C&S Engineers, Inc.

FINAL PROPOSED CONCEPTUAL DESIGN FOR SELECTED REMEDIAL ALTERNATIVE

prepared for:

WABASH ALUMINUM ALLOYS, LLC
6223 Thompson Road
East Syracuse, New York
SPDES PERMIT # NY0110311

prepared by:

C&S ENGINEERS, INC.
Syracuse Hancock International Airport
Syracuse, New York

MARCH 2000

New York State Department of Environmental Conservation

These specifications for the Conceptual Design for Selected Remedial Alternative are hereby approved pursuant to the provisions of the Environmental Conservation Law and the construction approval issued this day.

COMMISSIONER OF ENVIRONMENTAL CONSERVATION

William F. McCarthy P.E.
Designated Representative

Date March 13 2000

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INTRODUCTION

1.1 General

This document presents a conceptual design for remedial actions selected to address the presence of PCBs at two State Pollutant Discharge Elimination System (SPDES) permitted sewer outfalls at the Wabash Aluminum Alloys, LLC (Wabash) facility located at 6223 Thompson Road, East Syracuse, Onondaga County, New York. This conceptual design is submitted consistent with the requirements of a Modification Consent Order (Case No. R7-0996-96-08; Order) entered into between Roth Brothers Smelting, Inc. and the New York State Department of Environmental Conservation (NYSDEC), and dated March 12, 1998. The Order sets forth acceptable actions to investigate the source and extent of PCBs detected at facility Outfalls 001 and 004, and to select and implement an appropriate remedial action. In general, the selected remedy described herein includes actions to:

- Modify operational procedures so that outside scrap storage and handling are conducted only in designated areas west and north of Plant No.2 (Outfall 001 storm water collection area);
- Install improvements in the Outfall 004 area to enhance operation of storm water collection facilities, clean and upgrade surfaces, exclude runoff from adjoining property, and prevent contact of precipitation runoff with soil;
- Install improvements in the Outfall 001 area to rehabilitate storm water collection facilities, pavements, and scrap storage facilities, maximize storm water collection, segregate priority scrap materials, and exclude, to the extent practicable, ground water infiltration; and
- Install treatment to remove PCBs, if any, remaining in storm water at either of the improved Outfall areas after implementing the operational modifications and facility improvements outlined above. Final design of the treatment system would be based on results of bench-scale and pilot testing, and would consist of NYSDEC "Best Available Technology", likely using one or more of the following: oil/water separation, flow equalization, solids removal, and/or activated carbon adsorption.

1.2 Report Organization

This Conceptual Design Report is organized in the following sections:

Section 1 – Introduction	Provides facility and regulatory information relevant to the development of an appropriate remedial action.
Section 2 – Background	Reviews results of previous efforts to characterize the presence and extent of PCB storm water impacts.
Section 3 – The Selected Remedial Action	Describes the selected remedial actions and how they will comply with the intent of the Modification Consent Order.
Section 4 – Schedule	Sets forth a schedule for completing design and construction of the remedial actions.

1.3 Facility Description

The Wabash Aluminum Alloys facility produces specification aluminum ingot from various types of aluminum scrap by melting, refining, and casting processes. The facility's environs have been, and continue to be, primarily industrial. Ground water is generally within several feet of the ground surface. Figure 1 shows the property lines of the facility, the locations of the two principal facility buildings (Plant No. 1 and Plant No. 2), and the approximate drainage areas of SPDES Outfalls 001 and 004.

Figure 2 details the Plant No. 1 area and the drainage area for SPDES Outfall 004. Plant No. 1 contains the furnaces and casting lines. The entry road from Thompson Road traverses the property to the north of the Plant No. 1 building. An open area east of Plant No. 1 is presently used for temporary staging of aluminum scrap. Storm water from roof drains on the eastern portion of Plant No.1 and from the ground surface in areas north and east of the building flow to SPDES Outfall 004.

Figure 3 shows the Plant No. 2 area and the drainage area for SPDES Outfall 001. Plant No. 2 is located west and north from Plant No. 1, and serves as the main area in which incoming aluminum scrap is processed and stored. The southern portion of the Plant No. 2 building also houses offices. Most incoming scrap materials are off-loaded at Plant No. 2. The main scrap storage area, consisting of open and covered bins and several buildings, is located west and northwest of Plant No. 2. An asphalt-paved Corrective Action Management Unit (CAMU) area, used only for empty transport vehicle storage, is located north of Plant No. 2. Storm water from roof drains on the western portion of Plant No. 2 and from the ground surface in areas west and north of the building flow to SPDES Outfall 001.

The following section discusses the results of further efforts to characterize the presence and extent of PCBs in SPDES discharges at the facility in order to develop an approvable remedial action plan.

2.0 BACKGROUND

The need for remedial actions to address PCBs at Outfalls 001 and 004 was based on analytical sampling results from SPDES storm water sampling at the outfalls. Pursuant to the schedule attached to the Order, additional information to facilitate design of remedial actions was developed by conducting a Storm Sewer Investigation. In addition, a Groundwater Investigation, also a requirement of the Order, is expected to provide data that will assist in characterizing the distribution and extent of PCBs, if present, at the facility. This section provides a review of existing information, along with conclusions regarding the presence of PCBs in the Outfall 001 and 004 drainage areas.

2.1 Storm Sewer Investigation

To provide information regarding the distribution, and possible source(s) of PCBs in the Outfall 001 and Outfall 004 areas, Philips Services Corp.(the previous owner of the facility) conducted a storm sewer investigation. This investigation was undertaken, consistent with the provisions of the Order, to provide information needed to select appropriate remedial actions for the two areas. The components of this investigation were:

- PCB isolation sampling at thirteen Outfall 001 locations and ten Outfall 004 locations;
- A sewer elevation and location survey for the two areas;
- A sewer tightness evaluation for the two areas;
- An evaluation of historic PCB data along with precipitation data; and
- An evaluation of remedial alternatives to remove PCBs from these storm sewer discharges, and a preliminary selection of a preferred alternative.

The data and conclusions of the storm sewer investigation were submitted to the NYSDEC by Philips Services Corporation in a February 18, 1999 Storm Sewer Investigation Report. Among the pertinent conclusions were:

- PCBs were distributed in both drainage areas; only at extreme upstream sampling locations were PCBs not detected. These data indicate that scrap storage areas are likely to be a source for at least some of the PCBs detected.
- The French Drain in the downstream portion of the 004 drainage system was a source of PCBs to the storm sewer at that location. The French Drain carries water from both paved and non-paved adjacent areas, and is suspected to have groundwater flow components.
- The Outfall 001 storm sewer system is not tight. Under present conditions, ground water infiltration likely contributes to the storm water flows in this area.
- No clear trends linking PCB detections to precipitation events were demonstrated.

The February 18, 1999 Storm Sewer Investigation Report concluded by identifying remedial alternatives, discussing the benefits and limitations of each, and selecting remedial actions to mitigate discharges of PCBs at Outfalls 001 and 004. The proposed actions for the Outfall 001 drainage area included installing a new trunk sewer line, cleaning and eliminating scrap storage in a large portion of the present scrap storage area, and constructing a building over the remaining scrap storage area. For the Outfall 004 area, the proposed actions included repairing one section of the trunk sewer, along with cleaning, regrading and (re)surfacing, and, based on resulting water quality, designing and installing a water treatment system.

2.2 Summary of Background Information

Wabash assumed ownership of the former Roth Brothers facility at the approximate time Philips Services Corporation submitted the Storm Sewer Investigation Report. On August 19, 1999, a meeting was held and the NYSDEC directed Wabash to review the findings and recommendations of the Storm Sewer Investigation and to provide the NYSDEC with a conceptual design for remedial actions selected to address PCBs in the Outfall 001 and Outfall 004 drainage areas. Wabash's review of the Storm Sewer Investigation Report, in the context of recent SPDES monitoring and the planned Groundwater Investigation, indicates:

- Based on Wabash's projected operational needs, the remedy proposed in the report did not provide sufficient scrap storage for the facility, particularly in the areas west and northwest of Plant No. 2 (Outfall 001 drainage area) where these activities have primarily been conducted. The report was not specific regarding the extent of future scrap storage in the Outfall 004 drainage area.

- During the first ten months of 1999, PCBs were detected on only one occasion at a concentration greater than the 0.3 ug/L discharge limit during monthly SPDES sampling at Outfalls 001 and 004 (3 ug/L at Outfall 004 during June 1999 sampling). During this same ten-month period, there were two detections of PCBs at concentrations greater than the 0.065 ug/L MDL but below the 0.3 ug/L discharge limit (0.17 ug/L during January 1999 sampling at Outfall 004 and 0.18 ug/L during June 1999 sampling at Outfall 001). These data represent a significant decline in the frequency of detection from the previous year's SPDES sampling and from the samples collected during the Storm Sewer Investigation (May 1998 through December 1998).

- The proposed Groundwater Investigation is expected to provide data to clarify whether groundwater infiltration into the storm water flow regimes at either Outfall 001 or Outfall 004 constitutes a source of PCBs detected at these locations. Current information indicates that groundwater at the site is generally within several feet of the ground surface and the main trunk sewer in the 001 drainage area is not tight. Further information from the Groundwater Investigation may be instrumental in determining whether storm water treatment should be combined with groundwater treatment, what the components of the treatment system (if required) should be, and the hydraulic capacities of treatment system components.

3.0 THE SELECTED REMEDIAL ACTION

The general scope of the remedial actions selected to address the presence of PCBs at Outfalls 001 and 004 were outlined in Section 1 of this report. The main difference between the actions recommended in the February 18, 1999 Sewer Investigation Report and those selected herein by Wabash is that the Wabash selected remedy provides the facility with adequate space for scrap storage, while limiting future scrap storage to one area. The selected remedial actions are designed to:

- Clean scrap storage and drainage facilities;
- Limit future outside scrap storage to one area that drains to a single collection point;
- Exclude, to the extent practical, groundwater infiltration into the flow regimes at the Outfalls; and
- Provide a treatment process capable of removing PCBs at the Outfalls, based on water quality at the Outfalls following the above improvements.

The following section provides details for the four general components of the selected remedial action.

3.1 Components of the Selected Remedial Action

This section provides details for each of the four general components of the selected remedial action, as outlined in Section 1.1, along with the rationale used to select these actions.

3.1.1 *Modify operational procedures so that scrap storage and handling are conducted only in designated areas west and north of Plant No.2 (Outfall 001 storm water collection area).*

This component of the selected remedial action mitigates future impacts to storm water quality in the Outfall 004 drainage area by not using that area for scrap storage. By restricting outside scrap storage to the 001 drainage area, along with implementing the additional improvements to the 001 drainage area (itemized in 3.1.3, below), drainage from outside scrap storage and handling areas would flow to one point, where treatment could be implemented. The Outfall 001 area was selected as the area for outside scrap storage because the majority of these activities are already conducted in this area, and because there is sufficient facility property adjacent to this area for construction of a storm water storage and treatment system. Scrap materials of known origin and judged unlikely to be PCB impacted (e.g., beverage cans) may be exempted from these modified operational procedures. The modifications to operational procedures will be instituted as part of an amended Best Management Plan (BMP) for the facility.

3.1.2 ***Install improvements in the Outfall 004 area to enhance operation of storm water collection facilities, clean and upgrade surfaces, exclude runoff from adjoining property, and prevent contact of precipitation runoff with soil.***

This component includes cleaning paved surface areas, subsurface storm water structures and piping in the 004 area. The damaged section of the main trunk sewer identified as not tight in the Storm Sewer Investigation has already been repaired. The pavements in the former scrap storage area would be rehabilitated where required. Unpaved areas north of the entry road would be graded and paved so that precipitation falling on this area will enter the system without eroding soil. Surface flow from the adjoining property to the north would be excluded, to the extent possible, from the 004 drainage. Figure 2 presents the Outfall 004 areas affected by these activities.

3.1.3 ***Install improvements in the Outfall 001 area to rehabilitate storm water collection facilities, pavements, and scrap storage facilities, maximize storm water collection, segregate priority scrap materials, and exclude, to the extent practicable, ground water infiltration.***

This component of the remedy includes repairing or replacing the main trunk sewer for this area and extending surface and subsurface connections to the main trunk sewer. After cleaning the scrap storage areas of residual materials, the pavements within the scrap storage area would be rehabilitated as required to provide drainage to the trunk sewer. Roof drainage from the western side of Plant No. 2 will continue to flow by gravity to Outfall 001. Surface drainage from the area north of Plant No. 2 will be collected and pumped to Outfall 001. This will provide additional scrap storage and handling in the 001 drainage area.

This component of the remedial design includes constructing a separate area of scrap storage bins and bays that will be used to store turnings or other materials identified as being likely to contain high fractions of oil or grease. A collection basin will be provided for liquids from these areas. The oil/grease component will be separated for proper treatment and/or disposal. A bench-scale treatability study for these liquids may be conducted during design of the improvements to determine the most appropriate technology for separating the oil and grease from the liquids collected in this area.

Additional testing of discrete sections of the drainage area (such as the roof of Plant No. 2) may be conducted during design of these improvements. As part of the Outfall 001 improvements, a collection/settling basin and/or oil/water separator will be installed immediately prior to the 001 discharge point (future treatment system influent). Figure 4 presents the Outfall 001 areas where the above improvements will be implemented.

3.1.4 ***Install treatment to remove PCBs that may remain in storm water at either of the upgraded Outfall areas after implementing the operational modifications and facility improvements outlined above. Final design of the treatment system would be based on results of bench-scale and pilot testing, and would consist of NYSDEC "Best Available***

Technology", likely using one or more of the following: oil/water separation, flow equalization, solids removal, and/or activated carbon adsorption.

Figure 4 shows the location for a water treatment system for Outfall 001. Figure 5 provides a schematic diagram for a water treatment system capable of removing PCBs from storm water flows. A design for bench-scale and pilot-scale testing will be submitted to NYSDEC after the Department's approval of the designs for Outfall 001 and 004 improvements. It is anticipated that bench-scale testing will focus on oil/water separation technologies and that the pilot plant will test solids removal efficiency and backwash rates for multi-media filters using various coagulants/floceulants, to determine whether contact clarification is required. Final design for the water treatment system would then be based on the results of the studies, and on additional information that may be provided by the Groundwater Investigation.

As stated in Section 3.1.1, the 001 drainage area was selected for future scrap storage because there is sufficient adjacent land for constructing a storm water treatment facility. The preliminary sizing requirements for equalization storage and the treatment building are based on the following criteria/assumptions:

- Drainage area to include present Outfall 001 drainage, additional scrap handling and storage area north of Plant No. 2, and additional area adjacent to equalization storage and treatment building;
- 90% capture of the 25-year, six-hour storm (for maximum required storage);
- Minimal groundwater infiltration into the collection system; and
- Ability to treat all the flow associated with the 25-year, 24-hour storm within 48 hours of the beginning of the storm.

Modeling of the design storm(s) along with various rates of treatment indicates that a 200-gallon per minute treatment system would be required. The treatment building size shown on Figure 4 assumes that each of the components in the design schematic shown on Figure 5 would be required. It is possible that the pilot study will indicate that suspended solids concentrations from the improved outfall drainage areas would not require contact clarification and associated sludge handling.

There is not sufficient property adjacent to Outfall 004 for constructing a similar water treatment system in that area. The focus of operational modifications and Outfall 004 improvements outlined in Sections 3.1.1 and 3.1.2, respectively, is to mitigate the presence of PCBs at that location. If PCBs continue to be detected at Outfall 004 following implementation of these measures, treatment options would include:

- Installing a treatment system in the 004 area capable of treating design flows with minimal storage; or

- Pumping water from the 004 area to a storage and treatment facility located in another area.

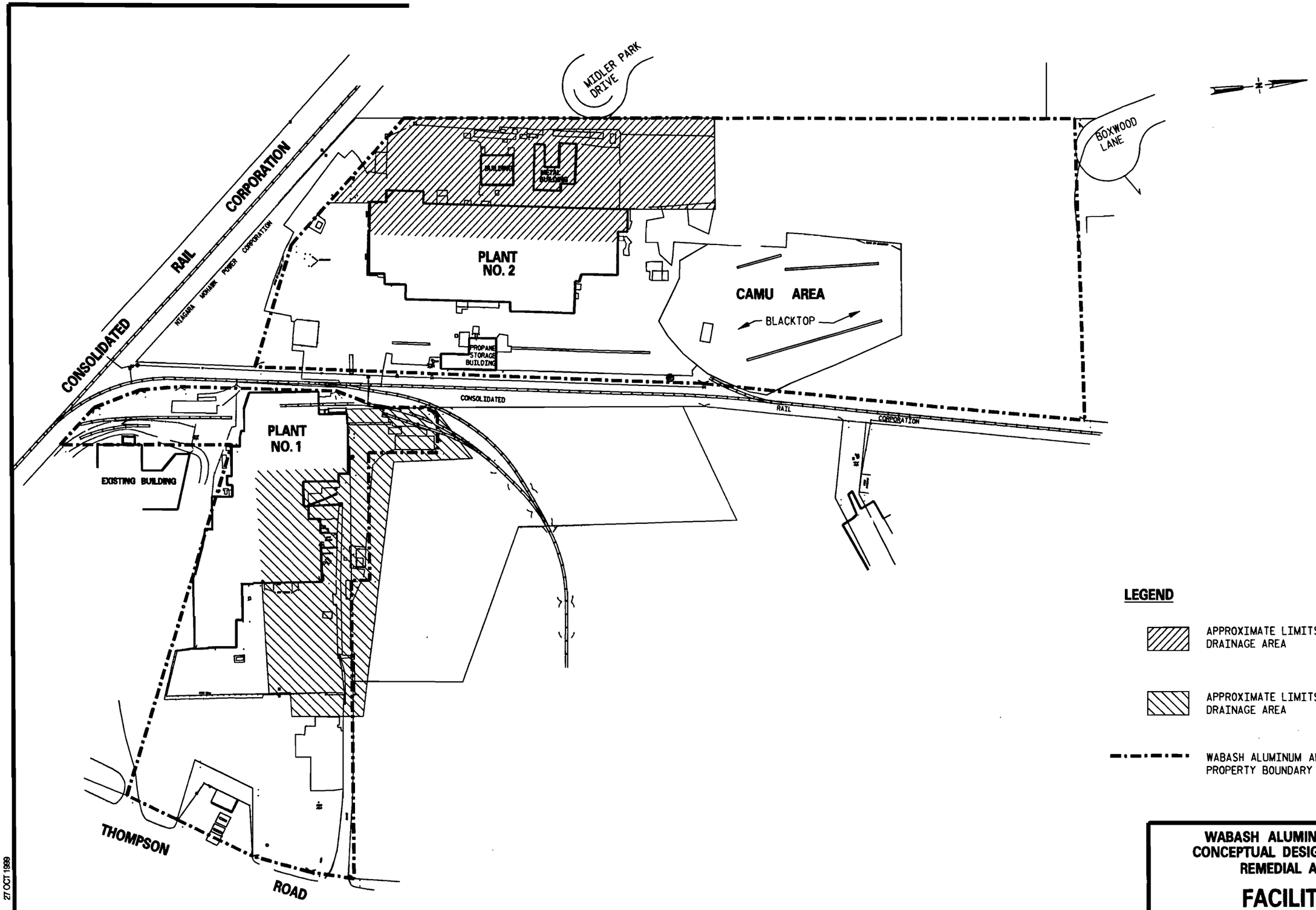
4.0 SCHEDULE

The following schedule of activities, consistent with the Schedule of Compliance provided in Appendix A to the Modification Consent Order, is proposed for implementing the remedial actions outlined in this Conceptual Design Report.

TASK	SCHEDULE
Submit Final Proposed Conceptual Design for Selected Remedial Alternative to NYSDEC	Submitted
Initiate Engineering Design for Outfall 001 and 004 Improvements	Within 45 days of NYSDEC approval of Conceptual Design for Selected Remedial Alternative and modified schedule
Submit Engineering Design for Outfall 001 and 004 Improvements to NYSDEC	Within 90 days of initiating design
Initiate Construction of Outfall 001 and 004 Improvements	Within 45 days of NYSDEC approval of design and modified schedule
Conduct Bench-Scale Treatability Studies and Submit Draft Pilot Water Treatment Plant Design to NYSDEC	Within 120 days of NYSDEC approval of design for Outfall 001 and 004 improvements
Complete Construction of Outfall 001 and 004 Improvements	Within 180 days of initiating construction; or, under winter conditions, within 270 days of initiating construction
Initiate Pilot Water Treatment Plant Testing	Within 60 days of NYSDEC approval of pilot plant design or upon completion of Outfall 001 and 004 improvements
Submit Final Engineering Design for Water Treatment System	Within 60 days of completion of pilot testing
Initiate Construction of Water Treatment System	Within 45 days of NYSDEC approval of design
Complete Water Treatment System Construction	Within 180 days of initiating construction; or, under winter conditions, within 270 days of initiating construction
BMP Activities*:	
A. Submit Revised BMP	A. Concurrent with Submission of Final Engineering Design for Water Treatment System
B. Submit Final BMP	B. Concurrent with Completion of Water Treatment System
C. Implement Non-Structural Measures as Specified by BMP	C. Six Months from Submittal of BMP
D. Complete Construction of Structural Measures Specified by BMP	D. One Year from Submittal of BMP

* The February 1999 BMP has been implemented.

As described in Section 3.1, Wabash anticipates that modified operational procedures and Outfall 004 improvements will mitigate PCBs at that Outfall. However, the activities described in the schedule provided above include installing treatment for 004 storm water if PCBs are detected at concentrations exceeding the 0.3 ppb discharge limit following a reasonable period of time, satisfactory to the Department, after completion of the 004 improvements. The above schedule indicates that completion of the Outfall 001 and 004 improvements will roughly coincide with the completion of data collection associated with the Groundwater Investigation, as provided in the Draft Groundwater Investigation Work Plan and the Order. The data from continued SPDES monitoring and the Groundwater Investigation might then be used to modify ongoing designs.



27 OCT 1999

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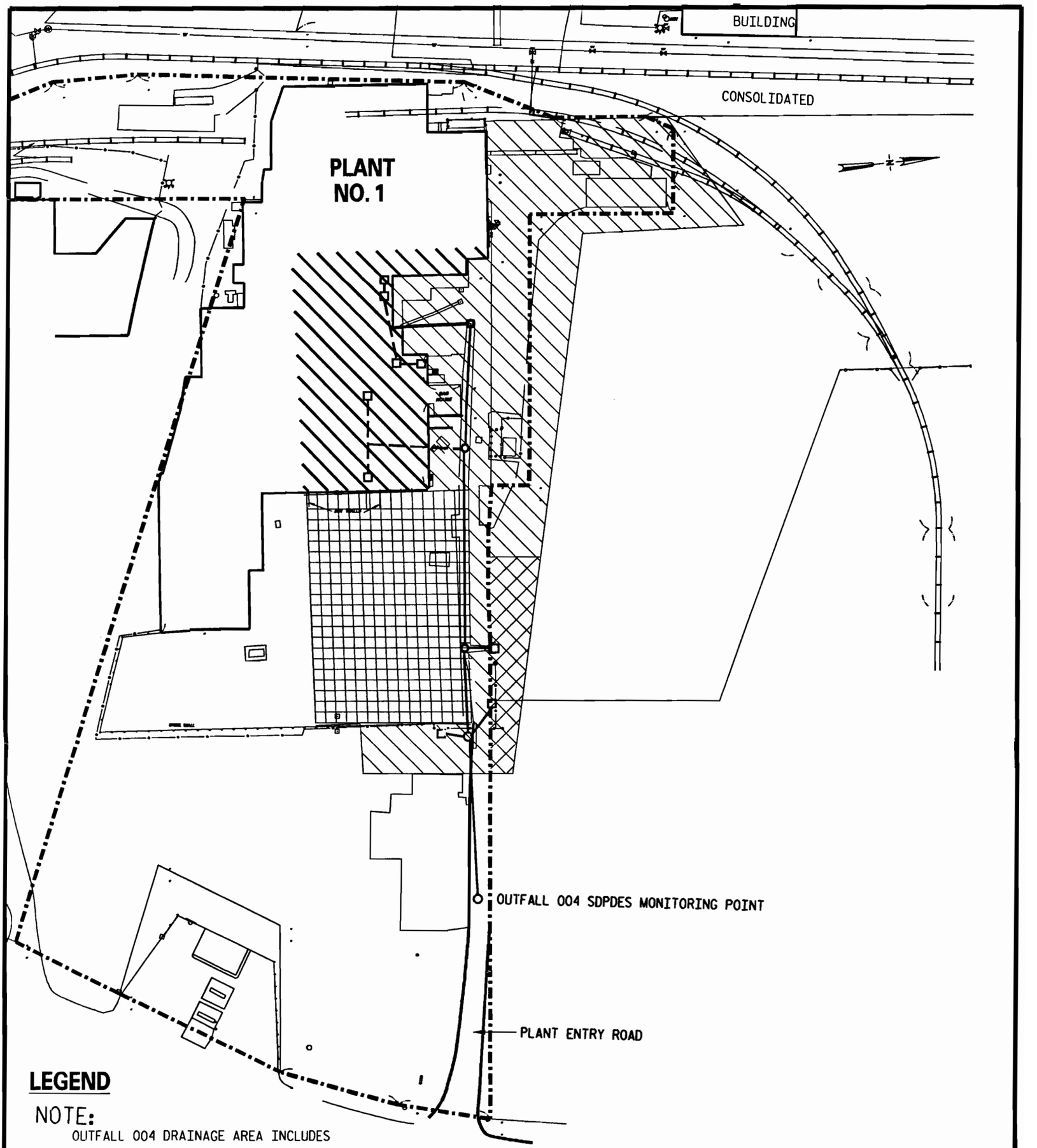
WABASH ALUMINUM ALLOYS, LLC
CONCEPTUAL DESIGN FOR SELECTED REMEDIAL ALTERNATIVE

FACILITY PLAN

C&S Engineers, Inc.

DATE:
SCALE: 1" = 200'
FILE NO. 405.790.005-200

FIGURE 1



LEGEND

NOTE:
OUTFALL 004 DRAINAGE AREA INCLUDES ROOF AREA DRAININGE, FRENCH DRAINS, SCRAP STORAGE AND OTHER GROUND SURFACE AREAS

- APPROXIMATE ROOF AREA DRAINING TO OUTFALL 004
- OTHER GROUND SURFACE AREAS
- APPROXIMATE AREA AFFECTED BY FRENCH DRAINS
- AREA PRESENTLY UTILIZED FOR SCRAP STORAGE
- WABASH ALUMINUM ALLOYS, LCC PROPERTY BOUNDARY
- 004 STORM DRAIN
- ROOF DRAINS
- CATCH BASINS
- MANHOLES

0 100 200'
1" = 100'

REVISIONS

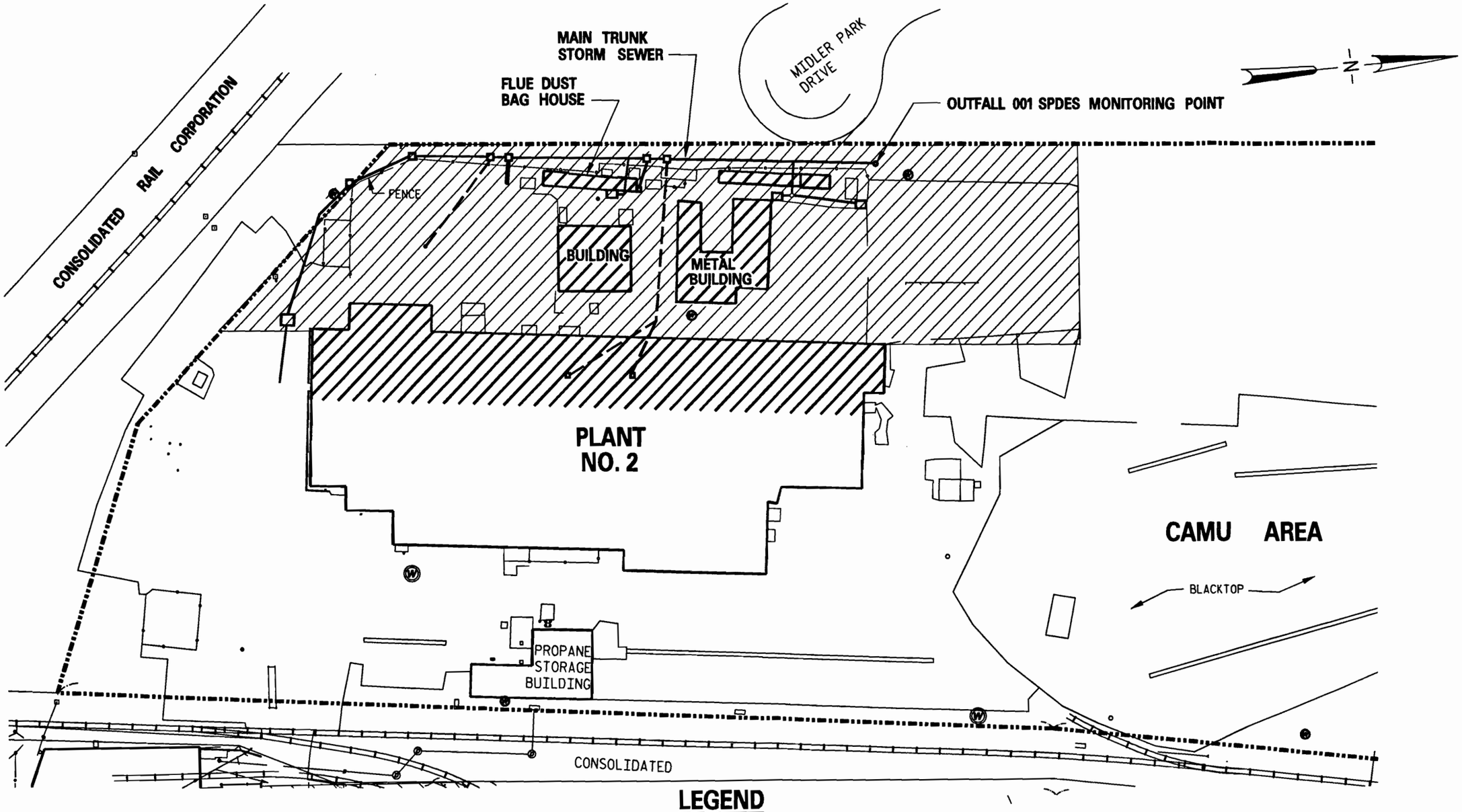
WABASH ALUMINUM ALLOYS, LLC
CONCEPTUAL DESIGN FOR SELECTED REMEDIAL ALTERNATIVE

OUTFALL 004 DRAINAGE AREA

C&S Engineers, Inc.

DATE:
SCALE: 1" = 100'
FILE NO. 405.790.005.-200

FIGURE 2



LEGEND

- APPROXIMATE LIMITS OF OUTFALL 001 DRAINAGE AREA
- ROOF AREAS DRAINING TO OUTFALL 001
- ROOF DRASINS
- CATCH BASINS
- MANHOLES
- MONITORING WELLS
- WABASH ALUMINUM ALLOYS, LCC PROPERTY BOUNDARY

0 100 200'

1" = 100'

WABASH ALUMINUM ALLOYS, LLC
CONCEPTUAL DESIGN FOR SELECTED REMEDIAL ALTERNATIVE

OUTFALL 001 DRAINAGE AREA

C&S Engineers, Inc.

DATE:
SCALE: 1" = 100'
FILE NO. 405.790.005.-200

FIGURE 3

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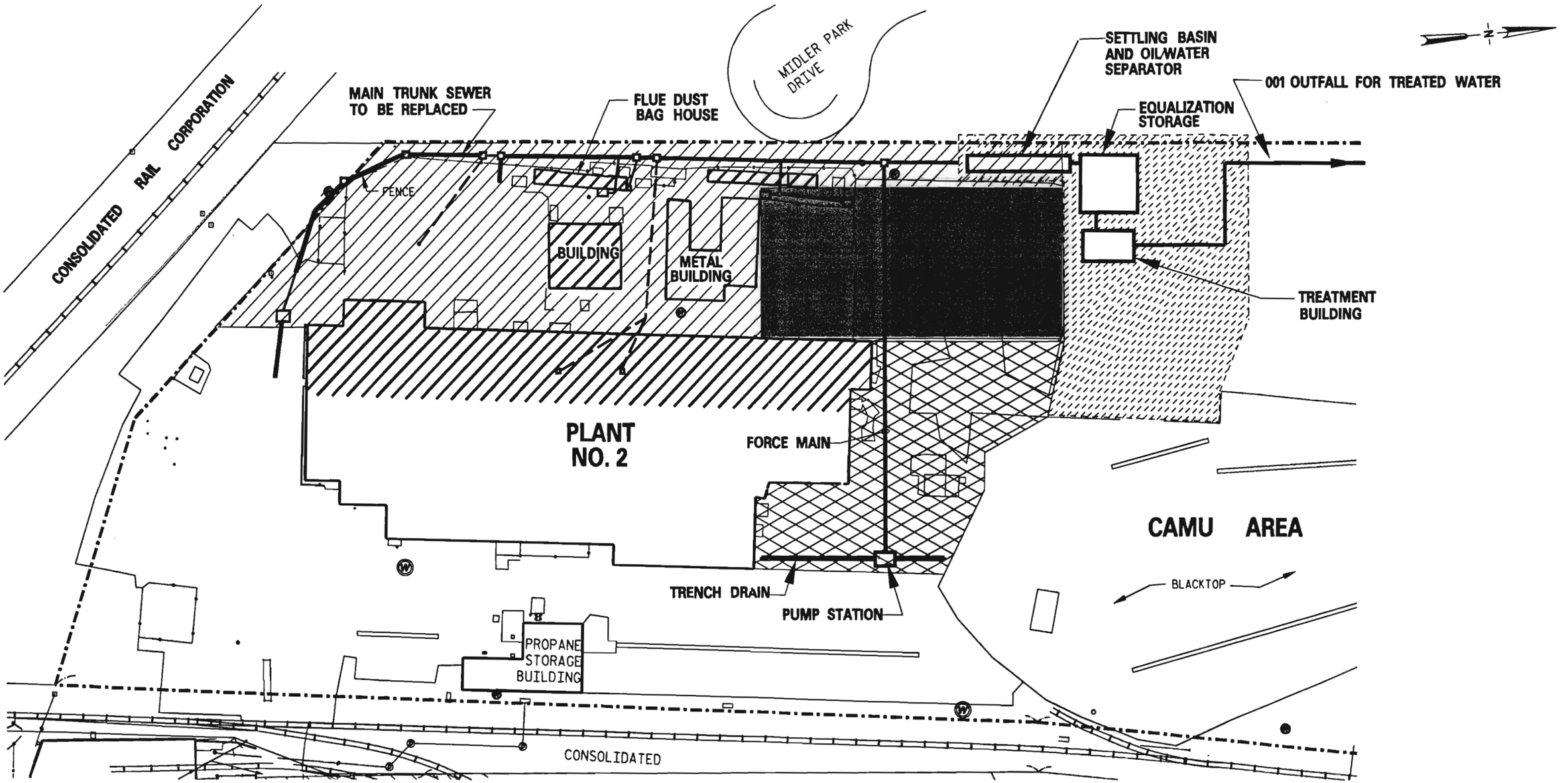

LEGEND

- REHABILITATED PAVEMENTS IN 001 DRAINAGE AREA
- ADDITIONAL SCRAP HANDLING AND STORAGE AREA
- ROOF AREA DRAINING TO OUTFALL 001
- NEW PAVEMENT AREA
- WABASH ALUMINUM ALLOYS, LCC PROPERTY BOUNDARY
- SEGREGATED STORAGE AREA FOR PRIORITY SCRAP

1" = 100' 0 100 200'

WABASH ALUMINUM ALLOYS, LLC
CONCEPTUAL DESIGN FOR SELECTED REMEDIAL ALTERNATIVE

OUTFALL 001 REMEDIAL COMPONENTS

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DATE:
SCALE: 1" = 200'
FILE NO. 405.790.005.-200

FIGURE 4

19 NOV 1999

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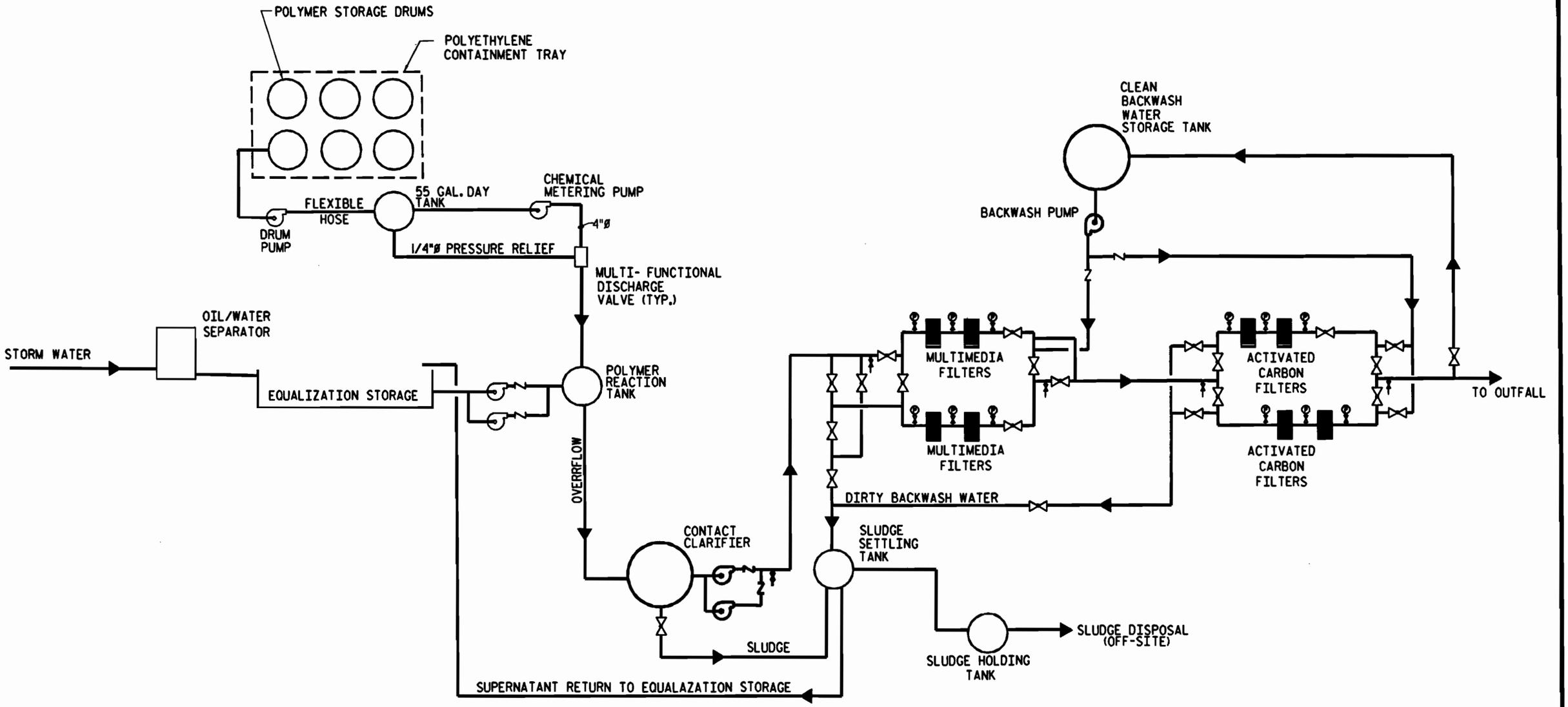

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WABASH ALUMINUM ALLOYS, LLC
CONCEPTUAL DESIGN FOR SELECTED REMEDIAL ALTERNATIVE

PROCESS SCHEMATIC DIAGRAM

C&S Engineers, Inc.

DATE:
SCALE: NOT TO SCALE
FILE NO. 405.790.005-200

FIGURE 5