# Public Notice

US Army Corps of Engineers
Fort Worth District

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| Applicant | North Texas Municipal Water District |
| Permit Application Number | 200400002 |
| Date: | February 8, 2006 |

## JOINT PUBLIC NOTICE

### APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT UNDER SECTION 404 OF THE CLEAN WATER ACT.

### APPLICATION FOR TEXAS COMMISSION ON ENVIRONMENTAL QUALITY - WATER QUALITY CERTIFICATION UNDER SECTION 401 OF THE CLEAN WATER ACT

### EASEMENT REQUEST FOR PORTIONS OF THE PROPOSED EAST FORK WATER SUPPLY PROJECT PIPELINE AND INTAKE STRUCTURE ON UNITED STATES ARMY CORPS OF ENGINEERS PROPERTY AT LAKE LAVON, COLLIN COUNTY, TEXAS

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SUBJECT: Application for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA) and for water quality certification under Section 401 of the CWA to discharge of dredged or fill material into waters of the United States (U.S.) associated with the construction of the proposed East Fork Water Supply Project in Kaufman, Rockwall and Collin Counties, Texas. The applicant has also requested easements from the United States Army Corps of Engineers (USACE) for portions of the water pipeline and outfall structure on USACE property at Lake Lavon. The proposed project includes five major components including a diversion pump station, constructed wetland with plant nurseries and nature center, conveyance pump station, conveyance pipeline to Lake Lavon, and discharge into Lake Lavon.

APPLICANT: North Texas Municipal Water District
P.O. Box 2043
Wylie, Texas 75098

APPLICATION NUMBER: 200400002

DATE ISSUED: February 8, 2006

LOCATION:

1. The diversion structure and pump station would be located immediately north of the U.S. Highway 175 crossing of the East Fork Trinity River between Seagoville and Crandall, in Kaufman County, Texas (Sheet 1 of 34). This portion of the proposed project would be located approximately at UTM coordinates 735917.094 East and 3613903.629 North (Zone 14) on the Forney South 7.5-minute USGS quadrangle map in the USGS Hydrologic Unit 12030106.

2. The constructed wetland with plant nurseries and nature center would be located on Seagoville Ranch west of the East Fork Trinity River in Kaufman County, Texas (Sheet 1 of 34). This portion of the proposed project would be located approximately at UTM coordinates 734227.782 East and 3612084.974 North (Zone 14) on the India 7.5-minute USGS quadrangle map in the USGS Hydrologic Unit 12030105.

3. The conveyance pump station would be located north of FM 3049 in the vicinity of where the East Fork Trinity River crosses FM 3049 in Kaufman County, Texas (Sheet 1 of 34). This portion of the proposed project would be located approximately at UTM coordinates 735821.314 East and 3609345.907 North (Zone 14) on the Scurry 7.5-minute USGS quadrangle map in the USGS Hydrologic Unit 12030106.

4. Approximately 43 miles of conveyance pipeline would extend from the conveyance pump station to an outfall structure at Lake Lavon crossing portions of Kaufman, Rockwall, and Collin counties, Texas (Sheet 2 of 34). The pipeline would begin at the conveyance pump station identified above (Location 3) and end at the Lake Lavon outfall structure identified below (Location 5) on numerous 7.5-minute USGS quadrangle maps in USGS Hydrologic Unit 12030106. A portion of this pipeline would be constructed on USACE property at Lake Lavon.

5. An outfall structure would be located at the northeastern end of Lake Lavon north of County Road 555 in Collin County on USACE property (Sheet 28 of 34). This portion of the proposed project would be located approximately at UTM coordinates 741361.043 East and 3669577.514 North (Zone 14) on the Culleoka 7.5-minute USGS quadrangle map in the USGS Hydrologic Unit 12030106.

OTHER AGENCY AUTHORIZATIONS: State Water Quality Certification, Texas Pollutant Discharge Elimination System/Stormwater Pollution Prevention Plan, Texas Water Rights Permit.

PROJECT DESCRIPTION: The applicant proposes to construct a water supply project that involves diverting raw water from the East Fork Trinity River, routing the diverted water through a constructed wetland in order to reduce nutrients, and transporting the polished water via an 84-inch pipeline to Lake Lavon (Sheets 1–34 of 34). The purpose of the proposed project is to supply water for the North Texas Municipal Water District (NTMWD) through the indirect reuse of wastewater treatment plant effluent discharged into the East Fork Trinity River. Recent long-

range water supply planning efforts by the NTMWD for the Region C water planning area have identified future substantial increases in water demands that must be met through conservation and increased water supplies. During the past several years, water demand within the NTWMD service area, as well as in much of north central Texas, has increased substantially.

The proposed project includes five major components including a diversion structure and pump station to withdraw water from the East Fork Trinity River, a constructed wetland with plant nurseries and a nature center, a conveyance pump station, a 43-mile pipeline, and an outfall structure in Lake Lavon. A discussion of each of the major project elements follows:

1. Diversion Pump Station and Structure: The pump station would be a concrete structure measuring 68 feet by 87 feet by 40 feet high and supported by concrete columns located just outside (east) of an existing agricultural levee. A concrete-lined trapezoidal intake channel approximately 900 feet in length would be constructed between the pump station and the East Fork Trinity River. The intake channel would have an invert elevation of 330 feet National Geodetic Vertical Datum (NGVD) at the river and would be sloped to an elevation of 324 feet NGVD at the pump station (Sheet 29-31 of 34).

A portion of the intake channel would be located within (below the ordinary high water mark) the East Fork Trinity River and also a former channel/slough, both waters of the U.S. Approximately 6,000 cubic yards of material would be excavated from below the ordinary high water mark of the river and the former channel/slough. Approximately 325 cubic yards of fill material would be discharged into approximately 3,019 square feet (0.07 acre) of waters of the U.S.

2. Constructed Wetland: The constructed wetland would be located on Seagoville Ranch within a leveed area west of the East Fork Trinity River. The wetland would consist of sedimentation basins, wetland cells, distribution canals, collection canals, conveyance canals, a collection pool, wetland plant nurseries, and a nature center (Sheet 32 of 34). The wetland cells would be located within the foot print of a 2,000-acre easement and would include about 1,840 acres of wetted surface. The average water depth overall would be about 18 inches with depths in marsh areas averaging about 12 inches to facilitate establishment of dense emergent vegetation. Deep water zones approximately 4 feet deep would be strategically oriented to facilitate flow distribution and provide enhanced aeration zones and refuge area for mosquito-eating fish.

A portion of the construction of the wetland cells would require the regrading and discharge of fill material into waters of the U.S. Approximately 50,970 cubic yards of fill material would be discharged into approximately 133.2 acres of emergent wetlands, 26.3 acres of black willow swamp, and 0.1 acre of open water for a total of 159.6 acres of impact to waters of the U.S. These areas are the result of multiple stoplog flow control structures installed from 1988 through 1991 to develop and manage waterfowl habitat. Management practices have been abandoned and allowed the areas to retain water year round resulting in development of a diverse vegetative community dominated by more perennial aquatic species.

The project would affect two Kaufman County levees within the area of the constructed wetlands. Modifications of these levees constructed by the USACE would allow flow between the constructed wetland cells.

3. Conveyance Pump Station: The conveyance pump station would be constructed on the Kaufman County levee at the southern end of the constructed wetland area. There would be no impacts to waters of the U.S, including wetlands, with this portion of the project.

4. Conveyance Pipe Line: The conveyance pipeline would consist of approximately 43 miles of 84-inch-diameter pipe (Sheets 6-17 of 34). Planned easement widths typically include a 40-foot-wide permanent easement plus an 80-foot temporary easement for a total width of 120 feet. The trench would be excavated to a width of 10.5 feet and a depth of 20 feet. The trench would be backfilled with appropriate bedding and fill material. The upper 12 inches of trench would typically be filled with topsoil. For pipeline crossings of wetland areas, the top 6 inches of the trench would be filled with topsoil originally excavated from the wetland area. For pipelines located in creeks or under roads, the pipeline would be encased with flowable fill to the top of the trench, or bottom of the road base, as applicable (Sheets 33-34 of 34).

The proposed pipeline alignment would involve crossing approximately 38.3 miles of rural, open land; 2.9 miles of rural, wooded land; 0.1 mile of urban/congested land; 0.9 mile of creek crossing, 0.4 mile of road crossings; and 0.3 mile of tunnel crossings. The pipeline would cross 1 perennial stream (East Fork Trinity River), 19 intermittent streams, and 48 ephemeral streams for a total of approximately 4,433.3 linear feet (0.870 acre) of streams that are waters of the U.S. The crossing of the East Fork Trinity River would require the excavation of approximately 3,100 cubic yards of material and the discharge of an equal amount of bedding and backfill material. The pipeline would be installed by constructing a sheet-pile coffer dam across one-half of the river at a time. The pipeline would also cross 5 emergent wetland areas, and 14 open water areas that are waters of the U.S.

5. Lake Lavon Outfall: The outfall/stilling basin at Lake Lavon would be constructed using the Bureau of Reclamation Type VI impact stilling basing design. This design was used at NTMWD's Cooper Lake Pipeline outfall into Lake Lavon. To prevent erosion, the outfall structure would include a rock riprap apron into the lake to an elevation of 487.5 feet NGVD impacting approximately 0.46 acre of waters of the U.S.

IMPACTS TO USACE PROPERTY AT LAKE LAVON: The outfall structure in Lake Lavon would affect 2.27 acres of USACE property. The portion of the conveyance pipeline crossing USACE property would impact 32.86 acres. These areas would require the out-granting of Federal land. Approximately 35.6 acres would be out-granted from USACE to NTMWD for construction of a 40-foot wide permanent pipeline easement, an outfall structure consisting of a U.S. Bureau of Reclamation (USBR) Type VI impact stilling basin, and 1,400 linear feet of rock riprap apron to elevation 487.5 NGVD in Lake Lavon. In addition to the permanent easement, an 80-foot temporary construction easement would be required, so that the total permanent and temporary easement is 120 feet wide.

The applicant has attempted to avoid and minimize adverse impacts to waters of the U.S. to the extent practicable; however, due to the size and location of the project the applicant has stated that some impacts to waters of the U.S. would be unavoidable. The applicant investigated six water supply alternatives: 1) No action, 2) East Fork Reuse Project, 3) Expansion of existing water supplies, 4) Oklahoma Water, 5) Lower Bois d'Arc Creek Reservoir, and 6) Marvin Nichols I Reservoir. The applicant found that the no-action (Alternative 1) would not allow the NTWMD to meet the near-term and long-term demands for water. The applicant stated the projects involving the expansion of existing water supplies (Lake Lavon Reuse/Lake Texoma Supply/Customer Conservation) (Alternative 3) are projects representing the planned expansion of existing programs. These programs account for only a small percentage of the water demand but are important in that they allow additional time to implement larger water supply projects that are under consideration. The applicant stated that obtaining water from Oklahoma (Alternative 4) is a possibility. However, to date, negotiations for this supply have not been successful and the Oklahoma Legislature has enacted a moratorium on the sale of Oklahoma water to Texas interests. The NTMWD has plans to construct the Lower Bois d'Arc Reservoir in the Red River basin by the year 2020 (Alternative 5). The applicant stated this alternative will not provide the water supplies needed to address the water shortage projected between present and 2020. The applicant also indicated the possibility of using the proposed Marvin Nichols I Reservoir (Alternative 6) as a NTMWD water supply by the year 2030. However, because of the timing and various permitting, contractual, and environmental issues along with significant local opposition, Marvin Nichols I cannot be considered as a near-term water supply source. The applicant believes that the proposed East Fork Reuse Alternative (Alternative 2) is the only supply option that can be implemented by 2010 that will allow the NTMWD to meet 2010 demands.

The location of the diversion channel and pump station was based on the presence of a natural shale outcrop that extends across the river south of Highway 175 forming a low water dam and ponding water in the vicinity of the proposed intake structure. Six pipeline alignments were evaluated. The applicant chose the proposed route based on feasibility and economics. Two preliminary design options of the Lake Lavon outfall location were developed. Option 1 would have the pipeline discharging into an existing stream. This would require the modification of the stream to convey the discharge and prevent erosion. Option 2 would avoid the stream. Both options would require the construction of an outfall/stilling basin at Lake Lavon.

The applicant believes they have taken all practicable measures to avoid and minimize the on-site impacts to the aquatic environment. Although the location of the constructed wetlands was the furthest to the south and required the longest pipeline to convey treated water back to Lake Lavon, the site had sufficient area for construction of the wetlands and the prior agricultural use of the site resulted in a relatively flat terrain that would not require any clearing of bottomland hardwoods or extensive grading.

The applicant proposes to compensate for unavoidable adverse impacts to waters of the U.S on-site. The majority of the wetland impacts are associated with the constructed wetland cells. The applicant believes that the development of more diverse topography and vegetative community with enhanced diversity within the constructed wetland cells will adequately mitigate for the adverse impacts to the wetlands resulting from the construction of the wetland cells.

The conveyance pipeline and the outfall structure into Lake Lavon will impact approximately 35.6 acres of USACE fee-owned property. Impacts to waters of the U.S., including wetlands, and terrestrial impacts on the fee-owned property will be mitigated on USACE property at Lake Lavon. Areas disturbed as a result of construction, such as the conveyance pipeline, would be returned to original grade and replanted with a mixture of native grasses, legumes, and wildflowers to promote native prairie habitat. The mitigation plan would include development of a mosaic of vegetative cover consisting of native prairie and riparian forest. Approximately 31.0 acres of woody vegetation would be planted at a density of 50 trees per acre and 35 small trees/shrubs per acre providing a 2:1 (mitigated:impacted) ratio for impacted riparian woodland areas located on (13.5 acres) and off (2.0 acres) government property. In addition, 1.4 acres of intermittently-flooded lake edge habitat would be planted with a mixture of wetland plant species providing a 1.7:1 ratio for impacted lake edge habitat along the pipeline route and at the outfall structure. Along the outfall channel to conservation pool level, switchgrass would be seeded to restore vegetative cover and provide erosion control. In addition, an area of approximately 87 acres located on the north shoreline of the cove at the inflow of Elm and Tom Bean Creeks would be restored to native prairie. The native prairie restoration area would help mitigate for impact to grasslands along the conveyance pipeline.

PUBLIC INTEREST REVIEW FACTORS: The permit application will be reviewed in accordance with 33 CFR 320-331, the Regulatory Program of the USACE, the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality (CEQ) Code of Federal Regulations (40 CFR parts 1500-1508) and other pertinent laws, regulations, and executive orders. The USACE evaluation of the permit application will also follow the guidelines published by the U. S. Environmental Protection Agency pursuant to Section 404(b)(1) of the CWA.

The easement request will be reviewed in accordance with Engineering Regulation (ER) 200-2-2, NEPA of 1969, as amended, the Council on Environmental Quality (CEQ) Code of Federal Regulations (40 CFR parts 1500-1508), and other pertinent laws, regulation, and executive orders.

The decision whether to issue a permit or grant an easement will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concerns for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including its cumulative effects. Among the factors addressed are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE in

determining whether to issue, issue with modifications, or conditions, or deny a permit for this proposal and whether to grant an easement for the portions of the proposed East Fork Water Supply Project on USACE property at Lake Lavon. To make these decisions, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Pursuant to the regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 as amended in 1975 (40 Code of Federal Regulations [CFR], Parts 1500 through 1508), the U.S. Department of the Army gives notice that it has prepared an environmental assessment of the proposed project. It is available for review at the following addresses:

Rita and Truett Smith Public Library
800 Thomas Street
Wylie, Texas 75098
(972) 442-7566

USACE Lavon Lake Project Office
3375 Skyview Drive
Wylie, Texas 75098-5775
(972) 442-3141

Copies of the EA and draft FONSI may be requested in writing at the above address, by telephone at (817) 886-1716, or visit the Fort Worth District website at www.swf.usace.army.mil.

STATE WATER QUALITY CERTIFICATION: This project would result in a direct impact of greater than three acres of waters of the state or 1,500 linear feet of streams (or a combination of the two is above the threshold), and as such would not fulfill Tier I criteria for the project. Therefore, Texas Commission on Environmental Quality (TCEQ) certification is required. Concurrent with USACE processing of this Department of the Army application, the TCEQ is reviewing this application under Section 401 of the Clean Water Act, and Title 30, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the USACE and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. **Any comments concerning this application may be submitted to the Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087.** The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of the work is made available for review in the TCEQ's Austin Office. The complete application may be reviewed in the USACE's office. The TCEQ may conduct a public hearing to consider all comments concerning water quality if requested in writing. A request for a public hearing must contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requestor, or of persons represented by the requestor; and a brief description of how the application, if granted, would adversely affect such interest.

ENDANGERED AND THREATENED SPECIES: The USACE has reviewed the U.S. Fish and Wildlife Service's latest published version of endangered and threatened species to determine if any may occur in the project area. The proposed project would be located in counties where the whooping crane (*Grus americana*), interior least tern (*Sterna antillarum*), bald eagle (*Haliaeetus leucocephalus*), and piping plover (*Charadrius melodus*) are known to occur or may occur as migrants. The whooping crane and interior least tern are endangered species and the bald eagle and piping plover are threatened species. Our initial review indicates that the proposed work would have no effect on federally-listed endangered or threatened species.

NATIONAL REGISTER OF HISTORIC PLACES: The entire route of the proposed pipeline alignment was surveyed for the presence of historic and prehistoric sites. Both pedestrian survey and machine testing were utilized to identify sites that may be impacted. Four historic sites (numbers 41KF130, 131, 132, and 133) were identified by the work. None had any standing architecture and none appear eligible for the National Register of Historic Places (NRHP). Several isolated historic wells and cisterns were also identified along the proposed right-of-way. A single prehistoric site was identified. The site may be eligible for inclusion in the NRHP. Avoidance or protection of this site is a possibility, as well. The possibility also exists that previously unknown, deeply buried sites may be encountered by the proposed work. The Texas Historical Commission (THC) has reviewed the cultural resources survey of the proposed pipeline alignment. By letter dated December 2, 2005, the THC has reviewed and concurred with the survey.

FLOODPLAIN MANAGEMENT: The USACE is sending a copy of this public notice to the local floodplain administrator. In accordance with 44 CFR part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), the floodplain administrators of participating communities are required to review all proposed development to determine if a floodplain development permit is required and maintain records of such review.

SOLICITATION OF COMMENTS: The public notice is being distributed to all known interested persons in order to assist in developing fact upon which decisions by the USACE may be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition.

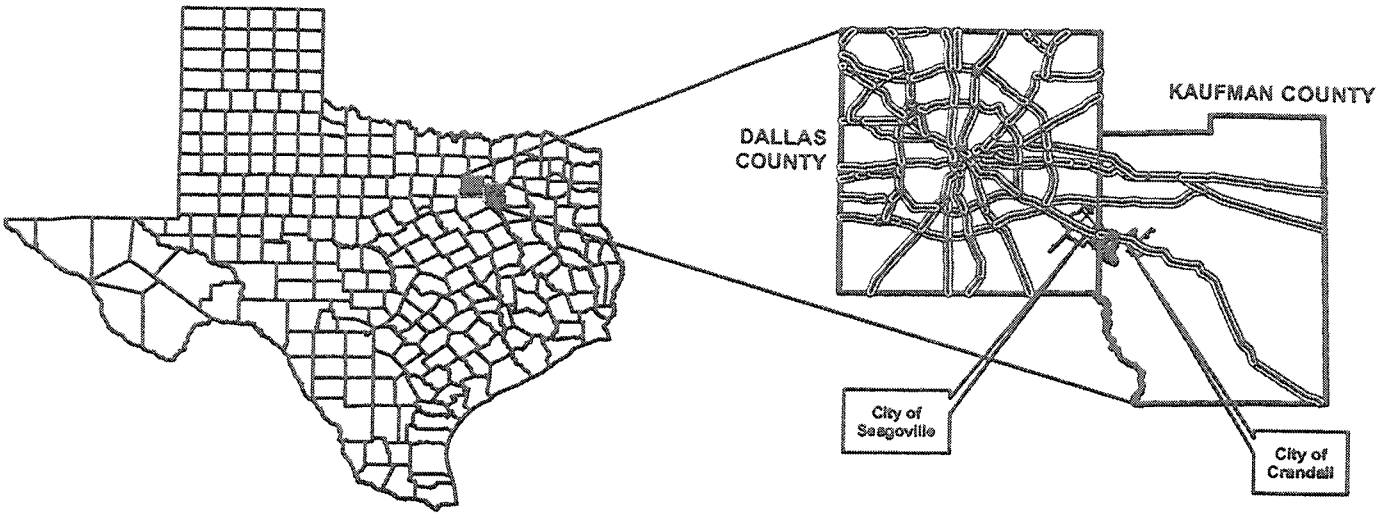
PUBLIC HEARING: Prior to the close of the comment period any person may make a written request for a public hearing setting forth the particular reasons for the request. The District Engineer will determine whether the issues raised are substantial and should be considered in his decisions. If a public hearing is warranted, all known interested persons will be notified of the time, date, and location.

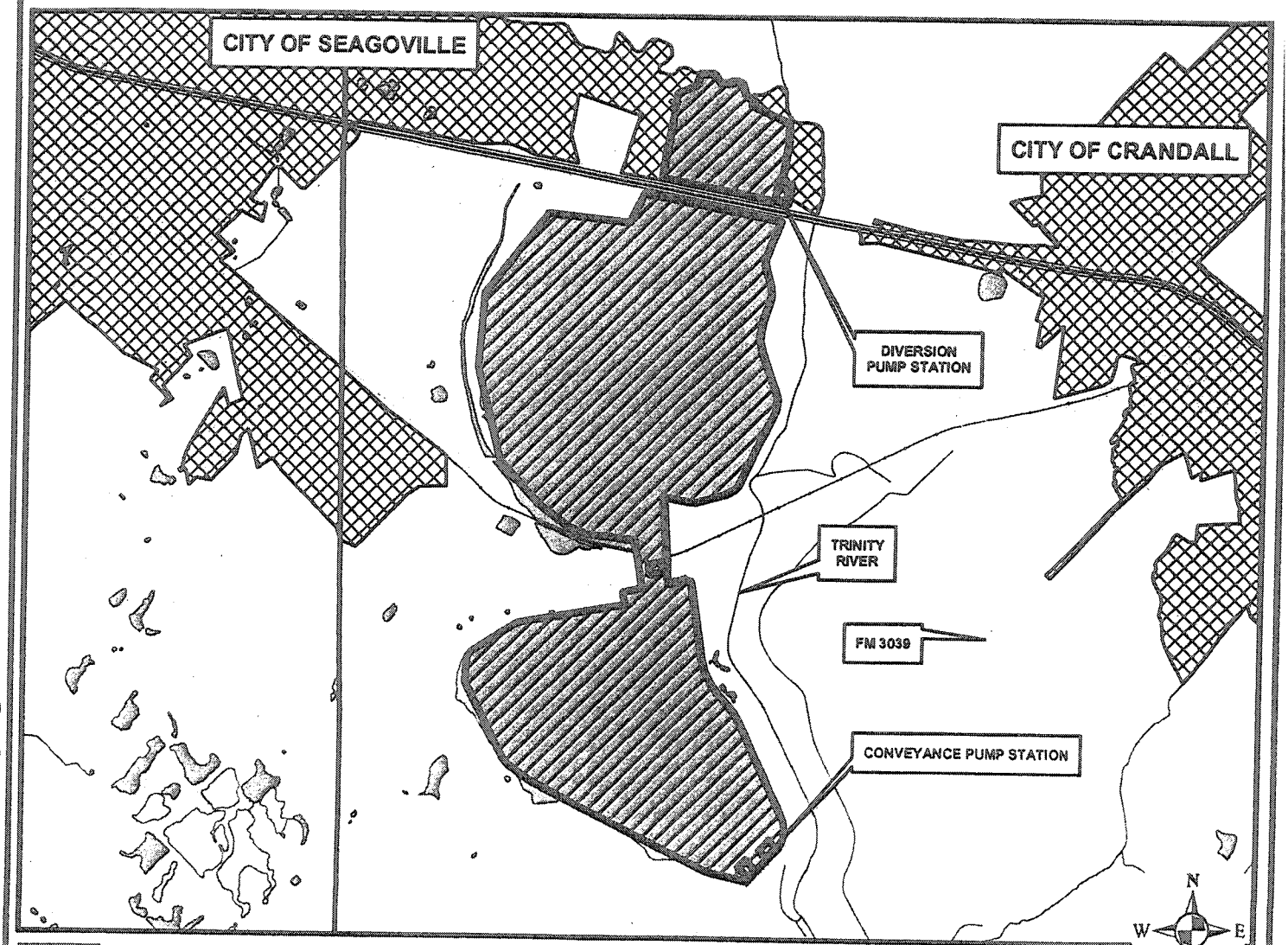
CLOSE OF COMMENT PERIOD: All comments pertaining to this Public Notice must reach this office on or before March 9, 2006, which is the close of the comment period. Extensions of the comment period may be granted for valid reasons provided a written request is received by the limiting date. If no comments are received by that date, it will be considered that there are no objections. Comments and requests for additional information should be submitted to

Mr. Brent J. Jasper; Regulatory Branch, CESWF-PER-R; U. S. Army Corps of Engineers; Post Office Box 17300; Fort Worth, Texas 76102-0300. You may visit the Regulatory Branch in Room 3A37 of the Federal Building at 819 Taylor Street in Fort Worth between 8:00 A.M. and 3:30 P.M., Monday through Friday. Telephone inquiries should be directed to (817) 886-1731. Please note that names and addresses of those who submit comments in response to this public notice may be made publicly available.

DISTRICT ENGINEER
FORT WORTH DISTRICT
CORPS OF ENGINEERS

ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS · CONSULTANTS · SCIENTISTS




Proposed Project Components

4,000 2,000 Feet

# VICINITY MAP - PROPOSED CONSTRUCTED WETLAND

USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006



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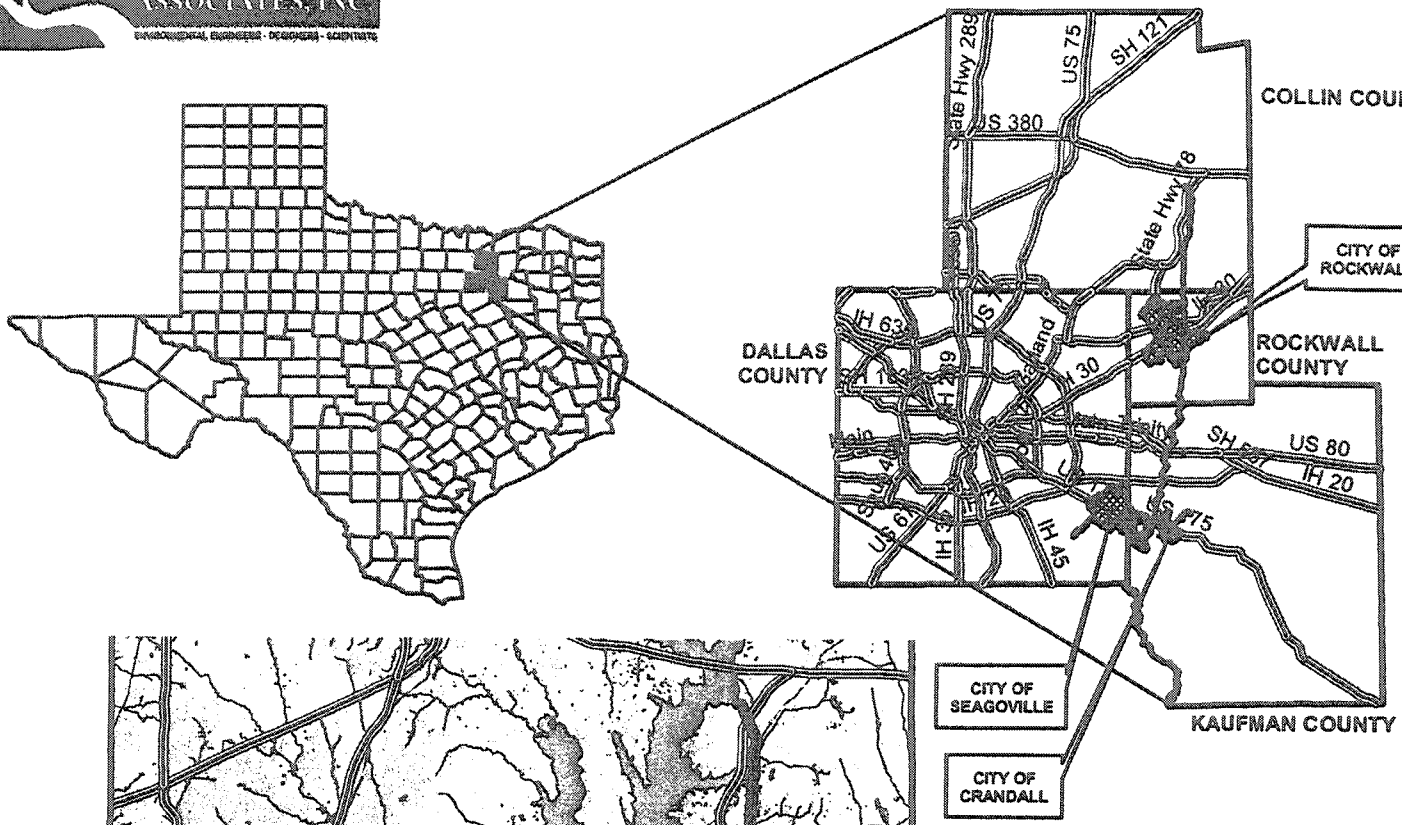
ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS · DESIGNERS · SCIENTISTS




— Proposed Project Components

40,000 20,000 Feet

# VICINITY MAP - PROPOSED PIPELINE ROUTE

USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006



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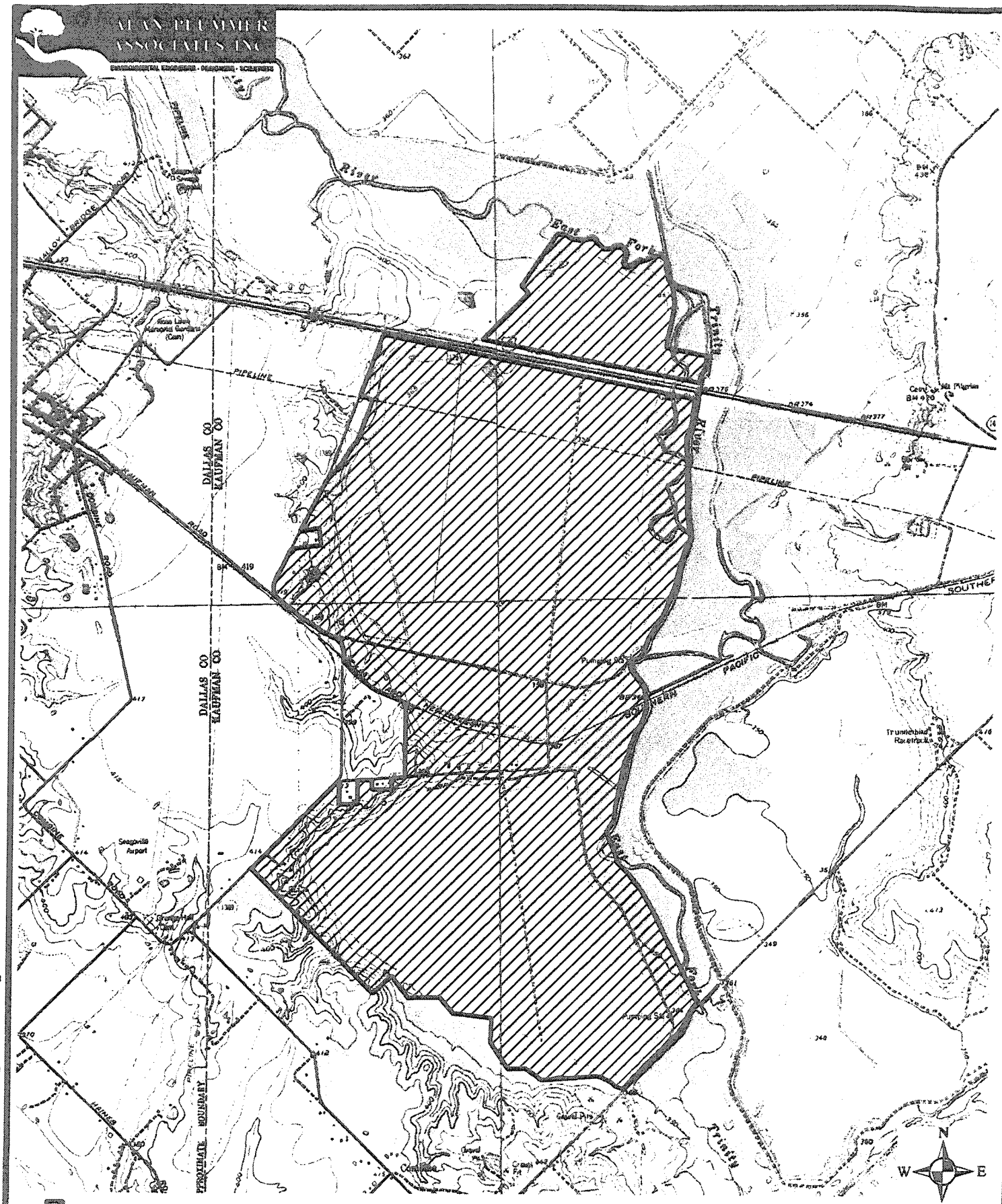


LIMITS OF THE JURISDICTIONAL DETERMINATION BY ADVANCED ECOLOGY

3,000 1,500 0 Feet

USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION BY ADVANCED ECOLOGY



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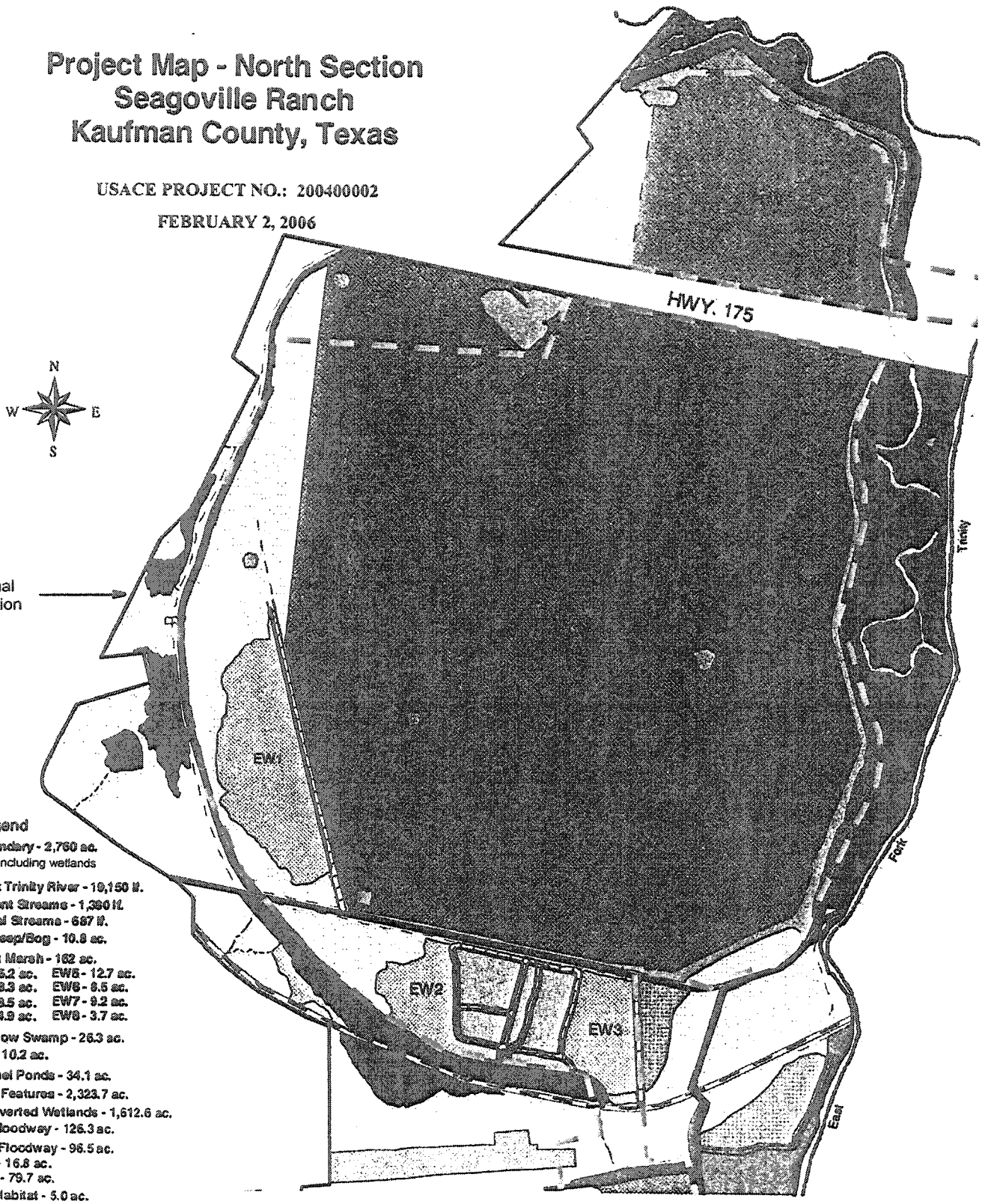
# Project Map - North Section
# Seagoville Ranch
# Kaufman County, Texas

USACE PROJECT NO.: 200400002

FEBRUARY 2, 2006




**Legend**

- Project Boundary - 2,760 ac.

Waters of the U.S., including wetlands

- East Fork Trinity River - 19,150 lf.
- Intermittent Streams - 1,360 lf.
- Ephemeral Streams - 687 lf.
- Hillside Seep/Bog - 10.8 ac.
- Emergent Marsh - 162 ac.
  - EW1 - 46.2 ac. EW5 - 12.7 ac.
  - EW2 - 18.3 ac. EW6 - 8.5 ac.
  - EW3 - 18.5 ac. EW7 - 9.2 ac.
  - EW4 - 44.9 ac. EW8 - 3.7 ac.
- Black Willow Swamp - 26.3 ac.
- Sloughs - 10.2 ac.
- On-Channel Ponds - 34.1 ac.

Non-Jurisdictional Features - 2,323.7 ac.

- Prior Converted Wetlands - 1,612.6 ac.
- Cleared Floodway - 126.3 ac.
- Forested Floodway - 96.5 ac.
  - Stand 1- 16.8 ac.
  - Stand 2 - 79.7 ac.
- Riparian Habitat - 5.0 ac.
- Wetland Plant Nurseries - 21.1 ac.
- Off-Channel Ponds - 18.0 ac.
- Upland Pastures - 444.2 ac.

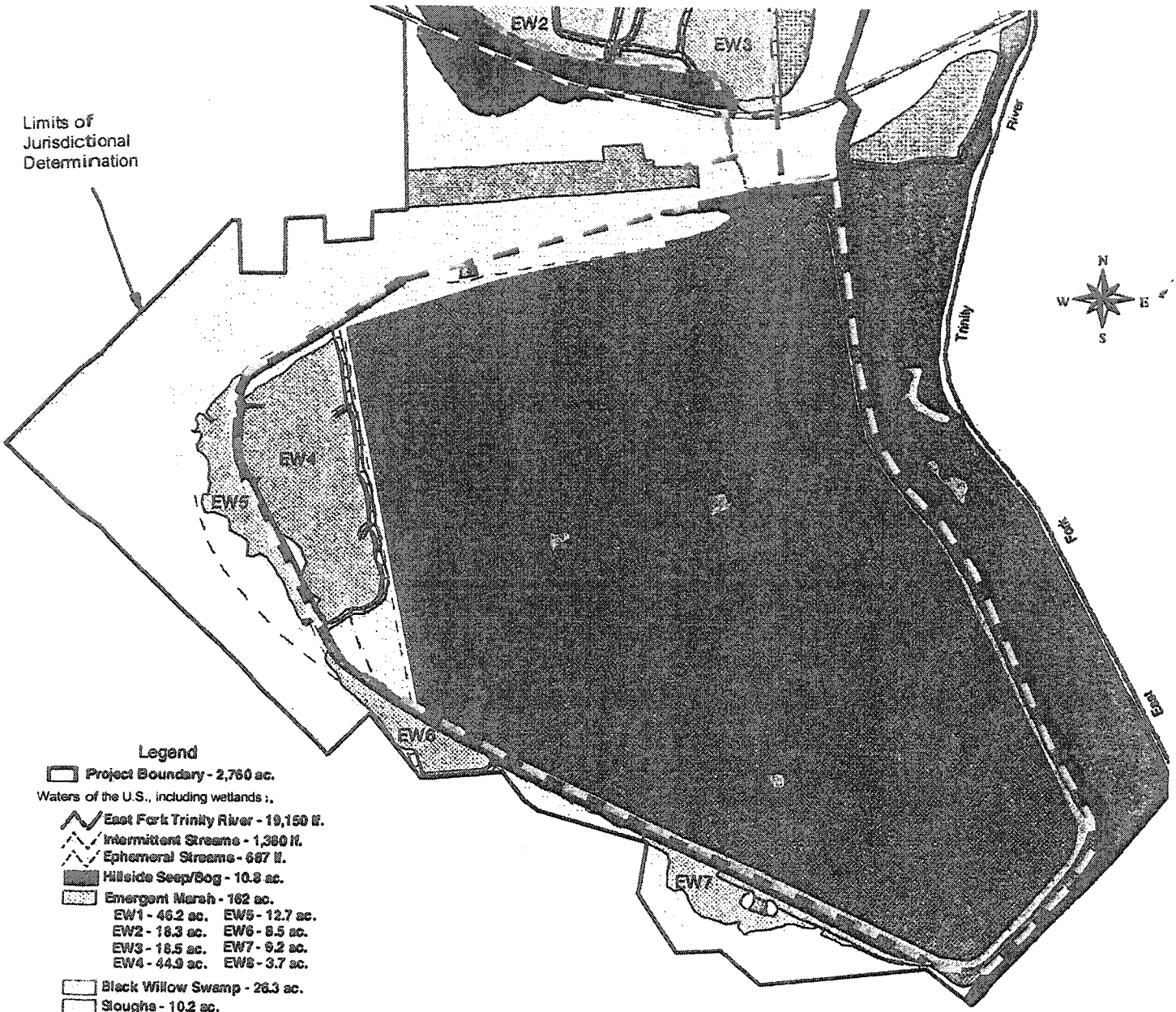
Other Man-Made Features - 192.9 ac.

- River Levee
- Hillside Levee
- Primary Rainwater Collection Ditches
- Headquarters, Barns, and Cattle Pens
- Old Hwy. 175
- Abandoned Tram
- Interior Levees
- Minor Drainage Ditches

2000 0 2000 4000 Feet

**LIMITS OF THE JURISDICTIONAL DETERMINATION BY ADVANCED ECOLOGY**

# Project Map - South Section
# Seagoville Ranch
# Kaufman County, Texas




Legend

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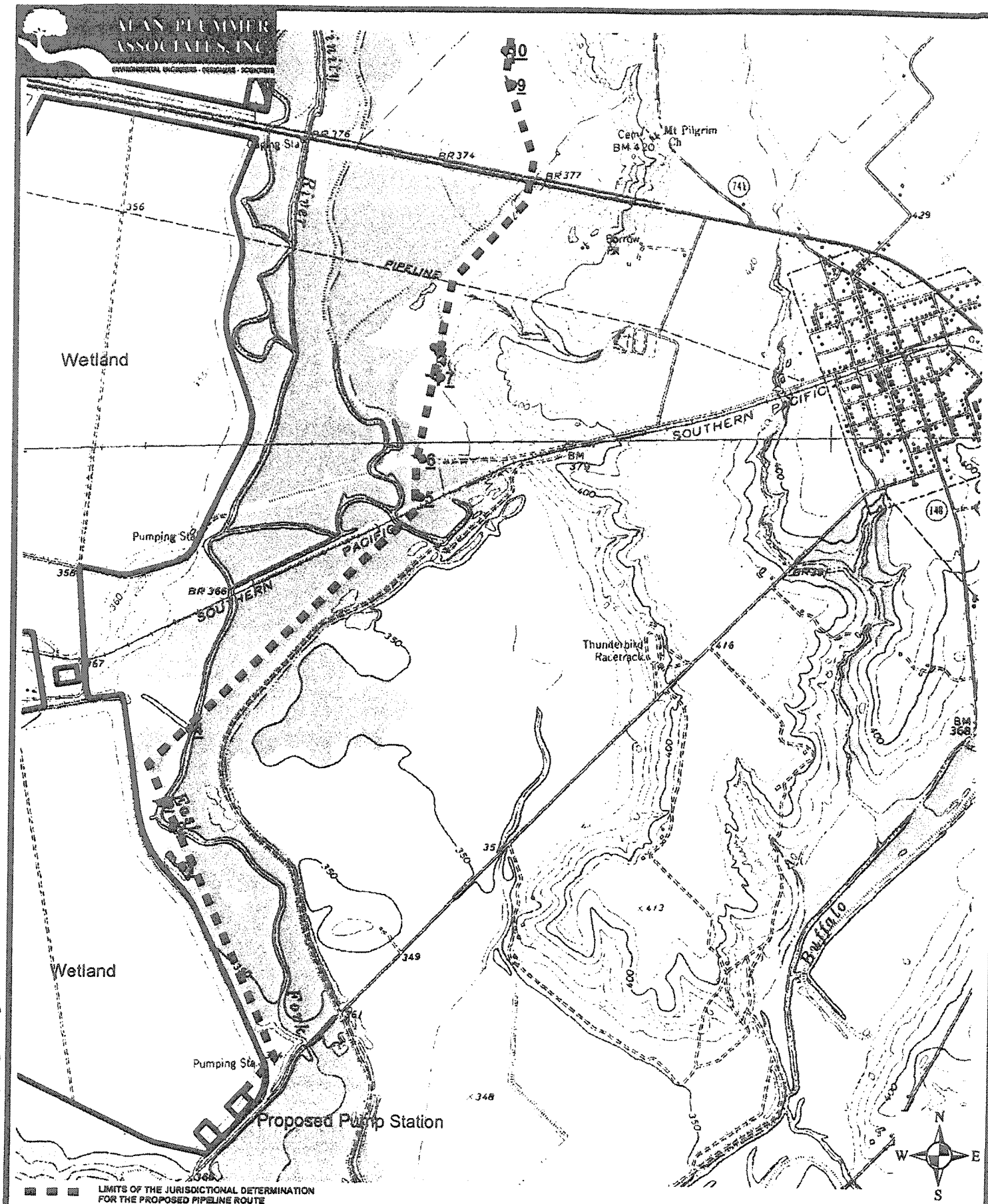
USACE PROJECT NO.: 200400002

FEBRUARY 2, 2006

6000 0 6000 Feet

## LIMITS OF THE JURISDICTIONAL DETERMINATION BY ADVANCED ECOLOGY




USACE PROJECT NO.: 200400002
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# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE

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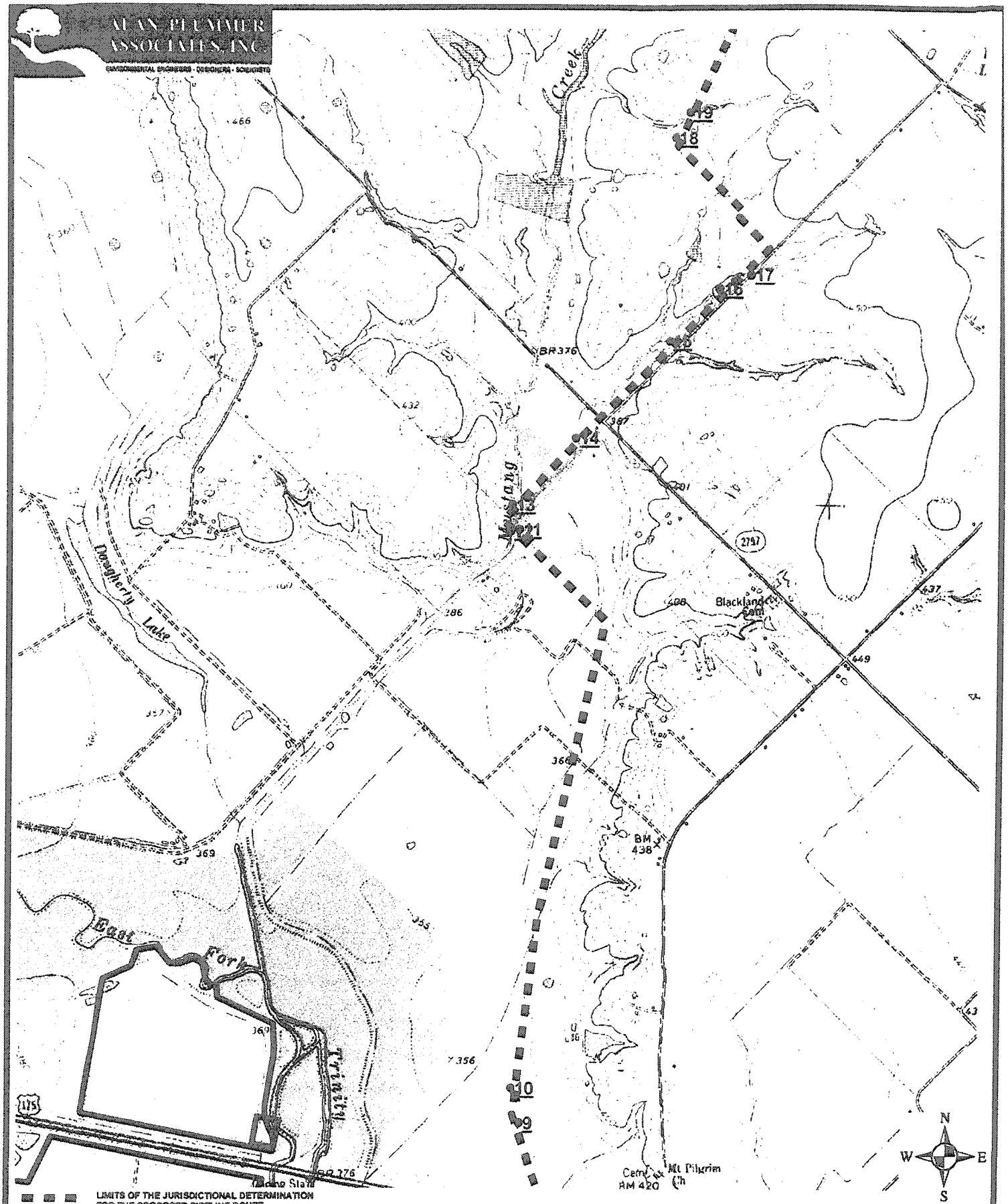


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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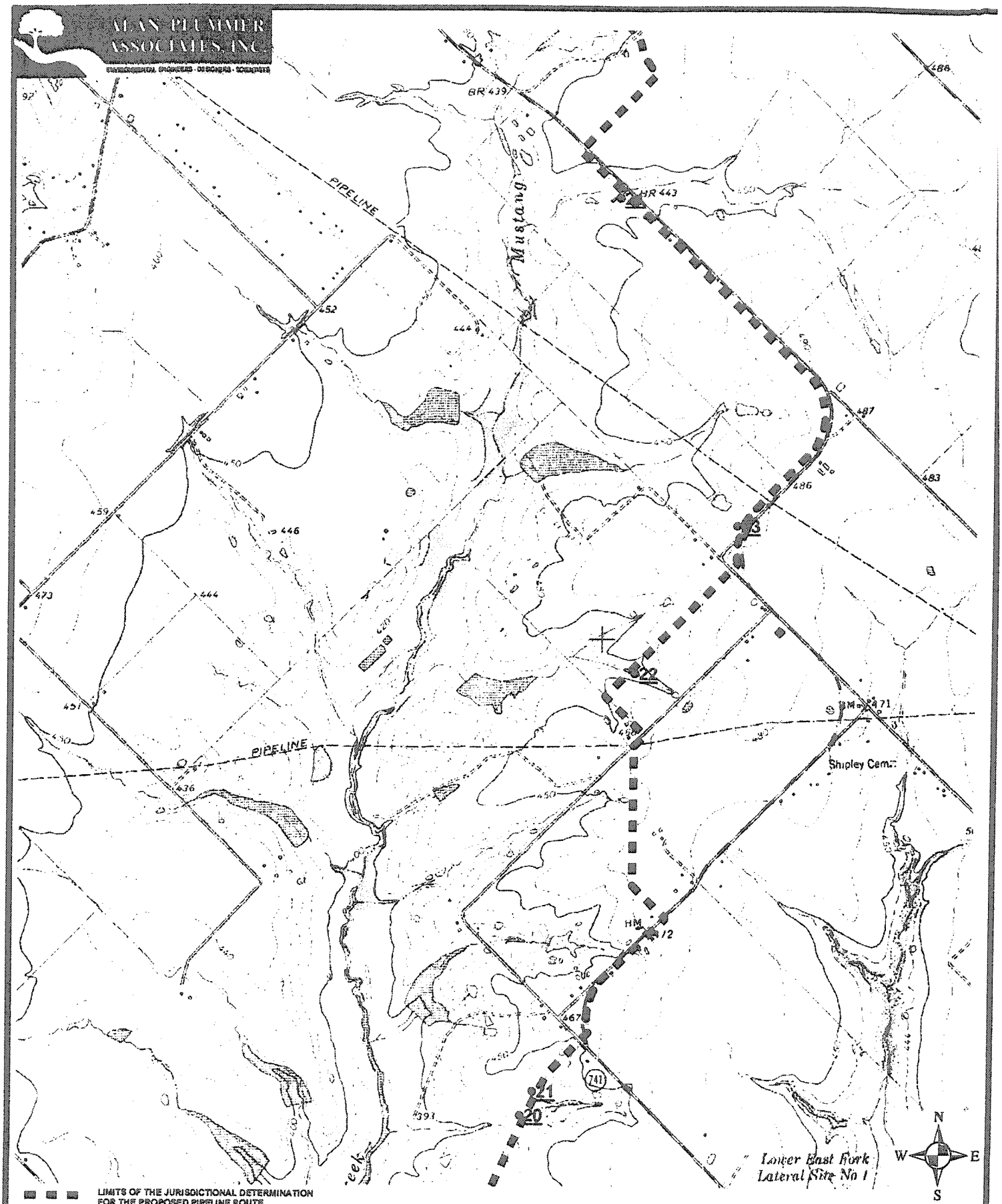


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE

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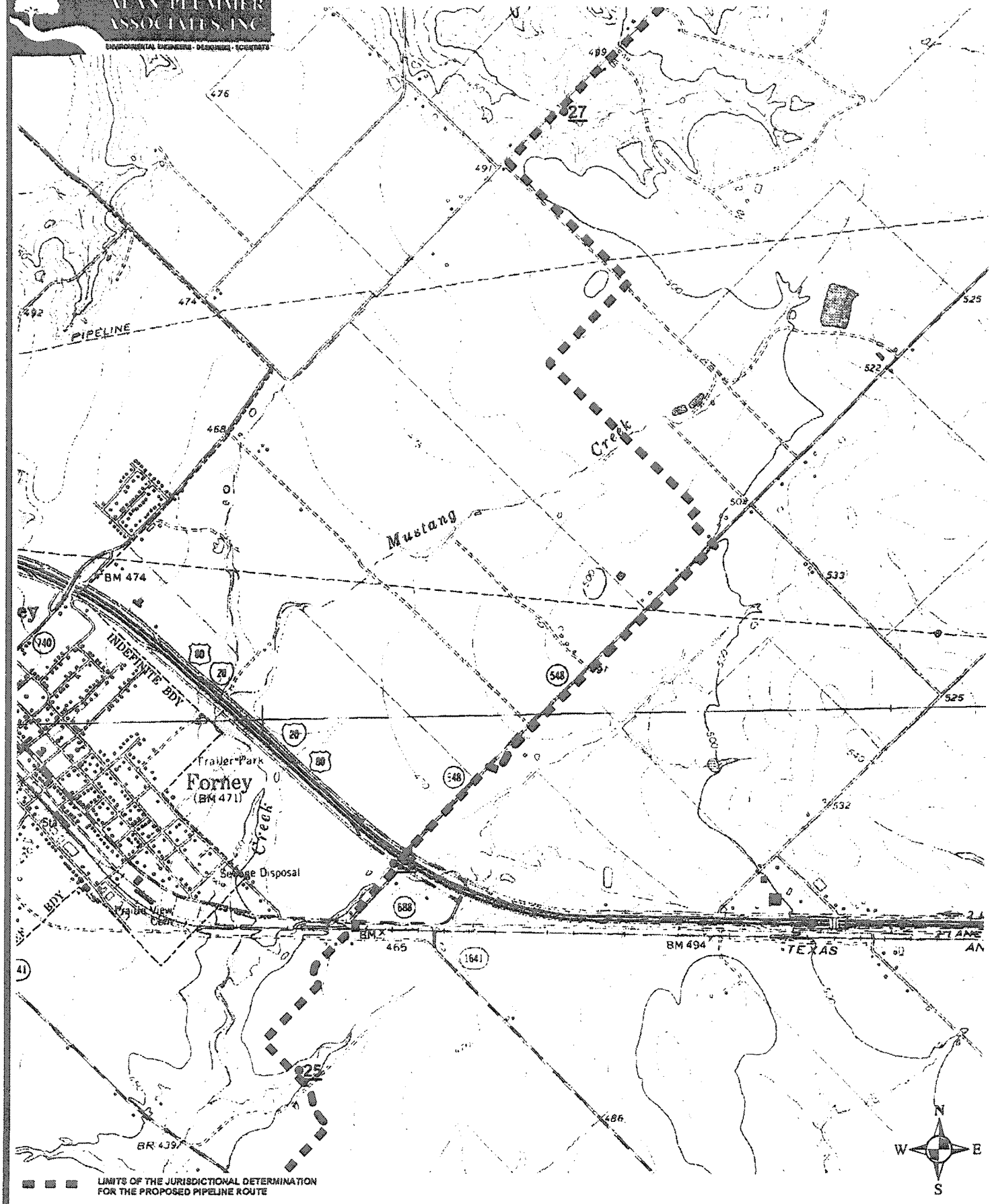


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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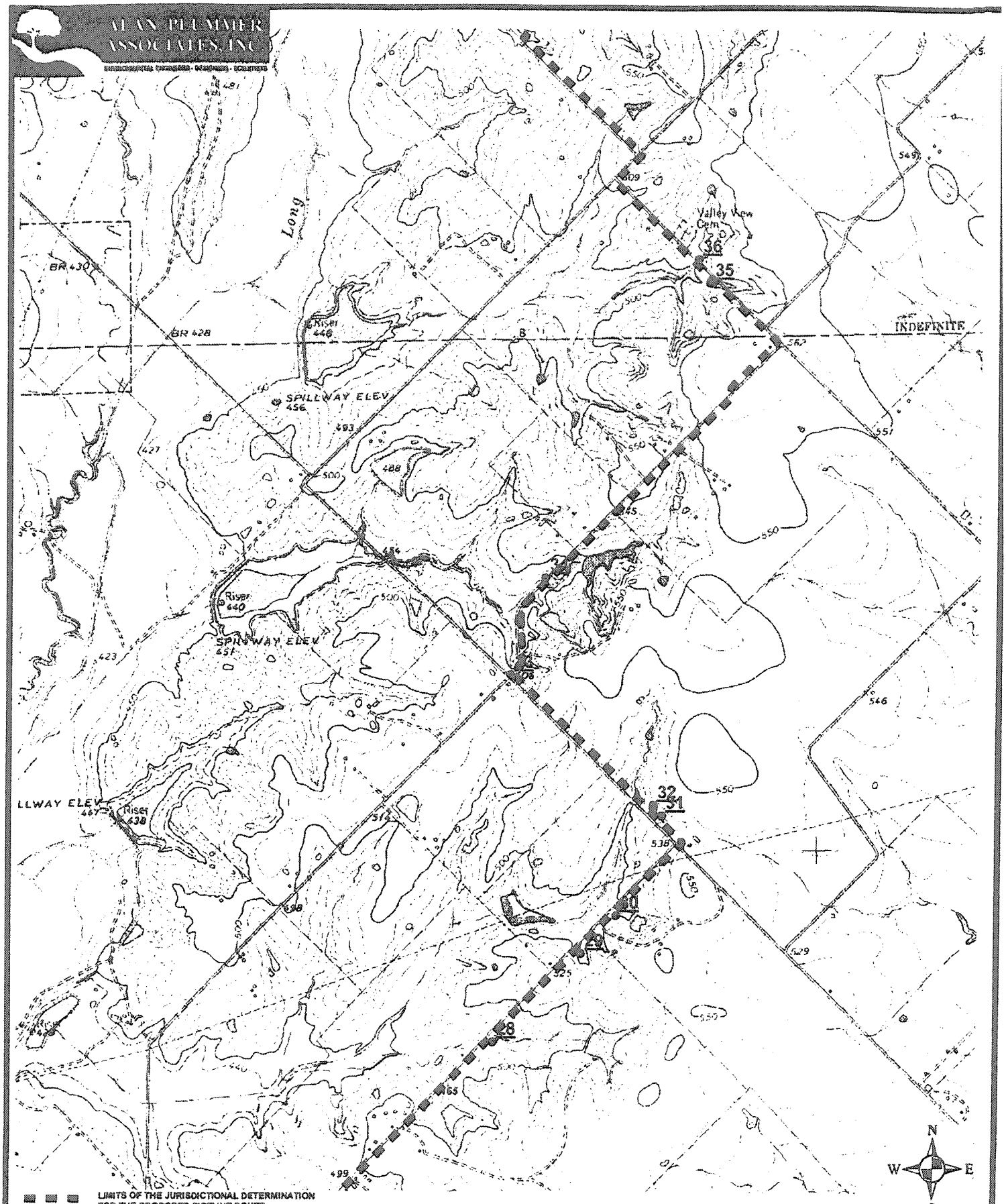


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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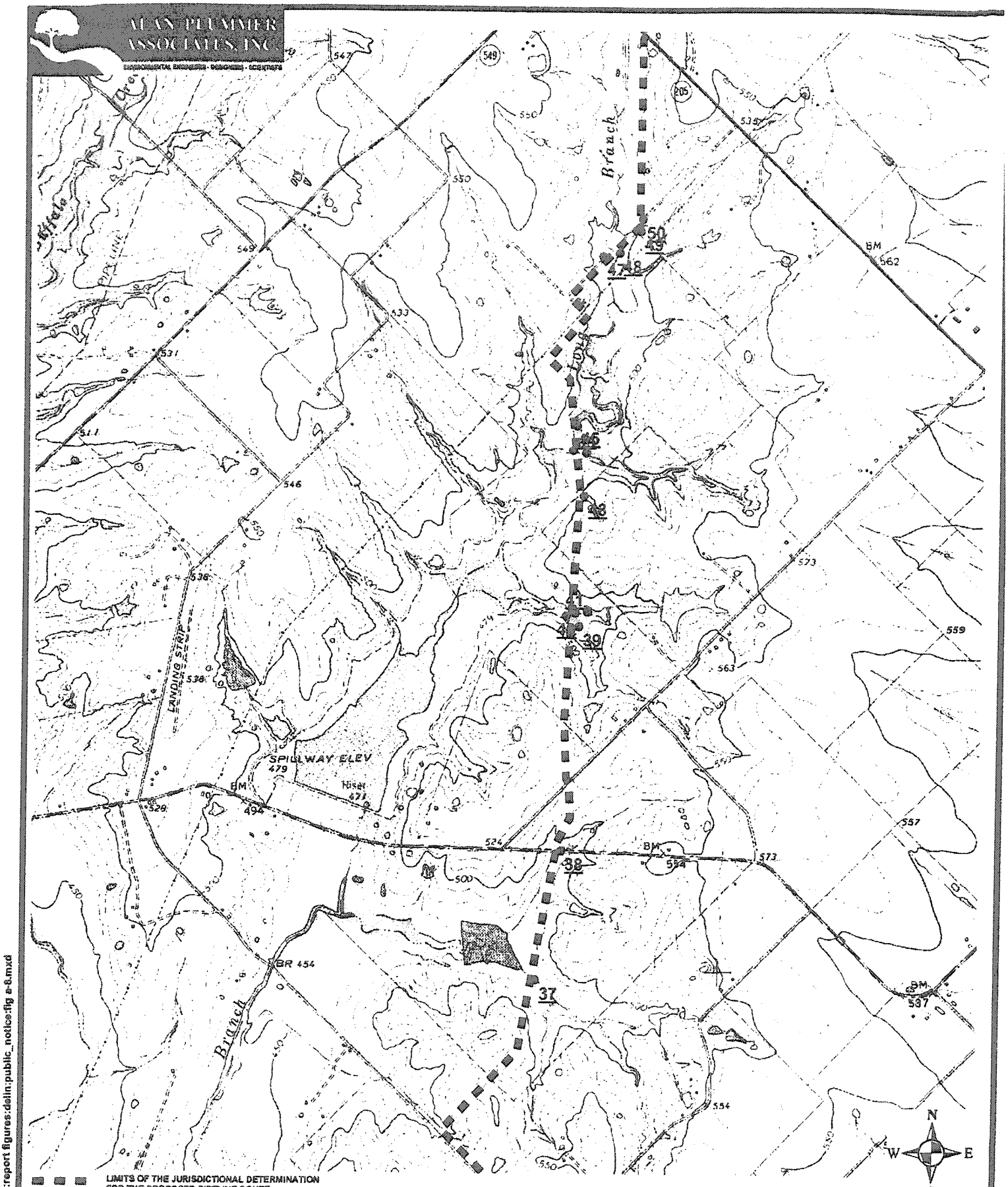


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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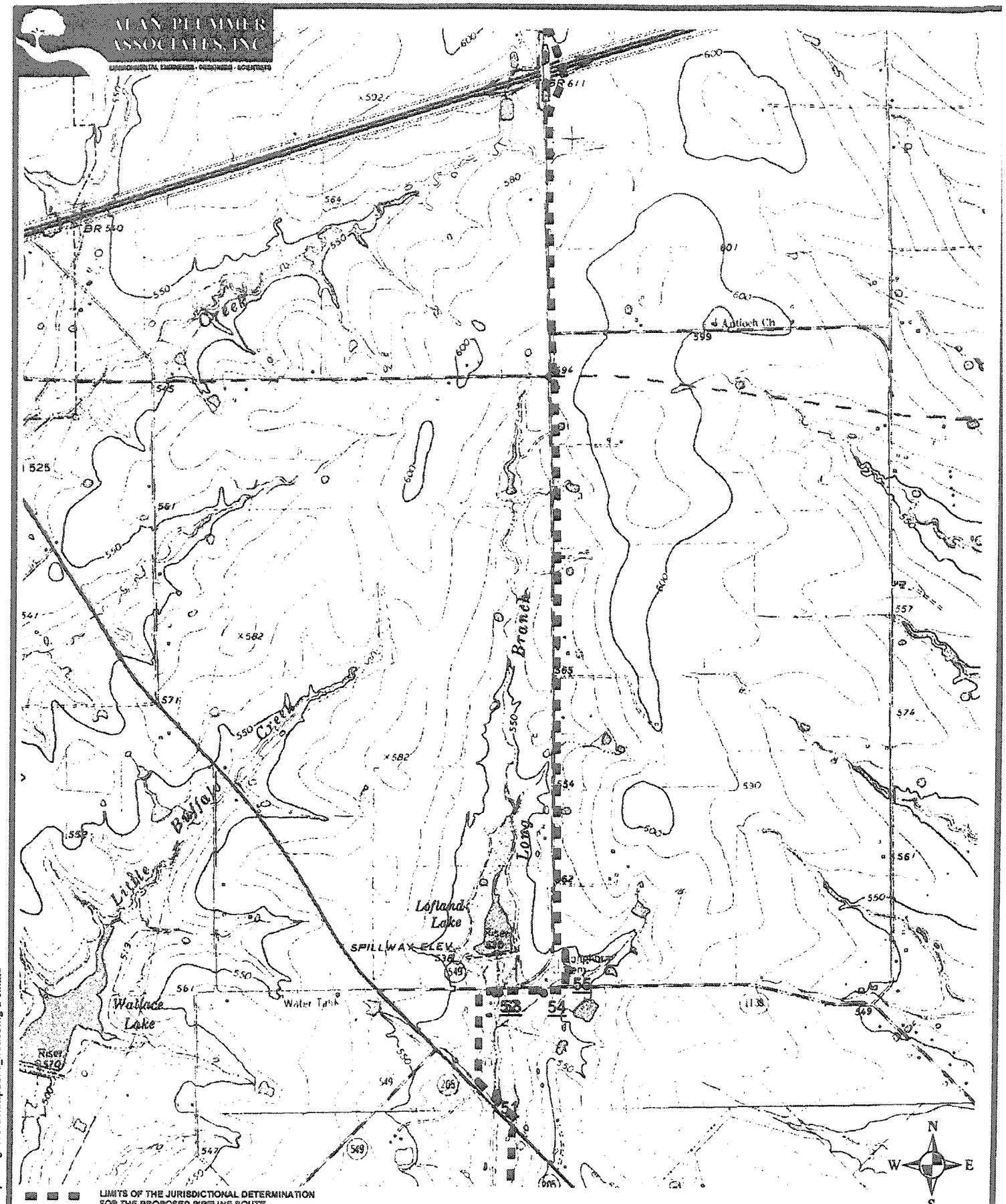


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USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

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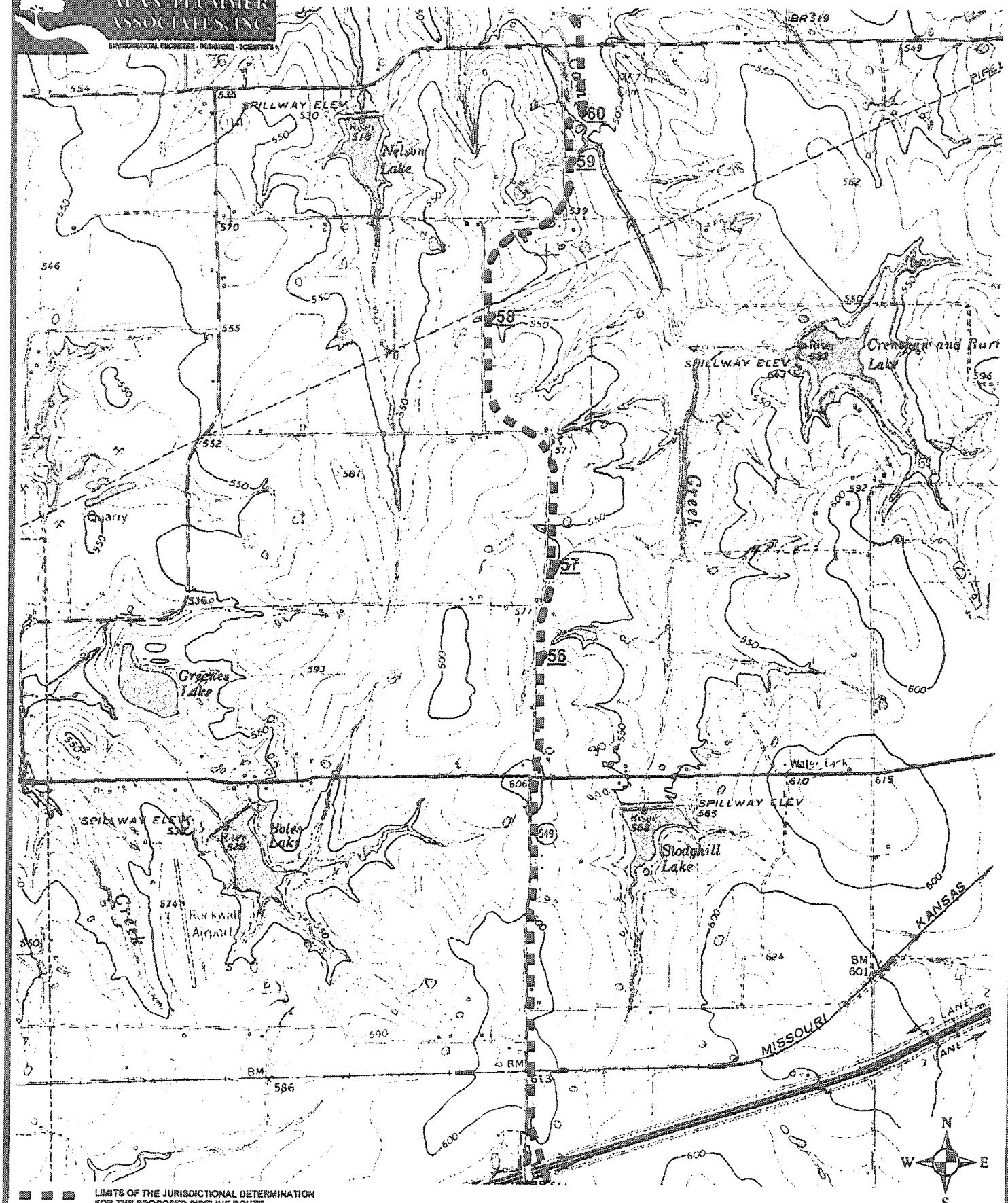


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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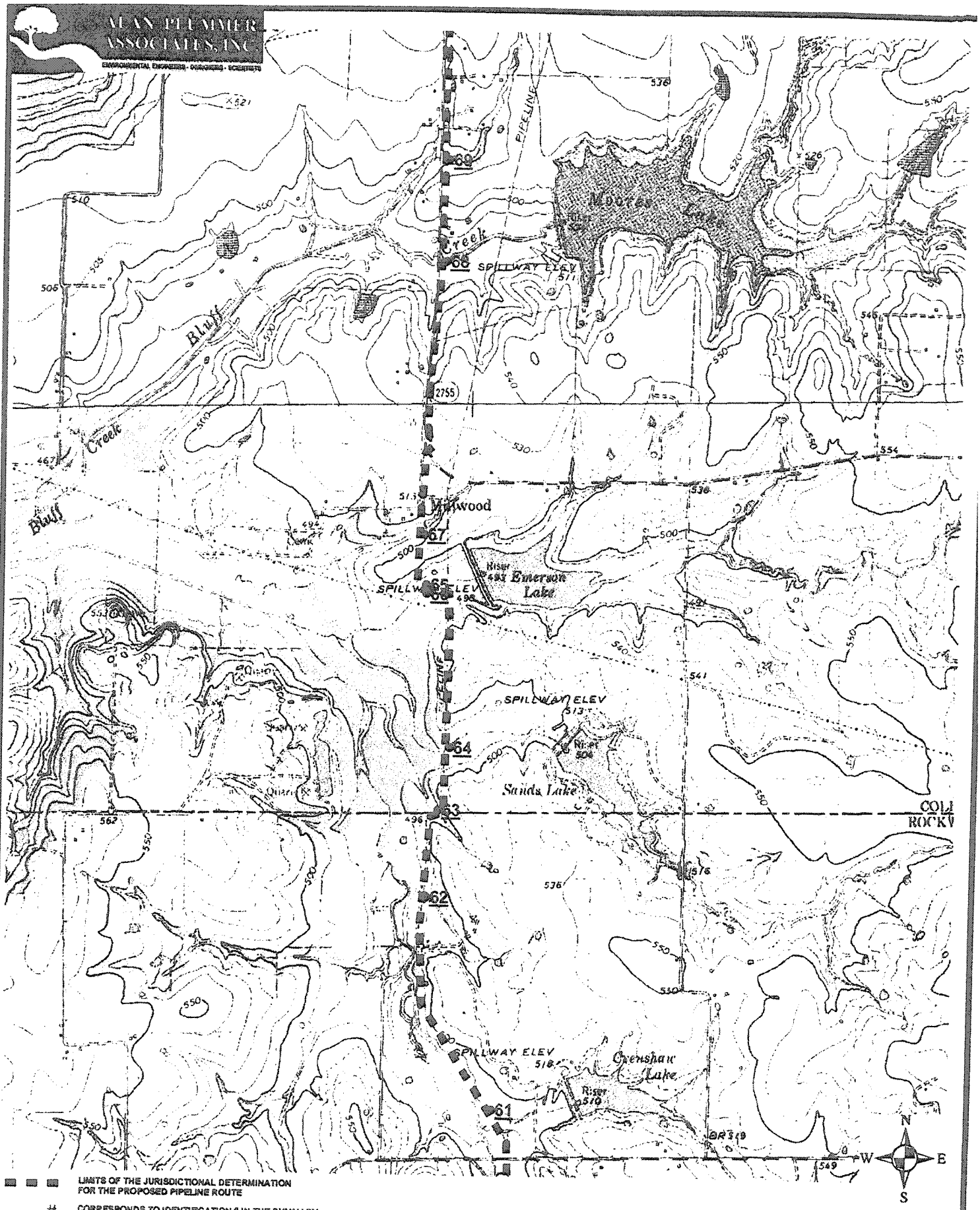


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

## LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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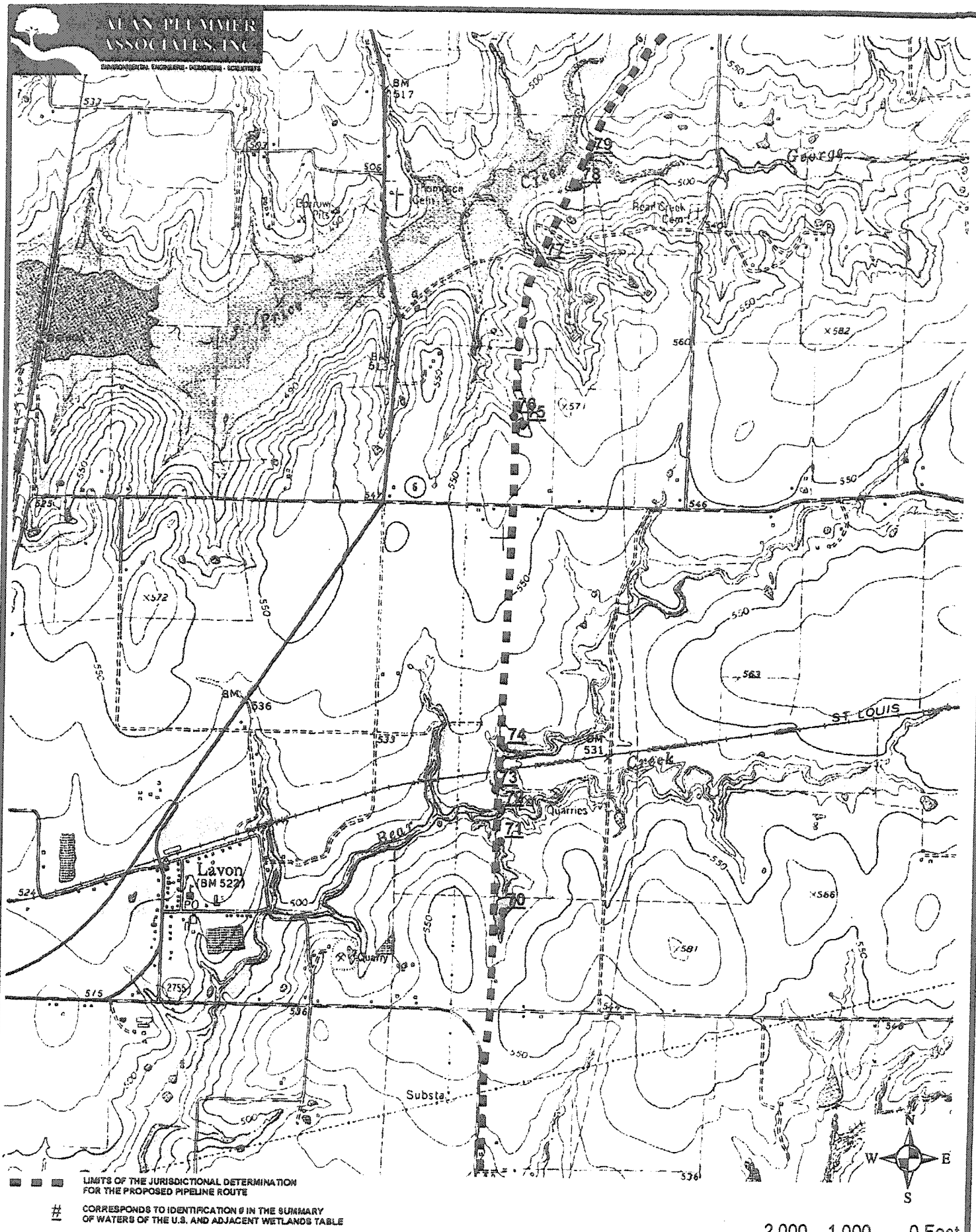


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

## LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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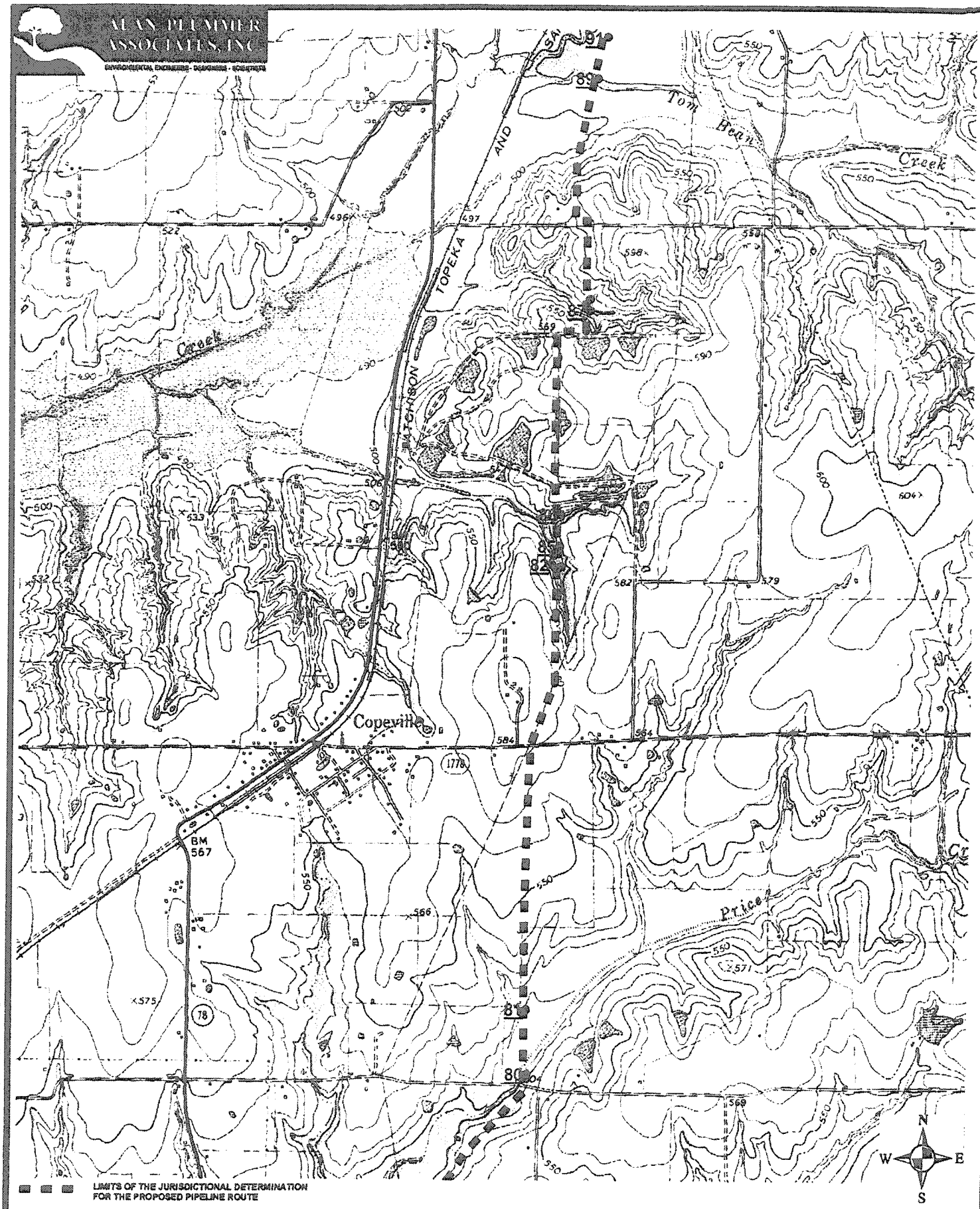


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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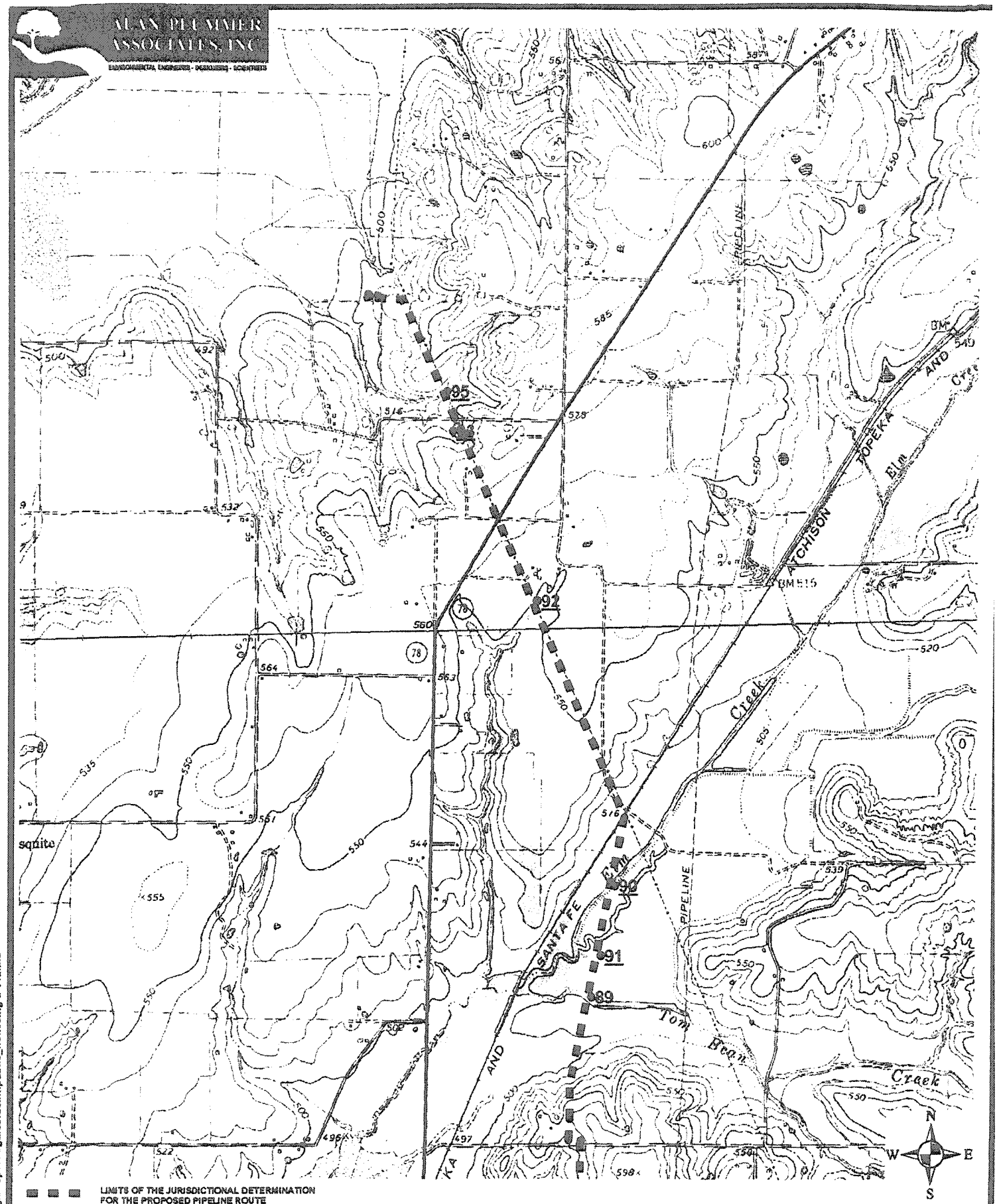


USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

# LIMITS OF THE JURISDICTIONAL DETERMINATION FOR THE PROPOSED PIPELINE ROUTE



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**TABLE 7: SUMMARY OF WATERS OF THE U.S. AND ADJACENT WETLANDS WITHIN THE PROJECT AREA (EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 1 | Water 19 - Remnant East Fork Trinity River Segment | Open Water | N/A | N/A | 1.250 | N/A | N/A |
| 2 | Water 16 - Remnant East Fork Trinity River Channel (Crossing 1) | Open Water | N/A | N/A | 1.520 | N/A | 0.100 |
| 3 | Water 16 - Remnant East Fork Trinity River Channel (Crossing 2) | | | | | N/A | 0.040 |
| 4 | East Fork Trinity River | Perennial | 167.0 | 15,750.0 | 60.400 | 344.1 | 0.400 |
| 5 | Stream 58 - Unnamed Tributary to the East Fork Trinity River | Ephemeral | 2.5 | 113.7 | 0.007 | 44.8 | 0.003 |
| 6 | Water 15 - Impounded Area by Levee | Open Water | N/A | N/A | 0.140 | N/A | 0.020 |
| 7 | Wetland 1 | Isolated** | N/A | N/A | 0.610 | N/A | N/A |
| 8 | Wetland 4 | Isolated** | N/A | N/A | 0.900 | N/A | N/A |
| 9 | Wetland 2 - North of SH 175 | Emergent | N/A | N/A | 0.090 | N/A | 0.081 |
| 10 | Wetland 3 - North of SH 175 | Emergent | N/A | N/A | 0.330 | N/A | 0.091 |
| 11 | Stream 61A - Unnamed Tributary to Mustang Creek | Intermittent | 4.0 | 2,236.9 | 0.205 | 18.1 | 0.002 |
| 12 | Stream 60 - Mustang Creek (Crossing 1) | Intermittent | 8.0 | 1,012.2 | 0.186 | 71.2 | 0.002 |
| 13 | Stream 60 - Mustang Creek (Crossing 2) | | | | | 54.6 | 0.010 |
| 14 | Stream 53 - Unnamed Tributary to Mustang Creek | Ephemeral | 2.5 | 199.9 | 0.011 | 51.6 | 0.003 |
| 15 | Stream 1 - Unnamed Tributary to Mustang Creek (Continuation of Stream 53) | Intermittent | 4.5 | 351.4 | 0.036 | 42.1 | 0.004 |
| 16 | Water 18 - Impoundment (Beaver Pond) | On-Channel | N/A | N/A | 1.500 | N/A | 0.121 |
| 17 | Stream 62 - (Continuation of Streams 53 and 1) | Ephemeral | 1.5 | 348.2 | 0.012 | 21.6 | 0.001 |
| 18 | Water 1 - Impoundment | On-Channel | N/A | N/A | 0.264 | N/A | 0.031 |
| 19 | Stream 2 - Unnamed Tributary to Mustang Creek | Ephemeral | 2.0 | 333.0 | 0.015 | 50.3 | 0.002 |
| 20 | Stream 3 - Unnamed Tributary to Mustang Creek | Ephemeral | 2.5 | 506.4 | 0.030 | 59.9 | 0.003 |
| 21 | Stream 4 - Unnamed Tributary to Mustang Creek | Ephemeral | 1.0 | 307.0 | 0.007 | 188.6 | 0.004 |
| 22 | Wetland 8 | Emergent | N/A | N/A | 0.141 | N/A | 0.053 |
| 23 | Stream 96 - Unnamed Tributary to Mustang Creek | Ephemeral | 1.5 | 222.0 | 0.008 | 29.7 | 0.001 |
| 24 | Wetland 9 | Emergent | N/A | N/A | 0.225 | N/A | 0.031 |

**TABLE 7: SUMMARY OF WATERS OF THE U.S. AND ADJACENT WETLANDS WITHIN THE PROJECT AREA (Cont.)**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 25 | Stream 95 - Unnamed Tributary to Mustang Creek | Ephemeral | 1.5 | 151.3 | 0.005 | 42.7 | 0.001 |
| 26 | Stream 8 - Unnamed Tributary to Mustang Creek | Intermittent | 10.0 | 188.7 | 0.043 | 40.9 | 0.009 |
| 27 | Stream 9 - Unnamed Tributary | Ephemeral | 3.5 | 105.3 | 0.008 | 105.3 | 0.008 |
| 28 | Stream 10 - Unnamed Tributary | Ephemeral | 3.5 | 80.5 | 0.006 | 80.5 | 0.006 |
| 29 | Water 27 - Impoundment | On-Channel | N/A | N/A | 0.058 | N/A | 0.035 |
| 30 | Stream 82 - Unnamed Tributary | Ephemeral | 1.5 | 194.4 | 0.007 | 60.1 | 0.002 |
| 31 | Wetland 7 | Emergent | N/A | N/A | 0.036 | N/A | 0.003 |
| 32 | Water 29 - Impoundment | On-Channel | N/A | N/A | 0.250 | N/A | 0.002 |
| 33 | Stream 11 - Unnamed Tributary | Ephemeral | 1.0 | 103.9 | 0.002 | 66.4 | 0.002 |
| 34 | Stream 12 - Unnamed Tributary | Ephemeral | 3.0 | 145.4 | 0.010 | 48.4 | 0.003 |
| 35 | Stream 14 - Unnamed Tributary | Ephemeral | 3.5 | 157.5 | 0.013 | 129.0 | 0.010 |
| 36 | Stream 13 - Unnamed Tributary | Ephemeral | 2.5 | 113.6 | 0.007 | 44.0 | 0.004 |
| 37 | Stream 15 - Unnamed Tributary to Long Branch | Intermittent | 8.0 | 201.0 | 0.037 | 42.0 | 0.008 |
| 38 | Stream 89 - Unnamed Tributary to Long Branch | Ephemeral | 1.5 | 469.7 | 0.016 | 42.3 | 0.001 |
| 39 | Stream 67 - Unnamed Tributary to Long Branch | Ephemeral | 3.5 | 431.9 | 0.035 | 50.2 | 0.004 |
| 40 | Stream 70 - Unnamed Tributary to Stream 67 | Ephemeral | 2.5 | 146.6 | 0.008 | 43.3 | 0.002 |
| 41 | Stream 69 - Unnamed Tributary to Stream 68 | Ephemeral | 2.0 | 276.6 | 0.013 | 62.4 | 0.003 |
| 42 | Stream 68 - Unnamed Tributary to Long Branch | Ephemeral | 4.0 | 461.3 | 0.042 | 60.4 | 0.006 |
| 43 | Stream 16 - Unnamed Tributary to Long Branch | Ephemeral | 1.5 | 190.8 | 0.007 | 42.5 | 0.001 |
| 44 | Stream 93 - Long Branch (Crossing 1) | Intermittent | 9.0 | 889.9 | 0.184 | 149.4 | 0.031 |
| 45 | Stream 93 - Long Branch (Crossing 2) | | | | | 104.5 | 0.022 |
| 46 | Stream 94 - Unnamed Tributary to Long Branch | Ephemeral | 3.0 | 203.4 | 0.014 | 44.5 | 0.003 |
| 47 | Water 37 - Flood Plain for Long Branch | Open Water | N/A | N/A | 0.048 | N/A | 0.026 |
| 48 | Stream 92 - Long Branch | Intermittent | 9.0 | 252.9 | 0.052 | 41.0 | 0.008 |
| 49 | Water 30 | Remnant Channel | N/A | N/A | 0.012 | N/A | 0.009 |
| 50 | Stream 85 - Unnamed Tributary to Long Branch | Ephemeral | 3.0 | 136.1 | 0.009 | 40.5 | 0.003 |
| 51 | Stream 17 - Long Branch | Intermittent | 9.0 | 199.3 | 0.041 | 51.4 | 0.011 |

**TABLE 7: SUMMARY OF WATERS OF THE U.S. AND ADJACENT WETLANDS WITHIN THE PROJECT AREA (Cont.)**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 52 | Stream 19 - Overflow Channel for Long Branch | Ephemeral | 2.0 | 88.6 | 0.004 | 42.1 | 0.002 |
| 53 | Stream 18 - Long Branch | Intermittent | 6.0 | 115.6 | 0.016 | 46.7 | 0.006 |
| 54 | Stream 20 - Unnamed Tributary to Long Branch (Crossing 1) | Ephemeral | 3.5 | 671.6 | 0.054 | 53.3 | 0.004 |
| 55 | Stream 20 - Unnamed Tributary to Long Branch (Crossing 2) | | | | | 48.5 | 0.004 |
| 56 | Stream 21 - Unnamed Tributary to Camp Creek | Ephemeral | 3.0 | 151.5 | 0.010 | 60.1 | 0.004 |
| 57 | Water 40 - Impoundment | Isolated | N/A | N/A | 0.444 | N/A | N/A |
| 58 | Stream 22 - Unnamed Tributary to Camp Creek | Ephemeral | 3.0 | 123.9 | 0.009 | 43.1 | 0.003 |
| 59 | Stream 23 - Unnamed Tributary to Camp Creek | Ephemeral | 1.5 | 166.2 | 0.006 | 43.0 | 0.001 |
| 60 | Stream 54 - Camp Creek | Intermittent | 11.0 | 4,098.8 | 1.035 | 42.4 | 0.011 |
| 61 | Stream 55 - Unnamed Tributary to Camp Creek | Ephemeral | 4.0 | 393.1 | 0.036 | 168.8 | 0.016 |
| 62 | Stream 24 - Unnamed Tributary to Camp Creek | Ephemeral | 2.0 | 410.9 | 0.019 | 44.2 | 0.002 |
| 63 | Stream 25 - Unnamed Tributary to Camp Creek | Ephemeral | 4.5 | 240.7 | 0.025 | 44.1 | 0.004 |
| 64 | Stream 51 - Unnamed Tributary to Camp Creek | Ephemeral | 2.5 | 208.9 | 0.012 | 48.9 | 0.003 |
| 65 | Stream 30/81 - Unnamed Tributary to Camp Creek | Ephemeral | 6.0 | 399.7 | 0.055 | 53.8 | 0.007 |
| 66 | Water 10 - Plunge Pool Associated with Stream 81 | Plunge Pool | N/A | N/A | 0.083 | N/A | N/A |
| 67 | Stream 50 - Unnamed Tributary to Camp Creek | Ephemeral | 2.0 | 354.5 | 0.016 | 40.4 | 0.002 |
| 68 | Stream 29 - Bluff Creek (below large on-channel impoundment) | Ephemeral | 4.0 | 183.4 | 0.017 | 50.3 | 0.005 |
| 69 | Stream 28 - Unnamed Tributary to Bluff Creek | Ephemeral | 4.0 | 164.6 | 0.015 | 44.8 | 0.004 |
| 70 | Water 5 - Impoundment | On-Channel | N/A | N/A | 2.400 | N/A | 0.041 |
| 71 | Water 6 - Impoundment | On-Channel | N/A | N/A | 0.144 | N/A | 0.070 |
| 72 | Stream 32 - Bear Creek (Crossing 1) | Intermittent | 12.0 | 1,826.5 | 0.500 | 58.0 | 0.016 |
| 73 | Stream 32 - Bear Creek (Crossing 2) | | | | | 49.3 | 0.014 |
| 74 | Stream 32 - Bear Creek (Crossing 3) | | | | | 152.1 | 0.042 |
| 75 | Water 31 - Impoundment | On-Channel | N/A | N/A | 0.300 | N/A | 0.022 |
| 76 | Stream 86 - Unnamed Tributary | Ephemeral | 1.0 | 208.7 | 0.005 | 27.0 | 0.001 |
| 77 | Stream 33/100 - Unnamed Tributary to Price Creek | Ephemeral | 4.5 | 551.6 | 0.057 | 41.4 | 0.004 |
| 78 | Water 22 - Price and George Creeks Arm of Lavon Lake | Open Water | N/A | N/A | 0.666 | N/A | 0.109 |
| 79 | Stream 35 - George Creek | Intermittent | 22.0 | 184.4 | 0.093 | 50.9 | 0.026 |

**TABLE 7: SUMMARY OF WATERS OF THE U.S. AND ADJACENT WETLANDS WITHIN THE PROJECT AREA (Cont.)**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 80 | Stream 36 - Price Creek | Intermittent | 8.0 | 406.3 | 0.075 | 71.2 | 0.013 |
| 81 | Stream 37 - Unnamed Tributary to Price Creek | Ephemeral | 1.5 | 413.8 | 0.014 | 85.6 | 0.003 |
| 82 | Stream 40 - Unnamed Tributary to Stream 38 (Crossing 1) | Ephemeral | 2.0 | 270.3 | 0.012 | 51.9 | 0.002 |
| 83 | Stream 40 - Unnamed Tributary to Stream 38 (Crossing 2) | | | | | 109.5 | 0.005 |
| 84 | Stream 38 - Unnamed Tributary to Elm Creek (Crossing 1) | Ephemeral | 3.5 | 945.5 | 0.076 | 28.8 | 0.002 |
| 85 | Stream 38 - Unnamed Tributary to Elm Creek (Crossing 2) | | | | | 95.3 | 0.008 |
| 86 | Stream 39 - Unnamed Tributary to Elm Creek | Ephemeral | 4.0 | 171.3 | 0.016 | 48.5 | 0.004 |
| 87 | Stream 87 - Unnamed Tributary to Elm Creek | Ephemeral | 4.0 | 250.0 | 0.023 | 40.4 | 0.004 |
| 88 | Stream 88 - Unnamed Tributary to Elm Creek | Ephemeral | 2.5 | 169.0 | 0.010 | 42.4 | 0.002 |
| 89 | Stream 75/101 - Tom Bean Creek | Intermittent | 7.0 | 653.3 | 0.105 | 54.8 | 0.009 |
| 90 | Stream 99 - Elm Creek | Intermittent | 24.0 | 350.6 | 0.193 | 77.4 | 0.043 |
| 91 | Stream 77/98 - Unnamed Tributary to Stream 57 | Ephemeral | 3.0 | 362.7 | 0.025 | 51.1 | 0.004 |
| 92 | Stream 43 - Unnamed Tributary to Elm Creek | Ephemeral | 3.5 | 453.8 | 0.036 | 78.2 | 0.006 |
| 93 | Water 4 - Impoundment | On-Channel | N/A | N/A | 0.715 | N/A | 0.182 |
| 94 | Water 7 - Impoundment | On-Channel | N/A | N/A | 0.083 | N/A | 0.001 |
| 95 | Stream 44 - Unnamed Tributary | Ephemeral | 3.5 | 269.1 | 0.022 | 64.2 | 0.005 |
| **Total** | | | | **41,739.7** | **76.276** | **4,520.8** | **1.942** |

*Calculation of impacts based on 40-foot wide permanent easement at creek, wetland, and water crossings.
**Isolated from the East Fork Trinity River 100-year floodplain by federal and agricultural levees. Determined as non-jurisdictional.

**TABLE 8: SUMMARY OF WETLANDS WITHIN THE PROJECT AREA (EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity Area (Acres) | Proposed Impacts* Area (Acres) |
|---|---|---|---|---|
| 7 | Wetland 1 | Isolated** | 0.610 | N/A |
| 8 | Wetland 4 | Isolated** | 0.900 | N/A |
| 9 | Wetland 2 - North of SH 175 | Emergent | 0.090 | 0.081 |
| 10 | Wetland 3 - North of SH 175 | Emergent | 0.330 | 0.091 |
| 22 | Wetland 8 | Emergent | 0.141 | 0.053 |
| 24 | Wetland 9 | Emergent | 0.225 | 0.031 |
| 31 | Wetland 7 | Emergent | 0.036 | 0.003 |
| **Total** | | | **2.332** | **0.259** |

***Calculation of impacts based on 40-foot wide permanent easement at wetland crossings.**
****Isolated from the East Fork Trinity River 100-year floodplain by federal and agricultural levees. Determined as non-jurisdictional.**

**TABLE 9: SUMMARY OF STREAMS WITHIN THE PROJECT AREA**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 4 | East Fork Trinity River | Perennial | 167.0 | 15,750.0 | 60.400 | 344.1 | 0.400 |
| 5 | Stream 58 - Unnamed Tributary to the East Fork Trinity River | Ephemeral | 2.5 | 113.7 | 0.007 | 44.8 | 0.003 |
| 11 | Stream 61A - Unnamed Tributary to Mustang Creek | Intermittent | 4.0 | 2,236.9 | 0.205 | 18.1 | 0.002 |
| 12 | Stream 60 - Mustang Creek (Crossing 1) | Intermittent | 8.0 | 1,012.2 | 0.186 | 71.2 | 0.002 |
| 13 | Stream 60 - Mustang Creek (Crossing 2) | | | | | 54.6 | 0.010 |
| 14 | Stream 53 - Unnamed Tributary to Mustang Creek | Ephemeral | 2.5 | 199.9 | 0.011 | 51.6 | 0.003 |
| 15 | Stream 1 - Unnamed Tributary to Mustang Creek (Continuation of Stream 53) | Intermittent | 4.5 | 351.4 | 0.036 | 42.1 | 0.004 |
| 17 | Stream 62 - (Continuation of Streams 53 and 1) | Ephemeral | 1.5 | 348.2 | 0.012 | 21.6 | 0.001 |
| 19 | Stream 2 - Unnamed Tributary to Mustang Creek | Ephemeral | 2.0 | 333.0 | 0.015 | 50.3 | 0.002 |
| 20 | Stream 3 - Unnamed Tributary to Mustang Creek | Ephemeral | 2.5 | 506.4 | 0.030 | 59.9 | 0.003 |
| 21 | Stream 4 - Unnamed Tributary to Mustang Creek | Ephemeral | 1.0 | 307.0 | 0.007 | 188.6 | 0.004 |
| 23 | Stream 96 - Unnamed Tributary to Mustang Creek | Ephemeral | 1.5 | 222.0 | 0.008 | 29.7 | 0.001 |

**TABLE 9: SUMMARY OF STREAMS WITHIN THE PROJECT AREA (Cont.)**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 25 | Stream 95 - Unnamed Tributary to Mustang Creek | Ephemeral | 1.5 | 151.3 | 0.005 | 42.7 | 0.001 |
| 26 | Stream 8 - Unnamed Tributary to Mustang Creek | Intermittent | 10.0 | 188.7 | 0.043 | 40.9 | 0.009 |
| 27 | Stream 9 - Unnamed Tributary | Ephemeral | 3.5 | 105.3 | 0.008 | 105.3 | 0.008 |
| 28 | Stream 10 - Unnamed Tributary | Ephemeral | 3.5 | 80.5 | 0.006 | 80.5 | 0.006 |
| 30 | Stream 82 - Unnamed Tributary | Ephemeral | 1.5 | 194.4 | 0.007 | 60.1 | 0.002 |
| 33 | Stream 11 - Unnamed Tributary | Ephemeral | 1.0 | 103.9 | 0.002 | 66.4 | 0.002 |
| 34 | Stream 12 - Unnamed Tributary | Ephemeral | 3.0 | 145.4 | 0.010 | 48.4 | 0.003 |
| 35 | Stream 14 - Unnamed Tributary | Ephemeral | 3.5 | 157.5 | 0.013 | 129.0 | 0.010 |
| 36 | Stream 13 - Unnamed Tributary | Ephemeral | 2.5 | 113.6 | 0.007 | 44.0 | 0.004 |
| 37 | Stream 15 - Unnamed Tributary to Long Branch | Intermittent | 8.0 | 201.0 | 0.037 | 42.0 | 0.008 |
| 38 | Stream 89 - Unnamed Tributary to Long Branch | Ephemeral | 1.5 | 469.7 | 0.016 | 42.3 | 0.001 |
| 39 | Stream 67 - Unnamed Tributary to Long Branch | Ephemeral | 3.5 | 431.9 | 0.035 | 50.2 | 0.004 |
| 40 | Stream 70 - Unnamed Tributary to Stream 67 | Ephemeral | 2.5 | 146.6 | 0.008 | 43.3 | 0.002 |
| 41 | Stream 69 - Unnamed Tributary to Stream 68 | Ephemeral | 2.0 | 276.6 | 0.013 | 62.4 | 0.003 |
| 42 | Stream 68 - Unnamed Tributary to Long Branch | Ephemeral | 4.0 | 461.3 | 0.042 | 60.4 | 0.006 |
| 43 | Stream 16 - Unnamed Tributary to Long Branch | Ephemeral | 1.5 | 190.8 | 0.007 | 42.5 | 0.001 |
| 44 | Stream 93 - Long Branch (Crossing 1) | Intermittent | 9.0 | 889.9 | 0.184 | 149.4 | 0.031 |
| 45 | Stream 93 - Long Branch (Crossing 2) | | | | | 104.5 | 0.022 |
| 46 | Stream 94 - Unnamed Tributary to Long Branch | Ephemeral | 3.0 | 203.4 | 0.014 | 44.5 | 0.003 |
| 48 | Stream 92 - Long Branch | Intermittent | 9.0 | 252.9 | 0.052 | 41.0 | 0.008 |
| 50 | Stream 85 - Unnamed Tributary to Long Branch | Ephemeral | 3.0 | 136.1 | 0.009 | 40.5 | 0.003 |
| 51 | Stream 17 - Long Branch | Intermittent | 9.0 | 199.3 | 0.041 | 51.4 | 0.011 |

**TABLE 9: SUMMARY OF STREAMS WITHIN THE PROJECT AREA (Cont.)**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 52 | Stream 19 - Overflow Channel for Long Branch | Ephemeral | 2.0 | 88.6 | 0.004 | 42.1 | 0.002 |
| 53 | Stream 18 - Long Branch | Intermittent | 6.0 | 115.6 | 0.016 | 46.7 | 0.006 |
| 54 | Stream 20 - Unnamed Tributary to Long Branch (Crossing 1) | Ephemeral | 3.5 | 671.6 | 0.054 | 53.3 | 0.004 |
| 55 | Stream 20 - Unnamed Tributary to Long Branch (Crossing 2) | | | | | 48.5 | 0.004 |
| 56 | Stream 21 - Unnamed Tributary to Camp Creek | Ephemeral | 3.0 | 151.5 | 0.010 | 60.1 | 0.004 |
| 58 | Stream 22 - Unnamed Tributary to Camp Creek | Ephemeral | 3.0 | 123.9 | 0.009 | 43.1 | 0.003 |
| 59 | Stream 23 - Unnamed Tributary to Camp Creek | Ephemeral | 1.5 | 166.2 | 0.006 | 43.0 | 0.001 |
| 60 | Stream 54 - Camp Creek | Intermittent | 11.0 | 4,098.8 | 1.035 | 42.4 | 0.011 |
| 61 | Stream 55 - Unnamed Tributary to Camp Creek | Ephemeral | 4.0 | 393.1 | 0.036 | 168.8 | 0.016 |
| 62 | Stream 24 - Unnamed Tributary to Camp Creek | Ephemeral | 2.0 | 410.9 | 0.019 | 44.2 | 0.002 |
| 63 | Stream 25 - Unnamed Tributary to Camp Creek | Ephemeral | 4.5 | 240.7 | 0.025 | 44.1 | 0.004 |
| 64 | Stream 51 - Unnamed Tributary to Camp Creek | Ephemeral | 2.5 | 208.9 | 0.012 | 48.9 | 0.003 |
| 65 | Stream 30/81 - Unnamed Tributary to Camp Creek | Ephemeral | 6.0 | 399.7 | 0.055 | 53.8 | 0.007 |
| 67 | Stream 50 - Unnamed Tributary to Camp Creek | Ephemeral | 2.0 | 354.5 | 0.016 | 40.4 | 0.002 |
| 68 | Stream 29 - Bluff Creek (below large on-channel impoundment) | Ephemeral | 4.0 | 183.4 | 0.017 | 50.3 | 0.005 |
| 69 | Stream 28 - Unnamed Tributary to Bluff Creek | Ephemeral | 4.0 | 164.6 | 0.015 | 44.8 | 0.004 |
| 72 | Stream 32 - Bear Creek (Crossing 1) | Intermittent | 12.0 | 1,826.5 | 0.500 | 58.0 | 0.016 |
| 73 | Stream 32 - Bear Creek (Crossing 2) | | | | | 49.3 | 0.014 |
| 74 | Stream 32 - Bear Creek (Crossing 3) | | | | | 152.1 | 0.042 |
| 76 | Stream 86 - Unnamed Tributary | Ephemeral | 1.0 | 208.7 | 0.005 | 27.0 | 0.001 |
| 77 | Stream 33/100 - Unnamed Tributary to Price Creek | Ephemeral | 4.5 | 551.6 | 0.057 | 41.4 | 0.004 |
| 79 | Stream 35 - George Creek | Intermittent | 22.0 | 184.4 | 0.093 | 50.9 | 0.026 |

**TABLE 9: SUMMARY OF STREAMS WITHIN THE PROJECT AREA (Cont.)**
**(EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

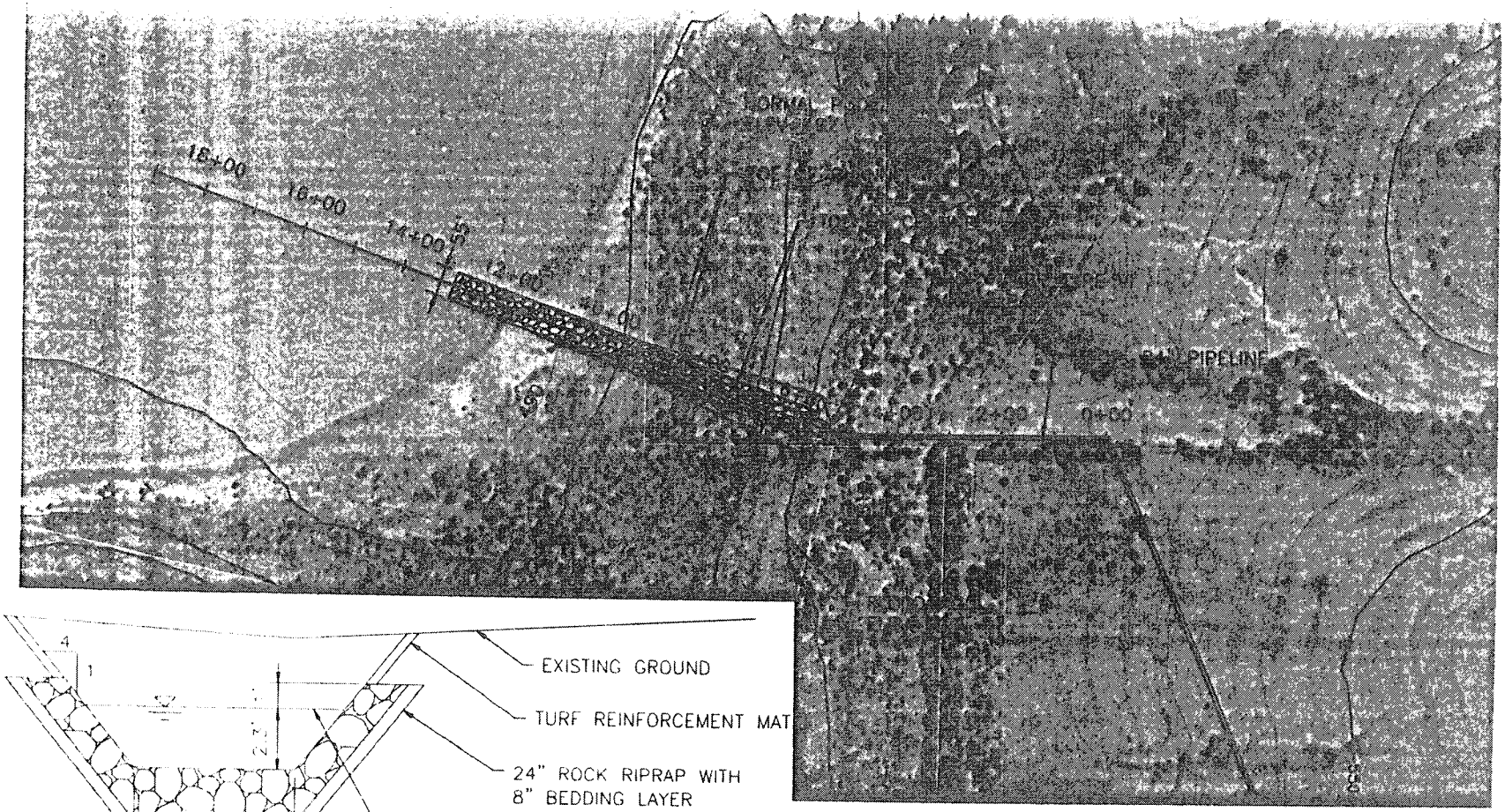
| Identification # | Aquatic Resource | Classification | Project Vicinity | | | Proposed Impacts* | |
|---|---|---|---|---|---|---|---|
| | | | Width at OHWM (Feet) | Length (L.F.) | Area (Acres) | Length (L.F.) | Area (Acres) |
| 80 | Stream 36 - Price Creek | Intermittent | 8.0 | 406.3 | 0.075 | 71.2 | 0.013 |
| 81 | Stream 37 - Unnamed Tributary to Price Creek | Ephemeral | 1.5 | 413.8 | 0.014 | 85.6 | 0.003 |
| 82 | Stream 40 - Unnamed Tributary to Stream 38 (Crossing 1) | Ephemeral | 2.0 | 270.3 | 0.012 | 51.9 | 0.002 |
| 83 | Stream 40 - Unnamed Tributary to Stream 38 (Crossing 2) | | | | | 109.5 | 0.005 |
| 84 | Stream 38 - Unnamed Tributary to Elm Creek (Crossing 1) | Ephemeral | 3.5 | 945.5 | 0.076 | 28.8 | 0.002 |
| 85 | Stream 38 - Unnamed Tributary to Elm Creek (Crossing 2) | | | | | 95.3 | 0.008 |
| 86 | Stream 39 - Unnamed Tributary to Elm Creek | Ephemeral | 4.0 | 171.3 | 0.016 | 48.5 | 0.004 |
| 87 | Stream 87 - Unnamed Tributary to Elm Creek | Ephemeral | 4.0 | 250.0 | 0.023 | 40.4 | 0.004 |
| 88 | Stream 88 - Unnamed Tributary to Elm Creek | Ephemeral | 2.5 | 169.0 | 0.010 | 42.4 | 0.002 |
| 89 | Stream 75/101 - Tom Bean Creek | Intermittent | 7.0 | 653.3 | 0.105 | 54.8 | 0.009 |
| 90 | Stream 99 - Elm Creek | Intermittent | 24.0 | 350.6 | 0.193 | 77.4 | 0.043 |
| 91 | Stream 77/98 - Unnamed Tributary to Stream 57 | Ephemeral | 3.0 | 362.7 | 0.025 | 51.1 | 0.004 |
| 92 | Stream 43 - Unnamed Tributary to Elm Creek | Ephemeral | 3.5 | 453.8 | 0.036 | 78.2 | 0.006 |
| 95 | Stream 44 - Unnamed Tributary | Ephemeral | 3.5 | 269.1 | 0.022 | 64.2 | 0.005 |
| **Total** | | | | **41,739.7** | **64.067** | **4,520.8** | **0.874** |

***Calculation of impacts based on 40-foot wide permanent easement at creek, wetland, and water crossings.**

**TABLE 10: SUMMARY OF OPEN WATERS WITHIN THE PROJECT AREA (EASEMENT AREA OF PROPOSED PIPELINE ROUTE)**

| Identification # | Aquatic Resource | Classification | Project Vicinity Area (Acres) | Proposed Impacts* Area (Acres) |
|---|---|---|---|---|
| 1 | Water 19 - Remnant East Fork Trinity River Segment | Open Water | 1.250 | N/A |
| 2 | Water 16 - Remnant East Fork Trinity River Channel (Crossing 1) | Open Water | 1.520 | 0.100 |
| 3 | Water 16 - Remnant East Fork Trinity River Channel (Crossing 2) | | | 0.040 |
| 6 | Water 15 - Impounded Area by Levee | Open Water | 0.140 | 0.020 |
| 16 | Water 18 - Impoundment (Beaver Pond) | On-Channel | 1.500 | 0.121 |
| 18 | Water 1 - Impoundment | On-Channel | 0.264 | 0.031 |
| 29 | Water 27 - Impoundment | On-Channel | 0.058 | 0.035 |
| 32 | Water 29 - Impoundment | On-Channel | 0.250 | 0.002 |
| 47 | Water 37 - Flood Plain for Long Branch | Open Water | 0.048 | 0.026 |
| 49 | Water 30 | Remnant Channel | 0.012 | 0.009 |
| 57 | Water 40 - Impoundment | Isolated | 0.444 | N/A |
| 66 | Water 10 - Plunge Pool Associated with Stream 81 | Plunge Pool | 0.083 | N/A |
| 70 | Water 5 - Impoundment | On-Channel | 2.400 | 0.041 |
| 71 | Water 6 - Impoundment | On-Channel | 0.144 | 0.070 |
| 75 | Water 31 - Impoundment | On-Channel | 0.300 | 0.022 |
| 78 | Water 22 - Price and George Creeks Arm of Lavon Lake | Open Water | 0.666 | 0.109 |
| 93 | Water 4 - Impoundment | On-Channel | 0.715 | 0.182 |
| 94 | Water 7 - Impoundment | On-Channel | 0.083 | 0.001 |
| **Total** | | | **9.877** | **0.809** |

***Calculation of impacts based on 40-foot wide permanent easement at creek, wetland, and water crossings.**







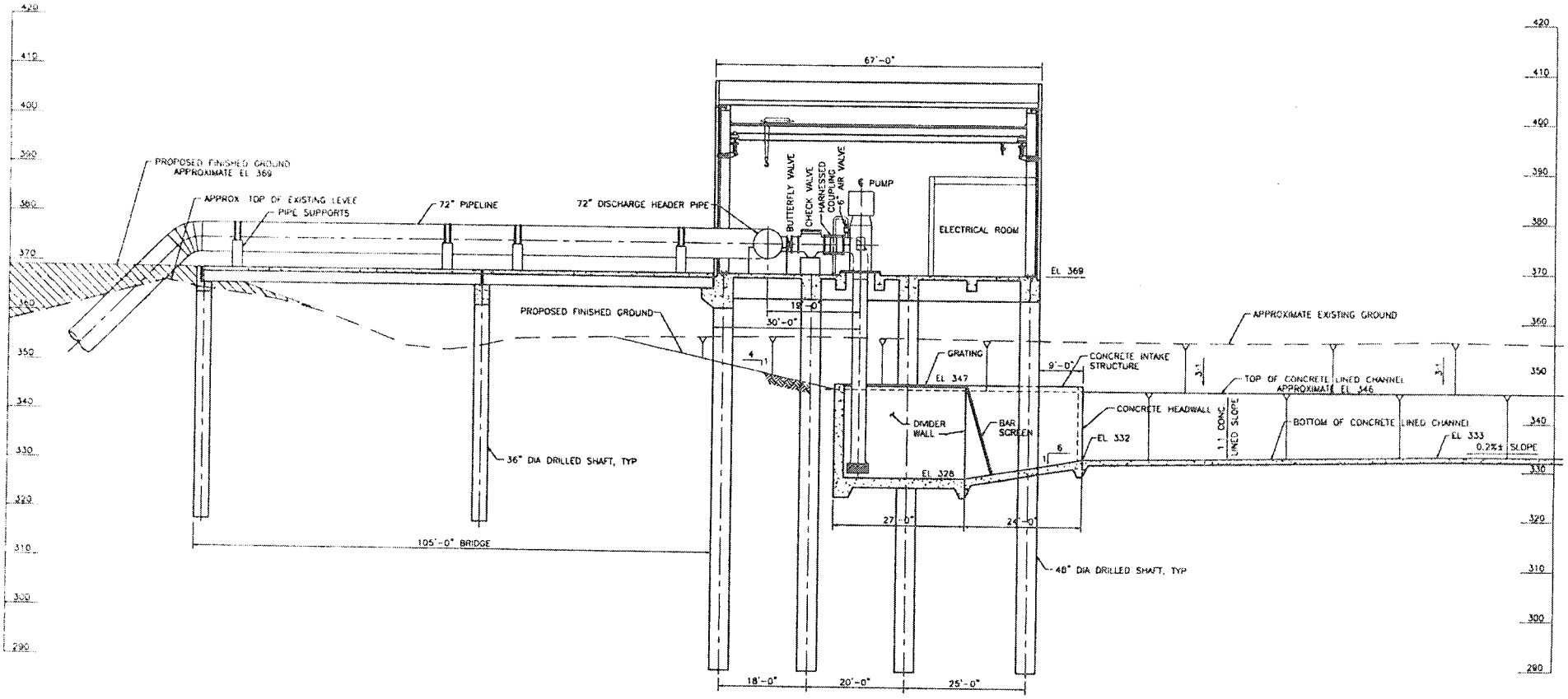
1 PROPOSED CHANNEL TYPICAL SECTION
NOT TO SCALE

NORTH TEXAS MUNICIPAL WATER DISTRICT
EAST FORK REUSE PROJECT
PIPELINE ALIGNMENT STUDY

LAKE LAVON OUTFALL STRUCTURE
PLAN AND TYPICAL CHANNEL SECTION

FIGURE 1

USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006




NOT FOR CONSTRUCTION

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BAR IS ONE INCH IN LENGTH ON ORIGINAL DRAWING ONLY. SCALE AND ADJUST ACCORDINGLY

ONE INCH

| NO | DATE | REVISION | BY |
|---|---|---|---|

DESIGNED BY ACH
DRAWN BY MRC
CHECKED BY ACH
REVIEWED BY RLC

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Alan Plummer Associates, Inc. 1320 Empire Central Suite 702 Dallas, Texas 75247-4086

Freese and Nichols, Inc. 4055 International Plaza Suite 200 Fort Worth, Texas 76109-7300

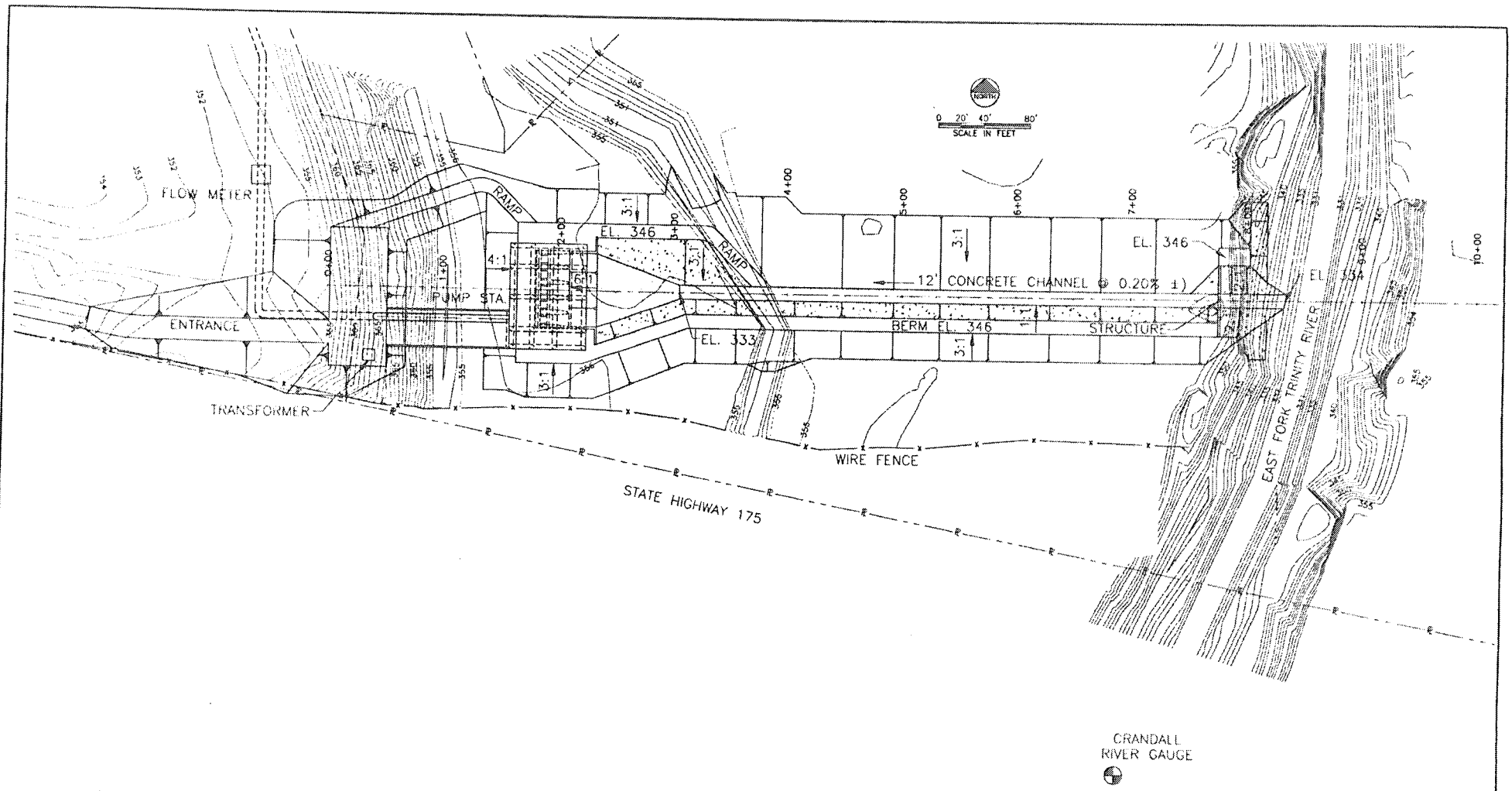
**NORTH TEXAS MUNICIPAL WATER DISTRICT**
**EAST FORK REUSE PROJECT (WCF 04-5)**
**DIVERSION PUMP STATION**

DIVERSION PUMP STATION
PRELIMINARY
PUMP STATION SECTION – OPTION 1

Sheet No. 51

0 10' 20'
SCALE IN FEET

USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006

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DESIGNED BY ACH
DRAWN BY MDC
CHECKED BY ACH
REVIEWED BY RLG

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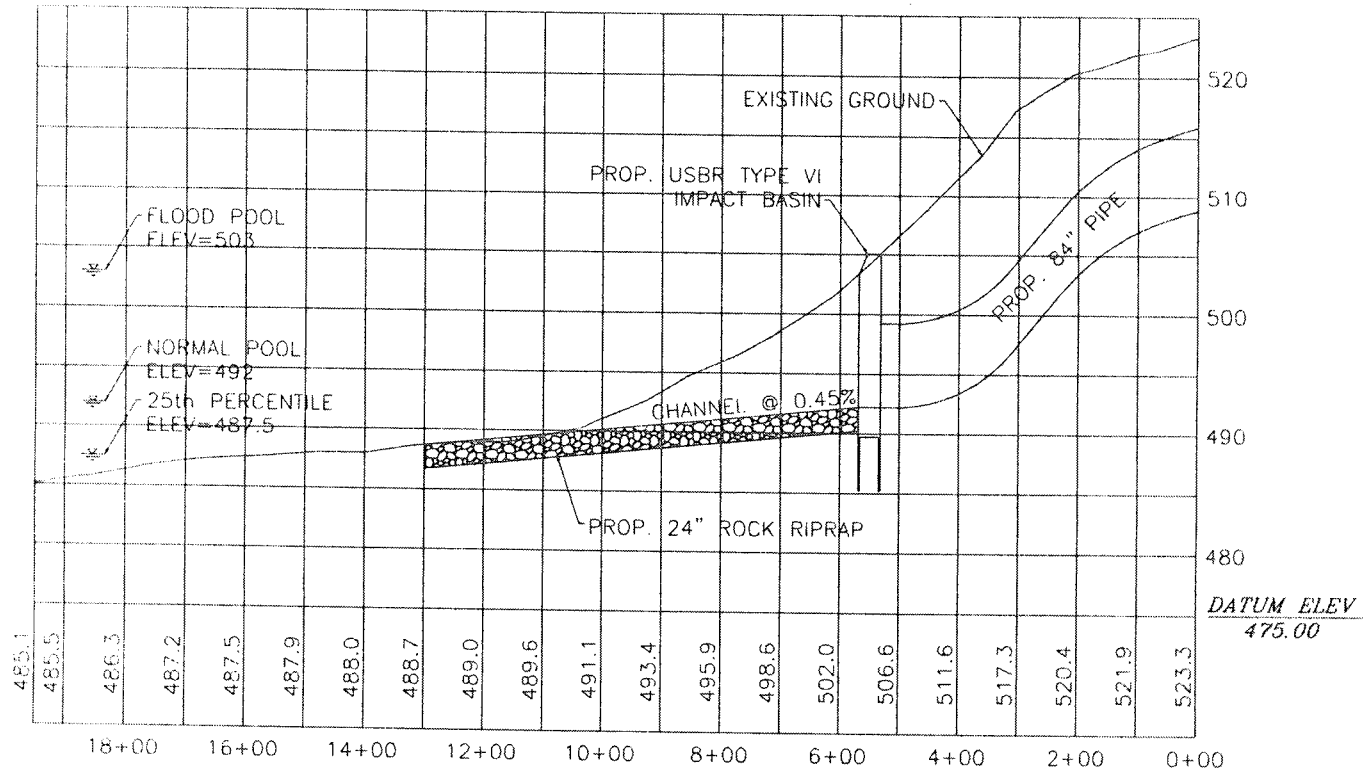
NORTH TEXAS MUNICIPAL WATER DISTRICT
EAST FORK REUSE PROJECT (WCF 04-5)
DIVERSION PUMP STATION

DIVERSION PUMP STATION
PRELIMINARY
PUMP STATION SITE PLAN – OPTION 1

5.3

USACE PROJECT NO.: 200400002

FEBRUARY 2, 2006




NORTH TEXAS MUNICIPAL WATER DISTRICT
EAST FORK REUSE PROJECT
PIPELINE ALIGNMENT STUDY

LAKE LAVON OUTFALL STRUCTURE
CHANNEL PROFILE

FIGURE 2

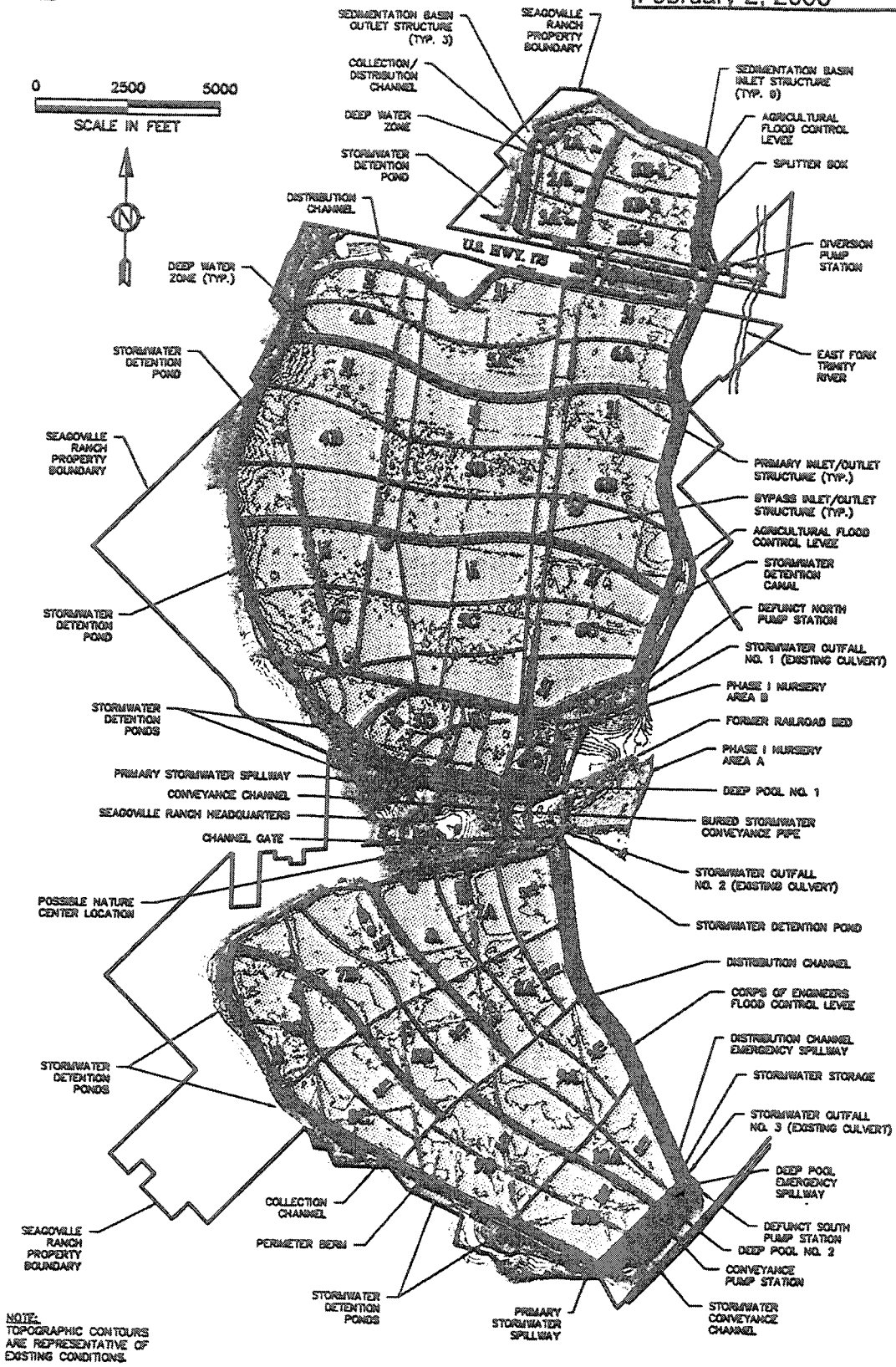
USACE PROJECT NO.: 200400002

FEBRUARY 2, 2006

L:\PROJECTS\326\5610\REX_Regulatory (see also 326-5643)\REC_Corps of Engineers\8.5x11-FIG_6.dwg LAYOUT: Layout1
Mar 04, 2005 - 12:20pm

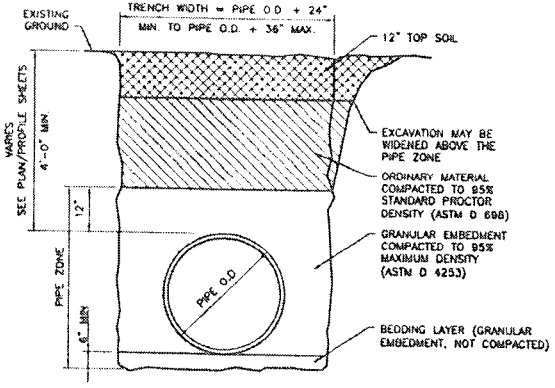
ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS • DESIGNERS • SCIENTISTS

USACE Project No.:200400002
February 2, 2006

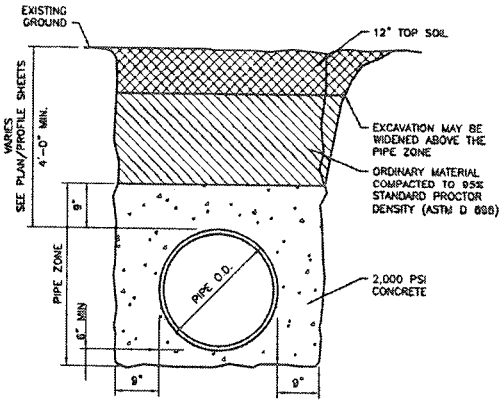



NOTE:
TOPOGRAPHIC CONTOURS ARE REPRESENTATIVE OF EXISTING CONDITIONS.

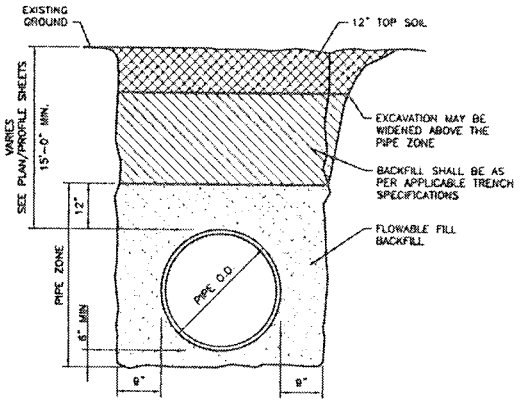
# PRELIMINARY WETLAND SYSTEM LAYOUT



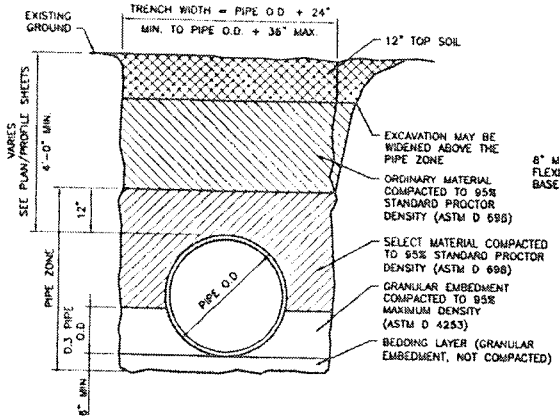

1 STEEL PIPE TYPICAL TRENCH SECTION FOR DEPTH OF COVER 4 TO 15 FEET
NOT TO SCALE



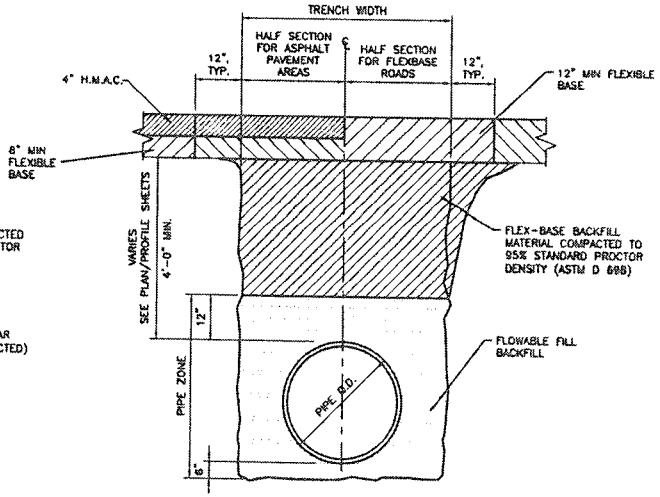

2 TYPICAL CONCRETE ENCASEMENT
NOT TO SCALE



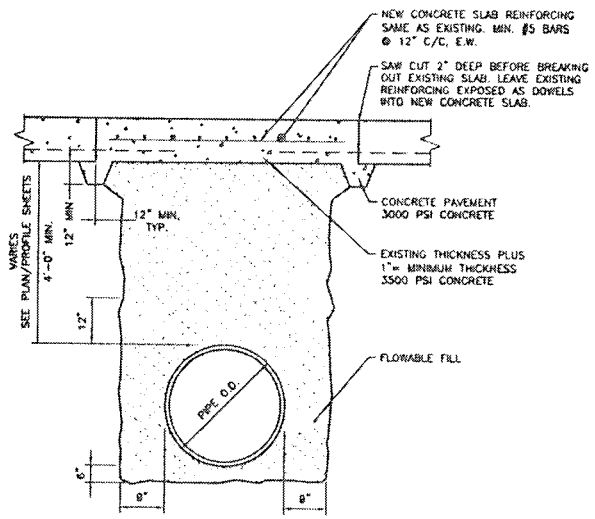

3 STEEL PIPE TYPICAL TRENCH SECTION FOR DEPTH OF COVER OVER 15 FEET
NOT TO SCALE




4 PRESTRESSED CONCRETE PIPE TYPICAL TRENCH SECTION
NOT TO SCALE

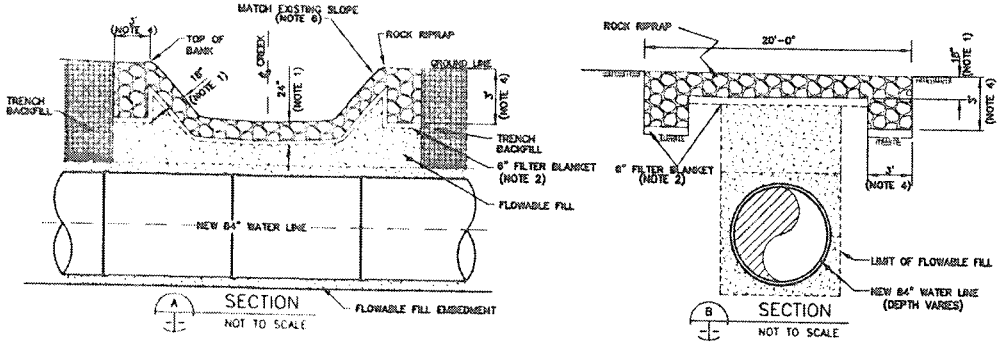



5 TYPICAL TRENCH SECTION FOR OPEN CUT FLEXBASE ROADS, DRIVES, AND ASPHALT PAVEMENT AREAS
NOT TO SCALE




6 TYPICAL TRENCH SECTION FOR OPEN CUT CONCRETE ROADS
NOT TO SCALE

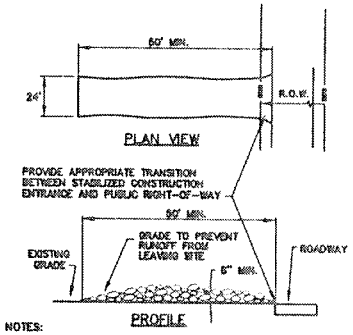
USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006




NOTES:

1. ROCK RIPRAP SHALL BE INSTALLED AT A MINIMUM THICKNESS OF 18" ON SLOPE AND 24" ON BOTTOM. THICKNESS AND STONE SIZE/GRADE VARIES PER CREEK CROSSING.
2. SEE SPECIFICATIONS SECTION 02271 RIPRAP FOR ADDITIONAL INFORMATION.
3. ROCK FILTER BLANKET SHALL BE INSTALLED AT A MINIMUM THICKNESS OF 6". GEOTEXTILE FABRIC MAY BE USED IN PLACE OF ROCK FILTER BLANKET WITH OWNER APPROVAL.
4. THE ROCK RIPRAP SHALL BE CONSTRUCTED WITHIN THE LIMITS OF THE PERMANENT EASEMENT AND AS SHOWN ON THE PLANS.
5. THE ROCK RIPRAP SHALL BE CONTINUOUS, EXTENDING DOWN BOTH BANKS OF THE CREEK TO THE CENTER OF THE CREEK. A TOE WILL BE CONSTRUCTED ALONG THE SIDES OF THE RIPRAP. THE RIPRAP TOE WILL HAVE A MINIMUM DEPTH AND WIDTH OF 2 TIMES THE MINIMUM THICKNESS OF THE ROCK RIPRAP SPECIFIED. THE RIPRAP SHALL EXTEND 3 FEET FROM THE TOP OF BANK. THE FINISHED SURFACE OF THE RIPRAP SHALL NOT EXTEND ABOVE PRECONSTRUCTION GRADE.
6. RIPRAP SHALL BE PLACED ON THE NATURAL SLOPE EXCEPT WHEN SLOPE EXCEEDS 2:1. (MINIMUM SLOPE 2:1)

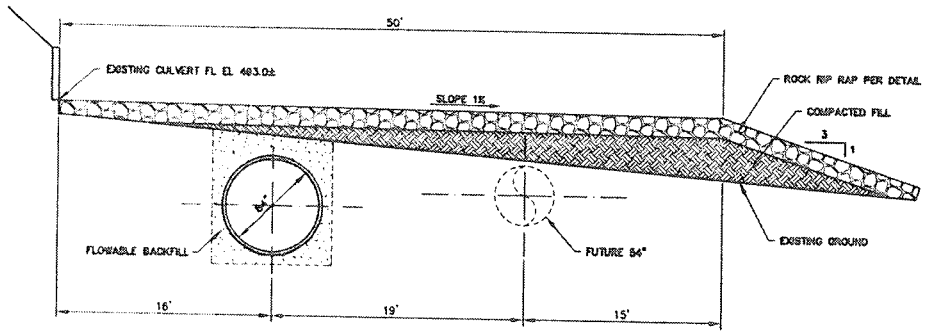
1 TYPICAL PIPELINE CREEK CROSSING DETAILS
NOT TO SCALE




NOTES:

1. STONE SIZE: 75–125 mm (3–5") OPEN GRADED ROCK.
2. LENGTH: AS EFFECTIVE BUT NOT LESS THAN 15 m (50').
3. THICKNESS: NOT LESS THAN 200 mm (6").
4. WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS/EGRESS.
5. WASHING: WHEN NECESSARY, VEHICLE WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE AND DRAINS INTO AN APPROVED TRAP OR SEDIMENT BASIN. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.
6. MAINTENANCE: THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND, AS WELL AS REPAIR AND CLEAN OUT OF ANY MEASURE DEVICES USED TO TRAP SEDIMENT. ALL SEDIMENTS THAT IS SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAY MUST BE REMOVED IMMEDIATELY.
7. DRAINAGE: ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

2 TYPICAL CONSTRUCTION ENTRANCE DETAIL
NOT TO SCALE




3 TYPICAL PIPELINE AT CULVERT OUTFALL
NOT TO SCALE

USACE PROJECT NO.: 200400002
FEBRUARY 2, 2006