UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
5 Post Office Square, Suite 100
Boston, MA 02109-3912

Memorandum

DATE: December 8, 2023
SUBJ: 11/13/2023 inspection of Upper Harbor sediment caps, NBHSS
FROM: David Dickerson, Remedial Project Manager
To: Site file (7.5)

DAVID DICKERSON Digitally signed by DAVID DICKERSON Date: 2023.12.08 10:21:52 -05'00'

This memo documents the visual shoreline inspection of all Upper Harbor (UH) sediment caps performed by D. Dickerson and N. Burgo on 11/13/2023. The inspections took place between approximately one hour before and one hour after a 0.1 ft low tide at 1:15 pm that day, since only the intertidal portions of the caps can be seen visually. Two caps, 0-711 and L-114, were completely subtidal and thus could not be seen. At the Parcel 265 cap, only the very top of one stone of the cap could be seen (Figure 21). Bathymetric and topographic surveys performed earlier in fall 2023 will augment this visual feature inspection.

Figure 1 below shows the locations of the seven UH sediment caps installed in 2020. North to south, these caps are: 0-711, Crib, L-014, L-114, pilot CDF shoreline, Cogg-East and Cogg-West. Also shown on Figure 1 is the Aerovox sediment cap constructed in 2018 and the Parcel 265 cap installed in 2016 as part of the subtidal dredging operations in that area.

Figures 2 through 25 below are photos of these caps running north to south taken during this inspection.

Based on this inspection the UH sediment caps continue to appear in good shape with only two action items required (the first of which is a placeholder from previous cap inspections):

- At the crib cap, when implementing the ongoing West Zone 2/3 remedial action, a low-ground-pressure small excavator or similar machine will be used to create a more uniform, smoother (less undulating) stone surface. This will aid in visually detecting potential stone displacement moving forward during O&M to minimize the need for topographic/bathymetric surveys during O&M. Additional stone may be added if necessary to help create this uniform, smoother surface.

- At the crib cap and pilot CDF shoreline cap, a few very small areas (most <1 ft^2 each) were observed where the sand layer of the cap was not completely covered with armor stone (see Figures 11, 12 and 18). At these areas armor stone will need to be placed (or relocated from visible high spots) to ensure the underlying sand cap is well protected against wave-based erosional forces. The action item above for crib cap smoothing is expected to address these areas for that cap, such that only limited stone placement will be required at the pilot CDF shoreline cap. The few areas at the pilot CDF shoreline cap requiring this minor stone placement are along the east-facing portion of that cap.

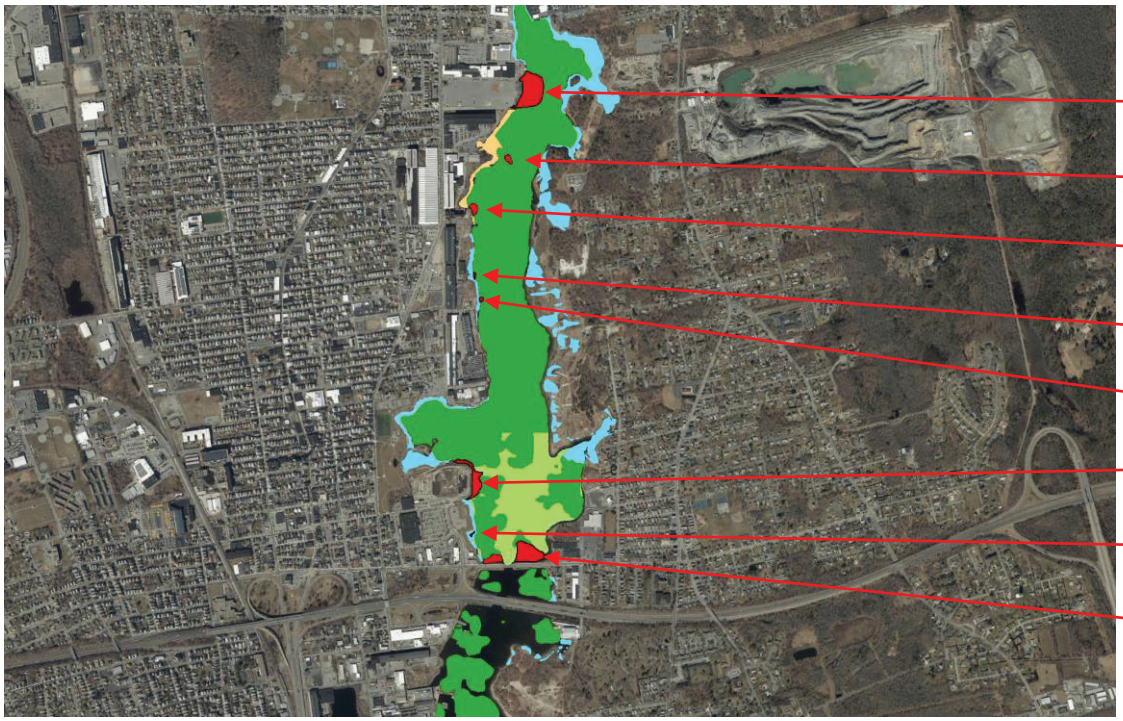

Figure 1

Figure 2: **Aerovox Cap**: Looking NE showing "capacitor cove." The lower edge of the larger armor stone on the river bank can be seen where it meets the smaller armor stone of the flatter portions of the cap.

Figure 3: **Aerovox Cap**: Looking west showing the as-built condition of the recently completed (summer 2023) North Trench drainage grating.

Figure 4: **Aerovox Cap**: Looking south showing the South Trench discharge structure in foreground. Emergent salt grass noted in previous inspections remains near the outfall (the void spaces in the armor stone are likely filling in with silt from the drainage discharge).

Figure 5: **Aerovox Cap**: Small birds (possibly Snow Buntings - *Plectrophenax nivalis*) observed along the N/S bank of the cap.

Figure 6: **Aerovox Cap**: looking north showing a serrated pattern at the waterline in some areas.

Figure 7: **Aerovox Cap**: Looking northeast showing the southern section of the cap and the abutting Hadley Street storm drain

Figure 8: **Crib Cap**: Looking north.

Figure 9: **Crib Cap**: Looking northeast showing area near a drainage outfall (possibly defunct).

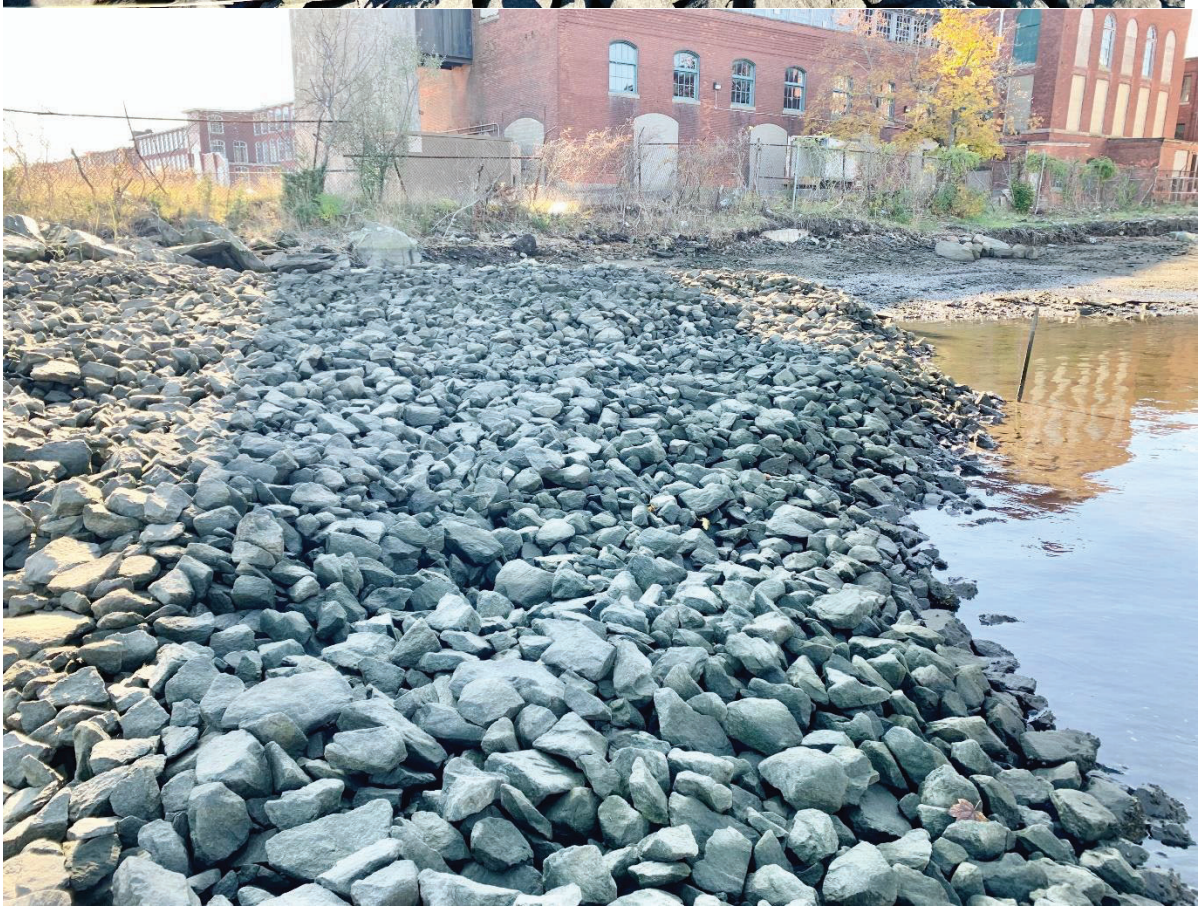

Figure 10: **Crib Cap**: Looking southwest showing the northern edge of the cap.
The southern edge of the ongoing WZ2/3 shoreline excavation can be seen in the background.

Figure 11:
Crib Cap:
Looking west showing an area needing additional armor stone at the northwestern end of the cap.

Figure 12:
Crib Cap:
showing a very small area needing additional armor stone.

Figure 13:
L-014 Cap:
Looking north.

Figure 14:
L-014 Cap:
Looking south showing area where original topsoil from the abutting WZ4 restoration washed into the armor stone (WZ4 topsoil was subsequently replaced).

Figure 15: **L-014 Cap**: Looking west showing the drainage swale where original WZ4 topsoil was likely discharged onto the cap.

Figure 16: **Pilot CDF Shoreline Cap** (the rocky surface seaward of the Sawyer Street facility). Aerial view looking west at low tide.

Photo: Ed Pepin

Figure 17:
Pilot CDF Shore-line Cap: looking northeast showing the southern edge of the cap. Toe of slope remains well defined.

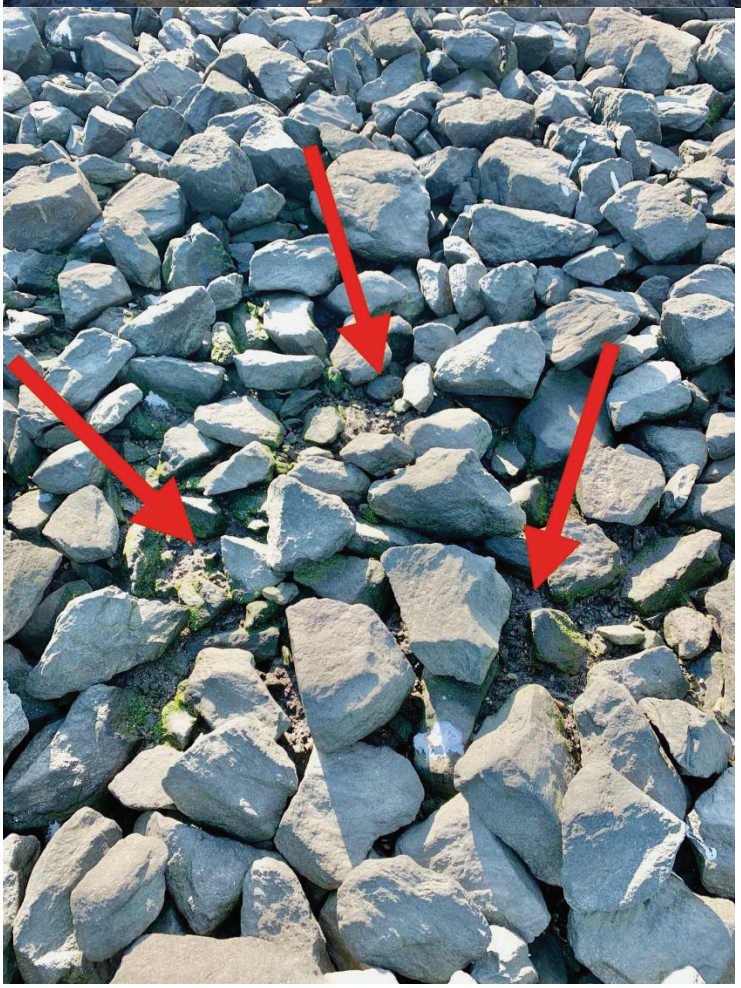

Figure 18:
Pilot CDF Shore- line Cap: showing area with thin armor stone layer and some exposed sand isolation layer.

Figure 19:
Pilot CDF Shoreline Cap: looking east.

Figure 20:
Pilot CDF Shoreline Cap: looking west showing the northern edge of the cap.

Figure 21: **Parcel 265 Cap**: looking east. Only the very top of one stone was showing at the time of the inspection.

Figure 22: **Cogg-West Cap**: looking southeast.

Figure 23: **Cogg-East Cap**: looking east showing the western edge of the cap at the Coggeshall St bridge opening. Cap armor stone also shown in background.

Figure 24: **Cogg-East Cap**: looking northeast.

Figure 25: **Cogg-East Cap**: looking north showing the eastern end of the cap.

END