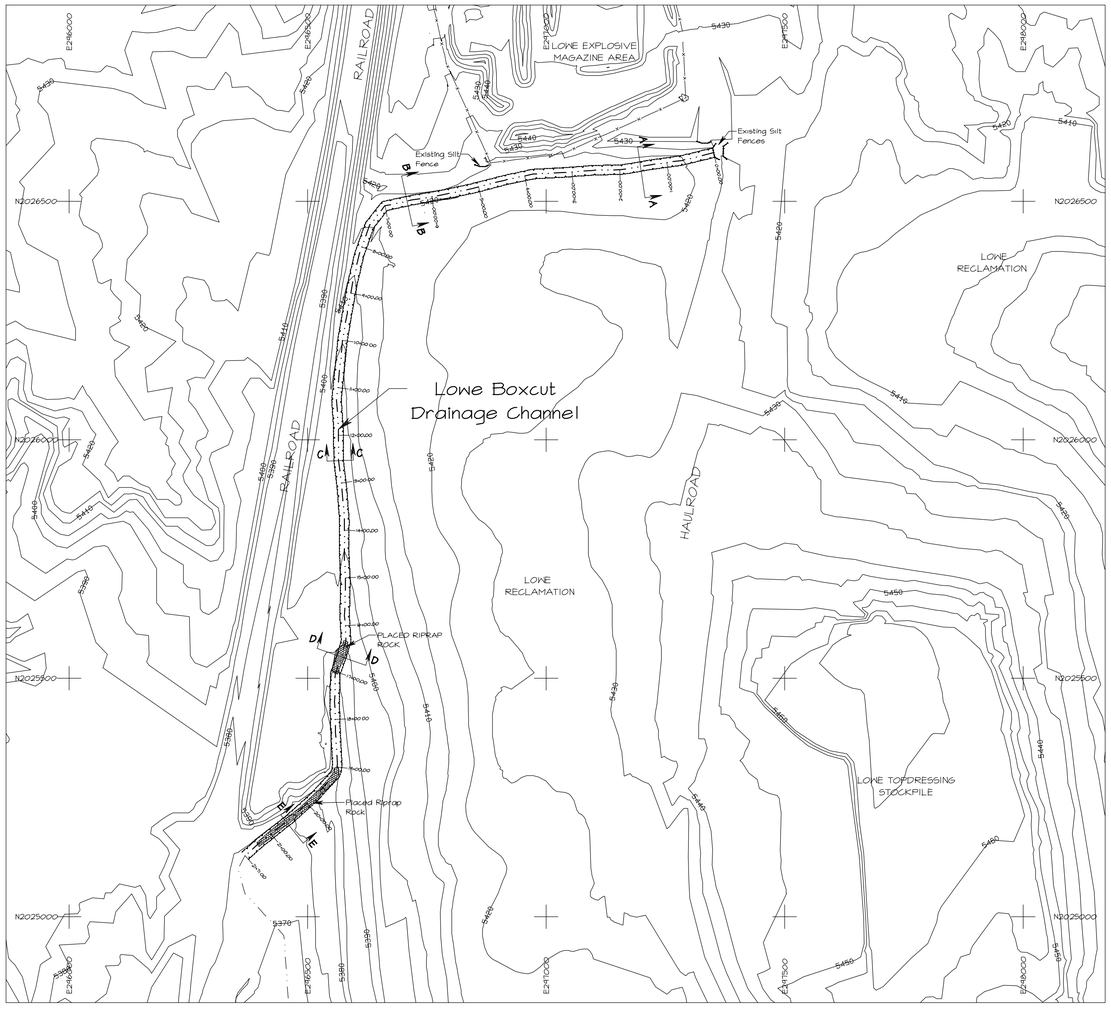
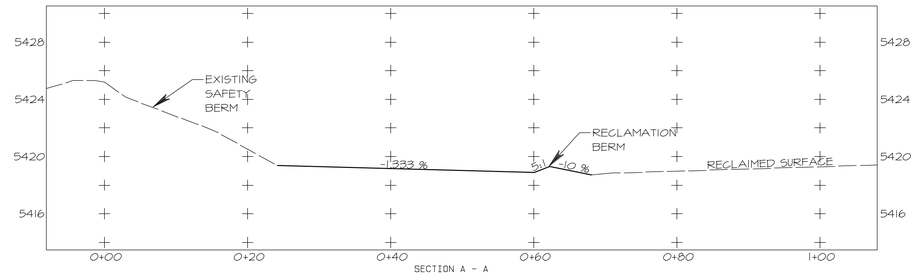
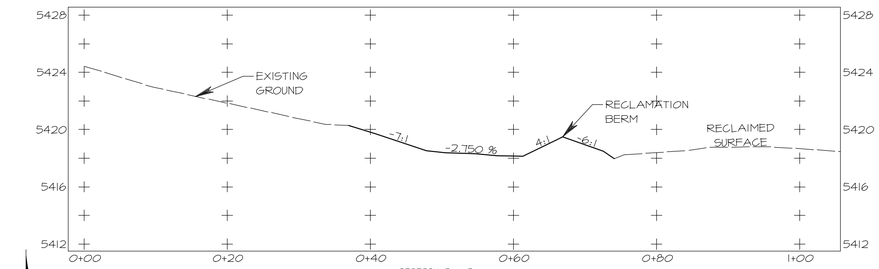
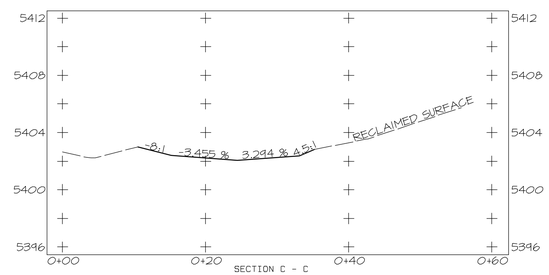




SECTION A - A



SECTION B - B



SECTION C - C

LEGEND

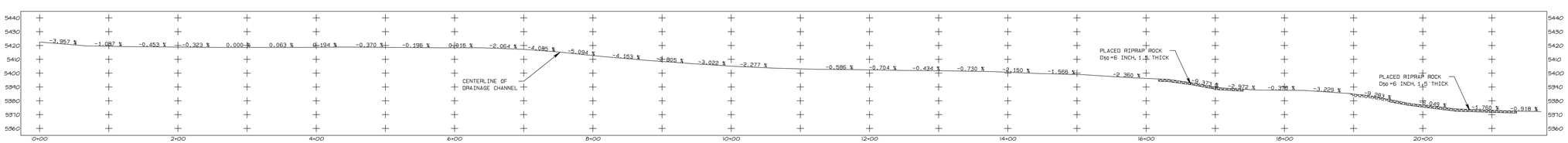
- ROAD
- WATERSHED
- BUILDING
- FENCE
- IRRIGATION LINE
- CULVERT
- DAM
- DRAINAGE
- RAILROAD
- TREES
- POWERLINE
- ×5338.5 SPOT ELEVATION
- 5300 INDEX CONTOUR
- 5298 INTERMEDIATE CONTOUR
- 218 5422.45
- L-30 LEASE CORNER
- PERMIT/LEASE BOUNDARY

NOTES

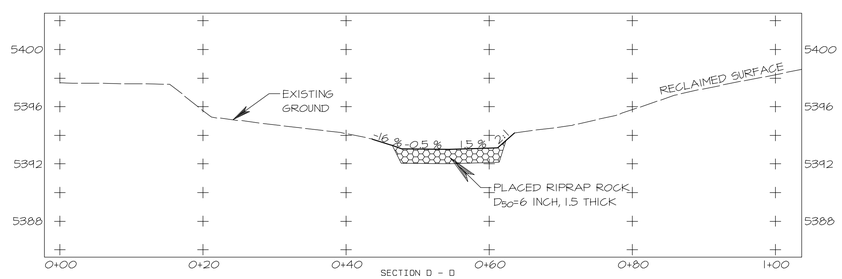
1. For hydrology and design information refer to Appendix 12-F in the approved PAP.

LOWE BOXCUT RIPRAPED CHANNEL (FROM STA.16+30 TO STA.17+00 AND FROM STA.19+00 TO STA.21+35)

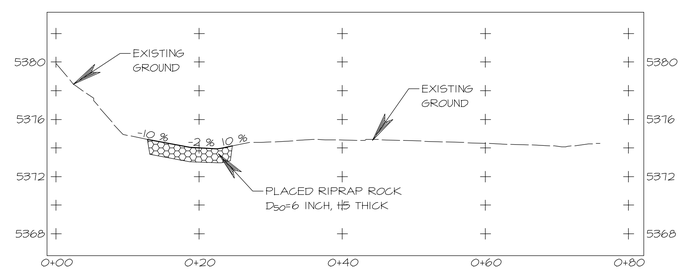
CHANNEL GRADIENT	MAX. 9.3 %, MIN. 1.8 %
BOTTOM WIDTH	MAX. 5 FEET, MIN 4 FEET
SIDE SLOPES	MAX. 33 %, MIN. 10 %
MAXIMUM CHANNEL FLOW DEPTH, 10 YR - 06 HR STORM	0.30 FEET
MINIMUM FREEBROAD	1.0 FEET
MAXIMUM FLOW VELOCITY, 100 YR - 6 HR	47.75 CFS



PROFILE (Centerline of Lowe Box Channel)
Horizontal: 1"=80' and Vertical: 1"=40'

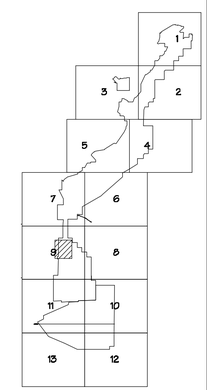


SECTION D - D



SECTION E - E

SECTIONS
HORIZONTAL 1"=10'
VERTICAL 1"=5'



SCALE AS NOTED

CERTIFICATION STATEMENT

I, RON C. VAN VALKENBURG, hereby certify that this drawing was reviewed by me and that the information shown is complete and accurate to the best of my knowledge.

RON C. VAN VALKENBURG NEW MEXICO 9263 LICENSED PROFESSIONAL ENGINEER

REVISION	DATE
Re-Submitted to OSM for Review and Approval	01-15-09

PROJECT MANAGER: FS
ENGR. of RECORD: RCV
REG NO: 9263
SRVYR of RECORD
REG. NO:

bhpbilliton
BHP NAVAJO COAL COMPANY
NAVAJO MINE
PO BOX 1717, FRUITLAND, NEW MEXICO, 87416 PHONE 505-598-3209/FAX 505-598-3361

PROJECT:
DATE: 01/16/09
DESIGNED BY: SS
DRAWN BY: RV
CHECKED BY: RCV
APPROVED BY: RCV

PLAN, PROFILE AND SECTIONS

EXHIBIT 12-31B
LOWE RECLAMATION
LOWE BOXCUT CHANNEL
Design / As- built

DRAWING

SHEET 1 OF 1