614 Magnolia Avenue
Ocean Springs, Mississippi 39564
228.818.9626

ANCHOR QEA

Memorandum

March 10, 2017

To: Gary Miller, U.S. Environmental Protection Agency

From: Wendell Mears, David Keith, John Verduin, John Laplante, and Rick Coupe, Anchor QEA, LLC

cc: Dave Moreira, McGinnes Industrial Maintenance Corporation
Phil Slowiak, International Paper Company

Re: San Jacinto River Channel Slope Maintenance Completion Report

Introduction

This document provides a summary of armor rock placement activities completed on slope of the San Jacinto River channel adjacent to the armored cap installed as part of the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (TCRA Site). The TCRA was implemented by International Paper Company and McGinnes Industrial Maintenance Corporation (collectively, Respondents) under an Administrative Settlement Agreement and Order on Consent with the U.S. Environmental Protection Agency (USEPA) – Docket No. 06-12-10, effective May 17, 2010 (USEPA 2010).

The construction activities described in this report took place pursuant to a USEPA-approved Work Plan (Anchor QEA 2016; Attachment 1) and the approved Operations, Monitoring, and Maintenance Plan for the TCRA (Appendix N of the RACR; Anchor QEA 2012).[1]

Background

A comparison between bathymetric survey data taken as part of the quarterly inspections of the armored cap in April 2016 and July 2016 showed localized deeper elevations in the July survey compared to the April 2016 survey in an area of the San Jacinto River outside of the eastern edge of the TCRA armored cap (Channel Maintenance Area; Attachment 2). On October 25, 2016, the Respondents submitted a request to the USEPA to fortify the Channel Maintenance Area as a proactive measure. On October 27, 2016, the USEPA directed the Respondents via email to prepare and submit a draft work plan for placement of armor rock in the Channel Maintenance Area. After addressing comments from the USEPA and the U.S. Army Corps of Engineers on the draft work plan,

[1]The OMM Plan was attached to the Draft Final Remedial Action Completion Report (RACR), submitted to USEPA on November 22, 2011, and authorization to implement the OMM Plan was contained in an email from USEPA dated January 18, 2012. The OMM Plan was also attached as an appendix to the Revised Draft Final RACR submitted to USEPA on March 9, 2012, and Respondents understand it to have been an appendix to the Final RACR issued by USEPA, although it was not included in the copy of the Final RACR that was provided to the Respondents several months after it was issued by USEPA. An addendum to the OMM Plan, dated February 29, 2016, was developed to describe the addition of security cameras, their monitoring, and notifications, and approved by USEPA on March 31, 2016.

a final Work Plan (Attachment 1) was submitted by the Respondents on November 15, 2016, and was approved by the USEPA in an email from USEPA's Remedial Project Manager, Gary Miller, to the Respondents dated November 16, 2016 (Attachment 3). Following USEPA approval of the Work Plan, the Respondents' contractor, USA Environment, LP (Contractor), mobilized to the TCRA Site on Thursday, December 1, 2016, to begin the channel maintenance activities; those activities were completed on January 30, 2017.

At the TCRA Site, Anchor QEA and USA Environment were present on behalf of the Respondents for the duration of the project. Mr. Miller was present for the USEPA from November 30, 2016, to December 1, 2016. Terry Andrews of Texas Commission on Environmental Quality was present on behalf of the USEPA on December 7 and 8, 2016. A complete list of personnel present during construction is contained in the daily reports provided in Attachment 4 (Daily Construction Reports).

Construction

Pre-Construction and Mobilization – Tuesday, November 29, 2016 to Thursday, December 1, 2016

Pre-mobilization activities included reviewing the Contractor's Health and Safety Plan and insurance certificates; notifying and coordinating with the Texas Department of Transportation; ordering materials and equipment; and notifying the USEPA of the construction schedule.

A pre-construction survey of the Channel Maintenance Area was completed on November 30, 2016. The Channel Maintenance Area was physically marked during the survey to provide a guide for placement of geotextile fabric. Mobilization of the Contractor's equipment to the TCRA Site occurred on December 1, 2016. The components of the mobilization included a barge-mounted crane, survey boat, and rock barge. Delivery of type D armor stone to the Orion fleeting facility occurred from November 10, 2016, to December 2, 2016. A total of 1,317 tons of type D armor stone was delivered to the facility during this period and subsequently placed in the Channel Maintenance Area.

Construction – Friday, December 2, 2016 to Friday, January 27, 2017

Daily reports, including photographs, are provided in Attachment 4. The following provides a summary of those reports and activities.

The initial construction period was from December 2 to 15, 2016, and the second construction period took place on January 26 and 27, 2017. Construction activities began each day with a tailgate safety meeting. Construction occurred during two separate periods due to Contractor demobilization from the TCRA Site during the winter holidays and issues relating to the availability of required equipment. In addition to remobilizing equipment to the TCRA Site before the second construction period, an additional 135 tons of type D armor stone were delivered to the Orion fleeting facility on January 24, 2017, for placement in the Channel Maintenance Area.

Placement of the geotextile panels began on December 2, 2016. Geotextile was cut into panels, each 15 feet wide and varying in length in accordance with the Work Plan (Attachment 1). The panels were placed in a west to east fashion with 3-foot overlaps and pinned to the top of slope that abuts the TCRA armored cap's thickened edge.[2] After placement of the geotextile panels, rock was placed over the panels until the 3-foot minimum design thickness was obtained.

Interim bathymetric surveys were completed and used by the Contractor as a means of assuring that the minimum 3-foot thickness of armor rock was placed in accordance with the Work Plan (Attachment 1).

Demobilization and Final Survey – Monday, January 30, 2017 and Wednesday, February 1, 2017

Final Contractor demobilization from the TCRA Site occurred on Monday, January 30, 2017. Final demobilization consisted of disassembling the crane and removing the crane barge, rock barge, and personnel from the TCRA Site.

A final bathymetric survey was completed on February 1, 2017, to confirm the required minimum 3-foot thickness of armor rock was present throughout the Channel Maintenance Area. Figure 1 shows a plan view of the extent of the armor rock placed during the event, including the contours surveyed during the final survey on February 1, 2017. Figure 2 shows the corresponding placement cross sections from the final survey.

References

Anchor QEA (Anchor QEA, LLC), 2012. *Revised Draft Final Removal Action Completion Report, San Jacinto River Waste Pits Superfund Site*. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency (USEPA) Region 6. Revised March 2012.

Anchor QEA, 2016. Revised Plan for Armor Rock Placement Adjacent to the Time Critical Removal Action Armored Cap, San Jacinto River Waste Pits Superfund Site, Channelview, Texas. Letter to: G. Miller, Remedial Project Manager, USEPA Region 6. November 15, 2016.

Miller, G. (U.S. Environmental Protection Agency), 2016. Regarding: Work Plan for Channel Maintenance. Email to: J. Laplante and D. Keith. November 16, 2016.

USEPA (U.S. Environmental Protection Agency), 2010. Administrative Settlement Agreement and Order on Consent for Removal Action. U.S. Environmental Protection Agency Region 6 CERCLA Docket No. 06-03-10. In the matter of: San Jacinto River Waste Pits Superfund Site

[2] The slope is on the area shaded in grey on the cross sections included in Figure 2.

Pasadena, Harris County, Texas. International Paper Company and McGinnes Industrial Management Corporation, Respondents.

Figures

Figure 1 Channel Maintenance Plan View and Cross Section Locations

Figure 2 Cross Sections A, B, C, D and E

Attachments

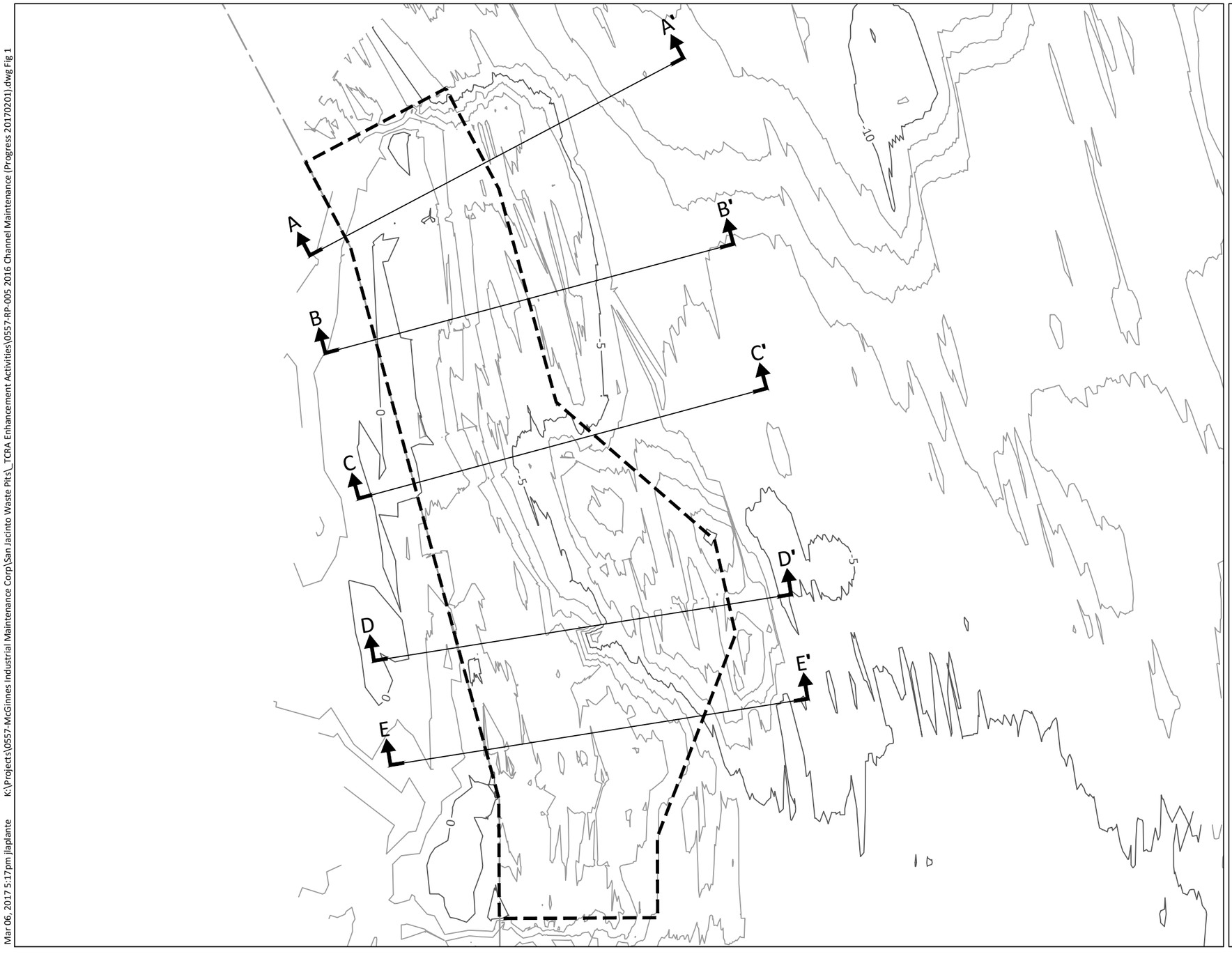
Attachment 1 Armor Rock Placement Work Plan, dated November 15, 2016

Attachment 2 July 2016 Quarterly Inspection Report

Attachment 3 USEPA Work Plan Approval, dated November 16, 2016

Attachment 4 Daily Construction Reports

Figures



LEGEND:

- February 1, 2017 Completion Survey Bathymetric Contours (1 Foot Interval)
- Historic Impound Limits
- Limits of Work Plan
- B — Cross Section Location and Designation (See Figure 2)

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated February 1, 2017.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 20
Scale in Feet

Mar 06, 2017 5:17pm jlaplante K:\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_TCRA Enhancement Activities\0557-RP-005 2016 Channel Maintenance (Progress 20170201).dwg Fig 1

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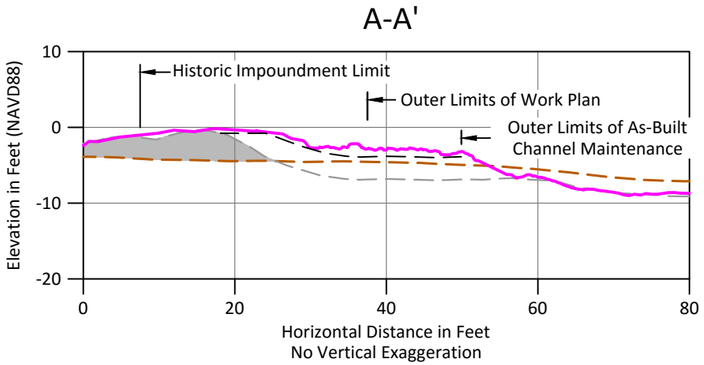
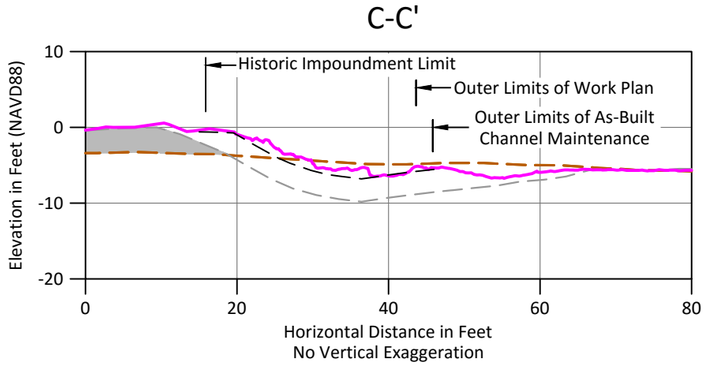
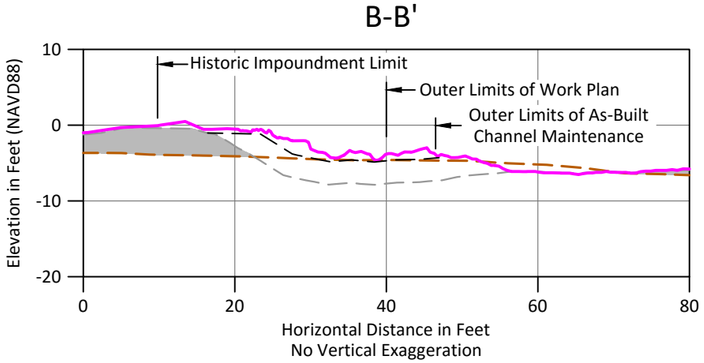
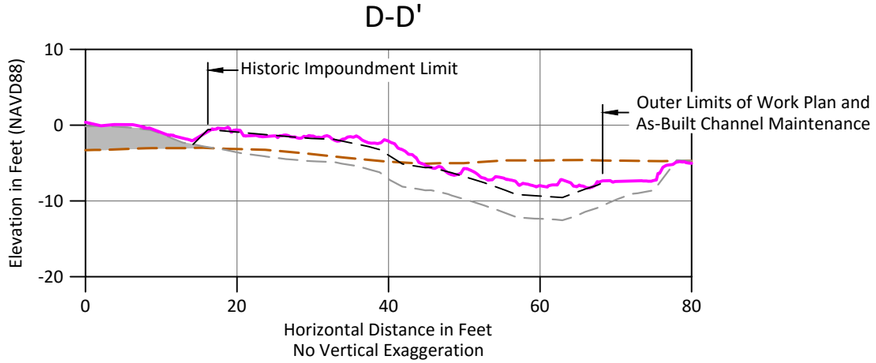
Figure 1
Channel Maintenence Plan View and Cross Section Locations
Channel Maintenance Completion Report
San Jacinto River Waste Pits Superfund Site



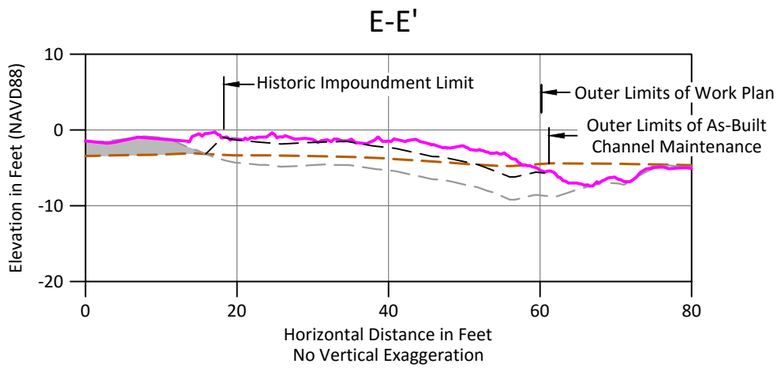






LEGEND:

- June 2010 Pre-Construction Survey
- November 29, 2016 Channel Maintenance Pre-Construction Survey
- 3' Thickness Above Pre-Construction Surface
- February 1, 2017 Channel Maintenance Completion Survey
- Pre-Channel Maintenance Thickened Edge Area (Approximate)



ANCHOR QEA

Figure 2
Cross Sections A, B, C , D and E
Channel Maintenance Completion Report
San Jacinto River Waste Pits Superfund Site

Attachment 1

Armor Rock Placement Work Plan, November 15, 2016

614 Magnolia Avenue
Ocean Springs, Mississippi 39564
228.818.9626

November 15, 2016

Gary Miller
Remedial Project Manager
U.S. Environmental Protection Agency, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Revised Plan for Armor Rock Placement Adjacent to the Time Critical Removal Action Armored Cap, San Jacinto River Waste Pits Superfund Site, Channelview, Texas

Dear Gary,

Localized deeper areas have been identified in the vicinity of the San Jacinto River Waste Pits Time Critical Removal Action (TCRA) armored cap (Armored Cap), possibly as a result of a 20 and 50 year return interval storm between April and June 2016. The storms did not damage the Armored Cap. EPA has requested, however, that the area immediately adjacent to the Armored Cap be fortified with the addition of armor rock to ensure continued protectiveness.

Following a conference call between the United States Environmental Protection Agency (USEPA), the United States Army Corps of Engineers (USACE), and representatives for McGinnes Industrial Maintenance Corporation and International Paper Company (the Respondents) on October 17, 2016, to discuss this issue, the Respondents began evaluating and preparing for maintenance in the San Jacinto River channel adjacent to the Armored Cap (Figure 1). On October 25, 2017, the Respondents sent you an email proposing to conduct the maintenance as a proactive measure. Pursuant to your email dated October 27, 2016, you directed the Respondents to prepare and submit within 10 days a draft work plan for placement of armor rock in the San Jacinto River channel adjacent to the Armored Cap. On November 7, 2016, the Respondents submitted the draft work plan and on November 10, 2016, you forwarded to Anchor the USACE's comments on the draft work plan, with a request to re-submit the work plan for approval. This revised plan addresses the USACE comments on the draft work plan.

Background

Localized deeper areas (Sections A, B, and C on Figures 1 and 2) were identified in the river channel when comparing quarterly bathymetric surveys conducted by Anchor QEA, LLC, in accordance with

the TCRA Operations, Monitoring, and Maintenance Plan (Anchor QEA 2011).[1] The deeper areas are likely the result of high flows during large storm events that occurred between April and June 2016. One storm, in May 2016, was between a 20- and a 50-year return interval storm based on river stage elevations measured at US-90. The Armored Cap was not damaged by this flood; however, this plan proposes to fortify the area shown in Cross Section B of Figure 2.

Scour Maintenance Plan

The minimum maintenance requirements, as directed by the USEPA, are as follows:

- Cover a width at least 30 feet from the edge of cap outward down the slope
- Cover a length at least 160-feet along the edge of the Armored Cap
- River erosion protection armor shall consist of type D material (D_{50} = 8 inches)
- River erosion protection thickness shall be beyond the existing cap of at least 18 inches

In accordance with these requirements, the following design details will be incorporated into the maintenance activity:

- A width up to 45 feet (in excess of the minimum 30 feet) so that armor rock can be placed to the bottom of the deeper area
- A length of at least 160 feet along the edge of the cap
- The use of a nonwoven geotextile underlayment to act as a filter layer, covered by armor type D material that will be sourced from the local stockpile at Bluebonnet, with supplemental armor rock material sourced from a commercial quarry
- A minimum thickness of 3 feet (18 inches greater than the required 18-inch armor rock D thickness)

Figure 3 presents a focused plan view and detailed cross section of the proposed river erosion protection construction. Based on these criteria, a surface area of approximately 5,800 square feet will be included in this maintenance event, and an estimated 800 cubic yards of armor rock D will be placed.

Geotextile Installation

The geotextile placement will use 12-foot-wide panels that are overlapped at least 3 feet. Prior to rock placement, the geotextile will be placed down the slope, perpendicular to the slope contours, as shown in Figure 4. To keep the geotextile in place, the panels will be anchored at the top of the slope with sand bags, geotextile pins, rebar, or armor rock D. The geotextile will be deployed down the slope and pinned at the toe of the slope with sand bags or armor rock D. After anchoring the

[1] Anchor QEA, LLC, 2011. *Operations, Monitoring, and Maintenance Plan*. Time Critical Removal Action. San Jacinto River Waste Pits Superfund Site. Prepared for McGinnes Industrial Maintenance Corporation, International Paper Company, and U.S. Environmental Protection Agency, Region 6. October 2011.

geotextile panels, the contractor will place the required thickness of rock in the maintenance area (Figure 3).

Quality Assurance Procedures

Quality assurance measures will consist of rock thickness calculations and bathymetric survey to provide a weight of evidence that the required minimum rock thickness has been achieved. Thickness will be calculated by using barge displacement to compute the tonnage of rock placed over the work area. Tons will be converted to cubic yards using a conversion factor determined in consultation with the contractor and the quarry. The bathymetric survey will be used to confirm relatively even rock placement, and to calculate thickness by comparing the pre-construction and post-construction surveys. If, based on review of the survey, there is evidence of subgrade settlement, the surveyed thickness may need to be "corrected" using the barge displacement thickness calculation.

As a contingency quality assurance measure, probing (Contingency Probing) may be attempted to measure the placed rock thickness. Given the thickness of rock to be placed, it may be difficult to completely penetrate the full rock thickness. Thus, Contingency Probing would only be used if the weight of evidence collected using bathymetry and calculated thickness indicates that there may be areas that do not meet the minimum required thickness. For Contingency Probing, a steel probe will be advanced through the cap until the underlying geotextile is encountered. The placed rock thickness will be calculated at the location of probing according to the difference between the water depth to the surface of rock and the water depth to the contact with the geotextile.

Contingency probing will be conducted on an as needed basis in areas where the required minimum thickness cannot be confirmed by the weight of evidence from survey and thickness calculations. In areas where less than 3 feet of armor rock are measured by probing, additional rock will be placed, and the area will be re-probed to confirm that the minimum rock thickness has been achieved by the rework.

Upon completion of the maintenance activity, the hydrographic survey will be used to document the as-built condition of the work.

Schedule

The Respondents have been coordinating with the TCRA contractor, USA Environment, to establish the schedule for implementation of the maintenance action. The following is the proposed implementation schedule, based on key milestones:

- Start of mobilization: within 1 week of USEPA approval of the final work plan, or on Monday November 28, 2016, whichever date is later
- Completion of geotextile and rock placement: within 2 weeks of the start of marine construction, assuming no significant weather delays, and available low tides that are compatible with the work described

- Completion of final as-built survey: within 1 week of the completion of geotextile and armor rock placement, assuming no significant weather delays
- Draft maintenance report submittal to USEPA: within 30 calendar days of completion of the final as-built survey

Please let us know if you have any questions about the proposed activities, and do not hesitate to contact me if you would like to discuss anything.

Sincerely,

David C. Keith, Ph.D., P.G., C. HG
Project Coordinator

John Verduin, P.E.
Engineer of Record

cc: Dave Moreira, MIMC
Phil Slowiak, IP
John Laplante, Anchor QEA
Wendell Mears, Anchor QEA
JoDee Taylor, Anchor QEA

Attachments

Figure 1 Cap QA/QC – April 2016 Survey vs. July 2016 Survey
Figure 2 Cross Sections A, B, and C
Figure 3 Detail Plan View and Cross Section
Figure 4 Geotextile Panel Layout Plan

Figures

LEGEND:

- July 2016 Bathymetric and Topographic Contours (1 Foot Interval)
- B/C — Armored Cap Type and Boundary
- Historic Impoundment Limits
- 30' x 30' — Example 30'x30' Area
- A — Cross Section Location and Designation (See Figure 2)

Channel Elevation Changes	
Depth of Change in Feet	Color
-9.00	
-8.00	
-7.00	
-6.00	
-5.00	
-4.00	
-3.00	

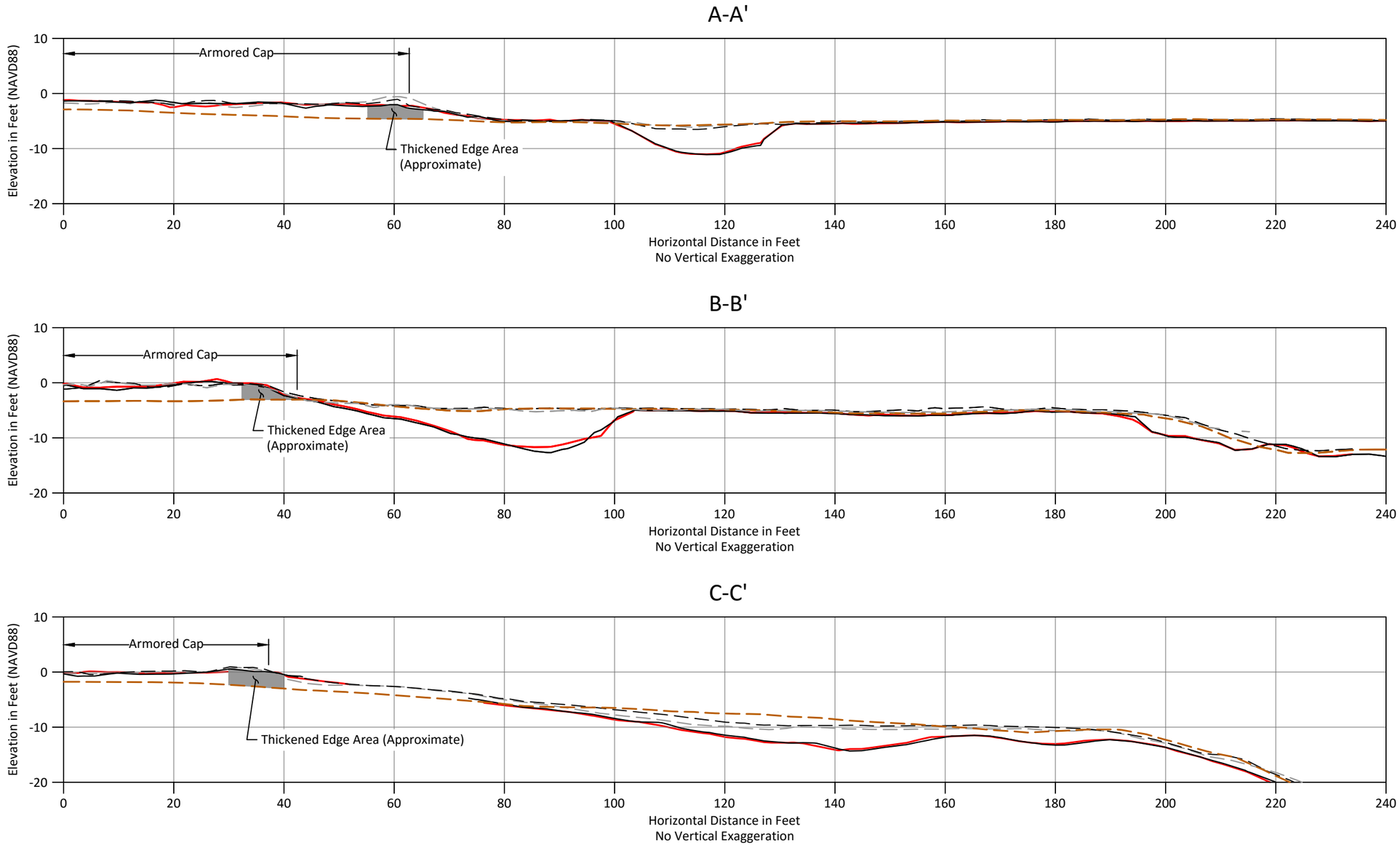
SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated April 2016 and July 2016.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 120
Scale in Feet

Nov 15, 2016 5:01pm dholmer K:\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_TCRA Enhancement Activities\0557-RP-004 2016 Channel Maintenance (Fabric layout).dwg Fig 1

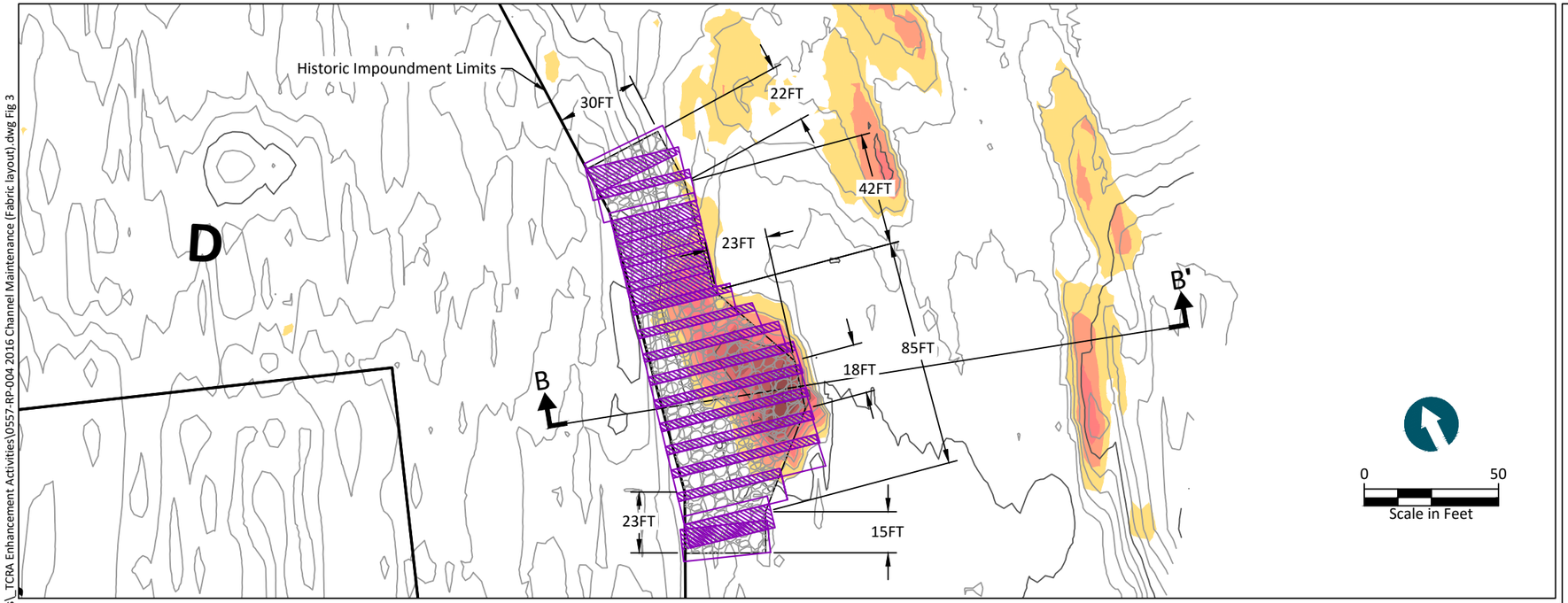
ANCHOR QEA

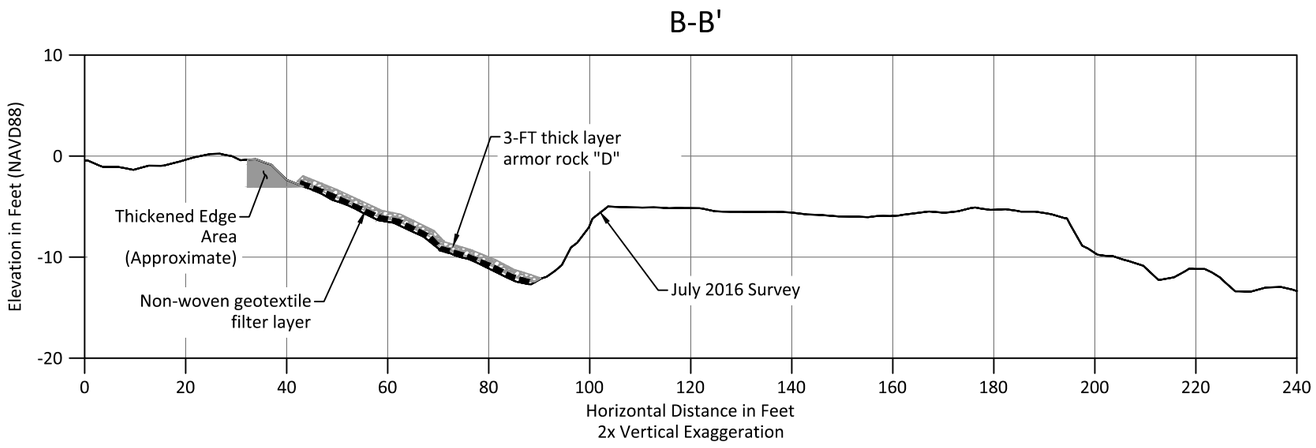
Figure 1
Cap QA/QC - April 2016 Survey vs. July 2016 Survey
Channel Maintenance Work Plan
San Jacinto River Waste Pits Superfund Site



ANCHOR QEA

Figure 2
Cross Sections A, B, and C
Channel Maintenance Work Plan
San Jacinto River Waste Pits Superfund Site





LEGEND:

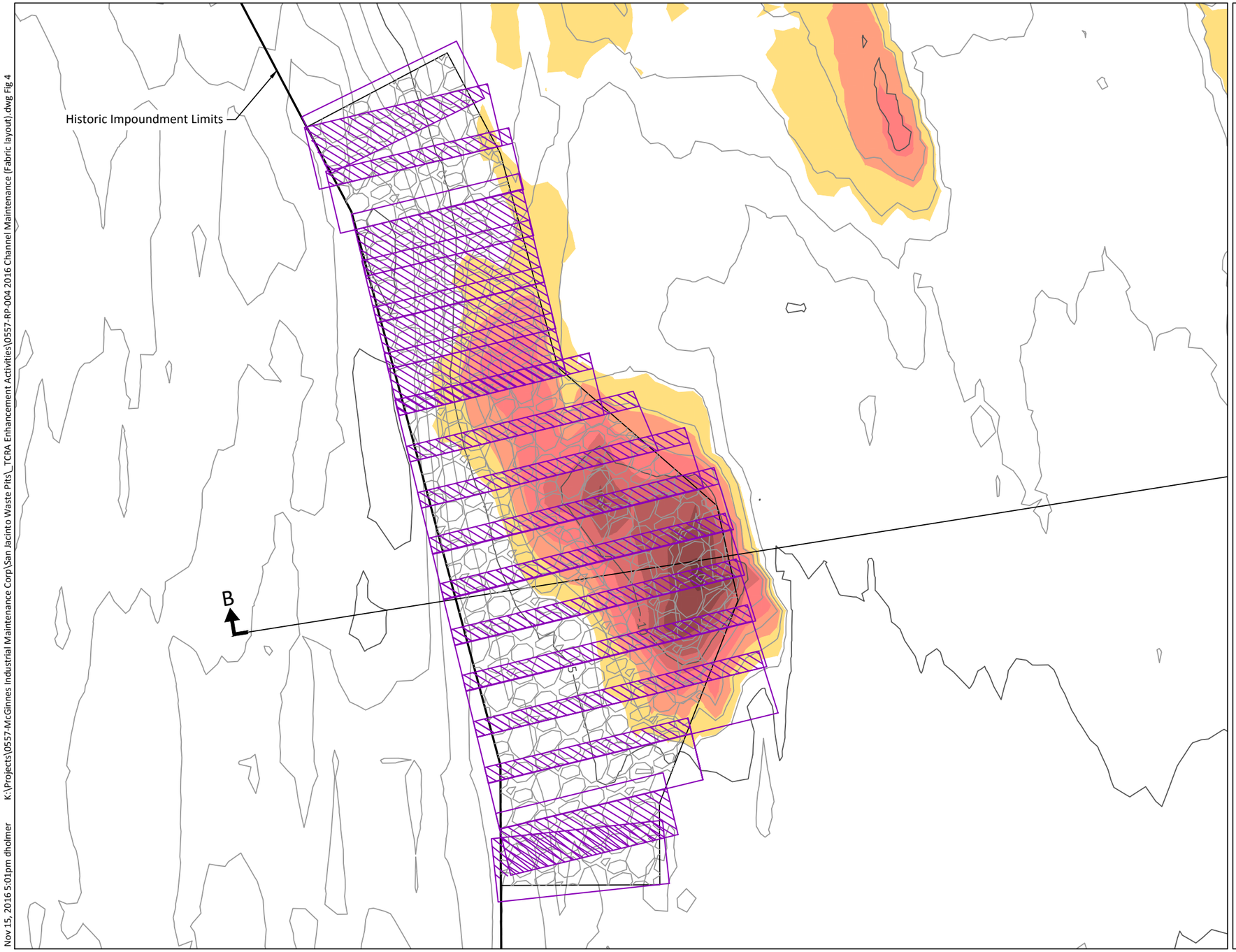
- July 2016 Bathymetric and Topographic Contours (1 Foot Interval)
- D — Armored Cap Type and Boundary
- Historic Impoundment Limits
- Maintenance Area
- Geotextile Panel Location (assuming 12 foot wide panels)
- Geotextile Overlap (at least 3 feet)
- B — Cross Section Location and Designation (See Figure 2)

Channel Elevation Changes	
Depth of Change in Feet	Color
-9.00	
-8.00	
-7.00	
-6.00	
-5.00	
-4.00	
-3.00	

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated April 2016 and July 2016.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

ANCHOR QEA

Figure 3
Detail Plan View and Cross Section
Channel Maintenance Work Plan
San Jacinto River Waste Pits Superfund Site



LEGEND:

- July 2016 Bathymetric and Topographic Contours (1 Foot Interval)
- D — Armored Cap Type and Boundary
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Depth of Change in Feet	Color
-9.00	
-8.00	
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-6.00	
-5.00	
-4.00	
-3.00	

SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated April 2016 and July 2016.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 20
Scale in Feet

Nov 15, 2016 5:01pm dholmer K:\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_TCRA Enhancement Activities\0557-RP-004 2016 Channel Maintenance (Fabric layout).dwg Fig 4

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Figure 4
Geotextile Panel Layout Plan
Channel Maintenance Work Plan
San Jacinto River Waste Pits Superfund Site

Attachment 2
July 2016 Quarterly Inpsection Report

ANCHOR QEA

614 Magnolia Avenue
Ocean Springs, Mississippi 39564
Phone 228.818.9626
Fax 228.818.9631
www.anchorqea.com

MEMORANDUM

To:	Gary Miller and Anne Foster, U.S. Environmental Protection Agency	**Date:**	September 20, 2016
From:	John Laplante, John Verduin, Wendell Mears, and David Keith, Anchor QEA, LLC	**Project:**	150557-01.01
Cc:	Phil Slowiak, International Paper Company David Moreira, McGinnes Industrial Maintenance Corporation		
Re:	Post-TCRA Quarterly Inspection Report – July and August 2016		

INTRODUCTION

This memorandum reports the results of the July and August 2016 inspections of the armored cap cover, fencing, signage, buoys, and security cameras installed for the Time Critical Removal Action (TCRA) at the San Jacinto River Waste Pits Superfund Site (TCRA Site).

BACKGROUND

The TCRA was implemented by International Paper Company and McGinnes Industrial Maintenance Corporation (Respondents) under an Administrative Settlement Agreement and Order on Consent with the U.S. Environmental Protection Agency (USEPA) – Docket No. 06-12-10, effective May 17, 2010. A full description of the TCRA implementation is provided in the following associated project documentation:

- Removal Action Work Plan (Anchor QEA 2010, 2011)
- Revised Draft Final Removal Action Completion Report[1] (RACR; Anchor QEA 2012)

[1] David Keith, Ph.D, R.G., C.H.G., Respondents' Project Coordinator, received a RACR (in the form issued by USEPA) from Valmichael Leos via email on August 15, 2012; however, the appendices to the RACR, including the OMM Plan, were not provided to Dr. Keith as part of the document. The OMM Plan had been previously approved by USEPA (in an email from Mr. Leos dated January 18, 2012) and is assumed to remain unchanged. Respondents reserve all rights related to the changes made by USEPA to the Revised Draft Final RACR submitted by Respondents to USEPA on March 9, 2012.

The inspection summarized in this report was conducted in accordance with the Operations, Monitoring, and Maintenance (OMM) Plan (Appendix N of the RACR; Anchor QEA 2012) and a subsequent USEPA-approved amendment to the OMM Plan[2]. The OMM Plan specifies the timing, pertinent items, tolerances, and procedures for inspection, maintenance, and repair of the armored cap, fencing, and signage installed for the TCRA Site (Figure 1). David Keith, Ph.D, R.G., C.H.G., (Respondents' Project Coordinator) received an email from Gary Miller of USEPA, dated February 16, 2016, directing Respondents to increase the frequency of cap inspections to quarterly until further notice.

VISUAL INSPECTION

The initial visual inspection took place on July 13, 2016, and included evaluation of the following TCRA elements:

- Inspection of the security fence and signage surrounding the TCRA Site
- Inspection of the armored cap visible above the water line of the San Jacinto River
- Visual confirmation that waste materials are not actively eroded into the San Jacinto River
- Inspection of perimeter buoys and security camera system

Photographs of conditions observed during the initial and subsequent visual inspections are provided in Appendix A. A summary of each facet of the visual inspection is provided in the following sections.

ARMORED CAP

Photographs of the armored cap from the inspection event are provided in Appendix A (see Photographs 2 through 12). The majority of the Eastern Cell armored cap was underwater at the time of the inspection on July 13, 2016. All of the visible portions of the

[2] The OMM Plan was attached to the Draft Final RACR, submitted to USEPA on November 22, 2011, and authorization to implement the OMM Plan was contained in an email from USEPA dated January 18, 2012. The OMM Plan was also attached as an appendix to the Revised Draft Final RACR submitted to USEPA on March 9, 2012. An addendum to the OMM Plan, dated February 29, 2016, was developed to describe the addition of security cameras, their monitoring, and notifications, and approved by USEPA on March 31, 2016.

armored cap were observed to be intact, and no movement of cap materials was observed at any location.

PERIMETER FENCING

The perimeter fencing (Figure 2) on the west and east banks of the San Jacinto River was visually inspected for breaches or other signs of damage on July 13, 2016. The fencing on the west bank on the south side of I-10 was observed to be detached at the bottom and pushed away about 1 foot from the fence posts. Based on the debris build up on the ground, the damage was likely caused by high river levels during recent flood events in June 2016. Repairs of the fencing began on July 27, 2016 and were completed on July 29, 2016. The repairs to the fencing included pulling the fence back into place, replacement of the lower tension wires, and replacement of the couplings holding the fabric to the fence in the affected area. Photographs 17 and 20 in Appendix A show the damaged and repaired fence. No other breaches or signs of fence damage were observed during the inspection of the perimeter fencing on either the east bank south of I-10 or west bank north of I-10. For examples, see Photographs 14 through 16 in Appendix A.

The portion of the fence installed along the south boundary of the San Jacinto River Fleet (SJRF) property was not included in the fencing inspection, as the SJRF property is currently occupied by an active facility that conducts daily security checks, as required by the U.S. Coast Guard and Transportation Security Administration for an active maritime fleeting area.

SIGNAGE

"Danger" and "No Trespassing" signs are posted at regular intervals on the perimeter fencing surrounding the TCRA Site. For examples, see Photographs 16 and 19 in Appendix A. These signs were observed to be in place during the July 13, 2016 inspection.

A total of 15 signs were installed at the TCRA Site around the perimeter of the land portion of the TCRA Site; the signs are mounted on steel posts and set in concrete pads. For examples, see Photographs 4, 6, and 10 in Appendix A. These signs are intended to face the San Jacinto River to deter water-based entry to the TCRA Site. A few of these signs had

rotated out of proper alignment, due to the wind. The affected signs were re-aligned to the intended viewing perspective.

Three USEPA Public Notice signs are present around the TCRA Site, located: 1) near the gate entry point for the perimeter fence north of I-10; 2) near a gate entry point south of I-10; and 3) at the end of the Texas Department of Transportation right-of-way north of I-10 near the San Jacinto River. For examples, see Photographs 1 and 14 in Appendix A. These three signs were observed to be in place and undamaged.

Signage on all locked gates reminds entrants to "daisy chain" the locks properly prior to leaving the TCRA Site, as seen in Photograph 16. These signs were observed to be in place and undamaged. Table 1 summarizes the condition of the TCRA Site signage described in this section.

Table 1
TCRA Perimeter Fencing and Sign Inspection Punch List

Task	Status	
	Completed	Date
Perimeter Fence Visually inspect the perimeter fencing on the east and west sides of the San Jacinto River.	Yes	7/13/2016 and 8/8/2016
"Danger" and "No Trespassing" Signs Visually inspect the 15 signs to verify that they remain in place.	Yes	7/13/2016
USEPA Public Notice Signs Visually inspect the 3 signs to verify that they remain in place.	Yes	7/13/2016
Daisy Chain Signs Visually inspect the 2 signs to verify that they remain in place.	Yes	7/13/2016

PERIMETER BUOYS

As part of the TCRA Site activities related to the quarterly inspection, permanent warning buoys were installed around the perimeter of the armored cap, as outlined in the letter from Respondents' Project Coordinator dated February 16, 2016 (Anchor QEA 2016a). The

perimeter buoy system was visually inspected and found to be intact on July 13, 2016. See Photographs 7 and 8 in Appendix A for examples.

SECURITY CAMERAS

Security cameras, installed as outlined in an addendum to the OMM Plan (Anchor QEA 2016b), were also inspected. The security camera system was present and operating normally during the inspection. For examples, see Photographs 5 and 11 in Appendix A.

SURVEYS

Portions of the armored cap above the water surface or at a water depth too shallow to access by boat were surveyed using land-based topographic survey techniques. The topographic survey and bathymetric surveys of areas outside of the barrier buoys were started on July 7, 2016 and completed on July 11, 2016. The surveyor followed the track line spacing, measurement intervals, and accuracy requirements detailed in the OMM Plan for all survey work, including the area outside the barrier buoys.

Further surveys inside the barrier buoys could not be performed contemporaneously with the above surveys due to USEPA placement of porewater sampling devices in those areas. After the porewater samplers were removed in late July, a second survey was scheduled to coincide with predicted high tides on August 15, 2016. Due to lightning, high winds, and currents, the surveyor was able to run only the north to south grid lines in the Eastern Cell. An attempt was made on August 16, 2016 to collect additional survey information, but lightning in the area prevented that work.

SURVEY TOLERANCE REQUIREMENTS

The OMM Plan requires that each survey be compared with the prior completed survey, using the following criteria:

1. Areas with elevations that are within 6 inches of the previous survey require no action.
2. Contiguous areas with elevation changes exceeding plus or minus 6 inches triggers a review of the survey benchmarks for accuracy or movement.

3. Areas where surveyed elevations are 6 inches higher or lower than the prior survey for a contiguous area larger than 30 feet by 30 feet will require probing to measure the cap thickness.

SURVEY RESULTS

The survey data from the July 2016 inspection survey and the April 2016 survey were compared to evaluate the differences in the top of the armored cap elevation. These differences are shaded and shown on Figure 3. The survey results indicate the sediment had been scoured outside the perimeter of the Eastern Cell. Similar scouring was not observed on the armored cap itself.

The OMM Plan calls for manual probing of armored cap thickness in contiguous areas larger than 30 feet by 30 feet identified by the topographic or bathymetric surveys as more than 6 inches higher or lower in elevation as compared to the prior survey. When the July 2016 and April 2016 surveys were compared, no such areas were identified; however, the results indicated that there were ten areas, significantly smaller than 30 feet by 30 feet (shown on Figure 3), where potential changes in elevation of greater than 6 inches within the Eastern Cell of the armored cap may have occurred.

Some of these survey differences can be attributed to the horizontal and vertical limitations of the survey during the weather-impacted survey event, shifts in track line location from the baseline survey, shifts in alluvial deposits and/or accumulated shell hash since construction and as a result of the storm event, and elevation data recorded in the crevices between rock surfaces or atop shellfish growth. The potential for these types of variations between the two datasets was confirmed by the surveyor after reviewing the data collected during this inspection.

Although not required by the OMM Plan, the Respondents elected to perform manual probing of the ten areas and so notified USEPA on August 24, 2016.

Manual probing of the identified areas was conducted on Thursday, August 25, 2016. The probing was conducted in a manner similar to the supplemental probing conducted in the

Eastern Cell, which was approved by USEPA on March 15, 2016 and conducted by the Respondents' representatives on March 16, 2016 (USEPA 2016a).

During the course of the probing event, two small areas (one 2 feet by 2 feet and the second approximately 4 feet by 2 feet), were identified where geotextile and armor material were present but the armor material could not be confirmed to be at the TCRA design thickness. These two areas were designated for placement of additional armor rock to assure the minimum design armor thickness was met in those areas (shown on Figure 3). Per the requirements of the OMM Plan, USEPA was notified through a phone call to Gary Miller on August 25, 2016 that additional armor rock would be placed over the two areas on August 26, 2016. The cap maintenance was approved by USEPA in an email from Gary Miller dated August 26, 2016 (USEPA 2016b), and the maintenance was completed as planned that day.

INSPECTION SUMMARY

No deficiencies were noted in the signage, security camera system, or perimeter buoys. The inspection identified damage to the perimeter fence on the west bank on the south side of I-10 that was repaired on July 27, 2016. The final bathymetric survey dataset did not identify any areas in need of maintenance under the approved OMM Plan; however, Respondents proactively chose to perform manual inspections of ten areas (significantly smaller than the 30 feet by 30 feet areas specified by the OMM Plan) identified by the survey results as having changed in elevation by more than 6 inches as compared to the prior survey. Two small areas required maintenance (although geotextile and armor rock were present) to assure that the design armor rock thickness was achieved, and maintenance was completed on August 26, 2016.

LIST OF APPENDICES

Appendix A – Inspection Photographic Log

REFERENCES

Anchor QEA (Anchor QEA, LLC), 2010. *Removal Action Work Plan, San Jacinto River Waste Pits Superfund Site.* Prepared for U.S. Environmental Protection Agency (USEPA) Region 6 on behalf of McGinnes Industrial Maintenance Corporation (MIMC) and International Paper Company (IPC). November 2010.

Anchor QEA, 2011. *Removal Action Work Plan, San Jacinto River Waste Pits Superfund Site*. Prepared for U.S. Environmental Protection Agency (USEPA) Region 6 on behalf of MIMC and IPC. Revised February 2011.

Anchor QEA, 2012. *Revised Draft Final Removal Action Completion Report, San Jacinto River Waste Pits Superfund Site.* Prepared for MIMC, IPC, and USEPA Region 6. Revised March 2012.

Anchor QEA, 2015. Draft Amendment 1, Operations, Monitoring and Maintenance Plan, San Jacinto River Waste Pits Time Critical Removal Action. Memorandum to Gary Miller, USEPA, from David Keith, Anchor QEA, LLC. December 3, 2015.

Anchor QEA, 2016a. Letter from D. Keith to G. Miller, USEPA, regarding Site Buoy Enhancement for San Jacinto River Waste Pits Superfund Site. February 16, 2016.

Anchor QEA, 2016b. Addendum 2, Operations, Monitoring, and Maintenance Plan, San Jacinto River Waste Pits Time Critical Removal Action (Proposed Camera Security System Memorandum). February 29, 2016.

USEPA (U.S. Environmental Protection Agency), 2010. *Administrative Settlement Agreement and Order on Consent for Removal Action.* U.S. Environmental Protection Agency Region 6 CERCLA Docket No. 06-03-10. In the matter of: San Jacinto River Waste Pits Superfund Site Pasadena, Harris County, Texas. IPC & MIMC, Respondents.

USEPA. 2016a. Email from G. Miller to J. Laplante and David Keith approving Additional Cap Probing Plan. March 15, 2016.

USEPA, 2016b. Email from G. Miller to John Laplante approving Additional Rock Placement. August 26, 2016.

FIGURES

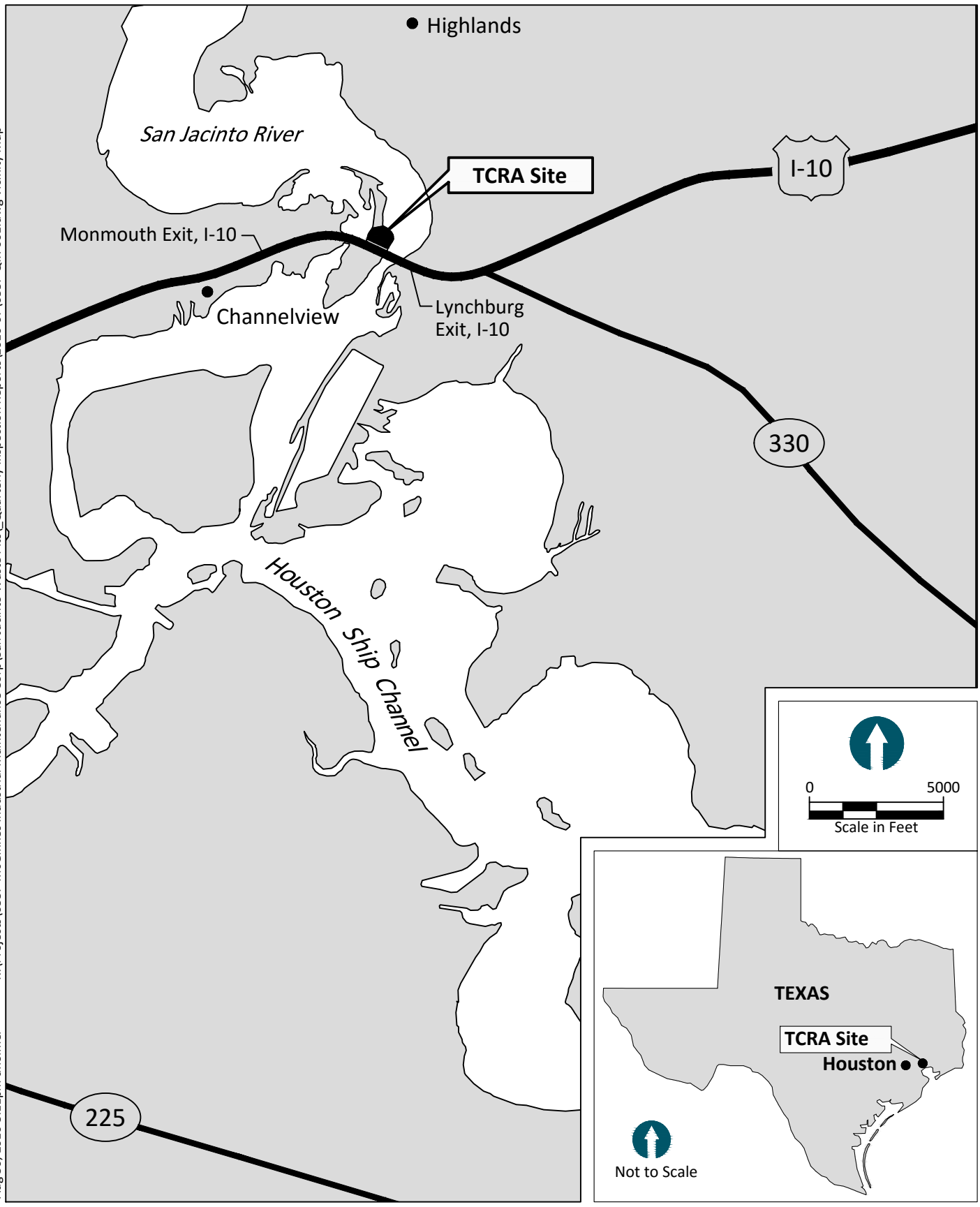
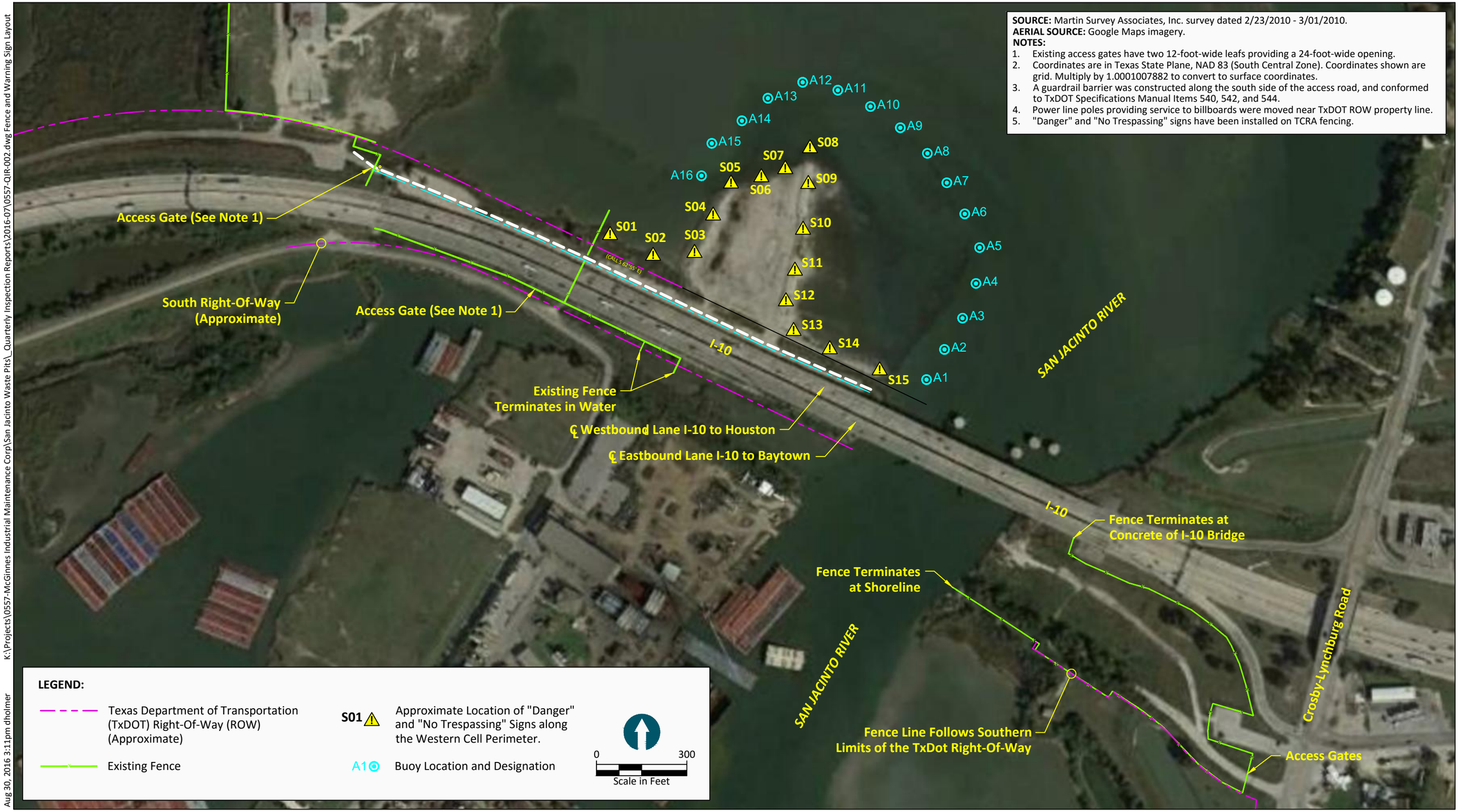


Figure 1
Vicinity Map
Post-TCRA Quarterly Inspection (July 2016)
San Jacinto River Waste Pits Superfund Site

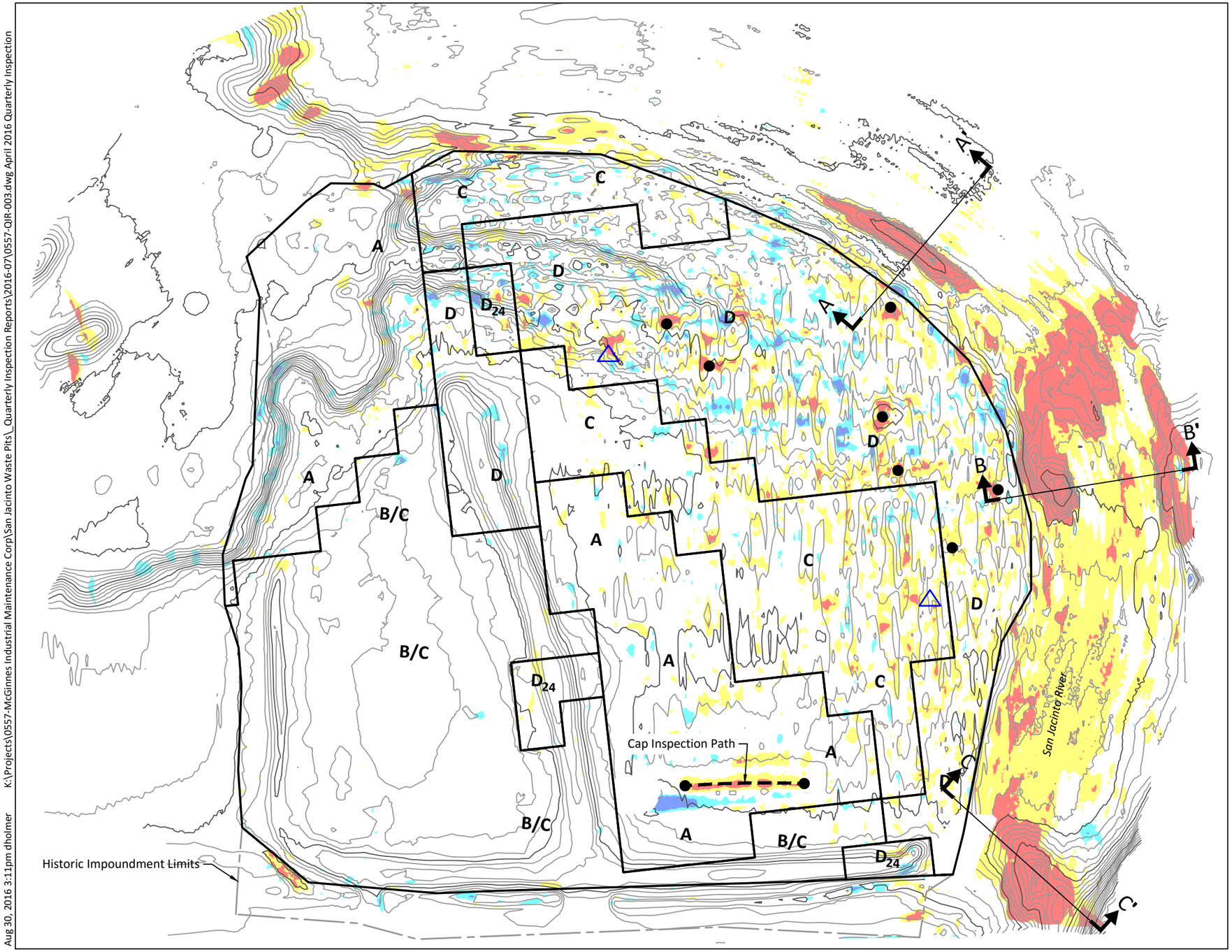
ANCHOR QEA



K:\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_Quarterly Inspection Reports\2016-07\0557-QIR-002.dwg Fence and Warning Sign Layout
Aug 30, 2016 3:11pm dholmer

ANCHOR QEA

Figure 2
Fence and Warning Sign Layout
Post-TCRA Quarterly Inspection (July 2016)
San Jacinto River Waste Pits Superfund Site



LEGEND:

- July 2016 Bathymetric and Topographic Contours (1 Foot Interval)
- B/C — Armored Cap Type and Boundary
- Historic Impoundment Limits
- August 2016 Probe Inspection Area
- August 2016 Probe Inspection Area and Cap Maintenance Location
- > 1.0 Foot Increase
- 0.5 Foot Increase to 1.0 Foot Increase
- 0.5 Foot Increase to 0.5 Foot Decrease
- 0.5 Foot Decrease to 1.0 Foot Decrease
- > 1.0 Foot Decrease
- 30' x 30' — Example 30'x30' Area
- A — Cross Section Location and Designation (See Figure 2)

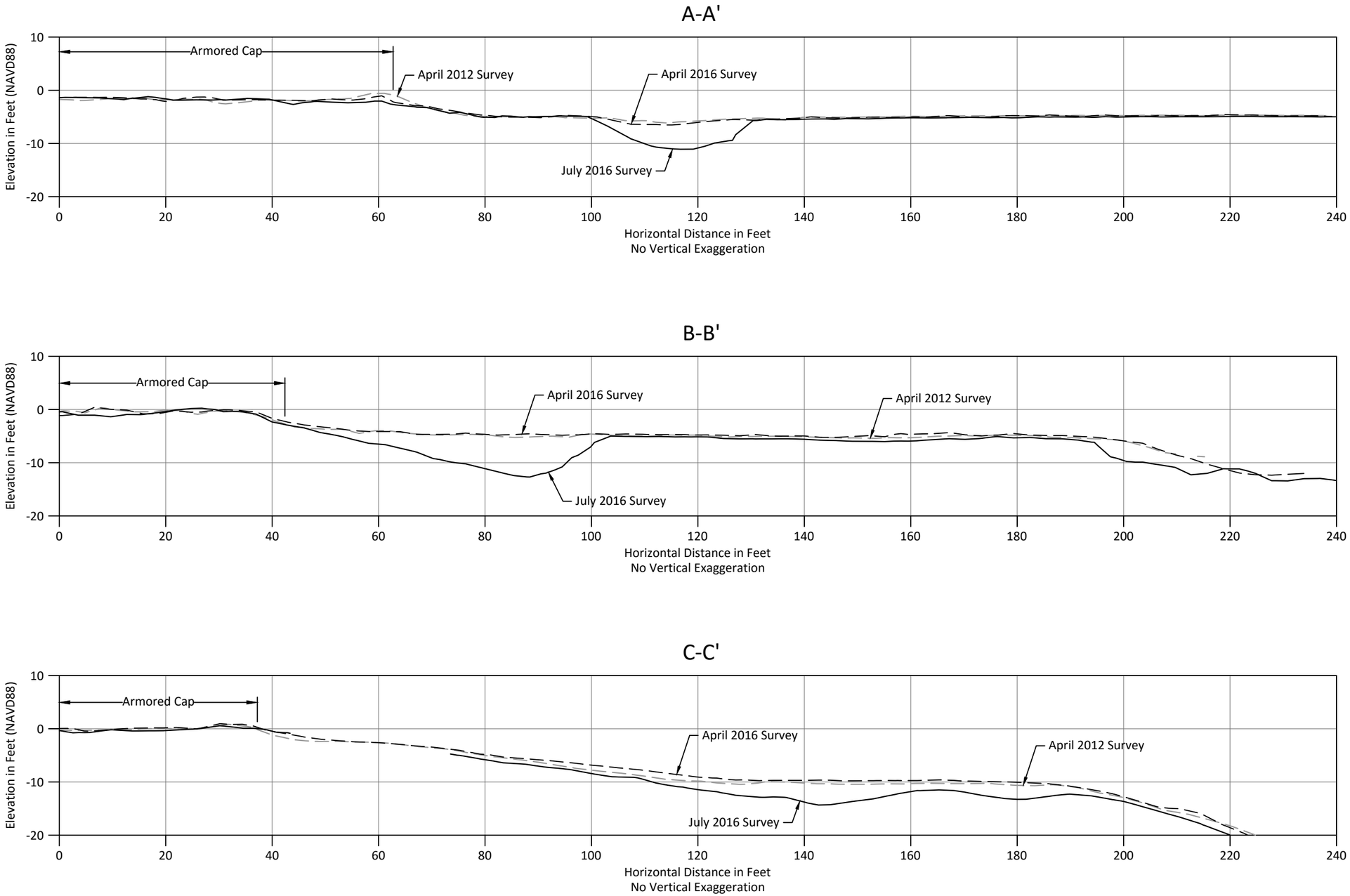
SOURCE: Drawing prepared from surveys provided by Hydrographic Consultants dated April 2016 and July 2016.
HORIZONTAL DATUM: Texas State Plane South Central, NAD83, U.S. Feet.
VERTICAL DATUM: NAVD 88.

0 120
Scale in Feet

Aug 30, 2016 3:11pm dholmer K:\Projects\0557-McGinnes Industrial Maintenance Corp\San Jacinto Waste Pits_Quarterly Inspection Reports\2016-07\0557-QIR-003.dwg April 2016 Quarterly Inspection

ANCHOR QEA

Figure 3
July 2016 Quarterly Inspection
Post-TCRA Quarterly Inspection (July 2016)
San Jacinto River Waste Pits Superfund Site



ANCHOR QEA

Figure 4
Cross Sections A, B, and C
Post-TCRA Quarterly Inspection (July 2016)
San Jacinto River Waste Pits Superfund Site

APPENDIX A
INSPECTION PHOTOGRAPHIC LOG

Photograph 01: USEPA Public Notice Sign located near southern berm (view south-west)

Photograph 02: Southern berm and Eastern Cell (view northwest)

Photograph 03: Central berm (view north)

Photograph 04: Warning sign located along central berm (view southwest)

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Figure A-1
Site Photographs
Post-TCRA Inspection Report (July 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 05: Security camera system located along central berm (view north)

Photograph 06: Warning sign located along central berm (view southwest)

Photograph 07: Warning buoys along northern edge of armor cap (view north)

Photograph 08: Northern edge of Western Cell (view southwest)

ANCHOR QEA

Figure A-2
Site Photographs
Post-TCRA Inspection Report (July 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 09: Western berm (view south)

Photograph 10: Warning sign along western berm and interior of Western Cell (view northeast)

Photograph 11: Security camera system located on western portion of southern berm (view southeast)

Photograph 12: Interior of Western Cell (view north)

ANCHOR QEA

Figure A-3
Site Photographs
Post-TCRA Inspection Report (July 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 13: Fish consumption advisory signs located south of I-10 on west bank (view southwest)

Photograph 14: USEPA Public Notice Sign located south of I-10 on west bank (view north)

Photograph 15: Perimeter fence located south of I-10 on east bank (view northwest)

Photograph 16: Signage and access gate located south of I-10 on east bank (view west)

ANCHOR QEA

Figure A-4
Site Photographs
Post-TCRA Inspection Report (July 2016)
San Jacinto River Waste Pits Superfund Site

Photograph 17: Perimeter fence located south of I-10 on west bank that was damaged during recent floods (view east)

Photograph 18: Perimeter fence located south of I-10 on west bank that was damaged during recent floods (view east)

Photograph 19: Repaired perimeter fence located south of I-10 on west bank (view east)

Photograph 20: Repaired perimeter fence located south of I-10 on west bank (view east)

Figure A-5
Site Photographs
Post-TCRA Inspection Report (July 2016)
San Jacinto River Waste Pits Superfund Site

Attachment 3
USEPA Work Plan Approval
November 16, 2016

-------- Original message --------
From: "Miller, Garyg" <Miller.Garyg@epa.gov>
Date: 11/16/16 9:42 AM (GMT-06:00)
To: John Laplante <jlaplante@anchorqea.com>, David Keith <dkeith@anchorqea.com>
Cc: "Sanchez, Carlos" <sanchez.carlos@epa.gov>, "Foster, Anne" <Foster.Anne@epa.gov>, "Walters, Donn" <walters.donn@epa.gov>, "Meyer, John" <Meyer.John@epa.gov>
Subject: FW: Work Plan for Channel Maintenance - SJRWP

John and David,

Thanks for the revised work plan. The EPA has reviewed and approves the placement of armor rock in the San Jacinto River in the scour area adjacent to the armored cap as described in the attached work plan. Field work will begin during the week of November 28, 2016, and require approximately 2 weeks to complete, weather and tide permitting. Please proceed with this work.

Regards,

Gary Miller
Remedial Project Manager
EPA Region 6 Superfund Division, TX/Ark Section
214-665-8318
miller.garyg@epa.gov

From: John Laplante [mailto:jlaplante@anchorqea.com]
Sent: Tuesday, November 15, 2016 6:42 PM
To: Miller, Garyg <Miller.Garyg@epa.gov>; Foster, Anne <Foster.Anne@epa.gov>
Cc: Judy Armour (jarmour@wm.com) <jarmour@wm.com>; Jennifer Sampson <jsampson@integral-corp.com>; John Verduin <jverduin@anchorqea.com>; Teri Freitas <tfreitas@anchorqea.com>; Wendell Mears <wmears@anchorqea.com>; David Keith <dkeith@anchorqea.com>; Phil Slowiak <philip.slowiak@ipaper.com>; David Moreira <dmoreira@wm.com>; Sanchez, Carlos <sanchez.carlos@epa.gov>; Foster, Anne <Foster.Anne@epa.gov>; Walters, Donn <walters.donn@epa.gov>; Michelle Ratliff-Ziskind <mratliff-ziskind@anchorqea.com>
Subject: RE: Work Plan for Channel Maintenance - SJRWP

Hi Gary – attached please find the revised work plan addressing the comments from USACE. Hard copies will be sent via FedEx. Let us know if you have additional questions.

Thanks.

John Laplante, P.E.
Anchor QEA, LLC
720 Olive Way Suite 1900
Seattle, WA 98101

Office: 206.287.9130
Direct: 206.903.3323
Fax: 206.287.9131
Mobile: 206.795.2676

From: Miller, Garyg [mailto:Miller.Garyg@epa.gov]
Sent: Thursday, November 10, 2016 7:32 AM
To: John Laplante <jlaplante@anchorqea.com>; Foster, Anne <Foster.Anne@epa.gov>
Cc: Judy Armour (jarmour@wm.com) <jarmour@wm.com>; Jennifer Sampson <jsampson@integral-corp.com>; John Verduin <jverduin@anchorqea.com>; Teri Freitas <tfreitas@anchorqea.com>; Wendell Mears <wmears@anchorqea.com>; David Keith <dkeith@anchorqea.com>; Phil Slowiak <philip.slowiak@ipaper.com>; David Moreira <dmoreira@wm.com>; Sanchez, Carlos <sanchez.carlos@epa.gov>; Foster, Anne <Foster.Anne@epa.gov>; Walters, Donn <walters.donn@epa.gov>
Subject: RE: Work Plan for Channel Maintenance - SJRWP

John,

Thanks you for the work plan. Please see the attached email from the Corps of Engineers and incorporate their comments (geotextile details, enlarged trapezoidal tab extending into the scour hole) in the work plan. Please re-submit the work plan for approval.

Regards,

Gary Miller
Remedial Project Manager
EPA Region 6 Superfund Division, TX/Ark Section
214-665-8318
miller.garyg@epa.gov

From: John Laplante [mailto:jlaplante@anchorqea.com]
Sent: Monday, November 07, 2016 3:43 PM
To: Foster, Anne <Foster.Anne@epa.gov>; Miller, Garyg <Miller.Garyg@epa.gov>
Cc: Judy Armour (jarmour@wm.com) <jarmour@wm.com>; Jennifer Sampson <jsampson@integral-corp.com>; John Verduin <jverduin@anchorqea.com>; Teri Freitas <tfreitas@anchorqea.com>; Wendell Mears <wmears@anchorqea.com>; David Keith <dkeith@anchorqea.com>; Phil Slowiak <philip.slowiak@ipaper.com>; David Moreira <dmoreira@wm.com>
Subject: Work Plan for Channel Maintenance - SJRWP

Gary –

Attached please find the work plan for placing additional armor rock in the San Jacinto River channel adjacent to the TCRA armored cap. Hard copies are being sent via FedEx.

Please let me know if you have questions.

Regards,

John Laplante, P.E.
Anchor QEA, LLC
720 Olive Way Suite 1900
Seattle, WA 98101

Office: 206.287.9130
Direct: 206.903.3323
Fax: 206.287.9131
Mobile: 206.795.2676

Attachment 4
Daily Construction Reports

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment; Hydrographic Consultants	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Tuesday, November 29, 2016	**REPORT NO.**	20
WEATHER	Sunny	**TEMPERATURE**	L: 54 H: 84 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
4 – Hydrographic Consultants	N/A
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0900 – R. Coupe meeting with E. Fendley at USA Construction to discuss mobilization and logistics.

0930 – HCL onsite to begin pre-construction survey and stake out.

1010 – R. Coupe on-site

1145 – Stake-out complete.

1200 – All personnel offsite.

Summary of Progress on this Date:

- HCL completed stake-out of edge of geotextile area.

Persons Onsite on this Date:

Rick Coupe (Anchor QEA)
4 personnel (HCL)

Material Placement Summary as of this Date:

Material	Units	Placed (tons)	Delivery Verification Method	Preceding Placed Total	Total Placed for Project
Type D	cubic yards	0		0	0

TESTS PERFORMED: None

PHONE LOG:

1227 – R. Coupe call with W. Mears concerning project progress and logistics.
1345 – R. Coupe call with L. Harrison concerning USA mobilization.
1400 – R. Coupe call with G. Miller concerning project progress.

SITE PHOTOS/VIDEOS TAKEN:

FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:

ANCHOR QEA

DAILY REPORT

None		None			
QA REPRESENTATIVE	Rick Coupe	HRS	2	DATE	11/29/2016

Photograph 1: HCL installing stakes along proposed geotextile edge

Photograph 2: HCL installing stakes along proposed geotextile edge.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment; Hydrographic Consultants	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Wednesday, November 30, 2016	**REPORT NO.**	21
WEATHER	Partly Cloudy	**TEMPERATURE**	L: 54 H: 84 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
3 – Hydrographic Consultants 1 – USA	N/A
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0730 – AQ, USEPA, and USA onsite.

0735 – Land-side tailgate H&S meeting.

0900 – USA informs AQ that Orion crane barge not available for service due to crane issue under repair.

0905 – USA and USEPA offsite.

0915 – HCL onsite to restake edge of geotextile placement area.

1030 – HCL completes stake-out edge of geotextile placement area.

1040 – W. Mears onsite.

1100 – All personnel offsite.

Summary of Progress on this Date:

- HCL completed stake-out of edge of geotextile area.

Persons Onsite on this Date:

Rick Coupe, Wendell Mears (Anchor QEA)
Gary Miller (USEPA)
Layne Harrison (USA)
3 personnel (HCL)

Material Placement Summary as of this Date:

Material	Units	Placed (tons)	Delivery Verification Method	Preceding Placed Total	Total Placed for Project
Type D	cubic yards	0		0	0

ANCHOR QEA

DAILY REPORT

TESTS PERFORMED:	None				
PHONE LOG: 0745 – R. Coupe call R. Roman (HCL) concerning restake of geotextile placement area. 0900 – R. Coupe call with G. Miller concerning project progress.					
SITE PHOTOS/VIDEOS TAKEN:		**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**			
One.		None			
QA REPRESENTATIVE	Rick Coupe	HRS	3.5	DATE	11/30/2016
QA REPRESENTATIVE	Wendell Mears	HRS	0.5	DATE	11/30/2016

Photograph 1: HCL installing stakes along proposed geotextile edge

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment; Hydrographic Consultants	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Thursday, December 1, 2016	**REPORT NO.**	22
WEATHER	Sunny with some clouds	**TEMPERATURE**	L: 44 H: 64 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 - Orion	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0730 – AQ, USEPA, and USA onsite.

0815 – Land-side tailgate H&S meeting.

1000 – Orion barge with crane arrives on site.

1045 – Orion installing spuds on barge.

1215 – Barge spudded down at scour area.

1250 – Orion preparing geotextile for placement.

1500 – Aggregate barge arrives loaded with D rock.

1650 – Orion has rock placement shakedown with crane and bucket.

1700 – All personnel offsite.

Summary of Progress on this Date:

- Orion mobilized crane, geotextile, and D rock aggregate to site.
- Orion prepared three geotextile panels for placement and performed a shakedown on the rock placement crane and bucket.

Persons Onsite on this Date:

Rick Coupe, Wendell Mears (Anchor QEA)
Gary Miller (USEPA)
Layne Harrison (USA)
8 personnel (Orion)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	tons	~300	Approx. barge load measurement	0	300

TESTS PERFORMED:	None

PHONE LOG:
None.

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Four	None

QA REPRESENTATIVE	Rick Coupe	HRS	10	DATE	12/1/2016
QA REPRESENTATIVE	Wendell Mears	HRS	10	DATE	12/1/2016

Photograph 1: Orion deck barge with crane arrives on site.

Photograph 2: Orion deck barge spudded down at the slope improvement area

Photograph 3: Commencement of geotextile placement

Photograph 4: Arrival of D rock aggregate to the site.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Friday, December 2, 2016	**REPORT NO.**	23
WEATHER	Sunny with some clouds	**TEMPERATURE**	L: 54 H: 64 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 - Orion	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0730 – AQ, USEPA, and USA onsite.

0735 – Land-side tailgate H&S meeting.

0735 – Orion crew onsite. Rock barge down on the stern.

1130 – Orion and USA management on site. Discuss low production and rock barge and pending weather.

1230 – Orion starts placing rock, removing load from the stern.

1500 – Orion continues to place rock on first 3 panels.

1530 – Orion starts preparing the crane barge for foul weather and moving rock barge back to their Market St. facility for repairs.

1630 – All personnel offsite, enroute to yard and offices.

Summary of Progress on this Date:

- Orion implements changes to field crew and equipment to increase production.
- Orion places approximately 100 tons of rock.

Persons Onsite on this Date:

Rick Coupe, Wendell Mears (Anchor QEA)
Gary Miller (USEPA)
Layne Harrison, Ed Fendley (USA)
10 personnel (Orion)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	tons	~300	Approx. barge load measurement	0	300

TESTS PERFORMED:	None

PHONE LOG:
None.

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Two	None

QA REPRESENTATIVE	Rick Coupe	HRS	4	DATE	12/2/2016
QA REPRESENTATIVE	Wendell Mears	HRS	8	DATE	12/2/2016

Photograph 1: Orion deck barge, rock barge and geotextile crew.

Photograph 2: Orion deck barge spudded down at the slope improvement area.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Monday, December 5, 2016	**REPORT NO.**	24
WEATHER	Intermittent heavy rain throughout an overcast day, wet day; lightening delays early in the morning.	**TEMPERATURE**	L: 50 H: 54 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0715 – USA onsite.

0720 – Orion crew onsite via water. Started laying 1 of 2 panels of geotextile.

0815 – Begin lightening delay.

0830 – Anchor QEA on site. Discuss lightening safety with USA and panel installation process.

945 – Resume work after lightening delay.

1045 – Orion begins placing rock onto Panels 1, then 2, that have been pinned to the existing edge of the cap. Installs panel 3.

1430 – Twenty minuted delay for inclement weather. Rainfall affecting operator visibility. Resume at 1450 placing rock onto panels 2 and 3.

1710 – All personnel offsite, enroute to yard and offices.

Summary of Progress on this Date:

- Orion delayed by inclement weather and lightening. Geotextile installation slow due to wet conditions.
- Orion places approximately 120 tons of rock.

Persons Onsite on this Date:

Wendell Mears (Anchor QEA)
Layne Harrison (USA)
8 personnel (Orion)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	tons	~300	Approx. barge load measurement	0	300

TESTS PERFORMED:	None

PHONE LOG:
National Weather Service

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Three shown, thirty taken	None

QA REPRESENTATIVE	Wendell Mears	HRS	8.75	DATE	12/5/2016

Photograph 1: Orion resumes work after lightening delay

Photograph 2: Orion deck barge; rain and visibility delay

Photograph 3: Orion placing rock on panels 2 and 3 for the day (panels 5 and 6 for the job)

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Tuesday, December 6, 2016	**REPORT NO.**	25
WEATHER	Bright skys and sunshine.	**TEMPERATURE**	L: 53 H: 70 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA and Anchor QEA onsite. Short health and safety discusson regarding sun burns.

0700 – Orion crew onsite via water. Started laying geotextile panels

0930 – Begin installing stone on panels 1 and 2 for the day (7 and 8 for the job)

0830 – Anchor QEA on site. Discuss lightening safety with USA and panel installation process.

1130 to 1215 – Anchor QEA and USA Environment offsite for lunch.

1630 – Rock barge empty, small tug arrives to pick up empty barge. Orion precuts panels for next day and completes general housekeeping

1700 – All personnel offsite, enroute to yard and offices.

Summary of Progress on this Date:

- Orion continues progress installing geotextile panels.
- Orion places approximately 120 tons of rock.
- Rock barge picked up for refill and changing the rock bucket.

Persons Onsite on this Date:

Wendell Mears (Anchor QEA)
Layne Harrison (USA)
8 personnel (Orion)

Material Delivery Summary as of this Date:

ANCHOR QEA

DAILY REPORT

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	tons	~300	Approx. barge load measurement	0	300

TESTS PERFORMED: None

PHONE LOG:
Gary Miller and Terry Andrews. Terry (local firm under contract to USEPA) will be on site this week for EPA.

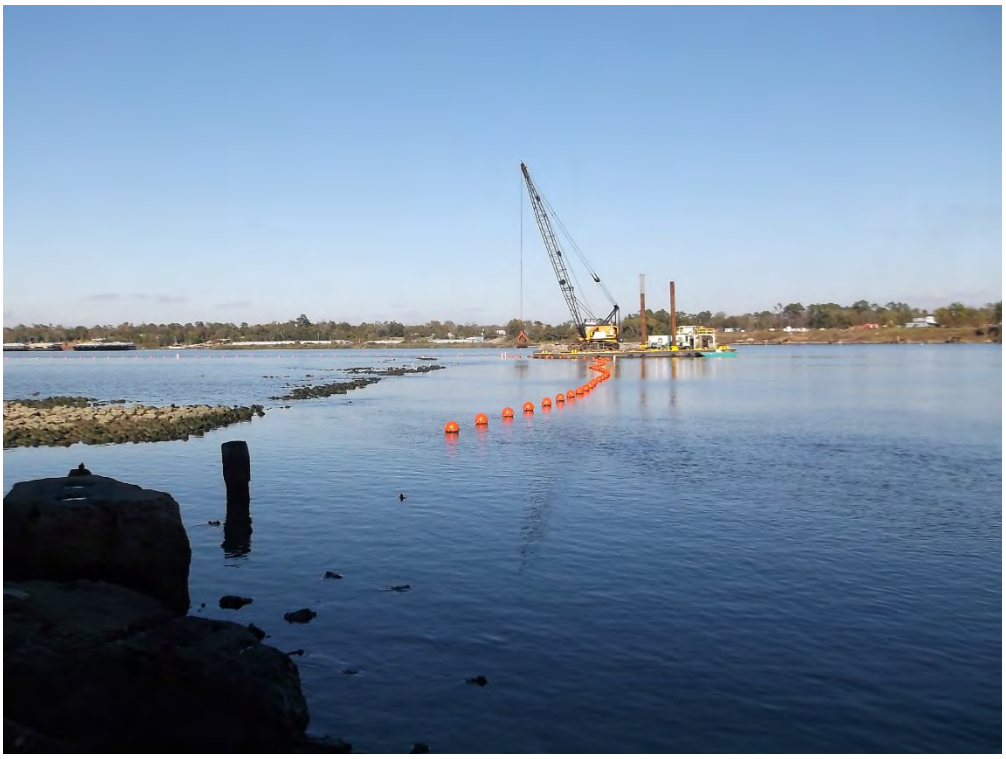
SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Five shown, sixty taken	None

QA REPRESENTATIVE	Wendell Mears	HRS	10	DATE	12/6/2016

Photograph 1: Orion starts laying two panels

Photograph 2: Orion work barge placing stone

Photograph 3: Orion placing rock on panels 1 and 2 for the day (panels 7 and 8 for the job)



Photograph 4: Orion placing rock on panels 1, 2 and 3 for the day (panels 7 to 9 for the job)

Photograph 5: Orion preparing for the next day, note rock barge has departed to refill.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Wednesday, December 7, 2016	**REPORT NO.**	26
WEATHER	Early fog; overcast skies through the day.	**TEMPERATURE**	L: 55 H: 60 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA and Anchor QEA onsite. Brief health and safety discusson regarding visitors to the site and TCEQ guest.

0700 – Orion crew onsite via water. Started laying geotextile panels abutting existing cap edge. Visual not attained due to fog. Verified width of geotextile panels is 15 feet. Checked GPS coordinates against CAD coordinates, within 65 feet of southern end of maintenance section.

0745 – Terry Andrews (TCEQ) arrives on site. After safety briefing, toured the site and discussed ongoing maintenance. Due to continued fog, Terry asked to be notified when rock placement could begin via phone. He departs site.

0930 – Fog clearing, reloaded rock barge arrives with a rock bucket for the crane.

1030 – New panels pulled to toe of slope

1130 – New rock bucket installed. Started to lay rock onto geotextile panels.

1230 – Terry Andrews returns to see rock installation, departs at 1430; will return on Thursday.

1630 – Rock barge nearly empty, small tug arrives to pick up empty barge. Orion precuts panels for next day and completes general housekeeping. Confirm with crane GPS system that 30 feet remains in the maintenance section. Anticipate placing 3 each 15 foot panels to attain north to south dimension.

1700 – All personnel offsite, enroute to yard and offices.

Summary of Progress on this Date:

- Orion continues progress installing geotextile panels.
- Orion places approximately 230 tons of estimated 300 tons of rock placed from the barge.
- Rock barge picked up for refill and changed to a rock bucket; marked increase in production.

Persons Onsite on this Date:

Wendell Mears (Anchor QEA)
Layne Harrison (USA)

ANCHOR QEA

DAILY REPORT

Terry Andrews (TCEQ for USEPA)
8 personnel (Orion)

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	~230	Approx. barge load measurement	300	530

TESTS PERFORMED:	None

PHONE LOG:

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Three shown, thirty six taken	None

QA REPRESENTATIVE	Wendell Mears	HRS	10	DATE	12/7/2016

Photograph 1: Orion starts un-furling two panels after rock barge arrives

Photograph 2: Orion work barge placing stone with new bucket. Increased production

Photograph 3: Orion rock barge returning for refill near end of day.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Thursday, December 8, 2016	**REPORT NO.**	27
WEATHER	Overcast skies through the day; winds out of NW .	**TEMPERATURE**	L: 43 H: 54 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA and Anchor QEA onsite. Brief health and safety discusson regarding wet conditions, QC surveys on Monday and swapping AQEA personnel. Daleel Nanju will replace Wendell Mears on Friday morning.

0700 – Orion crew onsite laying geotextile panels abutting existing cap edge. Laying last three – 15 foot panels.

0935 – Refilled rock barge arrives on site.

1030 – Start placing rock onto last 3 geotextile panels.

1145 – Departed site for lunch meeting with rock subcontractor Orion. Returned at 1300.

1330 – Last panel has rock cover. Started to thicken the template using low tides and visual approach.

1515 – Terry Andrews with TCEQ on site to review progress; departs 1620

1700 – All personnel offsite, enroute to yard and offices. Gusting winds precluded barge movements in the last hour of work.

Summary of Progress on this Date:

- Orion continues progress installing geotextile panels.
- Orion places approximately 220 tons of estimated 300 tons of rock on the barge.
- Good production in spite of high winds and waves that limited barge movements.

Persons Onsite on this Date:

Wendell Mears (Anchor QEA)
Layne Harrison (USA)
Terry Andrews (TCEQ)
8 personnel (Orion)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	~300	Approx. barge load measurement	530	830

TESTS PERFORMED:	None

PHONE LOG:

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Four shown, fourty taken	None

QA REPRESENTATIVE	Wendell Mears	HRS	10	DATE	12/8/2016

Photograph 1: Orion starts un-furling two panels after rock barge arrives

Photograph 2: Orion work barge placing stone near south end of maintenance area

Photograph 3: Orion placing rock thickness during low tide

Photograph 4: Crane Tip GPS system. Shows total bucket coverage with first rock pass

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Thursday, December 9, 2016	**REPORT NO.**	28
WEATHER	Overcast skies through the day; winds out of NNE .	**TEMPERATURE**	L: 39 H: 48 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA and Anchor QEA onsite. Brief health and safety discusson regarding upcoming surveys and rock installation.

0700 – Orion crew onsite, realign barge and start placing rock.

0745 – Daleel Nangju on site for Anchor QEA. Orientation, safety brief and duty requirement orientation.

1100 – Barge arrives with fresh load of rock.

1400 – Crane breaks down. Waiting for update from Orion. Barge was re-positioned south closer to the I-10 Bridge.

1413 – Information from Orion indicates crane belt needs replacement due to wear/tear.

1430 – Crane belt has been replaced and operations back to normal. It is expected that crews will not be able to finish up remaining rock (half full) on the barge. Will not achieve full coverage by end of day. Anticipated that remaining areas will be addressed on Tuesday as well as any gaps identified during the bathymetric survey.

1530 – Work stopped again due to potential issue with engine and water pump.

1600 – Operations ceased for the day. Barge will be moved out of the way for the bathymetric survey on Monday morning. Repairs will be conducted on the crane during the down time.

Summary of Progress on this Date:

- All geotextile panels installed as of 12/8.
- Orion places approximately 150tons of rock today.
- Thickness and extent surveys scheduled for Monday morning.

Persons Onsite on this Date:

Wendell Mears and Daleel Nangju (Anchor QEA)
Layne Harrison (USA)
8 personnel (Orion)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	~300	Approx. barge load measurement	530	830

TESTS PERFORMED:	None

PHONE LOG:

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Four shown, fourty taken	None

QA REPRESENTATIVE	Wendell Mears	HRS	4	DATE	12/9/2016
QA REPRESENTATIVE	Daleel Nangju	HRS	9	DATE	12/9/2016

Photograph 1: Orion work barge placing stone near south end of maintenance area

Photograph 2: Orion placing rock

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Monday, December 12, 2016	**REPORT NO.**	29
WEATHER	Partly cloudy, winds from SSE	**TEMPERATURE**	L: 64 H: 76 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA) 4 – HCL (Surveyor)	Deck Barge; Crane; Tug Boat; Rock Barge; Survey Boat (HCL)
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA onsite.

0700 – Orion crew onsite, realign barge and start placing rock.

0830 – Orion places approximately 50 tons prior to survey crew arrival.

0830 – HCL onsite to perform survey of placement area.

1430 – Orion resumes rock placement after return of survey results. An additional ~50 tons placed.

1610 – Orion empties rock barge and sends back to Orion dock for reloading and placement in the morning of 12/13.

1630 – Operations ceased for the day. All personnel offsite.

Summary of Progress on this Date:

- Orion places approximately 100 tons of rock today.
- HCL completed thickness and extent surveys for the placed rock.

Persons Onsite on this Date:

4 personnel (Hydrographic Consultants)
Layne Harrison (USA)
8 personnel (Orion)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	0	Approx. barge load measurement	830	830

TESTS PERFORMED:	None

PHONE LOG:
None.

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
None.	None

QA REPRESENTATIVE	None.	HRS	N/A	DATE	12/12/2016

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Tuesday, December 13, 2016	**REPORT NO.**	30
WEATHER	Fog AM, overcast skies through the day; winds out of NW.	**TEMPERATURE**	L: 59 H: 76 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA) 2 – HCL (Surveyor)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA onsite.

0700 – Orion crew onsite, realign barge and start placing rock.

0745 – Daleel Nangju onsite for Anchor QEA. Rock barge has not arrived yet due to heavy fog.

0900 – Fog lifted. Rock barge arrives. Operation begins.

0951 – Staff from HCL arrive for additional surveys.

1059 – HCL still waiting on barge to complete rock placement in current area. Once barge is out of way, then survey can begin check surveys.

1124 – Barge moved slightly north and east. Rock placement operation stopped. HCL begins survey to the south and west of the barge.

1542 – Survey completed. Rock placement operation resumes.

1637 – Not enough daylight to finish up remaning rock on barge. Operations will continue tomorrow.

1730 - Operations ceased for the day. All personnel offsite.

Summary of Progress on this Date:

- Orion places approximately 100 to 120 tons of rock today to fill out thickness.
- HCL completed thickness and extent surveys for the placed rock.

ANCHOR QEA

DAILY REPORT

Persons Onsite on this Date:
Daleel Nangju (Anchor QEA)
Layne Harrison (USA)
8 personnel (Orion)
2 personnel (Hydrographic Consultants)

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	~250	Approx. barge load measurement	830	1080

TESTS PERFORMED:	None

PHONE LOG:

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Four shown, fourty taken	None

QA REPRESENTATIVE	Daleel Nangju	HRS	9	DATE	12/13/2016

Photograph 1: Orion work barge placing stone near south end of maintenance area

Photograph 2: Orion work barge placing stone near south end of maintenance area

Photograph 3: HCL surveying.

Photograph 4: HCL surveying northern limits.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Wednesday, December 14, 2016	**REPORT NO.**	31
WEATHER	Overcast skies through the day; winds out of NNE.	**TEMPERATURE**	L: 47 H: 66 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA) 2 – HCL (Surveyor)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – USA onsite.

0700 – Orion crew onsite, realign barge and start placing rock.

0745 – Daleel Nangju onsite for Anchor QEA.

0910 – HCL onsite.

0934 – HCL waiting for barge operations to complete so that they can begin their survey.

1053 – Barge operations completed; HCL begins bathymetric survey.

1115 – Rock barge departed; another tug will be arriving in the afternoon to remove barge with clam shell crane.

1154 - Operations ceased for the day. All personnel offsite. The barge with the clam shell crane will be replaced by a track hoe to redistribute and place the remaining rock to finish the template. The track hoe is coming from another project tomorrow to complete final grading to achieve thickness.

Summary of Progress on this Date:

- Orion places approximately 100 tons of rock today to fill out thickness.
- HCL completed thickness and extent surveys for the placed rock.

Persons Onsite on this Date:

Daleel Nangju (Anchor QEA)
Layne Harrison (USA)
8 personnel (Orion)
2 personnel (Hydrographic Consultants)

ANCHOR QEA

DAILY REPORT

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	~237	Approx. barge load measurement	1,080	1,317

TESTS PERFORMED:	None

PHONE LOG:

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
Two shown, twenty taken	None

QA REPRESENTATIVE	Daleel Nangju	HRS	4	DATE	12/14/2016

Photograph 1: Orion work barge placing stone near south end of maintenance area

Photograph 2: HCL surveying.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Thursday, December 15, 2016	**REPORT NO.**	32
WEATHER	Partly cloudy; winds out of NNE.	**TEMPERATURE**	L: 49 H: 59 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 8 – Orion (subcontractor to USA)	Deck Barge; Long Reach Excavator; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

1030 – Daleel Nangju onsite for Anchor QEA.

1230 – USA onsite.

1400 – Orion crew onsite.

1457 – Excavator placing remaining rock and starts final grading.

1700 – Operations ceased for the day. All personnel offsite.

Summary of Progress on this Date:

- Orion places approximately 40 tons of rock today to fill out thickness.
- Orion starts final grading on the template

Persons Onsite on this Date:

Daleel Nangju (Anchor QEA)
Layne Harrison (USA)
8 personnel (Orion)

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	0	Approx. barge load measurement	1,317	1,317

TESTS PERFORMED:	None

ANCHOR QEA

DAILY REPORT

PHONE LOG:					
SITE PHOTOS/VIDEOS TAKEN:		**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**			
3 shown, 28 taken		None			
QA REPRESENTATIVE	Daleel Nangju	HRS	3	DATE	12/15/2016

Photograph 1: Orion work barge placing stone near south end of maintenance

Photograph 2: Orion work barge placing stone near south end of maintenance area

Photograph 3: Excavator shaping rock areas.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Thursday, January 26, 2017	**REPORT NO.**	33
WEATHER	Partly cloudy; winds out of N.	**TEMPERATURE**	L: 45 H: 61 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 6 – Orion (subcontractor to USA) 2 – HCL (Surveyor)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0820 – AQ and USA onsite.

0835 – Orion crane and rock barge arrive in channel across from site and begin crane set up and spud assembly.

0915 – AQ and USA health and safety tailgate.

1000 – Orion moves across channel and spuds down near placement area.

1030 – HCL onsite.

1145 – Orion begins placement of rock in southern portion of placement area.

1550 – Orion relocates crane barge to northern portion of placement area.

1600 – HCL performs topographic and bathymetric survey of southern portion of placement area.

1610 – Orion removes perimeter buoys from the water in the vicinity of placement activities and places the buoys temporarily on the cap. Buoys to be placed back in their original location after rock placement is complete.

1730 – Construction activities cease for the day.

Summary of Progress on this Date:

- USA delivered approximately 135 tons of rock from the Bluebonnet Landfill facility to the Orion yard on 1/25/2017.
- Orion places approximately 100 tons of rock today in the southern portion of the placement area.

Persons Onsite on this Date:

Rick Coupe (Anchor QEA)
Ron Griffith (USA)
6 personnel (Orion)

2 personnel (HCL)

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	135	Approx. barge load measurement	1,317	1,452

TESTS PERFORMED:	None

PHONE LOG:

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
3 shown, 32 taken	None

QA REPRESENTATIVE	Rick Coupe	HRS	10	DATE	1/26/2017

Photograph 1: Orion work barge placing stone near south end of placement area

Photograph 2: Orion work barge placing stone near south end of placement area

Photograph 3: Orion beginning placement near northern end of placement area.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Friday, January 27, 2017	**REPORT NO.**	34
WEATHER	Overcast; winds out of NW.	**TEMPERATURE**	L: 41 H: 62 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
1 – USA 6 – Orion (subcontractor to USA) 1 – HCL (Surveyor)	Deck Barge; Crane; Tug Boat; Rock Barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0700 – AQ and USA onsite.

0715 – AQ and USA H&S tailgate

0730 – Orion crew arrives to crane barge.

0800 – Orion relocating barge to southern portion of placement area.

0825 – Orion begins placement of d rock.

0950 – Orion relocates crane barge to northern portion of placement area.

1100 – HCL on site and begins base station set-up.

1140-1320 – HCL surveying placement area.

1345 – Orion placing d rock on western edge of placement area.

1600 – Orion relocating crane barge to northern end of placement area.

1610 – HCL to survey placement areas on western edge of placement area from south to north.

1730 – Construction activities cease for the day; all personnel offsite.

Summary of Progress on this Date:

- Orion places approximately 35 tons of rock today in various locations of the placement area and completed placement activities.

ANCHOR QEA

DAILY REPORT

Persons Onsite on this Date:
Rick Coupe (Anchor QEA)
Ron Griffith (USA)
6 personnel (Orion)
2 personnel (HCL)

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type D	Tons	0	Approx. barge load measurement	1,452	1,452

TESTS PERFORMED:	None

PHONE LOG:
0905 – Call with E. Fendley to discuss 1/26 survey results
0945 – Call with USA, AQ, and Orion to discuss plan for completion of rock placement
1445 – Call with B. Williams of Orion to discuss rough survey results and rock placement in thin areas.

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
3 shown, 10 taken	None

QA REPRESENTATIVE	Rick Coupe	HRS	10.5	DATE	1/27/2017

Photograph 1: Orion work barge placing stone near south end of placement area.

Photograph 2: HCL surveying placement area.

Photograph 3: Ongoing placement near southern end of placement area.

ANCHOR QEA

DAILY REPORT

PROJECT	San Jacinto River Waste Pits TCRA Adjacent Armor Rock Placement	**CONTRACT NO.**	
CONTRACTOR	USA Environment	**SUPERINTENDENT**	Layne Harrison (USA)
DAY OF WEEK & DATE:	Monday, January 30, 2017	**REPORT NO.**	35
WEATHER	Overcast; winds out of SW.	**TEMPERATURE**	L: 41 H: 82 degrees F

NUMBER/CLASS OF CONTRACTOR'S PERSONNEL:	**MAJOR EQUIPMENT ON JOB (Size/capacity and hours):**
6 – Orion	Deck barge, crane, tug, rock barge
TIDE INFORMATION:	**HEALTH AND SAFETY INFORMATION:**
Time: n/a **Height:** n/a	No incidents or near misses on this date.

CHRONOLOGICAL ACCOUNT OF DAY'S WORK:

0800 – Orion on site.

0800 – 1100 – Orion disassembles crane boom and demobilizes deck barge, crane, tug, and rock barge from site.

1130 – Perimeter buoys placed back in the water in their original location occupied before channel maintenance activities commenced.

1145 – All personnel offsite.

Summary of Progress on this Date:

- Orion demobilized the rock barge, crane, deck barge, tug, and all personnel and equipment from the site and replaced the perimeter buoys that had be relocated during channel maintenance activities.
- Final survey to be completed by Hydrographic Consultants on Wednesday, February 1, 2017, weather and tide permitting.

Persons Onsite on this Date:

6 Personnel (Orion)

Material Delivery Summary as of this Date:

Material	Units	Delivery (tons)	Delivery Verification Method	Preceding Delivered Total	Total Delivered for Project
Type C	Tons	0	Approx. truck load measurement	0	1,452

TESTS PERFORMED:	None

PHONE LOG:

None.

SITE PHOTOS/VIDEOS TAKEN:	**FORCE ACCOUNT WORK/ CHANGES ENCOUNTERED:**
One	None

ANCHOR QEA

DAILY REPORT

Photo 1: Perimeter buoys replaced around the channel maintenance area and all equipment and personnel demobilized from site.