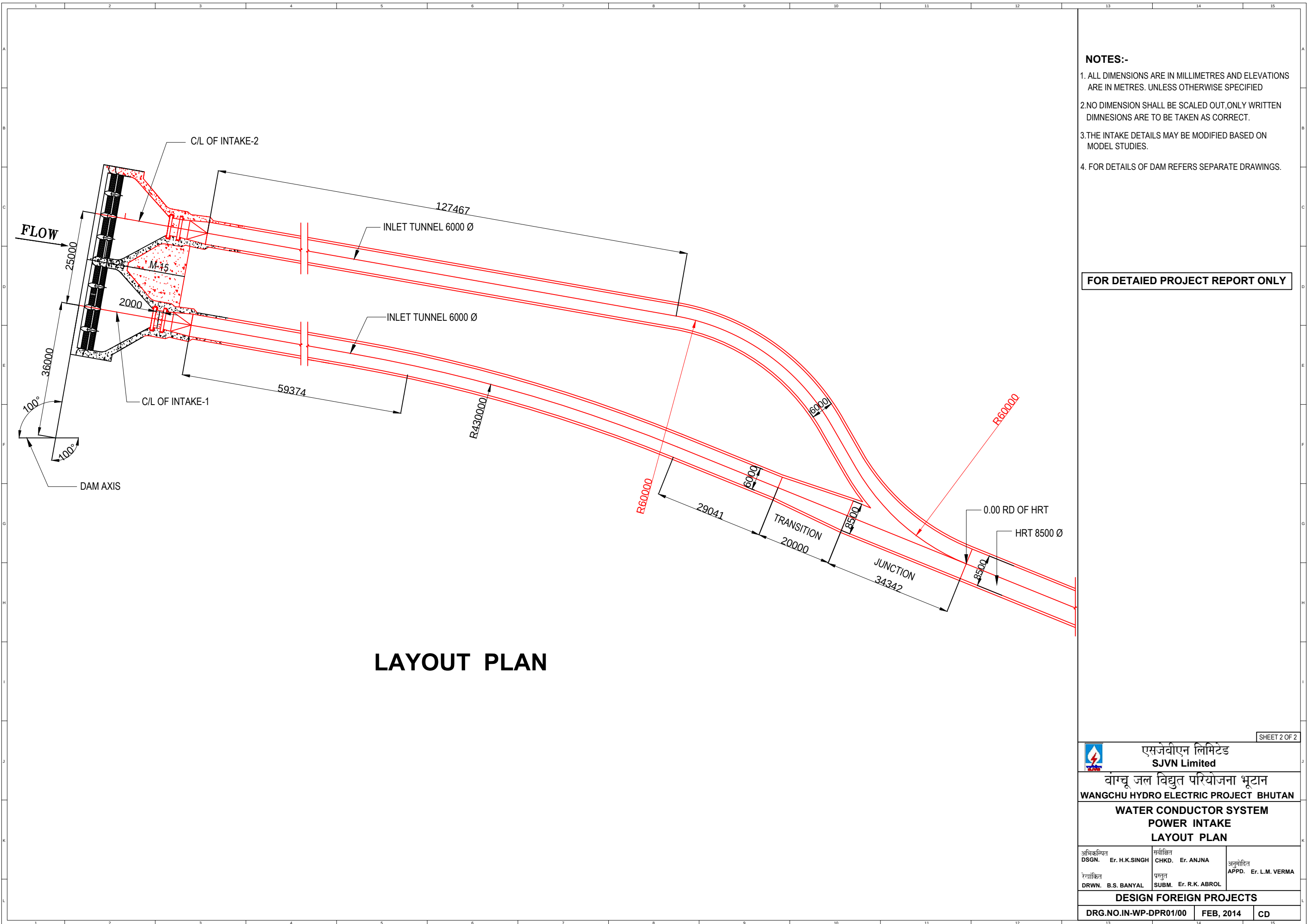
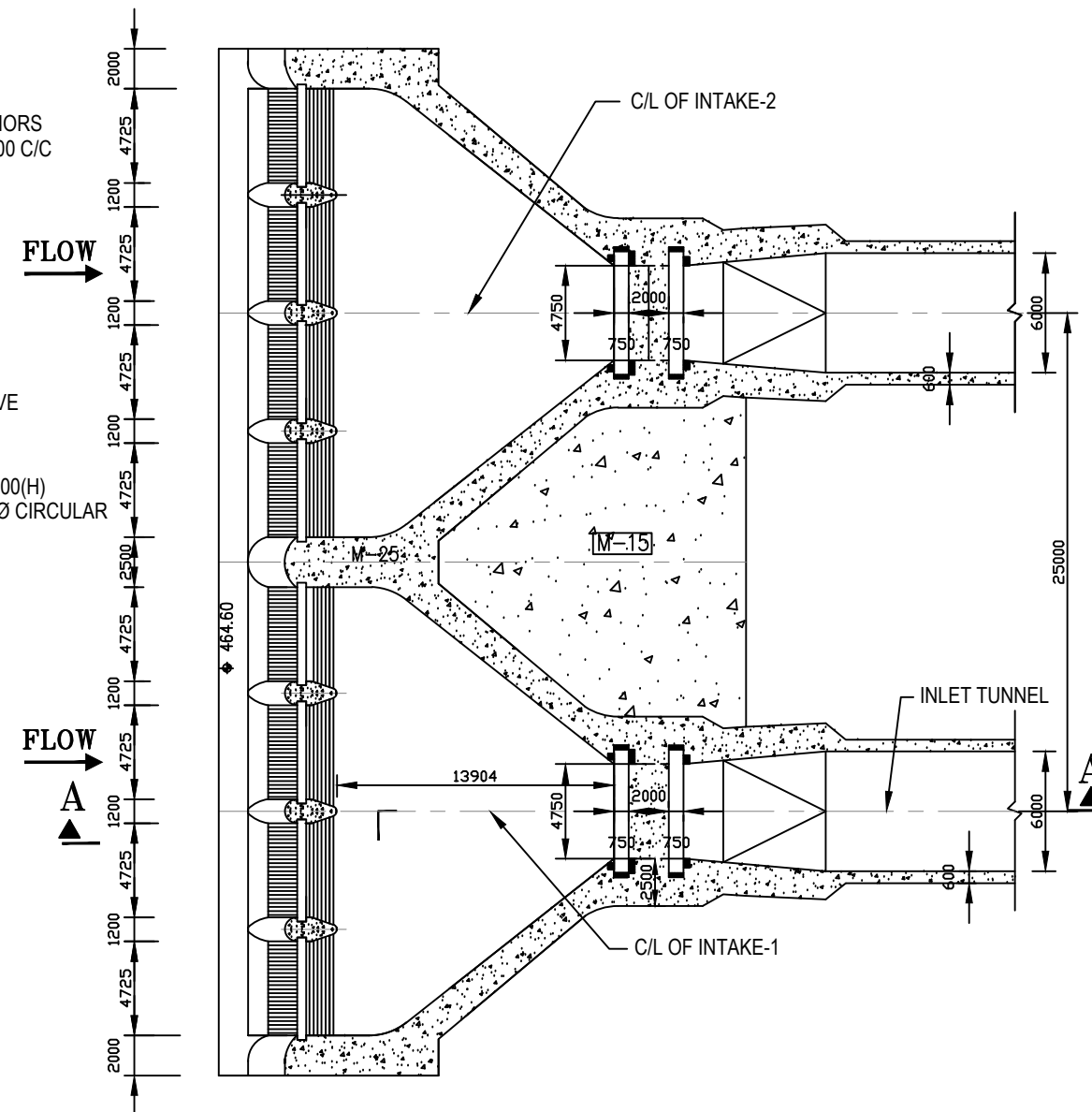
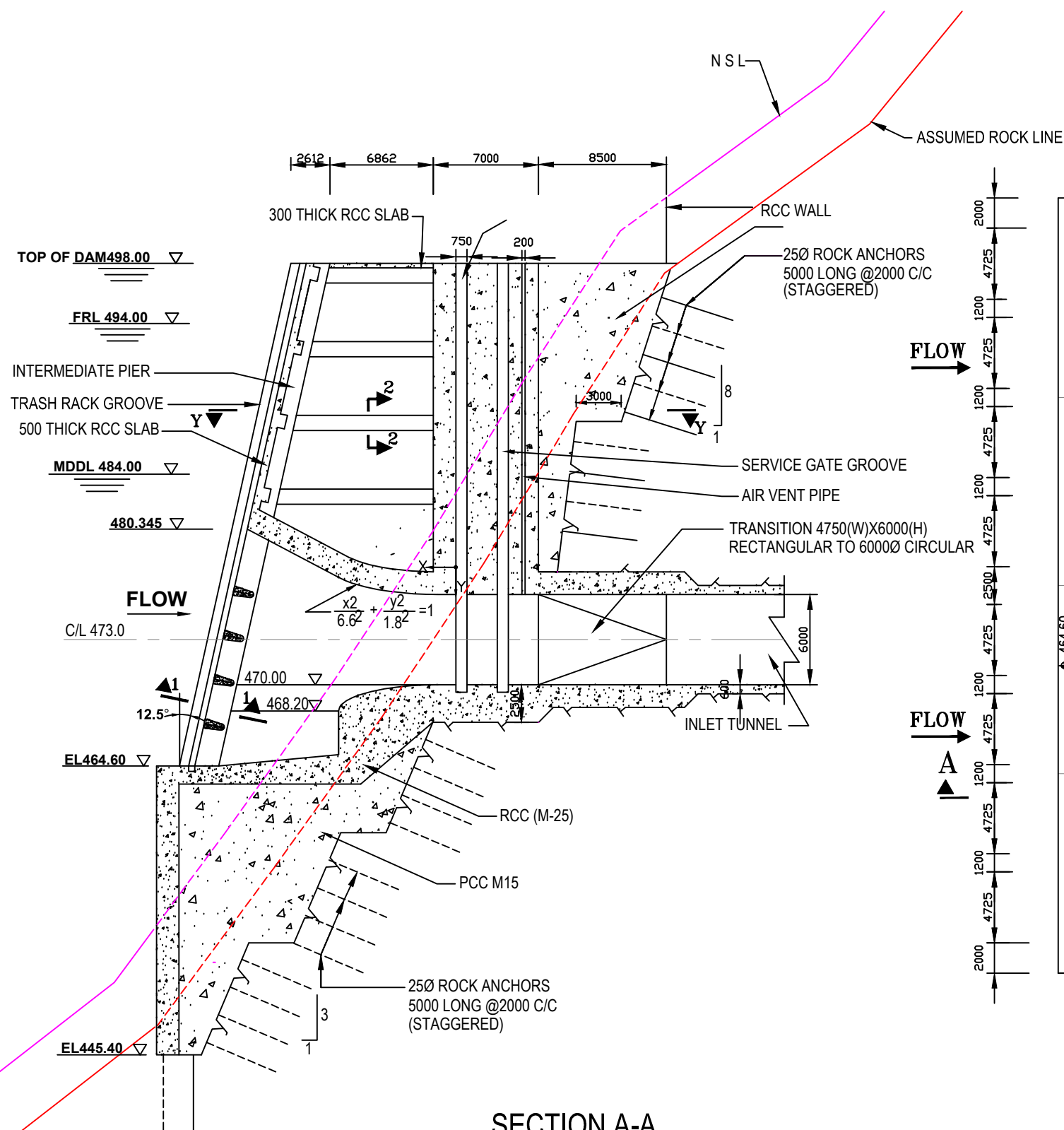






NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES & ELEVATIONS IN METRES UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED OUT ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.
3. CEMENT CONCRETE FOR DIFFERENT WORKS SHALL BE AS UNDER CONFORMING TO IS:456-2000 UNLESS OTHERWISE SPECIFIED :
 - i) PCC/BACKFILL CONCRETE M-15
 - ii) ALL RCC WORKS M-25
 - iii) PCC LINING IN TUNNEL M-20 (WHEREEVER APPLICABLE)
4. PLUM CONCRETE SHALL BE OF M-15 GRADE WITH 25% BOULDERS.
5. FOR DETAILS OF GATE GROOVES, FIRST STAGE INSERTS, 2nd STAGE CONCRETE ETC. REFER RELEVANT GATE'S DRAWINGS.
6. FOR EXCAVATION AND SUPPORT DETAILS OF INLET TUNNELS REFER SEPARATE DRAWINGS.

FOR DETAIED PROJECT REPORT ONLY

SHEET 1 OF 2



एसजेवीएन लिमिटेड
SJVN Limited

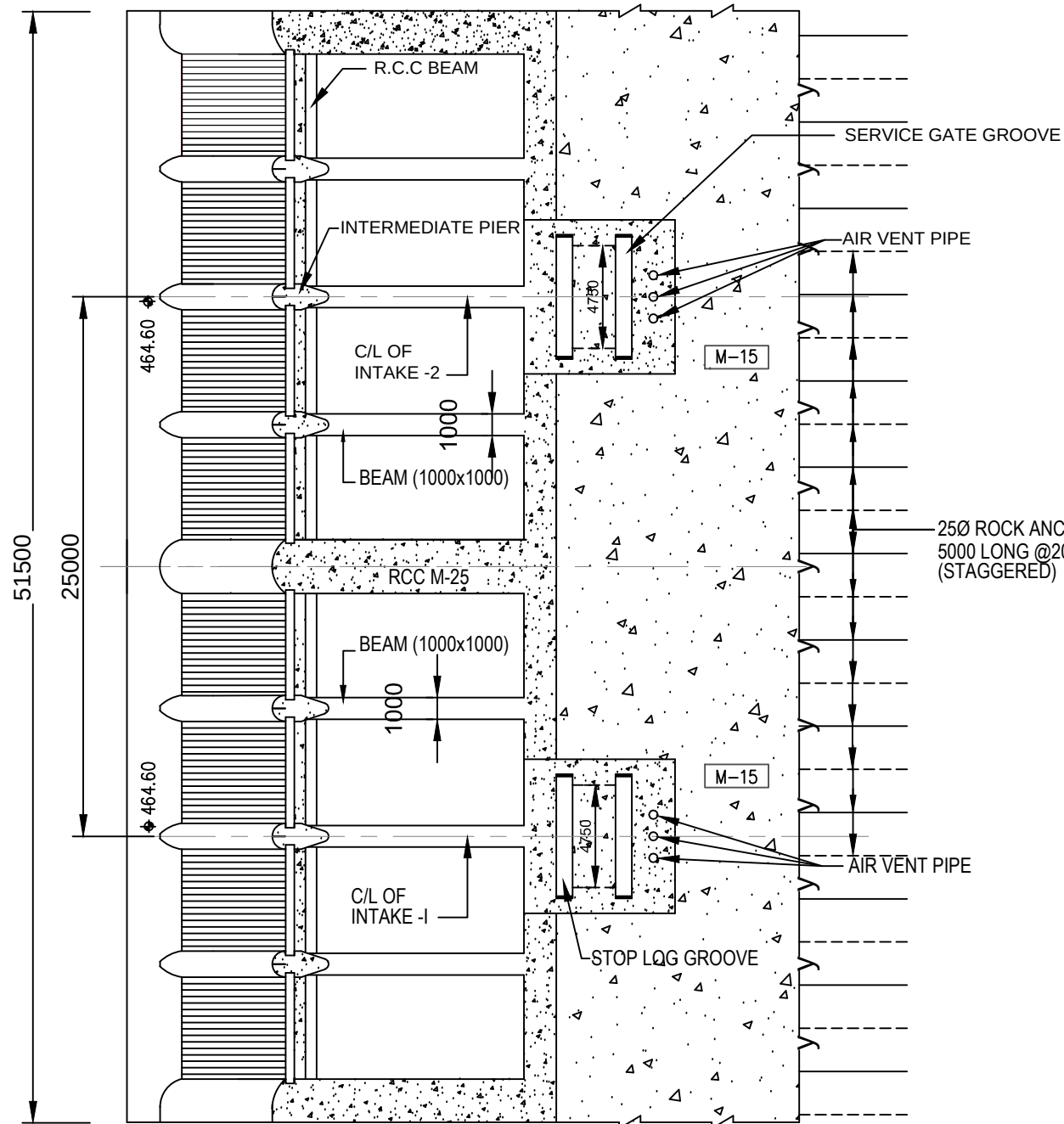
वांग्चू जल विद्युत परियोजना भूटान
WANGCHU HYDRO ELECTRIC PROJECT BHUTAN

**WATER CONDUCTOR SYSTEM
POWER INTAKE STRUCTURE
TYP. PLANS AND SECTIONS**

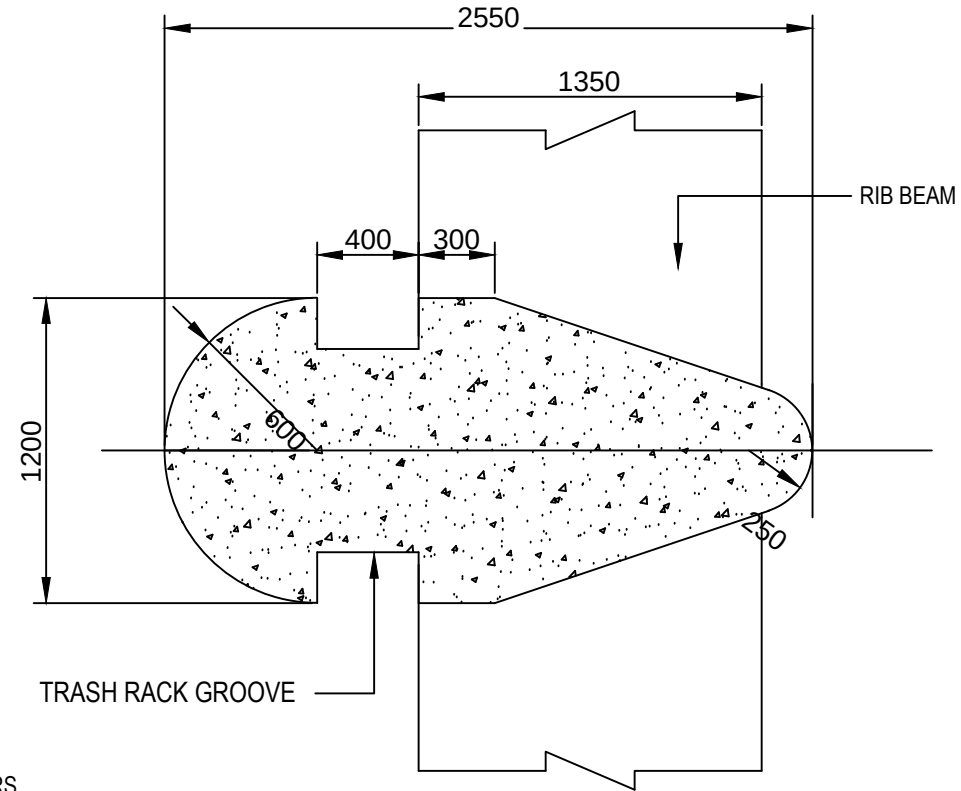
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रेखांकित DRWN. B.S. BANYAL	प्रस्तुत SUBM. Er. R.K. ABROL	

DESIGN FOREIGN PROJECTS

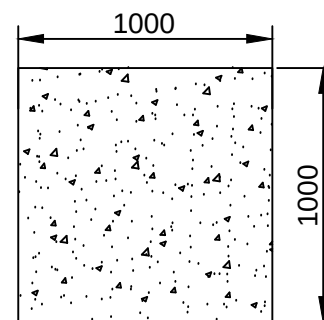
DRG.NO.IN-WPDPR02/00	FEB, 2014	CD
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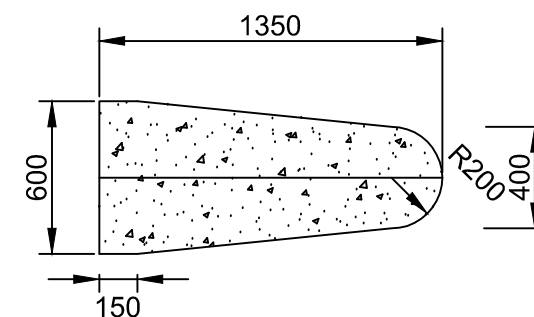
SECTION Y-Y (TYP.)



SECTION 1-1
INTERMEDIATE PIER



SECTION 2-2



DETAIL OF RIB BEAM

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES & ELEVATIONS IN METRES UNLESS OTHERWISE SPECIFIED.
2. NO DIMENSION SHALL BE SCALED OUT, ONLY WRITTEN DIMENSIONS ARE TO BE TAKEN AS CORRECT.
3. CEMENT CONCRETE FOR DIFFERENT WORKS SHALL BE AS UNDER CONFORMING TO IS:456-2000 UNLESS OTHERWISE SPECIFIED :
 - i) PCC/BACKFILL CONCRETE M-15
 - ii) ALL RCC WORKS M-25
 - iii) PCC LINING IN TUNNEL M-20 (WHEREEVER APPLICABLE)
4. PLUM CONCRETE SHALL BE OF M-15 GRADE WITH 25% BOULDERS.
5. FOR DETAILS OF GATE GROOVES, FIRST STAGE INSERTS, 2nd STAGE CONCRETE ETC. REFER RELEVANT GATE'S DRAWINGS.
6. FOR EXCAVATION AND SUPPORT DETAILS OF INLET TUNNELS REFER SEPARATE DRAWINGS.

FOR DETAIED PROJECT REPORT ONLY

SHEET 2 OF 2



एसजेवीएन लिमिटेड
SJVN Limited

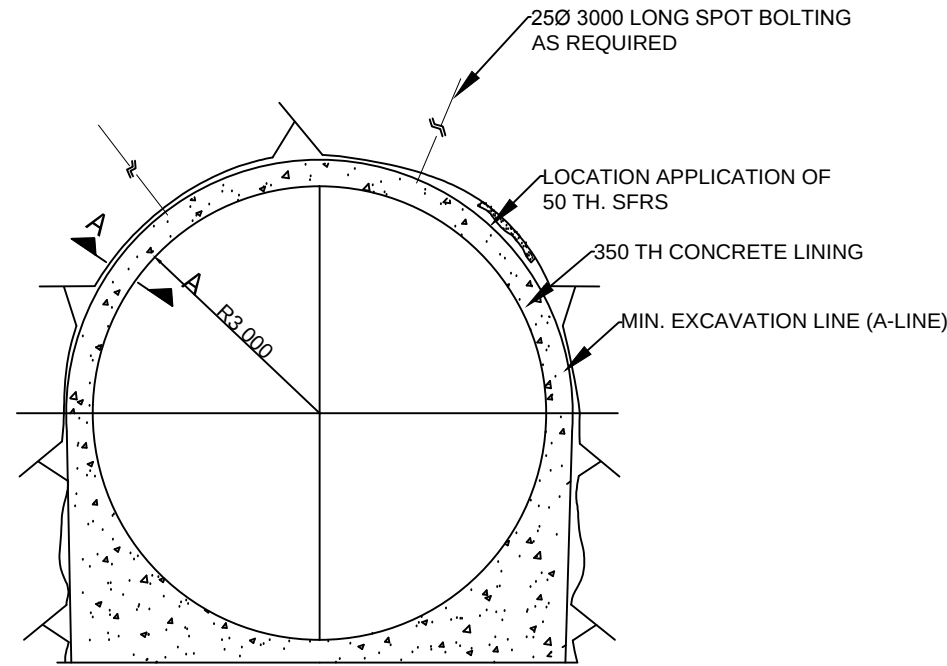
वांग्चू जल विद्युत परियोजना भूटान
WANGCHU HYDRO ELECTRIC PROJECT BHUTAN

WATER CONDUCTOR SYSTEM
POWER INTAKE STRUCTURE
PLANS AND SECTIONS

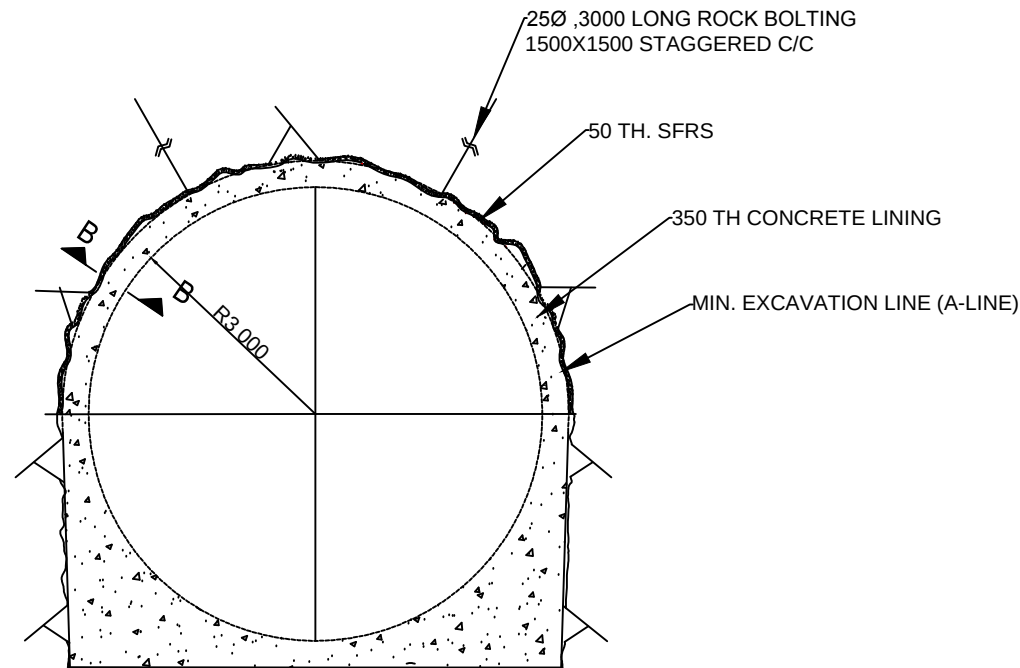
अभिर्कल्पित DSGN. Er. VINAY GULERIA	समीक्षित CHKD. Er. ANJNA	अनुमोदित APPD. Er. L.M. VERMA
रेखांकित DRWN. B.S. BANYAL	प्रस्तुत SUBM. Er. R.K. ABROL	

DESIGN FOREIGN PROJECTS

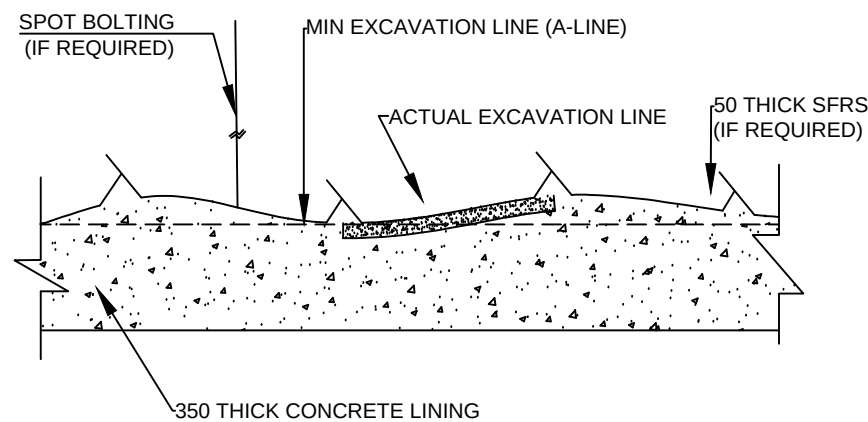
DRG.NO.IN-WPDP02/00 FEB, 2014 CD



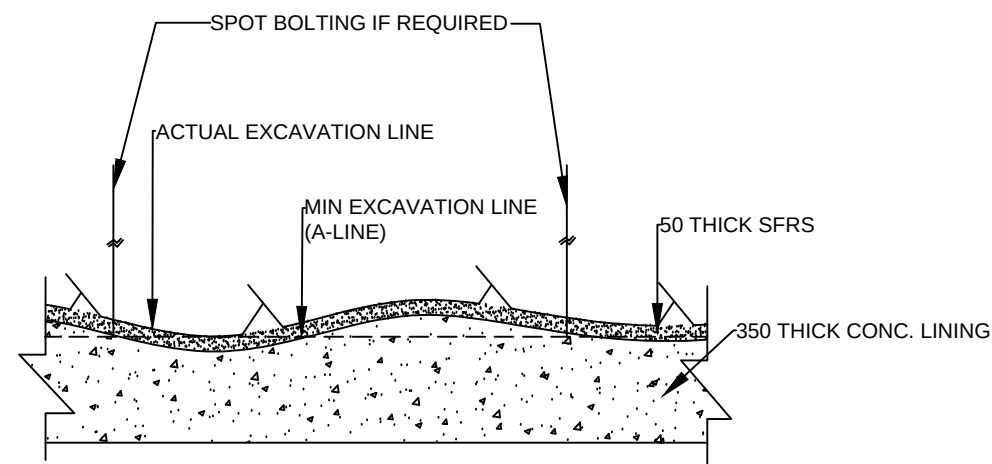
SUPPORT CLASS - I
SCALE- 1:100



SUPPORT CLASS - II
SCALE- 1:100



SECTION : A-A
SCALE (1:25)



SECTION: B-B
SCALE (1:25)

NOTES:

- ALL DIMENSIONS ARE IN MM AND ELEVATIONS ARE IN METERS. UNLESS OTHERWISE SPECIFIED
- THE DIMENSIONS SHALL NOT BE SC ALED OUT.
- ROCK BOLTS SHALL BE OF THE MECHANICALLY ANCHORED TYPE AND FABRICATED FROM REINFORCEMENT STEEL OF GRADE FE - 500 (IS:1786).
- ORIENTATION, PATTERN AND LOCATION OF ROCK BOLTS MAY BE PROVIDED AS DIRECTED BY ENGINEER-IN-CHARGE TO SUIT SITE CONDITIONS, IN CONSULTATION WITH GEOLOGIST.
- THE ROCK BOLTS SHALL BE GROUTED AS SOON AS POSSIBLE AFTER BOLT INSTALLATION.
- COMPRESSIVE STRENGTH OF SFRS SHALL BE 20 MPA AT 28 DAYS. AND ADMIXTURES TO BE USED SHALL CONFORM TO IS-9103.

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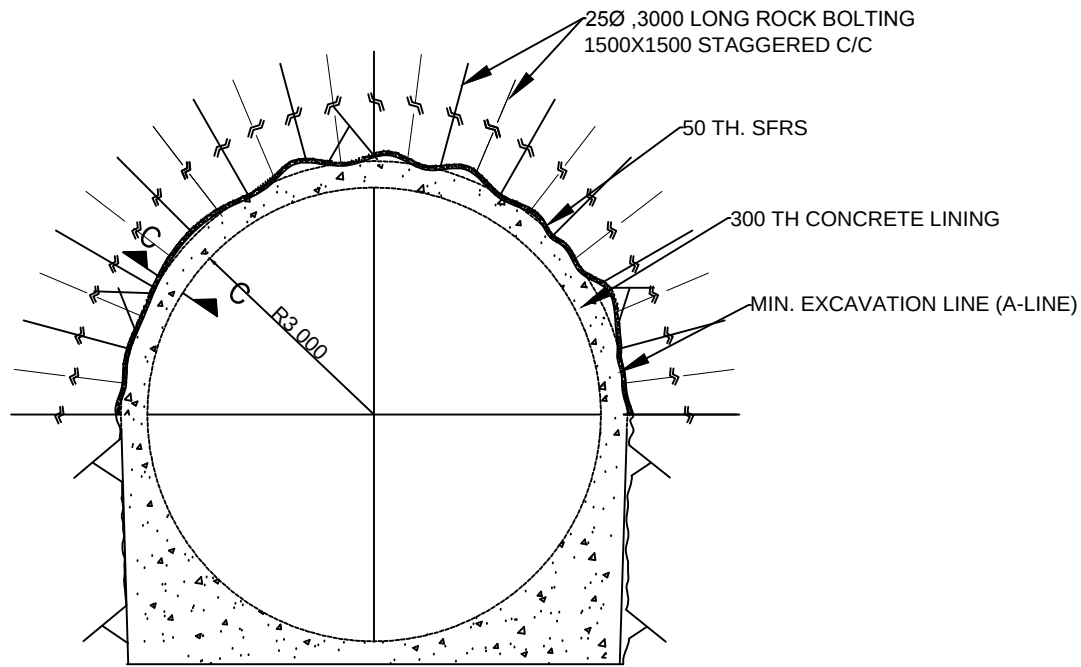
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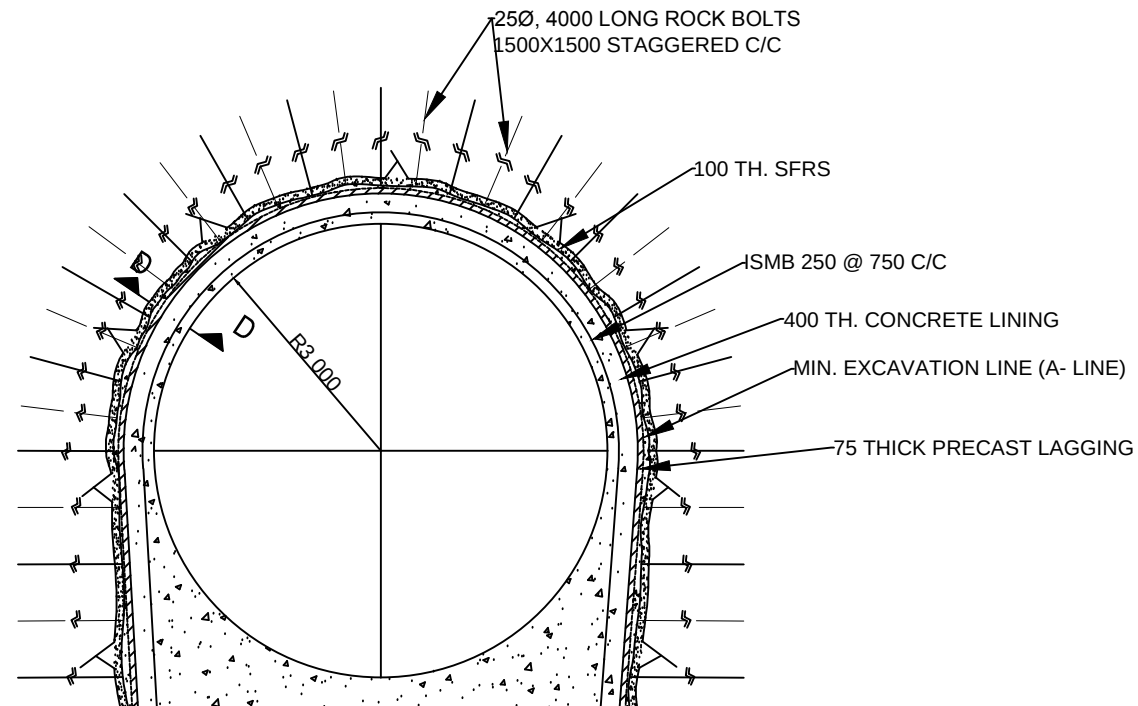
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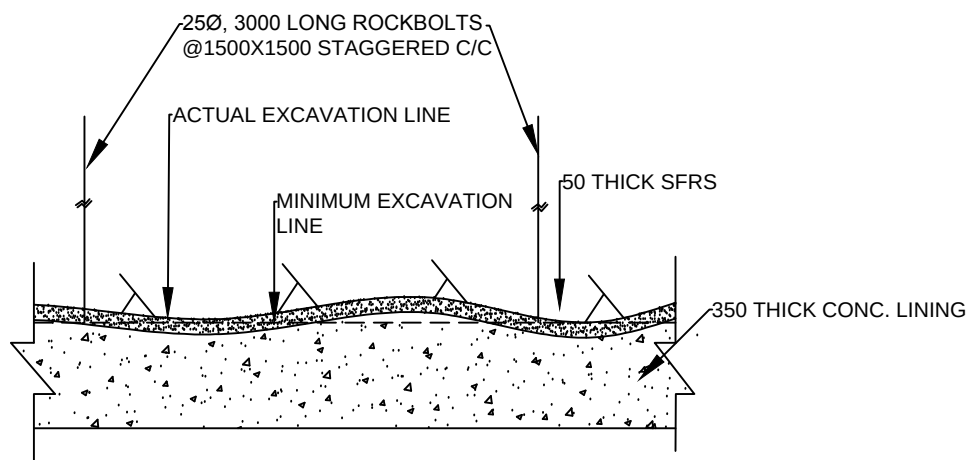
SHEET 10F3		
 एसजेवीएन लिमिटेड SJVN Limited		
वांग्चु जल विद्युत परियोजना भूटान WANGCHU HYDRO ELECTRIC PROJECT BHUTAN		
FEEDER TUNNEL- TYPICAL CROSS SECTIONS AND ROCK SUPPORT DETAILS FOR CLASS I&II		
अभिष्कल्पित DSGN. Er. PRIYANKA	समीक्षा CHKD. Er. ASHOK KUMAR	अनुमोदित APPD. Er. L.M.VERMA
रचयिता DRAWN. Er. PRIYANKA	प्रस्तुत SUBM. Er. M.S.THAKUR	
DESIGN FOREIGN PROJECTS		
DRG.NO.IN-WP-DPR03/00	FEB., 2014	CD



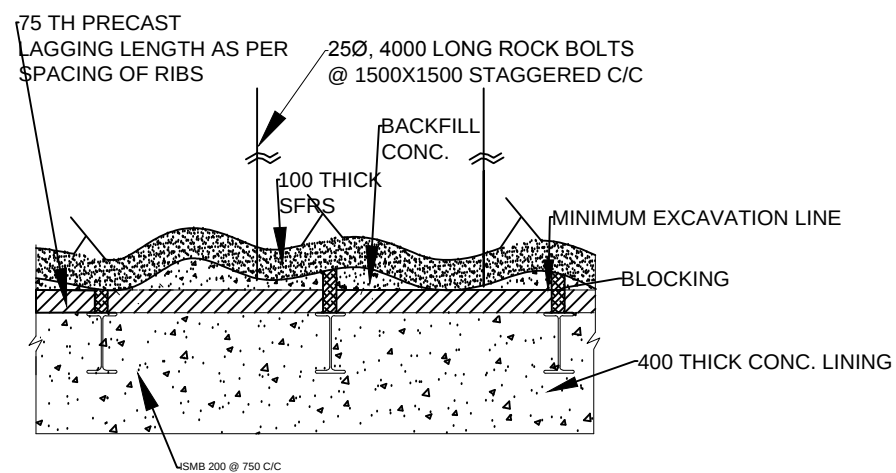
SUPPORT CLASS - III
SCALE- 1:100



SUPPORT CLASS - IV
SCALE- 1:100



SECTION C-C
(SCALE 1:25)



SECTION D-D
(SCALE 1:25)

NOTES:

- ALL DIMENSIONS ARE IN MM AND ELEVATIONS ARE IN METERS. UNLESS OTHERWISE SPECIFIED
- THE DIMENSIONS SHALL NOT BE SC ALED OUT.
- ROCK BOLTS SHALL BE OF THE MECHANICALLY ANCHORED TYPE AND FABRICATED FROM REINFORCEMENT STEEL OF GRADE FE - 500 (IS:1786).
- ORIENTATION, PATTERN AND LOCATION OF ROCK BOLTS MAY BE PROVIDED AS DIRECTED BY ENGINEER-IN-CHARGE TO SUIT SITE CONDITIONS, IN CONSULTATION WITH GEOLOGIST.
- THE ROCK BOLTS SHALL BE GROUTED AS SOON AS POSSIBLE AFTER BOLT INSTALLATION.
- COMPRESSIVE STRENGTH OF SFRS SHALL BE 20 MPA AT 28 DAYS. AND ADMIXTURES TO BE USED SHALL CONFORM TO IS-9103.

FOR DETAILED PROJECT REPORT ONLY

SCALE:

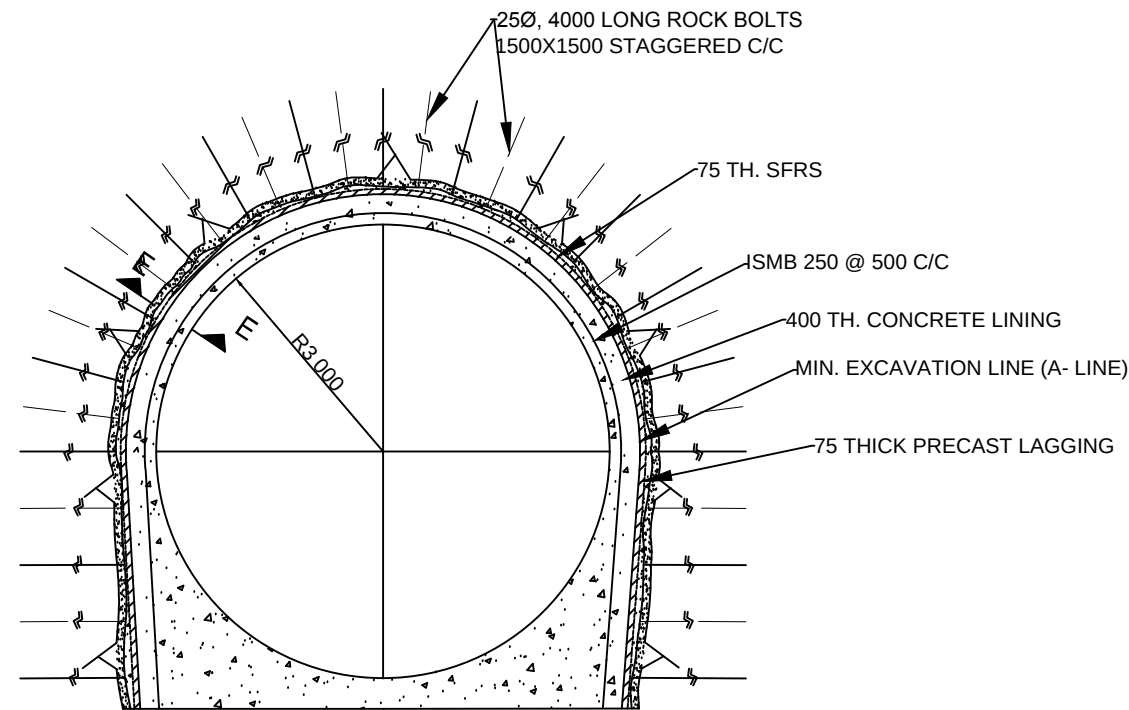


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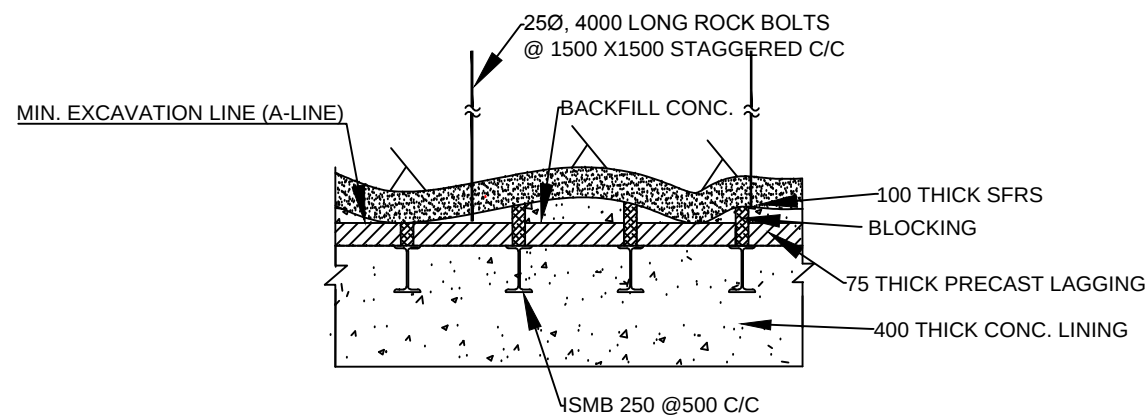
SHEET 20F3

 एसजेवीएन लिमिटेड SJVN Limited		
वांग्चू जल विद्युत परियोजना भूटान WANGCHU HYDRO ELECTRIC PROJECT BHUTAN		
FEEDER TUNNEL- TYPICAL CROSS SECTIONS AND ROCK SUPPORT DETAILS FOR CLASS III,IV		
अभिकल्पित DSGN. Er. PRIYANKA	संचालित CHKD. Er. ASHOK KUMAR	अनुमोदित APPD. Er. L.M.VERMA
तैयारकर्ता DRAWN. Er. PRIYANKA	प्रस्तुत SUBM. Er. M.S.THAKUR	
DESIGN FOREIGN PROJECTS		
DRG.NO.IN-WP-DPR03/00	FEB., 2014	CD



SUPPORT CLASS - V

SCALE- 1:100



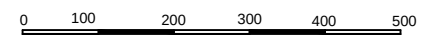
SECTION E-E
(SCALE 1:25)

NOTES:

1. ALL DIMENSIONS ARE IN MM AND ELEVATIONS ARE IN METERS. UNLESS OTHERWISE SPECIFIED
2. THE DIMENSIONS SHALL NOT BE SC ALED OUT.
3. ROCK BOLTS SHALL BE OF THE MECHANICALLY ANCHORED TYPE AND FABRICATED FROM REINFORCEMENT STEEL OF GRADE FE - 500 (IS:1786).
4. ORIENTATION, PATTERN AND LOCATION OF ROCK BOLTS MAY BE PROVIDED AS DIRECTED BY ENGINEER-IN-CHARGE TO SUIT SITE CONDITIONS, IN CONSULTATION WITH GEOLOGIST.
5. THE ROCK BOLTS SHALL BE GROUTED AS SOON AS POSSIBLE AFTER BOLT INSTALLATION.
6. COMPRESSIVE STRENGTH OF SFRS SHALL BE 20 MPA AT 28 DAYS. AND ADMIXTURES TO BE USED SHALL CONFORM TO IS-9103.

FOR DETAILED PROJECT REPORT ONLY

SCALE:

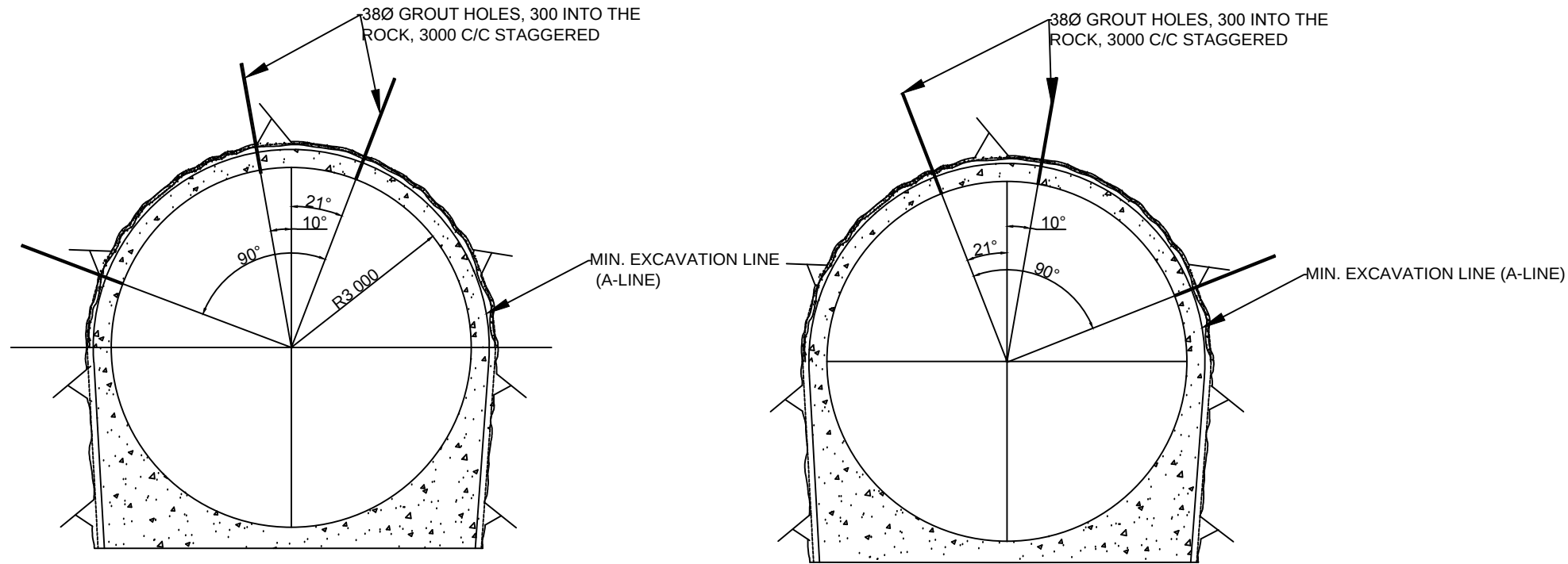


SCALE:



SHEET 30F3

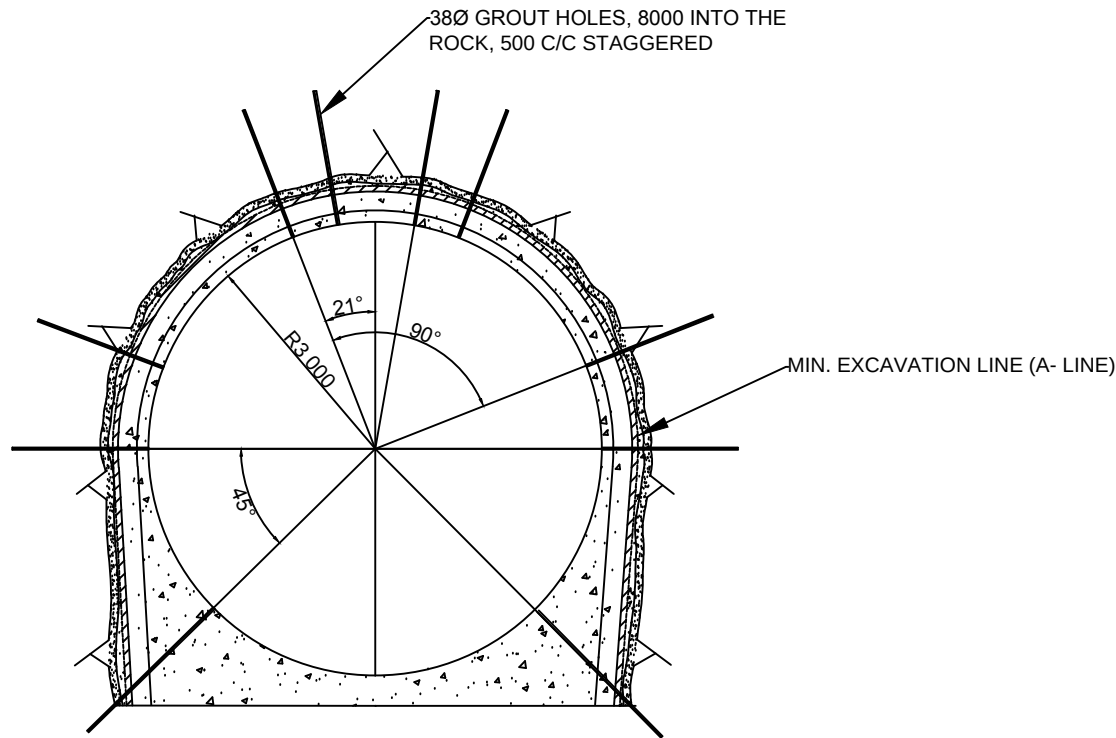
 एसजेवीएन लिमिटेड SJVN Limited		
वांग्चू जल विद्युत परियोजना भूटान WANGCHU HYDRO ELECTRIC PROJECT BHUTAN		
FEEDER TUNNEL- TYPICAL CROSS SECTIONS AND ROCK SUPPORT DETAILS FOR CLASS V		
अभिष्कारित DSGN. Er. PRIYANKA	समीक्षित CHKD. Er. ASHOK KUMAR	अनुमोदित APPD. Er. L.M.VERMA
रचयिता DRAWN. Er. PRIYANKA	प्रस्तुत SUBM. Er. M.S.THAKUR	
DESIGN FOREIGN PROJECTS		
DRG.NO.IN-WP-DPR03/00	FEB., 2014	CD



GROUT PLANE NO-I

GROUT PLANE NO-II

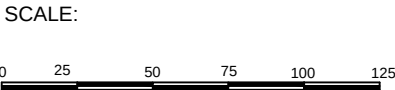
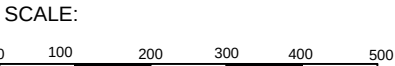
CONTACT GROUTING (TYPICAL)
(PATTERN FOR CONSECUTIVE GROUT PLANES)
SCALE (1:100)



CONSOLIDATION GROUTING (TYPICAL)

- NOTES:
- 1. ALL DIMENSIONS ARE IN MM AND ELEVATIONS ARE IN METERS. UNLESS OTHERWISE SPECIFIED
 - 2. THE DIMENSIONS SHALL NOT BE SC ALED OUT.
 - 3. ROCK BOLTS SHALL BE OF THE MECHANICALLY ANCHORED TYPE AND FABRICATED FROM REINFORCEMENT STEEL OF GRADE FE - 500 (IS:1786).
 - 4. ORIENTATION, PATTERN AND LOCATION OF ROCK BOLTS MAY BE PROVIDED AS DIRECTED BY ENGINEER-IN-CHARGE TO SUIT SITE CONDITIONS, IN CONSULTATION WITH GEOLOGIST.
 - 5. THE ROCK BOLTS SHALL BE GROUTED AS SOON AS POSSIBLE AFTER BOLT INSTALLATION.
 - 6. COMPRESSIVE STRENGTH OF SFERS SHALL BE 20 MPA AT 28 DAYS. AND ADMIXTURES TO BE USED SHALL CONFORM TO IS-9103.

FOR DETAILED PROJECT REPORT ONLY



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वांग्चू जल विद्युत परियोजना भूटान WANGCHU HYDRO ELECTRIC PROJECT BHUTAN		
FEEDER TUNNEL - GROUTING DETAILS		
अभिकल्पित DSGN. Er. PRIYANKA	समीक्षित CHKD. Er. ASHOK KUMAR	अनुमोदित APPD. Er. L.M.VERMA
रेखांकित DRAWN. Er. PRIYANKA	प्रस्तुत SUBM. Er. M.S.THAKUR	
DESIGN FOREIGN PROJECTS		
DRG.NO.IN-WP-DPR04/00	FEB. 2014	CD