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December 19, 1973

State of Washington
Department of Ecology

Memo to: John Glynn and Stew Messman

From: Grover Scott Jeane II

Subject: Efficiency Study of Everson STP.

Earl Sealund and I met at the city's oxidation channel system at 0800 hours on November 29, 1973. The next 8 hours were spent reviewing operation of the plant and collecting samples to determine efficiency of treatment. The same parameters and samples as measured and collected at the Sumas STP were used. Due to the rapidly rising condition of the Nooksack River, a receiving water analysis was not attempted.

A review of the attached two page Efficiency Study form will reveal no major problems associated with this plant's operation. The similar values of T.S. and T.S.S. of the mix liquor are due to the small sample size used by our lab. The NO_3-N value of 10.3 mg/l in the effluent seems high.

Proper operation of this plant depends on monitoring the 30 minute settleability, D.O., and T.S.S. of the mixed liquor. Your familiarizing the operator with computation of the 30 minute settleability and sludge index would aid in clarifying when to waste sludge. The method is completely described in Operation of Waste Water Treatment Plants, WPCF Manual of Practice #11, 1968, on pages 114-118.

GSJ:jmh

(EFFICIENCY STUDY)

City Everson Plant Type Oxy. Channel Population Served 675 Design Capacity 960

Receiving Water Nooksack River Engineer

Date 11-29-73 Survey Period 8 hours. Survey Personnel Scott Jeane

Comp. Sampling Frequency every 15 min. Weather Conditions Windy, cold and very rainy (last 48 hours)

Sampling Aliquot 1,000 ml per sample

PLANT OPERATION

Total Flow 29,000 gal for 8 hr. How Measured Totalizer

Max. (Flow) Time of Max. Min. Time of Min.

Pre Cl_2 #/day Post Cl_2 #/day

FIELD RESULTS

Determinations	Influent Max.	Influent Min.	Influent Mean	Influent Median	Effluent Max.	Effluent Min.	Effluent Mean	Effluent Median
Temp. °C	12.9	11.3	11.8	11.8	10.0	9.3	9.7	9.8
pH	7.9	7.2	7.5	7.5	6.8	6.5	6.6	6.6
Conductivity (umhos/cm)	N.A.	------	------	------	N.A.	------	------	------
Settleable Solids	9	6	7	6	0	0	0	0

N.A. = Not Available

LABORATORY RESULTS ON COMPOSITE IN PPM

Laboratory Number	Influent	Effluent	% Reduction
5-Day BOD	219	<8	>96%
COD	300	31	91%
T.S.	555	307	45%
T.N.V.S.	310	195	37%
T.S.S.	263	25	90%
N.V.S.S.	91	15	84%
pH	7.6	7.0	
Conductivity	600	440	
Turbidity	55	9	
Chlorides	28	42	

Oil	None Detected
NO_3-N	10.3
NO_2-N	.02
NH_3-N	1.0
T-K-N	1.6
O-PO_4-P	1.75
T-PO_4-P	6.10

Everson

BACTERIOLOGICAL RESULTS

$Na_2S_2O_3$ added to sample _____ After _____ min.

LAB #	SAMPLING TIME	COLONIES/100 MLS (MF)			Cl Residual	
		Tot.Col.	Fec.Col.	Fec.Strep	ppm	(after secs)
73-4374	0915	<400	<200	<200	0.75	3 min.
75	1115	<400	<200	<200	0.75	"
76	1500	<400	<200	<200	0.50	"

Operator's Name Earl Sealund Phone # 966-3411

Comments: 1) Leaking packing on sludge pump.

2) Wasting of 2,000 gal of sludge lowered mixed liquor 30 min. settleability from 440 ml to 250 ml.

3) Equipment operation time:

Sludge pump	= 2,498 hrs.
Comminuter	2,366 hrs.
Rotor	7,423 hrs.
Lift Pump #1	591 hrs.
" " #2	580 hrs.
" " #3	598 hrs.

Oxidation Channel mixed liquor analysis:

Settleability

Time	ml.
10	500
20	380
30	330
40	300
45	290
50	280
60	270

Mix liquor solids

T.S.	5500
T.N.V.S.	2200
T.S.S.	5700
T.S.N.V.S.	2300
Dissolved Oxygen =	2.0 ppm

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

WATER QUALITY LABORATORY

ORIGINAL TO: G.S. Jeane

COPIES TO:

LAB FILES

DATA SUMMARY

Source Everson STP Collected By G.S.J.

Date Collected 11-27-73 Goal, Pro./Obj.

Log Number: 73-	4371	72	73	74	75	76					STORET
Station:	INF	EFF	OXID. DITCH	0915	1115	1500					
pH	7.6	7.0									00403
Turbidity (JTU)	55.	9.									00070
Conductivity (umhos/cm)@25°C	600.	440.									00095
COD	300	31.									00340
BOD (5 day)	219	<8.									00310
Total Coliform (Col./100ml)	-	-	-	<400	<400	<400					31504
Fecal Coliform (Col./100ml)	-	-	-	<200	<200	<200					31616
NO3-N (Filtered)	-	10.3									00620
NO2-N (Filtered)	-	.02									00615
NH3-N (Unfiltered)		1.0									00610
T. Kjeldahl-N (Unfiltered)		1.6									00625
O-PO4-P (Filtered)	-	1.75									00671
Total Phos.-P (Unfiltered)	-	6.10									00665
Total Solids	555.	307.	5500.								00500
Total Non Vol. Solids	310.	195.	2200.								
Total Suspended Solids	263.	25.	5700.								00530
Total Sus. Non Vol. Solids	91.	15.	2300.								
Fecal Strep (col/100ml)	-	-	-	<200	<200	<200					
Chlorides	28	42									
Oils	-	ND	-								

Note: All results are in PPM unless otherwise specified. ND is "None Detected"
Convert those marked with a * to PPB (PPM x 10^3) prior to entry into STORET

Summary By Stephen D. Roll Date 12-14-73

MEMORANDUM

CHECK
INFORMATON ____
FOR ACTION ____
PERMIT ____
OTHER ____

TO: Pete Hildebrandt, Ron Pine, Stew Messman & Files

FROM: John H. Glynn

SUBJECT: REQUEST FOR SURVEY - EVERSON STP

DATE: November 12, 1973

State of Washington Department of Ecology

OBJECTIVE: To determine efficiency of the Everson STP.

The Town of Everson has an oxidation ditch which was placed in operation earlier this year. The sewage system is separate and there are no significant industrial wastes present.

The following design and current loading factors apply:

Average design flow	130,000 gpd	492 m^3/d
Peak hourly flow	820,000 gpd	3103 m^3/d
Design Population	960	
Estimated current daily flow rate	65,000 gpd	246 m^3/d
Estimated peak flow rate	80,000 gpd	303 m^3/d
Population served	675	

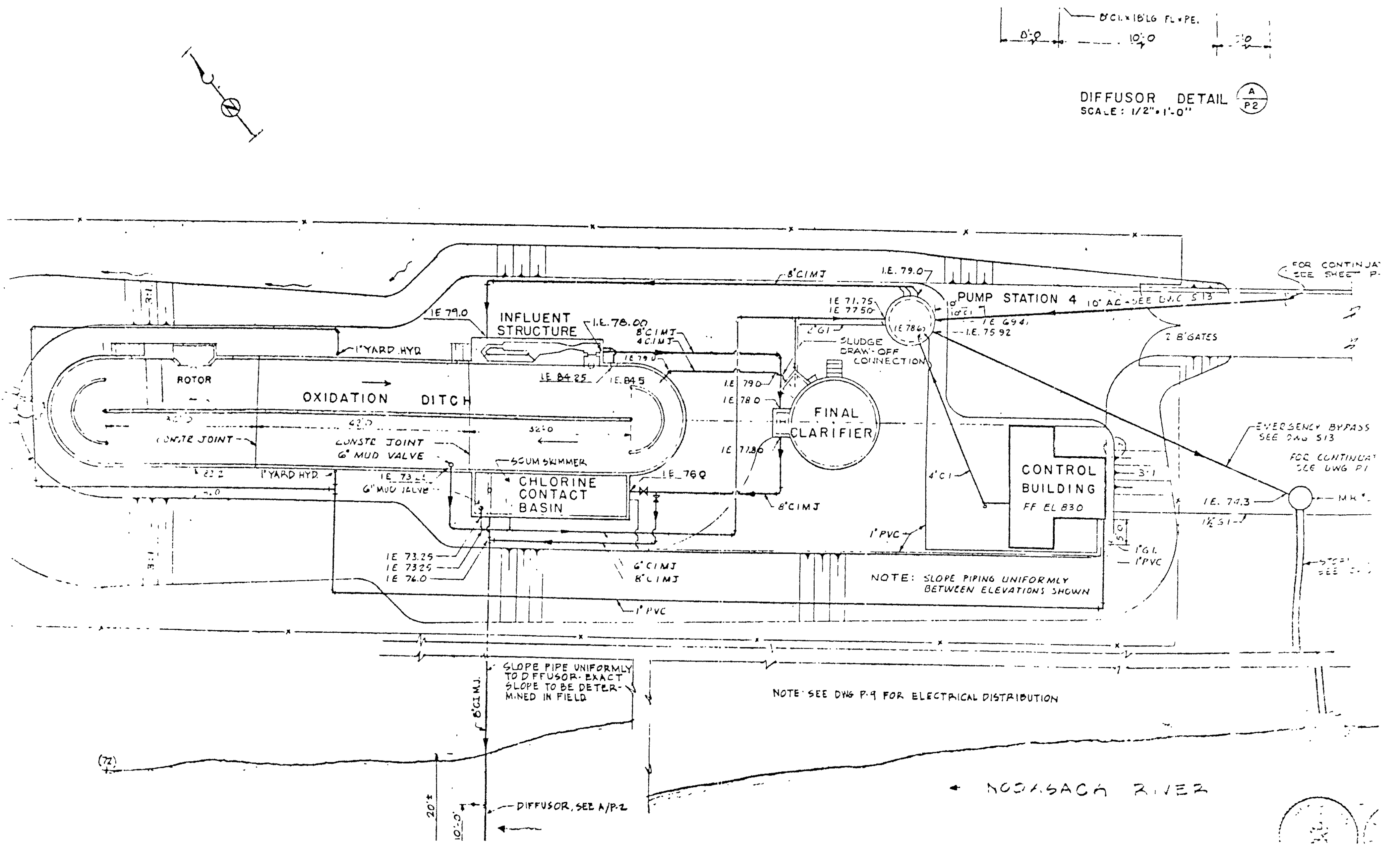
The following parameters are requested:

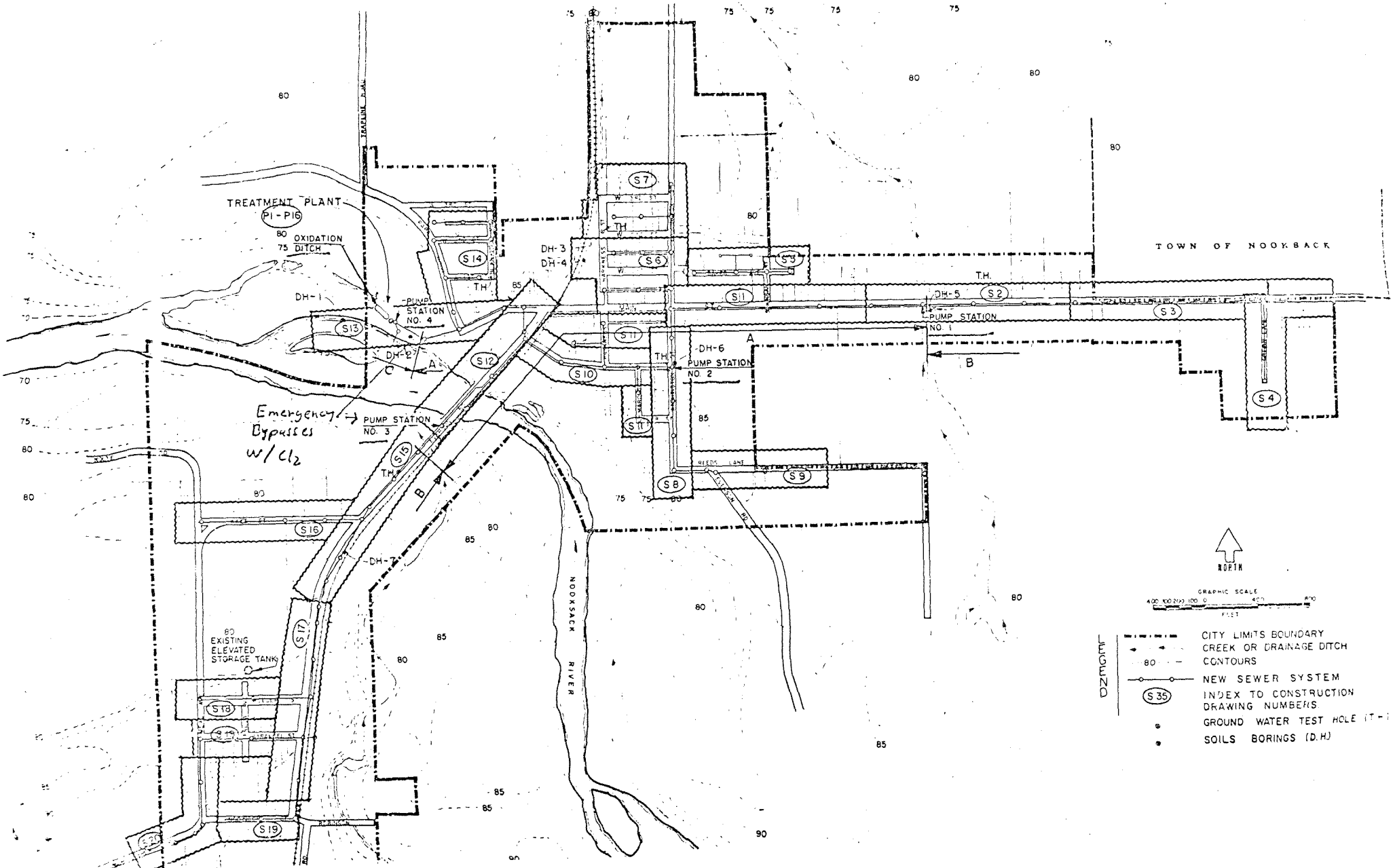
Flow	influent
BOD	influent and effluent
COD	influent and effluent
Settleable Solids	influent and effluent
Suspended Solids	influent and effluent
Grease	influent and effluent
Total Coliform organisms	~~influent~~ and effluent
Fecal Coliform organisms	~~influent~~ and effluent
Temperature	influent and effluent
Turbidity	influent and effluent

The operator, Earl Sealund, should be notified several days before the survey. A message can be left for him at the City Hall (966-3411).

I would like to be advised of when the survey is scheduled.

JHG:mk


DIFFUSOR DETAIL A/P2
SCALE: 1/2"=1'-0"
INFLUENT STRUCTURE
OXIDATION DITCH
ROTOR
1" YARD HYD.
CHLORINE CONTACT BASIN
SCUM SKIMMER
6" MUD VALVE
FINAL CLARIFIER
SLUDGE DRAW-OFF CONNECTION
PUMP STATION 4
2 8" GATES
CONTROL BUILDING
FF EL 83.0
EMERGENCY BYPASS SEE DWG S13
FOR CONTINUAT SEE DWG P1
8" CIMJ
1" PVC
NOTE: SLOPE PIPING UNIFORMLY BETWEEN ELEVATIONS SHOWN
SLOPE PIPE UNIFORMLY TO DIFFUSOR. EXACT SLOPE TO BE DETERMINED IN FIELD
NOTE: SEE DWG P-9 FOR ELECTRICAL DISTRIBUTION
DIFFUSOR, SEE A/P-2
8" CI MJ.


TREATMENT PLANT
P1 - P16
OXIDATION DITCH
DH-1
PUMP STATION NO. 4
DH-2
DH-3
DH-4
DH-5
PUMP STATION NO. 1
DH-6
PUMP STATION NO. 2
Emergency Bypasses w/ Cl2
PUMP STATION NO. 3
DH-7
EXISTING ELEVATED STORAGE TANK
TOWN OF NOOKSACK
NOOKSACK RIVER
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
S19
S20
T.H.
A
B
C
NORTH
GRAPHIC SCALE
FEET
LEGEND
CITY LIMITS BOUNDARY
CREEK OR DRAINAGE DITCH
CONTOURS
NEW SEWER SYSTEM
INDEX TO CONSTRUCTION DRAWING NUMBERS
GROUND WATER TEST HOLE (T-H)
SOILS BORINGS (D.H.)