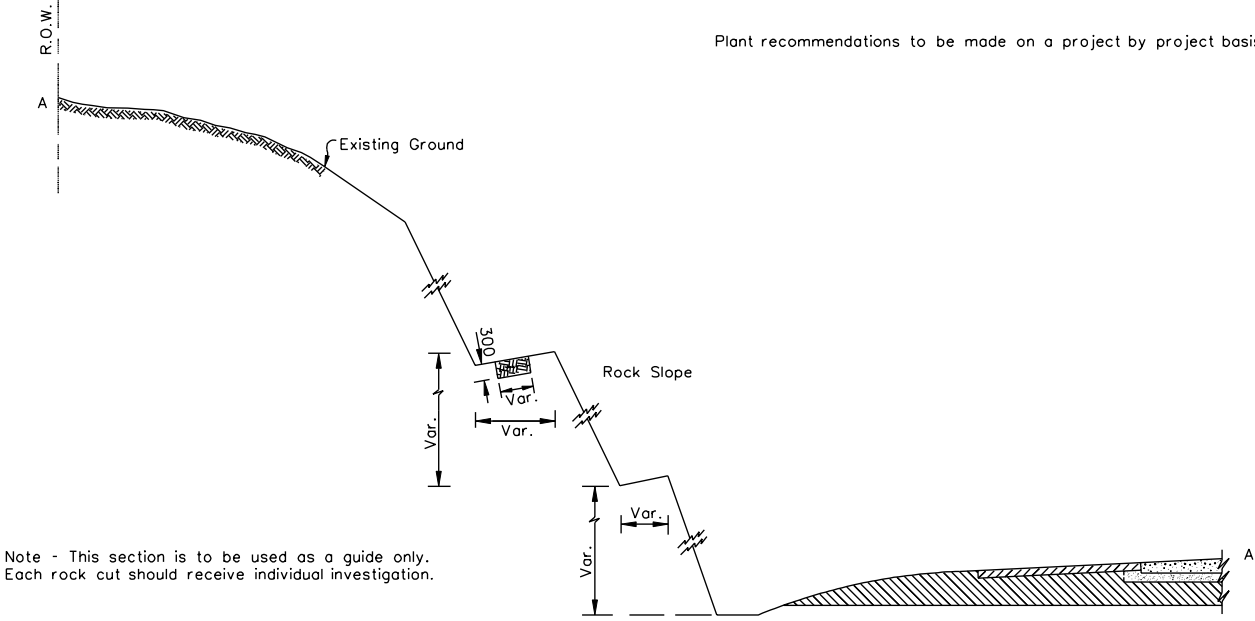
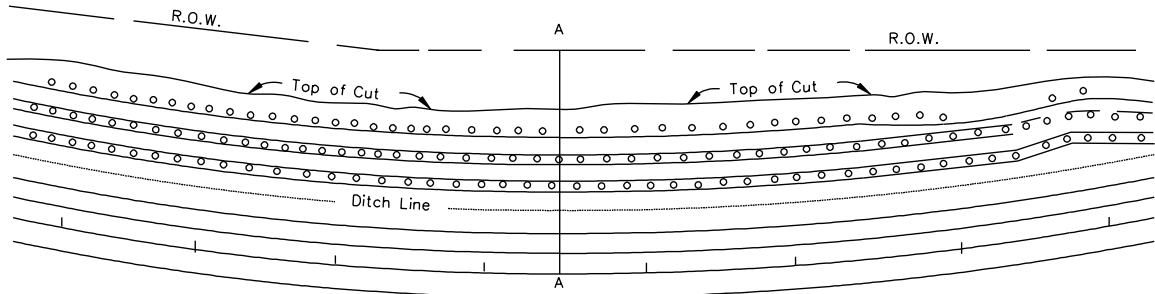


Plant recommendations to be made on a project by project basis.



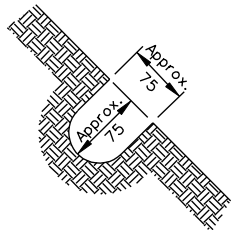
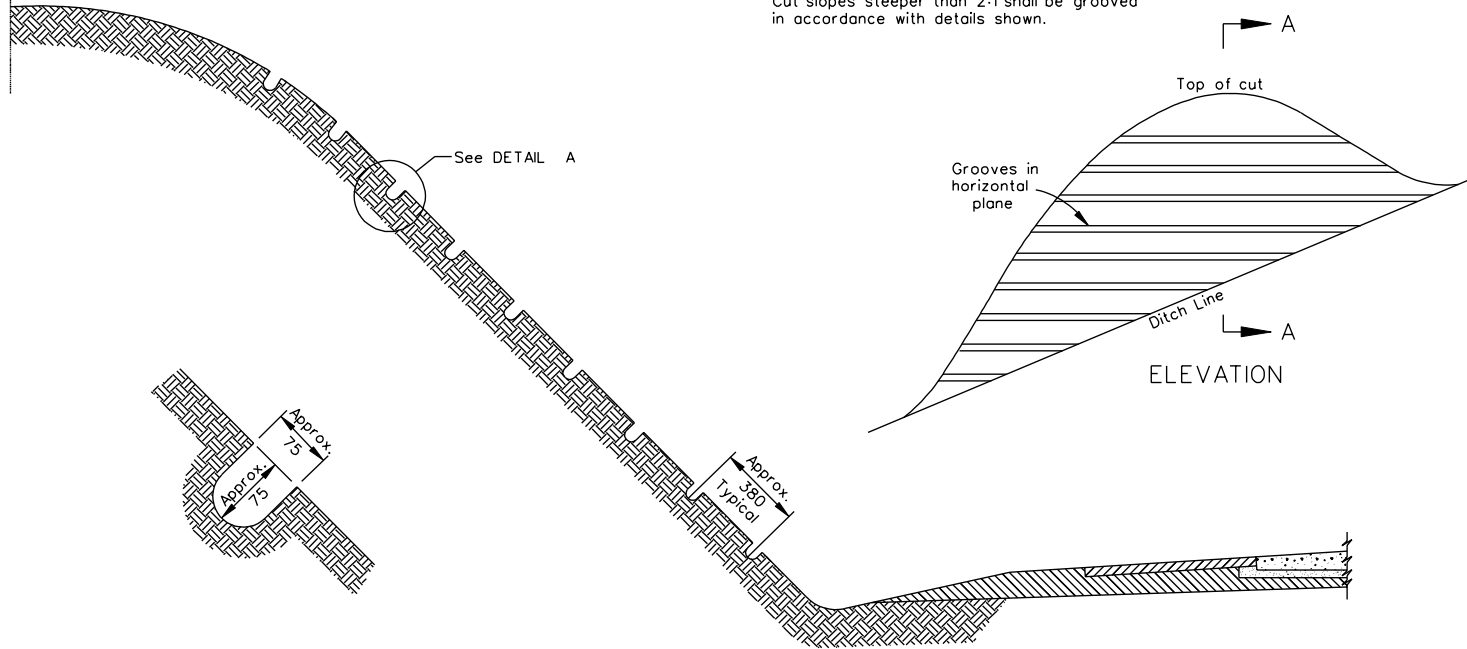
Note - This section is to be used as a guide only. Each rock cut should receive individual investigation.



SPECIFICATION REFERENCE	TYPICAL METHOD FOR BENCH PLANTING ON ROCK CUT SECTION		
NONE			

L-3A

Cut slopes steeper than 2:1 shall be grooved in accordance with details shown.



DETAIL A

SECTION A-A

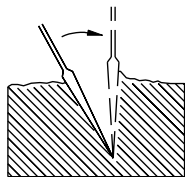
# TYPICAL METHOD FOR HORIZONTAL GROOVING CUT SLOPES

1201.02 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

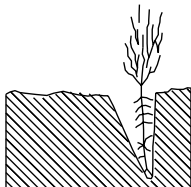
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE  
303

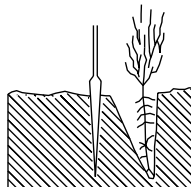
### PLANTING WITH BAR



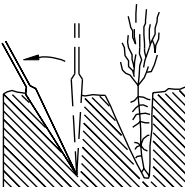
1. Insert bar at angle shown. Push forward to upright position.



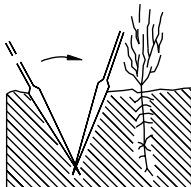
2. Remove bar. Place seedling at correct depth.



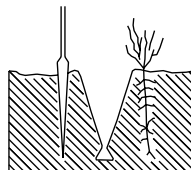
3. Insert bar 50 mm toward planter from seedling.



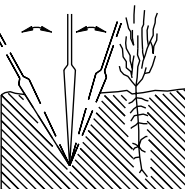
4. Pull handle of bar toward planter firming soil at bottom of roots.



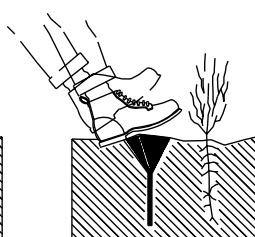
5. Push handle of bar forward from planter firming soil at top of roots.



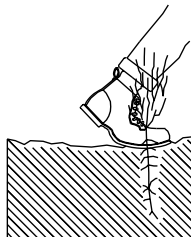
6. Insert bar 50 mm from last hole.



7. Push forward then pull backward filling hole.

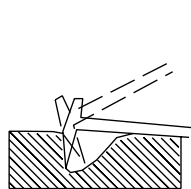


8. Fill in last hole by stamping with the feet.

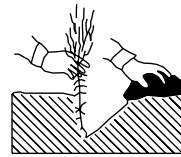


9. Firm soil around seedling with the feet.

### PLANTING WITH MATTOCK



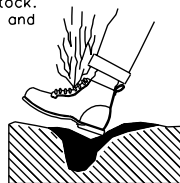
1. Insert mattock. Lift handle and pull.



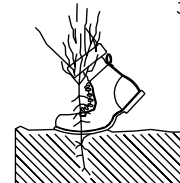
2. Place seedling along straight side at correct depth.



3. Fill in and pack soil to bottom of roots.

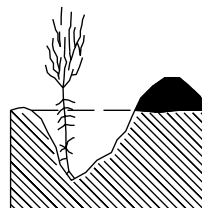


4. Finish filling in soil. Firm with heel.



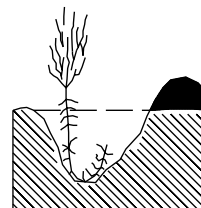
5. Firm around seedling with feet.

### CORRECT AND INCORRECT DEPTHS



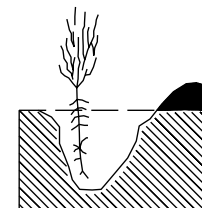
CORRECT

At same depth or 15 mm deeper than grew in nursery.



INCORRECT

Too deep. Roots bent.



INCORRECT

Too shallow. Roots exposed.

CORRECT

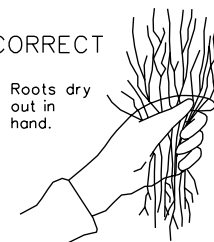
Wet moss or thick muddy water.



HANDLING SEEDLING IN FIELD.

INCORRECT

Roots dry out in hand.



SPECIFICATION REFERENCE

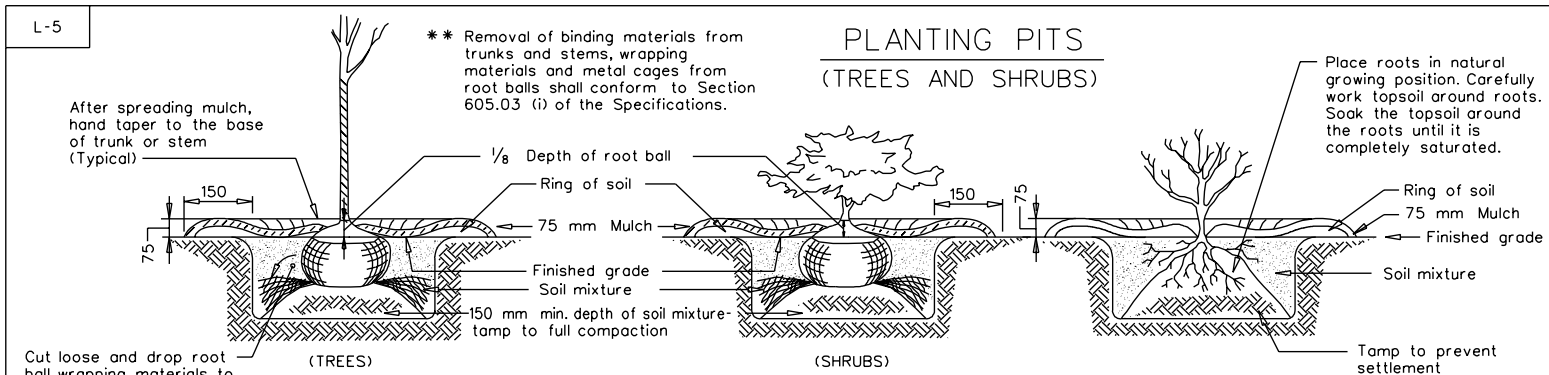
605

## METHOD OF PLANTING FOREST TREE SEEDLINGS

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

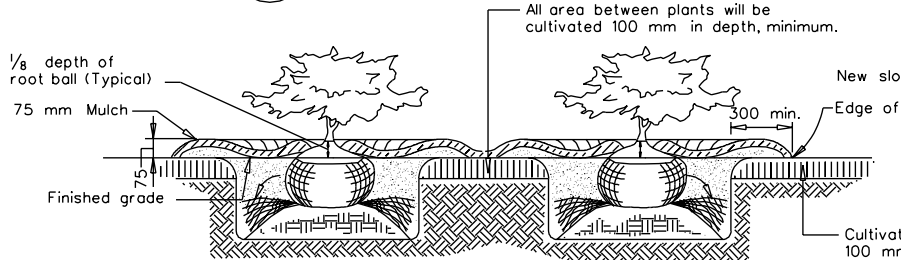
1201.03



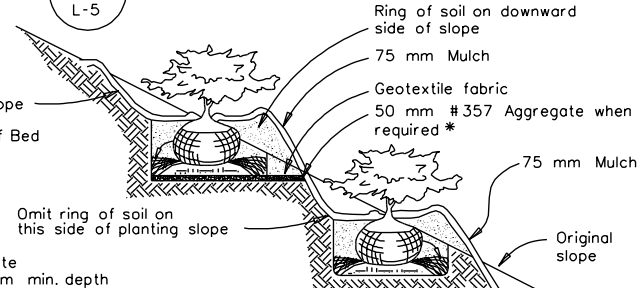
Cut loose and drop root ball wrapping materials to the bottom of the pit (Typical). \* \*

1 BALLED & BURLAPPED, & CONTAINER PLANTS  
L-5

2 BARE ROOT PLANTS  
L-5



3 BED PLANTING  
L-5



4 SLOPE PLANTING  
L-5

- When a portion of a plant bed extends into an area steeper than 4:1, cultivation of that portion shall be omitted and the entire area between plants shall be mulched to blend in with the cultivated bed.
- Planting beds (Cultivated and non-cultivated) shall be cut to a maximum 50 mm in height by mowing, and shall afterwards be treated with herbicide as approved and directed by the Engineer at least 2 weeks prior to cultivation, planting or mulching.
- When bare root plants are used in beds, shrub and root placement shall conform to detail. 2  
L-5
- SMM following bed designation on the plans stands for Square meters of Mulch at the indicated quantity.

- When bare root plants are used on slopes, shrub and root placement shall conform to detail. 2  
L-5
- On slopes steeper than 3:1, the front center of the pit shall be modified when required \* to include a "V" cut the full depth of the pit. The pit shall be dug 50 mm deeper than shown on the summary sheet and backfilled with 50 mm of #357 aggregate, daylighted to the slope face, and covered with geotextile fabric prior to backfilling with soil mixture.

\* See note for pit drainage modification for slope planting sheet 1201.06.

#### GENERAL NOTES:

- See Landscape Summary Sheet for pit sizes.
- Root ball shall typically be positioned 1/8 above and 7/8 below finished grade. Soil mixture shall taper onto but not over top of the root ball. Mulch shall extend at the proper depth over the entire root ball and planting pit, and shall be hand tapered to the base of all trunks and stems after spreading.

- Saucer rings shall be a minimum of 75 mm in height and 150 mm in width.
- This rule shall govern with the following exceptions:
  - Slope plantings - See Slope Planting Details.
  - Inclusion of pit drainage system - Position top of root ball the same as finished grade.
  - Tree grate planting - See Tree Grate Planting Details in plans.

## PLANTING DETAILS

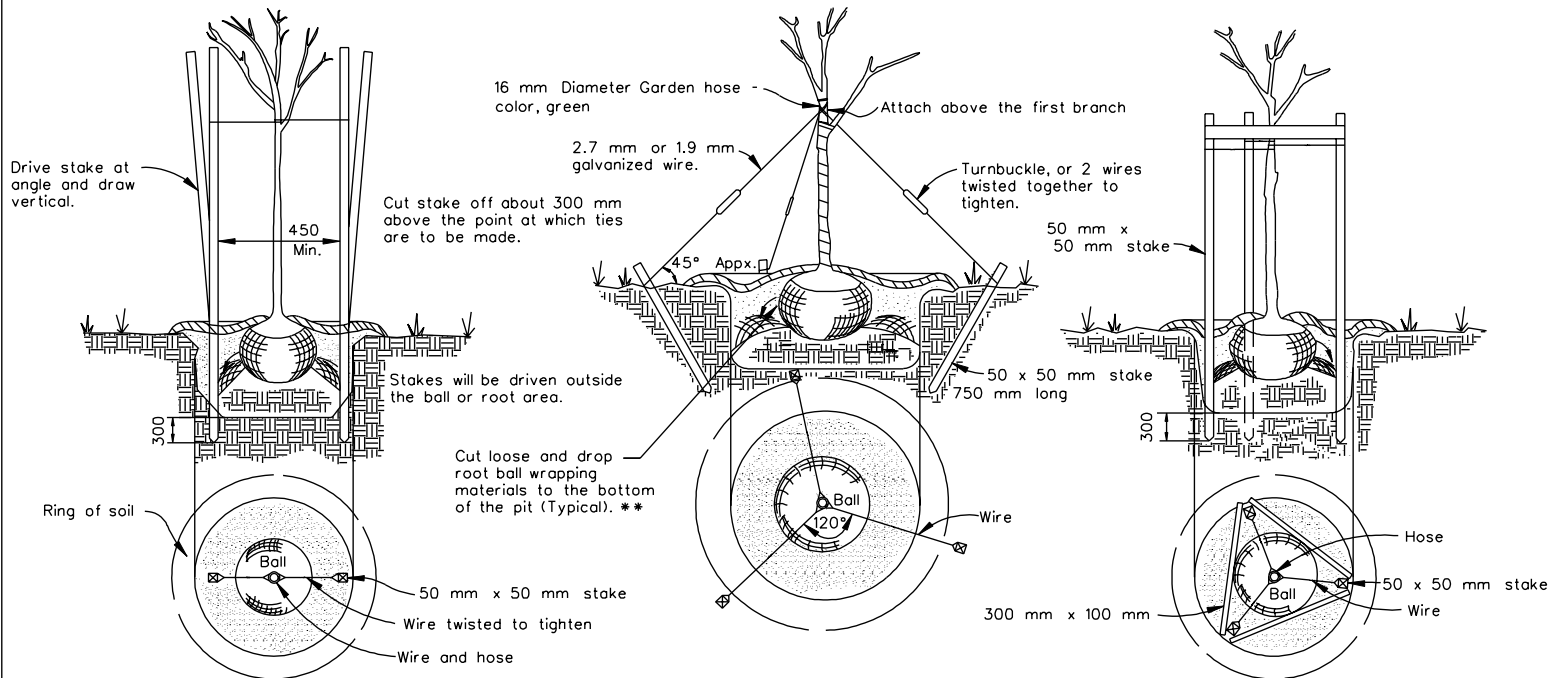
VIRGINIA DEPARTMENT OF TRANSPORTATION

1201.04 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

SPECIFICATION REFERENCE

605  
245  
203

STAKING, GUYING, AND WRAPPING



**5**  
L-5 **DOUBLE STAKING & STAKE PLACEMENT**

DECIDUOUS TREES LESS THAN 50 mm IN CALIPER  
EVERGREEN TREES LESS THAN 250 cm IN HEIGHT

**6**  
L-5 **TRIPLE - GUYING & WRAPPING**

DECIDUOUS TREES 50 mm IN CALIPER OR GREATER  
EVERGREEN TREES 250 cm IN HEIGHT OR GREATER

**7**  
L-5 **STAKING FOR SPECIAL CONDITIONS**

WHEN THIS METHOD IS USED FOR DECIDUOUS TREES WITH 50 mm GREATER CALIPER, WRAPPING SHALL BE PERFORMED IN ACCORD WITH GENERAL NOTE #5.

General Notes:

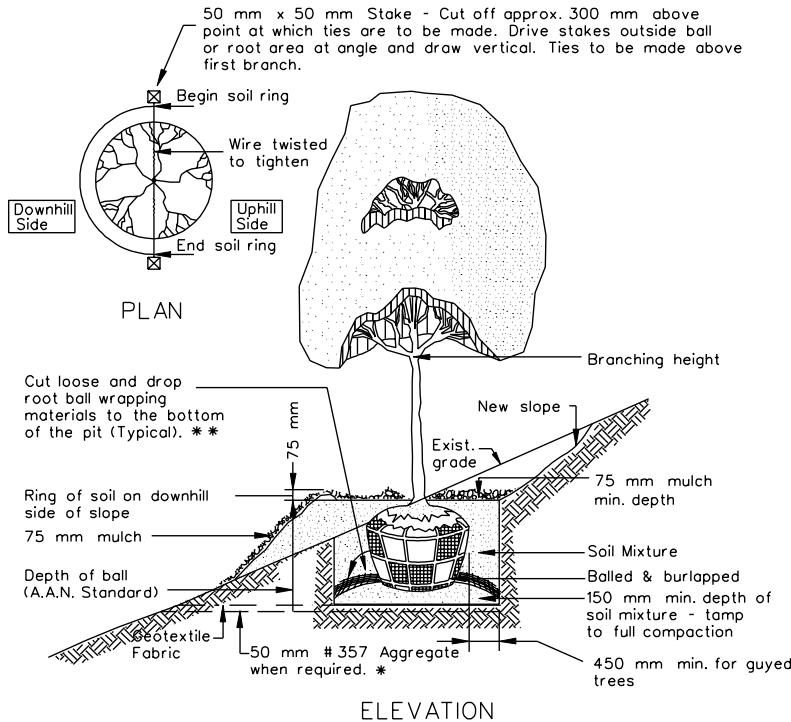
1. All deciduous trees over 125 cm in height and all evergreen trees over 90 cm in height shall be staked or guyed as shown.
2. Multiple stemmed deciduous trees over 125 cm in height shall be staked with 2 stakes in such a manner as to stabilize 2 mainstems.
3. The wood stakes shall be construction grade, rough or dressed, of wood, decay resistant, and of the size indicated in the details.
4. The wire ties shall be 2.7 mm or 1.9 mm galvanized wire, and be provided with a 300 mm piece of rubber hose placed to prevent injury to the bark.
5. Tree wrapping shall be placed around all trunks of deciduous trees 50 mm or more in caliper. Tree wrapping shall extend from ground line to 50 mm above the first branch. Each turn of wrapping material shall overlap 1/2 the width of previous turn. Bind with jute twine at top, middle, and bottom. Tree wrapping and twine shall conform to VDOT Road and Bridge Specification 244.02(j).

\*\* Removal of binding materials from trunks and stems, wrapping materials and metal cages from root balls shall conform to Section 605.03 (i) of the Specifications.

SPECIFICATION REFERENCE	<p>PLANTING DETAILS</p> <p>VIRGINIA DEPARTMENT OF TRANSPORTATION</p>	<p>UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS</p>
<p>605 244</p>		<p>1201.05</p>

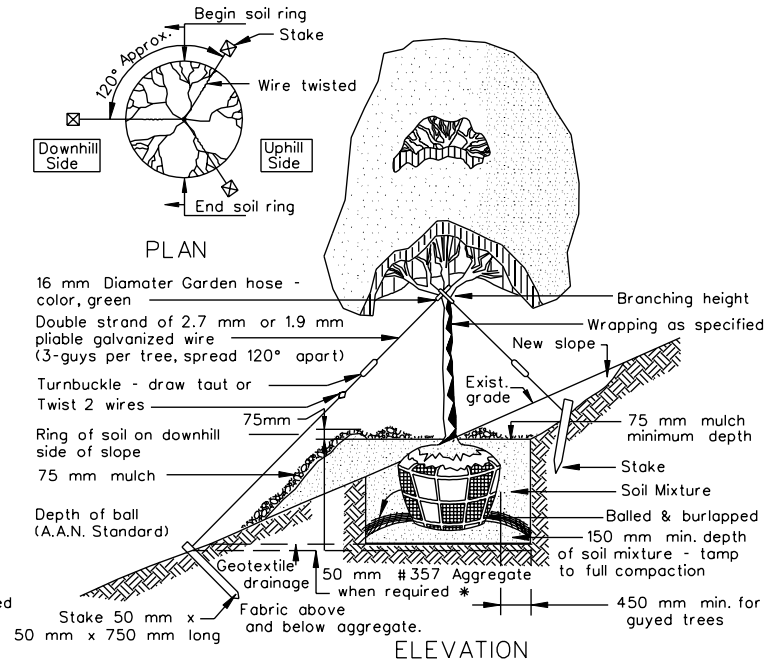
L-5

PLANTING, STAKING, GUYING, AND WRAPPING



8 L-5 DOUBLE STAKING & STAKE PLACEMENT

DECIDUOUS TREES LESS THAN 50 mm IN CALIPER  
EVERGREEN TREES LESS THAN 250 cm IN HEIGHT



9 L-5 TRIPLE GUYING & WRAPPING

DECIDUOUS TREES 50 mm IN CALIPER OR GREATER  
EVERGREEN TREES 250 cm IN HEIGHT OR GREATER

General Notes:

- \* PIT DRAINAGE MODIFICATION FOR SLOPE PLANTING (When required).
- A. Prior to planting on a slope the contractor shall test no more than 3 pits for percolation.
- B. Percolation test shall consist of filling the pit with approximately 150 mm of water. The Engineer shall determine if pit drainage is required.
- C. Payment for aggregate, geotextile fabric, and pit modification will be made in accordance with the Road and Bridge Specifications.

1. All deciduous trees over 125 cm in height and all evergreen trees over 90 cm in height shall be staked or guyed as shown.
2. Multiple stemmed deciduous trees over 125 cm in height shall be staked with 2 stakes in such a manner as to stabilize 2 mainstems.
3. The wood stakes shall be construction grade, rough or dressed, of sound wood, decay resistant, and of the size indicated in the details.
4. The wire ties shall be 2.7 mm or 1.9 mm galvanized wire, and be provided with a 300 mm piece of rubber hose placed to prevent injury to the bark.
5. Tree wrapping shall be placed around all trunks of deciduous trees 50 mm or more in caliper. Tree wrapping shall extend from ground line to 50 mm above the first branch. Each turn of wrapping material shall overlap 1/2 the width of previous turn. Bind with jute twine at top, middle, and bottom. Tree wrapping and twine shall conform to VDOT Road and Bridge Specification 244.02(j).

6. On slopes steeper than 3:1, the front center of the pit shall be modified when required\* to include a "V" cut the full depth of the pit. The pit shall be dug 50 mm deeper than shown on the summary sheet and backfilled with 50 mm of #357 aggregate daylighted to the slope face, and covered with geotextile fabric prior to backfilling with soil mixture.

\*\* Removal of binding materials from trunks and stems, wrapping materials and metal cages from root balls shall conform to Section 605.03 (i) of the Specifications.

SLOPE PLANTING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

1201.06

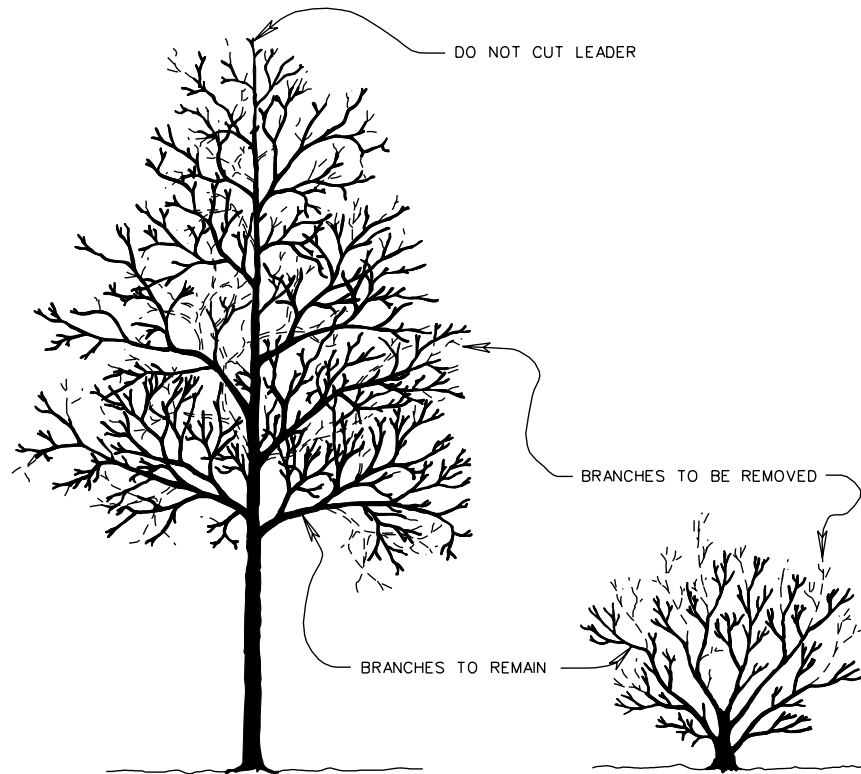
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

SPECIFICATION REFERENCE

- 203
- 244
- 245
- 605

BROADLEAF EVERGREENS AND DECIDUOUS PLANTS

L-5



10  
L-5

CORRECTLY PRUNED TREE

11  
L-5

CORRECTLY PRUNED SHRUB

GENERAL NOTES:

- PRUNING SHOULD AIM TO PRESERVE THE NATURAL FORM OF THE TREE OR SHRUB.
- HEDGE SHEARS SHALL NOT BE USED FOR THIS WORK.
- PRUNE BRANCHES ABOUT 1/3 AS INDICATED BY DASHED LINES.
- BRANCHES SHALL BE UNTIED PRIOR TO PRUNING.

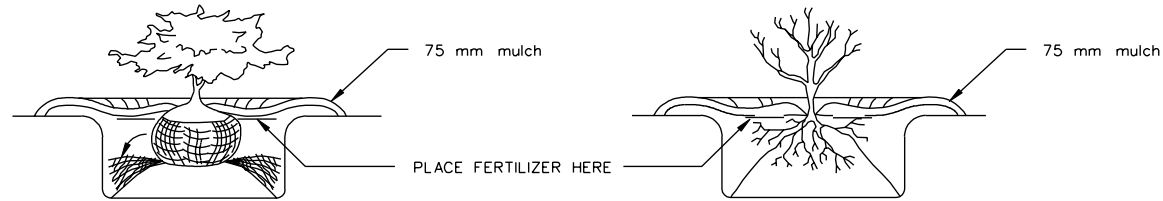
SPECIFICATION REFERENCE
605

PRUNING DETAILS

VIRGINIA DEPARTMENT OF TRANSPORTATION

1201.07

FERTILIZER PLACEMENT



BALLED & BURLAPPED & CONTAINER PLANTS

BARE ROOT PLANTS

FERTILIZER MATERIALS

Fertilizer Materials shall conform to Section 244.02 (d) of the VDOT Road and Bridge Specifications.

The following information shall be shown on a tag attached to the fertilizer bag:

1. The name and address of manufacturer
2. Name of material
3. Number of net pounds of ready mixed material in the package
4. Chemical composition and analysis
5. Guaranteed Analysis (Va. Department of Agriculture)

MULCHING MATERIALS

WOOD CHIPS - shall be of disease free hardwood, with a 3 mm nominal thickness, having an area of not more than 3870 mm<sup>2</sup>. All hardwood chips shall be free of leaves, twigs, shavings and materials injurious to plant growth. The use of wood chips from the American Elm (*Ulmus americana*) will not be permitted.

BARK - shall be shredded Pine Bark, or shredded Hardwood Bark, shall be disease free, and shall conform to National Bark & Soil Producers Assoc. standards for classification, particle size, % wood content, moisture retention, PH rating, and color.

PEAT MOSS

PEAT MOSS - shall conform to Section 244.02 (j) of the VDOT Road and Bridge Specifications.

FERTILIZER RATES

- 60 ml per Vine & Ground Cover up to # 1 container.
- 500 ml per shrub, balled & burlapped or # 2 through # 5 container.
- 750 ml per tree under 50 mm caliper (includes multi-stemmed & evergreen trees under 250 cm)
- 1000 ml per tree over 50 mm caliper (includes multi-stemmed & evergreen trees over 250 cm)

The fertilizer shall be placed in the plant pits where indicated.

Fertilizer shall be spread over the top of the soil mix prior to final tamping and watering.

APPROVED MULCHES

Type	Depth
wood chips	75 mm
shredded pine bark	75 mm
shredded hardwood bark	75 mm

The approved type to used shall be designated on the plans.

FERTILIZER AND MULCH

VIRGINIA DEPARTMENT OF TRANSPORTATION

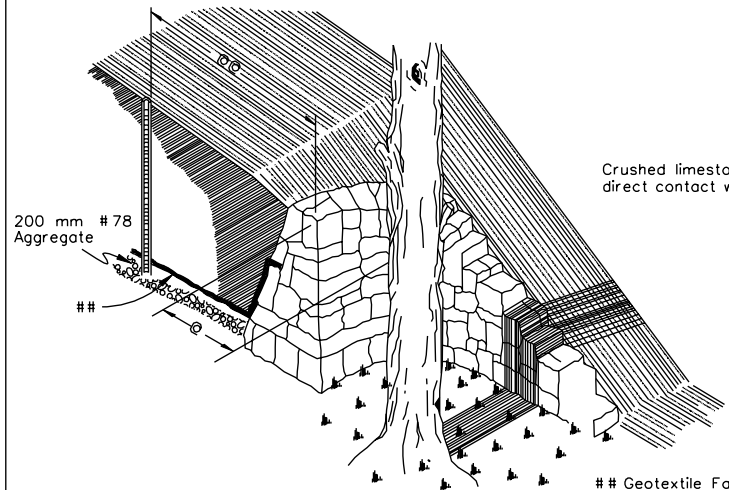
SPECIFICATION REFERENCE

605  
244

1201.08

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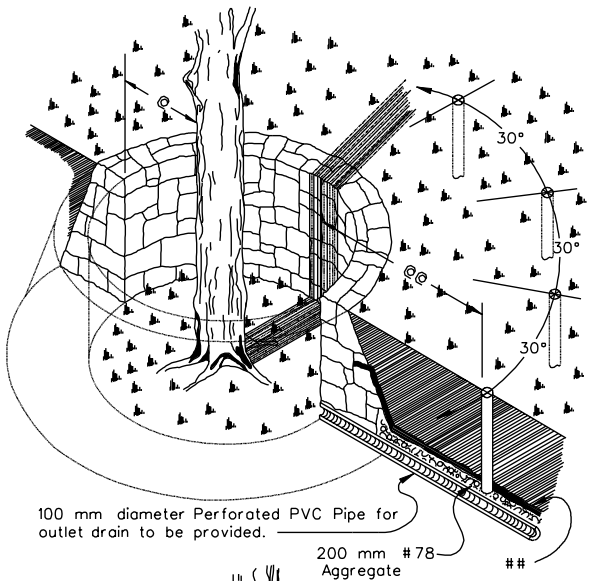


Crushed limestone shall not be placed in direct contact with the roots of a tree.

200 mm #78 Aggregate

@@ 50 mm diameter PVC Pipe placed at drip line (30° diameter O.C. around tree) and reaching from new ground elevation to #78 Aggregate.

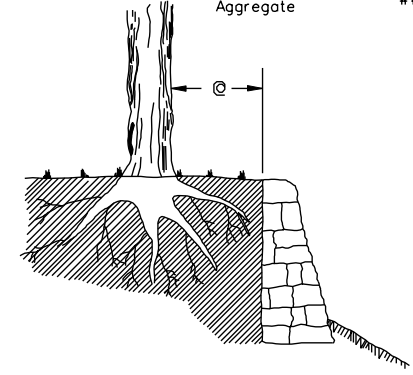
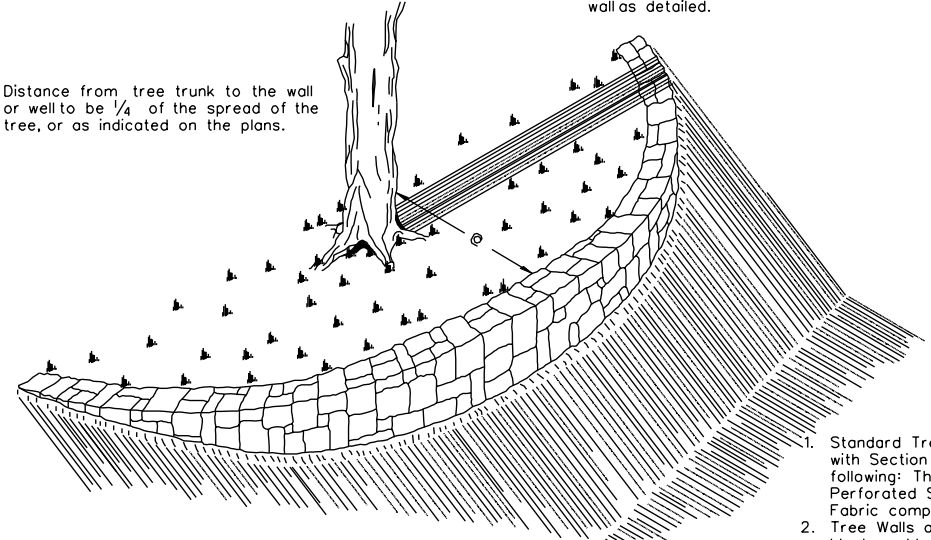
## Geotextile Fabric shall cover all #78 aggregate and 1/2 the back slope of retaining wall, and shall be laid between the joints on dry rubble walls at least at 5 locations around the wall as detailed.



100 mm diameter Perforated PVC Pipe for outlet drain to be provided.

200 mm #78 Aggregate

© Distance from tree trunk to the wall or well to be 1/4 of the spread of the tree, or as indicated on the plans.



General Notes:

1. Standard Tree Walls and Tree Walls shall be measured and paid for in accordance with Section 506 of the Road and Bridge Specifications and as amended by the following: The contract unit price shall also include # 78 Aggregate, 100 mm Perforated Smooth Wall PVC Pipe, 50 mm Smooth Wall PVC Pipe, and Geotextile Fabric complete in place.
2. Tree Walls and Tree Wells are to be constructed of dry rubble, mortar rubble, block, or block faced brick as shown on the plans. For details of retaining wall design and foundation, see standard RW-1, RW-1A, OR RW-1B unless otherwise noted on plans.
3. All Tree Wall or Tree Well installations to be approved by the Engineer.

SPECIFICATION REFERENCE
506 232
245 203

STANDARD TREE WALLS AND TREE WALLS  
SUGGESTED TREATMENT

VIRGINIA DEPARTMENT OF TRANSPORTATION

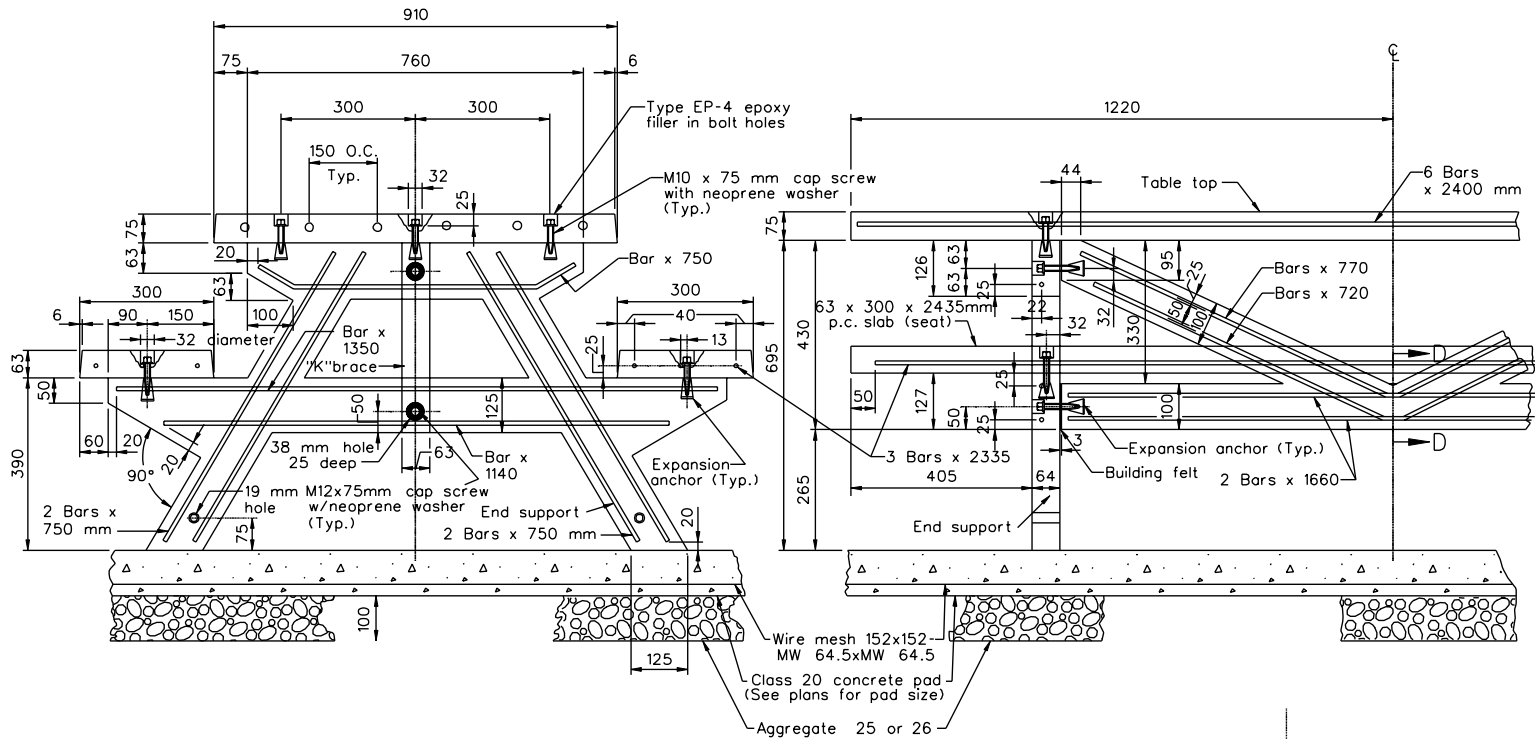
UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

1201.09

PT-1

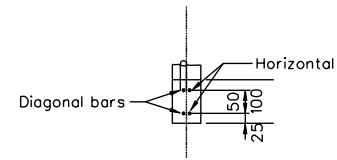
END ELEVATION

HALF SECTION



Notes:

1. Picnic table shall be Class 30 concrete.
2. All steel reinforcing bars shall be #10.
3. All hardware to be galvanized.
4. Surface texture to be lightly buffed smooth.
5. Epoxy filler in bolt holes to match color of adjacent surfaces.
6. Measurement and Payment of PRECAST CONCRETE PICNIC TABLE, WITH PAD, will be paid for on an each basis, which cost shall include price of concrete picnic table, pad, and aggregate, complete in place.



SECTION D-D

PRECAST CONCRETE PICNIC TABLE

SPECIFICATION REFERENCE

NONE

1201.10

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

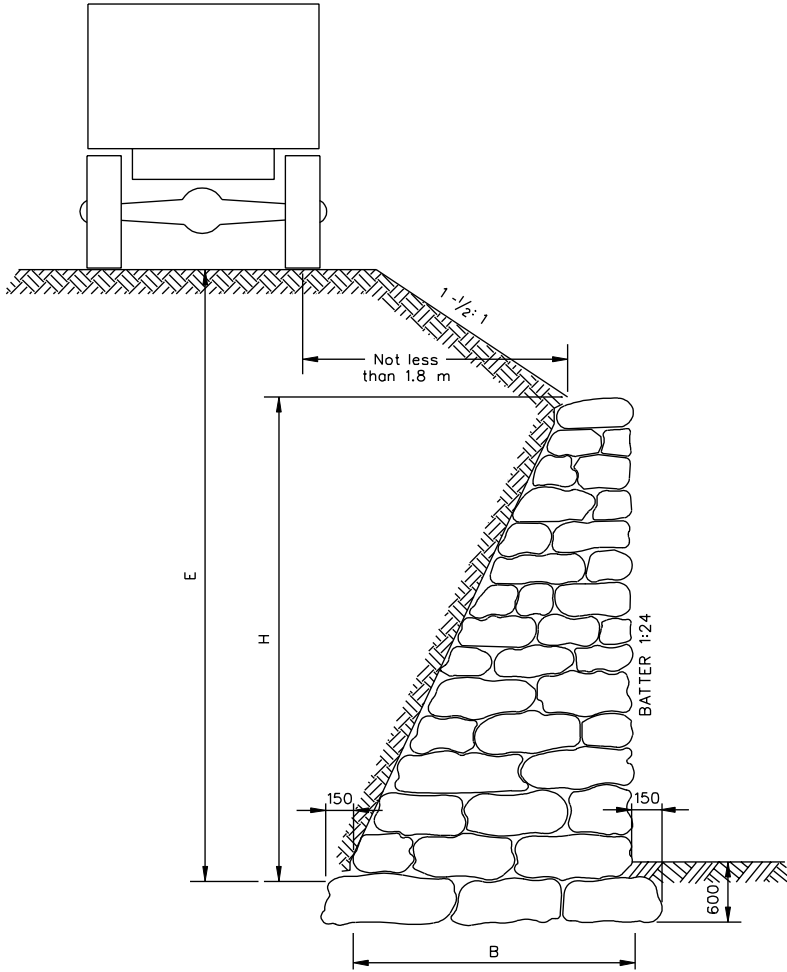
$\frac{E}{H}$	FOR UNLOADED WALLS	FOR LOADED WALLS
1.0	$B = 0.50 H$	$B = 0.66 H$
1.1	$B = 0.57 H$	$B = 0.67 H$
1.2	$B = 0.61 H$	$B = 0.68 H$
1.3	$B = 0.64 H$	$B = 0.69 H$
1.4	$B = 0.66 H$	$B = 0.70 H$
1.5	$B = 0.67 H$	$B = 0.71 H$
1.6	$B = 0.69 H$	$B = 0.72 H$
1.7	$B = 0.70 H$	$B = 0.73 H$
1.8	$B = 0.71 H$	$B = 0.74 H$
2.0	$B = 0.73 H$	$B = 0.75 H$
2.5	$B = 0.75 H$	$B = 0.76 H$
3.0	$B = 0.77 H$	$B = 0.77 H$

Top thickness for unloaded walls to be 0.15 H with a minimum thickness of 0.6 m.

Top thickness for loaded walls to be 0.20 H with a minimum thickness of 0.75 m.

Minimum thickness of base = top thickness.

Maximum height of wall (H) to be 2.4 m.



SPECIFICATION REFERENCE
506

DRY RUBBLE RETAINING WALLS

VIRGINIA DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

RW-1A

HEIGHT OF WALL "H" IN METERS	THICKNESS AT TOP "A" IN METERS	THICKNESS AT BASE IN METERS	AREA OF WALL SQ. METERS	AREA OF FOOTING SQ. METERS
0.60	0.45	0.45	0.067	0.259
0.90	0.45	0.45	0.203	0.259
1.20	0.45	0.48	0.349	0.272
1.50	0.45	0.60	0.551	0.326
1.80	0.45	0.72	0.790	0.380
2.10	0.45	0.84	1.064	0.434
2.40	0.45	0.96	1.375	0.488
2.70	0.45	1.08	1.721	0.542
3.00	0.45	1.20	2.104	0.596
3.30	0.45	1.32	2.522	0.650
3.60	0.45	1.44	2.977	0.704
3.90	0.45	1.56	3.467	0.758
4.20	0.45	1.68	3.994	0.812
4.50	0.45	1.80	4.556	0.866

H = Height in meters  
 A = 0.45 m  
 Base = 4/10 H  
 Earth = 1600 kg/m<sup>3</sup>  
 Rubble = 2400 kg/m<sup>3</sup>  
 Angle of repose = 1 1/2: 1

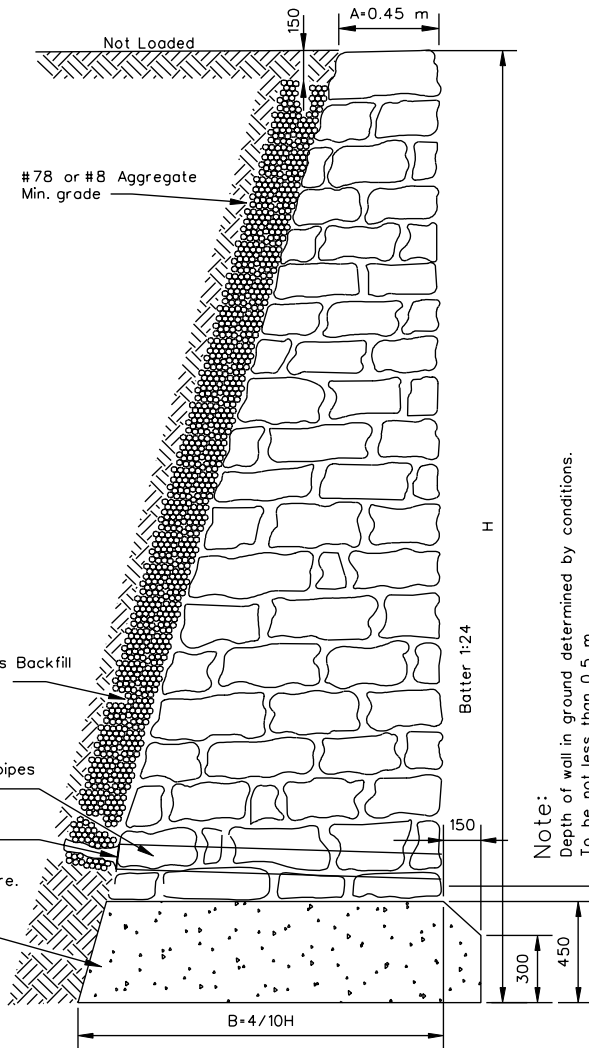
Drain pipes are to be one continuous length or bell and spigot with mortared joints.

Weep hole with 300 x 300 mm plastic hardware cloth 6.4 mm mesh or galvanized steel wire, minimum wire diameter 0.76 mm, number 4 mesh hardware cloth anchored firmly to outside of structure.

300 mm Porous Backfill  
 @ 1600 kg/m<sup>3</sup>

75 mm drain pipes  
 2.4 m apart

Class 20 or 10 Concrete



Note:  
 Depth of wall in ground determined by conditions.  
 To be not less than 0.5 m.

Note:  
 If compression at toe exceeds safe bearing capacity of soil, a special footing is to be used.

MORTAR RUBBLE RETAINING WALL-LEVEL BACKFILL

SPECIFICATION REFERENCE

1201.12

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ON THIS SHEET ARE IN MILLIMETERS

VIRGINIA DEPARTMENT OF TRANSPORTATION

506