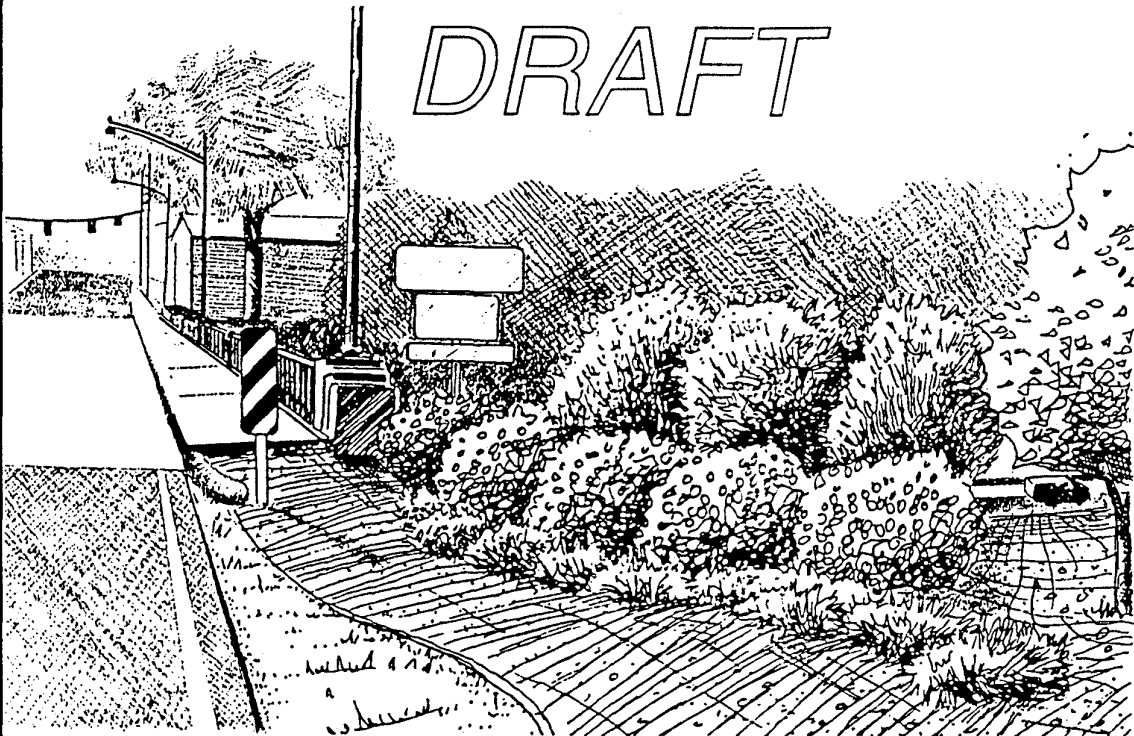


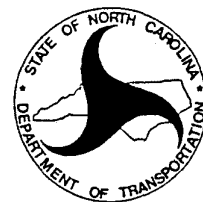
North Carolina Department of Transportation  
Division of Highways

# Guidelines for Planting within Highway Right-of-Way

*DRAFT*



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# GUIDELINES FOR PLANTING WITHIN HIGHWAY RIGHT-OF-WAY

## FORWARD

The aesthetic quality of North Carolina's roadsides is influenced by a number of factors. Among these factors are right-of-way widths, adjacent land use, parallel overhead utility lines, advertising signs, and surrounding vegetation.

In order to protect the public investment in highways, the North Carolina Department of Transportation, Division of Highways, depends largely upon grass and legume covers to prevent roadside erosion and upon shrubs and trees for reduced mowing areas and for improvement of aesthetic quality.

Shrubs and trees within highway rights-of-way result from either retaining desirable vegetation during initial highway construction, allowing portions of roadsides to regenerate, or from planting or reforesting selected roadside areas. Limited monetary and manpower resources prevent the North Carolina Division of Highways from planting shrubs and trees on all roadside where these would be desirable. Planting of specific roadside areas is frequently undertaken by municipalities, garden clubs, or individuals after permission is granted from the Division of Highways.

North Carolina General Statute 136-93 provided,

*". . . no tree or shrub in or on any State road or State highways shall be planted, trimmed, or removed, . . . without a written permit, and then only in accordance with the regulations of said Department of Transportation or its duly authorized officers or employees; and the work shall be under the supervision and to the satisfaction of the Department of Transportation or its officers or employees, and the entire expense of replacing the highway in as good condition as before shall be paid by the persons, firms, or corporations to whom the permit is given, or by whom the work is done."*

Included herein, are guidelines for obtaining permits and for planting within highway right-of-way.

# PROCEDURES FOR HANDLING REQUESTS FOR PERMITS FOR PLANTING ON HIGHWAY RIGHT-OF-WAY

Many requests are received from municipalities, civic organizations, and individuals for permission to plant trees, shrubs, vines, and flowers within highway right-of-way. In order to protect the public investment and to promote safety, utility, economy, and beauty in highways, the following procedures for handling planting requests have been developed:

## **Interstate and Other Controlled Access Highways**

Planting by other than Division of Highways personnel on Interstate or Other Controlled-Access Highways is discouraged. These facilities are designed for high speed, unencumbered traffic movement and are usually fenced to prevent people, animals, or other impediments to traffic from entering the rights-of-way. The safety of highway users is paramount and considerable traffic devices are required when work is being done within these right-of-way.

In those instances where planting is desired by other than Division of Highways personnel, the requesting party should arrange a conference with the Area Roadside Environmental Engineer who will explain Division of Highways criteria for sight distances, recovery areas, and minimum setback distances. Following this explanation, the requesting party must prepare a detailed planting plan (to scale) describing the various species of plants to be used and the proposed locations of plants. The plan is to be submitted to the Division Engineer.

## **Other State System Right-of-Way**

The attached *Guidelines for Tree, Shrub, and Groundcover Planting on Highway Right-of-Way Other than Controlled-Access or Interstate* are to be followed.

Upon receipt of a request for planting, accompanied by a plan and typical cross section, the Division Engineer or his representative, in conjunction with the Area Roadside Environmental Engineer, will make an on-site investigation of the proposed planting. If the planting proposal does not conform with the attached guidelines, the request may be denied by the Division Engineer. If the proposed planting is in conformity with the guidelines, the Division Engineer will issue a letter-type permit for planting with a copy of such permit (together with a plan and typical cross section) to the State Roadside Environmental Engineer.

Before any action will be taken on a request for a permit for planting within a municipality, the request must have the approval of the governing body since the planting permit will be issued to the municipality. Request for planting outside municipalities will be considered using the attached guidelines and permits for planting will be issued to the party requesting the permit.

Standard conditions to be enumerated in planting permits are:

1. In the event these plants require relocation or removal for highway construction, reconstruction, maintenance or safety, such removal or relocation will be done immediately by the (municipality/civic group/individual) upon notification by the Division of Highways, entirely at the expense of the permittee.
2. The Division of Highways will not be responsible for any damage to the planting which may be done by third parties.
3. Maintenance of the plantings will be the responsibility of (Division of Highways/permittee).

Other conditions as determined by the Division Engineer and Area Roadside Environmental Engineer which are peculiar to the specific planting proposal will be enumerated along with the standard conditions above.

The Roadside Environmental Unit in Raleigh may be consulted regarding any planting proposal which the Division Engineer and Area Roadside Environmental Engineer determine has merit but which does not conform with standards as previously described due to extenuating circumstances.

Three methods by which planting request may be approved are:

1. A planting permit can be issued to allow planting and maintenance of the planting by the permittee;
2. The permittee can furnish funds for the plant materials with highway landscape forces doing the planting and assuming maintenance of the planting;
3. The Division of Highways can assume the project entirely, bearing the cost of plant materials as well as doing the planting and plant maintenance. (These planting projects will normally be included in the Transportation Improvement Program with funding being approved by the Board of Transportation.)

The Division Engineer must determine the ability of Division Roadside Environmental forces to assume the additional maintenance of planting required before entering an agreement as described in number 2, preceding.

Roadside Environmental Unit personnel may assist requesting parties in the development of proposals for planting on highway right-of-way, as workloads permit! The North Carolina Division of Forest Resources, Urban Forestry Section, may be called upon by municipalities and civic organizations for assistance in planting proposals on city streets and other areas which are not a part of the State Highway System.

## Planting Encroachment on NCDOT R/W

- I. Requesting party obtains approval of municipality (Only if the R/W is within a municipality)
- II. Conference with Area Roadside Environmental Engineer
- III. Explanation of Criteria to party by Area Roadside Environmental Engineer
  - A. Sight Distance
  - B. Recovery areas
  - C. Safety setbacks
- IV. Requesting party submits planting plan to Division Engineer
  - A. Scaled drawing
  - B. Plant list
  - C. Location of plants

### Permitting Process

- I. Division Engineer requests investigation by Division Roadside Environmental Engineer and Area Roadside Environmental Engineer as appropriate
- II. Division Engineer either denies request or
- III. Division Engineer approves request and issues letter-type permit
  - A. Permit to municipality if within municipality
  - B. Permit to party if not in municipality
- IV. Copy of permit to State Roadside Environmental Engineer

# GUIDELINES FOR TREE, SHRUB AND GROWDCOVER PLANTING ON HIGHWAY RIGHTS-OF-WAY OTHER THAN CONTROLLED ACCESS OR INTERSTATE

The following guidelines for tree, shrub and groundcover planting apply to those State Highway System highways and streets with posted speed limits as indicated below. Planting that involves exceptions to these criteria will be considered on an individual basis.

## Distance from Travel Lane

The following are minimum distances from the curb or the edge of travel lanes for new plantings. Where existing tree distances outside curbs or edges of travel lanes have been established, replacement trees may be allowed to conform with established set-back distances.

### 35 Miles Per Hour or Less

#### Curb and Gutter Section

Large trees	10'
Small trees or large shrubs	5'
Small shrubs	1' to foliage line

#### Shoulder and Ditch Section

Large trees	12'
Small trees or large shrubs	8'
Small shrubs	6' to foliage line

### Over 35 Miles Per Hour Through 45 Miles Per Hour

#### Curb and Gutter Section

Large trees	15'
Small trees or large shrubs	8'
Small shrubs	6' to foliage line

#### Shoulder and Ditch Section

Large trees	20'
Small trees or large shrubs	10'
Small shrubs	8' to foliage line

### Greater Than 45 Miles Per Hour

#### Curb and Gutter Section

Large trees	25'
Small trees or large shrubs	20'
Small shrubs	10' to foliage line

#### Shoulder and Ditch Section

Large trees	30'
Small trees or large shrubs	20'
Small shrubs	15' to foliage line

## **Vertical Clearance**

A minimum clearance of 16 ft. above the entire pavement width must be maintained at all times, and also a minimum clearance of 7 ft. above a sidewalk or pedestrian space.

## **Sight Distances**

Shrubs must be kept low, and trees and large shrubs under-trimmed sufficiently to permit clear sight in the area between 2 feet and 6 feet above roadway elevations. Due to widely varying conditions of topography, highway alignment and grade, type and volume of vehicular and pedestrian traffic, necessary sight distances longitudinally along the highway and in excess of the lateral minimum described above must be individual site determinations.

## **Selection of Plants**

Tall-growing trees should not be selected for planting beneath utility lines and wide-spreading trees should not be used unless there is sufficient width of planting area to accommodate them without continued severe pruning.

Small trees and large shrubs should be used which are adaptable to undertrimming without destroying their desired normal appearance. Only low-growing shrubs are to be used in medians and close to the edge of shoulders to avoid need for continued severe pruning. In some locations, all shrubs should be omitted, but this must be an individual site determination.

In curb and gutter areas, groundcover is permissible between curb and shrubs to avoid a narrow mowing strip.

## **Pavement Removal**

When pavement remains beneath traffic channelization islands, such pavement may not be broken or removed without written permission.

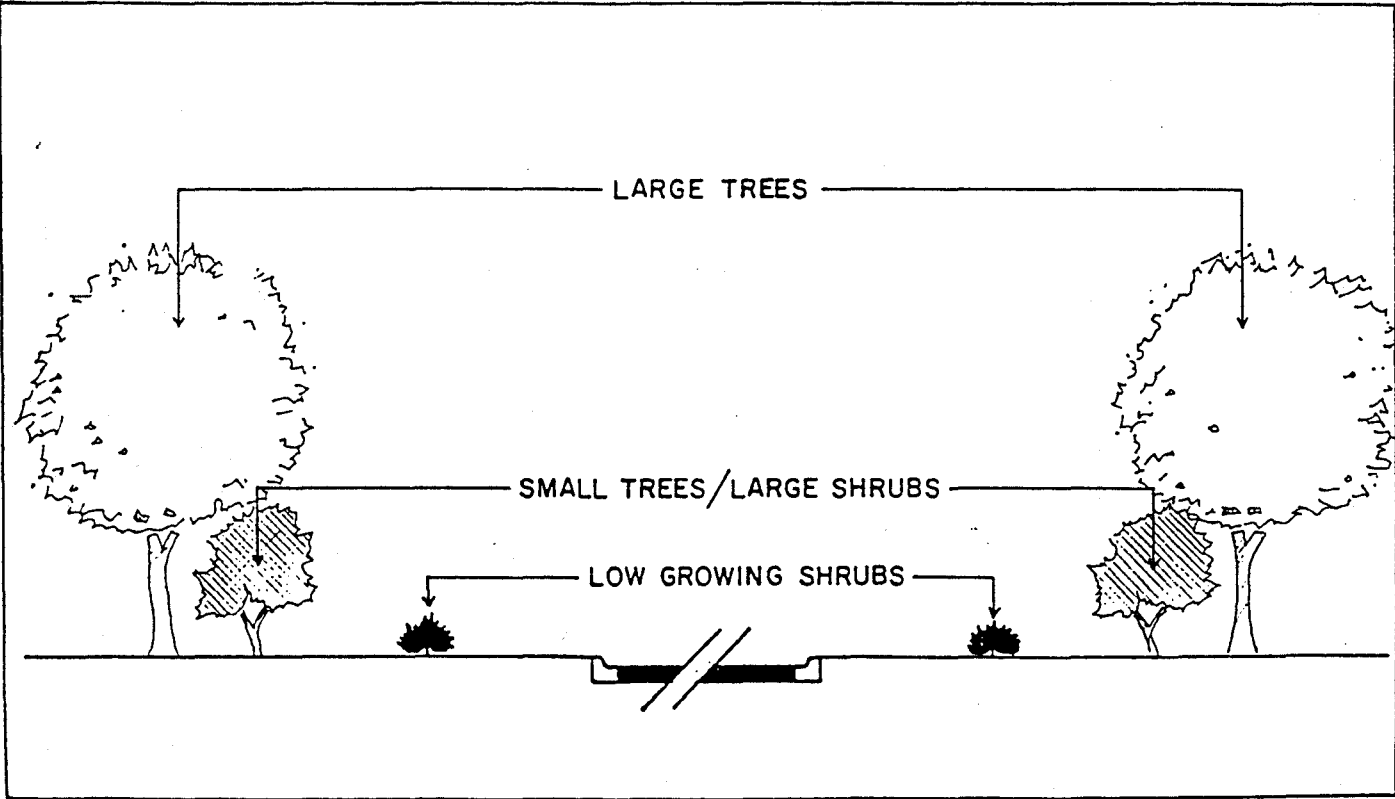
## **Effect on Mowing and Drainage**

Trees should be placed sufficiently far apart, and shrubs should be grouped in beds and mulched in a shape that will facilitate mower operation and avoid excessive mower maneuvering or hand trimming. Plantings are to be minimum of 2 feet behind ditch line in cut sections and 2 feet outside shoulder break in fill sections, or the minimum distance from edge of travel lanes as stated in breakdown of speed limits as shown on Typical Sections, whichever is the greater.

## **Traffic Operation and Safety**

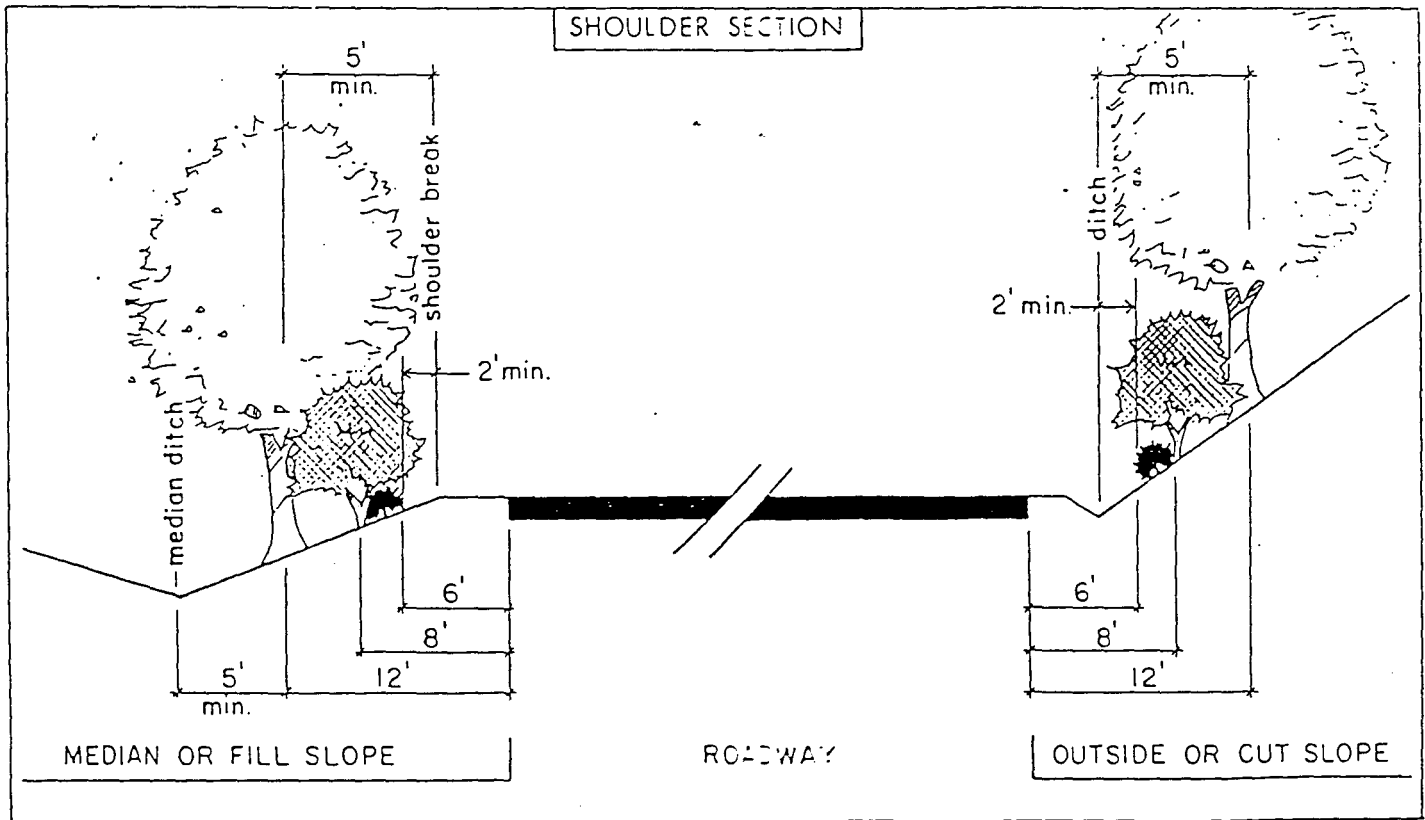
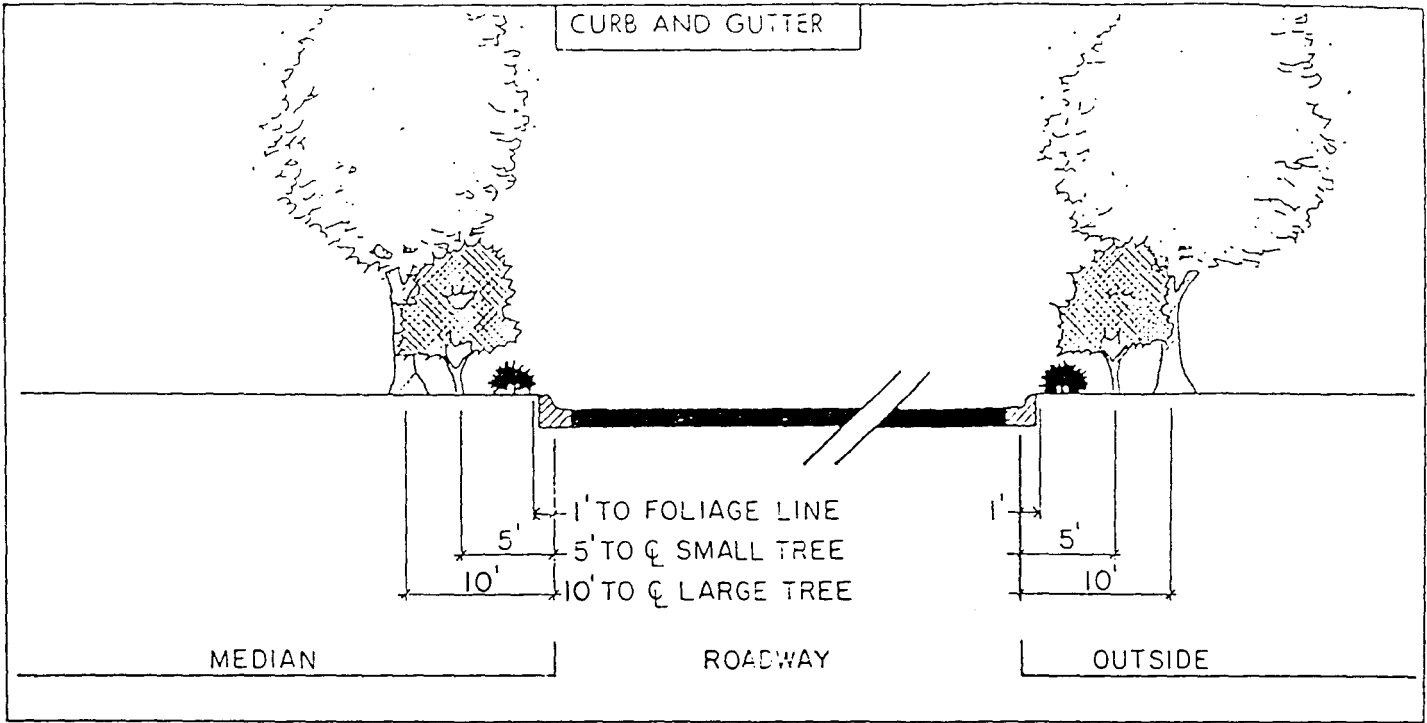
All plantings are to be maintained in a condition which will not interfere with nor endanger either vehicular or pedestrian traffic.

TYPICAL SECTIONS  
FOR VARIOUS POSTED  
SPEED LIMITS  
MINIMUM DISTANCES





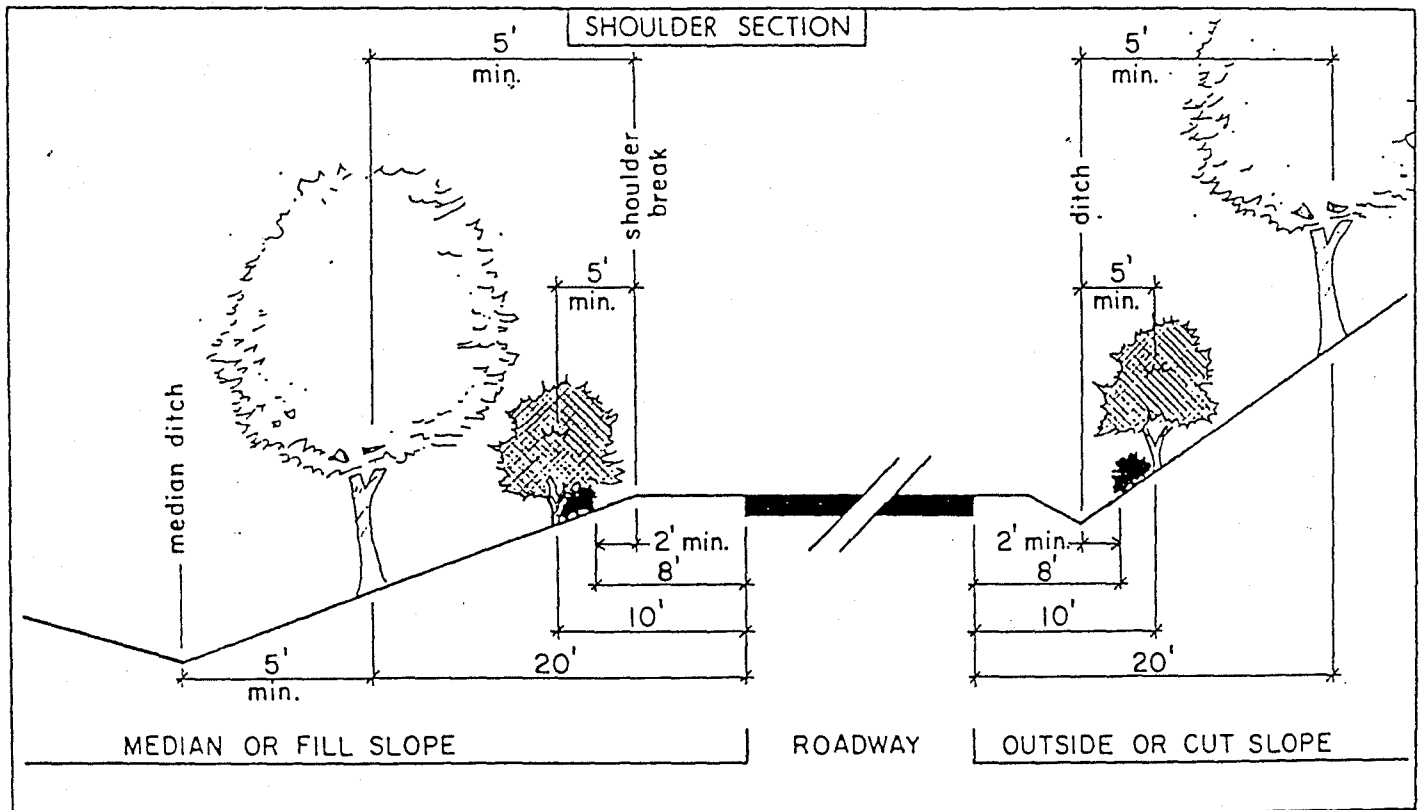
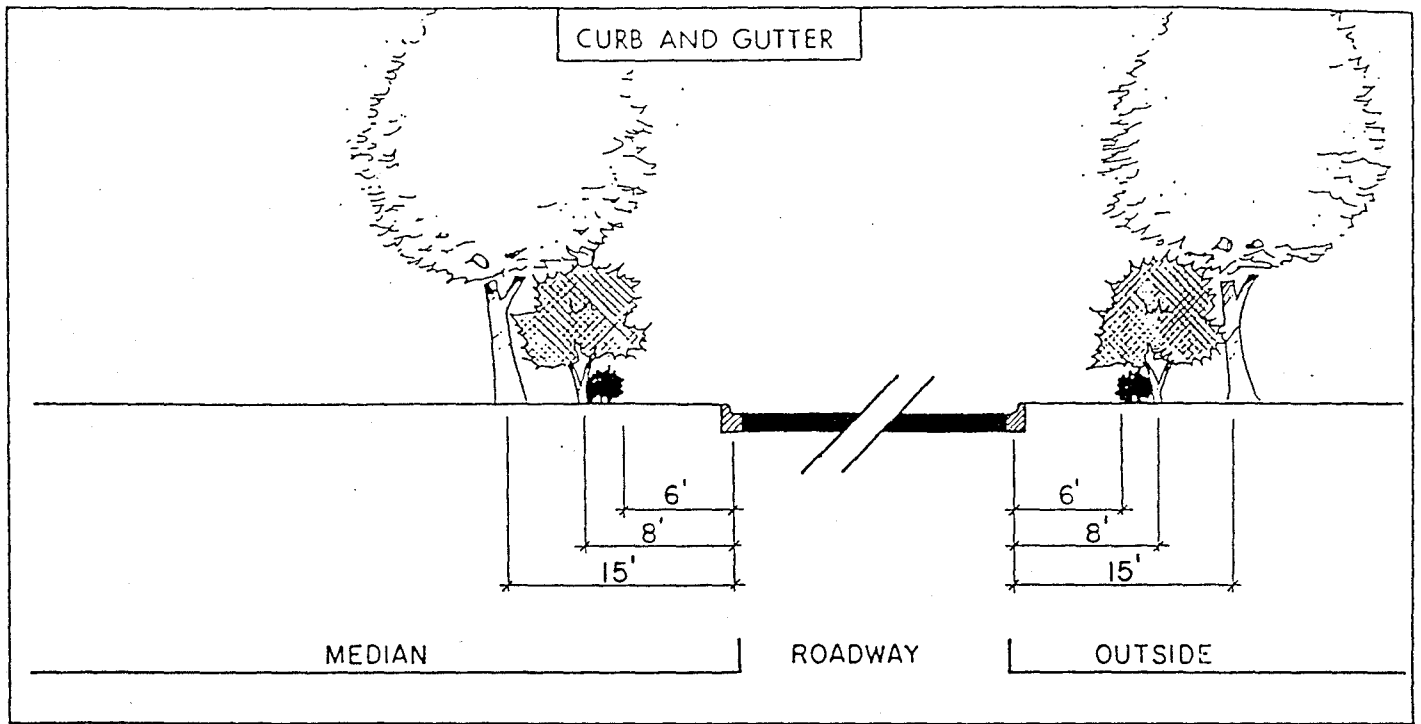
35 MPH & LESS



NOTES

- MEDIAN MUST BE AT LEAST 30' WIDE BEFORE LARGE TREES MAY BE PLANTED
- PAVEMENT WIDTH MAY VARY
- WHEN WIDTH OF SHOULDERS & DITCHES DO NOT CONFORM WITH THESE TYPICAL SECTIONS, THE 2' MINIMUM DISTANCE BEHIND THE DITCH & 2' MINIMUM DISTANCE OUTSIDE THE SHOULDER BREAK SHALL GOVERN.

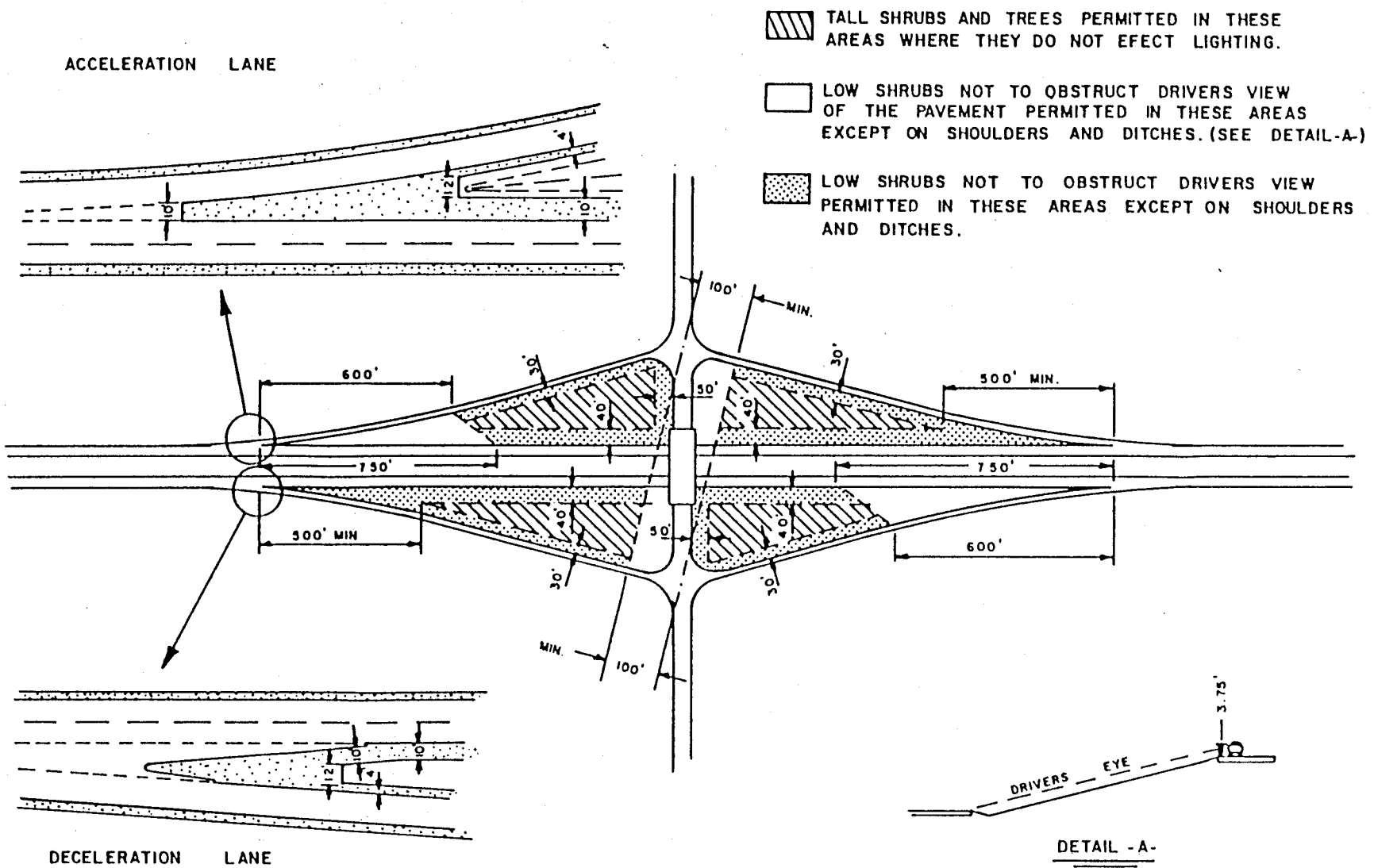
GREATER THAN 35 MPH THROUGH 45 MPH



NOTES

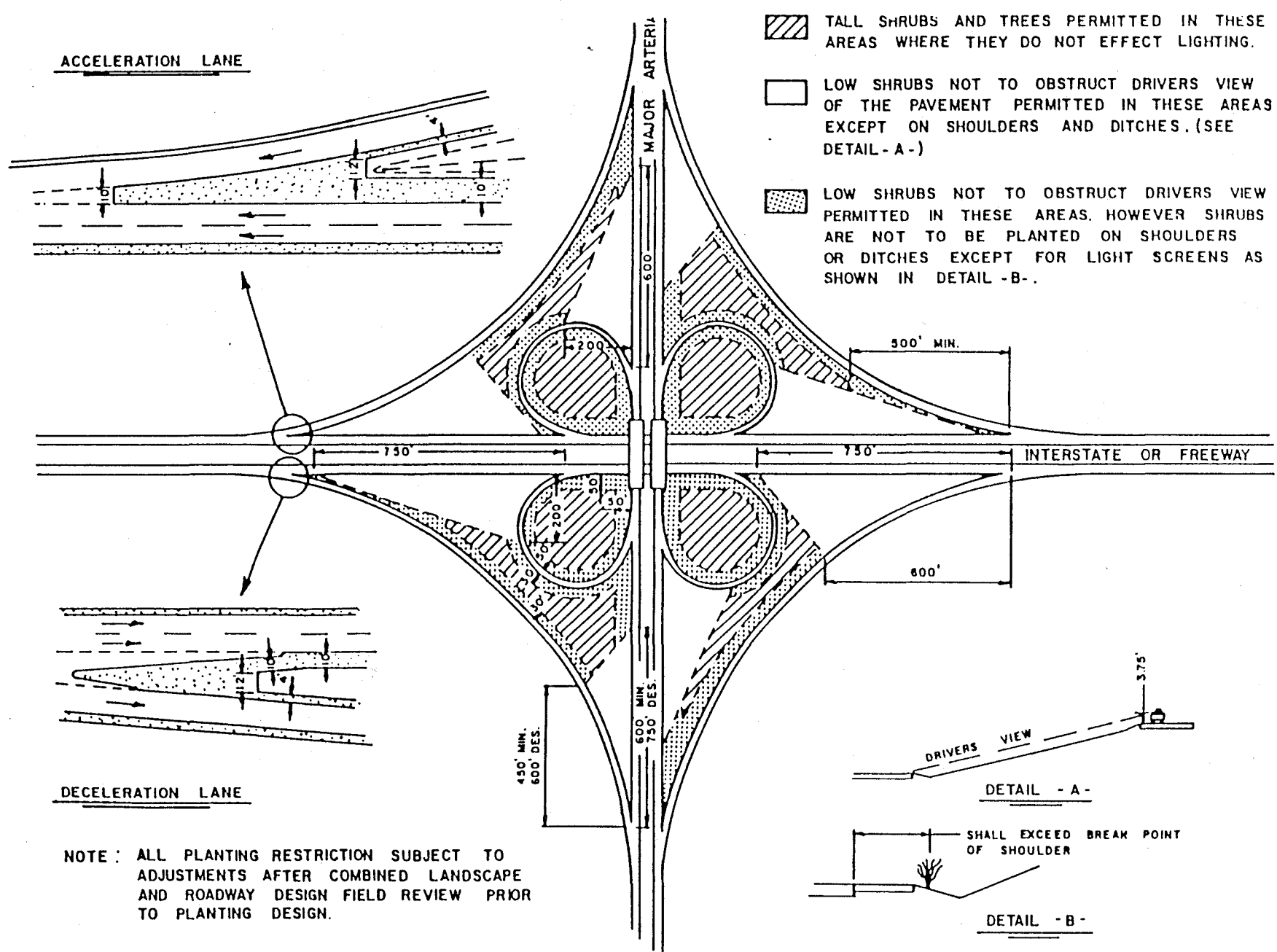
- MEDIAN MUST BE AT LEAST 44' WIDE BEFORE LARGE TREES MAY BE PLANTED
- PAVEMENT WIDTH MAY VARY
- WHEN WIDTH OF SHOULDERS & DITCHES DO NOT CONFORM WITH THESE TYPICAL SECTIONS, THE 2' MINIMUM DISTANCE OUTSIDE THE SHOULDER BREAK & 2' MINIMUM DISTANCE BEHIND THE DITCH SHALL GOVERN.








NOTE : ALL PLANTING RESTRICTION SUBJECT TO ADJUSTMENTS AFTER COMBINED LANDSCAPE AND ROADWAY DESIGN FIELD REVIEW PRIOR TO PLANTING DESIGN.

GUIDE FOR LANDSCAPE PLANTING AT DIAMOND INTERCHANGES



ACCELERATION LANE

DECELERATION LANE

-  TALL SHRUBS AND TREES PERMITTED IN THESE AREAS WHERE THEY DO NOT EFFECT LIGHTING.
-  LOW SHRUBS NOT TO OBSTRUCT DRIVERS VIEW OF THE PAVEMENT PERMITTED IN THESE AREAS EXCEPT ON SHOULDERS AND DITCHES. (SEE DETAIL - A -)
-  LOW SHRUBS NOT TO OBSTRUCT DRIVERS VIEW PERMITTED IN THESE AREAS. HOWEVER SHRUBS ARE NOT TO BE PLANTED ON SHOULDERS OR DITCHES EXCEPT FOR LIGHT SCREENS AS SHOWN IN DETAIL - B -.

NOTE : ALL PLANTING RESTRICTION SUBJECT TO ADJUSTMENTS AFTER COMBINED LANDSCAPE AND ROADWAY DESIGN FIELD REVIEW PRIOR TO PLANTING DESIGN.

GUIDE FOR LANDSCAPE PLANTING AT CLOVERLEAF INTERCHANGES

## PLANTING SUGGESTIONS

Plants should be planted in their permanent location immediately upon receipt or should be adequately protected until planted. It is not necessary to remove the burlap but the strings from around the stem of the plant must be removed and the burlap should be folded from the top of the ball after the plant is in the hole. The soil around the plant should be tamped to remove air pockets. Mulching, to help retain moisture is mandatory and should not contain substances which would inhibit normal development and growth of plants.

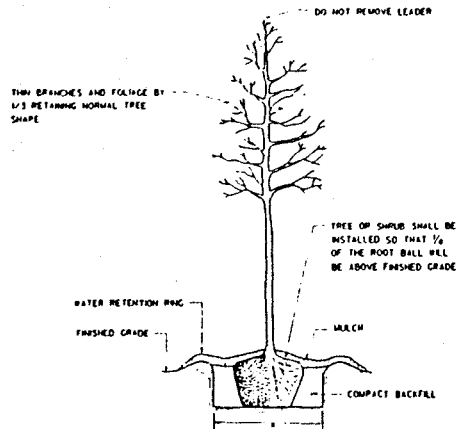
Trees which have heavy tops or which are over six feet in height should be staked or guyed to prevent winds from loosening the roots. (See details following.)

All plants should be soaked thoroughly with water at planting time and once a week (unless soaking rains occur) thereafter during the first growing season. Keep the plant watered.

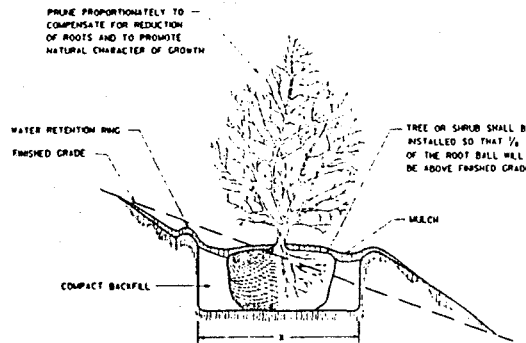
Deciduous shrubs should be cut back to between one-half and one-third their original size.

Evergreens usually need only light pruning and shaping after transplanting, if any. The central leader of trees should not be removed.

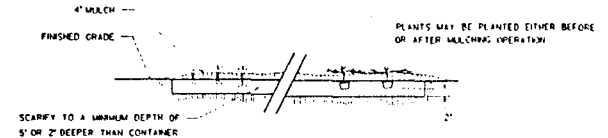
PROGRAM/PROJECT NO.	SHEET NO.	TOTAL SHEETS



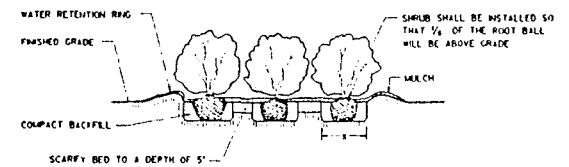
TREE OR SHRUB PLANTING DETAIL  
(LEVEL GROUND)



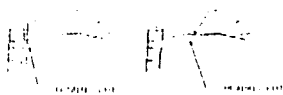
TREE OR SHRUB PLANTING DETAIL  
(SLOPING GROUND)



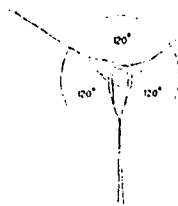
GROUNDCOVER PLANTING DETAIL



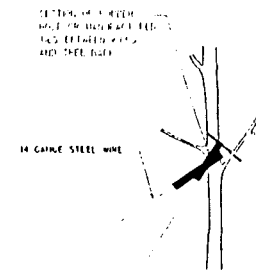
SHRUB BED PLANTING DETAIL



PRUNING CUTS



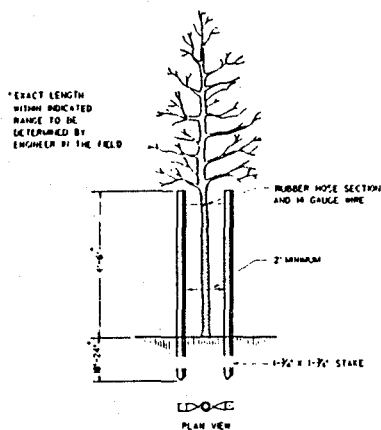
GUY SPACING DETAIL



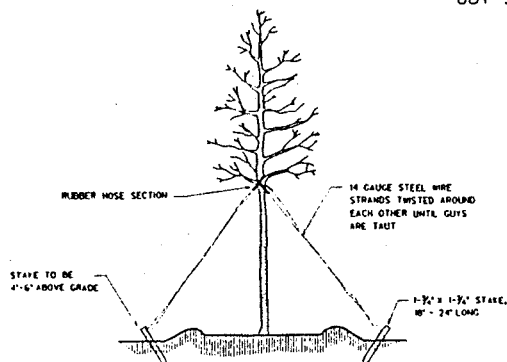
GUY TYING DETAIL

NOTES:

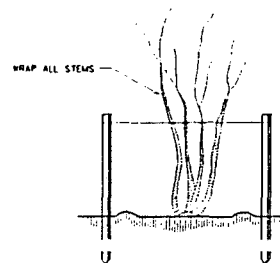
- SCHEDULE FOR PLANT HOLE SIZE, CONTAINER OR ROOT BALL SIZE
- 1 - 2 TIMES THE DIAMETER OF THE CONTAINER OR THE ROOT BALL DIAMETER
- FERTILIZER SCHEDULE:
- TREES AND SHRUBS: TWO CUPS (EMULSIFIED OR GRANULAR 10% 10% NUT BALL OR CONTAINER DIAMETER)
- GROUND COVER: ONE GALLON COMPOSTED COB MANURE PER SQUARE YARD OF BED
- THOROUGHLY MIX WITH TOP SOIL, BACKFILL OR SCARIFIED SOIL
- REMOVE MULCH FROM TOP OF BALL BEFORE BACKFILLING AROUND BALL IS COMPLETE
- ALL TREES WHICH ARE SMOOTH BARKED AT THE TIME OF PLANTING AND WHICH HAVE MORE THAN 2" OF CLEAR TRUNK SHALL BE WRAPPED
- ALL TREE WRAPPING SHALL EXTEND FROM TOP OF BACKFILL TO LOWEST BRANCHES
- SEE STANDARD SPECIFICATIONS FOR PLANT BED FINISHING



STAKING DETAIL  
(FOR TREES 6' TO 10')



TREE GUYING DETAIL  
(FOR TREES 10' OR LARGER)



GUYING & STAKING



**PLANTING DETAILS**  
N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

## PLANT LISTS

The following pages contain lists of plants, in several categories, which have proven to be suitable and adaptable for highway plantings.

Highway roadsides are, typically, somewhat hostile environments for plant establishment and development. Subsoils are generally encountered and these contain minimal plant nutrients; water for highway plants depends totally upon rainfall since there is limited opportunity for irrigation; and automobile emissions are detrimental to many plant species. Selection of appropriate plant material which will survive in the roadside environment is the most important element in undertaking a highway planting project.

The following list of plants are typically used in highway plantings. These are suggested plants which may be considered in planting design.







# EVERGREEN SHRUBS

			a	b	c	x		A.S.N.S.	HEIGHT	REMARKS
AD	AUCUBA JAPONICA 'MACULATA'	GOLDDUST AUCUBA	*	2 1/2-3'	3-4'			4.1.3.4	15'	Requires shade; Variegated leaves
AG	ABELIA GRANDIFLORA	GLOSSY ABELIA		3-4'	4-5'			4.1.3.4	5'	Pink flower clusters; Dense; Hardy
AJ	BERBERIS JULIANAE	WINTERGREEN BARBERRY		3-4'	4-5'			4.1.3.4	6'	Yellow flower clusters; Very dense
CJ	CLEYERA JAPONICA	CLEYERA		2 1/2-3'	3-4'			4.1.3.4	9'	Red-bronze to green; White flowers
CS	CAMELLIA SASANQUA var.	SASANQUA CAMELLIA		2 1/2-3'	3-4'	4-5'		4.1.3.5	20'	White to pink flowers; Fall blooms
EK	EVONYMUS KIANTSCHOVICIUS	SPREADING EVONYMUS		2 1/2-3'	3-4'	4-5'		4.1.3.4	9'	Hardy; Pink-red capsules
EP	ELAEAGNUS PUNGENS 'FRUITLANDI'	FRUITLAND ELAEAGNUS			3-4'	4-5'		4.1.3.4	12'	Thornless; Good for rural & urban
EY	EVONYMUS FORTUNEI	WINTERCREEPER EVONYMUS			2 1/2" pot			6.6	4'	Dark green w/white veins; Semi-shrub
IB	ILEX CORNUTA 'BURFORDII'	BURFORD HOLLY		3-4'	4-5'	5-6'		4.1.3.4	15'	Dark green foliage; Globose
IC	ILEX CORNUTA ROTUNDA	DWARF CHINESE HOLLY	*	12-15"	15-18"	18-24"		4.1.3.3	3'	Rounded, compact growth
IG	ILEX GLABRA	INKBERRY	*	3-4'	4-5'	5-6'		4.1.3.4	9'	Myrtle-like foliage; Wet areas
IH	ILEX CRENATA 'HELLERI'	HELLER'S JAPANESE HOLLY	*	12-15"	15-18"	18-24"		4.1.3.1	3'	Globose & compact; Dark green
IN	ILEX VOMITORIA 'NANA'	DWARF YAUPON	*	12-15"	15-18"	18-24"		4.1.3.4	3'	Globose & compact; Grey stems
IV	ILEX VOMITORIA	YAUPON HOLLY		3-4'	4-5'	5-6'		4.1.3.3	24'	Red berries; Good for dry areas
JD	JUNIPERUS CHINENSIS PEITZ 'COMPACTA'	COMPACT PEITZER JUNIPER		12-15"	15-18"	18-24"		3.1.2.2	3'	Dense & compact; Grey-green foliage
JP	JUNIPERUS CHINENSIS PEITZERIANA	PEITZER JUNIPER		18-24"	24-30"	3-4'		3.1.2.2	10'	Broad & flat-topped; Good for urban areas
KL	KALMIA LATIFOLIA	MOUNTAINLAUREL		3-4'	4-5'	5-6'		4.1.3.4	30'	Pink to white flower clusters; Acid soil
LJ	LIGUSTRUM JAPONICUM	JAPANESE PRIVET		24-30"	3-4'	4-5'		4.1.3.4	12'	Glossy foliage; Black berries
LL	LIGUSTRUM LUCIDUM	GLOSSY PRIVET		3-4'	4-5'	5-6'		4.1.3.4	30'	Tree-type habit; Dark green, waxy foliage
MG	MYRICA CERIFERA	SOUTHERN WAXMYRTLE		3-4'	4-5'	5-6'		4.1.3.4	36'	Shrub or tree; Willowy foliage
ML	MAHONIA DEALEI	LEATHERLEAF MAHONIA		24-30"	2 1/2-3'	3-3 1/2'		4.1.3.4	12'	Dark blue-green foliage; Partial shade
MM	MAHONIA AQUIFOLIUM	HOLLY MAHONIA		24-30"	2 1/2-3'	3-3 1/2'		4.1.3.4	4'	Dk. green; Grape-like berries; Bronze-red color
ND	NANDINA DOMESTICA	NANDINA	*		2 1/2-3'	3-3 1/2'		4.1.3.4	8'	White flower clusters; Red berries; Scarlet color
O	OSMANTHUS HETEROPHYLLUS	HOLLY OSMANTHUS		2 1/2-3'	3-3 1/2'	3 1/2-4'		4.1.3.4	18'	Dk. green holly-like foliage; Sun or part shade
PC	PRUNUS CAROLINIANA	CAROLINA LAURELCHERRY		3-4'	5-6'	6-8'		4.1.3.5	25'	Dense habit w/glossy foliage; Shrub or tree
PG	PHOTINIA GLABRA	JAPANESE PHOTINIA		3-4'	4-5'	5-6'		4.1.3.4	8'	Glossy foliage; Young foliage is red
PR	PHOTINIA SERRULATA	CHINESE PHOTINIA		3-4'	4-5'	5-6'		4.1.3.4	36'	Young foliage is red; Well-drained areas
RC	RHODODENDRON CAROLINIANUM	CAROLINA RHODODENDRON		2 1/2-3'	3-4'	4-5'		4.1.3.4	6'	White to rose flowers; Compact & rounded habit
RI	RHODODENDRON INDICUM	INDICA AZALEA	*	18-24"	2 1/2-3'	3-4'		4.1.3.4	6'	Red to scarlet flowers; Hardy
RO	RHODODENDRON OBUSUM JAP.	KURUME AZALEA	*	12-15"	15-18"	18-24"		4.1.3.2	3'	White, red, pink & salmon flowers; Red color
RR	RHODODENDRON HYBRIDA	HYBRID RHODODENDRON		18-24"	2 1/2-3'	3-4'		4.1.3.4	5'	Dk. green foliage; Red to white flowers; Slow
RW	RHODODENDRON CATAWBIENSE	CATAWBA RHODODENDRON	*	18-24"	2 1/2-3'	3-4'		4.1.3.4	6'	Spreading habit; Profuse purple-white flowers
VR	VIBURNUM RHYTIDOPHYLLUM	LEATHERLEAF VIBURNUM	*	24-30"	2 1/2-3'	3-3 1/2'		4.1.3.4	9'	Easily wind-burned; Red or black berries

EVERGREEN SHRUBS

\* SECONDARY LIST  
 + A.S.N.S. - AMERICAN STANDARD FOR NURSERY STOCK



# DECIDUOUS SHRUBS

			a	b	c	x	SOURCE	Δ.S.N.S. +	HEIGHT	REMARKS
CL	CHAENOMELES SPECIOSA	FLOWERING QUINCE	18-24"	24-30"	2 $\frac{1}{2}$ -5'			2.1.5.4	6'	Apple-like fruit; Red, white, orange (salmon bloom)
CN	CORNUS SERICEA	REDOSIER DOGWOOD		4-5'	5-6'			2.1.5.5	7'	Red twigs in winter; Good for moist areas
EA	EUONYMUS ALATA	WINGED EUONYMUS	18-24"	24-30"	2 $\frac{1}{2}$ -3'			2.1.5.5	9'	Horizontal branches; Scarlet fall color
FI	FORSYTHIA INTERMEDIA	BORDER FORSYTHIA		2 $\frac{1}{2}$ -3'	3-4'			2.1.5.4	9'	Yellow flowers; Upright / arching habit
HY	HYPERICUM PATULUM 'HIDCOTE'	HENRY ST. JOHN SWORT	15-18"	18-24"	24-30"			6.1	3'	Yellow flowers June-Oct; Semi-evergreen
LF	LONICERA FRAGRANTISSIMA	WINTER HONEYSUCKLE		2 $\frac{1}{2}$ -3'	3-4'			2.1.5.4	6'	White flowers; Red berries; Semi-evergreen
MS	MAGNOLIA STELLATA	STAR MAGNOLIA		4-5'	5-6'			1.1.5.4	20'	White to red flowers; Bronze-yellow color
RG	RHUS GLABRA	SMOOTH SUMAC	18-24"	24-30"	3-4'		COLLECTED	2.1.5.6	12'	Green flower spikes to red in fall; Scarlet
RH	ROSA HYBRIDA	CLIMBING ROSE	* No. 3	No. 2	No. 1			5.5	40' (IF TRAINED)	Variable flower colors; Sun or part shade
SA	SASSAFRAS ALBIDUM	COMMON SASSAFRAS	18-24"	24-30"	3-4'		COLLECTED	1.1.5.5	60'	Grows in poor soil; Orange-scarlet color
ST	SPIRAEA THUNBERGI	THUNBERG SPIREA		2 $\frac{1}{2}$ -3'	3-4'			2.1.5.4	5'	Feathery foliage; Tiny white flower clusters
SV	SPIRAEA VANHOUTEI	VANHOUTTE SPIREA		2 $\frac{1}{2}$ -3'	3-4'			2.1.5.4	6'	White flower clusters; Band of species
CS	CYTISUS SCOPARIUS	SCOTH BROOM	2-2 $\frac{1}{2}$ '	2 $\frac{1}{2}$ -3'	3-4'			2.1.5.4	6'	Yellow pea-like flowers; green winter twigs
RI	RHUS COPALLINA	FLAMELEAF SUMAC	18-24"	2-3'	3-4'			2.1.5.6	30'	Green flower spikes; crimson fruit; scarlet
PP	ROSA BUXOSA	BURROSA ROSE	No. 2	No. 1 $\frac{1}{2}$	No. 1				6'	pink to white, single flowers; orange in winter

\* SECONDARY PLANT  
+ A.S.N.S. - AMERICAN STANDARD FOR NURSERY STOCK

DECIDUOUS SHRUBS

# GROUNDCOVERS & VINES

## GROUNDCOVERS & VINES

			d	b	c	x	A.S.N's.	HEIGHT	REMARKS
AD	ADUIGA RETIANS				2 1/2" pot			4'	Dk green foliage; Blue flowers; light shade of yellow in fall
CH	COTONEASTER HORIZONTALIS				5" pot		4-1-2-1	2 1/2'	Dk green; Red berries; Red fall color
CY	CORONILLA VARIA		SEED	CROWN	2 1/2" pot		6-5	18"	Fall winter part shade; floral bloom; Deciduous
EF	EUONYMUS FORTYVEA COLORATA				2 1/2" pot		6-6	3'	Purple-red foliage during fall; winter
GS	GELSEMIUM SEMPERVIRENS				2 yr 1 No. 1		6-1	20 (SEE TRAINED)	Dk green to wood; yellow flowers; Same shade
HL	HEDERA HELIX				2 1/2" pot		6-6	90 (SEE TRAINED)	Evergreen; Black berries
JA	JUNIPERUS HORIZ. PLUMOSA		12-15"	15-18"	18-24"		5-1-2-1	1 1/2'	Scabrous foliage; Purple fall color
JC	JUNIPERUS CONERTA		12-15"	15-18"	18-24"		5-1-2-1	12"	Needle-like foliage; Good for seed
JW	JUNIPERUS HORIZ. WILTONII		12-15"	15-18"	18-24"		5-1-2-1	6"	Blue color during winter; Scabrous habit
LH	LONICERA JAPONICA HALLIANA				4" pot		6-6	15 (SEE TRAINED)	White to yellow flowers; Same as evergreen
LI	LIRIOPE MUSCARI				4" pot		6-1	8'	Dk green; evergreen bloom; Black berries; Shrub
WS	WISTERIA SINENSIS				2 yr 1 No. 1		6-1	25 (SEE TRAINED)	Blue-white flowers; Shrub; Deciduous
CA	CLEMATIS PANICULATA				2 yr heavy		6-3	30'	White; fragrant; profuse flowers
HE	HEPHERCALIS ELVA				3 FAN			6'	Large orange flowers
HL	HEPHERCALIS LILONGWALUS				3 FAN			5'	Large lemon-yellow flowers
RS	ROSA WILBURIANA				2 yr No. 1		6-1	8'	Semi-evergreen trailing white flowers

\* SECONDARY PLANT  
 † A.S.N.'S. - AMERICAN STANDARD FOR NURSERY STOCK