Cemetery Development Services

Great Baddow Cemetery Extension - drainage works and new roadway construction

Great Baddow Parish Council

Specification and conditions of contract

SPECIFICATION

The Invitation to Tender, Preliminaries, Specification Document and the Bills of Quantities should be read in conjunction with the Conditions of Contract, the Design Drawings and other information in the procurement package.

The site is located at Galleywood and Great Baddow Lawn Cemetery, Vicarage Lane, Chelmsford, CM2 7SU grid reference 572553, 203861.

The main elements of the works required will consist of the following: -

- Installation of drainage in the form of lateral, collector and carrier drains, excavation of a detention basin, establishment of ditch outfall, seeding and drain reinstatement.
- Construction of a new Macadam cemetery road.

Item 1.0 Summary of preliminaries (see full preliminaries for details of contacts, permissions and exclusions).

The full preliminaries should be read in conjunction with this specification. Where any ambiguities may occur between the preliminary summary in the specification and the full preliminaries, the full preliminaries take precedence.

The contractor must, before quoting, ascertain the nature of the site, the extent and nature of the types of work required and all local conditions and restrictions likely to affect the execution of the work.

The contractor should ensure an assessment is made of any vehicle size limitations that may affect access to the site or operation within the site to deliver materials, plant and equipment or limit in any way the execution of the works. The contractor is to take account of this assessment when submitting the Tender. In this case access is limited to the main cemetery site entrance from Vicarage Lane.

The contractor must also satisfy himself as to the accuracy of all dimensions, levels and dimensions contained within the contractor's documents and any variation be forwarded to the CA before any works commence or any plant is placed on site.

No claims or increases in cost will be considered on the grounds of lack of knowledge of site conditions, site access, and the nature of the site, the required construction works and risks to property, workforce and general public.

Important Notes: The works are within an active cemetery. Disruption to working will occur when burials are planned during the work period. No work will be possible during a burial which will normally take no longer than 1 hour. In addition, there are internal roads, pathways and landscaping that will need to be cut through and made good, though this has been minimised in the design where possible.

Great care will be needed to protect existing graves and cemetery infrastructure.

Item 1.1 General

The Contractor shall provide all labour, plant, tools, vehicles and materials necessary to complete the execution of the works, which shall conform to this specification and the design drawings provided by the CA and any subsequent revisions notified by the CA. The site shall not be used for any purpose other than carrying out the works. There will be no advertising boards allowed near to, or on site that may attract vandals or other unwanted visitors.

Any vandalism or malicious damage to contractor's plant or equipment will be covered by the contractor's own insurance.

The working areas and site compound will need to be securely fenced off to prevent public access using Herras or similar style fencing.

Item 1.2 Nuisance

The contractor is expected to show due consideration to the local residents, neighbours, users of the allotments and general public at all times.

The contractor will take all necessary precautions to protect against noise, dust, rubbish and pollution. All waste material will be removed off site on completion of the works to the satisfaction of the CA and there will be no burning of any residues on site.

Item 1.3 Protection

The contractor and its suppliers shall protect against damage to existing boundaries including fencing, gates, gate posts, trees, allotment fixtures and fittings, graves, memorials and hedge lines. Particular attention should be paid to the site access route. Damage to existing kerbs and surfacing shall be made good by the contractor to the satisfaction of the CA. Where tracked plant is likely to permanently mark existing surfaces or iron work the contractor is, at his own expense, to use protection boards and/or road plates to protect the surfaces either permanently for the duration of the works or for temporary access periods as required. Where trees are concerned, local adjustment to drain lengths will be needed to avoid encroachment into root protection zones.

Where plant crosses internal roadways or paths within the site, the roadways must be protected and crossing points well fenced. Any damage to the roadways, car park area, turning areas, passing bays, hedges, graves, memorials or trees shall be made good by the contractor to the satisfaction of the Client.

Any site damage however caused by the contractor or its suppliers will be rectified at the contractor's own expense to the satisfaction of the Client.

Item 1.4 Temporary Works and Services

Permanent paths and roads near the site are to be used provided that they are adequately maintained as thoroughfares with any nuisance or site clearance restrictions applied. Provision of alternative routes into and out of the site, including turning restrictions onto and off Vicarage Lane is to be in accordance with Chapter 8 of the Road Traffic Signs Manual or otherwise agreed with the CA.

The contractor shall thoroughly clean and make good all roads and paths after use and leave in an unimpaired condition at the end of each working day. **This is very important in respect to the internal cemetery roads which must be kept clean.**

The contractor is to liaise with the CA on an appropriate basis with regards to vehicular movement on site. Heavy plant delivery and collection times are to be notified to the CA 48 hours in advance to ensure access problems can be minimised.

No deliveries or plant movement should occur before 7.30 am and after 6.00 pm Mon to Fri and before 9.00 am or after 4.00 pm on Saturday. There shall be no working or deliveries on Sundays.

The Contractor shall at their own expense be responsible for the erection and maintenance of fencing to secure the works in accordance with CDM regulations. The Contractor has responsibility to ensure that all groundworks are protected from the public using suitable safety fencing approved by the CA.

The cost of repairing and reconstructing the fence over the period of the works should also be considered when pricing.

Item 1.5 Site Clearance

The contractor is responsible for the clear up and removal from site, on a day-to-day basis and at the end of the contract of all debris and excavated material not forming part of the works, leaving the area around the works clean and safe at the end of each working day.

No mud should be left on ANY footpaths or roads within the proximity of the development area, with particular attention given to the internal cemetery roads, car park, and Vicarage Lane. The contractor shall at his own expense provide a road sweeper to maintain a clean site access route and adjoining roads if requested to do so by the CA.

Item 1.6 Utility Services

In the event of damage to any utility services during the course and execution of the works, the Contractor is to notify the CA and the appropriate Service Authority immediately and make arrangements for the damage to be repaired and made good without delay to the satisfaction of the Service Authority. **The contractor shall allow for a services search as part of the mobilisation costings and must not begin works on site until such a search has been completed and displayed on site. Any damages to services will be at the contractor's cost and strict liability will belong to the contractor. Water pipes are likely to be present within the site but the location is uncertain. Contractors should bear this in mind when quoting.**

Item 1.7 Setting out

The working area shall be clearly marked on site using suitable temporary markers such as posts, tape and temporary spray paints. Access routes onto and off the site shall be clearly marked and fenced and sensitive working areas close to hedges, retained trees, buildings, graves, memorials and fencing shall be marked as appropriate. The marked out works area shall be approved by the CA and Client ahead of works commencing.

Works

Item 2.0 Establishment of an outfall

Item 2.1 Construction of a detention basin

A detention basin with a total storage volume of 115 m^3 and a maximum depth of 1m will be constructed as shown in Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN. The basin will be naturalised by varying width and depth to create a feature with varied habitat value with bank sides no steeper than 1 in 5 to allow ease of access. This shall include the following works:

- The topsoil shall be stripped to a depth of 250 mm to a temporary store whilst the subsoil is excavated and shaped to the design formation level.
- Excavate the remaining subsoil (approx. maximum depth of 0.75m to give a total maximum depth in the basin of 1.0m. Remove subsoil to the easement area as directed by the client.
- The subsoil shall then be ripped and an application of 20 kgs of prilled gypsum made to the base of the basin.
- The topsoil shall then be replaced to an even depth, graded, cultivated and a seedbed created.
- The basin shall then be seeded with Germinal RE3 – water meadow mix at a rate of 5 g m^2.
- The basin shall be shaped to have side slopes with a gradient of no more than 1 in 5.
- Excavated subsoil from grading works or arisings from excavations shall be stock piled in easement areas agreed with the CA at commencement of the works. Stock piles shall be not more than 3m high with side slopes > the angle of repose and trimmed to a uniform shape to allow water runoff.

Note: The basin size is based on calculations of the peak storage requirement for the development area based on the 1 in 100 year storm with an added 40% climate change factor. Of the various storm durations modelled, the peak storage requirement was the 60 minute storm.

No burials will be allowed within 10m of the detention basin.

Item 2.2 Installation of a hydrobrake chamber

Flow from the detention basin into the adjacent ditch will be limited by the use of a hydro-brake chamber to restrict flow to 3 l sec. The hydrobrake chamber shall be installed in accordance with the manufacturer's instructions. Inflow from the detention basin shall be via a 225 mm diameter, twin wall solid pipe which must be caulked into the chamber using a waterproof or granolithic cement to affect a watertight seal.

The head between the hydrobrake inflow and outflow must be 0.5m.

The outflow pipe shall be a 100 mm diameter, solid pipe to outfall in the ditch via a new headwall.

Note: the 1 in 1 year greenfield flow rate for the site is 1.2 l sec ha but a rate of 3 l sec has been used as this is practically more reliable to achieve than restricting to a lower rate with the increased risk of blocking.

3.0 Drainage

All drainage operations shall be carried out by equipment fitted with low ground pressure tyres to minimise as fully as possible, compaction of the graded surface during the drainage works. This work must be done in dry conditions to minimise soil compaction and creating a smeared soil surface even if this means waiting for the right conditions.

The outfall is the ditch via the detention basin in the south east of the site. This involves running a carrier drain under the current access route to the allotments. Alternative access to the allotments will be needed during the installation period of this drain.

Item 3.1 Installation of new 80 mm lateral drains (Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN)

Item 3.1.1 Trenching and pipe laying

The trench shall be cut at an even grade and depth as specified unless on-site investigations require a variance in depth to achieve a connection to ongoing drains already in the ground. The trench shall be evenly cut with space in the base such that pipes can be evenly laid. The pipes shall be 80 mm diameter perforated plastic pipe laid evenly in the base of the trench. The spacing shall be at 3.5m. The pipe shall comply with BS4962. The drains shall be 500 mm deep. The grade shall be at the natural grade of the land or no less than 1 in 100.

Item 3.1.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let, unsecured into other pipes.

Item 3.1.3 Backfill (gravel)

The trenches shall be filled over the pipes as specified on Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN with gravel over the pipe to a nominal depth of 250 mm below final ground level. The gravel used shall be clean 5 – 25 mm chert / flint gravel. It shall not contain limestone chippings.

Item 3.1.4 Backfill (rootzone)

The trench shall then be filled level with the surface, compacted and topped up with the following material:

- A medium / coarse sand soil mix comprising 80% sand to 20% BS 3882:2015 quality Loamy Sand or Sandy Loam soil.
- The root zone material used should have a minimum infiltration rate of 100 mm hr when at maximum compaction.
- The rootzone material shall have a minimum 15% air-filled porosity when tested at 20 cm tension and maximum compaction.
- The final sand content of the material should be no less than 93% with clay content no greater than 3%.
- Allowance should be made for two further topping up operations.

Item 3.1.5 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.1.4 at a rate of 40 g m^2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m^2.

Item 3.2 Installation of new 100 mm collector drains (Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN)

Item 3.2.1 Trenching and pipe laying

The trench shall be cut at an even grade and depth as specified unless on-site investigations require a variance in depth to achieve a connection to ongoing drains already in the ground. The trench shall be evenly cut with space in the base such that pipes can be evenly laid. The pipes shall be 100 mm diameter perforated plastic pipe laid evenly in the base of the trench. The pipe shall comply with BS4962. The drains shall be 550 mm deep. The grade shall be at the natural grade of the land or no less than 1 in 100.

Item 3.2.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let, unsecured into other pipes.

Item 3.2.3 Backfill (gravel)

The trenches shall be filled over the pipes as specified on Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN with gravel over the pipe to a nominal depth of 250 mm below final ground level. The gravel used shall be clean 5 – 25 mm chert / flint gravel. It shall not contain limestone chippings.

Item 3.2.4 Backfill (rootzone)

The trench shall then be filled level with the surface, compacted and topped up with the following material:

- A medium / coarse sand soil mix comprising 80% sand to 20% BS 3882:2015 quality Loamy Sand or Sandy Loam soil.
- The root zone material used should have a minimum infiltration rate of 100 mm hr when at maximum compaction.
- The rootzone material shall have a minimum 15% air-filled porosity when tested at 20 cm tension and maximum compaction.
- The final sand content of the material should be no less than 93% with clay content no greater than 3%.
- Allowance should be made for two further topping up operations.

Item 3.2.5 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.1.2 at a rate of 40 g m^2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m^2.

Item 3.3 Installation of new 160 mm carrier drain (Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN)

Item 3.3.1 Trenching and pipe laying

The trench shall be cut at an even grade and depth to a minimum of 0.60m deep. The trench shall be evenly cut with space in the base such that pipes can be evenly laid. The pipes shall be 160 mm diameter solid, twin-wall plastic pipe laid evenly in the base of the trench. The pipe shall comply with BS4962. The grade shall be at the natural grade of the land.

Item 3.3.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let, unsecured into other pipes.

Item 3.3.3 Backfill

The trench shall then be filled level with the surface, compacted and topped up with the following material:

- A medium / coarse sand soil mix comprising 80% sand to 20% BS 3882:2015 quality Loamy Sand or Sandy Loam soil.
- The root zone material used should have a minimum infiltration rate of 100 mm hr when at maximum compaction.
- The rootzone material shall have a minimum 15% air-filled porosity when tested at 20 cm tension and maximum compaction.
- The final sand content of the material should be no less than 93% with clay content no greater than 3%.
- Allowance should be made for two further topping up operations.

Item 3.3.4 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.1.2 at a rate of 40 g m^2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m^2.

Item 3.4 Installation of new 225 mm carrier drain (Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN)

Item 3.4.1 Trenching and pipe laying

The trench shall be cut at an even grade and depth to a minimum of 0.6 m deep. The trench shall be evenly cut with space in the base such that pipes can be evenly laid. The pipes shall be 225 mm diameter solid, twin-wall plastic pipe laid evenly in the base of the trench. The pipe shall comply with BBA/HPAS. The grade shall be at the natural grade of the land

Part of the run involves running through a stone and gravel access road. Following installation, the road surface and surrounds should be reinstated to the same specifications as initially used to construct the road in respect to stone sub-base and wearing course.

Item 3.4.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let, unsecured into other pipes.

Item 3.4.3 Backfill

The trench shall then be filled level with the surface, compacted and topped up soil arisings followed by the road stone sub-base and wearing course, compacted and finished to match or improve the existing road surface. Allowance should be made for a further topping up and re-surfacing of the drain run should the drain run settle.

Item 3.5 Headwall connection to the detention basin and from the basin to the hydro-brake chamber

The pipe must be let into a suitable pre-cast concrete headwall which shall be secured into the detention basin bank. The headwalls should be large enough to securely sit within the detention basin bank and heavy enough to resist flow scour during high flow flood events. The base of the headwalls shall be seated on a 100 mm thick bed of dry mix concrete.

The pipe between the headwall and the detention basin should be a 150 mm diameter solid, twinwall pipe.

The pipes shall be caulked into the headwalls to affect a water-tight seal using water-proof or granolithic cement.

The final design of headwalls will need to be approved by the client prior to installation.

Item 3.7 Inspection chambers

The pipes must be let into the chamber and sealed to prevent water leaking from around the sides by caulking the joint using waterproof or granolithic cement. The chambers shall be concrete and should be sectional precast, either rectangular or circular and all precast components should comply to BS 5911-3:2002. Plastic chambers shall not be used.

The chambers shall be set on pre-cast slabs laid on 100 mm depth of dry mix concrete. In all cases the lid should be secured on a steel frame that is secured in concrete mix ST4 and comply with BS EN 124:1994 Class B125. In all cases the lids should be circular and heavy enough to prevent casual lifting without keys.

The final finished level of the chamber lid and surrounds should be at least 10 mm below the existing sword surface to allow mowing over the top of the chamber but no deeper than 20 mm such that a trip hazard is avoided.

The areas around each chamber must be reinstated using the same seed and fertiliser as detailed in Section 4.1.

Item 3.8 Oil Separator

An oil separator fitted with an alarm shall be supplied and installed in accordance with thee manufacturer's instructions as located on Drawing Number ***CDS_GRT_BDW_05_03_DRAINAGE PLAN.*** The separator shall be a Hydro International Up-flow filter or equivalent.

Item 4.0 Reinstatement of drain runs

Item 4.1 Reinstatement

Item 4.1.1 Topping-up drain runs

The drain runs shall be topped up to ensure they are not more than 10 mm lower than the surrounding land. Allowance should be made for two topping-up operations.

Item 4.1.2 Seeding

The drains shall be drilled in three directions using a suitable heavy clay soil seed mix designed for general amenity areas such as Germinal A19, Barenbrug e9, Rigby Taylor Super Root or similar. The grass should be dimple-sown and covered in the same rootzone material as used in the drain backfill. The overall seeding rate should be 45-50 g m^2. The contractor should send details of the seed to be used ahead of the works commencing for approval by the CA.

The seed mix shall have a germination certification of over 95% and certified purity of not less than 95%.

5.0 Easement area

The turf area within the designated easement area should be sprayed off using an approved total glyphosate-based herbicide for its full length and width. The application shall be undertaken by a qualified operator with appropriate certification and in full accordance with the manufacturer's instructions, an appropriate COSHH assessment. After desiccation, the surface is to be stripped to the termination depth of topsoil (150 mm) and stockpiled as directed by the client.

Sub soil from the swale, drainage, and other excavation arisings will be spread, graded and levelled over the subsoil of the easement area to final maximum level of no more than 250 mm from the original surface datum. The topsoil will be overlain and trimmed and cut to a uniform grade.
The soil should then be prepared to a seedbed suitable for fine seed drilling. The prepared soil should be seeded as described in Item 4.1.2.

6.0 Access road and hammerhead

The access road, with a new hammerhead turning area shall be extended as shown on Drawing Number CDS_GRT_BDW_05_03_DRAINAGE PLAN. The roadway shall comply with the following:

Granular sub-bases to road

The ground should be tested with a CBR of 5%

The roadways will be a macadam pavement and conform to the subsequent details regarding finished road width, construction profile, kerbing and grades.

- Finished road levels will in general follow the existing land profile with minor smoothing where required and conform to the centre line levels on the design drawing or as agreed with the CA.
- Standards applied are the Specification for Highway Works (SHW) or British Standard (BS).
- All materials shall be kite-marked or produced within a defined quality assurance scheme approved by CDSL.
- All materials and products shall be approved by the CA before work commences and the Contractor shall supply any specification compliance documents, samples or materials testing as requested by the CA at its own expense.

Longitudinal Rolling Straight Edge Measure

Irregularity	4mm	7mm	>10mm
Permitted max number of irregularities per 40m length	10	1	Nil
Permitted max number of irregularities per 75m length	18	2	Nil

Cross Falls

3.3 m spine road 1:40 (2.5%) towards gulleys

Spine Road Carriageway Foundation

- The excavated formation shall be evenly prepared and shaped with defective areas, excavations and isolated deep pockets reinstated. The formation shall be cleansed of loose mud, slurry and detritus prior to being compacted with a roller of suitable type and weight. The finished surface shall have a uniform surface to a level appropriate to the approved design thickness.
- The formation shall be adequately protected from the weather and shall not be used by construction traffic and shall be covered as quickly as possible with sub-base.
- The formation shall be treated with an approved residual weed killer before construction commences.

- In general accordance with SHW specification Clause 609 subject to the 090 shall be greater than 50 and less than 200 (BS 6906 pt2: 1989) and the tensile strength in each direction shall be 6kN/m (EN ISO 10319:1996)

6.1 Spine Road Carriageway Sub-Base

- Thickness of sub-base: Sub-base materials shall be spread evenly on the formation in layers of a depth of not more than 150mm compacted thickness and compacted in accordance with the Sub-base.
- Compaction Table. The full thickness of the sub-base shall be continued for a distance of 200mm beyond the limits of the kerb beam.

6.1.2 Granular Material:

- Quality: Of a known suitability for use in sub-bases, free from excessive dust, well graded, all pieces less than 75mm in any direction, minimum 10% fines value of 50kN when tested in a soaked condition to BS812-111 or a resistance to fragmentation of LA50 for the Los Angeles test to BS EN 1097-2 and in any one layer only one of the following:
- Crushed rock (other than argillaceous rock) or quarry waste with not more binding material than is required to help hold the stone together.
- Crushed concrete, crushed brick or tile, free from plaster, timber and metal.
- Gravel or hoggin with not more clay content than is required to bind the material together, and with no large lumps of clay.
- Natural gravel.
- Natural sand.
- Granular Sub-base Material Type 1. The material shall comply with the full requirements of SHW Clause 803 including secondary and recycled aggregates; only with GBPC approval and subject to any independent material testing requested by GBPC at the Contractors expense.

Sub-base minimum thickness shall be: Road: 200 mm

6.1.3 Carriageway Layers General

- Preparation: Loose soil, rubbish and standing water removed.
- Structures, membranes and buried services: Ensure stability and avoid damage.
- No laying of bituminous materials shall commence prior to any service installation being completed within the carriageway.
- Bituminous materials shall be machine laid. Where agreed with the CA hand laid materials may be used but shall be restricted to small areas.
- All vertical edges including kerbs, ironwork and joints will be painted with cold applied or hot applied bitumen immediately prior to the laying of any bituminous layer.
- Delivery and rolling temperatures for surfacing materials will be agreed with the CA prior commencing surfacing works.
- Any bituminous layer shall be kept clean and uncontaminated for so long as it remains uncovered by succeeding layers of surface treatment. If a bituminous layer is trafficked before the next layer is laid, it must be thoroughly cleaned off and a tack coat applied in accordance with Clause 920 Ss7 of SHW. Should the layer become contaminated or damaged and cannot be cleaned to the satisfaction of GBPC the Contractor will make good the damage and will plane off the material and replace it to the appropriate specification.
- The combined thickness of bound material specified shall be the minimum thickness permitted.

6.1.4 Laying granular sub-bases for vehicular areas

- General: Spread and levelled in layers. As soon as possible thereafter compact each layer.
- Standard: To Highways Agency ‘Specification for highway works’ clause 802.

- At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place: Take particular care to compact fully.
- Defective areas: Remove loose, segregated or otherwise defective areas to the full thickness of the layer and lay and compact new material.
- Sub-base surface after compaction and immediately before overlaying: Uniformly well closed and free from loose material, cracks, ruts or hollows.
- Proposals: Well in advance of starting work submit details of:
- Maximum depth of each compacted layer
- Type of plant
- Minimum number of passes per layer.

6.1.5 Accuracy

Permissible deviation from required levels, falls and cambers (maximum):
- Subgrades:
- Road: +20 -30 mm.
- Sub-bases:
- Road: ± 12 mm.

6.1.6 Cold weather working
- Frozen materials: Do not use.
- Freezing conditions: Do not place fill on frozen surfaces. Remove material affected by frost. Replace and re-compact if not damaged after thawing.

6.1.7 Protection
- Sub-bases: As soon as practicable, cover with subsequent layers, specified elsewhere.
- Subgrades and sub-bases: Prevent degradation by construction traffic, construction operations and inclement weather.

6.1.8 Membrane – between sub-grade and sub-base
- A separating membrane shall be laid between the sub-grade and the sub-base, in accordance with the manufacturer's instructions and shall extend 300mm further than the kerb beam width. This is to act as a separation membrane, preventing the sub-base material mixing with the underlying layers, which can result in excess settlement.

6.1.9 The carriageway binder course
- Binder course: To BS EN 13108-1
- Material: Dense Bituminous Macadam. The DMB material will be as specified for the base layer above in every respect.
- Compacted thickness: 60mm thick except where indicated in the table below to BS 594987.

The Contractor may seek approval from the CA for a permitted variation for the two DMB layers to be combined and laid in two lifts with no lift greater than 100mm thickness.

6.1.10 The carriageway surface course
- Material: Hot Rolled Asphalt Design Mix of 30% 0/14 at 40mm Designation to Column 3/2 of Table 3, BS 594 Part 1:2003 with 50 pen binder. The coarse aggregate to be of crushed rock excluding limestone with a minimum PSV of 45, complete with coated chippings of PSV 50.
- Laying/Compaction: laid and thoroughly compacted all in accordance with BS 594, Part 2:2003. Texture depths of 1.0mm or 1.2mm shall be achieved as directed by the CA and the chippings shall be adequately embedded and evenly spread.

Carriageway Layers shall conform to the table below

Type	Sub Base	Binder	Surface
Roads 3.3m	200mm	60mm	40mm

All roads shall be constructed to true line and level.

6.2 Kerbs/edgings/channels/paving accessories

Kerbs – Macadam roadway.

- Material: Precast Concrete granite aggregate PCC to BS EN 1340:2003.
- Type C: 150mm x 50mm EF Flat top edging.
- Special shapes: As applicable depending on radii if less than 15m, fit and drop kerbs.
- Finish/colour: standard grey, smooth.
- Cutting: Neatly and accurately with a masonry saw without spalling minimum permissible cut length 300mm.
- Joints: dry butt jointed.
- Bedding: Mix 1:3 Portland cement, Class 42.5: BS 882 sand, grading M or F; thickness 10mm minimum to 40mm maximum.
- Lay: Laid upright to line and level bedded on mortar within 50mm of face of kerb beam.
- Backing: Type A/B ST1 concrete minimum thickness 150mm to within 50mm of the top of kerb.
- Type C ST1 concrete minimum thickness 100mm to within 40mm of the top of kerb.
- Other: Mortar bed may be omitted if units are bedded on a foundation that is plastic.
- Keep exposed faces of units clean and free from concrete and mortar droppings.
- Permission of the CA shall be sought where cut kerbs are proposed to achieve a smooth line on curves. Cut kerbs shall be of equal lengths between 450mm and 600mm and shall have suitably tapered cuts free of spalling to achieve a smooth front face of kerb line.

6.3 Road Gulleys

- Gully Pots to be located in the Cemetery Road shall be of PVCu plastic (BBA Approved). All gully pots shall have internal dimensions 450mm diameter x 1050mm deep, and shall be of the trapped type.
- PVCu gully pots shall be set on and surrounded by 200mm of ST2 concrete sulphate resistant cement to SHW Clause 2602.
- The installation procedure must prevent the gully pot floating and distorting when the concrete surround is placed and compacted and shall otherwise be in accord with BBA approval certificate requirements.
- Gully grating and frames shall be Kite marked to BS EN 124:1994 and either Cast Steel or Ductile Iron. The frame shall be bedded on a gauged Class 1 (3:1) sand\cement mortar and at least two courses of Engineering Brickwork Class B to BS3921:1985.
- Units complying with BS EN124 Class D400 shall be used for all gullies. These shall be hinged and must be of the captive type and shall be installed on the side facing the oncoming traffic. Minimum waterway area shall be 1000cm² with a frame at least 100mm deep.

6.4 Arisings

All arisings from the road construction shall be disposed on site within the easement area as directed by the client.

7.0 Landscaping works to the reclaimed allotment area (CDS_GRT_BDW_05_03_DRAINAGE PLAN)

The following works shall be carried out on the area of old allotments to be made into the cemetery extension area.

7.1 Removal of waste materials

The site was previously used as allotments and as a result there are materials such as concrete, fencing etc. left from the previous land use that need clearing ahead cultivation works. The waste materials shall be cleared and removed from site to a suitably licensed waste handling centre. The contractor should allow for one 10 tonne load.

7.2 Mowing, herbicide treatment, cultivation and grading

The section shall be mown as short as possible using a flail mower with the clippings collected and disposed of on-site as directed by the client. The site shall then be sprayed with a suitable non-selective herbicide in accordance with the manufacturer's instructions and a site specific risk assessment. The spraying shall be carried out by suitably qualified and certified personnel. The works shall be done when the weather is calm and shall be done using a shrouded sprayer to minimise wind drift. Great care is needed as there is an active section of the cemetery immediately upslope and active, well-used allotments immediately downslope. Any damage caused by spray drift will need to be made good at the contractor's expense.

The treatment should result in a total kill and the site shall be left for a minimum of 7 days post-treatment to ensure fill translocation through the plant of the herbicide.

Once the grass has senesced, the area shall be ploughed to a depth of 200 mm and cultivated to produce a fine tilth. **Given the heavy clay texture of the soil this will need to be carefully timed to coincide with a period when the soil is workable.** This will be a narrow window of opportunity in the late spring / early summer.

Once cultivated the area shall be box-graded to produce an even surface over the section falling at the natural grade of the land. There should be no deviation over 30 mm under a 3m straight edge. The section shall be grades such that it flows into the adjacent road and pathways and downslope allotments smoothly and evenly, with no deviations over 20 mm under a 1m interface with the surrounding land.

7.3 Stone burial, fertilisation, seeding and establishment

The section shall then be stone buried and rolled to create a smooth, even seedbed. The section shall be fertilised with a suitable pre-seeding fertiliser and seeded using a suitable general amenity seed, such as Germinal A19, Barenbrug e9, Rigby Taylor Super Root or similar. The contractor should send details of the seed to be used ahead of the works commencing for approval by the CA.

This shall be sown at a rate of 40 g m^2 in accordance with the seed suppliers instructions. The seed should be surface sown using a dimple seeder and lightly rolled using a Cambridge roller – it should not be drilled.

8.0 Completion

At completion, the contractor shall provide a complete set of as-built drawings to the client in both PDF and DWG format regardless of which final option has been included.

9.0 Bill of quantities

See following table.

Bill of quantities for the proposed drainage works at Galleywood and Great Baddow Cemetery Extension.

Item	Description	Unit	Measure	Price	Cost (£)
	Drainage of cemetery extension area				
1.1 - 1.7	Transport and preliminaries				
2	**Detention basin construction**				
2.1	Total herbicide application	m^2	190		
2.1	Flail mowing, dispose on site	m^2	190		
2.1	Topsoil strip (top 250 mm)	m^3	48		
2.1	Subsoil excavation and disposal on site in easement area	m^3	190		
2.1	Subsoil rip and grade	m^2	190		
2.1	Topsoil placement	m^3	48		
2.1	Topsoil box grade	m^2	190		
2.1	Supply and spread pre-seeding fertiliser	m^2	190		
2.1	Supply and drill grass seed	m^2	190		
2.1	Roll with Cambridge roller	m^2	190		
2.2	Supply and install hydrobrake chamber	No.	1		
	Installation of drains				
3.1	Supply and install 80 mm lateral drains including backfill at 500 mm depth at 3.5m centres	Lin m	1194		
3.2	Supply and install 100 mm collector drain including backfill at minimum 550 mm depth	Lin m	704		
3.3	Supply and install 160 mm carrier drain including backfill.	Lin m	52		
3.4	Supply and install 225 mm carrier drain including backfill.	Lin m	59		
3.1-3.4	Supply and install proprietary junctions	No.	66		
3.5 - 3.6	Supply and install pre-cast concrete headwall	No.	3		
3.7	Supply and install pre-cast concrete Inspection chambers	No.	6		
3.8	Supply and install oil separator	No.	1		
4	Reinstatement of drain runs	Lin m	2009		
5	Construction and establishment of easement	m^2	100		
	Roadway construction				
6.0-6.4	Construction of Macadam road and hammerhead, kerbing and gully drains	m^2	777		
	Extension area landscaping				
7.1	Removal of waste materials from the extension section	Loads	1		
7.2	Flail mowing extension section	m^2	2460		
7.2	Herbicide application to extension section	m^2	2460		

7.2	Cultivation of extension section to create fine tilth	m^2	2460		
7.2	Box grading to smooth surface in extension section	m^2	2460		
7.3	Stone burial and seedbed preparation of extension section	m^2	2460		
7.3	Seeding of extension area and establishment	m^2	2460		
8	Completion and provision of as-built drawings	Item	1		
	Sub total				
	10% contingency				
	Total cost of contract				

ARTICLES OF AGREEMENT

Provision of cemetery drainage at Galleywood and Great Baddow Lawn Cemetery

THIS Contract is made the day of 20

GREAT BADDOW PARISH COUNCIL ('The Council') c/of The Parish Hall, 19 Maldon Road, Great Baddow, Chelmsford, CM2 7DW.

of the one part and [### enter Supplier Name ###] ('the Supplier') of [### enter Supplier Address ###]

WHEREAS

(1) The Council wishes to have provided the Service ("the Service") set out in the contract and

(2) The Supplier is willing to perform the Service in accordance with the provisions thereto

NOW IT IS AGREED between the Council and the Supplier as follows:

(A) This document together with the

(i) Specification and Tender;

(ii) General Conditions of Contract;

(iii) Pricing Schedule (if applicable)

("the Contract Documents") constitutes the sole Contract or Agreement between the Council and the Supplier for the performance by the Supplier of the Service.

(B) The Supplier shall provide the Service in an efficient effective and safe manner to the complete satisfaction of the Council and in such manner as shall promote and enhance the image and reputation of the Council from the date hereof and terminating on [### enter End Date ###]. ('the Contract Period').

(C) Provided that the Supplier shall provide the Service in accordance with the provisions herein contained or referred to, to the complete satisfaction of the Council, the Council will pay to the Supplier all sums due to the Supplier in accordance with the provisions herein contained or referred to.

(D) In the event of a conflict of the terms of the Specification and Tender, and Conditions of Contract, the Conditions of Contract shall prevail.

(E) No term of this agreement may be enforced by any person who is not a party to this agreement by virtue of Section 1 of the Contract (Rights of Third Parties) Act 1999

IN WITNESS the parties hereto have hereunto set their respective hands the day and year first before written

SIGNED on behalf of
Great Baddow Parish Council
in the presence of

SIGNED on behalf of ### ENTER SUPPLIER NAME ###
in the presence of

Witness signature

Witness name

Witness address