

TIP LOAD = 23 kN

| DESIGN REQUIREMENTS | | | | | | |
|---------------------|------------------|---------------------|---------------|------|------|------|
| POLE LENGTH L | TIP LOAD (kN) | PLANTING DEPTH P | C A H (m AGL) | | | |
| | | | E | T | M | B |
| 20 | 23 | 2.6 | 17.4 | 15.2 | 14.1 | 13.0 |
| 21 | 23 | 2.7 | 18.3 | 16.1 | 15.0 | 13.9 |
| 22 | 23 | 2.8 | 19.2 | 17.0 | 15.9 | 14.8 |
| 23 | 23 | 2.9 | 20.1 | 17.9 | 16.8 | 15.7 |
| 24 | 23 | 3.0 | 21.0 | 18.8 | 17.7 | 16.6 |

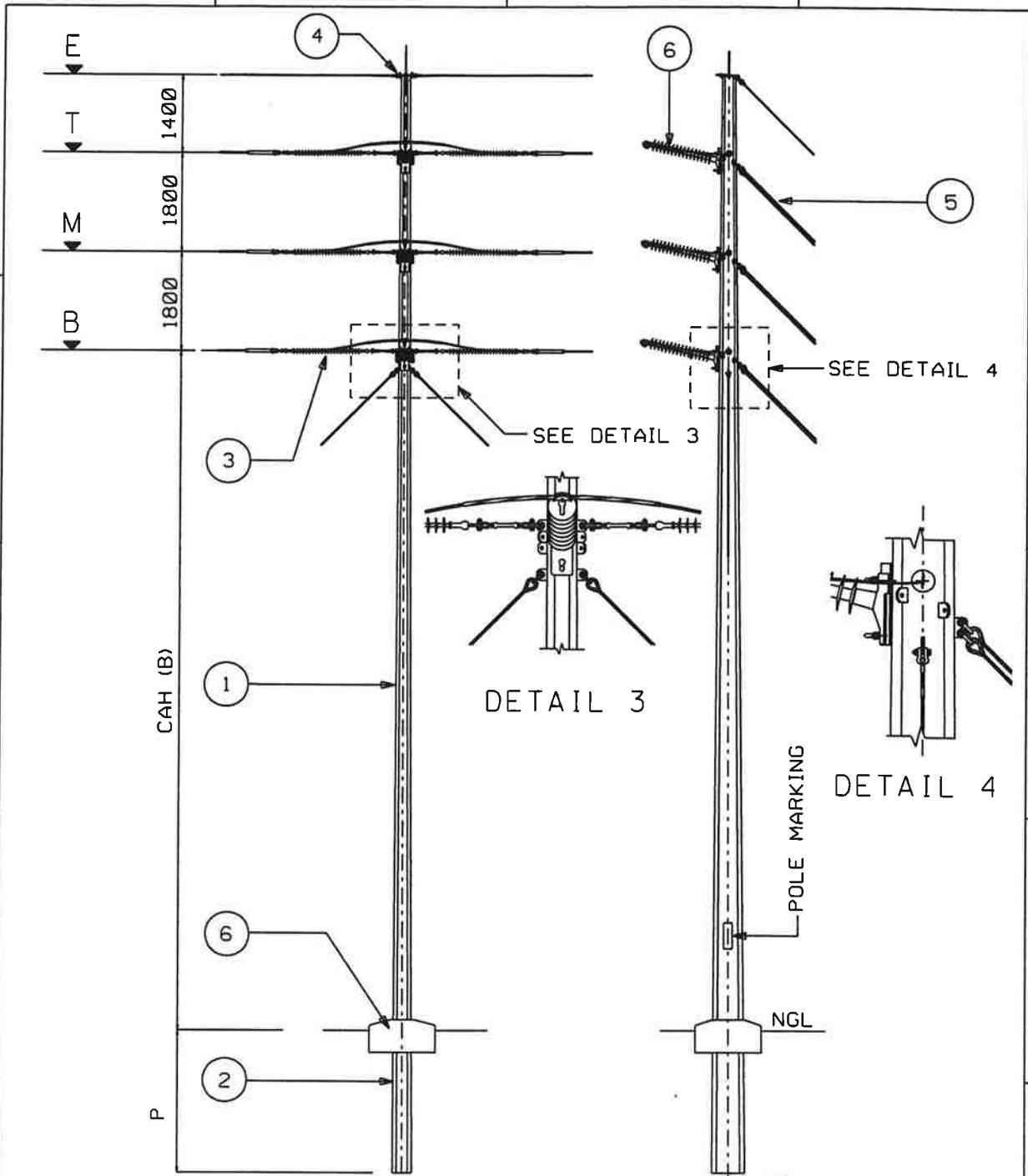
| 2 | DRG SHT UPDATED. REFERENCES REV'D. GENERAL REVISION | SLR | RAB | AB | JUNE 2004 | |
|-----|---|-----|------|------|-----------|-------------|
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |

Eskom
Distribution

AUTH: A BEKKER
DATE: JAN 2004
CHKD: RAB
DATE: JAN 2004
DRAWN: LMP
DATE: NOV 1998

DISTRIBUTION TECHNOLOGY
RETICULATION/SUB-TRANSMISSION LINES
88/132KV S/C INTERMEDIATE STRUCTURE
GENERAL ARRANGEMENT

| | | | |
|------------------|----------|----------|----------|
| D-DT 7611 | SET | SHEET | REVISION |
| | 2 | 1 | 2 |



FRONT VIEW

ELEVATION

| | | | | | | |
|-----|---|----------|------------|--------------|------------|-------------|
| 3 | SHEET 3 ITEM 2 FOUNDATION DRG. NO.S CORRECTED | P. A. T. | S. WASHARA | B. BRANFIELD | 19.03.2010 | |
| 2 | DRG SHT UPDATED. REFERENCES REVISED, GENERAL REVISION | SLR | RAB | AB | MARCH 2004 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |

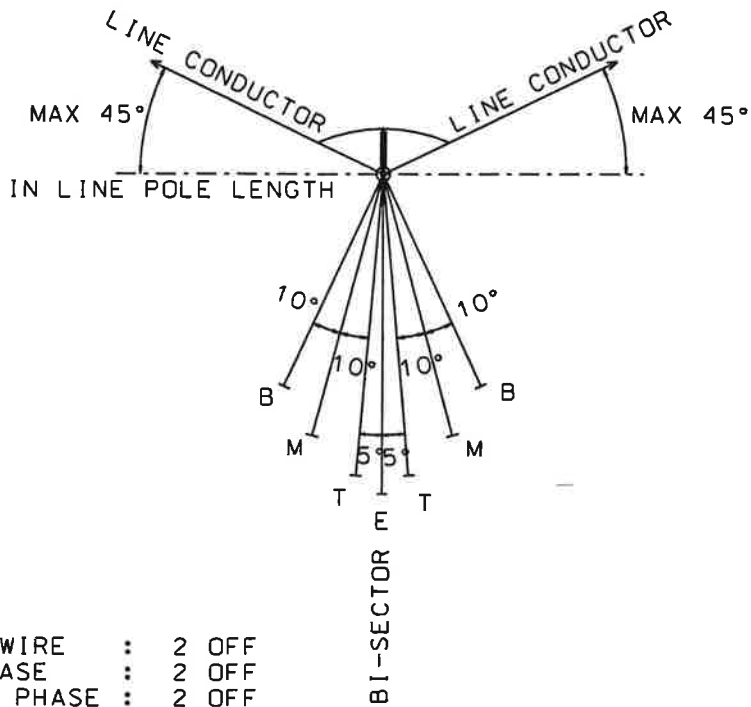


AUTH: A BEKKER
 DATE: JAN 2004
 CHKD: RAB
 DATE: JAN 2004
 DRAWN: LMP
 DATE: NOV 1998

DISTRIBUTION TECHNOLOGY
 RETICULATION/SUB-TRANSMISSION LINES
 STAYED ANGLE STRAIN STRUCTURE
 GENERAL ARRANGEMENT (0-90°)

D-DT 7615

| | | |
|-----|-------|----------|
| SET | SHEET | REVISION |
| 3 | 1 | 3 |



- 8 STAYS
 E) EARTH WIRE : 2 OFF
 T) TOP PHASE : 2 OFF
 M) MIDDLE PHASE : 2 OFF
 B) BOTTOM PHASE : 2 OFF

TOP VIEW

STAY ARRANGEMENT FOR STAYED STRUCTURES

| DESIGN REQUIREMENTS | | | SCHEDULE FOR CONDUCTOR ATTACHMENT HEIGHTS | | | |
|---------------------|------------------|---------------------|---|------|------|------|
| POLE LENGTH L | TIP LOAD (kN) | PLANTING DEPTH P | C A H (m AGL) | | | |
| | | | E | T | M | B |
| 18 | 23 | 2.0 | 16.0 | 14.6 | 12.8 | 11.0 |
| 19 | 23 | 2.0 | 17.0 | 15.6 | 13.8 | 12.0 |
| 20 | 23 | 2.0 | 18.0 | 16.6 | 14.8 | 13.0 |
| 21 | 23 | 2.0 | 19.0 | 17.6 | 15.8 | 14.0 |
| 22 | 23 | 2.0 | 20.0 | 18.6 | 16.8 | 15.0 |
| 23 | 23 | 2.0 | 21.0 | 19.6 | 17.8 | 16.0 |
| 24 | 23 | 2.0 | 22.0 | 20.6 | 18.8 | 17.0 |

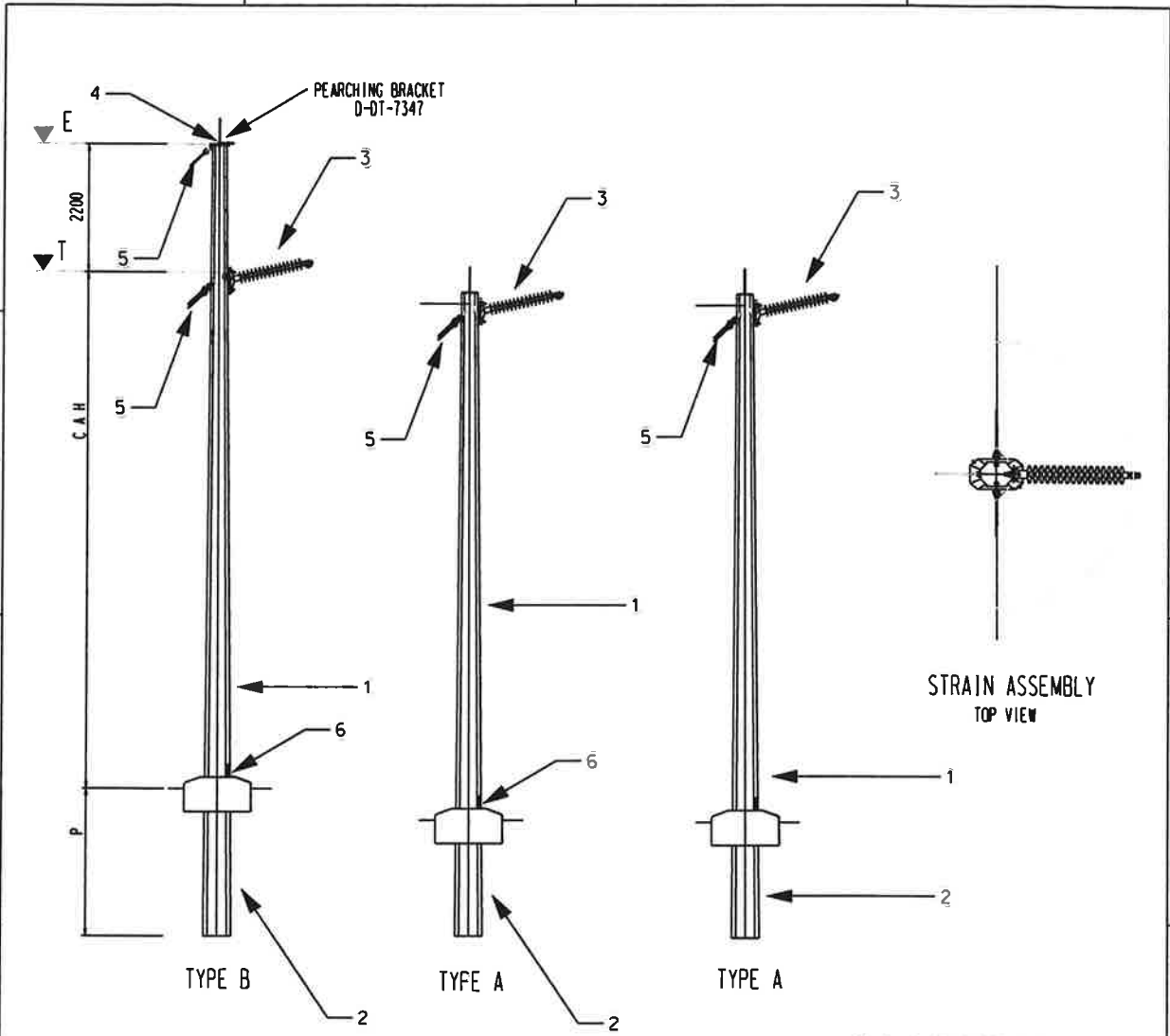
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|-----|---|----------|------------|-------------|------------|-------------|
| 3 | SHEET 3 ITEM 2 FOUNDATION DRG. NO.5 CORRECTED | P. A. T. | S. MASHABA | B. BRANFELD | 19.03.2010 | |
| 2 | DRG SHT UPDATED. REFERENCES REVISED. GENERAL REVISION | SLR | RAB | AB | MARCH 2004 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |

| | |
|--------|----------|
| | |
| AUTH: | A BEKKER |
| DATE: | JAN 2004 |
| CHKD: | RAB |
| DATE: | JAN 2004 |
| DRAWN: | LMP |
| DATE: | NOV 1998 |

DISTRIBUTION TECHNOLOGY
 RETICULATION/SUB-TRANSMISSION LINES
 STAYED ANGLE STRAIN STRUCTURE
 DESIGN CRITERIA & STAYS (0-90°)

D-DT 7615

| | | |
|-----|-------|----------|
| SET | SHEET | REVISION |
| 3 | 2 | 3 |



NOTE:
 1 THESE 3 POLES CAN BE USED AS AN UNSTAYED INTERMEDIATE STRUCTURE (0°) OR A STAYED INTERMEDIATE ANGLE STRUCTURE (11-20°) OR A STAYED ANGLE STRAIN STRUCTURE (0-90°).

POLE AND CONDUCTOR SCHEDULE (m)

| C A H | | PLANTING DEPTH | POLE LENGTH | |
|-------|------|----------------|-------------|--------|
| T | E | P | TYPE A | TYPE B |
| 6.2 | 8.4 | 1.6 | 8 | 10 |
| 7.1 | 9.3 | 1.7 | 9 | 11 |
| 8.0 | 10.2 | 1.8 | 10 | 12 |
| 8.9 | 11.1 | 1.9 | 11 | 13 |
| 9.8 | 12.0 | 2.0 | 12 | 14 |
| 10.7 | 12.9 | 2.1 | 13 | 15 |
| 11.6 | 13.8 | 2.2 | 14 | 16 |
| 12.5 | 14.7 | 2.3 | 15 | 17 |
| 13.4 | 15.6 | 2.4 | 16 | 18 |
| 14.3 | 16.5 | 2.5 | 17 | 19 |
| 15.2 | 17.4 | 2.6 | 18 | 20 |
| 16.1 | 18.3 | 2.7 | 19 | 21 |

| 2 | DRG SHT UPDATED, REFERENCES REVISED, GENERAL REVISION | PBM | SLR | A BEKKER | SEP 2005 | |
|-----|---|-----|------|----------|----------|-------------|
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |

| | | | |
|---|---|-------|----------|
| <p>Eskom Distribution</p> <p>AUTH: A BEKKER</p> <p>DATE: JAN 2004</p> <p>CHKD: RAB</p> <p>DATE: JAN 2004</p> <p>DRAWN: LMP</p> <p>DATE: 22/11/1998</p> | <p>DISTRIBUTION TECHNOLOGY</p> <p>RETICULATION/ SUB-TRANSMISSION LINES</p> <p>88/132kV 3-POLE STRAIN STRUCTURE (0-90°)</p> <p>GENERAL ARRANGEMENT</p> | | |
| | D-DT 7618 | | |
| | SET | SHEET | REVISION |
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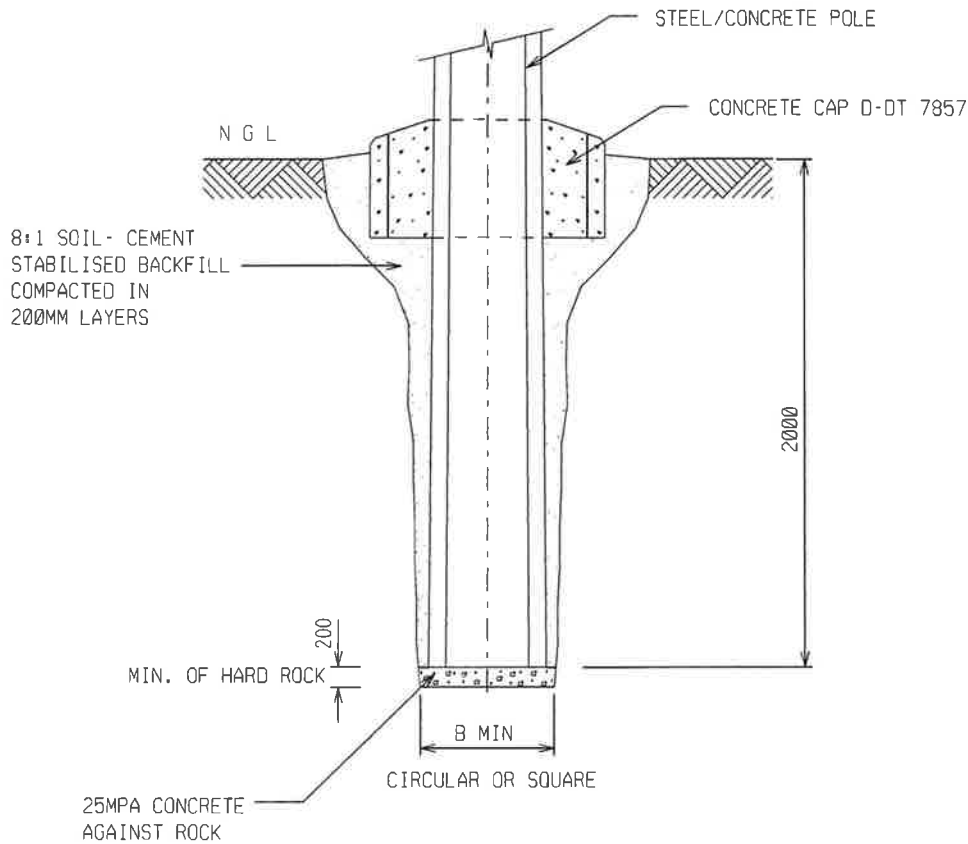
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STRAIN STRUCTURE FOUNDATION
FOR ROCK AND SOFT ROCK (MIN 500KPA)

| 37kN & 23kN TIP LOADS | POLE | PLANTING | B | EXCAVATION | BACKFILL | 25MPa |
|-----------------------|------------|-------------|------|-----------------------|----------------------------|-------------------------|
| | LENGTH (m) | DEPTH D (M) | (m) | VOLUME m ³ | SOIL/CEMENT m ³ | CONCRETE m ³ |
| | 20 | 2.0 | 0.70 | 1.27 | 0.796 | 0.077 |
| | 21 | 2.0 | 0.75 | 1.37 | 0.807 | 0.088 |
| | 22 | 2.0 | 0.80 | 1.48 | 0.853 | 0.101 |
| | 23 | 2.0 | 0.85 | 1.59 | 0.934 | 0.114 |
| 24 | 2.0 | 0.90 | 1.72 | 0.999 | 0.123 | |

NOTE: VOLUMES ARE APPROXIMATE ONLY
"B" DIMS ARE MINIMUM TO FIT POLE INTO EXCAVATION

| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |
|-----|---|------|--------|--------|----------|-------------|
| 2 | RETICULATION REMOVED FROM TITLE BLOCK | N.M. | P.A.T. | P.A.T. | 31.01.10 | |
| 1 | STEEL POLE CHANGED TO STEEL/CONCRETE POLE | N.M. | B.HILL | B.HILL | 05.08.08 | |



AUTH: A BEKKER

DATE: NOV 2005

CHKD: S LE ROUX

DATE: NOV 2005

DRAWN: B MOICHELA

DATE: OCT 2005

DISTRIBUTION TECHNOLOGY
SUB-TRANSMISSION LINES
MONOPOLE STAYED STRAIN STRUCTURE
0-90 DEGREES FOUNDATION DETAILS-ROCK

D DT 7851

SET SHEET REVISION

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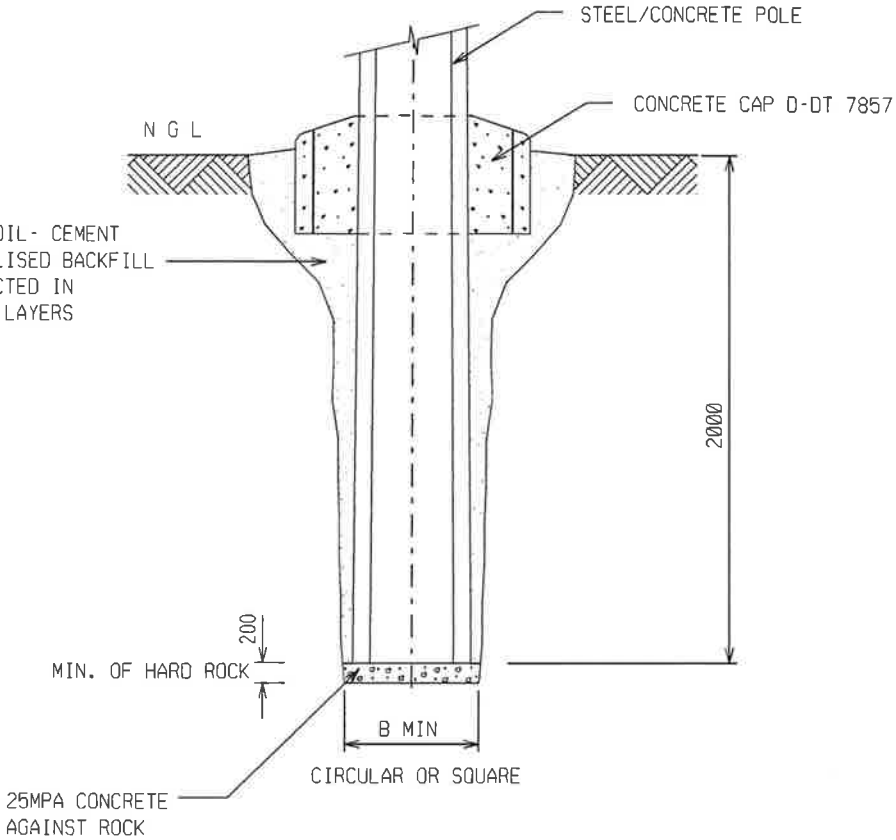
E

E

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8:1 SOIL - CEMENT
STABILISED BACKFILL
COMPACTED IN
200MM LAYERS



STRAIN STRUCTURE FOUNDATION
FOR ROCK AND SOFT ROCK (MIN 500KPA)

| 37kN & 23kN TIP LOADS | POLE | PLANTING | B | EXCAVATION | BACKFILL | 25MPa |
|-----------------------|------------|-------------|------|-----------------------|----------------------------|-------------------------|
| | LENGTH (m) | DEPTH D (M) | (m) | VOLUME m ³ | SOIL/CEMENT m ³ | CONCRETE m ³ |
| | 20 | 2.0 | 0.70 | 1.27 | 0.796 | 0.077 |
| | 21 | 2.0 | 0.75 | 1.37 | 0.807 | 0.088 |
| | 22 | 2.0 | 0.80 | 1.48 | 0.853 | 0.101 |
| | 23 | 2.0 | 0.85 | 1.59 | 0.934 | 0.114 |
| | 24 | 2.0 | 0.90 | 1.72 | 0.999 | 0.123 |

NOTE: VOLUMES ARE APPROXIMATE ONLY
"B" DIMS ARE MINIMUM TO FIT POLE INTO EXCAVATION

| | | | | | | |
|-----|---|------|--------|--------|----------|-------------|
| 2 | RETICULATION REMOVED FROM TITLE BLOCK | N.M. | P.A.T. | P.A.T. | 31.01.10 | |
| 1 | STEEL POLE CHANGED TO STEEL/CONCRETE POLE | N.M. | B.HILL | B.HILL | 05.08.08 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |

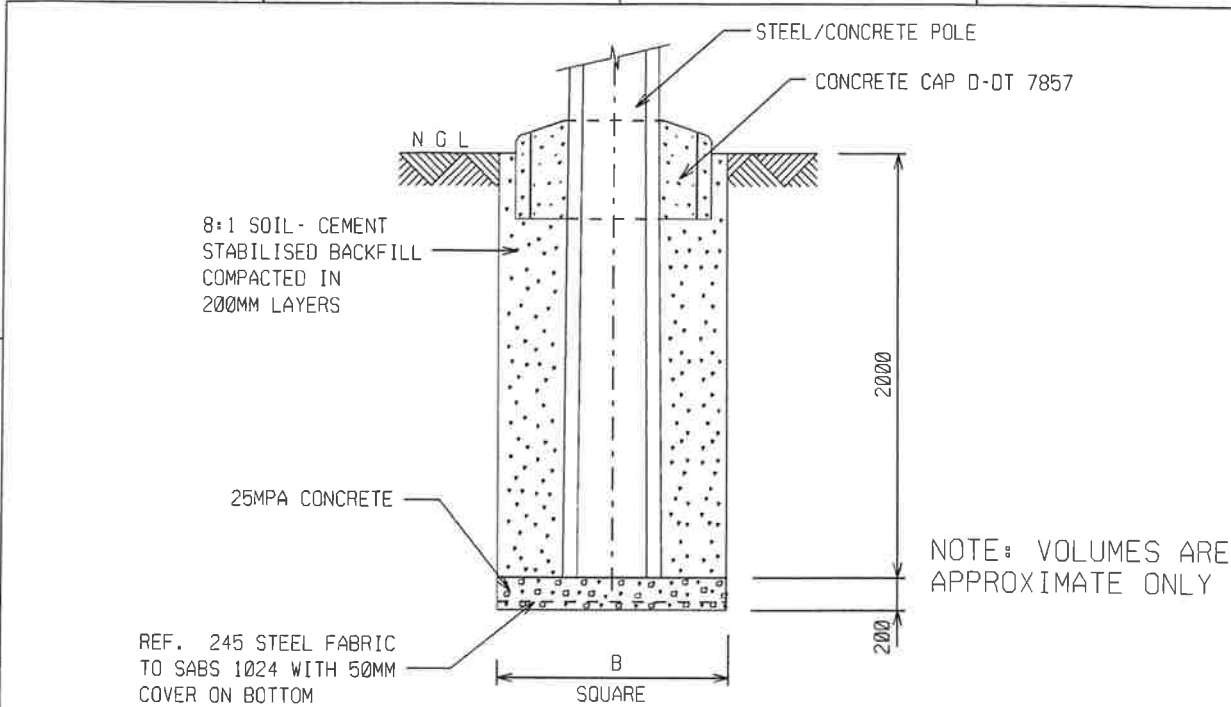


| | |
|--------|------------|
| AUTH: | A BEKKER |
| DATE: | NOV 2005 |
| CHKD: | S LE ROUX |
| DATE: | NOV 2005 |
| DRAWN: | B MOICHELA |
| DATE: | OCT 2005 |

DISTRIBUTION TECHNOLOGY
SUB-TRANSMISSION LINES
MONOPOLE STAYED STRAIN STRUCTURE
0-90 DEGREES FOUNDATION DETAILS-ROCK

| | | | |
|-----------|-----|-------|----------|
| D DT 7851 | SET | SHEET | REVISION |
| | 5 | 1 | 2 |

1 2 3 4 A4L



STRAIN STRUCTURE FOUNDATION
FOR INTERMEDIATE SOIL TYPE 2 (150KPA)

| | POLE LENGTH (m) | PLANTING DEPTH D (m) | B (m) | EXCAVATION VOLUME m ³ | BACKFILL SOIL/CEMENT m ³ | 25MPa CONCRETE m ³ |
|------------|-----------------|----------------------|-------|----------------------------------|-------------------------------------|-------------------------------|
| 0-30 DEG. | 20 | 2.0 | 1.0 | 2.2 | 1.027 | 0.2 |
| | 21 | 2.0 | 1.0 | 2.2 | 0.949 | 0.2 |
| | 22 | 2.0 | 1.0 | 2.2 | 0.898 | 0.2 |
| | 23 | 2.0 | 1.0 | 2.2 | 0.875 | 0.2 |
| | 24 | 2.0 | 1.0 | 2.2 | 0.830 | 0.2 |
| 31-60 DEG. | 20 | 2.0 | 1.4 | 4.312 | 2.940 | 0.392 |
| | 21 | 2.0 | 1.4 | 4.312 | 2.869 | 0.392 |
| | 22 | 2.0 | 1.4 | 4.312 | 2.818 | 0.392 |
| | 23 | 2.0 | 1.4 | 4.312 | 2.795 | 0.392 |
| | 24 | 2.0 | 1.4 | 4.312 | 2.750 | 0.392 |
| 61-90 DEG. | 20 | 2.0 | 1.6 | 5.632 | 4.267 | 0.512 |
| | 21 | 2.0 | 1.6 | 5.632 | 4.189 | 0.512 |
| | 22 | 2.0 | 1.6 | 5.632 | 4.138 | 0.512 |
| | 23 | 2.0 | 1.6 | 5.632 | 4.115 | 0.512 |
| | 24 | 2.0 | 1.6 | 5.632 | 4.070 | 0.512 |

| | | | | | | |
|-----|---|------|--------|--------|----------|-------------|
| 2 | RETICULATION REMOVED FROM TITLE BLOCK | N.M. | P.A.T. | P.A.T. | 31.01.10 | |
| 1 | STEEL POLE CHANGED TO STEEL/CONCRETE POLE | N.M. | B.HILL | B.HILL | 05.08.08 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |

Eskom Distribution

AUTH: A BEKKER

DATE: NOV 2005

CHKD: S LE ROUX

DATE: NOV 2005

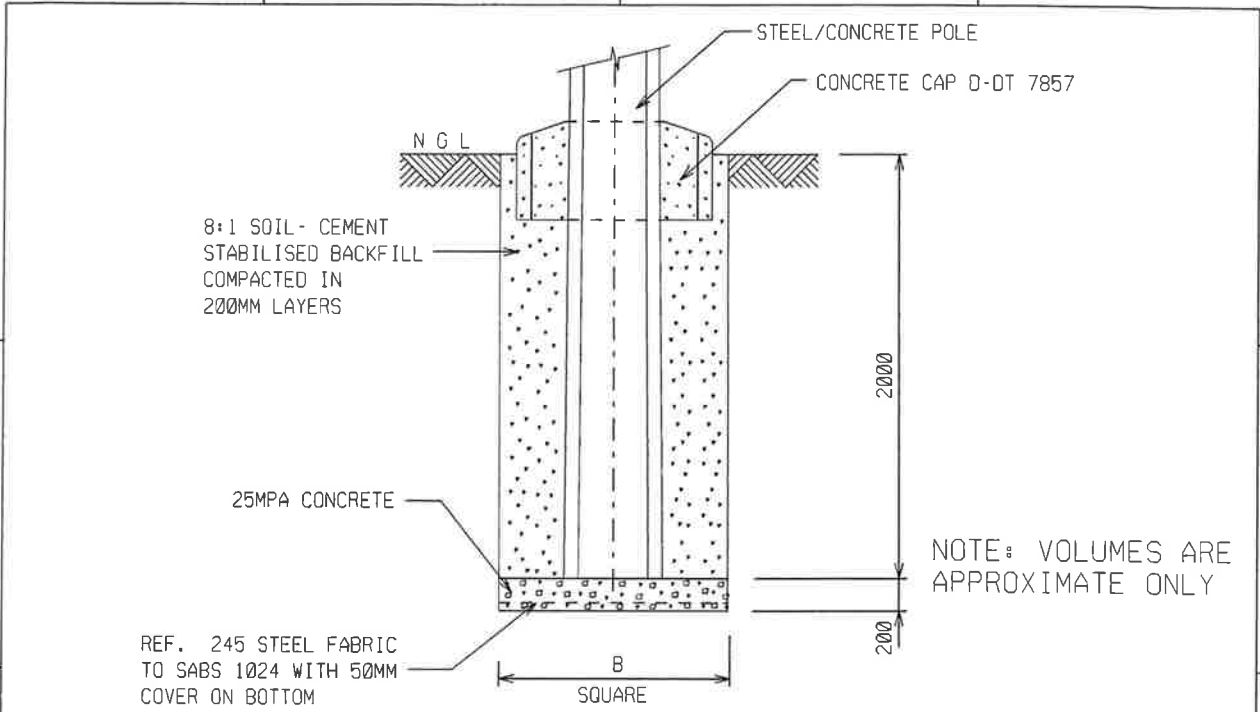
DRAWN: B MCICHELA

DATE: OCT 2005

DISTRIBUTION TECHNOLOGY
SUB-TRANSMISSION LINES
MCNOPOLE STAYED STRAIN STRUCTURE
0-9 DEGREES FOUNDATION DETAILS-150KPA

D DT 7851

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|-----|-------|----------|
| SET | SHEET | REVISION |
| 5 | 3 | 2 |



STRAIN STRUCTURE FOUNDATION
FOR INTERMEDIATE SOIL TYPE 2 (150KPA)

| | POLE LENGTH (m) | PLANTING DEPTH D (m) | B (m) | EXCAVATION VOLUME m ³ | BACKFILL SOIL/CEMENT m ³ | 25MPa CONCRETE m ³ |
|------------|-----------------|----------------------|-------|----------------------------------|-------------------------------------|-------------------------------|
| 0-30 DEG. | 20 | 2.0 | 1.0 | 2.2 | 1.027 | 0.2 |
| | 21 | 2.0 | 1.0 | 2.2 | 0.949 | 0.2 |
| | 22 | 2.0 | 1.0 | 2.2 | 0.898 | 0.2 |
| | 23 | 2.0 | 1.0 | 2.2 | 0.875 | 0.2 |
| | 24 | 2.0 | 1.0 | 1.0 | 2.2 | 0.830 |
| 31-60 DEG. | 20 | 2.0 | 1.4 | 4.312 | 2.940 | 0.392 |
| | 21 | 2.0 | 1.4 | 4.312 | 2.869 | 0.392 |
| | 22 | 2.0 | 1.4 | 4.312 | 2.818 | 0.392 |
| | 23 | 2.0 | 1.4 | 4.312 | 2.795 | 0.392 |
| | 24 | 2.0 | 1.4 | 1.4 | 4.312 | 2.750 |
| 61-90 DEG. | 20 | 2.0 | 1.6 | 5.632 | 4.267 | 0.512 |
| | 21 | 2.0 | 1.6 | 5.632 | 4.189 | 0.512 |
| | 22 | 2.0 | 1.6 | 5.632 | 4.138 | 0.512 |
| | 23 | 2.0 | 1.6 | 5.632 | 4.115 | 0.512 |
| | 24 | 2.0 | 1.6 | 1.6 | 5.632 | 4.070 |

| | | | | | | |
|-----|---|------|--------|--------|----------|-------------|
| 2 | RETICULATION REMOVED FROM TITLE BLOCK | N.M. | P.A.T. | P.A.T. | 31.01.12 | |
| 1 | STEEL POLE CHANGED TO STEEL/CONCRETE POLE | N.M. | B.HILL | B.HILL | 05.08.08 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |



| | |
|--------|------------|
| AUTH: | A BEKKER |
| DATE: | NOV 2005 |
| CHKD: | S LE ROUX |
| DATE: | NOV 2005 |
| DRAWN: | 3 MCICHELA |
| DATE: | OCT 2005 |

DISTRIBUTION TECHNOLOGY
SUB-TRANSMISSION LINES
MONOPOLE STAYED STRAIN STRUCTURE
0-9 DEGREES FOUNDATION DETAILS-150KPA

| | | | |
|-----------|-----|-------|----------|
| | SET | SHEET | REVISION |
| D DT 7851 | 5 | 3 | 2 |

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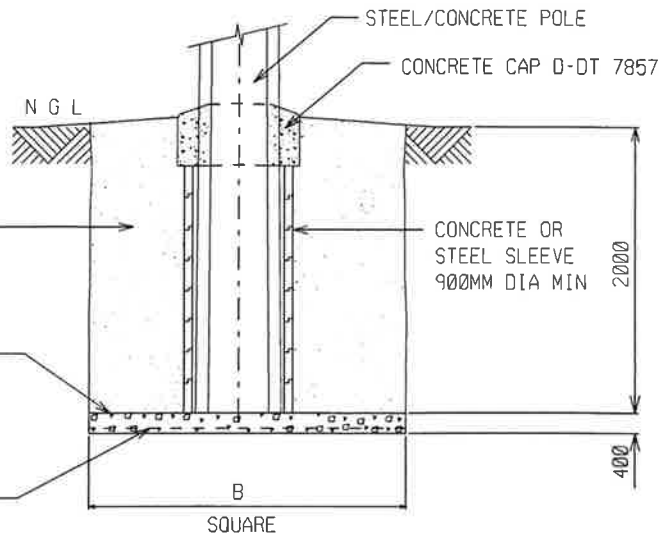
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8:1 SOIL-CEMENT
STABILISED BACKFILL
COMPACTED IN
200MM LAYERS

25MPa CONCRETE

REF. 245 STEEL FABRIC
TO SABS 1024 WITH 50MM
COVER ON BOTTOM



B

B

STRAIN STRUCTURE FOUNDATION
FOR SUBMERGED, COHESIONLESS SOIL TYPE 4 (50KPA)

C

C

| | POLE LENGTH (m) | PLANTING DEPTH D (m) | B (m) | EXCAVATION VOLUME m ³ | BACKFILL SOIL/CEMENT m ³ | 25MPa CONCRETE m ³ |
|------------|-----------------|----------------------|-------|----------------------------------|-------------------------------------|-------------------------------|
| 0-30 DEG. | 20 | 2.0 | 1.8 | 7.776 | 5.507 | 1.296 |
| | 21 | 2.0 | 1.8 | 7.776 | 5.429 | 1.296 |
| | 22 | 2.0 | 1.8 | 7.776 | 5.378 | 1.296 |
| | 23 | 2.0 | 1.8 | 7.776 | 5.355 | 1.296 |
| | 24 | 2.0 | 1.8 | 1.8 | 7.776 | 5.31 |
| 31-60 DEG. | 20 | 2.0 | 2.4 | 13.824 | 10.548 | 2.304 |
| | 21 | 2.0 | 2.4 | 13.824 | 10.469 | 2.304 |
| | 22 | 2.0 | 2.4 | 13.824 | 10.418 | 2.304 |
| | 23 | 2.0 | 2.4 | 13.824 | 10.395 | 2.304 |
| | 24 | 2.0 | 2.4 | 2.4 | 13.824 | 10.35 |
| 61-90 DEG. | 20 | 2.0 | 2.7 | 17.496 | 13.607 | 2.916 |
| | 21 | 2.0 | 2.7 | 17.496 | 13.529 | 2.916 |
| | 22 | 2.0 | 2.7 | 17.496 | 13.478 | 2.916 |
| | 23 | 2.0 | 2.7 | 17.496 | 13.455 | 2.916 |
| | 24 | 2.0 | 2.7 | 2.7 | 17.496 | 13.41 |

E

E

NOTE: VOLUMES ARE APPROXIMATE ONLY

| | | | | | | |
|-----|---|------|--------|--------|----------|-------------|
| 2 | RETICULATION REMOVED FROM TITLE BLOCK | N.M. | P.A.T. | P.A.T. | 31.01.12 | |
| 1 | STEEL POLE CHANGED TO STEEL/CONCRETE POLE | N.M. | B.HILL | B.HILL | 05.08.08 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |



AUTH: A BEKKER

DATE: NOV 2005

CHKD: S LE ROUX

DATE: NOV 2005

DRAWN: B MCTCHELA

DATE: OCT 2005

DISTRIBUTION TECHNOLOGY
SUB-TRANSMISSION LINES
MONOPOLE STAYED STRAIN STRUCTURE
0-90 DEGREES FOUNDATION DETAILS-50KPA

D DT 7851

SET SHEET REVISION

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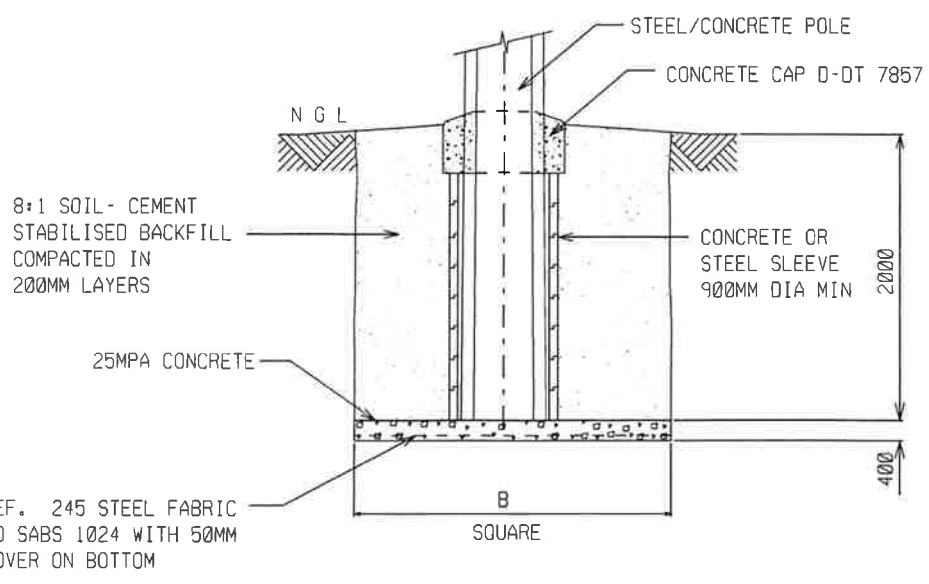
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B

B

STRAIN STRUCTURE FOUNDATION
FOR SUBMERGED, COHESIONLESS SOIL TYPE 4 (50KPA)

C

C

| | POLE LENGTH (m) | PLANTING DEPTH D (m) | B (m) | EXCAVATION VOLUME m ³ | BACKFILL SOIL/CEMENT m ³ | 25MPa CONCRETE m ³ |
|------------|-----------------|----------------------|-------|----------------------------------|-------------------------------------|-------------------------------|
| 0-30 DEG. | 20 | 2.0 | 1.8 | 7.776 | 5.507 | 1.296 |
| | 21 | 2.0 | 1.8 | 7.776 | 5.429 | 1.296 |
| | 22 | 2.0 | 1.8 | 7.776 | 5.378 | 1.296 |
| | 23 | 2.0 | 1.8 | 7.776 | 5.355 | 1.296 |
| | 24 | 2.0 | 1.8 | 1.8 | 7.776 | 5.31 |
| 31-60 DEG. | 20 | 2.0 | 2.4 | 13.824 | 10.548 | 2.304 |
| | 21 | 2.0 | 2.4 | 13.824 | 10.469 | 2.304 |
| | 22 | 2.0 | 2.4 | 13.824 | 10.418 | 2.304 |
| | 23 | 2.0 | 2.4 | 13.824 | 10.395 | 2.304 |
| | 24 | 2.0 | 2.4 | 2.4 | 13.824 | 10.35 |
| 61-90 DEG. | 20 | 2.0 | 2.7 | 17.496 | 13.607 | 2.916 |
| | 21 | 2.0 | 2.7 | 17.496 | 13.529 | 2.916 |
| | 22 | 2.0 | 2.7 | 17.496 | 13.478 | 2.916 |
| | 23 | 2.0 | 2.7 | 17.496 | 13.455 | 2.916 |
| | 24 | 2.0 | 2.7 | 2.7 | 17.496 | 13.41 |

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NOTE: VOLUMES ARE APPROXIMATE ONLY

| | | | | | | |
|-----|---|------|--------|--------|----------|-------------|
| 2 | RETICULATION REMOVED FROM TITLE BLOCK | N.M. | P.A.T. | P.A.T. | 31.08.08 | |
| 1 | STEEL POLE CHANGED TO STEEL/CONCRETE POLE | N.M. | B.HILL | B.HILL | 05.08.08 | |
| REV | REVISION DESCRIPTION | BY | CHKD | AUTH | DATE | PROJECT NO. |



| | |
|--------|------------|
| AUTH: | A BEKKER |
| DATE: | NOV 2005 |
| CHKD: | S LE ROUX |
| DATE: | NOV 2005 |
| DRAWN: | B MCICHELA |
| DATE: | OCT 2005 |

DISTRIBUTION TECHNOLOGY
SUB-TRANSMISSION LINES
MONOPOLE STAYED STRAIN STRUCTURE
0-90 DEGREES FOUNDATION DETAILS-50KPA

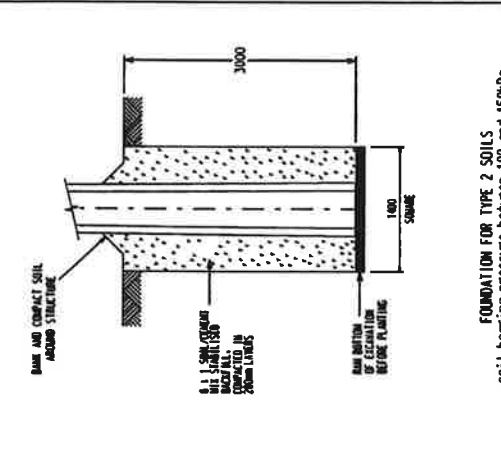
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| SET | SHEET | REVISION |
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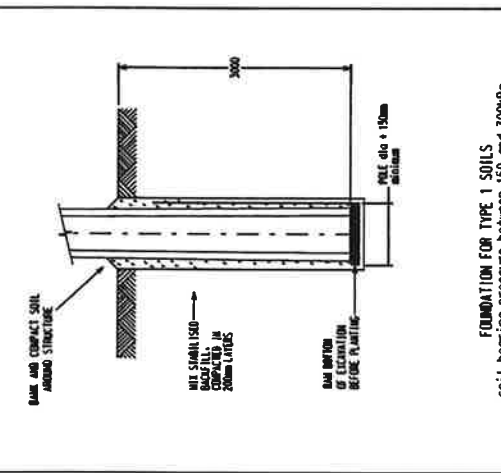
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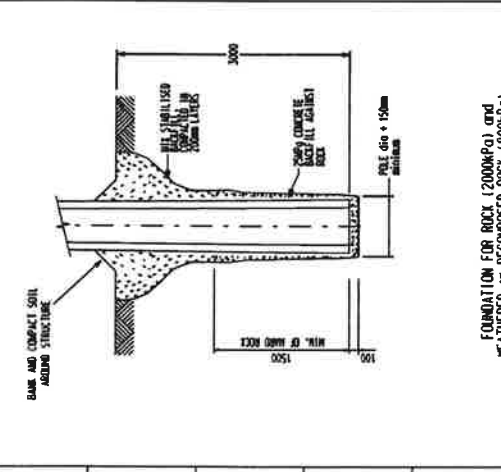
- Notes:**
1. The hole size must be at least 150mm greater on both sides than the appropriate dimension of the structure with enough clearance for proper compaction.
 2. The SOIL TYPE is to be specified as part of the Design Document. If the soil type is found to be substantially different during the excavation than the Project Engineer is to be consulted.
 3. The excavation for the structure is to be centred on the peg and the structure is to be positioned in the excavation in the designated position.
 4. The stay rod is to come out of the ground. The excavation for the stay plate is to be set out accordingly.
 5. If satisfactory soil is not available from the excavation, suitable backfill shall be imported.
 6. It is essential that a proof test hole be made for each soil type, backfilled and tested by the construction team to prove the backfill and compaction methods.
 7. Compaction will be tested on a random basis; compaction that does not comply shall be redone.
 8. The concrete pipes are not essential as they are intended as a construction aid.



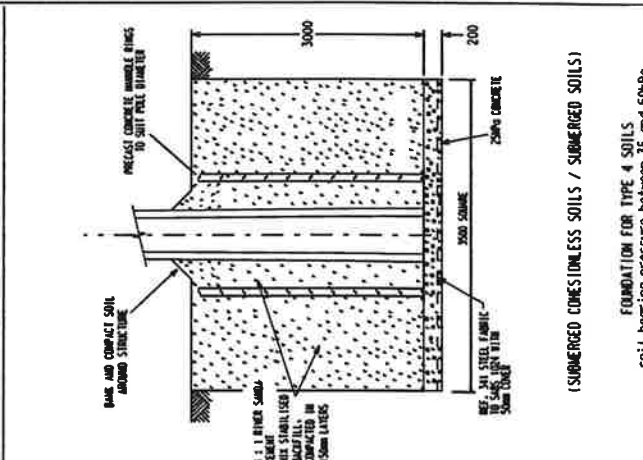
FOUNDATION FOR TYPE 2 SOILS
soil bearing pressure between 100 and 150kPa



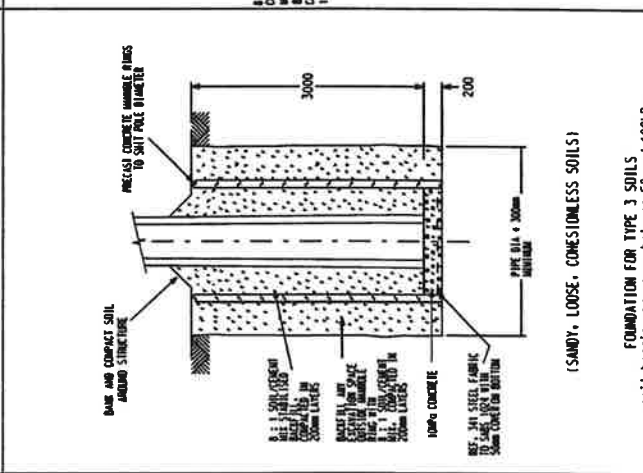
FOUNDATION FOR TYPE 1 SOILS
soil bearing pressure between 150 and 300kPa



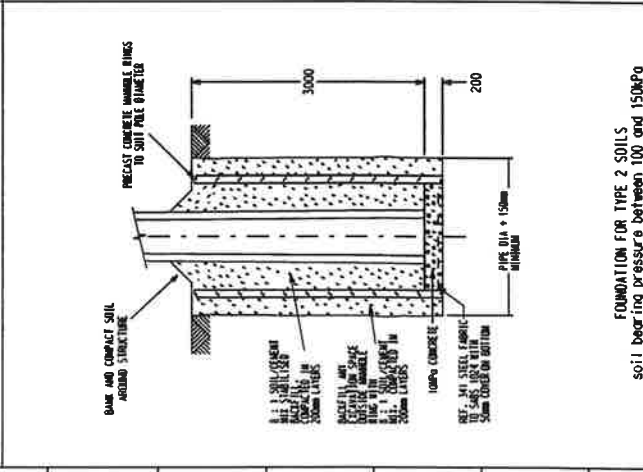
FOUNDATION FOR ROCK (2000kPa) and WEATHERED or DECOMPOSED ROCK (800kPa)



FOUNDATION FOR TYPE 4 SOILS
soil bearing pressure between 35 and 50kPa



FOUNDATION FOR TYPE 3 SOILS
soil bearing pressure between 50 and 100kPa



FOUNDATION FOR TYPE 2 SOILS
soil bearing pressure between 100 and 150kPa (Alternative)

| SOIL TYPE | SOIL BEARING PRESSURE | |
|-----------|-----------------------|-----|
| | From | To |
| TYPE 1 | 150 | 300 |
| TYPE 2 | 100 | 150 |
| TYPE 3 | 50 | 100 |
| TYPE 4 | 35 | 50 |

MONOPOLE INTERMEDIATES FOUNDATIONS FOR DIFFERENT SOIL CONDITIONS USING MANHOLE RINGS

Scale: 1:100

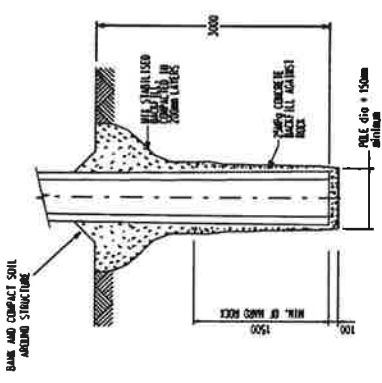
Project No.: D-WC-7600

Date: 04/02/01

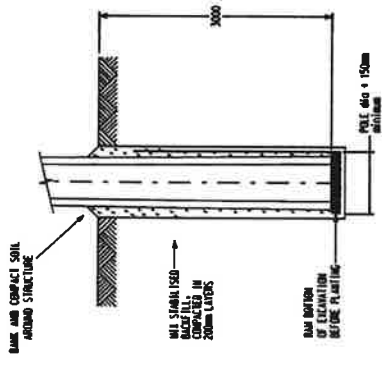
Author: R. Scott

Checked:

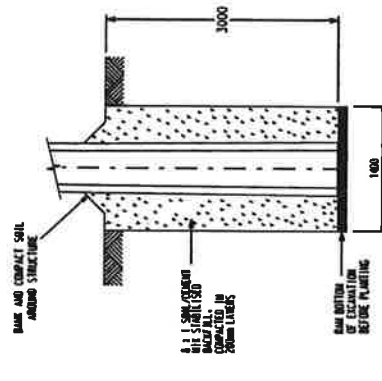
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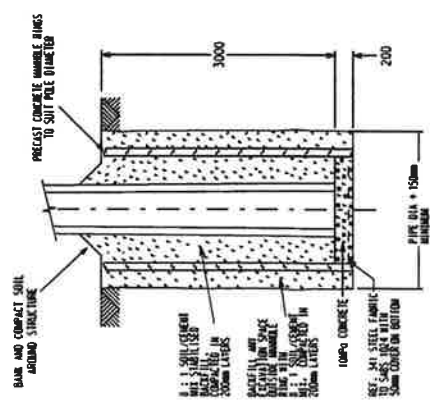
FOUNDATION FOR ROCK (2000kPa) and WEATHERED or DECOMPOSED ROCK (800kPa)



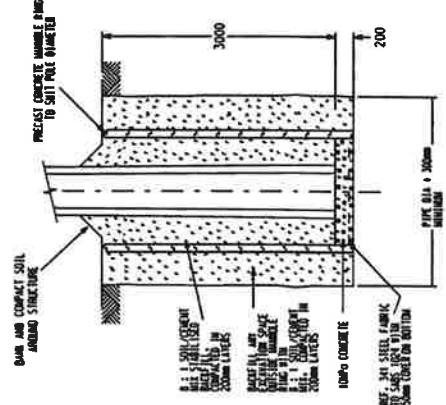
FOUNDATION FOR TYPE 1 SOILS soil bearing pressure between 150 and 300kPa



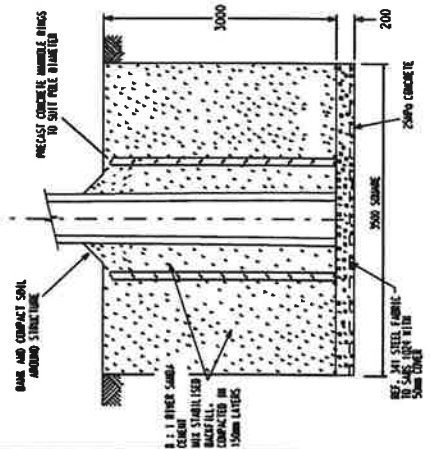
FOUNDATION FOR TYPE 2 SOILS soil bearing pressure between 100 and 150kPa



FOUNDATION FOR TYPE 2 SOILS soil bearing pressure between 100 and 150kPa (alternative)



FOUNDATION FOR TYPE 3 SOILS soil bearing pressure between 50 and 100kPa



FOUNDATION FOR TYPE 4 SOILS soil bearing pressure between 35 and 50kPa

- Notes:
- The hole size must be at least 150mm greater on both sides than the appropriate dimension of the structure with enough clearance for proper compaction.
 - The SOIL TYPE is to be specified as part of the Design Document. If the soil type is found to be substantially different during the excavation then the Project Engineer is to be consulted.
 - The excavation for the structure is to be centred on the peg and the structure is to be centred in the excavation in the designated position.
 - The pegged position of the stay is where the stay rod is to come out of the ground. The excavation for the stay plate is to be set out accordingly.
 - If satisfactory soil is not available from the excavation, suitable backfill shall be imported.
 - It is essential that a proof test hole be made for each soil type, backfilled and tested by the construction team to prove the backfill and compaction methods.
 - Compaction will be tested on a random basis; compaction that does not comply shall be redone.
 - The concrete pipes are not essential as they are intended as a construction aid.

| SOIL TYPE | SOIL BEARING PRESSURE | |
|-----------|-----------------------|-----|
| | from | to |
| TYPE 1 | 150 (kPa) | 300 |
| TYPE 2 | 100 | 150 |
| TYPE 3 | 50 | 100 |
| TYPE 4 | 35 | 50 |

MONOPOLE INTERMEDIATES FOUNDATIONS for DIFFERENT SOIL CONDITIONS USING MANDREL RINGS

D-WC-7600 04/02/01