRACTOR PERFORMING THE WORK REQUIRING THE PENETRATION
9. CONCRETE PADS FOR MECHANICAL EQUIPMENT BY STRUCTURAL ENGINEER.
10. ALL PIPES PASSING THROUGH RETAINING WALLS OR WATERTIGHT STRUCTURES OR SHEAR WALLS SHALL BE MADE WATERTIGHT WITH PUDDLE FLANGE AT THE POINT OF PENETRATION THROUGH STRUCTURES. PIPE PNENETRATION THROUGH FIRE WALLS & FLOORS SHALL BE SEALED WITH FIRE PROOFING MATERIALS.
11. ALL DETAILS SHOWN ARE TO BE READ IN CONJUNCTION WITH OTHER SERVICES / INTERIOR / ARCHITECTURAL. DISCREPANCIES, IF ANY, SHALL BE REPORTED TO THE ENGINEERS AND / OR THE ARCHITECTS BEFORE PROCEEDING FURTHER.
12. WHERE THERE IS A DISCREPANCY BETWEEN DRAWINGS, SPECIFICATIONS AND BOQ, NOTIFY THE ENGINEER PRIOR TO BID, OTHERWISE THE MOST STRIGENT WILL GOVERN.
13. THE CONTRACTOR SHALL EXAMINE THE COMPLETE SET OF DRAWINGS FOR ALL TRADES, AS ISSUED BY THE ARCHITECT AND REVIEW DIMENSION, SPACE REQUIREMENTS AND POINTS OF CONNECTIONS TO ALL EQUIPMENT. MAKE ANY MINOR ADJUSTMENTS NECESSARY TO AVOID CONFLICTS WITH THE BUILDING STRUCTUREAND THE WORK OF OTHER TRADES.
14. UNLESS INSTRUCTED OTHERWISE, THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND FEES REQUIRED FOR INSTALLATION OF THE MECHANICAL WORK. FURNISH FINAL CERTIFICATE OF INSPECTION OR WRITTEN EVIDENCE OF ACCEPTANCE BY INSPECTION AUTHORITIES FOR ALL WORK INSTALLED.
15. CONTRACTOR SHALL COORDINATE WITH ALL TRADES TO ENSURE AN UNDERSTANDING OF THE COMPLETE SCOPE OF PROJECT PRIOR TO START OF WORK.
16. ALL EQUIPMENTS AND MATERIALS SHALL MATCH DESIGN SPECIFICATION AND MANUFACTURER'S RECOMMENDED INSTALLATION INSTRUCTIONS.

GENERAL NOTES:
PLUMBING - WATER SUPPLY

1. DOMESTIC WATER INSTALLATION SHALL BE CARRIED OUT BY A LICENSED PLUMBER TO COMPLY WITH THE LATEST LOCAL AUTHORITY REQUIREMENT INCLUDING :
   A) WATER SUPPLY REGULATIONS
   B) OTHER LOCAL REGULATIONS HAVING JURISDICTION ON THE WORK
2. PIPE FITTINGS AND ALL OTHER MATERIALS USED IN THE PLUMBING INSTALLATION MUST BE A TYPE APPROVED BY THE LOCAL WATER DEPARTMENT AND RELEVANT AUTHORITY.
3. ALL HOSE BIBS FOR LANDSCAPE IRRIGATION AND PLANTING AREAS SHALL BE INSTALLED AT A DISTANCE OF NOT LESS THAN 600mm ABOVE GROUND LEVEL & COMPLETE WITH BOX AND LOCK AND SHALL BE PROVIDED WITH GATE VALVE.
4. ALL HOSE BIBS AT PUBLIC AREAS SHALL COMPLETE WITH LOCK AND STAINLESS STEEL BOX/COVER.
5. ALL WATER TANKS SHALL HAVE COLD WATER, FLOAT VALVES, SHUT – OFF VALVES, FLOAT LESS LEVEL SWITCHES, LEVEL INDICATORS, OVERFLOW / WARNING PIPES, ETC.
6. ALL VALVES ARE TO BE LOCATED SUCH THAT IT CAN BE READILY ACESSED BY THE MAINTENANCE PERSONNEL. ACCESS PANEL TO ARCHITECTS APPROVAL SHALL BE PROVIDED WHERE NECESSARY.
7. ISOLATION ANGLE VALVES ARE TO BE INSTALLED UNDER ALL THE WASH BASIN AND SINK.
8. THE CONTRACTOR SHALL PROVIDE FLUSH OUT VALVES AND AIR VALVES WHERE DEEMED NECESSARY BY ARCHITECT. ALL AUTO AIR VENT SHALL BE PROVIDED WITH ISOLATION VALVE WITH LOCK OPEN POSITION.
9. ALL COLD WATER PIPES SHOWN ON PLAN SHALL BE ROUTED AT THE CEILING OF THE RESPECTIVE PLAN UNLESS OTHERWISE STATED. ALL PIPE WORK SHALL BE CONCEALED IN PIPE SHAFT / WALLS / PARTIATION OR RUN WITHIN FALSE CEILING SPACE UNLESS OTHERWISE STATED.
10. ALL WATER TANKS TO BE PROVIDED WITH DOUBLE SEAL MANHOLE COVER, VENT PIPE, GALVANISED STEEL LADDER, INSERTS FOR PIPING CONNECTION AND OTHER FITMENTS.
11. CONNECTION FROM WASHING MACHINE & DISH WASHER TO WASTE STACK TO BE PROVIDED BY 'P' TRAP
12. CONNECTIONS FROM ALL WC'S TO RISER SHALL BE WITH 'Y' AND '45°' BEND

MINIMUM SLOPE FOR HORIZONTAL LINE

PIPE SIZE	SLOPE FOR PIPE
ø80	1:60
ø100	1:60
ø150	1:90
ø200	1:120

GENERAL NOTES:
PLUMBING - SANITARY SYSTEM

1. THE SANITARY PLUMBING & DRAINAGE SYSTEM MUST COMPLY WITH THE REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION IOVER THE INSTALLATION.
2. MEDIUM DUTY INSPECTION CHAMBER FRAMES AND COVERS SHALL BE USED IN GARDENS AND GRASSLAND
3. UNLESS OTHERWISE STATED
   A) ALL SOIL WASTE PIPES SHALL RUN BELOW SOFFIT OF RESPECTIVE FLOOR SLABS.
   B) ALL VENT PIPES SHALL RUN AT HIGH LEVEL OF RESPECTIVE FLOORS.
   C) ALL PENETRATIONS THROUGH BEAMS SHALL COMPLY TO STRUCTURAL ENGINEER'S REQUIREMENTS
4. ALL DETAILS SHOWN SHALL BE READ IN CONJUNCTION WITH OTHER SERVICED, ARCHITECTURAL AND STRUCTURAL DRAWINGS. DISCREPANCIES, IF ANY SHALL BE REPORTED TO THE ENGINEER AND / OR THE ARCHITECT BEFORE PROCEEDING FURTHER.
5. ALL BRANCH DRAIN LINE (DRAIN LINES LEADING INTO SEWER INSPECTION CHAMBER) SHALL BE MINIMUM 100MM DIAMETER AND SHALL NOT EXCEED 10 METERS. IF THE DISTANCE IS REQUIRED TO BE EXTENDED, THE MAXIMUM DISTANCE SHALL NOT EXCEED 20 METERS PROVIDED THE SIZE OF THE BRANCH DRAIN LINE IS 150MM DIAMETER.
6. ALL OUTLETS FOR WATER CLOSETS SHALL BE OF 100MM DIAMETER UNLESS OTHERWISE MENTIONED OR SHOWN.
7. ALL OUTLETS FOR FLOOR TRAPS SHALL BE 75MM DIAMETER AND ALL OUTLET FOR FLOOR WASTE SHALL HAVE A MINIMUM OF 50MM DIAMETER UNLESS MENTIONED OR SHOWN IN DRAWING.
8. ALL TRAPS SHALL HAVE A MINIMUM WATER SEAL OF 50 mm.
9. THE CONTRACTOR SHALL CONSULT THE STRUCTURAL ENGINEER ON THE NECESSITY OF PILING FOR UNDER GROUND DRAIN LINE AND INSPECTION CHAMBER BEFORE COMMENCING OF WORK.
10. ALLOWANCES FOR LONG RADIUS BENDS, ACCESSIBLE CLEANING EYES, TRAPS, STACKS AND VENT ROOF TOP DOMES ETC. SHALL BE GIVEN.
11. ALL ANTI SYPHONAGE PIPES AS INDICATED ON PLAN AND SCHEMATIC DIAGRAM ARE TO BE CONNECTED MINIMUM 150MM ABOVE THE SPILL OVER LEVEL OF THE SANITARY FIXTURE SERVED.
12. ALL BRANCH VENTS SHALL BE DIA 50MM UNLESS OTHERWISE INDICATED IN THE DRAWING.
13. ALL MAIN VENT PIPES SHALL HAVE A MINIMUM OF 100MM DIAMETER UNLESS OTHERWISE INDICATED IN THE DRAWING.
14. THE SIZE OF ALL VENT PIPES FOR FLOOR TRAP, WC, URINAL ETC SHALL BE MINIMUM 50MM DIAMETER.
15. ALL VENT PIPES SHALL BE TERMINATED AT 1200 ABOVE PARAPET LEVEL COMPLETE WITH VENT COWL.
16. ANY DRAINAGE RUN UNDER THE BUILDING OR AT A DEPTH OF 600MM OR LESS IN PEDESTRIAL AREAS OR AT A DEPTH OF 1200MM OR LESS IN VEHICULAR AREAS SHALL BE SURROUNDED WITH 150MM THICK CONCRETE
17. ALL PROPOSED LEVELS OF SUMPS AND SEWER INSPECTION CHAMBERS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE BASED ON ACTUAL SITE CONDITIONS.
18. ACCESS OPENING SHALL BE PROVIDED IN THE PIPE SHAFT FOR TESTING, SERVICING AND CLEANING OF PIPES. FINAL LOCATIONS SUBJECT TO ARCHITECTS / ENGINEER APPROVAL.
19. ALL PIPES PASSING THROUGH RETAINING OR WATERTIGHT WALLS SHALL BE INSTALLED WITH PUDDLE FLANGE AND WATER PROOFED AT THE POINT OF PENETRATION.
20. ALL BENDS, TURNS, ELBOWS OR ANY OTHER APPROPRIATE LOCATION SHALL BE FIXED WITH CLEANING EYE FOR THE PROPER CLEANING OF THE PIPE.
21. ALL PUBLIC AREAS REQUIRE ARCHITECTURAL FINISHES. INSPECTION CHAMBER COVER SHALL INCORPORATE A FRAME AND RECESS OF MINIMUM 50MM TO ACCOMMODATE THE FINISHES.
22. THE CONTRACTOR SHALL CLOSELY COORDINATE WITH OTHER TRADES THE EMBEDMENT THROUGH WALLS AND PROVISION OF FALSE COLUMN FOR PIPE STACKS. PIPES PAS SING THROUGH STRUCTURAL MEMBERS SHALL ALSO BE COORDINATED.
23. PIPE PERTAINING THROUGH STRUCTURES SHALL BE PROVIDED WITH PIPE SLEEVES WHEREIN PIPE & SLEEVE CLEARANCE SHALL NOT BE LESS THAN 25MM.
24. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE PRIOR TO ASSEMBLY OR CONSTRUCTION OF ANY WORK..
25. SIZE OF INSPECTION CHAMBERS SHALL BE BASED ON THE NUMBER OF PIPES CONNECTING TO THE SAME DEPTH OF THE IC'S SHALL BE VARYING FOR VARIOUS SIZES.
26. ALL SUMP PUMPS AND NECESSARY ACCESSORIES ARE TO BE INCLUDED IN THE CONTRACT. THIS SHALL INCLUDE ALL ELECTRICAL WIRING AND CONTROL PANELS.
27. THE CONSTRUCTION OF THE IC'S EXTERNAL CHANNELS, COVER AND FRAME ARE TO BE INCLUDED.
28. CUTOUT IN FLOOR SLAB SHALL BE PROVIDED / MADE IN ACCORDANCE TO EQUIPMENT LAYOUT IN RESPECTIVE AREA. FURTHER CUTOUT AS REQUIRED FOR VARIOUS SANITARY FIXTRUES AND ACCESSORIES SUCH AS WATER CLOSET, FLOOR DRAIN, FLOOR TRAP SHALL BE PROVIDED FOR SELECTED MODEL OR SITE REQUIREMENT AS DEEMED REQUIRED BY ARCHITECT.
29. ALL OFFSET IN SOIL/WASTE LINE TO BE PROVIDED IN ACCORDANCE TO OFFSET VENTING DETAIL AND TERMINAL REQUIREMENT AT THE BASE OF PRIMARY VENTILATED DISCHARGE STACK AS SHOWN ON DRAINAGE SCHEMATIC DRAWING TO ELIMINATE HYDRAULIC JUMP/BACKFLOW SITUATION.
30. I.D. LAYOUTS TO FOLLOW FOR LOCATION AND TYPE OF SANITARY WARES AND WATER SUPPLY & DRAINAGE PIPE PROVISION & TERMINATION TO BE MADE ACCORDINGLY AS PER MANUFACTURER /SUPPLIER RECOMMENDATIONS
31. HVAC UNIT DRAIN PIPE TERMINATION TO THE WASTE STACK / FLOOR DRAIN BY PLUMBING CONTRACTOR HVAC DRAIN PIPING ABOVE 10 MTR BY PLUMBING CONTRACTOR

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IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMMISSIONING/DEMOLITION.

Notes

ARCHITECTURE REFERENCE DRAWING

SL	DRAWING NO.	FROM	DATE	REV
1				

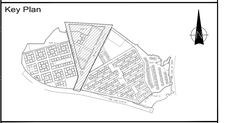
STRUCTURAL REFERENCE DRAWING

SL	DRAWING NO.	FROM	DATE	REV
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MEP REFERENCE DRAWINGS

SL	DRAWING NO.	FROM	DATE	REV
1	-	-	-	-

Key Plan



Rev	Description	Date	Drn	Ch'd
02	ISSUED FOR CONSTRUCTION	DEC 2015	SM	TA
01	VFC	NOV 2015	SM	TA
00	TENDER	OCT 2015	SS	TA

IFC

Status of drawing

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Scales@A0 NTS
Drawn by SM
Checked by TA
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Drawing No. BH-ZSG-STD-P-1000
Rev 02

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