



November 18, 2011

Mr. Joseph T. Martella II, Senior Engineer
RIDEM Office of Waste Management
Site Remediation Program
235 Promenade Street
Providence, RI 02908

**RE: Mashapaug Cove Supplemental Site Investigation
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, Rhode Island
AMEC Project No. 3650100157.01**

Dear Mr. Martella:

On behalf of Textron, Inc., this letter presents the scope of work for a supplemental investigation to complete the delineation of nature and extent of contaminated sediments in the Mashapaug Outer Cove, collect background sediment data from Mashapaug Pond and collect engineering data from the Inner and Outer Cove to support the identification and evaluation of potential response actions. Textron will use these data in order to prepare a Supplemental Site Investigation Report (SSIR) for Mashapaug Cove.

BACKGROUND

A limited number of sediment samples were collected from Mashapaug Outer Cove as part of the 2006 SSIR (Figure 1). Based on this limited 2006 SSIR data set, at select locations, the Outer Cove sediment was found to contain metals and dioxin similar to that found in Site soils. The conclusion from these investigations determined that additional assessment was required to delineate the nature and extent of potential metals and dioxin contamination in the sediment and to support an ecological risk assessment of the Outer Cove.

Sediment samples had previously been collected from Mashapaug Pond by the University of Rhode Island (URI) and Rhode Island Department of Environmental Management (RIDEM) between 1986 and 1987. Additional sediment data will be collected from Mashapaug Pond during this supplemental site investigation to create a current data set for comparison to the Mashapaug Outer Cove data.

SCOPE OF WORK

Bathymetric Survey (Mashapaug Outer Cove)

AMEC Environment & Infrastructure (AMEC), formerly MACTEC, will conduct a bathymetric survey of the Outer Cove to locate potential channel(s) in the bottom surface, which may be the locations of preferential surface water flow within Mashapaug Cove. AMEC will conduct sediment sampling within the channel(s) based on the results of the bathymetric survey (Figure 1).

Sediment and Surface Water (Mashapaug Outer Cove and Mashapaug Pond)

Surface water and sediment samples SW 10/SED 10 through SW 12/SED 12 and sediment samples SED 13 through SED 15 were collected in 2006 (Figure 1). SED 11 and SED 14 were found to contain metals and dioxin similar to the Park Parcel soils. SED 10, SED 12, SED 13 and SED 15 did not contain metals or dioxin consistent with the Site soils. SED 11 and SED 14 may be located within the channel connecting the Inner Cove and Mashapaug Pond, while SED 10 and SED 12 appear to be background samples located outside the potential influence of the Site.

The scope of the supplemental site investigation includes the collection of surface water and sediment samples from 10 locations within the Mashapaug Outer Cove, and 6 locations immediately outside the Outer Cove in Mashapaug Pond. These locations are shown as SW 33/SED 33 through SW 48/SED 48 on Figure 1. SW 33/SED 33, SW 39/SED 39, SW 41/SED 41, SW 44/SED 44 and SW 47/SED 47 are shown in Figure 1 on the assumed location of the channel between the Inner Cove and the pond and along the path of existing SED 14 and SW 11/SED 11.

The 16 surface water samples (SW 33 through SW 48) will be used to evaluate the transfer of total and dissolved metals (PP13) from the sediment into the surface water. This sample set of surface water and sediment samples will be robust enough to define the nature and extent of contamination and support the statistical data evaluation and ecological risk assessment for the Outer Cove. All samples will be collected using a barge mounted vibracore rig and sample locations will be logged using global positioning system (GPS).

Once the barge has anchored itself at the sample location, surface water samples will be collected using a peristaltic pump. PVC tubing will be attached to a rod with the intake located one foot above the bottom of the rod. The rod will be lowered within the water column to the sediment interface so that the tubing intake will be approximately one foot above the surface water/sediment interface.

Sediment cores will then be collected using a vibracore system. Sediment core samples will extend to a depth of 8 feet below the sediment surface. The sediment core will be logged and photographed and a sediment sample collected from the 0 to 1 foot interval for chemical analysis. A sample from the remaining sediment core will be collected for physical analysis. The depth selected for physical analysis will be a field decision and will consider factors such as the presence of different sediment strata, observations of impact (e.g., discoloration, odor, or the presence of debris), and the depth of sampling reached at each location (estimated at 8 feet).

Surface water and sediment samples will be sent to the laboratory to prepare the samples for analysis. However, surface water and sediment samples SW 46/SED 46 through SW 48/SED 48 will be held and not immediately analyzed. If the analytical data from SW 43/SED 43 through SW 45/SED 45 indicate that the nature and extent of sediment contamination has been defined then the surface water samples SW 46 through SW 48 will not be analyzed. The sediment samples SED 46 through SED 48 will be analyzed for PP13 metals and dioxin only as

background sediment samples from Mashapaug Pond, as discussed below. No AVS:SEM analyses would be conducted on these sediment samples.

In addition to sediment sampling, a push probe will be pushed to refusal at the two sample locations bordering the Inner and Outer Cove (SED 33 and SED 34) to provide engineering data on sediment/subsurface stability. The surface water and sediment sample locations, rationale and analytical suite for each sample are shown in Table 1.

Samples in the Outer Cove and immediately outside the Outer Cove (Mashapaug Pond) will provide data to evaluate the nature and extent of contamination, and physical characteristics of the sediment to evaluate potential remediation alternatives.

Sediment (Mashapaug Inner Cove)

Sediment samples are planned for 3 locations within the Inner Cove. These locations are shown as SED 49 through SED 51 on Figure 1. Sediment cores will be collected using a vibracore to a depth of 8 feet below the sediment surface and a sediment sample will be collected for physical analysis. The depth selected for physical analysis will be a field decision and will consider factors such as the presence of different sediment strata, observations of impact. The location rationale and analyses for each sample are shown in Table 1. Physical characteristics of the sediment will be obtained in order to evaluate potential remediation alternatives.

Sediment Background (Mashapaug Pond)

Sediment samples will be collected from up to 7 locations in Mashapaug Pond (Figure 2). These locations, along with SED 10 and SED 12 (Figure 1), will be evaluated as a background data set of Mashapaug Pond. This data will be used to help define the nature and extent of contamination in the Outer Cove and if it extends into the Pond. Sediment data from SED 46 through SED 48 may also be added to this data set depending on the analytical results, as discussed above. The Outer Cove sediment data and background data set will be evaluated for metal and dioxin contaminant concentrations consistent with those found in the Site soils.

These 7 sediment sample locations were selected based on the surface water flow from north to south towards the pond outlet at the southern most end of Mashapaug Pond (Figure 2), the location of storm water drainage outfalls discharging into the pond and the depth of the pond as identified in the Total Maximum Daily Load Report for Mashapaug Pond, prepared by RIDEM in September 2007 (RIDEM, 2007). Proposed sediment sample locations SED 52 through SED 54 are located upgradient of the Outer Cove and SED 55 is cross gradient of the Outer Cove. SED 56 is located just upgradient of the Spectacle Pond tributary discharge into Mashapaug Pond. These five samples are located in relatively shallow water depths similar to the Outer Cove (RIDEM, 2007).

Two more sediment samples are proposed, SED 57 and SED 58, from the southern end of Mashapaug Pond along the eastern shoreline and at the deepest point of the pond (Figure 2). The background data set will subsequently include between 9 and 12 sediment sample locations

from the 0 to 1 foot sediment core interval. These samples are intended to represent a broad distribution of Mashapaug Pond sediment quality conditions.

REPORTING

A letter report summarizing the supplemental site investigation of the surface water and sediment sampling program and analytical results will be prepared and submitted to RIDEM approximately 30 days following receipt of the analytical data.

PROPOSED SCHEDULE

Textron has scheduled field activities for this sediment investigation for December 2011. It has been estimated that this work will be completed within one to two weeks of mobilization. AMEC will mail written notification of this proposed work to the list of stakeholders derived following the July 12, 2011 Park Parcel public meeting prior to conducting the work. The notification will be issued in both English and Spanish.

We look forward to working with RIDEM on the implementation and results of this surface water and sediment investigation. Feel free to contact either Dave Heislein at (781) 213-5655 or Greg Simpson of Textron at (401) 457-2635 with any questions.

Sincerely,
AMEC Environment & Infrastructure



David E. Heislein
Principal Engineer



Michael J. Murphy
Principal Scientist

Attachments: Table 1 Proposed Technical Approach and Analytical Program
Figure 1 Historic Surface Water / Sediment and Proposed Surface Water /
Sediment Sample Locations
Figure 2 Historic Surface Water / Sediment and Proposed Sediment Sample
Locations

cc: T. Deller, City of Providence
G. Simpson, Textron, Inc.
J. Schiff, Textron, Inc.
Amelia Rose, Environmental Justice League
Knight Memorial Library Repository
AMEC Project File [P:\3650100157 - Textron Gorham\4.0 Project Deliverables\4.2 Work Plans\1118wp.docx]

TABLE 1

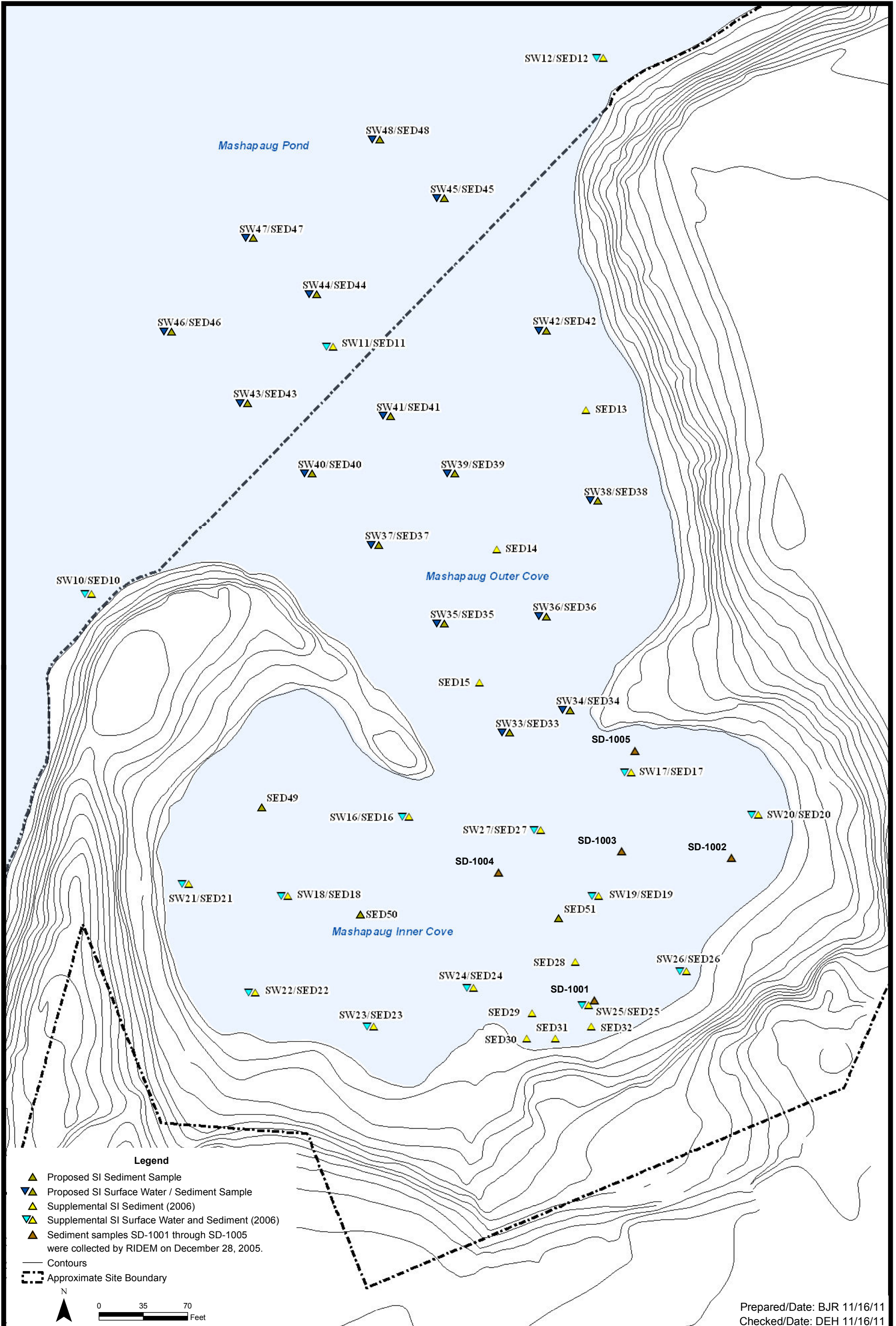
**PROPOSED TECHNICAL APPROACH AND ANALYTICAL PROGRAM
Supplemental Investigation - Mashapaug Cove at Mashapaug Pond
Former Gorham Site
Providence, RI**

Media Investigated	Location	Termination Criteria	Sample ID	Rationale	Analytical
Sediment (Outer Cove)	10 locations in Outer Cove; two sediment samples per location: one shallow sediment sample at 0-1 ft and one deeper sample from 1-8 feet. Two samples (SED33 and SED34) shall be pushed to refusal. SED33, SED35, SED37 and SED40 will be located within the channel based on bathymetric results.	One sleeve of sediment per location; sleeve length shall be approximately 8 ft long. Log and field screen full length of core samples.	SED 33 - SED 42. Samples shall be collected from 0-1 feet for chemical analysis; both shallow and deep samples for engineering properties.	Define nature and extent of contamination and support ecological risk assessment and engineering properties.	Metals (PP13), Dioxin and AVS:SEM; grain size, % solids, TOC
Sediment (Mashapaug Pond)	6 locations in Mashapaug Pond, outside of Outer Cove; two sediment samples per location: one shallow sediment sample at 0-1 ft and one deeper sample from 1-8 feet.	One sleeve of sediment per location; sleeve length shall be approximately 8 ft long.	SED 43 - SED 48. Samples shall be collected from 0-1 feet for chemical analysis; both shallow and deep samples for engineering properties.	Define nature and extent of contamination and support ecological risk assessment and engineering properties. Hold SED46, SED47 and SED48 sediment samples pending analytical results from SED 43, SED 44 and SED 45. If SED 46 through SED 48 are background then no AVS:SEM required.	Metals (PP13), Dioxin and AVS:SEM; grain size, % solids, TOC.
Sediment (Inner Cove)	Up to 3 locations in Inner Cove	One sleeve of sediment per location; sleeve length shall be approximately 8 ft long.	SED 49 - SED 51. Samples shall be collected from 0-8 feet for engineering properties.	Engineering properties	grain size, % solids, TOC
Sediment (Mashapaug Pond Background)	Up to 7 locations in Mashapaug Pond of Outer Cove and other locations at mid and southern points of the pond.	One sleeve of sediment per location; sleeve length shall be approximately 8 ft long.	SED 52 - SED 58 Samples shall be collected from 0-1 feet for chemical analysis.	Develop background conditions for Mashapaug Pond for metals and dioxin in sediment. Historic sediment samples SED 10 and SED 11 can also be used as background. Depending on analytical results from SED 43 through SED 48, these samples may also be used as background locations.	Metals (PP13) and Dioxin.
Bathymetric Survey	Outer Cove	Complete data output to locate samples SED33, SED35, SED37 and SED40 within the defined channel(s) of the Outer Cove.	N/A	Locate channels in the Outer Cove, which may have preferential flow locations for site related contaminants.	N/A
Surface Water	16 locations within and immediately outside the Outer Cove SW 33 through SW 48, co-located with sediment samples.	Samples shall be collected 1 ft above the sediment surface (sediment-surface water interface).	SW 33 - SW 48	Correlation of sediment and AVS:SEM data.	Metals (PP13), total and dissolved

NOTES:

SED 33 = Sediment sample location 33
 SW 33 = Surface Water sample location 33
 AVS:SEM = Acid Volatile Sulfide/Simultaneously-Extracted Metals
 PP13 = Priority Pollutant Metals (13)
 ft = Foot
 N/A = Not Applicable
 TOC = Total Organic Carbon

See Supplemental Site Investigation Figures 1 and 2 for sample locations.



Prepared/Date: BJR 11/16/11
 Checked/Date: DEH 11/16/11

Supplemental Site Investigation
 333 Adelaide Avenue Site
 Providence, Rhode Island



Historic Surface Water / Sediment and Proposed
 Surface Water / Sediment Sample Locations
 Project 3650-10-0157
 Figure 1



Legend

- ▲ Proposed SI Sediment Sample
- ▲ URI Sediment Sample Location 1986
- ▼ URI Sediment Sample Location 1986
- ▲ RIDEM Sediment Sample Location 1987
- ▼ RIDEM Surface Water Sample Location 1987
- USEPA Water Column Station Surface Water Sampling 2001
- ▼ Surface Water Sample SW-1 collected on April 15, 1999 by Harding Lawson Associates.
- Approximate Site Boundary
- Storm Water Drainage Outlet
- SD - Stormwater Drainage Outlet

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Historic Surface Water / Sediment and Proposed
 Sediment Sample Locations
 Project 3650-10-0157 Figure 2