



MANATEE COUNTY
GOVERNMENT

PLANNING, PERMITTING AND INSPECTIONS DEPARTMENT

October 4, 1996

CERTIFIED MAIL
Z 393 613 811

Mr. Tim Butts
Tampa Bay Regional Planning Council
9455 Koger Boulevard
St. Petersburg, FL 33702-2491

Re: Ordinance 96-43 - IMC Agrico Company (Four Corners Mine DRI #5)

Dear Mr. Butts:

Pursuant to Rule 9J-2.025, Florida Administrative Code, please find enclosed a copy of Ordinance 96-43, amending the effective date of Ordinance 95-41, the development order for IMC Agrico Company (Four Corners Mine DRI #5), as adopted in open session by the Manatee County Board of County Commissioners on September 26, 1996.

If you have any questions, please contact me at (941) 749-3070, extension 6825.

Sincerely,

Carol B. Clarke, AICP
Director

CBC/jy

Enclosure

ORDINANCE 96-43
IMC AGRICO COMPANY (FOUR CORNERS MINE DRI #5)

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF
MANATEE COUNTY, FLORIDA, PROVIDING FOR AN AMENDMENT TO
ORDINANCE 95-41, TO AMEND THE EFFECTIVE DATE.

WHEREAS, the Board of County Commissioners approved Ordinance 95-41, adopting amendments to the Development Order for IMC Agrico Company (Four Corners Mine #5) which amended Ordinances 91-62 and 92-64, on October 3, 1995; and

WHEREAS, the Board of County Commissioners and IMC Agrico Company desire to amend the effective date of Ordinance 95-41 in order to facilitate the completion of a land exchange; and

WHEREAS, the proposed change does not unreasonably interfere with the achievement of the objectives of the adopted State Land Development Plan; and

WHEREAS, the proposed change does not materially change the approved Development Order and is necessary only to extend the time to meet the prerequisites necessary for Ordinance 95-41 to become effective; and

WHEREAS, the proposed change is consistent with the State Comprehensive Plan; and

WHEREAS, the proposed change will be consistent with the Manatee County Comprehensive Plan and the Manatee County Land Development Code; and

WHEREAS, said Board of County Commissioners has considered all of the foregoing and has been advised and informed in the premises.

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF
MANATEE COUNTY, FLORIDA, that:

1. Section 16. of Manatee County Ordinance 95-41 is hereby amended to read in its entirety as follows:

This Ordinance shall take effect upon the Ordinance rezoning the Land Exchange Area* to permit phosphate mining becoming effective. If said rezoning does not occur before December 31, 1996, this Ordinance shall be null and void and Ordinances 91-62 and 92-64 shall remain in effect.

2. All other provisions of Development Order Ordinance 95-41 shall remain in full force and effect. In the event there is an inconsistency between the terms of this Ordinance and the Ordinance referred to above, the terms of this Ordinance shall control.

ADOPTED AND APPROVED with a quorum present and voting this 26th day of September, 1996.

BOARD OF COUNTY COMMISSIONERS
MANATEE COUNTY, FLORIDA

BY: Stan Stephens
Stan Stephens, Chairman

ATTEST: R.B. Shore

Clerk of the Circuit Court



STATE OF FLORIDA, COUNTY OF MANATEE

This is to certify that the foregoing is a true and
correct copy of the documents on file in my office.
Witness my hand and official seal this 26th day of

October 1996;

R. B. SHORE

Clerk of Circuit Court

By: Janet Look D.C.



MANATEE COUNTY GOVERNMENT

PLANNING, PERMITTING AND INSPECTIONS DEPARTMENT

October 6, 1995

Rob Horlick
Department of Community Affairs
2740 Centerview Drive
Tallahassee, FL 32399-2100

RE: Four Corners DRI

Dear Mr. Horlick:

The purpose of this letter is to inform you that the Manatee County Board of County Commissioners approved an amendment to the Four Corners Mine Development of Regional Impact. The amendment is approved as Ordinance 95-41 and it is attached for your review.

Please be aware that this ordinance replaces the two ordinances that currently regulate the DRI; Ordinance 91-62 and 92-64. Furthermore, I believe that this ordinance addresses the concerns that the Tampa Bay Regional Planning Council and you had regarding inclusion of various review agencies for conditions related to listed species, wildlife plants and historical resources.

Please call me at (813) 749-3070 if you have any questions or comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "Michael Pendley".

Michael Pendley
Community Planning Administrator

cc: Tim Butts, TBRPC
Mark Barnebey
File

ORDINANCE NO. 95-41

DEVELOPMENT OF REGIONAL IMPACT
AMENDMENT
IMC-AGRICO COMPANY
FOUR CORNERS MINE

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, RENDERING AN AMENDED DEVELOPMENT ORDER PURSUANT TO CHAPTER 380, FLORIDA STATUTES, ON AN APPLICATION FOR AMENDMENT BY A NOTICE OF PROPOSED CHANGE FILED BY IMC-AGRICO COMPANY FOR FOUR CORNERS MINE DEVELOPMENT OF REGIONAL IMPACT; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, W. R. Grace and Company proposed a Development of Regional Impact (DRI) for a phosphate mine located in both Hillsborough and Manatee Counties; and

WHEREAS, the proposed DRI included two discontinuous tracts in Manatee County, one of which was known as the "Jameson Tract" and included 4,753 acres, the other of which was known as the "Northeast Manatee Tract" and included 5,052 acres; and

WHEREAS, on December 27, 1977 Manatee County adopted resolutions granting W. R. Grace and Company a DRI Development Order, Master Mining and Reclamation Plan, and Special Exception for the Four Corners Mine; and

WHEREAS, W. R. Grace and Company was issued an Operating Permit on January 22, 1981 to mine all parts of Four Corners Mine* excluding the Mine Extension Areas*; and

WHEREAS, on November 2, 1982, Manatee County approved a resolution transferring all rights in the Four Corners Mine from W. R. Grace to W. R. Grace, as manager to the Four Corners Mine Joint Venture; and

WHEREAS, on March 28, 1989, IMC Fertilizer, Inc. filed an ADA* for a Substantial Deviation to an approved DRI with the Manatee County Board of County Commissioners, pursuant to the provisions of Section 380.06, Florida Statutes; and

WHEREAS, said Substantial Deviation proposed:

- the addition of a one hundred and seventy (170) acre parcel in Sections 10 and 15 of Township 33 South, Range 22 East, and the mining of that area;
- the construction of a heavy media facility to the Four Corners processing plant, southwest of the existing washer, to upgrade waste pebble into saleable product;
- dismantling, mining, and rebuilding of the approximately seven hundred and forty (740) acre F-1 waste clay settling area;
- revision of the mining and reclamation plan for the Jameson and Northeast Manatee tracts, extending mining on the Jameson Tract to November 30, 2006 and mining on the Northeast Manatee Tract from 1998 through 2002 to 2002 through 2006 with reclamation being completed by 2018 and 2010, respectively;
- the mining of two hundred and eleven (211) acres within the approved DRI which were previously approved for disturbance but not mining;
- the mining of the right-of-way of Carlton Road, an unpaved County road in Sections 9 and 16, T33S, R22E;
- revision of the project traffic impacts; and

WHEREAS, on March 28, 1991, 79 acres of the 170 Acre Addition were granted Vested Rights with regard to the currently approved Manatee County Comprehensive Plan, and the remaining 91 acres of the

170 Acre Addition were granted Vested Rights with regard to the rebuttable presumption against mining within the Lake Manatee Watershed, as described in the currently approved Manatee County Comprehensive Plan; and

WHEREAS, on September 5, 1991 the Board of County Commissioners approved the Substantial Deviation request (Ordinance 91-62) in part, denying the portion of the request to allow mining on the 170 Acre Addition and within the right-of-way of Carlton Road, as well as using any truck haul route within the County other than State Road 37 north from the mine entrance; and

WHEREAS, IMC Fertilizer, Inc. and the Tampa Bay Regional Planning Council appealed the Development Order (Ordinance 91-62) based on multiple allegations; and

WHEREAS, on January 12, 1993 the Board of County Commissioners approved Ordinance 92-64 allowing the mining of the 170 Acre Addition* under certain conditions, as an amendment to Ordinance 91-62 to resolve the appeal; and,

WHEREAS, on July 1, 1993, IMC Fertilizer, Inc. became IMC-Agrico Company (IMC-Agrico), and on May 17, 1994, Manatee County transferred the Development Orders, and Operating Permit to IMC-Agrico; and

WHEREAS, all of the terms and conditions of the two previous development orders (Ordinance 91-62 and Ordinance 92-64) are hereby combined into one development order with the intention of having a single development order document from which to operate; and

WHEREAS, IMC-AGRICO and Manatee County jointly propose to purchase land and transfer the permits and development rights, so that Manatee County acquires approximately 316 acres of the land in the Lake Manatee watershed from IMC-Agrico, and IMC-Agrico acquires approximately 310 acres land outside the Lake Manatee watershed in exchange from Manatee County. The objective of the Land Exchange* is to allow the County to acquire this portion of the Lake Manatee watershed, and move the mining which is currently permitted in that area to another area outside the Lake Manatee watershed, all as part of the County's program to acquire the land in the Lake Manatee watershed; and

WHEREAS, on June 14, 1995, IMC-Agrico filed a Notice of a Proposed Change (NOPC) to Amend the Development Order to achieve the proposed Land Exchange* with Manatee County; and

WHEREAS, the Tampa Bay Regional Planning Council and Florida Department of Community Affairs were provided copies of the Notice of a Proposed Change by IMC-Agrico and were therefore afforded the opportunity to comment on the proposed change; and

WHEREAS, the Planning Commission has reviewed the Application for Amendment (NOPC) and has filed a recommendation on said Application with the Board of County Commissioners; and

WHEREAS, the Board of County Commissioners of Manatee County has on September 28, 1995 and October 3, 1995 held duly noticed public hearings on said amendment to the Four Corners Mine DRI, and has solicited, received and considered reports, comments and recommendations from interested citizens, County staff and government agencies, and the applicant.

WHEREAS, the described Project lies within the unincorporated area of Manatee County; and

WHEREAS, the Board of County Commissioners is the governing body of the local government having jurisdiction pursuant to Section 380.06, Florida Statutes.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA IN A REGULAR MEETING ASSEMBLED THIS 3RD DAY OF OCTOBER, 1995, AS FOLLOWS:

SECTION 1. AMENDMENT OF PRIOR DEVELOPMENT ORDERS

The original Development Order for Four Corners Mine in Manatee County was adopted on December 27, 1977. Said Development Order was amended in its entirety by Ordinance 91-62, which provided that the amendment shall not be construed to terminate the rights of the developer, if any, granted under Section 163.3167(8), Florida Statutes, to the extent such rights have previously been granted and not specifically herein

or otherwise modified or amended. Ordinance 91-62 as amended by Ordinance 92-64 is hereby amended and superseded as provided herein. Neither this amendment nor prior amendments shall be construed to terminate the rights of the developer, if any, granted under Section 163.3167(8), Florida Statutes, to the extent such rights have been previously granted and not specifically herein or otherwise modified or amended.

SECTION 2: FINDINGS OF FACT.

The Board of County Commissioners of said County, after considering the testimony, evidence, documentation, application for amendment of the Official Zoning Atlas, the recommendation and findings of the Planning Commission of Manatee County, as well as all other matters presented to said Board at the public hearing hereinafter referenced, hereby makes the following Findings of Fact, provided this amendment shall not be construed to terminate the rights of the Developer*, if any, granted under Section 163.3167(8), F. S., to the extent such rights have previously been granted and not specifically herein or otherwise modified or amended:

- A. The Four Corners Mine* is an approved DRI; therefore, this development has Special Exception status as explained in Section 3, herein.
- B. IMC-Agrico submitted the Notice of Proposed Change (NOPC) to Manatee County, TBRPC and DCA for the Land Exchange* on June 14, 1995, which included the following elements:
 1. Remove the lands in Sections 15, 16, & 21 from the mine (which are in the Manatee River Watershed), and add the land in Section 1, all located SE of SR 37 in Township 33S, Range 22E (which is outside the Manatee River Watershed), for a net decrease to the total mine area of approximately -6 acres. This is subject to the proposed Land Exchange* actually taking place.
 2. Merge the prior development order and subsequent amendment (Ordinances 91-62 and 92-64) and these changes into one single document.
- C. The owner of the property, which IMC-Agrico intends to mine, is/will be IMC-Agrico.
- D. The authorized agent for IMC-Agrico Company (IMC-Agrico) is Lee Thurner, as Vice President, Florida - Mineral, P.O. Box 2000, Mulberry Florida 33860.
- E. A comprehensive review of the impact generated by the Notice of Proposed Change to the DRI has been conducted by the departments of Manatee County and TBRPC.
- F. The real property, which is the subject of this application, is legally described as set forth in Section 7 of the Development Order.
- G. The Project is not in an Area of Critical State Concern, as designated pursuant to Section 380.05, Florida Statutes.
- H. The Board of County Commissioners has received and considered the report of the Manatee County Planning Commission concerning the Notice of Proposed Change to the approved DRI and the Application for Official Zoning Atlas Amendment as it relates to the real property described in Section 7 of this Ordinance.
- I. That said Board of County Commissioners held public hearings on September 28, 1995 and October 3, 1995 regarding the said Notice of Proposed Change to the approved DRI and the proposed Official Zoning Atlas Amendment described herein, in accordance with the requirements of Manatee County Ordinance No. 90-01, as amended (The Manatee County Land Development Code), Ordinance 89-01, as amended (The Manatee County Comprehensive Plan), and Chapter 2-20, Manatee County Code of Laws (the Mining Code), and considered the information received at said public hearing.
- J. The proposed Notice of Proposed Change to the approved DRI regarding the property described in Section 7 herein is found to be consistent with the requirements of The Manatee County Comprehensive Plan, The Manatee County Land Development Code and the Development conditions specified in Section 6.

SECTION 3. CONCLUSIONS OF LAW

Based upon the previous findings of fact and the following conditions of the Development Order, the Board of County Commissioners of Manatee County concluded that:

- A. The original acres contained within the original DRI Development Order are determined to have Special Exception status pursuant to Section 4.B of The Manatee County Comprehensive Plan.
- B. The 79 acres of the 170 Acre Addition* were previously determined to be "vested" pursuant to Section 4.B of the Manatee County Comprehensive Plan, and therefore, has Special Exception status to The Comprehensive Plan.
- C. The 91 acres of the 170 Acre Addition* were determined to be "vested" pursuant to Section 4.B of The Manatee County Comprehensive Plan, as to Policies 2.11.4.2 and 3.2.1.10, and, therefore, has partial Special Exception status to the Comprehensive Plan.
- D. The amendment contained in the Notice of Proposed Change for the Land Exchange* does not constitute a substantial deviation as defined by paragraph 380.06 (19), Florida Statute.
- E. The amendment contained in the Notice of Proposed Change for the Land Exchange* will not unreasonably interfere with the achievement of the objectives of the Adopted State Land Development Plan applicable to the area.
- F. The amendment contained in the Notice of Proposed Change for the Land Exchange* is consistent with the local land development regulations and is consistent with the State Comprehensive Plan (SCP) the Tampa Bay Regional Planning Council's Future of the Region, A Comprehensive Regional Policy Plan (FRCRPP), and The Manatee County Comprehensive Plan.
- G. The amendments described in the Notice of Proposed Change are consistent with the report and recommendations of the TBRPC approved on July 24, 1995.
- H. These proceedings have been duly conducted pursuant to applicable law and regulations, and based upon the record in these proceedings, the Developer* is authorized to conduct development as described herein, subject to the conditions, restrictions, and limitations set forth below.
- I. All terms, conditions and development rights including special exception status as recognized under the Manatee County Comprehensive Plan that previously applied to the area in Sections 15, 16, & 21 that is being removed by the Land Exchange*, are hereby transferred and equally apply to the area being added by the Land Exchange* in Section 1 upon the effective date of the Land Exchange*. The lands in Section 1 shall be treated and governed the same as the lands previously approved in Section 21 except as may be specifically noted herein.
- J. The review by the County, after consideration of comments from other participating agencies and participating citizens reveals that impacts of the amendments described in the Notice of Proposed Change are adequately addressed pursuant to the requirements of Chapter 380, Florida Statutes, within the terms and conditions of this amendment to the Development Order and the Application for Development Approval*. To the extent that the Application for Development Approval* is inconsistent with the terms and conditions of this Development Order, the terms and conditions of this Development Order shall prevail.

SECTION 4: DEVELOPMENT COMPONENTS

The Four Corners Mine has been previously approved for mining as generally described below:

- A. The construction of a processing plant including a heavy media facility.
- B. The construction of the F-3 waste clay settling area and a seven hundred and forty (740) acre F-1 waste clay settling area including the ability to dismantle, mine, and rebuild the F-1 waste clay settling area.
- C. The mining and reclamation plan for the Jameson tract provides that completion of mining will be completed by November 30, 2006, and that reclamation will be completed by 2018.

- D. The mining and reclamation plan for the Northeast Manatee tract provides that the mining period will be from 2002-2006, and that reclamation will be completed by 2010.
 - E. The mining of 9,952 acres including the 211 acres approved in Ordinance 91-62 within the Jameson Tract and the 170 acre parcel in Sections 10 and 15 of Township 33 South, Range 22 East if approved in accordance with Section 6 of this Ordinance.
 - F. Projected traffic impacts to allow product shipment by truck to Piney Point/Port Manatee as described in Section 6. herein.
 - G. The mining of the right-of-way of Carlton Road in Sections 9 and 16, Township 33 South, Range 22 East, subject to the vacation of the existing right-of-way and relocation of Carlton Road by the Developer, as described in Section 6. herein.
- The Four Corners DRI is hereby amended to allow the following development subject to the applicable conditions of the Manatee County Comprehensive Plan, Ordinances 91-62 & 92-64 as merged herein, and conditions listed herein.
- H. The modification of the mine site as proposed by the NOPC, and defined in the Land Exchange*.

SECTION 5: DEFINITIONS

Note: An asterisk (*) denotes that the word is defined. The definitions contained in Chapter 380, Florida Statutes, shall apply to this Development Order, in addition to those listed below.

- A. "Acceptable Level of Service*" shall be Level of Service D, peak hour on urban roads, and Level of Service C, peak hour on rural roads, or as shown on Table 5.1 of the Manatee County Comprehensive Plan, whichever is more restrictive. Acceptable Level of Service for links and intersections in Polk County, Florida, shall mean Level of Service as set for the affected roadways in the Polk County Comprehensive Plan.
- B. "Application for Development Approval*" and "ADA*" shall mean Four Corners Mine's* Development of Regional Impact Application for Development Approval and sufficiency responses, as amended by IMCF's Substantial Deviation Application for the Four Corners Mine (March 23, 1989), all five Additional Information Submittals submitted by the Developer* in response to the sufficiency reviews of state, regional, and local agencies, the revised mining schedule for the Jameson Tract, and the traffic information dated January 23, 1991 and the Notice of Proposed Change submitted on June 14, 1995 including the revised mining schedule and reclamation information for the Jameson Tract attached as Exhibit A hereto.
- C. "Best Management Practices*" shall mean practices that are technologically and economically practicable and most beneficial in preventing or reducing adverse impacts from mining activities. For more specific information and examples, see the same definition in the Manatee County Comprehensive Plan.
- D. "Best Possible Technology*" shall mean the most advanced technology which provides the maximum protection possible for the public health, safety, and welfare and which minimizes to the greatest degree possible any adverse impacts from industrial uses and mining activities, on the watershed of the Lake Manatee Reservoir. Best Possible Technology may include, but is not limited to: innovative reclamation techniques, augmentation of public water supplies that could be adversely affected by mining activities; construction of secondary containment structures or other measures to ensure against catastrophic failure of primary containment structures; elimination of mine site rock dryers; and zero point discharge; provided however, such requirements shall not be applied if the Developer* demonstrates that they are technologically infeasible. In ascertaining the Best Possible Technology, economic disadvantages shall only be considered relevant when analyzed in relation to other applicants conducting mining activities in the watershed or the Lake Manatee Reservoir.
- E. "Conservation Areas*" shall mean the secondary zone around the eagle's nest, as determined by the U.S. Fish and Wildlife Service.

- F. "Developer*" shall mean IMC-Agrico, assigns, agents, and successors in interest as to the Four Corners Mine.
- G. "Development Approval*" shall mean any approval for this development granted through this DRI Development Order.
- H. "Extended Four Corners Mine" shall mean that portion of the Four Corners Mine located in Manatee County and that portion of Four Corners Mine as originally approved by Hillsborough and Polk Counties as illustrated on Map A which is attached as Exhibit B dated July 24, 1995. The Developer shall notify Manatee County of any amendments to any approved DRI in the Extended Four Corners Mine.
- I. "Four Corners Mine*" shall mean all portions of the Four Corners Mine which are located in Manatee County as described in Section 7 and excludes those portions of the mine located in Hillsborough and Polk Counties.
- J. "Master Mining and Reclamation Plan*" shall mean a description of proposed mining activities over the life of the mine, so as to allow overall review of applicant's mining activities.
- K. "Mine Extension Areas*" shall mean the 740 acres of additional area to be mined in the F-1 Settling Area, the 170 Acre Addition* to the Four Corners Mine*, and the 211 acres not previously approved for mining.
- L. "Preservation Areas*" shall mean the primary zone around the eagle's nest, as determined by the U.S. Fish and Wildlife Service, all 25-Year Floodplain* areas, and the MA-08 rookery.
- M. "Reclamation Plan*" shall mean the consolidated Master Mining, Reclamation and Drainage Plan approved by the Board of County Commissioners on January 22, 1981 for the Northeast Manatee Tract and the revised Master Mine Plan approved by the BOCC dated June 9, 1995, for the Jameson Tract.
- N. "25-Year Floodplain*" shall mean the area so labeled on the floodplain map for the Northeast Manatee Tract in the original Four Corners Mine DRI/ADA (Exhibit 20.3B, Page 146) and the area so labeled in Map H-1 of the Notice of Proposed Change dated June 9, 1995 for the Jameson Tract. The exact location of the 25-Year Floodplain shall be determined by a process of calculation of the elevation of the highest water level following a 25-year storm event, and determination of the location of that water level in the field by elevation survey, using standard field practices, and standard hydrological analysis based upon pre-mining disturbance conditions. The 25-Year Floodplain is distinguished from the "100-Year Flood Prone Areas" or "100-Year Flood Zone as shown on FEMA maps."
- O. "170 Acre Addition*" shall mean the addition to the Jameson Tract described in Section 7 under the heading "Changes to Jameson Tract".
- P. "Vested Rights Component*" shall mean the 79 acres of the 170 Acre Addition*, which were granted vested rights to the currently adopted Manatee County Comprehensive Plan and the 91 acres of the 170 Acre Addition* which has partial vested rights to the currently adopted Manatee County Comprehensive Plan, as set forth in Section 3, Paragraphs B and C, above."
- Q. "Land Exchange*" shall mean the removal of the portions of the mine located in Section 21, and those portions of Sections 15 & 16 lying south east of SR 37, and the addition of the land in Section 1 lying south east of SR 37, all in Township 33 South, Range 22 East as described in Section 7 of under the heading "Changes to the Jameson Tract".
- R. "Land Exchange Area*" shall mean that land involved in the Land Exchange* lying in Section 1, south of SR 37.

SECTION 6: DEVELOPMENT CONDITIONS

Land

- A.(1.) "The soil conservation measures referenced on Page 14-4 of the ADA*, at minimum, shall be implemented for the 170 Acre Addition*. These measures include the orientation of mine cuts down

slope to intercept any surface runoff; the use of diversion interceptor ditches, berms, and settling ponds to collect stormwater surges and accompanying sedimentation; and the use of mulching and grass swales to filter any further runoff."

A.(2.) "The methods discussed on Page 14-2 of the ADA* to overcome problems associated with the particular on-site soil types shall be implemented on the 170 Acre Addition*."

A.(3.) A sufficient quantity of organic deposits and natural topsoils in wetland habitats capable of supporting indigenous vegetation shall be stockpiled during mining activities and utilized in reclamation of all wetland habitats. The use of the donor soil (nuisance Species Free) shall follow the requirements of DEP and/or COE, to insure reclamation and mitigation success. At a minimum, the following soil associations shall be stockpiled and utilized in reclamation:

1. Canova-Anclote-Okeelanta (Soil group #7)
2. Felda-Wabasso association (Soil group #24)
3. Floridana-Immokalee-Okeelanta association (Soil group #26)

Groundwater

B.(1.) The Groundwater Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit and Chapter 2-20, Code of Laws. At a minimum, the Groundwater Monitoring Program shall specify sampling locations, parameters, frequencies, duration, and analytical methods and procedures. The groundwater monitoring program shall be amended as determined necessary by Manatee County to require groundwater sampling at surficial monitor wells for the F-3 clay settling area. A summary of the results of the monitoring program shall be included as part of the DRI annual report.

B.(2.) Prior to mining in the Mining Extension Areas*, a field investigation of the mine shall be required to locate old wells not documented in the records. The Developer* shall properly plug and abandon all on-site wells (Table 23C-1, attached as Exhibit C), in accordance with SWFWMD and Manatee County Health Department standards and rules, prior to mining each area.

Surface water

C.(1.) Best Management Practices* for reducing surface water quality impacts shall be implemented. Best Possible Technology* shall be required for those portions of the Mine Extension Areas* located within the Lake Manatee Watershed.

C.(2.) The existing Surface Water Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit in Chapter 2-20, Codes of Law. At a minimum, the Surface Water Monitoring Program shall specify sampling locations, parameters, frequencies, duration and analytical methods and procedures. The Surface Water Monitoring Program shall require surface water sampling of the East Fork of the Manatee River. A summary of the results of the monitoring program shall be included as part of the DRI Annual Report. The Water Quality Monitoring Program required in the Operating permit shall contain sufficient surficial water quality monitoring stations to characterize runoff from the Mine Extension Areas*.

C.(3.) The Developer* shall implement the water quality mitigation measures identified in the ADA*, Addendum Question 15-D.

C.(4.) Should monitoring results indicate that applicable water quality standards are not being met due to mining activities, the violation shall be immediately reported to Manatee County and any other agency with jurisdiction and appropriate corrective measures shall be immediately implemented.

C.(5.) a) Copies of amendments to NPDES permits within the Four Corners Mine Substantial Deviation (including specific conditions) shall be submitted to Manatee County.

b) Stormwater runoff from lands cleared for mining and active mining areas shall be routed through ditches into the mine water recirculation system and discharged only through permitted NPDES points.

- c) All discharges and discharge rates from the NPDES points shall be in accordance with Chapter 62-300, FAC and conditions of the specific NPDES permit."

Wetlands

- D.(1.) Any portions of the Four Corners Mine* which meets the definition of Preservation* and Conservation Areas* shall be so designated in the DRI Annual Report.
- D.(2.) The Developer* shall provide a thirty foot (30') wide transition zone around all wetlands in Preservation Areas* to provide an upland transition into the wetland areas and to protect the natural systems from development impact. The recharge ditch and berm may be located in the transition area, and water shall be added as needed to maintain the hydroperiod. The Developer* shall obtain wetland delineations from the appropriate permitting agencies as part of the dredge and fill permitting requirements prior to any disturbance of jurisdictional areas, and shall simultaneously submit the applications to Manatee County.
- a) Mitigation for wetland losses shall be shown on the DEP and/or COE Dredge and Fill permit application prior to the wetlands being disturbed.
- b) All wetland losses within the Four Corners Mine* shall require 1:1 in-kind wetland replacement, at minimum, except those portions without full Special Exception status which shall require a higher mitigation ratio in accordance with The Manatee County Comprehensive Plan unless reduced by the Board of County Commissioners.
- c) Wetlands which are permitted to be altered or eliminated shall be used as donor material for revegetation of mitigation areas as outlined in development condition A.(1.).
- d) All mitigation areas and littoral shelves shall be monitored in accordance with DEP, and Manatee County requirements. Additional planting may be required to achieve the desired natural cover rate. Mitigation areas monitoring results shall be included in the DRI annual report.

Floodplains

- E.(1.) No mining or disturbance of the 25-Year Floodplain* shall be allowed except for those crossings permitted on the Northeast Tract as part of the original DRI approval or those crossings as outlined in E(2) below.
- E.(2.) Any disturbance to the 25-Year Floodplain* necessitated by utility, dragline, or pipeline crossings or construction shall be conducted during periods of low flow and all applicable Best Management Practices* for erosion control shall be utilized throughout the entire period of disturbance. Immediately after such use is terminated, the Developer* shall remove all structures, restore the area in question to original grade elevations, and revegetate the area.
- E.(3.) No adverse hydroperiod alteration shall be permitted in the 25-Year Floodplain* of the Mine Extension Areas* and the MA-08 rookery. Natural annual hydroperiods, normal pool elevations and seasonal water fluctuations shall be substantially maintained, however, this shall not require replication of storm surges. Hydroperiod monitoring of the above described areas shall be conducted semiannually, beginning immediately and continuing for three years following reclamation completion of the subbasin surrounding each of these areas. The monitoring sites shall be selected in cooperation with Manatee County. Should the above described be adversely impacted due to mining activities, the Developer* shall cease all mining and associated activity in the affected sub-basin until remedial measures have been taken to correct the hydroperiod imbalance. Such measures could include limitations on surrounding activities, enlargement of buffer areas and additional protection measures or water augmentation. The results of the hydroperiod monitoring shall be provided in each annual report.
- E.(4.) In order to promote the maintenance of the functional aspects of floodplains, water alterations caused by pit de-watering shall be limited to only one side of a floodplain at a time and mining of the opposite side of the floodplain shall be delayed wherever feasible until the mined portions have been reclaimed to design elevations and groundwater levels have recovered.

Vegetation and Wildlife

- F.(1.) In the event that any species listed in Rule 39-27.003-.005, FAC, are observed frequenting the 170 Acre Addition* or the Land Exchange Area* for nesting, feeding, or breeding, proper protection/mitigation measures shall be employed immediately in cooperation with the Florida Game and Fresh Water Fish Commission (GFC). In the event that a wood stork colony is observed, the Developer* shall implement the US Fish and Wildlife Service's Habitat Management Guidelines for the Wood Stork in the Southeast Region.
- F.(2.) The Developer* shall conduct further floral surveys of the 170 Acre Addition* and Land Exchange Area*, in accordance with GFC recommendations prior to mining of the site.
- F.(3.) At a minimum, a Wildlife and Habitat Management Plan shall be established by the Developer* for the 170 Acre Addition* in cooperation with the Department of Agriculture and Consumer Services, GFC, and Manatee County, with review opportunities for the agencies and with approval by the County required. The Wildlife and Habitat Management Plan shall address:
- a) Listed species which could be relocated on site or off site. All listed species and their current locations shall be identified and relocation/management plans provided.
 - b) A gopher tortoise mitigation program. This plan shall include a management program for the species.
- F.(4.) Because portions of the Jameson Tract may fall within the secondary and, possibly, primary zones established for protection or eagle nests, all mining and reclamation activities for the Four Corners Mine* shall conform with the U.S. Fish and Wildlife Service's Habitat Management Guidelines for the Bald Eagle in the Southeast Region (most recent edition) in regard to the eagle's nest (MN-08), which appears to be located approximately 1,450 feet southeast of the Four Corners Mine's* eastern boundary. (See the bird nesting locations map Figure 18B-1, Sufficiency Response 2, Page 40.)
- a) The U.S. Fish and Wildlife Service (FWS) shall determine site specific conditions for protection from mining activities as are appropriate. Site specific criteria shall include mining and seasonal operation limitations, as appropriate.
- F.(5.) The boundaries of the rookery (MA-08) shall be determined by the GFC, and the information shall be submitted to Manatee County as part of the DRI Annual Report.
- F.(6.) A Wildlife and Habitat Management Plan shall be established by the Developer* for the Land Exchange Area*, in cooperation with the Department of Agriculture and Consumer Services, GFC, and Manatee County, with review opportunities for the agencies and with approval by the County, DCA and State agency with Phosphate Mining regulatory authority for wildlife and habitat required. The Wildlife and Habitat Management Plan shall be approved prior to mining the site and shall address:
- a) Listed species (including Gopher Tortoises) which could be relocated on site or off site. All listed species and their current locations shall be identified and relocation/management plans provided.

Drainage

- G.(1.) Prior to issuance of any new Operating Permit for the Four Corners Mine*, the following information must be submitted to Manatee County: estimated total volume and peak discharge rates of stormwater runoff to be generated by the final reclamation plan during the mean annual, 25 year, and 100 year storm events.
- G.(2.) The drainage basins in the Four Corners Mine* shall be restored to their approximate pre-mining size and location as described in the ADA* response to question 22.(B.). The post-reclamation flood flow peaks shall be in accordance with the rates established in the response to question 22C of the ADA. The discharge rate shall be in accordance with Chapter 40D-4 F.A.C. requirements.
- G.(3.) Upon completion of reclamation in each affected drainage basin, the Developer* shall conduct a detailed study to define final flood frequency elevations, delineate the aerial extent of each basin and

determine the duration and quantity of surface water leaving the site during high rainfall events. This information shall be transmitted to all appropriate local, regional, state, and federal agencies involved in floodplain management and floodplain delineation so that downstream flood elevations and management mechanisms can be appropriately modified.

- G.(4.) If the hydrologic studies indicate that the peak discharge characteristics of any affected drainage basin have been increased over premining conditions, the Developer* shall increase the retention capacity of the reclaimed land such that peak discharge characteristics of the affected drainage basin is equal to or less than that which existed before mining. Increases in retention capacity shall be accomplished with minimum use of control structures.
- G.(5.) All re-created wetlands and floodplain/floodprone areas shall be subject to all the rules, regulations and policies of local, state, regional and federal agencies governing wetland and floodplain/floodprone areas at the time mining and reclamation is complete.
- G.(6.) The recreated wetlands shall be designed to promote seasonal fluctuations of water levels within the freshwater marsh and encourage seasonal inundation of the marsh property. Final grade of the side slopes of the marsh periphery shall meet the requirements established by Manatee County in Ordinance 81-22 or by the Department of Environmental Protection, whichever is more stringent.
- G.(7.) The Developer* shall be responsible for maintaining the water recirculation system and the drainage system, including channels, swales, culverts, erosion protection facilities, and discharge facilities. Any transfer of this responsibility from the Developer* to subsequent owners, or assigns, shall require the approval of the appropriate permitting agency.

Water Supply

- H.(1.) The Developer* shall provide, operate, and maintain the internal water supply system for the heavy media plant until such time as it is no longer needed for operations; then the Developer* shall abandon and remove it according to the applicable regulations at that time.
- H.(2.) The Developer* shall continue to provide 1.96 MGD augmentation to the Manatee County water supply. The Developer* shall also maintain a wellfield capable of providing no less than 14 MGD annual daily coverage and 18 MGD maximum daily demand, which will produce water which can be treated to meet or exceed drinking water standards by conventional lime softening techniques (1.96 MGD of this capacity will be provided to Manatee County pursuant to the augmentation referenced above) until the requirements set forth in Section 6.H.(3) of the Development Order are satisfied.
- H.(3.) Upon completion of reclamation activities in the Lake Manatee Watershed, the Developer* shall perform studies in accordance with SWFWMD and Manatee County requirements, to quantify the post-reclamation water budget so that mitigation in the form of long-term water supply augmentation can be performed by the Developer*, as necessary, to maintain the historic contribution to the Lake Manatee Watershed.

Transportation

- I.(1.) The Developer* shall assume responsibility for the installation of a caution light at the mine's ingress-egress point on State Road 37, for use during operating hours.
- I.(2.) An annual monitoring program to provide peak-hour and average daily traffic counts at the project entrance, including a description of the types of vehicles making each trip, shall be instituted to verify that the projected number of external trips for the project are not exceeded. Counts will continue on an annual basis through project completion. This information shall be supplied in the required annual report. If the annual report indicates that the total trips exceed projected counts, Manatee County shall conduct a substantial deviation determination pursuant to Subsection 380.06(19), F.S., and may amend the Development Order to change or require additional roadway improvements. The results of the study may also serve as a basis for the Developer* or reviewing agencies to request Development Order amendments. If the variance is determined to be a substantial deviation, the revised transportation analysis required pursuant to Subsection 380.06(19), F.S., will be based upon results of the monitoring program and agreements reached at another transportation methodology meeting to be held prior to the preparation of the new analysis.

I.(3.) If by 2007, the Florida Department of Transportation determines that road improvements are required on the following sections of state maintained highway, the Developer* shall contribute its proportionate share of funds based on the percentage of project traffic on that roadway at that time. These improvements include:

- a) Improve the intersection at SR 37/SR 640 by providing signalization, when warranted by the Manual for Uniform Traffic Control Devices (MUTCD).

I.(4.) That portion of Carlton Road contained in Sections 9 and 16 of Township 33 South may be vacated subject to a temporary easement for public access over the existing right-of-way until such road is relocated in accordance with this condition. If the Carlton Road vacation is approved, Manatee County shall dedicate right-of-way in Sections 17, 20, and 21, Township 33 S, Range 22 E, the Developer* shall dedicate or ensure the dedication of the remaining right-of-way in Sections 8, 9, and 16 to Manatee County to ensure a continuous 84 foot wide right-of-way as shown on the attached map (Exhibit D) or other location approved by Manatee County in accordance with Manatee County requirements and at Developer's* sole expense prior to the disturbance and/or mining of the existing right-of-way. The relocated road shall be a 25 foot wide roadway of stabilized material. Manatee County will cooperate in a timely manner in the permitting of the new location. The responsibility and the expense of the other required governmental permitting, legal costs, right-of-way acquisition on the Yon and/or Badcock properties and relocation construction will be that of the Developer*. This section should not be construed to require Manatee County to condemn any right-of-way. The mining setback from the relocated right-of-way will be in accordance with Section J.(9.) of this Order.

I.(5.) All non-public roads, streets, bridges and other access ways located upon the site shall be constructed and maintained by the Developer* without any cost or obligation to Manatee County.

I.(6.) The existing east-west road on the Hillsborough-Manatee County line should be named Four Corners Mine Road and two street signs (one in each County) erected at its intersection with SR 37 at the Developer's* expense.

I.(7.) Transportation of product from this mine by truck is permitted on State Road 37 North from the identified mine entrance on State Road 37. The Developer* shall not use State Road 37, State Road 62 and/or Moccasin Wallow Road routing to ship products to Piney Point/Port Manatee or return to the Four Corners Mine from Piney Point/Port Manatee. The only approved routing from Four Corners Mine to Piney Point/Port Manatee is as follows:

State Road 37 North to State Road 674, thence West to US 41; thence South to Piney Point/Port Manatee and return by same route. The Developer* will not exceed 750 loads of product per day by truck shipments with no more than 94 loads of product per day being transported by truck to Piney Point/Port Manatee.

I.(8.) The establishment of crossing points on County roads for purposes of access, movement of mining machinery, or mineral transport pipelines shall not be permitted without the prior written approval of the Phosphate Mining Coordinator. The Phosphate Mining Coordinator shall be sent copies of all crossing permit applications at the time of application for crossing any County right-of-way.

I.(9.) The Developer* shall notify the Phosphate Mining Coordinator of any spill which may occur on public right-of-way as the result of a traffic accident.

I.(10.) The Developer* shall change eight hour work shifts to times that do not coincide with the A.M. (7:00 to 9:00) and P.M. (4:00 to 6:00) peak traffic periods.

Mining Operations

J.(1.) The Developer* shall obtain all the necessary construction and operation permits and approvals required by, and shall fully comply, to the extent not inconsistent with this Development Order and the VRD-90-14, with all the provisions of applicable laws, ordinances, rules, regulations or requirements of any federal, state, regional or county governmental authority in connection with the proposed mining activities at the Four Corners Mine*.

- J.(2.) When filled, the F-1 (rebuilt) and F-3 disposal areas shall contain an amount of waste clay approximately equivalent to the amount of waste clay produced from Four Corners Mine*.
- J.(3.) All earthen embankments (dams) shall be designed, constructed, inspected, and maintained in accordance with the standards of Chapter 62-672, FAC - Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations, as indicated in the Substantial Deviation ADA*, as well as all other applicable local, state, and federal requirements.
- J.(4.) The Developer* shall abide by all Florida Department of Environmental Protection (DEP) reclamation regulations regarding site cleanup and shall dismantle and remove any building structures existing at the cessation of the mining operation that cannot be put to an allowable use under the zoning district classification of the proper. The beneficiation plant and its accessory structures would be exempt from this condition if the Board of County Commissioners approves an extension of that facility prior to cessation of the mining operation and adequate performance security is posted to guarantee later removal of these structures.
- J.(5.) The Developer* shall reclaim all mined or disturbed land to DEP or Manatee County standards, whichever is more stringent. Reclamation and revegetation shall proceed immediately after mining activities cease in each parcel and in no case shall exceed the schedule for reclamation outlined on page 38-17 of the ADA*. The Developer* shall be responsible for maintenance of all reclaimed areas until such time that those areas are certified as reclaimed by Manatee County in accordance with the procedures established in the Mining Code.
- J.(6.) The Developer shall utilize Best Management Practices* (including revegetation, reforestation, erosion control, etc.) for all mined/disturbed lands to accelerate and ensure the successful establishment of the natural vegetative associations that the reclamation areas are designed to support. Wherever possible, leach zone material shall be covered by graded spoil to lessen the potential of increased radiation levels on reclaimed lands.
- J.(7.) Reclamation shall be considered complete when areas intended to develop native forested and unforested wetland vegetation associations are firmly established and it is assured that these areas will develop the vegetation associations that they are designed to support, and when DEP and Manatee County have approved the reclamation of the Four Corners Mine* in accordance with Chapter 62C-16, Florida Administrative Code and the Mining Code.
- J.(8.) The Developer* shall allow no development or land use activity (such as grazing, farming, tree harvesting) within any newly established 25-Year Floodplains* that would in any way inhibit the growth and development of native vegetation associations appropriate for floodplains, during the mining period.
- J.(9.) Minimum mine cut setbacks shall be maintained as follows:
- a. 500 feet of a habitable structure existing at the time of initial application for Master Mining Plan approval;
 - b. 200 feet of an existing public right-of-way or public or private easement for drainage utility or road purpose;
 - c. 200 feet of IMCF's property line;
 - d. A distance not less than 50 feet from Carlton Road right-of-way which the Developer* can establish will ensure to the County Mining Coordinator that the mining will be performed in a manner which will protect the structural integrity of the roadway.
 - e. Notwithstanding the foregoing, Section 2-20-33 of the Mining Code shall apply to the Mine Extension Areas*.
- The F-3 exterior dam will meet the setback requirements of Section 2-20-33 of the Mining Code with the exception of Section 2-20-33(2)(b) in which case it will not be less than 200 feet from any public right-of-way.

All other operations and facilities shall meet the setback requirements of Section 2-20-33 of the Mining Code, provided that the F-1 exterior dam, or any reconstruction of the F-1 dam (F-1R), shall not be required to meet the requirements of Section 2-20-33, unless 50% of the linear footage of the existing F-1 exterior dam is dismantled or significantly disturbed or any portion of the existing F-1 exterior dam within 2500 feet of any existing church, school or habitable structure is dismantled or significantly disturbed.

However, nothing in this requirement shall prevent the reduction of setbacks pursuant to Section 2-20-33 (b)(4) of the Mining Code.

J.(10.) Radiation standards shall be maintained as follows:

- a. For the Mine Extension Areas*, the radiation standards shall be maintained in accordance with Section 2-20-33(d) of the Mining Code;
- b. For all other areas of the mine, and in accordance with prior approvals, the weighted average soil concentration of radium for all reclaimed lands not included in the Mine Extension Areas*, which are not reclaimed over slime ponds or are not reclaimed as lakes or wetlands, for the top six feet shall not exceed 8.8 pCi/gram. In addition, these areas shall also comply with Section 2-20-33(d) (3) of the Mining Code.
- c. Any building shall be designed and constructed and all reclamation shall be done to provide protection against gamma radiation and radon gas accumulation and emanation in accordance with the most stringent applicable state and federal requirements.
- d. This section shall be subject to any restrictions set forth in Section 553.98, Florida Statutes.

J.(11.) Any reconstruction of the F-1 dam (F-1R) or any portion thereof shall be constructed in accordance with the appropriate design cross section shown in either Figure 14 or Figure 16 of the Dames and Moore January 2, 1990 report which is attached as Exhibit E.

General Conditions

K.(1.) Best Management Practices* shall be required for the operation, maintenance, and reclamation of the Four Corners Mine*. Best Management Practices* shall be used to accelerate the natural development of those areas that are intended to support native forested and unforested wetland vegetation associations. Utility and pipeline crossings of the tributaries shall, at a minimum, meet the following:

- a) Pipelines shall be placed above the 25-Year Floodplain* elevation and isolated from tributaries by berms.
- b) Pipelines shall be jacketed and spill containment areas outside the floodplain shall be provided.
- c) Pipelines shall be routinely inspected by operating personnel and the system shall be shut down if a spill occurs until the source of the spill is corrected.
- d) All utility crossings shall be elevated above the 25-Year Floodplain* level and shall consist of piers without any approach embankment. Verification that the proposed piers can sustain high water flow conditions shall be certified by a professional engineer, under seal, prior to any construction.

K.(2.) Due to the mine's location within the Lake Manatee watershed, Best Possible Technology* shall be applied to any portion of the Mine Extension Areas* located within the Lake Manatee Watershed Overlay District.

K.(3.) Storage of hazardous materials in excess of 220 lbs., or acutely hazardous materials in excess of 2.2 lbs. for any day of the month shall be prohibited within the Lake Manatee Watershed. Furthermore, all hazardous and acutely hazardous material storage shall be prohibited within any 25-year Floodplain* or 100-year Floodplain of any inflowing watercourse located within the Lake Manatee Watershed or within 200 feet of the DEP jurisdictional line associated with any inflowing watercourse, whichever is greater. Hazardous and acutely hazardous materials shall be as defined and listed in 40 CFR 261

and as adopted within Chapter 62-730, Florida Administrative Code, and Section 403.7, Florida Statutes.

K.(4.) All of the Developer's* commitments, which are attached as Exhibit F and any other as set forth in the ADA*, shall be honored for the Mine Extension Areas*, except as they may be superseded by specific terms of this Ordinance.

K.(5.) The DRI annual report shall comply with the Florida Department of Community Affairs (DCA) report format and informational requirements, and shall include summaries of NPDES monitoring results and surface water and groundwater quality monitoring results (including notification of violations of water quality standards per Chapter 62-3, FAC); mining progress; impacts on surface water and groundwater flows; impacts on Lake Manatee (if any); compliance with listed species management plans; success or problems with listed species management plans; reclamation progress and compliance with approved mining and reclamation schedules. The Developer* shall submit annual DRI reports in accordance with Section 380.06(18), F. S., to Manatee County, and the TBRPC, the State Land Planning Agency and other agencies, as may be appropriate, no later than February 9, 1993, and July 31st of each year thereafter, commencing on July 31, 1993 until such time as terms and conditions of this Development Order are satisfied as determined by Manatee County. Six copies of this report shall be submitted to the Director of Manatee County Planning and Zoning Department, or the Director's designee, who shall review the report for compliance with the terms and conditions of this Order and may submit an appropriate report to the County Commissioners should the Director decide that further orders and conditions are necessary. The Developer* shall be notified of any Board of County Commissioners hearing wherein such report is to be reviewed; provided, however, that receipt and review of any such report by the Board of County Commissioners shall not be considered as a substitute, waiver, or change of conditions as to any terms or conditions of this Order. The Planning Director or his/her designee shall notify the Developer in writing upon acceptance or denial of the report. The annual report shall, at a minimum, contain the following:

- a) Any changes in the plan of development, or in the representation contained in the ADA*, or in the phasing for the reporting year and for the next year;
- b) A summary comparison of development activity proposed and actually conducted for the year;
- c) Undeveloped tracts of land, other than individual single family lots, that have been sold to a separate entity or developer in the Extended Four Corners Mine*;
- d) Identification and intended use of lands purchased, leased or optioned by the Developer* adjacent to the Four Corners Mine* site since the Development Order was issued;
- e) An assessment of the Developer's* and the local government's compliance with the conditions of approval contained in the DRI Development Order and the commitments that are contained in the ADA* and which have been identified by the local government, the Regional Planning Council or the Department of Community Affairs as being significant.
- f) Any known incremental DRI applications for development approvals or requests for a substantial deviation determination that were filed in the reporting year and to be filed during the next year for the Extended Four Corners Mine*;
- g) An indication of a change, if any, in local government jurisdiction for any portion of the development since the Development Order was issued;
- h) A list of significant local, state, and federal permits which have been obtained or which are pending by agency, type of permit, permit number, and purpose of each;
- i) A statement that all persons have been sent copies of the annual report in conformance with Subsections 380.06(14) and (16), F.S.; and
- j) A copy of any recorded notice of the adoption of a Development Order or the subsequent modification of an adopted Development Order that was recorded by the Developer* pursuant to Subsection 380.06(14) (d), F.S.

- k) Monitoring results pursuant to stipulations B.(1.), C.(2.), D.(2)d, E.(3.), and I.(2.).
 - l) The boundaries of the MA-08 Rookery, pursuant to stipulation F.(2.) shall be provided in the annual report due on July 1, 1993.
 - m) Any notice of violation for noncompliance for the Extended Four Corners Mine*.
 - o) A copy of the approved Spill Notification, Containment and Contingency Plan for F-3 shall be submitted to TBRPC in the Annual Report following the County's written approval of said plan. Subsequent updates and/or revisions to this plan shall also be submitted to TBRPC in the Annual Report following such update or revision.
- K.(6.) Mining under this Development Order shall terminate on December 31, 2006. This Development Order shall not expire until December 31, 2018, or until all reclamation has been completed and accepted by Manatee County, whichever occurs first.
- K.(7.) This Ordinance shall constitute a Development Order issued in accordance with Chapter 380, F.S.
- K.(8.) The Developer* shall, within sixty (60) days after notice by Manatee County of the amount of fees due and owing, pay all fees owed to Manatee County for the review of the Four Corners Mine DRI Substantial Deviation, except those fees in dispute and under review or appeal. Failure to make such payment shall require a cessation of mining activities until payment is made.
- K.(9.) Prior to mining the Land Exchange Area*, that land will be subjected to a historical or archaeology resources survey, the methodology which shall be reviewed and approved by Florida Division of Historical Resources (DHR). Any historical or archaeology resources discovered during the survey will be mitigated, and released by DCA and DHR prior to the mining of the site. Any historical or archaeology resources discovered during mine operation within the 170 Acre Addition* or the Land Exchange Area* shall be immediately reported to the DHR and the ultimate disposition of such resources shall be determined in cooperation with the DHR, TBRPC, and Manatee County. The agreed upon treatment of the resources shall be completed before activities which would disturb the resources are allowed to continue.
- K.(10.) Mining of the 170 Acre Addition* is contingent upon the Developer* demonstrating that the conduct of previously approved mining and reclamation activities within the watershed of the Manatee River have no adverse effect on either the surface or groundwater quality of waters within the adjacent segments of the Manatee River and in its contiguous floodplain areas. These qualitative evaluations of river impact will consider Class I water quality criteria including statistical analysis of macrobenthic survey data as well as other objective measures of river system impact as appropriate. Within thirty (30) days following the approval of the Operating Permit by the County in a form acceptable to both parties and the dismissal of the pending legal and administrative actions, the Developer* shall pay to Manatee County the sum of \$50,000.00. These funds will be escrowed for use by the County to secure a professionally designed program for an in-depth monitoring and assessment of impacts which may be attributed directly to the approved Mining and Reclamation Plan of Four Corners Mine. Such program shall define, at a minimum, all relevant parameters but shall specifically include those appropriate radiation parameters) and monitoring locations for a Monitoring and Assessment Program.

The consultant will be selected by the County; however, the Developer* shall have the right to review and comment upon the proposed consultants and their proposals prior to the County making a final selection. The Consultant will have the responsibility to determine what constitutes an "adverse effect" and to determine the river segments and contiguous floodplain areas to be included pursuant to this condition.

Once the monitoring program is designed and the system installed, the Developer* will pay \$100,000.00 per year for up to five years in quarterly increments of \$25,000.00 to Manatee County to offset the costs of operating and maintaining the Monitoring and Assessment Program, including all additional consulting, lab work and other expenses associated with the monitoring program. Developer* shall be furnished with copies of all monitoring and lab reports as received by the County. If Developer* deviates from the approved mining schedule as shown on Map H-1 dated 6/9/95, and

revised mining schedule 38A-2 dated 6/14/95 by more than one year, then the County and Developer* shall renegotiate the monitoring program and payment schedule to meet the intent of this condition.

If it has been affirmatively demonstrated that based upon the above criteria, there is no degradation of the surface water and groundwater quality within the adjacent segments of the Manatee River, or its contiguous floodplain area attributable to the mining and reclamation in accordance with the approved plans, the Developer* will have the right to mine the 170 Acre Addition* and reclaim same in accordance with approved mining and reclamation schedule. If it has not been affirmatively demonstrated that there is no degradation of either the surface water or groundwater quality within the adjacent segments of the Manatee River, or its contiguous floodplain area attributable to mining and reclamation in accordance with approved plans, the Developer* shall not mine the 170 Acre Addition*. County* may continue the Monitoring and Assessment Program beyond the aforementioned developer funded period at its own expense.

At the conclusion of the monitoring program, the consultant shall render its opinion to the Board as to whether there are any adverse effects attributable to the mining and reclamation. Based upon that opinion and in accordance with this condition, the Board shall either authorize or deny mining on the 170 Acre Addition*. Upon the Board's decision, the developer shall no longer be obligated to make additional payments pursuant to this condition.

Due to the reduction of the area to be mined in the Manatee River watershed by the Land Exchange*, the following schedule will apply for the determination of impact to the watershed:

1. IMC-Agrico shall notify the County and the consultant selected by the County six (6) months prior to the date that IMC-Agrico intends to mine the 170 Acre Addition*, but in no instance shall this notification be provided prior to July 1, 1998.
2. Within 90 days of IMC-Agrico's notice, unless otherwise agreed to by the parties, the Board shall review the Consultants report and make its finding. Failure by the County to make this finding within this 90 day period shall not be construed as authorization to mine the 170 Acre Addition*.

This schedule is required to allow IMC-Agrico at least 90 days after the Board hearing to prepare the site for mining, conduct the required surveys, etc. prior to mining if a finding of no impact is made.

Any required notices pursuant to this Development Condition shall be in writing and shall be hand delivered or delivered by US Mail to each of the following, unless the County furnishes the developer with written replacement addresses:

Manatee County Government
P.O. Box 1000
1112 Manatee Avenue West
Bradenton, FL 34206
Attn: County Administrator

Manatee County Government
P.O. Box 25010
4410 66th Street West
Bradenton, FL 25010
Attn: Phosphate Mining Coordinator

Environmental Science and Engineering, Inc.
5840 West Cypress Street
Suite A
Tampa, FL 33607
Attn: Sam Johnston, Jr., Senior Scientist

Any such notice sent pursuant to this Development Condition shall be deemed to be received when so delivered.

If the Board authorizes mining of the 170 Acre Addition*, the County may review and modify, as appropriate, the Four Corners Mine Monitoring Plan. Said review shall be conducted in accordance with Resolution R-95-262 and Chapter 2-20-33(c) of the Manatee Code of Laws.

Should a dispute occur concerning the validity of the monitoring program, the results of the sampling or analysis or the interpretation of such matters as they bear on the ultimate question of adverse effect on adjacent segments of the Manatee River or its contiguous floodplain areas, the County and the Developer* may appeal such finding to the Circuit Court of the Twelfth Judicial Circuit in and for Manatee County, Florida.

If mining of the 170 Acre Addition* is not permitted pursuant to this paragraph, the Developer* shall not be required to comply with the conditions A(1), A(2), F(1), F(2), F(3), and K(9) above in regard to the 170 Acre Addition*."

SECTION 7. LEGAL DESCRIPTION:

The following legal description of the development site covers only the Manatee County portion of the Four Corners Mine, although the original DRI also included areas in Hillsborough County. The Hillsborough County portions are the subject of a separate development order issued and amended by Hillsborough County.

In Township 33 South, Range 22 East, Manatee Co. (Jameson tract)

Section 1: All [That portion of Section 1 lying south and east of Brewster Parrish Road (SR 37)] shall also be known as the Land Exchange Area*.

Section 2: All.

Section 3: All.

Section 4: All.

Section 9: All.

Section 10: All.

Section 11: All lying N and W of Brewster-Parrish Road (SR 37).

Section 15: All lying N and W of Brewster-Parrish Road (SR 37).

Section 16: All less and except the NW 1/4 of the NW 1/4, and except that portion of the SE 1/4 of the SE 1/4 lying SE of the SR 37.

In Township 33 South, Range 21 East, Manatee County (Northeast Manatee Tract).

Section 1: W 1/2 of the NE 1/4 and the N 1501' of the NW 1/4.

Section 2: W 1/2 and the N 1501' of the E 1/4.

Section 3: All.

Section 4: All.

Section 10: E 3/4.

Section 11: W 1/2.

Section 13: All, less and except the E 2570' thereof.

Section 14: All.

Section 15: W 1/2 of the NE 1/4 and the NW 1/4 of the SE 1/4.

Section 23: All lying N of Parrish-Wauchula Road (SR 62), less and except the SW 1/4 of the NW 1/4, and less the NW 1/4 of the NW 1/4 of the SW 1/4 and less the S 1/2 of the NW 1/4 of the SW 1/4.

Section 24: All lying N of the Parrish-Wauchula Road (SR 62), less and except the E 2570' thereof.

Section 26: That portion lying N on the Parrish-Wauchula Road.

CHANGES TO THE JAMESON TRACT:

The following changes are incorporated into the above description.

170 ACRE ADDITION:

Section 10, Township 33 S, Range 22 E: The SE 1/4 of the SW 1/4, and the SW 1/4 of the SE 1/4.

Section 15, Township 33 S, Range 22 E: From the NE corner of Section 15 run thence N 88°39'09" W 1321.10' to a point of beginning; thence continue N 88°39'09" W 2088.90'; thence S 05°01'09" E 2884.00' to a point on the Westerly Right of Way line of Brewster-Parrish Road (SR 37);

thence N 45°33'54" E 2565.00'; thence N 00°11'54" E
1028.06' to the point of beginning.

SECTION 8. DEADLINE FOR COMMENCEMENT OF DEVELOPMENT.

Physical development of the project is currently in operation, such that the Chapter 380.06 F.S. requirement for the commencing of development has been met.

SECTION 9. RESTRICTIONS ON DOWN-ZONING.

The County may not down-zone the subject property described in Section 7 herein until 2002, unless the County can demonstrate that:

- A. Substantial changes in the condition underlying the approval of the order have occurred; or
- B. The order was based upon substantially inaccurate information provided by the Developer; or
- C. The change is clearly established by the County to be essential for the public health, safety, or welfare.

Any down-zoning or reduction in intensity shall be effected only through the usual and customary procedures required by statute and/or ordinance for change in local land development regulations.

For the purposes of this order, the term "down-zone" shall refer only to changes in zoning, land use, or development regulations that decrease the development rights approved by this order, and nothing in this paragraph shall be construed to prohibit legally enacted changes in zoning regulations which do not decrease the development rights granted to the developer by this order. The inclusion of this section is not to be construed as evidencing any present or foreseeable intent on the part of the County to down-zone or alter the density of the Development, but is included herein to comply with Paragraph 380.06(15) (c)3, F.S.

SECTION 10. BINDING ORDER UPON DEVELOPER.

That this order shall be binding upon the Developer, its successors, assigns, or successors in interest.

SECTION 11. RENDITION

The Planning, Permitting and Inspections Department is hereby directed to send certified copies of this Order within thirty (30) days of the date of signature by the Chairman of the Board of County Commissioners to the Developer*, the Florida Department of Community Affairs and the TBRPC.

SECTION 12. COMPLIANCE WITH CODES, ORDINANCES.

All development undertaken pursuant to this order shall be in accordance with all applicable local codes and ordinances in effect at the time of permitting, and other laws, except to the extent such is inconsistent with the rights granted under this Development Order.

SECTION 13. NOTICE OF RECORDING

The Developer* shall record a notice of adoption of this Order as required pursuant to Chapter 380, Florida Statutes, and shall furnish the Planning, Permitting and Inspections Department a copy of the recorded notice.

SECTION 14. SEVERABILITY

It is the intent of this Ordinance to comply with the requirements of all applicable law and constitutional requirements. If any provision or portion of this Ordinance is declared by any court of competent jurisdiction to be void, unconstitutional, or unenforceable, then such provision or portion shall be deemed null and void, but all remaining provisions and portions of this Ordinance shall remain in full force and effect.

SECTION 15. PURPOSE AND INTENT

This Ordinance replaces and supercedes Ordinances 91-62 and 92-64 in their entirety.

SECTION 16. EFFECTIVE DATE

This Ordinance shall take effect upon the Ordinance rezoning the Land Exchange Area* to permit phosphate mining becoming effective. If said rezoning does not occur within one year of adoption of this Ordinance, this Ordinance shall be null and void and Ordinances 91-62 and 92-64 shall remain in effect.

PASSED AND DULY ADOPTED by the Board of County Commissioners of Manatee County, Florida this 3rd day of October, 1995.


BY: *B. B. Shore*
ATTEST: *R. B. Shore*
Clerk of the Circuit Court

BOARD OF COUNTY COMMISSIONERS
OF MANATEE COUNTY, FLORIDA

BY: *Stan Stegner*
Chairman

MACAGRO CO. FOUR CORNER MINE
Land Exchange Amendment

REVISED
TABLE 38A-3
FOUR CORNERS MINE - MANATEE COUNTY
PRODUCTION
JAMESON TRACT ONLY
TONS & CU. YDS. X 1000

Year Ending	Acres Mined	Tons		Tons		Cu. Yds.	
		Product	Tailings	Clay	Overburden	Matrix	
@ 6-30-1992	562	N/A *	N/A	N/A	N/A	N/A	N/A
1993	58	1472	N/A	N/A	N/A	N/A	N/A
1994	309	2265	N/A	N/A	N/A	N/A	N/A
1995	337	1707	N/A	N/A	N/A	N/A	N/A
1996	473	2443	9174	3818	13519	25310	
1997	450	3597	15528	5875	20339	29485	
1998	438	4877	20552	7310	25916	28522	
1999	232	2517	10888	3893	14020	17923	
2000	379	3213	13732	5423	17569	24718	
2001	381	2484	11947	5073	18865	3978	
2002	358	1724	8866	3236	11437	20321	
2003	184	1571	6019	1944	7983	18047	
2004	0						
2005	0						
2006	0						
2007	26	213	818	264	1085	2452	
2008	0						
2009	0						
2010	0						
2011	0						
2012	0						
2013	0						
2014	0						
2015	0						
2016	0						
2017	0						
2018	0						
TOTAL	4185	28084	97522	36634	130733	170754	

N/A = Actual Production data not available

MCAGRIC CO. FOUR CORNER MINE
Land Exchange Amendment

REVISED
TABLE 38A-2
FOUR CORNERS MINE - MANATEE COUNTY
MINING, WASTE DISPOSAL AND RECLAMATION PLAN
ACRES

YEAR ENDING 6-30	INITIALLY DISTURBED	MINEABLE LAND	MINED LAND *	CUM. TOTAL MINED	SETTLING AREA	RECLAMATION	
						COMPLETED ***	CUM. TOTAL COMPLETED
JAMESON TRACT							
@ 6-30-1992	77	3823	562	562	745	0	0
1993	77	3565	58	620	745	105	105
1994	77	3256	309	929	745	57	162
1995	77	2919	337	1266	745	42	204
1996	77	2445	473	1740	745	0	204
1997	77	1996	450	2189	745	0	204
1998	77	1560	436	2625	1166	43	247
1999	77	1328	232	2857	1166	216	462
2000	77	949	379	3236	1166	450	912
2001	77	568	381	3617	1166	441	1353
2002	77	210	358	3974	1166	232	1585
2003	77	26	184	4158	1166	342	1927
2004	77	26	0	4158	1166	179	2106
2005	77	26	0	4158	1166	135	2241
2006	77	26	0	4158	1166	141	2382
2007	77	0	26	4185	1911	0	2382
2008	77	0	0	4185	745	0	2382
2009	77	0	0	4185	745	0	2382
2010	77	0	0	4185	745	1304	3685
2011	77	0	0	4185	745	0	3685
2012	77	0	0	4185	745	0	3685
2013	77	0	0	4185	745	0	3685
2014	77	0	0	4185	0	0	3685
2015	77	0	0	4185	0	0	3685
2016	77	0	0	4185	0	0	3685
2017	77	0	0	4185	0	500	4185
2018	77	0	0	4185	0	0	4185
						4185	4185
TOTAL							

NORTHEAST MANATEE TRACT

2002	0	1916	470	470	0	0	0
2003	0	1446	470	940	0	0	0
2004	0	976	470	1410	0	0	0
2005	0	506	470	1880	0	0	0
2006	0	0	506	2386	0	470	470
2007	0	0	0	2386	0	470	940
2008	0	0	0	2386	0	470	1410
2009	0	0	0	2386	0	470	1880
2010	0	0	0	2386	0	506	2386
TOTAL			2386			2386	

* Based on a 3/7 operating schedule
*** disturbed area not included in Reclamation total
*** Reclamation completed when area is graded and planted

SUMMARY OF TOTAL TRACT - ACRES

	JAMESON	N.E. MANATEE	TOTAL MANATEE
Property line berms, flood plains & misc.	638	2666	3304
Plant Area	77	0	77
Total Mined	4185	2386	6571
TOTAL	4900	5052	9952

LEGEND

MINE FIELD

0 1000 2000 3000 4000 5000 YARDS

MINE FIELD

MINE BOUNDARY FOR OPERATING PERMIT

Four Corners Mine
Manatee County
Revised 8-22-95

**TABLE 23C-1
WELL INVENTORY**

WELL NO.	LOCATION (SEC-TWN-RNG)	CASING DIAM. (INCH)	CASING DEPTH (FEET)	WELL DEPTH (FEET)	PUMP RATE (GPM)	USAGE - (WUP)
MW-3	03-33-22	2	18	18	N/A	OBSERVATION
MW-4A	03-33-22	4	40	40	N/A	OBSERVATION
0150	04-33-22	2	13	13	N/A	OBSERVATION
0134	04-33-22	2	13	13	N/A	OBSERVATION
MW-1	04-33-22	2	21	21	N/A	OBSERVATION
MW-2	04-33-22	2	14	14	N/A	OBSERVATION
#6	04-33-22	2	13	13	N/A	OBSERVATION
#6A	04-33-22	6	13	13	N/A	OBSERVATION
0134	09-33-22	2	13	13	N/A	OBSERVATION
0142	09-33-22	2	13	13	N/A	OBSERVATION
0150	09-33-22	2	13	13	N/A	OBSERVATION
1748	09-33-22	2	13	13	N/A	OBSERVATION
3334	09-33-22	2	13	13	N/A	OBSERVATION
1748	10-33-22	2	13	13	N/A	OBSERVATION
MW-4R	10-33-22	4	19	19	N/A	OBSERVATION
MW-5	10-33-22	2	24	24	N/A	OBSERVATION
MW-5A	10-33-22	4	16	16	N/A	OBSERVATION
2660	15-33-22	2	13	13	N/A	OBSERVATION
MW-6	15-33-22	4	18	18	N/A	OBSERVATION
0144	16-33-22	2	13	13	N/A	OBSERVATION
0344	16-33-22	2	13	13	N/A	OBSERVATION
0645	16-33-22	2	13	13	N/A	OBSERVATION
1348	16-33-22	2	13	13	N/A	OBSERVATION
MC-1	17-33-22	2	12	12	N/A	OBSERVATION
MC-2	17-33-22	2	13	13	N/A	OBSERVATION
MC-3	17-33-22	2	14	14	N/A	OBSERVATION
fco-EA-1	10-33-22	4	N/A	N/A	N/A	Abandon Domestic
fco-EA-2	10-33-22	2	N/A	N/A	N/A	Abandon Domestic
AG-M-1	15-33-22	10	N/A	1180	400	IRR-GROVE 27804862
AG-M-2	16-33-22	12	150	1100	2000	IRR- VEG. 207845
AG-M-3	04-33-21	12	N/A	1000	1500*	IRR- VEG. 207532
AG-M-4	14-33-21	12*	150*	1000*	1200*	IRR - VEG. 203954

N/A - Not available or applicable, * - Estimated, per farmers memory

DRI #198 Four Corners Mine
Substantial Deviation
Mining and Replacement of P-1 Settling Area
Haskell County

File No.: 15439-023-040

January, 1990

 DAMES & MOORE

EXHIBIT E



DAMES & MOORE

ONE NORTH DALE MAHARY, SUITE 100, TAMPA, FLORIDA 33601-1000
INCLUDING FLORIDA LAND DESIGN & ENGINEERING A FEEBENT CONSULTING

January 2, 1990

IMC Fertilizer, Inc.
P.O. Box 860
Bartow, Florida

Attn: Mr. T. A. Smith, PE
Senior Project Engineer

Subject: DRI #198 Four Corners Mine Substantial Deviation
Mining and Replacement of F-1 Settling Area

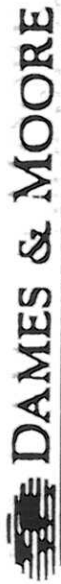
Gentlemen:

As authorized by IMC Fertilizer, Inc., Purchase Order N940711C, Dames & Moore has completed analyses for existing and proposed replacement dam sections for the above referenced project. This report presents the results of the analyses and provides documentation for IMCF responses to Question 19, TBRPC 9-20-89, relating to the elimination of internal dikes within settling areas.

INTRODUCTION

The Four Corners Mine was a Joint Venture of IMC Fertilizer, Inc. and W.R. Grace & Company, with Grace as the operating venture member. The operation has now come under IMCF operation control as Grace sold its interests in the Florida phosphate fields. The mine is located near the corners of four Florida counties: Hillsborough (SE), Polk (SW), Manatee (NE) and Hardee (NW). The site location is shown in Figure 1, Appendix A. The mine is presently utilizing a settling area in Manatee County, designated as F-1, for the disposal of waste clay which is generated from mining and phosphate matrix processing operations. The general site location for F-1 is shown in Figure 2. The F-2 settling area in Hillsborough County is under construction. A proposed F-3 settling area was shown in the original DRI as planned for construction in Manatee County, east of the F-1 settling area.

The dams of the F-1 settling areas were built on unmined ground and partitioned by internal dikes to separate the area into three sub-areas. The enclosed Figure 3 shows the general cross section for the F-1 exterior dams and Figure 4 shows the design cross section for the interior diversion dike.



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Proposed Design of the Re-built Settling Area

IMCF has proposed to mine the area presently occupied by the F-1 settling area, and to construct a new settling area with a similar alignment for the south and west dams. The new settling area may be larger in area, but present plans are to construct the new dams to about the same top elevation. The F-1 settling area and the proposed F-3 settling area are to be constructed without internal dikes.

The preliminary design concepts for the F-1 and F-3 dams indicate that the dams would be constructed inside the mine pit. Some of the dams might be buttressed against unmined ground depending on mining conditions. Neither the F-1 or F-3 settling areas are planned with internal diversion dikes.

The TBRPC sufficiency review presented the following comment relating to the replacement of F-1:

19. "Please provide documentation to support the assertion in the Sufficiency Response that intermediate dikes within settling areas F-1 and F-3 would not significantly lessen the impact should a dam fail. Please indicate the size of settling area which Florida Department of Natural Resources (DNR) rules recommend or deem acceptable."

The basic assumption relating to the use of interior dikes in a settling area is that these dikes might reduce the volume of clay material which would be released by a failure of an external dam. This assumes that the interior dike would not fail if an exterior dam failed. The response by W.R. Grace and the original designers of F-1 settling area to the Manatee County question on dam break analysis noted above was simply "Noted". However, it appears that the internal dikes were added to the F-1 settling area in response to the comment by Manatee County. It also appears that the internal dikes were added without specific analyses as to their effect on overall system safety and failure impact.

There are several reasons for not using such dikes except for the purpose of routing the clay slurry flow away from certain spillways. First, the interior dikes use up volume which could be used for storage of clay. Although this volume is small in an individual settling area, routine use of interior dikes would result in the need for either more settling areas or for a greater perimeter length or height of dams to provide the volume lost in each settling area. Second, the interior dikes use fill which can



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be better used in the construction of the perimeter dams. The result is that exterior borrow pits, or larger plan areas are required to provide the additional fill material for construction.

IMCF's previous response to questions relating to the use of internal dikes was that such dikes would not lessen the impact of a dam failure. This answer was intuitive, and not supported by analyses. On request for clarification by TRRPC (Question 19 above), IMCF was asked to provide support for that comment.

SCOPE OF WORK

As the impact analyses by Grace's consultants for loss of clay slurry resulting from dam failure were accepted by Manatee County and other reviewing agencies during the original study, only analyses relating to the evaluation of dam safety with and without internal dikes is necessary. The general analyses proposed for the F-1 dams will extend specifically to the construction of F-3 dams because the site and soil conditions are similar. The following scope of work was accomplished for this project:

Task 1: Review existing data and analyses.

A review was conducted to establish the basic design parameters for analyses used by Grace's dam designers. Stability analyses for the F-1 dam were completed and presented by Dames & Moore in a letter dated June 29, 1989. These data were used with data from the original design.

Task 2: Conduct analyses for the safety of the original F-1 dams with the internal dike system.

The engineering design soil parameters developed in Task 1 were utilized in an analytical study to evaluate the safety of the existing dam and dike system. The effect of the internal dikes on overall settling area performance was included in the analyses.

Task 3: Develop preliminary dam cross sections as alternatives to the original dam-dike system.

Generalized design cross sections for F-1 and F-3 dams were developed such that the risk of failure for the revised dams would be less than the risk for the original dam-dike system.

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Task 4: Present a report which would summarize the results of the analyses of the revised dams for the settling areas. Present specific answers to the above listed Question 19 by TBRPC.

METHODS OF ANALYSES

Deterministic Stability Analyses

The typical analyses done for the design of dams (and for most structures) are determinate. A fixed estimate of strength is divided by a fixed estimate of load or driving force. The result of this calculation is a Factor of Safety.

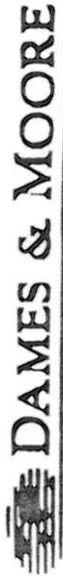
The FDER Rules Chapter 17-9 which govern the design and operation of settling area dams present a list of required Safety Factors for various failure mechanisms. These minimum Safety Factors are as follows:

Horizontal shear at the base of fill	1.75
Horizontal shear within fill due to seepage	1.5
Bearing capacity of foundation soils	1.5
Shear failure of any circular arc	1.5

Soil properties for design of earthen dams are developed from the results of field and laboratory test programs, except that cast overburden strength may be taken as only 75% of the measured laboratory or field strength at equivalent density. Cast overburden is material disturbed or placed by a mine dragline without any special attempts at compaction.

The completion of numerous earthen dam designs have shown that the critical slope stability mechanism is the circular-arc mechanism. Under limited circumstances, the horizontal shear (wedge) mechanism may be critical. For example, thin layers of very weak material in the foundation or the use of weak clay materials in a sloping core to control seepage may result in a more critical horizontal shear mechanism. These conditions are usually avoided in construction, and the clayey soils typically used in Florida dam construction for seepage control cores have strengths equal to or greater than the sandy soil used in the general embankment. Therefore, the circular-arc mechanism may be taken as the general analyses for design, with other mechanisms checked on the resulting design cross section.

The analytical method in general use for the evaluation of circular-arc slip surfaces is the Bishop Method of Slices (1955) as modified by Janbu et al. (1956). The mass of soil above a



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possible circular-arc slip surface is cut into vertical slices, and the weight, water pressure and soil strength parameters are used to calculate a safety factor under limiting equilibrium conditions. Both the soil strength resisting slip and the weight of soil and other loads potentially driving the slip are estimated as specific values.

Therefore, in simple terms, the safety factor is simply the ratio of the soil strength to the driving forces.

Stochastic Stability Analyses

In the case of statistically distributed strength and load, the Safety Factor is the Average Strength, or some weighted or reduced strength based on average strength, divided by the Average Load. However, there is a chance that actual strength may be lower than the assumed (average or factored average) strength, and that this condition could occur at locations where the load is higher than the assumed load. Stochastic analyses allow the evaluation of the likely variations in load and strength to determine the "probability of failure", Pf.

The probability of failure is the measure of risk that the driving force in the system has been under estimated and/or that the strength has been over estimated such that a failure could result. These analyses indicate that the probability of failure for a given deterministic safety factor may vary depending on the variability of the strength and/or load parameters.

Although the backbone of stability analyses is the deterministic methodology described above, the fixed values of soil strength and driving load are estimates that have a certain level of variability. For example, soil strength, as measured by SPT penetration resistance (ASTM D-1586) or laboratory procedures in a particular soil stratum, may vary due to test method variations or to variations in soil density or mixture. The soil density as measured in the field also has two components of variability. First, the test itself has levels of accuracy that can result in variations in density for a single soil stratum. Second, minor variations in moisture, compaction energy and clay content can result in a given stratum having soil density which varies considerably from the average density.

The analytical method used for these analyses requires that the statistical variability of the soil strength and density be integrated with the deterministic slope stability analyses to provide a method of evaluating the risk associated with any given dam. Dames & Moore utilized a computer program called BISTAT which incorporates the stochastic parameters in the Bishop slope

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stability analyses. Both the deterministic Safety Factor and an estimate of failure probability are obtained from the analyses. The data utilized in the analyses must include the stochastic parameters of Mean, Variance, Standard Deviation, Skewness and Kurtosis. A discussion of the stochastic parameters and Analyses is included in Appendix B.

PROJECT ANALYSES

Dames & Moore has determined that the best project approach would be to compare the statistical probability of failure (Pf) of the original F-1 dam system with the internal dikes to the Pf of the proposed IMCF system. The stochastic slope stability analyses method would be used with available data to evaluate both the internal dike and the exterior dam. The results of the analyses would allow a direct response to TBRPC Question 19 as to the impact of the interior dikes. Also, alternative embankments could be evaluated to provide cross sections with higher reliability (lower Pf) than existed for the original system.

The original design calculations by Ardaman & Associates show that the safety factors for Horizontal Shear Mechanisms varies from 1.75 to 4.6. The same cross sections shows that Circular-arc Mechanisms have safety factors ranging from 1.50 to 2.33. Based on these data and the extensive experience of Dames & Moore with the results of stability analyses for similar sections, only the Circular-arc Mechanism will be considered for this project. All mechanisms would be evaluated for actual design of cross sections as required under Chapter 17-9 of the FDER Administrative Rules.

SOIL PROPERTIES FOR ANALYSES

Both laboratory test data from the original Ardaman design analyses and field test results by both Ardaman and Dames & Moore were used to evaluate the soil properties to be used in the Stochastic Analyses for stability of dams. The enclosed Figure 5 shows a summary plot of Standard Penetration Test (SPT) penetration resistance (ASTM D-1558) versus depth from the borings in the settling area done by Ardaman for the original design. This plot shows that the soils are of medium to low strength in the upper 10 to 40 feet, with a general trend for increasing strength with depth. The trend was developed by Regression Analyses and shows a significant variation in measured values about the expected trend. The enclosed Figure 6 shows a similar plot for borings done by Dames & Moore after construction was complete and the settling area was in operation. Again, the dispersion of individual data about the Regression Fit Trend is significant. The upper part of the embankment has high penetration resistance with the resistance values dropping to medium to loose at about the original grade.

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The soil below the dam increases in strength with depth as was shown in Figure 5.

Figure 7 shows a correlation between the angle of internal friction of cohesionless soils and SPT penetration resistance. This figure shows the Regression Analysis Best Fit with the Standard Error limits. The experience in actual testing of soils from the central Florida area indicate a lower bound friction angle of about 30 degrees and an upper bound strength of about 40 to 42 degrees. Figure 8 shows the relationship between cohesionless soil density and friction angle as developed from the original design data. The density data are typically available from construction testing and monitoring.

Figures 9 through 13 show histograms for each of the soil strata expected to occur within the dam cross section or its foundation. The Stochastic Parameters used in the Dames & Moore analyses are shown on the figure for each soil type. The friction angle was estimated for each soil type from SPT correlations or from density estimates. The friction angle for analyses varied from 33 degrees for rolled or compacted fill to 31 degrees for undisturbed clayey sand strata.

RESULTS OF THE ANALYSES

The Original Dam-Dike System

Ardaman & Associates estimated a probability of failure for the exterior dams of the F-1 settling area at "one chance in 100,000." This would normally be noted as a risk of 1×10^{-5} . The analyses of the original cross section by Dames & Moore for the South Dam, as reported in a letter dated June 29, 1989, shows a safety factor of 1.5 for the downstream slope under operating conditions which include artesian porewater pressures in a deep sand stratum in the dam foundation. Analyses using stochastic procedures indicate that the Pf for this condition would be from 5×10^{-5} to 1×10^{-3} , about the level estimated by Ardaman. The BISTAT analyses indicate that the factor of safety for the embankment after the settled clay seals the foundation soils may be 1.84 with a Pf of 7×10^{-4} .

The stability of the internal dike was apparently never evaluated by Ardaman. This would be normal procedure as the internal dike would normally serve no function except as a flow diversion system. Under the uniform head across the embankment which would normally exist, the safety factor would be greater than 1.5. However, when the internal dikes function is to divide the settling area into discrete partitions, the stability considerations are different. If a failure occurs in an external dam, the fluid level in the

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affected partition will drop rapidly. The water in the saturated pores of the partition dikes can not drain out as quickly as the water level falls in the downstream pool. Therefore, the stability analyses for the dikes must consider that the rapid draw-down occurs. The Dames & Moore analyses for rapid draw-down on the internal dikes of F-1 showed a safety factor of 0.87 and a pf of 9.8×10^{-11} , virtual assurance that the internal dike would fail. Therefore, the overall pf of the combined system is $.98 \times 10^{-10}$ of the design embankment, about 4.9×10^{-3} to 6.8×10^{-3} depending on operating conditions.

Proposed Alternative Dams

Dames & Moore has developed two alternative cross sections which might be used for dams built in or against the edge of mine pits. The enclosed Figure 14 shows Section 1, the proposed section where the dam is built against the edge of the mine pit. Figure 15 shows the results of the stochastic analyses for that section's critical circular-arc as a safety factor of 1.71 and a probability of failure (Pf) of 4×10^{-11} .

The alternative cross section, Section 2, shown in Figure 16 is proposed for the case where the entire dam is built within the mine pit. This section would typically be used where mining will continue beyond the limits of the dam. The critical circular-arc has a safety factor of 1.70 for this section with a pf of 1.5×10^{-10} (Figure 17). Note that although the factor of safety of Section 2 is slightly less than that of Section 1, the pf is lower because the construction incorporates more materials with lesser variations in strength.

DISCUSSION

The analyses show that the incorporation of the internal dikes has no significant effect on the probability of failure which would result in the loss of material from the settling area. The possibility of failure of the dike under anticipated conditions is so high that the only effect would be a slight reduction in volume of flow due to the flow restriction from the unfilled portions of the embankment and the viscosity of the clay slurry. This effect would be marginal at best.

On the other hand, the modifications in the external dams proposed for construction after mining result in embankments which contain a higher volume of controlled materials; that is, materials with lesser degrees of variability. The result is that the proposed alternative embankments can be expected to have a greater degree of reliability.

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MXF - F-1 DRI Analyses
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In order to allow proper perspective with respect to evaluation of failure probabilities for the proposed dams, it is advisable to discuss the levels of risk which have been experienced in other areas. A publication by the American Society of Civil Engineers (ASCE) with the U.S. Committee of the International Commission on Large Dams (USCOLD) published in 1975, "Lessons from Dam Incidents, USA" presents data on dams and dam failures as experienced in the U.S. from 1899 to 1973. This publication indicates that a total number of known dams was 4,918, of which 3605 were earthen dams. None of these dams were tailings dams or phosphate settling ponds. The failures evaluated for this paper included only major failures which resulted in complete abandonment of the dam. Not all of the incidents involved significant abandonment threat to the public, but they were created as such in our analyses of the data. The data indicate that two failures could be attributed to slope mechanisms and eight incidents of significant seepage in the foundations or embankments of dams.

The Pf's based on these data are listed in the following table:

TYPE OF DAM -----	NUMBER -----	NUMBER FAILED -----	PROBABILITY OF FAILURE -----
EARTHEN	3,604		
by Stability		2	5.5×10^{-4}
by Seepage		8	2.2×10^{-3}

In an EIS study by the author for a dam in the phosphate industry performed in 1982, the known performance of the earthen dams was evaluated to estimate a basic Pf for these dams. However, since 1971 when the FDER Chapter 17-9 was re-written, there has not been a failure of a dam which was designed to meet the standards in the Rules. The normal means of estimating the Pf for manufactured items when no failure has occurred is typically a Poisson process with the following equation:

$$N = e^{-(n \cdot SPP)}$$

where: n = The number of items which have been counted
without a failure

SPP = The Pf for any item when n is approximately 1.0

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This process could be used for Phosphate Industry Dams if a base can be determined to define the number "n". The base for n was chosen to be Mile-Years because inspections are done each year on each dam, and the typical dam length is one mile. Unfortunately, the only impartial agency that could provide reliable base data for the calculation of SPP is the FDER, and this agency does not keep track of these data. However, the EIS study determined that approximately 1366 mile-years of dam performance had been recorded by the Florida Phosphate Council from 1972 to 1982. The resulting SPP was estimated from 1.3×10^4 to 3×10^4 depending on the method of interpretation of calculation results. The table and figure used for this report are enclosed in Appendix C.

The difference in performance between dams throughout the U.S. and the Phosphate Industry since 1971 can be attributed to the improvement in technology for analyses, the typically limited drainage basin of the settling areas, and the fact that the settling areas store clay, not water. The majority of failures reported for U.S. dams are due to underestimates of flow volumes in large storms. Because the settling areas are typically above grade, the drainage basin is only slightly larger than the pool. Therefore, the entire design storm (12 inches in 24 hours, approximately the 100 year storm) can be retained within the pond because of the minimum freeboard of 5 feet required in Chapter 17-9. The second major problem with dams is seepage. Because the settling ponds contain a clay slurry, they are self sealing. Seepage problems generally occur during the initial filling of the areas, before the clay has formed a liner. The experienced designers of Phosphate Industry Dams typically design sections which do not rely on the sealing action of the clay. It is usually assumed that the dams contain only water.

The original design does not include a flood routing study to evaluate the performance of spillways during the design storm. However, the settling area does have 4 spillways that discharge to exterior circulation ditches. The FDER Rules Chapter 17-9 requires that a minimum of 2 spillways be installed in each settling area. It has been Dames & Moore's standard practice to evaluate both the 17-9 Design Storm (12 inches in 24 hours) and an estimated Maximum Probable Storm (MPS = 39 inches of rain in 24 hours) to evaluate spillway performance. The design of spillway capacity is based on the requirement in 17-9 that the Design Storm must be discharged in 24 hours. Further, the MPS in conjunction with waves calculated from hurricane winds should not cause a rise in water which would overtop the dam. These areas of design are required to assure hydraulic performance of the settling area which is as safe as the stability of the cross section.

DAMES & MOORE

Mr. Ted Smith
IMCF - F-1 DRI Analyses
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SUMMARY AND CONCLUSIONS

Stability and reliability analyses have been completed for dams which form the F-1 settling area at IMCF's Four Corners Mine in Manatee County, Florida. Comparison analyses have been completed to evaluate the stability and reliability of alternative cross section dams which might be constructed in mined areas. The results of the stability analyses can be summarized as:

DAM	SAFETY FACTOR	FAILURE PROBABILITY
-----	-----	-----
U.S. Earth Dams		5.5×10^{-4}
Florida Phosphate Dams		1.3×10^{-4}
to		3.0×10^{-6}

FDER Chapter 17-9 Requirements

From	1.5
to	1.75

Original F-1 Dams	1.5	1.0×10^{-5}
to	1.84	6.8×10^{-6}
Internal Dike w/Draw-down	0.87	9.8×10^{-1}
Combined Original Dams		9.8×10^{-6}
to		6.7×10^{-6}

Proposed Alternative Dams w/o Internal Dikes	
Section 1	1.71 3.6×10^{-11}
Section 2	1.70 1.5×10^{-15}

The analyses presented in this report show that the use of interior dikes does not contribute to overall safety of a settling area. The basis of this conclusion is that the factor of safety for the internal dikes under rapid draw-down conditions which would be imposed by the failure of an exterior dike is less than 1.0. The conclusion is further demonstrated by the fact that stochastic analyses for stability show no difference between the probability of Failure, that is the loss of clay by a slope failure mechanism, with or without the internal dike.



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MXCF - F-1 DRI Analyses
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The alternative cross sections proposed for reconstruction are shown to have lower Probabilities of Failure than the existing dams. Therefore, it can be concluded that the mining of the area can result in reducing an existing low risk even further.

The other part of THRPC's Question 19 was "please indicate the size of settling area which Department of Natural Resources (DNR) Rules recommend or deem acceptable."

As far as we know, DNR has no rules which govern the size of Phosphatic Clay Settling Areas. Dames & Moore has designed such settling areas as small as 150 acres and larger than 1,500 acres. The important component for the design of a settling area is its stability and safety.

We appreciate the opportunity to be of service to you on this project. If you have any questions relating to the data or analyses presented in this report, please contact the undersigned at your convenience.

Respectfully submitted,

DAMES & MOORE

A handwritten signature in cursive script, reading "Ross T. McGillivray".

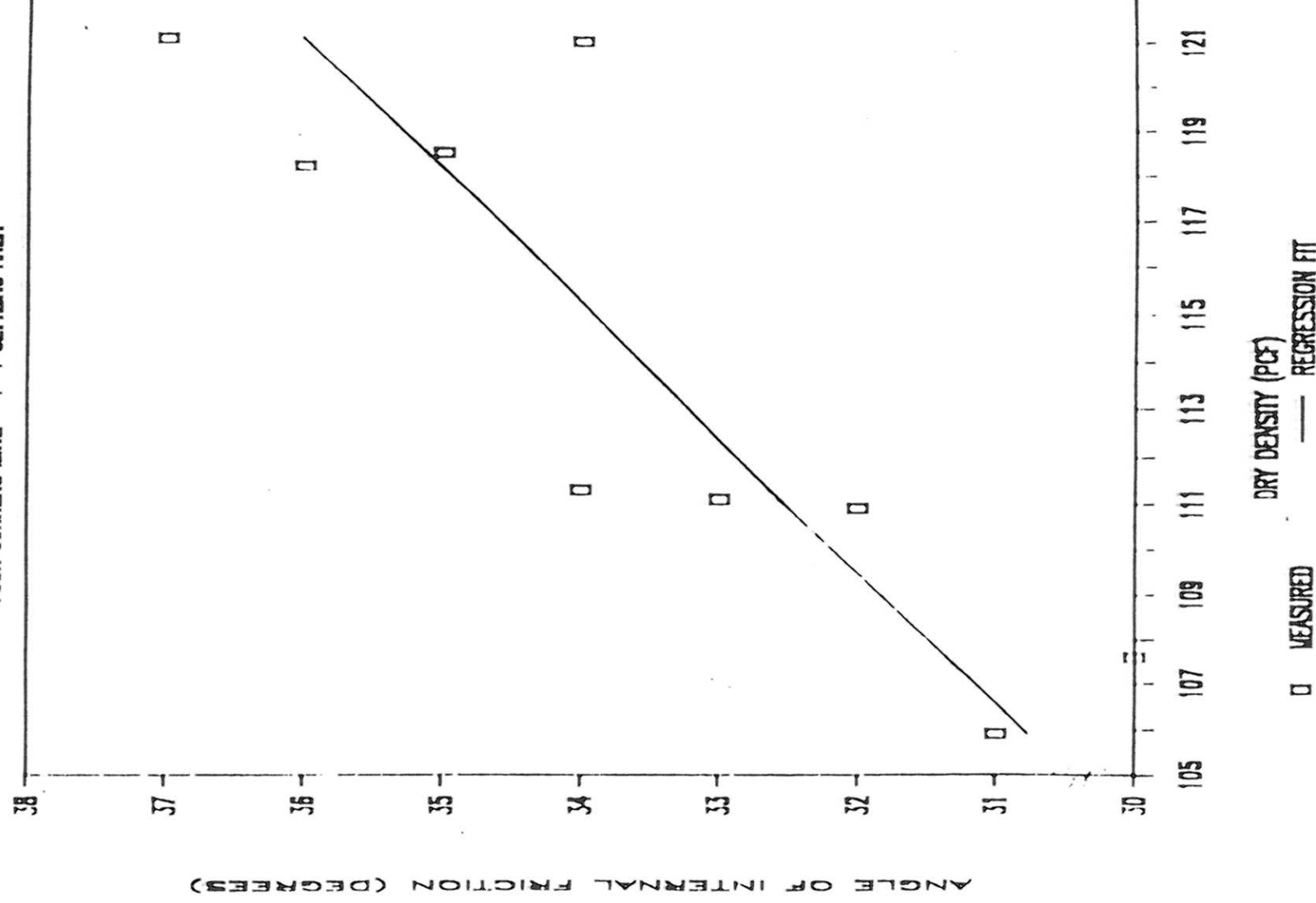
Ross T. McGillivray, PE
Associate

References

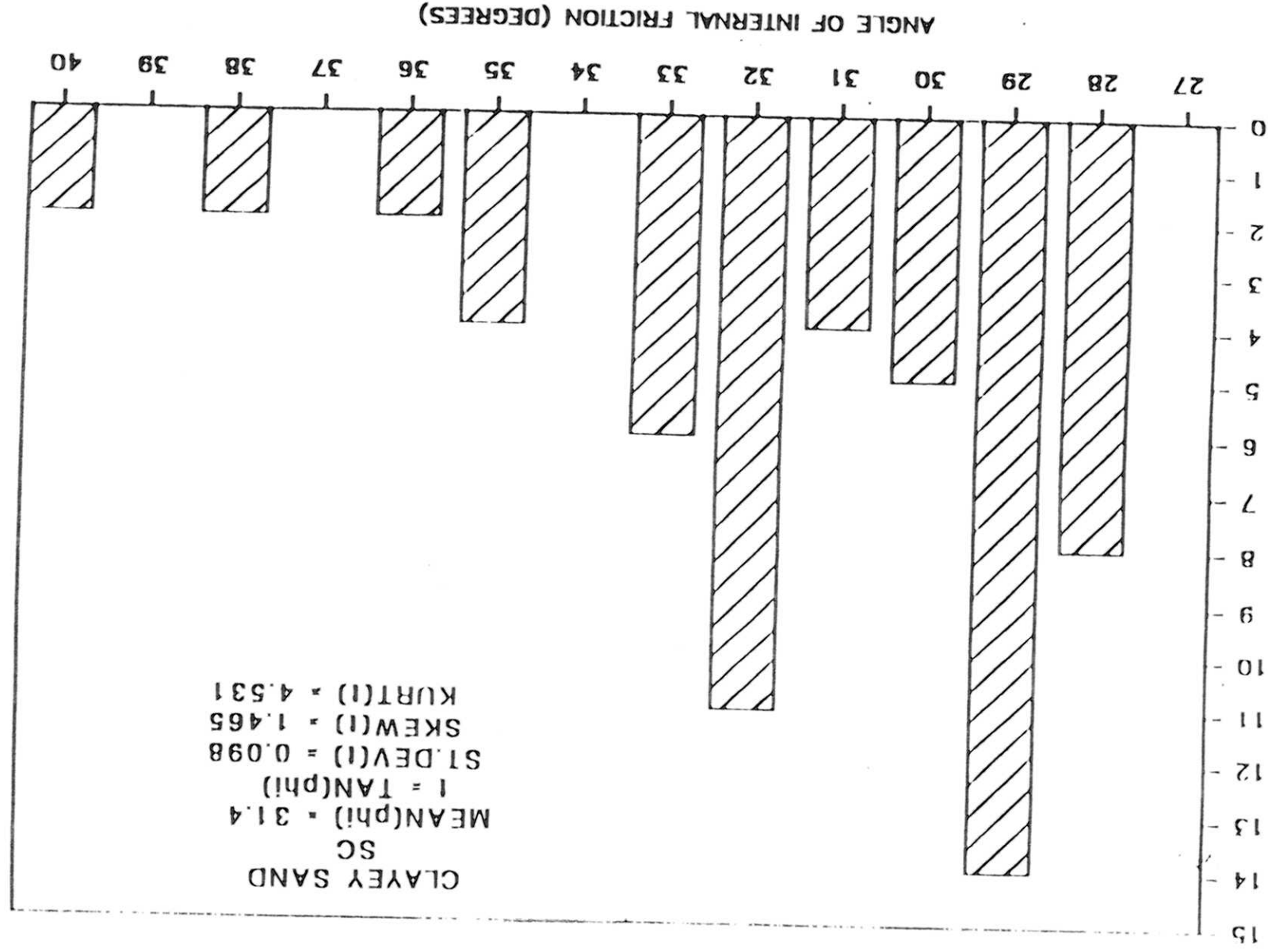
1. Ang, A. and Tang, W. H. (1975), Probability Concepts in Engineering Planning and Design, John Wiley & Sons, N.Y.
2. ASCE/USCOLD (1975), Lessons for Dam Incidents, U.S.A.
3. Bishop, A. W. (1955), "The Use of the Slip Circle in the Stability Analysis of Slopes", Geotechnique V, No. 1, pp. 7-17.
4. Felio, Guy (1988), BISTAT, A Microcomputer Program for Slope Stability Using the Simplified Bishop Method and Stochastic Analysis, Univ. of California, Los Angeles.
5. Jambu, N., Bjerrum, L., and Kjaernsli, B. (1956), Veiledning ved losning av fundamenteringsoppgaver, Norwegian Geotechnical Institute, Publication No. 16, Oslo.
6. McGillivray, R.T. (1982), "Estech Duette Mine - Dam Failure Probability", Armac Engineers, Inc. report.

ORIG. DESIGN REPORT STRENGTH CORRELATION

FOUR CORNERS MINE - F-1 SETTLING AREA



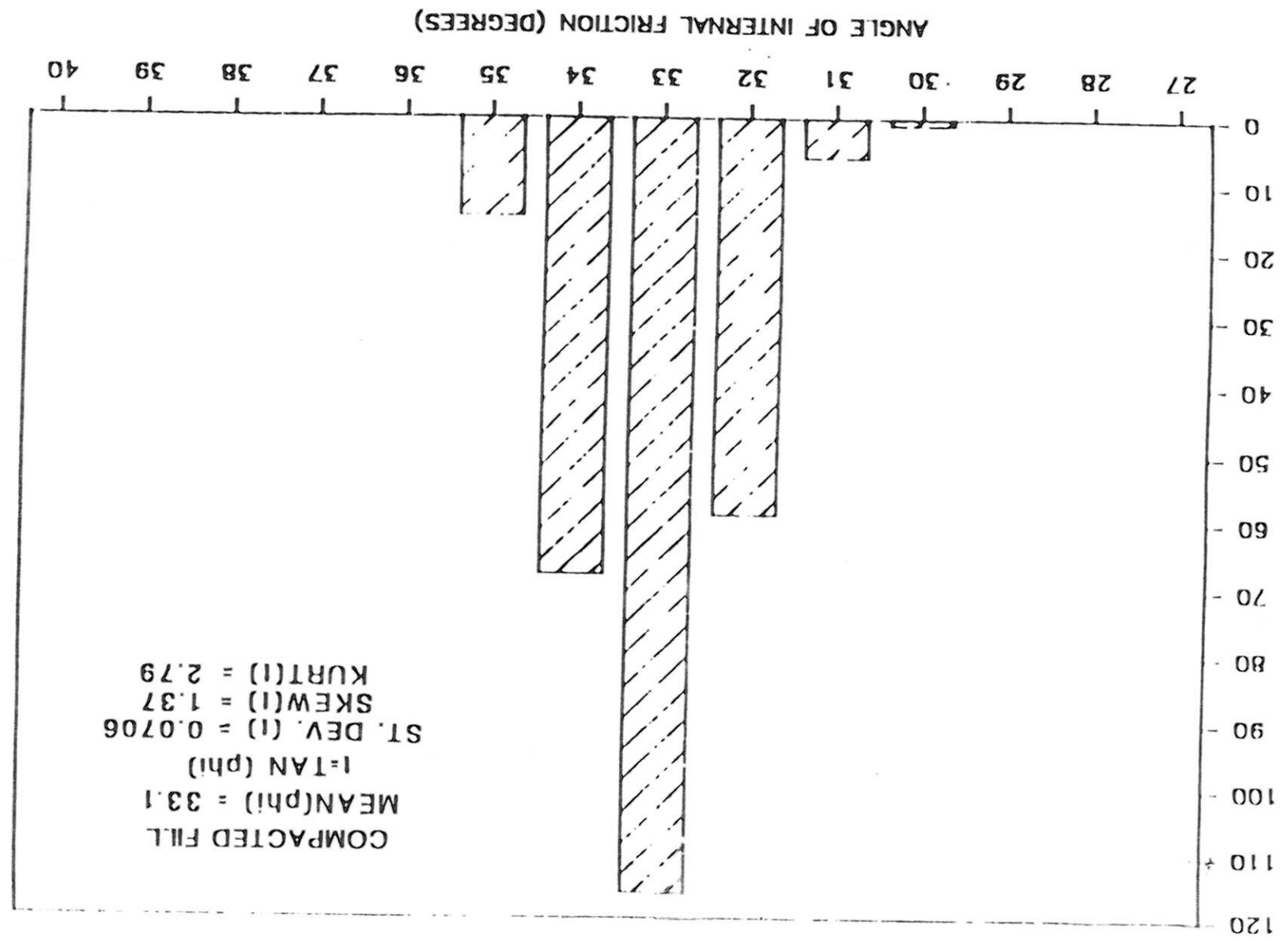
OBSERVED FREQUENCY



STOCHASTIC STABILITY STUDY OF F-1 DAMS

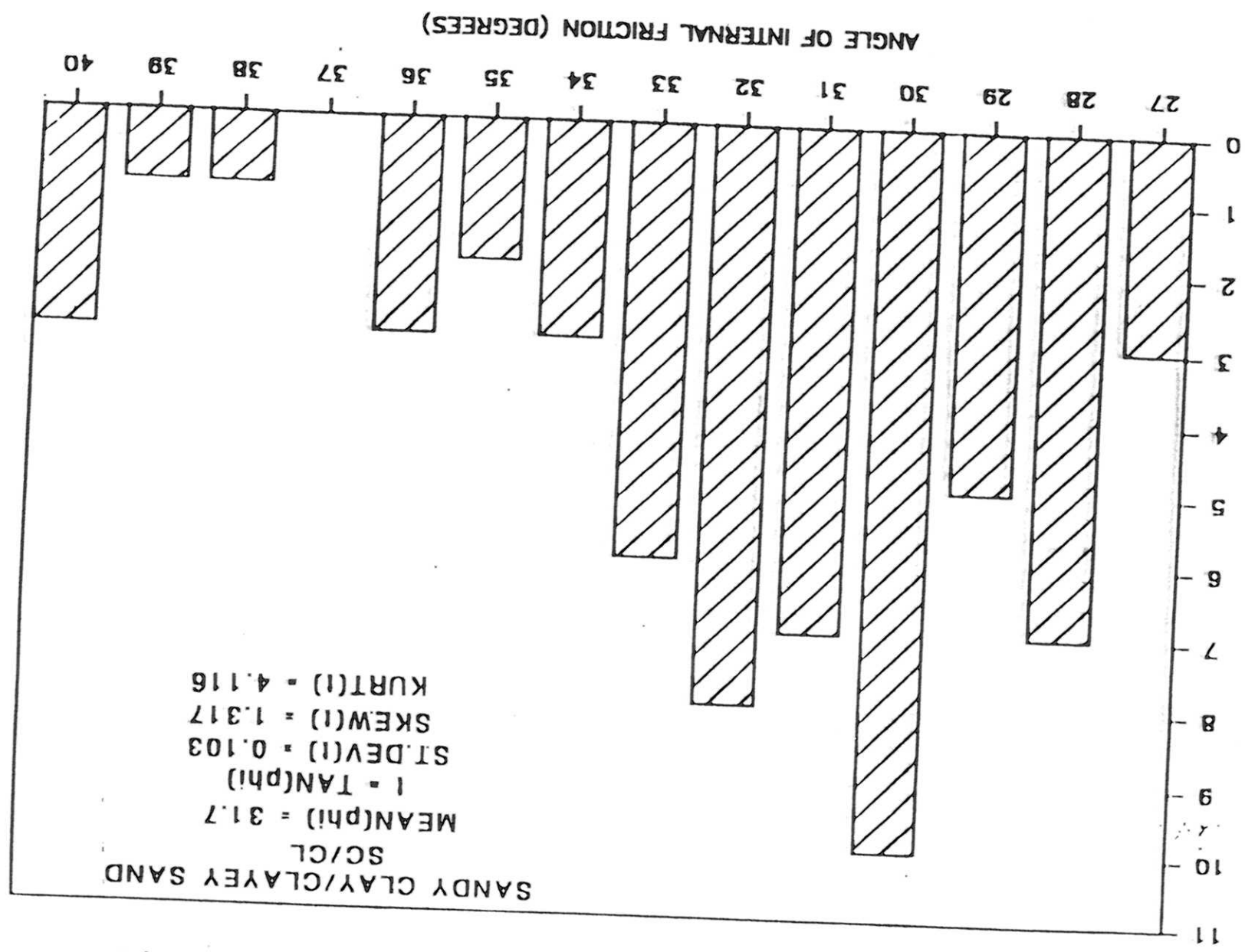
CLAYEY SAND
SC
MEAN(ϕ) = 31.4
I = TAN(ϕ)
ST.DEV(I) = 0.098
SKEW(I) = 1.465
KURT(I) = 4.531

OBSERVED FREQUENCY



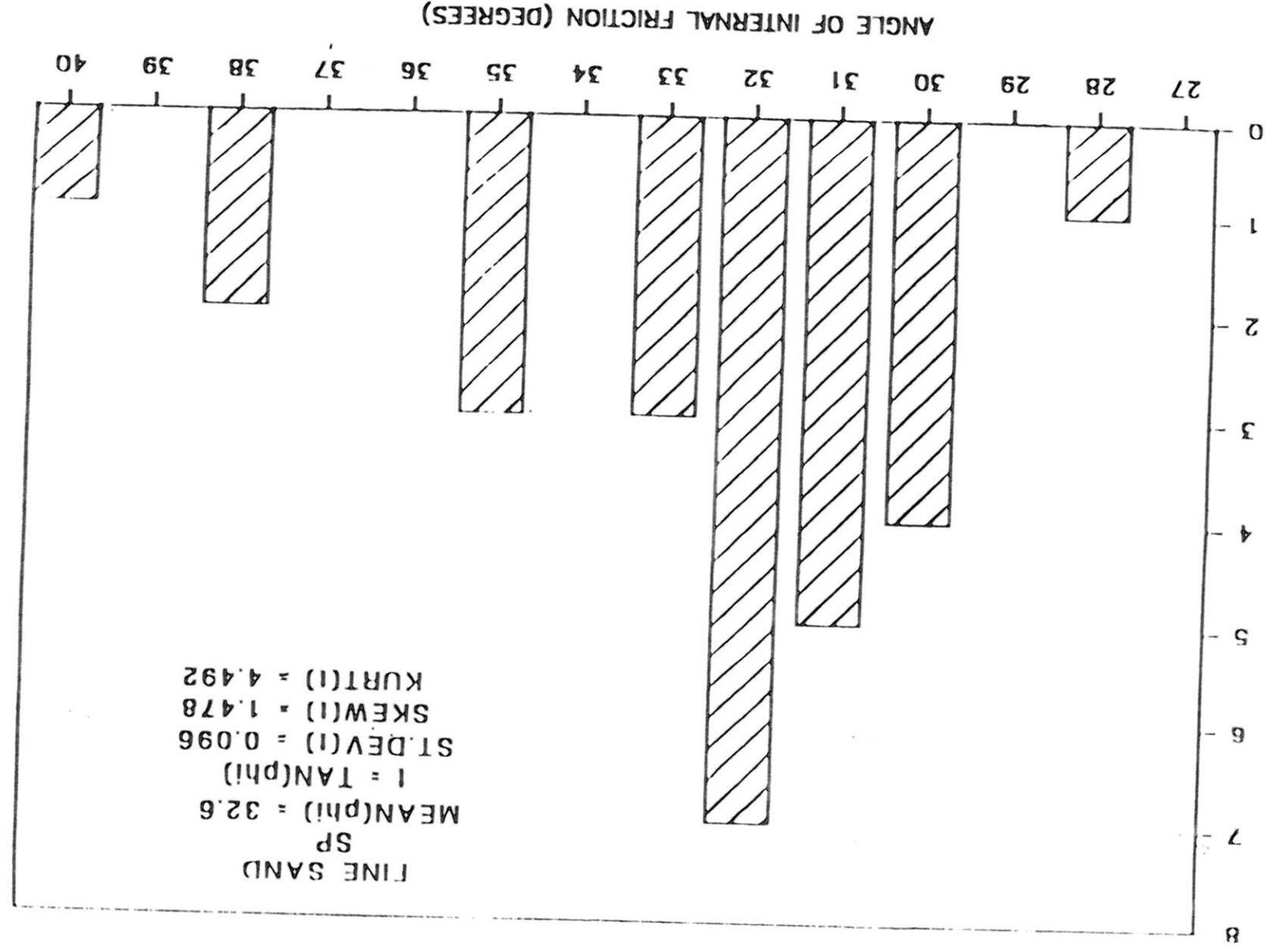
STOCHASTIC STABILITY STUDY OF F-1 DAMS

OBSERVED FREQUENCY



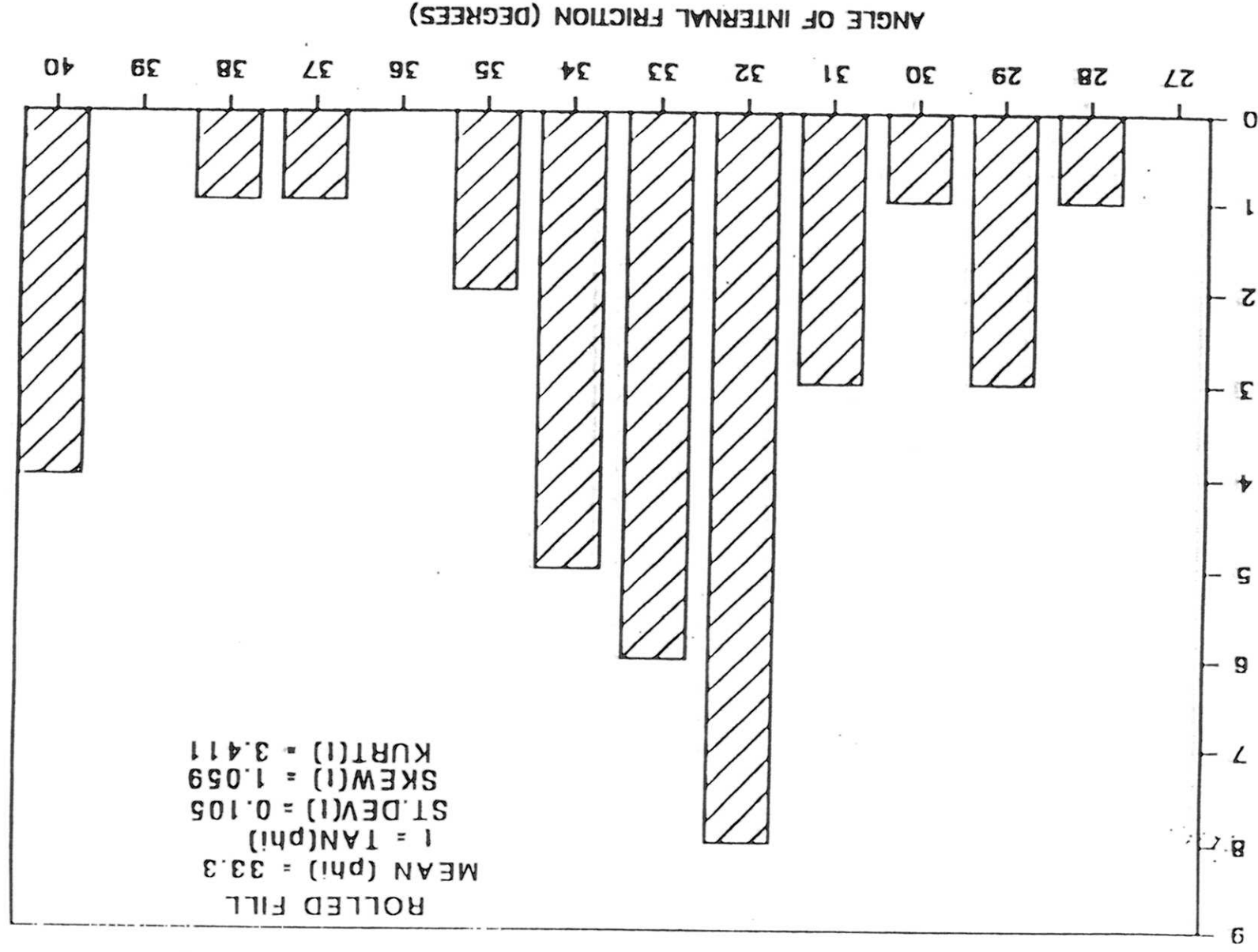
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OBSERVED FREQUENCY



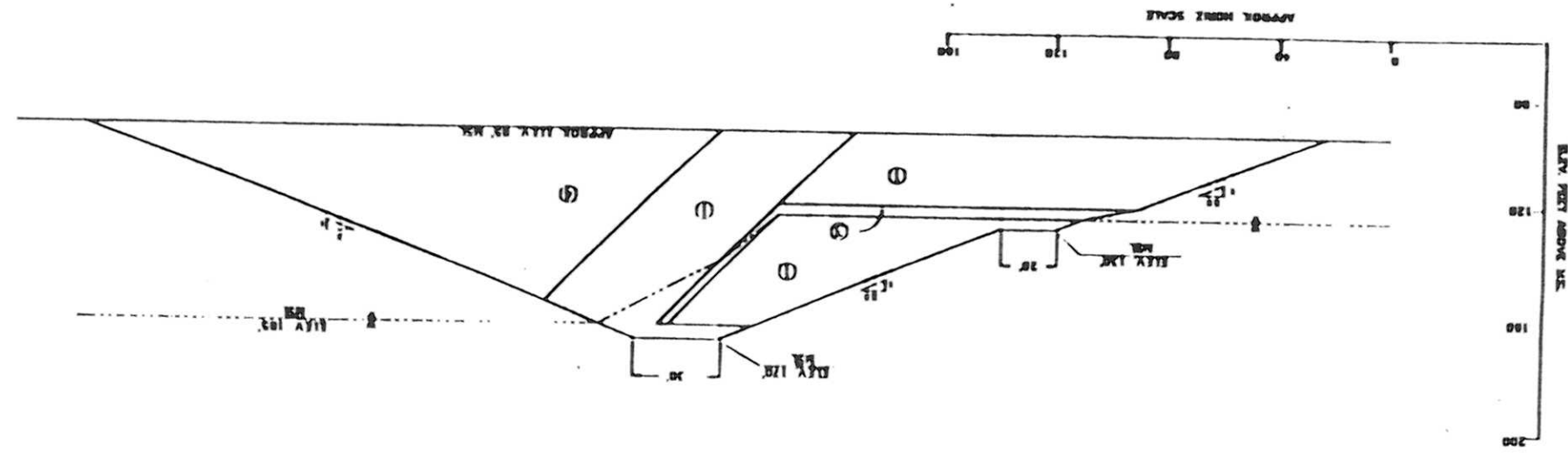
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OBSERVED FREQUENCY



STOCHASTIC STABILITY STUDY OF F-1 DAMS

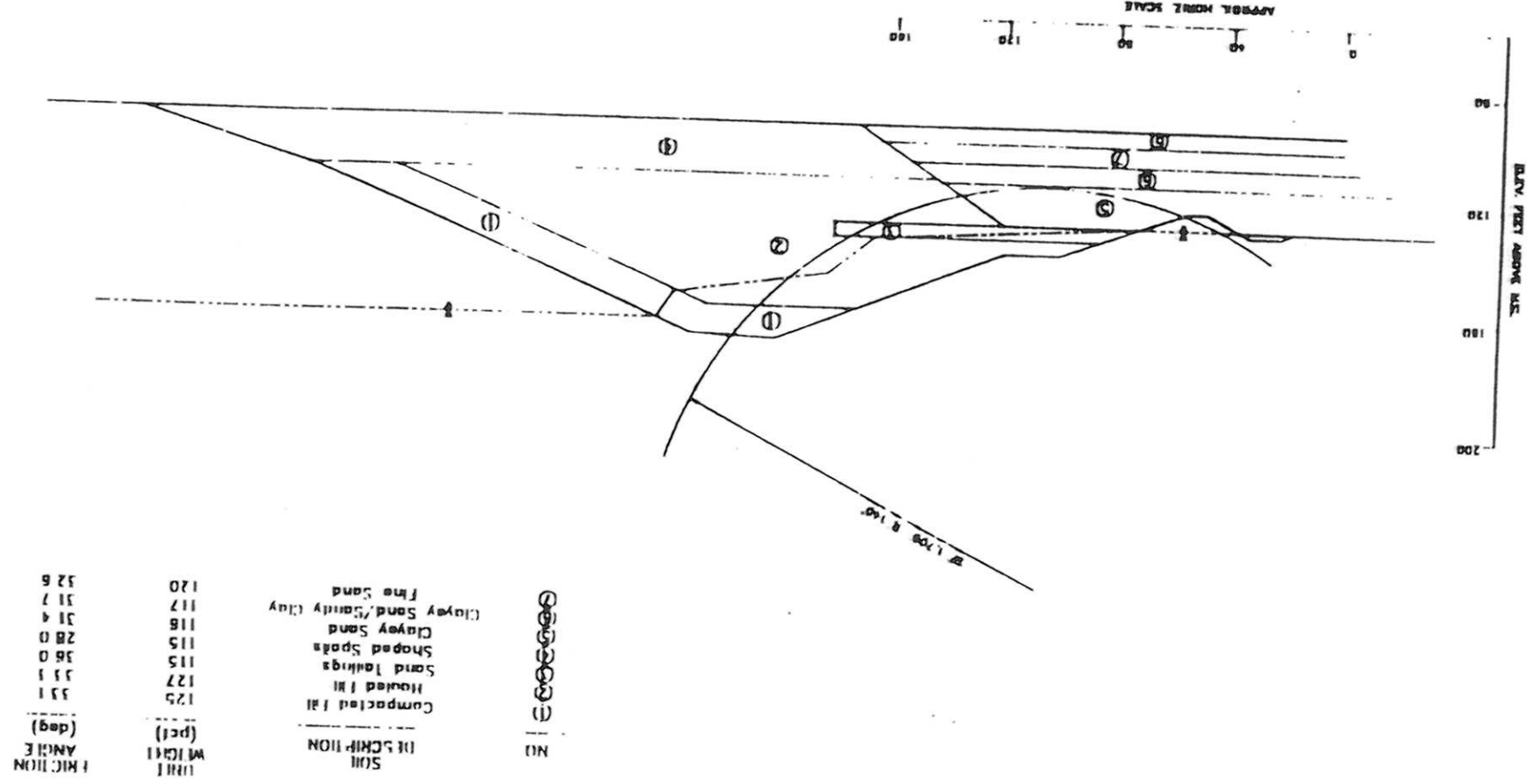
PROPOSED DAM
SECTION 2
Design Cross Section



APPENDIX A

FIGURES

PROPOSED DAM
SECTION 1
Stability Analysis



PROJECT: IMC ELEVEN FOUR CORNERS MINE
LOCATION: MANATEE COUNTY, FLORIDA

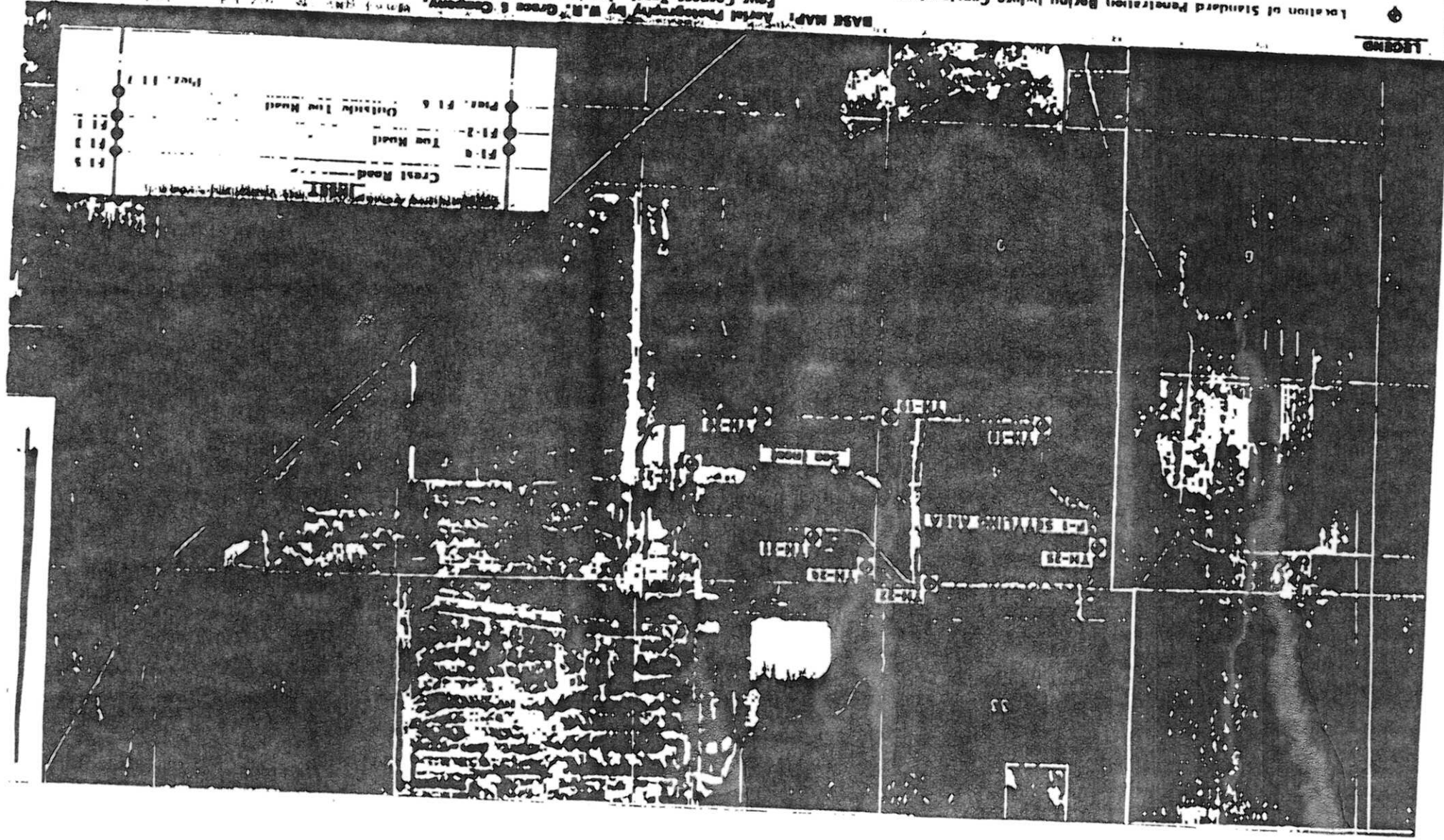
Location of Standard Penetration Boring before Construction
Location of Standard Penetration Boring after Construction

SCALE
0 100 200 Feet

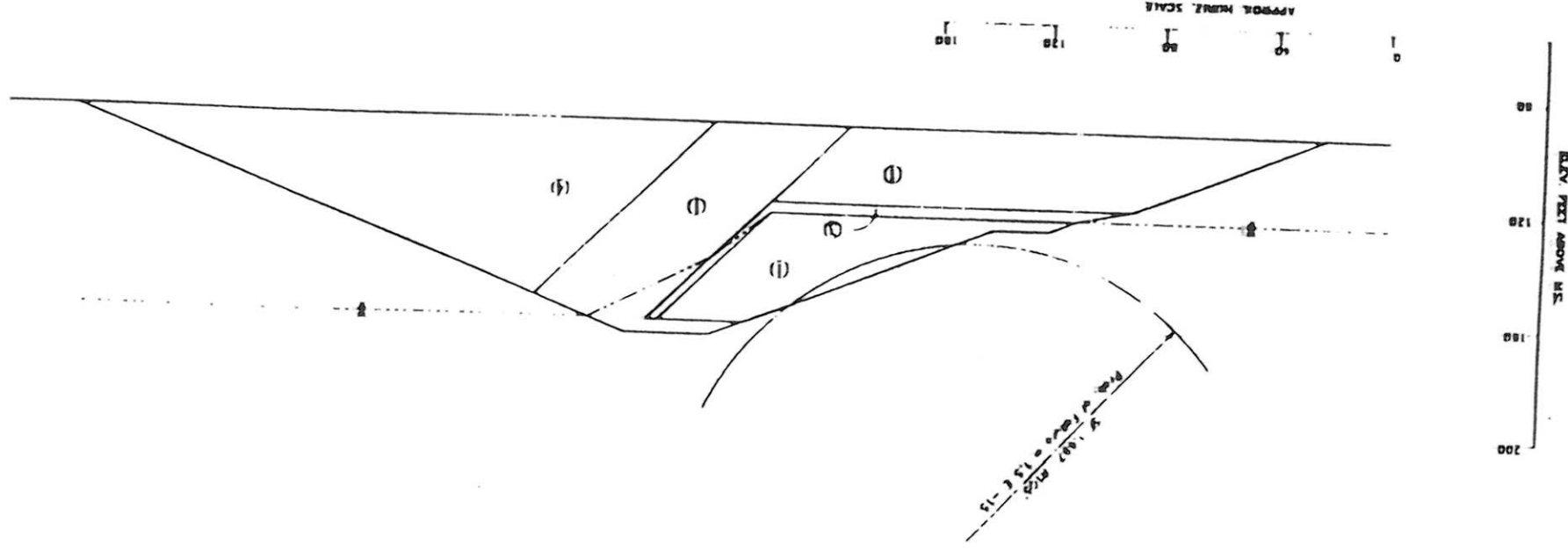
SITE PLAN AND
APPROXIMATE BORING LOCATIONS

BASE MAP: Aerial Photography by W.M. Green & Company,
Four Corners Tract, January 27, 1960.

PI-1	Crest Road
PI-2	Two Road
PI-3	Outback Two Road
PI-4	PI-5



PROPOSED DAM
SECTION 2
Stability analysis

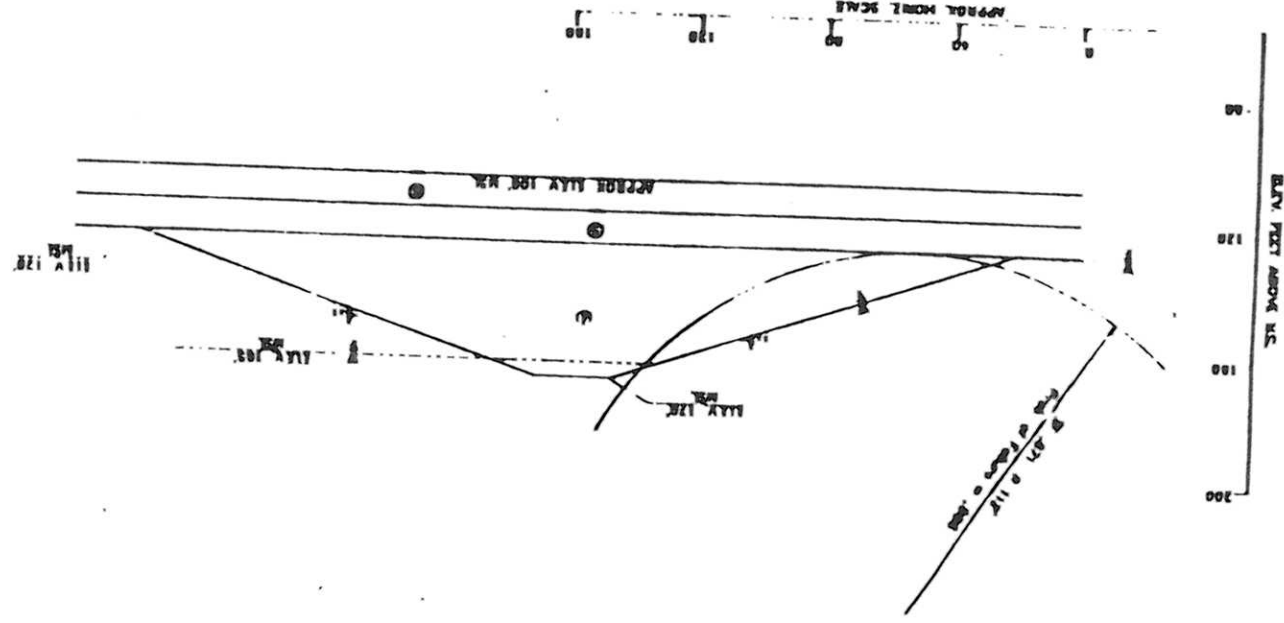


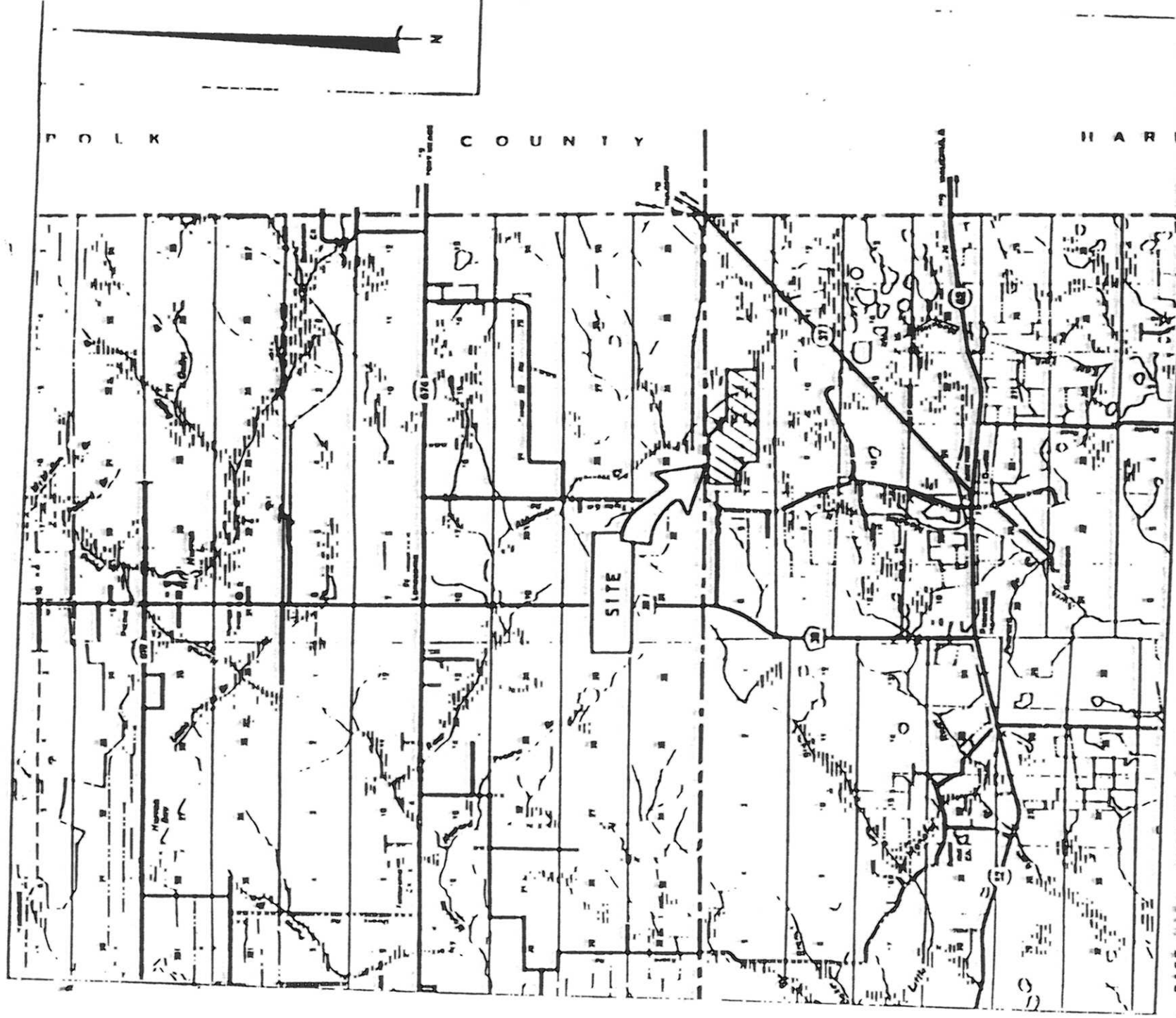
SOIL DESCRIPTION	UNIT WEIGHT (pcf)	FRICTION ANGLE (deg)
Compacted fill	125	33.1
Sand fillings	115	36.0
Shaped Spalls	115	28.0

NO
①②③

F-1 SETTLING AREA
INTERIOR DIVERSION DIKE
Existing Cross Section

NO	SOIL DESCRIPTION	WATER (ft)	ANGLE (deg)
1	Shaped Spills	115	28.0
2	Clayey Sand	118	31.6
3	Clayey Sand/Sandy Clay	117	31.7





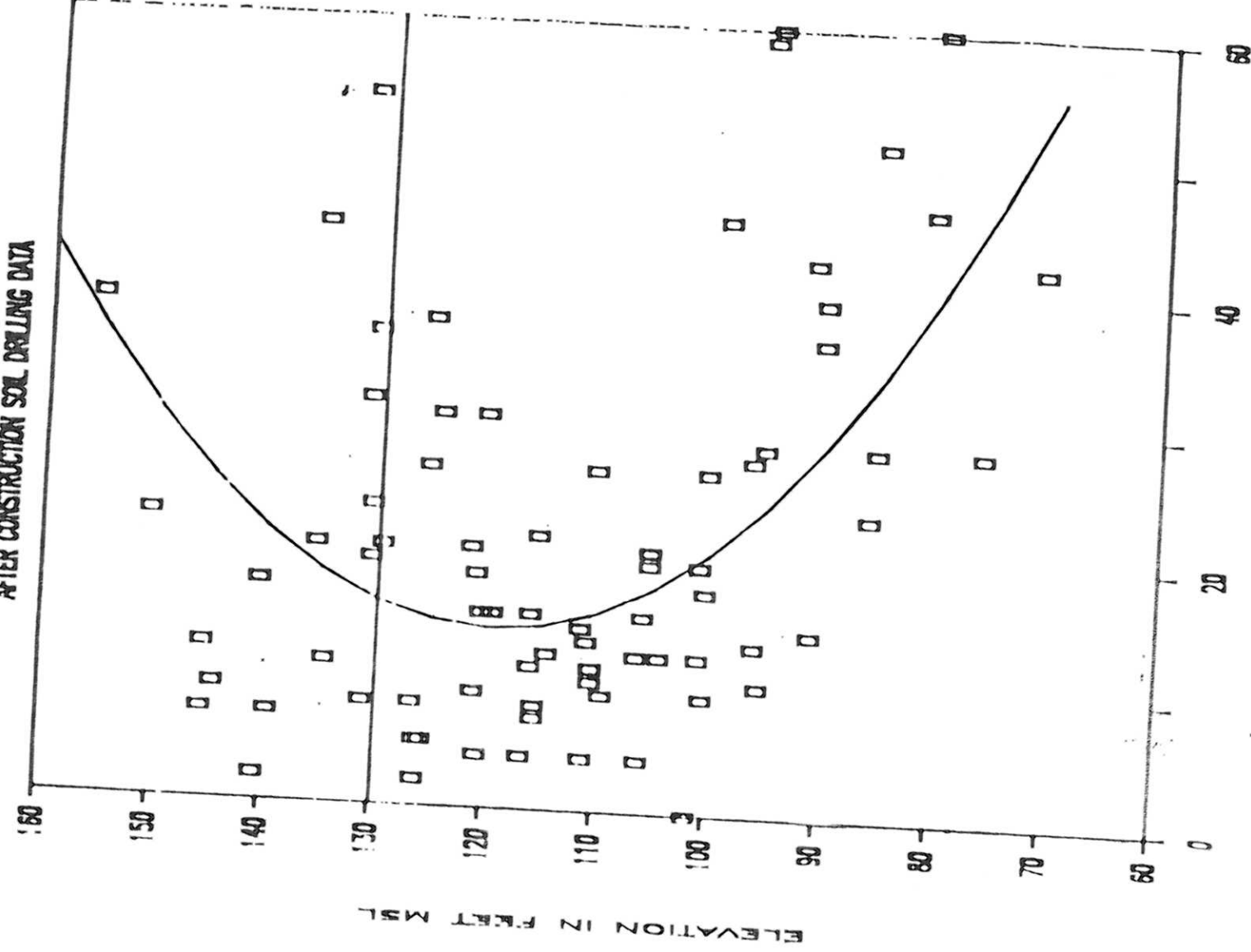
BASE MAP: General County Maps for Manatee & Hillsborough Counties, dated 1974 and 1976, respectively.



Figure 1
VICINITY MAP
Four Corners F-1C
IMC Fertilizer
Dames & Moore

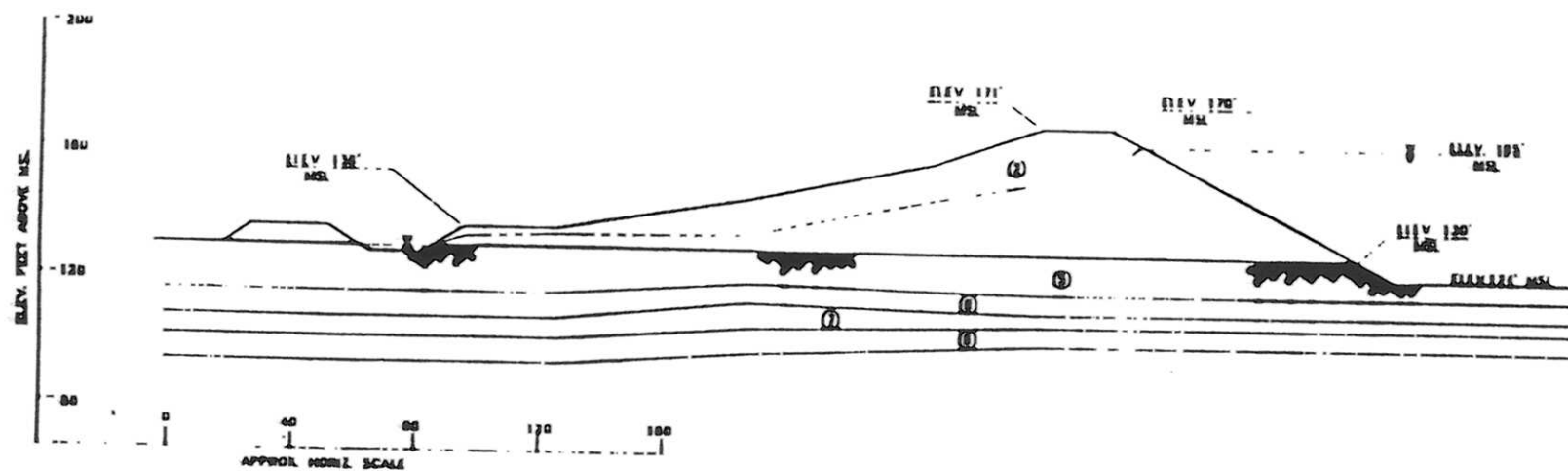
TREND ANALYSIS, F-1 SETTLING AREA

AFTER CONSTRUCTION SOIL DRILLING DATA



□ DATA — REGRESSION FIT — ORG. GRADE

NO	SOIL DESCRIPTIONS	WATER WEIGHT (g)	FRICTION ANGLE (Deg)
(1)	Healed Fill	127	33.3
(2)	Clayey Sand	116	31.4
(3)	Clayey Sand/Sandy Clay	117	31.7
(4)	Fine Sand	120	32.6



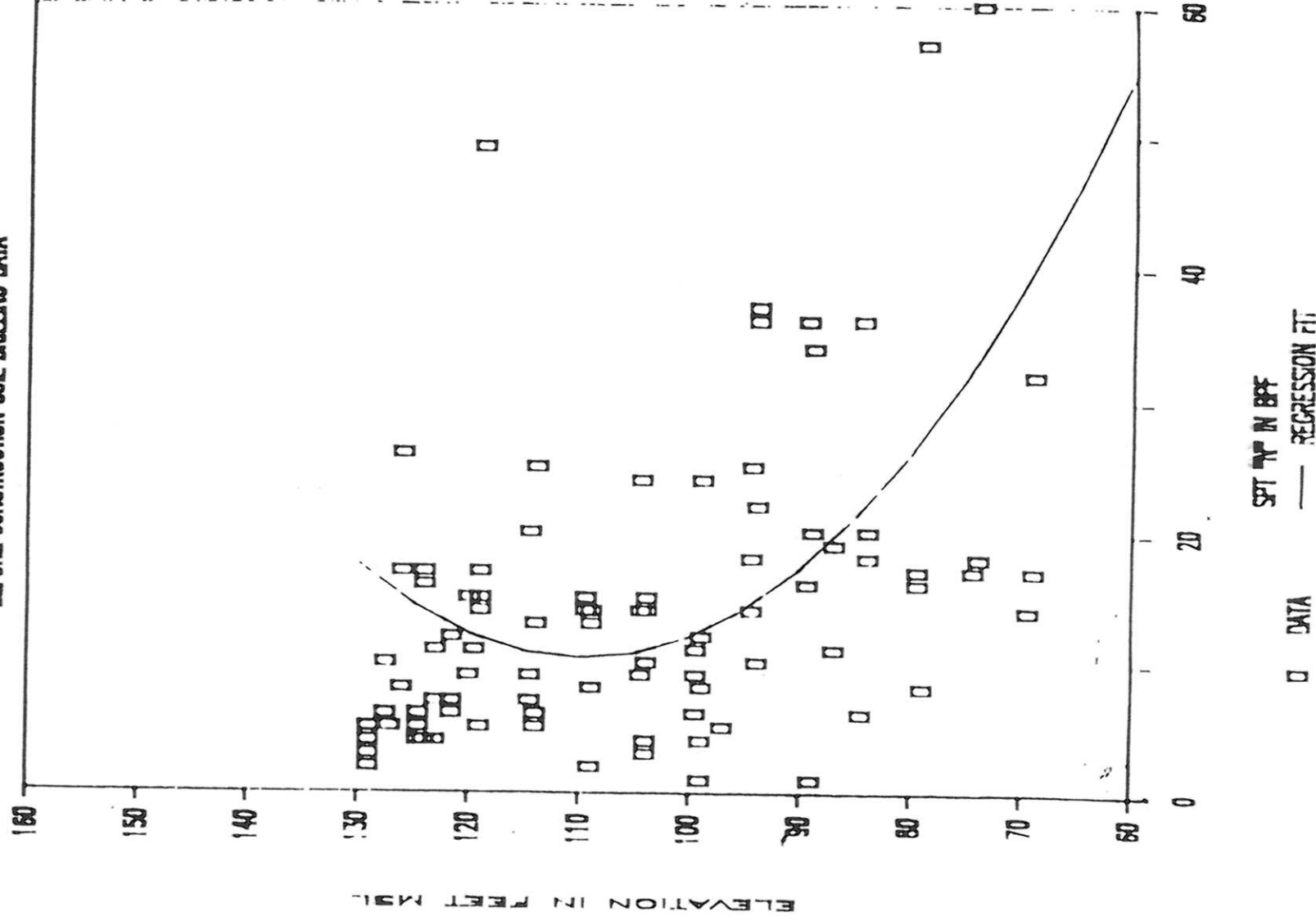
F-1 SETTLING AREA
F-1C DAM
Existing Cross Section

PROJECT: IMC FERTILIZER FOUR CORNERS MINE
LOCATION: MANATEE COUNTY, FLORIDA

Dames & Moore

TREND ANALYSIS, F-1 SETTLING AREA

BEFORE CONSTRUCTION SOIL DRILLING DATA



June 22, 1991

EXHIBIT F

DRI #198

FOUR CORNERS MINE SUBSTANTIAL DEVIATION

DEVELOPER COMMITMENTS

The following are developer commitments set forth in the Application for Development Approval (ADA) and Sufficiency Responses which shall be honored by the developer, except as they may be superseded by specific terms of the Development Order. This summary of commitments is not intended to modify the specific statements in the ADA.

GENERAL PROJECT

1. MCF commits to abide by rules and regulations of the Federal, State and Regional governmental bodies which have authority to regulate the mine activity, as is shown on page 9-1 of the ADA. (SR, 2)
2. The addition of the heavy media separation facility to the processing plant will not add any waste disposal, pollution or water supply concerns above what was addressed in the original DRI #52. (SR, 9)

ENVIRONMENTAL AND NATURAL RESOURCES

LAND

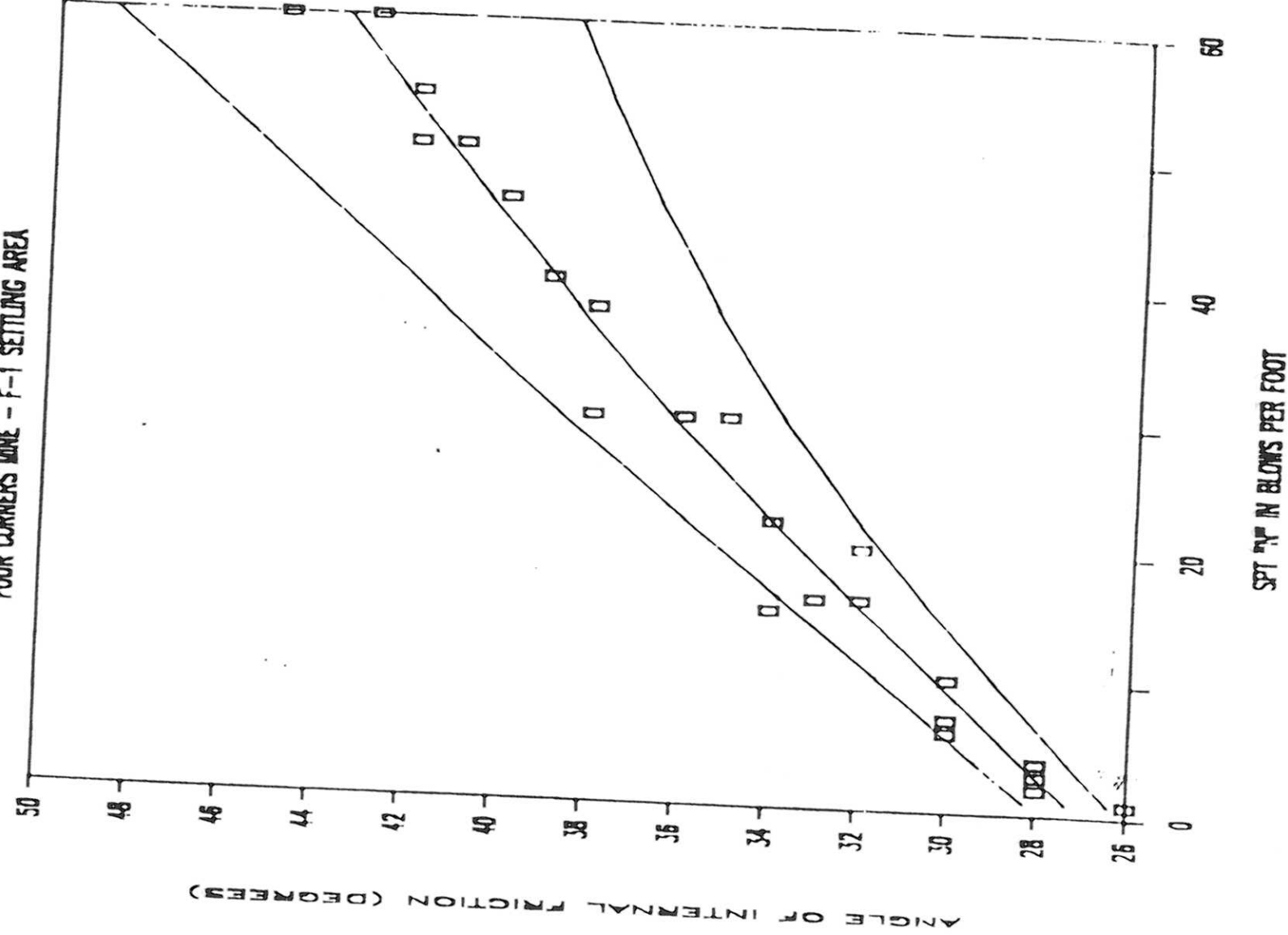
1. The natural vegetative cover currently established will be left undisturbed until impending mining operations require land clearing. Surface water runoff from cleared lands will be routed through ditches into the mine water recirculation system. (ADA, 14-4)
2. Portions of the site will be cleared for access roads, utility corridors and related mining activities. These areas will be graded and ditched to prevent high water velocities that could cause erosion (ADA, 14-4).
3. Post-mining surface soils shall be used only for agricultural purposes or wildlife habitat, except for areas along major roads which will be reclaimed with tailings and overburden-capped tailings. (ADA, 14-4)

Water Quality

1. The existing monitoring program will be continued as mining activities continue at Four Corners. (ADA, 15-30)
2. The potential for siltation of nearby streams which might be associated with stormwater runoff from recently cleared or disturbed land will be minimized by providing adequate ditching, berms, and entrapment features to capture the stormwater runoff from the active mining area. (ADA, 15-34)

PROPOSED STRENGTH CORRELATION

FOUR CORNERS MINE - F-1 SETTLING AREA



4. MCF will avoid disturbance of nesting habitat during the nesting period for the rookery (SR, 39) and will provide the same commitment for the Sandhill Crane. (SR2, 15)

PUBLIC FACILITIES

Drainage

1. MCF will retain watershed boundaries in the approximate pre-mining locations and not cause any significant increase in the stormwater runoff peak flows. (SR, 8)
2. Control of drainage divides on waste clay areas will be accomplished by means of ditches, berms, grading of the dams, and multiple outlet swales on the wetlands. (ADA, 38-37)
3. The only water control structures that will be used are those included in the waste clay settling areas, the water recirculation system and the NPDES discharge points. (ADA, 38-37)

Water Supply

1. MCF will plug all wells that are to be mined, according to SWFWMD and Manatee County Health Department standards and rules. (SR, 8)
2. MCF does not plan any change in the amount of water consumption from these wells. (WUP No. 203573). (ADA, 23-2)
3. MCF will operate the existing water supply system at the plant site until such time as it is no longer needed for the mine and plant operation. Then it will be abandoned and removed according to applicable regulations at that time. (ADA, 23-9)
4. MCF does not plan any change from the approved water use as described in the 1977 DRI, and subsequent approved documents. (ADA, 38-8)

Fire

The design of the plant contains an emergency water supply system, powered by a diesel pump installed in the water return system. In addition, all field equipment is equipped with portable fire extinguishers.

Transportation

1. MCF shipments by truck will not exceed 750 loads of product per day. (SR, 8)
2. MCF will not use State Road 37 / State Road 62 / Moccasin Wallow Road routing for transport of product to Piney Point. (SR, 8)
3. The relocation of Carlton Road will be done subject to Manatee County standards and permits. (ADA, 38-3)

3. IMCF will continue to maintain the surface water quality monitoring program, until reclamation of each area is completed, in order to verify that there is no change in the water quality. The current program, which is required by Manatee County in the Operating Permit, includes monthly sampling at five surface locations and five surficial aquifer locations. (SR 15-31)

4. A water recharge program shall be accompanied by a report indicating that water recharged to the groundwater meets appropriate standards. (SR2, 17)

Wetlands

1. IMCF will obtain wetland delineations from the appropriate permitting agencies as part of the dredge/fill permitting requirements prior to disturbance. (SR2, 9)

2. IMCF will have jurisdictional boundaries of all wetland areas determined, and mapped, prior to mining. (SR, 8)

Flood Plains

The 25 year flood plain will be determined and staked before beginning any mining operations adjacent to those areas. (SR, 8)

Vegetation and Wildlife

1. To protect the netted chain fern from current and future threats, IMCF will relocate all netted chain ferns to other suitable habitat present on the Four Corners Mine site that is not expected to be impacted. (SR, 18-8)

2. In addition, IMCF will relocate any other listed plant species found on-site, or will provide the opportunity for concerned environmental groups (i.e. Florida Native Plant Society) to remove specimens from the site for the purpose of preservation, in accordance with applicable rules or regulations prior to commencement of mining operations. (SR2, 14)

3. As an alternative to habitat protection for such small populations ofopher tortoises, mitigation in the form of a capture and relocation plan in accordance with FGFWFC guidelines will be provided prior to the commencement of mining operations at this site. Individuals collected will be relocated to areas reclaimed as xeric habitat. (SR, 13)

MINING

1. MCF will make every effort to recover all economic phosphate, to ensure conservation and maximum effective extraction of this valuable mineral. (SR, 8)
2. The mining area includes allowances for the mining set backs that are contained in the Manatee County Operating Permit, along with exterior property lines, except for those areas in Section 16 (Township 13 South, Range 22 East) where there was no setback due to an agreement with the adjoining property owner to allow mining up to the property line. (ADA, 38-11)
3. The phosphate ore will be processed at the Four Corners plant on-site. The addition of the heavy media facility will change the plant. (ADA, 38-11)

Reclamation

1. MCF will abide by all Florida Department of Natural Resources (DNR) reclamation regulations regarding site cleanup. (SR, 3)
2. MCF will reclaim all mined or disturbed land to DNR and Manatee County standards. (SR, 8)
3. MCF proposes to reclaim its mined and disturbed lands to a variety of forms including agricultural, wildlife habitat, and open space. (ADA, 37-19)
4. MCF will continue to evaluate and investigate alternate methods of waste disposal and reclamation and consider using alternative procedures once they become technically acceptable and economically feasible. (ADA, 38-17)
5. The tailings reclamation will involve return to original grade, except where the wetlands are to be located. (ADA, 38-18)
6. MCF plans to return most lands reclaimed using the tailings fill and overburden cap method to approximate pre-mining topography. (ADA, 38-23)
7. About one-fifth of the mined area will be reclaimed to pasture (and some crop uses), which will be established according to Soil Conservation Service standards and will include mulching of slopes prone to erosion. (ADA, 38-24)
8. About one-half of the mined land will be reclaimed to forest and about one-third of the mined land will be reclaimed to wetlands, with buffer zones provided along lake edges. (ADA, 38-24 & 38-25)
9. The reclamation plan vegetation is planned to connect wildlife corridors by using planted forests. (ADA, 38-32)

10. Reclaimed freshwater marshes will be graded to provide sufficient water supply to support wetland vegetation and will be spot mulched with soil borrowed from other marshes to be disturbed, if available. (ADA, 38-34)

11. Reclamation steps that will control erosion after mining include contouring of all lands to maximum slopes of 4:1 or 7:1 for agricultural land per the Manatee County Mining Ordinance, and stabilizing contoured lands by establishing a ground cover of vegetation. (SR, 14-4)

Waste Clay Settling Areas

1. All earthen embankments will be designed, constructed, operated and inspected according to the standards of Chapter 17-672, F.A.C. (SR< 8)
2. The clay settling areas will be kept in use only as long as they are needed, then taken out of service and reclaimed. (ADA, 38-18)
3. This Substantial Deviation (DRI #198) does not effect the F-2 settling area, which is located in Hillsborough County. (SR2, 7)
4. WCF has made the commitment to provide clay storage capacity in each county for the clays equivalent to the volumes produced in the respective counties. (SR3, 5)

ADA - Application for Development Approval
SR - Sufficiency Response
SR2 - Second Sufficiency Response

Rev. 5-5-91
cc-soddev/14

STATE OF FLORIDA COUNTY OF MANATEE

I hereby certify that the foregoing is a true copy of ORDINANCE NO. 95-41 adopted by the Board of County Commissioners of said County on the 3 day of Oct, 1995, this 6 day of Oct, 1995, in Bradenton, Florida.

R. B. Shore
Clerk of Circuit Court
By James H. Hark D.C.



MANATEE COUNTY GOVERNMENT

PLANNING, PERMITTING AND INSPECTIONS DEPARTMENT

January 21, 1993

Tampa Bay Regional Planning Council
9455 Koger Boulevard
Suite 219
St. Petersburg, FL 33702

ATTN: Suzanne Cooper, DRI Coordinator

RE: Four Corners Mine DRI# 5

Dear Ms. Cooper,

Enclosed please find the above referenced material.

If you have any questions, please contact me at (813) 748-4501
ext. 3070.

Sincerely,


Wanda L. Sloan

Planning Technician III
Community Planning Section

enclosure

mailed 1/22/93
received 1/25/93

ORDINANCE NO. 92-64

DEVELOPMENT OF REGIONAL IMPACT
DRI #5, IMC FERTILIZER, INC.

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, RENDERING AN AMENDED DEVELOPMENT ORDER PURSUANT TO CHAPTER 380, FLORIDA STATUTES, ON AN APPLICATION FOR DEVELOPMENT APPROVAL* (ADA*) FILED BY IMC FERTILIZER, INC. FOR FOUR CORNERS MINE DEVELOPMENT OF REGIONAL IMPACT SUBSTANTIAL DEVIATION, ALSO KNOWN AS THE TAMPA BAY REGIONAL PLANNING COUNCIL (TBRPC) DRI# 198; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, on September 5, 1991 the Board of County Commissioners approved the Substantial Deviation request (Ordinance 91-62) in part, denying the portion of the request to allow mining on the 170 Acre Addition and within the right-of-way of Carlton Road, as well as using any truck haul route within the County other than State Road 37 north from the mine entrance; and

WHEREAS, IMC Fertilizer, Inc. filed suit against Manatee County for denying portions of their Substantial Deviation request; and

WHEREAS, the Tampa Bay Regional Planning Council appealed the Development Order (Ordinance 91-62) based on multiple allegations; and

WHEREAS, IMC Fertilizer, Inc. and the Tampa Bay Regional Planning Council have agreed to dismiss all pending legal and administrative actions with approval of this Ordinance, Ordinance Z-91-01(R) and the vacation of the right-of-way of Carlton Road; and

WHEREAS, the described project lies within the unincorporated areas of Manatee County; and

WHEREAS, the Board of County Commissioners is the governing body of the local government having jurisdiction pursuant to Section 380.06, Florida Statutes; and

WHEREAS, the Board of County Commissioners of Manatee County has on November 10, 1992, December 1, 1992 and January 12, 1993 held duly noticed public hearings on said amendment to the Four Corners Mine DRI, and has solicited, received and considered reports, comments and recommendations from interested citizens, County staff and government agencies, and the applicant.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA IN A REGULAR MEETING ASSEMBLED THIS 12TH DAY OF JANUARY, 1993, AS FOLLOWS:

SECTION 1. AMENDMENT OF DEVELOPMENT ORDER FOR DRI #5, SE-852.

The previous Development Order for Four Corners Mine in Manatee County, which was adopted on September 5, 1991, is hereby amended as provided in this Ordinance, provided this amendment shall not be construed to terminate the rights of the Developer, if any, granted under Section 163.3167(8), Florida Statutes, to the extent such rights have been previously granted and not specifically herein or otherwise modified or amended.

SECTION 2. FINDINGS OF FACT

The Board of County Commissioners of said County, after considering the testimony, evidence, documentation, application for

amendment of the Official Zoning Atlas, as well as all other matters presented to said Board at the public hearing hereinafter referenced, hereby makes the following findings of fact, provided this amendment shall not be construed to terminate the rights of the Developer, if any, granted under Section 163.3167(8), Florida Statutes, to the extent such rights have been previously granted and not specifically herein or otherwise modified or amended.

A. That said Board of County Commissioners held public hearings on November 10, 1992, December 1, 1992 and January 12, 1993 regarding said amendment to the DRI and the proposed Official Zoning Atlas Amendment described herein, in accordance with the requirements of Manatee County Ordinance No. 90-01 (the Manatee County Land Development Code), Ordinance No. 89-01 (Manatee County Comprehensive Plan), and Ordinance 81-22 (the Manatee County Mining and Reclamation Ordinance) and has further considered the testimony, comments, and information received at the Public Hearing.

B. The proposed DRI Substantial Deviation regarding the property described in Section 7. of Ordinance 91-62 (attached hereto as Exhibit A) and as amended herein, is found to be consistent with the requirements of Manatee County Ordinance No. 89-01 (the Manatee County Comprehensive Plan), if developed in accordance with the Development Conditions specified in Section 6. of Ordinance 91-62, as amended herein.

C. The real property, which is the subject of this amendment, is legally described as set forth in Section 7. of Ordinance 91-62, and as amended in Section 7. herein.

D. The Project* is not in an Area of Critical State Concern, as designated pursuant to Section 380.05, Florida Statutes.

E. The authorized agent for IMC Fertilizer, Inc. is Lee Thurner, as Vice President and General Manager, Florida Minerals Division, P. O. Box 867, Bartow, Florida 33830.

F. The owner of the property, which IMC Fertilizer, Inc. intends to mine, is IMC Fertilizer, Inc.

SECTION 3. CONCLUSIONS OF LAW

A. Based upon the previous findings of fact and the following conditions of the Development Order, the Board of County Commissioners of Manatee County concluded that:

1. The Substantial Deviation components to the Four Corners DRI, which are outlined in Section 5. herein, will not unreasonably interfere with the achievement of the objectives of the Adopted State Land Development Plan applicable to the area.

2. The Substantial Deviation components to the Four Corners DRI, which are outlined in Section 5. herein, are consistent with the local land development regulations and are consistent with the State Comprehensive Plan (SCP) the Tampa Bay Regional Planning Council's Future of the Region, A Comprehensive Regional Policy Plan (FRCRPP*), and Ordinance 89-01 (The Manatee County Comprehensive Plan, as amended).

3. The Substantial Deviation components described in Section 5. herein, are consistent with the report and recommendations of the TBRPC approved on January 18, 1991.

B. That these proceedings have been duly conducted pursuant to applicable law and regulations, and based upon the record in these proceedings, the Developer* is authorized to conduct

development as described herein, subject to the conditions, restrictions, and limitations set forth below.

C. That the review by the County*, TBRPC, and other participating agencies and interested citizens reveals that impacts of the Substantial Deviation components as described herein, are adequately addressed pursuant to the requirements of Chapter 380, Florida Statutes, within the terms and conditions of this amendment to the Development Order and the application for development approval. To the extent that the application for development approval is inconsistent with the terms and conditions of this Development Order, the terms and conditions of this Development Order shall prevail.

SECTION 4. DEFINITIONS

Note: An asterisk (*) denotes that the word is defined. The definitions contained in Chapter 380, Florida Statutes, shall apply to this Development Order, in addition to those listed in Section 5. of Ordinance 91-62.

SECTION 5. DEVELOPMENT COMPONENTS

The Four Corners DRI is hereby amended to allow the following development subject to the conditions of the Manatee County Comprehensive Plan, Ordinance 91-62, and other conditions listed herein in Section 6.

A. The addition to the approved Four Corners Mine of a 170 acre parcel in Sections 10 and 15 of Township 33 South, Range 22 East, and the mining of that area.

B. The revision of the mining and reclamation plan for the Jameson Tract.

C. The mining of the right-of-way of Carlton Road in Sections 9 and 16, Township 33 South, Range 22 East, subject to the vacation of the existing right-of-way and relocation of Carlton Road by the Developer, as described in Section 6. herein.

D. Revision of the projected traffic impacts to allow product shipment by truck to Piney Point/Port Manatee as described in Section 6. herein.

SECTION 6. AMENDMENTS TO ORDINANCE 91-62

1. Section 2 Paragraph G:

Substitute "Lee Thurner" for "James V. Burleson".

2. Section 2 Paragraph K will be revised as follows:

"The original DRI Development Order approval authorized 9,805+ acres to be impacted by mining. This acreage figure was not based upon a boundary survey, but was calculated based upon the number of acres normally contained in a section and was supplemented by manual planimetry techniques. The Substantial Deviation application included a request to mine 211 acres which were previously approved for disturbance, but not mining. The entire 211 acres are located within the boundaries of the Four Corners Mine, as originally approved. Because this acreage was included within the original boundary and was planned for disturbance, all impacts were reviewed at the time of the original application as indicated in Appendix B of the original application. A map showing the location of the majority of this 211 acres is attached hereto and made a part hereof as Exhibit B. The remaining difference in acreage is a result of computer enhanced planimetry techniques since 1975, the date of the original application. None of these 211 acres is located within the 25-Year Floodplain as defined in Section 5, Paragraph N. below or is within the boundaries of the

Page 4 - Ordinance 92-64 - IMC Fertilizer, Inc./Four Corners Mine MA-08 rookery as identified in the ADA.* The total area to be impacted will be 9,958± acres."

3. Section 3 Paragraph A. 1. should be deleted and the remaining paragraphs renumbered.

4. Section 3 Paragraph E to be added as follows:

"That 79 acres of the 170 Acre Addition* were determined to be "vested" pursuant to Section 4.B of the Manatee County Comprehensive Plan, and therefore, has Special Exception status to the Comprehensive Plan."

5. Section 3 Paragraph F to be added as follows:

"That 91 acres of the 170 Acre Addition* were determined to be "vested" pursuant to Section 4.B of The Manatee County Comprehensive Plan, as to Policies 2.11.4.2 and 3.2.1.10, and, therefore, has partial Special Exception status to the Comprehensive Plan."

6. Section 3 Paragraph G to be added as follows:

"That subject to the conditions contained herein, amendments to the area within the original DRI Development Order and the 79± acres referenced in Sections 3.D and 3.E above meet the requirements of Chapter 1, Section 4 of the Manatee County Comprehensive Plan for non-conforming projects through additional conditions which were not present in the original Development Order and that the additional 91± acres referenced in Section 3.F above meets the requirements of the Manatee County Comprehensive Plan in its entirety, except for Policies 2.11.4.2 and 3.2.1.10, for which vesting was granted."

7. Section 4 Paragraph E will be revised as follows:

"The mining of the 211 acres within the Jameson Tract described in Section 2, Paragraph K above."

8. Section 4 Paragraph G to be added as follows:

"G. The addition to the approved Four Corners Mine of a one hundred and seventy (170) acre parcel in sections 10 and 15 of Township 33 South, Range 22 East, and the mining of that area."

9. Section 4 Paragraph H to be added as follows:

"H. The consideration of the method of mining of the existing right of way of Carlton Road in Sections 9 and 16, Township 33 South, Range 22 East."

10. Section 5 Paragraph B will be revised to include the following language:

"And the revised mining schedule and reclamation information for the Jameson Tract attached as Exhibit C hereto."

11. Section 5 Paragraph K will be revised as follows:

"Mine Extension Areas*" shall mean the 740 acres of additional area to be mined in the F-1 Settling Area, the 170 Acre Addition* to the Four Corners Mine*, and the 211 acres not previously approved for mining."

12. Section 5 Paragraph M will be revised as follows:

"Reclamation Plan*" shall mean the consolidated Master Mining, Reclamation and Drainage Plan approved by the Board of County Commissioners on January 22, 1981 for the Northeast Manatee Tract

13. Section 5 Paragraph N will be revised as follows:

"25-Year Floodplain*" shall mean the area so labeled on the floodplain map for the Northeast Manatee Tract in the original Four Corners Mine DRI/ADA (Exhibit 20.3B, Page 146) and the area so labeled in the Substantial Deviation DRI No. 198 ADA* for the Jameson Tract. The exact location of the 25-Year Floodplain shall be determined by a process of calculation of the elevation of the highest water level following a 25-year storm event, and determination of the location of that water level in the field by elevation survey, using standard field practices, and standard hydrological analysis based upon pre-mining disturbance conditions. The 25-Year Floodplain is distinguished from the "100-Year Flood Prone Areas" or "100-Year Flood Zone as shown on FEMA maps."

14. Section 5 Paragraph O to be added as follows:

"170 Acre Addition*" shall mean the addition to the Jameson Tract described in Section 7 under the heading "Addition to Jameson Tract".

15. Section 5 Paragraph P to be added as follows:

"Vested Rights Component*" shall mean the 79 acres of the 170 Acre Addition*, which were granted vested rights to the currently adopted Manatee County Comprehensive Plan and the 91 acres of the 170 Acre Addition* which has partial vested rights to the currently adopted Manatee County Comprehensive Plan, as set forth in Section 3, Paragraphs E and F, above."

16. Section 6 Paragraph A(1) to be added as follows:

"The soil conservation measures referenced on Page 14-4 of the ADA*, at minimum, shall be implemented for the 170 Acre Addition*. These measures include the orientation of mine cuts down slope to intercept any surface runoff; the use of diversion interceptor ditches, berms, and settling ponds to collect stormwater surges and accompanying sedimentation; and the use of mulching and grass swales to filter any further runoff."

17. Section 6 Paragraph A(2) to be added as follows:

"The methods discussed on Page 14-2 of the ADA* to overcome problems associated with the particular on-site soil types shall be implemented on the 170 Acre Addition*."

18. Section 6 renumber Paragraph A(1) to A(3).

19. Section 6 Paragraph C(2) will be revised as follows:

"The existing Surface Water Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit in Chapter 2-20, Codes of Law. At a minimum, the Surface Water Monitoring Program shall specify sampling locations, parameters, frequencies, duration and analytical methods and procedures. The Surface Water Monitoring Program shall require surface water sampling of the East Fork of the Manatee River. A summary of the results of the monitoring program shall be included as part of the DRI Annual Report. The Water Quality Monitoring program required in the Operating permit shall contain sufficient surficial water quality monitoring stations to characterize runoff from the Mine Extension Areas"

20. Add a new condition Section 6 Paragraph C(4).

"Should monitoring results indicate that applicable water quality standards are not being met due to mining activities, the

Page 6 - Ordinance 92-64 - IMC Fertilizer, Inc./Four Corners Mine violation shall be immediately reported to Manatee County and any other agency with jurisdiction and appropriate corrective measures shall be immediately implemented."

21. Add a new condition Section 6 Paragraph C(5).

"a) Copies of amendments to NPDES permits within the Four Corners Mine Substantial Deviation (including specific conditions) shall be submitted to Manatee County.

b) Stormwater runoff from lands cleared for mining and active mining areas shall be routed through ditches into the mine water recirculation system and discharged only through permitted NPDES points.

c) All discharges and discharge rates from the NPDES points shall be in accordance with Chapter 17-300, FAC and conditions of the specific NPDES permit."

22. Section 6 Paragraph E(1) will be revised as follows:

"No mining or disturbance of the 25-Year Floodplain* shall be allowed except for those crossings permitted on the Northeast Tract as part of the original DRI approval or those crossings as outlined in E(2) below."

23. Section 6 Paragraph F(1) to be added as follows:

"In the event that any species listed in Rule 39-27.003-.005, FAC, are observed frequenting the 170 Acre Addition* for nesting, feeding, or breeding, proper protection/mitigation measures shall be employed immediately in cooperation with the Florida Game and Fresh Water Fish Commission (GFC). In the event that a wood stork colony is observed, the Developer* shall implement the US Fish and Wildlife Service's Habitat Management Guidelines for the Wood Stork in the Southeast Region."

24. Section 6 Paragraph F(2) to be added as follows:

"The Developer* shall conduct further floral surveys of the 170 Acre Addition*, in accordance with GFC recommendations prior to mining of the site."

25. Section 6 Paragraph F(3) to be added as follows:

"At a minimum, a Wildlife and Habitat Management Plan shall be established by the Developer* for the 170 Acre Addition* in cooperation with the Department of Agriculture and Consumer Services, GFC, and Manatee County, with review opportunities for the agencies and with approval by the County required. The Wildlife and Habitat Management Plan shall address:

- a) Listed species which could be relocated on site or off site. All listed species and their current locations shall be identified and relocation/management plans provided.
- b) A gopher tortoise mitigation program. This plan shall include a management program for the species."

26. Section 6 renumber Paragraphs F(1) and F(2) to F(4) and F (5).

27. Section 6 Paragraph I(4) will be revised as follows:

"That portion of Carlton Road contained in Sections 9 and 16 of Township 33 South may be vacated subject to a temporary easement for public access over the existing right-of-way until such road is relocated in accordance with this condition. If the Carlton Road

vacation is approved, Manatee County shall dedicate right-of-way in Sections 17, 20, and 21, Township 33 S, Range 22 E, the Developer* shall dedicate or ensure the dedication of the remaining right-of-way in Sections 8, 9, and 16 to Manatee County to ensure a continuous 84 foot wide right-of-way as shown on the attached map (Exhibit D) or other location approved by Manatee County in accordance with Manatee County requirements and at Developer's* sole expense prior to the disturbance and/or mining of the existing right-of-way. The relocated road shall be a 25 foot wide roadway of stabilized material. Manatee County will cooperate in a timely manner in the permitting of the new location. The responsibility and the expense of the other required governmental permitting, legal costs, right-of-way acquisition on the Yon and/or Badcock properties and relocation construction will be that of the Developer*. This section should not be construed to require Manatee County to condemn any right-of-way. The mining setback from the relocated right-of-way will be in accordance with Section J.(9.) of this Order."

28. Section 6 Paragraph I(7) to be revised as follows:

"Transportation of product from this mine by truck is permitted on State Road 37 North from the identified mine entrance on State Road 37. The Developer* shall not use State Road 37, State Road 62 and/or Moccasin Wallow Road routing to ship products to Piney Point/Port Manatee or return to the Four Corners Mine from Piney Point/Port Manatee. The only approved routing from Four Corners Mine to Piney Point/Port Manatee is as follows:

State Road 37 North to State Road 674, thence West to US 41; thence South to Piney Point/Port Manatee and return by same route. The Developer* will not exceed 750 loads of product per day by truck shipments with no more than 94 loads of product per day being transported by truck to Piney Point/Port Manatee."

29. Add new Section 6 Paragraph J(9)d (to be followed by old J(9)d renumbered as J(9)e as follows:

(9)d.

A distance not less than 50 feet from Carlton Road right-of-way which the Developer* can establish will ensure to the County Mining Coordinator that the mining will be performed in a manner which will protect the structural integrity of the roadway.

30. Delete Section 6 Paragraph J(11).

31. Renumber Section 6 Paragraph J(12) as J(11).

32. Add Section 6 Paragraph K(9) as follows:

"Any historical or archaeology resources discovered during mine operation within the 170 Acre Addition* shall be immediately reported to the Florida Division of Historical Resources (DHR) and the ultimate disposition of such resources shall be determined in cooperation with the DHR, TBRPC, and Manatee County. The agreed upon treatment of the resources shall be completed before activities which would disturb the resources are allowed to continue."

33. Revise Section 6 Paragraph K(5) as follows:

Change all 1992 dates to 1993.

34. Add Section 6 Paragraph K(6)(o) as follows:

"(o) A copy of the approved Spill Notification, Containment and Contingency Plan for F-3 shall be submitted to TBRPC in the Annual Report following the County's written approval of said plan.

Subsequent updates and/or revisions to this plan shall also be submitted to TBRPC in the Annual Report following such update or revision."

35. Section 6 Paragraph K(10) to be added as follows:

"Mining of the 170 Acre Addition* is contingent upon the Developer* demonstrating that the conduct of previously approved mining and reclamation activities within the watershed of the Manatee River have no adverse effect on either the surface or groundwater quality of waters within the adjacent segments of the Manatee River and in its contiguous floodplain areas. These qualitative evaluations of river impact will consider Class I water quality criteria including statistical analysis of macrobenthic survey data as well as other objective measures of river system impact as appropriate. Within thirty (30) days following the approval of the Operating Permit by the County in a form acceptable to both parties and the dismissal of the pending legal and administrative actions, the Developer* shall pay to Manatee County the sum of \$50,000.00. These funds will be escrowed for use by the County to secure a professionally designed program for an in-depth monitoring and assessment of impacts which may be attributed directly to the approved Mining and Reclamation Plan of Four Corners Mine. Such program shall define, at a minimum, all relevant parameters but shall specifically include those appropriate radiation parameters) and monitoring locations for a Monitoring and Assessment Program.

The consultant will be selected by the County; however, the Developer* shall have the right to review and comment upon the proposed consultants and their proposals prior to the County making a final selection. The Consultant will have the responsibility to determine what constitutes an "adverse effect" and to determine the river segments and contiguous floodplain areas to be included pursuant to this condition.

Once the monitoring program is designed and the system installed, the Developer* will pay \$100,000.00 per year for five years in quarterly increments of \$25,000.00 to Manatee County to offset the costs of operating and maintaining the Monitoring and Assessment Program, including all additional consulting, lab work and other expenses associated with the monitoring program. Developer* shall be furnished with copies of all monitoring and lab reports as received by the County. If Developer* deviates from the approved mining schedule as shown on Map H-1 dated 10/26/92, and revised mining schedule 38A-2 dated 10/28/92 by more than one year, then the County and Developer* shall renegotiate the monitoring program and payment schedule to meet the intent of this condition.

If it has been affirmatively demonstrated that based upon the above criteria, there is no degradation of the surface water and groundwater quality within the adjacent segments of the Manatee River, or its contiguous floodplain area attributable to the mining and reclamation in accordance with the approved plans, the Developer* will have the right to mine the 170 Acre Addition* and reclaim same in accordance with approved mining and reclamation schedule. If it has not been affirmatively demonstrated that there is no degradation of either the surface water or groundwater quality within the adjacent segments of the Manatee River, or its contiguous floodplain area attributable to mining and reclamation in accordance with approved plans, the Developer* shall not mine the 170 Acre Addition*. County* may continue the Monitoring and Assessment Program beyond the five year period at its own expense.

At the conclusion of the monitoring program, the consultant shall render its opinion to the Board as to whether there are any adverse effects attributable to the mining and reclamation. Based upon that opinion and in accordance with this condition, the Board shall either authorize or deny mining on the 170 Acre Addition*.

Should a dispute occur concerning the validity of the monitoring program, the results of the sampling or analysis or the interpretation of such matters as they bear on the ultimate question of adverse effect on adjacent segments of the Manatee River or its contiguous floodplain areas, the County and the Developer* may appeal such finding to the Circuit Court of the Twelfth Judicial Circuit in and for Manatee County, Florida.

If mining of the 170 Acre Addition* is not permitted pursuant to this paragraph, the Developer* shall not be required to comply with the conditions A(1), A(2), F(1), F(2), F(3), and K(9) above in regard to the 170 Acre Addition*."

36. Revise Section 7 to include the 170+ Acre Addition*.

SECTION 7. LEGAL DESCRIPTION

The Four Corners Mine legal description shall be as described in Section 7. of Ordinance 91-62 with the following 170 acre addition:

Section 10, Township 33 S, Range 22 E: The SE 1/4 of the SW 1/4, and the SW 1/4 of the SE 1/4.
Section 15, Township 33 S, Range 22 E: From the NE corner of Section 15 run thence N 88°39'09" W 1321.10' to a point of beginning; thence continue N 88°39'09" W 2088.90'; thence S 05°01'09" E 2884.00' to a point on the Westerly Right of Way line of Brewster-Parrish Road (SR 37); thence N 45°33'54" E 2565.00'; thence N 00°11'54" E 1028.06' to the point of beginning.

SECTION 8. DEADLINE FOR COMMENCEMENT OF CONSTRUCTION

Physical development of the Project* shall commence as specified in Section 8. of Ordinance 91-62.

SECTION 9. BINDING ORDER UPON DEVELOPER*

This Development Order shall be binding upon the Developer*, its successors, assigns or successors in interest.

SECTION 10. RENDITION

The Planning, Permitting and Inspections Department is hereby directed to send certified copies of this Order within thirty (30) days of the date of signature by the Chairman of the Board of County Commissioners to the Developer*, the Florida Department of Community Affairs and the TBRPC.

SECTION 11. NOTICE OF RECORDING

The Developer* shall record a notice of adoption of this Order as required pursuant to Chapter 380, Florida Statutes, and shall furnish the Planning, Permitting and Inspections Department a copy of the recorded notice.

SECTION 12. SEVERABILITY

It is the intent of this Ordinance to comply with the requirements of all applicable law and constitutional requirements. If any provision or portion of this Ordinance is declared by any court of competent jurisdiction to be void, unconstitutional, or unenforceable, then such provision or portion shall be deemed null and void, but all remaining provisions and portions of this Ordinance shall remain in full force and effect.

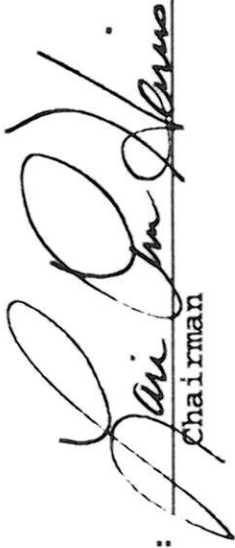
SECTION 13. EFFECTIVE DATE

This Ordinance shall take effect upon being signed by the Chairman of the Board of County Commissioners, the receipt of an

Page 10 - Ordinance 92-64 - IMC Fertilizer, Inc./Four Corners Mine
official acknowledgement from the Department of State and the
expiration of any appropriate appeal period.

PASSED AND DULY ADOPTED by the Board of County Commissioners
of Manatee County, Florida this 12th day of January, 1993.

BOARD OF COUNTY COMMISSIONERS
OF MANATEE COUNTY, FLORIDA

BY: 
Chairman

ATTEST: R. B. SHORE
Clerk of the Circuit Court



198d

FILED
Sep 16 9 27 AM '91
SECRETARY OF STATE

ORDINANCE 91-62

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, REORDERING A DEVELOPMENT ORDER PURSUANT TO CHAPTER 380, FLORIDA STATUTES, ON AN APPLICATION FOR DEVELOPMENT APPROVAL* (ADA*) FILED BY IMC FERTILIZER, INC., FOR FOUR CORNERS MINE DEVELOPMENT OF REGIONAL IMPACT (DRI) SUBSTANTIAL DEVIATION, ALSO KNOWN AS DRI #198; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

FILED FOR RECORD
R.B. SHORT
CLERK OF CIRCUIT COURT
MANATEE COUNTY, FLORIDA
SEP 16 1991

WHEREAS, W. R. Grace and Company proposed a Development Regional Impact (DRI) for a phosphate mine located in both Hillsborough and Manatee Counties; and

WHEREAS, the proposed DRI included two discontinuous tracts in Manatee County, one of which was known as the "Jameson Tract" and included 4,753 acres, the other of which was known as the "Northeast Manatee Tract" and included 5,052 acres; and

WHEREAS, on December 27, 1977 Manatee County adopted resolutions granting W. R. Grace and Company a DRI Development Order, Master Mining and Reclamation Plan, and Special Exception for the Four Corners Mine; and

WHEREAS, W. R. Grace and Company was issued an Operating Permit on January 22, 1981 to mine all parts of Four Corners Mine* excluding the Mine Extension Areas*; that Permit has been extended by operation of law, and the Developer has applied for a new Operating Permit; and

WHEREAS, on November 2, 1982, Manatee County approved a resolution transferring all rights in the Four Corners Mine from W. R. Grace to W. R. Grace, as manager to the Four Corners Mine Joint Venture; and

WHEREAS, on July 9, 1985, Four Corners Mine Joint Venture submitted an Operating Permit renewal application to Manatee County which included a new Reclamation Plan; and

WHEREAS, Four Corners Mine Joint Venture submitted a Notice of Proposed Change to a Development Order on November 27, 1987; and

WHEREAS, on March 29, 1988, Manatee County determined that the proposed change was a Substantial Deviation to the approved Development Order; and

WHEREAS, the management of the Four Corners Mine was transferred to IMC Fertilizer, Inc. on December 20, 1988; and

WHEREAS, on January 10, 1989, IMC Fertilizer, Inc. became the sole owner of the Four Corners Mine; and

WHEREAS, on March 28, 1989, IMC Fertilizer, Inc. filed an ADA* for a Substantial Deviation to an approved DRI with the Manatee County Board of County Commissioners, pursuant to the provisions of Section 380.06, Florida Statutes; and

WHEREAS, said Substantial Deviation proposed:

- the addition of a one hundred and seventy (170) acre parcel in Sections 10 and 15 of Township 33 South, Range 22 East, and the mining of that area;
- the construction of a heavy media facility to the Four Corners processing plant, southwest of the existing washer, to upgrade waste pebble into saleable product;

- dismantling, mining, and rebuilding of the approximately seven hundred and forty (740) acre P-1 waste clay settling area;
- revision of the mining and reclamation plan for the Jameson and Northeast Manatee tracts, extending mining on the Jameson Tract to November 30, 2006 and mining on the Northeast Manatee Tract from 1998 through 2002 to 2002 through 2006 with reclamation being completed by 2018 and 2010, respectively;
- the mining of two hundred and eleven (211) acres within the approved DRI which were previously approved for disturbance but not mining;
- the mining of the right-of-way of Carlton Road, an unpaved County road in Sections 9 and 16, T33S, R22E; and revision of the project traffic impacts; and

WHEREAS, on March 28, 1991, 79 acres of the 170 Acre Addition were granted Vested Rights with regard to the currently approved Manatee County Comprehensive Plan, and the remaining 91 acres of the 170 Acre Addition were granted Vested Rights with regard to the rebuttable presumption against mining within the Lake Manatee Watershed, as described in the currently approved Manatee County Comprehensive Plan; and

WHEREAS, the described Project lies within the unincorporated area of Manatee County; and

WHEREAS, the Board of County Commissioners is the governing body of the local government having jurisdiction pursuant to Section 380.06, Florida Statutes; and

WHEREAS, the Planning Commission has reviewed the Application for Development Approval* for a Substantial Deviation and has filed a recommendation on said Application with the Board of County Commissioners; and

WHEREAS, The Board of County Commissioners has received and considered the report and recommendation of the Tampa Bay Regional Planning Council (TBRPC); and

WHEREAS, the Board of County Commissioners of Manatee County has, on March 14, 1991, April 25, 1991, June 27, 1991 and August 19, 1991 and September 5, 1991 held a duly noticed public hearing on said Application for Development Approval* for a Substantial Deviation, and has solicited, received and considered reports, comments, and recommendations from interested citizens, county and city agencies, and the applicant, as well as the review and report of the Manatee County Planning and Zoning Department.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, IN REGULAR MEETING ASSEMBLED THIS 5TH DAY OF SEPTEMBER, 1991, AS FOLLOWS:

SECTION 1: AMENDMENT OF DEVELOPMENT ORDER FOR DRI 'O. 5, SE-852.
The previous Development Order for Four Corners Mine in Manatee County, which was adopted on December 27, 1977, is hereby amended in its entirety, provided this amendment shall not be construed to terminate the rights of the Developer*, if any, granted under Section 163.3167(8) F.S. to the extent such rights have previously been granted and not specifically herein modified or amended.

SECTION 2: FINDINGS OF FACT. The Board of County Commissioners of said County, after considering the testimony, evidence, documentation, application for amendment of the Official Zoning Atlas, the recommendation and findings of the Planning Commission of Manatee County, as well as all other matters presented to said Board at the public hearing hereinafter referenced, hereby makes the following findings of fact, provided this amendment shall not be construed to terminate the rights of the Developer*, if any, granted under Section 163.3167(8) F.S., to the extent such rights have previously been granted and not specifically herein modified or amended:

- A. The Board of County Commissioners has received and considered the report of the Manatee County Planning Commission concerning the DRI Substantial Deviation and the Application for Official Zoning Atlas Amendment as it relates to the real property described in Section 7 of this Resolution of an Application for Development Approval* pursuant to Section 380.06, Florida Statutes (FS).
- B. That said Board of County Commissioners held a public hearing on March 14, 1991, April 25, 1991, June 27, 1991, August 19, 1991 and September 5, 1991 regarding the said DRI Substantial Deviation and the proposed Official Zoning Atlas Amendment described herein, in accordance with the requirements of Manatee County Ordinance No. 90-01 (The Manatee County Land Development Code), Ordinance 89-01 (The Manatee County Comprehensive Plan), and Ordinance 81-22 (The Manatee County Mining and Reclamation Ordinance) and has further considered the information received at said public hearing.
- C. The proposed DRI Substantial Deviation regarding the property described in Section 7 herein is found to be consistent with the requirements of Manatee County Ordinance 89-01 (The Manatee County Comprehensive Plan) and with the Development Conditions specified in Section 6. The Four Corners Mine* is an approved DRI; therefore, this development has Special Exception status as explained in Section 3, Subsection D herein.
- D. IMC Fertilizer, Inc. submitted to Manatee County, Florida, an Application for Development Approval (ADA)*, and five Sufficiency Responses, which are incorporated herein by reference. Hereinafter, the word "Application" shall mean the ADA* as defined in Section 5, Paragraph B herein.
- E. The real property, which is the subject of this application, is legally described as set forth in Section 7 of the Development Order.
- F. The proposed development is not in an Area of Critical State Concern, as designated pursuant to Section 380.05, Florida Statutes.
- G. The authorized agent for IMC Fertilizer, Inc. is Mr. James V. Burleson, as Vice-President and General Manager, Florida Minerals Division, Post Office Box 867, Bartow, Florida 33830.
- H. The owner of the property is IMC Fertilizer, Inc.
- I. A comprehensive review of the impact generated by the Substantial Deviation has been conducted by the departments of Manatee County and TBRPC.
- J. The DRI Preapplication Review, which was convened for the Substantial Deviation to the Four Corners Mine DRI, resulted in the elimination of the following questions from the ADA* for this Substantial Deviation review:

#13 - Air
#17 - Floodplain
#19 - Historical and Archaeological Resources
#20 - Economy
#21 - Wastewater
#24 - Solid Waste
#25 - Energy
#26 - Education
#27 - Recreation and Open Space
#28 - Health Care
#29 - Police
#30 - Fire, and

K. The original DRI Development Order approval included 9805+ acres to be impacted by mining. The Substantial Deviation Application includes a request to mine 211 acres which were previously approved for disturbance but not mining. The entire 211 acres are located within the boundaries of the Four Corners Mine, as originally approved, and results in part from improved planimetry techniques and in part from mining of lands approved to be impacted in the 1977 DRI. The applicant also intends to mine the right-of-way of Carlton Road. The proposed mining of the 211 acres and the right-of-way of Carlton Road were not known to Manatee County or to TBRPC at the pre-application stage. The total area to be impacted will be 9788+ acres.

SECTION 3: CONCLUSIONS OF LAW:

A. Based upon the previous findings of fact and the following conditions of development approval, the Board of County Commissioners of Manatee County concluded that:

1. The 170+ acre addition is not consistent with the Comprehensive Plan and the Land Development Code in that the requested expansion of the mine is incompatible with the existing agriculturally-zoned property located to the south, nor is it compatible with the Board's goals and objectives for preservation of the Lake Manatee Watershed, and also that the 170+ acres was denied a rezone to EX/WP-M and phosphate mining is not permitted in the existing A/WP-M zoning district.
2. The Substantial Deviation components to the Four Corners Mine DRI, which are outlined in Section 4 herein, will not unreasonably interfere with the achievement of the objectives of the Adopted State Land Development Plan applicable to the area.
3. The Substantial Deviation components to the Four Corners Mine DRI, which are outlined in Section 4 herein, are consistent with the local land development regulations and are consistent with the State Comprehensive Plan, the Tampa Bay Regional Planning Council's Comprehensive Regional Policy Plan, and the Manatee County Comprehensive Plan, Ordinance 89-01, as amended.
4. The Substantial Deviation components to the Four Corners Mine, which are outlined in Section 4 herein, are consistent with the intent of the report and recommendations of the TBRPC issued on January 18, 1991.
- B. That these proceedings have been duly conducted pursuant to applicable law and regulations, and, based upon the record in these proceedings, IMC Fertilizer, Inc. is authorized to conduct development as described herein, subject to the conditions, restrictions and limitations set forth below.
- C. That the review by the County, the TBRPC, and other participating agencies and interested citizens reveals that the impacts of the Substantial Deviation components to the Four Corners Mine DRI, which are outlined in Section 4 herein, are adequately addressed pursuant to the requirements of Chapter 380, FS, within the terms and conditions of this Order and the Application. To the extent that the Application is inconsistent with the terms and conditions of this Order, the terms and conditions of this Order shall prevail.
- D. That the original acres contained within the original DRI Development Order are determined to have Special Exception status pursuant to Section 4.B of the Manatee County Comprehensive Plan, Ordinance 89-01, as amended.

SECTION 4: DEVELOPMENT COMPONENTS

The Application for the Four Corners Mine DRI Substantial Deviation is hereby approved to allow the following development, subject to the conditions of the Manatee County Comprehensive Plan, and other conditions listed in this Development Order:

- A. The construction of a heavy media facility at the Four Corners processing plant.
- B. The dismantling, mining, and rebuilding of the approximately seven hundred and forty (740) acre F-1 waste clay settling area.
- C. The revision of the mining and reclamation plan for the Jameson tract which provides that completion of mining be extended to November 30, 2006, and that reclamation be completed by 2018.
- D. The revision of the mining and reclamation plan for the Northeast Manatee tract which provides that the mining period be extended from 1998-2002 to 2002-2006, and that reclamation be completed by 2010.
- E. The mining of the 211 acres within the Jameson Tract, which acreage was previously approved for disturbance but not mining.
- F. Revision of the projected traffic impacts.

SECTION 5: DEFINITIONS

Note: An asterisk (*) indicates that the word is defined.

- A. "Acceptable Level of Service*" shall be Level of Service D, peak hour on urban roads, and Level of Service C, peak hour on rural roads, or as shown on Table 5.1 of the Manatee County Comprehensive Plan, whichever is more restrictive. Acceptable Level of Service for links and intersections in Polk County, Florida, shall mean Level of Service as set for the affected roadways in the Polk County Comprehensive Plan.
- B. "Application for Development Approval*" and "ADA*" shall mean Four Corners Mine's* Development of Regional Impact Application for Development Approval and sufficient responses, as amended by IMCF's Substantial Deviation Application for the Four Corners Mine (March 23, 1989), all five Additional Information Submittals submitted by the Developer* in response to the sufficiency reviews of state, regional, and local agencies, the revised mining schedule for the Jameson Tract, and the traffic information dated January 23, 1991.
- C. "Best Management Practices*" shall mean practices that are technologically and economically practicable and most beneficial in preventing or reducing adverse impacts from mining activities. For more specific information and examples, see the same definition in the Manatee County Comprehensive plan.
- D. "Best Possible Technology*" shall mean the most advanced technology which provides the maximum protection possible for the public health, safety, and welfare and which minimizes to the greatest degree possible any adverse impacts from industrial uses and mining activities, on the watershed of the Lake Manatee Reservoir. Best Possible Technology may include, but is not limited to: innovative reclamation techniques, augmentation of public water supplies that could be adversely affected by mining activities; construction of

secondary containment structures or other measures to ensure against catastrophic failure of primary containment structures; elimination of mine site rock dryers; and zero point discharge; provided however, such requirements shall not be applied if the Developer demonstrates that they are technologically infeasible. In ascertaining the best possible technology, economic disadvantages shall only be considered relevant when analyzed in relation to other applicants conducting mining activities in the watershed of the Lake Manatee Reservoir.

E. "Conservation Areas" shall mean the secondary zone and the eagle's nest, as determined by the U.S. Fish and Wildlife Service.

F. "Developer" shall mean IMC Fertilizer, Inc., assigns, agents, and successors in interest as to the Four Corners Mine.

G. "Development Approval" shall mean any approval for this development granted through the DRI ADA Substantial Deviation.

H. "Extended Four Corners Mine" shall mean the entire Four Corners Mine located in Hillsborough, Polk and Manatee Counties, as illustrated on Map A of the Substantial Deviation Application for Development Approval dated March 23, 1989. The Developer shall notify Manatee County of any amendments to any approved DRI in the Extended Four Corners Mine.

I. "Four Corners Mine" shall mean all portions of the Four Corners Mine which are located in Manatee County as described in Section 7 and excludes those portions of the mine located in Hillsborough and Polk Counties.

J. "Master Mining and Reclamation Plan" shall mean a description of proposed mining activities over the life of the mine, so as to allow overall review of applicant's mining activities.

K. "Mine Extension Areas" shall mean the 740 acres of additional area to be mined in the F-1 settling area and the 211 acres not previously approved for mining.

L. "Preservation Areas" shall mean the primary zone around the eagle's nest, as determined by the U.S. Fish and Wildlife Service, all 25-Year Floodplain areas, and the MA-08 rocky.

M. "Reclamation Plan" shall mean the consolidated Master Mining, Reclamation and Drainage Plan approved by the Board of County Commissioners on January 22, 1981 for the Northeast Manatee Tract and the revised Reclamation Plan as required by Condition J.(11.) herein.

N. "25-Year Floodplain" shall mean the area that is labeled in the maps in the original Four Corners Mine DRI and the Substantial Deviation DRI #198 ADA. The exact location of the 25-Year Floodplain shall be determined by a process of calculation of the elevation of the highest water level following a calculated 25 year storm event, and determination of the location of that water level in the final elevation survey, using standard hydrological analysis and field surveying practices. The 25-Year Floodplain is distinguished from the "100-Year Flood Prone Areas" or "100-Year Flood Zone" as shown on FEMA maps.

SECTION 6: DEVELOPMENT CONDITIONS

Land

A.(1.)

A sufficient quantity of organic deposits and natural topsoils in wetland habitats capable of supporting indigenous vegetation shall be stockpiled during mining activities and utilized in reclamation of all wetland habitats. The use of the donor soil (nuisance Species Free) shall follow the requirements of DER and/or COE, to insure reclamation and mitigation success. At a minimum, the following soil associations shall be stockpiled and utilized in reclamation:

1. Canova-Ancloste-Okeelanta (Soil group #7)
2. Felda-Wabasso association (Soil group #24)
3. Floridana-Immokalee-Okeelanta association (Soil group #26)

Groundwater

B.(1.)

The Groundwater Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit and Chapter 2-20, Code of Laws. At a minimum, the Groundwater Monitoring Program shall specify sampling locations, parameters, frequencies, duration, and analytical methods and procedures. The groundwater monitoring program shall be amended as determined necessary by Manatee County to require groundwater sampling at surficial monitor wells for the F-3 clay settling area. A summary of the results of the monitoring program shall be included as part of the DRI annual report.

B.(2.)

Prior to mining in the Mining Extension Areas*, a field investigation of the mine shall be required to locate old wells not documented in the records. The Developer* shall properly plug and abandon all on-site wells (Table 23C-1, ADA*), in accordance with SWFWMD and Manatee County Health Department standards and rules, prior to mining each area.

Surface water

C.(1.)

Best Management Practices* for reducing surface water quality impacts shall be implemented. Best Possible Technology* shall be required for those portions of the Mining Extension Areas* located within the Lake Manatee Watershed.

C.(2.)

The existing Surface Water Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit and Chapter 2-20, Code of Laws. At a minimum, the Surface Water Monitoring program shall specify sampling locations, parameters, frequencies, duration, and analytical methods and procedures. The surface water monitoring program shall be amended as determined necessary by Manatee County to require surface water sampling for the East Fork of the Manatee River. A summary of the results of the monitoring program shall be included as part of the DRI annual report.

C.(3.)

The Developer* shall implement the water quality mitigation measures identified in the ADA*, Addendum Question 15-D.

Wetlands

D.(1.)

Any portions of the Four Corners Mine* which meets the definition of Preservation* and Conservation Areas* shall be so designated in the DRI Annual Report.

D.(2.)

The Developer* shall provide a thirty foot (30') wide transition zone around all wetlands in Preservation Areas* to provide an upland transition into the wetland

areas and to protect the natural systems from development impact. The recharge ditch and berm may be located in the transition area, and water shall be added as needed to maintain the hydroperiod. The Developer shall obtain wetland delineations from the appropriate permitting agencies as part of the dredge and fill permitting requirements prior to any disturbance of jurisdictional areas, and shall simultaneously submit the applications to Manatee County.

- a) Mitigation for wetland losses shall be shown on the DER and/or COE Dredge and Fill permit application prior to the wetlands being disturbed.
- b) All wetland losses within the Four Corners Mine shall require 1:1 in-kind wetland replacement, at minimum, except those portions without full Special Exception status which shall require a higher mitigation ratio in accordance with The Manatee County Comprehensive Plan (Ordinance 89-01) unless reduced by the Board of County Commissioners.
- c) Wetlands which are permitted to be altered or eliminated shall be used as donor material for revegetation of mitigation areas as outlined in development condition A.(1.).
- d) All mitigation areas and littoral shelves shall be monitored in accordance with DNR, DER, and Manatee County requirements. Additional planting may be required to achieve the desired natural cover rate. Mitigation areas monitoring results shall be included in the DRI annual report.

Floodplains

E.(1.) No mining or disturbance of the 25-Year Floodplain shall be allowed except for those crossings permitted as part of the original DRI approval or those crossings as outlined in E.(2.) below. Any other mining or crossings shall be subject to further Chapter 380, F.S., review as a substantial deviation determination.

E.(2.) Any disturbance to the 25-Year Floodplain necessitated by utility, dragline, or pipeline crossings or construction shall be conducted during periods of low flow and all applicable Best Management Practices for erosion control shall be utilized throughout the entire period of disturbance. Immediately after such use is terminated, the Developer shall remove all structures, restore the area in question to original grade elevations, and revegetate the area.

E.(3.) No adverse hydroperiod alteration shall be permitted in the 25-Year Floodplain of the Mine Extension Areas and the MA-08 rookery. Natural annual hydroperiods, normal pool elevations and seasonal water fluctuations shall be substantially maintained, however, this shall not require replication of storm surges. Hydroperiod monitoring of the above described areas shall be conducted semiannually, beginning immediately and continuing for three years following reclamation completion of the subbasin surrounding each of these areas. The monitoring sites shall be selected in cooperation with Manatee County. Should the above described be adversely impacted due to mining activities, the Developer shall cease all mining and associated activity in the affected sub-basin until remedial measures have been taken to correct the hydroperiod imbalance. Such measures

could include limitations on surrounding activities, enlargement of buffer areas and additional protection measures or water augmentation. The results of the hydroperiod monitoring shall be provided in each annual report.

E.(4.)

In order to promote the maintenance of the functional aspects of floodplains, water alterations caused by pit de-watering shall be limited to only one side of a floodplain at a time and mining of the opposite side of the floodplain shall be delayed wherever feasible until the mined portions have been reclaimed to design elevations and groundwater levels have recovered.

Vegetation and Wildlife

F.(1.)

Because portions of the Jameson Tract may fall within the secondary and, possibly, primary zones established for protection of eagle nests, all mining and reclamation activities for the Four Corners Mine^s Substantial Deviation shall conform with the U.S. Fish and Wildlife Service's Habitat Management Guidelines for the Bald Eagle in the Southeast Region (most recent edition) in regard to the eagle's nest (MN-08), which appears to be located approximately 1,450 feet southeast of the Four Corners Mine's^s eastern boundary. (See the bird nesting locations map Figure 18B-1, Sufficiency Response 2, Page 40.)

- a) The U.S. Fish and Wildlife Service (FWS) shall determine site specific conditions for protection from mining activities as are appropriate. Site specific criteria shall include mining and seasonal operation limitations, as appropriate.

F.(2.) The boundaries of the rookery (MA-08) shall be determined by the GFC, and the information shall be submitted to Manatee County as part of the DRI Annual Report.

Drainage

G.(1.)

Prior to issuance of any new Operating Permit for the Four Corners Mine^s, the following information must be submitted to Manatee County: estimated total volume and peak discharge rates of stormwater runoff to be generated by the final reclamation plan during the mean annual, 25 year, and 100 year storm events.

G.(2.)

The drainage basins in the Four Corners Mine^s shall be restored to their approximate pre-mining size and location as described in the ADA^s response to question 22.(B.). The post-reclamation flood flow peaks shall be in accordance with the rates established in the response to question 22C of the ADA. The discharge rate shall be in accordance with Chapter 40D-4 F.A.C. requirements.

G.(3.)

Upon completion of reclamation in each affected drainage basin, the Developer^s shall conduct a detailed study to define final flood frequency elevations, delineate the aerial extent of each basin and determine the duration and quantity of surface water leaving the site during high rainfall events. This information shall be transmitted to all appropriate local, regional, state, and federal agencies involved in floodplain management and floodplain delineation so that downstream flood elevations and management mechanisms can be appropriately modified.

G.(4.)

If the hydrologic studies indicate that the peak discharge characteristics of any affected drainage basin

have been increased over premining conditions, the Developer shall increase the retention capacity of the reclaimed land such that peak discharge characteristics of the affected drainage basin is equal to or less than that which existed before mining. Increases in retention capacity shall be accomplished with minimum use of control structures.

G.(5.) All re-created wetlands and floodplain/floodprone areas shall be subject to all the rules, regulations and policies of local, state, regional and federal agencies governing wetland and floodplain/floodprone areas at the time mining and reclamation is complete.

G.(6.) The recreated wetlands shall be designed to promote seasonal fluctuations of water levels within the freshwater marsh and encourage seasonal inundation of the marsh property. Final grade of the side slopes of the marsh periphery shall meet the requirements established by Manatee County in Ordinance 81-22 or by the Department of Natural Resources, whichever is more stringent.

G.(7.) The Developer shall be responsible for maintaining the water recirculation system and the drainage system, including channels, swales, culverts, erosion protection facilities, and discharge facilities. Any transfer of this responsibility from the Developer to subsequent owners, or assigns, shall require the approval of the appropriate permitting agency.

Water Supply

H.(1.) The Developer shall provide, operate, and maintain the internal water supply system for the heavy media plant until such time as it is no longer needed for operations; then the Developer shall abandon and remove it according to the applicable regulations at that time.

H.(2.) The Developer shall continue to provide 1.96 MGD augmentation to the Manatee County water supply. The Developer shall also maintain a wellfield capable of providing no less than 14 MGD annual daily coverage and 18 MGD maximum daily demand, which will produce water which can be treated to meet or exceed drinking water standards by conventional lime softening techniques (1.96 MGD of this capacity will be provided to Manatee County pursuant to the augmentation referenced above) until the requirements set forth in Section 6.H.(3) or the Development Order are satisfied.

H.(3.) Upon completion of reclamation activities in the Lake Manatee Watershed, the Developer shall perform studies, in accordance with SWPMD and Manatee County requirements, to quantify the post-reclamation water budget so that mitigation in the form of long-term water supply augmentation can be performed by the Developer, as necessary, to maintain the historic contribution to the Lake Manatee Watershed.

Transportation

I.(1.) The Developer shall assume responsibility for the installation of a caution light at the mine's ingress-egress point on State Road 37, for use during operating hours.

I.(2.) An annual monitoring program to provide peak-hour and average daily traffic counts at the project entrance, including a description of the types of vehicles making each trip, shall be instituted to verify that the projected number of external trips for the project are not exceeded. Counts will continue on an annual basis

through project completion. This information shall be supplied in the required annual report. If the annual report indicates that the total trips exceed projected counts, Manatee County shall conduct a substantial deviation determination pursuant to Subsection 380.06(19), F.S., and may amend the Development Order to change or require additional roadway improvements. The results of the study may also serve as a basis for the Developer* or reviewing agencies to request Development Order amendments. If the variance is determined to be a substantial deviation, the revised transportation analysis required pursuant to Subsection 380.06(19), F.S., will be based upon results of the monitoring program and agreements reached at another transportation methodology meeting to be held prior to the preparation of the new analysis.

I.(3.)

If by 2007, the Florida Department of Transportation determines that road improvements are required on the following sections of state maintained highway, the Developer* shall contribute its proportionate share of funds based on the percentage of project traffic on that roadway at that time. These improvements include:

- a) Improve the intersection at SR 37/SR 640 by providing signalization, when warranted by the Manual for Uniform Traffic Control Devices (MUTCD).

I.(4.)

Carlton Road and its right-of-way are not approved for mining.

I.(5.)

All non-public roads, streets, bridges and other access ways located upon the site shall be constructed and maintained by the Developer* without any cost or obligation to Manatee County.

I.(6.)

The existing east-west road on the Hillsborough-Manatee County line should be named Four Corners Mine Road and two street signs (one in each County) erected at its intersection with SR 37 at the Developer*'s expense.

I.(7.)

Transportation of product from this mine by truck is permitted on State Road 37 north from the identified mine entrance on State Road 37. Transportation of product by truck shall not be permitted on other County or State roads within Manatee County without future Board of County Commissioners approval in a manner consistent with law.

I.(8.)

The establishment of crossing points on County roads for purposes of access, movement of mining machinery, or mineral transport pipelines shall not be permitted without the prior written approval of the Phosphate Mining Coordinator. The Phosphate Mining Coordinator shall be sent copies of all crossing permit applications at the time of application for crossing any County right-of-way.

I.(9.)

IMCP or the developer shall notify the Phosphate Mining Coordinator of any spill which may occur on public right-of-way as the result of a traffic accident.

I.(10.)

The Developer* shall change eight hour work shifts to times that do not coincide with the A.M. (7:00 to 9:00) and P.M. (4:00 to 6:00) peak traffic periods.

Mining Operations

J.(1.) The Developer* shall obtain all the necessary construction and operation permits and approvals required by, and shall fully comply, to the extent not inconsistent with this Development Order and the VRD-90-14, all the provisions of applicable laws, ordinances, regulations or requirements of any federal, state, regional or county governmental authority in connection with the proposed mining activities at the Four Corners Mine*.

J.(2.) When filled, the F-1 (rebuilt) and F-3 disposal areas shall contain an amount of waste clay approximately equivalent to the amount of waste clay produced from Four Corners Mine*.

J.(3.) All earthen embankments (dams) shall be designed, constructed, inspected, and maintained in accordance with the standards of Chapter 17-672, FAC - Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations, as indicated in the Substantial Deviation ADA*, as well as all other applicable local, state, and federal requirements.

J.(4.) The Developer* shall abide by all Florida Department of Natural Resources (DNR) reclamation regulations regarding site cleanup and shall dismantle and remove any building structures existing at the cessation of the mining operation that cannot be put to an allowable use under the zoning district classification of the property. The beneficiation plant and its accessory structures would be exempt from this condition if the Board of County Commissioners approves an extension of that facility prior to cessation of the mining operation and adequate performance security is posted to guarantee later removal of these structures.

J.(5.) The Developer* shall reclaim all mined or disturbed land to DNR or Manatee County standards, whichever is more stringent. Reclamation and revegetation shall proceed immediately after mining activities cease in each parcel and in no case shall exceed the schedule for reclamation outlined on page 38-17 of the ADA*. The Developer* shall be responsible for maintenance of all reclaimed areas until such time that those areas are certified as reclaimed by Manatee County in accordance with the procedures established in Ordinance 81-22.

J.(6.) The Developer shall utilize Best Management Practices* (including revegetation, reforestation, erosion control, etc.) for all mined/disturbed lands to accelerate and ensure the successful establishment of the natural vegetative associations that the reclamation areas are designed to support. Wherever possible, leach zone material shall be covered by graded spoil to lessen the potential of increased radiation levels on reclaimed lands.

J.(7.) Reclamation shall be considered complete when areas intended to develop native forested and unflooded wetland vegetation associations are firmly established and it is assured that these areas will develop the

vegetation associations that they are designed to support, and when DNR and Manatee County have approved the reclamation of the Four Corners Mine* in accordance with Chapter 16C-16, Florida Administrative Code and Ordinance 81-22.

J.(8.)

The Developer* shall allow no development or land use activity (such as grazing, farming, tree harvesting) within any newly established 25-Year Floodplains* that would in any way inhibit the growth and development of native vegetation associations appropriate for floodplains, during the mining period.

J.(9.)

Minimum mine cut setbacks shall be maintained as follows:

- a. 500 feet of a habitable structure existing at the time of initial application for Master Mining Plan approval;
- b. 200 feet of an existing public right-of-way or public or private easement for drainage utility or road purpose;
- c. 200 feet of IMCF's property line;
- d. notwithstanding the foregoing, Section 2-20-33 of the Mining Code shall apply to the mine extension areas.

The F-3 exterior dam will meet the setback requirements of Section 2-20-33 of the Mining Code with the exception of Section 2-20-33(2)(b) in which case it will not be less than 200 feet from any public right-of-way.

All other operations and facilities shall meet the setback requirements of Section 2-20-33 of the Mining Code, provided that the F-1 exterior dam, or any reconstruction of the F-1 dam (F-1R), shall not be required to meet the requirements of Section 2-20-33, unless 50% of the linear footage of the existing F-1 exterior dam is dismantled or significantly disturbed or any portion of the existing F-1 exterior dam within 2500 feet of any existing church, school or habitable structure is dismantled or significantly disturbed.

However, nothing in this requirement shall prevent the reduction of setbacks pursuant to Section 2-20-33 (b)(4) of the Mining Code.

J.(10.)

Radiation standards shall be maintained as follows:

- a. For the Mine Extension Areas, the radiation standards shall be maintained in accordance with Section 2-20-33(d) of the Mining Code;
- b. For all other areas of the mine, and in accordance with prior approvals, the weighted average soil concentration of radium for all reclaimed lands not included in the Mine Extension Areas*, which are not reclaimed over slime ponds or are not reclaimed as lakes or wetlands, for the top six feet shall not exceed 8.8 pCi/gram. In addition, these areas shall also comply with Section 2-20-33(d)(3) of the Mining Code.
- c. Any building shall be designed and constructed and all reclamation shall be done to provide protection against gamma radiation and radon gas accumulation and emanation in accordance with the most stringent applicable state and federal requirements.

J.(11.)

IMCF will modify the Master Mining Plan by revising the applicable tables, maps, and discussions to reflect commensurate changes in mine sequencing, hydrology, topography, land use, waste clay settling areas and land types as appropriate based on the deletion of 170 acres, since the Master Mine Plan submitted November 30, 1990 by IMCF as part of this request included a 170 acre mine extension tract which was not approved for mining. IMCF will submit the revised Master Mining Plan for approval and acceptance by the Board of County Commissioners with the next annual report submitted. The annual report shall be due February 9, 1992. Such revised documents shall be consistent with this permit and the applicable federal, state and local laws. Furthermore, this revision shall show the F-3 waste clay settling area being located in the same location as was approved with the original Development Order for this mine.

J.(12.)

Any reconstruction of the F-1 dam (F-1R) or any portion thereof shall be constructed in accordance with the appropriate design cross section shown in either Figure 14 or Figure 16 of the Dames and Moore January 2, 1990 report which is attached as Exhibit B.

General Conditions

K.(1.)

Best Management Practices* shall be required for the operation, maintenance, and reclamation of the Four Corners Mine*. Best Management Practices* shall be used to accelerate the natural development of those areas that are intended to support native forested and unforested wetland vegetation associations. Utility and pipeline crossings of the tributaries shall, at a minimum, meet the following:

- a) Pipelines shall be placed above the 25-Year Floodplain* elevation and isolated from tributaries by berms.
- b) Pipelines shall be jacketed and spill containment areas outside the floodplain shall be provided.
- c) Pipelines shall be routinely inspected by operating personnel and the system shall be shut down if a spill occurs until the source of the spill is corrected.
- d) All utility crossings shall be elevated above the 25-Year Floodplain* level and shall consist of piers without any approach embankment. Verification that the proposed piers can sustain high water flow conditions shall be certified by a professional engineer, under seal, prior to any construction.

K.(2.)

Due to the mine's location within the Lake Manatee watershed, Best Possible Technology* shall be applied to any portion of the Mine Extension Areas* located within the Lake Manatee Watershed Overlay District.

K.(3.)

Storage of hazardous materials in excess of 220 lbs., or acutely hazardous materials in excess of 2.2 lbs. for any day of the month shall be prohibited within the Lake Manatee Watershed. Furthermore, all hazardous and acutely hazardous material storage shall be prohibited within any 25-year Floodplain* or 100-year Floodplain of any inflowing watercourse located within the Lake Manatee Watershed or within 200 feet of the DCR jurisdictional line associated with any inflowing watercourse, whichever is greater. Hazardous and acutely

hazardous materials shall be as defined and listed in 40 CFR 261 and as adopted within Chapter 17-30, Florida Administrative Code, and Section 403.7, Florida Statutes.

K.(4.)

All of the Developer's commitments, which are attached as Exhibit "A" and any other as set forth in the ADA*, shall be honored for the Mine Extension Areas*, except as they may be superseded by specific terms of the Development Order Amendment for the Four Corners Mine* Substantial Deviation.

K.(5.)

The DRI annual report shall comply with the Florida Department of Community Affairs (DCA) report format and informational requirements, and shall include summaries of NPDES monitoring results and surface water and groundwater quality monitoring results (including notification of violations of water quality standards per Chapter 17-3, FAC); mining progress; impacts on Lake surface water and groundwater flows; impacts on Lake Manatee (if any); compliance with listed species management plans; success or problems with listed species management plans; reclamation progress and compliance with approved mining and reclamation schedules. The Developer* shall submit annual DRI reports in accordance with Section 380.06(18), F.S., to Manatee County, and the TBRPC, the State Land Planning Agency and other agencies, as may be appropriate, no later than February 9, 1992, and July 31st of each year thereafter, commencing on July 31, 1992 until such time as terms and conditions of this Development Order are satisfied, as determined by Manatee County. Six copies of this report shall be submitted to the Director of Manatee County Planning and Zoning Department, or the Director's designee, who shall review the report for compliance with the terms and conditions of this Order and may submit an appropriate report to the County Commissioners should the Director decide that further orders and conditions are necessary. The Developer* shall be notified of any Board of County Commissioners hearing wherein such report is to be reviewed; provided, however, that receipt and review of any such report by the Board of County Commissioners shall not be considered as a substitute, waiver, or change of conditions as to any terms or conditions of this Order. The Planning Director or his/her designee shall notify the Developer in writing upon acceptance or denial of the report. The annual report shall, at a minimum, contain the following:

- a) Any changes in the plan of development, or in the representation contained in the ADA*, or in the phasing for the reporting year and for the next year;
- b) A summary comparison of development activity proposed and actually conducted for the year;
- c) Undeveloped tracts of land, other than individual single family lots, that have been sold to a separate entity or developer in the Extended Four Corners Mine*;
- d) Identification and intended use of lands purchased, leased or optioned by the Developer* adjacent to the Four Corners Mine* site since the Development Order was issued;
- e) An assessment of the Developer's* and the local government's compliance with the conditions of approval contained in the DRI Development Order and the commitments that are

contained in the ADA* and which have been identified by the local government, the Regional Planning Council or the Department of Community Affairs as being significant.

- f) Any known incremental DRI applications for development approval or requests for a substantial deviation determination that were filed in the reporting year and to be filed during the next year in the Extended Four Corners Mine*;
- g) An indication of a change, if any, in local government jurisdiction for any portion of the development since the Development Order was issued;
- h) A list of significant local, state, and federal permits which have been obtained or which are pending by agency, type of permit, permit number, and purpose of each;
- i) A statement that all persons have been sent copies of the annual report in conformance with Subsections 380-06(14) and (16), F.S.; and
- j) A copy of any recorded notice of the adoption of a Development Order or the subsequent modification of an adopted Development Order that was recorded by the Developer* pursuant to Subsection 380.06(14)(d), F.S.
- k) Monitoring results pursuant to stipulations B.(1.), C.(2.), D.(2.)d, E.(3.), and I.(2.).
- l) The boundaries of the MA-08 Rookery, pursuant to stipulation F.(2.) shall be provided in the annual report due on July 1, 1992.
- m) Any notice of violation for noncompliance for the Extended Four Corners Mine*.

K.(6.) Mining under this Development Order shall terminate on December 31, 2006. This Development Order shall not expire until December 31, 2018, or until all reclamation has been completed and accepted by Manatee County, whichever occurs first.

K.(7.) This Ordinance shall constitute a Development Order issued in accordance with Chapter 380, F.S.

K.(8.) The Developer* shall, within sixty (60) days after notice by Manatee County of the amount of fees due and owing, pay all fees owed to Manatee County for the review of the Four Corners Mine DRI Substantial Deviation, except those fees in dispute and under review or appeal. Failure to make such payment shall require a cessation of mining activities until payment is made.

SECTION 7. LEGAL DESCRIPTION:

The following legal description of the development site covers the entire mine (Manatee and Hillsborough Counties), although this Substantial Deviation covers only the Manatee County area.

In Township 33 South, Range 22 East, Manatee Co. (Jameson tract)

Section 1: All lying N and W of Brewster-Parish Road (SR 37).
Section 2: All.
Section 3: All.
Section 4: All.

Section 9: All.
Section 10: All.
Section 11: All lying N and W of Brewster-Parrish Road (SR 37)
Section 15: All lying N and W of Brewster-Parrish Road (SR 37),
and that part of the W 1/2 of the SW 1/4 of the SW 1/4 lying S of
said road.
Section 16: All less and except the NW 1/4 of the NW 1/4
Section 21: All lying S of the Brewster-Parrish Road less and
except that portion lying S of the Parrish-Wauchula Road (SR 62).

In Township 33 South, Range 21 East, Manatee County (Northeast
Manatee Tract):

Section 1: W 1/2 of the NE 1/4 and the N 1501' of the NW 1/4.
Section 2: W 1/2 and the N 1501' of the E 1/2.
Section 3: All.
Section 4: All.
Section 10: E 3/4.
Section 11: W 1/2.
Section 13: All, less and except the E 2570' thereof.
Section 14: All.
Section 15: W 1/2 of the NE 1/4 and the NW 1/4 of the SE 1/4.
Section 23: All lying N of Parrish-Wauchula Road (SR 62), less
and except the SW 1/4 of the NW 1/4, and less the NW 1/4 of the
NW 1/4 of the SW 1/4 and less the S 1/2 of the NW 1/4 of the SW
1/4.
Section 24: All lying N of the Parrish-Wauchula Road (SR 62),
less and except the E 2570' thereof.
Section 26: That portion lying N on the Parrish-Wauchula Road.

In Township 32 South, Range 22 East, Hillsborough County (Ft.
Lonesome Tract). This is the currently approved area in
Hillsborough County.

Section 13: All.
Section 14: NE 1/4 of the NE 1/4, and the W 3/4.
Section 15: All.
Section 16: S 1/2, and the S 1/2 of the NW 1/4, and the NW 1/4 of
the NE 1/4.
Section 21: All.
Section 22: All, less and except the SW 1/4 of the NE 1/4.
Section 23: All, less the NE 1/4 of the NE 1/4.
Section 24: All.
Section 25: All.
Section 26: All.
Section 27: All.
Section 28: E 1/2 of the SE 1/4 and the SW 1/4 of the SW 1/4.
Section 33: All, less the NE 1/4 of the NW 1/4.
Section 34: All.
Section 35: All.
Section 26: All.

SECTION 8. DEADLINE FOR COMMENCEMENT OF DEVELOPMENT.

Physical development of the project shall commence within two
years from the date of this approval, unless the time period for
commencement is extended by the Board of County Commissioners.

SECTION 9. RESTRICTIONS ON DOWN-ZONING.

The County may not down-zone the subject property described in
Section 7 herein until 2002, unless the County can demonstrate
that:

- A. Substantial changes in the condition underlying the approval
of the order have occurred; or
- B. The order was based upon substantially inaccurate informa-
tion provided by the Developer; or
- C. The change is clearly established by the County to be essen-
tial for the public health, safety, or welfare.

Any down-zoning or reduction in intensity shall be effected only through the usual and customary procedures required by statute and/or ordinance for change in local land development regulations.

For the purposes of this order, the term "down-zone" shall refer only to changes in zoning, land use, or development regulations that decrease the development rights approved by this order and nothing in this paragraph shall be construed to prohibit or alter any development changes in zoning regulations which do not decrease the development rights granted to the developer by this order. The inclusion of this section is not to be construed as excluding any present or foreseeable intent on the part of the down-zone or alter the density of the development, but including the intent herein to comply with Paragraph 380.06(15)(c)3, F.S.

SECTION 10. BINDING ORDER UPON DEVELOPER.

That this order shall be binding upon the Developer, its successors, assigns, or successors in interest.

SECTION 11. COMPLIANCE WITH CODES, ORDINANCES.

All development undertaken pursuant to this order shall be in accordance with all applicable local codes and ordinances in effect at the time of permitting, and other laws, except to the extent such is inconsistent with the rights granted under this Development Order.

SECTION 12. SEVERABILITY

If any provision or portion of this Ordinance is declared by any court of competent jurisdiction to be void, unconstitutional, or unenforceable, then all remaining provisions and portions of this Ordinance shall remain in full force and effect.

SECTION 13. EFFECTIVE DATE This Resolution shall take effect upon being signed by the Chairman of the Board of County Commissioners.

PASSED AND DULY ADOPTED by the Board of County Commissioners of Manatee County, Florida this 5th day of September, 1991.

BOARD OF COUNTY COMMISSIONERS
OF MANATEE COUNTY, FLORIDA

BY: 
Chairman

ATTEST: R. B. SHORE
Clerk of the Circuit Court



June 11, 1991

EXHIBIT A

DRI #198

FOUR CORNERS MINE SUBSTANTIAL DEVIATION

DEVELOPER COMMITMENTS

The following are developer commitments set forth in the Application for Development Approval (ADA) and Sufficiency Responses which shall be honored by the developer, except as they may be superseded by specific terms of the Development Order. This summary of commitments is not intended to modify the specific statements in the ADA.

GENERAL PROJECT

1. DCF commits to abide by rules and regulations of the Federal, State and Regional Governmental bodies which have authority to regulate the mine activity, as is shown on page 9-1 of the ADA. (SR, 3)
2. The addition of the heavy media separation facility to the processing plant will not add any waste disposal, pollution or water supply concerns above what was addressed in the original DRI #52. (SR, 3)

ENVIRONMENTAL AND NATURAL RESOURCES

LAND

1. The natural vegetative cover currently established will be left undisturbed until impending mining operations require land clearing. Surface water runoff from cleared lands will be routed through ditches into the mine water recirculation system. (ADA, 14-4)
2. Portions of the site will be cleared for access roads, utility corridors and related mining activities. These areas will be graded and ditched to prevent high water velocities that could cause erosion (ADA, 14-4).
3. Post-mining surface soils shall be used only for agricultural purposes or wildlife habitat, except for areas along major roads which will be reclaimed with tailings and overburden-capped tailings. (ADA, 14-4)

WATER QUALITY

1. The existing monitoring program will be continued as mining activities continue at Four Corners. (ADA, 15-30)
2. The potential for siltation of nearby streams which might be associated with stormwater runoff from recently cleared or disturbed land will be minimized by providing adequate ditching, berms, and entrapment features to capture the stormwater runoff from the active mining area. (ADA, 15-34)

3. MCF will continue to maintain the surface water quality monitoring program, until reclamation of each area is completed. In order to verify that there is no change in the water quality. The current program, which is required by Manatee County in the Operating Permit, includes monthly sampling at five surface locations and five surficial aquifer locations. (SR 15-31)
4. A water recharge program shall be accompanied by a report indicating that water recharged to the groundwater meets appropriate standards. (SR, 17)

WETLANDS

1. MCF will obtain wetland delineations from the appropriate permitting agencies as part of the dredge/fill permitting requirements prior to disturbance. (SR2, 3)
2. MCF will have jurisdictional boundaries of all wetland areas determined, and mapped, prior to mining. (SR, 3)

FLOOD PLAINS

The 25 year flood plain will be determined and staked before beginning any mining operations adjacent to those areas. (SR, 3)

Vegetation and Wildlife

1. To protect the netted chain fern from current and future threats, MCF will relocate all netted chain ferns to other suitable habitat present on the Four Corners Mine site that is not expected to be impacted. (SR, 18-8)
2. In addition, MCF will relocate any other listed plant species found on-site, or will provide the opportunity for concerned environmental groups (i.e. Florida Native Plant Society) to remove specimens from the site for the purpose of preservation, in accordance with applicable rules or regulations prior to commencement of mining operations. (SR2, 14)

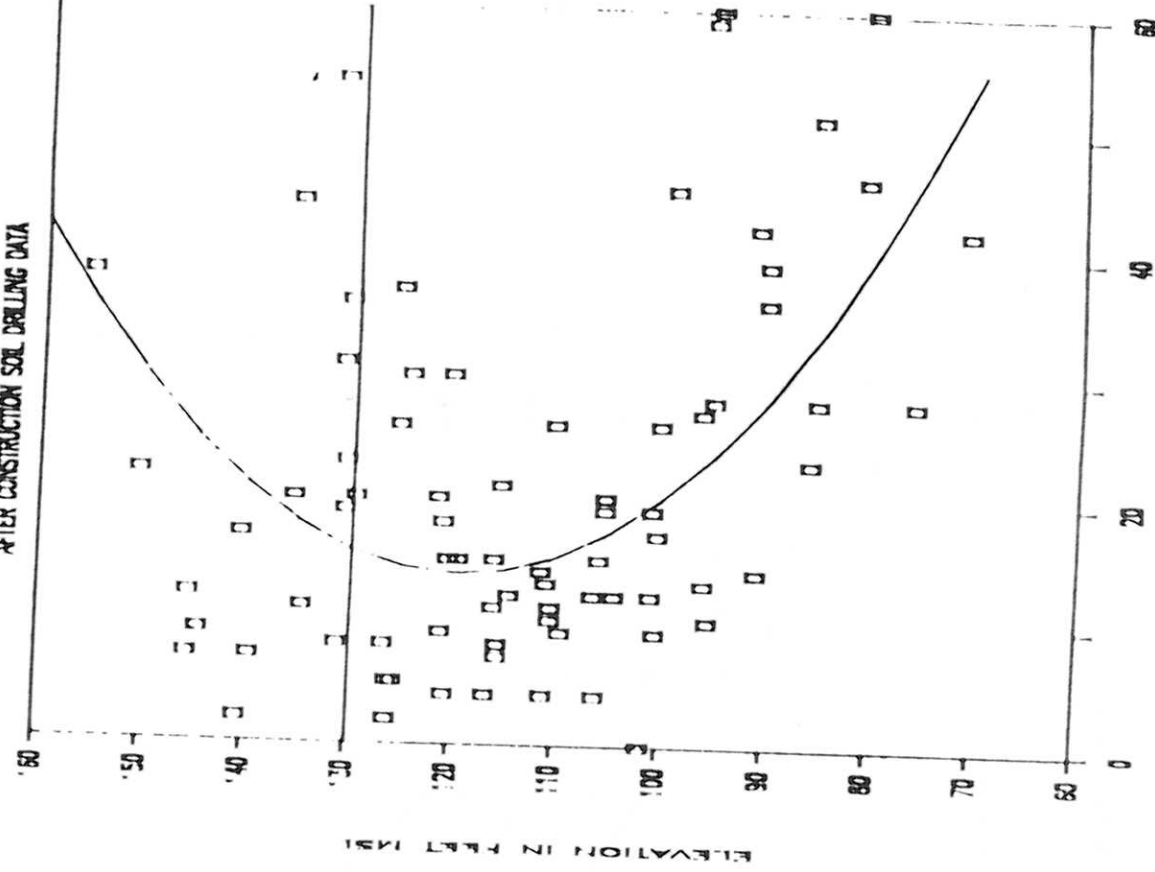
~~1. In order to address the concerns of the Florida Game and Fresh Water Fish Commission (FGFWFC) and the Florida Department of Agriculture (FDOA) or other agencies, MCF will be specifically reviewed for listed plant species which may occur on-site. The review will be conducted prior to the commencement of mining operations on the 170-acre site. (SR2, 13)~~

Delete #3.

3. As an alternative to habitat protection for such small populations of corner tortoises, mitigation in the form of a capture and relocation plan in accordance with FGFWC guidelines will be provided prior to the commencement of mining operations at this site. Individuals collected will be relocated to areas reclaimed as wetland habitat. (SR, 13)

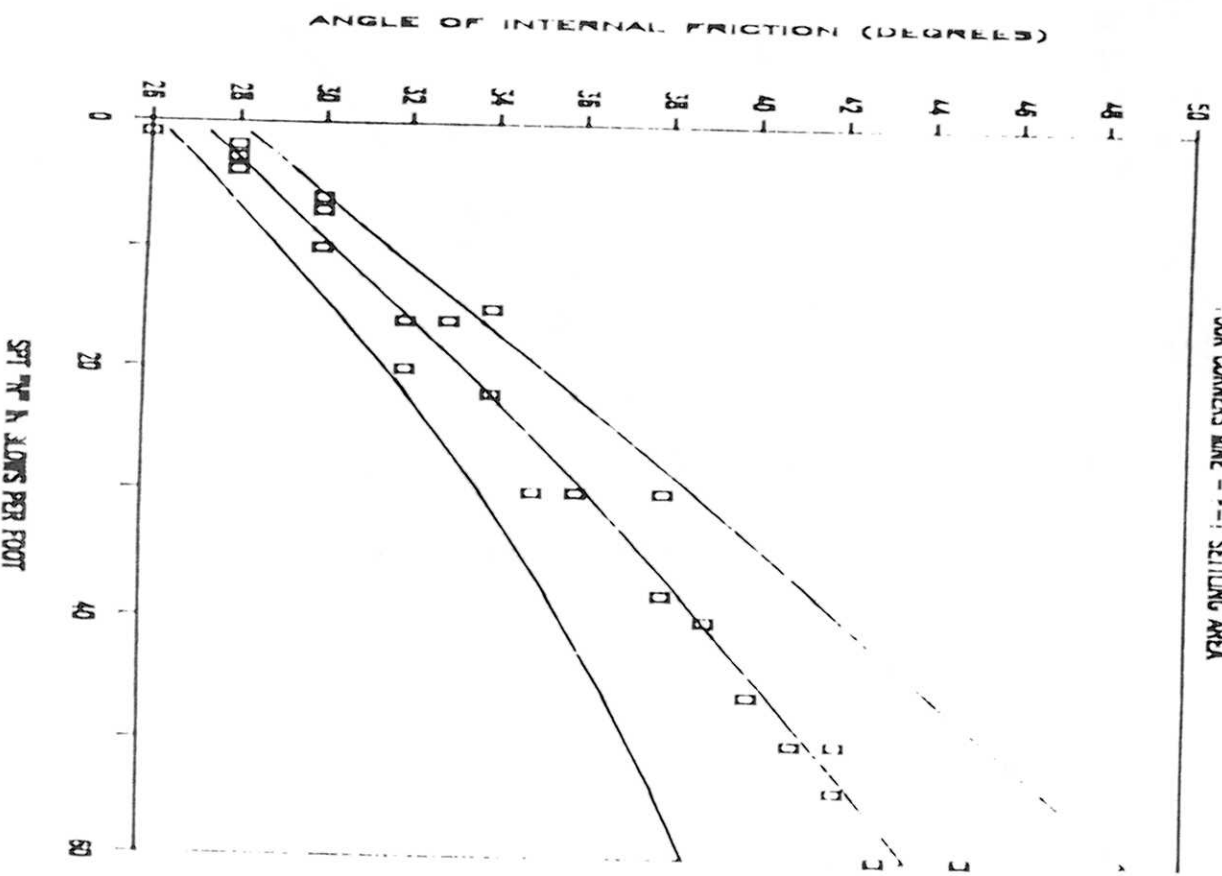
TREND ANALYSIS, F-1 SETTLING AREA

AFTER CONSTRUCTION SOIL DRILLING DATA



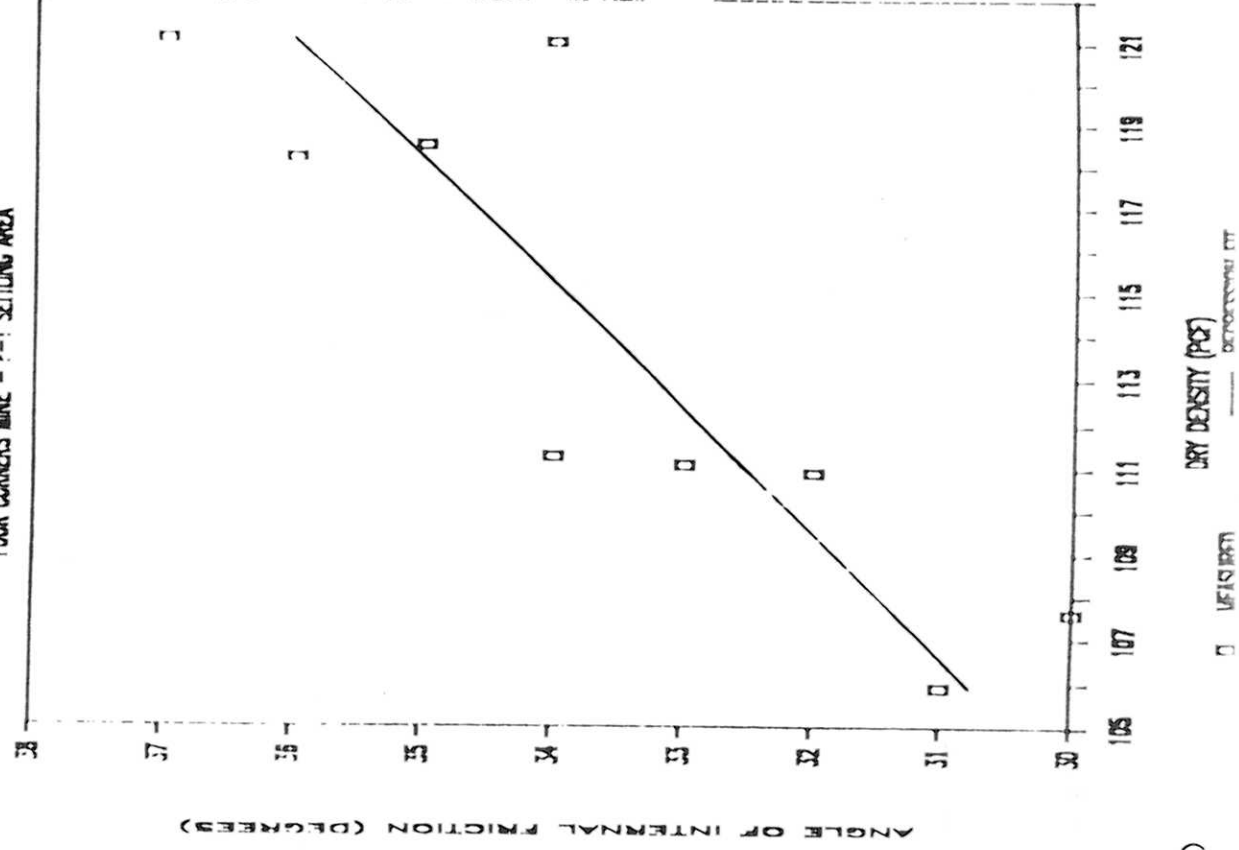
PROPOSED STRENGTH CORRELATION

FOUR CORNERS LINE - 5-1 SETTLING AREA

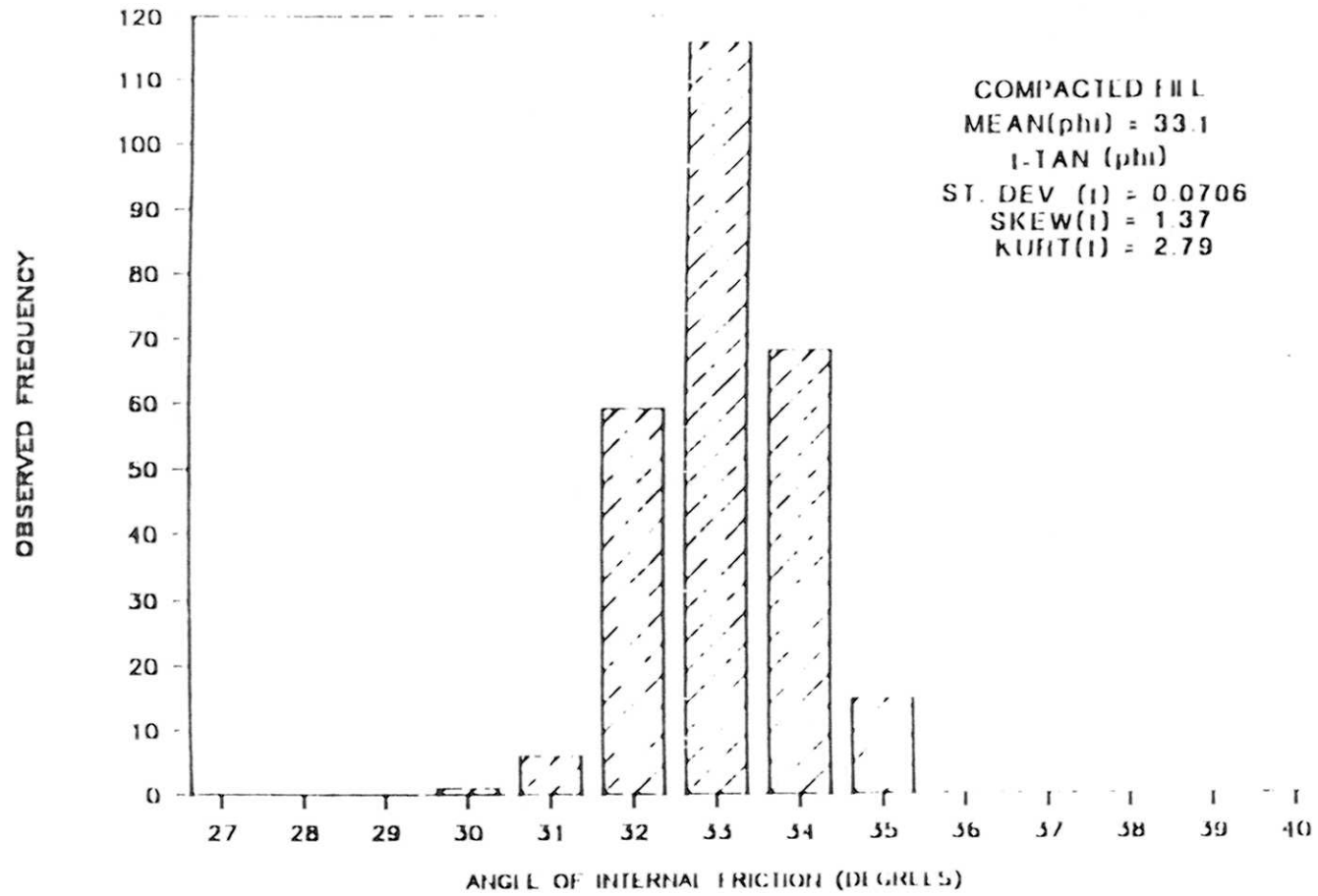


ORIG. DESIGN REPORT STRENGTH CORRELATION

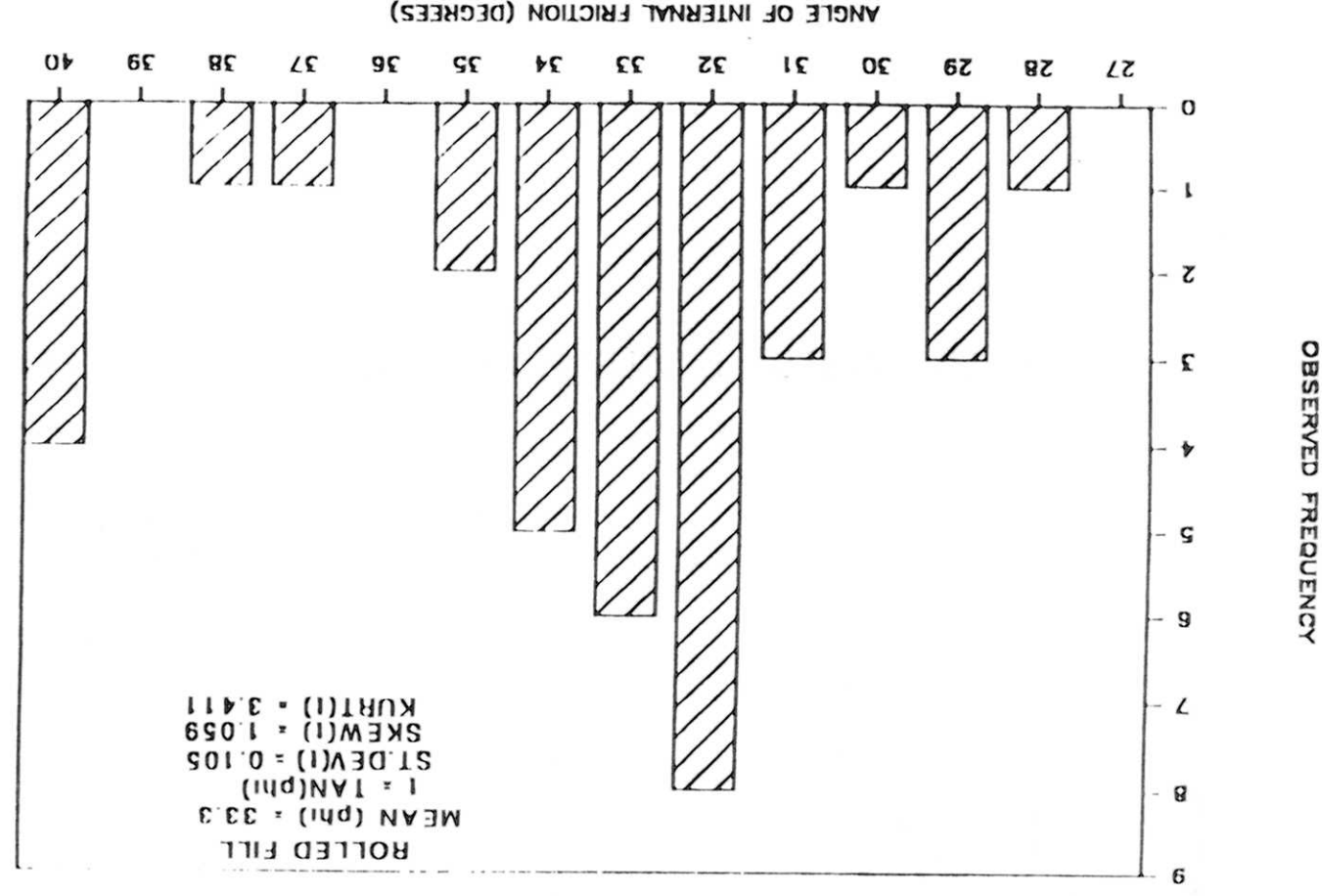
FOUR CORNERS MINE - F-1 SETTLING AREA



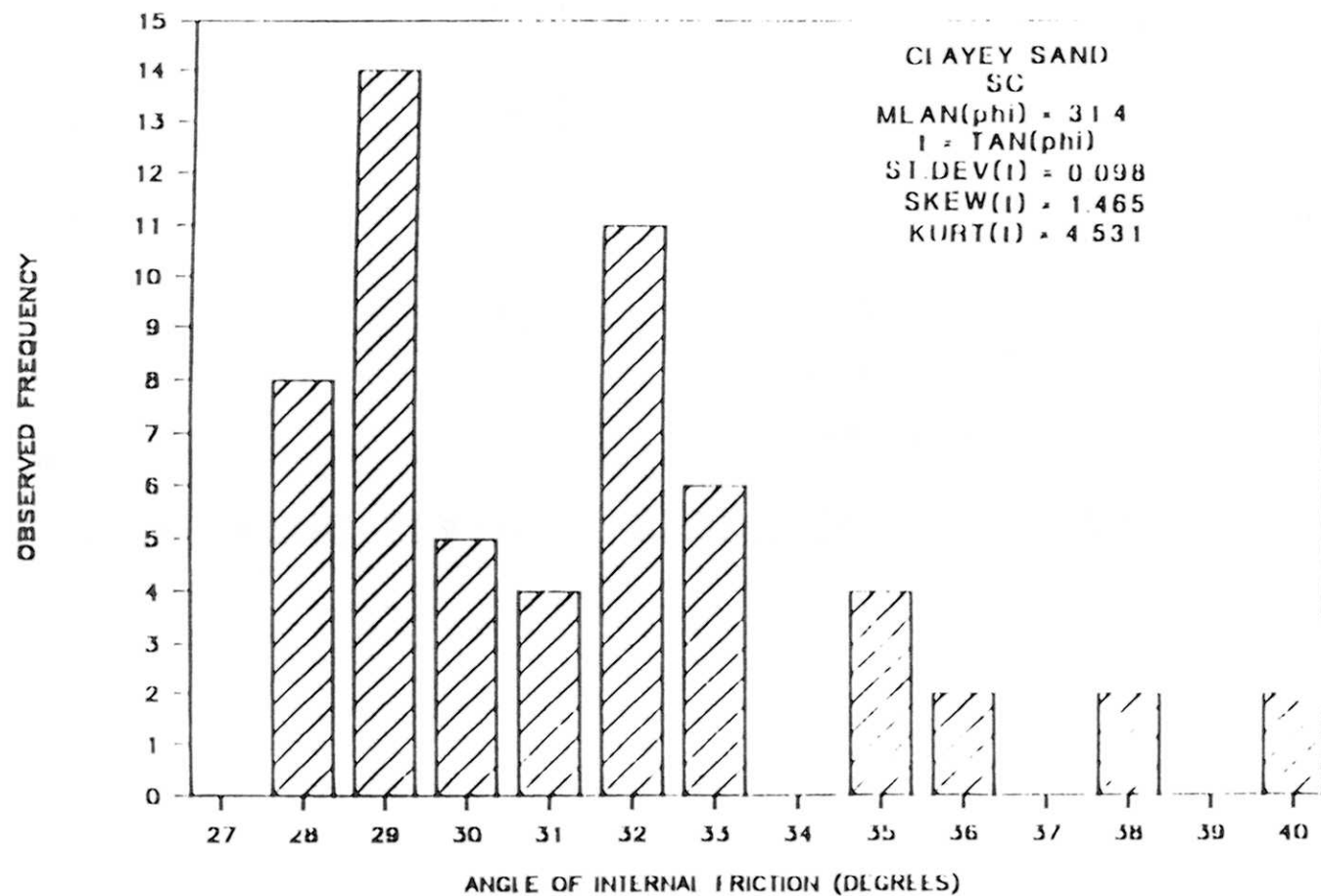
STOCHASTIC STABILITY STUDY OF F-1 DAMS



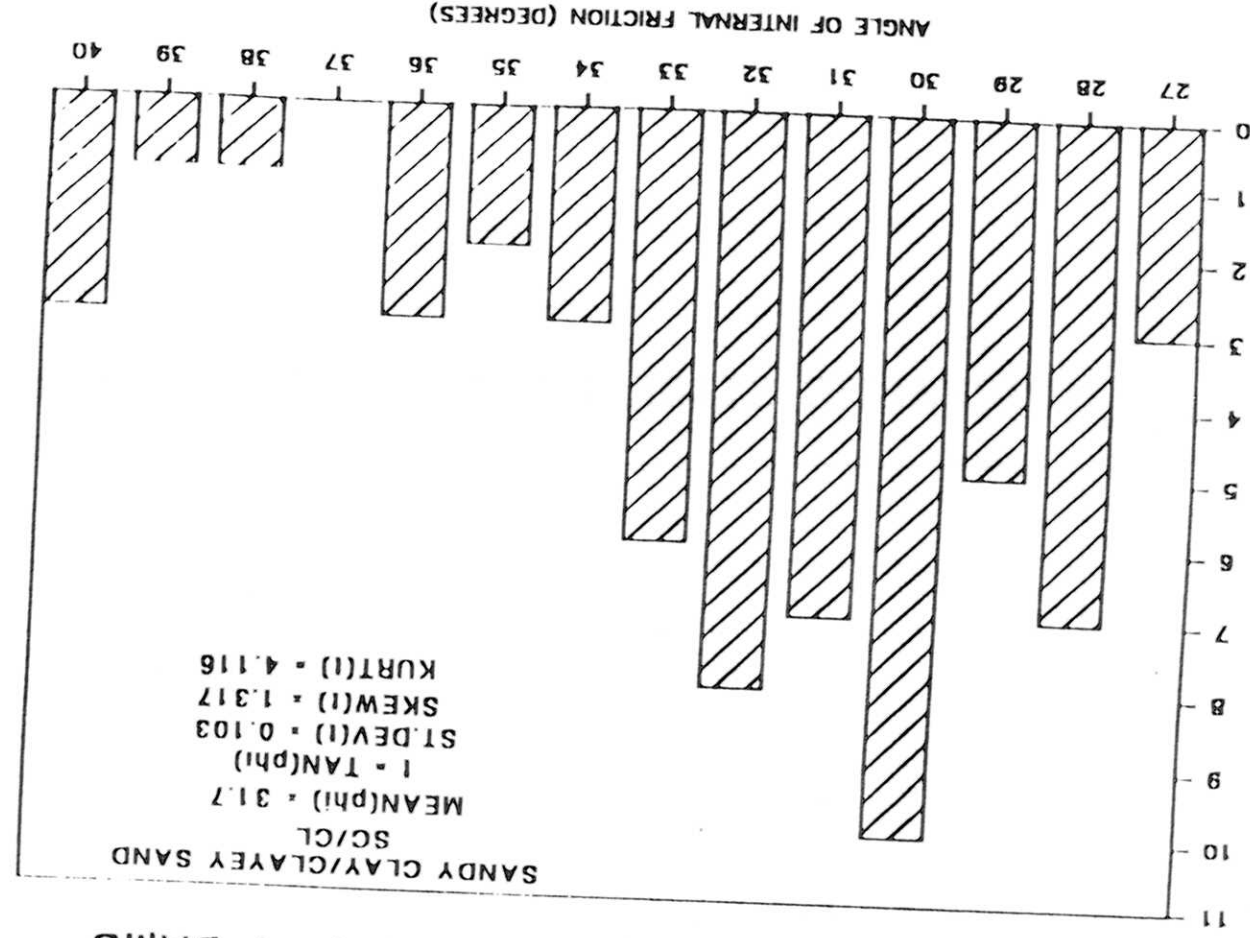
STOCHASTIC STABILITY STUDY OF F-1 DAMS



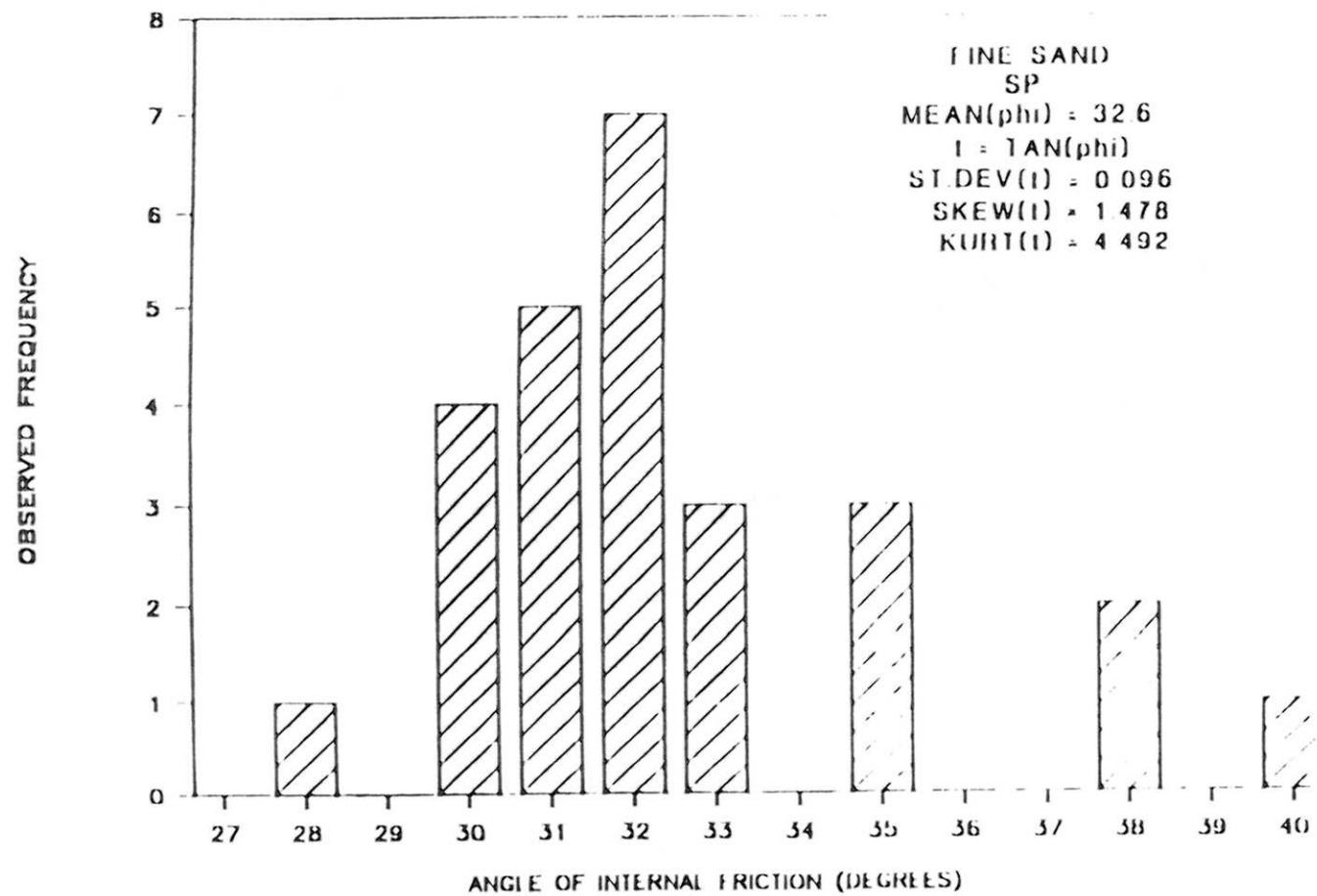
STOCHASTIC STABILITY STUDY OF F-1 DAMS



STOCHASTIC STABILITY STUDY OF F-1 DAMS



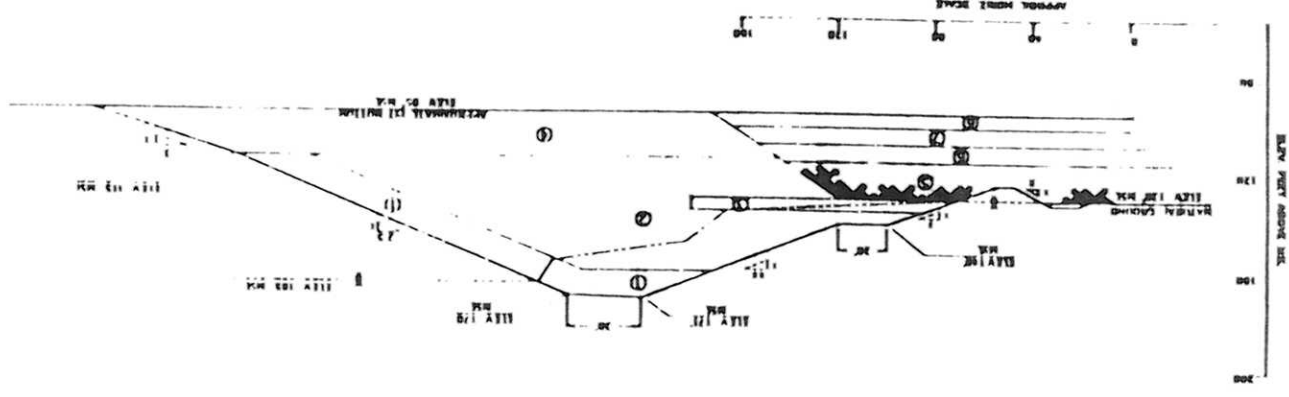
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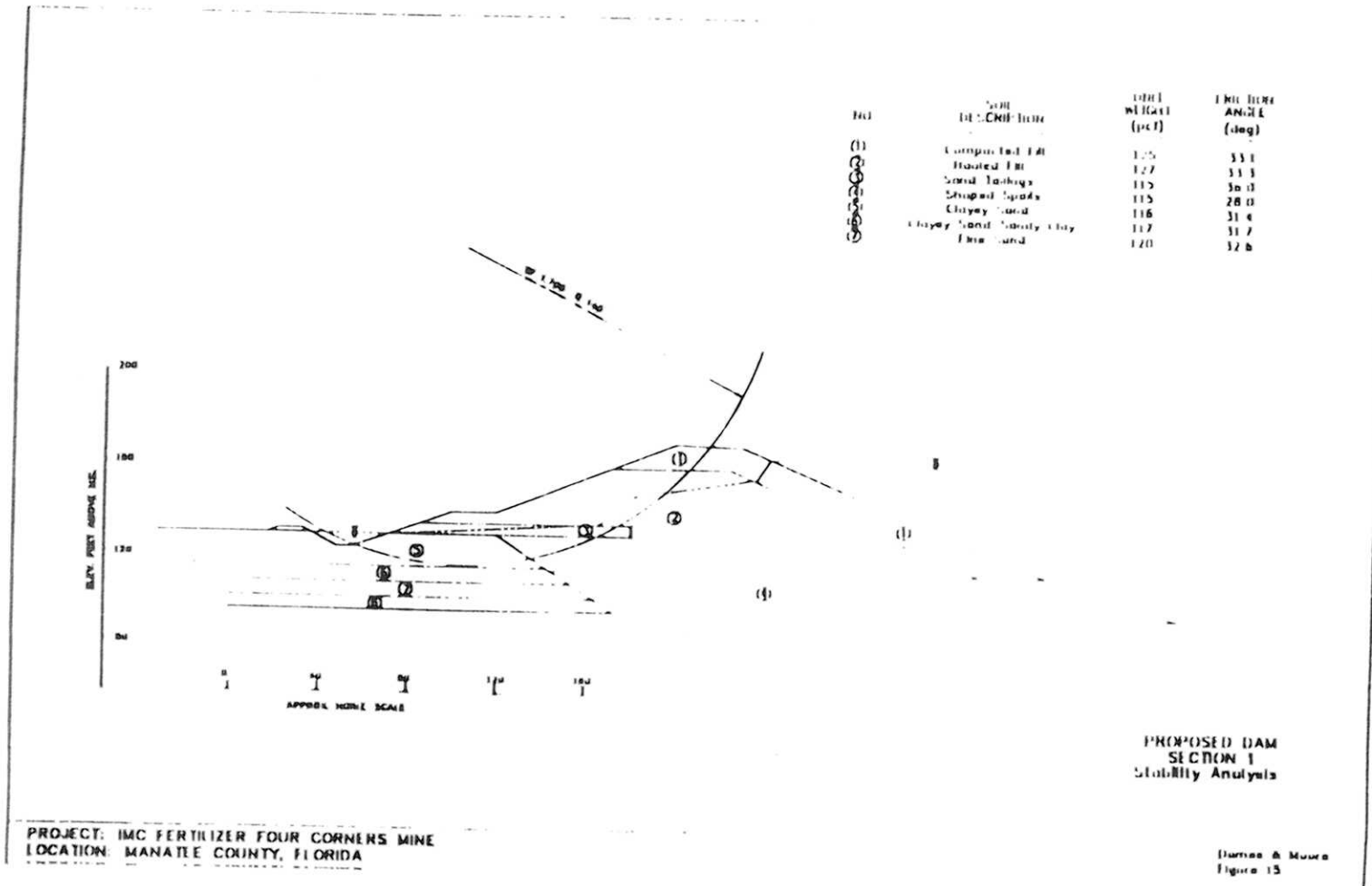


PROJECT: MAC FERTILIZER FOUR CORNERS MINE
LOCATION: MANATEE COUNTY, FLORIDA

Figure 14
Dames & Moore

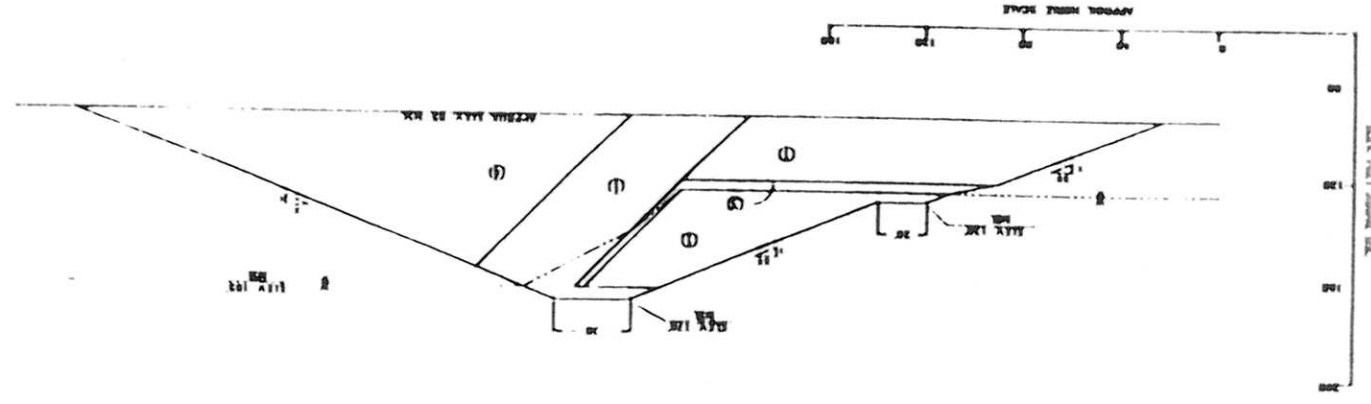
PROPOSED DAM
SECTION 1
Design Cross Section

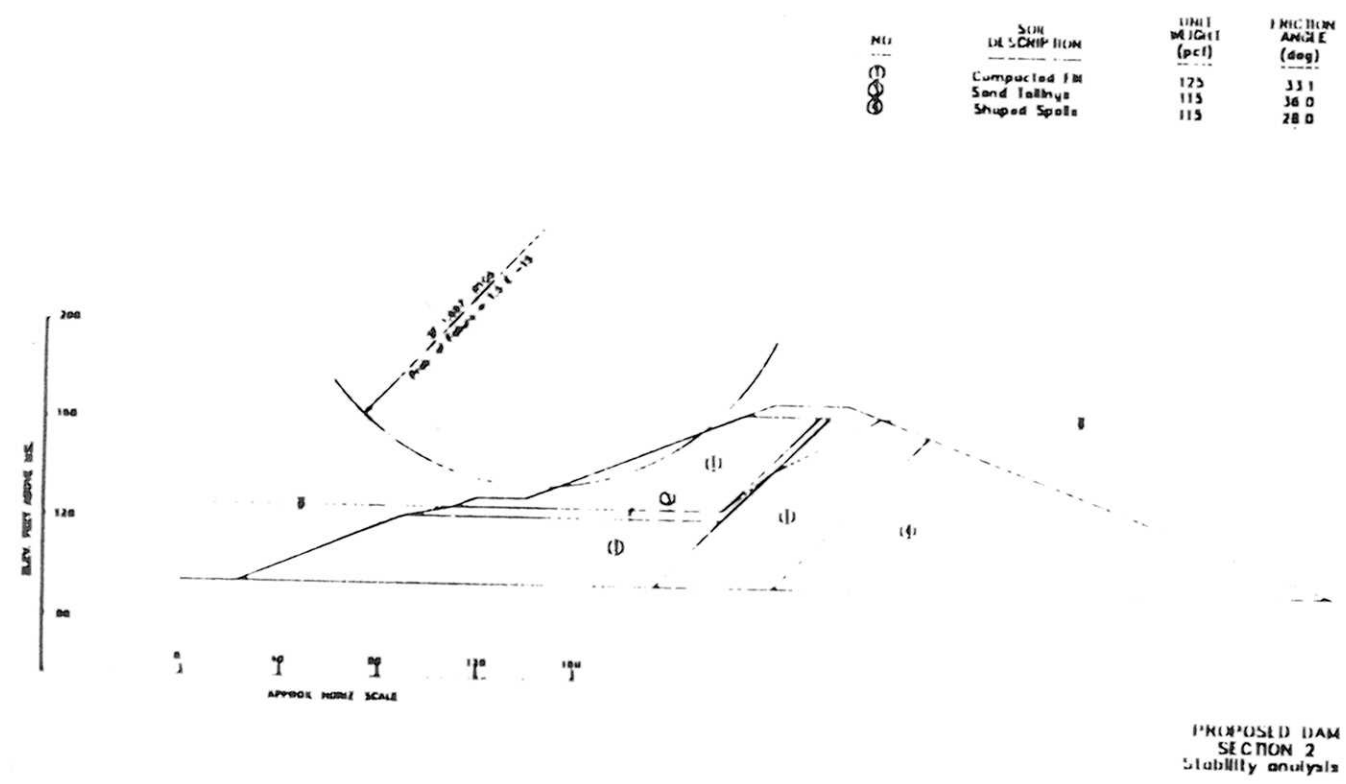




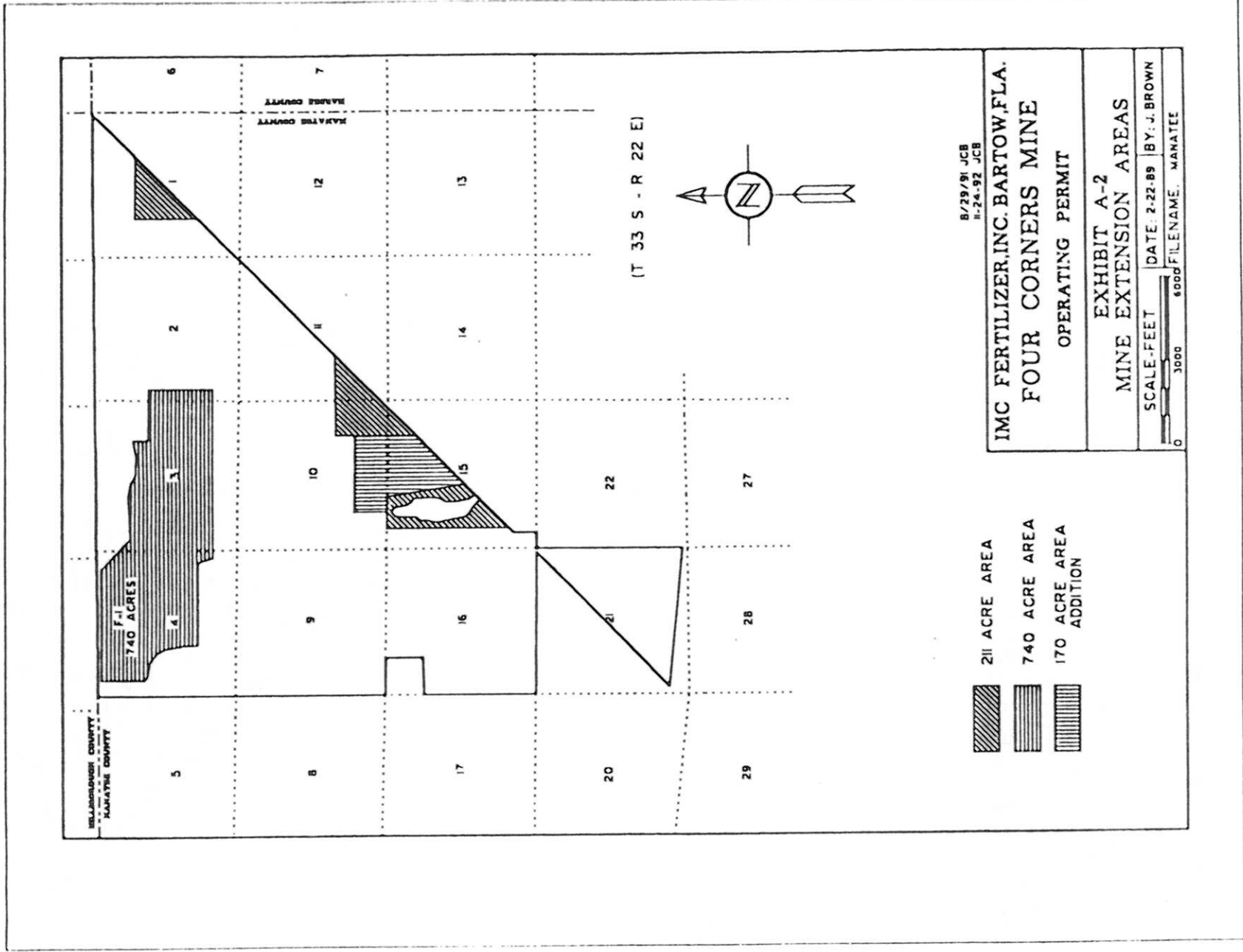


PROPOSED DAM
SECTION 2
Design Cross Section





PROJECT: IMC FERTILIZER FOUR CORNERS MINE
LOCATION: MANATEE COUNTY, FLORIDA



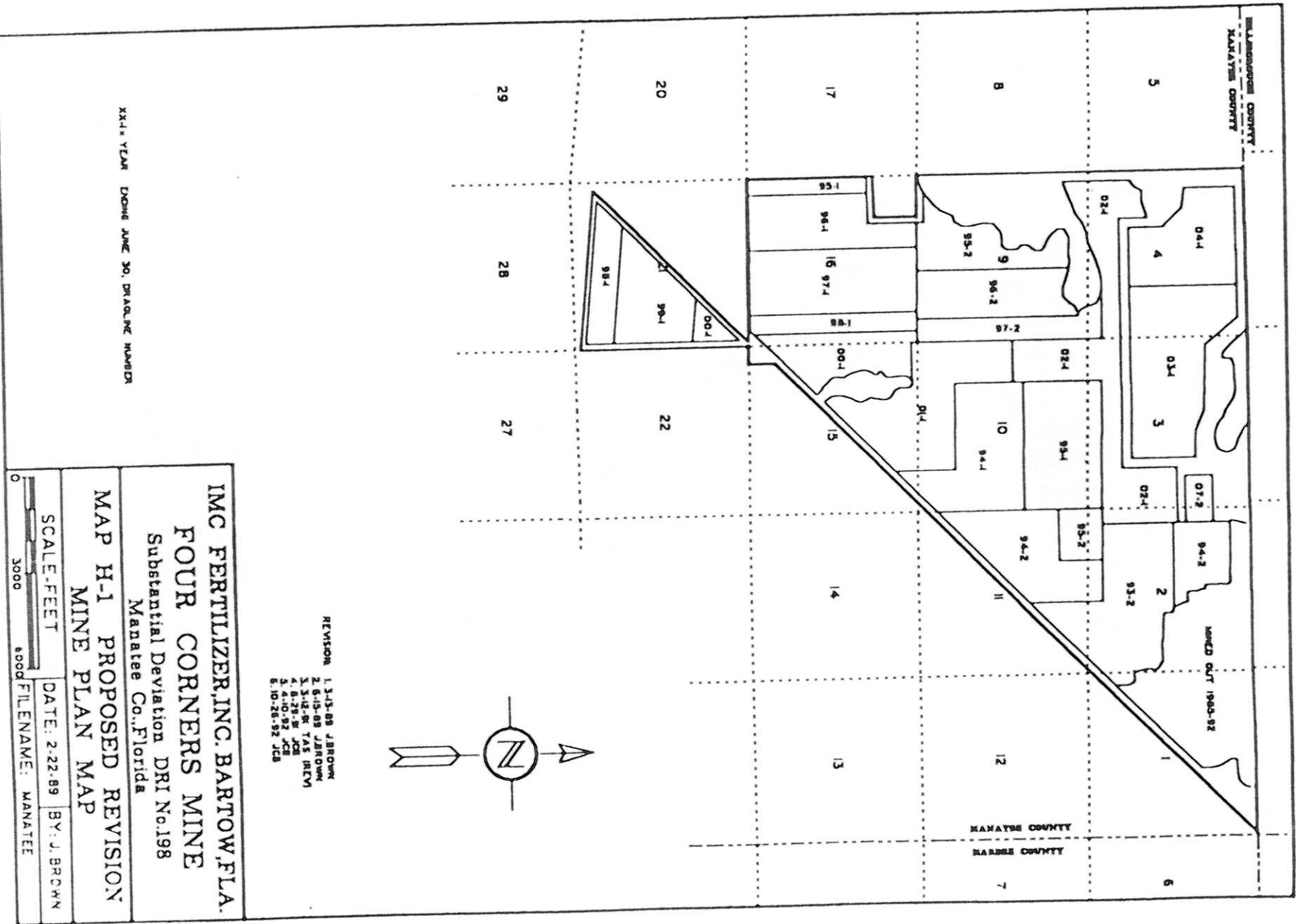


EXHIBIT C
(to Ordinance 92-64)

RECEIVED
JAN 25 1993
Tampa Bay Regional
Planning Council

STATE OF FLORIDA, COUNTY OF MANATEE

This is to certify that the foregoing is a true and
correct copy of the documents on file in my office.
Witness my hand and official seal this 21st day of

January 19 93
R. B. SHORE

Clerk of Circuit Court

By: Bullyn Mc Hoyt D.C.

1. MCF will avoid disturbance of nesting habitat during the nesting period for the roseate (SR, 33) and will provide the same commitment for the Sandhill Crane. (SR2, 35)

PUBLIC FACILITIES

Drainage

1. MCF will retain watershed boundaries in the approximate pre-mining locations and not cause any significant increase in the stormwater runoff peak flows. (SR, 8)
2. Control of drainage divides on waste clay areas will be accomplished by means of ditches, berms, grading of the dams, and multiple outlet swales on the wetlands. (ADA, 38-37)
3. The only water control structures that will be used are those included in the waste clay settling areas, the water recirculation system and the NPDES discharge points. (ADA, 33-37)

Water Supply

1. MCF will plug all wells that are to be mined, according to SWFMD and Manatee County Health Department standards and rules. (SR, 8)
2. MCF does not plan any change in the amount of water consumption from these wells. (WUP No. 203573). (ADA, 23-2)
3. MCF will operate the existing water supply system at the plant site until such time as it is no longer needed for the mine and plant operation. Then it will be abandoned and removed according to applicable regulations at that time. (ADA, 23-9)
4. MCF does not plan any change from the approved water use as described in the 1977 DRI, and subsequent approved documents. (ADA, 33-8)

Fire

The design of the plant contains an emergency water supply system, powered by a diesel pump installed in the water return system. In addition, all field equipment is equipped with portable fire extinguishers.

Transportation

1. MCF shipments by truck will not exceed 750 loads of product per day. (SR, 5)
2. MCF will not use State Road 37 / State Road 62 / Moccasin Willow Road routing for transport of product to Piney Point. (SR, 8)
3. The relocation of Carlton Road will be done subject to Manatee County standards and permits. (ADA, 38-3)

MINING

- 1. MCF will make every effort to recover all economic phosphates, to insure conservation and maximum effective extraction of this valuable mineral. (SR, 3)

- 2. The mining area includes allowances for the mining wet backs that are contained in the Manatee County Operating Permit, along with exterior property lines, except for those areas in Section 16 (Township 31 South, Range 22 East) where there was no setback due to an agreement with the adjoining property owner to allow mining up to the property line. (ADA, 38-11)

- 3. The phosphate ore will be processed at the Four Corners plant on-site. The addition of the heavy media facility will change the plant. (ADA, 38-11)

RECLAMATION

- 1. MCF will abide by all Florida Department of Natural Resources (FNR) Reclamation regulations regarding site cleanup. (SR, 3)

- 2. MCF will reclaim all mined or disturbed land to FNR and Manatee County standards. (SR, 3)

- 3. MCF proposes to reclaim its mined and disturbed lands to a variety of forms including agricultural, wildlife habitat, and open space. (ADA, 38-19)

- 4. MCF will continue to evaluate and investigate alternate methods of waste disposal and reclamation and consider using alternative procedures once they become technically acceptable and economically feasible. (ADA, 38-17)

- 5. The tailings reclamation will involve return to original grade, except where the wetlands are to be located. (ADA, 38-18)

- 6. MCF plans to return most lands reclaimed using the tailings fill and overburden cap method to approximate pre-mining topography. (ADA, 38-23)

- 7. About one-fifth of the mined area will be reclaimed to pasture (and some crop uses), which will be established according to Soil Conservation Service standards and will include mulching of slopes prone to erosion. (ADA, 38-24)

- 8. About one-half of the mined land will be reclaimed to forest and about one-third of the mined land will be reclaimed to wetlands, with littoral zones provided along lake edges. (ADA, 38-24 & 38-25)

- 9. The reclamation plan vegetation is planned to connect wildlife corridors by using planted forests. (ADA, 38-32)

10. Reclaimed freshwater marshes will be graded to provide sufficient water supply to support wetland vegetation and will be spot mulched with soil borrowed from other marshes to be disturbed, if available. ADA, 28-34)

11. Reclamation steps that will control erosion after mining include contouring of all lands to maximum slopes of 4:1 or 7:1 for agricultural land per the Manatee County Mining Ordinance, and stabilizing contoured lands by establishing a ground cover of vegetation. (SR, 13-4)

CLAY SETTLING AREAS

1. All earthen embankments will be designed, constructed, operated and inspected according to the standards of Chapter 17-672, F.A.C. (SR< 8)

2. The clay settling areas will be kept in use only as long as they are seeded, then taken out of service and reclaimed. ADA, 23-18)

3. This Substantial Deviation (SDI #198) does not effect the F-2 settling area, which is located in Hillsborough County. (SR2, -)

4. MCF has made the commitment to provide clay storage capacity in each county for the clays equivalent to the volumes produced in the respective counties. (SR1, 5)

ADA - Application for Development Approval
SR - Sufficiency Response
SR2 - Second Sufficiency Response

REV. 5-2-91
10-2000/14

DBI #198 Four Corners Kline
Substantial Deviation
Mining and Replacement of P-1 Settling Area
Kanabec County

File No.: 15439-023-040
January, 1990

 DAMES & MOORE

EXHIBIT B

DAMES & MOORE

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CINCINNATI OFFICE: 1000 VINE STREET, CINCINNATI, OH 45202
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MIAMI OFFICE: 1000 WEST 19TH AVENUE, MIAMI, FL 33102
MINNEAPOLIS OFFICE: 1000 WEST 19TH AVENUE, MINNEAPOLIS, MN 55402
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SAN FRANCISCO OFFICE: 1000 WEST 19TH AVENUE, SAN FRANCISCO, CA 94102
SEATTLE OFFICE: 1000 WEST 19TH AVENUE, SEATTLE, WA 98102
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TAMPA OFFICE: 1000 WEST 19TH AVENUE, TAMPA, FL 33602
TULSA OFFICE: 1000 WEST 19TH AVENUE, TULSA, OK 74102
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WILMINGTON OFFICE: 1000 WEST 19TH AVENUE, WILMINGTON, DE 19802
YAKIMA OFFICE: 1000 WEST 19TH AVENUE, YAKIMA, WA 98902

January 2, 1990

IMC Fertilizer, Inc.
P.O. Box 860
Bartow, Florida

Attn: Mr. T. A. Smith, PE
Senior Project Engineer

Subject: DRI #198 Four Corners Mine Substantial Deviation
Mining and Replacement of F-1 Settling Area

Gentlemen:

As authorized by IMC Fertilizer, Inc., Purchase Order #940711C, Dames & Moore has completed analyses for existing and proposed replacement dam sections for the above referenced project. This report presents the results of the analyses and provides documentation for IMCF responses to Question 19, TRPC 3-20-89, relating to the elimination of internal dikes within settling areas.

INTRODUCTION

The Four Corners Mine was a Joint Venture of IMC Fertilizer, Inc. and W.R. Grace & Company, with Grace as the operating venture member. The operation has now come under IMCF operation control as Grace sold its interests in the Florida phosphate fields. The mine is located near the corners of four Florida counties: Hillsborough (SE), Polk (SW), Manatee (NE) and Hardee (NW). The site location is shown in Figure 1, Appendix A. The mine is presently utilizing a settling area in Manatee County, designated as F-1, for the disposal of waste clay which is generated from mining and phosphate matrix processing operations. The general site location for F-1 is shown in Figure 2. The F-2 settling area in Hillsborough County is under construction. A proposed F-3 settling area was shown in the original DRI as planned for construction in Manatee County, east of the F-1 settling area.

The dams of the F-1 settling areas were built on unmined ground and partitioned by internal dikes to separate the area into three sub-areas. The enclosed Figure 3 shows the general cross section for the F-1 exterior dams and Figure 4 shows the design cross section for the interior diversion dike.

DAMES & MOORE

Mr. Ted Smith
MCF - F-1 DRI Analyses
January 2, 1990 - Page 2

MCF has proposed to mine the phosphate matrix in the existing F-1 clay settling area. The settling area would be re-built at about its existing location. Although the existing F-1 settling area is partitioned using internal dikes, MCF wishes to eliminate the internal dikes in the reconstructed area.

Original Design

The original design of the F-1 settling area is shown in the report by Ardaman & Associates to W.R. Grace & Company dated May 11, 1979. This report was written to develop the F-1 dam cross sections required for construction and operation of the settling area under the requirements of The Florida Department of Environmental Regulation (FDER) Administrative Rules, Chapter 17-9, "Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations." The original design showed the settling area to have a narrow east-west alignment with a diversion dike about 3/4 the length of the area from east toward west. The purpose of the dike was to allow the introduction of clay slurry in the northeast corner of the settling area and withdrawal of clear water through spillways in the southeast corner of the area. Without the diversion dike, there was a possibility that the clay could short-circuit the area and flow out the spillways. The original design did not show the F-1 settling area with a closed system of internal dikes.

The stability analyses by Ardaman & Associates for the original dam showed factors of safety between 1.50 and 2.11 depending on the cross section evaluated and the location of the potential slip surface. Analyses by Dames & Moore indicated that the south dam had a safety factor of 1.5 for operating conditions which included elevated pore water pressures in a sand stratum below the original ground surface. Ardaman estimated a probability of failure of the dam at "one chance in 100,000."

Questions by Manatee County for the original Operating Permit Application contained the following comments on dam break analyses by Manatee reviewers:

"A dam break study might identify the need of having a containment structure built on the north fork of Lake Manatee, or, it might show that the pond area should be subdivided into many smaller compartments."

Apparently, the original design was modified on the basis of this comment to convert the proposed diversion dike to a system of internal containment dikes by adding a north-south dike at the western terminus of the east-west diversion dike. No design calculations are available for the internal dikes.

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January 2, 1990 - Page 3

Proposed Design of the Re-built Settling Area

MCF has proposed to mine the area presently occupied by the F-1 settling area, and to construct a new settling area with a similar alignment for the south and west dams. The new settling area may be larger in area, but present plans are to construct the new dams to about the same top elevation. The F-1 settling area and the proposed F-3 settling area are to be constructed without internal dikes.

The preliminary design concepts for the F-1 and F-3 dams indicate that the dams would be constructed inside the mine pit. Some of the dams might be buttressed against unmined ground depending on mining conditions. Neither the F-1 or F-3 settling areas are planned with internal diversion dikes.

The BRPC sufficiency review presented the following comment relating to the replacement of F-1:

19. "Please provide documentation to support the assertion in the Sufficiency Response that intermediate dikes within settling areas F-1 and F-3 would not significantly lessen the impact should a dam fail. Please indicate the size of settling area which Florida Department of Natural Resources (DNR) rules recommend or deem acceptable."

The basic assumption relating to the use of interior dikes in a settling area is that these dikes might reduce the volume of clay material which would be released by a failure of an external dam. This assumes that the interior dike would not fail if an exterior dam failed. The response by W.R. Graca and the original designers of F-1 settling area to the Manatee County question on dam break analysis noted above was simply "Noted". However, it appears that the internal dikes were added to the F-1 settling area in response to the comment by Manatee County. It also appears that the internal dikes were added without specific analyses as to their effect on overall system safety and failure impact.

There are several reasons for not using such dikes except for the purpose of routing the clay slurry flow away from certain spillways. First, the interior dikes use up volume which could be used for storage of clay. Although this volume is small in an individual settling area, routine use of interior dikes would result in the need for either more settling areas or for a greater perimeter length or height of dams to provide the volume lost in each settling area. Second, the interior dikes use fill which can



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January 2, 1990 - Page 4

The sector used in the construction of the perimeter dams. The result is that exterior borrow pits, or larger plan areas are required to provide the additional fill material for construction.

MCF's previous response to questions relating to the use of internal dikes was that such dikes would not lessen the impact of a dam failure. This answer was intuitive, and not supported by analyses. On request for clarification by TBRC (Question 13 above), MCF was asked to provide support for that comment.

SCOPE OF WORK

As the impact analyses by Grace's consultants for loss of clay slurry resulting from dam failure were accepted by Manatee County and other reviewing agencies during the original study, only analyses relating to the evaluation of dam safety with and without internal dikes is necessary. The general analyses proposed for the F-1 dams will extend specifically to the construction of F-3 dams because the site and soil conditions are similar. The following scope of work was accomplished for this project:

Task 1: Review existing data and analyses.

A review was conducted to establish the basic design parameters for analyses used by Grace's dam designers. Stability analyses for the F-1 dam were completed and presented by Dames & Moore in a letter dated June 29, 1989. These data were used with data from the original design.

Task 2: Conduct analyses for the safety of the original F-1 dams with the internal dike system.

The engineering design soil parameters developed in Task 1 were utilized in an analytical study to evaluate the safety of the existing dam and dike system. The effect of the internal dikes on overall settling area performance was included in the analyses.

Task 3: Develop preliminary dam cross sections as alternatives to the original dam-dike system.

Generalized design cross sections for F-1 and F-3 dams were developed such that the risk of failure for the revised dams would be less than the risk for the original dam-dike system.

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MCF - F-1 DRI Analyses
January 2, 1990 - Page 5

Task 4: Present a report which would summarize the results of the analyses of the revised dams for the settling areas. Present specific answers to the above listed Question 13 by TRRPC.

METHODS OF ANALYSES

Deterministic Stability Analyses

The typical analyses done for the design of dams (and for most structures) are determinate. A fixed estimate of strength is divided by a fixed estimate of load or driving force. The result of this calculation is a Factor of Safety.

The FDER Rules Chapter 17-9 which govern the design and operation of settling area dams present a list of Required Safety Factors for various failure mechanisms. These minimum Safety Factors are as follows:

Horizontal shear at the base of fill	1.75
Horizontal shear within fill due to seepage	1.5
Bearing capacity of foundation soils	1.5
Shear failure of any circular arc	1.5

Soil properties for design of earthen dams are developed from the results of field and laboratory test programs, except that cast overburden strength may be taken as only 75% of the measured laboratory or field strength at equivalent density. Cast overburden is material disturbed or placed by a mine dragline without any special attempts at compaction.

The completion of numerous earthen dam designs have shown that the critical slope stability mechanism is the circular-arc mechanism. Under limited circumstances, the horizontal shear (wedge) mechanism may be critical. For example, thin layers of very weak material in the foundation or the use of weak clay materials in a sloping core to control seepage may result in a more critical horizontal shear mechanism. These conditions are usually avoided in construction, and the clayey soils typically used in Florida dam construction for seepage control cores have strengths equal to or greater than the sandy soil used in the general embankment. Therefore, the circular-arc mechanism may be taken as the general analyses for design, with other mechanisms checked on the resulting design cross section.

The analytical method in general use for the evaluation of circular-arc slip surfaces is the Bishop Method of Slices (1955) as modified by Janbu et al. (1956). The mass of soil above a

 DAMES & MOORE

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MCF - F-1 DRI Analyses
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Possible circular-arc slip surface is cut into vertical slices, and the weight, water pressure and soil strength parameters are used to calculate a safety factor under limiting equilibrium conditions. Both the soil strength resisting slip and the weight of soil and other loads potentially driving the slip are estimated as specific values.

Therefore, in simple terms, the safety factor is simply the ratio of the soil strength to the driving forces.

Stochastic Stability Analyses

In the case of statistically distributed strength and load, the Safety Factor is the Average Strength, or some weighted or reduced strength based on average strength, divided by the Average Load. However, there is a chance that actual strength may be lower than the assumed (average or factored average) strength, and that this condition could occur at locations where the load is higher than the assumed load. Stochastic analyses allow the evaluation of the likely variations in load and strength to determine the "probability of failure", *pf*.

The probability of failure is the measure of risk that the driving force in the system has been under estimated and/or that the strength has been over estimated such that a failure could result. These analyses indicate that the probability of failure for a given deterministic safety factor may vary depending on the variability of the strength and/or load parameters.

Although the backbone of stability analyses is the deterministic methodology described above, the fixed values of soil strength and driving load are estimates that have a certain level of variability. For example, soil strength, as measured by SPT penetration resistance (ASTM D-1586) or laboratory procedures in a particular soil stratum, may vary due to test method variations or to variations in soil density or mixture. The soil density as measured in the field also has two components of variability. First, the test itself has levels of accuracy that can result in variations in density for a single soil stratum. Second, minor variations in moisture, compaction energy and clay content can result in a given stratum having soil density which varies considerably from the average density.

The analytical method used for these analyses requires that the statistical variability of the soil strength and density be integrated with the deterministic slope stability analyses to provide a method of evaluating the risk associated with any given dam. Dames & Moore utilized a computer program called BISTAT which incorporates the stochastic parameters in the Bishop slope

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stability analyses. Both the deterministic Safety Factor and an estimate of failure probability are obtained from the analyses. The data utilized in the analyses must include the stochastic parameters of Mean, Variance, Standard Deviation, Skewness and Kurtosis. A discussion of the Stochastic Parameters and Analyses is included in Appendix B.

PROJECT ANALYSES

Dames & Moore has determined that the best project approach would be to compare the statistical probability of failure (Pf) of the original F-1 dam system with the internal dikes to the Pf of the proposed MCF system. The stochastic slope stability analyses method would be used with available data to evaluate both the internal dike and the exterior dam. The results of the analyses would allow a direct response to TBRPC Question 19 as to the impact of the interior dikes. Also, alternative embankments could be evaluated to provide cross sections with higher reliability (lower Pf) than existed for the original system.

The original design calculations by Ardaman & Associates show that the safety factors for Horizontal Shear Mechanisms varies from 1.75 to 4.6. The same cross sections shows that Circular-arc Mechanisms have safety factors ranging from 1.50 to 2.31. Based on these data and the extensive experience of Dames & Moore with the results of stability analyses for similar sections, only the Circular-arc Mechanism will be considered for this project. All mechanisms would be evaluated for actual design of cross sections as required under Chapter 17-9 of the FDER Administrative Rules.

SOIL PROPERTIES FOR ANALYSES

Both laboratory test data from the original Ardaman design analyses and field test results by both Ardaman and Dames & Moore were used to evaluate the soil properties to be used in the Stochastic Analyses for stability of dams. The enclosed Figure 5 shows a summary plot of Standard Penetration Test (SPT) penetration resistance (ASTM D-1558) versus depth from the borings in the settling area done by Ardaman for the original design. This plot shows that the soils are of medium to low strength in the upper 10 to 40 feet, with a general trend for increasing strength with depth. The trend was developed by Regression Analyses and shows a significant variation in measured values about the expected trend. The enclosed Figure 6 shows a similar plot for borings done by Dames & Moore after construction was complete and the settling area was in operation. Again, the dispersion of individual data about the Regression Fit Trend is significant. The upper part of the embankment has high penetration resistance with the resistance values dropping to medium to loose at about the original grade.

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The soil below the dam increases in strength with depth as was shown in Figure 5.

Figure 7 shows a correlation between the angle of internal friction of cohesionless soils and SPT penetration resistance. This figure shows the Regression Analysis Best Fit with the Standard Error Limits. The experience in actual testing of soils from the central Florida area indicate a lower bound friction angle of about 30 degrees and an upper bound strength of about 40 to 42 degrees. Figure 8 shows the relationship between cohesionless soil density and friction angle as developed from the original design data. The density data are typically available from construction testing and monitoring.

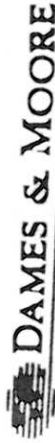
Figures 9 through 13 show histograms for each of the soil strata expected to occur within the dam cross section or its foundation. The Stochastic Parameters used in the Dames & Moore analyses are shown on the figure for each soil type. The friction angle was estimated for each soil type from SPT correlations or from density estimates. The friction angle for analyses varied from 33 degrees for rolled or compacted fill to 31 degrees for undisturbed clayey sand strata.

RESULTS OF THE ANALYSES

The Original Dam-Dike System

Ardaman & Associates estimated a probability of failure for the exterior dams of the F-1 settling area at "one chance in 100,000." This would normally be noted as a risk of 1×10^{-5} . The analyses of the original cross section by Dames & Moore for the South Dam, as reported in a letter dated June 29, 1989, shows a safety factor of 1.5 for the downstream slope under operating conditions which include artesian porewater pressures in a deep sand stratum in the dam foundation. Analyses using stochastic procedures indicate that the PF for this condition would be from 5×10^{-5} to 1×10^{-3} , about the level estimated by Ardaman. The BISTAT analyses indicate that the factor of safety for the embankment after the settled clay seals the foundation soils may be 1.84 with a PF of 7×10^{-4} .

The stability of the internal dike was apparently never evaluated by Ardaman. This would be normal procedure as the internal dike would normally serve no function except as a flow diversion system. Under the uniform head across the embankment which would normally exist, the safety factor would be greater than 1.5. However, when the internal dikes function is to divide the settling area into discrete partitions, the stability considerations are different. If a failure occurs in an external dam, the fluid level in the



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affected partition will drop rapidly. The water in the saturated pores of the partition dikes can not drain out as quickly as the water level falls in the downstream pool. Therefore, the stability analyses for the dikes must consider that the rapid draw-down occurs. The Dames & Moore analyses for rapid draw-down on the internal dikes of F-1 showed a safety factor of 0.87 and a Pf of 9.8×10^{-3} , virtual assurance that the internal dike would fail. Therefore, the overall Pf of the combined system is $.98 \times 10^{-3}$ of the design embankment, about 4.9×10^{-3} to 6.8×10^{-3} depending on operating conditions.

Proposed Alternative Dams

Dames & Moore has developed two alternative cross sections which might be used for dams built in or against the edge of mine pits. The enclosed Figure 14 shows Section 1, the proposed section where the dam is built against the edge of the mine pit. Figure 15 shows the results of the stochastic analyses for that section's critical circular-arc as a safety factor of 1.71 and a probability of failure (Pf) of 4×10^{-3} .

The alternative cross section, Section 2, shown in Figure 16 is proposed for the case where the entire dam is built within the mine pit. This section would typically be used where mining will continue beyond the limits of the dam. The critical circular-arc had a safety factor of 1.70 for this section with a Pf of 1.5×10^{-3} (Figure 17). Note that although the factor of safety of Section 2 is slightly less than that of Section 1, the Pf is lower because the construction incorporates more materials with lesser variations in strength.

DISCUSSION

The analyses show that the incorporation of the internal dikes has no significant effect on the Probability of Failure which would result in the loss of material from the settling area. The possibility of failure of the dike under anticipated conditions is so high that the only effect would be a slight reduction in volume of flow due to the flow restriction from the unfilled portions of the embankment and the viscosity of the clay slurry. This effect would be marginal at best.

On the other hand, the modifications in the external dams proposed for construction after mining result in embankments which contain a higher volume of controlled materials; that is, materials with lesser degrees of variability. The result is that the proposed alternative embankments can be expected to have a greater degree of reliability.

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In order to allow proper perspective with respect to evaluation of failure probabilities for the proposed dams, it is advisable to discuss the levels of risk which have been experienced in other areas. A publication by the American Society of Civil Engineers (ASCE) with the U.S. Committee of the International Commission on Large Dams (USCOLD) published in 1975, "Lessons from Dam Incidents," presents data on dams and dam failures as experienced in the U.S. from 1899 to 1973. This publication indicates that a total number of known dams was 4,918, of which 3605 were earthen dams. None of these dams were tailings dams or phosphate settling ponds. The failures evaluated for this paper included only major failures which resulted in complete abandonment of the dam. Not all of the incidents involved significant threat to the public, but they were treated as such in our analyses of the data. The data indicate that two failures could be attributed to slope mechanisms and eight incidents of significant seepage in the foundations or embankments of dams.

The Pf's based on these data are listed in the following table:

TYPE OF DAM	NUMBER	NUMBER FAILED	PROBABILITY OF FAILURE
EARTHEN	3,604		
by Stability		2	5.5×10^{-4}
by Seepage		8	2.2×10^{-3}

In an FIS study by the author for a dam in the phosphate industry performed in 1982, the known performance of the earthen dams was evaluated to estimate a basic Pf for these dams. However, since 1971 when the FDER Chapter 17-9 was re-written, there has not been a failure of a dam which was designed to meet the standards in the Rules. The normal means of estimating the Pf for manufactured items when no failure has occurred is typically a Poisson process with the following equation:

$$N = e^{-\lambda} \frac{\lambda^n}{n!}$$

where: n = The number of items which have been counted without a failure

SPP = The Pf for any item when n is approximately 1.0

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This process could be used for Phosphate Industry Dams if a base can be determined to define the number "n". The base for n was chosen to be Mile-Years because inspections are done each year on each dam, and the typical dam length is one mile. Unfortunately, the only impartial agency that could provide reliable base data for the calculation of Spp is the FDER, and this agency does not keep track of these data. However, the EIS study determined that approximately 1366 mile-years of dam performance had been recorded by the Florida Phosphate Council from 1972 to 1982. The resulting SPP was estimated from 1.3×10^4 to 3×10^5 depending on the method of interpretation of calculation results. The table and figure used for this report are enclosed in Appendix C.

The difference in performance between dams throughout the U.S. and the Phosphate Industry since 1971 can be attributed to the improvement in technology for analyses, the typically limited drainage basin of the settling areas, and the fact that the settling areas store clay, not water. The majority of failures reported for U.S. dams are due to underestimates of flow volumes in large storms. Because the settling areas are typically above grade, the drainage basin is only slightly larger than the pool. Therefore, the entire design storm (12 inches in 24 hours, approximately the 100 year storm) can be retained within the pond because of the minimum freeboard of 5 feet required in Chapter 17-9. The second major problem with dams is seepage. Because the settling ponds contain a clay slurry, they are self sealing. Seepage problems generally occur during the initial filling of the areas, before the clay has formed a liner. The experienced designers of Phosphate Industry Dams typically design sections which do not rely on the sealing action of the clay. It is usually assumed that the dams contain only water.

The original design does not include a flood routing study to evaluate the performance of spillways during the design storm. However, the settling area does have 4 spillways that discharge to exterior circulation ditches. The FDER Rules Chapter 17-9 requires that a minimum of 2 spillways be installed in each settling area. It has been Dames & Moore's standard practice to evaluate both the 17-9 Design Storm (12 inches in 24 hours) and an estimated Maximum Probable Storm (MPS = 39 inches of rain in 24 hours) to evaluate spillway performance. The design of spillway capacity is based on the requirement in 17-9 that the Design Storm must be discharged in 24 hours. Further, the MPS in conjunction with waves calculated from hurricane winds should not cause a rise in water which would overtop the dam. These areas of design are required to assure hydraulic performance of the settling area which is as safe as the stability of the cross section.

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SUMMARY AND CONCLUSIONS

Stability and reliability analyses have been completed for dams which form the F-1 settling area at IMCF's Four Corners Mine in Manatee County, Florida. Comparison analyses have been completed to evaluate the stability and reliability of alternative cross section dams which might be constructed in mined areas. The results of the stability analyses can be summarized as:

DAM	SAFETY FACTOR	FAILURE PROBABILITY
-----	-----	-----
U.S. Earth Dams		5.5×10^{-4}
Florida Phosphate Dams		1.3×10^{-4}
to		3.0×10^{-4}
FDER Chapter 17-9 Requirements		
From	1.5	
to	1.75	
Original F-1 Dams		
to	1.5	1.0×10^{-3}
Internal Dike w/Draw-down	1.84	6.8×10^{-4}
Combined Original Dams	0.87	9.8×10^{-1}
to		9.8×10^{-4}
		6.7×10^{-4}
Proposed Alternative Dams w/o Internal Dikes		
Section 1	1.71	3.6×10^{-11}
Section 2	1.70	1.5×10^{-13}

The analyses presented in this report show that the use of interior dikes does not contribute to overall safety of a settling area. The basis of this conclusion is that the factor of safety for the interior dikes under rapid draw-down conditions which would be imposed by the failure of an exterior dike is less than 1.0. The conclusion is further demonstrated by the fact that stochastic analyses for stability show no difference between the probability of failure, that is the loss of clay by a slope failure mechanism, with or without the interior dike.

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The alternative cross sections proposed for reconstruction are shown to have lower probabilities of failure than the existing dams. Therefore, it can be concluded that the mining of the area can result in reducing an existing low risk even further.

The other part of TBRPC's Question 19 was "Please indicate the size of settling area which Department of Natural Resources (DNR) Rules recommend or deem acceptable."

As far as we know, DNR has no rules which govern the size of Phosphatic Clay Settling Areas. Dames & Moore has designed such settling areas as small as 150 acres and larger than 1,500 acres. The important component for the design of a settling area is its stability and safety.

We appreciate the opportunity to be of service to you on this project. If you have any questions relating to the data or analyses presented in this report, please contact the undersigned at your convenience.

Respectfully submitted,

~~DAMES & MOORE~~


Ross T. McGillivray, PE
Associate

z181, mcf-89-90\mcf-f1\ WPS Doc.#2

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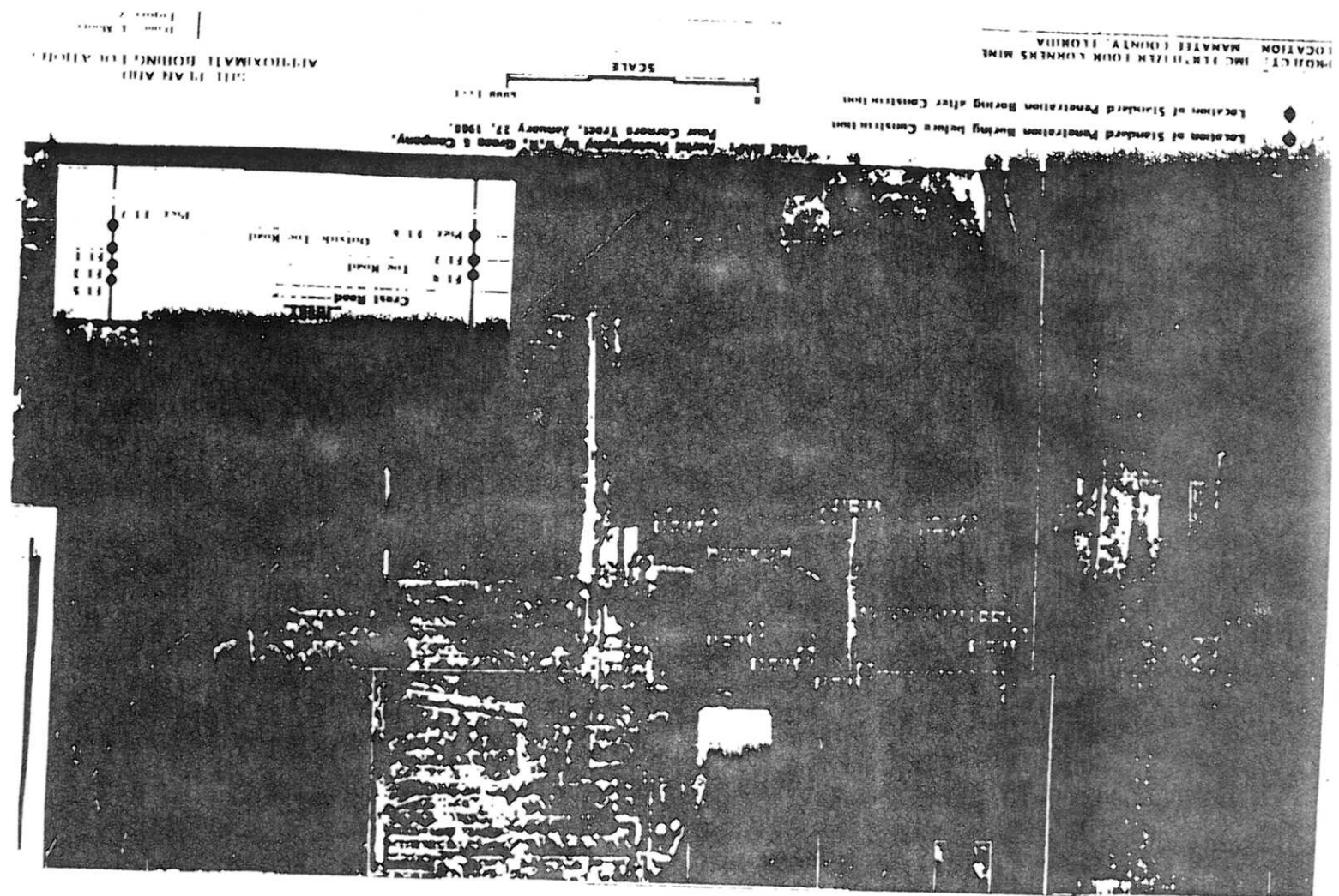
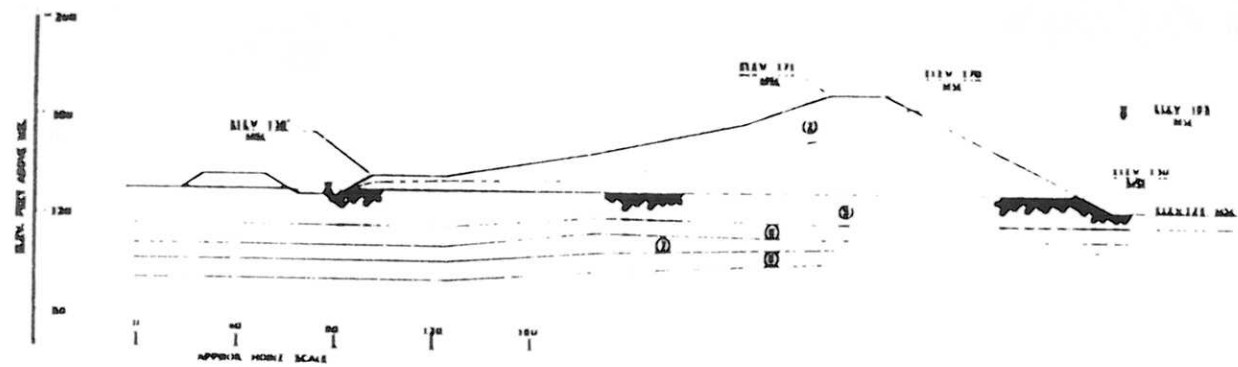


EXHIBIT A (Page 41 of 56)
(to Ordinance 92-64)

NO.	SOIL DESCRIPTION	DEPTH Wt. Grit (ft.)	PERCENT ANGLE (Deg)
(1)	Flashed Fat	127	33.3
(2)	Clayey Sand	116	31.4
(3)	Clayey Sand/Sandy Clay	117	31.7
(4)	Fine Sand	120	32.6

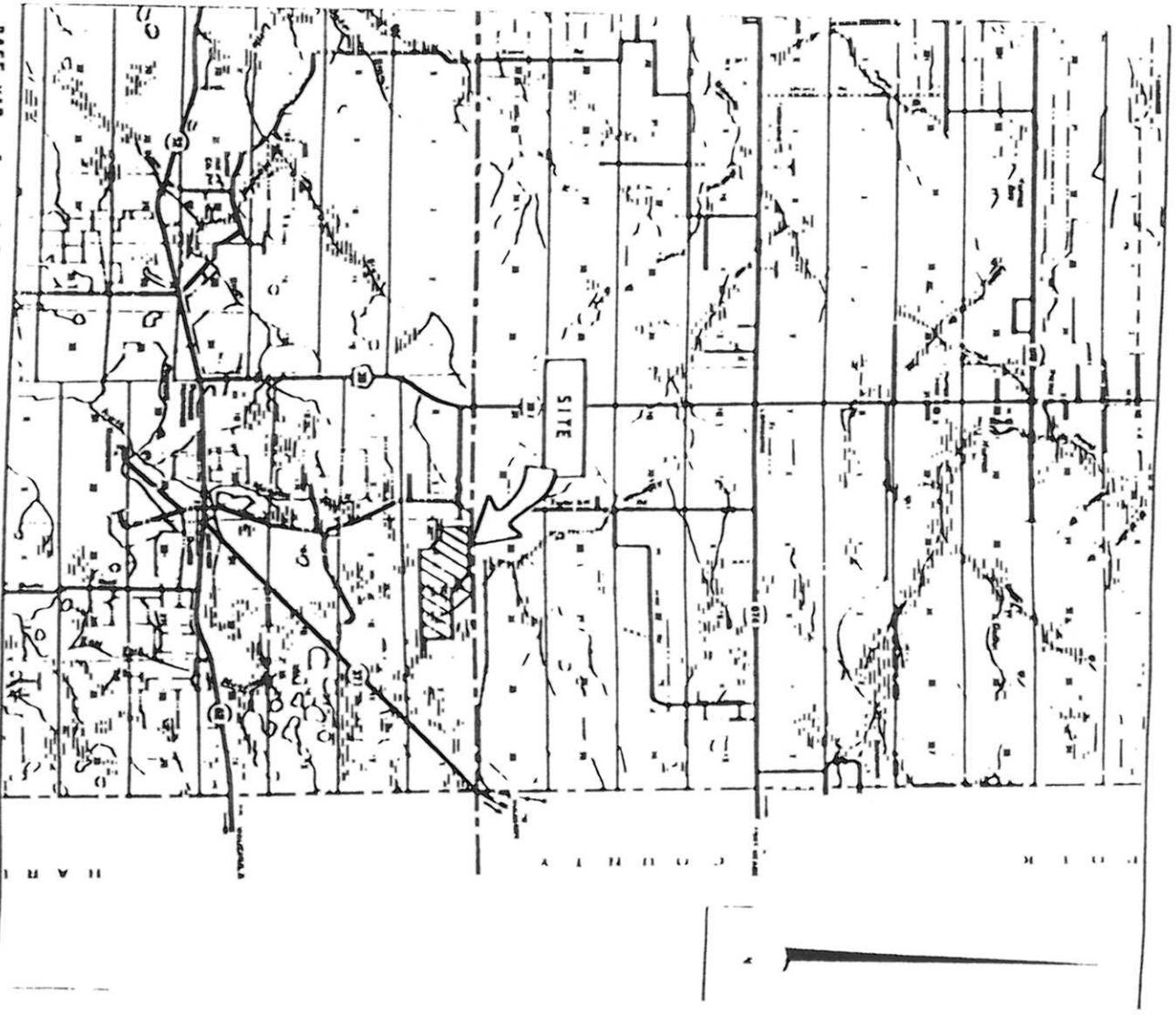


F-1 SETTLING AREA
F-1C DAM
Easting Cross Section

APPENDIX A

FIGURES

EXHIBIT A (Page 39 of 56)
(to Ordinance 92-64)



BASE MAP: General County Maps for Manatee & Hillsborough
Counties, dated 1974 and 1976, respectively.

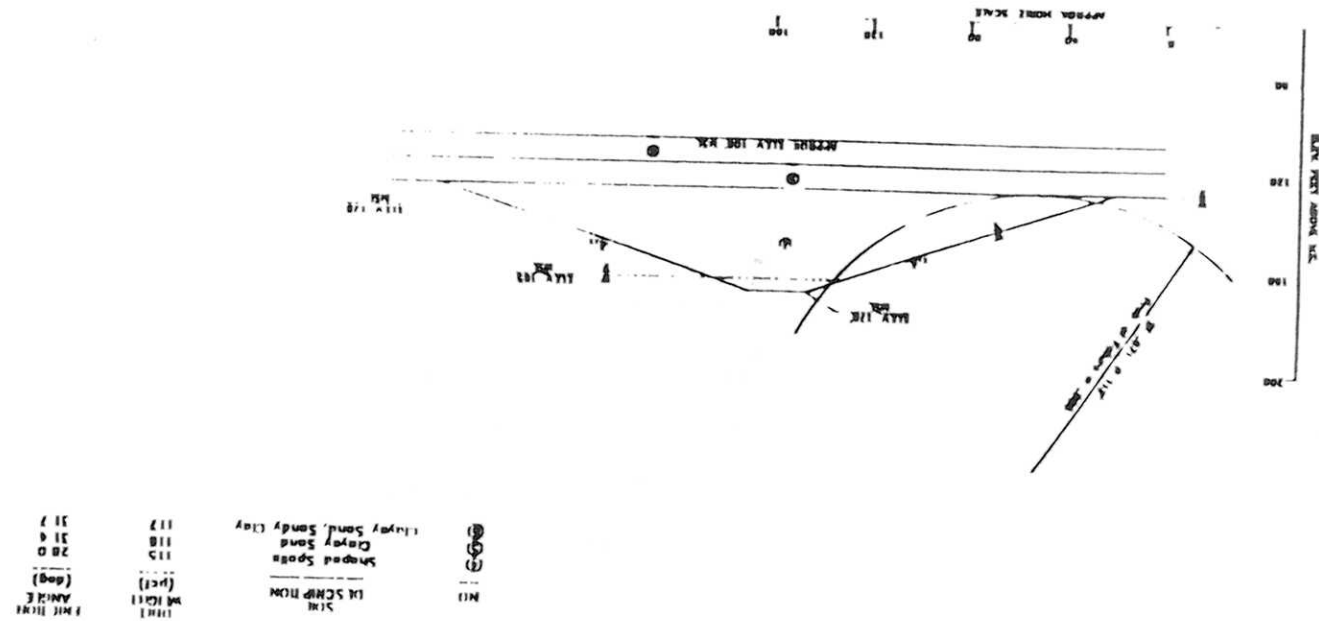
0 5 Miles
SCALE

Figure 1
VICINITY MAP
Four Corners F-1C
IMC Fertilizer

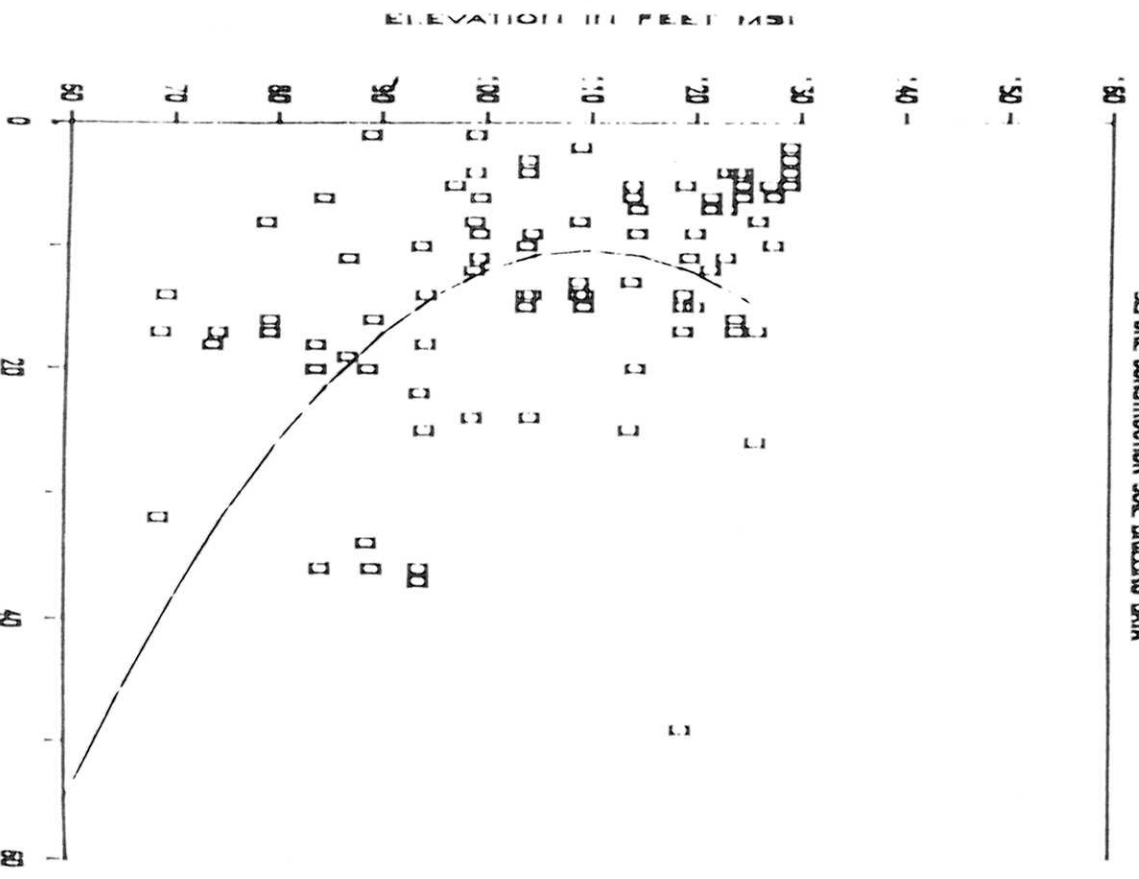
EXHIBIT A (Page 40 of 56)
(to Ordinance 92-64)

ECT. INC FERTILIZER FOUR CORNERS MINE
TION, MANATEE COUNTY, FLORIDA

1-1 STILLING AREA
INTERIOR DIVERSION DIKE
Existing Cross Section



TREND ANALYSIS, F-1 SETTLING AREA BEFORE CONSTRUCTION SOIL DRILLING DATA



□ DATA — SPT "N" BPF
— REGRESSION FIT

198e

MANATEE COUNTY GOVERNMENT

PLANNING & ZONING DEPARTMENT

September 19, 1991

Ms. Suzanne Cooper
Tampa Bay Regional Council
9455 Koger Blvd., Suite 219
St. Petersburg, Florida 33702

RECEIVED
SEP 20 1991
Tampa Bay Regional
Planning Council

Dear Ms. Cooper:

Enclosed is a certified copy of the Four-Corner Development of Regional Impact Development Order from Manatee County for your review and comment.

If you have questions, please contact me at (813) 749-3070, Ext. 6833.

Sincerely,

Mike Pendley
Mike Pendley
Principal Planner

mailed 9/19/91

MP:jk

Enclosure

cc: Carol Clarke, Acting Director, Planning & Zoning Department
Betsy Benac, Administrator, Community Planning
Mike Pendley, Principal Planner, Planning & Zoning Department
DRI File
Central File

1112 MANATEE AVENUE WEST • SUITE 803 • BRADENTON, FL • TEL. (813) 748-4501 / FAX (813) 749-3071

P.O. BOX 1000 • 34206-1000

AN ORDINANCE OF THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, RENDERING A DEVELOPMENT ORDER PURSUANT TO CHAPTER 380, FLORIDA STATUTES, ON AN APPLICATION FOR DEVELOPMENT APPROVAL* (ADA*) FILED BY IMC FERTILIZER, INC., FOR FOUR CORNERS MINE DEVELOPMENT OF REGIONAL IMPACT (DRI) SUBSTANTIAL DEVIATION, ALSO KNOWN AS DRI #198; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, W. R. Grace and Company proposed a Development of Regional Impact (DRI) for a phosphate mine located in both Hillsborough and Manatee Counties; and

WHEREAS, the proposed DRI included two discontinuous tracts in Manatee County, one of which was known as the "Jameson Tract" and included 4,753 acres, the other of which was known as the "Northeast Manatee Tract" and included 5,052 acres; and

WHEREAS, on December 27, 1977 Manatee County adopted resolutions granting W. R. Grace and Company a DRI Development Order, Master Mining and Reclamation Plan, and Special Exception for the Four Corners Mine; and

WHEREAS, W. R. Grace and Company was issued an Operating Permit on January 22, 1981 to mine all parts of Four Corners Mine* excluding the Mine Extension Areas*; that Permit has been extended by operation of law, and the Developer has applied for a new Operating Permit; and

WHEREAS, on November 2, 1982, Manatee County approved a resolution transferring all rights in the Four Corners Mine from W. R. Grace to W. R. Grace, as manager to the Four Corners Mine Joint Venture; and

WHEREAS, on July 9, 1985, Four Corners Mine Joint Venture submitted an Operating Permit renewal application to Manatee County which included a new Reclamation Plan; and

WHEREAS, Four Corners Mine Joint Venture submitted a Notice of Proposed Change to a Development Order on November 27, 1987; and

WHEREAS, on March 29, 1988, Manatee County determined that the proposed change was a Substantial Deviation to the approved Development Order; and

WHEREAS, the management of the Four Corners Mine was transferred to IMC Fertilizer, Inc. on December 20, 1988; and

WHEREAS, on January 10, 1989, IMC Fertilizer, Inc. became the sole owner of the Four Corners Mine; and

WHEREAS, on March 28, 1989, IMC Fertilizer, Inc. filed an ADA* for a Substantial Deviation to an approved DRI with the Manatee County Board of County Commissioners, pursuant to the provisions of Section 380.06, Florida Statutes; and

WHEREAS, said Substantial Deviation proposed:

- the addition of a one hundred and seventy (170) acre parcel in Sections 10 and 15 of Township 33 South, Range 22 East, and the mining of that area;
- the construction of a heavy media facility to the Four Corners processing plant, southwest of the existing washer, to upgrade waste pebble into saleable product;

- dismantling, mining, and rebuilding of the approximately seven hundred and forty (740) acre F-1 waste clay settling area;
- revision of the mining and reclamation plan for the Jameson and Northeast Manatee tracts, extending mining on the Jameson Tract to November 30, 2006 and mining on the Northeast Manatee Tract from 1998 through 2002 to 2002 through 2006 with reclamation being completed by 2018 and 2010, respectively;
- the mining of two hundred and eleven (211) acres within the approved DRI which were previously approved for disturbance but not mining;
- the mining of the right-of-way of Carlton Road, an unpaved County road in Sections 9 and 16, T33S, R22E; and revision of the project traffic impacts; and

WHEREAS, on March 28, 1991, 79 acres of the 170 Acre Addition were granted Vested Rights with regard to the currently approved Manatee County Comprehensive Plan, and the remaining 91 acres of the 170 Acre Addition were granted Vested Rights with regard to the rebuttable presumption against mining within the Lake Manatee Watershed, as described in the currently approved Manatee County Comprehensive Plan; and

WHEREAS, the described Project lies within the unincorporated area of Manatee County; and

WHEREAS, the Board of County Commissioners is the governing body of the local government having jurisdiction pursuant to Section 380.06, Florida Statutes; and

WHEREAS, the Planning Commission has reviewed the Application for Development Approval* for a Substantial Deviation and has filed a recommendation on said Application with the Board of County Commissioners; and

WHEREAS, The Board of County Commissioners has received and considered the report and recommendation of the Tampa Bay Regional Planning Council (TBRPC); and

WHEREAS, the Board of County Commissioners of Manatee County has, on March 14, 1991, April 25, 1991, June 27, 1991 and August 19, 1991 and September 5, 1991 held a duly noticed public hearing on said Application for Development Approval* for a Substantial Deviation, and has solicited, received and considered reports, comments, and recommendations from interested citizens, county and city agencies, and the applicant, as well as the review and report of the Manatee County Planning and Zoning Department.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF MANATEE COUNTY, FLORIDA, IN REGULAR MEETING ASSEMBLED THIS 5TH DAY OF SEPTEMBER, 1991, AS FOLLOWS:

SECTION 1: AMENDMENT OF DEVELOPMENT ORDER FOR DRI NO. 5, SE-852.
The previous Development Order for Four Corners Mine in Manatee County, which was adopted on December 27, 1977, is hereby amended in its entirety, provided this amendment shall not be construed to terminate the rights of the Developer*, if any, granted under Section 163.3167(8) F.S. to the extent such rights have previously been granted and not specifically herein or otherwise modified or amended.

SECTION 2: FINDINGS OF FACT. The Board of County Commissioners of said County, after considering the testimony, evidence, documentation, application for amendment of the Official Zoning Atlas, the recommendation and findings of the Planning Commission of Manatee County, as well as all other matters presented to said Board at the public hearing hereinafter referenced, hereby makes the following Findings of Fact, provided this amendment shall not be construed to terminate the rights of the Developer*, if any, granted under Section 163.3167(8), F.S., to the extent such rights have previously been granted and not specifically herein or otherwise modified or amended:

- A. The Board of County Commissioners has received and considered the report of the Manatee County Planning Commission concerning the DRI Substantial Deviation and the Application for Official Zoning Atlas Amendment as it relates to the real property described in Section 7 of this Resolution of an Application for Development Approval* pursuant to Section 380.06, Florida Statutes (FS).
- B. That said Board of County Commissioners held a public hearing on March 14, 1991, April 25, 1991, June 27, 1991, August 19, 1991 and September 5, 1991 regarding the said DRI Substantial Deviation and the proposed Official Zoning Atlas Amendment described herein, in accordance with the requirements of Manatee County Ordinance No. 90-01 (The Manatee County Land Development Code), Ordinance 89-01 (The Manatee County Comprehensive Plan), and Ordinance 81-22 (The Manatee County Mining and Reclamation Ordinance) and has further considered the information received at said public hearing.
- C. The proposed DRI Substantial Deviation regarding the property described in Section 7 herein is found to be consistent with the requirements of Manatee County Ordinance 89-01 (The Manatee County Comprehensive Plan) and with the Development Conditions specified in Section 6. The Four Corners Mine* is an approved DRI; therefore, this development has Special Exception status as explained in Section 3, Subsection D herein.
- D. IMC Fertilizer, Inc. submitted to Manatee County, Florida, an Application for Development Approval (ADA)*, and five Sufficiency Responses, which are incorporated herein by reference. Hereinafter, the word "Application" shall mean the ADA* as defined in Section 5, Paragraph B herein.
- E. The real property, which is the subject of this application, is legally described as set forth in Section 7 of the Development Order.
- F. The proposed development is not in an Area of Critical State Concern, as designated pursuant to Section 380.05, Florida Statutes.
- G. The authorized agent for IMC Fertilizer, Inc. is Mr. James V. Bursleson, as Vice-President and General Manager, Florida Minerals Division, Post Office Box 867, Bartow, Florida 33830.
- H. The owner of the property is IMC Fertilizer, Inc.
- I. A comprehensive review of the impact generated by the Substantial Deviation has been conducted by the departments of Manatee County and TBRPC.
- J. The DRI Preapplication Review, which was convened for the Substantial Deviation to the Four Corners Mine DRI, resulted in the elimination of the following questions from the ADA* for this Substantial Deviation review:
- #13 - Air
 - #17 - Floodplain
 - #19 - Historical and Archaeological Resources
 - #20 - Economy
 - #21 - Wastewater
 - #24 - Solid Waste
 - #25 - Energy
 - #26 - Education
 - #27 - Recreation and Open Space
 - #28 - Health Care
 - #29 - Police
 - #30 - Fire, and
 - #32 - Housing.

K. The original DRI Development Order approval included 9805+ acres to be impacted by mining. The Substantial Deviation Application includes a request to mine 211 acres which were previously approved for disturbance but not mining. The entire 211 acres are located within the boundaries of the Four Corners Mine, as originally approved, and results in part from improved planimetry techniques and in part from mining of lands approved to be impacted in the 1977 DRI. The applicant also intends to mine the right-of-way of Carlton Road. The proposed mining of the 211 acres and the right-of-way of Carlton Road were not known to Manatee County or to TBRPC at the pre-application stage. The total area to be impacted will be 9788+ acres.

SECTION 3: CONCLUSIONS OF LAW:

A. Based upon the previous findings of fact and the following conditions of development approval, the Board of County Commissioners of Manatee County concluded that:

1. The 170+ acre addition is not consistent with the Comprehensive Plan and the Land Development Code in that the requested expansion of the mine is incompatible with the existing agriculturally-zoned property located to the south, nor is it compatible with the Board's goals and objectives for preservation of the Lake Manatee Watershed, and also that the 170+ acres was denied a rezone to EX/WP-M and phosphate mining is not permitted in the existing A/WP-M zoning district.
 2. The Substantial Deviation components to the Four Corners Mine DRI, which are outlined in Section 4 herein, will not unreasonably interfere with the achievement of the objectives of the Adopted State Land Development Plan applicable to the area.
 3. The Substantial Deviation components to the Four Corners Mine DRI, which are outlined in Section 4 herein, are consistent with the local land development regulations and are consistent with the State Comprehensive Plan, the Tampa Bay Regional Planning Council's Comprehensive Regional Policy Plan, and the Manatee County Comprehensive Plan, Ordinance 89-01, as amended.
 4. The Substantial Deviation components to the Four Corners Mine, which are outlined in Section 4 herein, are consistent with the intent of the report and recommendations of the TBRPC issued on January 18, 1991.
- B. That these proceedings have been duly conducted pursuant to applicable law and regulations, and, based upon the record in these proceedings, IMC Fertilizer, Inc. is authorized to conduct development as described herein, subject to the conditions, restrictions and limitations set forth below.
- C. That the review by the County, the TBRPC, and other participating agencies and interested citizens reveals that the impacts of the Substantial Deviation components to the Four Corners Mine DRI, which are outlined in Section 4 herein, are adequately addressed pursuant to the requirements of Chapter 380, FS, within the terms and conditions of this Order and the Application. To the extent that the Application is inconsistent with the terms and conditions of this Order, the terms and conditions of this Order shall prevail.
- D. That the original acres contained within the original DRI Development Order are determined to have Special Exception status pursuant to Section 4.B of the Manatee County Comprehensive Plan, Ordinance 89-01, as amended.

SECTION 4: DEVELOPMENT COMPONENTS

The Application for the Four Corners Mine DRI Substantial Deviation is hereby approved to allow the following development, subject to the conditions of the Manatee County Comprehensive Plan, and other conditions listed in this Development Order:

- A. The construction of a heavy media facility at the Four Corners processing plant.
- B. The dismantling, mining, and rebuilding of the approximately seven hundred and forty (740) acre F-1 waste clay settling area.
- C. The revision of the mining and reclamation plan for the Jameson tract which provides that completion of mining be extended to November 30, 2006, and that reclamation be completed by 2018.
- D. The revision of the mining and reclamation plan for the Northeast Manatee tract which provides that the mining period be extended from 1998-2002 to 2002-2006, and that reclamation be completed by 2010.
- E. The mining of the 211 acres within the Jameson Tract, which acreage was previously approved for disturbance but not mining.
- F. Revision of the projected traffic impacts.

SECTION 5: DEFINITIONS

Note: An asterisk (*) indicates that the word is defined.

- A. "Acceptable Level of Service*" shall be Level of Service D, peak hour on urban roads, and Level of Service C, peak hour on rural roads, or as shown on Table 5.1 of the Manatee County Comprehensive Plan, whichever is more restrictive. Acceptable Level of Service for links and intersections in Polk County, Florida, shall mean Level of Service as set for the affected roadways in the Polk County Comprehensive Plan.
- B. "Application for Development Approval*" and "ADA*" shall mean Four Corners Mine's* Development of Regional Impact Application for Development Approval and sufficiency responses, as amended by IMCF's Substantial Deviation Application for the Four Corners Mine (March 23, 1989), all five Additional Information Submittals submitted by the Developer* in response to the sufficiency reviews of state, regional, and local agencies, the revised mining schedule for the Jameson Tract, and the traffic information dated January 23, 1991.
- C. "Best Management Practices*" shall mean practices that are technologically and economically practicable and most beneficial in preventing or reducing adverse impacts from mining activities. For more specific information and examples, see the same definition in the Manatee County Comprehensive Plan.
- D. "Best Possible Technology*" shall mean the most advanced technology which provides the maximum protection possible for the public health, safety, and welfare and which minimizes to the greatest degree possible any adverse impacts from industrial uses and mining activities, on the watershed of the Lake Manatee Reservoir. Best Possible Technology may include, but is not limited to: innovative reclamation techniques, augmentation of public water supplies that could be adversely affected by mining activities; construction of

secondary containment structures or other measures to ensure against catastrophic failure of primary containment structures; elimination of mine site rock dryers; and zero point discharge; provided however, such requirements shall not be applied if the Developer* demonstrates that they are technologically infeasible. In ascertaining the Best Possible Technology, economic disadvantages shall only be considered relevant when analyzed in relation to other applicants conducting mining activities in the watershed of the Lake Manatee Reservoir.

- E. "Conservation Areas*" shall mean the secondary zone around the eagle's nest, as determined by the U.S. Fish and Wildlife Service.
- F. "Developer*" shall mean IMC Fertilizer, Inc., assigns, agents, and successors in interest as to the Four Corners Mine.
- G. "Development Approval*" shall mean any approval for this development granted through the DRI ADA Substantial Deviation.
- H. "Extended Four Corners Mine*" shall mean the entire Four Corners Mine located in Hillsborough, Polk and Manatee Counties, as illustrated on Map A of the Substantial Deviation Application for Development Approval dated March 23, 1989. The Developer* shall notify Manatee County of any amendments to any approved DRI in the Extended Four Corners Mine*.
- I. "Four Corners Mine*" shall mean all portions of the Four Corners Mine which are located in Manatee County as described in Section 7 and excludes those portions of the mine located in Hillsborough and Polk Counties.
- J. "Master Mining and Reclamation Plan*" shall mean a description of proposed mining activities over the life of the mine, so as to allow overall review of applicant's mining activities.
- K. "Mine Extension Areas*" shall mean the 740 acres of additional area to be mined in the F-1 settling area and the 211 acres not previously approved for mining.
- L. "Preservation Areas*" shall mean the primary zone around the eagle's nest, as determined by the U.S. Fish and Wildlife Service, all 25-Year Floodplain* areas, and the MA-08 rocky.
- M. "Reclamation Plan*" shall mean the consolidated Master Mining, Reclamation and Drainage Plan approved by the Board of County Commissioners on January 22, 1981 for the Northeast Manatee Tract and the revised Reclamation Plan as required by Condition J.(11.) herein.
- N. "25-Year Floodplain*" shall mean the area that is so labeled in the maps in the original Four Corners Mine DRI/ADA, and the Substantial Deviation DRI #198 ADA*. The exact location of the 25-Year Floodplain shall be determined by a process of calculation of the elevation of the highest water level following a calculation of 25 year storm event, and determination of the location of that water level in the field by elevation survey, using standard hydrological analysis and field surveying practices. The 25-Year Floodplain is distinguished from the "100-Year Flood Prone Areas" or "100-Year Flood Zone" as shown on FEMA maps.

SECTION 6: DEVELOPMENT CONDITIONS

Land

A.(1.) A sufficient quantity of organic deposits and natural topsoils in wetland habitats capable of supporting indigenous vegetation shall be stockpiled during mining activities and utilized in reclamation of all wetland habitats. The use of the donor soil (nuisance Species Free) shall follow the requirements of DER and/or COE, to insure reclamation and mitigation success. At a minimum, the following soil associations shall be stockpiled and utilized in reclamation:

1. Canova-Anclote-Okeelanta (Soil group #7)
2. Felda-Wabasso association (Soil group #24)
3. Floridana-Immokalee-Okeelanta association (Soil group #26)

Groundwater

B.(1.) The Groundwater Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit and Chapter 2-20, Code of Laws. At a minimum, the Groundwater Monitoring Program shall specify sampling locations, parameters, frequencies, duration, and analytical methods and procedures. The groundwater monitoring program shall be amended as determined necessary by Manatee County to require groundwater sampling at surficial monitor wells for the F-3 clay settling area. A summary of the results of the monitoring program shall be included as part of the DRI annual report.

B.(2.) Prior to mining in the Mining Extension Areas*, a field investigation of the mine shall be required to locate old wells not documented in the records. The Developer* shall properly plug and abandon all on-site wells (Table 23C-1, ADA*), in accordance with SWFWMD and Manatee County Health Department standards and rules, prior to mining each area.

Surface water

C.(1.) Best Management Practices* for reducing surface water quality impacts shall be implemented. Best Possible Technology* shall be required for those portions of the Mine Extension Areas* located within the Lake Manatee Watershed.

C.(2.) The existing Surface Water Monitoring Program at the Four Corners Mine shall be performed as required by the Manatee County Operating Permit and Chapter 2-20, Code of Laws. At a minimum, the Surface Water Monitoring Program shall specify sampling locations, parameters, frequencies, duration, and analytical methods and procedures. The surface water monitoring program shall be amended as determined necessary by Manatee County to require surface water sampling for the East Fork of the Manatee River. A summary of the results of the monitoring program shall be included as part of the DRI annual report.

C.(3.) The Developer* shall implement the water quality mitigation measures identified in the ADA*, Addendum Question 15-D.

Wetlands

D.(1.) Any portions of the Four Corners Mine* which meets the definition of Preservation* and Conservation Areas* shall be so designated in the DRI Annual Report.

D.(2.) The Developer* shall provide a thirty foot (30') wide transition zone around all wetlands in Preservation Areas* to provide an upland transition into the wetland

areas and to protect the natural systems from development impact. The recharge ditch and berm may be located in the transition area, and water shall be added as needed to maintain the hydroperiod. The Developer* shall obtain wetland delineations from the appropriate permitting agencies as part of the dredge and fill permitting requirements prior to any disturbance of jurisdictional areas, and shall simultaneously submit the applications to Manatee County.

- a) Mitigation for wetland losses shall be shown on the DER and/or COE Dredge and Fill permit application prior to the wetlands being disturbed.
- b) All wetland losses within the Four Corners Mine* shall require 1:1 in-kind wetland replacement, at minimum, except those portions without full Special Exception status which shall require a higher mitigation ratio in accordance with The Manatee County Comprehensive Plan (Ordinance 89-01) unless reduced by the Board of County Commissioners.
- c) Wetlands which are permitted to be altered or eliminated shall be used as donor material for revegetation of mitigation areas as outlined in development condition A.(1.).
- d) All mitigation areas and littoral shelves shall be monitored in accordance with DNR, DER, and Manatee County requirements. Additional planting may be required to achieve the desired natural cover rate. Mitigation areas monitoring results shall be included in the DRI annual report.

Floodplains

- E.(1.) No mining or disturbance of the 25-Year Floodplain* shall be allowed except for those crossings permitted as part of the original DRI approval or those crossings as outlined in E.(2.) below. Any other mining or crossings shall be subject to further Chapter 380, F.S., review as a substantial deviation determination.
- E.(2.) Any disturbance to the 25-Year Floodplain* necessitated by utility, dragline, or pipeline crossings or construction shall be conducted during periods of low flow and all applicable Best Management Practices* for erosion control shall be utilized throughout the entire period of disturbance. Immediately after such use is terminated, the Developer* shall remove all structures, restore the area in question to original grade elevations, and revegetate the area.
- E.(3.) No adverse hydroperiod alteration shall be permitted in the 25-Year Floodplain* of the Mine Extension Areas* and the MA-08 rookery. Natural annual hydroperiods, normal pool elevations and seasonal water fluctuations shall be substantially maintained, however, this shall not require replication of storm surges. Hydroperiod monitoring of the above described areas shall be conducted semiannually, beginning immediately and continuing for three years following reclamation completion of the subbasin surrounding each of these areas. The monitoring sites shall be selected in cooperation with Manatee County. Should the above described be adversely impacted due to mining activities, the Developer* shall cease all mining and associated activity in the affected sub-basin until remedial measures have been taken to correct the hydroperiod imbalance. Such measures

could include limitations on surrounding activities, enlargement of buffer areas and additional protection measures or water augmentation. The results of the hydroperiod monitoring shall be provided in each annual report.

E.(4.)

In order to promote the maintenance of the functional aspects of floodplains, water alterations caused by pit de-watering shall be limited to only one side of a floodplain at a time and mining of the opposite side of the floodplain shall be delayed wherever feasible until the mined portions have been reclaimed to design elevations and groundwater levels have recovered.

Vegetation and Wildlife

F.(1.)

Because portions of the Jameson Tract may fall within the secondary and, possibly, primary zones established for protection of eagle nests, all mining and reclamation activities for the Four Corners Mine* Substantial Deviation shall conform with the U.S. Fish and Wildlife Service's Habitat Management Guidelines for the Bald Eagle in the Southeast Region (most recent edition) in regard to the eagle's nest (MN-08), which appears to be located approximately 1,450 feet southeast of the Four Corners Mine's* eastern boundary. (See the bird nesting locations map Figure 18B-1, Sufficiency Response 2, Page 40.)

- a) The U.S. Fish and Wildlife Service (FWS) shall determine site specific conditions for protection from mining activities as are appropriate. Site specific criteria shall include mining and seasonal operation limitations, as appropriate.

F.(2.) The boundaries of the rookery (MA-08) shall be determined by the GFC, and the information shall be submitted to Manatee County as part of the DRI Annual Report.

Drainage

G.(1.)

Prior to issuance of any new Operating Permit for the Four Corners Mine*, the following information must be submitted to Manatee County: estimated total volume and peak discharge rates of stormwater runoff to be generated by the final reclamation plan during the mean annual, 25 year, and 100 year storm events.

G.(2.)

The drainage basins in the Four Corners Mine* shall be restored to their approximate pre-mining size and location as described in the ADA* response to question 22.(B.). The post-reclamation flood flow peaks shall be in accordance with the rates established in the response to question 22c of the ADA. The discharge rate shall be in accordance with Chapter 40D-4 F.A.C. requirements.

G.(3.)

Upon completion of reclamation in each affected drainage basin, the Developer* shall conduct a detailed study to define final flood frequency elevations, delineate the aerial extent of each basin and determine the duration and quantity of surface water leaving the site during high rainfall events. This information shall be transmitted to all appropriate local, regional, state, and federal agencies involved in floodplain management and floodplain delineation so that downstream flood elevations and management mechanisms can be appropriately modified.

G.(4.)

If the hydrologic studies indicate that the peak discharge characteristics of any affected drainage basin

have been increased over premining conditions, the Developer* shall increase the retention capacity of the reclaimed land such that peak discharge characteristics of the affected drainage basin is equal to or less than that which existed before mining. Increases in retention capacity shall be accomplished with minimum use of control structures.

G.(5.) All re-created wetlands and floodplain/floodprone areas shall be subject to all the rules, regulations and policies of local, state, regional and federal agencies governing wetland and floodplain/floodprone areas at the time mining and reclamation is complete.

G.(6.) The recreated wetlands shall be designed to promote seasonal fluctuations of water levels within the freshwater marsh and encourage seasonal inundation of the marsh property. Final grade of the side slopes of the marsh periphery shall meet the requirements established by Manatee County in Ordinance 81-22 or by the Department of Natural Resources, whichever is more stringent.

G.(7.) The Developer* shall be responsible for maintaining the water recirculation system and the drainage system, including channels, swales, culverts, erosion protection facilities, and discharge facilities. Any transfer of this responsibility from the Developer* to subsequent owners, or assigns, shall require the approval of the appropriate permitting agency.

Water Supply

H.(1.) The Developer* shall provide, operate, and maintain the internal water supply system for the heavy media plant until such time as it is no longer needed for operations; then the Developer* shall abandon and remove it according to the applicable regulations at that time.

H.(2.) The Developer* shall continue to provide 1.96 MGD augmentation to the Manatee County water supply. The Developer* shall also maintain a wellfield capable of providing no less than 14 MGD annual daily coverage and 18 MGD maximum daily demand, which will produce water which can be treated to meet or exceed drinking water standards by conventional lime softening techniques (1.96 MGD of this capacity will be provided to Manatee County pursuant to the augmentation referenced above) until the requirements set forth in Section 6.H.(3) of the Development Order are satisfied.

H.(3.) Upon completion of reclamation activities in the Lake Manatee Watershed, the Developer* shall perform studies, in accordance with SWFWMD and Manatee County requirements, to quantify the post-reclamation water budget so that mitigation in the form of long-term water supply augmentation can be performed by the Developer*, as necessary, to maintain the historic contribution to the Lake Manatee Watershed.

Transportation

I.(1.) The Developer* shall assume responsibility for the installation of a caution light at the mine's ingress-egress point on State Road 37, for use during operating hours.

I.(2.) An annual monitoring program to provide peak-hour and average daily traffic counts at the project entrance, including a description of the types of vehicles making each trip, shall be instituted to verify that the projected number of external trips for the project are not exceeded. Counts will continue on an annual basis

through project completion. This information shall be supplied in the required annual report. If the annual report indicates that the total trips exceed projected counts, Manatee County shall conduct a substantial deviation determination pursuant to Subsection 380.06(19), F.S., and may amend the Development Order to change or require additional roadway improvements. The results of the study may also serve as a basis for the Developer* or reviewing agencies to request Development Order amendments. If the variance is determined to be a substantial deviation, the revised transportation analysis required pursuant to Subsection 380.06(19), F.S., will be based upon results of the monitoring program and agreements reached at another transportation methodology meeting to be held prior to the preparation of the new analysis.

I.(3.)

If by 2007, the Florida Department of Transportation determines that road improvements are required on the following sections of state maintained highway, the Developer* shall contribute its proportionate share of funds based on the percentage of project traffic on that roadway at that time. These improvements include:

- a) Improve the intersection at SR 37/SR 640 by providing signalization, when warranted by the Manual for Uniform Traffic Control Devices (MUTCD).

I.(4.)

Carlton Road and its right-of-way are not approved for mining.

I.(5.)

All non-public roads, streets, bridges and other access ways located upon the site shall be constructed and maintained by the Developer* without any cost or obligation to Manatee County.

I.(6.)

The existing east-west road on the Hillsborough-Manatee County line should be named Four Corners Mine Road and two street signs (one in each County) erected at its intersection with SR 37 at the Developer*'s expense.

I.(7.)

Transportation of product from this mine by truck is permitted on State Road 37 north from the identified mine entrance on State Road 37. Transportation of product by truck shall not be permitted on other County or State roads within Manatee County without future Board of County Commissioners approval in a manner consistent with law.

I.(8.)

The establishment of crossing points on County roads for purposes of access, movement of mining machinery, or mineral transport pipelines shall not be permitted without the prior written approval of the Phosphate Mining Coordinator. The Phosphate Mining Coordinator shall be sent copies of all crossing permit applications at the time of application for crossing any County right-of-way.

I.(9.)

IMCF or the developer shall notify the Phosphate Mining Coordinator of any spill which may occur on public right-of-way as the result of a traffic accident.

I.(10.)

The Developer* shall change eight hour work shifts to times that do not coincide with the A.M. (7:00 to 9:00) and P.M. (4:00 to 6:00) peak traffic periods.

Mining Operations

- J.(1.) The Developer* shall obtain all the necessary construction and operation permits and approvals required by, and shall fully comply, to the extent not inconsistent with this Development Order and the VRD-90-14, with all the provisions of applicable laws, ordinances, rules, regulations or requirements of any federal, state, regional or county governmental authority in connection with the proposed mining activities at the Four Corners Mine*.
- J.(2.) When filled, the F-1 (rebuilt) and F-3 disposal areas shall contain an amount of waste clay approximately equivalent to the amount of waste clay produced from Four Corners Mine*.
- J.(3.) All earthen embankments (dams) shall be designed, constructed, inspected, and maintained in accordance with the standards of Chapter 17-672, FAC - Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations, as indicated in the Substantial Deviation ADA*, as well as all other applicable local, state, and federal requirements.
- J.(4.) The Developer* shall abide by all Florida Department of Natural Resources (DNR) reclamation regulations regarding site cleanup and shall dismantle and remove any building structures existing at the cessation of the mining operation that cannot be put to an allowable use under the zoning district classification of the property. The beneficiation plant and its accessory structures would be exempt from this condition if the Board of County Commissioners approves an extension of that facility prior to cessation of the mining operation and adequate performance security is posted to guarantee later removal of these structures.
- J.(5.) The Developer* shall reclaim all mined or disturbed land to DNR or Manatee County standards, whichever is more stringent. Reclamation and revegetation shall proceed immediately after mining activities cease in each parcel and in no case shall exceed the schedule for reclamation outlined on page 38-17 of the ADA*. The Developer* shall be responsible for maintenance of all reclaimed areas until such time that those areas are certified as reclaimed by Manatee County in accordance with the procedures established in Ordinance 81-22.
- J.(6.) The Developer shall utilize Best Management Practices* (including revegetation, reforestation, erosion control, etc.) for all mined/disturbed lands to accelerate and ensure the successful establishment of the natural vegetative associations that the reclamation areas are designed to support. Wherever possible, leach zone material shall be covered by graded spoil to lessen the potential of increased radiation levels on reclaimed lands.
- J.(7.) Reclamation shall be considered complete when areas intended to develop native forested and unforested wetland vegetation associations are firmly established and it is assured that these areas will develop the

vegetation associations that they are designed to support, and when DNR and Manatee County have approved the reclamation of the Four Corners Mine* in accordance with Chapter 16C-16, Florida Administrative Code and Ordinance 81-22.

J.(8.)

The Developer* shall allow no development or land use activity (such as grazing, farming, tree harvesting) within any newly established 25-Year Floodplains* that would in any way inhibit the growth and development of native vegetation associations appropriate for floodplains, during the mining period.

J.(9.)

Minimum mine cut setbacks shall be maintained as follows:

- a. 500 feet of a habitable structure existing at the time of initial application for Master Mining Plan approval;
- b. 200 feet of an existing public right-of-way or public or private easement for drainage utility or road purpose;
- c. 200 feet of IMCF's property line;
- d. notwithstanding the foregoing, Section 2-20-33 of the Mining Code shall apply to the mine extension areas.

The F-3 exterior dam will meet the setback requirements of Section 2-20-33 of the Mining Code with the exception of Section 2-20-33(2)(b) in which case it will not be less than 200 feet from any public right-of-way.

All other operations and facilities shall meet the setback requirements of Section 2-20-33 of the Mining Code, provided that the F-1 exterior dam, or any reconstruction of the F-1 dam (F-1R), shall not be required to meet the requirements of Section 2-20-33, unless 50% of the linear footage of the existing F-1 exterior dam is dismantled or significantly disturbed or any portion of the existing F-1 exterior dam within 2500 feet of any existing church, school or habitable structure is dismantled or significantly disturbed.

However, nothing in this requirement shall prevent the reduction of setbacks pursuant to Section 2-20-33 (b)(4) of the Mining Code.

J.(10.)

Radiation standards shall be maintained as follows:

- a. For the Mine Extension Areas, the radiation standards shall be maintained in accordance with Section 2-20-33(d) of the Mining Code;
- b. For all other areas of the mine, and in accordance with prior approvals, the weighted average soil concentration of radium for all reclaimed lands not included in the Mine Extension Areas*, which are not reclaimed over slime ponds or are not reclaimed as lakes or wetlands, for the top six feet shall not exceed 8.8 pCi/gram. In addition, these areas shall also comply with Section 2-20-33(d)(3) of the Mining Code.
- c. Any building shall be designed and constructed and all reclamation shall be done to provide protection against gamma radiation and radon gas accumulation and emanation in accordance with the most stringent applicable state and federal requirements.
- d. This section shall be subject to any restrictions set forth in Section 553.98, Florida Statutes.

J.(11.) IMCF will modify the Master Mining Plan by revising the applicable tables, maps, and discussions to reflect commensurate changes in mine sequencing, hydrology, topography, land use, waste clay settling areas and land types as appropriate based on the deletion of 170 acres, since the Master Mine Plan submitted November 30, 1990 by IMCF as part of this request included a 170 acre mine extension tract which was not approved for mining. IMCF will submit the revised Master Mining Plan for approval and acceptance by the Board of County Commissioners with the next annual report submitted. The annual report shall be due February 9, 1992. Such revised documents shall be consistent with this permit and the applicable federal, state and local laws. Furthermore, this revision shall show the F-3 waste clay settling area being located in the same location as was approved with the original Development Order for this mine.

J.(12.) Any reconstruction of the F-1 dam (F-1R) or any portion thereof shall be constructed in accordance with the appropriate design cross section shown in either Figure 14 or Figure 16 of the Dames and Moore January 2, 1990 report which is attached as Exhibit B.

General Conditions

K.(1.) Best Management Practices* shall be required for the operation, maintenance, and reclamation of the Four Corners Mine*. Best Management Practices* shall be used to accelerate the natural development of those areas that are intended to support native forested and unforested wetland vegetation associations. Utility and pipeline crossings of the tributaries shall, at a minimum, meet the following:

- a) Pipelines shall be placed above the 25-Year Floodplain* elevation and isolated from tributaries by berms.
- b) Pipelines shall be jacketed and spill containment areas outside the floodplain shall be provided.
- c) Pipelines shall be routinely inspected by operating personnel and the system shall be shut down if a spill occurs until the source of the spill is corrected.
- d) All utility crossings shall be elevated above the 25-Year Floodplain* level and shall consist of piers without any approach embankment. Verification that the proposed piers can sustain high water flow conditions shall be certified by a professional engineer, under seal, prior to any construction.

K.(2.) Due to the mine's location within the Lake Manatee watershed, Best Possible Technology* shall be applied to any portion of the Mine Extension Areas* located within the Lake Manatee Watershed Overlay District.

K.(3.) Storage of hazardous materials in excess of 220 lbs., or acutely hazardous materials in excess of 2.2 lbs. for any day of the month shall be prohibited within the Lake Manatee Watershed. Furthermore, all hazardous and acutely hazardous material storage shall be prohibited within any 25-year Floodplain* or 100-year Floodplain of any infowing watercourse located within the Lake Manatee Watershed or within 200 feet of the DER jurisdictional line associated with any infowing watercourse, whichever is greater. Hazardous and acutely

hazardous materials shall be as defined and listed in 40 CFR 261 and as adopted within Chapter 17-30, Florida Administrative Code, and Section 403.7, Florida Statutes.

K.(4.)

All of the Developer's* commitments, which are attached as Exhibit "A" and any other as set forth in the ADA*, shall be honored for the Mine Extension Areas*, except as they may be superseded by specific terms of the Development Order Amendment for the Four Corners Mine* Substantial Deviation.

K.(5.)

The DRI annual report shall comply with the Florida Department of Community Affairs (DCA) report format and informational requirements, and shall include summaries of NPDES monitoring results and surface water and groundwater quality monitoring results (including notification of violations of water quality standards per Chapter 17-3, FAC); mining progress; impacts on surface water and groundwater flows; impacts on Lake Manatee (if any); compliance with listed species management plans; success or problems with listed species management plans; reclamation progress and compliance with approved mining and reclamation schedules. The Developer* shall submit annual DRI reports in accordance with Section 380.06(18), F.S., to Manatee County, and the TBRPC, the State Land Planning Agency and other agencies, as may be appropriate, no later than February 9, 1992, and July 31st of each year thereafter, commencing on July 31, 1992 until such time as terms and conditions of this Development Order are satisfied, as determined by Manatee County. Six copies of this report shall be submitted to the Director of Manatee County Planning and Zoning Department, or the Director's designee, who shall review the report for compliance with the terms and conditions of this Order and may submit an appropriate report to the County Commissioners should the Director decide that further orders and conditions are necessary. The Developer* shall be notified of any Board of County Commissioners hearing wherein such report is to be reviewed; provided, however, that receipt and review of any such report by the Board of County Commissioners shall not be considered as a substitute, waiver, or change of conditions as to any terms or conditions of this Order. The Planning Director or his/her designee shall notify the Developer in writing upon acceptance or denial of the report. The annual report shall, at a minimum, contain the following:

- a) Any changes in the plan of development, or in the representation contained in the ADA*, or in the phasing for the reporting year and for the next year;
- b) A summary comparison of development activity proposed and actually conducted for the year;
- c) Undeveloped tracts of land, other than individual single family lots, that have been sold to a separate entity or developer in the Extended Four Corners Mine*;
- d) Identification and intended use of lands purchased, leased or optioned by the Developer* adjacent to the Four Corners Mine* site since the Development Order was issued;
- e) An assessment of the Developer's* and the local government's compliance with the conditions of approval contained in the DRI Development Order and the commitments that are

contained in the ADA* and which have been identified by the local government, the Regional Planning Council or the Department of Community Affairs as being significant.

- f) Any known incremental DRI applications for development approval or requests for a substantial deviation determination that were filed in the reporting year and to be filed during the next year in the Extended Four Corners Mine*;
- g) An indication of a change, if any, in local government jurisdiction for any portion of the development since the Development Order was issued;
- h) A list of significant local, state, and federal permits which have been obtained or which are pending by agency, type of permit, permit number, and purpose of each;
- i) A statement that all persons have been sent copies of the annual report in conformance with Subsections 380-06(14) and (16), F.S.; and
- j) A copy of any recorded notice of the adoption of a Development Order or the subsequent modification of an adopted Development Order that was recorded by the Developer* pursuant to Subsection 380.06(14)(d), F.S.
- k) Monitoring results pursuant to stipulations B.(1.), C.(2.), D.(2.)d, E.(3.), and I.(2.).
- l) The boundaries of the MA-08 Rookery, pursuant to stipulation F.(2.) shall be provided in the annual report due on July 1, 1992.
- m) Any notice of violation for noncompliance for the Extended Four Corners Mine*.

K.(6.) Mining under this Development Order shall terminate on December 31, 2006. This Development Order shall not expire until December 31, 2018, or until all reclamation has been completed and accepted by Manatee County, whichever occurs first.

K.(7.) This Ordinance shall constitute a Development Order issued in accordance with Chapter 380, F.S.

K.(8.) The Developer* shall, within sixty (60) days after notice by Manatee County of the amount of fees due and owing, pay all fees owed to Manatee County for the review of the Four Corners Mine DRI Substantial Deviation, except those fees in dispute and under review or appeal. Failure to make such payment shall require a cessation of mining activities until payment is made.

SECTION 7. LEGAL DESCRIPTION:

The following legal description of the development site covers the entire mine (Manatee and Hillsborough Counties), although this Substantial Deviation covers only the Manatee County area.

In Township 33 South, Range 22 East, Manatee Co. (Jameson tract)

Section 1: All lying N and W of Brewster-Parrish Road (SR 37).
Section 2: All.
Section 3: All.
Section 4: All.

Section 9: All.
Section 10: All.
Section 11: All lying N and W of Brewster-Parrish Road (SR 37)
Section 15: All lying N and W of Brewster-Parrish Road (SR 37), and that part of the W 1/2 of the SW 1/4 of the SW 1/4 lying S of said road.

Section 16: All less and except the NW 1/4 of the NW 1/4
Section 21: All lying S of the Brewster-Parrish Road less and except that portion lying S of the Parrish-Wauchula Road (SR 62).

In Township 33 South, Range 21 East, Manatee County (Northeast Manatee Tract);

Section 1: W 1/2 of the NE 1/4 and the N 1501' of the NW 1/4.
Section 2: W 1/2 and the N 1501' of the E 1/2.

Section 3: All.

Section 4: All.

Section 10: E 3/4.

Section 11: W 1/2.

Section 13: All, less and except the E 2570' thereof.

Section 14: All.

Section 15: W 1/2 of the NE 1/4 and the NW 1/4 of the SE 1/4.

Section 23: All lying N of Parrish-Wauchula Road (SR 62), less and except the SW 1/4 of the NW 1/4, and less the NW 1/4 of the NW 1/4 of the SW 1/4 and less the S 1/2 of the NW 1/4 of the SW 1/4.

Section 24: All lying N of the Parrish-Wauchula Road (SR 62), less and except the E 2570' thereof.

Section 26: That portion lying N on the Parrish-Wauchula Road.

In Township 32 South, Range 22 East, Hillsborough County (Ft. Lonesome Tract). This is the currently approved area in Hillsborough County.

Section 13: All.

Section 14: NE 1/4 of the NE 1/4, and the W 3/4.

Section 15: All.

Section 16: S 1/2, and the S 1/2 of the NW 1/4, and the NW 1/4 of the NE 1/4.

Section 21: All.

Section 22: All, less and except the SW 1/4 of the NE 1/4.

Section 23: All, less the NE 1/4 of the NE 1/4.

Section 24: All.

Section 25: All.

Section 26: All.

Section 27: All.

Section 28: E 1/2 of the SE 1/4 and the SW 1/4 of the SW 1/4.

Section 33: All, less the NE 1/4 of the NW 1/4.

Section 34: All.

Section 35: All.

Section 26: All.

SECTION 8. DEADLINE FOR COMMENCEMENT OF DEVELOPMENT.

Physical development of the project shall commence within two years from the date of this approval, unless the time period for commencement is extended by the Board of County Commissioners.

SECTION 9. RESTRICTIONS ON DOWN-ZONING.

The County may not down-zone the subject property described in Section 7 herein until 2002, unless the County can demonstrate that:

- A. Substantial changes in the condition underlying the approval of the order have occurred; or
- B. The order was based upon substantially inaccurate information provided by the Developer; or
- C. The change is clearly established by the County to be essential for the public health, safety, or welfare.

Any down-zoning or reduction in intensity shall be effected only through the usual and customary procedures required by statute and/or ordinance for change in local land development regulations.

For the purposes of this order, the term "down-zone" shall refer only to changes in zoning, land use, or development regulations that decrease the development rights approved by this order, and nothing in this paragraph shall be construed to prohibit legally enacted changes in zoning regulations which do not decrease the development rights granted to the developer by this order. The inclusion of this section is not to be construed as evidencing any present or foreseeable intent on the part of the County to down-zone or alter the density of the development, but is included herein to comply with Paragraph 380.06(15)(c)3, F.S.

SECTION 10. BINDING ORDER UPON DEVELOPER.

That this order shall be binding upon the Developer, its successors, assigns, or successors in interest.

SECTION 11. COMPLIANCE WITH CODES, ORDINANCES.

All development undertaken pursuant to this order shall be in accordance with all applicable local codes and ordinances in effect at the time of permitting, and other laws, except to the extent such is inconsistent with the rights granted under this Development Order.

SECTION 12. SEVERABILITY

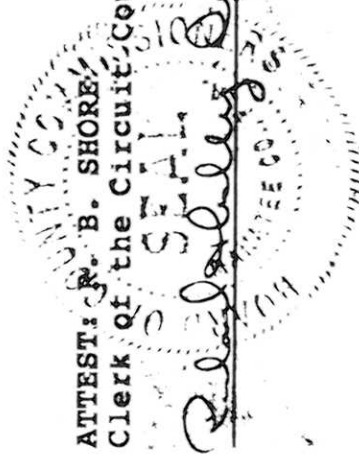
If any provision or portion of this Ordinance is declared by any court of competent jurisdiction to be void, unconstitutional, or unenforceable, then all remaining provisions and portions of this Ordinance shall remain in full force and effect.

SECTION 13. EFFECTIVE DATE This Resolution shall take effect upon being signed by the Chairman of the Board of County Commissioners.

PASSED AND DULY ADOPTED by the Board of County Commissioners of Manatee County, Florida this 5th day of September, 1991.

BOARD OF COUNTY COMMISSIONERS
OF MANATEE COUNTY, FLORIDA

ATTEST: R. B. SHORE,
Clerk of the Circuit Court



BY:

Chairman

June 21, 1991

EXHIBIT A

DRI #198

FOUR CORNERS MINE SUBSTANTIAL DEVIATION

DEVELOPER COMMITMENTS

The following are developer commitments set forth in the Application for Development Approval (ADA) and Sufficiency Responses which shall be honored by the developer, except as they may be superseded by specific terms of the Development Order. This summary of commitments is not intended to modify the specific statements in the ADA.

GENERAL PROJECT

1. IMCF commits to abide by rules and regulations of the Federal, State and Regional governmental bodies which have authority to regulate the mine activity, as is shown on page 9-1 of the ADA. (SR, 3)
2. The addition of the heavy media separation facility to the processing plant will not add any waste disposal, pollution or water supply concerns above what was addressed in the original DRI #52. (SR, 9)

ENVIRONMENTAL AND NATURAL RESOURCES

LAND

1. The natural vegetative cover currently established will be left undisturbed until impending mining operations require land clearing. Surface water runoff from cleared lands will be routed through ditches into the mine water recirculation system. (ADA, 14-4)
2. Portions of the site will be cleared for access roads, utility corridors and related mining activities. These areas will be graded and ditched to prevent high water velocities that could cause erosion (ADA, 14-4).

3. Post-mining surface soils shall be used only for agricultural purposes or wildlife habitat, except for areas along major roads which will be reclaimed with tailings and overburden-capped tailings. (ADA, 14-4)

Water Quality

1. The existing monitoring program will be continued as mining activities continue at Four Corners. (ADA, 15-30)
2. The potential for siltation of nearby streams which might be associated with stormwater runoff from recently cleared or disturbed land will be minimized by providing adequate ditching, berms, and entrapment features to capture the stormwater runoff from the active mining area. (ADA, 15-34)

3. IMCF will continue to maintain the surface water quality monitoring program, until reclamation of each area is completed, in order to verify that there is no change in the water quality. The current program, which is required by Manatee County in the Operating Permit, includes monthly sampling at five surface locations and five surficial aquifer locations. (SR 15-31)
4. A water recharge program shall be accompanied by a report indicating that water recharged to the groundwater meets appropriate standards. (SR2, 17)

Wetlands

1. IMCF will obtain wetland delineations from the appropriate permitting agencies as part of the dredge/fill permitting requirements prior to disturbance. (SR2, 9)
2. IMCF will have jurisdictional boundaries of all wetland areas determined, and mapped, prior to mining. (SR, 8)

Flood Plains

The 25 year flood plain will be determined and staked before beginning any mining operations adjacent to those areas. (SR, 8)

Vegetation and Wildlife

1. To protect the netted chain fern from current and future threats, IMCF will relocate all netted chain ferns to other suitable habitat present on the Four Corners Mine site that is not expected to be impacted. (SR, 18-8)
2. In addition, IMCF will relocate any other listed plant species found on-site, or will provide the opportunity for concerned environmental groups (i.e. Florida Native Plant Society) to remove specimens from the site for the purpose of preservation, in accordance with applicable rules or regulations prior to commencement of mining operations. (SR2, 14)

~~3. In order to satisfy the concerns of the Florida Game and Fresh Water Fish Commission (FGFWFC), areas not in improved pasture (211) or citrus grove (221) will be specifically resurveyed for listed plant species which may issue on site. The resurvey will be conducted prior to commencement of mining operations on the 170-acre site. (SR2, 13)~~

Delete #3.

~~4. As an alternative to habitat protection for such small populations of gopher tortoises, mitigation in the form of a capture and relocation plan in accordance with FGFWFC guidelines will be provided prior to the commencement of mining operations at this site. Individuals collected will be relocated to areas reclaimed as xeric habitat. (SR, 13)~~

2-4. IMCF will avoid disturbance of nesting habitat during the nesting period for the rookery (SR, 39) and will provide the same commitment for the Sandhill Crane. (SR2, 15)

PUBLIC FACILITIES

Drainage

1. IMCF will retain watershed boundaries in the approximate pre-mining locations and not cause any significant increase in the stormwater runoff peak flows. (SR, 8)
2. Control of drainage divides on waste clay areas will be accomplished by means of ditches, berms, grading of the dams, and multiple outlet swales on the wetlands. (ADA, 38-37)
3. The only water control structures that will be used are those included in the waste clay settling areas, the water recirculation system and the NPDES discharge points. (ADA, 38-37)

Water Supply

1. IMCF will plug all wells that are to be mined, according to SWFWMD and Manatee County Health Department standards and rules. (SR, 8)
2. IMCF does not plan any change in the amount of water consumption from these wells. (WUP No. 203573). (ADA, 23-2)
3. IMCF will operate the existing water supply system at the plant site until such time as it is no longer needed for the mine and plant operation. Then it will be abandoned and removed according to applicable regulations at that time. (ADA, 23-9)
4. IMCF does not plan any change from the approved water use as described in the 1977 DRI, and subsequent approved documents. (ADA, 38-8)

Fire

The design of the plant contains an emergency water supply system, powered by a diesel pump installed in the water return system. In addition, all field equipment is equipped with portable fire extinguishers.

Transportation

1. IMCF shipments by truck will not exceed 750 loads of product per day. (SR, 8)
2. IMCF will not use State Road 37 / State Road 62 / Moccasin Wallow Road routing for transport of product to Piney Point. (SR, 8)
3. The relocation of Carlton Road will be done subject to Manatee County standards and permits. (ADA, 38-3)

Mining

1. IMCF will make every effort to recover all economic phosphate, to insure conservation and maximum effective extraction of this valuable mineral. (SR, 8)
2. The mining area includes allowances for the mining set backs that are contained in the Manatee County Operating Permit, along with exterior property lines, except for those areas in Section 16 (Township 33 South, Range 22 East) where there was no setback due to an agreement with the adjoining property owner to allow mining up to the property line. (ADA, 38-11)
3. The phosphate ore will be processed at the Four Corners plant on-site. The addition of the heavy media facility will change the plant. (ADA, 38-11)

Reclamation

1. IMCF will abide by all Florida Department of Natural Resources (DNR) reclamation regulations regarding site cleanup. (SR, 3)
2. IMCF will reclaim all mined or disturbed land to DNR and Manatee County standards. (SR, 8)
3. IMCF proposes to reclaim its mined and disturbed lands to a variety of forms including agricultural, wildlife habitat, and open space. (ADA, 37-19)
4. IMCF will continue to evaluate and investigate alternate methods of waste disposal and reclamation and consider using alternative procedures once they become technically acceptable and economically feasible. (ADA, 18-17)
5. The tailings reclamation will involve return to original grade, except where the wetlands are to be located. (ADA, 38-18)
6. IMCF plans to return most lands reclaimed using the tailings fill and overburden cap method to approximate pre-mining topography. (ADA, 38-23)
7. About one-fifth of the mined area will be reclaimed to pasture (and some crop uses), which will be established according to Soil Conservation Service standards and will include mulching of slopes prone to erosion. (ADA, 38-24)
8. About one-half of the mined land will be reclaimed to forest and about one-third of the mined land will be reclaimed to wetlands, with littoral zones provided along lake edges. (ADA, 38-24 & 38-25)
9. The reclamation plan vegetation is planned to connect wildlife corridors by using planted forests. (ADA, 38-32)

10. Reclaimed freshwater marshes will be graded to provide sufficient water supply to support wetland vegetation and will be spot mulched with soil borrowed from other marshes to be disturbed, if available. (ADA, 38-34)

11. Reclamation steps that will control erosion after mining include contouring of all lands to maximum slopes of 4:1 or 7:1 for agricultural land per the Manatee County Mining Ordinance, and stabilizing contoured lands by establishing a ground cover of vegetation. (SR, 14-4)

Waste Clay Settling Areas

1. All earthen embankments will be designed, constructed, operated and inspected according to the standards of Chapter 17-672, F.A.C. (SR< 8)
2. The clay settling areas will be kept in use only as long as they are needed, then taken out of service and reclaimed. (ADA, 38-18)
3. This Substantial Deviation (DRI #198) does not effect the F-2 settling area, which is located in Hillsborough County. (SR2, 7)
4. MCF has made the commitment to provide clay storage capacity in each county for the clays equivalent to the volumes produced in the respective counties. (SR3, 5)

ADA - Application for Development Approval
SR - Sufficiency Response
SR2 - Second Sufficiency Response

Rev. 6-5-91
sc-sddev/14

DRI #198 Four Corners Mine
Substantial Deviation
Mining and Replacement of P-1 Settling Area
Manatee County

File No.: 15439-023-040

January, 1990

 **DAMES & MOORE**

EXHIBIT B



DAMES & MOORE

ONE NORTH DALE MAURY SUITE 100 TAMPA, FLORIDA 33601-1000
INCLUDING FLORIDA LAND DESIGN & ENGINEERING A RECENT ACQUISITION

January 2, 1990

IMC Fertilizer, Inc.
P.O. Box 860
Bartow, Florida

Attn: Mr. T. A. Smith, PE
Senior Project Engineer

Subject: DRI #198 Four Corners Mine Substantial Deviation
Mining and Replacement of F-1 Settling Area

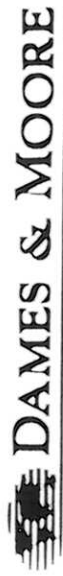
Gentlemen:

As authorized by IMC Fertilizer, Inc., Purchase Order N940733C, Dames & Moore has completed analyses for existing and proposed replacement dam sections for the above referenced project. This report presents the results of the analyses and provides documentation for IMCF responses to Question 19, TBRPC 9-20-89, relating to the elimination of internal dikes within settling areas.

INTRODUCTION

The Four Corners Mine was a Joint Venture of IMC Fertilizer, Inc. and W.R. Grace & Company, with Grace as the operating venture member. The operation has now come under IMCF operation control as Grace sold its interests in the Florida phosphate fields. The mine is located near the corners of four Florida counties; Hillsborough (SE), Polk (SW), Manatee (NE) and Hardee (NW). The site location is shown in Figure 1, Appendix A. The mine is presently utilizing a settling area in Manatee County, designated as F-1, for the disposal of waste clay which is generated from mining and phosphate matrix processing operations. The general site location for F-1 is shown in Figure 2. The F-2 settling area in Hillsborough County is under construction. A proposed F-3 settling area was shown in the original DRI as planned for construction in Manatee County, east of the F-1 settling area.

The dams of the F-1 settling areas were built on unmined ground and partitioned by internal dikes to separate the area into three sub-areas. The enclosed Figure 3 shows the general cross section for the F-1 exterior dams and Figure 4 shows the design cross section for the interior diversion dike.



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IMCF has proposed to mine the phosphate matrix below the existing F-1 clay settling area. The settling area would then be re-built at about its existing location. Although the existing F-1 settling area is partitioned using internal dikes, IMCF wishes to eliminate the internal dikes in the reconstructed area.

Original Design

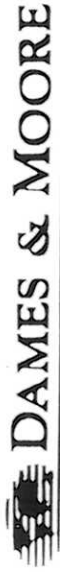
The original design of the F-1 settling area is shown in the report by Ardaman & Associates to W.R. Grace & Company dated May 31, 1979. This report was written to develop the F-1 dam cross sections required for construction and operation of the settling area under the requirements of The Florida Department of Environmental Regulation (FDER) Administrative Rules, Chapter 17-9, "Minimum Requirements for Earthen Dams, Phosphate Mining and Processing Operations." The original design showed the settling area to have a narrow east-west alignment with a diversion dike about 3/4 the length of the area from east toward west. The purpose of the dike was to allow the introduction of clay slurry in the northeast corner of the settling area and withdrawal of clear water through spillways in the southeast corner of the area. Without the diversion dike, there was a possibility that the clay could short-circuit the area and flow out the spillways. The original design did not show the F-1 settling area with a closed system of internal dikes.

The stability analyses by Ardaman & Associates for the original dam showed factors of safety between 1.50 and 2.33 depending on the cross section evaluated and the location of the potential slip surface. Analyses by Dames & Moore indicated that the south dam had a safety factor of 1.5 for operating conditions which included elevated pore water pressures in a sand stratum below the original ground surface. Ardaman estimated a probability of failure of the dam at "one chance in 100,000."

Questions by Manatee County for the original Operating Permit Application contained the following comments on dam break analyses by Manatee reviewers :

"A dam break study might identify the need of having a containment structure built on the north fork of Lake Manatee, or, it might show that the pond area should be subdivided into many smaller compartments."

Apparently, the original design was modified on the basis of this comment to convert the proposed diversion dike to a system of internal containment dikes by adding a north-south dike at the western terminus of the east-west diversion dike. No design calculations are available for the internal dikes.



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Proposed Design of the Re-built Settling Area

IMCF has proposed to mine the area presently occupied by the F-1 settling area, and to construct a new settling area with a similar alignment for the south and west dams. The new settling area may be larger in area, but present plans are to construct the new dams to about the same top elevation. The F-1 settling area and the proposed F-3 settling area are to be constructed without internal dikes.

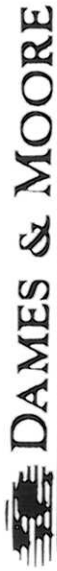
The preliminary design concepts for the F-1 and F-3 dams indicate that the dams would be constructed inside the mine pit. Some of the dams might be buttressed against unmined ground depending on mining conditions. Neither the F-1 or F-3 settling areas are planned with internal diversion dikes.

The TBRPC sufficiency review presented the following comment relating to the replacement of F-1:

19. "Please provide documentation to support the assertion in the Sufficiency Response that intermediate dikes within settling areas F-1 and F-3 would not significantly lessen the impact should a dam fail. Please indicate the size of settling area which Florida Department of Natural Resources (DNR) rules recommend or deem acceptable."

The basic assumption relating to the use of interior dikes in a settling area is that these dikes might reduce the volume of clay material which would be released by a failure of an external dam. This assumes that the interior dike would not fail if an exterior dam failed. The response by W.R. Grace and the original designers of F-1 settling area to the Manatee County question on dam break analysis noted above was simply "Noted". However, it appears that the internal dikes were added to the F-1 settling area in response to the comment by Manatee County. It also appears that the internal dikes were added without specific analyses as to their effect on overall system safety and failure impact.

There are several reasons for not using such dikes except for the purpose of routing the clay slurry flow away from certain spillways. First, the interior dikes use up volume which could be used for storage of clay. Although this volume is small in an individual settling area, routine use of interior dikes would result in the need for either more settling areas or for a greater perimeter length or height of dams to provide the volume lost in each settling area. Second, the interior dikes use fill which can



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be better used in the construction of the perimeter dams. The result is that exterior borrow pits, or larger plan areas are required to provide the additional fill material for construction.

IMCF's previous response to questions relating to the use of internal dikes was that such dikes would not lessen the impact of a dam failure. This answer was intuitive, and not supported by analyses. On request for clarification by TBRPC (Question 19 above), IMCF was asked to provide support for that comment.

SCOPE OF WORK

As the impact analyses by Grace's consultants for loss of clay slurry resulting from dam failure were accepted by Manatee County and other reviewing agencies during the original study, only analyses relating to the evaluation of dam safety with and without internal dikes is necessary. The general analyses proposed for the F-1 dams will extend specifically to the construction of F-3 dams because the site and soil conditions are similar. The following scope of work was accomplished for this project:

Task 1: Review existing data and analyses.

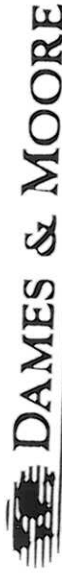
A review was conducted to establish the basic design parameters for analyses used by Grace's dam designers. Stability analyses for the F-1 dam were completed and presented by Dames & Moore in a letter dated June 29, 1989. These data were used with data from the original design.

Task 2: Conduct analyses for the safety of the original F-1 dams with the internal dike system.

The engineering design soil parameters developed in Task 1 were utilized in an analytical study to evaluate the safety of the existing dam and dike system. The effect of the internal dikes on overall settling area performance was included in the analyses.

Task 3: Develop preliminary dam cross sections as alternatives to the original dam-dike system.

Generalized design cross sections for F-1 and F-3 dams were developed such that the risk of failure for the revised dams would be less than the risk for the original dam-dike system.



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Task 4: Present a report which would summarize the results of the analyses of the revised dams for the settling areas. Present specific answers to the above listed Question 19 by TBRPC.

METHODS OF ANALYSES

Deterministic Stability Analyses

The typical analyses done for the design of dams (and for most structures) are determinate. A fixed estimate of strength is divided by a fixed estimate of load or driving force. The result of this calculation is a Factor of Safety.

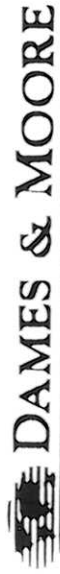
The FDER Rules Chapter 17-9 which govern the design and operation of settling area dams present a list of required Safety Factors for various failure mechanisms. These minimum Safety Factors are as follows:

Horizontal shear at the base of fill	1.75
Horizontal shear within fill due to seepage	1.5
Bearing capacity of foundation soils	1.5
Shear failure of any circular arc	1.5

Soil properties for design of earthen dams are developed from the results of field and laboratory test programs, except that cast overburden strength may be taken as only 75% of the measured laboratory or field strength at equivalent density. Cast overburden is material disturbed or placed by a mine dragline without any special attempts at compaction.

The completion of numerous earthen dam designs have shown that the critical slope stability mechanism is the circular-arc mechanism. Under limited circumstances, the horizontal shear (wedge) mechanism may be critical. For example, thin layers of very weak material in the foundation or the use of weak clay materials in a sloping core to control seepage may result in a more critical horizontal shear mechanism. These conditions are usually avoided in construction, and the clayey soils typically used in Florida dam construction for seepage control cores have strengths equal to or greater than the sandy soil used in the general embankment. Therefore, the circular-arc mechanism may be taken as the general analyses for design, with other mechanisms checked on the resulting design cross section.

The analytical method in general use for the evaluation of circular-arc slip surfaces is the Bishop Method of Slices (1955) as modified by Janbu et al. (1956). The mass of soil above a



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possible circular-arc slip surface is cut into vertical slices, and the weight, water pressure and soil strength parameters are used to calculate a safety factor under limiting equilibrium conditions. Both the soil strength resisting slip and the weight of soil and other loads potentially driving the slip are estimated as specific values.

Therefore, in simple terms, the safety factor is simply the ratio of the soil strength to the driving forces.

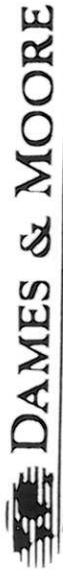
Stochastic Stability Analyses

In the case of statistically distributed strength and load, the Safety Factor is the Average Strength, or some weighted or reduced strength based on average strength, divided by the Average Load. However, there is a chance that actual strength may be lower than the assumed (average or factored average) strength, and that this condition could occur at locations where the load is higher than the assumed load. Stochastic analyses allow the evaluation of the likely variations in load and strength to determine the "probability of failure", Pf.

The probability of failure is the measure of risk that the driving force in the system has been under estimated and/or that the strength has been over estimated such that a failure could result. These analyses indicate that the probability of failure for a given deterministic safety factor may vary depending on the variability of the strength and/or load parameters.

Although the backbone of stability analyses is the deterministic methodology described above, the fixed values of soil strength and driving load are estimates that have a certain level of variability. For example, soil strength, as measured by SPT penetration resistance (ASTM D-1586) or laboratory procedures in a particular soil stratum, may vary due to test method variations or to variations in soil density or mixture. The soil density as measured in the field also has two components of variability. First, the test itself has levels of accuracy that can result in variations in density for a single soil stratum. Second, minor variations in moisture, compaction energy and clay content can result in a given stratum having soil density which varies considerably from the average density.

The analytical method used for these analyses requires that the statistical variability of the soil strength and density be integrated with the deterministic slope stability analyses to provide a method of evaluating the risk associated with any given dam. Dames & Moore utilized a computer program called BISTAT which incorporates the stochastic parameters in the Bishop slope



DAMES & MOORE

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stability analyses. Both the deterministic Safety Factor and an estimate of failure probability are obtained from the analyses. The data utilized in the analyses must include the stochastic parameters of Mean, Variance, Standard Deviation, Skewness and Kurtosis. A discussion of the Stochastic Parameters and Analyses is included in Appendix B.

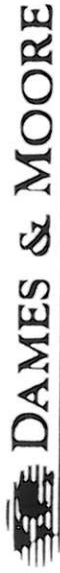
PROJECT ANALYSES

Dames & Moore has determined that the best project approach would be to compare the statistical probability of failure (Pf) of the original F-1 dam system with the internal dikes to the Pf of the proposed IMCF system. The stochastic slope stability analyses method would be used with available data to evaluate both the internal dike and the exterior dam. The results of the analyses would allow a direct response to TBRPC Question 19 as to the impact of the interior dikes. Also, alternative embankments could be evaluated to provide cross sections with higher reliability (lower Pf) than existed for the original system.

The original design calculations by Ardaman & Associates show that the safety factors for Horizontal Shear Mechanisms varies from 1.75 to 4.6. The same cross sections shows that Circular-arc Mechanisms have safety factors ranging from 1.50 to 2.33. Based on these data and the extensive experience of Dames & Moore with the results of stability analyses for similar sections, only the Circular-arc Mechanism will be considered for this project. All mechanisms would be evaluated for actual design of cross sections as required under Chapter 17-9 of the FDER Administrative Rules.

SOIL PROPERTIES FOR ANALYSES

Both laboratory test data from the original Ardaman design analyses and field test results by both Ardaman and Dames & Moore were used to evaluate the soil properties to be used in the Stochastic Analyses for stability of dams. The enclosed Figure 5 shows a summary plot of Standard Penetration Test (SPT) penetration resistance (ASTM D-1558) versus depth from the borings in the settling area done by Ardaman for the original design. This plot shows that the soils are of medium to low strength in the upper 10 to 40 feet, with a general trend for increasing strength with depth. The trend was developed by Regression Analyses and shows a significant variation in measured values about the expected trend. The enclosed Figure 6 shows a similar plot for borings done by Dames & Moore after construction was complete and the settling area was in operation. Again, the dispersion of individual data about the Regression Fit Trend is significant. The upper part of the embankment has high penetration resistance with the resistance values dropping to medium to loose at about the original grade.



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The soil below the dam increases in strength with depth as was shown in Figure 5.

Figure 7 shows a correlation between the angle of internal friction of cohesionless soils and SPT penetration resistance. This figure shows the Regression Analysis Best Fit with the Standard Error limits. The experience in actual testing of soils from the central Florida area indicate a lower bound friction angle of about 30 degrees and an upper bound strength of about 40 to 42 degrees. Figure 8 shows the relationship between cohesionless soil density and friction angle as developed from the original design data. The density data are typically available from construction testing and monitoring.

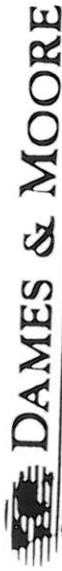
Figures 9 through 13 show histograms for each of the soil strata expected to occur within the dam cross section or its foundation. The Stochastic Parameters used in the Dames & Moore analyses are shown on the figure for each soil type. The friction angle was estimated for each soil type from SPT correlations or from density estimates. The friction angle for analyses varied from 33 degrees for rolled or compacted fill to 31 degrees for undisturbed clayey sand strata.

RESULTS OF THE ANALYSES

The Original Dam-Dike System

Ardaman & Associates estimated a probability of failure for the exterior dams of the F-1 settling area at "one chance in 100,000." This would normally be noted as a risk of 1×10^{-5} . The analyses of the original cross section by Dames & Moore for the South Dam, as reported in a letter dated June 29, 1989, shows a safety factor of 1.5 for the downstream slope under operating conditions which include artesian porewater pressures in a deep sand stratum in the dam foundation. Analyses using stochastic procedures indicate that the Pf for this condition would be from 5×10^{-5} to 1×10^{-5} , about the level estimated by Ardaman. The BISTAT analyses indicate that the factor of safety for the embankment after the settled clay seals the foundation soils may be 1.84 with a Pf of 7×10^{-8} .

The stability of the internal dike was apparently never evaluated by Ardaman. This would be normal procedure as the internal dike would normally serve no function except as a flow diversion system. Under the uniform head across the embankment which would normally exist, the safety factor would be greater than 1.5. However, when the internal dikes function is to divide the settling area into discrete partitions, the stability considerations are different. If a failure occurs in an external dam, the fluid level in the



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affected partition will drop rapidly. The water in the saturated pores of the partition dikes can not drain out as quickly as the water level falls in the downstream pool. Therefore, the stability analyses for the dikes must consider that the rapid draw-down occurs. The Dames & Moore analyses for rapid draw-down on the internal dikes of F-1 showed a safety factor of 0.87 and a Pf of 9.8×10^{-1} , virtual assurance that the internal dike would fail. Therefore, the overall Pf of the combined system is $.98 \times 10^0$ of the design embankment, about 4.9×10^{-5} to 6.8×10^{-5} depending on operating conditions.

Proposed Alternative Dams

Dames & Moore has developed two alternative cross sections which might be used for dams built in or against the edge of mine pits. The enclosed Figure 14 shows Section 1, the proposed section where the dam is built against the edge of the mine pit. Figure 15 shows the results of the stochastic analyses for that section's critical circular-arc as a safety factor of 1.71 and a probability of failure (Pf) of 4×10^{-11} .

The alternative cross section, Section 2, shown in Figure 16 is proposed for the case where the entire dam is built within the mine pit. This section would typically be used where mining will continue beyond the limits of the dam. The critical circular-arc had a safety factor of 1.70 for this section with a Pf of 1.5×10^{-15} (Figure 17). Note that although the factor of safety of Section 2 is slightly less than that of Section 1, the Pf is lower because the construction incorporates more materials with lesser variations in strength.

DISCUSSION

The analyses show that the incorporation of the internal dikes has no significant effect on the Probability of Failure which would result in the loss of material from the settling area. The possibility of failure of the dike under anticipated conditions is so high that the only effect would be a slight reduction in volume of flow due to the flow restriction from the unfilled portions of the embankment and the viscosity of the clay slurry. This effect would be marginal at best.

On the other hand, the modifications in the external dams proposed for construction after mining result in embankments which contain a higher volume of controlled materials; that is, materials with lesser degrees of variability. The result is that the proposed alternative embankments can be expected to have a greater degree of reliability.

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In order to allow proper perspective with respect to evaluation of failure probabilities for the proposed dams, it is advisable to discuss the levels of risk which have been experienced in other areas. A publication by the American Society of Civil Engineers (ASCE) with the U.S. Committee of the International Commission on Large Dams (USCOLD) published in 1975, "Lessons from Dam Incidents, USA" presents data on dams and dam failures as experienced in the U.S. from 1899 to 1973. This publication indicates that a total number of known dams was 4,918, of which 3605 were earthen dams. None of these dams were tailings dams or phosphate settling ponds. The failures evaluated for this paper included only major failures which resulted in complete abandonment of the dam. Not all of the incidents involved significant threat to the public, but they were treated as such in our analyses of the data. The data indicate that two failures could be attributed to slope mechanisms and eight incidents of significant seepage in the foundations or embankments of dams.

The Pf's based on these data are listed in the following table:

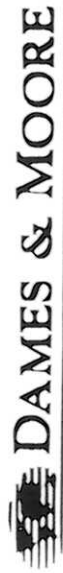
TYPE OF DAM -----	NUMBER -----	NUMBER FAILED -----	PROBABILITY OF FAILURE -----
EARTHEN	3,604		
by Stability		2	5.5×10^{-4}
by Seepage		8	2.2×10^{-3}

In an EIS study by the author for a dam in the phosphate industry performed in 1982, the known performance of the earthen dams was evaluated to estimate a basic Pf for these dams. However, since 1971 when the FDER Chapter 17-9 was re-written, there has not been a failure of a dam which was designed to meet the standards in the Rules. The normal means of estimating the Pf for manufactured items when no failure has occurred is typically a Poisson process with the following equation:

$$N = e^{(-n \cdot SPP)}$$

where: n = The number of items which have been counted without a failure

SPP = The Pf for any item when n is approximately 1.0

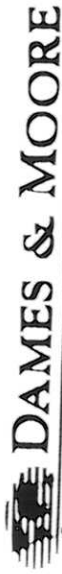


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This process could be used for Phosphate Industry Dams if a base can be determined to define the number "n". The base for n was chosen to be Mile-Years because inspections are done each year on each dam, and the typical dam length is one mile. Unfortunately, the only impartial agency that could provide reliable base data for the calculation of SPP is the FDER, and this agency does not keep track of these data. However, the EIS study determined that approximately 1366 mile-years of dam performance had been recorded by the Florida Phosphate Council from 1972 to 1982. The resulting SPP was estimated from 1.3×10^{-4} to 3×10^{-6} depending on the method of interpretation of calculation results. The table and figure used for this report are enclosed in Appendix C.

The difference in performance between dams throughout the U.S. and the Phosphate Industry since 1971 can be attributed to the improvement in technology for analyses, the typically limited drainage basin of the settling areas, and the fact that the settling areas store clay, not water. The majority of failures reported for U.S. dams are due to underestimates of flow volumes in large storms. Because the settling areas are typically above grade, the drainage basin is only slightly larger than the pool. Therefore, the entire design storm (12 inches in 24 hours, approximately the 100 year storm) can be retained within the pond because of the minimum freeboard of 5 feet required in Chapter 17-9. The second major problem with dams is seepage. Because the settling ponds contain a clay slurry, they are self sealing. Seepage problems generally occur during the initial filling of the areas, before the clay has formed a liner. The experienced designers of Phosphate Industry Dams typically design sections which do not rely on the sealing action of the clay. It is usually assumed that the dams contain only water.

The original design does not include a flood routing study to evaluate the performance of spillways during the design storm. However, the settling area does have 4 spillways that discharge to exterior circulation ditches. The FDER Rules Chapter 17-9 requires that a minimum of 2 spillways be installed in each settling area. It has been Dames & Moore's standard practice to evaluate both the 17-9 Design Storm (12 inches in 24 hours) and an estimated Maximum Probable Storm (MPS = 39 inches of rain in 24 hours) to evaluate spillway performance. The design of spillway capacity is based on the requirement in 17-9 that the Design Storm must be discharged in 24 hours. Further, the MPS in conjunction with waves calculated from hurricane winds should not cause a rise in water which would overtop the dam. These areas of design are required to assure hydraulic performance of the settling area which is as safe as the stability of the cross section.



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SUMMARY AND CONCLUSIONS

Stability and reliability analyses have been completed for dams which form the F-1 settling area at IMCF's Four Corners Mine in Manatee County, Florida. Comparison analyses have been completed to evaluate the stability and reliability of alternative cross section dams which might be constructed in mined areas. The results of the stability analyses can be summarized as:

DAM	SAFETY FACTOR	FAILURE PROBABILITY
-----	-----	-----
U.S. Earth Dams		5.5×10^{-4}
Florida Phosphate Dams		1.3×10^{-4}
to		3.0×10^{-6}
FDER Chapter 17-9 Requirements		
From	1.5	
to	1.75	
Original F-1 Dams		
to	1.5	1.0×10^{-5}
Internal Dike w/Draw-down	1.84	6.8×10^{-8}
Combined Original Dams	0.87	9.8×10^{-1}
to		9.8×10^{-6}
		6.7×10^{-8}
Proposed Alternative Dams w/o Internal Dikes		
Section 1	1.71	3.6×10^{-11}
Section 2	1.70	1.5×10^{-15}

The analyses presented in this report show that the use of interior dikes does not contribute to overall safety of a settling area. The basis of this conclusion is that the factor of safety for the internal dikes under rapid draw-down conditions which would be imposed by the failure of an exterior dike is less than 1.0. The conclusion is further demonstrated by the fact that stochastic analyses for stability show no difference between the probability of Failure, that is the loss of clay by a slope failure mechanism, with or without the internal dike.



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The alternative cross sections proposed for reconstruction are shown to have lower Probabilities of Failure than the existing dams. Therefore, it can be concluded that the mining of the area can result in reducing an existing low risk even further.

The other part of TBRPC's Question 19 was "Please indicate the size of settling area which Department of Natural Resources (DNR) Rules recommend or deem acceptable."

As far as we know, DNR has no rules which govern the size of Phosphatic Clay Settling Areas. Dames & Moore has designed such settling areas as small as 150 acres and larger than 1,500 acres. The important component for the design of a settling area is its stability and safety.

We appreciate the opportunity to be of service to you on this project. If you have any questions relating to the data or analyses presented in this report, please contact the undersigned at your convenience.

Respectfully submitted,

DAMES & MOORE

A handwritten signature in dark ink, appearing to read "Ross T. McGillivray".

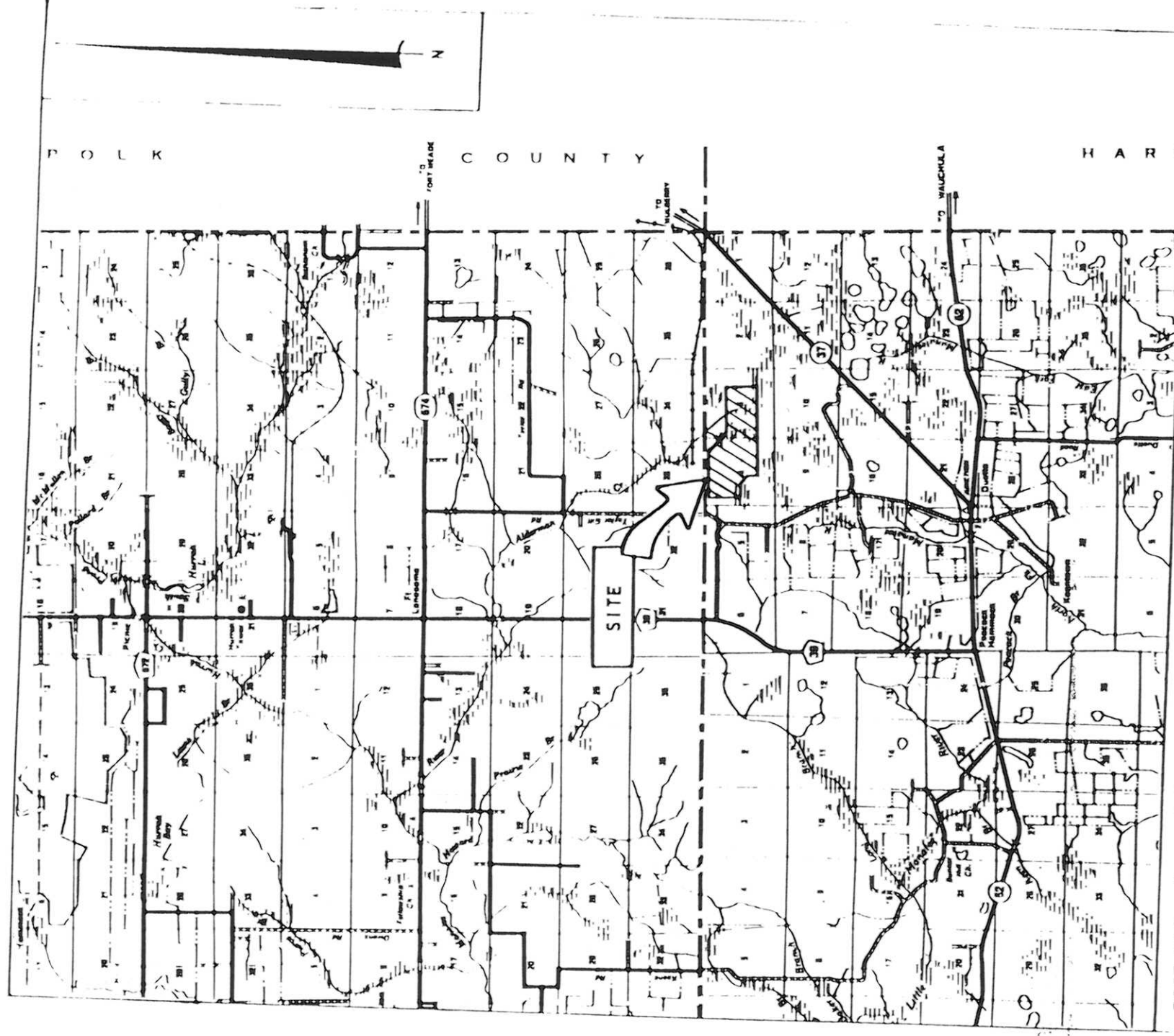
Ross T. McGillivray, PE
Associate

References

1. Ang, A. and Tang, W. H. (1975), Probability Concepts in Engineering Planning and Design. John Wiley & Sons, N.Y.
2. ASCE/USCOLD (1975), Lessons for Dam Incidents, U.S.A.
3. Bishop, A. W. (1955), "The Use of the Slip Circle in the Stability Analysis of Slopes", Geotechnique V, No. 1, pp. 7-17.
4. Felio, Guy (1988), BISTAT, A Microcomputer Program for Slope Stability Using the Simplified Bishop Method and Stochastic Analysis, Univ. of California, Los Angeles.
5. Janbu, N., Bjerrum, L., and Kjaernsli, B. (1956), Veiledning ved losning av fundamenteringsoppgaver, Norwegian Geotechnical Institute, Publication No. 16, Oslo.
6. McGillivray, R.T. (1982), "Estech Duette Mine - Dam Failure Probability", Armac Engineers, Inc. report.

APPENDIX A

FIGURES



BASE MAP: General County Maps for Manatee & Hillsborough Counties, dated 1974 and 1976, respectively.



SCALE

Figure 1
VICINITY MAP
Four Corners F-1C
IMC Fertilizer

Dames & Moore

PROJECT: IMC FERTILIZER FOUR CORNERS MINE
LOCATION: MANATEE COUNTY, FLORIDA

● Location of Standard Penetration Boring before Construction
○ Location of Standard Penetration Boring after Construction

LEGEND



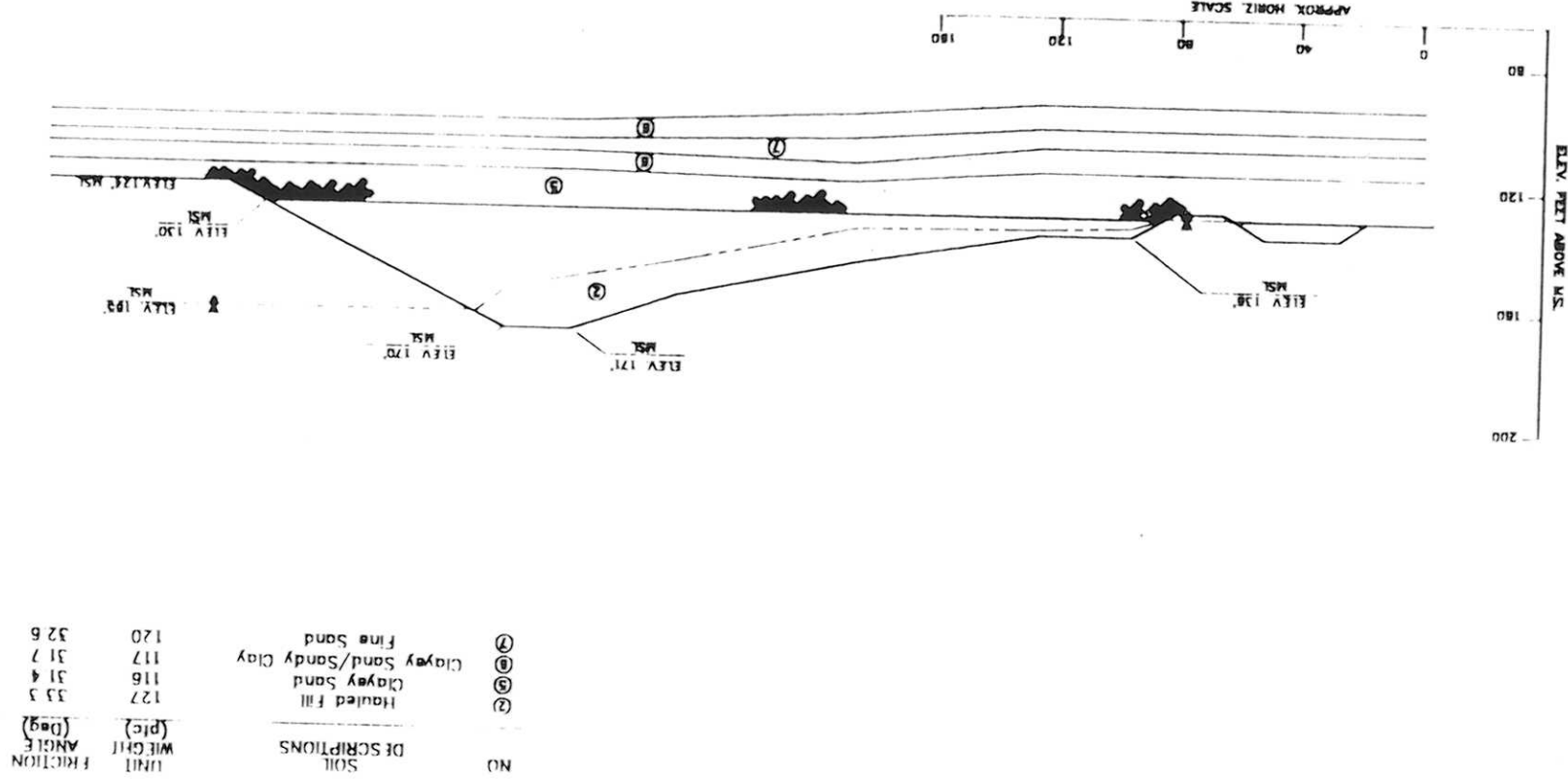
BASE MAP: Aerial Photography by W.R. Grace & Company.
Four Corners Tract, January 27, 1988.



SITE PLAN AND
APPROXIMATE BORING LOCATIONS

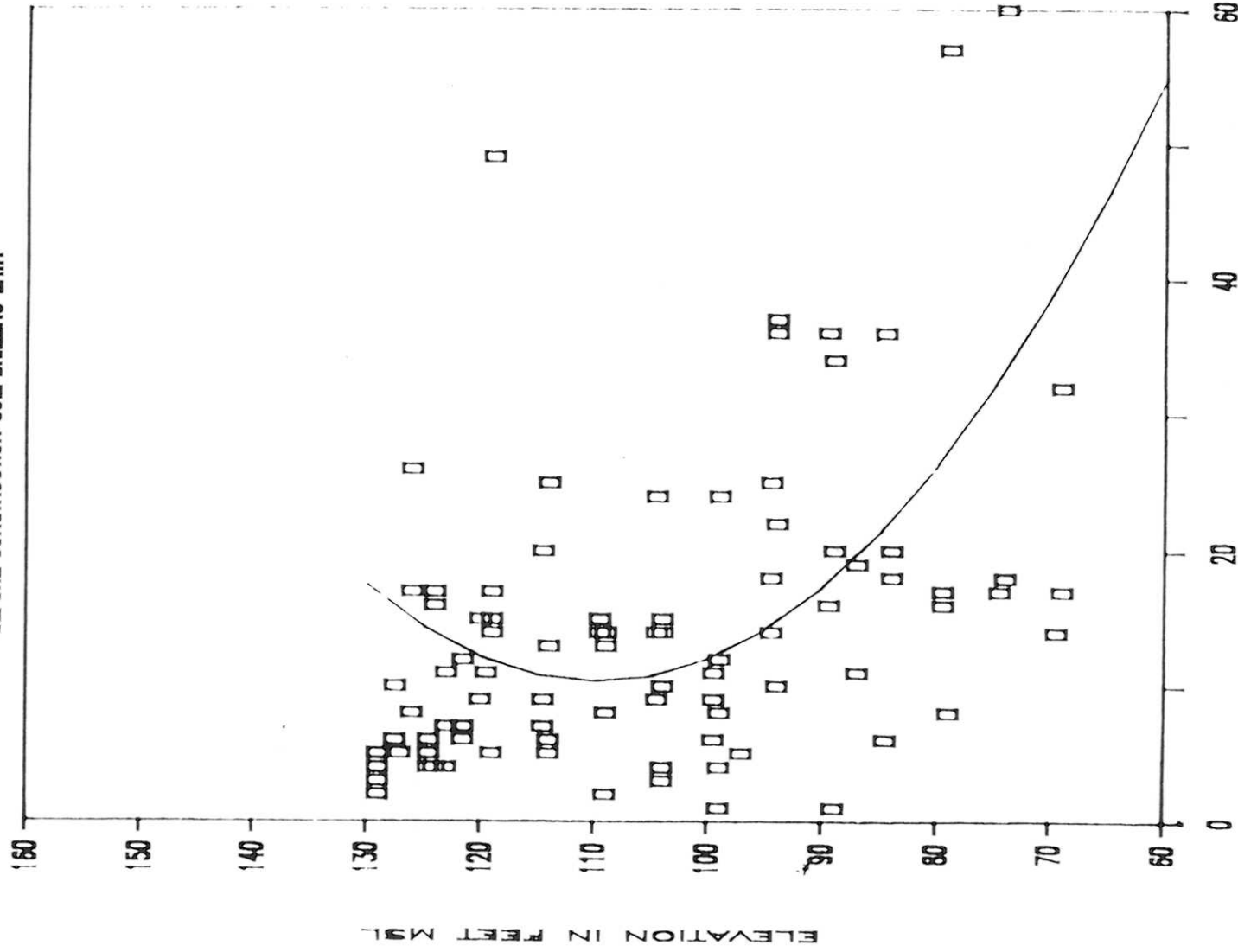
James L. Moore
Figure 2

F-1 SETTLING AREA
F-1C DAM
Existing Cross Section



TREND ANALYSIS, F-1 SETTLING AREA

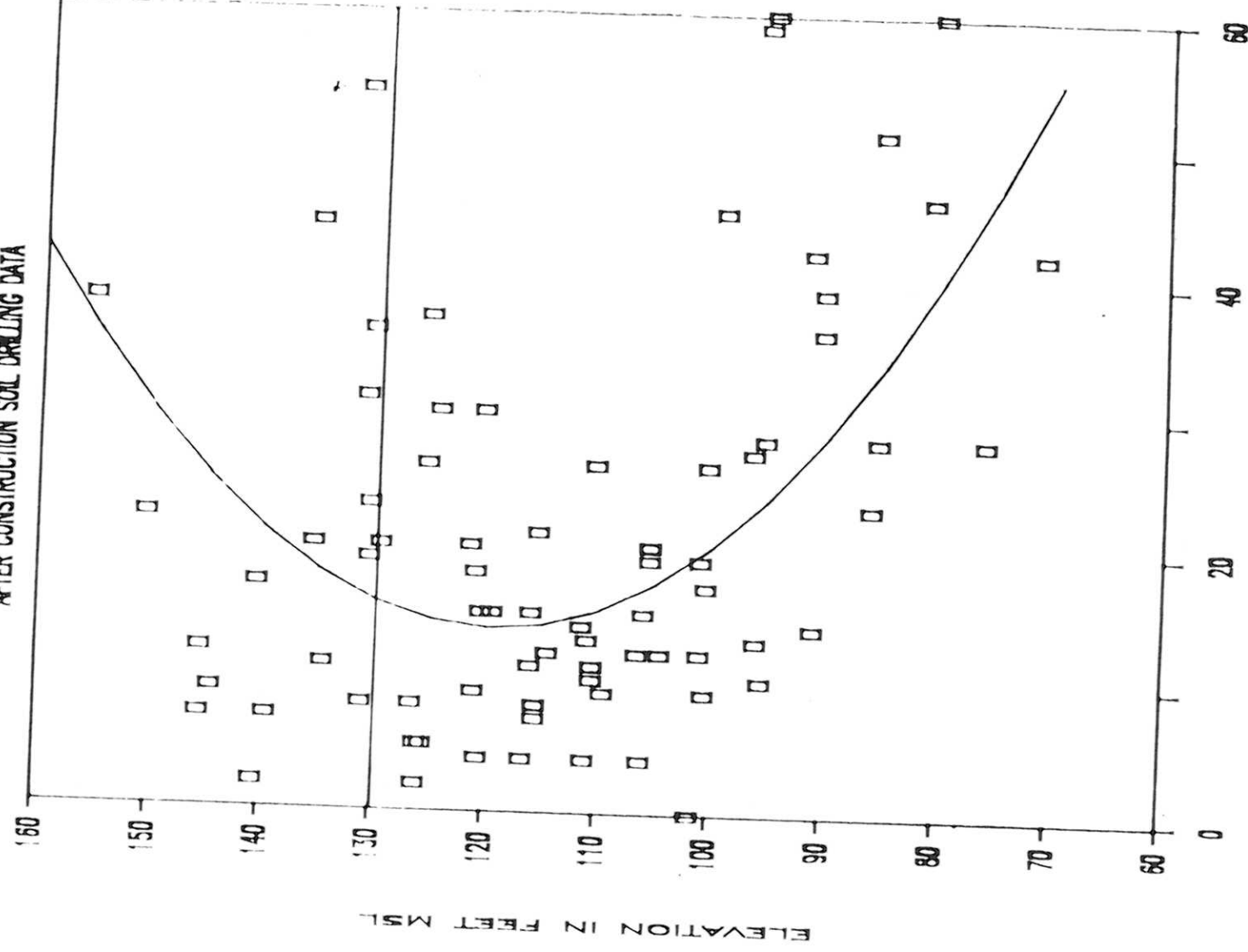
BEFORE CONSTRUCTION SOIL DRILLING DATA



□ DATA
— REGRESSION FIT

TREND ANALYSIS, F-1 SETTling AREA

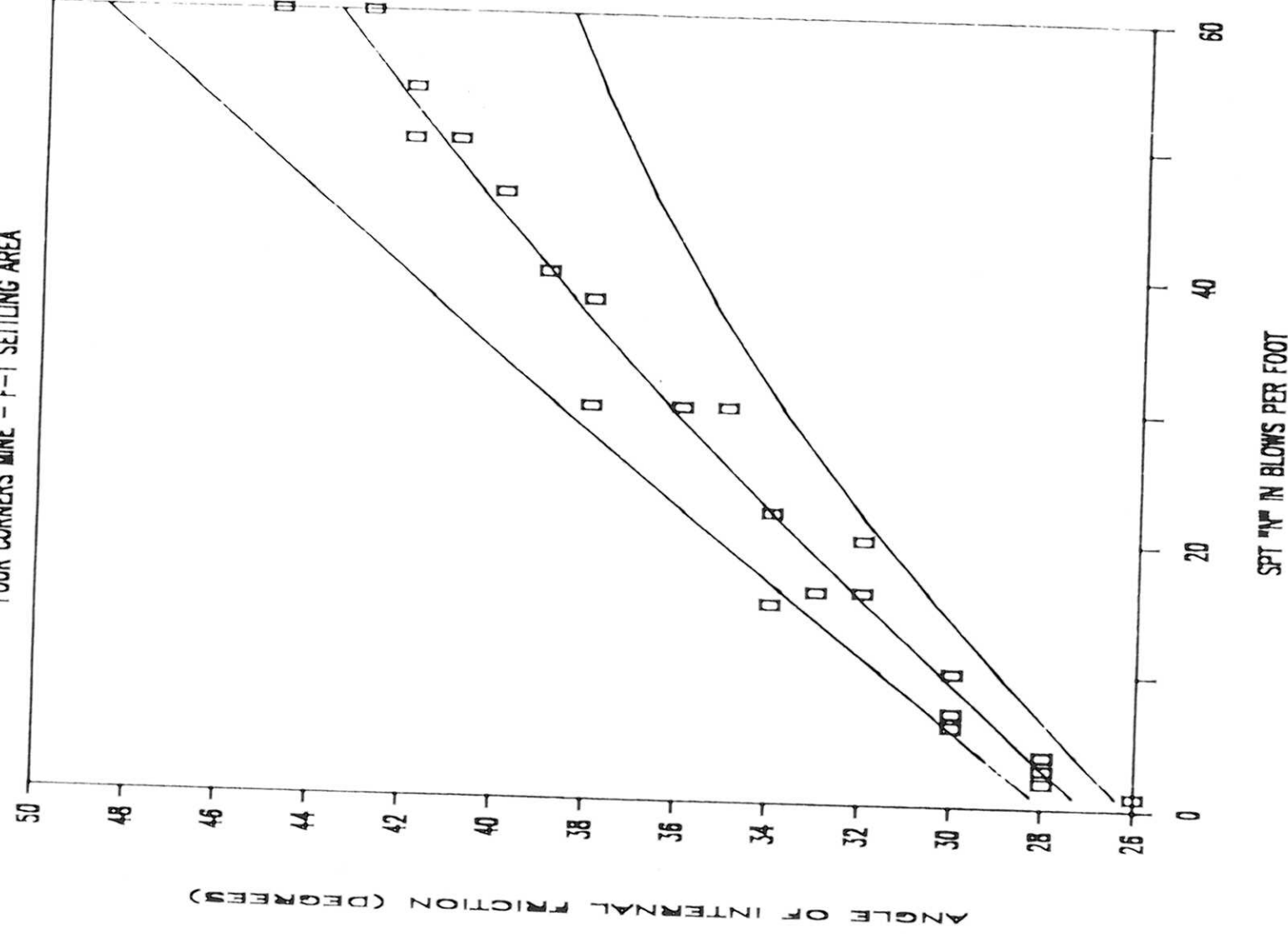
AFTER CONSTRUCTION SOIL DRILLING DATA



□ DATA — REGRESSION FIT — ORG. GRADE

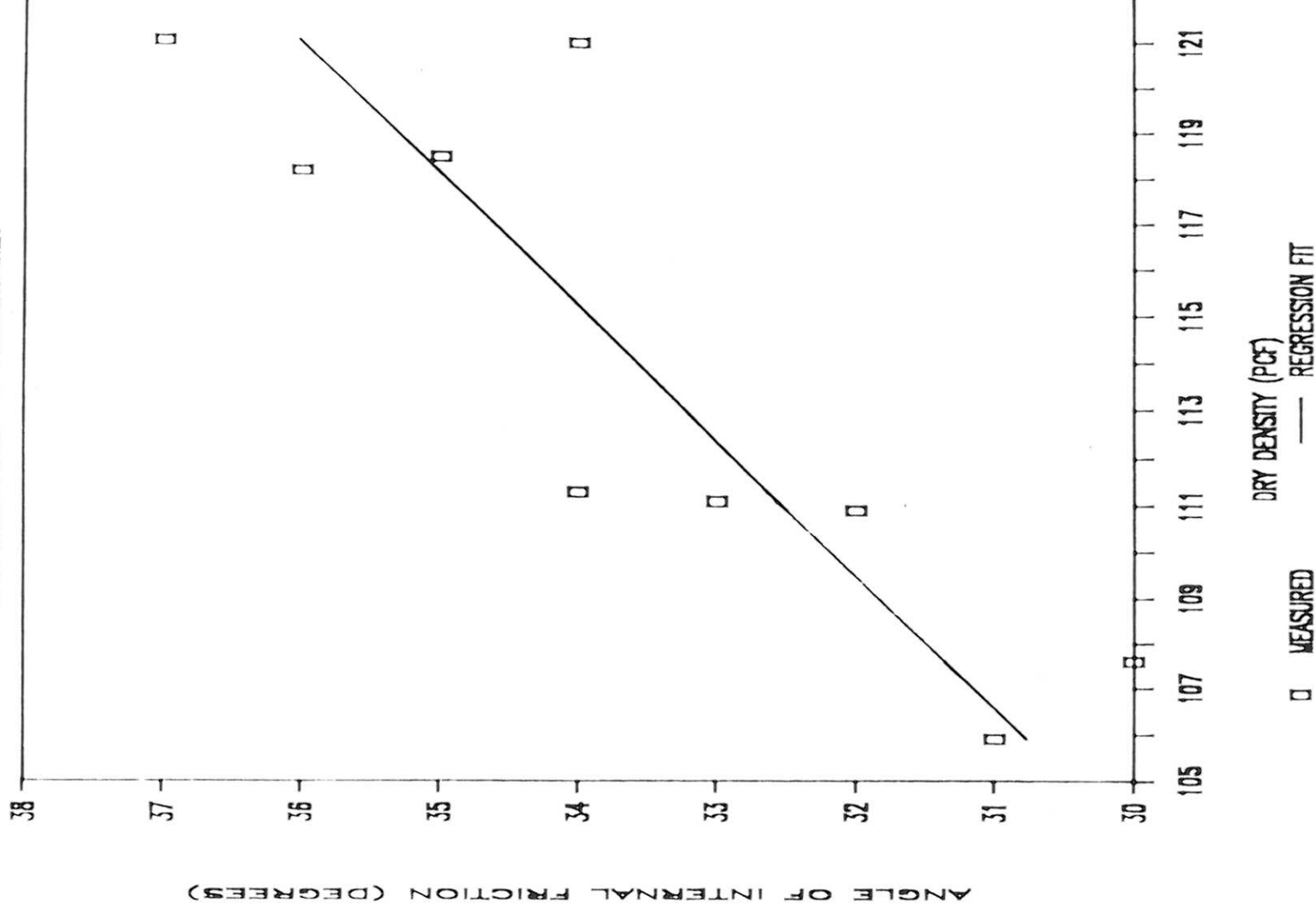
PROPOSED STRENGTH CORRELATION

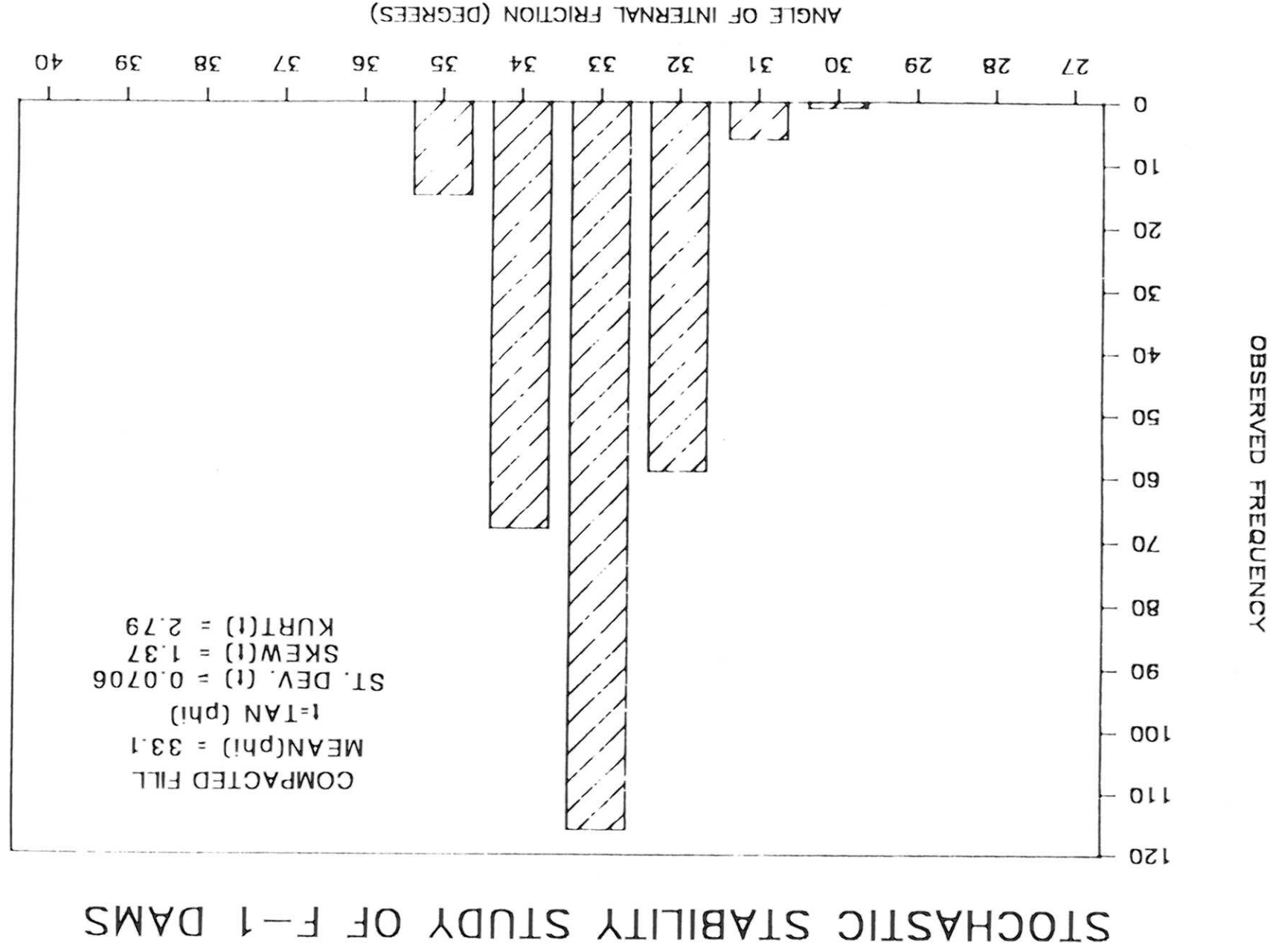
FOUR CORNERS MINE - F-1 SETTLING AREA

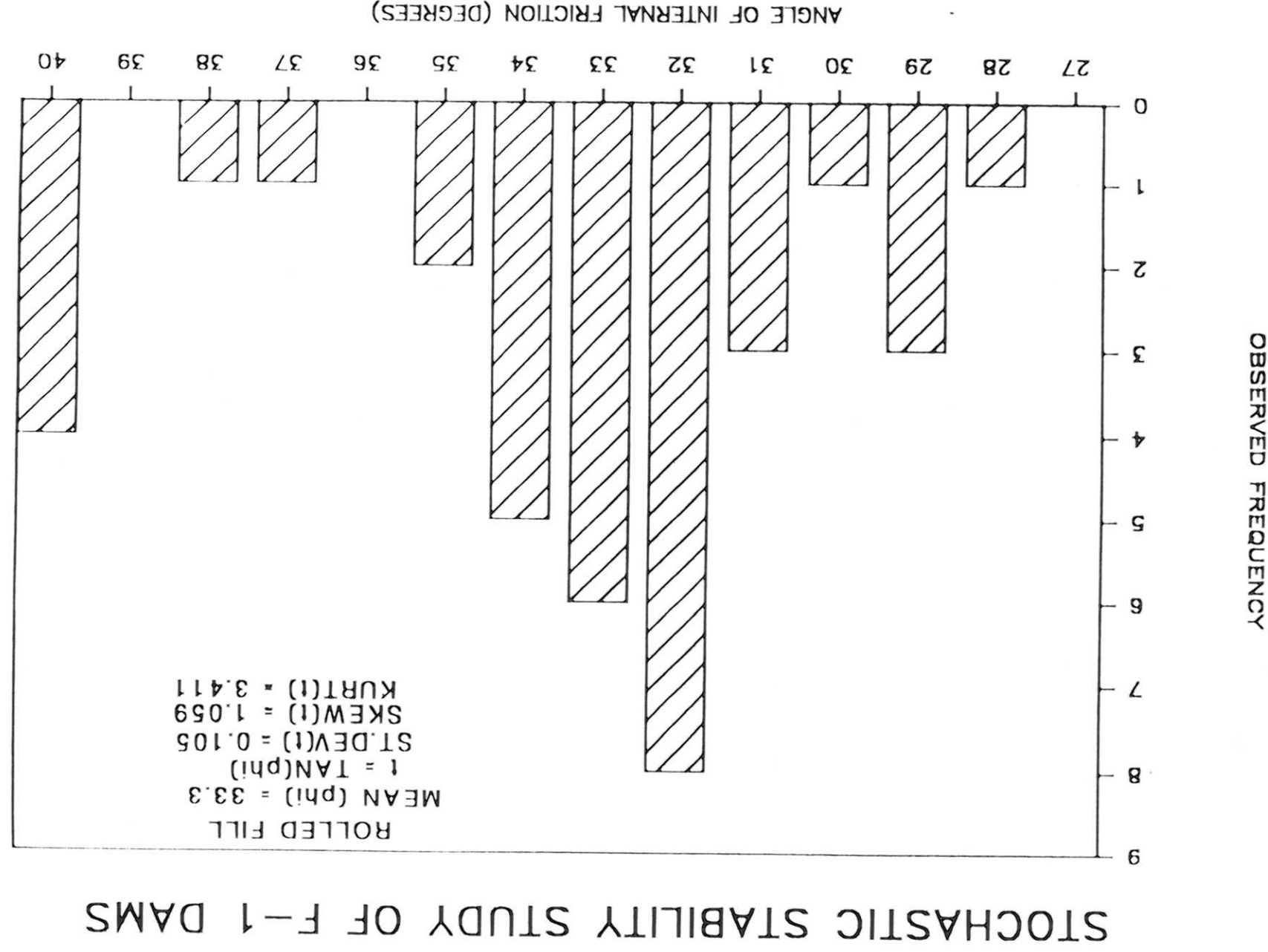


ORIG. DESIGN REPORT STRENGTH CORRELATION

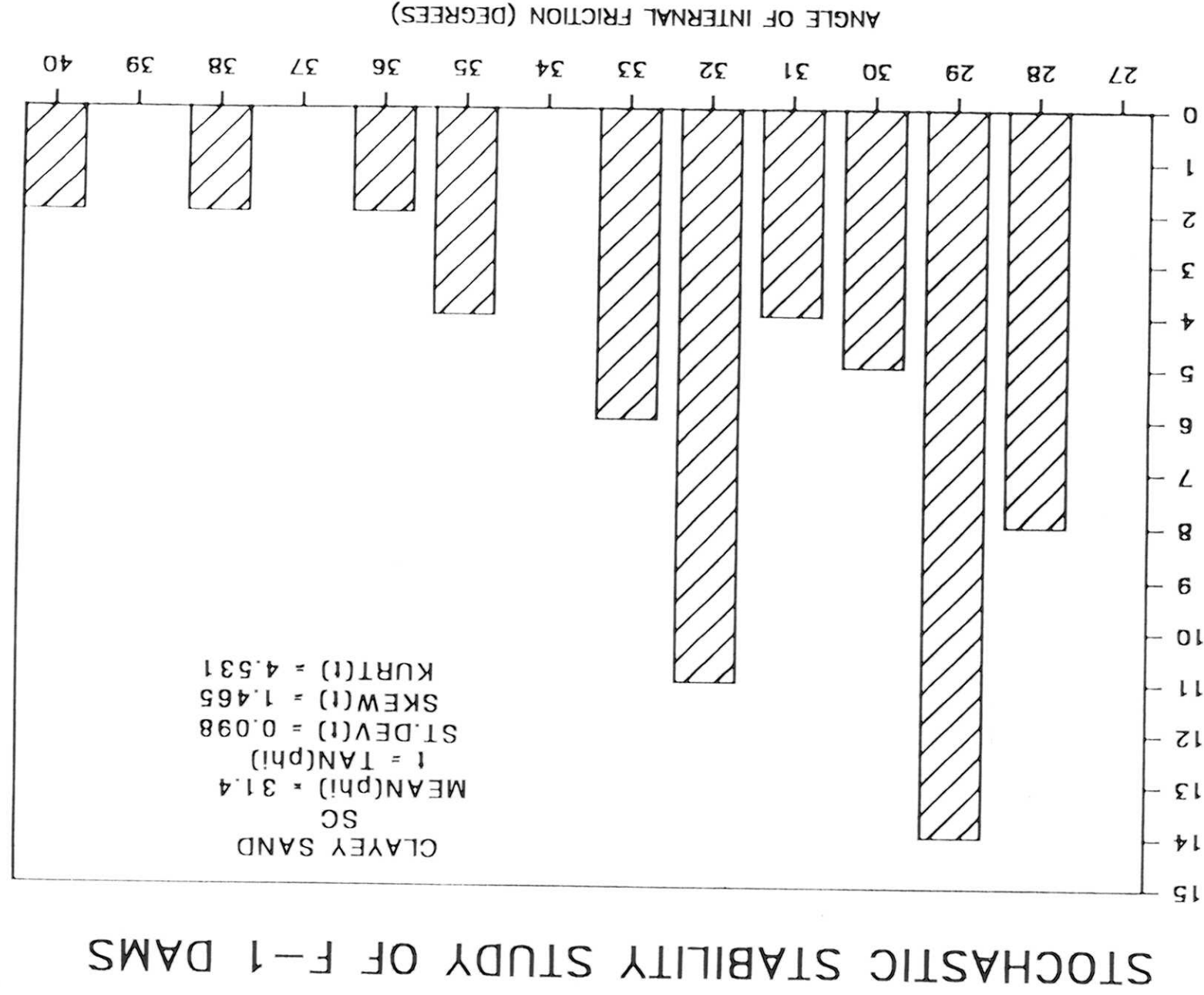
FOUR CORNERS MINE - F-1 SETTLING AREA



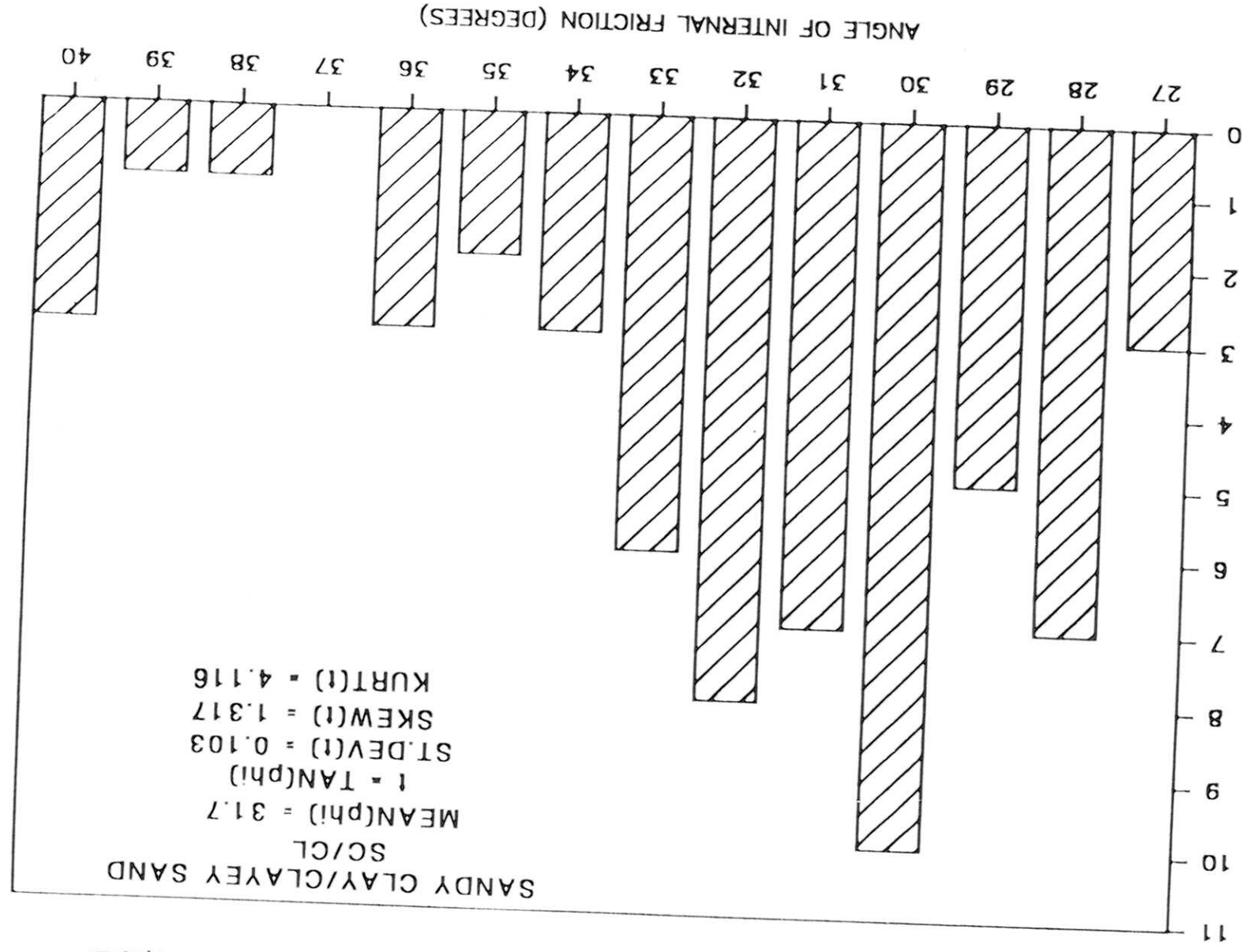




OBSERVED FREQUENCY

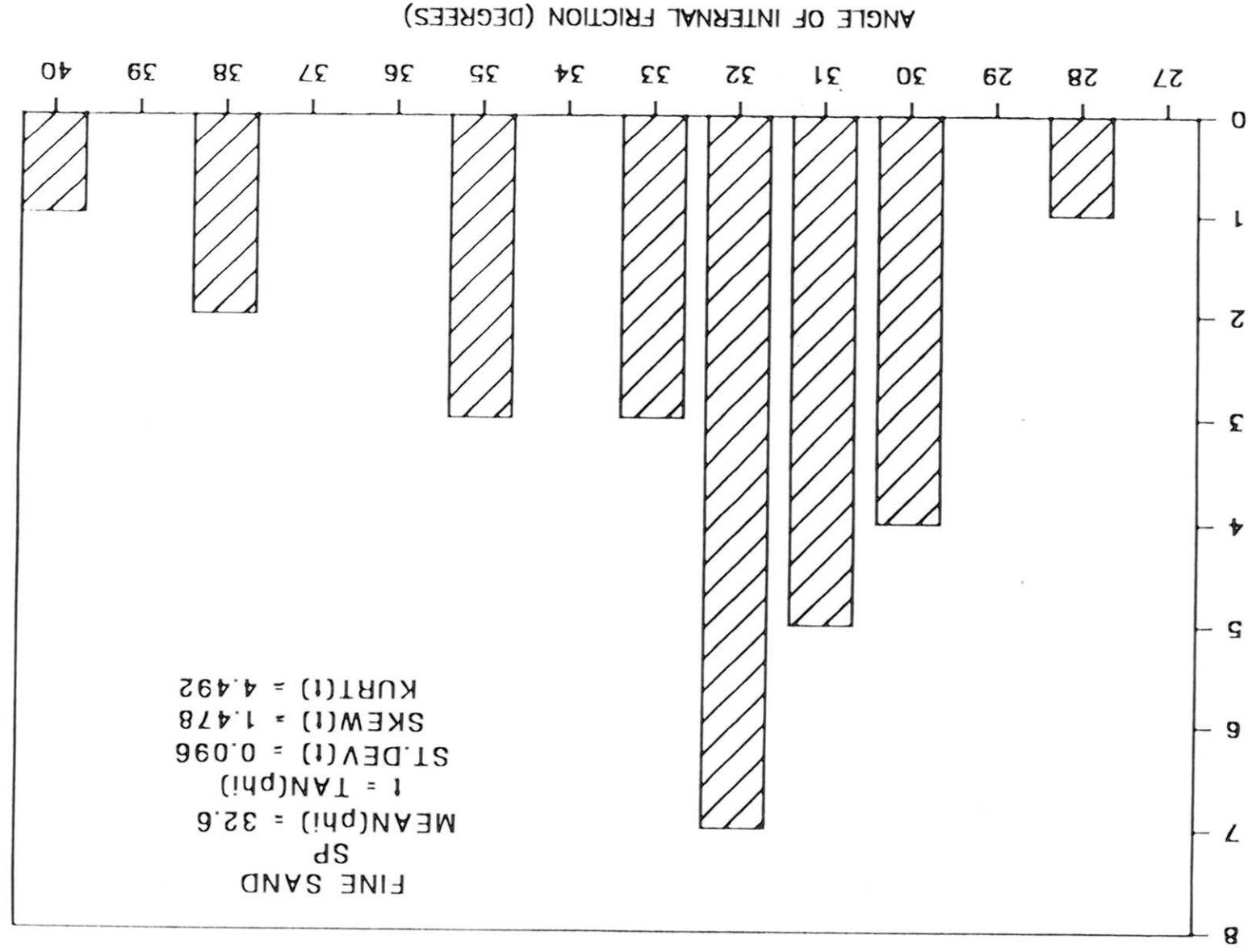


STOCHASTIC STABILITY STUDY OF F-1 DAMS

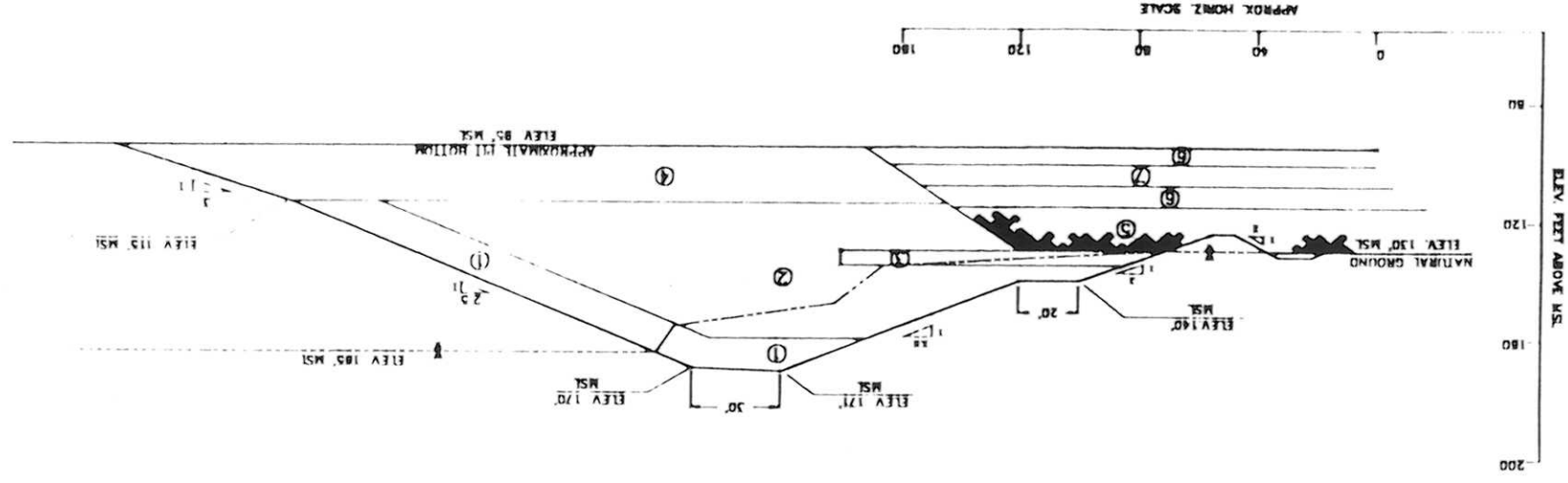
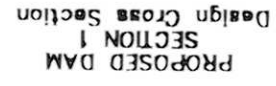


OBSERVED FREQUENCY

STOCHASTIC STABILITY STUDY OF F-1 DAMS

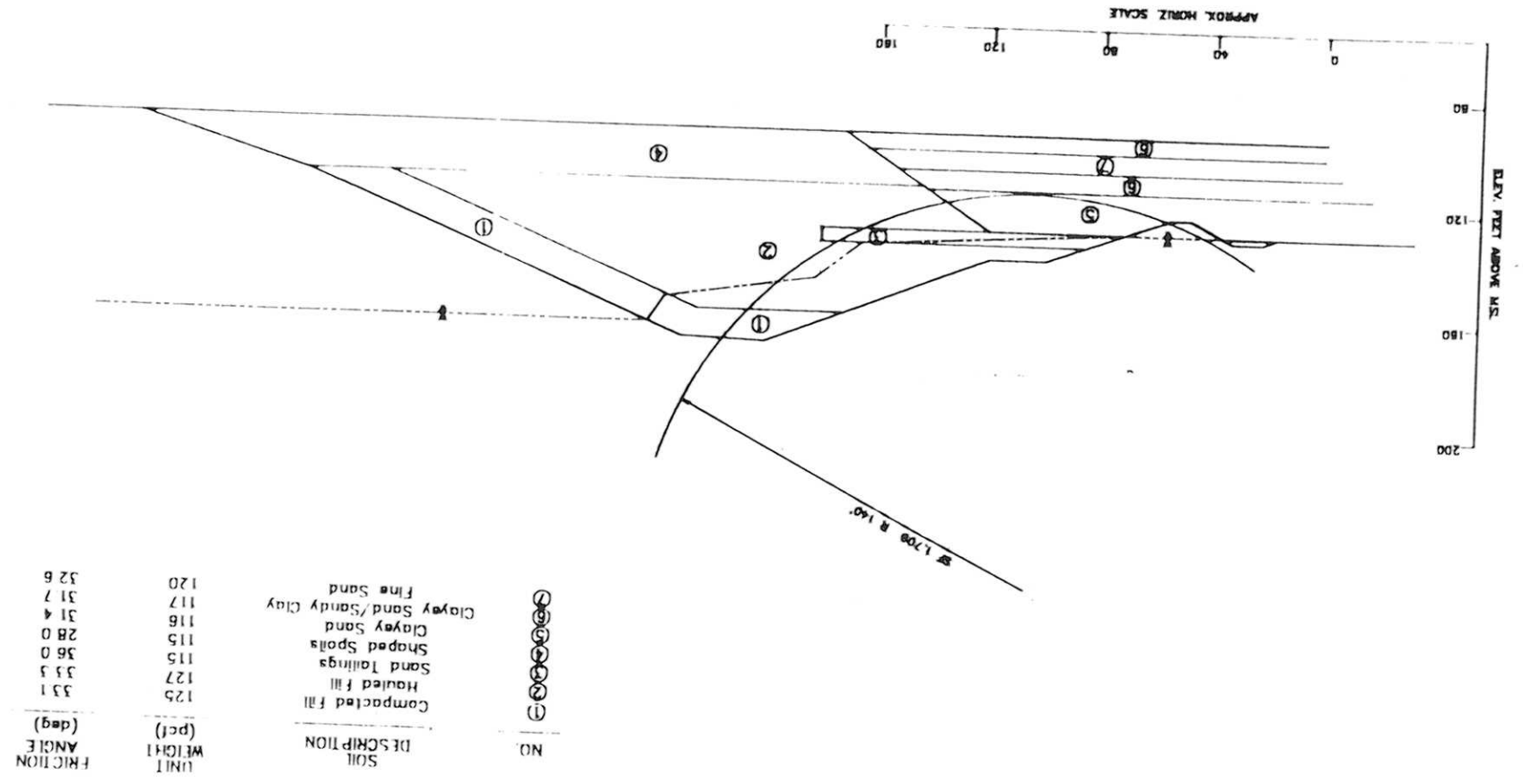


PROJECT: IMC FERTILIZER FOUR CORNERS MINE
LOCATION: MANATEE COUNTY, FLORIDA

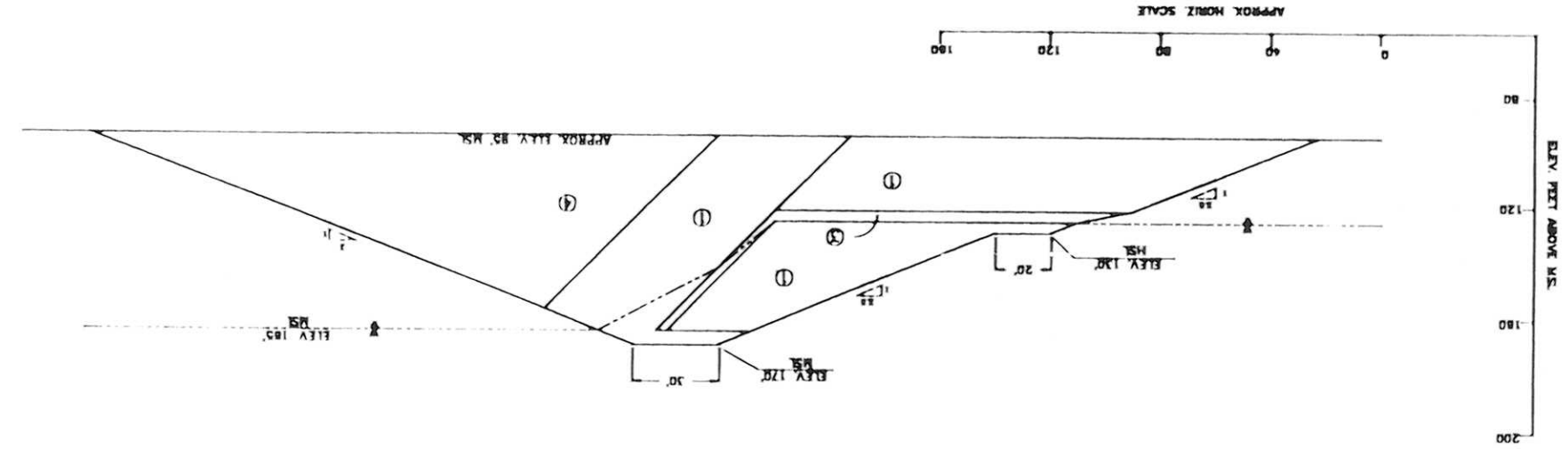


PROJECT: IMC FERTILIZER FOUR CORNERS MINE
 LOCATION: MANATEE COUNTY, FLORIDA

PROPOSED DAM
 SECTION 1
 Stability Analysis



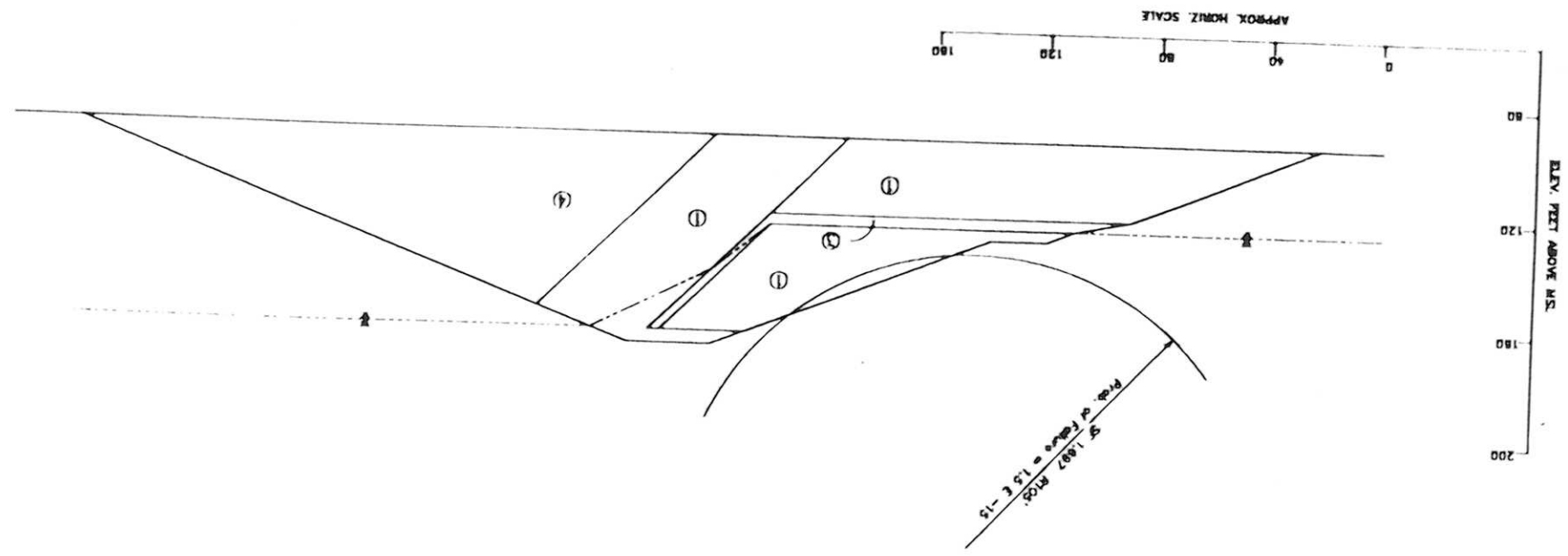
PROPOSED DAM
SECTION 2
Design Cross Section



PROJECT: IMC FERTILIZER FOUR CORNERS MINE
 LOCATION: MANATEE COUNTY, FLORIDA

Dames & Moore
 Figure 17

PROPOSED DAM
 SECTION 2
 Stability analysis



NO.	SOIL DESCRIPTION	UNIT WEIGHT (pcf)	FRICITION ANGLE (deg)
①	Compacted Fill	125	33.1
②	Sand Tailings	115	36.0
③	Shaped Spoils	115	28.0