



Environment

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Lockheed Martin Corporation

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Tree Removal Work Plan for 2015 Construction Season

West Branch of Bloody Brook Bloody Brook Voluntary Cleanup Program Onondaga County, New York

November 2014

Prepared for:

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1.0 Introduction

This Tree Removal Work Plan (TRWP) provides the procedures for the removal of trees associated with the remediation activities proposed to be conducted in 2015 at the West Branch of Bloody Brook (WBBB) Site (hereinafter referred to as the "Site"). For the purposes of this TRWP, the Site is defined as that portion of the WBBB and the surrounding area commencing on the southern boundary of the New York State Thruway (Thruway) and ending at Onondaga Lake Parkway. The Site is located in the Town of Salina and Village of Liverpool, Onondaga County, New York. The remedial action activities at the Site will be performed pursuant to a Voluntary Cleanup Agreement (VCA) between Lockheed Martin Corporation (Lockheed Martin) and New York State Department of Environmental Conservation (NYSDEC) (Index #: D7-0001-01-09, effective July 20, 2002) and in accordance with the February 2013 *Remedial Action Work Plan* (RAWP) and NYSDEC's March 2014 *Decision Document*.

Tree removal activities will be conducted in conformance with the *Site Health and Safety Plan* (HASP).

2.0 Tree Removal

Tree removal is required to complete excavation activities planned for 2015 at the Site. Tree removal will be performed by a New York State licensed tree removal service.

2.1 Tree Survey

A tree survey was performed by AECOM on September 11 and 12, 2014. The results of the tree survey include the identification of trees present within the Onondaga County Bloody Brook Drainage District Easement and the Site beginning at the empty lot located on Midwood Drive and ending at Town Gardens Drive. The information used to identify the condition of each tree included:

- Species;
- Stem;
- Diameter at Breast Height (for each stem);
- Height;
- Condition; and
- Critical Root Zone.

The trees identified for removal are provided in Figure 1. Additional details about each tree are provided in Tables 1 and 2.

2.2 Tree Leveling

Tree leveling activities include the cutting of trees to a minimum of 3 feet above ground surface and will be completed using hand tools and equipment. No significant soil disturbance is expected through the use of hand tools and equipment. Any damage that may occur to the ground level vegetated areas that results in significant soil disturbance will be repaired and seeded following the completion of the field activities.

Tree leveling activities must be completed between November 15, 2014 and March 31, 2015 to confidently avoid any disturbance to endangered species. Prior to tree leveling activities, each tree identified for removal will be marked. Any trees currently identified for removal will be leveled after obtaining NYSDEC and property owner approval.

2.3 Tree Removal/Disposal

Following tree leveling activities, the trees will be properly broken down for eventual removal for disposal or recycling. Tree removal will be conducted as part of the proposed remediation activities that are scheduled to be completed in 2015. Stump removal will be completed as part of the 2015 excavation activities to implement the remedial action proposed for the Site and disposed of as impacted material.

The trees will be cut down and downsized to manageable pieces. An excavator or similar equipment will be used to move the trees to the 2014 construction area. There the trees will be chipped, and the chips will be stored and reused onsite. Large trunks and limbs that cannot be chipped on site will be transported to a recycling facility.

Trees located downstream of the Brookview Drive culvert will be cut to reduce the size of the tree, so the tree debris can be carried by laborers to the nearest culvert crossing. The debris will be chipped at the culvert locations or hauled to the 2014 construction area to be chipped. If trees are chipped at the culvert locations, the chipped debris will be brought to the 2014 construction site for storage and reuse.

3.0 Construction Details for Tree Removal Activities

AECOM will install a temporary construction access road adjacent to the Bloody Brook channel between the 2014 construction site access road and the culvert on Brookview Lane (Figure 2). Leveled trees and tree debris will be moved to the 2014 construction area for chipping as discussed in Section 2.3 using the access road.

The access road is expected to be installed in December 2014 and will be constructed using crusher run and geotextile placed underneath, with approximate dimensions of 12 feet wide by 12 to 15 inches thick to support lighter construction equipment. A temporary culvert pipe that is slightly wider than the access road will be placed in the small stream south of the construction access road.

4.0 Contingency Plan

This section of the TRWP has been developed to identify steps that will be taken in response to events that may reasonably occur during this work. These events include weather conditions and access.

4.1 Weather Conditions

Heavy rainfall events may hinder safe conditions. Therefore, to protect the safety of personnel, work activities will be cancelled on days where forecasts predict significant rainfall. Work will resume when the rain event stops. In addition, in the event that rainfall conditions result in restricted access to the Site (as determined in the field), work activities will be suspended until conditions improve. Similar work restrictions will apply during periods of heavy snowfall.

4.2 Access

The work described herein will be conducted within the maintenance easements granted to Onondaga County and on private property. Lockheed Martin and Onondaga County have an access agreement to perform activities within the Bloody Brook Drainage District Easement.

4.3 Homeowner Coordination

There are areas with trees located in or adjacent to nearby properties. Temporary access to properties may be required to safely remove each tree. Lockheed Martin will coordinate the tree removal with each homeowner.

5.0 Schedule and Reporting

Upon NYSDEC approval of this TRWP, implementation of the tree removal activities will begin. Tree removal activities within the Bloody Brook Drainage District Easement will begin upon receiving NYSDEC approval, obtaining approval from the property owners (Town of Salina) and Onondaga County, and after November 15, 2014. In addition, Lockheed Martin will begin contacting private property owners to gain approval and access to complete the tree removal activities within their property limits. It is unknown how long it will take to obtain approval and access to private properties. Once approval and access has been granted, Lockheed Martin will initiate private property owner tree removal activities to allow tree removal activities to be completed by the March 31, 2015 deadline. Lockheed Martin will verbally communicate progress, schedule, and potential access issues to the NYSDEC Project Manager and summarize the activities in the monthly project progress reports.

TABLES

Table 1
Details for Trees to be Removed for the 2015 Construction Season
West Branch of Bloody Brook
Bloody Brook Voluntary Cleanup Program
Onondaga County, New York

Tree ID	Species	Common Name	Stem	DBH ¹ of Four Largest Stems (inches)				HEIGHT (feet)	CONDITION ²	CRZ ³ (radial feet from trunk)
				DBH	DBH	DBH	DBH			
T1000	<i>Acer saccharinum</i>	Silver Maple	4	25	4	6.5	6.5	55	3-4	37.5
T1001	Same tree as T1000	Same tree as T1000								
T1002	<i>Acer negundo</i>	Box Elder	1	24				35	4-5	36
T1003	<i>Juglans nigra</i>	Eastern Black Walnut	1	6				25	3	9
T1004	<i>Juglans nigra</i>	Eastern Black Walnut	1	9.5				25	3	14.25
T1005	<i>Populus deltoides</i>	Eastern Cottonwood	1	38				85	3	57
T1006	<i>Juglans nigra</i>	Eastern Black Walnut	1	7				25	3	10.5
T1007	<i>Acer negundo</i>	Box Elder	2	8.5	5			25	3	12.75
T1008	<i>Acer negundo</i>	Box Elder	2	4	6			25	3	9
T1009	<i>Acer negundo</i>	Box Elder	1	12.5				25	3	18.75
T1010	<i>Acer platanoides</i>	Norway Maple	1	5.5				20	3	8.25
T1011	<i>Fraxinus</i> sp.	Ash	2	3	10.5			35	3	15.75
T1012	<i>Acer saccharinum</i>	Silver Maple	1	9.5				35	3	14.25
T1013	<i>Acer negundo</i>	Box Elder	2	12	17			45	4	25.5
T1014	<i>Acer negundo</i>	Box Elder	1	10				35	4	15
T1015	<i>Acer negundo</i>	Box Elder	1	9				35	4	13.5
T1016	<i>Acer negundo</i>	Box Elder	1	8				10	4-5	12
T1017	<i>Populus deltoides</i>	Eastern Cottonwood	1	27				75	3-4	40.5
T1018	<i>Populus deltoides</i>	Eastern Cottonwood	1	22				75	5	33
T1019	<i>Populus deltoides</i>	Eastern Cottonwood	1	23				75	5-6	34.5
T1020	<i>Acer negundo</i>	Box Elder	1	6.5				35	3-4	9.75
T1021	<i>Juglans nigra</i>	Eastern Black Walnut	1	7				55	5	10.5
T1022	<i>Populus deltoides</i>	Eastern Cottonwood	1	20				75	3	30
T1023	<i>Acer negundo</i>	Box Elder	1	5.5				30	5-6	8.25
T1024	<i>Populus deltoides</i>	Eastern Cottonwood	1	29				85	3	43.5
T1025	<i>Populus deltoides</i>	Eastern Cottonwood	1	28				85	3	42
T1026	<i>Populus deltoides</i>	Eastern Cottonwood	1	35				85	3	52.5
T1027	<i>Acer negundo</i>	Box Elder	2	18	16			45	4-5	27
T1028	<i>Acer negundo</i>	Box Elder	4	10	12	10	8	45	4-5	18

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Tree ID	Species	Common Name	Stem	DBH ¹ of Four Largest Stems (inches)				HEIGHT (feet)	CONDITION ²	CRZ ³ (radial feet from trunk)
				DBH	DBH	DBH	DBH			
T1029	<i>Acer negundo</i>	Box Elder	4	3	12	9	10	45	4-5	18
T1030	<i>Acer negundo</i>	Box Elder	2	9.5	10.5			45	3-4	15.75
T1031	<i>Acer saccharinum</i>	Silver Maple	2	13	16			45	3	24
T1032	<i>Acer saccharinum</i>	Silver Maple	2	36	42			65	3	63
T1033	<i>Acer negundo</i>	Box Elder	1	9.5				45	3	14.25
T1034	<i>Acer negundo</i>	Box Elder	1	6				20	4-5	9
T1035	<i>Acer negundo</i>	Box Elder	2	17	10			55	4-5	25.5
T1036	<i>Acer negundo</i>	Box Elder	1	7.5				35	4-5	11.25
T1037	<i>Acer negundo</i>	Box Elder	1	6				20	4	9
T1038	<i>Fraxinus</i> sp.	Ash	2	23	5			30	6	34.5
T1039	<i>Acer negundo</i>	Box Elder	1	12				30	4	18
T1040	<i>Acer saccharinum</i>	Silver Maple	4	9.5	9.5	12.5	13	75	4	18.75
T1041	<i>Acer negundo</i>	Box Elder	2	10	21			55	4	31.5
T1042	<i>Acer negundo</i>	Box Elder	2	16	18.5			55	4	27.75
T1043	<i>Acer negundo</i>	Box Elder	1	14.5				55	4	21.75
T1046	<i>Acer negundo</i>	Box Elder	1	16.5				45	4	24.75
T1050	<i>Acer negundo</i>	Box Elder	1	6				35	4-5	9
T1052	<i>Acer negundo</i>	Box Elder	2	9	10			35	4	15
T1053	<i>Acer negundo</i>	Box Elder	2	17.5	18.5			55	4-5	27.75
T1054	Unknown Shrub	UNK	2	7.5	3.5			20	3	11.25
T1055	<i>Gleditsia triacanthos</i>	Honey Locust	1	6				45	3-4	9
T1056	<i>Acer negundo</i>	Box Elder	2	6	7			25	3-4	10.5
T1058	<i>Picea</i> sp.	Spruce	1	17.5				55	3	26.25
T1059	<i>Picea</i> sp.	Spruce	1	11.5				45	4	17.25
T1060	<i>Picea</i> sp.	Spruce	1	19				55	3	28.5
T1061	<i>Picea</i> sp.	Spruce	1	11				55	3	16.5
T1064	<i>Populus deltoides</i>	Eastern Cottonwood	2	20	21			85	4-5	31.5
T1065	<i>Acer negundo</i>	Box Elder	2	12	9			20	3	18
T1066	<i>Juglans nigra</i>	Eastern Black Walnut	2	17	17			75	3	25.5
T1069	<i>Acer platanoides</i>	Norway Maple	1	5.5				25	3	8.25
T1070	<i>Acer negundo</i>	Box Elder	1	11				35	4	16.5

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Onondaga County, New York

Tree ID	Species	Common Name	Stem	DBH ¹ of Four Largest Stems (inches)				HEIGHT (feet)	CONDITION ²	CRZ ³ (radial feet from trunk)
				DBH	DBH	DBH	DBH			
T1071	<i>Acer negundo</i>	Box Elder	3	10	14	8		45	4-5	21
T1072	<i>Acer negundo</i>	Box Elder	1	7				35	3	10.5
T1073	<i>Acer negundo</i>	Box Elder	1	6				35	3	9
T1080	<i>Juglans sp.</i>	Walnut	1	12				45	3	18
T1082	<i>Pinus sp.</i>	Pine	1	10				45	3	15
T1089	<i>Acer negundo</i>	Box Elder	1	3				35	3	4.5
T1097	<i>Acer saccharum</i>	Sugar Maple	1	11.25				30	2	9
T1099	<i>Acer negundo</i>	Box Elder	1	26				50	2	23
T1100	<i>Populus deltoides</i>	Cotton Wood	1	26				80	2	40
T1101	<i>Populus deltoides</i>	Cotton Wood	1	27				80	2	40
T1102	<i>Populus deltoides</i>	Cotton Wood	1	28				80	2	40

Notes:

1. DBH - Diameter at Breast Height
2. Surveyed condition of a Tree
 - 1 - Specimen tree of quality similar to those found in arboretum
 - 2 - Park tree – tree of high quality, maintained, free of competition and nuisance species (e.g., climbing vines, etc.)
 - 3 - Average tree – some minor defects
 - 4 - Tree with some damage, decay, or structural flaws
 - 5 - Tree with major damage, decay, or structural flaws
 - 6 - Dead tree
3. CRZ - Critical Root Zone refers to the area at which soil disturbance will result in potential damage to the tree
4. UNK - Unknown at this time

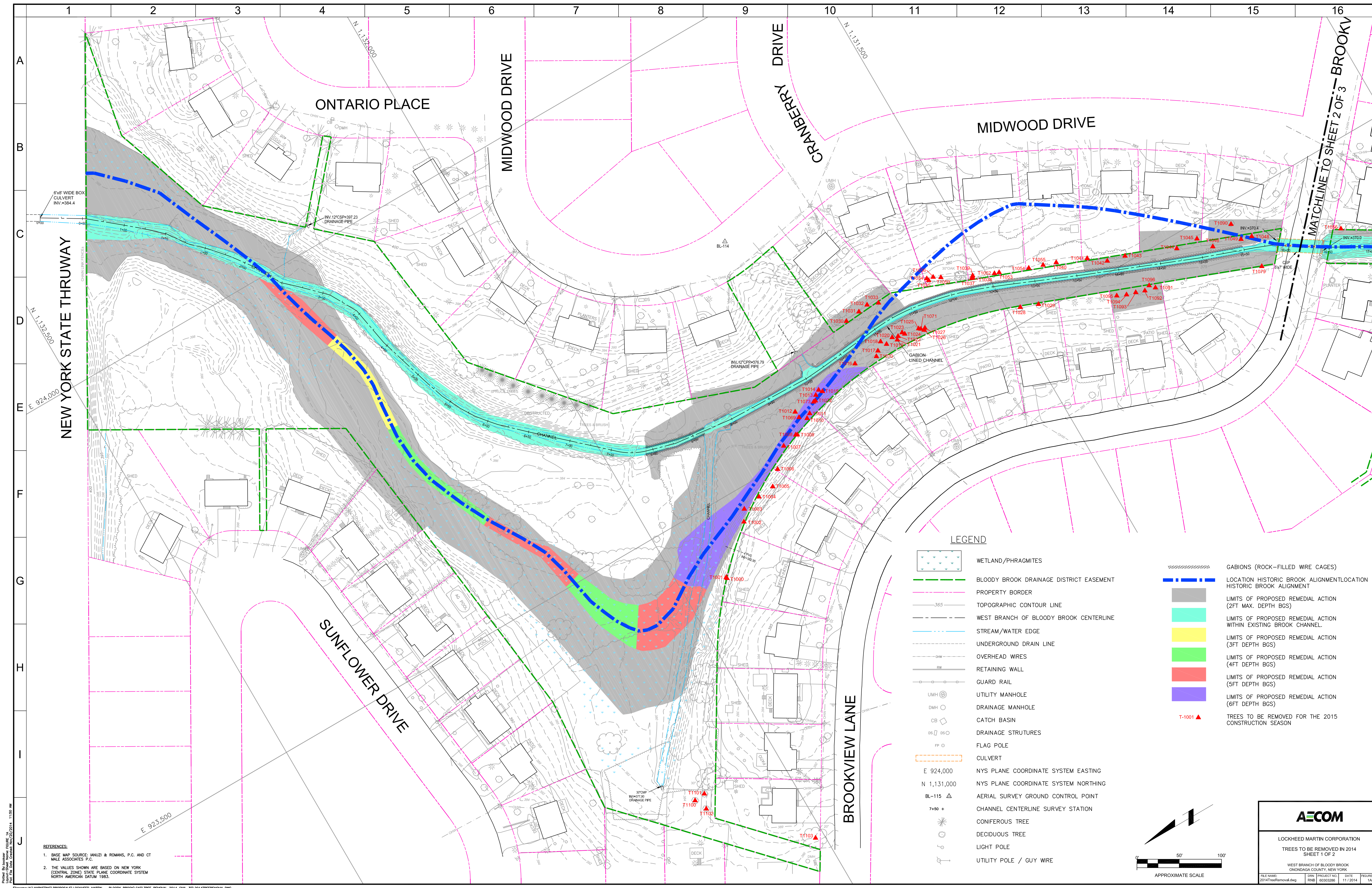
Table 2
Details for Trees on Private Property to be Removed for the 2015 Construction Season
West Branch of Bloody Brook
Bloody Brook Voluntary Cleanup Program
Onondaga County, New York

Tree ID	Species	Common Name	Stem	DBH ¹ of Four Largest Stems (inches)				HEIGHT (feet)	CONDITION ²	CRZ ³ (radial feet from trunk)
				DBH	DBH	DBH	DBH			
T1044	<i>Picea</i> sp.	Spruce	1	13				45	2-3	19.5
T1045	<i>Pinus</i> sp.	Pine	1	18				85	3	27
T1047	<i>Acer saccharinum</i>	Silver Maple	1	21				65	3	31.5
T1048	<i>Acer negundo</i>	Box Elder	1	16				45	3-4	24
T1049	<i>Acer negundo</i>	Box Elder	1	16				55	3-4	24
T1057	<i>Picea</i> sp.	Spruce	1	15				55	2-3	22.5
T1062	<i>Gleditsia triacanthos</i>	Honey Locust	1	8				35	3	12
T1063	<i>Picea</i> sp.	Spruce	1	10				20	2-3	15
T1067	<i>Acer saccharum</i>	Sugar Maple	1	18				55	2-3	27
T1068	<i>Quercus velutina</i>	Black Oak	1	5.5				30	2-3	8.25
T1075	<i>Acer saccharinum</i>	Silver Maple	1	18				65	2-3	27
T1076	<i>Picea</i> sp.	Spruce	1	12				55	3-4	18
T1077	<i>Morus alba</i>	White Mulberry	1	12				55	3-5	18
T1078	<i>Salix babylonica</i>	Willow	1	18				45	4-5	27
T1079	<i>Acer negundo</i>	Box Elder	2	4	3			45	3	6
T1081	<i>Picea</i> sp.	Spruce	1	8				45	3	12
T1090	<i>Acer</i> sp.	Maple	1	26				UNK	UNK	39
T1091	<i>Juniperus communis</i>	Common Juniper	14	4	3	3	3	12	2-Jan	3
T1092	<i>Picea pungens</i>	Blue Spruce	1	14				38	5	6
T1093	<i>Pinus strobus</i>	White Pine	1	25.5				50	2	12
T1094	<i>Picea abies</i>	Norway Spruce	2	7	16			40	4	10
T1095	<i>Juniperus communis</i>	Common Juniper	2	8	7			22	4	5
T1096	<i>Acer</i> sp.	Maple	3	4	2	1.5		38	3	4
T1103	<i>Gleditsia</i>	Locust	1	28				50	2	15

Notes:

1. DBH - Diameter at Breast Height
2. Surveyed condition of a Tree
 - 1 - Specimen tree of quality similar to those found in arboretum
 - 2 - Park tree – tree of high quality, maintained, free of competition and nuisance species (e.g., climbing vines, etc.)
 - 3 - Average tree – some minor defects
 - 4 - Tree with some damage, decay, or structural flaws
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3. CRZ - Critical Root Zone refers to the area at which soil disturbance will result in potential damage to the tree
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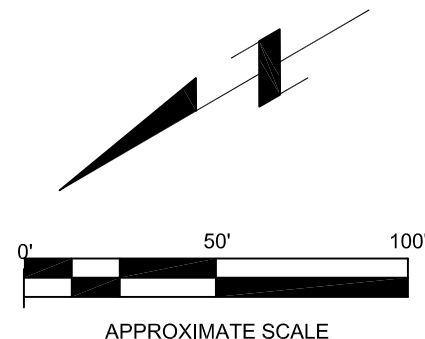
FIGURES



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Filename: N:\MARKETING\PROPOSALS\LOCKHEED MARTIN - BLOODY BROOK\DWG\TREE REMOVAL 2014 CIVIL 30\2014TREEREMOVAL.DWG

REFERENCES:
1. BASE MAP SOURCE: JANUZI & 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.

- LEGEND**
- WETLAND/PHRAGMITES
 - BLOODY BROOK DRAINAGE DISTRICT EASEMENT
 - PROPERTY BORDER
 - TOPOGRAPHIC CONTOUR LINE
 - WEST BRANCH OF BLOODY BROOK CENTERLINE
 - STREAM/WATER EDGE
 - UNDERGROUND DRAIN LINE
 - OVERHEAD WIRES
 - RETAINING WALL
 - GUARD RAIL
 - UTILITY MANHOLE
 - DRAINAGE MANHOLE
 - CATCH BASIN
 - DRAINAGE STRUTURES
 - FLAG POLE
 - CULVERT
 - NYS PLANE COORDINATE SYSTEM EASTING
 - NYS PLANE COORDINATE SYSTEM NORTHING
 - AERIAL SURVEY GROUND CONTROL POINT
 - CHANNEL CENTERLINE SURVEY STATION
 - CONIFEROUS TREE
 - DECIDUOUS TREE
 - LIGHT POLE
 - UTILITY POLE / GUY WIRE
 - GABIONS (ROCK-FILLED WIRE CAGES)
 - LOCATION HISTORIC BROOK ALIGNMENT
 - LOCATION HISTORIC BROOK ALIGNMENT
 - LIMITS OF PROPOSED REMEDIAL ACTION (2FT MAX. DEPTH BGS)
 - LIMITS OF PROPOSED REMEDIAL ACTION WITHIN EXISTING BROOK CHANNEL
 - LIMITS OF PROPOSED REMEDIAL ACTION (3FT DEPTH BGS)
 - LIMITS OF PROPOSED REMEDIAL ACTION (4FT DEPTH BGS)
 - LIMITS OF PROPOSED REMEDIAL ACTION (5FT DEPTH BGS)
 - LIMITS OF PROPOSED REMEDIAL ACTION (6FT DEPTH BGS)
 - TREES TO BE REMOVED FOR THE 2015 CONSTRUCTION SEASON



AECOM

LOCKHEED MARTIN CORPORATION
TREES TO BE REMOVED IN 2014
SHEET 1 OF 2

WEST BRANCH OF BLOODY BROOK
ONONDAGA COUNTY, NEW YORK

FILE NAME: 2014TreeRemoval.dwg	DRAWN BY: RMB	PROJECT NO. / DATE: 60303286 / 11/1/2014	FIGURE NO. / SCALE: 1A
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