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STANDAARD RIOLERINGSVERORDENINGE.

Die Administrateur publiseer hierby ingevolge artikel 96bis(1) van die Ordonnansie op Plaaslike Bestuur, 1939, die Standaard Rioleringsverordeninge hierna uiteengesit, wat deur hom ingevolge genoemde artikel opgestel is.

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Administrator's Notice 665

8 June, 1977

STANDARD DRAINAGE BY-LAWS.

The Administrator hereby, in terms of section 96bis(1) of the Local Government Ordinance, 1939, publishes the Standard Drainage By-laws set forth hereinafter, which have been approved by him in terms of the said section.

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HOOFSTUK I.

Woordomskrywing.

1. In hierdie verordeninge, tensy uit die sinsverband anders blyk, beteken —

“aansluitriool” daardie gedeelte van ’n rioolstelsel wat aan die raad behoort en waardeur ’n perseelriool by die raad se straatriool aangesluit word;

“afsonderlike slukpyp” ’n slukpyp wat aangebring is om ’n enkele sanitêre toebehoorsel te beskerm;

“blokplan” ’n plan wat op skaal geteken is en waarop die grootte, fatsoen en afmetings van enige stuk grond, en die ligging van enige bestaande of beoogde gebou en perseelrioolstelsel of gedeelte daarvan, aangetoon word;

“drekwater” enige vloeistof wat menslike of dierlike drek bevat;

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CHAPTER I.

Definitions.

1. In these by-laws, unless the context otherwise indicates —

“adequate” or “effective” means adequate or effective in the opinion of the council and “approved” means approved by the council, regard being had in all cases to all the circumstances of the particular case and to accepted principles of drainage installation and, in the case of any appliance, fitting or other object, to the purpose which it is intended to serve;

“anti-siphonage pipe” means any pipe or portion of a pipe provided for the protection of the water seal of a trap against unsealing by siphonage or back pressure;

“block plan” means a plan drawn to scale showing the size, shape and measurements of any piece of land and the position thereon of any existing and proposed buildings and drainage installation or portion thereof;

“branch drain” means a drain which discharges into another drain;

“drekwatertoebroehoorfel” enige toebroehoorfel wat vir die opvang en ontlaas van drekwat er gebruik word;

“eenpypstelsel” ’n perseelrioolstelsel waarin die ontlast ing uit drekwatertoebroehore en vuilwatertoebroehore deur ’n gemeenskaplike pyp na ’n perseelriool weggevoer word en waarin die waterslotte van die sperders van alle vuilwatertoebroehore wat aan sodanige perseelrioolstelsel verbind is, afsonderlik deur slukpype beskerm word;

“enkelstampypstelsel” ’n modifikasie van die eenpypstelsel waarin die waterslotte van die sperders van die vuilwatertoebroehore of drekwatertoebroehore nie afsonderlik deur slukpype beskerm word nie en waarin die stelsel uitdruklik ooreenkomstig hierdie verordeninge ontwerp word om die waterslotte van die sperders van al sodanige toebroehore deur middel van die stampyp te beskerm met of sonder behulp van ’n hulpventilasiepyp;

“fabrieksuitvloei sel” enige vloei stof, met of sonder opgeloste stowwe of stowwe in suspensie, wat afgeskei word in die loop van of ten gevolge van enige bedryfs- of nywerheidswerksaamheid, met inbegrip van enige mynbouwerksaamheid, en sluit enige vloei stof behalwe drekwat er of vuilwat er of vloedwat er in;

“gesuiwerde uitvloei sel” die uitvloei sel wat van ’n rioolplaas afkomstig is;

“groep” ’n kombinasie van sanitêre toebroehore wat bestaan uit hoogstens een spoelklos et, een handewasbak, een opwasbak, een stort, een bidet en een bad;

“hoofslukpyp” die pyp waaraan takslukpype verbind is en wat of afsonderlik verleng is om in die buitelig uit te mond of met ’n ventilasiepyp verbind is;

“horisontale pyp” enige drekwat erpyp of vuilwat erpyp, uitgesonderd ’n takpyp, wat ’n hoek kleiner as 45° met ’n horisontale vlak vorm;

“hulpventilasiepyp” ’n pyp wat aangebring is om bykomende ventiler ing vir ’n enkelstampypstelsel te verskaf;

“ingenieur” en “raad se ingenieur” die persoon wat van tyd tot tyd, wat die munisipaliteit betref, genoemde betrekking beklee of in die genoemde hoedanigheid waarneem of enig iemand wat behoortlik deur die raad aangestel is om namens hom op te tree of deur die raad aangestel of gemagtig is om hierdie verordeninge te administreer;

“ontwikkelde lengte” van enige pyp die lengte tussen twee gegewe punte van sodanige pyp, gemeet langs die hartlyn van die pyp, met inbegrip van enige buigstuk, aansluitstuk of soortgelyke toebroehoorfel;

“perseel” enige stuk grond saam met enige gebou of verbetering daarop;

“perseelriool” daardie gedeelte van ’n perseelrioolstelsel, uitgesonderd drekwat erpype, vuilwat erpype, ventilasiepype en slukpype, wat nie aan die raad behoort nie, en wat in die grond gelê is en gebruik word of bedoel is om gebruik te word om rioolwat er na die aansluitriool weg te voer, of om rioolwat er na ’n riooltenk of ’n septiese tenk weg te voer, en sluit ’n riooltenk of septiese tenk in;

“perseelrioolstelsel” en omvat dit, enige perseelriool, drekwat erpyp, stampyp, vuilwat erpyp, ventilasiepyp, slukpyp, drekwatertoebroehoorfel, vuilwatertoebroehoorfel, meganiese toestel of enige ander toestel of toebroehoorfel of kombinasie daarvan vir die wegvoer van rioolwat er, wat nie aan die raad behoort nie;

“branch anti-siphonage pipe” means an anti-siphonage pipe connecting two or more individual anti-siphonage pipes to a main anti-siphonage pipe or to a ventilation pipe;

“branch pipe” means any pipe conveying soil-water or waste-water either separately or together to a stack or other vertical pipe;

“conservancy tank” means a tank used for the reception and temporary retention of the discharge from a drainage installation;

“connecting sewer” means that part of a sewerage system which is vested in the council and which connects a drain to the council’s sewer;

“council” means the city council, town council, village council or health committee established in terms of the Local Government Ordinance, 1939, or the Transvaal Board for Development of Peri-Urban Areas established in terms of the Transvaal Board for the Development of Peri-Urban Areas Ordinance, 1943, which has adopted these by-laws in terms of the Local Government Ordinance, 1939, and includes the management committee of such council or any officer in the service of such council, acting by virtue of any power vested in such council in connection with these by-laws and delegated to him in terms of section 58 of the Local Government (Administration and Elections) Ordinance, 1960, or section 21 bis of the Transvaal Board for the Development of Peri-Urban Areas Ordinance, 1943;

“developed length” of any pipe means the length between two specified points on such pipe measured along the centre line of the pipe including any bend, junction or similar fitting;

“drain” means that portion of a drainage installation, other than soil-water pipes, waste-water pipes, ventilation pipes and anti-siphonage pipes which is not vested in the council and which is laid in the ground and used or intended to be used for conveying sewage to the connecting sewer, or for conveying sewage to a conservancy tank or a septic tank and includes a conservancy tank or a septic tank;

“drainage installation” means and includes any drain, soil-water pipe, stack, waste-water pipe, ventilation pipe, anti-siphonage pipe, soil-water fitting, waste-water fitting, mechanical appliance or any other work or fitting or combination thereof for the conveyance of sewage and which is not vested in the council;

“drainage work” means any construction or reconstruction of or any alteration or addition to, or any work done in connection with a drainage installation but shall not include any work undertaken solely for purposes of repair or maintenance;

“engineer” and “council’s engineer” means the person from time to time holding the said appointment or acting in the said capacity in connection with the municipality or any person duly appointed by the council to act on his behalf or appointed or authorized by the council to administer these by-laws;

“group” means a combination of sanitary fittings comprising not more than one each of a water-closet, wash-hand basin, sink, shower, bidet and bath;

“horizontal pipe” means any soil-water pipe or waste-water pipe, other than a branch pipe, which is inclined at an angle of less than 45 degrees above the horizontal;

“raad” die grootstadsraad, stadsraad, dorpsraad of gesondheidskomitee wat kragtens die Ordonnansie op Plaaslike Bestuur, 1939, gestig is, of die Transvaalse Raad vir die Ontwikkeling van Buitestedelike Gebiede wat kragtens die Ordonnansie op die Transvaalse Raad vir die Ontwikkeling van Buitestedelike Gebiede, 1943, ingestel is, wat hierdie verordeninge ingevolge die bepalings van die Ordonnansie op Plaaslike Bestuur, 1939, aanvaar het, en omvat die bestuurskomitee van so 'n raad of enige beampte in die diens van so 'n raad, wat handel uit hoofde van enige bevoegdheid wat in verband met hierdie verordeninge by so 'n raad berus en wat ingevolge die bepalings van artikel 58 van die Ordonnansie op Plaaslike Bestuur (Administrasie en Verkeerssake), 1960, of artikel 21bis van die Ordonnansie op die Transvaalse Raad vir die Ontwikkeling van Buitestedelike Gebiede, 1943, aan hom gedelegeer is;

“rioleringswerk” die bou of herbou of verbou van, of enige aanbouingswerk aan, of enige werk wat verrig word in verband met 'n perseelrioolstelsel, maar omvat geen werk wat uitsluitlik vir die herstel of onderhoud daarvan verrig word nie;

“riooltenk” 'n tenk wat gebruik word om die uitvloei- sel uit 'n perseelrioolstelsel op te vang en tydelik in te hou;

“rioolwater” drekwater, vuilwater of fabrieksuitvloei- sel, hetsy afsonderlik, hetsy gesamentlik;

“sanitêre toebehoorsel” enige drekwatertoebehoorsel en enige vuilwatertoebehoorsel;

“septiese tenk” enige tenk wat ontwerp is om riool- water op te vang en die organiese stowwe in die riool- water deur middel van bakteriewerking te laat ontbind;

“slukpyp” enige pyp of gedeelte van 'n pyp wat vir die beskerming van die waterslot van 'n sperder aange- bring word om te voorkom dat die sperder deur hewel- werking of teendruk oopgaan;

“stampyp” die hoof-vertikale onderdeel van 'n per- seelrioolstelsel of enige deel daarvan, uitgesonderd 'n ventilasiepyp;

“straatriool” enige pyp of toestel wat aan die raad behoort en gebruik word of ontwerp is of bedoel is om gebruik te word vir of in verband met die wegvoer van rioolwater;

“stuk grond” enige stuk grond wat in 'n aktekantoor geregistreer is as 'n erf, standplaas, perseel, plot of ander gebied, of as 'n gedeelte of 'n onderverdeelde gedeelte van sodanige erf, standplaas, perseel, plot of ander ge- bied, of enige omskrewe gedeelte, wat nie as 'n open- bare plek bedoel is nie, van 'n stuk grond wat as 'n dorp geproklameer is, of van 'n stuk grond wat krag- tens 'n oppervlakteregpermit of kragtens 'n mynbrief ge- hou word, of wat geproklameerde grond is wat nie krag- tens 'n mynbrief gehou word nie en wat vir woondoel- eindes of vir doeleindes wat nie met mynbouwerkzaam- hede in verband staan nie, gebruik word;

“takperseelriool” 'n perseelriool wat in 'n ander per- seelriool ontlaas;

“takpyp” enige pyp wat drekwater of vuilwater of afsonderlik of gesamentlik na 'n stampyp of ander verti- kale pyp wegvoer;

“takslukpyp” 'n slukpyp wat twee of meer afsonder- like slukpype met 'n hoofslukpyp of 'n ventilasiepyp verbind;

“tarief” die tarief van gelde in die bylaes by hierdie verordeninge uiteengesit;

“industrial effluent” means any liquid, whether or not containing matter in solution or suspension, which is given off in the course of or as a result of any trade or industrial operation, including mining operations, and includes any liquid other than soil-water or waste-water or stormwater;

“individual anti-siphonage pipe” means an anti-siphonage pipe installed to protect a single sanitary fitting;

“main anti-siphonage pipe” means the pipe to which branch anti-siphonage pipes are connected and which is either extended independently to discharge into the open air or is connected to a ventilation pipe;

“one-pipe system” means a drainage installation in which the discharges from soil-water fittings and waste-water fittings are carried to a drain by a common pipe and in which the water seals of the traps of all waste-water fittings connected to such installation are indivi- dually protected by anti-siphonage pipes;

“piece of land” means any piece of land registered in a deeds registry as an erf, stand, lot, plot or other area, or as a portion or a subdivision of such erf, stand, lot, plot or other area, or any defined portion, not intended as a public place, of a piece of land proclaimed as a township, or of a piece of land which is held under sur- face right permit or under mining title or which, being proclaimed land not held under mining title, is used for residential purposes or for purposes not incidental to mining operations;

“premises” means any area of land together with any building or improvement thereon;

“sanitary fitting” means any soil-water fitting and any waste-water fitting;

“septic tank” means any tank designed to receive sew- age and to effect the decomposition of organic matter in sewage by bacterial action;

“sewage” means soil-water, waste-water or industrial effluent whether separately or together;

“treated effluent” means the liquid effluent discharged from a sewage treatment works;

“sewer” means any pipe or device vested in the coun- cil and used or designed or intended for use for or in connection with the conveyance of sewage;

“single stack system” means a modification of the one pipe system in which the water seals of the traps of the waste-water fittings or soil-water fittings are not indivi- dually protected by anti-siphonage pipes and in which the system is specifically designed in terms of these by-laws to protect the water seals of the traps of all such fittings by means of the said stack with or without the aid of a supplementary ventilation pipe;

“soil-water” means any liquid containing human or animal excreta;

“soil-water fitting” means any fitting used for the reception and discharge of soil-water;

“soil-water pipe” means any pipe, other than a drain, used for the conveyance of soil-water with or without waste-water;

“stack” means the main vertical component of a drainage installation or any part thereof other than a ventilation pipe;

“toereikend” of “doeltreffend” toereikend of doeltreffend na die raad se mening en “goedgekeur” beteken goedgekeur deur die raad, met inagneming in alle gevalle van al die omstandighede in ’n bepaalde geval, en van die aanvaarde beginsels in verband met perseelrioolstelsels en, in die geval van enige toestel, toebehoorsel of ander voorwerp, van die doel waarvoor dit gebruik gaan word;

“tweepypstelsel” ’n perseelrioolstelsel waarin die ontlaste drekwatervan en vuilwater van die onderskeie toebehore met afsonderlike pype na ’n perseelriool weggevoer word en waarin die vuilwaterpype afsonderlik geventileer word en deur middel van sperders van die perseelriool geskei word;

“ventilasiepyp” enige pyp of gedeelte van ’n pyp, wat geen vloeistof wegvoer nie, wat gebruik word om ’n perseelrioolstelsel te ventileer;

“vertikale pyp” enige drekwaterpyp of vuilwaterpyp, uitgesonderd ’n takpyp, wat ’n hoek groter as 45° met die horisontale vlak vorm;

“vloedwater” enige vloeistof wat voortspruit uit natuurlike neerslag of akkumulاسie en sluit reënwater, fonteinwater en grondwater in;

“vuilwater” enige vloeistof, uitgesonderd drekwatervan, fabrieksuitvloei of vloedwater;

“vuilwaterpyp” enige pyp, uitgesonderd ’n perseelriool, wat vir die wegvoer van vuilwater gebruik word;

“vuilwatertoebehoorsel” enige toebehoorsel wat vir die opvang en ontlast van vuilwater gebruik word.

HOOFTUK II.

Bestek van Verordeninge.

2.(1) Hierdie verordeninge is van toepassing op elke perseelrioolstelsel, en veral op die ontwerp en aanbring van enige sodanige stelsel in enige nuwe of bestaande gebou of op enige stelsel wat in opdrag van die raad ingevolge artikel 6 aangebring moet word, of op enige verbouings- of aanbouingswerk aan ’n bestaande perseelrioolstelsel, ongeag daarvan of dit in opdrag van die raad ingevolge hierdie verordeninge verrig word of nie.

(2) Elke perseelrioolstelsel moet tydens die aanbring daarvan sowel as na die voltooiing daarvan, aan sodanige inspeksie, goedkeuring, toetse en beheer onderwerp word, wat die raad dienstig ag of vereis.

HOOFTUK III.

Reg van Appèl.

3.(1) Iemand wat meen dat hy deur enige beaampte se besluit of handeling ingevolge hierdie verordeninge in verband met ’n perseelrioolstelsel of enige werk wat daarmee in verband staan, benadeel is, kan by die komitee van die raad wat aangewys is om toesig oor die administrasie van hierdie verordeninge te hou, daarteen appèl aanteken, of as daar nie so ’n komitee is nie, by die raad self.

(2) Iemand wat van voorneme is om ingevolge subartikel (1) appèl aan te teken, moet die ingenieur binne sewe dae na die besluit of handeling waarteen hy appèl wil aanteken, daarvan in kennis stel, en die appellant moet binne ’n verdere tydperk van veertien dae ’n volledige skriftelike uiteensetting van sy saak aan sowel die ingenieur as aan die klerk van die raad of die stads- klerk besorg.

“stormwater” means any liquid resulting from natural precipitation or accumulation and includes rain-water, spring-water and ground-water;

“supplementary ventilation pipe” means a pipe installed to supplement the ventilation of a single stack drainage system;

“tariff” means the tariff of charges set out in the schedules to these by-laws;

“two-pipe system” means a drainage installation in which the discharges from soil-water fittings and waste-water fittings are conveyed to a drain by separate pipes and in which the waste-water pipes are separately ventilated and are separated by traps from the drain;

“ventilation pipe” means any pipe or portion of a pipe, not conveying any liquid, used to ventilate a drainage installation;

“vertical pipe” means any soil-water pipe or waste-water pipe, other than a branch pipe, which is inclined at an angle of more than 45 degrees above the horizontal;

“waste-water” means any liquid other than soil-water, industrial effluent or stormwater;

“waste-water fittings” means any fitting used for the reception and discharge of waste-water;

“waste-water pipe” means any pipe, other than a drain, used for the conveyance of waste-water.

CHAPTER II.

Scope of By-laws.

2.(1) These by-laws shall apply to every drainage installation, and in particular to the design and construction of any such installation in any new building or existing building or to any installation required by the council to be constructed in terms of section 6 or to any alteration or addition to an existing drainage installation whether or not required by the council to be made in terms of these by-laws.

(2) Every drainage installation shall both during its construction and on its completion be subject to such inspection, approval, tests and control as the council shall deem fit or require.

CHAPTER III.

Right of Appeal.

3.(1) Any person aggrieved by any decision given or act done by any officer in terms of these by-laws in connection with a drainage installation or any work connected therewith, shall have the right to appeal to the committee of the council appointed to supervise the administration of these by-laws or if there is no such committee to the council itself.

(2) Notice of intention to appeal in terms of subsection (1) shall be given to the engineer within seven days of the decision or act complained of and shall be followed within a further fourteen days by a full statement of the appellant’s case in writing to be furnished by the appellant both to the engineer and to the clerk of the council or the town clerk.

HOOFSTUK IV.

Kennisgewings.

4.(1) Elke kennisgewing, opdrag of ander dokument wat die raad ingevolge hierdie verordeninge mitreik of beteken, is geldig as 'n beampte van die raad wat be hoorlik daartoe gemagtig is, dit onderteken het.

(2) Enige kennisgewing, opdrag of ander dokument wat ingevolge hierdie verordeninge aan iemand beteken word, moet aldus beteken word deur dit, of 'n ware afskrif daarvan, persoonlik aan die persoon aan wie dit geadresseer is of by sy jongste bekende woon- of besighedsplek af te lewer, of deur dit aan hom te pos, in welke geval daar geag word dat dit beteken is vyf dae nadat dit gepos is.

(3) In elke kennisgewing, opdrag of ander dokument wat ingevolge hierdie verordeninge uitgereik of beteken word, moet die perseel waarop dit betrekking het, aandui maar daar kan daarin na die persoon vir wie dit bedoel is, as "die eienaar" of "die okkupant" verwys word as sy naam onbekend is.

HOOFSTUK V.

Rioolgelde.

5. Die gelde vir die gebruik van die raad se rioler van vir ontlasing in die raad se rioler of andersins in verband met die raad se rioldienste, word voorgeskryf in die tarief vervat in die toepaslike bylaes by hierdie verordeninge en die eienaar van die perseel ten opsigte waarvan die gelde gehef word, is aanspreeklik daarvoor.

HOOFSTUK VI.

ALGEMENE BEPALINGS.

Verpligte Verskaffing van Riolerling.

6.(1) As 'n straatriool beskikbaar is vir die riolerling van 'n perseel waarin of waarop rioolwater ontstaan, moet sodanige perseel voorsien word van 'n perseelrioolstelsel wat by die straatriool aansluit.

(2) Die eienaar van 'n perseel wat nie 'n perseelrioolstelsel het wat in die straatriool ontlaas op 'n plek wat die raad voorgeskryf het nie, moet binne twintig weke nadat die raad hom skriftelik aangesê het om dit te doen, 'n perseelrioolstelsel op die perseel aanbring, of laat aanbring, en alle werk verrig wat nodig is en alles doen wat ingevolge hierdie verordeninge vereis word in verband met die aanbring van so 'n perseelrioolstelsel en al die gelde wat ten opsigte van die aansluiting daarvan by die raad se straatriool verskuldig is, betaal.

(3) Die eienaar, soos hierbo bepaal, moet die raad skriftelik kennis gee wanneer enige emmer- of rioltenkdiens wat aan die perseel gelewer word, nie meer nodig is nie, en hy bly vir die gelde ten opsigte van daardie diens aanspreeklik tot tyd en wyl hy die raad aldus in kennis stel.

(4) As die eienaar in gebreke bly om binne genoemde tydperk van twintig weke aan die bepalings van 'n kennisgewing wat ingevolge subartikel (2) aan hom beteken is, te voldoen, moet hy daarna, sonder dat dit, sy aanspreeklikheid vir die geld vir die gebruik van die raad se straatriool, soos dit by hierdie verordeninge voorgeskryf word, enigsins verminder, drie keer die be-

CHAPTER IV.

Notices.

4.(1) Every notice, order or other document issued or served by the council in terms of these by-laws shall be valid if signed by an officer of the council duly authorized thereto.

(2) Any notice, order or other document served in terms of these by-laws on any person shall be so served by delivering it, or a true copy thereof, to the person to whom it is addressed personally or at his last known residence or place of business or by posting it in which case it shall be deemed to have been served five days after it was posted.

(3) Every notice, order or other document issued or served in terms of these by-laws shall specify the premises to which it relates, but may refer to the person for whom it is intended as "the owner" or "the occupier" if his name is not known.

CHAPTER V.

Sewerage Charges.

5. All charges for the use of the council's sewers or for discharges into the council's sewers or otherwise in connection with the council's sewerage services shall be as prescribed in terms of the tariff contained in the relevant schedules to these by-laws and shall be payable by the owner of the premises in respect of which the charges are raised.

CHAPTER VI.

GENERAL PROVISIONS.

Compulsory Provision of Sewerage.

6.(1) Where a sewer is available for the drainage of any premises in or on which sewage is produced, such premises shall be provided with a drainage installation connected to the sewer.

(2) The owner of any premises not having a drainage installation terminating at a point of discharge into the sewer prescribed by the council shall, within twenty weeks of receiving written notice from the council requiring him to do so, construct or cause to be constructed a drainage installation on the premises and shall do all work necessary for and all things required in terms of these by-laws in connection with the construction of such drainage installation, and shall pay all charges due in respect of the connection thereof to the council's sewer.

(3) The owner as aforesaid shall give written notice to the council when any pail or conservancy tank service rendered to the property is no longer required, and shall remain liable for the charges for that service until he has done so.

(4) If the owner fails within the said period of twenty weeks to comply with a notice served on him in terms of subsection (2) he shall thereafter, without detracting from his liability for charges in respect of the

drag van die voorgeskrewe tarief vir genoemde emmer-of riooltenkdiens betaal tot tyd en wyl 'n perseelrioolstelsel, soos dit by genoemde kennisgewing vereis word en wat aan die bepalings van hierdie verordeninge voldoen, by die straatriool aangesluit is en die raad ooreenkomstig die bepalings van subartikel (3) daarvan in kennis gestel is.

(5) As die hoogte van enige gedeelte van 'n gebou of perseel in verhouding tot die straatriool sodanig is dat 'n perseelrioolstelsel wat vir daardie gedeelte bedoel is, nie deur swaartekragwerking in die straatriool kan ontlast nie, kan die ingenieur, behoudens die bepalings van artikel 66 en op enige voorwaardes wat hy nodig ag, vergunning verleen dat die rioolwater vanaf sodanige gedeelte met behulp van 'n meganiese toestel gepomp word sodat dit op sodanige wyse en op 'n hoogte wat hy moet bepaal, ontlast kan word.

(6) Elke kontrakteur of iemand anders wat werk-mense in diens het vir die oprigting van 'n gebou of vir die verrigting van enige ander werk op enige stuk grond waar daar 'n straatriool vir die riolering van geboue wat daarop opgerig is of gaan word, beskikbaar is, moet spoelklosetgeriewe wat by die straatriool aansluit, vir sodanige werknemers verskaf.

Aansluiting by Straatriool.

7.(1) Geen gedeelte van enige perseelrioolstelsel mag verder strek as die grens van die stuk grond waarop die gebou of gedeelte daarvan wat deur die perseelrioolstelsel bedien word, opgerig is nie. Met dien verstande dat die raad, as hy dit nodig of raadsaam ag, die eienaar kan toelaat om op eie koste 'n perseelriool oor 'n aangrensende stuk grond te lê mits hy vooraf bewys lewer dat 'n gepaste serwituit of 'n notariële akte van gemeenskaplike riolering, na gelang die raad dit vereis, met die doel geregistreer is.

(2) Die raad het die reg om voor te skryf op watter plekke en hoe diep onder die grond enige perseelrioolstelsel by die straatriool aangesluit moet word en watter roete die perseelriool tot by die aansluitriool moet volg, en die raad kan, met inagneming van die noodsaaklikheid daarvan dat dit op die regte hoogtes moet wees, na goeddunke vereis dat die eienaar nie met die aanbring of die aansluiting van die perseelrioolstelsel, na gelang van die geval, moet begin voordat die raad se aansluitriool gelê is nie.

(3) Behoudens die bepalings van subartikel (4) en sonder om af te doen aan die bepalings van artikel 24 wat op die toets van perseelrioolstelsels betrekking het, moet die raad so gou doenlik nadat die eienaar hom in kennis gestel het dat die perseelrioolstelsel op sy perseel gereed is om by die straatriool aangesluit te word, op die raad se koste die perseelrioolstelsel aansluit of laat aansluit.

(4) Enige aansluiting wat die eienaar verlang nadat die perseelrioolstelsel ingevolge subartikel (3) aangesluit is, moet deur die raad goedgekeur word en die eienaar moet daarvoor betaal.

(5) Niemand mag toelaat dat iets anders as skoon water vir toetsdoeleindes 'n perseelrioolstelsel binnegaan voordat die perseelrioolstelsel by die straatriool aangesluit is.

(6) Slegs 'n beampte wat behoorlik daartoe gemagtig is, mag enige perseelrioolstelsel by die straatriool aansluit, tensy die raad dit andersins skriftelik magtig.

use of the council's sewer as prescribed by these by-laws, pay charges at three times the prescribed tariff for the said pail or conservancy tank service until a drainage installation as required by the said notice and complying with these by-laws is connected to the sewer and the council has been notified thereof in terms of subsection (3).

(5) Where any part of a building or premises is at such a level in relation to the sewer that a drainage installation serving that part cannot discharge into the sewer by gravitation the engineer may, subject to the provisions of section 66 and to any conditions he may deem necessary, permit the sewage from such part to be raised by a mechanical appliance to discharge at such point and such level as he shall determine.

(6) Every contractor or other person employing workmen for the construction of any building or for the carrying out of any other work on any piece of land to which a sewer is available for the drainage of buildings constructed or to be constructed thereon, shall provide water closet accommodation connected to the sewer for such workmen.

Connection to Sewer.

7.(1) No part of any drainage installation shall extend beyond the boundary of the piece of land on which the building or part thereof served by the drainage installation is erected. Provided that, where it considers it necessary or expedient to do so, the council may permit the owner to lay a drain at his own expense through an adjoining piece of land on proof of the registration of an appropriate servitude or of a notarial deed of joint drainage, as the council may require.

(2) The council shall have the right to prescribe to what point in the sewer and at what depth below the ground any drainage installation is to be connected and the route to be followed by the drain to the connection so to be made and may, at its discretion, having regard to the necessity of maintaining correct levels, require the owner not to commence the construction or the connection of the drainage installation, as the case may be, until the council's connecting sewer has been laid.

(4) Subject to the provisions of subsection (4), and without prejudice to the provisions of section 24 concerning the testing of drainage installations, the council shall, as soon as practicable after being notified by the owner that the drainage installation on his premises is ready for connection to the sewer, at the

council's own expense, effect the connection or cause it to be effected.

(4) Any connection required by the owner subsequent to that made by the council in terms of subsection (3) shall be subject to the approval of the council and shall be effected at the owner's expense.

(5) No person shall permit the discharge of any substance whatsoever other than clean water for testing purposes to enter any drainage installation until the drainage installation has been connected to the sewer.

(6) Save as may be, otherwise authorized by the council, in writing, no person other than an officer duly authorized to do so, shall connect any drainage installation to the sewer.

Gemeenskaplike Perseelriole.

8. Die raad kan na goeëdunke toelaat dat die perseelrioolstelsel van enige twee of meer stukke grond, of hulle nou aan een eienaar behoort of nie, deur middel van 'n gemeenskaplike perseelriool in die straatriool ontlast.

Ontkoppeling.

9.(1) Behalwe met die doel om onderhouds- of herstelwerk te verrig, mag geen drekwatertoebehoorsel of drekwatertyp van enige ander drekwatertyp of perseelriool, en geen perseelriool van enige ander perseelriool of van 'n straatriool ontkoppel word nie, tensy die raad se skriftelike toestemming vooraf verkry is nadat 'n aansoek ingedien is op die wyse, vir sover dit van toepassing is, wat by artikel 20 voorgeskryf word: Met dien verstande dat die raad geen geld ten opsigte van 'n aansoek ingevolge hierdie artikel mag vorder nie.

(2) As enige gedeelte van 'n perseelrioolstelsel van die res daarvan ontkoppel word omdat dit nie meer gebruik gaan word nie, moet genoemde ontkoppelde gedeelte vernietig of geheel en al van die perseel waarop dit gebruik is, verwyder word, tensy die raad andersins vergun as dit nie prakties moontlik is om dié gedeelte te vernietig of te verwyder nie, en moet alle openinge in die stelsel of in genoemde gedeelte daarvan wat ten gevolge van die ontkoppeling ontstaan, tot voldoening van die raad doeltreffend verseël word as dié stelsel of dié gedeelte daarvan daar gaan bly.

(3) Daar moet vooraf behoorlik skriftelik kennis van enige ontkoppeling aan die ingenieur gegee word wat, nadat daar aan al die vereistes van hierdie artikel voldoen is en op versoek van die eienaar, 'n sertifikaat moet uitreik te dien effekte dat die ontkoppeling ingevolge die bepalings van hierdie verordeninge bewerkstellig is en dat enige rioolgelde wat ten opsigte van die ontkoppelde gedeelte van die perseelrioolstelsel betaal moes word, met ingang van die eerste dag van die maand na die uitreiking van sodanige sertifikaat nie meer gevorder word nie: Met dien verstande dat sodanige gelde steeds gevorder moet word tot tyd en wyl sodanige sertifikaat deur die ingenieur uitgereik word.

(4) Wanneer 'n perseelrioolstelsel van 'n straatriool ontkoppel word, moet die raad die opening wat aldus in die straatriool ontstaan, verseël, en die geld wat in die betrokke bylae by hierdie verordeninge vir sodanige werk voorgeskryf word, op die eienaar verhaal.

(5) Iemand wat sonder die toestemming van die raad 'n seël in subartikel (4) genoem, breek of verwyder, of wat veroorsaak of toelaat dat dit gebreek of verwyder word, begaan 'n misdryf.

Onwettige Rioleringswerk.

10.(1) As enige rioleringswerk verrig is sonder om aan die bepalings van hierdie verordeninge met betrekking tot die indien en goedkeuring van planne te voldoen, moet die eienaar, wanneer die raad hom skriftelik aansê om dit te doen, binne die tydperk wat in dié kennisgewing voorgeskryf word, aan al die genoemde bepalings voldoen.

(2) As enige perseelrioolstelsel gebou of enige rioleringswerk verrig is wat op sigself in een of ander opsig nie aan enige van die bepalings van hierdie verordeninge voldoen nie, uitgesonderd die bepalings in subartikel (1) genoem, moet die eienaar wanneer die raad hom skriftelik in kennis stel om dit te doen en ondanks die

Common Drains.

8. The council may at its discretion permit the drainage installation on any two or more pieces of land, whether or not in the same ownership, to discharge into the sewer through a common drain.

Disconnection

9.(1) Except for the purpose of and for carrying out of any work of maintenance or repair, no soil-water fitting or soil-water pipe shall be disconnected from any soil-water pipe or drain, and no drain shall be disconnected from any other drain or from a sewer without the prior written approval of the council after the lodging of an application in the manner, so far as applicable, prescribed in terms of section 20: Provided that no charge shall be made by the council in respect of an application made in terms of this subsection.

(2) Where any part of a drainage installation is disconnected from the remainder thereof because it will no longer be used, the said part so disconnected shall be destroyed or entirely removed from the premises on which it was being used unless the council shall otherwise permit, having regard to the impracticability of such destruction or removal, and all openings in the installation or in the said part if left in position, created by the disconnection, shall be effectively sealed to the satisfaction of the council.

(3) Due notice in writing in advance of any disconnection shall be furnished to the engineer who shall, after the requirements of this section have been complied with and on request of the owner, issue a certificate to the effect that the disconnection has been completed in terms of these by-laws and that any sewerage charges raised in respect of the disconnected portion of the drainage installation shall cease to be raised with effect from the first day of the month following the issue of such certificate: Provided that until such certificate shall have been issued by the engineer any such charges shall continue to be raised.

(4) When a drainage installation is disconnected from a sewer, the council shall seal the opening to the sewer so made and shall recover from the owner the charge prescribed for such work in the relevant schedule to these by-laws.

(5) Any person who, without the permission of the council breaks or removes or causes or permits the breakage or removal of any such seal referred to in subsection (4), shall be guilty of an offence.

Unlawful Drainage Work.

10.(1) Where any drainage work has been constructed without complying with the provisions of these by-laws concerning the submission and approval of plans the owner shall, on receiving written notice by the council so to do, comply with the said provisions within the period prescribed in that notice.

(2) Where any drainage installation has been constructed or any drainage work has been carried out which fails in itself in any respect to comply with any of these by-laws other than those referred to in subsection (1), the owner shall on receiving written notice by

feit dat hy moontlik goedkeuring vir planne ten opsigte van genoemde stelsel of werk ooreenkomstig hierdie verordeninge verkry het, dié verbouingswerk aan die stelsel verrig, dié dele daarvan verwyder en enige ander werk verrig wat in die kennisgewing aangegee word, en dit doen binne die tydperk wat daarin bepaal word.

(3) Die raad kan, in plaas daarvan om kennis te gee, soos hierbo bepaal, of as daar nie aan sodanige kennisgewing voldoen is binne die tydperk daarin voorgeskryf nie, self die verbouings-, verwyderings- of ander werk verrig wat hy nodig ag ten einde aan die bepalings van hierdie verordeninge te voldoen, en kan die koste daarvan volgens die gewone regsprosedures op die eienaar verhaal.

(4) Die raad kan, behoudens die bepalings van subartikels (1), (2) en (3), as hy te eniger tyd te wete kom dat enige perseelrioolstelsel nie aan die bepalings van artikel 75 voldoen nie of dat enige bepaling daarvan oortree is of oortree word, onmiddellik sonder kennisgewing sodanige verbouingswerk aan die stelsel verrig wat hy nodig ag om aan die bepalings van genoemde artikel te voldoen, en die betrokke gelde wat in die toepaslike bylae by hierdie verordeninge voorgeskryf word, op die eienaar verhaal.

Onderhoudswerk.

11.(1) Die eienaar of okkupant van 'n perseel moet enige perseelrioolstelsel daarop te alle tye in 'n goeie, werkende toestand onderhou.

(2) As enige gedeelte van 'n perseelrioolstelsel deur twee of meer eienaars of okkupante gebruik word, is hulle ingevolge dié bepalings van hierdie artikel gesamentlik en afsonderlik vir die onderhoud en herstel van sodanige perseelrioolstelsel aanspreeklik.

Voorkoming van Verstopping.

12. Niemand mag veroorsaak of toelaat dat ghries, olie, vet, vaste stowwe of enige ander stof só in enige sperder, tenk, pyp, perseelriool of toebehoorsel vergaar dat dit verstop of verhoinder dat dit doeltreffend werk nie.

Oopmaak van Verstopte Riole.

13.(1) As die eienaar of okkupant van 'n perseel rede het om te vermoed dat enige perseelrioolstelsel daarop verstop is, moet hy die raad onmiddellik van dié feit verwittig.

(2) As 'n perseelrioolstelsel verstop is, moet enige werk wat verrig moet word om dit oop te maak, behoudens die bepalings van subartikel (4), verrig word deur of onder toesig van 'n loodgieter of rioollêer wat ingevolge die raad se verordeninge gelisensieer is.

(3) Enige gelisensieerde loodgieter of rioollêer soos hierbo bepaal moet, voordat hy begin om 'n verstopte perseelrioolstelsel oop te maak, die raad per telefoon of andersins in kennis stel van sy voorneme om dit te doen en moet, wanneer die werk afgehandel is, die raad van dié feit en van die aard, plek en oorsaak van genoemde verstopping verwittig.

(4) Die raad mag, of die eienaar hom nou al versoek het om dit te doen of nie, na sy goeddunke 'n verstopte perseelrioolstelsel oopmaak, en hy kan die koste daarvan ooreenkomstig die tarief wat in die toepaslike bylae by hierdie verordeninge voorgeskryf word, op die eienaar verhaal.

the council to do so and notwithstanding that he may have received approval of plans in respect of the said installation or work in terms of these by-laws, carry out such alterations to the installation, remove such parts thereof and carry out such other work as, and within the time which the notice may specify.

(3) The council may, instead of serving notice as aforesaid or where such a notice has not been complied with within the time prescribed therein, proceed itself to carry out any such alteration, removal or other work as it may deem necessary for compliance with these by-laws and may recover the cost thereof from the owner by the ordinary process of law.

(4) Should the council at any time become aware of any installation which does not comply with the provisions of section 75 or that any provision thereof has or is being contravened it may, subject to the provisions of subsections (1), (2) and (3), forthwith and without notice carry out such alterations to the installation as it may deem necessary to effect compliance with the provisions of the said section and recover from the owner the appropriate charges prescribed in the relevant schedule to these by-laws.

Maintenance.

11.(1) The owner or occupier of premises shall at all times keep and maintain in a proper state of repair and in working order any drainage installation thereon.

(2) Where any part of a drainage installation is used by two or more owners or occupiers, they shall be jointly and severally liable in terms of this section for the maintenance and repair of such drainage installation.

Prevention of Blockages.

12. No person shall cause or permit such an accumulation of grease, oil, fat, solid matter or any other substance in any trap, tank, pipe, drain or fitting as will block it or prevent its effective operation.

Clearing of Blockages.

13.(1) When the owner or occupier of premises has reason to believe that a blockage has occurred in any drainage installation thereon, he shall forthwith report the fact to the council.

(2) Where a blockage occurs in a drainage installation, any work necessary for its removal shall, subject to the provisions of subsection (4), be done by or under the supervision of a plumber or drainlayer licensed in terms of the council's by-laws.

(3) Any plumber or drainlayer licensed as aforesaid shall, before proceeding to remove any blockage from a drainage installation, notify the council by telephone or otherwise of his intention to do so, and shall when he has done so, notify the council of that fact and of the nature, location and cause of the said blockage.

(4) The council itself shall, whether or not it has been requested by the owner to do so, be entitled at its own discretion to remove a blockage from a drainage installation and may recover the costs thereof from the owner in accordance with the tariff prescribed in the relevant schedule to these by-laws.

(5) As die oopmaak van enige verstopte perseelrioolstelsel dit noodsaak dat enige plaveisel, grasperk of ander kunsmatige oppervlak op enige perseel verwyder of versteur word, is die raad nie aanspreeklik vir die herstel daarvan nie.

(6) As enige perseelrioolstelsel op enige perseel as gevolg van 'n verstopping in die aansluitriool oorloop en die raad redelik oortuig is dat sodanige verstopping veroorsaak is deur voorwerpe wat van die perseelrioolstelsel afkomstig is, is die eienaar van die perseel wat deur die perseelrioolstelsel bedien word, aanspreeklik vir die koste van die oopmaak van die perseelrioolstelsel ooreenkomstig die tarief wat in die toepaslike bylae by hierdie verordeninge voorgeskryf word.

(7) As 'n verstopte perseelriool of gedeelte van 'n perseelriool wat twee of meer stukke grond bedien, oopgemaak is, word die koste vir die oopmaak van sodanige perseelriool in die eerste instansie in gelyke dele op elkeen van die eienaars daarvan verhaal, maar hulle is gesamentlik en afsonderlik vir die hele bedrag aanspreeklik.

Vrylating van Gas of Inloop van Rioolwater.

14.(1) As daar na die raad se mening 'n oorlas bestaan as gevolg van die vrylating van gas uit enige speder of sanitêre toebehoorsel of enige ander gedeelte van 'n perseelrioolstelsel, kan die raad die eienaar aansê om op sy eie koste sodanige stappe te doen wat nodig is om 'n herhaling van genoemde oorlas te voorkom.

(2) As die rioolwater nadat dit in 'n perseelrioolstelsel ontlaas is, as gevolg van oorbelasting, teendruk of enige ander omstandighede in enige drekwatertoebehoorsel of vuilwatertoebehoorsel wat met genoemde perseelrioolstelsel verbind is, inloop, kan die raad die eienaar by skriftelike kennisgewing aansê om binne die tydperk wat by sodanige kennisgewing voorgeskryf word, enige werk te doen wat nodig is om sodanige inloop van rioolwater te beëindig en enige herhaling daarvan te voorkom.

Werk deur die Raad.

15.(1) As die raad iemand by kennisgewing kragtens hierdie verordeninge aangesê het om bou-, herstel-, vervangings- of onderhoudswerk te verrig, en hy versuim het om dié werk binne die tydperk by sodanige kennisgewing voorgeskryf, te verrig, kan die raad, sonder benadeling van sy reg om hom ook te vervolg weens 'n oortreding van hierdie verordeninge, self die werk verrig en al die koste wat hy in dié verband aangaan volgens die gewone regsprosedure wat op die verhaal van siviele skuld van toepassing is, op die persoon aan wie die kennisgewing gerig is, verhaal.

(2) As die raad werk verrig, uitgesonderd dié waarvoor daar 'n vaste bedrag in enige bylae by hierdie verordeninge voorgeskryf word, en die raad kragtens hierdie verordeninge die koste daarvan op iemand mag verhaal, kan die raad sodanige bedrag, soos deur hom bereken, ter dekking van alle uitgawes wat hy redelikerwys aangegaan het, by sodanige koste insluit.

(3) Die raad moet alle skade aan sy straatriole of aan enige gedeelte van sy riool- of rioolwatersuiweringstelsel wat veroorsaak word deur of voortspruit uit die nie-nakoming of oortreding van enige bepaling van hierdie verordeninge, goedmaak of herstel, en die persoon wat vir genoemde nie-nakoming of oortreding verantwoordelik is of wat dit veroorsaak of toelaat, dra die koste daarvan wat deur die raad bereken word.

(5) Should the clearing by the council of any blockage in a drainage installation necessitate the removal or disturbance of any paving, lawn or other artificial surfacing on any premises, the council shall not be liable for the reinstatement thereof.

(6) Should any drainage installation on any premises overflow as a result of an obstruction in the connecting sewer, and the council be reasonably satisfied that such obstruction was caused by objects emanating from the drainage installation, the owner of the premises served by the drainage installation shall be liable for the cost of clearing the blockage in accordance with the tariff prescribed in the relevant schedule to these by-laws.

(7) Where a blockage has been removed from a drain or portion of a drain which serves two or more pieces of land, the charges for the clearing of such blockage shall be recoverable in the first place in equal portions from each of the owners thereof, who shall, however, be jointly and severally liable for the whole charge.

Emission of Gas or Entry of Sewage

14.(1) When in the opinion of the council a nuisance exists owing to the emission of gas from any trap or sanitary fitting or any other part of a drainage installation, the council may require the owner, at his own expense, to take such action as may be necessary to prevent the recurrence of the said nuisance.

(2) Where any sewage, after being discharged into a drainage installation, enters any soil-water fitting or waste-water fitting connected to the same drainage installation whether by reason of surcharge, back pressure or any other circumstance, the council may by notice in writing require the owner to carry out within the period specified by such notice any work necessary to abate such entry of sewage and to prevent any recurrence thereof.

Work by the Council.

15.(1) Where any person has been required by the council by notice in terms of these by-laws to carry out any work whether by way of construction, repair, replacement or maintenance and has failed to do so within the time stipulated in such notice, the council may, without prejudice to its right also to proceed against him as for a contravention of these by-laws, proceed itself to carry out the work and may recover by the ordinary process of law applicable to the recovery of a civil debt the entire cost of so doing from the person to whom the notice was directed.

(2) Where any work other than that for which a fixed charge is provided in any schedule to these by-laws is done by the council, the costs of which it is entitled in terms of these by-laws to recover from any person, there may be included in such costs such sum to be assessed by the council as will cover all expenditure reasonably incurred by the council.

(3) Any damage caused to the council's sewers or any part of its sewerage or sewage treatment system by or in consequence of the non-compliance with or contravention of any provision of these by-laws shall be rectified or repaired by the council at the expense, to be assessed by it, of the person responsible for the said non-compliance or contravention or of causing or permitting same.

Bemoëling met Straat- en Perseelriole.

16.(1) Niemand, uitgesonderd iemand wat die raad daartoe gemagtig het, mag 'n straatriool, aansluitriool, mangat of ander struktuur of enige gedeelte daarvan, wat vir die wegvoer of suiwering van rioolwater bedoel is en waarvan die eiendomsreg by die raad berus, of dit nou geleë is op 'n perseel wat aan die raad behoort of deur hom beheer word, al dan nie, oopbreek, binnegaan of hom op enige ander wyse daarmee bemoei nie.

(2) Niemand mag enige perseelriool, sperder, rooster, inspeksiekamer of enige ander struktuur of enige gedeelte van enige perseelrioolstelsel oopbreek, binnegaan of hom op enige ander wyse daarmee bemoei nie. Met dien verstande dat hierdie verbod nie van toepassing is op verbouingswerk aan enige perseelrioolstelsel deur 'n gelisensieerde rioollêer wat werk verrig ooreenkomstig planne deur die raad goedgekeur, of op enige onderhoudswerk deur 'n gelisensieerde rioollêer of ander persoon deur die raad gemagtig om sodanige werk te verrig nie.

Riool- en Septiese Tenks wat in Onbruik Raak.

17. As 'n bestaande riool- of septiese tenk nie meer nodig is om rioolwater in te hou of te suiwer nie, of as vergunning vir sodanige gebruik ingetrek word, moet die eienaar toesien dat dit of heeltemal verwyder word of, heeltemal, met grond of ander geskikte materiaal opgevol word. Met dien verstande dat die ingenieur kan gelas, dat daar, op 'n ander wyse met sodanige tenk te werk gegaan word of kan toelaat dat dit vir 'n ander doel gebruik word op sodanige voorwaardes wat hy nodig ag met inagneming van al die omstandighede van die geval.

Dwarsboming en Vals Inligting.

18.(1) 'n Beampde wat die raad daartoe gemagtig het, het die reg om enige perseel op enige redelike tydstop te betree met die doel om rioolwater of fabrieksuitvloei-sel te bemonster of te toets of om enige ondersoek in te stel of werk te verrig wat die raad in verband met 'n perseelrioolstelsel nodig ag.

(2) Die eienaar of okkupant van 'n perseel wat aan enige beampde wat dit kragtens subartikel (1) eis, toegang tot 'n perseel weier of laat weier of duld dat iemand anders aldus toegang weier, of wat enige sodanige beampde in die uitvoering van sy pligte dwarsboom of laat dwarsboom of duld dat iemand anders enige sodanige beampde aldus dwarsboom, of wat inligting wat die beampde nodig het ten einde genoemde pligte te kan uitvoer, van hom weerhou of laat weerhou of duld dat iemand anders sodanige inligting weerhou, of wat willens en wetens aan die beampde vals inligting ver-strek, laat verstrekk of duld dat iemand anders enige vals inligting aan hom verstrekk, begaan 'n misdryf.

HOOFTUK VII.

GOEDKEURING VAN PLANNE EN GOEDKEURING EN TOETS VAN PERSEELRIOOLSTELSELS EN TOEBEHORE.

Rioleringswerk moet Goedgekeur word.

19.(1) Niemand mag enige perseelrioolstelsel bou, her-bou, verbou, uitbrei of dit permanent ontkoppel as hy nie, vooraf, die raad se skriftelike toestemming daartoe verkry het nie.

(2) Daar mag nie met die rioleringswerk wat in sub-

Interference with Sewers and Drains.

16.(1) No person, except a person authorized by the council to do so, shall break into, enter or in any other manner whatsoever interfere with any sewer, connecting sewer, manhole or other work or any part thereof intended for the conveyance or treatment of sewage and which is vested in the council, whether or not situated on premises owned or controlled by the council.

(2) No person shall break into, enter or in any other manner whatsoever interfere with any drain, trap, screen, inspection chamber or other work or any part of any drainage installation. Provided that this prohibition shall not apply to alterations to any drainage installation undertaken by a licensed drainlayer carrying out work in accordance with plans approved by the council nor to any maintenance work carried out by a licensed drainlayer or other person authorized by the council to undertake such work.

Disused Conservancy and Septic Tanks.

17. If an existing conservancy tank or septic tank is no longer required for the storage or treatment of sewage, or if permission for such use is withdrawn, the owner shall either cause it to be completely removed or to be completely filled with earth or other suitable material. Provided that the engineer may require such tank to be otherwise dealt with, or he may permit it to be used for some other purpose, subject to such conditions as he may consider necessary, regard being had to all the circumstances of the case.

Obstruction and False Information.

18.(1) An officer authorized by the council shall have the right to enter upon any premises at any reasonable time in order to take samples of or test sewage or industrial effluent or to carry out any inspection or work in connection with a drainage installation which it may deem necessary.

(2) An owner or occupier of premises who denies or causes or suffers any other person to deny entry to premises to any officer demanding the same in terms of subsection (1), or who obstructs or causes or suffers any other person to obstruct any such officer in the performance of his duties, or who withholds or causes or suffers any other person to withhold information required by the officer for the purpose of carrying out his said duties, or who gives or causes or suffers any other person to give to the officer any information which is to his knowledge false, shall be guilty of an offence.

CHAPTER VII.

APPROVAL OF PLANS AND APPROVAL AND TESTING OF DRAINAGE INSTALLATIONS AND FITTINGS.

Approval Required for Drainage Work.

19.(1) No person shall construct, reconstruct, alter, add to or make any permanent disconnection in or of any drainage installation without first having obtained the approval of the council in writing.

(2) No drainage work mentioned in subsection (1) for

artikel (1) genoem word en waarvoor daar ingevolge hierdie verordeninge goedkeuring verleen is, begin word voordat twee volle dae verloop het nadat 'n skriftelike kennisgewing waarin die dag en tyd vermeld word waarop daar met die werk begin gaan word, aan die raad beteken is nie.

(3) Iemand wat met rioleringswerk begin sonder om die raad se goedkeuring daarvoor aan te vra, of voordat sy aansoek toegestaan is, of sonder om kennis te gee soos dit by subartikel (2) voorgeskryf word, of voordat genoemde kennisgewingtermyn verstryk het, of wat enige werk anders as ooreenkomstig die raad se goedkeuring verrig, kan by skriftelike kennisgewing deur die raad aangesê word om sodanige werk onverwyld te staak, en hy begaan 'n misdryf ten opsigte van elke dag waarop hy strydig met sodanige kennisgewing met die werk voortgaan, behoudens enige ander straf waaraan hy hom reeds in verband met dieselfde rioleringswerk blootgestel het.

(4) Voordat enige gedeelte van 'n perseelrioolstelsel permanent bedek of andersins permanent vir uitwendige ondersoek ontoeganklik gemaak word, moet die raad dit eers ondersoek en goedkeur, en enigiemand wat enige gedeelte van enige stelsel aldus bedek of ontoeganklik gemaak het voordat dit aldus ondersoek en goedgekeur kon word, moet as die raad hom aldus aansê, op sy eie koste die bedekking verwyder en voorts alles doen wat nodig is om die raad in staat te stel om genoemde ondersoekwerk te doen, en hy begaan bowendien 'n misdryf.

Aansoek om Goedkeuring.

20.(1) Elke persoon moet, voordat hy begin om 'n perseelrioolstelsel te bou, te herbou, te verbou, uit te brei, bloot te lê of dit van 'n perseelriool of van 'n straatriool of 'n aansluitriool te ontkoppel, 'n aansoek om goedkeuring van die beoogde werk op 'n vorm wat die raad verskaf en wat deur die eienaar van die betrokke perseel of sy argitek of ander gemagtigde agent onderteken is, tesame met die voorgeskrewe geld soos by artikel 23 bepaal, by die raad indien.

(2) 'n Aansoek ingevolge subartikel (1) vereis, moet vergesel gaan van een of meer stelle tekeninge, na gelang die raad vereis, en elke stel moet bestaan uit 'n blokplan van die perseel en planne, aansig- en deursnee-tekeninge waarop die aard en omvang van die beoogde werk duidelik aangetoon word: Met dien verstande dat as die besonderhede wat ingevolge subartikel (5) vereis word, duidelik op die ander tekeninge hierin genoem aangetoon word, geen blokplan saam met die aansoek ingedien hoef te word nie.

(3) Een stel van die vereiste tekeninge moet in water-vaste ink, of andersins duidelik gereproduseer, op natreklynne of ander goedgekeurde duursame, deursigtige materiaal wees of moet duidelik leesbare afdrucke met 'n wit agtergrond op linne of ander goedgekeurde duursame materiaal wees, en moet onderteken word soos by subartikel (1) voorgeskryf, maar enige bykomende stelle tekeninge wat die raad vereis, kan bestaan uit afdrucke op wit papier, en die minimum grootte van alle tekeninge is A4 (297 mm by 240 mm).

(4) Die planne, aansig- en deursnee van die vereiste tekeninge moet op 'n natuurlike skaal van minstens 1:200 geteken wees, maar die blokplanne moet op 'n natuurlike skaal van minstens 1:500 wees.

which approval has been given as provided for in terms of these by-laws, shall be commenced until after the expiration of two clear days after notice in writing has been served on the council stating the day on and time at which it is intended to commence the work.

(3) Any person who commences any drainage work without applying to the council for approval thereof or before his application has been granted, or without giving notice as prescribed in terms of subsection (2), or before the expiry of such notice, or who carries out any work otherwise than in accordance with the approval thereof given by the council, may be called upon by the council by notice in writing to cease the work forthwith and for every day on which work is continued in contravention of such notice, shall without prejudice to any other penalty he may have incurred with regard to the same drainage work, be guilty of an offence.

(4) Before any part of a drainage installation is permanently covered or otherwise rendered permanently inaccessible to visual inspection, it shall be inspected and approved by the council and any person who shall have so covered or rendered inaccessible any part of any installation before such inspection has been made and such approval has been given shall, on being required by the council to do so, at his own expense remove the covering and do whatever else may be necessary to enable the council to carry out the said inspection, and shall in addition be guilty of an offence.

Application for Approval.

20.(1) Every person shall, before commencing to construct, reconstruct, alter, add to, open or disconnect from a drain or from a sewer or connecting sewer any drainage installation, lodge with the council an application on a form provided by the council and signed by the owner of the premises concerned or his architect or other authorized agent, for approval of the work proposed, together with the fees prescribed in terms of section 23.

(2) An application as required in terms of subsection (1) shall be accompanied by one or more sets of drawings as the council may require, each set comprising a block plan of the premises and plans, elevations and sections indicating clearly the nature and extent of the proposed work: Provided that where the particulars required in terms of subsection (5) sufficiently appear on the other drawings herein referred to, no block plan need be furnished with the application.

(3) One set of the required drawings shall be made in waterproof ink or otherwise clearly reproduced on tracing cloth or other approved durable transparent material or be clearly legible prints with a white background on linen or other approved durable material and shall be signed as prescribed in subsection (1), but any additional sets of drawings required by the council may consist of white paper prints, the minimum size of all drawings to be not less than A4 (297 mm by 240 mm).

(4) The plans, elevations and sections of the required drawings shall be drawn to a natural scale of not smaller than 1:200 except in the case of block plans which shall be to a natural scale of not smaller than 1:500.

(5) Op die planne, aansig- en deursneetekeninge moet aangetoon word —

- (a) die ligging en rangskikking in enige gebou van alle vuilwater- en drekwatertoebehore wat daarin aanbring gaan word;
- (b) die grootte, gradiënt en ligging van elke perseelriool, die grootte en ligging van elke mangat, riool-sperder, buigstuk, drekwaterypp, vuilwaterypp, slukpypp en ventilasiepypp, en die wyse van toegang tot en ondersoek van die perseelriole;
- (c) die ligging en hoogte van alle skoorstene, geboue, vensters en ander openinge wat binne 6 m van die oop end van enige ventilasiepypp af is;
- (d) die vloerhoogtes van die gebou, die hoogte van enige werf en, in die geval van deursneetekeninge, die grondhoogte in verhouding tot die perseelriool oor sy hele lengte; en
- (e) soveel as wat nodig is van enige bestaande perseelrioolstelsel wat deur die beoogde werk geraak gaan word.

(6) Op die blokplan moet aangetoon word —

- (a) die volle grootte van die stuk grond waarop die rioleringswerk verrig gaan word en die ligging van die geboue en die bestaande en beoogde perseelriole daarop;
- (b) die titelaktebeskrywing van die stuk grond waarop die rioleringswerk verrig gaan word en van alle aangrensende stukke grond, die naam van die voorstad, landbouhoewe of plaas, en die naam van enige straat wat aan enige gedeelte van die genoemde stuk grond grens; en
- (c) die noordpyl.

(7) Op die tekeninge van perseelrioolstelsels ingevolge hierdie verordeninge ingedien, moet die items in die linkerkolom van onderstaande tabel in die kleur wat teenoor elkeen in die regterkolom staan, afgebeeld word:

TABEL.

Perseelriole en drekwaterypp	Bruin
Ventilasiepypp aan perseelriole en drekwaterypp	Rooi
Vuilwaterypp	Groen
Pypp vir die wegvoer van fabrieksuitvloei	Oranje
Ventilasiepypp aan vuilwaterypp	Blou
Bestaande, goedgekeurde perseelrioolstelsels	Swart

(8) Op die tekeninge in subartikel (7) genoem, moet die items in die linkerkolom van onderstaande tabel deur die afkortings teenoor elkeen in die regterkolom aangedui word, indien afkortings gebruik word:

TABEL.

Bad	B
Bidet	Bt
Drekwaterypp	DP
Drekwaterventilasiepypp	DVP
Erdepypp/verglaasde erdepyp	EVP
Gekomde rioolput	GRP

(5) The plans, elevations and sections shall show —

- (a) the position and arrangement in any building of every waste-water and soil-water fitting to be installed therein;
- (b) the size, gradient and position of every drain, the size and position of every manhole, gully trap, bend, soil-water pipe, waste-water pipe, anti-siphonage pipe and ventilation pipe, and the means of access to and inspection of drains;
- (c) the position and height of all chimneys, buildings, windows and other openings within a distance of 6 m from the open end of any ventilation pipe;
- (d) the levels of the floors of the building, of any yards and in the case of sections, the level of the ground in relation to the levels of drain throughout its length; and
- (e) as much as is necessary of any existing drainage installation which will be affected by the proposed work.

(6) The block plan shall show —

- (a) the full extent of the piece of land on which the drainage work is to be carried out and the position of the buildings and the existing and proposed drains thereon;
- (b) the title deed description of the piece of land on which the drainage work is to be carried out and of all pieces of land contiguous thereto, the name of the township, agricultural holding or farm, and the name of any street on which any part of the said piece of land abuts; and
- (c) the north point.

(7) On the drawings of drainage installations submitted in terms of these by-laws the items specified in the left-hand column of the following table shall be depicted in the colour shown opposite to them in the right-hand column:

TABLE.

Drains and soil-water pipes	Brown
Ventilation pipe to drains and soil-water pipes	Red
Waste-water pipes	Green
Pipes for the conveyance of industrial effluent	Orange
Ventilation pipes to waste-water pipes	Blue
Existing approved drainage installations	Black

(8) On the drawings referred to in subsection (7) the items specified in the left-hand column of the following table shall, if abbreviations are used, be identified by the abbreviations shown opposite to them in the right-hand column:

TABLE.

Access eye	A E
Anti-siphonage pipe	A S P
Bath	B
Bidet	Bt
Cast-iron pipe	C I P
Cleaning eye	C E

Geutpyp	GP
Gietysterpyp	GYP
Inspeksiekamer	IK
Inspeksieoog	IO
Luguitlaatpyp	LUP
Mangat	MG
Opwasbak	OPB
Rioolput	RP
Skoonmaakooog	SMO
Sluikpyp	SP
Spoelkloset	SK
Steekoog	SO
Stort	St
Toegangsoog	TO
Urinaal	U
Varsluginlaat	VLI
Ventilasiepyp	VP
Vetvanger	VV
Vuilwaterpyp	VWP
Vuilwatertregter	VWT
Vuilwaterventilasiepyp	VWVP
Wastrog	W

(9) Die raad moet die aansoeker skriftelik in kennis stel as hy 'n aansoek wat ingevolge hiërdie artikel ingedien is, goedkeur.

Veranderings in Aansoeke na Goedkeuring.

21.(1) Nadat die raad die aansoeker skriftelik in kennis gestel het dat hy 'n aansoek ingevolge artikel 20 goedgekeur het, kan daar met die skriftelike toestemming van die raad van die planne, soos dit goedgekeur is, afgewyk word nadat die eienaar 'n aansoek om sodanige afwyking ingedien het, tesame met die tekening en besonderhede in artikel 20 genoem en wat 'n duidelike aanduiding bevat van die aard van die beoogde afwyking en van enige gedeelte van die werk soos oorspronklik beoog, wat vervang, gewysig of verander gaan word.

(2) 'n Aansoek ingevolge subartikel (1) ingedien, word as 'n nuwe aansoek ingevolge artikel 20 beskou waarvoor die voorgeskrewe geld soos by artikel 23 bepaal, betaal moet word, en ten opsigte waarvan die betalings van subartikel (1) met betrekking tot die raad se goedkeuring daarvan van toepassing is.

Geldigheidsduur van Goedkeuring.

22.(1) Die raad se goedkeuring wat ingevolge artikel 20 verleen is, vervel ten opsigte van enige werk waarop sodanige goedkeuring van toepassing is as daar nie binne twaalf kalendermaande vanaf die datum waarop die goedkeuring verleen is, daarmee begin is nie, tensy genoemde werk saamval met bouwerk waarmee daar gedurende genoemde twaalf maande begin is.

Earthenware pipe/Vitrified clay pipe	E W P
Fresh-air inlet	F A I
Gulley	G
Gulley-dished	D G
Grease trap	G T
Inspection chamber	I C
Inspection eye	I E
Manhole	M H
Outlet ventilation pipe	O V P
Rainwater pipe	R W P
Rodding eye	R E
Sink	S
Shower	Sh
Slop hopper	S H
Soil-water pipe	S P
Soil-water ventilation pipe	S V P
Urinal	U
Ventilation pipe	V P
Water closet	W C
Wash trough	W T
Waste-water ventilation pipe	W V P
Waste-water pipe	W P

(9) Approval by the council of an application made in terms of this section shall be conveyed to the applicant in writing.

Changes in Applications After Approval.

21.(1) After approval by the council of an application in terms of section 20 has been conveyed to the applicant in writing, a departure or deviation from the work as so approved may thereafter be made with the prior written consent of the council only after the owner has submitted an application for such departure or deviation, accompanied by the drawings and particulars specified in section 20 and containing a clear indication of the nature of the proposed departure or deviation and of any part of the original proposed work which is to be superseded, altered or revised.

(2) An application made in terms of subsection (1) shall be deemed to be a new application in terms of section 20 for which the fee prescribed in terms of section 23 shall be payable and in respect of which the provisions of subsection (1) relating to the council's approval thereof shall apply.

Period of Validity of Approval.

22.(1) An approval given by the council in terms of section 20 shall become invalid in respect of any work covered by such approval which has not been commenced within twelve calendar months of the date on which it was given unless the said work is associated with building operations which have commenced during the said twelve months.

(2) As daar nie met sodanige werk wat in subartikel (1) genoem word, uitgesonderd werk wat met bouwerk-saamval, binne die genoemde twaalf maande begin is nie, moet die eienaar voordat hy daarmee begin, 'n nuwe aansoekvorm soos by artikel 20 voorgeskryf, indien en dié aansoek word vir alle doeleindes as 'n nuwe aansoek beskou en die eienaar is nie geregtig op die terugbetaling van enige geld wat hy ten opsigte van die oorspronklike aansoek betaal het nie, maar moet, wanneer hy die nuwe aansoek indien, die voorgeskrewe geld ingevolge artikel 23 betaal.

Aansoekgeld.

23.(1) Die geld wat in die toepaslike bylae by hierdie verordeninge voorgeskryf word, is vooruit aan die raad betaalbaar vir oorweging van 'n aansoek ingevolge artikel 20 of vir enige sodanige toetsing van enige toebehoor sel wat die raad nodig ag voordat hy sy goedkeuring daartoe verleen en die aansoek mag nie oorweeg word alvorens genoemde geld bereken en betaal is nie.

(2) As 'n aansoek wat ingevolge artikel 20 gedoen is, geweier of teruggetrek word, kan die raad geheel en al na sy goeddunke al die geld of enige gedeelte daarvan wat daarvoor betaal is, behou of terugbetaal.

Toets en Goedkeuring van Perseelrioolstelsels.

24.(1) Nadat 'n perseelrioolstelsel of enige gedeelte daarvan voltooi is, maar voordat dit by 'n riooltenk, 'n septiese tenk, die raad se straatriool of 'n bestaande goedgekeurde stelsel aangesluit word, moet dit in die teenwoordigheid van een van die raad se gemagtigde beamptes aan een van, of aan al die volgende toetse onderwerp word en dit tot voldoening van die raad deurstaan:

- (a) Die binnekant van elke pyp of reeks pype tussen twee toegangsplekke moet oor die hele lengte daarvan met 'n spieël en 'n ligbron ondersoek word; tydens dié ondersoek moet 'n volle ligsirkel vir die waarnemer sigbaar wees en moet hy kan sien dat die pyp of reeks pype sonder versperring is.
- (b) 'n Gladde bal met 'n middellyn van 12 mm kleiner as die nominale middellyn van die pyp moet, wanneer dit by die boonste punt van die pyp ingesit word, sonder hulp of onderbreking, tot by die onderste punt daarvan in die pyp langs rol.
- (c) Nadat alle openinge van die pyp of reeks pype wat getoets moet word, toegestop of versêl is en alle sperders daarby met water gevul is, moet daar in genoemde pyp of pype lug ingepomp word totdat 'n manometriese druk van 38 mm water aangedui word, en dan moet genoemde druk minstens drie minute lank hoër as 25 mm water bly, sonder dat daar weer lug ingepomp word.

(2) Bogenoemde toetse moet uitgevoer en die apparaat daarvoor verskaf word sonder koste vir die raad.

(2) Where any such work as mentioned in subsection (1), not being work associated with building operations, has not been commenced within the said twelve months the owner shall, before proceeding with it, submit a new application form as prescribed in terms of section 20, which application shall be deemed for all purposes to be a new application, and the owner shall not be entitled to a refund of any fees paid in respect of the original application but shall, on making the new application, pay the fees prescribed in terms of section 23.

Application Fees.

23.(1) The fees prescribed in the relevant schedule to these by-laws shall be payable to the council in advance for the consideration of an application in terms of section 20 or for any such testing of any fitting as may be deemed necessary by the council prior to giving its approval thereto and no consideration shall be given to the application until the said fees have been assessed and paid.

(2) Where an application made in terms of section 20 is refused or withdrawn, the council may at its absolute discretion retain or refund the whole or any part of the fees paid in respect thereof.

Testing and Approval of Drainage Installations.

24.(1) After the completion of a drainage installation or any part thereof, but before it is connected to a conservancy tank, a septic tank, the council's sewer or an existing approved installation, any one or more or all of the following tests shall in the presence of one of its authorized officers be applied and withstood to the satisfaction of the council:

- (a) The interior of every pipe or series of pipes between two points of access shall be inspected throughout its length by means of a mirror and a source of light; during the inspection a full circle of light shall appear to the observer, and the pipe or series of pipes shall be seen to be unobstructed.
- (b) A smooth ball having a diameter 12 mm less than the nominal diameter of the pipe shall, when inserted at the higher end of the pipe, roll down without assistance or interruption to the lower end.
- (c) All openings of the pipe or series of pipes to be tested having been plugged or sealed and all traps associated therewith filled with water, air shall be pumped into the said pipe or pipes until a manometric pressure of 38 mm of water is indicated, after which without further pumping the said pressure shall remain greater than 25 mm of water for a period of at least three minutes.

(2) The aforesaid tests shall be carried out and the apparatus therefor shall be supplied at no expense to the council.

(3) As die raad rede het om te glo dat enige perseelrioolstelsel of enige gedeelte daarvan gebrekkig geword het, kan hy die eienaar daarvan gelas om, sonder koste vir die raad, enige van of al die toetse wat by subartikel (1) voorgeskryf word, daarop uit te voer, en as die stelsel enige van dié toetse nie tot voldoening van die raad deurstaan nie, kan die raad die eienaar gelas om op sy koste en binne die tydperk wat die raad voorskryf, sodanige herstelwerk daaraan te verrig wat nodig is sodat die stelsel enige van of al genoemde toetse kan deurstaan.

HOOFSTUK VIII.

ONTLASSTROME IN PERSEELRIOOLSTELSELS.

25.(1) Die ontlaststroom wat in 'n perseelriool, 'n drekwateryp of 'n vuilwateryp ontlast word of daardeur vloei, moet gemeet word in eenhede, wat hierna ontlaseenhede genoem word.

(2) Die ontlaststroom wat by enige punt in 'n perseelriool, drekwateryp of vuilwateryp langs vloei, is dan die totaal van al die ontlaseenhede van al die sanitêre toebehore wat in sodanige perseelriool of pyp, stroomop van daardie bepaalde punt af, ontlast.

(3) Die getal ontlaseenhede van die ontlaststroom van 'n sanitêre toebehoorsel wat in kolom 3 van onderstaande tabel aangedui word, is soos in kolom 2 aangedui en die getal ontlaseenhede van die ontlaststroom van enige sanitêre of ander toebehoorsel wat nie in die tabel aangedui word nie, is soos in kolom 2 aangedui teenoor die toepaslike middellyn van die uitlaat van die sperder van sodanige toebehoorsel wat in kolom 1 aangedui word.

TABEL.

1	2	3
Nominale middellyn van sperder (mm)	Ontlaststroom-eenhede	Sanitêre Toebehoorsel
32	$\frac{1}{2}$	Handewasbak, bidet
38	1	Bad, opwasbak, stort, wastrog, muurgemonteerde urinaal
50	$1\frac{1}{2}$	
75	$2\frac{1}{2}$	Voortjietipe urinaal
100	4	Spoelkloset

(4) Die ontlaststroom van alle sanitêre toebehore waarvan die ontlasting weggevoer word deur 'n perseelriool of gedeelte van 'n perseelriool met 'n nominale middellyn soos in kolom 1 van onderstaande tabel aangedui en 'n gradiënt wat in kolom 5, 6, 7 of 8 aangedui word, mag nie die getal ontlaseenhede in genoemde tabel vir sodanige middellyn of gradiënt van die perseelriool aangedui, oorskry nie.

(3) Where the council has reason to believe that any drainage installation or any part thereof has become defective it may require the owner thereof to conduct, at no expense to the council, any or all of the tests prescribed in subsection (1) and if the installation fails to withstand any such tests to the satisfaction of the council, the council may call upon the owner to carry out at his own expense, and within such period as it may stipulate, such repairs as may be necessary to enable the installation to withstand any or all of the said tests.

CHAPTER VIII.

HYDRAULIC LOADS CARRIED BY DRAINAGE INSTALLATIONS.

25.(1) The hydraulic load discharged into or carried by a drain, a soil-water pipe or a waste-water pipe shall be calculated in units, hereinafter referred to as discharge units.

(2) The hydraulic load at any point in a drain, soil-water pipe or waste-water pipe shall be the sum of the discharge units of all sanitary fittings the discharges from which enter such drain or pipe upstream of that particular point.

(3) The hydraulic load expressed in discharge units discharged from any sanitary fitting specified in column 3 of the following table shall be as specified in column 2, and in the case of any sanitary or other fitting not specified in the table, the hydraulic load shall be as specified in column 2 for the relevant diameter of the outlet of the trap of such fitting as specified in column 1.

TABLE.

1	2	3
Nominal Diameter of Trap (mm)	Hydraulic Load in Discharge Units	Sanitary Fitting
32	$\frac{1}{2}$	Wash-hand basin, bidet
38	1	Bath, sink, shower, wash trough, wall hung urinal
50	$1\frac{1}{2}$	
75	$2\frac{1}{2}$	Channel type urinal
100	4	Water closet

(4) The hydraulic load of all sanitary fittings the discharges from which are conveyed by a drain or part of a drain having a nominal diameter set out in column 1 of the following table and a gradient set out in either column 5, 6, 7 or 8 shall not exceed the number of discharge units set out in the said table for such diameter and gradient of drain.

TABEL.

1	2	3	4	5	6	7	8
MAKSIMUM TOELAATBARE ONTLASSTROOM IN ONTLASEENHEDE.							
Nominale middellyn van pyp of perseelriool (mm)	In 'n vertikale pyp of stampyp	In 'n takpyp	In 'n horisontale pyp	In 'n pyp met 'n gradiënt.			
				Vlakker as 1:100	Tussen 1:50 en 1:100	Tussen 1:25 en 1:50	Steiler as 1:25
32	1	1	1	NIE TOEGELAAT NIE.			
38	8	2	2				
40 BM	3	1	1				
50 BM	16	3	3				
50	24	4	4				
65	42	10	10				
75 BM	64	12	18				
75	95	20	30				
100 (110 BM)	500	90	175	1 400	2 000	2 850	4 000
125	1 100	200	400	2 600	3 500	5 100	7 000
150 (160 BM)	1 900	350	700	4 100	6 000	8 500	12 000
200	3 600	600	1 400	8 700	13 000	18 000	25 000
225	—	—	1 900	12 000	17 500	24 500	30 000
250	—	—	2 500	16 000	23 000	32 000	45 000
300	—	—	3 900	26 000	37 500	52 000	73 500
375	—	—	7 000	46 500	67 500	74 000	132 500

BM = nominale buitemiddellyn.

TABLE.

1	2	3	4	5	6	7	8
MAXIMUM PERMISSIBLE HYDRAULIC LOAD IN DISCHARGE UNITS							
Nominal Pipe or Drain (mm)	Carried by a Vertical Pipe or Stack	Carried by a Branch Pipe	Carried by a Horizontal Pipe	Carried by a Drain having a Gradient			
				Flatter than 1:100	Between 1:50 and 1:100	Between 1:25 and 1:50	Steeper than 1:25
32	1	1	1	NOT PERMITTED			
38	8	2	2				
40 OD	3	1	1				
50 OD	16	3	3				
50	24	4	4				
65	42	10	10				
75 OD	64	12	18				
75	95	20	30	1 400	2 000	2 850	4 000
100 (110 OD)	500	90	175				
125	1 100	200	400				
150 (160 OD)	1 900	350	700				
200	3 600	600	1 400				
225	—	—	1 900				
250	—	—	2 500				
300	—	—	3 900				
375	—	—	7 000	46 500	67 500	74 000	132 500

OD denotes nominal outside diameter.

(5) Die nominale middellyn van enige perseelriool moet minstens 100 mm wees, en geen perseelriool mag teen 'n gradiënt vlakker as 1 op 60 gelê word sonder die toestemming van die raad soos ingevolge die bepalinge van artikel 28(3) vereis nie.

HOOFSTUK IX.

PERSEELRIOL EN MANGATE.

Perseelrioolpype en -toebehore.

26.(1) Alle pype, aansluitstukke, buigstukke en verwante toebehore wat deel van 'n perseelriool uitmaak, moet van verglaasde klei, met die standaardmerk van die Suid-Afrikaanse Buro vir Standaarde daarop, of van 'n ander goedgekeurde materiaal gemaak wees.

(2) Alle pype, aansluitstukke, buigstukke en verwante toebehore wat deel van 'n perseelriool uitmaak, moet op 'n goedgekeurde wyse aangebring word.

Lasse in en met Perseelriole.

27.(1) Alle lasse tussen pype en toestelle en toebehore in 'n perseelrioolstelsel moet sodanig wees dat aangrensende pyprompe konsentries is, die bodems daarvan 'n suiwer lyn en helling vorm en dit geen versperring aan die binnekant veroorsaak nie.

(2) Al bogenoemde lasse moet lug- en waterdig wees en 'n riolskraper waarvan die middellyn 6 mm kleiner is as die nominale binnemiddellyn van die pyp, moet vry kan deurgaan.

(3) Sementdagha vir die lasse tussen verglaasde pype moet uit hoogstens drie dele skoon en skerp sand vir een deel Portland-sement bestaan, en moet deeglik tussen die pypette en -sokke ingekalfater word.

(4) Die lasse tussen gietyster-sok-en-tappype moet met behulp van 'n pakstuk van hennep of gare gemaak word, en die pakstuk mag nie dieper strek as een helfte van die diepte van die sok wanneer die pakstuk behoorlik gekalfater is nie; en die res van die sok moet in een gietstel met gesmeltte lood of met loodvesel opgevul en daarna deeglik gekalfater word.

(5) Daar kan van ander goedgekeurde metodes vir die las van pype en verwante toebehore wat van verglaasde klei of gietyster gemaak is, gebruik gemaak word.

(6) Metodes vir die las van pype wat van sodanige ander materiaal gemaak is as wat ingevolge artikel 26 (1) goedgekeur is, moet deur die raad goedgekeur word.

(7) Waar die aard van die grond waarin enige pype en verwante toebehore gelê gaan word, na die mening van die ingenieur sodanig is dat grondbeweging moontlik sal plaasvind wat kan meebring dat die pype of toebehore breek, moet buigsame lasse gevorm word deur of goedgekeurde spesiale pype en toebehore te gebruik of goedgekeurde lasmateriaal te gebruik wat beweging in die lasse vir die hele bestaansduur van die perseelrioolstelsel sal toelaat, wortelindringing sal weerstaan en nie sal uitswel of verswak as dit met rioolwater of water in aanraking kom nie.

Die Lê, Beloop en Gradiënt van Perseelriole.

28.(1) Slegs 'n loodgieter wat ingevolge die raad se Verordeninge vir die Lisensiering en Reëling van Loodgieters en Riollêers gelisensieer is, mag perseelriole

(5) The nominal diameter of any drain shall be not less than 100 mm, and no drain shall be laid to a gradient flatter than 1 in 60 without the consent of the council as required by the provisions of section 28 (3).

CHAPTER IX.

DRAINS AND MANHOLES.

Drain Pipes and Fittings.

26.(1) All pipes, junctions, bends and associated fittings forming part of a drain shall be made of vitrified clay bearing the standardisation mark of the South African Bureau of Standards or of some other approved material.

(2) All pipes, junctions, bends and associated fittings forming part of a drainage installation shall be installed in an approved manner.

Joints in and with Drains.

27.(1) All joints between pipes and appliances and fittings in a drainage installation shall be such that adjacent pipe barrels are concentric, inverts are true to line and grade and there are no internal obstructions.

(2) All joints as aforesaid shall be so made that they are air and water-tight and that a badger of 6 mm less in diameter than the nominal internal diameter of the pipe can pass freely through them.

(3) Cement mortar for jointing vitrified clay pipes shall have a composition of not more than three parts of clean and sharp sand to one part of Portland cement and shall be properly caulked between the spigots and sockets of the pipes.

(4) The joints between cast-iron spigot and socket pipes shall be formed with a gasket of hemp or yarn the depth of which shall not exceed one-half of the depth of the socket when the gasket is properly caulked, and the remainder of the socket shall be filled with molten lead run at one pouring, or with lead fibre, and thereafter solidly caulked.

(5) Alternative approved methods of jointing pipes and associated fittings made of vitrified clay or cast iron may be used.

(6) Methods of jointing pipes and fittings made of such other materials as may be approved in terms of section 26(1) shall be as approved by the council.

(7) Where in the opinion of the engineer the nature of the soil in which any pipes and associated fittings are to be laid is such that ground movement, which may result in fracture of the pipes or fittings, is likely to occur, flexible joints shall be formed either by the use of approved special pipes and fittings or by the use of approved jointing material which will permit joint movement to take place throughout the life of the drainage installation and withstand root penetration and not swell or deteriorate when in contact with sewerage or water.

Laying, Alignment and Gradients of Drains.

28.(1) No person other than a plumber licensed in terms of the council's By-laws for the Licensing and

van gietyster lê, en slegs 'n rioollêr wat aldus gelisensieër is, mag perseelriole van verglaasde klei lê. Met dien verstande dat. —

- (a) iemand wat onder toesig van 'n gelisensieerde rioollêr werk, pype van verglaasde klei kan las; en
- (b) as die raad ingevolge artikel 26(1) toegelaat het dat 'n perseelriool van 'n ander materiaal as gietyster of verglaasde klei gemaak word, die betrokke perseelriool na goeddunke van die raad deur die houer van of 'n loodgieterslisensie of 'n rioollêrs-lisensie gelê kan word.

(2) Perseelriole moet in 'n reguit lyn en met 'n een-vormige gradiënt tussen die toegangsplekke wat in artikel 33 genoem word, gelê word, en op sodanige wyse dat die romp van elke pyp oor die hele lengte daarvan deeglik gestut word en as die raad dit vereis, moet dit in beton gelê word.

(3) Perseelriole moet met 'n gradiënt nie steiler as 1 op 6 of vlakker as 1 op 60 nie, gelê word: Met dien verstande dat die raad na goeddunke en op sodanige voorwaardes wat hy kan voorskryf —

- (a) 'n gradiënt steiler as 1 op 6 of 'n gradiënt vlakker as 1 op 60 kan toelaat;
- (b) die bou van gedeeltes van perseelriole in die vorm van hellingdaalpype teen 'n helling van hoogstens 45° onder die horisontale kan toelaat.

(4) Waar daalpype gelê word met pype wat van ander materiaal as gietyster gemaak is, moet hulle met beton omhul word.

Perseelriole in Onstabiele Grond.

29. As 'n perseelriool deur grond gaan loop wat na die mening van die ingenieur kan beweeg, moet dit gelê word op 'n ononderbroke laag riviersand of soortgelyke korrelrige materiaal wat minstens 100 mm dik is onder die romp van die pyp, en omring word deur soortgelyke materiaal van dieselfde dikte, en die lasse van sodanige perseelriole moet goedgekeurde buigsame lasse wees wat aan die bepalinge van artikel 27 (7) voldoen.

Perseelriole in of onder Geboue.

30.(1) 'n Perseelriool of 'n gedeelte daarvan kan in of onder of deur 'n gebou gelê word of loop, tensy die raad om gesondheids- of onderhoudsredes of om ander redes wat in die bepaalde geval geld, anders besluit.

(2) As 'n perseelriool of 'n gedeelte daarvan in 'n ontoeganklike posisie onder 'n gebou deurloop, mag die gedeelte onder die gebou geen toegang daartoe hê nie, en tensy die ingenieur 'n rigtingverandering of 'n verandering van die gradiënt van of na die vertikale vlak toelaat, mag die rigting of gradiënt nie verander word nie.

(3) As 'n perseelriool of 'n gedeelte daarvan wat van gietyster of verglaasde klei gemaak is, in 'n ontoeganklike posisie onder 'n gebou deurloop, moet dit, tensy die raad dit andersins toelaat, gelê word in beton minstens 100 mm dik, wat moet bestaan uit minstens 1 deel sement vir 3 dele fyn aggregraat en 6 dele growwe aggregraat, en as die pype van verglaasde klei of ligte gietyster gemaak is, moet dit omhul word met 'n dergelyke betonlaag wat oral, van die buitekant van die pyp af gemeet, minstens 100 mm dik moet wees.

Regulating of Plumbers and Drainlayers shall lay cast-iron drains, nor shall any person other than a drain-layer licensed as aforesaid lay vitrified clay drains:

Provided that —

- (a) the jointing of vitrified clay pipes may be carried out by any person working under the supervision of a licensed drainlayer;
- (b) where in terms of section 26(1) the council has permitted a drain to be made of some material other than cast iron or vitrified clay, the drain so made may at the discretion of the council be laid by the holder of either a plumber's or drain-layer's licence.

(2) Drains shall be laid in a straight line and at a uniform gradient between the points of access referred to in section 33 and in such manner that the barrel of every pipe is firmly supported throughout its length, and when so required by the council, shall be laid on a bed of concrete.

(3) Drains shall be laid at a gradient not steeper than 1 in 6 or flatter than 1 in 60: Provided that the Council may at its discretion and on such conditions as it may prescribe, permit —

- (a) a gradient steeper than 1 in 6 or a gradient flatter than 1 in 60;
- (b) the construction of portions of drains in the form of inclined ramps at a slope not exceeding 45° below the horizontal.

(4) Where ramps are constructed with pipes made of materials other than cast iron, they shall be encased in concrete.

Drains in Unstable Ground.

29. Drains passing through ground which in the opinion of the engineer is liable to movement, shall be laid on a continuous bed of river sand or similar granular material not less than 100 mm thick under the barrel of the pipe with a surround of similar material and thickness, and the joints of such drains shall be approved flexible joints complying with the requirements of section 27(7).

Drains within or under Buildings.

30.(1) A drain or part thereof may be laid or may pass, as the case may be, within or under or through a building unless the council shall decide otherwise, having regard to considerations of health and maintenance or other matters relevant to the particular case.

(2) A drain or part thereof shall, where it is laid in an inaccessible position under a building, be without means of access to the part under the building, and except where the engineer permits a change of direction or gradient to or from the vertical, shall be without change of direction or gradient.

(3) A drain or part thereof constructed of pipes made of cast iron or vitrified clay shall, where it is laid in an inaccessible position under a building and except where otherwise permitted by the council, be laid on a bed of concrete at least 100 mm thick having a composition of not less than 1 part of cement to 3 parts of fine aggregate and 6 parts of coarse aggregate, and where the pipes are made of vitrified clay or light duty cast iron, they shall be encased in similar concrete having at all points a minimum thickness of 100 mm measured from the external surface of the pipe.

(4) As 'n perseelriool of 'n gedeelte daarvan oop in 'n gebou aangebring word, moet dit bestaan uit pype van gietyster of ander goedgekeurde materiaal en moet dit oor die hele lengte daarvan op plekke hoogstens 2 m van mekaar af, toereikend gestut word.

(5) As 'n perseelriool deur of onderdeur 'n muur, fondament of ander struktuur loop, moet toereikende voorsorgmaatreëls getref word om te voorkom dat die las daarvan nie op sodanige perseelriool oorgebring word nie.

Beskerming van Vlak Perseelriole.

31. Enige gedeelte van 'n perseelriool van verglaasde klei wat 450 mm diep of vlakker in die grond is, moet gelê word in 'n betonhuls wat uit minstens 1 deel sement vir 3 dele fyn aggregraat en 6 dele growwe aggregraat moet bestaan, en wat oral van die buitekant van die pyp af gemeet, minstens 100 mm dik moet wees.

Takperseelriole.

32.(1) Elke takperseelriool moet deur middel van 'n aansluitstuk, uitgesonderd 'n rugaansluitstuk, wat spesiaal vir so 'n aansluiting gemaak is, by 'n ander perseelriool aangesluit word.

(2) Elke takperseelriool moet skuins in die vloei- rigting by die ander perseelriool aansluit sodat die ingeslote hoek tussen die aslyne van die twee perseelriole hoogstens 45° is.

Toegang tot Perseelriole.

33.(1) Elke perseelriool moet vir toegangsdoeleindes op die volgende plekke 'n mangat, soos by hierdie verordeninge voorgeskryf, of 'n toegangsoog, met of sonder 'n steek oog, na gelang die raad vereis, hê:

- (a) Binne 1,5 m van die plek af waar dit by die raad se aansluitriool aansluit;
- (b) binne 1,5 m van die boonste punt van elke perseelriool of takperseelriool;
- (c) op elke plek waar die rigting van die perseelriool verander, hetsy horisontaal of vertikaal;
- (d) by elke plek waar die perseelriool by 'n ander perseelriool aansluit.

(2) Daar moet in elk geval toegangspunte, hoogstens 25 m van mekaar af, in elke perseelriool verskaf word.

(3) Toegang tot die binnekant van 'n perseelriool moet deur middel van mangate of toegangspype verskaf word.

(4) Die deksels van openinge in toegangspype moet verseël word met sodanige goedgekeurde materiaal wat die openinge by enige temperatuur tot 70°C doeltreffend verseël sal hou.

(5)(a) As dit om enige rede prakties onmoontlik is om op 'n private perseel toereikende toegang te verskaf binne 1,5 m van die aansluitpunt van die raad se aansluitriool af, kan die raad, op die eienaar se koste, 'n mangat oor die raad se aansluitriool op sodanige openbare plek en in sodanige posisie en van sodanige materiaal en afmetings waarop die raad kan besluit, bou of laat bou, en hierbenewens moet die eienaar die koste dra, soos deur die raad bereken, van enige verandering wat ten gevolge van die bou van die mangat aan die bestaande diensleidings in die openbare plek aangebring moet word.

(4) Where a drain or part thereof is laid in an exposed position within a building, it shall be constructed of pipes made of cast iron or other approved material and shall be adequately supported at intervals not exceeding 2 m along its course.

(5) If a drain passes through or under a wall, foundation or other structure, adequate precautions shall be taken to prevent the transmission of any load to such drain.

Protection of Shallow Drains.

31. Any portion of a vitrified clay drain which is 450 mm or less below the surface of the ground shall be encased in concrete composed of not less than 1 part of cement to 3 parts of fine aggregate and 6 parts of coarse aggregate and having a minimum thickness at all points of 100 mm measured from the external surface of the pipe.

Branch Drains.

32.(1) Every branch drain shall be connected to another drain by means of a junction, not being a saddle junction, made specially for the purpose of such connection.

(2) Every branch drain shall enter the other drain obliquely in the direction of the flow so that the included angle between the axes of the two drains does not exceed 45°.

Access to Drains.

33.(1) Every drain shall be provided as a means of access thereto with a manhole as prescribed in terms of these by-laws or with an access eye with or without a rodding eye, as the council may require, at the following points:

- (a) Within 1,5 m of the point of connection with the council's connecting sewer;
- (b) within 1,5 m of the upper extremity of every drain or branch drain;
- (c) at every change of direction of the drain, whether horizontal or vertical;
- (d) at every point of junction with another drain.

(2) There shall in any case be a point of access to every drain at intervals of not more than 25 m.

(3) Access to the interior of a drain shall be provided by means of either manholes or access pipes.

(4) The lids of openings in access pipes shall be sealed with such approved material as will remain effective as a seal at all temperatures up to 70°C.

(5)(a) Where for any reason the provision of adequate means of access within 1,5 m of the point of connection with the council's connecting sewer is impracticable on any private premises, the council may, at the owners expense cause or permit a manhole to be constructed over the council's connecting sewer in such public place and in such position and of such materials and dimensions as the council may decide and in addition the owner shall bear the cost, as assessed by the council, of any alteration to existing services in the public place which may be reason of the construction of the manhole be necessary.

(b) Die eienaar van die private perseel wat in paragraaf (a) genoem word, moet, as die raad dit vereis, die geld wat in die toepaslike bylae by hierdie verordeninge voorgeskryf word, aan die raad betaal as huur-geld vir die oppervlakte wat deur die mangat in die openbare plek beslaan word.

(6) As 'n perseelriool onder 'n geplaveide oppervlak gelê is, moet die toegangspunte met verwyderbare plat-blokke wat behoorlik en paslik gemerk is, bedek wees.

(7) As enige gedeelte van 'n perseelrioolstelsel onder 'n gebou deurloop, moet daar op elke plek waar die perseelriool onder dié gebou ingaan en uitkom aan die buitekant van die gebou en so na as moontlik aan die gebou, 'n toegangspunt in die perseelriool wees.

(8) Die ingenieur kan in omstandighede wat nie deur hierdie verordeninge gedek word nie, vereis dat toegangsoë of 'n ander goedgekeurde wyse van toegang in 'n perseelriool of enige gedeelte daarvan verskaf moet word op sodanige plekke wat hy nodig ag om die binnekant van enige gedeelte van sodanige perseelriool gere-delik toeganklik vir skoonmaak- of inspeksiewerk te maak.

Steekoë.

34.(1) Steekoë wat die raad ingevolge artikel 33(1) vereis, moet verskaf word op die plekke in subartikel (2) voorgeskryf en moet voldoen aan die vereistes in subartikel (3) vervat.

(2) 'n Steekoog moet verskaf word —

- (a) binne 1,5 m van die plek waar die perseelriool by die aansluitriool aansluit;
- (b) by die boonste punt van elke perseelriool;
- (c) op elke plek waar die rigting van 'n perseelriool verander, hetsy horisontaal of vertikaal;
- (d) by die boonste punt van elke takperseelriool waar-van die ontwikkelde lengte 3 m oorskry; en
- (e) op plekke hoogstens 25 m van mekaar af oor die lengte van die perseelriool.

(3) Elke steekoog moet —

- (a) van pype van verglaasde klei of ander goedgekeurde materiaal gemaak word en moet by die perseelriool aansluit in die vloerigting met 'n hoek van hoogstens 45° en moet daarvandaan opwaarts tot op grondhoogte loop;
- (b) heeltemal omhul word met beton wat minstens 100 mm dik is en wat bestaan uit 6 dele klip, 3 dele sand en 1 deel sement;
- (c) in die geval van 'n steekoog wat 'n hoek met die loodlyn vorm, 'n betonomhulsel hê wat behoorlik gestut word deur 'n pilaar wat gebou is van beton met 'n soortgelyke samestelling;
- (d) toegerus wees met 'n goedgekeurde dekplaat van gietyster wat behoorlik bevestig is met bouten en skroewe van geelkoper of ander korrosievaste materiaal en bedek met 'n goedgekeurde betonkas met 'n gietysterdeksel en -raam wat 300 mm x 300 mm groot is en afgewerk is met 'n granolietomranding, 100 mm breed, gelyk met die omliggende grondvlak: Met dien verstande dat as 'n steekoog aan voertuigverkeer blootgestel word, die gietysterdeksel en -raam van 'n swaar tipe moet wees wat deur die raad goedgekeur is.

(b) The owner of the private premises referred to in paragraph (a) shall, if required by the council, pay to the council the charges set out in the relevant schedule to these by-laws as rental for the area of the public place occupied by the manhole.

(6) The points of access to drains laid beneath paved areas shall be covered by adequate and appropriately marked removable slabs on the surface.

(7) Where any part of a drainage installation passes under a building, it shall be provided with adequate means of access outside and as near as possible to the building at each point of its entry to and exit from the building.

(8) In any circumstance not provided for in these by-laws, the engineer may require that access eyes or other approved means of access to a drain or to any part thereof be provided in such positions as he may deem necessary to render the interior of any part of such drain readily accessible for cleaning or inspection.

Rodding Eyes.

34.(1) Rodding eyes required by the council in terms of section 33(1) shall be provided in the positions specified in subsection (2) and shall comply with the requirements set out in subsection (3).

(2) A rodding eye shall be provided —

- (a) within 1,5 m of the point of connection between the drain and the connecting sewer;
- (b) at the upper extremity of every drain;
- (c) at every change of direction, whether such change of direction is horizontal or vertical;
- (d) at the upper extremity of every branch drain the developed length of which exceeds 3 m; and
- (e) at points not exceeding 25 m apart along the drain.

(3) Every rodding eye shall —

- (a) be constructed with pipes made of vitrified clay or of other approved material and shall join the drain in the direction of the flow at an angle of not more than 45° and be continued upwards to ground level;
- (b) be completely encased in concrete not less than 100 mm thick composed of 6 parts of stone, 3 parts of sand and 1 part cement;
- (c) in the case of a rodding eye which is inclined from the vertical have the concrete casing adequately supported by a pier constructed of concrete of similar composition;
- (d) be fitted with an approved cast iron cover plate secured by bolts or screws made of brass or other corrosion-resistant material and surmounted by an approved concrete box with a cast iron cover and frame measuring 300 mm x 300 mm and finished off with a 100 mm wide granolithic surround level with the surrounding ground level: Provided that if a rodding eye is exposed to vehicular traffic, the cast iron cover and frame shall be of a heavy duty type approved by the council.

Mangate.

35.(1) Elke mangat in 'n perseelrioolstelsel moet in die buitlug geleë wees tensy die ingenieur 'n ander ligging toelaat.

(2) Elke mangat moet op so 'n wyse gebou word dat geen water dit kan binnedring nie.

(3)(a) Die mure van elke mangat moet van beton gegiet of van baksteen gebou word op 'n betonfondament minstens 150 mm dik en uit minstens 1 deel sement vir 2 dele fyn aggremaat en 4 dele growwe aggremaat bestaan.

(b) As 'n mangat van baksteen gebou word, moet die mure daarvan minstens 215 mm dik wees, en as dit van beton gegiet word, minstens 150 mm dik, tensy die ingenieur 'n ander afmeting toelaat.

(c) Alle bakstene wat vir die bou van 'n mangat gebruik word, moet hard- en goedgebak wees en moet geleë word in dagha wat bestaan uit hoogstens 3 dele sand vir 1 deel sement, en as die mure van beton gegiet word, moet sodanige beton bestaan uit minstens 1 deel sement vir 2 dele fyn aggremaat en 4 dele growwe aggremaat.

(d) As 'n oop kanaal oor die vloer van 'n mangat loop —

(i) moet die kante van die kanaal vertikaal opgebou word tot by die voet van die binnewelwing van die uitgaande pyp, en van dié hoogte af moet die vloer van die mangat met 'n egalige helling van minstens 1 op 5 opwaarts tot teenaan die mure loop;

(ii) moet die mure aan die binnekant afgepleister word met sementpleister minstens 12 mm dik en bestaan uit hoogstens 4 dele sand vir 1 deel sement; en

(iii) moet die mure en vloer met 'n staaltroffel glad afgewerk word.

(e) Die mure van die mangat of die mure van enige skag wat toegang daartoe verleen, moet tot by die vlak van die omliggende grond of vloer strek.

(f) Toegang tot die binnekant van die mangat moet verskaf word deur middel van 'n gietysterdeksel en -raam wat aan die Suid-Afrikaanse Buro vir Standaarde se Spesifikasie No. 558 voldoen en moet gestut word deur 'n gewapende plat betonblok of mure waarin karbele ingebou is.

(g) Die bokant van die mangat moet afgewerk word met 'n granolietomranding, minstens 150 mm breed, wat met 'n troffel glad afgewerk moet word.

(h) As 'n mangat gebou word op 'n plek waar —

(i) swaar voertuie oor ry, moet dit 'n swaardiensdeksel opkry;

(ii) motors of ligte voertuie oor ry, moet dit of 'n medium- of 'n swaardiensdeksel kry.

(j) Elke mangat wat dieper as 2 m is, moet aan die binnekant 'n onbelemmerde werkhooft van minstens 1,8 m hê, gemeet vanaf die hoogste punt van die vloer daarvan, en as die vloer van 'n mangat meer as 1 m onderkant die deksel is, moet daar in die mure van die mangat sodanige gietysterklimysters waarmee die vloer veilig en gerieflik bereik kan word, aangebring word.

Manholes.

35.(1) Every manhole in a drainage installation shall, unless otherwise permitted by the engineer, be located in an open air space.

(2) Every manhole shall be so constructed as to prevent the infiltration of water.

(3)(a) The walls of every manhole shall be constructed of concrete or brickwork supported on a concrete base not less than 150 mm thick composed of not less than 1 part by volume of cement to 2 parts of fine aggregate and 4 parts of coarse aggregate.

(b) Except when otherwise permitted by the engineer, the walls of any manhole shall, if constructed of brickwork, be not less than 215 mm thick, and if constructed of concrete be not less than 150 mm thick.

(c) All bricks used in the construction of a manhole shall be hard and well burnt and shall be laid in mortar consisting of not more than 3 parts of sand to 1 part of cement, and if the walls are constructed of concrete, such concrete shall be composed of not less than 1 part of cement to 2 parts of fine aggregate and 4 parts of coarse aggregate.

(d) Where the base of a manhole is traversed by an open channel —

(i) the sides of the channel shall be brought up vertically to the soffit of the outgoing pipe and and from that level the floor of the base of the manhole shall rise continuously to its walls at a slope of not less than 1 in 5;

(ii) the walls shall be plastered internally with cement plaster not less than 12 mm thick composed of not more than 4 parts of sand to 1 part of cement; and

(iii) the walls and floor shall be steel trowelled to a smooth finish.

(e) The walls of the manhole or the walls of any shaft giving access thereto shall be carried up to the level of the surrounding ground or floor.

(f) Access to the interior of the manhole shall be provided by means of a cast-iron cover and frame complying with South African Bureau of Standards Specification No. 558, supported by a reinforced concrete slab; or the walls may be corbelled to support such frame and cover.

(g) The top of the manhole shall be finished off with a granolithic surround not less than 150 mm wide trowelled to a smooth finish.

(h) Where a manhole is constructed in a place traversed by —

(i) heavy vehicles, it shall be provided with a heavy duty cover;

(ii) motor cars or similar light vehicles, it shall be provided with either a medium or heavy duty cover.

(i) Every manhole exceeding 2 m in depth shall have an unobstructed internal working height of at least 1,8 m measured from the highest point of the floor thereof, and where the floor of a manhole is more than 1 m below the cover, such cast-iron step-irons shall be provided in its walls as will ensure safe and convenient access to its base.

(4)(a) Die lengte en breedte van die binnekant van 'n mangat moet bepaal word volgens die diepte tussen die deksel en die laagste punt van die bodem van die mangat en mag in geen geval minder wees as die afmetings wat in die volgende tabel uiteengesit word nie.

TABEL.

Diepte	Lengte	Breedte
Hoogstens 750 mm	600 mm	450 mm.
Meer as 750 mm maar hoogstens 2 m	900 mm	600 mm
Meer as 2 m	1 m	750 mm

(b) Die toegangsopening van 'n mangat moet, as dit —

- (i) 'n reghoekige deksel het, minstens 450 mm x 600 mm wees;
- (ii) 'n vierkantige deksel het, minstens 600 mm x 600 mm wees;
- (iii) 'n ronde deksel het, 'n middellyn van minstens 550 mm hê.

(5) As 'n pyp wat na 'n mangat toe loop, hoër geleë is as die uitlaatpyp van die mangat, moet eersgenoemde pyp buitekant die mangat deur middel van 'n skuins pyp wat met beton omhul is, afgevoer word tot die bodemhoë van die mangat en daarin uitmond, en laasgenoemde pyp moet ook opwaarts tot by die grondoppervlak loop en moet daar waar dit eindig, 'n verwyderbare, waterdigte deksel of ander soortgelyke goedgekeurde toestel ophê. Met dien verstande dat as die ingenieur dit toelaat of vereis, die pyp op die hoër vlak horisontaal verleng kan word sodat dit met of sonder 'n waterdigte deksel in die mangat eindig en in hierdie geval hoef daar nie 'n skuins pyp na die grondoppervlak toe te wees nie.

(6) Die inlating in die raam van elke mangatdeksel met 'n enkelseël moet met ghries met 'n hoë smeltpunt gevul word en die deksel moet daarin gesit word sodat dit 'n lugdigte seël vorm.

HOOFSTUK X.

RIJOLPUTTE EN SPERDERS.

Rioolputspersers.

36.(1) Elke perseelrioolstelsel moet een rioolputsperser hê wat 'n komrioolput en 'n kraan met standhoudende watertoevoer bokant hom het, en behalwe waar 'n meganiese toestel vir die pomp van rioolwater aangebring is, moet die borand van sodanige rioolgat minstens 150 mm onderkant die kruis van die laagsliggende sperder van enige sanitêre toebehoorsel wat met die perseelrioolstelsel verbind is, geleë wees.

(2) Daar mag nie meer as een rioolputsperser met enige perseelrioolstelsel verbind wees nie, tensy die raad magtiging verleen het.

(3) As dit prakties onmoontlik is om enige vuilwaterpyp in die rioolputsperser ingevolge subartikel (1) vereis of in 'n rioolputsperser wat ingevolge subarti-

(4) (a) The internal length and width of a manhole shall be determined according to the depth between the cover and the lowest invert level of the manhole and shall in no case be less than the dimensions set out in the following table:

TABLE.

Depth:	Length.	Width.
Not exceeding 750 mm	600 mm	450 mm
Exceeding 750 mm but not exceeding 2 m	900 mm	600 mm
Exceeding 2 m	1 m	750 mm

(b) The dimensions of the access opening to a manhole provided with —

- (i) a rectangular cover, shall not be less than 450 mm by 600 mm;
- (ii) a square cover, shall not be less than 600 mm by 600 mm;
- (iii) a circular cover, shall not be less than 550 mm in diameter.

(5) Where a pipe leading to a manhole is at a higher level than the outlet pipe of the manhole, it shall be brought down to the invert level of the manhole by means of an inclined pipe encased in concrete and located outside the manhole, which pipe shall also be continued upwards to the surface of the ground and shall there terminate in a removable watertight cover or other similar approved device: Provided that where permitted or required by the engineer, the pipe at the higher level may be extended horizontally to terminate with or without a watertight cover in the manhole and in this case the inclined pipe need to be continued upwards to the surface of the ground.

(6) The recess in the frame of every manhole cover having a single seal shall be filled with grease having a high melting point and the cover shall be set therein to form an airtight seal.

CHAPTER X.

GULLIES AND TRAPS.

Gulley Traps.

36.(1) Every drainage installation shall have one gully trap provided with a dished gully and a tap above supplied with running water and, except where a mechanical appliance for the raising of sewage is installed, the top of such gully shall be not less than 150 mm below the crown of the lowest situated trap of any sanitary fitting connected to the drainage installation.

(2) No drainage installation shall have more than one gully trap connected to it, unless otherwise authorized by the council.

(3) Where it is impracticable for any waste-water pipe to be made to discharge into the gully trap required in terms of subsection (1) or into a gully trap

kel (2) gemagtig, te laat uitmond, moet sodanige vuilwaterpyp regstreeks met 'n perseelriool of 'n drekwateryp verbind en die waterslot van elke sperder wat met sodanige vuilwaterpyp verbind word, moet ooreenkomstig die vereistes van hierdie verordeninge vir die beskerming van waterslotte van sperders wat in die eenpypstelsel aangebring word, beskerm word.

Vereistes vir Sperrioolputte.

37.(1) Elke rioolputsperser moet 'n binnemiddellyn van minstens 100 mm en 'n waterslot van minstens 65 mm diep hê.

(2) Elke rioolputsperser moet met 'n rooster wat van gietyster of ander goedgekeurde materiaal gemaak is, bedek wees. Die stawe van die rooster moet minstens 10 mm en hoogstens 12 mm van mekaar af wees, en die rooster moet 'n effektiewe oop ruimte hê wat minstens gelyk is aan die minimum deursneeoppervlakte van die sperder.

(3) Elke rioolputsperser wat in die grond gelê word, moet in beton, minstens 100 mm dik, gelê word.

(4) Elke komrioolput moet minstens 75 mm bo die vlak van die rooster wat die rioolputsperser bedek, uitstyg, en moet in geen geval minder as 150 mm bo die vlak van die omliggende grond wees nie; en die vlakke van die borand van alle ander rioolputte moet minstens 150 mm bokant die omliggende grond wees.

(5) Die wateroppervlak in enige rioolputsperser moet, onderworpe aan die bepalings van subartikel (6), hoogstens 500 mm laer wees as die borand van die komrioolput, wat in subartikel (4) genoem word.

(6) As dit prakties onmoontlik is om aan die afmetingsvereistes van subartikel (5) te voldoen, moet die rioolputsperser aangebring word in 'n mangat waarvan die mure minstens 150 mm bokant die omliggende grond uitsteek en moet dit met 'n goedgekeurde metaalrooster bedek word.

(7) Elke vuilwaterpyp wat in 'n rioolput uitmond, moet op 'n plek onderkant die rooster maar bokant die vlak van die waterslot van die rioolputsperser uitmond.

Vetvangers.

38. Daar moet in die volgende gevalle 'n vetvanger van 'n goedgekeurde tipe, grootte en vermoë in plaas van of benewens 'n rioolput na gelang die raad besluit, aangebring word vir die vuilwater van elke opwasbak of ander toebehoorsel —

- (a) in elke gebou waar die vuilwater deur middel van stapelriole of ander dergelike strukture weggevoer word; en
- (b) op elke plek waar die ontlasting van ghries, vet of olie na die mening van die raad waarskynlik die vloei in straatriole of perseelriole sal belemmer, of inbreuk op die behoorlike werking van enige rioolwatersuiweringswerke sal maak.

Nywerheidsvetvangers.

39.(1) Fabrieksuitvloei wat ghries, vet, olie of anorganiese vaste stowwe in suspensie bevat, of wat na die mening van die raad waarskynlik bevat, moet, voordat daar toegelaat word dat dit in enige straatriool ontlas, deur een of meer tenks of kamers van 'n goedgekeurde tipe, grootte en inhoudsmaat, en ontwerp om

authorized in terms of subsection (2), such waste-water pipe shall be connected directly to a drain or to a soil-water pipe and the water seal of every trap connected to such waste-water pipe shall be protected in accordance with the requirements of these by-laws for the protection of water seals of traps installed on the one-pipe system.

Requirements for Trapped Gullies.

37.(1) Every gully trap shall have a minimum internal diameter of 100 mm and a water seal at least 65 mm in depth.

(2) Every gully trap shall be kept covered with a grating made of cast iron or other approved material. The spaces between the bars of the grating shall be not less than 10 mm or more than 12 mm wide, and shall have an effective open area at least equal to the minimum cross-sectional area of the trap.

(3) Every gully trap laid in the ground shall be bedded on concrete not less than 100 mm thick.

(4) Every dished gully shall rise at least 75 mm above the level of the grating covering the gully trap and in no case less than 150 mm above the level of the surrounding ground; and the levels of the tops of all other gullies shall be at least 150 mm above the surrounding ground.

(5) Subject to the provisions of subsection (6), the surface level of the water in any gully trap shall not be more than 500 mm below the top of the dished gully referred to in subsection (4).

(6) Where it is impracticable to comply with the dimensional requirements of subsection (5), the gully trap shall be located in a manhole the walls of which shall be brought up to a height of at least 150 mm above the surrounding ground and covered with an approved metal grating.

(7) Every waste-water pipe which discharges into a gully shall discharge at a point below the grating but above the surface of the water seal of the gully trap.

Grease Traps.

38. A grease trap of approved type, size and capacity shall be provided instead of, or in addition to, a gully as the council may decide, to take the discharge of waste-water from every sink or other fitting in —

- (a) every building the waste-water from which is disposed of in French drains or other similar works, and
- (b) any place where in the opinion of the council the discharge of grease, oil or fat is likely to cause an obstruction to the flow in sewers or drains, or interference with the proper operation of any sewage treatment system.

Industrial Grease Traps.

39.(1) Industrial effluent which contains or, in the opinion of the council, is likely to contain grease, oil, fat or inorganic solid matter in suspension shall, before it is allowed to enter any sewer, be passed through one or more tanks or chambers of approved type, size and

sodanige ghries, vet, olie of vaste stowwe op te vang en te hou, vloei.

(2) Olie, ghries of enige ander stof wat in enige fabrieksvloei of ander vloeistof aanwesig is en wat 'n vlambare of skadelike damp by 'n temperatuur van 20° C of hoër afgee, moet in 'n tenk of kamer opgevang word om te voorkom dat dit in die straatriool ontlast word.

(3) 'n Tenk of kamer wat in subartikel (2) genoem word, moet aan die volgende vereistes voldoen:

- (a) Dit moet 'n toereikende inhoudsmaat hê en van harde, duursame materiaal gebou en waterdig wees as dit klaar is;
- (b) die waterslot wat deur die ontlastpyp daarvan gevorm word, moet minstens 300 mm diep wees; en
- (c) daar moet soveel mangatdeksels wees dat dit toereikend is om die ghries, vet, olie en vaste stowwe doeltreffend te kan verwyder.

Vetvangers, Tenks en Soortgelyke Toebehore wat Verstop Raak.

40. Niemand mag soveel ghries, vet, olie of vaste stowwe in enige vetvanger, tenk of ander toebehoorsel laat vergaar of toelaat dat dit vergaar sodat dit ondoeltreffend raak nie.

Ligging van Rioolputte.

41.(1) Behoudens die bepalinge van artikel 39(1), moet die inlaat van elke rioolputspeder, vetvanger en stalrioolput buitekant enige gebou of op 'n plek wat blywend in 'n goedgekeurde mate aan die buitelug blootgestel is, geleë wees, en moet dit te alle tye geredelik toeganklik wees sodat dit tot voldoening van die raad skoongemaak en onderhou kan word.

(2) Elke vloer in 'n fabriek, stal of ander perseel waarvandaan vloeistof voortdurend of met tussenposes in 'n rioolput ontlast word, moet 'n syferdigte, gladde en duursame oppervlak hê, en ondanks die bepalinge van subartikel (1), kan sodanige rioolput binne 'n gebou geleë wees mits die pyp wat die ontlastings uit sodanige rioolput wegvoer, self ontlast in 'n ander rioolputspeder waarvan die ligging van die inlaat aan die bepalinge van subartikel (1) voldoen.

(3) 'n Rioolputspeder of -speders kan binne enige gebou waarin 'n outomatiese watersprinkelblusstelsel aangebring is, geleë wees om die water van sodanige stelsel op te vang, mits die pyp of pype wat die ontlastings van sodanige speder of speders opvang, ontlast in 'n ander rioolputspeder waarvan die ligging van die inlaat aan die bepalinge van subartikel (1) voldoen.

HOOFTUK XI.

VENTILASIEPYPE EN SLUKPYPE.

Ventilasiepype — Waar nodig.

42.(1) 'n Ventilasietype wat aan die toepaslike bepalinge van artikel 44 voldoen, moet verskaf word vir —

- (a) elke perseelriool;
- (b) elke takperseelriool waarvan die ontwikkelde lengte 6 m oorskry, gemeet vanaf die uitlaat van enige sanitêre toebehoorsel of speder waarvoor dit bedoel is tot by die plek waar dit by 'n ventilasietype aansluit.

capacity designed to intercept and retain such grease, oil, fat or solid matter.

(2) Oil, grease or any other substance which is contained in any industrial effluent or other liquid which gives off a flammable or noxious vapour at a temperature of or exceeding 20°C, shall be intercepted and retained in a tank or chamber so as to prevent the entry thereof into the sewer.

(3) A tank or chamber as referred to in subsection (2), shall comply with the following requirements:

- (a) It shall be of adequate capacity, constructed of hard durable materials and watertight when completed;
- (b) the water-seal formed by its discharge pipe shall be not less than 300 mm in depth; and
- (c) it shall be provided with such number of manhole covers as may be adequate for the effective removal of grease, oil, fat and solid matter.

Clogging of Traps, Tanks and Similar Fittings.

40. No person shall cause or permit such an accumulation of grease, oil, fat or solid matter in any trap, tank or other fitting as will prevent its effective operation.

Location of Gullies.

41.(1) Without prejudice to the provisions of section 39(1), the inlet of every gully trap, grease trap or stable gully shall be situated outside of any building or in a place permanently open to the external air of an approved extent, and shall at all times be readily accessible for purposes of cleaning or maintenance to the satisfaction of the council.

(2) Every floor in a factory, stable or other premises from which liquid is discharged continuously or intermittently to a gully shall have an impervious, smooth and durable surface, and notwithstanding the provisions of subsection (1) such gully may be situated within a building, provided that the pipe receiving the discharges from such gully discharges into another gully trap the inlet of which is situated as required in terms of subsection (1).

(3) A gully trap or traps may be situated within any building in which an automatic water sprinkler system is installed to receive the water from such system, provided that the pipe or pipes receiving the discharges from such trap or traps is made to discharge into another gully trap the inlet of which is situated as required in terms of subsection (1).

CHAPTER XI.

VENTILATION PIPES AND ANTI-SIPHONAGE PIPES.

Ventilation Pipes — Where Required.

42.(1) A ventilation pipe complying with the relevant requirements of section 44 shall be provided for —

- (a) every drain;
- (b) every branch drain the developed length of which exceeds 6 m measured from the outlet of any sanitary fitting or trap served by it to its point of connection with a ventilated drain;

- (c) elke drekwaterypp waarvan die ontwikkelde lengte, met inbegrip van die ontwikkelde lengte van enige ongeventileerde perseelriool waarin dit ontlast, 6 m oorskry, gemeet vanaf die uitlaat van enige sanitêre toebehoorsel waarvoor dit bedoel is tot by die plek waar dit by 'n geventileerde perseelriool aansluit;
- (d) elke takdrekwaterypp waarin die ontlastings van net een sanitêre toebehoorsel ontlast en wat 'n ontwikkelde lengte van meer as 6 m het, gemeet vanaf die uitlaat van sodanige toebehoorsel tot by die plek waar dit by 'n geventileerde drekwaterypp aansluit;
- (e) elke vuilwaterypp waarvan die ontwikkelde lengte 6 m oorskry, gemeet vanaf die uitlaat van die sperder van enige vuilwatertoebehoorsel waarvoor dit bedoel is tot by die plek waar dit in 'n rioolput of soortgelyke sperder ontlast; of in die geval van die een eennypstelsel, tot by die plek waar dit by 'n geventileerde drekwaterypp of 'n geventileerde perseelriool aansluit.
- (f) elke takvuilwaterypp waarvan die ontwikkelde lengte, 6 m oorskry, gemeet vanaf die uitlaat van die sperder van enige vuilwatertoebehoorsel waarvoor dit bedoel is tot by die plek waar dit by 'n geventileerde vuilwaterypp aansluit.

(2) Elke drekwaterypp wat 'n groter ontlastingsstroom wegvoer as 50% van die ontlastingsstroom wat in kolom 2 van die tabel in artikel 25 (4) aangedui word moet, benewens enige ventilasiepypp wat ingevolge die bepalinge van hierdie artikel vereis word, 'n ventilasiepypp met 'n middellyn van 100 mm hê wat met sodanige stampyp verbind is onder die laagste plek waar enige takvuilwaterypp of drekwaterypp by die stampyp aansluit.

Skoorstene of Kanale.

43. Geen skoorsteen of ander dergelyke kanaal mag gebruik word om enige perseelriool, drekwaterypp of vuilwaterypp te ventileer nie.

Ventilasiepypp en Slukpypp — Algemeen.

44.(1) Elke ventilasiepypp moet oor sy hele lengte 'n nominale middellyn hê wat nie kleiner is as die middellyn van die perseelriool of drekwaterypp of vuilwaterypp wat dit ventileer nie. Met dien verstande dat as enige takperseelriool of takdrekwaterypp die ontlastings van hoogstens een rioolput of ander sperder, of van hoogstens een drekwatertoebehoorsel wegvoer, die middellyn van die ventilasiepypp kleiner kan wees as die middellyn van die genoemde perseelriool of drekwaterypp, maar nie kleiner as 50 mm nie.

(2) 'n Ventilasiestelsel moet net stroomaf van die plek waar die hoogste sanitêre toebehoorsel, rioolput of soortgelyke sperder ontlast in enige perseelriool of pyp wat in artikel 42 (1) genoem word, aan sodanige perseelriool of pyp verbind word.

(3) Elke afsonderlike slukpypp moet aan die kruin of welwing van die drekwaterypp of vuilwaterypp aan die uitlaatkant van die beskermde sperder en skuins in die vloerigting by die plek minstens 75 mm en hoogstens 750 mm van die kruin van sodanige sperder af, verbind word.

(4) Die nominale middellyn van enige slukpypp moet ooreenkomstig die bepalinge van artikel 46 wees.

(5) Elke ventilasiepypp en elke slukpypp moet, sonder

- (c) every soil-water pipe the developed length of which, inclusive of the developed length of any unventilated drain into which it discharges, exceeds 6 m measured from the outlet of any sanitary fitting served by it to the point of connection to a ventilated drain;
- (d) every branch soil-water pipe which receives the discharges from only one sanitary fitting and which has a developed length greater than 6 m measured from the outlet of such fitting to the point of connection to a ventilated soil-water pipe;
- (e) every waste-water pipe the developed length of which exceeds 6 m measured from the outlet of the trap of any waste-water fitting served by it to its point of discharge into a gulley or similar trap; or in the case of the one-pipe system to its point of connection to a ventilated soil-water pipe or a ventilated drain;
- (f) every branch waste-water pipe the developed length of which exceeds 6 m measured from the outlet of the trap of any waste-water fitting served by it to its point of connection to a ventilated waste-water pipe.

(2) Every soil-water stack which carries a hydraulic load greater than 50% of the load specified in column 2 of the table in section 25(4) shall, in addition to any ventilation pipe required in terms of the provisions of this section, be provided with a 100 mm diameter ventilation pipe connected to such stack below the lowest point of entry to the stack of any branch waste-water pipe or soil-water pipe.

Chimneys or Flues.

43. No chimney or other flue shall be used for ventilating any drain, soil-water pipe or waste-water pipe.

Ventilation Pipes and Anti-siphonage Pipes — General.

44.(1) Every ventilation pipe shall throughout its length have a nominal diameter not less than the diameter of the drain or soil-water pipe or waste-water pipe which it ventilates. Provided that if any branch drain or branch soil-water pipe carries the discharge from not more than one gulley or other trap or from not more than one soil-water fitting, the diameter of the ventilation pipe may be less than the diameter of the said drain or soil-water pipe but not less than 50 mm.

(2) The connection between a ventilation pipe and any drain or pipe mentioned in section 42(1) shall be made immediately downstream of the point of discharge into such drain or pipe of the uppermost connected sanitary fitting, gulley or similar trap.

(3) Every individual anti-siphonage pipe shall be connected to the crown or soffit of the soil-water pipe or waste-water pipe on the outlet side of the protected trap obliquely in the direction of flow at a point not less than 75 mm or more than 750 mm from the crown of such trap.

(4) The nominal diameter of any anti-siphonage pipe shall be in accordance with the provisions of section 46.

(5) Every ventilation pipe and every anti-siphonage

dat die middelgelyk daarvan verminder word, opwaarts loop en moet oor sy hele lengte skuins loop sodat daar 'n onafgebroke daling van die oop end daarvan af is tot by die vuilwaterpyp of drekwatpyp of perseelriool waaraan dit verbind is.

(6) Die oop end van enige ventilasiepyp of enige slukpyp wat deur 'n gebou loop of daaraan vas is, moet minstens 600 mm hoër wees as daardie gedeelte van die dak wat naaste daaraan is, en moet minstens 2 m bokant die kosynkop van enige venster, deur of ander opening in dieselfde of enige ander gebou, of dit deel uitmaak van dieselfde perseel of nie, wat binne 'n horisontale afstand van 6 m van die genoemde oop end af geleë is, wees: Met dien verstande dat —

- (i) as 'n dakblad of enige gedeelte daarvan vir enige doel gebruik word of bedoel is, die pyp minstens 2,5 m bokant sodanige dak of gedeelte daarvan moet uitsteek, tensy die ingenieur 'n ander afmeting toelaat; en
- (ii) die oop end van enige ventilasiepyp of slukpyp in geen geval minder as 3,6 m bokant grondhoogte mag wees nie.

(7) Elke afsonderlike slukpyp moet, tensy dit onafhanklik loop, aan 'n ander slukpyp of met 'n ventilasiepyp verbind word op 'n plek minstens 150 mm bokant die oorstroomhoogte van die sanitêre toebehoorsel waarvoor dit bedoel is.

(8) As die tweepypstelsel gebruik word, mag 'n pyp wat 'n drekwatpyp ventileer of die waterslot van die sperder wat 'n drekwatertoebehoorsel beskerm, nie verbind word aan 'n pyp wat 'n vuilwaterpyp ventileer of 'n pyp wat die waterslot van die sperder van 'n vuilwatertoebehoorsel beskerm nie.

(9) As die gas uit 'n ventilasiepyp of 'n slukpyp na die mening van die raad 'n oorlas veroorsaak, kan die raad die eienaar aansê om die pyp op sy eie koste so hoog boontoe te verleng as wat die raad voorskryf ten einde sodanige oorlas uit te skakel.

(10) As enige nuwe gebou of enige aanbousel aan 'n bestaande gebou enige venster, deur of ander opening het wat so geleë is dat die bepalinge van subartikel (6) ten opsigte van enige bestaande ventilasiepyp of slukpyp, hetsy op dieselfde of enige ander perseel, oortree word, moet die eienaar van sodanige nuwe gebou of aanbousel op sy eie koste sodanige stappe doen wat nodig is om aan die bepalinge van genoemde subartikel (6) te voldoen.

(11) As die borand van 'n ventilasiepyp of 'n slukpyp hoër is as 1 m bokant die boonste plek waar dit aan 'n gebou of ander stutmiddel vasgeheg is, moet daardie gedeelte van die pyp wat bokant genoemde plek is, op toereikende wyse geanker of op 'n ander wyse stewig vasgemaak word.

Slukpype — Waar nodig.

45.(1) Behoudens die bepalinge van artikel 50, 51, 52 en 53, moet die waterslot van die sperder van 'n drekwatertoebehoorsel beskerm word deur middel van 'n afsonderlike slukpyp wat aan die toepaslike bepalinge van artikels 44 en 46 voldoen, in alle gevalle waar die ontlastings van sodanige drekwatertoebehore weggevoer word —

- (a) deur 'n ongeventileerde takperseelriool of 'n ongeventileerde drekwatpyp of 'n kombinasie daarvan, waarin daar binne 'n horisontale afstand van 300

pipe shall be carried upwards without any reduction in diameter and shall, throughout its length, be so graded as to provide a continuous fall from its open end back to the waste-water pipe or soil-water pipe or drain to which it is connected.

(6) The open end of any ventilation pipe or any anti-siphonage pipe which passes through or is attached to a building, shall be not less than 600 mm higher than that part of the roof which is closest to it and not less than 2 m above the head of any window, door or other opening in the same building or any other building, whether forming part of the same premises or not, which is within a horizontal distance of 6 m of the said open end: Provided that —

- (a) where a roof slab or any part thereof is used or is intended to be used for any purpose the pipe shall, unless the engineer shall otherwise permit, extend at least 2,5 m above such roof or part thereof; and
- (b) the open end of any ventilation pipe or anti-siphonage pipe shall in no case be less than 3,6 m above ground level.

(7) Every individual anti-siphonage pipe shall, unless carried up independently, be connected to another anti-siphonage pipe or to a ventilation pipe at a point at least 150 mm above the flood level of the sanitary fitting which it serves.

(8) Where the two-pipe system is used, a pipe which ventilates a soil-water pipe or protects the water-seal of the trap of a soil-water fitting shall not be connected to a pipe which ventilates a waste-water pipe or a pipe which protects the water seal of the trap of a waste-water fitting.

(9) Whenever, in the opinion of the council, a nuisance exists owing to the emission of gas from a ventilation pipe or an anti-siphonage pipe, the council may require the owner at his own expense to extend the pipe upwards for so far as the council may prescribe as being necessary to eliminate such nuisance.

(10) Where any new building or any addition to an existing building has any window, door or other opening so placed that the provisions of subsection (6) in respect of any existing ventilation pipe or anti-siphonage pipe, whether on the same or any other premises, are being contravened, the owner of such new building or addition shall, at his own expense, take such action as may be necessary for compliance with the provisions of the said subsection (6).

(11) Where the top of a ventilation pipe or an anti-siphonage pipe is more than 1 m above the topmost point of its attachment to a building or other means of support, that part of the pipe which is above the said point shall be adequately stayed or shall otherwise be made secure.

Anti-Siphonage Pipes — Where Required.

45.(1) Subject to the provisions of sections 50, 51, 52 and 53, the water seal of the trap of a soil-water fitting shall be protected by an individual anti-siphonage pipe complying with the relevant requirements of sections 44 and 46, in all cases where the discharges from such soil-water fitting are conveyed —

- (a) by an unventilated branch drain or an unventilated soil-water pipe or a combination thereof in which there is a fall of more than 1,2 m within a hori-

mm van die kruin van die sperder van sodanige toebehoorsel 'n daling van meer as 1,2 m is; of

- (b) deur 'n ongeventileerde takperseelriool of 'n ongeventileerde drekwatertoebehoorsel waarin enige ander drekwatertoebehoorsel ontas; of
- (c) deur 'n vertikale pyp of stampyp, met inbegrip van enige skuins gedeelte daarvan, waarin een of meer ander drekwatertoebehoorsel ontas;
- (d) deur 'n takdrekwatertoebehoorsel waarin enige ander drekwatertoebehoorsel ontas;

Met dien verstande dat afsonderlike slukpype wegge laat kan word in die geval van daardie drekwatertoebehoorsel waarvan die ontlastings deur 'n takdrekwatertoebehoorsel weggevoer word as —

- (i) die ontlastingspyp wat deur sodanige takdrekwatertoebehoorsel vloei, hoogstens 25 ontlastingshede is;
- (ii) sodanige takpyp met 'n ventilasiepyp met 'n middellyn van 100 mm verbind is ooreenkomstig die bepalings van artikel 44(2); en
- (iii) hoogstens 16 sodanige takpype in dieselfde drekwatertoebehoorsel of vertikale pyp ontas.

(2) Die waterslotte van die sperders van vuilwatertoebehoorsels wat ooreenkomstig die bepalings van hierdie verordeninge vir die tweepypstelsel aangebring is, moet deur middel van afsonderlike slukpype beskerm word, tensy goedgekeurde sluksperders aangebring word:

Met dien verstande dat hierdie vereiste nie van toepassing is nie in die geval van 'n enkele bad, stort of opwasbak wat afsonderlik in 'n rioolputsperser ontas en hoogstens 2 m bokant en 3 m weg van sodanige rioolputsperser af geleë is.

(3) Behoudens die bepalings van artikels 50, 51, 52 en 53, moet die waterslotte van die sperders van vuilwatertoebehoorsels wat ooreenkomstig die bepalings van hierdie verordeninge vir die eenpypstelsel aangebring word, deur middel van afsonderlike slukpype beskerm word.

Slukpypgroottes.

46.(1) Die nominale middellyn van 'n afsonderlike slukpyp vir die beskerming van die waterslot van die sperder van 'n spoelklosetpan moet minstens 50 mm wees.

(2) Die nominale middellyn van 'n afsonderlike slukpyp vir die beskerming van die waterslot van die sperder van 'n urinaal of 'n vuilwatertoebehoorsel moet minstens 32 mm of een helfte wees van die middellyn van die drekwatertoebehoorsel of vuilwatertoebehoorsel waarby die genoemde afsonderlike pyp aansluit, welke middellyn ook al die grootste is.

(3)(a) Vir die toepassing van hierdie subartikel —

- (i) is die ontwikkelde lengte van 'n takslukpyp die lengte van die pyp, gemeet van die plek waar dit by 'n hoofslukpyp aansluit of van die plek af waar dit by 'n ventilasiepyp aansluit, na gelang van die geval, tot by die verste afsonderlike slukpyp wat daaraan verbind is;

zontal distance of 300 mm of the crown of the trap of such fitting; or

- (b) by an unventilated branch drain or an unventilated soil-water pipe which receives the discharges from any other soil-water fitting; or
- (c) by a vertical pipe or stack, including any inclined part thereof, which receives at a higher level the discharges from one or more other soil-water fittings; or
- (d) by a branch soil-water pipe which receives the discharges from any other soil-water fitting;

Provided that individual anti-siphonage pipes may be omitted in the case of those soil-water fittings the discharges from which are carried by a branch soil-water pipe if —

- (i) the hydraulic load carried by such branch soil-water pipe does not exceed 25 discharge units;
- (ii) such branch pipe is connected to a 100 mm diameter ventilation pipe in accordance with the requirements of section 44(2); and
- (iii) not more than 16 such branch pipes discharge into the same soil-water stack or vertical pipe.

(2) The water seals of the traps of waste-water fittings installed in accordance with the requirements of these by-laws for the two-pipe system shall be protected by individual anti-siphonage pipes, unless approved re-sealing traps are installed: Provided that this requirement shall not apply to a single bath, shower or sink having an independent discharge to a gulley trap and situated not more than 2 m above or 3 m from such gulley trap.

(3) Subject to the provisions of sections 50, 51, 52 and 53, the water seals of the traps of waste-water fittings installed in accordance with the requirements of these by-laws for the one-pipe system, shall be protected by individual anti-siphonage pipes.

Sizes of Anti-siphonage Pipes.

46.(1) The nominal diameter of an individual anti-siphonage pipe for the protection of the water seal of the trap of a water closet pan shall be not less than 50 mm.

(2) The nominal diameter of an individual anti-siphonage pipe for the protection of the water seal of the trap of a urinal or a waste-water fitting shall be not less than 32 mm or one half the diameter of the soil-water pipe or waste-water pipe to which the said individual pipe is connected, whichever is the greater diameter.

(3)(a) For the purpose of this subsection —

- (i) the developed length of a branch anti-siphonage pipe shall be the length of the pipe measured from its point of connection to a main anti-siphonage pipe or from its point of connection to a ventilation pipe, as the case may be, to the farthest individual anti-siphonage pipe connected to it;

(ii) is die ontwikkelde lengte van 'n hoofslukpyp die lengte van die pyp, gemeet van die oop end af van sodanige hoofslukpyp of van die oop end af van 'n ventilasiepyp as die genoemde hoofslukpyp daarby aansluit, tot by die verste plek waar dit by 'n drekwateryp of vuilwateryp aansluit.

(b) As by enige plek op 'n takslukpyp of 'n hoofslukpyp, na gelang van die geval, die totaal van die ontlaseenhede van alle sanitêre toebehore waarvan die afsonderlike slukpype of regstreeks of onregstreeks by bogenoemde takslukpyp of hoofslukpyp onderkant sodanige plek aansluit, binne die totaal van ontlaseenhede val wat in kolom 1 van onderstaande tabel aangedui word, moet die nominale middellyn van die tak- of hoofpyp op daardie plek, behoudens die bepalings van subartikels (1) en (2), nie minder wees nie as die middellyn wat in kolom 3 aangedui word vir die toepaslike ontwikkelde lengte van sodanige pyp soos dit in kolom 2 van die tabel uiteengesit word nie.

TABEL.

1	2	3	
		Nominale middellyn van tak- of hoofslukpyp	
Totaal van ontlaseenhede van sanitêre toebehore wat met tak- of hoofslukpyp verbind is	Ontwikkelde lengte van tak- of hoofslukpyp (meter)	Binnemiddellyn (metaal-pype) (mm)	Buitemiddellyn (niet-metaal-pype) (mm)
1	onbeperk	32	40
1½ tot 3	onbeperk	38	40
3½ tot 8	hoogstens 30	38	50
	meer as 30 maar hoogstens 51	50	50
	meer as 51	50	75
8½ tot 16	hoogstens 9	38	40
	meer as 9 maar hoogstens 30	38	50
	meer as 30 maar hoogstens 51	50	50
	meer as 51	50	75
16½ tot 24	hoogstens 9	38	50
	meer as 9 maar hoogstens 30	50	50
	meer as 30 maar hoogstens 51	50	75
	meer as 51	65	75
24½ tot 42	hoogstens 5	38	50
	meer as 5 maar hoogstens 9	50	50
	meer as 9 maar hoogstens 21	50	75
	meer as 21 maar hoogstens 51	65	75
	meer as 51 maar hoogstens 75	75	75
	meer as 75	75	110

(ii) the developed length of a main anti-siphonage pipe shall be the length of the pipe measured from the open end of such main anti-siphonage pipe, or from the open end of a ventilation pipe if the said main anti-siphonage pipe is connected to it, to its farthest point of connection to a soil-water pipe or waste-water pipe.

(b) Where at any point on a branch anti-siphonage pipe or on a main anti-siphonage pipe, as the case may be, the sum of the discharge units of all sanitary fittings, the individual anti-siphonage pipes of which are connected either directly or indirectly to the aforesaid branch or main anti-siphonage pipe downward of such point, falls within the sum of discharge units specified in column 1 of the following table the nominal diameter of the branch or main pipe at that point shall, subject to the provisions of subsections (1) and (2), be not less than the diameter specified in column 3 for the applicable developed length of such pipe as set out in column 2 of the table.

TABLE

1	2	3	
Sum of discharge units of sanitary fittings connected to the branch or main anti-siphonage pipe.	Developed length of branch or main anti-siphonage pipe (metres).	Nominal diameter of branch or main anti-siphonage pipe	
		Internal diameter (metallic pipes) (mm)	Outside diameter (non-metallic pipes) (mm)
1	unlimited	32	40
1½ to 3	unlimited	38	40
3½ to 8	not exceeding 30	38	50
	exceeding 30 but not exceeding 51	50	50
	exceeding 51	50	75
8½ to 16	not exceeding 9	38	40
	exceeding 9 but not exceeding 30	38	50
	exceeding 30 but not exceeding 51	50	50
	exceeding 51	50	75
16½ to 24	not exceeding 9	38	50
	exceeding 9 but not exceeding 30	50	50
	exceeding 30 but not exceeding 51	50	75
	exceeding 51	65	75
24½ to 42	not exceeding 5	38	50
	exceeding 5 but not exceeding 9	50	50
	exceeding 9 but not exceeding 21	50	75
	exceeding 21 but not exceeding 51	65	75
	exceeding 51 but not exceeding 75	75	75
	exceeding 75	75	110

1	2	3		11	2	3	
Totaal van ontlaseenhede van sanitêre toebehore wat met tak- of hoofslukpyp verbind is	Ontwikkelde lengte van tak- of hoofslukpyp (meter)	Nominale middellyn van tak of hoofslukpyp		Sum of discharge units of sanitary fittings connected to the branch or main anti-siphonage pipe.	Developed length of branch or main anti-siphonage pipe (metres).	Nominal diameter of branch or main anti-siphonage pipe	
		Binnemiddellyn (metaal-pype) (mm)	Buitemiddellyn (nietmetaal-pype) (mm)			Internal diameter (metallic pipes). (mm)	Outside diameter (non-metallic pipes) (mm)
42½ tot 64	hoogstens 7	50	50	42½ to 64	not exceeding 7	50	50
	meer as 7 maar hoogstens 15	50	75		exceeding 7 but not exceeding 15	50	75
	meer as 15 maar hoogstens 36	65	75		exceeding 15 but not exceeding 36	65	75
	meer as 36 maar hoogstens 60	75	75		exceeding 36 but not exceeding 60	75	75
	meer as 60 maar hoogstens 90	75	110		exceeding 60 but not exceeding 90	75	110
	meer as 90	110	110		exceeding 90	110	110
64½ tot 95	hoogstens 5	50	50	64½ to 95	not exceeding 5	50	50
	meer as 5 maar hoogstens 7	50	75		exceeding 5 but not exceeding 7	50	75
	meer as 7 maar hoogstens 27	65	75		exceeding 7 but not exceeding 27	65	75
	meer as 27 maar hoogstens 51	75	75		exceeding 27 but not exceeding 51	75	75
	meer as 51 maar hoogstens 75	75	110		exceeding 51 but not exceeding 75	75	110
	meer as 75	110	110		exceeding 75	110	110
95½ tot 500	hoogstens 7	65	75	95½ to 500	not exceeding 7	65	75
	meer as 7 maar hoogstens 18	75	75		exceeding 7 but not exceeding 18	75	75
	meer as 18 maar hoogstens 24	75	110		exceeding 18 but not exceeding 24	75	110
	meer as 24 maar hoogstens 96	110	110		exceeding 24 but not exceeding 96	110	110
	meer as 96	125	160		exceeding 96	125	160
	hoogstens 5	65	75	500½ to 1100	not exceeding 5	65	75
500½ tot 1100	meer as 5 maar hoogstens 9	75	75		exceeding 5 but not exceeding 9	75	75
	meer as 9 maar hoogstens 15	75	110		exceeding 9 but not exceeding 15	75	110
	meer as 15 maar hoogstens 57	110	110		exceeding 15 but not exceeding 57	110	110
	meer as 57 maar hoogstens 177	125	160		exceeding 57 but not exceeding 177	125	160
	meer as 177	150	160		exceeding 177	125	160

1	2	3	
		Nominale middellyn van tak- of hoofslukpyp	
Totaal van ontlaseenhede van sanitêre toebehore wat met tak- of hoofslukpyp verbind is.	Ontwikkelde lengte van tak- of hoofslukpyp (meter)	Binnemiddellyn (metaal-pyp) (mm)	Buitemiddellyn (nietmetaal-pyp) (mm)
1 100½ tot 1 900	hoogstens 5	75	75
	meer as 5 maar hoogstens 7	75	110
	meer as 7 maar hoogstens 27	110	110
	meer as 27 maar hoogstens 75	125	160
	meer as 75 maar hoogstens 195	150	160
	meer as 195	200	—
1 900½ tot 3 600	hoogstens 7	110	110
	meer as 7 maar hoogstens 21	125	160
	meer as 21 maar hoogstens 57	150	160
	meer as 57 maar hoogstens 222	200	—
	meer as 222	225	—

HOOFSTUK XII.

DREKWATER- EN VUILWATERPYPSTELSELS.

Drekwater- en Vuilwaterpypstelsels — Algemeen.

47. Drekwater- en vuilwaterpypstelsels moet aan die vereistes van een van die volgende stelsels, hieronder uiteengesit, voldoen:

- Die eenpypstelsel, of
- die tweepypstelsel, of
- die enkelstampypstelsel:

Met dien verstande dat die ingenieur enige kombinasie van die vereistes vir elke stelsel kan toelaat as daar na sy mening daardeur 'n toereikend geventileerde perseelrioolstelsel tot stand sal kom en die waterslotte van alle sperders wat daarmee verbind is, doeltreffend beskerm sal word.

Vereistes vir die Eenpypstelsel.

48. Die volgende vereistes geld vir die eenpypstelsel:

- Alle drekwatertipe moet regstreeks verbind wees aan 'n perseelriool of aan 'n ander drekwatertipe wat aldus verbind is;
- alle vuilwatertipe moet regstreeks aan 'n perseelriool of drekwatertipe verbind wees; en
- die diepte van die waterslot van die sperder van elke vuilwatertoebehoorsel moet minstens 65 mm en hoogstens 100 mm wees, en elke sodanige waterslot moet beskerm word deur middel van 'n slukpyp ooreenkomstig die toepaslike bepalings van artikels 44 en 46.

1	2	3	
		Nominal diameter of branch or main anti-siphonage pipe	
Sum of discharge units of sanitary fittings connected to the branch of main anti-siphonage pipe	Developed length of branch or main anti-siphonage pipe (metres)	Internal diameter (metallic pipes) (mm)	Outside diameter (non-metallic pipes) (mm)
1 100½ to 1 900	not exceeding 5	75	75
	exceeding 5 but not exceeding 7	75	110
	exceeding 7 but not exceeding 27	110	110
	exceeding 27 but not exceeding 75	125	160
	exceeding 75 but not exceeding 195	150	160
	exceeding 195	200	—
1 900½ to 3 600	not exceeding 7	110	110
	exceeding 7 but not exceeding 21	125	160
	exceeding 21 but not exceeding 57	150	160
	exceeding 57 but not exceeding 222	200	—
	exceeding 222	225	—

CHAPTER XII.

SOIL-WATER AND WASTE-WATER PIPE SYSTEMS.

Soil-water Pipe and Waste-water Pipe Systems — General.

47. Soil-water pipe and waste-water pipe installations shall comply with the requirements, as hereinafter set out, for either of the following systems:

- The one pipe system, or
- the two pipe system, or
- the single stack system:

Provided that the engineer may permit any combination of the requirements for each system if, in his opinion, such combination will result in an adequately ventilated drainage installation and the effective protection of the water seals of all traps connected thereto.

Requirements for the One-Pipe System.

48. The following requirements shall apply to the one-pipe system:

- All soil-water pipes shall be connected directly to a drain or to another soil-water pipe similarly connected;
- all waste-water pipes shall be connected directly to a drain or to a soil-water pipe; and
- the depth of the water seal of the trap of every waste-water fitting shall be not less than 65 mm nor more than 100 mm, and each such water seal shall be protected by means of an anti-siphonage pipe in accordance with the relevant provisions of sections 44 and 46.

Vereistes vir die Tweepypstelsel.

49. Die volgende vereistes geld vir die tweepypstelsel:
- (a) Elke vuilwaterpyp of stelsel van vuilwaterpype moet ontlas in 'n rioolput wat aan 'n perseelriool of 'n drekwateryp verbind is;
 - (b) elke drekwateryp moet regstreeks verbind wees aan 'n perseelriool of aan 'n ander drekwateryp wat aldus verbind is; en
 - (c) die diepte van die waterslot van die sperder van elke vuilwatertoebroehoorstel moet minstens 38 mm en hoogstens 100 mm wees, en die waterslot van elke sodanige sperder moet ooreenkomstig die bepalings van artikel 45(2) beskerm word.

Algemene Vereistes vir die Enkelstampypstelsel.

50. Die volgende bepalings en vereistes geld vir die enkelstampypstelsel:

- (a) Die enkelstampypstelsel mag net in 'n gebou van die kantoorklas of in 'n woongebou aangebring word.
- (b) Die enkelstampypstelsel mag nie aangebring word in enige gebou wat hoër is as 25 verdiepings bo- kant die laagste grondvlak wat aan sodanige ge- bou grens nie.
- (c) Ondanks enige andersluidende bepaling in hierdie verordeninge vervat kan afsonderlike slukpype vir die beskerming van die waterslotte van die sperders van sanitêre toebehore weggelaat word in enige perseelrioolstelsel wat ooreenkomstig die bepalings van artikels 51, 52 en 53 aangebring is.

Enkelstampypstelsel: Vereistes vir Woon- en Kantoorgeboue.

51. Die volgende vereistes geld vir die enkelstampyp- stelsel in sowel woon- as kantoorgeboue:

- (a) Die drekwaterstampyp moet by sy hoogste end as 'n ventilasiepyp opwaarts verleng word om aan die toepaslike bepalings van artikel 44 te voldoen en mag hierbenewens 'n hulpventilasiepyp hê.
- (b) 'n Hulpventilasiepyp wat ingevolge paragraaf (a) vereis word, moet 'n nominale middellyn van min- stens 50 mm hê en moet aan die drekwaterstampyp verbind wees by 'n punt onder die laagste tak- pyp wat by sodanige stampyp aansluit, en moet verleng en met sodanige stampyp tussenverbind word met die tussenruimtes by artikels 52 en 53 vir die geboue voorgekryf.
- (c) Die hulpventilasiepyp en enige ander pyp moet on- derling op so 'n punt en op so 'n wyse verbind word dat geen drekwater of vuilwater in enige om- standighede deur enige ventilasiepyp ontlas kan word nie.
- (d) Die straal van die hartlyn van enige buigstuk wat by die laagste punt van die drekwaterstampyp aan- gebring word, moet minstens 300 mm wees.
- (e) Daar mag geen knik in enige drekwaterstampyp of vuilwaterstampyp gemaak word nie tensy daar 'n hulpventilasiepyp aangebring word om verligting van enige druk wat deur dié knik veroorsaak word, te verskaf, en die nominale middellyn van sodanige ventilasiepyp moet minstens gelyk wees aan die helfte van die middellyn van die stampyp.

Requirements for the Two-Pipe System.

49. The following requirements shall apply to the two- pipe system:

- (a) Every waste-water pipe or system of waste-water pipes shall discharge into a gulley trap connected to a drain or to a soil-water pipe;
- (b) every soil-water pipe shall be connected directly to a drain or to another soil-water pipe similarly con- nected; and
- (c) the depth of the water seal of the trap of every waste-water fitting shall be not less than 38 mm nor more than 100 mm, and the protection of the water seal of each such trap shall be effected in accordance with the provisions of section 45(2).

General Requirements for the Single Stack System.

50. The following provisions and requirements shall apply in the case of the single stack system:

- (a) The single stack system shall be installed only in a building of the office class or a residential building.
- (b) The single stack system shall not be installed in any buiding the height of which exceeds 25 storeys above the lowest ground level abutting on such building.
- (c) Notwithstanding anything to the contrary in these by-laws contained individual anti-siphonage pipes for the protection of the water seals of the traps of sanitary fittings may be omitted in any drainage installation carried out in accordance with the re- quirements of sections 51, 52 and 53.

Single Stack System: Requirements for Residential and Office Buildings.

51. The following requirements shall apply in the case of the single stack system in both residential and office buildings:

- (a) The soil-water stack shall, at its topmost end, be continued upwards as a ventilation pipe to comply with the relevant provisions of section 44 and may, in addition, be provided with a supplementary ven- tilation pipe.
- (b) A supplementary ventilation pipe as required in terms of paragraph (a), shall have a nominal dia- meter of not less than 50 mm and shall be connec- ted to the soil-water stack at a point below the lowest branch pipe connected to such stack, and shall be continued upwards and be interconnected to such stack at the intervals prescribed for the buildings as required in sections 52 and 53.
- (c) The interconnection between a supplementary ven- tilation pipe and any other pipe shall be so located and made that no soil-water or waste-water can, under any circumstances, be discharged through any ventilation pipe.
- (d) The radius of the centre line of any bend installed at the lowest extremity of the soil-water stack shall not be less than 300 mm.
- (e) No offset shall be made in any soil-water stack or waste-water stack unless a supplementary ventila- tion pipe is provided to relieve any pressure caused by the offset, and the nominal diameter of such ventilation pipe shall not be less than one half the diameter of the stack.

- (f) Elke vuilwatersperder moet of 'n "P"-sluksperder of 'n ander goedgekeurde "P"-sperder met 'n waterslot minstens 75 mm diep, wees.
- (g) Die vertikale afstand tussen die bodem van die laagste takpyp wat by die stampyp aansluit en die bodem van die perseelriool op die plek waar die stampyp by die perseelriool aansluit, moet minstens 500 mm wees in die geval van 'n stampyp wat vir 'n gebou van hoogstens drie verdiepings hoog bedoel is, en 3 m in alle ander gevalle.
- (h) As drekwatertoebehore en vuilwatertoebehore in reekse of batterye aangebring is, moet die takpyp wat die ontlasting van die drekwatertoebehore wegvoer, afsonderlik wees van die takpyp wat die ontlasting van die vuilwatertoebehore wegvoer, en elke sodanige takpyp moet afsonderlik by die stampyp aansluit.
- (i) Die gradiënt van enige takpyp wat vuilwater wegvoer, mag nêrens steiler as 1 op 25 of vlakker as 1 op 50 wees nie.
- (j) 'n Takvuilwaterpyp en 'n stampyp moet op so 'n plek verbind wees dat die hartlyn van die takpyp en die hartlyn van die stampyp bymekaar kom op of bokant die vlak waarop die hartlyn van enige spoelklosettakpyp en die hartlyn van die stampyp bymekaar kom of minstens 200 mm onderkant sodanige vlak.

Enkelstampypstelsel: Bykomende Vereistes vir Woongeboue.

52. Die volgende bykomende vereistes geld vir 'n enkelstampypstelsel wat in 'n woongebou aangebring is:

- (a) Die takpyp van elke toebehoorsel van 'n groep sanitêre toebehore moet afsonderlik by die stampyp aansluit.
- (b) As die sperder wat aan 'n handewasbak aangebring is, 'n nominale middellyn van 32 mm het, moet die middellyn van die takpyp wat sodanige sperder met die stampyp verbind, minstens 38 mm wees.
- (c) Die gradiënt van die takpyp in paragraaf (b) genoem mag nêrens steiler as 1 op 25 wees nie, en die lengte van sodanige pyp, gemeet van die punt waar dit aan die drekwaterstampyp verbind is en die kruin van die sperder, moet hoogstens 3 m wees.
- (d) Hoogstens twee groepe sanitêre toebehore wat op enige verdieping aangebring is, mag by dieselfde stampyp aansluit.
- (e) Die nominale middellyn van 'n stampyp wat bedoel is vir 'n woongebou wat hoër is as 20 verdiepings bokant die laagste grondvlak wat aan die gebou grens, moet minstens 150 mm wees.
- (f) As 'n stampyp met 'n nominale middellyn van 100 mm bedoel is vir 'n woongebou wat —
 - (i) hoogstens 10 verdiepings hoog is, is 'n hulpventilasiepyp onnodig;
 - (ii) meer as 10 verdiepings maar hoogstens 15 verdiepings hoog is en een groep sanitêre toebehore op elke verdieping in sodanige stampyp ontlaas, moet 'n hulpventilasiepyp met 'n nominale middellyn van minstens 50 mm aangebring word en onderling met die stampyp bo-

- (f) Every waste-water trap shall be either a "P" trap of the resealing type or other approved "P" trap with a water seal of not less than 75 mm in depth.
- (g) The vertical distance between the invert of the lowest branch pipe connected to the stack and the invert of the drain at the point of connection between the stack and the drain shall be not less than 500 mm in the case of a stack serving a building of not more than three storeys in height, and 3 m in the other cases.
- (h) Where soil-water fittings and waste-water fittings are installed in ranges or batteries, the branch pipe conveying the discharges from the soil-water fittings shall be separate from the branch pipe conveying the discharges from the waste-water fittings, and each such branch pipe shall individually be connected to the stack.
- (i) The gradient of any branch pipe conveying waste-water shall in no part be steeper than 1 in 25 nor flatter than 1 in 50.
- (j) The point of connection between a branch waste-water pipe and a stack shall be so located that the centre line of the branch pipe meets the centre line of the stack at or above the level at which the centre line of any water closet branch pipe meets the centre line of the stack or at least 200 mm below such level.

Single Stack System: Additional Requirements for Residential Buildings.

52. The following additional requirements shall apply to a single stack system installed in a residential building:

- (a) The branch pipe of each fitting in a group of sanitary fittings shall be separately connected to the stack.
- (b) Where the trap fitted to a wash-hand basin has a nominal diameter of 32 mm, the diameter of the branch pipe which connects such trap to the stack shall not be less than 38 mm.
- (c) The gradient of the branch pipe referred to in paragraph (b) shall in no part be steeper than 1 in 25, and the length of such pipe measured between its point of connection with the soil-water stack and the crown of the trap shall not exceed 3 m.
- (d) Not more than 2 groups of sanitary fittings installed in any one storey shall be connected to the same stack.
- (e) The nominal diameter of a stack serving a residential building, the height of which exceeds 20 storeys above the lowest ground level abutting on such building, shall not be less than 150 mm.
- (f) Where a stack with a nominal diameter of 100 mm serves a residential building which —
 - (i) does not exceed a height of 10 storeys, a supplementary ventilation pipe shall not be required;
 - (ii) exceeds 10 storeys but does not exceed 15 storeys in height and such stack receives the discharges from one group of sanitary fittings installed at each storey, a supplementary ventilation pipe with a nominal diameter of not less than 50 mm shall be provided and interconnected with the stack above the level of the high-

kant die vlak van die hoogste takpypaansluiting op elke tweede verdieping verbind word;

- (iii) meer as 10 verdiepings maar hoogstens 15 verdiepings hoog is en 2 groepe sanitêre toebehore op elke verdieping in sodanige stampyp ontlaas, moet 'n hulpventilasiepyp met 'n nominale middellyn van minstens 50 mm aangebring word en onderling met die stampyp bokant die vlak van die hoogste takpypaansluiting op elke verdieping verbind word;
 - (iv) meer as 15 verdiepings maar hoogstens 20 verdiepings hoog is en een groep sanitêre toebehore op elke verdieping in sodanige stampyp ontlaas, moet 'n hulpventilasiepyp met 'n nominale middellyn van minstens 75 mm verskaf word en onderling met die stampyp bokant die vlak van die hoogste takpypaansluiting op elke tweede verdieping verbind word;
 - (v) meer as 15 verdiepings maar hoogstens 20 verdiepings hoog is en twee groepe sanitêre toebehore op elke verdieping in sodanige stampyp ontlaas, moet 'n hulpventilasiepyp met 'n nominale middellyn van minstens 75 mm verskaf word en onderling met die stampyp bokant die vlak van die hoogste takpypaansluiting op elke verdieping verbind word.
- (g) As daar 'n stampyp met 'n nominale middellyn van 150 mm vir 'n woongebou van hoogstens 25 verdiepings is, is 'n hulpventilasiepyp onnodig.

Enkelstampypstelsel: Bykomende Vereistes vir Kantoorgeboue.

53. Die volgende bykomende vereistes geld vir 'n enkelstampypstelsel wat in 'n kantoorgebou aangebring is:

- (a) Onderworpe aan die bepalings van paragraaf (e), kan afsonderlike slukpype weggelaat word in die geval van sanitêre toebehore wat in reekse of batterye aangebring word soos in die onderstaande tabel aangedui, as die takpype waaraan sodanige toebehore verbind is, self afsonderlik by die stampyp aansluit en 'n hulpventilasiepyp, soos in die genoemde tabel aangedui, aangebring is.
- (b) Die hulpventilasiepyp wat in paragraaf (a) genoem word, moet onderling met die stampyp bokant die vlak van die hoogste takpypaansluiting op elke verdieping aansluit.
- (c) Die nominale middellyn van die hulpventilasiepyp moet minstens gelyk wees aan die middellyn wat in die onderstaande tabel aangedui word met inagneming van die middellyn van die stampyp, die getal verdiepings waarvoor sodanige stampyp bedoel is en die getal sanitêre toebehore wat in 'n reeks of battery op elke verdieping aangebring is.
- (d) Vir die toepassing van onderstaande tabel kan meer as een urinaal maar hoogstens vier urinale as gelykstaande met een spoelklosetpan beskou word.
- (e) Die enkelstampypstelsel mag nie in enige kantoorgebou gebruik word as die getal sanitêre toebehore wat in 'n reeks of battery in enige verdieping aangebring is, die getal oorskry wat in die onderstaande tabel vir die toepaslike middellyn van die stampyp aangedui word nie, of as die getal ver-

est branch pipe connection of each alternate storey;

- (iii) exceeds 10 storeys but does not exceed 15 storeys in height and such stack receives the discharges from 2 groups of sanitary fittings installed in each storey, a supplementary ventilation pipe with a nominal diameter of not less than 50 mm shall be provided and interconnected with the stack above the level of the highest branch pipe connection at each storey;
 - (iv) exceeds 15 storeys but does not exceed 20 storeys in height and such stack receives the discharges from one group of sanitary fittings installed in each storey, a supplementary ventilation pipe with a nominal diameter of not less than 75 mm shall be provided and interconnected with the stack above the level of the highest branch pipe connection at each alternate storey;
 - (v) exceeds 15 storeys but does not exceed 20 storeys in height and such stack receives the discharges from 2 groups of sanitary fittings installed in each storey, a supplementary ventilation pipe with a nominal diameter of not less than 75 mm shall be provided and interconnected with the stack above the level of the highest branch pipe connection at each storey.
- (g) Where a stack with a nominal diameter of 150 mm serves a residential building not exceeding 25 storeys in height, a supplementary ventilation pipe shall not be required.

Single Stack System: Additional Requirements for Office Buildings.

53. The following additional requirements shall apply in the case of a single stack system installed in a building of the office class:

- (a) Subject to the provisions of paragraph (e), individual anti-siphonage pipes may be omitted in the case of sanitary fittings installed in ranges or batteries as envisaged in the table below, if the branch pipes to which such fittings are connected are themselves separately connected to the stack, and a supplementary ventilation pipe as specified in the said table is provided.
- (b) The supplementary ventilation pipe referred to in paragraph (a) shall be interconnected with the stack above the level of the highest branch pipe connection at each storey.
- (c) The nominal diameter of the supplementary ventilation pipe shall be not less than the diameter specified in the table below, regard being had to the diameter of the stack, the number of storeys served by such stack and the number of sanitary fittings installed in a range or battery in each storey.
- (d) For the purposes of the table below, more than one urinal but not more than four urinals may be regarded as equivalent to one water closet pan.
- (e) The single stack system shall not be used in any building of the office class if the number of sanitary fittings installed in a range or battery in any storey exceeds the number specified in the table below for the relevant diameter of stack, or if the

diepings waarvoor sodanige stampyp bedoel is, die getal in die genoemde tabel aangedui, oorskry.

TABEL.

Nominale middellyn van stampyp	Getal verdiepings waarvoor stampyp bedoel is	Getal sanitêre toebehoere wat in 'n reeks of battery in elke verdieping aangebring is	Nominale middellyn van hulp-ventilasiepyp
100 mm	8 verdiepings	hoogstens 2 spoelklosetpanne en 2 handewasbakke	nie nodig nie
		meer as 2 spoelklosetpanne en 2 handewasbakke maar hoogstens 5 spoelklosetpanne en 5 handewasbakke	50 mm
	12 verdiepings	hoogstens 4 spoelklosetpanne en 4 handewasbakke	50 mm
150 mm	8 verdiepings	hoogstens 4 spoelklosetpanne en 4 handewasbakke	nie nodig nie
	24 verdiepings	hoogstens 3 spoelklosetpanne en 3 handewasbakke	nie nodig nie

HOOFSTUK XIII.

VUILWATER-, DREKWATER-, VENTILASIE- EN SLUKPYPE EN BUIGSTUKKE.

Ontwerp en Aanbring van Drekwateryp en Vuilwaterpyp.

54.(1) Geen drekwateryp of vuilwaterpyp mag 'n binnemiddellyn hê wat kleiner is as die middellyn van enige ander pyp of van die sperder van enige sanitêre toebehoersel wat daarin ontas nie.

(2) Geen spoelklosetpan mag in enige pyp met 'n binnemiddellyn van minder as 100 mm ontas nie.

(3) Behoudens andersluidende bepalings van artikels 50, 51, 52 en 53 betreffende die enkelstampypstelsel —

- mag die ontlaststroom in 'n vertikale pyp of stampyp met 'n nominale middellyn wat in kolom 1 van tabel 2 onder artikel 25 aangegee word, nie die getal ontlasteenhede wat in kolom 2 van daardie tabel vir sodanige pyp of stampyp aangegee word, oorskry nie; Met dien verstande dat as sodanige skuins gedeelte van 'n stampyp 'n kleiner hoek as 45° met die horisontale vlak vorm, sodanige gedeelte beskou moet word as 'n horisontale pyp en die middellyn van sodanige gedeelte moet dan bepaal word ooreenkomstig die bepalings van paragraaf (b) en die middellyn van die stampyp onder sodanige skuins gedeelte mag nie kleiner as die middellyn van die skuins gedeelte wees nie;
- mag die ontlaststroom in 'n horisontale pyp, behalwe 'n takpyp, met 'n nominale middellyn in kolom 1 van genoemde tabel 2 aangedui, nie die getal ontlasteenhede wat in kolom 4 vir sodanige pyp aangedui word, oorskry nie;
- mag die ontlaststroom in 'n takpyp met 'n middellyn wat in kolom 1 van genoemde tabel 2 aangedui word, nie die getal ontlasteenhede wat in kolom 3 vir sodanige pyp aangedui word, oorskry nie;

number of storeys served by such stack exceeds the number specified in the said table.

TABLE.

Nominal diameter of stack	Number of storeys served by the stack	Number of sanitary fittings installed in a range or battery in each storey.	Nominal diameter of supplementary ventilation pipe.
100 mm	8 storeys	not exceeding 2 W.C. pans and 2 hand basins	not required
		exceeding 2 W.C. pans and 2 hand basins but not exceeding 5 W.C. pans and 5 hand basins	50 mm
	12 storeys	not exceeding 4 W.C. pans and 4 hand basins	50 mm
150 mm	8 storeys	not exceeding 4 W.C. pans and 4 hand basins	not required
	24 storeys	not exceeding 3 W.C. pans and 3 hand basins	not required

CHAPTER XIII.

WASTE-WATER, SOIL-WATER, VENTILATION AND ANTI-SIPHONAGE PIPES AND JOINTS.

Design and Installation of Soil-water Pipes and Waste-water Pipes.

54.(1) No soil-water pipe or waste-water pipe shall have an internal diameter less than the diameter of any other pipe or of the trap of any sanitary fitting discharging into it.

(2) No pipe having an internal diameter of less than 100 mm shall receive the discharges from any water closet pan.

(3) Save as otherwise provided in sections 50, 51, 52 and 53 in respect of the single stack system —

- the hydraulic load carried by a vertical pipe or stack having a nominal diameter set out in column 1 of table 2 under section 25, shall not exceed the number of discharge units specified in column 2 of that table for such pipe or stack: Provided that where the angle of any inclined part of a stack is less than 45° above the horizontal, such part shall be deemed to be a horizontal pipe and the diameter of such part shall be determined in accordance with the provisions of paragraph (b) and the diameter of the stack below such inclined part shall be not less than the diameter of the inclined part;
- the hydraulic load carried by a horizontal pipe, other than a branch pipe, having a nominal diameter set out in column 1 of the said table 2, shall not exceed the number of discharge units specified in column 4 for such pipe;
- the hydraulic load carried by a branch pipe having a diameter set out in column 1 of the said table 2 shall not exceed the number of discharge units specified in column 3 for such pipe;

- (d) en behoudende andersluidende bepalings in hierdie verordeninge vervat, kan enige vuilwaterpyp met 'n middellyn vas 100 mm of groter as 100 mm en enige drekwateryp as 'n perseelriool beskou word van daardie plek stroomaf waar die helling van sodanige pyp en van enige perseelriool waaraan dit verbind is, nie in enige gedeelte 'n groter hoek as 45° met die horisontale vlak vorm nie en die toelaatbare ontlaststroom in daardie gedeelte van die vuilwaterpyp en drekwateryp wat as 'n perseelriool beskou word, mag nie die getal ontlasteenhede in kolom 5, 6, 7 of 8 van genoemde tabel vir 'n perseelriool met 'n gelykwaardige middellyn en gradiënt voorgeskryf, oorskryf nie;
- (e) en as die middellyn van enige drekwateryp of enige vuilwaterstamppyp groter is as die middellyn van die perseelriool waarin dit ontlast, moet die pyp by die basis van sodanige stamppyp horisontaal vir 'n afstand van minstens 2 m verleng word sonder enige vermindering in middellyn voordat dit by die perseelriool aansluit en, as die raad dit vereis, moet daar 'n mangat by sodanige aansluitpunt gebou word.

Ligging van Drekwateryp, Vuilwater-, Ventilasi- en Slukpyp.

55.(1) Elke drekwateryp, vuilwaterpyp, ventilasi- en slukpyp moet op 'n doeltreffende wyse teen beskadiging deur voertuie beskerm word of moet so geleë wees dat dit doeltreffend teen sodanige beskadiging beskerm is.

(2) Geen pyp in subartikel (1) genoem, mag so aangebring word dat die verwydering van enige gedeelte van 'n gebou met die doel om toegang te verkry om sodanige pyp te vervang, te ondersoek of te herstel, die strukturele stabiliteit van die gebou of enige gedeelte daarvan in gevaar stel nie.

(3) Die fatsoen en afmetings van 'n nis of muurgleuf wat enige gedeelte van 'n perseelrioolstelsel bevat en die rangskikking van alle pype en enige ander diensleiding daarin moet sodanig wees dat die ingenieur dit as toereikend beskou om die hernuwing, vervanging, onderhoud of herstel van sodanige stelsel of diensleiding toe te laat, en as sodanige nis of muurgleuf 'n deksel of deksels het, moet dit toereikend geventileer word.

(4) As 'n toegemaakte skag of kanaal enige gedeelte van 'n perseelrioolstelsel bevat, moet dit toereikend geventileer word, 'n minimum deursneeoppervlakte van 1,5 m² en 'n minimum breedte van 1 m hê en moet daar toereikende toegang tot die binnekant daarvan vir die inspeksie en herstel van die perseelrioolstelsel en van enige ander diensleidings daarin verskaf word. Met dien verstande dat die raad, onderworpe aan die bepalings van subartikel (2) en op sodanige verdere voorwaardes wat hy nodig ag, kan toelaat dat enige gedeelte van 'n perseelrioolstelsel in 'n ongeventileerde skag of kanaal wat 'n kleiner deursneeoppervlakte of breedte het, geleë kan wees as die hele binnekant van elke drekwateryp en vuilwaterpyp wat dit bevat, andersins geredelik toeganklik vir skoonmaakwerk is.

(5) Tensy die raad dit toelaat, mag geen pyp, buigstuk of aansluitstuk wat deel uitmaak van 'n perseelrioolstelsel wat vir 'n gebou bedoel is, met die oog op die estetiese uiterlike voorkoms en die aantreklikheid van die omgewing van die buitekant van sodanige gebou sigbaar wees nie.

- (d) and notwithstanding anything to the contrary in these by-laws contained, any waste-water pipe having a diameter of 100 mm or greater than 100 mm and any soil-water pipe shall be deemed to be a drain from that point downstream of which the inclination of such pipe and of any drain to which it is connected does not in any part exceed 45° below the horizontal, and the permissible hydraulic load for that part of the waste-water pipe and soil-water pipe deemed to be a drain shall not exceed the number of discharge units prescribed in column 5, 6, 7 or 8 of the said table 2 for a drain of equivalent diameter and gradient;
- (e) and where the diameter of any soil-water stack or any waste-water stack is greater than the diameter of any drain into which it discharges, the pipe at the base of such stack shall be extended horizontally for a length of not less than 2 m without any reduction in diameter before it is connected to the drain, and when required by the council, a manhole shall be provided at such point of connection.

Location of Soil-water, Waste-water, Ventilation and Anti-siphonage Pipes.

55.(1) Every soil-water pipe, waste-water pipe, ventilation pipe and anti-siphonage pipe shall be effectively protected against damage by vehicular impact or shall be so located as to be effectively protected against such damage.

(2) No pipe mentioned in subsection (1) shall be so installed that the removal of any part of a building for the purpose of gaining access to renew, maintain or repair such pipe will endanger the structural stability of the building or any part thereof.

(3) The shape and dimensions of a recess or chase containing any part of a drainage installation and the arrangement of all pipes and any other services therein shall be such as the engineer considers adequate to permit the renewal, replacement, maintenance or repair of such installation or service, and if such recess or chase is provided with a cover or covers, it shall be adequately ventilated.

(4) If an enclosed shaft or duct contains any part of a drainage installation it shall be adequately ventilated, shall have a minimum cross-sectional area of 1,5 m² and a minimum width of 1 m and shall be provided with means of access to its interior adequate for inspection and repair of the drainage installation and of any other services therein: Provided that the council may, subject to the provisions of subsection (2) and to such further conditions as it may consider necessary, permit any part of a drainage installation to be located in an unventilated enclosed shaft or duct having a smaller cross-sectional area and width in any case where the whole of the interior of every soil-water pipe and waste-water pipe contained therein is otherwise rendered readily accessible for cleaning.

(5) Unless otherwise permitted by the council, regard being had to the aesthetics of external appearance and the amenities of the neighbourhood, no pipe, bend or junction forming part of a drainage installation serving a building shall be exposed to view from the outside of such building.

Toegang tot die Binnekant van Drekwaterpype en Vuilwaterpype.

56.(1) Onderworpe aan die bepalings van subartikel (2) moet toereikende toegang tot die binnekant van die pyp verskaf word binne 2 m bokant die plek waar elke drekwateryp in die grond loop en op sodanige ander plekke wat nodig is sodat die hele binnekant van elke drekwateryp, vuilwaterpyp, en elke buigstuk en aansluitstuk daarby, geredelik toeganklik vir skoonmaak is.

(2) As 'n drekwateryp of vuilwaterpyp, behalwe 'n vuilwaterpyp wat by 'n toebehoorsel in die vertrek aansluit, deur 'n kombuis, spens of ander vertrek loop wat vir die bereiding, hantering, opberging of verkoop van voedsel gebruik word of bedoel is, moet die toegangsplek wat nodig is vir die skoonmaak van daardie gedeelte van die genoemde pyp wat deur die vertrek loop, buite die vertrek geleë wees.

(3) 'n Vuilwaterinlaat in subartikel (2) genoem, kan in die vloer van sodanige vertrek in subartikel (2) genoem, aangebring word, mits genoemde inlaat 'n sperder aan het wat met 'n pyp verbind is wat in 'n rioolput of ander sperder wat in die buitelig geleë is, ontlaas.

(4) Daar mag geen buigstuk of aansluitstuk in enige sodanige pyp in subartikel (2) genoem, wees nie, tensy die ligging daarvan met betrekking tot enige toegangsoog sodanig is dat elke gedeelte van die gedeelte wat deur sodanige vertrek loop, geredelik van buitekant die vertrek af skoongemaak kan word.

(5) As toegang tot 'n drekwateryp binne 'n gebou toegelaat en verskaf word, mag sodanige toegang slegs deur 'n toereikende lugdigte deksel wat vasgeskroef of vasgebou is, verskaf word.

Vuilwater-, Drekwater-, Ventilasië- en Slukpype en -toebehore.

57.(1) Vuilwaterpype, drekwaterype, ventilasiëpype en slukpype en die sperders en toebehore daarby, moet van gietyster, weekstaal, koper, geelkoper, getrokke lood, asbesament of ongeplastiseerde polivinylchloried gemaak word, in elke geval van goedgekeurde gehalte ooreenkomstig die toepaslike spesifikasie van die Suid-Afrikaanse Buro vir Standaarde, as dit van toepassing is, of van sodanige ander materiaal wat die raad na goeëdunke kan goedkeur. Die raad moet sy diskresie kragtens hierdie subartikel uitoefen met inagneming van gevestigde gebruikskodes en die toepaslike standaard-spesifikasies wat die Suid-Afrikaanse Buro vir Standaarde van tyd tot tyd uitreik, of as daar geen sodanige spesifikasie bestaan nie, met inagneming van die toepaslike Britse Standaardspesifikasie.

(2) Goedkeuring van die raad ingevolge subartikel (1) verleen, kan sodanige voorwaardes insluit wat die raad nodig ag om, as 'n brand uitbreek, die verspreiding van brand of van gevaarlike hoeveelhede skadelike dampe wat afgegee word deur pype, sperders of ander toebehore wat gemaak is van sodanige ander materiaal, te voorkom.

(3) Die binne- en buitevlakke van gietystertype en die sperders en toebehore daarby moet toereikend bedek wees met 'n bitumineuse of ander korrosiewerende stof, en weekstaaltipe en -toebehore moet toereikend gegalvaniseer wees of op 'n ander wyse korrosiewerend gemaak wees.

(4) As die aslyne van twee of meer takvuilwaterpype of drekwatertipe mekaar sny op 'n gemeenskaplike punt op die aslyn van 'n vuilwaterpyp of 'n drekwateryp,

Access to Interior of Soil-water Pipes and Waste-water Pipes.

56.(1) Subject to the provisions of subsection (2), adequate means of access to the interior of the pipe shall be provided within 2 m above the point of entry into the ground of every soil-water pipe and in such other positions as are necessary to render the whole of the interior of every soil-water pipe, waste-water pipe and every bend and junction associated therewith readily accessible for cleaning.

(2) Where a soil-water pipe or waste-water pipe, not being a waste-water pipe connected to a fitting in the room, passes through a kitchen, pantry or other room used or intended for use for the preparation, handling, storage or sale of food, the means of access necessary for the cleaning of that part of the said pipe which passes through the room, shall be located outside the room.

(3) An inlet to a waste-water pipe as referred to in subsection (2) may be provided in the floor of such a room as is referred to in subsection (2) so long as the said inlet is equipped with a trap connected to a pipe discharging over a gully or other trap situated in the open air.

(4) No bend or junction shall be permitted in any such pipe as is referred to in subsection (2), unless its position in relation to any access eye is such as readily to permit the ready cleaning from outside the room of every part of the part passing through such room.

(5) If access to a soil-water pipe is permitted and provided within a building, access to a soil-water pipe located within a building shall be provided only through an adequate screwed or bolted airtight cover.

Waste-water, Soil-water, Ventilation and Anti-Siphonage Pipes and Fittings.

57.(1) Waste-water pipes, soil-water pipes, ventilation pipes and anti-siphonage pipes and their associated traps and fittings shall be made of cast iron, mild steel, copper, brass, drawn lead, asbestos cement or unplasticised polyvinyl chloride, in each case of approved quality in accordance with the relevant South-African Bureau of Standards Specification, if applicable, or of such other materials as the council may at its discretion approve. The council's discretion in terms of this subsection shall be exercised by reference to established codes of practice and to the appropriate standard specifications issued by the South African Bureau of Standards from time to time, or in the absence of any such specifications, to the appropriate British Standard Specification.

(2) An approval given by the council in terms of subsection (1) may include such conditions as it may deem necessary to prevent the spread of fire or the spread of noxious fumes in dangerous quantities given off by pipes, traps or other fittings made of such other materials in the event of an outbreak of fire.

(9) Cast iron pipes and their associated traps and fittings shall have both their inside and outside surfaces adequately coated with a bituminous or other corrosion-resisting material, and mild steel pipes and fittings shall be adequately galvanized or otherwise rendered resistant to corrosion.

(4) Where the axes of two or more branch waste-water pipes or branch soil-water pipes intersect at a common point on the axis of a waste-water pipe or a soil-

mag die ingeslote hoek tussen die aslyne van die genoemde takpype nie 90° oorskry nie.

Lasse tussen Pype en Pype en Toebehore.

58. Elke las tussen 'n pyp, sperder of toebehoorsel en 'n ander pyp, sperder of toebehoorsel moet gas- en waterdig wees en dit mag geen versperring binne-in veroorsaak nie; voorts moet so 'n las tot voldoening van die raad ooreenkomstig gevestigde loodgieters- en rioleeringspraktyke gemaak word.

HOOFTSTUK XIV.

VUILWATER- EN DREKWATERTOEBEHORE EN VASTE TOEBEHORE.

Sperders aan Vuilwatertoebehore.

59.(1) Daar moet net onderkant elke vuilwatertoebehoorsel 'n goedgekeurde selfreinigende sperder aangebring word.

(2) Elke sperder ingevolge subartikel (1), behalwe 'n sperder wat van rubber of ander goedgekeurde buigsame materiaal gemaak is, moet 'n toereikende skoonmaakdoel hê wat deur 'n waterslot beskerm word en 'n verwyderbare deksel het.

(3) Die nominale middellyn van enige sperder moet minstens 32 mm in die geval van 'n sperder wat vir 'n handewasbak bedoel is, en 38 mm in die geval van sperders wat vir ander vuilwatertoebehore bedoel is, wees.

(4) Die diepte van die waterslot in 'n sperder mag nooit 100 mm oorskry nie en moet minstens 38 mm in die tweepypstelsel en minstens 65 mm in die eenpypstelsel wees.

(5) Ondanks die bepalings van subartikel (1), is dit toelaatbaar om —

- (a) 'n bad, handewasbak of stort in 'n oop voor waarvan die dwarsdeursnee 'n halwe sirkel met 'n middellyn van minstens 100 mm vorm, sonder 'n sperder tussenin, soos voornoem, te laat ontlast; die kanaal moet van geglasuurde erdewerk, porselein of ander goedgekeurde materiaal gemaak wees, moet oor die hele lengte daarvan vir skoonmaakdoeleinde toeganklik wees en moet vasgesit word net onder die plek of plekke waar dit ontlast in 'n rioolput wat van 'n sperder voorsien is en ooreenkomstig hierdie verordeninge gebou en vasgesit is;
- (b) 'n bad, handewasbak of stort wat aangebring is in 'n afskorting waarin daar 'n urinaal is, sonder 'n sperder tussenin, soos hierbo genoem, in die urinaalvoor te laat ontlast: Met dien verstande dat sodanige voor ooreenkomstig die bepalings van artikel 62(7) gemaak moet wees.

Drekwatertoebehore.

60.(1) Elke vertrek of afskorting waarin daar enige drekwatertoebehoorsel is, moet 'n harde vloer hê wat van 'n nie-absorberende materiaal gemaak is.

(2) Behoudens die besondere gepalings van artikels 61 en 62, moet elke drekwatertoebehoorsel gemaak wees van erdewerk, vuurvaste klei, porselein, glasporselein of ander goedgekeurde materiaal wat in elke geval 'n geglasuurde of gladde afwerking moet hê, en moet dit van 'n goedgekeurde tipe wees en 'n sperder met 'n waterslot van minstens 50 mm diep aanhê.

water pipe, the included angle between the axes of the said branch pipes shall not exceed 90°.

Joints between Pipes and Pipes and Fittings.

58. Every connection between a pipe, trap or fitting and another pipe, trap or fitting shall be made in such a manner as to be gas and water-tight and to cause no internal obstruction, and shall be carried out to the approval of the council in accordance with established plumbing and drainage practice.

CHAPTER XIV.

WASTE-WATER AND SOIL-WATER FITTINGS AND FIXTURES.

Traps to Waste-water Fittings.

59.(1) There shall be provided immediately beneath every waste-water fitting an approved self-cleansing trap.

(2) Except in the case of a trap made of rubber or other approved flexible material, every trap in terms of subsection (1) shall be provided with an adequate cleaning eye protected by a water seal and having a removable cover.

(3) The nominal diameter of any trap shall be not less than 32 mm in the case of a trap serving a wash-hand basin and 38 mm in the case of traps serving other waste-water fittings.

(4) The depth of the water seal in a trap shall in no case exceed 100 mm and shall be not less than 38 mm in the two-pipe system and not less than 65 mm in the one-pipe system.

(5) Notwithstanding the provisions of subsection (1), it shall be permissible —

- (a) for a bath, wash-hand basin or shower to discharge without the interposition of a trap as aforesaid into an open channel semi-circular in cross section having a diameter of at least 100 mm, made of glazed earthenware, porcelain or other approved material, accessible for cleaning throughout its length and fixed immediately beneath the point or points of discharge into a trapped gulley constructed and fixed as prescribed in terms of these by-laws;
- (b) for a bath, wash-hand basin or shower installed in a compartment containing a urinal to discharge without the interposition of a trap as aforesaid into the urinal channel: Provided that such channel is constructed in accordance with the provisions of section 62(7).

Soil-water Fittings.

60.(1) Every room or compartment containing any soil-water fitting shall have a rigid floor of non-absorbent material.

(2) Without prejudice to the particular provisions of sections 61 and 62, every soil-water fitting shall be made of earthenware, fireclay, porcelain, vitreous china or other approved material having in every case a glazed or smooth finish, shall be of approved type and shall be provided with a trap having a water seal not less than 50 mm in depth.

Spoelklosetdrekwatertoebere.

61.(1) Elke spoelklosetpan van die spoel- of hewetipe en die sperder daarby moet in een stuk gemaak wees, 'n integrerende spoelrand aanhê wat so gemaak is dat die hele binnevlak van die spoelpan doeltreffend uitgespoel word, en die oppervlak van die staande water daarin moet minstens 130 cm² beslaan: Met dien verstande dat die sperder wat by 'n hurkpan gebruik word, 'n afsonderlike eenheid kan vorm.

(2) Enige sperder soos dié wat in subartikel (1) genoem word, moet 'n sigbare uitlaatpyp van 'n toereikende lengte hê wat vir laswerk maklik bereikbaar moet wees: Met dien verstande dat die bepalinge van hierdie subartikel verslap kan word in die geval van spoelklosetpanne wat met boue of flense of ander goedgekeurde toestelle by 'n drekwatertyp aansluit.

(3) As 'n ventilasiehorning aangebring word op die sperder in subartikel (1) genoem, moet sodanige horning 'n binnemiddellyn van minstens 50 mm hê en moet dit aan die kant van en minstens 75 mm van die kruin van die sperder, aan die uitlaatkant daarvan, aangebring word.

(4) Die volgende vereistes is van toepassing op "P"-sperders wat aan spoelklosetpanne aangebring word:

(a) Hulle moet nie met ventilasiehorings toegerus word nie; en

(b) hul uitlaatpype moet afwaarts loop en 'n hoek van minstens vyf grade met die horisontale vlak vorm.

(5) Die binnemiddellyn van die uitlaat van elke sperder moet in die geval van 'n spoel- of hurkkloset minstens 90 mm, en in die geval van 'n slukspoelklosetpan minstens 80 mm wees.

(6) Die afstand tussen die bodem en die tuit van die sperder van 'n spoelklosetpan moet minstens 70 mm en hoogstens 75 mm wees.

(7) Behalwe in die geval van hurkpanne, moet panne skarniersitplekke of ander sitplekke van 'n goedgekeurde tipe en materiaal aanhê.

(8) As daar 'n kussing of paksel tussen die voetstuk van die pan en die vloer ingesit word, moet dit van 'n nie-absorberende materiaal gemaak wees.

(9) Die raad kan na sy absolute goeddunke en op sodanige voorwaardes wat hy kan stel, die gebruik van trogklosette van 'n goedgekeurde ontwerp in afsonderlike geboue wat vir dié doel verskaf word, toelaat.

Urinale.

62.(1) Urinale moet van die vak-, blad-, muurgemonteerde of ander goedgekeurde tipe wees en gemaak word sodat dit, sonder 'n sperder tussenin, in 'n kanaal ontlast wat egalig skuins afloop na 'n sperder wat met 'n perseelriool of vuilwatertyp verbind is: Met dien verstande dat 'n muurgemonteerde urinaal, onderworpe aan die bepalinge van subartikel (3), 'n sperder kan aanhê wat vasgeheg is aan of 'n integrerende deel vorm van die urinaal wat regstreeks met 'n drekwatertyp of perseelriool verbind is.

(2) Muurgemonteerde urinale moet —

(a) 'n minimum totale hoogte, uitgesonderd enige sperder, van 600 mm hê, en

(b) 'n minimum totale breedte van 380 mm hê; en

Water Closet Soil-water Fittings.

61.(1) Every water closet pan of the wash-down or siphonic type and its associated trap shall be made in one piece, shall be provided with an integral flushing rim so constructed that the entire surface of the bowl is effectively flushed, and shall have a minimum standing water-level area of 130 cm²: Provided that the trap used with a squatting pan may be an independent unit.

(2) Any such trap as referred to in subsection (1) shall have an exposed outlet of sufficient length to be conveniently accessible for jointing: Provided that the provisions of this subsection may be relaxed in the case of water closet pans connected to a soil-water pipe by bolts or flanges or other approved devices.

(3) If a ventilating horn is provided on the trap referred to in subsection (1), such horn shall have an internal diameter of not less than 50 mm and shall be placed at the side of and not less than 75 mm from the crown of the trap on its outlet side.

(4) The following requirements shall be applicable to "P" traps fitted to water closet pans:

(a) They shall not be fitted with ventilating horns; and

(b) their outlet pipes shall slope downwards at an angle of not less than five degrees to the horizontal.

(5) The minimum internal diameter of the outlet of every trap shall be 90 mm in the case of a wash-down or squatting pan and 80 mm in the case of a siphonic water closet pan.

(6) The distance between the invert and the lip of the trap of a wash-down water closet pan shall be not less than 70 mm or more than 75 mm.

(7) Except in the case of squatting pans, pans shall be provided with hinged or other seats of approved type and material.

(8) Any pad or packing inserted between the base of the pan and the floor shall be of non-absorbent material.

(9) The council may at its absolute discretion and subject to such conditions as it may impose, permit the use of trough closets of approved design in separate buildings provided for the purpose.

Urinals.

62.(1) Urinals shall be of the stall, slab, wall hung or other approved type made to discharge, without the interposition of a trap, into a channel uniformly graded to a trap connected to a drain or soil-water pipe: Provided that a wall hung urinal may, subject to the provisions of subsection (3), have a trap attached to or formed integrally with the urinal directly connected to a soil-water pipe or drain.

(2) Wall hung urinals shall have —

(a) a minimum overall height, excluding any trap, of 600 mm; and

(b) a minimum overall width of 380 mm; and

(c) 'n minimum horisontale uitstek van 380 mm van die agterkant van die vaste toebehoorsel af tot by die voorkant van die tuit hê.

(3) As enige tipe urinaal vir openbare gebruik of in 'n fabriek, tehuis of opvoedkundige inrigting aangebring word, of as meer as drie muurgemonteerde urinale in dieselfde vertrek of afskorting in enige gebou aangebring word, moet sodanige urinale ontlast in 'n kanaal wat aan die toepaslike bepalings van hierdie artikel voldoen.

(4) As urinale regstreeks by 'n drekwatertyp of perseelriool aangesluit is, moet die vloer van die vertrek of afskorting waarin die urinale is, skuins gemaak word sodat alle water kan afloop na 'n goedgekeurde sperder in die vloer wat insgelyks aangesluit is.

(5) Alle oppervlakke wat moontlik besoedel kan word in enige vertrek of afskorting waarin daar 'n urinaal is, moet beskerm word met 'n goedgekeurde vloestofdigte materiaal met 'n geglasuurde of ander gladde afwerking.

(6) Die vloer van 'n vertrek of afskorting waarin daar 'n urinaalkanaal is, moet skuins afloop na die kanaal sodat alle water daarin kan loop. Met dien verstande dat as die kanaal hoër as die vloer lê, daar 'n platform, minstens 400 mm breed, verskaf moet word en slegs genoemde platform moet, soos hierbo bepaal, skuins afloop.

(7) Elke kanaal en sperder wat deel van 'n urinaal uitmaak of waarin 'n urinaal ontlast, moet van goedgekeurde vloestofdigte materiaal met 'n geglasuurde of gladde afwerking wees en moet in dieselfde vertrek of afskorting as die urinaal self geleë wees.

(8) Die nominale middellyn van 'n sperder waarin 'n kanaal in 'n afskorting of vertrek waarin daar 'n urinaal is, ontlast, moet minstens 75 mm wees, en die middellyn van 'n sperder wat vasgeheg is aan of 'n integrerende deel vorm van 'n muurgemonteerde urinaal, moet minstens 38 mm wees.

(9) Daar moet minstens een sperder met 'n middellyn van 75 mm verskaf word vir elke 5 urinaalvlakke of vir elke 3,5 m van 'n bladurinaal; of minstens een sperder met 'n middellyn van 100 mm vir elke 10 vakke of elke 7 m van 'n bladurinaal.

(10) Behalwe in die geval van 'n hewelurinaal, moet elke urinaalsperder 'n koepelrooster met skarniere aanhê wat so ontwerp moet wees dat dit vaste stowwe opvang sonder om die stroomvloei te belemmer.

Uitspoel van Drekwatertoebehore.

63. Elke drekwatertoebehoorsel moet doeltreffend uitspoel kan word deur middel van 'n spoelbak, spoelklep of ander goedgekeurde toestel waarvan die spoelwerking so doeltreffend is dat die hele besoedelvlek van die toebehoorsel uitspoel word en die sperder geheel en al tydens elke uitspoeling skoon spoel.

Spoelbakke.

64.(1) Die meganisme van 'n spoelbak moet so werk dat die bak outomaties na elke uitspoeling weer vol loop, dat die water outomaties ophou inloop as die spoelbak vol is en dat die water slegs uit die spoelbak kan uitloop as die spoelmeganisme in werking gestel word of deur middel van 'n oorlooppyp.

(2) 'n Spoelbak moet 'n oorlooppyp met 'n toereikende middellyn hê, en die water daaruit moet redelik

(c) a minimum horizontal projection from the back of the fixture to the front of the lip of 380 mm.

(3) Where urinals of any type are installed for public use or are installed in a factory, hostel or educational institution, or where more than three wall hung urinals are installed in the same room or compartment in any building, such urinals shall discharge into a channel complying with the relevant requirements of this section.

(4) Where urinals are directly connected to a soil-water pipe or drain, the floor of the room or compartment containing the urinals shall be graded and drained to an approved floor trap similarly connected.

(5) All surfaces liable to fouling in any room or compartment containing a urinal shall be protected with an approved impervious material having a glazed or other smooth finish.

(6) The floor of a room or compartment containing a urinal channel shall slope towards and drain into the channel: Provided that where the channel is raised above the level of the floor, a platform at least 400 mm wide shall be provided and only the said platform shall be required to slope and drain as aforesaid.

(7) Every channel and trap forming part of a urinal or receiving the discharges from a urinal shall be made of approved impervious material having a glazed or smooth finish and shall be located in the same room or compartment as the urinal itself.

(8) The nominal diameter of a trap receiving the discharges from a channel in a compartment or room containing a urinal shall be not less than 75 mm and the diameter of a trap attached to or formed integrally with a wall hung urinal shall be not less than 38 mm.

(9) At least one trap having a diameter of 75 mm shall be provided for every 5 urinal stalls or for every 3,5 m length of slab urinal; or at least one trap having a diameter of 100 mm for every 10 stalls or 7 m length of slab urinal.

(10) Except in the case of a siphonic urinal, every urinal trap shall be provided with a hinged and domed grating designed to retain solid matter without obstructing the flow of liquids.

Flushing of Soil-water Fittings.

63. Every soil-water fitting shall be capable of being effectively flushed by means of a flushing cistern, flushing valve or other approved device the flushing action, of which shall effectively flush the entire fouling surface of the fitting and clear the trap completely at each flush.

Flushing Cisterns.

64.(1) The mechanism of a flushing cistern shall so operate that the cistern is automatically refilled after every flushing, that the inflow of water is automatically stopped when the cistern is full and that no water can escape from the cistern otherwise than by the operation of the flushing mechanism or through an overflow pipe.

(2) A flushing cistern shall have an overflow pipe of adequate diameter the discharge from which shall be

maklik opgemerk en so weggevoer word dat dit nie die gebou kan beskadig nie.

(3) Die vlotterklep in 'n spoelbak moet so geleë en gemaak wees dat die water uit die spoelbak nie kan terughewel nie.

(4) Die watertoevoer na 'n spoelbak moet afsonderlik deur middel van 'n afsluitkraan of ander goedgekeurde toestel wat binne 2 m daarvan af in dieselfde vertrek of afskorting as die spoelbak geleë moet wees, beheer word.

(5) Die spoelbakke vir spoelklosette, vuilwaterregters en bedpanwasbakke en -wastoeestelle moet tydens elke uitspoeling minstens 11 liter water ontlas.

(6) Outomatiese spoelbakke vir urinale moet met elke uitspoeling minstens 2 liter water vir elke urinaalvak of vir elke 600 mm van die breedte van die urinaal ontlas.

(7) Outomatiese spoelbakke vir trogklosette moet met elke uitspoeling minstens 22 liter water vir elke sitplek ontlas.

Spoelkleppe.

65.(1) Spoelkleppe moet elke keer wat dit in werking gestel word, minstens die volume by artikel 64(5) voorgeskryf, ontlas.

(2) Waar spoelkleppe aangebring word, moet daar toe-rekende stappe gedoen word om te verhoed dat die water uit die drekwatertoebehore na die watertoevoer-stelsel terughewel.

HOOFSTUK XV.

MEGANIESE TOESTELLE VIR DIE POMP VAN RIOOLWATER.

66.(1) Elke persoon moet, voordat enige meganiese toestel vir die pomp of verplasing van rioolwater ingevolge die bepalings van artikel 6(5) geïnstalleer word, skriftelik, in duplo, in die vorm wat in die toepaslike aanhangsel by hierdie verordeninge uiteengesit word, by die ingenieur aansoek doen om vergunning om dit te doen en moet daarna sodanige bykomende inligting wat die ingenieur verlang, verstrek.

(2) Die vorm by subartikel (1) voorgeskryf, moet deur 'n professionele ingenieur wat ten volle vertrou is met die tegniese besonderhede van die toestel, ingevul word, en die verbintenis wat by sodanige vorm aangeheg is, moet deur die eienaar van die perseel onderteken word.

(3) Die aansoek in subartikel (1) genoem, moet vergesels gaan van tekeninge wat ooreenkomstig die toepaslike bepalings van artikel 20 opgestel is en moet besonderhede toon van die kamer waarin die toestel, die rioolwateropgaartenk en die toevoerdemper geleë is en die ligging daarvan, asook die ligging van die perseel-riole, ventilasiepype, styghoofleiding en die aansluitriool.

(4) Ondanks enige vergunning ingevolge subartikel (1) verleen, is die raad nie aanspreeklik vir enige besering van mense of beskadiging van eiendom wat voortspruit uit die gebruik, foutiewe werking of enige ander toestand wat ontstaan as gevolg van die installering of werking van sodanige toestel nie.

(5) Elke meganiese toestel wat vir die pomp of verplasing van rioolwater geïnstalleer word, moet spesifiek vir dié doel ontwerp wees en moet toegerus wees met 'n afvoerpyl, sluiskleppe en terugslagkleppe wat op goedgekeurde plekke geleë is.

reasonably detectable and so directed that it cannot cause damage to the building.

(3) The ball valve in a cistern shall be so located and constructed that no back-siphonage from the cistern can take place.

(4) The flow of water into a flushing cistern shall be separately controlled by a stop tap or other approved device situated within 2 m thereof in the same room or compartment as the cistern.

(5) Flushing cisterns for water closets, slop hoppers and bed-pan sinks and washers shall discharge at each flush not less than 11 litres of water.

(6) Automatic flushing cisterns for urinals shall discharge at each flush not less than 2 litres of water for each urinal stall or for every 600 mm of the width of the urinal.

(7) Automatic flushing cisterns for trough closets shall at each flush discharge not less than 22 litres of water for each seat.

Flushing Valves.

65.(1) Flushing valves shall at each operation discharge a volume of water not less than is prescribed in section 64(5).

(2) Where flushing valves are installed, adequate measures shall be taken to prevent back-siphonage from the soil-water fitting into the water supply.

CHAPTER XV.

MECHANICAL APPLIANCES FOR LIFTING SEWAGE.

66.(1) Every person shall before installing any mechanical appliance for the raising or transfer of sewage in terms of section 6(5), make application in writing to the engineer for permission to do so in the form, to be completed in duplicate, set out in the relevant appendix to these by-laws and shall thereafter give such additional information as the engineer may require.

(2) The form prescribed by subsection (1) shall be completed by a professional engineer who is fully conversant with the technical details of the appliance, and the undertaking annexed to such form shall be signed by the owner of the premises.

(3) The application mentioned in subsection (1) shall be accompanied by drawings prepared in accordance with the relevant provisions of section 20 and shall show details of the compartment containing the appliance, the sewage storage tank, the stilling chamber and the position thereof, and the positions of the drains, ventilation pipes, rising main and the connecting sewer.

(4) Notwithstanding any permission given in terms of subsection (1), the council shall not be liable for any injury or damage to life or property caused by the use, malfunctioning or any other condition arising from the installation or operation of such appliance.

(5) Every mechanical appliance installed for the raising or transfer of sewage shall be specifically designed for the purpose and shall be fitted with a discharge pipe, sluice valves and non-return valves located in approved positions.

(6) Daar moet, tensy die ingenieur se toestemming verkry word, twee van die meganiese toestelle geïnstal-leer word en sodanige toestelle moet so beheer word dat die een onmiddellik outomaties begin werk wan-neer die werking van die ander een staak.

(7) Elke meganiese toestel wat deel uitmaak van 'n perseelrioolstelsel moet so geleë wees en so gebruik word dat dit nie enige geraas-, reuk- of ander oorlas veroor-saak nie, en elke kamer waarin sodanige toestel is, moet doeltreffend geventileer wees.

(8) Die ingenieur moet die maksimum tempo waar-teen enige meganiese toestel rioolwater kan ontas en die tye wanneer dit ontas kan word, voorskryf, en hy kan die eienaar te eniger tyd aansê om sodanige toebe-hore en reëlaars te installeer wat nodig is om te voor-kom dat genoemde voorgeskrewe maksimum tempo oor-skry word.

(9)(a) Behalwe as 'n rioolwateropgaarplek 'n integre-rende deel van 'n meganiese toestel uitmaak, moet 'n rioolwateropgaartenk saam met sodanige toestel verskaf word.

(b) Elke rioolwateropgaartenk wat ingevolge die be-palings van paragraaf (a) vereis word, moet —

(i) van harde, duursame materiaal gemaak wees, waterdig wees en die binnevlakke van die mure en vloer glad en ondeurlatend gemaak word;

(ii) 'n opgaarvermoë onderkant die inlaat hê wat gelyk staan met die hoeveelheid rioolwater wat in 24 uur daarin ontas word of 900 liter, wat-ter hoeveelheid ook al die grootste is; en

(iii) so ontwerp wees dat soveel rioolwater as moontlik met elke ontlassiklus van die mega-niese toestel ontas word.

(10) As die meganiese toestel uit 'n pomp bestaan, moet die aansitmeganisme so gestel word dat die toestel begin pomp wanneer die hoeveelheid rioolwater in die opgaartenk gelyk staan met hoogstens een vyfde van sy opgaarvermoë.

(11) As die ingenieur dit vereis, moet daar 'n demp-ruim tussen die uitlaat van die meganiese toestel en die aansluitriool aangebring word, na gelang van die geval, en sodanige demper moet minstens 850 mm diep wees.

(12) Elke opgaartenk en dempruim moet 'n ventilasie-pyp hê met 'n middellyn van minstens 100 mm wat oor-cenkomstig die toepaslike bepalings van artikel 44 op-waarts reik.

HOOFSTUK XVI.

SEPTIESE TENKS EN OPGAARTENKS, PRIVATE RIOOLWATERSUIWERINGSWERKE, STAPELRIO-LE EN RIOOLTENKS.

Septiese Tenks en Suiweringswerke.

67.(1) Niemand mag, tensy die raad vooraf sy skrif-telike toestemming daartoe verleen het wat, as die raad dit verleen, geensins afbreuk doen aan enige van die bepalings van hierdie verordeninge nie, en in elke geval nie sonder om aan die toepaslike bepalings van die raad se Publieke Gesondheidsverordeninge of enige ander toepaslike verordeninge te voldoen nie, enige septiese tenk of ander struktuur vir die suiwering, wegruiming of opberging van rioolwater bou, installeer, onderhou of gebruik nie.

(2) Geen gedeelte van enige septiese tenk of ander

(6) Unless otherwise permitted by the engineer, such mechanical appliances shall be installed in duplicate and each such appliance shall be so controlled that either will begin to function automatically immediately in the event of failure of the other.

(7) Every mechanical appliance forming part of a drainage installation shall be so located and operated as not to cause any nuisance through noise or smell or otherwise and every compartment containing any such appliance shall be effectively ventilated.

(8) The maximum discharge rate from any mechani-cal appliance and the times between which the dis-charge may take place shall be as prescribed by the engineer who may, at any time, require the owner to install such fittings and regulating devices as may be necessary to ensure that the said prescribed maximum discharge rate shall not be exceeded.

(9)(a) Except where sewage storage space is incorpo-rated as an integral part of a mechanical appliance, a sewage storage tank shall be provided in conjunction with such appliance.

(b) Every sewage storage tank required in terms of paragraph (a) shall —

(i) be constructed of hard, durable materials and shall be watertight and the internal surfaces of the walls and floor shall be rendered smooth and impermeable;

(ii) have a storage capacity below the level of the inlet equal to the quantity of sewage dischar-ged thereinto in 24 hours or 900 litres, which-ever is the greater quantity; and

(iii) be so designed that the maximum proportion of its sewage content shall be emptied at each discharge cycle of the mechanical appliance.

(10) If the mechanical appliance consists of a pump, the starting mechanism shall be set for pumping to commence when the volume of sewage contained in the storage tank is equal to not more than one-fifth of its storage capacity.

(11) When required by the engineer, a stilling cham-ber shall be installed between the outlet of the me-chanical appliance and the connecting drain or connec-ting sewer, as the case may be, and such chamber shall have a depth of not less than 850 mm.

(12) Every storage tank and stilling chamber shall be provided with a ventilation pipe having a diameter of not less than 100 mm carried upwards in accordance with the relevant provisions of section 44.

CHAPTER XVI.

SEPTIC AND STORAGE TANKS AND PRIVATE SEWAGE TREATMENT PLANTS, FRENCH DRAINS AND CONSERVANCY TANKS.

Septic Tanks and Treatment Plants.

67.(1) No person shall construct, install, maintain or operate any septic tank or other plant for the treat-ment, disposal or storage of sewage without the prior written consent of the council, the giving of which shall be without prejudice to any of the provisions of these by-laws and in any event without complying with its Public Health By-laws so far as relevant, or any other relevant by-laws.

(2) No part of any septic tank or other sewage

rioolwatersuiweringswerke mag nader as 3 m aan enige gebou wat deur mense bewoon word of aan enige grens van die stuk grond waarop dit geleë is of op sodanige ander plek wat deur die raad se Publieke Gesondheidsverordeninge of enige ander toepaslike verordeninge verbied word, geleë wees nie.

(3) Die uitvloeisel van 'n septiese tenk of ander rioolwatersuiweringswerke moet tot voldoening van die raad weggeruim word.

(4) Elke septiese tenk moet waterdig en behoorlik toegemaak wees en 'n gasdigte toegang tot die binnekant daarvan hê wat toereikend is sodat die inlaat- en uitlaattipe geïnspekteer en die rioolslyk daaruit verwyder kan word.

(5)(a) 'n Septiese tenk wat vir 'n woonhuis bedoel is, moet —

- (i) 'n inhoudsmaat onderkant die vlak van die bodem van die uitlaattyp hê van minstens 500 liter per slaapkamer, met 'n minimum inhoudsmaat onderkant sodanige vlak van 2 500 liter; en
- (ii) 'n binnebreedte van minstens 1 m hê, gemeet reghoekig met die vloei rigting;
- (iii) 'n binnediepte tussen die deksel en die bodem van die tenk van minstens 1,7 m hê; en
- (iv) vloeistof tot 'n diepte van minstens 1,4 m behou.

(b) Septiese tenks wat vir ander persele as 'n woonhuis bedoel is, moet van 'n goedgekeurde ontwerp, konstruksie en inhoudsmaat wees.

Stapelriole.

68.(1) Die raad kan na goeddunke en op sodanige voorwaardes wat hy kan voorskryf met inagneming van die hoeveelheid en die aard van die uitvloeisel en die aard van die grond soos bepaal deur die deurlatendheidstoets van die Suid-Afrikaanse Buro vir Standaarde, toelaat dat daar deur middel van stapelriole, syferputte of ander goedgekeurde strukture oor vuilwater of ander uitvloeisel beskik word.

(2) Geen gedeelte van 'n stapelriool, syferput of ander dergelike struktuur mag nader as 5 m aan enige gebou wat deur mense bewoon word of aan enige grens van die stuk grond waarop dit geleë is, of binne sodanige ander afstand of op sodanige plek wat by die raad se Publieke Gesondheidsverordeninge of enige ander toepaslike verordeninge voorgeskryf word, geleë wees nie, of op so 'n plek dat dit na die raad se mening enige boorgat of ander waterbron waarvan die water vir drinkdoeleindes gebruik word of kan word, besoedel of klammigheid in enige gebou veroorsaak nie.

(3) Die afmetings van enige stapelriool, syferput of ander dergelike struktuur moet bepaal word met inagneming van die absorbeer vermoë van die grond en die aard en hoeveelheid van die uitvloeisel.

Riooltenks.

69.(1) Die raad kan na goeddunke die eienaar van enige perseel toelaat om 'n riooltenk en hulptoestelle vir die opgaar van drekwater of sodanige ander rioolvuil of uitvloeisel waaroor hy besluit, te bou en sodanige tenk en toestelle moet so groot wees en op so 'n plek en so vlak geleë wees as wat hy voorskryf.

treatment plant shall be situated nearer than 3 m to any building used for human habitation or to any boundary of the piece of land on which it is situated or in any such other position as may be prohibited or limited by the council's Public Health By-laws or any other relevant by-laws.

(3) The effluent from a septic tank or other sewage treatment plant shall be disposed of to the satisfaction of the council.

(4) Every septic tank shall be watertight, securely covered and provided with gas-tight means of access to its interior adequate to permit the inspection of the inlet and outlet pipes and adequate for the purpose of removing sludge.

(5)(a) A septic tank serving a dwelling-house shall —

- (i) have a capacity below the level of the invert of the outlet pipe of not less than 500 litres per bedroom, subject to a minimum capacity below such invert level of 2 500 litres;
- (ii) have an internal width of not less than 1 m measured at right angles to the direction of the flow;
- (iii) have an internal depth between the cover and the bottom of the tank of not less than 1,7 m;
- (iv) retain liquid to a depth of not less than 1,4 m.

(b) Septic tanks serving premises other than a dwelling-house shall be of approved design, construction and capacity.

French Drains.

68.(1) The council may, at its discretion and on such conditions as it may prescribe having regard to the quantity and the nature of the effluent and the nature of the soil as determined by the permeability test prescribed by the South African Bureau of Standards, permit the disposal of waste-water or other effluent by means of French drains, soakage pits or other approved works.

(2) No part of a French drain, soakage pit or other similar work shall be situated nearer than 5 m to any building used for human habitation or to any boundary of the piece of land on which it is situated, or within such other distance or in such position as may be prescribed by the council's Public Health By-laws or any other relevant by-laws, nor in any such position as will, in the opinion of the council, cause contamination of any borehole or other source of water which is or may be used for drinking purposes, or cause dampness in any building.

(3) The dimensions of any French drain, soakage pit or other similar work shall be determined in relation to the absorbent qualities of the soil and the nature and quantity of the effluent.

Conservancy Tanks.

69.(1) The council may at its discretion permit the owner of any premises to construct a conservancy tank and ancillary appliances for the retention of soil-water or such other sewage or effluent as it may decide and such tank and appliances shall be of such capacity and located in such position and at such level as it may prescribe.

(2) Geen reënwater of vloedwater en geen ander uitvloeiende water as dié wat die raad kragtens subartikel (1) goedgekeur het, mag in 'n riooltenk ontlas word nie.

(3) Geen riooltenk mag gebruik word nie tensy —
(a) dit van harde en duursame materiaal gebou is;

(b) die mure, as dit van stene gebou is, minstens 215 mm dik is en van goedgekeurde stene gebou en met sementdagha vasgemaak is, of, as dit van gewapende beton gemaak is, minstens 150 mm dik is;

(c) die vloer van beton, minstens 150 mm dik, gemaak is;

(d) die dak van beton van toereikende sterkte gemaak is sodat dit die las wat dit moontlik moet dra, sal kan dra;

(e) die blootgestelde oppervlakte van die mure, vloer en dak glad en ondeurlatend gemaak is;

(f) die bodem van die tenk met 'n gradiënt van minstens 1 op 10 skuins afloop na die uitlaat;

(g) die tenk gas- en waterdig is;

(h) die tenk 'n uitlaatsyp met 'n binnemiddellyn van 100 mm het wat van smeeyster, gietyster of ander goedgekeurde materiaal gemaak is en dit, behalwe as die raad iets anders toelaat, by 'n goedgekeurde klep en toebehore vir aansluiting by die raad se verwyderingsvoertuie eindig;

(i) die klep en toebehore wat in paragraaf (h) genoem word of die uitlaatsyp van die pyp, na gelang van die geval, aangebring is in 'n hokkie wat 'n goedgekeurde skarnierdeksel het en op 'n plek geleë is wat die raad bepaal;

(k) toegang tot die riooltenk verskaf word deur middel van 'n goedgekeurde mangat met 'n verwyderbare gietysterdeksel wat net bokant die sigbare tap van die inlaatsyp geleë is.

(4) Die raad kan na goeddunke, met inagneming van die ligging van 'n riooltenk of die aansluitplek vir 'n verwyderingsvoertuig, dit as 'n voorwaarde waarop hy die tenk leegmaak, stel dat die eienaar of gebruiker van die tenk die raad skriftelik moet vrywaar teen die betaling van enge bedrag wat enigiemand van hom eis, regstreeks of onregstreeks as gevolg van die diens wat die raad lewer.

(5) As die raad se verwyderingsvoertuig oor 'n private perseel moet ry om 'n riooltenk te kan leegmaak, moet die eienaar van die tenk vir dié doel 'n pad, minstens 3,5 m breed, maak wat so verhard is dat dit 'n wiellas van 4 metrieke ton in alle weersomstandighede kan dra, en hy moet ook toesien dat geen hek waardeer die voertuig moet ry om die tenk te bereik, smalder as 3,5 m is nie.

(6) Die raad kan te enige redelike tyd op enige dag van die week en op sodanige wyse as wat hy besluit met inagneming van algemene vereistes van die diens en in besonder met die oog op die uitkakeling van afsonderlike of onnodige ritte deur die raad se verwyderingsvoertuie, enige riooltenk heeltemal of gedeeltelik leegmaak.

(7) Die eienaar of okkupant van 'n perseel waarop 'n riooltenk geleë is, moet sodanige tenk te alle tye tot voldoening van die raad in 'n goeie toestand onderhou.

(2) No rainwater or stormwater and no effluent other than that which the council shall have permitted in terms of subsection (1), shall be discharged into a conservancy tank.

(3) No conservancy tank shall be used as such unless —

(a) it is constructed of hard and durable materials;

(b) the walls, if made of brick, are at least 215 mm thick and made of approved bricks, laid in cement mortar, or if made of reinforced concrete, are at least 150 mm thick;

(c) the floor is made of concrete not less than 150 mm thick;

(d) the roof is made of concrete of adequate strength to withstand the loads to which it may be subjected;

(e) the exposed surfaces of the walls, floor and roof are rendered smooth and impermeable;

(f) the invert of the tank slopes towards the outlet at a gradient of not less than 1 in 10;

(g) the tank is gas and water-tight;

(h) the tank has an outlet pipe, 100 mm in internal diameter, made of wrought iron, cast iron or other approved material, and except if otherwise permitted by the council, terminating at an approved valve and fittings for connection to the council's removal vehicles;

(i) the valve and fittings referred to in paragraph (h) or the outlet end of the pipe, as the case may be, are located in a chamber, having an approved hinged cover and situated in such position as the council may require;

(k) access to the conservancy tank is provided by means of an approved manhole fitted with a removable cast iron cover placed immediately above the visible spigot of the inlet pipe.

(4) The council may at its discretion, having regard to the position of a conservancy tank or of the point of connection for a removal vehicle, make it a condition of its emptying the tank that the owner or user thereof shall indemnify the council, in writing, against any sum which it may become liable to pay to any person as a result direct or indirect, of the rendering of that service.

(5) Where the council's removal vehicle has to traverse private premises for the emptying of a conservancy tank, the owner thereof shall provide for the purpose a roadway at least 3,5 m wide, so hardened as to be capable of withstanding a wheel load of 4 metric tons in all weather, and shall ensure that no gateway through which the vehicle is required to pass to reach the tank, shall be less than 3,5 m wide.

(6) The council shall be entitled to empty or to draw off part of the contents of any conservancy tank at any reasonable time on any day of the week and in such manner as it may decide having regard to the general requirements of the service and in particular to the necessity for avoiding separate or unnecessary journeys by the council's removal vehicles.

(7) The owner or occupier of premises on which a conservancy tank is installed shall at all times maintain such tank in good order and condition to the satisfaction of the council.

HOOFSTUK XVII.

ALLERLEI BEPALINGS.

Stalle en Dergelike Persele.

70.(1) Die raad kan na goeë dundke, behoudens die bepalings van subartikel (2), vergunning verleen dat stalle, koeistalle, melkerye, hondeherberge en dergelike persele of ander persele vir die huisvesting van diere by 'n perseelrioolstelsel aangesluit word.

(2) Die vloer van enige perseel wat ingevolge subartikel (1) by 'n perseelrioolstelsel aangesluit is, moet met goedgekeurde vloestofdigte materiaal geplavei word en moet skuins afloop na 'n slik- of vetvanger of rioolput met 'n toereikende inhoudsmaat.

(3) Elke gedeelte van die vloer van 'n perseel wat in subartikel (1) genoem word, moet deur 'n dak bedek en origens doeltreffend beskerm word om te verhoed dat reën of vloedwater in die perseelrioolstelsel inloop.

Afvalvoedselwegdoeneenhede of Ander Wegdoeneenhede.

71.(1) Niemand mag 'n meganiese afvalvoedselwegdoeneenheid of ander wegdoeneenheid of 'n afvalmeule by 'n perseelrioolstelsel aansluit nie tensy —

(a) die eienaar van die perseel sodanige eenheid of afvalmeule by die raad geregistreer het en die ingenieur daarvan oortuig is dat die werking van die raad se rioolvuil- en rioolwatersuiweringswerke nie daardeur belemmer sal word nie; en

(b) sodanige eenheid of afvalmeule van 'n goedgekeurde tipe is en ooreenkomstig die bepalings van die raad se Elektrisiteitsverordeninge aangebring is.

(2) Die ingenieur kan die eienaar of okkupant van enige perseel waarin 'n afvalvoedselwegdoeneenheid of ander wegdoeneenheid of 'n afvalmeule aangebring is, of die eienaar van sodanige eenheid of meule, aansê om enige eenheid wat na die ingenieur se mening nie doeltreffend werk nie of die werking van die raad se rioolstelsel belemmer, te verwyder, te herstel of te vervang.

(3) Die eienaar moet, as enige sodanige eenheid of meule verwyder is, die raad binne 14 dae na sodanige verwydering, daarvan in kennis stel.

Wegdoening van Rioolslyk, Kompos en Mis.

72.(1) Die raad kan, behalwe as dit deur enige bevoegde owerheid verbied word, rioolslyk, kompos of dieregis wat afkomstig is van enige rioolwatersuiweringswerke wat deur die raad bestuur word of plaas wat daarmee in verband staan, verkoop of van die hand sit op voorwaardes wat die raad kan stel betreffende die oplaai en vervoer daarvan, die plek waarheen dit vervoer moet word en die wyse waarop dit gebruik, aangewend of verwerk moet word.

(2) Sodanige slyk, kompos of mis word, behalwe in die geval van langtermyn-ooreenkomste wat vir die verwydering daarvan aangegaan word, moet verkoop of van die hand gesit word teen die gelde wat in die tarief bepaal word.

Oortredings en Strawwe.

73.(1) Behoudens enige bepaling van hierdie verordeninge waarin 'n misdryf uitdruklik gespesifiseer word, begaan iemand wat enige bepaling van hierdie verordeninge oortree of wat versuim om daaraan te voldoen, 'n

CHAPTER XVII.

MISCELLANEOUS PROVISIONS.

Stables and Similar Premises.

70.(1) Subject to the provisions of subsection (2), the council may at its discretion permit stables, cowsheds, dairies, kennels and similar premises or other premises for the accommodation of animals to be connected to a drainage installation.

(2) The floor of any premises connected to a drainage installation in terms of subsection (1), shall be paved with approved impervious materials and graded to a silt trap, grease trap or gully of adequate capacity.

(3) Every part of the floor of premises mentioned in subsection (1) shall be covered by a roof and otherwise effectively protected to prevent the entry of rain or stormwater into the drainage installation.

Waste Food or other Disposal Units.

71.(1) No person shall incorporate into a drainage installation a mechanical waste food or other disposal unit or garbage grinder unless —

(a) the owner of the premises has registered such unit or garbage grinder with the council and the engineer is satisfied that the working of the council's sewerage and sewage treatment system shall not thereby be impaired; and

(b) such unit or garbage grinder is of an approved type and has been installed in conformity with the council's Electricity By-laws.

(2) The engineer may require the owner or occupier of any premises on which a waste food or other disposal unit or a garbage grinder has been installed, or the owner of such unit or grinder either to remove, repair or replace any unit which, in the opinion of the engineer, is functioning inefficiently or which may impair the working of the council's sewerage system.

(3) The owner shall, upon the removal of any such unit or grinder, notify the council within 14 days of its removal.

Disposal of Sludge, Compost and Manure.

72.(1) Except when prohibited by any competent authority, the council may sell or dispose of sewage sludge, compost or animal manure resulting from the operation of any sewage treatment works operated by the council or farm associated therewith on such conditions regarding the loading and conveyance thereof, the place to which it is conveyed and the manner in which it is to be used, applied or processed as the council may impose.

(2) Save in the case of long term contracts entered into for the purpose of removal thereof, such sludge, compost or manure shall be sold or disposed of at the charges set out in the tariff.

Offences and Penalties.

73.(1) Without prejudice to any provision of these by-laws wherein an offence is expressly specified, any person who contravenes or fails to comply with any provision of these by-laws or who shall be in default in complying therewith, shall be guilty of an offence and

misdryf en is hy by 'n eerste skuldigbevinding strafbaar met 'n boete van hoogstens R150 of, by wanbetaling, met gevangenisstraf vir 'n tydperk van hoogstens drie maande, en by enige daaropvolgende skuldigbevinding, met 'n boete van hoogstens R300 of, by wanbetaling, met voornoemde gevangenisstraf.

(2) Iemand wat versuim om in enige opsig te voldoen aan enige kennisgewing wat die raad aan hom beteken en waarby hy gelas word om iets te doen of nie te doen nie, begaan 'n misdryf en begaan nog 'n misdryf vir elke dag of gedeelte van 'n dag waarop die versuim voortduur en is ten opsigte van elke misdryf, soos hierbo genoem, by skuldigbevinding strafbaar met 'n boete van hoogstens R50 of, by wanbetaling, met gevangenisstraf vir 'n tydperk van hoogstens sewe dae.

HOOFSTUK XVIII.

VLOEDWATER, RIOOLWATER, FABRIEKSUITVLOEISEL EN ANDER STOWWE.

Rioolwater of ander Verbode Stowwe mag nie in Vloedwaterriool Inloop nie.

74.(1) Niemand mag rioolwater regstreeks of onregstreeks in 'n vloedwaterriool, rivier, stroom of 'n ander waterloop, hetsy natuurlik of kunsmatig, ontlast of veroorsaak of toelaat dat dit ontlast word nie.

(2) Die eienaar of okkupant van enige stuk grond waarop stoom opgewek word of enige vloeistof, uitgesonderd drinkwater, opgeberg of verwerk word, moet al die geriewe verskaf waardeur voorkom word dat sodanige vloeistof ontlast, uitlek of ontsnap en in enige straat, vloedwaterriool of waterloop beland, behalwe in die geval van stoom waar die raad uitdruklik sodanige ontlasting toegelaat het.

(3) As 'n oop terrein op enige private perseel afgespuut word of reënwater daaroor loop, en dit na die mening van die raad waarskynlik kan meebring dat ongewenste stowwe in enige straatgeut, vloedwaterriool, rivier, stroom of ander waterloop, hetsy natuurlik of kunsmatig, ontlast word, of kan meebring of daartoe kan bydra dat enige sodanige waterloop besoedel word, kan die raad die eienaar aansê om op eie koste sodanige maatreëls met betrekking tot verbouingswerk aan die perseelrioolstelsel of die oordekking van die terrein wat die raad ter voorkoming of beperking van sodanige ontlasting of besoedeling nodig ag, te tref.

Vloedwater mag nie in Straatriool Inloop nie.

75.(1) Geen gedeelte van 'n perseelrioolstelsel mag te eniger tyd sodanig wees of sodanig gemaak kan word dat water van enige bron, wat nie drekwater of vuilwater is nie, die stelsel sonder die tussenkoms van 'n niens kan binnegaan nie.

(2) Niemand mag enigiets, uitgesonderd rioolwater, in 'n perseelrioolstelsel ontlast of veroorsaak of toelaat dat dit ontlast nie.

(3) Geen pyp, dakgeut of ander toestel wat gebruik word of gebruik kan word om reënwater van enige dak of ander vlak af te voer, mag in enige rioolput wat deel uitmaak van 'n perseelrioolstelsel, ontlast nie.

Water uit Swembaddens.

76.(1) Niemand mag regstreeks of onregstreeks water uit enige swembad oor enige pad of in 'n straat-

shall be liable, on first conviction, to a fine not exceeding R150 or, in default of payment, to imprisonment for a period not exceeding three months, and on any subsequent conviction to a fine not exceeding R300 or, in default of payment, to imprisonment as aforesaid.

(2) Any person who fails to comply in any respect with any notice served on him by the council directing him to do or not to do anything, shall be guilty of an offence and shall in addition be guilty of a further offence for every day or part of a day during which non-compliance continues and he shall be liable in respect of each offence as aforesaid to a fine not exceeding R50 or, in default of payment, to imprisonment for a period not exceeding seven days.

CHAPTER XVIII.

STORMWATER, SEWAGE, INDUSTRIAL EFFLUENTS AND OTHER DISCHARGES.

Sewage or other Prohibited Discharges not to Enter Stormwater Drains.

74.(1) No person shall discharge or cause or permit to be discharged any sewage directly or indirectly into a stormwater drain, river, stream or other watercourse, whether natural or artificial.

(2) The owner or occupier of any piece of land on which steam or any liquid, other than potable water, is stored, processed or generated shall provide all facilities necessary to prevent any discharge, leakage or escape of such liquid to any street, stormwater drain or watercourse except where, in the case of steam, the council has specifically permitted such discharge.

(3) Where the hosing down or flushing by rainwater of an open area on any private premises is in the opinion of the council likely to cause the discharge of objectionable matter into any street gutter, stormwater drain, river, stream or other watercourse, whether natural or artificial, or to cause or contribute toward the pollution of any such watercourse, the council may instruct the owner of the premises to execute at his own cost whatever measures by way of alterations to the drainage installation or roofing of the area it may consider necessary to prevent or minimise such discharge or pollution.

Stormwater not to Enter Sewers.

75.(1) No part of a drainage installation shall at any time be such or capable of being rendered such that water from any source, not being soil-water or wastewater, can enter the installation without the intervention of human agency.

(2) No person shall discharge or cause or permit to be discharged any substance other than sewage into a drainage installation.

(3) No pipe, channel or other device used for or capable of being used to conduct rainwater from any roof or other surface shall be permitted to discharge into any gulley forming part of a drainage installation.

Discharges from Swimming Pools.

76.(1) No person shall discharge or permit the discharge of water from any swimming pool directly or

geut, vloedwaterriool of waterloop of op 'n oop stuk grond of 'n private perseel wat nie die perseel van die eienaar van sodanige swembad is nie, ontlast of toelaat dat dit ontlast word nie.

(2) Water uit fonteine, reservoirs of swembaddens wat op private persele geleë is, mag slegs met skriftelike vergunning van die raad wat vooraf verkry is, en op sodanige voorwaardes wat die raad ten opsigte van die plek, die tyd, die tempo van ontlasting en die totale ontlasting stel, in 'n perseelrioolstelsel ontlast word.

(3) Die gelde wat in die tarief voorgeskryf word, moet betaal word ten opsigte van die ontlasting van water wat in subartikel (2) genoem word.

Vergunning om Fabrieksuitvloei te Ontlast.

77.(1) Niemand mag sonder om die raad se skriftelike vergunning vooraf te verkry of, as sodanige vergunning verkry is, anders as in strenge nakoming van al die voorwaardes van sodanige vergunning, enige fabrieksuitvloei of ander vloeistof of stof wat nie drekwater of vuilwater is nie, in enige straatriool ontlast of veroorsaak of toelaat dat dit ontlast nie.

(2) Elke persoon moet, voordat hy enige fabrieksuitvloei in 'n straatriool ontlast, skriftelik, in duplo in die vorm wat in die toepaslike aanhangsel by hierdie verordeninge uiteengesit word, by die raad om vergunning aansoek doen en moet daarna sodanige bykomende inligting verstrek en sodanige monsters indien wat die raad vereis.

(3) Die raad kan na goëddunke en met inagneming van die vermoë van enige straatriool of enige meganiese toestel wat vir rioolwater gebruik word of enige rioolwatersuiweringswerke, of dit nou al aan die raad behoort of nie, en op sodanige voorwaardes wat hy dienstig ag, met inbegrip van die betaling van 'n bedrag wat ooreenkomstig die tarief bereken word, vergunning verleen dat fabrieksuitvloei wat van enige perseel afkomstig is, in enige straatriool ontlast word.

(4) Iemand aan wie daar vergunning ingevolge subartikel (3) verleen is om fabrieksuitvloei in 'n straatriool te ontlast, moet, voordat hy enigiets doen of veroorsaak of toelaat wat 'n verandering in die hoeveelheid of die aard van daardie fabrieksuitvloei teweeg sal bring, die raad skriftelik in kennis stel van die datum waarop die beoogde verandering gaan plaasvind en van die aard daarvan.

(5) Iemand wat enige fabrieksuitvloei in die straatriool ontlast of veroorsaak of toelaat dat dit ontlast word, sonder om vooraf vergunning daarvoor te verkry soos by subartikel (3) voorgeskryf, begaan 'n misdryf en stel hom bloot aan die straffe wat by hierdie verordeninge voorgeskryf word, en hierbenewens ook nog aan die betaling van die gelde wat die raad kan vasstel vir die wegvoer en suiwering van die uitvloei wat aldus ontlast is en vir enige skade wat as gevolg van sodanige ongeoorloofde ontlasting veroorsaak is.

(6) Behoudens die raad se regte ingevolge subartikel (5) of artikel 80(2)(c), kan hy al die koste, onkoste en geld wat hy as gevolg van enige van of al die volgende redes aangegaan het of sal aangaan, op enigiemand verhaal: wat enige fabrieksuitvloei of enige stof wat ingevolge artikel 80 verbied of beperk word of waarvoor daar 'n opdrag ingevolge artikel 80(2) uitgereik is, in 'n perseelriool of 'n straatriool ontlast;

indirectly, over any road or into a gutter, stormwater drain, watercourse, open ground or private premises other than the premises of the owner of such swimming pool.

(2) Water from fountains, reservoirs or swimming pools situate on private premises shall be discharged to a drainage installation only with the prior written consent of the council and subject to such conditions as to place, time, rate of discharge and total discharge as the council may impose.

(3) The discharge of water referred to in subsection (2) shall be subject to the payment of the charges specified in terms of the tariff.

Permission to Discharge Industrial Effluents.

77.(1) No person shall discharge or cause or permit to be discharged into any sewer any industrial effluent or other liquid or substance other than soil-water or waste-water without the written permission of the council first had and obtained or, if such permission has been obtained, otherwise than in strict compliance with any and all of the conditions of such permission.

(2) Every person shall, before discharging any industrial effluent into a sewer, make application in writing to the council for permission to do so in the form, to be completed in duplicate, set out in the relevant appendix to these by-laws and shall thereafter furnish such additional information and submit such samples as the council may require.

(3) The council may at its discretion, having regard to the capacity of any sewer or any mechanical appliance used for sewage or any sewage treatment plant, whether or not vested in the council and subject to such conditions as it may deem fit to impose, including the payment of any charge assessed in terms of the tariff, grant permission for the discharge of industrial effluent from any premises into any sewer.

(4) A person to whom permission has been granted in terms of subsection (3) to discharge industrial effluent into a sewer shall, before doing or causing or permitting to be done anything to result in any change in the quantity or discharge or nature of that effluent, notify the council in writing of the date on which it is proposed that the change shall take place and of the nature of the proposed change.

(5) Any person who discharges or causes or permits to be discharged any industrial effluent into the sewer without having first obtained permission to do so in terms of subsection (3), shall be guilty of an offence and liable, in addition to the penalties prescribed in terms of these by-laws, to such charge as the council may assess for the conveyance and treatment of the effluent so discharged and for any damage caused as a result of such unauthorized discharge.

(6) Without prejudice to its rights in terms of subsection (5) or of section 80(2)(c), the council shall be entitled to recover from any person who discharges to a drain or sewer any industrial effluent or any substance which is prohibited or restricted in terms of section 80 or which has been the subject of an order issued in terms of section 80(2) all costs, expenses or charges incurred or to be incurred by the council as a result of any or all of the following:

(a) Die besering van mense, beskadiging van die straatriool of enige rioolwatersuiweringsuitrusting of meganiese toestel of enige eiendom hoegenaamd, wat te wyte is aan die onklaarraking, hetsy gedeeltelik of geheel, van enige rioolwatersuiweringsuitrusting of meganiese toestel, of dit nou al onder die beheer van die raad is of nie; of

(b) 'n vervolging kragtens die Waterwet, 1956 (Wet 54 van 1956), soos gewysig, of 'n aksie wat teen hom ingestel word ten gevolge van enige gedeeltelike of gehele onklaarraking van enige rioolwatersuiweringsuitrusting of meganiese toestel wat regstreeks of onregstreeks aan genoemde ontlasting te wyte is, met inbegrip van boetes of skadevergoeding wat hy ten gevolge van die vervolging of aksie moet betaal.

(7) Die raad kan van tyd tot tyd of te eniger tyd vanweë enige verandering in die omstandighede wat voortspruit uit 'n wysiging in die rioolwatersuiweringsmetode of die instel van nuwe of hersiene of strenger of ander standaarde deur die raad of ingevolge die Waterwet, 1956 (Wet 54 van 1956), of as gevolg van enige wysiging van hierdie verordeninge of vanweë enige ander rede, enige vergunning wat verleen is of enige voorwaarde by sodanige vergunning hersien, wysig, verander of herroep en/of nuwe voorwaardes stel vir die ontvangs van enige fabrieksuitvloei in die straatriool, of die ontlasting van enige of al sodanige uitvloei in die straatriool verbied deur skriftelik vooraf afdoende kennis te gee van sy voorneme om dit te doen, en by die verstryking van sodanige kennisgewingstydperk word daar beskou dat die vorige vergunning of voorwaardes, na gelang van die geval, verval het, en die nuwe of gewysigde voorwaardes, indien daar is en na gelang van die geval, is dan onverwyld van toepassing.

Beheer van Fabrieksuitvloei.

78.(1) Die eienaar of okkupant van enige perseel waarvandaan fabrieksuitvloei in 'n straatriool ontlast, moet toereikende geriewe soos oorloopvlakverklidders, gereedheidsuitrusting en oorloop opvangputte verskaf of moet ander toepaslike maatreëls tref om op doeltreffende wyse te voorkom dat enige stof wat verbied of beperk word of wat eienskappe het wat strydig is met die bepalinge van hierdie verordeninge, vanweë die nalatigheid van bedieners, kragonderbreking, die onklaarraking van uitrusting of beheeruitrusting, die oorbelasting van die geriewe, morsery gedurende op- of aflaaierwerk of om enige ander dergelike rede per ongeluk in die straatriool ontlast.

(2) Die raad kan deur 'n kennisgewing te beteken aan die eienaar of okkupant van enige perseel waarvandaan fabrieksuitvloei ontlast word, hom aansê om, behoudens enige ander bepaling van hierdie verordeninge, enigeen van of al die volgende te doen:

(a) Om die uitvloei, voordat dit in die straatriool ontlast word, op so 'n wyse vooraf te behandel dat dit te alle tye in alle opsigte aan die bepalinge van artikel 80(1) voldoen, of om die uitvloei-siklus van die nywerheidsproses in so 'n mate en op so 'n manier te wysig wat na die raad se mening, nodig is sodat enige rioolwatersuiweringswerke wat die genoemde uitvloei ontvang, of sodanige werke nou al onder die beheer van die raad staan of nie, gesuiwerde uitvloei kan voortbring wat voldoen aan enige standaard wat ingevolge die bepalinge van die Waterwet, 1956

(a) Injury to persons, damage to the sewer or any sewage treatment works or mechanical appliance or to any property whatsoever, as the result of the breakdown, either partial or complete, of any sewage treatment plant or mechanical appliance, whether under the control of the council or not; or

(b) any costs including fines and damages which may be imposed or awarded against the council and any expense incurred by the council as a result of a prosecution in terms of the Water Act, 1956 (Act 54 of 1956), as amended, or any action against it consequent on any partial or complete breakdown of any sewage treatment plant or mechanical appliance caused directly or indirectly by the said discharge.

(7) Due to any change in circumstances arising from a change in the method of sewage treatment or the introduction of new or revised or stricter or other standards by the council or in terms of the Water Act, 1956 (Act 54 of 1956), or as a result of any amendment to these by-laws or due to any other reason, the council may from time to time or at any time review, amend, modify or revoke any permission given or any conditions attached to such permission and/or impose new conditions for the acceptance of any industrial effluent into the sewer or prohibit the discharge of any or all of such effluent to the sewer on giving adequate written notice in advance of its intention to do so, and on the expiration of such period of notice the previous permission or conditions, as the case may be, shall be regarded as having fallen away and the new or amended conditions, if any, as the case may be, shall forthwith apply.

Control of Industrial Effluent.

78.(1) The owner or occupier of any premises from which industrial effluent is discharged to a sewer shall provide adequate facilities such as overflow level detection devices, standby equipment, overflow catch-pits or other appropriate means effectively to prevent the accidental discharge into any sewer, whether through the negligence of operators, power failure, failure of equipment or control gear, overloading of facilities, spillage during loading or unloading or for any other like reason, of any substance prohibited or restricted or having properties outside the limits imposed in terms of these by-laws.

(2) The council may, by notice served on the owner or occupier of any premises from which industrial effluent is discharged, require him without prejudice to any other provision of these by-laws to do all or any of the following:

(a) To subject the effluent before it is discharged to the sewer, to such pre-treatment as will ensure that it at no time will fail to conform in all respects with the requirements of section 80(1) or to modify the effluent cycle of the industrial process to an extent and in such a manner as in the opinion of the council is necessary to enable any sewage treatment works receiving the said effluent, whether under the control of the council or not, to produce treated effluent complying with any standards which may be laid down in respect of such works in

(Wet 54 van 1956), soos gewysig, vir sodanige werke voorgeskryf kan word;

- (b) om die ontlasting van die uitvloeiels tot sekere vasgestelde tye en die ontlastempo tot 'n vasgestelde maksimum te beperk en om op sy koste sodanige tenks, toestelle en ander uitrusting wat na die raad se mening nodig of toereikend is om aan die genoemde beperkings te kan voldoen, aan te bring;
- (c) om 'n afsonderlike perseelrioolstelsel vir die wegvoer van fabrieksuitvloeiels aan te bring en om dié uitvloeiels deur middel van 'n afsonderlike aansluiting, soos deur die raad bepaal, in die straatriool te ontlast, en om hom daarvan te weerhou om die genoemde uitvloeiels deur middel van enige perseelrioolstelsel wat vir die wegvoer van huishoudelike rioolwater bedoel is of gebruik word, te ontlast, of om enige huishoudelike rioolwater deur middel van die genoemde afsonderlike stelsel vir fabrieksuitvloeiels te ontlast;
- (d) om op sy koste in enige perseelrioolstelsel wat fabrieksuitvloeiels na die straatriool wegvoer, een of meer inspeksie-, monsterneming- of meterkamers van sodanige afmetings en materiaal en op sodanige plekke as wat die raad kan voorskryf, te bou;
- (e) om ten opsigte van die fabrieksuitvloeiels wat van die perseel af ontlast word, sodanige gelde wat bereken word, ooreenkomstig die tarief te betaal: Met dien verstande dat as die presiese permanganaatwaarde (PW) van die fabrieksuitvloeiels vanweë die besondere omstandighede van enige bepaalde geval nie met behulp van die berekeningsmetode wat in die Aanhangsel by hierdie verordeninge voorgeskryf word, bepaal kan word nie, die ingenieur van sodanige ander berekeningsmetode waarvolgens die genoemde sterkte wel bepaal kan word, gebruik kan maak en die bedrag wat gevorder moet word, daarvolgens vasstel;
- (f) om alle inligting te verstrek wat die ingenieur kan vereis om die gelde wat ingevolge die tarief betaalbaar is, te kan bereken; en
- (g) om vir die toepassing van paragraaf (f) op sy koste 'n meter wat die totale hoeveelheid water afmeet wat uit 'n boorgat, fontein of ander natuurlike waterbron verkry en op die perseel gebruik word, te verskaf en te onderhou.

(3)(a) As iemand strydig met enige bepaling van hierdie verordeninge, fabrieksuitvloeiels in 'n straatriool ontlast of veroorsaak of toelaat dat dit ontlast word of op die punt staan om dit te doen, kan die ingenieur, as hy van mening is dat sodanige uitvloeiels moontlik skade kan berokken aan enige straatriool, meganiese toestel, rioolwatersuiweringswerke of rioolplaas of -proses, nadat hy die eienaar of okkupant van die betrokke perseel in kennis gestel het van sy voorneme om dit te doen, onverwyld die perseelriool wat sodanige uitvloeiels na die straatriool wegvoer vir sodanige tydperk as wat hy dienstig ag, sluit en afdig ten einde te voorkom dat sodanige uitvloeiels die straatriool binnegaan.

(b) Die raad is nie aanspreeklik vir enige skade wat deur enige stap wat ingevolge paragraaf (a) gedoen word, meegebring word nie.

(c) Niemand mag sonder die skriftelike toestemming van die ingenieur die seël van 'n straatriool wat inge-

terms of the Water Act, 1956 (Act 54 of 1956), as amended;

- (b) to restrict the discharge of effluents to certain specified hours and the rate of discharge to a specified maximum and to instal at his own expense such tanks, appliances and other equipment as in the opinion of the council may be necessary or adequate for compliance with the said restrictions;
- (c) to instal a separate drainage installation for the conveyance of industrial effluent and to discharge the same into the sewer through a separate connection as directed by the council, and to refrain from discharging the said effluent through any drainage installation intended or used for the conveyance of domestic sewage or from discharging any domestic sewage through the said separate installation for industrial effluent;
- (d) to construct at his own expense in any drainage installation conveying industrial effluent to the sewer, one or more inspection sampling or metering chambers of such dimensions and materials and in such positions as the Council may prescribe;
- (e) to pay in respect of the industrial effluent discharged from the premises such charge as may be assessed in terms of the tariff: Provided that where, owing to the particular circumstances of any case the method of assessment prescribed in terms of the Appendix to these by-laws does not reflect the true permanganate value (PV) of the industrial effluent, the engineer may adopt such alternative method of assessment as does reflect the said value and shall assess the charge accordingly;
- (f) to provide all such information as may be required by the engineer to enable him to assess the charges payable in terms of the tariff; and
- (g) for the purpose of paragraph (f), to provide and maintain at his own expense a meter measuring the total quantity of water drawn from any borehole, spring or other natural source of water and used on the property.

(3) (a) If any person in contravention of any provision of these by-laws discharges industrial effluent into a sewer, or causes or permits it to be so discharged or is about to do so, the engineer may, if he is of the opinion that such effluent is likely to cause damage to any sewer, mechanical appliance, sewage treatment works or sewage farm or process, forthwith after notifying the owner or occupier of the premises concerned of his intention to do so, close and seal off the drain conveying such effluent to the sewer for such period as he may deem expedient so as to prevent such effluent from entering the sewer.

(b) The council shall not be liable for any damage occasioned by any action taken in terms of paragraph (a).

(c) No person shall without the written permission

volge paragraaf (a) gesluit en afgedig is, oopmaak of breek of veroorsaak of toelaat dat dit gedoen word nie.

Afmeet en Vasstel van die Hoeveelheid Fabrieksuitvloeisel.

79.(1) Die raad kan, op 'n plek wat hy aanwys, in enige perseelrioolstelsel wat fabrieksuitvloeisel na 'n straatriool wegvoer, enige meter of ander toestel aanbring met die doel om die volume of samestelling van die genoemde uitvloeisel daarmee te bepaal, en iemand wat so 'n meter of ander toestel uitskakel, oopmaak, oopbreek of op 'n ander manier daarmee peuter of dit beskadig, begaan 'n misdryf: Met dien verstande dat die raad na goeëdunke met iemand wat fabrieksuitvloeisel in die straatriool ontas, 'n ooreenkoms kan aangaan waarby 'n ander metode vir die vasstel van die hoeveelheid uitvloeisel aldus ontas, bepaal word.

(2) Die raad het die reg om enige sodanige meter of toestel soos hierbo genoem, op koste van die eienaar van die perseel waarop dit aangebring word, aan te bring en te onderhou.

(3) Die eienaar van enige perseel waarop enige boorgat geleë is wat gebruik word om 'n watertoevoer vir bedryfs- of nywerheidsdoeleindes te verskaf, moet —

- (a) sodanige boorgat by die raad registreer;
- (b) volledige besonderhede van die lewering van die boorgat aan die raad verstrek; en
- (c) as die raad rede het om die betroubaarheid van die besonderhede wat verstrek is, in twyfel te trek, op sy koste sodanige toetse in verband met die lewering van die boorgat uitvoer wat na die raad se mening vir die doeleindes van hierdie verordeninge nodig is.

Verbode Ontlasting.

80.(1) Niemand mag rioolwater, fabrieksuitvloeisel of ander vloeistof of stof in enige straatriool ontas of veroorsaak of toelaat dat dit daarin ontas word of daarin beland nie, as —

- (a) dit na die mening van die ingenieur aanstootlik is of 'n oorlas vir die publiek kan veroorsaak;
- (b) dit in die vorm van stoom of dampe is of die temperatuur daarvan op die plek waar dit die straatriool binnegaan 44°C oorskry;
- (c) dit 'n pH-waarde van minder as 6,0 of meer as 10,0 het;
- (d) dit enige stof van watter aard ook al bevat wat waarskynlik ontplofbare, vlambare, giftige of aanstootlike gasse of dampe in enige straatriool kan afgee of kan laat ontstaan;
- (e) dit enige stof wat 'n flitspunt laer as 93°C het of wat 'n giftige damp by 'n temperatuur laer as 93°C afgee;
- (f) dit enige stof van watter aard ook al, met inbegrip van olie, ghries, vet of reinigingsmiddels wat straatriole of perseelriole kan verstop, of die behoorlike funksionering van rioolwatersuiweringswerke kan belemmer, bevat;
- (g) daar sigbare tekens van teer of aanverwante produkte of distillate, bitumen of asfalt is;
- (h) dit enige stof bevat wat so gekonsentreerd is dat

of the engineer open or break the seal of a drain closed and sealed off in terms of paragraph (a) or cause or permit this to be done.

Metering and Assessment of Industrial Effluent.

79. (1) The council may incorporate, in such position as it shall determine in any drainage installation conveying industrial effluent to a sewer, any meter or gauge or other device for the purpose of ascertaining the volume or composition of the said effluent, and it shall be an offence for any person to by-pass, open, break into or otherwise interfere with or to damage any such meter, gauge or other device: Provided that the council may at its discretion enter into an agreement with any person discharging industrial effluent into the sewer, establishing an alternative method of assessing the quantity of effluent so discharged.

(2) The council shall be entitled to instal and maintain any such meter, gauge or device as aforesaid at the expense of the owner of the premises on which it is installed.

(3) The owner of any premises on which there is situated any borehole used for a water supply for trade or industrial purposes shall —

- (a) register such borehole with the council;
- (b) provide the council with full particulars of the discharge capacity of the borehole; and
- (c) if the council has reason to doubt the reliability of the particulars given, carry out at the expense of the owner such tests on the discharge capacity of the borehole as may, in the opinion of the council, be necessary for the purpose of these by-laws.

Prohibited Discharges.

80. (1) No person shall discharge or cause or permit the discharge or entry into any sewer of any sewage, industrial effluent or other liquid or substance —

- (a) which in the opinion of the engineer may be offensive to or may cause a nuisance to the public;
- (b) which is in the form of steam or vapour or has a temperature exceeding 44°C at the point where it enters the sewer;
- (c) which has a pH value less than 6,0 or greater than 10,0;
- (d) which contains any substance of whatsoever nature likely to produce or give off explosive, flammable, poisonous or offensive gases or vapours in any sewer;
- (e) which contains any substance having an open flash-point of less than 93°C or which gives off a poisonous vapour at a temperature below 93°C;
- (f) which contains any material of whatsoever nature, including oil, grease, fat or detergents capable of causing an obstruction to the flow in sewers or drains or interference with the proper operation of a sewage treatment works;
- (g) which shows any visible signs of tar or associated products or distillates, bitumens or asphalts;
- (h) which contains any substance in such concentration

dit aan die finale behandelde uitvloeisel van enige rioolwatersuiweringswerke ná chlorering waarskynlik 'n ongewenste smaak of 'n ongewenste reuk of kleur gee of dat dit oormatige skuim kan veroorsaak;

- (i) dit 'n hoër PW-waarde of 'n laer of hoër pH-waarde of 'n groter elektriese geleivermoeë het as wat in die toepaslike Aanhangsel by hierdie verordeninge aangegee word, of enige van die stowwe wat in genoemde toepaslike Aanhangsel aangegee word, in groter konsentrasies bevat as wat daar gespesifiseer word: Met dien verstande dat die raad sodanige hoër perke of groter konsentrasies vir sodanige tydperk en op sodanige voorwaardes wat hy kan bepaal, kan goedkeur as hy, nadat hy die uitwerking van verdunning in die straatriool en die uitwerking van sodanige stof op die straatriool of op enige suiweringsproses oorweeg het, daarvan oortuig is dat die ontlasting van sodanige stof in die omstandighede nie —

(i) enige straatriool, meganiese toestel, rioolwatersuiweringswerke of uitrusting sal beskadig nie; of

(ii) die riooluitvloeisel vir hergebruik sal benadeel nie; of

(iii) 'n nadelige uitwerking sal hê op water waarin gesuiwerde riooluitvloeisel ontlas word, of op grond of gewasse wat met die riooluitvloeisel besproei word nie;

- (j) dit enige stof van watter aard ook al bevat wat na die mening van die ingenieur —

(i) nie vir behandeling by die rioolwatersuiweringswerke vatbaar is nie, of wat die gewone rioolwatersuiweringsproses ontwig of kan ontwig of dit strem of kan strem; of

(ii) van so 'n aard is of slegs dermate gesuiwer kan word dat dit verhoed dat die finale gesuiwerde uitvloeisel van die rioolwatersuiweringswerke nie behoorlik in alle opsigte voldoen aan enige vereiste wat ingevolge die bepaling van die Waterwet, 1956 (Wet 56 van 1956), gestel word nie; of

(iii) of dit nou al in die toepaslike Aanhangsel by hierdie verordeninge aangedui word of nie, hetsy alleen, hetsy saam met ander stowwe —

(aa) 'n gifstof afgee of bevat wat skadelik kan wees vir die gesondheid van diegene wat by die rioolwatersuiweringswerke werk saam is of wat die raad se straatriole of mangate in die loop van hul pligte moet binnegaan;

(bb) skadelik kan wees vir straatriole, suiweringswerke of vir die grond wat vir die wegdoening van gesuiwerde riooluitvloeisel gebruik word;

(cc) 'n nadelige uitwerking het op die prosesse waarvolgens rioolwater gesuiwer word of op die hergebruik van riooluitvloeisel.

(2)(a) Iemand wat 'n skriftelike opdrag van 'n beambte wat deur die raad behoorlik daartoe gemagtig is, ontvang om die ontlasting in die straatriool van enige stof wat in subartikel (1) genoem word, te staak, moet sodanige ontlasting onmiddellik staak.

(b) Iemand wat die bepaling van subartikel (1) oor-

as is likely in the final treated effluent from any sewage treatment works to produce an undesirable taste after chlorination or an undesirable odour or colour, or excessive foam;

- (i) which either has a greater PV value, a lower or higher pH value or a higher electrical conductivity than specified in the relevant Appendix to these by-laws or which contains any substance specified in the said relevant Appendix in concentration greater than those there listed: Provided that the council may approve such greater limits or concentration in respect of any such substance for such period or on such conditions as it may specify on consideration of the effect of dilution in the sewer and of the effect of such substance on the sewer or any sewage treatment process if the council is satisfied that in the circumstances the discharge of such substance would not —

(i) harm or damage any sewer, mechanical appliance, sewage treatment works or equipment; or

(ii) prejudice the use of sewage effluent for re-use; or

(iii) adversely affect any waters into which treated sewage effluent is discharged, or any land or crops irrigated with the sewage effluent;

- (j) which contains any substance of whatsoever nature which in the opinion of the engineer —

(i) is not amenable to treatment at the sewage treatment works, or which causes or may cause a breakdown or inhibition of the normal sewage treatment processes; or

(ii) is of such nature as is or may be amenable to treatment only to such degree as to prevent the final treated effluent from the sewage treatment works from satisfactorily complying in all respects with any requirements imposed in terms of the Water Act, 1956 (Act 54 of 1956); or

(iii) whether listed in the relevant Appendix to these by-laws or not, either alone or in combination with other matter may —

(aa) generate or constitute a toxic substance dangerous to the health of persons employed at the sewage treatment works or entering the council's sewers or manholes in the course of their duties; or

(bb) be harmful to sewers, treatment plant or land used for the disposal of treated sewage effluent; or

(cc) adversely affect any of the processes whereby sewage is treated or any re-use of sewage effluent.

(2) (a) Any person receiving from an official duly authorized thereto by the council a written order instructing him to stop the discharge to the sewer of any substance referred to in subsection (1), shall forthwith stop such discharge.

(b) Any person who contravenes the provisions of

tree of nie gevolg gee aan 'n opdrag wat hy ingevolge paragraaf (a) ontvang nie, begaan 'n misdryf en is by skuldigbevinding strafbaar met 'n boete van hoogstens R200 of gevangenisstraf vir 'n tydperk van hoogstens ses maande en, in die geval van 'n voortgesette misdryf, met 'n boete van hoogstens R50 vir elke dag of gedeelte van 'n dag waarop sodanige misdryf voortduur.

(c) Ondanks die bepalings van paragraaf (b), kan die raad, indien iemand nie gevolg gee aan 'n opdrag wat ingevolge paragraaf (b) aan hom beteken is nie en die ontlasting na die raad se mening die behoorlike funksionering van enige rioolwatersuiweringswerke waarskynlik ernstig kan benadeel, na verdere skriftelike kennisgewing weier om toe te laat dat enige fabrieksuitvloei in die straatriool ontkas word tot tyd en wyl die fabrieksuitvloei in alle opsigte aan die raad se vereistes soos in hierdie verordeninge voorgeskryf, voldoen, en in daardie geval moet die persoon wat vir die ontlasting verantwoordelik is, dit onverwyld staak of, as hy versuim om dit te doen, moet die raad dit doen.

AANHANGSEL I.

PERKE VIR PERMANGANATAATWAARDE (PW), pH EN ELEKTRIESE GELEIVERMOË EN MAKSIMUM KONSENTRASIE VAN SEKERE STOWWE.

Behoudens die bepalings van artikel 80(1)(i) van hierdie verordeninge, is die volgende —

- (a) die perke vir die PW, pH en elektriese geleivermoë; en
- (b) die stowwe en die maksimum toelaatbare konsentrasies daarvan, uitgedruk in milligram per liter (mg/l), waarna daar in artikel 80(1)(i) verwys word:

(i) ALGEMEEN:

PW — hoogstens	1 400 mg/l
pH — binne die bestek	6,0 — 10,0
Elektriese geleivermoë — hoogstens	500 mS/m by 20°C
Bytende alkaliteit (uitgedruk as CaCO ₃)	2 000 mg/l
Stowwe wat onopgelos is (met inbegrip van vet, olie, ghries, was en soortgelyke stowwe)	2 000 mg/l
Stowwe wat in petroleum-eter oplosbaar is	500 mg/l
Sulfides, hidrosulfides en polisulfides (uitgedruk as S)	50 mg/l
Stowwe wat blousuurgas in die perseelrioolstelsel, straatriool of rioolwatersuiweringswerke kan vrystel (uitgedruk as HCN)	20 mg/l
Formaldehide (uitgedruk as HCHO)	50 mg/l
Nie-organiese vaste stowwe in suspensie	100 mg/l
Chemiese suurstofbehoefte (CSB)	5 000 mg/l

subsection (1) or who fails to comply with an order issued in terms of paragraph (a), shall be guilty of an offence and shall, on conviction, be liable to a fine not exceeding R200 or imprisonment for a period not exceeding six months and, in the case of a continuing offence, to a fine not exceeding R50 for each day or part of a day during which such offence continues.

(c) Notwithstanding the provisions of paragraph (b), should any person have failed to comply with the terms of an order served in terms of paragraph (b) and such discharge is likely in the opinion of the council seriously to prejudice the efficient operation of any sewage treatment works, the council may, after further written notice, refuse to permit the discharge of any industrial effluent into the sewer until such time as the industrial effluent complies in all respects with the council's requirements as prescribed in terms of these by-laws, in which event the discharge shall forthwith be stopped by the person responsible for the discharge or by the council in the event of his failure to do so.

APPENDIX I.

LIMITS OF PERMANGANATE VALUE (PV), pH AND ELECTRICAL CONDUCTIVITY AND MAXIMUM CONCENTRATION OF CERTAIN SUBSTANCES.

Subject to the provisions of section 80(1) (i) of these by-laws, the following are —

- (a) the limits of the PV, pH and electrical conductivity; and
- (b) the substances and the maximum permissible concentrations thereof, expressed in milligrams per litre (mg/l) referred to in section 80(1) (i):—

(i) GENERAL:

PV — not to exceed	1 400 mg/l
pH — within the range	6,0 — 10,0
Electrical conductivity — not greater than	500 mS/m at 20°C
Caustic alkalinity (expressed as (CaCO ₃)	2 000 mg/l
Substances not in solution (including fat, oil, grease, waxes and like substances)	2 000 mg/l
Substances soluble in petroleum ether	500 mg/l
Sulphides, hydro-sulphides and polysulphides (expressed as S)	50 mg/l
Substances from which hydrogen cyanide can be liberated in the drainage installation, sewer or sewage treatment works (expressed as HCN)	20 mg/l
Formaldehyde (expressed as HCHO)	50 mg/l
Non-organic solids in suspension	100 mg/l
Chemical oxygen demand (COD)	5 000 mg/l

Alle suikers en/of stysels (uitgedruk as glukose)	1 500 mg/l
Beskikbare chloor (uitgedruk as Cl)	100 mg/l
Sulfate (uitgedruk as SO ₄)	1 800 mg/l
Fluoorhoudende verbindings (uitgedruk as F)	5 mg/l
Anioniese oppervlakaktiveërders	500 mg/l

(ii) **METALE:***Groep 1*

Yster (uitgedruk as Fe)
 Chroom (uitgedruk as CrO₃)
 Koper (uitgedruk as Cu)
 Nikkel (uitgedruk as Ni)
 Sink (uitgedruk as Zn)
 Silwer (uitgedruk as Ag)
 Kobalt (uitgedruk as Co)
 Wolfram (uitgedruk as W)
 Titaan (uitgedruk as Ti)
 Kadmium (uitgedruk as Cd)

Die totale konsentrasie van al die metale in Groep 1 (uitgedruk soos hierbo) in enige monster van die uitvloeisel, mag nie 20 mg/l; die konsentrasie van enige besondere metaal in enige monster nie 5 mg/l oorskry nie.

Groep 2

Lood (uitgedruk as Pb)
 Selenium (uitgedruk as Se)
 Kwik (uitgedruk as Hg)

Die totale konsentrasie van al die metale in Groep 2 (uitgedruk soos hierbo) in enige monster van die uitvloeisel, mag nie 20 mg/l, en die konsentrasie van enige besondere metaal in enige monster nie 5 mg/l oorskry nie.

(iii) **ANDER ELEMENTE:**

Arseen (uitgedruk as As)
 Boor (uitgedruk as B)

Die totale konsentrasie van alle elemente (uitgedruk soos hierbo) in enige monster van die uitvloeisel, mag nie 20 mg/l oorskry nie.

(iv) **RADIOAKTIEWE AFVALSTOWWE:**

Radioaktiewe afvalstowwe of isotope: 'n Konsentrasie wat die Raad op Atoomkrag of enige Staatsdepartement bepaal:

Met dien verstande dat, ondanks bostaande vereistes wat in hierdie Aanhangsel uiteengesit word, die raad hom die reg voorbehou om die totale massa van enige stof of onsuiverheid wat per etmaal in die straatriole vanaf enige perseel ontas word, te beperk.

LET WEL: Die raad pas die toets toe wat hy gewoonlik gebruik om die konsentrasie van enige stof wat hierbo genoem word, te bepaal. Iemand wat 'n stof wat in hierdie Aanhangsel genoem word, in die straatriool ontas, moet die besonderhede van die toepaslike toets by die raad verkry.

All sugars and/or starch (expressed as glucose) ...	1 500 mg/l
Available chlorine (expressed as Cl) ...	100 mg/l
Sulphates (expressed as SO ₄) ...	1 800 mg/l
Fluorine-containing compounds (expressed as F) ...	5 mg/l
Anionic surface active agents ...	500 mg/l

(ii) **METALS:***Group 1.*

Iron (expressed as Fe)
 Chromium (expressed as CrO₃)
 Copper (expressed as Cu)
 Nickel (expressed as Ni)
 Zinc (expressed as Zn)
 Silver (expressed as Ag)
 Cobalt (expressed as Co)
 Tungsten (expressed as W)
 Titanium (expressed as Ti)
 Cadmium (expressed as Cd)

The total collective concentration of all metals in Group 1 (expressed as indicated above) in any sample of the effluent shall not exceed 50 mg/l, nor shall the concentration of any individual metal exceed 20 mg/l.

Group 2.

Lead (expressed as Pb)
 Selenium (expressed as Se)
 Mercury (expressed as Hg)

The total collective concentration of all metals in Group 2 (expressed as indicated above) in any sample of the effluent shall not exceed 20 mg/l, nor shall the concentration of any individual metal in any sample exceed 5 mg/l.

(iii) **OTHER ELEMENTS:**

Arsenic (expressed as As)
 Boron (expressed as B)

The total collective concentration of all elements (expressed as indicated above) in any sample of the effluent shall not exceed 20 mg/l.

(iv) **RADIO-ACTIVE WASTES:**

Radio-active wastes or isotopes: Such concentration as may be laid down by the Atomic Energy Board or any State Department:

Provided that, notwithstanding the requirements set out in this Appendix, the council reserves the right to limit the total mass of any substance or impurity discharged per 24 hours into the sewers from any premises.

NOTE: The method of testing in order to ascertain the concentration of any substance here mentioned shall be the test normally used by the council for the purpose. Any person discharging any substance referred to in this Appendix shall ascertain the details of the appropriate test from the council.

AANHANGSEL II.

REÛLS VIR DIE BEPALING VAN VIERUUR-PERMANGANAATWAARDE (PW) VAN FABRIEKS-UITVLOEISEL.

LET WEL: Hierdie reëls kom neer op die weergawe, in verordeningsvorm, van die "Methods of Chemical Analysis as applied to Sewage and Sewage Effluents", gepubliseer deur die British Ministry of Housing and Local Government, H. M. Stationery Office, 1956.

DEEL I.

PROSEDURE VIR DIE BEREIDING VAN REAGERMIDDELS.

1.(1) By die bereiding van 'n kaliumpermanganaat-oplossing, $\frac{N}{80}$, moet die prosedure wat in hierdie reël beskryf word, gevolg word.

(2) 4 gram $KMnO_4$ moet in een liter warm gedistilleerde water in 'n groot glasbeker wat met 'n klokglas bedek moet word, opgelos word; die oplossing moet, as dit moontlik is, minstens twee uur lank op 'n temperatuur van $90^\circ C$ tot $95^\circ C$ gehou word.

(3) Genoemde oplossing moet tot 10 liter met gedistilleerde water verdun word en dan op 'n donker plek gesit word totdat alle organiese stowwe heeltemal geoksideer het en alle neergeslane mangaandioksied afgesak het.

(4) Die bovloeistof moet versigtig afgegiet of afgehevel word sonder om die afsaksel te versteur.

(5) Ondanks die bepalings van hierdie reël is dit as 'n alternatiewe prosedure toelaatbaar om die oplossing deur 'n tregter met 'n sinterglaselement, deur glaswol of deur asbesvesel wat vooraf met salpetersuur en soutsuur gedigereer en daarna deeglik met water gewas is, te filtreer: Met dien verstande dat die oplossing nie deur papier gefiltreer mag word nie.

(6) Daar moet alle voorsorg getref word dat die oplossing nie deur stof of organiese stowwe besoedel word nie.

(7) Daar moet daaglik blanko-bepalings gemaak word om die sterkte van die kaliumpermanganaat-oplossing vas te stel.

LET WEL: As bostaande metode sorgvuldig gevolg en die oplossing in amberkleurbottels of in die donker gebêre word, bly dit verskeie maande lank bestendig.

2.(1) By die bereiding van 'n standaardoplossing, $\frac{N}{4}$, van natriumtiosulfaat moet die prosedure wat in hierdie reël beskryf word, gevolg word.

(2) 63 gram natriumtiosulfaat, $Na_2S_2O_3 \cdot 5H_2O$, moet in een liter kopervrye, pasgekookte en afgekoelde, gedistilleerde water opgelos word, en een milliliter chloroform of 10 milligram kwikdijodied moet daarby gevoeg word om die oplossing te bestendig.

(3) Die oplossing moet etlike dae lank staan voordat dit gebruik word.

3.(1) By die bereiding van 'n gebruikoplossing, $\frac{N}{80}$,

APPENDIX II.

RULES FOR DETERMINING THE FOUR-HOUR PERMANGANATE VALUE (PV) OF INDUSTRIAL EFFLUENTS.

NOTE: These rules are to all intents and purposes a re-statement in the form of by-laws of the "Methods of Chemical Analysis as applied to Sewage and Sewage Effluents" as published by the British Ministry of Housing and Local Government, H.M. Stationery Office, 1956.

PART I.

PROCEDURE FOR THE PREPARATION OF REAGENTS.

1. (1) For the preparation of potassium permanganate solution, being approximately, $\frac{N}{80}$, the procedure described in this rule shall be followed.

(2) 4 grams $KMnO_4$ shall be dissolved in one litre of hot distilled water contained in a large beaker covered with a clock glass, the solution being maintained at $90^\circ C$ to $95^\circ C$ for not less than two hours if possible.

(3) The said solution shall be diluted to 10 litres with distilled water and set aside in darkness until complete oxidation of any organic matter has taken place and any precipitated manganese dioxide has settled.

(4) The supernatant liquid shall be carefully decanted or siphoned off so that the disturbance of any sediment is avoided.

(5) Notwithstanding anything contained in this rule, it shall be permissible alternatively to filter the solution through a funnel having a sintered glass element, through glass wool or through asbestos fibre which has been previously digested with nitric and hydrochloric acids and then thoroughly washed with water: Provided that the solution shall not be filtered through paper.

(6) All necessary measures shall be taken to prevent the solution from being contaminated by dust or organic matter.

(7) Daily blank determinations shall be made to check the strength of the potassium permanganate solution.

NOTE: When the method described above is carefully followed and the solution stored in amber bottles or in the dark it is stable for several months.

2.(1) For the preparation of a stock solution, $\frac{N}{4}$, sodium thiosulphate the procedure described in this rule shall be adopted.

(2) 63 grams of sodium thiosulphate, $Na_2S_2O_3 \cdot 5H_2O$, shall be dissolved in one litre of copper-free, freshly boiled and cooled distilled water, and one millilitre of chloroform or 10 milligrams of mercuric iodide shall be added to stabilise the solution.

(3) The solution shall be allowed to stand for several days before it is used.

3. (1) For the preparation of a working solution of

van natriumtiosulfaat moet die prosedure wat in hierdie reël beskryf word, gevolg word.

(2) 50 milliliter van die standaardoplossing moet tot een liter kopervrye, pasgekookte en afgekoelde, gedistilleerde water verdun word, en een milliliter chloroform of 10 milligram kwikdijodied moet daarby gevoeg word.

(3) Die oplossing wat aldus verkry word, moet met gereelde tussenposes aan die hand van kaliumjodaat gestandaardiseer word.

(4) Die oplossing moet in 'n amberkleurglasbottel met 'n rubberprop gehou word.

(5) Die oplossing wat aan die einde van die dag in die buret oorbly, moet weggegooi word.

4. Die kaliumjodaat-oplossing, $\frac{N}{40}$, wat gebruik word om 'n tiosulfaatoplossing ingevolge die bepalings van reël 3(3) van hierdie Aanhangsel te standaardiseer, moet berei word deur 0,892 gram suiwer kaliumjodaat wat vooraf by 120°C gedroog is, in 'n bietjie water op te los, en die oplossing wat aldus verkry word, tot presies 1 liter te verdun.

LET WEL: Die oplossing sal 'n lang tyd goed bly as dit in 'n glaspropbottel gehou word.

5.(1) By die bereiding van verdunde swaelsuur moet die prosedure wat in hierdie reël beskryf word, gevolg word.

(2) Een volume gekonsentreerde swaelsuur moet by drie volumes water gevoeg word; die swaelsuur moet in klein hoeveelhede op 'n keer bygevoeg word.

(3) Daar moet toereikende en doeltreffende voorsorg getref word om te verhoed dat die suur uitspat en die glashouers as gevolg van die hitte wat ontstaan, kraak.

(4) Wanneer die verdunning waarna daar in subreël (2) verwys word, klaar is, moet daar voldoende per-

manganaat-oplossing, $\frac{N}{80}$, bygevoeg word totdat die mengsel 'n dowwe, blywende pienk tint het.

6. By die bereiding van 'n kaliumjodied-oplossing moet tien gram kaliumjodied in 100 milliliter water opgelos en in 'n amberkleurglasbottel gehou word.

7.(1) By die bereiding van 'n stysel-reageermiddel moet die prosedure wat in hierdie reël beskryf word, gevolg word.

(2) Een gram oplosbare stysel moet met 'n bietjie koue, gedistilleerde water tot 'n gladde pasta finge-maak word.

(3) Hierdie pasta moet in een liter kokende, gedistilleerde water gegooi word, en die mengsel moet aanhoudend geroer word terwyl die pasta bygevoeg word.

(4) Die oplossing wat aldus verkry word, moet een minuut lank gekook word en dan toegelaat word om af te koel voordat dit gebruik word.

(5) Slegs 'n oplossing wat pas berei is, mag gebruik word.

(6) Ondanks die bepalings van hierdie reëls is dit as 'n alternatiewe metode toelaatbaar om 'n oplossing te gebruik wat 'n preserveermiddel bevat, mits dit be-

N

$\frac{N}{80}$, sodium thiosulphate the procedure described in this rule shall be adopted.

(2) 50 millilitres of stock solution shall be diluted to one litre with copper-free, freshly-boiled and cooled distilled water, and one millilitre of chloroform or 10 milligrams of mercuric iodide shall be added.

(3) The resulting solution shall be standardised against potassium iodate at frequent intervals.

(4) The solution shall be stored in an amber glass bottle having a rubber stopper.

(5) Any solution remaining in the burette at the end of the day shall be discarded.

4. Potassium iodate solution, $\frac{N}{40}$, for standardising a thiosulphate solution in terms of rule 3(3) of this Appendix, shall be prepared by dissolving in a little water 0,892 gram of pure potassium iodate which has been previously dried at 120°C and diluting the resulting solution to exactly one litre.

NOTE: The solution will keep for a very long time if stored in a glass stoppered bottle.

5.(1) For the preparation of dilute sulphuric acid the procedure described in this rule shall be adopted.

(2) One volume of concentrated sulphuric acid shall be added to three volumes of water, care being taken to add the acid in small quantities at a time.

(3) Adequate and effective precautions shall be taken against the spitting of acid and the cracking of glass vessels owing to generation of heat.

(4) After the mixing referred to in subrule (2) has been completed, sufficient $\frac{N}{80}$ permanganate solution shall be added to give a faint permanent pink tint to the mixture.

6. For the preparation of potassium iodide solution 10 grams of potassium iodide shall be dissolved in 100 millilitres of water and stored in an amber glass bottle.

7. (1) For the preparation of a starch reagent the procedure described in this rule shall be adopted

(2) One gram of soluble starch shall be ground into a smooth paste with a little cold distilled water.

(3) The resulting paste shall be poured into one litre of boiling distilled water and the pouring shall be accompanied by constant stirring.

(4) The resulting solution shall be boiled for one minute and shall then be allowed to cool before it is used.

(5) The solution shall only be used if it has been freshly prepared.

(6) Notwithstanding anything in this rule contained, it shall be permissible alternatively to use a solution

kend is dat die preserveermiddel nie die reaksie ver-
steur nie.

(7) As kwikdijodied gebruik word, moet ongeveer
10 milligram daarvan by die stysel gevoeg word wan-
neer laasgenoemde met water fyngemaak word.

(8) Dit is ook as 'n alternatiewe metode toelaatbaar
om 0,1 gram timol by die kokende water wat gebruik
word om die styseloplossing te berei, te voeg.

8. 'n Oplossing van natriumstyselglikolaat kan in die
plek van 'n stysel-oplossing gebruik word. Een tot twee
milliliter van 'n oplossing van 0,5 persent in koue,
gedistilleerde water moet aan die begin van die titrasie
bygevoeg word.

LET WEL: Die eindpunt word genader wanneer die
kleur van groen na diepblou verander. By die eindpunt,
wat meteens plaasvind, word die oplossing kleurloos.

9. (1) By die standaardisering van 'n natriumtiosulfaat-
oplossing moet die prosedure wat in hierdie reël be-
skryf word, gevolg word.

(2) Daar moet 5 milliliter kaliumjodied-oplossing
soos dit in reël 5 beskryf word, 10 milliliter verdunde
N
swaelsuur en 25 milliliter jodaat-oplossing, —, in die
40
volgorde, in 'n glaspropbottel met 'n inhoudsvermoë van
ongeveer 350 ml gegooi word.

(3) Ongeveer 100 milliliter water moet dan hierby ge-
voeg word.

(4) Titrasie met 'n tiosulfaat-oplossing moet onmid-
delik hierna geskied.

(5) Een milliliter-stysel-oplossing moet bygevoeg word
wanneer die vloeistof 'n liggeel kleur kry.

(6) Nadat die liggeel vloeistof waarna daar in sub-
reël (5) verwys word, blou geword het, moet die tita-
sie voortgesit word net totdat die oplossing kleurloos
word.

LET WEL: Die normaliteit van die tiosulfaat-oplos-
sing is dan

$$\frac{N}{80} \times \frac{50}{\text{milliliter natriumtiosulfaat benodig.}}$$

Die natriumtiosulfaat kan teen hierdie sterkte gebruik
word, mits die gepaste korreksiefaktor gebruik word. Dit
is egter verkieslik om die sterkte aan te pas totdat daar
presies 50 milliliter vir 'n herhalings-titrasie nodig is.

Die natriumtiosulfaat is dan presies $\frac{N}{80}$ en 1 milliliter
staan gelyk aan 0,1 milligram suurstof.

DEEL II.

BEPALING VAN VIER-UUR-PERMANGANAAT- WAARDE. (PW).

10. (1) Die prosedure wat in hierdie reël beskryf
word, moet gevolg word by die bepaling van vier-uur-
permanganaatwaarde. (PW).

(2) Daar moet 10 milliliter verdunde swaelsuur en 50
N
milliliter kaliumpermanganaat-oplossing, —, in 'n skoon
80

containing a preservative so long as it is known that
the preservative does not interfere with the reaction.

(7) If mercuric iodide is used, about 10 milligrams
thereof shall be added to the starch when the latter
is being ground with water.

(8) It shall also be permissible as an alternative to
add 0,1 gram of thymol to the boiling water which
is used for making the starch solution.

8. A solution of sodium starch glycollate may be
used as an alternative to starch solution, one to two
millilitres of a 0,5 per cent solution in cold distilled
water being added at the start of the titration.

NOTE: The approach to the end-point is shown by
the change from green to intense blue. At the end-
point, which is sharp, the solution becomes colourless.

9. (1) For the standardisation of sodium thiosul-
phate solution the procedure described in this rule
shall be adopted.

(2) In a glass-stoppered bottle having a capacity of
about 350 ml there shall be placed 5 millilitres of
potassium iodide solution as referred to in rule 5, 10
millilitres of dilute sulphuric acid and 25 millilitres of
N
— iodate solution, in that order.
40

(3) About 100 millilitres of water shall then be add-
ed.

(4) Titration with thiosulphate solution shall be
carried out immediately thereafter.

(5) One millilitre of starch solution shall be added
when the liquid has become pale yellow.

(6) After the pale yellow liquid referred to in sub-
rule (5) has become blue the titration shall be con-
tinued until the solution has just become colourless.

NOTE. The normality of the sodium thiosulphate
solution is then

$$\frac{N}{80} \times \frac{50}{\text{millilitres of sodium thiosulphate required.}}$$

The sodium thiosulphate can be used at this strength
provided that the appropriate correction factor is used,
but it is preferable to adjust the strength until exactly
50 millilitres are required for a repeat titration. The

sodium thiosulphate is then exactly $\frac{N}{80}$ and one milli-
litre is equivalent to 0,1 milligram of oxygen.

PART II.

DETERMINATION OF FOUR-HOUR PERMANGA- NATE VALUE (PV).

10. (1) The procedure described in this rule shall be
followed for the determination of four-hour permanga-
nate value (PV).

(2) Into a clean 350 ml glass-stoppered bottle there
shall be placed 10 millilitres of dilute sulphuric acid

glaspropbottel met 'n inhoudsvermoë van 350 milliliter gegooi word.

(3) Daar moet 'n volume gedistilleerde water wat gelyk is aan die verskil tussen 100 milliliter en die volume van die monster fabrieksuitvloeiwater wat getoets moet word, by die kaliumpermanganaat-oplossing gevoeg word.

(4) Die monster fabrieksuitvloeiwater moet onmiddellik nadat dit by die oplossing wat in subreël (3) genoem word, gevoeg is, daarmee gemeng word deur die bottel versigtig te draai.

(5) Die mengsel moet vier uur lank teen 'n temperatuur van 27°C gehou word, en moet na verloop van een uur weer gemeng word as die monster baie stowwe in suspensie bevat.

LET WEL: Ten einde die akkuraatste resultate te verkry, moet al die oplossings tot 27°C verhit word voordat dit gemeng word, maar as 'n waterbad gebruik word, is dit nie nodig nie. 'n Waterbad is verkieslik want in die geval van die meeste luginkubators word enige verskil in temperatuur tussen die bottel en die broeikas baie langsaam uitgeskakel.

(6) Na verloop van vier uur moet of 5 milliliter van die kaliumjodied-oplossing van 10 persent of ongeveer 0,5 gram soliede kaliumjodied by die mengsel gevoeg word.

(7) Onmiddellik nadat dit aldus bygevoeg is, moet dit met natriumsulfaat-oplossing, $\frac{N}{80}$, getitreer word.

(8) Teen die einde van die proses wat hierbo beskryf is, moet daar twee milliliter van die stysel-oplossing by die mengsel gevoeg word.

(9) As 'n alternatiewe metode vir die een wat in subreël (8) voorgeskryf word, kan twee milliliter natriumstyselglikolaat-oplossing aan die begin van die titrasie bygevoeg word.

(10) Titrasie moet voortduur totdat die blou kleur wat ontstaan as gevolg van die stap wat in subreël (8) beskryf word, verdwyn en enige blouigheid wat verskyn as die oplossing 'n rukkie staan, moet verontagsaam word.

(11) 'n Blanko-bepaling moet volgens dieselfde prosedure uitgevoer word deur die monster fabrieksuitvloeiwater met 100 milliliter gedistilleerde water te vervang.

(12) Hoogstens 50 persent van die kaliumpermanganaat mag tydens die toets opgebruik word, en die volume van die fabrieksuitvloeiwatermonster wat bygevoeg word, moet dienooreenkomstig verander word.

DEEL III.

BEREKENING VAN DIE PERMANGANAAT-WAARDE.

Die permanganaatwaarde moet volgens die volgende formule bereken word:

$$\text{Permanganaatwaarde (4 uur) mg/l} = 100 \frac{(a-b)}{c}$$

waar —

(a) die getal milliliter natriumtiosulfaat, $\frac{N}{80}$ is wat vir die blanko-bepaling nodig is;

and 50 millilitres of $\frac{N}{80}$ potassium permanganate solution.

(3) There shall be added to the potassium permanganate solution a volume of distilled water equal to the difference between 100 millilitres and the volume of the sample of industrial effluent to be tested.

(4) The sample of industrial effluent shall immediately after being added to the solution referred to in subrule (3) be mixed by gentle rotation of the bottle.

(5) The mixture shall be maintained at a temperature of 27°C for four hours, and shall be remixed after one hour if the sample contains much suspended matter.

NOTE: For the most accurate results all the solutions should be heated to 27°C before mixing, but this is not necessary where a water bath is used. A water bath is preferable because, with most air incubators, any difference in temperature between the bottle and the incubator is only very slowly rectified.

(6) After four hours there shall be added to the mixture either 5 millilitres of the 10 per cent potassium iodide solution or about 0,5 gram of solid potassium iodide.

(7) Immediately after the said addition titration shall be carried out with $\frac{N}{80}$ sodium thiosulphate solution.

(8) Towards the end of the process hereinbefore described there shall be added to the mixture two millilitres of starch solution.

(9) As an alternative to the step prescribed by subrule (8), it shall be permissible to add two millilitres of sodium starch glycolate solution at the beginning of the titration.

(10) Titration shall be carried out until the blue colour resulting from the step prescribed by subrule (8) just disappears and any blueness which may return after standing shall be ignored.

(11) A blank determination shall be made by the same procedure without the sample of industrial effluent but with the use of 100 millilitres of distilled water instead.

(12) Not more than 50 per cent of potassium permanganate shall be used up during the test, and the quantity of the sample of industrial effluent added shall be proportioned accordingly.

PART III.

CALCULATION OF PERMANGANATE VALUE

The permanganate value shall be calculated from the following formula:

$$\text{Permanganate value (4 hours) mg/l} = 100 \frac{(a-b)}{c}$$

where —

(a) is the millilitres of $\frac{N}{80}$ sodium thiosulphate required for the blank determination;

(b) die getal milliliter natriumtiosulfaat, $\frac{N}{80}$ is wat vir die monster nodig is; en

(c) die getal milliliter fabrieksuitvloeiemonster is wat gebruik word.

AANHANGSEL III.

AANSOEKVORM: VERGUNNING OM FABRIEK-UITVLOEISEL IN DIE RAAD SE STRAATRIOOL TE ONTLAS.

Ek (naam) _____ die ondergetekende, wat behoorlik gemagtig is om op te tree ten behoeve van _____ hierna die aansoeker genoem, doen hierby ingevolge die bepalings van die Rioleringsverordeninge van die raad aansoek om vergunning om fabrieksuitvloei op die grondslag van die besonderhede wat hierin uitengesit word, in die raad se straat riool te ontlas.

DEEL I.

BESONDERHEDE MET BETREKKING TOT GETAL WERKNEMERS EN HOEVEELHEID WATER WAT OP DIE PERSEEL VERBRUIK WORD.

1. Aard van die betrokke besigheid of nywerheid _____

2. Naam waaronder die besigheid of nywerheid gedryf word _____

3. Adres van die besigheid of nywerheid _____

Posbus _____

Standplaas/standplase No. _____ Dorp _____

As die besigheid of nywerheid deur 'n maatskappy gedryf word, verstrek die naam van die sekretaris, en as dit 'n vennootskap is, die name van die vennote _____

4. Beskrywing van die nywerheids- of bedryfsproses waardeur die uitvloei sal ontstaan _____

5. Gegewens betreffende werknemers:

Kantoor Fabriek

(1) Totale getal dagwerknemers (uitgesonderd (4)) _____

(2) Getal skofte wat per dag gewerk word _____

(3) Getal dae wat per week gewerk word _____

(4) Getal mense wat op die perseel woonagtig is _____

(5) Word daar 'n eetplek verskaf? _____

6. Gegewens betreffende die waterverbruik:

(b) is the millilitres of $\frac{N}{80}$ sodium thiosulphate required for the sample; and

(c) is the millilitres of industrial effluent sample used.

APPENDIX III.

FORM OF APPLICATION FOR PERMISSION TO DISCHARGE INDUSTRIAL EFFLUENT INTO THE COUNCIL'S SEWER.

I (Name) _____ the undersigned, duly authorized to act on behalf of _____ and hereinafter referred to as the applicant, hereby apply in terms of the provisions of the Drainage By-laws of the council for permission to discharge industrial effluent into the council's sewer on the basis of the information set out herein.

PART I.

INFORMATION REGARDING PERSONS EMPLOYED AND WATER CONSUMED ON THE PREMISES.

1. Nature of the business or industry concerned _____

2. Name or style under which the business or industry is carried on _____

3. Address of the business or industry _____

P.O. Box _____

Stand(s) Nos.(No.) _____ Township _____

If the business or industry is carried on by a company, state the name of the secretary and if it is a partnership state the names of the partners _____

4. Description of industrial or trade process by which the effluent will be produced _____

5. Information relating to employees:

Office Factory

(1) Total number of daily employees (not to include (4)) _____

(2) Number of shifts worked per day _____

(3) Number of days worked per week _____

(4) Number of persons resident on the premises _____

(5) Is a canteen provided? _____

6. Information relating to water consumption:

- Kiloliter/Maand*
- (1) Benaderde gemiddelde hoeveelheid water wat per maand van die raad gekoop word vir verbruik op die perseel
 - (2) Benaderde gemiddelde hoeveelheid water wat per maand uit enige boorgat of ander bron verkry word
 - (3) Hoeveelheid water in die eindproduk
 - (4) Hoeveelheid water wat verdamp
 - (5) Hoeveelheid aanvulwater wat vir die stoomketels gebruik is
 - (6) Word water op die perseel vir enige van die volgende doeleindes gebruik en indien wel, vir watter: verkoeling, die reiniging van gerei, die was van vloere en enige ander nywerheidsdoeleindes, en word dié water daarna in die straatrool ontlas?

7. As die antwoord op die vraag in paragraaf (6) bevestigend is, moet Deel II van hierdie vorm ingevul word.

Aansoeker se handtekening:

DEEL II.

GEGEWENS BETREFFENDE DIE VERBRUIK VAN WATER.

1. Die volgende inligting is nodig ten einde die hoeveelheid fabrieksuitleisel wat in die raad se straatrool ontlas word, te kan beraam, en alle syfers wat verstrek word, moet betrekking hê op die hoeveelheid water wat oor 'n tydperk van ses maande afgemeet is.

Naam van verbruiker of sy verteenwoordiger.

Standplaas No.: Dorp:

TOTALE GETAL KILOLITER WATER WAT IN SES MAANDE VERBRUIK IS:

	Meter no.	Meter no.	Meter no.	Totaal
Water van die Raad gekoop				
Water uit boorgat of ander bron				
Grondstofwater				
Gedeelte van inrigting waar waterverbruik gemeet word				
Totale hoeveelheid water verbruik				

2. Vir die doel van hierdie beraming kan die totale getal kiloliter water wat in ses maande vir enige van ondergenoemde doeleindes verbruik is, buite rekening gelaat word.

- Kilolitres/Month*
- (1) Approximate average monthly quantity of water purchased from the council for the use on the premises
 - (2) Approximate average monthly quantity of water obtained from any borehole or other source
 - (3) Quantity of water in the end-product
 - (4) Quantity of water lost by evaporation
 - (5) Quantity of water used as boiler make-up
 - (6) Is water used on the premises for any, and if so which, of the following purposes: cooling, the cleaning of utensils, floor-washing, any other industrial purpose, and subsequently discharged to sewer?

7. If the answer to the question in paragraph 6(6) is "yes", Part II of this form must be completed.

Applicant's Signature:

PART II.

INFORMATION REGARDING THE CONSUMPTION OF WATER.

1 The following information is required for the purpose of estimating the quantity of industrial effluent discharged into the council's sewer, and all figures given shall relate to the quantity of water taken over a period of six months.

Name of consumer or his representative.

Stand No.: Township:

TOTAL NUMBER OF KILOLITRES OF WATER CONSUMED IN SIX MONTHS:

	Meter No.	Meter No.	Meter No.	Total
Water purchased from the council				
Water from borehole or other source				
Water entering with raw materials				
Section of plant served by meter				
Total quantity of water consumed				

2. For the purposes of this estimate the total number of kilolitres of water used in six months for any of the purposes belowmentioned may be left out of account.

(1) Water wat personeel vir huishoudelike doeleindes verbruik het.

	Getal	Skofte per dag	Dae per week	Volume toege- laat/ kiloli- ter per persoon per dag	Totaal
Dagwerkne- mers (uitge- sonderd inwo- ners)					
Kantoor					
Fabriek					
Inwoners					
Blankes					
Nie-Blankes					
Eetplek					
Totale hoeveel- heid water ver- bruik (in kilo- liter)					

(2) Water wat vir stoomketels gebruik is:

	Stoom- ketel 1	Stoom- ketel 2	Stoom- ketel 3	Totaal
Type stoomketel				
Ontwerp- aanslag				
kg stoom/uur				
kilowatt				
Ure onder stoom per maand				
Totale hoeveelheid wat per maand verdamp				
Kondensaas teruggevoer (in kiloliter)				
Persentasie kondensaas nie teruggevoer nie en in straatrool ontlaas				
Steenkool verbrand — kg per maand				
Water gebruik vir nat- maak van steenkool (in kiloliter)				
Water gebruik om as te blus (in kiloliter)				
Hoeveelheid aftapwater (in kiloliter)				
Word aftapwater in straatrool ontlaas?				
Hoeveelheid terugspoel- water uit versagter per maand (in kiloliter)				
Totale hoeveelheid wa- ter verbruik (in kiloli- ter)				

(3) Water wat in ses maande opgeneem is deur lie goedere wat op die perseel vervaardig is:

(a) Uitgedruk as 'n persentasie van die totale hoeveelheid water wat verbruik is, min hoeveelheid toege-
laat vir verbruik deur personeel.

(1) Water used by staff for domestic purposes:

	Number	Shifts per Day	Days per Week	Allow- ance (Kilo- litres/ Head/ Day	Total
Daily employ- ees (excluding residents)					
Office					
Factory					
Resident Per- sons					
White					
Non-White					
Canteen					
Total water used (in kilo- litres)					

(2) Water used in the operation of boilers:

	Boiler 1	Boiler 2	Boiler 3	Total
Type of boiler				
Rating				
kg steam/hr				
kilowatt				
Hours steamed per month				
Total evaporation per month				
Condensate returned (in kilolitres)				
Percent of unreturned condensate discharged to sewer				
Coal burned — kg per month				
Water used for coal washing (in kilolitres)				
Water used for ash quenching (in kilolitres)				
Quantity of blowdown (in kilolitres)				
Does blowdown enter sewer?				
Quantity of softener backwash water per month (in kilolitres)				
Total quantity of water used (in kilolitres)				

(3) Water absorbed by the goods manufactured on the premises in six months:

(a) Expressed as a percentage of the total consump-
tion of water less the allowance for staff use.

(b) Uitgedruk as kiloliter per ses maande, wat in voltooide produk aanwesig is*:

(i)

(ii)

(iii) kiloliter per ses maande

(iv)

(v)

(4) Kiloliter water wat in ses maande in die atmosfeer verdamp het:

(a) Deur toestelle, uitgesonderd koeltorings
Kiloliter per ses maande.

(b) Deur koeltorings.

	1	2	3	Totaal
Tipe tooring				
Hoeveelheid water in ses maande gesirkuleer (in kiloliter)				
Daling in temperatuur (°C)				
Beraamde verlies deur verdamping (in kiloliter)				
Afgemete hoeveelheid water na koeltorings gevoer (in kiloliter)				
Hoeveelheid koelmiddel gesirkuleer in ses maande (in kiloliter)				
Totale hoeveelheid water wat verdamp het (in kiloliter)				

(5) Hoeveelheid water wat in ses maande om allerlei redes verlore gegaan het:

(a)

(b)

(c)

Totale hoeveelheid afgetrek (in kiloliter)

Groototaal van hoeveelheid wat ingevolge subparagrafe (1) tot (5) van hierdie paragraaf afgetrek moet word

*Voorbeeld: Seepfabriek: Geelseep, 4 000 metrieke ton vervaardig met 'n voginhoud van 50 persent — water in produk 2 000 kiloliter (in ses maande).

3. Beraamde hoeveelheid proseswater wat in straat-rinol ontlaas is (bereken deur die totale hoeveelheid water wat afgetrek mag word — soos dit in subparagrafe (1) tot (5) van paragraaf 2 aangegee word — af te trek van die totale hoeveelheid water wat verbruik is, soos in paragraaf 1 aangedui).

ONDERTEKEN:

Deur of namens Aansoeker

Deur of namens Stads-/Dorpsingenieur

DATUM:

(b) Expressed as kilolitres per six months contained in the finished product*:

(i)

(ii)

(iii) kilolitres per six months.

(iv)

(v)

(4) Kilolitres of water lost in six months by evaporation to the atmosphere:

(a) By units of plant other than cooling towers
Kilolitres per six months.

(b) By cooling towers:

	1	2	3	Total
Type of Tower				
Quantity of water circulated per six months (in kilolitres)				
Temperature drop (°C)				
Estimated loss by evaporation (in kilolitres)				
Metered water fed to cooling towers (in kilolitres)				
Quantity of refrigerant in circulation in six months (in kilolitres)				
Total quantity of water lost by evaporation (in kilolitres)				

(5) Quantities of water lost in six months from miscellaneous causes:

(a)

(b)

(c)

Total deduction (in kilolitres)

Grand total of deductions to be made in terms of subparagraphs (1) to (5) of this paragraph

*Example: Soap factory: Yellow soap, 4 000 metric tons manufactured at 50 per cent moisture content — water in product 2 000 kilolitres (in six months).

3. Estimated process water discharged to sewer (arrived at by deducting the total quantity of permissible deductions shown in subparagraphs (1) to (5) of paragraph 2 from total water consumed as shown in paragraph 1.

SIGNED:

By or for the Applicant.

By or for the City/Town Engineer.

DATE:

DEEL III.

GEGEWENS BETREFFENDE DIE AARD VAN DIE FABRIEKSUITVLOEISEL.

Gegewens betreffende die chemiese en fisiese eienskappe van die uitvloeisel wat ontlast gaan word:

- (1) Maksimum temperatuur van uitvloeisel °C
- (2) pH-waarde pH
- (3) Aard van, en hoeveelheid besinkbare vaste stowwe
- (4) Permanganaatwaarde (4 uur) bepaal volgens die metode wat in die toepaslike Aanhangsel by die Rioleringsverordeninge voorgeskryf word
- (5) Maksimum totale hoeveelheid daaglikse ontlast (kiloliter)
- (6) Maksimum ontlastempo (kiloliter/uur)
- (7) Tydperke van maksimum ontlasting (07h00 tot 08h00)
- (8) As enige van die stowwe, of die soute daarvan, wat in die tabel aangegee word, op die perseel gevorm word, moet 'n kruisie in die ruimte waarin die stof aangegee word, getrek word, en as dit moontlik is, moet die gemiddelde konsentrasie van hierdie stof wat waarskynlik in enige uitvloeisel aanwesig sal wees, ook aangegee word.

TABEL

Yster	Chroom	Nikkel	Kadmium	Koper	Sink
Silwer	Kobalt	Wolfraam	Titaan	Lood	Selenium
Kwik	Arsen	Bor	Sianied	Nitrate	
Ammonium	Sulfiede	Sulfate	Ander		
Stysel of Suiker		Teer of Teerolie	Ghries en olie		
Sintetiese reinigingsmiddels		Vlugtige oplosmiddels	Ander		

(9) Alle verdere gegewens betreffende soort of eienskappe, chemiese samestelling en konsentrasies wat eie is aan die fabrieksuitvloeisel moet op 'n afsonderlike vel verstrek en hierby aangeheg word.

DEEL IV.

VOORWAARDES WAAROP FABRIEKSUITVLOEISEL ONTVANG WORD.

Hierdie aansoek word slegs toegestaan as die aansoeker hom verbind om die volgende bedinge en voorwaardes en alle verdere spesiale voorwaardes wat die ingenieur in 'n bepaalde geval dienstig ag, na te kom, en daar word geag dat hy, uit hoofde van sy handtekening hieronder, hom aldus verbind het:

1. Die aansoeker moet beskrywings en 'n opgawe van die afmetings van die vet- en olievangers, siwwe, verdunnings- en neutraliseertanks en van enige ander voorsiening wat hy gemaak het om die fabrieksuitvloeisel te behandel alvorens dit in die straatriool ontlast word, hierby aanheg.

PART III.

INFORMATION REGARDING NATURE OF INDUSTRIAL EFFLUENT.

Information required concerning the chemical and physical characteristics of the effluent to be discharged:

- (1) Maximum temperature of effluent °C
- (2) pH Value pH
- (3) Nature and amount of settleable solids
- (4) Permanganate value (4 hours) strength as determined according to the method prescribed in the relevant Appendix to the Drainage By-laws
- (5) Maximum total daily discharge (kilolitres)
- (6) Maximum rate of discharge (kilolitres/hour)
- (7) Periods of maximum discharge (e.g. 07h00 to 08h00)
- (8) If any of the substances, or their salts, specified in the table are formed on premises a cross must be placed in the space in which the substance appears, and, if possible, the average concentration of this substance likely to be present in any effluent must also be stated.

TABLE

Iron	Chromium	Nickel	Cadmium	Copper	Zinc
Silver	Cobalt	Tungsten	Titanium	Lead	Selenium
Mercury	Arsenic	Boron	Cyanide	Nitrates	
Ammonium	Sulphides	Sulphates	Others		
Starch or sugars		Tar or tar oil		Grease and oil	
Synthetic detergents		Volatile solvents		Others	

(9) Any further information as to kind or character, chemical composition and concentrations peculiar to the industrial effluent to be furnished on a separate sheet and attached hereto.

PART IV.

CONDITIONS OF ACCEPTANCE OF INDUSTRIAL EFFLUENT.

This application shall only be granted on the applicant's undertaking, as he is by virtue of his signature hereto appended deemed to do, to observe the following terms and conditions and any further special conditions which the engineer may think fit to impose in any particular case:

1. The applicant shall annex hereto descriptions and a statement of the dimensions of grease and oil traps, screens, dilution and neutralising-tanks and any other provision made by him for the treatment of the industrial effluent before it is discharged to the sewer.

2. Die aansoeker moet, as hy aldus versoek word, aan die raad planne voorlê waarop die water- en fabrieksuitvloeiensnet op sy perseel aangetoon word.

3. Die aansoeker moet, benewens sy verpligting om te voldoen aan die bepalings van die raad se Rioleringsverordeninge wat betrekking het op die beveiliging van sy werknemers teen besering, en van die straat-riole en suiweringswerke teen beskadiging, gevolg gee aan enige opdrag betreffende sodanige beveiliging wat die ingenieur mondelings of skriftelik aan hom gee om toe te sien dat die aansoeker aan die genoemde verordeninge voldoen.

4. Die aansoeker moet so gou doenlik nadat hy bewus geword het van enige ingrypende verandering in die aard of hoeveelheid of die ontlasting van die fabrieksuitvloeiensnet wat in hierdie aansoek uiteengesit word, of van die gegewens wat hy hierin verstrekket, of minstens 14 dae voordat enigiets gedoen word om sodanige ingrypende verandering teweeg te bring, die raad daarvan in kennis stel.

5. Die aansoeker moet binne 30 dae nadat hierdie aansoek onderteken is, 'n goedgekeurde streng verteenwoordigende monster van minstens vyf liter van die fabrieksuitvloeiensnet wat in die straatriool ontlas gaan word, en wat geen huishoudelike rioolwater mag bevat nie verkry, en die helfte daarvan vir ontleding aan die raad voorlê, voorts moet hy 'n verslag oor die monster deur 'n ontleder wat die ingenieur aangewys het, aan die ingenieur voorlê. Met dien verstande dat die raad in die geval van 'n nuwe nywerheid die tydperk wat in hierdie reël voorgeskryf word, met hoogstens ses maande of sodanige verdere tydperke wat die raad na goeddunke van tyd tot tyd skriftelik kan toelaat, kan verleng.

6. Die aansoeker verklaar en waarborg hierby dat die gegewens wat hy in hierdie vorm of andersins in verband met hierdie aansoek verstrekket, volgens sy hele kennis en oortuiging in alle opsigte juis is.

7. Die aansoeker aanvaar dat genoemde gegewens, wat in alle opsigte juis is, die grondslag vorm waarop die raad hierdie aansoek toestaan.

Aldus op hierdie _____ dag van _____

19_____ in _____ deur die aansoeker onderteken.

Handtekening en hoedanigheid van aansoeker.

Ek, die ondergetekende, wat behoorlik daartoe gemagtig is, verleen hierby namens die raad vergunning dat die fabrieksuitvloeiensnet soos dit in hierdie vorm beskryf is, en in die omstandighede wat daarin uiteengesit is, ooreenkomstig die raad se Rioleringsverordeninge in die raad se straatriool ontlas kan word. Met dien verstande dat die raad hierdie vergunning te eniger tyd volkome na goeddunke kan intrek na verstryking van 'n redelike kennisgewingstermyn wat vermeld word in 'n skriftelike kennisgewing aan die aansoeker. Die genoemde vergunning word voorts op die volgende spesiale voorwaardes verleen:

ONDERTEKEN _____

Stads-/Dorpsingenieur. /

2. The applicant shall submit to the council, if requested, plans showing the reticulation systems on his premises for water and industrial effluent.

3. The applicant shall, in addition to complying with the provisions of the council's Drainage By-laws concerned with the protection of its employees, sewers and treatment plant from injury or damage, comply with any direction concerned with such protection given to him by the engineer verbally or in writing for the purpose of ensuring the applicant's compliance with the said by-laws.

4. The applicant shall notify the council, as soon as possible after he becomes aware of or at least 14 days before anything is done to cause any material alteration in the nature or quantity or discharge of the industrial effluent specified in this application or in any of the facts stated by him therein.

5. The applicant shall within 30 days from the date of signature of this application procure an approved accurately representative sample of not less than five litres of the industrial effluent to be discharged to the sewer, which sample shall be free of domestic sewage, and shall submit one half thereof to the council for analysis and also submit to the engineer a report on the sample made by an analyst appointed by him: Provided that in the case of a newly established industry the period specified in this rule may be extended by the council for a period not exceeding six months or such further extended periods as the council in its discretion may from time to time in writing permit.

6. The applicant hereby declares and warrants that the information given by him on this form or otherwise in connection with this application is to the best of his knowledge and belief in all respects correct.

7. The applicant agrees that the said information, being in all respects correct, shall form the basis on which this application is granted by the council.

Thus done at _____ by the applicant

this _____ day of _____ 19_____

Signature and capacity of the applicant.

Permission is hereby granted by me on behalf of the council, I being duly thereunto authorized, for the discharge into the council's sewer in accordance with the council's Drainage By-laws of industrial effluent as described in this form and in the circumstances therein set forth: Provided that this permission shall be revocable by the council at any time at its absolute discretion on the expiry of reasonable notice in writing given by it to the applicant.

The said permission is given subject also to the following special conditions:

SIGNED: _____

City/Town Engineer.

AANHANGSEL IV.

AANSOEKVORM VIR VERGUNNING OM TOESTELLE VIR DIE POMP VAN RIOOLWATER AAN TE BRING.

LET WEL: Op persele waar dit onmoontlik is om al die sanitêre toebehore deur swaartewerking in 'n aansluitriool te laat ontlast, oorweeg die raad aansoeke om die pomp van rioolwater ooreenkomstig die bepalings van artikels 6(5) en 66 van sy Rioleringsverordeninge net ten opsigte van daardie gedeeltes van 'n perseel waarvan die sanitêre toebehore nie deur swaartewerking ontlast kan word nie.

In die geval van enkelkelderverdiepings word oorweging geskenk aan die gebruik van sanitêre toebehore op die grondverdieping.

In alle gevalle waar die pomp van rioolwater toegelaat word, bepaal die ingenieur die ontlastempo, wat gewoonlik beperk word tot hoogstens 240 liter per minuut.

GEGEWENS WAT DIE EIENAAR MOET VERSTREK.

Die eienaar van die perseel moet die volgende gegewens verstrek, die toepaslike stukke en kenkromme indien en die aansoek en verbintenis onderteken:

- (a) Fabrikaat van toestel, naam van leweransier en doel waarvoor die toestel ontwerp is: _____
- (b) kW-ontwerpvermoë en spoed van motor: _____
- (c) Maksimum ontlastempo in liter per minuut: _____
- (d) Grootte van styghoofleiding en snelheid van ontlasting: _____
- (e) Inhoudsmaat en afmetings van opgaartenk — diepte moet aangegee word as vloeistofdiepte onder inlaatriool: _____
- (f) Beskrywings van gereedheidstoerusting, outomatiese reëlaars, waarskustelsels, asook ander toepaslike gegewens: _____

Enige aangeleentheid betreffende aansluiting by die elektriese krag en die skakelbord word na die Elektriesiteitsafdeling verwys en moet deur daardie Afdeling goedgekeur word.

Die ingenieur kan vereis dat die eienaar 'n sleutel verskaf sodat die raad se werknemers te alle tye toegang tot die meganiese toestel kan hê.

AANSOEK EN VERBINTENIS DEUR EIENAAR.

Ek, die ondergetekende, doen hierby aansoek om meganiese toestelle vir die pomp van rioolwater aan te bring en aanvaar sonder voorbehoud die volgende voorwaardes en verbind my om my daarby te hou:

- (a) Die maksimum ontlastempo mag hoogstens _____ liter per minuut wees.

APPENDIX IV.

FORM OF APPLICATION FOR PERMISSION TO INSTALL APPLIANCES FOR LIFTING SEWAGE.

NOTE. On premises where it is not possible to drain all sanitary fittings by gravitation to a connecting sewer, the council will consider applications for lifting sewage in compliance with sections 6(5) and 66 of its Drainage By-laws only in respect of those parts of a premises which cannot be drained by gravitation. In the case of single basements, consideration will be given to the use of sanitary fittings on the ground floor.

In all cases where lifting of sewerage is permitted, the engineer will stipulate the rate of discharge, which will be normally limited to a maximum of 240 litres per minute.

INFORMATION TO BE FURNISHED BY OWNER.

The owner of the premises shall furnish the following information and the relevant literature and characteristic curves and sign the application and undertaking:

- (a) Make of appliance, name of supplier and purpose for which the appliance is designed: _____
- (b) kW rating and speed of motor: _____
- (c) Maximum rate of discharge in litres per minute: _____
- (a) Size of rising main and velocity of discharge: _____
- (e) Capacity and dimensions of storage tank — depth to be given as liquid depth below inlet drain: _____
- (f) Descriptions of stand-by equipment, automatic controls, warning systems, and other relevant information: _____

Any matters relating to the electric power connection and switchboard will be referred to the Electricity Department and will be subject to the approval of that Department.

The engineer may require the owner to supply a key to enable council employees to gain access to the mechanical appliance installation at all times.

APPLICATION AND UNDERTAKING BY OWNER.

I, the undersigned, hereby make application to instal mechanical appliances for the lifting of sewage and accept without reservations, and undertake to abide by, the following conditions:

- (a) The maximum discharge rate shall not exceed _____ litres per minute.

- (b) Die eienaar van die perseel is daarvoor verantwoordelik om die toestel gereeld te laat versien en dit te alle tye in 'n higiëniese en doeltreffend werkende toestand te onderhou. Alle herstel- of vervangingswerk moet onmiddellik verrig word so dat onderbrekings in die werking daarvan tot die minimum beperk word.
- (c) In die geval van onklaarraking vanweë watter oorsaak ook al, moet die eienaar onmiddellik maatreëls tref om toe te sien dat onhigiëniese toestande nie ontstaan nie.
- (d) Die raad is nie aanspreeklik vir enige skade of eise wat voortspruit uit onhigiëniese toestande, onklaarraking van toestelle, ondoeltreffende werking, ontploffings of ander oorsake nie.
- (e) Raadwerknemers moet te alle tye ongehinderd toegang tot die toestel vir ondersoekdoeleindes hê.

ONDERTEKEN: AANSOEKER

EIENAAR ERF NO. DORP

DATUM

SLEGS VIR KANTOORGEBRUIK.

Hierdie aansoek word toegestaan en vergunning word hierby verleen om die beoogde meganiese toestelle vir die pomp van rioolwater op onderstaande voorwaardes (indien daar is) aan te bring:

VOORWAARDES:

DATUM:

ONDERTEKEN:

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- (b) The onus shall be on the owner of the premises to have the installation regularly serviced and maintained in a hygienic and efficient working condition at all times. Any necessary repairs or replacements are to be effected immediately, so that interruptions in operation are reduced to a minimum.

- (c) In the event of breakdowns from any cause whatsoever, the owner shall take immediate precautions to ensure that unhygienic conditions do not develop.

- (d) The council shall not be held responsible for any damages or claims which may arise through unhygienic conditions, installation stoppages, inefficient operation, explosion or other causes.

- (e) Council employees shall, at all times, be given unhindered access to the installation for the purpose of inspection.

SIGNED: APPLICANT OWNER.

ERF NO.: TOWNSHIP:

DATE:

FOR OFFICE USE ONLY.

This application is approved and permission to instal the proposed mechanical appliances for the lifting of sewage is hereby granted on the undermentioned conditions (if any):

CONDITIONS:

DATE:

SIGNED:

City/Town Engineer.

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