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April 10, 2012

Ms. Tara M. Blum, P.E.
NYSDEC Region 7
Division of Environmental Remediation
615 Erie Boulevard
West Syracuse, New York 13204-2400

Re: Carrier Corporation, Thompson Road Facility, Syracuse, New York
Corrective Action Order — Index CO 7-20051118-4
Storm Line Bedding Material Investigation Work Plan, Revision 2, April 2012

Dear Ms. Blum:

In accordance with the above-referenced order, Carrier Corporation is providing one hard copy and one electronic copy of the referenced Work Plan. The electronic copy can be found in PDF format on the CD inside front cover of the attached report. Per email correspondence from your department on September 12, 2011, and follow-up e-mail on October 25, 2011, a hard copy and an electronic copy of this report will be submitted (via US Mail) to the New York State Department of Health contact, Mr. Steven Bates, with the Bureau of Environmental Exposure Investigation.

Please call me at (615) 255-9300 if you have any questions.

Sincerely,

EnSafe Inc.

By: May Heflin, PE

Encl. Storm Line Bedding Material Investigation Work Plan, Revision 2, April 2012

cc: (hard copy and electronic copy):
Mr. Steven Bates — New York State Department of Health

cc: (electronic copy only):
Mr. William Penn — United Technologies Corporation
Mr. Nelson Wong — Carrier Corporation

STORM LINE BEDDING MATERIAL INVESTIGATION WORK PLAN

UNITED TECHNOLOGIES/CARRIER CORPORATION
THOMPSON ROAD FACILITY
SYRACUSE, NEW YORK

EnSafe Project Number
0888809186

Revision No.: 2

Prepared for:

United Technologies Corporation
UTC Shared Remediation Services
United Technologies Building
Hartford, Connecticut 06010

Prepared by:

EnSafe Inc.
220 Athens Way, Suite 410
Nashville, Tennessee 37228
(615) 255-9300
(800) 588-7962
www.ensafe.com

April 2012

STORM LINE BEDDING MATERIAL INVESTIGATION WORK PLAN

UNITED TECHNOLOGIES/CARRIER CORPORATION
THOMPSON ROAD FACILITY
SYRACUSE, NEW YORK

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www.ensafe.com

Prepared By:

May M. Heflin

May M. Heflin, PE

April 10, 2012
Date

Storm Line Bedding Material Investigation Work Plan

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EXECUTIVE SUMMARY

Carrier Corporation, a wholly-owned subsidiary of United Technologies Corporation, is currently working through Corrective Action Order — Index CO 7-20051118-4 (order) dated February 13, 2006, with the New York State Department of Environmental Conservation Division of Solid and Hazardous Materials (NYSDEC-DSHM), to identify potential sources of polychlorinated biphenyls (PCBs) in storm water effluent at Outfall 002.

This work plan reflects the meetings and discussions that have occurred over the last two years and describes Carrier's approach for continued PCB source investigations at the site. A *Storm Line Bedding Material Work Plan* (Rev 0) was originally submitted to NYSDEC in October 2010, with verbal comments made by Mr. Larry Rosenmann in two telephone conversations in December 2010, and written comments sent via e-mail on December 15, 2010. A revised work plan (Revision 1) was submitted to NYSDEC in July 2011. The work plan (Revision 2) addresses comments made during a telephone conference between NYSDEC, UTC and EnSafe representatives on September 15, 2011, to discuss the departments' comments on the July 2011 submittal of the work plan.

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1.0 STORM LINE INVESTIGATION

1.1 Historical Use

The storm sewer lines at the Carrier facility were constructed in the early 1940s by the original owner of the property (Defense Plant Corporation). The intended use of the lines was to convey storm water runoff to a series of outfalls that discharge into Sanders Creek. From 2001 through 2009, Carrier has periodically sampled the sediments that accumulated in the manholes and pressure-washed the storm lines in an effort to maintain the lines and to remove polychlorinated biphenyl (PCB)-containing sediments. **Figure 1-1 — Historic Sediment Sample Locations** shows the historical sediment samples obtained from manholes in Drainage Basin 002 and corresponding PCB results. Note that this figure reflects site conditions pre-campus consolidation. Several buildings have been demolished and their footprints regraded. Some piping has been modified, and three storm water retention ponds constructed. Figures referenced later in this work plan will show existing site conditions.

1.2 Proposed Investigation Locations

This work plan describes the investigation approach at two primary locations at the Carrier facility:

1. Manhole Locations — Based on the historic sampling data showing elevated PCBs concentrations in sediment samples at select manholes, the New York State Department of Environmental Conservation (NYSDEC), in comments dated April 10, 2010 on a *Potential PCB Sources Report, December 2009*, requested further investigation along five sections of the Thompson Road and TR-18 storm lines as follows (**Figure 1-2 — Proposed Manhole Area Investigation Locations**):

    - Thompson Rd line near MH-89
    - Thompson Rd line near MH-154
    - TR-18 line near MH-137 (near Bldg TR-23)
    - TR-18 line near MH-126/TR-6 area
    - Originally, the TR-18 line near MH-196 was also proposed for investigation; however this area has been removed from the list as discussed later in Section 2.1.

    Using a direct push technology (DPT) rig, soil borings will be advanced at the manhole and along the storm line and a soil sample will be obtained. Each soil boring will be converted to a temporary well from which a groundwater sample will be obtained and observed for free-product or oil sheen.

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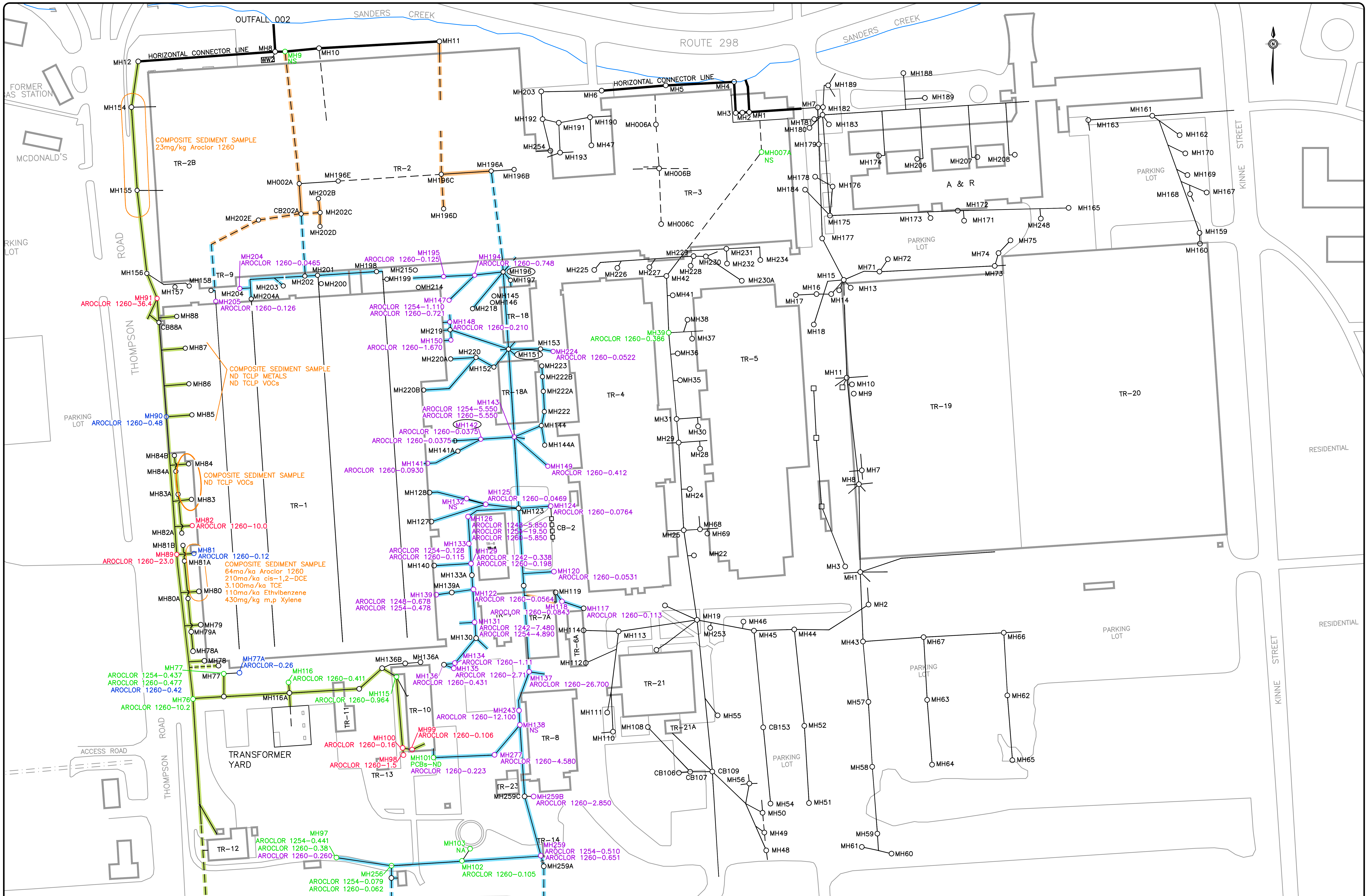

LEGEND

- TR-2 BUILDING
- STORM SEWER AND SIZE
- SECTION OF STORM SEWER LINE CLEANED, 12/2002
- SECTION OF STORM SEWER LINE CLEANED, 12/2003
- SECTION OF STORM SEWER LINE NOT CLEANED DUE TO ACCESS ISSUES.
- MH ○ MANHOLE
- MH103 ○ MANHOLE SAMPLE LOCATION, ENSAFE 7/2001
- (MH142) COMPOSITE MANHOLE SAMPLE, CARRIER 7/2002, 4.8ppm
- ⬭ COMPOSITE MANHOLE SAMPLE, CARRIER 11-12/2002
- .16 MANHOLE SAMPLE LOCATION, UPSTATE LABS, 9/2003
- 1.5 MANHOLE SAMPLE LOCATION, ENSAFE, 10/2003
- 1.5 MANHOLE SAMPLE LOCATION, ENSAFE, 11/2004

0 150 300
SCALE IN FEET

FIGURE 1-1: HISTORIC SEDIMENT SAMPLE LOCATIONS
CARRIER FACILITY, THOMPSON ROAD
SYRACUSE, NEW YORK

REQUESTED BY: M.H.	ENSAFE (800) 588-7962 MEMPHIS, TENNESSEE
DRAWN BY: E.R.	
DWG DATE: 12OCT10	
DWG NO: 5771R032	

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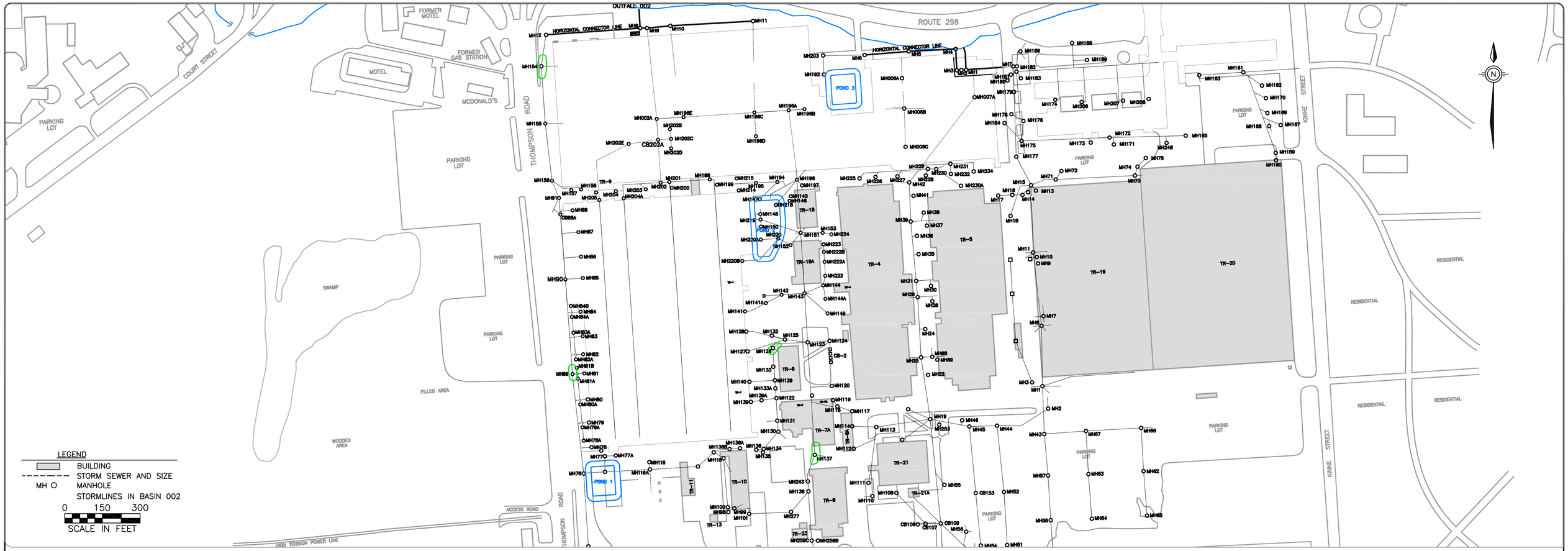
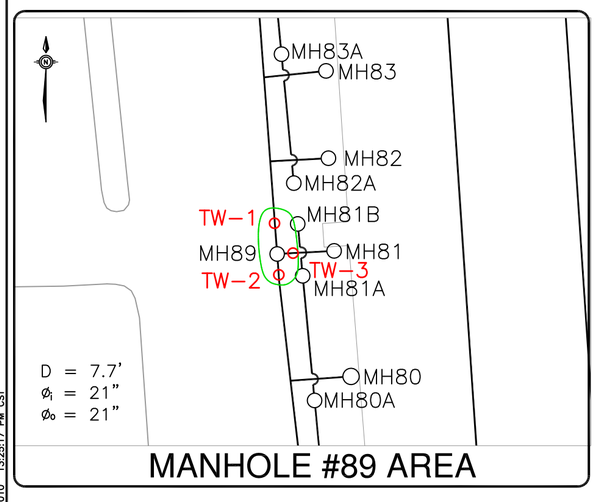
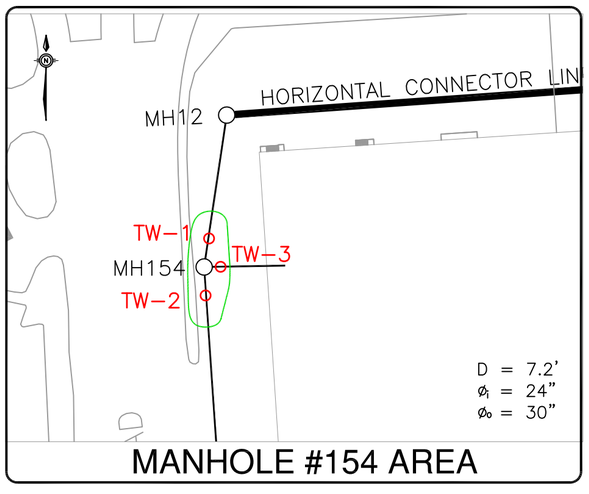
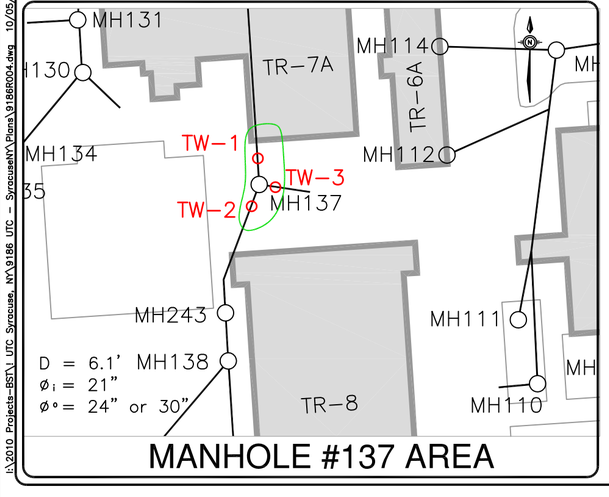




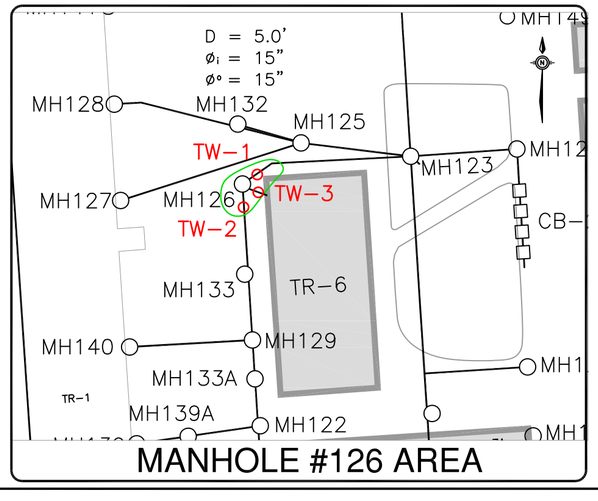
MANHOLE #89 AREA



MANHOLE #154 AREA



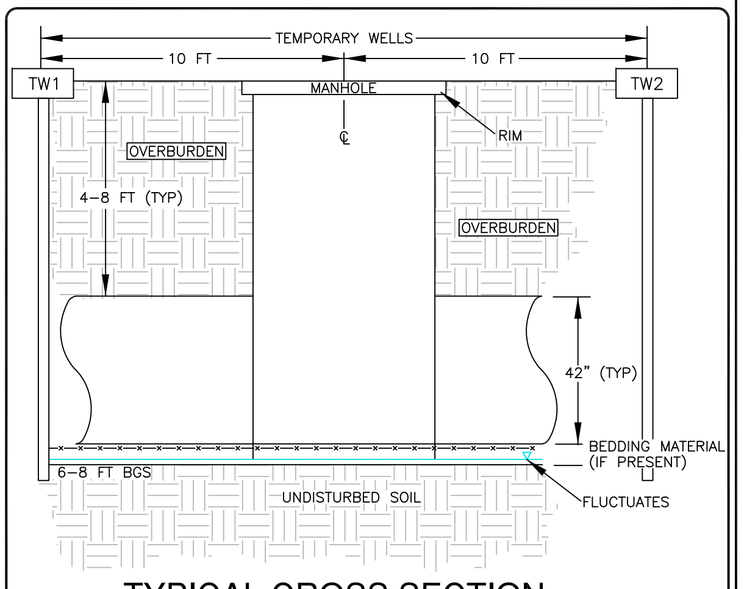
MANHOLE #137 AREA



MANHOLE #126 AREA

LEGEND
D – DEPTH OF MANHOLE FROM RIM TO BOTTOM OF MANHOLE
Ø ⊢ DIAMETER OF STORMLINE ENTERING MANHOLE
Ø ⊣ DIAMETER OF STORMLINE EXITING MANHOLE
– MANHOLE AREA TO BE INVESTIGATED
TW–1 – PROPOSED TEMPORARY WELL LOCATION

NOTE
SITE–WIDE STORM LINE PIPING CONFIGURATION HAS CHANGED AT LOCATIONS WHERE CONSTRUCTION ACTIVITIES RELATED TO STORM WATER MANAGEMENT (25–YR, 24–HR STORM EVENT) HAVE TAKEN PLACE. SOME LOCATIONS INCLUDE PONDS 1, 2, AND 3 AREAS AND AREAS AT OR NEAR NEW OUTFALLS 003 AND 004.



TYPICAL CROSS SECTION NTS

FIGURE 1-2
PROPOSED MANHOLE AREA INVESTIGATION LOCATIONS
STORM LINE INVESTIGATION WORK PLAN
(REV 2), APRIL 2012
CARRIER FACILITY, THOMPSON ROAD
SYRACUSE, NEW YORK

REQUESTED BY:	MH
DRAWN BY:	WM
DWG DATE:	03APRIL12
DWG NO:	9186R037

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2. Former Outfalls — The current data set and site conceptual model indicate that the permeable bedding material is not a transport pathway for PCBs. Carrier has recently sampled two ground water wells (MW-17 and MW-18) that are installed in the bedding material of Outfalls 002 and 001, respectively. PCBs were not detected in either sample. Even so, to confirm that historic releases did not travel along former outfalls that discharged to Sanders Creek prior to Carrier's outfall consolidation project, Carrier will sample groundwater in the bedding material at these former outfalls.

   Carrier will install a temporary well and obtain a groundwater sample in the bedding material at each of the former outfall locations as indicated on **Figure 1-3 — Proposed Temporary Well Locations at Former Outfalls**, provided the outfall discharge pipes can be located. The purpose of this task is to determine whether PCBs are migrating from other areas of the site to these old outfalls via the storm line bedding material. Groundwater at each well will be observed for free-product or oil sheen. Soil samples will not be obtained at the temporary well locations.

   Carrier samples the site-wide groundwater monitoring well network annually in June. On June 30 and July 1, 2010, Carrier obtained groundwater samples from monitoring wells MW-17 and MW-18, which are installed in the bedding material of Outfalls 002 and 001, respectively. Carrier analyzed the groundwater samples from MW-17 and MW-18 for Total PCBs using U.S. Environmental Protection Agency (USEPA) Method 8082. The data from this sampling event was submitted to NYSDEC on August 20, 2010, in a report entitled *Corrective Measures Update, Site-Wide Groundwater Monitoring Report (EnSafe, August 2010)*. PCBs were not detected in either sample. No additional sampling of these wells will be performed as part of this investigation.

1.3 Basis of Investigation

Carrier will conduct a subsurface investigation at manholes along Carrier's storm line system that historically have exhibited elevated concentrations of PCBs in manhole sediment samples. The purpose of this subsurface investigation is to determine if PCB-containing oil (free-product) exists in the subsurface, specifically in the storm line bedding material. The investigation approach will be similar to that used during the Building TR-1 Sub-Surface Investigation conducted in February 2011.

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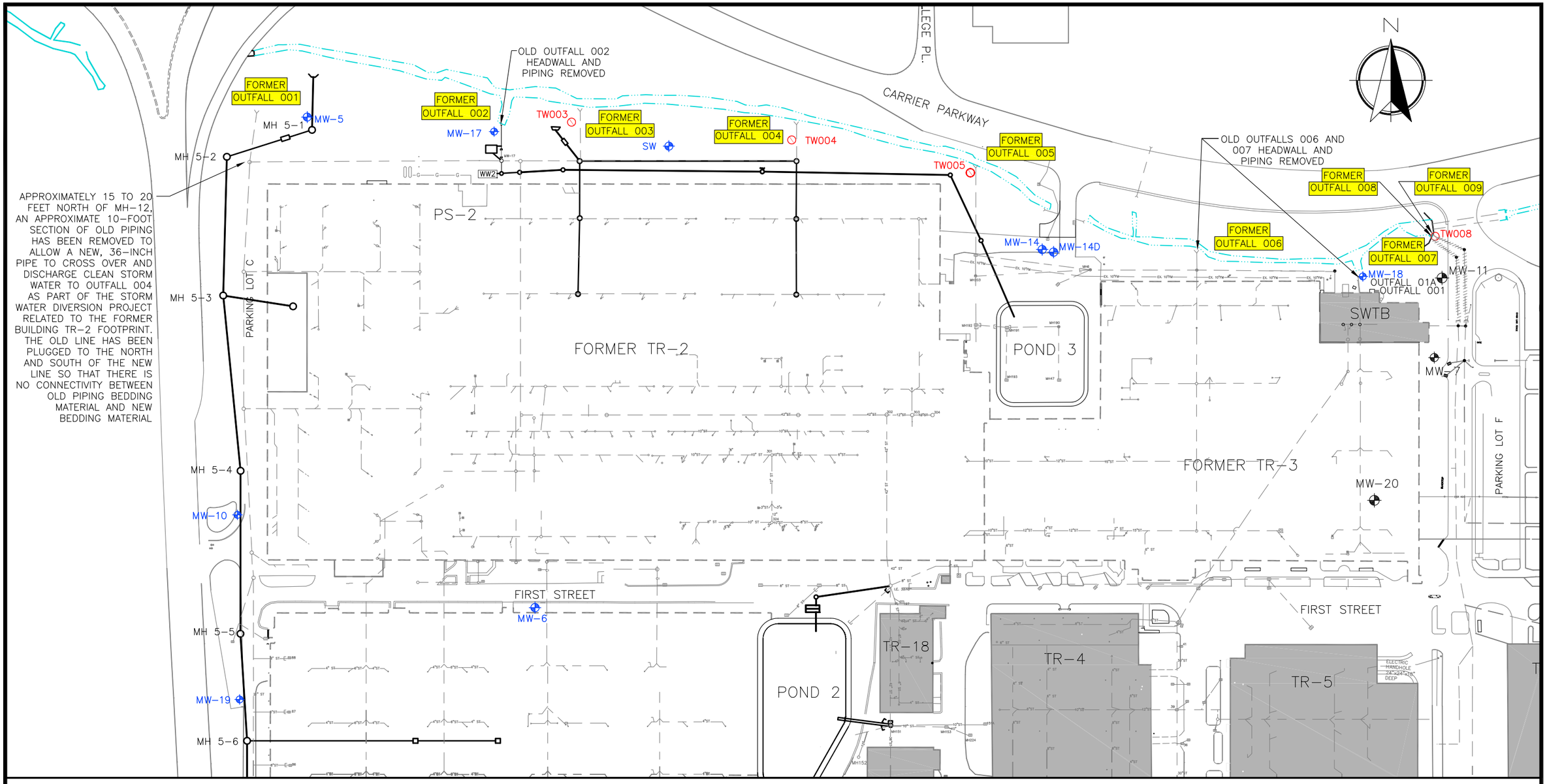

LEGEND

OUTFALL 001	FORMER/ABANDONED STORMWATER OUTFALLS OUTFALLS 001 AND 002 ARE EXISTING OUTFALLS
TW005	TW003, 004, 005 AND 008 PROPOSED TEMPORARY WELL LOCATIONS
MW18	MW-17 AND MW-18 EXISTING GROUNDWATER MONITORING WELLS IN BEDDING MATERIAL OF OUTFALL 002 AND 001, RESPECTIVELY

GRAPHIC SCALE

150 0 75 150

(IN FEET)

FIGURE 1-3
PROPOSED TEMPORARY WELL LOCATIONS AT FORMER OUTFALLS STORM LINE EVACUATION WORK PLAN, REV 2 CARRIER FACILITY, THOMPSON ROAD SYRACUSE, NEW YORK

REQUESTED BY:	MH
DRAWN BY:	WM
DWG DATE:	03APRIL12
DWG:	9186R039

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File name: I:\2011 Projects BST\9186 UTC Carrier – Syracuse, NY\Plans\9186R039 Proposed Temporary Well Locations at Former Outfalls – Storm Line Excavation Work Plan.dwg Plotted By: WADE MAREK Plot Date:4/3/2012 11:28:37 AM

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At the manhole investigation areas, Carrier will initially use a threshold of PCB detections in soil greater than 25 milligrams per kilogram (mg/kg) as the basis for expanding field investigations beyond the locations cited in this work plan. This concentration represents the industrial soil cleanup objective (SCO) for PCBs listed in Table 375-6.8(b): Restricted Use Soil Cleanup Objectives of the New York State Department of Environmental Conservation (NYSDEC) Subpart 375-6: Remedial Program Soil Cleanup Objectives. If PCBs are detected in soils close to this threshold (i.e., > 20 ppm Total PCB), then Carrier will evaluate the data points at that area to assess if further delineation is warranted. If PCBs are present in soil above 25 mg/kg, Carrier will conduct further investigation as necessary to define extent of PCB impact.

Groundwater samples will be submitted for analysis if: (a) soil concentrations exceed 25 mg/kg, or (b) sheen or free-product is observed using an oil-water interface probe.

Upon completion of these investigation activities, Carrier will evaluate remedial options and make a recommendation on managing the PCB-containing soils as part of a comprehensive (focused) Corrective Measures Study (CMS).

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2.0 STORMLINE/MANHOLE AREA INVESTIGATION — TECHNICAL APPROACH

Four manholes areas will be assessed in the storm line bedding material investigation:

- Thompson Road line near MH-89
- Thompson Road line near MH-154
- TR-18 line near MH-137 (near Bldg TR-23)
- TR-18 line near MH-126/TR-6 area

The fifth location requested for investigation — TR-18 line near MH-196 — is not proposed for site investigation as discussed in Section 2.1 below.

2.1 Storm Line Investigation Areas

Thompson Road Storm Line Section (@MH-89)

The manhole area that is proposed for subsurface investigation will extend approximately 10 feet to the south and to the north (upgradient and downgradient) of MH-89. This manhole area has been selected for subsurface investigation because sediment samples obtained from MH-89 in 2003 and 2009 found PCBs at 23 milligrams per kilogram (mg/kg) and 79.3 mg/kg, respectively. While it is likely that the sediments in this area have washed down the Thompson Road storm line from the Transformer Yard area storm lines, an area known to have elevated PCB concentrations in sediments, Carrier will advance 3 borings at or near this manhole and convert them to temporary well locations.

Thompson Road Storm Line Section (@MH-154)

The manhole area that is proposed for subsurface investigation will extend approximately 10 feet to the south and to the north (upgradient and downgradient) of MH-154. This manhole area has been selected for subsurface investigation because sediment samples obtained from this manhole in 2002 found PCBs at 23 mg/kg. While it is likely that the sediments in this area have washed down the Thompson Road storm line from the Transformer Yard area storm lines, an area known to have elevated PCB concentrations in sediments, Carrier will advance 3 borings at or near this manhole and convert them to temporary well locations.

TR-18 line near Bldg TR-23 (@MH-137)

The section of storm line proposed for subsurface investigation will extend approximately 10 feet to the south and to the north (upgradient and downgradient) of MH-137. This section of storm line has been selected for subsurface investigation because sediment samples obtained from MH-137 in 2004 and 2009 found PCBs at 26.7 mg/kg and 16.6 mg/kg, respectively. Also, wastes

were formerly stored at Building TR-23, which is immediately upgradient of this manhole. Carrier will advance 3 borings at or near this manhole and convert them to temporary well locations.

TR-18 line near Bldg TR-6 (@MH-126)

The manhole area that is proposed for subsurface investigation will extend approximately 10 feet east and west (upgradient and downgradient) of MH-126. This manhole area has been selected for subsurface investigation because sediment samples obtained from MH-126 in 2004 and 2009 found PCBs at 31.2 mg/kg and 13.64 mg/kg, respectively. Additionally, composite samples from the sludge generated from a 2003 storm line cleaning event along this line found PCBs (Aroclor 1254) at 180 mg/kg and 36 mg/kg. Carrier will advance 3 borings at or near this manhole and convert them to temporary well locations.

TR-18 line near north end (@MH-196) – not included in investigation

This section of storm line was proposed for investigation in the July 2011 submittal of this work plan. However, while the plan was under review by NYSDEC and during construction of Pond #2, new piping was installed to discharge Pond #2 water to MH-196. The section of piping from MH-194 to MH-196 was removed, the piping inlet to MH-196 plugged, and a new inlet to MH-196 for the piping from Pond #2 was installed. During excavation activities, no visual or olfactory evidence of contamination was noted. Figure 1-2 shows the new piping configuration.

The justification for investigating this area was not due to significant PCB concentrations in sediments at this manhole, which were minimal at (0.748 mg/kg Aroclor 1260), but because of an NYSDEC concern that manholes/storm lines within the TR-2 footprint were not accessible at the time of a 2003 storm line cleaning activity (NYSDEC correspondence dated April 30, 2010). A portion of the lines underlying the TR-2 footprint have been lined (January 2012) using a cured-in-place polyethylene liner, and the clean water diverted to a new Outfall 003. The remaining lines underlying the TR-2 slab are connected to PS-2 which discharges to the PCB treatment system at the storm water treatment plant (SWTP). Therefore, this investigation area has been removed from planned investigation activities.

2.2 DPT Investigation Procedures

Using a DPT rig, soil borings will be advanced at the manhole and along the storm line at 10-foot intervals to a depth of approximately 2 feet below the storm line invert elevation. Temporary wells will then be installed in each soil boring.

The following describes the general approach that will be used to advance soil borings and install temporary wells at the four manhole investigation areas described in Section 2.1:

- Open the designated manhole and visually evaluate the approximate direction, width, and piping material. EnSafe will measure the depth of the storm line invert from ground surface. This depth will determine the total depth of the soil boring and temporary well.

- A drilling location will be marked/offset approximately 3-feet laterally from the manhole. EnSafe will also mark the center line of the storm line 10 feet upgradient and downgradient of the manhole. The boring location will be offset from the center of the manhole/storm line approximately the radius of the manhole/pipe plus 6 to 12 inches. The offset sample side will be based on field decisions, such as utilities, nearby structures and other PCB data.

- A total of three soil borings converted to temporary wells will be installed at each investigation area described in Section 2.1.

- Once the drilling locations are marked, the drill crew will begin the drilling activities. The DPT drilling rig will drill through the asphalt pavement. Once the subsurface materials are encountered, the DPT drilling rig will advance steel rods containing acetate sleeves that will allow collection of the soil column encountered. The DPT rig is a hydraulically powered soil-probing machine that uses static force and percussion to advance small diameter sampling tools into the subsurface for collecting soil core and groundwater samples. A closed-piston sampling tool with plastic liner will be used for soil sample collection. From the ground surface, the sampler is advanced 48 or 60 inches (depending on the sampling tool length) and retrieved from the borehole with the first sample. The plastic sleeve and soil core are removed, a new sleeve is installed, and the sampler is inserted back down the same hole to collect a sample from the next interval.

- Each DPT boring will be advanced to approximately 2 feet below the storm line invert elevation. The exact depth is dependent upon the size and depth of the storm line and the observed depth to groundwater; however, the maximum depth of each DPT soil boring is not expected to exceed 10 feet.

- The soil column will be evaluated in 2-foot intervals and will be logged into a field notebook. A soil sample will be collected from the 1-foot interval below the piping invert elevation; regardless of the depth groundwater is encountered. If the storm line bedding material serves as a migratory pathway for PCB-containing free-product, then a sample from this

interval will detect it. Samples will be submitted to Accutest Laboratories in Dayton, New Jersey (New York Certification 11791), for Total PCB analysis using USEPA Method 8082. Soil sampling procedures are discussed in further detail in Section 2.3 below.

- A temporary 1-inch diameter monitoring well constructed of polyvinyl chloride (PVC) materials will be installed in the borehole and will be used to observe and measure for free-product and to collect grab groundwater samples at each location for visual observation of free-product. If groundwater is not encountered at or before 10 feet bgs, a temporary well will not be installed.

- The temporary monitoring well will be installed with the DPT rig using a double push rod system of inner and outer rods. One section of inner rod will be fitted with a drive point and inserted into a section of outer rod. The drive point on the inner rod prevents soil from entering the outer rod as the rod string is pushed into the ground. New inner and outer rods are added as the rod string is advanced into the ground. Once the target depth is reached, the inner rods will be removed, leaving the outer rods in place to hold the hole open during temporary well installation.

  If the cohesiveness of the soil allows the hole to stay open when the rods are removed, single rods may be used instead of the dual-rod system. Use of single rods instead of dual rods will expedite temporary well installation.

- The temporary well will consist of 5 feet of 0.010-inch slot well screen and sufficient riser materials to extend to approximately 1-foot above ground surface. Once the temporary well is in place, a sand filter pack will be poured through the rods as they are slowly pulled to approximately 1 foot above the temporary well screen, allowing the sand filter pack to form around the screen.

- After the DPT rods have been pulled above the screened interval, the remaining portion of the hole will be sealed to ground surface with granulated bentonite, which will be slowly poured down the annulus as the rods are pulled from the hole. The bentonite granules in the vadose zone will be hydrated with deionized water. The temporary well will be sealed with a water-tight cap.

- After allowing the temporary well to equilibrate overnight, it will be checked for free-product using an oil-water interface probe. If the previously collected soil sample detects PCBs

above the industrial SCO of 25 mg/kg, or if a visible sheen or NAPL is observed or detected, then a groundwater sample will be collected using a peristaltic pump. Groundwater sampling procedures are described in Section 2.3 below.

2.3 Soil and Groundwater Sampling Techniques

Soil Sampling

The soil column from each boring will be evaluated in 2-foot intervals. The soil column will be split for description purposes and field screening. After the soil has visually inspected and logged, a sample will be placed into a sealable plastic bag or glass jar for approximately 15 minutes. The volatile organic vapor concentration will then be measured from the headspace of each bag or jar using a photoionization detector (PID). The concentrations will be recorded in the field logbook or on soil boring logs for each boring. Descriptions of the soils encountered will also be placed on soil boring logs and/or recorded in the field logbook.

A soil sample will be collected from the 1-foot interval below the piping invert elevation; regardless of the depth groundwater is encountered. If the storm line bedding material serves as a migratory pathway for PCB-containing free-product, then a sample from this interval will detect it. The soil sample will be submitted to Accutest Laboratories in Dayton, New Jersey (New York Certification 11791), for Total PCB analysis using USEPA Method 8082

Groundwater Sampling

After allowing the temporary wells to equilibrate overnight, an oil-water interface probe will be used to measure the depth to water and, should NAPL be observed, the depth to and thickness of the NAPL. If NAPL is observed, a sample will be collected for fingerprint analysis using a dedicated, disposable bailer. Otherwise, if the soil sample submitted for analysis contains Total PCBs at 25 mg/kg or more, then the groundwater sample will be collected from the temporary well using a length of dedicated polyethylene or Teflon tubing attached to a peristaltic pump by which the water can be drawn up into the tubing through the pump head and into the sample container. New tubing will be used for each temporary well groundwater sample collected.

Groundwater samples will be collected if (a) soil concentrations exceed 25 mg/kg, or (b) sheen or free-product are observed. If no groundwater enters the temporary well after a period of time, it will be abandoned and another location will be installed in an attempt to obtain a sample from the general area. Each groundwater sample will be submitted under chain of custody to Accutest Laboratories in Dayton, New Jersey (New York Certification 11791), for Total PCBs using USEPA Method 8082.

Carrier will conduct a one-time sampling of the temporary wells installed during this investigation. Each temporary well will be abandoned in accordance with NYSDEC standards once data has been received and reviewed. After abandonment, each location will be completed with asphalt or soil, seed, and straw to match the surrounding area.

If laboratory analysis indicates PCBs are located in the bedding material or groundwater, then Carrier may conduct further investigation to determine the source of PCBs in the bedding material. The follow-up investigation will not occur during this mobilization, but after existing data and historical information can be reviewed and an appropriate investigation plan can be developed. Upon completion of the follow-up investigation activities, Carrier will evaluate remedial options and make a recommendation on managing bedding material groundwater as part of a comprehensive (focused) CMS.

2.4 Decision Framework

Tables 2-1 and 2-2 summarize some of the actions that may occur in the field for some of the primary possible outcomes. Not all potential findings and paths forward can be summarized in this work plan, and some work stoppage may be necessary to discuss findings with NYSDEC prior to continuing field investigations.

Table 2-1
Paths Forward Based on Soil Sampling

1.	If PCBs are found in soils at concentrations <25 ppm, no further investigative actions are warranted. In this case, Carrier will propose a deed notice, environmental easement, or other mechanism to restrict future use of this area, as necessary.
2.	If PCBs in soils are found at concentrations >25 ppm, then Carrier will conduct further investigation during a second mobilization, as necessary to define extent of PCB impact. Carrier will conduct the follow-up investigation using the same techniques described in Section 2.2. The direction of the investigation (i.e., up the storm line and/or down the storm line) will be determined by the results of this investigation. Carrier will communicate with NYSDEC as analytical data is received so that changes in investigation approach, if necessary, can be discussed.
3.	Upon completion of these investigation activities, Carrier will evaluate remedial options and make a recommendation on managing the PCB-containing soils as part of a comprehensive (focused) CMS.

Table 2-2
Paths Forward Based on Temporary Well Groundwater Sampling

1. If the soil sample results are <25 ppm for PCBs, a groundwater sample from the installed temporary well will not be submitted to the laboratory for Total PCB analysis, unless upon visual inspection, a visible sheen or free-product are noted. If present, a sample of free-product will be obtained for finger-print analysis.

2. If the soil sample results are >25 ppm for PCBs, then a groundwater sample will be collected and submitted to the laboratory for Total PCB analysis, regardless of visual observations.

3. If PCBs are detected in any groundwater sample, the lab will be instructed to filter the sample through a 40-micron filter and re-analyze for dissolved PCBs.

4. If laboratory analysis of groundwater indicates PCB-related NAPL (free-product), then Carrier will conduct further investigation as necessary to define extent of impact. This investigation will not occur during this mobilization, but after existing data and historical information can be reviewed and an appropriate investigation plan can be developed. Upon completion of these investigation activities, Carrier will evaluate remedial options and make a recommendation on managing the PCB-containing soils as part of a comprehensive (focused) CMS.

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3.0 OUTFALL BEDDING MATERIAL INVESTIGATION — TECHNICAL APPROACH

As mentioned above, Carrier historically discharged storm water from its network of storm lines to Sanders Creek via nine outfalls. These outfalls were consolidated into two current outfalls (001 and 002) in 1997 as part of an outfall consolidation project designed to capture and route storm water in the storm lines in Drainage Basins 001 and 002 to an air stripper treatment system in the northeast corner of former Building TR-3. Outfalls 001, 002, 003, and 004 were consolidated into a single outfall at 002 and Outfalls 005, 006, and 007 were similarly consolidated into a single outfall at 001. Outfalls 008 and 009 discharged upgradient of Outfall 001, and were not included in the outfall consolidation project, but were abandoned in place. A historical figure (**Appendix A — 2001 Carrier Former Outfalls Figure**) dated May 3, 2001 indicates the following:

- Outfalls 001, 003 and 004 were abandoned in place, with the storm piping/headwall remaining. The storm piping and headwall at 002 was completely removed. New manholes 9, 10, 11 and 12 were installed as part of the consolidation project. The old storm lines proceeding north from these manholes were terminated outside the new manhole.

- Outfalls 005, 008, and 009 were abandoned in place, while the storm piping and headwall at 006 and 007 were completely removed. Manholes 203 and 181 were terminated in the manhole and capped watertight. The old storm lines proceeding north from manholes 5 and 7A (formerly 181) were terminated outside the new manhole.

Based on this information, Carrier will attempt to locate the former outfalls 003, 004, 005, 008, and 009, and place a temporary well in the bedding material to obtain a groundwater sample. Because former outfalls 008 and 009 are so close to one another, a temporary well will be placed between the former outfalls, in what is assumed to be shared bedding material.

A temporary well was originally planned at former outfall 001. However, recent construction activities related to clean storm water diversion off of the former Building TR-2 footprint included removal of an approximately 10-foot long section of old pipe along the Thompson Road storm line and just north of MH-12. The old line and bedding material was plugged to the north and south truncation so that there is no connectivity between old and new bedding material. Because there is no longer a bedding material migration pathway from the storm line excavation investigation area at MH-12 to former outfall 001, the temporary well originally planned at this location will not be installed.

As mentioned in Section 1.2, Carrier obtained groundwater samples monitoring wells MW-17 and MW-18, which are installed in the bedding material of Outfalls 002 and 001, respectively. Carrier analyzed the groundwater samples from MW-17 and MW-18 for Total PCBs using USEPA Method 8082. The data from this sampling event was submitted to NYSDEC on August 20, 2010, in a report entitled *Corrective Measures Update, Site-Wide Groundwater Monitoring Report (EnSafe, August 2010)*. PCBs were not detected in either sample. No additional sampling of these wells will be performed as part of this investigation.

Temporary Well Installation at Former Outfalls

The following describes the general approach that will be used to install the temporary wells in the bedding material of the abandoned outfalls. It is likely that the outfall piping was laid directly on native soil, and that no granular bedding material (e.g., sand or gravel) was used.

- Field personnel will visually locate former Outfalls 003, 004, 005, 008 and 009. Once located, the drill crew will be instructed on the approximate location and where to begin drilling and temporary well installation activities. A DPT drilling rig will be employed to install the temporary wells. The soil boring will be advanced as close the storm line as possible without making contact, though because the line is abandoned, avoidance of it is not critical.

- At each proposed temporary well location, the soil column will be evaluated at 2-foot intervals from ground surface to groundwater (estimated to be 4 feet bgs). The 2-foot soil sample will be split for description purposes and field screening using a photoionization detector (PID). The maximum depth of each DPT soil boring is not expected to exceed 10 feet as the depth to groundwater is estimated to average approximately 4 feet along the creeks southern edge.

- A temporary 1-inch diameter monitoring well constructed of polyvinyl chloride (PVC) materials will be installed in the borehole and will be used to collect grab groundwater samples at each location. The temporary monitoring wells will be installed with the DPT rig using a double push rod system of inner and outer rods. One section of inner rod will be fitted with a drive point and inserted into a section of outer rod. The drive point on the inner rod prevents soil from entering the outer rod as the rod string is pushed into the ground. New inner and outer rods are added as the rod string is advanced into the ground. Once the target depth is reached, the inner rods will be removed, leaving the outer rods in place to hold the hole open during temporary well installation.

If the cohesiveness of the soil allows the hole to stay open when the rods are removed, single rods may be used instead of the dual-rod system. Use of single rods instead of dual rods will expedite temporary well installation.

- The 1-inch diameter PVC temporary well screen and riser materials will be lowered through the outer rods to the bottom of the hole. The length of well screen will depend on the total depth of the boring, with no less than 5 feet of screen and no more than 10 feet of screen being used. Once the temporary well is in place, a sand filter pack will be poured through the rods as they are slowly pulled to approximately 2 feet above the temporary well screen, allowing the sand filter pack to form around the screen.

- After the DPT rods have been pulled above the screened interval, the remaining portion of the hole will be sealed to ground surface with granulated bentonite, which will be slowly poured down the annulus as the rods are pulled from the hole. The bentonite granules in the vadose zone will be hydrated with deionized water. All temporary wells will be completed flush with ground surface and sealed with water-tight caps. The temporary wells will be abandoned in accordance with NYSDEC regulations, after groundwater results have been received and evaluated.

- After allowing the temporary wells to equilibrate overnight, groundwater samples either will be collected using dedicated, disposable bailers or a peristaltic pump at each temporary well or will be collected using a length of new dedicated polyethylene tubing attached to a peristaltic pump by which the water can be drawn up into the tubing.

- Groundwater samples will be submitted to the laboratory and analyzed for Total PCBs using USEPA Method 8082.

Carrier will conduct a one-time sampling of the temporary wells installed during the scheduled field activities and will abandon the wells in accordance with NYSDEC standards once data has been received and reviewed.

If laboratory analysis indicates PCB in bedding material groundwater, then Carrier may conduct further investigation to determine the source of PCBs in the bedding material. This investigation will not occur during this mobilization, but after existing data and historical information can be reviewed and an appropriate investigation plan can be developed. Upon completion of these investigation activities, Carrier will evaluate remedial options and make a recommendation on managing bedding material groundwater as part of a comprehensive (focused) CMS.

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4.0 HEALTH AND SAFETY PLAN AND IDW

All field activities will be conducted in compliance with the site-specific health and safety plan, to be prepared prior to conducting activities outlined in this work plan. The health and safety plan will be prepared by EnSafe specifically for the activities described herein.

Investigation derived wastes (IDW) generated during the field activities will be placed in Department of Transportation-approved drums, logged, properly labeled, and stored on the site. Analytical data from the investigation will be used for characterization, as practicable.

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Appendix A
2001 Carrier Former Outfalls Figure

Old Outfalls # 001, 003, 004, 005, 008, 009 are abandoned in place (storm piping / headwall still exist

Old Outfalls # 002, 006, 007 storm piping / headwall were completely removed

New MH 7 and existing CB 203 were terminated in manhole and capped watertight

New MH 5, 7A, 9, 10, 11, 12. Old storm lines proceeding north from these M.H were terminated outside new M.H.

Date 5/3/2001
J. Kembrey