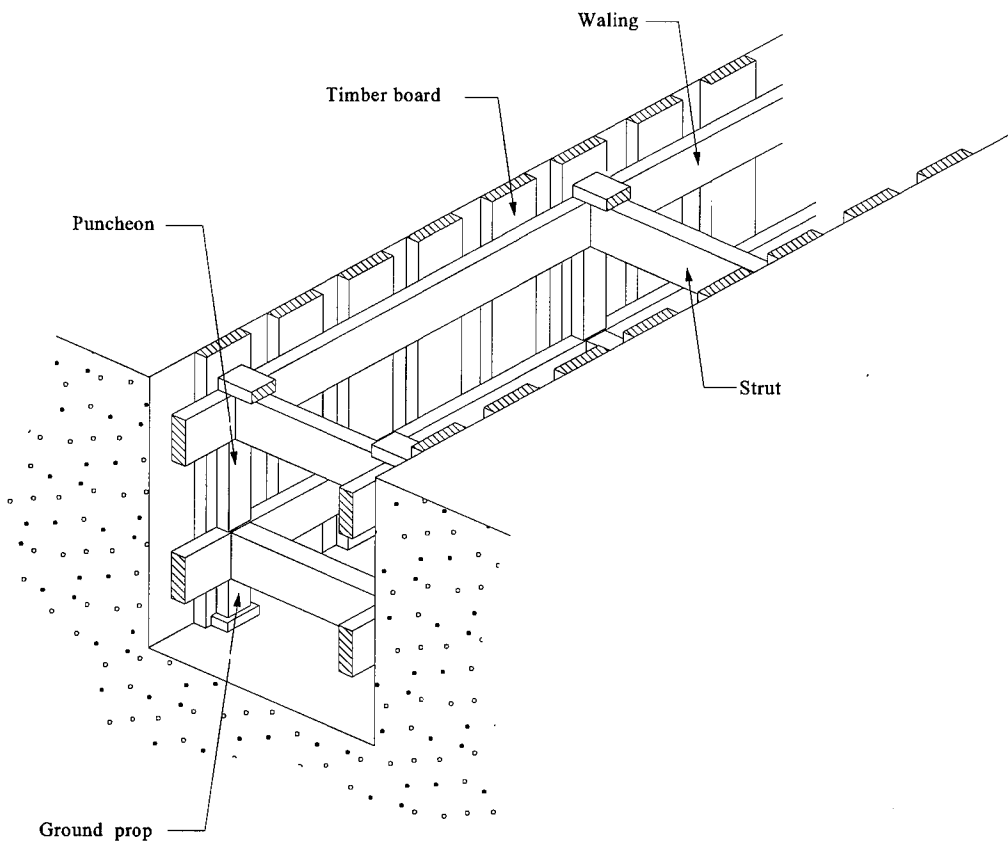


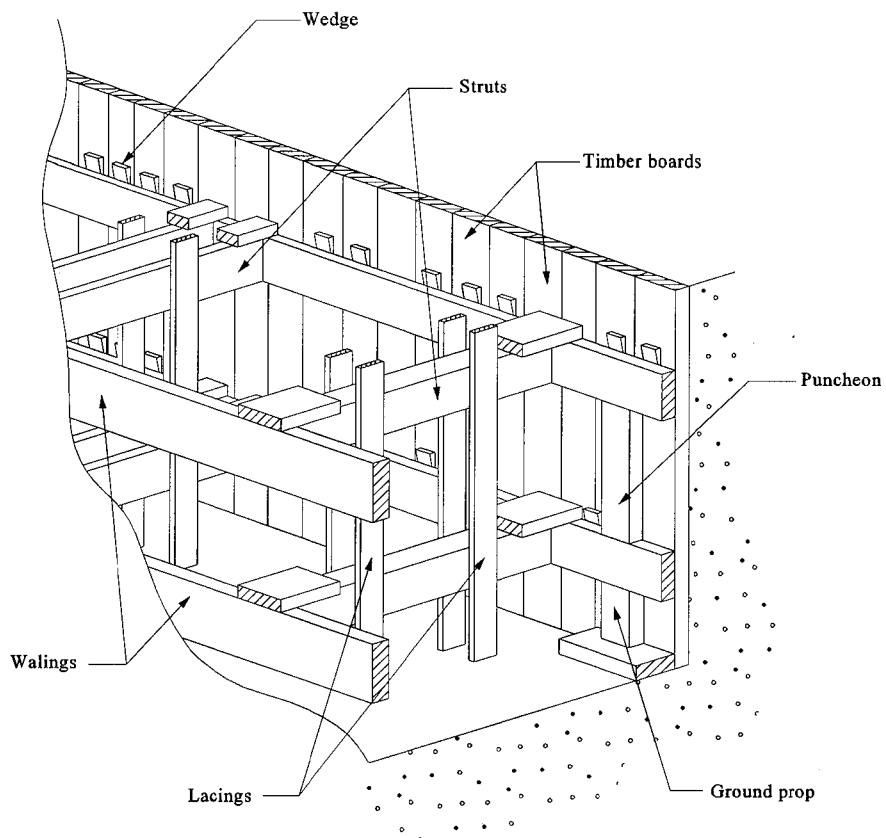
## APPENDIX A : TYPICAL SHORING ARRANGEMENTS

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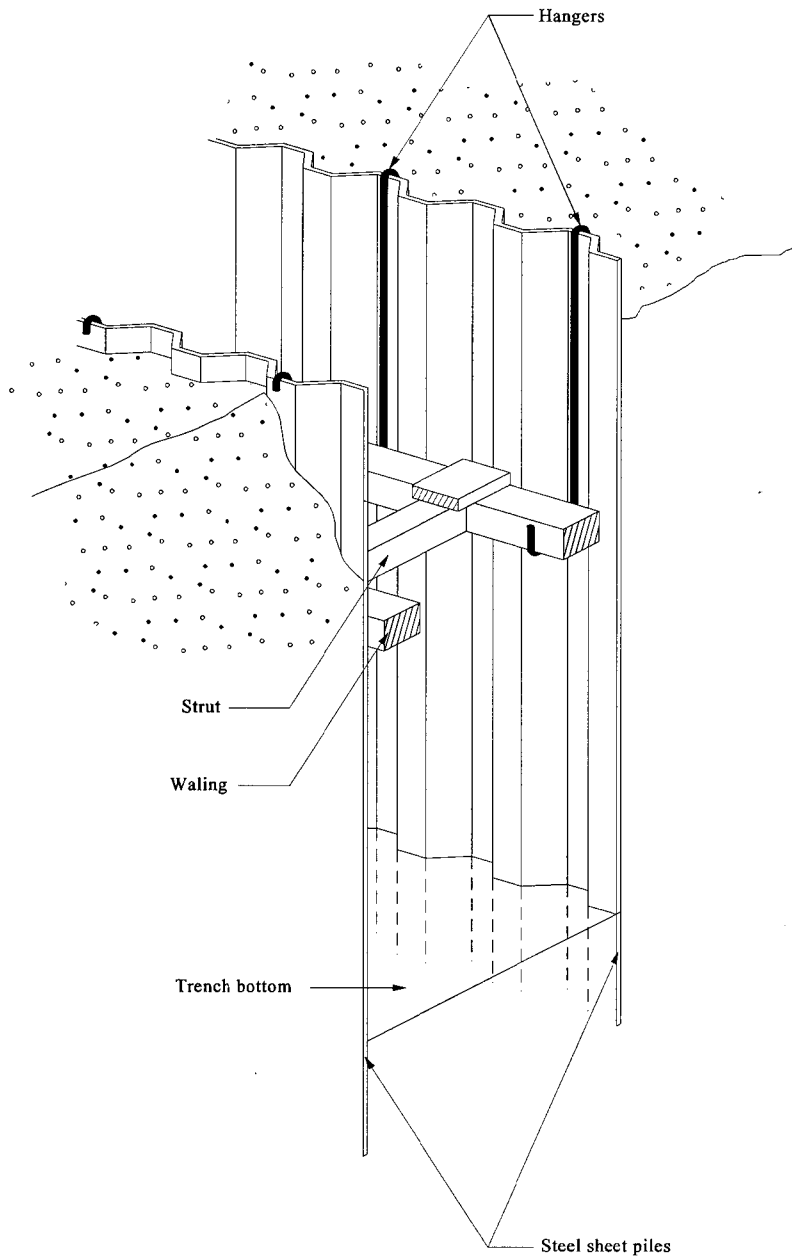
- Notes:
1. The sizes of the structural members (eg. timber boards, struts and walings) and the spacings between struts depend on the actual excavation depth, ground conditions and other factors affecting the loading on the shoring system.
  2. Half timber board shoring may be adequate for moderately firm to firm soil provided that the groundwater level is below the bottom of the trench.

Figure A1 - Typical arrangement of half timber board shoring system



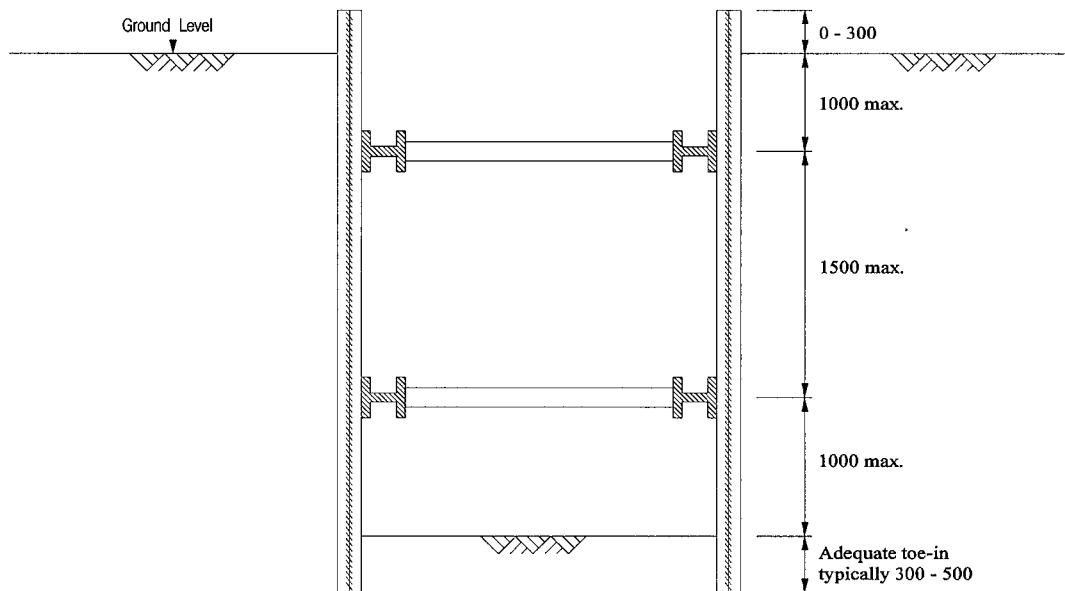
Note: The sizes of the structural members (eg. timber boards, struts and walings) and the spacings between struts depend on the actual excavation depth, ground conditions and other factors affecting the loading on the shoring system.

Figure A2 - Typical arrangement of full timber board shoring system



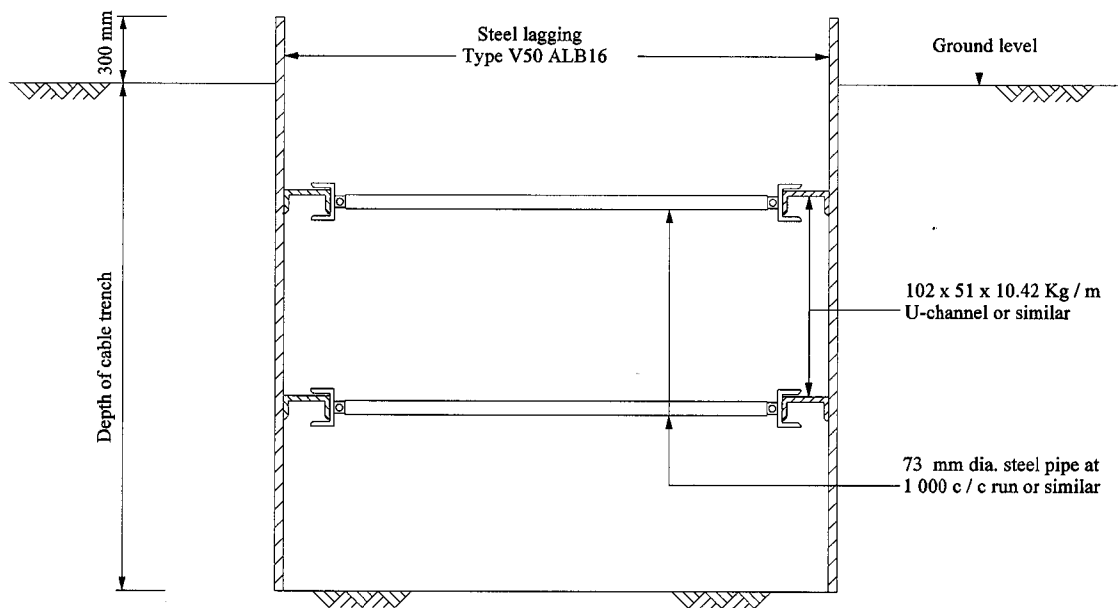
Note: The sizes of the structural members (e.g. sheet piles, struts and walings) and the spacings between struts depend on the actual excavation depth, ground conditions and other factors affecting the loading on the shoring system.

Figure A3 - Typical arrangement of sheet pile shoring system with timber struts and walings



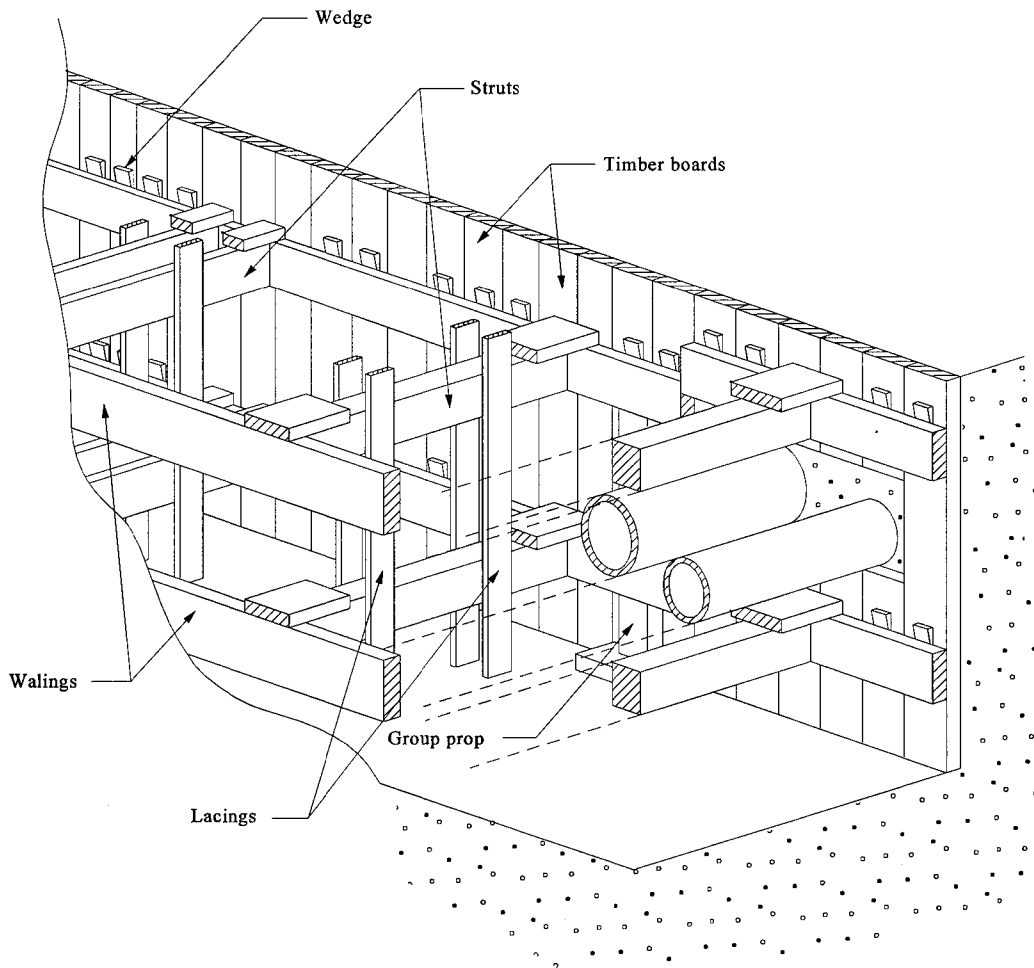
- Notes:
1. All dimensions are in millimeters.
  2. The sizes of the structural members (e.g. sheet piles, strut and walings) and the spacings between struts depend on the actual excavation depth, ground conditions and other factors affecting the loading on the shoring system.

Figure A4 - Typical sheet pile shoring detail with steel struts and walings



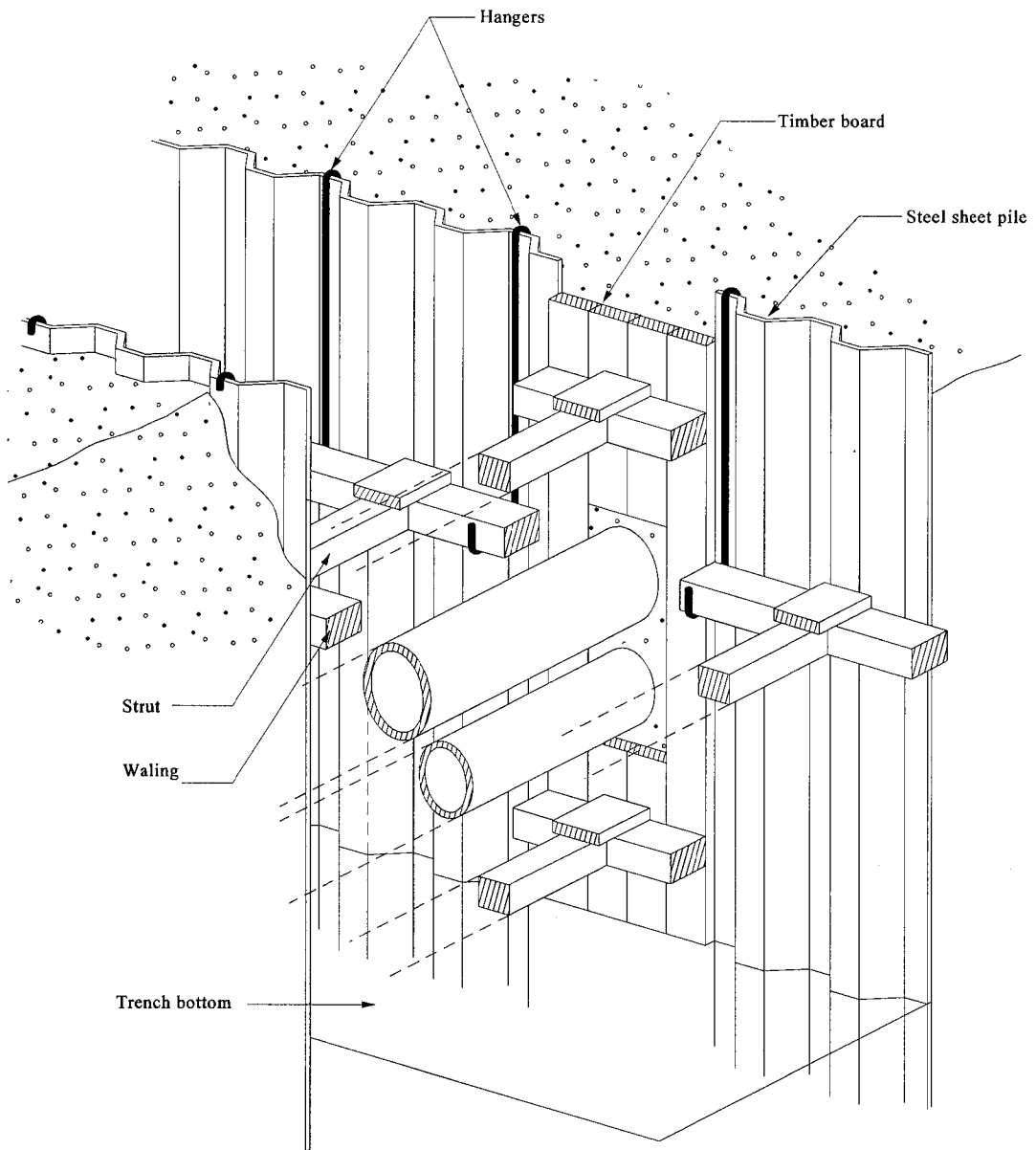
Note: Typical excavation depths for cable trenches are between 1m and 2m.

Figure A5 - Typical shoring detail for cable trench



Note: The sizes of the structural members (e.g. timber boards, struts and walings) and the spacings between struts depend on the actual excavation depth, ground conditions and other factors affecting the loading on the shoring system.

Figure A6 - Typical arrangement of timber support in areas surrounding existing crossing services



Note: The sizes of the structural members (e.g. sheet piles, struts and walings) and the spacings between struts depend on the actual excavation depth, ground conditions and other factors affecting the loading on the shoring system.

Figure A7 - Typical arrangement of sheet pile shoring system with timber support in areas surrounding existing crossing services





Plate A1 – Timber support with one layer of struts for shallow depth of excavation



Plate A2 – Timber support with two layers of struts



Plate A3 – Timber support for deeper excavation



Plate A4 – Steel sheet pile support





Plate A5 – Steel sheet pile support



Plate A6 – Timber support provided in areas surrounding existing crossing services



Plate A7 – Timber support provided in areas surrounding existing crossing services



Plate A8 – Timber support provided in areas surrounding existing crossing services



Plate A9 – Installation of support from outside the trench