

Section 2101. Clearing and Grubbing

2101.01 DESCRIPTION.

- A. **Clearing:** Cut and remove trees 3 inches (75 mm) or more in diameter.
- B. **Grubbing:** Remove stumps, including roots, to a depth of at least 12 inches (300 mm).
- C. **Removal of Logs and Down Timber:** Remove logs and down timber encountered on the work.
- D. **Hedge Removal:** Pull or grub hedge fences of Osage Orange or shrubs planted close together in rows. If any individual tree, of those composing a hedge, has a diameter greater than 6 inches (150 mm), it will be measured separately as a tree.
- E. **Brush and Shrub Removal:** Pull or grub trees and shrubs less than 3 inches (75 mm) in diameter, including roots, which are not classified as hedge.
- F. **Removal of Growing Corn:** Cut stalks to a maximum height of 5 inches (125 mm) above the ground, remove the stalks, and thoroughly disk the corn stubble.
- G. **Vegetation and Rubbish Removal:** Remove vegetation and all rubbish encountered on the right-of-way.
- H. **Field Fence:** Remove field fence from the project.

2101.02 MATERIALS.

None.

2101.03 CONSTRUCTION.

- A. Remove woody and other herbaceous vegetation, field fences, and rubbish from the right-of-way and from borrow pits furnished by the Contracting Authority. Do not remove field fences, trees, shrubs, and grasses that are to be preserved as indicated in the contract documents or as designated by the Engineer.
- B. Unless shown otherwise in the contract documents or ordered by the Engineer, clear and grub the area within the need line, or the entire right-of-way including borrow pits and the area covered by embankments. All of this material which is removed from the project remains the property of the Contractor.
- C. Material from clearing and grubbing may be burned according to IAC 567-23.2 and additional local ordinances. The unburned materials may be buried on State of Iowa right of way at locations approved by the Engineer.
- D. Material from clearing and grubbing may be processed by such means as chipping of logs, down timber, or brush, for mulching material, or salvaging of logs and down timber for firewood. Other vegetation including corn stubble may be disked into the existing ground surface.
- E. Haul the materials from clearing and grubbing (other than field fence) that are not handled on the project to a "yard waste" landfill.
- F. Remove field fence from the project. Field fence may be deposited in an appropriate landfill.

2101.04 METHOD OF MEASUREMENT.

Measurement for Clearing and Grubbing, removal, and clean-up of other material in units (calculated to the 0.1 unit) or by area will be as follows:

A. Units.

1. Clearing and Grubbing will be the quantity shown in the contract documents.
 - a. Trees 3 inches (75 mm) in diameter or greater will be counted and the circumference will be measured at a height of 18 inches (450 mm) above the ground. The diameter will be calculated by measuring the circumference to the nearest inch (10 mm) and dividing by

3.14. See Table 2101.04-1 for identification of units per tree for clearing, grubbing, and clearing and grubbing.

- b. Stumps 3 inches (75 mm) in diameter or greater will be counted and the diameter, in inches (millimeters), calculated by determining the average diameter at cutoff. See Table 2101.04-1 for identification of units per stump for grubbing.
 - c. Logs and down timber 3 inches (75 mm) in diameter or greater will be measured in a manner similar to that used for trees (Item a above). Measurement will be at a point 18 inches (450 mm) from the end of the log with greatest diameter or 18 inches (450 mm) from the base of the tree for down timber for clearing. See Table 2101.04-1 for identification of units per log and down timber for clearing.
 - d. Hedge rows will be measured in linear feet (meters) and converted to units using a rate of 30 units per station1 unit per meter of hedge row.
 - e. Brush will be measured in square feet (square meters) and converted to units by using a rate of 0.8 units per 100 square feet (0.1 unit per square meter) of brush.
 - f. Growing corn will be measured in square feet (square meter) and converted to units by using a rate of 0.2 units per 100 square feet (0.02 units per square meter) of growing corn.
 - g. Vegetation removal will not be measured for payment.
 - h. Field fence removal, included in clearing and grubbing, will be measured in stations (meters) and converted to units at a rate of 6.0 units per station (0.2 units per meter) of fence.
2. For each tree or stump counted as identified in Items a, b, and c in Paragraph 1 above, units will be determined as identified in Table 2101.04-1.

Table 2101.04-1: Clearing and Grubbing Units			
Size Diameter	Unit		
	Clearing	Grubbing	Clearing and Grubbing
3 in. to 6 in. inclusive (75 mm to 150 mm inclusive)	0.5	1.1	1.6
Over 6 in. to 9 in. inclusive (Over 150 mm to 225 mm inclusive)	1.1	2.8	3.9
Over 9 in. to 12 in. inclusive (Over 225 mm to 300 mm inclusive)	1.9	4.8	6.7
Over 12 in. to 15 in. inclusive (Over 300 mm to 375 mm inclusive)	2.8	6.6	9.4
Over 15 in. to 18 in. inclusive (Over 375 mm to 450 mm inclusive)	4.7	8.8	13.5
Over 18 in. to 24 in. inclusive (Over 450 mm to 600 mm inclusive)	8.4	13.6	22.0
Over 24 in. to 30 in. inclusive (Over 600 mm to 750 mm inclusive)	11.4	17.6	29.0
Over 30 in. to 36 in. inclusive (Over 750 mm to 1000 mm inclusive)	22.0	28.0	50.0
Over 36 in. to 42 in. inclusive (Over 1000 mm to 1150 mm inclusive)	30.0	50.0	80.0
Over 42 in. to 48 in. inclusive (Over 1150 mm to 1300 mm inclusive)	40.0	80.0	120.0
Over 48 in. to 60 in. inclusive (Over 1300 mm to 1600 mm inclusive)	60.0	100.0	160.0
Over 60 in. to 72 in. inclusive (Over 1600 mm to 2000 mm inclusive)	80.0	120.0	200.0
Over 72 in. (Over 2000 mm)	120.0	160.0	280.0

B. Area.

1. The area in acres (hectares) will be based on that shown in the contract documents, computed from a need line, or computed from a right-of-way line if the limits are not shown for this item in the contract documents.
2. Within these limits, an item for clearing and grubbing in units will not be measured for payment.

2101.05 BASIS OF PAYMENT.

Payment for Clearing and Grubbing, removal of trees, stumps, logs and down timber, hedge rows, brush, field fence, and growing corn will be made at the contract unit price per unit or per acre (hectare) as indicated below. If the Contractor is required to save material less than 6 inches (150 mm) in diameter or to process material saved to an extent greater than is necessary to produce neat piles, this extra saving and processing is considered extra work and payment will be as provided in [Article 1109.03, B](#). Removal and disposal of household rubbish and other nonhazardous rubbish is considered extra work and payment will be as provided in [Article 1109.03, B](#).

A. Units.

Number of units satisfactorily completed.

B. Area.

Number of acres (hectares) satisfactorily completed.