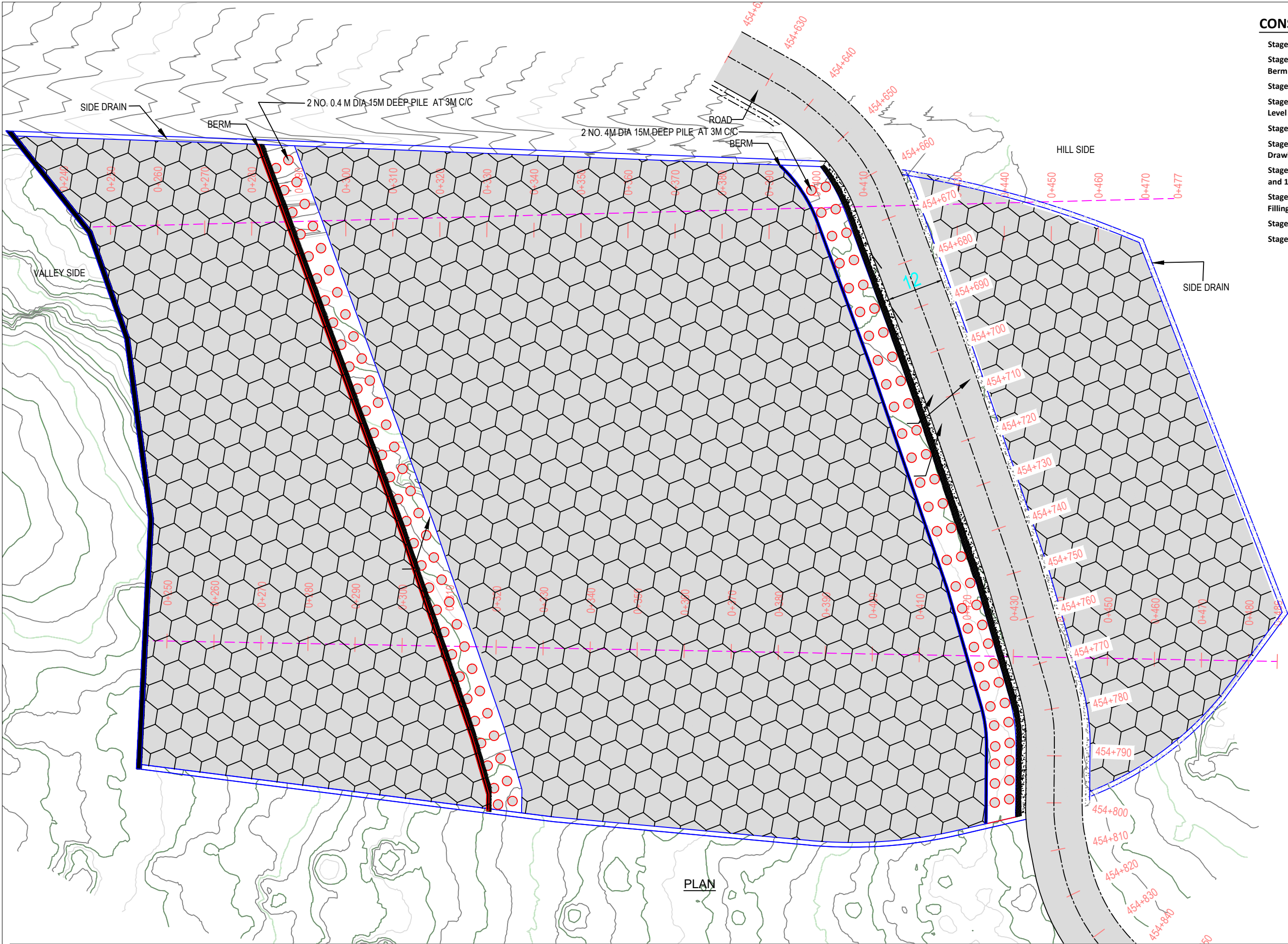




PLAN

CONSTRUCTION METHODOLOGY:

- Stage 1: Scaling and Marking of Treatment Area of Sinking Zone
- Stage 2: Preparation ramp for the preparation of Upper and Lower Berm for Pile Installation.
- Stage 3: Preparation of 7m Width Berm at Upper and Lower Level.
- Stage 4: Installation of 2 Rows of Micro piles for Upper and Lower Level in Parallel
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- Stage 6: Installation of Gabion Wall up to road level as Indicated in Drawings.
- Stage 7: Installation of SDA and DT Mesh in between Both the Berm and 10m below the Lower-Level Berm as indicated in Drawings.
- Stage 8: Installation Geotextile behind Gabion wall followed by Filling of Granular material
- Stage 9: Preparation of compacted Bed for Pavement Construction.
- Stage 10: Pavement Construction as Indicated in Drawings.

OWNER ENGINEERING :



National Highways & Infrastructure
Development Corporation Ltd. (NHIDCL)

SAFETY CONSULTANT :



MANOMAV ENGINEERS
PVT. LTD. MEPL

EPC CONTRACTOR:



NKG INFRASTRUCTURE LTD.

PROOF CONSULTANT:



KQC GLOBAL CONSULTANTS PVT. LTD.

301 Kautliya, Sector 14, Dwarka,
New Delhi, Delhi 110075
www.kqcgloblconsultants.com

PROJECT :

**Construction and Upgradation of existing
road to 2-lane with paved shoulder from Km
430.000 to Km. 468.000 of Chamoli to Paini
(Excluding Km 437.625 to Km 437.775, Km
458.900 to Km 459.475 and Km 464.425 to Km
464.525) of NH-07 under Chardham Pariyojna
on EPC basis in the State of Uttarakhand**

REV.	DATE	DESCRIPTION

DRAWN BY : PRANAV KUMAR

DESIGNED BY : SK

APPROVED BY : DK

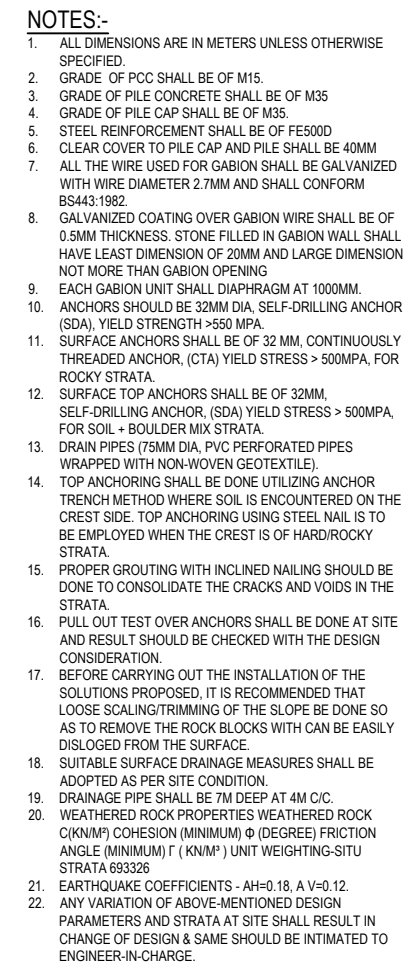
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TITLE:-
SECTION SHOWING MITIGATION MEASURES ON VALLY SIDE
AT KM. 454+650 TO 454+800 OF NH-07,
VILLAGE TANGANI TALLI

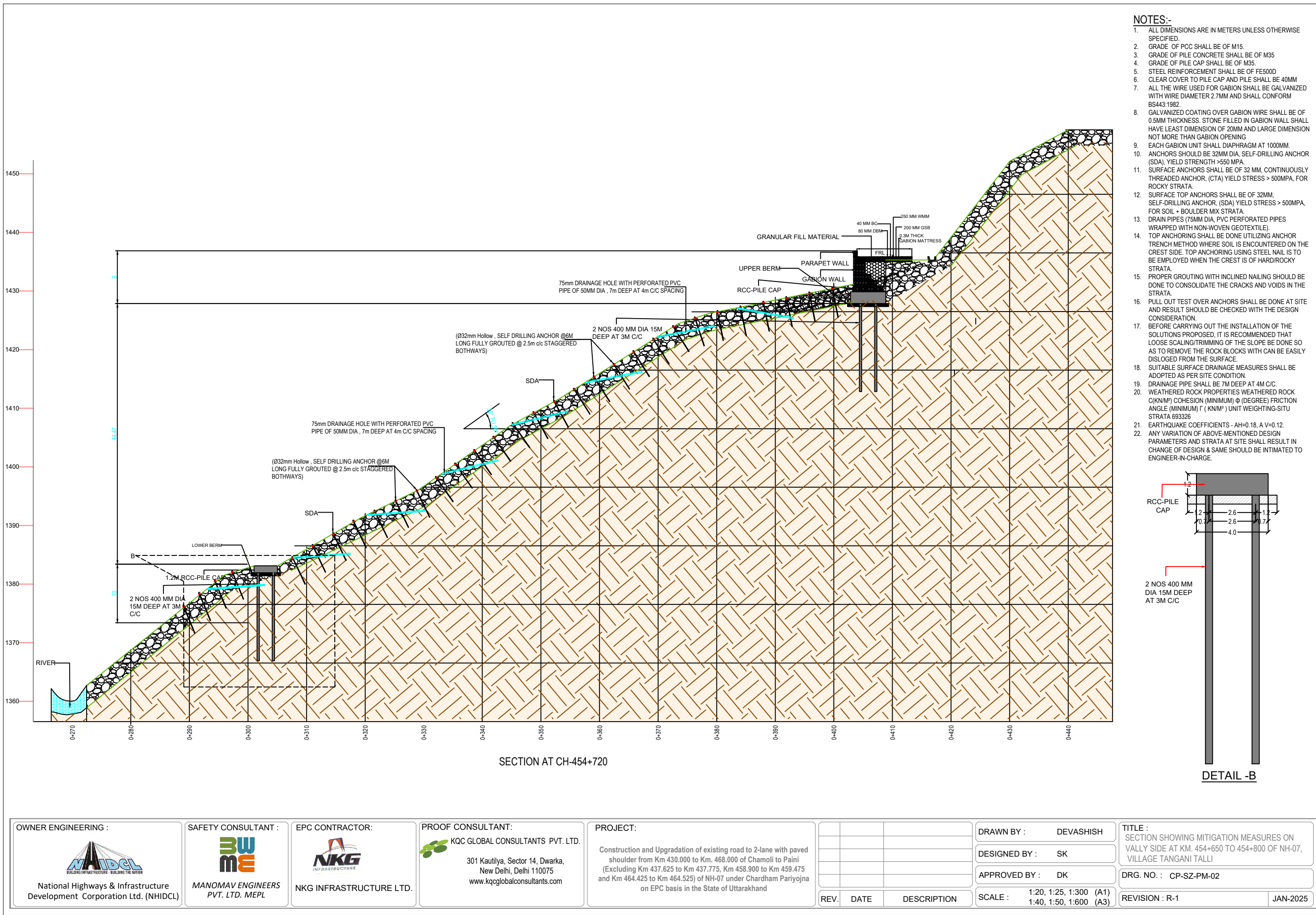
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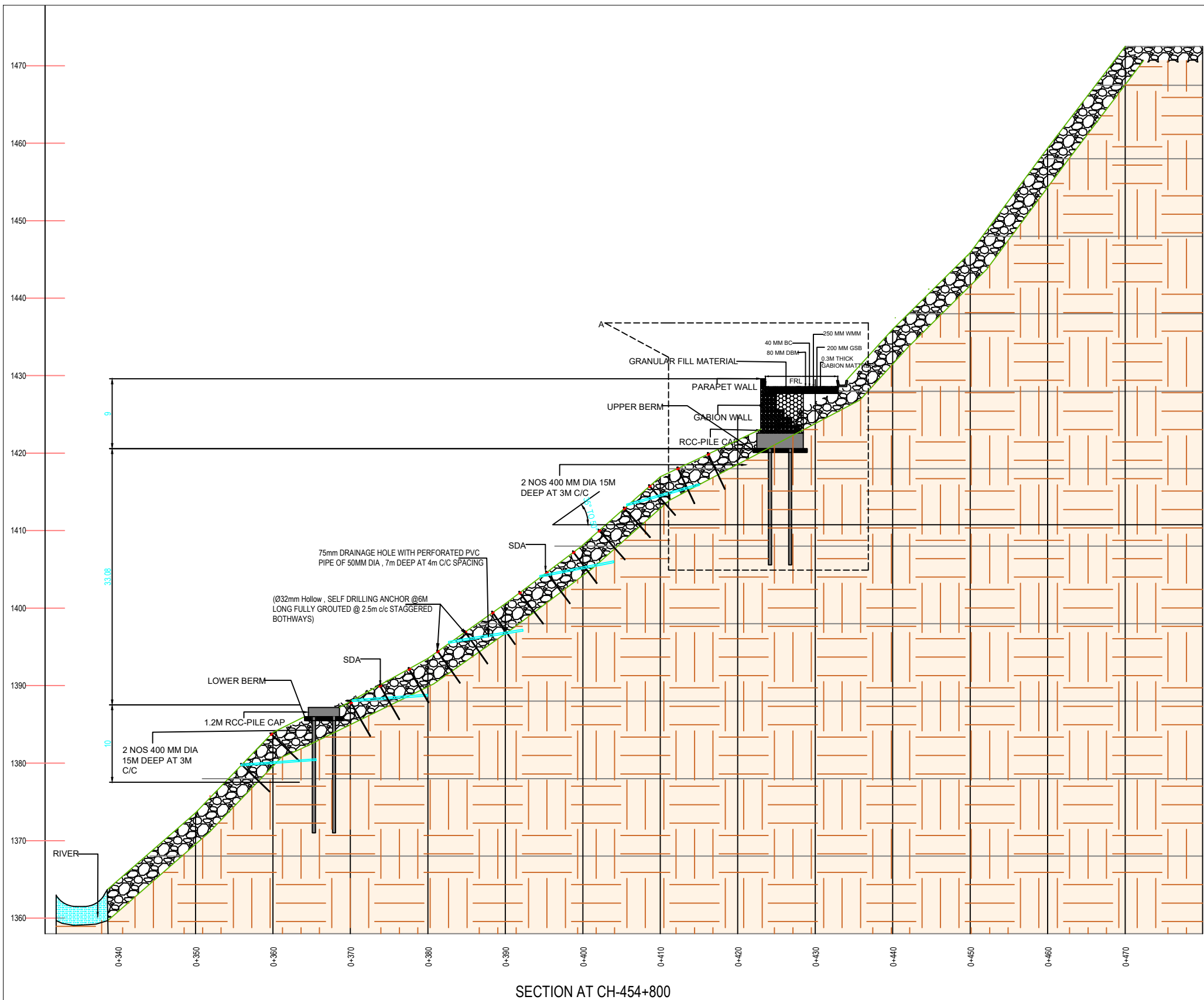
REVISION : R-1

JAN-2025

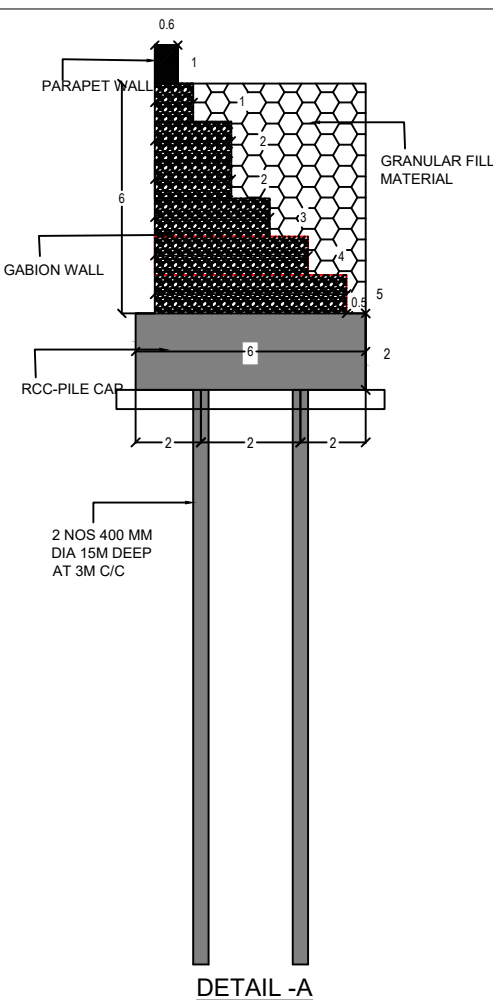


TITLE : SECTION SHOWING MITIGATION MEASURES ON VALLY SIDE AT KM. 454+650 TO 454+800 OF NH-07, VILLAGE TANGANI TALLI	
DRG. NO. : CP-SZ-PM-02	
REVISION : R-1	JAN-2025





SECTION AT CH-454+800



- NOTES:-**
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
 - GRADE OF PCC SHALL BE OF M15.
 - GRADE OF PILE CONCRETE SHALL BE OF M35
 - GRADE OF PILE CAP SHALL BE OF M35.
 - STEEL REINFORCEMENT SHALL BE OF FE500D
 - CLEAR COVER TO PILE CAP AND PILE SHALL BE 40MM
 - ALL THE WIRE USED FOR GABION SHALL BE GALVANIZED WITH WIRE DIAMETER 2.7MM AND SHALL CONFORM BS443:1982
 - GALVANIZED COATING OVER GABION WIRE SHALL BE OF 0.5MM THICKNESS. STONE FILLED IN GABION WALL SHALL HAVE LEAST DIMENSION OF 20MM AND LARGE DIMENSION NOT MORE THAN GABION OPENING
 - EACH GABION UNIT SHALL DIAPHRAGM AT 1000MM.
 - ANCHORS SHOULD BE 32MM DIA, SELF-DRILLING ANCHOR (SDA), YIELD STRENGTH >550 MPA.
 - SURFACE ANCHORS SHALL BE OF 32 MM, CONTINUOUSLY THREADED ANCHOR, (CTA) YIELD STRESS > 500MPA, FOR ROCKY STRATA.
 - SURFACE TOP ANCHORS SHALL BE OF 32MM, SELF-DRILLING ANCHOR, (SDA) YIELD STRESS > 500MPA, FOR SOIL + BOULDER MIX STRATA.
 - DRAIN PIPES (75MM DIA, PVC PERFORATED PIPES WRAPPED WITH NON-WOVEN GEOTEXTILE).
 - TOP ANCHORING SHALL BE DONE UTILIZING ANCHOR TRENCH METHOD WHERE SOIL IS ENCOUNTERED ON THE CREST SIDE. TOP ANCHORING USING STEEL NAIL IS TO BE EMPLOYED WHEN THE CREST IS OF HARD/ROCKY STRATA.
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 - PULL OUT TEST OVER ANCHORS SHALL BE DONE AT SITE AND RESULT SHOULD BE CHECKED WITH THE DESIGN CONSIDERATION.
 - BEFORE CARRYING OUT THE INSTALLATION OF THE SOLUTIONS PROPOSED, IT IS RECOMMENDED THAT LOOSE SCALING/TRIMMING OF THE SLOPE BE DONE SO AS TO REMOVE THE ROCK BLOCKS WITH CAN BE EASILY DISLODGED FROM THE SURFACE.
 - SUITABLE SURFACE DRAINAGE MEASURES SHALL BE ADOPTED AS PER SITE CONDITION.
 - DRAINAGE PIPE SHALL BE 7M DEEP AT 4M C/C.
 - WEATHERED ROCK PROPERTIES WEATHERED ROCK C(KN/M²) COHESION (MINIMUM) ϕ (DEGREE) FRICTION ANGLE (MINIMUM) τ (KN/M²) UNIT WEIGHTING-SITU STRATA 693326
 - EARTHQUAKE COEFFICIENTS - AH=0.18, A V=0.12.
 - ANY VARIATION OF ABOVE-MENTIONED DESIGN PARAMETERS AND STRATA AT SITE SHALL RESULT IN CHANGE OF DESIGN & SAME SHOULD BE INTIMATED TO ENGINEER-IN-CHARGE.

OWNER ENGINEERING :



National Highways & Infrastructure
Development Corporation Ltd. (NHIDCL)

SAFETY CONSULTANT :



MANOMAV ENGINEERS
PVT. LTD. MEPL

EPC CONTRACTOR:



NKG INFRASTRUCTURE LTD.

PROOF CONSULTANT:



KQC GLOBAL CONSULTANTS PVT. LTD.

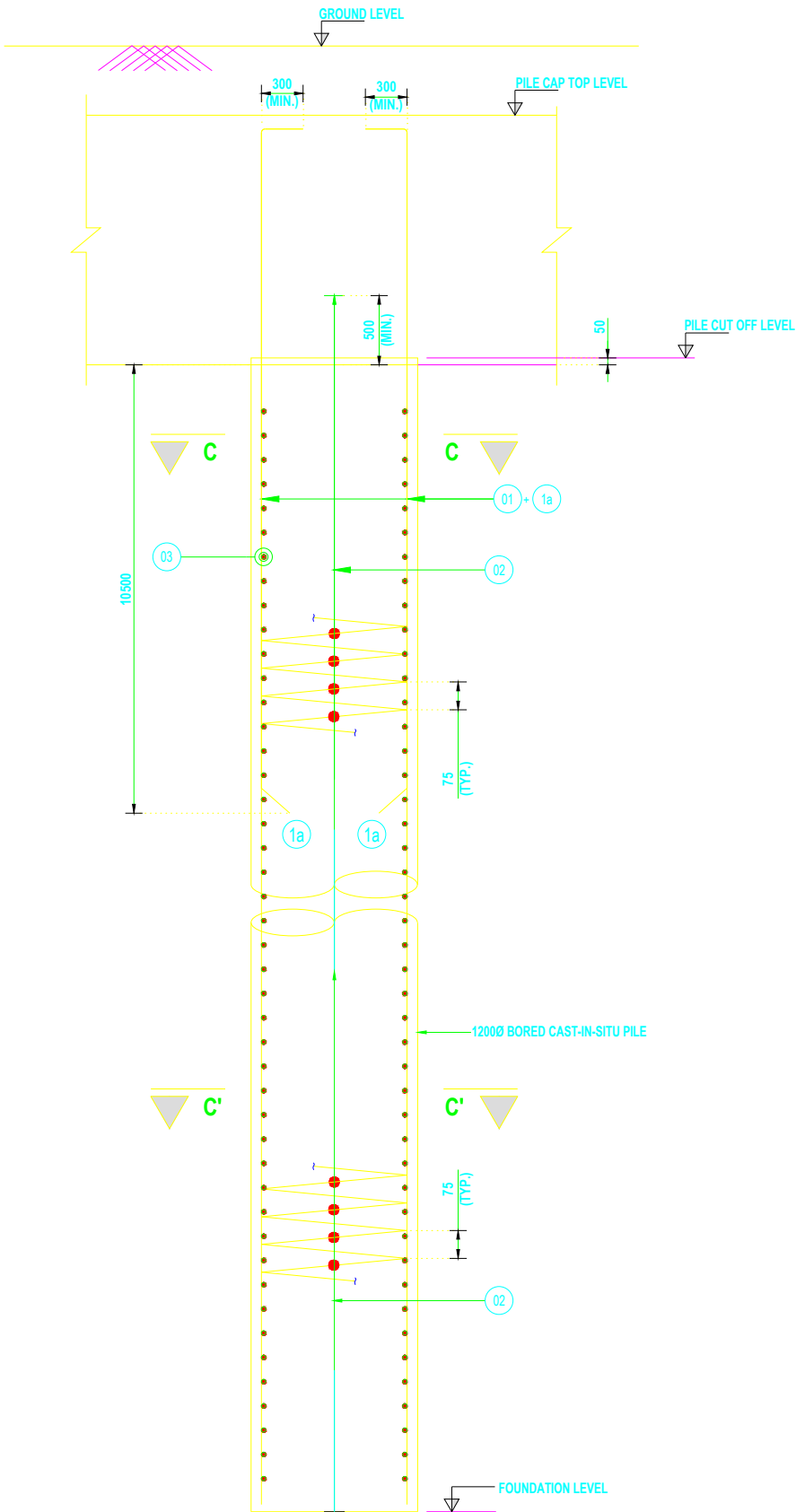
301 Kautilya, Sector 14, Dwarka,
New Delhi, Delhi 110075
www.kqcglobalconsultants.com

PROJECT:

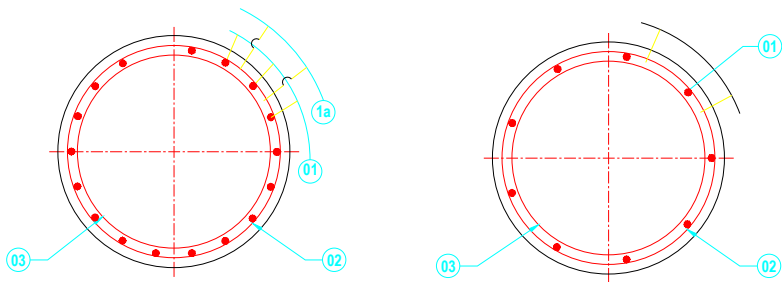
Construction and Upgradation of existing road to 2-lane with paved
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and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna
on EPC basis in the State of Uttarakhand

REV.	DATE	DESCRIPTION

DRAWN BY :	DEVASHISH	TITLE :	SECTION SHOWING MITIGATION MEASURES ON VALLEY SIDE AT KM. 454+650 TO 454+800 OF NH-07, VILLAGE TANGANI TALLI
DESIGNED BY :	SK	DRG. NO. :	CP-SZ-PM-03
APPROVED BY :	DK	REVISION :	R-1
SCALE :	1:20, 1:25, 1:300 (A1) 1:40, 1:50, 1:600 (A3)		JAN-2025

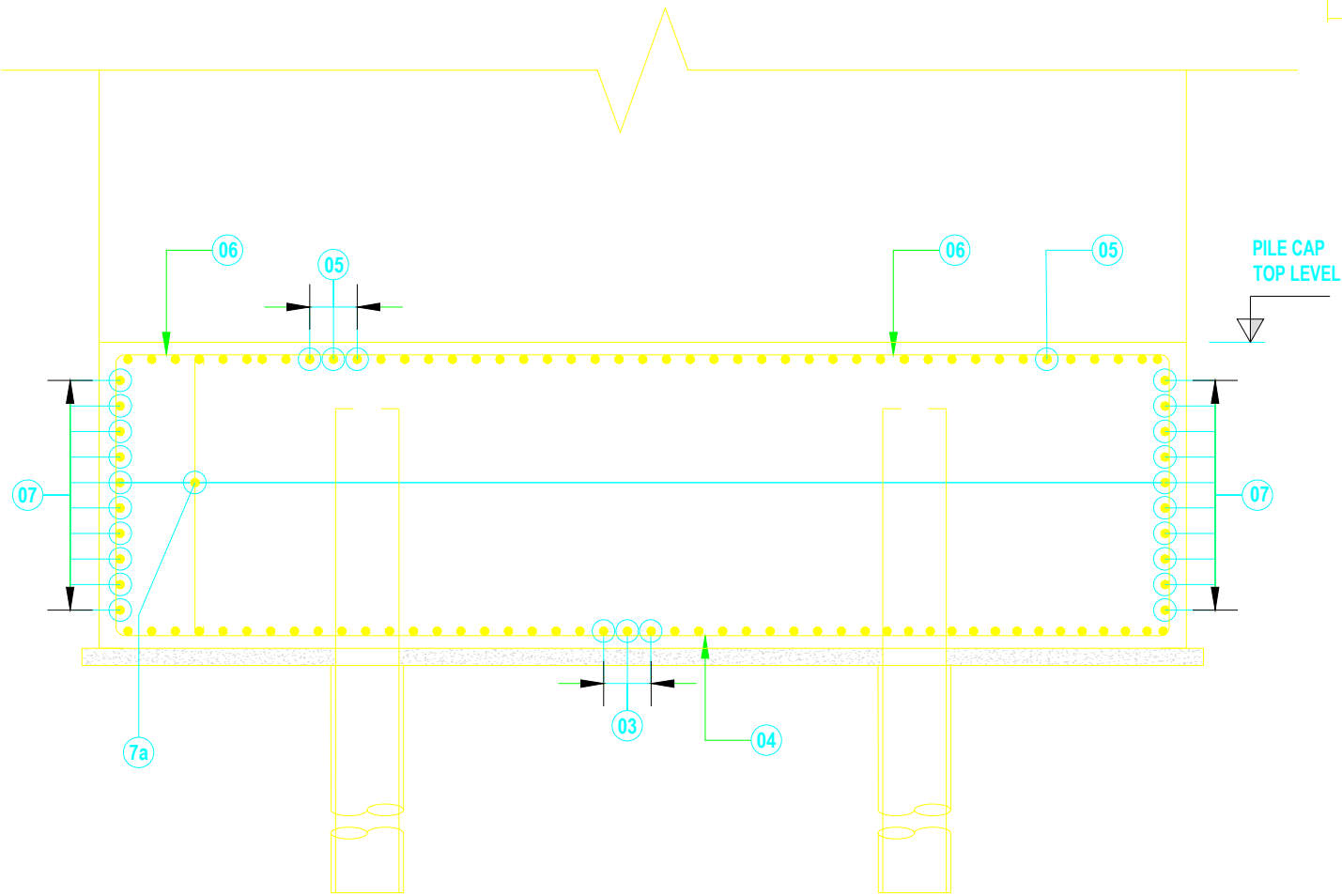


REINFORCEMENT DETAIL OF PILE

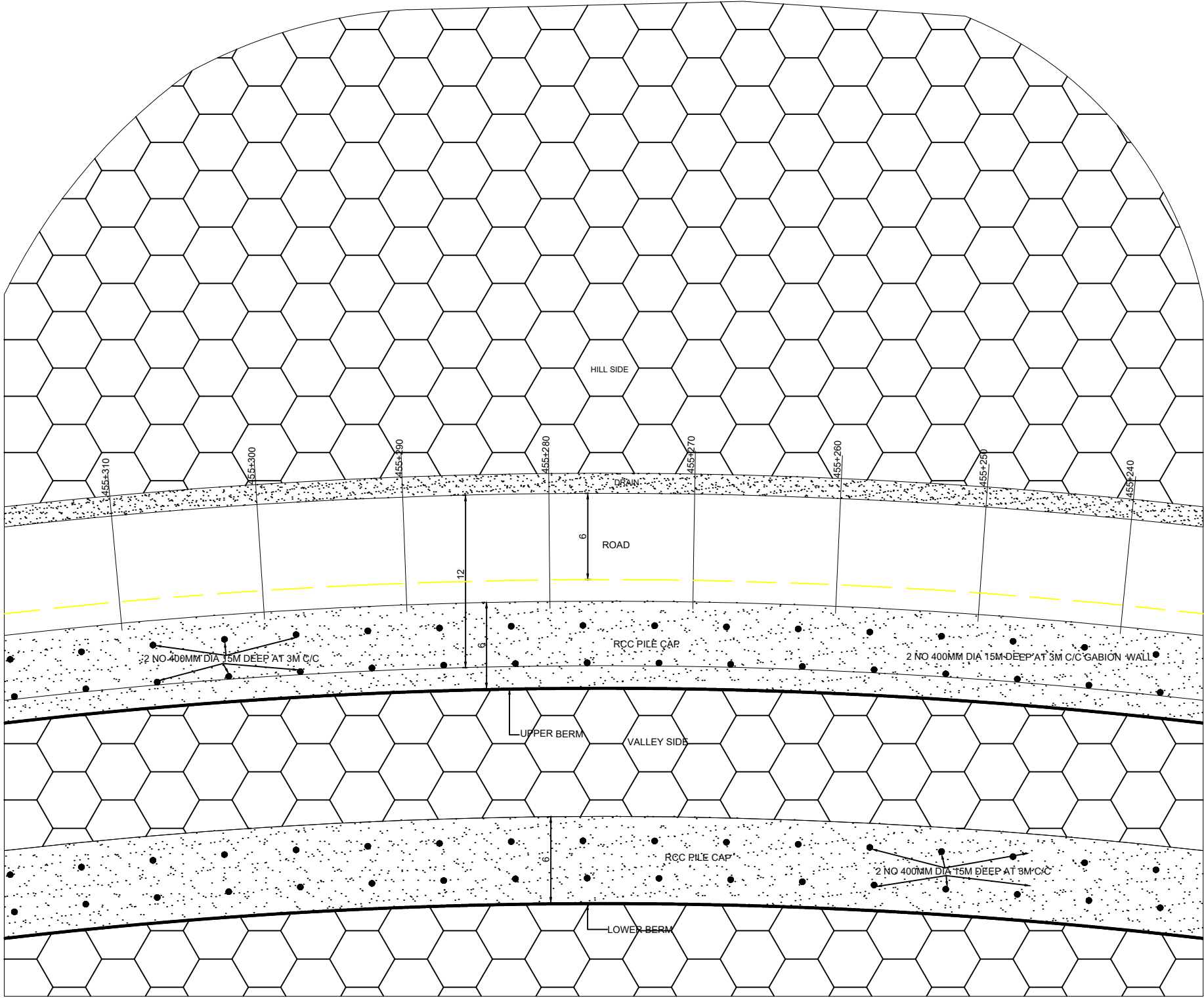


SECTION (C-C)

SECTION (C'-C')



PILE	SCHEDULE OF REINFORCEMENT			
	S NO	DIA OF BAR	SPACING BAR	BAR MARK
	1	20	8 NOS.	[]
	1a	16	8 NOS.	[]
	2	12	SPIRAL	[]
PILE CAP	3	12	1500 C/C	[]
	4	32	125	[]
	5	32	125	[]
	6	32	125	[]
	7	32	125	[]
	8	20	150	[]
	9	12	SHEAR LINK 200MM X 200MM	[]

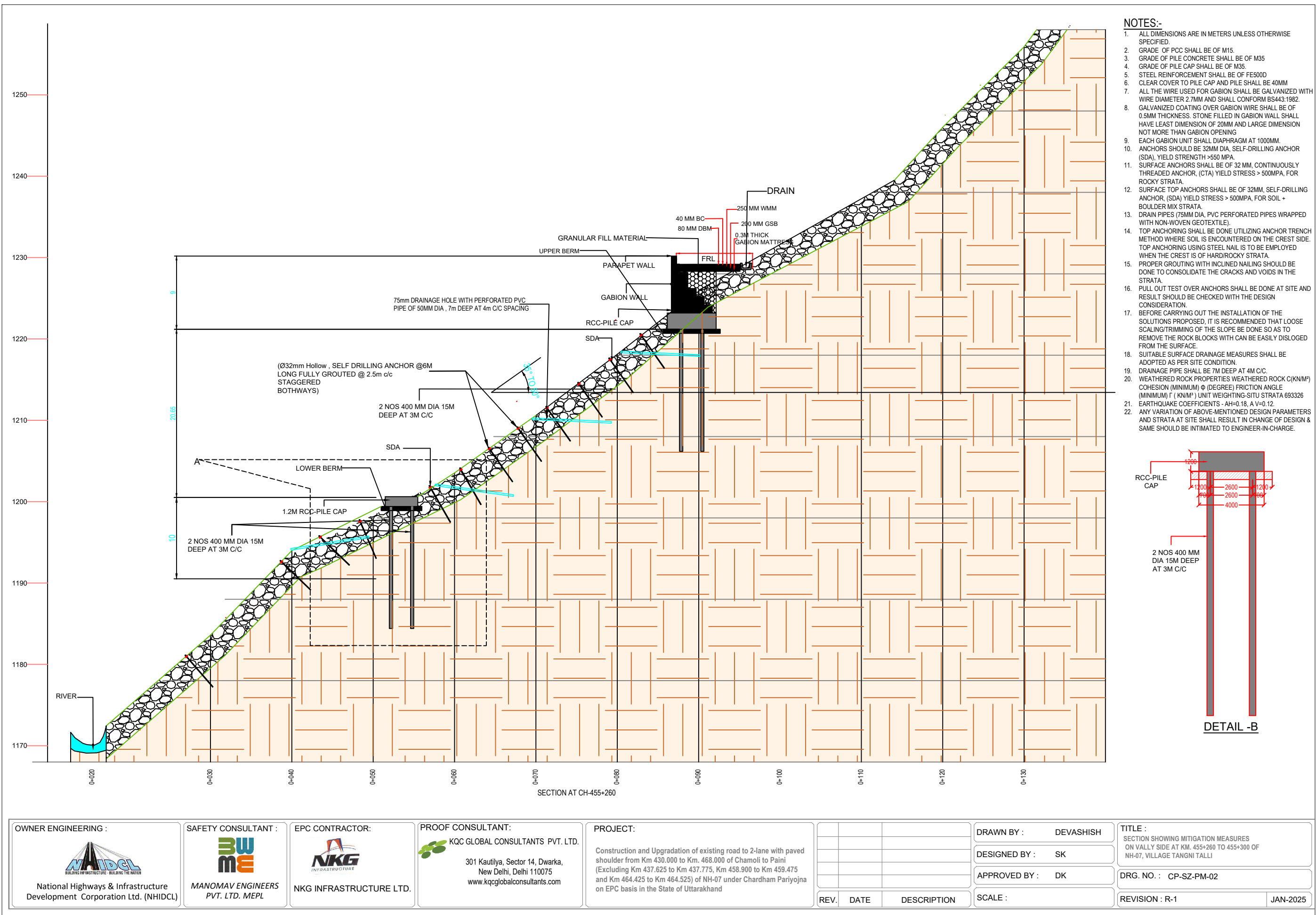


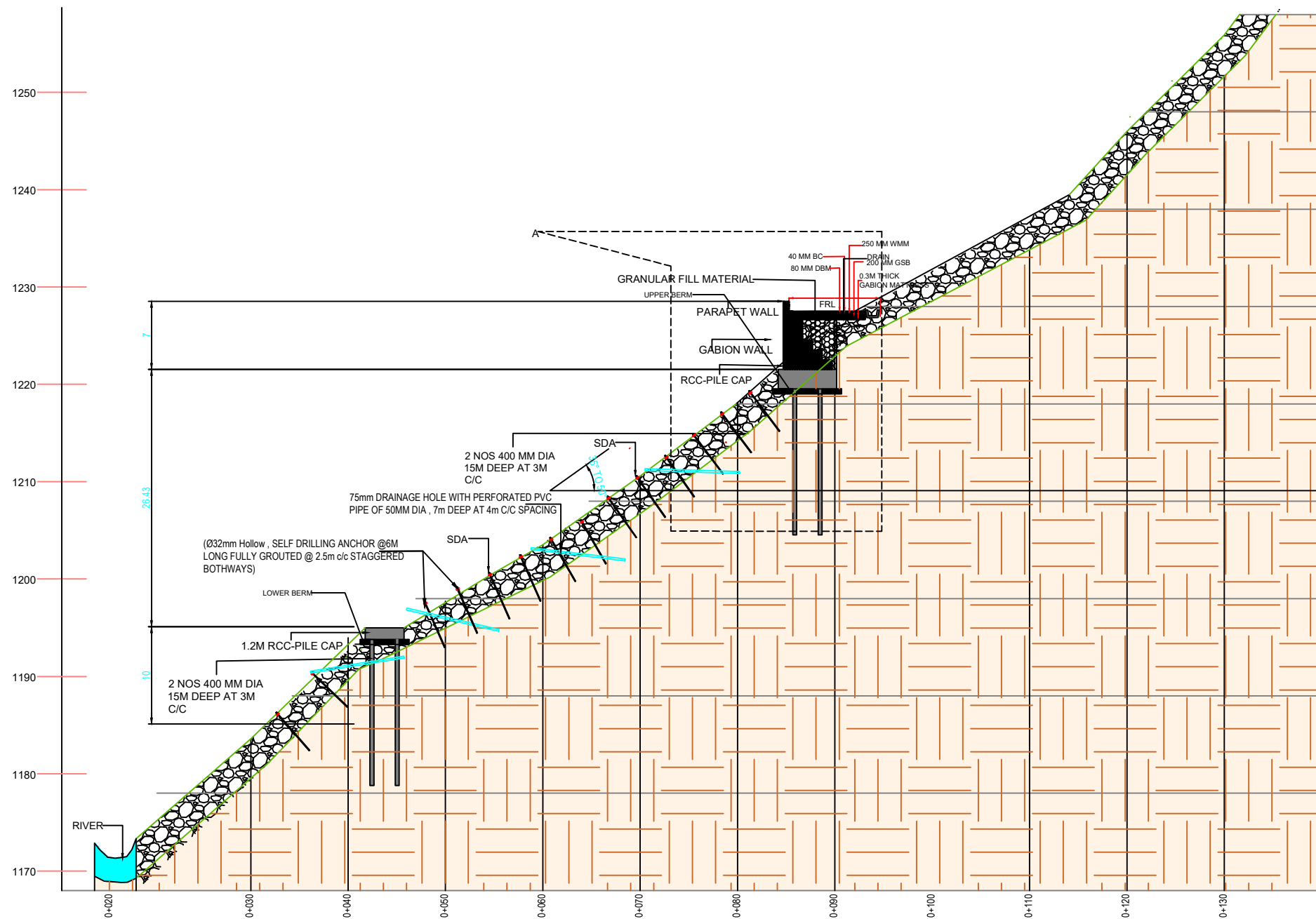
PLAN

CONSTRUCTION METHODOLOGY:

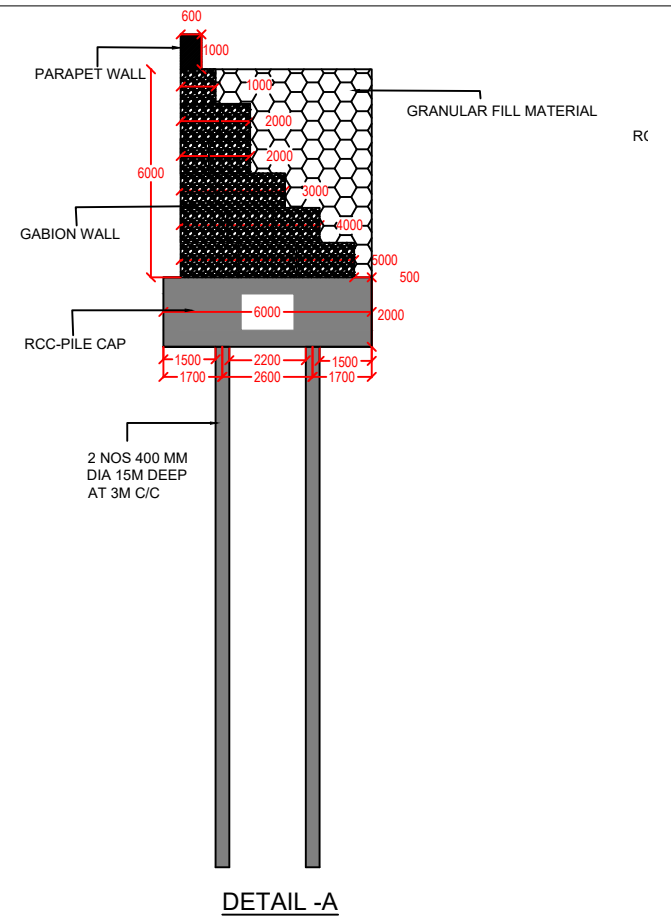
- Stage 1: Scaling and Marking of Treatment Area of Sinking Zone
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OWNER ENGINEERING :			SAFETY CONSULTANT :			EPC CONTRACTOR:			PROOF CONSULTANT:			PROJECT:						DRAWN BY : PRANAV KUMAR			TITLE :											
 National Highways & Infrastructure Development Corporation Ltd. (NHIDCL)			 MANOMAV ENGINEERS PVT. LTD. MEPL			 NKG INFRASTRUCTURE LTD.			 KQC GLOBAL CONSULTANTS PVT. LTD. 301 Kautliya, Sector 14, Dwarka, New Delhi, Delhi 110075 www.kqcglobiconsultants.com			Construction and Upgradation of existing road to 2-lane with paved shoulder from Km 430.000 to Km. 468.000 of Chamoli to Paini (Excluding Km 437.625 to Km 437.775, Km 458.900 to Km 459.475 and Km 464.425 to Km 464.525) of NH-07 under Chardham Pariyojna on EPC basis in the State of Uttarakhand			<table><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table>															SECTION SHOWING MITIGATION MEASURES ON VALLY SIDE AT KM. 455+260 TO 455+300 OF NH-07, VILLAGE TANGANI TALLI		
												DESIGNED BY : SK			DRG. NO. : CP-SZ-PM-01																	
												APPROVED BY : DK																				
												REV. DATE DESCRIPTION			SCALE :			REVISION : R-1		JAN-2025												





SECTION AT CH-455+280



NOTES:-

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. GRADE OF PCC SHALL BE OF M15.
3. GRADE OF PILE CONCRETE SHALL BE OF M35
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SAFETY CONSULTANT :



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PVT. LTD. MEPL

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PROOF CONSULTANT:



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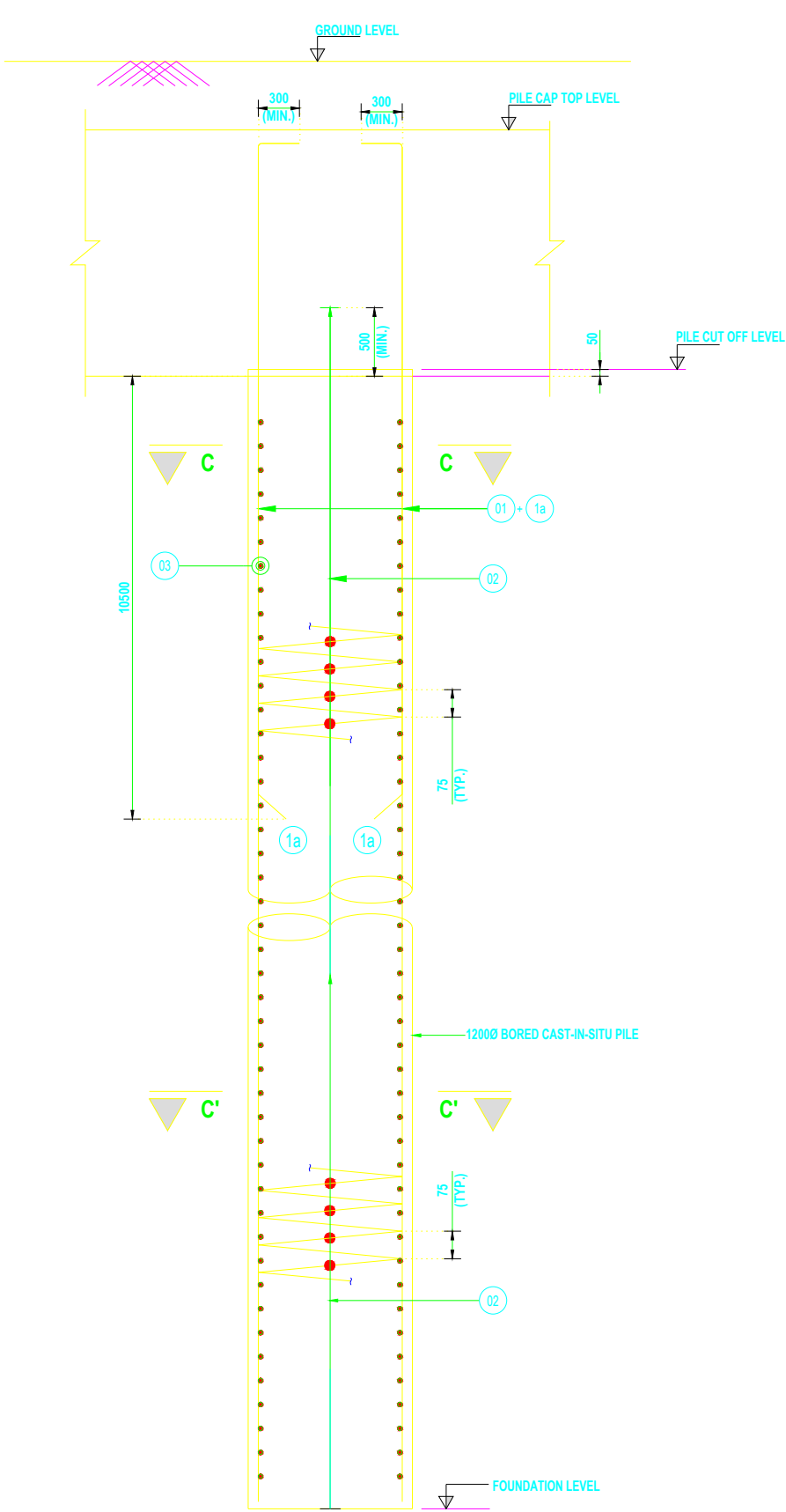
301 Kautilya, Sector 14, Dwarka,
New Delhi, Delhi 110075
www.kqcglobalconsultants.com

PROJECT:

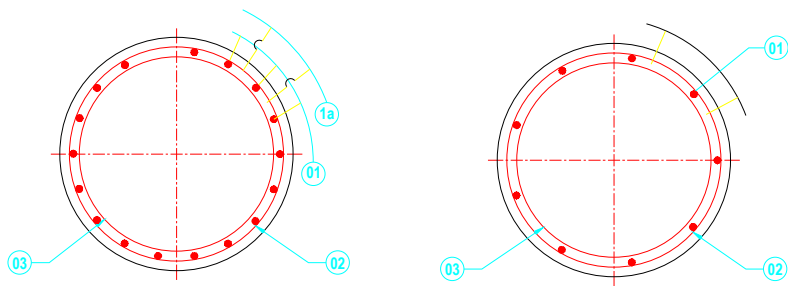
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REV.	DATE	DESCRIPTION

DRAWN BY : DEVASHISH	TITLE : SECTION SHOWING MITIGATION MEASURES ON VALLEY SIDE AT KM. 455+260 TO 455+300 OF NH-07, VILLAGE TANGNI TALLI
DESIGNED BY : SK	DRG. NO. : CP-SZ-PM-03
APPROVED BY : DK	REVISION : R-1
SCALE :	JAN-2025

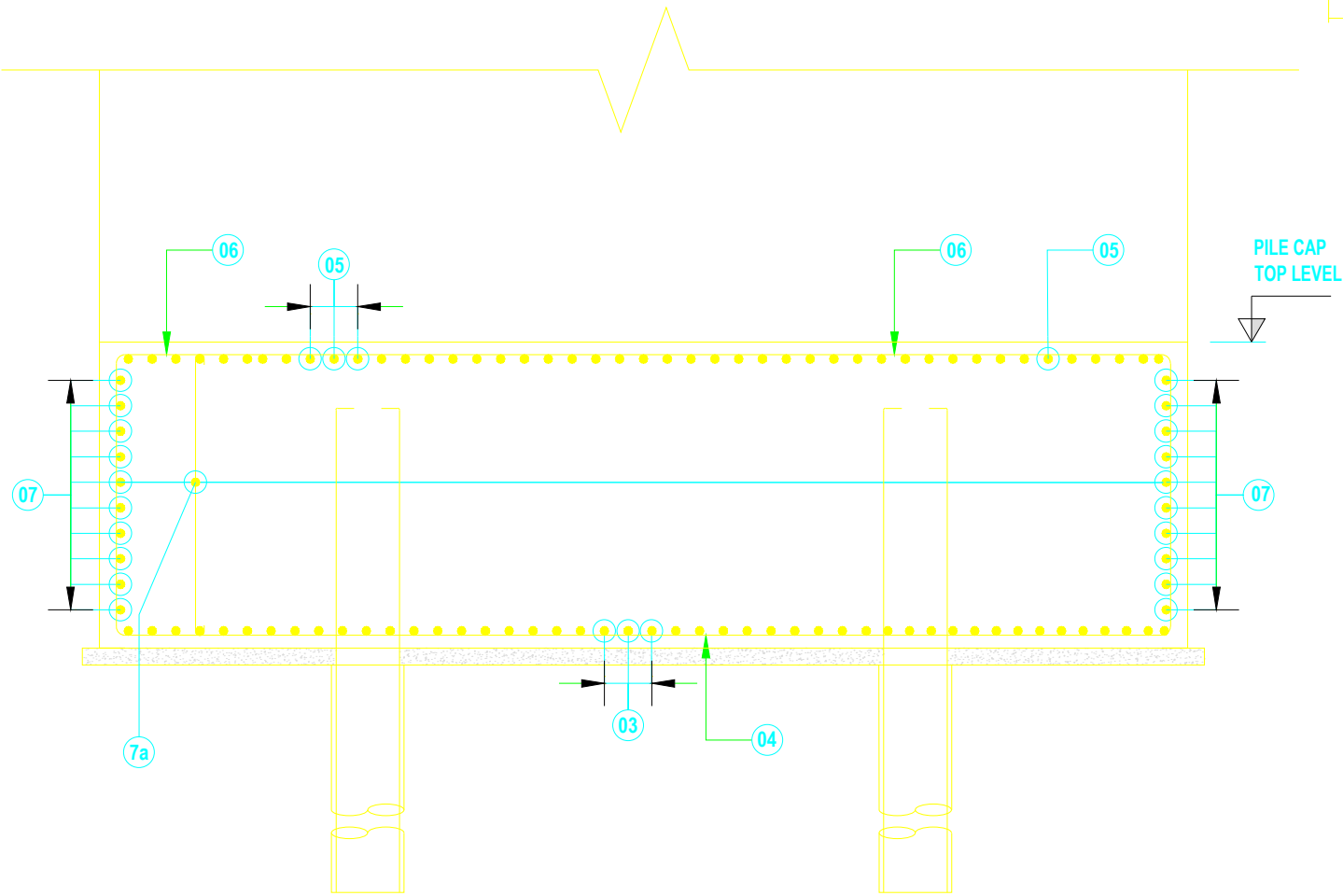


REINFORCEMENT DETAIL OF PILE



SECTION (C-C)

SECTION (C'-C')



PILE	SCHEDULE OF REINFORCEMENT			
	S NO	DIA OF BAR	SPACING BAR	BAR MARK
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