The Installation Restoration Program NAS Jacksonville

PRESENTATION OVERVIEW

- The CERCLA process RGS
- Installation Restoration Program organization
- Operable units indentification M. Cadato
- Summary

THE CERCLA PROCESS

- Preremedial program
- Interim response actions
- RI / FS process
- RD / RA

implemented by EPA

Federal Pre-Remedial Process

- Discovery/Notification (103c of CERCLA)
- Entry into CERCLIS
- Preliminary Assessment (PA) ⇒ IAS
- Screening Site Inspection (SSI) ⇒ VS
- Management Review
- Listing Site Inspection (LSI) ⇒ CS
- HRS Scoring

} Confirmation Study

NACEP info.

Federal Pre-Remedial Process - cont'd.

- Regional/QA Review
- Candidate Submittal
- EPA HQ QA Review
- NPL Proposal
- Public Comment
- Final NPL Listing

Preliminary Assessment (PA)

IAS

- Review Available Data
- Routinely Includes Off-Site Reconnaissance

Phase I of Conf. study

Screening Site Inspection (SSI)

- Standardized Preliminary HRS Scoring Procedure
- On-Site Investigation
- Non-Intrusive Sampling
- Review of Data Not Readily Available
- Site Inspection Report
- Preliminary HRS Scoring

Listing Site Inspection (LSI)

- Extensive On-Site Inspection
- Intrusive Sampling
  - Wells
  - Borings
- Collection of Demographic & Area-Wide Information
- Begins the RI Process
- Designed to Insure NPL Listing

Phase II of Conf Study

Characterization Study

INTERIM RESPONSE ACTIONS

PSCs

- Operable units
- No further action (18)
- Site screening analyses (7)
- Petroleum sites (3)

FAC 11-7-70

Chapter

RI/FS

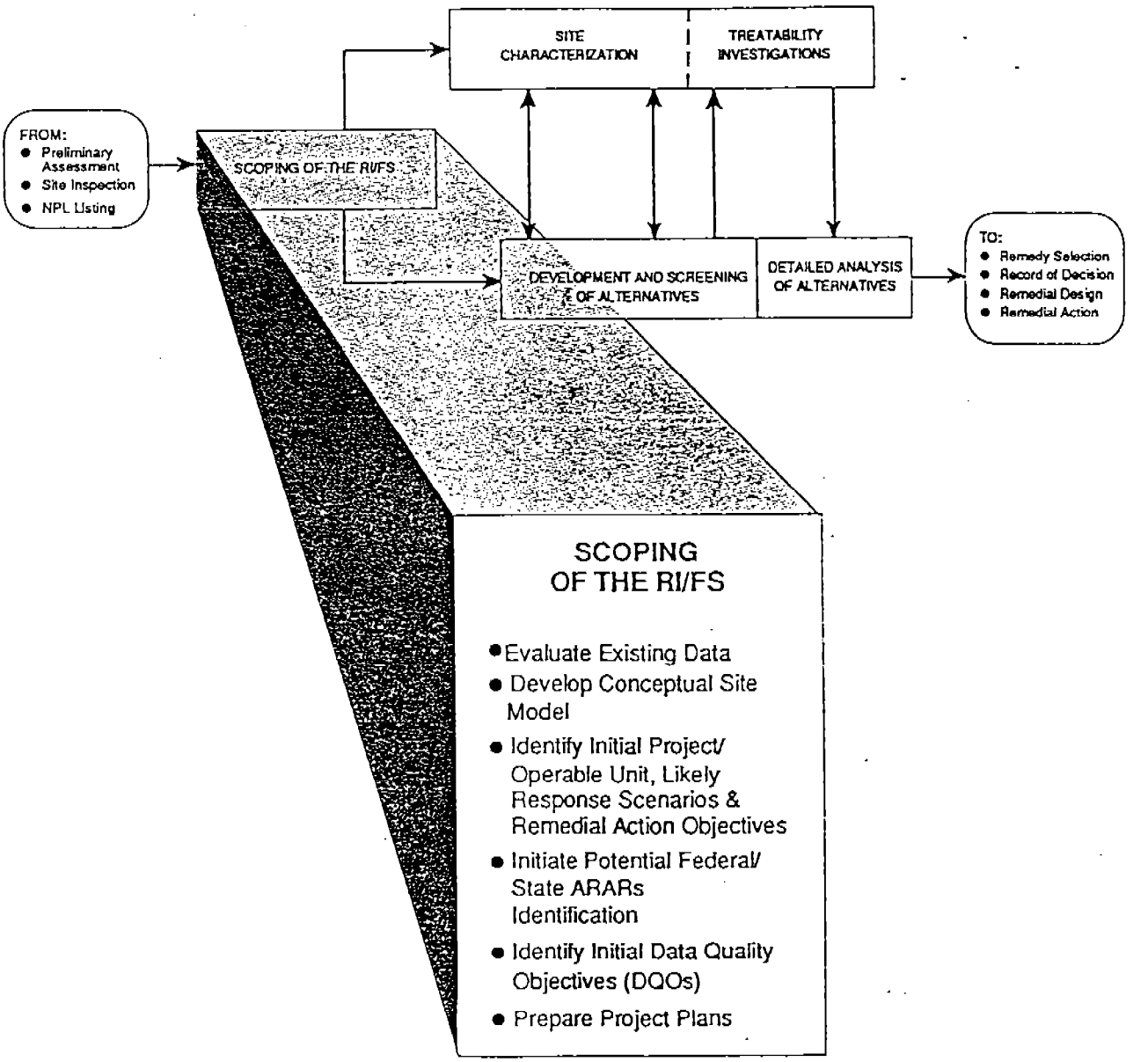
RI / FS PROCESS

14 PSCs to be grouped for RI/FS

- Scoping → Work Plan
- Remedial investigation
- Baseline risk assessment
- Feasibility study
- Treatability investigations

Rpt Format

SCOPING OF THE RI/FS



SITE CHARACTERIZATION

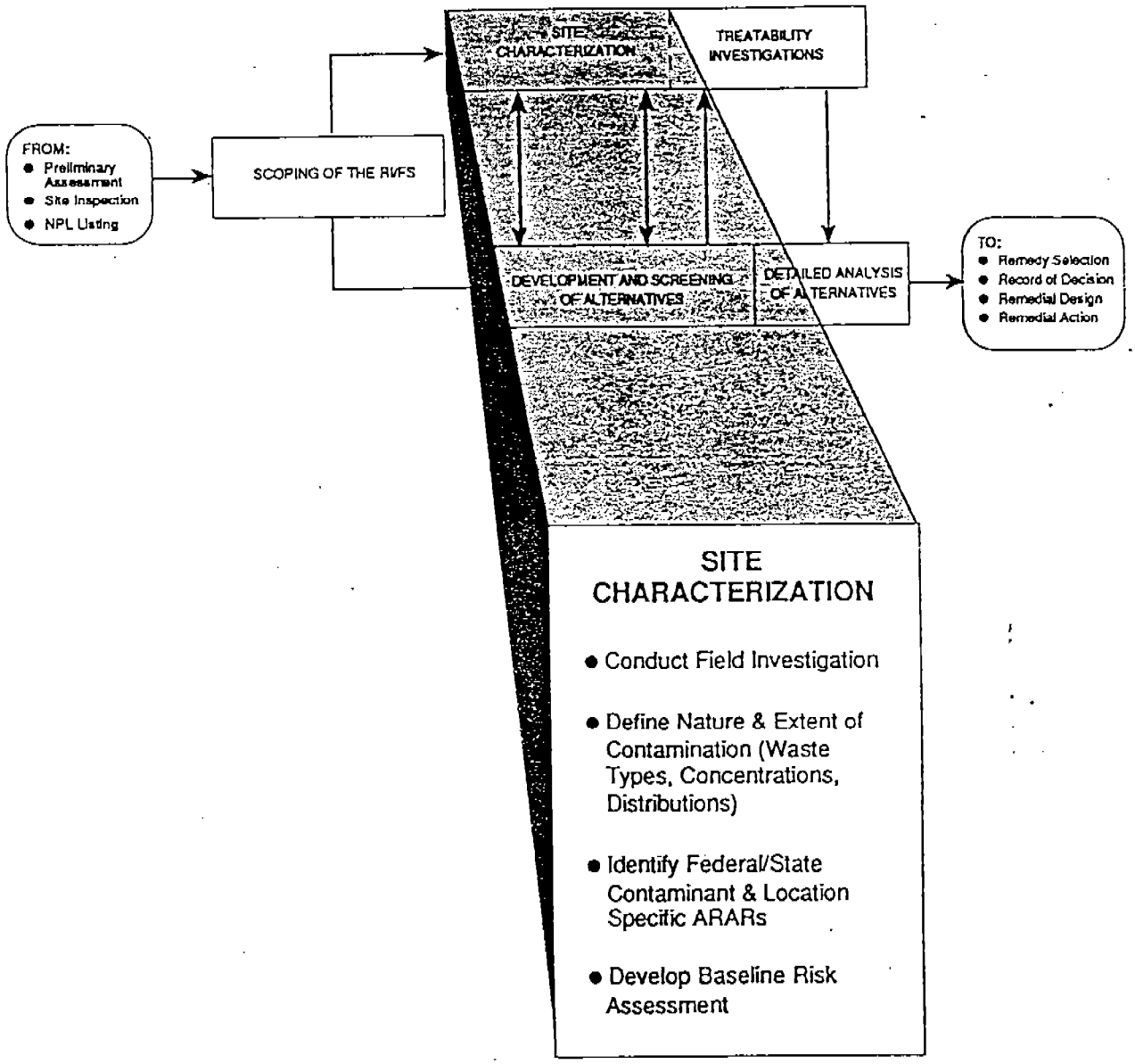


Table 3-4. Remedial Investigation Report Format
Generic Remedial Investigation/Feasibility Study Work Plan
Jacksonville Naval Air Station
Jacksonville, Florida

--	Executive Summary
1.0	Introduction
1.1	Purpose of Report
1.2	Site Background
1.2.1	Site Description
1.2.2	Site History
1.2.3	Previous Investigations
1.3	Report Organization
2.0	Study Area Investigation - Site Characterization Tasks
2.1	Field Activities Descriptions
2.1.1	Surface Features
2.1.2	Contaminant Sources
2.1.3	Meteorological Invest.
2.1.4	Surface-Water Invest.
2.1.5	Sediment Invest.
2.1.6	Geological Invest.
2.1.7	Soil and Vadose Zone
2.1.8	Ground-Water Invest
2.1.9	Human Population Survey
2.1.10	Ecological Investigation
2.2	Technical Memoranda
3.0	Physical Characteristics of Study Area
3.1	Results of Field Activities for Physical Character.
3.1.1	Surface Features
3.1.2	Geological Investigation
3.1.3	Soils
3.1.4	Surface Water Hydrology
3.1.5	Hydrogeology
3.1.6	Meteorology
3.1.7	Demography and Land Use
3.1.8	Ecological Investigation
4.0	Nature and Extent of Contamination
4.1	Results of Field Sampling and Analysis
4.1.1	Ground Water
4.1.1.1	Dug (Test pits, trench)
4.1.1.2	Wells
4.1.1.3	Potable Water (Wells)
4.1.4	Surface-Water

4.1.4.1 Lakes, rivers, stream
4.1.4.2 Surface Impoundments
4.1.4.3 Marine water bodies
4.1.5 Sediments
4.1.6 Soil
4.1.6.1 Surface
4.1.6.2 Soil borings
4.1.7 Sludge
4.1.8 Waste Streams
4.1.9 Waste Piles
4.1.10 Landfills
4.1.11 Closed/Open Containers
4.1.11 Ambient Air

5.0 Contaminant Fate and Transport

5.1 Potential Routes of Migration

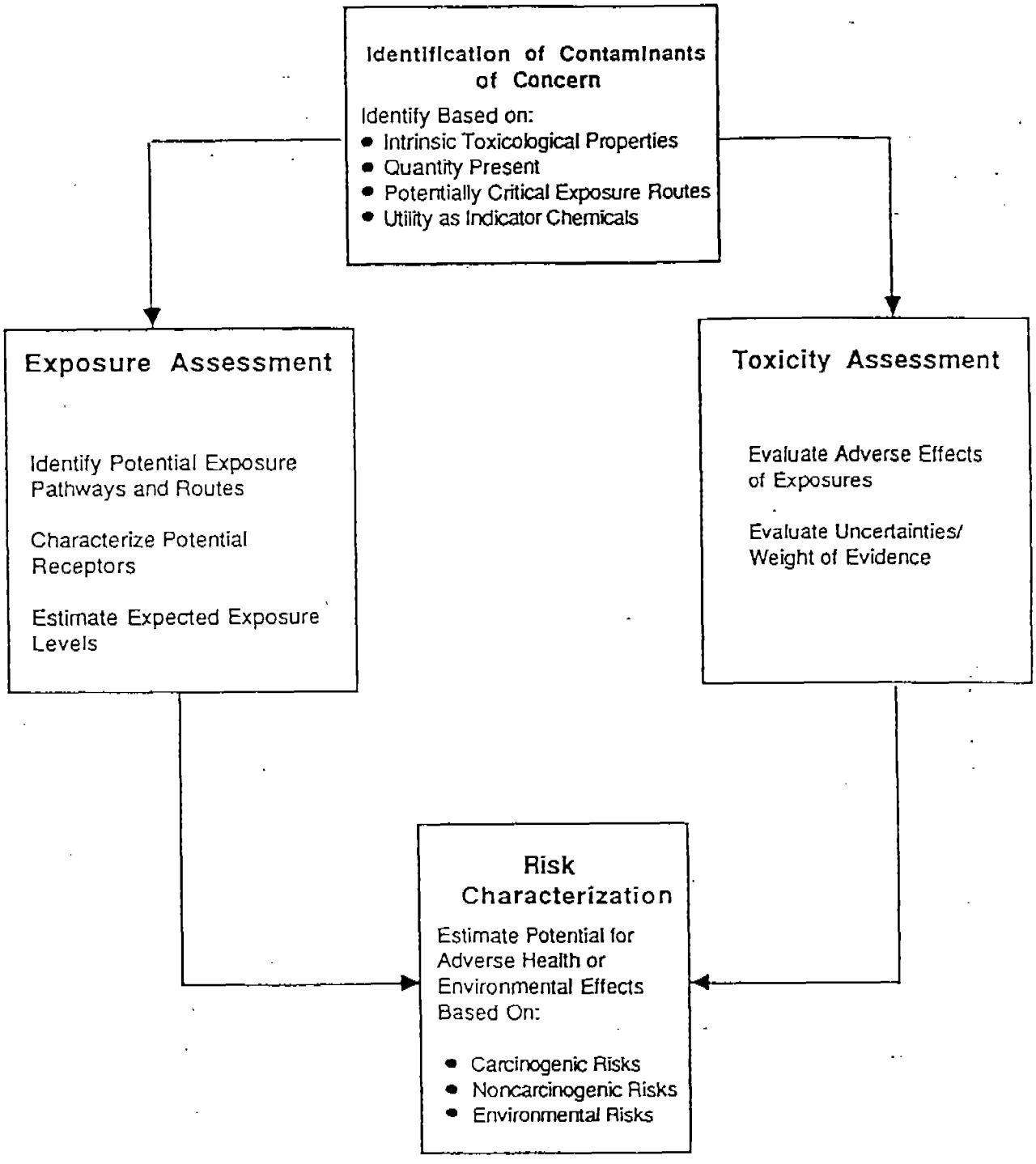
5.2 Contaminant Persistence
5.2.1 Estimated Persistence-Physical, Chemical, Biological Factors Considered In:
5.2.1.1 Ground Water
5.2.1.2 Potable Water (Wells)
5.2.1.3 Surface Water
5.2.1 4 Sediments
5.2.1 5 Soil
5.2.1 6 Sludge
5.2.1 7 Waste Streams
5.2.1 8 Waste Piles
5.2.1.9 Landfills
5.2.1.10 Closed/Open Containers
5.2.1.11 Ambient Air

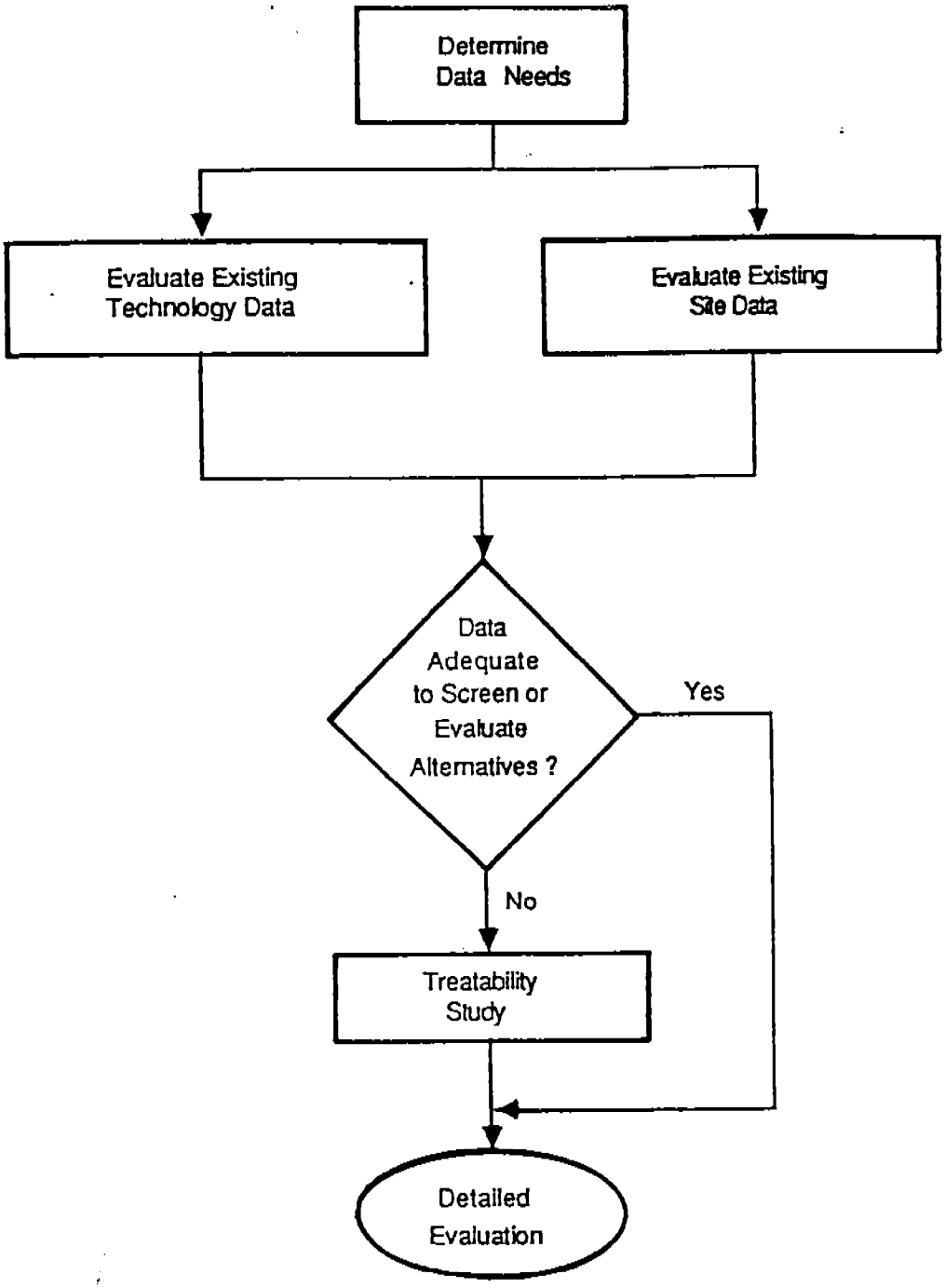
5.3 Contaminant Migration
5.3.1 Factors Affecting
5.3.1.1 Ground Water
5.3.1.2 Potable Water (Wells)
5.3.1.3 Surface-Water
5.3.1 4 Sediments
5.3.1 5 Soil
5.3.1 6 Sludge
5.3.1 7 Waste Streams
5.3.1 8 Waste Piles
5.3.1.9 Landfills
5.3.1.10 Closed/Open Containers
5.3.1.11 Ambient Air
5.3.2 Modeling

Table 3-4. Remedial Investigation Report Format
Generic Remedial Investigation/Feasibility Study Work Plan
Jacksonville Naval Air Station
Jacksonville, Florida

6.0	Baseline Risk Assessment
6.1	Human Health Evaluation
6.1.1	Exposure Assessment
6.1.2	Toxicity Assessment
6.1.3	Risk Characterization
6.2	Environmental Evaluation
7.0	Summary and Conclusions
7.1	Summary
7.1.1	Nature and Extent of Contamination
7.1.2	Fate and Transport
7.1.3	Risk Assessment
7.2	Conclusions
7.2.1	Data Limitations
7.2.2	Recommended Future Work
7.2.3	Recommended Remedial Action Objectives

Appendices


Identification of Contaminants of Concern
Identify Based on:
• Intrinsic Toxicological Properties
• Quantity Present
• Potentially Critical Exposure Routes
• Utility as Indicator Chemicals
Exposure Assessment
Identify Potential Exposure Pathways and Routes
Characterize Potential Receptors
Estimate Expected Exposure Levels
Toxicity Assessment
Evaluate Adverse Effects of Exposures
Evaluate Uncertainties/ Weight of Evidence
Risk Characterization
Estimate Potential for Adverse Health or Environmental Effects Based On:
• Carcinogenic Risks
• Noncarcinogenic Risks
• Environmental Risks



SOURCE: EPA "GUIDANCE FOR CONDUCTING REMEDIAL INVESTIGATIONS AND FEASIBILITY STUDIES UNDER CERCLA", OCT. 1988.

TREATABILITY INVESTIGATIONS

FIGURE 5-1

REMEDIAL INVESTIGATION/ FEASIBILITY STUDY WORK AND PROJECT MANAGEMENT PLAN

NAS JACKSONVILLE
JULY 1990

Table 5-1. Treatability Study Report Format
Generic Remedial Investigation/Feasibility Study Work Plan
Jacksonville Naval Air Station
Jacksonville, Florida

Bench-Scale Work Plan Format

1.0 Project Description and Site Background

2.0 Remediation Technology Description

3.0 Test Objectives

4.0 Specialized Equipment and Materials

5.0 Laboratory Test Procedures

6.0 Treatability Test Plan Matrix and Parameters To Measure

7.0 Analytical Methods

8.0 Data Management

9.0 Data Analysis and Interpretation

10.0 Health and Safety

11.0 Residuals Management

Pilot-Scale Work Plan Format

1.0 Project Description and Site Background

2.0 Remediation Technology Description

3.0 Test Objectives

4.0 Pilot Plant Installation and Start-up

5.0 Pilot Plant Operation and Maintenance Procedures

6.0 Parameters to be Tested

7.0 Sampling Plan

8.0 Analytical Methods

9.0 Data Management

10.0 Data Analysis and Interpretation

11.0 Health and Safety

12.0 Residuals Management

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

- CLEAN AIR ACT (CAA)
- FEDERAL INSECTICIDE, FUNGICIDE AND RODENTICIDE ACT (FIFRA)
- CLEAN WATER ACT (CWA)
- RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) AND HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984 (HSWA)
- SAFE DRINKING WATER ACT (SDWA)
- TOXIC SUBSTANCE CONTROL ACT (TSCA)
- MARINE PROTECTION RESEARCH AND SANCTUARIES ACT (MPRSA)

Mention Site Specific

TABLE 6-1.

Examples of Potential Federal and State ARARs and TBCs

1. *Federal requirements which may be potential applicable or relevant and appropriate requirements.*

   i. EPA's Office of Solid Waste administers, inter alia, the Resource Conservation and Recovery Act of 1976, as amended, (42 U.S.C. 6901). Potentially applicable or relevant and appropriate requirements pursuant to that Act are:

      a. Open Dump Criteria—Pursuant to RCRA Subtitle D for classification of solid waste disposal facilities (40 *CFR* Part 257). Note: Only relevant to nonhazardous wastes.

      b. RCRA Subtitle C requirements governing standards for owners and operators of hazardous waste treatment, storage, and disposal facilities (40 *CFR* Part 264, for permitted facilities, and 40 *CFR* Part 265, for interim status facilities):

         (1) Ground-Water Protection and Monitoring (40 *CFR* 264.90-264.109).
         (2) Closure and Post Closure (40 *CFR* 264.110-264.120).
         (3) Containers (40 *CFR* 264.170-264.178).
         (4) Tanks (40 *CFR* 264.190-264.199).
         (5) Surface Impoundments (40 *CFR* 264.220-264.249).
         (6) Waste Piles (40 *CFR* 264.250-264.269).
         (7) Land Treatment (40 *CFR* 264.270-264.299).
         (8) Landfills (40 *CFR* 264.300-264.339).
         (9) Incinerators (40 *CFR* 264.340-264.999).
         (10) Land Disposal Restrictions (40 *CFR* 268.1-268.50).
         (11) Dioxin-containing wastes (50 *FR* 1978).
         (12) Standards of performance for storage vessels for petroleum liquids [40 *CFR* Part 60, Subparts K and K(a)].
         (13) Codification rule for 1984 RCRA amendments (50 *FR* 28702, July 15, 1985; 53 *FR* 45788, December 1, 1987).

   ii. EPA's Office of Water administers several potentially applicable or relevant and appropriate statutes and regulations issued thereunder:

      a. Section 14.2 of the Public Health Service Act as amended by the Safe Drinking Water Act, as amended, [42 U.S.C. 300(f)].

         (1) Maximum Contaminant Levels (for all sources of drinking water exposure) (40 *CFR* 141.11-141.16).
         (2) Maximum Contaminant Level Goals (40 *CFR* 141.50-141.52, 50 *FR* 46936).
         (3) Underground Injection Control Regulations (40 *CFR* Parts 144, 145, 146, 147).

      b. Clean Water Act, as amended, (33 U.S.C. 1251).

         (1) Requirements established pursuant to sections 301, 302, 303 (including state water quality standards), 304, 306, 307 (including federal pretreatment requirements for discharge into a publicly owned treatment works), 308, 402, 403 and 404 of the Clean Water Act (33 *CFR* Parts 320-330, 40 *CFR* Parts 122, 123, 125, 131, 230, 231, 233, 400-469).
         (2) Available federal water quality criteria documents are listed at 45 *FR* 79318, November 28, 1980; 49 *FR* 5831, February 15, 1984; 50 *FR* 30784, July 29, 1985; 51 *FR* 8012, March 7, 1986; 51 *FR* 22978, June 23, 1986; 51 *FR* 43665, December 3, 1986; 52 *FR* 6213, March 2, 1987; 53 *FR* 177, January 5, 1988; 53 *FR* 19028, May 26, 1988; 53 *FR* 33177, August 30, 1988; 54 *FR* 19227, May 4, 1989.
         (3) Clean Water Act section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 *CFR* Part 230).
         (4) Procedures for Denial or Restriction of Disposal Sites for Dredged Material [Clean Water Act section 404(c) Procedures, 33 *CFR* Parts 320-329, 40 *CFR* Part 231].

      c. Marine Protection, Research, and Sanctuaries Act (33 U.S.C. 1401).

         (1) Incineration at sea requirements (40 *CFR* Parts 220-225, 227-229. See also 40 *CFR* 125.120-125.124).

   iii. EPA's Office of Pesticides and Toxic Substances administers the Toxic Substances Control Act (15 U.S.C. 2601). Potentially applicable or relevant and appropriate requirements pursuant to that Act are:

      PCB requirements generally: 40 *CFR* Part 761; Manufacturing, Processing, Distribution in Commerce, and Use of PCBs and PCB Items (40 *CFR* 761.20-761.30); Markings of PCBs and PCB Items (40 *CFR* 761.40-761.45); Storage and Disposal (40 *CFR* 761.60-761.79); Records and Reports (40 *CFR* 761.180-761.185, 761.187 and 761.193). See also 40 *CFR* 129.105, 750.

   iv. EPA's Office of External Affairs administers potentially applicable or relevant and appropriate requirements regarding requirements for floodplains and wetlands (40 *CFR* Part 6, Appendix A).

Source: Hazardous Waste Consultant, May/June 1990

TABLE 6-1.
(Continued)

Examples of Potential Federal and State ARARs and TBCs

v. EPA's Office of Air and Radiation administers several potentially applicable or relevant and appropriate statutes and regulations issued thereunder:

a. The Uranium Mill Tailings Radiation Control Act of 1978 (42 U.S.C. 2022) and Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 *CFR* Part 192).

b. Clean Air Act (42 U.S.C. 7401).

(1) National Primary and Secondary Ambient Air Quality Standards (40 *CFR* Part 50).

(2) Standards for Protection Against Radiation (10 *CFR* Part 20). See also 10 *CFR* Parts 10, 40, 60, 61, 72, 960, 961.

(3) National Emission Standards for Hazardous Air Pollutants (40 *CFR* Part 61). See also 40 *CFR* 427.110-427.116, 763.

(4) New source performance standards (40 *CFR* Part 60).

vi. Other federal requirements:

a. National Historic Preservation Act (16 U.S.C. 470). Compliance with NHPA required pursuant to 7 *CFR* Part 650. Protection of Archaeological Resources: Uniform Regulations—Department of Defense (32 *CFR* Part 229), Department of the Interior (43 *CFR* Part 7).

b. DOT Rules for the Transportation of Hazardous Materials, 49 *CFR* Parts 107, 171, 172.

c. The following requirements are also potentially ARARs for Fund-financed actions:

(1) Endangered Species Act of 1973 (16 U.S.C. 1531). Generally, 50 *CFR* Parts 81, 225, 402.

(2) Wild and Scenic Rivers Act (16 U.S.C. 1271).

(3) Fish and Wildlife Coordination Act (16 U.S.C. 661).

(4) Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136) 40 *CFR* Part 165.

(5) Wilderness Act (16 U.S.C. 1131).

(6) Coastal Barriers Resources Act (16 U.S.C. 3501).

(7) Surface Mining Control and Reclamation Act (30 U.S.C. 1201).

(8) Coastal Zone Management Act of 1972 (16 U.S.C. 1451). Generally, 15 *CFR* Part 930 and 15 *CFR* 923.45 for Air and Water Pollution Control Requirements.

(9) Magnuson Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.).

(10) Marine Mammal Protection Act (16 U.S.C. 1361 et seq.).

2. *Examples of potential state ARARs.*

i. State requirements for disposal and transport of radioactive wastes.

ii. State approval of water supply system additions or developments.

iii. State ground-water withdrawal approvals.

iv. Requirements of authorized (Subtitle C of RCRA) state hazardous waste programs.

v. State Implementation Plans (SIPs) and delegated programs under the Clean Air Act.

vi. Approved state NPDES programs under the Clean Water Act.

vii. Approved state underground injection control (UIC) programs under the Safe Drinking Water Act.

viii. Approved state wellhead protection programs.

ix. State water quality standards.

x. State air toxics regulations.

3. *Other Federal criteria, advisories, and guidance, to be considered (TBC).*

i. Federal criteria, advisories, and procedures.

a. Health Effects Assessments (HEAs) and Proposed HEAs ("Health Effects Assessment Summary Tables," updated quarterly).

b. Reference Doses (RfDs) ["Health Effects Assessment Summary Tables," updated quarterly, or "Integrated Risk Information System (IRIS)," updated monthly].

c. Slope Factors for Carcinogens ["Health Effects Assessment Summary Tables," updated quarterly, or "Integrated Risk Information System (IRIS)," updated monthly].

d. Pesticide registrations and registration data.

e. Pesticide and food additive tolerances and action levels. Note: Germane portions of tolerances and action levels may be pertinent and therefore are to be considered in certain situations.

f. PCB Spill Cleanup Policy (52 *FR* 10688, April 2, 1987).

g. Waste load allocation procedures (40 *CFR* Parts 125, 130).

Source: Hazardous Waste Consultant, May/June 1990

TABLE 6-1.
(Continued)

Examples of Potential Federal and State ARARs and TBCs

h. Federal sole source aquifer requirements (52 *FR* 6873, March 5, 1987).

i. Public health basis for the decision to list pollutants as hazardous under section 112 of the Clean Air Act.

j. EPA's Ground-Water Protection Strategy.

k. Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites (Draft, October 1986) establishes criteria for the use of background concentrations and ACLs.

l. Superfund Public Health Evaluation Manual.

m. TSCA health data.

n. TSCA chemical advisories.

o. ATSDR Toxicological Profiles.

p. Advisories issued by FWS and NWFS under the Fish and Wildlife Coordination Act.

q. TSCA Compliance Program Policy ("TSCA Enforcement Guidance Manual Policy Compendium." USEPA, OECM, OPTS, March 1985).

r. Health Advisories, EPA Office of Water.

s. EPA/DOT Guidance Manual on Hazardous Waste Transportation.

ii. USEPA RCRA Guidance Documents.

a. Alternate Concentration Limits (ACL) Guidance (draft).

b. EPA's RCRA Design Guidelines
(1) Surface Impoundments—Liner Systems, Final Cover, and Freeboard Control.
(2) Waste Pile Design—Liner Systems.
(3) Land Treatment Units.
(4) Landfill Design—Liner Systems and Final Cover.

c. Permitting Guidance Manuals.
(1) Permit Applicant's Guidance Manual for Hazardous Waste Land Treatment, Storage, and Disposal Facilities.
(2) Permit Applicant's Guidance Manual for the General Facility Standards of 40 *CFR* Part 264.
(3) Permit Writer's Guidance Manual for Hazardous Waste Land Treatment, Storage, and Disposal Facilities.
(4) Permit Writer's Guidance Manual for the Location of Hazardous Waste Land Storage and Disposal Facilities: Phase I, Criteria for Location Acceptability and Existing Regulations for Evaluating Locations.
(5) Permit Writer's Guidance Manual for Subpart F.
(6) Permit Applicant's Guidance Manual for the General Facility Standards.
(7) Waste Analysis Plan Guidance Manual.
(8) Permit Writer's Guidance Manual for Hazardous Waste Tanks.
(9) Model Permit Application for Existing Incinerators.
(10) Guidance Manual for Evaluating Permit Applications for the Operation of Hazardous Waste Incinerator Units.
(11) A Guide for Preparing RCRA Permit Applications for Existing Storage Facilities.
(12) Guidance Manual on Closure and Post-Closure Interim Status Standards.

d. Technical Resource Documents (TRDs).
(1) RCRA Ground-Water Monitoring Technical Enforcement Guidance Document.
(2) Evaluating Cover Systems for Solid and Hazardous Waste.
(3) Hydrologic Simulation of Solid Waste Disposal Sites.
(4) Landfill and Surface Impoundment Performance Evaluation.
(5) Lining of Water Impoundment and Disposal Facilities.
(6) Management of Hazardous Waste Leachate.
(7) Guide to the Disposal of Chemically Stabilized and Solidified Waste.
(8) Closure of Hazardous Waste Surface Impoundments.
(9) Hazardous Waste Land Treatment.
(10) Soil Properties, Classification, and Hydraulic Conductivity Testing.

e. Test Methods for Evaluating Solid Waste.
(1) Solid Waste Leaching Procedure Manual.
(2) Methods for the Prediction of Leachate Plume Migration and Mixing.
(3) Hydrologic Evaluation of Landfill Performance (HELP) Model Hydrologic Simulation and Solid Waste Disposal Sites.
(4) Procedures for Modeling Flow Through Clay Liners to Determine Required Liner Thickness.
(5) Test Methods for Evaluating Solid Wastes.
(6) A Method for Determining the Compatibility of Hazardous Wastes.
(7) Guidance Manual on Hazardous Waste Compatibility.

Source: Hazardous Waste Consultant, May/June 1990

TABLE 6-1.
(Continued)

Examples of Potential Federal and State ARARs and TBCs

iii. USEPA Office of Water Guidance Documents.

a. Pretreatment Guidance Documents.

(1) 304(g) Guidance Document on Revised Pretreatment Guidelines (3 volumes).

b. Water Quality Guidance Documents.

(1) Ecological Evaluation of Proposed Discharge of Dredged Material into Ocean Waters (1977).

(2) Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses (1983).

(3) Water-Related Environmental Fate of 129 Priority Pollutants (1979).

(4) Water Quality Standards Handbook (1983).

(5) Technical Support Document for Water-Quality-Based Toxics Control.

(6) Developing Requirements for Direct and Indirect Discharges of CERCLA Wastewater (1987).

c. NPDES Guidance Documents.

(1) NPDES Best Management Practices Guidance Manual (June 1981).

(2) Case studies on toxicity reduction evaluation (May 1983).

d. Ground Water/UIC Guidance Documents.

(1) Designation of a USDW.

(2) Elements of Aquifer Identification.

(3) Definition of major facilities.

(4) Corrective action requirements.

(5) Requirements applicable to wells injecting into, through, or above an aquifer that has been exempted pursuant to 40 *CFR* 146.104(b)(4).

(6) Guidance for UIC Implementation on Indian lands.

e. Clean Water Act Guidance Documents.

f. Guidance for Applicants for State Well Head Protection Program Assistance Funds under the Safe Drinking Water Act (Office of Ground-Water Protection, June 1987).

iv. USEPA Manuals from the Office of Research and Development.

a. EW 846 methods—laboratory analytic methods.

b. Lab protocols developed pursuant to Clean Water Act section 304(h).

v. Other

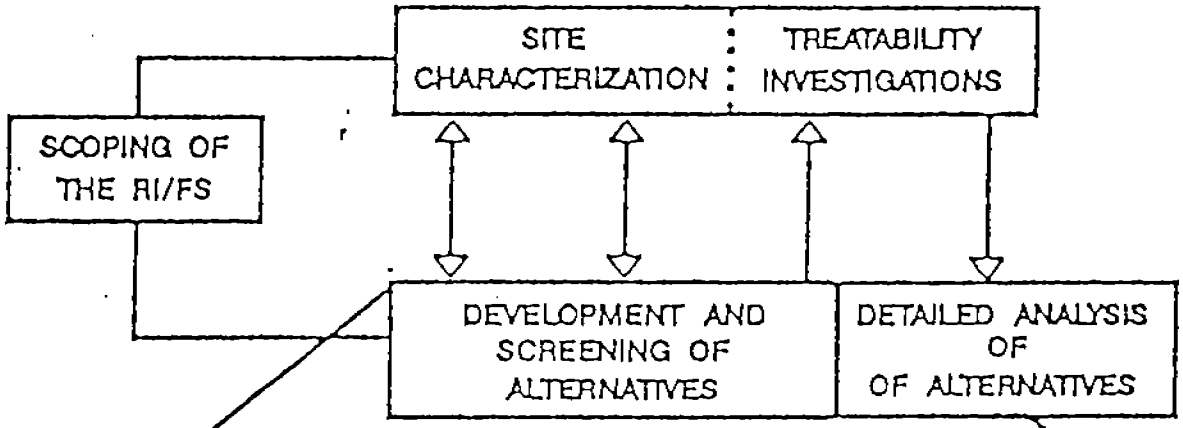
a. Data Quality Objectives, Volumes I and II.

b. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (Draft).

c. Guidance on Preparing Superfund Decision Document: The Proposed Plan and Record of Decision (Draft).

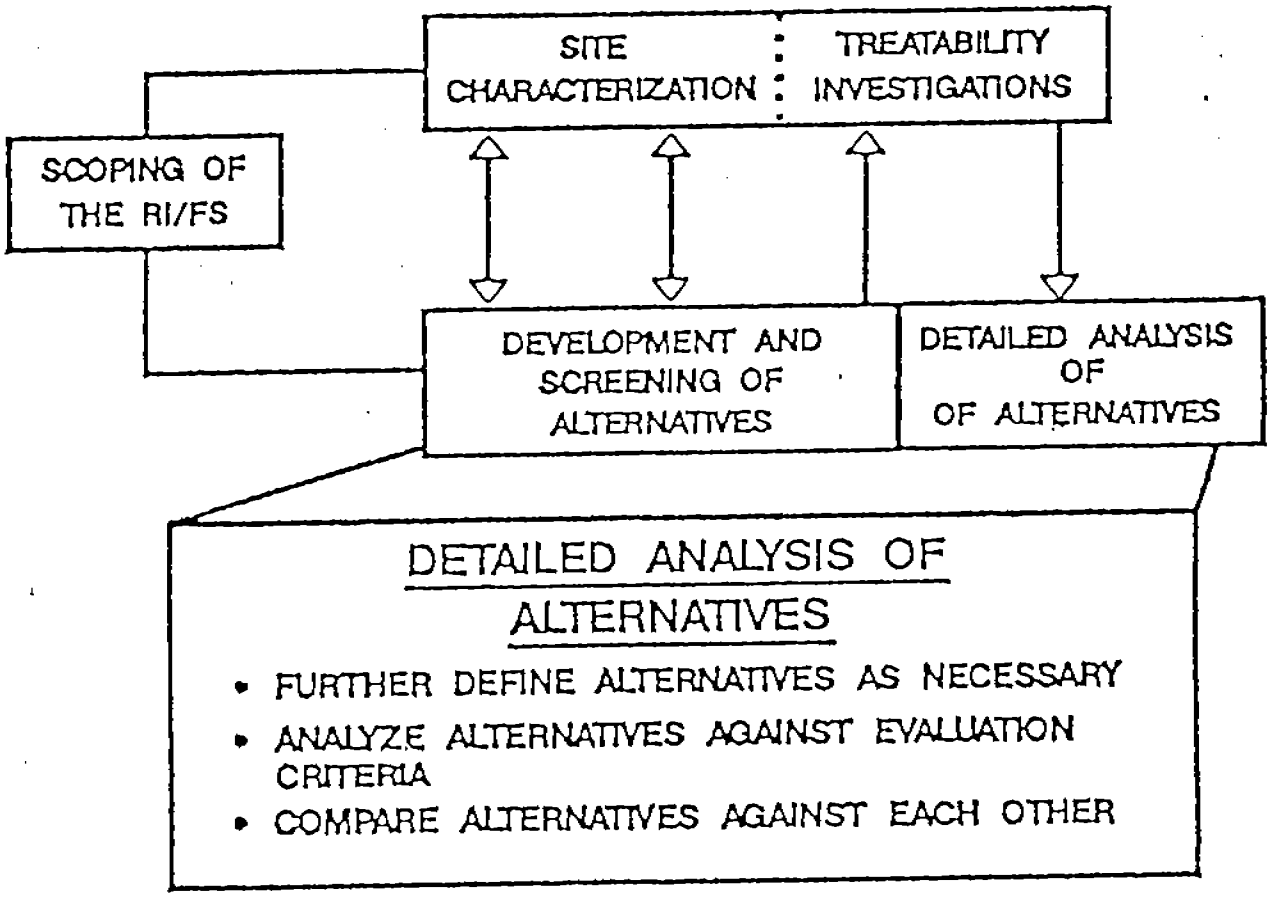
d. Standard Operating Safety Guides.

Source: Hazardous Waste Consultant, May/June 1990



DEVELOPMENT AND SCREENING OF ALTERNATIVES

- IDENTIFY POTENTIAL TREATMENT TECHNOLOGIES CONTAINMENT/DISPOSAL REQUIREMENTS FOR RESIDUALS OR UNTREATED WASTE
- SCREEN TECHNOLOGIES
- IDENTIFY ACTION-SPECIFIC ARARs
- ASSEMBLE TECHNOLOGIES INTO ALTERNATIVES
- SCREEN ALTERNATIVES AS NECESSARY


SITE CHARACTERIZATION
TREATABILITY INVESTIGATIONS
SCOPING OF THE RI/FS
DEVELOPMENT AND SCREENING OF ALTERNATIVES
DETAILED ANALYSIS OF OF ALTERNATIVES
DETAILED ANALYSIS OF ALTERNATIVES
• FURTHER DEFINE ALTERNATIVES AS NECESSARY
• ANALYZE ALTERNATIVES AGAINST EVALUATION CRITERIA
• COMPARE ALTERNATIVES AGAINST EACH OTHER

DETAILED ANALYSIS CRITERIA

- OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT
- COMPLIANCE WITH ARARS
- LONG-TERM EFFECTIVENESS
- REDUCTION OF TOXICITY, MOBILITY & VOLUME
- SHORT-TERM EFFECTIVENESS
- IMPLEMENTABILITY
- COST
- STATE ACCEPTANCE
- COMMUNITY ACCEPTANCE

Table 6-2. Feasibility Study Report Format
Generic Remedial Investigation/Feasibility Study Work Plan
Jacksonville Naval Air Station
Jacksonville, Florida

--	Executive Summary
1.0	Introduction
1.1	Purpose and Organization of Report
1.2	Background Information
1.2.1	Site Description
1.2.2	Site History
1.2.3	Nature and Extent of Contamination
1.2.4	Contaminant Fate and Transport
1.2.5	Baseline Risk Assessment
2.0	Identification and Screening of Technologies
2.1	Introduction
2.2	Remedial Action Objectives
2.2.1	Contaminants of Interest
2.2.2	Remedial Action Goals
2.2.3	Dev. of Remediation Goals
2.3	General Response Actions
2.4	Identification and Screening of Technology Types and Process Options
2.4.1	Identification and Screening of Technologies
2.4.2	Evaluation of Technologies and Selection of Representative Technologies
3.0	Development and Screening of Alternatives
3.1	Development of Alternatives
3.2	Treatability Study Results
3.3	Screening of Alternatives
3.3.1	Introduction
3.3.2	Alternative 1
3.3.2.1	Description
3.3.2.2	Evaluation
3.3.3	Alternative 2
3.3.3.1	Description
3.3.3.2	Evaluation
3.3.4	Alternative 3

Table 6-2. Feasibility Study Report Format
Generic Remedial Investigation/Feasibility Study Work Plan
Jacksonville Naval Air Station
Jacksonville, Florida

4.0 Detailed Analysis of Alternatives

4.1 Introduction

4.2 Individual Analysis of Alternatives
4.2.1 Alternative 1
4.2.1.1 Description
4.2.1.2 Detailed Analysis
4.2.2 Alternative 2
4.2.2.1 Description
4.2.2.2 Detailed Analysis
4.2.3 Alternative 3

4.3 Comparative Analysis

Bibliography

Appendices

REMEDIAL DESIGN / REMEDIAL ACTION

- Federal facilities agreement
- Statement of work
- Remedial design report
- Implement remedial action

PURPOSE OF IRP

Parallel ~~to~~ CERCLA process

"To assess, identify and control environmental contamination from past waste disposal operations at Navy installations"

PHASES OF IRP

1. Preliminary assessment / site investigation
2. RI / FS
3. RD / RA

proposed activities

refer Vol. 1.0 TOC

NAS org chart

~~[illegible]~~ G&M org. chart

event schedule

1) Program Management (Nala)
2) Background on PSCs
3) Prioritization of Sites
4) H&S
5) CRP

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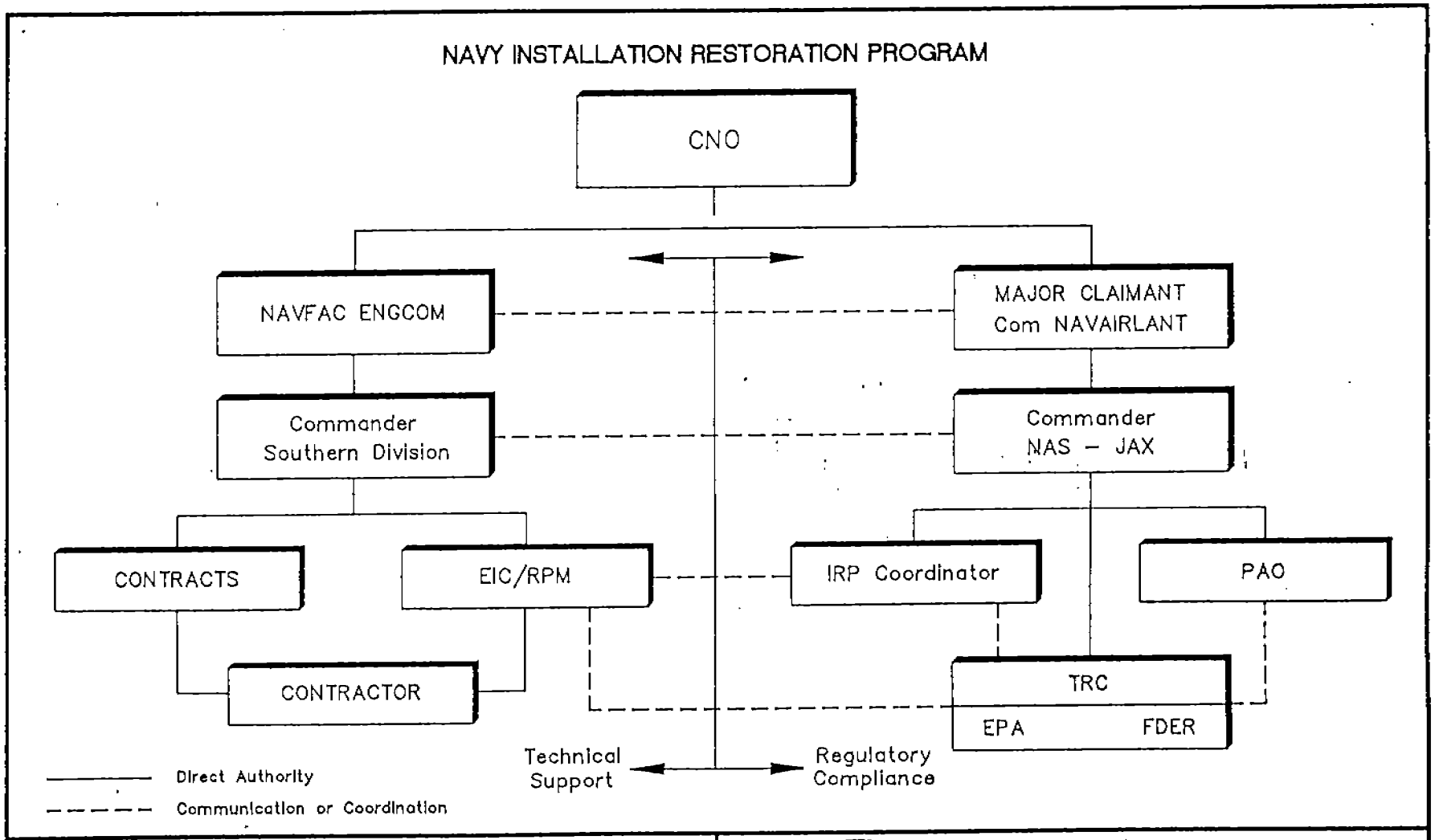

NAVY ORGANIZATION CHART

FIGURE 1–1

PROGRAM ORGANIZATION
AND PLANNING

NAS JACKSONVILLE
JULY 1990

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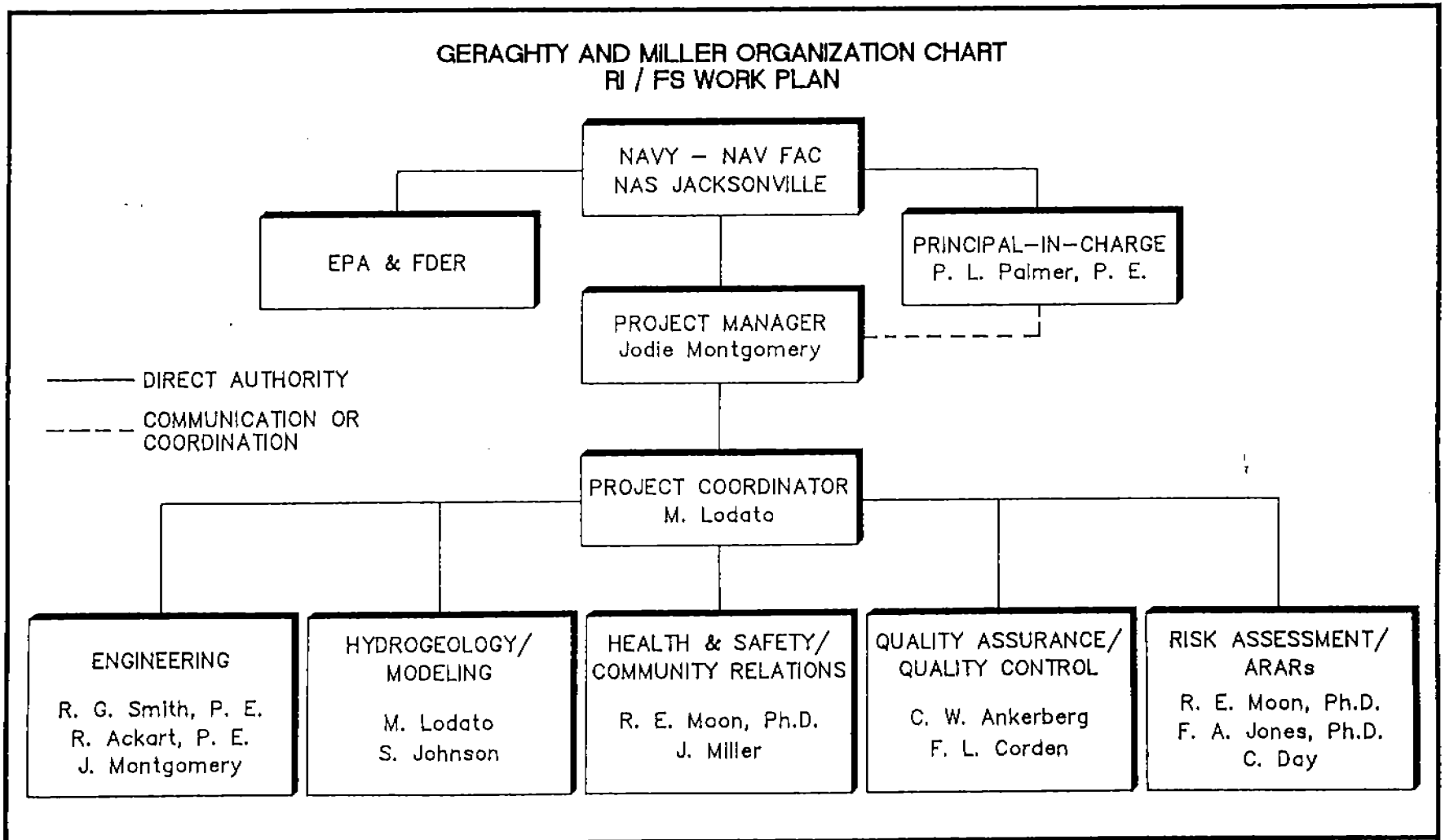

ORGANIZATIONAL CHART

FIGURE 1–2

PROGRAM ORGANIZATION AND PLANNING

NAS JACKSONVILLE
JULY 1990

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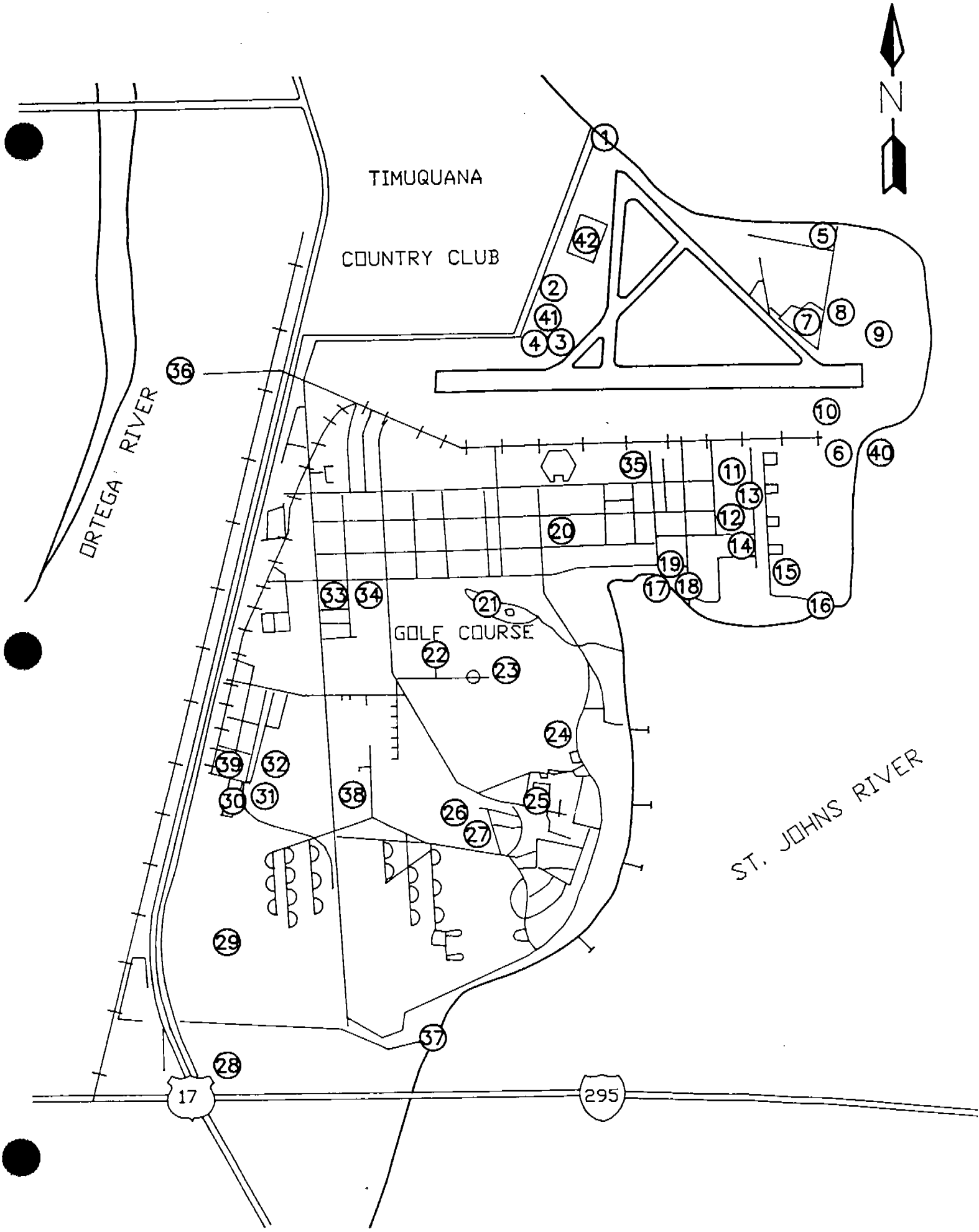
OPERABLE UNITS

"Discrete actions that comprise incremental steps toward the final remedy."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OPERABLE UNIT ASSIGNMENTS

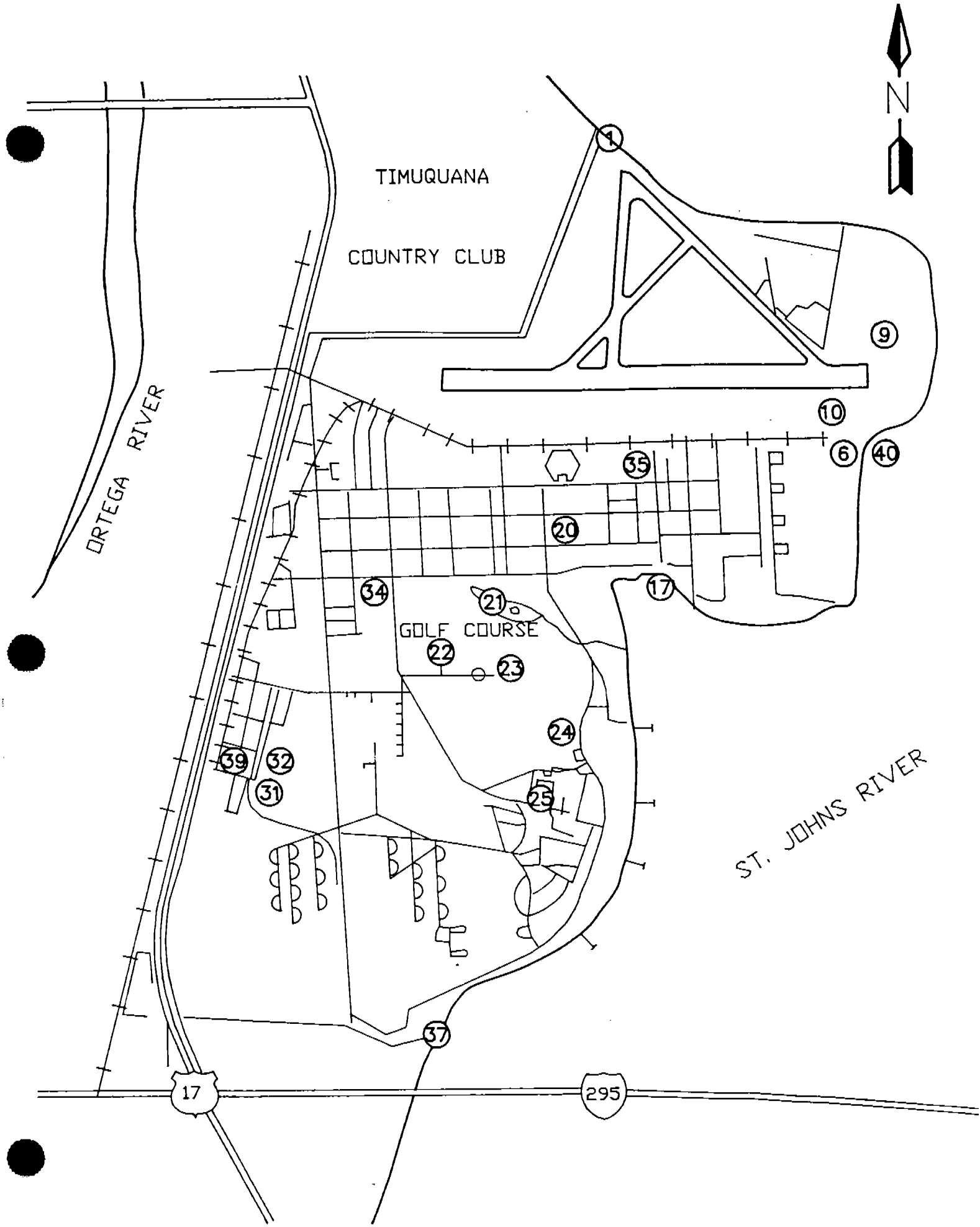
- No further action
- Site screening
- Petroleum sites

Mike Lodato stands after intro.

Remaining PSCs are proposed for the RI / FS process.

NO FURTHER ACTION

- Sufficient existing data available
- No potential receptors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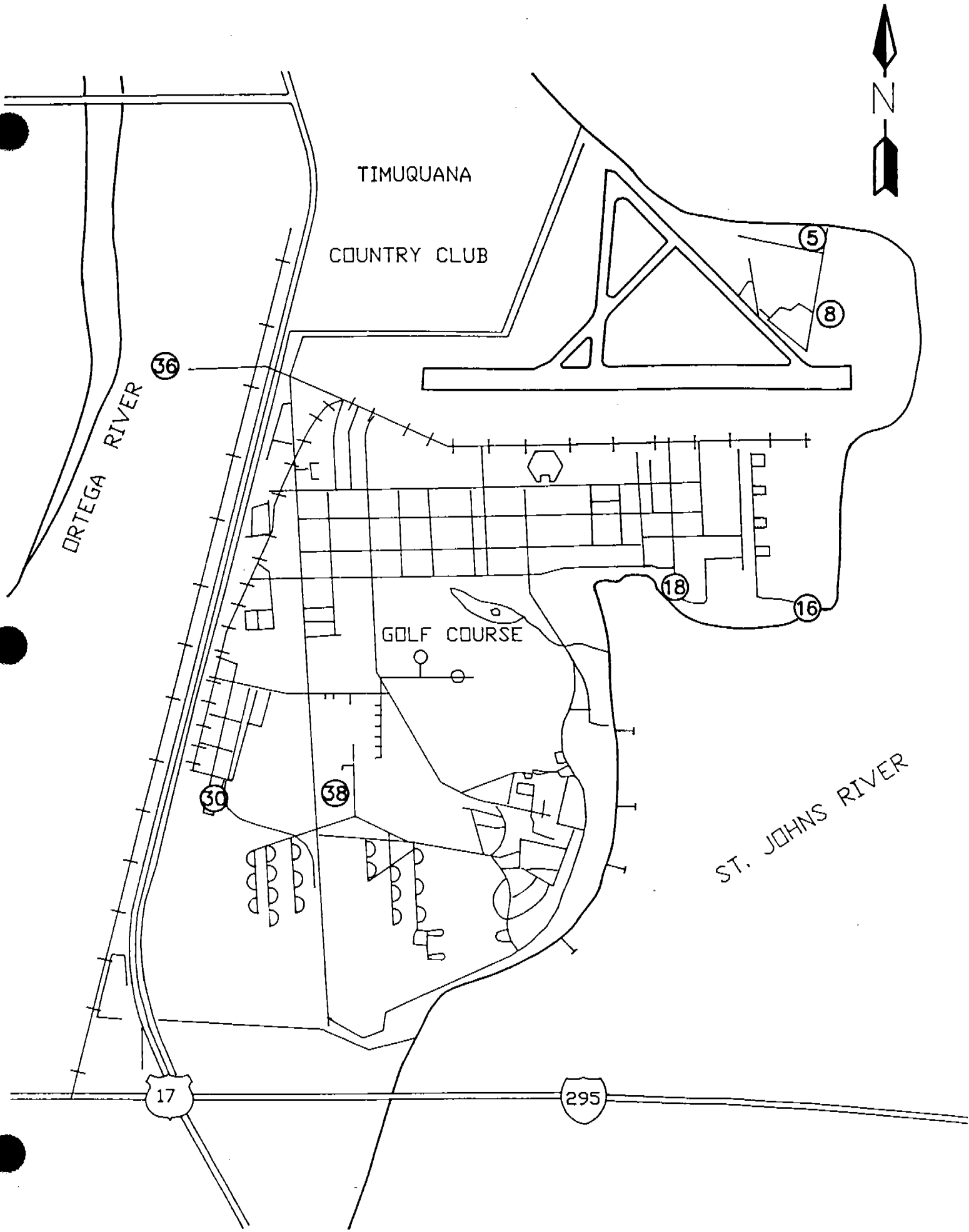
SITE SCREENING

- Inconclusive available data
- Limited confirmation study required
- Risk analysis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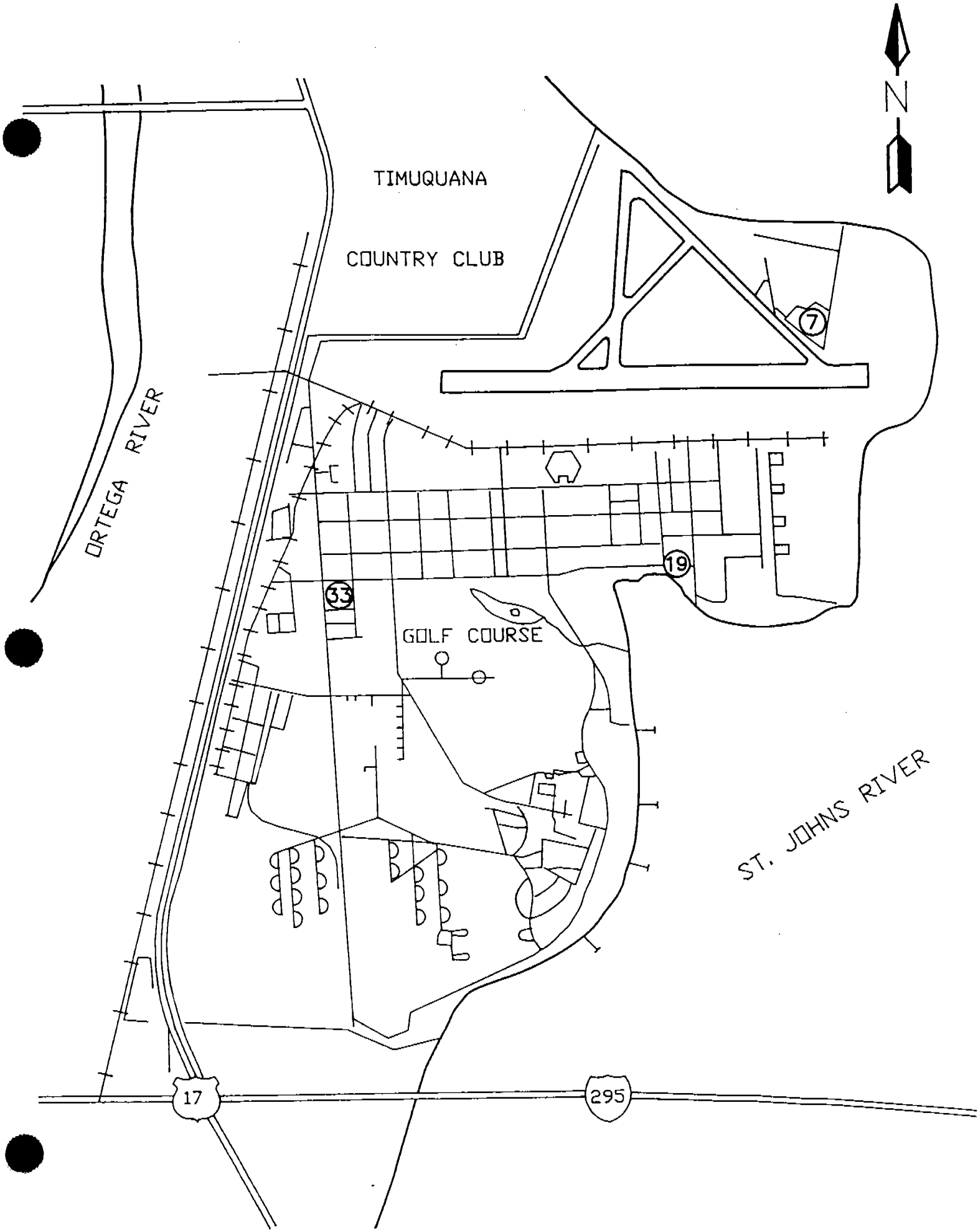
PETROLEUM HYDROCARBON PSCs

Petroleum hydrocarbon PSCs will be investigated in accordance with chapter 17-770, FAC.

7. Gas hill
19. Old gas station
33. Base service station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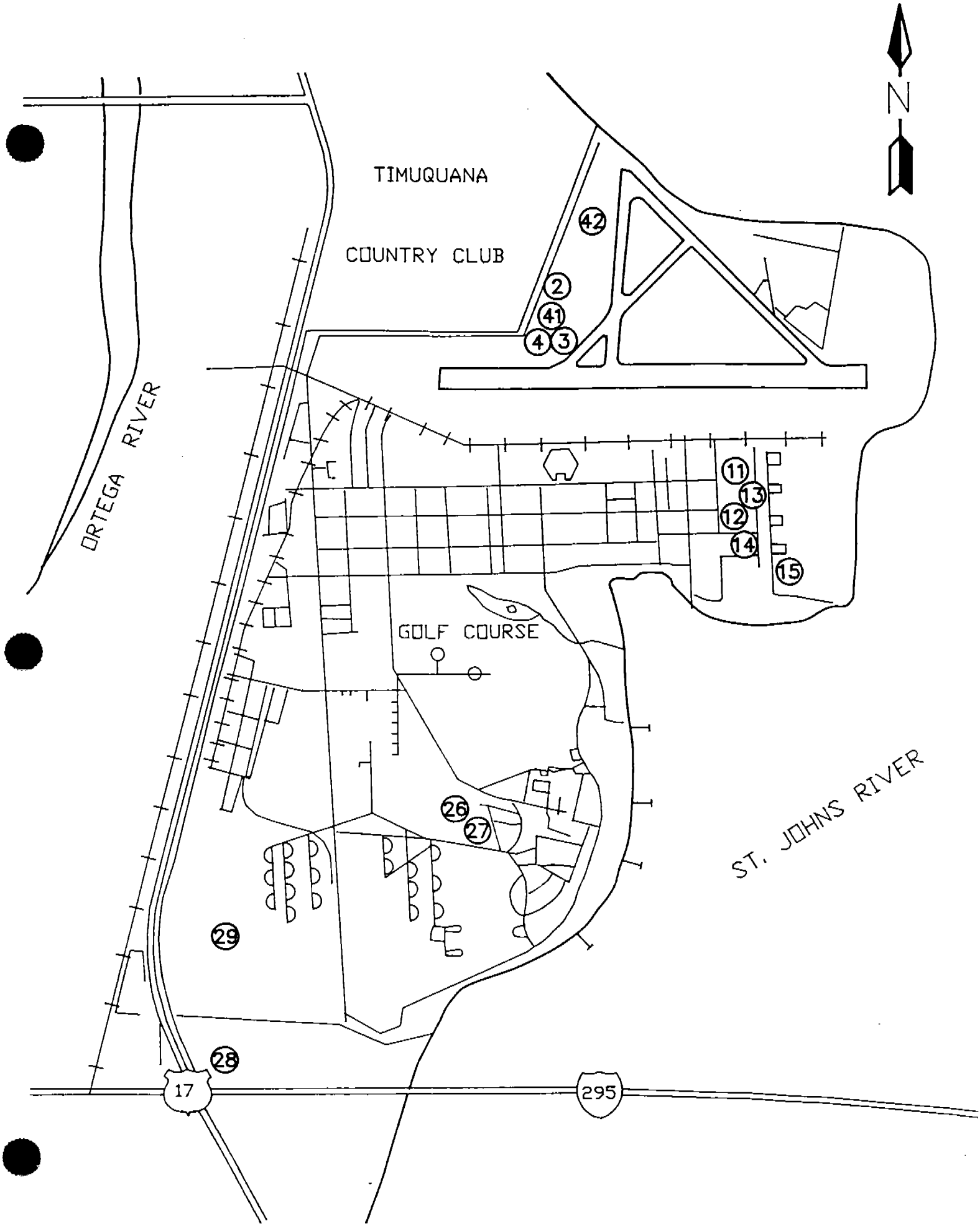
RI / FS PSCs

- Several PSCs will be grouped together for the RI / FS process
- Remaining PSCs may be handled separately
- These PSCs may be identified as operable units and removed from the RI / FS process as additional data is available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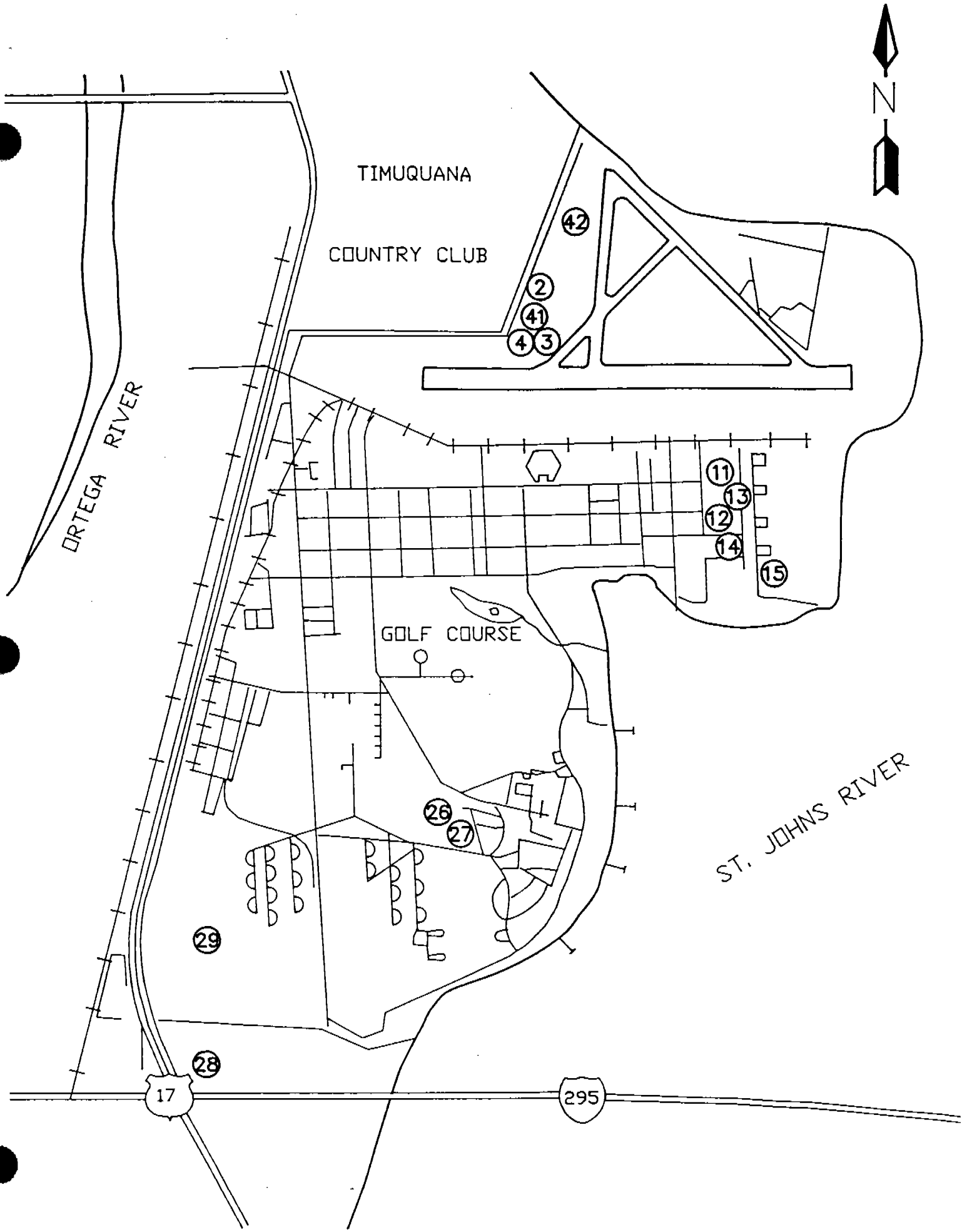
THE PITS SITE
PSC 26 AND PSC 27

26. Old main registered disposal area
27. Ex-pcb transformer storage site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GOLF COURSE
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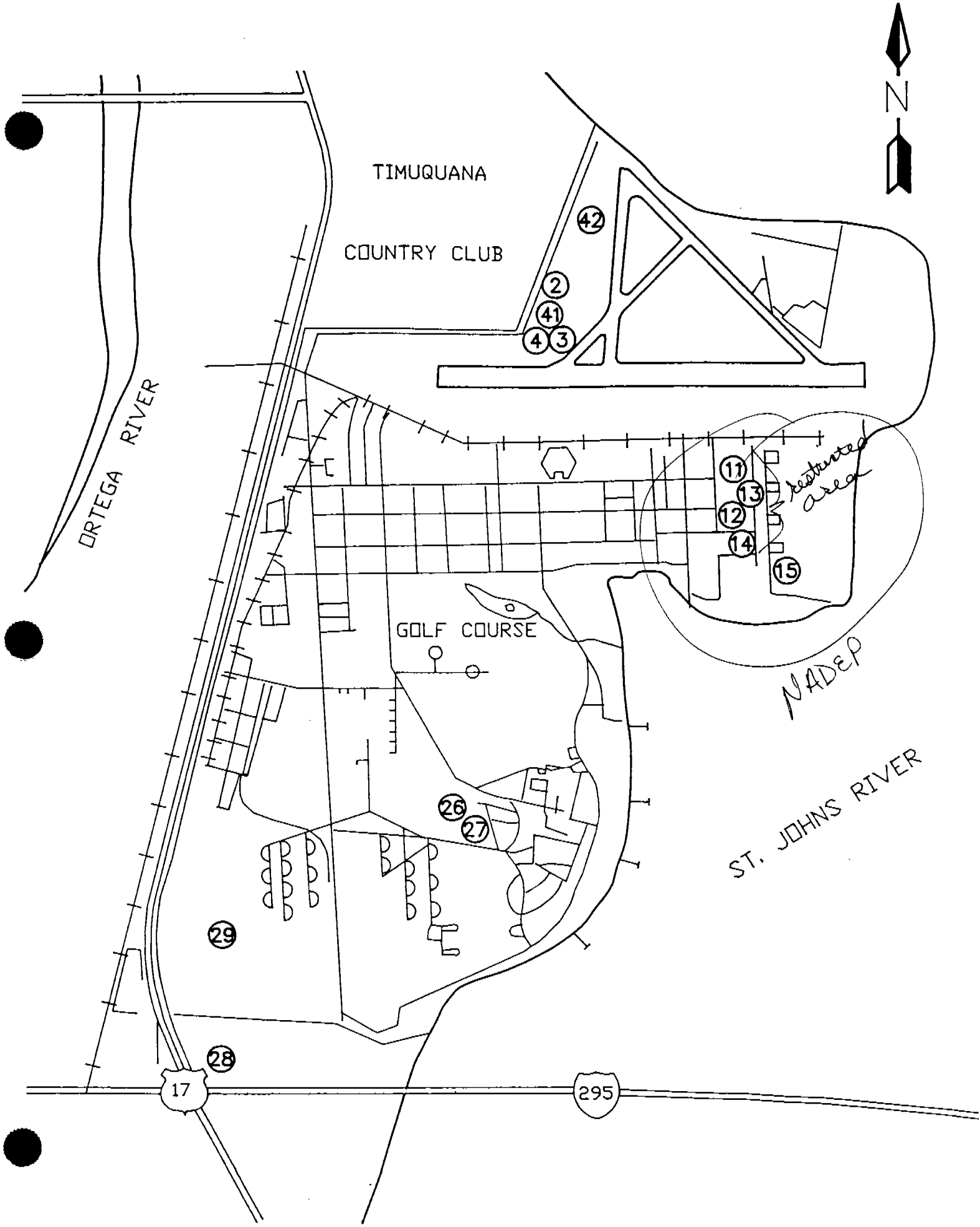
THE NAVAL AVIATION DEPOT - NADEP

11. Hanger building 101
12. Old test cell building
13. Radium paint disposal pit
14. Battery shop
15. Solvent and paint disposal area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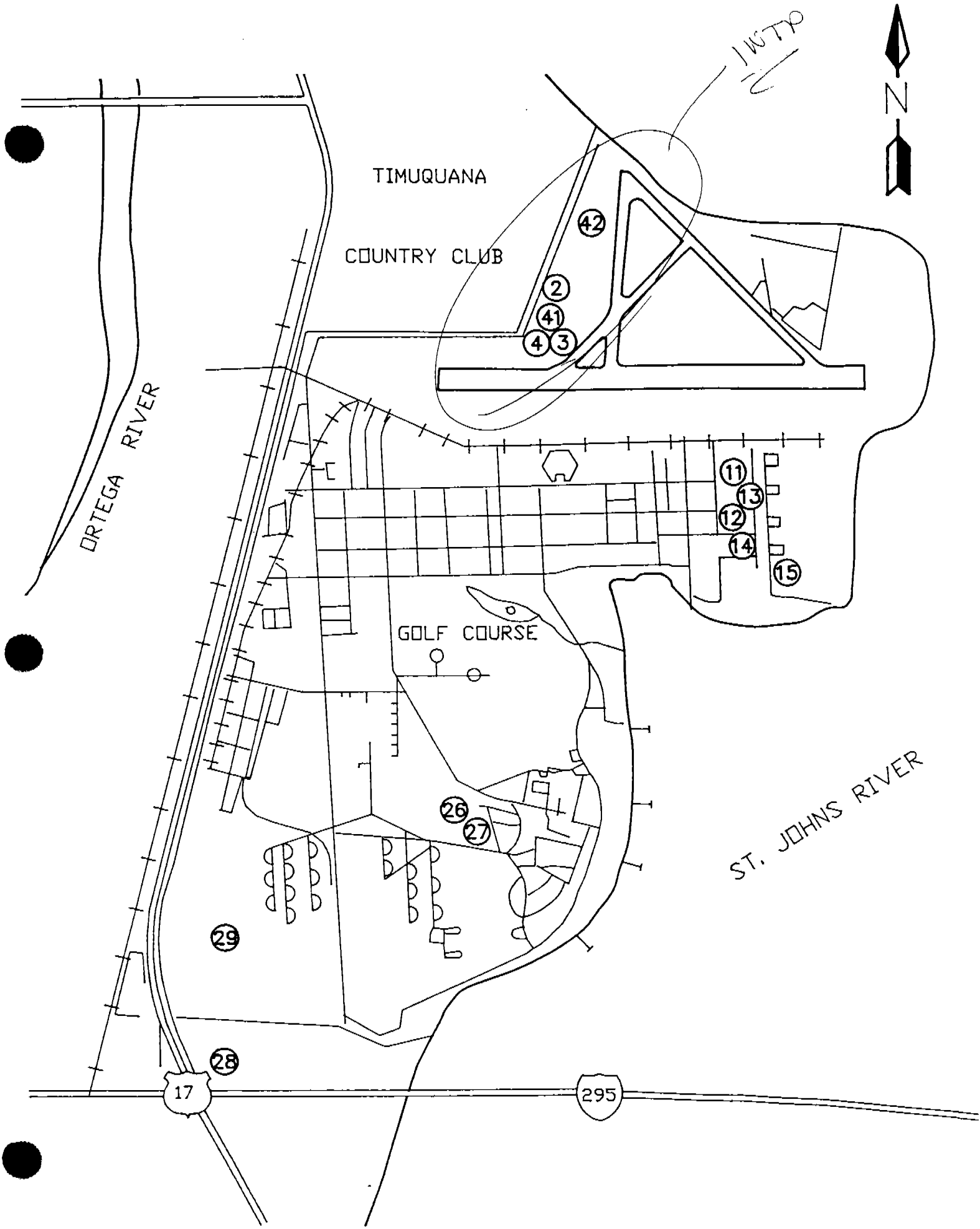
INDUSTRIAL WASTEWATER TREATMENT PLANT

2. Present fire fighting training area
3. West WWTP ex-sludge disposal area
4. Pine tree planting area
41. Domestic waste sludge drying beds
42. Polishing pond for WWTP effluent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REMAINING PSCs REQUIRING RI / FS INVESTIGATION

28. Ex-fire fighting training area
29. Organic disposal area

PROPOSED ACTIVITIES

- Finalize generic RI / FS work plan } FFA + comments
- Implement site specific work plan for pits site
- Develop additional site specific work planS

Site specific work plan
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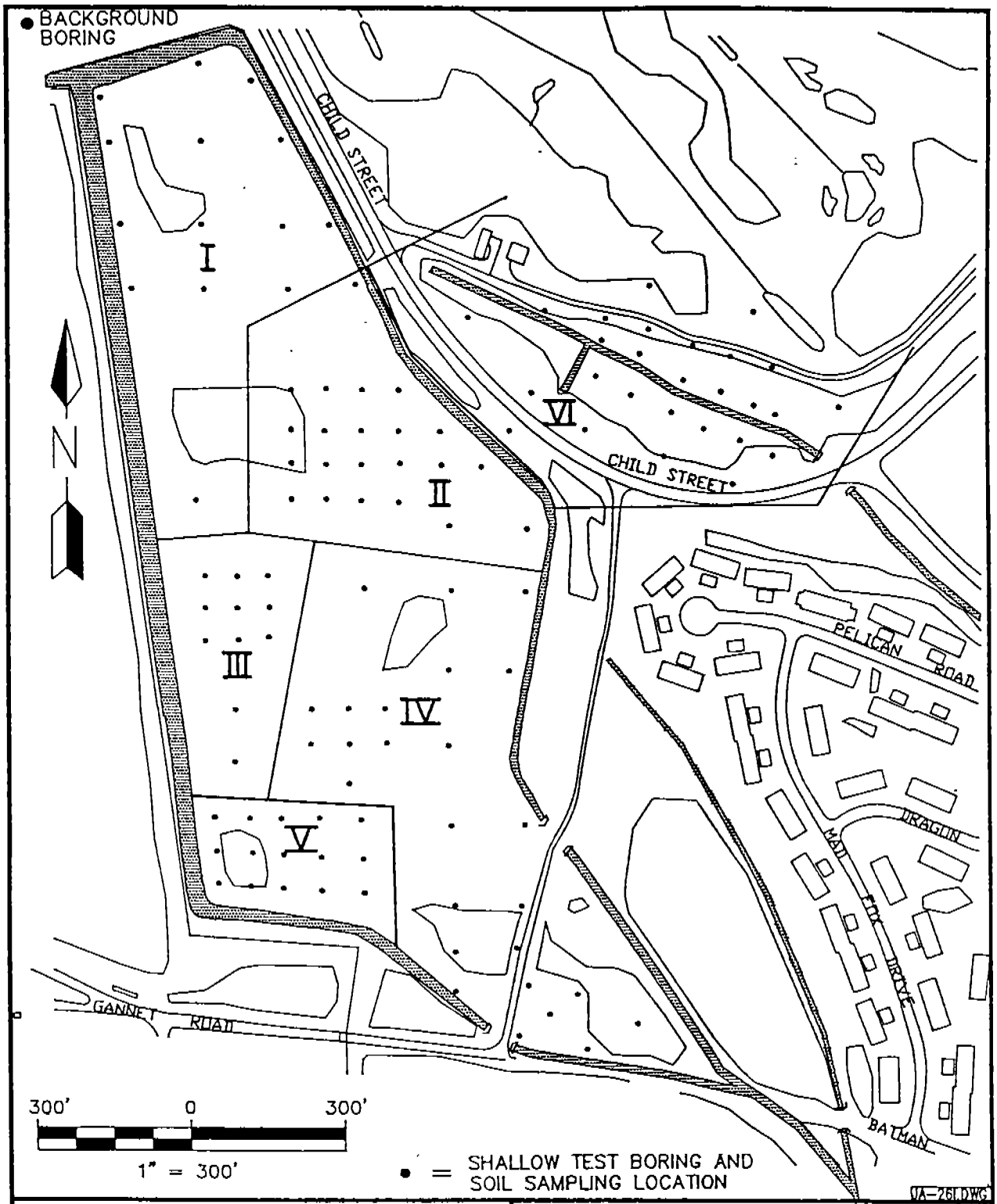

PROPOSED SHALLOW TEST BORING AND SOIL SAMPLING LOCATIONS.

FIGURE 4-1

SPECIFIC RI/FS WORK PLAN FOR PSC-26 AND PSC-27

NAS JACKSONVILLE
JULY 1990

Table 4-1. Summary of Soil Samples to be Analyzed for PCBs, BNAs, and Metals from the Pits Site

Area	Number of Samples	
	Shallow	Deep
I	3	3
II	7	7
III	3	3
IV	5	5
V	5	5
VI	5	5

* Individual constituents are from Priority Pollutant List

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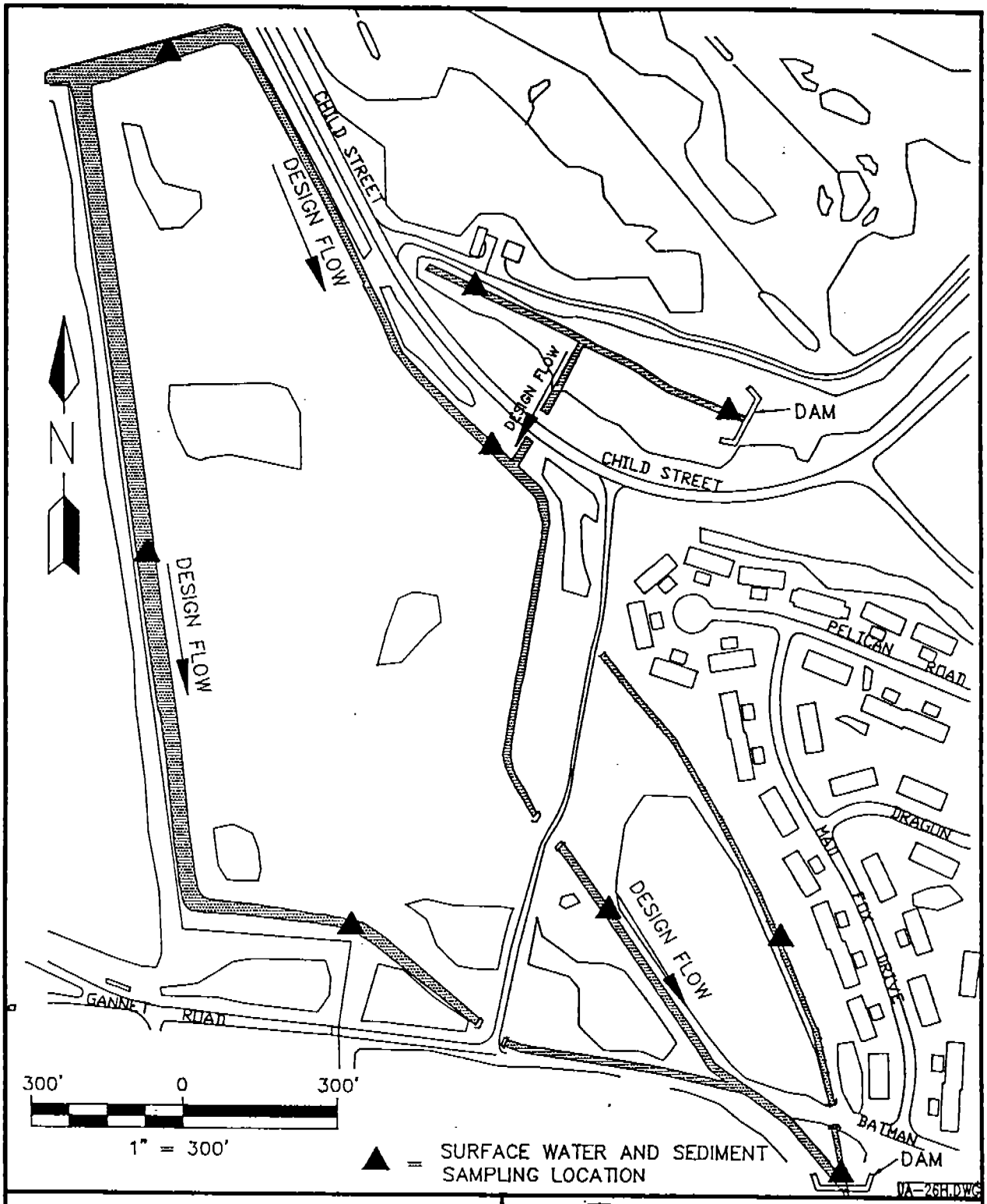
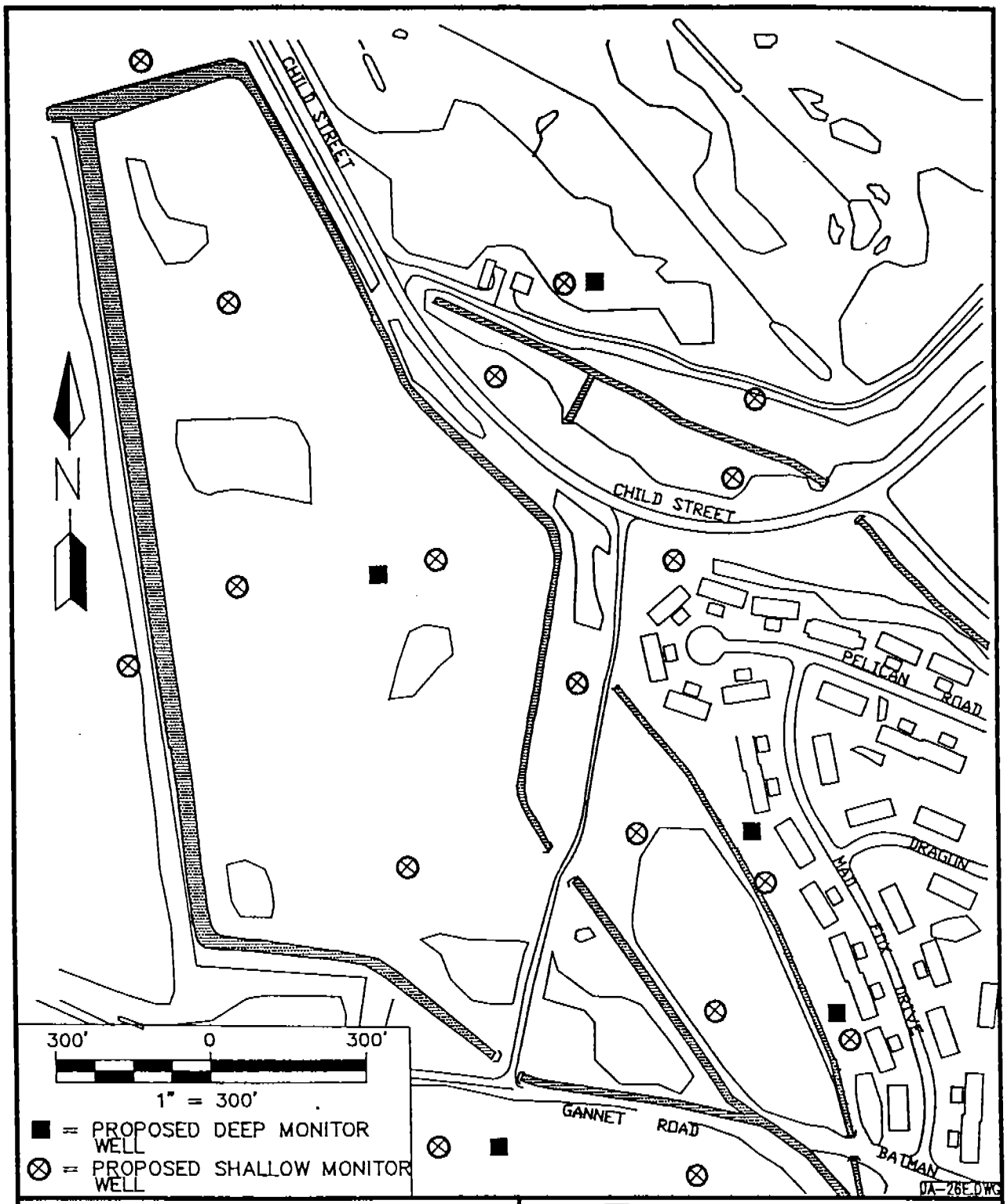


SURFACE WATER AND SEDIMENT SAMPLING LOCATION.
FIGURE 4-2

SPECIFIC RI/FS WORK PLAN FOR PSC-26 AND PSC-27

NAS JACKSONVILLE
JULY 1990



PROPOSED MONITOR WELL LOCATIONS

FIGURE 4-3

SPECIFIC RI/FS WORK PLAN FOR PSC-26 AND PSC-27

NAS JACKSONVILLE
JULY 1990

Table 5-4. Preliminary Surface and Ground-Water Management Remedial Action Alternatives for PSC Nos. 26 and 27 Naval Air Station Jacksonville Jacksonville, Florida

1. No Action

2. Ground-water recovery using recovery wells or subsurface drains. Treatment of recovered ground and surface waters by oil/water separation and air stripping. Discharge of treated water in the Sanitary Sewer System or by on-site reinjection. Disposal of collected oils on-site with other waste oils.

3. Ground-water recovery using recovery wells or subsurface drains. Treatment of recovered ground and surface waters by oil/water separation, air stripping and carbon adsorption. Discharge of treated water in the Sanitary Sewer System or by on-site reinjection. Disposal of collected oils on-site with other waste oils.

4. Ground-water recovery using recovery wells or subsurface drains. Treatment of recovered ground and surface waters by oil/water separation, and air stripping. Discharge of treated water in the Sanitary Sewer System or by on-site reinjection. Disposal of collected oils on-site with other waste oils.

5. Ground-water recovery using recovery wells or subsurface drains. Treatment of recovered ground and surface waters by oil/water separation and carbon adsorption. Discharge of treated water in the Sanitary Sewer System or by on-site reinjection. Disposal of collected oils on-site with other waste oils.

6. Ground-water recovery using recovery wells or subsurface drains. Biological treatment of recovered ground and surface waters. Discharge of treated water in the Sanitary Sewer System or by on-site reinjection.

7. Ground-water recovery using recovery wells or subsurface drains. Treatment of recovered ground and surface waters at an on-site wastewater treatment plant.

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Table 5-5. Preliminary Source Control
Remedial Action Alternatives for PSC Nos. 26 and 27
Naval Air Station Jacksonville
Jacksonville, Florida

1. No Action

2. Cap or Cover PSCs 26 and 27.

3. Perform in situ stabilization and cap or cover the PSCs.

4. Design and construct an in situ biological unit for solvents treatment at PSC 26.

5. Design and construct a vapor extraction system for in situ soils remediation.

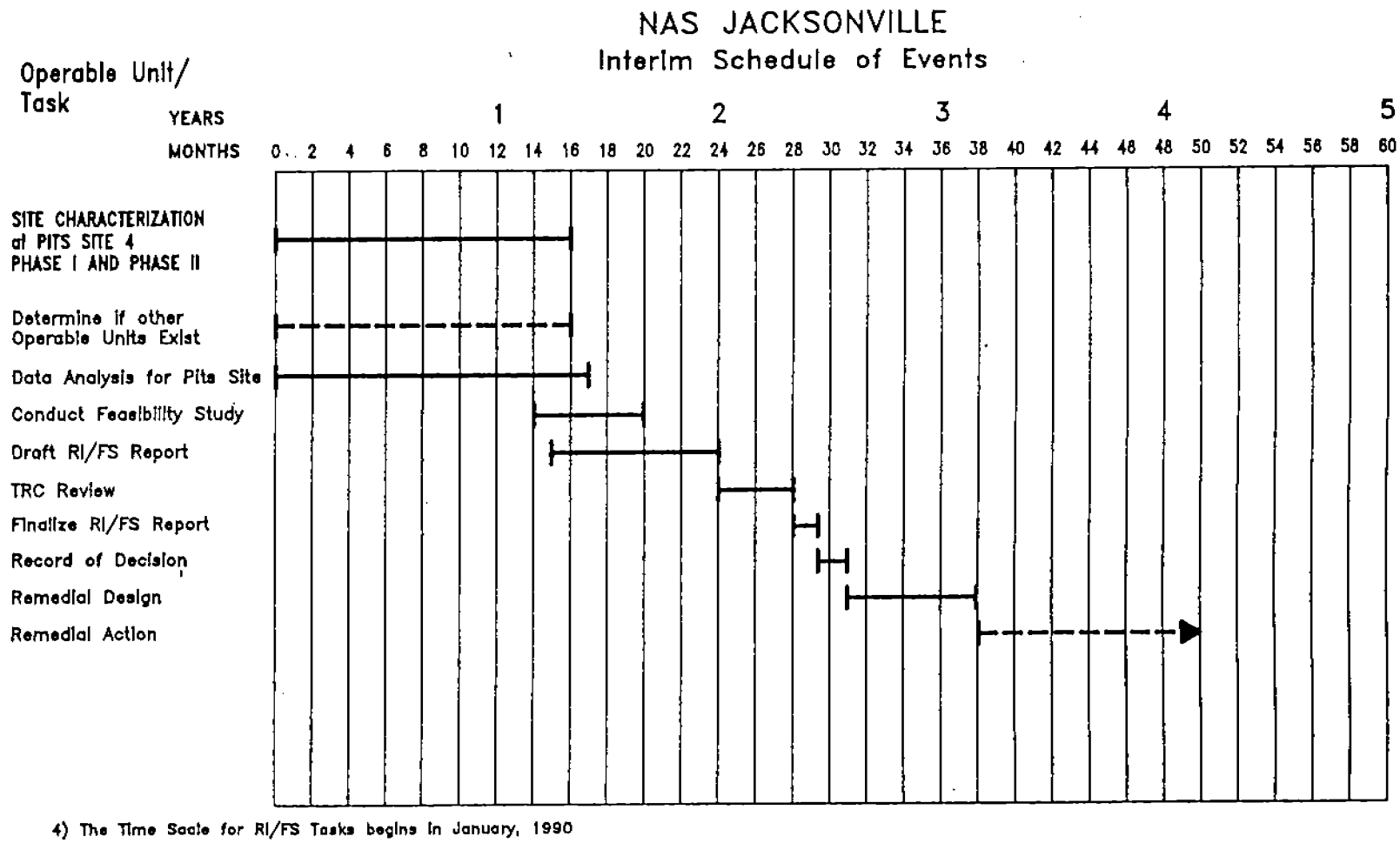
6. Excavate wastes and contaminated soils from the pits for off-site transport treatment and disposal.

7. Excavate wastes and contaminated soils for on-site incineration.

8. Excavate wastes and contaminated soils for off-site transport and incineration.

9. Design and construct in-situ vitrification for PCB and solvent treatment.

TF406\VOL6\TABLE5-5.W50



4) The Time Scale for RI/FS Tasks begins in January, 1990

INTERIM SCHEDULE OF EVENTS
FOR THE PITS SITE

FIGURE 10-1

SPECIFIC RI/FS WORK
PLAN FOR PSC-26 AND
PSC-27

NAS JACKSONVILLE
JULY 1990

FILE: JAXCH-2