IN THE COURT OF COMMON PLEAS

RICHLAND COUNTY, OHIO

STATE OF OHIO, ex rel. WILLIAM J. BROWN, Attorney General of Ohio,	)	CASE NO. 79-68-C
Plaintiff,	)	Judge Chilcote
v.	)	CONSENT JUDGMENT
WHITE-WESTINGHOUSE CORPORATION,	)	
Defendant.	)	

The Amended Complaint having been filed herein on September 28, 1978, under Sections 6111.04, 6111.07, and 6111.09 of the Ohio Revised Code, the Plaintiff and the Defendant by their respective attorneys having consented, without trial or adjudication of any issue of fact or law herein, to the entry of this Consent Judgment:

NOW, THEREFORE, before the taking of any testimony, upon the pleadings and upon consent of the parties hereto, it is Ordered, Adjudged, and Decreed as follows:

I.

This Court has jurisdiction of the subject matter herein and of the parties consenting hereto. The Complaint states a claim upon which relief can be granted against the Defendant

under Sections 6111.04, 6111.07, and 6111.09 of the Ohio Revised Code.

II.

The provisions of this Consent Judgment shall apply to and be binding upon the parties to this action, their officers, directors, agents, servants, employees and successors; in addition, the provisions of this Consent Judgment shall apply to all persons, firms, corporations, agencies, and other entities having notice of this Consent Judgment and who are, or will be, acting in concert and privity with either party to this action or its officers, directors, agents, servants, employees, successors and assigns.

III.

The purpose of this Consent Judgment is to avoid the time, expense and uncertainty of litigation, and to settle all claims and controversy whatsoever existing between the parties with respect to Defendant's alleged violations of Ohio and/or Federal law and regulations and arising prior to the date of this Consent Judgment with regard to water quality and water pollution in the operation of its facility at 246 East Fourth Street, Mansfield, Ohio. This Consent Judgment does not constitute an admission of violation of all of the thirty-nine counts of the Amended Complaint, but Defendant does admit violations of some NPDES permit limitations as complained of in the Amended Complaint. This provision shall not operate as an admission of any violation of law except as between the parties to this proceeding. Compliance with this Consent Judgment shall be in full satisfaction of Defendant's liability for the foregoing violations of law.

IV.

Defendant agrees and is hereby enjoined to comply with the terms of its present NPDES Permit, and such terms of a renewal of the present Permit which are not in addition to or more stringent than the terms of the present Permit. Defendant further agrees and is hereby enjoined to install and maintain additional water pollution treatment equipment at its facility in Mansfield, Ohio, earlier than such installation is mandated by law. Such equipment shall consist of those components described in Attachment A, which is an extract from a report prepared by Floyd Browne Associates, Limited, at the request of Defendant. The equipment is estimated to cost $232,000 and require annual operating and maintenance expenses of $16,000 per year. Installation shall occur subsequent to approval by Ohio EPA of detailed plans for the equipment which shall be submitted by Defendant to the Northwest District Office of Ohio EPA no later than July 1, 1980. Completion of installation shall be not later than one year after approval of said plans by Ohio EPA, provided, however, that Defendant shall have the right to shut down its plant in Mansfield, Ohio, in lieu of completing such installation.

V.

If Plaintiff should commence a proceeding for contempt of court alleging non-compliance with this Judgment, Defendant may raise the issue as to whether the law provides the defense that non-compliance was caused by a reason beyond the control of Defendant. Plaintiff does not hereby concede that a defense of this kind exists, and this issue is expressly reserved for such future contempt proceeding, should any be commenced.

VI.

This Consent Judgment shall terminate when the additional water treatment equipment required in Paragraph IV is completely installed and properly operating or when Defendant's plant in Mansfield, Ohio is shut down, whichever is earlier.

VII.

This Court retains jurisdiction of this suit for the purpose of making any order or decree which it may deem at any time to be necessary to carry out this Judgment.

VIII.

This Consent Judgment is made in Ohio and shall be governed by Ohio law.

IX.

Defendant shall pay the Court costs.

MAX K. CHILCOTE
Judge, Court of Common Pleas

APPROVED:

WILLIAM J. BROWN
ATTORNEY GENERAL OF OHIO

By _____
DAVID E. NORTHROP
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30 East Broad Street, 17th Floor
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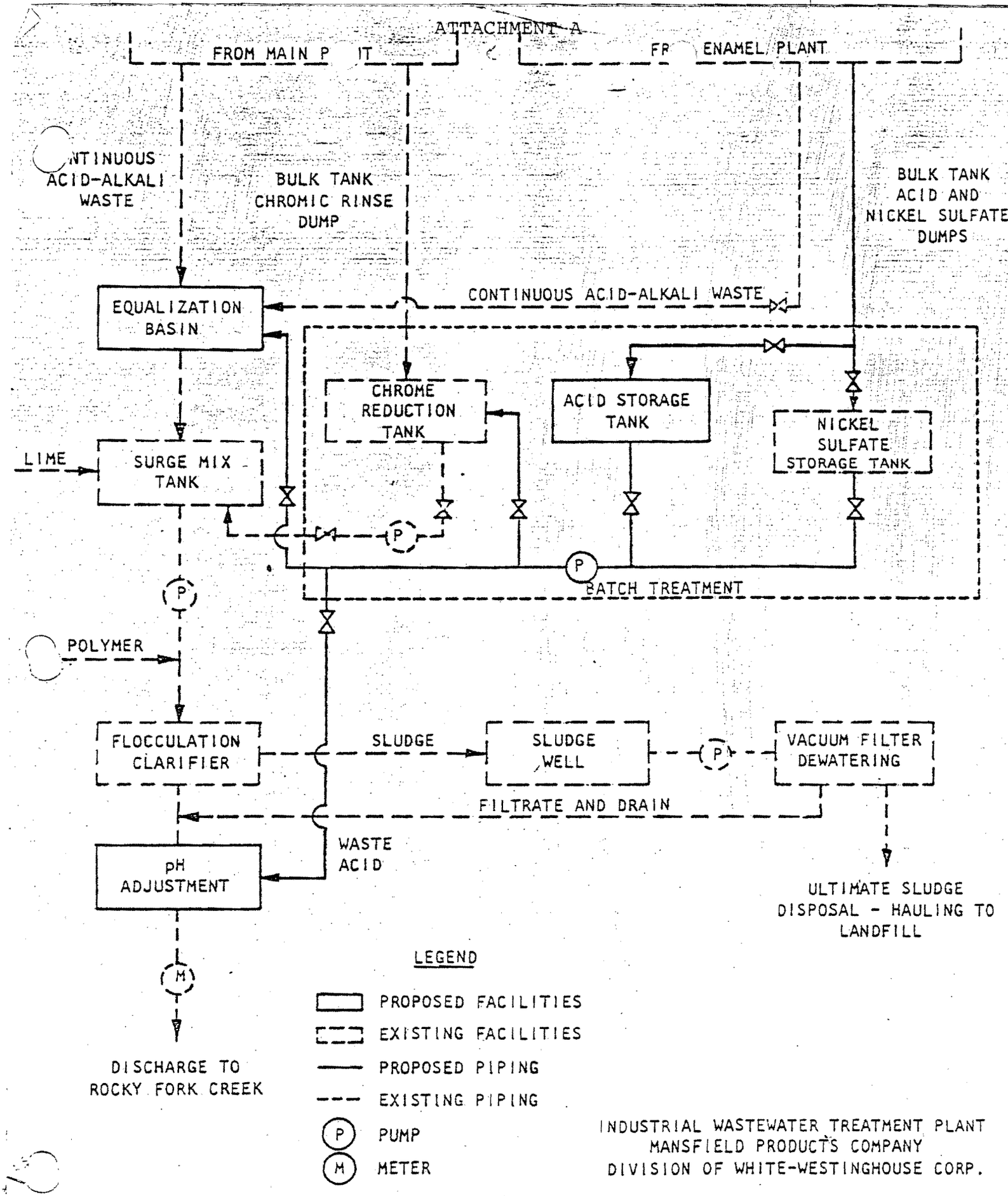
WHITE CONSOLIDATED INDUSTRIES, INC.
Successor by Merger to White-Westinghouse Corporation

By _____
Authorized Representative
V. A. CHIARUCCI, EXECUTIVE VICE PRESIDENT

SQUIRE, SANDERS & DEMPSEY
1800 Union Commerce Building
Cleveland, Ohio 44115
(216) 696-9200

By _____
Thomas G. Hermann

ATTACHMENT A



INDUSTRIAL WASTEWATER TREATMENT PLANT
MANSFIELD PRODUCTS COMPANY
DIVISION OF WHITE-WESTINGHOUSE CORP.

PROPOSED PLANT FLOW DIAGRAM

PLATE NO. 2

Z-15 pickle processes. As indicated in Table No. 1, depending on the quality and quantity of the raw material processed, these tanks are dumped once every four weeks. Therefore, the weekly waste pickle acid available for the Cr reduction is approximately 6,600 gallons. As indicated earlier, the approximate amount of waste pickle acid needed weekly for Cr reduction is 300 gallons. Approximately 6,300 gallons (6,600 - 300 gallons) weekly of pickle acid waste remain to be treated.

PROPOSED TREATMENT SCHEME

A proposed treatment scheme as shown on Plate 2 is recommended to provide adequate treatment. The proposed IWTP basic design data is presented in the appendix. An equalization basin is provided to reduce the highly varying influent flow and quality to a more stable waste flow for ease of treatment. Past experience with waste flows of the quality at Mansfield Products indicates that influent flow requires a reduction of the pH to approximately 6 to coagulate the oil/grease for removal. A larger acid storage tank is proposed to store the 6,300 gallons per week of pickle acid waste that is currently not required for the Cr reduction. The existing acid storage tank is proposed to be converted into a nickel sulfate storage tank. These two stored waste flows will be used to adjust the pH in the equalization basin to the required level for oil/grease coagulation and to provide a more uniform pH for further chemical addition as well as provide a system to treat the bulk nickel sulfate dumps.

A new collection and transport pipe for the acid and nickel sulfate bulk tank waste dumps is proposed. Installation of this line will eliminate contamination of the acid and nickel sulfate bulk waste dumps

by the continuous acid-alkali waste stream. This will provide better chemical treatment and batch treatment process operational control.

Incorporating the proposed treatment scheme as indicated in Plate 2, and upgrading of the pumping and mixing operation of the Cr reduction batch treatment will provide a good operating system for Cr reduction, storage and treatment of acid pickle and nickel sulfate waste flows.

CHEMICAL ADDITION AND COAGULATION

Hydrated lime is received at the IWTP in 50 pound bags, manually loaded into a feed hopper, mixed with water, pumped to a proportional lime slurry feeder controlled by a pH sensing controller, and added to the continuous waste flow at an influent box. Lime usage is in the range of 500 to 1,000 pounds/day (lb/day) depending on the amount of reduced Cr or pickle acid waste being pumped into the continuous flow stream. The lime feed system has a design capacity of 6,000 lb/day.

The influent box discharges into the mix tank. The tank is equipped with a mixer and flocculation clarifier influent pumps. The design of this tank was classified as a mixing and surge tank. The tank working capacity of 12,100 gallons has worked fairly well in reducing hydraulic surges but does not work well in reducing the highly varying influent quality fluctuations. As a mixing tank, the working capacity of 12,100 gallons has a detention time of 26 minutes at the average flow of 670,000 gpd. Normal design practice detention time for rapid mixing to uniformly disperse the coagulating chemical throughout the mass of water is 30 seconds.

The polymer feed system consists of a dry polymer wetting device, combination mixing and aging tank, and feed pump controlled by an

automatic timer. Polymer solution is added in-line to the flocculation clarifier influent pump discharge pipe. With the existing treatment system, this is probably the best location for polymer addition.

Plant records indicate that approximately 12 lbs/day of polymer are added to aid flocculation. At the average waste flow of 0.67 million gallons per day the polymer dosage is 2 mg/l (12 ÷ (0.67 x 8.34)). Jar test analyses indicated that proper chemical addition, mixing, and flocculation produced a readily settleable floc without the addition of polymer. It is felt that the polymer addition under actual plant operating conditions is beneficial and should be maintained with a possible reduction in dosage for a reduced savings in operating costs.

A jar test analysis was conducted on a shift sample composite. The shift samples composited were sampled during the period when lime was being added at the influent box and the reduced Cr or waste acid was not being pumped. Assuming the average lime feed rate during the time period when the samples were obtained was 500 lb/day, the calculated lime dosage feed at the average flow rate of 0.662 million gallons would be 90 mg/l (500 ÷ (0.662 x 8.34)). The jar test analysis indicates that an additional lime feed dosage of 50 mg/l would be required to produce a clear effluent with low metal concentrations. Based on this analysis a total lime feed dosage of 140 mg/l (90 + 50) would be required during the continuous flow period when the reduced Cr or waste acid is not being pumped. A theoretical calculation based on assumed chemical reaction conditions for the lime quantity required to neutralize the waste acid is approximately 0.5 lb/gallon. The weekly waste acid volume is 6,600 gallons, and the weekly lime requirement to

neutralize this volume would be 3,300 lbs/week (0.5 x 6,600). Weekly lime requirement for the continuous waste flow treatment at the average continuous flow of 0.662 million gallons per day is 5,410 lb/week (140 x 0.662 x 8.34 x 7). The total weekly lime requirement is 8,710 lb/week (3,300 + 5,410). Plant records indicate that average lime usage is approximately 750 lb/day or 5,250 lb/week. The recommended treatment process scheme presented in Plate 2 proposes an equalization tank to reduce the highly varying influent flow and quality so that chemicals can be applied at a more uniform rate.

FLOCCULATION - CLARIFIER

Flocculation is a slow mixing process to agglomerate the suspended matter into a compact, fast-settling floc. This unit process is an essential step as is the rapid mixing coagulation step discussed previously. They are two separate unit processes that cannot be combined into one without a loss in efficiency.

The existing flocculation-clarifiers are designed for a surface rate of 0.805 gpm/sf at a maximum flow rate of 850 gpm. The clarifier units are separated into a flocculation zone with mixing and sedimentation zone. The flocculation zone has a detention time of approximately 17 minutes, and the sedimentation zone has a detention time of approximately 144 minutes at the maximum flow rate of 850 gpm. Each flocculation zone is equipped with two mechanical mixers. One clarifier tank is of sufficient size at a maximum design flow of 850 gpm to efficiently treat the average wastewater flow of 465 gpm.

GENERAL

Past experience with waste flows of the quality at Mansfield Products indicates that a pH adjustment of 9 to 10 is required to adequately precipitate the metals in the waste flow. The jar test lab analysis indicates a pH of 9.2 was obtained at a lime addition of 50 mg/l for treatment of the sample tested. Based on this data an additional pH adjustment tank is recommended following the flocculation-clarifier unit process and preceding metering and discharge as shown on Plate 2. Stored waste acid would be added at this point through additional piping and valving to provide pH adjustment. This proposed facility addition would provide the necessary pH control to meet the current NPDES final effluent limitation of 6.0 to 9.5.

Flow and pH are monitored continuously at the discharge point. This equipment appears adequate and is normally operational and reliable. The pH sensing and control system for lime feed rate control at the mixing tank has had limited success. The sensing probe is located on the clarifier tank influent pump discharge. This type of a control system is classified as a feedback system. The pH being sensed after the chemical addition has a tendency to overfeed during certain conditions and underfeed during others. This is a highly unstable system of control for a waste stream which has a highly varying pH. A feed forward-feed back system of control is recommended for this highly varying pH waste stream. The pH is sensed at the influent to the mixing tank where lime is being added at a controlled rate. Another pH sensing device on the discharge of the mixing tank adjusts the feed forward controller to correct for any overfeed or underfeed condition. It is

recommended that the metering and control system be upgraded to provide a more efficient automatic control of the lime feed system.

COST ESTIMATES

The following is a construction and engineering fee cost estimate for the proposed treatment process additions as indicated on Plate 2.

	Item	Construction Cost
1.	Equalization Basin (revise existing clarifier)	$ 87,000
2.	New Rapid Mix Tank	26,000
3.	Acid Storage Tank (including pumps)	40,000
4.	Final pH Adjustment Tank	7,000
5.	Metering and Control	15,000
6.	Electrical	5,000
7.	Miscellaneous (plumbing, painting, etc.)	2,000
8.	Pump and Piping System for Separation of the Acid and Nickel Sulfate Bulk Tank Dumps	25,000
9.	Contingency @ 5%	10,000
10.	Estimated Engineering Fees	15,500
	Total Construction and Engineering Fee Cost	$232,500

Estimated operation and maintenance (O&M) cost in addition to present O&M cost for the proposed modifications and additions to the IWTP facilities is as follows:

Item	Additional O&M ($/yr)
Electricity	$ 5,000
Chemicals (Lime)	2,000
Maintenance	1,000
Manpower (Operator @ 4 hrs/day)	8,000
Total Yearly Additional O&M	$16,000

APPENDIX A

BASIC DESIGN DATA

MANSFIELD PRODUCTS COMPANY

DIVISION OF WHITE-WESTINGHOUSE CORPORATION

PROPOSED INDUSTRIAL WASTE TREATMENT PLANT

BASIC DESIGN DATA

Waste Treatment Process

Treatment consists of batch reduction of chromic rinse waste. Reduced chromic rinse waste and all acid-alkali waste streams and rinses are equalized, precipitated by lime-polymer coagulation for the removal of suspended solids, phosphates and metallic hydroxides followed by final pH adjustment. Solids are removed from the clarifiers to a sludge well followed by vacuum filtration for dewatering prior to ultimate disposal in a landfill.

Design Flow

Average - gpm	425
Peak - gpm	850

Treatment Units

1. Batch Tanks

Chrome Tank (Existing)	
Number	1
Volume - Gal.	7300
Mixer - No. and Size	1 @ 7.5 hp
Nickel Sulfate Tank (Existing)	
Number	1
Volume - Gal.	10,700
Acid Tank	
Number	1
Volume - Gal.	15,000
Pumps (Existing)	
Number	2
Capacity, each, gpm	30
Hp, each	3

2. Equalization Tank

Investigate revisions to piping, pump relocation and additions to utilize the standby clarifier as an equalization tank. Steel tank to be lined with protective coating and mixers added. Investigate maintaining use of this tank as a standby clarifier.

3. Clarifier Influent Pumps (Relocate-Existing)

Number	3
Capacity, each, gpm	425
Hp, each	15

4. Flocculation - Clarifier (Existing)

Number (One Standby)	2
Dimensions - Ft.	
Tank	
Diameter	40
SWD	13
Reaction Zone	
Diameter	12
W.D.	11
Flocculation Zone	
Diameter	16
W.D.	10
Surface Area, sq. ft., each	1,056
Surface Rate, gpm/sq. ft.	
@ 425 gpm, avg. flow	0.4
@ 850 gpm, peak flow	0.8
Volume, cu. ft., each	
Reaction Flocculation Zone	15,035
Clarification	122,230
Detention Time, Hrs., @ 425 gpm avg. flow	
Reaction Flocculation Zone	0.6
Clarification	4.8

5. Final pH Adjustment Tank

Number	1
Volume - Gal.	4,500
Detention Time, Min., @ 425 gpm	10

6. Effluent Parshall Flume (Existing)

Throat Width, in.	6
Flow Range, gpm	
Minimum	21
Maximum	1,750

7. Sludge Handling (Existing)

Sludge Well	
Number	1
Volume - Gal.	3,600
Sludge Pumps	
Number	2
Capacity, each, gpm	30
Hp, each	2
Vacuum Filters	
Number	1
Diameter - Ft.	6
Face Width - Ft.	6
Filter Area - Sq. ft.	112
Filter Loading, gph/sq. ft.	13
Operating Time, hrs.	24
Filter Feed Capacity @ 0.75%	
lb/day	2,200
gpd	35,000

Note: Precoat vacuum filter operation complete with precoat mix tank and slurry pump

8. Chemical Feed (Existing)

Lime Feed Range 12.5-250 lb/hr.

Lime feed system consists of bag loading hopper, volumetric feeder, dissolving tank with mixer, lime slurry pump, and proportioning weir tank.

Polymer Feed Capacity, Max. @ 1% feed solution 3 lb/hr.

Polymer feed system consists of a 200 gal. combined aging and feed tank and a 36 gph variable speed feed pump.

9. Chemical Feed

Add acid feed pumps for final pH adjustment and flow equalization tank pH adjustment.