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Siuslaw River Dredged Material Disposal Plan

Lane County, Oregon

Wilsey & Ham
November 1978

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with technical assistance from
Cooper & Associates Inc.

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Section I

Introduction

SECTION I - INTRODUCTION

The Problem

Coastal waterways in the Pacific Northwest have provided important means of transportation since the first human inhabitants. As populations grew and towns became established along the rivers and bays, the significance of the waterways increased. Bonds became established between economic integrity and water related transportation systems. As navigational demand grew, forms of shipment evolved through various modes and sizes. Economic parameters dictated that larger barges and ships be used for the movement of goods, which often required deeper water depths for un-interrupted transport. In order to allow for the proper movement of these vessels, dredging (the removal of bottom materials from below the water surface) came into practice along most of the major waterways. By removing bottom sediments and deepening the river channel, both commercial and recreational vessels could gain access to the ocean, upriver ports, riverside docks, moorages and marinas, thus enhancing the useability of both the waterway and the adjacent land areas.

The upland areas are continuously involved in the natural geologic processes of erosion creating sediment loads within the drainage systems. As sediments accumulate in the major waterways, measurable volumes are deposited within river shoals, slow moving bays, and ocean entrance channels. Shoaling (the accumulation of sediments in a specific area) often threatens river and bay navigation, thus regular dredging becomes mandatory.

The Siuslaw River and Bay is typical of such navigational trends and the inherent shoaling problems. The establishment of industrial, commercial, and recreational enterprises along the river has placed increasing demands on the navigation system. Within the bay and river, both public and private investments in navigational improvements have been made in order to facilitate the movement of goods and people between upriver areas and the ocean. Major public navigation improvements have included the construction of an entrance channel at the mouth, turning basins at Florence and River Mile (RM) 16.5, and navigation channels. The Public Port District in Florence has constructed marina and moorage facilities in the bay area, and proposes to build more such facilities near the mouth of Siuslaw River. Private enterprises have constructed various moorage and marina facilities almost the entire length of the navigable waters along the river. Large industries have invested in dock facilities and water-use developments. The continued use of these facilities, and the anticipated construction of new navigation facilities requires continued dredging of the bay and river to maintain the water-based transportation systems.

Before bottom sediments can be dredged from the bay and river, it is necessary to locate areas upon which those materials can be placed (disposal sites). Historically, Siuslaw River dredged materials have

been placed on a combination of ocean and land disposal sites, depending on the location of the materials to be dredged and the accessibility of a viable disposal site. In general, the sediments from the entrance channel (river mouth) have been disposed of in the ocean, and most of the river sediments have been placed on land. Some filling of intertidal lands has occurred, including the Waterland Storage site at Florence and small island development in the North Fork area. The disposal of river materials currently occurs almost exclusively on upland sites.

In recent years federal laws have been enacted which significantly limit the disposal options in most coastal bays and rivers. Added to environmental constraints are engineering, topographic, and economic limitations within the Siuslaw River area, thus putting available disposal sites in limited supply. If navigation is to continue within the bay and river, sufficient sites must be identified so that dredging activities may continue. Although the Corps of Engineers is responsible for maintenance of the entrance channel, turning basins and river channel, they will perform the scheduled maintenance dredging only after the local port district has obtained the necessary sites for dredged materials disposal. The Port of Siuslaw must locate disposal sites for its own maintenance of moorages and new projects as well as do the private businesses operating marinas and industrial barge sites throughout the river. Dredged materials are generated by the maintenance of most of these facilities on Siuslaw River, and the responsibility of disposal is up to local operators.

In order for either a land or in-water area to be judged suitable for the disposal of dredged materials, it must meet a wide range of environmental, engineering and cost criteria. Because of the difficulty in satisfying all of these criteria, acceptable dredged material disposal sites are considered to be a limited resource. Along Suislaw River this is particularly true due to the limited amount of flat land areas adjacent to the shoreline. In recognition of the potential scarcity of suitable dredged material disposal sites, the State of Oregon (through its coastal goals) and Lane County (through its comprehensive planning process) have commissioned this report to identify areas which will be adequate to meet the disposal needs for the next 20 years. In addition to the selection of sites which meet the established environmental and engineering criteria, this dredged material disposal plan must also outline the policies and procedures governing the use of the sites as well as to outline a program for plan implementation.

Statewide Planning Goals and Guidelines for Coastal Resources have been adopted by the Oregon Land Conservation and Development Commission and became effective January 1, 1977. The Estuarine Resources Goal (Goal #16) requires that local governments prepare comprehensive management programs aimed at protecting and maintaining the unique environmental, economic

and social values of each estuary and associated wetlands. In addition Implementation Requirement #5 of the goal states: "Local government and state and federal agencies shall develop comprehensive programs, including specific sites and procedures for disposal and stockpiling of dredged materials." This dredged material disposal plan for Siuslaw Bay and River has been prepared as a portion of Lane County's efforts to revise its comprehensive plan and to prepare an estuarine management plan under the provisions contained in Goal #16.

Section II

Dredging Methods and Constraints

SECTION II - DREDGING METHODS AND CONSTRAINTS

Dredging Technology

Historically, the use of dredging equipment has been required in Siuslaw Bay and River to remove sediment from the entrance channel, river shoal areas, and other areas such as ship or barge berths and boat basins. The methods used in the bay and river since 1930 include use of hopper dredges, pipeline dredges and bucket (clamshell) equipment. Selection of such equipment depends upon economics, which in turn is determined by the quantities and characteristics of the dredged material, channel restrictions, weather, environmental protection, shape of the dredging site and the availability and location of disposal areas. Each type of dredge has characteristic efficiencies of operation, production and cost under specific situations.

In the development of both short-range and long-range dredged disposal plans, costs of dredging are very dependent upon productivity and disposal site preparation. Further development or advances in dredging technology could also have significant impact on plan selection and cost. However, current dredging methods and anticipated methods identified in this report for use in the next 15-20 years must be based on current technology.

Costs presented throughout the discussion are for relative comparison and are not intended to be preliminary engineering estimates for actual work. Reasonable assumptions as to costs are defined under the section on Unit Cost Criteria.

Most dredging work in Siuslaw River is accomplished by one of three methods: clamshell or bucket dredging, hopper dredging or pipeline dredging. Maintenance dredging at the mouth is generally completed by hopper dredge, while hydraulic pipeline and bucket dredges are used in the rest of the river channel. Any of the three methods may be commonly used for new construction depending upon the constraints of the particular project. Most of the private marina and industrial dredging is completed by bucket dredges.

- Bucket (Clamshell) Dredge

The bucket dredge is well suited to working in confined areas, and is therefore used in most of the small boat marinas and narrow channels along Siuslaw Bay and River. Bucket dredges operate efficiently and minimize water quality problems as long as the dredged materials are firm and of medium to heavy grain size. They are most economical when dredging small quantities, and when quantities exceed several thousand cubic yards, other methods are generally more economical.

When using bucket dredges, dredged material can either be placed on dump barges or directly onto trucks, if the dredge is operating close to shore. Both of these techniques constitute "rehandling" of the material, but do allow transportation of the dredged materials to disposal sites some distance from the dredging location.

Bucket dredges are also generally utilized for digging in gravel or rock, and for the removal of stumps and debris. The available sizes for bucket dredges range from capacities of 2 to 18 cubic yards.

- Hopper Dredge

A hopper dredge is a self-contained ocean-going vessel that is designed for both hydraulic dredging and the transport of the dredged material to a dumping area. Dredging is accomplished while the vessel is in motion. Dredged materials are placed on the hopper dredge until the hoppers are filled; the dredge is then moved to another water area (generally in the open ocean) for disposal. Dredging is accomplished through suction pipes which are lowered to "vacuum" bottom materials. Hopper dredges can operate where rough water would make other methods of dredging impractical.

In Siuslaw River, hopper dredges are used primarily for maintenance dredging of the bar and mouth. The sandy material dredged in those locations is hauled directly to an offshore open ocean disposal site. Due to weather and bar conditions, hopper dredging is generally scheduled during the months of May through September.

- Pipeline Dredge

The pipeline dredging method consists of a large centrifugal pump which is mounted on a specially designed barge. The lower end of the pipeline is equipped with a revolving cutterhead that breaks up the bottom materials so they can be drawn into the suction pipe. The cutterhead is lowered to the bottom on a large hinged ladder that extends forward from the front, or bow, of the barge. The cutterhead depth can be controlled by cables attached to the ladders. The pipeline, which extends from the edge of the barge to the shore or to an area of in-water disposal, floats on pontoons.

The pipeline dredge is held in position during dredging by anchors, swing lines, and spuds. (Spuds are long heavy shafts that are hung from masts near each corner of the stern of the dredge). Pipeline dredges are identified by the diameter of the discharge line and generally are available from 8 to 30 inch sizes. The chief advantages of pipeline dredge use include: 1) movement of large volumes of material in a short period of time, 2) ease of transport of the pipeline, and 3) simultaneous dredging and disposal operations. Major limitations to the use of pipeline dredges are as follows: 1) disposal areas must be relatively

close to the dredging operations since costs escalate rapidly as pipeline length is increased or disposal area elevated, 2) pipeline dredges are unable to operate in open or rough water areas, 3) buried logs, large boulders and discarded wastes, such as cable, present serious obstacles to the operation of the impeller; and 4) the anchoring cables and pipeline can present a temporary obstruction to navigation in confined channels.

- In-Water Disposal

Pipeline dredges normally pump to confined land disposal sites. Recently however, attention has been directed toward the use of pipeline dredges for in-water disposal, where material is removed from one section of the bay or river and placed in another portion of the bay or river that is also under water. Often times materials are placed in shoreline areas or other reaches where natural shoaling occurs or where useful tideland, marshland or other significant biological habitat can be created.

In-water disposal may be possible in Siuslaw River up to river mile 19. Specific constraints to its use include: 1) river hydrology, 2) selection of sites based on aquatic habitat needs, 3) limiting use to disposal of sediments which can settle rapidly, and 4) timing dredging to seasons which limit interference with fish migration.

Unit Cost Criteria

When land disposal of dredged materials from a Federal project is required, the sponsor must prepare the disposal sites to contain the dredged materials and to protect the surrounding land or water areas. Although actual dredging operations can vary widely due to equipment availability and a host of other factors, the costs associated with site preparation and dredging operations are presented below to allow an economic comparison of selected sites. These estimates are approximate and are based on information generated on other local projects. All costs are estimated in 1978 dollars. The cost items which must be considered for land disposal are as follows:

- Land

The acquisition of land, rights-of-way, or easements is subject to appraised market value. In the event of purchase for purposes of preserving and developing disposal sites, a cost of \$1,000 per acre is assumed. Where leased land is reclaimed or enhanced through filling, no significant cost is assumed.

- Clearing and Stripping

Cost of preparing a site by removing timber, brush, structures and general grading is assumed on the basis of \$200 - \$1,000 per gross acre.

- Surface Drainage and Relocation

If disposal sites have upland surface water drainage, it must be diverted around the area to be filled by means of an open channel or culvert. Where this work is required, a cost of \$12.00 - \$20.00 per lineal foot is assumed.

- Dike Construction

Confined disposal sites include construction of containment dikes using on-site materials, if suitable. Typical dikes, with not less than 2:1 slopes, are assumed to cost: \$4 per lineal foot for 5-foot high dikes, \$12 per lineal foot for 10-foot; and \$24 per lineal foot for 15-foot high dikes. If off-site material must be brought in, costs are assumed to run as much as five times the above costs.

- Return Flow Pipeline

Where permanently installed discharge lines are used, pipelines are assumed to be buried, placed under roads and extended to deep water. Average cost installed is estimated at \$30 per lineal foot for 18-inch pipe. Outfall segments are estimated at \$50 per foot.

- Overflow Structures

Overflow structures are necessary when overflow restrictions are imposed for turbidity, heavy metals, and other water quality considerations. Additional site development and weir construction costs approximately \$2,000 - \$6,000 per overflow structure. A 16" pipeline dredge would require one overflow structure, while a 24" pipeline would require three structures.

- Pipeline Dredging

Recent calculations for pipeline mobilization, demobilization and unit costs have been generated by the Corps of Engineers. Pipeline dredges used for disposal at distances less than 6,000 feet away are; \$120,000 for mobilization and demobilization and \$1.15/unit cost (1977 dollars). For pipeline jobs involving disposal sites over 6,000 feet away; \$202,000 for mobilization and demobilization and \$1.71/unit cost.

If the dredged material were to be stockpiled, and trucked away at a later date, additional costs would be incurred for reloading and transporting the material. These costs could result in a doubling of the \$2.00 cost per cubic yard.

- Bucket Dredging and Hauling

For clamshell and barge dredging it is estimated to cost \$265,000 for mobilization and demobilization (average of Grays Harbor and Port Orford jobs). For ocean disposal when dredging downstream of the Highway 101 Bridge costs would be \$1.25/cubic yard, and dredging upstream of the bridge would cost \$1.86/cubic yard.

- Hopper Dredging

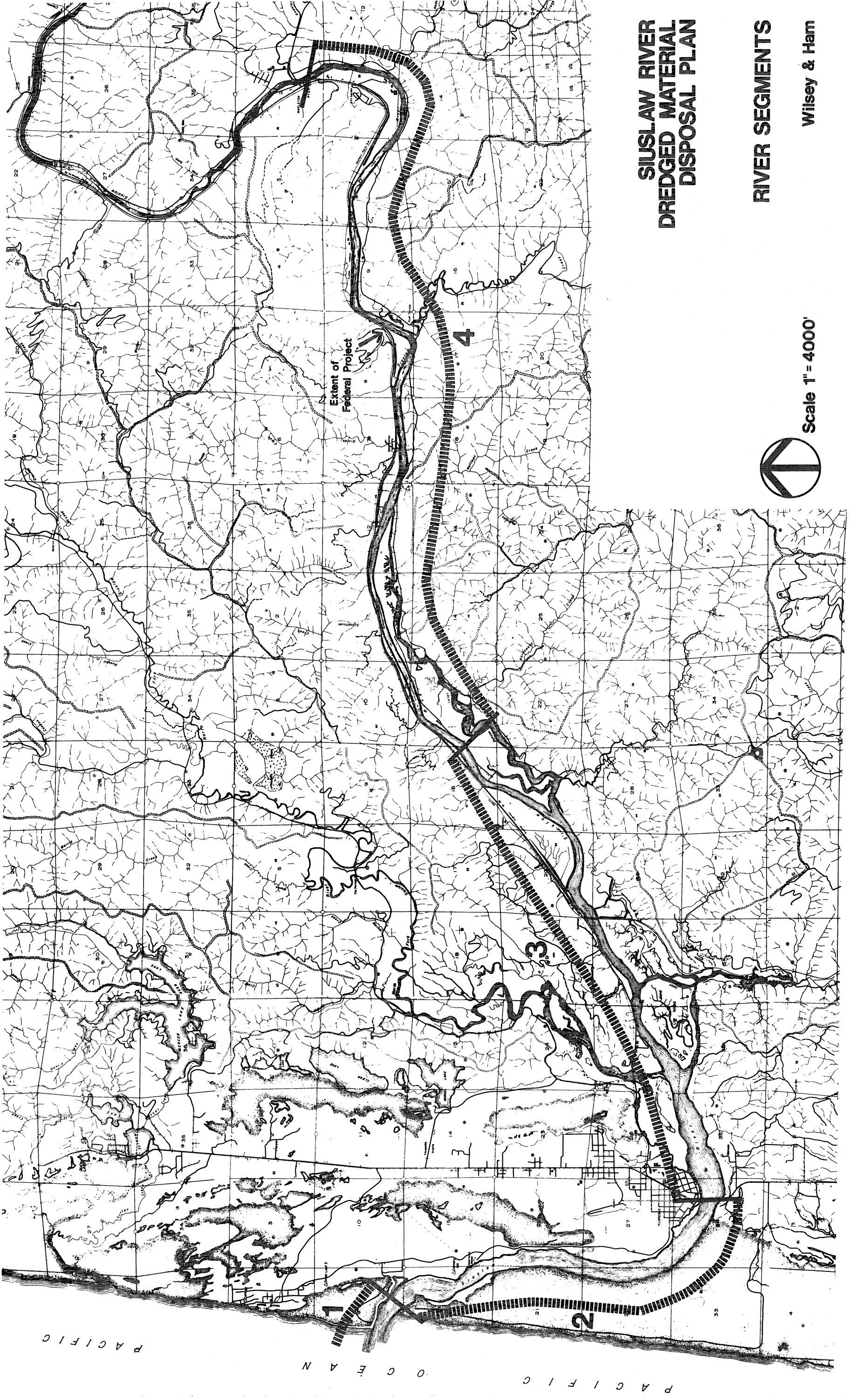
Mobilization and demobilization of equipment for hopper dredging operations will cost approximately \$12,000. For projects downstream of the Highway 101 bridge the cost would be \$1.72/cubic yard, and projects upstream of the bridge would cost \$2.14/cubic yard.

- Revegetation

Review of recent U.S. Army Corps of Engineers revegetation projects in Coos Bay indicates that adequate revegetation can be accomplished at a cost of \$50.00 to \$150.00 per acre (typically borne by the Port of Siuslaw).

Section III

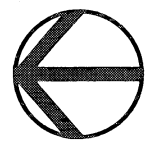
Dredging Needs and Options



**SIUSLAW RIVER
DREDGED MATERIAL
DISPOSAL PLAN**

RIVER SEGMENTS

Wisley & Ham



Scale 1" = 4000'

PACIFIC

OCEAN

PACIFIC

SECTION III - DREDGING NEEDS AND OPTIONS

Although the materials dredged from the mouth of Siuslaw River have historically been disposed of in an open ocean disposal site, most of the dredged materials from the remaining channel maintenance and new projects have been disposed of on land. These general trends are expected to continue, resulting in a continuing need for additional land disposal sites. Channel conditions and cost factors favor the use of pipeline dredges; therefore, land disposal sites must occur in close proximity to the dredge areas. Because of this close relationship between dredge sites and disposal sites, the bay and river has been divided into a series of segments, indicating areas in which dredging will need to occur and presenting the sites which would be suitable for disposal of those specific materials. This presentation allows dredging needs and options to be viewed in concert, and provides a mechanism for establishing which sites should be utilized and what the priorities for their use should be. Each river segment is discussed separately in this chapter including a description of the past and future expected dredging requirements and an analysis of the individual sites that are available to meet that need. Table 1 indicates the river segments and their corresponding river mile delineations.

TABLE 1
RIVER SEGMENT BOUNDARIES

<u>River Segment</u>	<u>Approximate River Mile Segment</u>
1	Entrance to RM 0.5
2	RM 0.5 to RM 4.5
3	RM 4.5 to RM 11.0
4	RM 11.0 to RM 19.5

The discussion within each river segment is broken into two major categories: Dredging Needs and Dredging Options. Within the Dredging Needs discussion the geographic areas in which dredging will occur, quantities of materials to be moved, and the basic characteristics of the materials are identified.

Both public and private dredging activities are inventoried, including both maintenance of existing projects and proposed construction of new facilities. The dredging options portion of each river segment discussion outlines the sites that are available to meet the identified needs and provides the following information relative to each site:

Description of the Site: The site description includes data on the size, location, land use, and physical and biological characteristics of each site.

Disposal Use of the Site: This section includes a discussion of both the engineering and environmental considerations which provide guidelines for the use of the sites. For each site, engineering considerations concerning site capacity, design criteria, land preparation, cost estimates and future use potential are presented. In addition, the environmental effects of site use are also evaluated.

A summary discussion for each river segment compares the dredging needs with the options and outlines the available alternative actions.

Although the dredging needs and options are specific to each individual segment, many of the issues are applicable to the entire extent of the river. The following paragraphs discuss in general terms some of the issues which will be addressed repeatedly in the site specific analysis.

General Dredging Requirements

The quantities of dredged materials generated from maintenance of authorized depths for the entrance channel exceed, by far, any other maintenance needs. Dredging at the entrance of Siuslaw River is required on an annual basis. The necessary frequency of dredging and the amount of material to be removed is dependent upon the shoaling rate resulting from ocean current patterns. Typically, approximately 200,000 C.Y. are removed from this area, all of which is ocean disposed. Tidal currents and freshwater stream flow are additional determinants in the specific location of shoals from year to year.

From the entrance channel to the Highway 101 bridge dredging activity has been irregular. Historically, an estimated 55,000 C.Y. accumulate annually. The last major dredging operation occurring in this area was in December 1968, when 822,080 C.Y. were removed. From the Highway 101 Bridge to above the North Fork (approximate RM 6.5) shoaling occurs regularly, with an average annual sediment accumulation of 40,000 C.Y.

Two regular shoals occur in this area, the Florence Shoal (RM 5 area) and the North Fork Shoal (RM-6 area). The Florence Shoal was last dredged in June 1974, when 48,026 C.Y. were removed. The North Fork Shoal was last dredged in September 1972, when 32,983 C.Y. were removed. Upriver of RM 6.5, very little dredging for channel maintenance has occurred in the past. The Thomas Shoal (RM 14.0) was dredged in March 1975, when 72,000 C.Y. were removed. The C & D Shoal (RM 15.7) was dredged in April 1975, and 93,000 C.Y. were removed. All other dredging in the river, undertaken for private concerns, have been insignificant compared to federal project maintenance. These dredging needs will be discussed in the River Segments section.

Historical channel dredging data for Siuslaw River are shown in Table 2. Actual dredging occurring other than at the entrance channel has been infrequent. The most recent hydro-surveys available, taken during the late spring of 1978, generated those figures depicted on Table 3. For each River Segment two figures are given, which represent the available option for dredge project depth. As noted before, the entrance channel has an authorized project depth of 18 feet, from the jetties to the turning basin in Florence, channel depth is authorized for 16 feet, and from Florence to RM 16.5 (just east of the Davidson Mill) a 12 foot depth. The Corps will, when funding and equipment are available, over-dredge two feet to forestall the next dredging project. As shown in Table 3, large quantities of dredge material could be removed from the lower river areas. From the entrance channel to RM 4.5 (Highway 101 Bridge) a half million cubic yards would be removed. In River Segment 3, most of the 274,987 to be removed would come from the area between the Highway 101 Bridge and east of the North Fork. The Florence Shoal and the North Fork Shoal would be the primary contributors to that quantity. River Segment 4 will require the least amount of dredging, as shoaling has occurred primarily in only two areas. The river flushes the channel sufficiently each year except at the Thomas Shoal (RM 14.0) and at the C & D Shoal (RM 15.7).

Historical dredging records, other than for the Corps of Engineers projects, are limited. Since 1971, Section 10 permits related to dredging required by Federal law have numbered 6 and are listed in Table 4. These projects are generally related to moorages, industrial docking facilities or log dumps. The quantities of materials dredged are low in comparison to channel maintenance. Much of this material has been hauled to upland disposal sites for deposition.

TABLE 2
 HISTORICAL DREDGING DATA FOR FEDERAL PROJECT WORK
 ON THE SIUSLAW RIVER

<u>Fiscal Year</u>	<u>Location</u>	<u>Type of Dredge</u>	<u>Quantity</u>
1930-1955	Insufficient Data		
1955	?	Pipeline	148,641
1961	Florence & North Fork Shoals	Pipeline	58,244
1966	Entrance	Hopper	130,300
1966	Florence Shoal	Pipeline	26,250
1967	Entrance	Hopper	48,250
1968	Entrance	Hopper	108,000
1968	RM 1-5	Pipeline	822,080
1969	Entrance	Hopper	55,300
1969	Entrance	Hopper	108,650
1970	Entrance	Hopper	125,250
1970	Bar	Hopper	25,200
1971	Bar	Hopper	211,000
1972	Bar	Hopper	117,700
1973	Bar	Hopper	97,025
1973	No. Fork Shoal	Pipeline	32,983
1974	Bar	Hopper	166,900
1974	Florence Shoal	Pipeline	48,026
1975	Bar	Hopper	171,535
1975	Thomas Shoal	Pipeline	72,000
1975	C & D Shoal	Pipeline	93,000
1976	Bar	Hopper	272,570
1976	Bar	Hopper	98,350
1977	Bar	Hopper	135,610

TABLE 3

ACCUMULATED SEDIMENT FOR SIUSLAW RIVER, RIVER
SEGMENTS 1 THROUGH 4 (As measured in May and June, 1978)

<u>River Segment</u>	<u>Approximate RM</u>	<u>To Be Dredged</u>	<u>Last Dredge</u>	<u>Amount Removed</u>
1	Entrance to 0.5	20' - 284,478	18' - 175,527 September 1977	135,610
2	0.5 to 4.5	18' - 490,671	16' - 250,488 December 1968	822,080
3	4.5 to 11.0	18' to 14' - 274,987	16' to 12' - 136,538 Florence Shoal June 1974 North Fork September 1972	48,026 32,983
4	11.0 to 16.5	14' - 53,460	12' - 14,809 Thomas Shoal March 1975 C & D Shoal April 1975	72,000 93,000

TABLE 4
 PERMITS FOR DREDGING IN SIUSLAW RIVER

<u>Permit Number</u>	<u>River Mile</u>	<u>Type of Work</u>	<u>Applicant</u>
1507 29 2	1.4	Fill	Port of Siuslaw
1507 29 3	7.0	Fill	Bu. of Public Roads
1507 29 1	7.0	Fill	Nordahl Towboat
1507 29 4	8.0	Fill	Bu. of Public Roads
1507 27 1	14.0	Dredging	Fed. Highway Admin.
1507 29 5	19.0	Fill	Lane County

Source: United States Army Corps of Engineers, Portland District

The quantities of dredged materials listed within the following river segment discussions are estimated on an annual basis and for ten year periods through 1999. These quantities were calculated from historical dredging records and projected needs of identifiable proposed projects. Dredging solely for the purpose of filling is not represented in these estimates.

Dredged Material Characteristics

A key factor in planning for future dredge material disposal is the materials characteristics. With limited sites available for upland disposal, and all located within close proximity to the river, potential reuse of the site becomes a critical point. Future uses of particular sites are contingent on their capabilities to physically or chemically handle the projected land use.

For the sites identified for the Siuslaw, dredged material may be used for agricultural land enhancement, industrial sites, road fill, reclamation and beach protection, and sanitary land filling. Not all dredge material is suitable for all the various site-specific future uses, and some sites must be set aside for long term reuse for stockpiling of maintenance dredging.

Tests of the physical and chemical characteristics of bottom sediments in Siuslaw River have been undertaken by the Army Corps of Engineers and by Wilsey & Ham staff. These tests, as well as the on-site inspection of past disposal sites, are the basis for the following discussions.

- Physical Characteristics

Bottom sediments have been characterized throughout the study area using the available sampling data. This information, together with calculated parameters on the various physical characteristics, is presented in Table 5.

Within all portions of the river, sediments are primarily composed of uniform sands. No poor quality materials were found in the available sampling data. Settling properties appear good to excellent, thus fill sites should be easy to construct. Filling material should be easy to retain and dewater. Fill sites will have good drainage if porous dikes are utilized.

Dredge material from the lower estuarine reach of the river will contain some shell and coarse aggregates mixed with the sands. In certain disposal areas this material will be characteristically different than the natural surface materials (e.g., when deposited on the dune areas). However, a trade-off for aesthetic purity occurs in that the coarser materials are more stable and less likely to be picked up by winds. This is particularly helpful where winds have been blowing substantial quantities of sand directly into the river.

Data concerning structural load capacities for the river sediments is not available. However, based on the type of material and fill depths, light loadings of less than one ton per square foot should be permissible after initial settlement. Settlement of at least 12 inches could occur within one year after filling. Allowable loading and settlement should be checked with field instruments after completion of dredge disposal projects.

- Chemical Characteristics

The release of heavy metals and other chemical characteristics of river sediments caused by suspension during dredging are given in Table 6.

The Department of Environmental Quality has set standards for all heavy metals (except mercury) to check water quality conditions. Within the Siuslaw system, all metals tested showed natural levels exceeding the DEQ standards. These natural levels are expected to remain within the system, as no man-induced causes can be determined.

TABLE 5

PHYSICAL CHARACTERISTICS OF SIUSLAW RIVER
BOTTOM SEDIMENTS

<u>RIVER MILE</u>	<u>SITE DESCRIPTION</u>	<u>DATE SAMPLED</u>	<u>MATERIAL</u>	<u>% FINER THAN .08mm</u>	<u>GRADATION 0.08mm to 5mm</u>	<u>% GREATER THAN 5mm</u>	<u>EFFECTIVE SIZE, mm</u>	<u>FALL VELOCITY cm/sec</u>
-0+15+00	OUTER BAR	7/11/74	Uniform Sand	0	100	0	0.23	13.0
Entrance	OUTER BAR	5/26/71	"	1	99	0	0.16	5.7
0+00+15	S. SIDE CHANNEL	5/25/72	"	0	100	0	0.17	4.7
0+20+60	NEAR BUOY #12	12/15/70	"	0	100	0	0.20	-
0+30+00	INSIDE BAR	7/11/74	"	0	100	0	0.17	6.0
0+45+26	CENTER, DOL.#17	8/19/71	"	0	100	0	0.18	4.8
-	STA. 22-9	4/12/72	"	2	97	1	0.18	7.4
5+25+00	TURNING BASIN	6/20/74	"	0	100	0	0.17	5.4
13+30+00	E. END DUNCAN ILD.	2/28/78	"	4	96	0	0.16	8.0
15+25+00	C&D SHOAL	2/28/78	"	5	95	0	0.18	14.8

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PHYSICAL CHARACTERISTICS OF SIUSLAW RIVER
BOTTOM SEDIMENTS

<u>RIVER MILE</u>	<u>SITE DESCRIPTION</u>	<u>DATE SAMPLED</u>	<u>MATERIAL</u>	<u>% FINER THAN .08mm</u>	<u>GRADATION 0.08mm to 5mm</u>	<u>% GREATER THAN 5mm</u>	<u>EFFECTIVE SIZE, mm</u>	<u>FALL VELOCITY cm/sec</u>
-0+15+00	OUTER BAR	7/11/74	Uniform Sand	0	100	0	0.23	13.0
Entrance	OUTER BAR	5/26/71	"	1	99	0	0.16	5.7
0+00+15	S. SIDE CHANNEL	5/25/72	"	0	100	0	0.17	4.7
0+20+60	NEAR BUOY #12	12/15/70	"	0	100	0	0.20	-
0+30+00	INSIDE BAR	7/11/74	"	0	100	0	0.17	6.0
0+45+26	CENTER, DOL.#17	8/19/71	"	0	100	0	0.18	4.8
-	STA. 22-9	4/12/72	"	2	97	1	0.18	7.4
5+25+00	TURNING BASIN	6/20/74	"	0	100	0	0.17	5.4
13+30+00	E. END DUNCAN ILD.	2/28/78	"	4	96	0	0.16	8.0
15+25+00	C&D SHOAL	2/28/78	"	5	95	0	0.18	14.8

TABLE 5 CONTINUED

PHYSICAL CHARACTERISTICS

<u>RIVER MILE</u>	<u>Density gm/L</u>	<u>Water Content, %</u>	<u>Void Ratio</u>	<u>Coef. of Uniform</u>	<u>Volume Reduction</u>	<u>Drainage Characteristics</u>	<u>Organic Material, %</u>
-0+15+00	1858	36.24	0.965	1.77	9.06	Good	2.25
Entrance	2049	22.93	0.595	1.72	5.73	Good	0.39
0+00+15	2057	22.13	0.573	1.47	5.53	Good	0.43
0+20+60	2057		0.583			Good	0.27
0+30+00	2062	22.20	0.575	1.74	5.50	Good	0.575
0+45+26	2067	21.30	0.551	1.43	5.33	Good	0.61
-	2048	22.97	0.597	1.66	5.75	Good	0.26
5+25+00	1783	27	0.708	1.57	6.75	Good	0.67
13+30+00	1810	41	1.089	2.50	10.25	Good	3.04
15+25+00	1783	39	1.036	2.13	9.75	Good	4.07

* 25% Loss of moisture through dewatering

The lack of replicate extractions and the number of representative samples allow for variations in test results. Changes in dissolved oxygen, both in elutriate water during testing and in water actually used for dredge material conveyance (e.g., pipeline dredging) can also cause variations in heavy metal concentrations.

Typically, the total concentration of each heavy metal is many times greater than the elutriate concentration. Since the metal is often oxidized and remains with the sediment, it is neither detected nor a source of pollution. Dissolved concentrations of the levels found may not have an impact on tidal freshwater and estuarine flora and fauna. Tests by the Virginia Institute of Marine Science on the James River in Virginia showed no adverse effects of metals on macrobenthic communities (Virginia Institute, 1976). Works by Smith, et.al. of the Waterways Experiment Station showed that *Spartina*, a typical estuarine marsh plant colonizing dredge fill sites often has metal uptake of Cd, Cu and Pb of 0.5 to 1.0 ppm, 3 to 6 ppm, and 4 to 9 ppm respectively (Smith, et.al., 1977). These levels were considered low and no correlation to the available fraction in the sediment was found. Heavy metal uptake studies in the San Francisco Bay and estuary showed metal levels never exceeded three times background levels in native invertebrates (U.S.C.E., 1975).

- Toxicity of Dredged Material

The primary causes of direct toxicity with dredging operations are turbidity, oxygen depletion and release of toxic heavy metals. None are anticipated to represent significant problems anywhere in the Siuslaw except perhaps minor maintenance dredging near boat slips or moorages.

Physical and chemical characteristics tend to indicate good natural sedimentation of the dredged material, resulting in low turbidity in return flows. If hydraulic dredging techniques are used, resuspension at the dredging site will also be minimized. Low organic content appears to show that there will not be a depletion of oxygen in the retention site or with mixing of the return flow. Maintenance of oxygen levels also aids in precipitating heavy metals. However, the solubilized state of heavy metals is not felt to currently be adverse in the natural sediments.

Site Selection Criteria

As discussed previously, specific sites proposed for the disposal of dredged materials were evaluated on the basis of a combination of engineering and environmental criteria. Engineering criteria were utilized to ensure that use of the sites was feasible and that cost

TABLE 6
 CHEMICAL CHARACTERISTICS
 OF SIUSLAW RIVER BOTTOM SEDIMENTS

<u>PARAMETER</u>	<u>RIVER MILE 13+30+00</u>		<u>RIVER MILE 15+25+00</u>	
	<u>RECEIVING WATER</u>	<u>ELUTRIATE</u>	<u>RECEIVING WATER</u>	<u>ELUTRIATE</u>
CHEMICAL OXYGEN DEMAND, mg/Kg	---	19,294	---	4,220
VOLATILE SOLIDS, %	---	4.6	---	1.5
MERCURY, ppm	.0008	.0003	.0006	.0004
ZINC, ppm	0.12	0.07	0.21	0.20
LEAD, ppm	0.009	0.002	ND	0.017
CADMIUM, ppm	0.006	0.011	0.018	0.005
COPPER, ppm	0.14	0.14	0.11	0.11
OIL & GREASE	NV	NV	NV	NV

ND - not detected

NV - not visible

Percent and mg/kg are by dry weight

Samples collected Feb. 2, 1978 by Wilsey & Ham and analyzed
 by USCE laboratory at Troutdale, Oregon.

considerations were reasonable. In many instances, environmental considerations were the overriding factor in the elimination of a site because, although the site may have been engineeringly feasible, disposal of dredged material would have caused loss of significant natural habitat areas. The following paragraphs outline the major criteria that were used in the evaluation and selection of the proposed dredged material disposal sites.

- Environmental Criteria

Environmental criteria are primarily concerned with maintaining the integrity of the natural estuarine eco-system and limiting any changes which would adversely affect that system. Maintenance of wetland areas including intertidal mudflats, tide lands, salt marshes and other marsh lands was a primary concern, and the disposal of materials in such areas was essentially prohibited. The effect of disposal and the resulting water runoff on all fish and wildlife habitat was evaluated, and sites which would have recorded significant degradation were eliminated from further consideration. In addition, the water quality effects resulting from site use were also evaluated.

Other concerns included potential land use effects, including the effect of disposal on prime farmlands and existing or potential recreation sites.

- Engineering Criteria

Engineering feasibility and cost efficiency are closely tied and were, therefore, evaluated jointly. Since the upriver areas will most probably be dredged by use of a pipeline dredge, it was essential that sites be identified within the operational range of a pipeline dredge. This factor alone meant that sites would, by necessity, occur adjacent to the river. In addition, the physical features of each site were evaluated in order to determine whether site preparation was feasible, and many sites were eliminated due to a low return on site preparation expenditures. Some sites, although acceptable from an environmental standpoint, were too small to warrant the necessary site preparation costs.

Each of the potential dredged material disposal sites were evaluated against the above criteria. The sites presented in the latter portions of this chapter generally were able to meet this complex set of criteria and were considered acceptable for use by the Federal and State agencies responsible for the issuance of fill permits.

Site Preparation

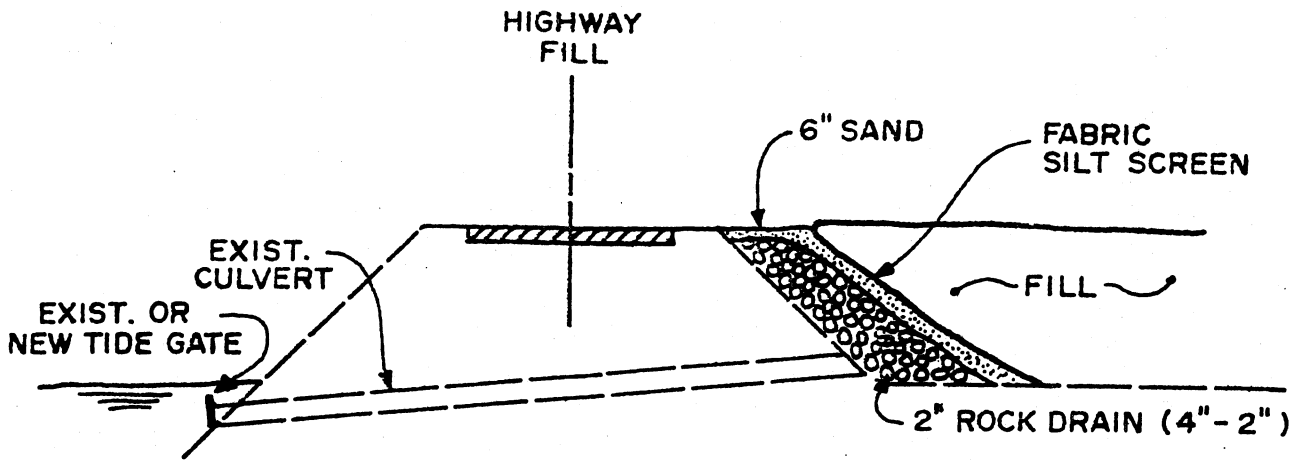
Although some of the sites presented herein have previously been used for the placement of dredged materials, many of the disposal sites have not been used previously, and therefore would require site preparation prior to the placement of the disposal materials. General considerations for site preparation include: leveling to ensure uniform application for maximum dewatering, clearing to remove existing vegetation, dike construction in order to confine the dredged materials, installation of weirs and spillways, surface drainage relocation, utility location and return flow or outfall construction. Several of the above items are considered temporary, but may be permanent and remain in place to enable future reuse of the site.

The figures included within this discussion illustrate typical details for embankment protection and return spillway design and construction. Dikes may be constructed to serve as either perimeter, interior or training dikes. Perimeter dikes require the greatest care in construction to provide long term stability and to avoid accidental breaks or spills during use. Interior dikes are used when more than one cell is required to provide adequate settling. Training dikes are sometimes constructed from the fill material to direct inflow and to prevent short circuiting of the disposal material and runoff.

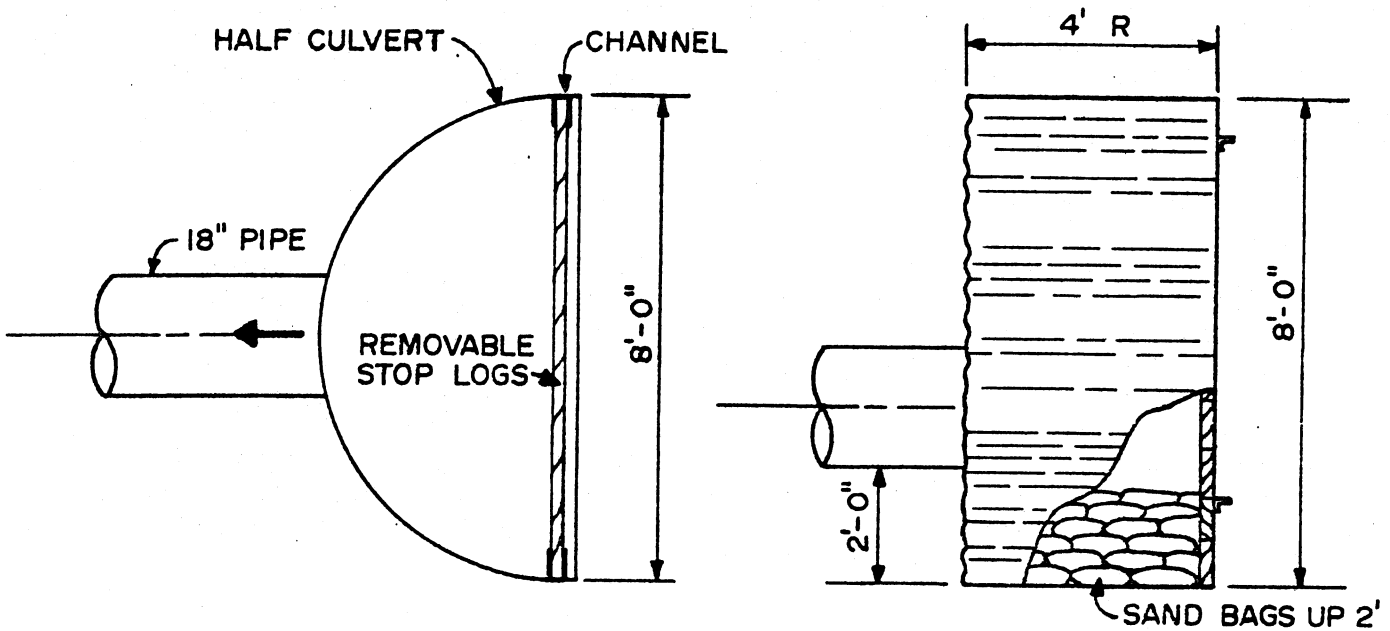
Certain regulatory agencies have developed general guidelines for the construction of continued disposal sites to ensure the retention of solids and the protection of water quality. These guidelines establish standards for crest heights of weirs, minimum standing water levels, avoidance of over filling, location of outfalls and retention time for settling. These factors must also be considered in the preparation of specific sites. (Chapter 4 further discusses guidelines for the disposal of dredged materials.)

Site Reuse Potential

The disposal of dredged materials on upland sites has a direct impact on future land use potentials. Existing land uses may be temporarily or permanently displaced. Site preparation requirements can include dike construction, bank protection, drainage diversion, or the relocation of utilities. The filling of land parcels with dredged materials can oftentimes enhance the property, thus encouraging a more beneficial use of the land. Seasonally flooded pasture lands can be raised to allow for improved access or future development. The potential for agricultural, commercial/industrial development, solid waste management, or other such land uses are discussed below.



TYPICAL DETAIL
EMBANKMENT PROTECTION



TYPICAL DETAIL
RETURN SPILLWAY

- Agricultural Use

Sediments of Siuslaw River are characterized by sands with a low organic content. These sands should be moderately suitable for agricultural crops, having excellent drainage though no initial humus content. Salts would be found in all sediments below Cushman, though leaching of the salts out of the soil would be rapid due to excessive seasonal rainfall. Salts found above Cushman would be negligible. To ensure good drainage, diking should be constructed of porous material for prevention of perched waters. Existing dikes in fill areas may need examination, to determine if breaching would encourage subsurface drainage.

- Commercial/Industrial Use

Dredged materials should pose no restrictions to commercial or industrial uses, except in excessive loading. Fill materials have excellent properties for light to moderate structural loading. Specific engineering tests could be undertaken to determine exact load limits. Settlement of the foundation materials underlying dredged material fill should be evaluated on a site specific basis.

- Residential Development

Residential development would not be restricted by dredged materials, except possibly for septic approval. Oregon Department of Environmental Quality has in the past regularly refused septic permits for fill soils. However, policy change is being considered, as fills on top of favorable soils and other instances are not believed to warrant blanket denials.

- Solid Waste Management

Lane County presently maintains a sanitary landfill in the Florence area north of Coast Guard Road (see Disposal Site #12). The use of dredged materials for screening and burying of existing landfills is being considered. The use of imported dredged materials would reduce the need for on-site excavations, necessary for land fill operations. Screening of the landfill from the residential development to the east is considered an important aesthetic measure. Such use of dredged materials could extend the expected life of the landfill site. Proper dewatering of disposal materials would be required before approval could be attained.

- Wildlife Habitat Creation

The development of artificial marshlands and other forms of aquatic habitat for shellfish, water fowl or important food chain vegetation has gained considerable interest in recent years. The Corps of Engineers

Waterways Experiment Station has conducted numerous demonstrations throughout the coastal U.S. Some of the approaches include:

- construction of disposal islands planted with dry land vegetation as wildlife cover for nesting or feeding,
- creation of intertidal marshlands,
- creation of mudflats from areas previously below intertidal levels.

The creation of islands has occurred in Siuslaw River, in the tideflats west of the North Fork and at Cox Island. These islands have since been established by upland vegetation, though their biological significance is limited due to surrounding features.

In-water disposal of dredged materials in Siuslaw River was not acceptable to the regulatory agencies participating in this disposal plan. Typically the identification of such sites is premised on an accepted, specific need for disposal of materials. If there are no viable alternatives, in-water disposal is considered given that appropriate mitigative measures are identified. Such procedures are dependent upon site specific instances, so that appropriate biophysical judgments can be assessed regarding the positive and negative aspects of the proposed action. A disposal plan as this could not deal with such specific determinants, due to the lack of specificity and limited time frame.

● Other Uses

Disposal of dredged materials at the north and south jetties could aid in beach protection and sand replenishment. Sand is seasonally removed from these areas by ocean currents and the hydraulic effects of the existing jetties. The north jetty beach area has just recently experienced extensive erosion. Dredged materials could be utilized to help replenish this loss, though could not be considered a permanent enhancement or protection measure. Further studies on local hydraulics would be necessary before dredged material disposal could be utilized.

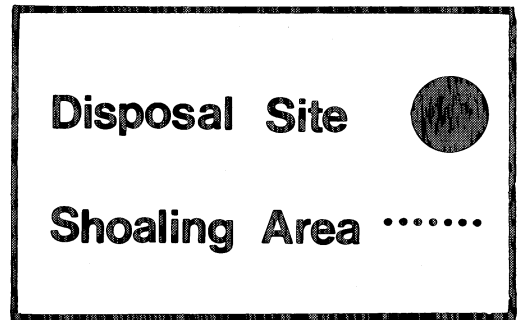
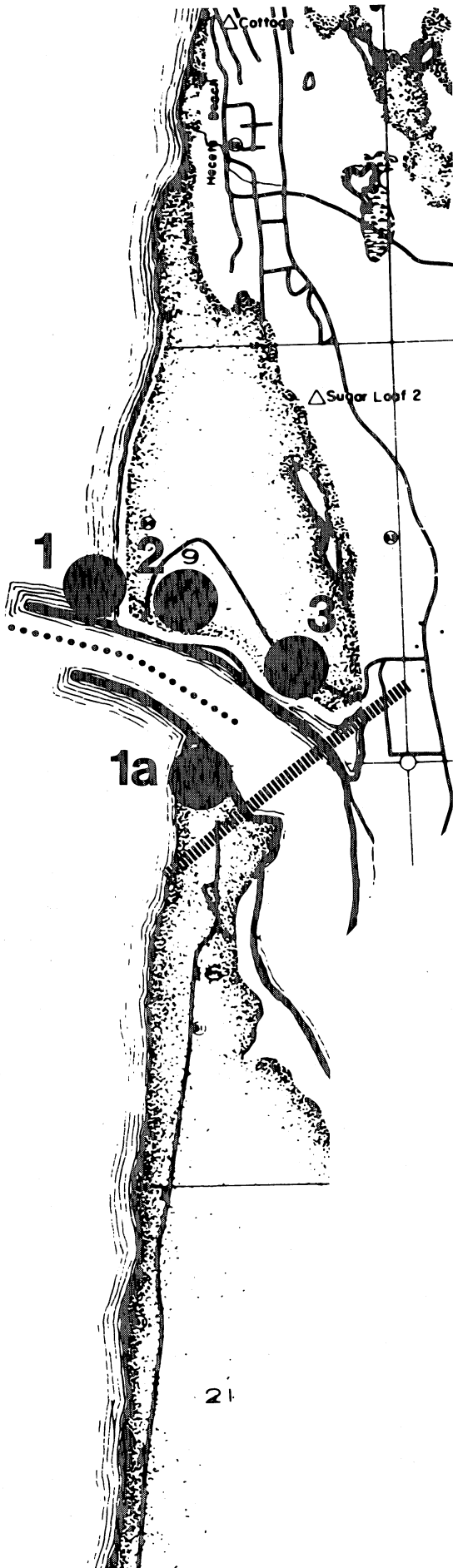
Placement of dredged materials on the unstable dunes south of the river downstream from the Highway 101 Bridge (see Disposal Site #8) is also a potential enhancement measure. The coarse sands mixed with shells and minor cementing factors would be more resistant to wind erosion. Winds have historically blown large volumes of sands from the south bank into the river channel and nearby tidelands, causing excessive sedimentation and long range channel diversion. Beach grasses should establish with ease on the coarse materials, further encouraging dune stabilization.

The following sections outline the dredging needs and options for each river segment from the mouth of Siuslaw River to Mapleton. Specific disposal sites are mapped and preliminary guidelines for their use are described.

River Segment 1

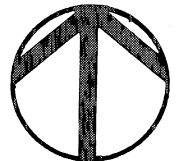
SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

River Segment 1



WILSEY & HAM

Scale 1" = 2000'



RIVER SEGMENT 1

Dredging Needs

- Maintenance of Existing Projects

According to the U.S. Army Corps of Engineers, federal maintenance of the 18 foot deep entrance channel requires approximately 200,000 C.Y. of dredged material removed each year. In a twenty year period, this would amount to approximately 4.0 million C.Y. Historically, this material has been disposed of at an off shore ocean disposal site approved for use by the Environmental Protection Agency. Hopper dredges typically undertake all of this work.

No other maintenance projects exist within River Segment 1.

- Construction of New Projects

Only one proposed new project exists within the boundaries of River Segment 1. This would be the jetty extension proposal now in Congress. If the proposed project were to be approved and implemented, sedimentation within the entrance channel is expected to be greatly reduced. This could significantly alter the quantities and even frequency of the dredging or disposal.

Table 7 summarizes the projected dredging needs for River Segment 1 during the 20 year plan time frame.

TABLE 7

RIVER SEGMENT 1 DREDGING NEEDS

<u>Project</u>	<u>Land Disposal Quantity</u>	<u>Ocean Disposal Quantity</u>
Entrance Channel		4,000,000 C.Y.

Disposal Options

- Ocean Disposal

Dredged materials resulting from channel maintenance have historically been disposed in the EPA approved ocean disposal site that is located directly off shore of the Siuslaw River mouth. The site is approximately 275 yards by 1,000 yards in size, with water depths ranging from -40 feet to -95 feet (M.L.L.W.). Past dredge records indicate that

between 50,000 and 200,000 C.Y. have been disposed of at this disposal site per year. No significant changes in the benthic conditions of this site have occurred due to disposal activities. Most disposal materials have been displaced from the site after disposal by ocean currents. Ultimate destination of these sediments has not been determined, but widespread dispersion is suspected. Disposal activity has not produced any major observable effects on the sediments or benthic fauna of the disposal area. The material dredged from the entrance channel is marine sand that is substantially the same as the substrate at the disposal area. Disposal of this material in the future is not expected to have any substantial effects on the existing biological conditions.

There is no indication that the presently used site will be rendered unusable during the 20 year planning period.

- Land Disposal

Four land disposal sites have been studied within the River Segment 1 area. These sites are not expected to be necessary for channel maintenance, but may fulfill disposal requirements for future private developments. The possible future developments exist within River Segment 2, and will be more fully addressed in that discussion. The proximity of these sites, and transport considerations, make them applicable to the potential River Segment 2 needs.

TABLE 8

RIVER SEGMENT 1 - DISPOSAL OPTIONS (UPLAND)

<u>Site No.</u>	<u>Approximate Capacity (C.Y.)</u>
1	80,000
1a	70,000
2*	185,000
3*	105,000
TOTAL CAPACITY	<u>440,000</u>

Discussions of individual sites are contained in the following pages.

* Key site for future dredging needs

SITE 1

Site Description

Location: Area just north of the north jetty, at beach front.

Size: 1,200' x 300'

Capacity: 80,000 C.Y. @ 6' depth, uncompacted.

Physical Characteristics: This is an open beach area, comprised of loose sands and subject to surf activity. Beach erosion has occurred in this area periodically, and as recently as the winter of 1978. Tidal and storm surge effects on the area are not fully understood, thus further studies will be required before site utilization.

Biological Characteristics: No flora are present, due to intensive surf activity, substantial turbidity, unstable substrate and other biophysical constraints. Benthic fauna would be limited for similar reasons, with in-fauna being associated with the sand substrate environment.

Stellar's sea lions often feed just off shore of this beach area, in waters 2-10 meters deep.

Comprehensive Plan: Special Study Area: No Recommendation

Ownership: Sec. 9, Lot 500 (T18S, R12E) State of Oregon (though presently being challenged in courts).

Engineering Considerations

Method of Dredging and Filling: Pipeline, 24 to 27 inch

Design Criteria: Site will need further engineering studies to determine sediment transport characteristics. Transport of disposal material into bar and channel area would not be acceptable.

Site Preparation: Preparation would be minimal. Some working of dredged materials for beach enhancement may be appropriate, including the removal of incongruous materials.

Unit Site Preparation Cost: None

Future Use Constraints: None. Will not change the existing site characteristics.

Environmental Considerations:

Effects of Disposal: Disposal material would become subject to ocean surf influences, varying greatly from season to season. Impacts to the local system would be marginal, given that sediment transport did not carry the disposed material into sensitive areas (e.g., inside the river).










Local feeding grounds for the Stellar's sea lion may be impacted during disposal operations, but the effects are expected to be minimal and short term.

Other Considerations:

Much of this site was at one time the public parking and access area for north jetty users. Strong storms caused substantial erosion to much of the parking area. Restoration plans for the site are not clear at this time, and could affect the future use of the site. An extension of the jetties, as presently proposed, could significantly reduce any potential for disposal materials to be carried back into the river channel.

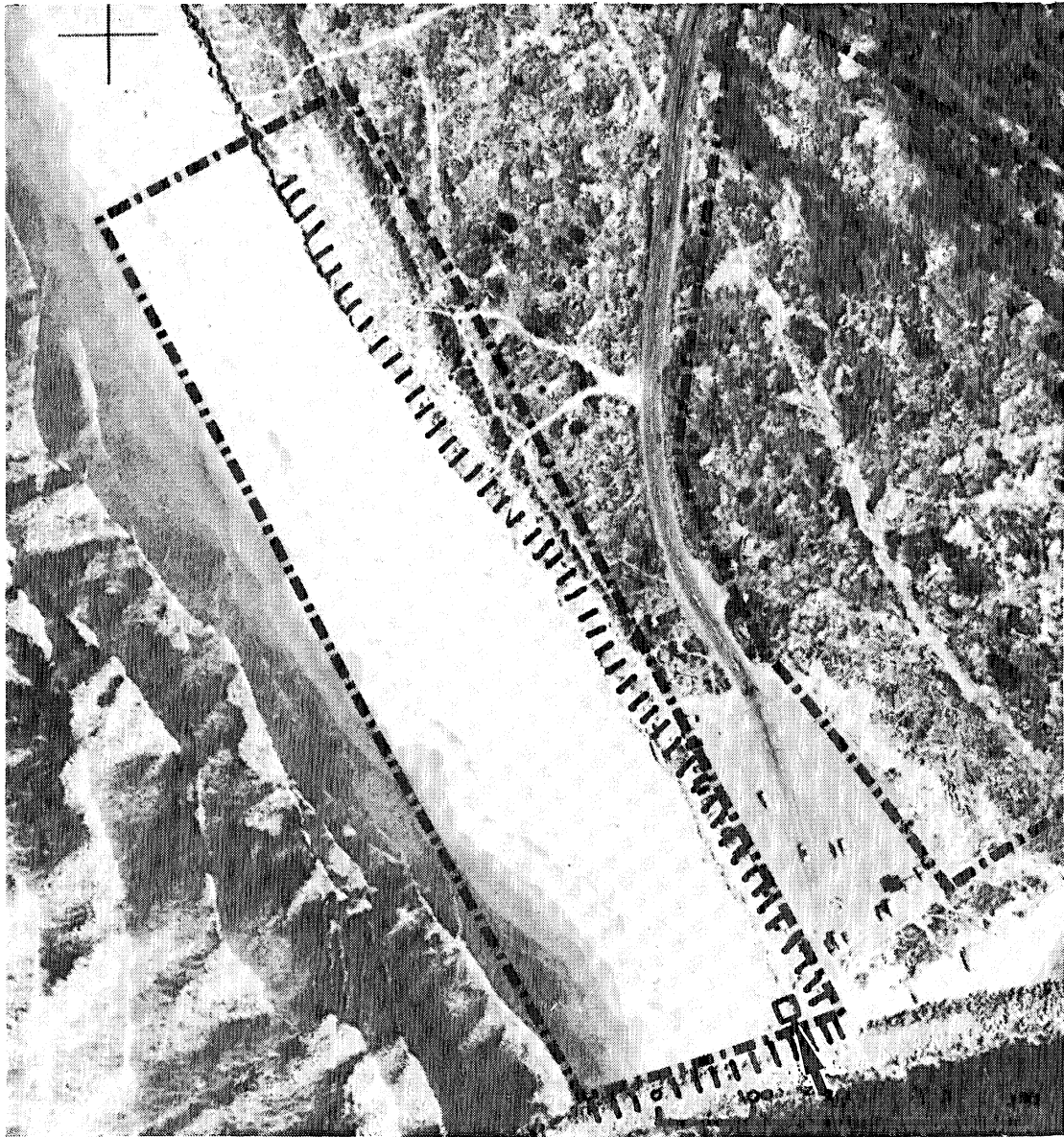
The illustration for this site does not accurately depict the erosion that occurred to the parking lot area last winter. Most of the parking lot shown in the illustration was lost, and disposal would occur primarily in that area.

Legend

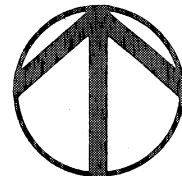
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Overflow
-  Pipe
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 1



WILSEY & HAM



Scale 1" = 200'

SITE 1a

Site Description

Location: Beach front adjacent to south jetty.

Size: 1,050' x 300'

Capacity: 70,000 C.Y. at 6' depth, uncompacted.

Physical Characteristics: This is an open beach area, comprised of loose sands and subject to surf activity. Tidal and storm surge effects on the area are not fully understood, thus further studies will be required before site can be utilized.

Biological Characteristics: No significant flora are found in the area, as surf activity and an unstable substrate severely restrict such development. Benthic fauna is likewise limited, excepting the specialized in-fauna.

Comprehensive Plan: Conservation, recreation, open space.

Ownership: State of Oregon

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 24 to 27 inch.

Design Criteria: Further study on local hydraulics will be necessary.

Site Preparation: The clearing of driftwood materials would be necessary. Some working of materials for beach improvement may be necessary including the removal of incongruous materials.

Unit Site Preparation Cost: \$0.02/C.Y.

Future Use Constraints: The area is proposed for a parking facility and view area by the Dunes National Recreation Area. Any disposal projects in this area should be coordinated with the DNRA.

Environmental Considerations:









Effects of Disposal: Disposal material would become subject to ocean surf influences, varying substantially from season to season. Impacts to the local system would be marginal, given that sediment transport did not carry the disposal material into sensitive areas (e.g., inside the river).

Other Considerations:

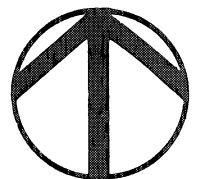
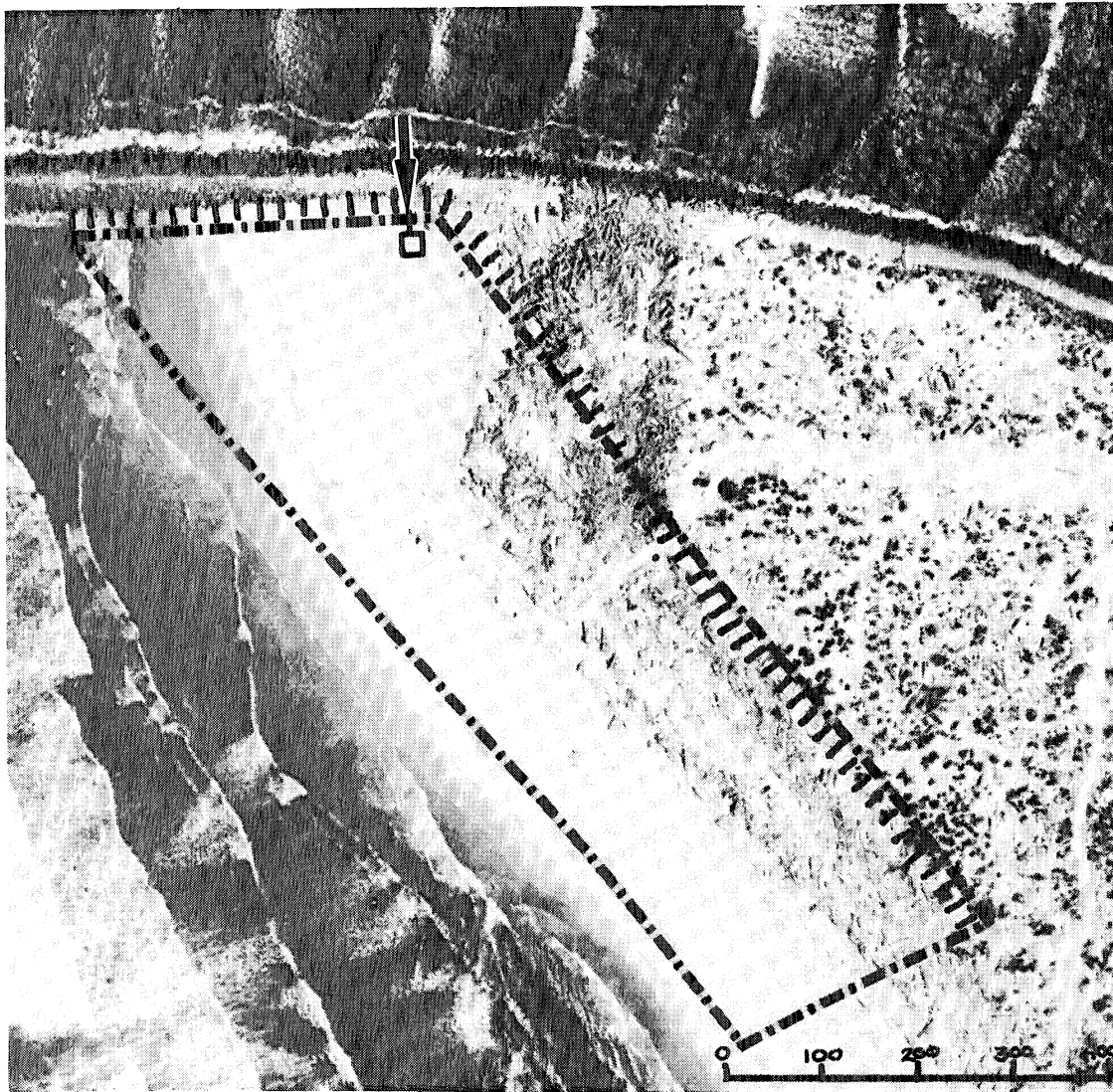
The local hydraulics would have to be better understood, to minimize potential long range impacts. If the jetties are extended, as is presently proposed, then the likelihood of dredged materials being carried back into the channel area is greatly reduced.

Legend

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Pipe
-  Overflow
-  Surface drainage

Site 1a



WILSEY & HAM

Scale 1" = 200'

SITE 2

Site Description

Location: Northeast of Siuslaw River mouth.

Size: 1,000' x 1,000' ÷ 2

Capacity: 185,000 C.Y.

Physical Characteristics: The site is comprised of recently stabilized dunes, formed as low-lying hummocks. Stabilization has occurred due to early-stage successional dune vegetation. There are no aquatic influences within the site. It is bordered to the north by the North Jetty Road, and to the south by the Siuslaw River.

Biological Characteristics: The site is vegetated by moderate communities of European beach grass, scotch broom, and some shorepine. Perching birds and small mammals use the area for foraging and some nesting. Faunal activity is considered moderate.

Comprehensive Plan: Special Study Area: No Recommendation

Ownership: Sec. 9, Lot 500 (T18S, R12E) State of Oregon (though presently being challenged in courts.

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 24 to 27 inch

Design Criteria: Temporary dikes should be constructed, using local materials. Diking along river should be at a 3 to 1 slope ratio, to inhibit any possible slumping into the river. Outfall must go directly to main channel. Control berms may be necessary to limit short circuiting.

Drop-type outlets should be used with stop-log weirs. Revegetation would be necessary to initiate a rapid re-stabilization of dunes.










Site Preparation: Some leveling of existing mounds would be necessary. Logs, brush, and trees may require clearing in certain areas.

Unit Site Preparation Cost: \$0.11/C.Y.

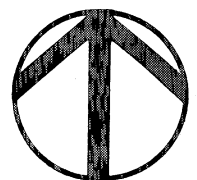
Future Use Constraints: None. The existing characteristics will remain essentially the same.

Legend

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

Site 2



WILSEY & HAM

Scale 1" = 200

Environmental Considerations:

Effects of Disposal: Disposal materials would have only a temporary effect on the area. The beach grass-lupine vegetation communities would reestablish in five to eight years time or sooner. Faunal groups would relocate during the filling period, and would not return until floral communities reestablished. Some faunal losses may occur during the actual filling, but would not be significant.

Diking along the south border would require appropriate measures to inhibit any possible slumping into the bay. Slope ratios of 3:1 are recommended. Revegetation of the fill site would be required, to assure rapid stabilization of the area.

Other Considerations:

The area is open space now, and is designated as a special study area at this time. If recreational uses were proposed for the area, dredge materials should cause no problems (materials being quite similar to existing sands). An effluent line for Driftwood Shores development passes through a portion of this site, but no problems are anticipated.

SITE 3

Site Description

Location: Approximately 2,000' northeast of Siuslaw River mouth.

Size: 1,350' x 300' (average)

Capacity: 105,000 C.Y. (7' depth)

Physical Characteristics: This site is comprised of recently stabilized dunes. It is bordered on the south by the North Jetty Road, and by a transition forest on the east and north sides. Other than a few seasonal high water areas, the site has no aquatic systems.

Biological Characteristics: Existing vegetation includes beach grass, lupine, and some shorepine. The communities are typical successional stages of early dune stabilization, as is well represented throughout the general area.

Comprehensive Plan: Special Study Area: No Recommendation

Ownership: Sec. 9, Lot 500 (T18S, R12E) State of Oregon (though presently being challenged in court).

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 24 to 27 inch

Design Criteria: Temporary dikes should be constructed, using dredged materials. Outfall must go directly to main channel. Drop-type outlets with stop-log weirs should be used. Revegetation would be necessary to initiate a rapid re-stabilization of dunes.

Site Preparation: Some leveling and clearing necessary. Undercrossing casing for inlet line from dredge to be installed. Protect adjacent drainage with diking.

Unit Site Preparation Cost: \$0.26/C.Y.

Future Use Constraints: None.

Environmental Considerations:




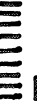





Effects of Disposal: The existing vegetation would be temporarily lost, but replaceable within five to eight years. Though some fauna may be lost during disposal activity, most would relocate until the vegetation could once again support faunal groups. Diking along the

east border would require care to protect the adjoining drainage and facilities. The transition forest to the north would be avoided. Revegetation should be instigated immediately following disposal activity, to stabilize dune forms as quickly as possible. Outfall must go directly to main channel, to minimize any impacts on tide flats or water quality.

Other Considerations:

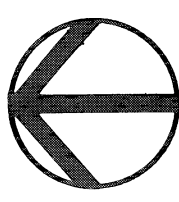
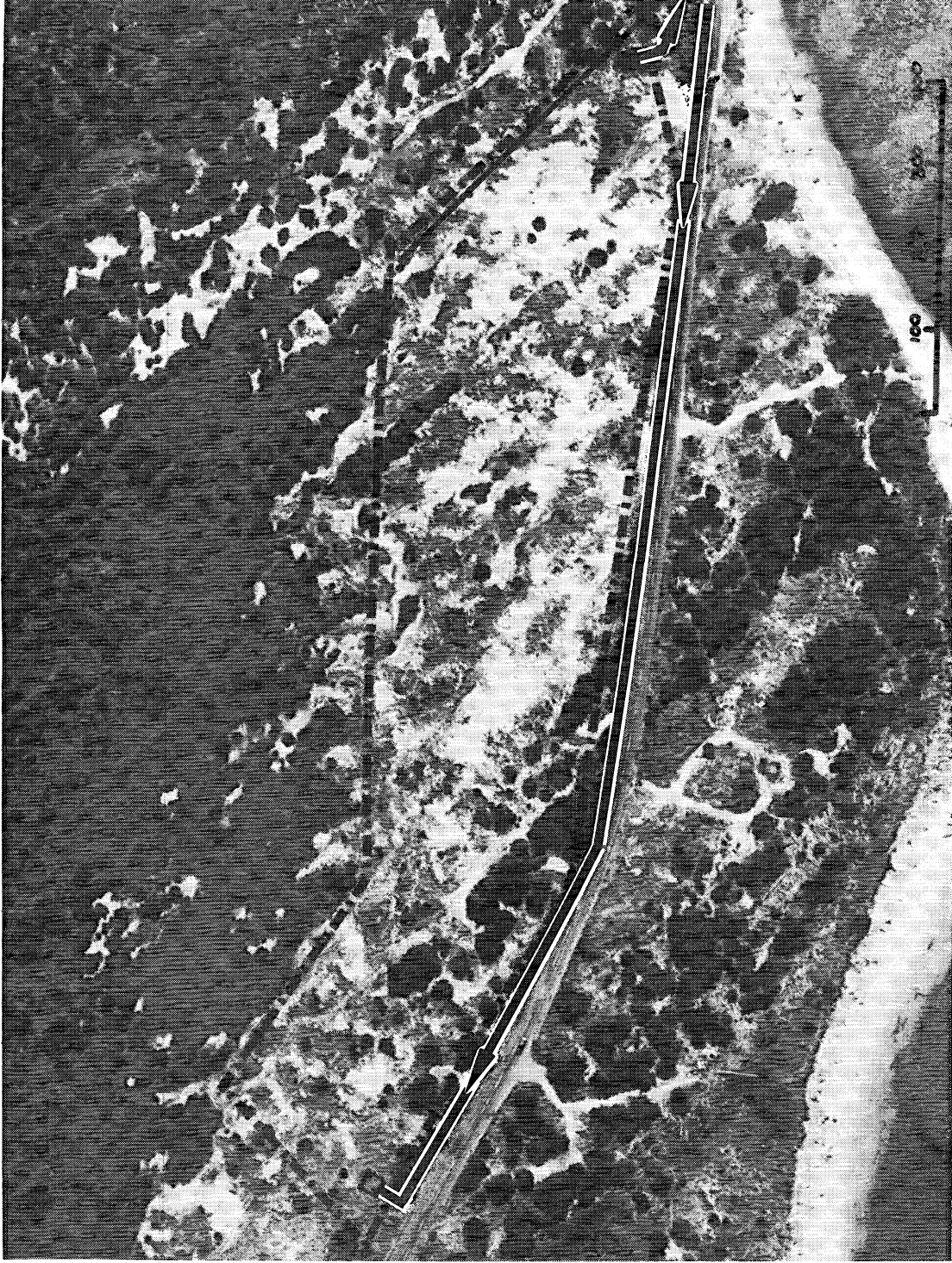
A proposed Harbor of Refuge is being considered for the intertidal embayment just south of the disposal site. This boat moorage would initially involve the docking of some 80 commercial fishing vessels, with future expansions of 150 more boat slips at a later date. The disposal site could possibly be used for parking, open storage, or building facilities. Outfall for the dewatering of dredged materials would have to avoid harbor activities. The proposed project is still in the planning stages.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

**SIUSLAW RIVER
DREDGED MATERIAL
DISPOSAL PLAN**

Site 3



Summary and Conclusions

It is expected that future dredging of the entrance channel will occur with disposal in the ocean, as has been the case historically. Recent physical and biological surveys of the ocean disposal site indicate that the impacts are minimal, and the site appears to be the most practical. If the jetties are extended further seaward, the ocean site may have to be relocated to prevent disposed material from re-entering the channel and bar area. However, a jetty extension would probably lessen the dredge requirements (from the current 200,000 C.Y./year), and the disposal site would likely be relocated in the near vicinity.

The ocean site represents a somewhat limitless disposal capability, in that materials dumped there are soon swept away by the ocean currents. Theoretically, the site would never fill up, and should be capable of handling all the dredged materials that the Siuslaw could produce. The only drawback from using the ocean site exclusively for all dredge disposal is economic. The travel time from dredge site to disposal site will often make the costs outweigh the benefits. Thus, ocean disposal has in the past included materials primarily from the entrance channel. Options for the future, however, should include barge transport from the river to the ocean disposal site.

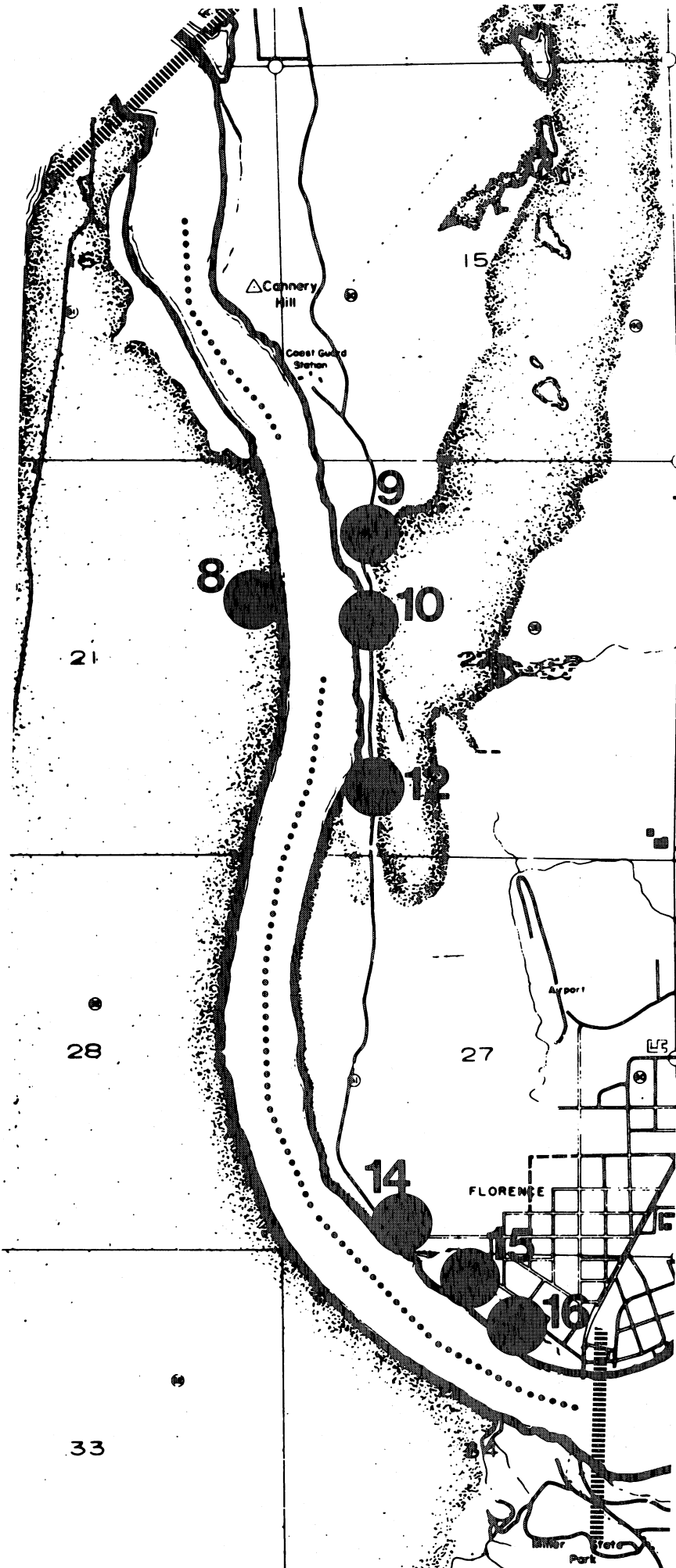
The four other disposal sites within this River Segment 1 would probably be used for new projects. Though no new projects are planned within the segment boundaries, the proposed Harbor of Refuge project would be located at approximately RM 0.6, well within range of these sites. An estimated 300,000 C.Y. would be generated at initial construction, most of which could be placed on these sites. Maintenance requirements for the entrance channel will most likely continue to be dredged by hopper, which necessitates the use of the ocean disposal site.

All four sites within River Segment 1 are owned by the State of Oregon. Because of past and present uses, it is anticipated that future uses would be compatible with dredged material disposal.

River Segment 2

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

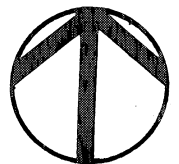
River Segment 2



Disposal Site	●
Shoaling Area

WILSEY & HAM

Scale 1" = 2000'



RIVER SEGMENT 2 (RIVER MILE 0.5 to RIVER MILE 4.5)

Dredging Needs

- Maintenance of Existing Projects

The Corps of Engineers survey records indicate that approximately 50,000 C.Y. of material will require removal along River Segment 2 annually, for federal project maintenance. Over a twenty year period, this would total approximately 1,000,000 C.Y. This stretch of the river has not been dredged since 1968, therefore, the next dredging operation would generate considerable quantities. Surveys taken in late spring of 1978 indicate that dredging to a depth of 18 feet (2 foot over-dredge) would generate 490,600 C.Y. and dredging to 16 feet (existing project depth) would generate 250,500 C.Y.

In addition to the federal project, two private marinas exist within River Segment 2. The Siuslaw Pacific Marina (R.M. 1.9) historically has required no maintenance dredging due to natural river scouring. The Bay Bridge Marina (R.M. 4.4) is expected to generate approximately 1,800 C.Y. every 8 to 10 years, and to total under 3,000 C.Y. in the next 20 years.

- Construction of New Projects

The Harbor of Refuge is the only major new project proposed within River Segment 2. This project includes the construction of a moorage capable of docking 75-80 commercial fishing vessels at the initial phase. Subsequent construction would add as many as 150 more boat slips. The site is located in a tidal area south of Disposal Site #3, and would require an initial dredging of 300,000 C.Y. No projections for maintenance dredging are available at this time. The Siuslaw Pacific Marina may expand sometime in the future, which would require approximately 5,000 C.Y. of dredging. Expansion at the Bay Bridge Condominium project may require dredging up to 15,000 C.Y. Maintenance dredging for the expanded facilities cannot be estimated at this time.

Table 9 summarizes the projected dredging needs for River Segment 2 during the 20 year plan time frame.

TABLE 9

RIVER SEGMENT 2 DREDGING NEEDS

<u>Project</u>	<u>Disposal Quantity</u>
1. Federal Project maintenance	1,000,000 C.Y.
2. Bay Bridge Marina maintenance	3,000 C.Y.
3. Bay Bridge Condominium new project	15,000 C.Y.
4. Harbor of Refuge new project	300,000 C.Y.
5. Siuslaw Pacific Marina expansion	5,000 C.Y.
TOTAL DREDGING NEEDS	<u>1,323,000 C.Y.</u>

Disposal Options

- Ocean Disposal

Sediments from the channel could be ocean disposed when dredged by hopper. The hopper dredge is not typically brought into the river beyond the entrance channel, as travel time between dredging site and disposal site can add significantly to costs. However, a small hopper could come into the river if viable alternatives were not available.

- Land Disposal

The sites listed in Table 10 are generally acceptable for the disposal of dredged materials within River Segment 2. Each site is discussed individually in the following pages.

TABLE 10
RIVER SEGMENT 2 - DISPOSAL OPTIONS (LAND)

<u>Site No.</u>	<u>Approximate Capacity</u>
8 *	3,465,000
9	5,200
10	53,000
12	42,200
14	22,700
15	54,900
16	<u>7,400</u>
TOTAL CAPACITY	3,650,400

Discussions of individual sites are given in the following pages.

* Key Site for future dredging needs.

SITE 8

Site Description

Location: North end of Dunes National Recreation Area, south bank of Siuslaw River in R.M. 2-4 area.

Size: 143.2 acres

Capacity: 3,465,000 C.Y. at 15' depth.

Physical Characteristics: This site is comprised of large dunes which rise 10 to 30 feet above the river shoreline. The dunes are primarily unstable, and subject to intense winds. The land form is made up of large mounds and rolling terrain, faced on the north by a steep slope to the river.

Biological Characteristics: Vegetation is comprised of beachgrass and peavine, with occasional shorepines. It is sparse, with a low faunal carrying capacity. Wildlife use would primarily be transient.

Comprehensive Plan: Conservation, recreation, open space

Ownership: Sec. 21 Lot 100, Sec. 28 Lot 400 (T18S, R12E). Lane County.

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 24 to 27 inch

Design Criteria: Control berms would be constructed using dredged materials. Slopes would be 3 to 1 or 4 to 1 away from river to prevent any slumping into river. Parallel compartments would be constructed, using more than one sluice location. Cross dikes could be constructed with dredged materials as well. A permanent multiple inlet line should be installed, if possible. Drop-type outlets with stop-log weirs should be utilized. Landscape considerations are a concern of the DNRA, as the disposal site abuts the DNRA. Revegetation and land contouring should be coordinated with appropriate DNRA personnel.

Site Preparation: Some leveling would be required.

Site Unit Development Cost: \$0.032/C.Y.

Future Use Constraints: None

Environmental Considerations:

Effects of Disposal: Vegetation and habitat loss would be negligible.

Due to the coarser qualities of the river sediments, they are not expected to blow as easily as the existing sands. Past disposal sites in the area appeared to be more stable. Revegetation efforts are recommended to minimize the potential for blow-sands that carry into the river, where deemed necessary (given proper coordination with DNRA).

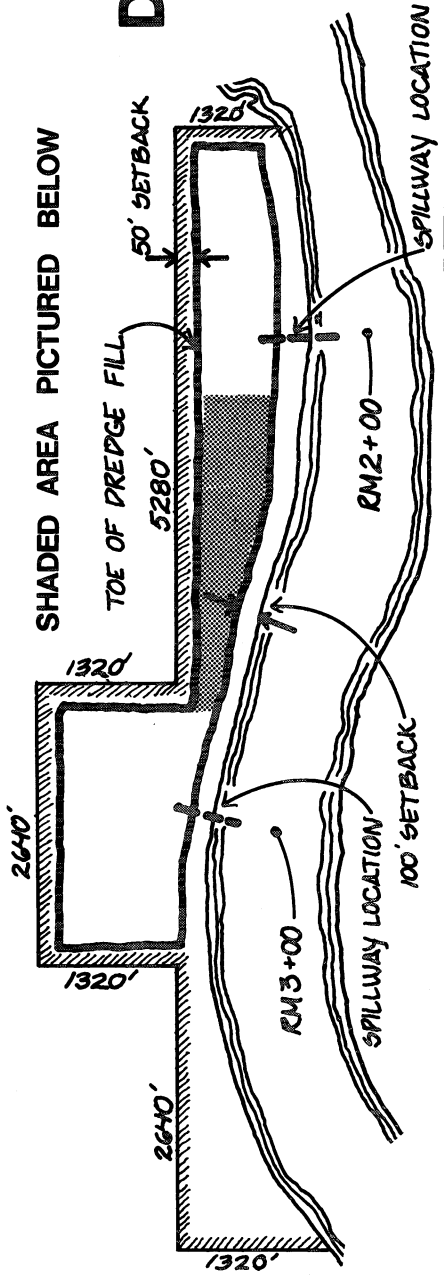
Other Considerations:

The site is adjacent to the Dunes National Recreation Area, but access to this site is very difficult. Aesthetic alteration to the dune landscape is expected to be minimal, as the difference in visual texture and color would be negligible considering the distances it would be viewed from. The foredunes which can be viewed from the Florence and Coast Guard areas would not be significantly altered, as most disposal activity would occur behind them.

This site will play a major role in fulfilling disposal needs from the river mouth upstream to the bay area. When large dredges are brought in this site can be reached from both the lower river areas and the Siuslaw Shoal. Its potential capacity makes this site the most attractive disposal site between the North Fork and the Siuslaw River Mouth.

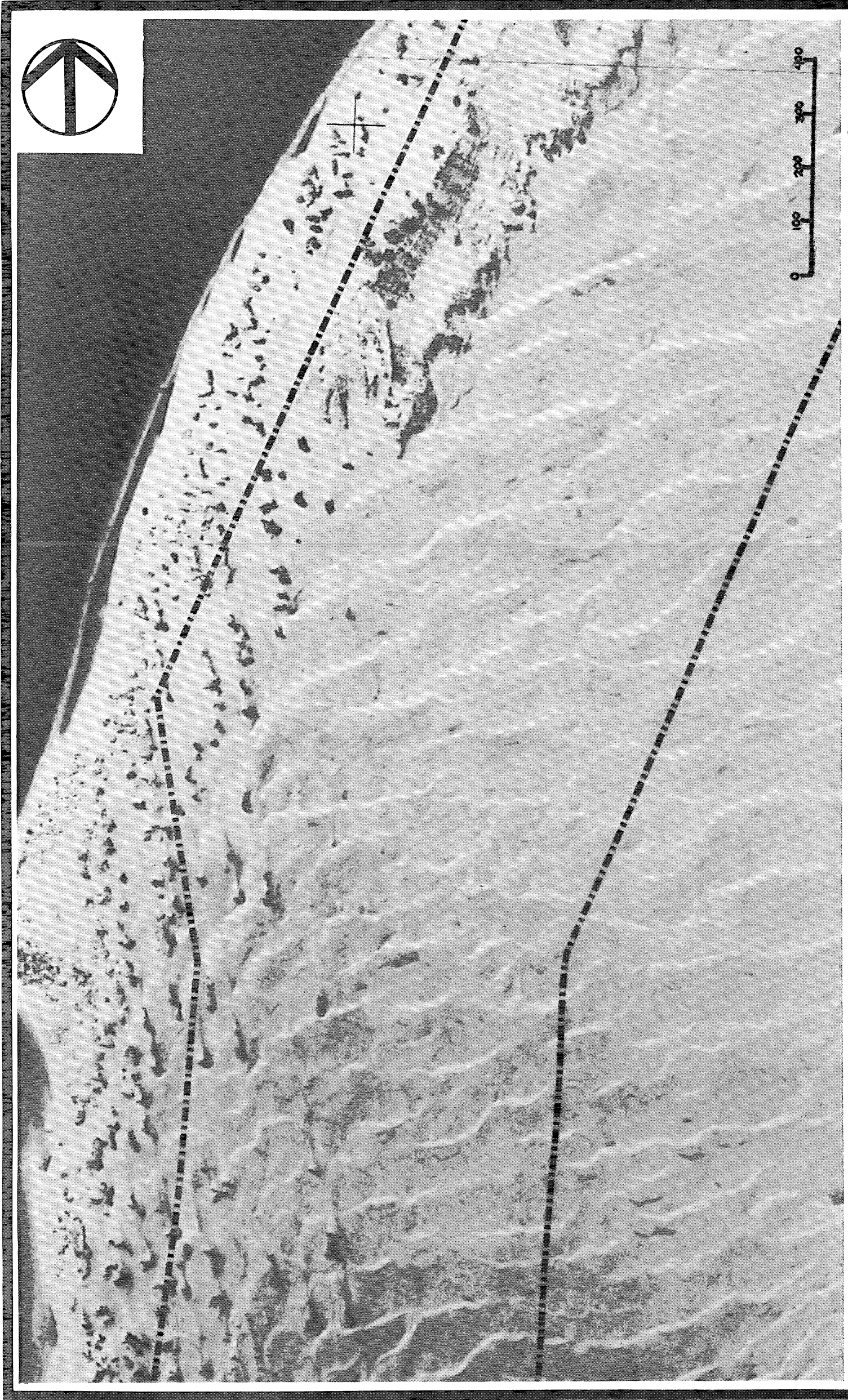
SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 8



Legend

- Altered disposal site
- Peripheral diking
- Interior diking
- Natural barrier
- Outfall
- Discharge
- Pipe
- Overflow
- Surface drainage



SITE 9

Site Description

Location: Siuslaw Pacific Marina site.

Size: 80' x 440'

Capacity: 5,200 C.Y. at 4' depth

Physical Characteristics: Flat area used for parking and miscellaneous small structures. Graveled.

Biological Characteristics: None

Comprehensive Plan: Urban Residential

Ownership: Sec. 21, Lot 603

Engineering Considerations

Method of Dredging and Filling: Bucket or clamshell

Design Criteria: Road riprap would be required on river side for protection of waterway. Retention must be adequate for proper settling of solids.

Site Preparation: Minor utility relocation might be necessary. Control of slurry necessary to prevent flow onto adjacent land, drainages or tideland. Removal of existing structures would also be required.

Site Unit Development Cost: \$8.94/C.Y.

Future Use Constraints: Proper compaction would be necessary before a return to existing uses could be achieved.

Environmental Considerations:

Effects of Disposal: There would be no effects from disposal if bank protection and proper retention is achieved.

Other Considerations:

The site is small and would be expensive to use (\$8.94/C.Y., approximately \$46,500 for site). The most efficient use for dredging would be by the existing marina for any expansion needs. Stockpiling would be convenient because of the location, but this would limit the use of the site by the owner.

SITE 10 (Shown with Site 9)

Site Description

Location: North of Siuslaw Pacific Marina, behind existing campground facilities.

Size: 120' x 1,200'

Capacity: 53,000 C.Y. at 10' depth

Physical Characteristics: This site is open dune land, with varying contours.

Biological Characteristics: As open dune, very little vegetation has developed in area. Faunal use insignificant.

Comprehensive Plan: Urban Residential

Ownership: Sec. 22, Lot 1000 (T18S, R12E) Lane County.

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 24 to 27 inch

Design Criteria: Temporary dikes would be constructed from dredged materials. Provide drop-type outlet with stop-log weir. Revegetation should be initiated after disposal.

Site Preparation: Some leveling required, and diking employed to protect nearby drainages. Undercrossing casing for inlet line from dredge to be installed. Extend outlet pipe to deep water channel. Control slurry to prevent flow onto adjacent areas.

Site Unit Development Cost: \$0.29/C.Y.










Future Use Constraints: None.

Environmental Considerations:

Effects of Disposal: No environmental impacts are expected.

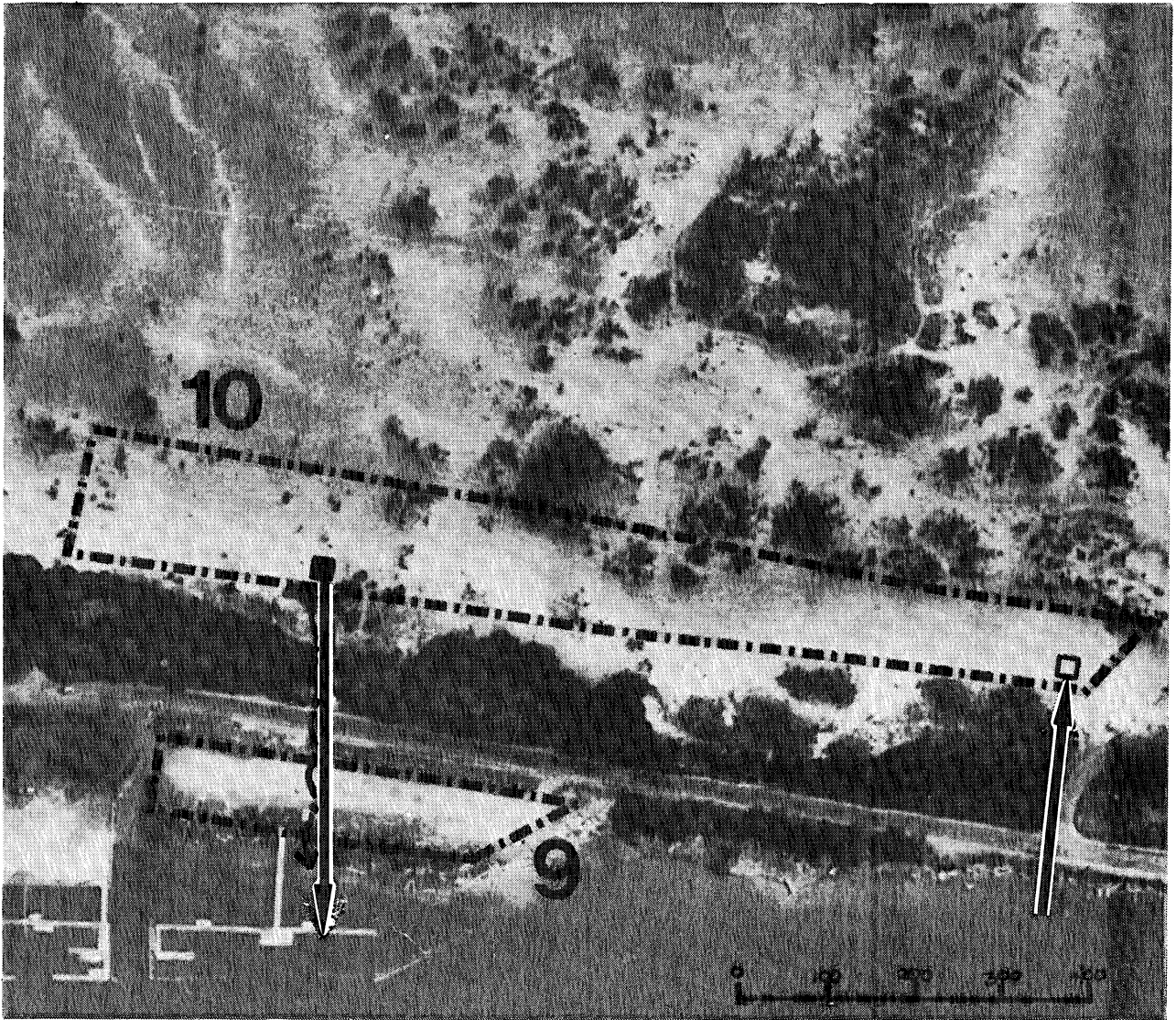
Other Considerations: Because of an elevation climb to site from the river level, booster pumps may be required when pumping from a long distance. This site could help channel maintenance needs significantly if Site 8 were not available.

Legend

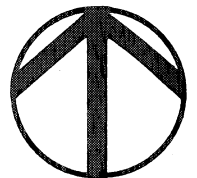
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Sites 9,10



WILSEY & HAM



Scale 1" = 200'

SITE 12

Site Description

Location: 800' west of Greentrees project, at county sanitary landfill site.

Size: 380' x 300' = 2.6 acres

Capacity: 42,200 C.Y. at 10' depth

Physical Characteristics: This is a large depression area immediately adjacent to the existing sanitary landfill site. Primarily open dune land, with some vegetation areas.

Biological Characteristics: Vegetation communities occur in portions of the site. Some faunal use.

Zoned: Single family residential.

Ownership: Sec. 22, Lot 1000 (T18S, R12E), Lane County.

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 24 to 27 inch.

Design Criteria: Construct temporary dikes using dredged materials. Provide drop-type outlet with stop-log weir. Booster pump probably required for use.

Site Preparation: Some leveling, and the clearing of brush and trees would be required. Undercrossing casing needed for inlet and outlet lines. Protect adjacent drainage channels with control berms. Outfall must extend out to channel. Material can be used to cover landfill areas after complete dewatering, to prevent leaching.

Site Unit Development Cost: \$0.53/C.Y.

Future Use Constraints: Apparently none. Landfill operators voiced interest in use of dredged materials at site.










Environmental Considerations

Effects of Disposal: Some vegetation and habitats would be lost. Relocation of fauna should not be difficult, though some losses will occur.

Other Considerations

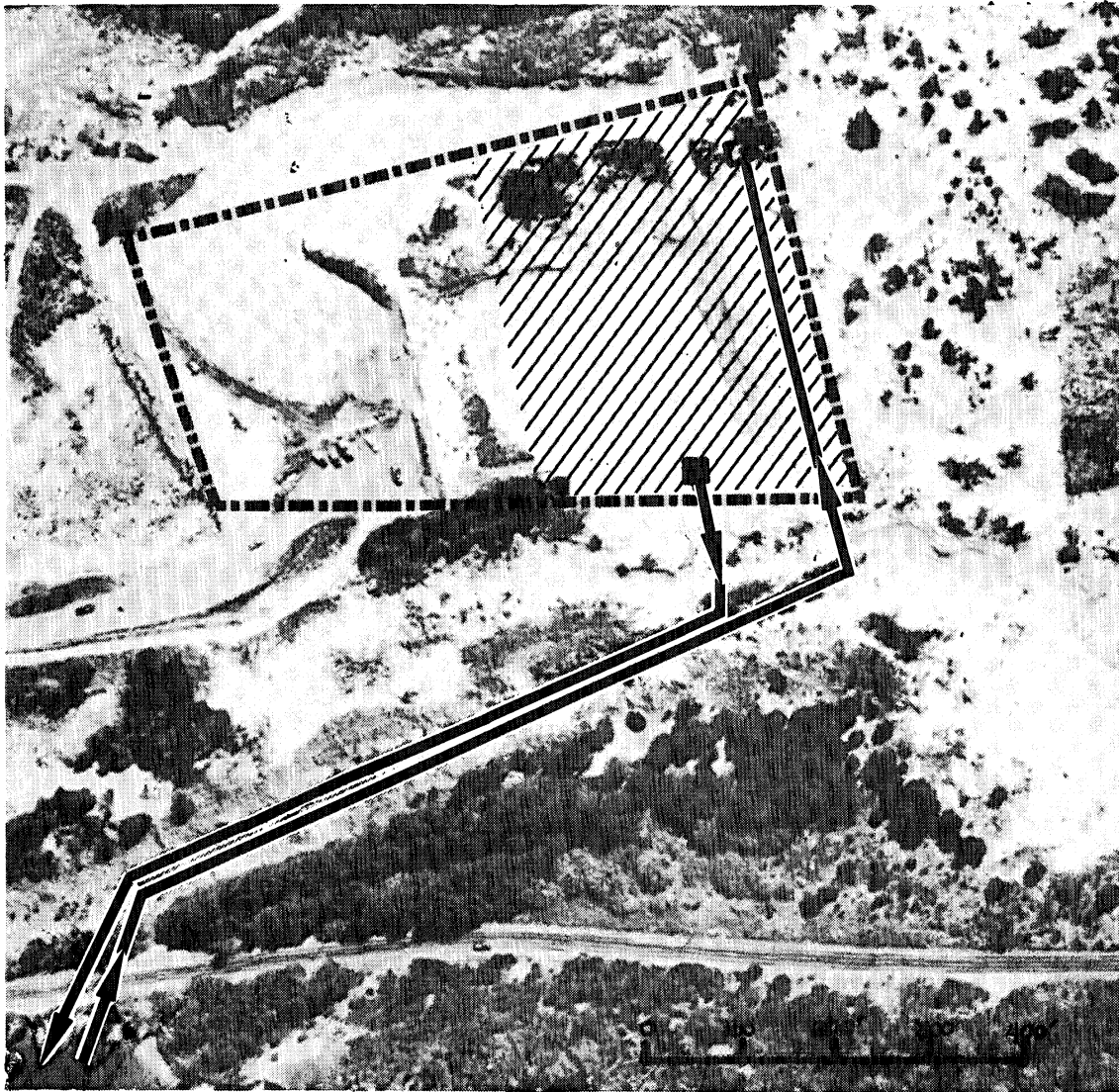
Sanitary engineers with the county expressed interest in using dredged materials for landfill covering. It is thought that the use of these materials could help to extend the life of the landfill site, and help in stabilization of the fill material. Dredged materials, however, would not be allowed to be placed on landfill until dewatered.

Legend

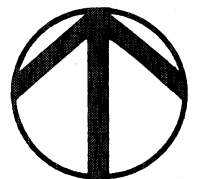
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 12



WILSEY & HAM



Scale 1" = 200'

SITE 14

Site Description

Location: West of Florence treatment plant.

Size: 1,100' x 150' (Average)

Capacity: 22,700 C.Y. net, at 4' depth

Physical Characteristics: This is an old disposal site, used during previous channel maintenance projects. Appears to be an old river bar, comprised of sand, that was built up with dredged materials. Stabilization has been established by vegetation plantings. Most of area is presently stable.

Biological Characteristics: Beachgrass and pines have been planted on site for stabilization. However, no strong biological units have established. Faunal use limited.

Zoned: Restricted residential

Ownership: Sec. 27, Lots 1400, 1500, 600, 700, 4500, Port of Siuslaw
Lots 4600, 4601, 5400 Private
Lot 5300 County

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch.

Design Criteria: Dikes can be constructed from dredged material, designed to eliminate slumping into river or drainage.
Provide drop-type outlet with stop-log weir. Revegetation necessary.

Site Preparation: Little preparation necessary; control slurry to prevent flow onto adjacent land or drainages.










Site Unit Development Cost: \$0.62/C.Y.

Future Use Constraints: None.

Environmental Considerations

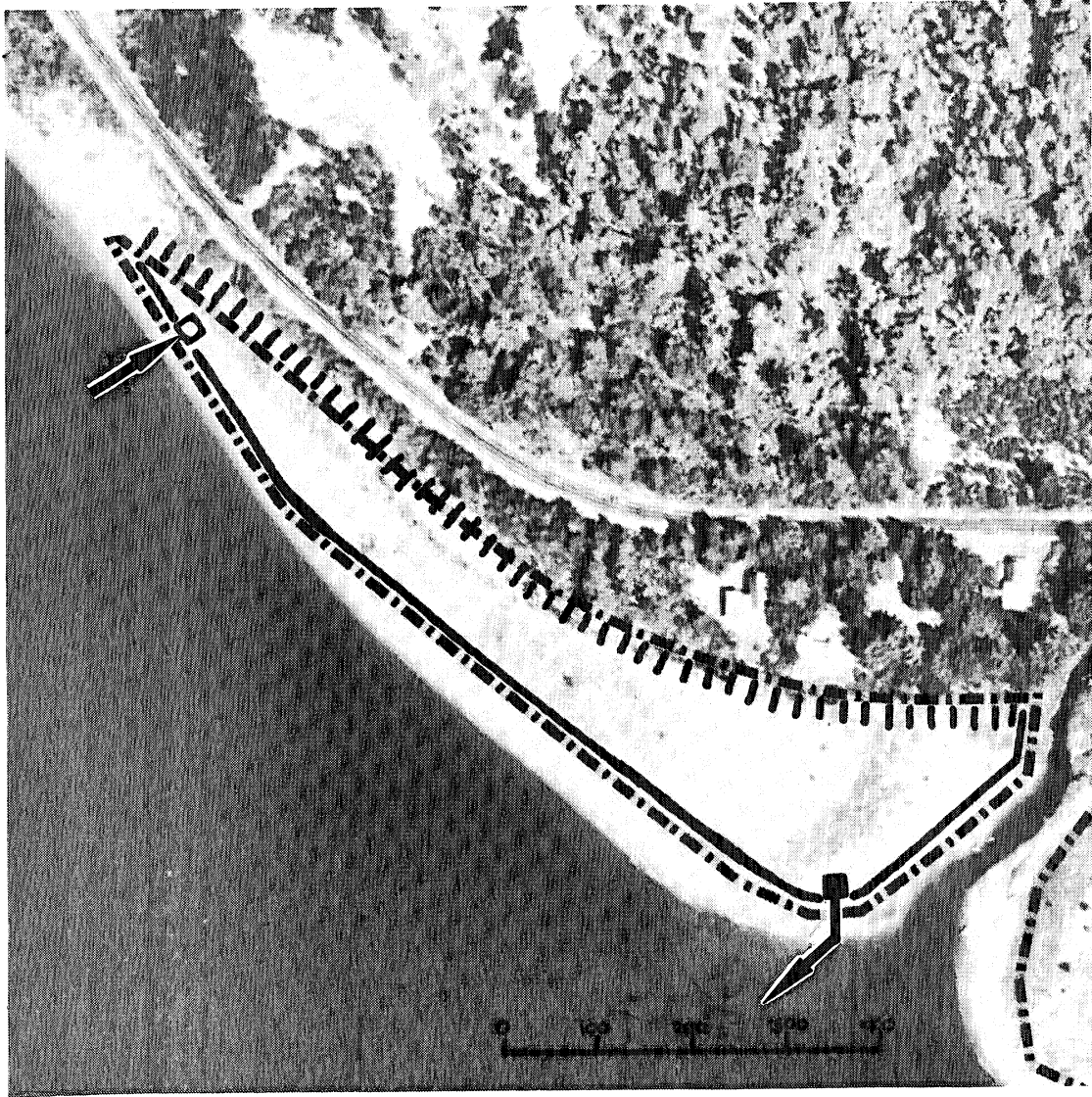
Effects of Disposal: If property diked to prevent slumping into adjacent areas, there should be minimal impact. A temporary loss of vegetation would occur, but not significant.

Legend

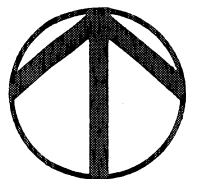
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 14



WILSEY & HAM



Scale 1" = 200'

Other Considerations

The limitation of dredge pipeline size (8 to 16 inch) because of site characteristics limits the use. Most dredging done in that portion of the river is with the large pipelines. Disposal materials from the Bay Bridge Marina, however, would be practical. If small dredges were brought in for "spot maintenance," then this site would be very practical. Small dredges are capable of pumping only 3,000 to 4,000 distance without boosters.

SITE 15

Site Description

Location: South of Florence treatment plant

Size: 225' x 750' (Average)

Capacity: 54,900 C.Y. net, at 3' depth

Physical Characteristics: Very similar to Site 14. Old disposal site stabilized after use.

Biological Characteristics: Beachgrass and pines; recently stabilized. Faunal use moderate, mostly transient.

Zoned: Waterfront

Ownership: Sec. 34, Lots 1600, 2001, 8400 Private
1200 and 1300 City of Florence
Rest owned by Port of Siuslaw

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Dikes must be constructed to prevent slumping into drainage, river, or tidelands. Provide drop-type outlet with stop-log weir. Revegetation important.

Site Preparation: Some clearing of vegetation. Control slurry to prevent flow into adjacent areas. Existing sewer outfall may require relocation.

Site Unit Development Cost: \$0.21/C.Y.

Future Use Constraints: None.

Environmental Considerations

Effects of Disposal: Would be minimal. Vegetation and habitat could be reestablished within 8 years.

Other Considerations

As with Site 14, this site has use limitations because of its size. The channel is typically dredged with the large pipeline, which would put too much volume on the site in too short a time (retention period not adequate). Again, dredging from the Bay Bridge Marina facilities would be appropriate, or small dredge "spot maintenance."

SITE 16 (Shown with Site 15)

Site Description

Location: West of Bay Bridge Marina

Size: 370' x 180' (Average)

Capacity: 7,400 C.Y.

Physical Characteristics: Old disposal site. Has been graded in past.

Biological Characteristics: Small shrubs scattered in various portions of site. Faunal use mild.

Zoned: Waterfront

Ownership: Sec. 34, Lot 8200 (T18, R12)

Engineering Considerations

Method of Dredging and Filling: Hydraulic pipeline, 8 to 16 inch, or bucket/clamshell

Design Criteria: Dikes to be constructed from dredged materials, and sloped to prevent any slumping into river or adjacent wetlands. Provide drop-type outlet with stop-log weir. Revegetation after use required for stabilization.

Site Preparation: Minimal.

Site Unit Development Cost: \$0.27/C.Y.

Future Use Constraints: None.










Environmental Considerations

Effects of Disposal: No effects will be felt if slumping is avoided.

Other Considerations

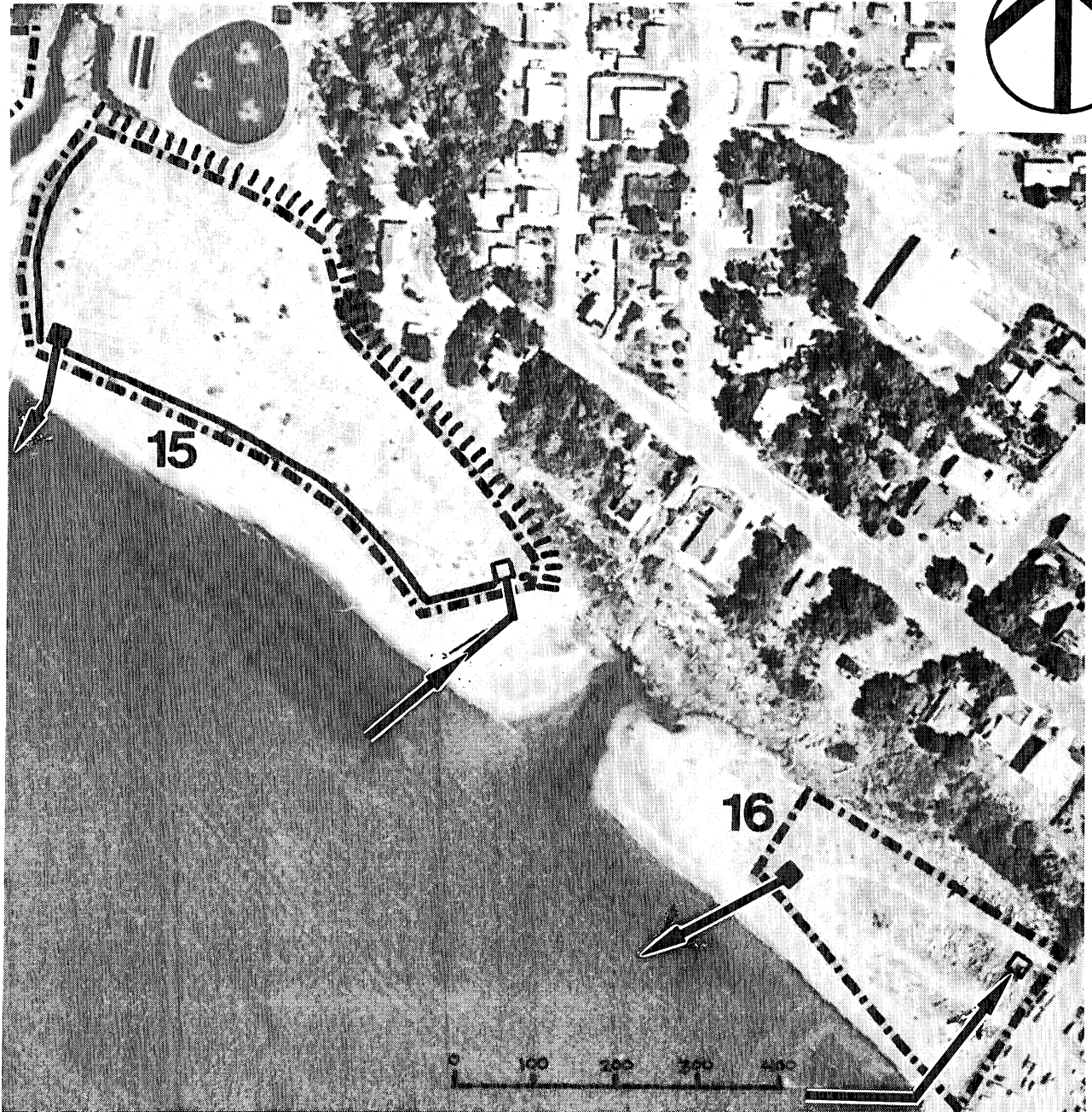
This site is also restricted because of its size and its retention potential. With small pipelines and clamshells, dredging would have to take place close to the site (within 3,000 - 3,500').

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Sites 15,16



WILSEY & HAM

Scale 1" = 200'

SUMMARY AND CONCLUSIONS

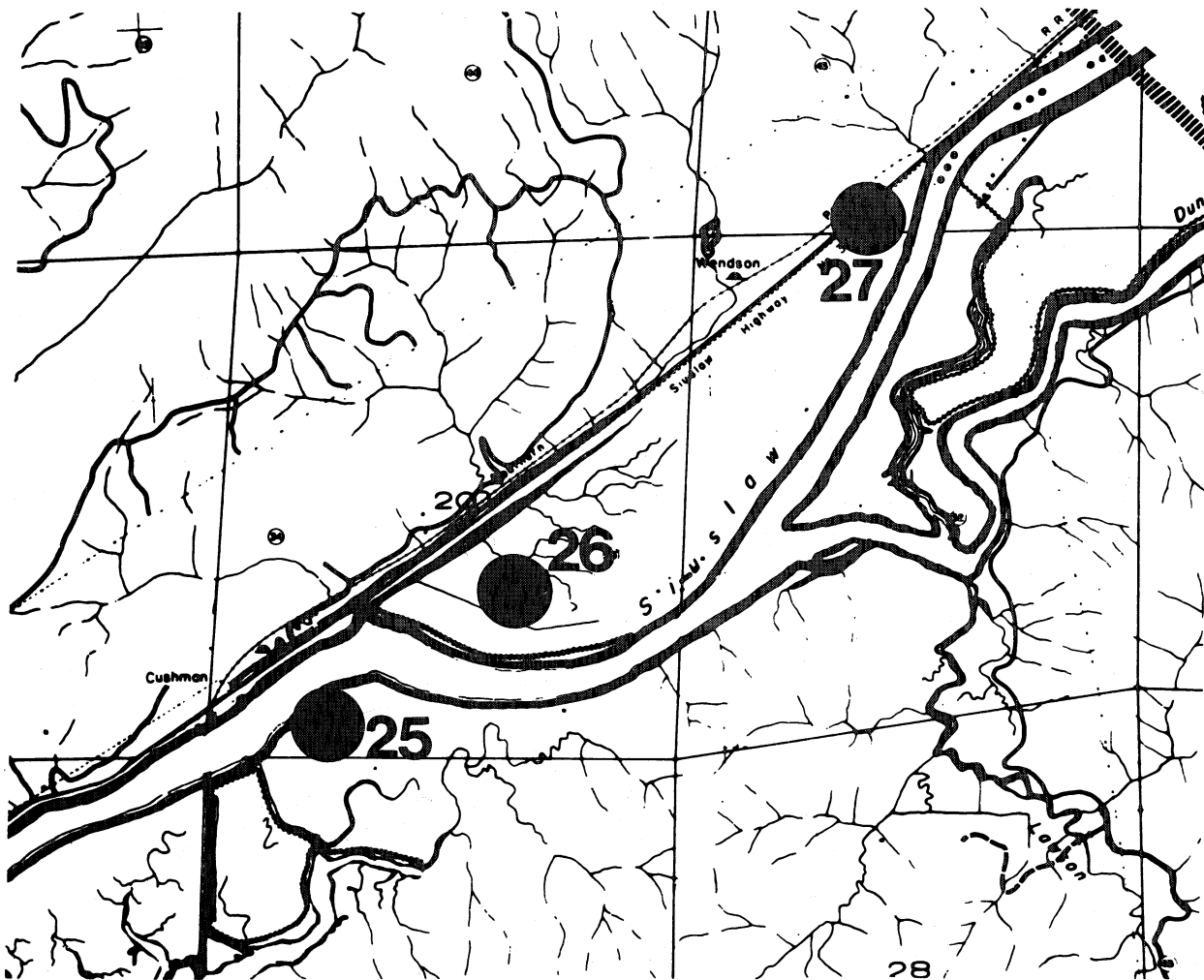
Channel dredging along this river segment is considerable. Large quantities of sand blow into the river from the dunes along the south shore and accumulate with river sediments to create several shoal areas. A large pipeline dredge (24 to 27-inch) is periodically brought in to maintain the channel, with disposal occurring along both banks of the river. Seven disposal sites have been identified, with a total capacity of almost three times the expected dredging needs. The largest and most significant disposal site is #8, with an estimated capacity of over 3.4 million cubic yards. Minimal environmental effects are expected, as the existing conditions include marginal vegetation and very limited faunal use. The disposal materials are expected to blend in well with the existing sands, having negligible effects on the scenic qualities of the south bank. The materials are also expected to stabilize better than existing sands, due to observed qualities of "cementing" that the dredged materials have shown.

Site 8 can also be used for disposal of materials taken from the Florence Shoal. When large pipelines are brought in for dredging the Florence area shoals, disposal in Site 8 is within range. The capacity of the site is far more than any anticipated dredging needs within River Segment 2, or the lower portion of River Segment 3. The land has not been used for any specific purposes in the past, and due to its location and accessibility is not expected to realize any future significant uses. The site lies entirely within Lane County ownership.

Without Site 8, land disposal options become limited for much of the segment. Hopper dredging has occurred in this area, and is viable because of river navigability and proximity to the ocean disposal site. However, hopper dredges are allowed a very limited amount of time in each river due to excessive coastal demands. Another shallow-draft hopper is being constructed by the Corps for west coast use, which, when completed (2-3 years), may afford greater dredge efforts in Siuslaw River.

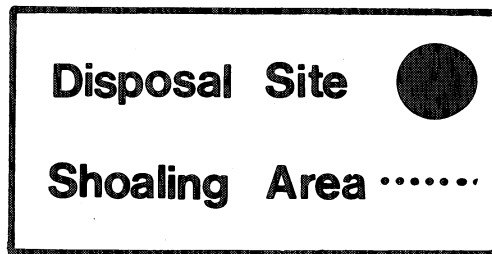
River Segment 3





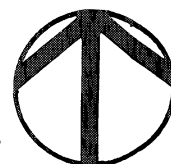
SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

River Segment 3



WILSEY & HAM

Scale 1" = 2000'



RIVER SEGMENT 3 (RIVER MILE 4.5 TO RIVER MILE 11.0)

Dredging Needs

- Maintenance of Existing Projects

Maintenance of the navigation channel will again produce the highest quantities of dredged materials. Two major shoals occur in this river segment, the Florence Shoal (R.M. 4.6 to R.M. 5.6) and the North Fork Shoal (R.M. 6.0 to R.M. 6.4). According to the most recent hydrosurveys available, a small shoal is beginning to develop at the mouth of Duncan Inlet (R.M. 9.5) and minor shoaling between R.M. 10.0 and R.M. 11.0. These smaller shoals are not expected to produce significant quantities at this time.

The Florence Shoal was last dredged in 1974, and would now produce approximately 173,000 C.Y. if dredged two feet more than project depth (68,800 C.Y. if dredged to project depth). Averaged out this represents about 43,250 C.Y. per year accumulation. Over a twenty year period, some 865,000 C.Y. would accumulate at over-dredge depth. The North Fork Shoal was last dredged in 1972, and would produce 61,000 C.Y. if dredged this year to a two foot over-dredge (24,200 C.Y. if dredged to project depth). This represents about 10,150 C.Y. accumulating annually. A twenty year period would produce 203,000 C.Y. at over-dredge depth.

Private projects within River Segment 3 include six existing operations. The Port of Siuslaw owns the Holiday Harbor Marina (R.M. 5.5) which requires 5,000 C.Y. of dredging every 3-4 years (1,400 C.Y./year), and the Commercial and Sport Boat Basin which has no dredging requirements at this time. Murphy's Mill (R.M. 7.0) will require 3,000 C.Y. dredging every year, and the Siuslaw Marina/Cushman Spar has required some 500 C.Y. dredging every 10 years. The Midway Marina (R.M. 10.9) is expected to generate about 250 C.Y./year average.

- Construction of New Projects

The only identified new project in this segment is the Johnson's Rock Products facility, which has undetermined dredging needs at this time. It is estimated that some 15,000 C.Y. may have to be dredged to allow proper access for barge traffic. This need is projected to occur every five years.

Table 11 summarizes the dredging needs for the 20 year plan period which have been identified within River Segment 3.

TABLE 11
RIVER SEGMENT 3 - DREDGING NEEDS

<u>Project</u>	<u>Disposal Quantity</u>
1. Federal Project Maintenance	1,068,000 C.Y.
2. Holiday Harbor Marina	28,000 C.Y.
3. Johnson Rock Products (new project)	60,000 C.Y.
4. Murphy's Mill	60,000 C.Y.
5. Siuslaw/Cushman Marina	1,000 C.Y.
6. Midway Marina	<u>5,000 C.Y.</u>
TOTAL DREDGING NEEDS	1,222,000 C.Y.

Disposal Options

● Ocean Disposal

Ocean disposal is not normally used at this distance from the river mouth, as time and expense become factors when considering barge movement up and down the river. However, due to significant dredging needs in the bay area, and a paucity of available upland disposal sites, the possibility is addressed.

Bucket or clamshell dredging, or small hopper dredging in certain lower bay areas, is possible. Hopper dredging has occurred at the Florence Shoal. Bucket or clamshell dredging has not been employed for channel maintenance in this area, but could occur with barging of the materials to the ocean disposal site. The hopper dredge poses a problem with crossing under the Highway 101 Bridge, as the bridge would have to draw with each passing. Bucket or clamshell would be feasible from a cost standpoint (est. \$1.86/C.Y.), but would require water quality protection procedures during dredging (to minimize spillage) and efficient dump procedures to minimize time. The dredged materials have not been found to be too toxic for ocean disposal.

● In-Water Disposal

In-water disposal has several inherent problems associated with it, but is discussed here because of the need for disposal options in River Segment 3. Potential problems include water quality violations (particularly turbidity), downstream alterations, both pelagic and benthic disturbance, and certain unknowns regarding downstream sediment transport.

Possibilities for in-water disposal exist in most parts of the river, except in areas at or immediately upstream of annual shoals. The river does have good flushing characteristics in most stretches, and should be capable of achieving necessary sediment transportation. Pipeline dredging of the Florence and North Fork Shoals could be disposed immediately downstream of the Highway 101 Bridge, on the south side between the highwater shoreline and the south side of the navigation channel. Materials are expected to be transported 1 to 3 miles downstream from this point, where the materials could be dredged and pumped to Site 8. Redredging of the materials would occur within the next one to three years. Approximately 25% of the originally dredged sediments would not relocate within the channel, thus reducing the total second-dredge volume. This option for disposal is subject to federal and state regulatory agency scrutiny, and may not achieve the necessary authorization.

- Land Disposal

The sites listed in Table 12 are generally acceptable for the disposal of dredged materials within River Segment 3. Each site is discussed individually in the following pages.










TABLE 12

RIVER SEGMENT 3 - DISPOSAL OPTIONS (LAND)

<u>Site No.</u>	<u>Approximate Capacity</u>
19*	50,000 C.Y.
22*	10,000 C.Y.
23	10,400 C.Y.
25*	350,000 C.Y.
26*	303,000 C.Y.
27	<u>522,500 C.Y.</u>
TOTAL CAPACITY	1,245,900 C.Y.

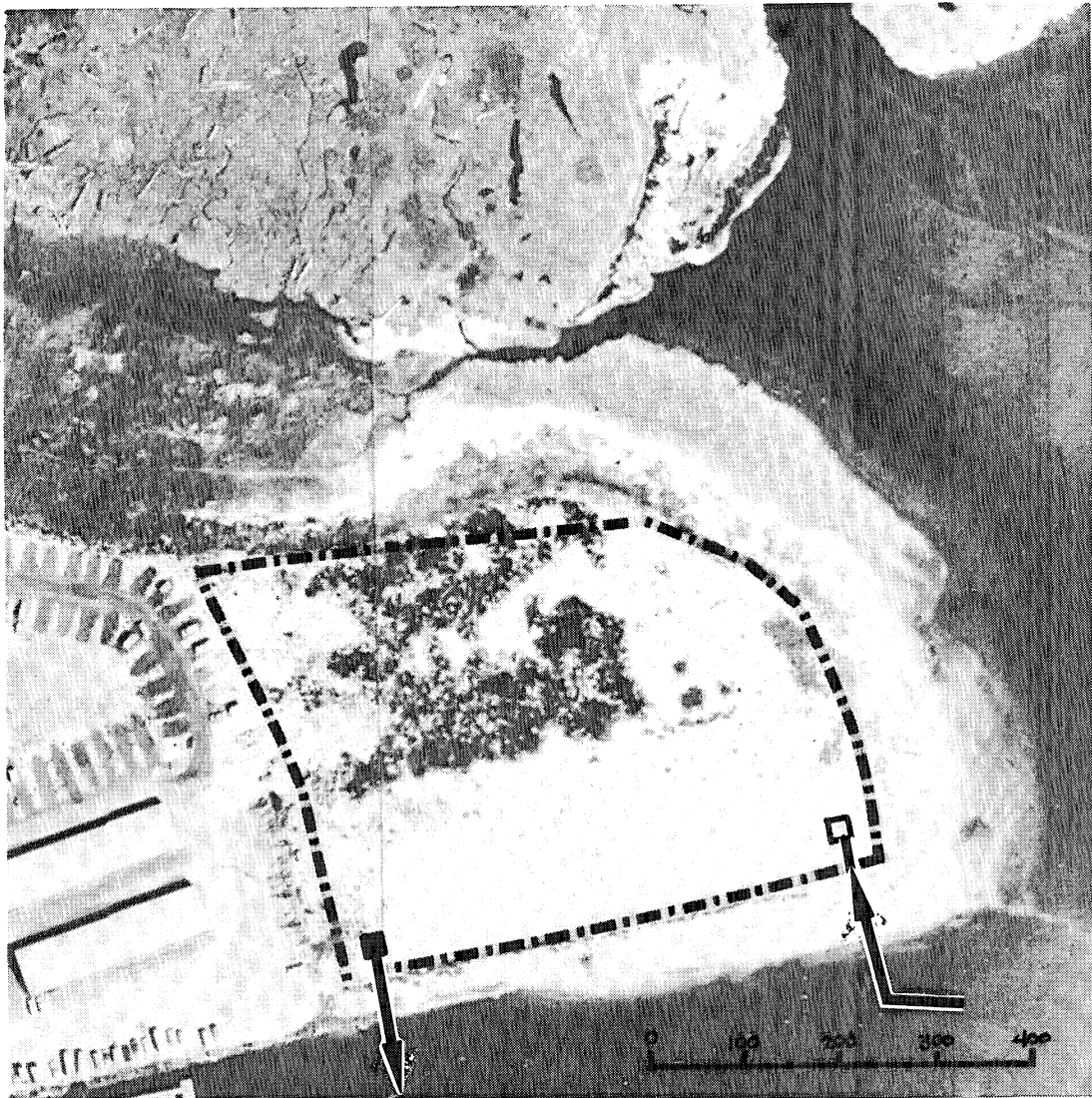
* Key site for future dredging needs.

Legend

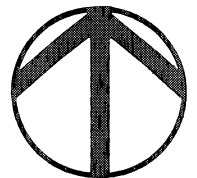
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 19



WILSEY & HAM



Scale 1" = 200'

SITE 22

Site Description

Location: Johnson's Rock Products site (east of North Fork Bridge).

Size: 150' x 220'

Capacity: 10,000 C.Y. net, at 9' depth

Physical Characteristics: This is an old fill site, flat and riprapped on river side. Hard surface, some gravels.

Biological Characteristics: The actual site has no biological character. However, it is bordered by a small salt marsh, small fresh water marsh, and the river.

Comprehensive Plan: Industrial

Ownership: Johnson Rock Products (Sec. 25, Lot 2001, T18S, R12E)

Engineering Considerations

Method of Dredging: Pipeline 8 to 16 inch, or clamshell

Design Criteria: Temporary dikes constructed from local materials, sloped to prevent slumping into wetlands or river. Provide drop-type outlet with stop-log weir. Retention time must be adequate for settling of solids.

Site Preparation: Protect adjacent drainage channels with diking. Stockpiled materials to be hauled away. Outfall must go to deep water channel.

Site Unit Development Cost: \$0.68/C.Y.

Future Use Constraints: If used for stockpile, site must be preserved as open space. Development of site, except for open storage and other temporary uses, would not be compatible.

Environmental Considerations

Effects of Disposal: Effects could only occur to either the wetlands or the river, if fill was allowed to spill into them. Wetland areas have been partially destroyed by surrounding land uses, and their future is questionable due to encroachment and refuse disposable.

SITE 19

Site Description

Location: East of Waterland Storage facilities, Florence.

Size: 500' x 550'

Capacity: 50,000 C.Y. at 5' depth

Physical Characteristics: This is an old disposal site, used in the past during dredging of the Florence Shoal. It is comprised of rolling sand mounds and flats, bordered by light commercial/industrial development, trailer court, tide lands and the river.

Biological Characteristics: Beachgrass, peavine, and scotch broom have established on the site. Small mammals and perching birds use the area. Site lies adjacent to major salt marsh and tideflats.

Zoned: Waterfront

Ownership: Sec. 35, Lot 3500 (T18, R12)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 27 inch

Design Criteria: Construct temporary dikes using existing materials. Provide drop-type outlet with stop-log weir. Slopes must be designed to prevent slumping into adjacent tide lands.

Site Preparation: If site is used for stockpile, the perimeters should be vegetated. Fill and secondary handling could then occur inside vegetation buffers. Outfall must go directly to channel. Control berms may be warranted to restrict short-circuiting.

Site Unit Development Cost: \$0.62/C.Y.

Future Use Constraints: If used for stockpile, site must be left open and undeveloped.

Environmental Considerations

Effects of Disposal: Existing vegetation would be lost, and fauna would be forced to relocate. Access to tide lands and river would be disturbed for certain mammals and birds. However, impacts would be minimal if dredged materials and slurry is kept from water habitats.










Other Considerations

Site would be a good stockpile location, due to proximity to the Florence and North Fork Shoals, and access for trucks. If used for stockpile, it is recommended that vegetation buffers are maintained on the perimeters, with filling and removal occurring inside. Contract for project may require complete revegetation of all berms, and revegetation of each portion of site when fill use is complete.

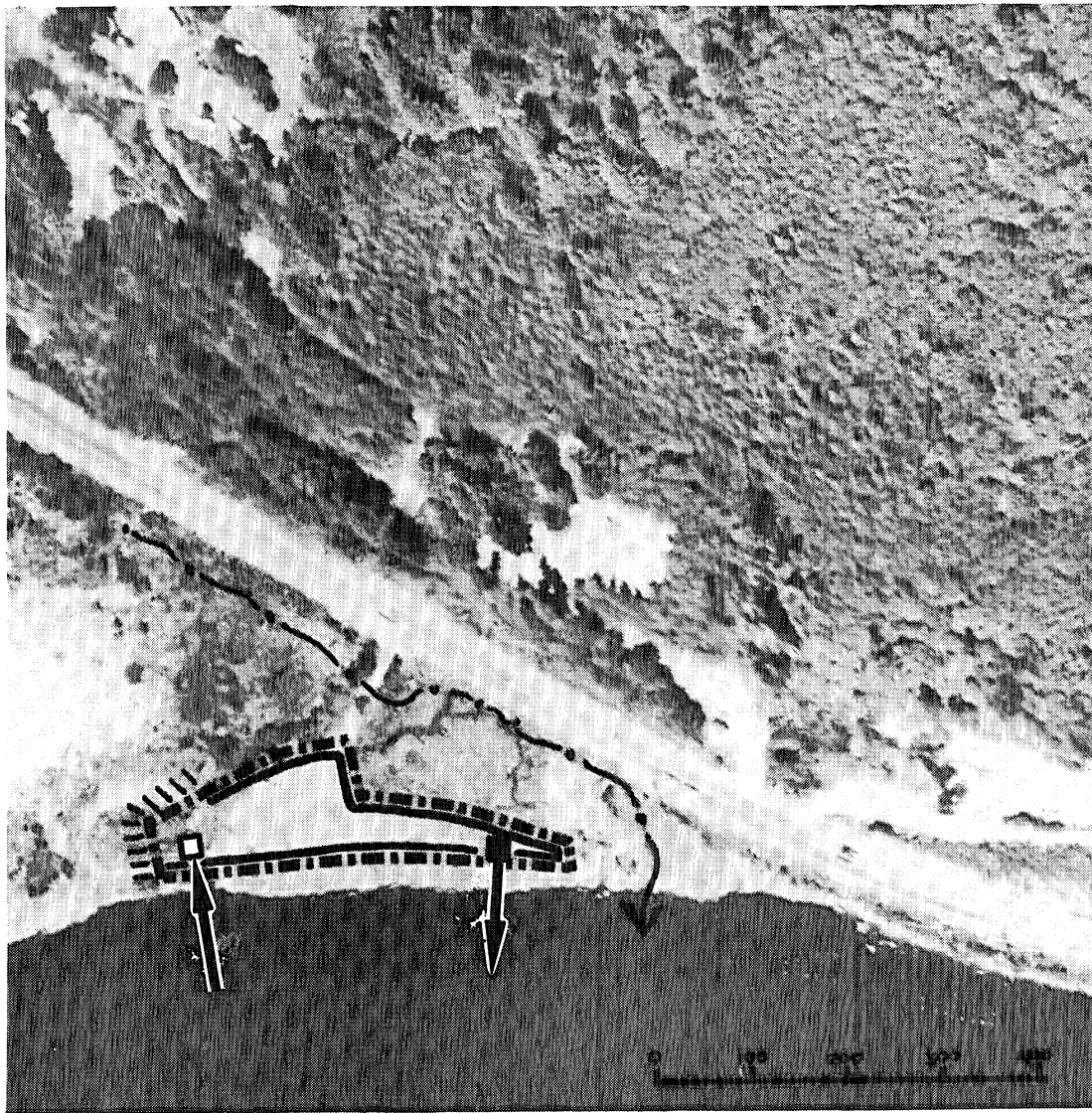
The site should be excavated to initiate project use, thus fill could go into sumps (to be trucked out when possible). This site is key for the maintenance of the Florence Shoal, as it is the only land disposal site within small pipeline distance. This site must be kept available as a stockpile site, to assure its disposal use in perpetuity.

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

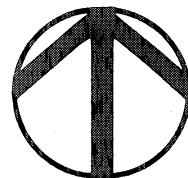
Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

Site 22



WILSEY & HAM



Scale 1" = 200'

Other Considerations

This is a small site that requires substantial berming to prevent slumpage. It has been recommended that the two small marshes existing on the site be filled, to allow for more fill space. If the marshes were to be filled, however, the site should be permanently preserved for dredged materials stockpiling exclusively. Thus, the site could significantly contribute to resolving the dredge disposal needs of the North Fork area. The filling of the marshes was met with negative reactions by the resource agency Task Force. Also, the property owner, Johnson's Rock Products, is not willing to commit the land to permanent stockpiling. The owner has offered the site for disposal use, but wishes to retain his right to develop the land when he so desires. Existing uses of the site appear to be encroaching on the two wetlands. This site is key to the maintenance of the North Fork channel area. Large pipeline work will be capable of pumping materials up river to Site 25. But "spot maintenance" with the 8-16" dredge, which may be required every 3 to 5 years, would require a disposal site within 3,000 - 4,000 feet. This site is the only viable location at this time.

At this time the filling of the wetland areas is unacceptable to the resource agency task force. It is felt that other alternatives must be more fully explored before productive habitat is committed to filling. The site must be retained as a viable stockpile site, with possible expansion in the future into surrounding areas. To the west of the outlined site lies old fill materials of no biological significance, which may be usable if compatible with the surrounding site uses.

Alternatives to this proposal include in-water disposal, or barging of materials to the ocean disposal site. Dredging with clamshell or bucket incur certain added costs and time considerations, but are an option.

SITE 23

Site Description

Location: Murphy Mill site

Size: 340' x 180' + 200' x 200'

Capacity: 10,400 C.Y. net, at 3' depth

Physical Characteristics: This is an old fill site, presently used as an industrial site for the Murphy Mill. The fill would be placed in the open areas of the site, where log storage and machinery right-of-ways exist.

Biological Characteristics: None.

Comprehensive Plan: Industrial

Ownership: Murphy Mill (Sec. 30, Lot 1001, T18S, R11E)

Engineering Considerations

Method of Dredging: Pipeline, 8 to 16 inch, or bucket

Design Criteria: Construct temporary dikes using local materials. Provide rock riprap along waterfront. Construct drop-type outlet with stop-log weir. Due to retention limitations, small pipeline or clamshell should be used to allow for settling.

Site Preparation: Must be cleared of logs and other mill properties. Stockpiled dredged material to be hauled away. Very little preparation needed. Control slurry to prevent flow onto adjacent land, drainages or river.

Site Unit Development Cost: \$0.73/C.Y.

Future Use Constraints: Use of the site for stockpiling may be incompatible with existing industrial uses, in terms of space availability.

Environmental Considerations










Effects of Disposal: None.

Other Considerations

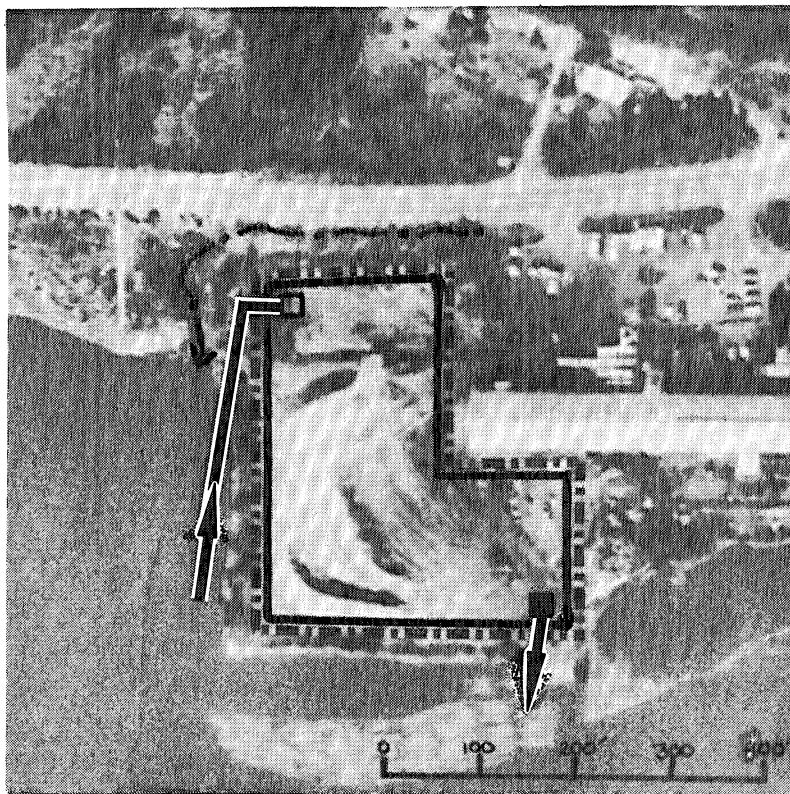
The site is presently used for log storage, equipment storage and equipment access (including truck traffic). Dredge disposal in certain areas would interfere with mill operations, and must be avoided. Stockpiling may cause problems if access interferes with normal mill traffic. However, materials could improve surface area of site, elevating it enough to stay dry through most of the year.

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

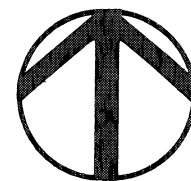
Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

Site 23



WILSEY & HAM



Scale 1" = 200'

SITE 25

Site Description

Location: South of Cushman, east of Southern Pacific RR Tracks

Size: 900' x 400' + 550' (Average) x 1,100'

Capacity: 350,000 C.Y. at 10' depth

Physical Characteristics: Large flat land mass, part of floodplain before dikes were constructed. Site still becomes seasonally inundated.

Biological Characteristics: Pastureland.

Comprehensive Plan: Conservation, recreation, open space

Ownership: Sec. 29, Lot 100 (T18S, R11E)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 24 to 27 inch

Design Criteria: Construct permanent dikes using on-site materials, with slopes formed to prevent slumping into river or wetlands. Construct parallel compartments with more than one sluice location. Provide cross dikes using dredged materials, and drop-type outlets with stop-log weirs. Cut existing dikes and backfill with porous material to ensure future dewatering. Avoid all tide channels.

Site Preparation: Clear brush. Protect adjacent drainage channels with diking.

Site Unit Development Cost: \$0.19/C.Y.

Future Use Constraints: To return to agricultural use, the site would require some working to develop proper humus and nutrients. If site were used for large project, the Corps could assist in technical areas for enhancement of materials. Enhancement efforts are not expected to be substantial, but would significantly help the production time requirements. Reuse of site for non-agricultural purposes may conflict with county and state planning goals.







Environmental Considerations

Effects of Disposal: The site is pasture land, which would mean the temporary loss of some field fauna and deer pasture. These losses are considered minimal. Removal of this land from the floodplain may cause some impact on future surface water levels, but it is not expected to significantly alter local flood characteristics.

Other Considerations

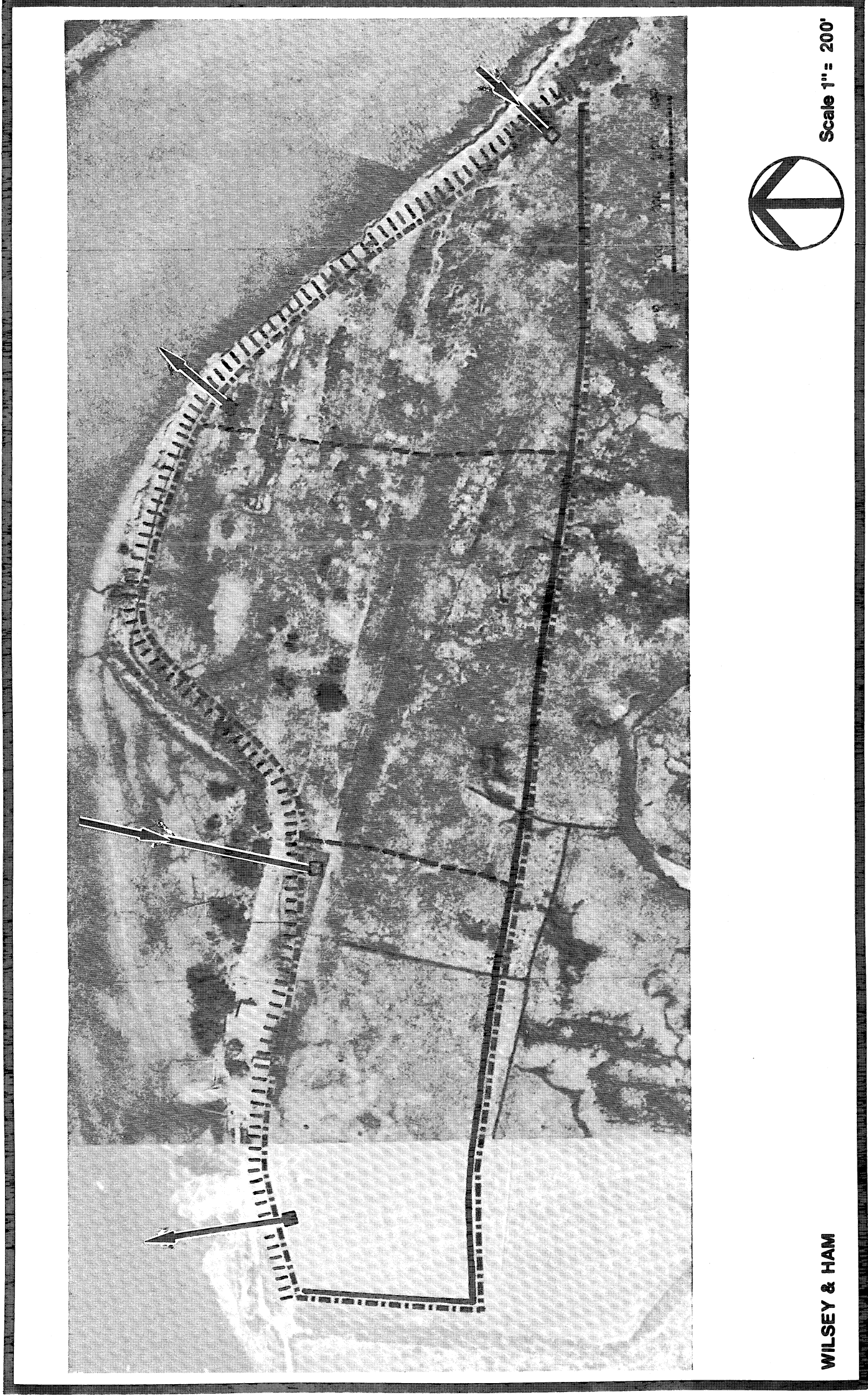
If the Florence and North Fork Shoals are dredged with large equipment (24" to 27" pipelines) this site can be reached. Large quantities of dredged materials could be utilized, raising the land well above seasonal inundation. The Corps of Engineers has a program available which provides technical assistance in the enhancement of the dredged materials for agricultural uses. The site could realize agricultural benefits, and help to resolve the dredging needs of the bay area. Agricultural uses should be maintained. This site is key to the long-range disposal plan.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

**SIUSLAW RIVER
DREDGED MATERIAL
DISPOSAL PLAN**

Site 25



SITE 26

Site Description

Location: Siuslaw River Jersey Farm, 1,200' east of Cushman

Size: 1,200' x 1,400' (Average)

Capacity: 303,500 C.Y. net, at 5' depth

Physical Characteristics: Large, flat parcel, part of old floodplain. Dikes line perimeters. Seasonally inundated by poor drainage and high water table.

Biological Characteristics: Pastureland. Drainage canal at north end used by waterfowl, but not to be filled. Waterfowl use of lower portions of pasture during high water, for feeding and loafing.

Comprehensive Plan: Agriculture

Ownership: Siuslaw River Jersey Farm (Sec. 20, Lot 600, T18S, R11E)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 24 to 27 inch

Design Criteria: Construct permanent dikes using on-site materials, sloped to prevent slumping into canal or river. Construct parallel compartments with more than one sluice location. Provide cross dikes using dredged materials. Provide drop-type outlets with stop-log weirs. Cut existing dikes and backfill with porous material to ensure future dewatering. Outfall to main channel.

Site Preparation: Protect adjacent drainage canal with diking.

Site Unit Development Cost: \$0.17/C.Y.

Future Use Constraints: Site would require rehabilitation before viable agricultural use could be resumed. Corps of Engineers could technically assist in soils rehabilitation, if project warranted such. Agricultural potentials would be enhanced, as seasonal high water problems would be resolved.










Environmental Considerations

Effects of Disposal: Dredged material disposal would raise the land above the seasonal water inundation, thus eliminating a waterfowl feeding and loafing area. It is expected that these waterfowl could relocate, as there are several comparable areas in the Siuslaw River system. No significant impacts are expected to occur to local flooding conditions.

Other Considerations

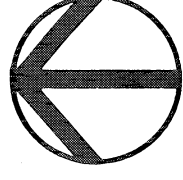
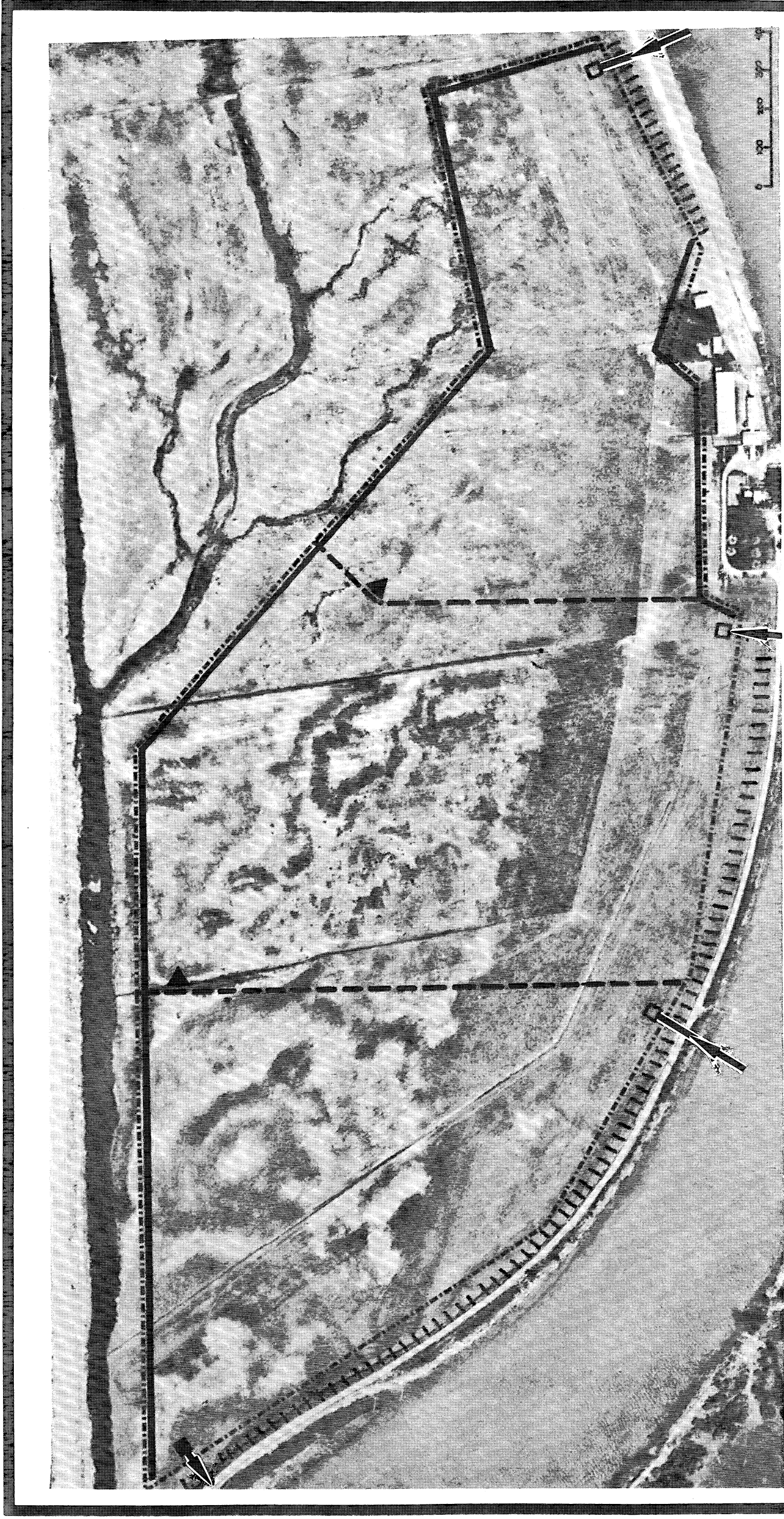
As with Site 25, this site could be used for large dredging projects in the bay area, as a 24" to 27" pipeline could reach this site. Large quantities of material would raise the site to a better elevation for agricultural use, and would warrant the assistance of the Corps of Engineers in soil rehabilitation efforts. This site is considered key to the long-range disposal plan.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 26



WILSEY & HAM

Scale 1" = 300'

SITE 27

Site Description

Location: 1.5 miles east of Cushman

Size: 2,050' x 700' (Average)

Capacity: 522,500 C.Y. net, at 10' depth

Physical Characteristics: An old floodplain area, now diked to control floodwaters.

Biological Characteristics: Farmland. Vegetation is comprised of seasonal crops. Mammal and bird use limited by human activity.

Comprehensive Plan: Agriculture

Ownership: Secs. 16 and 21, Lot 2402 (T18S, R11E)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct permanent dikes using on-site materials, and sloping to prevent slumping into river or drainage to north. Construct parallel compartments with more than one sluice location. Provide cross dikes using dredged materials. Provide drop-type outlets with stop-log weirs. Cut existing dikes and backfill with porous material to ensure future dewatering. Outfall to main channel.

Site Preparation: Very little, other than proper measures of diking to protect drainage channel and river bank.

Site Unit Development Cost: \$0.13/C.Y.

Future Use Constraints: None.


Environmental Considerations

Effects of Disposal: Minimal impacts, as continued human activity on the site has determined a limited use of the site by wildlife.

Other Considerations

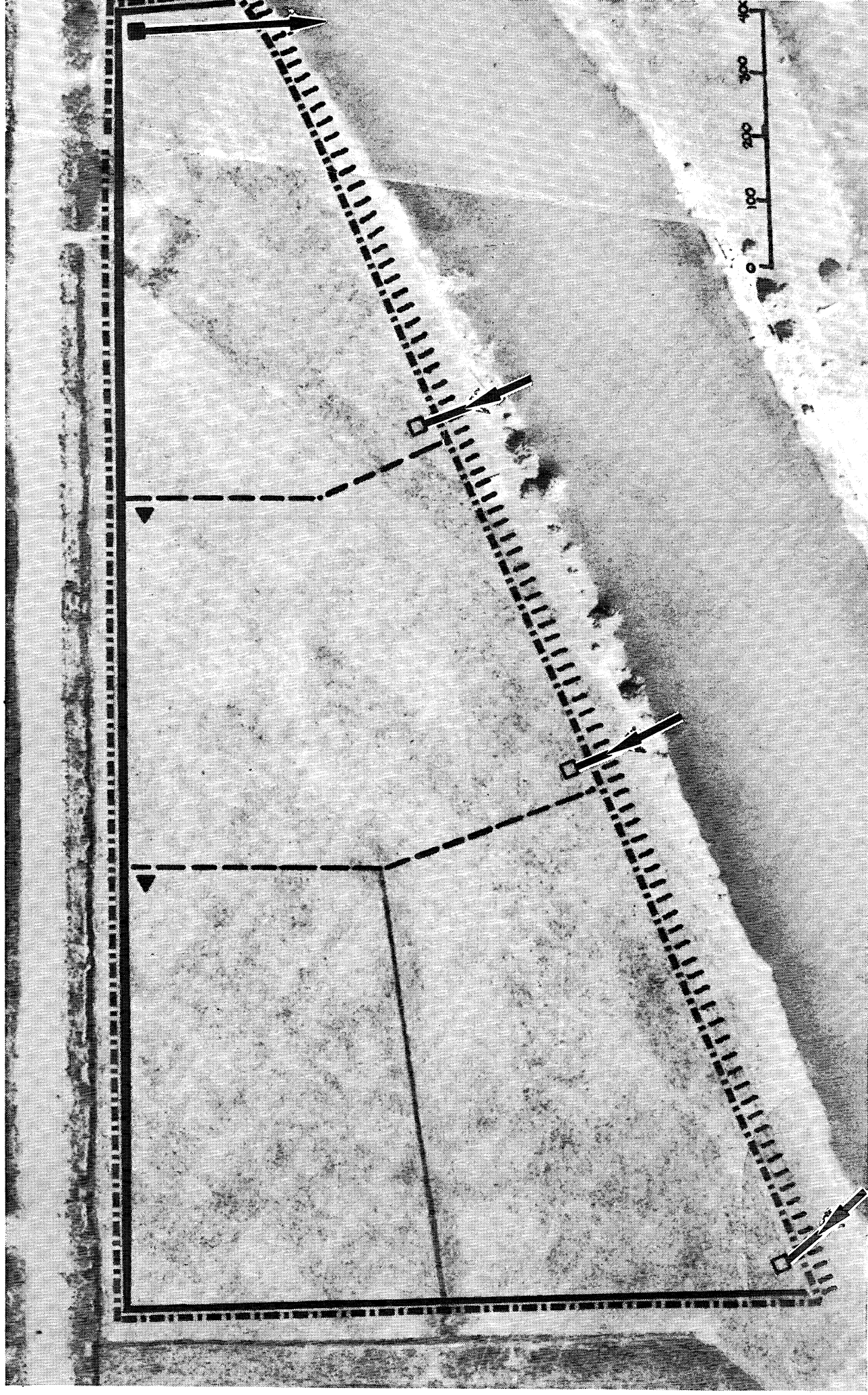
This site could handle large pipeline disposal, thus could be used in dredging some distance upriver or downriver. A large dredge project would warrant the technical assistance of the Corps of Engineers in soil rehabilitation efforts.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 27



WILSEY & HAM

Scale 1" = 200'

Summary and Conclusions

River Segment 3 dredging needs for the next 20 years will be primarily generated from federal channel maintenance projects. Of the 1,068,000 C. Y. expected to be dredged from this river segment during this period, the majority will come from the Florence Shoal and the North Fork Shoal. Unfortunately, very few acceptable disposal sites are available within this area.

The Corps of Engineers is anticipating maintenance of these shoals through two programs. The major program will involve large dredging equipment (24 to 27 inch pipeline dredge), brought in every 8 to 10 years to do major dredging. When equipment of this size is used the options for land disposal are greatly increased because of the long pumping ranges. Pipelines of this size will be able to reach Sites 25 and 26 upstream, and site 8 downstream (in River Segment 2). These sites have the capacity to handle all the dredged materials that could be generated from the two shoals during the plan period.

The second dredging program for these areas will involve small maintenance dredging of 30,000 C.Y. to 50,000 C.Y. This level of dredging may be required every 3 to 5 years to minimize shoal development and barge traffic slow-downs. This volume of dredging could be undertaken by either a small pipeline or clamshell or bucket type dredge. Large pipelines are not cost-effective at this volume. While the smaller dredge equipment is more economical to set up and operate, it generally cannot transport the material as far as the larger equipment. An 8 - 16 inch pipeline dredge is capable of pumping approximately 3,000 to 4,000 feet without a booster (assuming no elevation change as well). This restriction severely limits the disposal options for this portion of the river.

Within River Segment 3 only two disposal sites are available for use within close proximity to shoals; Site 19 just north of the Florence Shoal, and Site 22 northeast of the North Fork Shoal. Both sites are limited in size, and unless used for stockpiling will be permanently filled during the first or second dredge project. Site 19 is a previous disposal site, filled with sands and small gravels from the river channel. The Port of Siuslaw has explored the possibility of excavating and selling these existing disposal materials to the local market. The Division of State Lands charges a royalty on the sale of such materials, as by law these river sediments are property of the State of Oregon. While there is an apparent market, the sale of these materials has not been pursued in the past because of uncompetitive royalty charges established by the Division of State Lands. Recent discussions between the Division and port officials indicate that the royalty charge can be lowered to match current local rates (presently \$0.10/c.y.). It generally is believed that this will generate the necessary local market for these stockpiled disposal materials. The removal of materials from the center of Site 19 would create a sump into which future dredged materials could be placed. Vegetation could be established in the

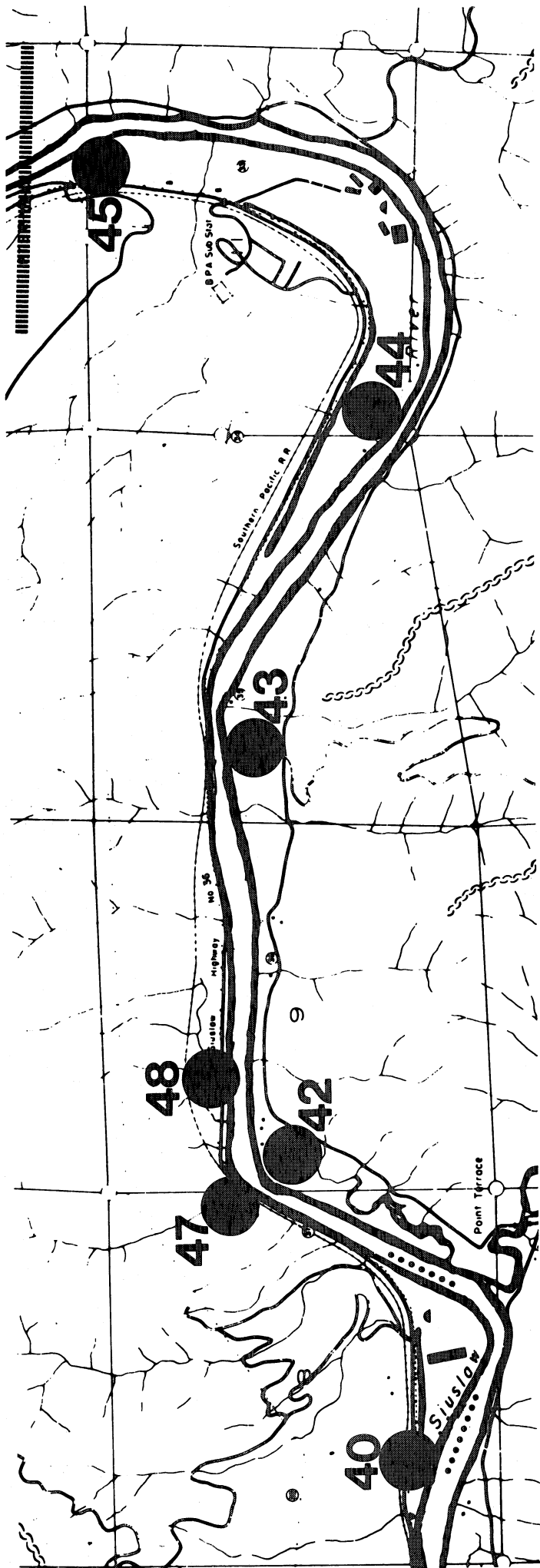
berms, thus greatly assisting in both site stability and in the overall appearance of the site. Given a continued market for dredged materials, the capacity of the site to accommodate small volume maintenance dredging could conceivably last for many years.

Site 22 is a very small site bordered by the river, Highway 126, two small marshes and the Johnson's Rock Products facilities. The site is very limited in its ability to accommodate dredged materials because of the diking required to prevent slumping into the river or the two small marshes. The site's location in this river segment is key in accommodating the small dredging maintenance program for the North Fork Shoal. As presently designed with the necessary dikes, the site has a capacity of approximately 10,000 C.Y. which is the equivalent of about one year's shoaling accumulation. Redesigned to include the entire area of the site up to the highway berm (thereby covering the two small marshes), an additional 40,000 C.Y. of capacity is obtained. This capacity would be sufficient to handle the expected sediment accumulation at the North Fork over a 3 - 4 year period.

Regulatory agencies involved in the development of the plan and in the analysis of this site expressed their disapproval of the filling in of these or any other wetland areas. It is felt that other alternatives must be fully explored before productive habitat can be considered for fill. Due to the small size (approximately 1 acre for the fresh water marsh, and 1/2 acre for the salt marsh), the high potential for fill encroachment from other sources, and the potential role of the larger site in the long-range disposal plans. This site should be left for future consideration.

If the full site is not available for disposal use, future dredging projects for the North Fork Shoal will have definite limitations placed upon them. Options include barging the materials to the ocean, in-water disposal and intertidal filling. The latter two options are subject to extensive state and federal analysis and would be difficult to undertake without site-specific proposals. Such projects would likely require mitigation as defined by State Planning Goal 16. Because of the present lack of mitigation criteria and procedures, identification of mitigation sites or other potential special projects sufficient to meet the needs of in-water or intertidal disposal is considered unrealistic without a specific project proposal and may be unattainable.

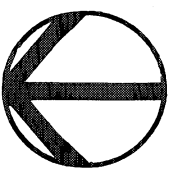
River Segment 4



Disposal Site	●
Shoaling Area

WILSEY & HAM

Scale 1" = 2000'



RIVER SEGMENT 4 (RIVER MILE 11.0 to RIVER MILE 19.5)

Dredging Needs

● Maintenance of Existing Projects

The federal channel maintenance project includes a 12' channel to R.M. 16.5, which includes a turning basin. The most recent hydrosurveys indicate that there are four dredge areas along this stretch of the river. Some shoaling has occurred around R.M. 11.5, the Thomas Shoal between R.M. 13.7 and 14.0, the C & D Shoal at R.M. 15.5, and the Turning Basin at R.M. 16.1. The C & D Shoal and the Thomas Shoal are most significant, as they appear to be accumulating about 14,800 C.Y. per year (combined). The federal project in total is generating approximately 18,000 C.Y. per year, amounting to 360,000 C.Y. for a 20 year period (at a 2' overdredge).

Private projects include the following dredging needs for the next 20 year period:

C & D Marina	4,000 C.Y.
Davidson's	60,000 C.Y.
Russell's Marina	500 C.Y.
U.S. Plywood	100,000 C.Y.
Kezar's Enterprises	<u>500 C.Y.</u>
TOTAL PRIVATE PROJECTS	165,000 C.Y.

● Construction of New Projects

No new projects are presently proposed in this river segment.

Table 13 summarizes the dredging needs which have been identified within River Segment 4.

TABLE 13
RIVER SEGMENT 4 - DREDGING NEEDS (20 YEAR)

<u>Project</u>	<u>Disposal Quantity</u>
1. River Channel Maintenance	360,000 C.Y.
2. C & D Marina	4,000 C.Y.
3. Davidson's Mill	60,000 C.Y.
4. Russell's Marina	500 C.Y.
5. U.S. Plywood	100,000 C.Y.
6. Kezar's Enterprises	<u>500 C.Y.</u>
TOTAL DREDGING NEEDS	525,000 C.Y.

Disposal Options

Fourteen disposal sites have been identified in River Segment 4. Table 14 lists the sites and their estimated capacities.

TABLE 14
RIVER SEGMENT 4 - DISPOSAL OPTIONS

<u>Site No.</u>	<u>Approximate Capacity</u>
30	375,000 C.Y.
31	16,370 C.Y.
32	9,300 C.Y.
34	43,500 C.Y.
35	26,700 C.Y.
36	36,300 C.Y.
37	187,500 C.Y.
38	20,000 C.Y.
39*	375,000 C.Y.
40	23,500 C.Y.
42*	275,000 C.Y.
43	420,000 C.Y.
44	180,000 C.Y.
45	38,900 C.Y.
47	13,600 C.Y.
48	<u>275,000 C.Y.</u>
TOTAL CAPACITY	2,315,670 C.Y.

The physical characteristics and parameters for use of each of the above sites is contained in the site discussions on the following pages.

* Key site for future dredging needs.

SITE 30

Site Description

Location: Across river from Midway Docks (R.M. 11.0)

Size: 23.9 acres

Capacity: 375,000 C.Y. net, at 10' depth

Physical Characteristics: Large pastureland, once part of the river floodplain. Diked on all sides, the parcel is flat and seasonally inundated.

Biological Characteristics: As pastureland, the biological character of the land is limited. Small birds and mammals use the area for nesting, feeding and access. Waterfowl use some areas during the high water season.

Comprehensive Plan: Conservation/Recreation/Open Space

Ownership: Sec. 15, Lot 1000 (T18S, R11W)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 27 inch

Design Criteria: Construct permanent dikes using on-site materials. Construct parallel compartments with more than one sluice location. Provide cross dikes using dredged materials. Use drop-type outlets with stop-log weirs. Dikes must prohibit slumping into river or slough. Outfall to main channel.

Site Preparation: Very little, other than the construction of appropriate diking to handle the load.

Site Unit Development Cost: \$0.22/C.Y.

Future Use Constraints: None. Soils can be rehabilitated.

Environmental Considerations










Effects of Disposal: No significant impacts are anticipated if Duncan Slough and the river are protected from slumping.

Other Considerations

This is another very large parcel of land, currently used for pasture. The disposal of dredged materials could, if properly rehabilitated, enhance the productive value of the land. A large project would warrant assistance from the Corps of Engineers.

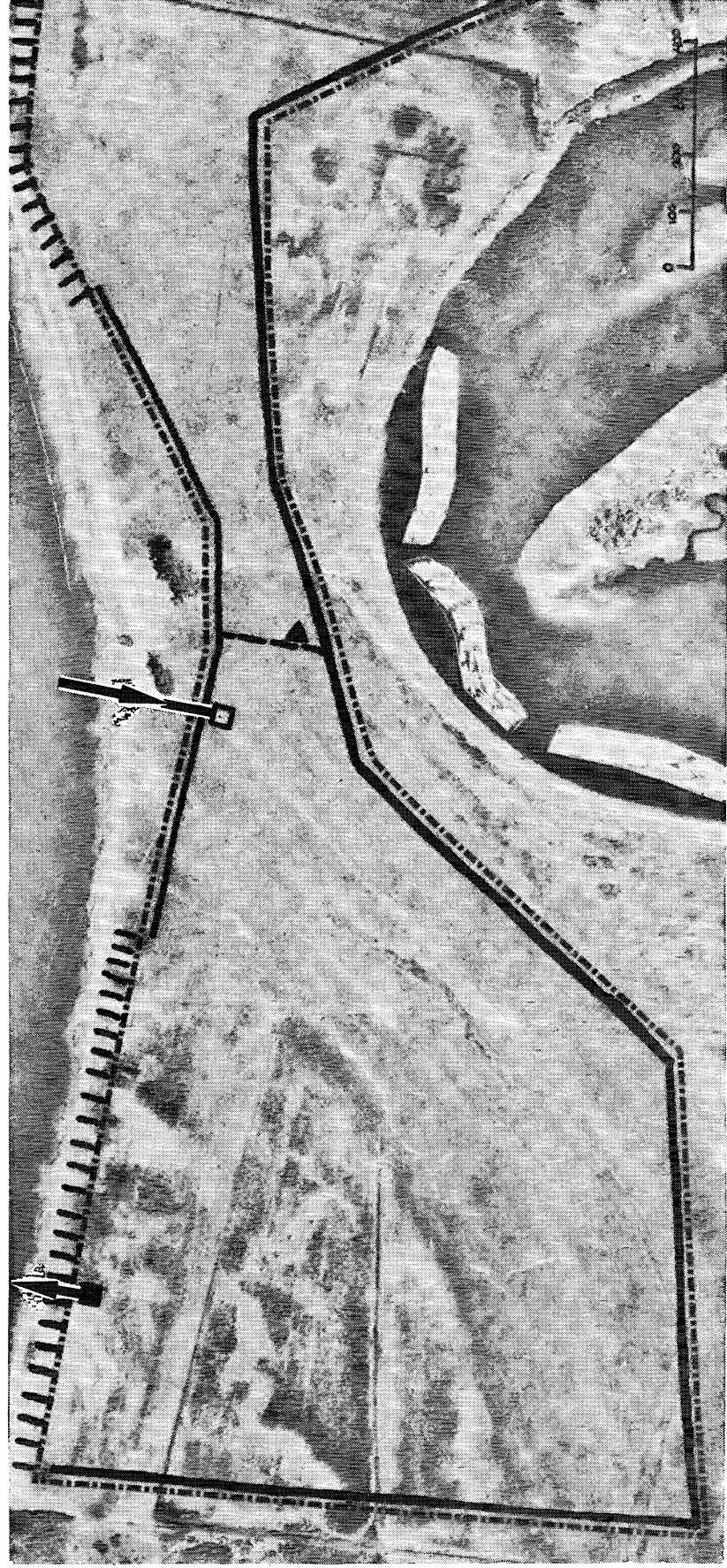
Because this site is located at R.M. 11.0, it is accessible to dredging sites in River Segment 3 as well as Segment 4. However, needs in the upper regions of Segment 3 are minimal at this time.

Legend

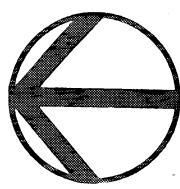
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN




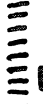





Site 30



site 30 continued on following page

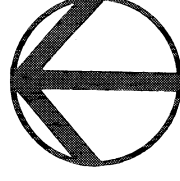
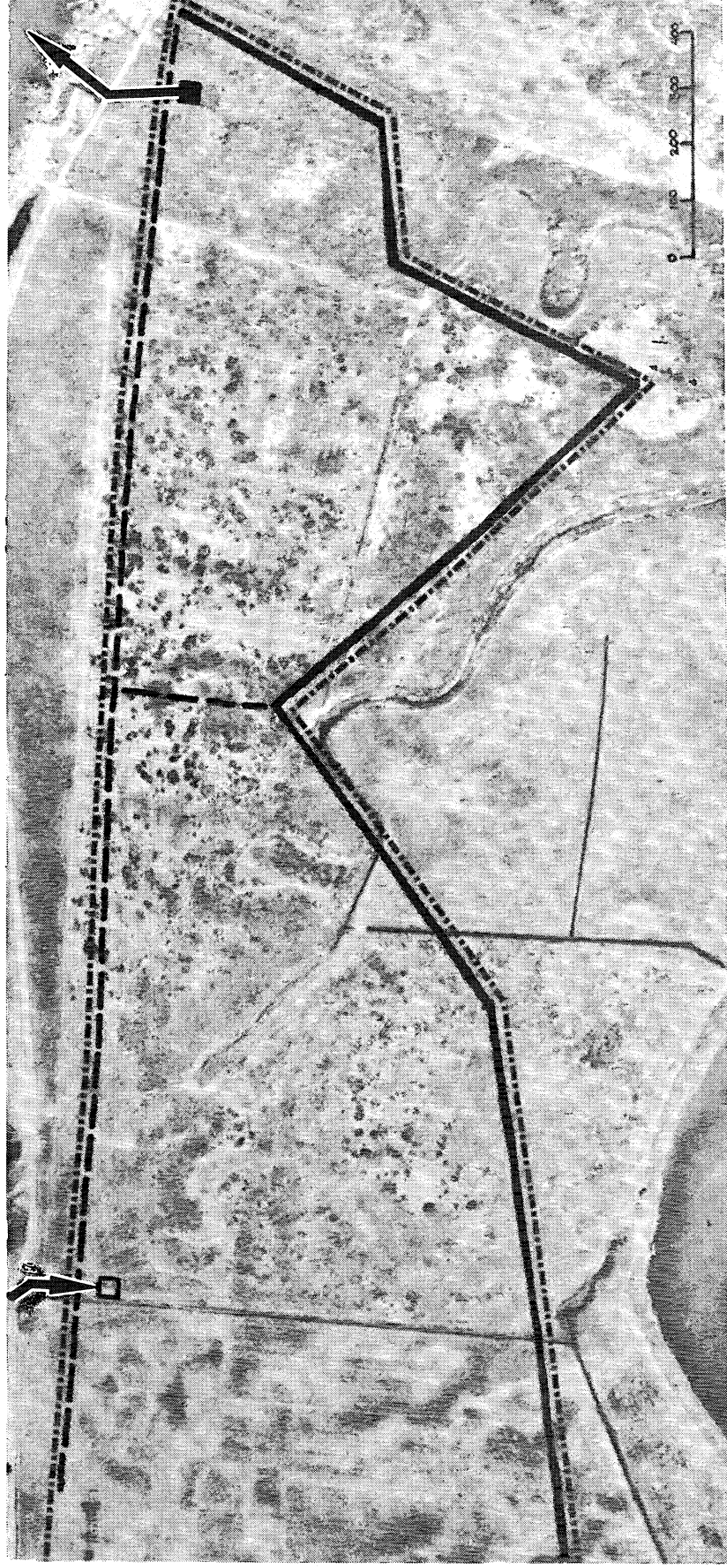


Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 30



SITE 31

Site Description

Location: Midway Dock area (R.M. 10.6)

Size: 2.5 acres

Capacity: 16,370 C.Y. at 4' depth

Physical Characteristics: A fairly narrow, flat and gravelly area immediately adjacent to the river. Scattered shrubs and no use of site presently taking place.

Biological Characteristics: Scattered shrubs and young alders, and perimeters lined with alders and blackberry brambles.

Comprehensive Plan: Tourist Commercial

Ownership: Sec. 16 Lots 1100, 1201, 1300, 1500, 1600, 1700 (T18, R11)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Temporary dikes should be constructed of local material and rock riprap should be employed along riverfront. Provide drop-type outlet with stop-log weir. Slope control for dikes recommended to avoid any slumping or erosion near the river. Outfall to main channel.

Site Preparation: Land would be cleared of vegetation, and dikes constructed.

Site Unit Development Cost: \$0.87/C.Y.

Future Use Constraints: If site is developed for commercial or industrial uses, engineering should be done to allow for proper compaction, underlying compressibility, and weight-load limits. Residential development (single family housing) would have no problems.

Environmental Considerations

Effects of Disposal: No significant effects would occur from disposal activity on this site, as wildlife use is light.

Other Considerations

The Oregon Department of Fish and Wildlife may have an easement for a boat ramp on this site. If so, the easement must be either honored or compensated for. Exact location of the easement is not known.

SITE 32

Site Description

Location: Approximately 1.6 road miles east of Midway Docks

Size: 140' x 360'

Capacity: 9,300 C.Y. at 5' depth

Physical Characteristics: Vacant parcel of land, graded during past uses.

Biological Characteristics: Very little vegetation and wildlife on site, as land has been disturbed by grading and filling activity.

Comprehensive Plan: Natural Resource: Forest

Ownership: Sec. 10 Lot 400 (T18, R11)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary dikes using dredged materials. Provide drop-type outlet with stop-log weir. Dikes to slope away from water. Outfall must be guaranteed to the channel.

Site Preparation: Land to be cleared of shrubs and debris. Very little preparation overall.

Site Unit Development Cost: \$0.92/C.Y.

Future Use Constraints: As with Site 31, building development of a large scale would require engineering investigations to determine the carrying-load of the dredged materials and the underlying soils. However, single structures of moderate size should have no difficulties.










Environmental Considerations

Effects of Dredging: No effects are expected, if outfall goes to channel and slumping is avoided.

Other Considerations

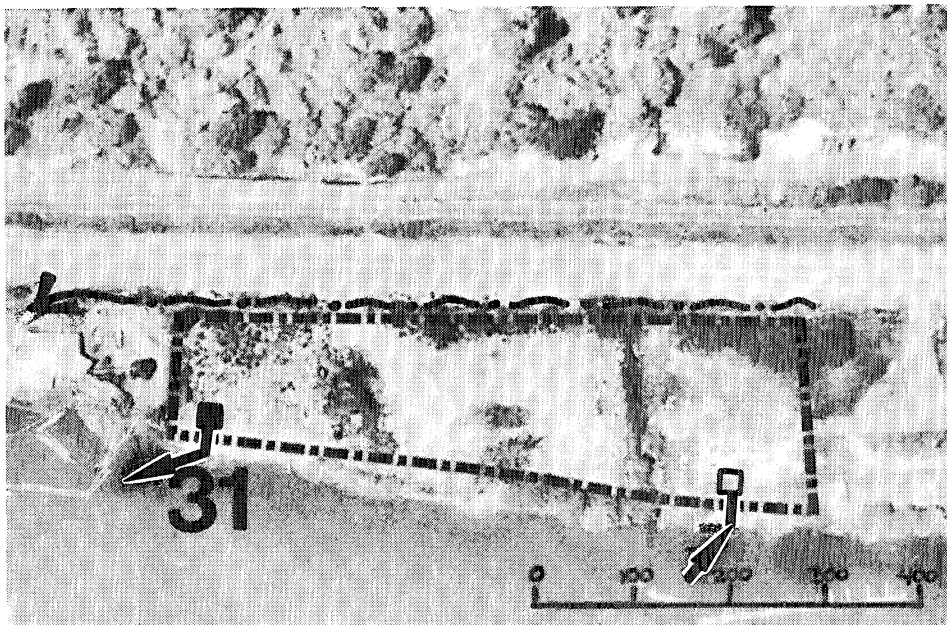
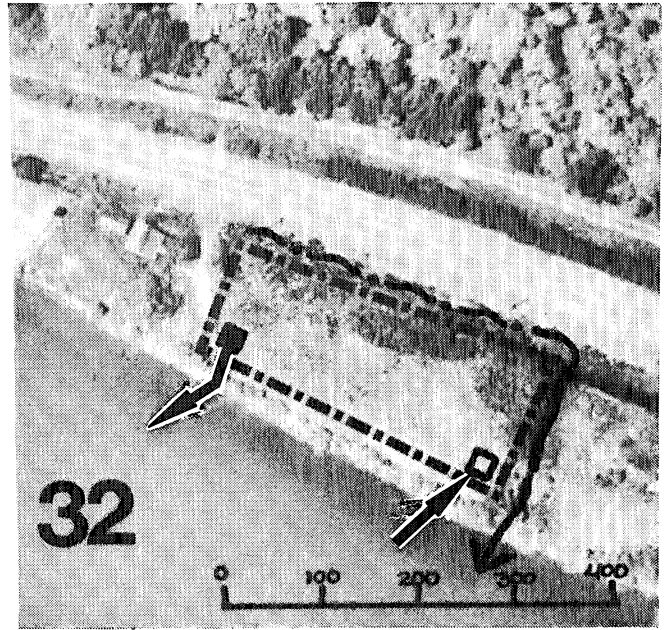
This site's greatest function would be as a stockpile site, or for local clamshell or bucket dredging.

Legend

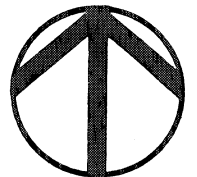
-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Sites 31,32



WILSEY & HAM



Scale 1" = 200'

SITE 34

Site Description

Location: 1,300' west of Duncan Slough Bridge

Size: 5.4 acres

Capacity: 43,500 C.Y. at 5' depth

Physical Conditions: Old alluvial plain formation at mouth of drainage. Flat and now bermed, site was part of Duncan Slough floodplain.

Biological Characteristics: Site is pastureland, thus offering limited value to wildlife. Area surrounded by brambles.

Comprehensive Plan: Natural Resource: Forest

Ownership: Sec. 14, Lot 300 (T18, R11)

Engineering Considerations

Method of Dredge and Fill: Pipeline, 8 to 16 inch

Design Criteria: Raise existing dikes and make cuts to backfill with porous material to ensure future dewatering. Provide drop-type outlet with stop-log weir. Control slurry to prevent flow into adjacent waterways.

Site Preparation: Minimal

Site Unit Development Cost: \$0.33/C.Y.

Future Use Constraints: None.

Environmental Considerations










Effects of Disposal: Habitat loss would be temporary and minimal. If engineering criteria are met, there will be no significant impacts.

Other Considerations

This site has been used for pastureland and will probably continue with such use. Dredged materials, once worked up with the soil, would probably enhance the agricultural value of the land.

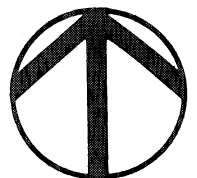
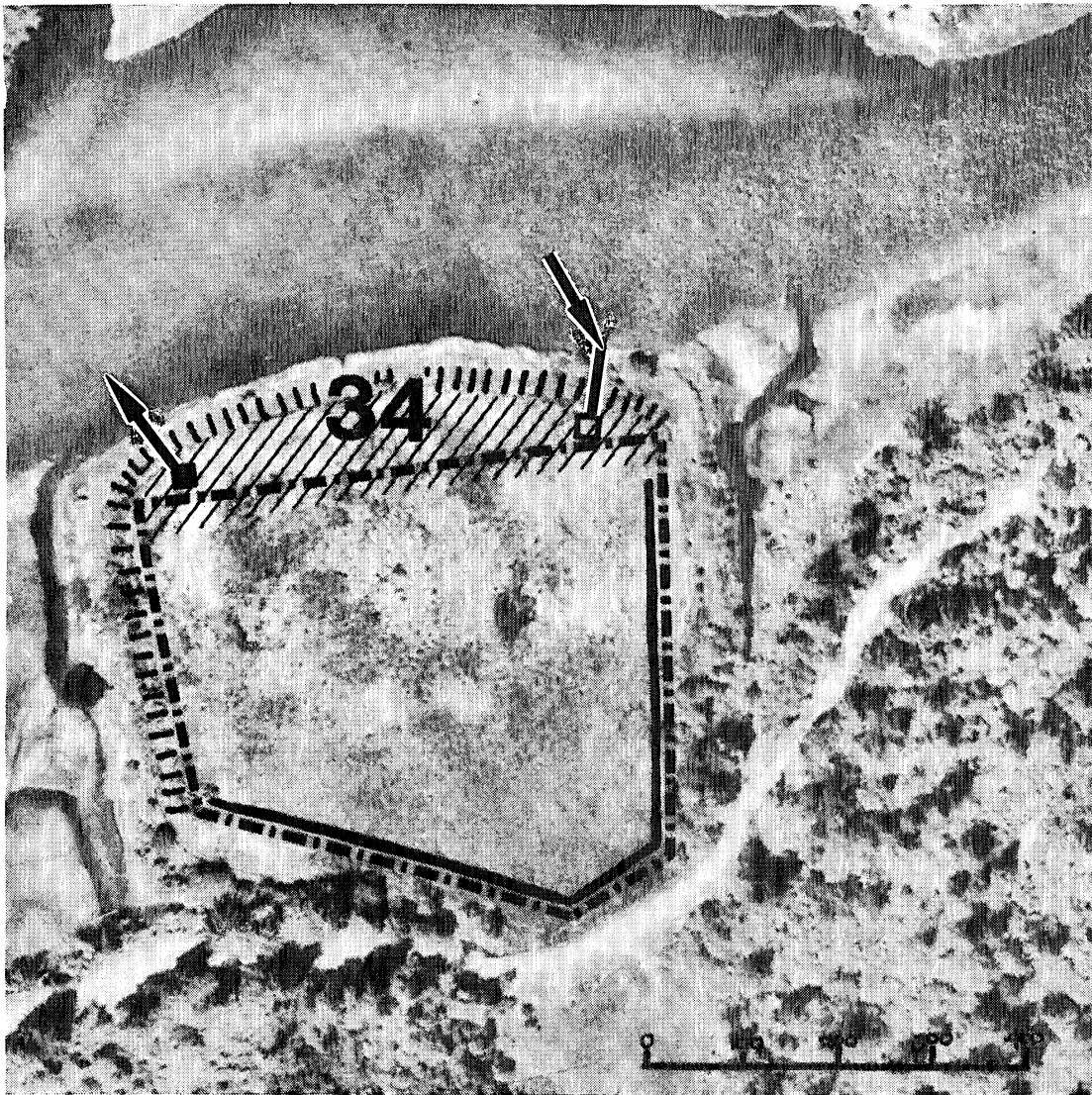
The site does pose potential problems with water quality if outfall were allowed to go to Duncan Slough. This, however, would probably be denied in the permit process. Thus, outfall lines extending the distance to the main channel could be very costly. The site would have low priority for channel maintenance dredging.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 34



WILSEY & HAM

Scale 1" = 200'

SITE 35

Site Description

Location: Duncan Island, 800' east of island bridge

Size: 1,200' x 200' \div 2 = 2.8 acres

Capacity: 26,700 C.Y. at 6' depth

Physical Conditions: This is a long, narrow, triangular parcel on the south bank of the river. Some rolls, but generally level. Good soils.

Biological Characteristics: Pastureland. To the north is the river, with riparian vegetation between site and water. To south are wetlands, also bordered by riparian.

Comprehensive Plan: Conservation/Recreation/Open Space

Ownership: Sec. 11, Lot 1400 (T18, R11)

Engineering Considerations

Methods of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary dikes using dredged materials, with slopes away from river and wetland areas to avoid slumping. Provide drop-type outlet with stop-log weir. Control slurry to prevent flow onto adjacent drainages or wetlands. Outfall to main channel.

Site Preparation: Proper diking. Avoid all riparian vegetation.

Site Unit Development Cost: \$0.15/C.Y.

Future Use Constraints: None.

Environmental Considerations

Effects of Disposal: No impacts if riparian vegetation is preserved.

Other Considerations










Filling could improve the land, restricting the seasonal high water influences. Use would have to remain passive to preserve the surrounding environment.

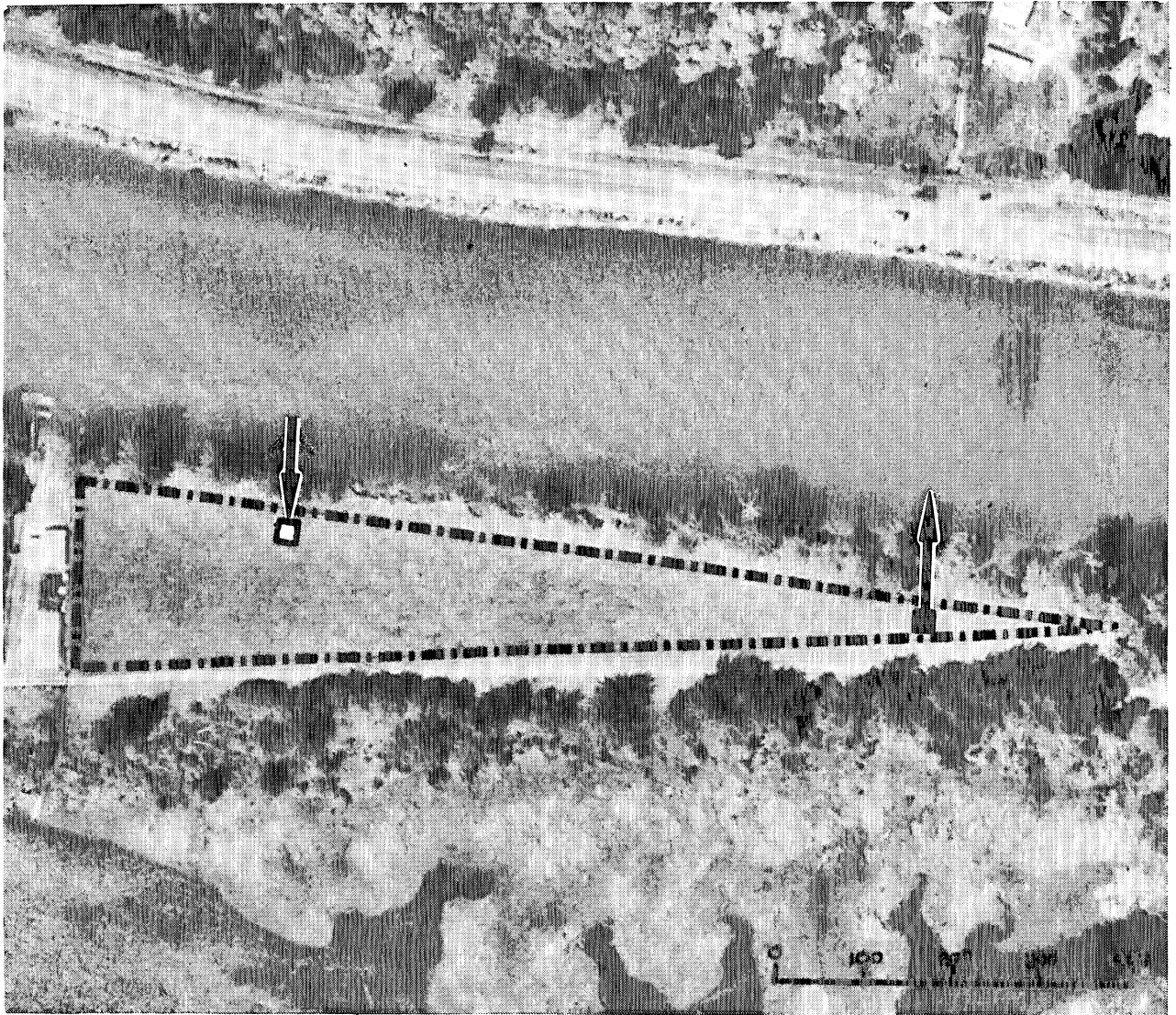
It is not anticipated that this site would receive much dredged materials due to the excellent flushing qualities of the channel in this section of river.

Legend

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 35

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Overflow
-  Surface drainage
-  Pipe



WILSEY & HAM

Scale 1" = 200'

SITE 36

Site Description

Location: North end of Duncan Island

Size: 1,750' x 280' ÷ 2 = 5.6 acres

Capacity: 36,300 C.Y. at 4' depth

Physical Characteristics: Narrow strip of land bordered by the river and wetlands. Similar in character to Site 35.

Biological Characteristics: Primarily pastureland, lined by thin bands of riparian vegetation. There are some clusters of trees in the west-central portion of the site.

Comprehensive Plan: Conservation/Recreation/Open Space

Ownership: Sec. 12 Lot 1400 (T18, R11)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch, or bucket

Design Criteria: Construct temporary dikes using local materials, with slopes away from river and wetlands to prevent slumping. Provide drop-type outlets with stop-log weirs.

Site Preparation: Minimal

Site Unit Development Cost: \$0.15/C.Y.

Future Use Constraints: None. Filling would level area, which may improve use potentials.

Environmental Considerations









Effects of Disposal: Some trees would be lost during disposal activities, but are not considered significant.

Other Considerations

The site would realize improvements through a leveling of the land. However, proper drainage would have to be attained. Future uses would have to remain agricultural or other passive uses to retain the integrity of the adjacent wetlands.

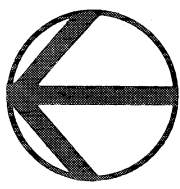
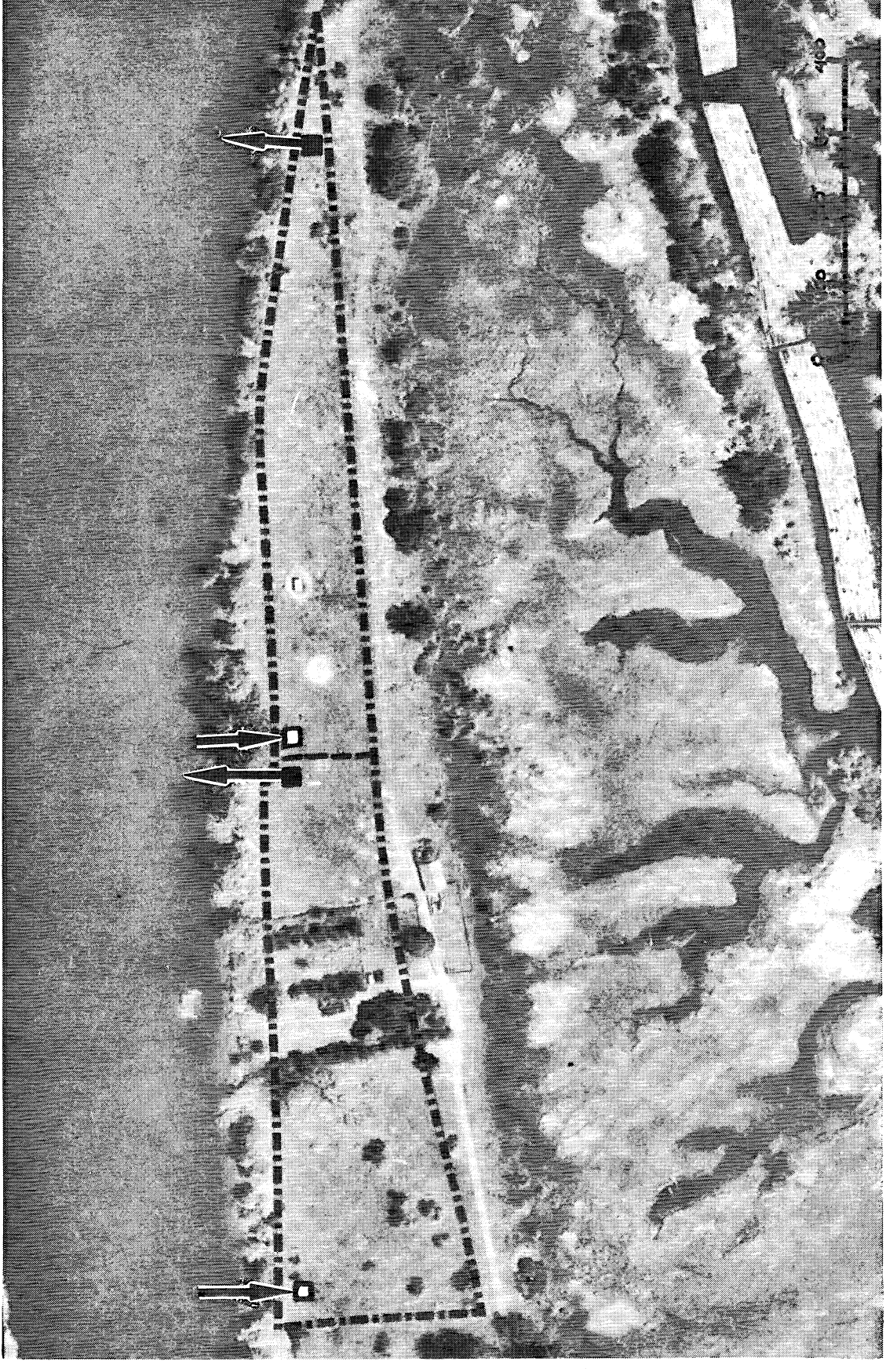
It is recommended that Site 37 receive any dredged materials that may come from the local shoals, as Site 37 is better suited for preparation and rehabilitation.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 36



WILSEY & HAM

Scale 1" = 200'

SITE 37

Site Description

Location: Approximately 1.1 miles west of Davidson Mill, south side of highway.

Size: 16.6 acres

Capacity: 187,500 C.Y. at 7' depth

Physical Characteristics: Large sloping parcel of land, bordered by a drainage canal on the north and Siuslaw River on the south. Area bermed.

Biological Characteristics: Pastureland. Channel to north used by various waterfowl, including wood ducks.

Comprehensive Plan: Rural/Woodland/Grazing

Ownership: Sec. 7, Lots 600, 700 (T18, R¹⁰/1)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary dikes using dredged materials, sloping away from canal and river. Construct parallel compartments with more than one sluice location, and provide cross dikes using dredged materials. Use drop-type outlets with stop-log weirs. Control slurry to prevent flow into drainage canal or river. Outfall to main channel, not canal.

Site Preparation: Construct diking with proper slopes away from waterways.

Site Unit Development Cost: \$0.04/C.Y.

Future Use Constraints: No future constraints are anticipated.

Environmental Considerations




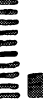





Effects of Disposal: If canal to north is protected from slumping and outfall, impacts would be minimal.

Other Considerations

The area slightly slopes to the north, creating a seasonal "bottom land" at the lower end and a well drained area at the upper end. Fill would level the site, making it more consistent and improving the drainage.

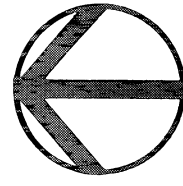
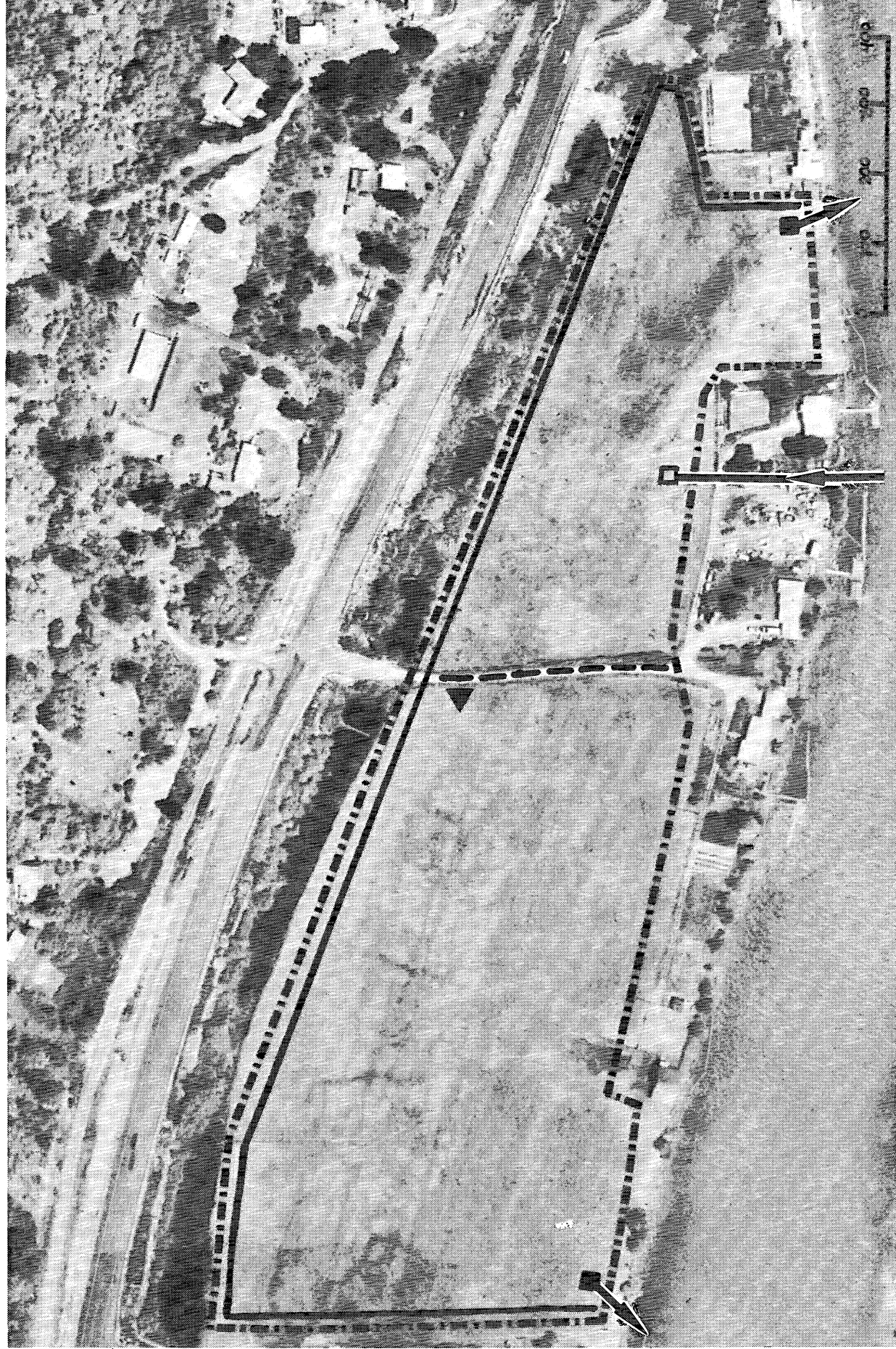
This site is well suited to handle local channel shoals, as preparation and soil handling would be fairly easy.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 37



Scale 1" = 200'

WILSEY & HAM

SITE 38

Site Description

Location: East of Perrin's Landing; north side of Highway 126.

Size: 300' x 300' \div 2 = 1 acre

Capacity: 20,000 C.Y. at 12' depth

Physical Characteristics: A small, triangular shaped piece of land, this parcel is bordered on two sides by high slopes. The shape is taken from a hill slope to the west, railroad berm to the south and a small creek to the north.

Biological Characteristics: The site is presently used for pasture. Borders include Divide Creek with a chum hatchery, and brushy slopes (blackberries, etc.).

Comprehensive Plan: Rural/Woodland/Grazing

Ownership: Sec. 7, Lot 1100 (T18, R¹⁰11)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct permanent dikes using on-site materials, with slopes away from creek and hatchery. Provide drop-type outlet with stop-log weir. Outfall to main channel.

Site Preparation: No clearing, but considerable diking with existing materials before dredged materials could be pumped in.

Site Unit Development Cost: \$4.80/C.Y.

Future Use Constraints: Fill would change the character of the site in that it would bring the west side of Divide Creek well above the rest of the creek area. This would limit the use of both sides of the creek if the 10' - 12' high contrast was maintained. As two separate parcels (west side of creek vs. east side) the parts would be small and more limited for use. A transition could be developed into the fill design so that if pasture was maintained, the parcels could function together.

Environmental Considerations

Effects of Disposal: Effects would be minimal if materials and slurry are kept from Divide Creek. Brush thickets may be lost during construction, but would not be significant.










Other Considerations

The chum hatchery must be preserved, so site design and utilization must take that into consideration. A full dike directly behind creek may cause erosion and stability problems. On the other hand, a raising of the land should make it more accessible and increase its potential uses.

However, due to dike construction and return-flow projections, this site would be expensive to develop.

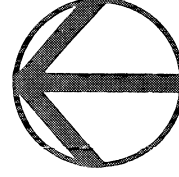
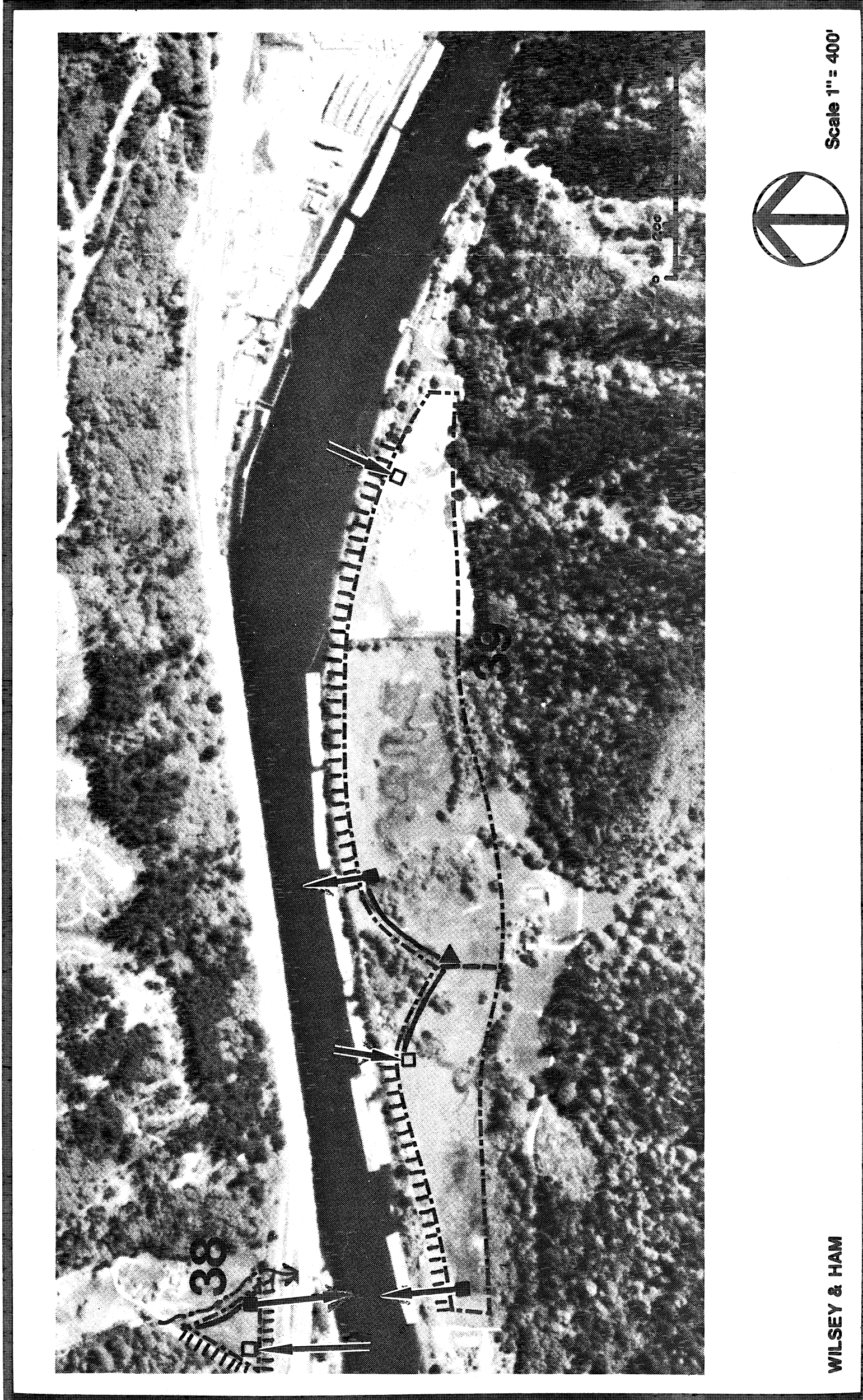
Site 39 (across river) is better suited for dredged materials due to its size and minimal site preparation.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Sites 38,39



SITE 39 (Shown with Site 38)

Site Description

Location: South side of river, between Perrin's Landing and Davidson Mill.

Size: 1,300' x 250' + 2,100' x 450' = 29.2 acres

Capacity: 375,000 C.Y. at 8' depth

Physical Characteristics: This is a long stretch of river front, at one time part of the river flood plain. Berms line the river to the north, and tall slopes occur on the south. The east end of the site was used for dredge disposal in 1975.

Biological Characteristics: The site is primarily used for pastureland, thus the vegetation is very limited. The east end is an unimproved disposal site that has not re-established in vegetation. Some trees exist in the north-central part of the site around some structures, which act as riparian vegetation for river access. The rest of the water front has spotty, thin bands of vegetation.

Comprehensive Plan: Agriculture

Ownership: Sec. 7, Lots 100, 200, 1100, and 1301 (T18, R¹⁸11)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary diking using local materials, and use parallel compartments with more than one sluice location. Provide cross dikes using dredged materials, and use drop-type outlets with stop-log weirs.

Site Preparation: Minor clearing of logs, brush, and a few trees. Access roads to structures may need relocation or protection from disposal materials.

Site Unit Development Cost: \$0.05/C.Y.

Future Use Constraints: None.

Environmental Considerations

Effects of Disposal: Some brush areas will be lost which would force the relocation of a few birds and mammals. But impacts are considered minimal because tree stands and riparian belts will be avoided.

Other Considerations

Owners have expressed interest in receiving disposal material, to raise the level of land above seasonal inundation. The east end has been filled, but the site was not rehabilitated. Consequently revegetation has been slow and spotty. The materials should be worked in with the soils to expedite a return to past uses.

The site is well suited for dredged materials coming from this segment of the river, and is considered key to the long range disposal plan.

SITE 40

Site Description

Location: West end of Davidson Mill site

Size: 2.9 acres

Capacity: 23,500 C.Y. at 5' depth

Physical Characteristics: This is an old fill site, having been graded and used for some open storage and equipment moving. Surface well compacted, but no berms facing river.

Biological Characteristics: None.

Comprehensive Plan: Industrial

Ownership: Sec. 8, Lots 202 and 800 (T18, R¹⁰N)

Engineering Considerations

Method of Dredging and Disposal: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary dikes using local materials, with slopes away from river. Use drop-type outlet with stop-log weir. Outfall to channel.

Site Preparation: Dredged materials could be stockpiled and hauled away. Use as stockpile site versus permanent fill would require less preparation (though preparation is minimal either way, except for diking).

Site Unit Development Cost: \$0.17/C.Y.

Future Use Constraints: None, unless used for stockpile, which would limit the placement of permanent structures.

Environmental Considerations

Effects of Disposal: No effects are expected, if slumping into river is prevented.










Other Considerations

Locals could make use of dredged materials, as site is easily accessible. Residents to west may be interested in raising the level of their yards, or for other purposes. Materials could be maneuvered around area with relative ease.

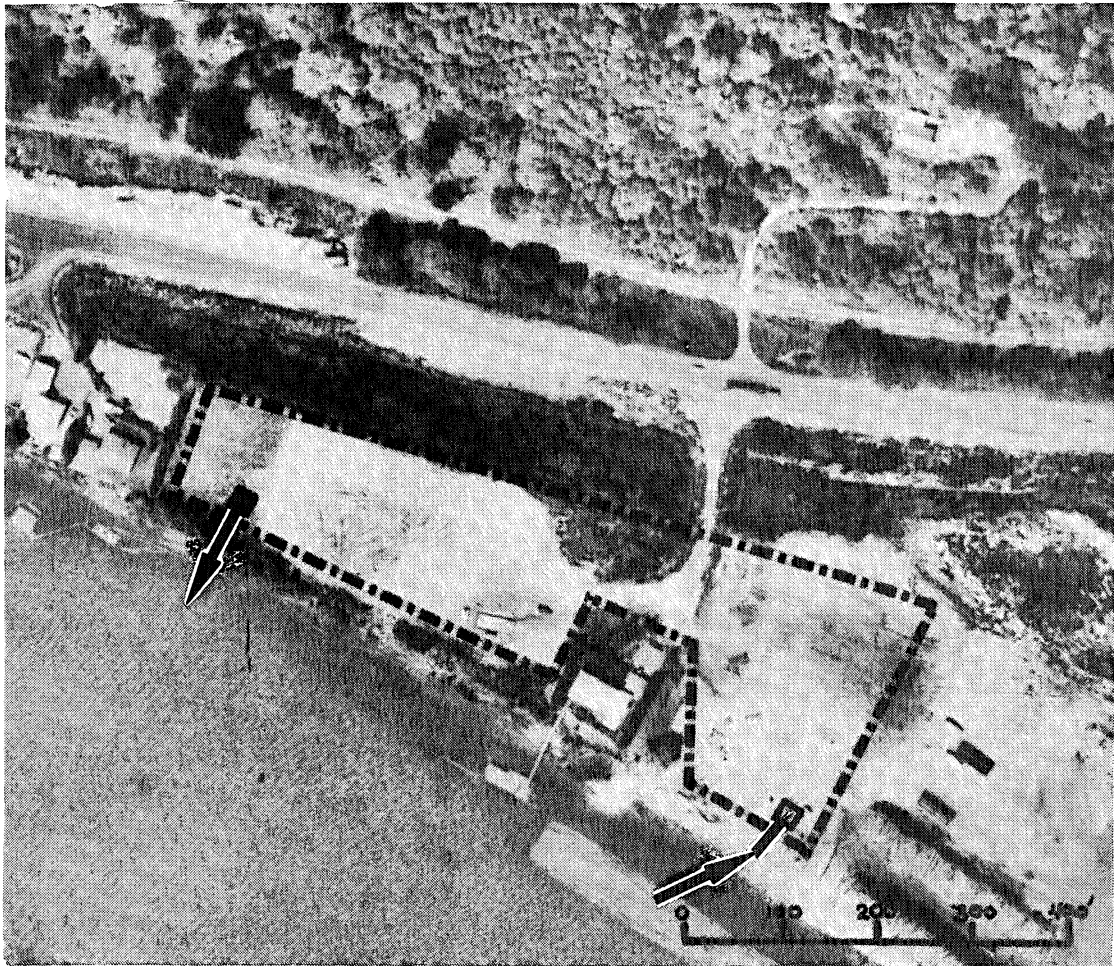
If property owners could not make immediate use of dredged materials, Site 39 would probably be more appropriate for disposal.

Legend

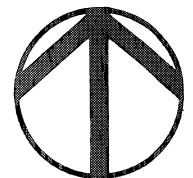
SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

Site 40



WILSEY & HAM



Scale 1" = 200'

SITE 42

Site Description

Location: Approximately 0.4 miles upstream of Davidson Mill, on south bank.

Size: 14 acres

Capacity: 225,000 C.Y. at 10' depth

Physical Characteristics: Large flat area, previously a part of the floodplain. Now bermed along river, but does not act as retention area during certain river stages.

Biological Characteristics: Pastureland, the vegetation is very limited. Riparian bands along riverfront will not be affected by fill.

Comprehensive Plan: Agriculture

Ownership: Sec. 8 and 9, Lots 700 and 701 (T18, R¹⁰1)

Engineering Considerations

Method of Dredging and Disposal: Pipeline, 8 to 16 inch

Design Criteria: Construct parallel compartments with more than one sluice location. Provide drop-type outlets with stop-log weirs. Cut existing dikes and backfill with porous materials to ensure proper dewatering. Riverfront slopes should be constructed to prevent slumping into river. Outfall to main channel.

Site Preparation: Dike construction; minimal.

Unit Site Development Cost: \$0.09/C.Y.

Future Use Constraints: Soils would need rehabilitation for future agricultural use.

Environmental Considerations

Effects of Disposal: Effects will be minimal if riparian vegetation and river are not subjected to fill or dewatering activity.

Other Considerations

Part of this site is presently being used for storage of logs before they are taken to the mill. The filling of the site would bring the area out of seasonal inundation, and thus may improve equipment maneuverability and local water runoff. This is considered a key disposal site.

SITE 47 (Shown with Site 42)

Site Description

Location: Approximately 0.4 miles upriver of Davidson's Mill, north side of river.

Size: 1,050' x 70' = 1.7 acres

Capacity: 13,600 C.Y. at 5' depth

Physical Characteristics: Graded area recently worked during reconstruction of Highway 126. Some drainage in area.

Biological Characteristics: All vegetation was just recently stripped from site during construction work on adjacent highway.

Comprehensive Plan: Natural Resource: Forest

Ownership: State Highway

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Provide drop-type outlet with stop-log weir. Initiate revegetation program after final use.

Site Preparation: Undercrossing casing for inlet line from dredge to be installed. Control slurry to prevent flow onto adjacent land and drainages. May require upland drainage diversion.

Site Unit Development Cost: \$1.34/C.Y.

Future Use Constraints: None.



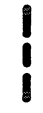






Environmental Considerations

Effects of Disposal: None.

Other Considerations

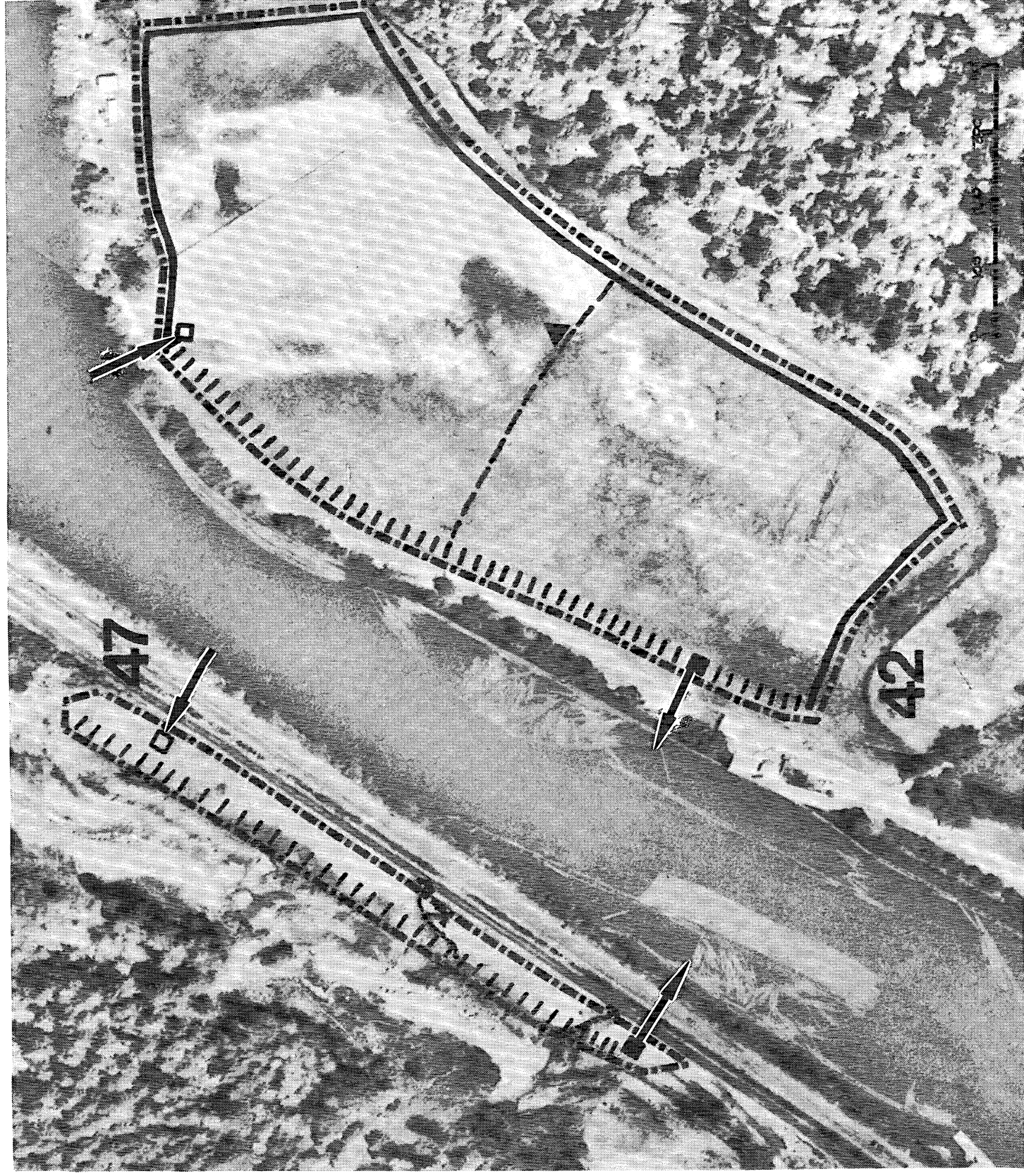
The site was recently graded and improved by the state highway department. Future uses of the site as planned by the highway department may conflict with the disposal of dredged materials. However, the use of dredged materials may be received favorably.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Overflow
-  Pipe
-  Surface drainage

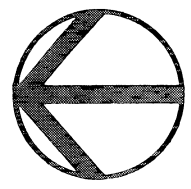
SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Sites 42,47



WILSEY & HAM

Scale 1" = 200'



Other Considerations

The site would function well as a disposal site for stockpiling, due to its proximity to both the river and Highway 126. Sand sources become more scarce this far inland. Present uses appear to be somewhat random, and site has been used for a stockpile for various fill materials. Use as disposal site may conflict with owner's plans, however. This site could only function well for very local dredging projects, which may never occur.

SITE 43

Site Description

Location: Immediately east of Russell's Marina

Size: 3,800' x 500'

Capacity: 420,000 C.Y. at 6' depth

Physical Characteristics: Large flat area, previously a part of the seasonal floodway, now bermed along the riverfront. Seasonally wet.

Biological Characteristics: Pastureland. Site does not include any riparian or tree stands.

Comprehensive Plan: Natural Resource: Forest

Ownership: Sec. 10, Lot 1012 (T18, R¹⁰X)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct parallel compartments with more than one sluice location. Provide drop-type outlets with stop-log weirs. Cut existing dikes and backfill with porous material to ensure future dewatering. Slopes must prevent slumping into river; control slurry to prevent flow into adjacent land and drainages.

Site Preparation: Very little, except proper diking and controls.

Site Unit Development Cost: \$0.06/C.Y.

Future Use Constraints: If use is to continue to be agricultural, soils would have to be rehabilitated to initiate revegetation.







Environmental Considerations

Effects of Disposal: No effects are anticipated.

Other Considerations

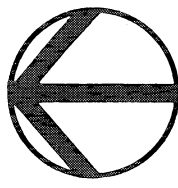
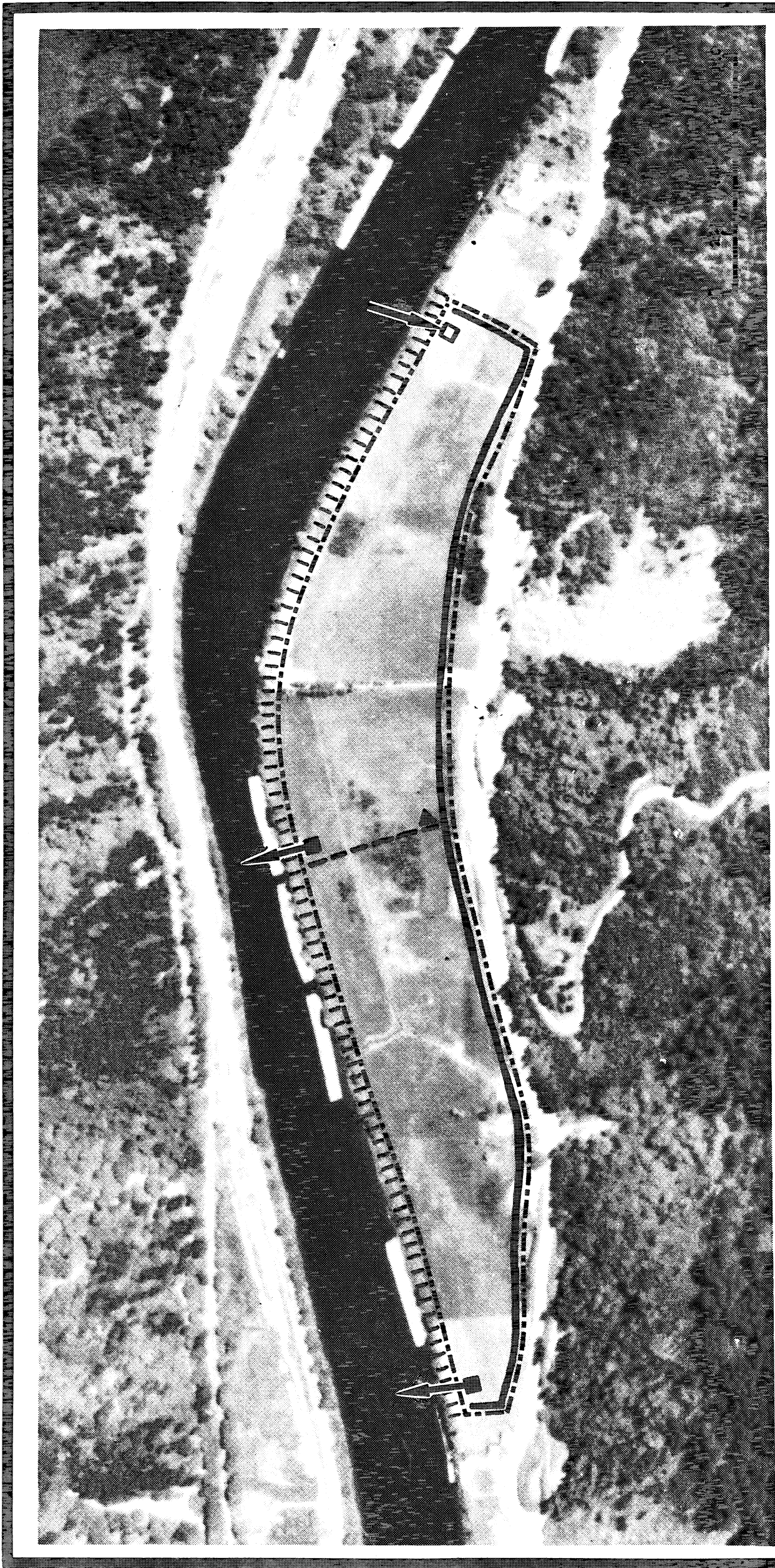
No federal project needs would apply to this site, as it lies too far upstream of the end of channel maintenance. However, maintenance needs of the U.S. Plywood facilities may reach this site, depending on equipment used. The entire site would probably not be needed. Working the dredged materials into the soil would be easy, as the material could be spread out to a thin layer.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

**SIUSLAW RIVER
DREDGED MATERIAL
DISPOSAL PLAN**

Site 43



Scale 1" = 400'

WILSEY & HAM

SITE 44

Site Description

Location: Just west of U.S. Plywood Plant

Size: 500' x 2,000' = 23 acres

Capacity: 180,000 C.Y. net, at 5' depth

Physical Characteristics: Large parcel of riverfront land, sloping from the river towards a drainage canal to the north. Part of old floodplain, with lower levels becoming seasonally wet.

Biological Characteristics: Pastureland. Bordered on north by drainage canal with riparian vegetation. River shore to south has spotty vegetation.

Comprehensive Plan: Agriculture

Ownership: Sec. ~~9~~¹⁰ Lot 100 (T18, R¹⁰V¹¹)

Engineering considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary cross-dikes using on-site or dredged materials. Provide drop-type outlets with stop-log weirs. Diking should slope away from drainage canal and river bank, and should protect adjacent drainages. Outlet pipe to deep water channel, not canal.

Site Preparation: Very little, other than appropriate diking. Control slurry to prevent flow into drainages.

Site Unit Development Cost: \$0.22/C.Y.

Future Use Constraints: None.



Environmental Considerations

Effects of Dredging: Effects of dredging would be minimal, as the pastureland character carries basic limitations biologically. Effects would be short-term and minor if drainages and river are protected.

Other Considerations

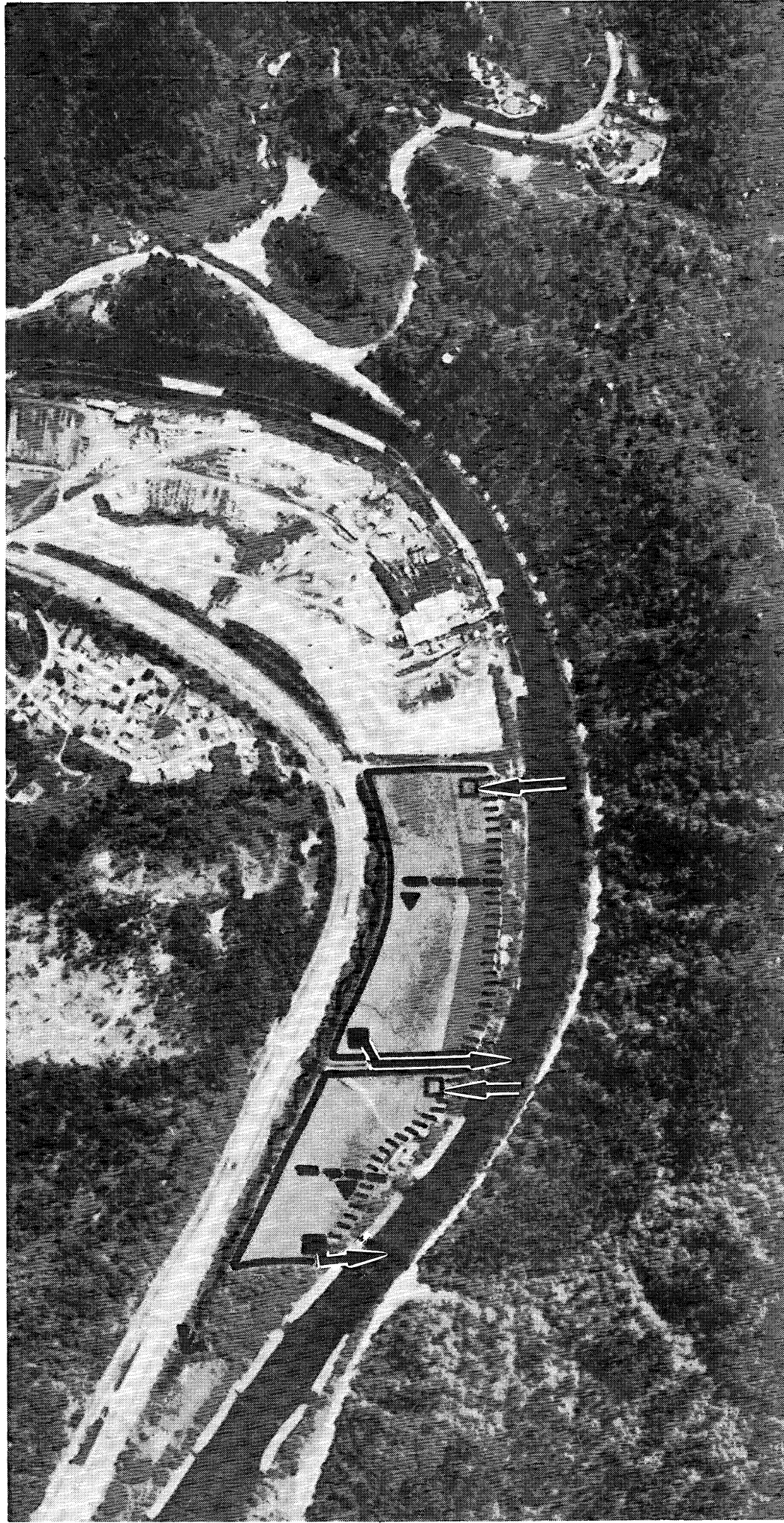
This site could realize use enhancement if the lower levels of the property were raised with fill materials. Drainage would improve, thus limiting the seasonally high water table. Materials could be worked into existing soils. Existing land use (agricultural) should be maintained.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

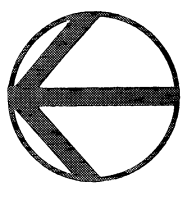
**SIUSLAW RIVER
DREDGED MATERIAL
DISPOSAL PLAN**

Site 44



WILSEY & HAM

Scale 1" = 660'



SITE 45

Site Description

Location: 1,200' south of Mapleton Bridge, east of Highway 126

Size: 300' x 500'

Capacity: 38,900 C.Y. at 7' depth

Physical Conditions: Relatively flat parcel, with various fills scattered about site. Bordered by river on south and east, and Highway 126 to north.

Biological Characteristics: Some shrubbery exists in areas not recently disturbed. Perching birds and small mammals use the site for its floral composition and for access to the river.

Comprehensive Plan: Industrial

Ownership: Sec. 2, Lots 1200, 1400, 1500, 1600 (T18, R¹⁰1)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch, or bucket.

Design Criteria: With pipeline dredge, provide drop-type outlet with stop-log weir. Dikes must slope away from river.

Site Preparation: Leveling will be required, as well as clearing of logs, brush and other obstructions. Upland drainage would need diversion.










Site Unit Development Cost: \$0.13/C.Y.

Future Use Constraints: If used for a stockpile the site would limit development to temporary, movable structures. Also may limit its use in open storage, but could be minimized by proper site management.

Environmental Considerations

Effects of Disposal: Shrub thickets would be lost during diking, eliminating habitat for birds and small mammals. Though there will be a loss, most species are expected to relocate without difficulty. By the nature of its location, and past uses, the site cannot be considered a significant wildlife area.

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 45



WILSEY & HAM

Scale 1" = 400'

SITE 48

Site Description

Location: Approximately 0.6 miles east of Davidson's Mill, north of Highway 126.

Size: 3,200' x 300' (Average) = 22 acres

Capacity: 275,000 C.Y. net at 8' depth

Physical Characteristics: Low-lying sump existing between forested slopes to the north and a highway berm to the south. Area inundated seasonally, with drainage passing through portions of it.

Biological Characteristics: Currently used for pastureland, the site does have seasonally high runoff. Perimeters covered in thick brush and trees on north side, south side is cleared from highway work.

Comprehensive Plan: Rural residential

Ownership: Sec. 9, Lots 200,201,202,203,204,400 (T18, R1¹⁰)

Engineering Considerations

Method of Dredging and Filling: Pipeline, 8 to 16 inch

Design Criteria: Construct temporary cross-dikes using either on-site materials or dredged materials. Provide outlets with stop-log weirs. Protect adjacent drainage channels with proper diking. Outfall to main channel.

Site Preparation: Very little, other than proper diking and road crossing casing for dredge pipeline.

Site Unit Development Cost: \$0.23/C.Y.

Future Use Constraints: None.

Environmental Considerations

Effects of Dredging: Minimal effects, as pastureland would return to existing conditions within short time period. Drainages and riparian vegetation will be preserved where possible.










Other Considerations

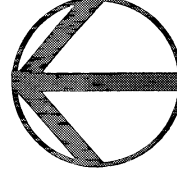
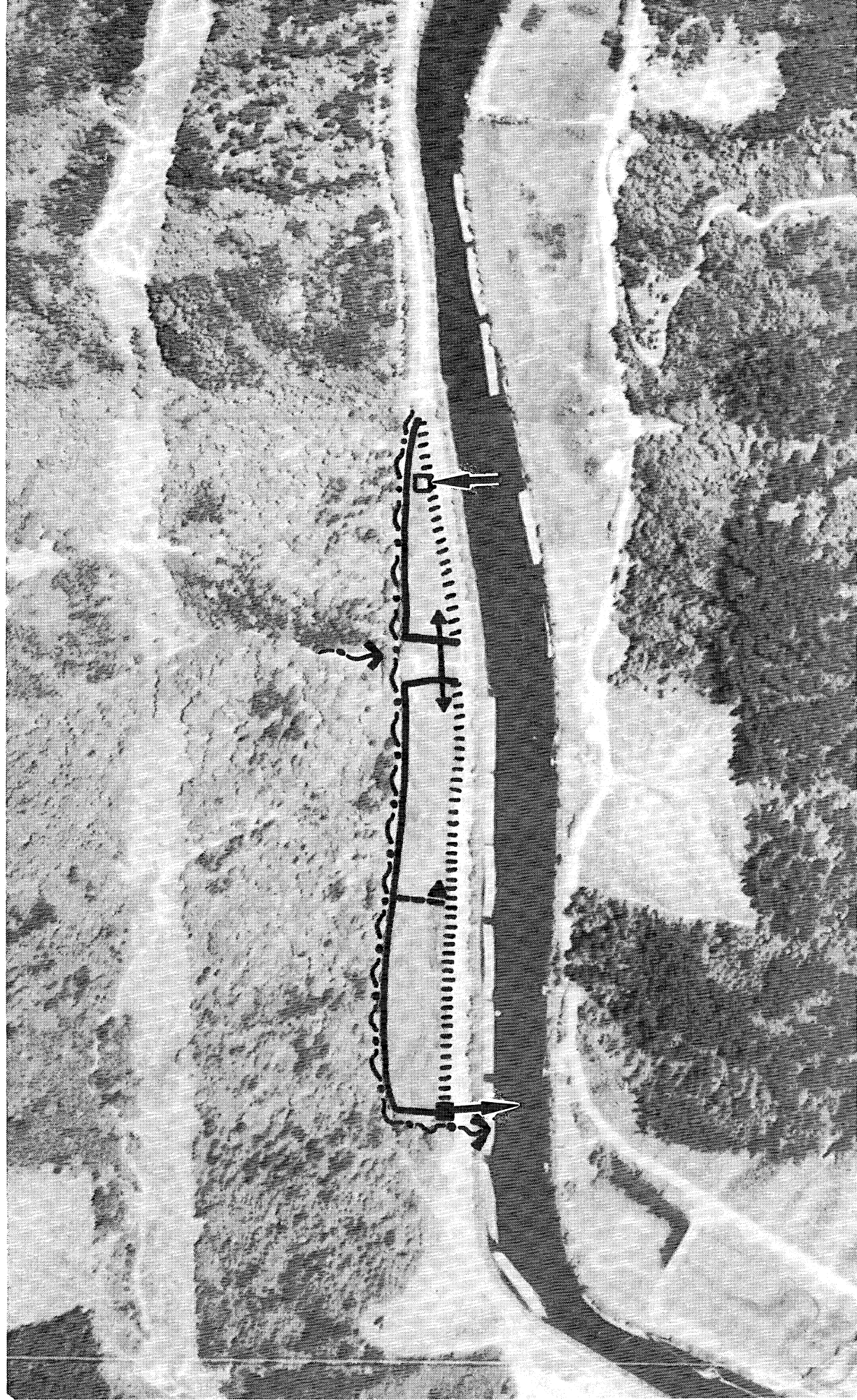
Owner is interested in receiving fill materials to bring the land up to highway level if possible.

SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN

Site 48

Legend

-  Altered disposal site
-  Peripheral diking
-  Interior diking
-  Natural barrier
-  Outfall
-  Discharge
-  Pipe
-  Overflow
-  Surface drainage



SUMMARY AND CONCLUSIONS

River Segment 4 includes the upper end of the federal project plus an additional four miles of river where dredging could occur for private enterprises. The shoaling in this segment occurs in a few isolated areas, rather than throughout the length of the segment. Natural scouring by the river maintains considerable depths (20' plus) for much of the river segment.

There are sixteen identified disposal sites in this segment, more than enough to take care of all the identified future dredging needs. Disposal sites lie within close range of the expected dredging areas, thus allowing for flexibility in dredging methods. Many of the sites identified have seasonally high water problems, and would benefit from the addition of fill materials. Most land uses would be maintained given the proper post-disposal rehabilitation efforts. Local flood characteristics are not expected to be adversely impacted.

Section IV

Disposal Guidelines

SECTION IV DISPOSAL GUIDELINES

The individual disposal site discussions contained in the previous section presented the engineering considerations and use criteria for each proposed disposal site. These criteria vary for each site depending on both the characteristics of the site and of the dredged material to be placed on the site. Although different criteria were applied to specific sites, there are a number of disposal guidelines which should be applied to all disposal sites. The following general guidelines were developed through review of technical literature, interviews with dredging and disposal technicians, and discussions with federal and state agency personnel responsible for the review of disposal activities.

1. Drainage Diversion

Proper diversion of surface water runoff must be provided to maintain the integrity of the natural streams and drainageways. Leaching of disposal runoff into the waterway must be controlled and all disposal runoff water must enter the waterway through appropriate outfall. Underground springs must be identified and protected.

2. Sediment Quality & Turbidity

Dikes should be well constructed and large enough to encourage proper "ponding" and to prevent the return of suspended fines into the waterway or estuary. Ponds should be designed to maintain standing water whenever possible to further encourage proper setting. Weirs should have 2-3 inch crest heights for 8-12" pipelines.

Sediment analysis has been recently performed on materials from various sections of the Siuslaw River channel. Analysis of this data showed relatively clean sediments that should not present any problems with material reuse. Sediment analysis should also be performed for off-channel and near-shore areas that may contain finer silt or organic matter. This will ensure that proper disposal precautions can be planned for in the specific design of the disposal sites.

3. Timing

The timing of dredging has recently been addressed in a study undertaken by the Corps of Engineers. Results and conclusions from that study are not yet available, but should be used in the scheduling of future dredge projects

The timing of dredging and disposal activities should be coordinated with the Department of Environmental Quality and the Department of Fish and Wildlife to ensure adequate protection of biologically

productive elements such as fish runs, spawning activity, etc. In general, disposal should occur during periods of adequate river flow to aid flushing of suspended sediments.

4. Land Surface Use

Generally, disposal of dredged materials should occur on the smallest possible land area in order to minimize the quantity of land that is disturbed. Clearing of land should occur in stages on an as needed basis. Reuse of existing disposal sites is preferable to the creation of new sites in order to minimize the total land area covered by disposal material.

On the Siuslaw, however, dredged materials can assist in improving the existing conditions of certain lands through drainage improvements and other means. In such cases the dredged materials may be best utilized if they are spread out and worked into the existing soils, rather than "piling" from land parcel to land parcel.

5. Revegetation

Revegetation of disposal sites should occur as soon as is practicable in order to retard wind induced erosion and to restore wildlife habitat value to the site. Native species should be used and reference should be made to the Inter-Agency seeding manual prepared by the Soil Conservation Service. Efforts should be made to minimize the time necessary to achieve leaching of salts from the soils. Revegetation projects fall under the sponsorship of the Port of Siuslaw.

6. Toxic Materials

The Siuslaw sediments are relatively clean in chemicals and organics. Low organic content appears to show that there will not be a depletion of oxygen in the retention site or with mixing of the return flow. Maintenance of oxygen levels also aids in precipitating heavy metals. Metals found in Siuslaw sediments exceed the state DEQ standards in many instances but the levels are natural and do not, at this time, pose a threat to the biological systems. These levels are expected to remain within the river system at approximately the same levels. Suspended solids tend to settle quickly in these sediments, thus limiting the need for extensive settling ponds. Also sediments from the river channel are very uniform in physical and chemical characteristics throughout the project area.

7. Land Use

As discussed further in Section V, the effects of dredged material disposal on land use must be addressed in the County's Comprehensive Plan. It is the county's responsibility to adopt land use policies to prohibit filled land from creating pressure for more intensive uses than those outlined in the county's plan and policies. This issue will be further addressed in the implementation discussion in Section V.

8. Influent discharge points will be placed at a sufficient distance from outfall points to maximize settling.

9. Federal and state water quality standards will be considered during all phases of the disposal activity.

Section V

Implementation

SECTION V IMPLEMENTATION

The economy of the Siuslaw River region is dependent upon continuing navigational use of the waterway. In order for navigation to continue, dredging must occur to maintain the necessary channel depths. In turn, the ability to dredge is dependent upon the availability of adequate sites for the disposal of dredged materials. Along Siuslaw River, the supply of land disposal sites which meet the necessary environmental and engineering criteria is limited in the bay and lower river areas. Those sites that are acceptable must be considered as a scarce resource, worthy of careful allocation in order to maximize the public benefit. Due to the scarce nature of these sites, a program must be evolved to ensure that the sites are reserved for disposal use and are available for disposal when needed. Preparation of a workable implementation program requires answering two major questions:

1. Planning Options: How should the proposed sites be designated in the comprehensive plan and zoning ordinance?
2. Site Use Options: What kind of arrangements for site use should be made between the applicable public agencies and the private property owner?

A variety of answers to these questions are discussed below.

Planning Options

Placing dredged materials on a land site must be viewed as a short-term use of that land resource. Once the disposal action has been completed and the necessary settling, compaction and stabilization has occurred, the land becomes available for a variety of land uses depending on the specific site characteristics and location. Therefore, although a specific site may be utilized for the disposal of dredged materials throughout a 20 year period, the disposal use is only temporary and the land may be converted to a more permanent use after the disposal has been completed.

Along Siuslaw River, there are several areas with limited disposal options. This is particularly true in River Segment 3 where the Florence and North Fork Shoals occur. Within the segment, sites are few and extremely limited in capacity. Site 19, in the vicinity of the Port of Siuslaw and Site 22 at the Johnson Rock Products both have limited long term capacity except as they can be used for stockpiling. Such use of both sites will be essential for small annual maintenance dredging and will therefore require adequate planning protection to ensure their availability. Major dredging within this segment, occurring only once every ten or twelve years, will require extended length pumping to Site 8 downriver or Sites 25 or 26 up-river. These sites will also be essential for maintaining long term disposal options within this segment and will therefore require planning protection to ensure their availability. If these sites are not maintained, other more expensive disposal options must be explored.

The loss of these sites to other permanent uses prior to the placement of dredged materials would result in increased public costs and could potentially inhibit not only the maintenance of the existing navigation routes, but the development of new economic enterprises as well.

It is the recommendation of the study team that the dredged material disposal sites determined to be necessary for future use should be reserved in a special overlay zone in the comprehensive plan. Since disposal use is a short term use of the land, it is recommended that the comprehensive plan land use designation for the sites reflect the long-term desired use such as residential, commercial, industrial or recreational. By that action, the property owner is aware of the county's long-term policies for the particular parcel. In the short-term, however, it is recommended that a "dredged disposal site overlay zone" be placed on all acceptable sites, in essence reserving those sites for the disposal of dredged materials. Use of the site would be allowed if it did not result in the construction of permanent facilities and was consistent with other policies of the comprehensive plan. Once the site was filled, the overlay zone would be removed, and the land would be available for the permanent use designated in the comprehensive plan.

The adoption of such an overlay zone would reserve the land for the disposal of dredged materials, while identifying the anticipated long-term use of the land area. Property owners would not be prohibited from the short-term use of the land, but would be limited to uses which did not create a permanent commitment of the land. Again, this type of reserve system is suggested based on the limited availability of acceptable sites and the belief that the use of the available sites must be maximized for the public benefit. Sites requiring this type of reserve status have been identified in each river segment.

Site Use Options

A variety of implementation options are available for use by the Port of Siuslaw and Lane County in order to acquire use of the necessary disposal sites. The specific option chosen for each site should be dependent upon the site conditions, discussion with the property owner and the potential future use of the site. The following pages describe a wide range of methods that are available to implement the proposed plan. These include property acquisition, easements, purchase of development rights, property exchanges and other regulated methods. Any one or combination of these options may be used based on the preferences of the local implementing agencies.

Before the actual site acquisition methods are described, it is important to understand the method by which site acquisition is funded. The study team explored a variety of state and federal funding programs to determine the availability of outside funding for use in program implementation. At this point, no federal or state funding programs have been identified which would aide the local agencies in plan implementation. In the past, acquisition of disposal sites has been the financial responsibility of the individual port district benefiting from the action or the private party initiating the dredging. This is expected to continue. Although Lane County will supply planning and implementation support, they are

not expected to share in the implementation costs. One exception could occur if a proposed disposal site is designated for a public use such as recreation, shoreline access or other uses of public benefit. In such cases, the county may wish to purchase the site through its normal capital improvements program and convert it to that designated use after the disposal activities have been completed.

The following paragraphs define a range of acquisition and use options which are available to the local implementing agencies:

Easements

The property owner and the port district may enter into an easement agreement whereby the property owner grants the right to place dredged materials on his/her land. The owner retains full use and ownership rights to the land, but allows materials to be placed on the property under the conditions outlined in the easement. When disposal is completed, full use of the site reverts to the owner.

This method is most applicable when the private property owner either desires fill material to be placed on the land to enhance the site's future potential, or at least has no objection to the placement of the material. Because the owner maintains direct use of the site during and after disposal, the cost of acquiring easements is generally less than many other methods. Use of easements is common practice among port districts. Easement acquisition may or may not be accompanied by financial reimbursement to the private property owner depending on the contract agreement reached between the port district and the owner.

Fee Purchase

The port district has the option of purchasing outright the sites on which dredged materials are to be placed. Although this option entails higher costs than does easement acquisition, it has several advantages. Many of the sites identified in this plan would not receive all of the necessary disposal materials for a period of 10 to 20 years and permanent use of the site would not be available until after that time. If the port districts and the county believe that the property owner will not be willing to wait for that period of time, they may wish to purchase the property and absorb the expense of holding the land.

By use of a land banking program, the port district could purchase disposal sites in unimproved form and retain ownership until the disposal has occurred. After settling and compaction, the port district could resell the property, thus returning it to the private sector. Although this method would result in increased front-end costs, the future sale of the improved property could result in long-term financial gain to the port district. Use of public bond funds or creation of a local revolving fund would be possible means of generating the necessary revenue. Again, this implementation method could be used in combination with other methods, thus decreasing the quantity of land to be acquired.

As previously mentioned, if Lane County determined that sufficient public benefit could be gained from site acquisition, the county could purchase selected disposal sites and reserve them for future public use. After the disposal activities were completed, the county would make the necessary additional improvements to implement the planned public use of the site.

Purchase of Development Rights

This implementation method assumes that property ownership carries with it a certain amount of development rights. These rights are transferable and they can be purchased either on a temporary or a permanent basis. If the port district were to purchase the development rights of a piece of property, just compensation would be required for use of the owner's land. Although the property owner would retain full ownership of the land, the use would be restricted to those activities spelled out in the purchase agreement.

Since purchase of development rights can be for a temporary period, the port districts could buy those rights until the disposal actions were completed. At that time, the development rights contract could be cancelled, and full use of the site would revert to the property owner.

Property Exchange

In some instances the port district may wish to acquire disposal sites through the exchange of property with the disposal site owner. In effect, the port would trade title to a parcel of land they currently own for title of the disposal site they wish to acquire. This method is feasible if the port district owns land that would be desirable to disposal site owners.

Other Implementation Options

A variety of factors will place pressure on dredge disposal sites for conversion to other uses prior to their need and use as a disposal site. Planning controls through overlay zones and other techniques may not be sufficient to restrain those pressures. Since through this plan, the county is determining that the use of these sites for disposal of dredged materials is in the public interest, implementation measures other than normal planning regulations may be warranted. At least two such measures should be considered.

Limited Term Freeze

Even with normal planning regulations, a property owner may elect to apply for a zoning action or building permit at any time. Such action could occur prior the need to use the property as a disposal site and could therefore commit the site to a permanent use prematurely if the application were approved. Under such circumstances, the county could elect, at the time of application, to freeze any action on the property

for a specified period (e.g. 90 or 180 days) during which time the Port of Siuslaw or other appropriate agency could negotiate for the acquisition of the property or its use rights. If no such negotiations were undertaken or completed during this period, the original application would proceed through normal procedures.

Tax Limitation

When the use of a proposed site is implemented by means other than site acquisition, the issue of property taxation must be resolved. If use of a privately owned site prohibits the land owner from making full use of the site, the question remains: Should the property owner carry the tax burden? To deal with this question, it may be possible to defer or fix the taxes on the property over a limited period of time. Such a concept could be done through means similar to the "special assessment" provisions of Sections 5 and 6 of ORS 308.370 dealing with Exclusive Farm Use Zones, or, under concepts of a "frozen assessed valuation" as provided for in Urban Renewal Areas under ORS 457. While the legal precedent for such tax actions is clear, the specific enabling authority may not exist for the county to take such actions on dredged material disposal sites. The county should aggressively pursue the establishment of such authority either through interpretation of its current authority or through new legislation.

If it is not possible to implement tax actions, the Port of Siuslaw should be prepared to negotiate tax payments for those sites on which use is restricted until disposal has been completed.

Relationship to Comprehensive Plan

The selection of dredged material disposal sites and the preparation of the necessary implementation program are a significant work effort in Lane County's comprehensive planning program. The Estuaries Goal adopted by the Oregon Land Conservation and Development Commission states that "local government and state and federal agencies shall develop comprehensive programs, including specific sites and procedures for disposal and stockpiling of dredged materials." When the dredged material disposal program has been reviewed and adopted by the Lane County Planning Department and Board of Commissioners, it will become county policy. As the Planning Department continues with their efforts to resolve the land use issues that are necessary in order to revise the county's comprehensive plan, the dredged material disposal plan will become an integral working portion of the revised comprehensive plan.

The future use of many of the disposal sites and the effect that filling would have on the site and adjacent land use cannot be evaluated until after the current revisions to the county's com-

prehensive land use plan have been completed. The state and federal resource agencies that participated in the review of the dredged material disposal plan expressed concern over the future land use of the proposed disposal sites. The exact land use designations that will be applied to those sites will not be known until the planning program has been completed. The agencies will be afforded an opportunity to participate in that program and to review the proposed comprehensive plan. Their input during that process (as well as the permit review process) should ensure compatible shoreline land use designations.

Plan Review

It is recommended that Lane County, in conjunction with the Port of Siuslaw and the Corps of Engineers, review the dredged material disposal plan at five year intervals. The purpose of these reviews will be to examine current navigational requirements, the condition of the proposed sites, new permit requirements and the extent to which the plan has been implemented. Any changes which would enhance the plan's ability to guide disposal of dredged materials or respond to changing conditions, should be prepared and submitted to the permit review agencies for their review and comment. As necessary, revisions to the plan should be submitted to the Board of County Commissioners for their approval.

Site Use and Permit Review

Prior to actual use of the sites for the disposal of dredged materials, the port and the Corps of Engineers must prepare specific design materials and determine when and how the sites will be utilized. At that time it will be necessary to apply for the applicable Section 10 and Section 404 permits at both the federal and state level. After approval of the permits, the sites will be available for use, subject, however, to any conditions placed on the permit approval.

The designs used for the disposal sites in this plan are preliminary, and should be subject to revisions to meet the specific needs of the dredging project and the property owner (manager). These designs were created to establish the basic format for site-use implementation.

Section VI

Future Considerations

SECTION VI FUTURE CONSIDERATIONS

Although the dredged material disposal plan is directed towards the location of disposal sites for the upcoming 20 years, Lane County and the Port of Siuslaw should begin to look beyond that time frame and to anticipate some of the future problems.

The disposal activities which are expected to occur in the next 20 years will fill up many of the identified sites in this plan. These sites are typically ideal for pipeline dredging, which is the least expensive way to dredge (besides hopper, which is limited to the lower river area). Future reliance on other methods such as stockpiling or bucket dredging and barging to the ocean for disposal could significantly increase future disposal costs. Thus, the use of readily available sites during the course of this plan will probably force the selection of more expensive options in the future.

A primary objective of this study was to find adequate, cost efficient disposal sites acceptable to regulatory agencies and local jurisdictions. Generally, we think this has been achieved, except in the lower portion of River Segment 3 (Florence and North Fork area). The plan has addressed the options of stockpiling, barging to the ocean, or in-water disposal. If stockpiling were to have difficulty in realizing local market demands for such materials, it may require trucking the materials to sites further inland. The further the materials have to be transported, the greater the costs incurred.

Although dredging is the common answer to the problem of shoaling in the bay and river, a second approach may be to take steps to control the problem at its source, that is to control the amount of sediment which enters the estuarine system. The estuary drains approximately 790 square miles, 91% of which is forest land. The majority of this forest land is owned and managed by the Siuslaw National Forest; the remainder held by private industry. Forest practices, particularly those by private enterprise, still contribute significantly to annual sediment loads in the Siuslaw River. Clearcutting still takes place on steep slopes, which adds significantly to local erosion and sedimentation. These sources of shoaling for the river channel can be better managed to assist in reducing future costs for channel and marina maintenance.

Lane County may wish to consider the following erosion control measures during the preparation of the revised comprehensive plan:

- maintenance of natural riparian vegetation along the river and streams draining into the river
- maintenance of vegetation along roadway cuts and drainage ways
- riprap placement on stream banks with high erosion potential

- construction restrictions on unstable soils that are subject to high erosion potential
- continued involvement in the improvement and monitoring of forest practices

Inclusion of policies relating to these issues within the Comprehensive Plan may have long-term effects upon the amount of sediment which reaches the river, which could in turn decrease the future dredging requirements.

Section VII

Appendix

Federal and State Agency Participation
in Dredged Material Disposal Plan Process

The following federal and state agencies participated in the planning process to develop the Siuslaw River Dredged Materials Disposal Plan. Agency representatives assisted with selection of site evaluation criteria, reviewed specific proposed disposal sites and suggested general disposal guidelines.

Federal Agencies

Corps of Engineers, Portland District
Department of the Army

U.S. Environmental Protection Agency, Region X

National Marine Fisheries Service
National Oceanic & Atmospheric Administration
United States Department of Commerce

Fish and Wildlife Service
United States Department of the Interior

State Agencies

Division of State Lands

Department of Fish and Wildlife

Department of Land Conservation and Development

Department of Environmental Quality

Review and comment letters from the above agencies are included in the following pages.



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

NPPND-WM-1

28 September 1978

Mr. Dan D. Heagerty
Wilsey & Ham
222 S. W. Harrison, Suite #4
Portland, OR 97201

Dear Dan:

Attached as requested in your letter of 22 August 1978, is the Navigation Division review of the proposed Siuslaw River dredged material disposal plan. Overall, the plan looks very good and will assist the Portland District Office of the Corps of Engineers in continued maintenance of the Siuslaw River Project.

You requested from this office an analysis of the difference in unit costs to operate various pieces of dredging equipment in completion of channel maintenance. Attached is an analysis of the various pieces of dredge plant in completion of channel maintenance activities. This analysis is based on 1977 dollars.

If you have any questions on our comments, please contact me at your earliest convenience (phone 221-6983). We appreciate the opportunity to review and comment on the draft disposal plan as it will significantly affect our ongoing channel maintenance mission.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. F. Bechly".

J. F. BECHLY
Chief, Waterways Maintenance Branch

2 Incls
As stated

RECEIVED
SEP 28 1978

WILSEY & HAM, INC.

COMMENTS TO SIUSLAW RIVER DREDGED MATERIAL DISPOSAL PLAN - 20 SEPTEMBER 1978

1. General Comments:

a. Throughout the disposal plan, reference is made to use of dredged materials to build dikes and subsequent weir structures. Normal operations in the dredging industry require a dike structure to be constructed prior to disposal activities at the site. Thus, the material used for dikes should be from the available local material and not from the dredged materials. Control berms are constructed from materials dredged during the actual dredging operation. These control berms are used when material is sufficiently coarse, such as sands, to settle out rapidly. The control berms therefore allow a settlement of the sand at the disposal site and runoff return of the water at some nearby location downstream of the discharge pipe location.

b. There has been no consideration for use of creating sandy beach banklines along the Siuslaw River. It appears to this office that future environmental considerations would best be complemented by disposal activities along an erodible bankline. This does allow the material placed on the bankline to slowly return to the waterway with minimal impact. It also provides for sandy beach for recreational purposes, and a long term disposal site that will not disappear once the area has been filled by a one or two time dredging operation.

c. It is often referenced throughout the report that revegetation of disposal sites will be necessary. As the primary source of dredged materials does come from federal channel maintenance, it should be clearly pointed out in the report that disposal site revegetation is required in federal law by the local sponsor of the navigation projects. Local sponsor in the case for the Siuslaw River projects is the Port of Siuslaw at Florence. Any revegetation action that does take place for our dredging activity, must be accomplished and paid for by the local sponsor. It will not be a federal cost in the maintenance of the project, and as such may be evaluated in a different light by the locals in the Florence area and in the county.

2. Specific Comments on Individual Disposal Sites:

a. Site 1 - The legend on the site pictured does not include the dash-dot outline which is used. It appears that type of line represents the approximate disposal area limits that do not require peripheral diking. Please clarify.

b. Sites 1 and 1A - We strongly concur with your analysis that further engineering studies must be accomplished to determine sediment transport characteristic of these beach disposal sites. It is probable that excessive placement of materials at these sites would increase littoral drift into the bar area at a future date. This would not be acceptable for continued maintenance of the entrance bar which is critical to navigation of the entire project.

c. Site 2 - It is questioned why site preparation would include leveling of existing mounds, log brush and trees.

d. Site 8 - Ocean disposal could include hopper barge and clamshell bucket-type of equipment. The design criteria indicates that temporary dikes will be constructed using dredged materials. It is assumed that temporary dikes in this case must mean control berms as used in our terminology. Please clarify what a sluice location is. Revegetation of the site is a local sponsor requirement.

e. Site 12 - Other considerations at this site should include a permanent cross-over under the local highway. That cross-over has to be both for discharge pipe to reach the site as well as for excess water to get back from the site to the river. Again, reference is made to use of dredged materials for construction of temporary dikes. Reference general comments above, Item A.

f. Site 22 - We strongly agree with your analysis that this site is keyed to the maintenance of the north fork channel area. No other sites have been identified by us or in your plan that would be acceptable for low cost maintenance of the key shoaling problem. It is questioned why the strong refusal to utilize site has been given. This site was used extensively in the previous dredging effort and little or no complaints were issued at that time. We concur with your recommendations that agencies move for approval to fill the limited wetlands existing on this site with subsequent county or port removal of the material for long term disposal availability.

g. Site 27 - Other considerations of this site include the assistance of the Corps of Engineers in soil rehabilitation efforts. Again, soil rehabilitation, revegetation, etc. is a local sponsor requirement for the Siuslaw River projects. We would only be able to provide technical assistance in this matter under the existing law-legal requirements.

3. Additional Comments Provided for Section IV; Disposal Guidelines:

a. Sediment Quality and Turbidity - If we utilize the recommendation that weirs have a two-to-three inch crest height to control turbidity, it should be pointed out that with use of a 20" or larger dredge pipeline equipment, the weir length would have to be greater than 300 feet long. This is based on the water discharge that does come from the dredge pumps. Although the two-to-three inch crest height has been specified in numerous permits and been required by resource agencies, it is doubtful that any piece of dredging plant other than an eight-to-twelve inch pipeline size equipment can actually meet that crest height condition. In addition, it is questioned whether turbidity is a significant problem as has been suggested in the past because recent data indicates that little or no problem actually results. Rather, turbidity is not the problem but reduced dissolved oxygen in the water ~~are~~^{are} some reference to that condition in lieu of turbidity should be provided.

b. Revegetation - Revegetation for the federal navigation project is the responsibility of local sponsors and should be indicated as such. We have found common reference by local ports to the requirement for the Corps to revegetate their disposal sites. However, legal requirements at this time do not permit expenditures of federal monies for revegetation of navigation projects which have local sponsor agreements. The Siuslaw River Project does have this local sponsor agreement.

DREDGING PLANT COST ANALYSIS (1977 DOLLARS)

Barge and Clamshell:

Mobilization and demobilization	=	\$265,000*
(u/s bridge) unit cost	=	1.86
(d/s bridge) unit cost	=	1.25

Seagoing Hopper (Government):

Mobilization and demobilization	=	\$ 12,000
(u/s bridge) unit cost	=	\$ 2.14
(d/s bridge) unit cost	=	\$ 1.72

Pipeline (<6000'):

Mobilization and demobilization	=	\$120,000
Unit cost	=	\$ 1.15

Pipeline (>6000'):

Mobilization and demobilization	=	\$202,000
Unit cost	=	\$ 1.71

(*Average of Grays Harbor and Port Orford job)

Numbers based on bids for Port Orford and Grays Harbor work (1977 clamshell and barge), Coos Bay (1974 pipeline), Coos Bay (1976 new work), and Chinook Channel (1978 pipeline) and PACIFIC production @ Suislaw and Coos Bay (hopper dredge).

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION X

1200 SIXTH AVENUE
SEATTLE, WASHINGTON 98101



REPLY TO
ATTN OF: Mail Stop 521

SEP 25 1978

Mr. Daniel D. Heagerty
Wilsey & Ham
222 Southwest Harrison, Suite 4
Portland, Oregon 97201

Dear Mr. Heagerty:

We have completed our review of the draft Siuslaw River Dredged Material Disposal Plan.

As you know, the disposal sites identified in the plan have been previously coordinated with resource management and regulatory agency representatives and determined to be generally acceptable, with one exception. We do not approve the new proposal to expand Site 22 into adjacent salt marsh and fresh water marsh areas. Filling these wetlands simply for purposes of dredged material disposal is inconsistent with our Section 404 guidelines. Consideration must be given to the need and water dependency of the proposed fill and what alternatives may be available. There is no present need to expand Site 22 and future alternatives should include clam-shell dredging and barge transport of dredged material to another upland site or to the ocean.

Specific comments on several sites which warrant further comment are presented below.

Page 30, Site 2. Depending on the settling rate of dredged material, this site may require a training dike to reduce short circuiting.

Page 42, Site 14. Recommend reversing the outfall and discharge locations. The outfall for returning effluent should not be located near the entrance of creeks or sloughs. Also, the inflow to a narrow pie-shaped disposal area should be located at the widest end of the site to maximize initial dispersion of material over a larger area.

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WILSEY & HAM, INC.

Page 50, Site 19. See comment for Site 2 above.

Page 52, Site 22. This site should not be expanded since it is bordered by a salt marsh, a fresh water marsh and the river. Further, the outer toe of the containment dikes should be set back from the marsh areas to prevent "accidental" encroachment into these wetlands.

Page 68, 69, Site 35, 36. Recommend reversing the outfall and discharge locations to achieve better settling and dispersion of dredged material.

Page 71, Site 38. Site would appear to be too small for a practical disposal area. Encroachment onto the bank of the stream must be prevented if site is used.

We appreciate the opportunity to participate and provide input to this dredged material disposal site selection process. With inclusion of the modifications identified above, our Agency will support and use this plan as a basis for selecting disposal sites in the future.

Sincerely,



Ronald A. Lee, Chief
Ocean Disposal & Construction Permits Section



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Environmental & Technical Services Division
P. O. Box 4332, Portland, Oregon 97208

September 21, 1978

Mr. Daniel D. Heagerty
Wilsey & Ham
222 Southwest Harrison, Suite 4
Portland, Oregon 97201

Dear Mr. Heagerty:

We have completed our review of the August 1978 Draft Siuslaw River Dredged Material Disposal Plan. In general, the draft is thorough and has adequately incorporated our concerns as expressed during the field investigation of each site. We believe the adverse impacts to aquatic resources will be minimal due to your careful coordination procedures.

Aside from the specific comments listed below, National Marine Fisheries Service supports this disposal plan and recognizes it as an integral part of the land and water use planning process for the Siuslaw River estuary. We will be able to expedite our comments on Corps Section 10/404 permit applications through use of this plan. We would like to commend Lane County and your firm for undertaking the dredged material disposal planning in the manner you have chosen.

Specific Comments

SECTION III - DREDGING NEEDS AND OPTIONS

Site Reuse Potential

Wildlife Habitat Creation

Pages 23 and 24. The discussion of the Corps of Engineers Waterways Experiment Station marsh creation demonstrations should include information on the success of these experiments as well as their limitations. Because aquatic area must be sacrificed for in-water disposal and marsh creation, fishery agencies require careful review of any such proposal. Experiments to date have had limited success in establishing subtidal vegetation. Intertidal vegetation has been more successfully established. However, creation of marsh areas from aquatic area is generally an undesirable disposal method.

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SEP 22 1978

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RIVER SEGMENT 1

SITE 22

Pages 52 and 53. National Marine Fisheries Service's comments on this site were provided during the field investigation. We stated at that time that disposal on this site would be acceptable, providing the two marshes were protected from filling. We continue to believe that these marshes should be maintained in their present condition. Other disposal options should be thoroughly explored before committing productive habitat to filling. The final plan should reflect these comments.

Summary and Conclusions

Page 61. The discussion of Site 22 in this section should also include our comments made above.

SECTION VII - APPENDIX

Federal Agencies

Please note that National Marine Fisheries Service is in the Department of Commerce rather than the Department of the Interior as shown.

Thank you for the opportunity to comment on this draft. If you have any further questions please contact Sally Cramer or Chuck Walters at 234-3361, extension 4306.

Sincerely,



Dale R. Evans
Division Chief

cc: Oregon Dept. of Fish & Wildlife
Land Conservation Development Commission
Division of State Lands
Fish & Wildlife Service, ES, PFO
Environmental Protection Agency



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Division of Ecological Services
Portland Field Office
727 N.E. 24th Avenue
Portland, Oregon 97232

Reference: ES

September 25, 1978

Mr. Daniel D. Heagerty
Wilsey & Ham
222 S.W. Harrison, Suite 4
Portland, Oregon 97201

Dear Mr. Heagerty:

This is in response to your August 22, 1978, letter requesting review and comment on the Draft Siuslaw River Dredged Material Disposal Plan.

In general, the disposal sites are those inspected and approved by the State and Federal interagency task force on which we were a member. The exception, as you point out, is Site 22, known as the Johnson's Rock Products site. This potential disposal area has been redesigned as an expanded stockpile site and would result in a loss of about 1-1/2 acres of salt and freshwater marshes. We cannot support inclusion of this revised proposal as part of the disposal plan on the basis of resultant piecemeal loss of biologically valuable wetlands, and on the fact that the site would continue to be of limited disposal capacity. Other options should be considered, such as barging the materials to ocean dump sites or to other accessible disposal areas.

While we are, for the most part, satisfied with the draft plan we wish to point out that the Fish and Wildlife Service will be required to review and comment upon any future Section 10 and Section 404 permit applications issued by the Corps of Engineers for dredging and spoil disposal or on environmental impact statements relating to these activities. We believe, however, that our involvement in this planning process will greatly expedite future review and comment on such actions.

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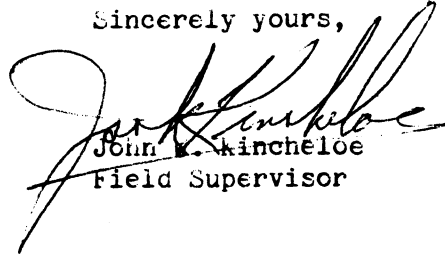
WILSEY & HAM, INC.



Save Energy and You Serve America!

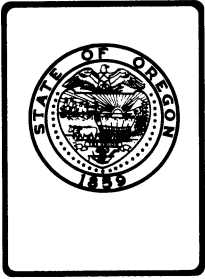
We are pleased that the problem of long term dredge spoil disposal on the Siuslaw River is being addressed and in the manner in which the plan is being developed. We are convinced that such a process will be of value to natural resource interests and to those who will directly benefit from future dredging activity as well.

Sincerely yours,



John W. Kincheloe
Field Supervisor

cc:
CE, Portland
NMFS
EPA
ODFW
DSL



Division of State Lands

1445 STATE STREET, SALEM, OREGON 97310 PHONE 378-3805

OREGON STATE
LAND BOARD

ROBERT W. STRAUB
Governor

NORMA PAULUS
Secretary of State

CLAY MYERS
State Treasurer

October 6, 1978

Mr. Daniel D. Heagerty
Wilsey & Ham
222 Southwest Harrison, Suite 4
Portland, OR 97201

RECEIVED
OCT 11 1978

WILSEY & HAM, INC.

Dear Mr. Heagerty:

We have completed our review of the Draft Siuslaw Dredged Material Disposal Plan and offer the following comments and recommendations:

Page 6; In-Water Disposal

This disposal technique has severely limited application, especially in estuarine locations, and should not be looked upon as a dependable alternative. This comment would apply to all river segments.

Pages 23 and 24; Wildlife Habitat Creation

Concern about the concept of marsh creation at the expense of tideflats has been properly expressed by the National Marine Fisheries Service in their September 21, 1978 letter.

Page 37; Site 8

Every attempt should be made to place the spoils behind the hummocks found along the riverward margin of the disposal area.

Page 42; Site 14

Caution should be taken to keep the riverward extent of the site, including the dikes, above the tidal zone.

Page 45; Site 16

There are marshlands adjoining this location. Acceptable bounds of the disposal site will have to be carefully established at the time of use.

Pages 42 and 53; Site 22

We note from the comments of other resource agencies on the filling of the two marshes at Site 22 that biological concerns have been adequately expressed. If disposal in wetlands at this location becomes crucial to the

Mr. Daniel D. Heagerty
October 6, 1978
Page 2.

maintenance of the navigation channel, we would have to give the proposal our strong consideration. The final decision would perhaps hinge on the possibility of returning an equal acreage of nearby diked marshlands to the estuarine system. This comment would apply also to the further discussion of Site 22 on page 61.

Page 60; Summary and Conclusions - Royalty

The decision of whether to reduce the current royalty rate on State riverbed material lies with the State Land Board. Our staff is now examining the royalty rate for the Florence area, at the request of the Port of Siuslaw. We will be taking the question to the State Land Board in the very near future.

Page 92; bottom paragraph on erosion control measures
"- riprap placement on stream banks with high erosion potential"

It is generally state policy to support the use of rock riprap only where erosion is occurring at an accelerated rate, which commonly occurs on the concave bank of a sharp meander. We strongly encourage, wherever feasible, the use of good land conservation practices such as fencing livestock away from the bank line, maintaining a densely vegetated riparian corridor, and other non-structural stabilization measures.

This concludes our comments. We feel the effort you have put into the disposal plan is exceptional, and we offer our overall support to the Draft Plan. If we can be of further assistance, please contact us.

Sincerely,

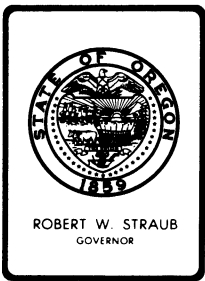
WILLIAM S. COX
Director



Stanley F. Hamilton, P.E.
Waterway Manager

SFH:kp

cc: Oregon Dept. of Fish & Wildlife
U.S. Fish & Wildlife Service
National Marine Fisheries Service
Environmental Protection Agency



Department of Fish and Wildlife

OFFICE OF THE DIRECTOR

506 S.W. MILL STREET, P.O. BOX 3503, PORTLAND, OREGON 97208

September 21, 1978

Mr. Daniel Heagerty
Wilsey and Ham
222 S. W. Harrison
Suite 4
Portland, Oregon 97201

RECEIVED
SEP 28 1978

Dear Dan:

WILSEY & HAM, INC.

The Oregon Department of Fish and Wildlife has completed its review of the Draft Siuslaw River Dredged Material Disposal Plan. Your group should be complimented on a thorough report without major conflicts.

However, we would like to make a few comments.

P. 46, last paragraph: Although we have no objections to disposal sites in river Segment 2, hopper dredging should be encouraged for future use. Land disposal sites cannot be utilized indefinitely.

P 53 and p. 61, Site 22: Filling the two small marshes at Site 22 would be inconsistent with the policies of this agency and other state agencies.

Site 22 could be expanded toward the west into the Johnson Rock Product area if berms were properly placed. It is our understanding the Port of Siuslaw informed Johnson Rock Products (prior to construction) that this was a prime spoil site and that the company agreed to allow future spoil placement at this location.

P. 55, Site 25: Any tidal channels in this disposal area should be avoided.

P. 63, River Segment 4: Since disposal capacity far exceeds dredging needs in this river segment, disposal Sites 35 and 36, located near important wetlands, and Site 34, across Duncan Slough, should have a low use priority to avoid any potential damage of adjacent areas.

Aside from these suggestions, our Department supports the draft plan which generally appears to be consistent with agency task force recommendations.

Mr. Daniel Heagerty
9/21/78
Page 2

We hasten to add, however, that the acceptable upland disposal sites are themselves valuable resources which must be managed judiciously to insure the availability of sites for future high priority dredging projects.

If we could explain our position further, please call.

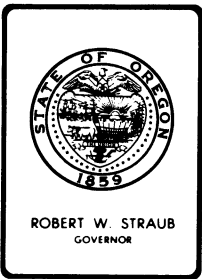
Sincerely,



BRENT O. FORSBERG, Staff Biologist
Environmental Management Section

cc: National Marine Fisheries Service
U. S. Fish and Wildlife Service
Environmental Protection Agency
Division of State Lands

BOF:mw



Department of Land Conservation and Development

1175 COURT STREET N.E., SALEM, OREGON 97310 PHONE (503) 378-4926

October 11, 1978

RECEIVED
OCT 11 1978

Dan Haggerty
Wilsey and Ham
222 SW Harrison, Suite #4
Portland, OR 97201

WILSEY & HAM, INC.

Dear Dan,

This letter is in response to your request for our review of the Siuslaw River Dredged Material Disposal Plan. Overall, our reaction to the plan is positive and we consider it an excellent document. Our comments will address some points for your and Lane County's consideration.

I must emphasize that the Department of Land Conservation and Development cannot give full approval to the plan at this time. Approval will be given when the provisions of the Dredge Materials Disposal Plan are included as part of the Comprehensive Land Use Plans for Lane County and the City of Florence, Port District and other state and federal agencies have commented under an acknowledgment of compliance request. This is not to say that immediate use of the plan, with the exception of site 22, is not feasible at this time because it should be. However, full implementation must continue to be rigorously pursued while completing development of overall Comprehensive Land Use Plans. It is the Commission's expectation that the process of coordinated development and implementation of comprehensive plans would result in agreement on the plan and its implementing provisions. Accordingly, we support your efforts on soliciting agency reviews and agreements to the Dredged Material Disposal Plan and hope Lane County continues to pursue this.

If the Salt Marsh in site 22 is to be filled, the Lane County Comprehensive Land Use Plan would have to clearly show the impacts of the alteration and demonstrate the public's need and gain to warrant the loss to the estuarine ecosystem. Goal #17, Coastal Shorelands, also indicates that major marshes and wildlife habitat must be protected.

Dan Haggerty

2

October 11, 1978

It would be desirable when agreement on the comprehensive plan occurs and is acknowledged that the implementation provisions include a streamlined permit review process at least for the disposal sites designated and approved in the plan. In this regard, a streamlined process would undoubtedly benefit the provisions of Oregon's Coastal Management Program for the Federal Consistency Provisions under the Coastal Management Program Act of 1972.

This would be particularly relevant to the Section 10 and Section 404 permits of the Corps of Engineers where there is a corresponding state level permit review process.

Thank you for the opportunity to review and comment on the plan.

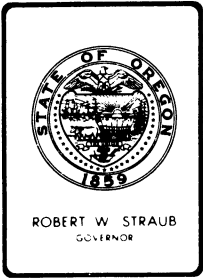
Cordially,



W. J. Kvarsten
Director

WJK:GH:mh/MC

cc: Oregon Department of Fish & Wildlife
Division of State Lands
Lane County Planning Department
National Marine Fisheries (Dale Brown)
Coastal LCDC Field Office



Department of Environmental Quality

~~522 SOUTHWEST 5TH AVE. PORTLAND, OREGON~~ WILLAMETTE VALLEY REGION - Eugene

~~MAILING ADDRESS: P.O. BOX 1760, PORTLAND, OREGON 97207~~ 16 Oakway Mall, Eugene, Or. 97401

Mr. Dan Haggerty
Wilsey & Ham
222 S.W. Harrison
Portland, Oregon 97201

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MAY 1 1981
WILSEY & HAM INC.

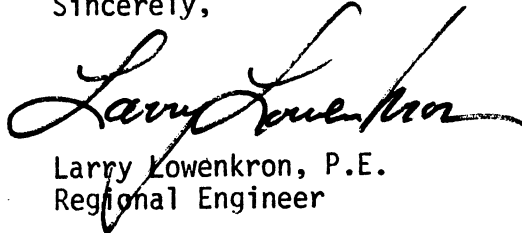
Dear Mr. Haggerty:

This Department has reviewed the Siuslaw River Dredged Material Diposal Plan developed as a result of Goal Sixteen of the Statewide Planning Goals. We find that our concerns have been satisfactorily addressed.

This plan presents extensive information of designated disposal areas. This information will greatly facilitate agency reviews of proposed disposal operations.

If any questions arise which pertain to matters under the jurisdiction of this Department in Lane County, please don't hesitate to contact me in Eugene.

Sincerely,



Larry Lowenkron, P.E.
Regional Engineer

LL/jnf
cc: Glen Carter/DEQ:WQ
John Borden/DEQ:WVRS
DLCD
Lane Council of Governments

DREDGED MATERIAL DISPOSAL SITE & MITIGATION SITE
ACQUISITION & RESERVATION

Adoption of the "Siuslaw River Dredged Material Disposal Plan" by Lane County indicates official acceptance of the Plan by the County, plus County endorsement of the various sites identified within it to be used for spoils disposal. Identified mitigation sites, where needed, are also so endorsed by the County.

It is the policy of Lane County that the actual acquisition or reservation of sites to be used for purposes of spoils disposal or for mitigation of other disposal sites is the primary responsibility of the Port of Siuslaw, operating within the realm of State, Federal and local regulations. Avenues open to the Port of Siuslaw to obtain designated sites include the purchase of property by fee or easement, direct negotiations with landowners for future use (possibly formalized through deed restrictions or similar instruments), purchase of development rights from landowners, land exchange or other similar procedures.

Use of public measures such as restrictive zoning is not anticipated unless it can be adequately demonstrated that the above-described measures are not sufficient to permit the Port of Siuslaw to obtain needed disposal sites. Where public lands, such as County lands, are involved, designation of them on the Disposal Plan indicates potential availability of them for disposal or mitigation use, but in no way pre-empts County rights of negotiation any more than such designation pre-empts the rights of the private property owner. It is recognized that the adoption of the Siuslaw River Dredged Material Disposal Plan is in the interest of the public as a whole but it is also acknowledged that the primary benefiting agency is the Port of Siuslaw, and accordingly it is County policy that the benefiting agency shall be responsible for site acquisition and reservation, and necessary compensation to the affected landowner.

Sites identified by the Dredged Material Disposal Plan have public importance in that they may be needed for dredged material disposal activities in the foreseeable future, and such dredging activity is necessary to insure the continued availability of the river channel for commerce and recreational uses. However, not all sites identified will be used for such purposes (either disposal or possible mitigation of other disposal sites), nor can exact times be predicted when any one site might be used. Given both the public importance and uncertainty of need, it is necessary that careful balancing between public and private interests be considered in implementing the Plan.

Identification of sites is intended to serve as a statement of public interest and potential acquisition and/or use within the future, as described above. Specific ordinance amendments to carry this intent forward will be developed after adoption of the DMDP. In general, such ordinance amendments will provide that in the event development is proposed for any identified disposal or mitigation site, thereby possibly pre-empting future use for these purposes, Lane County will delay official action on the proposed development for a specified, reasonable period of time to allow an interested public agency (especially the Port) time to declare its intent to use or acquire the site and begin action accordingly. This approach will not preclude development, but will basically serve notice to interested agencies that if they wish to acquire or use a given site, they have a clearly defined time period in which to do so*. Should they fail to act, the County could then proceed with normal development reviews and approvals.

* Essentially, the approach amounts to giving the agency "right of first refusal", although a land sale may not be involved.

APPENDICES TO BOARD ACTION ON ORDINANCE #749, OCTOBER 18, 1979:

- A. Appendix "A" -- "Siuslaw River Dredged Material Disposal Plan," Wilsey & Ham (November 1978).
- B. Appendix "B" -- Modifications to above-cited DMDP, as follows:
 - 1. Addition of one-page statement entitled "Dredged Material Disposal Site and Mitigation Site Acquisition and Reservation";
 - 2. Enlargement of Site 22 to include fresh water marsh north of originally-proposed site, and small salt water marsh at east end of site;
 - 3. Use of Sites 1A and 8 to occur in concert with stated concerns of Oregon Dunes National Recreational Area concerns, as stated in letter of October 9, 1979 to Paul Coyne, Port of Siuslaw Manager;
 - 4. Deletion of Sites 9, 10, 26 and 30 from the DMDP;
 - 5. Addition of new Site 25A, with use to occur only after site configuration is approved by state and federal agencies with review/comment and sign-off authority;
 - 6. Addition of the following statement: "It is recognized that the City of Florence and the Port of Siuslaw consider proposed Site 19A to be desirable, but the County cannot at this time include Site 19A in the DMDP because it has not received approval agency clearances. The County recognizes that this site may be appropriate in the future if the necessary agency clearances are received."

DREDGED MATERIAL DISPOSAL SITE & MITIGATION SITE
ACQUISITION & RESERVATION

Adoption of the "Siuslaw River Dredged Material Disposal Plan" by Lane County indicates official acceptance of the Plan by the County, plus County endorsement of the various sites identified within it to be used for spoils disposal. Identified mitigation sites, where needed, are also so endorsed by the County.

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Use of public measures such as restrictive zoning is not anticipated unless it can be adequately demonstrated that the above-described measures are not sufficient to permit the Port of Siuslaw to obtain needed disposal sites. Where public lands, such as County lands, are involved, designation of them on the Disposal Plan indicates potential availability of them for disposal or mitigation use, but in no way pre-empts County rights of negotiation any more than such designation pre-empts the rights of the private property owner. It is recognized that the adoption of the Siuslaw River Dredged Material Disposal Plan is in the interest of the public as a whole but it is also acknowledged that the primary benefiting agency is the Port of Siuslaw, and accordingly it is County policy that the benefiting agency shall be responsible for site acquisition and reservation, and necessary compensation to the affected landowner.

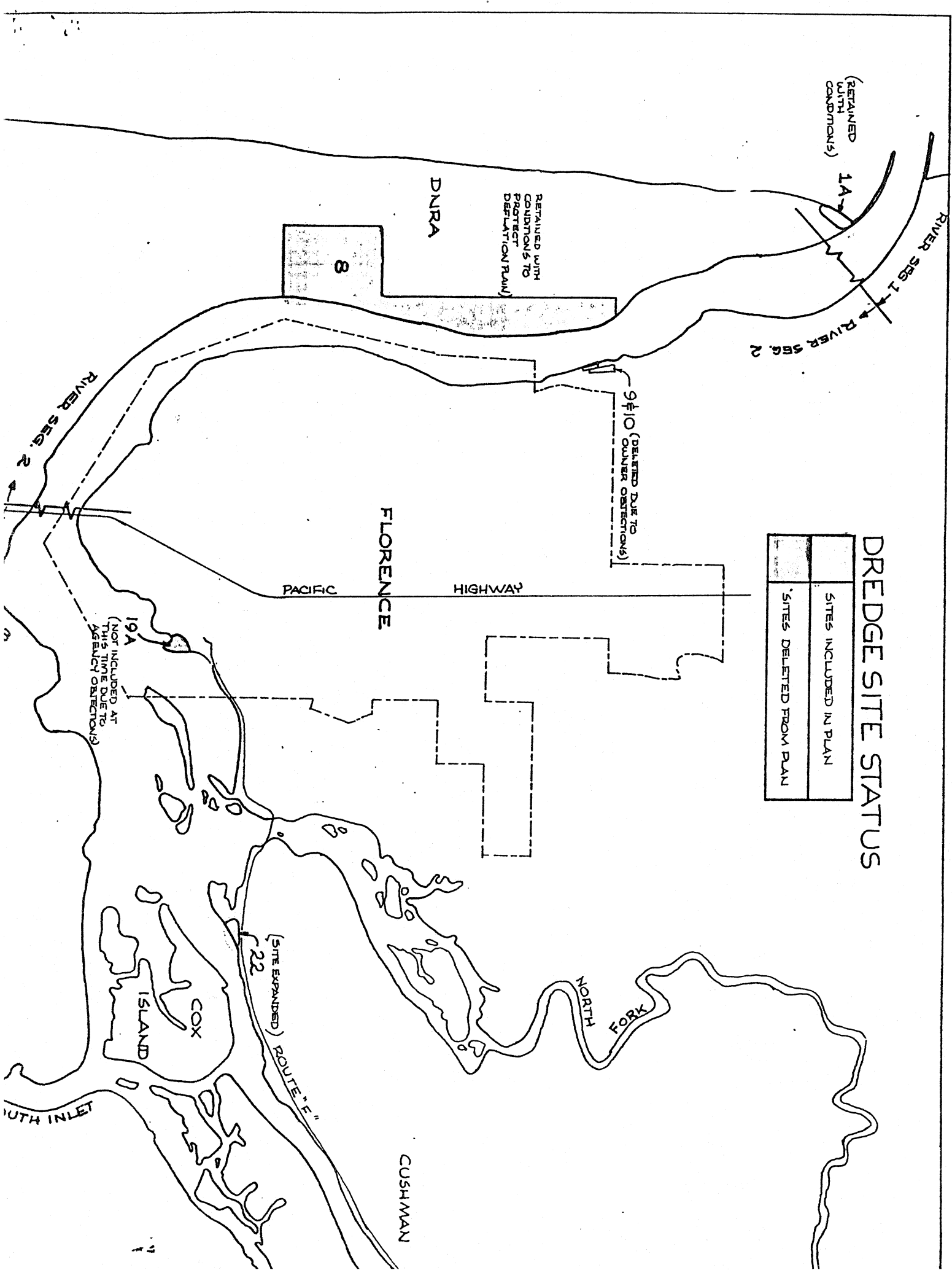
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* Essentially, the approach amounts to giving the agency "right of first refusal", although a land sale may not be involved.

DREDGE SITE STATUS

	SITES INCLUDED IN PLAN
	SITES DELETED FROM PLAN



SOUTH INLET

CUSHMAN

25 A INCLUDED TO REPLACE SITE 26 SUBJECT TO APPROVAL OF SITE CONFIGURATION.

26 (OWNER OBJECTION)

ROUTE 'E'

RIVER SEG. 34

RIVER SEG. 4

DUNCAN ISLAND
DUNCAN SLOUGH

30 (OWNER OBJECTION)

DREDGED MATERIAL DISPOSAL SITE & MITIGATION SITE
ACQUISITION & RESERVATION

Adoption of the "Siuslaw River Dredged Material Disposal Plan" by Lane County indicates official acceptance of the Plan by the County, plus County endorsement of the various sites identified within it to be used for spoils disposal. Identified mitigation sites, where needed, are also so endorsed by the County.

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Identification of sites is intended to serve as a statement of public interest and potential acquisition and/or use within the future, as described above. Specific ordinance amendments to carry this intent forward will be developed after adoption of the DMDP. In general, such ordinance amendments will provide that in the event development is proposed for any identified disposal or mitigation site, thereby possibly pre-empting future use for these purposes, Lane County will delay official action on the proposed development for a specified, reasonable period of time to allow an interested public agency (especially the Port) time to declare its intent to use or acquire the site and begin action accordingly. This approach will not preclude development, but will basically serve notice to interested agencies that if they wish to acquire or use a given site, they have a clearly defined time period in which to do so*. Should they fail to act, the County could then proceed with normal development reviews and approvals.

* Essentially, the approach amounts to giving the agency "right of first refusal", although a land sale may not be involved.

SITE # 22

Site Description

Location: Johnson's Rock Products Site (east of North Fork Bridge).

Size: Nine (9) acres.

Capacity: 130,000 C.Y.

Physical Characteristics: This is an old fill site, flat and riprapped on river side. Hard surface, some gravels.

Biological Characteristics: The site is not of major or significant importance; the majority of the site is in industrial use. However, the eastern corner contains a small salt marsh and a small fresh water marsh.

Comprehensive Plan: Industrial

Ownership: Bohemia Inc. (Sec. 25, Lot 2001, T18S, R12E)

Engineering Considerations

Method of Dredging: Pipeline eight (8) to sixteen (16) inch.

Design Criteria: Temporary dikes constructed from local materials, sloped to prevent slumping into river. Provide drop type outlet with stop-log weir. Retention time must be adequate for setting of solids.

Site Preparation: Protect adjacent drainage channels with diking. Outfall must go to deep water channel.

Site Development Cost: Not available.

Future Use Constraints: The site should be retained as an industrial site as it is zoned.

Environmental Considerations

Effects of Disposal: Two small marshes will be filled. One of these is a freshwater marsh. The small salt marsh is of minor importance. Wetland areas have been partially destroyed by surrounding land uses, and their future is questionable due to encroachment and refuse disposal.

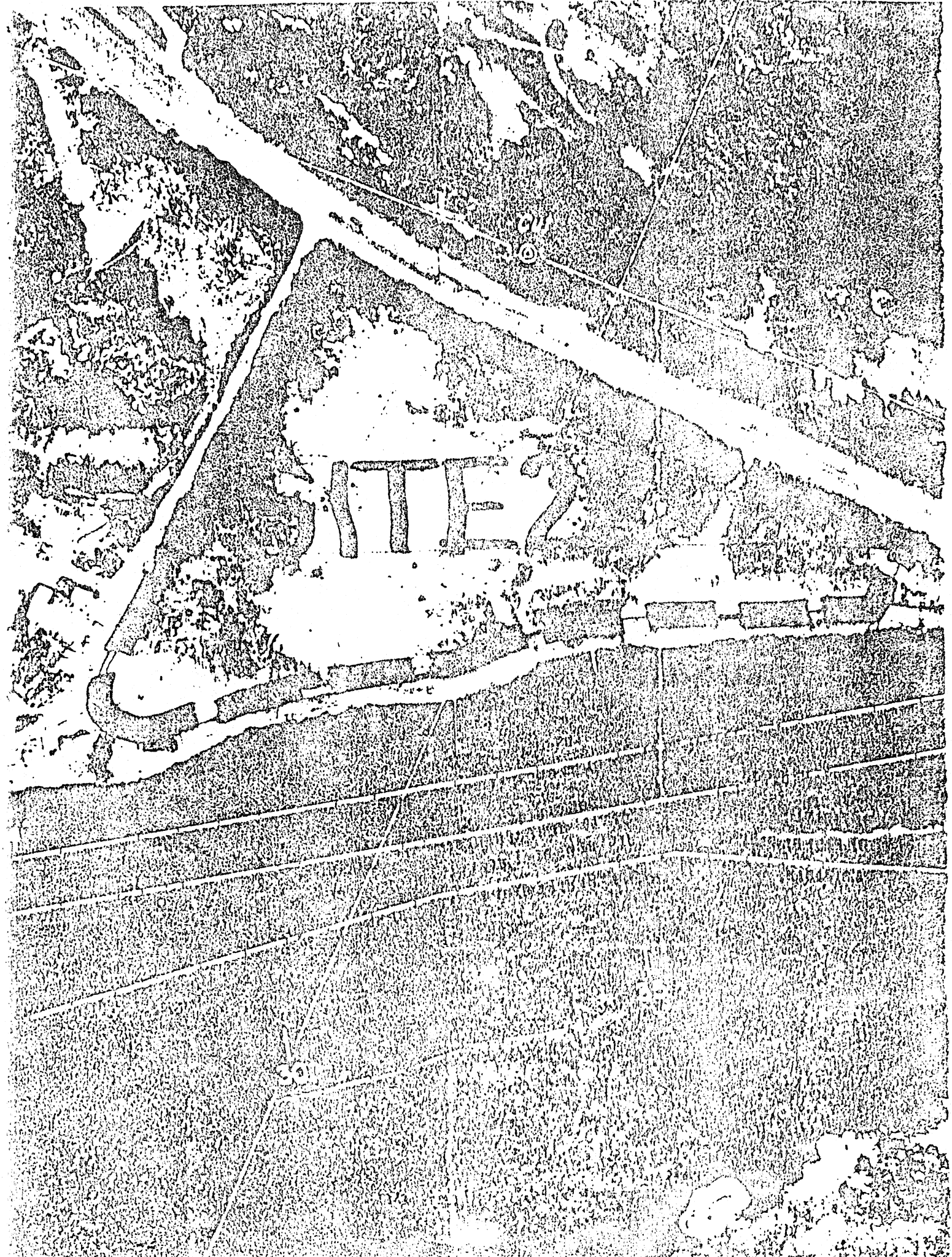
Other Considerations

This site is key to the maintenance of the North Fork channel area. Large pipeline work would be capable of pumping materials up river to Site #25, although the cost would be prohibitive to the Port. But "spot maintenance" with the 8-16" dredge, which may be required every three (3) to five (5) years, would require a disposal site within 3,000 to 4,000 feet. This site is the only viable location at this time.

SITE # 22

Page 2

At this time, the resource agency task force has approved the portion of the site "between the two roads." The eastern portion of the site is about one (1) acre in area, and contains the small salt marsh. Filling of this area would require approval by the task force at the time a permit is obtained.



UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Siuslaw National Forest
Oregon Dunes National Recreation Area
855 Highway Avenue, Reedsport, OR 97467

October 9, 1979

1560



Mr. Paul Coyne, Manager
Port of Siuslaw
PO Box 1220
Florence, OR 97439

Dear Mr. Coyne:

As proposed at the October 2, 1979, meeting in your offices, I am forwarding a letter outlining our concerns regarding the Siuslaw River Dredged Material Disposal Plan. We appreciate the opportunity to include our suggestions in the Plan. It helps us meet our responsibilities as the managing agency to the NRA. We also understand the site and disposal methods become negotiable at the time you are ready to use an area. Following are our concerns as they relate to sites affecting the NRA:

Site #1A:

Visual Aesthetics

We remain concerned about the impact to visual aesthetics if this site is used as proposed in the Disposal Plan. Our major interest will be in color, placement and height of the spoils and the effect that will have on the NRA's proposed oceanview parking facility.

The Disposal Plan currently mentions the need for coordination of efforts with the NRA, should you choose to utilize this site. I feel the wording is adequate to insure future coordination.

Site #8:

From the meeting October 2nd, I assume Design Criteria for Site #8 will change to reflect the contract package prepared by the Corps of Engineers. Our concerns are for wildlife, visual and other recreation resources. Landscaping, color of spoils and impairment of adjacent wildlife habitat are a major importance.

Suggested Wording to Include in Disposal Plan, i.e. Site #8: (Perhaps incorporated in Design Criteria section.)

It is expected that water runoff from the dredge spoils from this section of the river will have relatively-high salt water content. Dredging operations should be engineered to direct water flow away from the natural drainage system in the deflation plain. Dredge spoil colors, landscaping and wildlife habitat in the adjacent deflation plain are concerns of the Oregon Dunes NRA. Contouring, placement and revegetation of these spoils should be coordinated with appropriate NRA personnel.

Again, thank you for the opportunity to include NRA concerns in your Disposal Plan. We will be looking forward to working with you in the future.

Sincerely,

RICK SCOTT
Area Ranger

cc Law Co Planning Comm



▲ Connery Hill

Coast Guard Station

Theodore Dreiser

MURRE

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