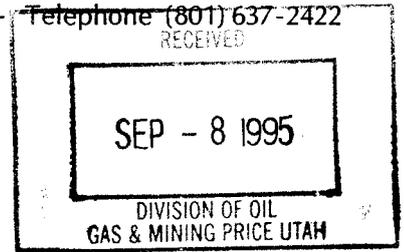


0004



BLACKHAWK ENGINEERING, CO.

Rt. 1, Box 146-H5 - Helper, Utah 84526 - Telephone (801) 637-2422



August 24, 1995

Mr. Mike Glasson
Andalex Resources, Inc.
P.O. Box 902
Price, Utah 84501

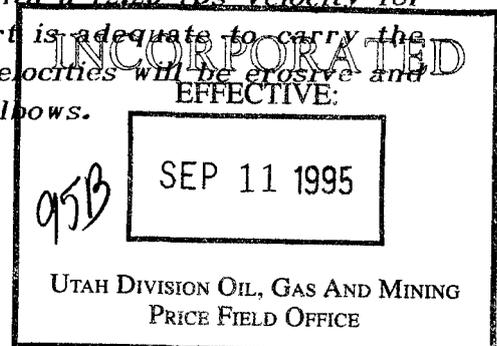
Put in Appendix

Re: Proposed Pad Culverts
Wildcat Loadout

Dear Mr. Glasson:

Per your request, I have calculated the projected flows and proposed culvert sizing for the recently enlarged stockpile pad area. I have estimated the total pad area to be 8.0 acres, with approximately 1/2 (4.0 acres) draining to each of the proposed culverts at the Northeast and Southeast corners. I have also used a conservative estimate of 2% slope on the pad with a hydraulic length of 500'. The rainfall is 1.85 inches for a 10 year-24 hour precipitation event at the Wildcat Loadout. Based on these parameters, the total expected flow to each culvert is 3.81 cfs. The above calculations were performed using the OSM "Storm 6.0" Computer Program.

The expected flow was then routed through a circular channel using the Haestad "Flowmaster" Program, to determine the minimum acceptable culvert diameter. Culvert sizing and velocities were calculated using 25% (1v:4h) and 50% (1v:2h) slopes. Required culvert diameter is 0.72' with a 9.45 fps velocity for the 25% slope, and 0.63' with a 12.25 fps velocity for the 50% slope; therefore, a 12" diameter culvert is adequate to carry the expected flow from 1/2 of the pad area. Exit velocities will be erosive and should be controlled with rip-rap or culvert elbows.



Conclusion:

The expected flow from a 10 year-24 hour event from each 1/2 of the expanded stockpile pad area is 3.81 cfs. This flow can be carried by 12" cnp culverts located at the northeast and southeast corners of the pad. Larger culverts can be used if desired.

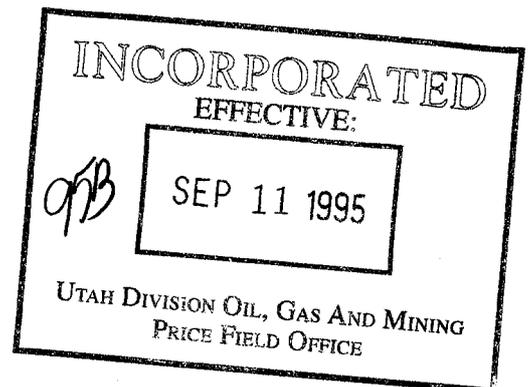
If you have any questions, or need any further information, please let me know.

Respectfully,



Dan W. Guy, P.E.

President



Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: WILDCAT PAD

Comment: PROPOSED N.E. CULVERT

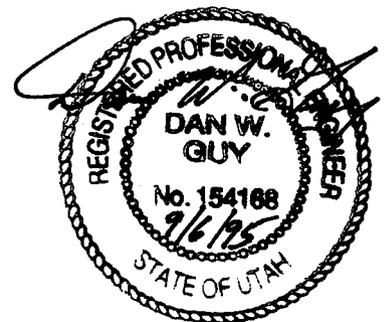
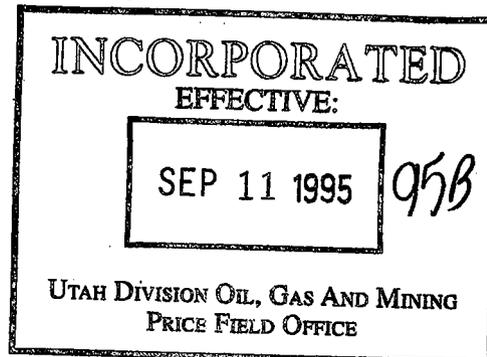
Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.2500 ft/ft
Manning's n.....	0.025
Discharge.....	3.81 cfs

Computed Results:

Full Flow Diameter.....	0.72 ft
Full Flow Depth.....	0.72 ft
Velocity.....	9.45 fps
Flow Area.....	0.40 sf
Critical Depth....	0.71 ft
Critical Slope....	0.2300 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	3.81 cfs
QMAX @.940.....	4.10 cfs
Froude Number.....	FULL



Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: WILDCAT PAD

Comment: PROPOSED S.E. CULVERT

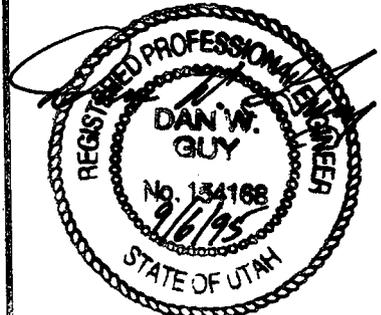
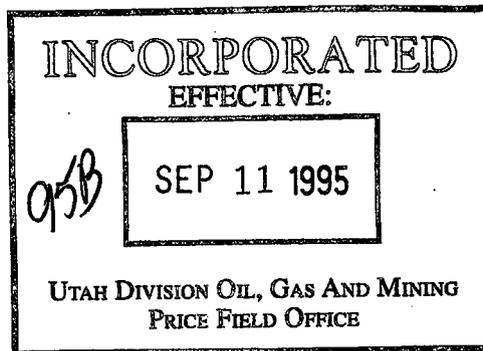
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QMAX @.94D.....	4.10 cfs
Froude Number.....	FULL



Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: WILDCAT PAD

Comment: PROPOSED N.E. CULVERT

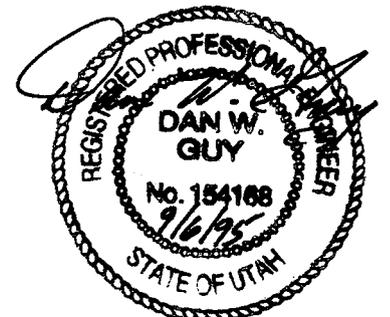
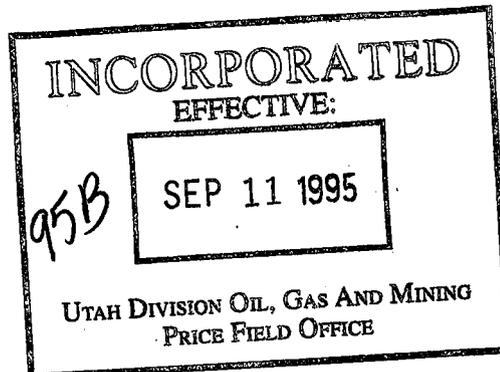
Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.5000 ft/ft
Manning's n.....	0.025
Discharge.....	3.81 cfs

Computed Results:

Full Flow Diameter.....	0.63 ft
Full Flow Depth.....	0.63 ft
Velocity.....	12.25 fps
Flow Area.....	0.31 sf
Critical Depth.....	0.63 ft
Critical Slope.....	0.4780 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	3.81 cfs
QMAX @.94D.....	4.10 cfs
Froude Number.....	FULL



Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name: WILDCAT PAD

Comment: PROPOSED S.E. CULVERT

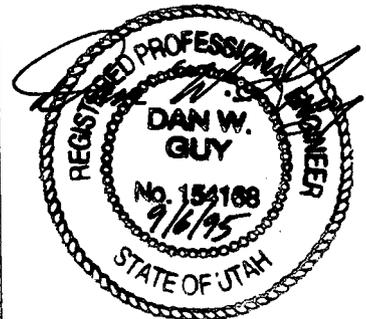
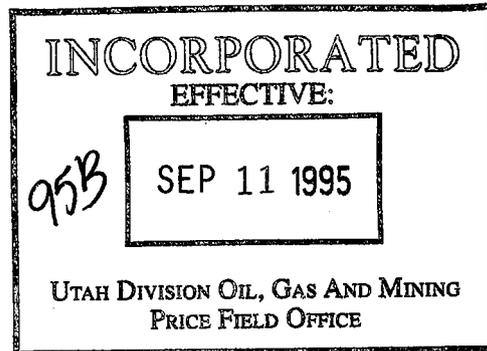
Solve For Full Flow Diameter

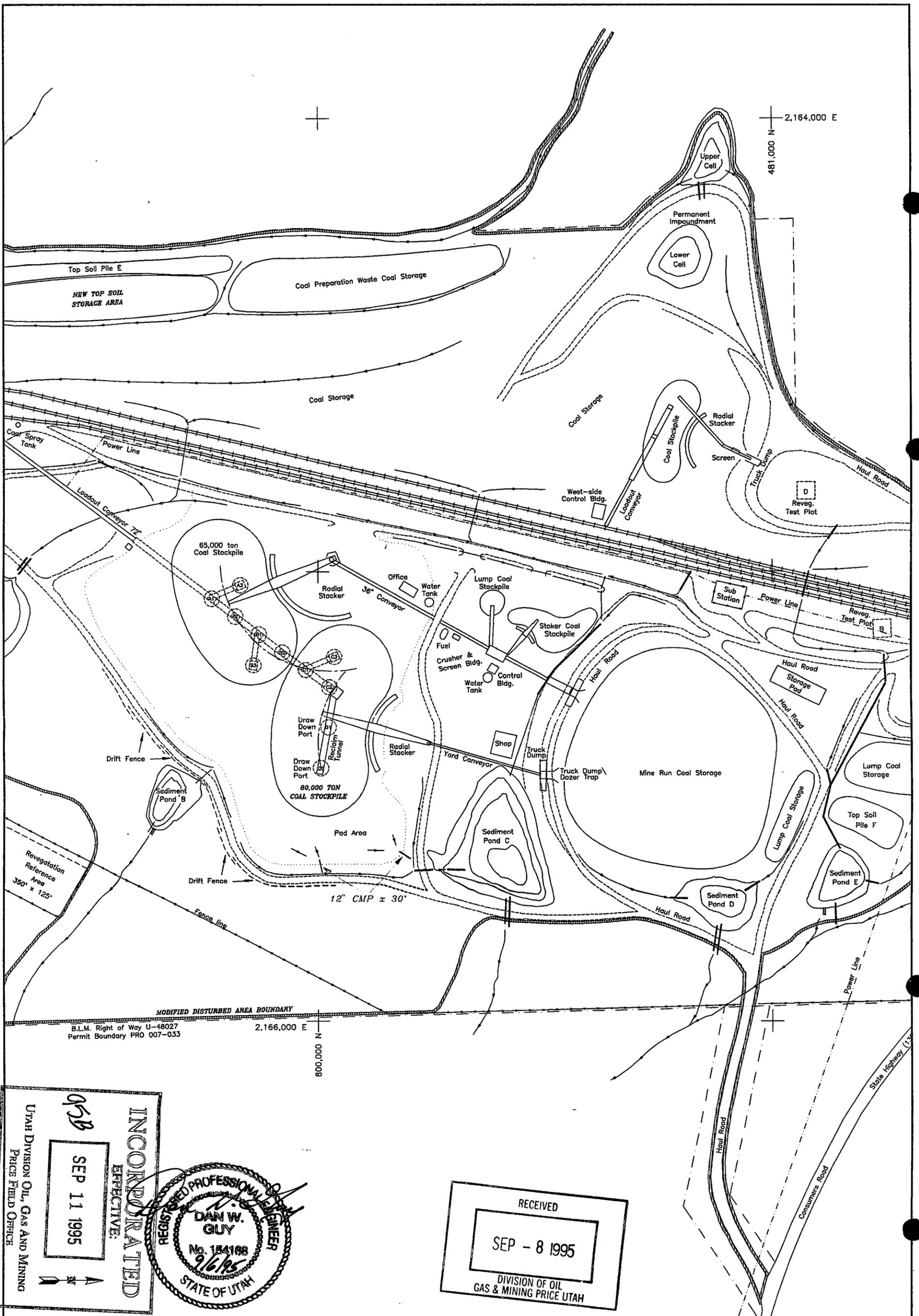
Given Input Data:

Slope.....	0.5000 ft/ft
Manning's n.....	0.025
Discharge.....	3.81 cfs

Computed Results:

Full Flow Diameter.....	0.63 ft
Full Flow Depth.....	0.63 ft
Velocity.....	12.25 fps
Flow Area.....	0.31 sf
Critical Depth....	0.63 ft
Critical Slope....	0.4730 ft/ft
Percent Full.....	100.00 %
Full Capacity.....	3.81 cfs
QMAX @.94D.....	4.10 cfs
Froude Number.....	FULL





INCORPORATED
EFFECTIVE:
SEP 11 1995
UTAH DIVISION OIL, GAS AND MINING
PRICE FIELD OFFICE

REGISTERED PROFESSIONAL ENGINEER
DAN W. GUY
No. 154188
9/6/95
STATE OF UTAH

RECEIVED
SEP - 8 1995
DIVISION OF OIL
GAS & MINING PRICE UTAH

Wildcat Loadout
Drainage Control
Proposed Location

SCALE:
50' 0' 100' 200'
August 30, 1995 ACAD REF: WC7

ANDALEX
RESOURCES, INC.
Tower Division



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

July 13, 1995

Art Abbs, Acting Director
Office of Surface Mining
Reclamation and Enforcement
505 Marquette N.W., Suite 1200
Albuquerque, New Mexico 87102

Re: Findings, Conclusions and Order (C94-39-1-1), Wildcat Loadout Facility,
Andalex Reosurces, Inc., ACT/007/033, Folder #2, Carbon County, Utah,

Dear Mr. Abbs:

Enclosed please find the Findings, Conclusions and Order for Cessation Order
C94-39-1-1 signed July 26, 1995.

Sincerely,


Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

