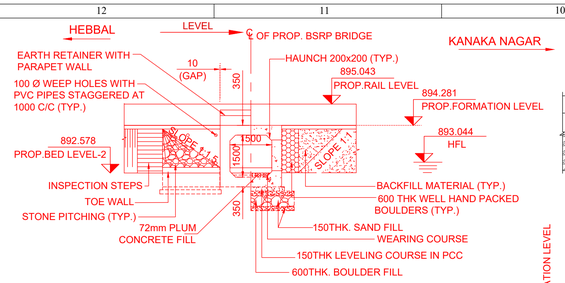
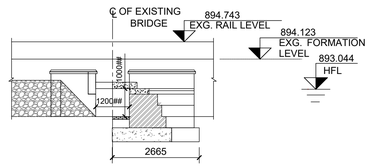




EXISTING BRIDGE ELEVATION

DEPTH OF CONSTRUCTION FOR 1 x 1.5 x 1.5 m RCC BOX		
RAIL 60 kg	:	172 mm
GR PAD	:	10 mm
PSC SLEEPER	:	230 mm
BALLAST CUSHION	:	350 mm
EARTH CUSHION	:	0 mm
TOP SLAB	:	350 mm
TOTAL	=	1112 mm

WATERWAY PARTICULARS		
CATCHMENT AREA	:	0.180 SQKM.
LATITUDE	:	13° 2' 29.632" N
LONGITUDE	:	77° 35' 24.736" E
TOPOSHEET NO	:	D43 R-12
Q50 DISCHARGE	:	4.22 CUM/SEC
VELOCITY	:	2 M/S
DEPTH OF FLOW	:	0.466 M
OHFL	:	893.044 M
Q50HFL (DESIGN HFL)	:	893.044 M

	REQUIRED	PROVIDED
WATERWAY AREA, Sqm	0.699	2.025
FREE BOARD, m	1.0	1.237
VERTICAL CLEARANCE, m	0.0	0.959
SCOUR DEPTH		
From Qf HFL, m	2.726	
Scour Level	891.690	
From B.L, m	0.888	1.2

EXISTING WATERWAY PARTICULARS		
WATERWAY AREA, Sqm	-	1.2
FREE BOARD, m	-	1.079
VERTICAL CLEARANCE, m	-	0.609

BRIDGE DETAILS		
DESCRIPTION	EXISTING IR BRIDGE : 567	PROPOSED BSRP BRIDGE : 567
CHAINAGE AT CENTER OF BRIDGE (m)	216/733.384	11+082.007
RAIL LEVEL AT CENTER OF BRIDGE (m)	894.743	895.043
FORMATION LEVEL AT CENTRE OF BRIDGE (m)	894.123	894.281
DIMENSIONS (Nos x SPAN(m) x HEIGHT(m))	1 x 1.2 x 1.0 ##	1 x 1.5 x 1.5
STRUCTURE CONFIGURATION	RCC SLAB	RCC BOX

TRACK DETAILS (EXG.BRIDGE)		
LOADING	:	MBG-1987
ALIGNMENT	:	STRAIGHT
GRADE	:	FALL I IN 93
RAIL LEVEL	:	894.743 m
FORMATION LEVEL	:	894.123 m

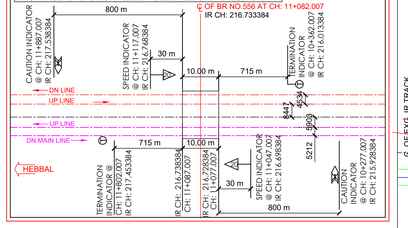
GRADE OF CONCRETE		
	GRADE	
i.	RCC BOX	M30
ii.	WEARING COURSE	M25
iii.	LEVELLING COURSE (PCC)	M20
iv.	RETAINING/RETURN WALL	M35
v.	DROP/CURTAIN WALL	M25

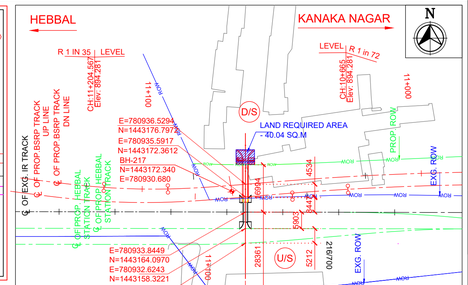
TRACK DETAILS (PRO.BRIDGE)		
LOADING	:	25 T-AXLE LOAD 2008-STD
ALIGNMENT	:	CURVE
GRADE	:	LEVEL
RAIL LEVEL	:	895.043 m
FORMATION LEVEL	:	894.281 m

ABBREVIATIONS :

℄	-	CENTER LINE
TYP	-	TYPICAL
THK.	-	THICKNESS
U/S	-	UP STREAM SIDE
D/S	-	DOWN STREAM SIDE
DN	-	DOWN
BR	-	BRIDGE
FRL	-	FORMATION LEVEL
PROP.	-	PROPOSED
EXG.	-	EXISTING

KEY PLAN SHOWING THE PRO.TY. ENGINEERING INDICATORS
(NOT TO SCALE)





MINOR BRIDGE NO.567 AT BSRP CH: 11+082.007 OF 1 X 1.50 X 1.50m (CLEAR HEIGHT - 1.35) RCC BOX (CAST-IN-SITU) ON DOWNSTREAM SIDE OF
THE EXG. BRIDGE OF 1 x 1.20 x 1.0m RCC SLAB AT IR KM 216/733.384 BETWEEN KANAKA NAGAR AND HEBBAL STATIONS

IR TRACK	
SKEW	-
GRADIENT	LEVEL
CURVE	-

BSRP TRACK	
SKEW	4.694°
GRADIENT	LEVEL
CURVE	R-755m

KEY PLAN
(NOT TO SCALE)

LEGENDS:

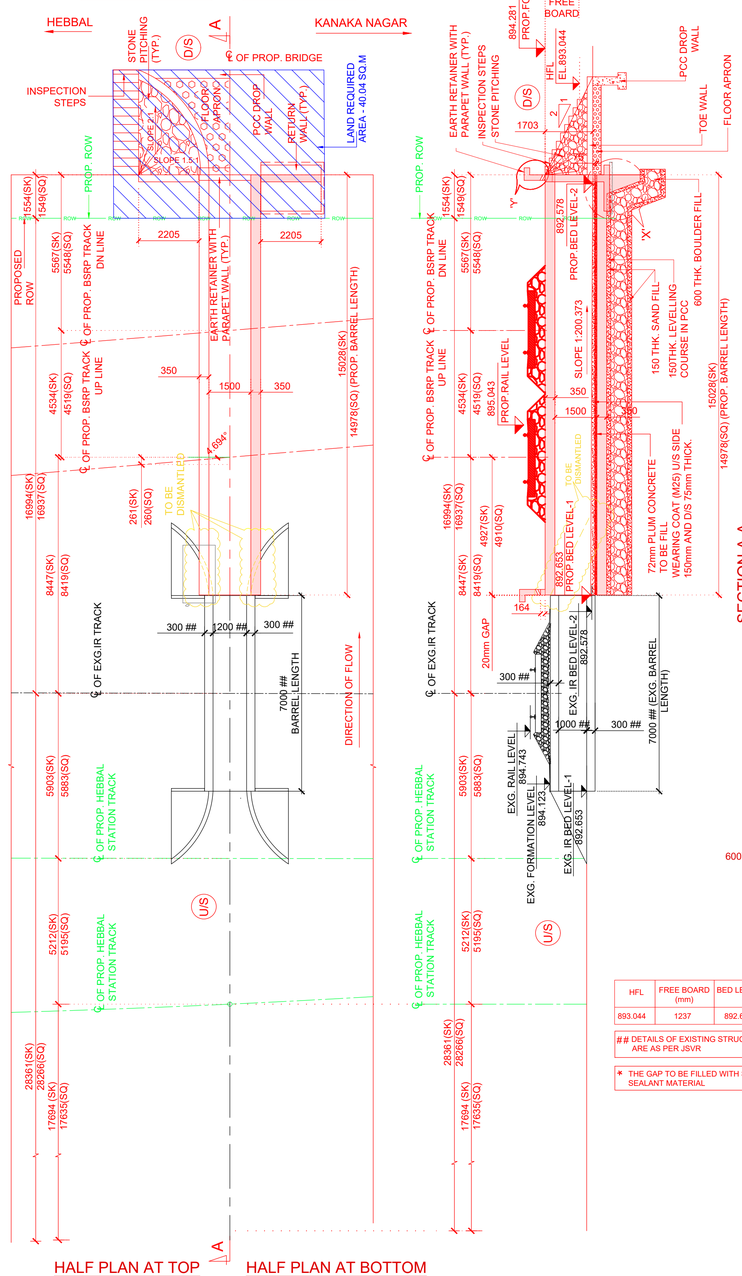
= COLOUR CODE BLACK = EXISTING WORKS

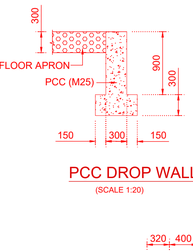
= COLOUR CODE RED = PROPOSED RLY WORKS

= COLOUR CODE YELLOW = TO BE DISMANTLED

KEY PLAN NOTE:-
1. PROPOSALS ARE SHOWN IN RED.
2. RAILWAY BOUNDARY DISTANCE ARE WITH RESPECT TO CENTRE LINE OF EXG.TRACK.
3. TRACK IS CURVE ON BRIDGE LOCATION.

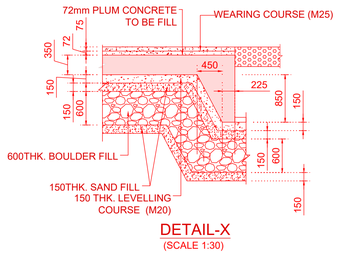
HALF ELEVATION HALF SECTION





PCC DROP WALL DETAILS
(SCALE 1:20)

DETAIL-Y
(SCALE 1:25)



DETAIL-X
(SCALE 1:30)

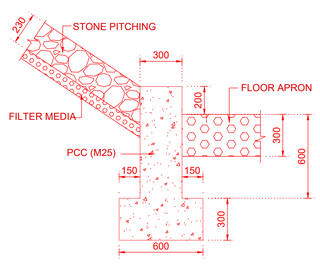
HFL	FREE BOARD (mm)	BED LEVEL-1	BED LEVEL-2
893.044	1237	892.653	892.578

DETAILS OF EXISTING STRUCTURE SHOWN ARE AS PER JSVR

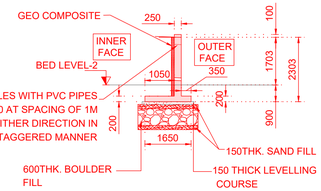
* THE GAP TO BE FILLED WITH SUITABLE SEALANT MATERIAL

STRATA DESCRIPTION	DEPTH IN METERS	REMARKS: BLOW COUNTS (N-VALUE)	REMARKS: SBC (KN/SQM)
GROUND LEVEL 893.281	0.00		
BED LEVEL 892.653/892.578	0.50		
PROPOSED BOX FOUNDATION LEVEL 892.081	1.00		146.98 (BOX)
STIFF TO VERY SIFF CLAY OF MEDIUM PLASTICITY (CI)	1.50	N=11 (5/5/6)	82.58 (RW)
RETURN WALL FOUNDATION LEVEL 891.678	2.00		
	2.50	N=19 (6/7/12)	
MEDIUM DENSE CLAYEY SAND(SC)	3.00		
	3.50		
	4.00	N=24 (6/9/15)	
VERY STIFF CLAY OF LOW PLASTICITY(CL)	4.50		
	5.00	N=26 (8/10/16)	
MEDIUM DENSE CLAYEY SAND(SC)	5.50		
	6.00		
	6.50	N=28 (9/11/17)	
VERY STIFF CLAY OF LOW PLASTICITY(CL)	7.00		
	7.50		
MEDIUM DENSE CLAYEY SAND(SC)	8.00		
	8.50	N=27 (8/12/15)	
END OF BOREHOLE AT 9.00m	9.00		

BOREHOLE ID:567(BH-217)



TOE WALL DETAILS
SCALE 1:20



RCC RETURN WALL DETAILS - (D/S)

BASE PRESSURE AT FOUNDATION LEVEL

STRUCTURE	MAX.	MIN
RCC BOX (KN/M²)	200	--
RETURN WALL (D/S) (KN/M²)	81.423	--

LEGENDS:

Total Barrel length of MIB 567 = 15.028m.
Completed Barrel length = 0m(BSRP SIde).
Remaining Barrel length 15.028m is yet to be Constructed.

GOOD FOR CONSTRUCTION

SPECIFICATION:

1. ALL WORKS ARE TO BE CARRIED OUT AS PER THE FOLLOWING.
   a. INDIAN RAILWAY UNIFIED STANDARD SPECIFICATIONS FOR WORKS AND MATERIALS 2019.
   b. IRS CONCRETE BRIDGE CODE 2014(REPRINT) & RELEVANT I.S SPECIFICATIONS.
   c. IRS BRIDGE SUB - STRUCTURE CODE,2013(ii REVISED).
   d. IRS BRIDGE RULES 2014(REPRINT).
2. RETURN WALL/RETAINING WALL :- REINFORCED CEMENT CONCRETE OF GRADE M35 WITH DESIGN MIX.
3. PITCHING :- DRY STONE PITCHING 230MM THICK OVER 150MM THICK SAND MIXED WITH STONE CHIPS (AS PER PARA 205 OF INDIAN RAILWAY BRIDGE MANUAL ANNEXURE 2/3).
4. RCC BOX:- REINFORCED CEMENT CONCRETE M30 GRADE USING 20MM MAXIMUM SIZE GRADED HARD STONE AGGREGATE OF APPROVED QUALITY.
5. LEVELING COURSE :- 150 MM THICK M20 DESIGN MIX.
6. WEEP HOLES :- WEEP HOLES TO BE PROVIDED AS PARA 7.6 OF SUB STRUCTURE CODE & WEEP HOLES SHALL BE OF 100 DIA AC PIPES STAGGERED AT 1000 C/C ABOVE LOW WATER LEVEL IN BOTH WING WALL/RETAINING WALL & EARTH RETAINER OF BOX.
7. LOADING STANDARD :- 25 T - 2008 AXLE LOAD.
8. TOE WALL :- GRADE M20 WITH DESIGN MIX.
9. GRADE OF STEEL FOR RCC IS TMT-500D CONFORMING TO IS 1786-2008.
10. MASS CONCRETE TO BE OF M25 WITH 20MM GRADED STONE AGGREGATE FOR WEARING COURSE.
11. CONCRETE SHALL BE MECHANICALLY MIXED,VIBRATED & THOROUGHLY CURED.
12. BAR BENDING SHALL CONFORM TO IS 2502.
13. FLOORING :- ROUGH STONE FLOORING 300MM THICK GROUTED WITH CM:1:3.
14. DROP WALL / CURTAIN WALL :- GRADE M20 WITH DESIGN MIX.
15. WHEREVER SBC IS LESS THAN THE REQUIREMENT AS PER RDSO DRAWING,IMPROVE THE SBC OF SOIL TWO LAYERS OF 150MM SAND & BOULDER FILLING OF 600MM THICKNESS EACH TO BE LAID & COMPACTED BEFORE LEVELING COURSE FOR RCC BOX, RETURN WALL FOUNDATION & APRON FLOORING.
16. NOTES:- CC M25 GRAD USING 20MM MAX.SIZE GRADED HARD STONE AGGREGATE OD APP.QUALITY.
17. SKIN REINFORCEMENT TO BE PROVIDED FOR WING & RETAINING WALL AS PER DESIGN.
18. GROUND IMPROVED SOIL SHALL BE OF SOIL QUALITY CLASS SQ2 AND SQ3 AS PER RDSO GUIDELINES.
19. FOR RETAINING STRUCTURE,SEPERATE DRAWING WILL BE SUBMITTED.
20. TYPICAL COLLAR SHALL BE PROVIDED BETWEEN THE EXISTING AND PROPOSED STRUCTURE AS PER LETTER BEARING NO.SWR/W.70/POLICY/2022 DATED ON 08.09.2022 ISSUED BY SWR.

REFERENCE:

1. RCC BOX (CAST-IN-SITU) - DRG NO. RDSO/B-10155 & 10155/1
2. NUMERATION & RC DETAIL OF BOX :- O22077-BSRP-CR2-C-NB-0-20-1160
3. NUMERATION & RC DETAIL OF RETURN WALL - O22077-BSRP-CR2-C-NB-0-20-1161
4. WEEP HOLES AS PER PARA 7.6 OF SUB-STRUCTURE CODE
5. CURTAIN WALL AND TOE WALL AS PER DESIGN
6. BACKFILL MATERIALS BEHIND RCC BOX TO PROVIDE AS PER PARA 7.5 OF IRS BRIDGE SUBSTRUCTURE &FOUNDATION CODE.
7. SHORING ARRANGEMENTS AS PER DESIGN.
8. GIR DOCUMENT NO.
   FOR BOX :DOC-BSRP-CR2-AG-DGN-GB-20-1147
   FOR RETURN WALL : DOC-BSRP-CR2-AG-DGN-GBRW-20-1147
9. DESIGN OF TYPICAL EARTH RETAINER / PARAPET WALL (UPTO 2m HEIGHT)
   DOC-BSRP-CR2-AG-DGN-GEN-20-2000
   DWG NO.O22077-BSRP-CR2-C-GEN-20-2000

MODUS OPERANDI :

1. IMPOSE 20KM/PH SPEED RESTRICTIONS DURING EXCAVATION WORKS,IF REQUIRED AS PER SITE CONDITION.
2. DIVERT OR RESTRICT THE WATER FLOW BY PROVIDING BUND/TEMPORARY PIPES ON UPSTREAM SIDE OF THE BRIDGE.
3. PORTION OF RETURN WALL/TOE WALL ,PITCHING TO BE DISMANTLED TO ACCOMMODATE RCC BOX WITH SUITABLE SHORING CONDITION AS PER SITE CONDITION.
4. EARTH WORK EXCAVATION TO BE DONE FOR PROPOSED BARREL LENGTH WITH 350MM BASE COURSE FILL BENEATH THE BOX BOTTOM RAFT.
5. RETURNS & BRIDGE PROTECTION WORKS TO BE DONE ON IR SIDE.

NOTES:

1. ALL LEVELS ARE W.R.T TO MSL.
2. ALL DIMENSIONS ARE IN MILLIMETERS, REDUCED LEVELS ARE IN METRES AND CHAINAGE ARE IN KILOMETERS, UNLESS STATED OTHERWISE.
3. DO NOT SCALE THE DRAWING,FOLLOW FIGURED DIMENSIONS ONLY.
4. THE TYPE,DESIGN & DEPTH OF FOUNDATION SHOWN IN GAD ARE INDICATIVE ONLY. THE ACTUAL TYPE & DEPTH OF FOUNDATION WILL BE DECIDED BY THE ENGINEER-IN-CHARGE AS PER ACTUAL SOIL ENCOUNTERED AT SITE DURING EXECUTION.
5. SAFE BEARING CAPACITY OF SOIL OF BELOW SOIL IMPROVEMENT IS 146.98 Kn/m².
6. LENGTH OF PITCHING FOR APPROACHES SHALL BE DECIDED BY THE ENGINEER-IN-CHARGE OF THE WORK TO SUIT SITE CONDITIONS.
7. PRO.BRIDGE WITH UP & DN LINE IS ON THE UP STREAM SIDE OF THE EXISTING BRIDGE.
8. FOR DETAILS OF OLD BRIDGE (EXG.) AS PER THE SITE DETAILS PROVIDED.
9. DISMANTLING OF EXISTING BRIDGE AND PROTECTIVE/PITCHING SHOULD BE DONE AS PER SITE CONDITION.
10. A) ON THE TOP SURFACE OF CONCRETE AT THE END OF EACH DAYS WORK DEPRESSION IN ZIG-ZAG PATTERN TO BE FORMED BY EMBEDDING WOODEN SCANTLINGS OR SLEEPERS TO FORM KEY FOR ADEQUATE BOND FOR THE NEXT DAYS CONCRETING.
    B) ON THE NEXT WORKING DAY ALL THE LAITANCE SHALL BE REMOVED BY SCRUBBING THE SURFACE WITH WIRE BRUSH WITHOUT DISLODGING THE PARTICLES OF AGGREGATE,THE SURFACE SHALL BE THOROUGHLY WETTED & CAN BE COATED WITH NEAT CEMENT GROUT BEFORE FIRST LAYER OF CONCRETE IS LAID.
11. THE BOULDER FILLING SHALL CONSISTS OF WELL HAND PACKED BOULDERS & COBBLES TO THICKNESS NOT LESS THAN 600 mm BEHIND THE BOULDER FILLING. BACKFILLING MATERIALS SHALL CONSIST OF GRANULAR MATERIALS OF GW, GP, SW CORRECT AS PER IS 1498 - 1970.
12. EXPOSURE CONDITION IS MODERATE.
13. CONTROLLED CONCRETE AS PER DESIGN MIX TO BE USED AND MIXED BY WEIGH BATCHING.
14. DISMANTLING ELEMENTS ARE SHOWN IN DOTTED LINE.
15. WHILE EXECUTION OF PRO. BRIDGE FOR STAGE-1, EXISTING FLOOR PROTECTIVE WORKS MAY GET DAMAGED, SO TO PROTECT THE EXG.BRIDGE FROM SCOURING EFFECT FLOORING PROTECTIVE WORKS WILL BE PROVIDED.
16. SUITABLE SPEED RESTRICTIONS MAY BE IMPOSED BASED ON SITE CONDITIONS WHENEVER & WHEREVER IF IS NEEDED TO ENSURE SAFETY OF RUNNING LINE.
17. SUITABLE PROTECTIVE MEASURES SHOULD BE PUT IN PLACE WHILE CARRYING OUT THE WORK IN CONSULTATION WITH KRIDE & GENERAL CONSULTANT.THIS SHALL INCLUDE NECESSARY SHORING ARRANGEMENTS TO BE PROVIDED FOR THE PROTECTION OF EXG.TRACK & FORMATION.
18. INSTRUCTIONS CONVEYED VIDE PCE'S CIRCULAR NO.01:2015, DATED: 09.03.2015 REGARDING" WORK DISIPLINE AT SITE" AND AS PER PCE CIRCULAR NO.01/2021 DATED: 22.06.2021 REGARDING "ENSURING QUALITY OF WORK AND MAINTAINING SITE RECORDS IN WORKS CONTRACTS" TO BE STRICTLY FOLLOWED.
19. IT IS TO ENSURED BY KRIDE/BSRP-COR2 GM/CIVIL/PROJECTS BEFORE EXECUTION, THAT THE MAXIMUM BASE PRESSURE AT THE FOUNDATION LEVEL FOR EACH ELEMENT OF BRIDGE IS LESS THAN THE SAFE BEARING CAPACITY OF THE SOIL AT THAT LOCATION.
20. 20MM THK THERMOCOL SHEETS TO BE PROVIDED BETWEEN FACE WALL OF EXG.BRIDGE & PRO.RCC BOX & IF REQUIRED DOWEL BARS TO BE FIXED.
21. ENGINEER IN-CHARGE SHALL ENSURE THAT LEVEL OF FOUNDATION OF DROP WALL, CURTAIN WALL AND RETURN WALL SHALL BE SUFFICIENTLY LOWER LEVEL THAN THE REQUIRED CALCULATED SCOUR LEVEL.
22. FEASIBILITY OF THIS BOX STRUCTURE AT SITE SHOULD BE ENSURED BY GM/KRIDE/BSRP-CORRIDOR2.
23. THIS DRAWING IS PREPARED BASED ON RDSO STANDARD DRG. NO. RDSO/B/10155 & 10155/1, AS PER BOX SIZE 2.0x1.8M

LOADING STANDARD
A) PROP.BRIDGE:25T-AXLE LOAD 2008 STD
B) EXG. STD BRIDGE:MGB 1987

GENERAL CONSULTANTS:

egis AECOM WSP EGIS-AECOM-WSP

EMPLOYER :

RAIL INFRASTRUCTURE DEVELOPMENT COMPANY (KARNATAKA) LIMITED

GENERAL ARRANGEMENT DRAWING

BENGALURU SUBURBAN RAILWAY PROJECT(BSRP)
BETWEEN STATIONS BENNIGANAHALLI AND CHIKKABANAVARA

RECONSTRUCTION OF MINOR BRIDGE NO.567 AT BSRP CH: 11+082.007 OF 1 X 1.50 X 1.50m (CLEAR HEIGHT - 1.35m) RCC BOX (CAST-IN-SITU) IN LIEU OF THE EXG. BRIDGE OF 1 x 1.20 x 1.0m RCC SLAB AT IR KM 216/733.384 BETWEEN KANAKA NAGAR AND HEBBAL STATIONS

KRIDE.DRG.NO:

HQ.DRG.NO:

SCALE : (UNLESS SPECIFIED OTHERWISE)	DRAWING NO. :	REVISION	DWG STATUS
	O22077-BSRP-CR2-C-NB-0-30-1159	1	C

PRELIMINARY DWG (P), DEFINITIVE DWG (D), CONSTRUCTION DWG (C), AS BUILT DWG (B), SHOP DWG (S), MANUFACTURED DWG (M) SHEET SIZE - A1