



# GOVT. POLYTECHNIC JAMNAGAR

## CIVIL DEPT.- NEWSLETTER

July 2022



### OBSERVATIONS

#### Pile Construction Observations

- The site visit witnessed the construction of cast in situ piles being implemented for the bridge foundation.
- Huge pile-driving machines worth Rs. 100 Cr were used for piling
- Approx depth of the foundation was @ 20m
- Many services were also managed during the whole construction process.
- Traffic management and public interaction was also a part of the project.



### THE NEWS

THIS NEWSLETTER PROVIDES A SUMMARY OF THE RECENT FIELD VISIT CONDUCTED IN APRIL 2022 TO OBSERVE THE PILE CONSTRUCTION PROCESS FOR THE ONGOING FLY-OVER BRIDGE PROJECT IN JAMNAGAR, GUJARAT.

#### PROJECT DETAILS

- PROJECT NAME: FLY-OVER BRIDGE FROM SAT RASTA TO VICTORIYA BRIDGE
- LOCATION: NEAR SAT RASTA, JAMNAGAR, GUJARAT, INDIA

#### FIELD VISIT OBJECTIVES

- OBSERVE THE PILE CONSTRUCTION METHODOLOGY BEING EMPLOYED.
- ASSESS THE PROGRESS MADE ON THE PILE FOUNDATION WORKS.
- IDENTIFY ANY POTENTIAL CHALLENGES OR AREAS FOR IMPROVEMENT.



### BENEFITS OF THE FIELD VISIT

- The construction team will continue pile foundation works as per the project schedule.
- Subsequent site visits will be conducted to monitor the progress and ensure adherence to quality standards.



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Pile cap concreting is the process of pouring and curing concrete to form the pile cap, the critical element that ties the driven piles together and transfers the building load to them. Here's a breakdown of the steps involved:

Preparation:

1. Excavation: The area around the driven piles is excavated to expose the pile tops and create space for the formwork.
2. Pile preparation: The pile tops may be trimmed to ensure they are all at a uniform level for a consistent concrete base.



HERE'S A BREAKDOWN OF WHAT A PILE CAP DOES:

- **DISTRIBUTES WEIGHT:** THE PILE CAP SPREADS THE WEIGHT OF THE BUILDING (OR WHATEVER STRUCTURE IT'S SUPPORTING) EVENLY ACROSS ALL THE PILES BELOW. THIS PREVENTS ANY SINGLE PILE FROM BEING OVERLOADED.
- **CREATES A LEVEL SURFACE:** SINCE PILES MIGHT NOT BE PERFECTLY DRIVEN AT THE SAME LEVEL, THE PILE CAP CREATES A FLAT, EVEN SURFACE FOR THE REST OF THE BUILDING'S FOUNDATION TO BE BUILT UPON.
- **INCREASES STABILITY:** THE PILE CAP HELPS TO ANCHOR THE PILES TOGETHER AND PROVIDE ADDITIONAL STABILITY AGAINST LATERAL FORCES, SUCH AS WIND OR EARTHQUAKES.



### BENEFITS OF THE FIELD VISIT

CONCRETING:

**MIXING AND POURING:** CONCRETE IS MIXED ACCORDING TO THE PROJECT SPECIFICATIONS AND CAREFULLY POURED INTO THE FORMWORK AROUND THE PILES AND STEEL REINFORCEMENT CAGE.

**COMPACTION:** THE POURED CONCRETE IS VIBRATED TO ELIMINATE AIR POCKETS AND ENSURE PROPER COMPACTION FOR OPTIMAL STRENGTH AND DURABILITY.

CURING:

**CURING TIME:** ONCE THE CONCRETE IS POURED, THE FORMWORK REMAINS IN PLACE FOR A DESIGNATED CURING PERIOD.





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### ADDITIONAL POINTS:

**SEALING:** IN SOME CASES, THE TOP SURFACE OF THE PILE CAP MAY BE SEALED WITH A WATERPROOFING MEMBRANE TO PROTECT IT FROM MOISTURE INGRESS.

**QUALITY CONTROL:** THROUGHOUT THE PROCESS, QUALITY CONTROL MEASURES ARE IMPLEMENTED TO ENSURE THE CONCRETE MIX MEETS SPECIFICATIONS AND THE CONSTRUCTION ADHERES TO ENGINEERING PLANS.

PILE CAP CONCRETING IS A CRITICAL STEP IN DEEP FOUNDATION CONSTRUCTION. BY FOLLOWING THESE PROCEDURES, A STRONG AND STABLE BASE IS ESTABLISHED FOR THE STRUCTURE ABOVE.



### ADDITIONAL NOTES:

IT WOULD BE BENEFICIAL TO OBTAIN INFORMATION ON THE SPECIFIC CONCRETE MIX DESIGN AND STRENGTH REQUIREMENTS FOR THE PILE CAPS.

ANY DISCUSSIONS REGARDING POTENTIAL CHALLENGES ENCOUNTERED DURING THE CONCRETING PROCESS OR PLANNED SOLUTIONS FOR UNFORESEEN CIRCUMSTANCES WOULD BE VALUABLE FOR FUTURE REPORTS.



### OVERALL ASSESSMENT:

THE FIELD VISIT INDICATED A WELL-ORGANIZED AND EFFICIENT PILE CAP CONCRETING OPERATION. THE CREW DEMONSTRATED FAMILIARITY WITH THE PROCEDURES, AND ALL NECESSARY MATERIALS AND EQUIPMENT WERE READILY AVAILABLE. FURTHER VISITS WILL BE CONDUCTED TO MONITOR PROGRESS AND ENSURE THE CONTINUED HIGH STANDARD OF CONSTRUCTION.