

FINAL
ENVIRONMENTAL IMPACT STATEMENT

REDWOOD SERVICE DISTRICT
JOSEPHINE COUNTY, OREGON

PREPARED BY:
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION X
SEATTLE, WASHINGTON 98101

APPROVED BY:

 9/12/75
REGIONAL ADMINISTRATOR (DATE)

PREFACE

On June 13, 1975 the U.S. Environmental Protection Agency (EPA) released for public review a draft Environmental Impact Statement (EIS) on a proposed action for the Redwood Sanitary Service District, located in Josephine County, Oregon. The decision to write a draft and final EIS by EPA was based on an expected grant application from the Redwood Sanitary Service District for Step 3 construction grant funding in which EPA would provide 75% of the funds required to construct a sewerage system. This grant award would also provide reimbursement funds for Step 1 planning and Step 2 design work which has already been expended by the Redwood District. To complete the environmental impact evaluation, EPA has prepared this final EIS which is the result of EPA's consideration of the comments received on the draft EIS, public hearing testimony, additional evaluation of the alternatives, and a review of legal interpretations involving Federal policy and regulations related to local land use plans.

A new addition to the text of this final EIS is the inclusion of a chapter entitled "Comments and Responses to the Draft EIS". In this chapter, EPA has reprinted letters commenting specifically on the draft statement and has attempted to respond to all questions and requests for explanation, correction or revision where additional evaluation proved the draft statement to be in error.

Letters voicing opinions on the proposed project but not commenting on the EIS were also received by EPA. While these letters are not reproduced in this final statement, a summary of them is included illustrating the major concerns raised. All letters along with the Public Hearing Record have been considered in EPA's decision-making process.

A significant action occurred during the EIS review process involving an examination of EPA's construction grant requirements and their relationship to State and local land use regulations. Throughout the draft statement EPA noted that the proposed project as submitted by Josephine County raised serious questions as to conformance with the County's Comprehensive Land Use Plan. EPA's regulations require that the Regional Administrator of EPA, prior to grant award, must determine:

"That the treatment works will comply with all pertinent requirements of the Clean Air Act and other applicable Federal, State and local environmental laws and regulations."(40 CFR 35.925-14)

Additionally, 40 CFR 35.935-4 subjects all treatment works grants to the following conditions:

"The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of State, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter."

In ascertaining whether or not a Comprehensive Land Use Plan constitutes an applicable law, regulation or ordinance within the meaning of 40 CFR 35.925-14 and 40 CFR 35.935-4, EPA reviewed recent decisions of the Supreme Court of

Oregon (Fasano v. Board of County Commissioners of Washington County, 507 P. 2d23 (1973); Baker v. City of Milwaukie, 533 P. 2d772 (1975)) which assert that the Comprehensive Plans are the controlling land use instruments within Oregon and that such plans are legislative in nature. Because of the decisions of the Supreme Court of Oregon as to the legal status of adopted comprehensive plans, EPA's Regional Counsel concluded that such plans should, when duly adopted in the State of Oregon, be considered laws, regulations, or ordinances with which EPA-funded construction grant projects must comply as stated in the above-cited EPA regulations.

Based on the foregoing, EPA considers itself bound to respect the policies and decisions expressed in comprehensive plans when awarding construction grants in the State of Oregon. EPA has concluded that the alternative designated as the "Proposed Project" in the draft EIS contradicts the comprehensive plan adopted by the Josephine County Planning Commission in 1971 and existing zoning requirements which implement that Plan. At this time, funding that alternative would violate EPA's regulations as well as both the State and EPA policies.

The draft EIS examined the environmental impacts associated with each alternative. While these impacts were analyzed in the draft, they have been given further consideration and will continue to be examined throughout the remainder of the EIS process. Major adverse impacts must be studied in terms of mitigating techniques which can be incorporated into project construction and which may affect the degree of future secondary impacts. This examination of adverse impacts is an essential facet of EPA's decision-making process.

During preparation of the draft EIS a number of population projections for Josephine County were examined by EPA (these are shown in the response to the comment letter from the Josephine County Road Department). Based on the projections it appeared that the estimate utilized in the District's grant application for project design purposes was high. Due to the substantial differences between the projections, EPA will require, through a condition to any grant award, a new population estimate for the Redwood area. (see page 80)

The grant condition will specify that:

The grantee shall, prior to preparation of plans and specifications, have prepared a new population projection for the Redwood Service District. To the extent that changes from the original population projection occur, the treatment plant and collection system design flows will be revised accordingly. The projection shall not be based upon a presumed saturation of the area to an arbitrary density, but must rely upon accepted modern demographic techniques including historical trends, employment projections, current zoning and land use planning goals, and local immigration and birth rates. This projection shall be submitted to the Oregon State Clearinghouse for review and to EPA for approval prior to commencement of further design work.

The two remaining alternatives that were explored in the draft EIS are Alternative "A", a project of reduced scope, and Alternative "B", the no-action alternative. Alternative "A" proposes construction of a sewage

treatment plant in the vicinity of Darnielle Lane and South River Road. This project would provide sewerage service to the eastern sector of the Redwood S.D. but presently would not serve the western sector. Phase II of this alternative would allow provision of sewer service to the western sector when, and if, growth pressures dictate and the Comprehensive Plan has been changed to permit such development. Alternative "A" will, however, provide service to the Redwood School, Rogue Community College, River Haven Mobile Estates and the Dun Rovin Trailer Park. These four sites were identified in the draft EIS as having serious wastewater problems and as being in need of a sewer system. This alternative would be in compliance with the Comprehensive Plan and is EPA's recommended alternative in solving the wastewater problems within the Redwood Sanitary District. The "no-action" alternative would not provide a sewerage system for the Redwood S.D. The "Alternative Section" of the final EIS investigates these alternatives in more detail.

The Environmental Protection Agency submits this final EIS for a public review period of 30 days. Following this review period the Regional Administrator of EPA will make his final determination concerning a grant for the Redwood Service District.

U.S. Environmental Protection Agency
Region X
Seattle, Washington

SUMMARY SHEET

- () Draft Environmental Impact Statement
(X) Final Environmental Impact Statement

1. Background of the Redwood Environmental Impact Statement.

On July 31, 1974, the Redwood Sanitary Sewer Service District (located southwest of Grants Pass, Oregon) submitted an application to EPA for grant assistance in the construction of a waste treatment plant and sewerage system. Because of the surrounding public controversy and the potential for significant environmental impact, EPA has prepared this EIS.

2. Alternatives Considered.

EPA considered three alternatives:

a. The project as originally proposed by the Service District would involve construction of a sewerage system to initially serve the eastern half of the Service District which a portion has been declared an emergency health hazard area by the Josephine County Health Department. An interceptor (the Redwood Interceptor) would be constructed westerly along the Rogue River (the northern boundary at the District) to a secondary treatment plant at the west end of the Service District. Effluent would be discharged to the Rogue River. (See Preface)

b. Alternative "A" would also sewer the eastern half of the Service District, but the treatment plant would be located in the vicinity of the intersection of Darnielle Lane and South River Road (approximately 1.7 miles east of the proposed project plant site). The western half of the District would only be sewered if the planned growth potential of the eastern sector was near realization and the Comprehensive Land Use Plan was amended to permit residential development of the western sector. If the western sector was going to be sewered, a new treatment plant could be built (and the old one abandoned) at the "proposed project" plant site.

c. Alternative "B" involves no construction of an areawide sewerage system or treatment plant. The predominant form of waste disposal would continue to be septic tanks and drainfields.

3. Environmental Impacts and Adverse Environmental Effects.

Though the "no-action" alternative (Alternative "B") involves the least cost and impacts, there would be a certainty for continued health hazards associated with malfunctioning septic tanks in the eastern portion of the Service District, due to physical conditions such as high groundwater table, shallow bedrock depth, non-porous soils, etc. It is our conclusion that in the no-action "future" certain serious health hazards would not be corrected. There is also the significant possibility that raw wastes would continue to be discharged to the Rogue River thereby degrading its water quality.

Thus, the "no-action" alternative (in the eastern portion where land use controls have been lacking) would not meet national and state water quality goals and requirements and, thus, not be a solution to the Service District's waste disposal problems.

The proposed project does alleviate the health hazard within the initial service area and by doing so it permits planned development of the eastern sector as recommended by the Comprehensive Plan.

However, the proposed project has the potential to induce growth within the western sector that is inconsistent with existing land use patterns and the goals of the Comprehensive Plan. The project is designed to serve such growth should it occur.

The proposed project is as expensive as other alternatives and may result in significantly higher short-term energy consumption levels.

Alternative "A" (Phase One) also alleviates the existing health hazard and provides for future planned growth in the eastern sector pursuant to the Comprehensive Plan. No sewers are constructed in the western half of the Service District, so Alternative "A"'s growth inducement potential for the western sector is minimal. This would help maintain the rural character of that area while permitting growth in areas for which it has been planned.

Phase Two of this alternative would allow provision of sewer service to the western half of the Service District when, and if, growth pressures dictate and the Comprehensive Plan has been changed to permit such development. It is also possible that all projected growth for the Service District (over 50 years) could be confined to the eastern sector utilizing the zoning densities recommended by the Comprehensive Plan, and thus, the plant would never have to be moved.

4. The following State, Federal and local agencies and interested groups were invited to comment on the Environmental Impact Statement.

FEDERAL AGENCIES

COUNCIL ON ENVIRONMENTAL QUALITY
U.S. DEPARTMENT OF AGRICULTURE
U.S. DEPARTMENT OF DEFENSE
U.S. DEPARTMENT OF INTERIOR
U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
U.S. DEPARTMENT OF TRANSPORTATION
ADVISORY COUNCIL ON HISTORIC PRESERVATION
FEDERAL ENERGY ADMINISTRATION
U.S. FOREST SERVICE

MEMBERS OF CONGRESS

MARK O. HATFIELD
U.S. SENATE

JAMES WEAVER
U.S. HOUSE OF REPRESENTATIVES

ROBERT W. PACKWOOD
U.S. SENATE

STATE

GOVERNOR OF OREGON
OREGON STATE CLEARINGHOUSE
DEPARTMENT OF ENVIRONMENTAL QUALITY
OREGON STATE WILDLIFE COMMISSION

REGIONAL AND LOCAL

JOSEPHINE COUNTY BOARD OF COMMISSIONERS
JOSEPHINE COUNTY PLANNING OFFICE
JACKSON-JOSEPHINE COMPREHENSIVE HEALTH PLANNING COUNCIL, INC.
DISTRICT #8
JOSEPHINE COUNTY EXTENSION SERVICE
JOSEPHINE COUNTY LIBRARY
JOSEPHINE COUNTY HEALTH DEPARTMENT

INTERESTED GROUPS

CH2M/HILL
REDWOOD AREA CITIZENS ASSOCIATION
ROGUE VALLEY COUNCIL OF GOVERNMENTS
OREGON ENVIRONMENTAL COUNCIL
ROGUE RIVER GUIDES ASSOCIATION
JOSEPHINE COUNTY CONSERVATION COALITION
NORTHWEST ENVIRONMENTAL DEFENSE CENTER
CSPIRG
1000 FRIENDS OF OREGON
ROGUE RIVER COORDINATION BOARD
IZAACK WALTON LEAGUE OF AMERICA, INC.
NORTHWEST STEELHEADERS COUNCIL OF TROUT UNLIMITED
ROGUE ECOLOGY CENTER
LEAGUE OF WOMEN VOTERS OF OREGON
MAZAMAS
OREGON WILDLIFE FEDERATION
SIERRA CLUB

THE DRAFT ENVIRONMENTAL IMPACT STATEMENT WAS MADE AVAILABLE TO THE COUNCIL ON ENVIRONMENTAL QUALITY (CEQ) AND THE PUBLIC ON JUNE 13, 1975.

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CHAPTER ONE

BACKGROUND AND DESCRIPTION OF THE PROPOSED ACTION

Introduction

The Redwood Sanitary Sewer Service District (under the directorship of the Josephine County Board of Commissioners) submitted an application on July 31, 1974, to the Environmental Protection Agency (EPA) for grant assistance under P.L. 92-500 in the construction of a waste treatment plant and sewerage system. This followed a public hearing on May 7, 1974, where the testimony indicated that there was some public controversy surrounding the proposed project. Based on the potential for significant environmental impact, the public controversy, and pursuant to the National Environmental Policy Act of 1969 (NEPA), EPA determined that an Environmental Impact Statement (EIS) should be prepared for the proposed Redwood Sewer Project. A Notice of Intent to prepare the statement was sent to all interested parties on October 4, 1974.

This EIS has been prepared on the proposed project as it was submitted to EPA by the applicant, and is based on currently available data and information. Thus, reference to the "proposed project" means the one presented by the applicant not EPA. In addition to the proposed project the EIS considers two other alternatives, a "do-nothing" project (maintaining status quo) and a two-phase project that initially serves the eastern portion of the District. (see p. 33) Figures 1 and 2 depict the boundaries of the Redwood Service District, and also outline the "sub-areas" of each alternative that are referenced throughout the EIS, e.g. the "Initial Service Area" of the proposed project (Fig. 1) and the "Alternative Service Area" of Alternative "A", (Fig. 2). The reader should become somewhat familiar with the maps and area designations to avoid confusion.

In accordance with the Council on Environmental Quality (CEQ) guidelines (40 CFR-Part 6), this EIS examines the relationship of the proposed action to land use plans, policies and controls of the affected area. This report also presents the population and growth assumptions used to support the project and to determine secondary population and growth impacts resulting from the proposed action and its alternatives. The EIS also addresses issues of how the proposed project and alternatives will conform or conflict with the objectives of other approved or proposed projects, plans, policies and controls.

The positive and negative impacts of the project on the environment are evaluated including the primary and direct consequences as well as the secondary or indirect consequences. These latter include, in the case of construction of sewer systems, the stimulation or inducement of secondary effects in the form of associated investments and changed patterns of social and economic activities as well as impacts on growth and population. This EIS assesses the effects of these possible changes in population patterns or growth upon the resource base, including land use, water, air, public services and facilities, and energy consumption.

Despite the fact that some alternatives for wastewater treatment and various identifiable environmental impacts (primary and secondary) may fall outside the explicit regulatory and enforcement authority of EPA, NEPA mandates a full public disclosure of all reasonable alternatives and possible environmental impacts. This disclosure and discussion is the intent of this EIS.

To insure that the public is kept fully informed regarding this action, and that it participates to the fullest extent possible in EPA's decision-making process, the draft EIS was circulated for a 45-day review as required by CEQ's August 1, 1973 guidelines. This final EIS is resubmitted for a 30-day review period.

The Problem

The proposed project has evolved as a result of the Josephine County Board of Health and the County Health Department's survey of the individual disposal systems in the District during the last decade. The entire Service District is presently unsewered, relying primarily on individual disposal systems. In 1965, a portion of the eastern sector of the Service District was declared an "emergency area" by the Josephine County Health Department, because of numerous subsurface sewage disposal failures and malfunctioning systems caused by a high water table, soil limitations, and poor drainage.

An environmental health survey was conducted in 1970 by the County Health Department. It was performed house to house and constituted a 50 percent sampling of homes in the entire Service District. There are no more recent comprehensive surveys for the area, but results of EPA site inspections appear to support the findings of the Health Department survey.

SURVEY RESULTS--All sewage disposal systems were subsurface, due to use of septic tanks. Five privies were also in use.

Effluent Disposal Condition:

Satisfactory-----	208 (55%)
Questionable-----	74 (19%)
Malfunctioning-----	99 (26%)
Total systems-----	381

Effluent Disposition of Malfunctioning:

Surfacing-----	72 (73%)
Direct outfalls-----	27 (27%)

Forty-five percent of the systems surveyed were experiencing problems and 26 percent were malfunctioning. The wastes from these failing septic tanks were found to be surfacing (73 percent) and also being discharged directly through outfalls (27 percent). It is estimated that approximately 10 to 15 percent of the systems having problems were located in the western portion of the Service District. Because of the number of malfunctioning septic tanks, poor soil drainage, animal waste disposal, and improper well construction, the domestic water supplies of the Service District were also surveyed. Out of the total water samples (87 wells) taken in the area, 24 percent were found to be contaminated.

The incidence of inadequately treated sewage surfacing is evident throughout the eastern portion of the Service District. Such conditions can subject the local citizenry to infectious hepatitis and other diseases. Such waste discharges can be transported directly to the Rogue River where people swim, boat, and other water-oriented sports. They also add to the overall waste load to the river, which the river must try to assimilate.

In addition to the numerous failing residential septic tanks and drain-fields, the Redwood School has a seasonal problem with sewage surfacing on the west end of the track and play area. One mobile court (Dun Rovin) also has a major sewage disposal problem with sewage surfacing in an open field behind a residential development.

Thus, the purpose of the project is to eliminate the pollution of surface and groundwaters in the area, protect individual domestic water supplies from contamination, eliminate the present public health hazards resulting from surfacing sewage and to enhance water quality of the Rogue River through the elimination of raw discharge of sewage to the river and its adjacent drainage areas.

The Proposed Project

A. Location

The Redwood Sanitary Sewer Service District, located southwest of the City of Grants Pass in Josephine County, encompasses 3,480 acres (about 5.4 square miles). The boundaries of the Service District, as shown in Figure 1, are generally defined as that area lying south of the Rogue River, westerly of Allen Creek, northerly of the South Highline Canal of the Grants Pass Irrigation District, and easterly of Rounds Avenue. An additional 3,014 acres (about 4.7 square miles) drains into the service area from the south and west. The summation of these areas (6,500 acres or 10.1 square miles) represents the ultimate limits of the general drainage area, as shown in Figure 3. Eventually, this ultimate drainage area may be incorporated into the Service District as the District develops and extends its boundaries.

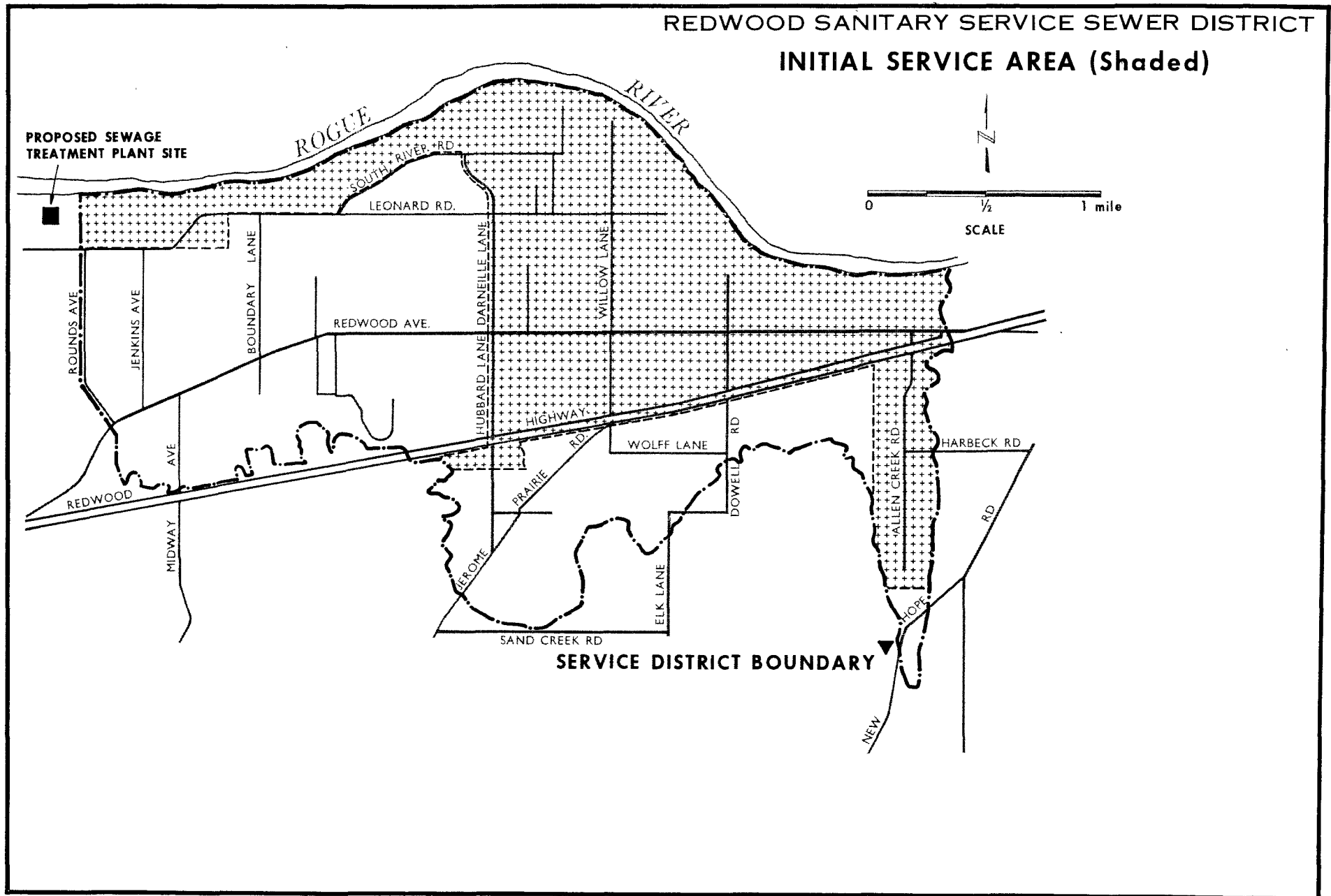
B. Facility Components

The proposed project to be constructed consists of an activated sludge plant, a major interceptor 22,000 feet (about 4.2 miles) ranging in size from 12" to 27", plus 67,000 feet of additional lines (two smaller interceptors, mains, and laterals). The entire sewerage system, at later development, as shown in Figure 4, totals 157,000 feet (over 29.7 miles) of sewer lines.

The treatment plant is sized to handle projected population increases over its 20-year service life; it has a design capacity of just under 500,000 gallons per day and will produce an effluent concentration of 20 mg/l of BOD and suspended solids. The effluent will be discharged to the Rogue River. The general layout of the wastewater treatment facility will consist of a control building, a blower building, and aeration basin,

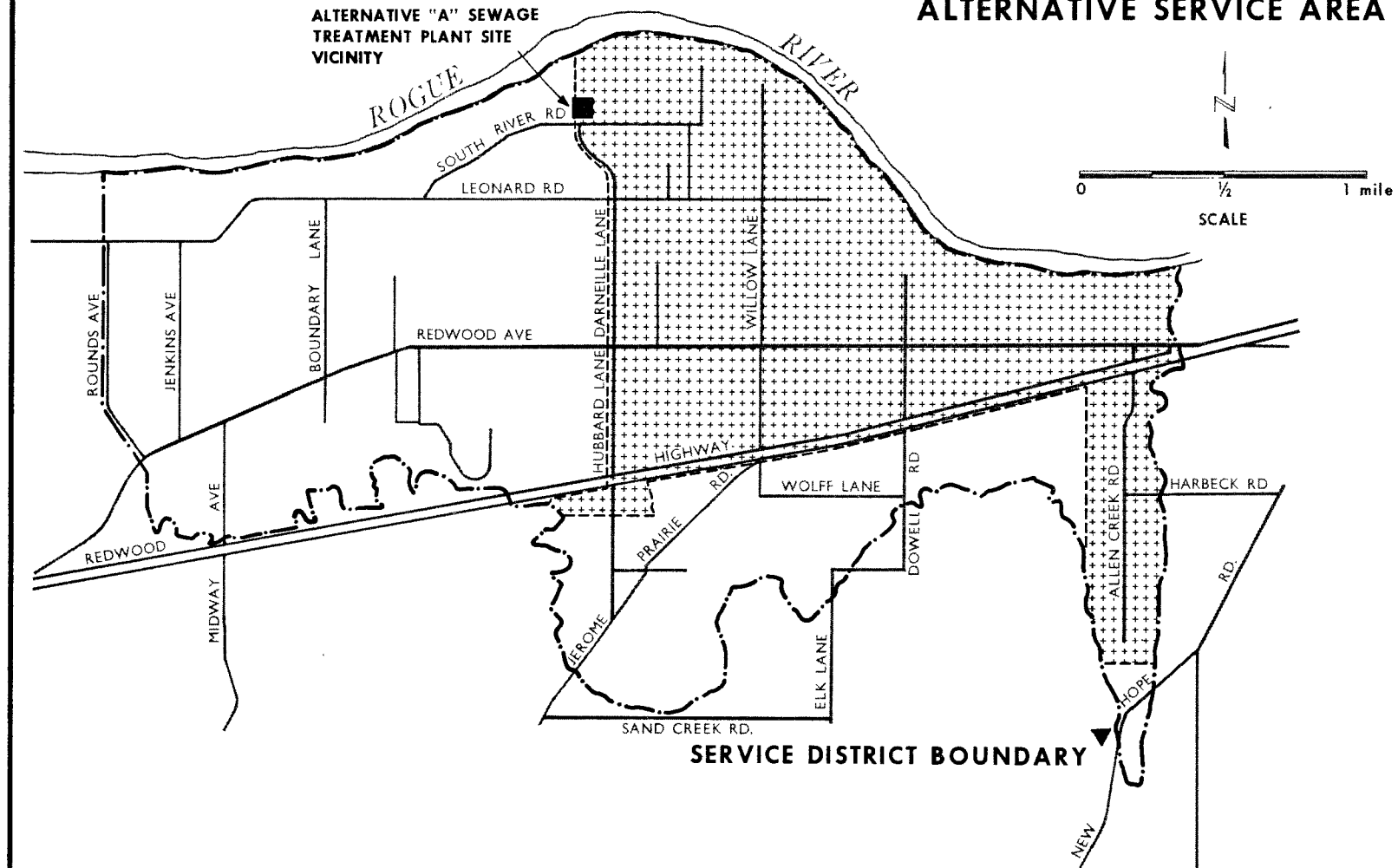
REDWOOD SANITARY SERVICE SEWER DISTRICT

INITIAL SERVICE AREA (Shaded)

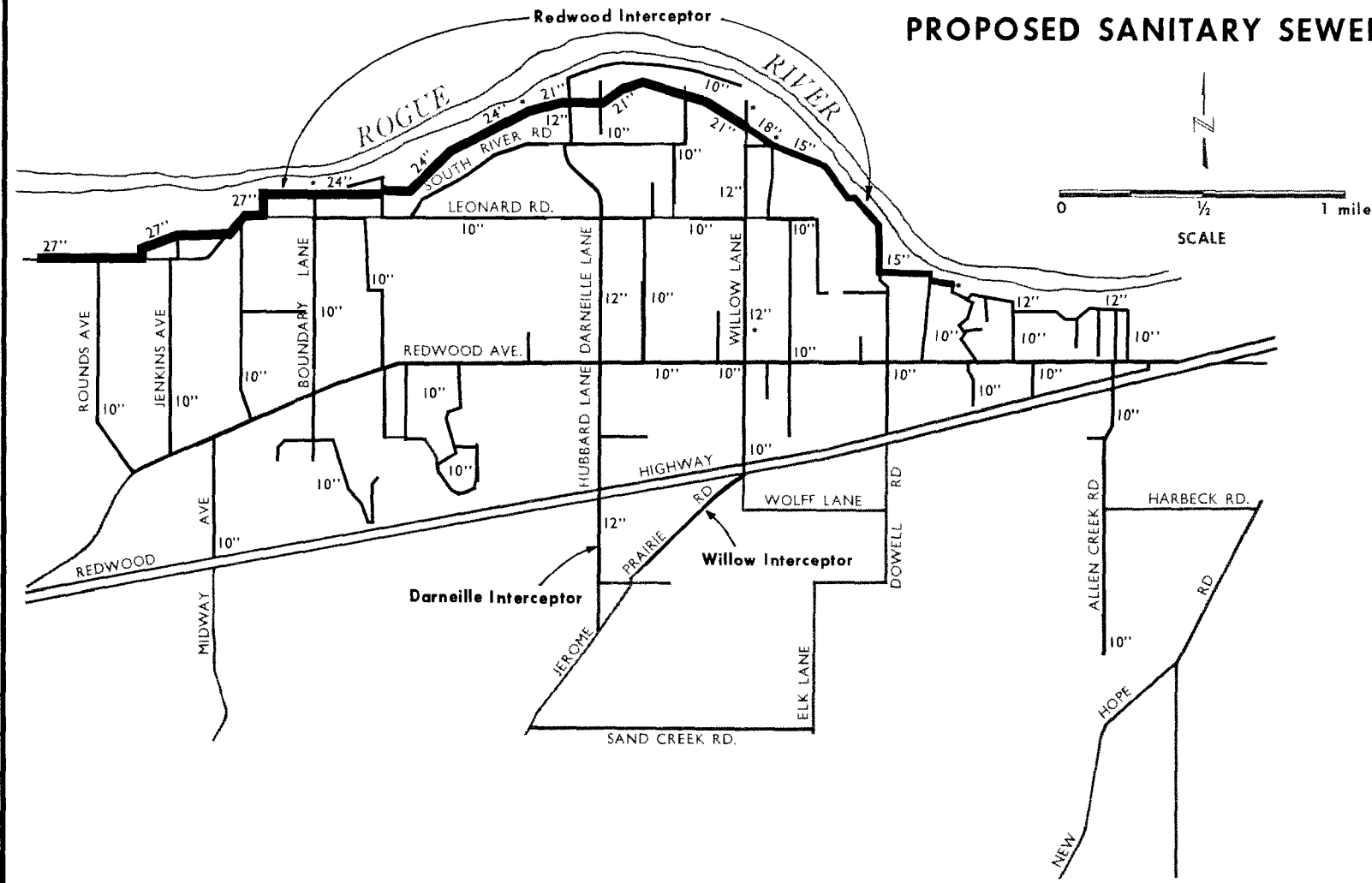


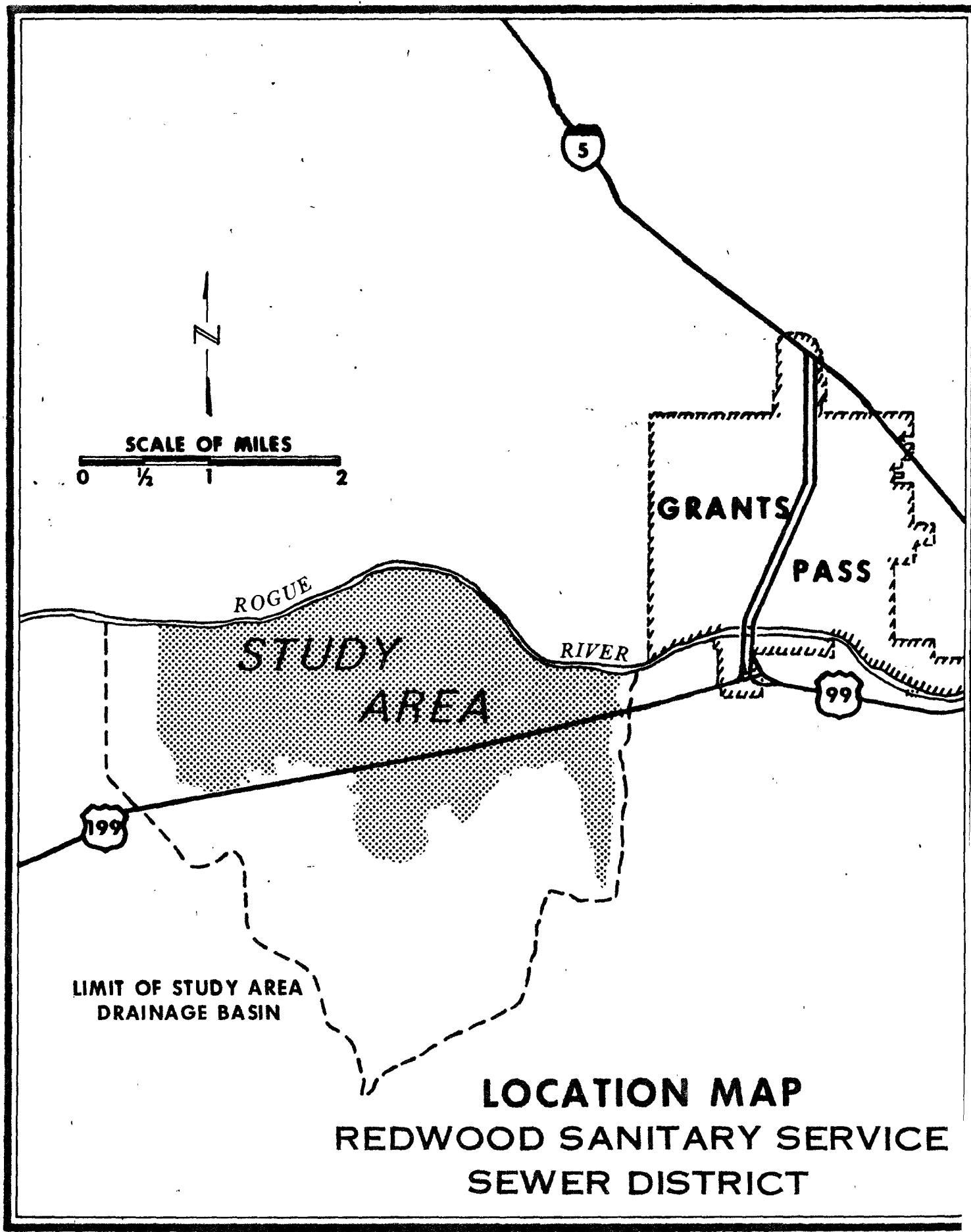
REDWOOD SANITARY SERVICE SEWER DISTRICT

ALTERNATIVE SERVICE AREA (Shaded)



REDWOOD SANITARY SERVICE SEWER DISTRICT
PROPOSED SANITARY SEWER SYSTEM





SCALE OF MILES

0 1/2 1 2

ROGUE

STUDY
AREA

RIVER

GRANTS

PASS

LIMIT OF STUDY AREA
DRAINAGE BASIN

LOCATION MAP
REDWOOD SANITARY SERVICE
SEWER DISTRICT

a secondary clarifier and chlorine contact chamber, an aerobic digester, and two sludge disposal ponds. The proposed plant will be located on the river approximately a quarter-mile west of the intersection of Rounds Avenue and Leonard Road--about 4.5 miles downstream from the City of Grants Pass.

Three interceptor sewers are proposed: a major one--the Redwood Interceptor--running along the south bank of the Rogue River from Daisy Lane west to the proposed treatment plant; a 12" line--the Darnielle Interceptor--9,600 feet long in Darnielle and Hubbard Lanes; and the Willow Interceptor in Willow Lane, 6,300 feet long, ranging from 10" to 12" in size.

The proposed sewage collection and treatment facilities will initially serve about 1,650 people and 1,560 acres--that portion of the Redwood Sanitary Sewer Service District, as shown in Figure 1, (designated as Initial Service Area), located north of the Redwood Highway, east of Darnielle and Hubbard Lanes, roughly north of South River Road and Leonard Road extending to Rounds Avenue, and a portion of the District south of the Redwood Highway which borders Allen Creek Road.

C. Design Capacities

The treatment plant is designed to handle the flow from 4,800 people. The Redwood Interceptor, with a service life of 50 years (2025) is designed to serve between 20,000 and 23,000 people, and 3,400 acres.

D. Financing and Costs

The estimated federally eligible cost of the project is \$2,355,900. The basic cost elements of the sewerage system are summarized in Table 1 for a 20-year planning period which is in accord with EPA's Cost-Effectiveness Guidelines.

The financing program proposed will include grant funds from EPA and Josephine County, a county loan, and general obligation bond sales. EPA's grant amount is expected to be \$1,766,925, which is 75 percent of eligible capital project costs. The voters of the Service District approved on November 6, 1973 a \$745,000 general obligation bond issue. With the addition of Josephine County grant and loan monies the bond sale revenue will provide all of the local financing for the collection system and that portion of the interceptor and treatment plant costs not funded by the Federal grant (25% of federally eligible costs).

The bonds (\$745,000) would be repaid by property owners in the Service District through assessments and connection charges. The county loan would be repaid by revenue from future expansion within the presently unserved portion of the District. A sewer service charge would provide the funds necessary for operating the sewerage system. If the proposed project is not approved for Federal funding, and an alternative is selected, a new bond election would have to be held. In such a case, there is a risk that the voters would not approve another bond issue, and based on public objection to the proposed project, the risk could be substantial.

TABLE 1
SUMMARY OF ELIGIBLE PROJECT COSTS

<u>1. CAPITAL COSTS</u>	<u>20 Year Planning Period</u>	<u>Stage II².</u>	<u>Present Worth</u>
Secondary Treatment Plant	807,000 ¹ .		807,000
Redwood Interceptor	1,043,100	473,000	122,000 1,043,100
Willow Interceptor	198,600		198,600
Darnielle Interceptor	307,200		307,200
Total	\$2,355,900	473,000	2,477,900
<u>2. OPERATION & MAINTENANCE COSTS</u>			
Treatment Plant & Interceptors (per year)	62,800	77,300	665,300 818,900
<u>Total Present Worth</u>			
Capital, Operating & Maintenance Costs			3,962,100

1. Serves 4,800 P.E.
2. Stage two provides for expansion of the treatment plant after 20 years. This is done for comparison with Alternative "A" which is a two-phase project. (Provided that growth pressures fill the eastern sector and require that the plant be moved so as to serve the western sector).

Description of the Design Criteria Used to Plan the Project

The design criteria by which interceptors are sized and treatment plant capacity is determined, are of particular importance in any waste treatment project. Excess or inadequate capacity can lower treatment efficiencies or result in higher long-run costs. A treatment plant that is oversized may suffer from just as much treatment inefficiency as an overloaded plant. Likewise, interceptors that are excessively sized require an unjustified capital expenditure in that the public is paying for more line than is necessary to transport sewage.

There are two criterion which are used as the basis for designing sewage treatment systems--a population projection and average per capita wastewater discharge. The product of these two numbers plus an infiltration/inflow allowance, multiplied by a peak to average flow ration will yield the maximum expected gallons per day to be carried and treated by the system. Both factors are discussed below.

A. Population Projection

The proposed sewerage system was presented to EPA with a design capacity of 20,000 people. This figure was calculated by the District's engineering firm Cornell, Howland, Hayes, Merryfield, and Hill (CH₂ M) in the preliminary engineering study for the District. (completed in 1966).

After receipt of the Service District's construction grant application in 1974, EPA requested an independent population projection because of the age of the prior estimate by CH₂ M. The County was provided with a new population projection by Patterson, Langford, and Stewart (PL&S) which supported the CH₂ M ultimate population projection (it was somewhat higher at 23,000) but indicated a greater rate of growth for the Redwood area than CH₂ M had projected.

Exhibit 1 in the Appendix is the complete explanation of PL&S's methodology. But briefly, PL&S based the county growth on historical trends, and by assuming District saturation (3 people per unit--3 units per developable acre) in 2025.

For the purposes of this EIS, the CH₂ M projection will be used for all alternatives, but a caveat should be added. During its research EPA examined numerous population projections for Josephine County and it appears that the CH₂ M and PL&S estimates are high. Rather than provide its own projection, or evaluate an alternative utilizing a lower design population (which would be like comparing apples and oranges), EPA utilizes the CH₂ M projection. When a project is finally selected, EPA will require the District to provide a new projection to support present sewer line sizing. (See Preface) The major effect of a design population of a project is on cost. EPA's use of the CH₂ M projection in the EIS is valid because it will permit an evaluation of the relative environmental impacts and costs.

B. Per Capita Waste Discharge

To arrive at an estimate of expected waste flows and design treatment facilities accordingly, engineers utilize an average gallons per capita per day flow figure multiplied by the expected population. The most common figure used is 100 gpcd, and it is based on average consumer waste discharges. The total average flow obtained by these calculations is multiplied by the peak to average flow ratio which is obtained from accepted engineering manuals (e.g., Manual of Engineering Practice on the Design and Construction of Sanitary and Storm Sewers).

Such a methodology was used in the design of the Redwood treatment facilities and yielded a sewer sized to carry approximately 5.3 MGD, the ultimate design flow. This figure is adequate to facilitate the effective transport of extra flows due to infiltration which is an inevitable occurrence, even with modern construction materials and practices.

C. Reserve Capacity

Reserve capacity is usually defined as that capacity of a treatment plant or sewer line that serves future growth. In other words, treatment facilities are usually sized to serve the existing population plus the expected increase in population over the design life of the project. The capacity included to serve this increase in population is called "reserve" capacity.

In determining how much reserve capacity is to be built into a treatment plant or interceptors, the selection of a planning period is very important. Generally, the longer the period, the greater the amount of reserve capacity designed into the system. EPA requires that the planning period be 20 years for the cost-effectiveness analysis of waste treatment facilities. However, it should be noted that the service life of a treatment plant is normally in the range of 20 years while that of an interceptor is 30 to 50 years. (see Cost-Effective Guidelines 40 CFR-Part 35).

The proposed treatment plant for the District has been sized to serve the growth of the Initial Service Area (see Figure 1). The interceptors have been sized to serve the ultimate (50 year) growth of the entire sewer Service District. Table 2 shows the existing population for each area and the design population for each component of the proposed project.

TABLE 2 EXISTING AND DESIGN POPULATION FOR THE PROPOSED PROJECT

Plan Component	Existing Pop.	Design Pop.	Excess in Flow Capacity ¹
Treatment Plant	1650 ₂	4,800	0.315 MGD
Interceptor	3000 ₃	20,000	1.7 MGD

1. Difference between existing population and design population multiplied by 100 gpcd.
2. Population of Initial Service District.
3. Population of entire Service District.

The table indicates the extent to which the capacity is designed for future flow requirements beyond existing service needs. The system capacity is primarily designed to serve future growth and, in reality, its ultimate effect is to permit and accommodate such growth. However, in terms of cost, the cost of excess capacity is a small percentage of the total project cost. For example, the additional cost of a 27" line would be 24 percent more than the cost of 21" line, but a 27" line would provide for an increase in capacity of 60 percent.

CHAPTER TWO

ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT

Introduction

In describing the impact of the Redwood treatment facilities EPA has divided its evaluation into three components: a description of existing environmental quality, an evaluation of primary impacts, and a discussion of secondary impacts. These are explained more fully within each section.

The discussion in this chapter will center on the environmental impacts of the proposed project, and Chapter 6 will contain the discussion of alternatives. However, to facilitate comparisons between the proposed project and the alternatives, the text will contain footnotes describing the relative environmental impact of an alternative and the proposed project in terms of a specific environmental parameter. Not all environmental impacts will be compared, but every area where there is a major difference in relative impact between the proposed project and an alternative will be discussed in a footnote.^{1/}

The analysis of environmental impacts utilizes the Environmental Evaluation System (EES) which was developed by Battelle-Columbus with the aid of two field tests designed to make the system reflect the responses of the real environment. The EES provides for environmental impact evaluations in 4 major categories: ecology, physical/chemical, aesthetics, and social. These categories are further broken down into 19 components and 64 parameters. See Exhibit 2 in the Appendix for a full explanation of the method.

The system is designed to produce environmental impact values in numerical units, with the larger positive numbers indicating the least adverse impacts. The important consideration in comparing the impact values for each alternative is to consider the relative differences between the existing value and the values produced by each alternative. The larger the negative value, the greater the adverse impact of the alternative. A positive value would indicate a beneficial effect.

Another important feature is the "red flags" that are produced. These indicate that there are specific areas that are adversely impacted and should be considered carefully.

^{1/} Alternative "A" involves a two-phase project with a treatment plant located at an interim site (intersection of Darnielle Lane and South River Road) that initially serves only the eastern half of the Service District.
Alternative "B" is a "do-nothing" proposal that would maintain the status quo.

The EES, as used in this impact statement, is intended to be a tool, not the decision-maker. It has been used to systematically explore the effects of each possibility from an environmental standpoint and point up problem areas that should be considered in the overall evaluation.

Current Environmental Quality Conditions to be Affected by the Project^{2/}

A. Water Quality

The water quality of the Rogue River, in the vicinity of the Service District is generally good. Violations of water quality standards, when they do occur, are naturally caused, usually by temperature and flow changes.

There has been some evidence of the discharge of inadequately treated sewage from failing subsurface disposal systems in the Service District. To date, this has had no observable effect on the river, but continued development on septic tanks and drainfields with subsequent failures in the Initial Service Area could adversely affect Rogue River water quality.

B. Environmental Standards

Water quality and control standards in the State of Oregon have been established by the Department of Environmental Quality. The general water quality standards that apply to all waters of the state, the special water quality standards adopted for all waters within the Rogue River Basin, and the waste discharge permit requirements are summarized in Exhibit 4 in the Appendix.^{3/} The proposed project is designed to meet these water quality standards by providing "secondary treatment", which removes not less than 85% of all pollutants from the wastewater flow before discharging it into the river. The effluent will also meet the basin requirements of 20 mg/l of suspended solids.

^{2/} For a fuller description of existing environmental conditions see Exhibit 3 in the Appendix.

^{3/} The most important standards are as follows:

No wastes shall be discharged which will cause in the waters of the Rogue River Basin:

1. Average concentrations of fecal coliform to exceed 1000 per 100 milliliters, except during periods of high surface runoff.
2. Dissolved oxygen concentrations to be less than 90 percent of saturation in spawning areas during spawning, incubation, hatching, and fry stages of salmonid fishes.
3. pH values to fall outside the range of 7.0 to 8.5.
4. Any measurable increases in natural stream turbidities when natural turbidities are less than 30 JTU, or more than a 10 percent cumulative increase in natural stream turbidities when stream turbidities are more than 30 JTU.

Standards and rules for subsurface sewage disposal adopted pursuant to the provisions of Chapter 835, Oregon Laws 1973 prescribe the requirements for the construction, operation and maintenance of subsurface sewage disposal systems and nonwater-carried waste disposal facilities and establish procedures for regulation of such activities. They are for the purpose of restoring and maintaining the quality of the public waters and of protecting the public health and general welfare of the people. A copy of the new rules may be obtained from DEQ.

In essence, they require written approval or a permit specifically authorizing subsurface sewage disposal on the individual lot or land parcel. The approval must be granted by an authorized agent of the county or state and be in conformity with whatever rules were in effect when it was issued. Since January, 1974, responsibility for the statewide septic tank permit system has belonged to the Department of Environmental Quality.

C. Fish and Wildlife

The Rogue River supports an excellent fishery resource which includes steelhead, sea-run cutthroat, chinook and coho salmon, trout, and several species of warm water game fish. Summer steelhead utilize Sand and Allen Creeks within the District for spawning, and the main stem Rogue in the area is used by winter steelhead, fall chinook and coho salmon for spawning. There is no evidence that the fishery resource has been affected by septic tank and drainfield discharges, but the steelhead usage of Sand and Allen Creeks has declined due to urbanization in the area. (see telephone memo, Exhibit 5 in the Appendix).

The District and ultimate drainage area contain a wide range of wildlife including the ring-tailed cat which is on Oregon's list of rare and endangered mammals.

The American Osprey utilizes the shoreline of the Rogue adjacent to the District as a feeding and resting area. The Osprey is on Oregon's list of rare and endangered birds.

D. Soils

The predominant soil group within the District is Barron course sandy loam which is primarily used for irrigated hay and pasture land. The soil is not well suited to community development since it is easily saturated and when combined with a shallow groundwater table as in the District, precludes successful operation of septic tanks and drainfields.

E. Land Use Patterns

On April 27, 1971 the Josephine County Planning Commission adopted the Comprehensive Plan for Josephine County 1970-1990, and in 1973 zoning regulations were adopted. The Comprehensive Plan Map designated most of the Service District as Farm Residential, which is described as follows:

"Farm Residential areas (5 to 10 acres per dwelling unit) are intended to encourage rural residential living in an agricultural or open environmental through large lot size development that will minimize conflict between residential and farm use and establish densities consistent with soil suitability and physical characteristics. Availability of community water and sewer services is very unlikely in these areas." (Page 8 of Comprehensive Plan)

The next largest classification was Rural Residential which is described as follows:

"Rural Residential areas (2½ to 5 acre lots) are also intended to encourage low density development in agricultural or open areas. The smaller lot size reflects existing development patterns and soil which is classified as fair in septic tank suitability. Community services are not likely within the current planning period." (Page 8 of Comprehensive Plan)

The zoning regulations that were adopted in 1973 reflect the goals and guidance of the Comprehensive Plan by zoning the Service District in conformance with the Plan Map. The predominant zoning classification for the Service District permits development on minimum five acre tracts of land. However, the existing land use pattern is not entirely consistent with the adopted zoning regulations. For purposes of discussion, the Service District may be divided into two sectors; an eastern portion (that area east of Darnielle Lane) that is fairly well developed and experiencing severe problems with disposal systems, and a western portion (west of Darnielle Lane) that is less densely developed with large lots and fewer sewage disposal problems. The eastern portion of the District is developed to a much greater density. This development occurred before the adoption of zoning regulations in 1973. Within the eastern portion of the District the five acre minimum lot size serves the purpose of limiting septic tank development rather than the preservation of rural areas.

Within the western portion of the District, development has occurred on a scale consistent with present zoning regulation. In this sector, the minimum lot size serves two purposes; it preserves the rural character of the area and it permits development on septic tanks only where enough land is available to allow proper operation of a drainfield.

Most of the development in the District is residential, with some commercial areas in the eastern sector.

F. Population and Growth Trends

The population of the Redwood Service District (3,480 acres) is presently about 3,000. The county has projected an ultimate population for the District of 20,000 to 23,000 people.^{4/} The District is expected to grow due to its proximity to Grants Pass, the continued influx of retired persons, and the area's residential attractiveness.

^{4/} EPA will require another population projection. (See Preface)

G. Economic Conditions

The primary industry in Josephine County is wood products manufacturing. Tourism and agriculture follow the timber industry in importance. Because of its dependence on the volatile timber industry, the county economy is generally unstable and subject to the fluctuations of the wood products market. Presently, unemployment is around 20 percent.

The county has been making efforts to diversify and there has been some success, particularly in the tourist industry.

There are no industries in the District, and it is probable that most District workers, are employed outside of the District.

Primary Environmental Impacts of the Proposed Project

Primary environmental impacts refer to those impacts that can be attributed directly to a project. In the case of the proposed Redwood Treatment Facilities, these impacts relate to construction activities and the direct impacts, beneficial and adverse, of continued operation of the facilities.

The importance of considering primary environmental impacts is obvious; they are the first to occur, and generally, are the most noticeable (as opposed to secondary impacts which occur over a long period of time with effects much more difficult to relate to the construction of a particular project).

The primary environmental impacts of the proposed project will be discussed under the four environmental categories utilized throughout this report (Ecology, Physical/Chemical, Aesthetics, and Social), with particular note taken of the parameters "red-flagged" during our investigations.

Table 3 is a summary of the environmental impacts associated with the proposed project, and it lists the environmental components that are "red-flagged" because of a significant impact upon them. A "minor" red-flag is different from a "major" red-flag only in degree. That is, a minor red-flag signifies a small change in environmental quality (negative) while a major red-flag indicates a large environmental change in the particular parameter.^{5/}

^{5/} The Battelle report Planning Methodology for Water Quality Management is available for review at EPA's Oregon Operations Office. The report explains the EES in detail. EPA's evaluation worksheets are also available for review. Exhibit 2 contains an abbreviated explanation of the EES.

TABLE 3 ENVIRONMENTAL ASSESSMENT OF THE PROPOSED PROJECT

Category	Environmental Assessment in		Assessment Difference	Number of Red-Flags 1.			
	Environmental Impact Units			Primary Impacts		Secondary Impacts	
	With	Without		Minor	Major	Minor	Major
ECOLOGY							
Terrestrial Species	1.69	4.2	-2.51	-0-	-0-	1	5
Aquatic Species	4.20	4.59	-0.39	-0-	-0-	1	-0-
Terrestrial Habitats	1.28	3.23	-1.95	-0-	-0-	3	-0-
Aquatic Habitats	3.0	3.0	-0-	-0-	-0-	-0-	-0-
PHYSICAL/CHEMICAL							
Biochemical Water Quality	4.62*	4.62	-0-	-0-	-0-	-0-	-0-
Chemical Water Quality	6.0 *	6.0	-0-	-0-	-0-	-0-	-0-
Physical Water Environment	4.62	4.62	-0-	1	-0-	-0-	-0-
Air Quality	3.52	3.52	-0-	-0-	-0-	-0-	-0-
Land Use	3.06	6.95	-3.89	-0-	-0-	2	3
Noise Pollution	1.0	1.75	-0.75	4	-0-	-0-	-0-
SUB-TOTAL	32.99	42.48	-9.49	5	0	7	8
AESTHETICS							
Land	2.43*	2.96	-0.53	1	-0-	1	-0-
Air	1.77*	2.31	-0.54	-0-	-0-	1	1
Water	1.98	1.98	-0-	-0-	-0-	-0-	-0-
Biota	1.20	3.37	-2.17	-0-	-0-	1	2
Man-Made Structures	2.92	3.28	-0.36	1	-0-	-0-	-0-
Composition	0.07	0.56	-0.49	-0-	-0-	1	1
SOCIAL							
Environmental Interests	3.95*	3.95	-0-	-0-	-0-	-0-	-0-
Health and Safety	4.5 *	6.0	-1.50	1	-0-	-0-	-0-
Community Well-Being	3.19	4.59	-1.40	-0-	4	-0-	-0-
SUB-TOTAL	22.01	29.0	-6.99	3	4	4	4
TOTAL	55.0	71.48	-16.48	8	4	10	12

* These numbers reflect the total environmental impact on each component, but they do not depict positive environmental effects on a parameter basis. The proposed project (as well as Alternative "A") does have positive effects on water quality, the aesthetic quality of the land and air, and on community health. These positive numbers do not show up because the net effect of all parameters of a component may be negative or zero. The positive effects do exist, but are not depicted because of the limitations of the table.

The table includes secondary as well as primary environmental impacts expected to result from the proposed project. Primary environmental impacts are discussed below.^{6/}

A. Impacts on the Ecology

This section discusses the impact of the proposed project on Ecology which is composed of two basic structural components: (1) the living organisms and (2) the nonliving environment in which these organisms live. Table 3 utilizes four components to assess ecological quality: they are Terrestrial Species and Populations, Terrestrial Habitats and Communities, Aquatic Species and Populations, and Aquatic Habitats and Communities.

As Table 3 indicates none of the red-flags under the Ecology category are associated with primary environmental impacts. The construction activities and operation of the proposed project will not adversely affect, to any significant degree, the environmental quality of the Redwood Service District ecology. However, some mention should be made of the temporary effects associated with the construction of the proposed project. These effects are not of such a level so as to be red-flagged, but they will result in some temporary impacts and should be explained.

Construction activities will affect a small amount of vegetation within the Service District. Most of the sewers and interceptors will be constructed in roadway right-of-ways, so there will be little, if any, effect on vegetation along these routes. A substantial portion of the Redwood Interceptor will not be constructed within roadway right-of-ways, but will traverse private property from the terminus of Mesman Drive to the treatment plant (distance approximately 15,000 feet). This portion of the interceptor will disturb and destroy some vegetation, but since the land is largely in pasture, the effect will be minimal. The interceptor route (that portion that destroys the natural ground cover) will be reseeded, replanted and landscaped.^{7/}

Construction of the sewage treatment plant will not directly result in any significant effect on the ecology. A small amount of vegetation, possibly some trees, will be destroyed but the effect is minimal.

Activities associated with construction (moving equipment, materials and people) may have a temporary effect on wildlife within the District. Noise, heavy equipment movement, etc. may frighten wildlife into avoiding certain areas of the District. However, this would only be a temporary effect.

6/ It should be noted that most of the discussion of the proposed project and comparisons to Alternative "A" will center on the differences in each alternative's adverse environmental impact. This occurs because both plans have similar beneficial effects, in that each remedies serious health hazards in the eastern half of the Service District and permits residential development of the eastern sector pursuant to the Comprehensive Plan.

7/ Under Alternative "A" (Phase One), roughly 7,000-8,000 feet of the Redwood Interceptor would be laid outside of roadway right-of-ways. Under Alternative "B" no interceptors would be constructed.

Operation of the proposed facilities will have no primary effect upon the ecology of the District or the surrounding environment. The discharge from the proposed facility will not significantly affect aquatic species or their habitats.

B. Impacts on Physical/Chemical

The Physical/Chemical impacts include effects on water quality, air quality, land use, and noise levels, which are traditionally the only classes of impacts considered in evaluating the environmental consequences of water quality projects. This was the case because the main purpose of such projects is to improve the physical/chemical quality of the natural physical environment. However, the mandate of the National Environmental Policy Act of 1969 requires a much broader consideration of potential environmental impacts, one of which is physical/chemical.

A number of parameters under this heading will be affected during construction of the proposed facilities. The general noise level of the District will be increased during construction when the heavy machinery is operated. Once the project is completed, noise levels will return to their pre-construction levels. This parameter has been red-flagged, as it is expected that the frequency and intensity of disturbing noise will be increased temporarily in the Service District.^{8/}

Also red-flagged under the Physical/Chemical category was the "physical water environment" component. The minor red-flag indicated a small negative change in the turbidity level of the Rogue River. During construction a great deal of excavation will take place, and this may, during a rainfall, contribute to soil erosion and a subsequent turbidity increase in the Rogue River. The effect of this turbidity will be minimal since other water quality parameters will remain unaffected and fish and other aquatic life will be unharmed. After construction, when all trenches are refilled and ground cover replaced, erosion and subsequent turbidity levels will return to normal.

Most construction will probably take place during the dry season so dust may be a problem. This can become a nuisance to local homeowners unless control measures are undertaken. As with many other construction impacts, dust problems will be of a temporary duration, and will be controlled by preventative measures required by contract specifications.

^{8/} Alternative "A" will initially affect the noise level of only the eastern half of the Service District. If the need for sewerage service increases in the western half of the Service District and sewers are constructed there, noise level increases will occur where there is sewer construction.
Alternative "B" will have no effect on noise levels.

Effluent discharge to the Rogue River will not significantly affect water quality parameters, such as dissolved oxygen, fecal coliform, pH, inorganic phosphate, and inorganic nitrogen. The effluent concentration of the discharge will not exceed 20 mg/l of BOD or suspended solids, and the effluent will be disinfected to meet the water quality standards for this section of the Rogue River and the requirements of the draft Rogue Basin Plan. The discharge will not adversely affect the Rogue River Wild and Scenic River Recreation Area located immediately west of the Service District.

The operation of the treatment plant and sewerage of the Initial Service Area will alleviate a serious health hazard in that portion of the Service District. Presently, partially treated sewage surfaces at the Redwood School and Dun Rovin Trailer Park and constitutes a health hazard to the children at the school and to the residents of the trailer park. These, as well as other malfunctioning disposal systems within the Initial Service Area, will be eliminated by the proposed project to the substantial benefit of the citizens of the area.

By eliminating the malfunctioning septic tanks the proposed project will likely contribute to improved groundwater quality. The Health Department survey indicated that 24 percent of sampled domestic wells were contaminated. This was most likely due to the location of shallow wells in the area of a high groundwater table and malfunctioning septic tanks and drainfields which combined to contaminate the supplies of some wells.

C. Impacts on Aesthetics

The use of aesthetics criteria in comparing different project actions has become necessary as society has become increasingly conscious of the value of the natural environment and of the degree to which people's activities may destroy the unique and beautiful things in nature.

For the purposes of this report overall aesthetic composition has been considered as an aggregation of five elements: land, water, air, biota, and man-made structures.

As shown in Table 3 two of the Aesthetic components have been red-flagged under primary impacts, "Land" and "Man-Made Structures".

The surface configuration of a small portion of the Service District, regardless of treatment plant location, will undergo some change as a direct result of the construction of the sewage treatment plant and interceptors. Along the Redwood Interceptor route, a few trees will be cut and some surface vegetation destroyed. The trenches that are excavated for the interceptor will be filled and the surface reseeded or replanted in an effort to restore it to its preconstruction condition. The excavation necessary for treatment plant construction also is temporary, since the area will be regraded in an attempt to return it to a near-natural state.

The other red-flagged component was "Man-Made Structures", which evaluates the aesthetic effect of new project structures. The treatment plant represents a change in the plant site where no man-made structure presently exists (a farm house is nearby). The aesthetic effect of this structure can be minimized by the use of landscaping techniques, but the immediate area will never be the same.

The operation of the proposed facility will have one other effect on the aesthetics of the Service District which has not been red-flagged because of its intermittent nature, but should be mentioned. At one time or another, most treatment plants cause odors. Generally, with proper care and careful monitoring there will be no odor problem. However, treatment plants are rarely perfect so it must be assumed that once in a while an odor problem will occur. The nearest existing group of residences is a mobile home court located approximately 100 feet west of the plant site. The next closest residence is 450 feet away. These people, at the times of odor, may be subject to some nuisance if an east wind blows.^{9/}

Operation of the treatment facility will improve the aesthetic quality of the eastern sector where sewerage service will eliminate the surfacing and ponding of partially treated sewage. This improves the visual and olfactory quality of the area.

Sludge, a frequent source of odors when handled improperly, will be disposed of by land application upon agricultural lands after drying.

D. Social and Economic Impacts

Basically, social and economic aspects describe the effect of a project upon people. Since the purpose of a water quality management project is to improve certain environmental areas for the benefit of people, it is appropriate to examine the adverse impacts as well.

The only primary impact that construction activities will have upon social aspects of the community is the disruption of local traffic that will occur during the excavation for the interceptor in roadway right-of-ways. The disruption will be confined to locales experiencing construction, and it will be temporary with no lasting effects on the community.

The two components that were "red-flagged" under social aspects, are "Health and Safety" and "Community Well-Being" and both relate to the planning of the proposed.

^{9/} Alternative "A" would have a more significant primary impact on aesthetics because it would be located in an area proximate to residential dwellings.

The minor red-flag that appears under "Health and Safety" results from a determination of the treatment plant's level of compatibility with the surrounding environment. The area surrounding the proposed plant site (EPA looked at an area of one-half mile radius with the site at the center) is generally rural-residential in character, which is a type of area fairly well suited to treatment plant location. However, immediately west of the proposed plant site is a mobile home park. It is probable that the residents of the park would be affected by odors the plant may produce and, possibly, by the actual aesthetic or psychological impact of living adjacent to a sewage treatment plant.

Major red-flags appear under "Community Well-Being" and they reflect adverse impacts from the planning process; lack of community involvement and the reserve capacity to be provided in the treatment system.

Ideally, community participation would occur at the very beginning of the planning process and citizens would be given the opportunity to offer input at various stages, e.g., defining the scope of the problem, alternative solutions, and selection of the best alternative. In the case of the Redwood Service District the main instance of meaningful citizen input was the bond election and the remonstrance hearing on March 12, 1974. This permitted the Service District residents to accept or reject one project (twice), and did not allow a choice of alternatives. On behalf of the Josephine County Commissioners it may be said that much of the planning of the Redwood project occurred at a time when there was less interest or pressure for citizen participation (the planning of the project began as early as 1966 when CH₂ M prepared the first engineering study).

With respect to the population served, it is important that a project serve those who need to be served, and provide for those who will need service during the project's service life. The proposed Redwood project adequately serves the segment of the population that needs sewers (those with failing individual disposal systems), but it is sized to serve a great amount of future growth in undeveloped areas. The secondary impacts associated with such reserve capacity are significant, and they are discussed on p.11.

The proposed project (and Alternative "A") will also have beneficial effects on the social aspects of the District. Community health will be improved within the eastern sector where sewerage service will be provided, and the use of individual disposal eliminated.

Secondary Environmental Impacts of the Propose Project

Secondary environmental impacts are indirect or induced impacts that may result from the construction and operation of the proposed project. These impacts usually take the form of changed patterns of social and economic activities, such as changes in population densities and local land uses. When such changes are significant they can effect water quality and quantity, air quality, and the provision of public services. They may also cause conflicts with local, state, and Federal resource use objectives.

Again it should be noted that the discussion will focus on adverse impacts. EPA recognizes the substantial benefit the proposed project (and Alternative "A") provide by eliminating a public health hazard and permitting planned development according to the Comprehensive Plan of the eastern half of the Service District. These benefits fall within all of the environmental categories, but because both plans yield these positive effects environmental comparisons must revolve around relative adverse impacts.

Table 3 will again be used, with specific reference to environmental components that have been red-flagged by the EES. Again, it should be emphasized that the EES is a tool used to pinpoint environmental areas of concern and that it gives only a relative assessment of impacts.

A. Impacts on the Ecology

The secondary effects of the proposed project will have a significant impact on the ecology of the area, particularly with respect to those components red-flagged in Table 3.

The major impact on the ecology will be on terrestrial species within the Service District. As the Service District develops, small game, browsers, and grazers will be forced out or eliminated. Vegetation will undergo a significant change as pasture land and wooded areas are eliminated in favor of lawns, etc. As indicated by the red-flagging of terrestrial habitats, this will make the Service District unsuitable for most of the wildlife that is presently found there. Besides the loss of habitat area, the increased number of people and increased level of noise will scare off all but the most "human-tolerant" wildlife. This would result in a decrease in species diversity.

Most of this impact will be felt in the western half of the Service District which has a great deal of open space. The eastern half is more densely developed so it is likely that the effect will be slightly smaller there.

There may be some effect upon waterfowl in the area as human activity levels increase. As waterfront development and usage increases it is possible that some species, such as the American Osprey, will seek a more peaceful habitat further downstream.

B. Impact on Physical/Chemical

Under this category of environmental parameters only one component (land use) was red-flagged as experiencing significant secondary environmental impacts resulting from the proposed project. These impacts relate to population growth and changes in land use patterns.

For ease of discussion, the land use impacts will be described for their effect upon the Initial Service Area and the western half of the Service District.

Initial Service Area: The Initial Service Area (shown in Figure 1) is that portion of the entire Redwood Service District that the proposed project will initially serve.^{10/} With the exception of the "arm" that extends west of Darnielle Lane to the proposed treatment plant site, the Initial Service Area exhibits a largely suburban land use pattern (homes on less than 1 acre tracts). There are some large tracts of land but they tend to be the exception.

The Initial Service Area is zoned predominantly for 5-acre residential, with industrial and commercial zoning also existing.

When the proposed sewer facilities are installed, the Board of County Commissioners has indicated that it will rezone a large part of the Initial Service Area to permit densities from 3 to 6 units per acre (see Exhibit 6 in the Appendix). This area lies east of Willow and Shroeder Lanes and south of the Redwood Highway.

Such an action would be responsive to the growth pressures that would probably develop upon completion of sewer construction.^{11/} The provision of sewer service may cause additional growth pressure in the sewered area since it is common for development to "take advantage" of this public service. This would be particularly likely in the Redwood area where growth is restricted by minimum lot size requirements for septic tank development.

^{10/} Alternative "A" (Phase One) would only serve that portion of the Initial Service Area that is east of Darnielle Lane. The area that Alternative "A" would serve has been designated as the Alternative Service Area in Figure 2 (on page 5). It includes a portion of land (between Darnielle Lane and Willow and Shroeder Lanes) that is not designated by the Comprehensive Plan to be urbanized. Because of the need for sewer service in this area and the need to provide service to Rogue Community College the Darnielle Interceptor will be constructed and sized in conformance with existing zoning densities and projected growth.

^{11/} The Board of Commissioners has indicated that the Comprehensive Plan recommends that within eastern portion of the Service District a) "until sewers are available, the future development should progress in recognition of the poor soil conditions for proper septic tanks installation, i.e., large-lot zoning should be used; b) once sewers become available the Plan recommends that the maximum allowable density of development be increased to allow 3-6 dwelling units per acre." (see Exhibit 6 in Appendix)

Growth within the Initial Service Area will not constitute a significant environmental impact on land use for several reasons: one, the area (east of Darnielle Lane) has already experienced considerable small-lot residential development, two, the Board of Commissioners and the Comprehensive Plan indicate a desire for planned growth in most of this area upon installation of sewers, and three, when sewers are installed the county will adopt zoning regulations to direct and control growth in the area. 12/13/

Western Half of Service District: The western half of the Service District is that area west of Darnielle Lane including the "arm" of the Initial Service Area. (see no. 12) Existing land use patterns in this area reflect rural residential living in an agricultural and open environment. Lands in this area have been classified predominantly as Farm Residential and zoned to allow development on minimum 5-acre tracts. A few Rural Residential areas have also been classified and zoned to allow development on minimum 2.5 acre tracts. This is an area of small farms, producing beef, lamb, poultry, hay, fruits, vegetables, and other agricultural products.

Ultimately, the proposed project would probably result in full development of the Service District: approximately 3 units per acre with an ultimate population from 20,000 to 23,000 people. 14/

12/ This discussion excludes the "arm" of the Initial Service Area which lies west of Darnielle Lane because it contains almost entirely large-lot development (at least 5-acre tracts), and is not included in the Comprehensive Plan's recommendations for urbanization of the eastern half of the entire Service District. The environmental impact on the "arm" will be discussed below under impacts on the western half of the Service District. The area of land between Darnielle Lane and Willow and Schroeder Lanes is not designated for urbanization by the Comprehensive Plan.

13/ Alternative "A" which initially serves only the eastern half of the Service District, would have no significant environmental impact on land use in the Alternative Service Area (that area east of Darnielle Lane as shown on Figure 1), for the same reasons listed for the proposed project.

Alternative "B" would have an effect on land use in the eastern sector since minimum lot size restrictions would have to be maintained contrary to Comprehensive Plan recommendations.

14/ This is the projection made by CH₂M and supported by the Patterson, Langford, and Stewart estimates (see Exhibit 1 in Appendix). The timing of this growth is open to question, but the county has relied on its engineer's estimates which project Service District saturation by 2025 and within the service life of the sewerage system. As noted earlier EPA will require an updated population projection. (see Preface)

The availability of sewers, particularly the Redwood Interceptor, could provide an incentive for residential development within the western half of the Service District before the eastern sector is fully developed. It is likely that property values will increase as sewers become available offering landowners increased incentive to attempt to subdivide and develop their rural property for residential use. 15/ Whether this occurs is dependent on individual landowner preference. Should the county begin to levy sewer assessments in the western half of the Service District it is possible that individual landowners would be financially forced to sell or attempt subdivision of their property to pay the assessment. 16/

Residential development within the western sector will represent a significant change in land use. Existing land use patterns establish a rural character for the area which is the use and character that the Comprehensive Plan designates for the western portion of the Service District. The zoning of the area implements the goals of the Plan by designating most of the sector for 5-acre minimum lot sizes.

Although the rate and type of development that occurs will be largely determined by individual landowner preference and county land use policies, the construction of sewers can play a substantial part in inducing residential growth. The proposed project provides for residential development of the entire Service District which would be inconsistent with existing land use, zoning, and planning goals for the western sector. 17/ The population inducement pressure of the sewer will also depend on its financial impact on land-owners, particularly if the county begins to levy assessments (when people begin connecting to the sewer) that were deferred by way of a county loan. (see n. 16)

15/ Property taxes for individual land-owners may or may not increase depending on the owner's use of the land. Pursuant to ORS 215.203 and 308.370(2) a piece of land may be taxed at its farm use value even though surrounding land uses are residential, commercial, or industrial, if the land is farmed for a profit. Thus, within the Service District, land-owners who qualify and apply for this special assessment would be unaffected by an increase in property value for residential use. Non-qualifying, large-lot landowners may face property tax increases that provide a substantial incentive for sale or subdivision of the property.

16/ The county has indicated that it will make a loan to the Service District to defer assessment payments by property-owners within the "arm" of the Initial Service Area. Loans will be repaid only when people connect to the sewer. Extensions of sewers and connection thereto are governed by county regulations. (see Exhibit 7)

17/ Alternative "A" would not provide for growth within the western sector of the Service District until growth pressure dictated the need for sewer extension and the county amended the Comprehensive Plan. No financial impact would be expected on western sector residents, and, hence, no growth pressure in that area would be expected to result from construction of Alternative "A" (Phase One). (Cont. P. 27)

C. Impact on Aesthetics

Secondary impacts associated with the proposed project will also affect the aesthetic character of the Redwood Service District. Red-flags in Table 3 appear under the Land, Air, Biota, and Composition components.

The increased development permitted by the proposed project will have an effect upon the appearance of the land. It is expected, with the larger numbers of people, that the amount of roadside litter and other trash will increase slightly to the detriment of the aesthetic quality of the area. A diligent clean-up program, public or private, could minimize the adverse environmental impact of litter and trash.

The aesthetic air quality (odor, visual, and sound) will be impacted by the increased development of the Service District. The pleasant smells associated with rural areas (such as freshly cut hay) will be replaced by the more neutral smells of residential areas. Likewise, the types of sounds associated with rural areas (wind in the trees and grassy fields, birds, etc.) will be replaced by automobile noises and other sounds associated with residential development.

The Biota component was also red-flagged because of the expected loss of native vegetation and wildlife. As mentioned earlier it is anticipated that the number of animals and animal species will decrease within the Service District as it develops. Likewise, native vegetation will be replaced by suburban-type ground-cover.

The composition component is a general "aesthetic quality" indicator in that it measures the aesthetic quality of an area by looking at all aesthetic parameters together. EPA has assumed that an area with open space, pasture land, and a range of wildlife is more aesthetically pleasing than a residential area (others may differ with that assumption). Thus, the proposed project, and its consequent secondary impacts, lowers the general aesthetic value of the western sector of the Service District, but does not have as great an effect on the eastern sector because it currently contains a large amount of residential development.

D. Energy Commission

Table 4 below summarizes the effects of developing the Redwood Service District on energy consumption. Energy consumption levels have been estimated on an annual basis.

It is estimated that the annual consumption of energy in the Service District will increase from approximately 400 billion BTU's in 1974 to 1000 billion BTU's in 1995 to 3100 billion BTU's per year in 2025.

- 17/ Alternative "B" would only allow limited growth in the entire Service District. Homebuilders would have to meet minimum lot size requirements, and it is unlikely that existing zoning would change. Sewer extension, connection thereto, and rezoning all will occur pursuant to existing county procedures. These procedures may mitigate some of the adverse land use impacts of the proposed project. (see Exhibit 7)

TABLE 4

ANNUAL CONSUMPTION OF ENERGY IN THE REDWOOD SERVICE DISTRICT

	1974	1995	2025
Usage	Billion BTU's	Billion BTU's	Billion BTU's
Home	235.5	610	1844
Auto	170.5	442	1335
Total Billion BTU's per year	406.0	1,052	3179

The numbers on energy consumption that appear in Table 4 are based on an increasing population occurring in an area of a low density residential development pattern. The same population occurring in an area of planned development utilizing high density multiple family units or cluster type development would not consume so much energy. Differences in energy consumption between patterns are accounted for by differences in automobile miles driven (lower in high density development) and lower energy use in multiple family units.^{18/}

^{18/} Alternative "A" will result in lower energy consumption through the first 20 years of its service life (Phase One) because it anticipates a higher density development pattern within the eastern sector. If both phases were constructed with the same densities as the proposed project resulting, energy consumption would be approximately 3100 BTU's, the same as for the proposed project.

CHAPTER THREE

ADVERSE IMPACTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED^{19/}

The normal construction-related impacts of increased noise levels, dust, interruption of some street traffic, and disruption of existing plant, animal, and soil communities are adverse and generally unavoidable. They are temporary adverse impacts, however, and can be mitigated by contract specifications considering all local, state, and federal requirements.

The aesthetic quality of the area, itself, will be disrupted for a short duration during construction and then during rehabilitation of the disturbed landscape. Excavating, filling, and regrading in the vicinity of the pipeline corridors will aesthetically impact the area. These adverse visual impacts, however, will be brief, as the areas required for rights-of-way will be restored to as near their original state as possible after construction is completed.

Excavations exposing earth will result in some soil erosion and some siltation entering the Rogue River, but strict adherence to contract specifications regarding erosion and sedimentation control will minimize these effects of construction on water quality. Four stream crossings--Sparrow Hawk Creek, Sand Creek, Darnielle Creek, and Wineteer Creek--will necessitate diversion of normal stream flows. Provisions have been made in the contract documents for bypassing these natural flows without reduction, so the life cycle of aquatic organisms should not be significantly affected.

Ideally, a sewage treatment plant should be located away from residential areas, or, if it is located in the proximity of residential areas, it should be carefully screened by trees and plants, and the site should be landscaped to be consistent with the existing surface configuration. The proposed plant will be located next to a mobile home court so it may have a small adverse aesthetic impact, but if it is carefully screened and landscaped the effect could be minimized.

Several irrigation crossings will also be required. If construction schedules cannot be undertaken during the nonirrigation season, then construction will be conducted in a manner acceptable to the owner of the irrigation system, in order to avoid unauthorized interruption of irrigation service in the area.

^{19/} These impacts do not differ for Alternative "A" except the "A" may have a greater primary impact on aesthetics because the treatment plant is located in a more developed area.

The secondary impacts, discussed previously, cannot be avoided altogether. The proposed project will have a long-term environmental impact upon land resources in the Service District, since it will induce or permit population growth and is, in fact, designed to accommodate suburban development of a farm-rural residential area and to intensify development of currently developed areas. This accelerated growth and development could lead to unavoidable impacts normally associated with suburbanization--increased noise and congestion, greater air and water pollution, and ecosystem and habitat destruction and disruption.^{20/}

^{20/} Alternative "A" will avoid some of the impacts because the growth it will permit will be consistent with and directed by the Comprehensive Plan; that is, concentrated in the eastern sector until growth pressures and the Comprehensive Plan dictate otherwise. Alternative "B" will not have these impacts because no such growth would occur. However, Alternative "B" would not provide a solution to the failing septic tanks and drainfields that are creating a health hazard in the Service District. It should be noted that certain county zoning procedures may mitigate some of the adverse effects of the proposed project. (see n.17).

CHAPTER FOUR

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE
MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The long-term impacts created by the proposed project will be both beneficial and adverse in nature, enhancing or reducing certain elements of the area's environment for future generations. Water quality within the Service District, for example, will improve as a result of the proposed action:

1. Quality of the surface and groundwaters will be enhanced due to the elimination of pollution sources, primarily failing septic tanks.
2. Health hazards posed by malfunctioning septic tank/drainfield systems in the Initial Service Area will be alleviated.
3. The quality of the Rogue River will be enhanced due to the discharge of a high quality effluent from the treatment plant, and elimination of partially treated waste discharges.
4. The quality of water supplies from wells will be improved.

On the other hand, the availability of sewerage facilities will stimulate population growth and suburban development leading to increased waste loads from storm water runoff, which may, to some extent, offset the improvements in water quality in the Rogue River.

The provision of an adequate wastewater collection and treatment system will exert an influence on land use development in the future, which will probably reduce the range of uses associated with the land resources of the Redwood Service District. The project will provide needed sewer service in the eastern sector, and will allow "planned-for" expansion in that area. To many people it may be beneficial to construct houses over the entire Service District, but premature development limits the future options for land use.^{21/} The character of the area will change from rural to urban as intensive land uses replace existing land uses. The small family farms will be replaced by single family homes. Existing agricultural, open and vacant, and forested areas will be lost due to the utilization of these lands for urban purposes. The production of agricultural products (mostly for home use) will also decrease. Thus, the long-term quality of the environment and the potential productivity of much of the Service District would be diminished by the resultant growth and development, should it occur prematurely in the western sector.

^{21/} Clearly, where there are no people to move into an area, the land will remain undeveloped, but Josephine County is going to grow. There will be a strong incentive, even necessity, to go where sewers have been constructed, as will occur in the Redwood Service District.

CHAPTER FIVE

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Certain irreversible resource commitments--such as permanently committing land, construction materials, and biological, human, economic and aesthetic resources--will be involved in the construction and operation of the proposed sewerage facilities for the Redwood Service District.

The major resource commitments will be construction materials and land. The required concrete pipe, steels, lumber, clay and asbestos compounds and other materials for construction of the structures will be irretrievably committed to the proposed use. The time and energy required to construct the facility and operate it are also irreversible commitments. In their entirety, the construction and use of the sewerage facilities are irreversible due to the large commitment of renewable and nonrenewable resources involved, which makes removal or non-use of the physical facilities unlikely.

The land necessary for the treatment plant site will prevent any other significant uses for the life of the project. The destruction or disruption of soil and plant communities along the proposed pipeline corridors will not be entirely irreversible. After construction, the corridors will be restored and replanted with native vegetation or could even be utilized for agricultural purposes or open space.

The population growth and development associated with providing an adequate wastewater treatment and collection system must be considered irreversible. As the Redwood Service District becomes more developed, the farmlands, open spaces, and forested areas will be irreversibly lost. There will also be an irreversible loss of rural aesthetics connected with this urbanization process. The present rural character of the area will be altered as a consequence of suburban development. 22/

The proposed project will also commit future generations to an irreversible approach to water quality management in the sewerage area.

22/ Alternative "A" (Phase One) would not have an effect on the land use pattern and character of the western half of the Service District. Suburban-type growth would be limited to the eastern sector as specified in the Comprehensive Plan, until development pressures, if any, required extension of sewers to the western sector.

CHAPTER SIX

ALTERNATIVES TO THE PROPOSED PROJECT

Four alternatives were identified by the engineering consultants and summarized in the applicant's environmental assessment statement. Due to further study and receipt of comments from various interested agencies, groups and individuals, the alternatives have been narrowed considerably. The two District alternatives under consideration in the environmental impact statement are listed below. Their distinguishing features and environmental and energy impacts are described.* Table 6 is a summary of the environmental impacts of the alternatives, including the proposed project.

Alternative "A"

An interim activated sludge plant (0.50 mgd) and sewage collection system to initially serve the eastern half of the Redwood Service District with effluent disposal to the Rogue River. A second phase of the project would be to abandon the interim plant and construct a treatment plant at the "proposed project" plant site at the west end of the Service District, when and if growth and the Comprehensive Plan dictated. (It is entirely possible that it would not have to be moved).

This alternative would initially serve approximately 1,550 people and 1,310 acres of land--that portion of the Redwood Service District, as shown in Figure 2, located north of the Redwood Highway, east of Darnielle and Hubbard Lanes, and a portion of the District south of the Redwood Highway which borders Allen Creek Road. This portion of the District is essentially the same as the Initial Service Area except for the "arm" to the west along the Rogue River which is excluded.

Alternative "A" proposes construction of those facilities needed: 1) to solve existing waste disposal problems; 2) to alleviate a public health hazard posed by malfunctioning on-lot septic systems in the area; 3) provide positive protection of water quality in the Rogue River; and 4) provide adequate excess capacity to accommodate growth pursuant to the Comprehensive Plan.

Alternative "A" consists of the following major features:

1. An interim activated sludge plant located near the intersection of Darnielle Lane and South River Road--approximately 1.7 miles east of the plant site for the proposed project.
2. The proposed sewage treatment plant would adequately serve a projected 1995 equivalent population of 4,800 persons. Nominal average flow capacity of the plant would be about 0.50 mgd.

* The EIS considers only the activated sludge method of sewage treatment. Other methods were evaluated by the District's engineer in the preliminary engineering report (CH2M, 1966). The selected method meets the requirements and goals of state water quality standards while being more cost-effective than extended aeration, and less demanding of land resources than lagoons.

3. The plant would provide a reduction of not less than 85% of BOD and Suspended Solids and produce an effluent which meets effluent requirements and water quality standards for the Rogue River.

4. Gravity interceptors, including the Redwood Interceptor 15,000 feet long (ranging in size from 12" to 21"); the Willow Interceptor 6,300 feet long, (10" to 12" in size); and the Darnielle Interceptor 9,600 feet long (12" in size). With a service life of 50 years (2025) these interceptors would be designed to serve 9,000 people and 1,310 acres.

5. When the growth potential of the eastern sector is near realization, and if the Comprehensive Plan has been changed to provide for urbanization of the western sector, a new expanded treatment plant could be constructed at the "proposed project" plant site subject to consideration of other feasible alternatives at the time. The Redwood Interceptor would be extended from the abandoned interim plant site to the new plant.

Table 5 below indicates the design criteria used for the treatment plant and interceptors, which are the same as those used for the proposed project.

TABLE 5
DESIGN CRITERIA FOR ALTERNATIVE "A"

<u>Facility Component</u>	<u>Design Population</u>	<u>Design Flow</u>	<u>Design Period</u>
Treatment Plant	4,800	0.50 MGD	20 years
Interceptors	9,000 ^{1/}	3.54	50 years

^{1/} Based on expected saturation (3 units per developable acre-3 people per unit) of the Alternative Service Area.

The interceptor configuration would remain the same as the one for the proposed project with the Willow and Darnielle trunks feeding to the Redwood Interceptor.^{23/} The basic difference is that the plant site has been moved east to an interim site and all lines will be sized only to accommodate growth in the Alternative Service Area. (1310 acres) (see Fig. 4).

^{23/} The Darnielle Interceptor, which serves an area that is not designated for urbanization by the Comprehensive Plan, would be sized to serve Rogue Community College and the growth that is projected to occur in conformance with the plan and existing zoning. The Darnielle Interceptor is necessary to eliminate use of failing septic tank/drainfields, and eliminate the package plant at the Community College.

TABLE 6
SUMMARY OF ENVIRONMENTAL IMPACTS OF THE MAJOR ALTERNATIVES,
INCLUDING THE PROPOSED PROJECT

Category - Component	Environmental Assessment in Environmental Impact Units	Proposed Project		Alt. "A"		Alt. "B"2.	
		TOTAL Number of Red Flags		Environmental Assessment In Environmental Impact Units1.		TOTAL Number of Red Flags	
		Minor	Major			Minor	Major
<u>ECOLOGY</u>							
Terrestrial Species	1.69	1	5	1.69 (3.71)		1	5 (2)
Aquatic Species	4.20	1		4.20		1	
Terrestrial Habitats	1.28	3		1.28 (2.64)		3 (1)	
Aquatic Habitats	3.0			3.0			
<u>PHYSICAL/CHEMICAL</u>							
Biochemical Water Quality	4.62			4.62			
Chemical Water Quality	6.0			6.0			
Physical Water Environment	4.62	1		4.62		1	
Air Quality	3.52			3.52			
Land Use	3.06	2	3	3.06 (5.35)		2 (1)	3 (2)
Noise Pollution	1.0	4		1.0 (1.36)		4 (2)	
1. SUBTOTAL	32.99	12	8	32.99(39.02)		12 (7)	8 (4)
<u>AESTHETICS</u>							
Land	2.43	2		2.43 (2.96)		2	
Air	1.77	1	1	1.77 (2.31)		1	1
Water	1.98			1.98 (4.8)			
Biota	1.20	1	2	1.20 (3.37)		1	2
Man-Made Structures	2.92	1		2.92 (3.28)		1	
Composition	.07	1	1	.07 (.56)		1	1
<u>SOCIAL</u>							
Environmental Interests	3.95			3.95			
Health and Safety	4.5	1		4.5 (6.0)		1	
Community Well-Being	3.19		4	3.19 (4.2)			4 (2)
2. SUBTOTAL	22.01	7	8	22.01(31.43)		7	8 (2)
TOTAL (1 and 2)	55.0	19	16	55.0 (70.45)		19 (7)	16 (6)

- Numbers in parentheses are the expected impact units if Alternative "A" does not expand into the western sector of the Service District. The lower environmental effects (as shown by higher numbers) reflect the lack of secondary impacts in the western sector. As is shown (by numbers not in parentheses), if Alternative "A" does expand, its total environmental effect is the same as the proposed project.
- There are no red-flags for Alternative "B" because it maintains the status quo, i.e., there is no environmental change. The eastern sector will continue to experience surfacing sewage and its associated adverse effects.

A cost analysis for Alternative "A" is outlined below. The analysis is based on a two-phase project and the need for a 0.50 million gallon per day sewage treatment interceptor facilities to serve the Phase-One needs (20 years). It should be noted that Phase Two abandonment and relocation of the treatment plant may never take place because all projected residential growth could be accommodated within the eastern sector.

<u>1. CAPITAL COSTS</u>	<u>Phase I</u>	<u>Phase II^{1/}</u>	<u>Present Worth</u>
Secondary Treatment Plant	\$ 839,000		\$ 839,000
Redwood Interceptor	529,800	\$1,093,000(STP)	282,400
Willow Interceptor	198,600	513,300	529,800
Darnielle Interceptor	307,200		132,600
Total	<u>\$1,874,600</u>	<u>\$1,606,300</u>	<u>\$2,289,600</u>

2. OPERATING & MAINTENANCE COSTS

Treatment plant and Interceptors	62,800/year		665,300
		77,300	818,900
Delay & Additional Engineering	193,700		193,700
<u>Total Present Worth</u>			<u>3,967,500</u>

^{1/} The timing of Phase Two is unknown but for the purpose of cost analysis and comparison it is assumed to begin at the end of the Phase One cost-effective period of 20 years. If it were to occur later or not at all, it is possible that these costs would be substantially lowered.

Environmental and Energy Impacts

Primary environmental impacts associated with Alternative "A" would be the same as those for the proposed project except that Alternative "A" primary environmental impacts resulting from the construction of the treatment plant and the Redwood Interceptor would occur in two phases. The first phase would involve construction of an interim treatment plant and sewers in the eastern half of the Service District (the Alternative Service Area). The second phase, occurring 20 or more years later, would involve construction of the ultimate treatment plant at the west end of the Service District, and extension of the Redwood Interceptor, assuming growth and the Comprehensive Plan so require. It is entirely possible (and consistent with the Comprehensive Plan) that all of the projected 50 year growth for the Service District could be accommodated within the eastern sector at a density of 6 units per acre. (that area east of Willow and Shroeder Lanes and south of the Redwood Highway).

Existing water pollution problems in the Service District would be eliminated, including the discharge of raw wastes into the Rogue River. Existing health hazards associated with failing septic tanks would also be eliminated. The discharge from the Redwood School (probably the most objectionable instance of failure) would be eliminated. The plan would also pick up the waste flows from the Rogue Community College and River Haven Mobile Estates, which are presently served by small package plants.

Since this alternative does not initially contemplate service to the western portion of the Service District, secondary environmental impacts will be largely limited to the Alternative Service Area. These would occur as the result of residential development permitted by the construction of the treatment facilities. The secondary impacts of this alternative would be identical to the environmental effects that the proposed project has on the eastern portion of the Sanitary District, except that development of the area between Darnielle Lane and Willow and Shroeder Lanes would occur according to the Comprehensive Plan.

Assuming that the Alternative Service Area growth potential was near realization and that the Comprehensive Plan was amended to permit development of the western sector, Phase Two of Alternative "A" could commence. With the shift of the treatment plant and extension of the Redwood Interceptor and other sewers, secondary impacts would begin occurring in the western half of the Service District. These impacts would be associated with residential growth and would be comparable to the impacts of the proposed project but occurring in a different time frame. (see Table 6) The primary advantages of Alternative "A" is that it provides for ordered growth of the Service District consistent with the existing Comprehensive Plan; it allows the western sector to maintain its rural character without the risk of premature development.

Alternative "A" provides capacity for at least the 20 year growth of the Service District while contributing to the orderly development of the eastern sector pursuant to the Comprehensive Plan. It does not place the potential development pressure on the western sector that might occur with the extension of sewers to that area. The area would maintain its farm residential character until the Comprehensive Plan is changed and growth pressures are sufficient to develop it. 24/

24/ County zoning and sewer development procedures may mitigate these adverse impacts on land use caused by the proposed project. (see Exhibit 7)

Table 7 shows the projected energy consumption associated with Alternative "A" (the proposed project and Alternative "B" are shown for comparison). As the Table indicates, Alternative "A" will result in lower energy consumption than the proposed project over a 20 year period.^{25/}

This is strictly a function of the population of the area--more people means more homes, more automobiles and, thus, more fuel consumption. Alternative "A" and the proposed project are based on, the same development pattern--low density sprawl. This pattern has already occurred in the eastern portion of the Service District, but it has not developed in the western portion. Alternative "A" gives the county some future options as to the type of development that will be allowed to occur, if at all, in the western sector. The result may be more "energy-efficient" than permitting low density sprawl development to occur.

TABLE 7

SUMMARY OF ENERGY CONSUMPTION OF THE MAJOR ALTERNATIVES,
INCLUDING THE PROPOSED PROJECT

Usage	1995			2025			
	Proposed Project	Alt. "A"	Alt. "B"	Proposed Project	Alt. "A"	Alt. "B"	
Home	610	471	311	1844	1844	334	
Auto	<u>442</u>	<u>341</u>	<u>225</u>	<u>1335</u>	<u>1335</u>	<u>242</u>	
Total Billion BTU's per year	1052	812	536	3179	3179	576	

Alternative "B"

No-Action-Continued Utilization of Individual Source Treatment Systems (Septic Tanks and On-Site Packaged Treatment Plants)

^{25/} Assuming the ultimate population for the entire Service District is reached, the 50 year energy consumption levels will be the same. However, this assumption is open to question because the Comprehensive Plan does not presently project urbanization of the entire Service District and it is possible that in the interim before sewers are extended to the west the county may choose to direct growth elsewhere.

A number of individual source treatment systems could potentially be utilized within the Redwood Service District. This alternative considers the use of septic tanks throughout much of the area as a technically feasible alternative to the construction of an extensive sanitary sewer system, thereby eliminating the need for the proposed project or other alternatives. Land use controls and conformance to state subsurface disposal regulations would be necessary, however, to create a properly functioning septic tank/drainfield system.

Properly sited, constructed, and maintained septic tanks and drainfields would allow limited growth to take place within the Service District without creating an additional waste load burden on the Rogue River, if certain conditions were met. These conditions would include:

1. Controlled use of septic tanks in suitable areas. Large portions of the Service District are suitable for septic tank disposal and treatment facilities, if growth is controlled and development densities are not allowed to exceed certain limits.
2. A strict enforcement program to control and monitor the periodic pumping of septic tank waste from failing septic systems. Such a program would insure that (a) septic tank wastes are discharged into a collection system for conveyance to a plant; (b) payment is made for such treatment; (c) discharge of septic tank waste into streams or on land is prohibited; and (d) a record of failing septic tanks is developed to provide an adequate data base for judging performance and to justify the need of future service extensions.
3. It should be noted that some areas of the Service District (particularly in the eastern sector) are not capable of permitting effective operation of septic tanks and drainfields. The combination of poor soils and a high groundwater table causes system failures regardless of the corrective measures taken, short of abandonment and connection to a sewerage system. Within the eastern sector of the Service District, there are only a few areas where septic tanks and drainfields can work, and in these areas the main reason they are successful is because they are located on large lots. Most of the eastern sector has been developed on lots of less than one acre (this is only 20 percent of the minimum lot size now recommended in the area for septic tank and drainfield development), and there is no way to make the individual systems work properly.

Another possible individual source treatment system would involve on-site packaged treatment plants, treating sanitary wastes at each home or within neighborhoods. Although advanced waste treatment facilities are available in inexpensive packaged units (\$2,000 to more than \$10,000), it is not considered to be feasible to solve the existing and expected problems of the Redwood Service District with such facilities. The many point sources produced by a multiplicity of small package wastewater treatment plants scattered throughout the area operated by a variety of individuals and different organizations, often without proper training and supervision, would be contrary to present state policies and regulations, and would be expected to result in continued water pollution and health hazards. It is apparent that the eastern sector of the Service District needs sewers.

Environmental Impacts

Within the Redwood Service District, septic tanks are the predominant form of sewage treatment facilities. In the eastern portion the density of development has, however, exceeded the assimilative capacity of the land resources, primarily due to the lack of land use controls and the construction of a majority of the septic tank and drainfield systems in unsuitable sites. Degradation of surface water quality and groundwater has resulted. Adverse impacts upon the physical environment would continue to occur in the eastern portion until the presently improperly sited septic tanks and drainfields were phased out of use.

This alternative would cause limitations to be imposed upon the types and locations of growth and development. Controlled use of septic tanks and drainfields in suitable areas may ease the demand for sanitary sewers, which in turn, would also enable the land use conflicts within the Service District (especially the western portion) to be resolved before irreversible resource commitments occur and form the basis for future land use patterns. It should be noted that the Service District will continue to develop regardless of whether the project is built, although it will be slower growth and the densities will be much less, but people will continue to settle in the Service District.

Depending on the physical conditions such as high groundwater table, soil limitations, and poor drainage, there is a significant potential for the health hazard problem to become more pronounced. Widespread failures of subsurface disposal systems would also lead to aesthetically unappealing sights and odors and adverse socio-economic impacts.

CHAPTER SEVEN

COMMENTS AND RESPONSES TO THE DRAFT EIS

This section contains letters of comments from individuals and groups to the Redwood Sanitary District draft EIS. Those letters which commented directly upon the draft EIS have been reproduced in this document. Wherever a response is required of EPA to the letter, a response page follows that letter.

The following table is a listing of the comment letters received, the page in this chapter on which they can be found, and a general category listing of their contents. Comment categories are shown in an attempt to indicate those aspects of the proposed action about which the commentators were most interested and concerned. This may serve to direct the interested reader to those sections of the document which he may wish to restudy.

In addition to those letters which comment on specific areas within the draft EIS, EPA received numerous letters voicing opinions on the project. Because these letters do not directly comment upon the draft statement nor do they require a response from EPA, they are not reproduced in this document. A listing, however, is included in table form which separates letters into categories of support or opposition to the Redwood Sewer Project. We have attempted to point out areas with which these letters were most concerned. A brief summarization of the issues raised most frequently has been included after the table of comments.

On July 15, 1975 at the Josephine County Fairgrounds, EPA held a public hearing on the Redwood draft EIS. The hearing was attended by approximately 200 people of which 31 read testimony into the official record. Because of the length of the official hearing record and the costs involved, we have not reproduced the document for the final EIS. A table is provided, however, listing the speakers, their support or opposition to the project, and the areas in which they were most concerned. The Public Hearing Record is available for public scrutiny at the Josephine County Library, Grants Pass, Oregon; EPA's Oregon Operation Office, Portland, Oregon; and EPA's Region X Office, Seattle, Washington.

Many petitions, form letters, postcards and newspapers coupons that merely express support or opposition to the project have been received by EPA. Because these submittals do not raise any issues that require a response by EPA they have not been included in this final statement. They are also on file in EPA's Region X office and available for review.

The Environmental Protection Agency Region X wishes to express its appreciation to all commenting agencies, groups and individuals for the time and effort spent in reviewing the draft EIS. All comments were presented to the Regional Administrator and were considered by him in EPA's decision making process.

TABLE 8
COMMENTS RECEIVED ON DRAFT ENVIRONMENTAL
IMPACT STATEMENT

- 42 -

Date received	From	GENERAL TONE	Wild and Scenic River	Wildlife	Recreation	Costs	Wetlands	Fisheries	Water Supply	Water Quality	Mitigation	Pop. Projection, Growth	Reserve Capacity	Historic Preservation	Land Use, Planning	Agriculture	Construction Impact	Alternatives	Floodplain Development	Federal Policy	Sludge Disposal	Air Quality
1975 7/23	U.S. Department of Soil Conservation Service P. 45	Informative		X										X		X						
7/25	Department of the Army Corp of Engineers-Portland	No comment																				
7/28	U.S. Department of Interior Pacific N.W. Region P. 52	Informative		X	X			X	X			X		X	X		X		X		X	
6/30	Advisory Council on Historic Preservation P. 62	Informative												X								
7/15	Department of Housing and Urban Development P. 64	Informative																	X			
8/1	Oregon State Department of Environmental Quality P. 67	Supports Proposed Project										X			X			X				
8/13	Oregon State Executive Department (Intergovernmental Relations Div.)	General																				
7/25	Josephine County Department of Roads P. 80	Supports Proposed Proj. Informative										X			X							X
8/4	Oregon Student Public Interest Research Group (OSPIRG) P. 90	Critical of Proposed Project							X			X			X					X		
7/31	Redwood Area Citizens Association P. 94	Critical of Proposed Project							X	X					X			X				X
7/21	Signe M. Carlson P. 96	Critical																X				X

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE

1220 S. W. Third, Portland, Oregon 97204

July 22, 1975

Mr. Richard R. Thiel, Chief
Environmental Impact Section M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington, 98101

Dear Mr. Thiel:

We have reviewed the draft environmental impact statement for Redwood Service District, Josephine County, Oregon. Our comments are:

1. Page 14, Fish & Wildlife: The environmental impact statement refers to the Oregon list of rare and endangered animals. Are there any animals in the project area which are on the "United States List of Endangered Fauna?" | 1
2. Page 14 et al, Soils: The soils in the proposed project area are generally "wet," with shallow ground water table and are located in proximity of irrigated land. Will the proposed sewer system cause the growth of a residential area which will then demand public assistance in drainage? | 2
3. Are there any historical or archeological resources in the area which will be affected by the proposed project? | 3

The Soil Conservation Service does not presently have any project which would be affected by this proposal.

We appreciate the opportunity to review and comment on this draft environmental impact statement.

Yours truly,

James W. Mitchell
James W. Mitchell

State Conservationist

cc:

Office of the Coordinator of Environmental Activities,
Office of the Secretary, USDA
Administrator, SCS, Washington, D.C.
Chairman, Council on Environmental Quality (5 copies)

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JUL 23 1975

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Response to Comments by United States Department of Agriculture, Soil Conservation Service

1. The "United State List of Endangered Fauna" was consulted. No animals within the Redwood S.D. or approximate thereto are on the list.
2. Because the soils in the area are generally saturated during the wet season and shallow ground water tables are near irrigated land, increased residential growth could create future drainage problems. At this time, however, we do not know whether public assistance will be necessary.
3. See response to Advisory Council on Historic Preservation.



DEPARTMENT OF THE ARMY
PORTLAND DISTRICT, CORPS OF ENGINEERS
P. O. BOX 2946
PORTLAND, OREGON 97208

REPLY TO
ATTENTION OF:

NPPEN-EQ

21 July 1975

Mr. Richard R. Thiel, Chief *RT*
Environmental Impact Section M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Thiel:

The draft environmental impact statement for the Redwood Service District which you furnished to our North Pacific Division Office, has been referred to this District office. We have reviewed the statement and have no comments relating to the Corps of Engineers' functional area of responsibility and expertise, basically: flood control, navigation and hydropower.

This opportunity to review and comment on the draft statement is appreciated.

Sincerely yours,

EDWARD B. JOHNSON
Chief, Environmental Quality Branch

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JUL 25 1975

EPA-EIS



United States Department of the Interior

OFFICE OF THE SECRETARY
PACIFIC NORTHWEST REGION
P.O. Box 3621, Portland, Oregon 97208

July 24, 1975

ER-75/556

Mr. Richard R. Thiel, Chief
Environmental Impact Section
M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Thiel:

We have reviewed the draft environmental impact statement concerning the Redwood Service District, Josephine County, Oregon and offer the following comments for your consideration in preparing the final document.

GENERAL COMMENTS:

Although the draft statement contains numerous references to current ground-water problems such as failures of septic tanks because of high water-table conditions and pollution of a large proportion of the wells of the area, it does not describe the pertinent aspects of the occurrence of ground water in the area, the "normal" quality of ground water there, and aquifer characteristics related to the problems. The reader assumes on the basis of the nature of the proposed project that the construction of a waste-treatment plant and sewerage system will necessarily improve the quality of ground water in the project area and relieve the problem of health hazards related to ground water; however, the necessary data are not supplied to permit evaluating such impacts. The statement should include at least the following: (1) a description of the aquifer(s) involved in the problem,

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1 | including pertinent hydrologic characteristics; (2) a map showing the water-table configuration or a sufficient number of depth-to-water or water-table measurements; and (3) the distribution of wells in the area, and especially the distribution of polluted wells.

A map of wildlife ranges concerned, along with a list of animal species affected by the project, would be beneficial to reviewers.

2 | It is difficult to determine what impacts on outdoor recreation would occur as a result of the proposed project. Because tourism is cited as the second most important industry in Josephine County and because the project is expected to induce future county growth, a detailed assessment of potential primary, secondary, and tertiary impacts to park and recreation facilities, lands, and waters should be provided in the final environmental impact statement.

The Oregon Statewide Comprehensive Outdoor Recreation and Open Space Plan (SCORP) would provide a good basis for assessing the impacts to recreation supply and demand. That document is the State's official outdoor recreation plan, prepared and maintained pursuant to Public Law 88-578, the Land and Water Conservation Fund Act, as amended. The SCORP defines outdoor recreation goals and objectives and contains valuable information on recreation supply, demand, and needs. It suggests recommendations and priorities for action to meet recreation needs. For additional information, EPA may wish to contact David G. Talbot, State Parks Superintendent, 300 State Highway Building, Salem, Oregon 97310 (503-378-6305).

Compliance with the National Environmental Policy Act should be coordinated with the separate responsibilities of the National Historic Preservation Act of 1966 and Executive Order 11593 to ensure that historical and archeological resources are given proper consideration. Briefly, cultural resources should be treated as other aspects of the environment are, i.e., they should be inventoried, their significance evaluated, impacts upon them assessed, and mitigative measures discussed in environmental statements. To satisfy these requirements in the final statement, we have the following suggestions.

3 | The "National Register of Historic Places" and the Oregon State Historic Preservation Officer should be consulted to determine if sites on, or eligible for, the National Register will be affected by the proposal.

4 | To learn of known archeological sites in the project area, we suggest that Dr. David Cole, Museum of Natural History, University of Oregon, Eugene, Oregon 97403, be consulted. Dr. Cole can also advise on whether or not an archeological survey should be conducted prior to construction. An absence of known archeological sites in an area is frequently only an indication that the area has not been inspected by a trained archeologist.

The results of the above consultations should be reported and documented in the final statement.

5 | SPECIFIC COMMENTS:

6 | Page 2, last paragraph. Criteria used to determine contamination of wells would be helpful.

7 | Page 10, 5th paragraph. Accurate population projections are necessary to evaluate alternative plans; thus, additional information concerning inadequacy of estimates would be useful.

8 | Page 13, under "Water Quality". This section should address the problem of ground water contamination as well as degradation of the Rogue River and other surface waters.

9 | Page 13, footnote 3/, item 1. Concentrations listed in standards are based on tests for total coliform rather than specifically for fecal coliform.

Page 14, third paragraph. It would be helpful if the factors of urbanization which have caused a decreased use of Sand Creek and Allen Creek by steelhead were explained.

Page 15, paragraph F. The ultimate population projection should state the year of expected projection. An updated projection would be desirable. It is difficult to see where more than 5 - 10,000 population by 1990 or 15,000 by the year 2000 is justified.

Page 18, paragraph A. The use of the phrase "Impacts on the Ecology" is not correct. Ecology is a study of ecosystems and not a natural physical thing. The proper phrase is "Impacts on the Ecosystems." Ecosystem reactions to impacts would be more technically descriptive.

10 | Page 19, 4th paragraph, 4th line. Reference is made to "a great deal of excavation" during construction of the treatment plant. Information on the estimated volume of excavation, on whether excess spoils would be produced on the proposed disposition of any such spoils, and on the impacts of spoil disposal, if any, should also be included.

11 | Page 21, 4th paragraph. It is stated that sludge would be disposed of by land application on agricultural lands after drying. The probable location or availability of such disposal areas and the approximate distance of transport and associated impacts should be included.

Page 22, 4th paragraph. Four "flags" were set on primary impacts (Table 3, page 17) for "community well-being." They are not clearly defined in this section.

Page 23, paragraph B. The title, "Impacts on Physical/Chemical," seems inappropriate for a discussion on zoning, land-use and other people-related topics.

Page 27, 2nd paragraph. Increased development will also lead to erosion during continuing construction activities and to more rapid runoff of precipitation from buildings, streets, etc.

Page 27, 3rd paragraph. Residential areas will produce more than "neutral smells." Air pollution would also be associated with such development.

12 | Page 28, table 4 and first paragraph. Logic behind assumption that multiple family units will be constructed in the eastern sector of the service area should be documented.

Exhibit 2. The Description of an Environmental Evaluation System explains the general methodology used to arrive at quantitative indices of environmental impact (Environmental Impact Units) shown on tables 3 and 6, but in no case has

the actual method of arriving at the figures been fully explained in the draft environmental statement. Many assumptions that must have been made by the evaluators in arriving at the quantitative but dimensionless units have not been identified. Consequently, the reader is provided with no means for assessing the evaluations.

Exhibit 3. The material presented in exhibit 3 is important enough to the understanding of the existing environment, that it might be of more value if presented in the main text rather than the appendix.

13

Exhibit 3, page 9, paragraph 4. Reference is made to "enlargement of the flood plain at the western end of the District near the proposed treatment plant site." This is the first mention of the flood plain that was noted in the statement. Information on soils that is provided later in Exhibit 3 suggests that the proposed sewage treatment plant site may lie on the flood plain of Rogue River, which is mapped as Newberg-Evans soil association (Exhibit 3, Figure 5, page 11), but the boundaries between units on the soils map are not sufficiently clear to determine this positively. It would be advisable to describe the site with respect to the limits of the flood plain and to evaluate relevant impacts if the site is on the flood plain.

Exhibit 3, page 13, third paragraph. The district largely is rural and rural residential placed on alluvium composed of unconsolidated gravel, sand, and clays in the Rogue River drainage. Quartz diorite is found north and south of Grants Pass, bordering the alluvial deposits. No mineral industry activities will be adversely affected by the project.

14

Exhibit 3, page 16, third paragraph. Population projections referred to are not present.

Please let us know if we can be of further assistance in the review of this statement.

Sincerely yours,

Charles S. Polityka

for Roy H. Sampsel
Special Assistant to
the Secretary

Response to the United States Department of Interior

1. The Redwood area is basically composed of granite soil types which are underlain by bedrock. The groundwater table lies above the bedrock at varying depths. Domestic wells within the area range in depth from 50 feet to 150 feet. Test wells dug by the Bureau of Reclamation this spring hit groundwater at 24 inches below the surface of the soil. This depth will vary during the wet season and also in the spring and summer when irrigation is taking place.

There were no maps available to show the distribution of contaminated wells. See response #5 for discussion of contaminated wells.

For more detailed information on soils and groundwater, the reader may contact Mr. Pete Pescador, Soil Scientist of Josephine County. Mr. Pescador has soil profiles available for review.

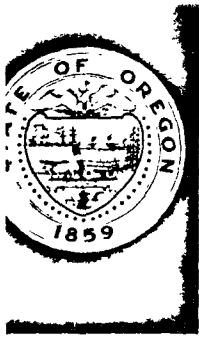
2. As noted by the Department of Interior's letter it is difficult to determine impacts on outdoor recreation resulting from expected increases in population. EPA can only make a generalized statement about recreation supply and demand within the project area. Presently, there is one park (Schroeder Park) within the confines of the Redwood Service District. It can be expected that with increased population growth, usage of Schroeder Park would also increase, although to what extent is unknown. The county, in its Comprehensive Plan, has projected that the size of Schroeder Park will be expanded over the next 20 years.

EPA cannot project the increase in recreational use of other areas of Josephine County resulting from an increase in population in the Redwood area. EPA has assumed that demand would increase county-wide and that local, State and Federal recreation and park agencies would make the proper responses.

3. Both of the sources have been consulted by EPA (see attached letter from Paul Hartwig), and they have indicated that no historic sites, will be affected by the proposed project. Prior to construction a survey will be conducted to determine if any potential historic sites are in the area should be protected.
4. Dr. Cole was also consulted (see attached letter) and he recommended contact with Dr. William Lyon. EPA has contacted Dr. Lyon, who was unaware of any archeological sites in the Redwood area. EPA will, however, arrange to have a survey made prior to any construction. If a potential site is located both Dr. Lyon and Dr. Cole will be contacted and arrangements made to protect the site.
5. The Josephine County Health Department utilized a standard coliform test design merely to show the presence of coliform, but not the MPN. A positive result would indicate that coliform is present in the well water, and the well would be classified contaminated. According to Mr. Bill Olson of the Health Department, some tests for fecal coliform

were run on a number of contaminated wells, but the results were negative. The text of the EIS has been changed to reflect these results.

6. See response to comment letter from Josephine County Department of Roads.
7. This section addresses only "existing conditions" and not conditions after a project is built or not built. Contamination of groundwater (wells) is discussed on page 2. A more detailed description of existing water quality is given in Exhibit 3, page 7 and 8 of the Appendix.
8. Oregon State Water Quality Standards refer specifically to fecal coliform. Please refer to Exhibit 4, page 3, paragraph 1.
9. The ultimate population is expected to occur by the year 2025 according to county estimates.
10. At this time it is unknown how much excavation will be required, but it is assumed that any excess spoils will be used in landscaping or disposal of pursuant to State regulations.
11. The District's engineer has not designated a site for sludge disposal. There are, however, areas of land in close proximity (within 20 miles) which would probably be suitable for sludge disposal pursuant to State regulations. These lands are presently used for hay production and could continue that activity. There would be few impacts from sludge transport and disposal. The transport of sludge would take place at infrequent intervals so truck traffic and noise would be tolerable. Odors from land application could be avoided by burying the sludge.
12. There is no assumption that the easter sector will develop in multiple family units. In fact, the Comprehensive Plan does not call for such densities. It does, however, recommend a density of up to 6 units per acre in the easter sector which is substantially higher than the 3 units per acre projected under the proposed project. EPA assumed that Alternative "A" would direct more growth to the easter sector than the proposed project would and that the higher resulting density would contribute to lower energy consumption.
13. Three paragraphs above the quoted sentence in the comment letter (Exhibit 3, page 9, paragraph 1) is a statement on the treatment plant site and flood plain. It is noted that the treatment plant is within the 50-year flood plain. The treatment plant will be protected against the maximum expected 100-year flood (see attached EPA criteria).
14. The response to the Josephine County Road Department's letter contains the table. The text of Exhibit 3 has been changed.



OREGON STATE HIGHWAY DIVISION

HIGHWAY BUILDING • SALEM, OREGON • 97310

TOM McCALL
GOVERNOR

November 25, 1974

F. B. KLABOE
Administrator of Highways

Mr. Cecil Ouellette
Environmental Protection Specialist
U.S. Environmental Protection Agency
Oregon Operations Office
1234 S.W. Morrison Street
Portland, OR 97205

Dear Mr. Ouellette:

This is in response to your request for information on historic sites located within the proposed sewer treatment project near Grants Pass, Oregon.

There are no properties listed on the National Register of Historic Places located within the proposed project area. Nor are there any properties listed in the statewide Inventory of Historic Sites and Buildings located within the proposed project area. However, this area has not been adequately surveyed and there may be properties of historic significance within the boundaries of the project. Of special interest should be the downtown region of Grants Pass, which is on the fringe of the proposed service district boundary.

We appreciate this opportunity to comment.

Sincerely,

Paul B. Hartwig
State Historic Preservation Office

PBH:lb

Roger Moschwick
443

UNIVERSITY OF OREGON



Natural History

EUGENE, OREGON 97403

telephone (area 503) 686-3033

October 23, 1974

Cecil Ouellette
Environmental Protection Specialist
U. S. Environmental Protection Agency
Oregon Operations Office
1234 S. W. Morrison Street
Portland, Oregon 97203

Dear Mr. Ouellette:

We have received a copy of your letter of October 7, 1974 to Mr. Paul Hartwig, of the Office of the Historic Preservation Officer, concerning the proposal for the Redwood Sanitary District west of Grants Pass. In search of our records, I find no indication that this site has been surveyed for archaeological sites, consequently I cannot state that sites will not be affected by the project.

I would recommend that you contact Dr. William Lyon, Dept. of Anthropology and Sociology, Southern Oregon College, Ashland, Oregon 97520. You may be able to make arrangements with him to conduct a survey.

If we can be of further assistance please contact us.

Sincerely,

DL Cole

David L. Cole
Curator of Anthropology

DLC:rb

W. Moschwick

cc: Dr. William Lyon

TECHNICAL BULLETIN

DESIGN CRITERIA FOR MECHANICAL, ELECTRIC,
AND FLUID SYSTEM AND COMPONENT RELIABILITY

Supplement to Federal Guidelines for Design,
Operation, and Maintenance of Waste Water
Treatment Facilities

Office of Water Program Operations
U.S. Environmental Protection Agency
Washington, D. C. 20460

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 - Price 85 cents

100. WORKS DESIGN CRITERIA

110. WORKS LOCATION

The potential for damage or interruption of operation due to flooding shall be considered when siting the treatment works.

The treatment works' structures and electrical and mechanical equipment shall be protected from physical damage by the maximum expected one hundred (100) year flood. The treatment works shall remain fully operational during the twenty-five (25) year flood, if practicable; lesser flood levels may be permitted dependent on local situations, but in no case shall less than a ten (10) year flood be used. Works located in coastal areas subject to flooding by wave action shall be similarly protected from the maximum expected twenty-five (25) and one hundred (100) year wave actions.

Existing works being expanded, modified, upgraded or rehabilitated shall comply with these criteria to the degree practicable.

The flood and wave action elevations used to implement these criteria shall be determined and justified by the Grant Applicant, using available data sources where appropriate. Elevations for

a specific location may be available from local or state studies as well as studies by the following Federal organizations: U.S. Army Corps of Engineers, U.S. Geological Survey, U.S. Soil Conservation Service, National Oceanic and Atmospheric Administration, and Tennessee Valley Authority.

The works shall be accessible in all normal seasonal conditions, including the expected annual floods.

120. PROVISIONS FOR WORKS EXPANSION AND/OR UPGRADING

All new works and expansions to existing works shall be designed for further expansion except where circumstances preclude the probability of expansion. During a works' upgrading or expansion the interruption of normal operation shall be minimized and shall be subject to the approval of the Regional Administrator.

130. PIPING REQUIREMENTS

131. Pipes Subject to Clogging

131.1 Provisions for Flushing of Pipes

The works shall have provisions for flushing with water and/or air all scum lines, sludge lines, lime feed and lime sludge lines, and all other lines which are subject to clogging. The design shall be such that flushing can be accomplished without causing violation of effluent limitations or without cross-connections to the potable water system.

Advisory Council
On Historic Preservation
1522 K Street N.W. Suite 430
Washington D.C. 20005

June 26, 1975

Mr. Richard R. Thiel, Chief
Environmental Impact Section M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Thiel:

This is in response to Clifford V. Smith, Jr.'s request of June 13, 1975 for comments on the environmental statement for Redwood Service District, Josephine County, Oregon. Pursuant to its responsibilities under Section 102(2)(C) of the National Environmental Policy Act of 1969, the Advisory Council on Historic Preservation has determined that your draft environmental statement is inadequate regarding our area of expertise as it does not contain sufficient information to enable the Council to comment substantively. Please furnish additional data indicating:

- I. Compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470[f]). The Council must have evidence that the most recent listing of the National Register of Historic Places has been consulted (see Federal Register, February 4, 1975 and monthly supplements each first Tuesday thereafter) and that either of the following conditions is satisfied:
 - A. If no National Register property is affected by the project, a section detailing this determination must appear in the environmental statement.
 - B. If a National Register property is affected by the project, the environmental statement must contain an account of steps taken in compliance with Section 106 and a comprehensive discussion of the contemplated effects on the National Register property. (36 C.F.R. Part 800 details compliance procedures.)
- II. Compliance with Executive Order 11593 "Protection and Enhancement of the Cultural Environment" of May 13, 1971.

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- A. Under Section 2(a) of the Executive Order, Federal agencies are required to locate, inventory, and nominate eligible historic, architectural and archeological properties under their control or jurisdiction to the National Register of Historic Places. The results of this survey should be included in the environmental statement as evidence of compliance with Section 2(a).
- B. Until the inventory required by Section 2(a) is complete, Federal agencies are required by Section 2(b) of the Order to submit proposals for the transfer, sale, demolition, or substantial alteration of federally owned properties eligible for inclusion in the National Register to the Council for review and comment. Federal agencies must continue to comply with Section 2(b) review requirements even after the initial inventory is complete, when they obtain jurisdiction or control over additional properties which are eligible for inclusion in the National Register or when properties under their jurisdiction or control are found to be eligible for inclusion in the National Register subsequent to the initial inventory.

The environmental statement should contain a determination as to whether or not the proposed undertaking will result in the transfer, sale, demolition or substantial alteration of eligible National Register properties under Federal jurisdiction. If such is the case, the nature of the effect should be clearly indicated as well as an account of the steps taken in compliance with Section 2(b). (36 C.F.R. Part 800 details compliance procedures.)

- C. Under Section 1(3), Federal agencies are required to establish procedures regarding the preservation and enhancement of non-federally owned historic, architectural, and archeological properties in the execution of their plans and programs.

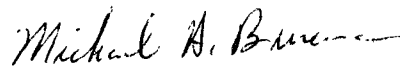
The environmental statement should contain a determination as to whether or not the proposed undertaking will contribute to the preservation and enhancement of non-federally owned districts, sites, buildings, structures and objects of historical, architectural or archeological significance.

III. Contact with the State Historic Preservation Officer.

The procedures for compliance with Section 106 of the National Historic Preservation Act of 1966 and the Executive Order 11593 require the Federal agency to consult with the appropriate State Historic Preservation Officer. The State Historic Preservation Officer for Oregon is David G. Talbot, State Parks Superintendent, 300 State Highway Building, Salem, Oregon 97310.

Should you have any questions or require any additional assistance, please contact Brit Allan Storey of the Advisory Council staff at P. O. Box 25085, Denver, Colorado 80225, telephone number (303) 234-4946.

Sincerely yours,



Michael H. Bureman
Acting Assistant Director
Office of Review and Compliance

cc:
Sheldon Meyers-EPA:FLO

Response to Comment Letter From Advisory Council on Historic Preservation

During preparation of the draft EIS, EPA consulted Mr. Paul B. Hartwig, Oregon State Historic Preservation Officer, who indicated there were no properties on the National Register that were located in the project area or that would be affected by the proposed project (see Hartwig letter attached to response to Department of Interior letter). He also stated that no properties on the statewide Inventory of Historic Sites and Buildings were located in the project area.

EPA has consulted the August 5, 1975 Federal Register which contains the National Register of Historic Places. No site on the list will be affected as the list only contains one site in Josephine County. This site is the Wolf Creek Tavern and is not located near enough to the project area to be affected by a sewage treatment facility and its effects.

Mr. Hartwig noted that the area has not been adequately surveyed, which was also the feeling of Dr. William Lyon (see response to Department of Interior letter). Prior to construction of any project EPA will conduct a survey to locate, inventory, protect and nominate any historic, architectural, or archeological properties to the National Register. EPA will work closely with Mr. Hartwig and Dr. Lyon in the conduct of the survey.



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
ARCADE PLAZA BUILDING, 1321 SECOND AVENUE
SEATTLE, WASHINGTON 98101

July 14, 1975

REGION X

Office of Community, Planning
and Development

IN REPLY REFER TO:

10D

Dr. Clifford V. Smith
Regional Administrator
Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA. 98101

Dear Dr. Smith:

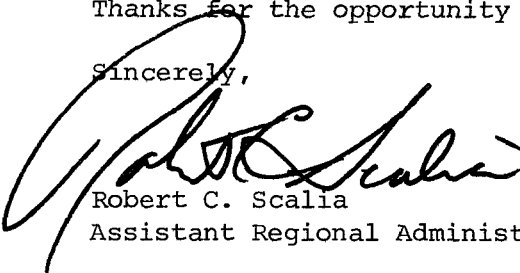
Subject: Draft Environmental Impact Statement
Redwood Service District
Josephine County, Oregon

We have reviewed the draft statement on the proposed treatment and sewage facilities for the Redwood Sanitary sewer Service District

We are very concerned with this project since it appears that a good portion of the district lies in a flood prone area. We would not like to see the construction of sewer collection lines that would encourage residential construction in these areas. We suggest that further investigations be made since HUD at this time does not have detailed studies to delineate the exact location of the flood hazard area. The County probably is showing very good judgment in adopting the comprehensive plan which designates most of the area for agriculture and low residential use.

Thanks for the opportunity to comment.

Sincerely,


Robert C. Scalia
Assistant Regional Administrator

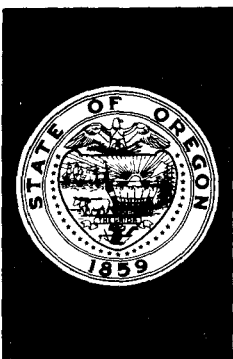
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JUL 15 1975
OFFICE OF
REGIONAL ADMINISTRATOR

Response to Department of Housing and Urban Development

1. EPA agrees that urban growth within flood plain areas can result in adverse environmental impacts. Josephine County has provided for limitation of flood plain development within their Comprehensive Plan. The Plan recommends as a goal "that subdivisions and development of land subject to periodic flooding be discouraged". The county is adequately insuring restriction of flood plain development.



DEPARTMENT OF ENVIRONMENTAL QUALITY

JULY 1975
OFFICE OF
REGIONAL ADMINISTRATOR

1234 S.W. MORRISON STREET • PORTLAND, ORE. 97205 • Telephone (503) 229- 5301

ROBERT W. STRAUB

GOVERNOR

July 31, 1975

Environmental Protection Agency
Region X
1200 Sixth Avenue
Seattle, Washington 98101

Attention: Dr. Clifford V. Smith, Regional Administrator

Gentlemen:

Re: Draft Redwood E.I.S.

The Department of Environmental Quality has reviewed the draft Environmental Impact Statement for the Redwood Service District and offers the following comments for your consideration.

The Redwood Service District is an area suffering from water pollution problems and severe potential health hazards as a result of failing sub-surface sewage disposal systems. Construction of a community system to collect, treat and properly dispose of sewage appears to be the only reasonable way for solving the existing problem. The alternative designated as the "Proposed Project" in the draft E.I.S. appears to be the best alternative for solving the problems for the following reasons:

1. It will solve more of the existing public health and water quality problems resulting from inadequate sewage disposal than will other presented alternatives.
2. It will afford the greatest flexibility for meeting possible future needs of the area.

The draft E.I.S. dwells at length on possible excessive growth in the Redwood Area that will be caused by construction of sewers. This pre-occupation is evidenced in part by frequent reference to "excess capacity" in the draft E.I.S. in place of the "reserve capacity" which grant regulations require to meet reasonable future needs.

Installation of sewers in the Redwood Area will not, in our opinion, cause excessive growth or create development as the Draft E.I.S. implies. Growth and development, if it is to occur, will be caused by creation of new jobs in the Grants Pass Area or other forces which attract people to the area.

RECEIVED

AUG 7 1975

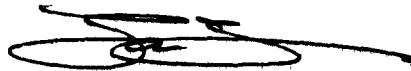
Environmental Protection Agency
Region X
July 31, 1975
Page 2

Growth and development in Oregon generally and in the Redwood Service District specifically can be, and pursuant to state law, must be controlled through the land use planning process. Such plans must be developed and adopted and may from time to time be revised in accordance with a process which is responsive to public needs and desires as well as state goals and guidelines.

Therefore the construction of sewers will not grant a right of development in any manner contrary to an adopted land use plan. Sewers will make it possible to properly accommodate development on land which is not suitable for subsurface sewage disposal, but then only as long as the proposed development is consistent with the land use plan.

We believe it would be appropriate in the final E.I.S. to use the words "reserve capacity" in place of "excess capacity". We would also urge revision so that the final E.I.S. more accurately reflects existing Oregon land use control methods and requirements.

Sincerely,

A handwritten signature in black ink, appearing to read 'Loren Kramer', with a stylized flourish extending to the right.

LOREN KRAMER
Director

HLS:ak

Response to Oregon State Department of Environmental Quality

1. See following letter dated August 21, 1975 from the Environmental Protection Agency to the Department of Environmental Quality.

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101

AUG 21 1975



REPLY TO: Mail Stop 613
ATTN OF:

Mr. Loren Kramer
Director, Oregon Department
of Environmental Quality
1234 S.W. Morrison Street
Portland, Oregon 97205

Dear Mr. Kramer:

Thank you very much for your July 31, 1975 comments on our draft Environmental Impact Statement (EIS) for a proposed construction grant to the Redwood Sewer District. The final EIS should be released in September, at which time the Environmental Protection Agency's (EPA) decision concerning a grant for a project in the Redwood area can be made.

However, prior to the release of the final EIS, we feel we are able to address the issue of land planning and sewers which you discuss in your comments. EPA's construction grant regulations require that before awarding initial grant assistance for any treatment works project the Regional Administrator shall determine:

"That the treatment works will comply with all pertinent requirements of the Clean Air Act and other applicable Federal, State and local environmental laws and regulations."
(40 CFR 35.925-14).

Additionally, 40 CFR 35.935-4 subjects all treatment works grants to the following condition:

"The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of State, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter."

Our Office of Regional Counsel has reviewed recent decisions of the Supreme Court of Oregon (Fasano v. Board of County Commissioners

of Washington County, 507 P.2d 23 (1973); Baker v. City of Milwaukie, 533 P.2d 772 (1975)) which assert that comprehensive plans are the basic and controlling land use planning instruments within the State and that such plans are legislative in nature.

Based on the holdings of the Supreme Court of Oregon as to the legal status of adopted comprehensive plans, our Regional Counsel concludes that such plans, when duly adopted in the State of Oregon, should be considered laws, regulations or ordinances with which EPA-funded construction grant projects must comply, as stated in the above-cited EPA regulations.

We believe that this recognition of the legal status of comprehensive land use plans is supported by recent program guidance from Administrator Train. In addition, as a result of litigation relating to a construction grant project in South Medford, Oregon, EPA obtained assurances in a March-25, 1975 letter from Kessler Cannon, then Director of the Department of Environmental Quality, that in regard to future projects, the Board of Commissioners would be required to complete a form in which the Board certifies that it has reviewed the project and that it finds that the project does not violate applicable County land use plans. EPA has viewed such a requirement on the County Commissioners as a commitment of the State to a policy which insures the compliance of construction grant projects with County land use plans.

Based on the foregoing, EPA considers itself bound to respect the policies and decisions expressed in comprehensive plans when awarding construction grants in the State of Oregon. My staff has concluded that the alternative designated as the "Proposed Project" in the draft EIS contradicts the comprehensive plan adopted by the Josephine County Planning Commission in 1971. At this time, funding that alternative would violate EPA's regulations as well as both State and EPA policies.

Members of my technical and legal staff are available, at your convenience, to discuss these matters with you. The other issues which you raised in your comments will be addressed in the final EIS.

Sincerely,



Clifford V. Smith, Jr., Ph.D., P.E.
Regional Administrator

cc: Board of County Commissioners
of Josephine County

bc: 000
Environ. Impact Section ✓



AN EQUAL OPPORTUNITY EMPLOYER

EXECUTIVE DEPARTMENT

INTERGOVERNMENTAL RELATIONS DIVISION

240 COTTAGE STREET S.E.

SALEM, OREGON 97310

ROBERT W. STRAUB
GOVERNOR

August 8, 1975

STAFFORD HANSELL
Director

Mr. Richard R. Thiel, Chief
Environmental Impact Section M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Dear Mr. Thiel:

Re: Draft EIS-Redwood Service District
Josephine County, Oregon
PNRS #7506 4 250

Thank you for submitting your draft Environmental Impact Statement for State of Oregon review and comment.

Your draft was referred to the appropriate state agencies. The State Department of Fish and Wildlife, the State Soil and Water Conservation Commission, the State Department of Land Conservation and Development and the State Highway Division offered the enclosed comments which should be addressed in preparation of your final Environmental Impact Statement.

We will expect to receive copies of the final statement as required by Council of Environmental Quality Guidelines.

Sincerely,

William H. Young
Administrator

WHY:lm

Enclosures

RECEIVED

AUG 13 1975

EPA-EIS

RECEIVED STATE HIGHWAY	
JUN 12 75	
REFER TO	
FOR	
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R/D	D/R
Sign	Att
File	

OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Local Government Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Ph: 378-3732

LOCAL GOVERNMENT
RELATIONS DIV
JUL 11 1975

PNRS STATE REVIEW

Project #: 7506 4 250

Return Date: JUL 21 1975

ENVIRONMENTAL IMPACT REVIEW PROCEDURES

1. A response is required to all notices requesting environmental review.
2. OMB A-95 (Revised) provides for a 30-day extension of time, if necessary. If you cannot respond by the above return date, please call the State Clearinghouse to arrange for an extension.

ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

- () This project does not have significant environmental impact.
- (x) The environmental impact is adequately described.
- () We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.
- () No comment.

TO REGION 3:

REMARKS

6/16/75 - Redwood Service District, Josephine Co.

Major impact to the state highway system would be installation of lines within state right of way and future residential growth within the service district.

- 71 -

Agency

Highway

By

[Signature]



OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

Intergovernmental
~~Local Government~~ Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Ph: 378-3732

P N R S S T A T E R E V I E W

Project #: 7506 4 250

Return Date: July 21, 1975

ENVIRONMENTAL IMPACT REVIEW PROCEDURES

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ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

- () This project does not have significant environmental impact.
- () The environmental impact is adequately described.
- (X) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.
- () No comment.

REMARKS

All activities below the bank line shall be subject to DSL Fill and Removal Law and permits shall be acquired prior to activities in that area.

Disturbed soils shall be vegetated prior to fall rains.

Conversion of sewage discharge from many groundwater sources to a single point source discharge of treated effluent with relatively high chlorine residual will have some adverse impact within the mixing zone of the effluent. Dilution flows will provide for fairly rapid mixing.

We support alternative "A", as this provides for further construction if indicated by actual growth within the project area.

Agency Dept. of Fish & Wildlife

By Norman Behrens & Irving W. Jones



OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

STATE CLEARINGHOUSE

RECEIVED

Local Government Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Ph: 378-3732

JUN 12 1975

P N R S S T A T E R E V I E W

STATE SOIL AND WATER
CONSERVATION COMMISSION

Project #: 7506 4 250

Return Date: JUL 21 1975

Redwood Sanctuary Service District
ENVIRONMENTAL IMPACT REVIEW PROCEDURES

1. A response is required to all notices requesting environmental review.
2. OMB A-95 (Revised) provides for a 30-day extension of time, if necessary. If you cannot respond by the above return date, please call the State Clearinghouse to arrange for an extension.

ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

- () This project does not have significant environmental impact.
- () The environmental impact is adequately described.
- (☒) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.
- () No comment.

REMARKS

The local Soil and Water Conservation District feels that the problem of the redwood area is of an extremely complicated nature. The people of the area are concerned to the extent that two large factions have developed. We feel that the people of the area, who are most concerned, should make the final decision. We are concerned about preserving our agriculture land in production and providing for an abundance of high quality water.

- 73 -

Agency

Soil and Water

By

[Signature]



OREGON PROJECT NOTIFICATION AND REVIEW SYSTEM

DEPARTMENT OF LAND CONSERVATION AND DEVELOPMENT

STATE CLEARINGHOUSE

Local Government Relations Division
240 Cottage Street S.E., Salem, Oregon 97310
Ph: 378-3732

PNRS STATE REVIEW

Project #: 7506 4 250 Return Date: JUL 21 1975

ENVIRONMENTAL IMPACT REVIEW PROCEDURES

1. A response is required to all notices requesting environmental review.
2. OMB A-95 (Revised) provides for a 30-day extension of time, if necessary. If you cannot respond by the above return date, please call the State Clearinghouse to arrange for an extension.

ENVIRONMENTAL IMPACT REVIEW DRAFT STATEMENT

- () This project does not have significant environmental impact.
- () The environmental impact is adequately described.
- (☒) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement regarding this project.
- () No comment.

REMARKS

The assessment appears to adequately describe the impacts associated with the project. However, the discussion of primary and secondary effects on land use should also address the statewide land use goals and their relationship to this project. In addition, it would seem that at least one other alternative should be investigated, that is, development of a facility which would serve only the "eastern portion" of the project area described. It would also be useful to have more information about the soil suitability for farm use in the area.

- 74 -

Agency

S.C.D.C. 7/23

By

J. R. Heston

JOSEPHINE COUNTY DEPARTMENT OF ROADS
GRANTS PASS, OREGON 97526

July 22, 1975

Mr. Richard R. Thiel, Chief
Environmental Impact Section M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

Re: Comments on Draft EIS on the Redwood District Project

Dear Sir:

It is understood that in an environmental impact statement a high degree of latitude exists at the prerogative of the author. A predestined goal or concept in the mind of the author would deflate its value and strength, rendering it as a token exercise to satisfy the criteria set out for ourselves, by ourselves, in directing the flow of "our" federal funds.

The "Description of an Environmental Evaluation System" set forth in Exhibit 2 of the Draft EIS is an excellent and ideal measuring device, allowing the means for the author to continually weigh the impact with which his statements may "contaminate" the necessary objectivity of the report. The methodology described in this exhibit ranges from "Comprehensive" to the "Ability to Detect Environmentally Sensitive Areas", of which "Objectivity" and the need to be "Based on Explicitly Defined Criteria" are major components.

The assessment of environmental impacts, to quote from Exhibit 2 should be;

"OBJECTIVE, because to be meaningful the methodology must provide impersonal, unbiased, and constant yardsticks immune to outside tampering by political or other external forces."

"BASED ON EXPLICITLY DEFINED CRITERIA, because it is important to insure that evaluation criteria and values are not arbitrarily assigned. It is important that the methodology provide explicitly defined criteria and that procedures for using these criteria be explicitly stated; in this respect, the methodology must also document the rationale upon which the criteria are based."

These two concepts are re-accented here, as adherence to their principle within the Draft EIS is felt to be lacking. Evidence of this is brought forth in the statements below from the Draft EIS, and appear to indicate that the author approached the task with some pre-conceived desired results regarding project alternatives.

Summary Sheet, second page, first paragraph.

"Thus, the "no-action" alternative (in the eastern portion where land use controls have been lacking) would not meet national and state water quality goals and requirements and, thus, not be a solution to the Service District's waste disposal problems.

If land use controls have been lacking, they have been lacking in the whole County including the whole Redwood District and not just the "eastern portion". The eastern portion of the Redwood District has undergone a relatively higher degree of development than the western portion due to its closer proximity to the City of Grants Pass and not because land use controls have been lacking in that specific area.

Summary Sheet, second page, last paragraph.

"It is also possible that all project growth for the Service District (over 50 years) could be confined to the eastern sector utilizing the zoning densities recommended by the Comprehensive Plan, and thus, the plant would never have to be moved."

It is true that this is possible, however, so are a lot of other things. The desires of the District residents may not be for 6 units per acre even though this is a maximum density consistent with the Comprehensive Plan. Alternatives for parcels of SR-1 acre and SR-2.5 acre are realistic and viable development alternatives for an area served by sanitary sewers.

Hence the justification for never having to move the plant is based on arbitrarily assigned population density criteria, without mention of other alternative densities and their effect on plant location.

Page 2, paragraph 4 .

"An environmental health survey was conducted in 1970 by the County Health Department. It was performed house to house and constituted a 50 percent sampling of homes in the entire Service District. There are no more recent comprehensive surveys for the area, but results of EPA site inspections appear to support the findings of the Health Department survey."

The scope of the EPA survey should be described. The statement that "results of EPA site inspections appear to support. . ." is not based on explicitly defined criteria.

Page 10, paragraph 5.

"For the purposes of this EIS, the CH2M projection will be used for all alternatives, but a caveat should be added. During its research EPA examined numerous population projections for Josephine County and it appears that the CH2M and PL&S estimates are high. Rather than provide its own projection, or evaluate an alternative utilizing a lower design population (which would be like comparing apples and oranges), EPA utilizes the CH2M projection. When a project is finally selected, EPA may require the District to provide a new projection to support present sewer line sizing. The major effect of a design population of a project is on cost. EPA's use of the CH2M projection in the

EIS is valid because it will permit an evaluation of the relative environmental impacts and costs."

The statement was made that "EPA examined numerous population projections for Josephine County and it appears that the CH2M and PL&S estimates are high". Again a lack of explicit criteria confronts the reader as to the dates and sources of the "numerous population projections". EPA should publish its own projection if they are to require another one from the District. However, either would merely reflect another individuals best estimate of future trends based on history.

Page 24, Footnote 10; Page 34, Footnote 23

"Alternative "A" (Phase One) would only serve that portion of the Initial Service Area that is east of Darnielle Lane. The area that Alternative "A" would serve has been designated as the Alternative Service Area in Figure 2 (on page 5). It includes a portion of land (between Darnielle Lane and Willow Lane and Schroeder Lane) that is not designated by the Comprehensive Plan to be urbanized. Because of the need for sewer service in this area and the need to provide service to Rogue Community College the Darnielle Interceptor will be constructed and sized in conformance with existing zoning densities and projected growth."

"The Darnielle Interceptor, which serves an area that is not designated for urbanization by the Comprehensive Plan, would be sized to serve Rogue Community College and the growth that is projected to occur in conformance with the plan and existing zoning. The Darnielle Interceptor is necessary to eliminate use of failing septic tank/drainfields, and eliminate the package plant at the Community College."

Throughout the report EPA relies heavily on the Comprehensive Plan as a justification and/or advantage in defining the area of initial sewer service. Inasmuch as the Plan is a most flexible document always open for revision by due process, EPA arbitrarily established a need for an area outside of the existing Comprehensive Plan recommendation, without explicitly defined criteria. This analyzation, however correct, does not appear to be made objectively and is inconsistent with previous reliance on the Comprehensive Plan by EPA.

Page 27, paragraph 5.

"The composition component is a general "aesthetic quality" indicator in that it measures the aesthetic quality of an area by looking at all aesthetic parameters together. EPA HAS ASSUMED THAT AN AREA WITH OPEN SPACE, PASTURE LAND, AND A RANGE OF WILDLIFE IS MORE AESTHETICALLY PLEASING THAN A RESIDENTIAL AREA (OTHERS MAY DIFFER WITH THAT ASSUMPTION). Thus, the proposed project, and its consequent secondary impacts, lowers the general aesthetic value of the western sector of the Service District, but does not have as great an effect on the eastern sector because it currently contains a large amount of residential development."

EPA's assumption that an area with open space, pasture land, and a range of wildlife is more aesthetically pleasing than a residential area is totally inappropriate because it is just an assumption. However it was the basis for stating that the general aesthetic value of the western sector of the Service District would be lowered. However relatively precious our open spaces in this nation appear, it seems

quite realistic that a residential area is more aesthetically pleasing to some people. More specifically an impersonal and unbiased approach was not utilized and values were arbitrarily assigned.

The preceeding excerpts while perhaps appearing dogmatic, nevertheless in the aggregate create impressions in the mind of the reader which do not stem from scientific data (explicitly defined criteria), objectivity and impersonalness. If these are the ground rules for the Environmental Evaluation System (Exhibit 2 of Draft EIS) set out by EPA, then strict voluntary adherence should be accomplished in the Final EIS for this project.

The following comments are matters of technical corrections which should be incorporated in the Final EIS.

Page 2, paragraph 3.

"In 1965, the eastern sector of the Service District was declared an "emergency area" by the Josephine County Health Department, . . .".

The eastern sector as described by EPA in the Draft EIS (page 15, paragraph 3) is that area east of Darneille Lane. The emergency area is east of Dowell Road (which is about one mile east of Darneille Lane).

Page 3, Part B Facility Components

B. Facility Components

"The proposed project to be constructed consists of an activated sludge plant, a major interceptor 22,000 feet (about 4.2 miles ranging in size from 12" to 27"), plus 83,500 feet of additional lines (two smaller interceptors, mains and laterals). The entire sewerage system, at later development, as shown in Figure 4, totals 157,000 feet (over 16.5 miles) of sewer lines."

The total project, as proposed is more nearly 89,000 feet, not the 22,000 feet of major interceptor plus 83,500 feet of additional lines.

The entire sewerage system at later development, if 157,000 feet would equal 29.7 miles not 16.5 miles.

Page 8, paragraph 6

The special election for the general obligation bond issue was November 6, 1973 not 1974 as stated in the Draft EIS.

Page 32, paragraph 3

There are no pump stations in the proposed project as stated here and as shown on the map of the Proposed Sanitary Sewer System. The only pump would be at the plant site itself to lift the sewage into the treatment units.

In closing I will comment on the following quote (page 12, paragraph 4) relative to the Environmental Evaluation System (EES): "The system is designed to produce environmental impact values in numerical units, with the larger positive numbers

indicating the least adverse impacts. The important consideration in comparing the impact values for each alternative is to consider the relative differences between the existing value and the values produced by each alternative. The larger the negative value, the greater the adverse impact of the alternative. A positive value would indicate a beneficial effect."

Numerical values placed on concepts most often lack the depth and intent of the communicators meaning in written words and often serve as an over simplification of the involved issues.

I feel the most important consideration to keep in mind is that the "system does not produce environmental impact values", nor does it create the relative differences between alternatives. The system is merely a tool which will remain lifeless on the workbench until someone picks it up. That someone, whoever they may be, produces the environmental impact values and creates relative differences between alternatives.

Thank you for this opportunity to make comments on the Draft EIS.

Sincerely,

A handwritten signature in cursive script that reads "Robert Weber".

Robert Weber

Civil Engineer

Josephine County Road Department

RW:fb

Response to Josephine County Department of Roads

1. Revised per request -- see Summary Sheet.
2. EPA recognizes that a wide range of densities are possible within the limits of the Comprehensive Plan and that the will of the people will largely determine the zoning configuration of the local area. The need and timing for relocation of the Alternative "A" sewage treatment plant will depend on the densities that develop. Thus, as stated in the draft EIS, the plant may never need to be moved, or it may have to be moved as early as 20 years after construction, or it may have to be moved at 30, 40 or 50 years after start-up.
3. The Health Department survey disclosed widespread failures of septic tanks in the eastern sector of the District. Their results were based on a random door-to-door sampling of homes within the District. EPA's inspections were much less extensive and a great deal more cursory, but they did indicate that there was surfacing sewage in many parts of the eastern sector. In July and October of 1974 and April of 1975, EPA representatives visited the area and found evidence of surfacing sewage at the Redwood School, Dun Rovin Trailer Court, and some residences. It was felt that these inspections and conversations with County officials and local citizens confirmed the Health Department's findings of a wide-spread problem.
4. EPA examined four population projections for Josephine County in addition to the estimates of CH₂M and PL&S; projections by Bonneville Power Administration (BPA), the Center for Population Research, Stevens, Thompson and Runyon, Inc., and Brown and Caldwell, Inc. They are as follows:

JOSEPHINE COUNTY POPULATION PROJECTIONS

	<u>1975</u>	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>2000</u>	<u>2020</u>
BPA	36,900	39,000	41,800	44,900	49,600	60,500
Center for Population Research	39,600	46,100	52,500	58,900	75,000	125,300
ST & R	--	58,000	--	65,000	80,000	121,000
Brown and Caldwell	--	--	58,000	--	74,500	104,400

There were no figures for the Redwood area other than those provided by CH₂M and PL&S, but if it is assumed that the District will contain 11.8 percent of the county population (as is estimated by PL&S), it can be seen that the District will have about 15,300 people in 2025 compared to the 23,000 projected by PL&S. This is computed by assuming a county population of 130,000 in 2025. From these figures it appears that the PL&S projection is very high.

5. EPA believes that the provision of sewer service for the area not designated for urbanization by the Comprehensive Plan is consistent with the goals of the Plan. Sewer lines within the area will be sized to provide for projected growth consistent with densities permitted by the Plan.
6. EPA recognizes that aesthetic values are subjective. As stated on page 27 assumptions were made as to EPA's characterization of a pleasing environment and it was noted that others would differ. EPA, however, will stand on its interpretation and definition of what constitutes an aesthetically pleasing environment.
7. Revised per request -- see page 2.
8. Revised per request -- see page 3.
9. Revised per request -- see page 8.
10. Revised per request -- see page 32.

~~411 GORDON ST. BOSTON - 108 2ND ST. BOSTON~~

Hughes Building, 4th Floor

July 31, 1975

AUG 4 1975

Richard R. Thiel, Chief
Environmental Impact Section M/S 443
Environmental Protection Agency
1200 Sixth Avenue
Seattle, Washington 98101

This letter contains OSPIRG's comments on the Draft Environmental Impact Statement for the Redwood Sewage District. In summary, these comments show that the project, as proposed, will apparently violate several state-wide goals for land-use planning and Josephine County's Comprehensive Plan. The comments also note that the EPA will be in apparent violation of several of its own regulations and a portion of the Federal Water Pollution Control Act Amendments of 1972 if it awards a grant for the project as planned.

"Basically the procedures mitigate the adverse impact of sewers on land use, at least as far as those impacts relate to a project's conformance with the comprehensive plan. No zone change will be permitted unless it conforms to the comprehensive plan."

"'Comprehensive plan' means a generalized, coordinated land-use map and policy statement of governing body of a state agency, city, county or special district that interrelates all functional and natural systems and activities relating to the use of lands, including but not limited to sewer and water systems. . . ." (Emphasis added.)

"It is intended that existing planning efforts and activities shall continue and that such efforts be utilized in achieving

Richard R. Thiel
July 31, 1975
Page Two

the purposes of ORS 197.005 to 197.430, 215.055, 215.510
215.515, 215.535 and 453.345."

Under ORS 215.515 are listed three goals which appear pertinent
to this project.

"(b) To conserve open space and protect natural and
scenic resources.

. . . .

(e) To provide for an orderly and efficient transition
from rural to urban land use.

. . . .

(h) To develop a timely, orderly and efficient arrangement
of public facilities and services to serve as a framework."

Josephine County's procedures do not insure that these goals will be
met. That fact is that:

1. The project does not comply with the Comprehensive Plan of
Josephine County;
2. If implemented as planned, the project will create pressures
for a change in the Comprehensive Plan;
3. Such a change in the Comprehensive Plan will apparently
violate Oregon's interim state-wide land-use goals; and
4. A grant award for construction of the project as planned
will violate the EPA's own regulations for grant awards
and the 1972 Federal Water Pollution Control Act Amendments.

1. The project does not comply with the Comprehensive Plan of Josephine
County: the size of the interceptor is based on a population density
15 times that allowed in most of the area under the Comprehensive Plan.
The EIS states (page 8) that the interceptor is designed to serve
between 20,000 and 23,000 people. This latter figure according to
the EIS (page 10) is based on an ultimate population of three units
per developable acre throughout the district. On pages 14-15, the
EIS states that in the Comprehensive Plan most of the district is
designated as Farm Residential (5 to 10 acres per dwelling unit) and
that the predominant zoning classification for the district permits
development on minimum five acre tracts of land. As a result, for
the design population to be achieved, the Comprehensive Plan would
have to be changed.¹

2. If implemented as planned, the project will create pressures for
a change in the Comprehensive Plan. Having a facility in the ground
that is not being used to anywhere near full capacity will in itself
create pressure for development. Given current and projected scarcity

1. While exhibit 6 of the draft EIS contends there is a dual recommendation in
the Comprehensive Plan for the eastern portion of the District, we find no
mention of this in the Plan's text. We have not seen the Plan map.

of funds for local governments nation-wide and the effects of inflation, the local government can be expected to be reluctant to extend service to new areas before a facility already in the ground nears capacity. In addition, the method of funding the local share will create pressures on local government to encourage development of the area. The major portion of the local share of funding is to be financed by \$745,000 in general obligations bonds (EIS page 8). These bonds will be paid back by property owners through assessments and connection charges. The local government will be pressed to encourage sufficient development to pay off these bonds on schedule. Pressures resulting from this type of funding have been noted in the study done by Urban Systems Research and Engineering Inc. for the Council on Environmental Quality entitled "Interceptor Sewers and Suburban Sprawl: The Impact of Construction Grants on Residential Land Use, Volume I".

3. A change in the Comprehensive Plan to allow the population projections on which the interceptor size is based will apparently violate Oregon's interim state-wide land-use goals.

a. Before evaluating the project in light of these goals, it is necessary to look at the district's comprehensive plan classification, its population density and use of the land, and the sewage disposal problems which are cited as reasons for the project.

(1) Comprehensive Plan Classification.

The draft EIS notes that most of the area is classified as Farm Residential in the Comprehensive Plan, and quotes the plan as follows (EIS page 15):

"Farm Residential areas (5 to 10 acres per dwelling unit) are intended to encourage rural residential living in an agricultural or open environment through large lot size development that will minimize conflict between residential and farm use and establish densities consistent with soil suitability and physical characteristics. Availability of community water and sewer services is very unlikely in these areas." (Emphasis added.)

(2) Population density, and use of the land, and sewerage problems.

The draft EIS (page 15) notes that the district can be divided into two areas: eastern and western, with markedly different characteristics.

(a) The eastern portion: According to the draft EIS (page 15), this portion is:

"... fairly well developed and experiencing severe problems with disposal systems

The eastern portion of the District is developed to a much greater density. [than the western portion] Within the eastern portion of the District the five acre minimum lot size serves the purpose of limiting septic tank development rather than preservation of rural areas."

In summary, the EIS is saying that the area has sewage problems and that it is developed to a point where it is no longer suitable for preservation as a rural area.

- (b) The western portion: On the same page of the draft EIS, the western portion is described as:

"... less densely developed with large lots and fewer sewage disposal problems ... [than the eastern portion]. Within the western portion of the District, development has occurred on a scale consistent with present zoning regulation. In this sector, the minimum lot size serves two purposes; it preserves the rural character of the area and it permits development on septic tanks only where enough land is available to allow proper operation of a drainfield."

The draft EIS (page 2) "estimates" that approximately 10 to 15 percent of the sewage disposal systems "having problems" are located in the western portion of the service district. The study of systems in this district noted a total of 173 systems "having problems". Ten percent of this would be 17 systems in the western section. Moreover, the EIS lists two classes for systems "having problems". These are "malfunctioning" and "questionable". The draft EIS gives no estimate of how many of the 10 to 15 percent of these systems in the western district were actually found to be malfunctioning, and how many were merely questionable.

In summary, the sewage problems are much smaller in the eastern portion, it is not clear how serious the problems are, and the area is still suitable for preservation as a rural area.

- b. Possible violations of state-wide goals in the eastern section. The major sewage problems appear to be in this portion. The area is also more densely developed than the rest of the district, although the EIS does not clearly state how densely developed. Whether these two factors justify planning for 15-fold change in

population density (from one dwelling per five acres to three dwellings per acre) is another question. Serious questions remain as to whether such a change would comply with the following two interim state-wide land-use goals as listed in ORS 215.515:

"(e) To provide for an orderly and efficient transition from rural to urban land use.

. . . .

(h) To develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development."

c. Apparent violations of state-wide goals in the western section. We seriously question that "problems" with 17 to 25 disposal systems -- many of which may be merely "questionable" -- constitutes justification for putting in any sewer at all, let alone one planned for a 15-fold increase in population in an area now constituting open space. Such an action directly contradicts the following interim land-use goal (ORS 215.515):

"(b) To conserve open space and protect natural and scenic resources." (Emphasis added.)

Moreover, if any part of this district should be developed to the projected density (and we have raised questions that it should) it should be the eastern section alone. Given the markedly differing population densities of the two areas, opening up the western portion for development simultaneously with the eastern district would place the County in apparent violation of goals (a) and (h) already noted in the previous section. As we have pointed out in part 2, putting in the interceptor as planned will create pressures for development of these areas.

4. A grant award for construction of the project as planned will violate the EPA's own regulations for grant awards and the 1972 Federal Water Pollution Control Act Amendments.

a. According to Title II (201(f)) of the 1972 Federal Water Pollution Control Act Amendments:

"The administrator shall encourage waste treatment management which combines 'open space' and recreational considerations with such management." (Emphasis added.)

The current designation for most of this area in the Comprehensive Plan is intended to encourage living in an "open environment". Awarding a grant for a project based on an ultimate population of

three dwellings per acre when the area is currently designated as an "open environment" evidences disregard for the portion of the law quoted. This is particularly true for the less densely developed western section.

b. 40 CFR Chapter 1 §35.935-4 requires that:

"The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of State, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this sub-chapter."

As pointed out above, the project does not now conform with the County Comprehensive Plan population densities. A change in this plan to allow the population levels projected might violate state-wide land-use goals in the eastern portion of the district. It almost certainly violates these goals in the western portion.

c. 40 CFR Chapter 1 §35.925 states that:

"Before awarding initial grant assistance for any project for a treatment works through a grant or grant amendment, the Regional administrator shall determine that all of the applicable requirements of §35.920-3 have been met and shall further determine:

. . . .

35.925-7(a) The design, size and capacity of such works are cost effective and relate directly to the needs to be served by such works, including reserve capacity."

- (1) Two separate questions arise here. There is a serious question that a sewer capable of serving three dwellings per acre is the most cost effective method of dealing with sewage disposal problems in the district. This is especially true of the western district which has an estimated 17 to 25 systems with "problems". There is no indication as to how many of these "problems" are actual malfunctions and how many are merely "questionable".
- (2) If the state-wide goals will not allow the population density that the project is designed to serve in the district or portions of the district, no argument can be made that such excess capacity is cost effective. It is noteworthy that the County Commission Resolution (draft EIS, exhibit 6) dated August 22, 1974, regarding zone changes in the eastern portion of the sewage district does not mention these state-wide land-use goals. Since

Oregon's Land Conservation and Development Commission is charged with interpreting the goals under ORS 197.300, the only way for the EPA to determine whether such changes will be allowed under these goals is to seek review by the LCDC. Under state law, EPA cannot do this directly. However, it can request the Department of Environmental Quality to petitions for review:

"ORS 197.300(1) In the manner provided in ORS 197.305 to 197.315, the commission shall review upon:

. . . .

(c) Petition by a state agency, city or county or special district, any county governing body action that the state agency, city, county, or special district considers to be improperly taken or outside the scope of the governing body's authority under ORS 197.005 to 197.430, 215.055, 215.510, 215.515, 215.535 and 453.345."

Without such a review, the regional administrator will have no way of making a determination that the project is or is not cost effective (or that it complies with state-wide goals.)

1 | We recommend that the EPA request the Oregon Department of Environmental Quality to petition the Oregon Land Conservation and Development for such a review.

2 | Apart from the considerations set forth above, there is one statement in the draft EIS that we hope the EPA will clarify in the final EIS. On page 8, the following statement appears:


"If the proposed project is not approved for Federal funding and an alternative is selected, a new bond election would have to be held. In such a case there is a risk that the voters would not approve another bond issue, and based on public objection to the proposed project, the risk could be substantial."

This statement raises questions about the extent to which funding fears will undermine objective consideration of alternatives. Specifically, we would like to know what weight this consideration will be given compared to consideration of cost effectiveness and compliance with state and local laws required by EPA regulations and open space considerations noted in the 1972 Federal Water Pollution Control Act Amendments.

Richard R. Thiel
July 31, 1975
Page Eight

We hope these comments are helpful in your evaluation of the project. If you have any questions please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Sally Rose".

Sally Rose,
OSPIRG Summer Intern

sr:dh

cc: Henry R. Richmond, III, Esq.
Mr. John Vlastelecia
Mr. Hal Sawyer
Mr. Loren Kramer
Mr. Hal Brauner
Josephine County Commission

Response to Oregon State Department of Environmental Quality

The OSPIRG letter focuses on the Federal, State and local laws and regulations governing landuse and sewer construction. The Environmental Protection Agency being fully aware that one of the major issues concerning the proposed project was its compliance with Federal, State and more importantly the local comprehensive land use plan asked for a legal opinion from EPA's Region X counsel. The result of their research is the basis for the "Preface" section to this final EIS.

We hope that the "Preface" deals adequately with those many concerns in this comment letter. In addition, two specific requests in the OSPIRG letter are answered below.

1. Please see letter from Oregon State Intergovernmental Relations Division which includes comments from LCDC.
2. Josephine County did indicate to EPA that a new bond election would probably have to be held if the scope of the project was changed. EPA has not verified this with the County's attorney, nor has it been EPA's experience that a reduction in project scope requires a new election. The reference to the possibility of a new bond election was included to show that additional delay may follow the selection of Alternative "A".

In terms of the decision-making process the possibility of this delay will be considered only insofar as it relates to the continuation of a bona fide health hazard within the eastern sector. The perpetuation of a health hazard is an environmental impact that EPA is mandated by NEPA to consider.

PICKENS AND WEBBER

ATTORNEYS AT LAW

521 South Riverside — Medford, Oregon 97501

Telephone 779-6023 — 773-7389

29 July 1975

RECEIVED
JUL 31 1975
EPA/EIS

Richard R. Thiel, Chief
Environmental Impact Section M/5 443
ENVIRONMENTAL PROTECTION AGENCY
1200 Sixth Avenue
Seattle, WA 98101

Re: Draft Environmental Impact Statement on Redwood
Service District, Josephine County, Oregon - EPA
Project C-410411

Dear Mr. Thiel:

The following is submitted for your consideration on behalf of the Redwood Area Citizens Association. The Redwood Area Citizens Association is against the proposed service. The Association feels that the EIS is deficient in a number of areas. These comments are presented in the order they arise in the EIS.

The statistics cited to establish that a problem exists in the area are from a County Health Survey in 1970. There is no evidence provided to establish what was causing the sewage systems to malfunction. The statistics from that same survey indicate that 24% of the domestic wells in the area were contaminated, but goes on to state that only 68% of the wells are in approved locations and that only 36% are of approved construction. If the reasons for the problems in the system is poor design or construction, then the individual owners should be responsible for the replacement. It would be an extreme remedy to force the service on the entire district. We feel that the EIS should pinpoint the cause of the malfunctions.

In regard to the population projection, EPA indicated that after a project is selected, a new population projection may be required to determine sewer line sizing. It would be much more appropriate to require the projection prior to selecting the project to aid in selecting the right project.

Under Social and Economic Impacts, page 22, the EIS correctly recognizes that community well-being is an important impact consideration. In this particular case, the most important consideration. The ground swell of resistance to the proposed project rose when it became evident to a substantial number of area residents that the sewer would make their present life style impossible. They had moved to this area because of its rural character and believed it would remain rural under the comprehensive plan.

The area is presently dependent on wells for its domestic water supply. As the density of the area increases, can the ground water table supply the needs? This would seem to be a real impact, but it isn't considered in the EIS.

The EIS includes consideration of two (2) alternatives to the proposed project. The Redwood Area Citizens Association feels that there are a number of other alternatives which should be considered or at least have an explanation as to why they have been rejected. Some of the more obvious alternatives include:

1. Extending the sewer presently reaching the eastern edge of the Redwood Service District to serve the problem area.
2. Allow the use of individual sewage disposal units.

The comments presented by the proponents, at the EIS hearing attempted to justify the need for a sewer system because of problems at the Redwood School, Rogue Community College and some private trailer courts. The members of the Redwood Area Citizens Association are strongly opposed to the use of the money to solve problems which are the responsibility of an entire school district, the entire county and individual land owners.

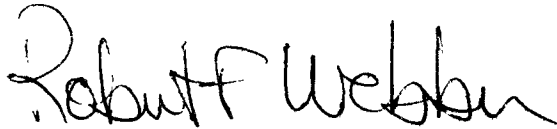
The proponents also imply that it is the responsibility of the residents of the Redwood District to provide a place to live for all the people moving to Grants Pass in the next 50 years. The members of the Association do not feel any such obligation and in fact are opposed to the idea of making this area urban, regardless of who pays the bill.

Thiel/Webber
29 July 1975
Page 3

Thank you for your consideration of the above.

Sincerely,

PICKENS & WEBBER

A handwritten signature in dark ink, appearing to read "Robert F. Webber". The signature is fluid and cursive, with the first name "Robert" and last name "Webber" clearly distinguishable.

Robert F. Webber
On Behalf of the Redwood
Area Citizens Association

RFW/jh
cc: Redwood Area Citizens
Association

Response to Robert F. Webber (Redwood Area Citizens Association)

1. In the draft EIS, EPA discusses reasons for septic tank failures within the Redwood Service District. The factor contributing the most to septic tank malfunctions are soil suitability, shallow ground water table, density of community development and general lack of proper maintenance. This was further evidenced on July 15, 1975 at EPA's Public Hearing on the Redwood draft EIS, when Bill Olson of the Josephine County Health Department stated that "...the soils in the area all have several disadvantages: 1. shallow soil restrictive layers; 2. temporarily present water table; 3. insufficient slope to provide removal of interfering ground water." Improved design and better maintenance techniques will only provide a temporary solution to the problem of the eastern sector.
2. As density increases ground water supplies may prove to be inadequate to serve the needs of local residences. In such a case a community wide water system may become necessary. As stated in your comment it should be considered as an environmental impact.
3. Extension of the service from Grants Pass to the eastern edge of the service district was considered as an alternative but was dismissed as not being feasible. The City of Grants Pass notified Josephine County that they would not provide service to the Redwood District due to an inadequate capacity of the treatment plant to handle the additional waste water flow. See also response to Virginia Webb.
4. Please refer to response to Harold H. McClure.

1083 Mesman Drive
Grants Pass, OR 97526
July 17, 1975

RECEIVED

JUL 21 1975

Mr. Richard R. Thiel, P. E., Chief
U.S. Environmental Protection Agency, Region X
1200 Sixth Avenue
Seattle, Washington 98101

EPA-FIS

Dear Mr. Thiel:

At the public hearing on the Draft EIS for the Redwood Area of Grants Pass we turned in a five page critique of the statement.

1 Our main points were¹ a request for correction on p. 2 of the following: "In 1965, the eastern sector of the Service District was declared an 'emergency area' by the Josephine County Health Department,..." It was only a few hundred acres of the eastern sector bounded by Dowell Road, the Rogue River, Allen Creek and the Redwood Highway; 2 p. 22: "community health will be improved" (as a result of a sewer plant). No deaths that are sanitation-related have occurred over the past ten years and sanitation-related diseases, like hepatitis, have been minimal and no different from other areas of the county--in fact, much better by far than such areas as Takilma, etc., where really serious sanitation problems have been corrected by proper septic tanks and privies. There is no community health problem in the Redwood Area.

3 Our other points concerned the need for full information on on-site packaged treatment plants, the cost and impact of a piped and treated water supply, phasing out of the Grants Pass Irrigation District, filling in irrigation ditches and constructing storm drains to take their place, street improvements and lighting, additional schools, police and fire protection--all the projected costs that would follow close on the heels of a rapid increase in population because of a sewer. We also need full information on the expected makeup of the new residents, since we have a 20% unemployment problem. How could retired people who would need no jobs be expected to move from Anaheim to just another highly taxed urban area?

Very truly yours,
Signe M. Carlson

Response to Signe M. Carlson

1. Revised per request -- see page 2.
2. Deaths by sanitation-related diseases and the incidence of those diseases are obviously the best indicators of a severe health problem, but most health officials rely on other "signals" as well as disease incidences to determine that a health hazard exists. The most common signals are surfacing sewage, bacterial contamination of groundwater (wells), and high fecal coliform counts in surface waters. While there may be a low rate of sanitation-related diseases when these "signals" are occurring, their presence, particularly in populous areas, indicate that a potential health hazard (with real danger) exists. Frequent examples of these "signals" exist in the Redwood Service District, to the extent that the Health Department has declared one section an "emergency area". These facts have convinced EPA that a community health problem exists in the District, and that they require a community solution. Our present standard of living here in this community simply doesn't permit us to wait until widespread deaths or an epidemic results.
3. All of the secondary impacts listed in this letter are common results of the urbanization process and they do incur substantial local costs. To project this cost or even make a "ballpark" estimate is beyond the necessary scope of an EIS.

1800 Southgate Way
Grants Pass, Ore
14 July 1975

Richard R. Thiel, Chief
Environmental Impact Section 745 443
Environmental Protection Agency
1200 Sixth Ave
Seattle, Washington 98101

RECEIVED
JUL 17 1975
EPA-EIS

Dear Mr. Thiel

Project C-410411

Thank you for the Draft Environment
Impact Statement on the Redwood Service
District waste treatment plant and sewerage
system, Josephine County Oregon C-410411

In order to be brief I will outline the
points I wish to make.

I favor the scaled down version
known as Alternative "A" chapter 6 page 33.

It is my understanding that along with
a sewer project would come

(a). a drainage system for surface water
as the ground water level is high during
the heavy season and the summer irrigating
season.

(b). a water treatment plant and distribution
system.

The project as planned is on a grand scale
contemplating 20,000 people for an area where
unemployment is over 10%.

I can visualize the tax rate skyrocketing.

Sincerely
L.H. Chasbawen

Grant pass, Oregon
July 24, 1975

Richard R. Thiel, Chief
Environmental Impact Section
Seattle, Washington MS 443

Dear Sir -

In response to your letter of July 14, 1975, we appreciate your interest in my opinion.

Most of my objections to the draft E.I.S. was given at the hearing July 15, 1975 but here are a

few more. The E.I.S. makes little if any mention of alternate systems such as Waste To Fuel, etc.

There are many successfully used in the U.S. and we don't have Regional offices have information on them.

The officials who testified at the hearing do not live in the same District and will pay me

accommodate on the project.

Most people on the petition, submitted at the hearing live in trailer courts in the area and they too shall pay no accommodation.

It hope you consider the above before you make your decision. Thank you very much

RECEIVED

JUL 28 1975

EPA-FIS

Sincerely
Harold W. M. Elise
2533 Stearns Road

Response to Comments by Harold H. McClure

1. EPA has and is still investigating new developments in the field of wastewater treatment, including individual disposal systems. EPA has found that in specific situations such systems operate satisfactorily. The Redwood area, however, contains poor soils for subsurface systems and experiences high groundwater conditions. These factors make the use of subsurface systems infeasible in parts of the District where suitable land area is not available.

Systems that do not require subsurface disposal of solids are still in the experimental stage within the U.S., and as such they are not considered (at present) a viable or fundable solution to wastewater treatment problems.

July 22, 1975

Richard S. Thiel, Chief
Environmental Impact Section M/S 443
Environmental Protection Agency
1300 Smith Avenue
Seattle, Washington 98101

Dear Mr. Thiel:

I am replying to the Draft Environmental
Impact Statement on the National Security Service
District, Josephine County, Oregon, EPA Project
C-410411. I respectfully submit the following
additions, changes, and comments.

My name is Virginia L. Ellett. My husband
and I have owned 17.38 acre farms in the "Countryside"
Phase I of the proposed project. We object to having
the same investigator put across the middle of
our hay field to correct it good facts. To whom
we properly against exhibiting actual rice,
against exhibiting general rice and against our
well. We did not ask for a review and the D.E.C.
has not disclosed our area nor are there any
existing health hazards.

RECEIVED

JUL 28 1975

EPA-EIS

Comments re:

Chapter Two - Current Environmental Quality Conditions.

Para. G. Economic Conditions. (Page 16)

1. Although this statement notes the county's "dependence on the volatile timber industry" (the landmass of Josephine County is predominately timber covered mountainous terrain), this statement fails to note the District's historical agricultural use as cleared, irrigated, fenced land for dairy cattle and feeder stock and for the production of hay for feeding this stock. This statement should include the fact that much of the land in the District is currently in agricultural use and products are raised for sale.

For example, in 1974 and 1975 this District has - or has produced: *

1. At least 3 dairy herds producing milk for market.
2. Hay harvested for sale.
3. Feeder beef stock raised for sale.
4. Sheep producing lamb for sale.
5. Weaner pigs produced for sale.
6. Blueberries raised for sale.
7. Vegetables raised for sale.
8. Registered Herford Bulls.

* See Exhibit 'A'

EXHIBIT A

List of persons, of whom I am aware, who raised agricultural products for the purpose of selling them in 1974-1975. This is an example list only, as no attempt was made to take a survey.

1. Milk - Buckmaster - South River Road.

Forman - Leonard Road

Jaynes - Redwood Ave.

2. Hay - Webb - South River Road

Janusson, Leonard Road

Jweed, - Redwood Ave.

3. Beef - Steak - Burton - Jenkins Road

Webb, South River Road.

Humbard - Leonard Road

Janusson - Leonard Road.

4. Lamb - Johnson - Leonard Road

Lindgren Leonard Road

5. Weaner Pigs - Kopp, South River Road

6. Blueberries - Weir - Boundary

7. Vegetables - Mickland, Leonard Road

Merchants, Leonard Road.

8. Registered Hereford Bulls - Jenkins - Leonard Rd.

2. The statement notes the current problems of the timber industry but it does not recognize the plight of the farmer — specifically the squeeze between the high cost of everything to produce milk and meat and the continued milk prices & the erratic beef market conditions. This squeeze accounts for the lower volume of products currently being produced in the District.

Examples:

1. Feed and equipment repairs up 100%
2. Seed and fertilizer up 200%
3. Baling string up 300%
4. Milk prices went down spring 1975
5. Beef stock prices below break even point November 1974 through spring 1975.

- 2 | 3. Individuals living in the District are self-employed doing custom field work — hay cutting and baling, ploughing or rototilling, etc.
4. Even when the agricultural market value is low, the ability of those persons dependent on seasonal timber activities and tourism, and those on Social Security, to provide much of their basic food needs from a family farm is of

considerable economic importance to the individuals and to all taxpayers staggering under the increasing welfare burden.

K2:

Chapter Two - Secondary Environmental Impact of the Proposed Project - Western Half of the Service District.

(page 25)

1. Lamb should be added to the list of products produced in this area.
- 3 2. "Not for market," should be deleted. The statement should show that people in this area do raise products with the intention of selling them and milk quotas are being maintained.

K2:

Chapter Two - Environmental Impact of Proposed Project.
Secondary Environmental Impacts of Proposed Project.

Area B. Impacts on Physical / Chemical. (page 23)

- 4 1. No impact has been projected for the air quality as the population density of the valley floor approaches the projected 20,000 to 23,000 persons.
Factors which will contribute to air pollution at such a population density.

1. The District is a valley surrounded by

- foothills backed up by mountain ranges.
2. A natural inversion factor exhausts much of the summer.
 3. The western section is subject to fog in spring, fall and winter seasons.
 4. Home heating in the area is provided mainly by the burning of oil and wood.
 5. The number of automobiles that would be required by the projected population to commute from this suburb to jobs and markets.

5 | 2. No impact has been projected for the large drainage system (dumping into the Rogue River) that will be required as the population density of the valley reaches the projected 20,000 to 23,000 persons,

Factors which would contribute to need for large drainage system with some negative impact on Rogue River water quality.

1. Heavy rains, that now fall on the mostly open grass land with some standing water, would not all be absorbed by the remaining open land when 40% (at 4 units per acre) of this land is covered by houses, garages, patios,

walkways, driveways and county roads (existing rural type with open ditches on both sides).

2. Drainage system based on existing creeks and irrigation returns would not be adequate or compatible with urban living.

3. Full urban density would require streets with curbs wide enough to accommodate parking and without messy ditches where kids could be drowned and require such urban necessities as shopping centers and parking lots, all covering well over 60% of the land and a large street by street drainage system would be required.

6 The statement in the second paragraph on page 31, "development leading to increased waste loads from storm water runoff, which may, to some extent, offset the improvements in water quality in the Rogue River" is an inadequate understatement to one who has a neighbor who had to dig a foot deep ditch across his driveway to keep the standing water on his large lawn from coming over his raised patio during a heavy steady rain.

Para. C Impact on Aesthetics:

- 7 1. a flatland urban area with air pollution is not likely to attract tourist or retired persons who are trying to get away from the larger urban areas with air pollution.
- 8 2. a drainage system with large above ground culverts at the rivers edge, to prevent back up of water at the rivers high water stages, and surfaced spillways to prevent erosion and turbidity would have a negative impact on Aesthetic values from both the housing or boating view.

Re:

Chapter Six - Alternatives to the Proposed Project.
(pages 33 through 40)

- 9 No alternative has been considered for having the Grants Pass Sewer service extended to the relatively small area of the Eastern section where the potential health hazard does exist and where the present population does need a sewer.

The advantages of this alternative would be to:

1. Remove the potential health hazard and prevent adverse impact on the water quality

of the Rouge River.

2. Prevent the premature loss of the ability of the land to support live stock in the greater part of the District now used and zoned for this purpose.

3. Allow time for Grants Pass and Josephine County to increase the water supply capability and the electrical power capability of the valley to provide for the development of the vacant land in the already sewered, urban sprawl areas in and around Grants Pass before another such area is created.

Comments:

The secondary impact of the proposed project will be to create problems that will be self-defeating to the aim of the County toward increased tourist trade and retired persons with incomes.

The need for most of the land in the District for houses is highly speculative and not pressing. Grants Pass city and suburbs are not completely built up and the already sewered Harbeck - Fruitdale area is just beginning development toward urban density.

The many weed fields between land in use (for houses and gardens or for pastures) in both of these areas attest to this fact. Current water and power capacities have to be increased before these areas can support a population to fill the vacant available land.

The District will require a water supply and system, greater power capacity, a huge drainage system and additional roads to care for a population large enough warrant and afford a sewage system in the major portion of the District (all of Phase II and much of Phase I). All of these requirements are expensive. A county where incomes are so largely dependent on Social Security, Unemployment Benefits, and welfare, and an area of privately owned parcels of 40 acres and under, can't anticipate building by large "developers" with the financial backing to provide proper planning and installation of these facilities at the time of development.

With the land sewered, zoning changes made to accommodate the land owners planned use on a parcel to parcel basis, a developer could create an Urban Island on one parcel. Next

door, the owner could sell off the back half of his six acres. The buyer could build anywhere on his three acres at the end of a long "right of way" easement, then sell off an acre or so to a new buyer who could do the same thing. Many existing houses are not built on the road frontage. When such haphazard development approached a population density large enough to require paved streets and a drainage system, it will be extremely difficult and expensive to provide satisfactory service for such a varied housing pattern. The area would need urban renewal before it could achieve full urban density.

A large part of the housing market for retired people is for mobile homes in maintained parks. There are no zoning provisions for such parks, but some land along the river has been purchased with this purpose in mind on the strength of the sewer District being formed. This land use is highly efficient and is in current demand, so it would most likely be among the first development in this area. However, this land use would be incompatible with existing land use for dairies and family farms with

stock and with existing family homes which line most of the river bank area.

A few such urban islands of mobile home parks or houses in a row could soon destroy the agricultural use of the land. Laws do not protect the rights of the minority of property owners to their way of life - to keep animals and have adequate land on which to care for them. This "way of life" is a majority in over half of the acreage in the District now. With the one person, one vote system, urban densities of three to six units per acre could soon pass nuisance laws against roosters crowing, animals breeding where humans might see them and barnyard odors.

The landowners in the Western Area did not ask for a sewer system and the area was included in the District over the objections of a number of landowners who realized their land was to be included. The DEQ has not included this area in the potential hazard area. The small acreage of the District which now requires sewers contains an almost urban population with some houses on less than an acre

and high density population in mobile home parks. Ten acres of houses on one acre lots would have approximately 20 votes. The ten acres of mobile homes must have at least 80 to 160 votes. Where we live, fifty acres of land in agricultural use (Webb, 17.3 acres - Hay + stock; Buckmaster, 30 acres - dairy, hay, and stock; and Green, 5 acres, family farm with stock) has only 8 votes. The Mobile Home Park that has sewer problems, can sewer the whole ten acres of homes with an assessment of under \$1,000.00 from a small access to the sewer road. The Phase I interceptor will run the full length of the middle of our 13.5 acre, fully irrigated hay field with an assessment of \$9,427.75 for 200 feet on both sides of the line and another sewer line will run the full length of our road frontage for an additional assessment of an estimated \$6,000.00. 750 units at \$1,000 each would cover the \$745,000 bond issue.

Food is a necessity. With the projected rise in population; the loss of much of the farm land in Medford - Central Point area

to financing development, the lack of additional
land which can be irrigated for hay production
and feed crops; with moving transportation costs
and with greater competition for feed from the
rest of the United States' markets and from
world markets; the ability of this livestock
to raise a part of the basic food needs for the
country could be an important economic factor
for the future. A country with an economy
built on basic renewable resources should be
in a good position in the future world of over
population - 2025 AD.

Respectfully yours,
Virginia S. West
3362 So. River Road
Mount Rain, Oregon 97526

A FARM BUREAU OPINION

Preservation of farm land essential goal

Preservation of farm land has become one of the high priorities for goals and guidelines being considered by the Land Conservation & Development Commission. The need to maintain food production, open space, "green belts" and "green spots" was mentioned by participants in both spring and fall rounds of workshops conducted by LCDC for citizen participation and input.

Goals and guidelines, or both, must include protections to allow farmers the "right to farm". If we are going to be locked-in to farming by urban growth boundaries, exclusive farm use zones or other devices to preserve farmlands, farmers must have assurances against nuisance suits and regulations governing dust, odor, noise and other conditions that exist in agricultural production.

Disproportionate share of property taxes, high tax rates, realistic farm use assessment values and acceptance of farm use assessed values for estate and inheritance taxes are additional considerations. Farm lands must also be exempt from

sewer and domestic water assessments and related taxes.

Many city dwellers want to move to the country to get away from city noises and crowded conditions. They want the pleasures and benefits of country living, but some are requesting conditions be imposed on farmers without consideration of possible consequences. Some situations:

- Some farmers in urban growth areas cannot use aerial application of chemicals as plane or helicopter operators cannot find an insurance company to cover their liability.
- Several fur farmers and livestock operators have been put out of business by suits requiring them to "abate a nuisance".
- Farmers have been asked by police officers not to work at night as noise from their equipment prevents neighbors from sleeping.

By requiring that farmlands be preserved the Legislature must protect the farmers' "right to farm" if Oregonians want food production, open space, "green belts", etc.

YOU AND YOUR TAXES

By Ellsworth W. Jones, Service Director, WFB Life Insurance Company

TAX BREAK RETIREMENT

election Employees and requested-but here's a breakdown
officers who own more than 1
Continued on page 5

Reader Opinion

To the Editor:

I am writing in support of the candidacy of Jesse Fasold, for the non-partisan position of Superintendent of Public Instruction.

Having been active as a lay person in education for a number of years, I sincerely believe that Oregon education needs Jesse Fasold in this position at this time.

Many new programs have been undertaken in the past few years and it would create severe problems for local districts if there were to be a change in the direction of the state department's programs.

I especially support Mr. Fasold's position on local control of education. He strongly believes that decisions affecting local districts should be made at the local level and not be state mandated.

Mr. Fasold will work to support the efforts of local school officials to maintain good educational programs without imposing unnecessary burdens on local people.

A vote for Jesse Fasold is a vote for strong local control of education.

Robert Humphreys
Route 1, Box 33
Sublimity, Oregon

TO THE EDITOR:

There is a federal publication entitled "Federal Register," which any federal agency can use to enact laws and regulations, possibly within sixty days, affecting any and all citizens. Federal departments are using this means to circumvent the Constitution, the Senate and the House of Representatives. We are having bureaucratic laws imposed upon us without representation. Government departments and bureaus are stripping Congress, our constitutional legislative branch of government, of its obligation and responsibility to legislate laws.

The land use bill that was defeated by the House of Representatives was later put into the "Federal Register" on page 7276 in February, 1974 and became law on July 1, 1974 over the vote of our representatives.

We must curtail the use of the "Federal Register" by federal agencies to enact laws upon us as American citizens.

Please advise me of the action you take

Dale Standley

Response to Comments by Virginia Webb

1. EPA did not investigate the historical land use within the District although it appears that it was largely agricultural. Presently, the District displays a mixture of land uses including residential, commercial and agricultural areas. The western sector consists of a residential-agricultural mix. The data presented in "Exhibit A" of Ms. Webb's letter (the data has not been verified by EPA) does show a relatively wide range of agricultural activities occurring in the District.
2. EPA did not find any statistics on the occupations of District residents. Due to relative lack of employment opportunities within the District it is probable that most non-farming workers are employed outside of the District.
3. Revised per request -- see page 25.
4. It is probable that the air pollution level of the District would increase as population growth and urbanization occur. As noted by Ms. Webb, the increase in automobile traffic would be the primary cause of increased air pollution levels. It is not anticipated that the increase will exceed levels established by Oregon air quality standards because of improved vehicular pollution control, expanded use of unleaded gasoline, and improved public transportation should it prove feasible.

5. and 6.

It is possible that a stormwater drainage system will prove necessary as residential growth occurs within the District. Construction of the system will have temporary adverse impacts related to construction activities. The cost of the system is beyond the scope of this report.

The addition of stormwater runoff from a urban drainage system would have an adverse effect on the water quality of the Rogue River, but it is not expected to violate water quality standards. As noted in the draft EIS, page 31, the decrease in water quality from stormwater will partially offset the improvements in water quality resulting from sewerage system construction.

7. EPA indicated in its discussion of aesthetics that it assumed open space and rural areas were more aesthetically pleasing than residential areas (an assumption not shared by everyone). This change in aesthetic quality would have the greatest effect on development patterns: those desiring a rural setting would move from the area or not buy into it, while those people desiring a residential environment would be attracted to the area.
8. It is possible that construction of a storm water drainage system would entail placement of culverts and paved spillways at the edge of the

Rogue River. It could cause a change in the aesthetic quality of the riverfront depending on one's aesthetic values.

9. Connection to the Grants Pass sewerage system was an alternative that was evaluated by the District and EPA, but rejected for the following reasons:

- a. A 1969 study by the engineering firm of Brown and Caldwell indicated that a regionalized sewer system serving Grants Pass, the Harbeck-Fruitdale area, and the Redwood area would not be economically feasible (CH₂M reached the same conclusion).
- b. The City of Grants Pass was under pressure to expand and upgrade their plant before the Redwood Service District could organize and obtain financing approval. Thus, the Grants Pass sewage treatment plant has been sized to serve only the City of Grants Pass and the Harbeck-Fruitdale area.
- c. The best way to provide service to the three areas (from one treatment plant) would be to locate the plant at the west end of the Redwood Service District. This location would, obviously, not eliminate the concerns surrounding the proposed project. It would also result in the abandonment of the existing Grants Pass treatment plant.

Mr. Richard Thiel
 U.S. E.P.A.
 1200 6th Ave.
 Seattle Wn.

1496 Boundary Rd
 Grants Pass Ore.

RECEIVED

JUL 25 1975

EPA-FIS

Dear Sir: -

In regard to the Draft E.I.S I would like to comment on the fact that the map enclosed shows a 10" line midway between Boundary Road and Jenkins Avenue. This 10" line would serve no homes or any other purpose than to force a new road to be constructed at this location.

Several years ago the people on the perimeter of this area expressed their disapproval of such a road due to the fact that Sparrow Hawk Creek runs along this line. This creek serves as a natural drainage for this area and the brush and trees forms a natural game and wild life refuge along this stream. In the interest of the wild life I object to the installation of a sewer line in this stream bed.

I would further like to comment on the fact that the Redwood School could be sewered by a line from

the city sewer at the Fair grounds which would be far less costly and would not interfere with the life style of the people of the western portion of this sewer district.

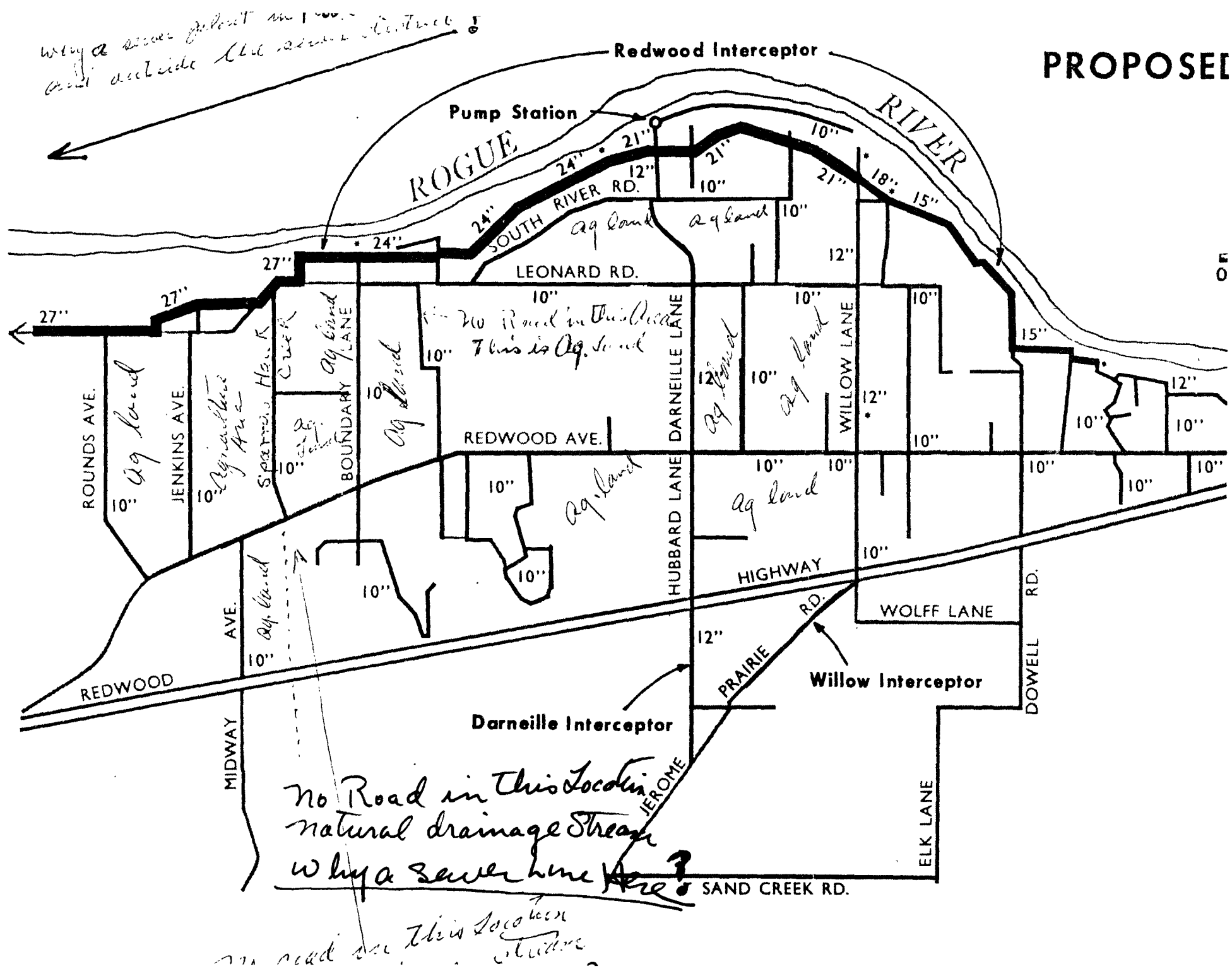
I hope you will see fit to stop any Federal funds for this project.

Sincerely

Robert W. Wein

Concerned citizen & property owner.

PROPOSEL



Response to Comments by Robert W. Weir

1. The 10-inch line referred to would not be constructed immediately but would be deferred until the Comprehensive Plan directs growth to the area, and there is sufficient demand. Josephine County has adopted procedures (which include public hearings) that govern amendment of the Comprehensive Plan and extension of sewers.

- 121 -

[illegible]

- 122 -

[illegible]

SUMMARIZATION OF SUPPORTIVE COMMENTS

This section briefly summarizes the major points of the numerous comment letters received in support of the proposed project. These letters are listed individually in Table 9 where the main concerns are listed.

The two most common reasons for support were closely related:

1. Supporters of the proposed project were concerned about health hazards in the eastern sector; and
2. There was concern over contaminated wells and surface waters.

Some brief quotes from these letters follow:

"The health and lives of our children and many residents who live near the Redwood Elementary School are in imminent danger because of unsanitary conditions caused by overflowing raw sewage at and around the school."

"Due to septic tank failures and contaminated ditches our water supplies could be threatened."

"The Redwood Sewer project is desperately needed. . . We believe our health could be threatened by the contaminated ditches and the wells could become infested with all the seepage."

"I would love to be able to drink good well water again. Sewers would certainly help us do this."

". . . the health of persons living in this area is threatened due to possible contamination of wells."

Another concern expressed in a few of the letters related to growth within the project area. Several citizens felt that the sewer was necessary to prevent continued growth of the District. Some brief quotes follow:

"Do (sic) to the population growth in this part of the country, I think that the Redwood Sewer Plant is needed."

"The intensified growth of the surrounding area with the moratorium on subsurface systems, would all seem to point to the dire necessity of an adequate system...."

The support of a sewerage system for the Redwood Service District is fully recognized by EPA. Concerns over health hazards, unsanitary conditions and the building moratoriums are valid. Two of EPA's final EIS alternatives would provide a system which would relieve these conditions. The "Proposed Project" alternatives, however, has been designated by EPA to be in violation of the County's Comprehensive Plan. (See Preface) Alternative A would also

relieve these conditions in the eastern sector. EPA notes that out of the twenty-two letters of support for a sewerage system, fifteen letters are from people residing at the River Haven Mobile Estate and another four are from people also residing in the eastern sector. Alternative A, will alleviate health hazards, unsanitary conditions and allow for growth in areas now restricted due to poor septic tank soil conditions.

TABLE 10
LETTERS RECEIVED IN OPPOSITION

- 125 -

Date Received	From	GENERAL TONE	Wild and Scenic River	Wildlife	Recreation	Costs	Wetlands	Fisheries	Water Supply	Water Quality	Mitigation	Pop. Projection, Growth	Reserve Capacity	Historic Preservation	Land Use, Planning	Agriculture	Construction Impact	Alternatives	Floodplain Development	Federal Policy	Sludge Disposal	Air Quality	Health and Sanitation
1975 7/28	John W. Richter	OPPOSE				X						X				X		X					X
7/24	Mr. and Mrs. Carl Sandberg	"													X	X							
7/28	Lisle H. Holloway	"				X												X					X
7/28	Margaret Richter	"																					
7/28	Edith Craft	"				X			X						X								
7/28	Mr. & Mrs. Constans Scopazza	"				X									X			X				X	
7/28	Betty L. Greene	"																					X
7/24	Norma L. Mason	"																					X
7/24	Mrs. Dallas R. Cox	"				X										X		X					
7/23	Frances Weir	"													X								
7/24 7/28	Mr. & Mrs. Austin Jack	"				X						X			X	X							
7/28	Keith Cloudas	"										X				X		X					

- 126 -

[illegible]

- 127 -

[illegible]

- 128 -

[illegible]

SUMMARIZATION OF OPPOSITION COMMENTS

This section will present a brief summarization of the comment letters that either opposed the proposed project or the concept of a sewer system regardless of service area size. There were a wide range of objections but this summary will center on the most common which were; 1) high cost, 2) land use plan violation, 3) loss of agricultural land, 4) lack of alternatives, and 5) nonexistence of a health problem.

With regard to the cost of the sewer, many people feared that large sewer assessments would force them to sell or subdivide their land:

"As proposed (the proposed project); it could be catastrophic to a majority of the people, some of whom are . . . living on fixed incomes with their land as their lifeline."

"With the coming of development people on fixed income such as retirees will be forced from their homes by expenses for drainage, water systems and other urban type improvements."

A number of area residents were concerned with possible violation of the Josephine County Comprehensive Plan:

"The construction of the Redwood Sewer will change an area that is principally farm land protected by the Comprehensive Plan of 1971 into an urbanized growth area."

Preservation of agricultural land was frequent concern of those opposed to a sewer project:

"When my wife and I bought this property we thought we . . . could enjoy having . . . chickens, garden, some beef and enough pasture to feed them. Now somebody wants to build wall-to-wall houses and bring in 17,000 to 20,000 more people"

"Enough houses in this purely agricultural area to warrant a sewer would be hazardous to agriculture."

"As a result of the proposed sewer, zoning will be changed, it will no longer be zoned for agriculture."

Within the draft EIS, EPA examined three alternatives which did not include an evaluation of individual disposal systems such as Magic Flush or Clivus Multrum. Several commentators were critical of this omission:

"Wrote up some data on the many systems like Magic Flush, etc. used throughout the world...."

The last area of major concern was the existence or non-existence of a health hazard:

"What's all this talk about 'potential health hazard'....?"

"...there have been no deaths from sanitation and the number of diseases have been minimal...."

EPA agrees that sewer assessments may represent a high cost to some property owners, but it is unavoidable in an assessment program that figures the cost based on lot size.

Concerns over violation of the Comprehensive Plan are well taken and the reader should refer to the Preface for EPA's position on the subject. Related to Comprehensive Plan violation is the loss of agricultural land which would occur should the District urbanize. The Comprehensive Plan, and not EPA, is the controlling factor in this area. EPA is rejecting the proposed project because it results in a loss of agricultural land contrary to the Plan. Any project that EPA approves will be designed to conform to that Plan.

With regard to the lack of alternatives explored by EPA, the reader should refer to the response to the comment letter of Harold McClure in the Comment and Response chapter.

EPA feels that the existence of a health hazard within the eastern sector has been sufficiently documented by the County Health Department and EPA's own site inspections. Poor soil conditions coupled with a shallow groundwater table and relatively dense development make most of the eastern sector unsuitable for septic tank development. It is the belief of EPA that sewers are necessary in this area.

Because the proposed project, as submitted to EPA, has been eliminated from consideration (see Preface) two alternatives are left. Of these, Alternative A is most responsive to the needs of the area. It eliminates the existing health hazard while providing for growth, pursuant to the Comprehensive Plan.

PUBLIC HEARING TESTIMONY

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[illegible]

- 132 -

[illegible]

PUBLIC HEARING TESTIMONY

- 133 -

[illegible]

APPENDIX

PHILIP C. PATTERSON
ARCHITECT AIA

LANGFORD AND STEWART
PLANNERS - URBAN DESIGNERS - AIP

JANET J. HUENERS, OFFICE MANAGER

45 HAWTHORNE

MEDFORD, OREGON 97501

TELEPHONE (503) 772-5203

August 7, 1974

Josephine County Board of Commissioners
Josephine County Courthouse
Grants Pass, Oregon 97526

Dear Commissioners:

In accordance with your request, I have prepared a population forecast for the Redwood Sewer Service District for the year 2025. The projection includes a forecast for total county population, sewer district population and assessment district population. A forecast was not made for the entire drainage area which could be served by the location of the proposed treatment plant. The above areas are shown on the attached map.

Any population forecast is based on historic patterns, recent trends and assumptions of probable future conditions. There are, of course, obvious limitations on anyone's ability to see future conditions and the longer the period of time in the forecast, the less reliable the future assumptions. This can be best illustrated by taking yourself back in time to the year 1920. From that point in time, consider how many of the events and how much of the technological change could have been foreseen which occurred by 1970.

For the purposes of the forecasts included herein, it was assumed that the historical growth patterns of Josephine County provide the most reasonable basis for estimating future growth. Patterns of growth since 1900 have included two world wars, at least one major depression, tremendous technological advances, sweeping social changes and transportation systems which developed from horse and buggies to rockets to the moon. Even though the rate of change is said to be accelerating, it would seem reasonable to assume that patterns of the last 50 to 70 years include a sufficient spectrum of change to indicate to some degree how local population patterns have responded in the past and may respond in the future.

PHILIP C. PATTERSON AIA

NED M. LANGFORD

LYLE A. STEWART AIP

The kinds of technological and transportation changes may have different effects in the future than in the past and may alter local growth patterns differently. However, economic ups and downs most likely will be with us at least 50 years and these fluctuations have had a greater influence on growth than have changes in technology as such. This is not to say that technology and economics are separate and independent factors. It is simply that population growth can be more easily related to the gross pattern of economic change than to the myriad of advances in technology.

There are many other considerations such as current national population growth patterns, federal policies, probability of war or peace, etc., all of which are significant but unpredictable. Historic patterns have been influenced by all of these factors and more. Historic patterns are not necessarily a valid indication of future patterns but, in terms of 50 year forecasts, they appear to be the most reasonable indicators available.

Population for the sewer service district was forecast as a part of the total county population. The following paragraphs set forth trends, patterns and assumptions used to develop the projection.

Between 1900 and 1970, the population of Josephine County increased from 7,517 to 35,546. This amounts to an average annual growth rate of about 2.3 percent. Between 1920 and 1970, a period of 50 years, the county's population grew from 7,655 to 35,546, or at an average annual growth rate of 3.1 percent. The growth rate has varied considerably from year to year and from decade to decade. Actual census figures by decade are as follows:

1900 - 7,517	1940 - 16,301
1910 - 9,567	1950 - 26,542
1920 - 7,655	1960 - 29,917
1930 - 11,498	1970 - 35,546

Since 1970, population estimates indicate that the county has grown at an average annual rate of 6.0 percent to reach a population of 42,300 in 1973. Average annual growth rates by decade and for selected periods are as follows:

1900 - 1910	2.5%	1940 - 1950	1.6%
1910 - 1920	-0.8%	1950 - 1960	1.1%
1920 - 1930	1.5%	1960 - 1970	2.0%
1930 - 1940	1.4%	1970 - 1973	6.0%
1900 - 1970		2.3%	
1920 - 1970		3.1%	

Based on the above historic patterns, it has been assumed that the total county population will increase at an average annual rate of 3.0% per year to the year 2025. This rate is slightly above the 1900 - 1970 rate and slightly below the 1920 to 1970 rate. Further, it was assumed that the growth rate between 1973 and 1985 would be higher than the 51 year average because recent trends show a 6.0% per year growth. This rate appears to be slowing but will probably exceed 3% per year for the next few years. The total county population growth pattern has been projected as follows:

1973 - 1985	3.7% per year
1985 - 1995	3.0% per year
1995 - 2025	2.77% per year

These estimated growth rates approximate an average overall annual rate of 3.00% per year and yield estimated populations as follows:

1973	42,300
1985	65,000
1995	87,350
2005	114,664
2025	198,041

The above listed projections may be slightly high but are consistent with past patterns. If they are high, the facilities will have a longer period of adequacy. In our judgement, it is more desirable to have facilities serve a longer period than anticipated rather than a shorter one. However, any major difference in anticipated time periods for public facilities can be a problem to the community.

Based on the above projections, population was apportioned to the total sewer service district and to the assessment district. The sewer service district now accounts for 7.1% of the total county population. It was assumed that the district will account for an increasing percentage of the county total because it is in the urbanizing area of the City of Grants Pass and because sewers will further stimulate growth. The statement that development follows sewers should have more truth in the future than it has had in the past. Recent state actions relating to septic systems, etc., should more strongly direct urban or suburban growth to areas with community disposal systems.

In addition, it was assumed that the sewer service district would be fully developed by the year 2025. Based on the population forecast for the entire county, this appears to be a reasonable assumption. This means that by the 2025 date the sewer service district will have a population of 23,490. The full development population was arrived at by reducing the total area of 3,480 acres by 25% for streets, parks, etc., to arrive at the net developable area. It was assumed that the net area would develop at an average of three housing units per acre with an average of three persons per unit.

The total population of the service district would account for 11.8% of the total county population by the year 2025. This amounts to an increase of from 7.1% in 1973 to 11.8% in 2025, which also appears reasonable and is consistent with previous assumptions.

It was also assumed that some development would occur in the sewer service district outside of the boundaries of the assessment district. Based on records of the County Health Department it appears that about 12 permits per year can be expected in the area outside of the assessment district. It was also assumed that no new septic tank permits would be issued within the assessment district. Based on these assumptions, the population forecast for the sewer service district is as follows:

	<u>Sewer Service District</u>	
	Without Sewer	With Sewer
1974	3,000	3,000
1985	3,660	5,200
1995	3,960	7,774
2005	4,110	11,282
2025	4,260	23,490

The above forecast without sewers is based on a decreasing number of permits each year. County policy relating to lot size now requires 5 acres for a septic tank in this area. As growth occurs, availability of such parcels will decrease and population increases will be correspondingly limited. Estimates used in this forecast are: 1974-1985 - 20 new units per year; 1985-1995 - 10 new units per year; and 1995-2025 5 new units per year.

Assuming the forecasts made above for the sewer service district, a projection has also been made for the assessment district. Some additional assumptions have been made to apply to this smaller area. General development policies of the county will direct growth into this general section of the county into the assessment district. This policy direction will continue until about 1985 and, for the purposes of this projection, it has been assumed that 1985 will be the year in which this policy change will occur. For example, after 1985 new sewer lines will be extended to other parts of the sewer service district and will encourage growth outside the original assessment district.

It is also assumed that about 12 septic tank permits will be issued each year in the service district outside of the assessment district. These permits will absorb some growth which might otherwise occur within the assessment district. Further, the assessment district will reach full development by the year 2025. Between 1985 and 1995 the assessment district will receive 65% of all of the growth of the sewer service district. Additional sewer extensions outside the assessment district will be in the form of laterals along individual streets rather than as a major effort to sewer the entire remaining areas outside the assessment district boundary. This process of adding smaller areas together with construction time requirements should continue to direct development into the assessment district until 1995.

Any public water systems provided in the area will be developed first in the assessment district. This will further stimulate growth in this area. As the assessment district approaches full development, the rate of growth will decline because of limitations of site selection, etc., as it does in other urbanizing areas. The forecast for the year 2005 is based on 80% of full development and that for the year 2025 on full development.

Forecasts for the years 1975 to 1985 are based on estimates for the total sewer service district. Assuming 12 units per year in the sewer service district outside of the assessment district, the estimated population growth of the assessment district is equal to that of the total sewer service district with sewers less the existing population outside the assessment district (1350) and new septic tank permits.

Based on the above considerations, the population forecasts for the assessment district are as follows:

	<u>Assessment District</u>	
	Without Sewer	With Sewer
1974	1,650	1,650
1985	N/A	3,454
1995	N/A	6,342
2005	N/A	8,424
2025	N/A	10,530

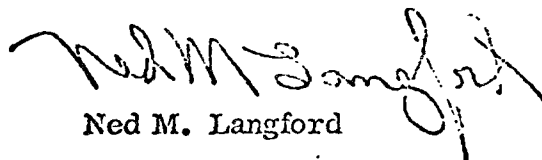
No attempt was made to project population for the entire drainage area. It is assumed that sewer service provided in this area would occur in the form of relatively small areas annexing to the sewer service district. Such growth could moderately affect forecasts for both the sewer service district and the assessment district but not to any significant degree. Terrain conditions indicate a generally lower housing density and soil conditions would permit a greater use of septic tanks, both of which would tend to reduce the general demand for a community sewer system.

The foregoing projections represent a complex series of assumptions relating to growth in Josephine County during the next 51 years. The assumptions, if not wise, are at least consistent with past population and development trends in the County. What the next 51 years will bring is certainly beyond my grasp. However, it does appear that, if a sewer system is constructed as planned, it will be used and will greatly enhance the livability and values of this section of the County.

If you have any questions or require further information or supporting data, please do not hesitate to contact me.

Respectfully submitted,

PATTERSON / LANGFORD & STEWART


Ned M. Langford

NML:jjh

DESCRIPTION OF AN ENVIRONMENTAL EVALUATION SYSTEM

A methodology for assessing environmental impacts of a water quality plan should use a framework that will produce meaningful assessments and follow the spirit of NEPA. To insure that the methodology developed would be responsive to the needs of the water quality planner, it was decided that the methodology should be .

- COMPREHENSIVE, because the environment is an intricate system of living and nonliving elements held together by complex processes, and because environmental concerns relating to large-scale projects range widely from physical impacts on natural resources - air, land, water - to the impacts on living organisms - plants, animals, microorganisms - to a variety of impacts on people, including aesthetic, cultural, and social concerns.
- SYSTEMATIC, because to be effective as a decision-making planning tool, environmental impact assessments must be replicable by different analysts and must withstand scrutiny by various interest groups.
- INTERDISCIPLINARY, because environmental concerns that are related to resources, living organisms, and people obviously require a broad range of talents and disciplines for analysis, including the physical, biological, and social sciences.
- FLEXIBLE, because to be useful the methodology must be able to assess impacts from both small and large-scale projects, requiring resources (people, time, and money) commensurate with the scale of the project.
- OBJECTIVE, because to be meaningful the methodology must provide impersonal, unbiased, and constant yardsticks immune to outside tampering by political or other external forces.

- BASED ON EXPLICITLY DEFINED CRITERIA, because it is important to insure that evaluation criteria and values are not arbitrarily assigned. It is important that the methodology provide explicitly defined criteria and that procedures for using these criteria be explicitly stated; in this respect, the methodology must also document the rationale upon which the criteria are based.
- ABLE TO ASSESS TOTAL IMPACT, because to compare alternatives it is important not only to specify individual impacts and their magnitude, but also to provide an overall assessment.
- ABLE TO DETECT ENVIRONMENTALLY SENSITIVE AREAS, because to be useful in the local community the methodology must provide a warning system of the local environmental problems.

Elements of the Environmental Evaluation System

Using these requirements, the EES developed by Battelle-Columbus for assessing water quality management plans and associated projects consists of five basic features: it

- (1) Identifies potential beneficial and adverse impacts
- (2) Measures the magnitude of an impact
- (3) Evaluates the importance of an impact
- (4) Determines individual and total impact
- (5) Indicates environmentally sensitive areas.

This section of the report discusses how these elements are included in the EES.

Identification of Impacts

The first feature of the EES relates to techniques for identifying potential beneficial and adverse impacts. Recall from Figure 1, the environment is described by a set of environmental indicators which are

used to identify the environmental impacts. To accomplish this identification in an orderly fashion, it is desirable to employ a comprehensive checklist of environmental quality parameters to insure that the analyst checks for impacts on all important attributes of environmental quality. The parameters included in the checklist must be carefully defined to indicate the geographic scope covered by the projects. However, a too lengthy checklist might discourage use of the list.

The approach selected by Battelle-Columbus for developing the checklist was to view the environment as a hierarchy of systems, subsystems, and parameters. By so structuring the environment, the analyst is less likely to overlook something completely, or to misplace emphasis.

The hierarchical structure used in the EES has four levels:

Level 1 - Most general information--ENVIRONMENTAL CATEGORIES

Level 2 - Intermediate information--ENVIRONMENTAL COMPONENTS

Level 3 - Specific information--ENVIRONMENTAL PARAMETERS

Level 4 - Most specific information--ENVIRONMENTAL MEASUREMENTS.

These four levels of information are related schematically as shown in Figure 3.

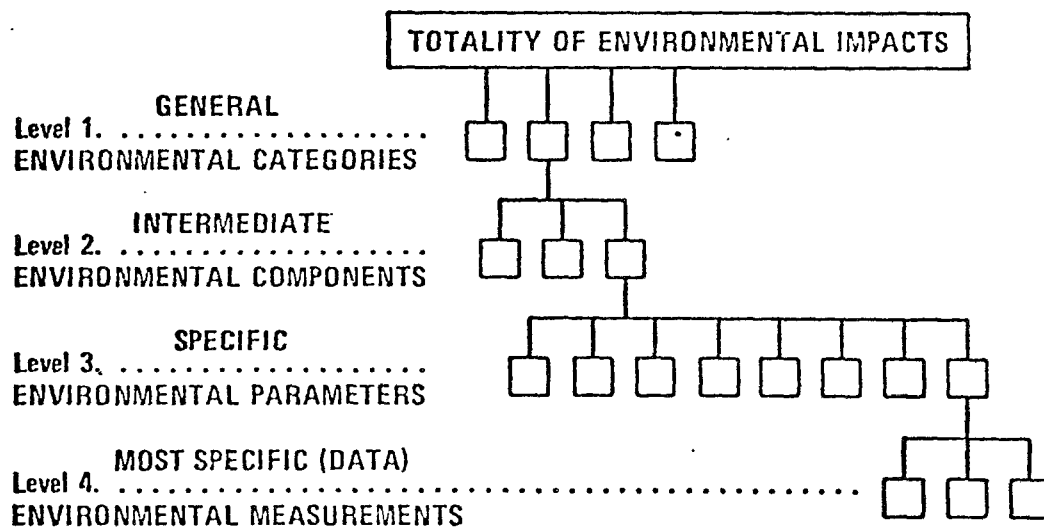


FIGURE 3. HIERARCHICAL STRUCTURE OF THE EES

Level 3 is the key level of environmental impact within the EES. Each environmental parameter represents a unit or an aspect of environmental significance worthy of separate consideration. In selecting parameters for inclusion in the EES it was decided that

- Parameters should be highly comprehensive indicators of environmental quality
- Parameters should be easily measurable in the field
- Parameters should be relevant to water quality management activities
- Parameters should be capable of being measured on a project scale
- The total list of parameters should be as compact as possible.

Use of these screening criteria helped strike an important balance between too little and too much detail. Some of the parameters considered for use in the EES are shown in Table 1. A complete listing of the parameters is given later in the report in the section entitled "Content of the Environmental Evaluation System".

TABLE 1. TYPICAL PARAMETERS USED IN THE EES

Ecology	Aesthetic
Rare and Endangered Species	Odor
Waterfowl	Sound
Fish	Aquatic Life
⋮	⋮
Physical/Chemical	Social
Dissolved Oxygen	Recreation Activities
Turbidity	Facilities Location
Soil Erosion	Community Involvement
⋮	⋮

Groups of similar parameters in the EES are defined as environmental components. Each of these components represents terms of intermediate generality. The major classification, environmental categories, is the grouping of components into similar areas.

Environmental measurements constitute the data needed to obtain a representative parameter estimate. These estimates may come from detailed empirical studies in the project area or from qualitative information obtained from experts in the project area. The extent of field data collection required is a function of project characteristics.

Measurement of Impact

The second, and certainly a more complex, feature of the EES relates to impact measurement. Further, this measurement must be in a systematic manner which clearly specifies assumptions and criteria and which yields results that can be meaningfully interpreted, questioned, and defended.

A variety of approaches to impact measurement are in practice. One is to handle "measurement" in a purely descriptive/verbal manner. This is not satisfactory because criteria are not explicitly stated and because it leads to use of different criteria by different analysts who may consciously or unconsciously employ biased criteria to justify preconceived notions.

Another approach to impact measurement is to employ some form of rating system employing letter codes or numbers such as

- A = major impact
- B = moderate impact
- C = minor impact
- D = no impact.

Number sequences such as 1, 2, 3, 4, or 1, 2, 4, 8, are known to be in use along with + and - to indicate beneficial and adverse impacts, respectively. This approach has the advantage of providing more uniformity and, hence, comparability in the way results are written down, but still has the problem that criteria for assigning the letter or numerical

codes are usually not documented leading to the use of different yardsticks by different analysts.

A third and final basic approach to measuring impact magnitude is to employ explicitly stated criteria for determining what constitutes an impact of a given magnitude for each parameter on the checklist. Results can then be examined with respect to validity of criteria (are all relevant factors included in the criteria) and with respect to the accuracy of impact magnitude measurement per se (are all the impacts correctly related to the criteria). This is the approach that Battelle recommends for all methodology development which is intended to "cast the die" for a large number of similar impact assessment activities.

Value Function Approach to Impact Measurement. One approach employing explicit criteria previously developed by Battelle-Columbus is to transform all quantitative and qualitative parameter estimates into corresponding indices of environmental quality.⁽³⁾ The index is a number between 0 and 1, where 0 denotes extremely bad quality and 1 extremely good quality. To get the index, a "value function" was developed for each parameter, and then applied to the parameter to get its environmental quality index. A schematic example of the value function is given in Figure 4.

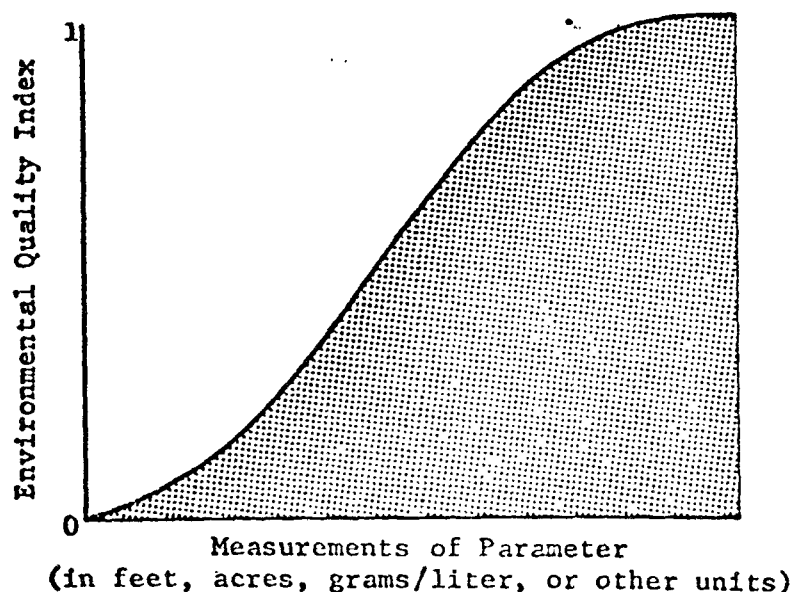


FIGURE 4. SCHEMATIC OF A VALUE FUNCTION

Some individuals may argue that aesthetic and social impacts are qualitative in nature and therefore cannot be expressed in quantitative units. Battelle-Columbus feels that if environmental analyses are to be comprehensive and the results meaningful, a systematic way of analyzing qualitative impacts is necessary. To date, this method of analyzing impacts has been found useful by many decision makers.

Environmental Assessment Tree. One of the most important parts of an environmental impact assessment methodology is the technique employed to assess the magnitude of environmental impacts. If this is not done properly, assessments of both individual and overall impacts will be invalid.

Although from an analytical viewpoint, the "value function approach" to assessing impact magnitude offers the ultimate in accuracy and sensitivity, its application requires substantial manpower and data resources frequently not available to state and local water quality planners. The value function approach was designed to evaluate the impacts of projects in which capital investments might be as high as 100 million dollars and which might cover several state areas; the scale of such projects is clearly beyond that of most water quality planning projects. Because the potential impacts of the larger projects are so widespread, considerable effort is justified in the collection and analysis of data and impacts from all the individual environmental parameters. Such sophisticated approaches cannot be justified, however, in measuring the magnitude of smaller scale projects.

The approach developed by Battelle-Columbus for quantifying impacts for relatively small water quality management plans focuses the analysis at the component level of the environmental hierarchy. Specifically, a statistical technique, Automatic Interaction Detector (AID), program was used for collapsing measurements or estimates of several parameters into a single component-level environmental quality index.^(4,5,6) The AID program is a multivariate technique for determining what parameters and ranges of these parameters are statistically the most reliable predictors of environmental quality.⁽⁷⁾

Although the parameters were collapsed into a single component they are still an explicit and integral part of the EES. Each parameter in the EES instead of being defined by a value function is defined by several ranges with each parameter range assigned a quality level in the 0-1 range. An example parameter is shown below.

<u>Range</u>	<u>Parameter Measurement</u>	<u>Parameter Quality Index*</u>
1	Between a and b	0
2	Between b and c	0.4
3	Between c and d	0.6
4	Between d and e	1.0

Applying the above breakdown to a parameter such as dissolved oxygen (DO) would produce the following:

<u>Range</u>	<u>Parameter Measurement (mg/l)</u>	<u>Parameter Quality Index</u>
1	$0 < DO \leq 2$	0
2	$2 < DO \leq 5$	0.2
3	$5 < DO \leq 7$	0.7
4	$7 < DO$	1.0

By defining each of the parameters in the EES in this fashion, the EES provides the planner with a clear indication of what ranges of each parameter are considered good (1.0) and bad (0).

The result of the statistical analysis is an Environmental Assessment Tree for each component. The structure of these trees is shown in Figure 5. Also, use of an Environmental Assessment Tree can be illustrated by using Figure 5. To obtain the component's environmental quality, first determine in what range the estimate of Parameter A is located, and then follow the appropriate arrow to the next parameter box. The same type question is asked for the next parameter, B or C, depending

* The index level assigned to parameter measurement ranges varies from parameter to parameter.

on the answer to Parameter A. The environmental quality of the component is determined by the intersection of the last arrow on a branch with the environmental quality scale. To reach this end point, it is necessary to evaluate all parameters on a branch. If a parameter is not applicable to an area, it is assigned a Range 1.

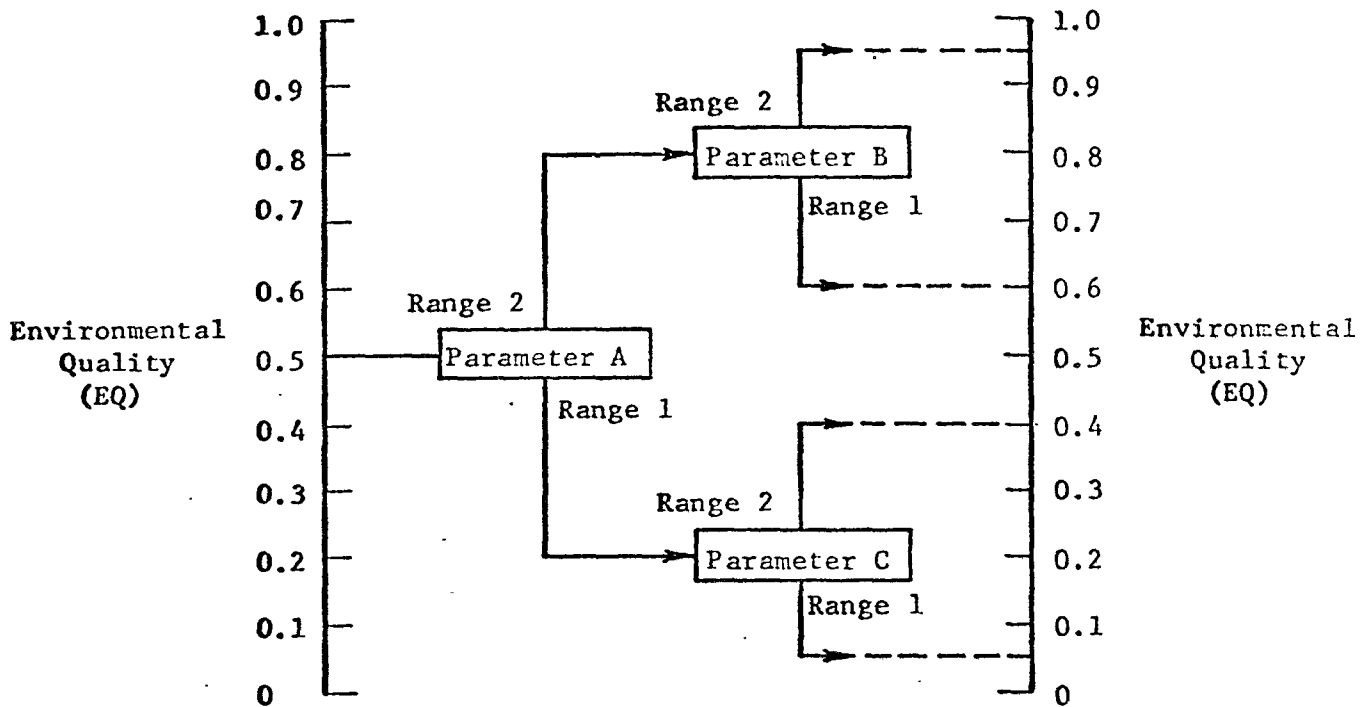


FIGURE 5. EXAMPLE ENVIRONMENTAL ASSESSMENT TREE

Key features of the Environmental Assessment Trees are that one does not need precise measurements of each parameter entering into the impact analysis to determine an EQ measure and that EQ measures are determined for components, not parameters. All that is needed is an estimate of the range of values for each parameter. This is considered to be an important feature of the developed methodology because it is expected that state and local planners will not always have precise data on all parameters, but that they will want their best estimates to be reflected in their impact assessments. Also, the component approach is much faster than working with individual parameters. It is not possible to use

parameter ranges in the value function approach to impact magnitude measurements because precise parameter-by-parameter data measurements are needed; such detailed measurements are, of course, justified and essential when dealing with projects of the scale intended to be analyzed by the value function approach.

As in the value function approach, information is needed on each parameter because each is an intrinsic part of the overall system. However, in using the assessment trees the measurements can be confined to a range instead of a specific point.

Spatial, Time, and Responsibility Considerations. One other important aspect of impact measurement must be mentioned. In conducting the analysis, regardless of the measurement approach used, it is often necessary to break the analysis into different geographic sectors and time frames if impacts on different geographic sectors or time frames are expected to be significantly different. The magnitude of impacts is then assessed separately for each defined geographic area and time period. This is required, for example, when impacts during project construction (short term) and operation (long term) are expected to be significantly different. Results of the separate analyses are then aggregated or weighted in proportion to local considerations and desires of the public to be affected. It is highly desirable to obtain citizen participation in determining the relative importance assigned to each geographic area and time period.

To identify and measure the construction and operation impacts, it is useful to employ criteria for determining what impacts are assignable to the water quality project. It is felt that impacts from the following types of activities should be addressed in the EES by water quality management planners.

- Direct construction; such as clearing of trees, excavation, erecting of structures, and elimination of septic tanks
- Indirect construction; such as construction noise, traffic congestion, increased sedimentation, and construction solid waste

- Direct use; such as water quality changes, water-based recreation changes, aquatic life changes, and location of treatment facilities
- Indirect use; such as direction of urban growth, land use changes from urban growth, and recreation accessibility.

Evaluation of Impact

The next element in the impact assessment process is the overall evaluation of environmental impacts to be caused by a proposed action or project. Simply knowing the magnitude of impacts on each environmental parameter is not sufficient--somehow impacts on the entire spectrum of parameters must be aggregated into an overall measure of project impact so that alternatives can be compared. For this to be done systematically requires a numerical weighting system to explicitly indicate the relative importance that each parameter should have in the aggregation process. Further, to insure that all elements of the environment are given adequate and consistent attention in all assessments requires a parameter weighting system that does not vary from project to project. By employing the fixed parameter weighting system, it is possible to prevent an impact evaluation system from becoming a rubber yardstick which would negate the value of the system.

Fixed parameter weights also help prevent the traditional bias in environmental analysis (toward narrow scope, direct impacts) that motivated NEPA in the first place. Further, it is Battelle's observation that this bias pervades impact statements and assessments not conducted with the aid of a systematic evaluation system. One 200-page environmental assessment on a water quality management plan reviewed by Battelle-Columbus had two-thirds of one page devoted to aesthetics' questions and impacts; it simply reported that there were none--with no mention of criteria employed or supporting data. The point is that if the objective of a proposed action is to improve water quality, one must look beyond environmental impacts on water quality when doing an assessment and consider the entire system. The constrained view is appropriate if one is doing an analysis to assess

the effectiveness of the plan in meeting specified water quality objectives but not when doing an assessment of the overall environmental consequences of meeting those objectives.

Without a fixed weighting system, the weighting, in all probability, would be performed by individuals who have been preparing water quality plans in the past. Ideally a broad spectrum of the public should have input into determining parameter weights, but this is administratively impractical. Selection of some citizens to perform the weighting would possibly solve this problem, but this would require a careful selection and weighting procedure. In many situations for political, social, or other reasons, such combined weighting would probably not occur even if the procedures were available.

This returns the weighting to the individuals preparing the plans. Their backgrounds are not usually interdisciplinary, and they are not trained to consider all parts of the system in the weighting process. Consequently, over-emphasis would be given to areas of technical expertise resulting in bias in the weighting process. The weights would vary from plan to plan and from region to region. Not only would problems occur from failure to address certain parameters, but, also, evaluation of the plan by EPA would be very difficult. For these reasons, Battelle recommends use of a fixed weighting system for indicating relative importance.

Component Weights. Each of the components used in the EES represents only a part of the total environment. It is, therefore, important to view these parts together as part of an environmental system. In doing so, however, it must be recognized that some components are more important than others. Components of "lower" importance cannot be discarded because they are still part of the overall system and must be regarded as such in all projects.

To reflect the relative importance of the components as indicators of the degree to which the water quality management projects may disturb or enhance the dynamic stability of man's relationship with the natural and social environment, all components were assigned relative weights. These weights are expressed in Component Importance Units (CIU) and are based on a total of 100 CIU.

The relative importance of the components in the EES was expressed in commensurate units (CIU) by quantifying the research team's subjective value judgments. The weighting technique used by Battelle-Columbus is based on sociopsychological scaling techniques and the Delphi Procedure. (2,8,9,10,11,12) These two methodologies are used to produce a technique that, in general,

- Is systematic
- Minimizes individual bias
- Produces consistent comparisons
- Aids in the convergence of judgment.

Sociopsychological Scaling Technique. Numerous sociopsychological scaling techniques are available to rank and weight various alternatives or sectors using single or multiple criteria. These techniques are used to insure that the comparison between the elements is consistent and systematic. The technique selected for use in the EES was "ranked pairwise comparisons".

In ranked pairwise comparison, the list of elements to be compared is ranked according to selected criteria and then successive pairwise comparisons are made between contiguous elements to select for each element pair the degree of difference in importance. A weighted list of the elements is the output from this procedure.

Controlled Feedback. Instead of using the initial value resulting from the scaling procedure, an aggregate value based on several iterations of the scaling technique is preferred. After each iteration, the participants are given selected information about the group values. This information can include the group mean and variance, or other pertinent information. In the weighting procedure employed in this research, the participants' mean value was given in the feedback stage. All of the scaling and feedback was performed via formal feedback statements, thereby avoiding undesirable direct interchange of judgments of the individuals in the test.

Environmental Impact

After the Environmental Quality (EQ) for each component has been measured by the component's Environmental Assessment Tree, and the Component Importance Units (CIU) distributed to each component, it is possible to determine the impact expressed by each component. The process consists of multiplying the Component Importance times the Environmental Quality once "without" the project and then "with" the project. The difference ("with" - "without") is expressed in Environmental Impact Units (EIU) and is a measure of the impact on that component; a positive value expresses a beneficial impact and a negative value expresses an adverse impact. The following equation is used in the calculation.

$$\text{Environmental Impact (EIU)} = \left(\text{Component Importance (CIU)} \times \text{Environmental Quality (EQ) with} \right) - \left(\text{Component Importance (CIU)} \times \text{Environmental Quality (EQ) without} \right)$$

For purposes of an environmental evaluation it is important to understand what is meant by a "with" and "without" analysis. A "with" project analysis considers the project constructed and in operation for some period of time. A "without" analysis considers what the existing condition would be at the same time in the future. A schematic is shown in Figure 6.

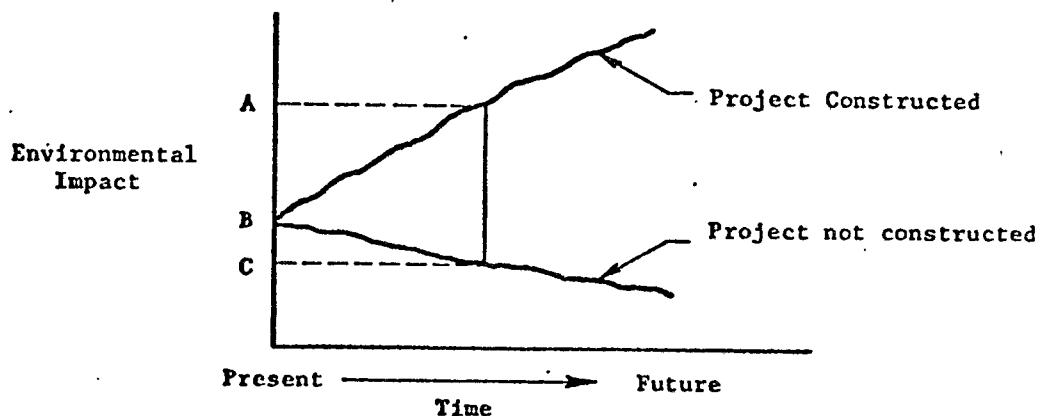


FIGURE 6. "WITH" AND "WITHOUT" ANALYSIS

In most situations the "without" condition can be treated as identical to the existing condition for all practical purposes. In this case environmental impact is the difference between A and B in Figure 6.

In other cases, however, the "without" condition cannot be considered to be identical to the "existing" condition. An example of such a situation would be the following. Assume that one is involved in preparing an environmental assessment for an areawide plan for a metropolitan area located downstream of some major form of other totally unrelated resource development project (e.g., construction of dam or reservoir). Thus to identify and measure impacts generated by the areawide plan, the baseline for the impact assessment must assume that the reservoir or whatever the other development might be is already in place. In this case, the environmental impact is the difference between A and C in Figure 6.

Thus the need to distinguish between the "without" and "existing" conditions is especially important in analyzing impacts in areas where other forces are already known to be underway that will cause changes in the environmental baseline condition.

Environmentally Sensitive Areas

Besides getting an overall view of the environmental impact, it is also important to know if any fragile elements of the environment would be disturbed by a proposed project. Examples of such elements are the Redwood Forests, the Everglades, and the Painted Desert. Unfortunately, fragile elements vary from project to project, and there is no special formula to pinpoint them generally. Thus, each parameter of the EES must be considered to be a potentially fragile element that could, for some project, be crucial in determining the magnitude and significance of the overall environmental impact. In other words the overall impact calculation in terms of EIU by itself is not enough to characterize environmental impact adequately.

The approach used to identify these potential problem areas is to call out with "red flags" those parameters that change sharply in the adverse direction. These "red flags" are measured by changes in parameter ranges from the "without" to "with" condition.

If a parameter changes from Range 4 to Range 3, it is defined as a negative range change while a 3 to a 4 is a positive range change.

Specific rules to detect these "red flags" are

Minor Red Flag: A negative change of one range in any parameter for any spatial or time analysis

Major Red Flag: A negative change of two or more ranges in any parameter for any spatial or time analysis.

It must be reemphasized that a "red flag" is only a warning, not an absolute definition of a problem. After a "red flag" is identified, the planner must investigate the potential problem area in detail to determine whether or not a problem exists. In the identification of "red flags" all components are treated with equal importance.

Use of the Environmental Evaluation System in the Planning Process

The purpose of this section of the report is to give the reader an overview of the planning process and how the EES can be incorporated into this process. With the aid of an example, use of the EES in the planning process is illustrated in the final section of this report.

The planning process has been described by many individuals. Depending on one's point of view, these descriptions may or may not be correct. Battelle's description of the planning process is shown in Figure 7. No attempt will be made to justify this description over other equally acceptable descriptions.

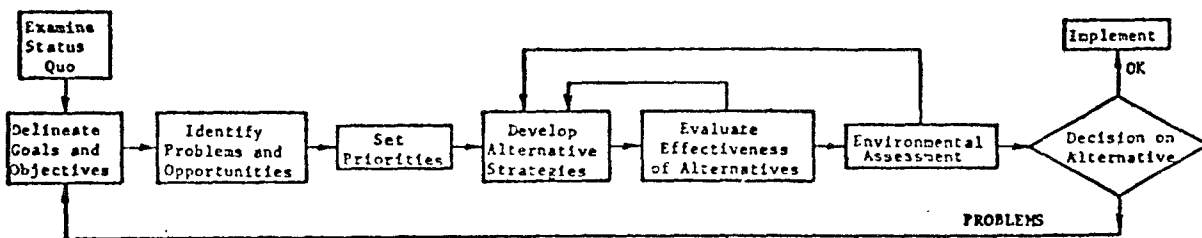


FIGURE 7. DESCRIPTION OF THE WATER QUALITY PLANNING PROCESS

In order to assess systematically the environmental impacts of the proposed action and of all reasonable alternatives, a framework of 4 environmental categories, 17 components, and 64 parameters will be used.

ECOLOGY

- Terrestrial Species and Populations
 - Vegetation
 - Browsers and Grazers
 - Small Game Animals
 - Pests
- Aquatic Species and Populations
 - Vegetation
 - Fish
 - Waterfowl
 - Pests
- Terrestrial Habitats and Communities
 - Rare and Endangered Species
 - Species Diversity
- Aquatic Habitats and Communities
 - Rare and Endangered Species
 - Species Diversity

PHYSICAL/CHEMICAL

- Biochemical Water Quality
 - Dissolved Oxygen
 - Inorganic Phosphate
 - Inorganic Nitrogen
 - Fecal Coliform
- Chemical Water Quality
 - Hazardous Materials
 - Total Dissolved Solids
 - pH
- Physical Water Environment
 - Basin Hydrologic Loss
 - Frequency of Extreme Flows
 - Temperature
 - Turbidity
- Air Quality
 - Particulate Matter
 - Reactive Hydrocarbons
 - Sulfur Oxides
 - Nitrogen Oxides
- Land Use
 - Location of Interceptors
 - Reserve Capacity of Sewers and Treatment Facilities
 - Soil Erosion
 - Solid Waste Disposal Controls
- Noise Pollution
 - Frequency of Disturbing Noise
 - Intensity of Disturbing Noise

AESTHETICS

- Land
 - Surface Configuration
 - Land Appearance
 - Alignment of Stream, Reservoir, and Estuary Shoreline
 - Geological Surface Material
- Air
 - Odor
 - Visual
 - Sound
- Water
 - Flow
 - Clarity
 - Water Level
 - Floating Material
- Biota
 - Wooded Shoreline
 - Terrestrial Animals
 - Aquatic Life
 - Vegetation
- Man-Made Structures
 - Architectural Design Structures
 - Compatibility with Other Structures and Natural Environment
 - Planting and Site Design
- Composition
 - Composite Effect
 - Unique Composition

SOCIAL

- Environmental Interests
 - Recreational Accessibility
 - Recreation Activities
 - Educational/Scientific
 - Historical/Cultural
- Health and Safety
 - Accident Prevention
 - Buffer Zone Development
 - Facilities Location
 - System Overload
- Community Well-Being
 - Community Involvement
 - Population Served by Sewers
 - Community Treatment
 - Participation

By making measurements or collecting data on each of the above parameters reflecting environmental conditions both "with" and "without" the proposed project, it is possible to perform an environmental impact analysis. The following steps will be followed for developing the parameter data:

- Collect data or perform measurements for each parameter of environmental quality as conditions now exist in the area to be affected by the project
- Extrapolate current conditions into the future on a parameter-by-parameter basis so that the future condition of environmental quality "without" the project can be estimated
- Estimate future conditions of environmental quality on a parameter-by-parameter basis to develop an estimate of future environmental conditions "with" the project
- Determine the difference in environmental quality between the "without" and "with" condition; desirable or undesirable changes from the "without" to "with" condition indicate beneficial or adverse impacts respectively.

Current Environmental Quality Conditions to be Affected by the Project

Geographical Location

The Redwood Service District is located in the Rogue River Valley and lies immediately southwest of Grants Pass in Josephine County. Primary access to the District is by Interstate 5 and by the Redwood Highway (U.S. 199) which runs through the center of the District.

The Ecology

Vegetation

The vegetation of the district consists predominantly of grasses, since the land is largely in pasture use. Deciduous trees are common such as Oregon white oak, California black oak, madrone and ash. Shrubs include manzanita, bitterbrush, poison oak and buckbrush.

As noted in the Timber Resource section the southern section of the ultimate drainage area is forested with pines, spruce, oak and madrone.

Fish and Wildlife

The Rogue River is nationally known for its salmon and steelhead fishing. It has two runs of steelhead, sea-run cutthroat, three chinook salmon races, coho salmon, four species of resident trout, six species of warm water game fish, two species of sturgeon and shad.

Figures 1, 2, and 3 show the spawning areas adjacent to and near the District, which lies between river miles 96 and 101. Winter steelhead, fall chinook, and coho salmon utilize the areas shown on the maps. It should be noted that summer steelhead utilize Sand and Allen Creeks within the District for spawning. Table 1 shows spawning and migration periodicity for these important fish species, and Table 2 shows the peak angling months for several important fish species including those named above. It should be noted that all three species that spawn in the vicinity of the District do so at the time of peak surface runoff (generally winter during heavy rains). If substantial amounts of inadequately treated sewage are surfacing and flowing to the Rogue, there may be a potential danger to the fishery resource.

Table 2 shows that fishing on the Rogue is a year round sport. As population increases within the study area (and the county as well) more recreation pressure will be put upon this resource. Preservation of spawning areas is crucial to the maintenance of adequate resource populations.

The Redwood Service District and the ultimate drainage area support a wide variety of wildlife. The valley lands of the District contain beaver, muskrat, mink, raccoon, marten, ground squirrels, skunk, and shrews. Cottontail and black-tail jackrabbits frequent the rural type areas, and river otter can be found along the Rogue River.

In the forested foothills of the ultimate drainage area big game animals such as black-tail deer and black bear are found. (the bear is a relatively rare sight)

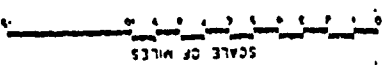
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Spring chinook salmon			-----	-----	-----	-----	-----	-----	-----		
Summer chinook salmon						-----	-----	-----	-----		
Fall chinook salmon									-----	-----		
Coho salmon	-----								-----	-----		
Summer steelhead			-----	-----	-----	-----	-----	-----	-----	-----
Winter steelhead	-----	-----	-----							-----	-----	-----
Sea-run cutthroat trout				-----	-----	-----	-----	-----	-----	-----		
Rainbow trout
Cutthroat trout
Brook trout
Brown trout			

TABLE 1

Spawning and migration periodicity, Rogue Basin. Dotted lines indicate presence of adult fish in the streams. Dashed lines denote migration period. Spawning occurs when indicated by a solid line.

Table 2. Rogue Basin sport fisheries, months of peak angling

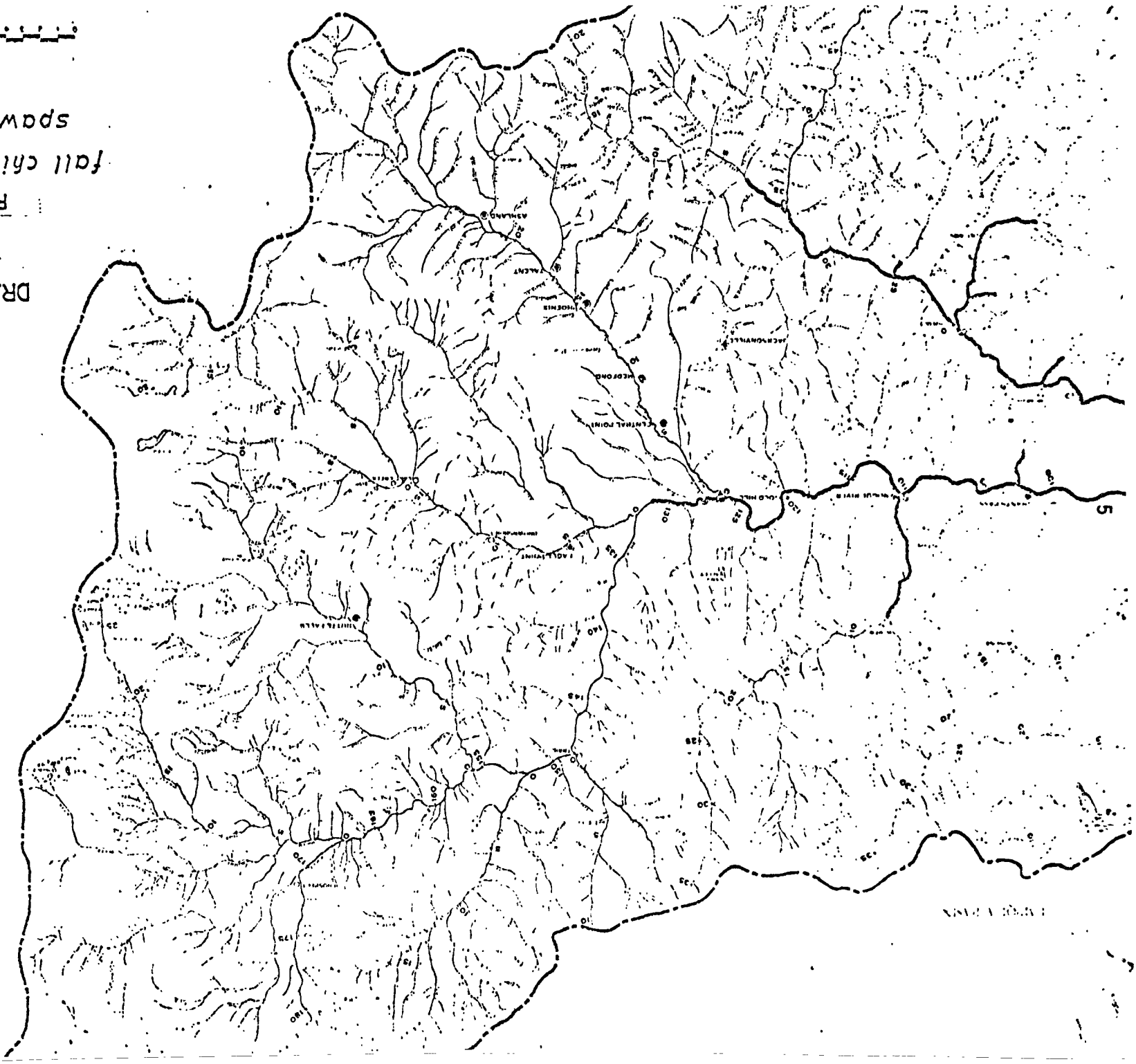
Area	Summer steelhead	Winter steelhead	Spring chinook	Fall chinook	Coho	Trout	Warm- water fish
Rogue River (River miles 15-35)	Aug.-Sept.	Dec.-Jan.	April- May	Sept.- Oct.	Sept.- Oct.	May- June	
(River miles 35-65)	Sept.-Oct.	Dec.-Jan.	April- May	October	October		
(River miles 65-90)	Sept.-Oct.	Dec.-Feb.	May			Sept.	
(River miles 90-125)	Sept.-Oct.	Jan.-March	May			May & Sept.	June & Sept.
(River miles 125-165)	Aug.-Oct.		June			May & June	July & Sept.
Illinois R.	Sept.	Dec.-Feb.		Oct.-Nov.	Nov.	May	
Applegate R.		Feb.-March				May	
Cascade Lakes						May & Sept.	
Lowland lakes						May	July



fall chinook salmon
spawning areas

Figure 2

ROGUE BASIN
DRAINAGE BASIN



10000

The District also supports populations of mountain and valley quail, ring-necked pheasant, band-tailed pigeon, hawks, owls, many types of song birds, and an occasional pileated woodpecker. Waterfowl include mallards, wood ducks, teals, pintails, scaups, mergansers, some gadwalls, and geese. Blue heron, green heron, and black crown night heron are frequently seen along the Rogue.

The study area also provides habitat for the ring-tailed cat which is on Oregon's list of rare and endangered mammals. As a furbearer the value of the ring-tail cat is negligible, but because of its uniqueness and low numbers preservation of its environment is very important.

Also located along the Rogue is the American Osprey which is on Oregon's list of rare and endangered birds. Preservation of its feeding and nesting areas is of great importance. The Rogue River shoreline of the District has been designated as a critical waterfowl habitat area by Battelle Northwest in the report, "Oregon; Areas of Environmental Concern" which was done for the State of Oregon Executive Department and Natural Resource Agencies.

Water Quality

Rogue River water quality is protected by Oregon State Water Quality Standards. The beneficial uses that are to be protected in the vicinity of the District, are domestic livestock and municipal water supply, irrigation, power, industrial water supply, mining, recreation, wildlife, and fish life. Special water quality standards have been promulgated for the Rogue River (Oregon Administrative Rules, Chapter 340) and the major ones are as follows:

"No wastes shall be discharged and no activities shall be conducted which... will cause in the Waters of the Rogue River Basin:

1. Organisms of the Coliform Group Where Associated with Fecal Sources (MPN or equivalent MF using a representative number of samples.)
 - a. Mainstem Rogue River from the point of salt water intrusion, approximately R.M. 4, upstream to Dodge Park, river mile 138.4, Bear Creek; average concentrations to exceed 1000 per 100 milliliters, except during periods of high surface runoff.
2. Dissolved Oxygen (D.O.). Dissolved oxygen concentrations to be less than 90 percent of saturation at the seasonal low, or less than 95 percent of saturation in spawning areas during spawning, incubation, hatching, and fry stages of salmonid fishes.
3. pH (Hydrogen Ion Concentration). pH values to fall outside the range of 7.0 to 8.5."

Generally, Rogue River water quality, adjacent to and below the District, meets the standards, and what violations occur, are naturally caused. Table 3 is a compilation of water quality data for the Rogue near the District. It indicates some dissolved oxygen violations, but these are rare and are caused by natural flow and temperature fluctuations. The temperature violations occur during the summer when stream flow is low and they are considered naturally occurring.¹ The table

1. Draft Development Document for a Water Quality Management Plan for the Rogue River Basin, Department of Environmental Quality.

also indicates high phosphorous levels in the river but these are also measured at upstream sampling stations where they occur year round. Since other streams in the area that originate in the Cascade Mountains also contain high phosphorous levels, it is generally believed that phosphorous is a largely naturally occurring pollutant in the Rogue System.

These naturally occurring water quality problems are considered to have slight impact on the beneficial uses the standards protect in the Redwood area, and, further there is little that can be done to control these problems. The main control available is to prevent humans from compounding the minor natural problems with pollutants generated from "human activity".

TABLE 3 ROGUE RIVER WATER QUALITY (REDWOOD AREA)

Station	Date	Flow (CFS)	Temp °C	D.O. MG/L	D.O. %	pH	Fecal Coli/100 ML	Phosphorous MG/L
@ Grants Pass R.M. 101.2	6/3/68	1888	20.0	10.1	113	8.3	45	0.14
	10/2/68	750	13.0	8.4	82	7.3	60	0.30
	6/10/69	4740	13.5	10.1	99	7.1	N/A	0.09
	9/29/69	1231	17.0	9.9	102	8.3	60	0.36
	6/30/70	1678	16.0	9.1	81	7.5	N/A	0.27
	9/1/70	961	18.0	8.1	88	7.3	45	0.21
	7/27/71	1868	21.0	8.6	98	7.7	46	0.17
	1/10/72	N/A	5.0	13.0	105	7.3		N/A
	7/10/72	N/A	19.0	10.2	109	8.0	130	N/A
	1/22/73	N/A	4.0	13.0	99	7.3	60	N/A
West of Grants Pass R.M. 98.1	6/3/68	1888	20.0	10.3	115	8.3	450	0.24
	10/2/68	750	13.0	8.0	78	7.3	620	0.32
	6/10/69	4750	13.5	9.8	96	7.1	N/S	0.16
	9/29/69	1091	17.5	10.7	111	8.3	60	0.54
	6/30/70	1678	16.5	8.9	79	7.1	N/A	0.28
	9/1/70	961	17.5	7.8	85	7.1	60	0.24
	7/27/71	1868	21.0	8.5	97	7.1	130	N/A
	1/10/72	N/A	5.0	12.5	101	7.3	N/A	N/A
	7/10/72	N/A	19.0	9.8	104	7.7	60	N/A
	1/22/73	N/A	5.0	13.0	101	7.3	620	N/A

Air Quality

The only air quality parameter that is presently measured in the Redwood area is for particulate matter (soot, larger dust particles, etc.) and that is sampled in Grants Pass. The geometric mean is 49.14 micrograms per cubic meter, and is probably about average for urban areas within Oregon.

Hydrology

High flows in the Rogue River occur during the winter and spring when most of the rain falls. Low flows occur in the late summer and fall. Since the average low temperature is well above freezing there is little snowfall. This results in rapid runoff of precipitation, with the rainfall showing up as runoff on Rogue River hydrographs within a few hours after a rainstorm.

Floods in the valley are generally the result of heavy rainstorms, and occur in the winter when the ground is saturated. The floods are of short duration with relatively high-peak discharges. The maximum discharge of record for the Rogue River was 152,000 cfs at Grants Pass (compared to a mean annual flow of 3,470 cfs) which occurred during the flood of December, 1964. This was a 50 year flood (meaning it has a 2 percent chance of occurring in any future year), and it inundated many portions of the District including the treatment plant site (see figure 4).

The groundwater table within the District is fairly shallow, which creates problem for successful operation of septic tanks and the maintenance of well water quality. All of the District's domestic water is taken from individual wells, most of which are 50 feet or less in depth and yield from 5 to 20 gallons per minute. Problems arise during the winter when the ground is saturated with water and individual disposal systems begin to fail which increases the potential for ground water (hence, well-water) contamination from sewage.

Aesthetics

Topography

The dominant topographical feature of the Service District is the Rogue River which forms the northern boundary of the District and ultimate drainage basin. As the Rogue flows west from the District, the river valley narrows to form the beautiful canyon for which the Rogue is famous. This section of the Rogue, from the confluence of the Applegate River and the Rogue to the mouth of the Rogue is designated as part of the National Wild and Scenic River System.

The stretch of the Rogue River that is adjacent to the District is slow flowing with a generally straight alignment and high banks. The shoreline does flatten out, with subsequent enlargement of the flood plain, at the western end of the District near the proposed treatment plant site.

The District boundaries presently enclose an area that is relatively flat (less than 3% slope) with an average elevation of about 900 feet above mean sea level. The ultimate drainage area encompasses topography of a more varied nature. This section of the study area includes portions of the foothills of the Siskiyou Mountains, with elevations as high as 1600 feet above mean sea level. The area is characterized by more rugged terrain and less land suitable to community development needs.

Outside of the District and the ultimate drainage area, the most important topographical features are the Coast Mountains to the west and the Siskiyou Mountains to the south. Both affect the climatic conditions and drainage patterns within the ultimate drainage area and the District.

Soils

The Redwood Sanitary District and the ultimate drainage area are composed of three main soil groups; the Barron series, a deep somewhat excessively drained soil formed on granitic fans; the Newberg-Evans association, a well drained soil lying principally in the Rogue River and Applegate River flood plains; and the Siskiyou series, an excessively drained soil formed on forested upland slopes. Figure 5 is a general soil map of the study area, and depicts the location and extent of the three soil groups.

The largest soil group in the study area is the Barron coarse sandy loam which lies upslope from the Newberg-Evans association in the valley terraces and lowlands. Typically, the Barron soils have "dark grayish brown, coarse sandy loam, very friable (crumble easily), slightly acidic surface layers, and light olive brown, coarse sandy loam, weak blocky, slightly acid subsoils to depths of 40 inches or more." Most of the Barron soil within the study area has a slope of less than 3 percent, but some southern areas have slopes ranging from 3 to 12 percent.

The next largest soil group in the study area is the Newberg-Evans association. This association is comprised of 55 percent Newberg soil and 45 percent Evans soil. The association is located primarily in the flood plain and valley terraces of the Rogue River Valley.

The Newberg soils have dark brown, very friable, sandy loam surface layers and dark brown, very friable, sandy loam subsoils. The Evans soils have thick, dark brown, friable, loam surface layers and dark brown, massive, loam subsoils. Both soils go to depths greater than 40 inches.

The third soil group is the Siskiyou series, located on steep slopes, with coarse sandy loam surface layers and subsoils. There is 20 to 40 inches depth to weathered quartz diorite and 60 inches to hardrock.

Agricultural Land Capabilities:

Barron coarse sandy loam-The primary use for Barron soils is for irrigated hay and pasture land. Within the District (where most of the Barron Series, 0 to 3 percent slope lies) the primary use of the soil is for this purpose. The eastern portion of the District, because of its urbanizing character, utilizes a smaller percentage of its land for pasture and hay than the western section.

Other agricultural uses of the Barron series are limited by its erosiveness and limited water holding capacity.

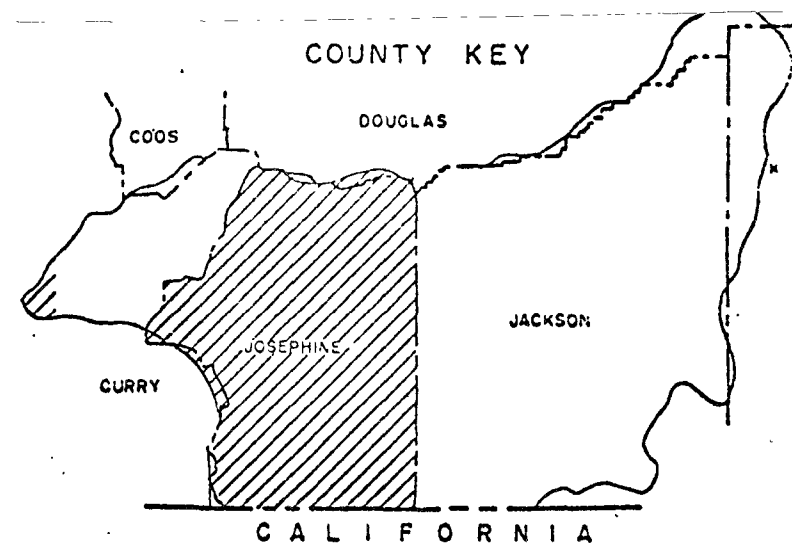
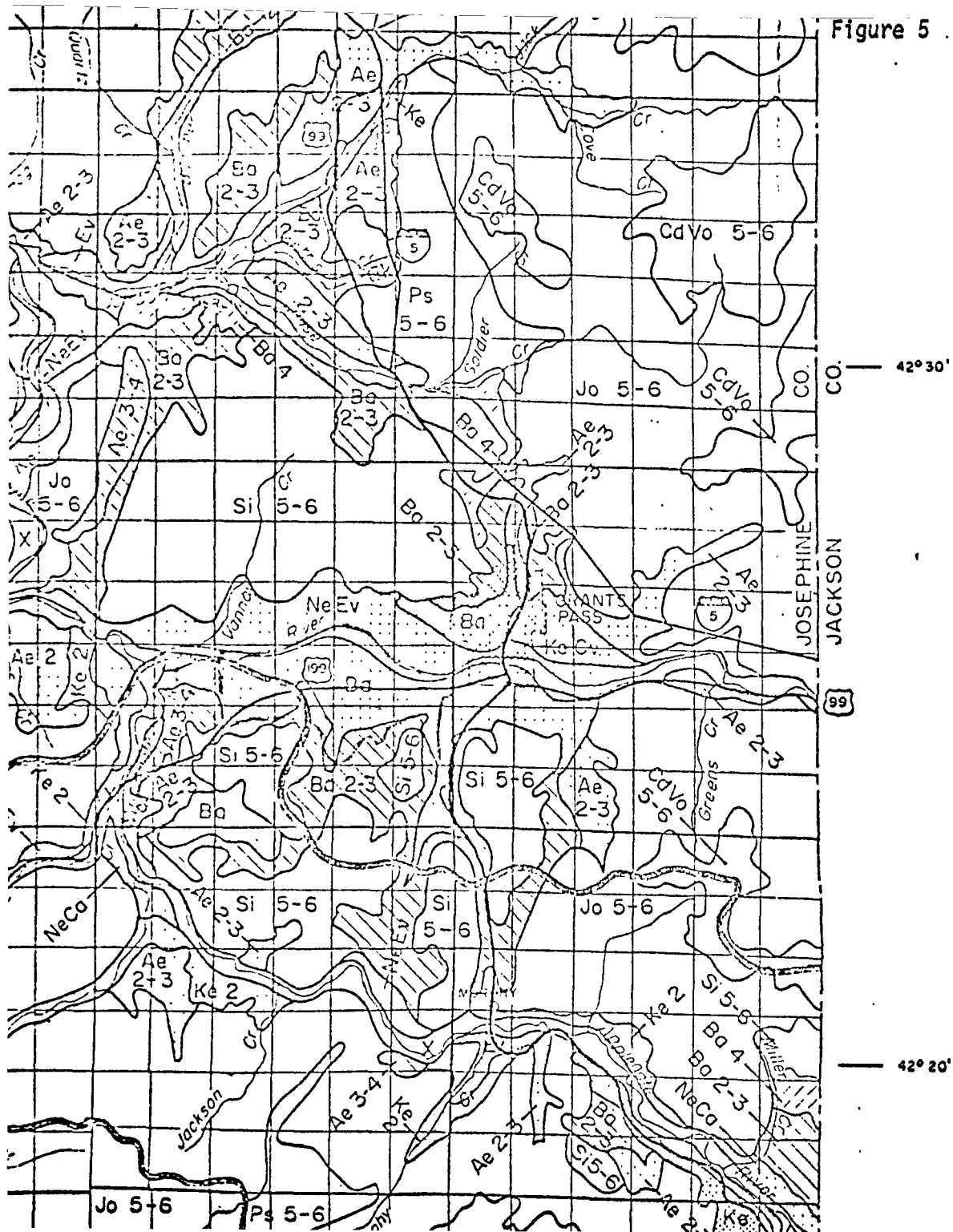
Newberg-Evans association-This soil association ranks with the most important agricultural soils of Josephine County. Since the soils are adjacent to the Rogue, they are easily irrigated, and are suitable for growing most crops appropriate to the Rogue Basin.

Siskiyou coarse sandy loam-This soil has the least suitability for agricultural development of the three groups. Because of steep slopes and low water-holding capacity its use for agriculture is limited. Within the study area, the Siskiyou soils are not used for any agricultural purpose, but are predominantly forested.

Soil Limitations for Community Development:

The characteristics and capabilities of the soil are the crucial determinants of an area's ability to support community development without the benefit of a sewerage system. These limitations are discussed below.

Barron coarse sandy loam-The subsoil of this series is a semi-cemented compact clay loam which restricts the downward movement of water. During winter months the topsoil becomes saturated. Combined with a shallow groundwater table, this saturation often prevents successful operation of septic tanks in areas of low density development. Within the District this problem is evidenced by the failure of septic tanks and surfacing of effluent within the eastern portion of the District.



IDENTIFICATION LEGEND

(Josephine County)

Symbol	Soil Series and Land Types
Ae	Abegg
Ba	Barron
Bk	Brockman
Ca	Camas
Cd	(Cd)*
Cm	Coleman
Cv	Cove
Ev	Evans
Jo	Josephine
Ke	Kerby
Keg	Kerby, gravelly
Ne	Newberg
Ps	Pearsoll
Ru	Ruch
Si	Siskiyou
Tk	Takilma
Vo	(Vo)*

Development may occur on larger tracts of land, usually at least 5 acres in size depending on the individual tract.

Newberg-Evans association-This soil is better drained than the Barron series and is not as limited in its use for septic tank drainfields. It is rated as having a moderate degree of limitation in this respect, and it is recommended that a 2½ acre minimum lot size be required for septic tank development. In terms of construction limitations, the soil is easy to work with and presents no problems to construction activities. However, the proximity of this soil type to the Rogue and its location in the flood plain should be considered in any development plans to avoid large scale damages to residences.

Siskiyou coarse sandy loam-Of the three soil groups, the Siskiyou series is the most limited with regard to community development. Its steep slope creates an extreme erosion hazard and rapid runoff of precipitation. It is recommended that development on individual disposal systems be limited to 10 acre tracts of land.

Climate

Since the study area is located south of the major Pacific Northwest storm belt, it receives less annual rainfall and has fewer cloudy days than more northern areas of Oregon.

Table 4 gives climatic data, recorded in Grants Pass, for the period 1934-1965.

TABLE 4 CLIMATIC SUMMARY OF GRANTS PASS

Month	Temperature, F					Precipitation, inches	
	Mean maximum	Mean minimum	Mean	Highest recorded	Lowest recorded	Mean	Greatest daily
January	46.0	32.5	39.3	65	5	6.04	3.00
February	53.7	33.9	43.8	72	5	4.71	4.30
March	60.6	34.8	47.7	84	18	3.35	2.30
April	68.6	38.2	53.4	94	25	1.89	2.00
May	75.3	43.2	59.3	99	27	1.38	1.61
June	81.4	48.0	64.7	108	33	0.88	1.50
July	90.0	51.6	70.8	110	39	0.27	1.52
August	88.9	50.2	69.6	105	36	0.28	0.60
September	83.7	45.2	64.5	104	28	0.68	1.50
October	69.1	41.0	55.1	93	22	2.82	5.27
November	53.3	36.1	44.7	74	14	4.24	2.47
December	47.0	34.2	40.6	65	12	5.89	4.07
Annual	68.1	40.7	54.4	110	5	32.42	5.27

Source: Records of U.S. Weather Bureau for the period 1934-1965.

Average annual precipitation is about 32 inches, with 75% of this total falling between November and March.

The area experiences mild temperatures throughout the year, averaging 68 degrees and 41 degrees at the high and low ends of the temperature range. Generally, winters are wet with moderately cool temperatures and summers are warm and dry. The average growing season, defined as the period between the last 32 degree temperature in the spring and the first 32 degree temperature in the fall, is 158 days.

The prevailing wind direction is from the west, approximately parallel to the axis of the Rogue River Valley.

Mineral Resources

At the present time there are no mining activities underway within the District and none were found in the ultimate drainage basin. The District is largely rural and rural-residential so it is unlikely that mining would become a significant activity in the area.

Timber Resources

Within Josephine County the most important economic activity is timber harvest and wood products manufacturing. Within the District there is virtually no timber resource. That is not to say there are no trees, but means that there are few stands of trees suitable for commercial harvest. The main species of trees in the District are pines, cottonwood, oaks and madrones. In the southern section of the ultimate drainage area, which is largely forested, the main tree species are pines, spruce, and some oak and Madrone. At the present time, there is no timber harvesting occurring in this area.

Recreation

The second most important industry in Josephine County is tourism, with most of that industry seeking recreational opportunities such as boating, camping, hunting and fishing. The Rogue River Basin provides extensive recreational resources. Shroeder Park (owned by Josephine County) is located within the District and comprises approximately 15.2 acres. The County has indicated in its comprehensive plan that it would like to expand the park to 28 acres. Presently the park offers limited overnight camping and has day use picnic areas. The park also has a boat launching ramp which affords boaters and fisherman easy access to fishing areas. There are no other designated recreation areas within the study area, and most other recreational use is fairly limited.

Land Use Patterns

The Josephine County Comprehensive Plan was adopted in 1971 by the Josephine County Planning Commission. Zoning regulations were adopted in 1973. Figure 6 is a zoning map of the District and ultimate drainage area and Table 5 is an explanatory compilation of the relevant zoning designations for the study area.

Figure 6

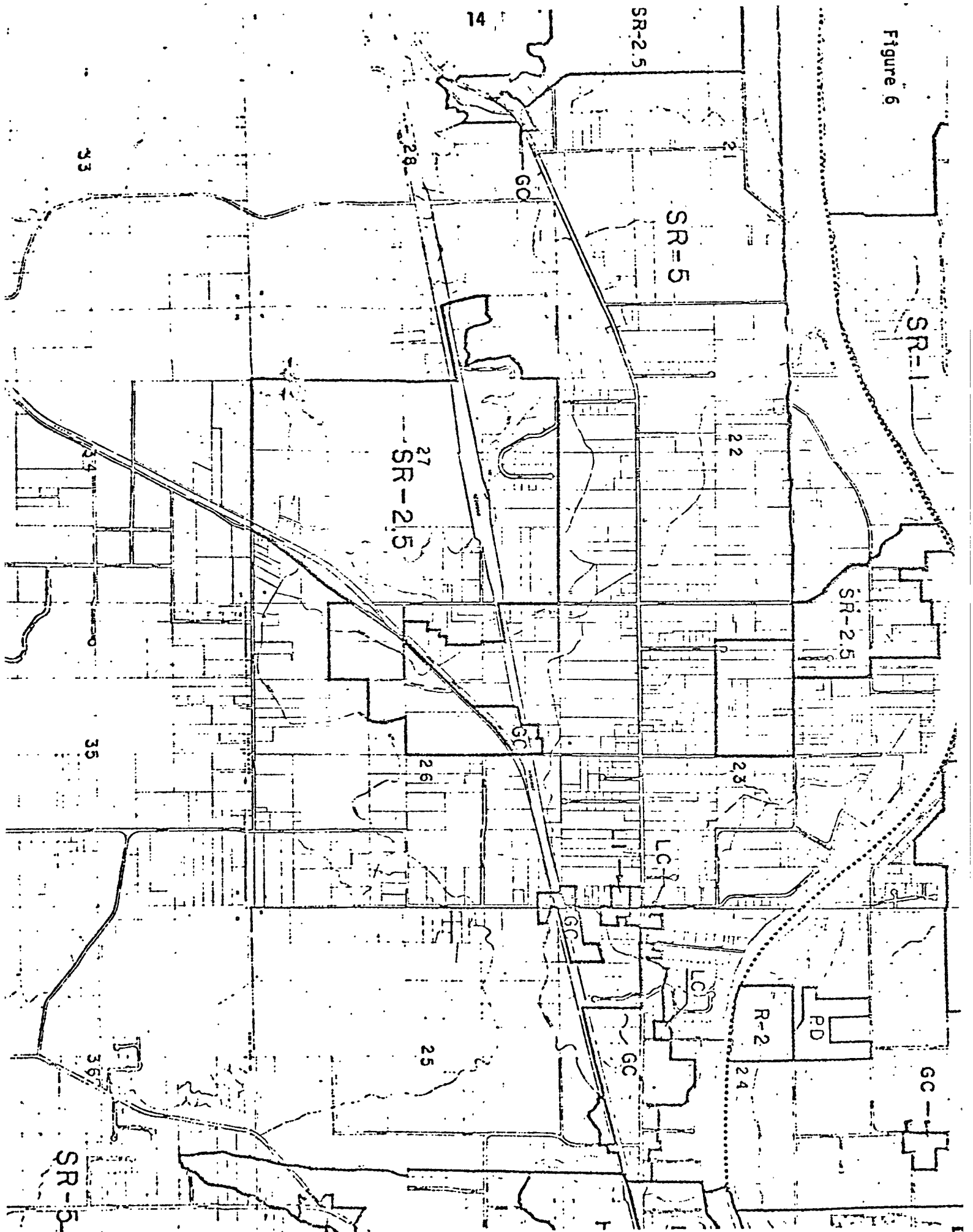


TABLE 5 LEGEND OF ZONING DESIGNATIONS¹.

<u>Designation</u>	<u>Characteristics</u>
Suburban Residential: SR-5	5 acre minimum lot size Use for agriculture, single-family dwelling and planned development.
Suburban Residential: SR-2.5	2.5 acre minimum lot size Use same as SR-5.
Limited Commercial: LC	6,000 square foot minimum lot size Use limited to commercial activities.
Light Industrial: LI	No minimum lot size Use limited to light industry. e.g. auto service station, trucking terminal, wholesale distribution and sales.
General Commercial: GC	No minimum lot size Use same as LC but includes labs, commercial amusement or recreation use and wholesale business, storage companies, etc.

¹See Josephine County Zoning Regulations for complete descriptions.

Prior to the adoption of zoning regulations, the development of the Redwood area occurred in a relatively haphazard manner, with low density development occurring in the midst of large-size land parcels and vice versa.

The vast majority of land in the western portion of the District and the ultimate drainage area is presently used for agriculture or is vacant.

The predominate zoning classification within the study area is for Suburban Residential (SR-5) which permits residential construction on minimum 5-acre tracts.

The study area also contains suburban residential zones with 2.5 acre minimum lot sizes, some commercial zones, and a small amount of Forest Resource District, which requires a minimum lot size of 10 acres.

Presently, there is a great deal of development that has occurred (prior to adoption of zoning regulations), and is inconsistent with current zoning designations. Most of this development is residential and has taken place in the ISA, where many homes are on lots of less than one acre. This portion of the District is relatively densely developed so it is where most of the failing septic tanks are located.

The western portion of the District is mainly zoned Suburban Residential (SR-5) and most homes in the area satisfy the minimum lot size requirement. The land is used for hay production, pasture, and some truck crops.

The ultimate drainage area is largely zoned SR-5, with some SR-2.5 and FR (Forest Resource District). Most of the area is forested with some agricultural lands in the more level sections of the area. As in the western District area most lands in the ultimate drainage area are sized and used in accordance with county zoning regulations and the land use plan.

Social and Economic Characteristics

Population and Growth Trends

Essential to any type of community planning, population projections provide the basis for design criteria for many public services, including sewage treatment plants, interceptors and collection systems, water systems, and school facilities. To make an accurate estimate, which is critical, one must examine past growth trends, evaluate the economic determinants of growth, consider the objective (land availability, suitability, etc.) and subjective (aesthetics, etc.) aspects of the area, and, finally, exercise some common sense.

The response to the comment letter of the Josephine County Road Department contains a table of population projections other than those of CH₂ M and PL&S. EPA feels that the PL&S prediction is too high.

In any case, it is more than likely that the District is going to continue to grow, although the rate of that growth is dependent on a number of factors.

First, if no sewers are built, the amount of growth that can occur is severely limited, both by subsurface disposal regulations and existing zoning patterns.

Second, growth is dependent on the birth rate (and mortality rate) and the rate of in-migration. Nationwide, the birth rate is declining, and there are indications that the nation's population may stabilize within the next two decades. In addition to meaning that less people are born and, hence, a lower growth rate, it also means that the quantity of in-migration will decline over time because there is a smaller pool of people from which migration can occur. Josephine County population growth contains a high in-migration component. It has been estimated to be as high as 42 percent.

Third, growth depends on the economy of an area. In times when the economy is booming so is population growth, and when the economy is unstable or on the decline, population growth declines, sometimes to the extent of a net out-migration occurring.

Even though the Josephine County economy is not the most stable, being dependent on the volatile timber industry, growth will continue to occur because of in-migration of retired people and the continued diversification of the county economy.

The District will continue to grow because of its attractiveness to retired persons and its proximity to Grants Pass.

Economic Conditions

The major industry in Josephine County is forest products manufacturing. Two out of every three employees in the manufacturing segment of the County economy are workers in the lumber industry. It is expected that the lumber industry will continue to dominate the County economy in the future.

The second most important, and most rapidly growing, sector of the economy is tourism. In the decade 1960-1970, income from tourism doubled to an amount in excess of 26 million dollars. With income and leisure time increasing, and the growing amount of in-migration the tourist trade income is expected to double again in 10 to 15 years.

Agriculture follows lumber and tourism in the economic hierarchy, and has played a declining role in the County economy. Josephine County has a high unemployment rate. From 1960 to 1970, the rate averaged 8 to 10 percent, and was 11.5 percent in 1970. Since the rate is highly sensitive to economic fluctuations of the timber industry, the rate may be much higher, 15 to 20 percent, at the present time (the timber industry is presently experiencing hard times).

The Redwood Service District does not have any industry within its boundaries, and given its rural-residential character, it is unlikely that industrial development will occur. It is likely, and in keeping with County trends, that most District workers are employed outside of the District in the lumber industry or its support activities (trucking, retail establishments, etc.). Some District residents supplement their income by farming and there may be a few who are wholly supported by that activity or dairying.

The agricultural resources (arable land) of the District may become more valuable and important in the County economy of the future. Presently, the County economy depends on the highly unstable lumber market and seasonal tourist income. It has been recommended in one study ^{1/} that the Josephine County economy should diversify, and this includes expansion and intensification of the agricultural industry. The study notes that dairying is a profitable activity, and that through improved irrigation techniques, increased marketing efforts, and improvement of farm management, agriculture could become a more prosperous contributor to the economy. Overall, about 3.7 percent of land in the County is devoted to agriculture, and only 10 percent of that is devoted to intensive crops. If an active effort is undertaken to diversify the economy, including expansion and improvement of agricultural practices, the land within the District may become extremely important.

POLICY ON WATER POLLUTION

EXHIBIT 4

The State policy on water pollution for the Rogue River Basin is set forth in the Oregon Revised Statutes, Chapter 835.077, as follows:

Whereas the pollution of the waters of this State constitutes a menace to public health and welfare, creates public nuisances, is harmful to wildlife, fish and aquatic life and impairs domestic, agricultural, industrial, recreational and other legitimate beneficial uses of the water, whereas the problem of water pollution in this State is closely related to the problem of water pollution in adjoining states; it is hereby declared to be the public policy of this State to conserve the waters of the State and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, municipal, recreational and other legitimate beneficial uses; to provide that no waste shall be discharged into any waters of this State without first receiving the necessary treatment or other corrective action to protect the legitimate beneficial uses of such waters; to provide for the prevention, abatement and control of new or existing water pollution; and to cooperate with other agencies of the State, agencies of other states and Federal Government in carrying out these objectives.

QUALITY STANDARDS

The following is a condensation of several sections of the Oregon Administrative Rules, Chapter 340, Regulations Relating to Water Quality Control in Oregon. The general policy is one of nondegradation.

GENERAL WATER QUALITY STANDARDS

The following General Water Quality Standards shall apply to all waters of the State except where they are clearly superseded by Special Water Quality Standards applicable to specifically designated waters of the State.

No wastes shall be discharged and no activities shall be conducted which either alone or in combination with other wastes or activities will cause in any waters of the State:

1. The dissolved oxygen content of surface waters to be less than six (6) milligrams per liter unless specified otherwise by special standard.
2. The hydrogen-ion concentration (pH) of the waters to be outside the range of 6.5 to 8.5 unless specified otherwise by special standard.
3. The liberation of dissolved gases, such as carbon-dioxide, hydrogen sulfide or any other gases, in sufficient quantities to cause objectionable odors or to be deleterious to fish or other aquatic life, navigation, recreation, or other reasonable uses made of such waters.
4. The development of fungi or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or which are injurious to health, recreation or industry.

5. The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of fish or shellfish.
6. The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation or industry.
7. Objectionable discoloration, turbidity, scum, oily slick or floating solids, or coat the aquatic life with oil films.
8. Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing, or shellfish propagation, or be otherwise injurious to public health.
9. Any measureable increase in temperature when the receiving water temperatures are 64 F. or greater; or more than 0.5 F. increase due to a single-source discharge when receiving water temperatures are 63.5 F. or less; or more than 2 F. increase due to all sources combined when receiving water temperatures are 62 F. or less.
10. Aesthetic conditions offensive to the human senses of sight, taste, smell or touch.
11. Radioisotope concentrations to exceed Maximum Permissible Concentrations (MPC's) in drinking water, edible fishes or shellfishes, wildlife, irrigated crops, livestock and dairy products or pose an external radiation hazard.
12. The concentration of total dissolved gas relative to atmospheric pressure at the point of sample collection to exceed one hundred and five percent (105%) of saturation, except when stream flow exceeds the 10-year, 7-day average flood.

SPECIAL WATER QUALITY STANDARDS

The provisions of this sub-section shall be in addition to and not in lieu of the General Water Quality Standards. Where there is a conflicting requirement with the General Water Quality Standards, the Special Water Quality Standards shall govern.

No wastes shall be discharged and no activities shall be conducted which either alone or in conjunction with other wastes or activities will cause in the Waters of the Rogue River Basin:

1. **Organisms of the Coliform Group Where Associated with Fecal Sources** (BPH or equivalent IF using a representative number of samples.)
 - a. Mainstem Rogue River from the point of salt water intrusion, approximately R.M. 4, upstream to Dodge Park, river mile 138.4, and Bear Creek; average concentrations to exceed 1000 per 100 milliliters, except during periods of high surface runoff.
 - b. Rogue River above Dodge Park and all unspecified tributaries, average concentrations to exceed 240 per 100 milliliters, except during periods of high surface runoff.
2. **Dissolved Oxygen (D.O.).** Dissolved oxygen concentrations to be less than 90 percent of saturation at the seasonal low, or less than 95 percent of saturation in spawning areas during spawning, incubation, hatching, and fry stages of salmonid fishes.
3. **pH (Hydrogen Ion Concentration).** pH values to fall outside the range of 7.0 to 8.5.
4. **Turbidity (Jackson Turbidity Units, JTU).** Any measurable increases in natural stream turbidities when natural turbidities are less than 30 JTU, or more than a 10 percent cumulative increase in natural stream turbidities when stream turbidities are more than 30 JTU, except for certain short-term activities which may be specifically authorized by the Department of Environmental Quality under such conditions as it may prescribe and which are necessary to accommodate essential dredging, construction, or other legitimate uses or activities where turbidities in excess of this standard are unavoidable.
5. **Temperature.** Any measurable increases when stream temperatures are 58°F. or greater; or more than 0.5°F. increase due to a single-source discharge when receiving water temperatures are 57.5°F. or less or more than 2°F. increase due to all sources combined when stream temperatures are 56°F. or less, except for short-term activities which may be specifically authorized by the Department of Environmental Quality under such conditions as it may prescribe and which are necessary to accommodate legitimate uses or activities where temperatures in excess of this standard are unavoidable.
6. **Dissolved Chemical Substances.** Guide concentrations listed below to be exceeded except as may be specifically authorized by the Department of Environmental Quality upon

such conditions as it may deem necessary to carry out the general intent of Section 41-010 and to protect the beneficial uses set forth in Table B.

	mg/l
Arsenic (As)	0.01
Barium (Ba)	1.0
Boron (Bo)	0.5
Cadmium (Cd)	0.003
Chloride (Cl)	25.
Chromium (Cr)	0.02
Copper (Cu)	0.005
Cyanide (Cn)	0.005
Fluoride (F)	1.0
Iron (Fe)	0.1
Lead (Pb)	0.05
Manganese (Mn)	0.05
Phenols (totals)	0.001
Total dissolved solids	100.
Zinc (Zn)	0.01

Note: Guide concentrations are currently under revision.

WASTE DISCHARGE TREATMENT REQUIREMENTS

The degree of waste treatment required to maintain the desired water quality is based upon the uses which are made of the receiving stream, the size and nature of its flow, the quantity and quality of wastes, and the presence of other sources of pollution on the same watershed. The minimum standards presently set for the treatment of discharge are:

1. Sewage Wastes

- a. During the period of low stream flows (approximately June 1 - October 31 of each year), secondary treatment resulting in monthly average effluent concentrations not to exceed 20 mg/L of 5-day 20 F. Biochemical Oxygen Demand (BOD) and 20 mg/L of suspended solids or equivalent control.
- b. During the period of high stream flows (approximately November 1 - May 31 of each year) a minimum of secondary treatment or equivalent shall be provided and all waste treatment and control facilities shall be operated at maximum efficiency so as to minimize waste discharges to public waters.
- c. All sewage wastes shall be disinfected, after treatment, equivalent to thorough mixing with sufficient chlorine to provide a residual of at least 1 part per million after 60 minutes of contact time.
- d. More stringent waste treatment requirements may be imposed, especially in headwater and tributary streams, where waste loads may be large relative to stream flows.

2. Industrial Wastes

- a. Industrial waste treatment requirements shall be determined on an individual basis in accordance with the provisions of Sections 41-010, 41-015, 41-020, 41-025, and 41-030 of the Oregon Administrative Rules.
- b. Where industrial effluents contain significant quantities of potentially toxic elements, treatment requirements shall be determined utilizing appropriate bioassays.

WASTE DISCHARGE PERMIT REQUIREMENTS

Under the provisions of ORS 449.083, as amended by Senate Bill 77, Chapter 835(1973), and of administrative rules legally adopted by the Environmental Quality Commission no wastes shall be discharged into the waters of the State without a permit from the Director of the Department of Environmental Quality. The Department has the authority to permit or prohibit waste discharges, adopt, modify and enforce water quality and waste treatment standards, develop, adopt and implement Basin Water Quality management strategy plans, monitor water quality and waste discharges, and enforce compliance with Oregon laws, standards, rules and permits.

The Department also has responsibility for operating the National Pollutant Discharge Elimination System (NPDES), a national waste discharge permit program, within the State of Oregon in compliance with provisions of the Federal Water Pollution Control Act Amendments of 1972 (p.L. 92-500) and such regulations as may be promulgated thereunder by the Environmental Protection Agency (EPA). The new Federal Act requires NPDES permits to be issued in accordance with national effluent and performance standards and minimum treatment requirements. Permit conditions are based on the following, whenever applicable:

1. Effluent limitations under Sections 301 and 302 of P.L. 92-500.
 - a. For point sources other than publicly owned treatment works, compliance by not later than July 1, 1977 with effluent limitations obtained through the application of the best practicable control technology currently available as defined by the Administrator of EPA.

- b. For publicly owned treatment works in existence on July 1, 1977, compliance with effluent limitations obtained through the application of secondary treatment as defined by the Administrator of EPA.
 - c. For discharges into publicly owned treatment works, compliance by not later than July 1, 1977 with such effluent standards, prohibition, or pretreatment standards for toxic and other hazardous wastes as may be promulgated by the Administrator of EPA pursuant to Section 307 of P.L. 92-500.
 - d. For all discharges, compliance by no later than July 1, 1977 with any additional or more stringent limitations that may be necessary to meet water quality standards, treatment standards or schedules of compliance established by either state or federal statute or regulation.
 - e. By not later than July 1, 1983, compliance by all publicly owned treatment works with effluent requirements obtained by application of the best practicable waste treatment technology pursuant to Section 201 (g) (2) (A) of P.L. 92-500 and for all other discharges compliance with effluent requirements obtained by application of the best available technology economically achievable for a given category or class of point sources, pursuant to Section 304(b)(2) of P.L. 92-500.
2. Effluent limitations for new sources included in lists of categories published by EPA and meeting national standards.
 3. Provisions for compliance with effluent standards, effluent prohibitions and pretreatment requirements for toxic pollutants pursuant to Section 307 of P.L. 92-500.
 4. Provisions for compliance with areawide waste treatment management plans, if any, adopted under Section 203 of P.L. 92-500.
 5. Allowable average and maximum daily quantitative limitations for levels of pollutants in effluent.
 6. Schedule of compliance including appropriate interim dates for meeting specific requirements within stated time periods.
 7. Specific monitoring, recording and reporting requirements.

Appropriate action will be taken by DEQ to enforce compliance with specific provisions of each waste discharge permit, with general requirements of State and Federal statutes, rules and regulations, and with water quality standards.

T E L E P H O N E U S E R E P O R T

EXHIBIT 5

TO BE USED ON ALL LONG DISTANCE
TELEPHONE CALLS, INCOMING OR OUTGOING,
AND ANY LOCAL CALLS MERITING RECORDING

PREPARE IMMEDIATELY - SUBMIT DAILY

ROUTING

CO

DS

JV

CALL FROM: Lee S. Aronson

TITLE: Environmental Protection Specialist

LOCATION &
PHONE NO.: ORO 221-3250

DATE: 11/8/74

CALL TO: Bill Haight

TIME: 1 p.m.

TITLE: Fish Biologist

LOCATION &
PHONE NO.: Ore. Game Comm., Grants Pass 479-2276

SUMMARY OF CALL:

Bill gave me the following list of animals in the Service District and ultimate drainage area.

Beaver	Blue Heron
Muskrat	Green heron
Mink	Black-crown night heron
Raccoon	Osprey
Marten	Pileated woodpecker
River Otter	Hawks
Ground Squirrels	Owls
Cottontails	Songbirds
Black-tail jackrabbit	
Black-tail deer	
Ring-tail cat	Also Sand and Allen Creek have
Black bear	summer steelhead that have been
Mountain quail	declining due to increasing urbanization.
Valley quail	
Ring-necked pheasant	
Band-tail pigeon	
Mallard	
Wood duck	
Teal	
Scaup	
Pintail	
Gadwall	
Merganser	
Goose	

Lee Aronson
(Signature)

IN THE MATTER OF:)

Future land use and sewer)
 extensions within the)
 Redwood Sanitary Sewer)
 District.)

RESOLUTION

WHEREAS the Board of County Commissioners is the Governing Body of Josephine County in matters relating to the Comprehensive Plan and Zoning and as specifically set out in ORS Chapters 215 and 197, and;

WHEREAS, the Board of County Commissioners is also the Governing Body of the Redwood Sanitary Sewer Service District as set forth in ORS Chapter 451, and;

WHEREAS the Board of County Commissioners wish to set out in writing their beliefs and policies regarding the future land use within the Redwood Sanitary Sewer Service District and;

WHEREAS the Board of County Commissioners has reviewed and concurs with the population projections for the District recently prepared by the Firm of Patterson, Langford, and Stewart, and;

WHEREAS the Board of County Commissioners recognize:

1. That the proposed sewer project for the District could support a population density inconsistent with the existing zoning in that: the District is presently zoned 2.5 and 5 acre minimum lot sizes which would inhibit further development associated with the installation of sewers.

2. That the Comprehensive Plan contains a dual recommendation for the eastern portion of the

Redwood Sanitary Sewer Service District: (a) until sewers are available, the future development should progress in recognition of the poor soil conditions for proper septic tank installations, i.e., large-lot zoning should be used; (b) once sewers become available the Plan recommends that the maximum allowable density of development be increased to allow 3-6 dwelling units per acre.

3. That in future years if the County continues to grow in accordance with the aforementioned population projection, the Comprehensive Plan and the complementary zoning will have to be amended to reflect future demands and needs.
4. That the aforementioned population projection is a reasonable estimate.

NOW THEREFORE BE IT RESOLVED that in light of the above mentioned factors:

1. The Board of County Commissioners intends to zone the area in accordance with the Comprehensive Plan; in that, specifically, when sewer facilities are installed, the eastern portion of the District, being served with sewers, should be rezoned to a classification permitting a maximum density of 3-6 units per acre.

2. That in future years if growth continues as projected and if the need becomes apparent or expressed, the future Boards of County Commissioners will give serious consideration to, and will probably permit, future extensions of the sewers into existing unsewered areas of the District, and will subsequently take action to amend the Comprehensive Plan and Zoning.

Dated this 22 day of August, 1974.

Dane G. Butler
Chairman

W. C. Langhridge
Commissioner

Leslie A. Calvert
Commissioner

Approved as to form:

Edward E. Sites
Edward E. Sites
Deputy District Attorney

PROCEDURAL STEPS REQUIRED TO ATTAIN SEWER SERVICE FROM
THE REDWOOD SANITARY SEWER SERVICE DISTRICT
JOSEPHINE COUNTY, OREGON

The following step by step procedure is one that would occur in order to provide sewer service to an area that lies outside of the originally created assessment district of the Redwood Sanitary Sewer Service District.

1. A petition would have to be submitted to the Board Of County Commissioners requesting that sewer service be extended to a particular area. This petition would have to be as stipulated in ORS, Chapters 451 and 198.
2. The Board Of County Commissioners acting as the governing body of the sewer district would have an initial decision to make regarding whether or not it was appropriate to provide sewer service to the area based on such things as treatment plant capacity, intensity of development, ease of providing service, etc.
3. Assuming that the sewer was being requested in order to provide for additional residential development an amendment to the Josephine County Comprehensive Plan would be required and the Board Of County Commissioners is the only body with authority to make an amendment to that plan. The amendment would be necessary since the Redwood Sanitary Sewer Service District, outside of the initial assessment district, is designated Farm Residential which would suggest development on 5-10 acre parcels.
4. The request would initially be referred to the Josephine County Planning Commission for their review and recommendation. The Planning Commission would hold a public hearing on any such matter after which they would make a recommendation to the Board Of County Commissioners to either amend the plan or not.
5. The Board Of County Commissioners would then conduct a public hearing on the request and make the final determination to either leave the Comprehensive Plan in its present form or take action to amend the plan to reflect the Urban Low Density classification which would suggest development on the order of 3-6 units per acre.
6. Once the plan has been amended, a request for a zone change may then be initiated to rezone the area in question from SR-5 to R-1 which would permit lots of approximately $\frac{1}{4}$ acre, dependant upon the installation of sewers. The first action would be by the Planning Commission whereby they would conduct a public hearing on the question. Public notice would appear in the newspaper and property owners affected would be notified by mail. The Planning Commission would take action to either recommend approval or denial to the Board Of County Commissioners.

7. Once the Board Of County Commissioners receives a recommendation from the Planning Commission a public hearing will be scheduled by the Board prior to which notices of public hearing will again have been placed in the paper as well as written notices to affected property owners. The Board upon considering the recommendation of the Planning Commission and the facts presented at the public hearing may make the final determination concerning the Zone Change Request.
8. Once the zone change question was resolved, the Board could then proceed with the sewer project by enacting an ordinance setting out the proposed project, the method of assessment, creating an assessment district, and setting up a hearing to hear any remonstrance to the proposed assessments.
9. The remonstrance hearing would be held, after written notice to all persons to be assessed and general notice in the newspaper was made. If less than 50% of the property owners and 50% of the acres involved are not objected to, the Board would issue an order for the project to proceed.

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