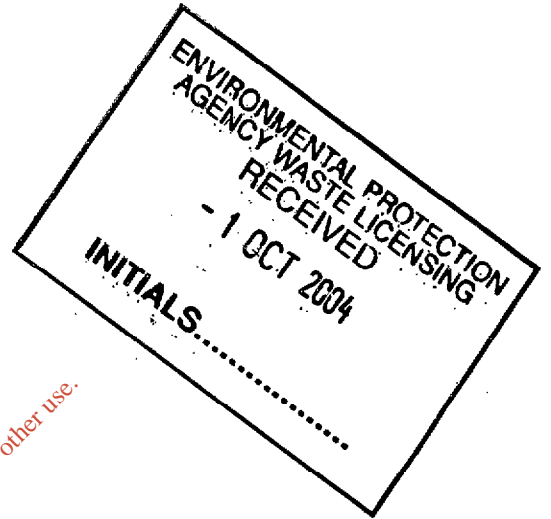


**APPENDIX 9**

**9A LANDSCAPE DEVELOPMENT PROPOSAL REPORT**

**9B LANDSCAPE AND VISUAL IMPACT ASSESSMENT**



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**LANDSCAPE DEVELOPMENT REPORT**  
**for a proposed**  
**Waste Recover/Transfer**  
**and**  
**Sludge Drying Facility**

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**on behalf of**  
**AVR – Environmental Solutions Ltd.**

September 2004

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## 1.0 INTRODUCTION

- 1.1 This report comprises the Landscape Masterplan and Detailed Planting Specifications for the proposed Waste Recovery/Transfer and Sludge Drying Facility at Foxhole, Youghal, County Cork. Below an outline of the content within each section of this **Landscape Report** is given.
- 1.2 **Section 2** the existing landscape of the subject site and its surroundings are described. The landscape proposals for the site are presented together with proposed planting and proposed landscape site works.
- 1.3 **Section 3** the landscape specifications for the subject site are outlined relating to site clearance and the treatment of topsoil.
- 1.4 **Section 4** a detailed description of the proposed shrub planting for the subject site is provided together with specifications to prepare site for planting, plants, aftercare and general maintenance.
- 1.5 **Section 5** site works necessary towards the preparation of the subject site for grass seeding are outlined together with detailed specifications of soil preparation, method of seeding, turfing, after care and general site maintenance.
- 1.6 The content of this report corresponds to the drawings listed in Table 1.1.

**Table 1.1 Drawings Accompanying Landscape Report**

Drg. No.	Title	Scale
04409-302	Landscape Masterplan and Planting Details	1:250 / 1:50
04409-303 A	Landscape Sections.	1:20
04409-303 B	Elevation from Entrance Road	1:250

## 2.0 EXISTING LANDSCAPE & PROPOSALS

### SITE CONTEXT

- 2.1 The subject site, of approximately 1.43 hectares (3.54 acres), is located at Foxhole, north of Youghal between Youghal Mudflats and the former N25 Road. To the north and east are the Youghal Mudflats and Youghal Landfill, to the west is the Millennium Court Industrial Estate and the NCT Centre and to the south are undeveloped grassed fields.
- 2.1 The subject site is located within Youghal Environs and is therefore within the administrative area of Cork County Council. Within the Cork County Development Plan 2003 the subject site is an established area zoned to accommodate primarily industrial/enterprise uses. The land use zoning is illustrated on Map 31 of the Cork County Development Plan 2003.
- 2.2 This low-lying brownfield site possesses no landscape features of merit. The vegetation is characterised by self-seeding saplings and shrubs. The site is largely hidden from short to medium distance views however some long distance views can be achieved from residential developments positioned on the hills close to Youghal Town. It was noted that these long distance views also overlook the IDA Industrial Estate, the Millennium Court Millennium Court Industrial Estate and Youghal Landfill. Long distance views may also be achieved from some one-off houses along the Blackwater Estuary, however as with those views overlooking the site from hillside residences, they also contain other land use activities at Foxhole and Youghal Mudflats.

### LANDSCAPE PROPOSALS

- 2.3 Landscape proposals are shown on Landscape Masterplan Drawing Number 04409-302. The main purpose of the landscape proposals is to provide effective and visually stimulating screening to the proposed development, whilst adding to the existing secure boundary. The primary landscape elements to the site will be positioned along the entire length of the site boundary. The planting shall comprise native/naturalised deciduous and evergreen tree planting and a variety of shrub species. It shall also contain areas of localised mounding with grass seeding, bulb planting and beech hedgerows. In relation to lands zoned to accommodate Industry and Enterprise uses the Cork County Development Plan states in paragraph 9.3.34 that these areas usually contain,

*'a broad mix of employment related uses, including manufacturing, office based industry, warehousing, research facilities, **waste disposal uses**, and some retailing.*

The development further states, in paragraph 9.3.38,

*.....'it is important to apply high standards of layout, landscaping and design to help assimilate these areas into their surroundings.'*

Therefore the Landscape Proposal are consistent with the Land use zoning objectives of the Cork County Development Plan 2003. The proposed planting is based on the recommendations of Cork Rural Design Guide published by Cork County Council.

## PLANTING PROPOSALS

- 2.4 All areas within the proposed development will be landscaped to high standard both in terms of materials and planting. Planting will consist of a variety of tree, shrub and groundcover species to provide year round interest, texture, form and variation. Specified plants spacing and size will enable landscaped areas to become quickly established. The successful establishment of landscaped areas will depend on high standards of soil preparation and their maintenance.

### Tree Planting

- 2.5 Large trees should not to be planted close to any buildings proposed. Tree planting should be clear stemmed in growth form and capable of withstanding rigid pruning. Tree species will comprise Birch, Acer, Sorbus, Beech, Hornbeam, Lime, Pine and Oak.

### Shrub & Hedgerow Planting

- 2.6 The majority of shrub areas will consist of an evergreen/deciduous mix rather than monoculture. The hedgerow planting will be beech hedging (*Fagus sylvatica*)

## OUTLINE OF OPERATIONS

- 2.7 Ground preparation will precede planting and will include weed clearance and amelioration where necessary.
- 2.8 Intensive landscape aftercare for each area will run for 18 months from the practical completion date using contact herbicides and hand weeding. There will be a period of 12 months defects liability on all planting with plant failures being replaced in the following planting season.

## 3.0 LANDSCAPE SPECIFICATION: TOPSOIL

### MAINTENANCE OF TOPSOIL STOCKPILES

- 3.1 Treat growing weeds with Roundup applied in accordance with the manufacturers recommendations for the equipment used, when weeds are growing strongly (usually May to June). Noxious weeds (Docks, Thistle, Ragwort) should be treated before they flower.

### DECOMPACTION

- 3.2 Prior to subsoiling or topsoiling all disturbed areas (excluding engineered slopes) shall be decompacted using a back-actor of a Hymac to a depth of 450mm and only during dry weather conditions. Alternatively, ripping can be carried out with a three or five tyne ripper to a depth of 600mm. The tynes shall be mounted on a tool bar on a hydraulic parallelogram linkage fitted to a 300-400h.p. crawler tractor (Caterpillar D6 or equivalent approved by Landscape Architect). One tyne shall be mounted centrally in each wheel track. The maximum distance between the outer tyne tracks in adjacent passes of the ripper shall be 1200mm
- 3.3 The Contractor will ascertain the location of all service runs (including water, gas, electricity, telecom and drainage) before work is started and marked on a plan identifying location, size and depth. Where they will be affected by ripping, they shall be carefully sealed off and protected.

- 3.4 No machinery shall pass over ripped areas. The Contractor will inform the Landscape Architect upon completion of ripping before subsoiling operations commence.

### TOPSOIL

- 3.5 Topsoil shall conform to B.S.3882:1965, and shall be a free draining sandy loam. It shall be acid, pH 5.0-6.0, free of stones over 50mm diameter, and stones over 10mm diameter shall not exceed 5% by weight. It shall be free from subsoil, sods, roots of trees and shrubs and rubbish.
- 3.6 Topsoil shall be from the original surface layer of grassland or cultivated land to a maximum depth of 200mm. Soils from woodland, heathland, bog or contaminated land will not be acceptable. Do not strip from under the canopy of any tree or closer than 4000mm to a hedge.
- 3.7 Topsoil shall be friable, well aerated and with a good crumb structure. It shall not be obtained from a site subject to waterlogging. It shall be free from persistent weeds, including dock, creeping thistle, stinging nettle, ragwort and couch grass.
- 3.8 Topsoil shall be subject to the inspection and approval of the Landscape Architect before spreading. Visible presence of fibrous roots and plant remains will be required.

### WEED KILLING

- 3.9 In late April or early May, apply Roundup according to manufacturers instructions. Apply evenly over full area of soil to be stripped. Apply when weather is mild and grass is growing. Do not apply when rain or showers are forecast within 6 hours (preferably 24 hours), or when wind may cause drift (over 24kph/15mph). If rain falls within the minimum period re-treat.
- 3.10 After application, leave soil surface undisturbed for an absolute minimum period of 15 days to allow foliage symptoms to develop. If possible, leave undisturbed for 2 months.

### TOPSOILING

- 3.11 Earthworks are to be completed, debris removed from site and formation approved by the Landscape Architect before any topsoil is spread.
- 3.12 Well in advance of importing topsoil or any other soil ameliorants submit details relating to:
- Source of materials to be used
  - Type of plant
  - Maximum depth of each compacted layer
  - Minimum number of passes per layer
  - Details of Waste Management Permit/Licence in accordance with Waste Management Act, 1996
  - Obtain instructions before proceeding.
- 3.13 Topsoil shall not be spread over any area of the site indicated until preliminary decompaction operations are complete. Once the topsoil has been spread, no access will be allowed for construction plant and machinery. Site preparation and soiling operations shall take place only in suitable dry site and weather conditions.

- Any material spoiled by work in unsuitable conditions shall be made good at the Contractor's expense.
- 3.14 Before topsoiling, remove all stones, rubble and rubbish over 75mm diameter from the surface of the subsoil formation. Dig out any areas polluted by oil or chemicals and make up with clean soil. Break up and decompact the formation under any areas liable to ponding of rainwater so that they drain.
- 3.15 Topsoiling shall be moved and spread only in dry weather. No work to topsoil shall be carried when it is waterlogged, or if its moisture content is conducive to structural deterioration. Minimise compaction of topsoil and subsoil during spreading, running machinery over the surface as little as possible.
- 3.16 The Contractor shall allow for all handling charges incurred in the spreading of topsoil to the consolidation depth as stated in the drawings and specifications.
- 3.17 Where additional topsoil is found to be necessary, this shall be loaded, carted and spread in small lots at bill rates.
- 3.18 Final grading is to be carried out to ensure a true specified level and slope and to avoid dishing or other depressions where water may collect.
- 3.19 The use of a heavy roller to roll out humps will not be permitted and any area that becomes unduly compacted during the grading operations shall be loosened by forcing or harrowing.
- 3.20 The level of the topsoil is to be at least 50mm above all paved areas to allow for shrinkage or settlement.

### **FINISHED LEVELS**

- 3.21 Localised hollows and mounds are to be levelled out and areas so finished that they drain to hard standing areas or elsewhere as indicated.
- 3.22 Where the required grades, shaping of ground, cross falls etc. are not shown precisely on the drawings, the Contractor shall obtain directions from the Landscape Architect.
- 3.23 All levels to be approved by the Landscape Architect.

### **REINSTATEMENT WORK**

- 3.24 Reinstate all ground driven over and otherwise disturbed to even flowing gradients. Match reinstated levels to those of surrounding ground. Finished levels shall be free of humps, depressions and vehicle tracks. Rainwater shall not lie on reinstated ground nor on adjacent areas.

### **KILLING BRAMBLE AND BROADLEAF SCRUB**

- 3.25 Apply Fosamine Ammonium (e.g. 'Krenite' by Du Pont Ltd.), with a hand lance from a vehicle-mounted sprayer. Apply in August/September, to plants whose annual growth has stopped and whose buds have formed, but before foliage starts to change colour. Thoroughly wet all leaves and stems, but protect the foliage of any tree to be retained. Apply at 10 litres per hectare, in a solution of at least 1.5% 'Krenite' by volume. For water volume per hectare see manufacturer's instructions. Include a non-ionic wetter in the solution.

### **CLEARING BRAMBLE**

- 3.26 Cut bramble to ground level. Remove debris outside planting area and burn. Do not cut bramble thickets between 15th April and 31st June, to avoid destruction of nesting birds.

## DISPOSAL

- 3.27 The Contractor shall allow for the disposal off-site of all debris, prunings and rubbish relating to the landscape contract on site.

## 4.0 LANDSCAPE SPECIFICATION

### SITE PREPARATION

#### Standards of workmanship and materials

- 4.1 The Contractor shall satisfy the Landscape Architect that all works have been carried out to comply with BS:4428:1989 (General Landscape Operations) and BS:3936 (Nursery Stock).
- 4.2 It is essential that the site is tidy at all times and that the planting appears healthy. The Contractor should be prepared, at all times, to ensure that such conditions are met and should include for this in his rates.
- 4.3 Any material not meeting the specifications or qualifying for the approval of the Landscape Architect, for whatever cause, shall be rejected and replaced at the Contractor's own cost.
- 4.4 The Contractor shall familiarise himself with the layout of services and the positions of all structures on the site and shall be liable for any damage to the above.

#### Work by Machine Or Hand

- 4.5 All operations hereinafter described will be carried out by suitable approved machines or by hand. Any work around the bases of existing trees, saplings, footpath edges, manhole covers, underground services etc. which cannot be carried out by machine for any reason shall be executed by hand and the Contractor must include for this in his rates.
- 4.6 Unsuitable Weather
- 4.7 Excavation, filling, cultivation, planting and other works will be suspended in wet weather and when conditions are unsuitable and the Contractor shall allow in his prices for such eventualities.

#### Planting

- 4.8 Suitable weather conditions for planting will mean open weather (i.e. mild, dull and moist even in winter). Planting operations will be suspended in periods of drought, when soil is frost-bound or water-logged and in periods of persistent drying cold winds. The Landscape Architect reserves the right to halt the works should the Landscape Architect consider the working conditions or the weather unsuitable.

#### Planting Season

- 4.9 Containerised plants may be planted throughout the year provided the weather is considered suitable, the soil is sufficiently moist and each plant is watered following planting.
- 4.10 Planting outside the specified planting period will only be permitted in exceptional circumstances at the discretion of the Landscape Architect; such exceptional circumstance shall include unsuitable weather and no penalty shall be incurred under the heading of liquidated damages provided that any delay is formally accepted by the Landscape Architect as attributable to this cause. In the event that works are delayed by inclement weather, the Contractor shall complete them at the earliest opportunity afforded by suitable weather conditions.



### **Approved Chemicals**

- 4.11 All chemicals used will be non-toxic to human beings, birds and animals under normal use. No chemicals will be used for any purpose without the prior approval of the Landscape Architect. The Contractor will submit a list of all chemicals to be used to carry out the contract prior to commencement.

### **Planting Generally**

- 4.12 The Contractor shall be responsible for setting out all areas of planting to the approval and satisfaction of the Landscape Architect.

### **Notice of Intentions**

- 4.13 The Contractor will give 48 hours notice to the Landscape Architect of his intention to commence any of the following operations: setting out, construction, planting, seeding, fertilising, herbicide application and maintenance visits. Alternative notification requirements may be stated relating to specific items and this over-rule this general requirement.

### **Protection of Existing Vegetation**

- 4.14 The Contractor will take all precautions to protect in the course of his work, any existing plant materials from malicious or accidental damage and will ensure that no branches will be lopped and no roots over 50mm diameter severed from growing trees without express prior permission from the Landscape Architect.
- 4.15 All damaged plant material shall have all cuts made flush leaving no snags or any cut over 50mm diameter and no bruises or scars on the bark, the injured cambium will be traced back to living tissue and removed. Wounds shall be smoothed so as not to retain water and the treated areas will be coated with Tree Three or other approved tree wound paint.
- 4.16 No soil, spoil, constructional materials or rubbish will be stored or tipped and no construction plant or vehicles will be parked within the spread of existing trees, shrubs or hedges.

### **Preparatory Works**

- 4.17 All operations hereinafter described may be carried out by suitable approved machines or by hand. Any work around the base of existing trees, in confined spaces or which it is impracticable to carry out by machine for any reason, shall be executed by hand, and the Contractor must include or this in his rates.

### **Litter & Debris Removal**

- 4.18 All litter, debris and fly tipping, are to be removed from the entire area of the site before planting operations begin. No burning shall be allowed on site.

### **Planting Areas**

- 4.19 The Contractor shall clearly mark boundaries of all planting and seeding areas and obtain approval of setting out by the Landscape Architect before commencing work.

### **Weed Removal**

- 4.20 In areas to be ripped all aggressive perennial weeds, dock, thistles and nettles are to be eliminated from the site.

- 4.21 In areas where existing grass is to be removed and the soil cultivated a combined contact/ translocated herbicide is to be applied to remove all grass and weeds.

### Surface Cultivation

- 4.22 Surface cultivation will consist of ploughing or rotovating the topsoil to a minimum depth of 450mm over shrub areas, care to be taken to ensure that the subsoil is not brought to the surface. It shall then be worked to reduce the topsoil to a fine tilth.
- 4.23 After cultivation, all debris, perennial weeds and stones over 25mm in any dimension are to be removed off site.
- 4.24 Final grading is to be carried out to ensure the true specified level and slope and to avoid minor ridges, dishing or other depressions where water may collect.
- 4.25 Unless otherwise stated, finished levels of grass and shrub planting areas will be 50mm above adjoining paving or kerbs, retaining wall copings, manhole covers etc. and levels will be arranged to give gentle falls for drainage and to avoid ponding hollows.
- 4.26 Any area unduly compacted during the work of grading will be loosened by forking or harrowing. The use of heavy rollers to roll out mounds will not be permitted.

## PLANTS

### Plants Generally

- 4.27 All trees, specimen shrubs, shrubs and ground cover planting, shall conform fully to the specification in respect of species, size and quality. The Contractor shall name the supplier in his tender for approval by the Landscape Architect. All plants shall be well grown, sturdy and bushy according to type and free from all diseases and defects. Shrubs shall be container grown, rootballed or bare rooted as stated in the plant schedules. If container grown, root growth shall not have been restricted by the containers. The Landscape Architect reserves the right to reject any plant material (not previously approved) before or after planting if it does not conform to the specification. All plant material, which does not conform to the specification, will be automatically rejected and must be removed from site and replaced at the Contractors' expense.

### Materials

- 4.28 All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection. Aphis, Red Spider or other insect pest, and physical damage. It shall comply with the requirements of the following sections of B.S. 3936, Specification for Nursery Stock, where applicable:

- Part 1: 1992: Trees and Shrubs.
- Part 2: 1990: Roses.
- Part 4: 1989: Forest Trees.
- Part 5: 1985: Poplars and Willows.
- Part 10: 1981: Groundcover plants.

- 4.29 Plant material will also comply with the following where applicable:

*BS 5236 Recommendations for cultivation and planting of trees in advanced nursery stock.*

- 4.30 All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species.
- 4.31 Except for any cultivated varieties or exotic species which do not set viable seed in Ireland, all plants shall have been grown from seed.
- 4.32 The Contractor will be deemed to have advised his suppliers of the relevant sections of this specification, including all protection required, at the time of enquiry and shall in all cases be liable to replace materials brought on site, which are not in accordance with this specification.

### **Species**

- 4.33 All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated or otherwise coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the Contractor at his own expense.
- 4.34 Bundles of plants shall be marked in conformity with the relevant part of B.S. 3936. The Contractor shall replace any plants, which are found not to conform to the labels.

### **Shrubs and Climbers**

- 4.35 Shrubs shall be of the minimum size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, well grown, and with a good root system. Pots or containers shall be as scheduled. Plants shall not be pot bound, nor with roots deformed or restricted.

### **Inspection**

- 4.36 The Contractor will allow in his price for the up to 3 people of the Design Team to inspect all plant material in the nursery prior to any deliveries to site and the Design Team must be given at least 5 working days notice of any such deliveries in order to permit inspection.

### **Certification**

- 4.37 The Contractor will provide a certificate to the effect that all plant materials are fully in accordance with the specification. All plants will be inspected by the Landscape Architect at time of planting for variety and size, but approval from this inspection will not preclude rejection of plant material for defects which may appear later during the progress of the works.

### **Identification**

- 4.38 One plant of each group, bundle or batch of plants will bear a permanent label of metal or other indestructible material, securely attached, having the full botanical name thereon.

### **Substitution or Size Variations**

- 4.39 Upon submission of substantial evidence that certain plant materials are not available at the time of contract, the Contractor will be permitted to substitute other plants with the approval of the Landscape Architect with an adjustment of price if necessary to that originally specified.

## Damage

- 4.40 All plants are to be adequately and carefully packed and protected to survive transport, by whatever means, to the site, without damage in loading, transit or unloading. If, in spite of these precautions, roots, branches or shoots suffer slight damage they are to be carefully pruned. If major damage has occurred the plants will be rejected and replaced at the Contractor's own expense.

## Heeling In

- 4.41 If plants cannot be planted immediately upon arrival they will be heeled in or their roots be adequately covered with moist hessian or, good quality topsoil for a maximum period of 10 days. The roots are to be kept moist throughout this time by adequate watering; water-logging shall be prevented, as shall exposure to wind, frost or direct sunlight. Any plants, trees or shrubs (bareroot, rootballed or containerised) which fail due to inadequate protection prior to planting will be rejected and shall be replaced at the Contractor's own expense.

## PLANTING

### Planting Generally

- 4.42 Bare root planting shall be carried out during the period up to the end of 15th March 2xxx in suitable open weather, unless otherwise instructed by the Landscape Architect. Planting of containerised material may be permitted outside this period with the Landscape Architect's approval. Planting will not be permitted during periods of drought, frost or cold drying winds nor when the ground is water-logged.
- 4.43 All planting operations shall be carried out in accordance with BS:4428 and good horticultural practice. Particular attention must be paid to correct depth of planting ensuring the soil is firmed in around the roots.
- 4.44 Prior to planting all broken roots must be carefully pruned back and any snags to the crown carefully cut back. Bad bruising or abrasion of their cambium must be treated with "Tree Three" or equal and approved tree paint. Roots must be kept well moistened before planting in the prepared pit.

### Herbicides

- 4.45 The Contractor may use alternative formulations of the below herbicides, by other manufacturers, with the prior approval of the Landscape Architect. Such alternative formulations shall be applied to give the same degree of control as the application provided for in the Schedules of Quantity.
- **Glyphosate** - 'Roundup' by Monsanto Chemicals Ltd. Do not apply when rain is forecast within six hours. Do not apply when wind is likely to cause spray drift (over 24 kph/15 mph). Allow leaf symptoms to develop before carrying out any cultivation.
  - **Basta** - by Hoechst Ltd. Do not spray when wind is likely to cause drift (over 24 kph/15 mph). Protect all foliage of transplants or shrubs.
  - **Propyzamide** - 'Kerb 50W'. Apply between 1st October and 20th December only, when ground is damp. Ensure complete cover of the ground.

## Weedkiller Application

- 4.46 All weedkiller shall be applied to manufacturers' recommendations with properly designed equipment, maintained in good working order and calibrated to deliver the specified volume, evenly and without local over-dosing.
- 4.47 The Contractor may, with the Landscape Architect's prior agreement, apply foliar acting weedkillers with an ultra low-volume applicator. The rate of application shall be such as to achieve the same control as the general rate specified. Such application shall not be used post-planting, nor with fosamine ammonium.

## Fertilisers

- 4.48 Controlled release fertiliser N:P:K 15:9:11 plus trace elements - Osmocote plus or similar approved applied at specified rates.
- 4.49 Fertiliser shall be supplied in sealed bags or containers bearing the manufacturer's name, the net weight and analysis.

## Cultivation

- 4.50 The Contractor shall cultivate planting areas to break up the soil to a depth of 450 mm by the use of suitable machinery. After cultivation the areas is to be graded, stone picked and all stones, debris and the like in excess of 25mm in any dimension shall be removed from site.

## Rabbit Protection Guards

- 4.51 Tubex Spiral guards, PVC 600 mm high x 38 mm diameter. Brown in colour.

## Mulch

- 4.52 Horticultural graded bark from coniferous trees, particles 25-75mm, free of fine material, dust or wood. Spread to 50mm deep, over full areas of planting described in the schedule.

## Protection

- 4.53 The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from wind and frost, from drying out and from pilfering. Bare rooted plants not immediately required shall be heeled-in in a prepared trench, the bundles of plants first having being opened, the plants separated and each group separately heeled-in and clearly labelled. The roots shall be covered with moist peat or soil and shall be kept moist until planted. Pots shall not be removed until plants have been carried to their planting station. Plants packed in polythene must be stored in shade.
- 4.54 All forest transplants and bare root shrubs shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.
- 4.55 Plants shall be handled with care at all times, including lifting in and dispatch from the nursery. Plants or bundles of plants shall not be tossed, dropped or subjected to any stress likely to break fine roots.

## Damage

- 4.56 Any roots damaged during lifting or transport shall be pruned to sound growth before planting. On completion of planting any broken branches shall be pruned.

## Vine Weevil

- 4.57 All plant material shall be free of eggs, larvae and adult form of vine weevil. Prior to material arriving on site all material shall have been treated for vine weevil. A statement of the vine weevil protection plan shall be provided by the plant nursery if requested.
- 4.58 When material arrives on site line out all container grown plants on level ground. Drench pots with 40 g of 40% Diazinon W.P. in 100 litres water. Allow to stand for at least three days before planting.

## Soil Conditions

- 4.59 Planting shall be not carried out while the ground is frozen or waterlogged, or during periods of drought. Ripping shall be carried out only when the ground is dry enough to fracture. Cultivations shall not be carried out when the ground is frozen or waterlogged.

## Watering

- 4.60 All root balled and pot grown plants shall be well soaked before planting. All planting shall be watered after planting, to consolidate soil around the roots, unless ground is so wet as to make additional water unnecessary.

## Setting Out

- 4.61 Setting out shall be from figured dimensions where indicated, and otherwise by scaling. All planting areas shall be set out and agreed with the Landscape Architect prior to any planting.
- 4.62 Shrubs and ground covers planted in mass shall be at the spacing indicated on the drawings. Shrubs shall not generally be planted closer to a kerb or to the edge of a planting area than a distance equal to half the spacing indicated for that species.

## Ripping

- 4.63 Rip disturbed ground with a three-tine ripper 600 mm dep. The tines shall be mounted in a tool bar on a hydraulic parallelogram linkage, fitted to w 300-400 h.p. crawler tractor (Caterpillar D8 or similar). One tine shall be mounted centrally, with the outer tines mounded in each wheel track. The outer tines shall be fitted with 300 mm wings to both sides. The maximum distance between the outer tine tracks in adjacent passes of the ripper shall be 1200 mm. Do not travel over any ground with the machine after ripping.

## Topsoiling

- 4.64 Topsoil will be placed by the landscape contractor. After pit/trench excavation, break up base of beds and trenches min. 150mm deep. Incorporate ameliorant and fertilizer, into topsoil as specified and scheduled before backfilling planting pits and hedge trenches.

## Site Preparation

**Preliminary Weedkilling:** 'Roundup' @ manufacturers' recommendations.

**Trees: Set out.** Spray off grass 1000mm dia. backfilled with ameliorants/excavated material.

Hedge Trench: Weedkill. Excavate trench 450x450mm. Add ameliorants as follows, incorporate evenly into excavated material and backfill; -

Organic matter	:	75mm
Fertiliser	:	40g/lin.m
Fertiliser I.B.D.U.	:	40g/lin.m.

**Shrub Planting and Groundcover: Weedkill. Spread over all planting areas:-**

Organic Manure	:	50 mm deep
Fertilizer 0:10:20	:	35 g/sq.m.
Fertilizer I.B.D.U.	:	35 g/sq.m.

Cultivate beds 225mm deep, incorporating ameliorants evenly. Remove rubbish and stones over 50mm dia.

## Hedge Planting

- 4.65 Excavate a planting trench along the centreline of the prepared trench, to receive the plants at the same depth as in the nursery. Set out plants in a single straight line, in the centre of the hedge trench, evenly spaced at the centres shown on the drawings. Backfill carefully, consolidating the soil carefully around the roots, and leaving the plants vertical and in line. Cut back plants before or after planting, as scheduled. Where timber post and rail fence with netting wires are required, erect fence after trench excavation and prior to hedge planting.

## Planting of Shrubs

- 4.66 Prior to planting all bare rooted plants shall be completely immersed in a container of Algisure Root Dip (1:99) solution and container grown plants shall be sprayed with the solution in accordance with the manufacturers instructions.
- 4.67 All plants will be planted in an excavated pit to the dimensions specified in the Schedule of Quantities or to give 50mm minimum growth space (whichever is the greater) to accommodate root spread. Where turfing or seeding has been carried out prior to planting, canvas, hessian or other suitable material will be laid around the pit to receive excavated soil.
- 4.68 The Contractor shall mix planting compost and Slow Release fertiliser, at the rates stated in the Schedule of Quantities, with sufficient excavated topsoil and place 50mm of the mix at the bottom of the pit. The plants shall be carefully removed from the container and shall be placed in the pit and carefully backfilled with the mix ensuring that the planting depth is correct, the total root system is covered and the plant is firmed in. Any surplus topsoil shall be spread evenly over the surrounding area.
- 4.69 After planting the plants shall be thoroughly watered to field capacity and the planting area left clean and tidy. If planting is performed after grass area preparation, proper protection to grass areas should be provided and any damage resulting from planting operations removed promptly.
- 4.70 The Contractor shall allow for the watering of plants to field capacity as and when necessary, until practical completion is achieved. Water will be available on site and will be applied with a method of application to be agreed with the Landscape Architect. The Contractor will allow for transporting the water to planting areas indicated in the contract drawings.

- 4.71 On completion of planting, any broken branches shall be pruned, damaged areas of bark shall be neatly pared back to sound tissue and all cuts and wounds over 25mm in diameter shall be treated with a fungicidal sealant.
- 4.72 Additional Specifications for C.G. Plants:- Remove all plastic and non-degradable wrappings and containers before planting. Make four vertical cuts with a sharp knife on the quadrants through the edge of C.G. rootballs to sever girdling roots. Excavate hole to min. 10 cm greater diameter than the root spread, and to a depth to allow planting to same depth as in the nursery. Spread out roots of bare root species. Backfill in layers of not more than 10 cm, firming each layer and on completion.

### Tip Pruning

- 4.73 Include for tip pruning of all Extra Heavy standard trees. Pruning will be undertaken to reduce the crown volume, while retaining a proportion of live buds on each branch. The extent of pruning for each species will be instructed on site. Leading shoots shall not be pruned.

### Cutting Back

- 4.74 Plants scheduled for cutting back shall be cut back after inspection. They may be cut back before or after planting. Cut back to approx. 200 mm above ground level, making a sloping cut slightly above a live bud. Cuts shall be made with a sharp pruning knife.

### Workmanship

- 4.75 A high quality of finish will be expected at all times on this prominent site.
- 4.76 Transplants: Leave ground free of superficial debris including all stones and debris over 50mm diameter, and weeds
- 4.77 Shrubs and Mixed Transplants/Shrubs: Leave surface reasonably even, free of all stones and debris over 50mm diameter, free of weeds.
- 4.78 Shrubs and Ground Covers: Rake off surface, to leave even, free of all stones over 30mm diameter, and free of weeds, before mulching.

### Replacements

- 4.79 The planting will be inspected in Spring and again in the September following planting. Any shrubs found to have died from any cause except as provided below or the work of other Contractors shall be replaced by the Contractor at his own expense. Replacement planting shall conform in all respects with this Specification, including all specified excavation, provision and incorporation of all fertilizers and ameliorants, and weedkiller treatments.
- 4.80 Failures will not be charged to the Contractor in the following cases:-
- Damage by hares or rabbits, where not protected by fencing or shelters.
  - Damage by livestock, where not protected by fencing.
  - Failure solely due to prolonged dry weather, except where the Contractor will be responsible for watering.
  - Losses due to theft, vandalism or disturbance by other Contractors.
  - Persistence of weed in planted areas will be regarded as a contributory cause of failure due to drought. Prolonged dry weather will not



exonerate the Contractor if the scheduled aftercare operations have not been carried out as programmed.

## **5.0 GRASS**

### **SEEDING**

#### **Seeds**

- 5.1 Seeds shall be of the specified varieties and cultivars and shall conform in all respects to the European Communities (Seed of Fodder Plants) Regulations, 1976.
- 5.2 Seeds shall be obtained only from a firm registered as a Seed Mixer under the said Regulations. Each bag of mixed seed shall be labelled inside and outside in accordance with the Regulations. The Contractor shall produce a certificate from his supplier stating the varieties used in the mixture, if not indicated on the label.
- 5.3 The Contractor shall include for a sample of 250 grammes to be taken by the Landscape Architect for testing composition, purity and germination, of each specified mixture.
- 5.4 The varieties of seed to be used shall not be altered without the Landscape Architect's written agreement. Agreement will be given only if the specified variety is not available in Ireland, and can not be imported within the time required. The Contractor shall be responsible for ordering materials in good time to meet his programme.

#### **Seed Mixture**

- 5.5 The seed mixture shall be:
  - 30% Abernille (Stay green perennial ryegrass)
  - 40% Camilla (Strong creeping red fescue)
  - 25% Olivia (Chewings fescue)
  - 5% Highland (Browntop Bent).Sowing rate of 20g/m sq  
Cutting down to 20mm

Ensure that the correct mixture and seed rate are used for each area of grass seeding. Retain all labels from seed bags and hand over to the Landscape Architect, together with a delivery note or invoice stating the quantity of each mixture supplied for the works.

#### **Fertilizer**

- 5.6 10:10:20, N:P:K - supplied in bags bearing the names of the manufacturer, the analysis of the contents and the net weight. The Contractor shall produce to the Landscape Architect the original delivery docket or invoice stating the quantity supplied for these works.

#### **Pre-Seeding Weedkiller**

- 5.7 The Contractor may use alternative formulations of the below herbicides, by other manufacturers, with the prior approval of the Landscape Architect. Such alternative

formulations shall be applied to give the same degree of control as the application specified.

- **Glyphosate:** 'Roundup' by Monsanto Chemicals Limited. Do not apply when rain is forecast within six hours. Do not apply when wind is likely to cause spray drift (over 24 kph/15 mph). Allow leaf symptoms to develop before carrying out any cultivations (at least 7 days).
- **Basta:** by Hoechst Ltd. Do not spray when wind is likely to cause drift (over 24 kph/15 mph).

- 5.8 All weedkiller shall be applied with properly designed equipment, maintained in good working order and calibrated to deliver the specified volume, evenly and without local over-dosing.
- 5.9 Follow the manufacturer's instructions for the use of weedkillers, and for all safety precautions.

### Post Emergence Weedkiller

- 5.10 'Actrilawn 10' by May and Baker Ltd., used in accordance with the manufacturer's instructions.
- 5.11 Apply 'Actrilawn' when grasses have reached the two-leaf stage or beyond, and when seedlings have emerged and have reached cotyledon or two-leaf stage (approx. 4 weeks after sowing). Do not mow within 7 days of treatment. Do not apply during drought. Apply on a fine, still, warm day.

### Machinery

- 5.12 All machinery shall be in good and serviceable condition. Harrows and cultivators shall have their full complement of tines, which shall be sharp, effective, and set to give the specified depth of cultivation. Plough shares and ripping chisels shall be sharp, and set to the specified depth. Mowers shall be sharp and evenly set to the specified height, and shall in use avoid pulling or laying the sward.
- 5.13 Tractors for use in ripping shall be four-wheel drive or tracked. All tractors shall be fitted with position control to ensure even cultivation, at the minimum specified depth.

### Weather

- 5.14 All work to soil shall be carried out in dry weather, and when the soil can be reduced to a friable condition, avoiding smearing or panning, and rutting and compaction by tractors.
- 5.15 Seeding shall be carried out in the fine, still weather. Seed shall not be permitted to fall onto hard surfaces or into planting areas. Any grass germinating there shall immediately be treated with a total weedkiller at the Contractor's expense.

### Weedkilling

- 5.16 Application: Killing existing grass pre-seeding, and killing weeds germinating in re-spread topsoil. Apply 'Roundup' to manufacturers' recommendations.
- 5.17 If germinating weed grasses are less than 100mm high and broad leafed weeds have not produced full-sized leaves, apply 'Basta' to manufacturers recommendations 4 to 7 days before cultivating.

## Ripping

- 5.18 Where directed rip 300mm deep below finished level, with ripping tines set at max. 600mm apart. Rip with tines set on bar, mounted on a crawler tractor. One tine shall be set centrally in each wheel track of the tractor. Rip only in dry weather conditions, when soil will fracture. Rip in two transverse directions.

## Ploughing

- 5.19 Plough 150mm deep over whole surface of field, parallel to the maximum fall of the land, breaking and turning over the furrow slice. Do not smear the topsoil/subsoil surface.

## Cultivation

- 5.20 The Contractor shall cultivate the site to break up the full depth of topsoil by two passes in transverse directions of suitable machinery and a tilth up to 25 mm suitable for seeding shall be produced in the topsoil by rotovating and/or chain harrowing. Remove weeds and roots, metal items and rubbish. The bed shall be fine, smooth, evenly firmed but not over consolidated.
- 5.21 Hand cultivations shall be carried out to achieve the same finish on areas where machine cultivations are impossible, i.e. adjacent to kerbs, manholes, small grass areas and footpath junctions.
- 5.22 Bar levels or other machinery, which may cause excessive or uneven compaction shall not be used. Any areas, which in the opinion of the Landscape Architect have been over compacted, shall be forked over and worked over until a suitable seedbed is produced.
- 5.23 On completion of cultivations, the surfaces shall be lightly graded to running levels.
- 5.24 Surplus vegetable matter, rubbish and stones having any dimensions greater than 25mm shall be collected and removed from the site by the Contractor.
- 5.25 If rotary cultivators are used, the ratio of tractor speed to tine speed shall be sufficient to avoid smearing at the base of the cultivation.

## Final Raking And Harrowing

- 5.26 In preparation for sowing the surface will be lightly and uniformly firmed and reduced to a fine tilth up to 25mm in depth by raking or harrowing stones exceeding 25 mm in size in any direction will be removed from the surface. Raking and harrowing to produce a full tilth will include marrying in with adjoining soil areas.

## Final Grading

- 5.27 Where required, areas to be grassed will be finely graded during cultivation with a light blade grader to bring them to a uniform and even grade at the correct finished levels and to remove all minor hollows and ridges. This operation will only be carried out when the soil is in reasonably dry and crumbly condition.

## Fallow Period

- 5.28 The Contractor shall include in his tender price for carrying out any cultivation from time to time, as and when instructed by the Landscape Architect, to destroy all weed growth if owing to the time of year, weather, or other causes, there is a period of waiting between completion of topsoiling and preparation and the actual seeding operations.

## Ameliorants

- 5.29 Incorporate ameliorants described in the operations schedule to the full specified cultivation depth, with at least four passes of cultivators. Mix ameliorants evenly into soil throughout the cultivated depth.

## Finishes

- 5.30 Topsoil shall stand 30mm proud of manholes, paths and kerbs after cultivation and firming. Areas of subsidence will be rectified by releveling with additional topsoil and then followed grass turving to match the surrounding grass areas to the approval of the Landscape Architects.

## Fertilizer

- 5.31 During last stages of cultivation, apply fertilizer evenly over the full area of seeding in two equal passes in transverse directions, and incorporate into the seed bed up to 50 mm deep.

## Seeding

- 5.32 Grass seed shall be sown to the rates stated.
- 5.33 No seeding will be carried out until the cultivation and preparatory work have been approved by the Landscape Architect.
- 5.34 Before seeding, seed beds shall be firm. If soil is puffy, roll at end of cultivation sequence. A slight impression of a heel (12mm) will indicate an acceptable standard.
- 5.35 Sowing shall be carried out during suitable calm weather conditions using an efficient broadcast machine for large areas or by hand in small areas and confined spaces. The operation will be carried out in equal sowings in transverse directions.
- 5.36 Broadcast seed evenly through a calibrated machine over the whole area in two equal passes in transverse directions, to the total rate specified. Seed shall be thoroughly re-mixed before sowing.
- 5.37 After sowing the ground will be raked or chain harrowed, then rolled and cross-rolled with a lightweight roller. All stones exceeding 25mm in any direction, which are brought to the surface during this operation, will be removed. Where the ground cannot be rolled, due to gradient, all stones exceeding 25mm in any direction will be removed.
- 5.38 All seeded areas will be top dressed with a spring fertiliser in April, to be applied at the manufacturer's recommended rate and requirements.
- 5.39 All damaged grass areas will be made good with either approved turf or re-seeded in accordance with this specification.
- 5.40 Depressions and subsidence must be made good prior to the end of the maintenance period and any damage to the grass made good.

## First Cut

- 5.41 About 48 hours before topping, stones (over 25mm diameter) will be removed and grass areas rolled with a light roller to firm grass and press in remaining stones.
- 5.42 Arisings shall not be deposited on paved surfaces or planting areas.
- 5.43 When the grass reaches 75mm height or otherwise as instructed, it will be topped with a suitable cutter so as to leave 50mm growth.

## Grass Cutting

- 5.44 The grass is to be cut 22-26 times per year. This may be broken down as follows for the months November-February cut once a month and for the remainder of the year the grass should be cut once every two weeks. The grass is to be kept between 20-30mm in length. All litter to be removed prior to cutting. Grass edges are to be trimmed three times per year, and grass to be weeded four times a year.

## Quality

- 5.45 The quality of the grass sward which the Contractor is to produce is defined in the Performance Standards. The Contractor shall make good any areas not of this quality. Make up and seed over any depressions which develop after seeding. Recultivate and re-seed any areas which fail to germinate or which die off.

## GRASS TURFING

### Ground Preparation

#### General

- 5.46 The areas to which these specifications apply and on which topsoil is to be spread shall be as indicated on the drawings or as otherwise specified. This Contractor shall furnish equipment, labour and materials necessary for preparation of the specified areas.

#### Grading

- 5.47 Grades on the areas to be topsoiled which have been previously established in conformance with the drawings and/or other applicable specifications shall be maintained in a true and even grade.

#### Low pH Correction

- 5.48 Where the subsoil is highly acid, a reputable laboratory shall test it and a pH correction material shall be spread at a rate sufficient to correct the pH to a range of 6.0-7.0. The material shall be distributed uniformly over the designated areas and worked into the soil.

#### High pH Correction

- 5.49 Saline and alkali soils may be found in areas near sea water. In many of these soils, the salts can be leached, but other soils will require special amendments or management. In areas where these soil characteristics may occur, a reputable laboratory shall test subsoil samples and subsequent recommendations, to include a possible delay in topsoil addition, shall be followed.

#### Cultivation

- 5.50 After the areas to be topsoiled have been brought to grade, compacted where necessary and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by disking or by scarifying to a depth of at least two inches to permit bonding of the topsoil to the subsoil.

## Acceptance

- 5.51 Acceptance shall be given by the general contractor, owner, architect or their agent upon satisfactory completion of each section or area as indicated on the drawings or as otherwise specified.

## TOPSOIL MATERIAL AND APPLICATION

(NOTE: Topsoil on the existing site may often be used but it should meet the same standards as set forth in these specifications.)

## Materials

- 5.52 Topsoil shall be a loamy sand, sandy loam, clay loam, loam, silt loam, sandy clay loam or other soil approved by the Landscape Architect. It shall not have a mixture of subsoil and contain no slag, cinders, stones, lumps of soil, sticks, roots, trash or other extraneous materials larger than 1 1/2 inches in diameter. Topsoil must also be free of viable plants or plant parts of weeds such as thistle, dock, dandelion, ragwort and bindweed. A reputable laboratory for pH and soluble salts shall test all topsoil. If needed, pH correction material shall be applied at a rate sufficient to correct the pH to a range of 6.0-7.0. Soluble salts shall not be higher than 500 parts per million.
- 5.53 No turfgrass sod shall be placed on soil, which has been chemically treated until sufficient time has elapsed to permit dissipation of all toxic materials. This Contractor shall assume full responsibility for any loss or damage to turfgrass sod arising from improper use of chemicals or due to his failure to allow sufficient time to permit dissipation of toxic residues, whether or not such materials are specified herein.

## Grading

- 5.54 The topsoil shall be uniformly distributed on the designated areas and it shall be a minimum of three inches after firming. Spreading shall be performed in such a manner that sod installation can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed for turfgrass sod installation.

## Clean Up

- 5.55 After the topsoil has been spread and the final grades approved, it shall be cleared of all grade stakes, surface trash and other objects that would hinder installation and/or maintenance of turfgrass sod and other plantings. Paved areas over which hauling operations are conducted shall be kept clean, and any soil, which may be brought upon the surfacing, shall be promptly removed. The wheels of all vehicles shall be kept clean to avoid tracking soil on the surfacing of roads, walks or other paved area.

## Acceptance

- 5.56 Acceptance shall be given by the general contractor, owner, landscape architect or their agent upon satisfactory completion of each section or area indicated on the drawings or as otherwise specified.

## **FERTILIZER, pH CORRECTION MATERIALS AND FINAL SOIL PREPARATION**

### **Materials**

- 5.57 Soil tests shall be made to determine the exact requirements for any amendments. Soil tests shall be conducted by a reputable laboratory.

### **Fertilisers**

- 5.58 All fertilisers shall be uniform in composition, free flowing and suitable for application with approved equipment. Fertilizers shall be delivered to the site fully labelled according to applicable state fertilizer laws and shall bear the name, trade name or trade-mark, and warranty of the producer/manufacturer.
- 5.59 Fertilizer application rates shall be determined by soil tests. If soil testing is waived when there is insufficient time for a complete soil test, fertilizer materials which supply the following levels of nutrients can be applied. Fertiliser shall be distributed evenly over the area to be sodded.

### **Low pH Correction Materials**

- 5.60 Lime material shall be ground limestone (hydrated or burnt lime may be substituted), which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Ground limestone shall be ground to such fineness that at least 50% will pass through a 100-mesh sieve and 98% to 100% will pass through a 20-mesh sieve.
- 5.61 Application rates for liming materials shall be determined by soil tests. (If soil testing is waived when there is insufficient time for a complete soil test, lime shall be applied at a minimum rate of pounds of ground limestone or its equivalent per 1000 sq. ft.). Lime shall be distributed uniformly over the entire area to be sodded.

### **High pH Correction Materials**

- 5.62 Materials and application rates shall be determined by appropriate soil tests performed by a reputable laboratory. If leaching or special management is necessary, final grading will be delayed as specified.

## **GRADING**

### **Tillage**

- 5.63 Soil amendments such as lime and fertilizer shall be uniformly mixed into the top four inches of soil by discing, harrowing or other approved method.

### **Final Grading**

- 5.64 Any undulations or irregularities in the surface resulting from fertilizing, liming, tilling or other causes shall be smoothed prior to turfgrass installation. Flooded, washed out areas damaged or otherwise, shall be reconstructed and all grades re-established by the Contractor in accordance with the drawings and/or other applicable specifications.

### **Clean Up**

- 5.65 Prior to sod installation, the surface shall be cleared, to a depth of four inches, of all trash, debris and stones larger than 1 1/2 inches in diameter and of all roots, brush,

wire, grade stakes and other objects that would interfere with planting or maintenance operations.

### **Acceptance**

5.66 Acceptance shall be given by the general contractor, owner, architect or their agent upon satisfactory completion of each section or area as indicated on the drawings or as otherwise specified.

### **Contractor's Responsibility**

5.67 The Contractor shall be responsible for maintaining the accepted areas which are to be sodded until the effective date to begin installation. The effective sod installation date shall be specified in a written notice from the Contractor.

### **Payment**

5.68 Specifications or method of payment, retainer and final payment shall be as appropriate to the industry in this area.

### **Material**

5.69 Turves to be **Martyn's Low Grow** or similar approved

### **Thickness of Cut**

5.70 Turfgrass sod shall be machine cut at a uniform soil thickness of 1.6cm, plus or minus .6cm, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.

### **Pad Size**

5.71 Individual pieces of turfgrass sod shall be cut to the supplier's standard width and length. Maximum allowable deviation from standard widths and lengths shall be plus or minus one-half inch on width and plus or minus five percent on length. Broken pads and torn or uneven ends will not be acceptable.

### **Strength of Sod Sections**

5.72 Standard size sections of sod shall be strong enough that when grasped at one end, it can be picked up and handled without damage.

### **Moisture Content**

5.73 Turfgrass sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

### **Mowing Height**

5.74 Before harvesting, the turf shall be mowed uniformly to a height of 2.5cm on rye and fescues and 1.25cm on bent grass.

### **Time Limitations**

5.75 Turfgrass sod shall be harvested, delivered and installed/transplanted within a period of 36 hours unless a suitable preservation method is approved prior to delivery. Turfgrass sod not transplanted within this period shall be inspected and approved by the inspecting officer or his representative prior to its installation.



## Thatch

5.76 Turfgrass sod shall be relatively free of thatch, up to 1.25cm allowable (uncompressed).

## Diseases, Nematodes and Insects

5.77 Turfgrass sod shall be reasonably free of diseases, nematodes, and soil-borne insects.

## Weeds

5.78 Nursery Grown Turfgrass Sod: shall be free of objectionable grassy and broad leaf weeds. Turfgrass sod shall be considered free of such weeds if less than five such plants are found per 100 square feet of area.

5.79 Turfgrass sod will not be acceptable if it contains any of the following weeds:

- bindweed, dandelion, daisy, dock, thistle, helexine, trefoil
- Field Turfgrass may contain no more than 10 weeds per 100 square feet of area. Turfgrass sod will not be acceptable if it contains any of the weeds listed above.

## Inspection

5.80 The grower will submit to the Purchaser prior to delivery, information as to the field location, species and percentage purity of the turfgrass sod he intends to deliver.

## Transplanting

a) **Moistening the Soil:**

During periods of higher than optimal temperature for the species being specified and after all unevenness in the soil surface has been corrected, the soil shall be lightly moistened immediately prior to laying the turfgrass sod.

b) **Starter Strip:**

The first row of turfgrass sod shall be laid in a straight line with subsequent rows placed parallel to and tightly against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Care shall be exercised to insure that the pieces are not stretched or overlapped and that all joints are butted tightly to prevent voids that would cause air drying of the roots.

c) **Sloping Surfaces:**

On 1:3 or greater slopes, turfgrass sod shall be laid across the angle of the slope, with staggered joints and secured by tamping, pegging or other approved methods of temporarily securing each piece.

d) **Watering and Rolling:**

Contractor shall water the turfgrass sod immediately after transplanting to prevent excessive drying during progress of the work. As sodding is completed in any one section, the entire area shall be lightly rolled. It shall then be thoroughly watered to a depth sufficient that the underside of the new sod pad and soil immediately below the

pad are thoroughly wet. The Contractor shall be responsible for having adequate water available at the site prior to and during installation.

### **Acceptance**

5.81 Acceptance of the transplanted turfgrass sod shall be on a daily basis, within 12 hours of completion of an area or section, unless otherwise specified.

### **Disclaimer**

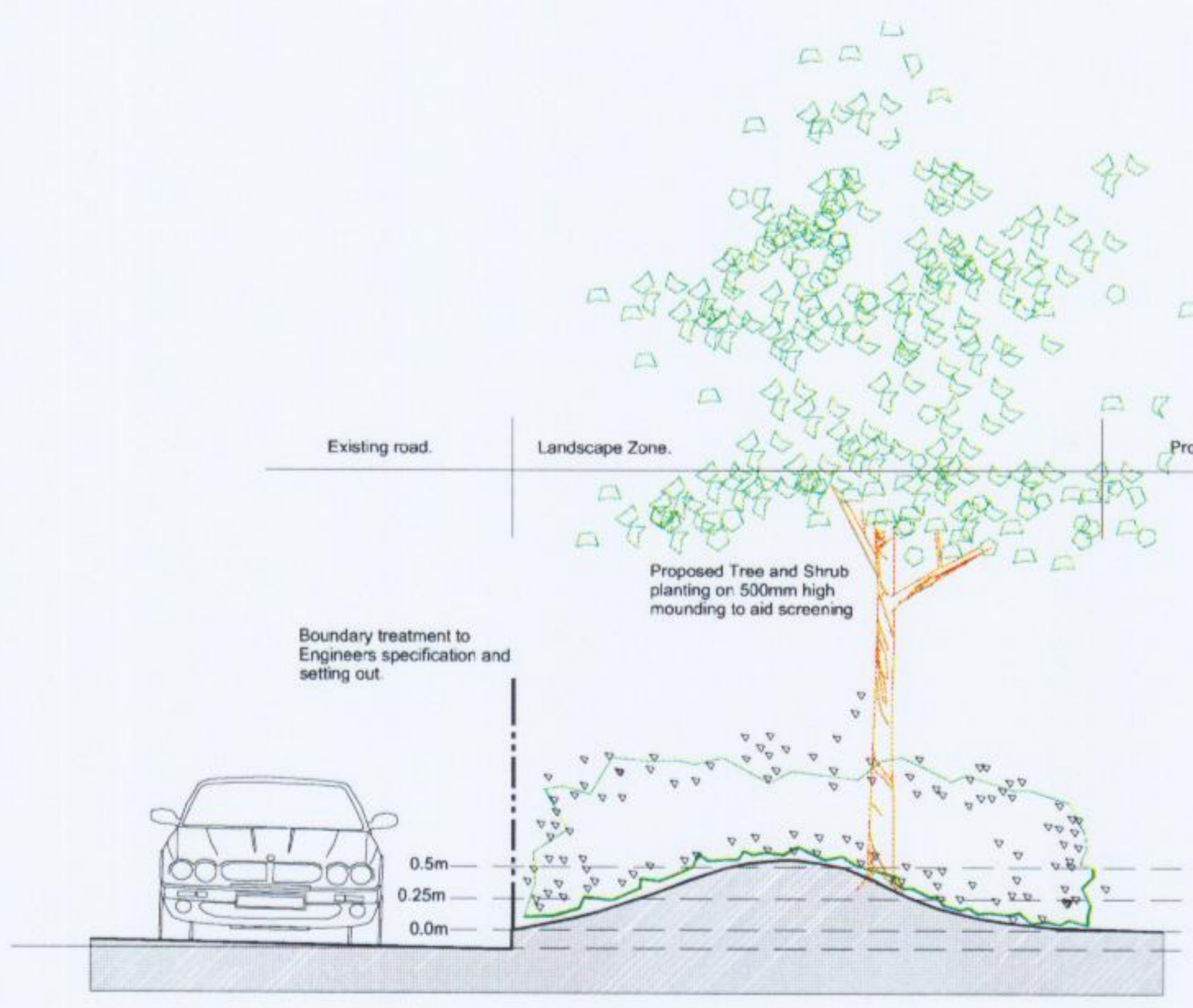
5.82 The Contractor shall not be held liable for damages incurred to the turfgrass sod caused by deicing compounds, fertilizers, pesticides or other materials not applied by him or under his supervision nor for those caused by acts of God or vandalism.

### **Guarantee**

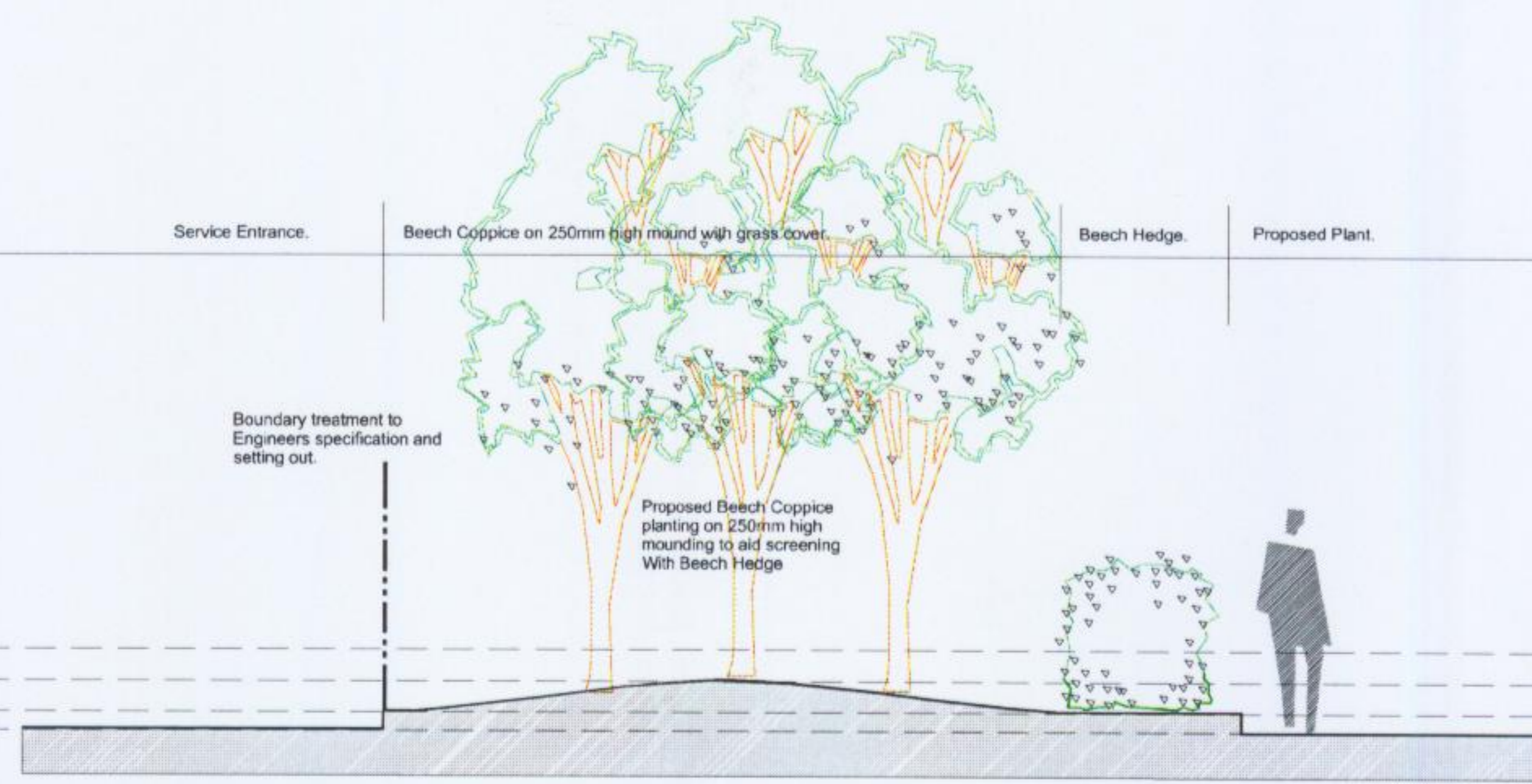
5.83 The Contractor shall guarantee work covered by this specification to the extent that all transplanted turfgrass sod shall be uniform in colour, leaf texture and shoot density and be reasonably free of visible imperfections at acceptance.

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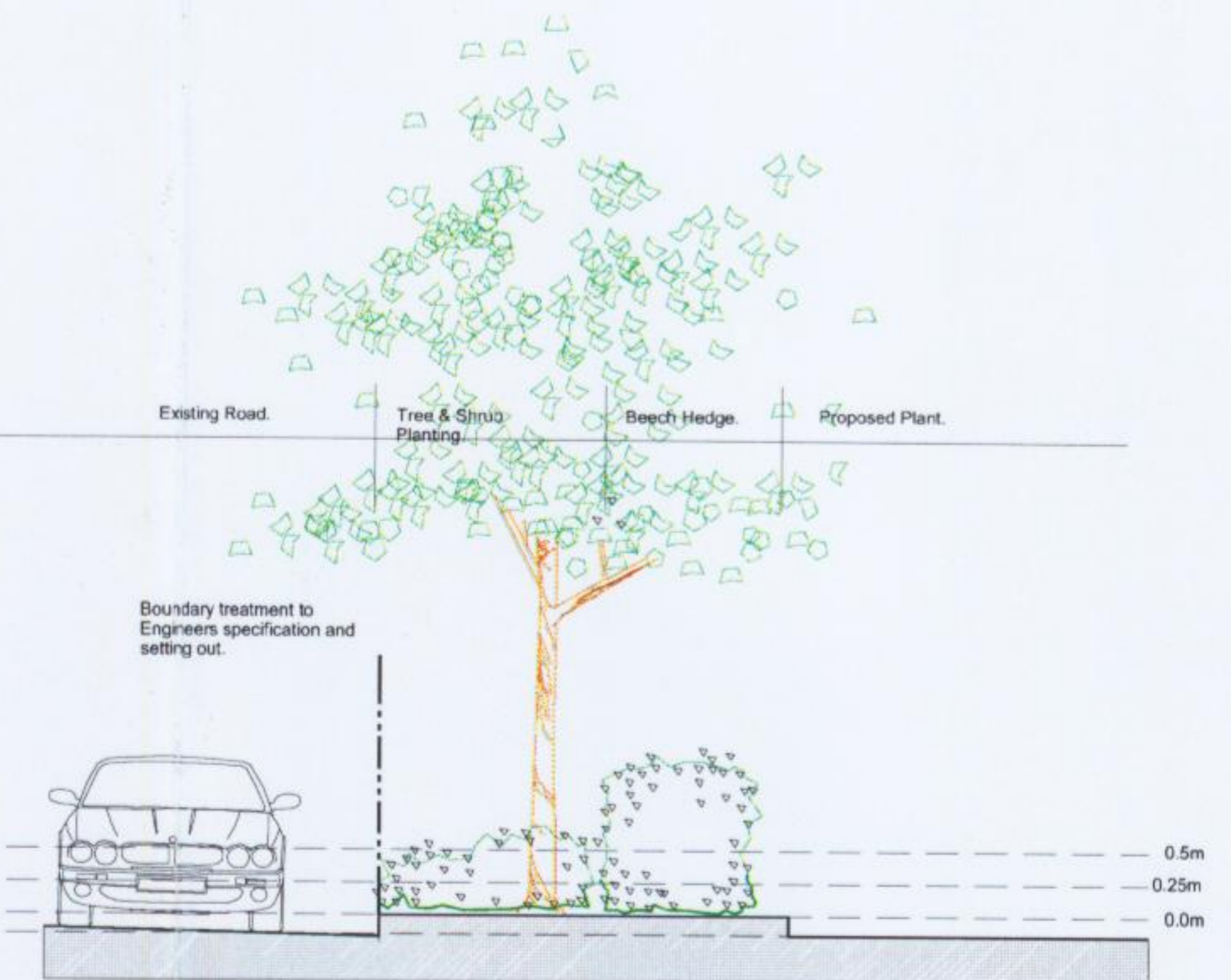




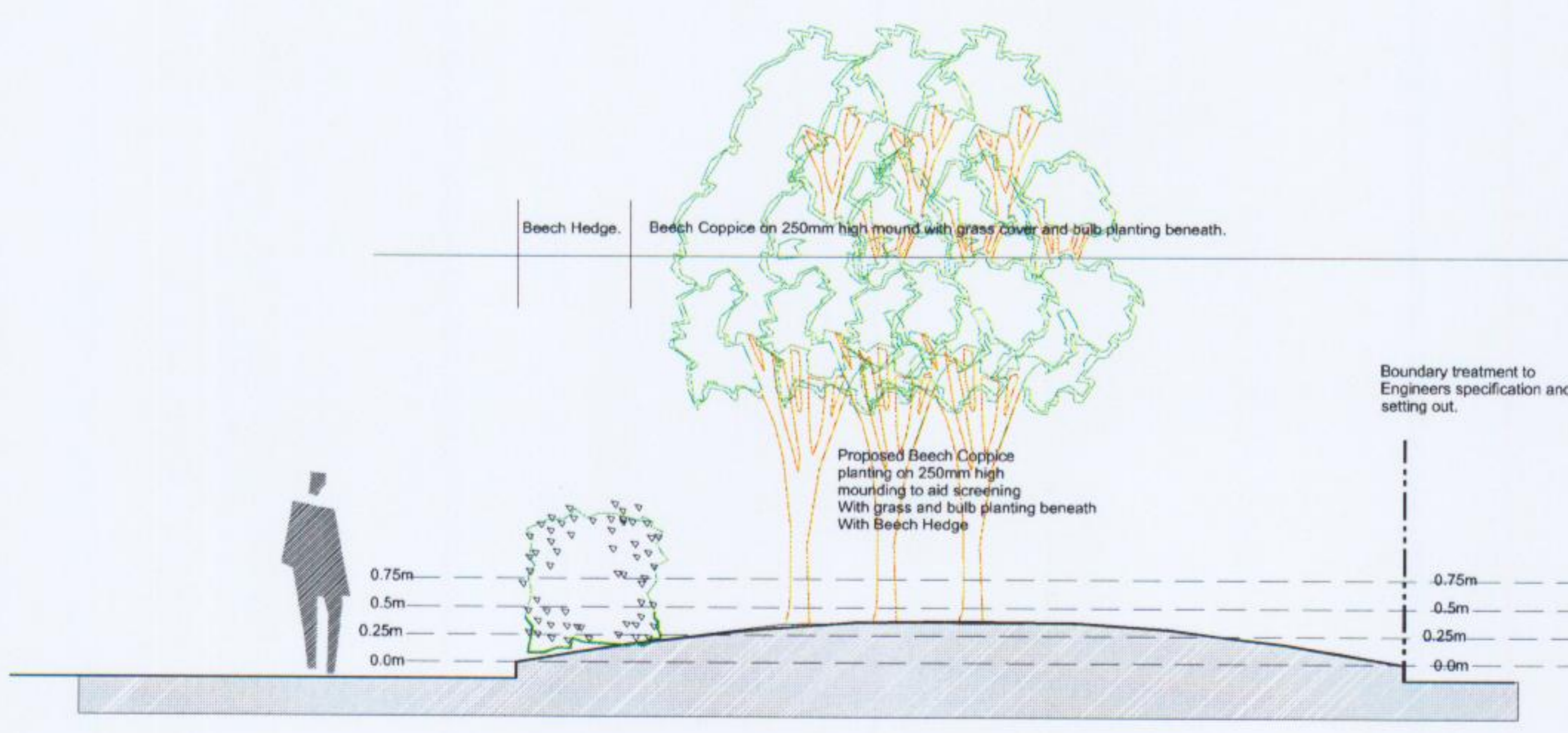
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Scale @ 1:20.



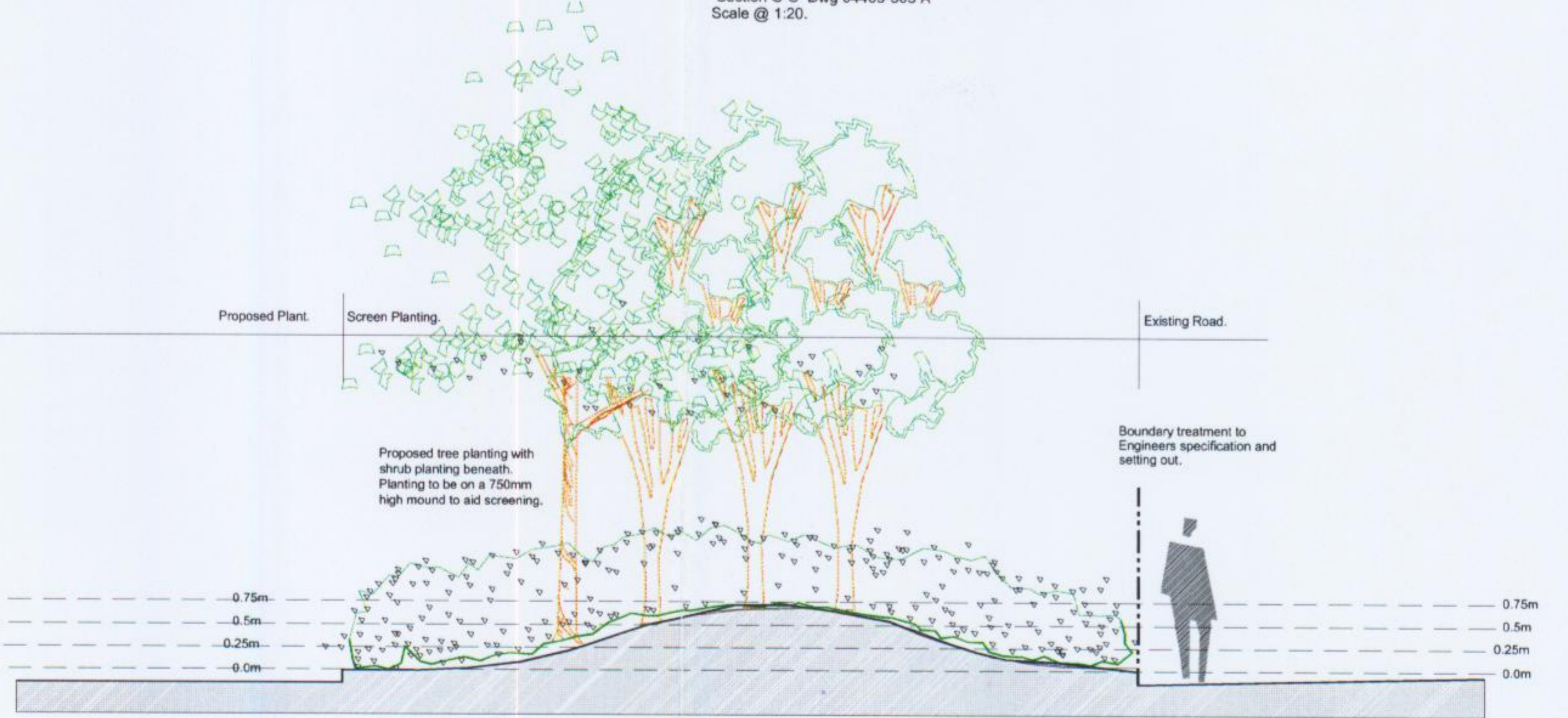
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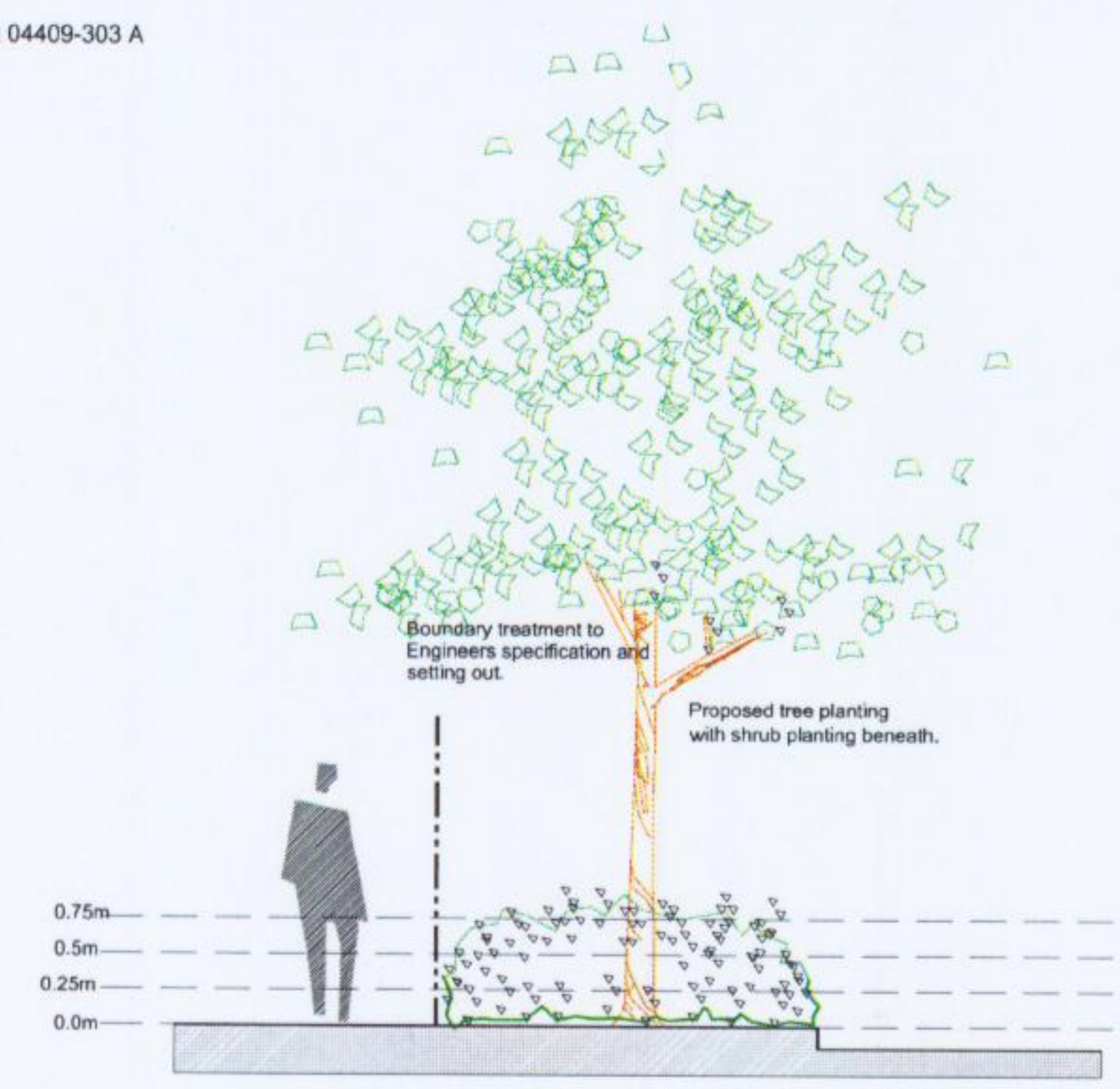
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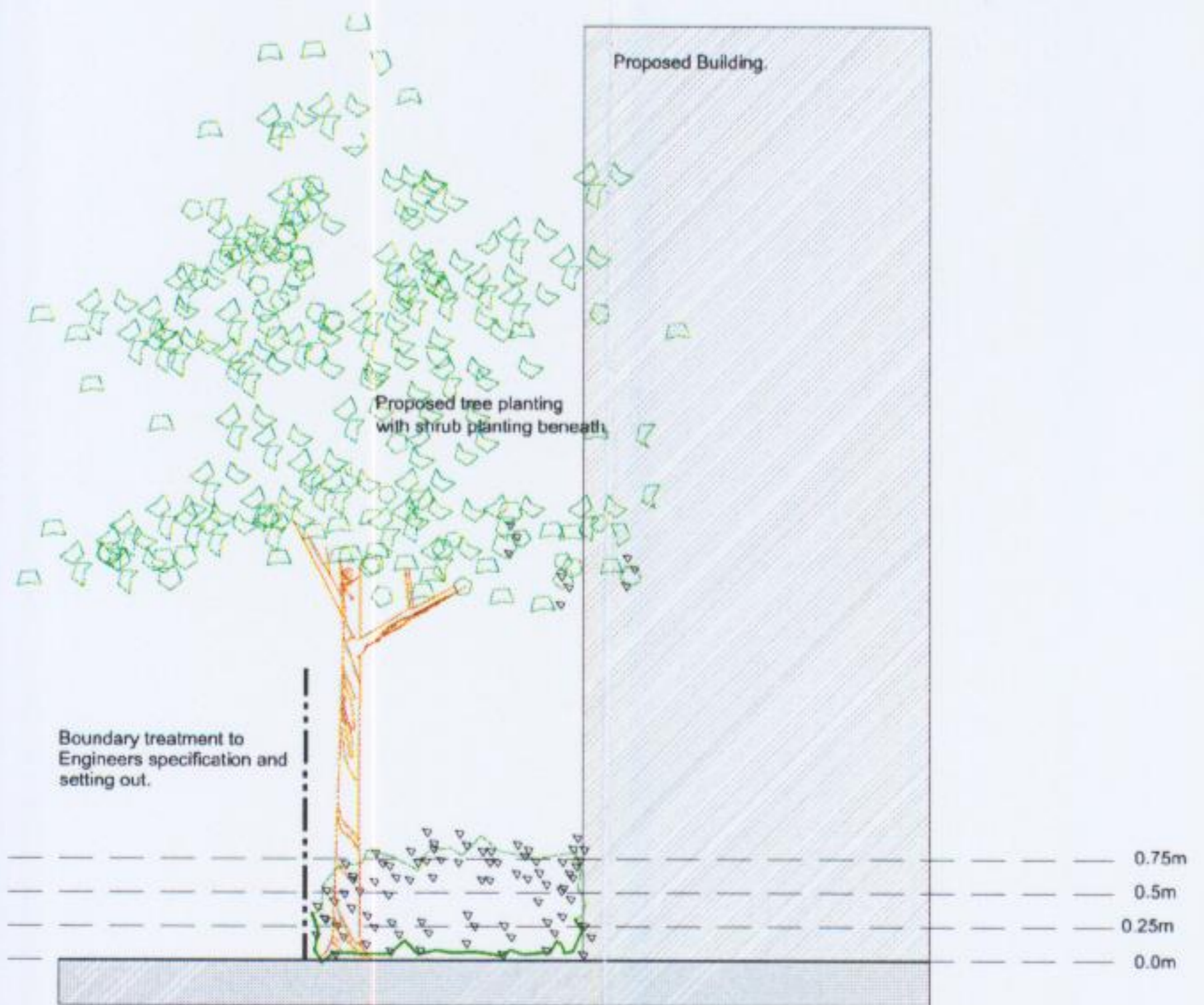
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Scale @ 1:20.



Section E-E Dwg 04409-303 A  
Scale @ 1:20.



Section F-F Dwg 04409-303 A  
Scale @ 1:20.



Section G-G Dwg 04409-303 A  
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Proposed Waste Recovery/Transfer and Sludge Drying Facility.

Client: Landscape Sections

AVR  
A V R - ENVIRONMENTAL SOLUTIONS LTD

Scale: as shown	Status: Planning
Date: Sept 04	Drn DT:    Crd DT:    Passed DT:
Job No: 1975	Drawing No: 04409-303 A

Company: Ashford, Co. Wicklow  
Tel: 0404 4004  
Fax: 0404 42943  
Email: info@avr.com

**TYNER ASSOCIATES**  
Landscape Consultants

- Proposed Planting Schedule**
- Proposed Tree Planting (16-18cm girth)**
- Acer platanoides
  - Acer campestre
  - Quercus robur
  - Tilia x euclora
- Proposed Tree Planting (12-14cm girth)**
- Betula pendula
  - Betula jacquemontii
  - Fraxinus excelsior
  - Prunus avium 'Plena'
  - Prunus serrula
  - Sorbus aucuparia
- Proposed Pine Tree Planting (1.5-2m High)**
- Pinus radiata
  - Pinus nigra
  - Pinus sylvestris
- Proposed Shrub Planting**
- Ceanothus thyrsiflorus repens
  - Choisya ternata
  - Lonicera Pileta
  - Prunus laurocerasus 'Otto Luyken'
  - Prunus laurocerasus 'Zabelinia'
  - Hypericum hidcote
  - Viburnum davidii
- Hedge Planting**
- Double staggered row 1.2-1.5m high
  - Fagus sylvatica
- Bulb Planting**
- Crocsmia 'lucifer'
  - Narcissus pseudo narcissus



Elevation from Entrance Road  
Scale @ 1:250

Note  
For Landscape Plan and Planting Details  
see dwg no. 04409-302.

REV	DATE	BY	DESCRIPTION

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Proposed Waste Recovery / Transfer and Sludge Drying Facility.  
Elevation from Entrance Road.

client: AVR

Scale: as shown	Status: Planning
Date: Sept 04	Drawn: DT, Checked: DT, Plotted: DT
Job No: 1975	Drawing No: 04409-303 B

Company: Ashford, Co. Wicklow  
Tel: 0404 47004  
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Mobile: 087 677528  
e-mail: david@tyner.com

**TYNER ASSOCIATES**  
Landscape Consultancy