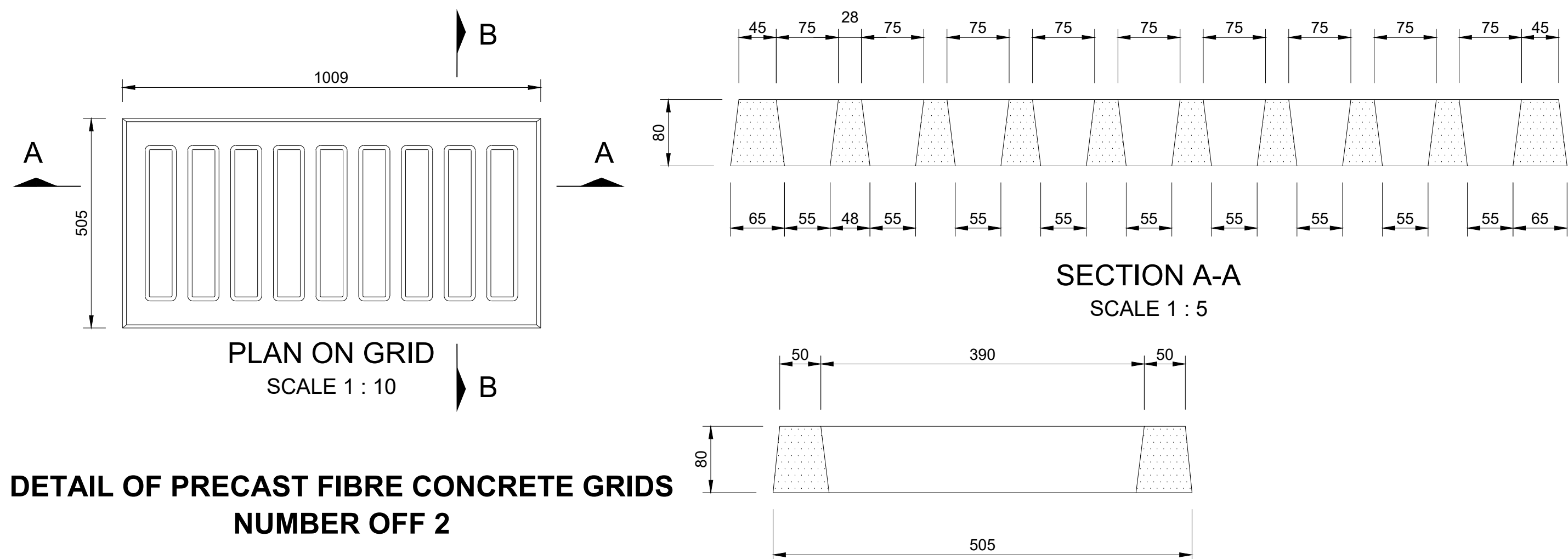


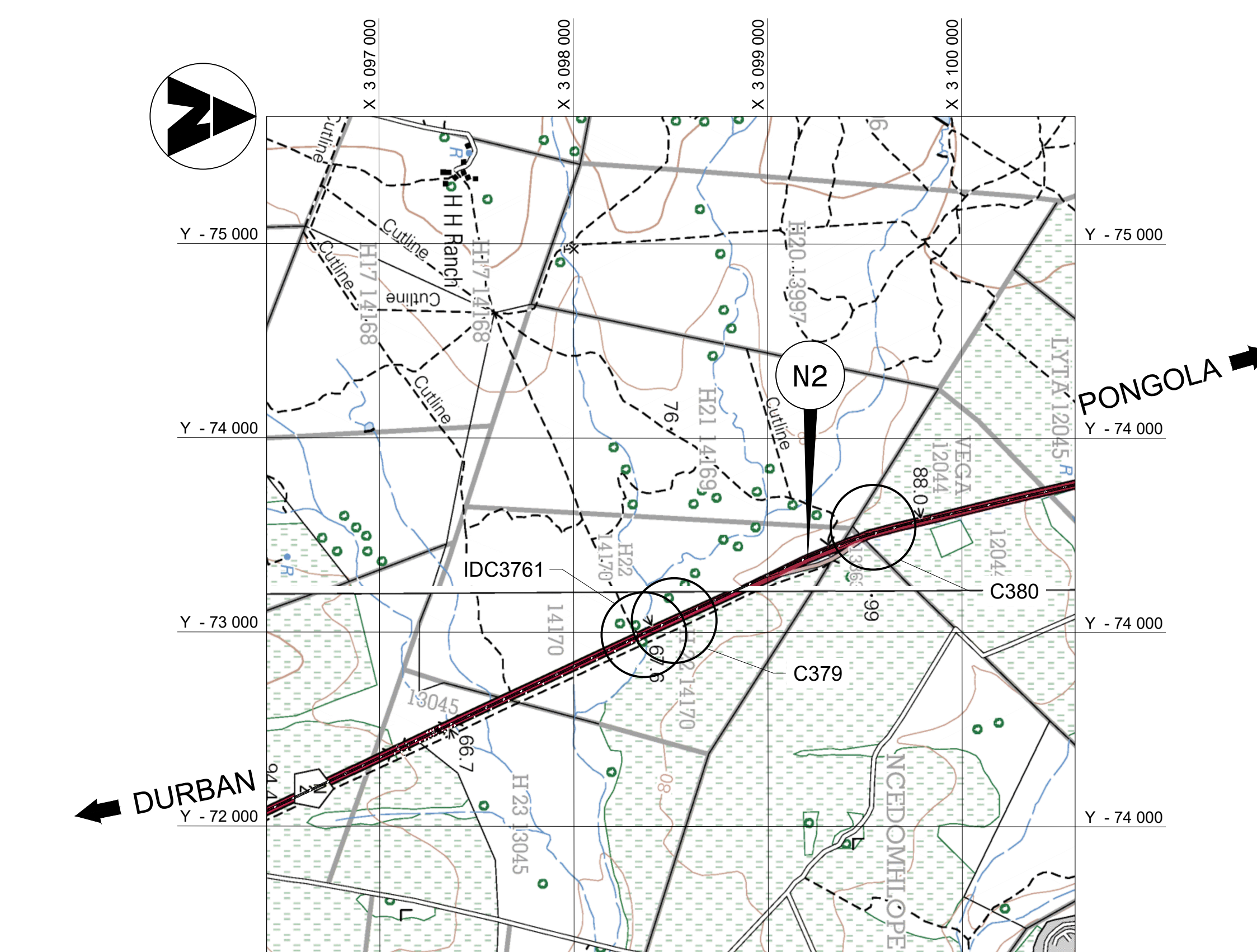
MORRISFIELD AGRICULTURAL UNDERPASS	
CULVERT (IDC3761) - UNDER N2-30	
3.790 x 3.245m REINFORCED CONCRETE STRUCTURE	
DISTANCE ON THE N2-30	km 48.951
COORDINATES (LOCAL SYSTEM)	Y 72 965.116
	X 3 105 675.587
ANGLE OF SKEW	24°

PLAN
SCALE 1:100

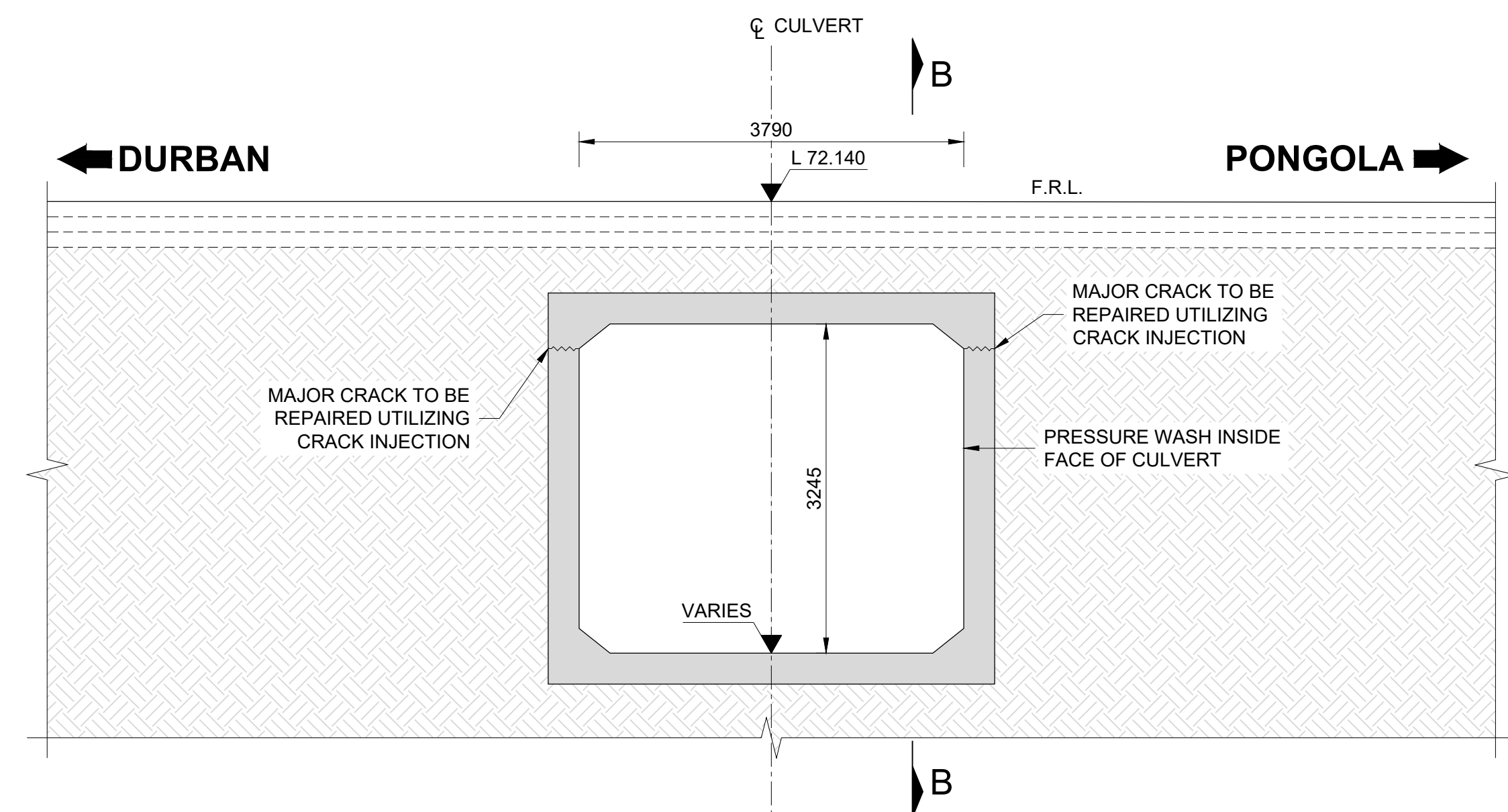


DETAIL OF PRECAST FIBRE CONCRETE GRIDS
NUMBER OFF 2

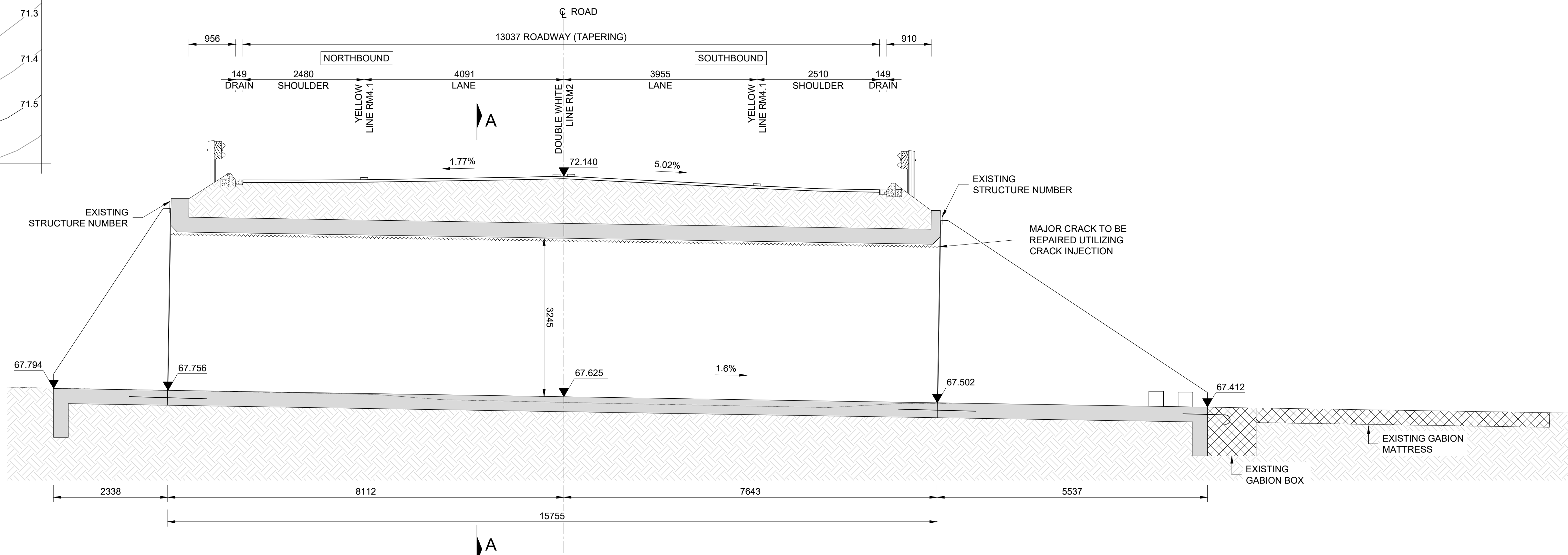
SECTION B-B
SCALE 1 : 5



LOCALITY PLAN
SCALE 1 : 20 000



SECTION A-A
SCALE 1:100



SECTION B-B
SCALE 1:100

GENERAL NOTES	
1.	DESCRIPTION THE PROPOSED CULVERT CONSISTS OF A SINGLE SPAN REINFORCED CONCRETE CONTINUOUS CELL WITH INTERNAL DIMENSIONS 3.6 x 2.5 m. THE OUTLET CONSISTS OF REINFORCED CONCRETE WINGWALLS SPAYED AT 30°.
2.	DESIGN CRITERIA
2.1	THE CULVERT HAS BEEN DESIGNED FOR THE LOADS SPECIFIED IN TMH 7 PARTS 1 AND 2 (AS AMENDED 1988)
2.2	LIVE LOAD : NA AND NB36.
2.3	THE STRUCTURE HAS BEEN DESIGNED USING ELASTIC ANALYSIS AND THE LIMIT STATE APPROACH IN ACCORDANCE WITH TMH 7, PART 3.
3.	STRUCTURAL ANALYSIS AND PARAMETERS
3.1	SOFTWARE PACKAGES USED FOR ANALYSIS AND DESIGN : PROKON
3.2	DENSITIES :
3.2.1	CONCRETE : 2400kg / m³
3.2.2	FILL MATERIAL : 2000kg / m³
3.3	LATERAL EARTH PRESSURE : 6.66 kPa/m DEPTH
3.4	YOUNG'S MODULUS : CONCRETE (SHORT TERM) : 30MPa : 28GPa
3.5	STEEL REINFORCEMENT : 200GPa
3.6	PREMIX : 100mm THICK FOR DESIGN PURPOSES
3.7	MAXIMUM FILL HEIGHT 2300mm
4.	QUALITY OF MATERIALS
4.1	REINFORCING STEEL (TO SANS 920)
4.1.1	MILD STEEL : 250 MPa
4.1.2	HIGH YIELD STRESS STEEL : 450 MPa
4.2	CONCRETE
4.2.1	DURABILITY CONCRETE (CLASS W) - CLASS DENOTES (CONCRETE STRENGTH / AGGREGATE SIZE)
4.2.1.1	MEMBERS : W30/19 : 30
4.2.1.2	FLOOR SLABS : W30/19 : 30
4.2.1.3	WALLS : W30/19 : 30
4.2.1.4	WINGWALLS : W30/19 : 30
4.2.2	NORMAL CONCRETE - CLASS DENOTES (CONCRETE STRENGTH / AGGREGATE SIZE)
4.2.2.1	DECK SLAB & HEADWALLS : 30/19
4.2.2.2	SCREED : 15/19
4.2.2.3	MASS CONCRETE : 20/19
5.1	FOUNDING MATERIAL :
5.1.1	ALLOWABLE BEARING PRESSURE : 300 kPa
5.1.2	ACTUAL BEARING PRESSURE : 90 kPa
5.2	EARTH PRESSURE BEHIND WALLS : 6.6 kPa/m DEPTH
5.3	DENSITY OF FILL : 2000 kg/m³
5.4	INTERNAL ANGLE OF FRICTION : 30°
6.	CONSTRUCTION REQUIREMENTS
6.1	BACKFILLING MUST BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES OF THE STRUCTURE AFTER THE DECKS HAVE BEEN CAST AND THE CONCRETE HAS ATTAINED A STRENGTH OF GREATER THAN 2/3 OF THE SPECIFIED 28 DAY CHARACTERISTIC STRENGTH MAXIMUM LEVEL DIFFERENCE BETWEEN BACKFILL HEIGHT ON OPPOSITE SIDES MUST NOT EXCEED 1.0m.
6.2	FORMWORK AND SURFACE FINISH
6.2.1	CLASS OF SURFACE FINISH SHOWN AS FOLLOWS:
6.2.1.1	F1 F2 U1 ETC.
6.2.1.2	ALL EXTERNAL CORNERS TO BE GIVEN A 25mm CHAMFER
7.	DRAINAGE BEHIND WALLS: NETLON DN1 STRIPS AND PERFORATED M65 NETLON PIPES WRAPPED IN BIDIM A5 AND SHEET OF BIDIM A5. SEE DWG No DD-1073.2-C0305-04.
8.	ALL LEVELS, DIMENSIONS AND CO-ORDINATES TO BE CHECKED AND CONFIRMED ON SITE WITH THE ENGINEER BEFORE CONSTRUCTION COMMENCES. THE ENGINEER TO BE INFORMED OF ANY DISCREPANCIES AS SOON AS POSSIBLE.
9.	HYDRAULIC INFORMATION : AS PER CONCESSION AGREEMENT WHERE NO FLOODING PROBLEMS ARE EXPERIENCED, THE EXISTING SIZE STRUCTURE IS EXTENDED.

CONSTRUCTION RECORD (AS-BUILT)		DESIGNED BY		CONSULTANT APPROVAL		HEAD OFFICE		EASTERN REGION		ACCEPTANCE		THE DESIGN AND CONSTRUCTION MONITORING OF PAVEMENT AND SETTLEMENT REPAIRS ON NATIONAL ROUTE 2, SECTION 30 FROM BUSHVELD RETREAT FARM (KM 47.00) TO HLUHLUWE INTERCHANGE (KM 55.00)		PROJECT NUMBER		N.002300-2020/1	
WORKS CONTRACT ENGINEER		NAME		NAME		48 Tambotie Avenue		58 Van Eck Place		THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING		MORRISFIELD AGRICULTURAL UNDERPASS CULVERT (IDC3761) ON THE N2-30 AT km 48.951		DRAWING LOCATION DATA		START	
Name		Prof. Reg. No. :		Prof. Reg. No. :		Val de Grace		Pietermaritzburg		Date		TO HLUHLUWE INTERCHANGE (KM 55.00)		ROUTE		N2	
Date		SANRAL PROJECT MANAGER		CHECKED BY		3201		3201		for the SA NATIONAL ROADS AGENCY SOC. LTD.		GENERAL ARRANGEMENT		SECTION		30	
V2		Name		NAME		PO Box 100410		PO Box 100410		Date		DRAWING TYPE		DRAWING km DISTANCE		km 48.951	
V1		Date		Prof. Reg. No. :		Scottsville		Scottsville		Date		BRIDGE/STRUCTURE No.		STRUCTURES - CULVERTS		IDC3761	
No.		DATE		DRAWN BY		Tel: (012) 844 8000		Tel: (033) 392 8100		Date		CONSULTANT DRAWING No.		SANRAL DOCUMENT #		TP2113/ST/IDC3761/01	
REVISION		CONSULT. ENG.		NAME								SCALE : AS SHOWN		SHEET		01 OF 02	

FOR TENDER
(FOR TENDER PURPOSES ONLY)