

**CITY OF DURBAN**

**STANDARD ENGINEERING SPECIFICATION**

**PART "B"**

**SITE CLEARANCE**

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## PART "B"

### SITE CLEARANCE

#### **B.1**      SCOPE

This specification covers the removal of vegetation, fences, guard rail and guard rail posts, litter and building rubble, buildings, structures, walls, underground structures, disused foulwater and stormwater sewers and drains, disused watermains, abandoned roadways, boulders of size up to 0,15 m<sup>3</sup>, and traffic signs.

#### **B.2**      INTERPRETATIONS

Definitions for this specification are included in Part "AB" : General Specifications.

#### **B.3**      MATERIALS

All material other than that suitable for re-use, shall be disposed of at an approved tip.

No burning of vegetation will be permitted, unless written approval from the Engineer is obtained.

Fencing wire shall be neatly wound into rolls or coils and all such wire, together with all fence posts, guard rail, guard rail posts, traffic signs, water pipes and other re-usable material where specified, shall be stacked at a safe place for re-use on site or transported to a Municipal depot as directed by the Engineer.

#### **B.4**      PLANT

Not applicable to this Specification.

#### **B.5**      CONSTRUCTION

##### **B.5.1**      Areas to be Cleared and Grubbed

The site of the works, including borrow and spoil areas, is to be cleared and kept clear for construction by the removal of vegetation, existing fences, litter, building rubble, etc.

In order to avoid reclearing or to control dust or erosion the Contractor must ensure that the areas cleared will not remain standing prior to the commencement of work thereon.

The Engineer will issue site instructions to define the specific areas to be cleared. No measurement will be made in respect of any areas other than those ordered.

## **B.5**            **CONSTRUCTION (CONT'D)**

### **B.5.2**            Cutting of Trees

#### **B.5.2.1**        Branches overhanging Roadways

The branches of trees to be left standing shall be trimmed to a height at least 5 m vertically above any new roadway prior to the opening of the road.

#### **B.5.2.2**        Preservation of Trees

No trees are to be cut, removed or damaged in any way without the prior consent of the Engineer.

Trees marked by the Engineer for preservation shall be left standing and adequately protected against damage. In the event of a tree marked for preservation being seriously damaged due to the Contractor's negligence, then the Contractor shall be required to replace and maintain at his own cost until established another tree the type of which to be agreed with the Engineer.

Where trees are ordered to be removed the Contractor shall take the necessary precautions to ensure the safety of persons. Trees shall be felled in such a manner as to prevent damage to structures or any other nearby private or public property including, where necessary, the cutting of the tree in sections from the top downwards.

### **B.5.3**            General Clearance and Grubbing

This shall consist of -

- (a) the removal of all vegetation, litter, building rubble, boulders up to 0,15 m<sup>3</sup> in size and other material that may interfere with the construction works;
- (b) the removal of all stumps and roots larger than 50 mm diameter which are not removed as a result of the general clearance operation described in clause B.5.3(a) to a depth of at least 600 mm below the natural ground level. Cavities resulting from grubbing shall be backfilled with suitable material and compacted to 95% Mod. A.A.S.H.T.O. density; and
- (c) the disposal of material as covered in clause B.3.

### **B.5.4**            General Clearance in Developed Areas for Pipelines and Drains

Where clearing is to be carried out through private properties, gardens, shrubberies, established road verges etc., and clearance is not covered under clause B.5.3, the Contractor shall carefully remove all turf, plants, bushes and shrubs and maintain as necessary in order that these may be replaced and replanted on completion. However, where it is confirmed by the Engineer that it would not be feasible to reinstate trees, plants or growing crops the Contractor shall, before commencing work in the affected area, agree with the owner or his representative and the Engineer on the number, type and state of maturity of any such trees, plants, or crops which are likely to be damaged during construction.

## **B.5**            **CONSTRUCTION (CONT'D)**

### **B.5.4**            **General Clearance in Developed Areas for Pipelines and Drains (Cont'd)**

Provided that the arrangements set out above have been fully complied with, compensation for unavoidable destruction of trees, plants and crops within sewer and drain servitudes will be to the account of the Durban Corporation and will be negotiated directly between the City Council's representative and the owner of his representative. Damage to trees, plants and crops outside such servitudes shall be to the Contractor's account unless he can show that such damage could not reasonably be avoided in the execution of the contract. Failure on the part of the Contractor to observe the procedure described above will render him liable for any claims for compensation. Before commencing clearing in private property, the Contractor shall give the owner or occupier a minimum of one weeks notice of his intention to commence clearing or digging operations.

### **B.5.5**            **Buildings, Structures and Underground Obstructions**

Where specified, the Contractor shall demolish, break up and remove -

- (a) buildings, walls, structures and all superficial obstructions on the site affected by the works or as indicated on the drawings down to natural ground level;
- (b) underground structures such as foundations, chambers constructed of brickwork, concrete and reinforced concrete to a depth as directed by the Engineer;
- (c) underground obstructions such as septic tanks and soakpits.

The work involved in (b) and (c) shall consist of the following -

- (i) excavation to expose the obstruction including upholding the sides of the excavation; and
- (ii) breaking out, removal and disposal of the material causing the obstruction.

Where the underground structures or obstructions are abandoned any incoming or outgoing pipes shall be adequately sealed with concrete. All demolition material shall be disposed of at an approved tip.

### **B.5.6**            **Roadways**

The work shall consist of -

- (a) the breaking up and complete removal of all asphalt layers, asphalt and concrete haunching and cement or lime stabilised layer work which would normally entail the use of mechanical break-out equipment;
- (b) the disposal of material as covered in clause B.3.

## **B.5**            **CONSTRUCTION (CONT'D)**

### **B.5.7**            **Sidewalks and Other Paved Areas**

The work shall consist of -

- (a) the breaking up and removal of concrete sidewalks, scoops, ramps, parapets, paving slabs, blocks, bricks, slasto, etc.;
- (b) the disposal of material as covered in clause B.3.

### **B.5.8**            **Kerb and Haunch/Channel**

The work shall consist of -

- (a) the breaking up and removal of concrete kerb and channel/haunching;
- (b) the disposal of material as covered in clause B.3.

### **B.5.9**            **Scarifying of Existing Hardened Areas**

Where specified all hardened areas shall be scarified, loosened and broken up by ripping and/or excavation to a minimum depth specified in the schedule of quantities. After processing, the maximum block size shall be 200 mm. Prior to placing the topsoil or fill layers the material is to be trimmed to obtain as even a surface as practicable.

If considered necessary in order to obtain the correct thickness of subsequent material, the Engineer may instruct the Contractor to remove and dispose of a certain amount of the scarified material.

### **B.5.10**           **Disused Foulwater and Stormwater Sewers, Drains and Watermains**

As instructed by the Engineer disused sewers, drains and watermains shall be removed and where applicable trenches backfilled . The work shall consist of the following :

- (a) excavating trenches in any material including rock and pavements, upholding the sides and keeping the excavation free of water ;
- (b) either reclaiming as directed by the Engineer or breaking up and disposing of any sewer, drain or watermain of whatever type of construction together with any bed and concrete haunch or surround;
- (c) where applicable filling trenches with suitable material and compacting to 95% Mod. A.A.S.H.T.O. density;
- (d) disposing of surplus and unsuitable material to an approved tip; and
- (e) sealing the ends of sewers and drains with grade 15/26 concrete or 230 mm brickwork so as to make them watertight. The brickwork shall comply with the requirements of Part F : Protection Works.

## **B.6**            **TOLERANCES**

Not applicable to this specification.

## **B.7**            **TESTING**

In order to test the backfilling where specified elsewhere in this specification the Contractor shall furnish the following density test results to the Engineer :

- (a)    for trench excavation : 1 No. per 30 m run;
- (b)    for backfill to 300 mm cover over pipe : 2 No. per 30 m run; and
- (c)    for remaining backfill to ground level : 1 No. per layer per 8 m<sup>3</sup>.

The positions of the tests will be selected by the Engineer.

## **B.8**            **MEASUREMENT AND PAYMENT**

### **B.8.1**        **Basic Principles**

Items are scheduled for all known and expected clearing which is necessary to enable the work to proceed. Any structures, obstructions, fences etc., which are in close proximity to the works and which are not scheduled or ordered by the Engineer to be cleared or demolished will not be measured and the Contractor shall take steps to preserve them. No separate payment will be made for preserving any structures or other improvements in close proximity to the works or for any restrictions imposed on the Contractor by the close proximity of such obstructions. The Contractor shall satisfy himself as to the nature of any obstructions by inspecting all routes prior to tendering and shall allow for the cost of preserving any obstructions in his overall rates. Where excavation and pipelaying is in heading in order to preserve structures or trees etc., no separate payment will be made for the heading but the excavation will be measured in accordance with clause DB.8.1.(c).

The Contractor's rates for all scheduled items for clearing shall include for clearing and either for the preservation of the cleared material for subsequent replacement where specified, or for the removal and disposal of the cleared material at an approved tip. Only those areas ordered to be cleared will be measured. Clearing outside the specified area, shall be to the Contractor's account.

Separate items will generally be scheduled for clearing in servitudes, road reserves, private property, Contractor's camp site and temporary stockpile areas to enable the Contractor to allow for the difference in accessibility when working in these areas and for any other restrictions that might be imposed when working through private properties.

## B.8 MEASUREMENT AND PAYMENT (CONT'D)

### B.8.1 Basic Principles (Cont'd)

Where the rates scheduled relate to pipelines, the following pay trench widths shall be applicable :

Nominal	Diam (m)	Trench Width (sq m)	
over	up to		
-	100		700
100	700	nominal internal diameter plus	600
700	1 000	nominal internal diameter plus	800
1 000	2 000	nominal internal diameter plus	1 000
2 000	-	nominal internal diameter plus	1 200

### B.8.2 General Clearance and Grubbing

The unit of measurement is the square metre (m<sup>2</sup>).

No deductions will be made for buildings and structures, but the area does not include existing hardened areas, which will be paid under a separate item.

The rate shall cover the cost of clearing the surface, litter, building material and boulders up to 0,15 m<sup>3</sup> in size, grubbing of vegetation and tree stumps (except large trees and stumps as specified in B.8.4 below), cutting of trees as specified in clause B.5.2; backfilling of cavities and disposal of materials as specified in clause B.3. Boulders over 0,15 m<sup>3</sup> will be measured under Part "DA" : Earthworks : Bulk, clause D.A.8.3.

Removal of topsoil will be paid under the applicable earthworks specification.

### B.8.3 General Clearance in Developed Areas for Pipelines and Drains

The unit of measurement shall be either square metres (m<sup>2</sup>) or, where the width is specified, metres (m).

No deduction will be made for buildings and structures, but the area does not include existing hardened areas, which will be paid under a separate item.

The rate shall cover the cost of clearing the surface, removal and preservation of turf, plants, bushes and shrubs and the temporary storage and maintenance thereof and replanting on completion. Removal of topsoil will be paid under the applicable earthworks specification.

### B.8.4 Removal and Grubbing of Large Trees and Stumps

The unit of measurement is Number (No.). Trees and stumps shall be termed large if the girth measured at its narrowest point in the first metre of its height above ground level is greater than 1,5 m. The rate shall cover the cost of clearing and grubbing and the disposal of material as specified in clause B.3. Backfilling of cavities shall be paid for under clause B.8.18.

## **B.8**            **MEASUREMENT AND PAYMENT (CONT'D)**

### **B.8.5**            Removal of Existing Fences

The unit of measurement is the metre (m). The rate shall cover the cost of taking down the fence, removing the fence posts, coiling wire, sorting, loading, transporting, off-loading and stacking all material on site and backfilling of cavities left as a result of the removal of the fence posts.

### **B.8.6**            Removal of Guard Rail and Guard Rail Posts

The unit of measurement is metre (m) of guard rail. The rate shall cover the cost of dismantling the guard rail, removing the posts, loading, transporting, off-loading and stacking all material on site. Backfilling of any resulting cavities shall be paid for under clause B.8.18.

### **B.8.7**            Removal of Traffic and Street Signs, Bollards and Posts

The unit of measurement is Number (No.). The rate shall cover labour and plant necessary for the careful removal of the signs, loading and storing on site for reuse or disposal to an approved tip.

### **B.8.8**            Removal of Structures above Ground Level

The unit of measurement is item. The rate shall cover everything required for the complete demolition of the building or structure, including blasting if necessary, down to natural ground level, but excluding the removal of foundations, and the disposal of material to an approved tip.

### **B.8.9**            Removal of Brickwork

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before demolition. The rate shall cover the complete demolition of the structure and associated works and disposal of the material to an approved tip. Backfilling of any resulting cavities shall be paid for under clause B.8.18. Separate items will be provided where the brickwork is below ground level.

### **B.8.10**            Removal of Unreinforced Concrete which has to be broken up by Blasting, Hydraulic or Pneumatic Breakers

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before demolition, with rate coverage as in clause B.8.8.

### **B.8.11**            Removal of Reinforced Concrete which has to be broken up by Blasting, Hydraulic or Pneumatic Breakers

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before removal, with rate coverage as in clause B.8.8.

### **B.8.12**            Removal of Underground Obstructions

The unit of measurement is item. The rate shall cover all those operations specified in clause B.5.5.

## **B.8**            **MEASUREMENT AND PAYMENT (CONT'D)**

### **B.8.13**        Removal of Concrete Blocks of Minimum Size 0,15 m<sup>3</sup> which do not require to be broken up prior to removal

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before removal and the rate shall cover excavation, loading, transporting to the approved tip and dumping.

### **B.8.14**        Removal of Roadways

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before removal. The Contractor shall make allowance in his rate for the neat trimming of the existing roadworks where the new road is to tie into the existing road and the rate shall include all haulage to an approved tip. Separate items will be provided where materials are to be carefully removed and stored on site for re-use.

### **B.8.15**        Removal of Sidewalk and Other Paved Areas

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before removal, with rate coverage as in clause B.8.13.

### **B.8.16**        Removal of Kerb and Haunch/Channel

The unit of measurement is cubic metre (m<sup>3</sup>) net in place before removal, with rate coverage as in clause B.8.13.

### **B.8.17**        Scarifying of Existing Hardened Areas

The unit of measurement is square metre (m<sup>2</sup>) with the depth specified in the schedule of quantities. The rate shall cover the operation as specified in clause B.5.9.

### **B.8.18**        Removal of Excess Scarified Materials

The unit of measurement is cubic metre (m<sup>3</sup>) measured loose by means of tally loads. The rate shall cover loading, transporting and disposal at an approved tip.

### **B.8.19**        Removal of Disused Foulwater and Stormwater Sewers, Drains and Watermains

The unit of measurement is metre (m) and the size of sewer, drain or watermain will be specified in the schedule of quantities. The rate shall cover the complete operation as described in clause B.5.10 but shall exclude excavation which will be covered under a separate item.

Excavation will be paid for only when not covered under normal excavation items elsewhere in the schedule of quantities.

## **B.8**            **MEASUREMENT AND PAYMENT (CONT'D)**

### **B.8.20**        **Sealing of Ends of Pipes**

- (i)    **Concrete** : The unit of measurement is cubic metre (m<sup>3</sup>). The rate shall cover all materials, labour and plant required to seal the end of the pipe.
  
- (ii)   **230 mm Brickwork** : The unit of measurement shall be square metre (m<sup>2</sup>). The rate shall cover all materials, labour and plant required to seal the end of the pipe.

### **B.8.21**        **Backfilling**

The unit of measurement is cubic metre (m<sup>3</sup>) for backfilling where applicable. Backfilling shall be carried out with suitable material in 150 mm layers compacted to 95% Mod. A.A.S.H.T.O. density.

### **B.8.22**        **Loading and Transportation of Re-usable Material to any Municipal Depot**

The unit of measurement is ton kilometre (t,km) for the loading and transportation to any Municipal depot of all re-usable materials that have been reclaimed in accordance with clause B.3. and the payment for which is not included under the relevant clauses.