Lockheed Martin Corporation
6801 Rockledge Drive MP: CCT-246
Bethesda, MD 20817
Telephone 301-548-2209

June 10, 2016

VIA PRIVATE CARRIER

Ms. Sharon D. Kenny, MEng, PMP, CHMM
U.S. EPA Region III
Land and Chemicals Division
1650 Arch St.
Mail Code 3LC40
Philadelphia, PA 19103

Subject: Transmittal of the Outfall 005 Storm-Drain-Plugging Technical Memorandum for Lockheed Martin Corporation; Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Ms. Kenny:

For your information, please find enclosed two hard copies with CD of the above-referenced document. This report documents the plugging of the Outfall 005 storm-drain line at the Lockheed Martin Middle River Complex in Middle River, Maryland.

Please let me know if you have any questions. My office phone is (301) 548-2209.

Sincerely,

Thomas D. Blackman
Project Lead, Environmental Remediation

Enclosures
cc: (via email without enclosure)
Gary Schold, MDE
Mark Mank, MDE
Tom Blackman, Lockheed Martin
Christine Kline, Lockheed Martin
Norman Varney, Lockheed Martin
Dave Brown, MRAS
Michael Martin, Tetra Tech
Cannon Silver, CDM Smith

cc: (via mail with enclosure)
James Carroll, MDE
Tom Green, LMCPI
Mike Musheno, LMCPI
Doug Mettee, Lockheed Martin MST
John Morgan, LMCPI

cc: (via mail with CD enclosure)
Jann Richardson, Lockheed Martin
Justin Tetlow, MRAS

Lockheed Martin Corporation
6801 Rockledge Drive MP: CCT-246
Bethesda, MD 20817
Telephone (301) 548-2227

June 10, 2016

VIA PRIVATE CARRIER

Mr. James R. Carroll
Program Administrator
Land Restoration Program
Land Management Administration
Maryland Department of the Environment
1800 Washington Boulevard, Suite 625
Baltimore, Maryland 21230

Subject: Transmittal of the Outfall 005 Storm-Drain-Plugging Technical Memorandum for Lockheed Martin Corporation; Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Mr. Carroll:

For your information, please find enclosed two hard copies with CD of the above-referenced document. This report documents the plugging of the Outfall 005 storm-drain line at the Lockheed Martin Middle River Complex in Middle River, Maryland.

Please let me know if you have any questions. My office phone is (301) 548-2227.

Sincerely,

Lynnette Drake
Remediation Analyst, Environmental Remediation

Enclosures
cc: (via email without enclosure)
Gary Schold, MDE
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Dave Brown, MRAS
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Cannon Silver, CDM Smith

cc: (via mail with enclosure)
Sharon Kenny, USEPA
Tom Green, LMCPI
Mike Musheno, LMCPI
Doug Mettee, Lockheed Martin MST
John Morgan, LMCPI

cc: (via mail with CD enclosure)
Jann Richardson, Lockheed Martin
Justin Tetlow, MRAS

Outfall 005 Storm-Drain-Plugging Technical Memorandum Lockheed Martin Middle River Complex 2323 Eastern Boulevard Middle River, Maryland

Prepared for:

Lockheed Martin Corporation

Prepared by:

Tetra Tech, Inc.

June 2016

Michael Martin, P.G.
Regional Manager

Anthony Apanavage, P.G.
Project Manager

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APPENDICES

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LIST OF FIGURES

ACRONYMS

EEPS	Elite Environmental and Petroleum Services, Inc.
Gradeline	Gradeline Construction Company
IRM	interim remedial measure
Lockheed Martin	Lockheed Martin Corporation
MDE	Maryland Department of the Environment
mg/kg	milligram(s) per kilogram
MRC	Middle River Complex
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
RA	right-of-way agreement
RBDAA	risk-based disposal-approval application
SRA	sediment removal action
TCP	traffic control plan
Tetra Tech	Tetra Tech, Inc.
TSCA	Toxic Substances Control Act
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

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Section 1
Introduction

Tetra Tech, Inc. (Tetra Tech) has prepared this *Outfall 005 Storm-Drain-Plugging Technical Memorandum* on behalf of Lockheed Martin Corporation (Lockheed Martin) to document plugging of the Outfall 005 storm-drain line at the Lockheed Martin Middle River Complex (MRC) in Middle River, Maryland. The location of the Middle River Complex is shown on Figure 1-1.

1.1 PURPOSE

The purpose of the work was to plug the Outfall 005 storm-drain pipe with concrete to prevent possibly contaminated upstream sediment from entering a previously cleaned storm-drain system, and prevent it from reaching a previously dredged portion Dark Head Cove. Plugging the drain was supposed to be done in conjunction with the 2014–2015 sediment removal action (SRA); this action removed sediment containing polychlorinated biphenyls (PCBs) from a 1.3-acre area in Dark Head Cove adjacent to Outfall 005 (Tetra Tech, Inc., 2015). However, the storm drain line could not be plugged at the location originally planned (north of Chesapeake Park Plaza), because shallow water and sloughing soil from the excavation were present. Therefore, the concrete plug was installed in the next accessible downstream location at catch basin IL-30A, which is beneath the Chesapeake Park Plaza roadway. This concrete plug will remain in place until a full remedy is implemented to address the Outfall 005 storm drain and contaminated soil in Tax Block E at the Middle River Complex.

Existing piping obstructions currently allow stormwater to accumulate in piping and under the Building D basement floor. Stormwater then infiltrates to groundwater or is slowly released through drain connections to Outfalls 008 and 006. This drainage configuration continues following the plugging of Outfall 005.

1.2 ORGANIZATION

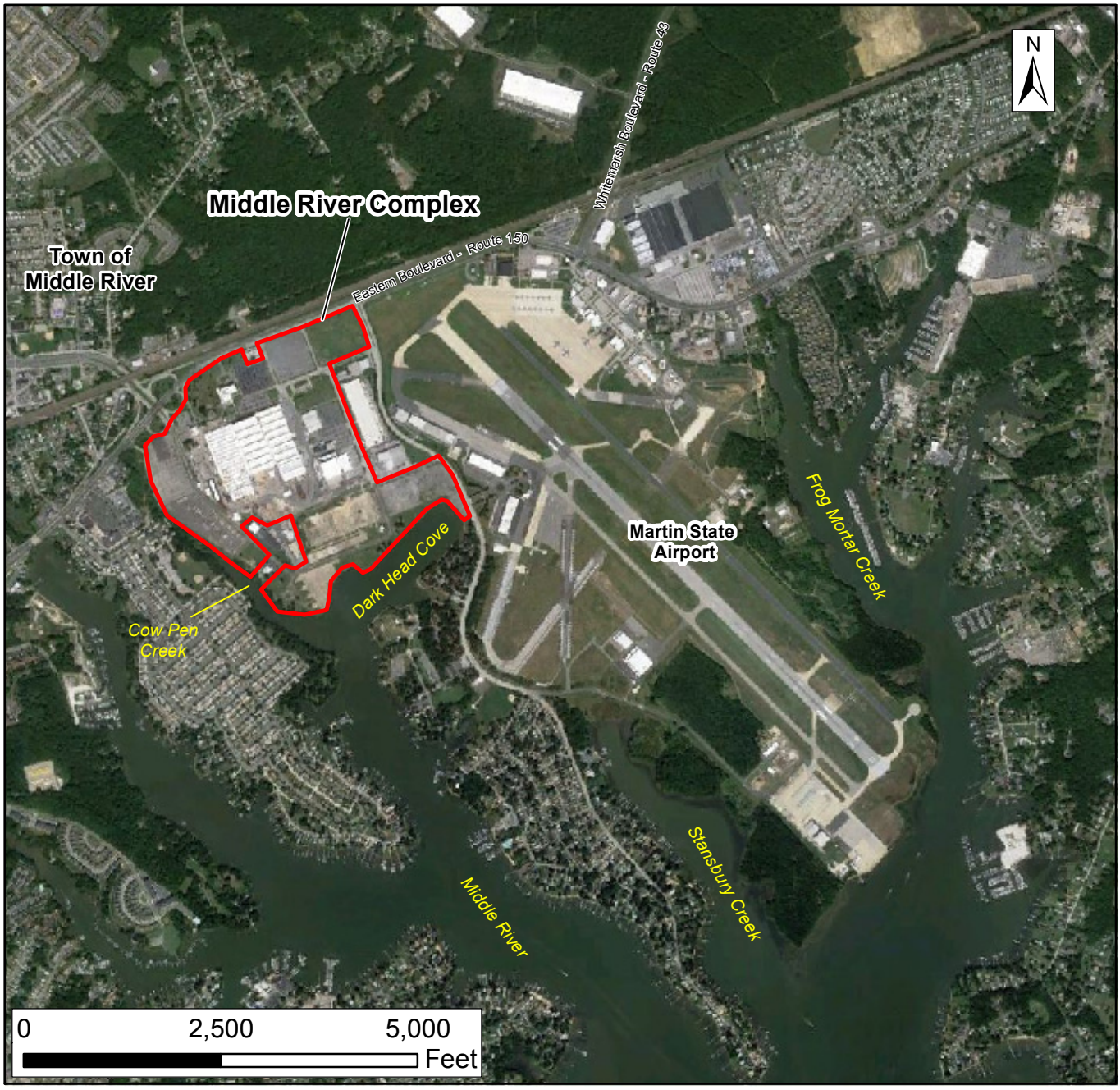
This report is organized as follows:

Section 1—Introduction: Presents the purpose and organization of this technical memorandum.

Section 2—Background: Presents background information for the facility, Outfall 005 sediment, and the storm-drain-plugging task.

Section 3—Storm Drain Plugging: Presents details for the permitting, cleaning, and plugging activities at the Outfall 005 storm drain, and information about site restoration and demobilization.

Section 4—References: Lists references used to compile this report.



Source: Google Earth, 2013

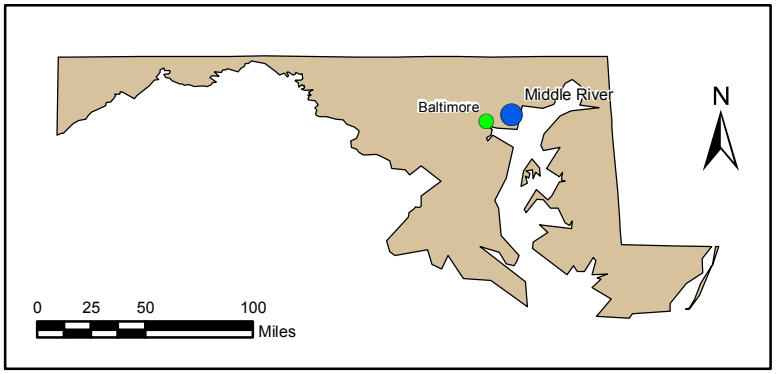


FIGURE 1-1

MIDDLE RIVER COMPLEX LOCATION MAP

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	CREATED BY:
11/26/13	MP

TETRA TECH

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Section 2
Background

The Middle River Complex (MRC) is at 2323 Eastern Boulevard in Middle River, Maryland. The facility is owned by LMC Properties, Inc., and lies approximately 11 miles northeast of Baltimore, Maryland and 3.2 miles upstream of Chesapeake Bay. It consists of multiple land parcels designated as tax blocks (referred to herein as "Blocks"). Currently operating facilities are in Block I; surrounding Block I are the external Blocks A, B, D, E, F, G, and H (Figure 2-1).

2.1 FACILITY

The MRC has been used for aircraft and missile-launching-systems design, development, and manufacturing since the 1940s. Block E (15.97 acres), in the southern portion of the MRC, is the former site of Building D. Building D was built in the early 1940s for final assembly of aircraft frames and was demolished in the early 1970s. The building had an assembly floor (first floor) and a basement; only the relatively intact and partially broken concrete slabs of the basement floor remain (the current concrete slab). Former Building D occupied approximately 400,000 square feet, or half of the total area of Block E. Ceramic tiles overlie the concrete slabs in areas corresponding to the former cafeteria, the cleaning/plating room, and the finishing room. Under the concrete slabs is a network of support footers and pilings.

2.2 OUTFALL 005 SEDIMENT

Sediment in Dark Head Cove and Cow Pen Creek has been impacted by contaminants released from historical industrial activities at the MRC. Since the 1990s, Lockheed Martin Corporation (Lockheed Martin) has been investigating MRC groundwater, soil, concrete, air, and sediment to assess impacts from former industrial operations. Soil, concrete, sediment, and groundwater data collected from Block E indicate that past activities have released polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs), and metals to the surrounding environment. PCBs are the primary contaminants responsible for regulatorily unacceptable health risks in sediment at the MRC. PAHs and metals may have also been released to sediment.

Historical releases of PCBs in Block E have been transported through the MRC storm-drain systems (primarily the Outfall 005 system) and may have resulted in sediment contamination in Dark Head Cove. PCBs likely originated from transformers at former Building D (formerly located in Block E), and were possibly released during historical operations before the early 1970s, and/or may have been released from the former Building D foundation, which was used for storage or management of PCB-containing materials during or after the building's demolition (Tetra Tech, 2013).

A risk assessment indicated regulatorily unacceptable health risks to local fauna, including benthic (sediment-dwelling) invertebrates, fish, and piscivorous (fish-eating) birds. Furthermore, remediation in accordance with Toxic Substances Control Act (TSCA) requirements (40 *Code of Federal Regulations* 761.61[c]) was required for Outfall 005 storm-drain sediment and Dark Head Cove sediment near Outfall 005, because PCB concentrations exceeded the TSCA special-handling and disposal concentration threshold of 50 milligrams per kilogram (mg/kg).

Lockheed Martin completed remedial investigations and feasibility evaluations for sediment remediation between 2005–2013 (Tetra Tech, Inc. [Tetra Tech], 2013). An interim remedial measure (IRM) removal action was implemented in 2011 to remove contaminated sediments from the Outfall 005, Outfall 006, and Outfall 008 storm-drain systems (Tetra Tech, 2012). The Outfall 005 storm-drain system was cleaned from IL-30A to MH-1 and MH-2. The Maryland Department of the Environment (MDE) and United States Environmental Protection Agency (USEPA) approved the proposed remedial approach presented in the feasibility study (MDE, 2013; USEPA, 2013) and allowed Lockheed Martin to begin remedial activities.

The lower part of the Outfall 005 storm-drain system was also cleaned, from the median of Chesapeake Park Plaza to Outfall 005 East and Outfall 005 West in December 2014. A sediment removal action (SRA) in Dark Head Cove (near Outfall 005) was completed in March 2015 (Tetra Tech, 2015). The SRA successfully removed and disposed of sediments above 50 mg/kg, the sediments with the highest PCB content at the MRC. Outfall 005 storm-drain cleaning was also part of the SRA. Figure 2-2 shows the portions of the Outfall 005 storm-drain line cleaned in 2014.

USEPA reviewed the SRA construction completion report and cleanup verification results and acknowledged that Lockheed Martin had completed the Outfall 005 SRA in accordance with the

risk-based disposal-approval application (RBDAA) signed by the USEPA on November 14, 2014 (USEPA, 2015). MDE also approved the document, and acknowledged the successful completion of the SRA in accordance with the approved approach and work plans (MDE, 2015). The SRA cleaned approximately 470 feet of the storm drain that leads to Outfall 005 East and Outfall 005 West, and removed and disposed of approximately 5,300 cubic yards of PCB-contaminated sediment from Dark Head Cove.

The storm-drain line for Outfall 005 was originally scheduled to be plugged as part of the SRA. Plugging the pipe prevents possibly contaminated upstream sediment from entering the cleaned Outfall 005 storm-drain system, thus preventing it from reaching Dark Head Cove. Sediment in accessible portions of the Outfall 005 system upstream of catch basin IL-30 (Figure 2-2) contains PCBs at concentrations up to 780 mg/kg (Tetra Tech, 2014c). This high PCB-concentration area was effectively isolated from the lower reaches of the storm-drain system by blockages in pipe upstream of catch basin IL-30A.

The addition of a plug would fully isolate upstream water and pipe sediment since the drain line upstream of the plug was already completely or nearly completely blocked with debris, cobbles, and sediment. Therefore, permanent plugging was not expected to change the current drainage configuration. Runoff upstream of the plug is conveyed to Dark Head Cove via existing roadside ditches and storm drains connected to Outfall 008. Runoff downstream of the planned plug near Chesapeake Park Plaza would continue to drain to roadside ditches and to IL-30, with runoff in IL-30 discharging to Dark Head Cove via Outfall 005.

An attempt was made to access and construct a concrete plug in the Outfall 005 storm-drain line north of Chesapeake Park Plaza in November 2014. Soil above the drainpipe was excavated, but shallow water was encountered, and soil sloughing along the sides of the excavation prohibited access to the pipe. A commercial-grade inflatable sewer-plug was installed in the pipe upstream of catch basin IL-30 (in the median of Chesapeake Park Plaza) after cleaning in 2014 to prevent water flow and possible PCB-containing sediment from entering the lower portions of the Outfall 005 system until the storm-drain line could be accessed to construct the permanent concrete plug. The inflatable plug was monitored daily for proper air pressure, and the pipe in IL-30 was inspected daily for water leakage around the plug. Air pressure was added to the plug as necessary to maintain the seal. Water leakage was not observed around the plug during the monitoring period.

Catch basin IL-30A (Figure 2-2) was selected as the location to construct the concrete plug for the Outfall 005 system. IL-30A is a storm-drain catch basin and manhole that was paved over during construction of Chesapeake Park Plaza, and is now beneath the roadway pavement. IL-30A was discovered in 2011 via closed-circuit television monitoring during the IRM. IL-30A could not be accessed immediately because Chesapeake Park Plaza is managed and maintained by Baltimore County, and a right-of-way agreement was required to remove the pavement to access the manhole.

On June 24, 2015, a second commercial-grade, inflatable sewer-plug was installed downstream at IL-30, because air pressure in the original, upstream plug was becoming difficult to maintain. Water leakage around the original IL-30 plug was not observed from its initial installation in November 2014 until July 21, 2015, when it deflated. The second (downstream) inflatable plug at IL-30 then captured the leaking water, and was used until the concrete plug installation was completed in the first week of August 2015. Runoff and groundwater seepage that accumulated in IL-30 was monitored daily and pumped out and transferred to a holding tank in Block G.

Town of Middle River

AMTRAK RAILROAD

EASTERN BOULEVARD

MARTIN BLVD.

EXXON GAS STATION

PARKING LOT NO. 4

ATHLETIC FIELD

BLOCK 'B'

CHESAPEAKE PLAZA

POST OFFICE

PARKING LOT NO. 5

BLOCK 'A'

BUILDING "E"

WILSON POINT ROAD

Martin State Airport

ANNEX BUILDING

ENG. DEV. LAB BLDG.

BLOCK 'A'

PARKING LOT NO. 1

BUILDING "M"

BUILDING "P"

BLOCK 'I'

GATE "A"

BUILDING "C"

BUILDING "B"

PROGRAM BUILDING

JOHNSON AND TOWERS

BUILDING "L"

PARKING LOT NO. 2

BUILDING "A"

MAINTENANCE OFFICE AND SHOP

VERTICAL ASSEMBLY BUILDING

DARK HEAD COVE ROAD

PARKING LOT NO. 6

BLOCK 'H'

FIRECOAT BUILDING

FOUR #2 FUEL OIL USTs ABANDONED IN-PLACE

DROP HAMMER BUILDING ACTIVE FIRING RANGE

MAINTENANCE GARAGE

POWER HOUSE

DRUM STORAGE FACILITY

BLOCK 'D'

FLAME CUT

CHESAPEAKE PARK PLAZA

DIE STORAGE

PARKING LOT NO. 3

HAZARDOUS WASTE STORAGE BUILDING

BLOCK 'E'

500,000-GAL. WATER TANK

BLOCK 'G'

CONSERVATION BUILDING

FORMER BUILDING "D"

TRANSFER SHED

TILLEY CHEMICAL COMPANY

FORMER 500-GAL. UST

FIRE PUMP BUILDING WITH 275-GAL DIESEL FUEL AST

FORMER 500,000-GAL. DIESEL FUEL AST

FORMER SEWAGE TREATMENT PLANT

NORTH AMERICAN ELECTRIC

CHESAPEAKE PARK PLAZA

WATERFRONT LOT

DARK HEAD COVE

FORMER AERO PYHSICS LAB./ WIND TUNNEL TEST BUILDING

FORMER HYDRAULIC AND FIELD TEST BUILDING

COW PEN CREEK

SEVEN 1,000-GAL. AVIATION FUEL USTs ABANDONED IN-PLACE

BLOCK 'F'

FORMER TRAINING SCHOOL

FORMER RAMP STORAGE BUILDING

FORMER BOAT HOUSE

FIGURE 2-1

MIDDLE RIVER COMPLEX
SITE LAYOUT AND TAX BLOCKS

LEGEND

- MIDDLE RIVER COMPLEX TAX BLOCK BOUNDARY
- STRUCTURE OR FORMER STRUCTURE
- RAILROAD TRACKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 150 300 600 Feet

N

DATE MODIFIED: 7/26/13

CREATED BY: MP

TETRA TECH

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FIGURE 2-2

OUTFALL 005 STORM DRAIN LOCATION AND 2014 STORM DRAIN CLEANING MIDDLE RIVER COMPLEX

LEGEND

- STORM DRAIN OUTFALL
- MANHOLE
- CATCH BASIN (GRATED INLET)
- STORM DRAIN PIPE
- STORM DRAIN CLEANED DECEMBER, 2014
- TAX BLOCK BOUNDARY

Aerial photograph provided by U.S. Geological Survey.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 30 60 Feet

N

DATE MODIFIED: 11/24/15

CREATED BY: JEE

TETRA TECH

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Section 3
Storm-Drain-Plugging Activities

Storm-drain plugging included:

- obtaining necessary permits and approvals
- locating and marking underground utilities
- controlling traffic
- saw-cutting roadway asphalt and accessing the storm-drain system
- removing accumulated sediment and cleaning the storm-drain system
- constructing the storm-drain plug
- restoring the roadway
- managing investigation-derived wastes (IDW)

3.1 PERMITS AND UTILITIES

Tetra Tech, Inc. (Tetra Tech) completed the *Sediment-Remedy Design, Outfall 005 Sediment Removal Action for Dark Head Cove* (Tetra Tech, Inc., 2014a) and submitted the *Risk-Based Disposal-Approval Application (RBDAA) for the Outfall 005 Sediment Removal Action* (Tetra Tech, Inc., 2014b) to federal and state regulators in November 2014. The RBDAA was approved by Region 3 of the United States Environmental Protection Agency (USEPA) on November 14, and by the Maryland Department of the Environment (MDE) on November 18, 2014. Copies of these documents are in the sediment removal-action construction-completion report (Tetra Tech, 2015).

Lockheed Martin Corporation (Lockheed Martin) requested a right-of-way agreement (RA) from Baltimore County to remove roadway pavement above storm-drain catch basin IL-30A (Figure 3-1). The permit was required because Baltimore County owns and maintains Chesapeake Park Plaza. The RA was approved and executed by Baltimore County on July 15, 2015. The approved RA and supporting documentation are in Appendix A.

Tetra Tech followed Lockheed Martin *Enterprise Operations—28* and Lockheed Martin *Minimum Requirements for Intrusive Fieldwork Work Plans* during excavation and pavement removal. Digging authorization was covered under the ongoing Middle River Complex (MRC) soil remedy tasks. A pre-construction utility-locating survey was conducted by Enviroscan, Inc. before any ground disturbance began to identify possible underground utilities. This survey was completed on July 23, 2015, and identified utilities were marked on the ground using spray paint. These marks were refreshed as required throughout the project duration. Maryland's "Miss Utility" utilities clearinghouse was notified of project activities, and approved the ticket request on July 24, 2015. Permit materials related to intrusive work are in Appendix A.

3.2 TRAFFIC CONTROL

A written traffic control plan (TCP) was developed and implemented for this project. Tetra Tech retained the services of Flagger Force, Inc. to provide traffic control during all phases of the project. Flagger Force is an industry-leading traffic-control and traffic-services training firm. An experienced traffic-control supervisor and two traffic-control flaggers safely routed Chesapeake Park Plaza traffic around the IL-30A work zone. Traffic control was provided each workday (August 3–6) using a combination of advance-warning traffic signs, multiple flagger personnel equipped with SLOW/STOP paddles and two-way radios, and traffic cones. The TCP is in Appendix B.

3.3 SAW CUTTING AND STORM-DRAIN ACCESS

Gradeline Construction Company (Gradeline), a Baltimore County-certified contractor, was retained to complete roadway access and pavement work. Gradeline saw-cut and removed roadway pavement to access the storm-drain system on August 3, 2015. Photographs of this work are in Appendix C. The removed pavement was stockpiled at Block D and disposed of off-site with pavement removed during the Block D soil remedy. The excavation was covered with a steel plate (secured from sliding by asphalt edging) during nonworking hours for the course of the project.

3.4 STORM-DRAIN SEDIMENT REMOVAL AND CLEANING

Elite Environmental and Petroleum Services, Inc. (EEPS) was retained to remove coarse sediment and debris that had accumulated in catch basin IL-30A, and to hydraulically clean the storm-drain pipe from IL-30A to MH-3 (see Figure 3-1). These actions were required to construct a watertight concrete plug. The accumulated sediment at IL-30A was removed manually using buckets, and

transferred to three United States Department of Transportation (USDOT)-approved 55-gallon steel drums. The tops of the drums were sealed and the drums were moved to the concrete pad at the D-Lot drum staging area in Tax Block E for waste characterization and off-site disposal.

Approximately 60 feet of the Outfall 005 storm drain system (from catch basin IL-30A to MH-3) were cleaned using a high-pressure water nozzle to remove residual sediment from the pipes and catch basins. Potable water for hydraulic cleaning was obtained from the project-approved fire hydrant in Chesapeake Park Plaza, north of Tilley Chemical and adjacent to the MRC conservation (i.e., materials recycling) building. The pipe between catch basin IL-30A to IL-30 was cleaned with the IL-30 downstream inflatable plug in place. An inflatable plug was then installed at MH-3, and the storm drainpipe from IL-30 to MH-3 was hydraulically cleaned. Rinsate from the IL-30A to MH-3 cleaning (approximately 500 gallons) was placed in the Block G holding tank; the water pumped from IL-30 after installing the IL-30 downstream plug was also stored in this tank.

The water nozzle used to clean the storm-drain lines was configured with multiple rear-facing water jets. Storm-drain pipe segments were accessed via catch basins IL-30A and IL-30. The water nozzle was inserted into the pipe segment to be cleaned and allowed to self-propel from the point of entry to the end of the pipe segment being cleaned. As the water nozzle was mechanically withdrawn from the pipe segment, high-pressure jets forced sediment back toward the point of entry. Water and residual sediment were removed during jetting via a four-inch-diameter vacuum hose placed in the bottom of the catch basin and connected to the vacuum-truck. Only residual sediment was observed in the rinsate, because this line had been cleaned in 2011 and in December 2014, and sediment at IL-30A had been removed manually before hydraulic cleaning began.

3.5 STORM-DRAIN-PLUG CONSTRUCTION

A concrete slurry plug was constructed in the upstream (i.e., northern) pipe of catch basin IL-30A on August 4, 2015. Fill sand was placed in the upstream pipe before constructing the plug. The concrete plug was allowed to set before placing the grate on the catch basin and restoring the roadway. The plug at MH-3 was removed on August 6 after determining that the concrete plug had set and no leaking water was observed around the concrete plug.

3.6 ROADWAY RESTORATION

After the concrete plug had been installed, the grate cover was placed back over catch basin IL-30A. On August 6, Gradeline restored the pavement over the IL-30 grate to pre-construction conditions, including matching the existing subgrade and the bituminous-concrete base and topcoat to that of the existing roadway. Before paving, the boundary (existing) pavement was cut to provide square edges and a uniform, rectangular, repair area. A geomembrane sheet was placed over the grate to prevent backfill from entering the storm drain. A graded-aggregate base (CR-6) was placed over and around the storm grate area, and mechanically tamped to level the excavation to the existing subgrade. A tack coating was applied to the edges of the boundary (existing) pavement. An initial course of hot-mix asphalt was placed in the roadway repair area and leveled, mechanically tamped, and rolled. A second course of hot-mix asphalt was added, mechanically tamped, and rolled to provide a smooth surface level with the existing roadway. The patch will be maintained by Tetra Tech for one year in accordance with the RA.

3.7 DEMOBILIZATION

Equipment and personnel were demobilized from the site on August 6, 2015. This included the demobilization of staff, vehicles, equipment, and material by Tetra Tech, EEPS, Flagger Force, and Gradeline.

3.8 WASTE MANAGEMENT

Sediment manually removed from the storm drain at IL-30A was collected as IDW in three USDOT-approved 55-gallon steel drums. The drums were stored at an approved central staging area on the facility's D-lot, pending waste-profile sampling results. Approximately 500 gallons of water were removed from the storm-drain segment between IL-30A to MH-3 during cleaning and stored in the Block G holding tank pending waste-profile sampling results.

Clean Harbors Environmental Services, Inc. (a state-licensed and Lockheed Martin-approved waste transporter) sampled the drums with solid IDW and deemed the material TSCA waste because the total PCB concentration was 310 milligrams per kilogram (mg/kg). After the IDW analytical data were received, Clean Harbors removed the three drums of solid IDW, and transported the PCB waste to the Lockheed Martin-approved and TSCA-permitted Clean Harbor's Spring Grove Resource Recovery, Inc. facility in Cincinnati, Ohio, where it was reportedly disposed of in accordance with federal, state, and local regulations.

Clean Harbors sampled the IDW rinse water and deemed it nonhazardous. After the IDW analytical data were received, Clean Harbors removed the IDW rinse water and transported the waste to the Lockheed Martin-approved Clean Harbor Baltimore, Maryland facility, where it was reportedly disposed of in accordance with federal, state, and local regulations. Copies of the waste profiles and approval sheets are in Appendix D.

FIGURE 3-1

OUTFALL 005 STORM DRAIN LOCATION AND 2015 STORM DRAIN CLEANING MIDDLE RIVER COMPLEX

LEGEND

- STORM DRAIN OUTFALL
- MANHOLE
- CATCH BASIN (GRATED INLET)
- STORM DRAIN PIPE
- STORM DRAIN CLEANED AUGUST, 2015
- DEBRIS AND SEDIMENT BLOCKAGE
- TAX BLOCK BOUNDARY

Aerial photograph provided by U.S. Geological Survey.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 30 60 Feet

N

DATE MODIFIED: 12/17/15

CREATED BY: JEE

TETRA TECH

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\blocks_ef_storm_line_inspection_aug2015_alt.mxd)
12/17/15 -- JEE

Section 4
References

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2. Maryland Department of the Environment (MDE), 2015. E-mail correspondence to Mr. Tom Blackman, environmental restoration project lead, Lockheed Martin Corporation. "Subject: *EXTERNAL: Lockheed/Construction Completion Report, Outfall 005 Sediment Removal Action (June 2015),* Lockheed Martin Middle River Complex." September 3.

3. Tetra Tech, Inc. (Tetra Tech), 2012. *Block E Storm-Drain System Interim Remedial Measures Final Site Remediation Report, Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland*. Report prepared for Lockheed Martin Corporation, Bethesda, Maryland by Tetra Tech, Inc., Germantown, Maryland. September.

4. Tetra Tech, Inc. (Tetra Tech), 2013. *Feasibility Study for the Remediation of Sediments Adjacent to Lockheed Martin Middle River Complex*. Report prepared for Lockheed Martin Corporation, Bethesda, Maryland by Tetra Tech, Inc., Germantown, Maryland. July.

5. Tetra Tech, Inc. (Tetra Tech), 2014a. *Outfall 005 Sediment-Removal-Action Design Report, Dark Head Cove Sediment, Lockheed Martin Middle River Complex, Middle River, Maryland*. Report prepared for Lockheed Martin Corporation, Bethesda, Maryland by Tetra Tech, Inc., Germantown, Maryland. November.

6. Tetra Tech, Inc. (Tetra Tech), 2014b. *Risk-Based Disposal-Approval Application (RBDAA) for PCB-Contaminated Sediment Outfall 005 Sediment Removal Action at the Middle River Complex, Middle River, Maryland*. Report prepared for Lockheed Martin Corporation, Bethesda, Maryland by Tetra Tech, Inc., Germantown, Maryland. November.

7. Tetra Tech, Inc. (Tetra Tech), 2014c. *Storm-Drain System Sediment-Sampling Report, Sediment, Middle River Complex and Martin State Airport, Middle River, Maryland*. Report prepared for Lockheed Martin Corporation, Bethesda, Maryland by Tetra Tech, Inc., Germantown, Maryland. August.

8. Tetra Tech, Inc. (Tetra Tech), 2015. *Construction Completion Report: Outfall 005 Sediment-Removal Action, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland*. Report prepared for Lockheed Martin Corporation, Bethesda, Maryland by Tetra Tech, Inc., Germantown, Maryland. June.

9. United States Environmental Protection Agency (USEPA), 2013. Letter correspondence to Mr. Tom Blackman, environmental restoration project lead, Lockheed Martin Corporation. "Re: Final Feasibility Study (FS) for the Remediation of Sediment Adjacent to Lockheed Martin Middle River Complex." May 15.

10. United States Environmental Protection Agency (USEPA), 2015. Letter correspondence to Mr. Tom Blackman, environmental restoration project lead, Lockheed Martin Corporation. "Re: *Construction Completion Report: Outfall 005 Sediment Removal Action, Lockheed Martin Middle River Complex*." October 9.

APPENDIX A—PERMITS AND APPROVALS

KEVIN KAMENETZ
County Executive

EDWARD C. ADAMS, JR., *Director*
Department of Public Works

July 24, 2015

MR. JACK GAYLORD
LOCKHEED MARTIN CORPORATION
100 SOUTH CHARLES STREET
SUITE 1400
BALTIMORE, MD 21201

RE:	**Contract No.**	**15094 RA0**
	Job Order No.	210-205-5560
	Description of Work:	Lockheed Martin Outfall 005 Plug
	District No.	15 c 6
	Location:	Map 4702 F-9 or 38 D-7

This letter is your authorization to proceed within fifteen (15) calendar days with the work covered under the referenced contract. Please contact the Division of Construction Contracts Administration if there is any change with your project management in regard to this project, which differs from the pre-construction meeting.

As per the UA or RA Agreement you have signed, the project work must be completed by a pre-qualified contractor.

Your cooperation with those listed below, who are receiving a copy of this letter, will help expedite the execution of this project in an orderly manner. If you have any questions concerning this, please call (410) 887-3531.

Sincerely,

for Vincent G. Kicas, Chief
Division of Construction Contracts Administration

VGK:JSP:mkm

c: Councilwoman Cathy Bevins, County Council (2 Copies)
Sediment Control
Solid Waste Mgmt. – Michael Beichler
MOSH Inspection
Bureau of Highways – Tom Hargis
Contracts Section
Project File
Chief Inspector – Petr
Contractor – Gradeline Constr

Kevin Kamenetz
County Executive

Arnold Jablon
Deputy Administrative Officer &
Director, Department of Permits,
Approvals & Inspections

July 16, 2015

Tetra Tech
ATTN: Fred Kolberg
20251 Century Blvd, Suite 200
Germantown, MD 20874

Re: Lockheed Martin Outfall-005 Plug
JO# 210-205-5560
Agreement #: 15094-RAO

Dear Fred Kolberg:

The packet has been approved and sent to DPW for contract. Attached are the original signed exhibits.

Any questions please don't hesitate to contact me.

Kindest Regards,

Jerry Chen, Project Manager
Development Management
410-887-3321
jchen@baltimorecountymd.gov

c: file

Kevin Kamenetz
County Executive

Arnold Jablon
Deputy Administrative Officer &
Director, Department of Permits,
Approvals & Inspections

July 15, 2015

Lockheed Martin Corporation
By LMC Properties, Inc.
ATTN: Jack Gaylord, V.P.
100 South Charles St., Suite 1400
Baltimore, MD 21201

RE: Lockheed Martin Outfall 005 Plug
Agreement #: 15094-RAO
Job Order #: 210-205-5560
Drawing #: Figure 1, 2, 3

Dear Mr. Jack Gaylord:

This office has received the following items with regard to construction of road improvements at the referenced site:

1. Agreement number 15094-RAO, an executed copy of which is enclosed;

2. A check in the amount of $751.68 for inspection fees. This amount represents 8% of the approved estimated cost of improvements; and

3. A check in the amount of $14,296.00 for security deposit. Enclosed is receipt # 126851 for your records.

This project is covered by the above referenced Baltimore County construction drawing and construction shall be as approved by Baltimore County on this drawing. Operations shall not begin until the Division of Construction Contracts Administration (DCCA) has been notified. Your contractor is hereby advised to call the DCCA at (410) 887-3531 for issuance of a Notice to Proceed.

Please be advised that prior to the return of the security you must:

1. Prepare and submit as-built construction drawing(s). Notify your engineer as soon as the improvements covered by this agreement are complete; and

2. Complete a one-year maintenance period to the satisfaction of Baltimore County.

PLEASE SEE THE ATTACHED DOCUMENTS RELATED TO THE PREPARATION OF DEEDS.

Should you require additional information, please call Jerry Chen at (410) 887-3321.

Sincerely,

Jan M. Cook
Development Manager
Development Management

JMC:jsc
Enclosure

c: Gradeline Construction Co, Inc.
Vincent Kicas
Dennis Kennedy
File

BALTIMORE COUNTY

DEPARTMENT OF PERMITS APPROVALS AND INSPECTIONS

RIGHT-OF-WAY IMPROVEMENT AGREEMENT

for projects not requiring a public works agreement

Project Name: Lockheed Martin Outfall 005 Plug
RA No. 15094-RAO
PAI No.: n/a
DATE: 7/10/15
Job Order No.: 210-205-5560
Plat Reference(s): 51/43
Total Estimated Cost: $12,996.00
Security Required: $ $14,296.00
NAME OF APPLICANT: Lockheed Martin Coporation

WHEREAS, the named Applicant desires to construct and install, at no cost to the County, all of the improvements located within the referenced project, the same being more fully outlined in Exhibit A which is attached hereto and made a part hereof,

WHEREAS, in accordance with the applicable provisions of the Baltimore County Code and Department of Permits Approvals and Inspections (PAI) Construction Policy Manual, PAI has this received and approved the cost estimates and construction drawings for the improvements covered in right-of-way agreement. PAI has also received all fees applicable to the improvements covered by this right-of-way improvement agreement.

WHEREAS, the Applicant is requesting authorization to proceed with construction of improvements covered herein.

NOW THEREFORE, in consideration of the foregoing and in order to obtain the County's approval for the Applicant to proceed with construction of the improvements, the Applicant confirms its understandings and obligations as follows:

1. With respect to the improvements covered by this right-of-way improvement agreement:

a. The Applicant shall install at its own expense all facilities in said property as shown on the approved construction drawings referenced herein.

b. The Applicant shall perform all work covered by this right-of-way improvement agreement in accordance with the provisions of the PAI Construction Policy Manual and the Department of Public Works (DPW) Standard Specifications and Details for Construction.

c. All work shown on the approved construction drawings shall be performed by a prequalified Baltimore County contractor.

d. Prior to beginning any work covered by this Agreement, the Applicant shall:

1. Schedule an on-site pre-construction meeting with DPW, the Department of Environmental Protection and Sustainability (DEPS) and the prequalified contractor. At this time the Applicant shall provide, in writing to DPW, the name, address and phone number of an authorized site representative.

2. Provide to DPW the pre-qualified contractor's certificate of insurance on a form provided by the County.

3. Obtain a written "notice to proceed" from DPW.

e. The Applicant shall deliver security to PAI as required in Baltimore County Code Section 32-4-312.

f. The County will inspect all phases of construction for which the Applicant has paid the County an inspection fee at a rate of 8% of the approved estimate. It is expressly understood, however, that any inspections performed are solely for the benefit and protection of the County, and that no duty of care is owed to the Applicant, or the Applicant's contractors, customers or purchasers.

2. Notwithstanding any other provisions of this Agreement, the Applicant acknowledges that:

a. No building permits may be issued until required security has been delivered to and approved by the County.

b. Any reductions to security will be made in accordance with the Baltimore County Code Section 32-4-313.

c. Any failure of the Applicant or its contractor to fully comply with any part of this Agreement may cause the issuance of a stop work order by DPW or PAI subject to all relevant provisions of the Baltimore County Code, including but not limited to Article 3, Title 6. The Applicant may also be cited for nonperformance under Section 32-4-309 of the County Code.

d. Any written stop work order, whether posted on the work site, hand-delivered, mailed, or sent by fax to the Applicant, Applicant's contractor, or the Applicant's designated authorized representative named in this right-of-way improvement agreement shall constitute sufficient and adequate service of such stop work order under Section 32-4-305(c) of the County Code, and the Applicant expressly agrees to the adequacy and sufficiency of such service.

e. Upon receipt of any stop work order(s) from the County, the Applicant shall stop work, and cause its independent contractors to stop work, and shall not resume any work thereafter until expressly authorized in writing by the County.

f. In the event of nonperformance, the County may utilize the security in accordance with the Baltimore County Code Section 32-4-309.

3. This right-of-way improvement agreement is not intended to waive or supersede any of the Applicant's obligations under any plat of record, or under applicable law and policies of the County. This right-of-way improvement agreement is not in tended to create or impose any new obligations upon the County.

4. In the event Applicant seeks to construct improvements within any County-owned easement, based upon construction drawings approved by the Department of Public Works, County hereby authorizes and approves a right of entry to Applicant and its agents to perform said improvements thereon.

5. The Applicant shall protect, hold free and harmless, defend and indemnify Baltimore County (including its officers, agents and employees) from all liability, losses, damage, expenses, causes of action, claims or judgments resulting from injury to, or death of, any person or damage to property of any kind, which injury, death or damage arises out of, or is in any way connected with the performance of work under this agreement or the County's grant of the right of entry herein; except that this agreement shall not be applicable to injury, death or damage to property arising from the sole negligence of Baltimore County, its officers, agents and employees.

6. The pre-printed form of this right-of-way improvement agreement is intended to repeat, verbatim, the language contained in the master right-of-way improvement agreement form, revision dated 10/1/2004, maintained by the Director of PAI for the County. Any inconsistencies between this form and the master form shall be resolved in favor of the master form.

FOR APPLICANT:

WITNESS the signatures of: Jack Gaylord, Vice President of LMC Properties, Inc., acting in its capacity as Attorney-In-Fact for Lockheed Martin Corporation

I AFFIRM THAT I HAVE REVIEWED THIS AGREEMENT AND THE ATTACHED EXHIBIT A AND UNDERSTAND THAT SECURITY IS REQUIRED IN ACCORDANCE WITH THE BALTIMORE COUNTY CODE SECTIONS 32-4-305, 32-4-312 AND 32-4-313.

*(please **type** name of company/corporation/partnership above signature line and the name and title of person signing below signature line)*

Lockheed Martin Corporation by LMC Properties,Inc
Attorney-In-Fact Under Irrevocable Power of Attorney Effective July 28, 2010

Date 7/10/2015

Signed _____ (Seal)

Mr. Jack Gaylord Vice President LMC Properties,Inc.

Witness _____
Nicole Collins

Address **100 South Charles Street, Suite 1400**
Baltimore, Maryland 21201

Phone: **410.468.1037**

RECOMMENDED FOR SCHEDULING OF PRE-CONSTRUCTION MEETING AND NOTICE TO PROCEED UPON APPROVAL OF DPW AND DEPS

By _____ 7/15/15
For Director of Permits Approvals and Inspections DATE

RIGHT-OF-WAY IMPROVEMENT AGREEMENT
EXHIBIT A

PROJECT NAME **Lockheed Martin Outfall 005 Plug**
RIGHT-OF-WAY IMPROVEMENT AGREEMENT NUMBER **15094-RAO**

ESTIMATES

IMPROVEMENTS	DRAWING NUMBERS	ESTIMATED COSTS
Please check off below the improvements covered in this agreement		
___ Sewer Mains ___ Connections		
number of sewer connections		
___ Water Mains ___ Services		
number of water connections ___ size		
number of water connections ___ size		
number of water connections ___ size		
___ Storm Drains		
✓ Roads	N/A 1, 2, 3	$9396.00
Subtotal (Estimated costs subject to inspection fees)		$ $9396.00
Required Inspection Fees (8% of subtotal)	$ 751.68	
___ Sidewalks		
✓ Mobilization, Maint. Of Traffic, Stakeout		$3600.00
___ Landscaping		
___ Streetlights		
___ Other (list)		
TOTAL - ESTIMATED COSTS SUBJECT TO SECURITY		$ 12,996.00
Required Security (110% of Total)	14,296.00	
Pre-qualification work classification(s):	A-2	

Construction Drawings and Cost Estimates are Approved as Shown on this Exhibit

Dennis A. Kennedy 6/17/15
Supervisor, PAI Developers Plans Review
DAK

Names of Streets and Addresses of Lots Covered by this Agreement:

Lockheed Martin Corporation
195 Chesapeake Park Plaza
Middle River, Maryland 21220

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 6/30/2015

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
HMS Insurance Associates, Inc.
20 Wight Ave Suite 300
Hunt Valley MD 21030

CONTACT NAME: Karen Carmen
PHONE (A/C, No, Ext): 443-632-3371 **FAX (A/C, No):** 443-632-3497
E-MAIL ADDRESS: kcarmen@hmsia.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Selective Way Insurance Company	26301
INSURER B : Continental Casualty Company	35289
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
GRADCON-01
Gradeline Construction Co. Inc
P.O. Box 374
Brooklandville MD 21022

COVERAGES **CERTIFICATE NUMBER:** 648742016 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			S 1358993	2/25/2015	2/25/2016	EACH OCCURRENCE	$1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$500,000
							MED EXP (Any one person)	$15,000
							PERSONAL & ADV INJURY	$1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$3,000,000
	POLICY X PRO-JECT X LOC						PRODUCTS - COMP/OP AGG	$3,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY			S 1358993	2/25/2015	2/25/2016	COMBINED SINGLE LIMIT (Ea accident)	$1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS / NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
B	X UMBRELLA LIAB X OCCUR			6011979582	2/25/2015	2/25/2016	EACH OCCURRENCE	$6,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$6,000,000
	DED RETENTION $							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N			WC 40207	2/25/2015	2/25/2016	X PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N/A						E.L. EACH ACCIDENT	$500,000
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$500,000
							E.L. DISEASE - POLICY LIMIT	$500,000
A	Leased/Rented Equipment Auto - Physical Damage			S 1358993	2/25/2015	2/25/2016	$1,000 ded $100 comp/$500 coll	350,000 125,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

RE: Baltimore County Maryland are included as additional insureds on the General Liability policy in regards to ongoing and completed operations if required by written contract. 30 days notice of cancellation has been issued to the policies.

CERTIFICATE HOLDER

Baltimore County Maryland Department of Permits and Development Management
111 W. Chesapeake Avenue
COB Room 125
Towson MD 21204

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

LMC PROPERTIES, INC.
SECRETARY'S CERTIFICATE

RE: Right-of-Way Improvement Agreement between Lockheed Martin Corporation, a Maryland corporation, as applicant, and Baltimore County, Department of Permits, Approvals and Inspections, RA No. 15094RAO, Job Order No. 210-205-5560, Plat Reference 51/43.

I, Mark Kapelanczyk, hereby certify that I am a duly appointed, qualified and acting Assistant Secretary of LMC Properties, Inc., a Maryland corporation, and that I am authorized to execute and deliver this Certificate on behalf of the LMC Properties, Inc. I further certify that:

1. LMC Properties, Inc. is a wholly-owned subsidiary of Lockheed Martin Corporation, a Maryland corporation.

2. That attached is a true and correct copy of the Power of Attorney Effective July 28, 2010 from Lockheed Martin Corporation to LMC Properties, Inc., as recorded in the Circuit Court for Montgomery County, Maryland, a certified copy of which was recorded among the Land Records of Baltimore County, Maryland ("***Power of Attorney***").

3. The Power of Attorney is in full force and effect and has not been further amended or rescinded.

4. That LMC Properties, Inc. has the power and authority to execute by and on behalf of Lockheed Martin Corporation all agreements, documents, instruments and other writings supporting the transaction referenced above pursuant to the terms of the Power of Attorney.

5. The following person has the delegated authority in his capacity as Vice President and Assistant Secretary to execute the documents supporting the transaction referenced above pursuant to the Delegation of Authority adopted by the Board of Directors of the LMC Properties, Inc. on August 18, 2014:

Jack Gaylord - Vice President and Assistant Secretary

Specimen Signature: _____

WITNESS my and seal of the Corporation, this 9th day of July, 2015.

LMC PROPERTIES, INC.

BY: _____
Mark Kapelanczyk
Assistant Secretary

EXHIBIT A

CERTIFIED COPY OF POWER OF ATTORNEY

0032516 089

IN THE RECORDS OF THE CIRCUIT COURT

FOR MONTGOMERY COUNTY, STATE OF MARYLAND,

AMONG OTHER PROCEEDINGS

IS THE FOLLOWING, TO WIT:

0032516 084

39726 001

2010 AUG 10 P 1:29

FILED
LORETTA E. KNIGHT
CLERK'S OFFICE
MONTGOMERY CO MD.

Irrevocable Power Of Attorney by Lockheed Martin Corporation

RECORDING FEE 20.00
TOTAL 20.00
Rcpt # 32956

This Power of Attorney by Lockheed Martin Corporation (the "Corporation") effective as of July 28, 2010, is to facilitate and enable LMC Properties, Inc. ("LMCPI") to handle various business transactions as more specifically set forth below, including but not limited to real estate matters on behalf of the Corporation.

Scope:

JLE BC Blk # 601
Sep 06, 2012 03:10 PM

LMCPI is a wholly owned subsidiary of the Corporation expressly formed by the Corporation to serve as the primary real estate unit and service arm for the Corporation in managing the real estate affairs of the Corporation and its affiliated and subsidiary companies. Subject only to the $30,000,000 monetary limitation (per transaction) set forth on Page 2 hereof, this Power of Attorney pertains to all real estate transactions and related matters involving the Corporation, specifically including but not limited to acquisitions and divestitures of fee and leasehold interests and matters incidental thereto, building construction and modification, building and facilities management and other real property improvements and other matters identified below. This Power of Attorney is further intended to be coextensive with the charter to conduct business as internally granted by the Corporation to LMCPI. To accomplish the foregoing objective, it is intended to be liberally construed and to independently operate as a legally binding enabling document for LMCPI to act as attorney-in-fact for the Corporation for various business transactions involving real estate matters of every kind or nature, without the need for further action or documentation to evidence its authority, upon which third parties may unequivocally rely without prejudice or further inquiry.

Now Therefore, pursuant to the Lockheed Martin Corporation Delegation of Authority, the Corporation hereby and by these presents does make, constitute and appoint LMCPI as its true and lawful agent and attorney-in-fact to act in the name of and on behalf of the Corporation in respect to various business matters as described herein and as provided in the charter granted by the Corporation to LMCPI, including but not limited to any real estate related transaction. Without limiting the foregoing scope, to:

RECORDING FEE 20.00
TOTAL 20.00
Rcpt # 55925
LEK MVE Blk # 2134
Aug 18, 2010 01:26 PM

- buy and sell real property and fixtures and personalty related thereto;
- improve, develop, subdivide, re-zone and develop real property;
- lease, as a landlord, and lease or sublease as a tenant;
- negotiate and execute deeds, easements, leases, licenses and all other ancillary documents to support the foregoing activities;

- negotiate and execute letters of intent, purchase agreements, option agreements, security agreements, indemnity agreements, brokerage agreements, construction or demolition agreements, real estate partnership or joint venture agreements, utility agreements, consulting agreements, service agreements and maintenance or repair agreements;

- procure equipment, furniture, fixtures, accessories and supplies;

- engage in the management of real property and related improvements, perform and manage the construction of buildings, building improvements or other infrastructure and to procure the services of third parties to engage in such activities;

- execute documentation supporting the obtainment of economic development incentives from governmental agencies and development organizations that involve the use of real property and/or improvements, including term sheets, letters of intent, leases and other ancillary documents;

- litigate, arbitrate or settle disputes and enter into settlement or compliance agreements of every kind and nature pertinent to all activities authorized herein and pertaining to the ownership, lease or other use of real property including quiet title, default actions, condemnation proceedings, unlawful detainer, breach of contract, and tax protests;

- do such other things and make such other related commitments, as it deems necessary or appropriate in its sole discretion, including retaining architects, engineers and legal counsel, authorizing surveys and environmental assessments and remediation, obtaining permits and executing and delivering all instruments and documents including acknowledgements, consents and other agreements, undertakings and indemnities, and to take such further action as may be necessary or convenient in order to carry out the intent and purpose of the foregoing powers.

The authority conferred hereby: (i) is granted to the President of LMCPI, whose authority is limited to any single transaction having a monetary consideration or price not exceeding THIRTY MILLION DOLLARS ($30,000,000), and (ii) may be further delegable by written delegation from the President of LMCPI to any duly authorized employee of LMCPI within the monetary limitation set forth herein for any single transaction.

Agreements, documents, instruments and other writings executed by LMCPI as the designated attorney-in-fact for the Corporation shall be binding upon the Corporation and all acts of LMCPI under this Power of Attorney from and after the effective date hereof shall be deemed the acts of the Corporation. This Irrevocable Power of Attorney and the authority of LMCPI as the designated attorney-in-fact shall be effective as of July 28, 2010.

0032516 0006

39726 003

Delivery of facsimile photocopies of this executed Power of Attorney (bearing an actual reproduction of the below handwritten signatures) is expressly authorized and any such photocopy may be relied upon by a third party without prejudice or further inquiry with such facsimile stipulated and deemed the legal equivalent of and having the same evidentiary status as the original.

IN WITNESS WHEREOF, Lockheed Martin Corporation has caused this Power of Attorney to be granted by the authority granted by its Board of Directors.

Dated this 3 day of August, 2010.

Attest: Maritza Cordero

Name: Maritza Cordero
Title: Assistant Secretary

By: Lillian M. Trippett

Name: Lillian M. Trippett
Title: Vice President, Corporate Secretary and Associate General Counsel

STATE OF MARYLAND)
COUNTY OF MONTGOMERY), SS:

On this 3rd day of August, 2010, before me, personally appeared Lillian M. Trippett, to me personally known, who being duly sworn, did depose and say that she is the Vice President, Corporate Secretary and Associate General Counsel of Lockheed Martin Corporation; and that she signed her name thereto by authority of the Board of Directors of said Corporation.

Nancy Leah Worley
Notary Public

My commission expires: 2/04/2013

NANCY LEAH WORLEY · NOTARY PUBLIC · MONTGOMERY COUNTY

Return To:
Theresa B. Shea, Vice Pres & General Counsel
LMC Properties, Inc.
100 S. Charles Street, Suite 1400
Baltimore, MD 21201

00325[illegible] 000

STATE OF MARYLAND

COUNTY OF MONTGOMERY, to wit:

I HEREBY CERTIFY that the foregoing is a full, true and correct copy of a

Power of Attorney

Recorded August 10, 2010 at 1:29 P.M.

In Liber 39726, Folio. 001, Int. L.E.K, Case #

of the Land Records of Montgomery County, Maryland.

IN TESTIMONY WHEREOF, I hereunto subscribe my name and affix the Seal of the Circuit Court for MONTGOMERY COUNTY, MARYLAND, this 28th day of August, 2012

Loretta E. Knight

Loretta E. Knight
Clerk of the Circuit Court for Montgomery County

STATE OF MARYLAND
Department of Assessments and Taxation

I, PAUL B. ANDERSON OF THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION OF THE STATE OF MARYLAND, DO HEREBY CERTIFY THAT THE DEPARTMENT, BY LAWS OF THE STATE, IS THE CUSTODIAN OF THE RECORDS OF THIS STATE RELATING TO THE FORFEITURE OR SUSPENSION OF CORPORATIONS, OR THE RIGHTS OF CORPORATIONS TO TRANSACT BUSINESS IN THIS STATE, AND THAT I AM THE PROPER OFFICER TO EXECUTE THIS CERTIFICATE.

I FURTHER CERTIFY THAT LOCKHEED MARTIN CORPORATION, INCORPORATED AUGUST 29, 1994, IS A CORPORATION DULY INCORPORATED AND EXISTING UNDER AND BY VIRTUE OF THE LAWS OF MARYLAND AND THE CORPORATION HAS FILED ALL ANNUAL REPORTS REQUIRED, HAS NO OUTSTANDING LATE FILING PENALTIES ON THOSE REPORTS, AND HAS A RESIDENT AGENT. THEREFORE, THE CORPORATION IS AT THE TIME OF THIS CERTIFICATE IN GOOD STANDING WITH THIS DEPARTMENT AND DULY AUTHORIZED TO EXERCISE ALL THE POWERS RECITED IN ITS CHARTER OR CERTIFICATE OF INCORPORATION, AND TO TRANSACT BUSINESS IN MARYLAND.

IN WITNESS WHEREOF, I HAVE HEREUNTO SUBSCRIBED MY SIGNATURE AND AFFIXED THE SEAL OF THE STATE DEPARTMENT OF ASSESSMENTS AND TAXATION OF MARYLAND AT BALTIMORE ON THIS JULY 07, 2015.

Paul B. Anderson

Paul B. Anderson
Charter Division

301 West Preston Street, Baltimore, Maryland 21201
Telephone Balto. Metro (410) 767-1340 / Outside Balto. Metro (888) 246-5941
MRS (Maryland Relay Service) (800) 735-2258 TT/Voice
Fax (410) 333-7097

crblnk

R9630748

LOCKHEED MARTIN OUTFALL 005 PAVEMENT REPAIR AND STORM DRAIN PLUG PLAN
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
195 CHESAPEAKE PARK PLAZA
MIDDLE RIVER, MARYLAND

MIDDLE RIVER, MARYLAND, GOOGLE EARTH 2013

PROJECT LOCATION MAP

SCALE: 1"=1000'

DATUM:
HORIZONTAL=MARYLAND STATE PLANE 1983
VERTICAL= NAVD 88

1000 2000
SCALE IN FEET

DATUM:
HORIZONTAL=MARYLAND STATE PLANE 1983
VERTICAL= NAVD 88

PROJECT VICINITY MAP

NOT TO SCALE

RECEIVED
JUN 11 2015
Development Plans Review
Department of Permits, Approvals and Inspections

DRAWING INDEX

SHEET NO.	SHEET TITLE
FIGURE 1	PAVEMENT REPAIR PLAN FOR OUTFALL 005 STORM DRAIN PLUG
FIGURE 2	OUTFALL 005 STORM DRAIN PLUG PLAN
FIGURE 3	OUTFALL 005 STORM DRAIN PLUG DETAIL

NOTES: THIS CONTRACT IS FOR THE PUBLIC PAVING REPAIR ONLY

1. ALL WORK IN THE COUNTY ROADWAY SHALL BE RESTRICTED TO THE HOURS OF 9:00 AM TO 3:00 PM.
2. 48 HOURS PRIOR TO BEGINNING WORK:
   - 2.1. MAKE ALL NOTICES REQUIRED BY SPECIFICATION GP-7.17
   - 2.2. CONTACT THE CONSTRUCTION CONTRACTS ADMINISTRATION DIVISION 410.887.3531 TO ARRANGE FOR INSPECTION.
3. ALL WORK, INCLUDING BUT NOT LIMITED TO INSTALLATION, TRAFFIC CONTROL AND REPAVING, IS TO BE ACCOMPLISHED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION OF THE DEPARTMENT OF PUBLIC WORKS.
4. ALL WORK IS TO BE PERFORMED BY A UTILITY CONTRACTOR WHO IS PRE-QUALIFIED BY THE BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS.
5. NOTIFY MISS UTILITY AT 1.800.257.7777, 72 HOURS PRIOR TO BEGINNING WORK.
6. THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES.

PROJECT NAME: LOCKHEED MARTIN OUTFALL 005 PLUG
ADDRESS: 195 CHESAPEAKE PARK PLAZA
DISTRICT: 15
CONTRACT NO.: 15094 RAO
JOB ORDER: 210-205-5560
COUNCIL DISTRICT: 6

APPROVED
6-12-15
DEPS

TETRA TECH
www.tetratech.com
20251 CENTURY BLVD. GERMANTOWN, MD, 20874
T: (301) 528-5552 | F: (301) 528-3000

STATE OF MARYLAND — SCOTT A. NEWMAN — 29015 — PROFESSIONAL ENGINEER

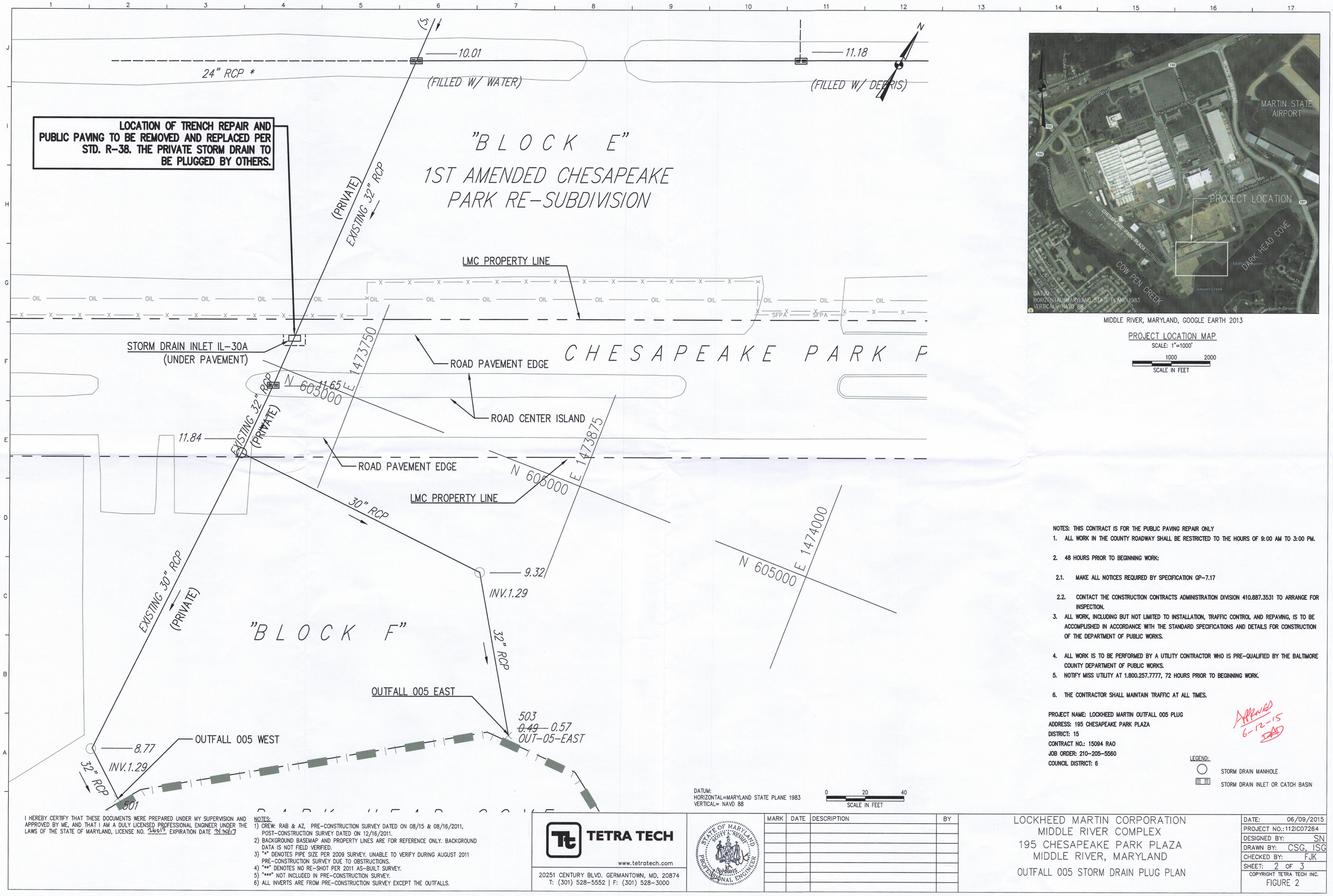
MARK	DATE	DESCRIPTION	BY

LOCKHEED MARTIN CORPORATION
MIDDLE RIVER COMPLEX
195 CHESAPEAKE PARK PLAZA
MIDDLE RIVER, MARYLAND

PAVEMENT REPAIR PLAN FOR OUTFALL 005 STORM DRAIN PLUG

DATE:	06/09/2015
PROJECT NO.:	112IC07264
DESIGNED BY:	SN
DRAWN BY:	CSG, ISG
CHECKED BY:	FJK
SHEET:	1 OF 3

FIGURE 1



MIDDLE RIVER, MARYLAND, GOOGLE EARTH 2013

PROJECT LOCATION MAP
SCALE: 1"=1000'

1000 2000
SCALE IN FEET

NOTES: THIS CONTRACT IS FOR THE PUBLIC PAVING REPAIR ONLY

1. ALL WORK IN THE COUNTY ROADWAY SHALL BE RESTRICTED TO THE HOURS OF 9:00 AM TO 3:00 PM.
2. 48 HOURS PRIOR TO BEGINNING WORK:
   - 2.1. MAKE ALL NOTICES REQUIRED BY SPECIFICATION GP-7.17
   - 2.2. CONTACT THE CONSTRUCTION CONTRACTS ADMINISTRATION DIVISION 410.887.3531 TO ARRANGE FOR INSPECTION.
3. ALL WORK, INCLUDING BUT NOT LIMITED TO INSTALLATION, TRAFFIC CONTROL AND REPAVING, IS TO BE ACCOMPLISHED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION OF THE DEPARTMENT OF PUBLIC WORKS.
4. ALL WORK IS TO BE PERFORMED BY A UTILITY CONTRACTOR WHO IS PRE-QUALIFIED BY THE BALTIMORE COUNTY DEPARTMENT OF PUBLIC WORKS.
5. NOTIFY MISS UTILITY AT 1.800.257.7777, 72 HOURS PRIOR TO BEGINNING WORK.
6. THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES.

PROJECT NAME: LOCKHEED MARTIN OUTFALL 005 PLUG
ADDRESS: 195 CHESAPEAKE PARK PLAZA
DISTRICT: 15
CONTRACT NO.: 15094 RAO
JOB ORDER: 210-205-5560
COUNCIL DISTRICT: 6

APPROVED 6-12-15 DAD

LEGEND:
- STORM DRAIN MANHOLE
- STORM DRAIN INLET OR CATCH BASIN

DATUM:
HORIZONTAL=MARYLAND STATE PLANE 1983
VERTICAL= NAVD 88

0 20 40
SCALE IN FEET

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED UNDER MY SUPERVISION AND APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21613, EXPIRATION DATE 3/30/17

NOTES:
1) CREW: RAB & AZ. PRE-CONSTRUCTION SURVEY DATED ON 08/15 & 08/16/2011, POST-CONSTRUCTION SURVEY DATED ON 12/16/2011.
2) BACKGROUND BASEMAP AND PROPERTY LINES ARE FOR REFERENCE ONLY. BACKGROUND DATA IS NOT FIELD VERIFIED.
3) "*" DENOTES PIPE SIZE PER 2009 SURVEY. UNABLE TO VERIFY DURING AUGUST 2011 PRE-CONSTRUCTION SURVEY DUE TO OBSTRUCTIONS.
4) "**" DENOTES NO RE-SHOT PER 2011 AS-BUILT SURVEY.
5) "***" NOT INCLUDED IN PRE-CONSTRUCTION SURVEY.
6) ALL INVERTS ARE FROM PRE-CONSTRUCTION SURVEY EXCEPT THE OUTFALLS.

TETRA TECH
www.tetratech.com
20251 CENTURY BLVD. GERMANTOWN, MD, 20874
T: (301) 528-5552 | F: (301) 528-3000

STATE OF MARYLAND — SCOTT A. NESBIT — 21613 — PROFESSIONAL ENGINEER

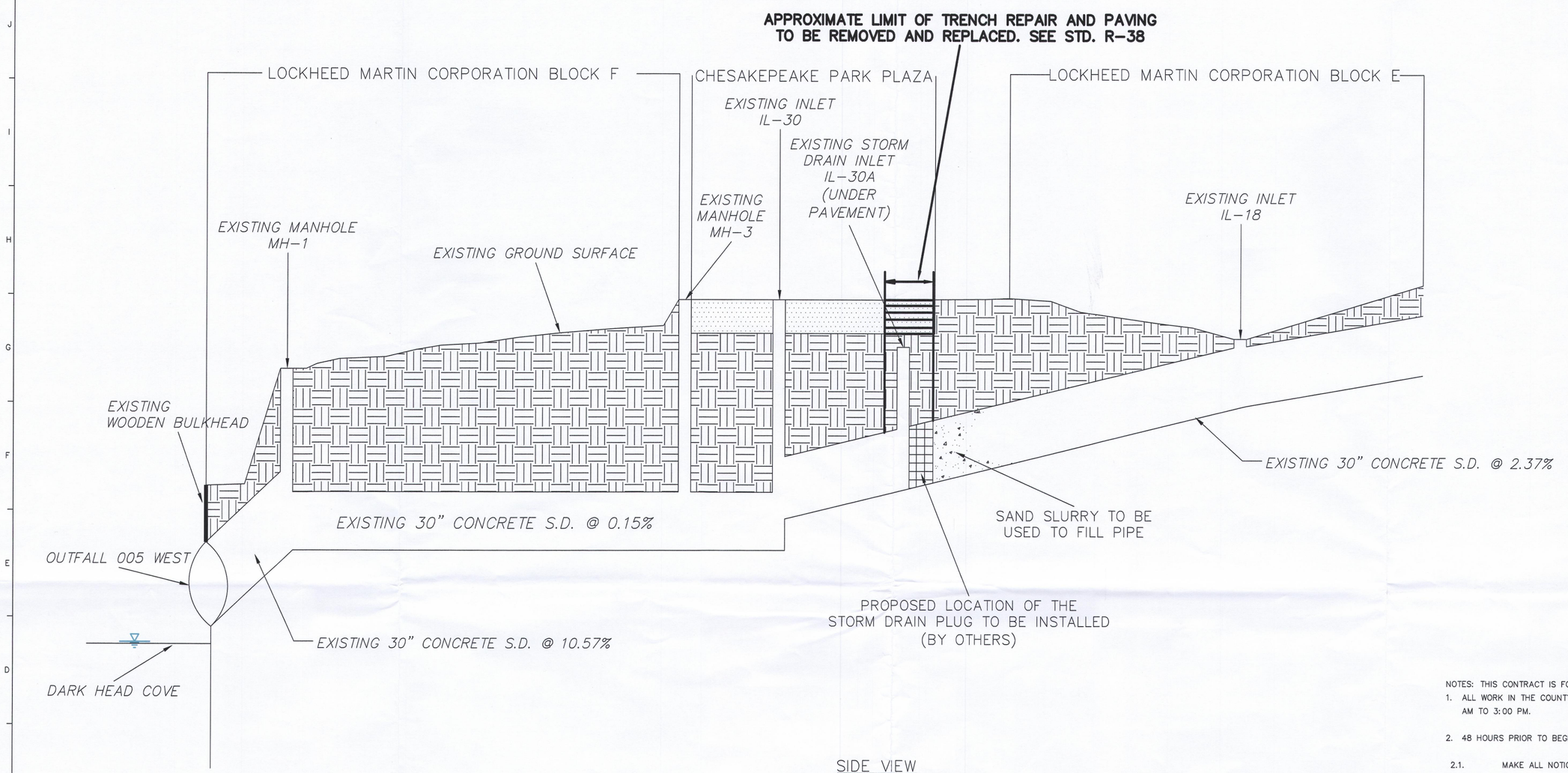
MARK	DATE	DESCRIPTION	BY

LOCKHEED MARTIN CORPORATION
MIDDLE RIVER COMPLEX
195 CHESAPEAKE PARK PLAZA
MIDDLE RIVER, MARYLAND

OUTFALL 005 STORM DRAIN PLUG PLAN

DATE:	06/09/2015
PROJECT NO.:	112IC07264
DESIGNED BY:	SN
DRAWN BY:	CSG, ISG
CHECKED BY:	FJK
SHEET:	2 OF 3

FIGURE 2



SIDE VIEW

STORM DRAIN PLUG AND ROAD SURFACE REPAIR NOTES:

1. ACCESS TO THE STORM DRAIN SYSTEM WILL BE VIA CATCH BASIN IL-30A CURRENTLY LOCATED UNDER THE ROADWAY SURFACE OF CHESAPEAKE PARK PLAZA.
2. PRIOR TO INSTALLING THE STORM DRAIN PLUG, REMOVE ALL SEDIMENT AND DEBRIS FROM THE STORM DRAIN SYSTEM FROM IL-30 TO THREE FEET UPSTREAM OF IL-30A BY MANUAL MEANS OR A HIGH-PRESSURE JET WASH AND VACUUM TRUCK.
3. CONTAINERIZE THE SEDIMENT, DEBRIS, AND CLEANING WATER IN A CONTRACTOR-SUPPLIED WATER-TIGHT DUMPSTER, FILTERBOX, OR STEEL DRUMS.
4. THE PLUG SHALL BE INSTALLED IN THE 30-INCH DIAMETER PIPE DIRECTLY UPSTREAM OF CATCH BASIN IL-30A.
5. PIPE PLUG SHALL BE CONSTRUCTED OF BRICK AND MORTAR (MASONARY PLUG) OR CONCRETE. MINIMUM HORIZONTAL PLUG THICKNESS SHALL BE 8 INCHES.
6. THREE (3) FEET (MINIMUM) OF PIPE UPSTREAM OF THE PLUG WILL BE FILLED WITH A SAND SLURRY.
7. TRENCHING REPAIR AND REPAVING SHALL BE IN ACCORDANCE WITH BALTIMORE COUNTY STD. R-38

LEGEND

- EXISTING STRUCTURAL FILL
- CHESAKEPEAKE PARK PLAZA ROAD PAVEMENT
- STORM DRAIN PLUG

NOTES: THIS CONTRACT IS FOR THE PUBLIC PAVING REPAIR ONLY

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PROJECT NAME: LOCKHEED MARTIN OUTFALL 005 PLUG
ADDRESS: 195 CHESAPEAKE PARK PLAZA
DISTRICT: 15
CONTRACT NO.: 15094 RAO
JOB ORDER: 210-205-5560

Approved 6-12-15 DPW

TETRA TECH
www.tetratech.com
20251 CENTURY BLVD. GERMANTOWN, MD, 20874
T: (301) 528-5552 | F: (301) 528-3000

STATE OF MARYLAND SCOTT A. NEASH No. 26015 PROFESSIONAL ENGINEER

MARK	DATE	DESCRIPTION	BY

LOCKHEED MARTIN CORPORATION
MIDDLE RIVER COMPLEX
195 CHESAPEAKE PARK PLAZA
MIDDLE RIVER, MARYLAND

OUTFALL 005 STORM DRAIN PLUG DETAIL

DATE:	06/09/2015
PROJECT NO.:	112IC07264
DESIGNED BY:	SN
DRAWN BY:	CSG, ISG
CHECKED BY:	FJK
SHEET:	3 OF 3

FIGURE 3

Kolberg, Fred

From: ticketcheck@managetickets.com
Sent: Friday, July 24, 2015 10:05 AM
To: Kolberg, Fred
Subject: Ticket Check Status for MD Ticket 15466047

Ticket Number: **15466047** Header: **STANDARD**
Location: MARTIN BOULEVARD MIDDLE RIVER, MD

As of **07/24/2015 10:05:00 EST**, participating facility owners have responded to Ticket Check as follows:

District Code	Status
BGE ELECTRIC-USIC	Clear/No conflict
BGE GAS-USIC	Clear/No conflict
BALTIMORE CITY DPW-OCCLS	Clear/No conflict
COMCAST - UTILIQUEST	Clear/No conflict Response by Utiliquest
COMCAST-FIBER/UTILIQUEST	Clear/No conflict Response by Utiliquest
MD AVIATION ADMIN/KCI	Clear/No conflict
QWEST COMMUNICATIONS	Clear/No conflict
VERIZON	Clear/No conflict Response by Utiliquest

To review this ticket in its entirety, visit Search and Status® on **www.managetickets.com**.

MISS UTILITY

Ticket No:	15466047	**STANDARD**			
Viewing Date:	7/22/15	**Time:**	1:12 PM	**Op:**	webusr2
Release Date:	7/22/15	**Time:**	12:57 PM	**Op:**	webusr2
Response Due By:	7/24/15	**Time:**	11:59 PM		
Expiration Date:	8/07/15	**Time:**	11:59 PM		

Caller Information

Company:	TETRA TECH NUS INC	**Fax Phone:**	(301)528-3000
Contact Name:	FRED KOLBERG	**Phone:**	(301)758-0942
Caller Address:	20251 CENTURY BLVD GERMANTOWN, MD 20874		
Email Address:	fred.kolberg@tetratech.com		
Alt. Contact:	JOSH MULLIS	**Phone:**	(410)279-2700

Dig Site Information

Type of Work:	EXCAVATION
Work Being Done For:	LOCKHEED MARTIN CORORATION
Explosives:	N

Dig Site Location

State: MD	**County:** BALTIMORE	**Place:** MIDDLE RIVER
Address:	**Street:** MARTIN BOULEVARD	
Nearest Intersecting	**Street:** CHEAPEAKE PARK PLAZA	

Extent of Work:

LOCATE/MARK: LOCATE/MARK UTILITIES 30 RADIUS AROUND A SOIL EXCAVATION LOCATED ON THE EDGE OF MARTIN BOULEVARD APPROXIMATELY 500 FEET EAST OF THE TRUCK ENTRANCE TO TILLEY CHEMICAL COMPANY. LOCATE AND MARK 30 FEET RADIUS AROUND FOUR GREEN DOTS IN NORTH ROADWAY. TO SEE MARKING AREA, PLEASE CONTACT JOSH MULLIS (410-279-2700 CELL). IF HE IS NOT AVAILABLE PLEASE CONTACT JIM FERGUSON AT 412.496.9283; KEN TRENT AT 321.604.1830, TONY APANAVAGE AT 301.233.8230 (CELL) OR FRED KOLBERG AT 301.758.0942 PRIOR TO LOCATING. ONE OF THESE PEOPLE CAN MEET WITH YOU AND SHOW YOU THE LOCATE AREA.

Comments:

Map Coord NW Lat: 39.3266667 **Lon:** -76.4300000 **SE Lat:** 39.3233333 **Lon:** -76.4266667

Final Report
Geophysical Survey – Utility Mapping
Utility/Structure Clearance
Middle River Complex Block D
Middle River, MD
Enviroscan Reference Number 071531

Prepared For: Tetra Tech NUS, Inc.
Prepared By: Enviroscan, Inc.
July 28, 2015

1051 Columbia Avenue ● Lancaster, PA 17603 ● 717.396.8922 ● Fax 717.396.8746 ● email@enviroscan.com ● www.enviroscan.com

ENVIROSCAN, INC.

July 28, 2015

Mr. Tony Apanavage
Tetra Tech NUS, Inc.
20251 Century Boulevard
Suite 200
Germantown, MD 20874-7114

RE: Geophysical Survey – Utility Mapping
Utility/Structure Clearance
Middle River Complex Block D
Middle River, MD
Enviroscan Reference Number 071531

Dear Mr. Apanavage:

Pursuant to your request, Enviroscan, Inc. conducted a subsurface utility survey at the above-referenced site on July 23, 2015. The purpose of the survey was relocate a buried storm grate and adjacent utilities that may be within a proposed excavation to reach the buried storm grate.

Methods

The utility survey was completed using standard and/or routinely accepted practices of the geophysical industry and equipment representing the best available technology, including:

- a Radiodetection RD8000 Multi-Frequency pipe and cable tracer;
- a Radiodetection C.A.T. and Genny pipe and cable locator/tracer;
- a Fisher TW-6 electromagnetic (EM) pipe and cable locator/tracer;
- a GSSI GSSI UtilityScan DF ground penetrating radar (GPR) system.

The principles of these techniques are detailed below.

RD8000

Utility tracing was conducted using a Radiodetection RD8000 digital cable and pipe tracer. The transmitter can be directly coupled to exposed portions of a metallic pipe, cable, or wire or indirectly (inductively) to a subsurface metallic utility of known location/orientation. The transmitter remains stationary and energizes the metallic utility at a frequency selected by the operator (512 Hz, 8 kHz, 33 kHz, or 65 kHz), which is received at the ground surface by the digital locator. When the transmitter is directly coupled to the metallic utility, the digital receiver can also calculate the depth of the utility to an accuracy of ±10% of the actual depth of the utility. Please note the close proximity to bends in the traced line or poor signal strength can result in erroneous depth estimations.

C.A.T. and Genny

The survey areas were also scanned with a Radiodetection C.A.T. and Genny pipe and cable locator and tracer. In Power mode, the C.A.T. detects the 50 to 60 Hertz (Hz) electromagnetic field generated by live power cables and other metallic utilities to which a live line is grounded. In Radio mode, the C.A.T. detects buried conductors (cables or metallic pipes) as they conduct and re-transmit commercial broadcast radio energy. In Genny mode, the C.A.T. detects signal generated by the Genny transmitter. The Genny transmitter can be coupled directly (conductively) to exposed portions of a metallic pipe, cable, or wire or inductively to a subsurface metallic utility with known location and orientation.

TW-6

In order to detect unknown utilities, Enviroscan employed a Fisher TW-6 pipe and cable locator and tracer. In pipe and cable search mode, the TW-6 is essentially a deep-sensing metal detector that detects any highly electrically conductive materials (e.g. metals) by creating an electromagnetic field with a transmitting coil. A receiving coil at a fixed separation from the transmitter measures the field strength. As the instrument is swept along the ground surface, subsurface metallic bodies distort the transmitted field. The change in field strength/orientation is sensed by the receiver, setting off an audible alarm and/or causing deflection of an analog meter. The TW-6 can nominally detect a 2-inch metal pipe to a depth of 8 feet and a 10-inch metal pipe to a depth of 14 feet.

In pipe and cable tracing mode, the TW-6 transmitter can be coupled directly (conductively) to exposed portions of a metallic pipe, cable, or wire or inductively to a subsurface metallic utility with known location and orientation. The transmitter remains stationary and energizes or excites the metallic utility to be traced with an 81.92-kilohertz signal that can be traced at the ground surface using the mobile TW-6 receiver wand or probe.

GPR

GPR systems produce cross-sectional images of subsurface features and layers by continuously emitting pulses of radar-frequency energy from a scanning antenna as it is towed along a survey profile. The radar pulses are reflected by interfaces between materials with differing dielectric properties. The reflections return to the antenna and are displayed on a video monitor as a continuous cross section in real time. Since the electrical properties of metal are distinctly different from soil and backfill materials, metallic pipes and other structures commonly produce dramatic and characteristic reflections. Fiberglass, plastic, concrete, and terra-cotta pipes and structures also produce recognizable, but less dramatic reflections. Scanning was performed using a GSSI UtilityScan DF controller with an internal hard drive and a color display, and a high-frequency, high-resolution dual frequency 800 and 400 Megahertz (MHz) antenna or transducer.

Results Summary

The client-designated area was scanned using the methods described above. Suspected targets were marked on the ground using semi-permanent marking paint. The main focus of the investigation was to relocate a storm water inlet access point that had been reportedly covered by asphalt when the roadway was laid in this area.

Enviroscan field personnel used the TW-6 pipe and cable locator in order to achieve this goal. The TW-6 is very sensitive to metallic objects; therefore, it was very helpful in locating a buried manhole cover. This inlet access point was identified to the south of the northern edge of the roadway. This area was marked using bright green marking paint. Due to the location of this buried manhole access point, Tetra Tech determined that an excavation would be performed in order to cap this storm water utility. The proposed excavation area was located north of the roadway, depicted in Figure 1.

Enviroscan field personnel investigated the proposed excavation area for underground utilities. One underground telcom utility and a water line were adjacent to the buried inlet. The storm sewer utility of concern was also located, running from south to the north through the proposed excavation area. All utilities were marked on the ground surface using color-coded marking paint.

Limitations

The above-referenced geophysical survey was completed using standard and/or routinely accepted practices of the geophysical industry and equipment representing the best available technology. Enviroscan does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen site-specific conditions. However, we make every effort to identify and notify the client of such limitations or conditions. In particular, please note the following specific limitations and recommendations:

- Enviroscan's field markings should be given a clearance of approximately +/-18 inches for single lines. In contrast, since electromagnetic tracing of duct banks provides only a centerline, banks may extend for 2 to 3 feet beyond the marked trace.

- The completion of this survey does not relieve any party of applicable legal obligations to notify the appropriate One-Call center prior to digging or drilling.

As always, we appreciate this opportunity to have worked with you. If you have any questions, please do not hesitate to contact me.

Sincerely,
Enviroscan, Inc.

William E, Steinhart III, M. Sc., P.G.
Senior Project Manager

Technical Review By:
Enviroscan, Inc.

Felicia Kegel Bechtel, M.Sc., P.G.
President

enc.: Figure 1: Utility Survey Results

N

MAP LEGEND

- Stormwater
- Stormwater Manhole
- Stormwater Grate
- Suspected Buried Inlet Location
- Water
- Communications
- Proposed Excavation Area
- Fence Line

Scale Bar (FT)

0 10 20

The information depicted on this drawing represents survey results on the date surveyed and can only be considered to be indicitive of the general conditions existing on that survey date.

Coordinates in Maryland State Plane (feet) NAD-83 Datum.

Figure composed using aerial image from USGS Mapping Data Base, field notes and DGPS survey by Enviroscan, Inc. personnel.

Prepared by:	Title:	Project Location:		Figure
Enviroscan, Inc. 1051 Columbia Ave. Lancaster PA 17603 717-396-8922 www.enviroscan.com	**Geophysical Survey Utility Survey Results**	**D Block Survey Area Middle River Complex Middle River, MD**		1
		Project Number: 071531	Revision/Issue: 7/24/2015	
		Original Scale: 1"= 20'	Survey Ending Date: 07/23/2015	Drawn by: WES / Approved by: FKB

APPENDIX B—TRAFFIC CONTROL PLAN

Temporary Traffic Control Plan (TCP)

Lockheed Martin Outfall 005 Plug

Baltimore County Right-of-Way Agreement 15094-RAO

Chesapeake Park Plaza

Lockheed Martin Middle River Complex, Middle River, Maryland

July 29, 2015

1.0 INTRODUCTION

This is the temporary traffic control (TTC) plan for work associated with the Outfall 005 storm drain plugging to be conducted by Tetra Tech, Inc. for Lockheed Martin Corporation (Lockheed Martin) in the Chesapeake Park Plaza roadway located along the southern portion of the Lockheed Martin Middle River Complex (MRC), Middle River, Maryland. The TTC plan is designed to protect motorists, pedestrians, and workers during work activities conducted in Chesapeake Park Plaza. This plan was developed using the latest version of Part 6 (*Temporary Traffic Control*) of the *Maryland Manual on Uniform Traffic Control Devices* (MD-MUTCD, 2011).

This TTC plan covers tasks that include excavating pavement around paved-over storm drain catch basin/manhole IL-30A to install a concrete plug to prevent potentially contaminated water and sediment from entering the recently remediated portion of Dark Head Cove at Outfall 005. The location of catch basin/manhole IL-30A is shown in Figure 1. Catch basin/manhole IL-30A and the pipe from IL-30A to the median (toward the location of catch basin IL-30) will also require cleaning using high pressure water and a vacuum truck. Temporary traffic control will be required because IL-30A is located within the westbound lane of Chesapeake Park Plaza and workers and several large vehicles and equipment are required to complete the road excavation, storm drain cleaning and plugging, and restoration/repaving at IL-30A. Lockheed Martin has entered into a Right-of-Way agreement (15094-RAO) with Baltimore County to excavate the area around the paved-over catch basin/manhole, and to restore the roadway to its current condition.

2.0 BACKGROUND

The roadway excavation and supporting equipment at catch basin/manhole IL-30A will require closing the westbound lane of Chesapeake Park Plaza to provide a safe work zone and allow for movement of workers and several large pieces of equipment (backhoe, support trucks, dump truck, sewer vacuum truck, etc.). Figure 1 shows Chesapeake Park Plaza and the location of the proposed work zone. Chesapeake Park Plaza is a two-lane, paved roadway owned and maintained by Baltimore County. The two lanes are divided by a small grass median with intermittent paved lateral lane connections for turning. The length of road to be closed for the work (i.e., traffic control zone) is approximately 380 feet, and the work zone is approximately 100 feet along the roadway.

The total right-of-way width (both lanes) is approximately 70 feet. The speed limit on Chesapeake Park Plaza in the area of the work zone is 25 miles per hour (mph).

3.0 METHODS

The proposed method for traffic control is by using flaggers based on MD-MUTCD Typical Applications 10 (Lane Closure on a Two-Lane Road Using Flaggers [TA-10]). This method is appropriate because only one lane (westbound lane of Chesapeake Park Plaza) will require closure along a low-volume, low-speed limit, straight roadway with no intersections and low or no pedestrian traffic. Work is to be conducted only in the daytime hours (MD-MUTCD-designation greater than 15 minutes and less than 12 hours), so only daytime specifications are included for this plan. Signs and flags will be set up each day prior to mobilizing equipment and personnel to the work zone. The work is scheduled to be conducted over four days.

Notifications:

Lockheed Martin public relations staff (Ms. Kay Armstrong) will notify the Middle River Civic Association leaders of the dates and characteristics of the traffic control zone. Tetra Tech will also notify and update LMC Properties, Inc. (the Lockheed Martin company that owns and maintains the MRC property), and Tilley Chemical Company of the dates and characteristics of the traffic control zone. Tilley Chemical Company tanker trucks and tractor-tractors may opt to avoid the traffic control zones by entering/exiting from/to the western portion of Chesapeake Park Plaza. The Baltimore County Department of Public Works inspector assigned to the project (Mr. Frank Salerno) met with Tetra Tech and their subcontractors for a pre-construction site visit on July 23, 2015. As agreed upon at the meeting, Mr. Salerno will also be notified of when the traffic control and the Outfall 005 work will be conducted.

Flagging Stations:

Flagging will be conducted by personnel at two flagging stations and a Traffic Control Manager. One flagging station will be located before the work zone to control traffic for the eastbound lane, and another flagging station will be located before the work zone to control traffic for the westbound traffic. The locations of the two flagging stations are shown in Figure 1. The Traffic

Control Manager will monitor the traffic, notify flaggers or workers of unsafe conditions (i.e., speeding or out of control vehicle), and provide temporary relief for the flaggers during breaks.

Flaggers will wear high-visibility safety apparel, will use hand signaling devices (slow/stop paddles), and will communicate verbally or by two-way radios. Flagger qualifications, safety apparel, hand-signaling device requirement, and flagging procedures will follow MD-MUTCD Chapter 6E *Flagger Control*.

Signs:

Signs for each eastern and western advance warning area will consist of one "ONE LANE ROAD AHEAD" sign (type W20-4) and one "ROAD WORK 500 FEET" sign (type W20-1). Additionally, one reverse-curve-left sign (type W24-1) will be placed on the southern road shoulder (facing the westbound travelers) to indicate the diversion route for the westbound traffic (see TA-11-Lane Closure on a Two-Lane Road with Low Traffic Volume for signage). The signs will be placed using the Urban (low speed) road type requirements (MD-MUTCD Table 6H-3) because the roadway is located in a developed area, and the posted speed limit for the roadway is 25 mph.

Per Table 6H-3, the "ONE LANE ROAD AHEAD" signs for eastbound and westbound lanes will be placed approximately 200 feet in advance of each flagging station (sum of "A"+ "B" distances of 100 feet each). Although Table 6H-3 specifies a distance of 300 feet from the flagging station to the furthest sign (sum of "A"+ "B"+ "C" distances of 100 feet each), the furthest sign will be placed at a distance of 500 feet before the flagging station to provide advance warning to drivers before reaching the abrupt curves on the eastern and western ends of this portion of Chesapeake Park Plaza. These sharp turns limit the driver's ability to see the flaggers and the work zone, and the location and added 200 feet of distance are expected to prompt drivers to reduce their speed prior to reaching the curve and straight portion of the road where the work zone is located.

Optional flagger depiction signs may be used and placed at a distance of 100 feet ("A" distance in Table 6H-3) in advance of each flagging station. Per the MD-MUTCD notes for TA-10, the optional "END ROAD WORK" signs will not be used for this project due to the short duration of the project.

Sign requirements such as design, dimensions, placement, color, and maintenance will follow MD-MUTCD Chapter 6F *Temporary Traffic Control Zone Devices*. Typical temporary control signs have dimensions of 36 inches by 36 inches, but the signs can be a minimum of 30 inches by 30 inches per Chapter 6F. Signs will be constructed of metal or may be of the folding variety.

Channelizing Devices:

Channelizing devices are required to warn road users of the traffic control zone, guide road users, and provide a smooth and gradual vehicle flow from one lane to another. Traffic channelizing devices for this project will be traffic cones, tubular markers, or drums placed beginning at each flagging station and continuing along the northern edge of the eastbound lane of Chesapeake Park Plaza (see Figure 1). Channelization device requirements such as design, dimensions, placement, color, and maintenance will follow MD-MUTCD Section 6F.63 *Channelizing Devices*, and Sections 6F.64 *Cones*, 6F.65 *Tubular Markers*, or 6F.67 *Drums*.

General Traffic Control Procedures:

Traffic will be stopped at one flagging station by displaying the STOP side of the traffic control paddle (paddle), while traffic is allowed to proceed slowly through the traffic control zone by the opposite flagger displaying the SLOW side of the paddle to the drivers stopped at that station. Vehicles will proceed along the traffic control zone designated with cones or barrels (see Figure 1). If there is no traffic waiting at one of the flagging stations, the opposite flagger will communicate with the other flagger, and after acknowledgement from the other flagger will display the SLOW side of the paddle to allow the traffic through the control zone without stopping at the flagging station.

Traffic movement should be cycled frequently through the traffic control zone to prevent accumulations of stopped vehicles at or near the abrupt curves at the eastern and western ends of Chesapeake Park Plaza. Vehicle congestion near these curves can create hazardous conditions and could result in traffic incidents.

Pedestrian and Bicycle Traffic:

Motorized vehicles at both flagging stations will stopped and all traffic will be allowed to clear prior to allowing pedestrians or bicycles to advance through the traffic control zone. Motorized

vehicles will remain stopped at both flagging stations until the pedestrian(s) or bicyclist(s) have exited the traffic control zone.

Run-off-the-Road Incidents, Disabled Vehicles, and Emergency Vehicles:

For westbound traffic, run-off-the-road and disabled vehicles will use the open roadway buffer area between the eastern flagging station and the work zone if the vehicle cannot be accommodated by the road shoulder or median. For eastbound traffic, run-off-the-road and disabled vehicles will use the open lane beyond the flagging station if the vehicle cannot be accommodated by the road shoulder or median.

Emergency vehicles (e.g., police, fire, ambulance) will be allowed to pass around stopped traffic and proceed through the traffic control zone. Sufficient road width (20 feet) and the presence of an uncurbed grass median and shoulders are available in the advance warning areas, flagging stations, and traffic control zone to allow vehicles to pull to the side of the road to allow emergency vehicles to pass. Vehicles stopped at a flagging station and blocking the roadway will be allowed to proceed with caution to the side of the road to allow for the passage of the emergency vehicle(s).

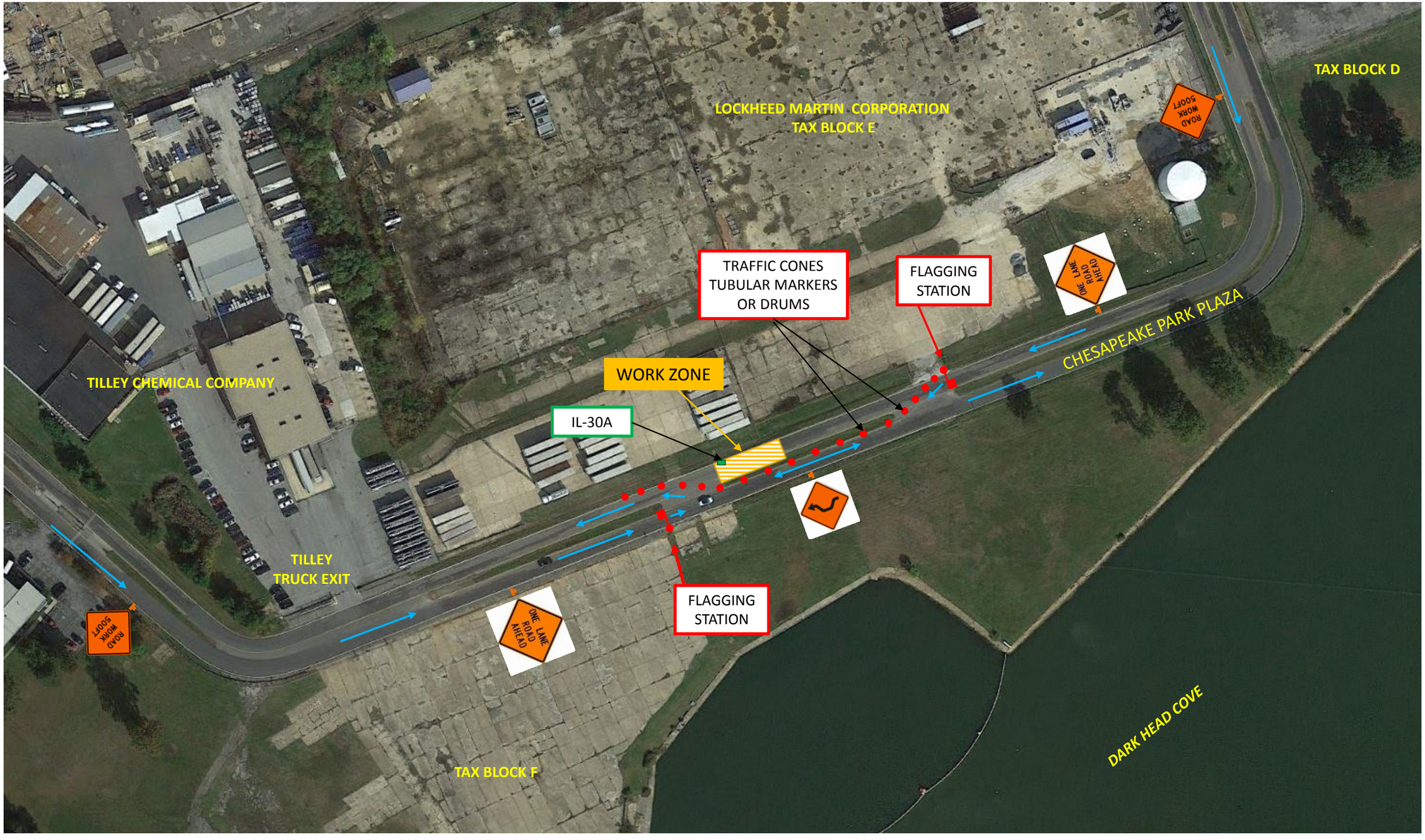


FIGURE 1
PROPOSED TRAFFIC CONTROL PLAN FOR OUTFALL 005 STORM DRAIN PLUGGING
LOCKHEED MARTIN MIDDLE RIVER COMPLEX, MIDDLE RIVER, MARYLAND

N

0 50 100 Feet
SCALE

- FLAGGING STATION
- TRAFFIC CONE, TUBULAR MARKER, OR DRUM
- TRAFFIC DIRECTION
- CATCH BASIN (IL-30A PAVED OVER)
- WORK ZONE

APPENDIX C—PHOTOGRAPHS

Work zone (left) and traffic control setup-looking east.

Saw cutting pavement to access storm drain catch basin IL-30A

Removing pavement from location of IL-30A

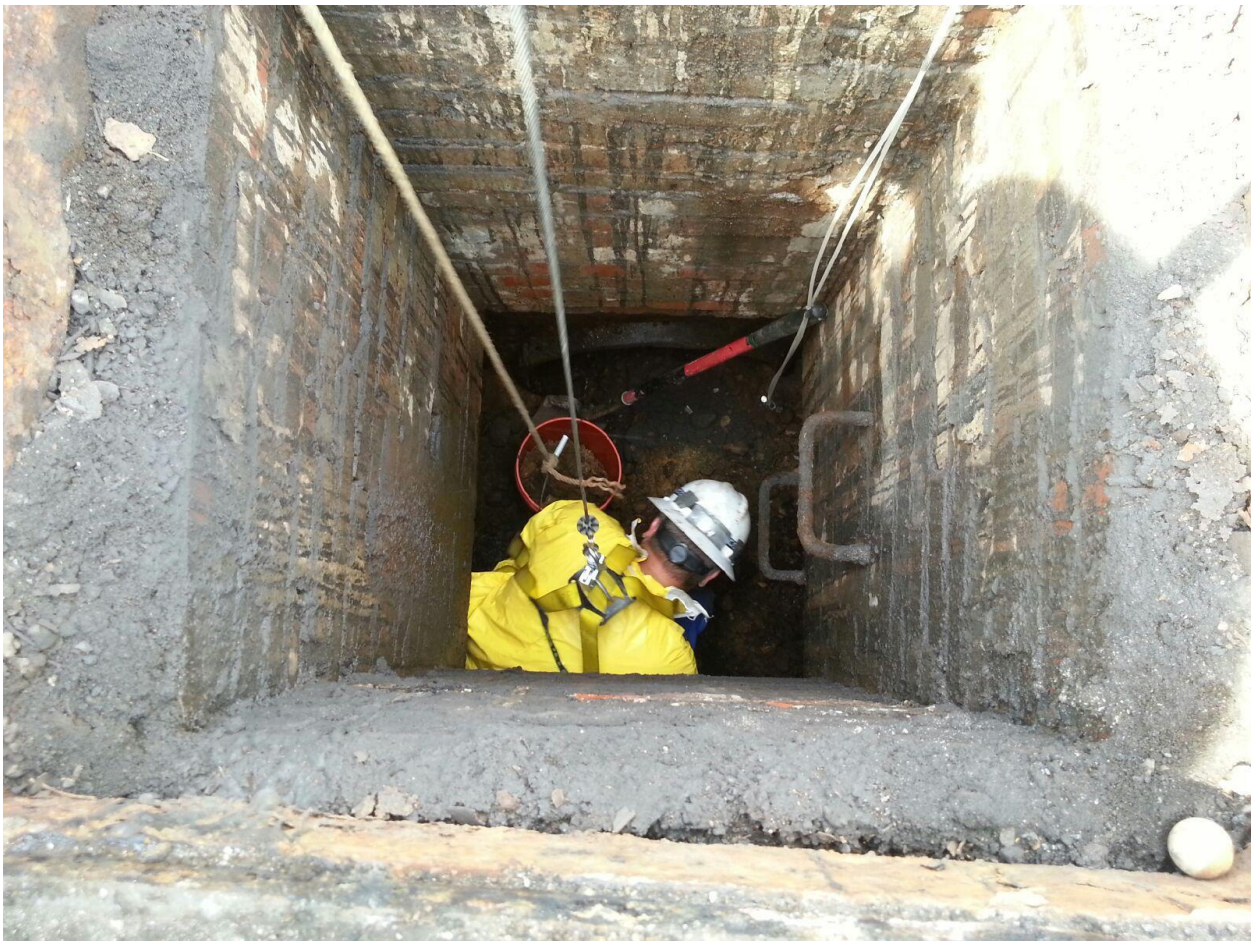
Removing pavement from location of IL-30A

Exposed storm drain grate IL-30A-looking southwest

Exposed storm drain grate IL-30A-looking southwest

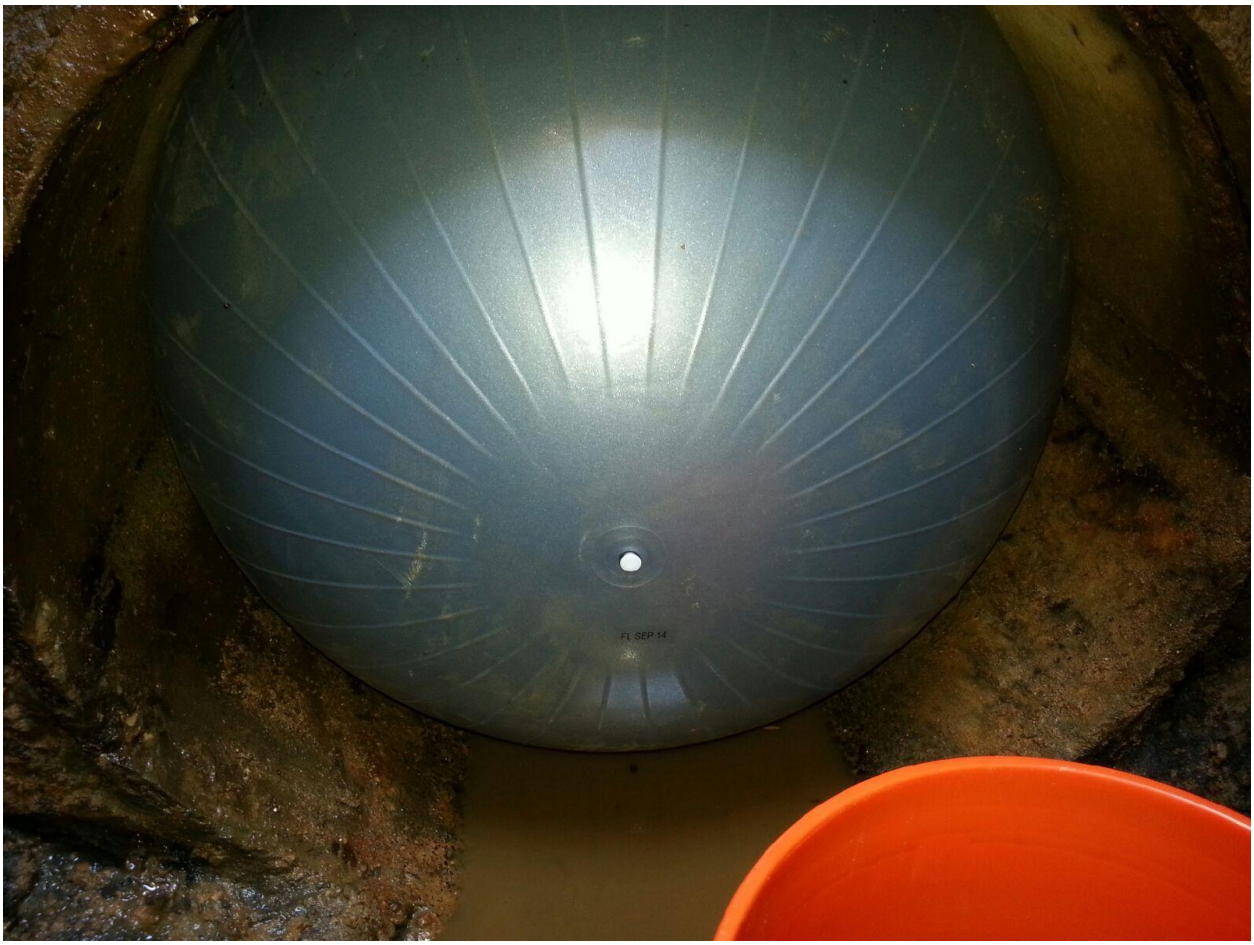
Entering catch basin IL-30A

Sediment accumulation in storm drain pipe IL-30A-looking north (upstream)



Removing sediment from IL-30A

Removing sediment from IL-30A



Temporary inflatable sewer plug installed in upstream pipe of IL-30A for cleaning.

Looking down into interior of IL-30A with high-pressure hydraulic cleaning head (unactivated)

Looking down into interior of IL-30A with activated high pressure hydraulic cleaning head

Looking down into interior of catch basin IL-30

Temporary inflatable commerical-grade sewer plug in MH-3

Vacuum truck removing water and residual sediment at catch basin IL-30

Vacuum truck removing water and residual sediment at catch basin IL-30A

Vacuum truck removing water and residual sediment at catch basin IL-30A

Post-cleaning condition of pipe looking downstream from IL-30A towards IL-30

Post-cleaning condition of pipe looking downstream from IL-30A towards IL-30

Adding concrete for plug at IL-30A

Concrete plug in IL-30A

Concrete plug in IL-30A

Site preparation for backfilling and paving

Geomembrane cover to prevent migration of graded aggregate base (CR-6) into storm drain

Geomembrane cover to prevent migration of graded aggregate base (CR-6) into storm drain

Placing graded aggregate base (CR-6) to level with exisiting sub-base

Mechanized tamping of CR-6 for compaction

Application of tack seal along perimeter of bound pavement

Application of first course of hot-mix asphalt (bituminous concrete)

Vibratory tamping of first course hot-mix asphalt (bituminous concrete)

Mechanical drum rolling of first course hot-mix asphalt (bituminous concrete)

Mechanized tamping of surface pavement application. Subsequently rolled using mechanized drum roller shown in right side of photograph.

APPENDIX D—INVESTIGATION-DERIVED WASTE DOCUMENTATION

0111

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) PM 1503153289 SC PPW 9/11/2015 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
MDR000524413	1	(800) 483-3718	008751562 FLE

5. Generator's Name and Mailing Address: Middle River Complex, 195 Chesapeake Park Plaza Rd, Middle River, MD 21220 c/o Michael Musheno

Generator's Site Address (if different than mailing address): 195 Chesapeake Park Plaza Rd, Baltimore, MD 21220

Generator's Phone: (301) 528-3024

6. Transporter 1 Company Name: Clean Harbors Environmental Service, Inc. — U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name: Bobbie D Wood Inc — U.S. EPA ID Number: ALD067138891

8. Designated Facility Name and Site Address: Spring Grove Resource Recovery Inc., 4879 Spring Grove Avenue, Cincinnati, OH 45232 — U.S. EPA ID Number: OHD000816629

Facility's Phone: (513) 681-5738

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN3432, POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (PCBS)	xx3	DM	901	K	
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information

1. CH1067603 ~~ERG#171~~ 3 x 55DM (w[illegible] 0110-2-15)

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Michael Musheno — Signature: [signature] — Month 10 Day 02 Year 15

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: [illegible] Wiley — Signature: [signature] — Month 10 Day 2 Year 15
Transporter 2 Printed/Typed Name: DAVID JOHNSTON — Signature: [signature] — Month 10 Day 07 Year 15

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H141			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Lakesha Mason — Signature: [signature] — Month 10 Day 12 Year 15

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete. DESIGNATED FACILITY TO GENERATOR

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH1067683

A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # *MDR000524413* GENERATOR NAME: *Middle River Complex*

GENERATOR CODE (Assigned by Clean Harbors) *MI5240* CITY *Baltimore* STATE/PROVINCE *MD* ZIP/POSTAL CODE *21220*

ADDRESS *195 Chesapeake Park Plaza Rd* PHONE: *(301) 528-3021*

CUSTOMER CODE (Assigned by Clean Harbors) *TE0740* CUSTOMER NAME: *Tetra Tech Inc*

ADDRESS *20251 Century Boulevard Suite 200* CITY *Germantown* STATE/PROVINCE *MD* ZIP/POSTAL CODE *20874*

B. WASTE DESCRIPTION

WASTE DESCRIPTION: *Soil with PCBs*

PROCESS GENERATING WASTE: **equipment change out**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER ? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE
- [x] SOLID WITHOUT FREE LIQUID
- [ ] POWDER
- [ ] MONOLITHIC SOLID
- [ ] LIQUID WITH NO SOLIDS
- [ ] LIQUID/SOLID MIXTURE
- [ ] % FREE LIQUID
- [ ] % SETTLED SOLID
- [ ] % TOTAL SUSPENDED SOLID
- [ ] SLUDGE
- [ ] GAS/AEROSOL

NUMBER OF PHASES/LAYERS: 1 2 3

% BY VOLUME (Approx.) TOP *0.00* MIDDLE *0.00* BOTTOM *0.00*

VISCOSITY (If liquid present)
- 1 - 100 (e.g. Water)
- 101 - 500 (e.g. Motor Oil)
- 501 - 10,000 (e.g. Molasses)
- > 10,000

COLOR: *varies*

ODOR
- [x] NONE
- [ ] MILD
- [ ] STRONG

Describe:

BOILING POINT °F (°C)
- <= 95 (<=35)
- 95 - 100 (35-38)
- 101 - 129 (38-54)
- >= 130 (>54)

MELTING POINT °F (°C)
- < 140 (<60)
- 140-200 (60-93)
- [x] > 200 (>93)

TOTAL ORGANIC CARBON
- <= 1%
- 1-9%
- [x] >= 10%

FLASH POINT °F (°C)
- < 73 (<23)
- 73 - 100 (23-38)
- 101 -140 (38-60)
- 141 -200 (60-93)
- > 200 (>93)

pH
- <= 2
- 2.1 - 6.9
- [x] 7 (Neutral)
- 7.1 - 12.4
- >= 12.5

SPECIFIC GRAVITY
- < 0.8 (e.g. Gasoline)
- 0.8-1.0 (e.g. Ethanol)
- 1.0 (e.g. Water)
- 1.0-1.2 (e.g. Antifreeze)
- [x] > 1.2 (e.g. Methylene Chloride)

ASH
- < 0.1
- 0.1 - 1.0
- 1.1 - 5.0
- 5.1 - 20.0
- > 20
- [x] Unknown

BTU/LB (MJ/kg)
- [x] < 2,000 (<4.6)
- 2,000-5,000 (4.6-11.6)
- 5,000-10,000 (11.6-23.2)
- > 10,000 (>23.2)

Actual:

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
DIRT	100.0000000	--	100.0000000	%
PCB	50.0000000	--	310.0000000	PPM

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES [ ] NO [x]

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES [ ] NO [x]

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING: ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES [ ] NO [x]

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. *G19* SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. *W319*

E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge ✓ Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				✓
D005	BARIUM	100.0				✓
D006	CADMIUM	1.0				✓
D007	CHROMIUM	5.0				✓
D008	LEAD	5.0				✓
D009	MERCURY	0.2				✓
D010	SELENIUM	1.0				✓
D011	SILVER	5.0				✓
	VOLATILE COMPOUNDS					
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
	SEMI-VOLATILE COMPOUNDS					
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
	PESTICIDES AND HERBICIDES					
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			✓
CHLORINE			✓
FLUORINE			✓
IODINE			✓
SULFUR			✓
POTASSIUM			✓
SODIUM			✓
AMMONIA			✓
CYANIDE AMENABLE			✓
CYANIDE REACTIVE			✓
CYANIDE TOTAL			✓
SULFIDE REACTIVE			✓

HOCs

- NONE
- ✓ < 1000 PPM
- >= 1000 PPM

PCBs

- NONE
- < 50 PPM
- ✓ >=50 PPM

IF PCBS ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?

✓ YES NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES ✓ NO (if yes, explain)

CHOOSE ALL THAT APPLY

DEA REGULATED SUBSTANCES	EXPLOSIVE	FUMING	✓ OSHA REGULATED CARCINOGENS
POLYMERIZABLE	RADIOACTIVE	REACTIVE MATERIAL	NONE OF THE ABOVE

F. REGULATORY STATUS

YES ☑ NO USEPA HAZARDOUS WASTE?

YES ☑ NO DO ANY STATE WASTE CODES APPLY?

Texas Waste Code

YES ☑ NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES ☑ NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?

LDR CATEGORY: *Not subject to LDR*
VARIANCE INFO:

YES ☑ NO IS THIS A UNIVERSAL WASTE?

YES ☑ NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES ☑ NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES ☑ NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES ☑ NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES ☑ NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES ☑ NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES ☑ NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?

Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?

YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?

YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?

What is the TAB quantity for your facility? Megagram/year (1 Mg = 2,200 lbs)

The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing

Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

UN3432, POLYCHLORINATED BIPHENYLS, SOLID, 9, PG III (PCBS)

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ☑ ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER *Other*

☑ CONTAINERIZED
1-1 CONTAINERS/SHIPMENT
STORAGE CAPACITY: *5*
CONTAINER TYPE:
CUBIC YARD BOX PALLET
TOTE TANK ☑ DRUM
OTHER:
DRUM SIZE: *55*

BULK LIQUID
GALLONS/SHIPMENT: *0 Min -0 Max* GAL.

BULK SOLID
SHIPMENT UOM: TON YARD
TONS/YARDS/SHIPMENT: *0 Min - 0 Max*

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge.I also certify that any samples submitted are representative of the actual waste.If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
Michael Mushero	Michael Mushero	Sr. Staff ESH Engineer	9-22-15