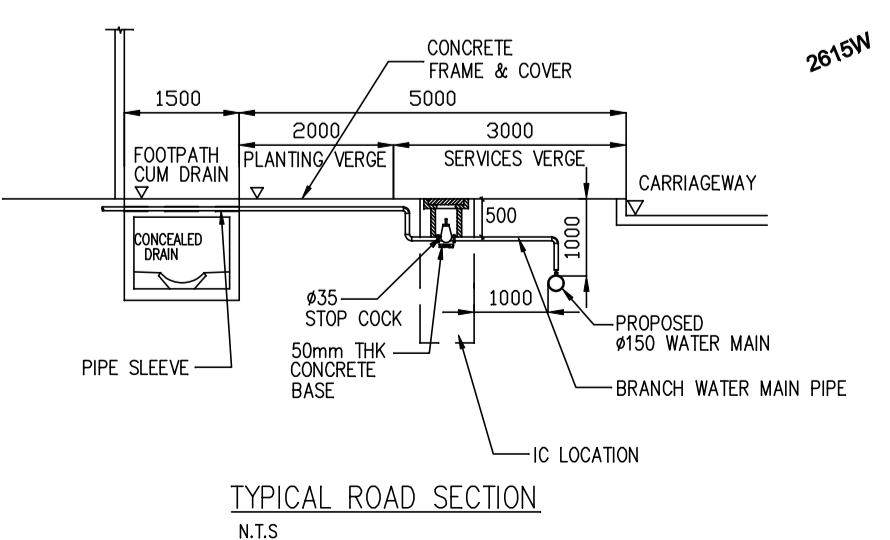
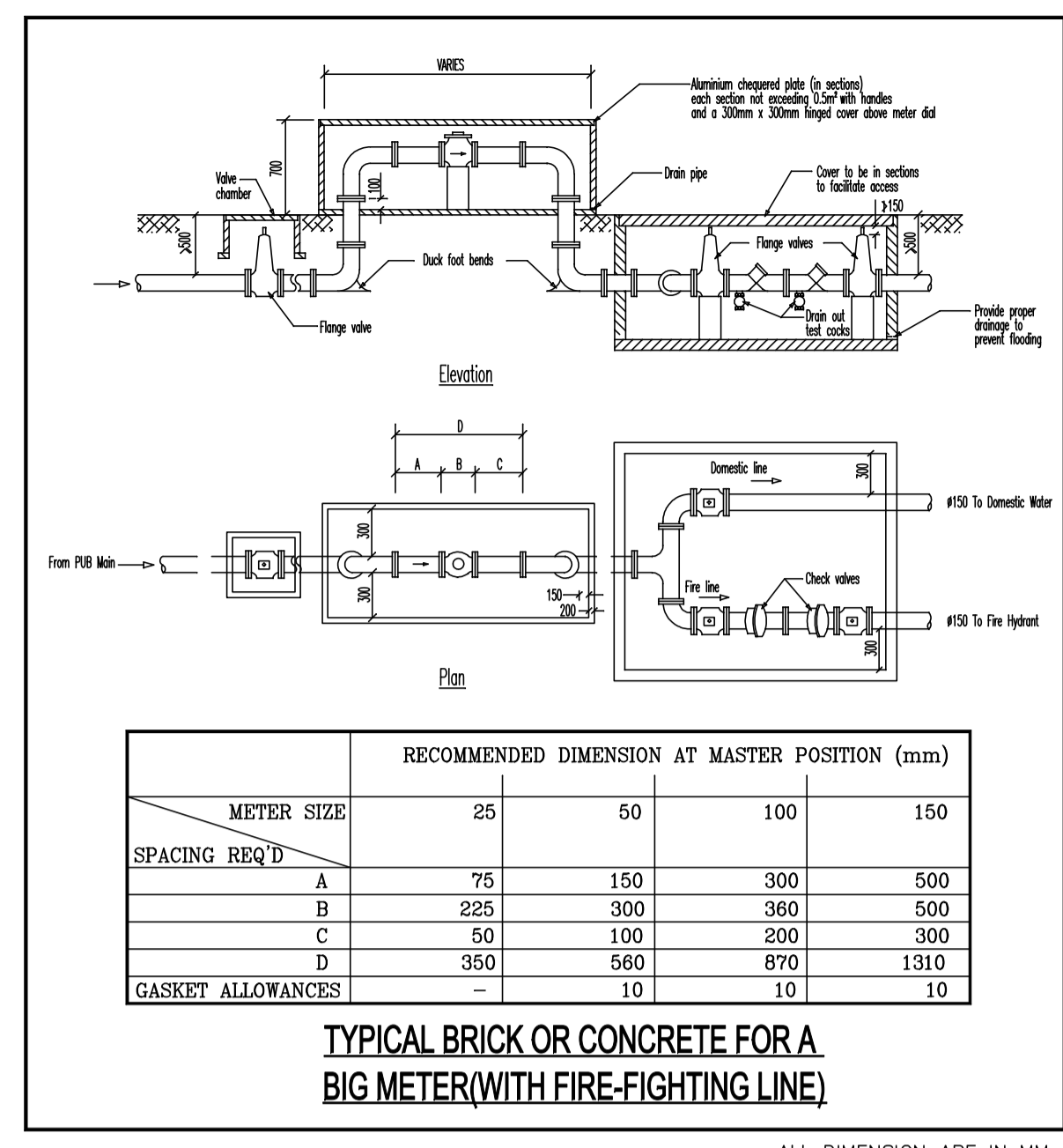
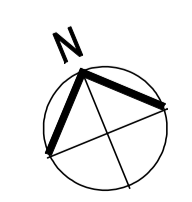


KEY PLAN
NOT TO SCALE



TYPICAL ROAD SECTION
N.T.S

SITE PLAN
Scale 1:1000



RECOMMENDED DIMENSION AT MASTER POSITION (mm)				
METER SIZE	25	50	100	150
SPACING REQ'D				
A	75	150	300	500
B	225	300	360	500
C	50	100	200	300
D	350	560	870	1310
GASKET ALLOWANCES		10	10	10

TYPICAL BRICK OR CONCRETE FOR A BIG METER (WITH FIRE-FIGHTING LINE)

ALL DIMENSION ARE IN MM

LEGENDS :-

- PROPOSED WATER MAIN PIPE
- ⊙ FH PROPOSED FIRE HYDRANT

NOTES :-

1. THE WHOLE INSTALLATION OF PLUMBING SERVICES SHALL COMPLY WITH THE LATEST AUTHORITY REQUIREMENTS INCLUDING:-
 - a) CODE OF PRACTICE FOR WATER SERVICES-- THE SINGAPORE STANDARD CP 48:1989.
 - b) PUBLIC UTILITIES (WATER SUPPLY) REGULATION.
 - c) ALL OTHER LOCAL REGULATIONS HAVING JURISDICTION ON THE WORK.
2. ALL WATER PIPES, VALVES AND FITTINGS, STORAGE TANKS AND PLUMBING SANITARY WARES TO BE INSTALLED ON SITE SHALL BE UNDER THE APPROVED LIST OF PUB WATER DEPARTMENT.
3. PIPE MATERIALS:-
 - a) DOMESTIC WATER PIPE:-
 - PIPE DIAMETER OF 80 AND ABOVE SHALL BE HEAVY DUTY DUCTILE IRON PIPE TO BS 4772 c/w INTERNALLY CEMENT-LINED AND EXTERNALLY ZINC COATED.
 - PIPE DIAMETER OF BELOW 80 SHALL BE HEAVY DUTY COPPER PIPE TO BS EN 1057.
 - b) ABOVEGROUND PIPEWORKS:-
 - PIPE DIAMETER OF 80 AND ABOVE SHALL BE HEAVY DUTY DUCTILE IRON PIPE TO BS 4772 c/w INTERNALLY CEMENT-LINED AND EXTERNALLY ZINC COATED.
 - PIPE DIAMETER OF BELOW 80 SHALL BE COPPER PIPE TO BS EN 1057.
4. PROPOSED WATER MAIN PIPE SHOULD BE LAID WITH COVER, MEASURED FROM THE TOP OF THE PIPE TO THE SURFACE OF THE GROUND, OF NOT LESS THAN 0.5m. MAIN PIPES WHICH ARE LAID UNDER ROADWAYS OR CROSSING DRAINS SHOULD HAVE A COVER NOT LESS THAN 1.0m.
5. ALL UNDERGROUND PIPING SHALL BE LAID AND PROPERLY BEDDED TO PREVENT DRY SINKING AND MOVEMENT OF THE PIPE.
6. ALL PIPING USED SHALL BE OF CORROSION RESISTANT TYPE.
7. WHERE THE DRAIN HAS A CLEAR DEPTH OF 0.8m OR LESS, THE WATER METER AND CONNECTION SHELL PUT UNDER CROSS THE DRAIN.
8. ALL PIPES PASSING THROUGH RETAINING WALLS OR WATERTIGHT STRUCTURES SHALL BE MADE WATERTIGHT WITH PUDDLE FLANGE AT THE POINT OF PENETRATION THROUGH STRUCTURES.
9. THE WHOLE WORK SHALL BE EXECUTED BY AN APPROVED LICENSED PLUMBER. IF THE WORK IS NOT SATISFACTORY IN ANY RESPECT, THE CONTRACTOR SHALL RECTIFY THE DEFECTS AT HIS OWN EXPENSE.
10. AFTER THE PIPEWORK HAS BEEN INSTALLED, THE COREHOLES AND ADJACENT WORK SHALL BE MADE GOOD BY THE CONTRACTOR TO THE SATISFACTORY OF THE CONSULTING ENGINEERS.
11. CONTRACTOR IS RESPONSIBLE FOR WATER METER APPLICATION AND TO OBTAIN APPROVAL FOR INSTALLATION FROM AUTHORITY.
12. WASHOUT VALVE AND AIR VALVE SHALL BE PROVIDED WHERE DEEMED NECESSARY FOR THE EXTERNAL WATER MAIN BY THE AUTHORITIES AND ARCHITECT.
13. THE MAIN AND CONNECTION SHALL BE INSTALLED BY THE LICENSED WATER SERVICES PLUMBER UNDER SUPERVISION OF PROFESSIONAL ENGINEER.
14. ALL SLUICE VALVES MUST COMPLY WITH BS 5163 : 1986 'PREDOMINANTLY KEY OPERATED CAST IRON GATE VALVE FOR WATERWORKS PURPOSES' AND MUST BE SUCH THAT THE SPINDLE IS TURN CLOCKWISE TO OPEN THE VALVE.
15. ALL CONNECTIONS ARE TO BE OF #35mm COPPER PIPE COMPLYING WITH BS 2871 : PART 1 : 1971 : TABLE Y COMPLETE WITH STOP COCK.
16. THE LICENSED WATER SERVICES PLUMBER MUST ARRANGE FOR AN INSPECTION BY PUB, WATER DEPARTMENT BEFORE BACK FILLING TRENCHES FOR PIPES/FITTINGS LAID BELOW.
17. THERE SHOULD BE A MINIMUM CLEARANCE OF 300mm FROM ANY OTHER SERVICES ALL ROUND AND IN NO CASES OTHER SERVICES SHOULD OVERLAY THE WATER MAIN.
18. THE MAIN AND CONNECTION MUST PASS THE PRESSURE TEST WHICH SHALL BE CONDUCTED BY THE WATER DEPARTMENT. MAIN SHALL SUBJECT TO A PRESSURE TEST OF 12 bar FOR 1/2 hr.
19. LENGTHENING KEY SHALL BE INSTALLED ON EACH VALVE SUCH THAT THE DEPTH OF THE SPINDLE IS LESS THAN 50mm FROM THE GROUND LEVEL.
20. THE INTERNAL WATER RETICULATION SYSTEM SHALL BE SUBMITTED SEPARATELY TO WATER DEPARTMENT BY LICENSED WATER SERVICES PLUMBER.
21. ALL WATER MAINS SHALL BE SATISFACTORILY CHARGED, TEST AND STERILIZED BEFORE THEY CAN BE COMMISSIONED.
22. AS-CONSTRUCTED DRAWINGS (INCLUDING THE REDUCED LEVELS OF THE HYDRANTS) SHALL BE SUBMITTED TO PUB, WATER DEPARTMENT BEFORE COMMISSIONING OF THE WATER MAINS.
23. THE WATER MAIN WILL ONLY COMMISSIONED AFTER PASSING THE WATER PRESSURE TEST AND WATER SAMPLE TAKEN ON THE NEW MAIN WHICH SHALL BE CONDUCTED BY PUB, WATER DEPARTMENT.

REV.	DATE:	BY:	AMENDMENT
OWNER:			
SINGAPORE LAND AUTHORITY			
LAND ASSET MANAGEMENT SERVICE DIVISION ESTATE AND INFRASTRUCTURE TEAM			
55 NEWTON ROAD #12-01 SINGAPORE 307987			
M&E CONSULTANT:			
KJ GROUP CONSULT			
Building Services (Mechanical & Electrical) Consultancy			
NO. 212A TANJONG KATONG ROAD SINGAPORE 437005 TEL: 6345 6909 FAX: 6345 6903 E-mail: kjgroup@singnet.com.sg			
PROJECT TITLE :			
PROPOSED ROAD INFRASTRUCTURE & SERVICES, 15.5M SPAN RC BRIDGE, PUB SUBSTATION AND ANCILLARY WORKS FOR AQUARIUM FISH EXPORT CENTRE AND INTERIM AGRICULTURE USE ON LOTS 2611X(PT), 2613C(PT), 229K(PT), 416W, 1242M(PT), 233N(PT), 232K(PT), 230T(PT) & 231A MK 19 AT LORONG CHENCHARU			
DRAWING TITLE :			
NOTES, LEGENDS, SITE PLAN AND KEY PLAN			
SERVICE :			
WATER SERVICES			
DESIGNED BY :	DRAWN BY :		KOH
CHECKED BY :	APPROVED BY :		LEE
SCALE :	DRAWN DATE :		AS SHOWN DEC 2009
DRAWING NO. :	REV. NO. :		KJ/P/001/WA01
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