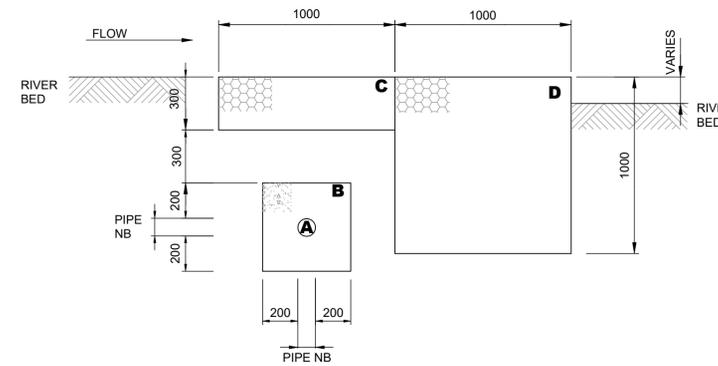
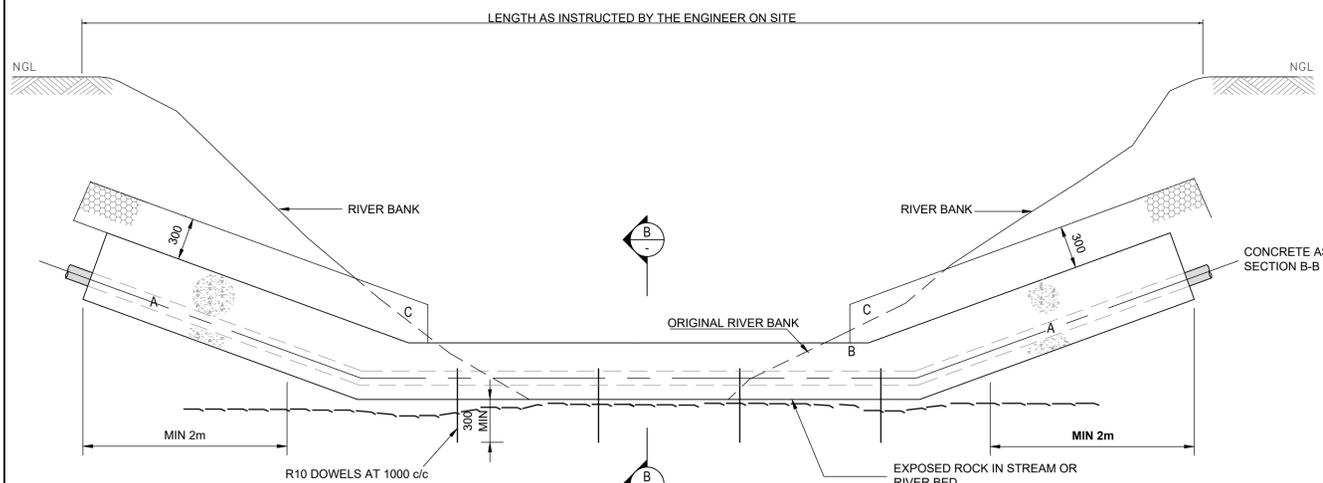


EXCAVATED RIVER CROSSING [1]
ELEVATION
SCALE 1:25

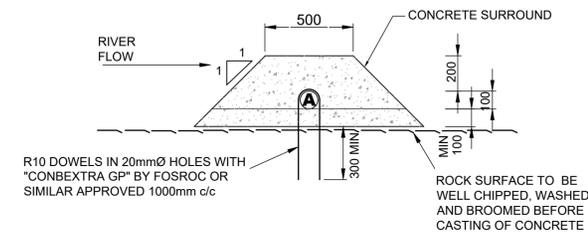


EXCAVATED RIVER CROSSING [1]
SECTION A-A
SCALE 1:20

COMPONENT LIST	
COMPONENT	DESCRIPTION
A	PIPE
B	200mm SURROUND CONCRETE ENCASEMENT
C	300mm THICK RENO MATTRESS
D	1m x 1m GABION BASKET (LENGTH AS REQUIRED)



EXPOSED ROCK CROSSING [2]
ELEVATION
SCALE 1:25



EXPOSED ROCK CROSSING [2]
SECTION B-B
SCALE 1:20

EXCAVATED RIVER CROSSING [1]				
CONDITIONS ENCOUNTERED WHERE RIVER BED EXCAVATED TO AT LEAST 2m (NO HARD ROCK)		SUGGESTED COMPONENTS TO BE USED	PIPE TYPE (A)	
1) GENTLY FALLING RIVER BED AND SLOW / LOW VELOCITY WITH: (GENERALLY TOWARDS END OF RIVER AND CLOSER TO RIVER MOUTH).	a)	MINIMAL EVIDENCE OF ONGOING EROSION IN RIVER BED AND BANKS.	(1) (A) (C)	HDPE
	b)	SOME EVIDENCE OF EROSION IN RIVER BED AND BANKS.	(1) (A) (C)	HDPE
2) MODERATELY FALLING RIVER BED AND MEDIUM RIVER VELOCITY WITH: (GENERALLY IN MIDDLE AREA OF RIVER).	a)	MINIMAL EVIDENCE OF ONGOING EROSION IN RIVER BED AND BANKS.	(1) (A) (C)	HDPE
	b)	SOME EVIDENCE OF EROSION IN RIVER BED AND BANKS.	(1) (A) (B) (C)	HDPE
	c)	SEVERE EROSION EVIDENT.	(1) (A) (B) (C)	STEEL
3) STEEP RIVER BED AND HIGH RIVER VELOCITIES WITH: (GENERALLY NEAR RIVER SOURCE).	a)	SOME EVIDENCE OF ONGOING EROSION IN RIVER BED AND BANKS.	(1) (A) (B) (C)	STEEL
	b)	SEVERE EROSION EVIDENT.	(1) (A) (B) (C) (D)	STEEL

EXPOSED ROCK CROSSING [2]				
CONDITIONS ENCOUNTERED WHERE A ROCK SHELF IS PRESENT AT THE RIVER BED OR JUST BELOW		SUGGESTED COMPONENTS TO BE USED	PIPE TYPE	
1) GENTLY FALLING RIVER BED AND SLOW / LOW VELOCITY WITH: (GENERALLY TOWARDS END OF RIVER AND CLOSER TO RIVER MOUTH).	a)	MINIMAL EVIDENCE OF ONGOING EROSION IN RIVER BED AND BANKS.	(2) (A) (C)	HDPE
	b)	SOME EVIDENCE OF EROSION IN RIVER BED AND BANKS.	(2) (A) (C)	HDPE
2) MODERATELY FALLING RIVER BED AND MEDIUM RIVER VELOCITY WITH: (GENERALLY IN MIDDLE AREA OF RIVER).	a)	MINIMAL EVIDENCE OF ONGOING EROSION IN RIVER BED AND BANKS.	(2) (A) (C)	HDPE
	b)	SOME EVIDENCE OF EROSION IN RIVER BED AND BANKS.	(2) (A) (B) (C)	HDPE
	c)	SEVERE EROSION EVIDENT.	(2) (A) (B) (C)	STEEL
3) STEEP RIVER BED AND HIGH RIVER VELOCITIES WITH: (GENERALLY NEAR RIVER SOURCE).	a)	MINIMAL EVIDENCE OF ONGOING EROSION IN RIVER BED AND BANKS.	(2) (A) (B) (C)	STEEL
	b)	SEVERE EROSION EVIDENT.	(2) (A) (B) (C)	STEEL

NOTES

- CONCRETE TO BE CLASS 20/19.
- SITE ENGINEER TO INSPECT & APPROVE ALL WORKS BEFORE CASTING OF CONCRETE.
- THIS DRAWING IS INTENDED FOR USE AS A GUIDELINE TO THE SITE ENGINEER. EACH CROSSING ENCOUNTERED IS DIFFERENT AND APPROPRIATE JUDGEMENT MUST BE USED TO ESTABLISH WHICH ASPECT OF THE DRAWING TO USE. SOME GENERAL CRITERIA ARE PRESENT TO ASSIST IN THIS SELECTION.
- WHERE HDPE PIPE IS USED, THE RIVER CROSSING MUST CONSIST OF A CONTINUOUS LENGTH OF PIPE (NO JOINTS) EXTENDING AT LEAST 20m FROM THE RIVER BANK ON EACH SIDE. (NO JOINTS IN OR NEAR THE RIVER).
- R10 DOWEL BENT TO SUIT PIPE DIAMETER ON SITE.
- DISTURBED GROUND TO BE RECOMPACTED TO AT LEAST THE SAME DENSITY AS UNDISTURBED INSITU MATERIAL. EVERY EFFORT MUST BE MADE TO MINIMIZE DISTURBANCE TO THE NATURAL RIVER.
- WHERE uPVC PIPES ARE REQUIRED TO CROSS RIVERS OR EROSION GULLIES, THE PIPE MUST BE REPLACED WITH SUITABLE GRADE AND DIAMETER HDPE OR STEEL PIPE IN ACCORDANCE WITH THE ENGINEERS' INSTRUCTION.
- NO CONSTRUCTION ACTIVITY CAN COMMENCE WITHIN 32m OF A WATERCOURSE WITHOUT THE ENGINEERS APPROVAL.

No.	DESCRIPTION	NAME	DATE
0	FOR CONSTRUCTION	TV	MAR 2021
A	FOR TENDER	TV	SEP 2020

REVISION



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APPROVED:
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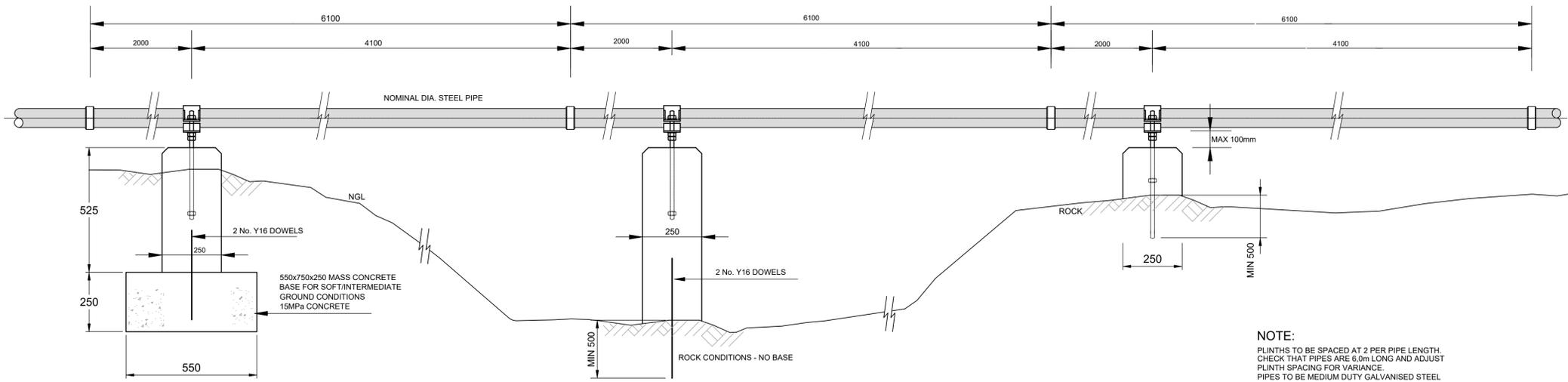
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DESIGNED: T. VAN VUUREN CHECKED: J. HARRIS
DRAWN: T. VAN VUUREN CHECKED: J. HARRIS
CONTRACT No. T2021-20
DESIGN CHECKED BY: J. HARRIS
CAPACITY: SENIOR ENGINEER
C.ENG: 577427
APPROVED ON BEHALF OF JG AFRIKA:
CAPACITY: TECHNICAL DIRECTOR
DATE: MARCH 2021

ISO 9001
QUALITY MANAGEMENT SYSTEM
DEKRA CERTIFIED

PROJECT: GUNJANA CWSS ZONE 5B
TITLE: RIVER AND EROSION GULLY CROSSINGS
DESCRIPTION: TYPICAL DETAILS

FOR CONSTRUCTION DRAWING No. 5200-5B-906

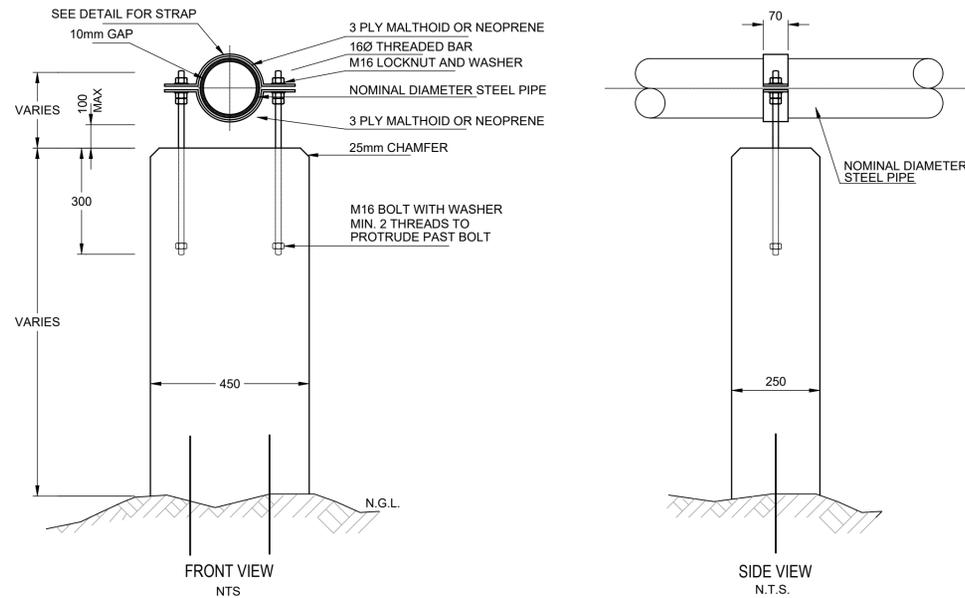
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DETAIL WHERE ROCK LEVEL IS GREATER THAN 1000mm BELOW NGL

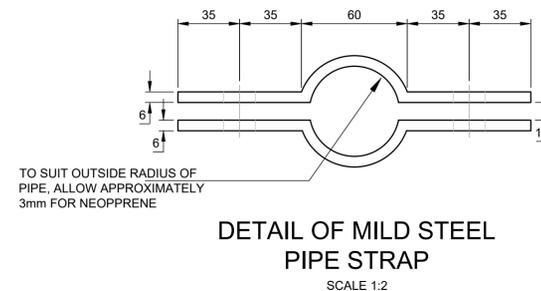
TYPICAL VIEW ON PIPELINE N.T.S.

NOTE:
PLINTHS TO BE SPACED AT 2 PER PIPE LENGTH. CHECK THAT PIPES ARE 8.0m LONG AND ADJUST PLINTH SPACING FOR VARIANCE. PIPES TO BE MEDIUM DUTY GALVANISED STEEL

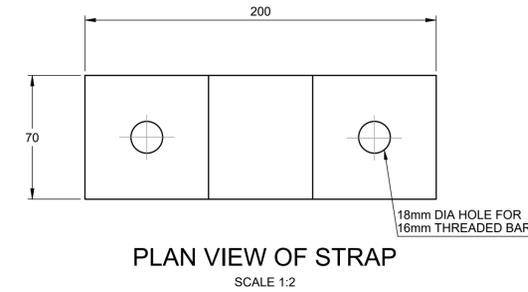


FRONT VIEW N.T.S.

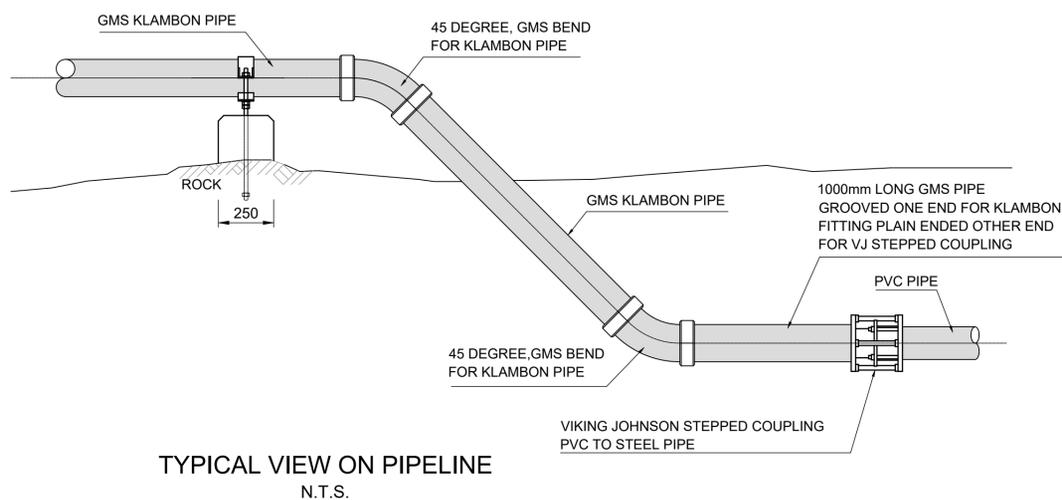
SIDE VIEW N.T.S.



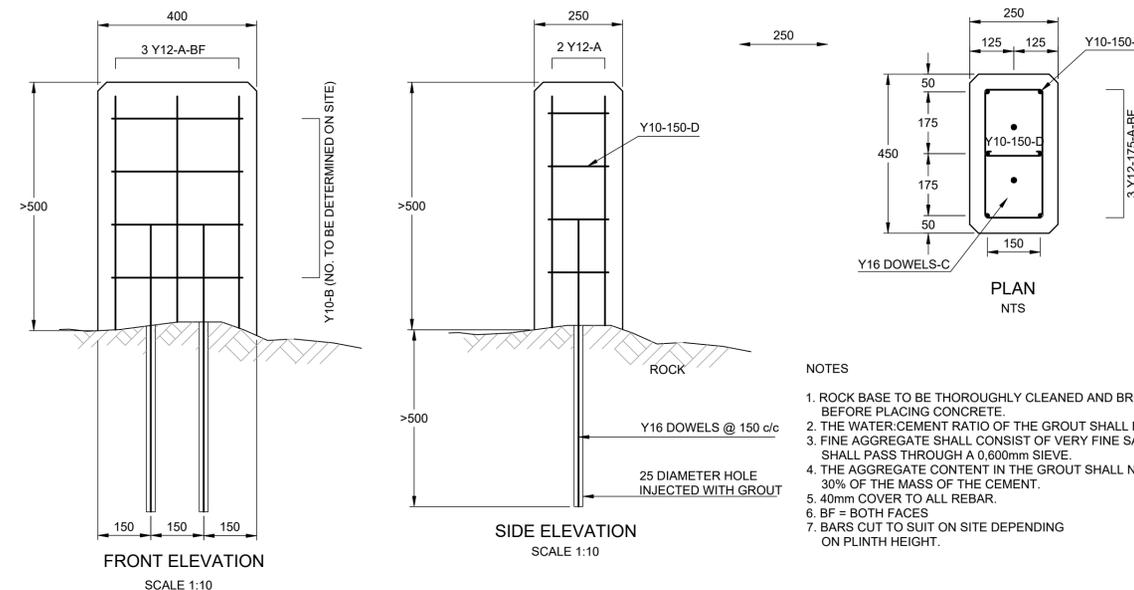
DETAIL OF MILD STEEL PIPE STRAP SCALE 1:2



PLAN VIEW OF STRAP SCALE 1:2



TYPICAL VIEW ON PIPELINE N.T.S.



DETAIL OF REBAR FOR PLINTH HEIGHT > 500mm

- NOTES
- ROCK BASE TO BE THOROUGHLY CLEANED AND BROOMED BEFORE PLACING CONCRETE.
 - THE WATER:CEMENT RATIO OF THE GROUT SHALL BE 0.4.
 - FINE AGGREGATE SHALL CONSIST OF VERY FINE SAND AND SHALL PASS THROUGH A 0.600mm SIEVE.
 - THE AGGREGATE CONTENT IN THE GROUT SHALL NOT EXCEED 30% OF THE MASS OF THE CEMENT.
 - 40mm COVER TO ALL REBAR.
 - BF = BOTH FACES
 - BARS CUT TO SUIT ON SITE DEPENDING ON PLINTH HEIGHT.

NOTES

- ALL DIMENSIONS IN MILLIMETRES.
- CONCRETE CLASS 25/19
- 40mm COVER TO ALL REINFORCED PIPE SUPPORTS AND BOLTS TO BE GALVANISED TO ISO 1461-2000
- ALL EDGES TO BE 25mm CHAMFER
- BOLTS TO BE PROTECTED USING DENSO BITUMEN
- ALL WELDS TO BE 6mm CONTINUOUS FILLET TO SABS 044
- PIPE STRAP AND SUPPORT TO BE 6mm GALVANISED PRESSED MILD STEEL.
- THREADS OF BOLT TO BE LUBRICATED BEFORE NUT IS TIGHTENED.
- PLINTHS ARE TO BE FOUNDED ON HARD UNWEATHERED ROCK, APPROVED ON SITE BY THE ENGINEER AND DOWELLED INTO THE ROCK AND GROUTED WITH LOCKSET S40 (FOSROC) OR SIMILAR APPROVED ALTERNATIVELY TO BE CONSTRUCTED ON MASS CONCRETE AS DETAILED
- EACH PLINTH TO HAVE 2 x Y16 DOWELS
- HOLES FOR DOWELS TO BE 25mm
- ALL NUTS TO BE SPOT WELDED IN TWO PLACES TO PREVENT REMOVAL AND THEREAFTER COLD GALVANISED.

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ISO 9001
QUALITY MANAGEMENT SYSTEM
DEKRA CERTIFIED

PROJECT: GUNJANA CWSS ZONE 5B

TITLE: SINGLE PIPE PLINTH STRAP

DESCRIPTION: TYPICAL DETAILS

FOR CONSTRUCTION DRAWING No. 5200-5B-913

W:\Water\5200 - Gunjana WSS Phase 2 (SM)\08 - Drawings\Construction\Working\Zone 5B\DWG\5200-5B-913 Rev 0.dwg