

City of Pinole

Pinole/Hercules WPCP Project

Technical Memorandum 20

Demolition and Site Work

March 1, 2013

PRELIMINARY
FOR REVIEW ONLY



Prepared under the responsible charge of

Craig Olson
39819



2365 Iron Point Road, Suite 300
Folsom, CA 95630

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TM 20 - DEMOLITION AND SITE WORK

Pinole/Hercules WPCP Predesign Report

March 1, 2013

Reviewed by: Craig Olson, P.E.

Prepared by: Malar Perinpanayagam, P.E.

Executive Summary

Purpose

The purpose of this technical memorandum (TM) is to discuss the demolition and site improvements that will be constructed as a part of the City of Pinole/Hercules Water Pollution Control Plant (WPCP) upgrades.

Background

The proposed improvements to meet new National Pollutant Discharge Elimination System (NPDES) requirements to treat flows up to 20 million gallons per day (mgd) to secondary standards, will involve existing structure demolition, equipment relocation, and new construction. The existing site is fully occupied with structures and limited space is available for new construction and contractor staging. Some of the existing processes are very old and inefficient. These processes will be replaced with new ones upon demolition of existing structures and will increase treatment capacity of peak wet weather flow (PWWF).

Conclusions

- ◆ Contractor staging area shall be located at the east corner of the plant.
- ◆ Existing access gate and fencing will remain same.
- ◆ New construction will not require new paving, but will require repaving to bring the site back to existing conditions.
- ◆ Existing headworks, Primary Clarifier No.3, Secondary Clarifiers No.1 and No.2, and solids handling facility will be demolished to accommodate new construction.
- ◆ Existing stormwater system will remain the same, but a new connection will be provided to divert flow from the existing headworks influent line to a new headworks influent line.
- ◆ Engineer's preliminary cost estimate is \$770,000.

Introduction

The Pinole/Hercules WPCP is planning for an upgrade to meet the plant's new Regional Water Quality Control Board NPDES Permit No. CA0037796, issued on August 14, 2012. The permit requires the WPCP to treat PWWF up to 20 mgd to secondary standards. The proposed improvements include a new headworks facility, a new primary clarifier, expansion and retrofitting of existing aeration basins, two new secondary clarifiers, a new solids handling facility, and rehabilitation of some existing structures. The project shall be constructed in three stages.

The plant currently treats peak wet weather flows up to 10.3 mgd. Though the primary and secondary clarifiers have historically handled higher flows than their rated capacity on unusual wet weather events, some of the clarifiers are very old and inefficient. Space limitations for new construction will require the existing clarifiers to be demolished and new clarifiers built to increase the treatment capacity and efficiency.

This TM discusses demolition and site work associated with plant upgrades including the following:

- ◆ Design criteria
- ◆ Site layout and access
- ◆ Gates and fencing
- ◆ Site paving
- ◆ Demolition of major structures
- ◆ Erosion and sediment control

Design Criteria

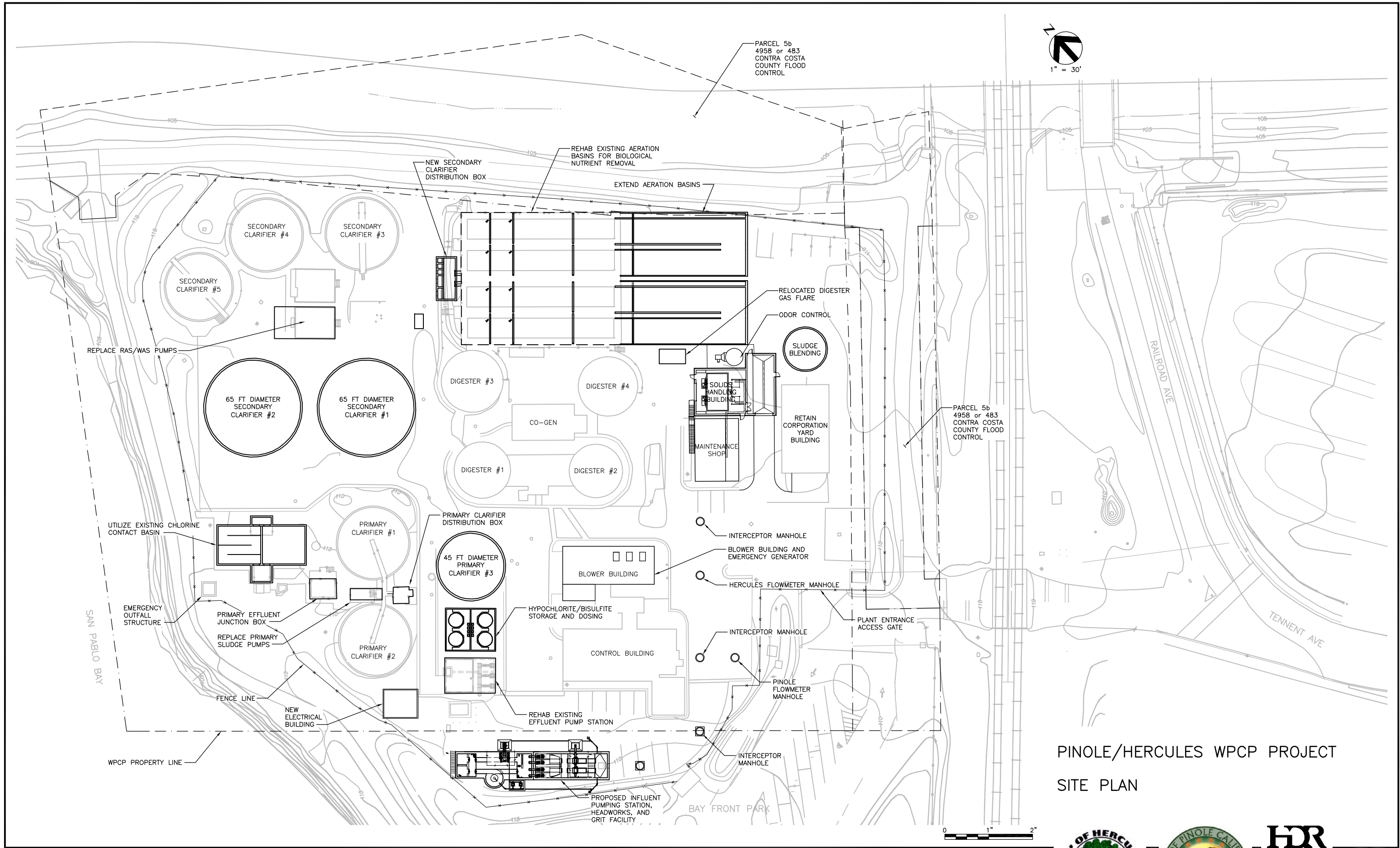
Site Pavement and Grading

Site re-pavement shall have minimum 12-in prepared subbase, 8-inch aggregate base, and 2-in asphalt concrete to match existing pavement design. Grading shall have minimum 2 percent slope to drain storm water to catch basins.

Site Layout and Access

The plant can be accessed either from Railroad Avenue or Tennent Avenue. There is only one access gate (rolling gate) at the main entrance located at the south corner of the plant. The site plan for proposed improvements is shown on Figure 20-1.

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PINOLE/HERCULES WPCP PROJECT
SITE PLAN



Figure 20-1

Site Paving

The majority of the entire existing site is paved with concrete or asphalt. The construction of proposed improvements will not require additional new site paving and roadways; however, due to demolition of existing structures and new construction, repaving will be required to repair damaged areas. Figure 20-2 shows potential repaving area.

Demolition of Major Structures

Major components of plant upgrades, except the headworks, will occupy the existing process area. To accommodate new construction, the existing structures will be demolished and relocated. The new primary clarifier will be located at existing headworks and maintenance building area. The existing aeration basins will be expanded to the existing solids handling facility. New Secondary Clarifiers No. 1 and No. 2 will be constructed at Primary Clarifier No. 3, and Secondary Clarifiers No. 1 and No. 2. The new solids handling facility will be constructed at the existing caustic storage area.

Figure 20-3 depicts demolition of the existing major structures.

Erosion and Sediment Control

The NPDES permit regulates the storm water pollution prevention plan (SWPPP) and requires that all storm water from the treatment plant areas and pump stations are directed to the headworks and treated along with the plant influent. The existing site was designed to collect storm water from the plant process areas and direct it to the headworks.

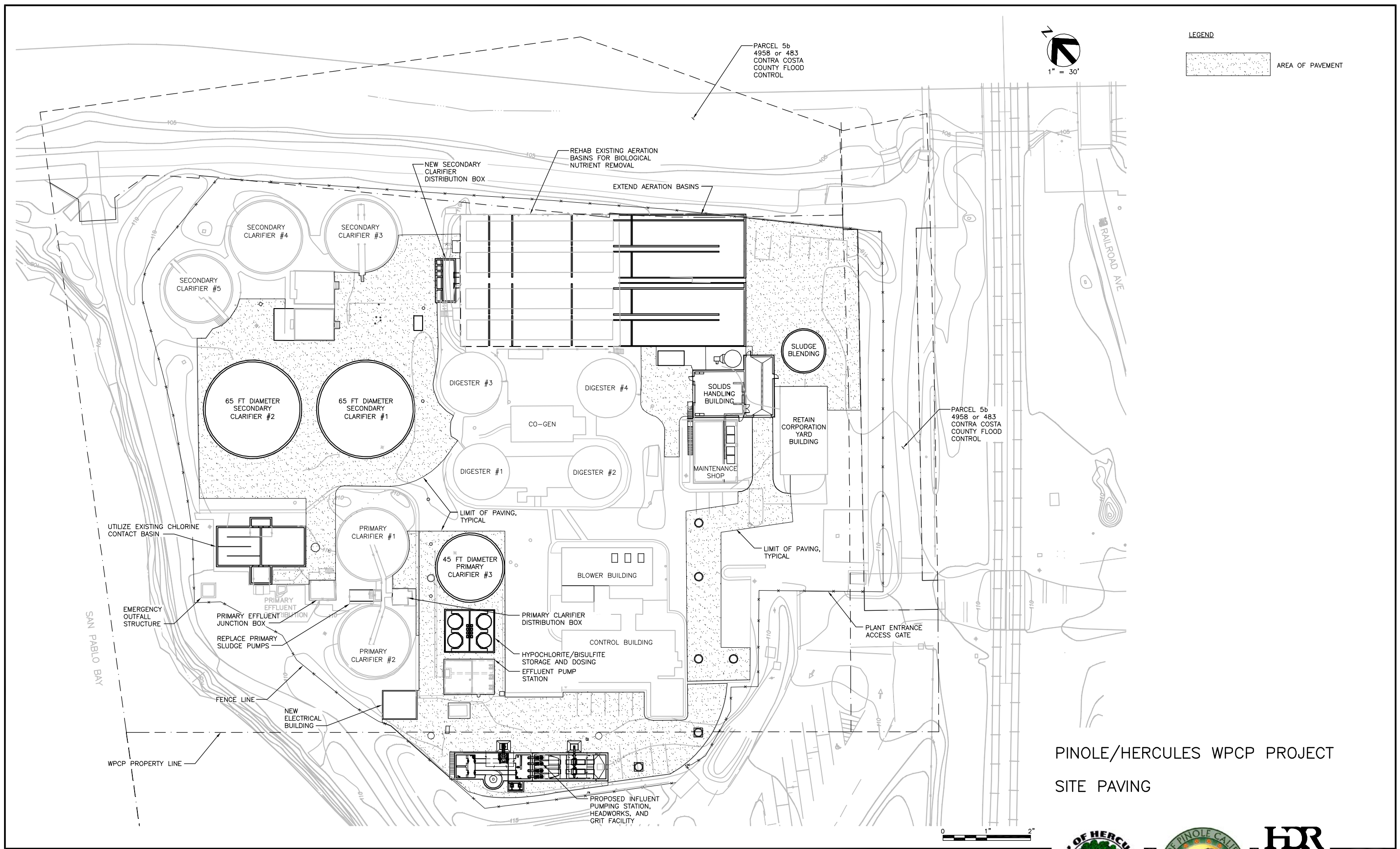
The proposed improvements will not require any modifications to the storm water system. The existing conditions shall remain the same during construction of the plant upgrades, except a new connection shall be constructed to divert storm water and drainage from the existing headworks influent line to a new headworks influent line. Refer Figure 19-1 in TM 19 Plant Utilities and Yard Piping for the new storm water/drain connection to the new headworks.

During construction activities, it will be the contractor's responsibility to implement erosion and sediment control measures.

Construction Staging

The construction of plant upgrades will be in three stages. TM 4, Construction Phasing and Sequencing, discusses construction stages and work sequence in more detail. The existing site layout shows that the process areas are closely arranged and there is very limited free space available for the contractor to stage at the east corner of the plant. Figure 20-4 shows an overall plan of construction stages, contractor staging area and access routes.

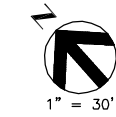
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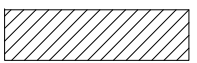
PINOLE/HERCULES WPCP PROJECT
SITE PAVING



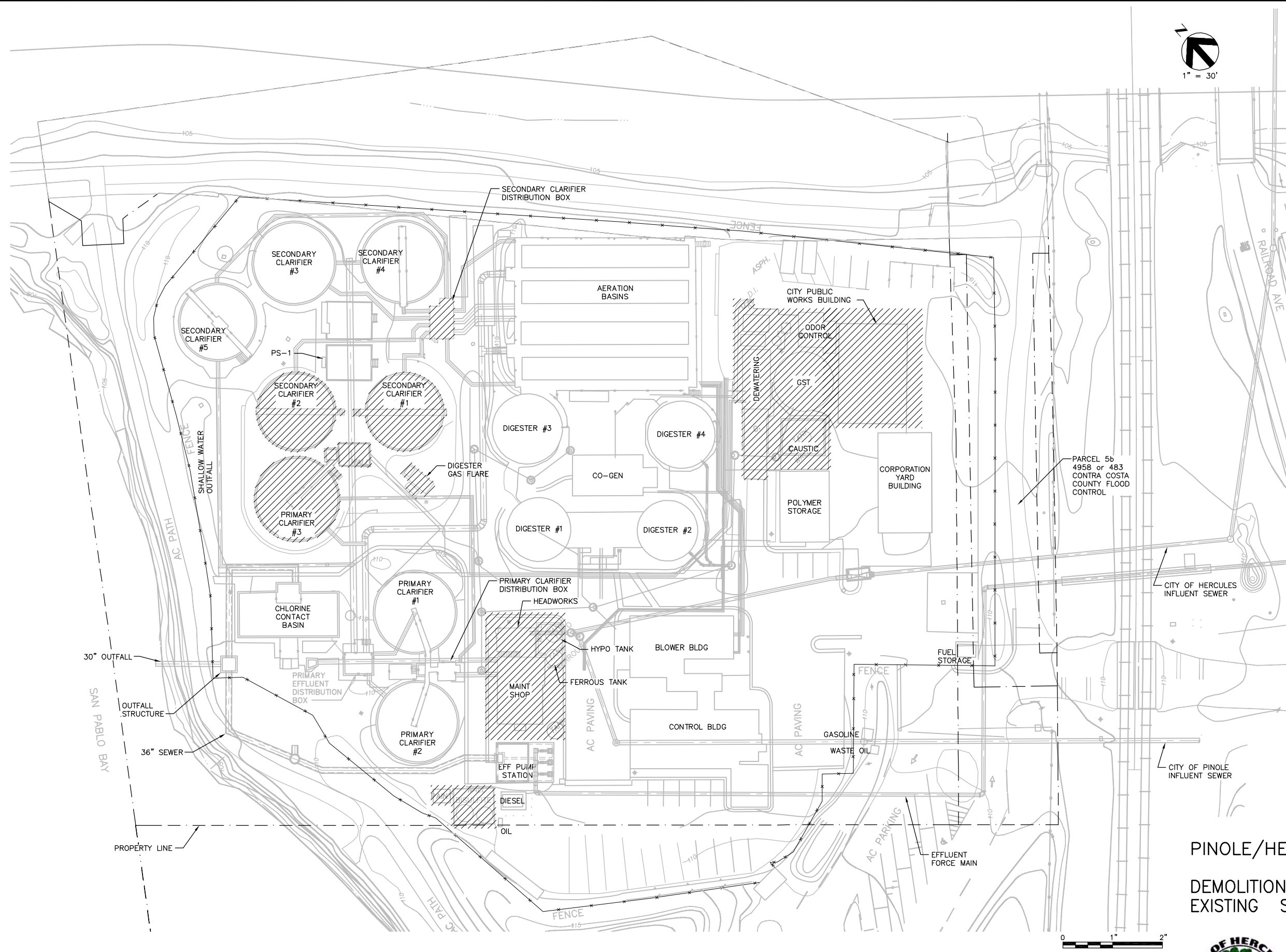
Figure 20-2



LEGEND



DEMOLITION



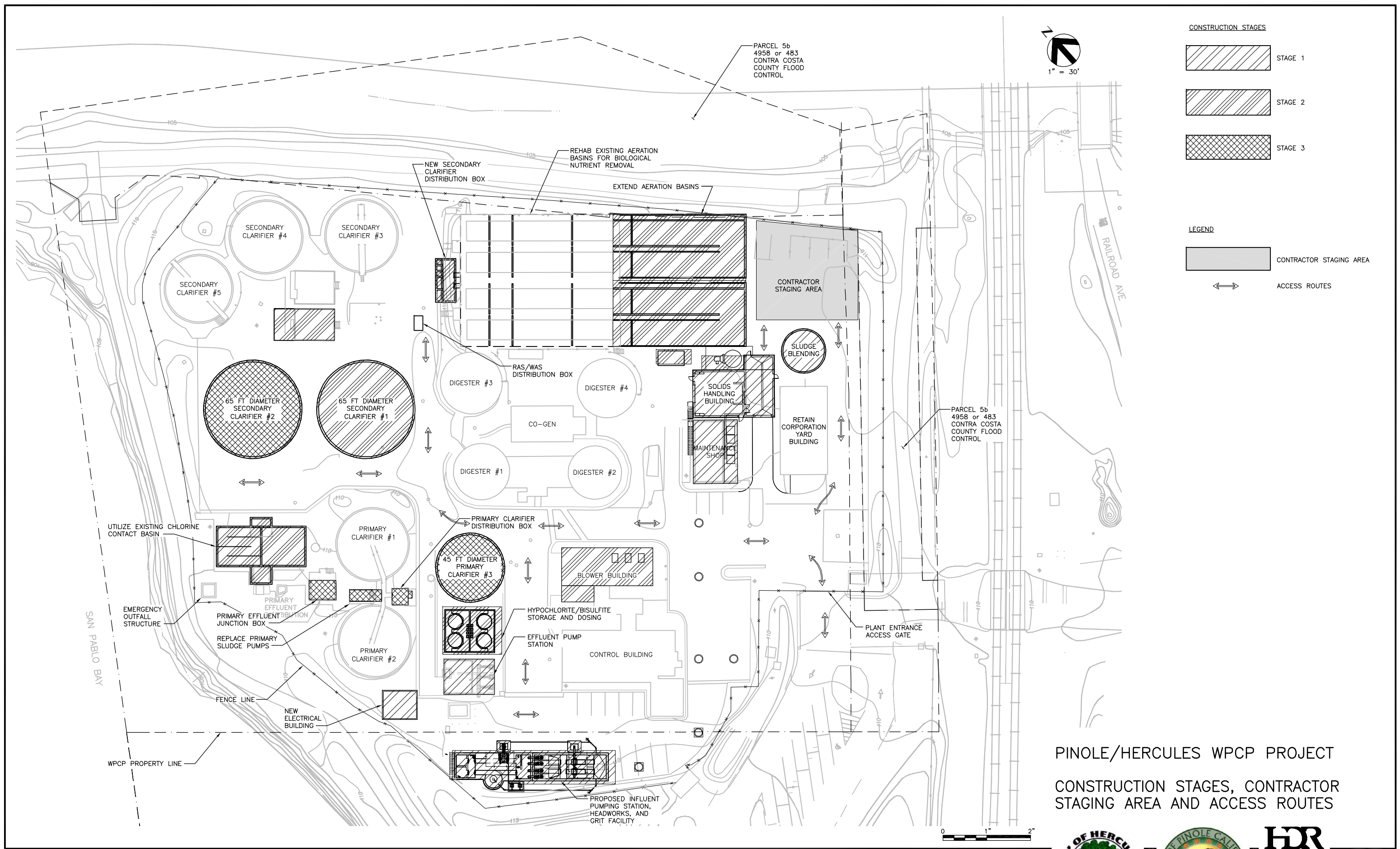
PINOLE/HERCULES WPCP PROJECT
 DEMOLITION OF MAJOR
 EXISTING STRUCTURES



Figure 20-3

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PINOLE/HERCULES WPCP PROJECT
 CONSTRUCTION STAGES, CONTRACTOR
 STAGING AREA AND ACCESS ROUTES



Figure 20-4

Due to the limitation of land space for new construction and the close fence line from existing structures, the existing site roads are proposed to be used as contractor access routes to construction areas. An evaluation shall be performed to protect existing underground piping from heavy equipment traffic load, or an alternative route shall be proposed by the City. The contractor access routes shall be coordinated with the City to minimize disruption to existing plant operation and access.

Cost Estimate Summary

The engineer's preliminary cost estimate for demolition and site work including yard piping is approximately \$2,728,000 including 20 percent contingency. Cost estimation for demolition of structures, site clearing, excavation and backfill, repaving, potholing and dewatering is \$746,000. The remainder of the \$2,728,000 is for yard piping including mechanical, excavation, and backfilling/bedding. The cost breakdown for site work and yard piping associated with each process area is detailed in Divisions 2 and 15 of the respective process area TM cost estimates.