Appendix C-2 Preliminary Assessment of Sediment Characterization of Areas A and B for the Ballona Wetland Restoration Project

Ballona Wetlands Restoration Preliminary Design Report
May 8, 2013 Draft
Weston Solutions

TO: Nick Garrity, ESA-PWA

FROM: David H. Pohl, Weston Solutions, Inc.

SUBJECT: PRELIMINARY ASSESSMENT OF SEDIMENT CHARACTERIZATION OF AREAS A AND B FOR THE BALLONA WETLAND RESTORATION PROJECT

DATE: OCTOBER 17, 2012

Weston Solutions, Inc. (Weston) under contract with ESA-PWA has prepared this technical memorandum on the preliminary assessment of the sediment characterization for the Ballona Wetland Restoration Project. The purpose of the sediment characterization program is to assess the sediments within Areas A and B for beneficial use within the proposed Ballona Wetland Restoration Project, located in Los Angeles, California.

The field program for the sediment characterization was conducted from September 24 to 25, 2012 in accordance with the Sampling and Analysis Plan (SAP) prepared by Weston dated September 2012. A total of seven direct push borings were completed using the depth and sampling criteria outlined in Table 2-1 from the SAP. Samples have been transported to the analytical laboratories for chemical and bio-assay testing. Analytical results are anticipated before the end of November. The actual locations and ground elevations of the borings were surveyed the week of the field investigation. Survey data is to be provided Psomas. The following preliminary assessment is therefore based on the observations recorded during the field program. Confirmation of these finding will be conducted when the analytical results are provided by the laboratories.

The overall preliminary findings include:

- Area A Proposed Channel Location – Two borings (A-RW020 and A-HSA018) were completed within the proposed channel in Area A. Both of these borings were advanced to below the proposed elevation of the channel into original marsh materials for a total depth of 28 feet below ground surface (bgs). The sediment at these locations is predominantly silty and sandy low plasticity clays that transitions to a high plasticity clay at approximately 14 ft bgs. Above this depth is a lens of more sandy wet clay from 10-14 ft bgs. At approximately 10-14 ft bgs a petroleum odor and dark staining was observed. This potentially impacted sediment is likely limited to an approximately 2-4 foot layer between 10-14 ft bgs. Discrete samples were taken from this layer at 12 to 14 ft bgs in A-RW020 and 10-12 ft in A-HSA018, where the greater petroleum order and staining was observed. Samples were collected for analysis above and below this potentially impacted layer to define the extent of this layer. Head space analysis of samples placed in plastic sealed bags indicated the potentially impacted layers appear to be limited to the sandy clay layer between 10-14 ft bgs. Samples are undergoing chemical analysis per the SAP. This layer is above the final excavation depth of the proposed channel that is estimated at 22 ft and 18.5 ft bgs for boring locations A-RW020

and A-HSA018, respectively. The estimated elevations for the impacted layer will be determined based on the survey data for the actual boring location. The original marsh materials were encounters at approximately 19-20 ft bgs in both borings. Sediment for bioassay testing to assess the suitability of existing materials for wetland surface were collected from depths of 20-28 ft bgs in each boring. Potential segregation and special placement of the impacted sediment that will be excavated to reach the final grade will be determined based on the analytical results.

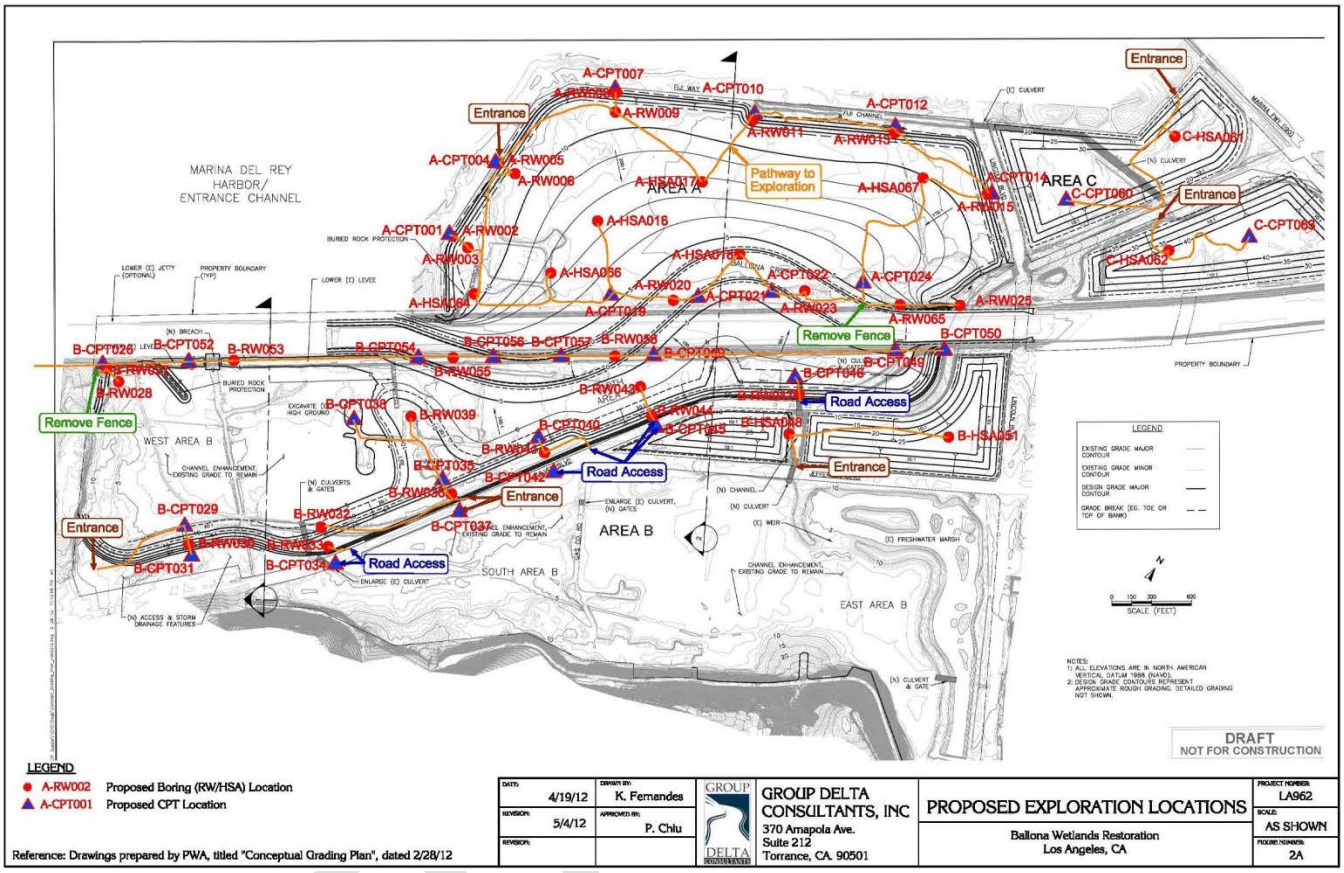
- Area A Transition Zone – Two direct push borings (A-HSA016 and A-HSA067) were completed in Area A within transitional habitat zones requiring less excavation. Anticipated excavation depths range from approximately 4 ft bgs at A-HSA067 to 8 ft bgs at A-HSA016. The sediment profile in both of these borings to a depth of 8 ft bgs is characterized by a sandy silt at the upper 6 ft, transitioning into a more silty clay. The depth of the boring at A-HSA067 was 8 ft bgs or 4 ft below the anticipated excavation depth. A composite sample of the materials from the surface to 6 ft bgs was collected and sent to the laboratory for analysis. A-HSA016 was advanced to 16 ft bgs or 8 ft below anticipated final grades. At 10.5 ft bgs a petroleum odor and staining was observed. Head space analysis of the sediment from 6-8 ft bgs and from 10.5 to 12 ft bgs that was placed in a sealed plastic bag was 0.4 and 0.6 units. The strong petroleum odor and staining appeared to be limited to 10.5 to 12 ft bgs. Samples were collected above and below the potentially impacted sediment layer to determine to the extent of the potential impact. The potentially impacted layer is below the estimated depth of excavation but is within approximately 2 ft of the final grade. The depth of the impacted layer is within the range observed in the other two deeper boring completed in the proposed channel. The need to over-excavate the potentially impacted material and special placement of this material will depend on the results of the analytical analysis.

- Area B Channel and Wetland – Two borings were completed in Area B to assess the existing material for use as wetland surface material and beneficial use of excavated materials. B-RW043 was completed in the proposed wetland area with an anticipated excavation depth of 3 ft. B-RW055 was completed in the proposed channel with an anticipated excavation depth of 22.5 ft. B-RW055 was moved off the existing levee due to the potential of encountering boulders and re-located at the toe of slope of the levee. The original marsh materials were encountered in both borings at approximately 10-12 ft bgs. The materials above the original marsh sediments were observed to range from more sandy silts at the surface to silty clays of low and high plasticity. In both borings a petroleum odor and staining was observed at approximately 6 to 6.5 ft bgs in B-RW043 and less evident between 4-8 ft bgs in B-RW055. Samples were taken from these depths for analysis. Samples were also collected above and below the discrete sample of the potentially impacted layer in B-RW043 to define the extent of the impacted sediment. Samples for bioassay were collected from the original marsh materials below the potential impacted sediments at depth of 6.5 to 10 ft bgs in B-RW043 and from 10-16 ft bgs in B-RW055. The depth of the potentially impacted layer is below the anticipated

final grade at B-RW043. This may require over-excavation to the original marsh materials. The actual final excavation depth for B-RW055 can be estimated to be approximately 10 ft bgs(this boring was re-located as discussed). This estimated final grade depth is below the potentially impacted layer and would not require over-excavation. Survey data is needed to verify this conclusion.

The preliminary results of the sediment characterization indicate that potentially impacted sediment may be present in the fill materials above the original marsh materials. These potentially impacted sediments possess a petroleum odor and were observed to also have dark staining. The potentially impacted sediments are likely limited to 2-4 ft in thickness in Area A and to a lesser extent in Area B. These materials are above the anticipated elevations of the proposed channel, but extend to below the anticipated final grading in transition zones. This may require over-excavation where these impacted materials are within 2-3 feet of final grades. The beneficial use of these materials that will be excavated to achieve final grades will depend on the results of the analytical analysis and comparison to benchmarks and guidelines for specific placement options and final uses.

The next steps are to assess the chemical and bioassay testing results (anticipated in late November), and compare the concentration and results to the guidelines and criteria presented in the SAP. The comparison to the criteria will be used to assess potential beneficial uses of the sediment to be excavated, and the suitability of the remaining material for wetland surfaces within the channel and transitional zones. The evaluation of the laboratory results will also include verifying the potential petroleum impacted sediment and the estimated extent of the impact. Result of the survey of the actual boring locations will be used to define the depths of potentially impacted material in comparison to the proposed grading elevations. These results will then be summarized in a report on the sediment characterization study. The findings of the sediment characterization will then be used to develop specifications and design recommendation for the excavation and placement of sediment materials, potential changes to final grading and special procedures for removal, and segregation and placement of impacted materials.


MARINA DEL REY HARBOR/ ENTRANCE CHANNEL
AREA A
AREA B
AREA C
WEST AREA B
SOUTH AREA B
EAST AREA B
Pathway to Exploration
Entrance
Road Access
Remove Fence
A-CPT007
A-RW004
A-RW009
A-CPT010
A-CPT012
A-RW011
A-RW013
C-HSA061
A-CPT004
A-RW005
A-RW008
A-HSA017
A-HSA067
A-CPT014
A-RW015
C-CPT060
C-CPT063
C-HSA062
A-CPT001
A-RW002
A-HSA016
A-RW003
A-HSA066
A-HSA018
A-CPT022
A-CPT024
A-HSA064
A-RW020
A-CPT021
A-RW023
A-RW025
A-CPT019
A-RW065
B-CPT026
B-CPT052
B-RW053
B-CPT054
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B-RW027
B-RW028
B-RW055
B-CPT049
B-CPT046
B-RW043
B-CPT038
B-RW039
B-RW044
B-CPT045
B-HSA047
B-HSA048
B-HSA051
B-CPT040
B-RW041
B-CPT035
B-CPT042
B-RW036
B-CPT029
B-RW032
B-CPT037
B-RW033
B-CPT031
B-CPT034
LEGEND
EXISTING GRADE MAJOR CONTOUR
EXISTING GRADE MINOR CONTOUR
DESIGN GRADE MAJOR CONTOUR
GRADE BREAK (EG, TOE OR TOP OF BANK)
SCALE (FEET)
NOTES:
1: ALL ELEVATIONS ARE IN NORTH AMERICAN VERTICAL DATUM 1988 (NAVD).
2: DESIGN GRADE CONTOURS REPRESENT APPROXIMATE ROUGH GRADING. DETAILED GRADING NOT SHOWN.
DRAFT
NOT FOR CONSTRUCTION
LEGEND
A-RW002 Proposed Boring (RW/HSA) Location
A-CPT001 Proposed CPT Location
Reference: Drawings prepared by PWA, titled "Conceptual Grading Plan", dated 2/28/12
DATE: 4/19/12
DRAWN BY: K. Fernandes
REVISION: 5/4/12
APPROVED BY: P. Chiu
REVISION:
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PROPOSED EXPLORATION LOCATIONS
Ballona Wetlands Restoration
Los Angeles, CA
PROJECT NUMBER: LA962
SCALE: AS SHOWN
FIGURE NUMBER: 2A