

SETTING OUT OF BOX CULVERTS
NOT TO SCALE

NOTES

DESIGN LOADS

- IN ACCORDANCE WITH AUSTRALIAN BRIDGE DESIGN CODE 1996.
- HEADWALLS ARE NOT DESIGNED FOR GUARDRAIL IMPACT FORCES.

SETTING OUT

- THE SETTING OUT DIMENSIONS ARE BASED ON INCREASING THE BATTER LOCALLY TO 2:1 BEYOND THE HEADWALLS.

CONCRETE

- GRADE S40

COVER

- MINIMUM CLEAR COVER TO BE 50mm.

CONCRETE EXPOSURE CLASSIFICATION

- IN ACCORDANCE WITH REQUIREMENTS IN AUSTRALIAN BRIDGE DESIGN CODE 1996 FOR CONCRETE EXPOSURE CLASSIFICATION.
- 1.1 COVER AND CONCRETE STRENGTH SHOWN ON DRAWINGS SATISFY REQUIREMENTS FOR EXPOSURE CLASSIFICATIONS B1 AND B2.
- 1.2 FOR EXPOSURE CLASSIFICATIONS C AND U, THE FOLLOWING SHALL APPLY.

EXPOSURE CLASSIFICATION	MINIMUM CLEAR COVER (mm)	
	40MPa CONCRETE	50 MPa CONCRETE
C (SALT-RICH ARID AREAS OR IN SEA WATER)	60	50
U (IN SOFT OR RUNNING WATER OR AGGRESSIVE SOILS - SULPHATE IONS - pH < 4.0)	-	70

REINFORCEMENT

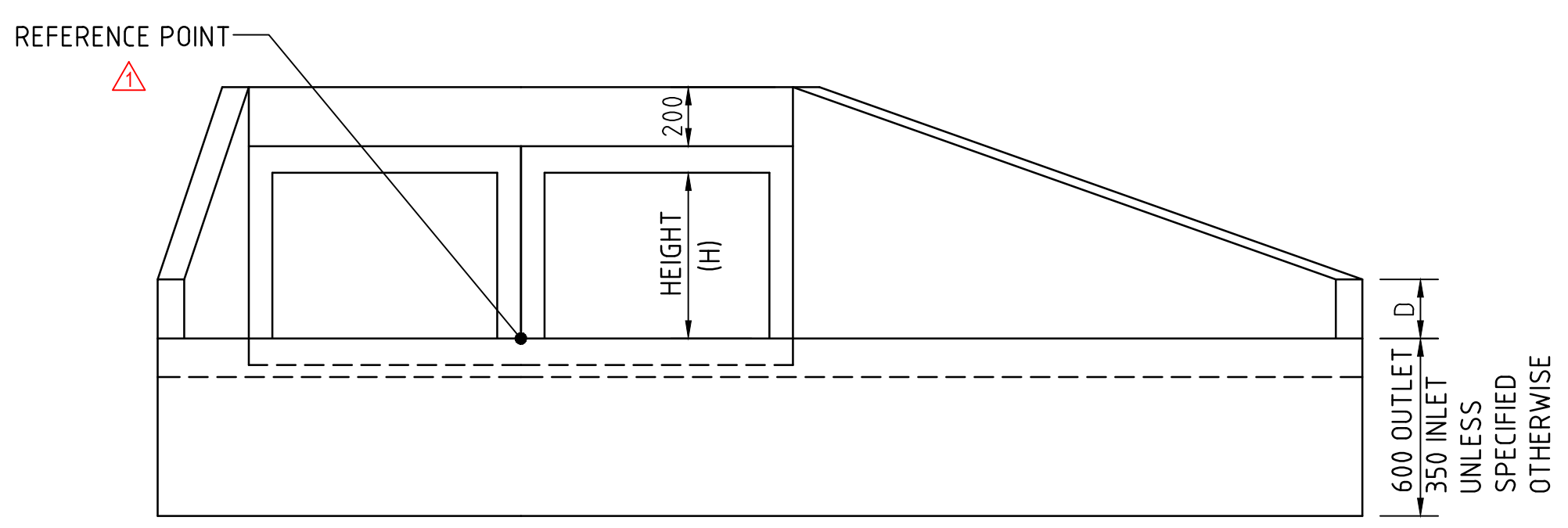
- REINFORCING BAR SHALL BE D500N AND MESH SHALL BE D500L IN ACCORDANCE WITH AS/NZS4671.
- MINIMUM LAPS, UNLESS SHOWN OTHERWISE: BARS 300mm, FABRIC 100mm.

CHAMFERS

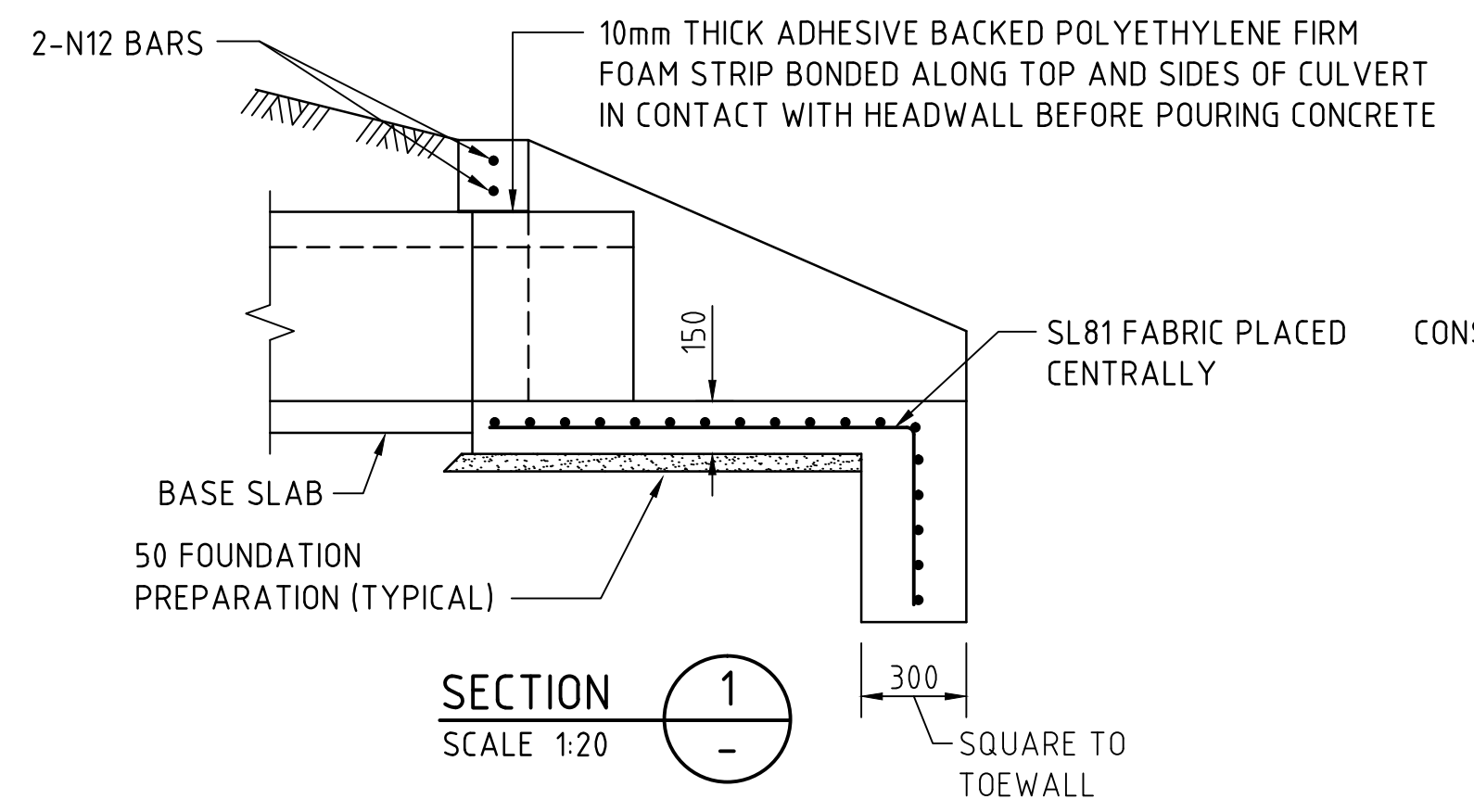
- ALL EXPOSED EDGES TO BE PROVIDED WITH 20mm CHAMFERS.

FOUNDATION PREPARATION

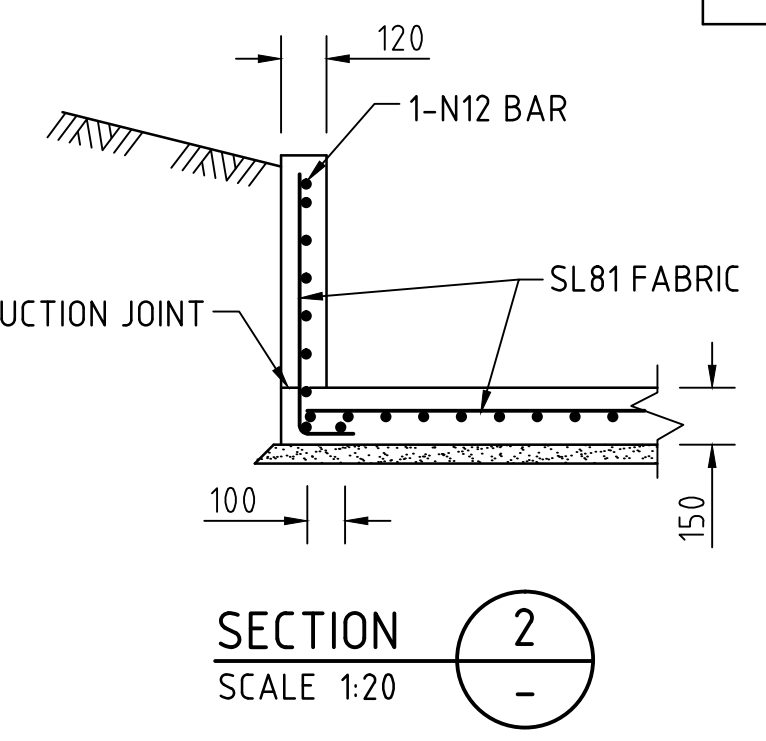
- 50mm GRADE 10 CONCRETE OR 50mm COMPACTED SAND.



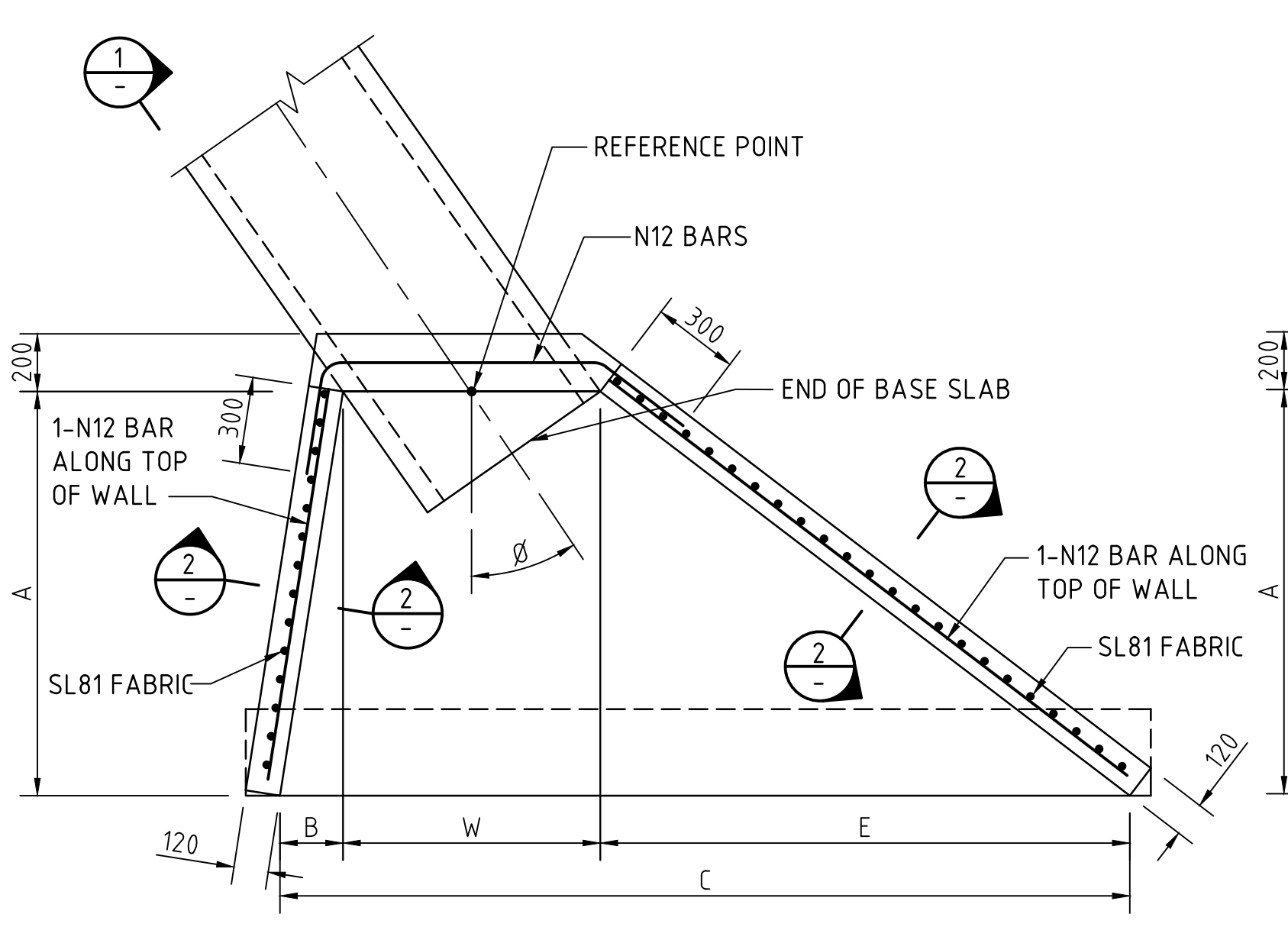
ELEVATION
TYPICAL FOR SINGLE AND MULTIPLE CULVERTS
SCALE 1:20



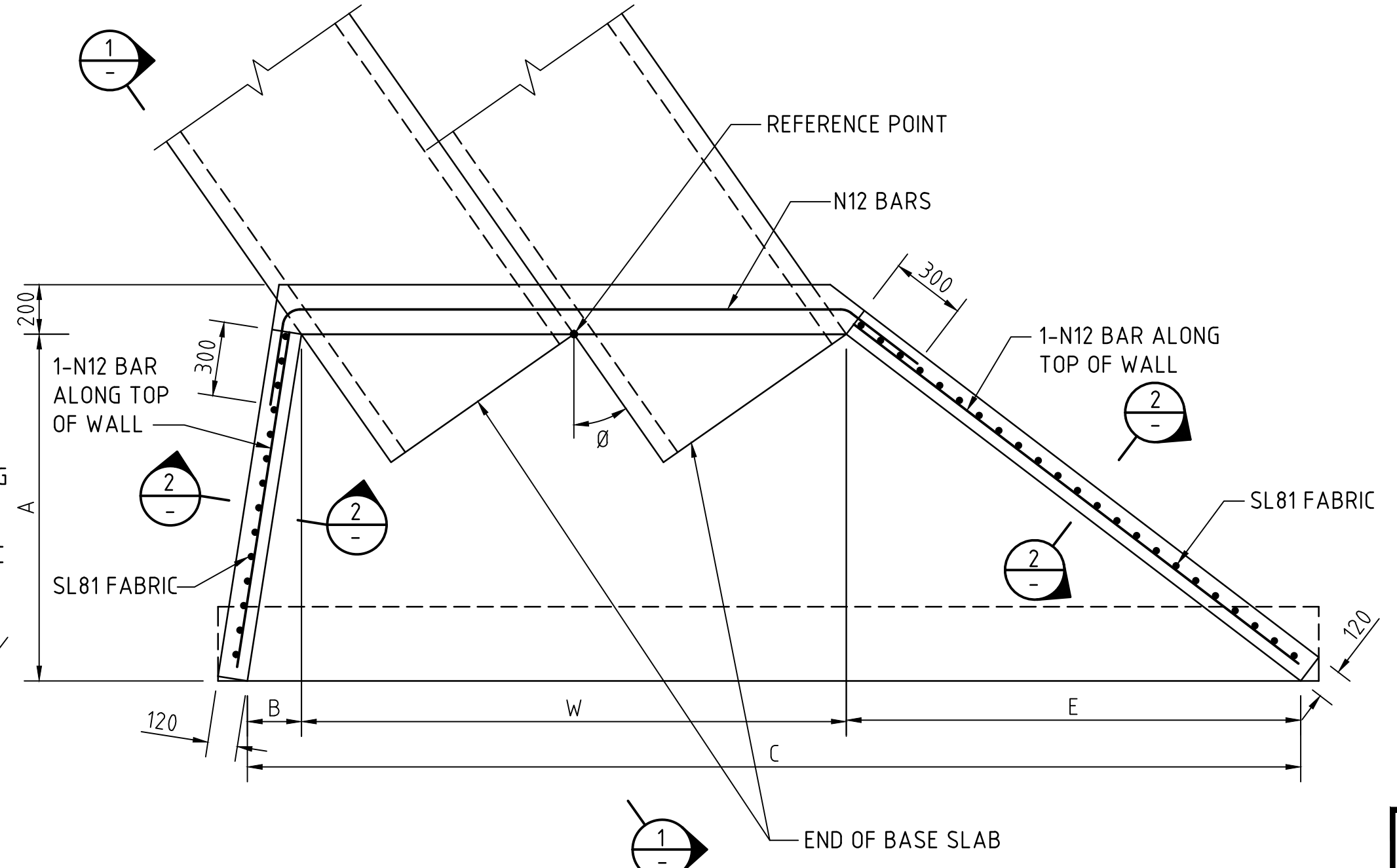
SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20



SECTIONAL PLAN
REINFORCEMENT FOR SINGLE CULVERT
SCALE 1:20



SECTIONAL PLAN
REINFORCEMENT FOR MULTIPLE CULVERTS
SCALE 1:20

SETTING OUT DIMENSIONS

H	A	D	SKEW ANGLE Ø					
			21° TO 30°			31° TO 35°		
			B	E	C	B	E	C
450	1000	250	175	1150	W+1325	150	1300	W+1450
600	1200	300	200	1400	W+1600	200	1575	W+1775
750	1400	350	250	1625	W+1875	225	1850	W+2075
900	1600	400	275	1850	W+2125	250	2100	W+2350
1050	1800	450	300	2075	W+2375	275	2350	W+2625
1200	2000	500	350	2300	W+2650	300	2625	W+2925
H	A	D	SKEW ANGLE Ø					
			36° TO 40°			41° TO 45°		
			B	E	C	B	E	C
450	1000	250	150	1500	W+1650	0	1700	W+1700
600	1200	300	175	1800	W+1975	0	2050	W+2050
750	1400	350	200	2100	W+2300	0	2400	W+2400
900	1600	400	225	2400	W+2625	0	2725	W+2725
1050	1800	450	250	2675	W+2925	0	3075	W+3075
1200	2000	500	275	2975	W+3250	0	3425	W+3425

* BEYOND 45° REQUIRES SPECIAL DESIGN

THIS SHEET SUPERSEDES DRG S-4002, SHEETS 9 AND 11

Government of South Australia

Department of Planning, Transport and Infrastructure

STANDARD DRAWING

HEADWALL, WINGWALL AND APRON DETAILS

BOX CULVERTS WITH A SKEW ANGLE 21° TO 45°

DESIGNED: DU
CHECKED: TN/GN

DRAFTED: DU
REVIEWED: GWC

ACCEPTED FOR USE: STEPHEN PASCALE
MGR. TECHNICAL SERVICES
DATE: 03/08/2015

ACCEPTANCE FORM KNET No.: 9722937

DRAWING No.: 4002

SHEET No.: 20

AMEND No.: 1

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FILE: \\ORION\COMMON\Structural\01 - DRAWINGS IN PROGRESS\ANC (Various Jobs)\Standard Drawings\Drawings for Amendment\4002_Sheet_0020.dwg

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No.	AMENDMENT DESCRIPTION	BY	CHECK	ACCEPTANCE	DATE
1	REFERENCE POINT SHOWN IN ELEVATION, TITLE BLOCK UPDATED	ANC	PM	STEPHEN PASCALE	03.08.15

100 MILLIMETRES ON ORIGINAL DRAWING

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE