



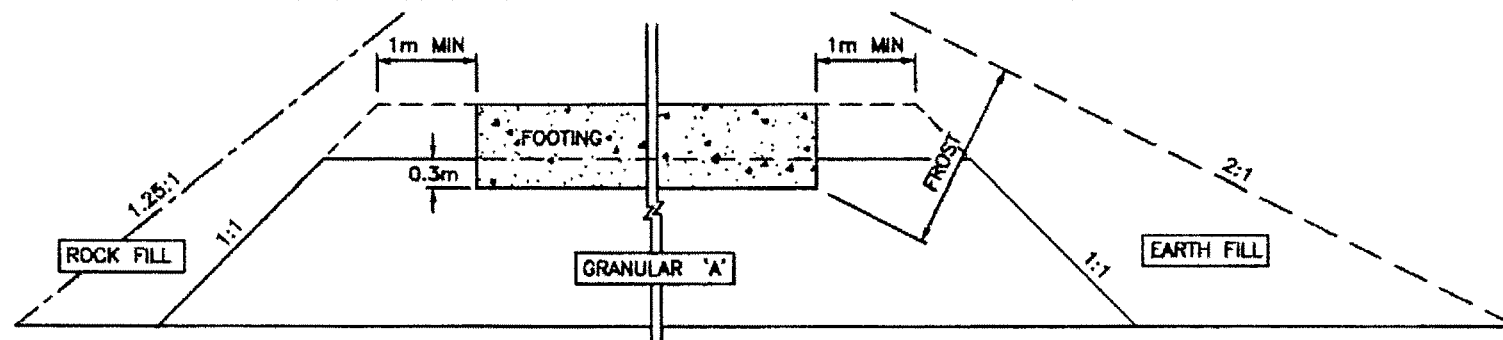
**TABLE 1**  
**SUMMARY OF ADVANTAGES, DISADVANTAGES AND RECOMMENDED FOUNDATIONS**

FOUNDATION TYPE	ADVANTAGES	DISADVANTAGES	RECOMMENDED FOUNDATION TYPE
SOUTH ABUTMENT			
Spread footings on rock	<ul style="list-style-type: none"><li>• Ease of construction</li><li>• High bearing resistance relative to footings on engineered fill</li><li>• Minimal requirement for rock excavation</li><li>• No requirement to provide erosion protection</li></ul>	<ul style="list-style-type: none"><li>• Need to place mass concrete to provide a level surface</li><li>• Requires a high abutment stem</li></ul>	Spread footings on rock or driven piles
Spread footings on engineered fill pad	<ul style="list-style-type: none"><li>• Ease of construction</li><li>• No requirement for rock excavation</li></ul>	<ul style="list-style-type: none"><li>• Requires a large area for engineered fill pad</li><li>• Difficulty placing engineered fill on undulating / sloping rock surface</li><li>• Lower bearing resistance than for other alternatives</li><li>• Need to provide erosion protection</li></ul>	
Driven piles	<ul style="list-style-type: none"><li>• High capacity</li></ul>	<ul style="list-style-type: none"><li>• High cost relative to footings</li></ul>	
Caissons	<ul style="list-style-type: none"><li>• High capacity</li></ul>	<ul style="list-style-type: none"><li>• Special construction methods on sloping bedrock</li><li>• High cost relative to other alternatives</li></ul>	
SOUTH AND NORTH PIERS			
Spread footings on rock	The only practical solution		Spread footings on rock
Spread footings on engineered fill pad	Not appropriate		
Driven piles	Not appropriate		
Caissons	Not appropriate		
NORTH ABUTMENT			
Spread footings on rock	<ul style="list-style-type: none"><li>• Ease of construction</li><li>• Minimal requirement for rock excavation</li><li>• No requirement to provide erosion protection</li></ul>	<ul style="list-style-type: none"><li>• Need to locally place mass concrete to provide a level surface</li></ul>	Spread footings on rock
Spread footings on engineered fill pad	<ul style="list-style-type: none"><li>• Not practical</li></ul>	<ul style="list-style-type: none"><li>• Excavation into bedrock required</li></ul>	
Driven piles	<ul style="list-style-type: none"><li>• Not practical</li></ul>	<ul style="list-style-type: none"><li>• Excavation into bedrock required</li></ul>	
Caissons	<ul style="list-style-type: none"><li>• High capacity</li></ul>	<ul style="list-style-type: none"><li>• Special construction methods on sloping bedrock</li><li>• High cost relative to footings</li></ul>	



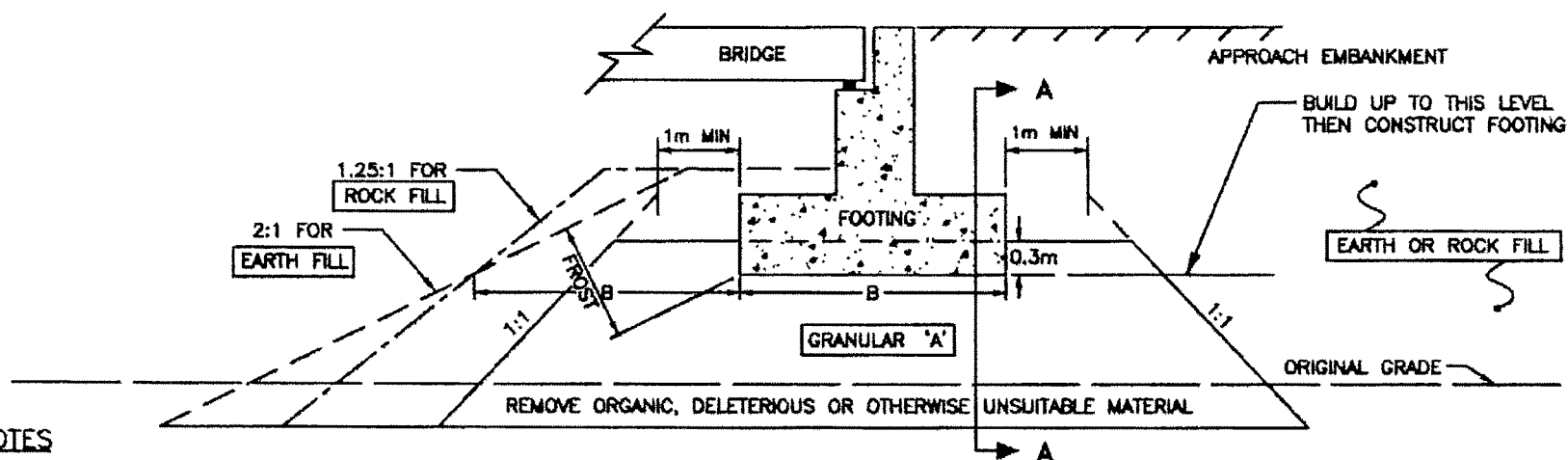
**TABLE 2**  
**LIST OF STANDARD SPECIFICATIONS REFERENCED IN REPORT**

<b>DOCUMENT</b>	<b>TITLE</b>
OPSS 120	General Specification for the Use of Explosives
OPSS 501	Construction Specification for Compacting
OPSS 571	Construction Specification for Sodding
OPSS 572	Construction Specification for Seed and Cover
OPSS 902	Construction Specification for Excavation and Backfilling - Structures
OPSS 903	Construction Specification for Piling
OPSS 1010	Material Specification for Aggregates
SP 105S10	Construction Specification for Compaction
SP 206S03	Construction Specification for Grading
SP 299F03	Rock Excavation (Machine Scaling)
SP 299F04	Rock Excavation (Trim Blasting)
SP 299F06	Rock Excavation (Controlled Blasting)
SP 405F03	Construction Specification for Pipe Subdrains
SP 999S26	Requirements for Design, Installation and Testing of Temporary and Permanent Pre-Stressed Anchors in Soil and Rock
SP 999S29	Dowels into Concrete
OPSD 201.020	Rock Grading - Divided Rural
OPSD 202.010	Slope Flattening Using Excess Material on Earth or Rock Embankment
OPSD 202.020	Drainage Gap for Slope Flattening on Rock or Granular Embankment
OPSD 208.010	Benching of Earth Slopes
OPSD 3101.150	Minimum Granular Backfill Requirements - Abutments
OPSD 3101.200	Rock Backfill Requirements – Abutments
OPSD 3190.100	Retaining Wall and Abutment Wall Drain Detail
NRE 98-200	Northeastern Region Directive - Platform Widening



**CROSS SECTION A-A**

NOT TO SCALE



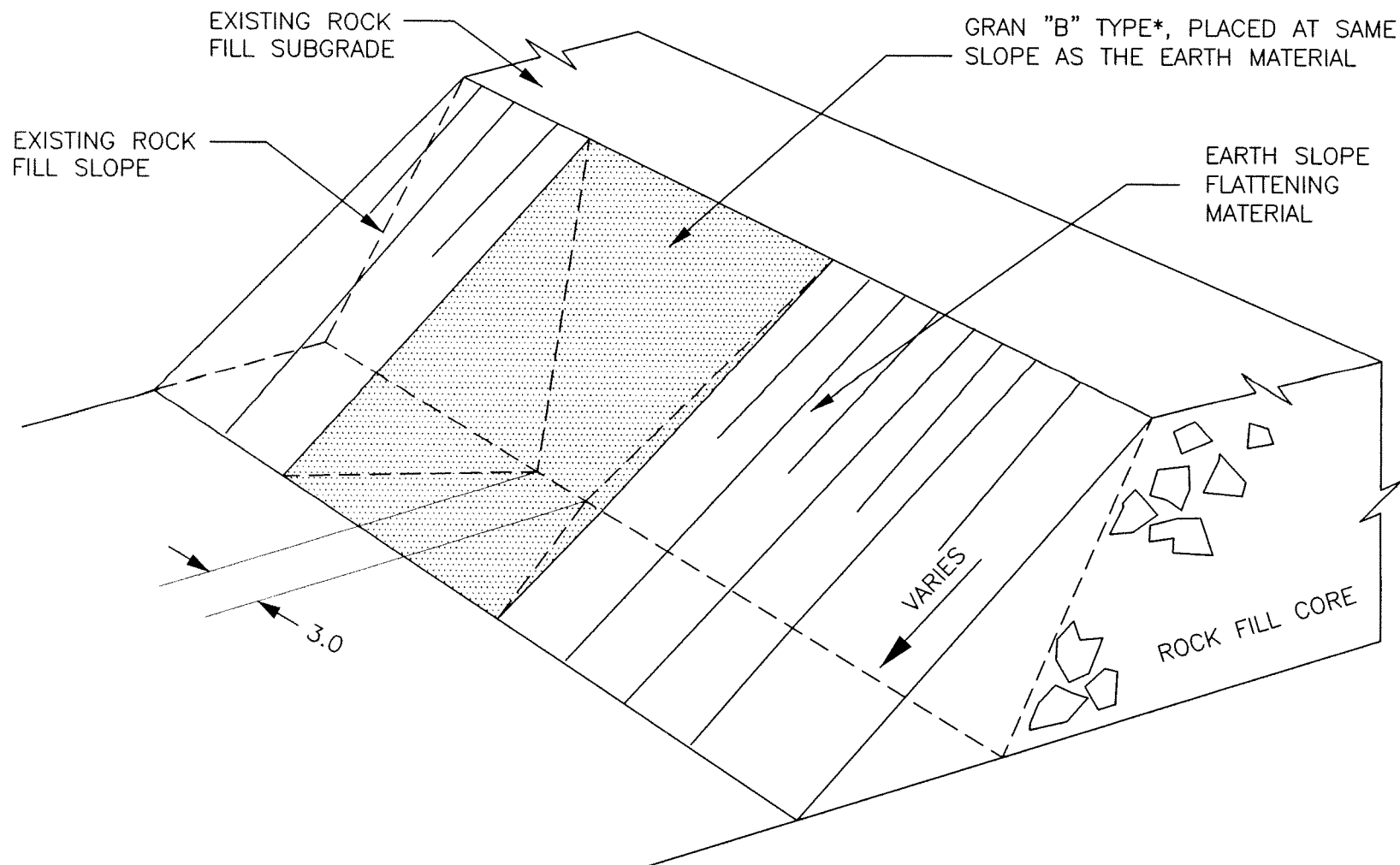
**LONGITUDINAL SECTION**

NOT TO SCALE

**NOTES**

1. CONCEPT SHOWN DOES NOT INCLUDE A MIDHEIGHT BERM.
2. LIMITS OF GRANULAR 'A' CORE TO BE DEFINED BY A SITE SPECIFIC SURVEY.
3. REMOVE ORGANIC, DELETERIOUS OR OTHERWISE UNSUITABLE MATERIAL UNDER AREA OF COMPACTED GRANULAR 'A' AND EARTH OR ROCK FILL AS NOTED IN TEXT OF REPORT.
4. PLACE GRANULAR 'A' AND EARTH OR ROCK FILL ON APPROVED SUBGRADE TO BOTTOM OF FOOTING LEVEL, COMPACTED ACCORDING TO CURRENT M.T.O. STANDARDS.
5. CONSTRUCT CONCRETE FOOTING.
6. PLACE REMAINDER OF GRANULAR 'A' AND EARTH OR ROCK FILL INCLUDING MIDHEIGHT BENCHES, AS REQUIRED.
7. REFER TO TEXT OF REPORT FOR FROST DEPTH.

**FIGURE 1: ABUTMENT ON COMPACTED FILL SHOWING GRANULAR A CORE**



\* GRAN 'B' TYPE I OR TYPE II AS  
RECOMMENDED FOR PROJECT.

FIGURE 2: ROCK FILL DRAINAGE IN SLOPE FLATTENED AREAS

NOT TO SCALE