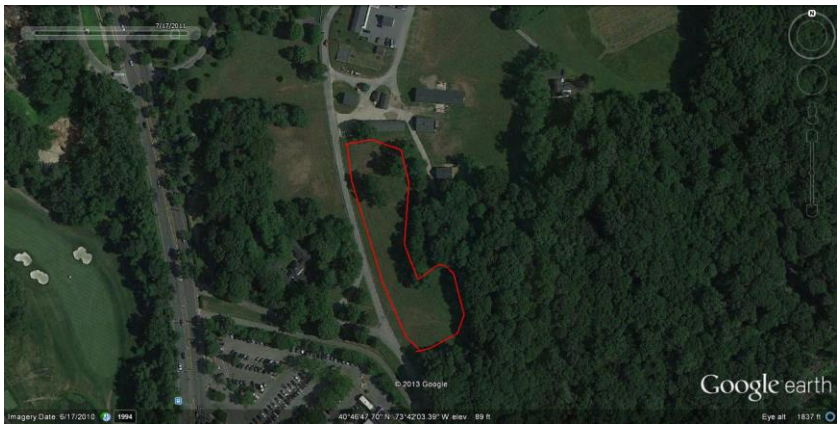
Prescription: Unit G1 Fuel Model Gr3, Low Load, Very Course Humid Climate Grass

Factor	Minimum	Maximum	Comments
Season			Burn in any season, Mar/April or Sept/Oct ideal
Wind Direction	South to West	South to West	SW wind ideal
Wind Speed Mid-flame	0	9	Note this is mid-flame windspeed, not 20'. Predicted 20' windspeed is what is shown in NWS Fire Weather Forecasts (mid-flame windspeed=0.44X20'windspeed in grass fuels)
Wind Gust Mid-flame		12	
Fine Fuel Moisture	6%	16%	FFM below 6% was constrained in prescription to prevent Probability of Ignition of flaming brands to exceed 60%
Mixing Height	1000'	No max	
Transport Winds	South to West	South to West	
Relative Humidity	30%	80%	
Temperature	37	100	Mid 60's ideal temp.
*Days since wetting rain	1	6	*note this is recommended not REQUIRED prescription parameter



Maximum Flame Lengths Head Fire from BEHAVEPLUS ver 5.0.5, Fuel Model Gr3.

Green Unit G1 March
Flame Length (ft)

1-h Moisture %	Midflame Wind Speed (upslope) mi/h 1	3	5	7	9
6	3.5	6.0	7.8	9.4	10.8
8	3.1	5.4	7.1	8.5	9.7
10	2.9	5.0	6.5	7.9	9.0
12	2.7	4.7	6.2	7.4	8.5
14	2.6	4.5	5.9	7.1	8.2
16	2.5	4.4	5.7	6.9	7.9

Inputs used varying live fuel moistures as live fuels emerge from dormant (March, 30% moisture), emergent (April, 60% moisture), growing (May/June, 120% moisture), waning (Fall, 60% moisture)

This small unit is very near the North Shore University Hospital and Community Drive, so prescription wind vectors are critically important to mitigate smoke impacts.

Ignition wise this is a pretty straightforward unit to burn. Under S or W winds, the test fire and backing fire to anchor the unit would

Green Unit G1 April
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	3.0	5.2	6.8	8.2	9.4
8	2.8	4.9	6.4	7.7	8.8
10	2.7	4.6	6.1	7.3	8.4
12	2.6	4.5	5.9	7.0	8.1
14	2.5	4.3	5.7	6.8	7.8
16	2.4	4.2	5.5	6.6	7.6

Green Unit G1 May June & Summer
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	0.2	0.2	0.2	0.2	0.2
8	0.2	0.2	0.2	0.2	0.2
10	0.2	0.2	0.2	0.2	0.2
12	0.2	0.2	0.2	0.2	0.2
14	0.2	0.2	0.2	0.2	0.2
16	0.2	0.2	0.2	0.2	0.2

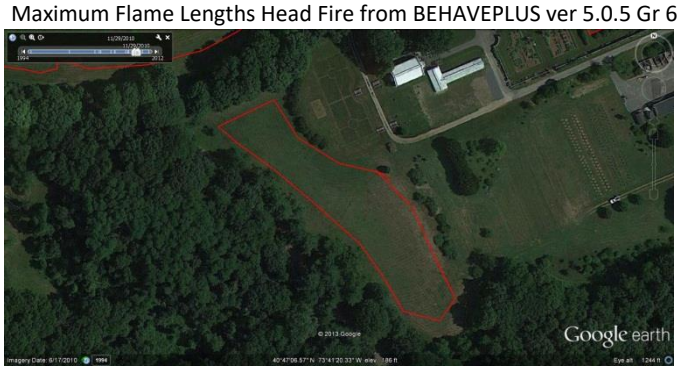
be ignited at the N or NE corner. Backing/flanking fire would be carried south along the east flank. Strip heads would be used to widen out by burning into the black along the N and E flanks.

By using the newer dynamic fuel models it can be seen that as the live fuel component of this grass fuel model green up, expected fire activity will diminish. Fire activity post green up in early May would be negligible.

Prescription: Unit G5, Fuel Model Gr6, Moderate Load, Humid Climate Grass (50%) and Gr5, Low Load Humid Climate Grass

Factor	Minimum	Maximum	Comments
Season			Burn in any season, Mar/April or Sept/Oct ideal
Wind Direction	Any direction	Any direction	N to E winds ideal, but smoke will be mitigated by narrow strip head ignitions on this small unit.
Wind Speed Mid-flame	0	9	Note this is mid-flame windspeed, not 20'. Predicted 20' windspeed is what is shown in NWS Fire Weather Forecasts (mid-flame windspeed=0.44X20'windspeed in grass fuels)
Wind Gust Mid-flame		12	
Fine Fuel Moisture	6%	16%	FFM below 6% was constrained in prescription to prevent Probability of Ignition of flaming brands to exceed 60%
Mixing Height	1000'	No max	
Transport Winds	Any direction	Any direction	S to W transport winds ideal, but smoke will be rapidly dispersed before reaching top of mixing heights
Relative Humidity	30%	80%	
Temperature	37	100	Mid 60's ideal temp.
*Days since wetting rain	1	6	*note this is recommended not REQUIRED prescription parameter

Maximum Flame Lengths Head Fire from BEHAVEPLUS ver 5.0.5 Gr 6 Fuel Model. **NOTE: The graphs below are for what is now labeled on the map as Unit G5 near the greenhouse**. Gr6 Fuel Model covers about 50% of this unit and is the heavier fuel. Gr5 Fuel Model covers the other 50% of this unit. Fire behavior is predicted at slightly less intensity in the Gr5 portion.



Inputs used varying live fuel moistures as live fuels emerge from dormant (March, 30% moisture), emergent (April, 60% moisture), growing (May/June, 120% moisture), waning (Fall, 60% moisture).

Greentree Unit G6 March

Flame Length (ft)

1-h Moisture %	Midflame Wind Speed (upslope) mi/h 1	3	5	7	9
6	6.3	11.4	15.9	20.0	23.8
8	5.7	10.3	14.3	18.0	21.4
10	5.2	9.4	13.1	16.4	19.5
12	4.8	8.7	12.2	15.3	18.2
14	4.6	8.3	11.5	14.5	17.2
16	4.4	7.9	11.0	13.8	16.4

This unit has about a 20% slope with a SW and W aspect. The heavier Gr6 fuels are the eastern and southern half, with the Gr5 fuels on the northern and western half. The top of the aspect(s) is the eastern flank.

As shown in the prescription this unit can be burned on any wind vector as smoke emissions will be mitigated by strip

Greentree Unit G6 April & Fall

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	5.2	9.5	13.2	16.5	19.6
8	4.9	8.8	12.3	15.5	18.4
10	4.6	8.4	11.7	14.6	17.4
12	4.4	8.0	11.1	14.0	16.6
14	4.2	7.7	10.7	13.4	16.0
16	4.1	7.4	10.4	13.0	15.5

Greentree Unit G6 May June & Summer

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	0.1	0.2	0.2	0.2	0.2
8	0.1	0.1	0.1	0.1	0.1
10	0.1	0.1	0.1	0.1	0.1
12	0.1	0.1	0.1	0.1	0.1
14	0.1	0.1	0.1	0.1	0.1
16	0.1	0.1	0.1	0.1	0.1

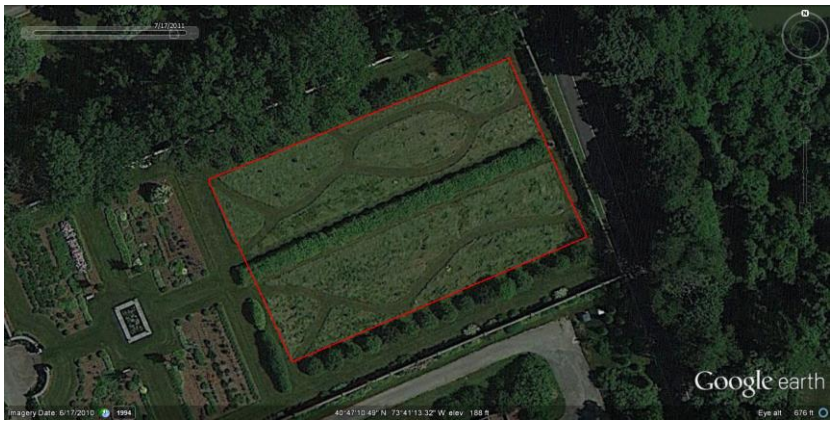
head burning patterns. Ignition wise the test fire and anchoring fires would be ignited in downwind corners or flanks, with backing/flanking fires carried along progressively on perimeter flanks into the wind and using

the slope. Narrow and then wider strip heads would then be lit to burn into the black.

By using the newer dynamic fuel models it can be seen that as the live fuel component of this grass fuel model green up, expected fire activity will diminish. Fire activity post green up in early May would be negligible.

Prescription: Unit G6 Walled Garden, Fuel Model Gr8, High Load, Very Coarse, Humid Climate Grass

Factor	Minimum	Maximum	Comments
Season			Burn in any season, Mar/April or Sept/Oct ideal
Wind Direction	N to E to SW	N to E to SW	NE to SE winds ideal, but smoke will be mitigated by actively burning only patches of this small unit at a time.
Wind Speed Mid-flame	0	9	Note this is mid-flame windspeed, not 20'. Predicted 20' windspeed is what is shown in NWS Fire Weather Forecasts (mid-flame windspeed=0.44X20'windspeed in grass fuels)
Wind Gust Mid-flame		12	
Fine Fuel Moisture	6%	16%	FFM below 6% was constrained in prescription to prevent Probability of Ignition of flaming brands to exceed 60%
Mixing Height	1000'	No max	
Transport Winds	Any direction	Any direction	N to S transport winds ideal, but smoke will be rapidly dispersed before reaching top of mixing heights
Relative Humidity	30%	80%	
Temperature	37	100	Mid 60's ideal temp.
*Days since wetting rain	1	6	*note this is recommended not REQUIRED prescription parameter



live fuels emerge from dormant (March, 30% moisture), emergent (April, 60% moisture), growing (May/June, 120% moisture), waning (Fall, 60% moisture).

Ignitions on this unit will be different than all the other Greentree Units because of the heavy grass/forb fuel loads, proximity to neighboring stakeholders and the

Maximum Flame Lengths Head and Backing Fire from BEHAVEPLUS ver 5.0.5 Gr 8 Fuel Model. Note that the graphs below are for what is now labeled as Unit G6 the Walled Garden.

Inputs used varying live fuel moistures as

Greentree Unit G7 March Head Fires
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	12.2	20.4	26.6	31.9	36.6
8	10.9	18.3	24.0	28.7	32.9
10	10.1	17.0	22.2	26.6	30.4
12	9.6	16.0	21.0	25.1	28.8
14	9.2	15.4	20.1	24.1	27.6
16	8.8	14.8	19.3	23.2	26.6

proximity of the ornamental trees and grape arbor to the fuels to be burned. For this reason BehavePlus runs including backing fires are included in this prescription.

Greentree Unit G7 March Backing Fires
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	6.4	7.0	7.0	6.9	6.7
8	5.8	6.3	6.3	6.2	6.0
10	5.3	5.8	5.8	5.7	5.6
12	5.1	5.5	5.5	5.4	5.3
14	4.8	5.3	5.3	5.2	5.0
16	4.7	5.1	5.1	5.0	4.9

This unit, as described elsewhere is this plan, is broken into distinct patches of fuels by mowed grass trails. Due to the large flame lengths for head fires predicted in these heavy fuels, ignitions will primarily be backing and flanking fires in these distinct patches. Narrow strip heads will be used to finish burning each patch once it can be assured that flame impingement or radiant heat will not impact the surrounding values at risk.

Each patch will be burned individually in this manner until all patches within the unit are completed.

Greentree Unit G7 April and Fall Head Fires
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	10.5	17.6	23.0	27.6	31.6
8	9.8	16.5	21.5	25.8	29.6
10	9.3	15.7	20.5	24.5	28.1
12	9.0	15.1	19.7	23.6	27.1
14	8.7	14.6	19.1	22.8	26.2
16	8.4	14.1	18.4	22.1	25.3

Greentree Unit G7 April and Fall Backing Fires
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	5.5	6.1	6.1	5.9	5.8
8	5.2	5.7	5.7	5.6	5.4
10	4.9	5.4	5.4	5.3	5.1
12	4.7	5.2	5.2	5.1	4.9
14	4.6	5.0	5.0	4.9	4.8
16	4.4	4.9	4.9	4.8	4.6

As can be noted in viewing the BehavePlus tables to the left (look at the “April and Fall” tables) the fires backing against the wind are all shown to be in the 5-6 foot range, almost regardless of wind speed. In fact at higher wind speeds the flame lengths of these backing fires diminish as the flames are “knocked down” by the wind they are battling against. Meanwhile head fires are predicted at flame lengths from 9-32 feet, and increase proportionately with the wind speed. These are truly wind driven fires as opposed to the more consistent backing fires. To reduce the flame lengths of head fires very narrow strips will be lit in a manner to burn into the areas already blackened by the backing fires.

Greentree Unit G7 May June Head Fires
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	0.5	0.9	1.1	1.3	1.3
8	0.5	0.8	1.1	1.2	1.2
10	0.5	0.8	1.0	1.1	1.1
12	0.5	0.8	1.0	1.1	1.1
14	0.5	0.8	1.0	1.0	1.0
16	0.5	0.8	1.0	1.0	1.0

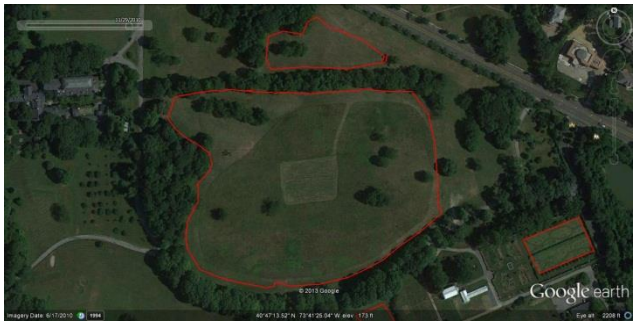
Greentree Unit G7 May June Backing Fires
Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	0.3	0.3	0.3	0.3	0.3
8	0.3	0.3	0.3	0.3	0.3
10	0.3	0.3	0.3	0.3	0.3
12	0.2	0.3	0.3	0.3	0.3
14	0.2	0.3	0.3	0.3	0.3
16	0.2	0.3	0.3	0.3	0.3

Once again it is noteworthy that once live grasses and forbs reach full greenup stage, and are rich with moisture (120-150% of their dry weight in moisture content), fire behavior is considerably diminished to flame lengths of less than 1.5 feet. Saying that, it is conceivable to burn this unit later in the spring season than the other Greentree units but that would depend upon the volume of dead fuels still available to burn. Once greenup occurs shading of the dead fuels can be expected to keep fine dead fuel moistures at high levels that may exceed 16% and therefore at their point of extinction (they just won’t burn).

Prescription: Unit G3 and Unit G4; Fuel Model Gr6, Moderate Load, Humid Climate Grass (40%), NB3, Non Burnable Agricultural Fuels (20%) and Gr3, Low Load, Very Coarse Humid Climate Grass (40%)

Factor	Minimum	Maximum	Comments
Season			Burn in any season, Mar/April or Sept/Oct ideal
Wind Direction	Any Direction	Any Direction	NW to NE winds ideal. With NW to NE winds smoke will not be an issue outside of Greentree Foundation property. If winds are from other vectors narrow strip head ignitions will be required to mitigate smoke impacts outside of Greentree Foundation property.
Wind Speed Mid-flame	0	9	Note this is mid-flame windspeed, not 20'. Predicted 20' windspeed is what is shown in NWS Fire Weather Forecasts (mid-flame windspeed=0.44X20'windspeed in grass fuels)
Wind Gust Mid-flame		12	
Fine Fuel Moisture	6%	16%	FFM below 6% was constrained in prescription to prevent Probability of Ignition of flaming brands to exceed 60%
Mixing Height	1000'	No max	
Transport Winds	Any direction	Any direction	W to N to ESE transport winds ideal, but smoke will be rapidly dispersed before reaching top of mixing heights
Relative Humidity	30%	80%	
Temperature	37	100	Mid 60's ideal temp.
*Days since wetting rain	1	6	*note this is recommended not REQUIRED prescription parameter



NOTE: THE GRAPHS BELOW ARE FOR RE-NAMED UNITS G3 AND G4, NOT G8

Maximum Flame Lengths Head Fire from BEHAVEPLUS ver 5.0.5 Gr 6 Fuel Model.

Appendix II Specific Prescriptions for Individual Burn Units

Inputs used varying live fuel moistures as live fuels emerge from dormant (March, 30% moisture), emergent (April, 60% moisture), growing (May/June, 120% moisture), waning (Fall, 60% moisture).

Greentree Unit G8 March Head Fires

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	8.1	12.4	16.6	20.5	24.2
8	7.3	11.2	14.9	18.5	21.8
10	6.7	10.2	13.7	16.9	19.9
12	6.2	9.5	12.7	15.7	18.5
14	5.9	9.0	12.0	14.8	17.5
16	5.6	8.6	11.5	14.2	16.7

As otherwise described in this plan this unit is a domelike drumlin hill. The fuels consist of 40% Gr6 grass and forbs, 20% NB3 non-burning agricultural land and 40% Gr3 grasses and forbs. Since the Gr6 model is the dominant and heaviest burnable fuel loading the BehavePlus runs were based upon this fuel. The other fuel beds will either burn with less intensity or may not burn at all. The main difference in this unit is the slope involved. The majority of the Gr6 fuels are on slopes of up to 25%, and this percent of slope was included in the BehavePlus modeling runs.

The ideal wind vectors of this prescription (NW to NE) would allow for the widest range of ignition options, including the possibility of lighting from the base of the south slope of the unit and allowing head and flanking fires to freely burn upslope. However during March thru April time of the year it is statistically unlikely we would get those wind vectors based on local weather station historic data.

Instead with any wind vector this unit can be ignited using strip heads following contour and wind directions in a manner that will reduce smoke impacts outside of the Greentree Foundation property.

Greentree Unit G8 April and Fall Head Fires

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	6.7	10.3	13.8	17.0	20.0
8	6.3	9.6	12.9	15.9	18.7
10	5.9	9.1	12.2	15.0	17.7
12	5.7	8.7	11.6	14.3	16.9
14	5.5	8.4	11.2	13.8	16.3
16	5.3	8.1	10.8	13.4	15.8

Once again as greenup occurs and progresses there is distinct diminishment of predicted fire behavior as seen in the final table.

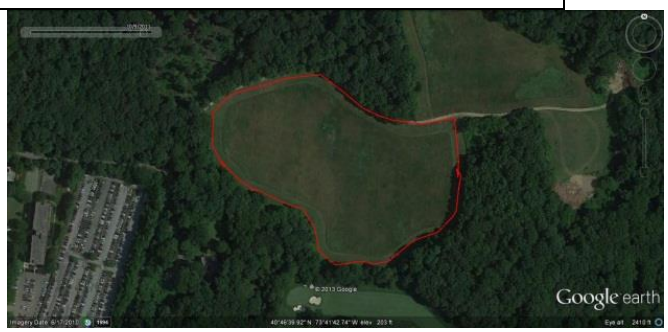
Greentree Unit G8 May June Head Fire

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	0.2	0.2	0.2	0.2	0.2
8	0.1	0.1	0.1	0.1	0.1
10	0.1	0.1	0.1	0.1	0.1
12	0.1	0.1	0.1	0.1	0.1
14	0.1	0.1	0.1	0.1	0.1
16	0.1	0.1	0.1	0.1	0.1

Prescription: Unit G9 Tower Unit – Fuel Model Gr6, Moderate Load Humid Climate Grass

Factor	Minimum	Maximum	Comments
Season			Burn in any season, Mar/April or Sept/Oct ideal
Wind Direction	W to S to SSE	W to S to SSE	W to SW winds ideal. The biggest smoke constraint here is huge! The North Shore University Hospital is an enormous complex that begins only about 100 yards due West of this burn unit.
Wind Speed Mid-flame	0	9	Note this is mid-flame windspeed, not 20'. Predicted 20' windspeed is what is shown in NWS Fire Weather Forecasts (mid-flame windspeed=0.44X20'windspeed in grass fuels)
Wind Gust Mid-flame		12	
Fine Fuel Moisture	6%	16%	FFM below 6% was constrained in prescription to prevent Probability of Ignition of flaming brands to exceed 60%
Mixing Height	1000'	No max	
Transport Winds	W to S to SSE	W to S to SSE	W to S to SSE transport winds are needed to insure that smoke cannot impact the Hospital.
Relative Humidity	30%	80%	
Temperature	37	100	Mid 60's ideal temp.
*Days since wetting rain	1	6	*note this is recommended not REQUIRED prescription parameter



G9 March Flame Lengths

Flame Length (ft)

1-h Moisture %	Midflame Wind Speed (upslope) mi/h 1	3	5	7	9
6	6.4	11.5	16.0	20.0	23.8
8	5.8	10.3	14.3	18.0	21.4
10	5.3	9.4	13.1	16.5	19.6
12	4.9	8.8	12.2	15.3	18.2
14	4.6	8.3	11.5	14.5	17.2
16	4.4	7.9	11.0	13.8	16.4

Maximum Flame Lengths Head Fire from BEHAVEPLUS ver 5.0.5 Gr 5 Fuel Model.

Inputs used varying live fuel moistures as live fuels emerge from dormant (March, 30% moisture), emergent (April, 60% moisture), growing (May/June, 120% moisture), waning (Fall, 60% moisture).

G9 April Flame Lengths

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	5.3	9.5	13.2	16.6	19.7
8	5.0	8.9	12.3	15.5	18.4
10	4.7	8.4	11.7	14.6	17.4
12	4.5	8.0	11.1	14.0	16.6
14	4.3	7.7	10.7	13.5	16.0
16	4.2	7.5	10.4	13.0	15.5

G9 May June Flame Lengths

Flame Length (ft)

1-h Moisture	Midflame Wind Speed (upslope) mi/h				
%	1	3	5	7	9
6	0.1	0.2	0.2	0.2	0.2
8	0.1	0.1	0.1	0.1	0.1
10	0.1	0.1	0.1	0.1	0.1
12	0.1	0.1	0.1	0.1	0.1
14	0.1	0.1	0.1	0.1	0.1
16	0.1	0.1	0.1	0.1	0.1

This unit is relatively oval in shape with a swale in the middle running from south to north. The highest ground is in the west. Although slopes run about 10% in the middle of the unit (and although that slope was entered into BehavePlus modeling runs) it does not appear that slope will be a major fire behavior factor

Wind vectors of this prescription (W to S to SSE) are critical to successful smoke management. The hospital to the west, major traffic corridor of Community Drive to the west, Long Island Expressway to the south and other surrounding infrastructure to south and west are concerns to be mitigated.

To the south of the unit is Deepdale Golf Course, and a fairway and green abut the unit on the south. To the immediate WNW on of the unit Greentree lands is a Chestnut tree plantation that is also a value at risk in case of escaped fire to the west.

On the prescribed winds the ignition of this unit is straightforward with ignition of test burn and backing fires in the NE corner, carrying backing/flanking fires to the west and south (then west on the south flank), then filling in with flanking fires and strip heads.

Once again as greenup occurs and progresses there is distinct diminishment of predicted fire behavior as seen in the final table.