AECOM

Bloody Brook

ONONDAGA COUNTY

LIVERPOOL, NEW YORK

Periodic Review Report
July 31, 2020 to July 31, 2021

August 2021

Prepared for:
Lockheed Martin Corporation
497 Electronics Parkway
Building EP-6, Room 100B
Liverpool, New York 13088

Prepared by:
AECOM
40 British American Blvd.
Latham, NY 12110

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Engineering Certification

I certify that I am currently a NYS registered professional engineer and that this Periodic Review Report covering the period of July 31, 2020 to July 31, 2021 for the Bloody Brook site was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved scope of work and any DER-approved modifications.

Respectfully submitted,
AECOM

08/25/2021

Nickcole Evans
Registered Professional Engineer
New York License No. 085978

Date

Executive Summary

AECOM, on behalf of Lockheed Martin Corporation, is submitting this Periodic Review Report (PRR) along with a completed Institutional Controls and Engineering Controls (IC/EC) Certification Form for the Bloody Brook site ("site"). This report is being submitted as requested by the New York State Department of Environmental Conservation in its letter dated June 17, 2021 to Jill Fonte of Lockheed Martin Corporation and covers the reporting period from July 31, 2020 through July 31, 2021. The letter provides guidance for preparing the PRR and IC/EC certification form and requires they be submitted no later than August 30, 2021.

Site Summary

The site was broken into four distinct areas based on land use characteristics including a wooded/wetland area, residential areas, an apartment complex area, and commercial areas extending from Bloody Brook just below the New York State Thruway to the upstream side of the Onondaga Lake Parkway. Between 2014 and 2017, remedial construction and restoration activities were completed for the site to remove cadmium impacted soil and sediment in accordance with the 2014 Decision Document (NYSDEC, 2014), the 2013 *Remedial Action Work Plan* (RAWP) (AECOM, 2013), and subsequent annual Construction Work Plans and Restoration Work Plans. Following completion of excavation, a cover system was placed over the site in the areas where soil was removed to return the area to pre-existing grade and to prevent exposure to remaining residual cadmium. Following placement of the soil cover, site restoration was comprised of seeding, landscaping, and construction of replacement wetland habitats.

Effectiveness of Remedial Program

Since completion of the site restoration in 2017, inspections and monitoring have shown that the remedy continues to be effective as designed.

Compliance

In reference to the NYSDEC Approved Site Management Plan (AECOM, 2018a - updated 2021), there have been no areas of non-compliance throughout the reporting period identified in this PRR.

Recommendations

No changes to the site activities are recommended at this time.

1.0 Site Overview

The site is located in the town of Salina, and a portion of the site is located in the Village of Liverpool, Onondaga County, New York. Site location and area maps are included as Figures 1 and 2, respectively. The site consists of the West Branch of Bloody Brook (WBBB) and Bloody Brook from below the confluence of the west and middle branches of Bloody Brook (collectively referred to as WBBB). Also included in the site is soil surrounding the WBBB and Bloody Brook downstream of the Thruway and ending at the upstream side of the Onondaga Lake Parkway. This portion of the site is approximately 5,000 feet long and flows through lands of varied use including a wooded area, a residential area, an apartment complex, and a commercial/light industrial area.

Upstream of the site, the WBBB originates in a wetland area surrounded by industrial properties. This wetland is located between Vine Street and Crossroads Industrial Park. The WBBB flows southward and is routed through culverts that transmit the WBBB underneath Electronics Business Park and the Thruway. Downstream of the site, Bloody Brook flows under Onondaga Lake Parkway and discharges into Onondaga Lake. The WBBB and Bloody Brook obtains a substantial fraction of its flow from storm water runoff from surrounding areas.

1.1 Site Background and Remedial History

Various investigations have been completed at the site. Those investigations including soil, biota, surface water, and sediment sampling along the WBBB and Bloody Brook have been performed by the New York State Department of Environmental Conservation (NYSDEC), Lockheed Martin, and Onondaga County from September 1994 through September 2015. Investigations of water quality and biota within the WBBB were initiated by NYSDEC in September 1994 (NYSDEC, 1996). In April 1996, NYSDEC shared the results of the 1994 investigations with Lockheed Martin. Lockheed Martin conducted sediment and surface water sampling from May 1996 through May 1999, and additional sediment sampling in January 2008 in support of a 2008 Interim Remedial Measure (IRM). In addition to the biota, surface water, and sediment investigations, Lockheed Martin conducted soil sampling from November 2001 through September 2015. Lockheed Martin conducted these site investigations pursuant to a series of work plans approved by NYSDEC. Site data are summarized in the NYSDEC approved 2018 *Final Engineering Report* (FER) for the site (AECOM, 2018b).

As requested by NYSDEC, early studies typically focused on polychlorinated biphenyls (PCBs), cadmium, copper, and mercury. In 1997 under NYSDEC oversight, Lockheed Martin removed all sediments from within the 200-foot long culvert beneath the Thruway and the adjacent downstream 750-foot segment of the WBBB (BBL, 1997). In January 1997, NYSDEC concluded that the concentrations of cadmium were elevated in the WBBB sediments, and PCBs, copper, and mercury did not pose a concern (NYSDEC, 1997). In 1999, a specific set of sediment samples was collected and analyzed for a more comprehensive list of organic and inorganic constituents. The results of the comprehensive analyses supported NYSDEC focus on cadmium, which became the contaminant of potential concern (COPC) for the site.

A detailed summary of the historical sampling and remedial investigation activities that were completed at the site is provided in the NYSDEC approved Site Management Plan (SMP) (AECOM, 2018a - updated 2021).

Between 2014 and 2017, remedial construction and restoration activities were completed for the site in accordance with the 2014 Decision Document (NYSDEC, 2014), the 2013 *Remedial Action Work Plan* (RAWP) (AECOM, 2013), and subsequent annual Construction Work Plans and Restoration Work Plans.

Remedial construction consisted of excavation and off-site disposal of contaminated soil and sediment including the following:

- All sediment from the WBBB and Bloody Brook from below the confluence of the West and Middle Branches of Bloody Brook, between the New York State Thruway and the Onondaga Lake Parkway;
- Top two feet of side bank soil from the WBBB and Bloody Brook, from below the confluence of the West and Middle Branches of Bloody Brook, between the New York State Thruway and Old Liverpool Road;
- Side bank soil from Bloody Brook between Old Liverpool Road and the Onondaga Lake Parkway with known cadmium concentrations greater than 4 mg/kg in the top two feet;
- The wooded/wetland area: soils in the top two feet with known cadmium concentrations greater than 4 mg/kg, and soils from two to six feet below grade with known cadmium concentrations greater than 100 mg/kg;
- Residential properties: soils in the top two feet with known cadmium concentrations greater than 2.5 mg/kg, and soils from two to four feet below grade with known cadmium concentrations greater than 10 mg/kg;
- Apartment complex area: soils in the top two feet with known cadmium concentrations greater than 4.3 mg/kg and soils from two to four feet below grade with known cadmium concentrations greater than 10 mg/kg;
- Drainage District easement: soils in the top two feet with known cadmium concentrations greater than 10 mg/kg; and
- Former drive-in theater area: soils in the top two feet with known cadmium concentrations greater than 9.3 mg/kg where surface disposal of brook dredge spoils had previously occurred.

Following completion of excavation, a cover system was placed over the site in the areas where soil was removed to return the area to pre-existing grade and to prevent exposure to remaining residual cadmium. This cover system is comprised of a minimum of 24 inches of clean soil and other components as appropriate. Site restoration was comprised of planting, seeding, and landscaping to pre-existing conditions or as agreed upon with the property owner. A 2018 FER documents the site's completed remedial actions (AECOM, 2018b).

Restoration in the wooded area included construction of wetland, upland, and transitional habitats following an adaptive management approach and in accordance with the NYSDEC-approved *Restoration Maintenance Work Plans* (AECOM 2014, 2017, 2018c, 2019b, and 2020). See Figure 3 for locations of constructed habitat areas.

1.2 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the site as listed in the 2014 Decision Document and the 2018 SMP are as follows for soil and sediment.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Sediment

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

2.0 Evaluate Remedy Performance, Effectiveness, and Protectiveness

Because remaining contamination exists below a soil cover system on the site after completion of the remedial work, annual site inspections are required to ensure the remedy continues to perform as designed. Additionally, vegetation monitoring is required for five years following restoration to ensure plantings are developing as intended. This is the third annual Periodic Review Report (PRR) for the Bloody Brook site, covering the July 31, 2020 to July 31, 2021 reporting period. The sections below summarize the overall results of the inspection and vegetation monitoring completed in 2021, and Section 4 summarizes compliance with monitoring requirements.

2.1 Summary of Erosion Inspections

No major areas of concern along the brook channel were noted during the annual site inspection completed in 2021. The stream bottom and side banks were intact and showed little signs of damage during the inspections. The site-wide inspection form for 2021 is included in Appendix A of this PRR. Detailed results of the erosion inspection will be provided in the Restoration Monitoring Summary Report and Maintenance Work Plan, which is currently being developed for the 2021 inspections and monitoring and will be provided to NYSDEC during the next reporting period.

2.2 Summary of Vegetation Monitoring Results

In accordance with the NYSDEC and USACE permitting for the remediation construction activities in the WBBB and its floodplain, Lockheed Martin upgraded the stream habitat of WBBB by constructing replacement wetland habitat and replanting all disturbed areas of upland habitat within the project footprint. Based on the 2021 monitoring events, the habitat areas appear to be developing as anticipated based on an adaptive management approach in coordination with NYSDEC Fish and Wildlife (F&W). The current boundaries for the habitat areas are shown on Figure 3. A detailed summary of the 2021 vegetation monitoring will be provided in the Restoration Monitoring Summary Report and Maintenance Work Plan, which is currently being developed for the 2021 inspections and monitoring and will be provided to NYSDEC during the next reporting period.

2.3 Summary of Biological Monitoring Results

In July 2014, biota samples were collected from within the Bloody Brook site to evaluate possible cadmium exposure for aquatic receptors prior to the start of remediation activities in the WBBB. Samples were collected from three general locations in WBBB, including an upper channel location (between Ontario Place and Cranberry Drive), a middle channel location (downstream from Floradale Road), and a lower channel location (upstream from Onondaga Lake Parkway). See Figure 4 for approximate sample locations. The 2014 data were provided to New York State Department of Environmental Conservation (NYSDEC) in the September 9, 2014 Monthly Progress Report for the Bloody Brook site and were included in Appendix F (Field Sampling Plan [FSP]) of the SMP.

According to the Decision Document, biota samples were to be collected in 2018 and 2020 from within the Bloody Brook site from the same locations that were sampled during the 2014 baseline

sampling to support the evaluation of the effectiveness of the site remedial program in mitigating potential cadmium impacts in WBBB. In accordance with the SMP, crayfish samples were collected on August 13, 2018 and August 26, 2020 using the kick-net method, per the FSP and consistent with the collection methods used during the baseline sampling.

Whole body crayfish samples were analyzed by Test America Laboratories for total cadmium by USEPA SW846 Method 6020, and the data underwent full third party data validation. Analytical results for both the 2014 baseline sampling and the 2018 and 2020 monitoring are summarized below in Table 2-1 and were provided to NYSDEC in October 2018 and November 2020, respectively.

Lower Channel Location - Upstream from Onondaga Lake Parkway, the average concentrations were lower during the post-remediation monitoring compared to the baseline sampling. Average concentrations decreased each year of monitoring, with an average baseline concentration of 0.97 milligrams per kilogram-wet weight (mg/kg-ww) in 2014 and average post-remediation concentrations of 0.14 mg/kg-ww in 2018 and 0.07 mg/kg-ww in 2020. All five proposed samples were collected during each year of monitoring at the lower location.

Middle Channel Location - Although no samples were able to be collected from the middle location (downstream from Floradale Road) in 2018, four of the five proposed samples were collected in 2020. The average concentration decreased with an average baseline concentration of 4.0 mg/kg-ww in 2014 and an average post-remediation concentration of 0.51 mg/kg-ww in 2020.

Upper Channel Location - Between Ontario Place and Cranberry Drive, average cadmium concentrations decreased from the baseline of 3.4 mg/kg in 2014 to the post-remediation of 0.79 mg/kg in 2018, based on four of the five proposed samples, and 1.4 mg/kg-ww in 2020, based on three of the five proposed samples. Despite the slight increase in average concentration in 2020 from the 2018 concentration, the post-remediation average concentrations remain lower than the 2014 baseline average concentration.

The available samples collected at the lower, middle, and upper channel locations suggest the remedy has been effective in mitigating cadmium impacts as can be seen with the cadmium concentrations in the biological samples discussed herein. However, due to the lack of samples collected in 2018 from the middle channel location and a slight increase in average concentration between 2018 and 2020 in the upper channel location, NYSDEC requested in a comment letter dated December 11, 2020 regarding the August 2020 Biological Monitoring Sampling Results letter report (AECOM, 2020b) that an additional year of monitoring be completed in 2022.

Table 2-1. Analytical Data for Baseline (July 2014), First Year (August 2018), and Second Year (August 2020) Biota Monitoring

		Baseline	Post-Remediation	
Sample Location	**Sample ID**	**2014 Cadmium (mg/kg-ww)**	**2018 Cadmium (mg/kg-ww)**	**2020 Cadmium (mg/kg-ww)**
Upper Channel - between Ontario Place and Cranberry Drive	CR-1-01	3.1	0.53	1.2
	CR-1-02	3.6	0.56	2.3
	CR-1-03	3.2	1.3	0.84
	CR-1-04	2.5	0.76	
	CR-1-05	4.4		
	Average	3.4	0.79	1.4
Middle Channel - downstream from Floradale Road	CR-2-01	4.3	Not sampled	0.47
	CR-2-02	3.5	Not sampled	0.37
	CR-2-03	5.2	Not sampled	0.82
	CR-2-04	3.6	Not sampled	0.36
	CR-2-05	3.5	Not sampled	
	Average	4.0	No samples	0.51
Lower Channel-upstream from Onondaga Lake Parkway	CR-3-01	0.97	0.059 J	0.085 J
	CR-3-02	0.76	0.13	0.088
	CR-3-03	1.3	0.12	0.069 J
	CR-3-04	1.5	0.22	0.043 J
	CR-3-05	0.33	0.18	0.067
	Average	0.97	0.14	0.070

Notes:

1.Biota samples were whole body crayfish.

2. Results are reported in wet weight.

3. No crayfish were located in the "middle" sample from 2018.

4. J - estimated value; detected above the method detection limit but below the reporting limit.

3.0 Institutional and Engineering Control Plan Compliance Report

Because the final site remedy included implementation of both Institutional Controls (ICs) and Engineering Controls (ECs), a SMP was developed to support these controls. A summary of the controls and required site activities per the SMP are summarized in the sections below.

3.1 Institutional Controls - Requirements and Compliance

A series of ICs is required by the 2014 Decision Document and SMP to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination; and, (3) limit the use and development of the site to appropriate uses for each area. Adherence to these ICs on the site is required by the 2014 Decision Document and is implemented under the site SMP. The IC boundaries are shown on Figures 5A through 5C and include the following:

- All ECs must be maintained as specified in the SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in the SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in the SMP;
- Access to the site must be provided to agents, employees, or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the SMP.

Specific ICs as outlined in the 2014 Decision Document and the SMP and compliance with these ICs from the time of remedy completion through the current reporting period are summarized in Table 3-1 below. Details for the various provisions noted in Table 3-1 are provided in the SMP.

Table 3-1. Specific Institutional Control Requirements and Compliance

Activity	Frequency	Dates Completed
A provision for further investigation to refine the extent of contamination in the areas where access was previously hindered (e.g., any residential property where access is currently denied or future excavations that require the property owner to contact Lockheed Martin when digging at depths where residual cadmium has been or has the potential to be detected)	Ongoing	Letters sent in March 2021
Maintaining site access controls and Department notification	Ongoing	Ongoing
Tracking of property ownership changes to allow for the continued communication with owners	At least annually	Regularly updating property ownership and mailing addresses
Notification by Lockheed Martin to property owners of Lockheed Martin's offer to implement the remedy for property owners who chose to decline remedy implementation and/or sampling on their property	Annually	Letters sent in March 2021
Reminder from Lockheed Martin to property owners with post remedy residual soil contamination of the presence of such residual contamination, and of Lockheed Martin's commitment to handle (excavate, manage and dispose) residual contaminated soils, as necessary and in accordance with the intended use of the property	Annually	Reminder letters sent in March 2021
A provision for Lockheed Martin to request that the Village of Liverpool Code Enforcement Office and the Town of Salina Department of Planning and Development timely inform Lockheed Martin of any building permits they grant for properties within the site boundaries where residual material remains post remedy. Details of this notification process with the Village of Liverpool and Town of Salina are provided in the following sections.	Ongoing	Reminder letters sent in March 2021
A provision for Lockheed Martin to request that the Town of Salina and Onondaga County timely inform Lockheed Martin of any Town or County plans to conduct intrusive maintenance work within the site boundaries (*e.g.*, soil disturbance work).	Ongoing	Reminder letters sent in March 2021

3.2 Engineering Controls - Requirements and Compliance

Exposure to remaining contamination at the site is prevented by a cover system placed over the site in the areas where soil was excavated. This cover system is comprised of a minimum of 24 inches of clean soil and other components as appropriate. Figure 6A through 6C presents the location of the soil cover. The Excavation Work Plan (EWP) provided in the SMP outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Inspection of this cover are included as part of an annual site-wide inspection detailed in the Monitoring and Sampling Plan included in the SMP and is conducted to confirm the soil cover and armoring material remains in place and protective of the underlying soil. From the time of remedy completion through the

current reporting period, any deficiencies in the soil cover have been corrected and summarized as discussed above in Section 2.1.

3.3 IC/EC Certification Form

See Appendix B for the completed IC/EC Certification Form.

4.0 Monitoring Plan Compliance Report

The requirements of and compliance with the monitoring plan as detailed in the SMP are provided below in Table 4-1. All monitoring has been completed as required during the July 31, 2020 to July 31, 2021 reporting period.

Table 4-1. Inspection and Monitoring Schedule

Activity	Frequency Required	Dates Completed	Results Discussed within PRR
Annual Site-Wide Inspections	Annually	June 2021	Sections 2.1 and 3.2
Restoration Monitoring in Habitat Areas	Annually	June/July 2021	Sections 2.2 and 3.1
Restoration monitoring on private properties where restoration was completed in 2016	Annually for 5 years	June 2021	Discussed with property owners on an as-needed basis.
Restoration monitoring on private properties where restoration was completed in 2017	Annually for 5 years	June 2021	Discussed with property owners on an as-needed basis.
Biological Monitoring	Baseline, 2018, 2020, and 2022 (once per for a total of four monitoring events)	July 2014, August 2018, August 2020, and planned for August 2022	Section 2.3

5.0 Overall PRR Conclusions and Recommendations

5.1 Compliance with Site Management Plan

The SMP includes a monitoring and inspection schedule for the site. All requirements for the current reporting period have been conducted in accordance with the SMP.

5.2 Performance and Effectiveness of the Remedy

As discussed in previous sections of this PRR, erosion inspections and vegetation monitoring at the site indicate the remedy has been effective and is performing as designed. Vegetation monitoring in the wetlands and surrounding habitat areas suggests that the areas are developing well.

5.3 Future Periodic Review Report Submittals

No changes to the activities at the site are recommended at this time, and monitoring programs will continue to follow the schedules outlined in the SMP. No changes in the frequency of the PRR submittal are requested at this time. The next PRR will be due in August 2022.

6.0 References

AECOM. 2013. *Remedial Action Work Plan*. West Branch of Bloody Brook. February.

AECOM. 2014. *Revised Restoration Work Plan*. August.

AECOM. 2017a. *Restoration Maintenance Work Plan*. October.

AECOM. 2017b. *Annual Post-Construction Restoration Monitoring Summary Report.* July.

AECOM. 2018a. *Bloody Brook Site Management Plan*. Updated 2019, March.

AECOM. 2018b. *Bloody Brook Final Engineering Report*. February.

AECOM. 2018c. *Restoration Maintenance Work Plan*. October.

AECOM. 2018d. *August 2018 Biological Monitoring Sampling Results*. October

AECOM. 2019a. 2018 *Restoration Maintenance Summary Report*. February.

AECOM. 2019b. *2019 Restoration Monitoring Summary Report and Maintenance Work Plan.* August.

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BBL, 1997. *West Branch of Bloody Brook Sediment Removal Certification Report*, November.

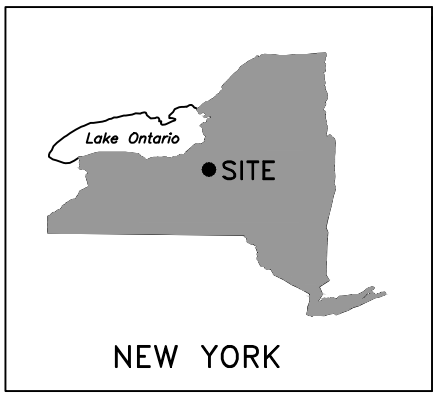
NYSDEC, 1996, Memorandum from Robert Bode to Distribution regarding Bloody Brook Tissue Analysis Results, January.

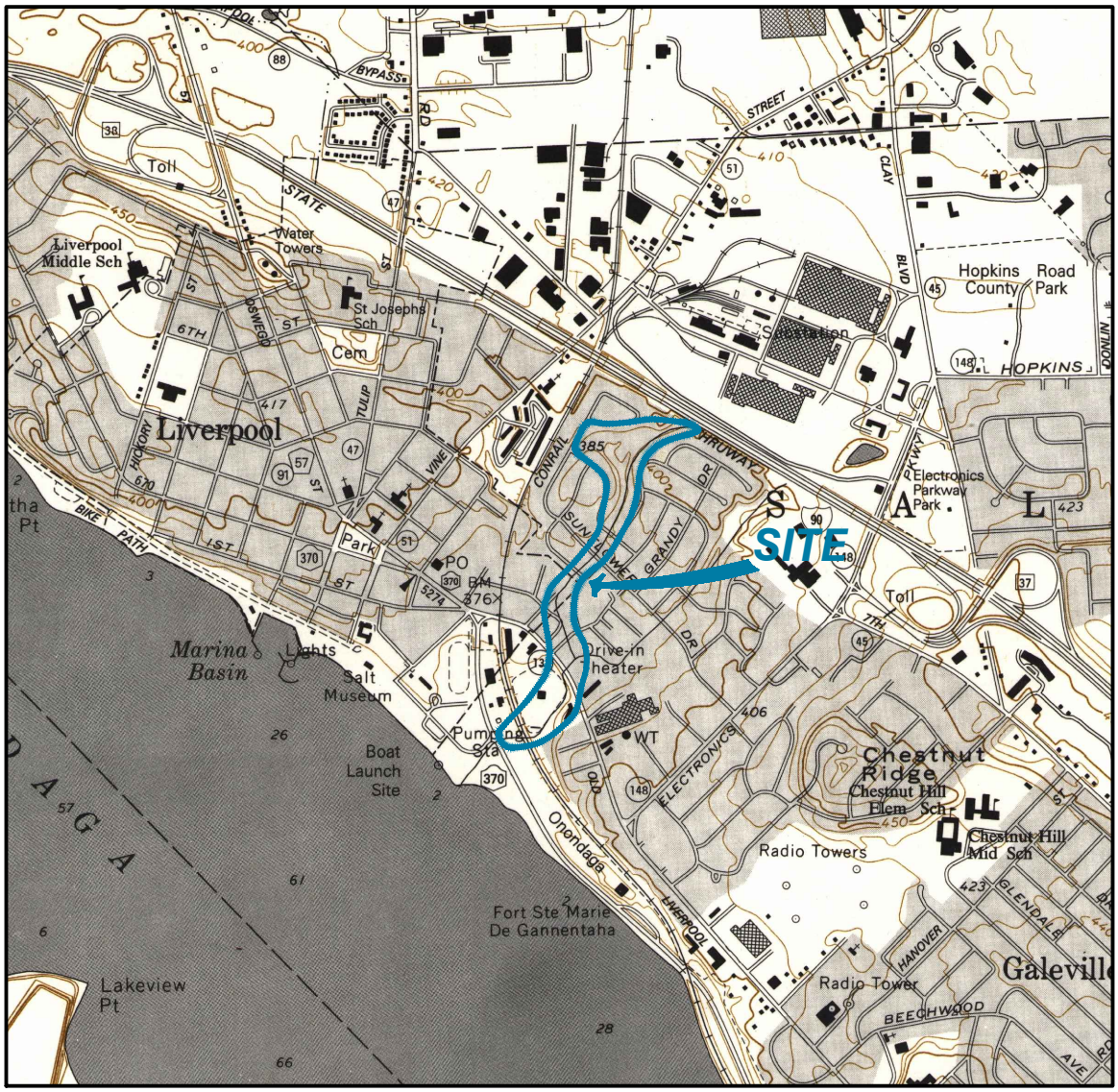
NYSDEC, 1997, *Statement of Basis for Lockheed Martin Corporation Electronics Park Facility*, January.

NYSDEC, 2010, DER-10 – "Technical Guidance for Site Investigation and Remediation", May

NYSDEC, 2014 *Decision Document*, March.

Figures





0' 2000' 4000'

APPROXIMATE SCALE

REFERENCE:

1. NYSDOT 7.5 MIN TOPOGRAPHIC MAP OF SYRACUSE WEST, QUADRANGLE 1990, SCALE: 1" = 2000'.

AECOM

LOCKHEED MARTIN CORPORATION

SITE LOCATION MAP

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
SMP_FIG1.dwg	RNB	60544270	7 / 2019	1

Plotted By: carrie.szczepanski
Layout-Sheet Name: LAYOUT1
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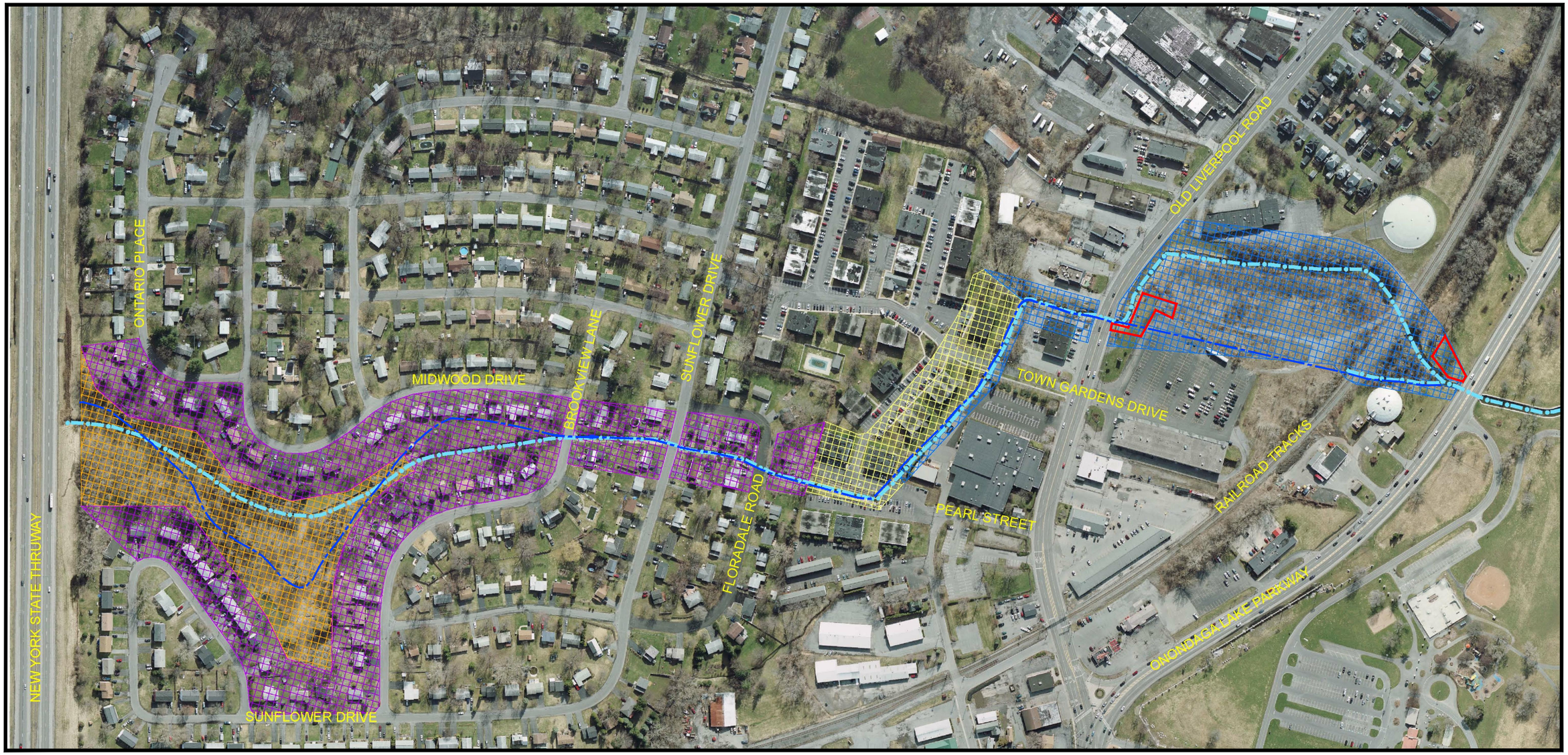

Legend

- CURRENT BROOK ALIGNMENT
- WOODED AREA
- RESIDENTIAL AREA
- APARTMENT COMPLEX AREA
- COMMERCIAL-LIGHT INDUSTRIAL AREA
- COMMERCIAL AREAS EXCLUDED FROM MAY 2017 MONITORING

0' 300' 600'

APPROXIMATE SCALE

AECOM

LOCKHEED MARTIN CORPORATION

SITE AREA MAP

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
SMP_FIG2.dwg	RNB	60544270	7 / 2019	2

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIGURE 2
Plot File Date Created: Jul/18/2019 2:37 PM

Filename: \\URSHARRISBURG\DATA\DEPARTMENTS\MARKETING\PROPOSALS\LOCKHEED MARTIN – BLOODY BROOK\CAD\SMP – 2019\SMP_FIG2.DWG

LEGEND

Symbol	Description
	BLOODY BROOK DRAINAGE DISTRICT EASEMENT
	PROPERTY BORDER
365	TOPOGRAPHIC CONTOUR LINE (PRE-EXCAVATION)
7+00	PROPOSED BLOODY BROOK CENTERLINE
	STREAM/WATER EDGE
	UNDERGROUND DRAIN LINE
OHW	OVERHEAD WIRES
	RETAINING WALL
	GUARD RAIL
UMH	UTILITY MANHOLE
DMH	DRAINAGE MANHOLE
SMH	SANITARY MANHOLE
	RAILROAD TRACKS
CB	CATCH BASIN
DI / DS	DRAINAGE STRUTURES
FP	FLAG POLE
	CULVERT
E 924,000	NYS PLANE COORDINATE SYSTEM EASTING
N 1,131,000	NYS PLANE COORDINATE SYSTEM NORTHING
BL-115	AERIAL SURVEY GROUND CONTROL POINT
7+50	CHANNEL CENTERLINE SURVEY STATION
367.4 ×	TOPOGRAPHIC SPOT ELEVATION
	CONIFEROUS TREE
	DECIDUOUS TREE
	LIGHT POLE
	UTILITY POLE / GUY WIRE
	WETLAND ELEVATION CONTROL WEIR LOCATION
	RIP RAP
	EXISTING WETLAND
PZ-1	WETLAND PIEZOMETER LOCATION
SG-1	WETLAND MONITORING STAFF GAUGE

Symbol	Description
PSS	PALUSTRINE SHRUB / SCRUB
PEM	PALUSTRINE EMERGENT
PFO	PALUSTRINE FORESTED
UPF	FORESTED UPLAND
USS	SHRUB / SCRUB UPLAND
MOW	UPLAND MEADOW
RIP	RIPARIAN
LAWN	LAWN
W	WETLAND
PHOTO-1	WETLAND MONITORING PHOTOGRAPH LOCATION (MULTIPLE VIEWS)

0' 50' 100'

APPROXIMATE SCALE

REFERENCES:

1. BASE MAP SOURCE: IANUZI & ROMANS, P.C. AND CT MALE ASSOCIATES P.C.

AECOM

LOCKHEED MARTIN CORPORATION

WETLAND HABITATS

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
2021 Wetland Habitat.dwg	CLS	60624670	8 / 2021	3

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIG 1_FULL SITE - NO PLANTS
Plot File Date Created: Aug/26/2021 10:39 AM
Filename: D:\BLOODY BROOK JANUARY 2021\2021 WETLAND HABITAT.DWG

LEGEND:

- APPROXIMATE BIOTA MONITORING SAMPLE LOCATION
- BLOODY BROOK
- APPROXIMATE SITE BOUNDARY

NOTE:

1. BASE MAP SOURCE: ESRI ARCGIS STREET MAP.

0 800 1,600 Feet

GRAPHIC SCALE

AECOM

LOCKHEED MARTIN CORPORATION

BIOLOGICAL MONITORING LOCATIONS

WEST BRANCH OF BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
Bio Mon Plan.dwg	---	60338140	7 / 2019	4

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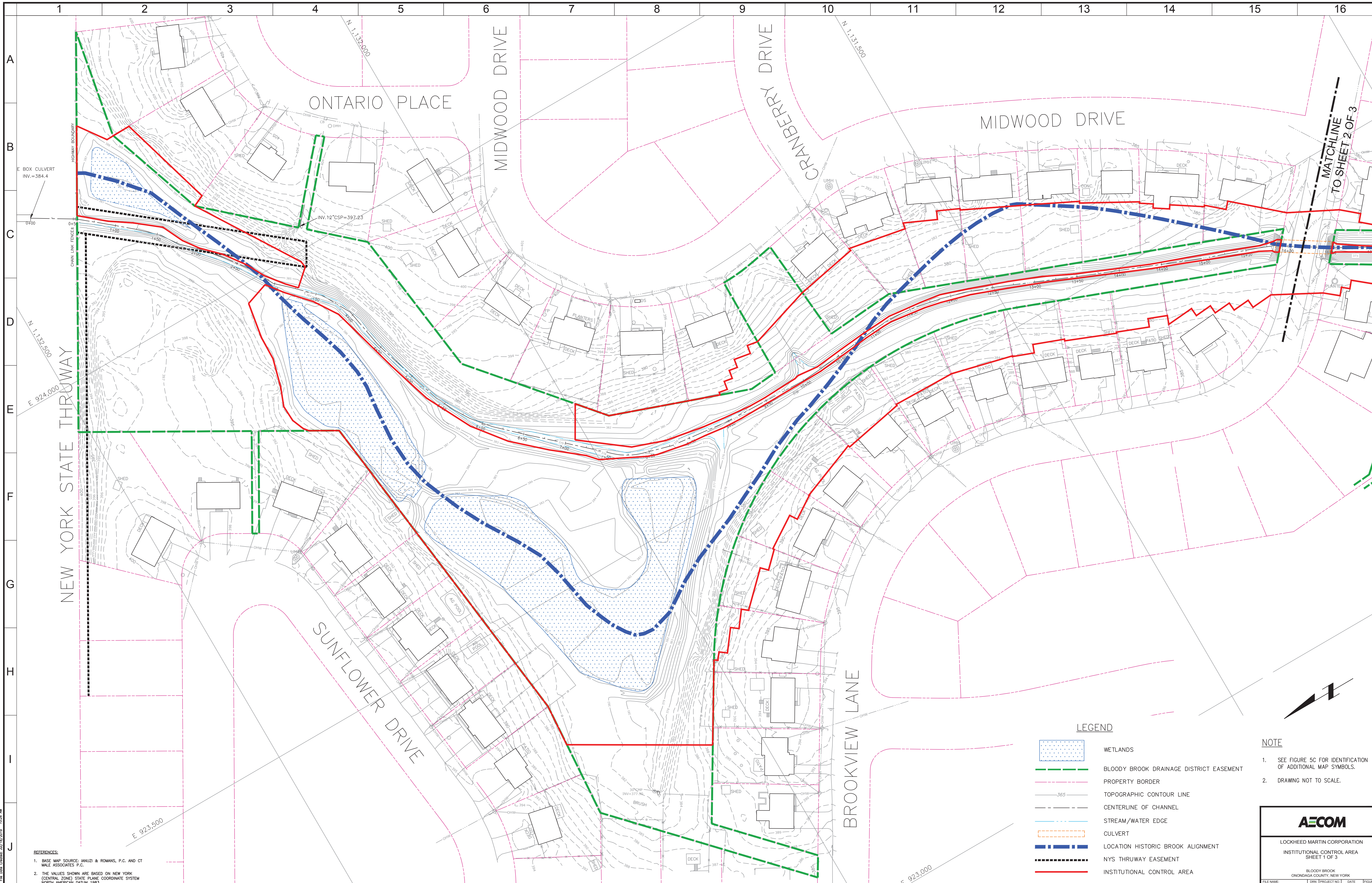

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIGURE 5A
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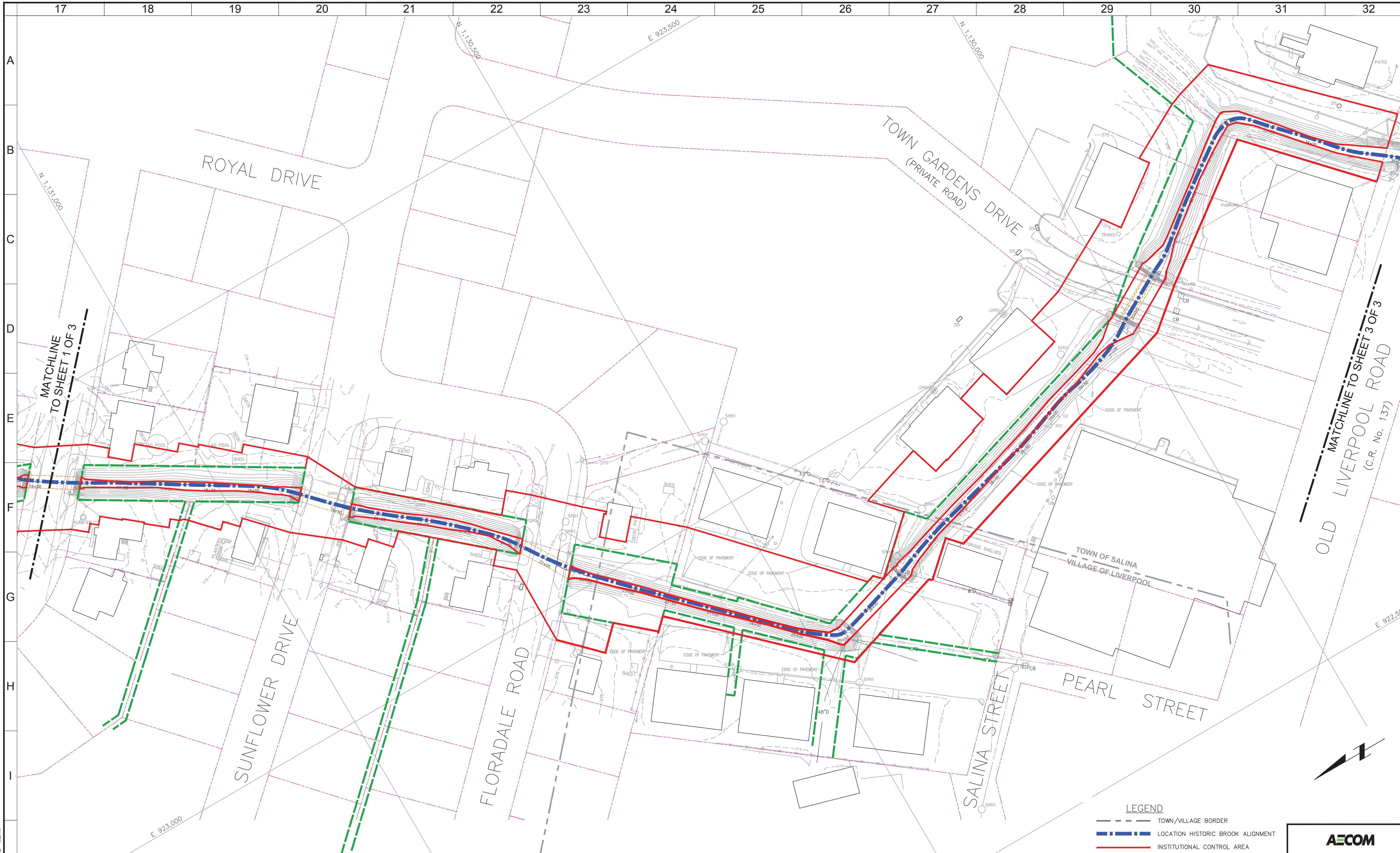


LEGEND

- TOWN/VILLAGE BORDER
- LOCATION HISTORIC BROOK ALIGNMENT
- INSTITUTIONAL CONTROL AREA

NOTE

1. SEE FIGURE 5C FOR IDENTIFICATION OF ADDITIONAL MAP SYMBOLS.
2. DRAWING NOT TO SCALE.

REFERENCES:

1. BASE MAP SOURCE: IANUZI & ROMANS, P.C. AND CT MALE ASSOCIATES P.C.
2. THE VALUES SHOWN ARE BASED ON NEW YORK (CENTRAL ZONE) STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM 1983.

AECOM

LOCKHEED MARTIN CORPORATION

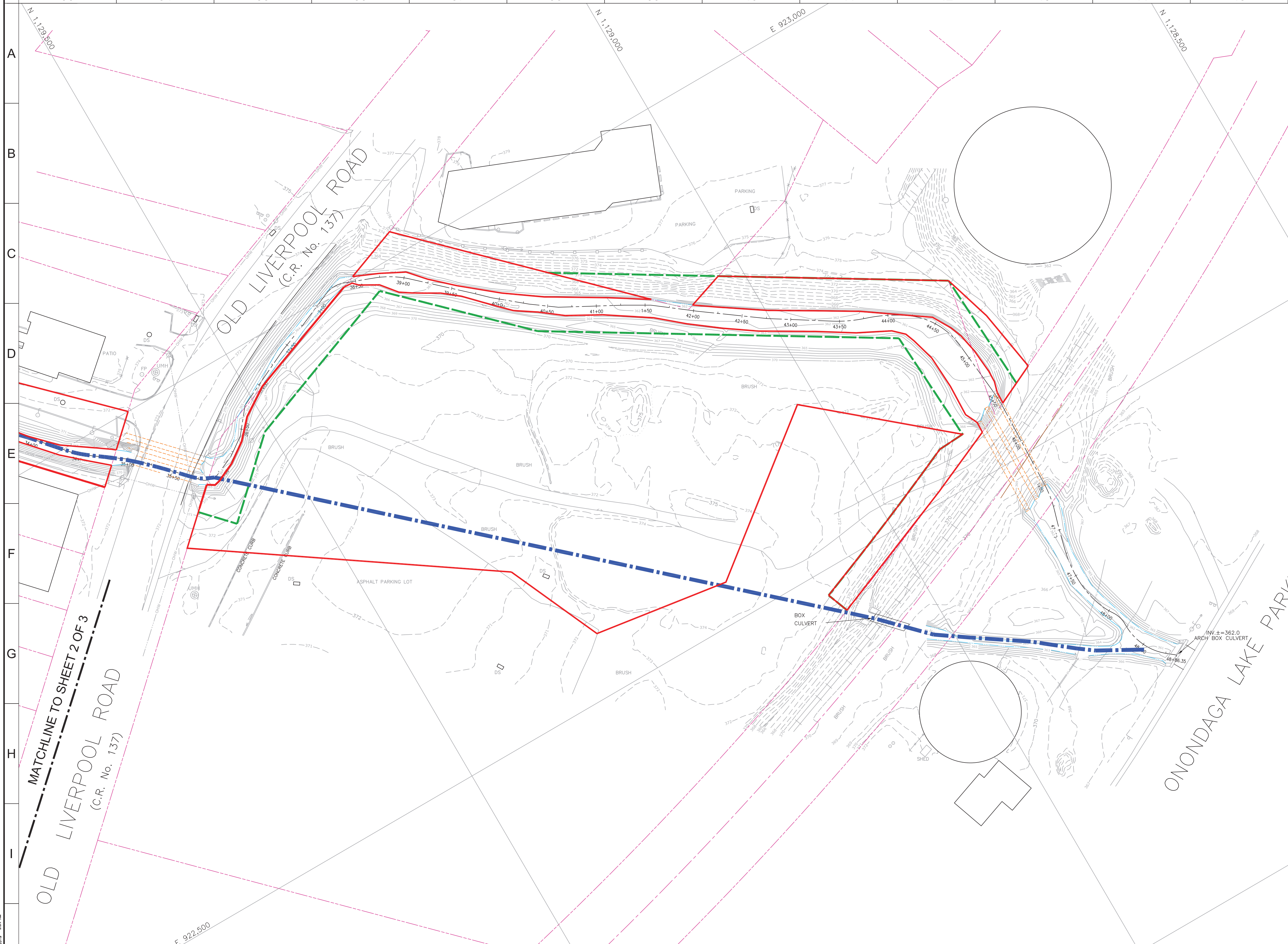
INSTITUTIONAL CONTROL AREA
SHEET 2 OF 3

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
SMP_FIG5.dwg	RNB	60544270	7 / 2019	5B

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIGURE 5B
Plot File Date Created: Jul/18/2019 10:28 AM

Filename: \\URSHARRISBURG\DATA\DEPARTMENTS\MARKETING\PROPOSALS\LOCKHEED MARTIN – BLOODY BROOK\CAD\SMP – 2019\SMP_FIG5.DWG



LEGEND

- BLOODY BROOK DRAINAGE DISTRICT EASEMENT
- PROPERTY BORDER
- TOPOGRAPHIC CONTOUR LINE
- CENTERLINE OF CHANNEL
- STREAM/WATER EDGE
- UNDERGROUND DRAIN LINE
- OVERHEAD WIRES
- RETAINING WALL
- GUARD RAIL
- UMH — UTILITY MANHOLE
- DMH — DRAINAGE MANHOLE
- SMH — SANITARY MANHOLE
- RAILROAD TRACKS
- CB — CATCH BASIN
- DS — DRAINAGE STRUTURES
- FP — FLAG POLE
- CULVERT
- E 924,000 — NYS PLANE COORDINATE SYSTEM EASTING
- N 1,131,000 — NYS PLANE COORDINATE SYSTEM NORTHING
- BL-115 — AERIAL SURVEY GROUND CONTROL POINT
- 7+50 — CHANNEL CENTERLINE SURVEY STATION
- 367.4 × — TOPOGRAPHIC SPOT ELEVATION
- CONIFEROUS TREE
- DECIDUOUS TREE
- LIGHT POLE
- UTILITY POLE / GUY WIRE
- LOCATION HISTORIC BROOK ALIGNMENT
- INSTITUTIONAL CONTROL AREA

REFERENCES:

1. BASE MAP SOURCE: IANUZI & ROMANS, P.C. AND CT MALE ASSOCIATES P.C.
2. THE VALUES SHOWN ARE BASED ON NEW YORK (CENTRAL ZONE) STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM 1983.

NOTE

1. DRAWING NOT TO SCALE.

AECOM

LOCKHEED MARTIN CORPORATION
INSTITUTIONAL CONTROL AREA
SHEET 3 OF 3

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
SMP_FIG5.dwg	RNB	60544270	7 / 2019	5C

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIGURE 5C
Plot File Date Created: Jul/18/2019 9:04 AM

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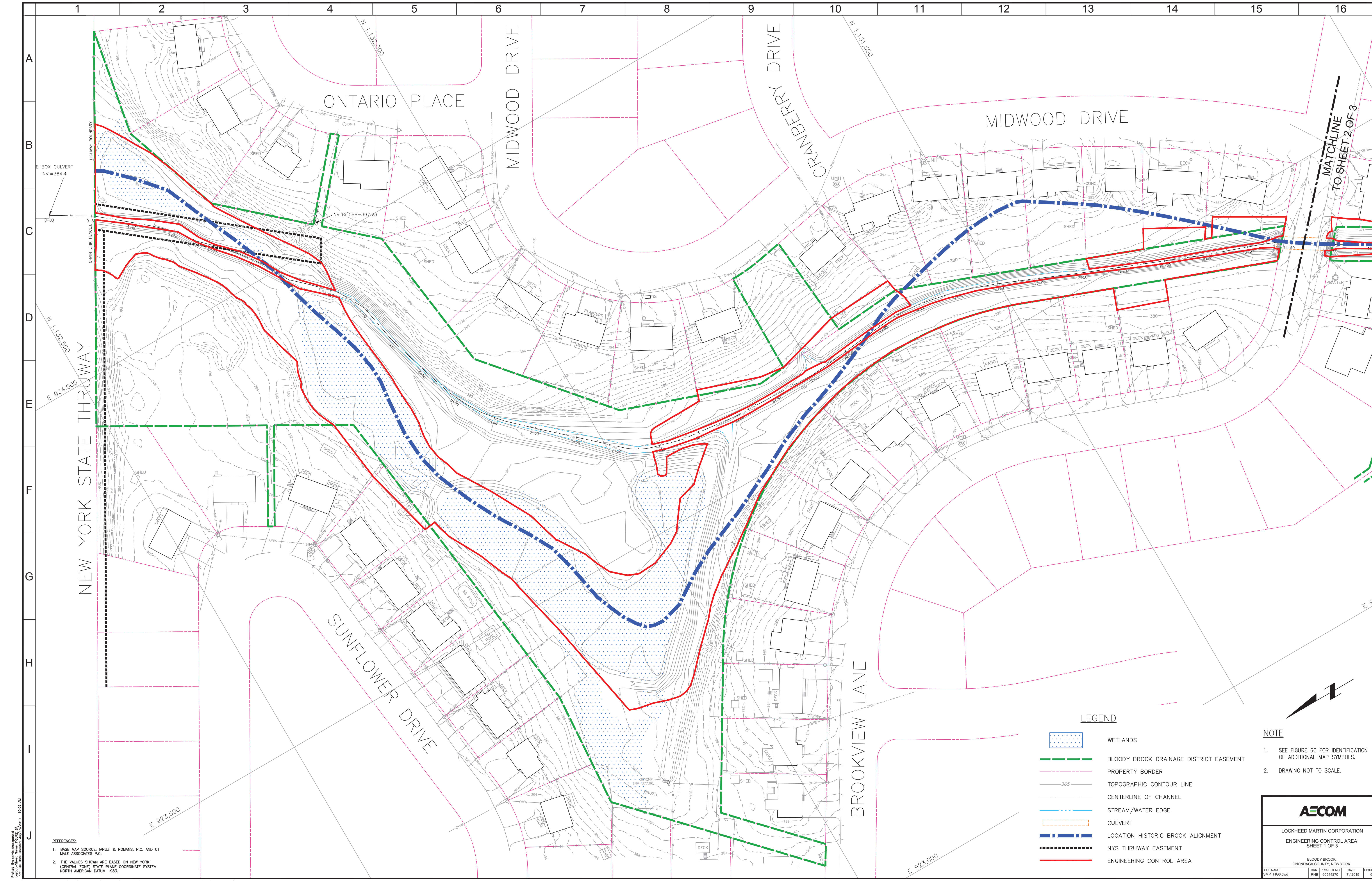
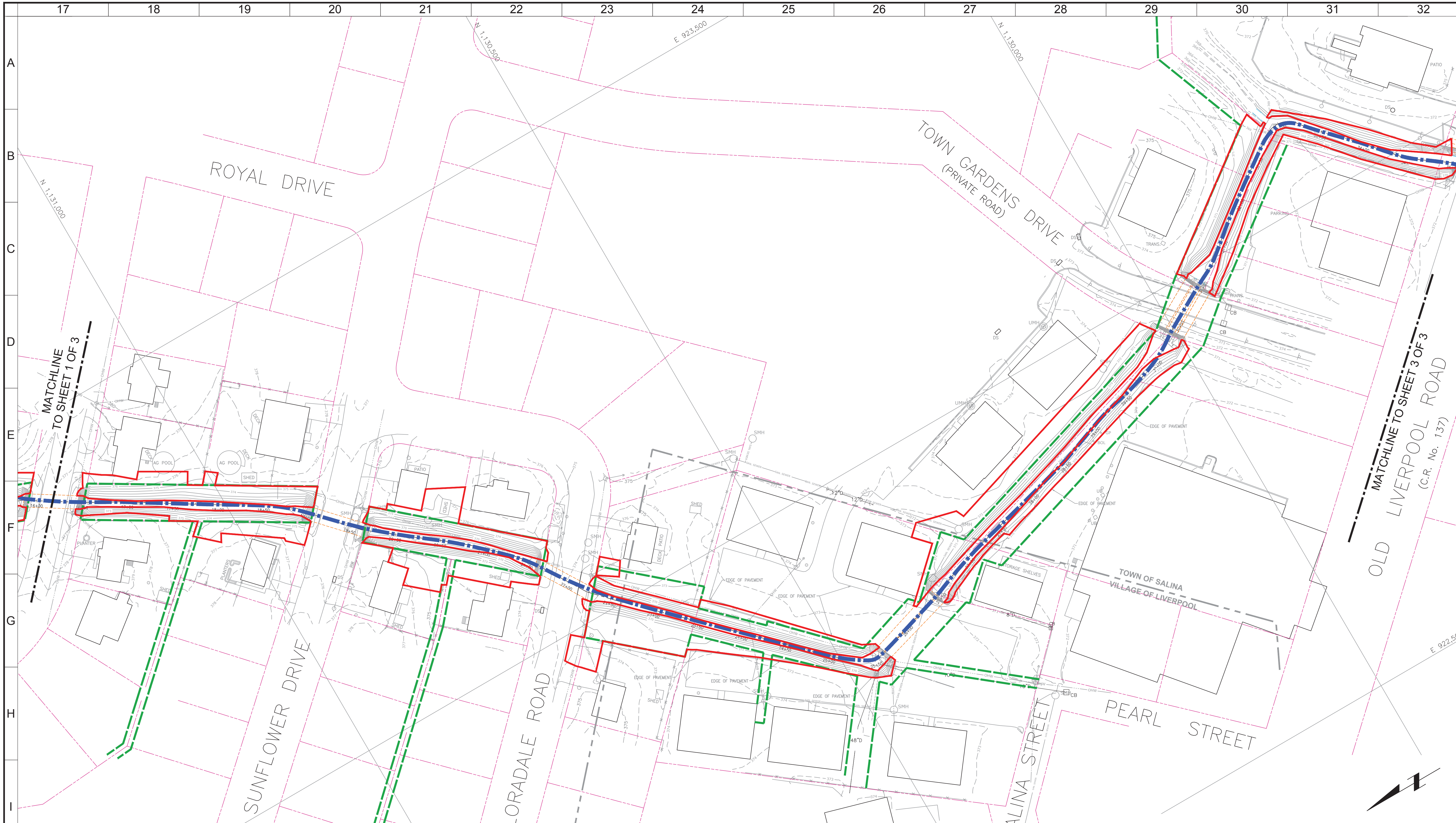


Filename: \\URSHARRISBURG\DATA\DEPARTMENTS\MARKETING\PROPOSALS\LOCKHEED MARTIN – BLOODY BROOK\CAD\SMP – 2019\SMP_FIG6.DWG



LEGEND

TOWN/VILLAGE BORDER

LOCATION HISTORIC BROOK ALIGNMENT

ENGINEERING CONTROL AREA

NOTE

1. SEE FIGURE 6C FOR IDENTIFICATION OF ADDITIONAL MAP SYMBOLS.

2. DRAWING NOT TO SCALE.

REFERENCES:

1. BASE MAP SOURCE: IANUZI & ROMANS, P.C. AND CT MALE ASSOCIATES P.C.

2. THE VALUES SHOWN ARE BASED ON NEW YORK (CENTRAL ZONE) STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM 1983.

AECOM

LOCKHEED MARTIN CORPORATION

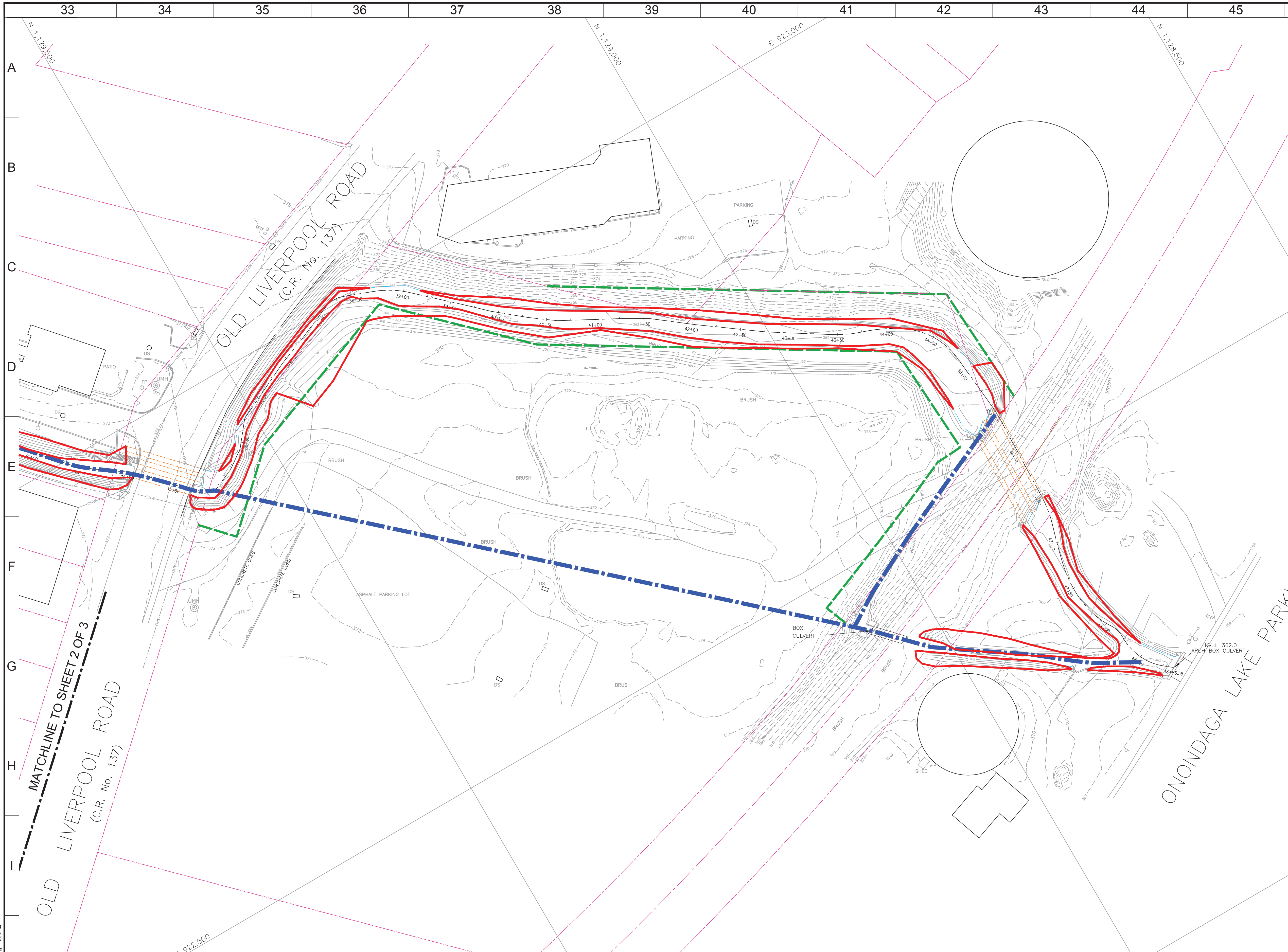
ENGINEERING CONTROL AREA
SHEET 2 OF 3

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
SMP_FIG6.dwg	RNB	60544270	7 / 2019	6B

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIGURE 6B
Plot File Date Created: Jul/18/2019 10:06 AM

Filename: \\URSHARRISBURG\DATA\DEPARTMENTS\MARKETING\PROPOSALS\LOCKHEED MARTIN – BLOODY BROOK\CAD\SMP – 2019\SMP_FIG6.DWG



LEGEND

- BLOODY BROOK DRAINAGE DISTRICT EASEMENT
- PROPERTY BORDER
- TOPOGRAPHIC CONTOUR LINE
- CENTERLINE OF CHANNEL
- STREAM/WATER EDGE
- UNDERGROUND DRAIN LINE
- OVERHEAD WIRES
- RETAINING WALL
- GUARD RAIL
- UMH — UTILITY MANHOLE
- DMH — DRAINAGE MANHOLE
- SMH — SANITARY MANHOLE
- RAILROAD TRACKS
- CB — CATCH BASIN
- DS — DRAINAGE STRUTURES
- FP — FLAG POLE
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- E 924,000 — NYS PLANE COORDINATE SYSTEM EASTING
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- BL-115 — AERIAL SURVEY GROUND CONTROL POINT
- 7+50 — CHANNEL CENTERLINE SURVEY STATION
- 367.4 — TOPOGRAPHIC SPOT ELEVATION
- CONIFEROUS TREE
- DECIDUOUS TREE
- LIGHT POLE
- UTILITY POLE / GUY WIRE
- LOCATION HISTORIC BROOK ALIGNMENT
- ENGINEERING CONTROL AREA

REFERENCES:

1. BASE MAP SOURCE: IANUZI & ROMANS, P.C. AND CT MALE ASSOCIATES P.C.
2. THE VALUES SHOWN ARE BASED ON NEW YORK (CENTRAL ZONE) STATE PLANE COORDINATE SYSTEM NORTH AMERICAN DATUM 1983.

NOTE

1. DRAWING NOT TO SCALE.

AECOM

LOCKHEED MARTIN CORPORATION

ENGINEERING CONTROL AREA
SHEET 3 OF 3

BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
SMP_FIG6.dwg	RNB	60544270	7 / 2019	6C

Plotted By: carrie.szczepanski
Layout-Sheet Name: FIGURE 6C
Plot File Date Created: Jul/18/2019 10:13 AM

Filename: \\URSHARRISBURG\DATA\DEPARTMENTS\MARKETING\PROPOSALS\LOCKHEED MARTIN – BLOODY BROOK\CAD\SMP – 2019\SMP_FIG6.DWG

Appendix A

Bloody Brook
Liverpool, NY
Site-Wide Inspection Form

Engineering Control: Soil Cover

Inspection Date: 6/22/2021

Item	Yes	No	N/A	Comments
Was ponding observed in any areas of the soil cover? If so, identify the stream mile marker in the comment section of this form.		X		
Were areas of erosion observed in the soil cover or along the streambed? If so, identify the stream mile marker in the comment section of this form.		X		
Based on the above items, does the engineering control continue to perform as designed?	X			
Were the weirs and piezometers within the wetland areas inspected and appear to be in good condition, functioning as designed?	X			
Were the permanent plot, transect, and photo locations within the wetlands clearly marked?	X			
Has there been any apparent intrusive activity, excavation, or construction at the site? If so, were the activities performed in accordance with the SMP?		X		
Were vegetation and wetland monitoring completed during this site inspection? If so, were the vegetation inspection logs completed?		X		

Note: Upon completion of the form, any non-conforming items warranting corrective action should be identified here within.

Name of Inspector: Marleiah O'Neill

Signature of Inspector: 

Inspector's Company: AECOM

Date: 6/22/2021

IMMEDIATELY REPORT ANY FAILURE OR DEFECT TO THE PROJECT MANAGER SO A COUNTERMEASURE PLAN CAN BE IMPLEMENTED.

Appendix B

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. V00501

Site Name Bloody Brook

Site Address: West Branch of Bloody Brook (WBBB) Zip Code: 13088-
City/Town: Salina
County: Onondaga
Site Acreage: 23.000

Reporting Period: July 31, 2020 to July 31, 2021

	YES	NO
1. Is the information above correct?	X	
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?		X
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?		X
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?		X
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?		X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Residential, Restricted-Residential, Commercial, and Industrial	X	
7. Are all ICs in place and functioning as designed?	X	

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. V00501 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
028.-02-47.0	Town of Salina	Soil Management Plan Monitoring Plan Site Management Plan

1. a provision for further investigation to refine the extent of contamination in the areas where access was previously hindered (e.g., any residential property where access is currently denied or future excavations that require the property owner to contact Lockheed Martin when digging at depths where residual cadmium has been or has the potential to be detected);
2. maintaining site access controls and Department notification;
3. tracking of property ownership changes to allow for the continued communication with owners;
4. annual notification by Lockheed Martin to property owners of Lockheed Martin's offer to implement the remedy for property owners who chose to decline remedy implementation and/or sampling on their property;
5. an annual reminder from Lockheed Martin to property owners with post remedy residual soil contamination of the presence of such residual contamination, and of Lockheed Martin's commitment to handle (excavate, manage and dispose) residual contaminated soils, as necessary and in accordance with the intended use of the property;
6. a provision for Lockheed Martin to request that the Village of Liverpool Code Enforcement Office and the Town of Salina Department of Planning and Development timely inform Lockheed Martin of any building permits they grant for properties within the site boundaries where residual material remains post remedy. Details of this notification process with the Village of Liverpool and Town of Salina are provided in the following sections; and
7. a provision for Lockheed Martin to request that the Town of Salina and Onondaga County timely inform Lockheed Martin of any Town or County plans to conduct intrusive maintenance work within the site boundaries (e.g., soil disturbance work).

Box 4

Description of Engineering Controls

Parcel	Engineering Control
028.-02-47.0	Cover System

Exposure to remaining contamination at the site is prevented by a cover system placed over the site in the areas where soil was excavated. This cover system is comprised of a minimum of 24 inches of clean soil and other components as appropriate.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

   (a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
X	

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. V00501

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Jill Fonte (print name) at Lockheed Martin Corporation 497 Electronics Parkway, Liverpool, NY 13088 (print business address),

am certifying as Remedial Party (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

Jill Fonte

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

08/27/2021
Date

EC CERTIFICATIONS

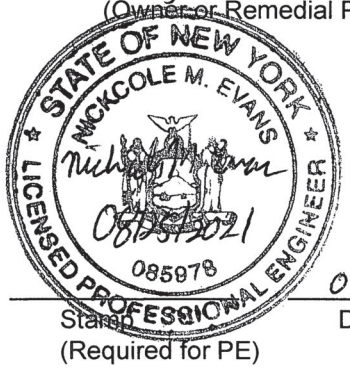
Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Nickcole Evans at AECOM 40 British American Blvd. Latham, NY.
print name print business address

am certifying as a Professional Engineer for the Remedial Party
(Owner or Remedial Party)



Nickcole M Evans — Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

08/25/2021 — Date