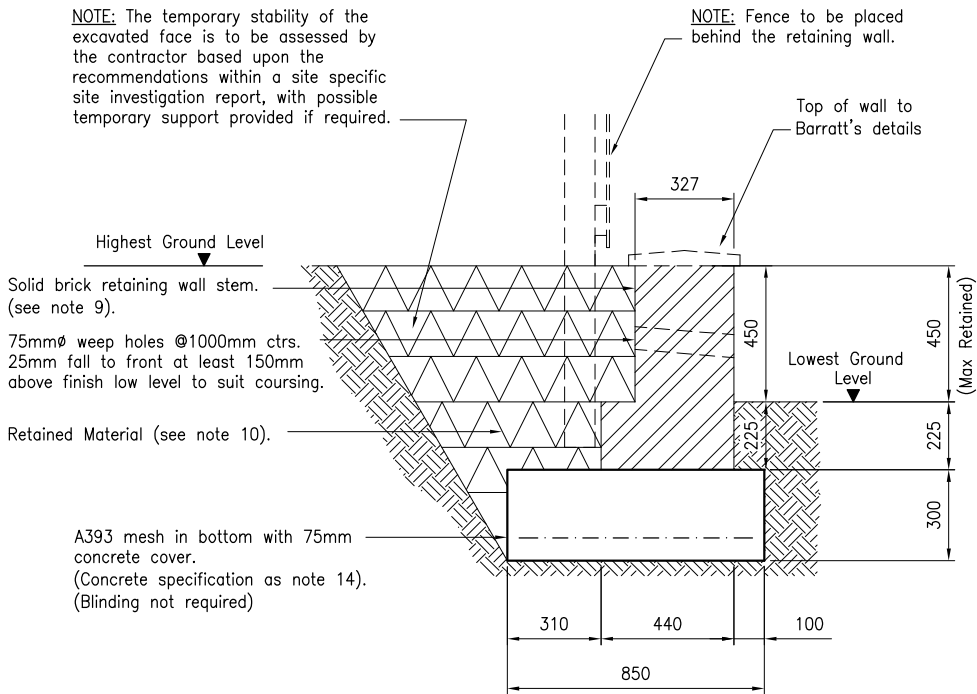
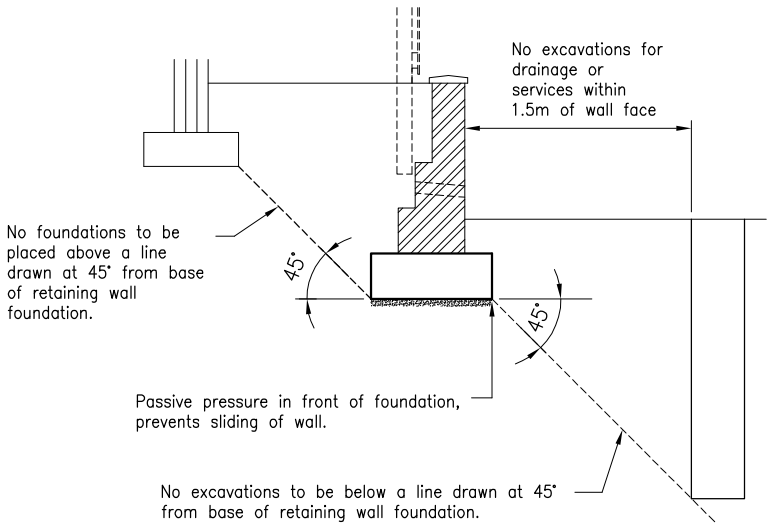




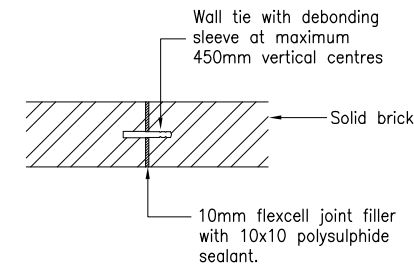
SECTION THRO' SOLID BRICK RETAINING WALL (450 RETAINED)

(SCALE @ 1:25)



RETAINING WALL, DESIGN PARAMETERS & CONSTRAINTS

(SCALE @ 1:50)



TYPICAL EXPANSION JOINT TO SOLID BRICK RETAINING WALL

(SCALE @ 1:25)

JOISTS AT MAX 12m CENTRES

|                   | RETAINED HEIGHT (mm) | ALLOWABLE BEARING PRESSURE (kN/m <sup>2</sup> ) | GARDEN OR DRIVEWAY SLOPED OR LEVEL FILL (SURCHARGE-kN/m <sup>2</sup> ) | TYPE OF WALL | POSITION OF STEM | CALCULATION REFERENCE |
|-------------------|----------------------|-------------------------------------------------|------------------------------------------------------------------------|--------------|------------------|-----------------------|
| TITLE CODE        | 450                  | 60                                              | D                                                                      | B            | R                | 02                    |
| DESIGN CONDITIONS | 450                  | 60                                              | PRIVATE DRIVEWAY – LEVEL FILL (5.0kN/m <sup>2</sup> )                  | SOLID BRICK  | RIGHT HAND SIDE  | 02                    |

TABLE OF DESIGN CONDITIONS

Assumptions/Limitations

- Assumed available ground bearing pressure at formation level as noted in table of design conditions to be assessed by a geotechnical engineer prior to construction:
  - 60kN/m<sup>2</sup> Soil properties – effective angle angle of shearing resistance = 25°
  - 100kN/m<sup>2</sup> Soil properties – effective angle angle of shearing resistance = 27°
- Depths shown to be increased if ground conditions require. Soft spots to be excavated and filled with GEN 1 concrete.
- Water table assumed to be below formation level.
- Concrete grade is based upon ACEC class AC1 DC1 ground conditions. ie. no contamination or sulphate issues – Geotechnical engineer to confirm.
- When building near trees in shrinkable clays, foundation depths to be extended after agreement with engineer. (Note: tree species, location and clay shrinkability will be required).
- The maximum timber fence height is to be 1.8m. The fences and foundations are to be designed by others, but in accordance with BS1722 – code of practice for fence design, with the fence posts at a maximum of 1.8m centres.
- The retaining wall design is based upon a maximum unplanned excavation depth in front of the wall, of 10% of the retained height or 100mm, whichever is the greater.

8. Wind loading – The maximum dynamic pressure for the site area, from BS6399 – Part 2 – code of practice for wind loads is:  $q_s = 0.8\text{kN/m}^2$ .
- Typical approximate values of dynamic pressures for level sites, on open ground in the following areas are given below:

|            |   |                        |
|------------|---|------------------------|
| London     | – | 0.57 kN/m <sup>2</sup> |
| Birmingham | – | 0.62 kN/m <sup>2</sup> |
| Manchester | – | 0.70 kN/m <sup>2</sup> |
| Newcastle  | – | 0.80 kN/m <sup>2</sup> |

NOTE: Local site topography features, or for site areas within 10km of the sea (i.e. for the Newcastle area) will change the design parameters for the estimate of dynamic wind pressure, with specific wind calculations to be carried out for all sites.

Wall Specifications

9.  = Brickwork – Brickwork to have minimum density of 16.5kN/m<sup>3</sup> and water absorption rate of less than 7%. Form a low-level DPC using DPC1 or DPC2 clay bricks built up from top of foundation level to (minimum) one course above the weep holes.
- All masonry to be frost resistant. Use type (ii) mortar except in very wet ground where type (i) mortar should be used beneath DPC level.
- All brickwork to be fully bonded across the width of the wall stem.
10. Fill material behind retaining wall to be free-draining and granular in nature. Backfill to be in 150–300mm layers once concrete and mortar has reached full design strength. In accordance with the site specific D20 specification.  
 $\gamma = 18\text{kN/m}^3$   
 $\phi = 30^\circ$
11. Movement joints required at 12.0m centres in brickwork sealed with 10mm flexcell with 10x10 polysulphide sealant.
12. All rear faces of walls to be coated with bituminous waterproofing paint. (2 coats R.I.W. or similar approved)
13. Drain behind retaining walls to be slotted geofin type laid to falls to soakaway or approved outlet.
14. All concrete to be RC35. Refer to Note 4 in the assumptions/limitations section, for the required ACEC class which is needed for RC35 concrete.
15. Laps to all reinforcement to be 400mm min.
16. Top of retaining walls to be finished to Barratt details.

|           |                                                                                                                                                                                                                                                                                                                                                   |             |      |      |           |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|------|-----------|
| –         | 07.09.12                                                                                                                                                                                                                                                                                                                                          | FIRST ISSUE | R.G. | W.D. | P.H.      |
| Rev       | Date                                                                                                                                                                                                                                                                                                                                              | Description | By   | Chkd | Verfd     |
| Project   | BARRATT-STANDARD RETAINING WALLS                                                                                                                                                                                                                                                                                                                  |             |      |      |           |
| Client    |                                                                                                                                                                                                                                                              |             |      |      |           |
| Architect | <br>Consulting Engineers<br>Horsley House, Regent Centre,<br>Gosforth, Newcastle NE3 3LU<br>Tel: (0191) 213 1515 Fax: (0191) 213 1701<br>E-mail Address: (Initial),(surname)@cundall.com<br>Website: www.cundall.com<br>Offices across the U.K and Australia |             |      |      |           |
| Scale     | AS INDICATED                                                                                                                                                                                                                                                                                                                                      |             |      |      |           |
| Date      | 23.07.12                                                                                                                                                                                                                                                                                                                                          |             |      |      |           |
| Drawn     | R.G.                                                                                                                                                                                                                                                                                                                                              |             |      |      |           |
| Checked   | W.D.                                                                                                                                                                                                                                                                                                                                              |             |      |      |           |
| Verified  | P.H.                                                                                                                                                                                                                                                                                                                                              |             |      |      |           |
| Title     | STANDARD RETAINING WALLS<br>450mm RETAINED HEIGHT<br>(TYPE 450/60/D/B/R/02)<br>SEE TABLE OF DESIGN CONDITIONS                                                                                                                                                                                                                                     |             |      |      |           |
| Stage     | Drawing Number<br>(TYPE 450/60/D/B/R/02)                                                                                                                                                                                                                                                                                                          |             |      |      | Rev.<br>– |