



COLAFELLA CONSULTING PTY. LTD.
CONSULTING STRUCTURAL & CIVIL ENGINEERS.

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| Project: CONCRETE SLEEPER SELECTION CHART (5kPa & 10kPa SURCHARGE) | |
| CONCRETE STRENGTH N40 GRADE CONCRETE. | Proj. No: 7349 |
| | Design: AFC |
| SUNSET SLEEPERS. | Date: OCT 2018 |

Maximum Concrete Sleeper Capacities:

| Concrete Sleeper Size (mm) | Reinforcement | Concrete Strength (MPa) | 5kPa Surcharge Max Retained Height (mm) | 10kPa Surcharge Max Retained Height (mm) |
|----------------------------|---------------|-------------------------|---|--|
| 200 x 80 x 1800 Long | 2-N12 Bars | N40 | 2800 | 2400 |
| 200 x 80 x 2000 Long | 2-N12 Bars | N40 | 2400 | 2200 |
| 200 x 80 x 2400 Long | 2-N12 Bars | N40 | 1800 | 1600 |
| 200 x 100 x 1800 Long | 2-N12 Bars | N40 | 3600 | 3400 |
| 200 x 100 x 2000 Long | 2-N12 Bars | N40 | 3200 | 3000 |
| 200 x 100 x 2400 Long | 2-N12 Bars | N40 | 3000 | 2800 |

Notes:

1. Max retained heights assume that retaining walls are fully drained with suitable cut of drains at the top of the wall and at the base of the wall with clean granular backfill placed behind the sleepers to allow relief of hydrostatic pressure.
2. Maximum live load surcharge load at the top of walls to be as noted.
3. No temporary or permanent structures to be located at rear of retaining walls. Further analysis would be required to determine maximum retained heights for walls supporting loads from structures in this area.
4. Slope at top of walls assumed to be zero. Further analysis would need to be undertaken on a case by case basis to determine retain heights for sloping ground above retaining wall.
5. Reinforcement is placed with 35 cover from exposed face (finished face of sleeper).
6. No trafficable driveway to be located within 600mm of back of retaining wall.
7. Maximum retained heights shown above relate to the strength of the concrete sleeper only. All support structures would need to be designed on a case by case basis by a qualified structural/civil engineer.
8. Density of retained backfill is 2 tonne/m³.
9. Lateral earth pressure co-efficient is $K_a = 0.35$.
note: top of wall must not be restrained.