

**DESIGN TABLE FOR FIBRE REINFORCED POLYMER (FRP) ESSENTIAL SLEEPER AND POST RETAINING WALL - VERY STIFF SANDY CLAYS, DENSE CLAYEY SAND, CLASS I FILL, GRAVELLY SANDS, WEATHERED ROCK; REFER NOTES FOR ASSUMED GEOTECHNICAL PARAMETERS**

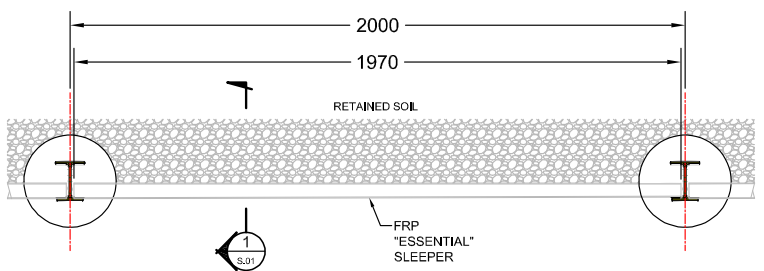
RETAINING WALL HEIGHT (mm)	SPAN OF SLEEPERS (mm)	POST SIZE	POST SPACING	CONCRETE PIER DETAILS		REMARKS
				DIAMETER	EMBEDMENT DEPTH	
200	1970	125FRP	2000	300	300	SINGLE SLEEPERS
201-400	1970	125FRP	2000	300	300	SINGLE SLEEPERS
401-600	1970	125FRP	2000	300	500	SINGLE SLEEPERS
601-800	1970	125FRP	2000	450	700	SINGLE SLEEPERS
801-1000	1970	125FRP	2000	450	900	DOUBLE SLEEPERS BELOW 800MM

**NOTES:**

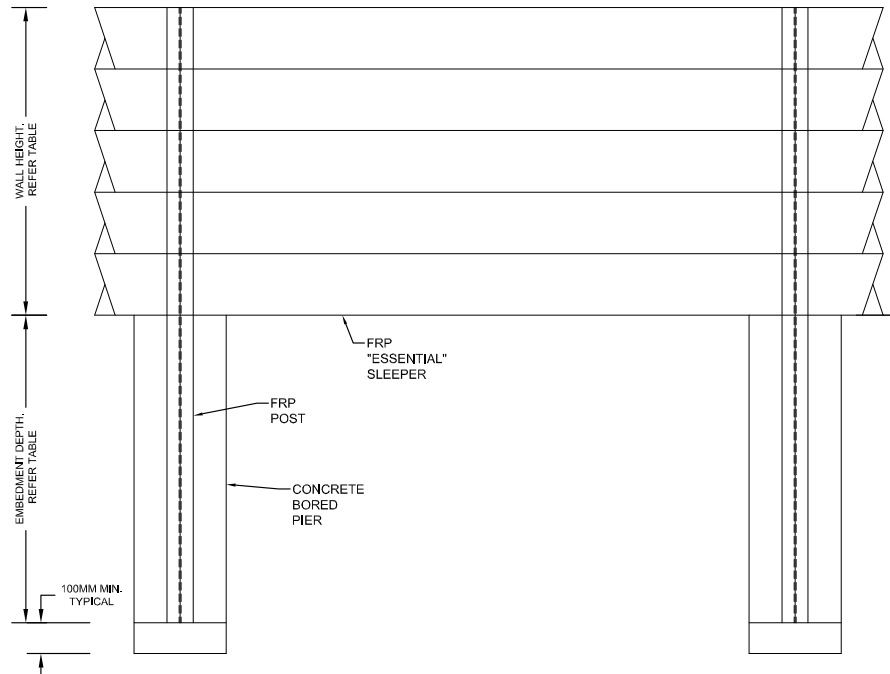
- THE GENERIC RETAINING WALL DESIGN SHOWN ON THESE DRAWINGS ARE BASED ON THE FOLLOWING REFERENCES AND STANDARDS:
  - AS1170.0 STRUCTURAL DESIGN ACTIONS
  - AS1170.1 STRUCTURAL DESIGN ACTIONS
  - AS4678 - EARTH RETAINING STRUCTURES
  - AS3600 - CONCRETE STRUCTURES
  - CLIENT / MANUFACTURER SUPPLIED PRODUCT INSPECTION REPORTS, VARIOUS TEST REPORTS FOR FIRE AND LOAD DEFLECTION
- THE CLIENT / MANUFACTURER SHALL PROVIDE CMT ENGINEERS A LOAD-DEFLECTION TESTING AND RESULTS FROM A NATA ACCREDITED LABORATORY TO CONFIRM THE STRENGTHS AND MATERIAL PROPERTIES OF THE STRUCTURAL MEMBERS. THE NUMBER AND FREQUENCY OF THE TEST SHALL BE THREE (3) SLEEPERS FOR EACH TYPE FOR EACH PRODUCTION BATCH AND THREE (3) POSTS FOR EACH TYPE FOR EACH PRODUCTION BATCH.
- DIMENSIONAL CHECKS INCLUDING MATERIAL QUALITY CONTROL AND ASSURANCE IS THE RESPONSIBILITY OF THE CLIENT AND MANUFACTURER.
- THE FOLLOWING SERVICEABILITY REQUIREMENT HAS BEEN ADOPTED FOR THE GENERIC DESIGN SHOWN ON THESE DRAWINGS:
  - 4A) MAXIMUM DEFLECTION OF THE SLEEPER - 20MM
  - 4B) MAXIMUM POST DEFLECTION - HEIGHT / 50

SHOULD FITTA'S CLIENT REQUIRE A MORE STRINGENT DEFLECTION LIMIT THAN THE ABOVE, CONTACT FITTA FOR FURTHER ADVICE.
- THE GENERIC RETAINING WALL DESIGN SHOWN ON THESE DRAWINGS ARE BASED ON THE FOLLOWING SOIL CONDITIONS AND LOADING PARAMETERS:
  - a. RETAINING WALL DESIGN RISK CLASSIFICATION - CLASS A
  - b. RETAINED SOIL UNIT WEIGHT - 18kN/m<sup>3</sup>
  - c. EFFECTIVE INTERNAL FRICTION ANGLE - 30° (TYPICAL SOILS - VERY STIFF SANDY CLAYS, DENSE CLAYEY SAND, CLASS I FILL, GRAVELLY SANDS, WEATHERED ROCK)
  - d. EFFECTIVE COHESION OF RETAINED SOIL - 0kPa
  - e. EFFECTIVE COHESION OF FOUNDATION SOIL - 5kPa
  - f. FENCE HEIGHT - 0m (NOT APPLICABLE)
  - g. WIND PRESSURE - 0kPa (NOT APPLICABLE)
  - h. SURCHARGE LOAD BEHIND THE WALL - 2.5kPa
  - i. WATER TABLE BEHIND THE WALL - 0m

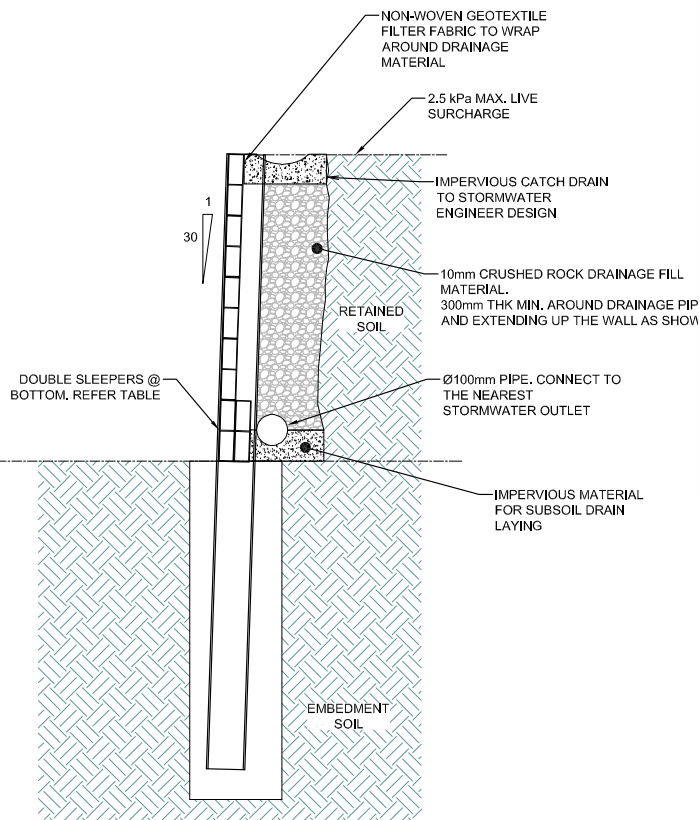
THE DESIGN PARAMETERS ARE ASSUMED VALUES ONLY AND USED FOR THE PURPOSE OF GENERATING A GENERIC DESIGN FOR FITTA. IT IS THE RESPONSIBILITY OF FITTA'S CLIENT AND/OR RETAINING WALL BUILDER TO ENGAGE A QUALIFIED GEOTECHNICAL ENGINEERING CONSULTANT TO CONFIRM THE SOIL PARAMETERS AND LOADING REQUIREMENTS INCLUDING GLOBAL STABILITY AND SLIP CIRCLE ASSESSMENT
- THE CONCRETE PIERS ARE TO BE GRADE N32 WITH 100MM SLUMP AND 20MM MAXIMUM AGGREGATE.
- THE DESIGN FOR THESE RETAINING WALLS ARE BASED ON THE FOLLOWING CONSIDERATION:
  - 7a) LEVELLED SOIL BEHIND THE RETAINING WALL WITH NO SLOPE.
  - 7b) THE ESSENTIAL SLEEPERS ARE FOR LOW HEIGHT NON-CRITICAL RETAINING WALLS, LANDSCAPE PROJECTS, GARDEN BEDS WHERE A LOWER DESIGN LIFE IS EXPECTED. THESE RETAINING WALL SYSTEMS ARE NOT TO BE USED TO RETAIN SOIL WHERE A STRUCTURE OF IMPORTANCE LEVEL 2 OR HIGHER IS SITUATED OR LOCATED.
  - 7c) GRAVEL BACKFILL BEHIND THE RETAINING WALL WITHOUT ANY COMPACTION
  - 7d) NO STRUCTURE OR CONSTRUCTION ACTIVITY WITHIN 1.50M BEHIND OR IN FRONT OF THE RETAINING WALL. NO EXCAVATIONS ARE TO OCCUR IN FRONT OF THE RETAINING WALL FOUNDATION.
  - 7e) SITE IS NOT AFFECTED BY GLOBAL STABILITY FAILURE
  - 7f) ADEQUATE SITE DRAINAGE EXISTS. THIS INCLUDES THE DRAINAGE FILTER BEING ADEQUATELY DESIGNED BASED ON THE PERMEABILITY REQUIREMENTS OF THE STORMWATER ENGINEER INCLUDING ANY SURFACE FLOW TOWARDS THE WALL
  - 7g) THE RETAINING WALL IS A STANDALONE STRUCTURE AND NOT PART OF A BUILDING STRUCTURE.



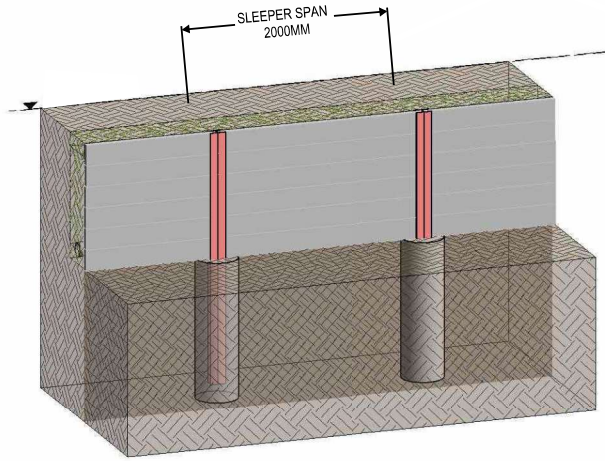
TYPICAL RETAINING WALL PLAN  
NTS



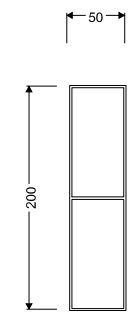
TYPICAL RETAINING WALL ELEVATION  
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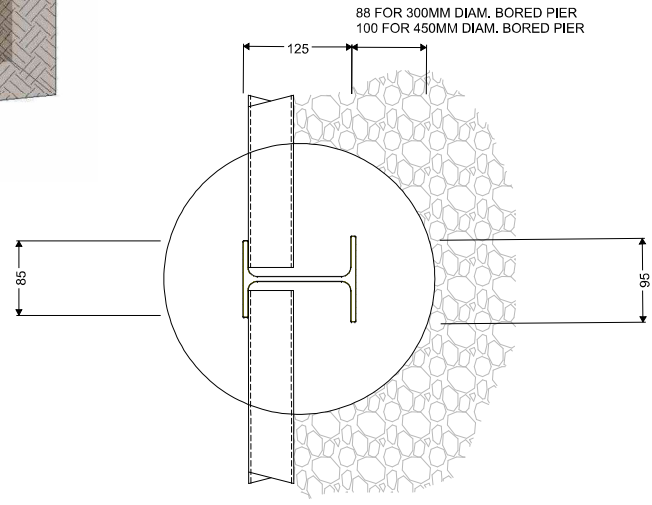
SECTION 1  
NTS



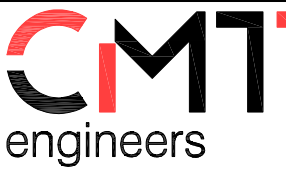
3D VIEW OF RETAINING WALL



TYPICAL ESSENTIAL SLEEPER PROFILE



TYPICAL POST PROFILE AND SETOUT



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ISSUE	DESCRIPTION	DATE	DRAWN	AUTH.	ISSUE STAMP
A	PRELIMINARY ISSUE	26/10/2023		AY	PRELIMINARY ISSUE

SURVEY INFORMATION		NORTH		CITY COUNCIL APPROVAL NUMBER:	
SURVEYOR	FILE NAME	N			
RP DESCRIPTION	LAND SIZE				

SCALE BAR  
0 2 4 6m  
SCALE 1:100 @ A1



CLIENT: FITTA GROUP  
PROJECT TITLE: FIBRE REINFORCED POLYMER (FRP) RETAINING WALL  
DRAWING TITLE: DESIGN TABLE FOR FITTA FRP RETAINING WALL USING ESSENTIAL SLEEPERS

DESIGN:	DATE:	DESIGN CHECK:	DATE:
AUTHORISED FOR ISSUE			ORIG. SIZE
			A1
PROJECT NUMBER / SHEET			ISSUE
C21-178 / ESSENTIAL S02			A

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