

WORK INSTRUCTIONS FOR ENGINEERS

Compiled by : _____ GSJ _____

Checked by : _____ LPT _____

Approved by : _____ TYC _____

**CH-007. CHECKLIST FOR VERTICAL DRAIN
INSTALLATION**

CHECKLIST FOR VERTICAL DRAIN INSTALLATION

No.	CHECKLIST ITEMS	CHECKED BY Site Representative
1.0	PROPERTIES OF VERTICAL DRAIN	
1.1	The contractor shall submit full details on the materials including independent testing report, sample, equipment, sequence and method proposed for vertical drain installation to the engineer for review and approval.	
1.2	Type = Alidrain/ Mebradrain / Amerdrain/ Flodrain/ others ()	
1.3	Width = mm (Normally 95 to 100mm)	
1.4	Thickness = mm (Normally range from 2 to 7mm)	
2.0	QUANTITIES OF VERTICAL DRAIN	
2.1	Vertical drain installation length = m / nos	
2.2	Quantities of vertical drains required = ()m x ()nos = m	
2.3	Quantities of vertical drains at the site rolls x m/roll = m	
2.4	Are the quantities of vertical drain available at the site more than the required quantities of vertical drain? (YES/NO) If No, kindly write the reason. ()	
2.5	Mark all rolls of vertical drain with sequence numbering.	
3.0	EQUIPMENT/ METHOD OF INSTALLATION	
3.1	Mandrel	
3.1.1	Size of the mandrel = () mm x ()mm Cross sectional area of mandrels = () mm ² (Normally range from 32 to 129 x 10 ² mm ²)	
3.1.2	Shape of the mandrel = rectangular / rhombic/ others ()	
3.1.3	Length of the mandrel = m Is the length of the mandrel longer than the vertical drain installation length? (Yes/ No)	
3.1.4	Is the mandrel rigid enough to penetrate through dense soils and to maintain vertical alignment? (Yes/ No)	
3.2	Anchor Plate	
3.2.1	Type of anchor = rebar / pipe / plate / vertical drain / others ()	
3.2.2	Size of the anchor plate = mm (The anchor plate should be slightly larger than the mandrel, but small enough to minimise soil disturbance)	
3.3	Penetration Method	
3.3.1	Static force / vibratory force (driving is not allowed)	
3.3.2	Penetration force = ton	
3.3.3	Rate of penetration = m/sec (Normally 0.15 to 0.6 m/sec depending on subsoil condition)	
4.0	VERTICAL DRAIN INSTALLATION	
4.1	Prior to the installation (Site Preparation)	
4.1.1	Remove all vegetation, surficial debris, dense soil, soil containing cobbles or other materials which would impede the installation of the PVD	
4.1.2	Establish a reasonably level site grade to aid proper installation of PVD. The ground gradient shall not be more than 3%.	
4.1.3	Construct a sand/drainage blanket to support the construction traffic and serve as drainage blanket. The thickness of sand blanket shall be sufficient to fit the abovementioned purposes. Thickness of sand blanket = mm	
4.1.4	Construct the side drain to collect water discharged from the drainage blanket.	
4.2	During Vertical Drain Installation	
4.2.1	Check the integrity of the drain product.	
4.2.2	Check the spacing of vertical drain	
4.2.3	Check the accuracy of the depth calibration on the mandrel	

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4.2.4	Make sure the vertical drains are properly installed and well anchored at the designated depth and locations. The as built location of drain should not deviate more than 150mm.	
4.2.5	Make sure the vertical drains are cut off neatly 150mm above the sand fill and to be buried into sand fill for drainage purposes. Ensure the top of the cut off drain is at mid depth of the drainage blanket.	
4.2.6	Summarise the installation of the vertical drain daily. The summary shall include the location (point / no), length, roll number, total installed quantities, etc.	
5.0	POST CONSTRUCTION	
5.1	Inspect the drainage blanket beneath the fill are not blocked and extended out to allow proper drainage of water away from the fill/embankment.	