



Charles River Watershed Association

November 10, 2011

Allen Wiggin
The Commonwealth of Massachusetts
Division of Capital Asset Management
One Ashburton Place, 15th Floor
Boston, MA 02108

Re: Former Medfield State Hospital, Medfield, MA, DRAFT Phase II Comprehensive Site Assessment/Special Project Designation Annual Report Update (RTN: 2-3020799)

Dear Mr. Wiggin:

The Division of Capital Asset Management (DCAM) and Weston & Sampson presented their ***Phase II Comprehensive Site Assessment/Special Project Designation Annual Report Update*** to the Medfield PIP Group on September 8, 2011. The Charles River Watershed Association (CRWA) submits the following comments on the Phase II CSA for the above-referenced project; our comments are specifically directed at the C&D Area.

This Phase II CSA serves as an update to the annual SPD Status Report as required by the MCP (310 CMR 40.060), and is intended to evaluate the following: 1) risk of harm to health, environment, public welfare and safety, 2) the source nature and extent of potential impacts, and 3) the need for remedial actions. A series of monitoring sites throughout the property have documented the presence of petroleum, PAHs and metals. In addition, groundwater analyses have identified chlorinated volatile organic compounds (CVOCs), primarily tetrachloroethylene (PCE), above MCP GW-1 cleanup standards.

1. Potential Migration Pathways for Contaminants:

The Phase II CSA at page 2-8 lists migration pathways for contaminants of concern (CoCs), including: 1. Groundwater, which could transport VOCs (e.g. PCE) and petroleum related compounds; 2. Surface runoff, which is a special concern in regards to metal transport; 3. Utility line beds, which present a path of least resistance for CoC migration; and 4. Leaching of fill materials into soil. DCAM's proposed donut-hole capping solution with a layer of clean fill may reduce the potential CoC transport from surface runoff, but we do not believe the present plan will adequately guard against potential migration of CoCs through groundwater, utility line bed lines and leaching. Because the proposed cap and fill only provide an upper barrier, and much of the remaining contaminated fill extends below the water table, contaminants will still be able to move horizontally under the capped area, and migrate into

the river. In fact, on page 2-13 the report states “we have documented that the groundwater flow across the four areas is to the west-northwest, ultimately discharging to the river.”

As acknowledged by DCAM, any remaining CoCs have a high likelihood of migrating through groundwater and into the river. Although removing additional contaminated fill will increase the total project cost, the benefits of avoiding future CoC migration and ultimately exposing future residents and users to those risks far outweigh the costs. In addition to full removal of the C&D debris, we request that DCAM fully evaluate removing additional fill material below the water table, as well as within the riverfront area¹ and the Zone II of Medifeld’s public water supply wells.

The data in Table 1 supports the likelihood of CoC migration. This table, which documents CoCs in groundwater, shows various monitoring sites with extremely high levels of a particular contaminant on one of the sampling days, and then in many cases, these same monitoring sites have extremely low levels of that contaminant on previous or subsequent sampling dates. For example, CD-MW-3 exceeded the MCP standards for Vanadium on 3/9/11, but for 3 sampling dates prior to and one after 3/9/11, Vanadium was almost undetectable. Similarly, CD-MW-4 also exceed MCP standards for lead, nickel and zinc on 10/12/10, but had extremely low levels for all three of these contaminants for 2 prior and 2 later sampling dates. It seems apparent that these contaminants are indeed moving through the site with the groundwater.

CRWA requests that DCAM continues to thoroughly monitor the contaminant migration via groundwater throughout the winter and spring in order to adequately the define extent of groundwater contamination.

2. Extent of Impacts:

Page vi states that “soil impacts in the C&D Area have been sufficiently defined and will be addressed as part of the ongoing Immediate Response Action (IRA) in this Area.” Given that the IRA plan is now a monitoring plan this sentence should be removed. Further, CRWA does not believe the full extent of contamination has been defined, and this must first be determined before a final solution can be chosen².

CRWA questions the following results:

Subsurface Soil:

Page 2-24: “Weston & Sampson collected ten samples in native material, as noted on Table 16.” However, Table 16 only designates 8 of the samples as analyzing native material. Are there two other samples that were not reported? Are some of the others listed in Table 16 simply mislabeled?

¹ Like the fill which extends below the water table, the contaminated fill present within the 200-foot riverfront area is more likely to experience flooding and inundation, contributing to potential future CoC migration.

² See Section 3 of this comment letter on Potential Alternatives for Remedial Action for suggestions on potential alternatives that should be considered.

Furthermore, “notwithstanding the result from CD-TP-109 (*which had exceedences for lead*), analytical results from samples collected from the native material suggest minimal impacts to the soil material below the fill horizon. The vertical extent of impacts appears to be generally limited to the thickness of fill material placed at the site.” Stating that contamination was found at CD-TP-109 into the native material, and then claiming the impacts are “limited to the thickness of fill material” is contradictory. CD-TP-109 had exceedences for lead even into the native material at 8.5 feet deep. It seems likely that lead is leaching out of the fill and into the native material below. Testing for lead and similar parameters, should therefore be performed at site CD-TP-109 at depths greater than 8.5 feet to determine the full vertical extent of the contamination. If the contamination is found much deeper than the contaminated fill is currently estimated to extend, maps, diagrams and plans should be updated to address this issue and potential alternatives should be altered to ensure ultimate remediation actions account for this discrepancy.

Terrestrial Soil:

Page 2-25: describes 3 test sites that have MCP exceedences for metals (SED-11, SED-12 and SED-14), but which are located just outside the currently defined boundary of the C&D Area. CRWA requests that DCAM expand the currently defined boundary of the C&D Area to include these adjacent sampling points and fully encompass the true distribution of contamination. To clearly demonstrate this change, a new map showing the adjusted C&D Area boundary should be produced to reflect these new analytical results.

Additionally, after resampling at locations chosen by a previous consultant in 2009 to confirm the results of the earlier assessment, “the resulting analytical data indicated overall concurrence between the two datasets in terms of specific metals identified (with the exception of thallium), although the historical investigation suggested that impacts were more widespread than indicated by the current data.” Assuming this is referring to the tables on pages 2-22 and 2-23³, the results are extremely difficult to interpret due to a lack of actual reported concentrations and specific monitoring locations. While these tables list the different contaminants found, no information is provided about how high the concentrations were. Also, although the tables break down the media in which the contaminants were found between soil, terrestrial sediment, aquatic sediment, etc., they do not provide the actual locations where these samples were taken. Specific analytical data to support the above statement, including actual reported concentrations and monitoring locations, should be included in this report. Absent this, an informed decision about the actual extent of contaminants cannot be made.

Western Wetland Boundary:

Page 2-25: “seven samples were collected around SED-14 and up the northern wetland shore boundary.” The results from these sampling locations are detailed in Figure 5 and Table 6. Several of these samples exceeded the MCP standards for cadmium, lead, nickel and thallium. The proposed solution for these areas is outlined on page 2-26: “soil from these sediment locations will be excavated and disposed off-site as part of the proposed IRA in the C&D Area.” While CRWA agrees with and

³ No reference to any table or data was actually provided for this statement.

supports the goal of removing the contaminated material, these samples were only analyzed from a depth of 0-0.5 feet. We believe sampling should be expanded to greater depth, until background levels are reached and the vertical extent of the contamination determined.

Additionally, samples still have not been taken from within the main area of the wetland itself; they have only been taken along the wetland boundary. DCAM “conducted a visual assessment of potential debris” and “large volumes of debris were not observed,” (Page 2-25). They also report that “samples were collected for lab analysis from this area. . . and analytical results and analysis are provided in Table 6.” However, a “visual assessment” does not fully assess potential impacts in the larger wetland area and given the high level of certain CoCs found along the boundary of the wetland reported in Table 6, a more thorough exploration of the extent of CoCs in the whole wetland area is required.

Aquatic Sediment:

Page 2-26: “impacts to surface sediments were noted in CD-SD-107, CD-SD-110, CD-SD-111, and CD-SD-114, the four locations spaced along the bank closest to the C&D Area.” However, Table 4, which details these results, shows two other notable facts. First, many of the reporting values are recorded simply as “J” (“Estimated Value”). Why are so many of these results estimates? Why are actual results not available and reported? Second, the text does not reference the fact that CD-SD-104, CD-SD-109, CD-SD-113, CD-SD-115, and CD-SD-118, in addition to the 4 sites listed above, also exceeded MCP standards for PAHs. These sites are scattered more widely than the four locations referenced in the text, leading us to believe that the aquatic sediment contamination is more widespread than this report is proposing.

Additionally, according to the report at page 2-27, “the area around CD-SD-111 will be covered with a sediment cap material, AquaBlok, during the IRA activities”. This sentence should be removed, as plans to place an AquaBlok cap have been eliminated. It should be replaced with a description of how this site will actually be remediated.

Finally, deep sediment samples (CD-SD-119 through CD-SD-122) were referenced on page 2-27 as being displayed on the Figure 5 map, but no reference was made to an associated results table. After some tedious searching, I am assuming the samples referred to in the text are details in Table 3.⁴ In Table 3, however, PAHs exceeded MCP standards at 2-3 feet bgs at CD-SD-122, but the samples taken from 3-4 feet bgs were not analyzed for these PAHs. Given the high levels of PAHs in the 2-3 feet bgs sample, it would be prudent to also analyze the 3-4 feet bgs sample for PAHs as well, rather than just metals. Without this data, the vertical extent of the PAH contamination is not known.

⁴ Lack of references, such as this, make the analytical results difficult to locate, and inhibit a full understanding of the issues at the site.

3. Potential Alternatives for Remedial Action

- a. A full spectrum of potential alternatives for the volume of fill to be removed from the C&D Area should include the following:
 - i. Full removal of C&D Area debris, including within the gas-line easement, evaluated for on-site, as well as off-site disposal.
 - ii. Full removal of C&D Area debris, up to the gas-line easement, evaluated for on-site, as well as off-site disposal.
 - iii. Removal of all contaminated fill in the riverfront area and Zone II of Medfield's wells.
 - iv. Removal of all contaminated fill below the water table.
 - v. Consideration of vegetative options for all of the above:
 - 1. Consider options (this would likely exclude capping) that would allow the immediate bank and a buffer area along the river to be vegetated with trees and larger rooted plants
 - 2. Consideration of the operation and maintenance costs involved with regular maintenance to suppress tree growth in capped portions of the site.
 - vi. For all analyses, factor in the benefit of a full cleanup on the resale value of the property.
- b. Various "soft" bioengineering alternatives to rip rap for bank stabilization, evaluating a variety of combinations of vegetative cover, biodegradable fiber nets, bankfull bench, and other natural restoration techniques for bank stabilization.

CRWA appreciates the opportunity to submit comments on the Phase II CSA. Please feel free to contact us if you have any questions at 781-788-0007 x228.

Sincerely,



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