

**DRAINS
POST-DEVELOPMENT**

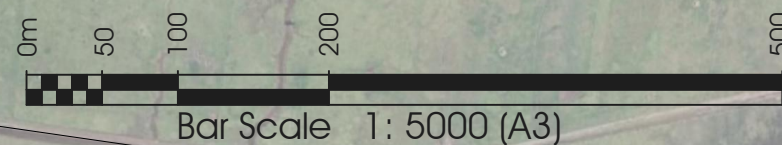
PUMP LINE
POSITIVE COVENANT
AND RIGHT OF
ACCESS IN FAVOUR
OF COUNCIL OVER
LOT 1332 IN YELLOW

FULLERTON
COVE

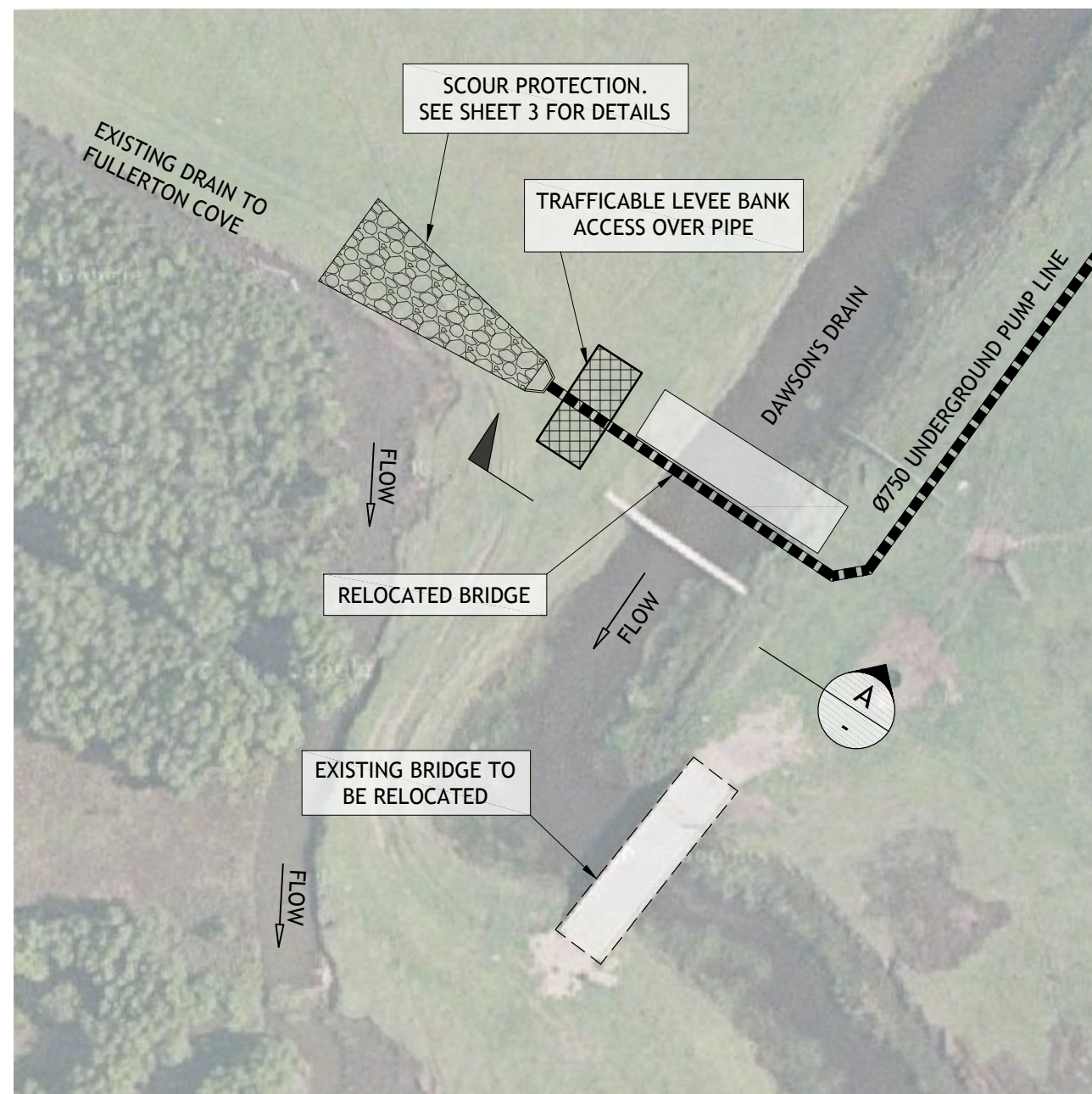
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OUR REF: 238712-PUMP-001-C/FLOOD MITIGATION PUMP LAYOUT

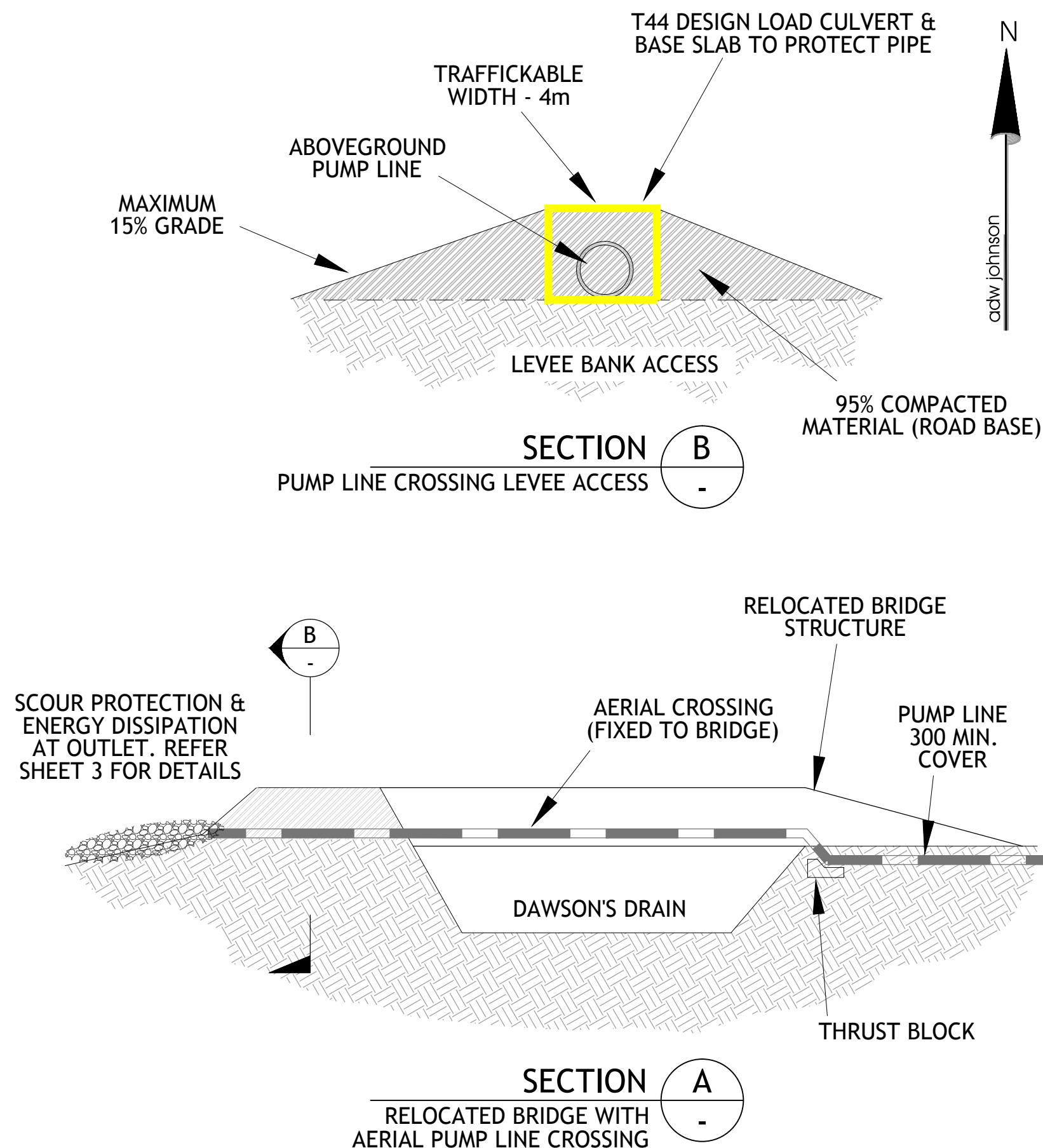
Ver.	Date	Comment
C	16/11/2012	Submission to Council
B	09/11/2012	Dawson's Drain Discharge Point
A	30/10/2012	Initial Flood Mitigation Pump Layout



**SHEET 1
FLOOD MITIGATION
PUMP LAYOUT**



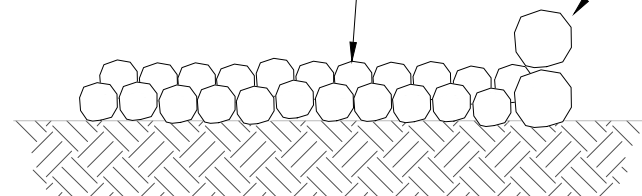
**PUMP LINE
DISCHARGE POINT DETAIL**



**SHEET 2
PUMP LINE DISCHARGE**

CONSTRUCT ROCK BARS FROM
MIN. Ø500mm BOULDERS
AT 3m SPACINGS

LARGE DIAMETER BOULDER
WALL TO DIRECT FLOW
MIN. HEIGHT 1m



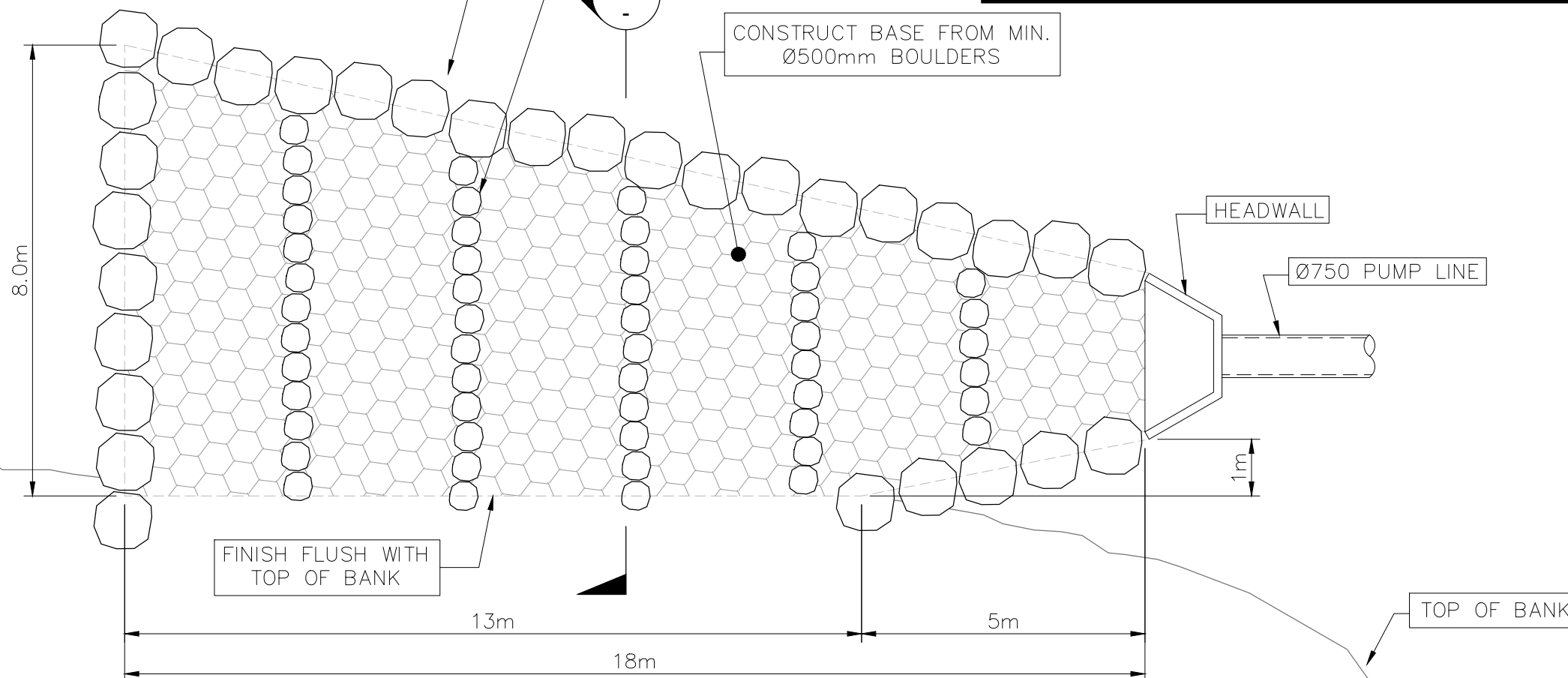
SECTION C

LARGE DIAMETER BOULDER
WALL TO DIRECT FLOW

CONSTRUCT ROCK BARS FROM
MIN. Ø500mm
BOULDERS AT 3m SPACINGS
FOR DISSIPATION

CONSTRUCT BASE FROM MIN.
Ø500mm BOULDERS

TOP OF BANK



FINISH FLUSH WITH
TOP OF BANK

HEADWALL

Ø750 PUMP LINE

TOP OF BANK

PLAN VIEW
OUTLET SCOUR PROTECTION
SCALE 1:100

Details & Calculations

Ø750mm Pipe
 $Q = 2.4\text{m}^3/\text{s}$
 $V = 5.43\text{m/s}$

Managing Urban Stormwater - Soils and Construction, Volume 1 (2004)
pg.5-35, Figure 5.a "Design of rip-rap outlet protection - maximum tailwater
conditions apply." (MWRA1983)

Tailout grade	$\approx 0.5\% - 1.0\%$
Min. tailout length	$= 18\text{m}$
Min. end tailout width	$= \text{Diameter} + 0.4 + \text{length}$ $= 0.75 + 0.4 + 18$ $= 7.95\text{m}$
Min. boulder dia.	$= 0.28\text{m}$
Design min. Boulder size	$= 0.5\text{m}$
Absolute min. Boulder size	$= 0.3\text{m}$