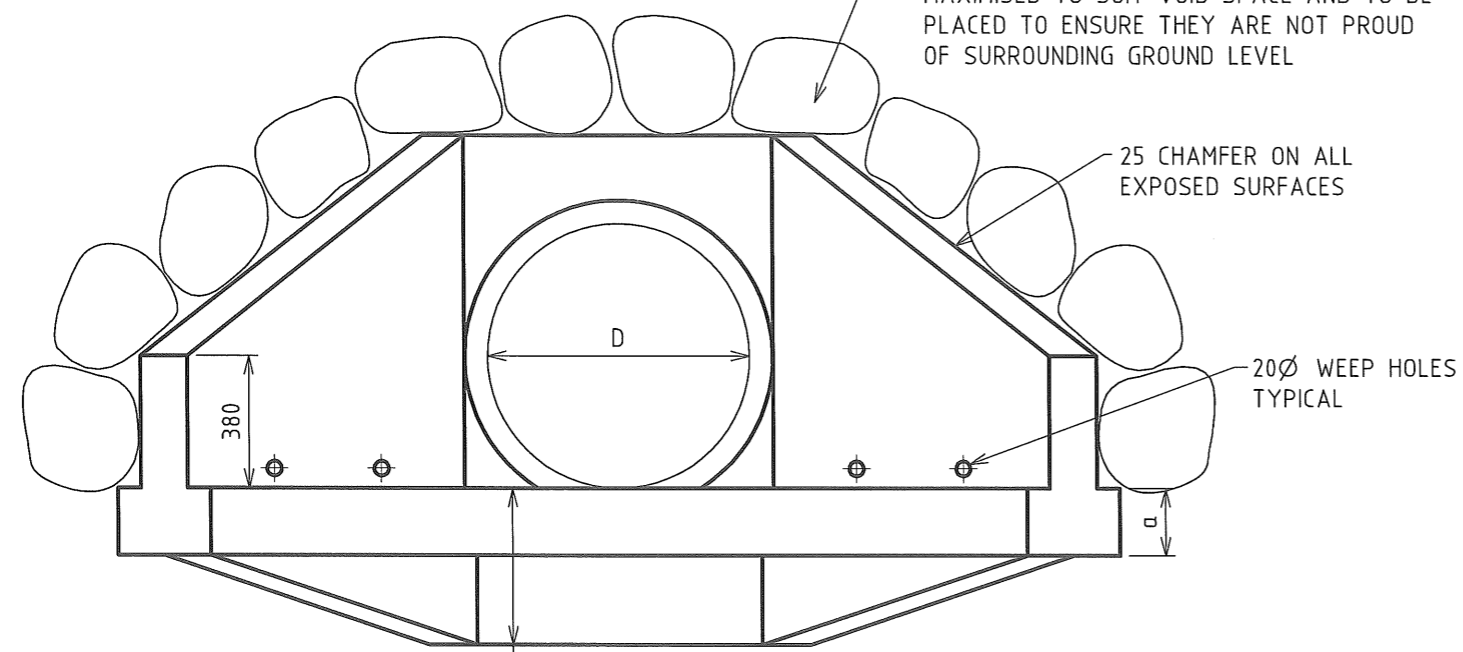


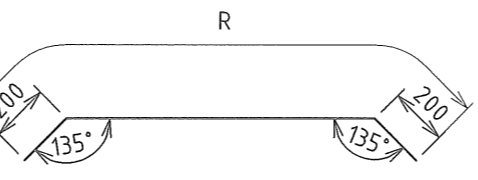
**PLAN**  
SCALE 1:25

CONSTRUCT ROCK OUTLET IN ACCORDANCE WITH STANDARD DRAWINGS A2303 TO A2305

PLACE MIN 300Ø ROCKS AGAINST HEADWALL IF VOID SPACES EXIST BETWEEN HEADWALL AND STABLE GROUND. ROCK SIZING TO BE MAXIMISED TO SUIT VOID SPACE AND TO BE PLACED TO ENSURE THEY ARE NOT PROUD OF SURROUNDING GROUND LEVEL



**ELEVATION**  
SCALE 1:25

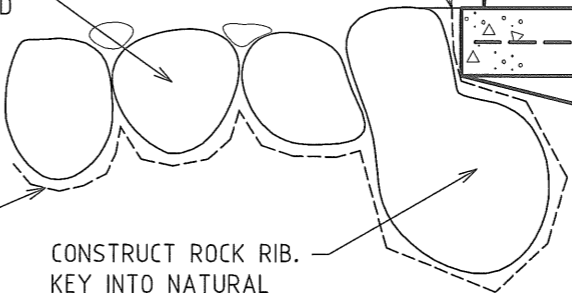


**12 DIAMETER BARS**  
2 REQUIRED EACH HEADWALL  
SCALE 1:25  
(SEE TABLE C)

CONSTRUCT ROCK OUTLET IN ACCORDANCE WITH STANDARD DRAWINGS A2303 TO A2305

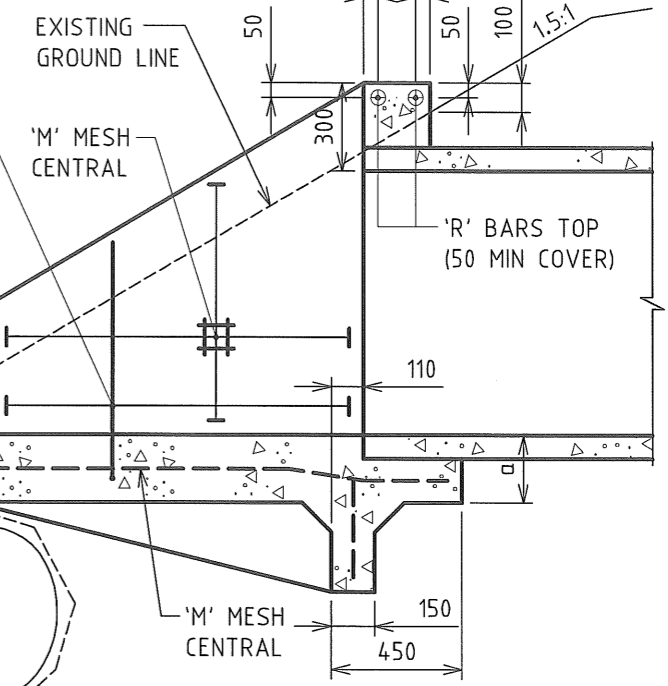
BIDUM A64 OR EQUAL UNDERLAY TO ALL ROCK MATERIAL

LAP UNDERLAY BETWEEN ROCK AND HEADWALL. ENSURE FLUSH FINISH BETWEEN ROCK AND HEAD WALL, CONCRETE INFILL MAY BE REQUIRED



CONSTRUCT ROCK RIB. KEY INTO NATURAL GROUND 500 MIN BELOW BASE OF HEADWALL.

'L' N12 L SHAPED BARS 600 LEGS AT 200 MAX CTS



**LONGITUDINAL SECTION**  
SCALE 1:25

**TABLE C: HEADWALLS**

D PIPE DIAMETER (mm)		600	750	900
a (mm) MINIMUM		150	175	200
B (mm)		790	1025	1260
W (mm)		1120	1450	1780
L (mm)		1100	1250	1400
REINFORCEMENT IN TWO HEADWALLS	'R' BARS	2-N12 4.4m LONG	2-N12 5.0m LONG	2-N12 5.6m LONG
	'M' MESH	SL81	SL81	SL81
	'L' BARS	N12-200	N12-200	N12-200
CONCRETE QUANTITY IN TWO HEADWALLS (M <sup>3</sup> )		1.34	2.04	2.80

**NOTES**

1. ALL DIMENSIONS ARE IN MILLIMETRES
2. DRAWINGS ARE NOT TO SCALE
3. COMPRESSIVE STRENGTH FOR CAST INSITU CONCRETE SHALL BE 25MP<sub>a</sub> AT 28 DAYS
4. ENERGY DISSIPATERS IN LIEU OF STANDARD HEAD WALL SHALL BE PROVIDED WHERE VELOCITIES EXCEED 2.0 M/S
5. WHERE ADDITIONAL HEIGHT TO RETAINING IS REQUIRED KERB HEIGHT, KERB WIDTH AND CURTAIN WALL HEIGHT SHALL BE ADJUSTED WITH THE PROVISION OF ADDITIONAL REINFORCEMENT
6. FOUNDING MATERIAL TO ACHIEVE A MINIMUM ALLOWABLE BEARING CAPACITY OF 150KPa.
7. SAFETY FENCING SHALL BE PROVIDED AROUND THE HEAD WALL WHERE DETERMINED BY THE ENGINEER.

<table border="1"> <tr> <td>1</td> <td>CONSTRUCTION</td> <td>11.06.13</td> <td>J.C.</td> </tr> <tr> <td>0</td> <td>PRELIMINARY - FOR REVIEW AND COMMENT ONLY</td> <td>14.12.12</td> <td>J.C.</td> </tr> <tr> <td>No.</td> <td>AMENDMENT DETAILS</td> <td>DATE</td> <td>INITIALS</td> </tr> </table>			1	CONSTRUCTION	11.06.13	J.C.	0	PRELIMINARY - FOR REVIEW AND COMMENT ONLY	14.12.12	J.C.	No.	AMENDMENT DETAILS	DATE	INITIALS	<p>SCALE <b>AS SHOWN</b></p>	<p>LIVEABLE CITY INFRASTRUCTURE MANAGEMENT SERVICES</p>	<p>APPROVED:</p> <p>SIGNED: ..... INFRASTRUCTURE MANAGEMENT SERVICES MANAGER DATE: 11/6/13</p>	<p><b>THE CITY OF NEWCASTLE</b></p> <p>HEADWALLS REINFORCED CONCRETE FOR 600, 750 AND 900 PIPE CULVERTS</p>	<p>NCC PLAN No. <b>A2300</b></p>	<p>SHEET No. 1 OF 1 SHEETS</p>
1	CONSTRUCTION	11.06.13	J.C.																	
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No.	AMENDMENT DETAILS	DATE	INITIALS																	
<p>A3 ORIGINAL THIS SHEET WAS PREPARED IN COLOUR AND WILL BE INCOMPLETE IF COPIED</p>		<p>COORDINATE SYSTEM:</p>	<p>HEIGHT DATUM: AHD</p>	<p>REVIEWED: J.C.</p>	<p>AMENDMENT No.</p>															