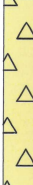
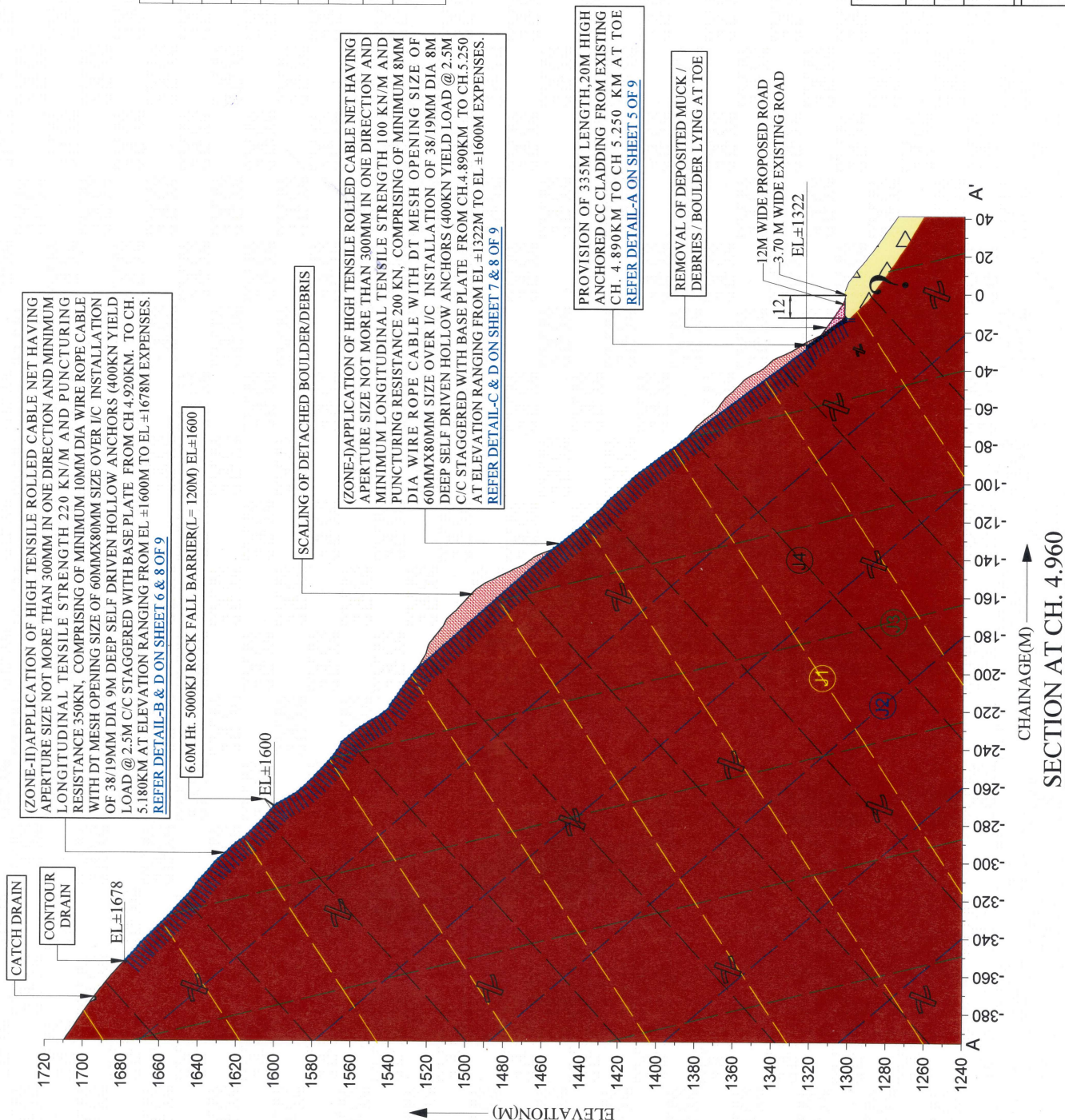


1. ALL DIMENSIONS & ELEVATIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.

LEGEND	
1.	SLIDE MATERIAL 
2.	AUGEN GNEISS 
3.	TRACES OF JOINTS 
4.	HIGH TENSILE ROLLED CABLE NET WITH SDRA 
5.	20M HIGH CC CLADDING 
6.	ROCK FALL BARRIER 
7.	REMOVAL OF DEBRIS 
8.	REMOVAL OF DEPOSITED MUCK /DEBRIS / BOULDER LYING AT TOE 



SCALE: 0 20 40 60 80 100m

SHEET 2 OF 9

FOR TENDER PURPOSE ONLY



सड़क परिवहन और राजमार्ग मंत्रालय
Ministry of Road Transport and Highways

PROTECTION / TREATMENT WORKS ON CHRONIC LANDSLIDE

CONSULTANT:

 टीएचडीसी इंडिया लिमिटेड
THDC INDIA LIMITED

(SECTION A-A')

PROPOSED TREATMENT MEASURES

PROPOSED TREATMENT MEASURES

TECHNICAL SPECIFICATIONS

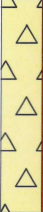
RAWNBY	PREPARED BY	CHECKED BY	SUBMITT

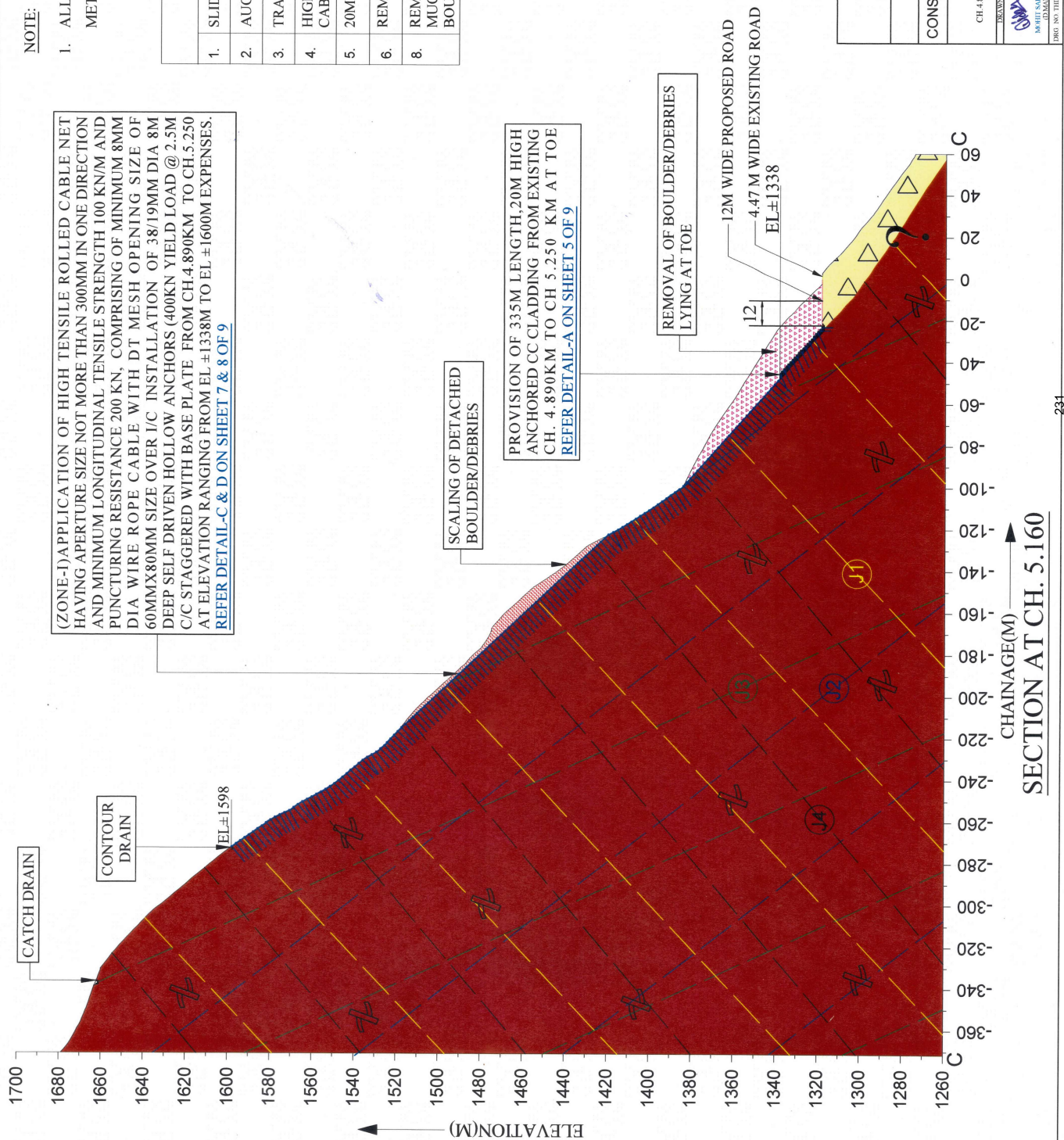
7

AMAN KANSAL

ADMAN)	(STR. ENGINEER CIVIL)	ADMAN KANSAL (ENGINEER CIVIL.)	(DGM)
--------	-----------------------	-----------------------------------	-------

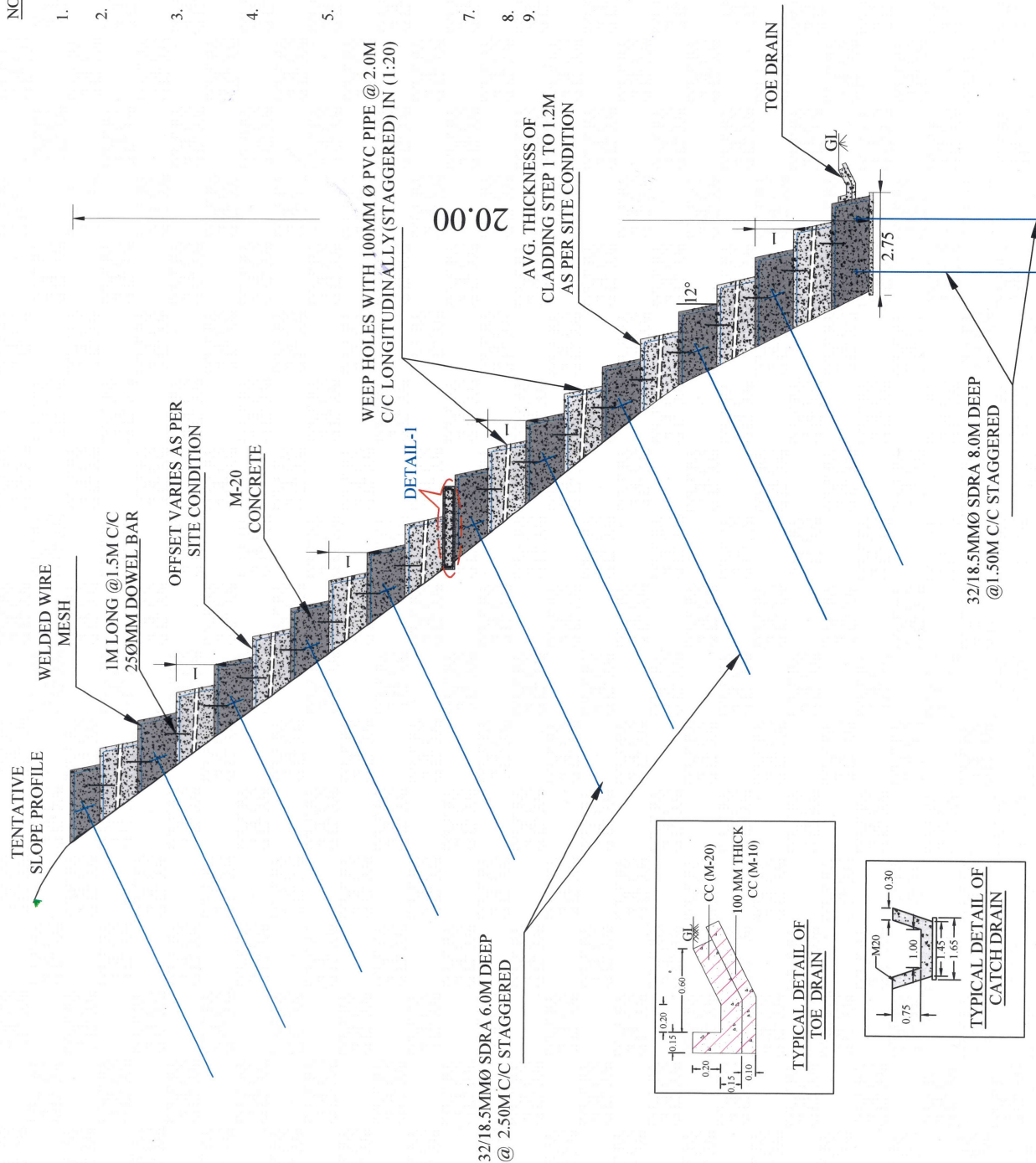
1. ALL DIMENSIONS & ELEVATIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.

LEGEND	
1.	SLIDE MATERIAL 
2.	AUGEN GNEISS 
3.	TRACES OF JOINTS 
4.	HIGH TENSILE ROLLED CABLE NET WITH SDRA 
5.	20M HIGH CC CLADDING 
6.	REMOVAL OF DEBRIS 
8.	REMOVAL OF DEPOSITED MUCK /DEBRIS / BOULDER LYING AT TOE 



TENTATIVE SLOPE PROFILE

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
2. EXCAVATION FOR FOUNDATION SHALL BE DONE IN 6-8M LONG STRECHES ONLY & TREATMENT SHALL BE COMPLETED BEFORE START OF NEW PATCH..
3. HIGH STRENGTH ORDINARY PORTLAND CEMENT CONFORMING TO IS : 8112 CAPABLE OF ACHIEVING THE REQUIRED DESIGN CONCRETE STRENGTH SHALL ONLY BE USED.
4. THE MINIMUM CEMENT CONTENT AND WATER CEMENT RATIO IN THE CONCRETE DESIGN MIX SHALL BE 310 KG PER CUM AND 0.45 RESPECTIVELY.
5. CONCRETE USED SHALL BE OF GRADES AS SPECIFIED BELOW CONFORMING TO IS 456 (LATEST) :
 - CC CLADDING - M20
 - CC DRAIN - M20.
 - LEVELLING COURSE - M10.
 - RCC RAFT -M20
7. PROPERLY BRACED STEEL PLATES SHALL BE USED AS SHUTTERING.
8. LAPS SHALL BE STAGGERED.
9. CONCRETE SURFACE SHOULD BE ROUGHED AND CLEAN BEFORE POURING THE CONCRETE/FRESH CONCRETE.



DETAIL - A
TYPICAL DETAIL OF 20M HIGH CC CLADDING WALL

FOR TENDER PURPOSE ONLY

SHEET 5 OF 9



सड़क परिवहन और राजमार्ग मंत्रालय
Ministry of Road Transport and Highways

PROTECTION / TREATMENT WORKS ON CHRONIC LANDSLIDE
ZONE NEAR TINTOLA AT NH-125/09)

CONSULTANT:

 टीएचडीसी इंडिया लिमिटेड
THDC INDIA LIMITED

(DETAIL-A)

PROPOSED TREATMENT MEASURES

CH. 4.890KM TO CH. 5.250KM NEAR TINTOLA (LAND SLIDE -01) AT NH-125(09)

DRAWN BY	PREPARED BY
----------	-------------

RECEIVED

CHURCHILL	
-----------	--

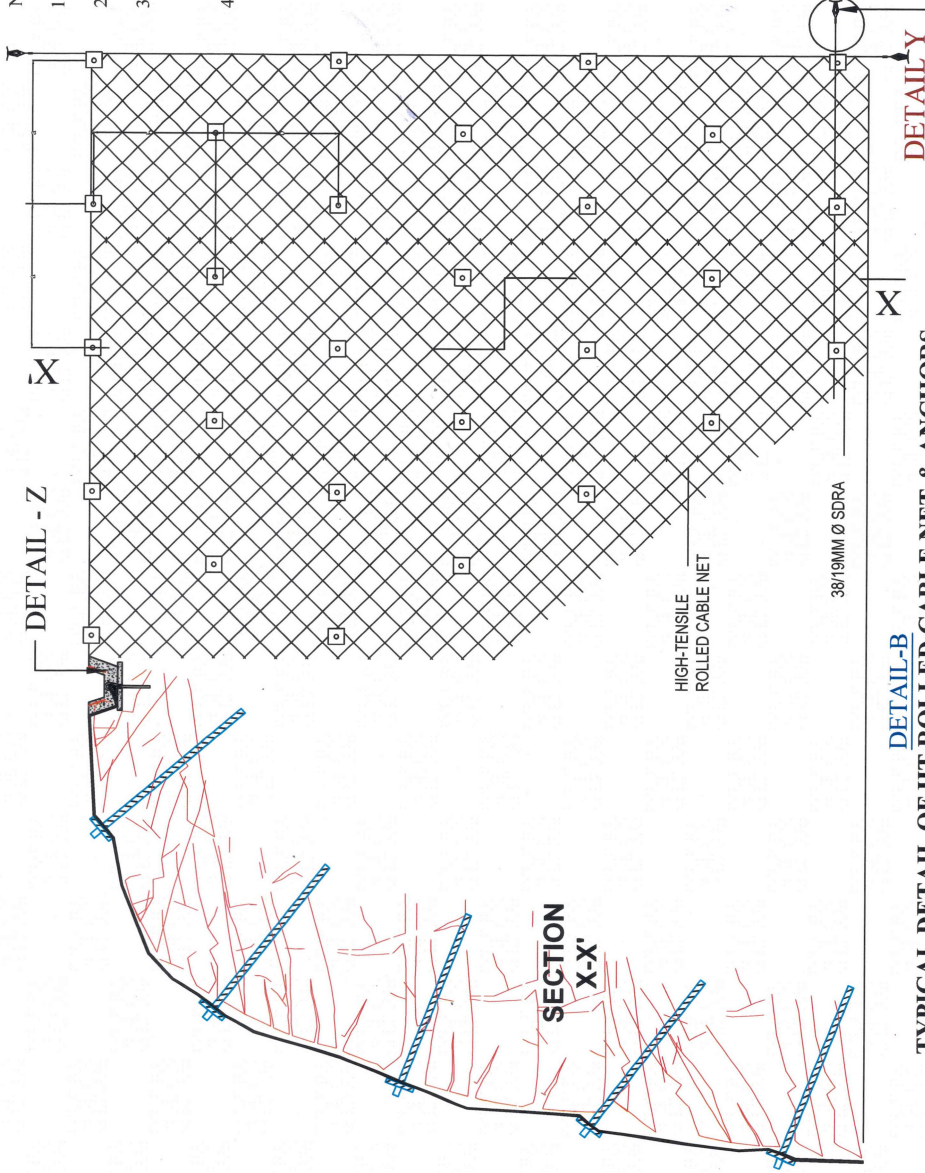
Page 10

QUESTIONS

NOTES:-

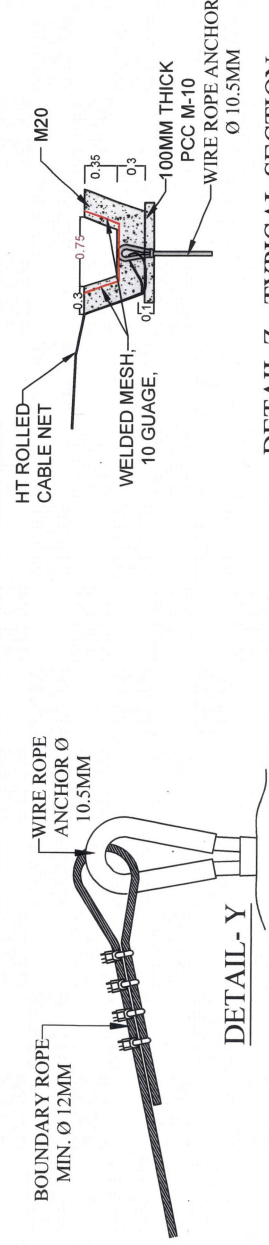
1. THE GENERAL SPECIFICATIONS OF THE SYSTEM SHALL BE AS BELOW. HOWEVER, MENTIONED BELOW ARE THE MINIMUM VALUES.
2. THE HIGH-TENSILE ROLLED CABLE NETS SHOULD INCLUDE THE SECONDARY MESH.
3. FOR THE INSTALLATION OF HIGH-TENSILE ROLLED CABLE NETS STANDARD SUPPORT ROPES, SEAMING ROPES AND SHACKLES SHOULD BE USED. FOR THE HORIZONTAL CONNECTION STANDARD SHACKLES OR LACES SHALL BE USED.
4. DESIGN SPECIFICATION OF SYSTEM

- a. TENSILE STRENGTH OF HT ROLLED CABLE NET - 220 KN/M
- b. PUNCTURING RESISTANCE OF HT ROLLED CABLE NET - 350 KN
- c. APERTURE NOT MORE THAN 300MM IN ONE DIRECTION
- d. DIA OF CABLE OF HT ROLLED CABLE NET - 10MM
- e. BREAKING LOAD OF CABLE OF HT ROLLED CABLE NET - 63 KN
- f. TENSILE STRENGTH OF WIRE OF THE CABLE - 1770 N/SQMM
- g. COMPOUND FOR CORROSION PROTECTION - 95% ZN AND 5% AL CLASS B OR ZINC COATING CLASS A AS PER IS/ISO-17746-2016.
- h. (ZONE-II) AVERAGE LENGTH OF THE 38/19MM DIA. 40 CR SDR - 9.0 M (8.7M GROUTED+0.3M ABOVE SLOPE SURFACE)
- i. DRILL BIT SIZE - 76MM
- j. GRID PATTERN - STAGGERED
- k. SPACING OF ANCHORS, i.e. (a=b) - 2.5M (AVG.) (DEPENDING ON THE SLOPE ANGLE/ PROFILE, STRATA AT SITE)
- l. SIZE OF BASE PLATE - 200MM X 200MM X 10MM (MINIMUM)
- m. GROUTING MATERIAL - CEMENT GROUT
- n. SIZE OF DOUBLE TWISTED MESH - 60MMX80MM, COMPRISING OF MESH WIRE DIA. 2.2/3.2MM DIA GI WIRE AND CORROSION PROTECTION Zn COATING+PVC



DETAIL-B

TYPICAL DETAIL OF HT ROLLED CABLE NET & ANCHORS



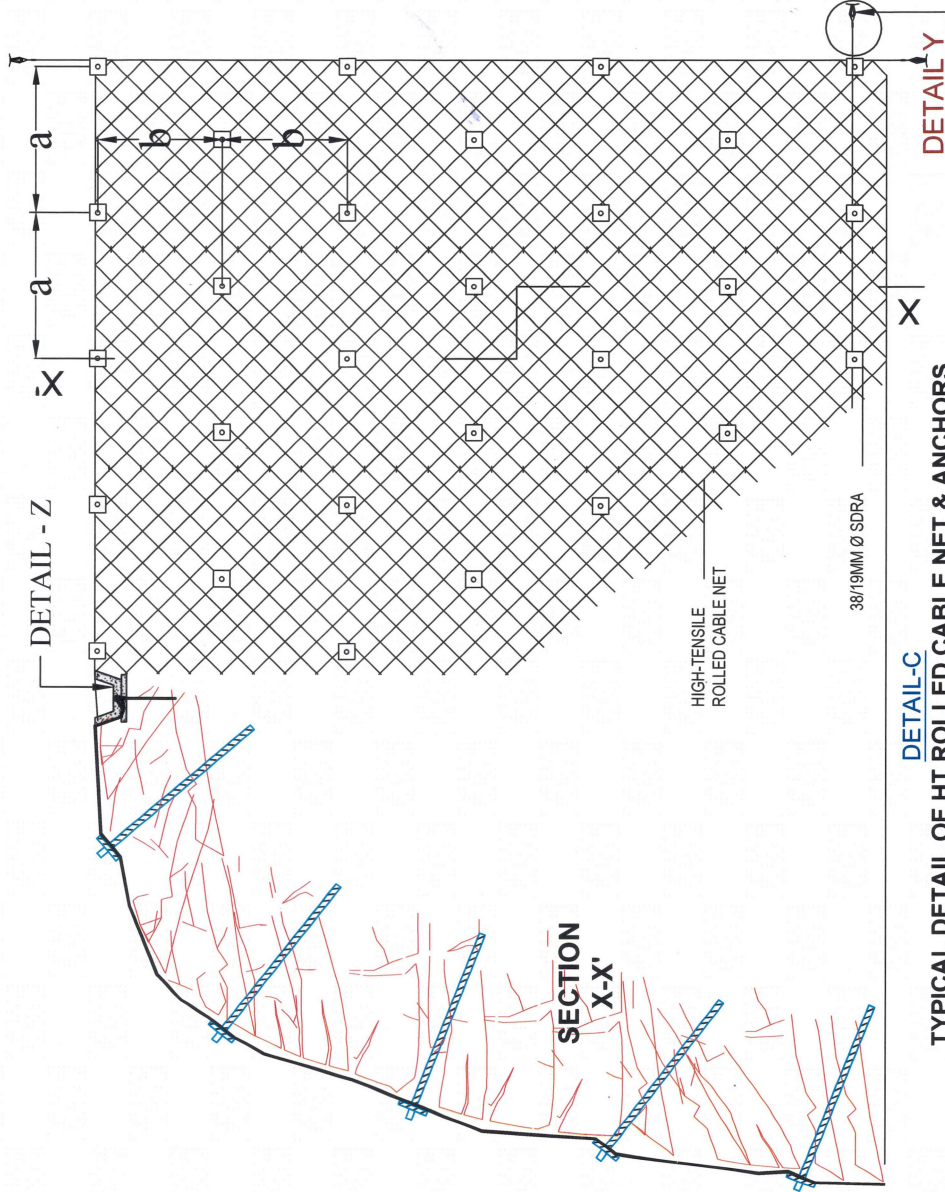
DETAIL - Y

DETAIL Z - TYPICAL SECTION OF CONTOUR DRAIN

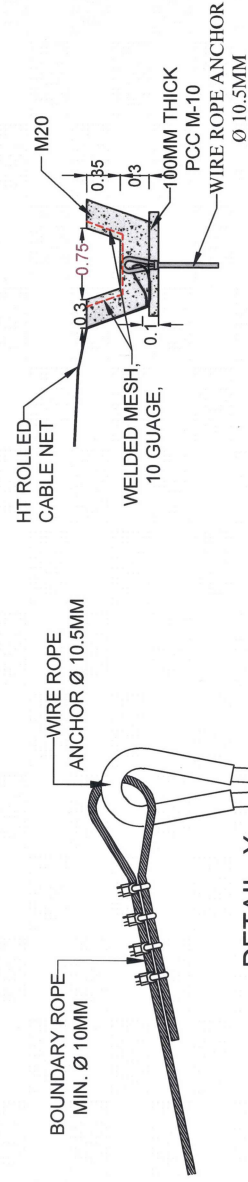
FOR TENDER PURPOSE ONLY		SHEET 6 OF 9	
सड़क परिवहन और राजमार्ग मंत्रालय Ministry of Road Transport and Highways		PROTECTION / TREATMENT WORKS ON CHRONIC LANDSLIDE ZONE NEAR TINTOLA AT NH-125(09)	
CONSULTANT:		टीएसवीसी इंडिया लिमिटेड (DETAIL - B) PROPOSED TREATMENT MEASURES CH 4.80KM TO CH 5.250KM NEAR TINTOLA (LAND SLIDE-01) AT NH-125(09)	
DESIGNED BY	CHECKED BY	SUBMITTED BY	APPROVED BY
AMRIT KANSAL (JDM/MS)	AMRIT KANSAL (JDM/MS)	AMRIT KANSAL (JDM/MS)	AMRIT KANSAL (JDM/MS)
DATE: JAN - 2020	DATE: JAN - 2020	DATE: JAN - 2020	DATE: JAN - 2020

NOTES:-

1. THE GENERAL SPECIFICATIONS OF THE SYSTEM SHALL BE AS BELOW, HOWEVER, MENTIONED BELOW ARE THE MINIMUM VALUES.
2. THE HIGH-TENSILE ROLLED CABLE NETS SHOULD INCLUDE THE SECONDARY MESH.
3. FOR THE INSTALLATION OF HIGH-TENSILE ROLLED CABLE NETS STANDARD SUPPORT ROPES, SEAMING ROPES AND SHACKLES SHOULD BE USED. FOR THE HORIZONTAL CONNECTION STANDARD SHACKLES OR LACES SHALL BE USED.
4. DESIGN SPECIFICATION OF SYSTEM
 - a. TENSILE STRENGTH OF HT ROLLED CABLE NET - 100 KN/M
 - b. PUNCTURING RESISTANCE OF HT ROLLED CABLE NET - 200 KN
 - c. APERTURE NOT MORE THAN 300MM IN ONE DIRECTION
 - d. DIA OF CABLE OF HT ROLLED CABLE NET - 8MM
 - e. BREAKING LOAD OF CABLE OF HT ROLLED CABLE NET - 40.7 KN
 - f. TENSILE STRENGTH OF WIRE OF THE CABLE - 1770 N/SQMM
 - g. COMPOUND FOR CORROSION PROTECTION - 95% ZN AND 5% AL CLASS B OR ZINC COATING CLASS A AS PER IS/ISO-17746-2016.
 - h. (ZONE-I)- AVERAGE LENGTH OF THE 38/19MM DIA. 40 CR SDRA - 8.0 M (7.7M GROUTED+0.3M ABOVE SLOPE SURFACE), SPACING OF ANCHORS, i.e. (a=b) - 2.5M (AVG.) (DEPEND ON THE SLOPE ANGLE/PROFILE, STRATA AT SITE)
 - i. DRILL BIT SIZE - 76MM
 - j. GRID PATTERN - STAGGERED
 - k. SIZE OF BASE PLATE - 200MM X 200MM X 10MM (MINIMUM)
 - l. GROUTING MATERIAL - CEMENT GROUT
 - m. SIZE OF DOUBLE TWISTED MESH - 60MMX80MM, COMPRISING OF MESH WIRE DIA. 2.2/3.2MM DIA GI WIRE AND CORROSION PROTECTION Zn COATING+PVC



DETAIL - C
TYPICAL DETAIL OF HT ROLLED CABLE NET & ANCHORS



DETAIL - Y

DETAIL Z - TYPICAL SECTION
OF CONTOUR DRAIN

FOR TENDER PURPOSE ONLY

SHEET 7 OF 9



सड़क परिवहन और राजमार्ग मंत्रालय
Ministry of Road Transport and Highways

PROTECTION / TREATMENT WORKS ON CHRONIC LANDSLIDE
ZONE NEAR INTOLA AT NH-125(09)

CONSULTANT:

टीएचडीसी इंडिया लिमिटेड
THDC INDIA LIMITED

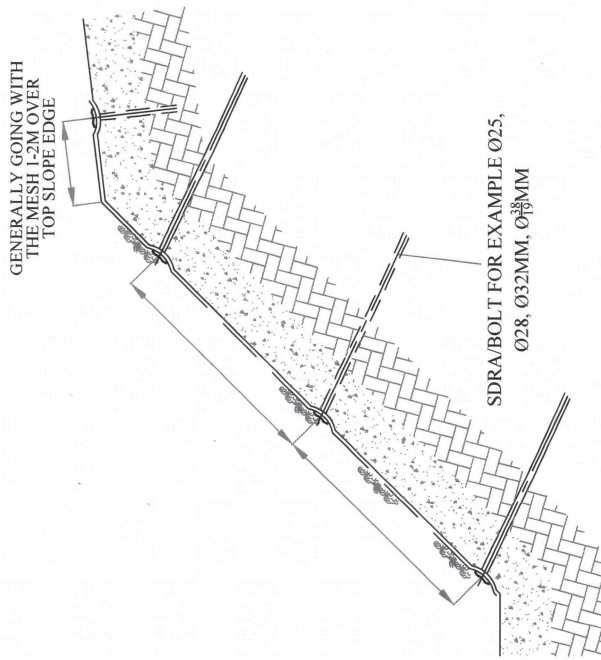
(DETAIL - C)

PROPOSED TREATMENT MEASURES

CH 4.80KM TO CH. 5.25KM NEAR INTOLA (LAND SLIDE -01) AT NH-125(09)

DESIGNED BY	CHECKED BY	SUBMITTED BY	APPROVED BY
DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)
DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)
DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)
DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)	DR. H. S. BHANDARI (JDMAN)

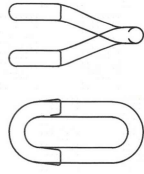
CROSS SECTION A-A



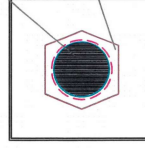
GENERAL ANCHOR ARRANGEMENT



PRESS CLAW

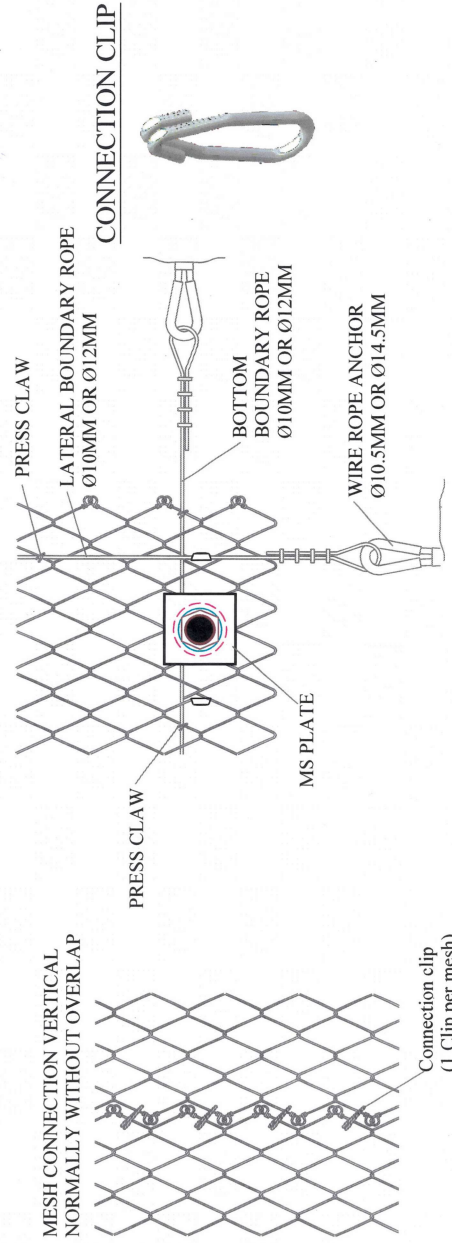


SELF DRIVEN
HOLLOW ANCHOR



NUT & WASHER
ARRANGEMENT
WITH PLATE

DETAIL D



ARRANGEMENT OF ANCHOR WITH MS PLATE AND NUT & WASHER

FOR TENDER PURPOSE ONLY

SHEET 8 OF 9



सड़क परिवहन और राजमार्ग मंत्रालय
Ministry of Road Transport and Highways

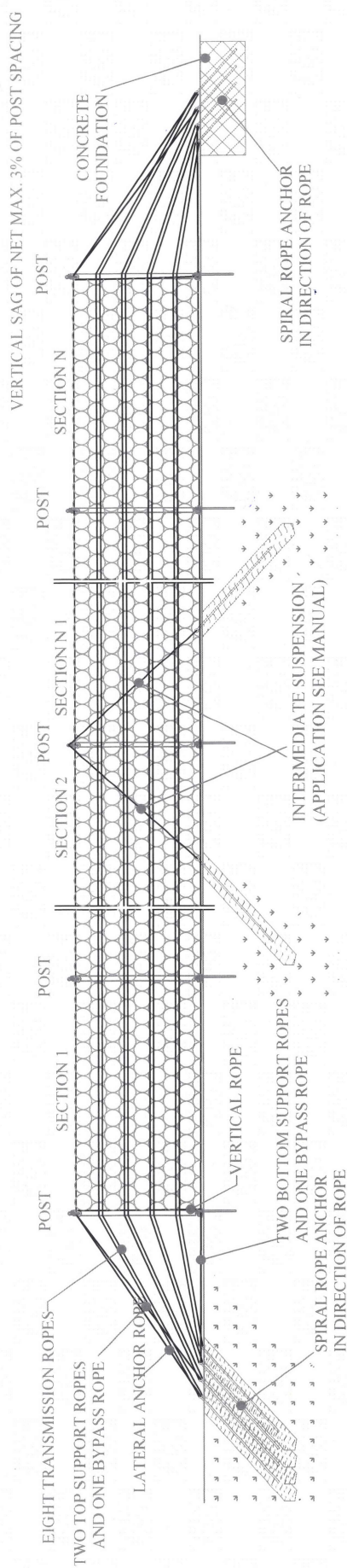
PROTECTION / TREATMENT WORKS ON CHRONIC LANDSLIDE
ZONE NEAR TINTOLA AT NH-125(09)

CONSULTANT:

टीएचडीसी इंडिया लिमिटेड
(DETAIL - D)
THDC INDIA LIMITED

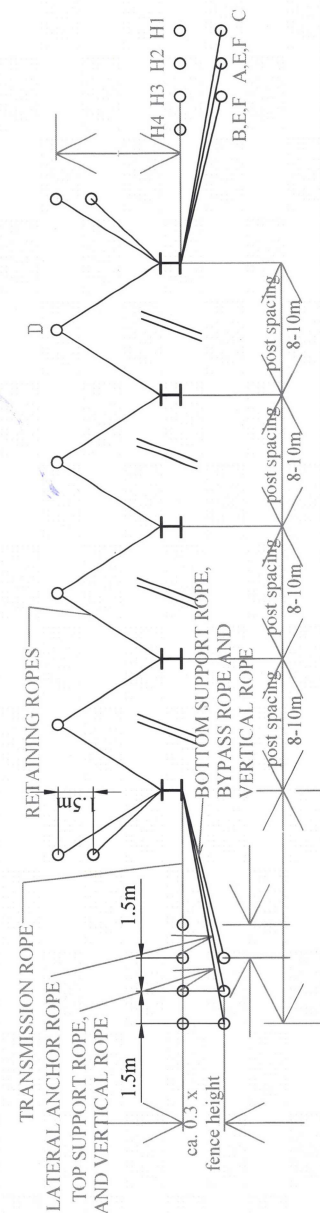
PROPOSED TREATMENT MEASURES
CH 4.890KM TO CH 5.250KM NEAR TINTOLA (LAND SLIDE -01) AT NH-125(09)

REVIEWED	DESIGNED BY	CHECKED BY	SUBMITTED BY	APPROVED BY
DRG. NO. THDC/ROK/OM/PAK/THNH-125(09)/TD-8	DR. J. K. JAIN J. K. JAIN SR. ENGINEER CIVIL (INSURANCE CIVIL)	DR. J. K. JAIN J. K. JAIN SR. ENGINEER CIVIL (INSURANCE CIVIL)	DR. J. K. JAIN J. K. JAIN SR. ENGINEER CIVIL (INSURANCE CIVIL)	DR. J. K. JAIN J. K. JAIN SR. ENGINEER CIVIL (INSURANCE CIVIL)
DATE: JAN-2020	DATE: JAN-2020	DATE: JAN-2020	DATE: JAN-2020	DATE: JAN-2020

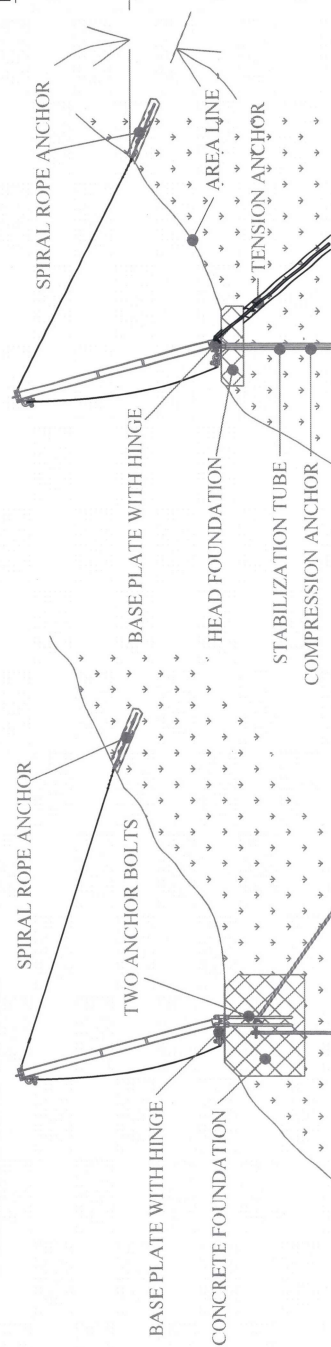


LAYOUT OF ANCHOR

POINTS (DETAILS IN PRODUCT MANUAL)



ANCHORING CONCRETE FOUNDATION FOR ALL TYPES OF SOIL



COMPRESSION ANCHOR
ROCKFALL PROTECTION
5000KJ SYSTEM
DETAIL (E)

ROCKFALL PROTECTION BARRIER
5000KJ SYSTEM
DETAIL (E)

FOR TENDER PURPOSE ONLY

SHEET 9 OF 9



सड़क परिवहन और राजमार्ग मंत्रालय
Ministry of Road Transport and Highways

PROTECTION / TREATMENT WORKS ON CHRONIC LANDSLIDE
ZONE NEAR TINTOLA AT NH-125(09)

CONSULTANT:



(DETAIL - E)

(DETAIL - E)

TREATMENT MEASURES

CH.4.890KM TO CH. 5.250KM NEAR TINTOLA (LAND SLIDE -01) AT NH-125(09)

DRAWN BY	PREPARED BY	CHECKED BY	SUBMITTED BY	APPROVED BY
 MOHIT SAKLANI (D.MAN)	 RISHI KOTHARI (STR. ENGINEER CIVIL)	 ANAM KANSAL (ENGINEER CIVIL)	 NIRAJ AGARWAL (GM)	 DATE CIVIL RISHI KOTHARI

NOTE: INSPECTION AND MAINTENANCE OF SUCH SYSTEMS ARE AN ABSOLUTE REQUIREMENT TO ENSURE THE DESIRED PROTECTION LEVEL. THE SYSTEM SAFETY CAN ALSO BE IMPAIRED BY EVENTS SUCH AS NATURAL DISASTERS, INADEQUATE DIMENSIONING PARAMETERS OR FAILURE TO USE THE PRESCRIBED STANDARD COMPONENTS, SYSTEMS AND ORIGINAL PARTS; AND/OR CORROSION.