

DRAFT

FOREST MANAGEMENT PLAN

CHARLENE SUSAN BESSE PARK
City of Torrington
Riverside Avenue
Torrington, CT

February 16, 2016



ANDREW J. BOSSE FORESTRY SERVICE

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Table of Contents

	<u>Page(s)</u>
Landowner, Property & Plan Preparer Info	1
General Information (incl. Conservation Plan)	2-4
Stand 1: Existing Conditions & Management Plan	5-7
Stand 2: Existing Conditions & Management Plan	8-10
Stand 3: Existing Conditions & Management Plan	11-13
Stand 3A: Existing Conditions & Management Plan	14-15
Stand 4: Existing Conditions & Management Plan	16-18
Summary Tables	19-20

Appendices

Glossary of Forestry Terms

Maps & Reports:

1. Location Map
2. Topographic Map
3. Aerial Image Map
4. Forest Stand Map
5. Soils Map and Reports
6. Natural Diversity Database Map and Report

BESSE PARK FOREST MANAGEMENT PLAN

The funding for this forest management plan was provided through the America the Beautiful Grant Program by the Connecticut Department of Energy and Environmental Protection, Division of Forestry.

Date Prepared: February 16, 2016

Plan Time Frame: Y1 - Y10

Property Owner(s): Charlene Susan Besse Park - City of Torrington

Address: 140 Main Street
Torrington, CT
06790

Contact Persons: Rista Malanca – Zoning & Wetlands Enforcement Officer
860-489-2221
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Brett Simmons – Superintendant of Parks & Recreation
860-489-2385
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**Property Address:
(if applicable)** Riverside Avenue
Torrington, CT
Litchfield County

**Legal description or
directions to site:** The property is located on the west side of Riverside Avenue, with the recreation area about 400' south of the Route 4 intersection, and the secondary access road located about 1,500' further south along Riverside Avenue. The park also has about 150' of frontage along Route 4, approximately 1,450 feet west of the Riverside Drive intersection. The property is listed in the Assessor's records as Map 221, Block 003, Lot 022, and the deed is listed in Volume 403, Page 147. GPS location coordinates for the property are approximately N 041° - 048.82' W 073° - 008.78'.

Prepared By: Andrew J. Bosse CT Forester cert. # F-11

Company: Andrew J. Bosse Forestry Service

Address: 130 Niles Road, New Hartford, CT 06057

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Approvals:

Landowner: _____ **Date:** _____

Preparer: _____ **Date:** _____

Approving Agency: _____ **Date:** _____

GENERAL INFORMATION

Summary of Purpose

Forests have always provided society with a variety of benefits; including clean air and water, wildlife habitat, timber resources, soil conservation, recreational opportunities, and aesthetic value. Perhaps in no other setting is this concept of multi-use forestry more important than in an urban environment, where nearby forest & open space greatly enhance the quality of life for local residents. Public interest in urban forest land has increased significantly in the past decade, which has emphasized the need for planning, management, and maintenance of these forests. It is the objective of this plan is to provide organized and effective guidelines for managing the resources at Besse Park over the next ten years.

Landowner Assessment

Description of resources and level of interest from the landowner: Landowner is interested in managing the timber resources on the property, enhancing the recreational opportunities, controlling invasive plants, and improving wildlife habitat

Landowner's goals for the property:

- Develop hiking trails
- Generate periodic income from timber production
- Discourage or eliminate exotic elements
- Protect water resources
- Protect wetlands

General Property Information

Total land area: 110.0 Acres

Total number of stands/mgmt units: 5

General property description: The property is formally known as Charlene Susan Besse Park, and contains a total of about 110 +/- acres. It has been owned by the City of Torrington since 1947. Most of the property is forested with the exception of a recreation area in the northeast corner of about 4 acres off of Riverside Avenue, which includes a baseball field, playground, and sledding hill. Uphill to the west of the sledding hill, in the forested area, is the remains of an old ski tow and ski slope, the lower portion of which

is now the sledding hill. The only other non-forested area is the paved access road and parking area at the eastern end of the property off of Riverside Avenue.

The topography of the property is moderately sloping and mostly rocky, with a northerly to northeasterly aspect. Slopes range from 5% to 20%. The lowest elevation is about 640' along Riverside Avenue, and the highest is approximately 1,000' in the southwest corner.

Water resources include a small stream which flows easterly across the northern section of the property, originating from a small wetland in the northwest corner of the property. The stream flows easterly off the property, under Riverside Avenue, and shortly after in to the West Branch of the Naugatuck River. There are also a few small seeps located throughout the property which exhibit signs of flow during wetter periods.

Throughout the property are numerous stonewalls, which are indicative of past agricultural use, most likely pasture land due to the rocky soil. It appears that the land reverted to forest around the late 1800's to early 1900's.

Description of surrounding properties:

The property abuts small forested parcels to the east and west, and residential parcels to the north and south. **It is recommended that the property boundaries be located by a surveyor, and marked with paint and signs prior to any forest management activity, in order to avoid any potential conflict with neighboring property owners.**

Soils information:

Upland soil types comprise about 97.5% of the property, and include: Ninigret and Tisbury soils, Merrimac fine sandy loam, Sutton fine sandy loam, Canton and Charlton soils, Charlton-Chatfield complex, Paxton and Montauk fine sandy loam, Udorthents-Urban land complex, and Udorthents smoothed. Wetland soils, 2.5% of the property, include Ridgebury, Leicester and Whitman soils. For further details, please refer to the attached Soil Map and reports.

Management access: Suitable access for management purposes exists from the secondary access road off of Riverside Avenue.

Presence of threatened and endangered species:

A search of the State of Connecticut DEEP's Natural Diversity Database (NDDB) has found that several species of concern are known to exist within or close to the park. These include: Wood turtle, Red bat, Hoary bat (species of concern); Vesper sparrow (endangered); and New England Cottontail (candidate for endangered status). Consequently, prior to any on the ground management activity, any permits that may be necessary from CT DEEP would require a more detailed review of the property and any species of concern. For further details, please refer to the attached NDDB map and report.

Presence of Invasive Species:

During the field inventory, invasive plants were noted in Stand 1(light and scattered infestation), and Stand 4 (moderately heavy infestation),

particularly Japanese barberry and multi-flora rose. An invasive plant control program should be implemented in these areas prior to any forestry activity, which might otherwise encourage and hasten the spread of these plants. Estimated cost of controlling the invasives in Stands 1 and 4 is approximately \$6,000 - \$8,000 and would involve a combination of chemical (herbicide) and light mechanical treatment. Follow up spot treatments would also be required in succeeding years, and annual monitoring after that. The rest of the property should be monitored for invasive plants, particularly after any management activities that cause soil disturbance.

Recently, the Emerald Ash Borer (EAB), a non-native invasive insect, has been discovered in Connecticut. Since ash was recorded during the field inventory, precautionary measures should be undertaken to prevent the spread of the EAB to this area, including: Learning the signs of EAB infestation (dieback in the crown of the tree, “D” shaped exit holes, etc.) and monitoring any ash trees that may be on the property. Another non-native invasive insect, the Asian Long Horned Beetle (ALB) was discovered in Massachusetts several years ago and should also be monitored for. For further details on these and other invasive pests, contact the CT Agricultural Experiment Station and the CT D.E.E.P.

- Cultural importance:** A review Torrington Historical Society archives for information about this property will be included in the final draft.
- Sampling Method:** Forest inventory was conducted using the point sampling method with a Basal Area Factor of 10. A total of 28 sample points were used .
- Map information:** The following maps and reports are included with this plan:
- Location Map
 - Topographic Map
 - Aerial Image Map
 - Forest Stand Map
 - Soil Type Map and Reports
 - Natural Diversity Database Map and Reports

EXISTING CONDITIONS FOR 'STAND 1'

Land area:	Land area: 61.5 Acres	
Land use history:	Stand appears to have been pasture land that reverted to forest 100+ years ago. Stand underwent a timber harvest in 1987. No data on any forestry activities prior to that.	
Forest Type:		
- Existing	Oak - Hemlock - Mixed Hardwood	
- Potential	Oak - Hemlock - Mixed Hardwood	
Successional trend:	Red oak, chestnut oak, hemlock, hickory, tulip poplar, and some scattered white pine sawtimber dominate the overstory. Poletimber component is heavy to red maple, birch, and hemlock, along with a few other hardwoods. Understory is mostly open, advanced regeneration is very limited and consists mainly of small patches of lower value hardwoods (birch, beech) and some hemlock. Hemlock comprises approximately 35% of the stand (2" dbh and greater). Some scattered invasive shrubs (Japanese barberry, multi-flora rose) present in the eastern side of the stand, along one of the seeps.	
Forest health:	Good for the hardwoods, fair for the hemlock which exhibits signs of being infested with the Hemlock Adelgid. Overstocked condition has slowed growth rates. Some Japanese barberry and multi-flora rose present in the eastern end of the stand. Japanese knotweed present in the parking area and near the driveway entrance.	
Site quality:	Site index is 65 for red oak, which is considered average. Site Index was estimated from the attached <i>Forestland Productivity</i> report from the USDA's Web Soil Survey, attached herein.	
Approximate age:	100+	Size class: Medium Sawlogs (17.5 - 23.5")
Trees per acre (≥2"):	316	Mean Stand Diameter: 10.0 in.
Basal Area (BA):	172	Acceptable BA: 125
Growth Rate:	2 %	Timber Quality: medium
Stocking:	Overstocked (107%). AGS accounts for 73% of the basal area.	
Stand Volume:	11,720 bd. ft./acre	
Habitat and wildlife use:	Good. Abundant oaks provide a seasonal food source for a wide variety of wildlife. Numerous cavity trees provide den and nesting opportunities for small mammals and birds. Very little deer sign was observed on the property, although one deer was seen during the field inventory. A tree stand for deer hunting was observed on an adjacent property right along the boundary; evidence that there is hunting pressure in the area if not on the property itself. Since even a small number deer can have an adverse impact on forest regeneration, any local hunting pressure is beneficial to forest management efforts in the park.	

Recreational opportunities:	Hiking, snowshoeing, cross country skiing, wildlife watching. While an existing trail system (see attached topographic map & aerial map) provides an opportunity for such uses, it appears to be only lightly utilized. Any future forest management projects, especially timber harvests) will have to consider the existing trail system as it will most likely be necessary to use at least some of the trails for timber removal. A plan for restoration of trails after forest management activities should be an essential component of any project. Consideration should be given to installation of a permanent foot bridge for recreational use after the harvest, preferably in such a location that it will not interfere with the use of portable logging bridges during any future timber harvest.
Potential for timber production:	Good potential. This stand is well stocked with good quality oak and hardwood. A thinning to remove some overmature sawtimber and UGS/cull poletimber will improve stand health and vigor, and encourage the establishment of advanced regeneration of oak and other desirable hardwoods.
Water quality issues:	A small, intermittent stream flows across the northern section of this stand (near the boundary with Stand 3) as well as a few small seeps in other parts of the stand. BMP's should be utilized during any forestry activity to minimize any soil erosion in to the watercourses, including the following: • Location and flagging of logging trails (existing or new) by a qualified person, taking advantage of topography to minimize the opportunity for soil erosion. • Location and flagging of one suitable location for a stream crossing by a qualified person, which will include utilization of portable bridges. • Re-grading of trails and installation of water bars as needed prior to use to divert flow off of logging trails. • Utilization of a filter strip along the stream and the wetland in the northwest section of the property. • Dry or frozen conditions would be preferable for harvest. • Require a log forwarder to be utilized on main skid trails. • Post Harvest: re-grade trails, install water bars where necessary, and seed log landing and trails, and install a permanent footbridge for future recreational use. Other BMP's as listed in the "<i>Best Management Practices for water quality while harvesting forest products</i>" (CT DEEP field guide) may be necessary and should be utilized where needed.
Important natural features:	None noted.

MANAGEMENT PLANS FOR 'STAND 1'

Landowner's objectives for this stand: Manage timber for periodic income. Develop / enhance recreational trail system. Control invasive plants.

Silvicultural Prescription

Recommended silvicultural system: Uneven-aged management favoring oaks, utilizing Group Selection system. While even-aged management is preferred for regenerating oak, it would most likely not be well received by the public in this situation due to the greater visual disturbance and is, therefore, not recommended. Group openings should be at least $\frac{1}{2}$ acre in size up to $\frac{3}{4}$ acre or so for oak to successfully regenerate and, ideally, the timing of a harvest should occur in the autumn/winter after a significant drop of acorns.

Details of the silvicultural prescription:

- 1) Implement an invasive species control and monitoring program.
- 2) Implement a commercial thinning & TSI thinning, focusing removal on over mature sawtimber, and UGS/cull poletimber. Target: Basal Area of 110 sq.ft.; and 230 trees/acre ("B" stocking level as shown in the *Mixedwood Stocking Chart in the Northeast*, USDA Timber Management Field Book). Species composition would remain similar to existing conditions. Plan the logging trail access system so that it can later be utilized for recreational purposes.

Planned Activities

Y1: Implement invasive species control program.
Y2: Commercial thinning with TSI.
Y3: Restore logging trails for recreational use after harvest.
Y5: Continue monitoring for invasive plants and treating as needed.
Y10: Continue monitoring for invasive plants and treating as needed.

EXISTING CONDITIONS FOR 'STAND 2'

Land area:	Land area: 17.6 Acres
Land use history:	Stand appears to have been pasture land that reverted to forest 100+ years ago. Stand underwent a timber harvest in 1987. No data on any forestry activities prior to that.
Forest Type:	
- Existing	Oak - mixed hardwood
- Potential	Oak - mixed hardwood
Successional trend:	Red oak, chestnut oak, and tulip poplar dominate the overstory. Poletimber component is heavy to red maple and birch, along with some beech, chestnut oak and hemlock. Understory is mostly open, advanced regeneration is very limited and consists mainly of scattered beech and black birch.
Forest health:	Good for the oak and hardwoods. Overstocked condition has slowed growth rates.
Site quality:	Site index is 65 for red oak, which is considered average. Site Index was estimated from the attached <i>Forestland Productivity</i> report from the USDA's Web Soil Survey, attached herein.
Approximate age:	100+
Trees per acre:	269
Basal Area (BA):	152
Growth Rate:	2 %
Stocking:	Overstocked (120%). AGS accounts for 67% of the basal area.
Stand Volume:	10,679 bd. ft./acre
Habitat and wildlife use:	Good. Abundant oaks provide a seasonal food source for a wide variety of wildlife. Numerous cavity trees provide den and nesting opportunities for small mammals and birds. Very little deer sign was observed on the property, however, since even a small number deer can have an adverse impact on forest regeneration, any local hunting pressure (off the property) is beneficial to forest management efforts in the park.
Recreational opportunities:	Hiking, snowshoeing, cross country skiing, wildlife watching. While an existing trail system (see attached topographic map & aerial map) provides an opportunity for such uses, it appears to be only lightly utilized. Any future forest management projects, especially timber harvests) will have to consider the existing trail system as it will most likely be necessary to use at least some of the trails for timber removal. A plan for restoration of trails after forest management activities should be an essential component of any project.

Potential for timber production:	Good potential. This stand is well stocked with good quality oak and hardwood. A thinning to remove some overmature sawtimber and UGS/cull poletimber will improve stand health and vigor, and encourage the establishment of advanced regeneration of oak and other desirable hardwoods.
Water quality issues:	No significant issues. Stand 2 has no water resources. Moderate slopes should not present any erosion issues as long as appropriate BMP's are utilized during any forestry activities, including the following: • Location and flagging of logging trails (existing or new) by a qualified person, taking advantage of topography to minimize the opportunity for soil erosion. • Re-grading of trails and installation of water bars as needed prior to use to divert flow off of logging trails. • Dry or frozen conditions would be preferable for harvest. • Require a log forwarder to be utilized on main skid trails. • Post Harvest: re-grade trails, install water bars where necessary, and seed log landing and trails. Other BMP's as listed in the "<i>Best Management Practices for water quality while harvesting forest products</i>" (CT DEEP field guide) may be necessary and should be utilized where needed.
Important natural features:	None noted.

MANAGEMENT PLANS FOR 'STAND 2'

Landowner's objectives for this stand: Manage timber for periodic income. Develop / enhance recreational trail system. Monitor for invasive plants.

Silvicultural Prescription

Recommended silvicultural system: Uneven-aged management favoring oaks, utilizing Group Selection system. While even-aged management is preferred for regenerating oak, it would most likely not be well received by the public in this situation due to the greater visual disturbance and is, therefore, not recommended. Group openings should be at least $\frac{1}{2}$ acre in size up to $\frac{3}{4}$ acre or so for oak to successfully regenerate and, ideally, the timing of a harvest should occur in the autumn/winter after a significant drop of acorns.

Details of the silvicultural prescription: Implement a commercial thinning & TSI thinning, focusing removal on overmature sawtimber and UGS/cull poletimber. Target: Basal Area of 75 sq.ft.; and 150 trees/acre ("B" stocking level as shown in the *Upland Central Hardwood Stocking Chart in the Northeast*, USDA Timber Management Field Book). Species composition would remain similar to existing conditions. Plan the logging trail access system so that it can later be utilized for recreational purposes. Plan the logging trail access system so that it can later be utilized for recreational purposes.

Planned Activities

Y2: Commercial thinning with TSI.

Y3: Restore logging trails for recreational use.

EXISTING CONDITIONS FOR 'STAND 3'

Land area:	Land area: 7.3 Acres
Land use history:	Stand appears to have been pasture land that reverted to forest 100+ years ago. Stand underwent a timber harvest in 1987. No data on any forestry activities prior to that.
Forest Type:	
- Existing	White Pine - Oak
- Potential	White Pine - Oak
Successional trend:	White pine and red oak sawtimber dominate the overstory. Poletimber component is mostly birch, beech, hemlock, and some white pine. Understory is mostly open, advanced regeneration is very limited. White Pine comprises approximately 62% of the stand.
Forest health:	Good. Fully stocked condition has slowed growth rates. Above average amount of white pine is UGS, due to a pine weevil infestation when the stand was young, resulting in crooked stems.
Site quality:	Site index is 65 for white pine, which is considered average. Site Index was estimated from the attached <i>Forestland Productivity</i> report from the USDA's Web Soil Survey, attached herein.
Approximate age:	100+
Trees per acre:	138
Basal Area (BA):	160
Growth Rate:	2 %
Stocking:	Fully stocked (90%). AGS accounts for 56% of the basal area.
Stand Volume:	12,093 bd. ft./acre
Habitat and wildlife use:	Good. Numerous oaks provide a seasonal food source for a wide variety of wildlife. Numerous cavity trees provide den and nesting opportunities for small mammals and birds.
Recreational opportunities:	Hiking, snowshoeing, cross country skiing, wildlife watching. While an existing trail system (see attached topographic map & aerial map) provides an opportunity for such uses, it appears to be only lightly utilized. Any future forest management projects, especially timber harvests) will have to consider the existing trail system as it will most likely be necessary to use at least some of the trails for timber removal. A plan for restoration of trails after forest management activities should be an essential component of any project.
Potential for timber production:	Good potential. This stand has enough good quality white pine and red oak to achieve good results with proper timber management. A thinning to remove some over mature sawtimber and UGS/cull pole timber will improve stand health and vigor, and encourage the establishment of advanced regeneration of oak and white pine.

Water quality issues:

A small wetland and stream that flows from it border the southern side of this stand. BMP's should be utilized during any forestry activity to minimize any soil erosion in to the stream or wetland, including the following:

- Location and flagging of logging trails (existing or new) by a qualified person, taking advantage of topography to minimize the opportunity for soil erosion.
- Location and flagging of one suitable location for a stream crossing by a qualified person, which will include utilization of portable bridges.
- Re-grading of trails and installation of water bars as needed prior to use to divert flow off of logging trails.
- Utilization of a filter strip along the stream and the wetland in the northwest section of the property.
- Dry or frozen conditions would be preferable for harvest.
- Require a log forwarder to be utilized on main skid trails.
- Post Harvest: re-grade trails, install water bars where necessary, and seed log landing and trails.

Other BMP's as listed in the "*Best Management Practices for water quality while harvesting forest products*" (CT DEEP field guide) may be necessary and should be utilized where needed.

Important natural features:

None noted.

MANAGEMENT PLANS FOR 'STAND 3'

Landowner's objectives for this stand:	Manage timber for periodic income. Develop / enhance recreational trail system. Monitor for invasive plants.
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Silvicultural Prescription

Recommended silvicultural system:	Uneven-aged management favoring white pine and oaks, utilizing Group Selection system. While even-aged management is preferred for regenerating white pine and oak, it would most likely not be well received by the public in this situation due to the greater visual disturbance and is, therefore, not recommended. Group openings should be at least ½ acre in size up to ¾ acre or so for oak and white pine to successfully regenerate.
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Ideally, the timing of a harvest should occur in the autumn after a significant drop of acorns that coincides with a good pinecone production year and, for pine, by exposing mineral soil in sections to be regenerated. This may be difficult since white pine typically produces seed every 3 to 10 years. Seed cones take two years to mature though, which can aid in planning a harvest as the immature cones can be detected in the crown the first year, thereby allowing a year to plan a harvest that will coincide with the seed drop.

Due to the nearby stream and wetland, care should be exercised in selecting areas for exposing mineral soil that are relatively flat and less prone to erosion.

Details of the silvicultural prescription:	Implement a commercial thinning & TSI thinning, focusing removal on overmature sawtimber and UGS/cull poletimber. Target: Basal Area of 110 sq.ft.; and 115 trees/acre ("B" stocking level as shown in the <i>Mixedwood Stocking Chart in the Northeast</i> , USDA Timber Management Field Book). Species composition would remain similar to existing conditions.
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Plan the logging trail access system so that it can later be utilized for recreational purposes.

Planned Activities

Y2:	Commercial thinning with TSI.
Y3:	Restore logging trails for recreational use.

EXISTING CONDITIONS FOR 'STAND 3A'

Land area:	Land area: 2.0 Acres
Land use history:	This stand was formerly the upper section of the ski slope on the property, which has since reverted to a young pine forest. The lower section of the ski slope is now the sledding hill.
Forest Type:	
- Existing	White Pine
- Potential	White Pine
Successional trend:	White pine saplings. This stand occupies the uphill end of the former ski slope, at the eastern end of Stand 3.
Forest health:	Good, overstocked.
Site quality:	Site index is 65 for white pine, which is considered average. Site Index was estimated from the attached <i>Forestland Productivity</i> report from the USDA's Web Soil Survey, attached herein.
Approximate age:	20 +
Trees per acre:	2653
Basal Area (BA):	140
Growth Rate:	3 %
Stocking:	Overstocked.
Stand Volume:	n/a
Habitat and wildlife use:	Presently of little value. Some nesting opportunities for birds.
Recreational opportunities:	Hiking, snowshoeing, cross country skiing, wildlife watching.
Potential for timber production:	Average. Overstocked condition has slowed growth rates. Stand would benefit from a non-commercial thinning.
Water quality issues:	None. No water resources in this stand.
Important natural features:	None noted.

MANAGEMENT PLANS FOR 'STAND 3A'

Landowner's objectives for this stand:	Manage this young timber stand for optimal growth and future quality. Develop / enhance recreational trail system. Monitor for invasive plants.
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Silvicultural Prescription

Recommended silvicultural system:	Uneven-aged management, favoring white pine. While even-aged management is preferred for regenerating white pine, it would most likely not be well received by the public in this situation due to the greater visual disturbance and is, therefore, not recommended
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Details of the silvicultural prescription:	Non-commercial thinning of stand, favoring the best quality stems. This will improve stand growth rates and health.
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Planned Activities

Y2:	Non- Commercial thinning.
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EXISTING CONDITIONS FOR 'STAND 4'

Land area:	Land area: 18.8 Acres
Land use history:	Stand appears to have been pasture land that reverted to forest 100+ years ago. Stand underwent a timber harvest in 1987. No data on any forestry activities prior to that.
Forest Type:	
- Existing	Mixed Hardwood
- Potential	Mixed Hardwood
Successional trend:	White ash, red maple, aspen, yellow birch, black birch, and sugar maple dominate the overstory. Poletimber component is similar but heavy to red maple and yellow birch. Understory is mostly open with patches of scattered invasive shrubs, including Japanese barberry and multi-flora rose.
Forest health:	Good. Heaviest infestation of invasive shrubs (Japanese barberry, multi-flora rose) on the property is in this stand. While not a heavy infestation, it should be controlled prior to any forestry activity, which could encourage their proliferation. Also, a significant amount of white ash exists in this stand, and should be monitored closely for the Emerald Ash Borer.
Site quality:	Site index is 65 for sugar maple, which is average. This stand exhibits seasonal wetness. Site Index was estimated from the attached <i>Forestland Productivity</i> report from the USDA's Web Soil Survey, attached herein. Best managed for white ash and sugar maple based upon this report.
Approximate age:	100+
Trees per acre:	313
Basal Area (BA):	132
Growth Rate:	2.5 %
Stocking:	Overstocked (110%). AGS accounts for about 71% of the basal area.
Stand Volume:	8,222 bd. ft./acre
Habitat and wildlife use:	Fair. Few mast producing trees and little ground cover limits wildlife use.
Recreational opportunities:	Hiking, snowshoeing, cross country skiing, wildlife watching. While an existing trail system (see attached topographic map & aerial map) provides an opportunity for such uses, it appears to be only lightly utilized. Any future forest management projects, especially timber harvests) will have to consider the existing trail system as it will most likely be necessary to use at least some of the trails for timber removal. A plan for restoration of trails after forest management activities should be an essential component of any project.

Potential for timber production:	Good potential for white ash, sugar maple, and yellow birch. A group selection thinning to remove some overmature sawtimber and UGS/cull poletimber will improve stand health and vigor, and encourage the establishment of advanced regeneration of yellow birch, sugar maple, and white ash. Seasonal wetness should be factored into the timing of any forestry activity.
Water quality issues:	The stand exhibits signs of seasonal wetness and occasional surface flow during periods of wet periods and/or heavy rain. The northern (downhill) end of this stand is within 300' of the intermittent stream that flows across the northern section of the property. Moderate slopes should not present any erosion issues as long as appropriate BMP's are utilized during any forestry activities, including the following: • Location and flagging of logging trails (existing or new) by a qualified person, taking advantage of topography to minimize the opportunity for soil erosion. • Re-grading of trails and installation of water bars as needed prior to use to divert flow off of logging trails. • Dry or frozen conditions would be preferable for harvest. • Require a log forwarder to be utilized on main skid trails. • Post Harvest: re-grade trails, install water bars where necessary, and seed log landing and trails. Other BMP's as listed in the "<i>Best Management Practices for water quality while harvesting forest products</i>" (CT DEEP field guide) may be necessary and should be utilized where needed.
Important natural features:	None noted.

MANAGEMENT PLANS FOR 'STAND 4'

Landowner's objectives for this stand:	Manage timber for periodic income. Develop / enhance recreational trail system. Control invasive plants. Monitor for invasive insects.
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Silvicultural Prescription

Recommended silvicultural system:	Uneven-aged management, favoring sugar maple, yellow birch, and white ash utilizing the Group Selection method. Group openings should be between $\frac{1}{4}$ acre and $\frac{1}{2}$ acre in size. This should provide suitable conditions for both the shade tolerant species (sugar maple, yellow birch) and mid-tolerant species (white ash) to regenerate.
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Details of the silvicultural prescription:	1) Implement an invasive species control and monitoring program. 2) Implement a commercial thinning & TSI thinning, focusing removal on overmature sawtimber and UGS/cull poletimber. Sugar maple and white ash should be favored in the residual stand. Target: Basal Area of 70 sq.ft.; and 200 trees/acre ("B" stocking level as shown in the <i>Hardwood Stocking Chart in the Northeast</i>, USDA Timber Management Field Book). Plan the logging trail access system so that it can later be utilized for recreational purposes.
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There is some concern about the future of ash due to the recent emergence of the Emerald Ash Borer as a forest pest in Connecticut, however, since this site appears to be best suited for growing ash, and ash is by far the best quality species growing in the stand, it is recommended to take a wait-and-see approach toward any potential future infestation. In the mean time, if ash and any other good quality hardwood trees are favored, the health, vigor, and species diversity of the residual stand will leave it better positioned to withstand an infestation than the current overcrowded condition. If an infestation is detected in the future, than an ash salvage harvest can be planned on short notice.

3) Monitor stand for EAB and ALB, which prefer ash and maple respectively.

Planned Activities

Y1:	Implement invasive species control program.
Y2:	Commercial thinning with TSI.
Y3:	Restore logging trails for recreational use.
Y5:	Continue monitoring for invasive plants and treating as needed.
Y10:	Continue monitoring for invasive plants and treating as needed.

SUMMARY TABLES

Detailed plans by year

- Y1 -

UNIT	PRIORITY	ACTIVITY
Stand 1	1	Implement invasive species control program.
Stand 4	1	Implement invasive species control program.

- Y2 -

UNIT	PRIORITY	ACTIVITY
Stand 1	1	Commercial thinning with TSI.
Stand 2	1	Commercial thinning with TSI.
Stand 3	1	Commercial thinning with TSI.
Stand 4	1	Commercial thinning with TSI.
Stand 3A	2	Non- Commercial thinning.

- Y3 -

UNIT	PRIORITY	ACTIVITY
Stand 1	1	Restore logging trails for recreational use.
Stand 2	1	Restore logging trails for recreational use.
Stand 3	1	Restore logging trails for recreational use.
Stand 4	1	Restore logging trails for recreational use.

- Y5 -

UNIT	PRIORITY	ACTIVITY
Stand 1	1	Continue monitoring for invasive plants and treating as needed.
Stand 4	1	Continue monitoring for invasive plants and treating as needed.

- Y10 -

UNIT	PRIORITY	ACTIVITY
Stand 1	1	Continue monitoring for invasive plants and treating as needed.
Stand 4	1	Continue monitoring for invasive plants and treating as needed.

Comparison of management units on the property

UNIT	ACRES	COVER TYPE	STAND DIAMETER	BASAL AREA	SILVICULTURAL SYSTEM
Stand 1	61.5	Oak - Hemlock - Mixed Hardwood	10.0 in.	172	Uneven-aged mgmt.
Stand 2	17.6	Oak - mixed hardwood	10.0 in.	152	Uneven-aged mgmt.
Stand 3	7.3	White Pine - Oak	13.5 in.	160	Uneven-aged mgmt.
Stand 3A	2.0	White Pine	4 in.	140	Uneven-aged mgmt.
Stand 4	18.8	Mixed Hardwood	8.2 in.	132	Uneven-aged mgmt.

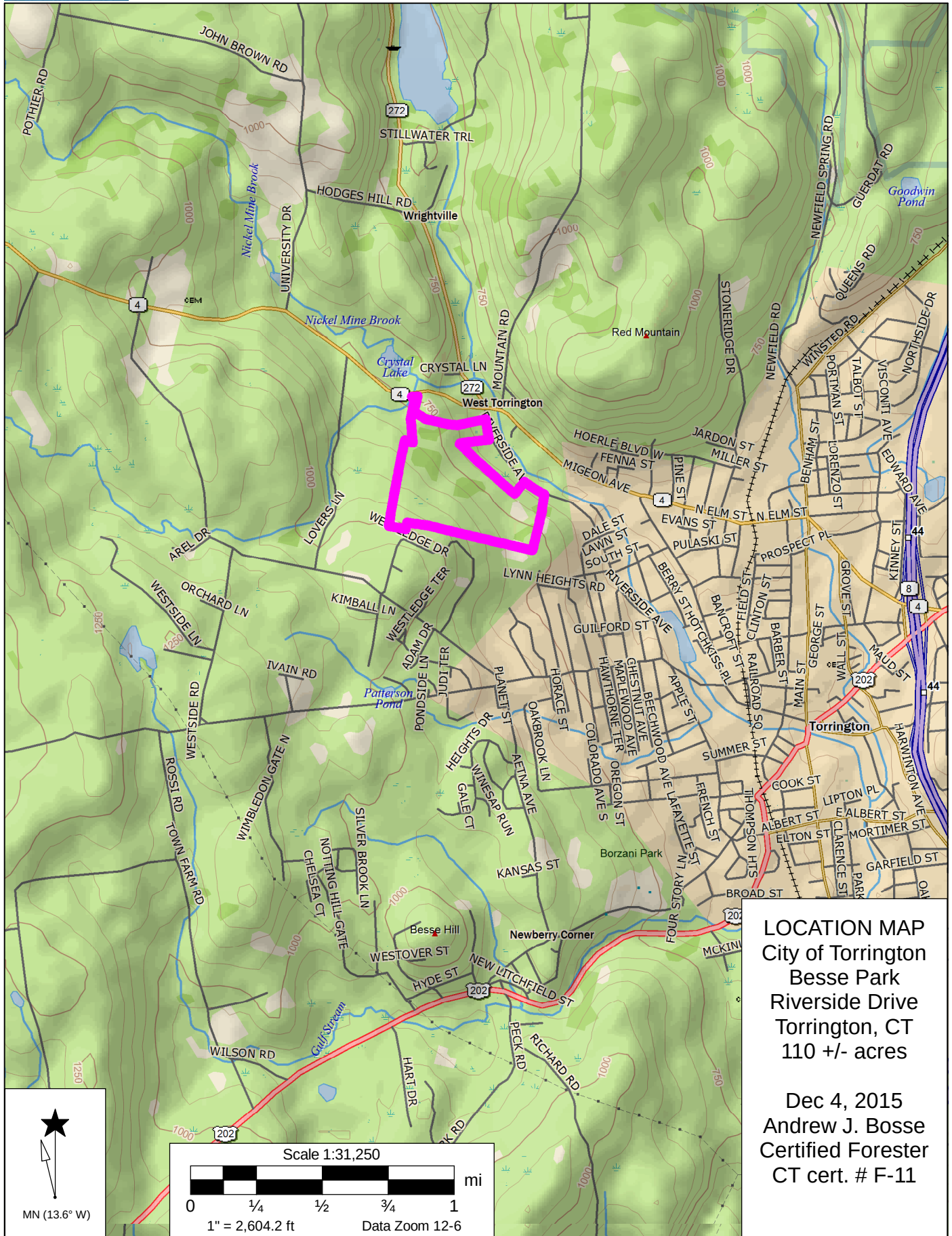
Glossary of Forestry Terms

The following are explanations of some of the technical terms that may appear in this report:

- *AGS*: acceptable growing stock. Trees of good quality that are suitable for present or future sawtimber production.
- *ALB (Asian Longhorn Beetle)*: A destructive non-native wood boring pest of maple trees and other hardwoods.
- *Basal Area*: the cross-sectional area (in square feet per acre, at dbh) of all of the stems in a stand. Used to determine stocking density.
- *Best Management Practices (BMP's)*: Specifically, forestry practices designed to minimize and prevent soil erosion as a source of water pollution. In general, any good forestry practice that promotes good forest stewardship.
- *Board foot*: a unit of volume in a tree, log, or board. One board foot measures 1'x1'x1" in dimension.
- *Browse*: young woody vegetation utilized as a food source by wildlife, especially deer.
- *Canopy*: the uppermost level of forest vegetation, comprised of the tops of the dominant trees in a stand.
- *Crop Tree Management*: silvicultural method that favors high quality individual trees by thinning around such trees to remove competition. This results in much improved growth rates of the selected individuals. Can be used in conjunction with other methods.
- *Cull*: Low quality tree with no present or future value for sawtimber.
- *DBH*: diameter at breast height. The diameter of a tree stem 4.5 feet above ground.
- *Early Successional Habitat (ESH)*: Young forest habitat characterized by dense growth of seedlings & saplings.
- *EAB (Emerald Ash Borer)*: A destructive non-native insect pest that attacks ash trees.

- *Even-aged Stand*: A stand of trees that are of a relatively uniform age class.
- *Group Selection*: silvicultural method that removes trees in small groups throughout the stand, leaving undisturbed areas in between.
- *Management Unit*: A relatively uniform area (often a Forest Stand) managed as a whole. Often interchangeable with Forest Stand.
- *Mast*: seeds produced from trees that are utilized as a food source by wildlife. Types include *hard mast* (acorns, nuts, etc.), which can be especially valuable due to their abundance and longevity, and *soft mast* (berries, fruit, etc.).
- *NRCS*: Natural Resource Conservation Service, a branch of the U.S. Department of Agriculture.
- *Overstory*: see Canopy
- *Patch cut*: a small clearcut, usually less than one acre.
- *Riparian Area*: Forest streamside zone. This is an area of significant interaction between the water body and the surrounding forest. It can vary in size depending upon many factors, including slope and topography, soil types, and vegetation. A riparian area can have a significant impact on stream water quality by filtering out runoff and absorbing excessive nutrients, providing shade that will decrease water temperature, and many other important functions. Therefore, it is important that BMP's are implemented when conducting forestry activities in or near riparian areas in order to minimize any adverse impacts.
- *Poletimber*: trees between 4" to 12" dbh.
- *Sapling*: trees between ½" and 4" dbh.
- *Sawtimber*: trees of 12" dbh and greater.
- *Seedling*: trees less than ½" dbh.
- *Shelterwood*: silvicultural method that regenerates a new forest under the shelter of mature trees. All trees are removed except the healthiest dominant (most desirable) trees, which remain to provide a seed source and to protect the new growth, which eventually will become a new even-aged stand. Once the new stand is established, the mature trees may or may not be removed in successive harvest(s).
- *Silviculture*: The science of developing and cultivating forests for human benefit.

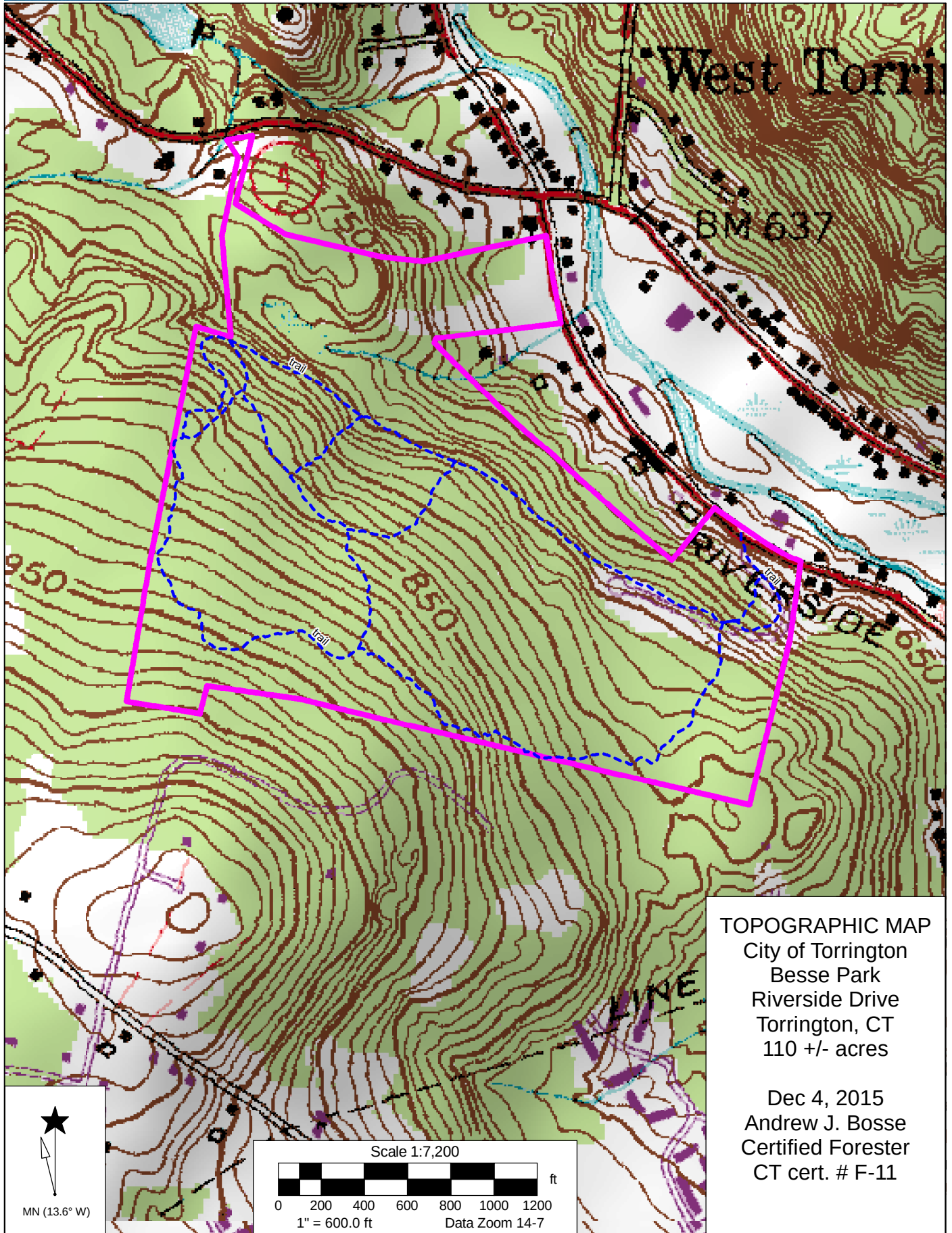
- *Single-Tree Selection*: silvicultural method whereby single trees (both AGS and UGS) are selected for harvest throughout stand. Used to create an un-even aged stand.
- *Site Index*: a measure of the productive potential of a site to grow quality trees, it is a function of height vs. age.
- *Stand*: A group or unit of forest type managed as a whole.
- *Stand volume*: the volume of AGS sawtimber in a stand, expressed in board feet per acre.
- *Stocking*: a function of basal area and trees per acre, used to describe stand density. Stands are usually classified as being understocked, well stocked, and overstocked. The region between the “A” and “B” level on stocking charts (well stocked) is optimal for stand growth and, consequently, productivity.
- *TSI*: Timber Stand Improvement. A non-commercial harvest focusing on cull and UGS trees, designed to improve stand quality and increase growth rates.
- *UGS*: unacceptable growing stock. Low quality trees that are generally unsuitable for present or future sawtimber production, but may contain some merchantable volume.
- *Understory*: the lowest level of forest vegetation beneath the canopy.
- *Uneven-aged Stand*: A stand of trees that contains a variety of age and size classes.



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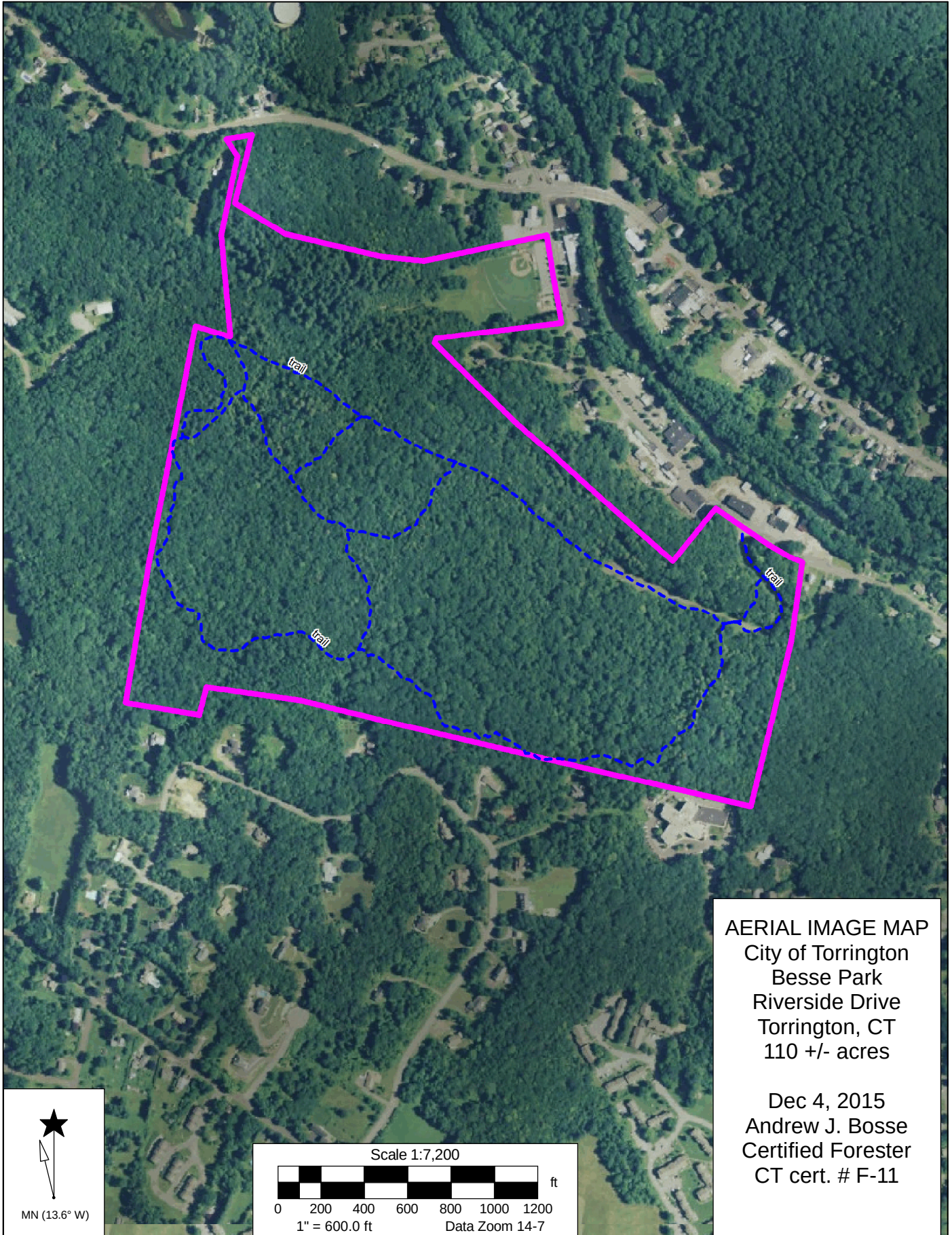
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TOPOGRAPHIC MAP
City of Torrington
Besse Park
Riverside Drive
Torrington, CT
110 +/- acres

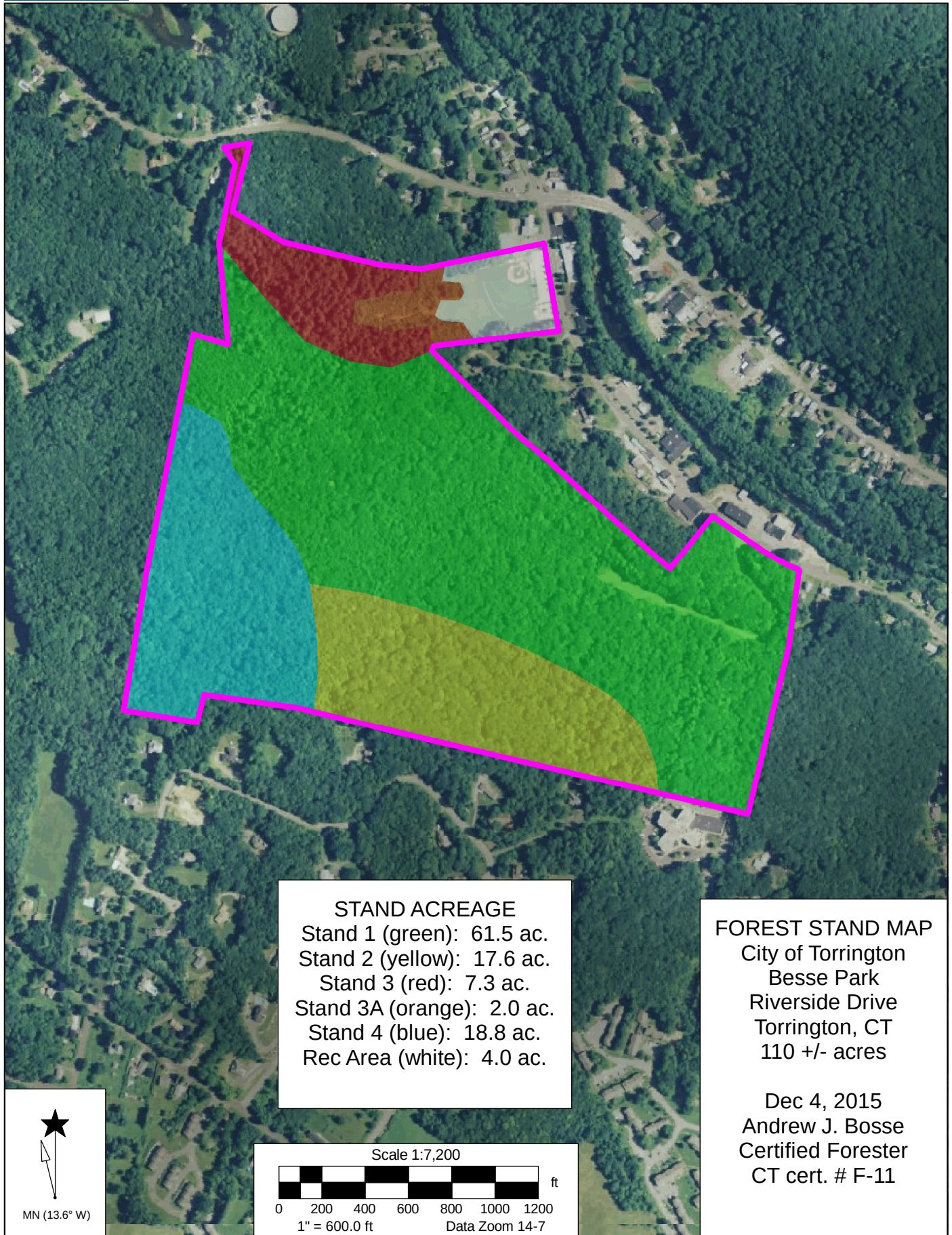
Dec 4, 2015
Andrew J. Bosse
Certified Forester
CT cert. # F-11



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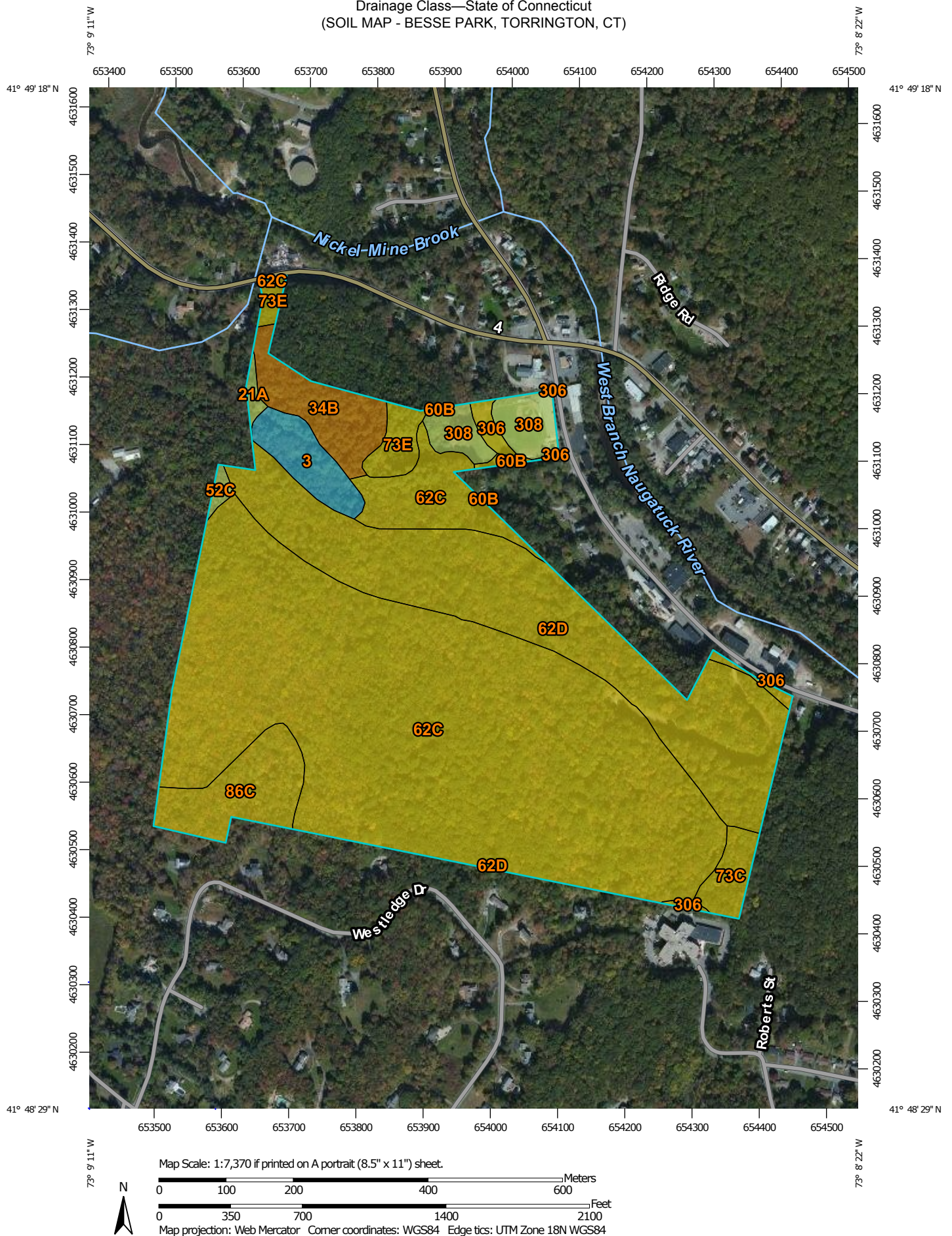


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Drainage Class—State of Connecticut
(SOIL MAP - BESSE PARK, TORRINGTON, CT)



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available

Soil Rating Lines

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available

Soil Rating Points

-  Excessively drained
-  Somewhat excessively drained
-  Well drained
-  Moderately well drained
-  Somewhat poorly drained
-  Poorly drained
-  Very poorly drained
-  Subaqueous
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 14, Sep 22, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—Oct 9, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Drainage Class

Drainage Class— Summary by Map Unit — State of Connecticut (CT600)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	Poorly drained	3.0	2.5%
21A	Ninigret and Tisbury soils, 0 to 5 percent slopes	Moderately well drained	0.4	0.3%
34B	Merrimac fine sandy loam, 3 to 8 percent slopes	Somewhat excessively drained	4.4	3.8%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	Moderately well drained	0.4	0.3%
60B	Canton and Charlton soils, 3 to 8 percent slopes	Well drained	0.2	0.2%
62C	Canton and Charlton soils, 3 to 15 percent slopes, extremely stony	Well drained	70.1	59.8%
62D	Canton and Charlton soils, 15 to 35 percent slopes, extremely stony	Well drained	25.2	21.5%
73C	Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky	Well drained	1.8	1.5%
73E	Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky	Well drained	2.0	1.7%
86C	Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony	Well drained	5.3	4.5%
306	Udorthents-Urban land complex	Well drained	1.1	0.9%
308	Udorthents, smoothed	Moderately well drained	3.3	2.8%
Totals for Area of Interest			117.2	100.0%

Description

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Selected Soil Interpretations

This report allows the customer to produce a report showing the results of the soil interpretation(s) of his or her choice. It is useful when a standard report that displays the results of the selected interpretation(s) is not available.

When customers select this report, they are presented with a list of interpretations with results for the selected map units. The customer may select up to three interpretations to be presented in table format.

For a description of the particular interpretations and their criteria, use the "Selected Survey Area Interpretation Descriptions" report.

Report—Selected Soil Interpretations

Selected Soil Interpretations--State of Connecticut							
Map symbol and soil name	Pct. of map unit	For - harvest equipment operability		For - potential erosion hazard (road/trail)		Inland wetlands (ct)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony							
Ridgebury, extremely stony	40	Moderately suited		Slight		CT wetland	
		Rock fragments	0.50				
		Dusty	0.01				
Leicester, extremely stony	35	Moderately suited		Slight		CT wetland	
		Rock fragments	0.50				
		Dusty	0.01				
Whitman, extremely stony	20	Poorly suited		Slight		CT wetland	
		Wetness	1.00				
		Rock fragments	0.50				
		Dusty	0.01				
21A—Ninigret and Tisbury soils, 0 to 5 percent slopes							
Ninigret	60	Well suited		Moderate		CT nonwetland	
		Dusty	0.01	Slope/erodibility	0.50		
Tisbury	25	Moderately suited		Moderate		CT nonwetland	
		Low strength	0.50	Slope/erodibility	0.50		
		Dusty	0.01				

Selected Soil Interpretations--State of Connecticut							
Map symbol and soil name	Pct. of map unit	For - harvest equipment operability		For - potential erosion hazard (road/trail)		Inland wetlands (ct)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34B—Merrimac fine sandy loam, 3 to 8 percent slopes							
Merrimac	85	Well suited		Moderate		CT nonwetland	
		Dusty	0.01	Slope/erodibility	0.50		
52C—Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony							
Sutton	80	Moderately suited		Moderate		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.50		
		Dusty	0.01				
60B—Canton and Charlton soils, 3 to 8 percent slopes							
Canton	45	Well suited		Moderate		CT nonwetland	
		Dusty	0.01	Slope/erodibility	0.50		
Charlton	35	Well suited		Moderate		CT nonwetland	
		Dusty	0.01	Slope/erodibility	0.50		
62C—Canton and Charlton soils, 3 to 15 percent slopes, extremely stony							
Canton	45	Moderately suited		Severe		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.95		
		Dusty	0.01				
Charlton	35	Moderately suited		Severe		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.95		
		Dusty	0.01				

Selected Soil Interpretations--State of Connecticut							
Map symbol and soil name	Pct. of map unit	For - harvest equipment operability		For - potential erosion hazard (road/trail)		Inland wetlands (ct)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
62D—Canton and Charlton soils, 15 to 35 percent slopes, extremely stony							
Canton	45	Moderately suited		Severe		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.95		
		Slope	0.50				
		Dusty	0.01				
Charlton	35	Moderately suited		Severe		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.95		
		Slope	0.50				
		Dusty	0.01				
73C—Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky							
Charlton	45	Well suited		Severe		CT nonwetland	
		Dusty	0.01	Slope/erodibility	0.95		
Chatfield	30	Well suited		Moderate		CT nonwetland	
		Dusty	0.01	Slope/erodibility	0.50		
73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky							
Charlton	45	Moderately suited		Severe		CT nonwetland	
		Slope	0.50	Slope/erodibility	0.95		
		Dusty	0.01				
Chatfield	30	Moderately suited		Severe		CT nonwetland	
		Slope	0.50	Slope/erodibility	0.95		
		Dusty	0.01				

Selected Soil Interpretations--State of Connecticut							
Map symbol and soil name	Pct. of map unit	For - harvest equipment operability		For - potential erosion hazard (road/trail)		Inland wetlands (ct)	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
86C—Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony							
Paxton, extremely stony	55	Moderately suited		Severe		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.95		
		Dusty	0.01				
Montauk, extremely stony	30	Moderately suited		Severe		CT nonwetland	
		Rock fragments	0.50	Slope/erodibility	0.95		
		Dusty	0.01				
306—Udorthents-Urban land complex							
Udorthents	50	Moderately suited		Severe		CT nonwetland	
		Low strength	0.50	Slope/erodibility	0.95		
		Dusty	0.01				
Urban land	35	Not rated		Not rated		CT nonwetland	
308—Udorthents, smoothed							
Udorthents	80	Moderately suited		Severe		CT nonwetland	
		Low strength	0.50	Slope/erodibility	0.95		
		Dusty	0.01				

Data Source Information

Soil Survey Area: State of Connecticut
 Survey Area Data: Version 14, Sep 22, 2015

Forestland Productivity

This table can help forestland owners or managers plan the use of soils for wood crops. It shows the potential productivity of the soils for wood crops.

Potential productivity of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forestland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service, National Forestry Manual.

Report—Forestland Productivity

Forestland Productivity--State of Connecticut				
Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber	
			<i>Cu ft/ac</i>	
3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony				
Ridgebury, extremely stony	Eastern white pine	63	114.00	American elm, Blackgum, Green ash, Pin oak, Red maple, Swamp white oak, Yellow birch
	Northern red oak	66	43.00	
	Red maple	62	—	
	Sugar maple	56	29.00	
	White ash	60	—	
Leicester, extremely stony	Eastern white pine	69	129.00	Green ash, Red maple, Tuliptree
	Northern red oak	56	43.00	
	Red maple	70	43.00	
	Yellow birch	—	—	
Whitman, extremely stony	Eastern white pine	56	100.00	—
	Red maple	55	29.00	
	Swamp tupelo	—	—	
21A—Ninigret and Tisbury soils, 0 to 5 percent slopes				
Ninigret	Eastern white pine	75	143.00	Bigtooth aspen, Black cherry, Black oak, Eastern white pine, Gray birch, Hemlock, Northern red oak, Paper birch, Pitch pine, Red maple, Sugar maple, Sweet birch, White ash, White oak
	Northern red oak	65	43.00	
	Red maple	60	43.00	
	Sugar maple	55	29.00	
	White oak	—	—	
Tisbury	Eastern white pine	75	143.00	Eastern white pine, Northern red oak, White oak
	Northern red oak	65	43.00	
	Red maple	60	43.00	
	Sugar maple	55	29.00	
	White oak	—	—	
34B—Merrimac fine sandy loam, 3 to 8 percent slopes				
Merrimac	—	—	—	—

Forestland Productivity--State of Connecticut				
Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber	
			<i>Cu ft/ac</i>	
52C—Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony				
Sutton	Black cherry	72	43.00	Eastern white pine, Northern red oak, White oak
	Eastern white pine	62	114.00	
	Northern red oak	62	43.00	
	Sugar maple	54	29.00	
	White oak	—	—	
60B—Canton and Charlton soils, 3 to 8 percent slopes				
Canton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, White oak
	Eastern white pine	58	100.00	
	Northern red oak	52	29.00	
	White oak	—	—	
Charlton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Eastern white pine	65	114.00	
	Northern red oak	65	43.00	
	Red maple	55	29.00	
	Shagbark hickory	—	0.00	
	Sugar maple	55	29.00	
	White oak	—	—	
62C—Canton and Charlton soils, 3 to 15 percent slopes, extremely stony				
Canton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, White oak
	Eastern white pine	58	100.00	
	Northern red oak	52	29.00	
	White oak	—	—	
Charlton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Eastern white pine	65	114.00	
	Northern red oak	65	43.00	
	Red maple	55	29.00	
	Shagbark hickory	—	0.00	
	Sugar maple	55	29.00	
	White oak	—	—	

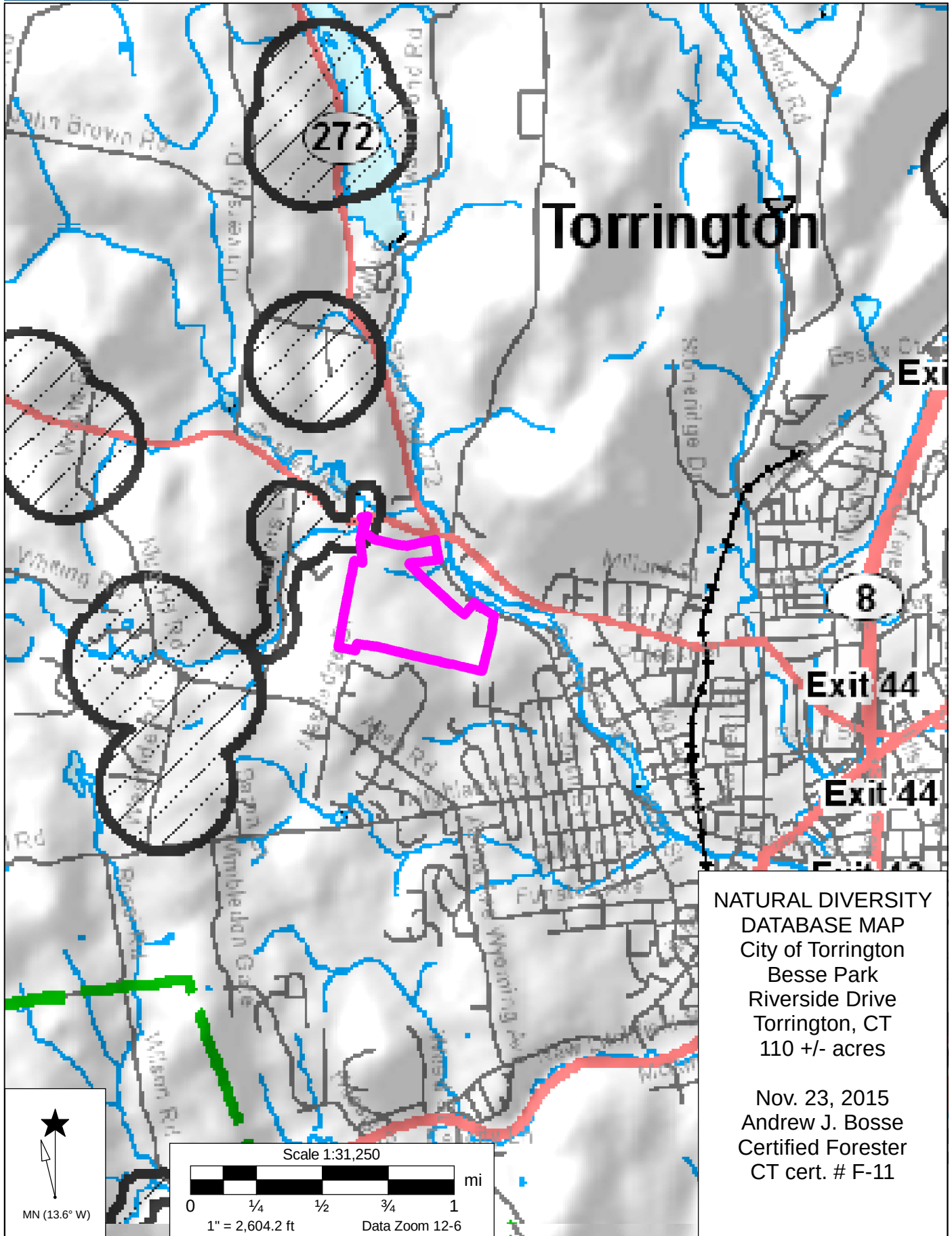
Forestland Productivity--State of Connecticut				
Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber	
			<i>Cu ft/ac</i>	
62D—Canton and Charlton soils, 15 to 35 percent slopes, extremely stony				
Canton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, White oak
	Eastern white pine	58	100.00	
	Northern red oak	52	29.00	
	White oak	—	—	
Charlton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Eastern white pine	65	114.00	
	Northern red oak	65	43.00	
	Red maple	55	29.00	
	Shagbark hickory	—	0.00	
	Sugar maple	55	29.00	
	White oak	—	—	
73C—Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky				
Charlton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Eastern white pine	65	114.00	
	Northern red oak	65	43.00	
	Red maple	55	29.00	
	Shagbark hickory	—	0.00	
	Sugar maple	55	29.00	
	White oak	—	—	
Chatfield	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Northern red oak	70	57.00	
	Sugar maple	65	43.00	
	White ash	75	43.00	
	White oak	—	—	

Forestland Productivity--State of Connecticut				
Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber	
			<i>Cu ft/ac</i>	
73E—Charlton-Chatfield complex, 15 to 45 percent slopes, very rocky				
Charlton	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Eastern white pine	65	114.00	
	Northern red oak	65	43.00	
	Red maple	55	29.00	
	Shagbark hickory	—	0.00	
	Sugar maple	55	29.00	
	White oak	—	—	
Chatfield	Eastern hemlock	—	—	Eastern hemlock, Eastern white pine, Northern red oak, White oak
	Northern red oak	70	57.00	
	Sugar maple	65	43.00	
	White ash	75	43.00	
	White oak	—	—	

Forestland Productivity--State of Connecticut				
Map unit symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site Index	Volume of wood fiber	
			<i>Cu ft/ac</i>	
86C—Paxton and Montauk fine sandy loams, 3 to 15 percent slopes, extremely stony				
Paxton, extremely stony	American beech	65	40.00	Eastern white pine, European larch, Northern red oak, Norway spruce, Red pine, Scarlet oak, Sugar maple, Tuliptree, White ash, White oak
	Black oak	67	—	
	Eastern white pine	66	114.00	
	European larch	80	—	
	Northern red oak	65	43.00	
	Red maple	65	40.00	
	Red pine	67	114.10	
	Red spruce	55	123.00	
	Scarlet oak	67	—	
	Sugar maple	74	43.00	
	White ash	86	47.00	
	White oak	60	—	
	Yellow birch	65	40.00	
Montauk, extremely stony	Black oak	67	—	Eastern hemlock, Eastern white pine, Elm, Gray birch, Northern red oak, Red maple, Scarlet oak, Sugar maple, Sweet birch, White ash, White oak, Yellow birch, Yellow poplar
	Eastern white pine	72	114.00	
	European larch	80	—	
	Northern red oak	68	43.00	
	Red pine	70	—	
	Scarlet oak	67	—	
	Sugar maple	75	43.00	
	White ash	89	—	
	White oak	60	—	
306—Udorthents-Urban land complex				
Udorthents	—	—	—	—
Urban land	—	—	—	—
308—Udorthents, smoothed				
Udorthents	—	—	—	—

Data Source Information

Soil Survey Area: State of Connecticut
 Survey Area Data: Version 14, Sep 22, 2015



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Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

December 4, 2015

Mr. Andrew Bosse
Andrew J. Bosse Forestry Service
130 Niles Road
New Hartford, CT 06057
ajbforestry@gmail.com

Project: Preliminary Assessment for Development of a Forest Management Plan for Charlene Susan Besse Park Property on Riverside Drive in Torrington, Connecticut
NDDB Preliminary Assessment No.: 201509283

Dear Andrew,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map provided for the Preliminary Assessment for Development of a Forest Management Plan for Charlene Susan Besse Park Property on Riverside Drive in Torrington, Connecticut.

According to our records there are known extant populations of State Listed Species known that occur within or close to the boundaries of this property. I have attached a list of these species to this letter. Please be advised that this is a preliminary review and not a final determination. A more detailed review will be necessary to move forward with any subsequent environmental permit applications submitted to DEEP for the proposed project. This preliminary assessment letter cannot be used or submitted with your permit applications at DEEP. This letter is good for one year.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available. The result of this review does not preclude the possibility that listed species may be encountered on site and that additional action may be necessary to remain in compliance with certain state permits.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base.

Sincerely,

A handwritten signature in cursive script that reads "Dawn M. McKay".

Dawn M. McKay
Environmental Analyst 3

Species List for NDDB Request

Scientific Name	Common Name	State Status
Vertebrate Animal		
Glyptemys insculpta	Wood turtle	SC
Lasiurus borealis	Red bat	SC
Lasiurus cinereus	Hoary bat	SC
Pooecetes gramineus	Vesper sparrow	E
Sylvilagus transitionalis	New England Cottontail	candidate for federal listing