

ENVIRONMENTAL ANALYSIS AND DECISION ON THE NEED
FOR AN ENVIRONMENTAL IMPACT STATEMENT (EIS)

Form 1600-1

Rev. 6-2001

Department of Natural Resources (DNR)

Region or Bureau

Type List Designation

NOTE TO REVIEWERS: This document is a DNR environmental analysis that evaluates probable environmental effects and decides on the need for an EIS. The attached analysis includes a description of the proposal and the affected environment. The DNR has reviewed the attachments and, upon certification, accepts responsibility for their scope and content to fulfill requirements in s. NR 150.22, Wis. Adm. Code. Your comments should address completeness, accuracy or the EIS decision. For your comments to be considered, they must be received by the contact person before 4:30 p.m., Insert Date.

Contact Person:

Thomas J. Quilty

Title: WDNR Senior Forester

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Mauston, WI 53948

Telephone Number

(608) 847-9394

Applicant: Juneau County Forestry Department

Title of Proposal: Winters/Juneau Co. Forest Withdrawal

Location: S ½ Frac. NW ¼ (PIN: 29002TAR520) and N ½ Frac. SW ¼ (PIN: 29002TAR521), Section 18, T19N, R4E, Town of Armenia, Juneau County,

Trade Parcel locations: SWSE Sec. 35, T20N, R3E, Town of Finley, Juneau County (PIN: 29008TFI492) and the SENE Sec 21, T20N, R4E, Town of Armenia, Juneau County (PIN: 29002TAR1126)

PROJECT SUMMARY

- 1. General Description (brief overview):** Juneau County has been asked by Messers Thomas and Eugene Winters of the Town of Armenia to withdraw 106.4 acres of the Juneau County Forest to develop the lands to produce agricultural crops using a central pivot irrigation system. The Winters have requested this area because they own 80 acres to the east of the subject parcel and this withdrawal parcel will permit the development of the central pivot irrigation system also using their property. They have acquired lands near other County Forest Lands that can be entered under the County Forest Crop Law in the Yellow River and New Miner Units. They wish to trade these lands for the subject County Forest Lands.
- 2. Purpose and Need (include history and background as appropriate):** Lands throughout the Town of Armenia have been cleared and developed for irrigated agricultural use. The first parcels were on private lands in the 1960s. In the mid-1970s, Juneau County requested to withdraw 1,280 acres but this request was reduced to 960 acres. An Environmental Assessment and an Environment Impact Statement were written because of the significance of the withdrawal and the resulting adverse public reaction to the withdrawal. In 1980 the request was heard by a DNR Hearing Examiner and the request was denied. A review of the denial was requested by the Juneau County Board of Supervisors. The denial was overturned by this committee. The land was then subsequently withdrawn and sold by sealed bid.

Several other withdrawals of County Forest lands have been made for irrigated agricultural development. Decisions were made on a case by case basis. They usually involved trading one area of land for County Forest land that would be adjacent to lands being developed for irrigated agriculture.

Presently the Town of Armenia has several thousand acres under irrigated agriculture. Several irrigated parcels are near the subject parcel.

There have also been some areas cleared for development of cranberry beds. The clearing has been done on both wetland areas and on upland areas. This agricultural development has increased the open cropland acreage throughout the Armenia and Finley townships. There is a large open area for cranberry production, just to the west of the county land being considered for withdrawal.

- 3. Authorities and Approvals (list local, state and federal permits or approvals required):** Wisconsin Statutes 28.11 (11) (a) permit Juneau County to request a withdrawal of lands under the County Forest Law. This portion of the statute provides that the Wisconsin DNR shall investigate the withdrawal proposal. It shall give full weight and consideration to the purposes and principles set forth in the law. It shall weigh and consider the benefits to the people of the state as a whole, as well as to the county, from the proposed use against the benefits to the people of the state and county under continued entry in the Forest Crop Law. It shall also consider if the lands will be put to a higher and better use.

The current Juneau County Comprehensive Land Use Plan, Chapter 420, permits Juneau County to seek withdrawals if Juneau County feels that the lands will be put to a higher and better use and that the withdrawal will benefit all the people of Juneau County.

- 3. Estimated Cost and Funding Source:** The withdrawal should not involve any costs to Juneau County. The County has a project loan with the Department for the purchase of the Forestry Building in Mauston. This withdrawal should not require Juneau County to refund any loan funds.

There has been an appraisal done for all the parcels involved with this project. The appraisal was done by Peter Wolter, DNR Land Appraiser in Wisconsin Rapids. The Juneau County lands were appraised at a value of \$154,300.00. The Winters' lands in Sec. 35, T20N, R3E, was appraised at a value of \$36,000.00 and the land in Sec. 21, T20N, R4E, was appraised at a value of \$69,000.00. The total value of the Winters' lands is \$105,000.00. The difference of \$49,300.00 will have to be negotiated with the Winters. Because of the difference the county could ask for more land to make up the difference or for a monetary payment by the Winters to the county.

- 5. Manipulation of Terrestrial Resources (include relevant quantities-sq.ft., cu.yds., etc.):** The lands to be withdrawn would require that they be bulldozed to remove all tree stumps and tree regeneration that have developed since timber harvests were held on the subject parcel. In some areas of the subject parcel the manipulation of the soil may be quite significant if the new landowners would require a more level surface for their operations.

The parcels that would be traded to Juneau County would be managed for wood products. There would be some manipulation of the terrestrial resources because of the harvests that would take place on the traded parcels. This manipulation would be for roads and in some cases as part of the harvesting process. For portions of the parcels that are near or next to wetlands or water, the harvesting contractor would be required to follow the Wisconsin Forestry Best Management Practices for Water Quality to prevent water quality deterioration.

- 6. Manipulation of Aquatic Resources (include relevant quantities - cfs., acre feet, MGD, etc.):** There are no wetlands on the Juneau County parcel that is part of this assessment. One of the parcels that Juneau County would receive from the Winters' has some wetlands, and at times open water in it. The other parcel has a ditch that runs from near the northeast corner of the "40" to the center of the south line, generally in a northeast/southwest direction. If Juneau County does receive these parcels in trade, the county would follow the Wisconsin Forestry Best Management Practices for Water Quality to protect the wetlands and open water if any work is done on the parcels.

7. **Buildings, Treatment Units, Roads and Other Structures (include size of facilities, road miles, etc.):** There are no buildings on any parcel involved with this assessment. There are township roads that are near these parcels and do provide access to them. The present county parcel has about one-half mile of township road on the west side of it. One of the trade parcels has a town road ending at the southeast corner while the other parcel has a quarter mile portion of a town road on the east side of it.
8. **Emissions and Discharges (include relevant characteristics and quantities):** If the county parcel were withdrawn, there would be air emissions from equipment operating to remove the woody vegetation and during typical farming practices that occur throughout the year.

The exchange parcels would not cause emissions and discharges when the county receives them. Gaseous emissions would occur when timber management activities are done on them. These emissions would be sporadic in nature and are not on a continuing daily, weekly or yearly basis.

9. **Other Changes:** None anticipated at this time.

10. **Identify the Maps, Plans and Other Descriptive Material Attached:**

Attachment	<u>A</u>	County map showing the general area of the project
Attachment	<u>B</u>	Aerial Photo showing subject parcel and trade parcels location
Attachment	<u>C</u>	Plat Map of subject parcel
Attachment	<u>D</u>	Aerial photo of subject parcel
Attachment	<u>E</u>	Plat map showing replacement parcels' location
Attachment	<u>F</u>	Aerial photo of replacement parcels
Attachment	<u>G</u>	Timber type maps for all parcels
Attachment	<u>H</u>	Soils maps for all parcels involved in project
Attachment	<u>I</u>	NRCS Soil Series Descriptions
Attachment	<u>J</u>	USGS Topographic maps for all parcels in the project
Attachment	<u>K</u>	Juneau County LTA map
Attachment	<u>L</u>	NHI Element occurrences for all parcels with maps
Attachment	<u>M</u>	Historical/Archaeological sites within the vicinity of the project
Attachment	<u>N</u>	Narrative of the Cranberry Creek Mound Group State Natural Area
Attachment	<u>O</u>	Flood Insurance Rate Maps from FEMA showing floodway and floodplain
Attachment	<u>P</u>	Water Table Elevation Map—Northern Juneau County
Attachment	<u>Q</u>	<i>Nitrate impacts on groundwater from irrigated-vegetable systems in a humid north-central US sand plain, UW-Stevens Point paper, George J. Kraft and Will Stites, May 6, 2003.</i>
Attachment	<u>R</u>	<i>Impacts of Irrigated Vegetable Agriculture on a Humid North-Central U.S. Sand Plain Aquifer, Ground Water, Vol. 37, No. 4, G. J. Kraft, etal, July-August, 1999.</i>
Attachment	<u>S</u>	<i>Nitrate and Chlorine Loading to Groundwater from an Irrigated North-Central U.S. Sand-Plain Vegetable Field, Journal of Environmental Quality, Vol. 30, No. 4, W. Stites and G. J. Kraft, July-August, 2001.</i>
Attachment	<u>T</u>	<i>Nitrate and Triazine Concentrations in the Groundwater of the Central Wisconsin River Basin, Paper prepared for the Wis. DNR Bureau of Watershed Management, January 29, 2001.</i>

AFFECTED ENVIRONMENT

Information Based On (check all that apply)

X Literature/Correspondence

X Personal Contacts (list in item 28)

Field Analysis By: X Author, ___ (list in item 28)

Past Experience With Site By: X Author
X Other (list in item 28)

11. Physical (topographic - soils - water - air):

Topography:

The topography of all the parcels range from 0 to 6%. The three parcels have either Friendship sand, Alganssee-Glendora fine sandy loam or Meehan-Newson complex soils.

Soil Resource:

The county parcel has Friendship sand on the bulk of the area with some Meehan-Newson complex soils on the west and northwest side. Friendship sand is droughty in dry years and has a blowing hazard when there is no vegetation on it. The Friendship soil is moderately well drained and permeability is rapid. The seasonal high water table is 2.5 to 6.0 feet below the surface during wet periods. Water erosion and soil blowing can be controlled by a conservation tillage system that leaves crop residue on the surface and by a winter cover crop. The Meehan-Newson complex features two different soil series mixing throughout the area. The Meehan portion is somewhat poorly drained and permeability is rapid. In undrained areas the seasonal high water table is 1 to 3 feet below the surface of the soil. It can have hydric soil inclusions in depressions. The Newson portion is poorly drained to very poorly drained and can be frequently flooded or ponded. The water table is above or near the surface of the Newson soil much of the year. This entire soil complex can have a blowing hazard if it is drained and cultivated. The Newson soil is hydric in nature.

The trade parcel in Sec. 35, T20N, R3E has Alganssee-Glendora fine sandy loam in the northwest portion of the parcel. This soil is hydric in nature. It is poorly to very poorly drained and is subject to frequent flooding and ponding. Permeability is rapid. In undrained areas the seasonal high water table is 1 to 2 feet below the surface of the Alganssee soil and is at or near the surface of the Glendora soil much of the year. The remainder of the soil on the parcel is the Meehan-Newson complex. See above for a description of this complex.

The trade parcel in Sec. 21, T20N, R4E has Friendship sand and some Meehan-Newson complex soils. See above for a description of these soil types.

Water Resource:

The county parcel has no standing water or wetland areas on it. The parcel has a portion of the west and northwest corner in the Yellow River floodplain. At times of high water events the land may flood. There could also be some standing water on the parcel when there is a lot of rain. This water will stay on the soil surface until it percolates through the soil. There is a ditch that has been dug on the west side of the county parcel. The flow of the ditch is from north to south. This ditch crosses the town road at the west quarter-corner of the section then goes to the west. The ditch helps to drain an irrigated parcel to the north of the county lands as well as the county land.

The trade parcel in Sec. 35, Town of Finley, is about one quarter to one-half mile from the Yellow River, in the Yellow River floodplain. The parcel has very little open or standing water on it most of the year, with most of this in a small pond in the northwest corner. In the spring or at times of high water events, there may be instances when there is considerably more open, standing water. This water would come from excess floodwaters that are flowing in the Yellow River. Because of the soil type, the water may take a long time to leave the area. The water would flow downstream as well as percolate through the soil. Any isolated pockets of water in depressions would then percolate through the soil. At any time there is high water on the parcel, the parcel would not be useable.

The trade parcel in Sec. 21, Town of Armenia, has a ditch that enters just south of the northeast corner of the property and exits at the center of the south line of the "40". This ditch was constructed to drain irrigated agricultural fields to the north and east of the parcel. The water runs from the northeast to the southwest. Generally this ditch has a minor flow in it. At times of high water and in the spring the water flow will increase significantly as the ditch drains the agricultural fields to the north. The ditch is about 6 to 7 feet deep. The excavated sand makes up a large portion of the depth of the ditch. The top width of the spoils is sufficient to permit vehicular travel.

Both of the trade parcels are adjacent to existing Juneau Co. Forest lands in the towns of Armenia and Finley. Both parcels would complement the lands that Juneau County already owns. The parcel in the Town of Finley would permit the county to have access to other lands that are presently landlocked with no public access being available. The parcel in Armenia would allow the county to own a full quarter section of land in the NE corner of Sec. 21. This would facilitate management for the other lands that Juneau County owns.

Air Resource:

The air resource of the parcels is normal for the area. Generally, vehicular travel and use on the parcels are the greatest source of any air quality degradation.

Other Features:

Both of the trade parcels are adjacent to existing Juneau Co. Forest lands in the towns of Armenia and Finley. Both parcels would complement the lands that Juneau Co. already owns. The parcel in the Town of Finley would permit the county to have access to other lands that are presently landlocked with no available public access. The parcel in Armenia would allow the county to own a full quarter section of land in the NE corner of Sec. 21. This would facilitate management for the other lands that Juneau County owns.

12. Biological (dominant aquatic and terrestrial plant and animal species and habitats including threatened/endangered species; wetlands amounts, types and hydraulic value):

A. Withdrawal Parcel: The withdrawal parcel is 106.4 acres in size.

A search of the information available from the DNR Bureau of Endangered Resources indicates that there have been no sightings of endangered or threatened species or vegetative communities on the County parcel. Some endangered resources may exist in the section to the west of the withdrawal parcel. These include but are not limited to the Cerulean Warbler, Red-shouldered Hawk, Trumpeter Swan, Yellow-crowned Night-heron, Karner Blue butterfly, Western Slender Glass Lizard, Prairie vole and the Eastern Massasauga rattlesnake. The type of habitat that is present on the parcel at this time is not attractive to some of these species. The parcel may acquire some of these species such as the Karner Blue butterfly, the Western Slender Glass lizard, the Prairie vole or the Eastern Massasauga rattlesnake if the site stays in its present open state. As the vegetative state changes different wildlife species will use the parcel.

Generally the parcel has habitat common to the Central Sand Plains Ecological Landscape. It is located near the junction of the Wisconsin River Outwash Terraces and the Yellow River Floodplain and Terraces. The bulk of the withdrawal parcel has been harvested in two different timber sales by Juneau County in the recent past. The main tree species that were harvested were oak and jack pine. The bulk of the parcel has been re-seeded to jack pine to increase the regeneration of that species. The oak has regenerated naturally through sprouting from the stumps or from seed. The first area was harvested about 1998. The hardwood regeneration is now about 10 to 15 feet high and the jack pine is about 6 feet. The most recent sale was in 2003. The area was re-seeded to jack pine right after the timber sale. The hardwood species have re-sprouted to a height of about 2 feet and the jack pine has just germinated. Lupine has established itself in the furrows that the jack pine was planted in.

Another 4-acre stand of jack pine is on the northwest side of the parcel. The stand is about 22 years old with an average stocking level. The stand contains a little over 6 cords of jack pine per acre and about 1 cord of oak per acre. It also has a small amount of scrub oak and aspen. The ditch that occurs on the west side of the withdrawal parcel is included in this stand.

The fauna on the parcel includes deer, turkey, grouse, squirrel, rabbit and other game species. It is expected that other native non-game animals also inhabit the parcel.

The parcel does not have any wetlands or open water areas on it. Some portions of the parcel are within the Yellow River floodplain and could flood at times of high water.

B. Replacement Parcel: There are two replacement parcels for this withdrawal. Each is 40 acres in size.

The parcel in the SENE of Section 21, T20N, R4E, was checked for the presence of threatened or endangered species from data from the Bureau of Endangered Resources. The information indicates

that there are no known endangered or threatened species on the site. There is a hit on the section to the east within one mile of the project area for a Karner Blue butterfly sighting. The habitat on this parcel is presently not conducive to maintaining the Karner Blue butterfly although some could establish themselves if favorable conditions develop.

Generally the parcel has habitat common to the Central Sand Plains Ecological Landscape. It is located on the landtype association commonly known as the Wisconsin River Outwash Terraces.

In 1977 the parcel was burned in the New Miner fire. The vegetation on the parcel is now a 25-acre red pine plantation, an 11-acre natural stand of jack pine and oak, a 2-acre white spruce/white pine plantation and a 2-acre grass area. The plantations were planted in the mid to late 1980s and are within 10 years of their first thinning. The red pine is growing well.

The fauna on the parcel includes deer, turkey, grouse, squirrel, rabbit and other game species. It is expected that other native non-game animals also inhabit the parcel.

The parcel does not have any wetlands on it. There is a ditch that runs from the northeast corner to the center of the south line. Flow is in a southwesterly direction. The ditch was created to drain agricultural lands to the east and north of the parcel. Flow varies on a seasonal basis.

The parcel in the SWSE Section 35, T20N, R3E, was checked for the presence of threatened or endangered species from data from the Bureau of Endangered Resources. The information indicates that there are four special concern, threatened or endangered species on the parcel. There is also a vegetative community of special concern within the parcel. Within one mile of the parcel, there are eight species of special concern, threatened or endangered. There are four vegetative communities of special concern also within that area. The threatened and endangered species within the parcel are a Tiger beetle, the Cerulean Warbler, the Red-shouldered Hawk and the Eastern Massasauga rattlesnake. The vegetative community is the Floodplain Forest.

The vegetation on the parcel is a mixture of 26 acres of sawtimber Bottomland Hardwoods with poletimber Red Maple and 14 acres of Lowland Brush-Willow. The tree species on the parcel are Black and Swamp White Oak, Red Maple, with some Black Cherry, Green Ash and Aspen. Oak wilt seems to have established itself on the parcel. The lowland brush area weaves throughout the parcel and is only 2 to 3 feet lower in elevation than the wooded area.

Besides the endangered and threatened species, the fauna on the parcel includes deer, turkey, grouse, squirrel, rabbit and other game species. It is expected that other native non-game animals also inhabit the parcel.

This parcel does have some wetland areas in it as mentioned above. The entire parcel is within the Yellow River Floodplain. When the Yellow River floods in the spring and at times of high water events the water within the wetlands is changed. The water leaves the wetlands when the water flows in the area are no longer maintained by the river. The remaining water then percolates through the soil to the water table. In the wild, wetlands help to promote water quality by regulating water flow through the water system.

13. Cultural:

- A. **Land use (dominant features and uses including zoning if applicable):** The Town of Armenia has a Building and Land Use ordinance. The Town of Finley is non-regulated.

The main land use in the Town of Armenia has been for forestry with agricultural use a close second. Recreation is also a major use of the land in the township.

Recently, land in Armenia has been sold and developed for secondary homes and cabins. This has driven up land prices to highs never seen before in the township. Most of the development has been along the shoreline of the Petenwell Flowage. Prior to the development sales, the lands were owned by a partnership of Consolidated Papers, Wisconsin Public Service Corp. (WRPCO) and Alliant Energy. Consolidated Papers was the managing partner for the lands. When Consolidated Papers was acquired by Stora Enso, the landholdings of Consolidated Papers were sold to WRPCO. WRPCO became 2/3rds owners of the lands and have no interest in growing timber or making paper. So they are divesting

themselves of all lands that are not under the federally licensed hydroelectric project. WRPCO is taking lands that were under the Forest Crop Law and the Managed Forest Law, withdrawing them from the laws and selling the land to developers. The developers have created lots by and near the Flowage and sold them for sums ranging as high as \$150,000.00 to \$200,000.00 per lot. There are several new developments in the township and more are being planned.

Another large timberland owner, Plum Creek Timberlands, L. P., has not sold any lands for development in the Town of Armenia. Their main interest in the lands is to grow timber for a wood fiber crop.

From 1960 through the present, lands have been developed for irrigated agriculture in the Town of Armenia. Initially lands that were developed for agriculture were privately owned. With Juneau County being a landholder of larger blocks of land, the agricultural community sought county lands for agricultural development. In 1980, a withdrawal of 960 acres of land in Armenia was made to promote additional agricultural land use. Since that time, small areas of county lands have been withdrawn for agricultural use. These withdrawals have usually been trades of county lands for private lands to fill out full 160 acre quarter sections for irrigated agricultural use. Additional private lands have been purchased and developed for agricultural use.

Cranberry growing is also occurring in the Town of Armenia. This agricultural crop enjoyed major growth in the 1980s and 1990s. Several large cranberry farms have started and have expanded their operations. During the late 1990s the cranberry industry suffered some setbacks that reduced the prices of cranberries. This has deflated the prices from the highs in the early 1990s. The industry has not yet recovered from these reverses. Lands that were bought for additional cranberry bed expansion have not been developed as expected.

The main land uses in the Town of Finley is for forestry with agricultural use in scattered areas in the town. Recreation is also a major use of lands in the township. The township has a major Federal Wildlife Refuge on the west side of the township. The refuge takes up about 40% of the total land area of the township.

Recreational use of the land in the township has been increasing in the recent past. More land is being purchased by non-residents for recreational uses such as hunting, ATV use, snowmobiling and other outdoor activities.

Agricultural land use has also seen slight increases in the recent past. Most of the increases have been for cranberry production like in the Town of Armenia. Several large cranberry farms have started and have expanded their operations. The early 1990's saw record prices being paid for cranberries because of market expansion. During the late 1990s the cranberry industry suffered some setbacks that significantly reduced the prices of cranberries. The industry has not yet recovered from these reverses. Lands that were bought for additional cranberry bed expansion have not been developed as expected.

- B. Social/economic (include ethnic and cultural groups):** The Towns of Armenia and Finley have a diverse ethnic and social population. The population varies from young families working in the pulp mills and factories of Nekoosa and Port Edwards to a population of retired people living on fixed incomes. The ethnicity of the population ranges from Native Americans to newly naturalized citizens from a variety of foreign nations. The general economic status of the population is at or just below the average of the state of Wisconsin population.

Generally people working in the pulp mills of Nekoosa, Port Edwards or Wisconsin Rapids have a higher annual income than is typical for the townships. With the areas of new development, jobs may be created to fill the need for services to be supplied to the developments.

The local economy is also tied to the agricultural and forest products industries. In the past the area has had a lot of timber harvested producing incomes for many families. The creation of the agricultural use of the lands has also been influential in producing income for local families.

The property taxes are high in the townships. Taxes for woodland and residential structures have increased appreciably in the recent past to make up for the loss to the tax base by the farmland exemption. The increases have also been accelerated by the new developments along the Petenwell Flowage. Taxes for farmland have decreased in recent years.

At present the Towns of Armenia and Finley receive \$0.30 per acre for lands under the County Forest Crop Law. They also receive a portion of the yearly County Forest revenue based on the amount of lands that they have in relation to the total acreage under the Juneau County Forest Program.

C. Archaeological/Historical: The Cranberry Creek Mound Group State Natural Area is located in the Town of Armenia. The Group has been described as one of the most significant archeological sites in Wisconsin and one of the largest and best preserved mound complexes in the Upper Midwest. This archeological feature has been surveyed since about 1917. These lands are now owned and managed by the Wisconsin Dept. of Natural Resources.

14. Other Special Resources (e.g., archaeological, historical, endangered/threatened species, scientific areas, natural areas): There are several endangered species in the townships of Finley and Armenia. Of special note in both townships are the Eastern Timber Wolf, the Red-shouldered hawk, the Eastern Massasauga Rattlesnake and the Karner Blue Butterfly. In addition, in the Town of Finley there are some vegetative communities that are of special concern by the Wisconsin Dept. of Natural Resources.

The groundwater in the area generally flows from northern and central Armenia Township southward between the Petenwell Flowage and the Yellow River toward the community of Necedah and developed areas south of the withdrawal parcel. Groundwater water table elevation maps show movement to the south toward seasonal and permanent development as well as the Village of Necedah. The effects of pesticide application in irrigated areas on this groundwater resource are not fully known. Any adverse effects on potable well water quality are also not fully known.

ENVIRONMENTAL CONSEQUENCES (probable adverse and beneficial impacts including indirect and secondary impacts)

15. Physical (include visual if applicable):

The withdrawal parcel in Section 18, T19N, R4E, will be bulldozed to remove all trees and tree stumps to prepare the land for the planting of agricultural crops. The soil will be disturbed but the extent will depend upon the types of equipment used to remove the trees and stumps. The debris may either be piled then left in areas that will not be used for crops, or it may be burned to remove it. The soil may be leveled to reduce the rolling topography. A well will be drilled down to and through the water table in the area. The well will also have a pump and transformer nearby. Electrical service to the pump will be underground - below the plow line. The land will continue to be disturbed each year to prepare the land for planting crops. In addition to the physical changes, the parcel will have chemicals applied to it to promote plant growth and control pests. The chemicals will be applied at various times during the growing season.

Residences near the proposed withdrawal could be at greater risk of their private water supply wells being impacted than under present conditions. Groundwater levels would lower temporarily within the immediate vicinity of the irrigation well during active pumping. The resulting cone of depression caused by this pumping, depending upon its proximity to private water supply wells could at least temporarily affect the quantity of water available to adjacent residences. Given the typical application of fertilizers and pesticides to agricultural fields, there is also an increased risk to the quality of water for residences adjacent to and south of the withdrawal parcel. Because of the flow of the groundwater to the south toward the Village of Necedah, the wells supplying the village could also be affected over time.

Visual impacts to the withdrawal parcel will mean that the lands will be open for most of the year when crops are not on the field. During the growing season, the cropland openness will depend upon the type of crop on the parcel. Low growing crops will tend to produce the sensation of openness for a longer period of time. Taller crops, such as corn will reduce the visual impact for a time. The visual impacts will be viewed for a longer period of time by those people who live in the area. There is a possibility that the withdrawal parcel may have a visual barrier on the west side. The east/west dimension of the parcel is greater than a normal "40". Because of this, the purchasers have mentioned that they may not disturb the westernmost portion, about 450 feet, of the parcel and consider that as a visual barrier. The visual impact may be heightened because there is a large agricultural development to the immediate west of this proposal. The present dimensions of this cleared area are approximately one-mile east/west and 2 miles north/south.

There is a possibility that creating another agricultural field close to other open fields would expose the area to wind erosion. There is a large, open area just to the west of this parcel. This area is about one mile wide

east/west and 2 miles north/south. Such a large expanse of open land tends to encourage wind erosion on windy days in the Town of Armenia. In the past, local residents have been very vocal about the very large clouds of sand being blown up with the winds. At times the dust has severely hampered visibility for vehicles creating a safety hazard. The dust from the area has also affected the city of Nekoosa. The purchasers have mentioned that they would leave an undisturbed area to the west of the development. This area will only be about 450 feet in width. The undisturbed area has trees on it that are only 30 to 40 feet tall. Natural Resources Conservation Service information states that the effectiveness of a windbreak is only two to three times the height of the trees in the windbreak. Therefore leaving the trees would not provide enough height to prevent erosion past the first 120 feet of the newly opened field. The proposed windbreak would not be enough to stop the winds from causing dust storms. The remaining 2520 feet of the field would be exposed to the wind and erosion.

The exchange parcels will not have the soil disturbed except at times when timber harvests are in operation. Timber harvests are usually several years apart. The most severe soil disturbances will be limited mainly to the creation of roads and landings at the time of the timber harvests. There would be some disturbance to the soil in order to bring harvested wood to landings located on the parcels. In most of the area being harvested there would be a vegetative cover on the soil. This would reduce or even eliminate soil erosion in most cases. Soil disturbances when soils are wet and susceptible to damage would be reduced by adhering to the Wisconsin Forestry Best Management Practices for Water Quality.

All the timber stands on the exchange parcels will eventually have to have regeneration harvests in them to regenerate the timber species. These types of harvests require that all merchantable timber be harvested. This will mean that the visual impacts would be severe for a short period of time until trees have grown to a sufficient height to reduce the impact. The parcels would have these types of harvests every 60 to 100 years depending on tree growth and need. During that time the visual impact will reduce yearly until there is no perceived impact by the casual visitor until the next regeneration harvest. During the intervening years there may be thinnings to improve the health of the timber. Some visual impacts will occur because of these thinnings. Tree seedling planting may be done to replace the entire stand or to supplement the natural regeneration that occurs.

16. Biological (include impacts to threatened/endangered species):

For the withdrawal parcel, there would be significant short- and long-term impact to the natural communities that are on the parcel. There would be no tree growth on the land until the agricultural use stops, which would permit the re-establishment of trees from adjoining lands. Other native flora would be kept from establishing themselves while agricultural use continues. Re-establishment of some vegetative species may require supplemental seeding. Establishment of any threatened native communities would not be possible.

The discovery of the presence of lupine in the withdrawal parcel makes the parcel a habitat site for the Karner Blue Butterfly, an endangered species. There is at present no indication that the KBB uses this site for reproduction. Population surveys would have to be done to determine whether or not KBB could become established.

Native fauna would only use the lands while passing through the area. If the animal species are very small, the presence of the open lands could be a barrier for the animal. There are no endangered and threatened species on the parcel. The only endangered species that could possibly use the lands after they were altered would be the Eastern Timber Wolf and the Red Shouldered hawk. The other species would be intimidated by the openness of the parcel and they probably would not use it. Frequent vehicular use for agricultural activities would further reduce the use of the parcel by wildlife.

The exchange parcels will be managed on a sustainable forestry basis according to the recommendations of the Department of Natural Resources. Timber harvesting will take place but it will be modified as necessary to accommodate the needs of other forest resources such as wildlife, watershed management and endangered resources. At times when the timber becomes mature, timber harvests will take place to regenerate the stands on the lands. These harvests may require that the entire stand be harvested to provide for the regeneration of the species. The county will follow the silvicultural recommendations of the DNR when doing the harvests.

The special habitat needs of endangered resources on the parcels will be considered when making out the recommendations for intermediate or regeneration harvests. In some instances a regeneration harvest may be beneficial for the establishment of endangered resources such as Karner Blue Butterfly or the Massasauga Rattlesnake. Each activity will be analyzed to determine its benefit or detriment to an endangered resource.

17. **Cultural:**

- A. Land use (include direct and secondary impacts):** The conversion of the land to agricultural use will be seen by some to be normal activity due to the large amount of land conversion that has already occurred in the past. By others it will be seen as an attempt to harm the natural environment of the area.

Many people are currently employed by the agricultural industry in the area. They will see this conversion as the proper use of lands that have only grown trees. They are concerned that the land be used to produce more agricultural crops for human or animal consumption.

Other individuals who have purchased property in the area for recreational use would see the conversion as another attempt to damage the environment. They may have purchased their property because of the present mix of agricultural and natural environment, accepting that as the norm. Any change may cause concern especially when there are some endangered resources near the withdrawal parcel. These groups have been vocal in the past about environmental damage caused by the agricultural community and may do so in the future.

Hunting is a major outdoor recreational activity. Hunters may see the conversion as a loss of wildlife habitat for game species. While others may say that the wildlife using the present space will just move to other locations, the loss of the habitat will reduce the wildlife carrying capacity of the area. Hikers, sightseers, and wildlife watchers would not be able to use the lands for their activities.

- B. Social/economic (include ethnic and cultural groups):** In the past there has been a local perception that it is important to add to the tax base of the township to reduce taxes. At that time, farmland had high assessed values that added to the local tax base. With the establishment of the farmland exemption, the assessed value of farmland, and subsequent taxes, has been drastically reduced. This reduced assessment has resulted in increases in the assessed value of woodland, wetlands and residences in order to obtain sufficient taxes to run local government. The creation of farmland in this project will not add to the local tax base to reduce local property taxes in any significant way.

The loss of the timber production area on the withdrawal parcel will reduce the potential for the wood using industry to produce wood products. The reduction of wood products will not be significant to the local industries. Because the withdrawal parcel has just been completely harvested, the wood produced from this parcel would not become wood products until 60 to 80 years in the future.

The withdrawal would likely produce employment at the time the lands are actually converted to fields and when the crops are planted, tended and harvested. Additional employment opportunities would be produced for the digging the well for the pivot system, laying of the power system to the well, putting in the pump and purchasing the seeds and chemicals for the crops.

The Town of Armenia would lose some income from the state and county for the lands under the County Forest Law because of the net loss of acreage in the town under the Forest Crop Law. The Town of Finley would gain some income from the state and county because the lands in Sec. 35, T20N, R3E would be entered under the County Forest Law.

- C. Archaeological/Historical:** Since there are no sites of archeological or historical significance on the parcels these issues would not be affected on the parcels involved. The Cranberry Creek Mound Group State Natural Area is an archeological district that lies just to the north of the county parcel. This area has one of the most significant Indian mound complexes in the Upper Midwest. A map and description of the group is in the appendix.

18. **Other Special Resources (e.g., State Natural Areas, prime agricultural lands):** The impact to endangered and threatened species would be minimal because the lands being withdrawn do not have any endangered or threatened species on them. The presence of lupine on the withdrawal parcel does not mean that the KBB inhabits the parcel. A Level 2 survey would need to be done to indicate whether or not KBBs are on the site. The consequences on the exchange parcels would be minimal because any activity proposed for the parcels would be screened for impacts before the activity is started. Activities that could be damaging would either not be done or some mitigation would take place.

19. **Summary of Adverse Impacts That Cannot Be Avoided (more fully described in 15 through 18):**

- The withdrawal parcel will be bulldozed to remove native and planted vegetation.
- A well will be drilled to the water table with the construction of an electrical system to the pivot center.
- Chemicals will be applied to the soil to promote plant growth and to protect the plants from insects and diseases.
- Wells of local seasonal and permanent residents will be affected.
- The aesthetics of the withdrawal parcel will be affected by removing the native vegetation.
- Native flora will not be permitted to stay on the withdrawal parcel.
- Loss of outdoor recreational opportunities.
- Loss of timber production and income produced by harvesting trees.
- No significant tax base increase to the Town of Armenia.
- Small loss of state and county income for the Town of Armenia.
- Loss of wildlife habitat
- Native fauna will not be able to use the withdrawal parcel in the same manner that they once did.
- Soil erosion increased on high wind days.

ALTERNATIVES (no action - enlarge - reduce - modify - other locations and/or methods)

20. **Identify, describe and discuss feasible alternatives to the proposed action and their impacts. Give particular attention to alternatives, which might avoid some or all adverse environmental effects:**

No Action: If this alternative is accepted for this proposal, any environmental consequences would not occur. The withdrawal parcel would be permitted to produce a timber crop that would be harvested in the future. The endangered and threatened resources would only be affected by natural processes that would occur to the landscape over time. The physical, biological and cultural aspects of the lands would not change.

Enlarge: If the prospective purchasers wanted to enlarge their proposal, they could ask that the N $\frac{1}{2}$ NE $\frac{1}{4}$ of Section 18, T19N, R4E, also be withdrawn so that they could also have a three-quarter pivot. Joining the aforementioned description with the SE $\frac{1}{4}$ NE $\frac{1}{4}$, which the Winters' own, would make a larger area available for irrigated agriculture. While this pivot would not be as economical as the full pivot, it would increase the amount of land that would be in irrigated agriculture.

Enlarging the project would increase the environmental consequences while the benefits and adverse impacts would also increase.

Reduce: This is not the most feasible alternative because the purchasers would need all of the county's land to make a full circle pivot irrigation system. A three-quarter pivot could be accomplished but it is not very economical. There are a few of these in the Town of Armenia so this alternative could be done if the county did not want to divest itself of the entire subject parcel.

Modify: A slight modification could be done by withdrawing and selling only the easternmost 1320 feet of each fractional quarter-section. Such a proposal would limit the withdrawal to 80 acres instead of 106.4. This would leave the westernmost portion, or about 26.4 acres, of the fractional quarter sections in county ownership. The environmental consequences would be reduced for this action.

EVALUATION OF PROJECT SIGNIFICANCE (Complete each item)

21. **Significance of Environmental Effects:**

A. **Would the proposed project or related activities substantially change the quality of the environment (physical, biological, socio-economic)? Explain.**

No. This is only a small area in comparison with the total landscape. The impact to the total landscape is not substantial. There has been a great deal of woodland already converted to agricultural use in the local area. This proposal will not substantially change the quality of the aboveground environment because it is relatively small in relation to what has already been done to the surface environment.

There is a concern to the effects that will be done to the groundwater. The groundwater affects more than the withdrawal parcel and the adjacent lands. Groundwater movement in the area flows to the south where development has been significant.

B. Discuss the significance of short-term and long-term environmental effects of the proposed project including secondary effects; particularly to geographically scarce resources such as historic or cultural resources, scenic and recreational resources, prime agricultural lands, threatened or endangered species or ecologically sensitive areas. (The reversibility of an action affects the extent or degree of impact):

The short-term effects will be most significant to the environment as the land is converted to agricultural use. The wildlife will be most affected by the conversion in both the short and long term. As time passes the wildlife species that presently use the land will change their habits and only use the withdrawal parcel on a minimal basis. The wildlife carrying capacity of the landscape could be reduced. If there were no endangered or threatened resources on the parcel, there will be no possibility of them being impacted, but there is no possibility that they would become established on the withdrawal parcel.

The visual and recreational impact will be affected the most on a short-term basis. The public will get used to the changes as time passes and the changes are accepted by them. The socio-economic changes will be the greatest at the inception of the project. A slight change in employment will occur in the long term with the need to produce the agricultural crops.

22. Significance of Cumulative Affects:

Discuss the significance of reasonably anticipated cumulative effects on the environment. Consider cumulative effects from repeated projects of the same type. What is the likelihood that similar projects would be repeated? Would the cumulative effects be more severe or substantially change the quality of the environment? Include other activities planned or proposed in the area that would compound effects on the environment.

The Town of Armenia has had a significant amount of its total area converted from woodland to agricultural fields in the last 40 years. The cumulative effects of the conversions have radically changed the environment from a wooded atmosphere to one of agricultural use. At present, the resident and non-resident landowners have accepted the landscape changes and seemed to have adapted to them. Recently, there has been very little agricultural development in the Town of Armenia.

The most important recent impacts in land use and development have been with the developments for seasonal and permanent homes and large developments for condominiums. While the local landscape has remained mostly static for a while, each opening for agricultural use may cause concern from new residents to the area.

This proposal would become a part of the total cumulative effects of other similar projects done on other lands in the area. So much clearing for agriculture has been done that this proposal seems innocuous to the casual observer. This proposal affects not only the 106 acres of the county land but also to the 80 acres of land to the east and the two 40-acre trade parcels, a total of 266 acres.

The proposal should also be considered in a landscape basis. The landscape has been affected by the opening of lands over the last 40 plus years. There has been no development planning for any of the townships in the northern portion of Juneau County. Development has occurred in a haphazard manner.

23. Significance of Risk

A. Explain the significance of any unknowns which create substantial uncertainty in predicting effects on the quality of the environment. What additional studies or analyses would eliminate or reduce these unknowns? Explain why these studies were not done.

Probably the most uncertain part of this proposal is the inability to determine the specific effects on the groundwater resource in the area. The 1980 County Forest Withdrawal Environmental Impact Statement did not and could not adequately address the effects that irrigation agriculture and chemical use has on the water table because no definitive studies had been done on this subject. A paper by S.M. Hindall

(1978) states, "There is no serious overall problem to water users in the study area at the present time...However, high concentrations of nitrogen and the occurrence of pesticide residues in some water of the study area indicate that farming practices in the area do, in fact, affect the water quality of the study area. Data collected and compiled for this report indicate that the water quality in the study area may have stabilized by 1973." He makes a very definitive statement in the Summary and Conclusions section of the paper when he states, "Agricultural irrigation has affected the quality of both ground and surface water in the sand plain of central Wisconsin."

Studies done in the Wisconsin Central Sand Plain aquifer by George J. Kraft and other researchers from the Central Wisconsin Groundwater Center from 1999-2003 support the suppositions of Hindall's paper. In particular the studies indicate that nitrate levels rise significantly in groundwater immediately beneath or in the vicinity of irrigated, fertilized agricultural fields. Results on chlorine and pesticides such as triazine also show an increase in these compounds in the groundwater, though the results vary greatly and did not show clear trends in most cases. One study (Kraft, etal, 1999) examined groundwater quality across flowpaths and concluded, "Agricultural impacts limit the area's aquifer as a potable water source, assuming water consumers would want to avoid high-nitrate, pesticide-containing water. Domestic wells would be unable to tap unimpacted ground water through much of the area...Agricultural impacts are likely [to] be more extensive in similar settings with similar agricultural systems, because the agricultural land use is frequently denser and flowpaths are usually longer. Higher density results in higher area-averaged pollutant loading rates, and longer flowpaths make plumes from individual fields travel further toward a discharge area."

In 1985 chemical contamination of private wells adjacent to agricultural fields in the Town of Armenia in northern Juneau County occurred. This showed that groundwater could become contaminated with intensive irrigation on sand soil. It also showed that water movement to uncontaminated water areas is much faster than originally believed. At first it was thought that some contaminants would deteriorate as they moved through the soil to the groundwater. At least three of the Central Wisconsin Groundwater Center studies support this belief, at least regarding some pesticide compounds, but some groundwater contamination could still be expected to affect wells servicing the permanent and seasonal residences near the withdrawal area.

Groundwater elevation maps of northern Juneau County indicate that groundwater flow beneath the withdrawal parcel is southward, funneling between the Yellow River and the Petenwell flowage. This flow would carry any contaminants reaching groundwater from irrigated agriculture on the parcel toward developed properties immediately to the south and toward the Village of Necedah. Any such contaminants would be in addition to those already leached into the groundwater from existing irrigation located up-flow from the withdrawal parcel. As described in the above paragraphs, it is not clearly known whether or if contaminants would break down or be sufficiently diluted before being drawn by potable water wells.

To address these unknowns, a comprehensive study of groundwater structure and chemistry specifically in the trade area relating to its movement and susceptibility to contamination would help to predict the chances of contamination, the time frame when contamination would occur and help to prevent the human use of contaminated groundwater. The study should also address the rate of "cleaning" of groundwater. It could help to determine the specific effects of the spread of irrigated agriculture and determine the time frame when, if at all, groundwater would no longer bear contamination that might make it unusable for human consumption.

B. Explain the environmental effects of reasonably anticipated operating problems such as malfunctions, spills, fires or other hazards (particularly those relating to health or safety). Consider reasonable detection and emergency response, and discuss the potential for these hazards.

With agriculture use of chemicals, there is always the possibility that there will be a spill of some sort in the area. The chance of spills can be reduced by taking appropriate safety measures with the use of the chemicals when on the site. Such protections can include but are not limited to using personal protection equipment, having suitable sites to load and unload chemicals, not using chemicals when environmental conditions are unfavorable and other precautions.

24. Significance of Precedent

A. Would a decision on this proposal influence future decisions or foreclose future options that may additionally affect the quality of the environment? Explain the significance.

No. Each decision concerning withdrawal is done on a case by case basis. The actions taken on one case do not affect the decisions of another subsequent case. With this type of policy, the options of Juneau County are not closed to future needs and concerns.

B. Describe any conflicts the proposal has with plans or policies of local, state, or federal agencies that provide for the protection of the environment. Explain the significance.

This proposal is not in conflict with the policy of the Juneau County Land, Forestry, Parks and Zoning Committee. While Juneau County does not totally preclude the withdrawal of lands from the County Forest, it does not encourage withdrawal according to Chapter 420 of the current County Forest Comprehensive Land Use Plan. This policy is significant because it provides the county with the option of withdrawal, if the lands would be put to a higher and better use for the benefit of Juneau County.

25. Discuss the effects on the quality of the environment, including socio-economic effects, that are (or are likely to be) highly controversial, and summarize the controversy.

People that have recently purchased land and sites for seasonal dwellings could protest any additional agricultural development. They may perceive that what they see now was always present before they came, and they do not want any changes. Any increase in the present agricultural acreage and its attendant use of chemicals may cause concern by the new landowners. Many people purchase lands because of the serenity and solitude that they believe they can get from owning land. When these values become under attack they may complain vocally.

26. Explain other factors that should be considered in determining the significance of the proposal.

A. Re-sale of land after withdrawal

Because of the rising land values in the Town of Armenia, it will be necessary to limit what the purchasers can do with the county parcel. Large blocks of land are valuable because of the ease at which they can be developed into sizable residential areas. The Town of Armenia is undergoing an increase in building for seasonal and permanent residential dwellings. Since the purchasers of the county land requested that the land be used for agricultural purposes, they must be legally limited to only agricultural use of the lands and not be permitted to sell it to developers, which could use the land for other purposes.

This restriction could be done with a limitation on the deed when the land is sold. The deed limitation would permit only agricultural use for the land. Any sale to others for other uses would make the land revert back to county ownership without requiring compensating the owners or returning the trade lands.

This could be made into a perpetual deed limitation.

The sale of the land to others who would use the lands for agricultural purposes would be permitted.

B. Time Limit for developing land into proposed agricultural land

It may be necessary to require that the land be developed for agricultural use within a certain time frame after the land is sold. Other county land transactions have usually required that land be in agricultural production within 5 years after a sale. In the past, this has not been perceived to be an unreasonable time frame.

If the development is not done within a reasonable time frame, the environmental consequences and effects could change. The environmental consequences could change because flora and fauna could have had sufficient time to establish themselves on the county parcel and disturbances for agricultural development would cause damage to them.

C. Require Juneau County to enter trade parcels into the Juneau County Forest

If Juneau County goes through with the trade and receives the appraisal difference as cash, the DNR should require the County Board to enter the trade parcels into the County Forest Program

These requirements should be part of the conditions of approval by the DNR for the withdrawal. In a past withdrawal, the County Board made verbal agreements to enter lands into the County Forest to obtain the withdrawal, only to renege on the agreement. The agreement was not made a condition of the withdrawal by the DNR.

SUMMARY OF ISSUE IDENTIFICATION ACTIVITIES

27. **Summarize citizen and agency involvement activities (completed and proposed)**
28. **List agencies, groups and individuals contacted regarding the project (include DNR personnel and title)**

Dale Dorow – Juneau County Forest Administrator

David Donnelly – Juneau County Zoning Administrator

Greg Lowe – Juneau County Soil Conservationist, Juneau County Land and Water Department

Dan Peterson – Forester, Stora Enso North America, Wood Procurment

Pete Wolter – Land Appraiser, Wis. Dept. of Natural Resources

Scott Wilhorn – Forestry Technician, Wis. Dept. of Natural Resources

Steve Grant – Forester, Wis. Dept. of Natural Resources

John Hintz – Wisconsin Rapids Area Forestry Staff Specialist, Wis. Dept. of Natural Resources

Tom Lovejoy – Regional Environmental Review Coordinator, Wis. Dept. of Natural Resources

Steve Janowiak – Drinking Water Specialist, Wis. Dept. of Natural Resources

Jeff Barkley – County Forest Specialist, Wis. Dept. of Natural Resources

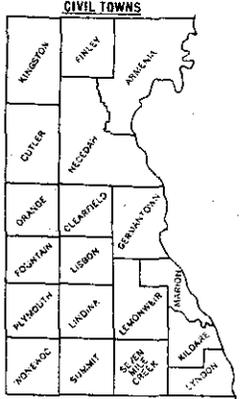
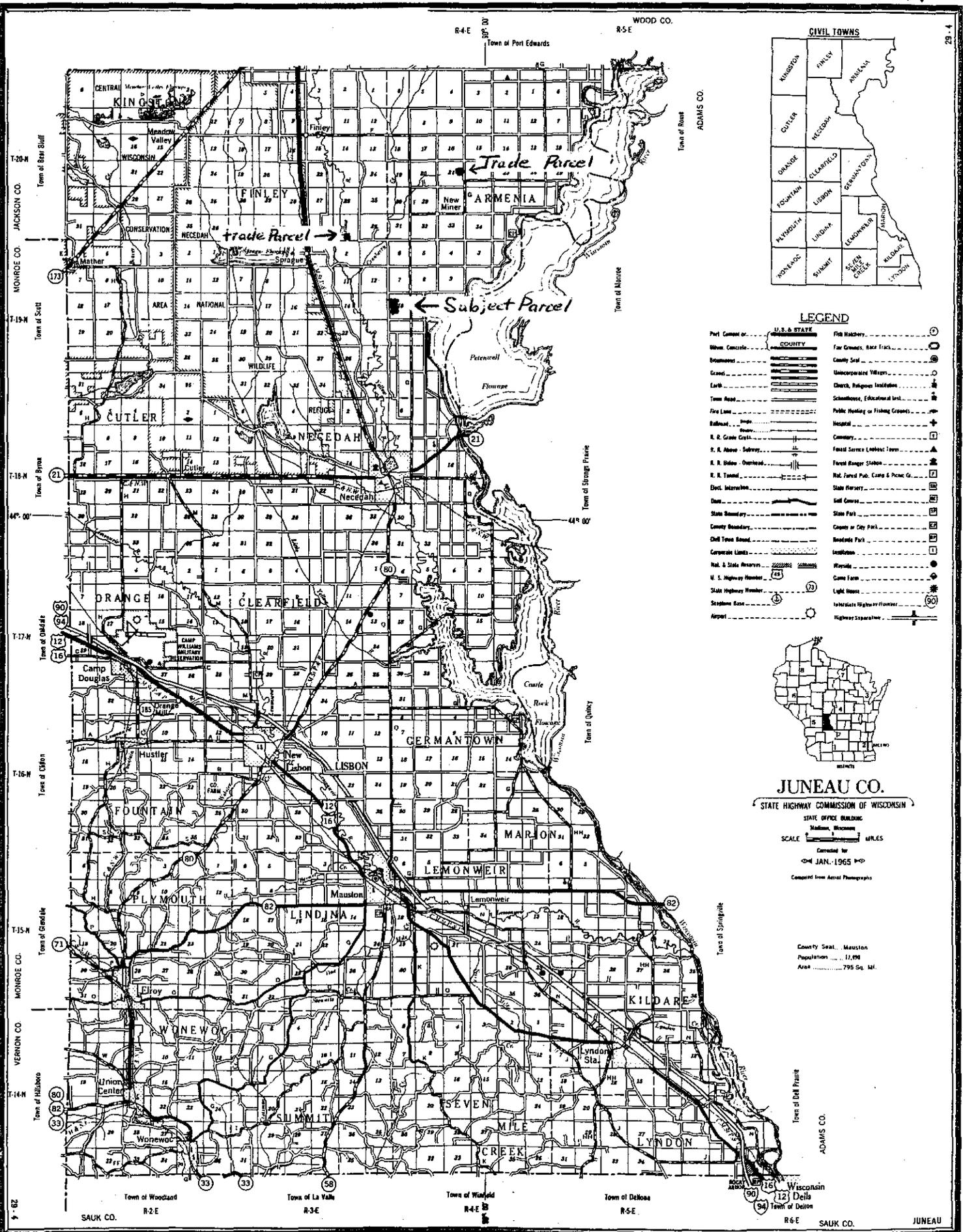
Cameron Bump – Area Environmental Review and Analysis Specialist, Wis. Dept. of Natural Resources

WINTERS/JUNEAU COUNTY FOREST

WITHDRAWAL

APPENDIX

ITEMS A THROUGH T



LEGEND

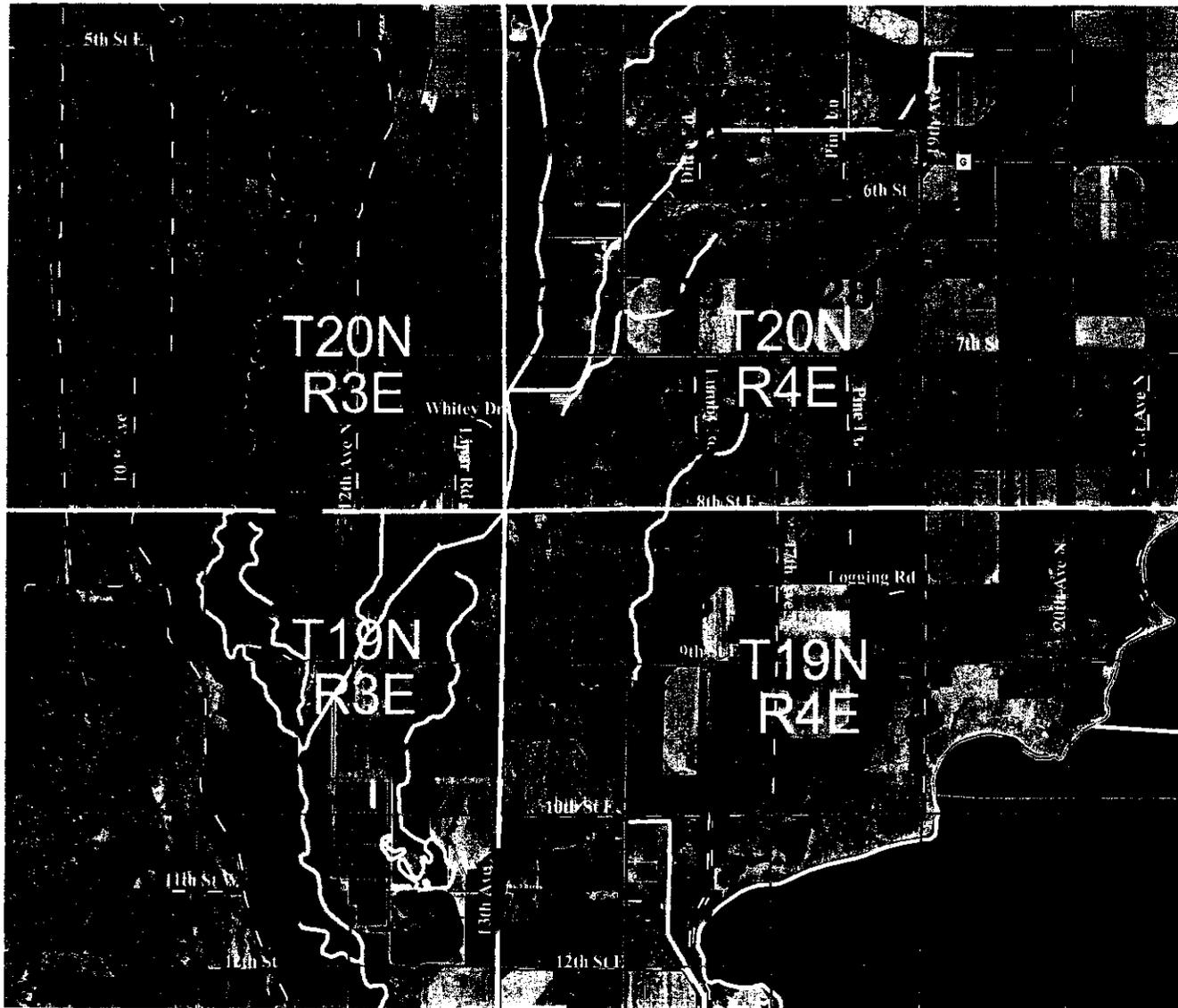
- | | | | |
|-----------------------|--------------|------------------------------------|---|
| Part Contained or | U.S. & STATE | Fire Highway | ○ |
| When Concrete | COUNTY | Four Corners, Road Fract. | ○ |
| Dimensions | | County Seat | ○ |
| Gravel | | Unincorporated Village | ○ |
| Earth | | Church, Religious Institution | ○ |
| Town Road | | Schoolhouse, Educational Inst. | ○ |
| Fire Lane | | Public Hearing or Fishing Grounds | ○ |
| Railroad | | Hospital | + |
| R. R. Grade Cuts | | Cemetery | □ |
| R. R. Above Surface | | Forest Service Lumbered Town | ▲ |
| R. R. Below Overhead | | Forest Ranger Station | ▲ |
| R. R. Tunnel | | Nat. Forest Pub. Camp & Picnic Co. | □ |
| Elect. Interference | | State Nursery | □ |
| Ditch | | Soil Conserv. | □ |
| State Boundary | | State Park | □ |
| County Boundary | | County or City Park | □ |
| Chil. Town Bound. | | Recreation Park | □ |
| Corporate Limits | | Location | □ |
| Nat. & State Reserves | | Wynote | ○ |
| U. S. Highway Number | | Camp Farm | ○ |
| State Highway Number | | Light House | ○ |
| Seasonal Road | | Interstate Highway or Frontier | ○ |
| Airport | | Higher Separation | ○ |



JUNEAU CO.
 STATE HIGHWAY COMMISSION OF WISCONSIN
 STATE OFFICE BUILDING
 Madison, Wisconsin
 SCALE 1" = 10 MILES
 Corrected by
 JAN. 1965
 Compiled from Aerial Photographs

County Seat: Mauston
 Population: 17,898
 Area: 795 Sq. Mi.

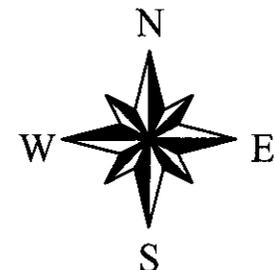
Juneau County Forest/Winters Property Proposed Land Trade



Legend

Juneau CF Land Trade

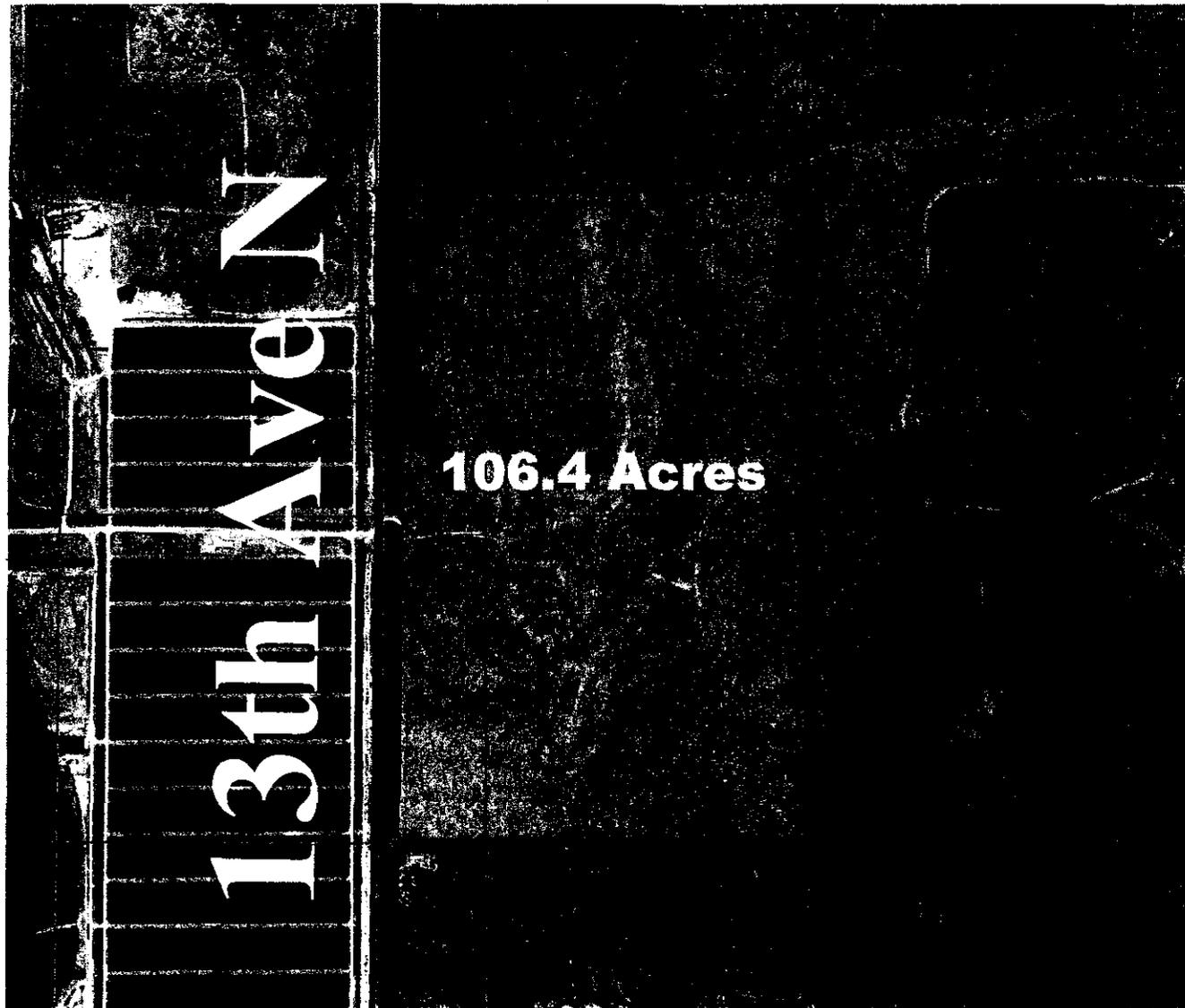
-  Add
-  Withdraw
-  County Boundaries
-  Township/Range
-  Section-Town-Range
-  Open Water
-  Rivers/Streams
- Juneau County Roads**
-  Interstate Highways
-  U.S. Highways
-  State Highways
-  County Highways
-  Town & Municipal Roads
-  Other Roads
-  Trails



Proposed Juneau County Forest Land Trade

Juneau County Forest Parcel to be Withdrawn in Trade

FR S1/2 NW 1/4 & FR N 1/2 SW 1/4, Sec. 18, T19N, R4E



Legend

Juneau CF Land Trade



Add



Withdraw



County Boundaries

Municipalities



Townships



Cities



Villages



Section-Town-Range



Quarter-Quarters



Township/Range



Open Water Rivers/Streams

Rivers/Streams

Juneau County Roads



Interstate Highways



U.S. Highways



State Highways



County Highways

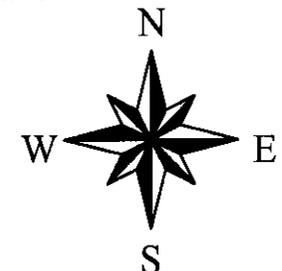


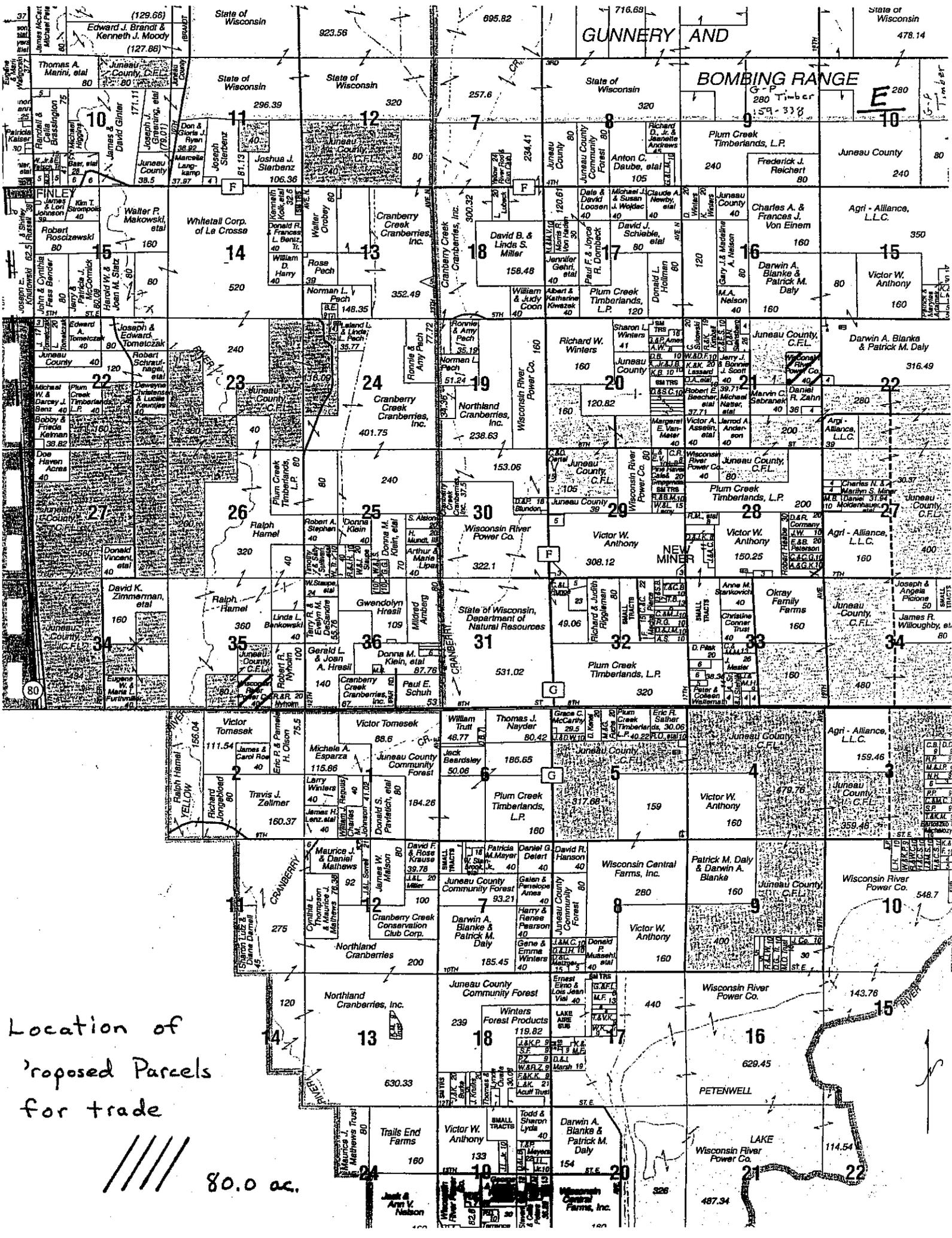
Town & Municipal Roads



Other Roads

Trails





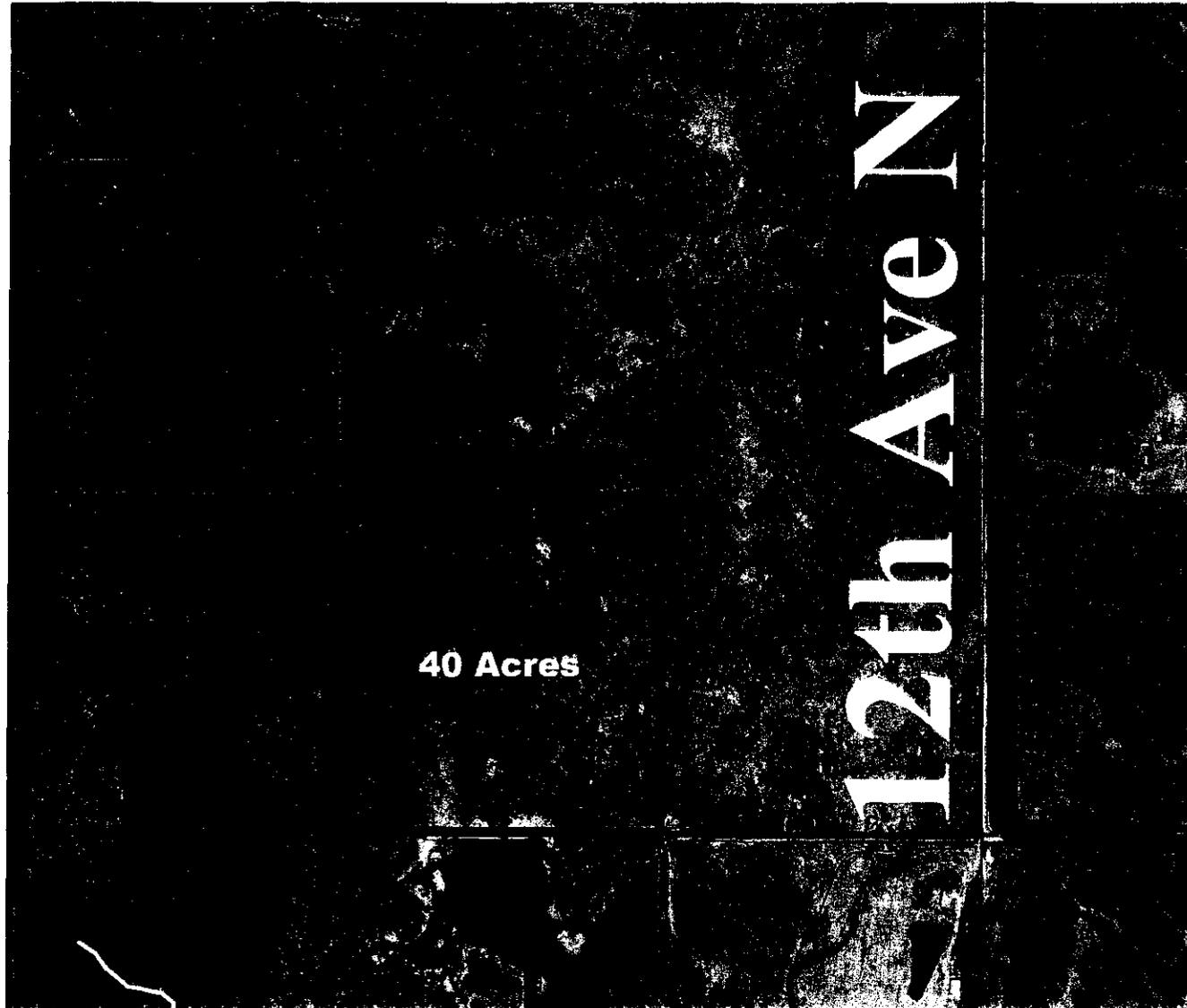
Location of proposed parcels for trade

80.0 ac.

Proposed Juneau County Forest Land Trade

Winters Parcel to be Entered in Trade

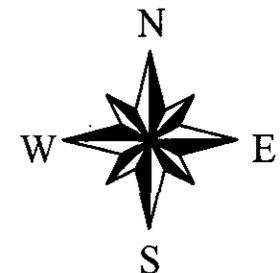
SWSE, Sec. 35, T20N, R3E



Legend

Juneau CF Land Trade

-  Add
-  Withdraw
-  County Boundaries
- Municipalities**
-  Townships
-  Cities
-  Villages
-  Section-Town-Range
-  Quarter-Quarters
-  Township/Range
-  Open Water
-  Rivers/Streams
- Juneau County Roads**
-  Interstate Highways
-  U.S. Highways
-  State Highways
-  County Highways
-  Town & Municipal Roads
-  Other Roads
-  Trails

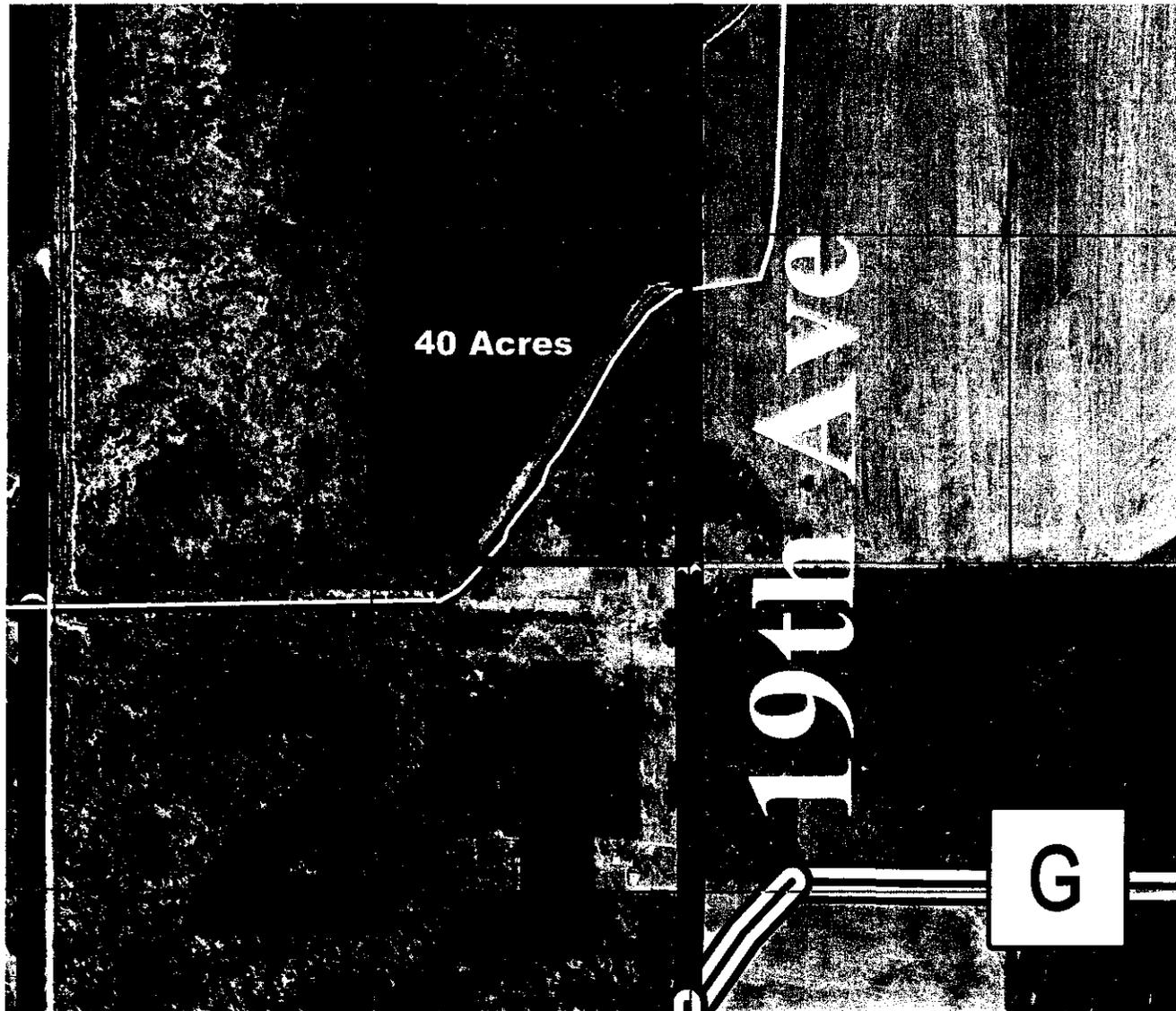


17

Proposed Juneau County Forest Land Trade

Winters Parcel to be Entered in Trade

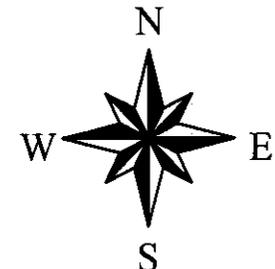
SENE, Sec. 21, T20N, R4E



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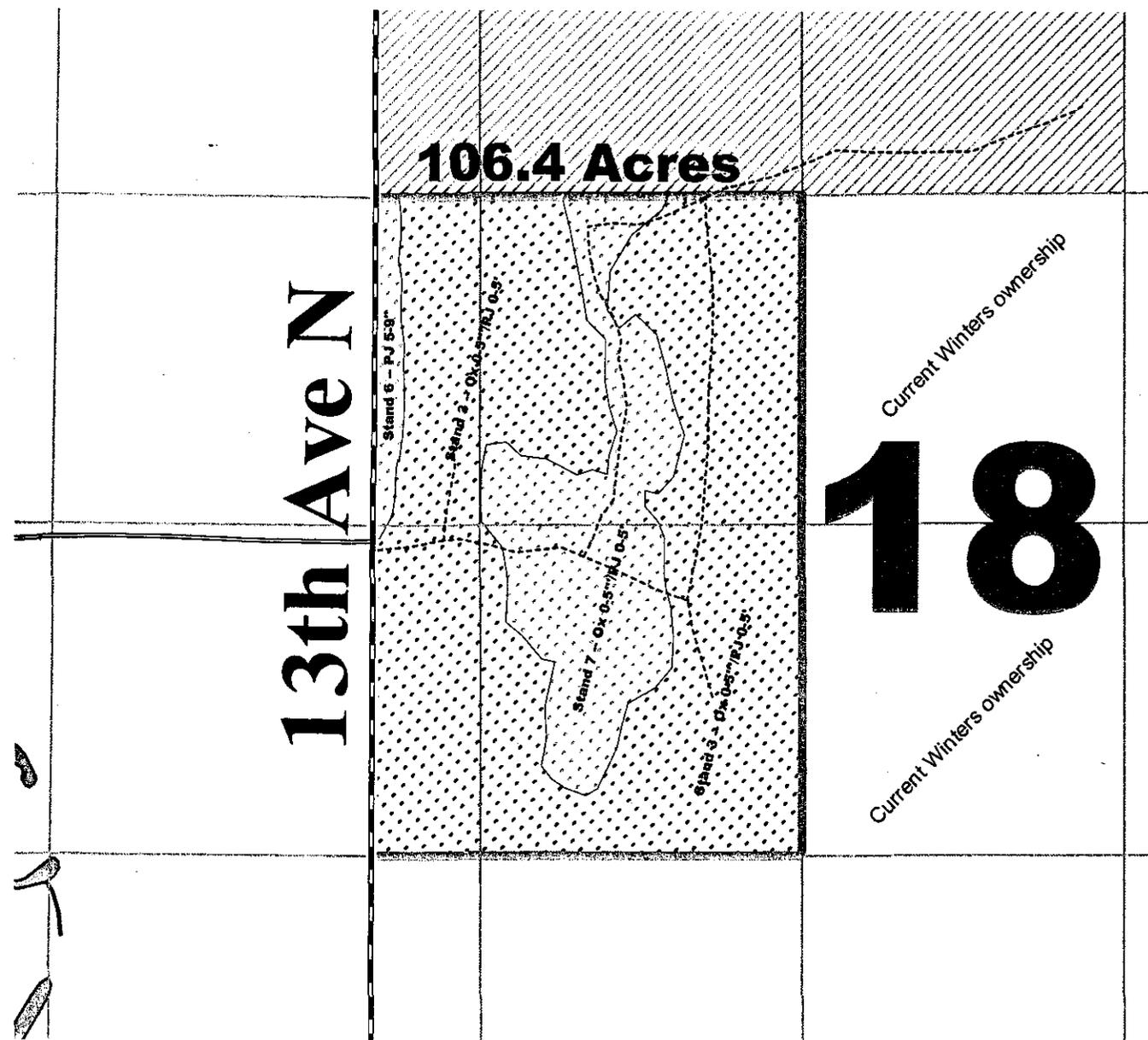
Juneau CF Land Trade

-  Add
-  Withdraw
-  County Boundaries
- Municipalities**
 -  Townships
 -  Cities
 -  Villages
 -  Section-Town-Range
 -  Quarter-Quarters
 -  Township/Range
 -  Open Water
 -  Rivers/Streams
- Juneau County Roads**
 -  Interstate Highways
 -  U.S. Highways
 -  State Highways
 -  County Highways
 -  Town & Municipal Roads
 -  Other Roads
 -  Trails



0.3 0 0.3 0.6 Miles

Proposed Juneau County Forest Land Trade Withdrawal Parcel Cover Types FR S1/2 NW 1/4 & FR N 1/2 SW 1/4 , Sec. 18, T19N, R4E



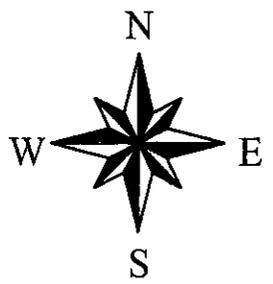
Legend

- Withdrawal Parcel Cover Types**
- Stand 3 - Ox 0-5"/PJ 0-5' (81 acres)
 - Stand 6 - PJ 5-9" (3 Acres)
 - Stand 7 - Ox 0-5"/PJ 0-5' (22 Acres)

- Proposed Juneau CF Land Trade**
- Add
 - Withdraw

- Juneau County Roads**
- Town & Municipal Roads
 - Trails

- Township/Range**
- Quarter-Quarters
 - County forest lands
 - Lakes & Rivers
 - Streams & Ditches

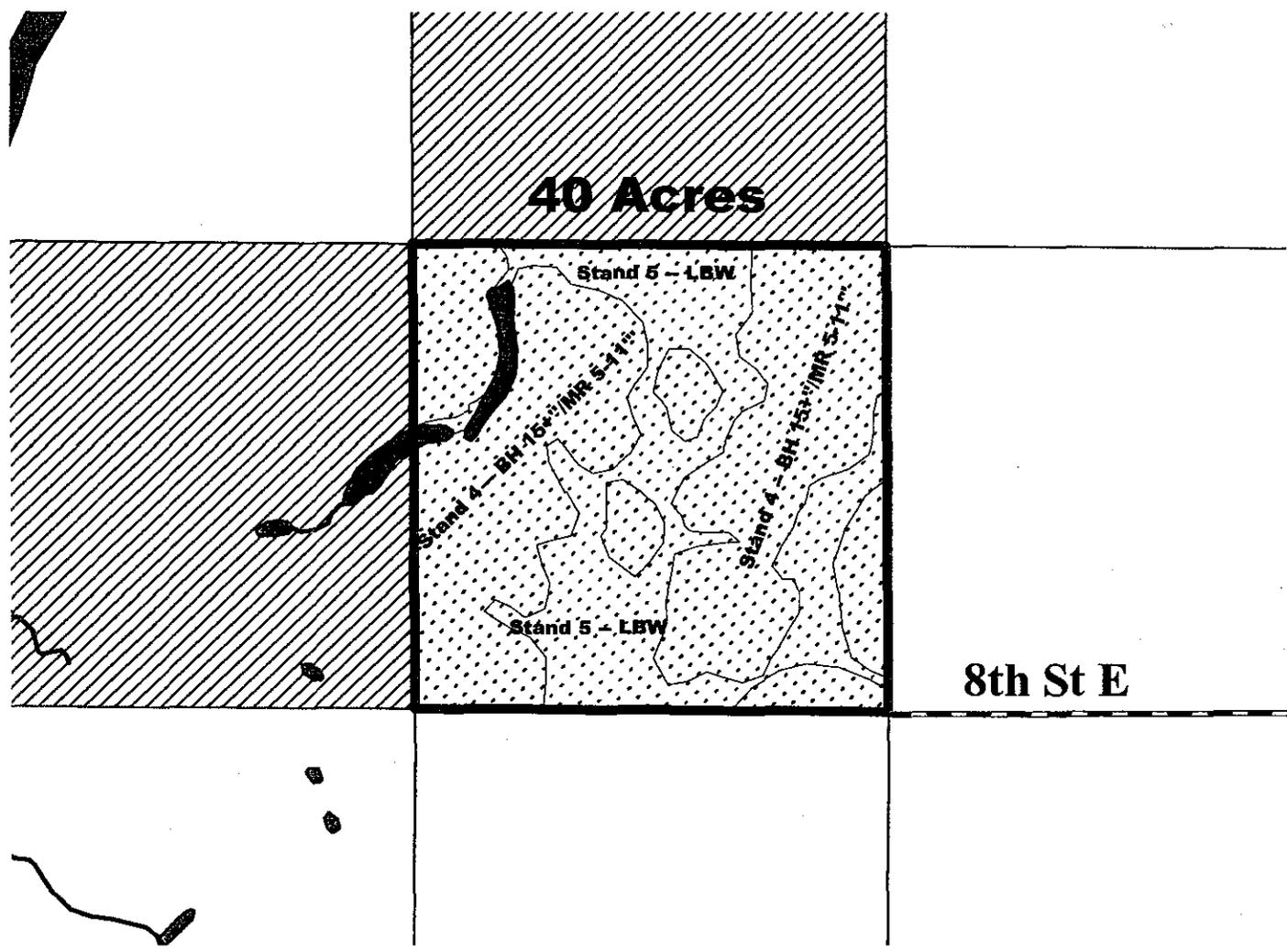


9

Forest Cover Types

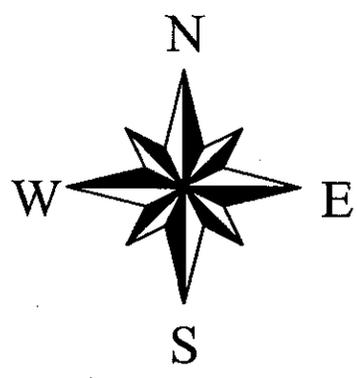
Proposed Juneau County Land Trade

SWSE--Section 35--T20N--R3E



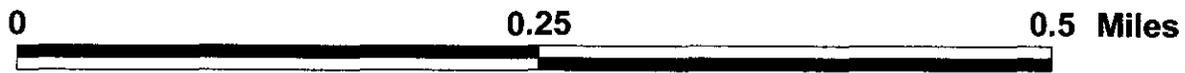
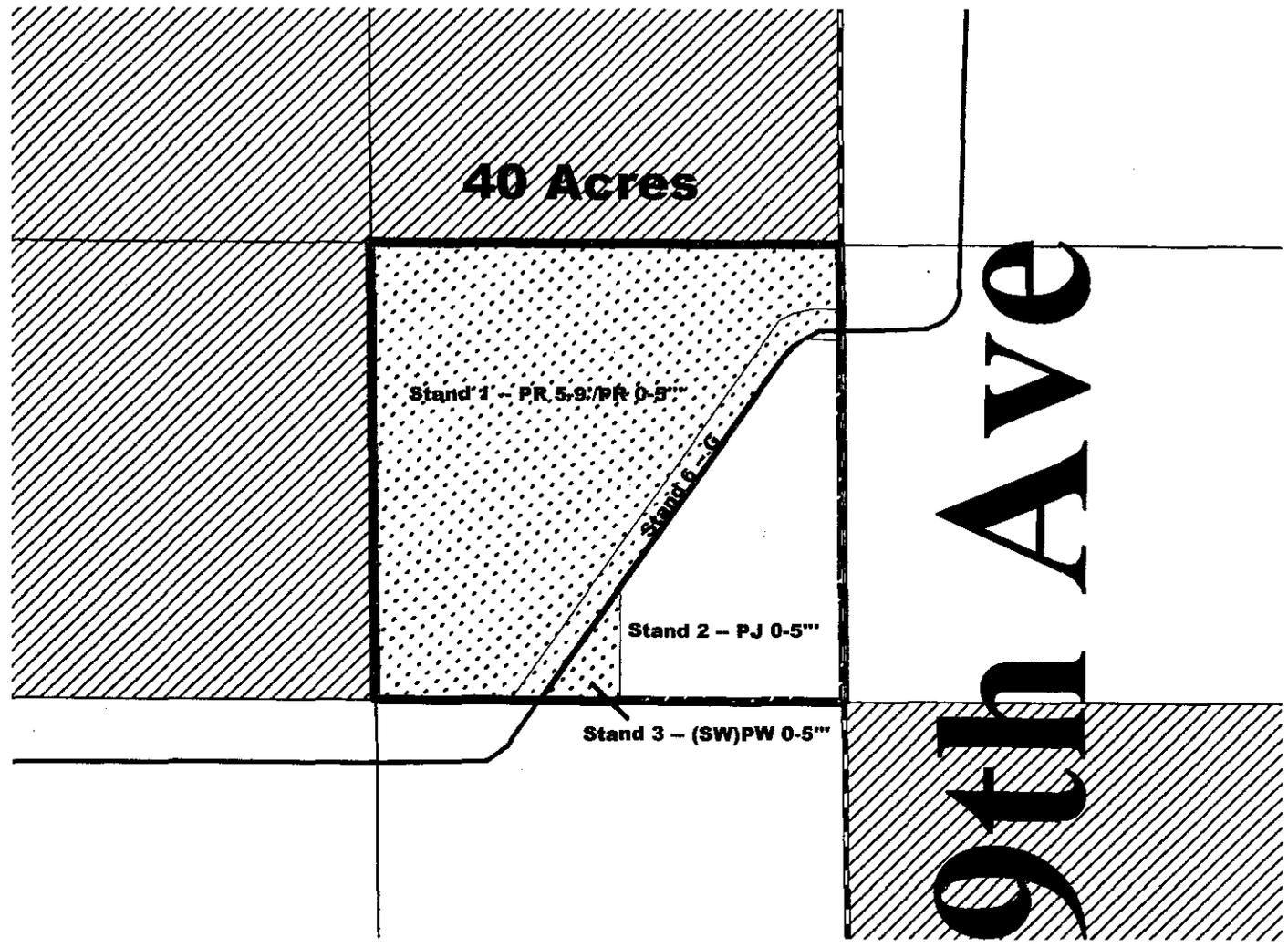
- Cover Types**
-  Stand 1 -- PR 5-9''/PR 0-5''' (25 Acres)
 -  Stand 2 -- PJ 0-5''' (11 Acres)
 -  Stand 3 -- (SW)PW 0-5''' (2 Acres)
 -  Stand 4 -- BH 15+''/MR 5-11''' (26 Acres)
 -  Stand 5 -- LBW (14 Acres)
 -  Stand 6 -- G (2 Acres)

-  Town & Municipal Roads
-  County forest lands
- Proposed Juneau CF Land Trade**
-  Add
-  Withdraw
-  Lakes & Rivers
-  Streams & Ditches



Forest Cover Types

Proposed Juneau County Land Trade SENE--Section 21--T20N--R4E



Cover Types

-  Stand 1 -- PR 5-9'/PR 0-5''' (25 Acres)
-  Stand 2 -- PJ 0-5''' (11 Acres)
-  Stand 3 -- (SW)PW 0-5''' (2 Acres)
-  Stand 4 -- BH 15+''/MR 5-11''' (26 Acres)
-  Stand 5 -- LBW (14 Acres)
-  Stand 6 -- G (2 Acres)

 Town & Municipal Roads

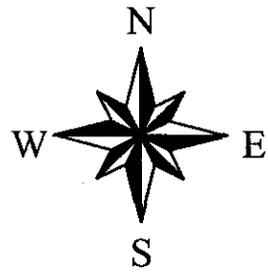
 County forest lands

Proposed Juneau CF Land Trade

-  Add
-  Withdraw

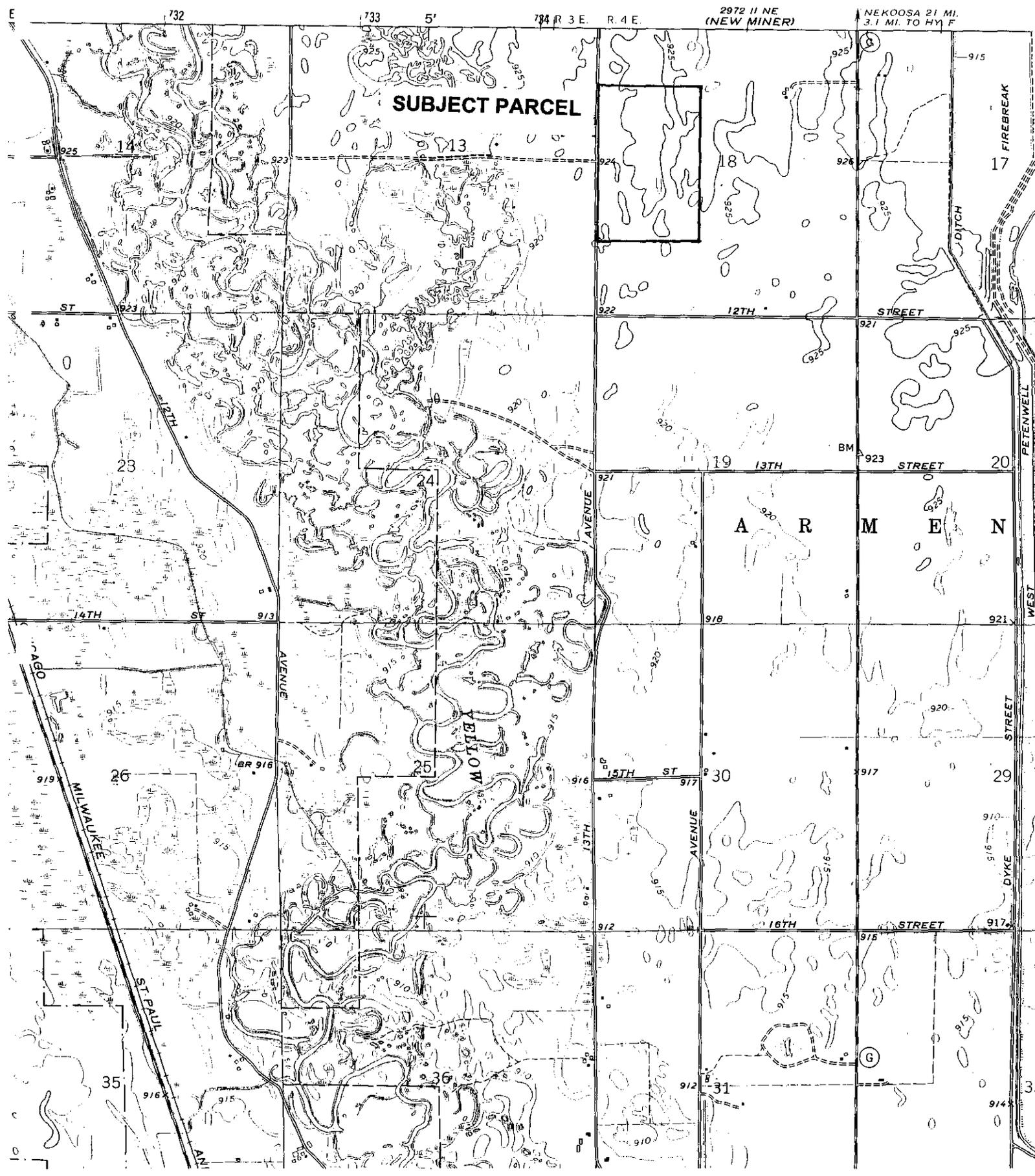
 Lakes & Rivers

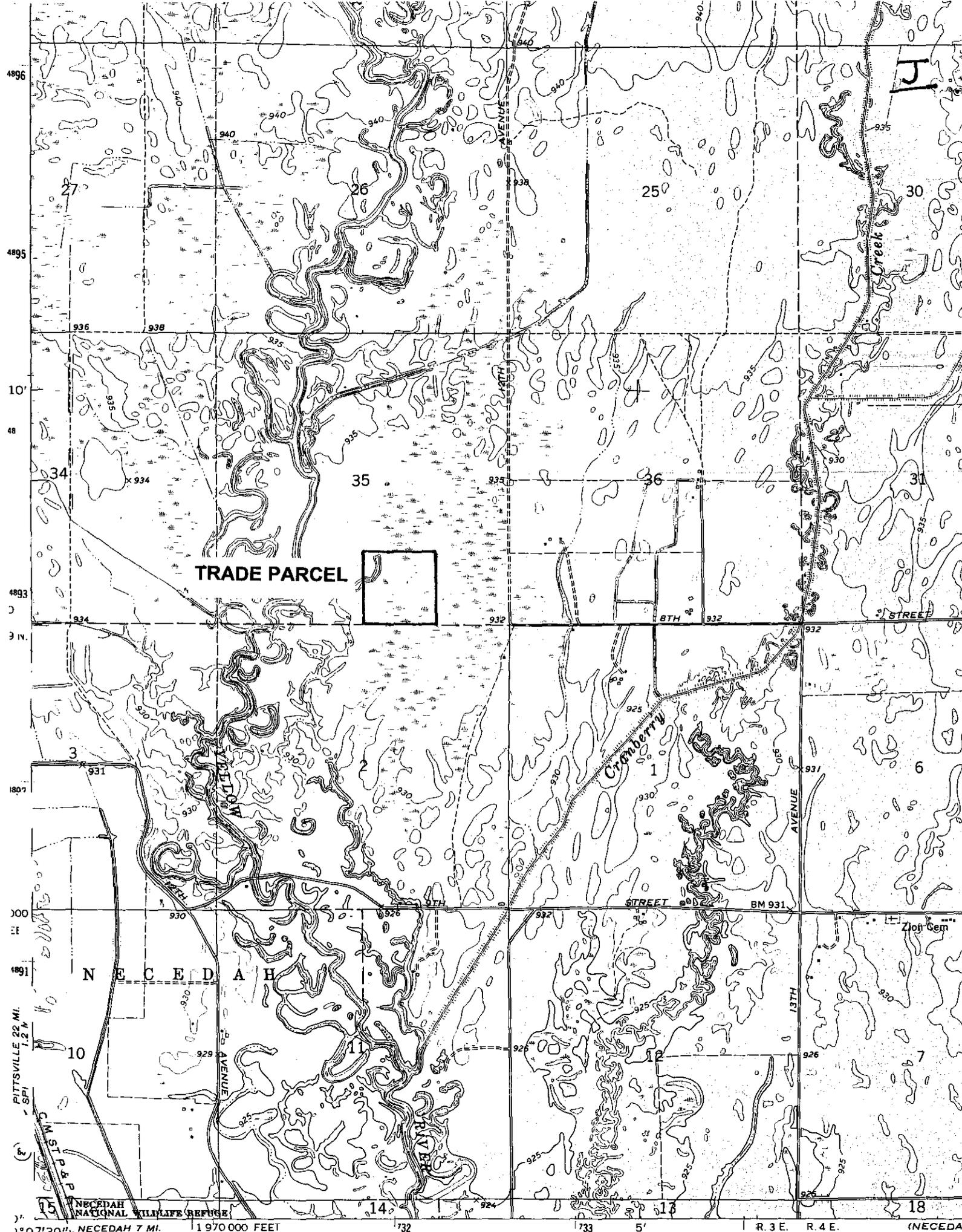
 Streams & Ditches



T 3
E INTERIOR
RVEY

J





TRADE PARCEL

J

4896
4895
10'
48
9 IN.
1807
100
E
1891
10
PITTSVILLE 22 MI.
SPI
1.2 N
C.M. ST. P.P.
15

NECEDAH

NECEDAH NATIONAL WILDLIFE REFUGE

Zion Cem

1° 07' 30" N. Necedah 7 MI. 1970 000 FEET 732 733 5' R. 3 E. R. 4 E. (NECEDAH

H

4900

12'30"

4899

4898

NEKOOSA 14. MI.
16 MI. TO WIS. 54

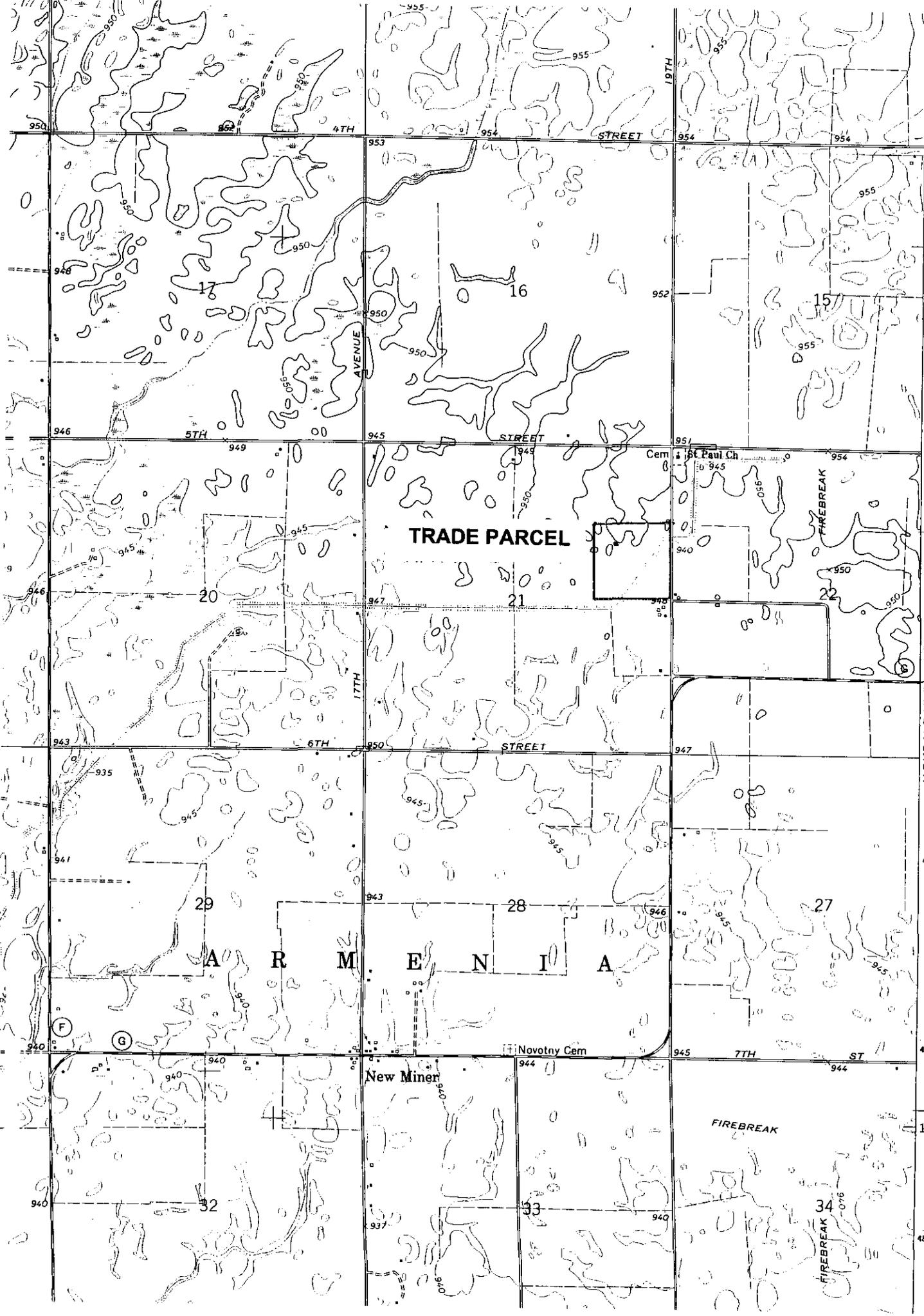
(ARKDALE NW)
3072 III NW

4896

4895

10'

4894



TRADE PARCEL

A R M E N I A

New Miner

FIREBREAK

FIREBREAK

R 2 E

R 3 E

R 4 E

R 5 E

T 20 N

222Ra16

222Ra11

Sec. 21 Trade

222Ra07

Sec. 35 Trade

Sec. 18 Subject

Juneau County LTA's
map created 6/22/04 jas



K

Lta	
222Ra01	Wisconsin River Alluvial Plain and Flowages and T
222Ra07	Wisconsin River Outwash Terraces
222Lb07	Trempealeau Sandstone Hills
222Ra04	Northwest Outlet Cranberry Bogs
222Ra14	Glacial Lake Wisconsin Siliceous Sand Plain
222Ra16	Jackson-Juneau Sandstone Knolls and Terraces
222Ra11	Yellow River Floodplain and Terraces
222Ra13	Yellow River Siliceous Terrace
222Ra09	Tomah-Mauston Terraces
222Ra15	Lemonweir Floodplain and Terraces
222Ra10	Adams County Bluffs
222Ra03	Glacial Lake Wisconsin Sand Plain
222Ra06	Glacial Lake Wisconsin Sand Dunes
222Ra17	Castle Rock Bluffs and Terraces
222Ra02	Wisconsin Dells
222Ld02	LeFarge Hills and Valleys

22Ra04

T 19 N

222Ra14

T 18 N

222Ra13

222Ra01

T 17 N

222Ra15

222Ra07

T 16 N

222Ra09

222Ra17

222Ra10

22Lb07

T 15 N

222Ra17

222Lb07

222Ld02

222Ra02

2/19/2004 Summary Element Occurrence Data For Winters Withdrawal Town Range = 019N004E Section = 18

L

Natural Heritage Inventory (NHI) Data is exempt from State of Wisconsin Open Records Law. The data is considered sensitive for several reasons and thus not appropriate for general public distribution. This data is for Internal DNR staff use only and is not to be provided outside of the DNR.

No Data Found Within the Project Area

Data Within One Mile Buffer

Scientific Name	Common Name	S Status	F Status	LastObs	Group	#EOs
<i>Dendroica cerulea</i>	Cerulean Warbler	THR		1991-07-05	BIRD	1
<i>Buteo lineatus</i>	Red-shouldered Hawk	THR		1984-06-27	BIRD~	2
<i>Cygnus buccinator</i>	Trumpeter Swan	END		1999-07-20	BIRD~	1
<i>Nyctanassa violacea</i>	Yellow-crowned Night-heron	THR		1984-06-27	BIRD~	1
<i>Lycaeides melissa samuelis</i>	Kamer Blue Butterfly	SC/FL	LE	1994	BUTTERFLY	2
<i>Floodplain forest</i>	Floodplain Forest	NA		1991-07-05	COMMUNITY~	1
<i>Ophisaurus attenuatus</i>	Western Slender Glass Lizard	END		1994	LIZARD	1
<i>Microtus ochrogaster</i>	Prairie Vole	SC/N		1974-07-22	MAMMAL	1
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga Rattlesnake	END	C	1994-08-23	SNAKE~	4

2/19/2004 Summary Element Occurrence Data For Winters Withdrawal Town Range = 020N003E Section = 35

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Data Within Project Area

Scientific Name	Common Name	S Status	F Status	LastObs	Group	#EOs
<i>Cicindela patruela huberi</i>	A Tiger Beetle	SC/N		1965	BEETLE	1
<i>Dendroica cerulea</i>	Cerulean Warbler	THR		1991-07-05	BIRD	1
<i>Buteo lineatus</i>	Red-shouldered Hawk	THR		1992-06-10	BIRD~	1
<i>Floodplain forest</i>	Floodplain Forest	NA		1991-07-05	COMMUNITY~	1
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga Rattlesnake	END	C		SNAKE~	1

Data Within One Mile Buffer

Scientific Name	Common Name	S Status	F Status	LastObs	Group	#EOs
<i>Empidonax vireescens</i>	Acadian Flycatcher	THR		1991-07-05	BIRD	1
<i>Buteo lineatus</i>	Red-shouldered Hawk	THR		1992-06-08	BIRD~	2
<i>Erynnis persius</i>	Persius Dusky Wing	SC/N		1990-05-31	BUTTERFLY	1
<i>Hesperia leonardus leonardus</i>	Leonard's Skipper	SC/N		1992-08-19	BUTTERFLY	1
<i>Oak barrens</i>	Oak Barrens	NA		1992-07-29	COMMUNITY	1
<i>Floodplain forest</i>	Floodplain Forest	NA		1992-06-10	COMMUNITY~	1
<i>Northern sedge meadow</i>	Northern Sedge Meadow	NA		1982-02	COMMUNITY~	1
<i>Shrub-carr</i>	Shrub-carr	NA		1982-02	COMMUNITY~	1
<i>Stylurus scudderi</i>	Zebra Clubtail	SC/N		1998-10-13	DRAGONFLY~	1
<i>Etheostoma clarum</i>	Western Sand Darter	SC/N		1973-09-22	FISH~	1
<i>Ophisaurus attenuatus</i>	Western Slender Glass Lizard	END		1994	LIZARD	1
<i>Sistrurus catenatus catenatus</i>	Eastern Massasauga Rattlesnake	END	C	1990	SNAKE~	4

Wisconsin Natural Heritage Inventory Portal Map

For Internal DNR Use ONLY

LEGEND

NHI Data

-  Federally Listed Species
-  State Listed Species
-  Special Concern Species and Natural Communities

-  Search Area
-  1 and 2-mile Buffers

-  County Boundaries
-  Ecological Landscapes
-  DNR Regions
-  DNR Geographic Management Unit (GMU)
-  DNR Water Qual. Management Units

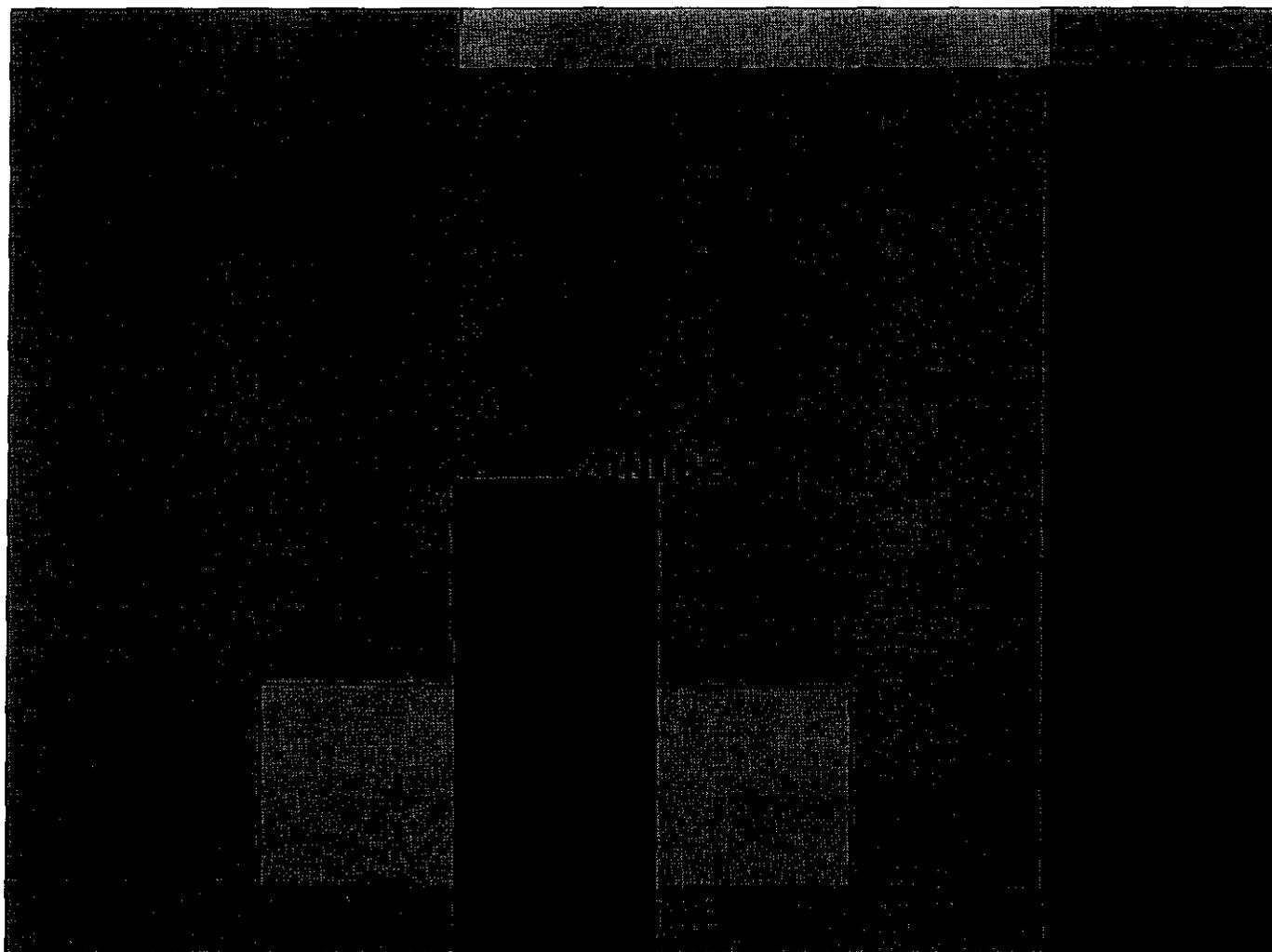
-  National Forests
-  Cities and Villages
-  American Indian Lands

Major Highways

-  Interstate
-  US Highway
-  State Highway
-  Local Roads

-  24K Rivers and Shorelines
-  24K Open Water
-  24K Watersheds

-  PLSS Townships
-  PLSS Sections



Published by the Wisconsin Department of Natural Resources ~
http://intranet.dnr.state.wi.us/int/land/er/nhi_portal/
 2/19/2004

Disclaimer: This map represents the known occurrences of rare species and natural communities that have been recorded in the Wisconsin Natural Heritage Inventory (NHI). Data provided by the WNHI are not based on a comprehensive rare species inventory of the state. The lack of data shall not be construed to mean that no significant features are present. NHI data is exempt from State of Wisconsin Open Records Law. This data is for internal DNR staff use only and is not to be provided outside the DNR.

2/19/2004 Summary Element Occurrence Data For WintersWithdrawal Town Range = 020N004E Section = 21

Natural Heritage Inventory (NHI) Data is exempt from State of Wisconsin Open Records Law. The data is considered sensitive for several reasons and thus not appropriate for general public distribution. This data is for Internal DNR staff use only and is not to be provided outside of the DNR.

No Data Found Within the Project Area

Data Within One Mile Buffer

Scientific Name	Common Name	S Status	F Status	LastObs	Group	#EOs
<i>Lycaeides melissa samuelis</i>	Kamer Blue Butterfly	SC/FL	LE	1994-06-03	BUTTERFLY	1

Wisconsin Natural Heritage Inventory Portal Map

For Internal DNR Use ONLY

LEGEND

NHI Data

-  Federally Listed Species
-  State Listed Species
-  Special Concern Species and Natural Communities

-  Search Area
-  1 and 2-mile Buffers

-  County Boundaries
-  Ecological Landscapes
-  DNR Regions
-  DNR Geographic Management Unit (GMU)
-  DNR Water Qual. Management Units

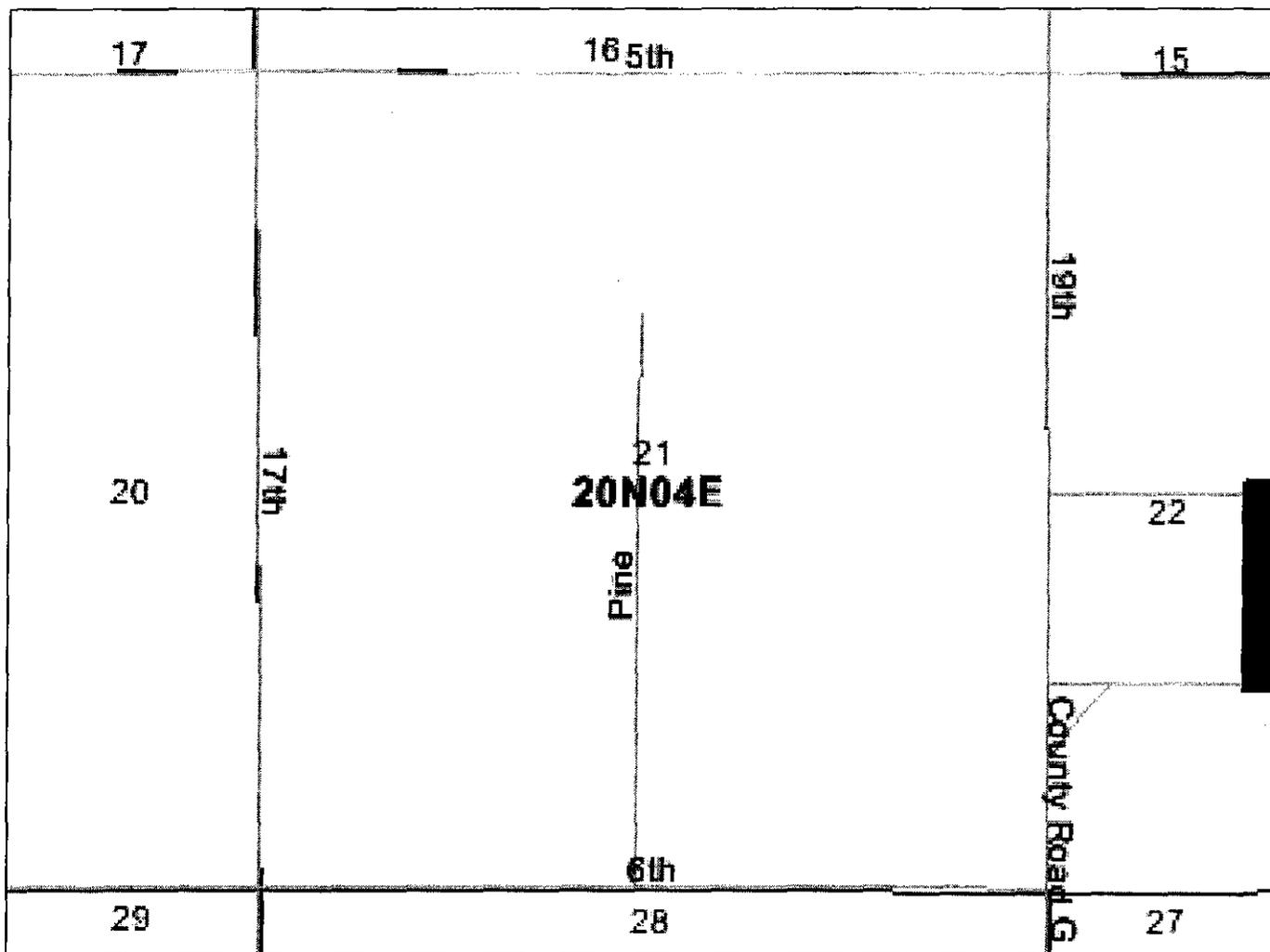
-  National Forests
-  Cities and Villages
-  American Indian Lands

Major Highways

-  Interstate
-  US Highway
-  State Highway
-  Local Roads

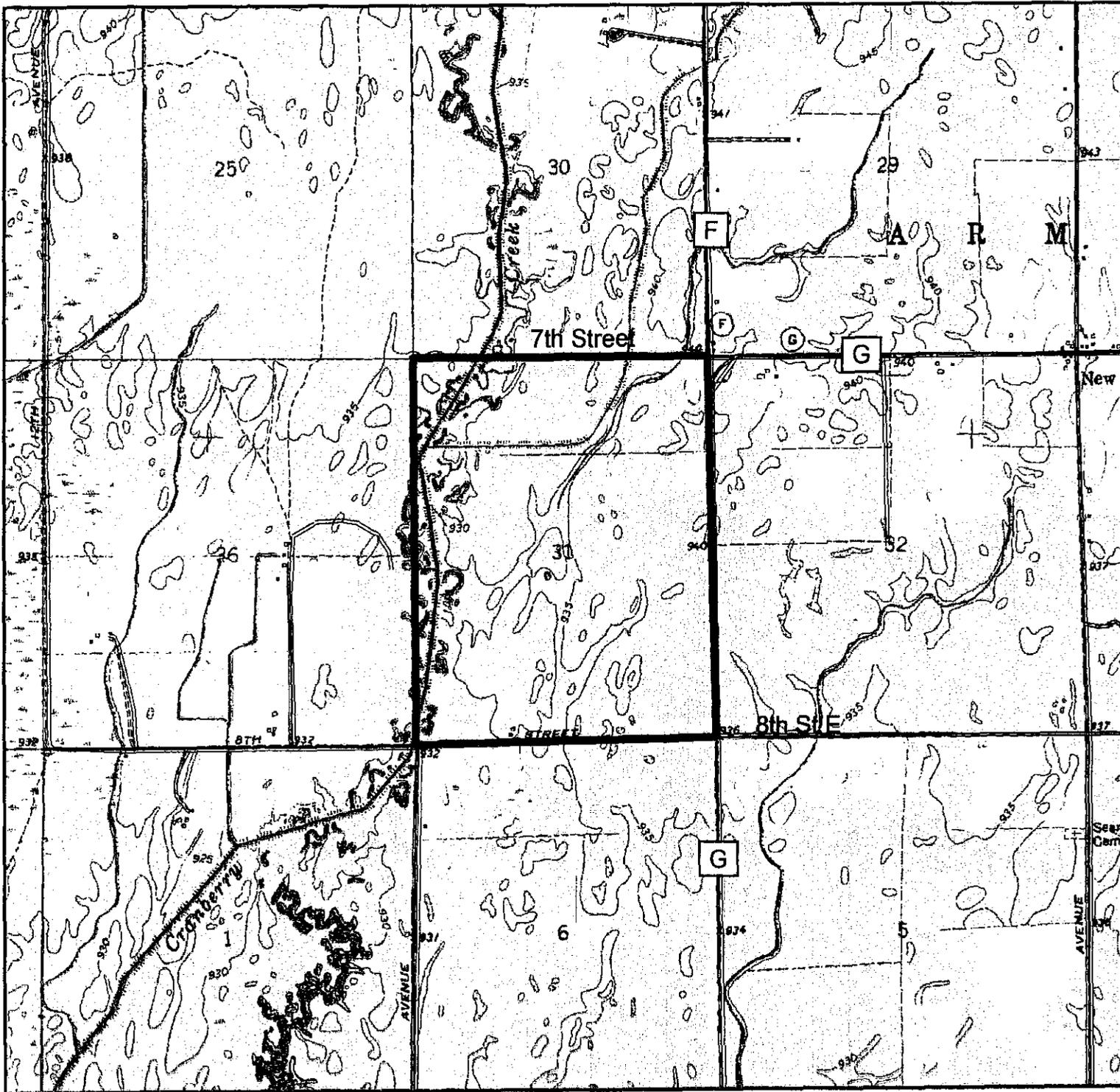
-  24K Rivers and Shorelines
-  24K Open Water
-  24K Watersheds

-  PLSS Townships
-  PLSS Sections



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http://intranet.dnr.state.wi.us/int/land/er/nhi_portal/
 2/19/2004

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Cranberry Creek
Mound Group
State Natural Area

Juneau County
#203

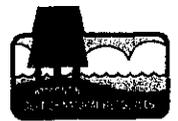


 Natural Area

0  0.5 Miles

1:24000

USGS Map: New Miner 7.5'



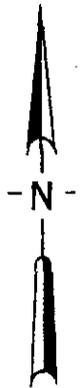
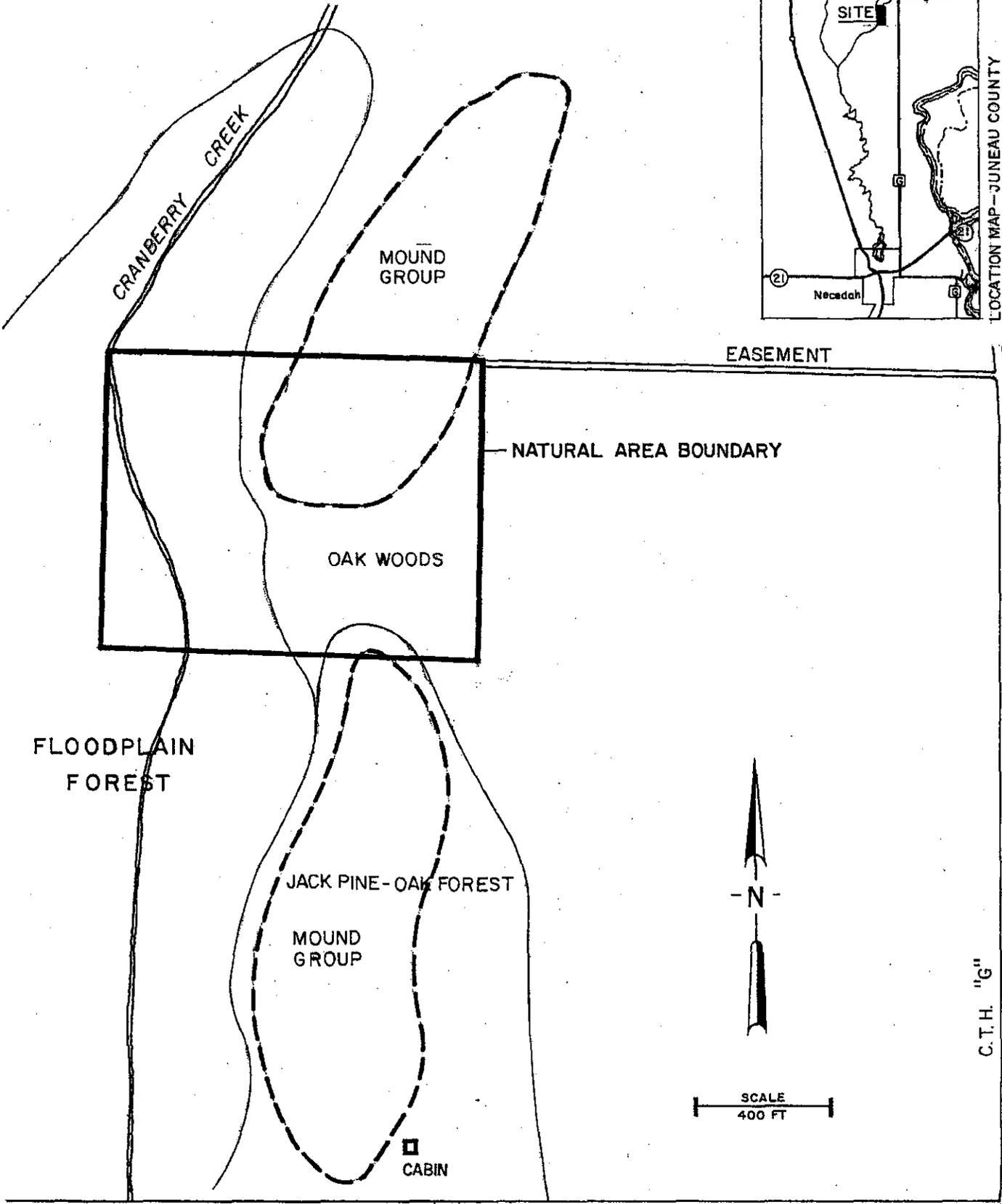
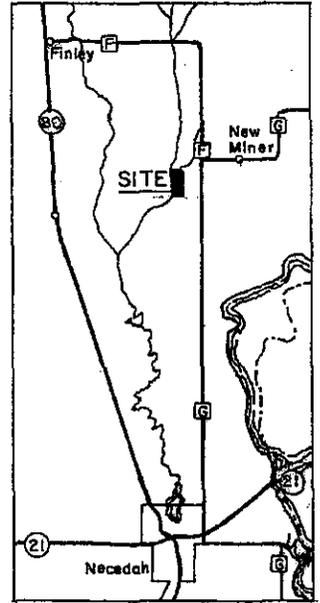
The data shown on this map have been obtained from various sources, and are of varying age, reliability and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information about legal land ownership or public access. Users of this map should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map.

Map Creator: DH 2003
Bureau of Endangered Resources

2

CRANBERRY CREEK MOUND GROUP STATE NATURAL AREA

M



SCALE
400 FT

C.T.H. "G"

Cranberry Creek Mound Group

STATE NATURAL AREA

N

Location: Juneau County. T20N-R4E, Section 31 W $\frac{1}{2}$. 458 acres.

Access: From the intersection of State Highway 21 and County Highway G east of Necedah, go north on G about 9.8 miles to its junction with County Highway F and 7th Street. Park at the southwest corner of the intersection and walk west along 7th Street into the site. The best mounds are located east of Cranberry Creek, north of the drainage ditch and south of 7th Street. Access also from 8th Street, one mile to the south.

Description: Cranberry Creek Mound Group preserves one of the most significant archeological sites in Wisconsin and one of the largest and best preserved mound complexes in the Upper Midwest. The site contains excellent examples of conical, linear, oval, and effigy mounds built by Native Americans of the Woodland period (ca. 100-800 A.D.). Although the northern cluster has been altered somewhat by plowing, the southern cluster is unaltered. Among the mounds featured are bear/panther mounds and a 50 foot long bird effigy mound with a wingspan of 125 feet. Although the mounds are featured, the site also contains a diversity of natural communities. Along the ditched channel of Cranberry Creek, large river birch and silver and red maples dominate the floodplain forest. Also present is an old-growth northern dry forest with large jack pine and an open pine-oak forest. Since 1917, archaeological investigations of mapping and interpretation have been conducted and the site is part of a larger complex of preserved and protected mounds located in adjacent and nearby areas. Cranberry Creek Mound Group is owned by the DNR and was designated a State Natural Area in 1986.



State Natural Areas Program
Bureau of Endangered Resources
Wisconsin Department of Natural Resources
P.O. Box 7921, Madison, WI 53707
www.dnr.state.wi.us/org/land/er/sna



0

ZONE A

(6)

ZONE X

ZONE X

25

36

ZONE X

ZONE X

ZONE AE

T 19N
933

TRADE PARCEL

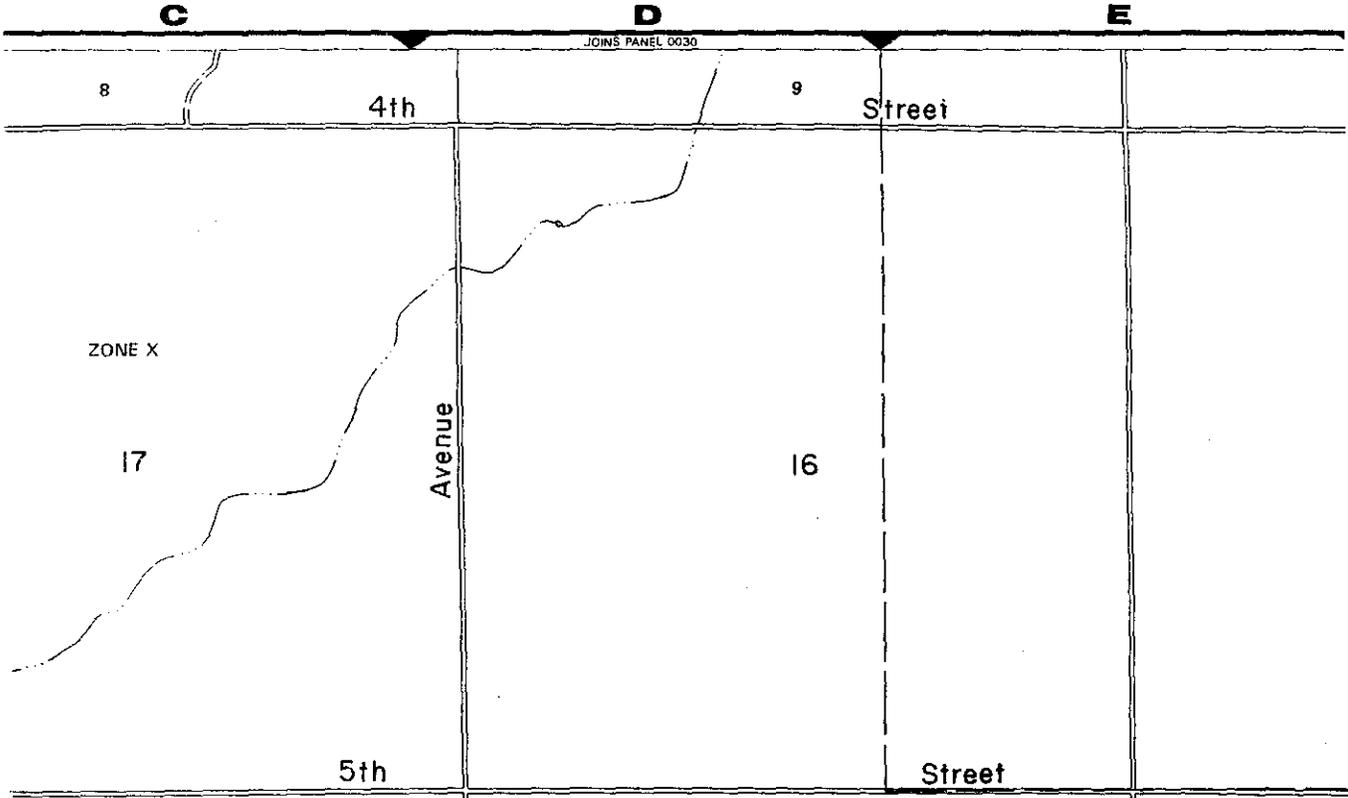
Floodplain - All dark colored areas
Floodway - All cross-hatched areas within the floodplain

ZONE AE

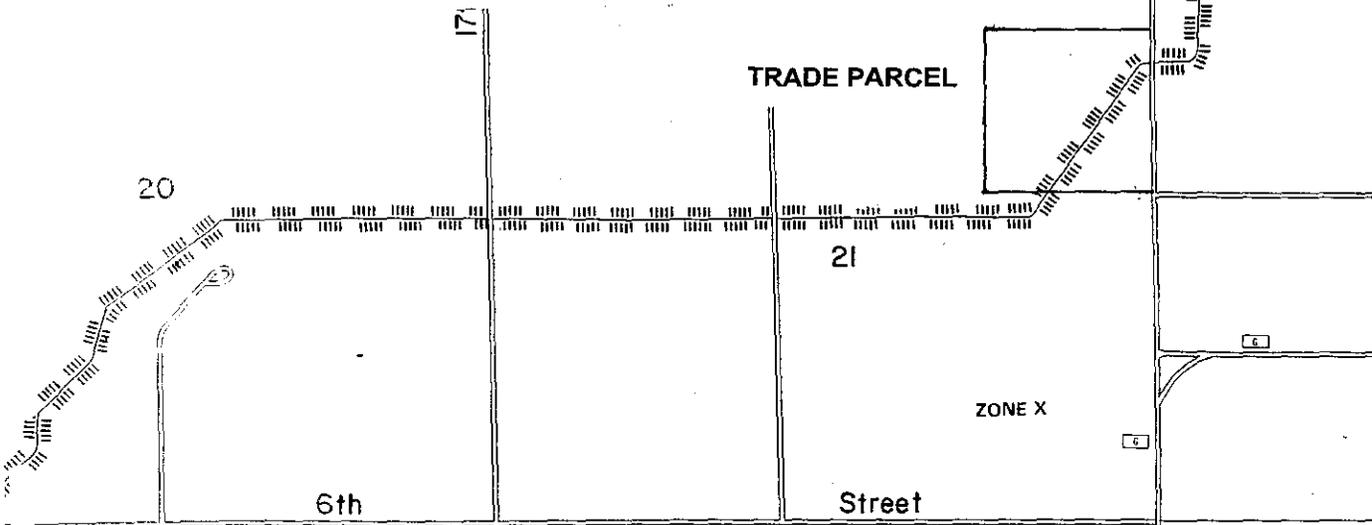
ZONE X

ZONE X

10



Floodplain - All dark colored areas
Floodway - All cross-hatched areas within the floodplain



Juneau County
 Unincorporated Areas
 550580

