

TRENCH EXCAVATION PREPARATION OF TRENCH FLOOR AND CONSTRUCTION OF PIPE BED FOUNDATION AND PIPE BED

DETAILS OF CONSTRUCTION FOR THE ABOVE SHALL BE IN ACCORDANCE WITH THE FOLLOWING :

FILL ITEM	COMPONENTS OF FILL MATERIAL	MAXIMUM FINISH THICKNESS OF COMPACTION LAYER mm	DEGREE OF COMPACTION REQUIRED MOD AASHTO DENSITY AT OPTIMUM MOISTURE CONTENT	POSITION OF LAYER RELATIVE TO PIPE BED mm	CONSTRUCTIVE TOLERANCE RELATIVE TO PRESCRIBED LEVELS mm	
OVER EXCAVATION	COMPACTED SELECTED GRANULAR MATERIAL	200	90	BELOW PIPE BED	+0	-50
OVER EXCAVATION	COMPACTED SELECTED GRANULAR MATERIAL	200	90	BELOW TRENCH FLOOR	+0	-50
OVER BREAK EITHER OR	COMPACTED SELECTED GRANULAR MATERIAL	200	90	BELOW TRENCH FLOOR	+0	-50
SPECIFIED OVER EXCAVATION	38mm STONE	200	-	BELOW TRENCH FLOOR	+0	-50
PIPE BED FOUNDATION	COMPACTED SELECTED GRANULAR MATERIAL	150	90	-150 TO 1000	+0	-50
PIPE BED MIDDLE	COMPACTED SELECTED GRANULAR MATERIAL	60	90	-0 TO -150	+0	-50
				PIPE BED LEVEL	-10	-10

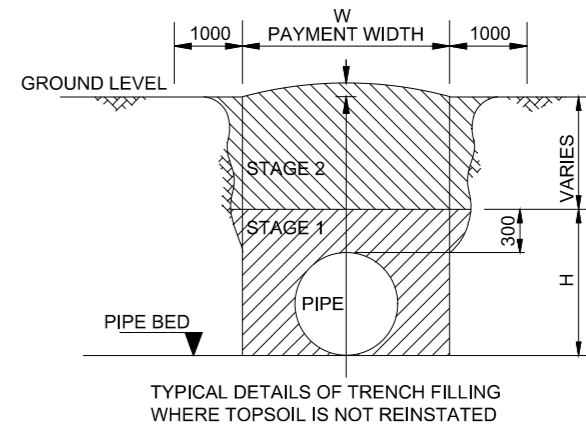
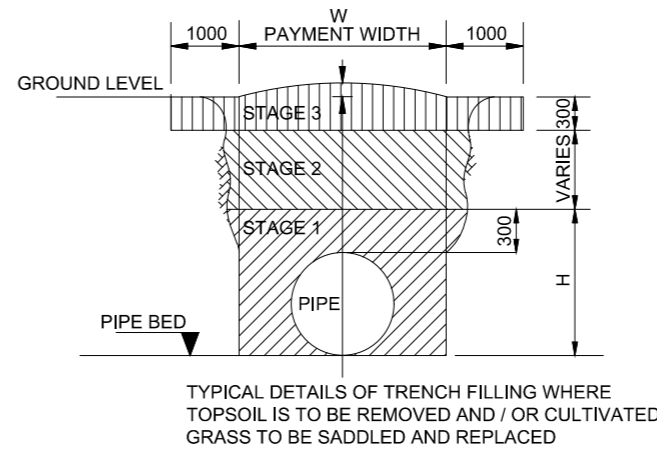
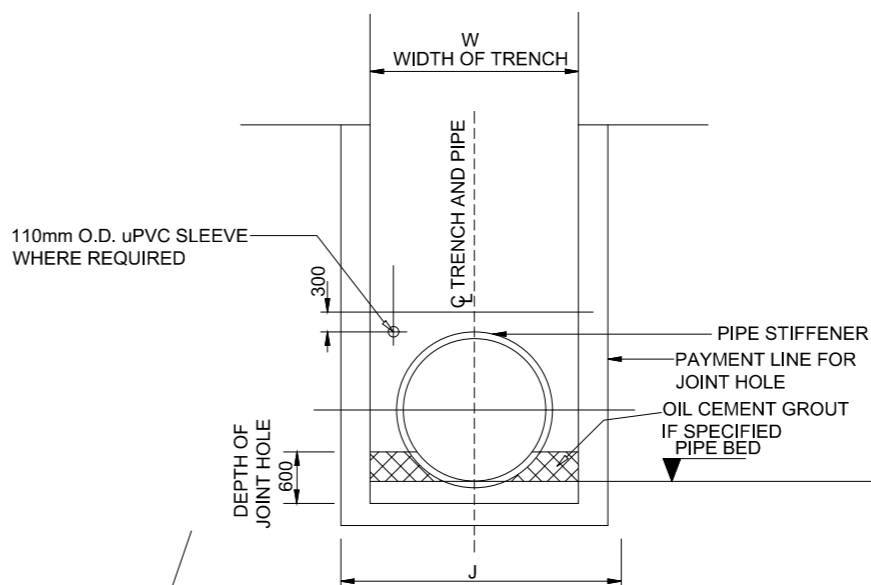


TABLE OF TRENCH WIDTHS FOR PIPE INSTALLED ALONG TOWNSHIP STREETS

PIPE DIAMETER	W (R)
≤ 600	1000
700	1100
800	1200
900	1300
1000	1400
1100	1500
1200	1600
1300	1700
1400	1800
1500	1900
1600	2000
1700	2100
1800	2200
1900	2300
2000	2400
2100	2500



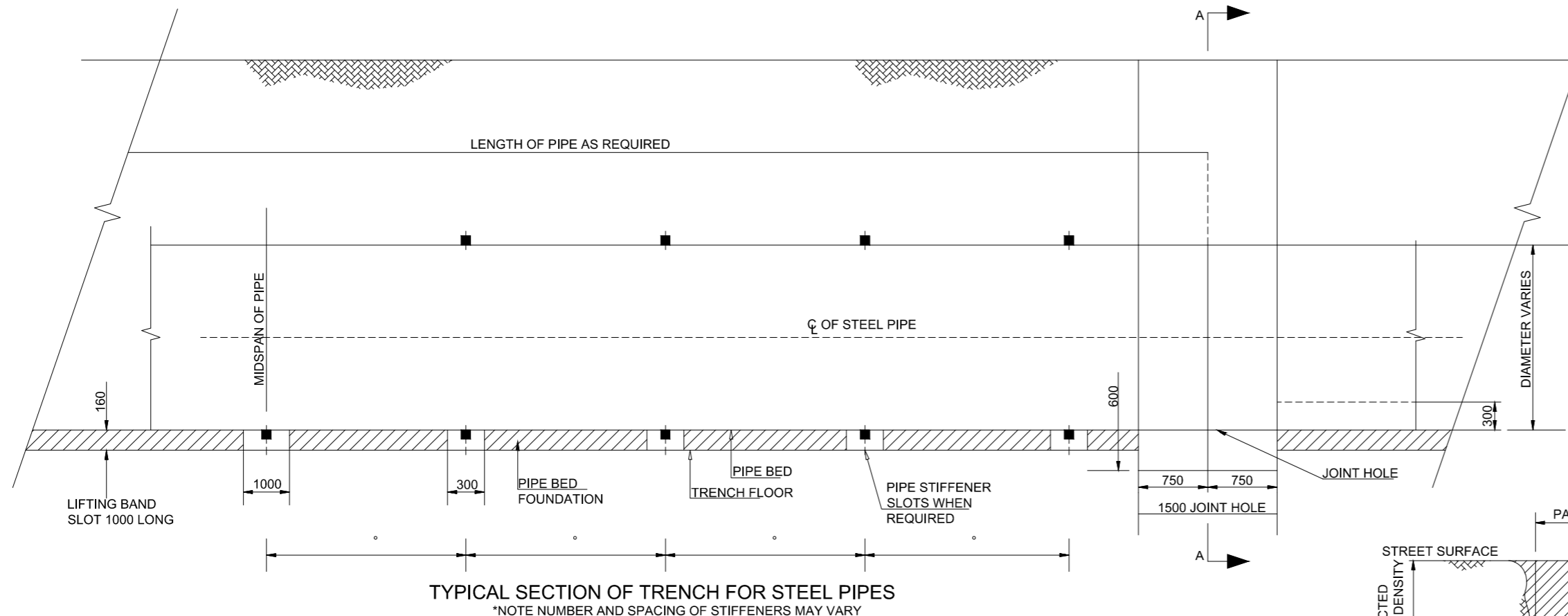
SECTION AA

- THE DEGREE OF COMPACTION SPECIFIED FOR EACH PART OF THE WORKS SHOWN ON THIS DRAWING SHALL BE BASED UPON THE FOLLOWING METHODS OF TEST:
 - PERCENTAGE OF METHOD AASHTO DENSITY AT OPTIMUM MOISTURE CONTENT FOR GRADED SELECTED FILL.
 - DENSITY OF CRUSHER RUN MEASURED BY AN APPROVED NUCLEAR DENSITY TESTER EXPRESSED AS A PERCENTAGE OF THE 'SOLID DENSITY' OR SPECIFIC GRAVITY OF THE UNCRUSHED MATERIAL.

- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.

- THE MINIMUM WIDTH 'W' AND 'J' OF THE TRENCHES AND JOINT HOLES RESPECTIVELY AND THE MINIMUM HEIGHT 'H' OF STAGE 1 BACKFILLING SHALL BE AS FOLLOWS:

PIPE DIAMETER	W	J	H	PIPE DIAMETER	W	J	H
400	1200	1400	700	1200	2100	2400	1500
500	1300	1500	800	1300	2200	2500	1600
600	1400	1600	900	1400	2300	2600	1700
700	1500	1700	1000	1500	2400	2700	1800
800	1600	1800	1100	1600	2500	2800	1900
900	1700	1900	1200	1700	2600	2900	2000
1000	1900	2100	1300	1800	3000	3000	2100
1100	2000	2200	1400	1900	3100	3100	2200
				2000	3200	3200	2300
				2100	3300	3300	2400
				2300	3500	3500	2600



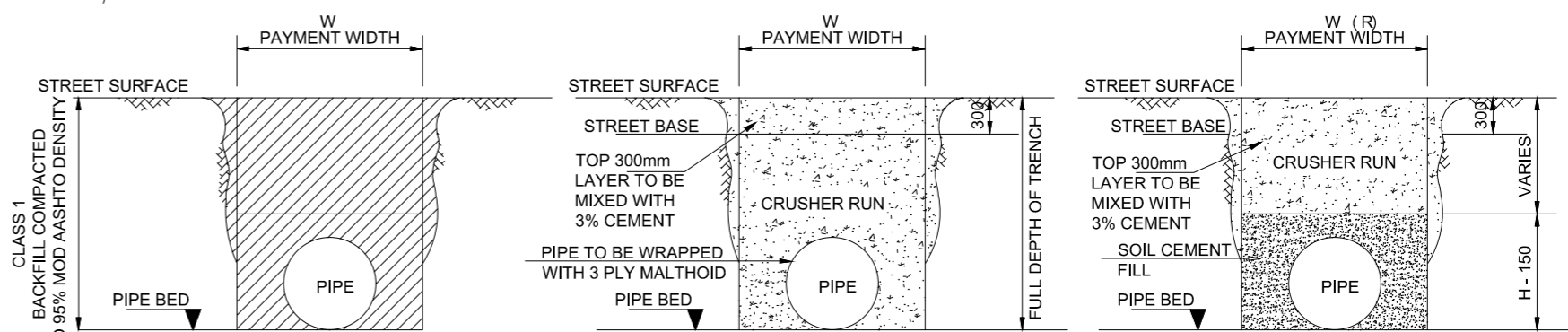
TYPICAL SECTION OF TRENCH FOR STEEL PIPES
*NOTE NUMBER AND SPACING OF STIFFENERS MAY VARY

NOTE
WHERE REQUIRED BY THE ENGINEER THE DEGREE OF COMPACTION FOR STAGE 1 AND STAGE 2 SHALL BE INCREASED TO 95% MOD AASTHO DENSITY

THE WORK DETAILED ABOVE SHALL BE CARRIED OUT AS FOLLOWS:

FILL ITEM	COMPONENTS OF FILL MATERIAL	MAXIMUM FINISH THICKNESS OF COMPACTION LAYER mm	DEGREE OF COMPACTION REQUIRED MOD AASTHO DENSITY AT OPTIMUM MOISTURE CONTENT (%)	CEMENT OR LINE STABILIZATION	CONSTRUCTIVE TOLERANCE RELATIVE TO PRESCRIBED LEVELS mm	
STAGE 1	COMPACTED SELECTED FILL BLANKET	200	90°	NO	+50	-50
STAGE 2	BACKFILL	300	85°	NO	+50	-50
TOPSOIL	TOPSOIL	300	LIGHT	NO	+50	-50
CRUSHER RUN	CRUSHER RUN	200	85% OF SOLID	UPPER 300mm ONLY	+50	-50
SOIL CEMENT	SOIL CEMENT	300	PUDDLE/ VARIATION	YES	+50	-50

NOTE:
STREET BASES TO BE CONSTRUCTED BY CONTRACTOR AND STREET WEARING SURFACES TO BE REINSTATED BY CONTROLLING AUTHORITY



DETAILS OF FILLING OF TRENCHES AND REINSTATEMENT OF GROUND AND STREET SURFACE

Engineer:
KEON
CONSULTING ENGINEERS
TECHNO
DESIGNS
Civil Structural & Transport Engineers

31 Dams Street (2nd Floor)
Midrand
CELL (072) 301 8811
EMAIL: engineer@keon.co.za
OFFICES: JOHANNESBURG
WEBSITE: www.keon.co.za

KEON CONSULTING ENGINEERS
5th Avenue Office Park
645 5th Avenue Newton
Port Elizabeth
TELEPHONE: +27 41 3630189
WEBSITE: www.keon.co.za

Client:
Johannesburg Water
Turbine Hall,
60 Ntshongwe Street,
Newtown, Johannesburg

THESE NOTES SERVE AS AN ADDENDUM TO THE SPECIFICATION IN THE BILL OF MATERIALS (BOM). IN THOSE CASES WHERE THE BOM SPECIFICATIONS DIFFER FROM THESE NOTES, THESE NOTES SHALL TAKE PRECEDENCE.

Engineer:
T. Chikwata Pr Eng (20140009)
Drawn By: M. Mumba
Designed By: T. Mapfumo
Checked By: T. Chikwata
Signature: _____
Date: September 2023

CONCRETE NOTES:

- SETTING OUT AND GENERAL:
 - THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ARCHITECT'S DRAWINGS.
 - ALL DIMENSIONS AND HEIGHTS ARE TO BE CHECKED ON SITE BEFORE WORK IS PUT IN HAND.
 - REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.
 - THIS DRAWING MUST NOT BE USED TO SCALE OFF. USE ONLY WRITTEN DIMENSIONS. CONTACT THE ENGINEER OR ARCHITECT WHERE CLARITY IS SOUGHT.
 - FOR SETTING OUT DATA, SETTING OUT POINTS AND DATUM LEVELS REFER TO SURVEY INFORMATION AND ARCHITECT'S DRAWINGS.
- STRUCTURAL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT SPECIFICATION AND THE RELEVANT S.A.N.S. SPECIFICATIONS. ALL CONCRETE WORK IS TO BE DONE IN ACCORDANCE WITH S.A.N.S. 1200S AND EARTHWORKS IN ACCORDANCE WITH S.A.N.S. 1200D.
- CONSULT RELEVANT ARCHITECT'S MECHANICAL, ELECTRICAL & PLUMBING DRAWINGS AND DETAILS AS RELEVANT FOR DRAINAGE, STORMWATER OUTLETS, RWDS AND HOLES AND SLEEVES FOR THESE SERVICES. NO HOLES ARE TO BE CORED WITHOUT ENGINEER'S WRITTEN APPROVAL.
- FOUNDATIONS:
 - ALL FOUNDATION EXCAVATIONS TO BE INSPECTED AND APPROVED IN WRITING BY THE ENGINEER BEFORE CONCRETE IS CAST.
 - NO FOUNDATIONS ARE TO BE CAST IN FILL MATERIAL. A 50mm THICK LAYER OF 10MPa / 19mm BLINDING CONCRETE IS TO BE CAST UNDER ALL REINFORCED BASES, REINFORCED STRIP FOOTINGS AND GROUND BEAMS.
 - ANY OVER EXCAVATIONS ARE TO BE MADE GOOD WITH 10MPa / 19mm CONCRETE AT THE CONTRACTOR'S EXPENSE.
 - BACKFILLING OVER COLUMN BASES SHALL BE DONE WITH AN APPROVED MATERIAL, COMPACTED IN LAYERS IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
 - ALLOWABLE BEARING PRESSURE UNDER:
 - CONCRETE BASES = 150kPa
 - STRIP FOOTINGS = 100kPa
 - CONCRETE CHARACTERISTIC 28 DAY STRENGTHS:
 - BASES: 25MPa / 19mm
 - STRIP FOOTINGS: 25MPa / 19mm
 - SUSPENDED SLABS & BEAMS: 30MPa / 19mm
 - COLUMNS: 30MPa / 19mm
 - CONCRETE MIX DESIGNS FOR ALL GRADES OF CONCRETE TO BE GIVEN TO ENGINEER FOR PERUSAL AND COMMENT. CONCRETE MIX DESIGNS FOR SURFACE BEDS TO HAVE MINIMUM BLEED CHARACTERISTICS.
 - ALL CONCRETE TO BE ADEQUATELY CURED BY KEEPING SURFACES CONTINUOUSLY DAMP FOR AT LEAST 5 DAYS AFTER CASTING.
- ALL CONCRETE TO BE CONSTRUCTED TO THE S.A.N.S. 1200G PERMISSIBLE DEVIATION DEGREE OF ACCURACY CLASS II UNLESS SPECIFIED OTHERWISE.
- CONCRETE CUBE TEST RESULTS TO BE SUBMITTED TIMEOUSLY TO ENGINEER FOR PERUSAL, RECORDS, COMMENT AND APPROVAL.
- REINFORCEMENT CHARACTERISTIC STRENGTH:
 - MILD STEEL: 250N/mm²
 - HIGH YIELD STEEL: 450N/mm²
- ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY ENGINEER BEFORE ANY CONCRETE IS CAST. 48 HOURS WRITTEN NOTICE TO BE GIVEN TO ENGINEER BEFORE TIME OF INSPECTION.
- LAP LENGTH TO REINFORCING TO BE MINIMUM 50 x SMALLER BAR DIAMETER UNLESS OTHERWISE NOTED.
- MESH REINFORCEMENT REFERENCE 245 TO BE PLACED IN SLAB (TOP) MINIMUM LAPS = 300mm UNLESS OTHERWISE NOTED.
- THE CONTRACTOR MUST TAKE PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT HAS BEEN ATTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE FOR INSPECTION OF THE REINFORCEMENT.
- COVER TO REINFORCEMENT:
 - STRIP FOOTINGS: 50mm
 - BASES: 50mm
 - COLUMNS AND WALLS: 30mm
 - SUSPENDED SLABS: 30mm
- SUSPENDED BEAMS: 30mm
- CONTRACTOR IS TO CONDUCT HIS OWN INSPECTION OF REINFORCEMENT BEFORE CALLING THE ENGINEER FOR INSPECTION.
- FORMWORK AND PROPPING:
 - STRIPPING TIMES FOR:
 - COLUMN AND WALL SHUTTERING: 1.5 DAYS
 - BEAM SHUTTERING: 7 DAYS IN HOT WEATHER, 12 DAYS IN COLD WEATHER.
 - SLABS AND BEAMS: 4 DAYS IN HOT WEATHER, 7 DAYS IN COLD WEATHER.
 - 14 DAYS IN HOT WEATHER, 21 DAYS IN COLD WEATHER.
 - CANTILEVER SLABS AND BEAMS: 21 DAYS (SUBJECT TO CUBE TEST RESULTS BEING SUBMITTED TIMEOUSLY TO ENGINEER FOR APPROVAL).
 - NO DEPROPPING OF SUSPENDED ELEMENTS UNTIL INSTRUCTED BY ENGINEER.
 - CONCRETE FINISHES: UNLESS NOTED OTHERWISE:
 - COLLINS AND WALLS: OFF SHUTTER
 - BEAMS AND SLAB SOFFIT: OFF SHUTTER
 - TOP OF SUSPENDED SLABS: STEEL FLOAT
 - SURFACE BEDS: POWER FLOAT
 - SIDES OF GROUND BEAMS TO BE SHUTTERED.

Refer To Drawing No.: _____

Key Plan:

No. Date Details Chd Apd

Revisions

Project:
JW14406-LINBRO PARK TOWER (WITH ASSOCIATED WORKS)

Description:
STANDARD DETAILS FOR TRENCH EXCAVATION AND BACKFILL FOR STEEL PIPES > 400mm ND

Issued For: **TENDER**

Size: A1	Scale: 1:50	Sheet No: 1 OF 1	Original Date: Sept 2023
----------	-------------	------------------	--------------------------

Project No: C01486	Drawing No: CP-07	Revision: T0
--------------------	-------------------	--------------