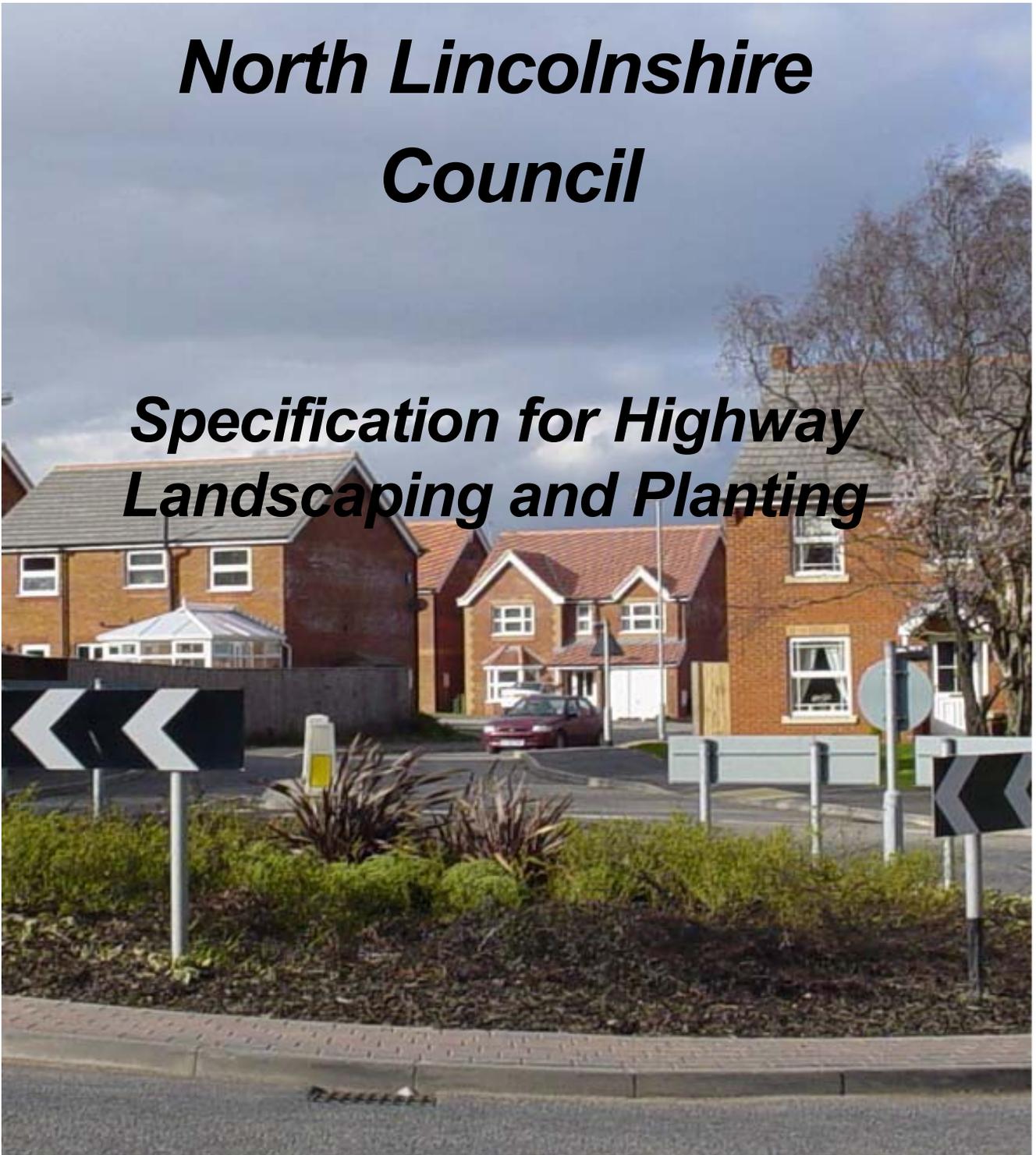


North Lincolnshire Council

Specification for Highway Landscaping and Planting



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SECTION 1 – GENERAL INFORMATION

1.1 Introduction

- 1.1.1 This document determines the standard of work required for the construction of highway verges and landscaped areas on new developments. Provided these areas are constructed and maintained in accordance with the approved scheme drawings and the following specifications they will subsequently be adopted by the Highway Authority.
- 1.1.2 Works shall only be carried out by persons who are suitably qualified and experienced, details of qualifications and experience to be forwarded to the Council for approval. “Contractors should be Members of the British Association of Landscape Industries.”

1.2 Objectives

- 1.2.1 The North Lincolnshire Council requires highway verges and landscaped areas within its area to be of a uniformly high standard. To achieve this it is important that prospective developers understand their obligations when applications are made for new developments.
- 1.2.2 This Specification offers developers and their contractors simple pre-set guidelines which will be used by the Council’s officers when considering the works for adoption.

1.3 Protecting Existing Features

- 1.3.1 Existing trees, shrubs, hedges or other vegetation including pasture land shall not be pruned, removed or damaged without the prior authorisation in writing from the Highway Authority. Any existing features which are to be retained will be properly and adequately protected from site equipment and disturbance by use of protective fencing and luminous markers approved by the Highway Authority prior to any other works commencing on site. Any damage that occurs must be reported immediately to the Highway Authority. Materials and equipment must not be stored within the root zone of any retained tree or shrub.
- 1.3.2 Soil levels around existing trees and hedge rows are to be retained as existing and must not be altered or disturbed without the prior approval in writing of the Highway Authority.
- 1.3.3 The Developer shall take care not to disturb or cause damage to existing services, by means of excavation works or excessive site traffic. All underground services including cables, pipes, gullies or footpath and roadside kerbs must be located and protected during site operations. The Developer will be responsible for the cost of reinstating such services so damaged to their original condition.

1.4 Fencing

- 1.4.1 The Developer shall be responsible for the complete protection of all the works from commencement to final adoption by the Highway Authority and shall provide protective fencing to prevent trespass by any unauthorised persons. The Developer shall replace everything lost or stolen and reinstate any work damaged at his own expense. The Developer should note that certain lengths of protective fencing must be handed over intact to the Council on adoption unless otherwise agreed in writing by the Highway Authority.

More details are given in Appendix 1.

1.5 Inspection and Adoption Procedures

- 1.5.1 The Developer shall notify the Highway Authority in writing giving at least 7 days notice of his intention to commence works on site.

- 1.5.2 The Developer shall at all times give free and unrestricted access to the Council's officers in carrying out their inspection and supervision duties.
- 1.5.3 When all the works have been completed in accordance with the approved scheme drawings, the specification and to the reasonable satisfaction of the Highway Authority, a completion certificate will be issued to the Developer. The date of the completion certificate will be the commencement date of the 36 month maintenance period.
- 1.5.4 Three months before the end of the maintenance period the Developer shall request a final joint inspection of the works and any deficiencies arising shall be agreed in writing with the Highway Authority together with a programme for their rectification. Subject to all works having been carried out and maintained to the satisfaction of the Highway Authority and the Developer having paid to the Council the commuted sum required by the Agreement a Maintenance Completion Certificate will be issued and the works adopted by the Highway Authority.
- 1.5.5 At least three months before the end of the maintenance period the Developer shall supply to the Highway Authority a copy negative to a scale of at least 1:500 indicating the landscaped area for which adoption is sought. This must clearly identify the areas of grass together with the measured area in square metres and the areas of shrub planting together with a list of all plant types, numbers and the measured area in square metres. All individual trees must be shown in their planted locations and shall be individually named. Any other specific features of the scheme shall be accurately shown and annotated.
- 1.5.6 Only on receipt of the Maintenance Completion Certificate for the whole of the works will the Developers' liability for the maintenance of the works cease.
- 1.5.7 It is incumbent on the Developer to carry out the landscaping and planting to a timescale that, ideally, links to the adoption of the roadworks element of the development.

SECTION 2 – LANDSCAPE OPERATIONS

2.1 Site Clearance

- 2.1.1 The Developer shall be responsible for collecting up, loading and carting away all debris including core, rubble, metal, weed growth and timber prior to commencement of works.
- 2.1.2 It is recommended that where persistent or excessive weed growth exists there shall be an application of systemic contact herbicide. This should be completed a minimum of four weeks prior to site disturbance. Herbicide containing glyphosphate as the active ingredient will be used for this task and it must only be applied using experienced personnel who hold a current National Certificate for Pesticide Application.
- 2.1.3 The Developer shall carry out all works in accordance with BS 4428 General Landscaping Operations.
- 2.2.1 Where the site does not contain topsoil of sufficient quantity or quality, the Developer will be required to import such amounts of top soil needed to complete the works. Unless otherwise shown on the approved scheme drawings the minimum depths of topsoil shall be as follows :-

- | | | |
|-----|-----------------|--------|
| (a) | Grassed areas | 225 mm |
| (b) | Shrub/Rose Beds | 600 mm |
| (c) | Tree Pits | 900 mm |

- 2.2.2 Imported topsoil will be to British Standard BS 3882, of high humus content and have a good crumb structure. The ph value should be neutral and the soil should be free from weed seed, roots and other deleterious material.
- 2.2.3 Prior to the placing of any topsoil, any compacted sub-base shall be disturbed by ripping, allowing improved surface drainage and preventing stagnant water.
- 2.2.4 Topsoil will be spread on site in such a manner as to avoid damage or compaction of the underlying surface and to achieve a smooth, even surface free from deviation or holes that may encourage ponding.
- 2.2.5 During the importation and spreading of top soil the Developer shall ensure that no soil or mud is deposited on any public highway or footpath and all plant and vehicles are cleaned as required before leaving the site. Any such depositions shall be cleared immediately at the Developer's expense to the satisfaction of the Highway Authority.

2.3 Finished Levels

- 2.3.1 Final levelling to adjoining kerbs, edgings etc., shall be completed by hand. This is done to eliminate ponding and to ensure any hollows are filled. The final level of the soil for seeded areas shall be 25 mm above the adjoining kerb, edging etc., allowing settlement and future ease of mowing operations.
- 2.3.2 The soil level for shrub borders shall be left 75 mm below adjoining kerbs, a 75 mm layer of bark mulch shall be placed on top of the soil surface on completion of planting works.
- 2.3.3 When lawns or shrub borders adjoin buildings the finished level shall always be a minimum of 150 mm below damp proof course level.

2.4 Mounded Areas

- 2.4.1 All mounded areas shown on the approved drawings shall only be formed with sub-soil and topsoil and formed to achieve a smooth natural shape in proportion to the surrounding areas. It is important that a completed mound does not become a maintenance problem, i.e. grass maintenance must be able to be carried out without causing too much difficulty to operators. The base of the mound shall not be within two metres of a site boundary, e.g. wall, fence or kerbed area. Care shall be taken to avoid obscuring traffic sight lines, and excessive water run off shall be prevented by again having a minimum two metre level area near to roads and footpaths.
- 2.4.2 French drains if required shall be located and constructed to the details shown on the approved scheme drawings.

2.5 Gradients

- 2.5.1 Generally gradients will be as indicated on plans but finished gradients to banks shall nowhere be steeper than 1 in 3.

2.6 Cultivation

- 2.6.1 Prior to cultivation, all areas to be grassed shall be given a total application of a glyphosphate based herbicide and left for a minimum 4 week period in order to destroy all

existing weed growth. The Developer may be required to repeat the operation to achieve this. Only experienced personnel who hold the current National Certificate for Pesticide Application may carry out this operation.

2.6.2 The area to be sown shall be cultivated to a depth of 150 mm using a rotary cultivator or a power harrow removing all stones having any dimension greater than 15 mm. All arisings/debris found during this work shall be collected up and removed from site. In restricted areas, cultivation may need to be done by hand.

2.6.3 Cultivation work shall only be carried out when the surface material is in a reasonably dry and crumbly condition. Before final grading, light firming of the area is required using a crumbler roller or by treading. When a fine tilth has been produced the whole site shall be finally raked and graded to produce a uniform and even finished level.

2.7 Pre-Seed Fertiliser

2.7.1 All areas to be seeded shall, 7-10 days prior to sowing, have a base dressing applied of an approved granular pre-seeding fertiliser in the ratio of 10:12:15 (N.P.K.) at the rate of 40 grammes per square metre. The dressing shall be applied by means of approved fertiliser distributor machinery or by hand in small or confined areas, and then lightly worked into the surface with a harrow or rake.

2.8 Grass Seeding Including Reinstatement

2.8.1 Operations shall not be carried out during periods of inclement weather (i.e. when the ground is wet, frosty or waterlogged). Timing of operations shall generally be confined to the Spring and Autumn periods.

2.8.2 Grass seed shall be stored off the ground in a clean, dry place free from vermin. The Developer shall be required to submit certificates for all grass seed stating the seed source, mixture percentage, percentage purity and percentage germination.

2.8.3 The Highway Authority shall be entitled to take samples of the grass seed mixture for testing. The seed mixture must meet the requirements of germination and purity laid down in BS 4428 and be from the previous years harvest with a seed certification label.

2.8.4 The seed mix shall contain the following :

30% Poa Pratensis CV
50% Chewings Fescue CV
20% Agrostus Tenius CV
100%

The choice of cultivars (CV) for each species shall be decided on an annual basis by the Highway Authority.

2.8.5 The total amount of seed required shall be divided in half, each half being machine broadcast in transverse directions to provide a total application rate of 35 g per sq. m

2.8.6 Following an even distribution of seed, the Developer shall carry out a light raking or harrowing of the area and ensure a consolidation of seed with soil by user of a light roller.

2.8.7 All reasonable precautions shall be taken to ensure that pedestrian and other traffic does not cross areas during cultivation, and until the grass is established.

2.9 Grass Seeding, Establishment

- 2.9.1 Where in the opinion of the Highway Authority excessive subsidence of seeded areas arises, such subsidence must be made good, raising all depressions with good quality topsoil, carrying out the necessary cultivations, fertilising and seeding as previously specified. The Developer shall allow for re-seeding any bare patches with previously specified mixture. In instances where establishment of re-seeding is unlikely to be satisfactory, the Highway Authority may require the area to be turfed at the Developer's expense.
- 2.9.2 The Contractor shall establish a good sward of the specified grass mixture free from pernicious weeds. If required, the Developer shall apply a selective weedkiller, mixed and applied in accordance with the manufacturer's instructions.
- 2.9.3 Following successful germination and when the grass has reached 50 mm in height, the area shall be stone picked, to remove all arisings exceeding 15 mm and rolled using a smooth agricultural roller or similar. Over seeding of poorly germinated areas shall be carried out at this stage.
- 2.9.4 Once the grass has reached 75 mm to 100 mm in height, the first mowing of the area shall be done. The sward shall be cut back to 50 mm in height using a recognised method that will also collect the arisings.
- 2.9.5 Where watering is required the Developer shall use either sprinklers or oscillating sprays so as not to disturb the soil surface.

2.10 Turfing

- 2.10.1 Cultivation and site preparation shall be in accordance with Clause 2.6. Allowance should be made during final grading for the depth of turf butting up to kerbs/edgings. The final finished level of turf will be 25 mm above adjoining kerbs/edgings.
- 2.10.2 All work specified shall be carried out in accordance with BS 4428 – General Landscape Operations, Section 6. Turves shall be in accordance with BS 3969 Recommendations for Turf for General Landscape Purposes and be approved by the Highway Authority before laying.

BS.3969
General Amenity

40%	Cert. Turf Type Perennial Rye Grass
25%	Cert. Slender Creeping Red Fescue
10%	Cert. Smooth Stalk Meadow Grass
20%	Cert. Chewing Fescue
6%	Cert. Browntop Bent

- 2.10.3 Turves shall not, unless otherwise instructed by the Highway Authority contain weed grasses such as Annual Meadow Grass, Cocksfoot, Creeping Soft Grass, Meadow Barley, Yorkshire Fog or Perennial Weeds.
- 2.10.4 The soil of the turf shall be of a loamy nature and free from stones over 15 mm diameter. Soil may vary from heavy to light loam but shall be consistent in character for the whole of each requirement.
- 2.10.5 Turves shall be of a rectangular shape and of uniform thickness. Unless otherwise agreed, they shall have a minimum thickness of 25 mm and a width of 300 mm.
- 2.10.6 Turves must not be lifted in frosty weather or when water-logged. They shall be packed to avoid drying out in transit and shall be rolled or laid flat, not folded. Turf shall be deliv

ered to the site within 36 hours of lifting and shall be off-loaded by hand, unless arranged on pallets for mechanical handling.

- 2.10.7 The grass shall be of close texture, of even density, and green in colour. The turf shall be sufficiently fibrous for turves to hold together when handled, but excess mat or fibre is undesirable. Unless agreed with the Supervising Officer, the turf shall not contain any artificial binding agent such as netting. The grass shall have been closely mown. It shall not be affected by pest or disease.
- 2.10.8 For large areas, supplies of turves shall be delivered at appropriate intervals throughout the work so as to avoid as far as possible stacking turves for long periods. Where it is not possible, they shall be unloaded and conveniently stacked on clear ground to a maximum height of 1.0 m unless arranged on pallets for mechanical handling. Turves must be placed grass to grass. All turf should be placed in its final position within three days of lifting from the turf nursery.
- 2.10.9 Season – The Contractor shall lay turf when weather and soil conditions are suitable and, where possible, preference shall be given to Autumn and early Winter operations. Turf shall not be laid in exceptionally dry or frosty conditions.
- 2.10.10 Laying – Turf shall not be laid until the topsoiling in whole or in part has been satisfactorily completed by being brought to an even tilth and firmness. Turves from the stack shall be wheeled to turf layers on planks laid closely side by side. Adequate timber planks shall be used to support staff and barrows, and provide access. Turves shall be laid on the prepared soil bed and firmed into position in consecutive rows with broken joints (as in stretcher bond brickwork), closely butted and to the correct levels. The turf shall be laid off planks working over turves previously laid. Where necessary, the turves shall be lightly and evenly firmed with wooden beaters, the bottom of the beaters being frequently scraped clean of accumulated soil or mud. A dressing of finely sifted topsoil or fine top dressing shall be applied and well brushed into the joints. Any inequalities in finished levels owing to variation in turf thickness or uneven consolidation of soil shall be adjusted by raking and/or by packing fine soil under the turf. A roller shall not normally be used. The finished level of the turf shall conform to the levels indicated, allowing for final settlement. Turf edges and margins shall be laid with whole turves.

Turfing on Banks Exceeding 30°

- 2.10.11 Stability, and the retention of soil and turf may be a problem when turfing to banks with a gradient exceeding 30°. Turfing shall not be undertaken until the bank has been satisfactorily graded.
- 2.10.12 Turves shall comply with BS 3969. It is important that turves to be used on banks shall be sufficiently fibrous to withstand handling conditions.
- 2.10.13 Season – Turfing on banks shall preferably be carried out during the autumn and early winter period. Spring operations shall be avoided due to the harmful effects of prolonged dry weather and drying winds.
- 2.10.14 Laying – Sufficient timber planks and ladders shall be used to ensure safe and efficient working. The turves may be laid diagonally or horizontally. They shall be laid to stretcher bond pattern, butt-jointed, firmed and secured by stout wooden pegs 200 mm in length or by 4 mm galvanised wire pins, bent or hairpin pattern, at least 200 mm long. Finely sifted top soil shall be worked well into the joints. On very steep banks or where stability is a major problem, netting shall be laid over the turf and pegged down. Where necessary the wire netting shall be reinforced at the top and bottom and intermediately, with stout wire cable threaded through the mesh.

2.11 Grass Seeding, Establishment

- 2.11.1 The Developer shall establish a good sward, free from pernicious weeds. If necessary, the Developer shall apply an approved selective weedkiller mixed and applied strictly in accordance with the manufacturer's written instructions. During the Spring following turfing, and before the application of any weedkiller, the turfed areas shall be dressed with approved granular post-seeding fertiliser, in the ratio of 15:10:10 (N.P.K.) applied at the rate of 35 grammes per square metre.
- 2.11.2 Cutting shall commence when growth and season dictates.
- 2.11.3 Watering all newly laid turf areas will normally be required for approximately three weeks, allowing the turf roots to penetrate the sub-base. The amount of water required will depend on the season. Watering shall be carried out by means of an oscillating type spray, preferably during early mornings and late afternoons too prevent grass being damaged by scorch or lack of moisture. Where shrinkage occurs and joints open, the Developer shall supply and brush in good quality topsoil and water well.
- 2.11.4 The Developer shall be responsible for the replacement of any areas of scorched or damaged turf and all areas where turves have not taken at his own expense.

2.12 Plant Procurement

- 2.12.1 The Developer shall supply all plant material in accordance with BS 3936 Nursery Stock Part 1 – Trees and Shrubs, Part 2 – Roses, Part 4 – Forest Trees, Part 9 – Bulbs, Corms and Tubers.
- 2.12.2 Plants shall be obtained from a source within 200 miles of North Lincolnshire and must not be obtained from nurseries where they have been grown under soil and climatic conditions substantially different from those of North Lincolnshire. The Developer must seek the approval of the Highway Authority to use plant material from outside the 200 mile zone.
- 2.12.3 The Developer must inform the Highway Authority of the source of plant material (i.e. if plants are propagated vegetatively or by seed). The Developer must also indicate whether material has been grafted or budded.
- 2.12.4 Plants must be true to type and the Developer shall ensure that all plant material is free of all pests and diseases.
- 2.12.5 The Developer shall bear the cost of any plant losses for whatever reason and shall replace plant material or plants considered unsatisfactory by the Highway Authority with identical species. The liability period for this condition shall be 36 months from the date of the planting.
- 2.12.6 All plants shall be supplied from nurseries as in paragraph 2.12.2 and suppliers selected by the Developer must be approved by the Highway Authority. The Developer shall submit a list of suppliers to the Highway Authority for approval.
- 2.12.7 Prior to planting of material the Highway Authority may inspect plant material at the supplier's nursery or the Developer's place of storage. These inspections shall not be taken as approval of that plant material, but as setting the standard required. Plant material which subsequently falls below that standard shall be rejected.
- 2.12.8 The Developer shall give the Highway Authority not less than 48 hours notice of delivery of plants to site.

2.13 Trees, Shrubs and Roses

- 2.13.1 All trees and shrubs supplied by the Developer must be :-
- a) Pest and disease free.
 - b) True to type.
 - c) Transplanted nursery stock on healthy, vigorous and sound roots with well formed heads having been grown at or grown on at the supply nurseries.
 - d) Torn and lacerated roots shall be pruned before despatch and plants shall be materially undamaged.
 - e) Containerised subjects must not be root bound.
 - f) Vigorous and of a habit appropriate to type.
 - g) The roots of containerised stock must not show evidence of 'circling'.
 - h) Subjects must have a well-defined leader (as appropriate).
- 2.13.2 Appendix 2 lists a selection of trees, shrubs and plants that are suitable for planting within highway verges.
- 2.13.3 In addition to the requirements outlined above, all conifers supplied by the Developer, must be well furnished evenly to the ground on all sides with certain exceptions (e.g. Cedrus). A single central leader is required for most conifers unless required for hedging or if the natural form is branching.

2.14 Site Preparation – General

- 2.14.1 The Developer shall mark out any proposed planting areas in advance in accordance with the approved scheme drawings and the approval of the Highway Authority. Once the area is clearly marked, a glyphosphate based herbicide treatment will be required, four weeks prior to planting.
- 2.14.2 When the soil conditions are friable and all weedgrowth has yellowed, the area to be planted shall be cultivated to a depth of 300 mm using a rotary cultivator or power harrow removing all stones greater than 15 mm in size. All debris shall be removed from the site and care should be taken to stay within the marked boundary. Should the planting be delayed the Developer shall continue to keep the areas free from weeds at his own expense.
- 2.14.3 Operations must not be carried out during inclement weather or when ground conditions are unfavourable (i.e. waterlogging, frost or when the ground is exceptionally hard due to periods of dry, hot weather).
- 2.14.4 When a bed is to be constructed on an area of grassland the Contractor shall cut the grass with a cylinder or rotary mower to a height of 50 mm. Arisings shall be boxed off and removed from site. (A short evenly cut sward will ease the turf lifting operation).
- 2.14.5 The Contractor shall mark out the shape of the bed to the dimensions specified using pegs and nylon line.
- 2.14.6 The perimeter of the bed shall be incised by use of a half moon edging iron and the area of the turf within the perimeter shall be cut into rectangular turves, 300 mm wide. Turves shall be lifted by use of a turf spade or other mechanical device. Turves shall not exceed 25 mm in thickness.
- 2.14.7 Where possible, turves shall be retained and used by the Developer for general turfing at other sites. (For transportation, storage and laying of turf, the Developer must refer to the Specification for Turfing).

- 2.14.8 Turves must be removed from site as soon as possible and at the latest within 24 hours from commencement of turf lifting operations.
- 2.14.9 Where turf is not required for re-use it shall be stripped as 2.14.6 and buried in the bottom of the cultivation trench.
- 2.14.10 The Developer shall ensure that surrounding grassed areas are protected from damage caused during the construction of the bed. Any damage caused to the turf by the Developer shall be made good at his own expense to a standard approved by the Highway Authority.
- 2.14.11 The Developer shall cultivate the bed incorporating farm yard manure by double digging the area by hand, or mechanical means.
- 2.14.12 The farm yard manure or other approved organic matter shall be incorporated into the soil at the rate of 100 litres per M2 ensuring all is well buried. Cultivation of the bed shall be at a minimum depth of 350 mm.
- 2.14.13 The Developer shall be required to produce a well-drained, fertile friable soil condition tilth a ph within the range of 6.3 to 7.0 unless otherwise advised by the Highway Authority.
- 2.14.14 All stones (in excess of 50 mm diameter) weeds and other deleterious material brought to the surface shall be removed from site and disposed of off site.
- 2.14.15 Soil shall be cultivated to a medium to fine tilth and consolidated by treading, firming and raking to a level soil profile.
- 2.14.16 The Developer shall apply at the rate of 35 grammes per sq. metre a general granular fertiliser to the ratio of 7:7:7 (N.P.K.) The dressing shall be applied by means of approved fertiliser distributor machinery or by hand, and lightly raked into the soil surface with a landscaping rake.

2.15 Tree Planting

- 2.15.1 All work specified in this section shall be carried out in accordance with BS 4428, General Landscape Operations, Sections 7 and 8.
- 2.15.2 Unless otherwise agreed planting shall take place during favourable weather conditions in the dormant season, which shall generally be from the first week in October to the first week in March inclusive.
- 2.15.3 Upon arrival on the site all trees shall be planted in their respective positions without delay. On no account shall roots be exposed to drying wind or sun at any time. Planting shall not take place during periods of frosty weather or cold winds, or when the ground is excessively wet. If trees cannot be planted immediately after delivery they shall be heeled-in firmly packing soil well around the plant roots, in a suitable location agreed with the Highway Authority. The Developer shall ensure that no damage occurs to the plants on heeling-in and until the time of planting shall take all reasonable precautions where necessary, or as directed, watering and covering with straw to protect the plants from drying out and undue exposure to the sun and/or frost.
- 2.15.4 Unless otherwise specified, heavy standard trees shall be advanced nursery stock having an overall height of 3.6 m to 4.25 m above ground level. They shall be vigorous with a reasonably straight stem having a circumference of 12 cm – 14 cm when measured 900 mm above ground level, and shall be free from side growths to a height of 2000 mm above ground level. According to species, standard trees shall have either a well balanced branching head or a well defined straight and upright central leader with branches growing out from

the stem with reasonable symmetry. All shall be root balled or root wrapped.

- 2.15.5 Unless otherwise specified, standard trees shall be advanced nursery stock having an overall height of 2.4 m to 3 m above ground level. They shall be vigorous with a reasonably straight stem having a circumference of 8 –10 cm when measured 900 mm above ground level, and shall be free from side growths to a height of 1.6 m above ground level. According to species, standard trees shall have either a well balanced branching head or a well defined straight and upright central leader with branches growing out from the stem with reasonable symmetry. All shall be root balled or root wrapped.
- 2.15.6 Large whips shall have a defined straight and upright stem to a height of between 1500 mm and 1800 mm above ground level. They shall be well furnished with lateral shoots and shall have been transplanted to encourage fibrous root systems.
- 2.15.7 Small whips shall have a defined straight and upright stem to a height of between 1000 mm and 1200 mm above ground level. They shall be well furnished with lateral shoots and shall have been transplanted to encourage fibrous root systems.
- 2.15.8 Prior to planting all damaged roots and branches shall be cleanly removed and all trees shall be pit planted into a medium of 50/50% soil and planting compost which shall be well mixed. The pit shall be of dimensions such that the free spread of roots is not affected, and the depth shall be 50% deeper than the vertical extent of roots from the “root collar”. During back filling the planting medium shall be well trodden and the tree shall be kept vertical. The tree shall be supported by the method shown in figure 1 or 2. The size of the planting pit shall be such that no root has to be bent, folded or cut to accommodate the tree. The turf cut to allow for planting shall be placed in the base of the hole after the bottom of the pit has been broken up using a fork inserted to a full spit depth. On areas that are box mown all surrounding turf shall be protected during the planting operation by the use of sheets or boards, with the tree planted in a circular pit cut using a half moon. After planting the surrounding turf shall be swept clean. Planting shall not take place whilst there is frost in the ground. In carrying out the planting operation the Developer shall ensure that the root collar of the tree is not buried and that the planting depth of the tree corresponds with its growth in the nursery. The soil on completion shall be level and not mounded around the stem. Having completed the planting operation any surplus soil, dead or damaged trees etc. shall be carted away to the Developer’s tip.
- 2.15.9 The Developer shall be responsible for maintaining all planted trees for 36 months after planting including watering in dry weather. The replacement of failures or unsatisfactory plants with similar species in the same manner as detailed above at a suitable season shall be the Developer’s responsibility at its own expense.
- 2.15.10 Semi Mature Trees – These shall be lifted and transplanted as per BS 4043.

2.16 Shrub Planting

- 2.16.1 All work specified in this section shall be carried out in accordance with BS 4428 General Landscape Operations, Sections 7 and 8. Unless otherwise specified all shrubs shall be containerised stock. The height of the shrubs measured from ground level and excluding root ball or container, shall not be less than 600 mm height, unless a dwarf variety, and shall be in accordance with BS 3936 Part 1.
- 2.16.2 Unless otherwise agreed planting shall take place during favourable weather conditions in the dormant season which shall generally be from the first week in October to the first week in April inclusive.
- 2.16.3 Upon arrival on the site all trees and shrubs shall be planted in their respective positions without delay. On no account shall roots be exposed to drying wind or sun for longer than

is necessary. Planting must not take place during periods of frosty weather, or cold winds, or when the ground is excessively wet.

- 2.16.4 Positions of shrubs to be planted shall be marked out in accordance with the planting plan or otherwise agreed. When shrubs are set out, precautions shall be taken to prevent roots drying out. Planting holes shall be excavated about 150 mm wider than the root spread. Polythene and other non-perishable containers shall be removed and any badly damaged roots carefully pruned. Each shrub shall be placed upright in the centre of a hole large enough to accommodate the roots without restriction or damage. Shrubs shall be set at nursery level with due allowance for settlement. The hole shall be backfilled to half its depth and firmed by treading. Care must be taken not to crush the root ball. The remainder of the soil shall then be returned and again firmed by treading. On completion of planting lightly rake through the bed with a fork to leave an even tilth of neat appearance.
- 2.16.5 The Developer shall be responsible for the maintenance and watering of all planted shrubs and shall be required at its own expense to replace all dead, dying or otherwise unsatisfactory plants with a similar species and in the same manner as detailed above at a suitable season for a period of two years after planting.
- 2.16.6 The Developer shall, if appropriate after planting, apply a medium grade mulch specified by the Highway Authority to a depth of 50 mm – 75 mm. The Developer must take care not to smother the 'crown' of shrubs with the mulch material.

SECTION 3 – AFTERCARE AND MAINTENANCE

3.1 Grassed Areas

- 3.1.1 Grass cutting will be carried out only with equipment as to produce an even cut without ridges or ribbing, removing all bents and stalks throughout the whole of each individual area.
- 3.1.2 Cutters to all equipment must be sharp and properly set to cut grass cleanly and evenly and tractors or other equipment used for grass cutting shall be fitted with grass land tyres.
- 3.1.3 Following successful establishment of grass areas in accordance with Clause 2.9 grass cutting shall be carried out every nine working days thereafter unless excessive growth or lack of growth due to weather conditions dictate otherwise, during the period March to October inclusive. The height of grass after cutting shall be 50 mm for the first two years after planting and thereafter shall be reduced to a maximum height of 25 mm after cutting during the final year of the maintenance period. Where the grass cutting programme and standards are achieved the removal of excess cuttings will not be a routine operation. The Developer should however take regard of the requirements to collect and remove grass cutting.
- (a) after the first cut at the start of the annual cutting programme.
 - (b) during periods of heavy growth.
 - (c) following a cessation of cutting due to weather conditions.

The Developer will remove all stones, debris, litter etc., immediately prior to each mowing operation. If after mowing quantities of litter are evident, then removal will be required at the Developer's expense. All grass spillage on to surrounding hard surface areas and foot-paths shall be thoroughly swept on completion of mowing. The Developer will be required to re-cut any area deemed to be unsatisfactorily mown. The Developer shall remove all mounds and fill in all holes created by burrowing animals or caused through any other reason.

- 3.1.4 Grass adjacent to obstructions such as posts, trees, gully tops, kerb edges, walls,

fences and the like will be kept tidy and mown at the same frequency and to the same standards as the main area. Rotary trimmers can be used for this task and care must be taken to avoid damage to any obstructions and particularly trees. Herbicide treatment will not be permitted unless authorised in writing by the Highway Authority.

- 3.1.5 The Developer will be required to remove all falls and accumulations of leaves, fruits, seeds etc., from all areas of grass throughout the maintenance period.
- 3.1.6 Within some areas to be cut there may be ditches through an area or adjacent to the boundary of an area. The Developer shall treat these as part of the main area in so far as accessible banks will be cut and the requirements in respect of normal litter accumulations and leaf fall etc., shall be dealt with. Ditches shall be left free of blockages and restrictions allowing water to run freely.
- 3.1.7 Reinstatement of grassed areas may be required throughout the maintenance period. It is the Developer's responsibility to make good any areas of damage throughout the duration of the maintenance period.

3.2 Shrub Beds

- 3.2.1 Maintenance is defined as that work required to ensure the encouragement of flower, fruit or growth and includes, thinning, shaping, cutting and ground care operations.
- 3.2.2 Pruning and cutting will depend on the species to be maintained. All pruning etc., will be undertaken in accordance with the general guidance given in George E. Browns "The Pruning of Trees, Shrubs and Conifers".
- 3.2.3 The operation of Shrub Bed Maintenance will be carried out throughout a twelve month period. The timing and programming of the individual elements of the whole operation will depend on species, age, size, composition, etc., of the individual shrub beds.
- 3.2.4 The operation of Shrub Bed Maintenance will include the following :
- (a) The thinning, trimming and shaping of all shrubs according to species, variety, season, age, to encourage flower and fruit and achieve the required visual standard (see Clause 3.2.6)
 - (b) The removal of all dead shrubbery and damaged parts of shrubbery.
 - (c) Where shrubs, plants overlay the grass areas, paths, roadways, signs etc., the removal of excess growth to correct any nuisance or obstruction.
 - (d) The removal of all litter, debris, arisings and disposal from site.
 - (e) The inspection and re-firming of bushes, trees and shrubs as a result of strong winds, frost heave and other causes.
 - (f) The checking of stakes and adjusting and re-tying of ties.
 - (g) Removal of weeds by hand or spot treating with a herbicide approved by the Highway Authority.
 - (h) Working carefully to avoid damage to stems, branches and roots of trees, shrubs and plants.
 - (i) Where appropriate the removal and disposal of all major leaf falls during any twelve month period.

- (j) Long handled shearing of any grass edges to beds every 10 working days between March and October.
 - (k) Redressing of mulch and replacement with new mulch material to maintain the required 75 mm thickness.
- 3.2.5 Pruning will be carried out by skilled labour with sharp tools correctly set. All cuts are to be made without tearing the wood. Variegated leaves which have reverted are to be cleanly removed to the point of origin.
- 3.2.6 The following general guidelines are given in respect of the pruning of shrubs and bushes
- (a) **Spring Flowering deciduous shrubs** – immediately after flowering by pruning out all stems on which flowers have been borne and thin out young shoots.
 - (b) **Summer/Autumn flowering deciduous shrubs** – as soon as growth begins in the Spring, cutting back previous years growth to within two buds of the older wood.
 - (c) **Deciduous shrubs grown for foliage or coloured stem effect** – cutting back close to ground level in early Spring.
 - (d) **Evergreen shrubs** – in April, May, or September, removing dead wood and any weak or unsightly growth effecting the natural habit of the plant.
 - (e) **Ground Cover shrubs** – e.g. Hypericum calycinum by cutting close to ground level in April.
- 3.2.7 When roses have been planted then the following maintenance operations shall be carried out in addition to those in Clause 3.2.4 namely :-
- (a) The pruning of all roses to encourage growth and flowering for future years including the removal of all laterals and suckers (see Clause 3.2.9)
 - (b) Dead heading of roses throughout the growing season.
 - (c) Removal of all suckers from root stock.
- 3.2.8 Pruning of roses will be carried out by skilled labour and with sharp tools correctly set. All cuts are to be made without tearing the wood.
- 3.2.9 The following general guidelines are given in respect of pruning roses :-
- (a) Spring Prune – cut out weak and dead growth from hybrid tea and multiflora roses in March. Prune back to an outward facing bud on selected stems from the old wood.
 - (b) Autumn Prune – prune hybrid tea or multiflora roses by about a third to prevent wind rock.

3.3 Trees

- 3.3.1 The operation of Tree Maintenance will include the following :-
- (a) Inspection of all trees for disease or damage.
 - (b) Checking all stakes, guy ropes, tree guards, ties, etc., for decay, damage, tightness and firmness.

- (c) Replacing decayed or damaged stakes, ties, tree guards or guy ropes. Replaced ties will have at least one spacer between stem and tree stake.
 - (d) Remove all stakes, ties, tree guards, where the tree has grown sufficiently to be self supporting.
 - (e) Adjusting ties for growth or chafing where appropriate.
 - (f) Removing all redundant tags, ties, labels and other similar articles.
 - (g) Filling up any post stake holes or topping up mulch around roots to maintain the required 75 mm thickness.
 - (h) Removing broken branches which are small enough to be dealt with by secateurs.
 - (i) The straightening and firming of leaning or loose trees.
- 3.3.2 The Developer will carry out repairs to superficial bark wounds and other minor defects on trees in accordance with best arboricultural practices.
- (a) Surface bark wounds – trees which have lost a portion of bark should have the ragged edge of the wound neatly trimmed to healthy tissue in the shape of a pointed shield where practicable.
- 3.3.3 All pruning operations will take into account the natural and aesthetic appearance of the tree as far as is possible.
- 3.3.4 All final pruning cuts will be made outside the branch bark ridge and branch collar leaving those two areas of tissue undamaged and not cut flush as recommended in BS 3998 (1966). The aim is to leave a neat, circular or elliptical wound as recommended in the Forestry Commission "Arboriculture Research Note ref. 48/83PATH, intitle "A Definition of the Best Pruning Position", The resulting pruning wound shall not be treated with any form of wound paint or sealant.
- 3.3.5 All tools will be sterilised prior to further use after contact with diseased areas of each tree, or where disease is suspected, to prevent spread of infection.

3.4 *Miscellaneous Works*

- 3.4.1 Renovation of Hard Surface Areas shall include for the removal of vegetation from hard surface areas including setts, paving, hardcore, ash, asphalt and tarmac shall be achieved using hand or mechanical tools as appropriate to the site and nature of surfacing. All weeds, grass, moss, lichen, self sets, briars, leaves and litter shall be removed from site either to the Developer's tip or recycled in line with the Developer's declared policy. Application of herbicide may precede or follow this operation. Any damage caused during the operation to the surface shall be repaired by the Developer at his own expense.

APPENDIX 1

Fencing of Landscape/Amenity Areas

1. The perimeter of all areas to be offered for adoption shall be fenced to prevent access by unauthorised persons.
2. Fence posts shall be 100 x 100 mm pointed at one end and shall be preservative treated. Posts shall be positioned at all changes of direction and at centres not exceeding 2.0 m. They shall be driven into the ground to a minimum depth of 750 mm and the tops shall be at least 1500 mm above the surrounding ground level. In unsuitable ground the Highway Authority may direct that the posts be concreted in.
3. 2 No. galvanised wires shall be stapled to the posts at approximately 500 mm from the ground and 500 mm from the top.
4. Chestnut paling fencing shall be fixed to the posts and wires by suitable galvanising wire.
5. All fencing and posts shall be maintained by the Developer at his own expense until the end of the maintenance period and shall be inspected at regular intervals and all damage properly and promptly repaired.
6. Just prior to the end of the 3 year maintenance period such fencing shall be removed and all post holes reinstated to the satisfaction of the Highway Authority.

Fencing of Shrub/Tree Beds

1. All areas shall be fenced to prevent access by unauthorised persons immediately on completion of the planting works.
2. Fence posts shall be 75 mm dia. pointed at one end or 100 mm dia. at all changes in direction. They shall be driven into the ground to a minimum depth of 500 mm and the tops shall be at least 1000 mm above the surrounding ground level.
3. 2 No. galvanised wires shall be stapled to the posts at approximately 100 mm above ground level and 50 mm below the tops. Pig netting shall be fixed and wires by suitable galvanising wire.
4. All fencing and posts shall be maintained by the Developer at his own expense until the end of the maintenance period and shall be inspected at regular intervals and all damage properly and promptly repaired.
5. At the termination of the maintenance period the fencing and posts shall be transferred in a good state of repair and at no cost to the Council unless otherwise indicated in writing by the Highway Authority.

APPENDIX 2

APPROVED PLANTS/SHRUBS/TREES

List A Ground Cover Plans

Berberis atropurpurea (Nana)	Genista Lidia
Berberis candidula	Genista tinctoria
Cistus salvifolia	Hebe pagii
Cotoneaster conspicuous (Decorus)	Hypericum calycinum
Cotoneaster horizontalis	Hypericum polyphyllum
Cytisus ardoninii	Lavendula (Hidcote)
Cytisus beannii	Lithospermum oleifolium
Cytisus decumbens	Mahonia aquifolium
Cytisus x kewensis	Pernettya mucrodonata
Gaultheria procumbens	Potentilla atrosanguinea
Gaultheria nummularoides	Viburnum davidii
Genista hispanica	Vinca minor

List B Shrubs for Urban Type Situation

Aucuba japonica	Kerria japonica (Flora Pleno)
Berberis darwinii	Lavendula spica
Berberis x ottawaensis	Ligustrum ovilifolium
Berberis thunbergii	Ligustrum japonicum
Buddleia davidii (Black Knight)	Magnolia soulangeana
Buddleia davidii (Empire Blue)	Mahonia aquifolium
Buddleia davidii (Fascinating)	Mahonia (Charity)
Buddleia davidii (Royal Red)	Mahonia lomariifolium
Buddleia davidii (White Bouquet)	Mirtis luma
Buddleia globosa	Olearia macrodonta
Buxus sempervirens	Olearia haastii
Chaenomeles japonica (Knapp Hill Scarlet)	Osmanthus delavayi
Colutea aborescens	Philadelphus (Beauclerc)
Cornus alba	Philadelphus (Belle Etoile)
Cornus alba (Elegantissima)	Potentilla fruticosa (Elizabeth)
Cornus alba (Siberica Varigata)	Potentilla fruticosa (Moonlight)
Corylus avellana	Ribes sanguinea
Corylus maxima (Purpurea)	Rosa rubrifolia
Cotoneaster conspicuus	Rosa rugosa
Elaeagnus augustifolia	Sambucus racimosa (Plumosa Aurea)
Escallonia (Peach Blossom)	Santolina chamaecyparissus
Euonymus europaeus	Skimmia japonica
Euonymus japonica	Spirea x bumalda (Anthony Waterer)
Forsythia spectabilis	Symphoricarpus alba
Forsythia suspensa	Syringa vulgaris (Madam Lemoine)
Garrya elliptica	Tamarix pentandra
Genista hispanica	Ulex europea
Griselinia littoralis	Vaccinium glauca album
Hebe (Autumn Glory)	Viburnum carlesii
Hebe speciosa (Midsummer Beauty)	Viburnum fragrens
Hypericum patulatum (Hidcote)	Viburnum tinus

Continued ...

APPENDIX 2 (Cont'd ...)

List C of Trees of Normal Form for Developments in Urban Areas

Acer platanoides	Prunus – Most Ornamental Species
Acer platanoides (Crimson King)	Quercus rubra
Acer platanoides (Drummondii)	Robinia pseudoacacia
Acer pseudoplatenus (Brilliantissimum)	Robinia pseudoacacia (Frisia)
Acer palmatum	Salix alba (Tristis)
Aesculus hippocastanum	Salix matsudana tortuosa
Alnus cordata	Sorbus aucuparia
Amelanchier canadensis	Sorbus (Jospeh Rock)
Betula pendula	Sorbus prattii
Betula papyrifera	Sorbus vilmorinii
Betula pubescens	Tilia tomentosa
Platanus x hispanica	Tilia petiolaris

List D Trees of Fastigate Formm for Urban Areas

Carpinus betulus (Fastigiata)
Fagus Silvatica (Dawyck)
Malus tschonoskii
Prunus amanagowa
Prunus hilerei (Spire)
Sorbus aucuparia (Fastigiata)

List E Trees and Shrubs for Developments in Rural Areas

Acer platanoides	Prunus spinosa
Acer oseydiokatebys	Sambucus nigra
Acer campestre	Sorbus aucuparia
Betula pendula	Sorbus aria
Betula pubescens	Sorbus intermedia
Carpinus betulus	Salix alba
Castanea sativa	Salix caprea
Crataegus monogyna	Salix cinerea
Corylus avellana	Rosa canina
Fagus silvatica	Rosa vilosa
Fraxinus excelsior	Rubus fruticosus
Juglans regia	Tilia platyphyllos
Hipophea rhamnoides	Tilia cordata
Ilex aquifolium	Viburnum lantana
Prunus avium	Viburnum opulus
Prunus padus	