0006

ACT/007/006 #3(7) 5/... only 1 map bein routed

CONSULTANTS / ENGINEERS
VAUGHN HANSEN ASSOCIATES
WATERBURY PLAZA - SUITE A
5620 SOUTH 1475 EAST
SALT LAKE CITY, UTAH 84121
(801) 272-5263

November 27, 1984

RECEIVED
NOV 27 1984
DIVISION OF
OIL, GAS & MINING

Mr. Ben Grimes
PLATEAU MINING COMPANY
P. O. Drawer PMC
Price, UT 84501

RE: Information Requested by UDOGM for Sediment Ponds No.3 and No.5, Star Point Mines

Dear Ben:

As per your request, summarized herein is the information requested by the State of Utah Division of Oil, Gas, and Mining with regard to Sediment Ponds No. 3 and No. 5 at the Plateau Mining Company Star Point Mines. In a May 23, 1984 letter from Wayne Hedberg of DOGM addressed to you, the following information was requested:

> The operator will need to have the subject sediment ponds surveyed by a registered land surveyor in order to determine, if the ponds were properly sized during construction (i.e., sediment storage, dead pool storage and total storage) and if the primary and emergency spillways are at their proper heights relative to each other and to the top of the sediment pond embankment. This information would have been checked and verified if the ponds had been field inspected by a qualified registered engineer during construction and/or certified after construction.

Again in an October 23, 1984 letter from Wayne Hedberg addressed to you, the following information (pertaining to Ponds No. 3 and No. 5) was requested:

1. The previously required "as built" survey of the ponds showing pond capacity, elevation of spillway, dewatering device and emergency spillway and slopes of the pond embankments.

2. Certification by a registered Professional Engineer that: the pond is in good condition; the pond with the exception of interior embankment construction, has been constructed as designed (i.e., slopes, spillway elevations, pond capacity, etc.); and the pond embankments, based on previously conducted geotechnical evaluations, are stable.

In accordance with the above referenced requests made by DOGM, Mr. Bruce T. S. Ware (registered land surveyor in the State of Utah) was retained to provide the "as built" survey of Sediment Ponds No. 3 and No. 5; R&M Consultants, Inc, of Salt Lake City was retained to certify that the ponds are stable; and Vaughn Hansen Associates, Inc. of Salt Lake City was retained to certify that the ponds are of adequate capacity to meet hydrologic design requirements.

From the "as built" survey conducted by Mr. Bruce Ware, an "as built" topographic map was prepared for each of the sediment ponds. The topographic maps for each of the ponds are attached hereto for your reference (Attachments 1 and 2). From the topographic maps prepared by Mr. Ware, stage capacity curves for each pond were developed. The stage capacity curves are attached hereto as Figures 1 and 2 (Attachments 3 and 4).

Runoff and sediment storage requirements for Sediment Ponds No.3 and No. 5 were summarized in a previous report prepared by Vaughn Hansen Associates (December, 1983), entitled "Review of As Built Runoff and Sedimentation Control Plan Star Point Mines, Plateau Mining Company." As indicated in the above referenced report, the three-year sediment storage requirements for Ponds No. 3 and No. 5 are 1.68 ac-ft and 2.24 ac-ft, respectively. The 10-year, 24-hour runoff volume storage requirements for Ponds No. 3 and No. 5 are 2.22 ac-ft and 4.28 ac-ft, respectively. As illustrated on Figures 1 and 2, both Ponds No. 3 and No. 5 are of adequate capacity to meet the above hydrologic design criteria. In addition to checking the pond capacity versus hydrologic design volume criteria, the ponds were visually inspected and appear to be in good condition.

R&M Consultants, Inc. in a November 21, 1984 letter addressed to you indicated that from their stability analysis the following factors of safety were obtained:

	Dry Pond (Factor of Safety)	Full Pond (Factor of Safety)
Pond No. 3	1.5	1.4
Pond No. 5	1.8	1.7

R&M Consultants' letter addressing the results of their analysis is attached hereto (Attachment 5).

As per your request, we are sending a copy of this letter directly to DOGM. If you have any questions, please call.

Sincerely,

Marvin E. Allen

Marvin E. Allen, P.E.
Executive Vice President

MEA/lv

Attachments

cc: Wayne Hedberg
Utah Division of Oil, Gas, and Mining

ATTACHMENT 3

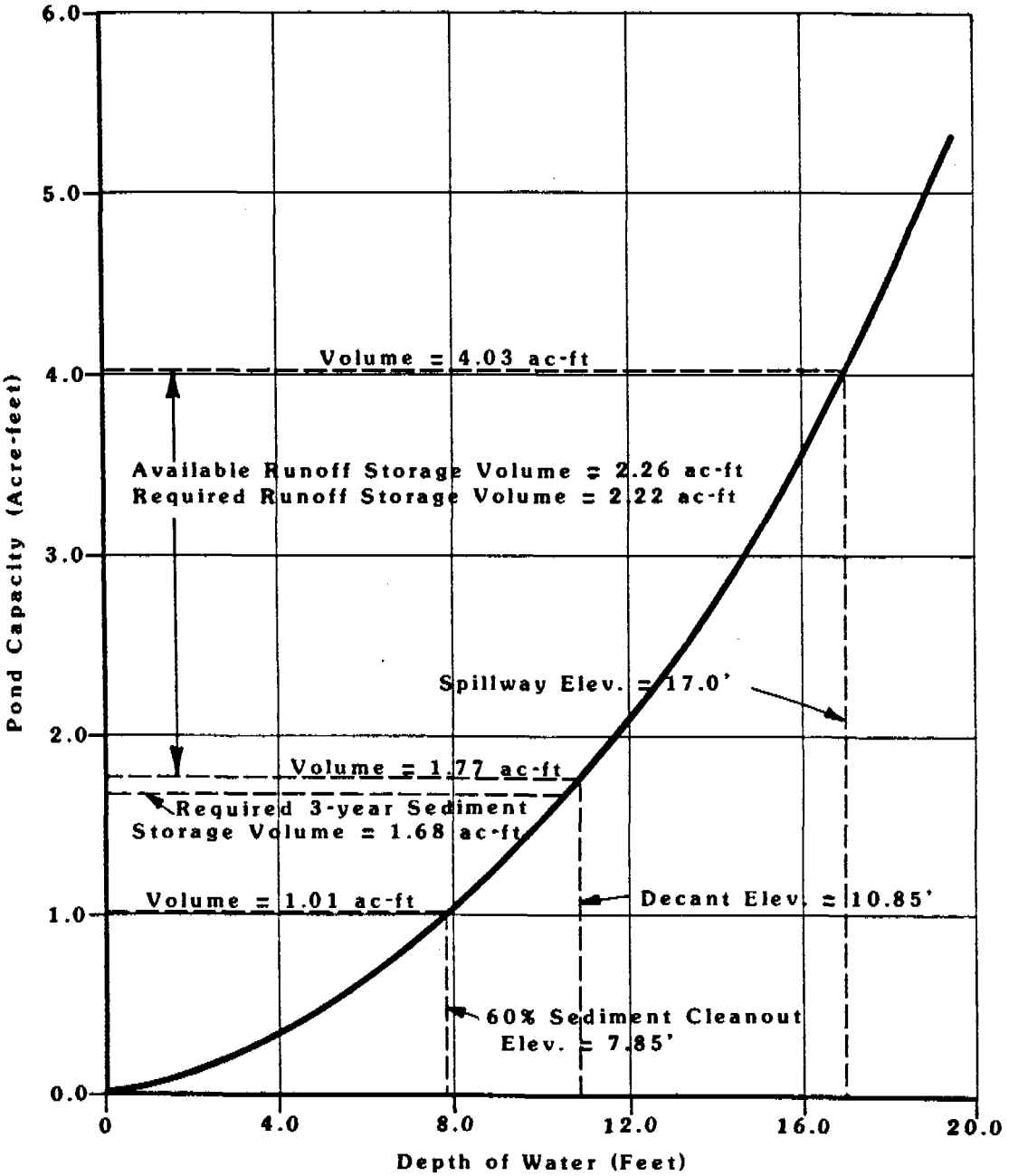


Figure 1. Stage capacity curve for Sediment Pond No. 3

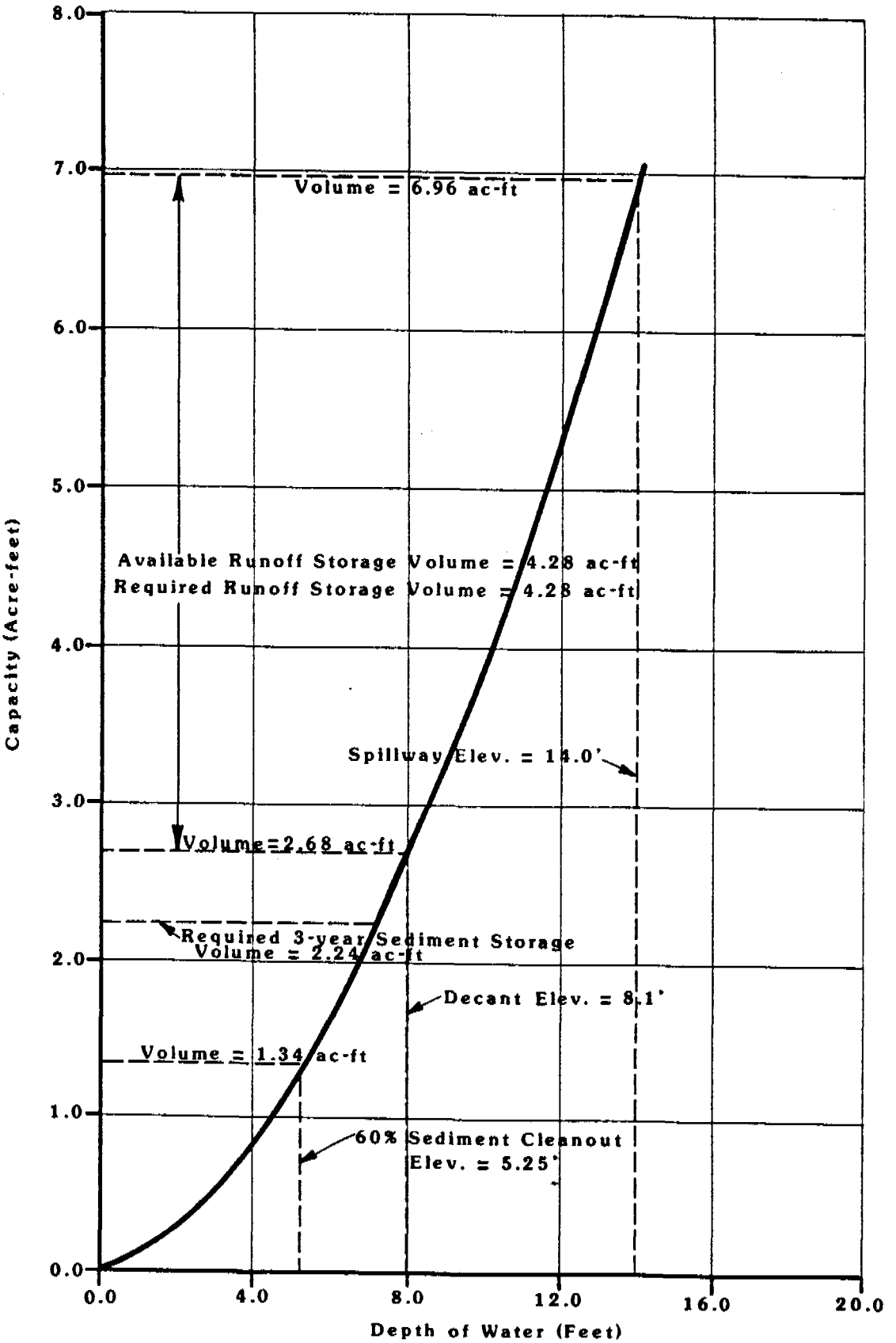


Figure 2. Stage capacity curve for Sediment Pond No. 5

ATTACHMENT 5

R&M CONSULTANTS, INC.
ENGINEERS
GEOLOGISTS
5280 SOUTH 320 WEST, SUITE E-160 • MURRAY, UTAH 84107 • PHONE (801) 263-3419

November 21, 1984

Plateau Mining Company
Drawer PMC
Price, Utah 84501

Attention: Mr. Ben Grimes

Subject: Embankment Stability Analysis of Sedimentation Pond Nos. 3 and 5, Plateau Mining Company, Wattis, Utah.

Gentlemen:

Presented below are the results of our embankment stability analyses of Sedimentation Pond Nos. 3 and 5, located on property leased/owned by Plateau Mining Company, Wattis, Carbon County, Utah. The stability analyses were conducted to determine the embankment stability following recent enlargement of Pond Nos. 3 and 5. Both the dry pond and full pond conditions were analyzed in each of the cases under static conditions.

R&M has previously conducted stability analyses of these sites under R&M Report Nos. 161024, 261001, and 261031. Soil parameters used in the present analyses were obtained from the most recent, prior R&M report (No. 261031).

Based on information provided to us by PMC, Sedimentation Pond No. 3 was enlarged by about 1,500 ft^2 and deepened by approximately four feet. Sedimentation Pond No. 3 was re-analyzed on the basis of topographic coverage provided by Plateau Mining Company (PMC) not available at the time of the previous analyses. Sedimentation Pond No. 5 was not deepened but enlarged by approximately 13,000 ft^2. Sedimentation Pond No. 5 was analyzed on the basis of the previous cross sections determined by R&M field measurements and as used in the previous analysis.

We understand from PMC that no changes in the embankment slopes, piping or spillway elevations have been made.

Our analysis was conducted using the STABL2 computer program as were our previously conducted analyses. The graphical presentation of the STABL2 program presents a series of potential failure surfaces and determines the corresponding factors of safety against failure. The potential failure surfaces are numbered from 1 through 9 and 0, (representing 10) with the sur-

face delineated by the No. 1 having the most critical value (lowest factor of safety) and the No. 0 (10) having the least critical potential for failure (highest factor of safety against failure). The results of our analysis are presented below:

	Dry Pond (Factor of Safety)	Full Pond (Factor of Safety)
Pond No. 3	1.5	1.4
Pond No. 5	1.8	1.7

Copies of the graphical output of the STABL2 program are presented on the attached Drawing Nos. 1 through 4.

Please contact us if there are any questions on the above.

LaMonte G. Sorenson
Sr. Engineering Geologist

Norman L. Bennion, P.E.
Manager

NLB:LGS/ljp

REGISTERED PROFESSIONAL ENGINEER
No. 5371
NORMAN L. BENNION
State of Utah

R&M NO. 461101

SEDIMENTATION POND NO. 3

DRY CONDITION

DRAWING NO. 1

	γ	γ_{sat}	C(psf)	ϕ(deg.)
Soil Type I (fill)	110	125	0	36
Soil Type II (fill)	115	130	1750	20
Soil Type III (Natural soil)	110	125	0	40
Soil Type IV (Bedrock)	160	160	0	50

Original Pond Configuration (Dashed Line)

Present Pond Configuration

Most Critical Failure Surface (F.S.=1.47)

Soil Type I

Soil Type II

Soil Type III

Soil Type IV

X AXIS FT

Y AXIS FT

51.38

155.63

259.38

363.13

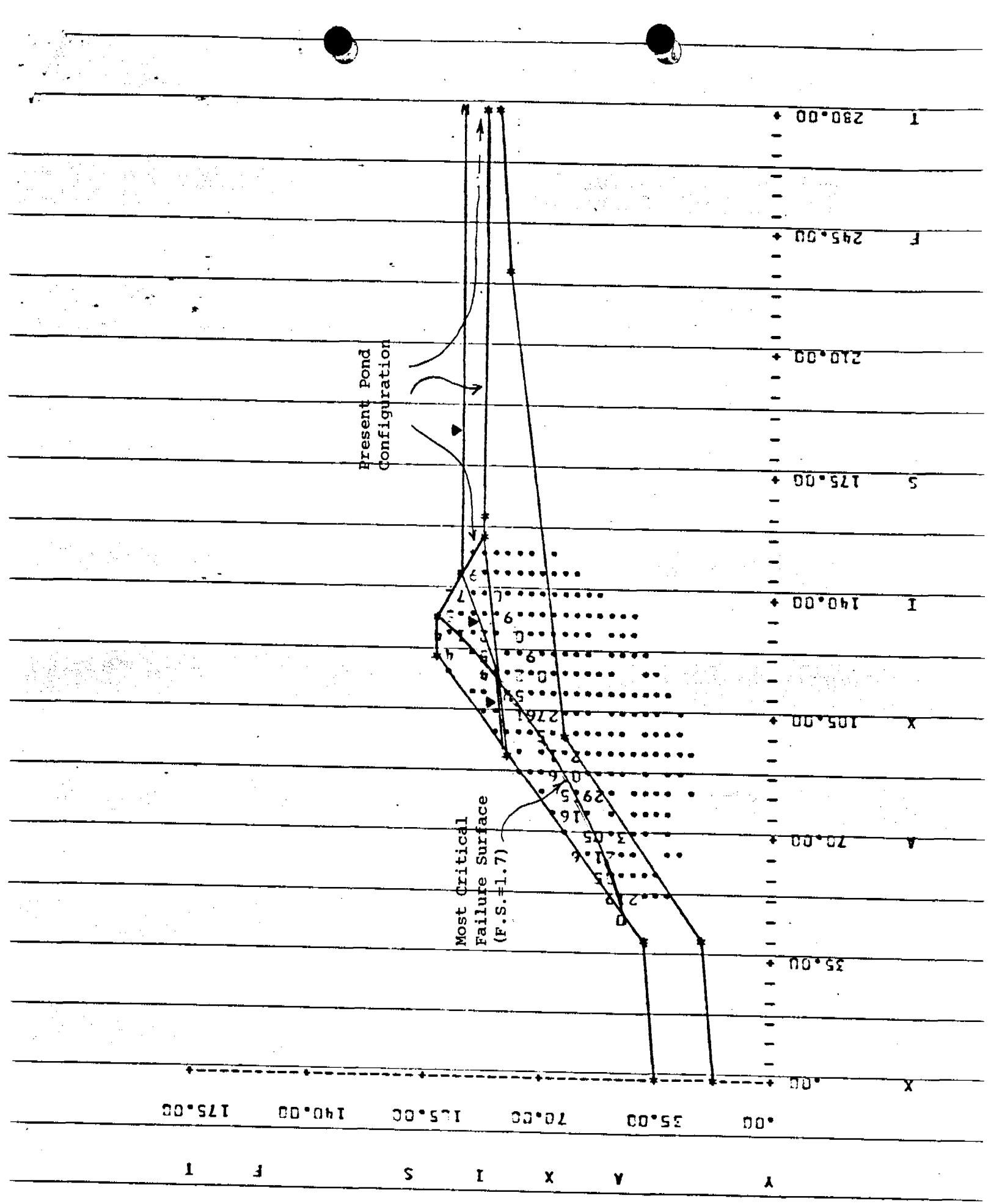
415.00

R&M NO. 46101

SEDIMENTATION POND NO. 3

FULL POND

DRAWING NO. 2



SEDIMENTATION POND NO. 5
DRY POND

R&M NO. 461101

DRAWING NO. 4

R&M NO. 461101

SEDIMENTATION POND NO. 5

DRY CONDITION

DRAWING NO. 3

	γ	γSat	C(psf)	∅(deg.)
Soil Type I (fill)	120	130	500	34
Soil Type II (nat. soil)	115	130	0	40
Soil Type III (bedrock)	160	160	0	50

Most Critical
Failure Surface
(F.S.=1.8)

Present Pond
Dimension

Original Pond
Dimension

Soil Type I
Soil Type II
Soil Type III