

Retention Pond Corrective Action Plan

PREPARED FOR THE:

CEMEX (RMC Pacific Materials, LLC) Cement Plant

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April 1, 2018

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Section 1

Introduction

1.1 Purpose

TRC Solutions, Inc. (TRC) has prepared this Retention and Pond Corrective Action Plan (CAP, Plan) in support of the North Cement Kiln Dust (CKD) Area (North CKD Landfill) closure at the CEMEX Davenport Cement Plant in Davenport, California (Facility, Site) as shown on **Figure 1**. The CAP has been prepared in to comply with Provision E.22 of the newly promulgated Waste Discharge Requirements Order No. R3-2018-0001 (WDRs) for the Site, which requires the following:

- A Work Plan for draining the ponds, determining the depth of impacted sediments, and excavation, drying, characterization, and disposal of impacted sediments from the Retention Pond and Detention Pond.
- A schedule for implementation of the work plan relative to the final closure construction schedule that prevents new impacts to the ponds after they have been remediated.
- A proposal for an additional shallow groundwater monitoring well downgradient of PZ-15 to investigate potential downgradient groundwater impacts and monitor the effectiveness of the Corrective Action Plan.

The locations of the North CKD Area and the ponds are shown on **Figures 2 and 3**.

TRC recently performed a Supplemental Site Characterization (SSC) of the Retention Pond, Detention Pond and the adjacent Former Coal Storage Area. It was concluded in the SSC Report (TRC, 2018) that there has been no significant deposition of sediments or other pollutants from the North CKD Area into the Detention Pond and no further action was recommended for Detention Pond. For this reason, this Corrective Action Plan pertains only to the Retention Pond.

1.2 History and Previous Investigations

The Retention Pond is an unlined stormwater collection pond located southwest of the North CKD Area. The Retention Pond is approximately 30,000 square feet (0.7 acres) and collects stormwater from various adjacent Facility areas including the North CKD Area and Former Coal Storage Area. Sediments and other solids from cement manufacturing, material stockpile areas (i.e. coal, iron slag, lime), and the North CKD Area, have caused the water in the Retention Pond to have pH levels between 10 and 12 with elevated total dissolved solids, including metals and minerals.

Environmental soil and groundwater investigations have been previously completed to assess a number of Areas of Potential Environmental Concern (APECs) at the Site as part of the overall Facility closure process (TRC, 2017). As part of these APEC investigations, limited assessment and characterization of the Former Coal Storage Area, adjacent to the Retention Pond, was completed between 2013 and 2017, which identified contaminants of potential concern (COPCs).

In November 2014 when the pond bottom was uncharacteristically dry and accessible due to drought conditions, and at the request of CEMEX, TRC performed a limited investigation of the Retention Pond to determine the thickness of deposited sediments and to obtain pre-characterization data for evaluation of potential disposal costs and options.

Three hand auger borings (RP-1, RP-2 and RP-3) were advanced to a depth of approximately 13.5 ft below ground surface (bgs) at the bottom. The boring locations are indicated on **Figure 4**. Sediment/soil samples were collected from borings RP-1 and RP-2 at depths of 1, 4, 9, and 13.5 feet bgs and from boring RP-3 at depths 1, 4, and 9 feet bgs. Boring logs were included in Attachment B of the SSC Report. Discrete samples from each boring were composited and submitted to a state certified laboratory for the following analyses:

- California Assessment Metals (CAM 17) using EPA Method 6010B and 7471A
- Total petroleum hydrocarbons (TPH) as gasoline using EPA Method 8260B and diesel using EPA Method 8015B
- Volatile Organic Compounds (VOCs) using EPA Method 8260B
- Semi-volatile organic compounds (SVOCs) using EPA Method 8270C
- Organochlorine Pesticides using EPA Method 8081A
- Polychlorinated biphenyls (PCBs) using EPA Method 8082
- pH using EPA Method 9045C
- Flashpoint using Method 7.1.2
- Reactive cyanide and sulfide using Method 9014 and 9034, respectively
- Hexane Extractable Materials (Oil and Grease) using method 9071B

Based on the results of these tests, the SSC Report concluded that sediments deposited at the Retention Pond are non-hazardous and are suitable for relocation on-Site at the North CKD Landfill area below the proposed closure cap. A summary of analytical results for the Retention Pond samples is provided in Table 2 of the SSC Report. Laboratory analytical reports are provided in Attachment C of the SSC Report.

Section 2

Corrective Action Plan

The proposed corrective action plan for the Retention Pond generally consists of excavation of the CKD and residual coal sediments, temporary relocation of the excavated sediments to the adjacent Former Coal Storage Area for drying, and final transport of the dry sediments and underlying residual coal to the North CKD Area for placement under the closure cap.

2.1 Structural Modifications

The recently completed Stormwater Hydraulic Analysis Report (Farallon Consulting, 2018) concluded that providing additional storage below the existing Retention Pond outlet elevation would not have any impact on the ability of the Retention Pond and other Facility stormwater drainage infrastructure to handle the required 1,000-year, 24-hour storm event flows. Rather, it was determined that the water level in the Retention Pond would rise to a peak elevation of approximately 105.5 feet above mean sea level (105.5 MSL) during the 1,000-year, 24-hour storm event, regardless of any additional storage that would be provided by excavating sediment from the bottom of the pond. The existing Retention Pond outlet structure will require modification to lower the outlet elevation and installation of a low-flow orifice, both to be fitted with check valves to allow only one-way flow. A concrete wall will be required along the west side of the pond to contain the peak water level during the 1,000-year, 24-hour storm event. These modifications and connecting storm drain infrastructure from the North CKD Area are shown on **Figures 4 and 5**.

2.2 Excavation and De-watering

Based on the investigation of the Retention Pond performed in 2014, as described in the SSC Report, it is proposed to excavate the bottom of the Retention Pond to a new bottom elevation of 92 MSL to remove deposited sediments from the North CKD Area and the adjacent Former Coal Storage Area. The deposited sediments will be visually identified during excavation. As shown on **Figure 4**, excavation to 92 MSL would remove a minimum of approximately 2 feet of deposited sediments and underlying soil, which is more than the thickness visually identified during the 2014 investigation, as indicated on the boring logs included in Attachment B of the SSC Report. The volume of sediments to be removed from the Retention Pond as part of this proposed Corrective Action Plan is approximately 3,681 cubic yards (CY). Additional contingency for excavating below 92 MSL has been accounted for in the final grading presented in the Final Closure Plan for the North CKD Landfill (ARC, 2018).

The current approximate topography of the bottom of the pond is presented on **Figure 4**. The current topography was estimated based on photographs and Global Positioning System (GPS) readings taken during the 2014 investigation. Based on reported groundwater levels at groundwater monitoring well PZ-15MW1 located just west of the Retention Pond, groundwater below the pond is generally but not consistently correlated to the water level in the pond. If the pond is drained as described below, groundwater levels should drop below 92 MSL during the excavation. If groundwater is observed to be seeping into the excavation, it will be removed. The seeping groundwater will be sampled for analytical laboratory testing and, if determined to be uncontaminated in relation to the Facility's stormwater, will be discharged through the existing outlet structure as an allowable non-stormwater

discharge in accordance with SWRCB General Order No. 2014-0057-DWQ (Industrial General Permit, IGP), under which the facility is currently covered (WDID No. 3 44I018784). If the groundwater is determined to be contaminated or otherwise unsuitable for direct discharge, additional treatment measures will be proposed so that the groundwater can be discharged directly from the Facility, or the groundwater will be disposed on-Site as dust control at the North CKD Area or transported to an approved off-site facility.

To provide additional information regarding groundwater levels under and around the Retention Pond, it is proposed to install four (4) temporary piezometers around the perimeter in 2018. It is also proposed, in accordance with the WDRs, that an additional groundwater monitoring well will be installed southwest of the Retention Pond (PZ-17) and an additional groundwater monitoring well will be installed northeast of the Retention Pond (PZ-16). The existing groundwater monitoring wells, and the proposed new wells and temporary piezometers, will be monitored prior to, and during, excavation activities to assess groundwater levels and potential need for de-watering facilities. The proposed locations of the new groundwater monitoring wells and temporary piezometers is shown on **Figure 4**. The temporary piezometers will be abandoned, along with groundwater monitoring well PZ-15MW1, after completion of the work described in this Corrective Action Plan.

2.3 Scheduling

Currently, it is planned that the closure of the North CKD Area will be performed over two (2) construction seasons in years 2019 and 2020. During the first construction season, after the rainy season has concluded (approximately May 1), the water in the retention pond will be pumped into the existing outlet structure and discharged as stormwater in accordance with the IGP. To avoid disturbing sediments at the bottom of the pond, the water will be pumped out slowly and up to six (6) inches of water will be left in the pond to evaporate or infiltrate naturally. This de-watering will allow the sediment materials to dry in-place to some extent and also allow access for excavation equipment. If the pond bottom remains too soft for low-ground-pressure equipment to access, the majority of the excavation will be managed from the perimeter of the pond with long reach-equipment. It is intended that most of the sediments from the North CKD and Former Coal Storage Areas will be excavated during the first construction season, but some will remain at the bottom of the pond to be removed during the second construction season as described below.

Because the North CKD and Former Coal Storage Areas will still be exposed to stormwater runoff between the first and second construction seasons, it is anticipated that additional sediments from these areas could potentially be deposited at the bottom of the Retention Pond and these would be removed during the second construction season just prior to placement of the final closure cap over the North CKD Area. During the second construction season, the pond would again be de-watered as described above, then any new sediments and remaining sediments will be excavated from the Retention Pond to achieve the final design bottom elevation of 92 MSL.

2.4 Transport and Final Relocation

It is expected that the sediments excavated from the bottom of the Retention Pond will be very wet and not readily transported to the North CKD Area for placement under the proposed landfill cap. For this reason, sediments excavated during the first construction season will be placed on the Former Coal Storage Area in “windrow” stockpiles for additional drying. The stockpiled sediments will be covered during the rainy season between the first and second construction seasons. During the second construction season, the dry stockpiled sediments, as well as the remaining sediments excavated during the second construction season and any residual coal, will be removed and transported to the North CKD Area for placement under the proposed landfill cap.

Section 3

Postclosure Monitoring

The proposed new groundwater monitoring wells, as required by the WDRs, will be monitored in accordance with the associated Monitoring and Reporting Program (MRP) for the North CKD Landfill to determine the effectiveness of this proposed Corrective Action Plan. PZ-17 will be installed in a more appropriate location approximately 50 feet down-gradient of PZ-15MW1, which will be abandoned after completion of the work described in this Corrective Action Plan. It is expected that the removal of the residual coal and deposited sediments from the North CKD Area and Former Coal Storage Area, and concurrent closure capping of the North CKD Area, will adequately remove “source” materials that could cause degradation of the groundwater at the Site. Subsequent “flushing” with stormwater should continue to help improve the groundwater quality at the Retention Pond.

Section 4

References

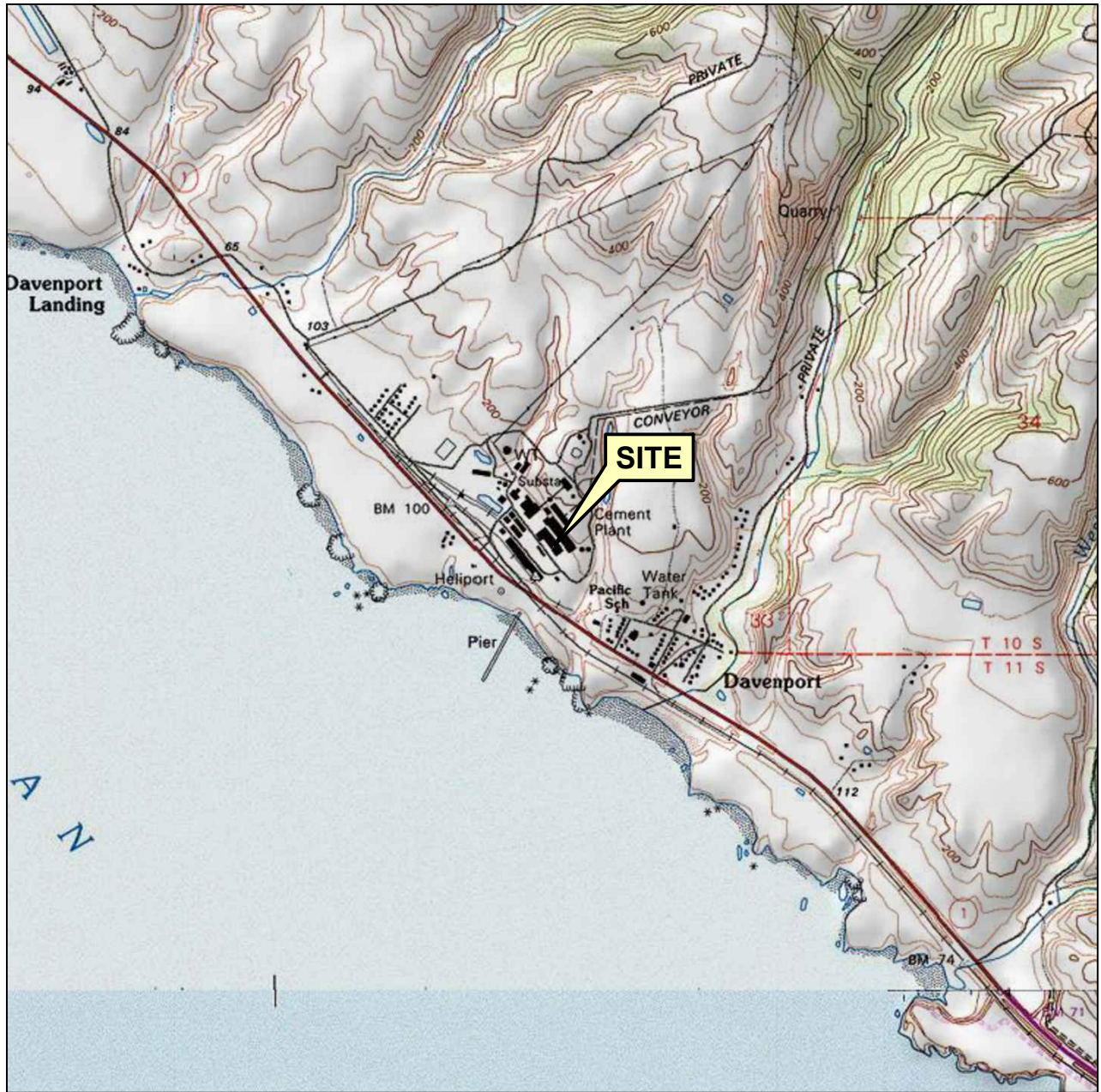
Adams Resource Consultants, 2018; Final North CKD Area Closure Plan and Postclosure Monitoring and Maintenance Plan, April 1, 2018.

Farallon Consulting, 2018; Stormwater Hydraulic Analysis Report, March 30, 2018.

TRC, 2017; Supplemental Facility Closure Investigation Report, July 21, 2017.

TRC, 2018; Supplemental Site Characterization Report, March 23, 2018.

FIGURES



1 MILE 3/4 1/2 1/4 0 1 MILE



SCALE 1 : 24,000



SOURCE:
United States Geological Survey
7.5 Minute Topographic Maps:
Davenport Quadrangle,
California

VICINITY MAP

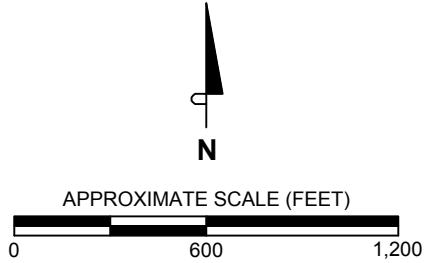
CEMEX
Davenport Cement Plant
Davenport, California



FIGURE 1



SOURCE AERIAL PHOTO: Google Earth, September 2017.



AERIAL VIEW OF SITE
CEMEX
Davenport Cement Plant
Davenport, California



FIGURE 2

FILE NAME: Y:\CEMEX\Davenport\Retention Pond\CAD\Supp Site Charact_North CKD Closure_Feb18\Fig3_Site Plan.dwg | Layout Tab - 11x17



North
CKD Area

Detention
Pond

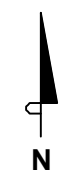
Former Coal
Storage Area

Retention
Pond

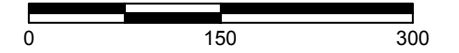
Lone Star
Closed
CKD
Landfill

Railroad Tracks
Highway 1 (Cabrillo Highway)

Railroad Tracks



APPROXIMATE SCALE (FEET)



SOURCE AERIAL PHOTO: Google Earth, September 2017.

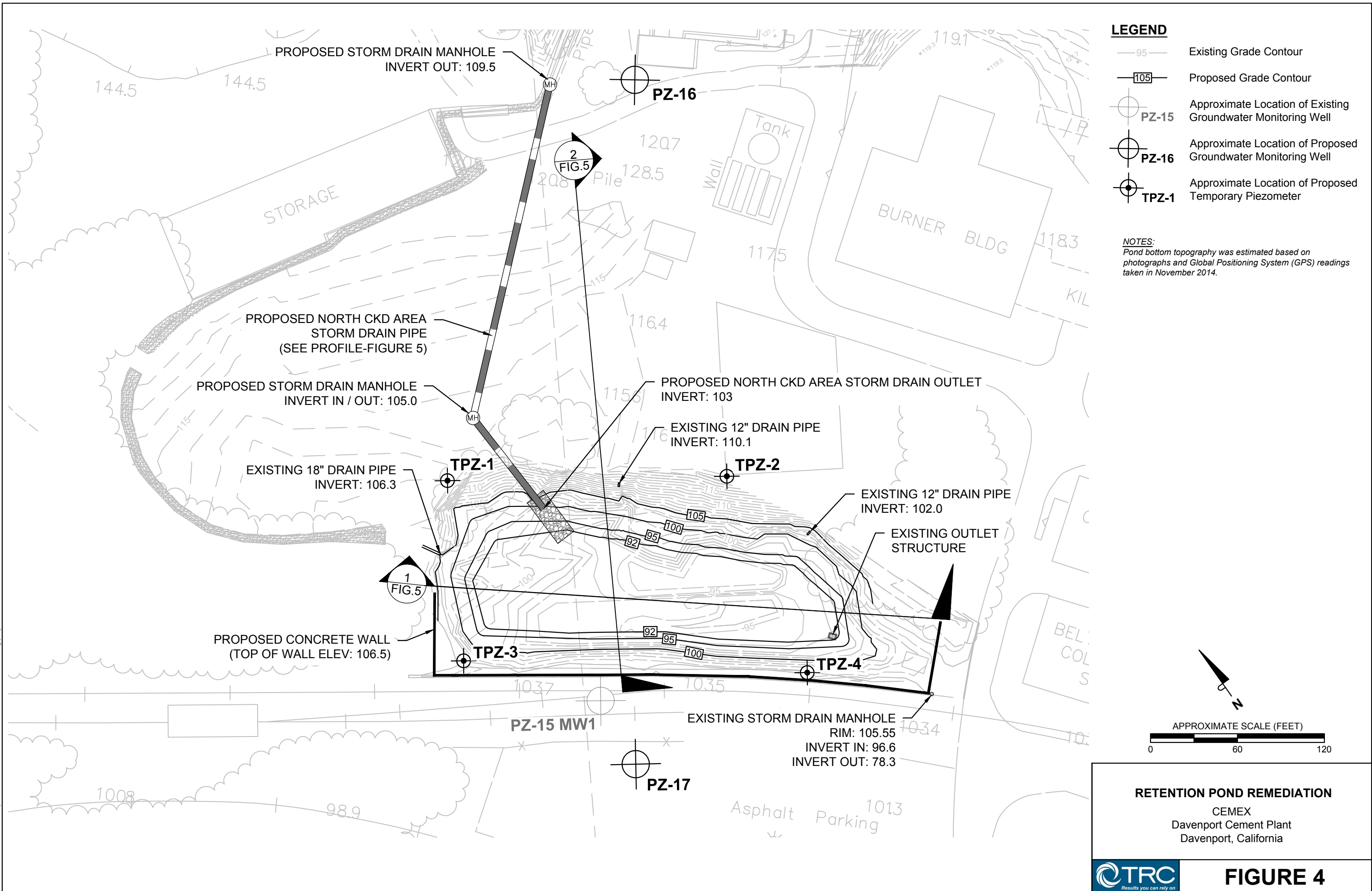
SITE PLAN

CEMEX
Davenport Cement Plant
Davenport, California

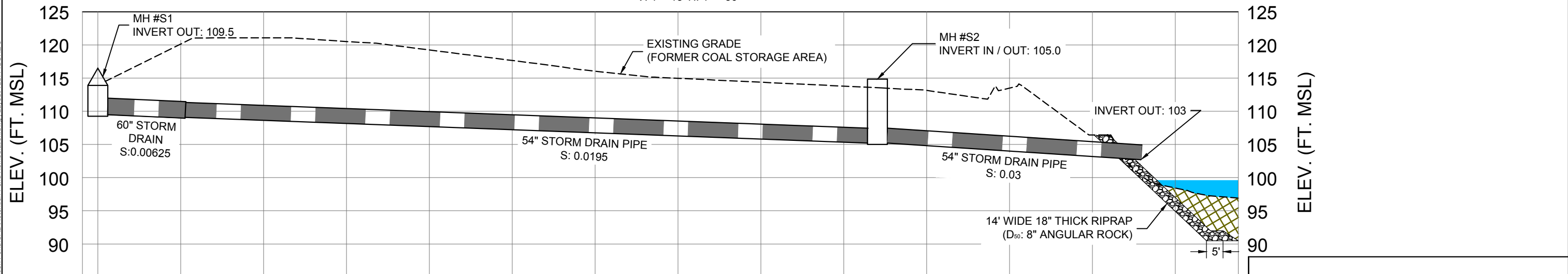
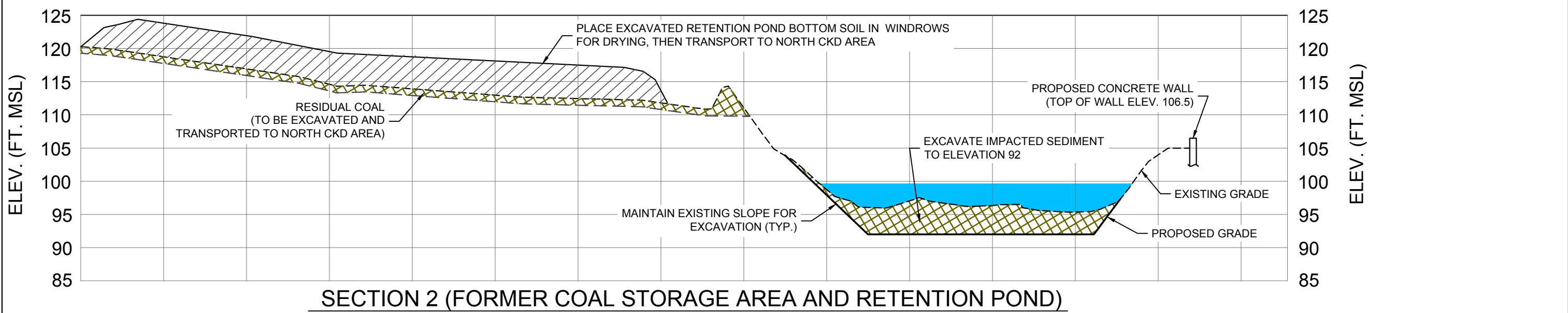
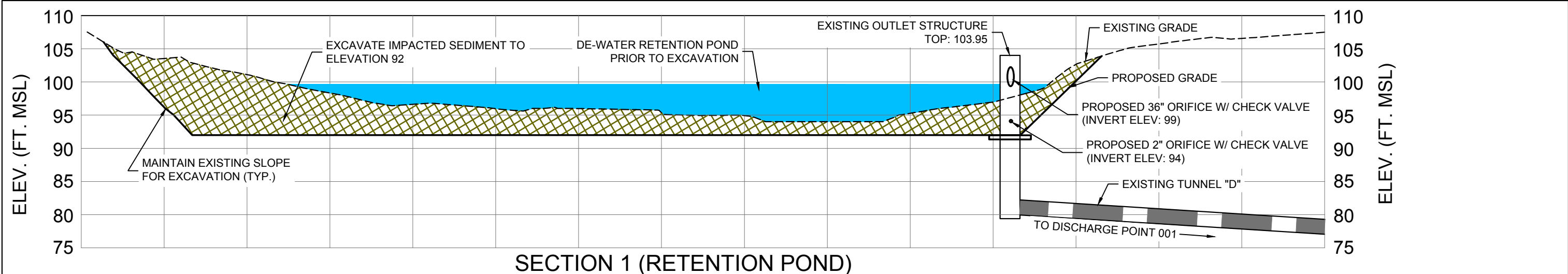


FIGURE 3

FILE NAME: Y:\CEMEX\Davenport\Retention Pond Remediation.dwg | Layout Tab: FIGURE 4



FILE NAME: Y:\CEMEX\Davenport\Retention Pond Remediation.dwg Layout Tab: FIGURE 5



RETENTION POND REMEDIATION DETAILS
 CEMEX
 Davenport Cement Plant
 Davenport, California

FIGURE 5