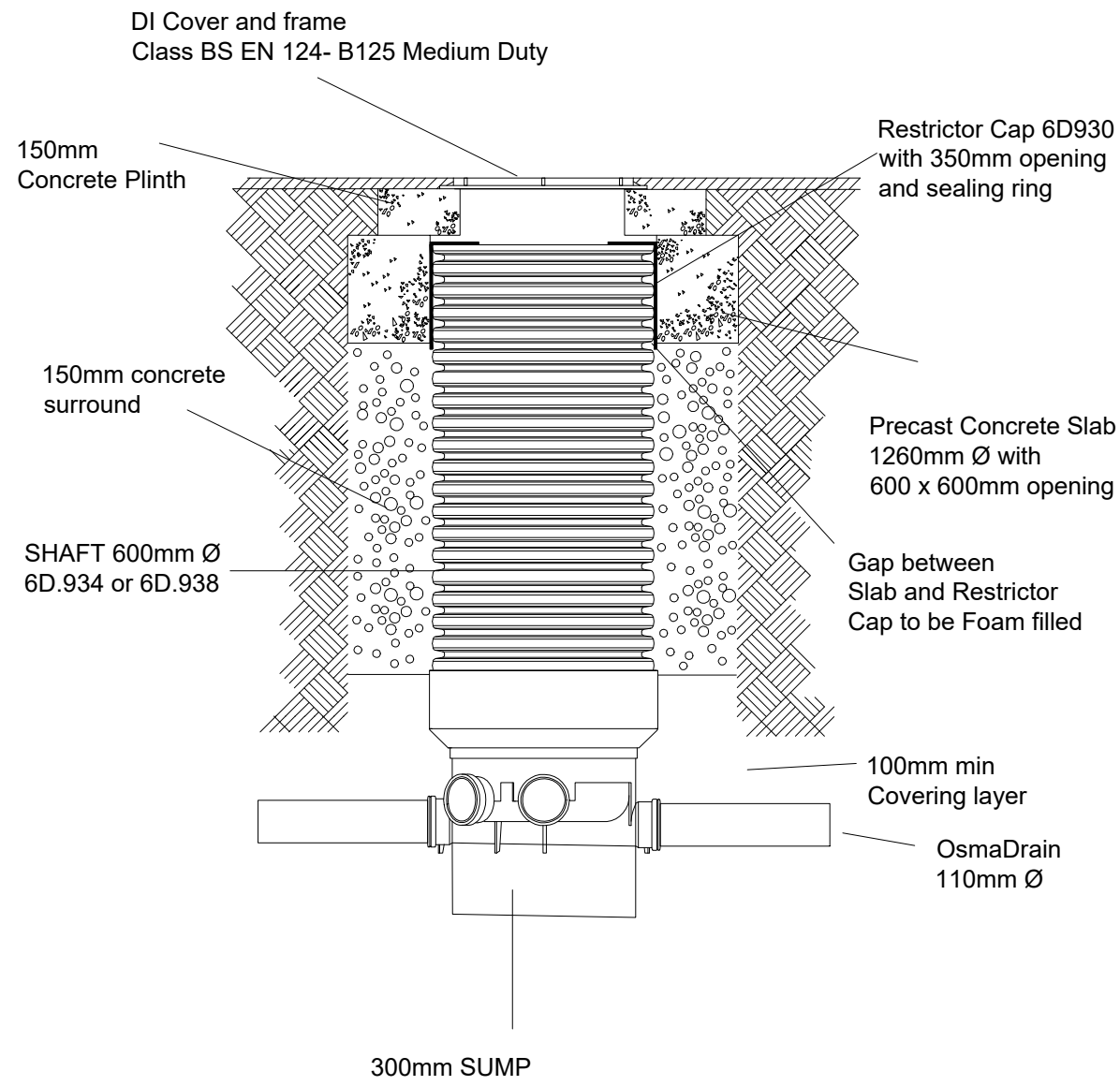
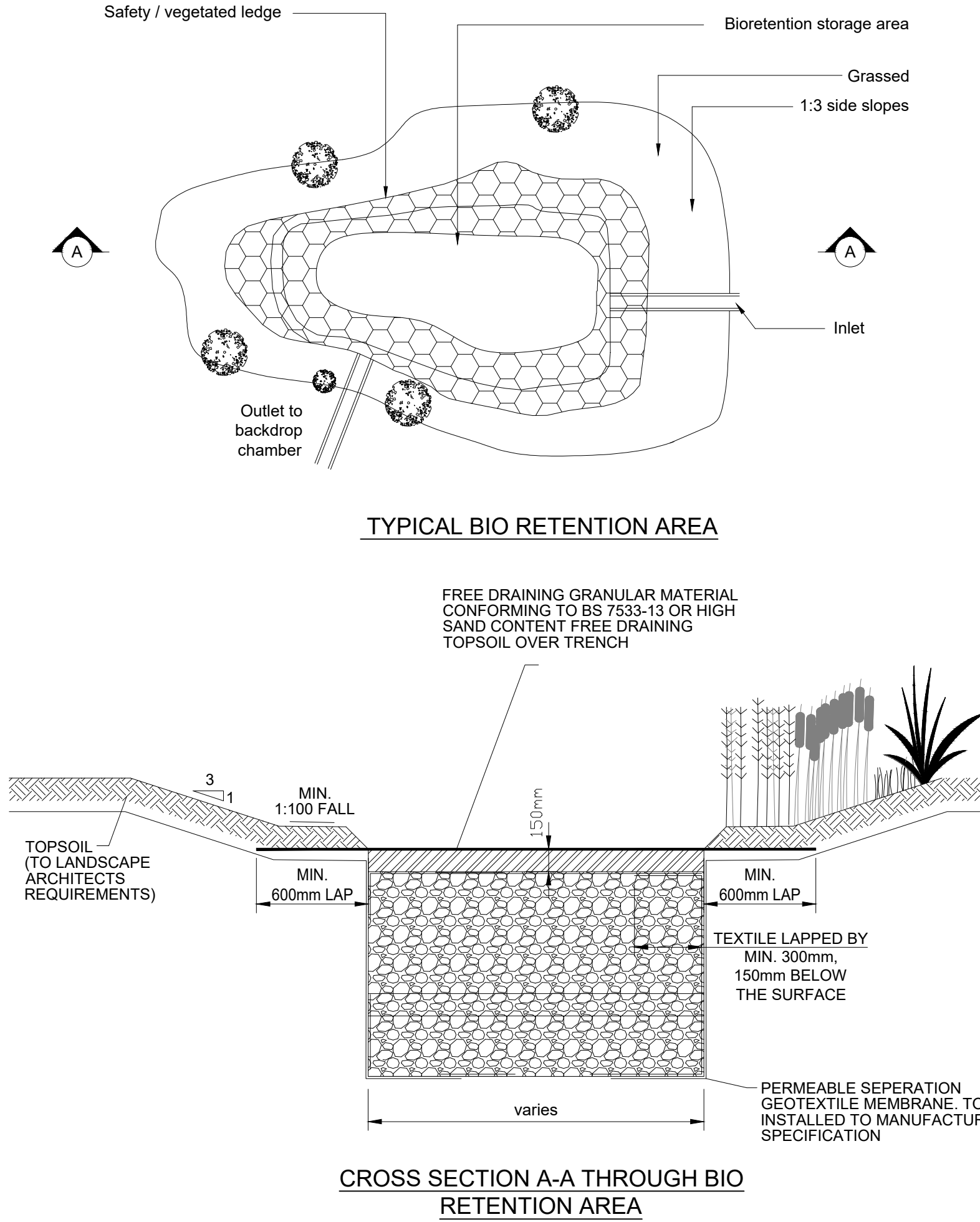


| Common name        | Scientific name          | Habit                           | Sunlight and Aspect         | Origin                                                                                                                     |
|--------------------|--------------------------|---------------------------------|-----------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Guelder rose       | Viburnum opulus          | Perennial shrub                 | Any                         | Native. Flowers attract insects and berries are eaten by birds.                                                            |
| Dogwood            | Cornus sanguinea         | Perennial shrub                 | Any                         | Native. Leaves are larval food for vase bearer moth and berries eaten by birds. Often planted for attractive winter stems. |
| Culvers root       | Veronicastrum virginicum | Herbaceous perennial            | Full sun or partial shade   | Non-native. Tall with long terminal blue flower spikes. On the RHS 'plants for pollinators' list.                          |
| Aster              | Aster spp.               | Herbaceous perennial            | Full sun or partial shade   | Non-native. Often late flowering. Clump forming. Several species on the RHS 'plants for pollinators' list.                 |
| Black eyed susan   | Rudbeckia birta          | Herbaceous annual or biennial   | Full sun or partial shade   | Non-native. Spectacular yellow and black flowers. On RHS 'plants for pollinators' list.                                    |
| Stinking hellebore | Helleborus foetidus      | Herbaceous perennial            | Full sun or partial shade   | Native. Winter flowers.                                                                                                    |
| Montbretia         | Crocosmia spp.           | Deciduous rhizomatous perennial | Partial shade               | Naturalised. Red flowers. Thrives in most conditions.                                                                      |
| Bugle              | Ajuga reptans            | Rhizomatous perennial           | Partial shade               | Native. Low growing and will form a mat.                                                                                   |
| Columbine          | Aquilegia spp.           | Herbaceous perennial            | Full sun or partial shade   | Non-native. Clump forming with tall flower spikes. On RHS 'plants for pollinators' list.                                   |
| Inula              | Inula hookeri            | Herbaceous perennial            | Partial shade               | Tall clump forming with yellow flowers. On RHS 'plants for pollinators' list.                                              |
| Hemp agrimony      | Eupatorium cannabinum    | Herbaceous perennial            | Full sun or partial shade   | Native. Sub-shrubs with pink flowers.                                                                                      |
| Bellflower         | Campanula glomerata      | Herbaceous perennial            | Full sun or partial shade   | Native. Clumps bearing violet-blue bell shaped flowers.                                                                    |
| Sneezeweed         | Helenium sp.             | Herbaceous perennial            | Full sun                    | Non-native. Clump forming with red flowers. On RHS 'plants for pollinators' list.                                          |
| Lesser periwinkle  | Vinca minor              | Perennial sub-shrub             | Any                         | Non-native. Ground cover with blue flowers.                                                                                |
| Elephants ear      | Bergenia sp.             | Rhizomatous perennial           | Full sun or partial shade   | Non-native. Large leaves and pink flowers.                                                                                 |
| Plantain lilies    | Hosta spp.               | Herbaceous perennial            | Part shade                  | Non-native. Attractive light coloured flowers.                                                                             |
| Yellow flag        | Iris pseudocorus         | Rhizomatous perennial           | Full sun or partial shade   | Native. Likely to prefer wetter areas near inlet.                                                                          |
| Siberian flag      | Iris sibirica            | Rhizomatous perennial           | Full sun or partial shade   | Non-native. Blue flowers. Prefers moist but well drained soil.                                                             |
| Garlic and onions  | Allium spp.              | Bulbous perennials              | Full sun                    | Non-native. On RHS 'plants for pollinators' list.                                                                          |
| Soft rush          | Juncus effusus           | Evergreen perennial             | Full sun or partial shade   | Native. Form tussocks – likely to prefer wetter areas.                                                                     |
| Pendulous sedge    | Carex pendula            | Rhizomatous perennial           | Full sun or partial shade   | Native. Nodding flower spikes. Likely to prefer wetter areas near inlet.                                                   |
| Zebra grass        | Miscanthis sinensis      | Perennial, deciduous grass      | Full sun                    | Non-native. Tussock forming ornamental grass with silky flowers.                                                           |
| Switch grass       | Panicum virgatum         | Deciduous perennial grass       | Full sun                    | Non-native. Tussock forming ornamental grass.                                                                              |
| Royal fern         | Osmunda regalis          | Deciduous fern                  | Any                         | Native. Large clump-forming plants.                                                                                        |
| Male fern          | Dryopteris felix-mas     | Deciduous or evergreen fern     | Partial shade or full shade | Native. Large shuttlecock-like form.                                                                                       |
| Broad buckler fern | Dryopteris dilatata      | Deciduous or evergreen fern     | Partial shade or full shade | Native. Large shuttlecock-like form.                                                                                       |

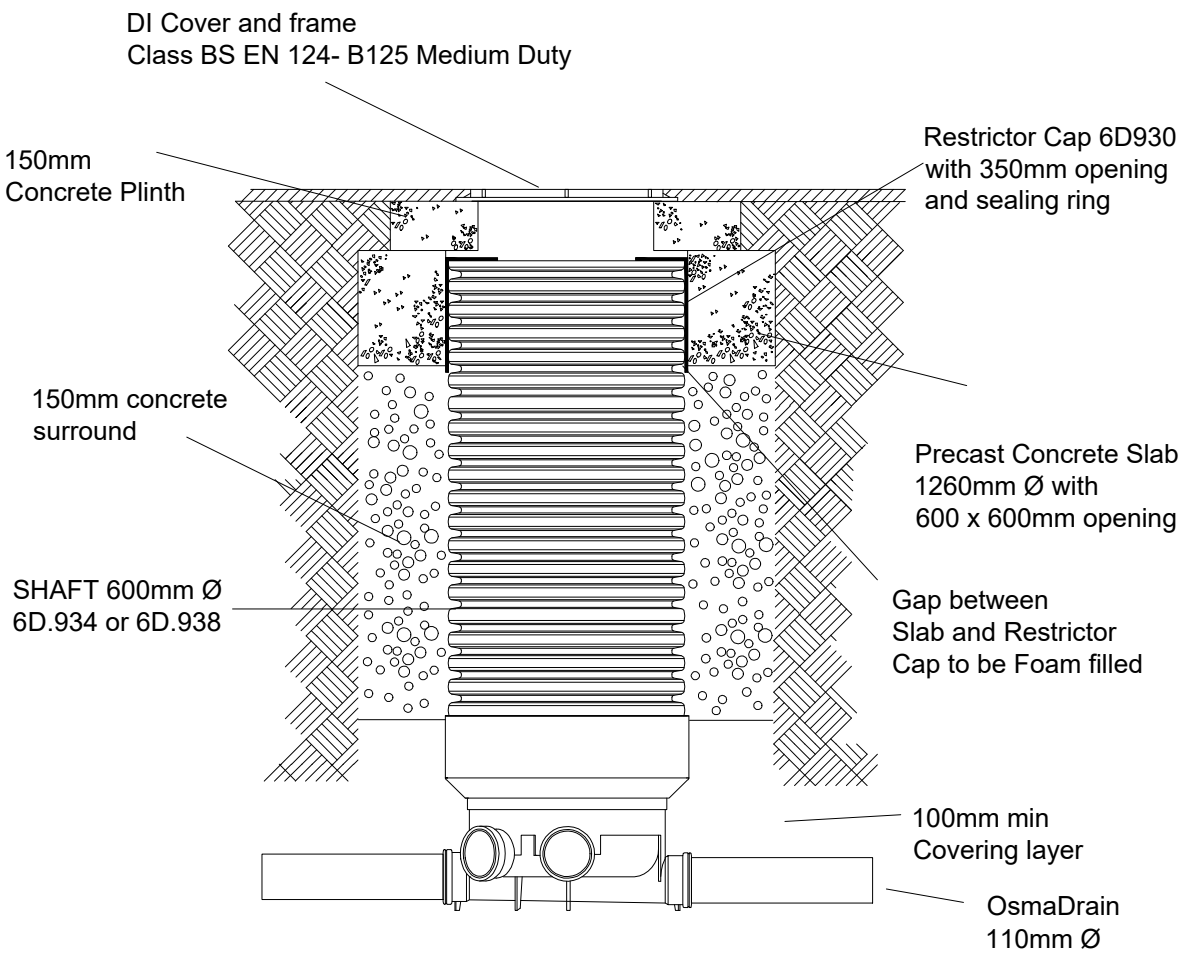
WATER COMPATIBLE PLANT SPECIES  
FOR BIO-RETENTION AREA

DRAINAGE NOTES

- ALL NON ADOPTABLE DRAINS UP TO 150 Dia. TO BE 'POLYPIPE uPVC UNDERGROUND DRAIN' MANUFACTURED IN ACCORDANCE WITH BS EN 1401-1 OR EQUAL APPROVED.
- ALL NON ADOPTABLE DRAINS WITH A PIPE Dia of 225 or 300 TO BE EITHER A PLAIN WALLED PLASTIC PIPE TO BS 1401-1 ( POLYSEWER ) OR A STRUCTURED WALL PLASTIC PIPE TO WIS-04-35-01 'POLYSEWER'. OR EQUAL APPROVED
- ALL ADOPTABLE DRAINS UP TO 300 Dia. TO BE 'POLYSEWER' BY 'POLYPIPE' AND MANUFACTURED IN ACCORDANCE WITH THE WATER INDUSTRY SPECIFICATION WIS-4-35-01.
- DRAINAGE PIPEWORK 400mm to 600mm DIA TO BE 'RIDGIDRAIN' HDPE BY POLYPIPE OR EQUAL APPROVED.
- ALL PIPE LENGTHS NOT TO EXCEED 3m.
- DRAINS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- NEW INSPECTION CHAMBERS (IC) TO BE A MINIMUM OF 450MM DIA. EXCEPT FOR MINI ACCESS CHAMBERS WHICH MAY BE SMALLER, REFER TO M.H. SCHEDULE FOR ACTUAL SIZES.
- ALL EXTERNAL RAINWATER PIPES (RWP) TO BE TERMINATED AT RODDABLE GULLIES. INTERNAL RWP's TO ARCHITECTS DETAILS BUT SHOULD ALLOW FOR RODDABLE ACCESS.
- FOR ALL DRAINAGE ABOVE GROUND FLOOR SLAB INCLUDING SETTING OUT FOR PENETRATIONS THROUGH THE GROUND FLOOR SLAB REFER TO ARCHITECTS DRAWING & SPECIFICATIONS
- ANY DRAINS PASSING THROUGH SUBSTRUCTURE WALLS TO HAVE A MINIMUM 50mm CLEAR SPACE. RC LINTEL SUPPORT ABOVE & CEMENT FIBRE COLLARS EITHER SIDE TO PREVENT VERMIN ENTRY.
- ANY DRAINS CAST IN & PASSING THROUGH CONCRETE GROUND BEAMS TO HAVE A FLEXIBLE JOINT NOT MORE THAN 150mm FROM THE FACE OF THE GROUND BEAM. (FLEXIBLE JOINT TO MANUFACTURERS DETAILS) AND A MAXIMUM 600mm LONG ROCKER PIPER EITHER SIDE
- ANY ALTERATIONS TO DRAINAGE PROPOSED BY CONTRACTOR TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK ON SITE. ANY REVISIONS ARE ALSO SUBJECT TO THE APPROVAL OF THE LOCAL BUILDING INSPECTOR.
- ALL DRAINS RUNNING UNDER BUILDINGS TO HAVE A MINIMUM FALL OF 1:40 TOWARDS THE BUILDING EXTERIOR. PIPE TO BE ENCASED IN 100MM GRANULAR FILL.
- COVER LEVELS SHOWN ARE APPROXIMATE ONLY AND SHOULD BE ALTERED TO SUIT FINISHED SURFACE LEVELS.
- THE BEDDING SPECIFICATION FOR ALL ADOPTABLE DRAINS WHERE COVER IS GREATER THAN 1200mm SHALL BE TYPE 'S'...WHERE COVER IS LESS THAN 1200mm TYPE 'Z' SHALL BE USED
- THE DEVELOPER/CONTRACTOR MUST SELF VET AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND WORKMANSHIP SPECIFICATIONS FOR THE PROPOSED SEWERS ARE IN ACCORDANCE WITH THOSE SET OUT IN 'SEWERS FOR ADOPTION 7TH EDITION'
- PROPOSED COVER AND INVERT LEVELS TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO ANY WORKS COMMENCING ONSITE
- ALL PPIC'S LOCATED WITHIN VEHICLE AREAS TO RECEIVE A MINIMUM 150mm CONCRETE BED AND SURROUND

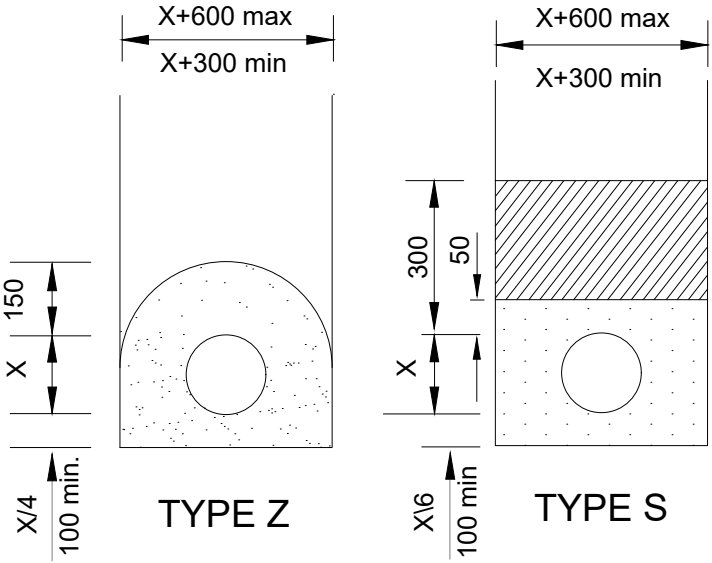


TYPICAL CATCHPIT  
CHAMBER DETAIL  
non entry

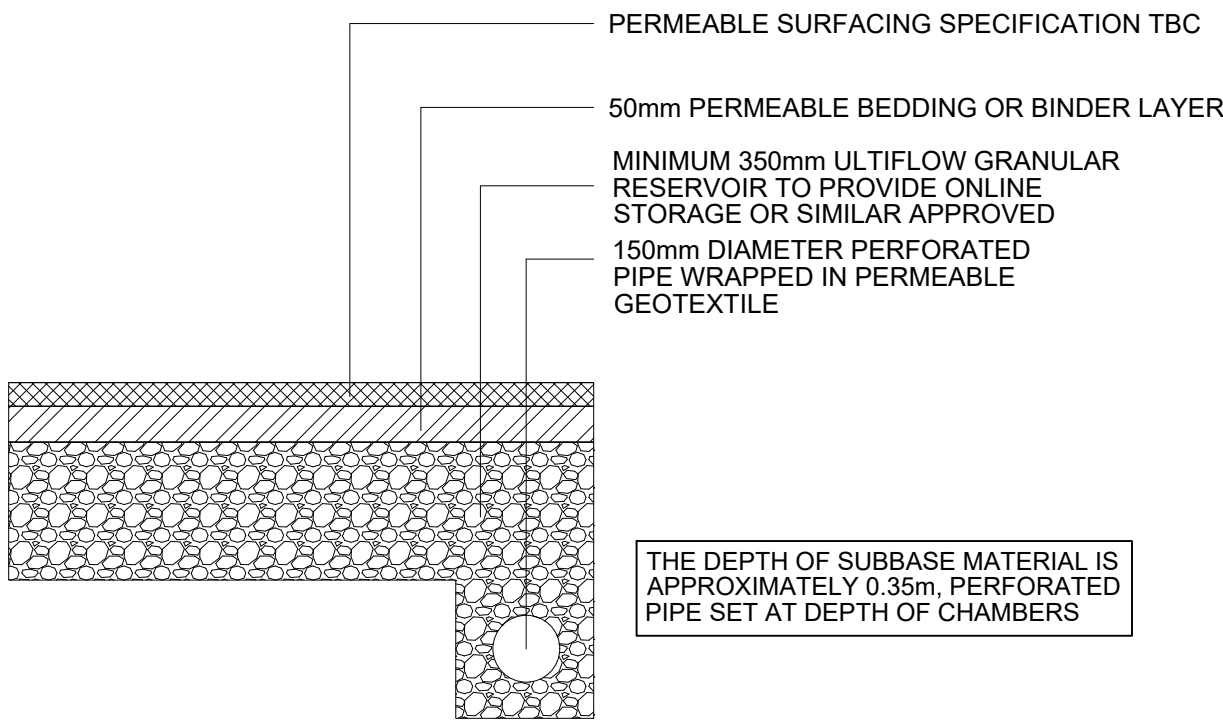


TYPICAL INSPECTION  
CHAMBER DETAIL  
non entry

- CONCRETE TO S.H.W CLAUSE 503.3 (iii)
- GRANULAR MATERIAL TO S.H.W. CLAUSE 503.3 (i).
- CLASS 8 MATERIAL TO S.H.W CLAUSE 503.3 (iv)



TYPICAL PIPE BED AND  
SURROUND DETAIL



TYPICAL PERMEABLE SURFACING  
(PARTIAL INFILTRATION) DETAIL  
INCLUDING ONLINE STORAGE

|                                            |        |                           |              |          |
|--------------------------------------------|--------|---------------------------|--------------|----------|
| P3                                         | Jan 25 | LLFA COMMENTS ADDED       | GRE          |          |
| P2                                         | Jan 25 | EXISTING CONNECTION ADDED | GRE          |          |
| P1                                         | Jan 24 | FIRST ISSUE               | GRE          |          |
| Rev                                        | Date   | Revision Details          | By           | ChkdAppd |
| Client                                     |        |                           |              |          |
| MR ANTONY HANDSLEY                         |        |                           |              |          |
| Project                                    |        |                           |              |          |
| KIRKWAY SERVICE STATION, MIDDLETON         |        |                           |              |          |
| Title                                      |        |                           |              |          |
| PROPOSED DRAINAGE ARRANGEMENT SHEET 2 of 2 |        |                           |              |          |
| Drawing No.                                |        |                           |              | Revision |
| 25-25-01-100                               |        |                           |              | P3       |
| Scale                                      | NTS    | Date                      | JANUARY 2025 |          |
| Drawn                                      | GRE    | Chk                       | App          |          |