COMMENTS ON THE PROPOSED PLAN AND SUPPORTING DOCUMENTS FOR THE LOWER LEY CREEK SUBSITE

Introduction:

Subject to the objection raised in the transmittal letter to this document, the following provides both general and specific comments, to the extent feasible without the Upper Ley Creek information yet being made public, on the Proposed Plan, Remedial Investigation ("RI"), Human Health Risk Assessment ("HHRA"), Ecological Risk Assessment ("ERA"), and the Feasibility Study ("FS") for the Lower Ley Creek Subsite . These comments are submitted on behalf of four companies (Carrier Corporation, Cooper Crouse-Hinds LLC., Syracuse China Company, and Niagara Mohawk Power Company, d/b/a National Grid) collectively referred to as the "*De minimis* Companies." Also included with the comments herein are recommendations intended to promote a more efficient, implementable, and cost-effective remedy, and to ensure consistency with the National Contingency Plan ("NCP").

There are many positive components to the Proposed Plan, including EPA's support of a local disposal option. The comments and recommendations herein are presented constructively with the goal of facilitating a remedy for the Lower Ley Creek Subsite that is fully supported technically, legally, and by the community.

Primary concerns with the Proposed Plan for Lower Ley Creek include EPA's management of the administrative process for public comment; the unsupported selection of 1 mg/kg PCB as the remedial action level, the constraint of capping alternatives for both soils and sediments; and inconsistencies with the National Contingency Plan and EPA's own policies and guidance, including Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites.[1]

The *De minimis* Companies respectfully request that EPA either incorporate the comments herein into the development of the final Record of Decision (ROD) for the Subsite or reevaluate and revise the FS and supporting documents in light of the deficiencies outlined below, and then issue a Revised Proposed Plan in conjunction with a ROD for the Upper Ley Creek Site at the conclusion of that public comment process.

It is also specifically requested that the ROD for Lower Ley Creek provide maximum flexibility for the implementation phase. The remedy should not focus solely on excavation and disposal, but should also recognize the implementability challenges to achieving sediment and soil cleanup criteria and allow for the use of capping for much of the Subsite as a more practical

[1] OSWER Directive 9285.6-08

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approach. Available information indicates that capping of soils can be undertaken in most areas at the Subsite without the significant flood impacts that were presumed to exist (but were not substantiated) in EPA's FS. Capping PCB contaminated soils and sediments, where appropriate given certain existing infrastructure limitations, is implementable, technically and administratively feasible, and is consistent with local land uses, particularly in out-of-channel areas overlying other wastes materials.

General Comments:

1. EPA's arbitrary definition of the Lower Ley Creek Subsite has led to and, without change, will continue to lead to, an inefficient administrative process and inconsistent project management decisions, as well as substantial avoidable costs. It appears the bankruptcy of General Motors (GM) was the reason that the Lower Ley Creek Subsite was separated from the Upper Ley Creek Subsite and defined as beginning at the Route 11 Bridge and extending to Onondaga Lake. Due to GM's well documented discharges, PCBs and other contaminants in sediments and floodplain soils extend uninterrupted from Upper Ley Creek into Lower Ley Creek, demonstrating that the Route 11 Bridge as the dividing line between these subsites is arbitrary.

   The extent and methods of the remediation in Upper Ley Creek upstream of the Route 11 Bridge has direct bearing on the potential for recontamination and the appropriateness of the remedial actions at the Lower Ley Creek Subsite. As such, the Proposed Plan for the Upper Ley Creek Subsite will have a substantial impact on comments from the *De minimis* Companies regarding the proposed remedy for Lower Ley Creek. To date, no documents have been made available to the *De minimis* Companies that indicate downstream remedies will not be adversely affected by continuing sources from the upstream GM contamination or upstream remedy.

   EPA's decision to close public comment on the Proposed Plan for the Lower Ley Creek Subsite before the proposed plan for the adjacent, upstream section of Ley Creek is issued substantially limits meaningful technical comment on the Proposed Plan for Lower Ley Creek. This approach, which restricts the public from important available information, is unnecessary, inappropriate and is inconsistent with the NCP (*e.g.*, 40 C.F.R. 300.430(c)(2)(ii)(A)) as well as EPA's own guidance on managing contaminated sediment site risks. To the extent that EPA has relied upon the Proposed Plan for Upper Ley Creek in developing the Proposed Plan for Lower Ley Creek, should be in the administrative record for Lower Ley Creek and made available for review.

   Furthermore, EPA's 2002 guidance "Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites" highlights the following recommendation of the National Research Council which supports making the Proposed Plan for Upper Ley Creek available before closing the public comment period for Lower Ley Creek:

> [P]rovide the affected parties with the same information that is to be used by the decision-makers and… include, to the extent possible, all affected parties in the entire decision-making process at a contaminated site. In addition, such information should be made available in such a manner that allows adequate time for evaluation and comment on the information by all parties.[2]

EPA's administrative process and management of the public comment process for the Lower Ley Creek Subsite is clearly inconsistent with this guidance.

During the July 29, 2014 public meeting, EPA cited schedule considerations as the basis for releasing the Proposed Plan for the downstream Lower Ley Creek remedy prior to releasing the plan for the upstream Upper Ley remedy. However, EPA has acknowledged that Upper Ley Creek must be remediated before Lower Ley Creek to avoid recontamination.[3] Therefore, scheduling does not appear to be an issue. Even if it were, it would not justify withholding information from public review and comment, especially when it bears a significant nexus to the Proposed Plan for the Lower Ley Creek Subsite. Moreover, the Upper Ley Creek Proposed Plan is reportedly nearly complete and drafts are being circulated among EPA, NYSDEC and the Onondaga Nation for review and comment, so that the potential effect of any minor delay would likely be inconsequential compared to the substantial benefits of making the information available for public review and of coordinating the Upper and Lower Ley Creek remedies.

2. EPA should modify the remedial action levels for PCB sediments and soils. The remedial action levels for PCB sediments and soils in the Proposed Plan should have been based on the site-specific baseline risk assessments. Instead, soil cleanup objectives ("SCOs") for subsurface soil and the sediment criteria identified in the Proposed Plan and FS are generic values derived to protect human health. The assumptions underlying the generic values are not applicable to the circumstances of the Lower Ley Creek Site. For example, subsurface soil is not accessible such that it presents an exposure risk; even if subsurface soil were considered accessible, the exposure scenarios and assumptions used in the NYSDEC SCO derivation are different from the assumptions used in the Lower Ley Creek Subsite Baseline Human Health Risk Assessment (HHRA).

   The Proposed Plan and supporting documents do not derive the 1 mg/kg sediment PCB cleanup objective or explain how it relates to risk or risk reduction. Coincidently, as will be explained in greater detail, the ERA and HHRA provide a site-specific risk-basis for the use of 1 mg/kg PCB level as a surface average to be achieved in the middle and upstream sections of Lower Ley Creek to protect human and ecological receptors.

[2] OSWER Directive 9285.6-08, Pg. 3.
[3] Lower Ley Creek Subsite of the Onondaga Lake Superfund Site Proposed Plan, Pg. 21

3. The conceptual design of capping alternatives in the Proposed Plan and FS was improperly constrained by EPA's presumption of unacceptable flood impacts from a simple covering approach, and unreasonably screened out as an alternative inconsistent with 40 C.F.R. 300.430(e) of the NCP. The following quote appears at multiple locations in the FS in association with the two capping alternatives, Soil 3 and Soil 4: "*In all areas, an excavation of 3 feet of soil would be completed before the cap is installed so there is no loss of floodplain capacity.*"[4] It appears that presumptions regarding compliance with floodplain ARARs eliminated alternatives involving capping, resulting in an undocumented alternative screening assessment. Thus, no reasonable and appropriate capping alternatives were considered in the FS. The three-foot excavation included in the FS makes the capping alternatives much more expensive and less implementable than appropriate and reasonable approaches to capping, which were eliminated by the presumption of flood impacts.

   Contrary to EPA's unsupported presumption of flood impacts, FEMA's 2012 flood insurance study of Ley Creek indicates no or little impact of hypothetical loss of the entire overbank floodway along the length containing the dredge spoils.[5] The flood insurance study provides better information than the assumptions made in the FS and Proposed Plan about potential floodway impacts as well as sediment cap designs. Based on the information provided in the FEMA 2012 flood study, capping is a viable remedy from effectiveness, implementability, and cost perspective, the main factors required to be consistent with the NCP. Therefore, the absence of this flood insurance study constitutes a significant error in the Proposed Plan's analysis. In light of this error, EPA should reevaluate the remedies and either modify its Proposed Plan before issuing a Record of Decision or issue a Revised Proposed Plan to include the capping remedy.

4. EPA has similarly improperly ruled out the use of appropriate sediment caps to address areas that contain elevated levels of residual PCB contamination post-excavation and areas that, due to physical constraints, cannot be remediated without additional and costly safeguards in place to protect existing structures. EPA has acknowledged the physical limitation of sediment excavation near the Rt. 11 Bridge and the appropriateness of a cap in that circumstance. However, removal of all sediment exceeding action levels from the deep sediment areas (up to and possibly exceeding 8 feet into the sediment bed) may not be practicable or warranted from an exposure/risk perspective. Uncertainty about the slope-stability impacts of deep excavation at or near the toe of the Creek bank as well as the potential for mixing with bank slope material further supports that capping should be included in the remedy for sediments. Likewise, waste materials are likely to be encountered along some portions of the channel bank which would impede an excavation

[4] Final Feasibility Study, Lower Ley Creek Subsite of Onondaga Lake, March 2014. Pgs. 7-6,7-10)
[5] Flood Insurance Study, Onondaga County New York (All Jurisdictions). Revised June 2012, Preliminary.

only remedial approach. An integrated, presumptive capping approach should be developed based on design phase data and implemented where excavation would progress to a predefined elevation with immediate backfilling to mitigate impacts of any remaining PCBs.

5. The Proposed Plan, FS and the administrative process itself do not comply with the NCP or EPA's 2002 guidance "Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites." Considering the scale and volume of sediment addressed by the proposed remedy, the Region should have submitted the Proposed Plan to the Office of Emergency and Remedial Response Regional Coordinator along with a written discussion of application of the principles for contaminated sediment management enunciated in the guidance document.[6] However, the Proposed Plan and other documents provide no indication that this coordination or review was performed. In addition, the guidance is not cited in the Proposed Plan or FS.

   Additionally, neither the Proposed Plan nor the FS discusses the potential for sediment recontamination after implementation of the remedy or the nature of continuing sources of contamination to Ley Creek. However, the first principle of the guidance recommends that continuing sources of contamination, recontamination potential, and source control be clearly addressed. [7]

   The guidance also highlights the importance of clearly defined site-specific risk-based cleanup objectives, whereas for the Lower Ley Creek Subsite, generic (default) cleanup levels were, instead, selected for use without meaningful evaluation of site-specific risk-based cleanup objectives.[8] The absence of analysis regarding the extent to which the proposed remedy will achieve cleanup objectives also suggests that the Region did not consider or comply with EPA's own guidance document in development of the remedy.

   Lastly, the guidance expressly recognizes that a combination of remedial options will be the most effective way to manage risk at many sites.[9] Using multiple options in a coordinated fashion such as excavation, capping, monitored natural attenuation, and institutional controls is in many situations the best remedial approach when considering and balancing all of the NCP's remedial criteria. This accepted approach in the guidance is particularly appropriate at the Lower Ley Creek Subsite and supports the development of a more flexible remedy which combines excavation, capping, and institutional controls in a tailored fashion because doing so is more consistent with existing site conditions, land uses and remedy implementation challenges. However, the preferred remedy in the Proposed Plan does not effectively combine the array of available remedial options in a

[6] OSWER Directive 9285.6-08, Pg. 9,10
[7] OSWER Directive 9285.6-08, pg. 2
[8] OSWER Directive 9285.6-08, pg. 7
[9] OSWER Directive 9285.6-08, pg. 8

flexible fashion so as to achieve an efficient, implementable, cost-effective, and NCP-compliant cleanup as promoted by the guidance.

Recommendations:

1. The remedies of Upper and Lower Ley Creek should be coordinated if not integrated into a single remediation project to increase the efficiency of the cleanup and to reduce the environmental footprint of the project. The *De minimis* Companies previously commented on the benefits of integration of the upstream and downstream cleanups into a single construction project. These comments are resubmitted as Attachment A for inclusion in the administrative record as well as for EPA's consideration in development of the Record of Decision.

2. EPA should consider the 1 mg/kg PCB remedial action level for sediment as a ***surface average*** rather than a single-sample compliance level. The Proposed Plan and FS do not specify whether compliance with the 1 mg/kg standard will be based upon an average PCB level over the dimensions of a particular type of sediment sample homogenized prior to analyses or on a not-to-exceed basis averaged over a larger area.

   Moreover, the remedial action level as presented in the Proposed Plan and supporting documents does not appear to have been developed based upon site-specific conditions. However, for the reasons discussed below, the results of the HHRA, ERA and RI support the use of a ***surface-area average*** of 1 mg/kg PCB as an appropriate remedial action level.

   Data from the development of Preliminary Remedial Goals ("PRG") in the ERA indicates that a remedial action level of 1 mg/kg PCB based on a surface average for the upper and middle sections of Lower Ley Creek would be protective of the most sensitive ecological receptors. The ERA examined exposure and potential effects to piscivorous birds (belted king fisher and great blue heron) and piscivorous mammals (river otter and mink) to a number of site chemicals. The highest Hazard Quotients ("HQ") was for mink exposures to PCBs. As an apparent consequence, the only PRGs calculated were those associated for the protection of mink from exposure to PCBs. Simple bioaccumulation factors ("BAF"), which were ratios of PCB levels in forage fish to PCB levels in surface sediment, were calculated using site data in Table 44 of the ERA. The BAF was then applied to determine the allowable level of PCB in sediment to protect mink. The PRGs calculated for mink protection based upon Lowest Observed Adverse Effect Level (LOAEL) toxicity reference value for the upstream, middle, and downstream sections were 2.2, 2.3 and 0.14 mg/kg respectively.[10] These PRGs are surface-sediment average

[10] The results of the PRG calculations are presented in Table 45 of the ERA.

concentrations. As evident in Table 44 of the ERA, the downstream and middle sections comply with corresponding reach-specific LOAEL-based PRG. Only the upstream section exceeds its PRG. As such, LOAEL-based PRGs for mink should be considered to be protective of fish and wildlife populations at the Subsite. Based on the information in the ERA, achievement of a 1 mg/kg surface average would be protective of fish and wildlife populations in each of the subsections where the average is currently exceeded.

While the HHRA did not undertake the development of PRGs, PRGs could be developed in a similar way. As a first step, the risks calculated in the HHRA associated with the Adult Recreational Visitor represented by central tendency exposure assumptions should be considered as the appropriate risks to be addressed by the PRGs. The risk estimates related to fish consumption by the Adult Recreational Visitor are dominated by PCBs and chromium. Reported additional lifetime cancer risks are 3E-5 for total PCB and 3E-4 for chromium.[11]Non-cancer Hazard Quotients are 5 for Aroclor 1254, 2 for Aroclor 1260 and 2 for chromium. However, the chromium-related risk estimates should not be relied on because the HHRA assumed the chromium was in a hexavalent form although there is no data suggesting that chromium is present in hexavalent form. Rather, given the anaerobic conditions in the sediment, it is more likely to be present in its much less toxic trivalent form. Regarding the appropriateness of focusing on the risks to the Adult Recreational Visitor, it should be noted that the PCB-related risks are lower for Central Tendency Older Child. For Central Tendency Young Child, there is approximately the same cancer risk and slightly higher non-cancer risk.

Assuming a proportional relationship between sediment PCB and fish fillet PCB concentrations, potential reductions in risk levels can be directly estimated by reductions in average PCB levels in surface sediment that might be achieved by remediation based on exposure models and linear dose-response models underlying the risk calculations. This approach is similar to that assumed in the ERA for whole-body fish. The overall average of total PCBs in 31 surface sediment samples (18 from the downstream section, 3 from the middle section and 10 from the upstream section[12]) collected by the RI is 2.43 mg/kg. Achieving a 1 mg/kg surface average within the upstream and middle sections would result in an overall post-remediation average concentration of 0.64 mg/kg in Lower Ley Creek. It should be noted that the average total PCB concentration in the 18 surface sediment samples from the downstream section is 0.37 mg/kg. Assuming proportionality between PCB levels in surface sediment and fish fillet PCB concentrations, this would indicate a 75 percent reduction in fish-fillet PCB concentrations, and resulting exposure and risks. More specifically, this indicates a fish

[11] (See HHRA Table 7.1.a CT)
[12] The result of for surface sample R3-13, 317 mg/kg was excluded from calculations. If included, the overall pre-remediation surface average would be 12.3 mg/kg.

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tissue reduction from the average of 0.89 mg/kg (average of 14 fillets samples: 7 carp, 6 white sucker and 1 pike) to 0.22 mg/kg. Assuming a constant proportionality of Aroclors to total PCB across the sediment surface, the lifetime PCB-related additional cancer risk declines to less than 1E-5 with hazard quotients decreasing from 5 to 1.2 for Aroclor 1254, and from 2 to 0.5 for Aroclor 1260.

Such risk levels should be considered protective of human health at the Lower Ley Creek Subsite. Considering the nature of the habitat, surrounding land use, and the availability of more desirable local fishing opportunities, the assumption of regular consumption of Ley Creek fish is inherently very protective.

Therefore, the results of the HHRA, ERA, and RI indicate that a surface-area average remedial action level of 1 mg/kg PCB, instead of a "not-to-exceed" threshold value, would be protective of both human fish consumers and the most sensitive fish-consuming wildlife.

3. Information regarding the flood plains of Lower Ley Creek does not appear to have been considered by EPA. That this information was not included in the development of the Proposed Plan mandates changes to the basic features of the Preferred Alternative identified in the Proposed Plan. In addition, errors and deficiencies were identified in the supporting documents which significantly change the analysis of the Proposed Plan. In particular, the extent of a soil capping remedy should be reconsidered. The preferred remedy should consider cap designs that do not require soil removal to meet an arbitrary considered standard of "no loss in floodplain capacity," as defined in the FS. As explained in the following comments, available flood study results indicate that capping of soils without any prior soil removal can be undertaken over the majority of the site without significant flood impacts. Moreover, capping is the more implementable, cost-effective, and technically and administratively feasible remedy compared to the preferred remedy presented in the FS and Proposed Plan. For example, capping will reduce the need to transport waste through the local area and obviate the need to landfill waste, which is the least preferred method of remediation.

4. Potential flood impacts of a capping remedy and the large-scale excavation of significant volumes of soil to mitigate flood impacts should be reconsidered. The standard floodway data table for Ley Creek presented in Volume 1 of FEMA's June 29, 2012 "Flood Insurance Study for Onondaga County, New York"(pertinent excerpts are provided in Attachment B) indicates the floodway over much of the creek length is relatively narrow in areas where EPA identified removal of nearby soils. The floodway table for Ley Creek shows that for cross-section D, located 1,600 feet upstream of Onondaga Lake (located 150 feet downstream of I-81 overpass), though cross-section F, located 2,320 feet upstream of the Lake, the floodway is coincident with the channel banks. Moving upstream to cross-section G, located 4,000 feet upstream of the Lake, the floodway

(which includes the channel width) increases to 100 feet. At cross-section H, which is 6,000 feet upstream of the Lake and approximately 100 feet downstream of Old Seventh North Street, the floodway increases to 240 feet. The model results indicate little impact (0.2 feet increase at cross-section H) to no impact (0 feet increase at cross-sections D, E, F, G) in filling the floodway fringe between the edge of the floodway and the 100-year flood extent in this region.

5. The 12-inch soil cover used to contain PCBs at the Ley Creek PCB Dredge Spoils Subsite should also be deemed sufficient for dredge spoils areas along Lower Ley Creek with PCB levels less than 50 mg/kg where technically appropriate given certain existing infrastructure limitations. The selected remedy in the 1997 ROD for Ley Creek PCB Dredge Spoils Subsite included a cap of 12 inches of vegetative soil cover over soils not in the floodway after removal of soils with PCB levels greater than 50 mg/kg. The second five-year review of the Ley Creek PCB Dredge Spoils Subsite remedy issued by EPA in 2012 concluded that the remedy continues to protect human health and the environment. As such, EPA should not require a more stringent remedy for the Lower Ley Creek Subsite that that used for the upstream dredge spoils.

6. Flood protection similar to the Ley Creek PCB Dredge Spoils Subsite should be considered in the remedy for the dredge spoils along Lower Ley Creek. Site-specific hydraulic modeling should be used to address any potential flood impacts of capping and incorporated into a Revised Proposed Plan. The hydraulic analysis and floodplain assessment would be in compliance with Executive Order 11988 (Floodplain Management) to assure that the remaining material would not result in a significant change in base flood elevation and would mitigate adverse impacts to the remedy from future floods. The design of the Lower Ley Creek Subsite remedy could also make allowances for future maintenance of the channel.

7. EPA's reconsideration of the feasibility of a capping remedy should consider the nature of local land use, especially the historic and long-term commitment of the surrounding area to landfills. The attached Figure 1 identifies the local landfill areas and extent of landfill waste found within the footprint of the proposed excavations. The identification of underlying landfill waste is based upon the soil boring logs included in the RI. The significant presence of landfill waste in areas not designated for removal under the Proposed Plan further emphasizes that a capping remedy would be consistent with the existing land use.

8. EPA should also consider that soil capping would provide the additional benefit of long-term management of underlying solid waste previously disposed at the site; this waste might otherwise never be managed.

9. Analysis of a capping remedy should acknowledge its administrative feasibility. There are a limited number of industrial and commercial properties with a limited number of

associated owners in the areas identified for remediation. Figure 2 presents an overlay of remedial areas with identified landowners. Many of these landowners own property with existing landfills or areas of historic waste disposal. It should be feasible to work with these landowners in the development of an effective, long-term capping remedy as part of the Lower Ley Creek Subsite in areas with PCBs above the remedial action level.

10. EPA should similarly provide flexibility in the ROD to allow for appropriate sediment caps to address areas that contain elevated levels of residual PCB contamination post-excavation and areas that cannot be remediated due to physical constraints. Removal of all sediment exceeding action levels from the deep sediment areas (up to and possibly exceeding 8 feet into the sediment bed) may not be practicable. Uncertainty about the slope-stability impacts of deep excavation at or near the toe of the Creek bank as well as the potential for mixing with bank slope material further supports that capping should be included in the remedy for sediments. Waste materials are likely to be encountered along some portions of the channel banks which would also impede an excavation only approach. An integrated, presumptive capping approach should be implemented where excavation would progress to a predefined elevation and immediately backfilled to mitigate impacts of remaining PCBs. Predefined elevation limits would be determined during design based upon analyses and consideration of bank slope-stability, the presence or absence of waste material in or adjacent to the creek channel, and the potential for sediment mixing.

11. Cap designs and analyses should not be limited to those considered in the FS. Better information than that relied upon in the FS is available or can be developed during the design phase to determine the appropriate composition of sediment caps and the need for and type of potential armor layer.

12. EPA should not require remediation of soils located in the downstream area on the north side of the Creek near the I-81 overpass. The constituents and concentrations identified in this area are likely attributable to sources such as I-81 and runoff unrelated to Ley Creek.

13. Likewise, the downstream section of sediment near the I-81 overpass, as shown in Figure 5 of the Proposed Plan and Figure 7.7 of the FS, should not be included in the scope of the remedy. The reason this section was designated for removal and included in the remedial alternatives is not presented in the FS or Proposed Plan. However, the effectiveness of excavation in this area is very small relative to the adverse environmental impacts, implementability challenges, and associated costs.

    Surface sediment PCB data show a negligible impact from excavation of this area on overall surface average PCB concentrations in Ley Creek and, consequently, PCB levels in fish. Of the five surface (0-6 inches) sediment samples in this section, PCBs were detected in only one sample: 1.2 mg/kg total PCB in sample R2-4. Assuming half the

detection limit, the average surface sample concentration for this area is 0.27 mg/kg. The average of 31 surface sediment samples (Sample R3-13 with a total PCB of 317 mg/kg excluded from the calculation) is 2.43 mg/kg. The average for the upstream section is 5.01 mg/kg (without the result for sample R3-13; 29.2 mg/kg including the result for R3-13). The average of the three mid-section surface samples is 6.07 mg/kg. With substitution of 0.025 mg/kg PCB for the R2-4 sample, which is approximately half the detection limit, the overall stream surface average PCB concentration decreases from 2.43 mg/kg to only 2.39 mg/kg, a negligible amount for the level of effort and expense required.

The following table presents estimates of volumes, average PCB concentrations, and relative PCB mass in areas designated for sediment excavation in the Proposed Plan. The relative PCB mass calculation inherently assumed a constant specific weight of sediment (dry weight sediment per unit in-place volume) over the entire area. The results indicate that although a relatively large area of aquatic habitat would be excavated, 1.5 acres or roughly 14 percent of the Creek bottom, it would account for only 0.14 percent of all the PCB mass subject to excavation. Therefore, EPA should reconsider the impacts of constructing access to this area, the adverse ecological impacts on Ley Creek from excavation, the impacts to cost and schedule and overall environmental footprint of the project of including this area relative to the negligible potential PCB risk-reduction that would be achieved by excavation of the downstream section.

Excavation Area	**Excavation area (1000 ft^2)**	**Volume (CY)**	**Average PCB (mg/kg)**	**Relative PCB Mass (percent)**
Downstream	69 (14%)	2,561 (3.7%)	0.23	0.14
Middle	198 (41%)	22,542 (32%)	2.21	12.0
Upstream*	213 (44%)	44,885 (64%)	8.12	87.8
Total	480	69,990		

*Does not include Old Ley Creek Channel sediment excavation of approximately 33,000 square feet, or 2400 cubic yards.

14. The Proposed Plan should address recontamination from upstream areas of Ley Creek, Bear Creek, the watershed generally, and discharges along Lower Ley Creek, including the two unremediated former City of Syracuse landfills (near I-81/Park Street and on Plaza East property). Recontamination considerations also should have been addressed in

the FS in relation to development of cleanup levels and the long term effectiveness of alternatives, and in accordance with the NCP.[13] The effect of recontamination should be addressed in the Record of Decision or Revised Proposed Plan for the Subsite and in remedial design and implementation.

15. The Record of Decision should allow for use of adaptive management in long-term Operations and Maintenance ("O&M") to allow for appropriate modifications of O&M activities over the long-term.

16. The Record of Decision should recognize that inspections and maintenance of covers used to reduce exposure to PCBs in soil and sediment may not be warranted depending on the circumstances. One such circumstance may include instances where low-level PCB levels are covered such that the effects of mixing of cover and underlying soil or sediment produce an acceptable PCB level.

17. The Record of Decision should allow for value engineering of a remedy design to accomplish the same level of overall protectiveness at a lower cost.

18. In the design of the remedy, the plan for characterization of materials for local or offsite disposal should consider the unavoidable mixing that occurs. Allowable PCB sampling should include either waste pile sampling or *in-situ* sampling based on a vertical averaging of in-place soil and sediment PCB data.

19. The Record of Decision should allow flexibility regarding the methods of water treatment. The Proposed Plan states that "[w]ater that drains from the sediments during dewatering would be treated to meet NYSDEC's discharge requirements." Because these standards are stringent, a significant capital investment in wastewater treatment equipment might be required if treatment is performed onsite. EPA should clarify that NYSDEC discharge requirements could be met using *either* onsite treatment or offsite treatment. This would allow for the cost-effective treatment of water via collection in frac tanks, for filtration and discharge to the Onondaga County POTW in compliance with pretreatment requirements.

20. The proposed use of local disposal is reasonable, appropriate, and consistent with Green Remediation principles. EPA should help to facilitate the development of a viable local disposal option among all interested parties.

21. EPA should provide sufficient flexibility in the Record of Decision and in remedial design to allow mixing of wet sediment and soils with dry soils to reduce the amount of dewatering and water treatment that might be necessary. In addition, EPA should allow stockpiling of appropriate non-TSCA soils and sediment for potential use as final grading material at the local disposal landfill.

[13] See 40 CFR § 300.430(e).

22. EPA should consider beneficial reuse of excavated clean soils or sediment and the reuse of imported materials initially used for support facility and road construction as cover or cap materials as well as for final grade material at the local disposal landfill.

23. EPA should consider the use of performance specifications rather than detailed design for certain aspects of the remedial design (*e.g.*, layout and design of temporary roads, bridges, support facilities; mitigation of construction-related releases) to reduce design costs and improve constructability.

Specific Comments - Proposed Plan and FS:

1. The Proposed Plan focuses on the lower two miles of Ley Creek and ignores the potential influence and recontamination from the contaminated upstream portion of Ley Creek. While the primary source of sediment contamination is transport from the contaminated upper reach of Ley Creek, the Proposed Plan does not address this ongoing transport. Re-contamination risk is further supported by the elevated PCB concentrations in shallow surface sediment present in Lower Ley Creek, which indicates that upstream sources of PCB are still present and that migration is occurring.

2. The Proposed Plan does not address external sources of contamination to Lower Ley Creek including combined sewer overflows, storm sewers outfalls, other outfalls, the Plaza East Landfill, Bear Trap Creek, and the former City of Syracuse abandoned landfill. These are or may be continuing sources of sediment contamination which should be evaluated and addressed by the appropriate parties.

3. With the exception of PCBs, the other COCs, such as PAHs, have a significant anthropogenic component. It is not clear whether site-specific soil background concentrations were compared to the remediation goal criteria. It is also unclear how site-specific background concentrations of metals compare to NYSDEC's sediment criteria. Additional background characterization and statistical comparisons to remedial action levels should be performed, if chemicals other than PCBs will determine the extent of cleanup in any fashion.

4. The Proposed Plan states that PCBs in soils and sediment are collocated with other contaminants and will be used as an indicator compound to ensure that soil cleanup goals are achieved. However, the concept of contaminant collocation is not well developed in the supporting documents. Better data analysis should have been developed and/or provided in the Proposed Plan to illustrate and support this concept. EPA should clearly define how PCBs were used as an indicator to define the specific areas and volumes of soil and sediment to be removed, and the extent to which additional areas are included based on explicit consideration of other contaminants.

5. The Proposed Plan relies on a January 1999 NYSDEC guidance document for sediment criteria for site-related metals. NYSDEC distinguishes "guidance" from standards and criteria.[14] Therefore, the Proposed Plan should properly identify the cited values as guidance values as they are not promulgated criteria.

6. According to the NYSDEC, Ley Creek is classified as a "Class C stream from the mouth of the creek to a point approximately 1.3 miles upstream of the mouth. Upstream of this point, Ley Creek is a Class B stream". Page 4 of the Proposed Plan incorrectly identifies that "For most of the Lower Ley Creek Subsite, Ley Creek is New York State Class B fresh surface water."

7. The legend on Figure 4 in the Proposed Plan indicates that contaminant concentrations found in sediment samples are color-coded. It is not clear from the figure that the color-coded concentrations are PCBs. While the file name displayed in the lower left corner indicates that the color-coding is for total PCB concentrations, the color-coded concentrations do not agree with the PCB data presented in Figure 19 of the 2012 Data Evaluation Report and Figure 2.12 of the Feasibility Study. EPA should verify the correct information and revise the drawings accordingly.

8. The highest level of benzo(a)pyrene found in sediments was reported in the PRAP at 42 mg/kg at the 6-12 inch interval.. The highest value of benzo(a)pyrene found in sediments is 32 mg/kg at the 6-12 inch interval in sample R2-12.

9. Two Remedial Action Objectives (RAOs) specified in the FS arbitrarily promote more removal or other remediation than is necessary to appropriately manage risk:

    a. Restore sediments to prerelease/background conditions to the extent feasible.

    b. Minimize the current and future bioavailability of contaminants in sediments.

    These RAOs should not be used in the development and evaluation of remedial alternatives.

10. The basis and rationale for RAOs relative to reasonably anticipated future land use should be explained in both the Proposed Plan and FS.

11. The Conceptual Site Model in the FS failed to address sources of contamination from upstream or other inputs to Lower Ley Creek. The model did not take into account the ongoing contributions of contaminants from the adjacent upstream section of Ley Creek or impacts from remedial activities to be implemented in the upstream section of Ley Creek.

12. It is not clear why certain areas are included in the remedial boundaries, as specified in the drawings included with the Proposed Plan. EPA should provide a detailed

[14] [http://www.dec.ny.gov/regulations/67548.html]

explanation of how the areas and volumes of soil and sediment identified for remediation were delineated.

13. The presence of solid waste underling soils at the Site would likely complicate soil removal. This should be considered in the assessment of the implementability of alternatives entailing removal. In a comparative analysis of alternatives, this should also be considered as a factor weighing in favor of the implementatibility and overall protectiveness soil capping alternatives.
14. No analysis of the extent to which remedial alternatives reduce risk is presented in either the Proposed Plan or FS. The omission of such an analysis is inconsistent with the NCP. Moreover, such an analysis is a standard component of feasibility studies at contaminated sediment sites and is recommended in EPA's 2002 guidance "Principles for Managing Contaminated Sediment Risks at Hazardous Waste Site."
15. There is no indication that either the NYSDEC or EPA Green Remediation Guidance documents were considered in the development of the FS or Proposed Plan.
16. The conceptual design for sediment caps as presented in the FS appears to rely on an overestimate of design velocity for determining whether an armor layer is necessary. A more accurate assessment of the need for and design of an armored layer should be made.
17. The FS provides little detail regarding how the project would be laid out and how removal or containment alternatives would be constructed. In contrast, restoration design is very detailed. For each alternative, three pages describe restoration at length, while only a single page describes design of removal or containment alternative. More detail should be provided.
18. The FS does not include common costs associated with implementing the remedy that are applicable to both soil and sediment remediation, such as infrastructure, layout of office and equipment, staging areas, temporary utilities, public and private utility location services, confirmatory sampling and analysis, post-treatment sampling and analysis for dewatered sediment, and implementing institutional controls. These costs should be included in the FS cost estimates.
19. The mobilization cost of $40,000, as specified in the FS, is insufficient if access agreements, site preparation, temporary road construction, permits and equipment staging area(s) are needed. This cost estimate should be modified.
20. The excavation volumes and disposal weights provided in the FS indicate a unit weight of 88 pounds per cubic foot (PCF). However, the appropriate unit weight to be consistent with the anticipated soil type is in the 115 – 125 PCF range, which would result in the total disposal of 92,000 to 127,000 tons. EPA should reevaluate its disposal estimates and adjust its cost projections accordingly.

21. The FS cost estimates do not contain provisions for dewatering or water treatment for excavations that exceed the groundwater elevation. Cost estimates should be revised to include dewatering and management of water.

22. The FS does not consider use of onsite or adjacent non-impacted soils as a borrow source. This should be considered, as it would lower the backfill cost, reduce greenhouse gas impacts, and, depending upon the location of the borrow source, could be used to offset floodway impacts.

23. Excavation of impacted sediment and soil will require surface water/runoff controls that are not included in the FS cost analysis. EPA should include the cost for storm-water erosion and sediment control in the remedial estimates.

24. Costs associated with engineering studies, design, and the potential complexities of excavating and backfilling sediment adjacent to the foundations at the bridges and other structures are not identified. Excavation may not be appropriate in some areas near shoreline facilities and in-water structures as removal of the sediment without additional safeguards could undermine and destabilize those facilities.

25. The cost and components of the Sediment Conditioning Area ($60K) and the Dewater/Condition Sediments (~$364K) are not identified in the FS cost tables. Moreover, these estimates are likely underestimated given the site configuration and should be re-evaluated.

26. Mechanical dredging from the shore at $15 per cubic yard is low given that bank stabilization would likely be required.

27. The extent of backfill in the proposed remedy is unnecessary. Backfill accounts for approximately $4.5 million of the construction cost, as listed in the cost tables in the FS (Backfill for Sediment 2: $576,000; Alternative 2 Soil: $2,257,000; loaded with contingency $3,258,000; loaded with design construction management and, project management - $4,561,000). Backfill volumes and associated costs can and should be reduced without impacting remedy effectiveness.

28. Costs estimates were biased low for EPA's preferred alternative and artificially high for containment in the Proposed Plan and FS. Revised cost estimates should be prepared.

29. The foregoing comments (e.g. #17 - #27 indicate that if USEPA had more explicitly considered the design elements of the preferred remedy prior to estimating costs, that the $25 million cost threshold for remedy review by the National Remedy Review Board (OSWER Directive 9220.0-7) would have been exceeded.

Specific Comments – HHRA:

30. The fish Regional Screening Levels (RSL) listed in Table 2.1 of the HHRA could not be verified. It is assumed that the data was from an outdated RSL table (2009). EPA should reevaluate and revise the RSL accordingly.
31. The HHRA indicates on page 6 that "the factors EF, ED, and AT combine to yield a factor between zero and one. Values near 1.0 indicate that exposure occurs nearly continuously over the specified averaging period, while values near zero indicate that exposure occurs infrequently." However, for cancer risks, the combination of EF, ED, AT would normally be less than 1 due to the fact that the life span normally is greater than exposure duration.
32. It is not clear in the HHRA which chemicals were identified with mutagenic models of action and, therefore, adjusted by ADAFs.
33. Soil RSLs were used for sediment COC screening in Table 2.2 of the HHRA. EPA should address the uncertainty associated with this approach.
34. In Table 4.1 of the HHRA, EPA 1997 guidance is referenced. That guidance has been updated, with the most recent version issued in 2011. EPA should update the HHRA to be based on the most recent guidance.
35. The fish ingestion rates presented in Tables 4.1 and 4.3 of the HHRA for adults and 6-16 years old were higher than those listed in EPA (2011) Exposure Hand Book, Table 10.3 (25 g fish/day vs. 18 g fish/day for adults and 16.7 g/day vs. 8.6-13 g/day).
36. An exposure frequency of 143 events per year was identified in Table 4.4 of the HHRA for recreational visitors for exposure to soil in dredge spoils area. This would be equivalent to an exposure frequency of almost five events per week during non-winter months, April through October. Considering the nature of the land use, this assumption unreasonably overestimates exposure and should be revised.
37. The same adherence factor was used in the HHRA for sediment exposure and dredge spoil area soil exposure (Tables 4.1 and 4.8). However, soil would typically have a lower adherence factor due to the high water content of sediment. HHRA calculations should be revised to reflect a more appropriate adherence factor.
38. Exposure assumptions used in the HHRA to represent construction workers (Table 4.11; e.g., exposure frequency of 25 days/year) are not consistent with EPA (2002) default assumptions for construction workers.

39. The HHRA presents chromium as one of the predominant cancer risk contributors for adult recreational ingestion of sediment exposure pathway.[15] Table 6.1 did not list the Slope Factor ("SF") for chromium. The SF for hexavalent chromium was used for the risk evaluation. An evaluation of chromium speciation is warranted. Due to the anticipated anaerobic conditions in sediment, presence of hexavalent chromium is unlikely. Therefore, chromium is unlikely a risk contributor for the Subsite.

40. Table 5.1 of the HHRA uses a Reference Dose (RFD) more stringent than the RSL listed FRFD (7E-5 vs. 5E-3; see RSL guide section 5) for vanadium. Risks associated with vanadium are likely overstated as a result.

41. There is no background data discussion in the HHRA. Background data and a corresponding risk management approach should be included in the HHRA.

Conclusion:

EPA's consideration of these comments is appreciated in issuing a Revised Proposed Plan or developing the Record of Decision for the Lower Ley Creek Subsite. Should you or others have questions about the recommendations and comments provided, please do not hesitate to contact David Palmerton at (d.palmerton@palmertongroup.com), or Julia Braunmueller at (j.braunmueller@palmertongroup.com).

Attachments:
Attachment A: Ley Creek Consolidating Project Considerations
Attachment B: Selected Excerpts from Flood Insurance Study by FEMA (June 29, 2012, Revision stamped Preliminary
Figure 1: Soil Excavation Extent with Historic Landfill Areas
Figure 2: Tax Parcels Potentially Associated With Lower Ley Creek Remediation

[15] Table 7.1a.CT.

ATTACHMENT A

MEMORANDUM

Consolidation Options for Remedial Activities
At Upper and Lower Ley Creek Subsites
June 3, 2013

Recently reported investigations of sediment and floodplain contamination along Ley Creek further support the conclusion that the release of contaminants from the GM Inland Fisher Guide Plant (IFG) will result in the active remediation of Ley Creek; moreover, but for those releases, there would be no active remediation of the Creek. PCBs were handled and lost in massive quantities at IFG over many years. PCBs released by IFG to Ley Creek and its floodplain will drive remedies entailing soil and sediment removal and disposal for both the NYSDEC-lead Site upstream of the Route 11 crossing and the USEPA-lead Site downstream of Route 11 (the "upstream" and "downstream," respectively). The common origin of the contamination driving active remediation at both Sites overarches the set of technical and policy reasons for unifying the upstream and downstream remedies for Ley Creek.

The similar nature of contamination throughout upstream and downstream Ley Creek, existing cooperative agreements and partnerships, green remediation policies, and common sense, argue for USEPA and NYSDEC to consider optimizing the cleanup of Ley Creek sediments and floodplain soils through development of a single, integrated cleanup-project design to minimize the overall environmental footprint of the remediation. Precedents for cost-share/work-share sediment remedies which coordinate work and funding by government and nongovernment (*e.g.*, RACER Trust) entities point to one possible avenue for a single optimized project design to be developed and implemented. The likely benefits would be to increase the overall protection of human health and the environment; reduce the overall costs; and minimize the environmental footprint of the remedy for Ley Creek sediments and floodplain soils.

The recently reported findings of elevated levels of PCB (>100 mg/kg) in sediment and floodplain soil samples upstream and downstream warrant a single construction project design to substantially reduce the overall environmental footprint and cost of the Ley Creek cleanup and avoid the unreasonable expense of two or more independent remedial design and construction projects for both upstream and downstream. The reports, prepared by O'Brien and Gere (2013) and Los Alamos Technical Associates, Inc. (2012), confirm the similar characteristics of sediment and floodplain soil contamination as well as physical characteristics on both sides of the dividing line between the NYSDEC-lead and USEPA-lead sites. The findings, in separate reports authored by two different consultants, along with knowledge of remedy precedents make clear that USEPA and NYSDEC will determine that active remediation of sediments and floodplain soils will be necessary in both upstream and downstream sections and the design and implementation for each segment will face nearly identical challenges. There are so many

clearly foreseeable common project design elements and common challenges posed by site conditions both upstream and downstream that the opportunity to substantially reduce the overall environmental footprint and costs of the cleanup of Ley Creek through a single optimized project has to be taken seriously. Agency decisions regarding the extent of soil and sediment remediation upstream and downstream are scheduled within four months of each other and it appears that NYSDEC and USEPA have been coordinating some work. So, it appears inherently feasible to consider development of an optimized single project design.

Project elements for remediation upstream and downstream that will be very similar if not identical include: engineering design process, pre-design sampling, securing property access, procurement and staging of materials, public outreach, site security, contracting and procurement, mobilization, construction of access roads and support facilities for processing sediment and soils, sediment and soil removal, mitigation of potential environmental releases, sediment/soil dewatering, materials handling and disposal, stormwater control and management, environmental monitoring, restoration of disturbed areas, demobilization, and post-construction O&M.

A few examples of common design elements and challenges for the upstream and downstream sections of Ley Creek which suggest the common sense of attempting to optimize the remediation of Ley Creek through a single project design are offered in the following:

- The uncertainty regarding sediment PCB distributions in both sections of the Creek is relatively high from the perspective of remedial design and additional sampling is likely to be one of the ways that the uncertainty will be addressed during design. A single larger scale pre-design sampling program spanning both sections is likely to reduce the overall amount of time, effort and environmental footprint of that activity. Furthermore, the development of a common design approach to interpreting sediment PCB data to determine the spatial extent of targeted sediment remediation should be considered.
- Decision protocols to determine the completion of excavation and use of contingency measures, including cap designs to contain residuals, are likely to be common elements of sediment remediation in both sections of Ley Creek. Having two designers simultaneously developing two different protocols would not be sensible.
- The removal of sediment and/or construction of sediment caps close to roads and associated structures crossing the Creek is likely to be a common element to the design of sediment remediation both upstream and downstream. This includes areas immediately upstream and possibly downstream of the Route 11 bridge (and perhaps underneath the bridge). Engagement of State and local government stakeholders during design and tradeoff decisions regarding the extent of removal near such structures, whether incorporated in a design protocol or made in the field during construction, are likely.

Development of a common approach to construction near bridges and other structures and review with appropriate stakeholders would be more efficient and sensible than covering the same administrative and technical ground twice.

An important set of benefits to the single-project design and implementation are those of adaptive management. Adaptation of field operations based upon experience and the findings of field conditions different than expected is the rule rather than exception in sediment remediation. Some adaptations are part of the usual "learning curve" of field personnel who may be operating excavators, stabilizing excavated sediments, or performing some other task. Other adaptations entail changes in design, such as modification of aforementioned protocols, based upon experience. The benefits of the adaptations are improved performance such as increased productivity, increased efficiency, or reduced environmental impact. The most efficient way for those adaptations to be incorporated and efficiently applied in the remediation of the Lower Ley Creek sediments is to have a single design and implementation process.

There are also a number of easily envisioned economy-of-scale benefits to be considered that might result in greater productivity and lower costs for elements of project design, support facility construction, sediment removal, dewatering, disposal, restoration and monitoring. Additional synergies would likely be identified during a collaborative planning of a single optimized project which would recognize the differing capabilities of stakeholders and the opportunities resulting from combining resources. A hypothetical example involves mitigation of PCB and sediment releases during sediment excavation, a foreseeable element of the sediment removal both upstream and downstream. Highly effective systems such as temporary damming and bypass pumping, which could accommodate faster rates of sediment removal and backfilling operations might be appropriate to a larger-scale sediment remedy but may not be justifiable in each of two separate smaller-scale remedies. Such opportunities for better overall performance at lower cost need to be explored.

The overall duration of construction work along Ley Creek is one obviously important aspect of the environmental footprint of the cleanup of Ley Creek. Considering the sediment remediation component, it is easy to envision a two-to-three-year period of construction impacts to the Creek (i.e. two construction seasons of work possibly separated by a year), if the work proceeds as two separate projects. It is feasible to complete the work in the Creek during a single construction season, and thereby reduce the duration of impacts, if a single optimized design is pursued.

Besides the potential practical benefits of an integrated project, existing cooperative and partnership agreements, and agency policy call for serious consideration of optimization such as the integrated project recommended here. The 1993 CERCLA Cooperative Agreement for the Onondaga Lake Superfund Site (since amended at least eighteen times) and supporting

submittals by NYSDEC to USEPA recognize the need to address numerous sub-sites impacting Onondaga Lake, including Ley Creek-related sub-sites, through development and implementation of a comprehensive site-wide coordination effort to assist with regulatory consistency and achievement of overall remediation objectives. The agencies agreed as part of their Cooperative Agreement to coordinate remedial actions such that all remediation meets CERCLA and NCP requirements.

This need for cooperation and coordination of effort was mandated further by the 1999 federal legislation which created the Onondaga Lake Partnership. The Partnership formed by federal, state, and local governments and other involved parties is directed by law to coordinate the myriad Onondaga Lake management activities, including coordinating actions taken under federal laws such as CERCLA. The legislation is designed to promote consistencies and efficiencies of action, and to maximize the benefit of invested resources. Coordinating efforts upstream and downstream to the extent feasible and appropriate is entirely in line with these goals.

Both USEPA and NYSDEC have green remediation policies in place which effectively call for consideration of minimizing the environmental footprint of the Ley Creek cleanup. USEPA's recently published National Strategy to Expand Superfund Optimization Practices from Site Assessment to Site Completion (OSWER directive 9200.3-75 September 2012) calls for an increased focus on optimization of Superfund Sites and identifies tools and resources to help the regions optimize projects. The challenges and opportunities of a single project design for the cleanup of Ley Creek would make this Site a good candidate project as sought by the optimization guidance.

The mixed elements of RACER Trust and USEPA funding, differing procurement capabilities, and potentially divergent interests among stakeholders present administrative and potential legal challenges to development and implementation of a single integrated cleanup project; however, elsewhere such challenges are being overcome due to the greater common interest in cost-effective site remediation. For example, USEPA, USACOE, NJDOT, and NJDEP entered into a federal-state partnership to jointly undertake a complex remedial investigation and feasibility study for the Lower Passaic River. A Project Management Plan was prepared by the governmental entities which allocated among the partners the various tasks and costs necessary to complete the project.

The sediment remediation program authorized by the Great Lakes Legacy Act (GLLA) has also advanced approaches for integrating government and private work and funding that may be useful to consider for Ley Creek. Co-funding of GLLA projects is required and federal dollars are matched at some level by private and/or local or state governments. The typical GLLA project starts with meetings of stakeholders who jointly consider the potential

opportunities and obstacles to such projects. The cooperative work starts small with the identification of tasks that would lead to the larger remediation project - typically RI/FS-type tasks - and consideration of the costs of those tasks and the extent to which the work or costs will be shared. The initial cooperative phase allows stakeholders to become comfortable with the process as the initial tasks are completed and before more substantial commitments of resources would be made. Meanwhile the costs and benefits of the larger remedial project become clearer as the initial work proceeds. That "start-small" opportunity exists for the development of an integrated Ley Creek remedy.

A good starting point for Ley Creek would be collaborative identification and collection of needed pre-design data. Such a planning process would likely entail initial consideration of the current level of uncertainty regarding contaminant distributions, particularly PCB distribution, and an exchange of ideas about how that level of uncertainty can be reduced by pre-design sampling or compensated for by design and construction methods. Specific tasks such as obtaining property access, sample collection, survey, chemical analysis, geotechnical analysis, investigation waste disposal and reporting could be defined on a site-wide basis and estimates of costs for each such task reviewed by USEPA and RACER Trust. The individual funding parties could use these estimates with standalone estimates by USEPA and RACER Trust to decide whether there are savings to be achieved as well as other benefits of work sharing (the extent to which USEPA or RACER Trust performs a task) or cost sharing.

A collaborative approach to implementing pre-design investigations could be extended in similar fashion to remedial design and implementation by first defining design and construction tasks and subsequently working through the division of work-sharing and cost-sharing. The single optimized project would reduce costs and, by reducing overall environmental impacts of construction, increase overall protectiveness of the Ley Creek cleanup.

In summary, it is imperative for USEPA and NYSDEC to maximize the efficient use of the limited funding secured from the GM Bankruptcy settlement because the IFG facility is the source of contamination driving the remedies for both Upper Ley Creek and Lower Ley Creek (including the Old Ley Creek Channel). Unifying the remediation of these areas must be explored as a way to maximize the use of funding. Existing agreements, partnerships, site precedent, policies and guidance all support consideration of a single optimized project design by the agencies for both Upper and Lower Ley Creek.

References

Los Alamos Technical Associates, Inc. Data Evaluation Report, Lower Ley Creek Subsite of the Onondaga Lake Superfund Site, Syracuse New York. December 2012.

O'Brien and Gere. Revised Off-Site Remedial Investigation Former IFG Facility and Deferred Media Site, Syracuse, New York. March 2013.

NYSDEC and U.S. EPA, Onondaga Lake Site Cooperative Agreement and related documents. Circa 1993 and later.

Onondaga Lake Partnership Charter. August 9, 2000.

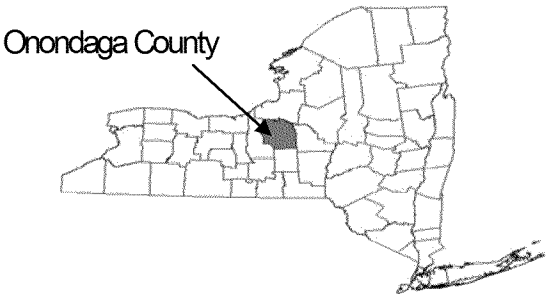
USACOE, U.S. EPA, and NJDOT, Project Management Plan, Lower Passaic River, New Jersey. April 2003.

Attachment B:
Selected Excerpts from Flood Insurance Study by FEMA
June 29, 2012, Revision stamped Preliminary

FLOOD INSURANCE STUDY

Volume 1 of 2

ONONDAGA COUNTY, NEW YORK
(ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER	COMMUNITY NAME	COMMUNITY NUMBER
BALDWINSVILLE, VILLAGE OF	360569	SALINA, TOWN OF	360591
CAMILLUS, TOWN OF	360570	SKANEATELES, TOWN OF	360592
CAMILLUS, VILLAGE OF	360571	SKANEATELES, VILLAGE OF	360593
CICERO, TOWN OF	360572	SOLVAY, VILLAGE OF	361564
CLAY, TOWN OF	360573	SPAFFORD, TOWN OF	360594
DEWITT, TOWN OF	360973	SYRACUSE, CITY OF	360595
EAST SYRACUSE, VILLAGE OF	360574	TULLY, TOWN OF	361296
ELBRIDGE, TOWN OF	360575	TULLY, VILLAGE OF	361552
ELBRIDGE, VILLAGE OF	360576	VAN BUREN, TOWN OF	360596
FABIUS, TOWN OF	360577		
FABIUS, VILLAGE OF	361585		
FAYETTEVILLE, VILLAGE OF	360578		
GEDDES, TOWN OF	360579		
JORDAN, VILLAGE OF	360580		
LAFAYETTE, TOWN OF	360581		
LIVERPOOL, VILLAGE OF	360582		
LYSANDER, TOWN OF	360583		
MANLIUS, TOWN OF	360584		
MANLIUS, VILLAGE OF	360977		
MARCELLUS, TOWN OF	360585		
MARCELLUS, VILLAGE OF	360586		
MINOA, VILLAGE OF	361017		
NORTH SYRACUSE, VILLAGE OF	360587		
ONONDAGA, TOWN OF	360588		
OTISCO, TOWN OF	360589		
POMPEY, TOWN OF	360590		

REVISED
JUNE 29, 2012
PRELIMINARY

Effective Date:

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

36067CV001A

TABLE 5 - SUMMARY OF DISCHARGES -continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-Percent Annual Chance	2-Percent Annual Chance	1-Percent Annual Chance	0.2-Percent Annual Chance
LEY CREEK					
At confluence with Onondaga Lake	30	2,010	2,560	2,850	3,240
Upstream of Beartrap Creek	23	1,650	2,100	2,330	2,660
Town of DeWitt/Salina corporate limits	19.2	1,440	1,830	2,040	2,320
LIMESTONE CREEK					
At confluence with Chittenango Creek	180.83	8,360	12,210	13,870	18,330
Downstream of confluence with Butternut Creek	169.09	7,850	11,480	13,040	17,250
Upstream of NYS Thruway	100.26	6,470	9,670	11,230	15,010
At Old Kysers Mill Dam 800 feet above confluence with Butternut	99.39	6,420	9,610	11,170	14,950
Upstream of Minoa Road At Corner of Minoa	98.05	6,250	9,380	10,910	14,620
Erie Canal	94.34	5,740	8,660	10,070	13,510
Village of Fayetteville downstream Corp limit	89.04	5,280	8,040	9,330	12,530
At USGS Gage 04245000	86.56	5,080	7,760	9,010	12,090
At Village of Fayetteville upstream Corp limit	86.21	5,060	7,720	8,970	12,030
At Downstream Village of Manlius Limit	83.13	4,920	7,460	8,670	11,630
Upstream of Route 173	56.09	3,630	5,260	6,060	8,050
At upstream Village of Manlius limit	53.26	3,240	4,700	5,400	7,190
At Pompey Center Road	52.87	3,200	4,630	5,340	7,100
Cross Section A	50.56	3,822	6,117	7,323	10,162
Cross Section B	50.3	3,807	6,092	7,293	10,120
Cross Section N	34.94	2,844	4,552	5,449	7,561
Cross Section V	10.16	1,059	1,694	2,029	2,815
MEADOW BROOK					
At Confluence with the Erie Canal	4.37	690	910	1,010	1,230
At City of Syracuse limits	3.99	550	760	850	1,090
Dewitt Street	3.53	420	610	710	950
At USGS Gage 04245236 at Hurlburt Road	2.99	340	540	640	910
Upstream of Euclid Avenue	2.03	270	380	440	560
MUD CREEK					
At State Route 481 (near Davis Road)	12.84	*	*	720	*
At Cicero-Clay corporate limits	7.9	252	358	390	470
At confluence with Oneida River	4.9	278	395	430	518
MUD POND OUTLET					
At mouth (confluence with Ninemile Creek)	3.1	720	1,100	1,280	1,700

* Not computed

** Information not available

OnondagaLake_0000473_0027

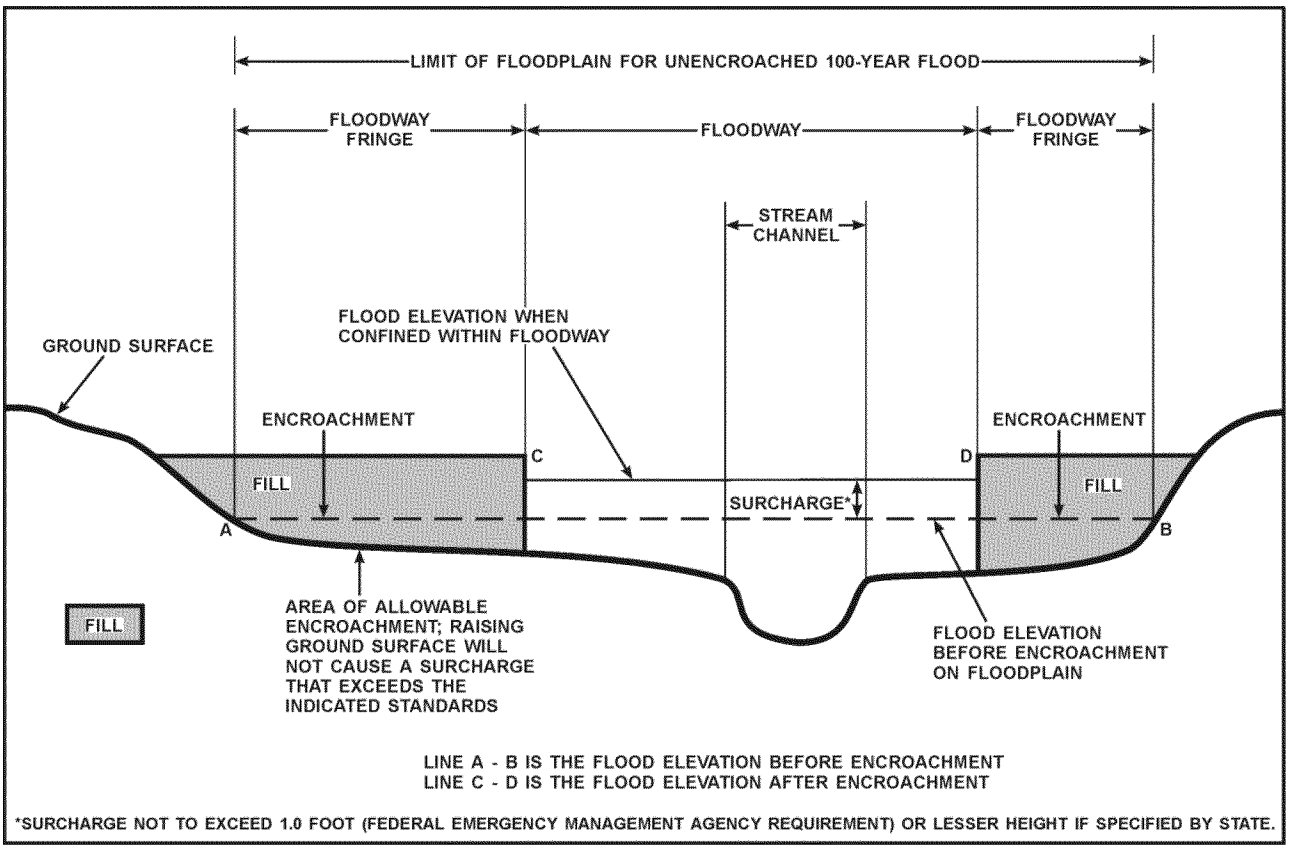


FIGURE 2 - FLOODWAY SCHEMATIC

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1] (FEET)	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Ley Creek								
A	0	200	745	3.8	371.2	365.7[2]	366.7	1.0
B	333	*	347	8.2	371.2	368.2[2]	368.2	0.0
C	1,329	*	440	6.5	371.2	369.0[2]	369.6	0.6
D	1,599	*	408	7.0	371.2	370.2[2]	370.6	0.4
E	2,199	*	444	6.4	371.2	370.6[2]	371.5	0.9
F	2,319	*	670	4.3	373.4	373.4	373.4	0.0
G	3,988	100	903	3.2	373.6	373.6	373.6	0.0
H	6,018	240	1,298	2.2	373.9	373.9	374.1	0.2
I	6,228	300	2,820	0.8	374.0	374.0	374.3	0.3
J	7,678	375	3,027	0.8	374.0	374.0	374.3	0.3
K	8,753	260	1,181	2.0	374.1	374.1	374.4	0.3
L	9,933	235	924	2.5	374.3	374.3	374.6	0.3
M	10,253	110	706	3.3	374.6	374.6	374.9	0.3
N	11,135	100	822	2.8	374.9	374.9	375.2	0.3
O	11,435	226	1,061	2.2	375.1	375.1	375.6	0.5
P	13,597	153	639	3.6	376.3	376.3	376.6	0.3
Q	16,207	130	863	2.7	378.2	378.2	378.6	0.4
R	19,167	160	1,010	2.0	379.1	379.1	379.7	0.6
S	19,479	221	2,035	1.0	379.7[3]	379.7[3]	380.7[3]	1.0
T	21,574	776	3,271	0.6	379.7[3]	379.7[3]	380.7[3]	1.0

[1] Feet above confluence with Onondaga Lake
[2] Elevation computed without consideration of backwater effects from Onondaga Lake
[3] Values from the more recent downstream 1982 Town of Salina FIS were extrapolated upstream
* Floodway coincident with channel banks

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

ONONDAGA COUNTY, NY
(ALL JURISDICTIONS)

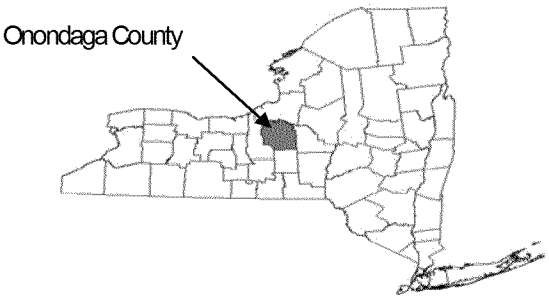
FLOODWAY DATA

LEY CREEK

FLOOD INSURANCE STUDY

Volume 2 of 2

ONONDAGA COUNTY, NEW YORK
(ALL JURISDICTIONS)



COMMUNITY NAME	COMMUNITY NUMBER	COMMUNITY NAME	COMMUNITY NUMBER
BALDWINSVILLE, VILLAGE OF	360569	SALINA, TOWN OF	360591
CAMILLUS, TOWN OF	360570	SKANEATELES, TOWN OF	360592
CAMILLUS, VILLAGE OF	360571	SKANEATELES, VILLAGE OF	360593
CICERO, TOWN OF	360572	SOLVAY, VILLAGE OF	361564
CLAY, TOWN OF	360573	SPAFFORD, TOWN OF	360594
DEWITT, TOWN OF	360973	SYRACUSE, CITY OF	360595
EAST SYRACUSE, VILLAGE OF	360574	TULLY, TOWN OF	361296
ELBRIDGE, TOWN OF	360575	TULLY, VILLAGE OF	361552
ELBRIDGE, VILLAGE OF	360576	VAN BUREN, TOWN OF	360596
FABIUS, TOWN OF	360577		
FABIUS, VILLAGE OF	361585		
FAYETTEVILLE, VILLAGE OF	360578		
GEDDES, TOWN OF	360579		
JORDAN, VILLAGE OF	360580		
LAFAYETTE, TOWN OF	360581		
LIVERPOOL, VILLAGE OF	360582		
LYSANDER, TOWN OF	360583		
MANLIUS, TOWN OF	360584		
MANLIUS, VILLAGE OF	360977		
MARCELLUS, TOWN OF	360585		
MARCELLUS, VILLAGE OF	360586		
MINOA, VILLAGE OF	361017		
NORTH SYRACUSE, VILLAGE OF	360587		
ONONDAGA, TOWN OF	360588		
OTISCO, TOWN OF	360589		
POMPEY, TOWN OF	360590		

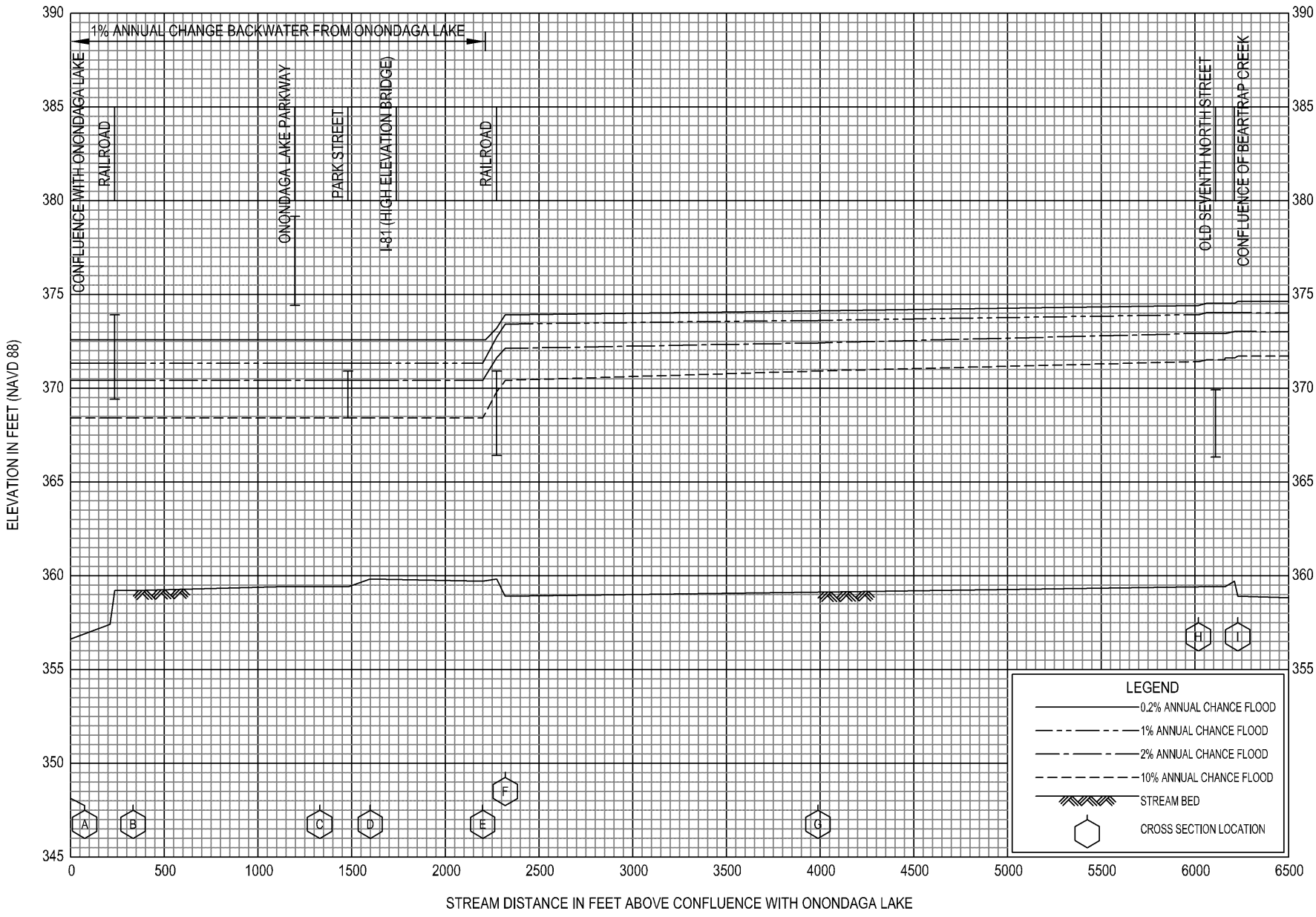
REVISED
JUNE 29, 2012
PRELIMINARY

Effective Date:

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

36067CV002A



FLOOD PROFILES

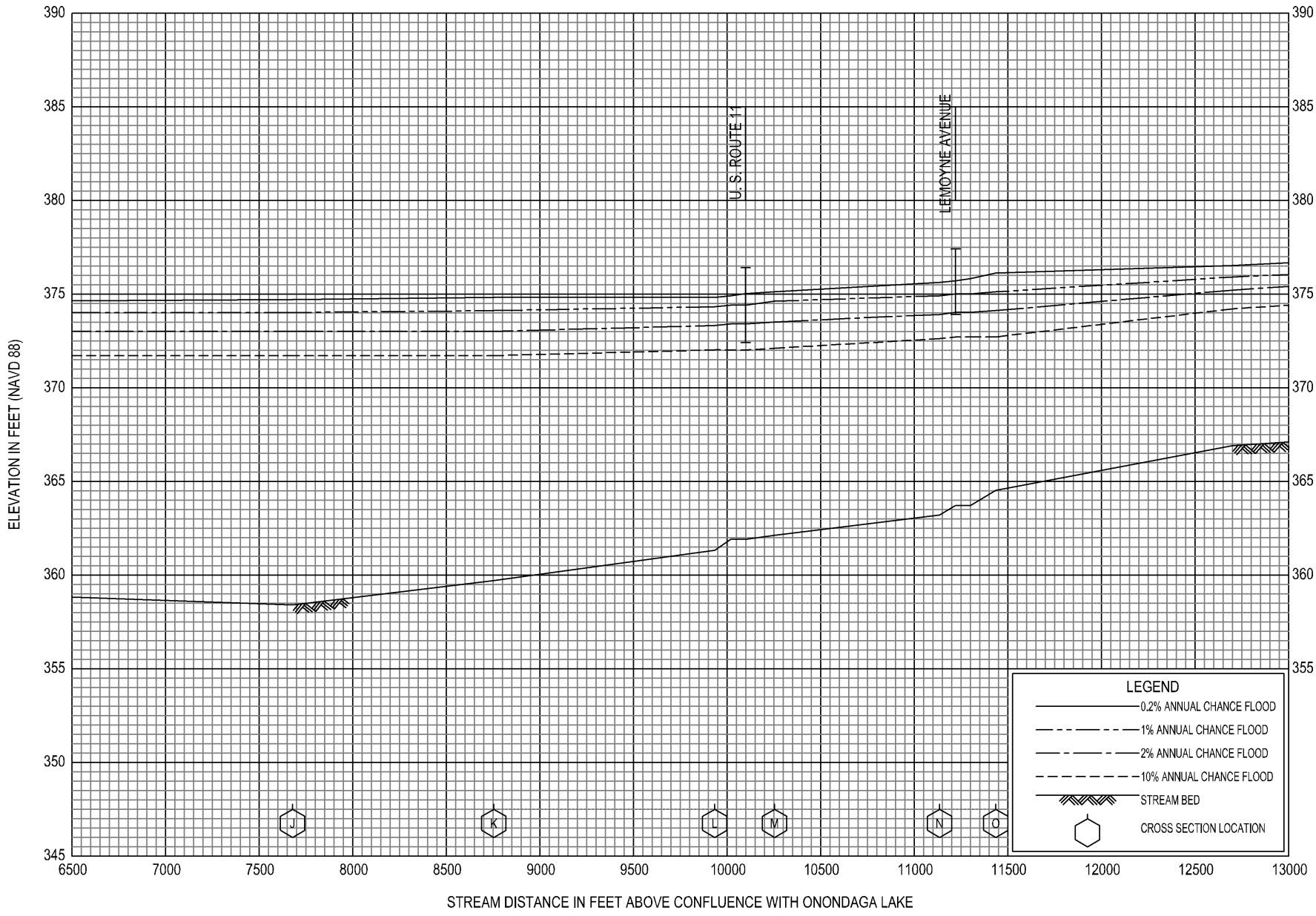
LEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ONONDAGA COUNTY, NY

(ALL JURISDICTIONS)

105P



FLOOD PROFILES

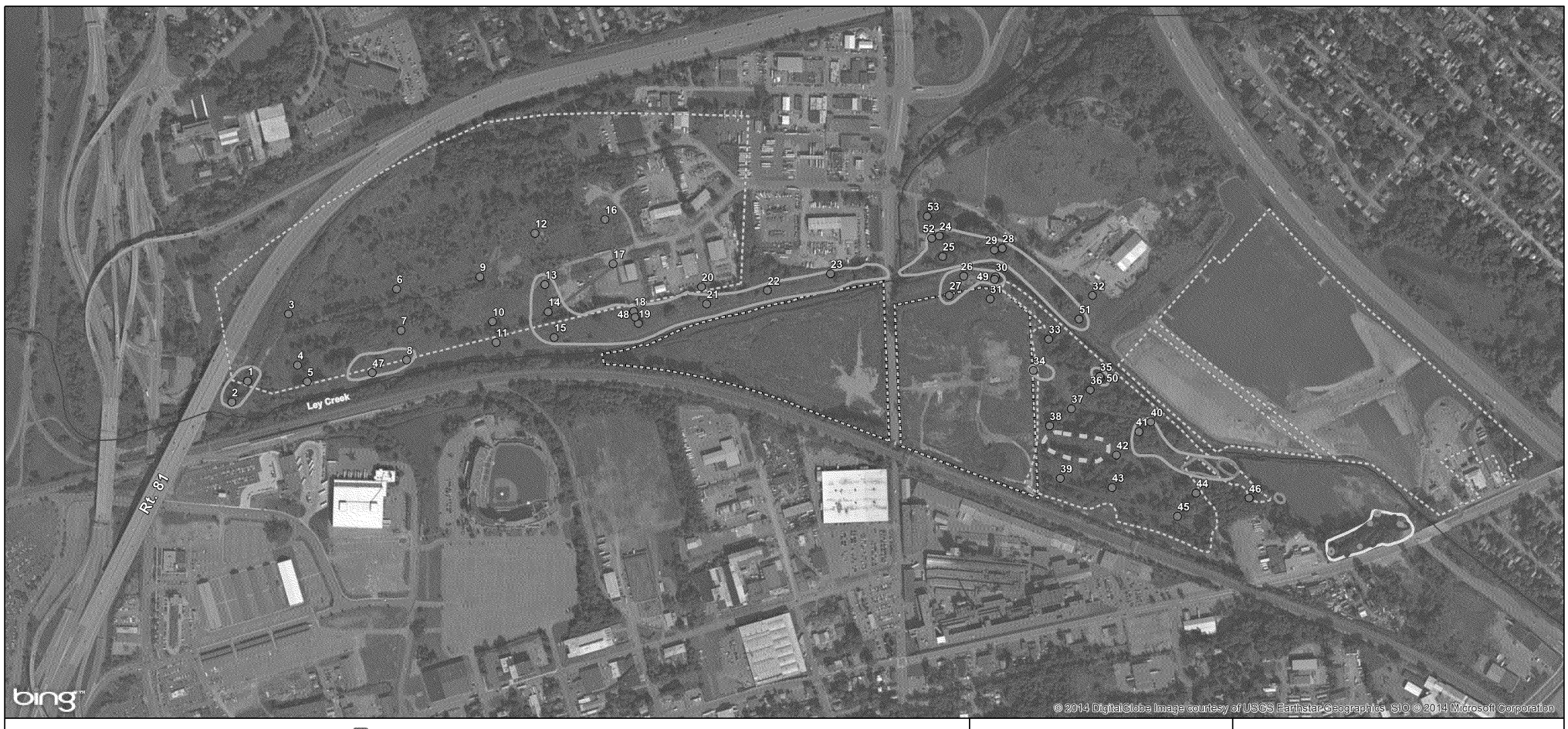
LEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ONONDAGA COUNTY, NY

(ALL JURISDICTIONS)

106P



Alternative 2: Soil Excavation Extent

- 0.5ft Excavation Extent
- 2ft Excavation Extent - Lower Ley Creek
- 2ft Excavation Extent - Old Ley Creek
- 3ft Excavation Extent
- 5ft Excavation Extent
- 8ft Excavation Extent
- 14ft Excavation Extent

- Extent of "Landfill Waste" Identified in USEPA Soil Borings

Boring Location

- Landfill Waste Described In Boring Log
- No Landfill Waste Described In Boring Log

- Approximate City of Syracuse Landfill Boundary Derived From 1972 Aerial
- Crouse Hinds Landfill
- Town of Salina Landfill

0 300 600 900 FEET

1:7,200 | 1 INCH = 600 FEET

This layer contains the Bing Maps aerial imagery web mapping service, which provides worldwide orthographic aerial and satellite imagery. Coverage varies by region. (c) 2010 Microsoft Corporation and its data suppliers, USGS 1972 Historical Aerial Imagery

Soil Excavation Boundaries georeferenced from Figure 2.4 of the Lower Ley Creek Feasibility Study 2013. Boring logs from the 2011 EPA Survey were used to determine presence of landfill waste.

Soil and Sediment Samples Only.

Project Number: 31.0180000.00
Onondaga County, New York

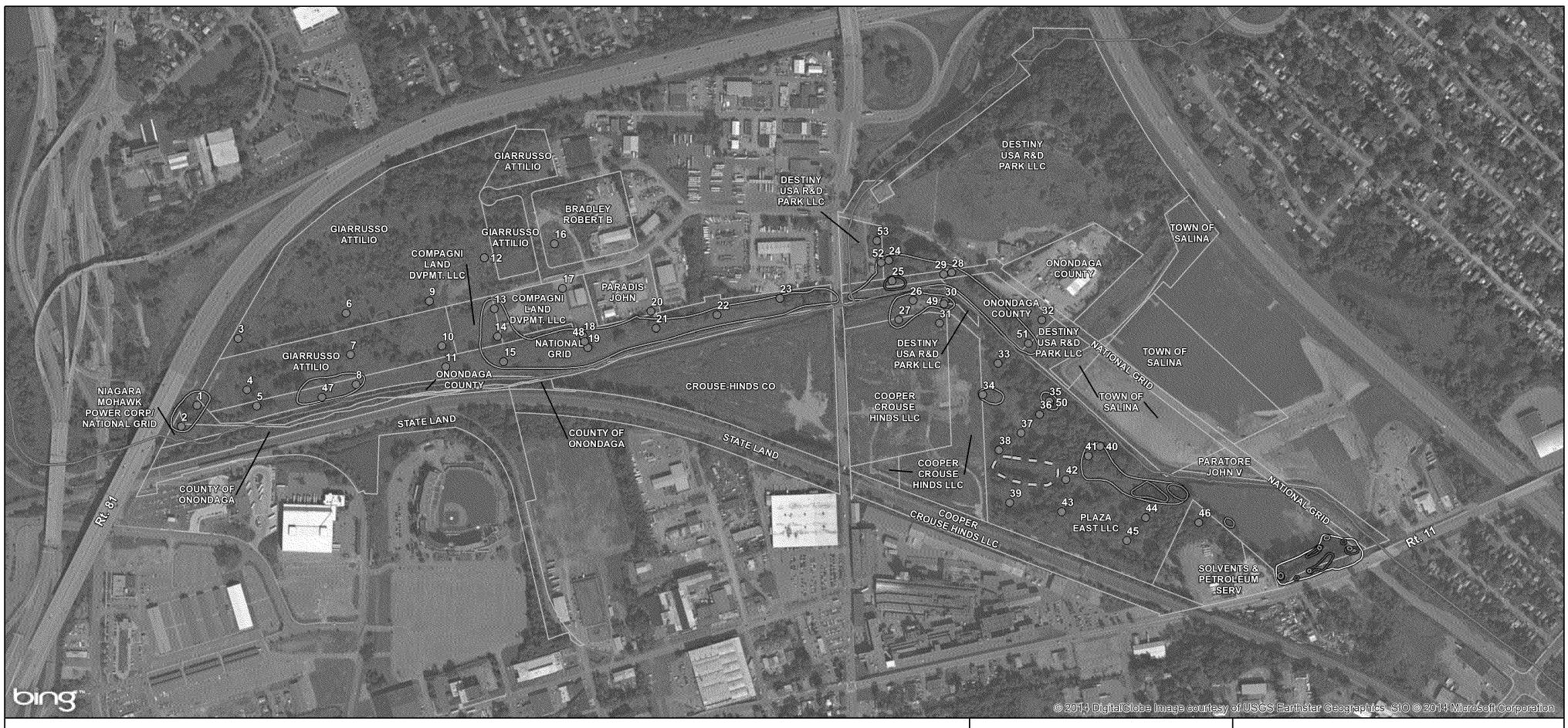
AREAS PROPOSED FOR EXCAVATION BY USEPA; EXTENT OF "LANDFILL WASTE" IDENTIFIED IN USEPA SOIL BORINGS; AND LOCAL WASTE DISPOSAL AREAS

LOWER LEY CREEK

PALMERTON GROUP
A Division of GZA GeoEnvironmental, Inc.
Environmental Consulting Services
6296 Fly Road, East Syracuse, NY 13057

FIGURE 1

Created August 8, 2014 & Updated September 11, 2014 by Eliza Czolowski and Patrick Finnerty



Ley Creek

Boring Location

- Landfill Waste Described In Boring Log
- No Landfill Waste Described In Boring Log

Tax Parcels Located Within Soil Excavation Extent

Alternative 2: Soil Excavation Extent

- 0.5ft Excavation Extent
- 2ft Excavation Extent - Lower Ley Creek
- 2ft Excavation Extent - Old Ley Creek
- 3ft Excavation Extent
- 5ft Excavation Extent
- 8ft Excavation Extent
- 14ft Excavation Extent

Note: All tax parcel boundaries located on Ley Creek are approximate

0 300 600 900 FEET *

1:7,200 | 1 INCH = 600 FEET

This layer contains the Bing Maps aerial imagery web mapping service, which provides worldwide orthographic aerial and satellite imagery. Coverage varies by region. (c) 2010 Microsoft Corporation and its data suppliers.

Soil Excavation Boundaries georeferenced from Figure 2.4 of the Lower Ley Creek Feasibility Study 2013. Boring logs from the 2011 EPA Survey were used to determine presence of landfill waste. Tax parcel information obtained from the Onondaga County Water Authority 2011.

Soil and Sediment Samples Only.

Project Number: 31.0180000.00
Onondaga County, New York

AREAS PROPOSED FOR EXCAVATION BY USEPA, LANDOWNER, AND TAX PARCEL INFORMATION

LOWER LEY CREEK

PALMERTON GROUP
A Division of GZA GeoEnvironmental, Inc.
Environmental Consulting Services
6296 Fly Road, East Syracuse, NY 13057

FIGURE 2

Created August 13, 2014 and Updated September 11, 2014 by Eliza Czolowski and Patrick Finnerty