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Transport Infrastructure Ireland

TII Publications



Requirements for Measuring and Pricing of Drainage and Service Ducts

CC-RMP-00500
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TII Publications



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**Updates to TII Publications resulting in changes to
Requirements for Measuring and Pricing of Drainage and Service Ducts CC-RMP-00500**

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Section No: 7, 37

Amendment Details:

Minor referencing errors in Section 7 amended.

Section 37, Group IV, Feature 3 Item amended

Section 37, Group IV, Feature 4 Item deleted

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1. Drainage & Service Ducts

Definitions	1	The Earthworks Outline is defined in CC-RMP-00600 paragraphs 1 to 6 inclusive and shall apply equally to this document.
	2	Where the ground level has been subjected to treatment, under the Contract, in respect of ground improvement, mine workings, swallow holes and the like, for the purposes of this document Existing Ground Level shall be the level obtained upon completion of any such treatment of the areas affected.
	3	Sub-soil Level is defined as the level of the ground after the removal of topsoil required by the Contract.
	4	Surcharge is defined as material placed on embankments for the purpose of loading the embankment for the periods stated in the Contract.

Drains, Sewers, Piped Culverts and Service Ducts (Excluding Filter Drains, Narrow Filter Drains & Fin Drains)

Units	5	The unit of measurement for drains, sewers, piped culverts and service ducts shall be: (i) drains, sewers, piped culverts, service ducts linear metre.
	6	The measurement of drains, sewers, piped culverts and service ducts shall be the summation of their individual lengths measured along the centre lines of the pipes between any of the following: (a) the internal faces of chambers; (b) the external faces of headwalls; (c) the intersections of the centre lines at pipe junctions; (d) the centre of gully gratings (or where no grating is provided, the centre of the gully); (e) the position of terminations shown in the Contract; (f) the point of change of stage depth.
Measurement	7	The depth of drains, sewers, piped culverts and service ducts shall be the vertical measurement between the invert and the following: (a) where the invert is below the Existing Ground Level – the Existing Ground Level except that where the Earthworks Outline is below the Existing Ground Level the measurement shall be taken to the Earthworks Outline; (b) where the invert is at or above the Existing Ground Level – the Earthworks Outline; (c) where a length of pipeline in or beneath areas of embankment or other areas of fill is not permitted to be constructed until a specified minimum level of cover is obtained then notwithstanding sub-paragraphs 7(a) and (b) to the specified minimum level of cover or the Earthworks Outline whichever is the lower.

- (d) Where a length of pipeline beneath areas of cutting is required to be constructed before bulk excavation has been taken down to the Earthworks Outline, the level from which drainage trench excavation is started. In this case the volume of trench excavation above the Earthworks Outline shall be deducted from the volume of material removed to form the Earthworks Outline

Notwithstanding the foregoing, where in the Contract a commencing level or a minimum level of cover is stated from which excavation shall commence, then the depth shall be taken to that stated level.

- 8** The average depth to invert shall be the calculated arithmetic mean of the depths taken at intervals of 10 metres along the pipelines starting from the outfall end. For terminal lengths and pipelines less than 10 metres long the measurement of depths shall be taken at their ends.

- 9** The measurement of service ducts shall be for the complete construction irrespective of the number of ducts contained within any one trench.

Where more than one duct is laid in a trench then the number of ducts shall be stated in the item description.

- 10** Drains, sewers, piped culverts and service ducts required to be designed by the Contractor shall be measured in accordance with CC-RMP-02500.

Itemisation

- 11** Separate items shall be provided for drains, sewers, piped culverts and service ducts (excluding filter drains, narrow filter drains & fin drains) in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

Group Feature

- | | | |
|-----|---|--|
| I | 1 | Drains or sewers |
| | 2 | Piped Culverts |
| | 3 | Service Ducts |
| II | 1 | Different internal diameters |
| III | 1 | Depths to invert not exceeding 2 metres. The average depth to invert to be stated to the nearest 25 mm |
| | 2 | Depths to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres. The average depth to invert to be stated to the nearest 25 mm |
| IV | 1 | Specified design groups |
| | 2 | Particular designs stated in the Contract |
| V | 1 | Construction to trench |
| | 2 | Construction in heading |
| | 3 | Construction by jacking or thrust boring |
| | 4 | Suspended on discrete supports |
| VI | 1 | In side slopes of cuttings or side slopes of embankments |

Note: For each item which includes Group III Feature 1 or 2, an associated rate shall be provided for adjustment of the rate for each 25mm of difference in excess of 150mm where the average depth to invert calculated from site measurement varies from that stated in the Bill of Quantities. The foregoing shall apply to both increases and decreases of average in excess of 150mm and will result in either a positive or negative adjustment of the rate.

Drains, Sewers, Piped Culverts and Service Ducts

12

The items for drains, sewers, piped culverts and service ducts shall in accordance with the Preambles to Bill of Quantities General Directions include for:

Item Coverage

- (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);
- (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
- (c) access shafts to headings and their subsequent reinstatement;
- (d) thrust pits and thrust blocks for pipe jacking and their removal on completion;
- (e) articulated pipes, saddles and fittings including cutting, laying, jointing and bedding;
- (f) building in pipes to headwalls and outfall works;
- (g) hangers, stools and discrete supports;
- (h) bedding, haunching and surrounding;
- (i) formwork (CC-RMP-01700 paragraph 14);
- (j) backfilling and compaction;
- (k) disposal of material (CC-RMP-00600 paragraph 39);
- (l) movement joints to beds, surrounds and the like;
- (m) reinstatement of unpaved areas;
- (n) checking and cleaning;
- (o) recording, staking and labelling;
- (p) in the case of ducts, fixing draw ropes, removable stoppers, marker blocks and posts;
- (q) pipe schedules;
- (r) lubricants, packing, grouting and caulking;
- (s) surveys and recordings;
- (t) protective system (as CC-RMP-01900 paragraph 5);
- (u) laying, cutting and splicing of warning marker tape;
- (v) re-instatement of paved areas to Appendix 7/7 (CC-RMP-00700 paragraph 36);
- (w) traffic management and safety (CC-RMP00100 paragraph 30);
- (x) protective sleeve extending into public lighting column;
- (y) marker plates.

Filter Drains

Units

13

The units of measurement for filter drains shall be:

- (a) filter drains linear metre.
- (b) filter material contiguous with filter drains cubic metre.

Measurement

14

The measurement of filter drains shall be the summation of their individual lengths measured along the centre lines of the pipe (or trench where no pipe is provided), between any of the following:

- (a) the internal faces of chambers;

- (b) the external faces of headwalls;
- (c) the intersection of centre lines at junctions;
- (d) the centre of gully gratings (or where no grating is provided the centre of the gully);
- (e) the position of terminations shown in the Contract;
- (f) the point of change of stage depth.

15 The depth of filter drains shall be the vertical measurement between the invert (or the centre line of the trench bottom where no pipe is provided) and the following:

- (a) where the invert is below the Existing Ground Level – the Existing Ground Level or the Earthworks Outline whichever is the lower, except that where the finished level of the filter material is above the Existing Ground Level the measurement shall be taken to the finished level of the filter material;
- (b) where the invert is at or above the Existing Ground Level – the datum stated in the Contract, or where none is stated, the finished level of the filter material.

The calculation of average depth to invert of filter drains shall be as paragraph 8 of this document taken along the centre line of the filter drain.

16 The measurement of contiguous filter material shall be the volume of the material occupying the void between the filter drain and the adjacent carriageway hardshoulder and hardstrip.

The side of the contiguous filter material next to the filter drain shall be taken as the vertical extension of the trench side above capping or where no capping is provided above subgrade level.

Itemisation

17 Separate items shall be provided for filter drains in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

Group Feature

- | | | |
|-----|---|--|
| I | 1 | Filter drains |
| | 2 | Filter material contiguous with filter drains |
| II | 1 | Different internal diameters |
| | 2 | Different types of filter material |
| III | 1 | Depths not exceeding 2 metres. The average depth to be stated to the nearest 25 mm |
| | 2 | Depths to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres. The average depth to invert to be stated to the nearest 25 mm |
| IV | 1 | Specified design groups |
| | 2 | Particular designs stated in the Contract |
| V | 1 | In side slopes of cuttings or side slopes of embankments |

Note: For each item which includes Group III Feature 1 or 2 an associated item shall be provided for adjustment of the rate for each 25mm of difference in excess of 150mm where the average depth to invert calculated from site measurement varies from that stated in the Bill of Quantities. The foregoing shall apply to both increases and decreases of average in excess of 150mm and will result in either a positive or negative adjustment of the rate.

Filter Drains	18	The items for filter drains shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18); (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19); (c) disposal of material (CC-RMP-00600 paragraph 39); (d) articulated pipes and fittings including cutting, laying, jointing and bedding; (e) bedding, haunching and surrounding; (f) formwork (CC-RMP-01700 paragraph 14); (g) filter material and compaction; (h) reinstatement of unpaved areas; (i) checking and cleaning (including trial holes where required by NRA); (j) recording, staking and labelling; (k) geotextiles; (l) topsoiling, seeding and turfing; (m) mesh or geogrid; (n) pipe schedules; (o) protective system (CC-RMP-01900 paragraph 5).
Filter Material Contiguous with Filter Drains	19	The items for filter material contiguous with filter drains shall be in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (a) compaction; (b) formwork (as CC-RMP-01700 paragraph 14); (c) geotextiles; (d) mesh or geogrid.
Excavate and Replace Filter Material	20	The items for excavate and replace filter material shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item coverage		<ul style="list-style-type: none"> (a) excavation (CC-RMP-00600 paragraphs 18 and 19); (b) disposal of material (CC-RM-00600 paragraph 39); (c) compaction of fill (CC-RMP-00600 paragraph 52); (d) geotextiles; (e) mesh or geogrid.
Fin Drains and Narrow Filter Drains		
Units	21	The unit of measurement shall be:
		<ul style="list-style-type: none"> (a) fin drains linear metre. (b) narrow filter drains linear metre.

Measurement	22	<p>The measurement of fin drains and narrow filter drains shall be the summation of their individual lengths measured along their centre lines between any of the following:</p> <p>(a) the internal faces of chambers;</p> <p>(b) the position of terminations shown in the Contract;</p> <p>(c) the external faces of headwalls.</p>														
Itemisation	23	<p>Separate items shall be provided for fin drains and narrow filter drains in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:</p> <table><thead><tr><th>Group</th><th>Feature</th></tr></thead><tbody><tr><td>I</td><td>1 Fin drains</td></tr><tr><td></td><td>2 Narrow filter drains</td></tr><tr><td>II</td><td>1 Specified design group</td></tr><tr><td></td><td>2 Particular designs stated in the Contract</td></tr><tr><td>III</td><td>1 Depth not exceeding 1.5 metres.</td></tr></tbody></table>	Group	Feature	I	1 Fin drains		2 Narrow filter drains	II	1 Specified design group		2 Particular designs stated in the Contract	III	1 Depth not exceeding 1.5 metres.		
Group	Feature															
I	1 Fin drains															
	2 Narrow filter drains															
II	1 Specified design group															
	2 Particular designs stated in the Contract															
III	1 Depth not exceeding 1.5 metres.															
Fin Drains and Narrow Filter Drains	24	<p>The items for fin drains and narrow filter drains shall in accordance with the Preambles to Bill of Quantities General Directions include for:</p> <p>Item coverage</p> <p>(a) geotextiles and cores;</p> <p>(b) backfilling and compaction;</p> <p>(c) filter drains (paragraph 18 of this document);</p> <p>(d) protection from ultra-violet light;</p> <p>(e) marker tapes;</p> <p>(f) lapping and jointing;</p> <p>(g) connections, attachments and fittings;</p> <p>(h) treatment at chambers, gullies, pipelines and the like.</p> <p>Connections</p>														
Units	25	<p>The unit of measurement for connections shall be:</p> <p>(i) connection to existing drain, sewer, piped culvert, chamber, permanently severed land or mole drain number.</p>														
Measurement	26	<p>Connections shall only be separately measured for connection to existing drains, sewers, piped culverts or chambers, and permanently severed land or mole drains.</p>														
Itemisation	27	<p>Separate items shall be provided for connections in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:</p> <table><thead><tr><th>Group</th><th>Feature</th></tr></thead><tbody><tr><td>I</td><td>1 Connection to existing drain, sewer or piped culvert</td></tr><tr><td></td><td>2 Connection to existing chamber</td></tr><tr><td></td><td>3 Connection to permanently severed land or mole drain</td></tr><tr><td>II</td><td>1 Different diameters</td></tr><tr><td>III</td><td>1 Depth not exceeding 2 metres.</td></tr><tr><td></td><td>2 Depths to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres</td></tr></tbody></table>	Group	Feature	I	1 Connection to existing drain, sewer or piped culvert		2 Connection to existing chamber		3 Connection to permanently severed land or mole drain	II	1 Different diameters	III	1 Depth not exceeding 2 metres.		2 Depths to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres
Group	Feature															
I	1 Connection to existing drain, sewer or piped culvert															
	2 Connection to existing chamber															
	3 Connection to permanently severed land or mole drain															
II	1 Different diameters															
III	1 Depth not exceeding 2 metres.															
	2 Depths to invert exceeding 2 metres but not exceeding 4 metres and so on in steps of 2 metres															

Connections to Existing Drains, Sewers, Piped Culverts, Chambers Permanently Severed Land and Mole Drains

28 The items for connection to existing drains, sewers, piped culverts, chambers, permanently severed land or mole drains shall in accordance with the Preambles to Bill of Quantities General Directions include for:

Item Coverage

- (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);
- (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
- (c) locating and making entry;
- (d) backfilling and compaction;
- (e) disposal of material (CC-RMP-00600 paragraph 39);
- (f) making entry into chambers, concrete benching and channels, and making good the benching, channels and walls;
- (g) locating severed ends of land and mole drains;
- (h) pipes, fittings and saddles;
- (i) bedding, haunching and surrounding, and filter material;
- (j) formwork (CC-RMP-01700 paragraph 14);
- (k) sealing off disused ends;
- (l) re-laying existing pipes disturbed;
- (m) controlling existing flows.

Chambers and Gullies

Units

29 The unit of measurement shall be:

- (a) chambers, gullies number.

Measurement

30 The measurement shall be of the complete chamber or gully.

31 Depths of chambers shall be the distance between the top surface of the cover and the invert of the main channel, or where no channel is required by the Contract the uppermost surface of the base slab. Where no base slab is required the depth shall be taken to the bottom of the excavation.

Itemisation

32 Separate items shall be provided for chambers and gullies in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

Group Feature

- | | | |
|-----|---|---|
| I | 1 | Chambers |
| | 2 | Gullies |
| | 3 | Silt traps |
| II | 1 | Specified design groups |
| | 2 | Particular designs stated in the Contract |
| III | 1 | Depth to invert not exceeding 1 metre |
| | 2 | Depths to invert exceeding 1 metre but not exceeding 2 metres and so on in steps of 1 metre |
| IV | 1 | Different types of covers or gratings |

Chambers	33	The items for chambers shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18); (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19); (c) locating existing sewers and drains; (d) construction of bases, walls, roof and cover slabs, landing slabs and hinged gratings, shafts, surrounds and corbelling for cover; (e) channels, fittings, benchings, building in pipes and drain connections; (f) cleaning; (g) steps, safety chains, ladders, handholds and the like; (h) covers, frames, seating's, bedding and haunching; (i) cover keys; (j) concrete (CC-RMP-01700 paragraphs 4 and 9); (k) formwork (CC-RMP-01700 paragraph 14); (l) reinforcement (CC-RMP-01700 paragraph 25); (m) backfilling and compaction; (n) disposal of material (CC-RMP-00600 paragraph 39); (o) filling; (p) notices; (q) sealants (CC-RMP-02300 paragraph 10); (r) brickwork (CC-RMP-02400 paragraph 4); (s) re-laying existing pipes disturbed; (t) controlling existing flows; (u) plastering and finishes. (v) concrete surround to cover (CC-RMP-01700 paragraph 4); (w) compliance with manufacturer's requirements for installation of proprietary products.
Gullies	34	The items for gullies shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18); (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19); (c) fittings including in situ concrete (CC-RMP-01700 paragraph 4) bed and surround and jointing to pipes; (d) gratings, frames, slabs, surrounds, aprons, seating's, liners and bedding; (e) formwork (CC-RMP-01700 paragraph 14); (f) cleaning; (g) backfilling and compaction;

- (h) disposal of material (CC-RMP-00600 paragraph 39);
- (i) brickwork (CC-RMP-02400 paragraph 4);
- (j) re-laying existing pipes disturbed.

Headwalls and Outfall Works

- 35** Headwalls and outfall works and the like to pipes up to 1800 mm internal diameter shall be measured in accordance to this CC-RMP-00500 paragraphs 36 to 38.

Headwalls and outfall works and the like to pipes exceeding 1800mm internal diameter shall be measured in accordance with the units of measurement, measurement and itemisation set out in CC-RMP-01700.

Headwalls and Revetments

- Units** **36** The unit of measurement shall be:
- (a) Headwalls, revetments and the like number.
- Itemisation** **37** Separate items shall be provided for headwalls and the like in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

Group Feature

- I
 - 1 Headwalls
 - 2 Revetments
- II
 - 1 Different types
- III
 - 1 Different materials
 - 2 Particular designs stated in the Contract
- IV
 - 1 Pipe not exceeding 100mm internal diameter
 - 2 Pipe exceeding 100mm but not exceeding 300mm internal diameter
 - 3 Pipe exceeding 300 mm but not exceeding 600mm internal diameter and so on in steps of 300mm up to a maximum of 1800mm internal diameter

- Headwalls and Revetments** **38** The items for headwalls and revetments and the like shall in accordance with the Preambles to Bill of Quantities General Directions include for:

- Item Coverage**
- (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);
 - (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
 - (c) concrete (CC-RMP-01700 paragraphs 4 and 9);
 - (d) formwork (CC-RMP-01700 paragraph 14);
 - (e) backfilling and compaction;
 - (f) disposal of material (CC-RMP-00600 paragraph 39);
 - (g) imported fill (CC-RMP-00600 paragraph 45);
 - (h) geotextiles (CC-RMP-00600 paragraph 60);
 - (i) brickwork, copings, string courses and the like (CC-RMP-02400 paragraph 4);
 - (j) blockwork, stonework, copings, string courses, individual blocks, features or stones (CC-RMP-02400 paragraph 8);

- (k) lining of watercourses (CC-RMP-00600 paragraph 92);
- (l) drainage channel blocks (CC-RMP-01100 paragraph 4);
- (m) building in pipes and drain connections;
- (n) reinforcement (CC-RMP-01700 paragraph 25);
- (o) miscellaneous metalwork (CC-RMP-01800 paragraph 14);
- (p) waterproofing (CC-RMP 02000 paragraph 4);
- (q) flap valves.

Soft Spots and Other Voids

Units	39	The unit of measurement shall be: (a) soft spots, other voids cubic metre.
Measurement	40	The measurement of soft spots and other voids shall be the volume of the void directed to be excavated or filled. For this measurement the width shall be taken for drains, sewers, piped culverts, service ducts and filter drains, as the internal diameter of the pipe plus 600mm. Where no pipe is required the width shall be taken as 600mm. For chambers, gullies and the like the measurement shall be taken as the horizontal area of the base slab or where no base slab is required the bottom of the excavation. The depths shall be measured from the underside of the thinnest permitted bed in any one group for trenches and from the underside of the base slab for chambers, gullies and the like.
Itemisation	41	<p>Separate items shall be provided for soft spots and other voids in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:</p> <p>Group Feature</p> <ul style="list-style-type: none"> I <ul style="list-style-type: none"> 1 Excavation of soft spots and other voids 2 Filling of soft spots and other voids II <ul style="list-style-type: none"> 1 Different types of fill
Excavation of Soft Spots and Other Voids	42	The items for excavation of soft spots and other voids shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18); (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19); (c) disposal of material (CC-RMP-00600 paragraph 39).
Filling of Soft Spots and Other Voids	43	The items for filling of soft spots and other voids shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (a) deposition of fill (CC-RMP-00600 paragraph 33); (b) compaction of fill (CC-RMP-00600 paragraph 52); (c) in situ concrete (CC-RMP-01700 paragraph 4); (d) formwork (CC-RMP-01700 paragraph 14).

Supports Left in Excavation

Units	44	The unit of measurement shall be: (a) supports left in excavation square metre.										
Measurement	45	The measurement shall be the area of face required by the Works Requirements to be left with supports in position.										
Itemisation	46	Separate items shall be provided for supports left in excavation in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: <table><tr><th>Group</th><th>Feature</th></tr><tr><td>I</td><td>1 Supports</td></tr><tr><td>II</td><td>1 Timber 2 Steel</td></tr><tr><td>III</td><td>1 Different types</td></tr><tr><td>IV</td><td>1 Construction in trench 2 Construction in pits 3 Construction in heading</td></tr></table>	Group	Feature	I	1 Supports	II	1 Timber 2 Steel	III	1 Different types	IV	1 Construction in trench 2 Construction in pits 3 Construction in heading
Group	Feature											
I	1 Supports											
II	1 Timber 2 Steel											
III	1 Different types											
IV	1 Construction in trench 2 Construction in pits 3 Construction in heading											
Supports Left in Excavation	47	The items for supports left in excavation shall in accordance with the Preambles to Bill of Quantities General Directions include for: (a) struts, walling's and the like and working around them.										
Item Coverage												

Drainage and Service Ducts in Structures (Including Reinforced Earth Structures and Anchored Earth Structures)

Units	48	The unit of measurement shall be: (a) drainage and service ducts in structures item.						
Measurement	49	The components comprising the items of drainage and service ducts in structures shall be identified and detailed in the Contract.						
Itemisation	50	Separate items shall be provided for drainage and service ducts in structures in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: <table><tr><th>Group</th><th>Feature</th></tr><tr><td>I</td><td>1 Drainage 2 Service Ducts</td></tr><tr><td>II</td><td>1 Substructure – end supports 2 Substructure – intermediate supports 3 Superstructure 4 Reinforced earth structure 5 Anchored earth structure</td></tr></table>	Group	Feature	I	1 Drainage 2 Service Ducts	II	1 Substructure – end supports 2 Substructure – intermediate supports 3 Superstructure 4 Reinforced earth structure 5 Anchored earth structure
Group	Feature							
I	1 Drainage 2 Service Ducts							
II	1 Substructure – end supports 2 Substructure – intermediate supports 3 Superstructure 4 Reinforced earth structure 5 Anchored earth structure							
Drainage and Service Ducts in Structures	51	The items for drainage and service ducts structures shall in accordance with the Preambles to Bill of Quantities General Directions include for:						
Item Coverage		(a) drains, sewers, piped culverts, service ducts, filter drains and connections (paragraphs 12, 18 and 28 of this document); (b) chambers (paragraph 33 of this document); (c) gullies (paragraph 34 of this document);						

- (d) pipework, gullies, downpipes, fittings and the like including brackets, hangers and straps, fixing to or building into the structure;
- (e) making good protective system, waterproofing;
- (f) permeable backing including compaction and supports;
- (g) hollow blockwork;
- (h) channels.

Filling to Pipe Bays and Verges on Bridges

Units	52	The unit of measurement shall be: (a) filling to pipe bays and verges on bridges cubic metre.
Measurement	53	The measurement shall be the volume of the void stated in the Contract to be filled except that no deduction shall be made for drains, sewers, service ducts, services, supplies and the like and their supports.
Itemisation	54	Separate items shall be provided for filling to pipe bays and verges on bridges in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: Group Feature I 1 Filling to pipe bays and verges on bridges II 1 Different types
Filling to Pipe Bays and Verges on Bridges	55	The items for filling to pipe bays and verges on bridges shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		(a) deposition; (b) complying with any restrictions on the placing and compacting of materials; (c) compaction around drains, sewers, service ducts, services, supplies, supports and the like.

Renewal, Raising or Lowering Covers and Gratings on Existing Chambers and Gullies

	56	For the purposes of Paragraphs 56 to 59 of this document any reference to covers and gratings shall be deemed to include associated frames.
Units	57	The unit of measurement shall be: (a) renew of covers and gratings on existing chambers and gulliesnumber. (b) raising or lowering covers and gratings on existing chambers and gullies number.
Itemisation	58	Separate items shall be provided for renewal, raising or lowering covers and gratings on existing chambers and gullies in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: Group Feature I 1 Renewal 2 Raising the level

- | | | |
|-----|---|---|
| | 3 | Lowering the level |
| II | 1 | Different sizes of cover |
| | 2 | Different sizes of grating |
| III | 1 | Different types of cover |
| | 2 | Different types of grating |
| IV | 1 | Different sizes of chamber |
| | 2 | Different sizes of gully |
| V | 1 | Different construction of chamber |
| | 2 | Different construction of gully |
| VI | 1 | Not exceeding 150mm |
| | 2 | Exceeding 150mm but not exceeding 300mm and so on in steps of 150mm |

Renewal, Raising or Lowering Existing Covers and Gratings on Existing Chambers and Gullies

59 The items for renewal raising or lowering covers and gratings chambers or gullies shall in accordance with the Preambles to Bill of Quantities General Directions include for:

Item Coverage

- (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);
- (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
- (c) take up existing cover or grating including frame and clean and set aside for re-use;
- (d) demolition and preparation to receive new construction;
- (e) construction of walls, roof and cover slabs and shafts surrounds and corbelling for cover and making good;
- (f) steps, safety chains, ladders, handholds and the like;
- (g) bedding existing cover or grating including frame;
- (h) concrete (CC-RMP-01700 paragraphs 4 and 9);
- (i) formwork (CC-RMP-01700 paragraph 14);
- (j) reinforcement (CC-RMP-01700 paragraph 25);
- (k) backfilling and compaction;
- (l) disposal of material (CC-RMP-00600 paragraph 39);
- (m) taking precautions to avoid damage to drains and sewers;
- (n) cleaning;
- (o) reinstatement of adjacent surfaces;
- (p) brickwork (CC-RMP-02400 paragraph 4);
- (q) sealants (CC-RMP-02300 paragraph 10)
- (r) modifications and new materials;
- (s) replacing items damaged during the foregoing operations.

Remove from Store and Reinstall Chamber Covers and Frames, and Gully Gratings and Frames

Units

60 The unit of measurement shall be:

- (a) remove from store and reinstall chamber covers and frames, gully gratings and frames number.

Measure	61	The measurement of remove from store and reinstall chamber covers, and frames and gully gratings and frames shall be the complete installation.									
Itemisation	62	Separate items shall be provided for remove from store and reinstall chamber covers and frames and gully gratings and frames in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: <table><tr><th>Group</th><th>Feature</th></tr><tr><td>I</td><td>1 Remove from store and reinstall different types of chamber covers and frames</td></tr><tr><td></td><td>2 Remove from store and reinstall different types of gully gratings and frames</td></tr><tr><td>II</td><td>1 Different sizes</td></tr></table>		Group	Feature	I	1 Remove from store and reinstall different types of chamber covers and frames		2 Remove from store and reinstall different types of gully gratings and frames	II	1 Different sizes
Group	Feature										
I	1 Remove from store and reinstall different types of chamber covers and frames										
	2 Remove from store and reinstall different types of gully gratings and frames										
II	1 Different sizes										
Remove from Store and Reinstall Chamber Covers and Frames and Gully Gratings and Frames	63	The items for remove from store and reinstall chamber covers, and frames and gully gratings and frames shall in accordance with the Preambles to Bill of Quantities General Directions include for:									
Item Coverage		(a) loading, transporting from store, unloading and positioning for reinstallation; (b) replacing items damaged during the foregoing operations; (c) modification and new materials; (d) renewal, raising or lowering covers and gratings on existing chambers and gullies (paragraph 57 of this document).									
Grouting Up of Existing Drains, Sewers, Piped Culverts and Service Ducts											
Units	64	The unit of measurement shall be: (a) grouting up of existing drains, sewers, piped culverts and service ducts linear metre.									
Measurement	65	The measurement of grouting up of existing drains, sewers, piped culverts and service ducts shall be the length to be grouted as stated in the Contract.									
Itemisation	66	Separate items shall be provided for grouting up of existing drains, sewers, piped culverts and service ducts in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: <table><tr><th>Group</th><th>Feature</th></tr><tr><td>I</td><td>1 Grouting up of existing drains, sewers, piped culverts and service ducts</td></tr><tr><td>II</td><td>1 Different diameters</td></tr><tr><td>III</td><td>1 Different types of grout</td></tr></table>		Group	Feature	I	1 Grouting up of existing drains, sewers, piped culverts and service ducts	II	1 Different diameters	III	1 Different types of grout
Group	Feature										
I	1 Grouting up of existing drains, sewers, piped culverts and service ducts										
II	1 Different diameters										
III	1 Different types of grout										
Grouting Up of Existing Drains, Sewers, Piped Culverts and Service Ducts	67	The items for grouting up of existing drains, sewers, piped culverts and service ducts shall in accordance with the Preambles to Bill of Quantities General Directions include for:									
Item Coverage		(a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18); (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);									

- (c) breaking into drain, sewer, piped culvert or service duct and cleaning;
- (d) mixing and placing grout;
- (e) in situ concrete (CC-RMP-01700 paragraph 4);
- (f) formwork (CC-RMP-01700 paragraph 14);
- (g) backfilling and compaction;
- (h) disposal of material (CC-RMP-00600 paragraph 39).

Excavation in Hard Material

Units	68	The unit of measurement shall be:
		(a) extra over excavation for excavation in Hard Material in drainage.....cubic metre.
Measurement	69	The measurement shall be the volume of the voids formed by the removal of the Hard Material. For the measurement of:
		(a) drains, sewers, piped culverts, service ducts and filter drains, the width shall be taken as the internal diameter of the pipe plus 600 mm. Where no pipe is required the width shall be taken as 600 mm;
		(b) chambers, gullies and the like the area shall be taken as the horizontal area of the base slab or where no base slab is required the area of the bottom of the excavation.
Itemisation	70	Separate items shall be provided for extra over excavation for excavation in Hard Material in drainage in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		Group Feature
		I 1 Extra over excavation for excavation of Hard Material in drainage
Extra Over Excavation for Excavation in Hard Material	71	The items for extra over excavation for excavation in Hard Material in drainage shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		(a) excavation in Hard Material (CC-RMP-00600 paragraph 23).
Backdrop Chambers		
Units	72	The unit of measurement shall be:
		(a) extra over chambers for backdrops.....number.
Measurement	73	The measurement shall be of the complete backdrop.
	74	Depths of backdrops shall be the distance between the invert of the incoming pipe requiring a backdrop and the invert of the main channel.
Itemisation	75	Separate items shall be provided for extra over chambers for backdrops in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		Group Feature
		I 1 Extra over chambers for Backdrops
		II 1 Different diameters
		III 1 Depths not exceeding 1 metre

- 2 Depths exceeding 1 metre but not exceeding 2 metres
and so on in steps of 1 metre

Extra Over Chamber for Backdrops **76** The items for extra over chambers for backdrops shall in accordance with the Preambles to Bill of Quantities General Directions include for:

Item Coverage

- (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);
- (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
- (c) backfilling and compaction;
- (d) disposal of material (CC-RMP-00600 paragraph 39);
- (e) making entry into chambers, concrete benching and channels, and making good the benching, channels and walls;
- (f) pipes and fittings including cutting, laying, jointing and bedding;
- (g) bedding, haunching and surrounding;
- (h) formwork (CC-RMP-01700 paragraph 14);
- (i) building in pipes to chambers;
- (j) checking and cleaning;
- (k) benchings;
- (l) concrete (CC-RMP-01700 paragraphs 4 and 9);
- (m) sealants (CC-RMP-02300 paragraph 10);

Petrol/Oil Interceptors, Hydro Brake Manhole and Gate Valve Manhole

Units **77** The unit of measurement shall be:

- (a) Petrol/Oil Interceptor.....number
- (b) Hydro Brake Manhole..... number
- (c) Gate Valve Manhole..... number

Measurement **78** The measurement of Petrol/Oil Interceptors, Hydro Brake Manhole and Gate Valve Manhole shall be the complete installation.

Itemisation **79** Separate items shall be provided for Petrol/Oil Interceptor, Hydro Brake Manhole and Gate Valve Manhole in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

Group Feature

- I 1 Petrol/Oil Interceptors
- 2 Hydro Brake Manhole
- 3 Gate Valve Manhole
- II 1 Different Classes
- III 1 Different types and capacities

**Petrol/Oil Interceptor
Hydro Brake Manhole
Gate Valve Manhole** **80** The item for Petrol/Oil Interceptor, Hydro Brake Manhole and Gate Valve Manhole shall be in accordance with the Preambles to Bill of Quantities General Directions include for:

Item Coverage

- (a) chamber (paragraph 33 of this document);
- (b) temporary works;
- (c) excavation (CC-RMP-00600 paragraphs 17, 18, 19, 23);

- (d) soft spots and other voids (CC-RMP-00600 paragraphs 64 and 65);
- (e) disposal of material (CC-RMP-00600 paragraph 39);
- (f) construction of vent pipes and fittings to interceptor and pump chamber;
- (g) vent pipe and support posts;
- (h) vertical access tubes to main body;
- (i) box-outs in concrete surround at pipe connections;
- (j) de-sludging petrol/oil interceptor during the Contract;
- (k) complete knife gate valve;
- (l) locating existing sewers and drains;
- (m) supporting and protecting existing drains and sewers;
- (n) concrete (CC-RMP-01700 paragraphs 4 and 9);
- (o) formwork (CC-RMP-01700 paragraph 14);
- (p) reinforcement (CC-RMP-01700 paragraph 25);
- (q) backfilling and compaction;
- (r) fillers (CC-RMP 02300 paragraph 9);
- (s) notices;
- (t) sealants (CC-RMP-02300 paragraph 10).

Proprietary Prefabricated Buried Modular System

Units	81	The unit of measurement shall be: (a) Proprietary Prefabricated Buried Modular System..... number
Measurement	82	The measurement of a Proprietary Prefabricated Buried Modular System shall be the complete installation.
Itemisation	83	Sperate items shall be provided for a Proprietary Prefabricated Buried Modular System in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: Group Feature I 1 Proprietary Prefabricated Buried Modular System II 1 Different Capacities
Proprietary Prefabricated Buried Modular System	84	(a) The item for a Proprietary Prefabricated Buried Modular System shall be in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		(a) Proprietary Prefabricated Buried Modular System (b) temporary works; (c) excavation (CC-RMP-00600 paragraphs 17, 18, 19, 23); (d) soft spots and other voids (CC-RMP-00600 paragraphs 64 and 65); (e) disposal of material (CC-RMP-00600 paragraph 39); (f) construction of vent pipes and fittings to the system:

- (g) vent pipe and support posts;
- (h) vertical access tubes to main body;
- (i) box-outs in concrete surround at pipe connections;
- (j) de-sludging during the Contract;
- (k) complete knife gate valve;
- (l) locating existing sewers and drains;
- (m) supporting and protecting existing drains and sewers;
- (n) concrete (CC-RMP-01700 paragraphs 4 and 9);
- (o) formwork (CC-RMP-01700 paragraph 14);
- (p) reinforcement (CC-RMP-01700 paragraph 25);
- (q) backfilling and compaction;
- (r) geotextiles (CC-RMP-02300 paragraph 57)
- (s) fillers (CC-RMP 02300 paragraph 9);
- (t) notices;
- (u) sealants (CC-RMP-02300 paragraph 10).
- (v) filter material (CC-RMP-0500 paragraph 18)

2. References

2.1 TII Publications (Standards) References

CC-RMP-00010	Introduction to the Requirements for Measuring and Pricing
CC-RMP-00100	Requirements for Measuring and Pricing Preliminaries
CC-RMP-00600	Requirements for Measuring and Pricing of Earthworks
CC-RMP-00700	Requirements for Measuring and Pricing of Pavements
CC-RMP-01100	Requirements for Measuring and Pricing of Kerbs, Footways and Paved Areas
CC-RMP-01700	Requirements for Measuring and Pricing of Structural Concrete
CC-RMP-01800	Requirements for Measuring and Pricing of Structural Steelwork
CC-RMP-01900	Requirements for Measuring and Pricing of Protection of Steelwork against Corrosion
CC-RMP-02000	Requirements for Measuring and Pricing of Waterproofing for Structures
CC-RMP-02300	Requirements for Measuring and Pricing of Bridge Expansion Joints and Sealing of Gaps
CC-RMP-02400	Requirements for Measuring and Pricing of Brickwork, Blockwork and Stonework
CC-RMP-02500	Requirements for Measuring and Pricing of Special Structures



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