



PILE NOTES:

- CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS BEFORE EXECUTION OF THE WORK.
- FIGURED DIMENSIONS SHALL BE FOLLOWED.
- ALL DIMENSIONS GIVEN ARE IN MILLIMETER UNLESS OTHERWISE SPECIFIED.
- ALL REINFORCEMENT BARS SHALL BE TMT BARS Fe-500D (GRS TYPE) GRADE CONFORMING TO IS : 1786-2008. REINFORCEMENT BARS SHALL BE ISI MARKED. GRS STANDS FOR CORROSION RESISTANT STEEL. MINIMUM ELONGATION SHALL BE 18%.
- GRADE OF CONCRETE FOR RCC WORK OF PILE CAPS & PILES SHALL BE AS UNDER:-
 - PILE CAP : M-30 DESIGN MIX
 - PILE : M-40 DESIGN MIX WITH 150 TO 180mm SLUMP AND MINIMUM CEMENT CONTENT OF 400 Kg/m³
- CLEAR COVER FOR MAIN REINFORCEMENT SHALL BE AS UNDER:-
 - PILE CAP (SIDES, BOTTOM & TOP) - 75 mm
 - PILE (SIDES) - 60 mm
 - PILE BOTTOM - 100 mm
- ALL PILES SHALL BE BORED CAST-IN - SITU PILES.
- CONSTRUCTION OF ALL PILING WORK SHALL BE CARRIED OUT AS PER CLAUSE 8.1 TO 8.5 OF IS:2911 (PART - 1/SEC-2 : 2010 (REAFFIRMED 2015)).
- CONCRETE OF THE PILES SHALL BE CASTED UPTO 1000MM ABOVE CUT OFF LEVEL AS PER CLAUSE 8.4.4 OF IS : 2911 (PART - 1/ SEC - 2 : 2010 (REAFFIRMED 2015)) TO PERMIT REMOVAL OF ALL LATANCE AND WEAK CONCRETE BEFORE CAPPING AND TO ENSURE GOOD CONCRETE AT CUT OFF LEVEL FOR PROPER EMBEDMENT INTO THE PILE CAP.
- RECORDING OF DETAILS OF CONSTRUCTION OF PILES SHALL BE DONE AS PER CLAUSE 8.6 OF IS: 2911 (PART - 1/ SEC - 2 : 2010 (REAFFIRMED 2015)). DATA RECORDING SHALL ALSO INCLUDE QUANTITY OF CONCRETE POURED IN EACH PILE.
- CUT OFF LEVEL OF PILES IS 75 mm ABOVE SOFFIT OF PILE CAP AS SHOWN IN DRAWINGS.MAIN REINFORCEMENT (LONGITUDINAL BARS) OF PILES SHALL BE TAKEN TO FULL HEIGHT INSIDE PILE CAP AS SHOWN IN DETAILS IN DRAWINGS.
- BEFORE STARTING PILING WORK, ALL THE PILE CAPS AND PILES SHALL BE MARKED ON GROUND AND IF ANY DISCREPANCY IS OBSERVED THE MATTER SHALL BE REFERRED TO ACCEPTING OFFICER.
- INITIAL AND ROUTINE LOAD TESTS ON PILES SHALL BE CARRIED OUT AS PER IS.2911 (PART-4) : 2013. FOLLOWING TESTS SHALL BE CARRIED OUT:-
 - VERTICAL LOAD TEST FOR SAFE LOAD IN COMPRESSION.
 - LATERAL LOAD TEST FOR SAFE LOAD IN LATERAL THRUST.
- IN INITIAL TESTS, PILES SHALL BE TESTED TO 2.5 TIMES THE LOAD CAPACITY.
- IN ROUTINE TEST, PILE SHALL BE TESTED FOR A LOAD EQUAL TO ONE & HALF TIMES THE SAFE LOAD OR 12MM TOTAL SETTLEMENT WHICHEVER IS EARLIER.
- ROUTINE PILE LOAD TESTS SHALL BE CONDUCTED ON WORKING PILES SELECTED BY GE. PILE INTEGRITY TESTS SHALL BE CONDUCTED ON ALL OTHER WORKING PILES.
- SAFE LOAD CARRYING CAPACITY OF PILE IN COMPRESSION AND LATERAL THRUST SHALL BE VERIFIED BY INITIAL PILE LOAD TESTS BEFORE COMMENCING THE ACTUAL PILING WORK. IF TEST RESULTS OF ACTUAL PILE LOAD TEST INDICATE LESSER VALUE THAN THOSE SPECIFIED IN DRAWINGS, THE MATTER SHALL BE REFERRED TO THE ACCEPTING OFFICER.
- DEVELOPMENT LENGTH (Ld) FOR REINFORCEMENT BARS SHALL BE EQUAL TO 40 TIMES THE DIA OF THE BARS IN PILE.
- CEMENT FOR RCC OF PILES AND PILE CAPS OPC 43 GRADE COFORMING TO IS : 8112.
- CONCRETING OF PILES SHALL BE DONE USING TREMIE METHOD AS PER CLAUSE 8.4 OF IS :2911 (PART - 1/SEC - 2) :2010 (REAFFIRMED 2015) WITH MS LINER/ CASING ONLY.
- DMC METHOD SHALL BE USED IN BORING OF PILES. DRILLING MUD (BENTONITE) SHALL BE USED FOR STABILIZING SIDES OF BOREHOLES. BENTONITE SHALL CONFIRM TO STIPULATION GIVEN IN CLAUSE 7.4, 8.2, 8.3 AND D-1 TO D-3 OF ANNEX 'D' OF IS : 2911 (PART 1/ SEC-2)-2010 (REAFFIRMED 2015). SPECIFICATIONS GIVEN IN CLAUSE D-3.1 OF ANNEX 'D' OF IS CODE ARE APPENDED BELOW:-
 - THE LIQUID LIMIT OF BENTONITE WHEN TESTED IN ACCORDANCE WITH IS : 2720 (PART - V) SHALL BE 400 PERCENT OR MORE.
 - THE BENTONITE SUSPENSION SHALL BE MADE BY MIXING IT WITH FRESH WATER USING A PUMP FOR CIRCULATION. THE DENSITY OF THE FRESHLY PREPARED BENTONITE SUSPENSION SHALL BE BETWEEN 1.03 AND 1.10 g/ml DEPENDING UPON THE PILE DIMENSIONS AND THE TYPE OF SOIL IN WHICH THE PILE IS TO BE BORED. THE DENSITY OF BENTONITE AFTER CONTAMINATION WITH DELETERIOUS MATERIAL IN THE BORE HOLE MAY RISE UPTO 1.25 g/ml. THIS SHOULD BE BROUGHT DOWN TO ATLEAST 1.12 g/ml BY FLUSHING BEFORE CONCRETING.
 - THE MARSH VISCOSITY OF BENTONITE SUSPENSION WHEN TESTED BY A MARSH CONE SHALL BE BETWEEN 30 TO 60 STROKE.
 - THE pH VALUE OF THE BENTONITE SUSPENSION SHALL BE BETWEEN 9 AND 11.5.
- PROPER DRAINAGE AROUND THE BUILDING SHALL BE ENSURED SO THAT NO ACCUMULATION OF WATER/ WATER LOGGING TAKEN PLACE.
- PILING DEPTH AND FOUNDING STRATA SHALL BE APPROVED BY GE BEFORE CONCRETING. THE DEPTH OF PILE SHALL BE TENTATIVELY 28.00 MTRS BASED ON SOIL REPORT. HOWEVER, ACTUAL DEPTH SHALL BE AS PER SITE CONDITIONS. THE PILE SHALL BE ANCHORED FOR 3.0 MTRS DEPTH IN HARD ROCK STRATA AS RECOMMENDED IN SOIL INVESTIGATION REPORT. VARIATION IN DEPTH SHALL BE REPORTED TO HQ IMMEDIATELY.
- PILING WORK SHALL BE COMMENCED ONLY AFTER CARRYING OUT INITIAL LOAD TEST AS PER IS: 2911 PART IV - 2013. NO SUPERSTRUCTURE LOAD SHALL BE PERMITTED WITHOUT ASCERTAINING LOAD CARRYING CAPACITY OF PILES THROUGH INITIAL & ROUTINE TEST AS SPECIFIED.
- INITIAL & ROUTINE LOAD TEST RESULTS SHALL BE APPROVED BY CME.
- RECORDS OF LOAD TEST RESULTS INCLUDING PHOTOGRAPHIC RECORD OF BOTH INITIAL AND FINAL LOAD TEST SHALL BE MAINTAINED BY AGE AND KEPT ON RECORD.
- OVERLAP OF REINFORCEMENT BAR OF PILES (LONGITUDINAL BARS) SHALL BE WELDED FOR FULL DEVELOPMENT LENGTH. OVERLAP OF CIRCULAR HOOPS SHALL ALSO BE WELDED.
- THE FOLLOWING PILE CAPACITIES HAVE BEEN ADOPTED IN DESIGN AS PER DETAILS GIVEN BY SOIL CONSULTANT :-

DIA OF PILE:	6000	4500
COMPRESSION	1317 KN	787 KN
UPLIFT	771 KN	452 KN
LATERAL	23.5 KN	13.2 KN

ACCORDINGLY, FOR INITIAL LOAD TEST 2.5 TIMES ABOVE LOADS SHALL BE CONSIDERED. FOR ROUTINE TESTS 1.5 TIMES THE ABOVE LOADS SHALL BE CONSIDERED

GENERAL NOTES:

- DO NOT SCALE FROM THE DRAWINGS.
- ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS IN METRES UNLESS NOTED OTHERWISE. ALL DIMENSIONS TO BE VERIFIED ON SITE & APPROVED BY THE ENGINEER.
- ALL LAPS IN WALLS & COLUMNS SHALL BE GIVEN AS TENSION LAPS ONLY.
- FOR TYPICAL DETAILS REFER DRG. NO. ISC/CE(N)/DU/GN/01
- FOR GENERAL NOTES REFER DRG. NO. ISC/CE(N)/DU/GN/02 SHT.1 & 2
- COLUMN SCHEDULE REFER DWG. NO. ISC/CE(N)/DU/OM/200 SHT.1 & 2
- TO BE READ IN CONJUNCTION WITH THE ARCH DRAWINGS.

S.NO.	DATE	DESCRIPTION	INITIAL
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REVISIONS

CLIENT:	CHIEF ENGINEER(NAVY) VISAKHAPATNAM ZONE	SHT NO: 5/ 20
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REF. DRG. NO: CEY2/2021/WD/210 (S) - SA/CH/DH

DESIGNS & DRAWINGS PREPARED BY CONSULTANCY FIRM
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for Chief Engineer

NAME OF PROJECT:
PROVISION OF DEFICIENT 287 SINGLE
INLIVING ACQN ASSOCIATED
FACILITIES FOR DSC AT NAVAL
DOCKYARD, VISAKHAPATNAM
(BD NO AMWF 46/2020)

TITLE OF DRAWING:-
PILE CAP DETAILS

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