

Approximate Scale 1:5000

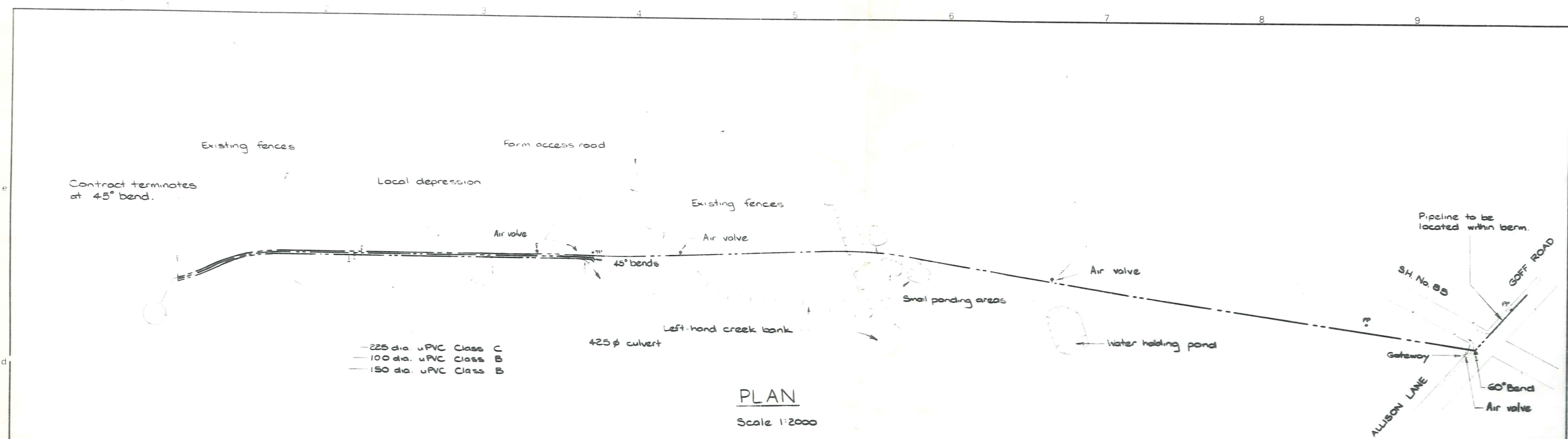
DUFFILL WATTS & KING LTD
 CONSULTING CIVIL & STRUCTURAL ENGINEERS
 Dunedin P.O. Box 5269 Ph. 777-133 Invercargill P.O. Box 576 Ph. 83-049
 Alexandra P.O. Box 313 Ph. 6819

MANIOTOTO COUNTY COUNCIL

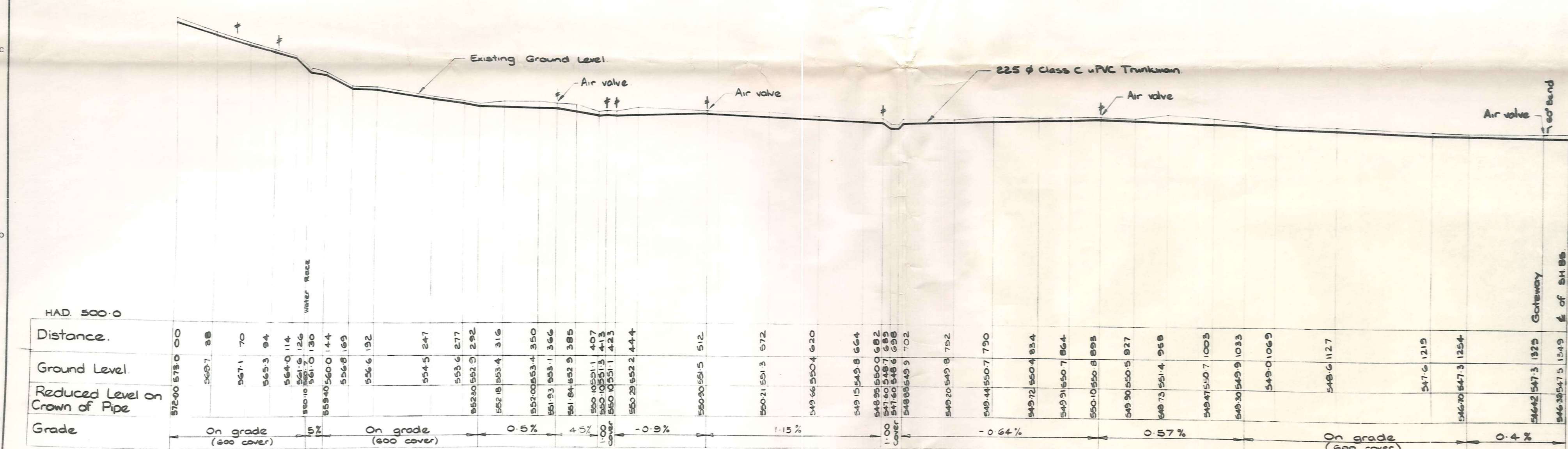
RANFURLY WATER SUPPLY
 LOCATION OF WORKS.

| AMENDMENTS | | | NAME | | DATE | JOB NO. | Sheet No | |
|------------|----|------|-------|--------------|--------------------|------------|----------|--------|
| NO | BY | DATE | Appvd | Surveyed | | | | |
| | | | | B H & J M | | 10520 | 1 | |
| | | | | Calculations | S Newlands July 84 | | | |
| | | | | Traced | J Murie | | | |
| | | | | Checked | | | | |
| | | | | Approved | | | | |
| | | | | | | File c/e/s | LB. SOB | F.B. ~ |

ORIGINAL SIZE
mm INCHES



PLAN
Scale 1:2000

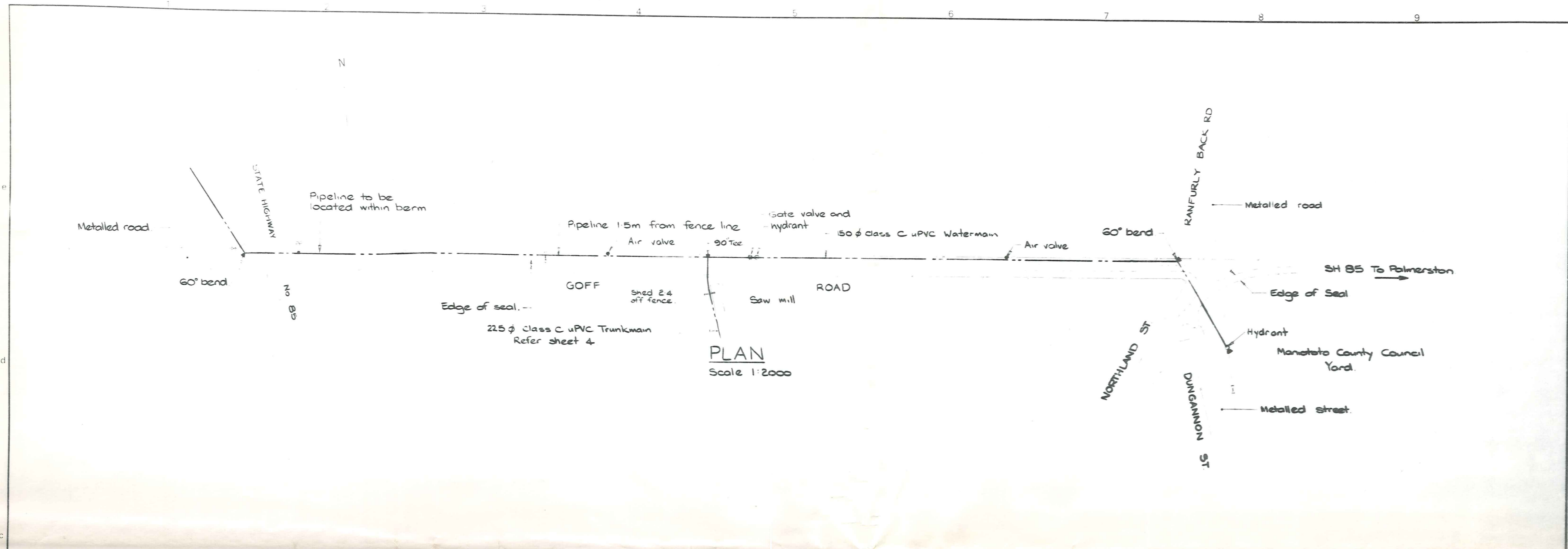


LONGITUDINAL SECTION
Scales 1:2000 H
1:500 V

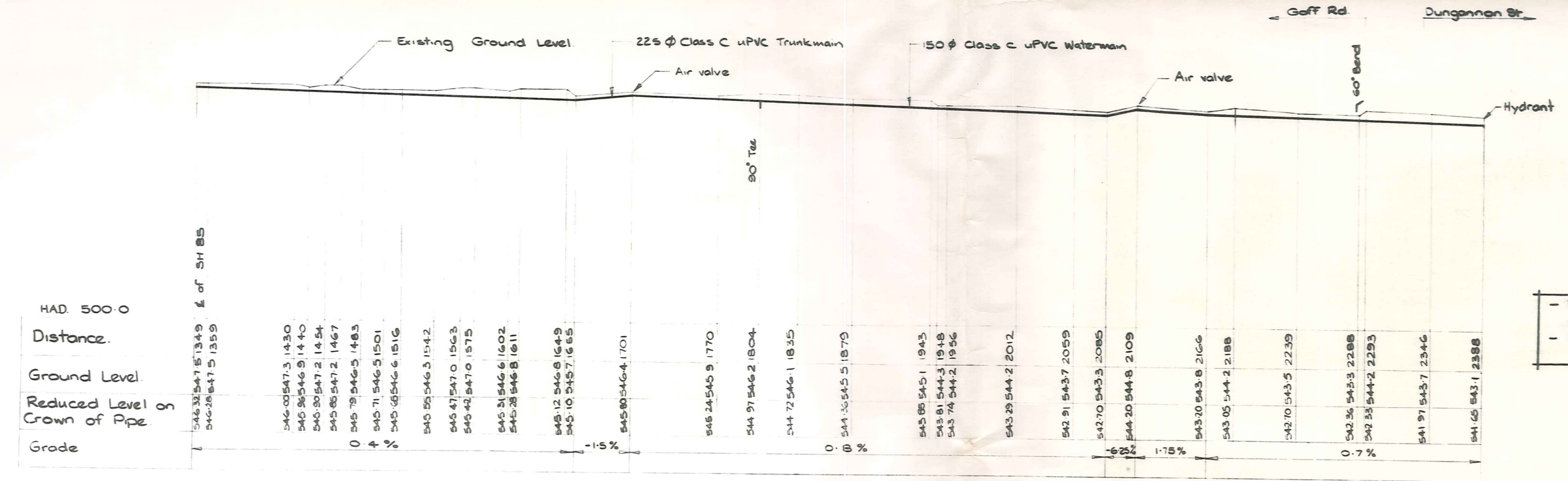
Minimum cover in all circumstances = 600mm.

| | | | | | | | |
|---|---------------------------------|---|------------|----|--|-------------------------|--------------------------------------|
| DUFFILL WATTS & KING LTD CONSULTING CIVIL & STRUCTURAL ENGINEERS Dunedin P.O. Box 5269 Ph. 777 133 Invercargill P.O. Box 576 Ph. 83 049 Alexandra P.O. Box 313 Ph. 8819 | MANIOTOTO COUNTY COUNCIL | RANFURLY WATER SUPPLY TRUNK MAIN LOCATION AND ELEVATION | AMENDMENTS | | NAME DATE Surveyed J. Mune June 84 Drawn " Calculations S. Newlands July 84 Traced J. Mune " Checked S. Munn " Approved " Appvd | JOB NO. 10520 | Sheet No. 2 of 8 sheets |
| | | | NO | BY | | | |

ORIGINAL SIZE INCHES



PLAN
Scale 1:2000



LONGITUDINAL SECTION

Scales 1:2000 H
1:500 V

HAD. 500.0

| Distance. | Ground Level. | Reduced Level on Crown of Pipe. | Grade |
|-----------|---------------|---------------------------------|------------|
| 546.32 | 547.15 | 547.15 | 1 of SH 85 |
| 546.28 | 547.5 | 547.5 | |
| 546.02 | 547.3 | 547.3 | |
| 545.98 | 546.9 | 546.9 | |
| 545.80 | 547.2 | 547.2 | |
| 545.85 | 547.2 | 547.2 | |
| 545.79 | 546.5 | 546.5 | 0 |
| 545.71 | 546.5 | 546.5 | 4 |
| 545.65 | 546.6 | 546.6 | 1.5 |
| 545.55 | 546.3 | 546.3 | |
| 545.47 | 547.0 | 547.0 | |
| 545.42 | 547.0 | 547.0 | |
| 545.31 | 546.6 | 546.6 | |
| 545.28 | 546.8 | 546.8 | |
| 545.12 | 546.8 | 546.8 | |
| 545.10 | 545.7 | 545.7 | |
| 545.00 | 546.4 | 546.4 | |
| 546.24 | 545.9 | 545.9 | 1.770 |
| 544.97 | 546.2 | 546.2 | 1.804 |
| 544.72 | 546.1 | 546.1 | 1.835 |
| 544.35 | 545.5 | 545.5 | 1.873 |
| 543.88 | 545.1 | 545.1 | 1.943 |
| 543.81 | 544.3 | 544.3 | 1.948 |
| 543.74 | 544.2 | 544.2 | 1.956 |
| 543.29 | 544.2 | 544.2 | 2.012 |
| 542.91 | 543.7 | 543.7 | 2.059 |
| 542.70 | 543.3 | 543.3 | 2.085 |
| 544.20 | 544.8 | 544.8 | 2.109 |
| 543.70 | 543.8 | 543.8 | 2.166 |
| 543.05 | 544.2 | 544.2 | 2.188 |
| 542.70 | 543.5 | 543.5 | 2.239 |
| 542.36 | 543.3 | 543.3 | 2.286 |
| 542.35 | 544.2 | 544.2 | 2.293 |
| 541.97 | 543.7 | 543.7 | 2.346 |
| 541.65 | 543.1 | 543.1 | 2.388 |

- Minimum cover under Carriageway = 800 mm
- Minimum cover elsewhere = 600 mm.

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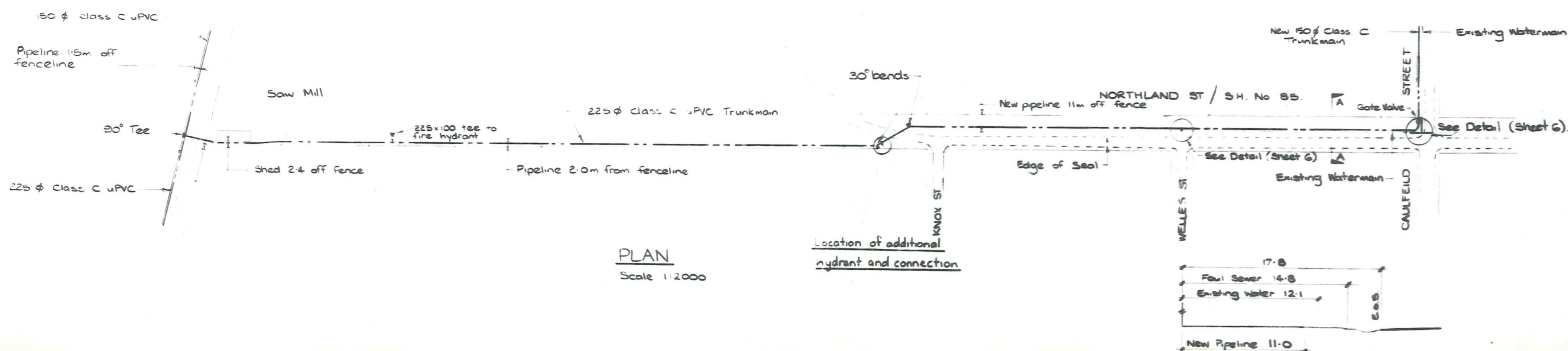
MANIOTOTO COUNTY COUNCIL

RANFURLY WATER SUPPLY TRUNK MAIN LOCATION AND ELEVATION

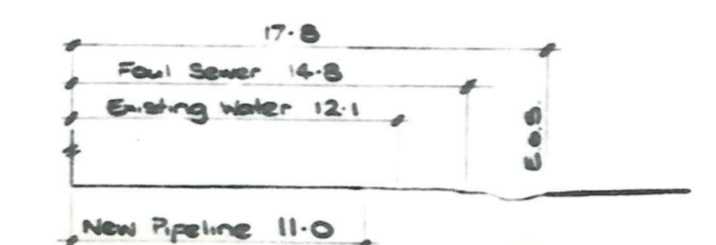
| AMENDMENTS | | | NAME | DATE | JOB NO. | Sheet No. | | |
|------------|----|------|-------|--------------|------------|-----------|------------|----------|
| NO. | BY | DATE | | | 10520 | 3 | | |
| | | | Appvd | Surveyed | | | B Hawkins | May '84 |
| | | | | Drawn | | | | |
| | | | | Calculations | | | B Newlands | July '84 |
| | | | | Traced | | | J Munn | |
| | | | | Checked | G Newlands | | | |
| | | | | Approved | | | | |

File 6/6/8 LB 508 FB ~

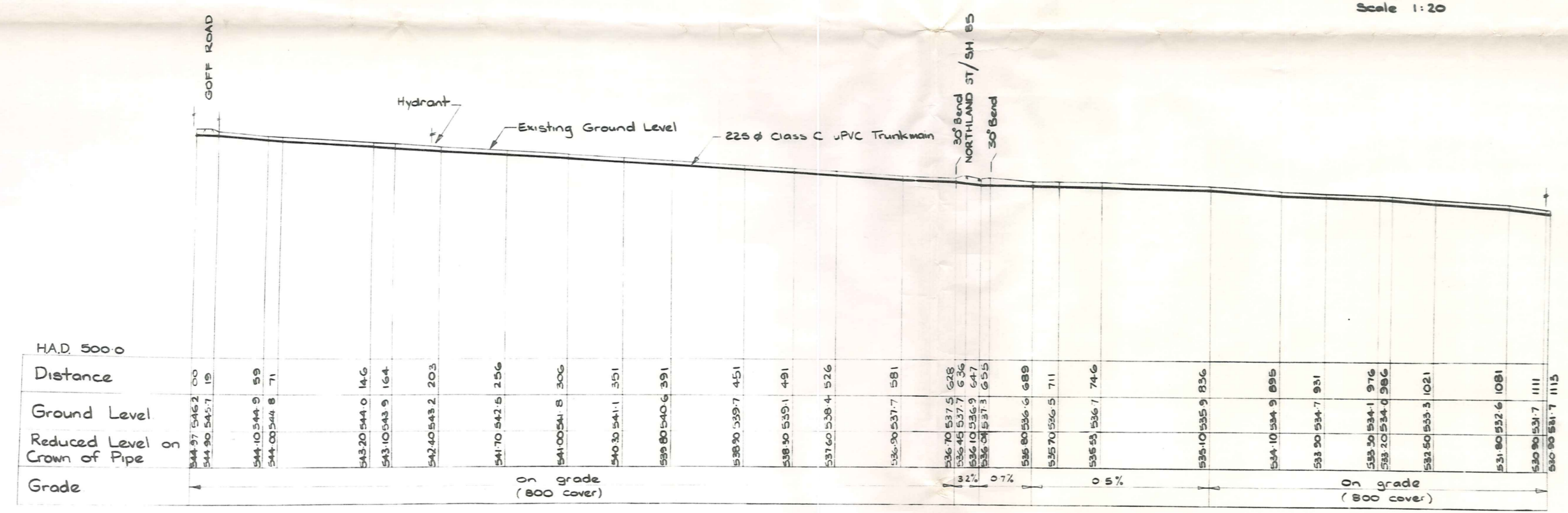
ORIGINAL SIZE
mm INCHES



PLAN
Scale 1:2000



Section A-A
Scale 1:20



LONGITUDINAL SECTION

Scales 1:2000 H
1:500 V

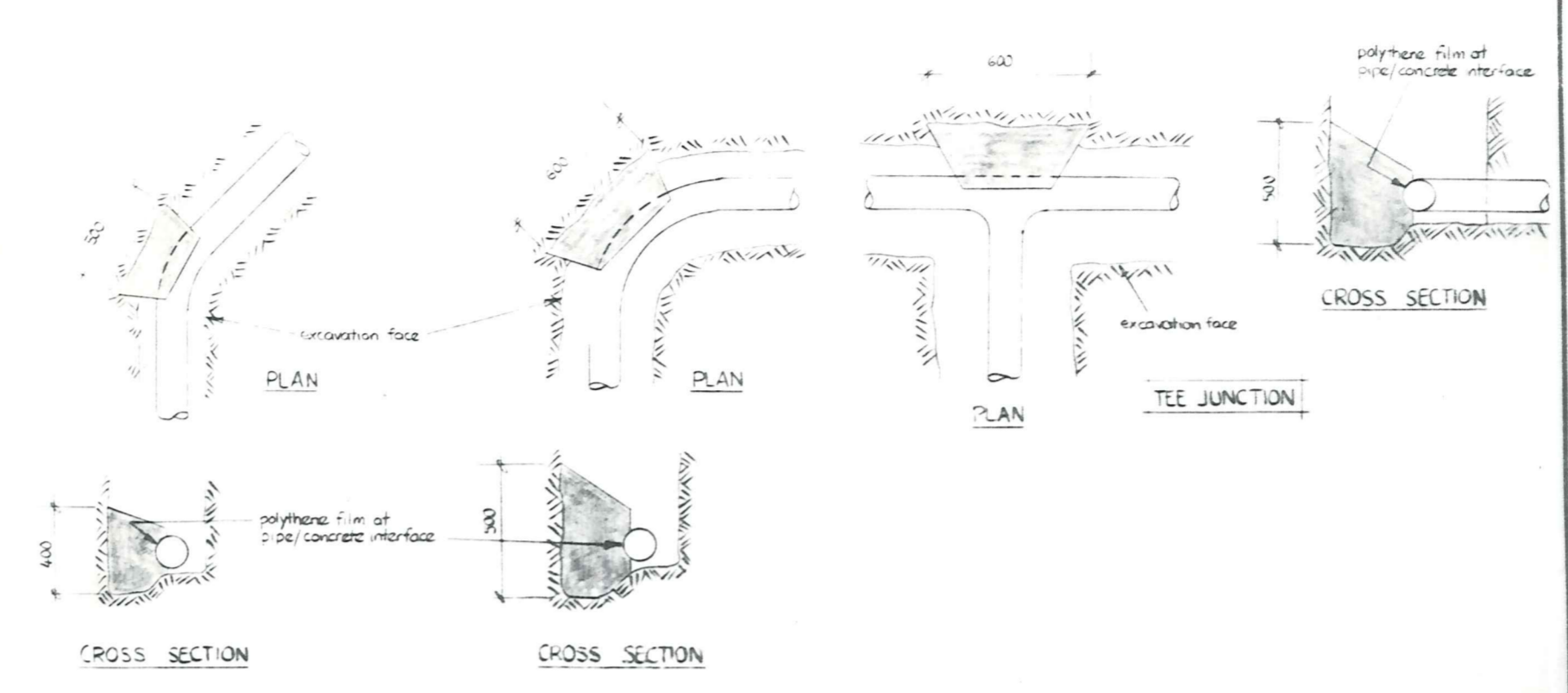
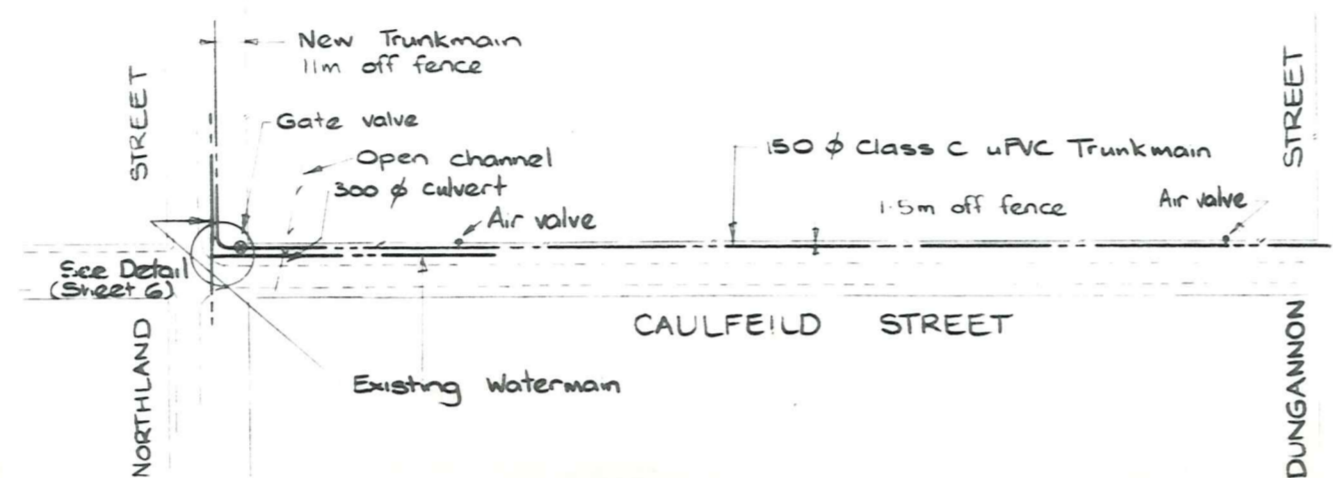
Minimum cover in all circumstances = 800mm.

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MANIOTOTO
COUNTY COUNCIL

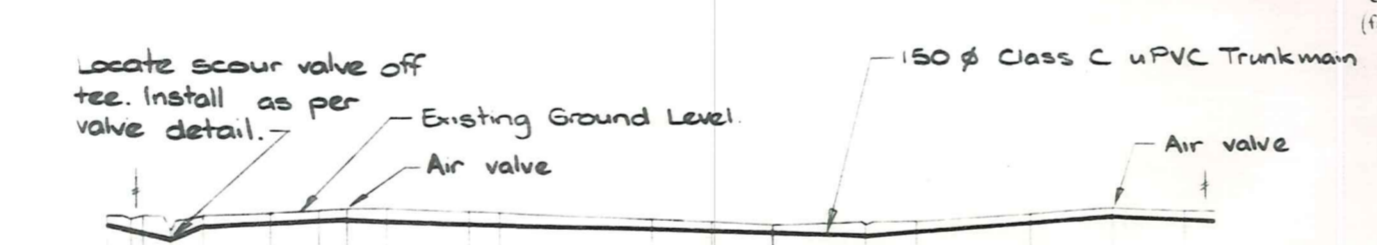
RANFURLY WATER SUPPLY
TRUNK MAIN LOCATION AND ELEVATION

| AMENDMENTS | | | NAME DATE | | JOB NO. | Sheet No | |
|------------|----|---------|-----------|-------------|------------|----------|---------|
| NO. | BY | DATE | Appvd | Surveyed | 10520 | 4/A | |
| A | SM | 24/4/86 | | J.M. & T.B. | | | July 84 |
| | | | | J. Murie | | | |
| | | | | S. Newlands | | | |
| | | | | J. Murie | | | |
| | | | Checked | S. Newlands | File 6/6/3 | LB 508 | |
| | | | Approved | | | FB ~ | |



TYPICAL ANCHOR BLOCK DETAILS
NOT TO SCALE

Minimum cover in all circumstances = 750 mm.



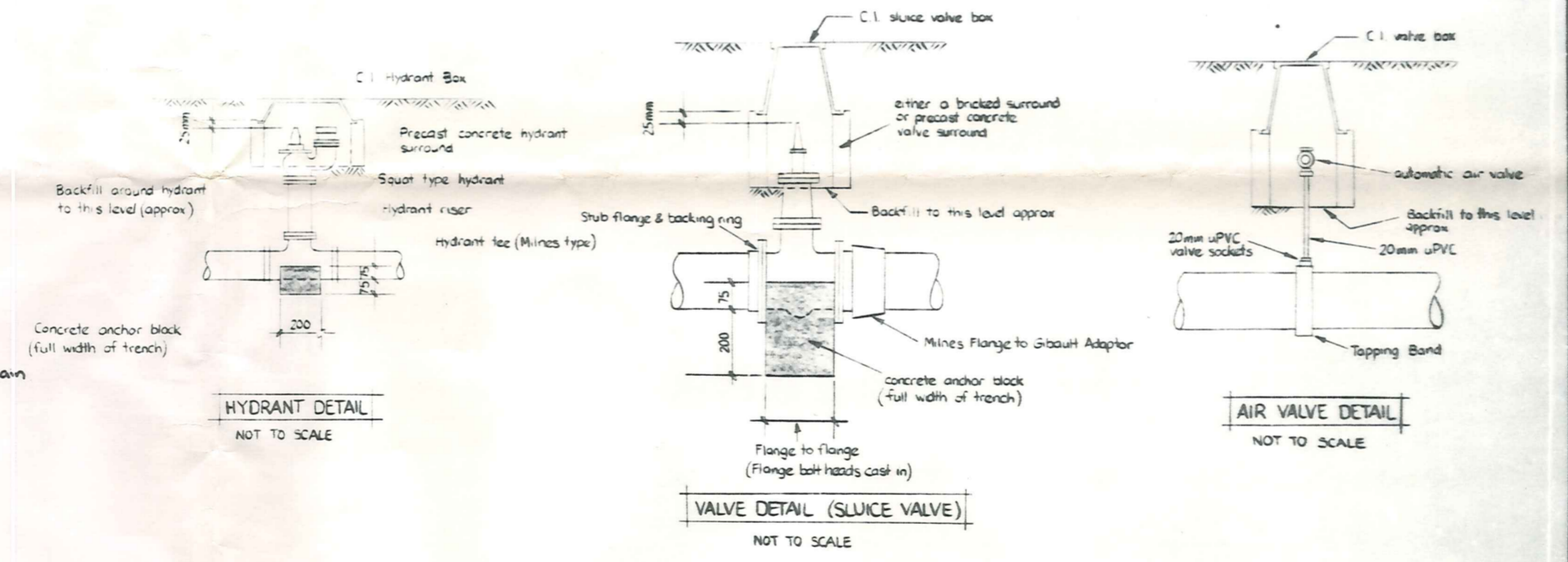
HAD 500 0
Distance
Ground Level
Reduced Level of Crown of Pipe
Grade

| | | |
|-----|--------------|-----|
| 0 | 530 94 5317 | 0 |
| 9 | 5315 | 9 |
| 14 | 5317 | 14 |
| 24 | 530 64 5303 | 24 |
| 37 | 530 89 5316 | 37 |
| 62 | 531 12 5319 | 62 |
| 81 | 531 37 5322 | 81 |
| 81 | 531 50 5322 | 81 |
| 106 | 531 36 5322 | 106 |
| 137 | 531 08 5321 | 137 |
| 149 | 530 97 5319 | 149 |
| 206 | 530 44 5312 | 206 |
| 229 | 530 28 5310 | 229 |
| 282 | 530 00 530 8 | 282 |
| 287 | 529 70 530 5 | 287 |
| 306 | 530 03 530 9 | 306 |
| 349 | 530 77 531 6 | 349 |
| 380 | 531 30 532 1 | 380 |
| 407 | 531 08 531 9 | 407 |
| 418 | 531 00 531 8 | 418 |

Grades: -1.5%, 0.92%, -1.7%, 1%

WATERMAIN ALONG CAULFEILD ST.

Scales 1: 2000 H
1: 500 V

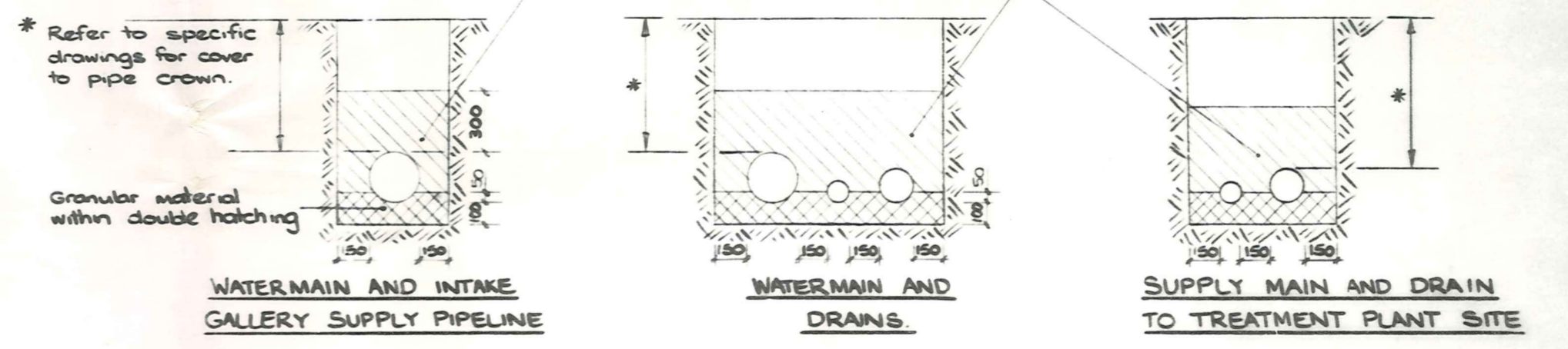


HYDRANT DETAIL
NOT TO SCALE

VALVE DETAIL (SLUCE VALVE)
NOT TO SCALE

AIR VALVE DETAIL
NOT TO SCALE

* Refer to specific drawings for cover to pipe crown.



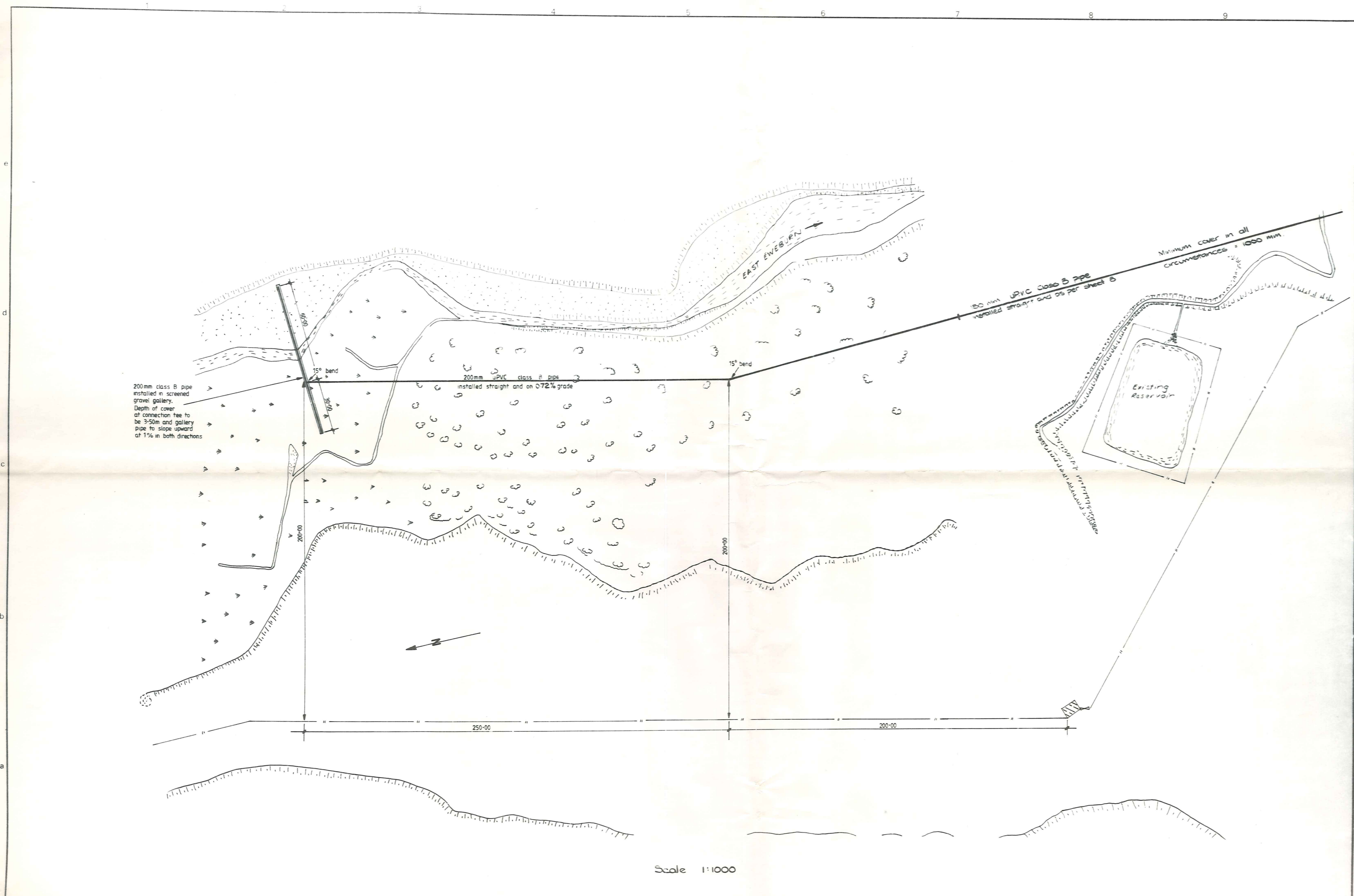
WATERMAIN AND INTAKE GALLERY SUPPLY PIPELINE

WATERMAIN AND DRAINS

SUPPLY MAIN AND DRAIN TO TREATMENT PLANT SITE

| AMENDMENTS | | NAME | DATE | JOB NO. | Sheet No |
|------------|----|------|------------------------------|------------|---------------|
| NO. | BY | DATE | | 10520 | 5 of 8 sheets |
| | | | Appvd | | |
| | | | Surveyed J.M. & T.B. July 84 | | |
| | | | Drawn J. Murie | | |
| | | | Calculations S. Newlands | | |
| | | | Traced J. Murie | File 6/6/3 | LB 50B |
| | | | Checked S. Newlands Aug | | |
| | | | Approved J. Murie | | |

ORIGINAL SIZE
mm INCHES



Scale 1:1000

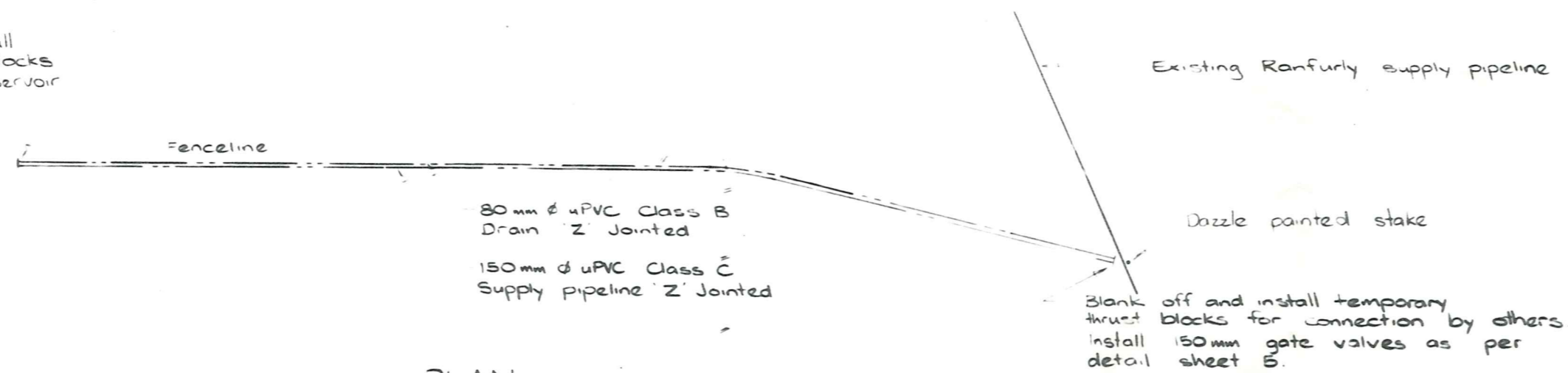
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Alexandra P.O. Box 313 Ph. 68-19

**MANIOTOTO
COUNTY COUNCIL**

**RANFURLY WATER SUPPLY
INTAKE GALLERY & SUPPLY PIPELINE**

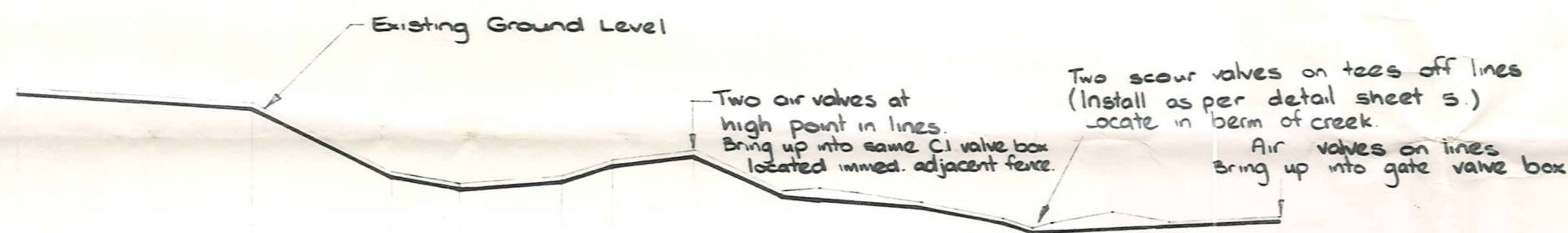
| AMENDMENTS | | NAME | DATE | JOB NO. | Sheet No |
|------------|----|------|-------|--------------|----------------|
| NO. | BY | DATE | Appvd | Surveyed | B Hawkins |
| | | | | Drawn | Nov 1981 |
| | | | | Calculations | S Newlands |
| | | | | Traced | M Potter |
| | | | | Checked | S. [Signature] |
| | | | | Approved | [Signature] |
| | | | | File | 6/6/83 |
| | | | | L.B. | - |
| | | | | F.B. | ~ |
| | | | | of 2 sheets | 7 |

Blank off and install temporary thrust blocks or connect to new reservoir pipework if installed.



PLAN
Scale 1:2000

Fig A and existing fence line (being replaced)



| | |
|--------------------------------|---------|
| HAD | 500.00 |
| Distance | 5760.00 |
| Ground Level | 35 |
| Reduced Level on Crown of Pipe | |
| Grade | |

| | | | | | | | | | | | | | | | |
|----------------------|-----------|--------------------------|-----------|----------------------|-----------|------------------------------|-----------|-----------|------------------|-----------|-----------------|-----------|-----------|-----------|-----------------|
| 5743.141 | 566.8.203 | 565.4.233 | 566.1.280 | 568.0.302 | 569.2.358 | 564.0.364.6.378 | 565.0.396 | 564.4.413 | 562.70.563.3.442 | 561.6.479 | 560.0.560.5.492 | 561.2.501 | 562.4.529 | 561.4.554 | 561.3.561.9.604 |
| on grade (600 cover) | | 2% grade (600 min cover) | | on grade (600 cover) | | -11.6% grade (600 min cover) | | | | | | | | | |

Minimum cover in all circumstances = 600mm.

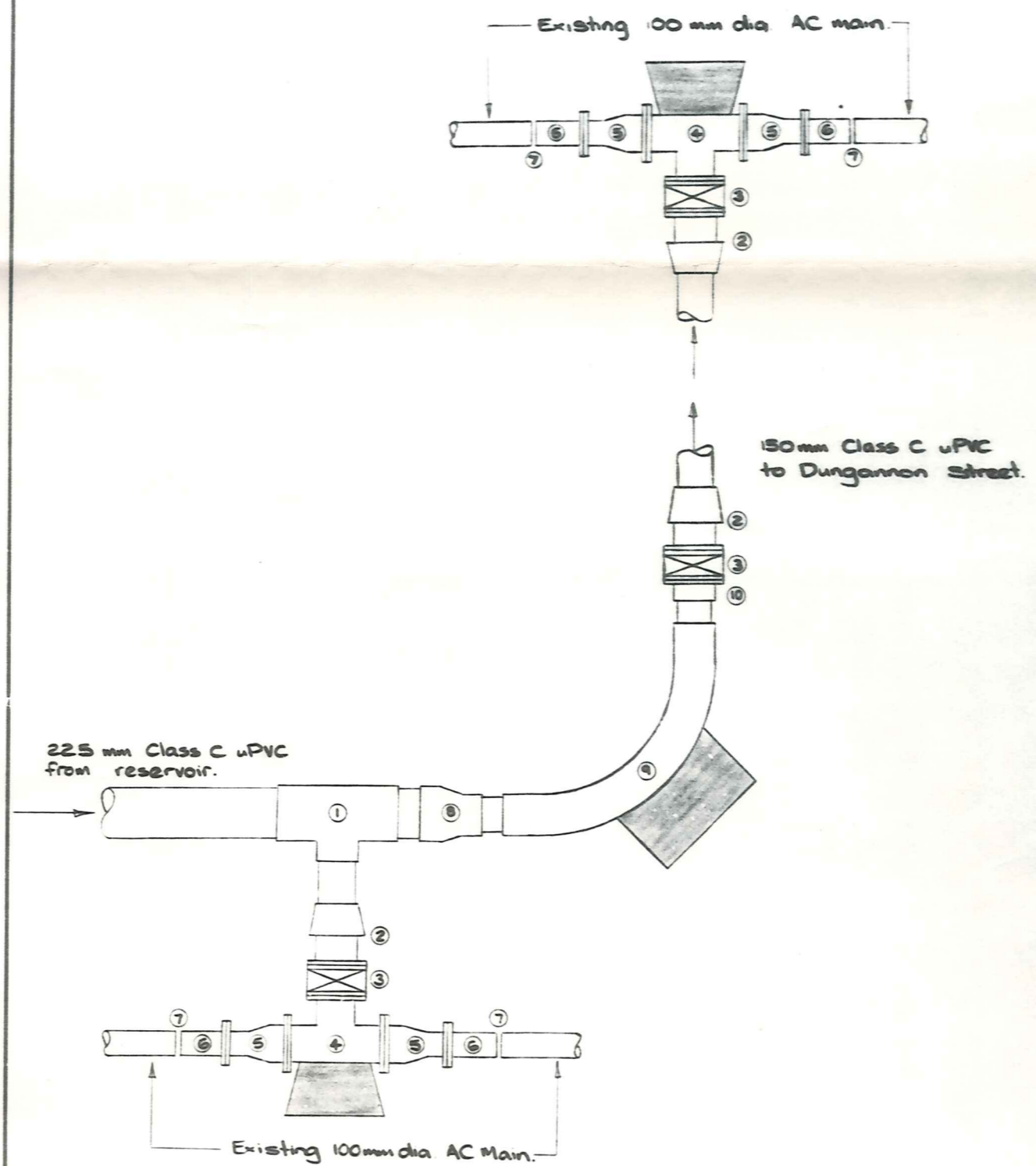
SUPPLY AND OUTWASH PIPELINES

Section Scales
1:2000 H
1:500 V

Legend

- 1 225 x 150 uPVC fabricated tee
- 2 150 # M.ines flange to gibault adaptor
- 3 150 # flanged gate valve
- 4 150 # C.I. equal tee
- 5 150/100 C.I. reducer
- 6 100 # C.I. flange adaptor
- 7 100 # gibault couplings
- 8 225/150 uPVC fabricated reducing socket
- 9 150 # uPVC formed bend
- 10 150 # uPVC stub flange and backing ring

CONNECTION OF NEW WATERMAIN TO EXISTING MAIN AT DUNGANNON/CAULFIELD ST.



CONNECTION OF NEW WATER MAIN TO EXISTING MAIN AT NORTHLAND/CAULFIELD ST.
(CONNECTION AT WELLS STREET SIMILAR).

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MANIOTOTO
COUNTY COUNCIL

RANFURLY WATER SUPPLY.
RESERVOIR SITE TO EXISTING SUPPLY MAIN

| AMENDMENTS | | NAME | | DATE | JOB NO. | Sheet No |
|------------|--------|----------|-------------------------|--------------|------------|----------|
| NO. | BY | DATE | APPROV | SURVEYED | B Hawkins | May '84 |
| 1 | J.M.L. | 23/02/84 | RELOCATION OF PIPELINES | DRAWN | J. Murie | July '84 |
| | | | | CALCULATIONS | S Newlands | |
| | | | | TRACED | J. Murie | |
| | | | | CHECKED | S. Hawkins | |
| | | | | APPROVED | | |

10520
6A
of 8 sheets
File 6/6/8 LB 508 FB ~