



MICHIGAN DEPARTMENT OF NATURAL RESOURCES
FOREST, MINERAL AND FIRE MANAGEMENT

TIMBER SALE PRESCRIPTION

GENERAL					
Date 12/06/2010			Forest Management Unit Atlanta Unit		
Timber Sale Number (if applicable) 54-002-10-01			Sale Name (or prescription name) Compartment 016 Easy Payment Hardwoods		
LOCAL CONTACT					
Telephone Number (989) 785-4251 x 5242			FAX Number (989) 785-3513		
Name Richard Barber			Email Address barberr@michigan.gov		
<input checked="" type="checkbox"/> Map of Project Area Attached					
LEGAL DESCRIPTION					
T29N R03E Sec. 19: SESE; Sec. 20: NWNE, E2NW, SW/4, SE/4; Sec. 29: SWNE, S2NW, S/2; Sec. 30: E2SW, N2SE, SWSE.					
Year of Entry: 2011 Compartment(s): 16 Stand Number(s): 16, 22, 23, 49, 50, 56 (2 treatments), 63 and 77.					
THIS TIMBER SALE CONTRACT IS BASED ON THE FOLLOWING ACREAGE					
Estimated Acres: 316 Source: <input type="checkbox"/> OI <input type="checkbox"/> GPS <input checked="" type="checkbox"/> Other IFMAP Treatment Layer					
Actual Acres: Source: <input type="checkbox"/> OI <input type="checkbox"/> GPS <input type="checkbox"/> Other _____					
Total Acres: 316					
Payment will be made on the basis of these estimated acres.					
TREATMENT & OBJECTIVE					
STAND #	COVER TYPE	ACRES	BA	TREATMENT	MANAGEMENT OBJECTIVE
(See appendix					
2)					
PRESCRIPTION					
See Stand Specific Requirements in Appendix					
DNR PREPARATION WORK TO BE DONE PRIOR TO CONTRACT WORK					ESTIMATED DATE
All work in the Compartment will be done by Contractor.					
CONTRACT WORK CAN BEGIN:					
<input checked="" type="checkbox"/> Immediately <input type="checkbox"/> Date:					
CONTRACT WORK MUST BE COMPLETED BY: Date 09/01/2011					

PAINT LINE WORK

This is included in the bid This is not included in the bid

Paint line work to be performed: (See attached map for locations)

TYPE OF LINE	WORK TO BE DONE	NOT APPLICABLE	PAINT COLOR	
Internal Buffer, Slope, or Reserve	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Blue	<input checked="" type="checkbox"/> Other: Green
Sale boundary	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Red	<input checked="" type="checkbox"/> Other: Blue (Pvt.)
Sale cutting unit	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Yellow	<input type="checkbox"/> Other:
Stand type line	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Yellow	<input type="checkbox"/> Other:

Exclusions to mark and why:

Contractor will put in all sale and unit boundary lines. Refer to the contract and attached appendix for detailed instructions.

Standards for marking lines against private land:

See Contract Specifications 1-B,7.a.

AREA CALCULATION

This is included in the bid This is not included in the bid

UNIT	METHOD	STANDARD
Sale	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	
Payment Unit	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	
Stand	<input checked="" type="checkbox"/> GPS <input type="checkbox"/> String Chain <input type="checkbox"/> Other	

Special Instructions:

All stands and payment units will need the area calculated using a GPS unit as described in the contract. These files must be submitted as ESRI ".shp" files on media immediately accessible to the Local Contact's equipment. The corrected map at a scale of 1:15840 will be used to indicate the plot locations as the cruise map.

TIMBER CRUISING SPECIFICATIONS

This is included in the bid This is not included in the bid

Required Basal Area Factor: 10 20 Other:

Cruise Line Directions: North-South

CRUISING UNITS	NUMBER OF PLOTS PER ACRE	SPACING (CHAINS)
All	TBD	TBD
TOTAL NUMBER OF CRUISE POINTS	TBD by LCA, but approx 184	TBD by LCA

Cruise Special Instructions:

Refer to the contract and attached appendix for detailed instructions.

Unless otherwise specified, the tally sheets used must be those supplied by the Forest, Mineral and Fire Management Unit.

TIMBER MARKING SPECIFICATIONS

This is included in the bid This is not included in the bid

Precise specifications to be delineated at pre-work meeting with DNR staff

Total Residual BA (Basal Area): 80 +/-10 in stands 16, 23, 49, 50, 56-Thin, 63 and 77.

Total Residual BA (Basal Area): 30 +/-10 in stands 22 and 56-Sheltl

TREATMENT		NUMBER	SIZE
Regeneration Gaps Per Acre in Stands: See Stand		See Stand Specific Req.	See Stand Specific Req.
Girdled Trees Per Acre		NA	NA
PRODUCT	MARKING SYMBOL	MINIMUM DBH	TOP DIB
Sawlogs	X and dot per 8ft log	10 inches	8 inches
Sawbolts	NA	NA	NA
Pulpwood	slash	4.6 inches	4 inches
TYPE OF WORK	WORK TO BE DONE	NOT APPLICABLE	PAINT COLOR
Trees marked to leave	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Green <input type="checkbox"/> Other
Trees marked to cut	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Orange <input type="checkbox"/> Other

TALLY INTENSITIES

SPECIES / PRODUCT	RATIO
Sawlogs	1 : 1
Pulpwood: see cruising section	

SPECIES TO FAVOR:
See page 5 for stand specific information and contact LCA.

SPECIES TO FAVOR:

SPECIAL MARKING INSTRUCTIONS:
See attached Appendix and contact LCA.

Unless otherwise specified, the tally sheets used must be those provided by the Forest, Mineral and Fire Management Unit.

- RESTRICTIONS:**
1. Forest, Mineral and Fire Division must be able to identify who did what on the timber sale.
 2. The contractor may not have more than two markers in one payment unit without prior approval.
 3. Each marker should have an assigned area to mark (not strips).

- PAINT:**
1. Call Richard Barber at (989) 785 -4251 ext 5242, to make arrangements for paint.
 2. Paint will be supplied from the Atlanta Unit Office.
 3. Contractor's work schedule must coincide with the DNR work schedule for paint supply.
 4. The DNR will not be available on weekends or evenings.

- DELIVERABLES:**
1. A list of names that marked or cruised each payment unit.
 2. A summary of paint used in quarts.
 3. Tally summaries for each payment unit (one summary regardless of the number of markers) and all of the original tally and cruise sheets.
 4. GPS files for any GPS work, including all red, blue, green or yellow painted lines.

Compartment 16 Hardwood and Oak Contract APPENDIX 1, TIMBER SALE PRESCRIPTION

When establishing paint lines:

- "Stand Type Line" under Paint Line Work refers to the boundary between 56-thin and 56-shelt.
- The attached type maps delineate the contract marking area.
- The northwest edge of treatment 016022-shelt and most of the east edge of 016056-thin are against private lands. They should be painted in blue rather than red.
- Avoid using dead or badly damaged trees - boundary trees must last for the duration of the timber sale (up to 3-4 years).
- Favor the use of reserved species such as cedar or hemlock.
- Avoid using small (fast-growing) stems and those exposed to direct sunlight.
- Marking must be done in dry weather and when tree surfaces are not wet.
- Paint the boundary line in such a way that it can be seen both from the inside of the sale area and when walking along the line from either direction (two sides). Each boundary line tree must be stump-marked, at the base of the stump (one side) between the roots extending all the way to the ground.
- Place marks approximately six feet above the base of the tree.
- The contractor will keep track of total quarts of paint used per-sale by color.
- The contractor will use a GPS unit to determine enclosed acreage to the nearest one-tenth acre, unless an alternative method is approved prior by Unit Management.
- GPS setup used must be able to output ESRI shapefiles (SHP.) Supply a copy of the traverse files, including the PRJ files, along with a hard copy of the corrected traverse file.
- For Trimble Geo series GPS units, Position Mode must be set so that GPS receiver collects data from a minimum of four satellites. PDOP mask must be less than or equal to 8 and SNR setting must be less than or equal to 4.
- For TDS/Trimble NOMADs and Recons, HDOP must be 4 or less. Positions must be determined using at least 4 satellites.
- Sale boundaries are to be recorded as an area feature, not a line.
- No Payment Unit will be larger than 25 acres. Payment Unit lines may be recorded as a line feature bisecting the sale.
- Excessively steep slopes near the edge of an external boundary may be excluded from the sale using the red painted boundary. In single tree selection treatments, excessively steep slopes (over 20%) internal to the sale will be marked with green paint and a V-shaped paint mark. In shelterwood treatments, excessively steep slopes (over 20%) internal to the sale will be marked as directed by the LTA.

When Registered Corners or Witness Trees are discovered:

- Any wooden posts encountered at corners must also be painted/protected.
- Bearing and/or witness trees discovered during the course of sale preparation must be protected. This can be accomplished by painting a ring completely around the tree at 4-6 feet above ground level with either red paint (corner surrounded by state lands) or blue paint (corner on private property boundary line). In addition, tying ribbon on these trees helps alert loggers to their presence. Do not mark any trees for harvest if cutting them is likely to result in damage to corner monuments and/or bearing trees.
- Report the condition of all corners, posts and bearing trees to the LCA.

When Cruising:

- Data must be recorded so volume can be determined by treatment. All data must be summarized by species within the treatment, using the LCA provided forms.
- All saw logs must be 100% tallied by species and diameter.
- Within all marked treatments, cruise all marked pulpwood tree species that will yield one or more 100" pulpwood sticks with a minimum top diameter of four (4) inches DIB. Contact LCA to see what grouping of pulpwood is acceptable.
- Within all marked stands, residual basal area (merchantable sized trees by species) at each plot must also be recorded on the cruise sheets. Borderline residual trees do not have to be measured, but every other borderline tree should be counted.
- Plot centers must be marked according to contract specifications and correspond to a legible 1:15840 scale cruise map. Cruise specifications may be altered as necessary by the LCA.

When marking to 80 BA, prioritize selection of trees to be cut in the following order:

1. Marking must comply with The Compleat Marker, The Complete Marker Addendum, and Within Stand Retention Guidelines (IC4110.)
2. Of the 80 BA, 4-8 BA (i.e. 5-10% of residual stand) must be in trees meeting some mix of the following criteria:
 - under-represented species, including yellow birch, eastern hemlock, white pine, and black cherry

- conifer/deciduous diversity (e.g. hemlock, cedar, pine, spruce)
 - mast trees - at least 3 trees/acre > 10" DBH where feasible. Large crowned beech are preferred, large crowned red oak are second.
 - large/super-canopy trees, at least 1 per 10 acres
 - live cavity trees (at least 3/acre), live cavity tree plus snags (up to 10/acre) > 10" DBH where feasible.)
 - This will yield 2-4 "retention trees" per 5 plots when using a 10 BAF prism
3. In clones of aspen, create large regeneration gaps
 4. Release 50 potential crop trees per acre.
 - Manage for best tree in place.
 - For trees less than 8" DBH, create a 7' canopy gap all the way around the crown.
 - If more than 8" DBH, remove the two most significant crown competitors. (Refer to The Compleat Marker for crop tree specifications.)
 - Be certain that marked trees can be felled.
 5. Remove high risk and cull trees.
 6. Thin from below until stocking is reached.
- When marking to 30 BA, prioritize selection of trees to be retained in the following order:
1. Marking must comply with Within Stand Retention Guidelines (IC4110.)
 2. Of the 30 BA, 1-3 BA (i.e. 3-10% of residual stand) must be in trees meeting some mix of the following criteria:
 - under-represented species, including sugar maple, ash and beech
 - conifer/deciduous diversity (e.g. red and white pine)
 - mast trees, large crowned beech preferred.
 - large/super-canopy trees, at least 1 per 10 acres
 - live cavity trees
 - This will yield 1-3 "retention trees" per 10 plots when using a 10 BAF prism
 3. Mark 30 BA in leave trees
 - Generally, manage for full size, healthy oak. Up to 25% may be sprawling mast producers.
 - No mercy shall be shown toward red maple.
 - Not every acre need be marked the same.

Reserved Species:

- Do not mark within 100' of any raptor nest trees. Report these to the LCA as soon as possible and directions will be given at that time.

Stand Specific Requirements:

- Please see Appendix 2, Treatment Details

Appendix 2, Treatment Details

Name	Acres	Treatment Type	Cover Type	Current BA	Target BA	Details	Plots/Ac*	Spacing*	Plots*
016016-Thin	17	single tree select.	n. hardwood	111-140	80 +/- 10	thin to 80-90 BA	0.431	4.82ch X 4.82ch	7
016022-Shelt	51	shelterwood	red oak	111-140	30 +/- 10	leave 10-30 BA in oak	0.882	3.37ch X 3.37ch	45
016023-Thin	31	single tree select.	sugar maple hard mast	111-140	80 +/- 10	thin to 80-90 BA, retaining all hemlock.	0.431	4.82ch X 4.82ch	13
016049-Thin	53	single tree select.	n. hardwood	111-140	80 +/- 10	thin to 80-90 BA. Create some large canopy gaps where oak are cut.	0.431	4.82ch X 4.82ch	23
016050-Thin	33	single tree select.	sugar maple hard mast	81-110	80 +/- 10	thin to 80-90 BA. Create a few large canopy gaps in aspen areas.	0.431	4.82ch X 4.82ch	14
016056-Shelt	32	shelterwood	mix. upland dec.	111-140	30 +/- 10	leave 20-30 BA of oak and hardwood.	1.000	3.00ch X 3.00ch	32
016056-Thin	12	single tree select.	mix. upland dec.	111-140	80 +/- 10	thin to 80-90 BA	1.000	3.00ch X 3.00ch	12
016063-Thin	44	single tree select.	n. hardwood	141-170	80 +/- 10	thin to 80-90 BA. Create gaps in aspen.	0.431	4.82ch X 4.82ch	19
016077-Thin	43	single tree select.	n. hardwood	111-140	80 +/- 10	thin to 80-90 BA. in pockets of aspen create large regen. gaps.	0.431	4.82ch X 4.82ch	19
	316								184

* Subject to recalculation by LCA