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RECORD PLANS

CONTRACTOR: DON WESTON EXCAVATING, INC. - WILLISTON, VT
 RESIDENT ENGINEER: PETER HODGSON
 CONSTRUCTION BEGAN: APRIL 24, 2004
 CONSTRUCTION COMPLETE: NOVEMBER 15, 2004
 RECORD PLANS BY: P. HODGSON & LAMOUREUX & DICKINSON

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY *Peter Hodgson* RESIDENT ENGINEER
 DATE *January 17, 2008*

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

**RECORD PLANS
 FEBRUARY 16, 2006**

CONTRACTOR: DON WESTON EXCAVATING, INC.
 RESIDENT ENGINEER: VTRANS
 DESIGN ENGINEER: LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC.

THESE RECORD PLANS REFLECT CHANGES NOTED BY THE RESIDENT ENGINEER DURING CONSTRUCTION AS WELL AS HORIZONTAL RECORD LOCATIONS FOR NEW UTILITIES LOCATED BY RECORD SURVEY

CONVENTIONAL SYMBOLS

- FENCE LINE
- STONE WALL
- TRAVELED WAY
- CULVERT
- POWER POLE
- TELEPHONE POLE
- TREES
- PROPERTY LINE
- TOP OF CUT
- TOE OF SLOPE

LAMOUREUX & DICKINSON
 Consulting Engineers Inc.
 14 Morse Drive
 Essex Junction, VT 05452
 (802) 878-4450
 Engineers-Planners-Surveyors

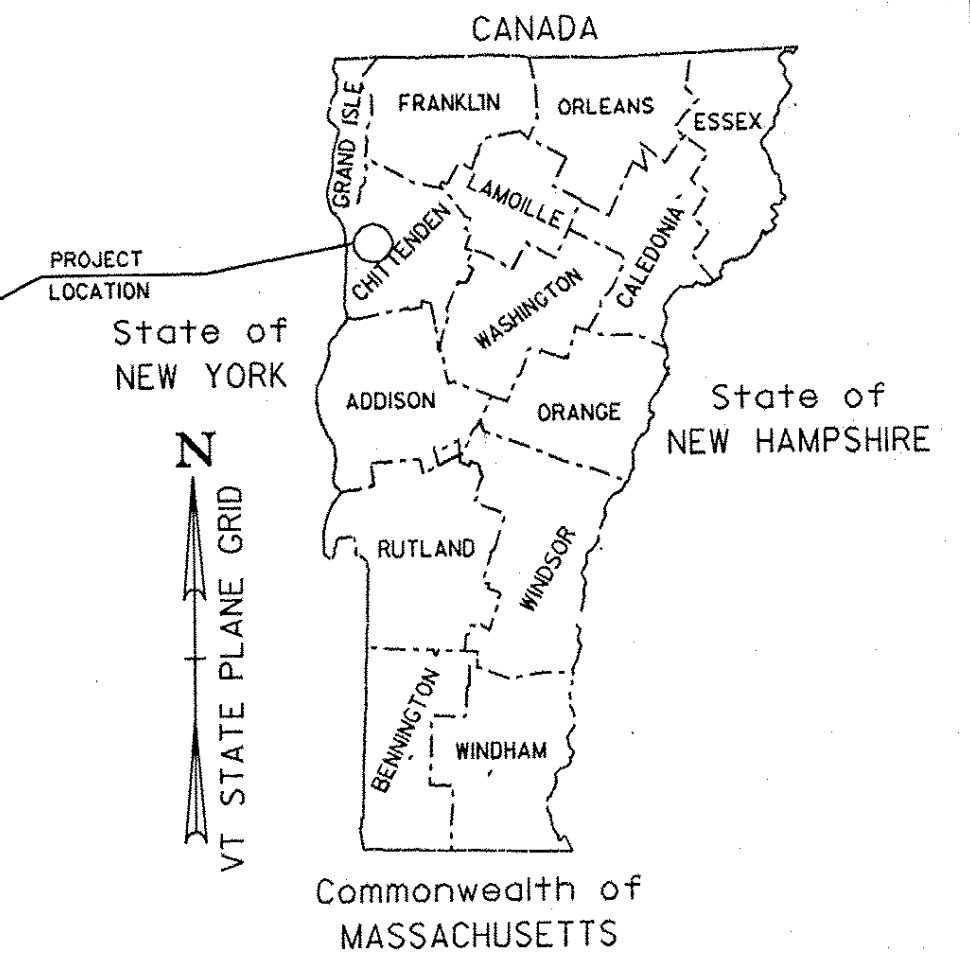
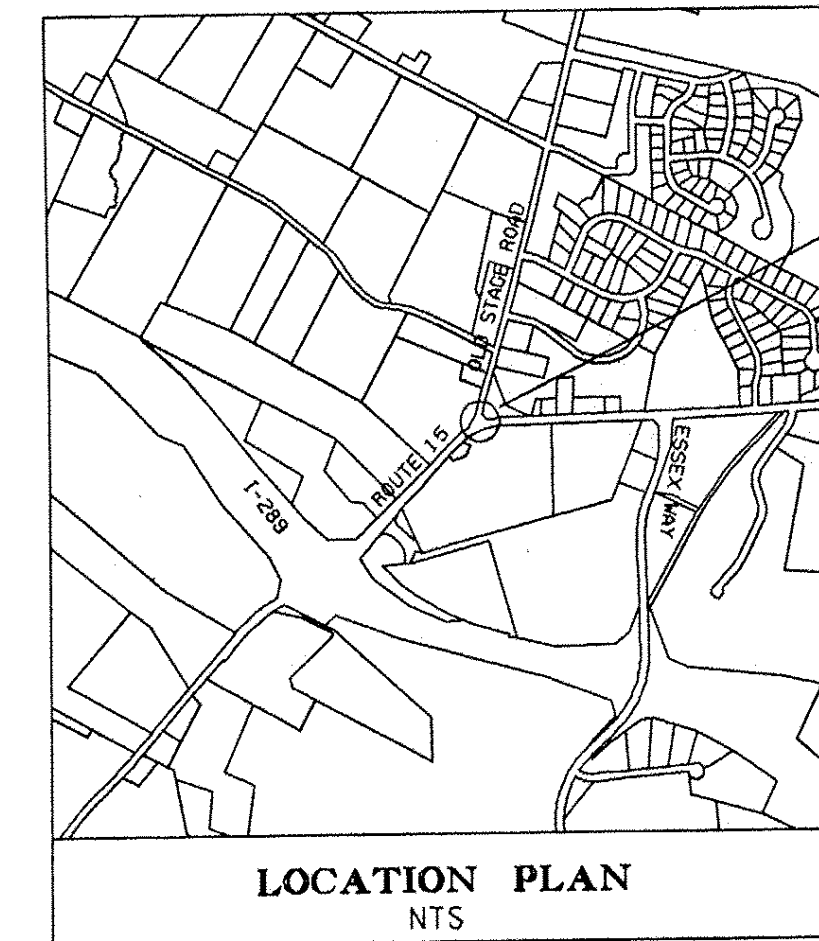
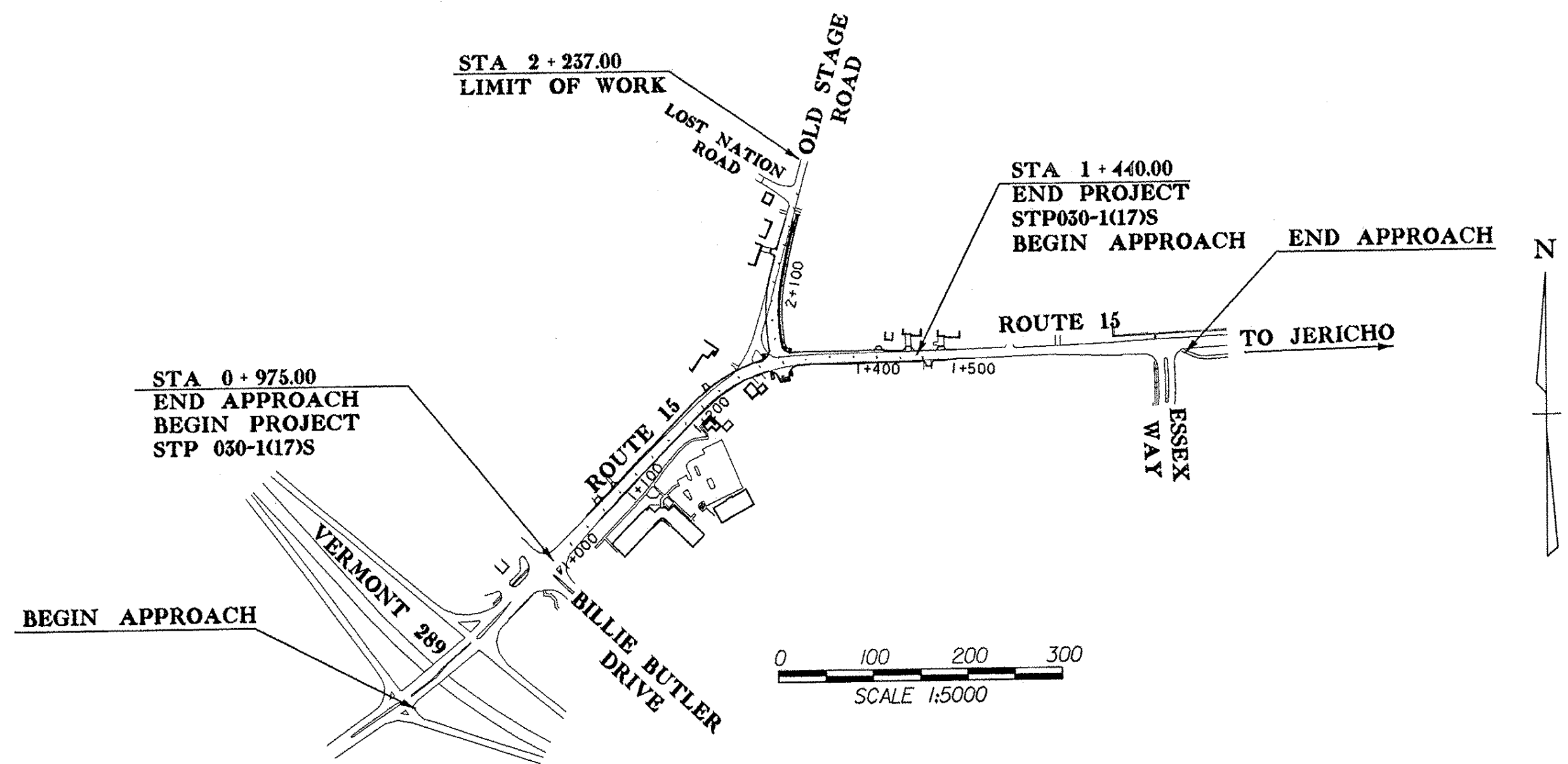
DATUM
 VERTICAL NAVD 88 (METERS)
 HORIZONTAL NAD 83 (METERS)

STATE OF VERMONT
 AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT
 INTERSECTION RECONSTRUCTION
 TOWN OF ESSEX
 COUNTY OF CHITTENDEN
 VT ROUTE 15 & OLD STAGE ROAD
 (MINOR URBAN ARTERIAL)

BEGINNING ROADWAY CONSTRUCTION AT THE INTERSECTION OF ROUTE 15 AND BILLIE BUTLER DRIVE AND EXTENDING EASTERLY ALONG ROUTE 15 495.00 m AND EXTENDING NORTH ALONG OLD STAGE ROAD 148.00 m.
 LENGTH OF ROADWAY = 628.00 m
 LENGTH OF PROJECT = 1086.00 m
 WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES RECONSTRUCTION OF ROUTE 15 AND OLD STAGE ROAD WITH NECESSARY DRAINAGE, UTILITY RELOCATION, PAVEMENT, TRAFFIC SIGNAL INSTALLATION, TRAFFIC SIGNAL INTERCONNECT FROM VT 289 TO ESSEX WAY AND OTHER RELATED ITEMS.



| TRAFFIC DATA | VERMONT ROUTE 15 | | OLD STAGE ROAD |
|-----------------|------------------|--------|----------------|
| | EAST | WEST | NORTH |
| 2002 AADT (vpd) | 14,280 | 17,020 | 4,200 |
| 2007 AADT (vpd) | 15,000 | 17,860 | 4,420 |
| 2007 DHV (vph) | 1,750 | 2,110 | 700 |
| D | 58% | 63% | 66% |
| T | 3% | 2.5% | 1% |

ROUTE 15
 2002-2022 (20 YEAR) 18% ESAL = 4,240,738
 2002-2042 (40 YEAR) 18% ESAL = 10,096,996

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROJECT DEVELOPMENT.
 CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

Metric

UNLESS NOTED OTHERWISE
 STATIONS ARE IN KILOMETERS
 ELEVATIONS ARE IN METERS
 DIMENSIONS ARE IN MILLIMETERS

TOWN OF ESSEX
 APPROVED _____ DATE _____
 MUNICIPAL PROJECT MANAGER

PROJECT NAME : ESSEX
 PROJECT NUMBER : STP 030-1(17)S
 SHEET 1 OF 33 SHEETS

**SEEDING FORMULA
URBAN AREAS**

| % MASS | kg/ha | NAME | PUR % | GERM % |
|--------|-------|---------------------|-------|--------|
| 42.5 | 38.0 | CREEPING RED FESCUE | 98 | 85 |
| 10.0 | 9.0 | PERENNIAL RYE GRASS | 95 | 90 |
| 42.5 | 38.0 | KENTUCKY BLUE GRASS | 85 | 85 |
| 5.0 | 5.0 | ANNUAL RYE GRASS | 95 | 85 |
| 100.0 | 90.0 | | | |

GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY MASS AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

MARKER POSTS: TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5M.

PAY LIMITS OF SAND BORROW: WHEN USED IN CONJUNCTION WITH UNDERDRAIN - SEE STANDARD SHEET D-2M.

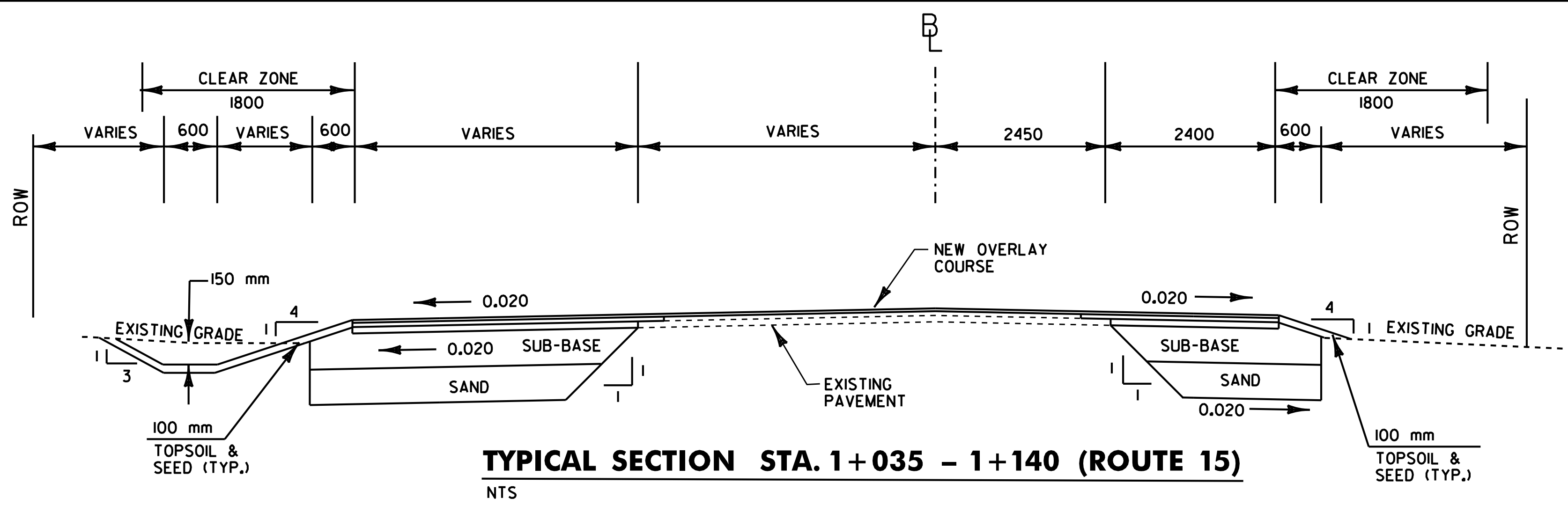
TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.07 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

ROUTE 15

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III-S (PLACED IN ONE LIFT) |
| BINDER COURSE : | 70 mm TYPE II-S (PLACED IN ONE LIFT) |
| BASE COURSE: | 90 mm TYPE I-S (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

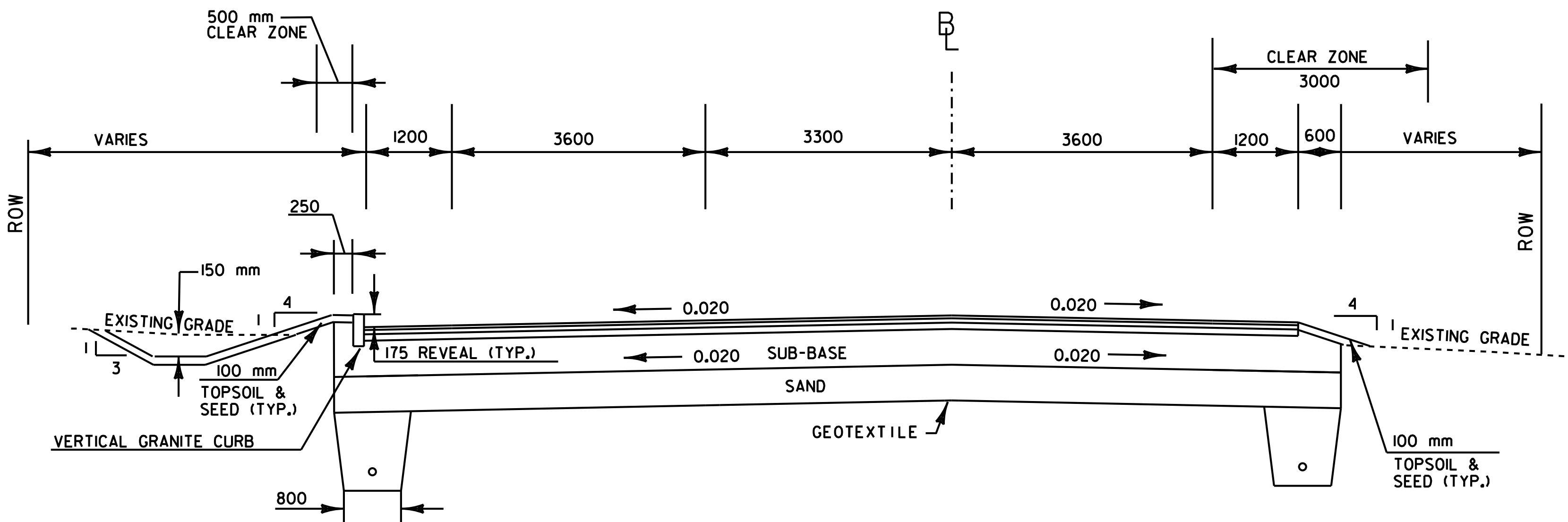
| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |

1. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28



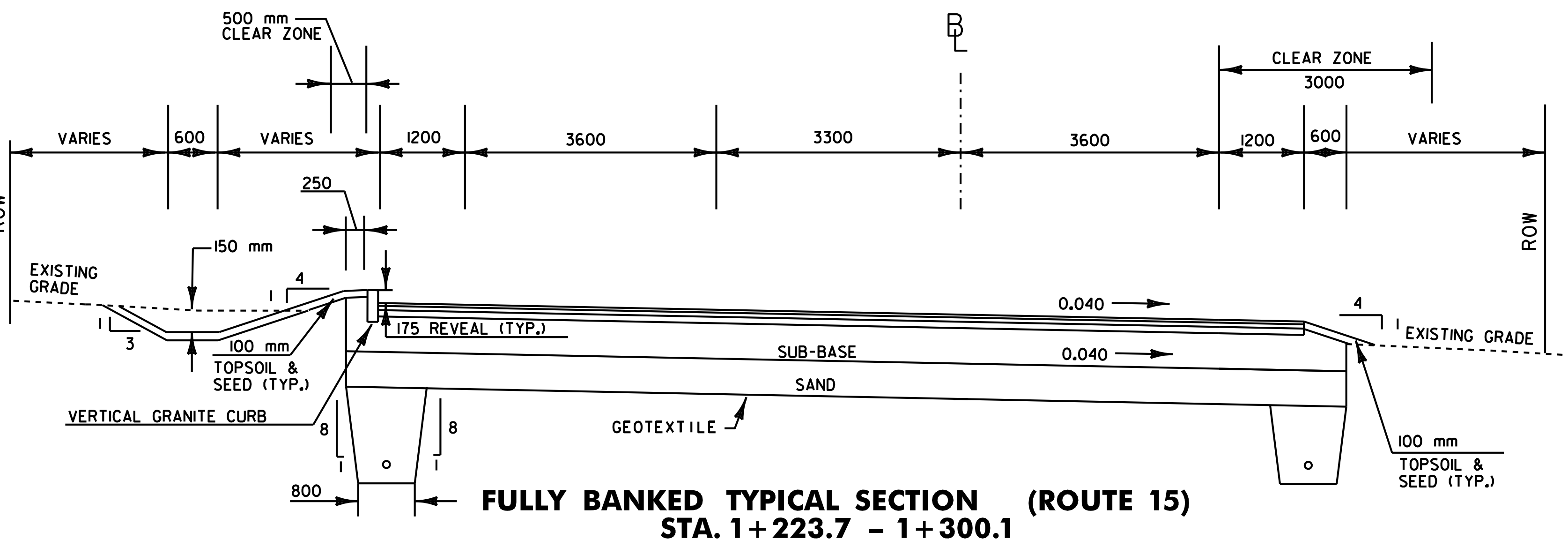
TYPICAL SECTION STA. 1+035 - 1+140 (ROUTE 15)

NTS



TYPICAL SECTION STA. 1+140 - 1+223.7 (ROUTE 15)

NTS • SEE SUPERELEVATION DIAGRAM ON SHEET 22 FOR PAVEMENT SLOPES IN SUPERELEVATION TRANSITION AREAS



**FULLY BANKED TYPICAL SECTION (ROUTE 15)
STA. 1+223.7 - 1+300.1**

NTS • SEE SUPERELEVATION DIAGRAM ON SHEET 22

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

TYPICAL
SECTIONS

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

PLOT FILE NAME: zstp030-1(17)sfrm.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC. SHEET 2

DRAWN BY: PLC

CHECKED BY: RJD

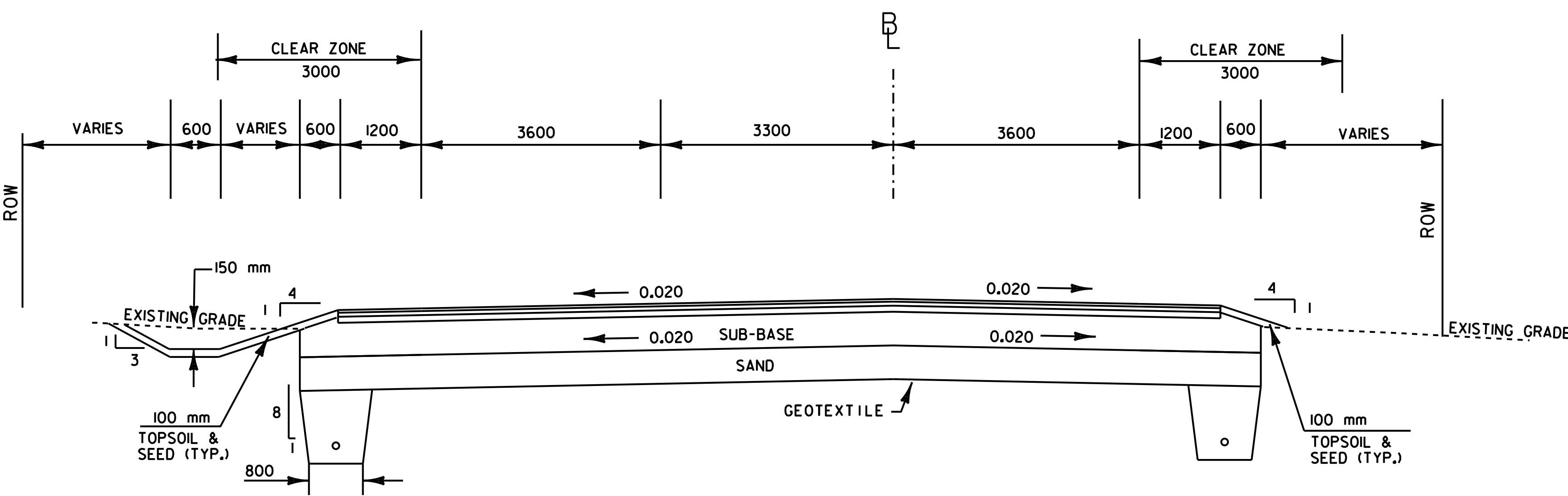
2

ROUTE 15

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III-S (PLACED IN ONE LIFT) |
| BINDER COURSE : | 70 mm TYPE II-S (PLACED IN ONE LIFT) |
| BASE COURSE: | 90 mm TYPE I-S (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |

I. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28



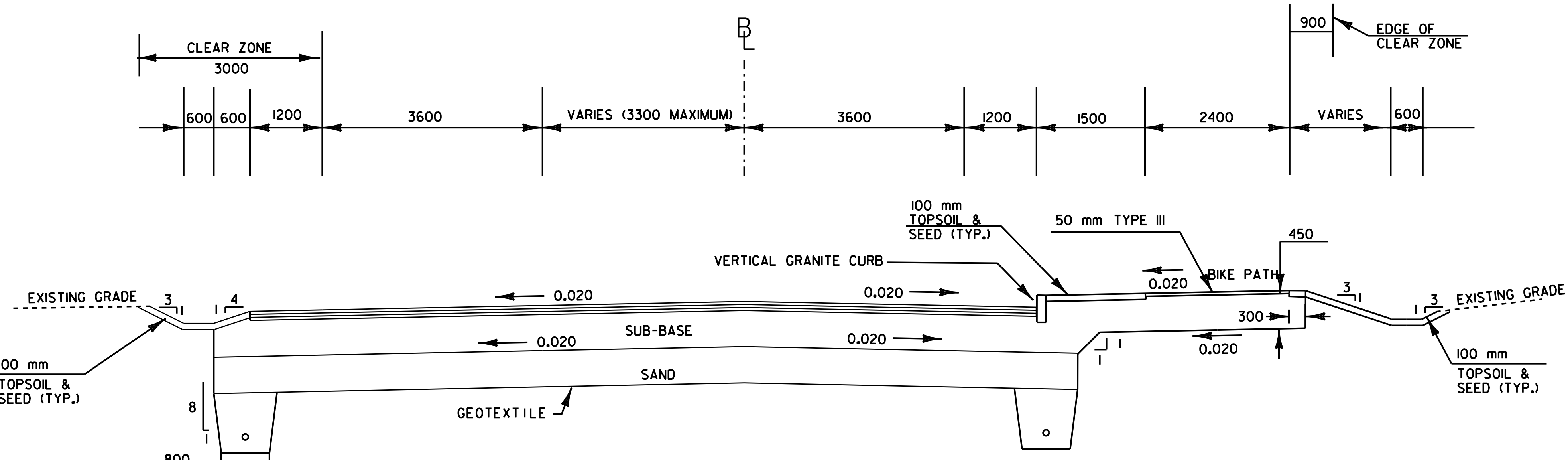
TYPICAL SECTION STA. 1+300.1 – 1+482 (ROUTE 15)

NTS * SEE SUPERELEVATION DIAGRAM ON SHEET 22 FOR PAVEMENT SLOPES IN SUPERELEVATION TRANSITION AREAS

OLD STAGE ROAD

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III (PLACED IN ONE LIFT) |
| BINDER COURSE : | 50 mm TYPE II (PLACED IN ONE LIFT) |
| BASE COURSE: | 55 mm TYPE I (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

I. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28

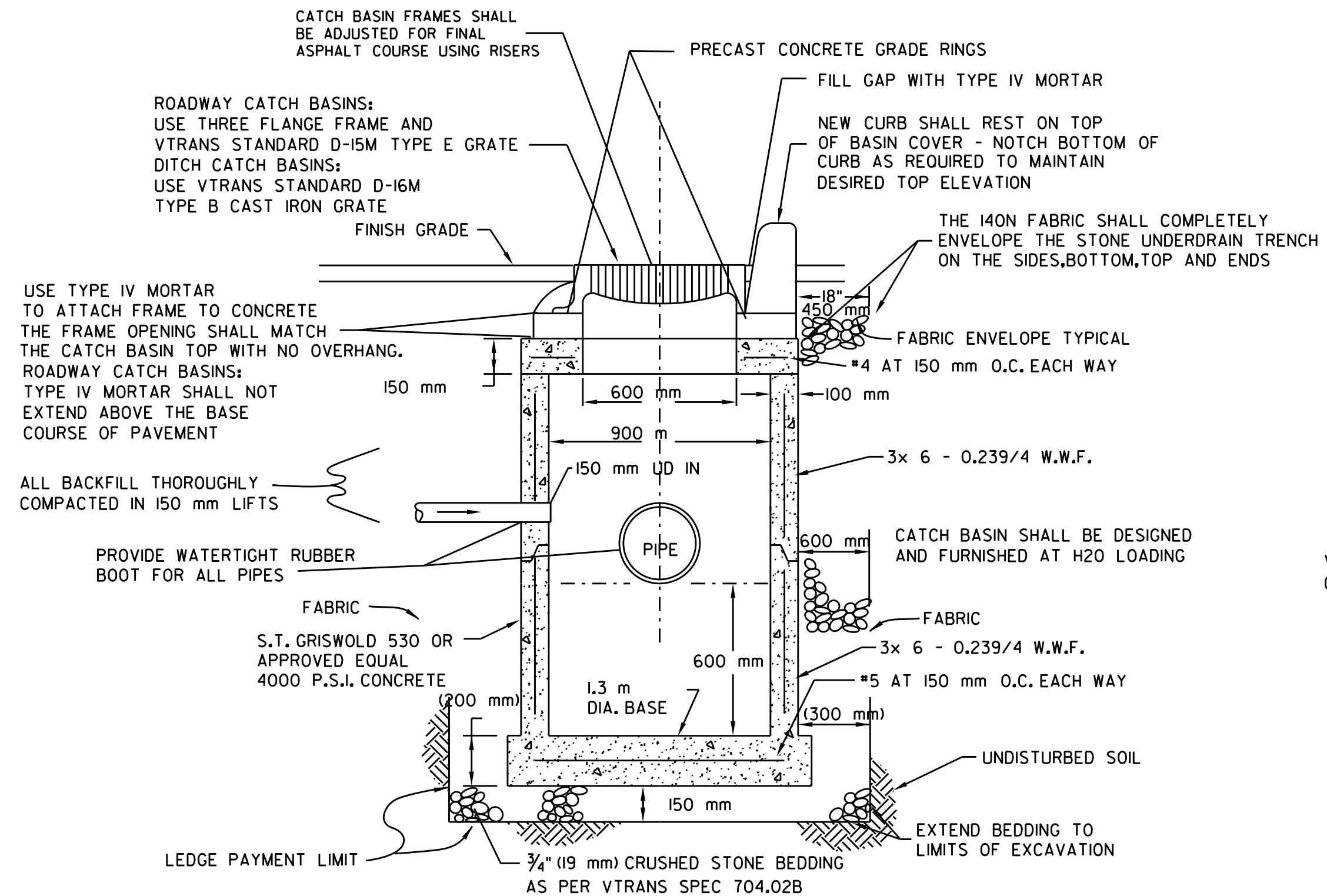
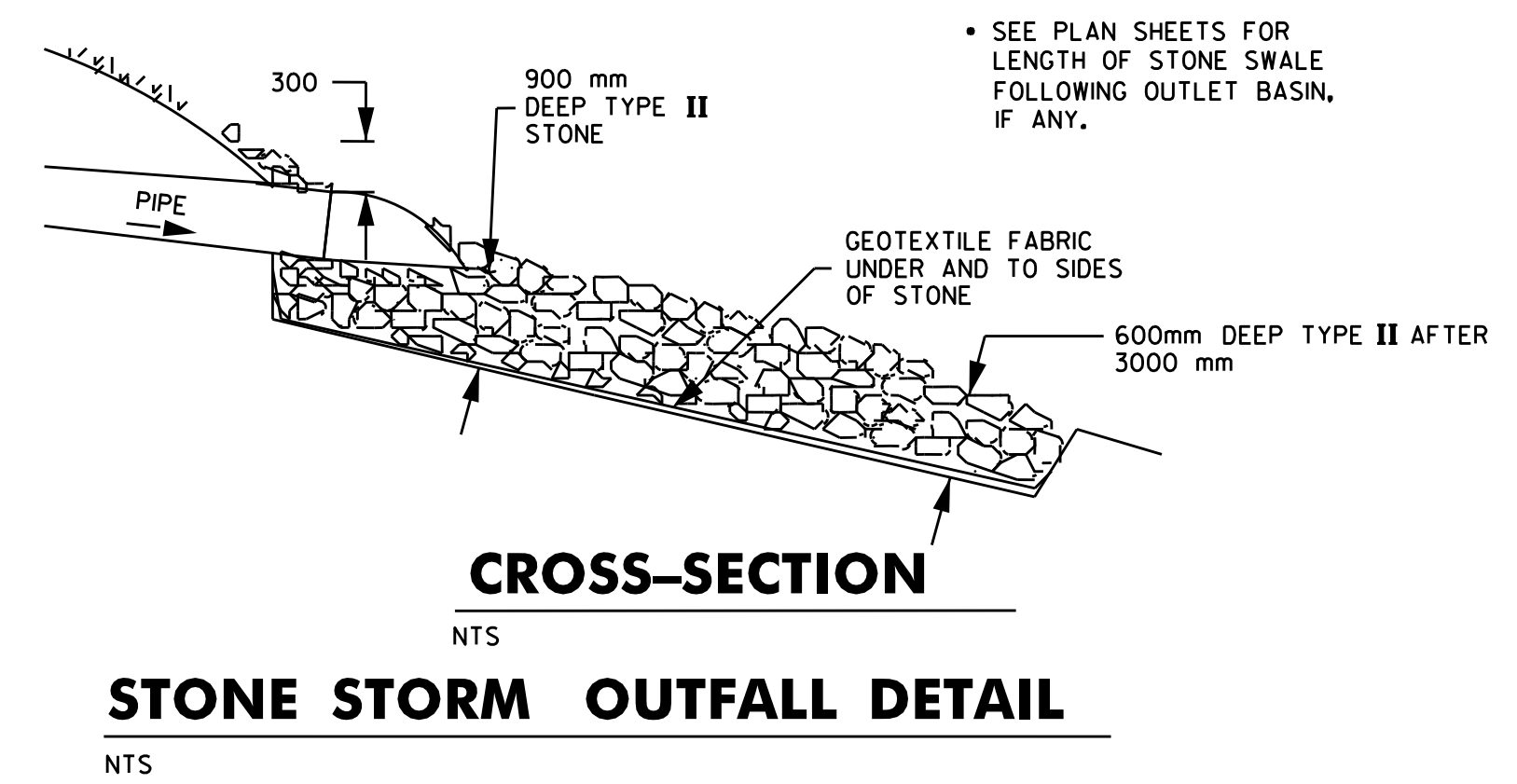
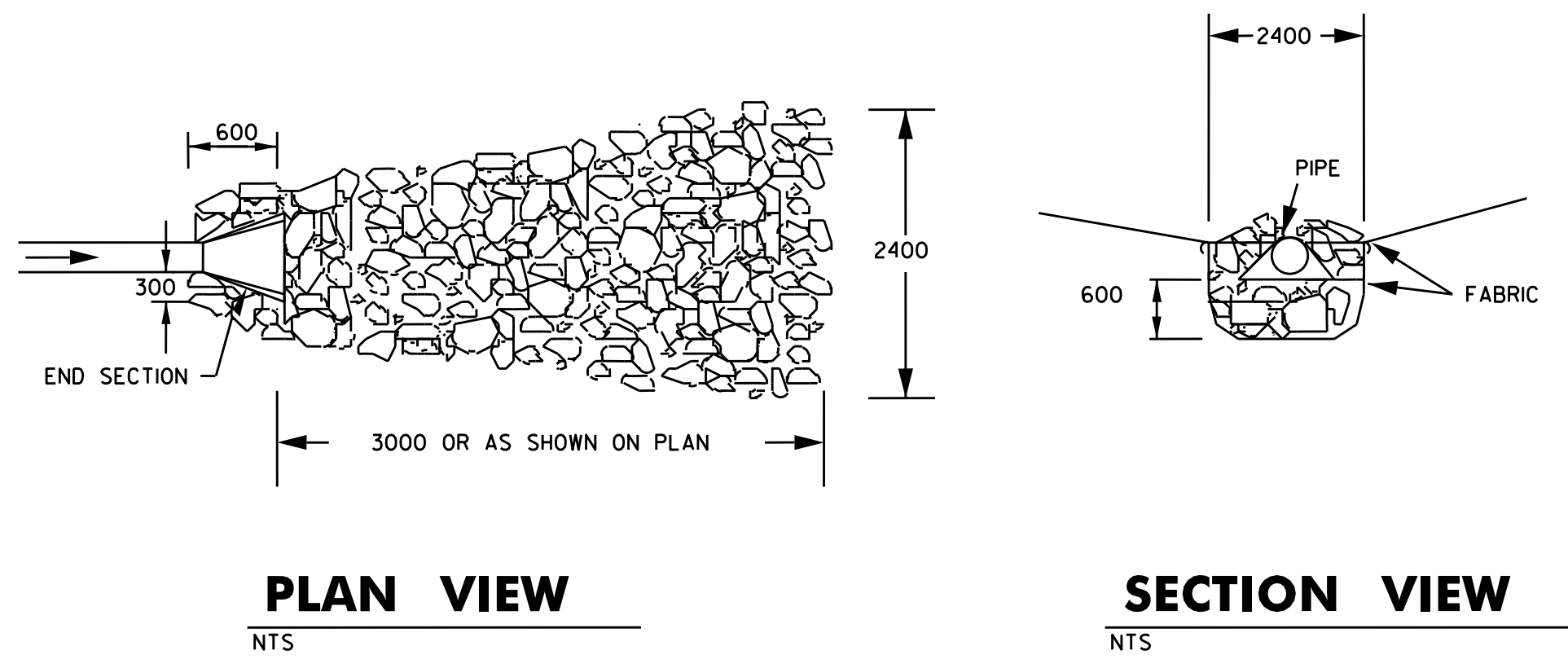


TYPICAL SECTION OLD STAGE ROAD

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| | | |
|------------------|---------------------|----------------------------|
| TYPICAL SECTIONS | PROJECT NAME: | ESSEX |
| | PROJECT NUMBER: | STP 030-1(17)S |
| | PLOT FILE NAME: | zstp030-1(17)sfrm.dgn |
| | L&D PROJECT NUMBER: | 00-074 |
| | DESIGNED BY: | LAMOUREUX & DICKINSON |
| | | CONSULTING ENGINEERS, INC. |
| | DRAWN BY: | PLC |
| | CHECKED BY: | RJD |
| | | SHEET 3 |

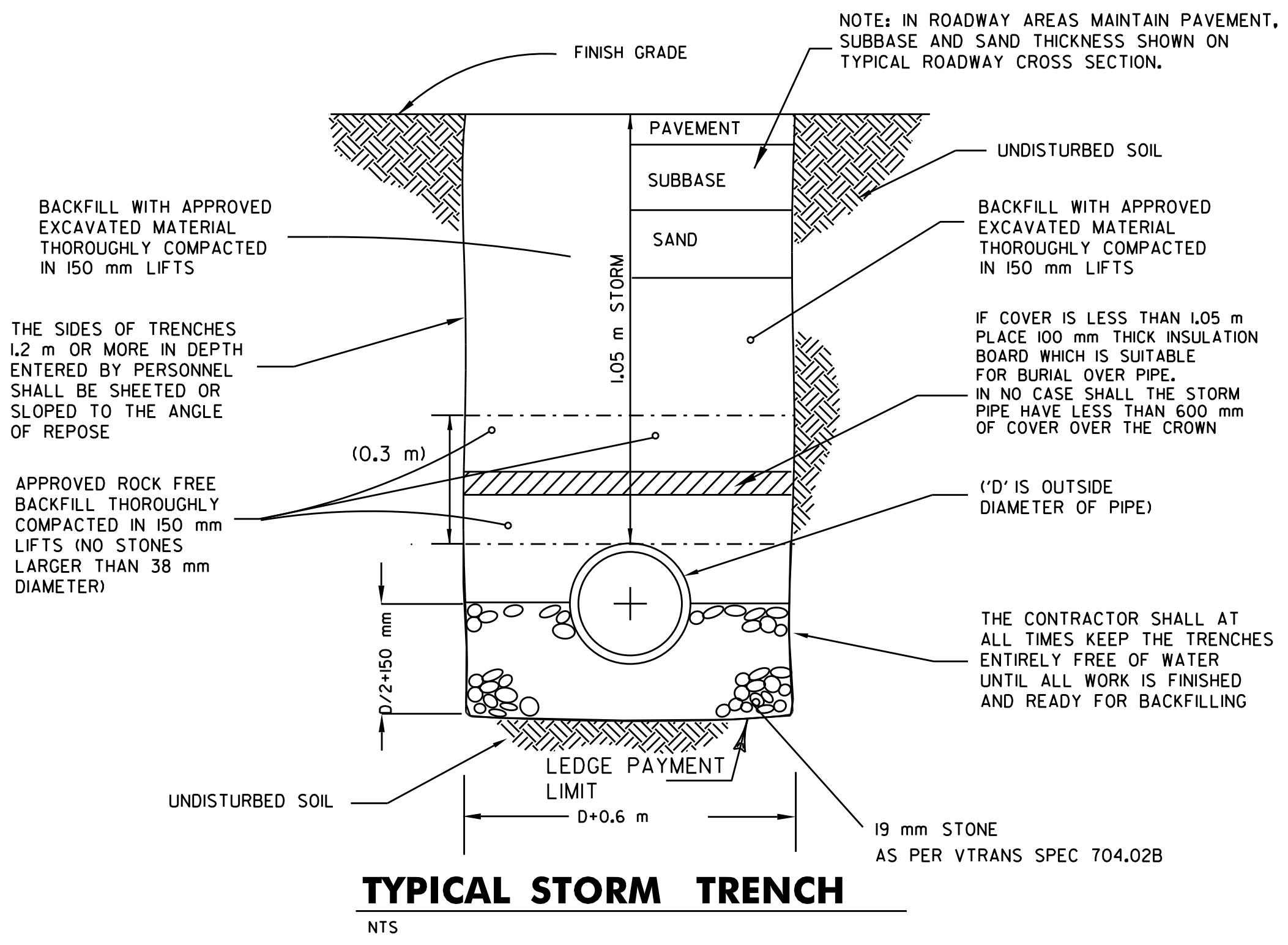
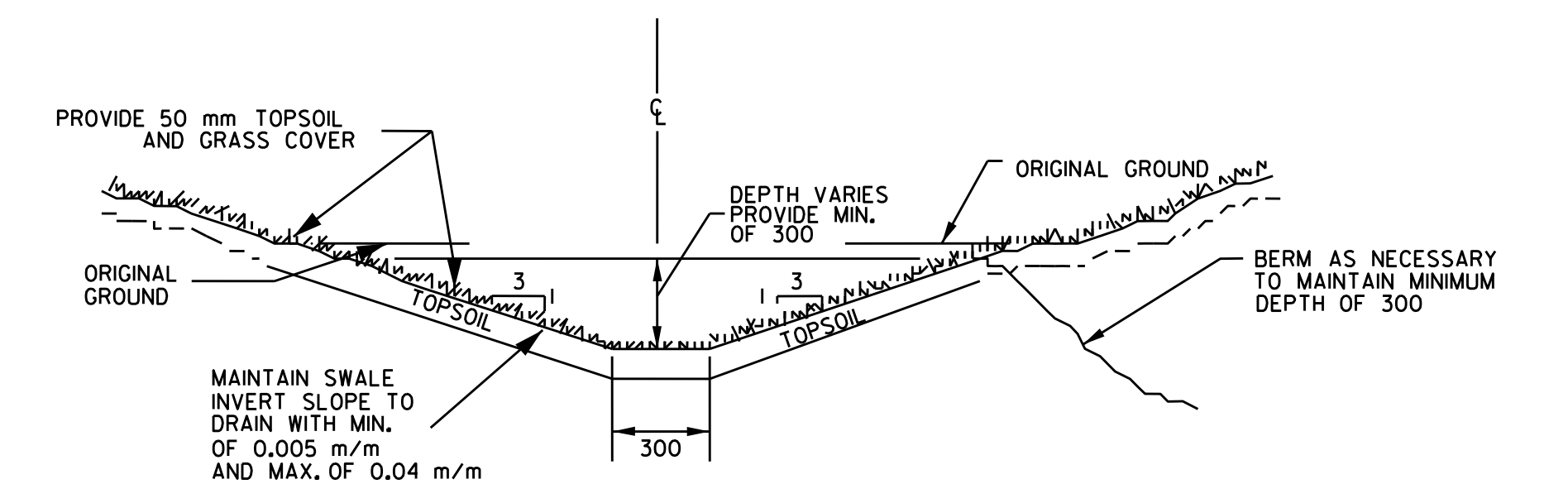
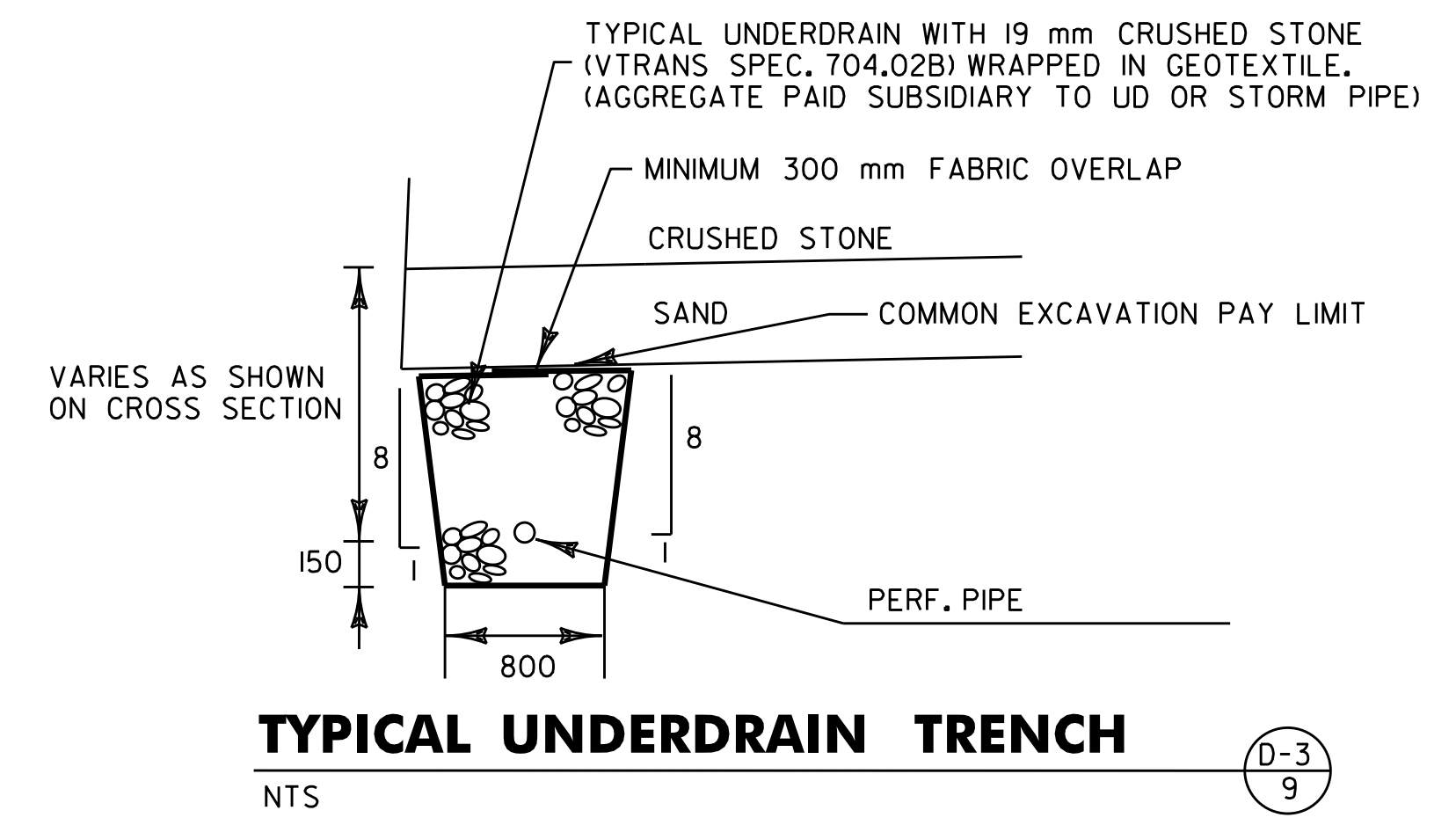


CATCH BASINS SHALL BE SIZED SUCH THAT:

1. AT ANY ELEVATION, A MINIMUM OF 60% OF THE CIRCUMFERENCE SHALL BE CONCRETE.
2. THE MINIMUM DISTANCE, AS MEASURED ALONG THE CIRCUMFERENCE, BETWEEN TWO OPENINGS SHALL BE 6" (150 mm).
3. THE BASINS SHALL ALSO MEET THE FOLLOWING MINIMUM REQUIREMENTS:

| CATCH BASIN DIAMETER | LARGEST PIPE DIA. ALLOWED | SIDEWALL THICKNESS | CONCRETE COVER THICKNESS |
|----------------------|---------------------------|--------------------|--------------------------|
| 36" (0.9 m) | 18" (450 mm) | 4" (100 mm) | 6" (150 mm) |
| 48" (1.2 m) | 30" (760 mm) | 5" (127 mm) | 10" (250 mm) |
| 60" (1.5 m) | 36" (900 mm) | 6" (150 mm) | 12" (300 mm) |
| 72" (1.8 m) | 48" (1200 mm) | 7" (178 mm) | 18" (450 mm) |

NOTE: FLUSHING BASINS SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE RISER STOPS SHALL BE OUTSIDE THE PAVEMENT, SIDEWALK OR CURB



NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| | |
|--------------------------------|---------------------------------------|
| STORM DETAILS & SPECIFICATIONS | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| | DESIGNED BY: LAMOUREUX & DICKINSON |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 4 |
| | DRAWN BY: PLC |

STATE OF VERMONT
AGENCY OF TRANSPORTATION

EARTHWORKS



| | | | | | | | | | | | | | | | | SUMMARY AND BALANCES | | | | | | | | | | | | | | | | | |
|---------|------|------------------------------------|----------------|--------------------|----------------|----------------|----------------|----------------------|----------------|---------|------|------------------------------------|----------------|--------------------|----------------|----------------------|----------------|----------------------|----------------|-----------------------|------|--------------------------|----------------|--------------------|----------------|----------------|----------------|----------|--------|-----------------------|----------------|----------------|----------------|
| | | TOTAL EXCAVATION EARTH AND ROCK | | ROCK EXCAVATION | | EMBANKMENT | | COMMON EXCAVATION | | | | TOTAL EXCAVATION EARTH AND ROCK | | ROCK EXCAVATION | | EMBANKMENT | | COMMON EXCAVATION | | STATION TO STATION | | TOTAL EXC. EARTH+ROCK | | ROCK EXCAVATION | | EMBANKMENT | | EXCESSES | | ACCUMULATIVE EXCESSES | | | |
| STATION | DIST | AREA | VOLUME | AREA | VOLUME | AREA | VOLUME | AREA | VOLUME | STATION | DIST | AREA | VOLUME | AREA | VOLUME | AREA | VOLUME | AREA | VOLUME | STATION | DIST | AREA | VOLUME | AREA | VOLUME | AREA | VOLUME | AREA | VOLUME | CUT | FILL | CUT | FILL |
| km + m | m | m ² | m ³ | m ² | m ³ | m ² | m ³ | m ² | m ³ | km + m | m | m ² | m ³ | m ² | m ³ | m ² | m ³ | m ² | m ³ | km + m | m | m ² | m ³ | m ² | m ³ | m ² | m ³ | km + m | km + m | m ³ | m ³ | m ³ | m ³ |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1+000 | | | | | | 0.00 | 0.00 | | | 1+280 | 3 | | | | | 0.00 | 0.00 | 19.51 | 58 | 2+000 | | | | | | 0.00 | | 16.94 | | | | | |
| | 20 | | | | | | 0 | | 0 | | 20 | | | | | | 0 | 374 | | | 10 | | | | | 1 | | 137 | | | | | |
| 1+020 | | | | | | 0.00 | 0.00 | | | 1+300 | | | | | | 0.00 | 0.00 | 17.90 | | 2+010 | | | | | | 0.85 | | 14.99 | | | | | |
| | 20 | | | | | | 4 | | 44 | | 3 | | | | | | 0 | 53 | | | 5 | | | | | 4 | | 75 | | | | | |
| 1+040 | | | | | | 0.37 | 4.41 | | | 1+303 | | | | | | 0.00 | 0.00 | 17.53 | | 2+015 | | | | | | 0.85 | | 14.99 | | | | | |
| | 13 | | | | | | 2 | | 74 | | 17 | | | | | | 34 | 314 | | | | | | | | | | | | | | | |
| 1+053 | | | | | | 0.00 | 7.00 | | | 1+320 | | | | | | 3.95 | 19.46 | | | ROUTE 15 INTERSECTION | | | | | | | | | | | | | |
| | 7 | | | | | | 1 | | 48 | | 20 | | | | | 49 | 383 | | | | | | | | | | | | | | | | |
| 1+060 | | | | | | 0.13 | 6.74 | | | 1+340 | | | | | | 0.96 | 18.85 | | | 2+028 | | | | | | 9.03 | | 1.19 | | | | | |
| | 16 | | | | | | 1 | | 109 | | 14 | | | | | 11 | 260 | | | 2+034 | | | | | | 9.03 | | 1.19 | | | | | |
| 1+076 | | | | | | 0.00 | 6.84 | | | 1+354 | | | | | | 0.57 | 18.23 | | | 2+040 | | | | | | 9.03 | | 63 | | 5 | | | |
| | 4 | | | | | | 1 | | 27 | | 6 | | | | | 4 | 110 | | | | | | | | | 11.99 | | 0.35 | | | | | |
| 1+080 | | | | | | 0.30 | 6.66 | | | 1+360 | | | | | | 0.61 | 18.56 | | | 2+060 | | | | | | 5.70 | | 2.46 | | | | | |
| | 6 | | | | | | 2 | | 40 | | 20 | | | | | 12 | 367 | | | 2+080 | | | | | | 5.70 | | 177 | | 28 | | | |
| 1+086 | | | | | | 0.34 | 6.50 | | | 1+380 | | | | | | 0.63 | 18.09 | | | 2+100 | | | | | | 5.70 | | 93 | | 73 | | | |
| | 14 | | | | | | 4 | | 89 | | 20 | | | | | 11 | 381 | | | 2+120 | | | | | | 5.70 | | 35 | | 186 | | | |
| 1+100 | | | | | | 0.23 | 6.27 | | | 1+400 | | | | | | 0.43 | 20.05 | | | 2+140 | | | | | | 3.56 | | 4.80 | | 129 | | | |
| | 20 | | | | | | 5 | | 135 | | 10 | | | | | 5 | 194 | | | 2+160 | | | | | | 3.56 | | 64 | | 129 | | | |
| 1+120 | | | | | | 0.24 | 7.25 | | | 1+410 | | | | | | 0.50 | 18.73 | | | 2+180 | | | | | | 3.56 | | 64 | | 129 | | | |
| | 20 | | | | | | 10 | | 228 | | 10 | | | | | 6 | 176 | | | 2+200 | | | | | | 3.56 | | 35 | | 186 | | | |
| 1+140 | | | | | | 0.77 | 15.53 | | | 1+420 | | | | | | 0.73 | 16.46 | | | 2+220 | | | | | | 3.56 | | 10 | | 187 | | | |
| | 20 | | | | | | 25 | | 305 | | 13 | | | | | 5 | 210 | | | 2+240 | | | | | | 3.56 | | 10 | | 187 | | | |
| 1+160 | | | | | | 1.74 | 14.93 | | | 1+433 | | | | | | 0.02 | 15.79 | | | 2+260 | | | | | | 3.56 | | 2 | | 52 | | | |
| | 20 | | | | | | 41 | | 302 | | 7 | | | | | 1 | 108 | | | 2+280 | | | | | | 3.56 | | 3 | | 65 | | | |
| 1+180 | | | | | | 2.41 | 15.28 | | | 1+440 | | | | | | 0.14 | 14.94 | | | 2+300 | | | | | | 3.56 | | 3 | | 65 | | | |
| | 20 | | | | | | 45 | | 301 | | 5 | | | | | 1 | 77 | | | 2+320 | | | | | | 3.56 | | 7 | | 192 | | | |
| 1+200 | | | | | | 2.04 | 14.77 | | | 1+445 | | | | | | 0.13 | 15.86 | | | 2+340 | | | | | | 3.56 | | 7 | | 192 | | | |
| | 16 | | | | | | 29 | | 237 | | 15 | | | | | 1 | 224 | | | 2+360 | | | | | | 3.56 | | 7 | | 192 | | | |
| 1+216 | | | | | | 1.63 | 14.89 | | | 1+460 | | | | | | 0.00 | 14.03 | | | 2+380 | | | | | | 3.56 | | 0.41 | | 12.76 | | | |
| | 4 | | | | | | 5 | | 60 | | 7 | | | | | 0 | 98 | | | 2+400 | | | | | | 3.56 | | 3 | | 153 | | | |
| 1+220 | | | | | | 0.79 | 15.18 | | | 1+467 | | | | | | 0.00 | 13.87 | | | 2+420 | | | | | | 3.56 | | 0 | | 12.76 | | | |
| | 5 | | | | | | 5 | | 80 | | 13 | | | | | 0 | 174 | | | 2+440 | | | | | | 3.56 | | 0 | | 12.76 | | | |
| 1+225 | | | | | | 1.01 | 16.87 | | | 1+480 | | | | | | 0.04 | 12.94 | | | 2+460 | | | | | | 3.56 | | 0 | | 26 | | | |
| | 15 | | | | | | 22 | | 253 | | 2 | | | | | 0 | 26 | | | 2+480 | | | | | | 3.56 | | 0 | | 26 | | | |
| 1+240 | | | | | | 1.97 | 16.86 | | | 1+482 | | | | | | 0.00 | 12.94 | | | AREA 1 (SEE SHEET 25) | | | | | | 3.56 | | 9 | | 72 | | | |
| | 20 | | | | | | 22 | | 332 | | | | | | | 0 | 26 | | | AREA 2 (SEE SHEET 25) | | | | | | 3.56 | | 8 | | 900 | | | |
| 1+260 | | | | | | 0.25 | 16.34 | | | | | | | | | | | | | | | | | | | 3.56 | | | | | | | |
| | 17 | | | | | | 2 | | 302 | | | | | | | | | | | | | | | | | 3.56 | | | | | | | |
| 1+277 | | | | | | 0.01 | 19.21 | | | | | | | | | | | | | | | | | | | 3.56 | | | | | | | |
| TOTALS | | | | | | | 226 | | 2966 | | | | | | | 140 | 3587 | | | | | | | | | 533 | | 2261 | | | | | |

| REMARKS | |
|---|------|
| EARTH AND ROCK EXCAVATION | 8814 |
| SOLID ROCK EXCAVATION | 0 |
| EARTH EXCAVATION | 8814 |
| PLANIMETERED FILL | 899 |
| LESS FACTORED SOLID ROCK | 0 |
| LESS DISPLACEMENT OF ANY LARGE STRUCTURES | 0 |
| NET PLANIMETERED FILL | 899 |
| FACTOR (15%) | 135 |
| PLANIMETERED FILL INCLUDING FACTOR | 1034 |
| MATERIALS AVAILABLE FOR FILLS | |
| EARTH EXCAVATION | 8814 |
| TOTAL MATERIAL AVAILABLE FOR FILL | 8814 |
| TOTAL FILL INCLUDING FACTOR | 1034 |
| TOTAL MATERIAL FOR FILL | 8814 |
| BORROW | |
| EXCESS EXCAVATION | 7780 |

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| | | |
|--------------|----------------------------|----------------------|
| EARTHWORKS | PROJECT NAME: | ESSEX |
| | PROJECT NUMBER: | STP 030-1(17)S |
| | PLOT FILE NAME: | zstp030-1(17)slm.dgn |
| | L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| | CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | | SHEET 6 OF 42 |

SEEDING FORMULA URBAN AREAS

| % MASS | kg/ha | NAME | PUR % | GERM % |
|--------|-------|---------------------|-------|--------|
| 42.5 | 38.0 | CREeping RED FESCUE | 98 | 85 |
| 10.0 | 9.0 | PERENNIAL RYE GRASS | 95 | 90 |
| 42.5 | 38.0 | KENTUCKY BLUE GRASS | 85 | 85 |
| 5.0 | 5.0 | ANNUAL RYE GRASS | 95 | 85 |
| 100.0 | 90.0 | | | |

GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY MASS AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.

MARKER POSTS: TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5M.

PAY LIMITS OF SAND BORROW: WHEN USED IN CONJUNCTION WITH UNDERDRAIN - SEE STANDARD SHEET D-2M.

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.07 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

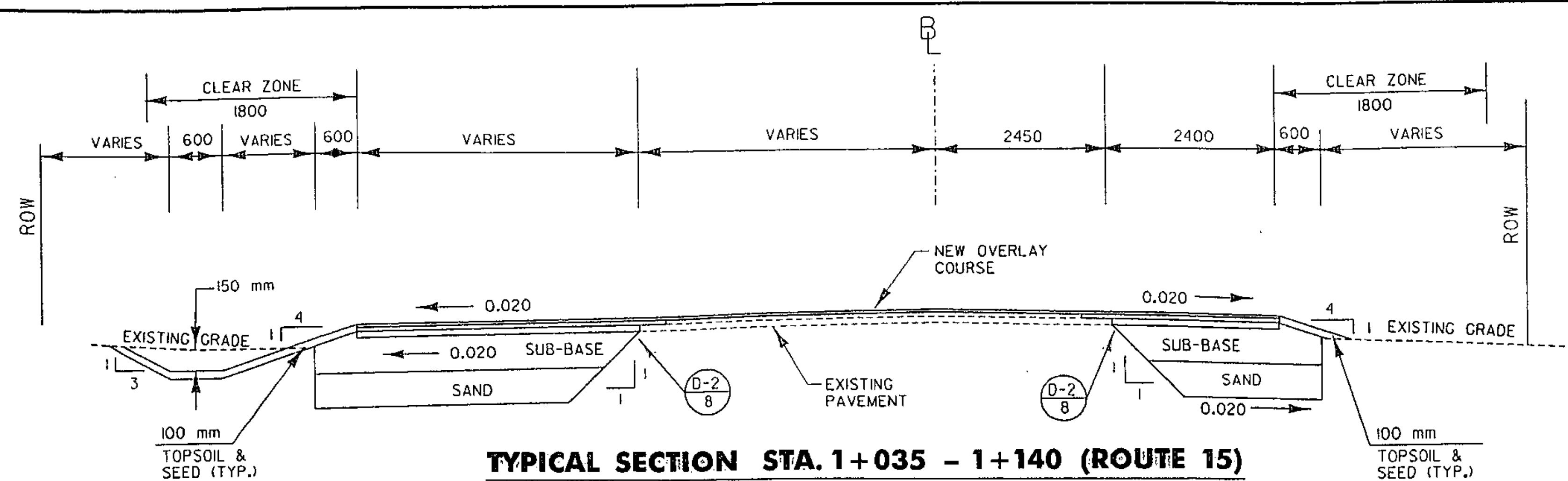
Handwritten calculations:

$$\frac{90 \text{ kg}}{10000} \left(\frac{2.2 \text{ lb}}{\text{acre}} \right) \left(\frac{0.3078 \text{ m}^2}{\text{acre}} \right)^2$$

$$\frac{43560 \text{ m}^2}{\text{acre}} = 80.1 \text{ lb/acre}$$

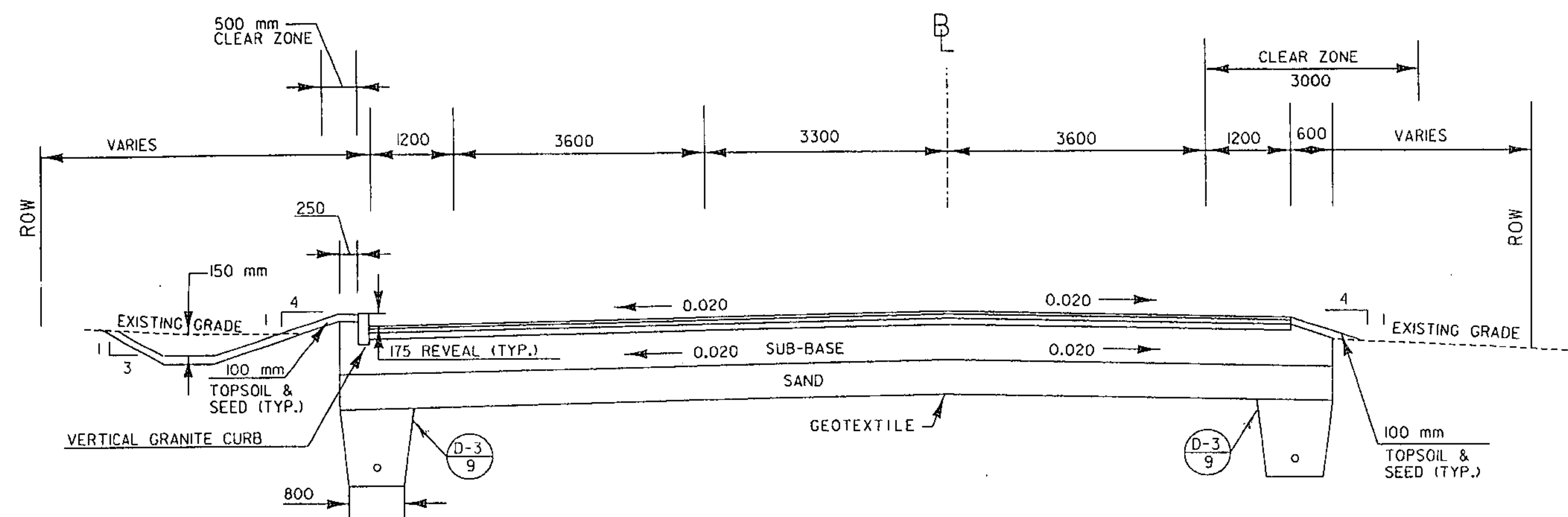
$$\frac{80.1}{90} = \frac{x}{560} \Rightarrow x = 498.6 \text{ lb/acre}$$

$$\frac{80.1}{90} = \frac{x}{7500} \Rightarrow x = 6606.4 \text{ lb/acre}$$



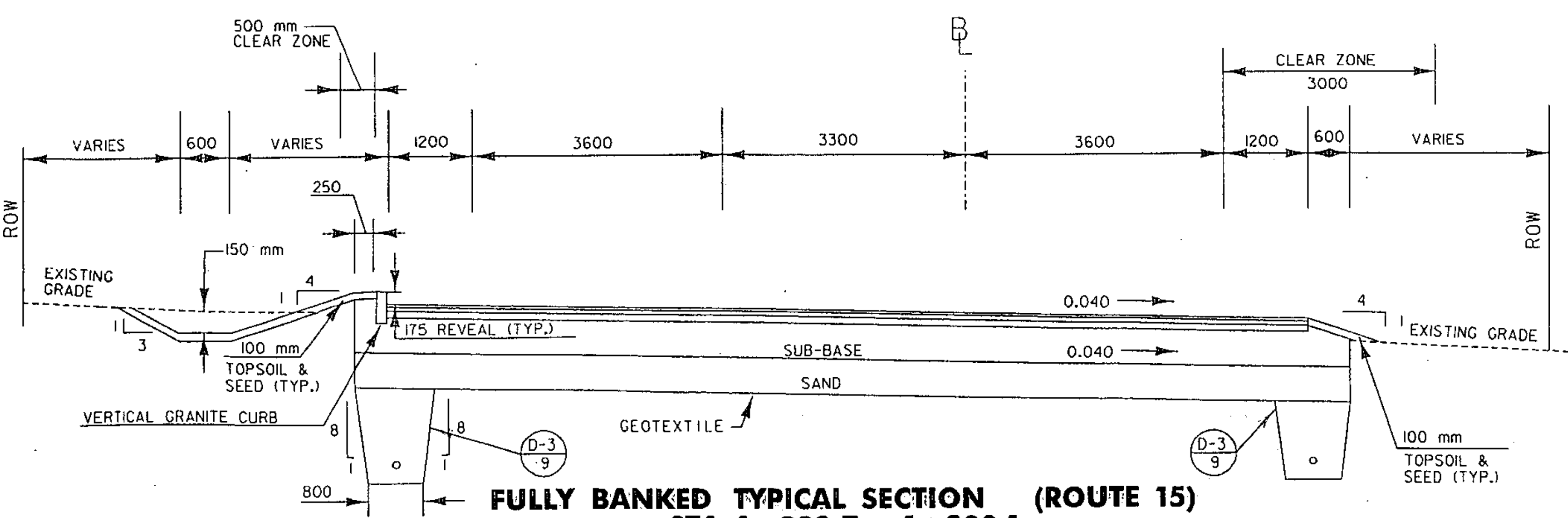
TYPICAL SECTION STA. 1+035 - 1+140 (ROUTE 15)

NTS



TYPICAL SECTION STA. 1+140 - 1+223.7 (ROUTE 15)

NTS * SEE SUPERELEVATION DIAGRAM ON SHEET 22 FOR PAVEMENT SLOPES IN SUPERELEVATION TRANSITION AREAS



FULLY BANKED TYPICAL SECTION (ROUTE 15) STA. 1+223.7 - 1+300.1

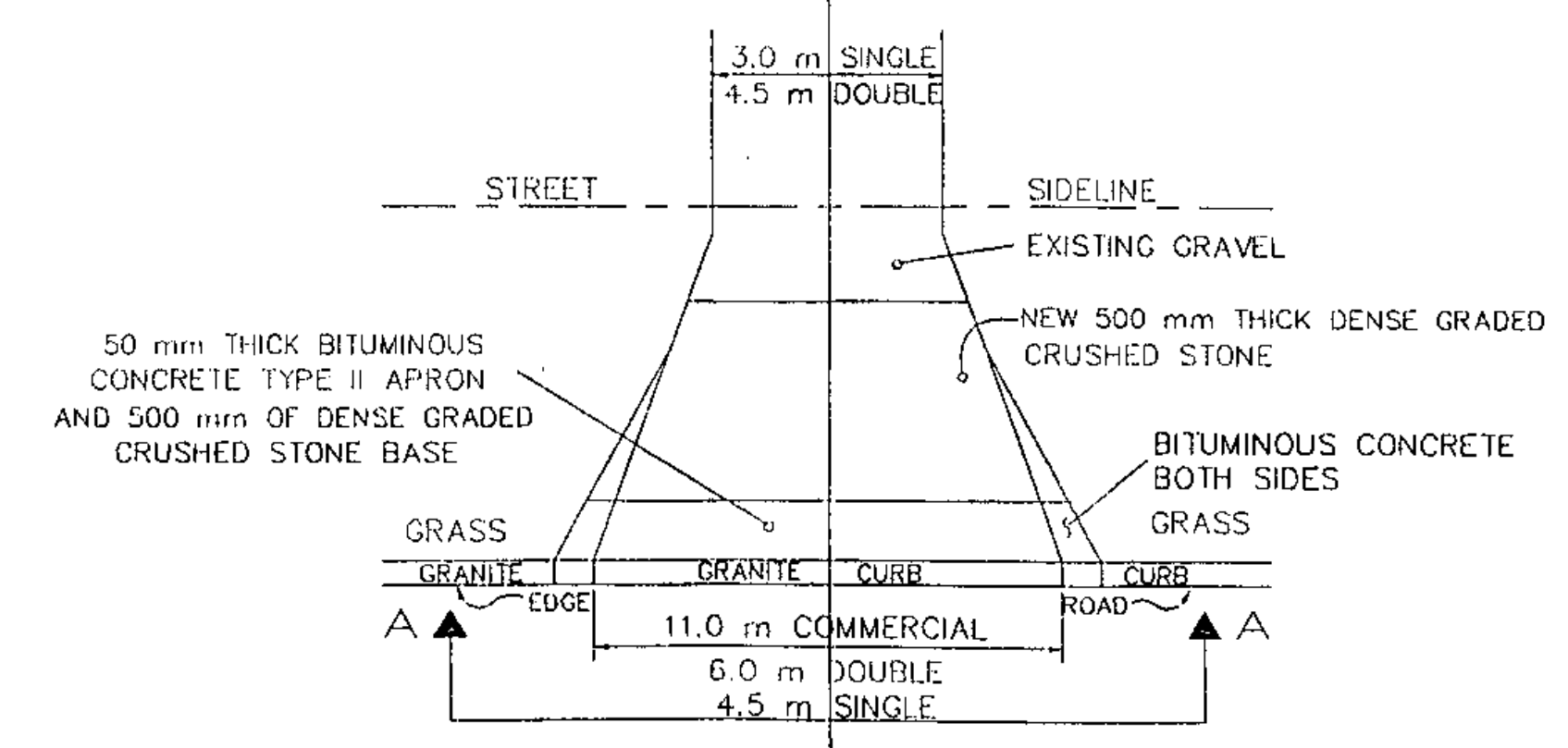
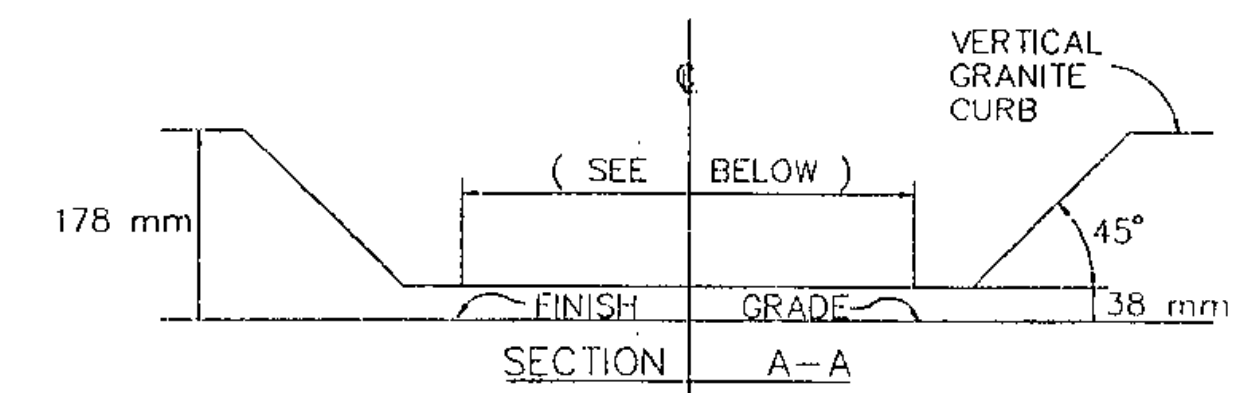
NTS * SEE SUPERELEVATION DIAGRAM ON SHEET 22

ROUTE 15

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III-S (PLACED IN ONE LIFT) |
| BINDER COURSE: | 70 mm TYPE II-S (PLACED IN ONE LIFT) |
| BASE COURSE: | 90 mm TYPE I-S (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |

1. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28

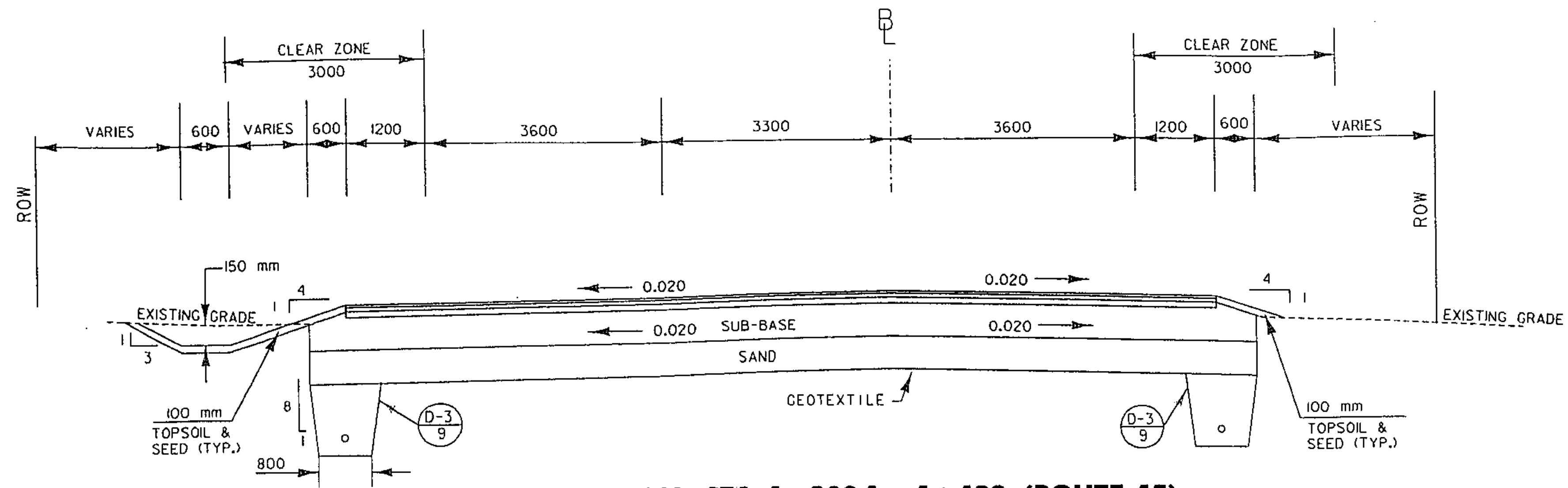


RESIDENTIAL GRAVEL DRIVEWAY CURB CUT

NTS

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| | | |
|------------------|---------------------|--|
| TYPICAL SECTIONS | PROJECT NAME: | ESSEX |
| | PROJECT NUMBER: | STP 030-(117)S |
| | PLOT FILE NAME: | zstp030-(117)sfrm.dgn |
| | L&D PROJECT NUMBER: | 00-074 |
| | DESIGNED BY: | LAMOUREUX & DICKINSON |
| | CHECKED BY: | RJD |
| | | CONSULTING ENGINEERS, INC. SHEET 7 OF 42 |



TYPICAL SECTION STA. 1+300.1 - 1+482 (ROUTE 15)

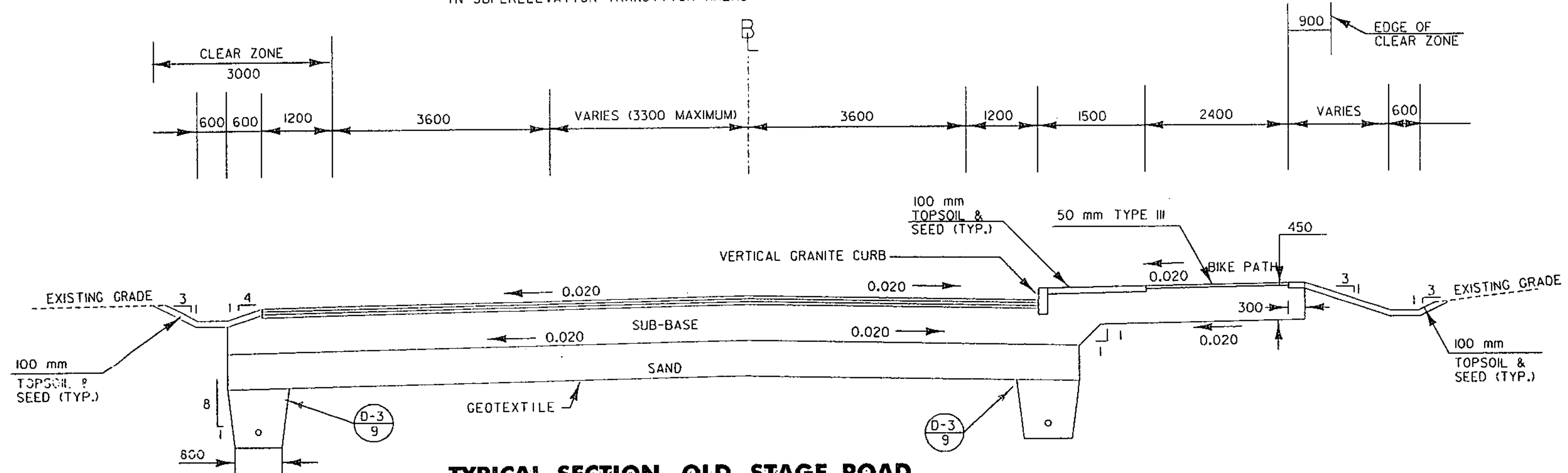
NTS * SEE SUPERELEVATION DIAGRAM ON SHEET 22 FOR PAVEMENT SLOPES IN SUPERELEVATION TRANSITION AREAS

ROUTE 15

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III-S (PLACED IN ONE LIFT) |
| BINDER COURSE: | 70 mm TYPE II-S (PLACED IN ONE LIFT) |
| BASE COURSE: | 90 mm TYPE I-S (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |

I. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28



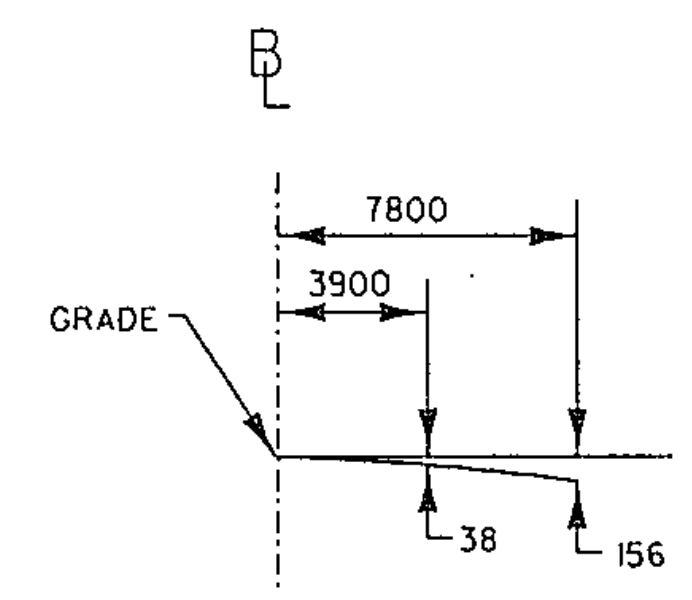
TYPICAL SECTION OLD STAGE ROAD

OLD STAGE ROAD

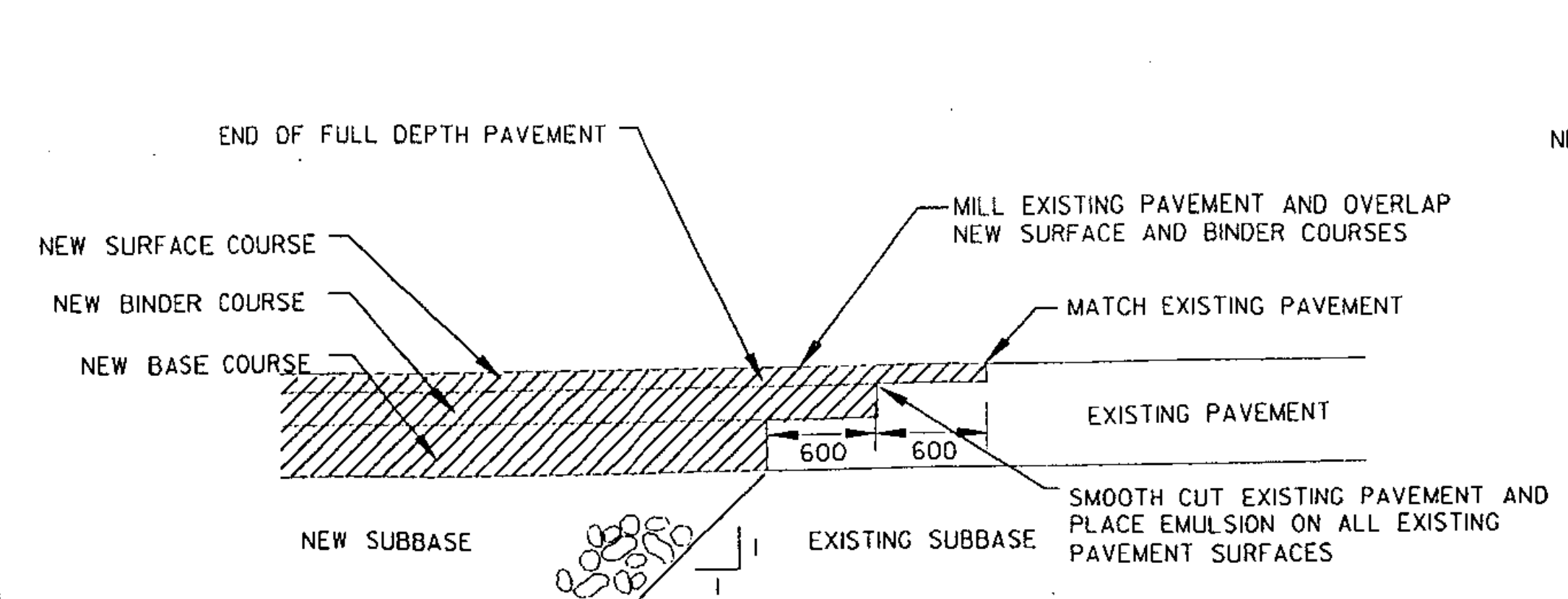
| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III (PLACED IN ONE LIFT) |
| BINDER COURSE: | 50 mm TYPE II (PLACED IN ONE LIFT) |
| BASE COURSE: | 55 mm TYPE I (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

I. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |



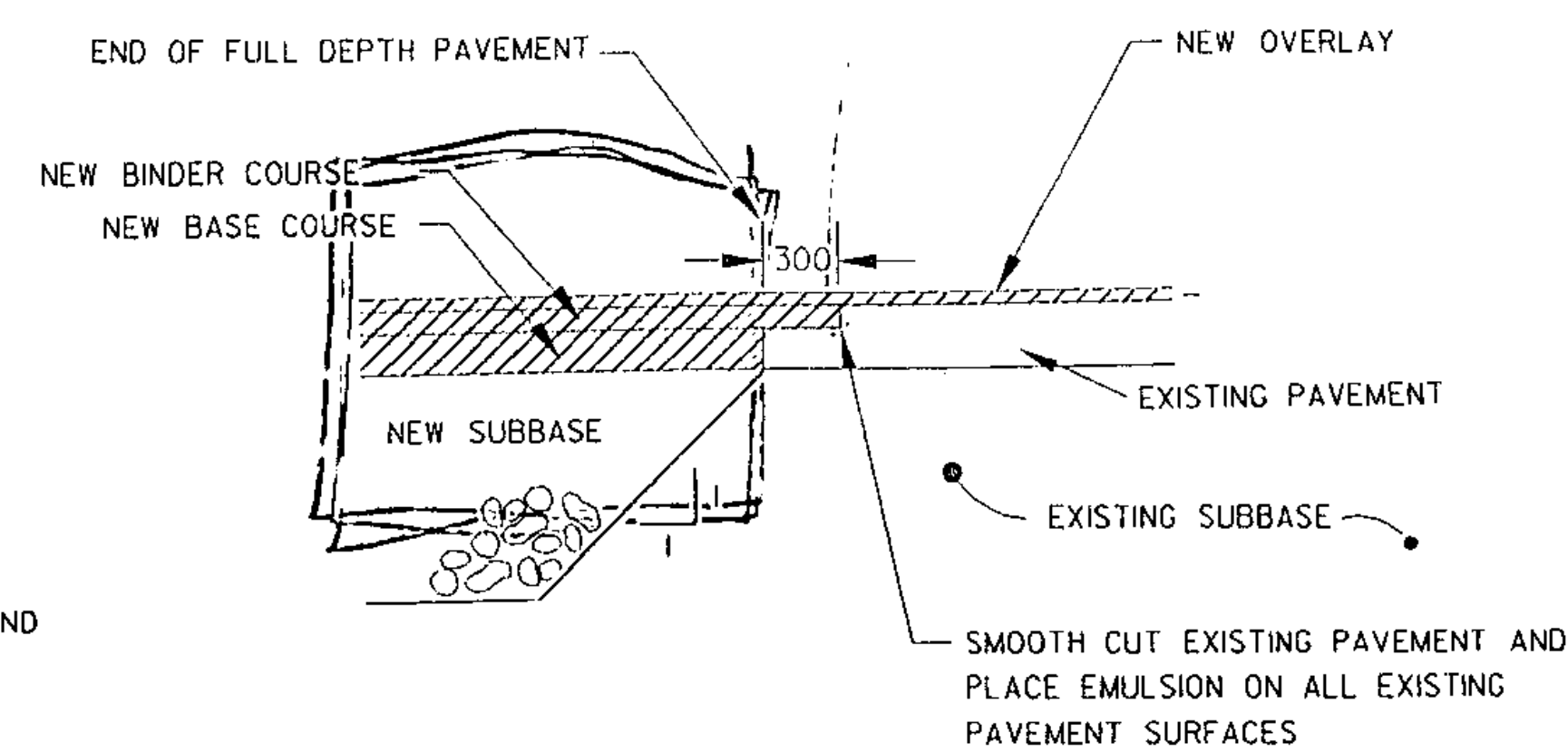
PARABOLIC DETAIL



PAVEMENT JOINT DETAIL WITHOUT OVERLAY

NTS

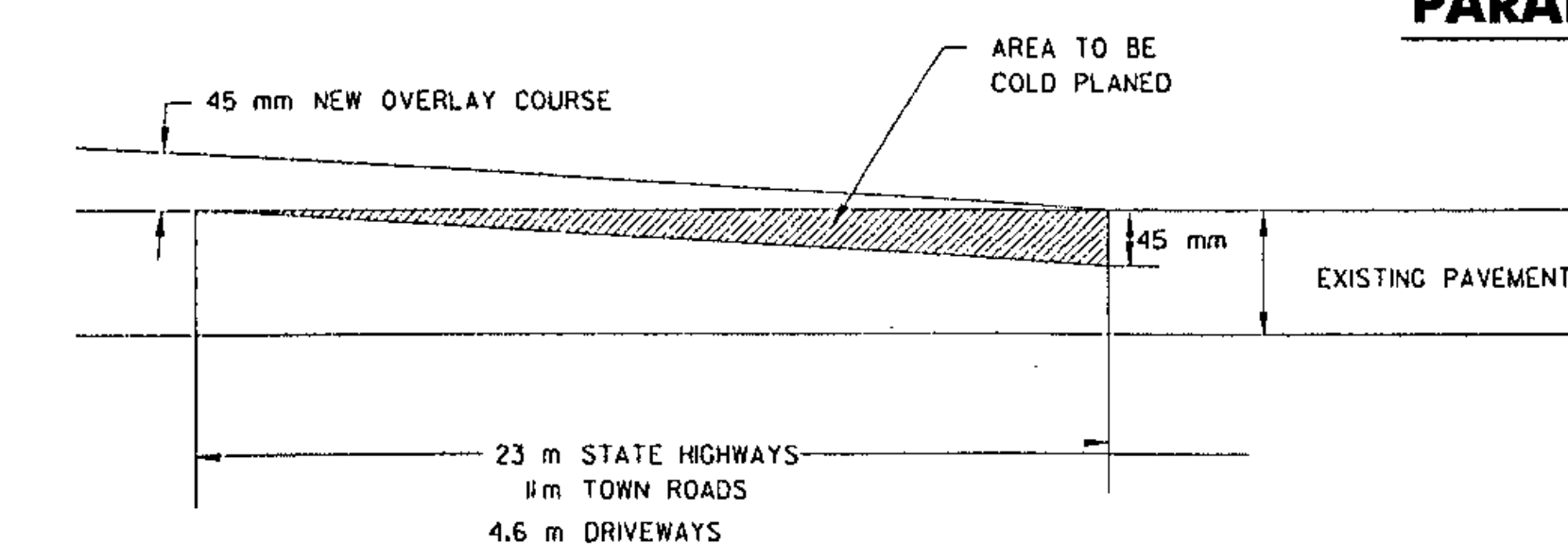
D-1/8



PAVEMENT JOINT DETAIL WITH OVERLAY

NTS

D-2/8

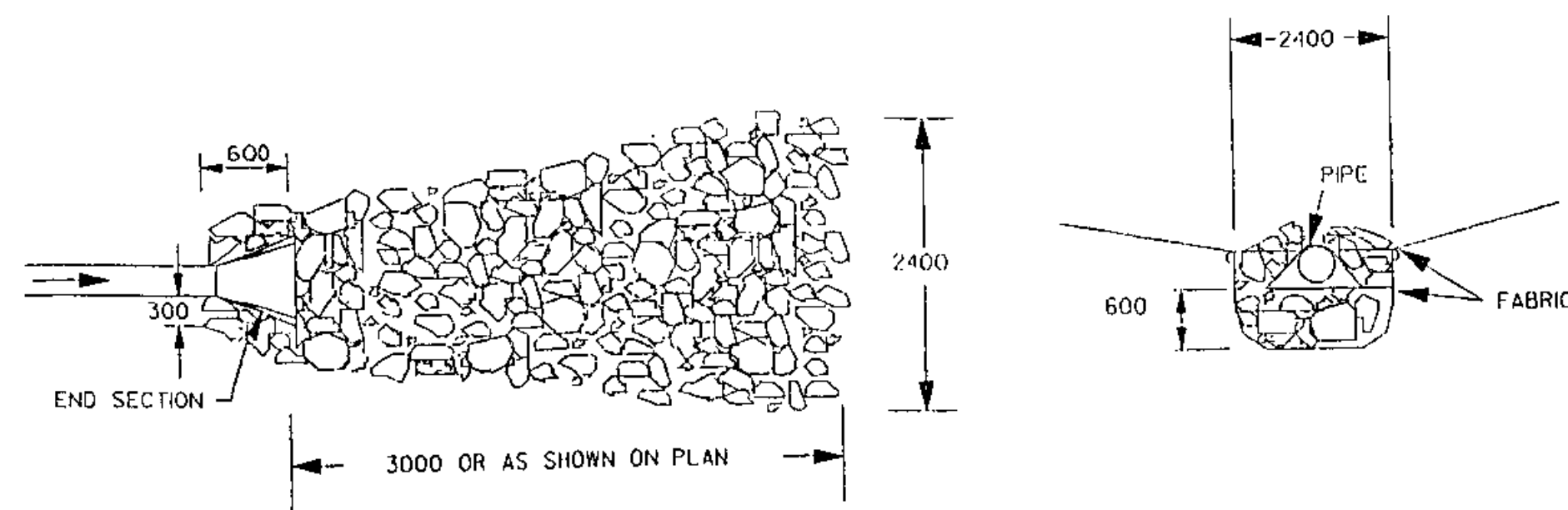


COLD PLANE SECTION

NTS

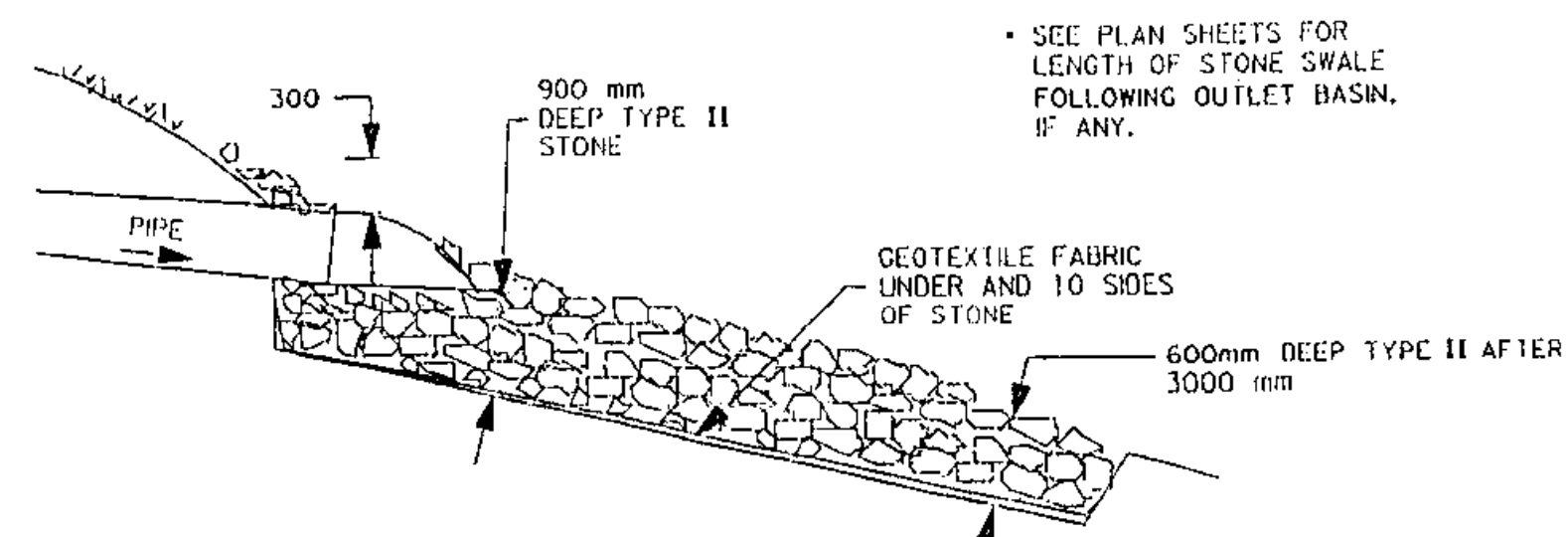
NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| TYPICAL SECTIONS | PROJECT NAME: ESSEX |
|------------------|--|
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| | DESIGNED BY: LAMOUREUX & DICKINSON |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 8 OF 42 |



PLAN VIEW

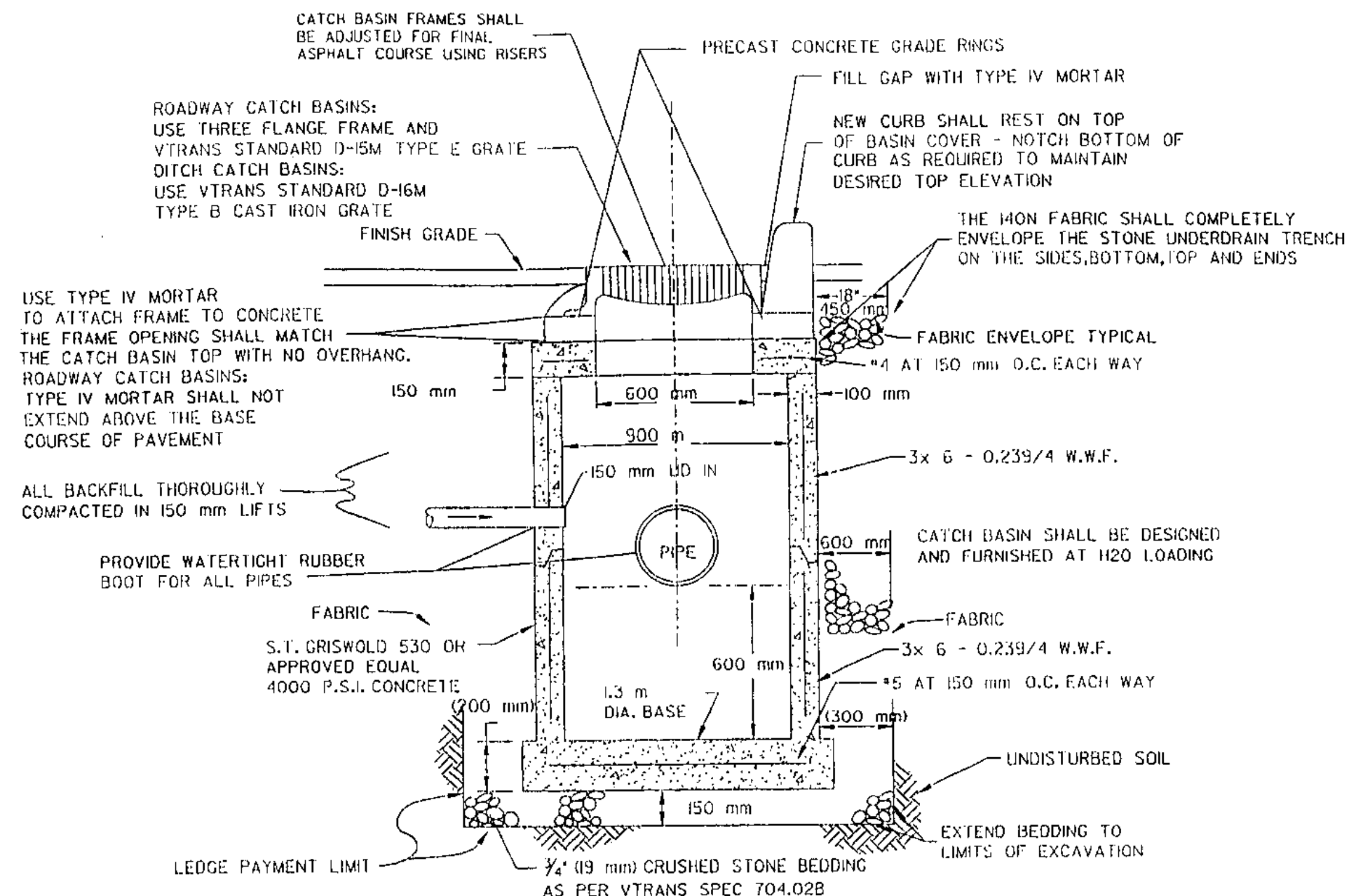
SECTION VIEW



CROSS-SECTION

STONE STORM OUTFALL DETAIL

NTS



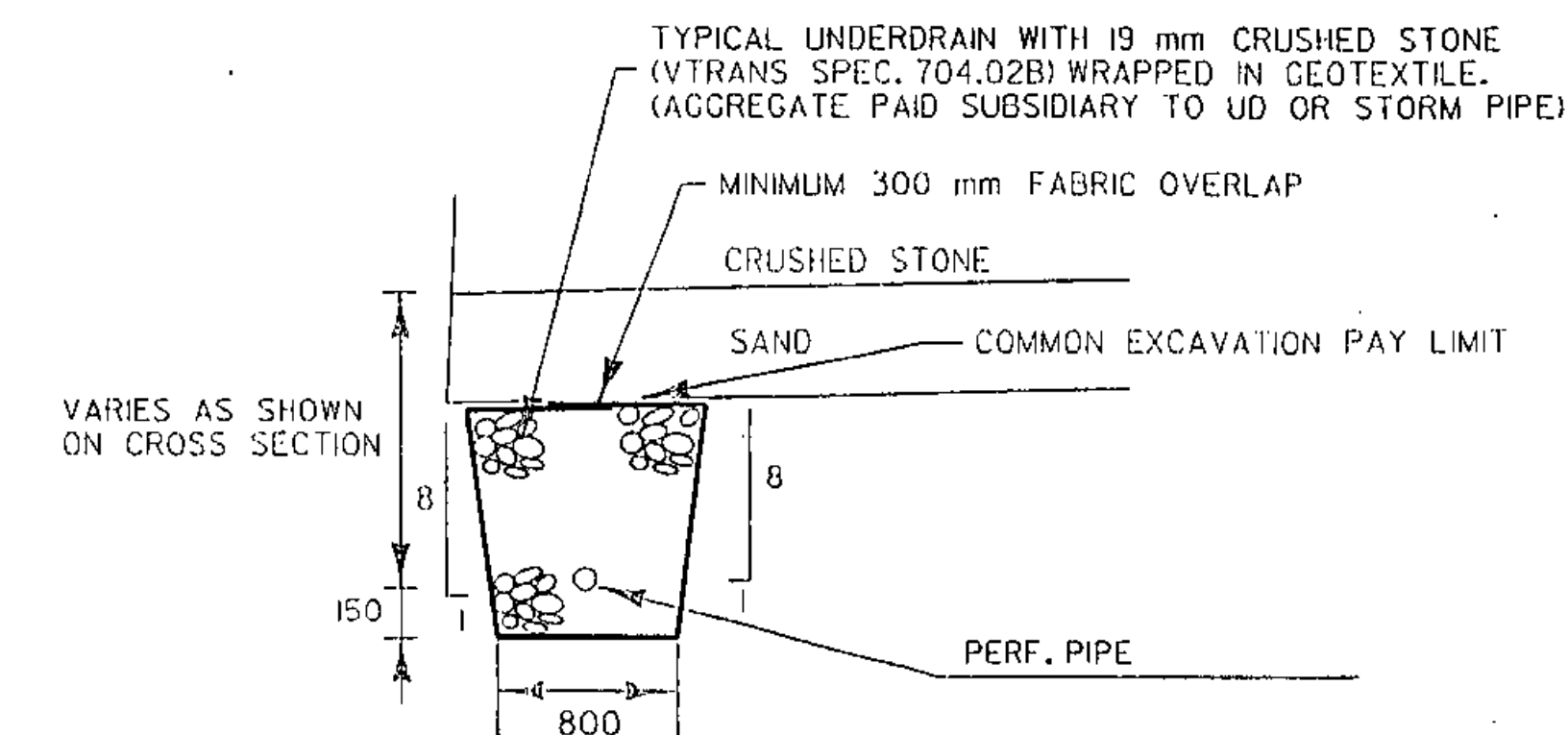
PRECAST CATCH BASIN

NTS

- CATCH BASINS SHALL BE SIZED SUCH THAT:
1. AT ANY ELEVATION, A MINIMUM OF 60% OF THE CIRCUMFERENCE SHALL BE CONCRETE.
 2. THE MINIMUM DISTANCE, AS MEASURED ALONG THE CIRCUMFERENCE, BETWEEN TWO OPENINGS SHALL BE 6" (150 mm).
 3. THE BASINS SHALL ALSO MEET THE FOLLOWING MINIMUM REQUIREMENTS:

| CATCH BASIN DIAMETER | LARGEST PIPE DIA. ALLOWED | SIDEWALL THICKNESS | CONCRETE COVER THICKNESS |
|----------------------|---------------------------|--------------------|--------------------------|
| 36" (0.9 m) | 18" (450 mm) | 4" (100 mm) | 6" (150 mm) |
| 48" (1.2 m) | 30" (760 mm) | 5" (127 mm) | 10" (250 mm) |
| 60" (1.5 m) | 36" (900 mm) | 6" (150 mm) | 12" (300 mm) |
| 72" (1.8 m) | 48" (1200 mm) | 7" (178 mm) | 18" (450 mm) |

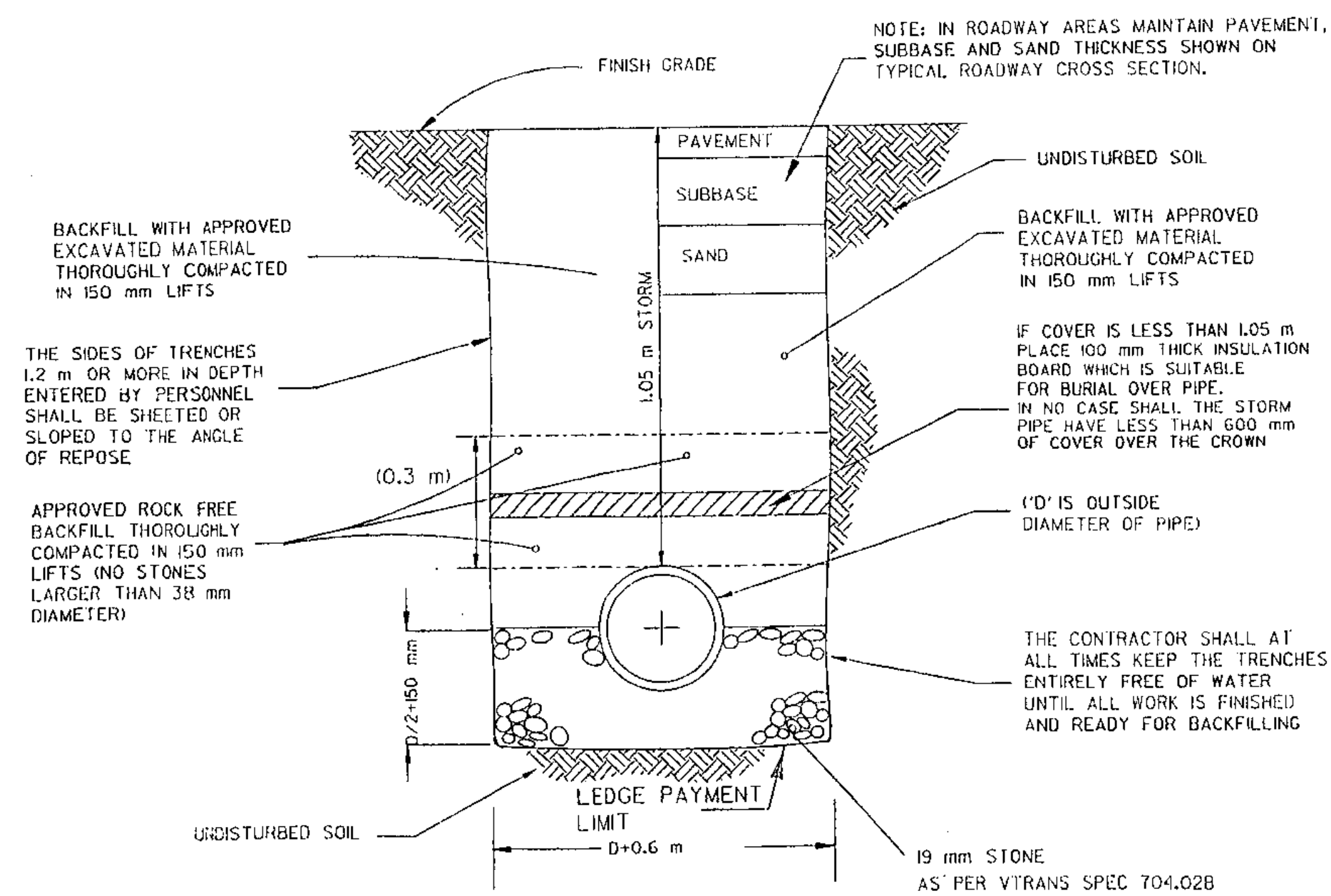
NOTE: FLUSHING BASINS SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE RISER STOPS SHALL BE OUTSIDE THE PAVEMENT, SIDEWALK OR CURB



TYPICAL UNDERDRAIN TRENCH

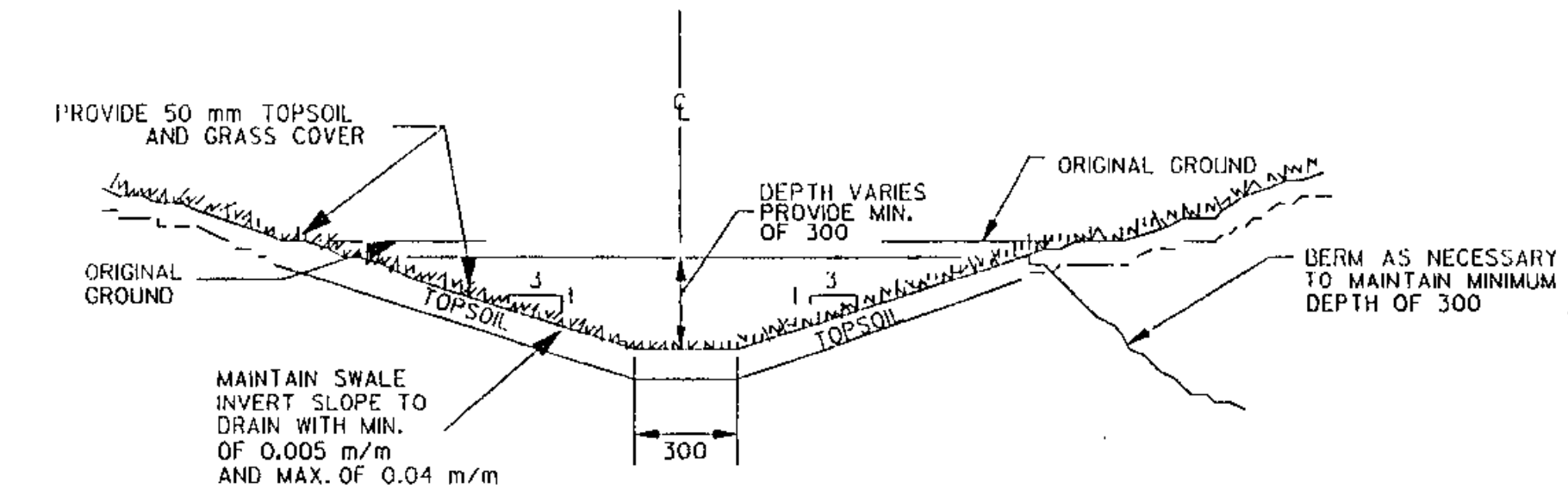
NTS

0-3
9



TYPICAL STORM TRENCH

NTS

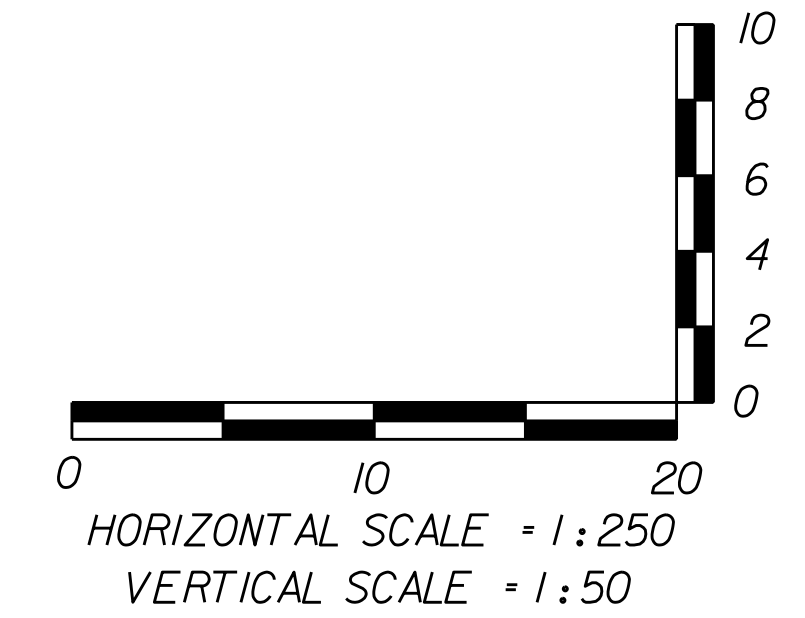
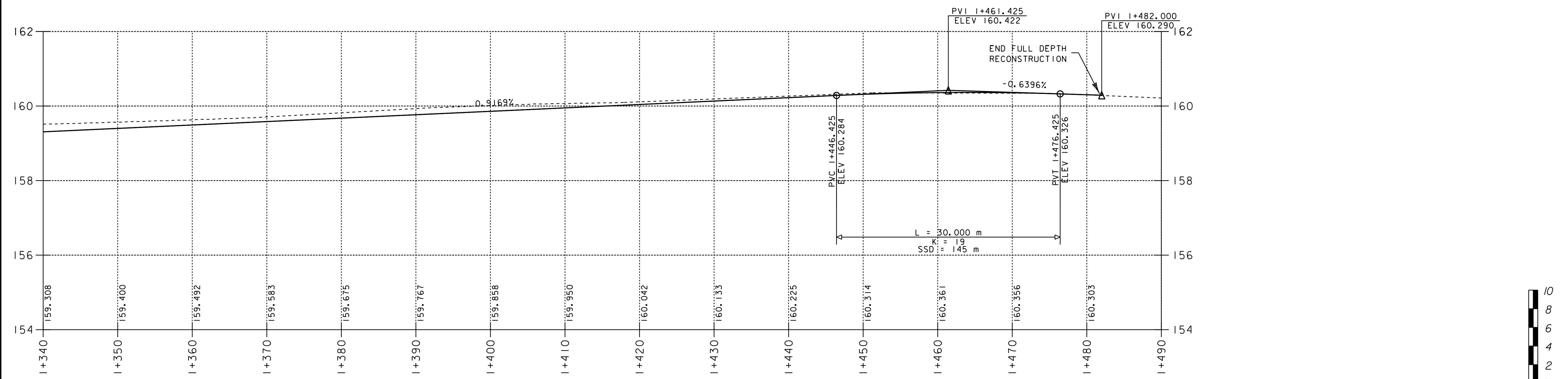
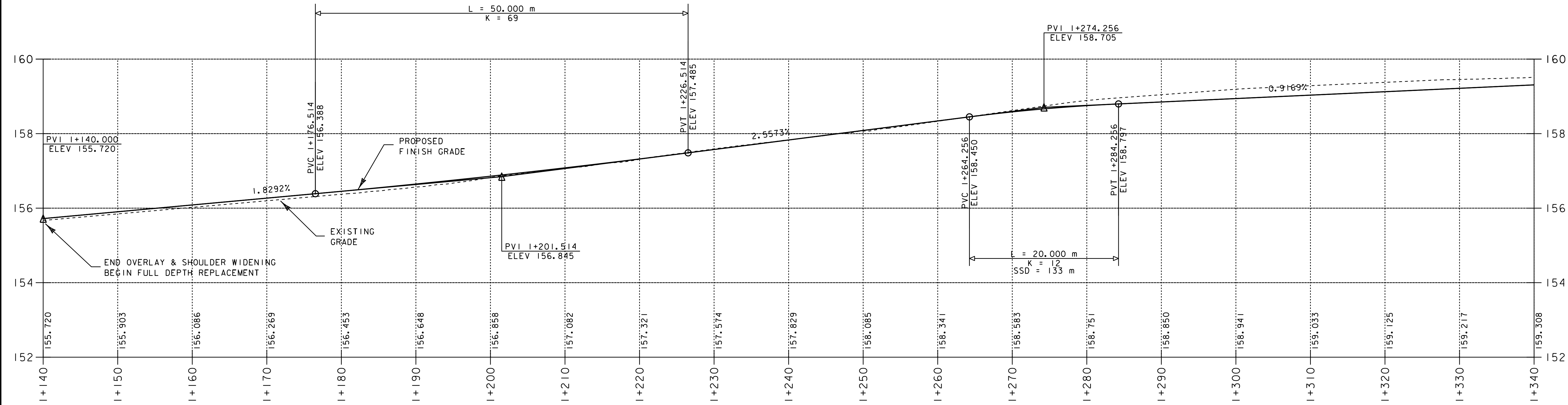


TYPICAL TYPE IA DRAINAGE SWALE

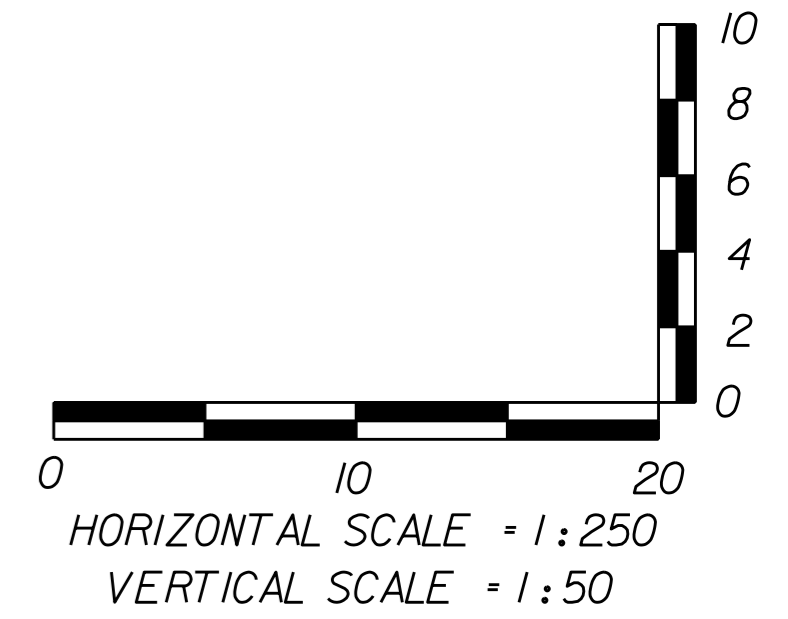
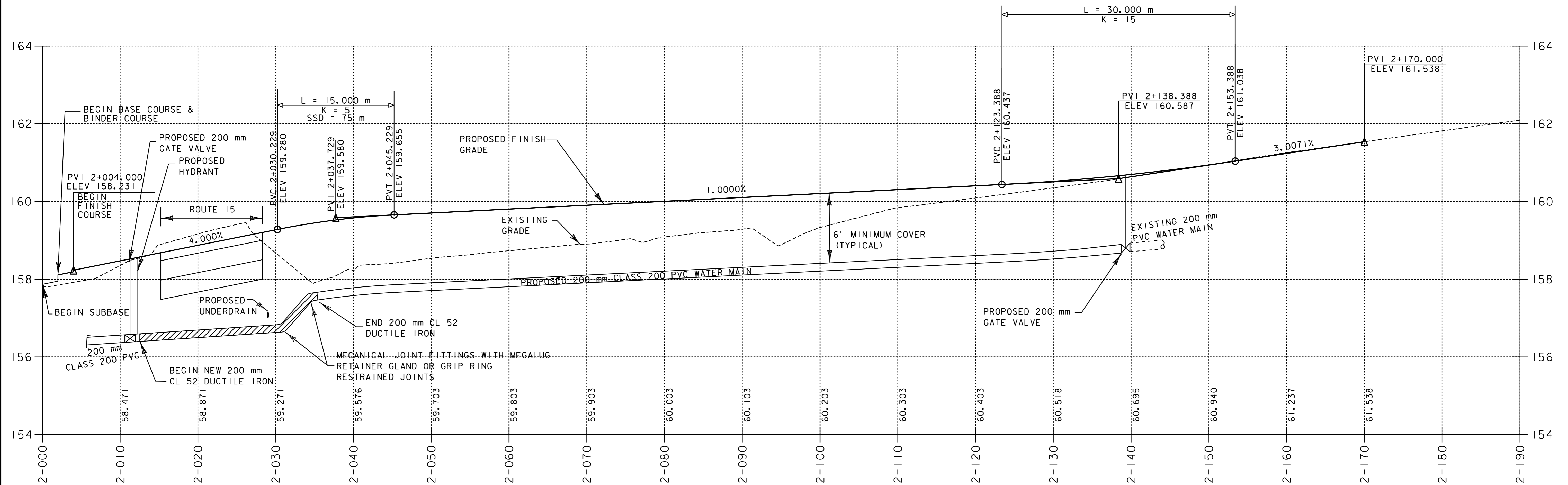
NTS

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

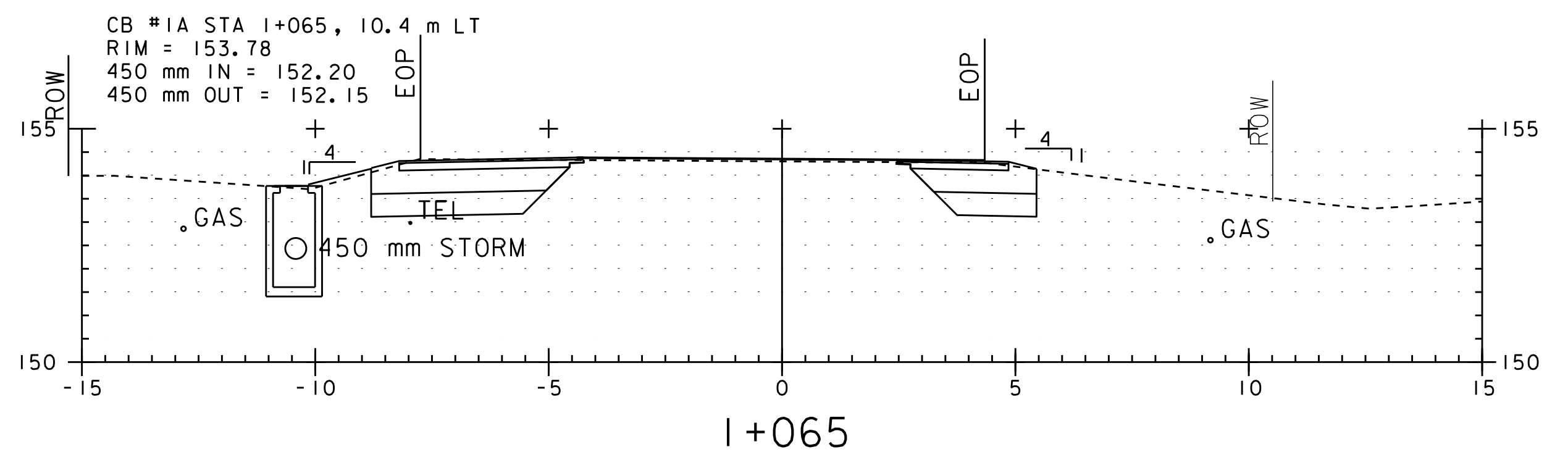
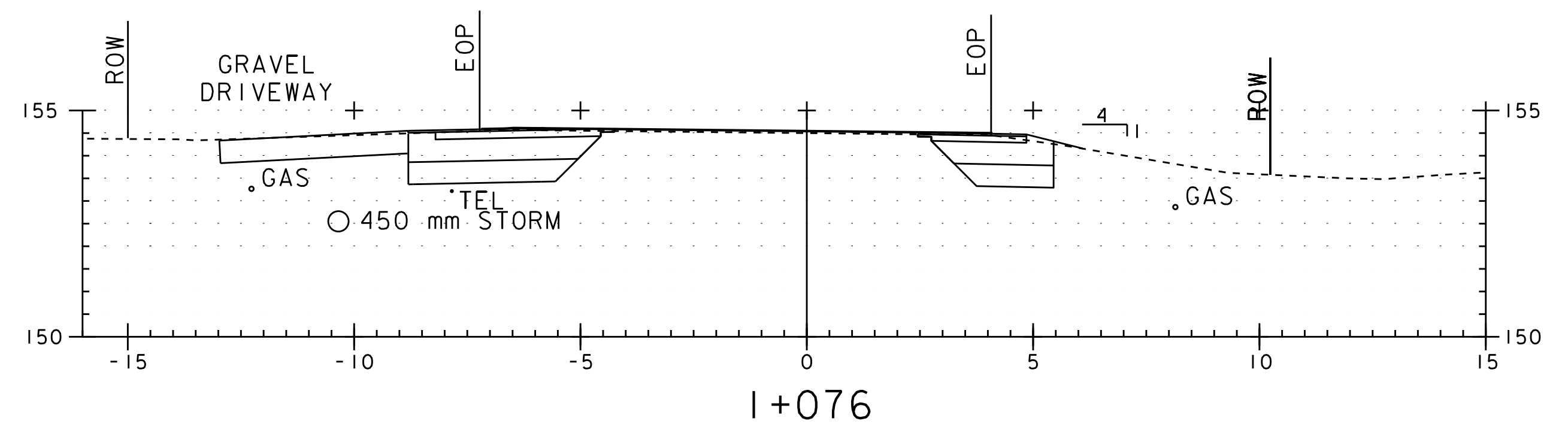
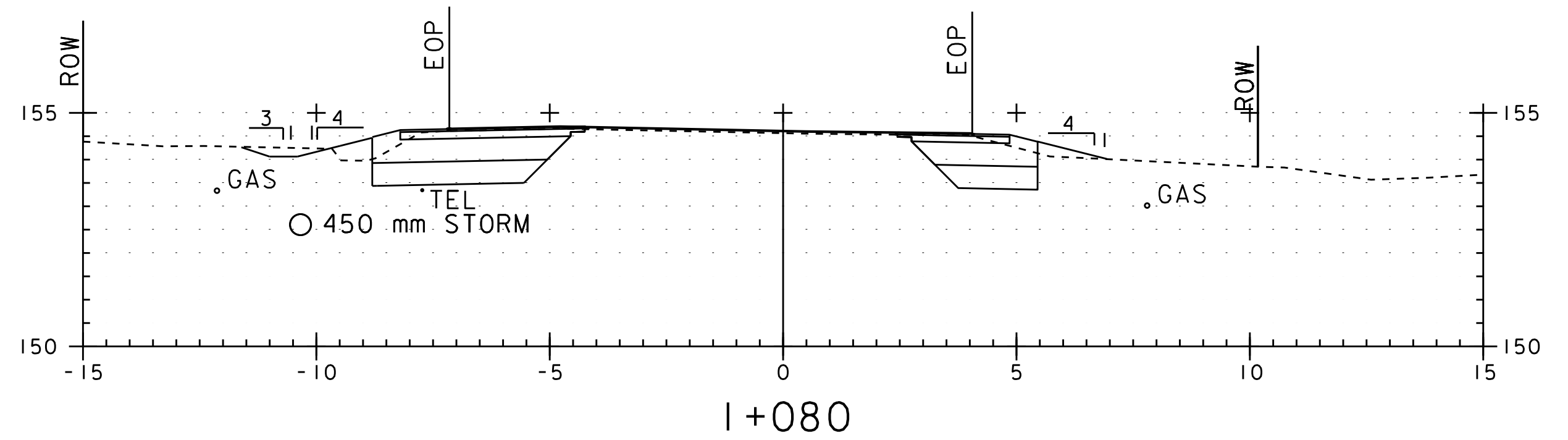
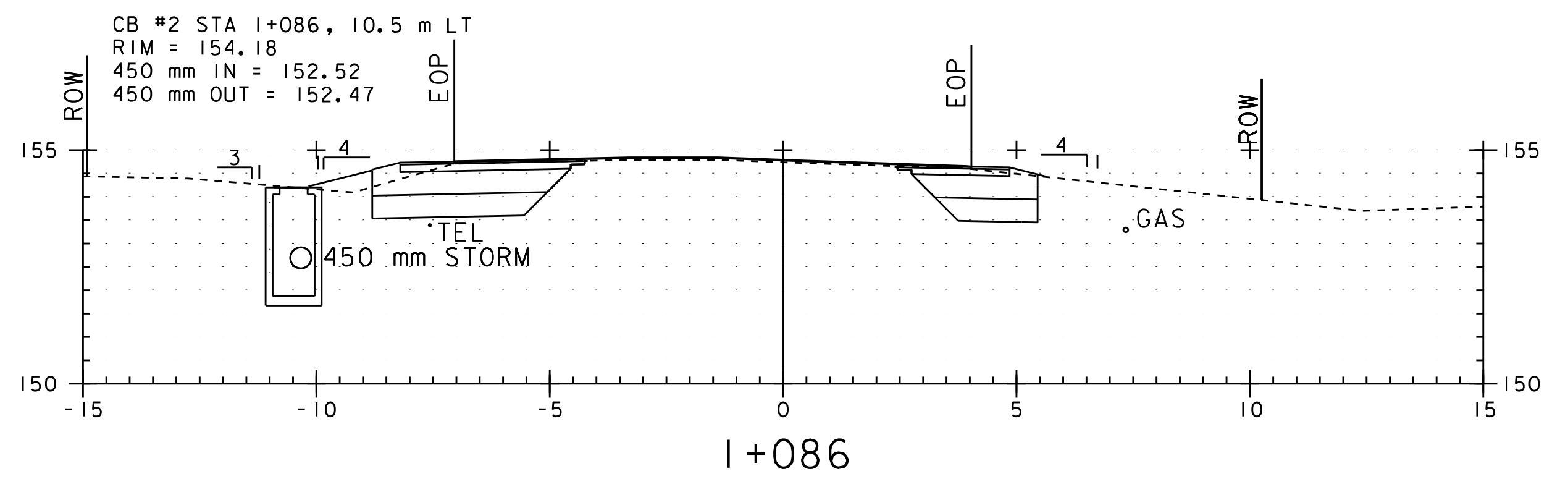
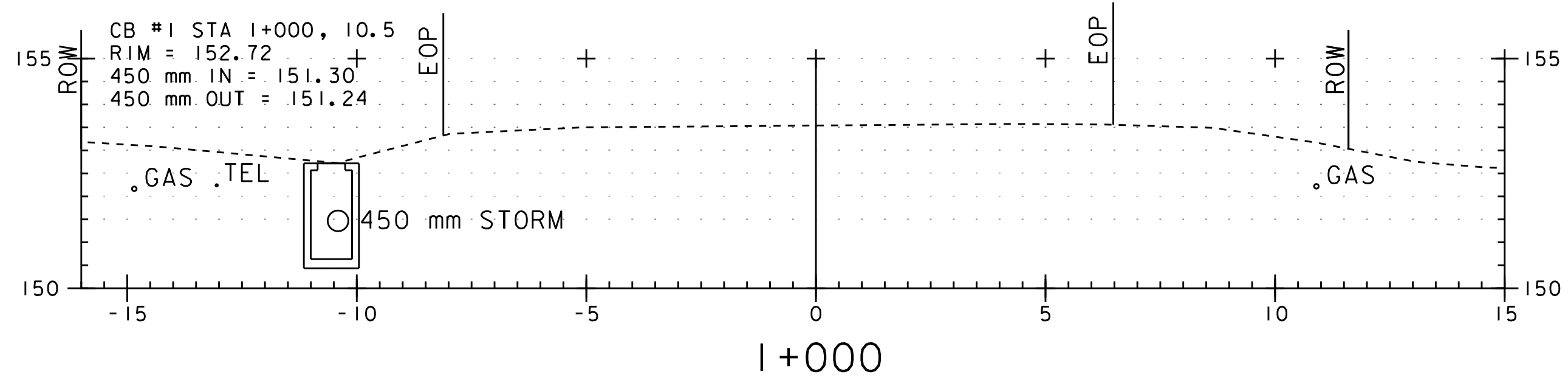
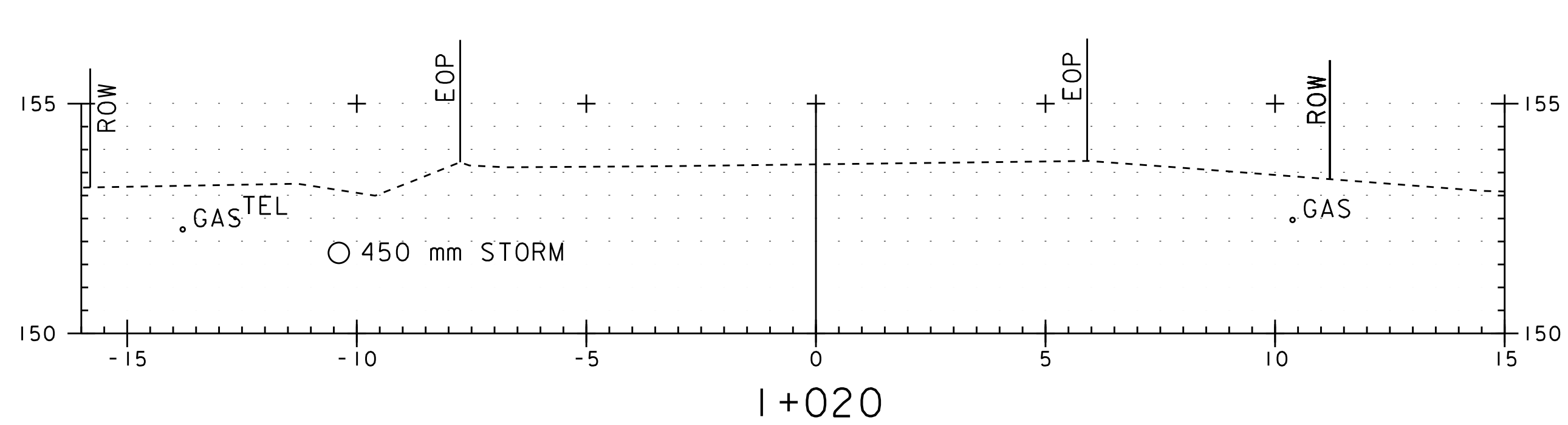
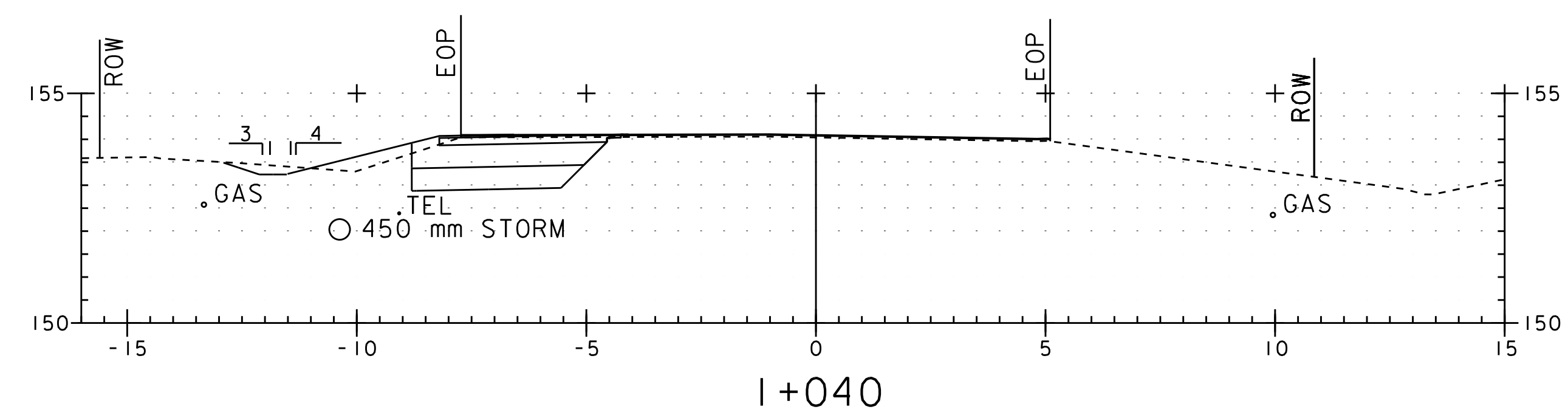
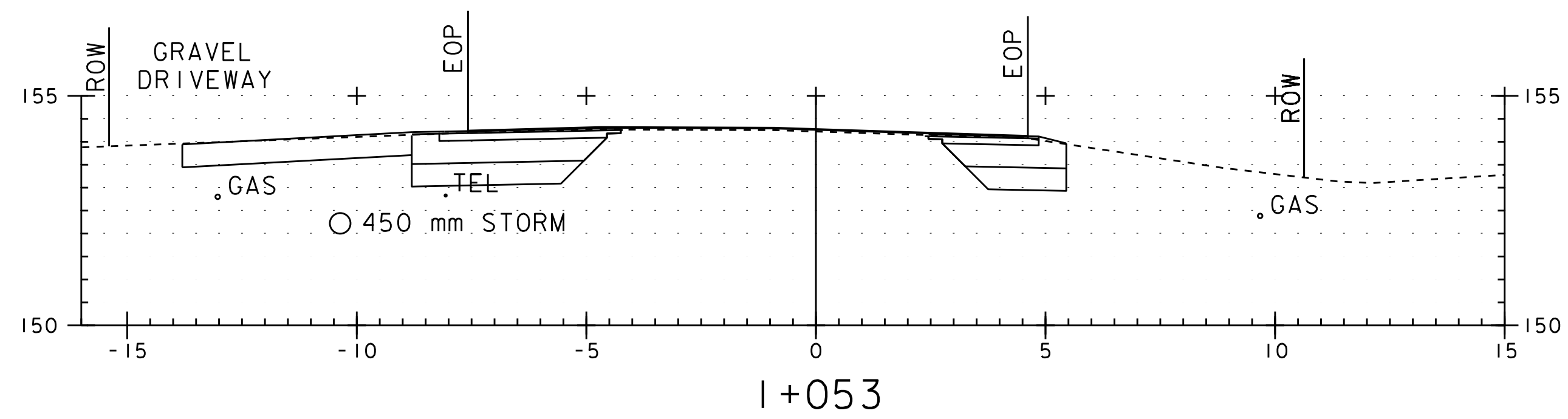
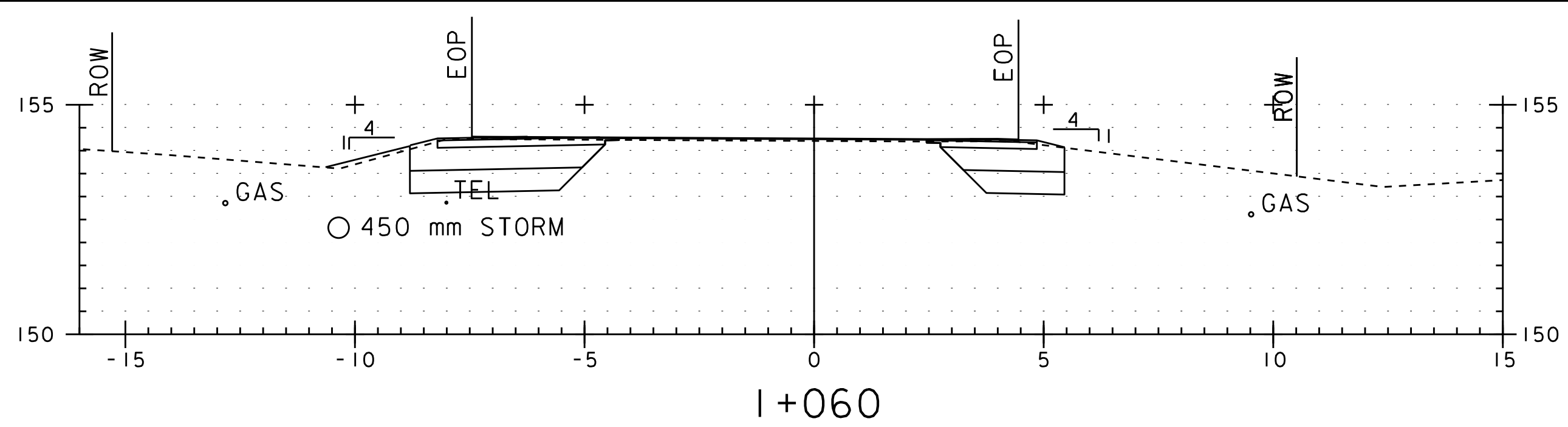
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|--------------------------------|----------------------------|-----------------------|
| STORM DETAILS & SPECIFICATIONS | PROJECT NAME: | ESSEX |
| | PROJECT NUMBER: | STP 030-1(17)S |
| | PLOT FILE NAME: | zstp030-1(17)sfrm.dgn |
| | L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| | CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | | SHEET 9 OF 42 |



| | |
|------------------------------------|--|
| ROUTE 15 PROFILE | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)swrk7.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 10 |

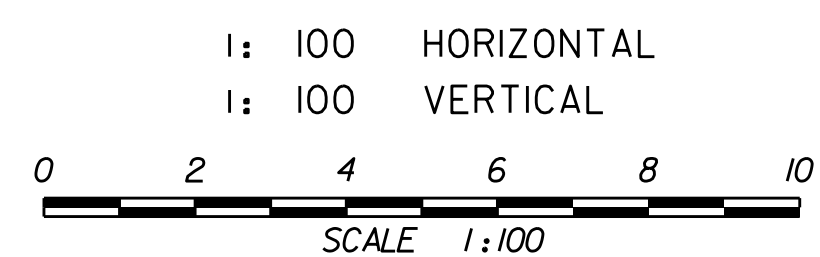


| | |
|------------------------------------|--|
| OLD STAGE ROAD PROFILE | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-I(17)S |
| | PLOT FILE NAME: zstp030-I(17)swrk8.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET II |



LEGEND

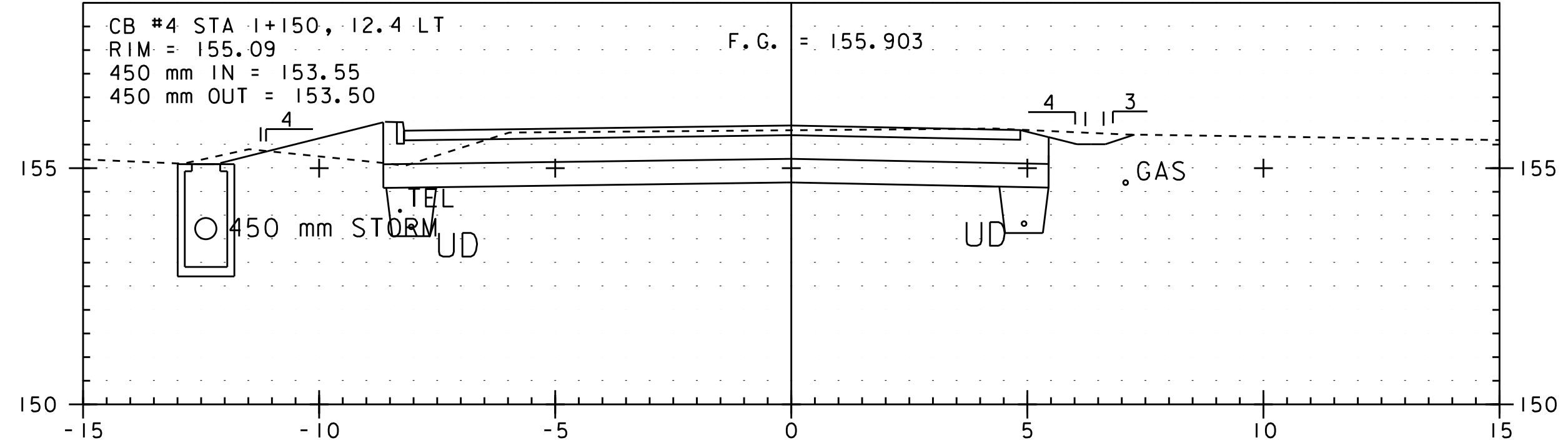
- FINISH GRADE
- - - EXISTING GROUND
- EOP EXISTING EDGE OF PAVEMENT
- ROW RIGHT OF WAY



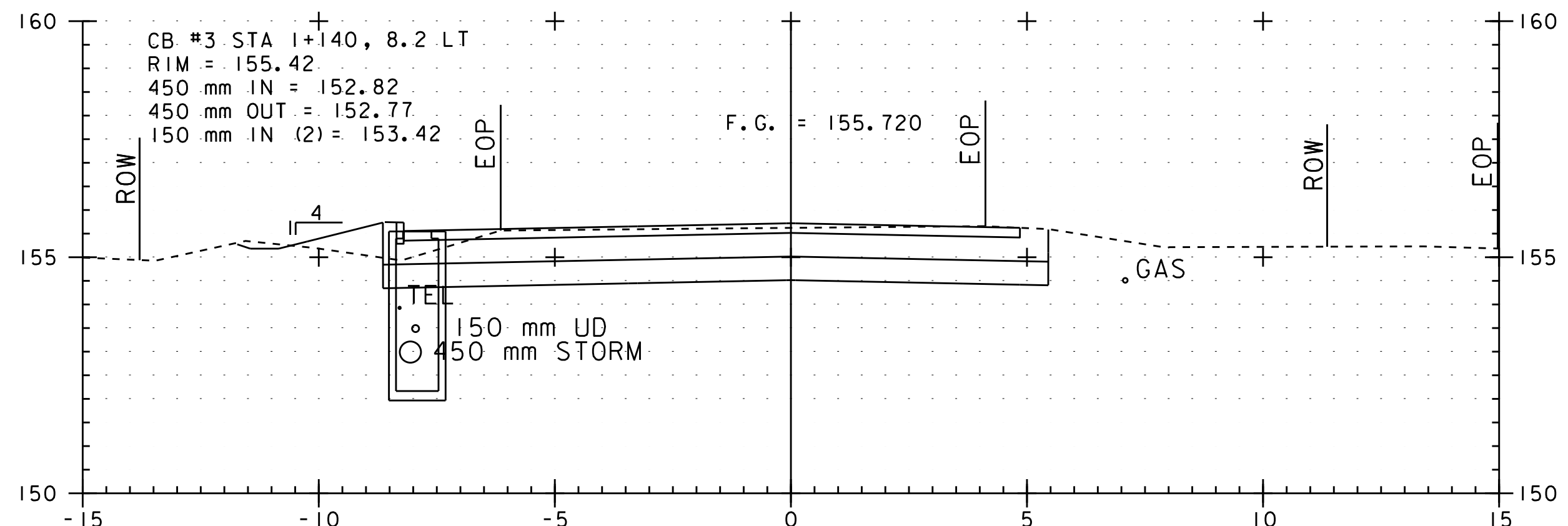
ROUTE 15
CROSS SECTIONS

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

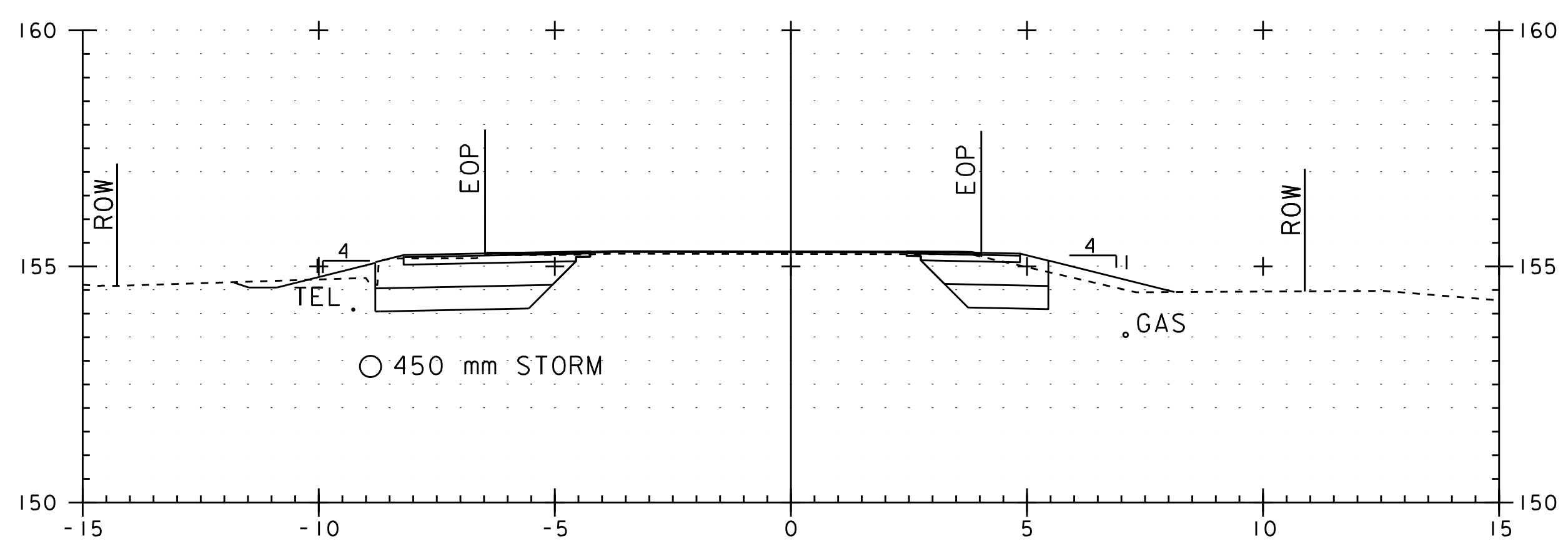
PLOT FILE NAME: zstp030-1(17)swrk8.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.
DRAWN BY: PLC
CHECKED BY: RJD
SHEET 12



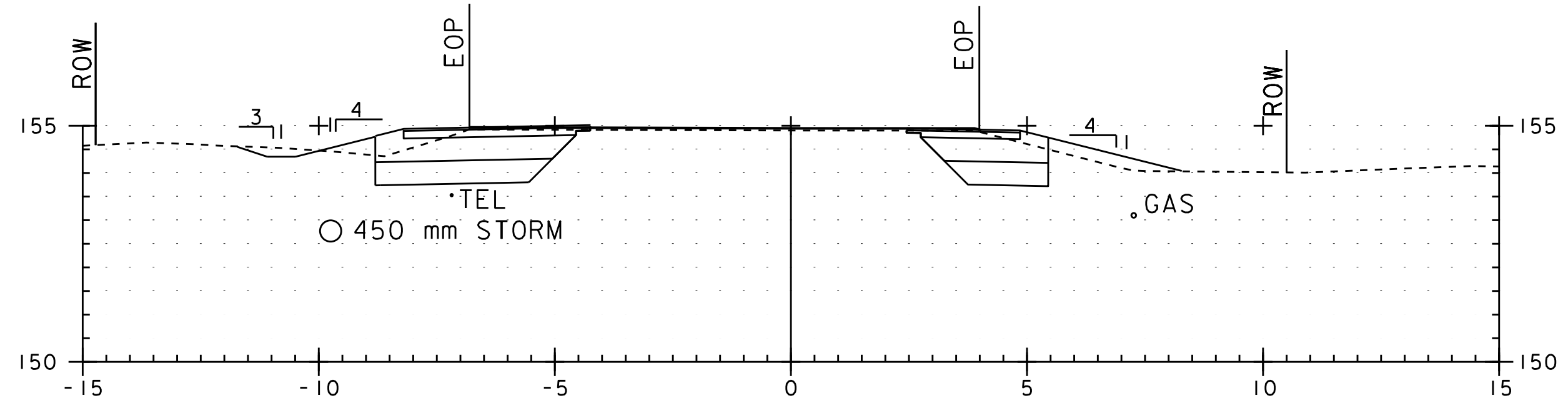
I+150



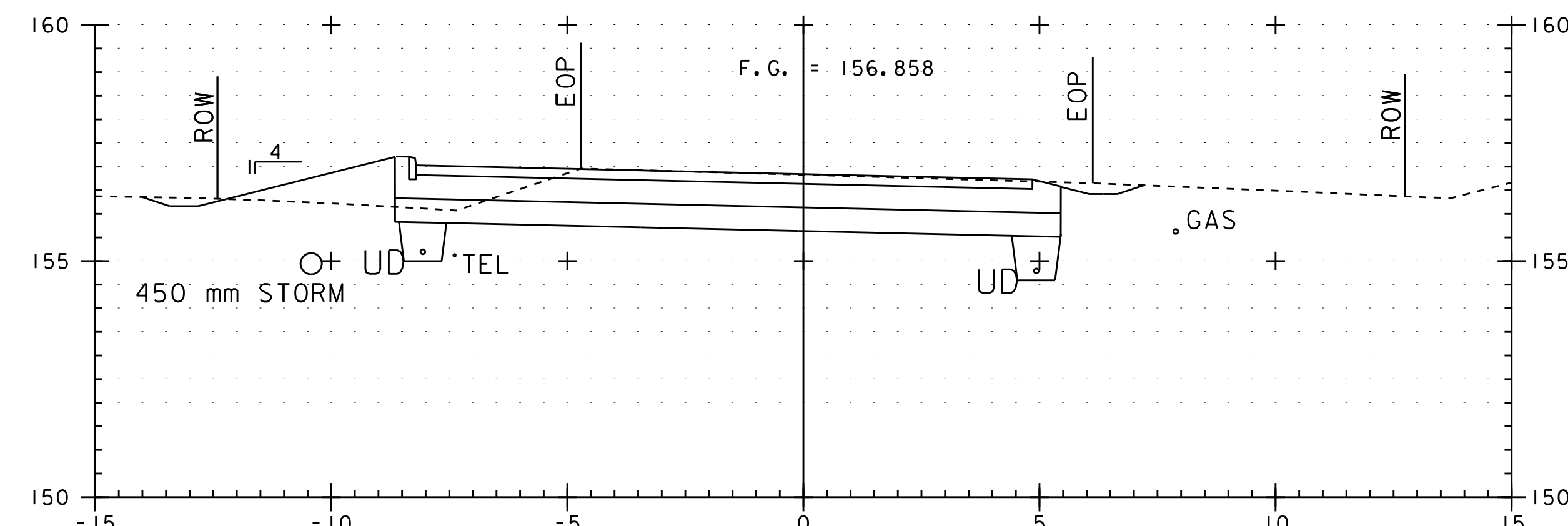
I+140



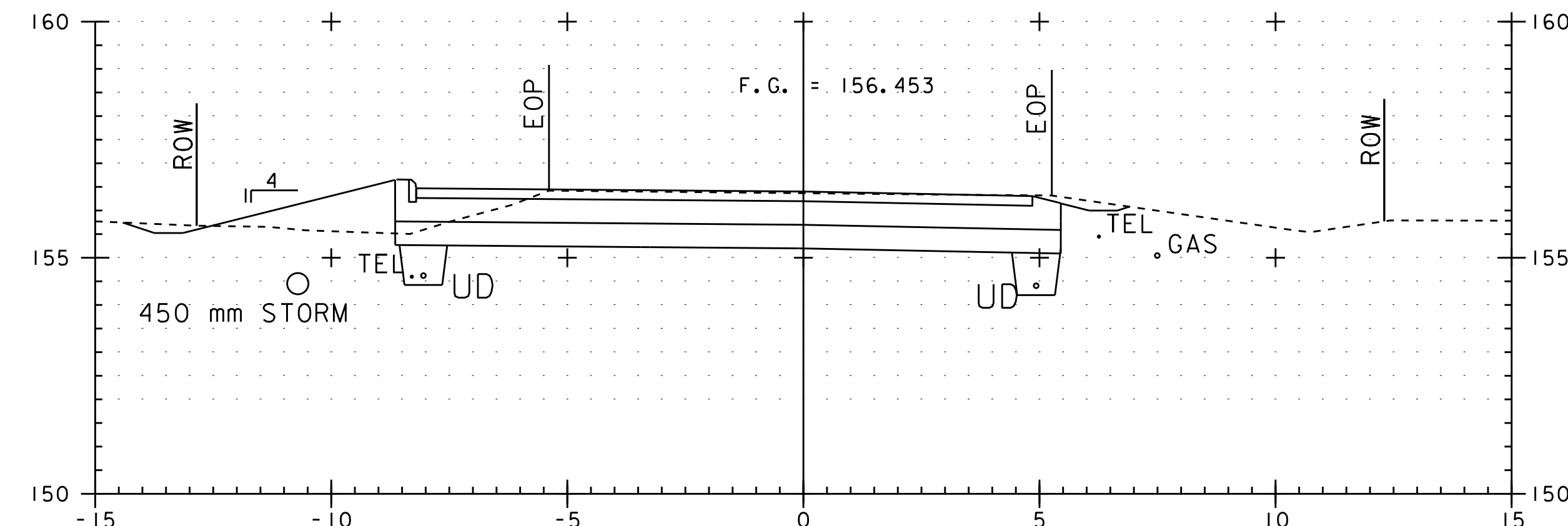
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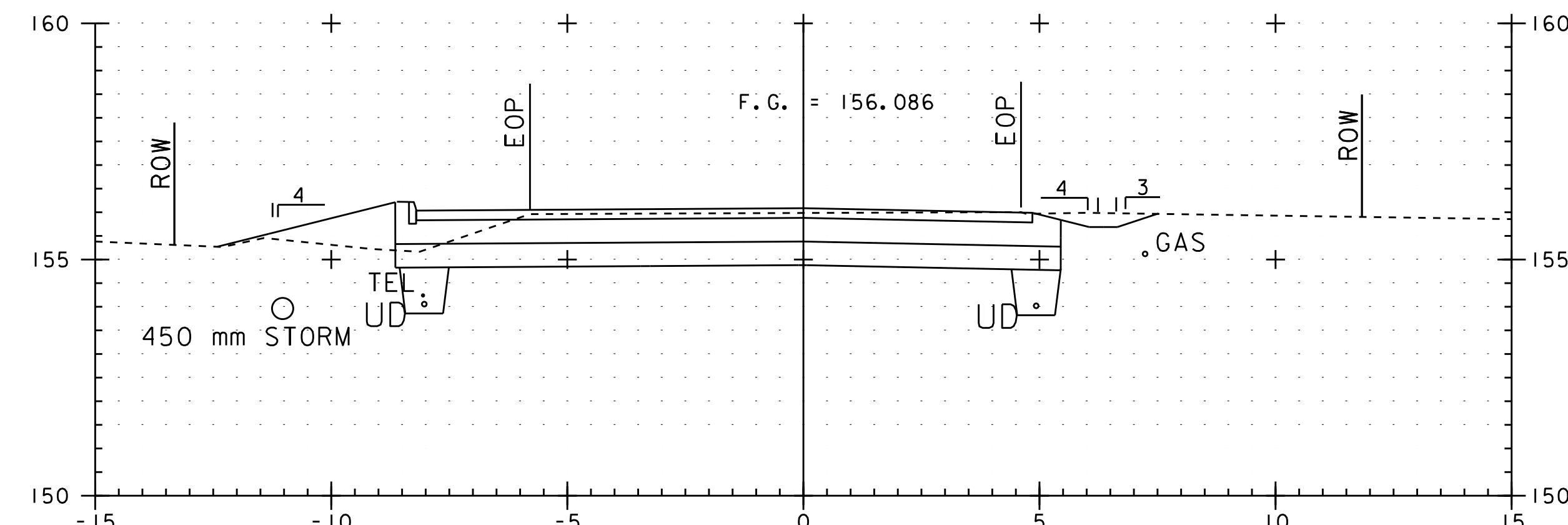
I+100



I+200



I+180

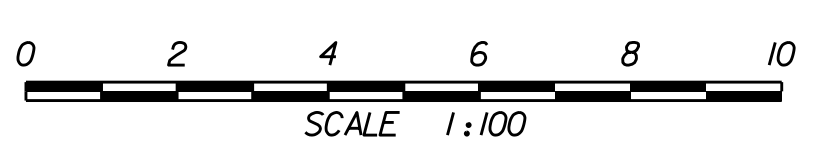


I+160

LEGEND

- FINISH GRADE
- - - - - EXISTING GROUND
- EOP EXISTING EDGE OF PAVEMENT
- ROW RIGHT OF WAY
- TEL EXISTING TELEPHONE LINE

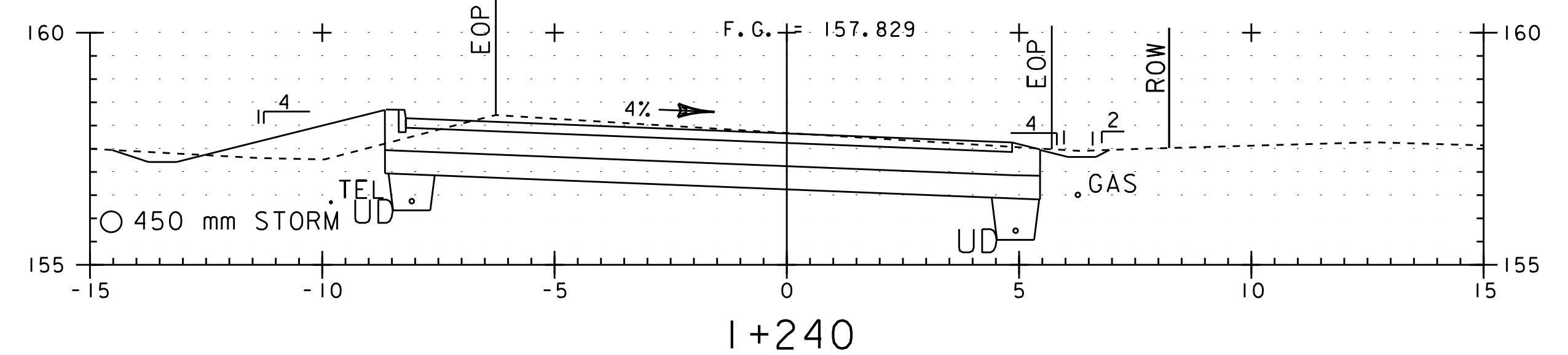
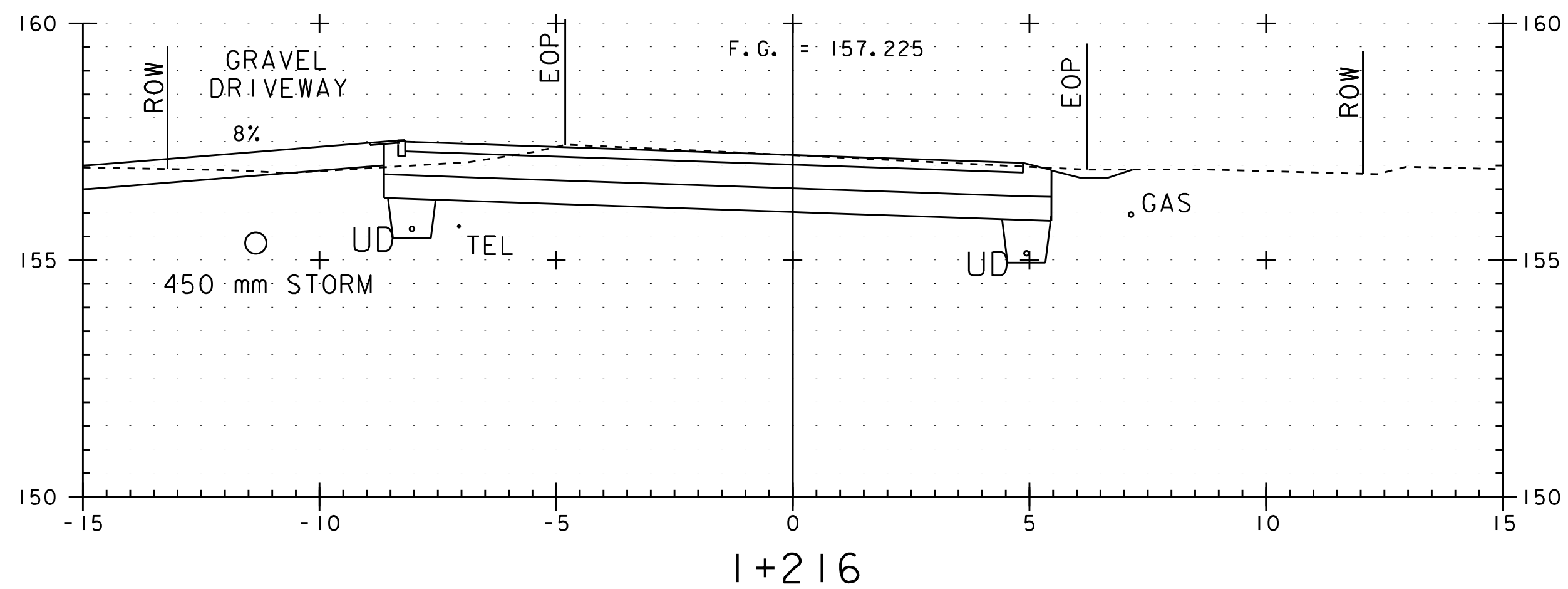
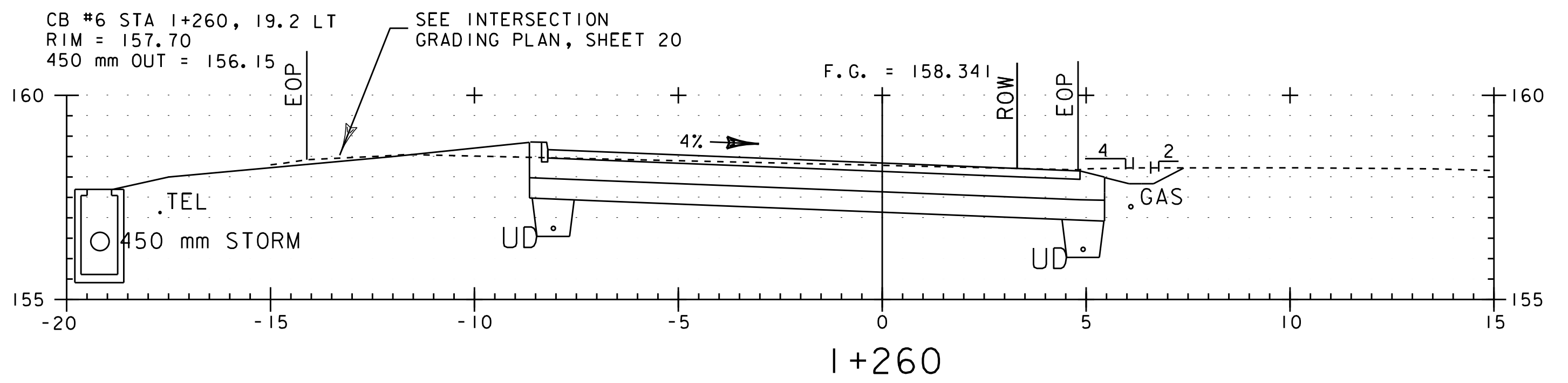
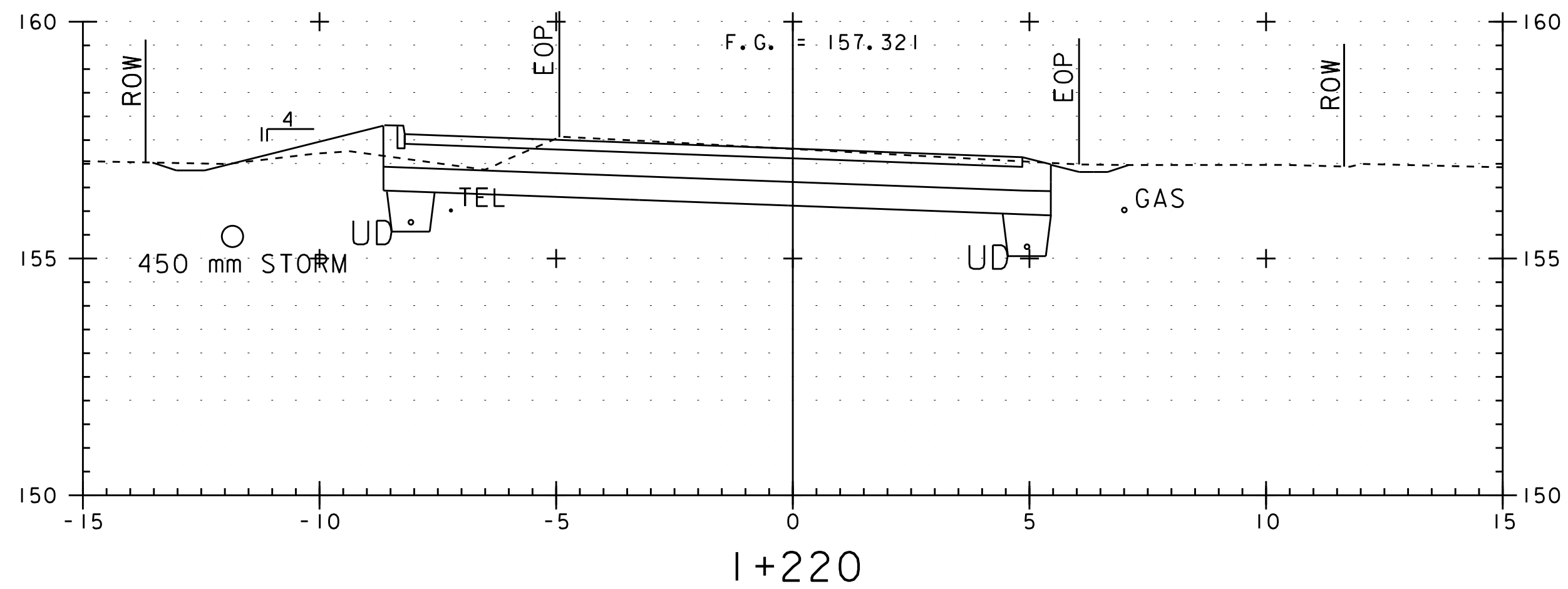
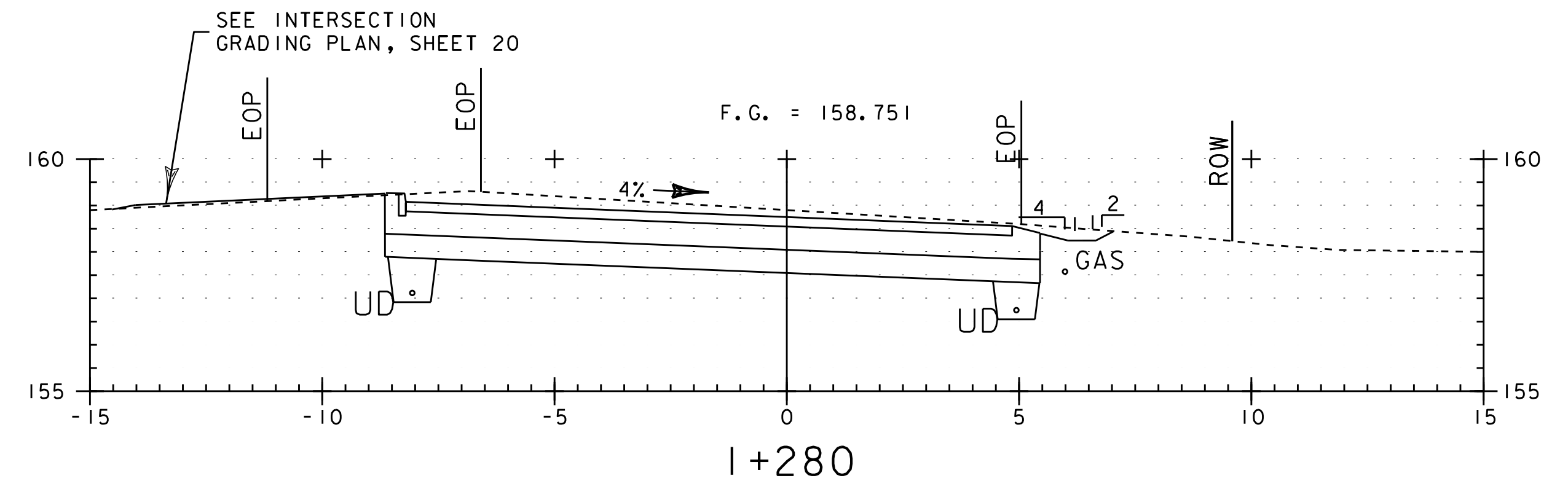
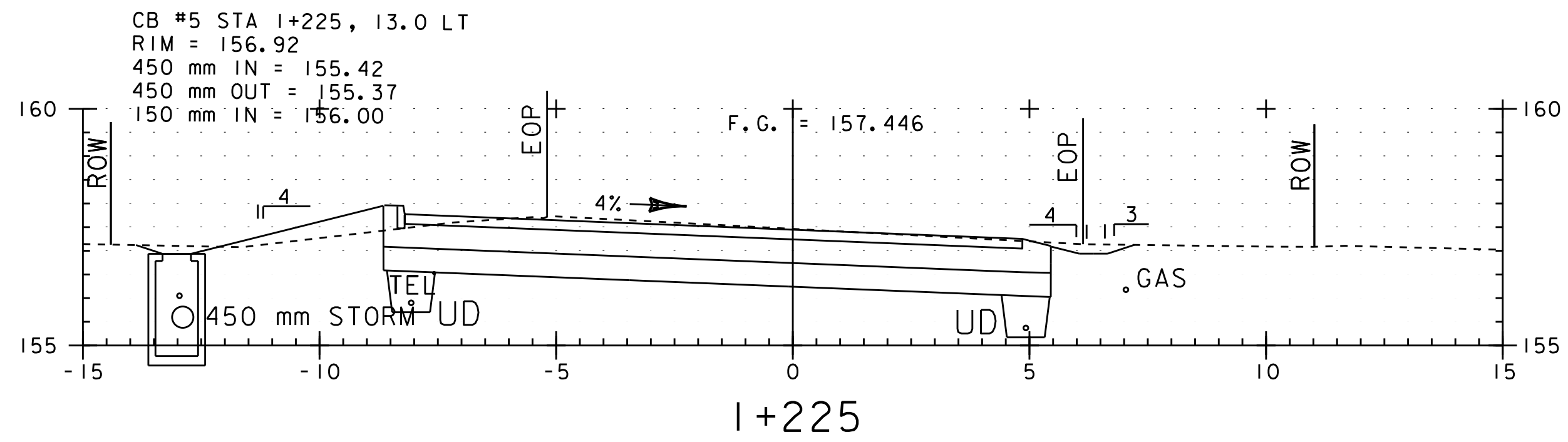
1: 100 HORIZONTAL
1: 100 VERTICAL



ROUTE 15
CROSS SECTIONS

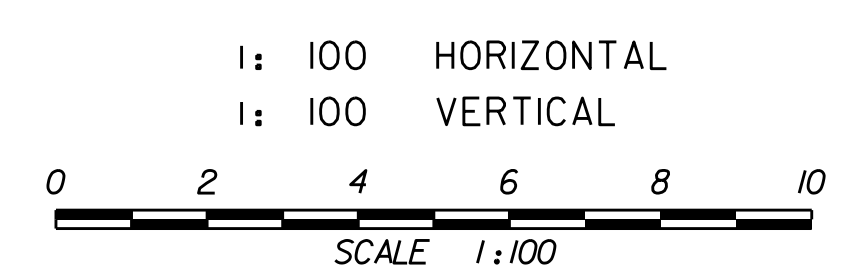
PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

PLOT FILE NAME: zstp030-1(17)swrk8.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.
DRAWN BY: PLC
CHECKED BY: RJD
SHEET 13



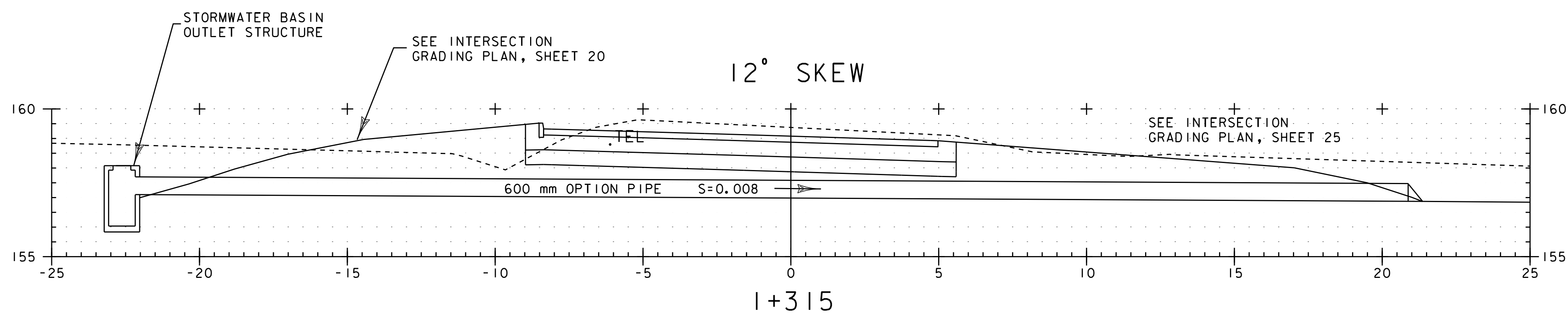
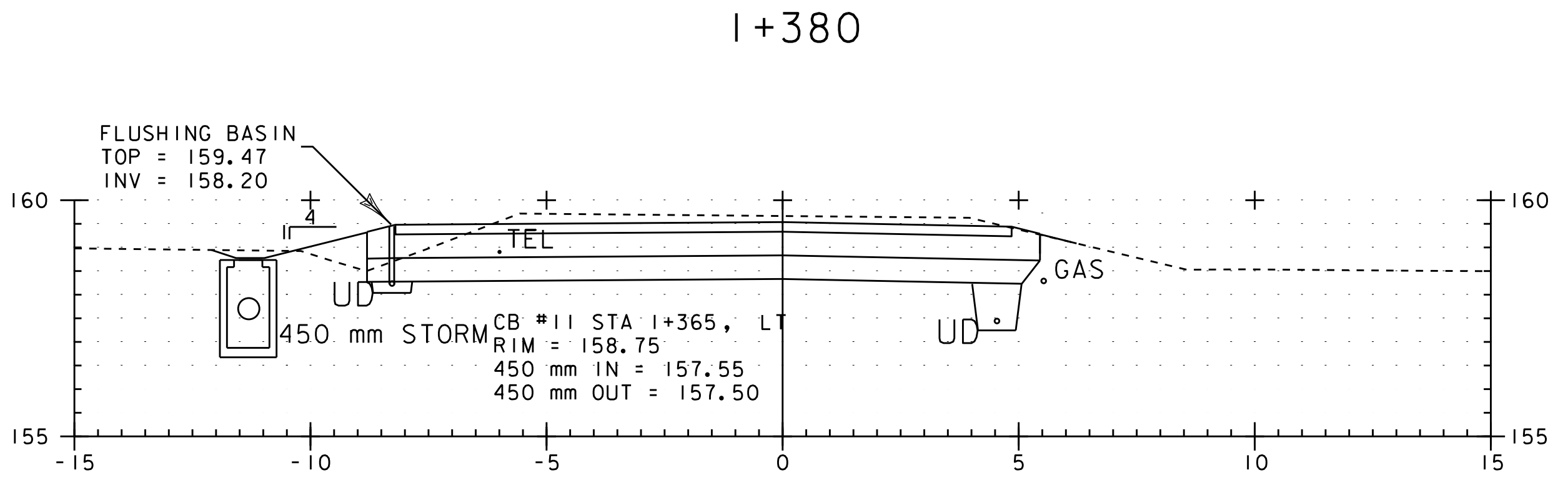
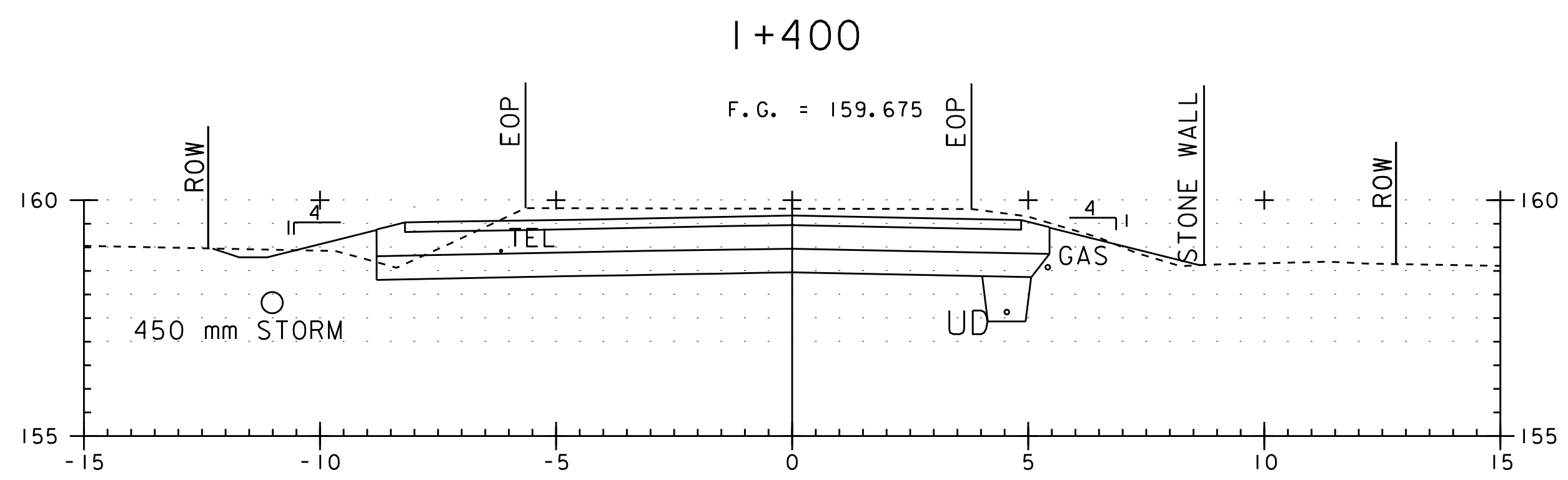
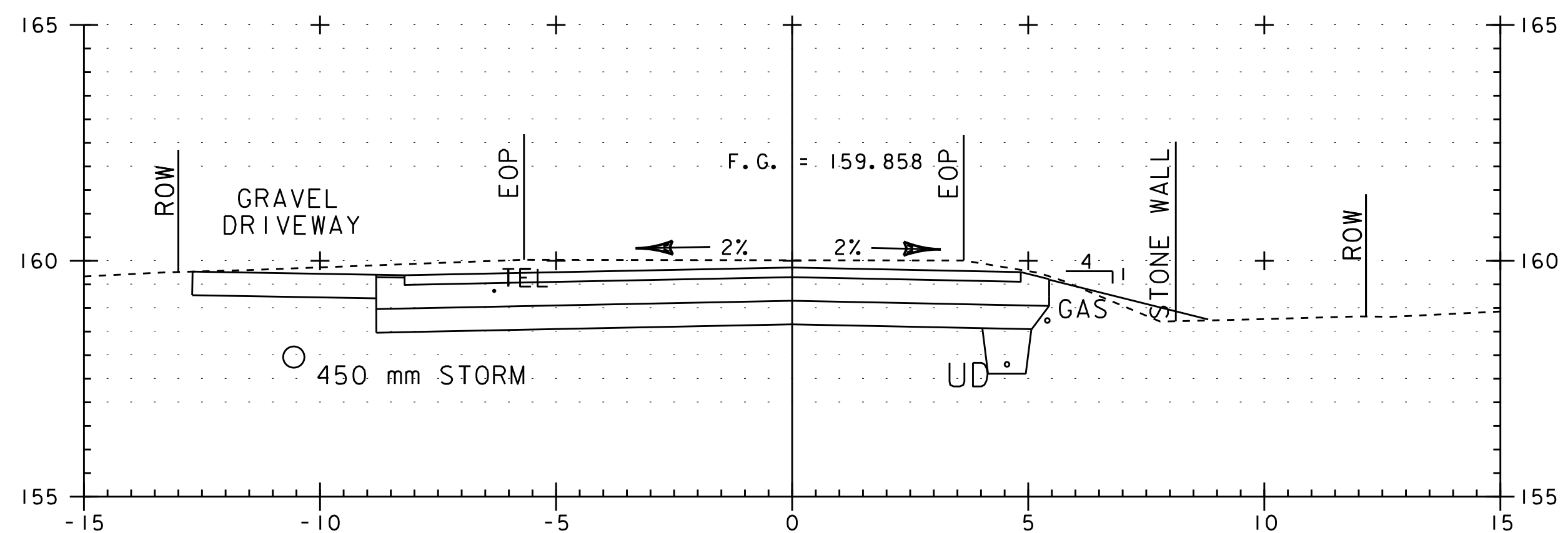
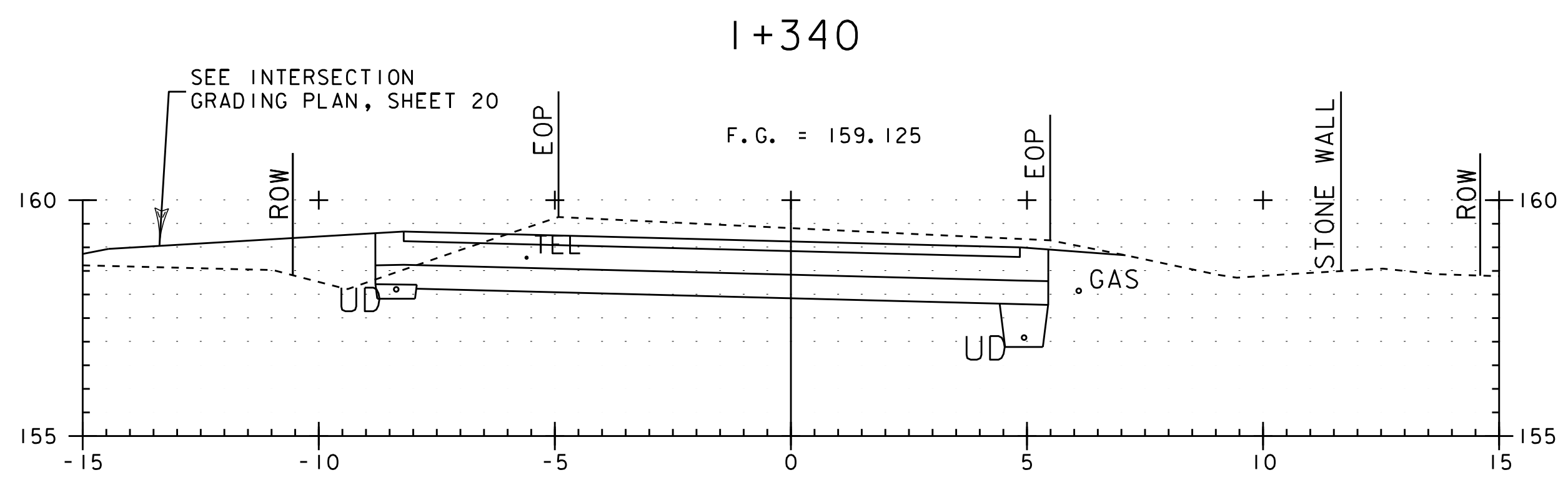
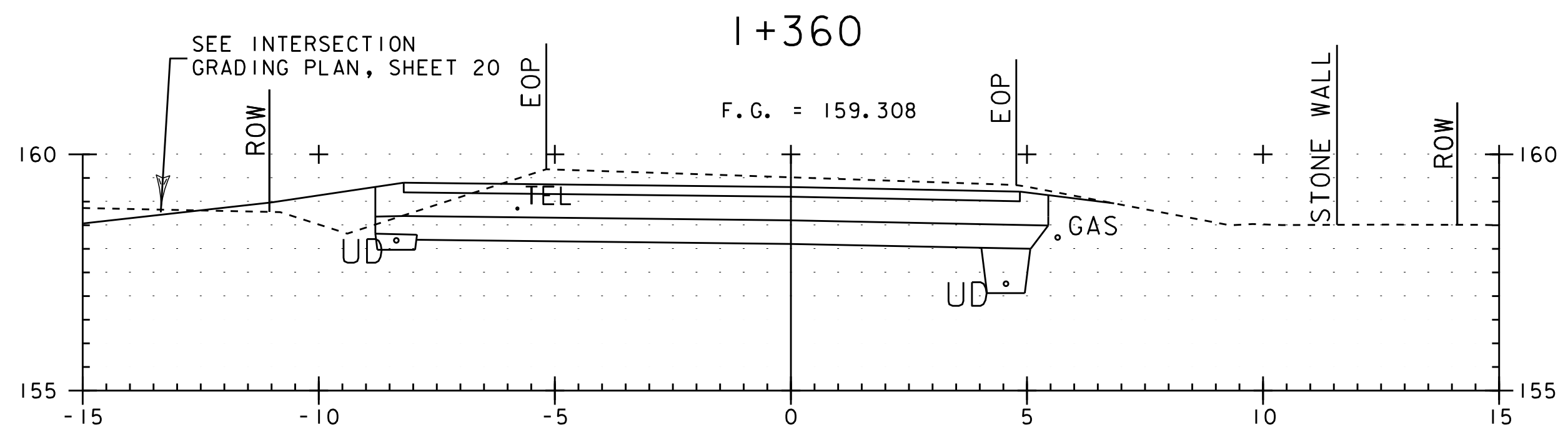
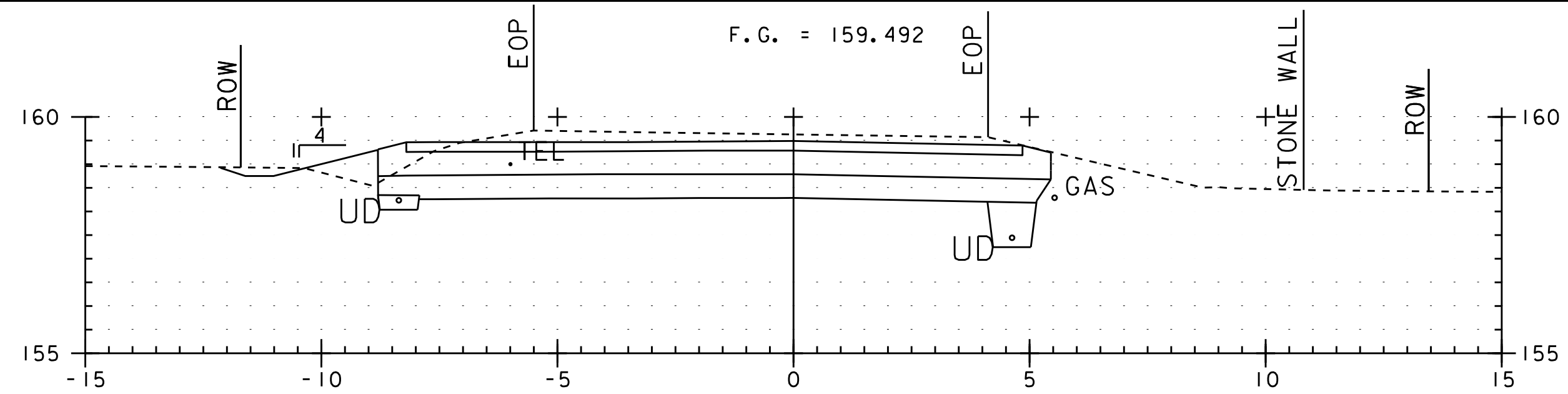
LEGEND

| | |
|--|-------------------------------|
| | FINISH GRADE |
| | EXISTING GROUND |
| | EOP EXISTING EDGE OF PAVEMENT |
| | ROW RIGHT OF WAY |



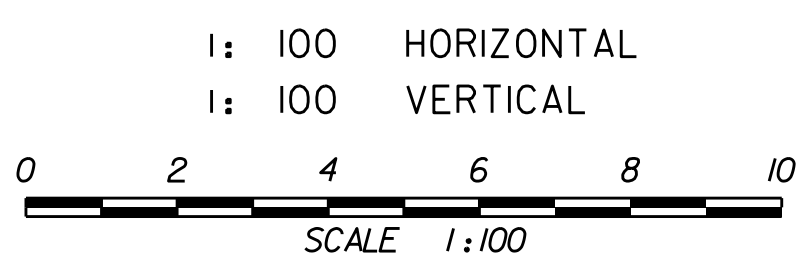
ROUTE 15
 CROSS SECTIONS

| | |
|--|-----------------|
| PROJECT NAME: ESSEX | |
| PROJECT NUMBER: STP 030-1(17)S | |
| PLOT FILE NAME: zstp030-1(17)swrk8.dgn | |
| L&D PROJECT NUMBER: 00-074 | DRAWN BY: PLC |
| DESIGNED BY: LAMOUREUX & DICKINSON | CHECKED BY: RJD |
| CONSULTING ENGINEERS, INC. | SHEET 14 |

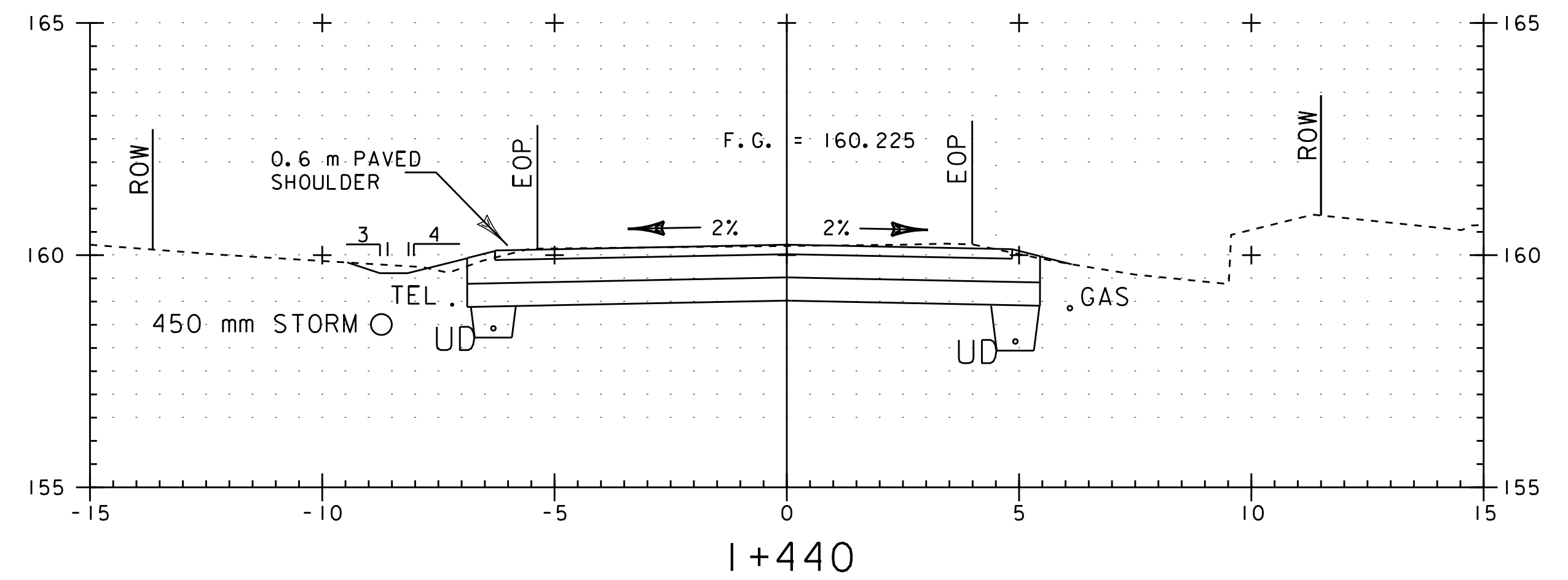
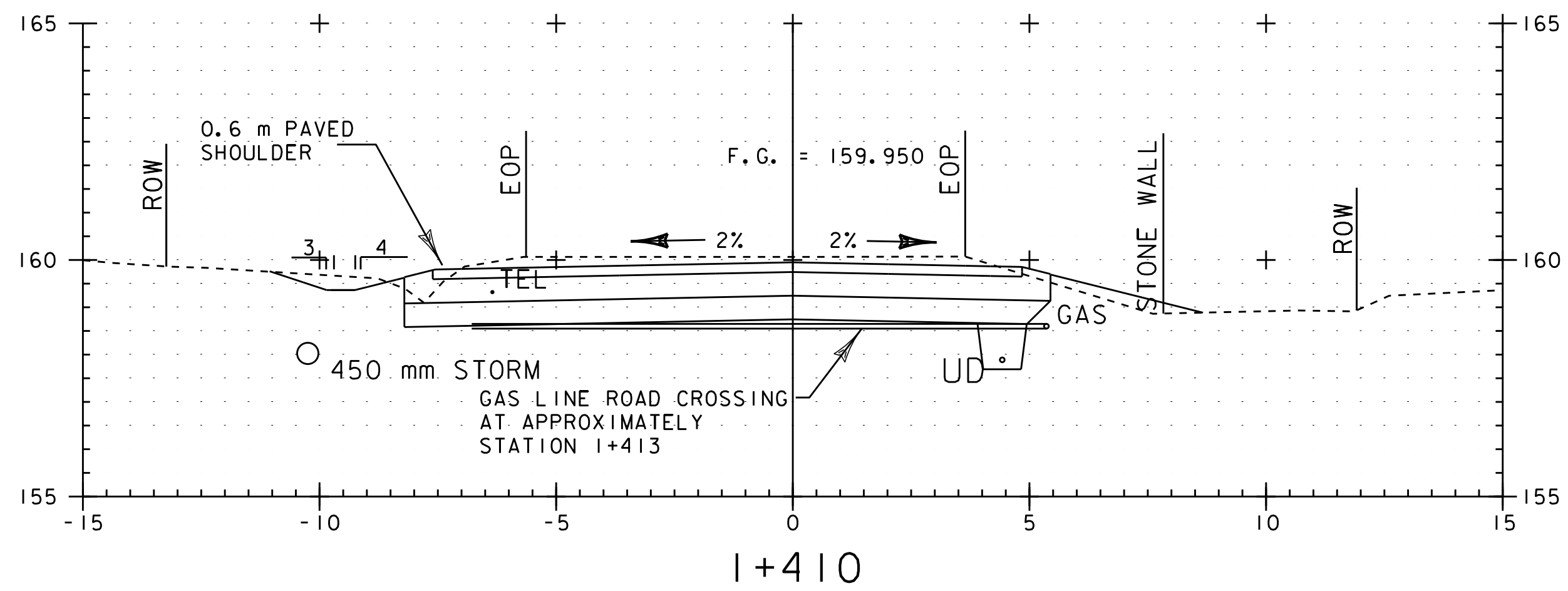
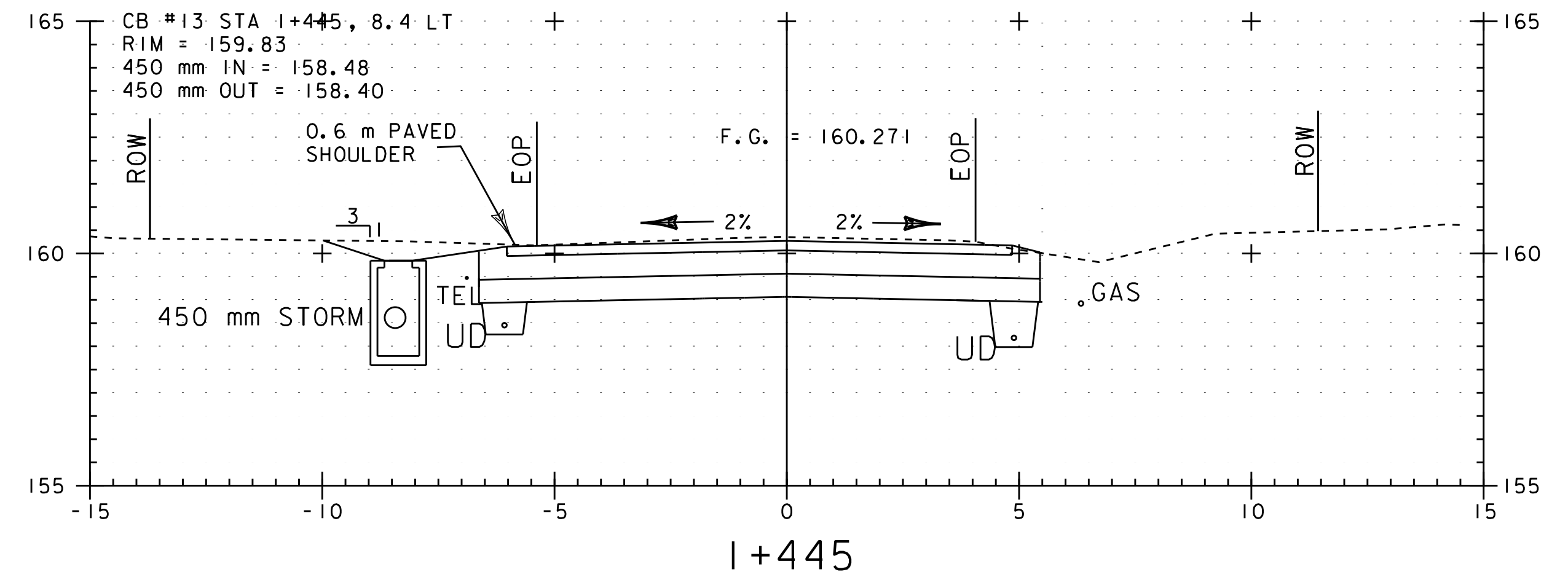
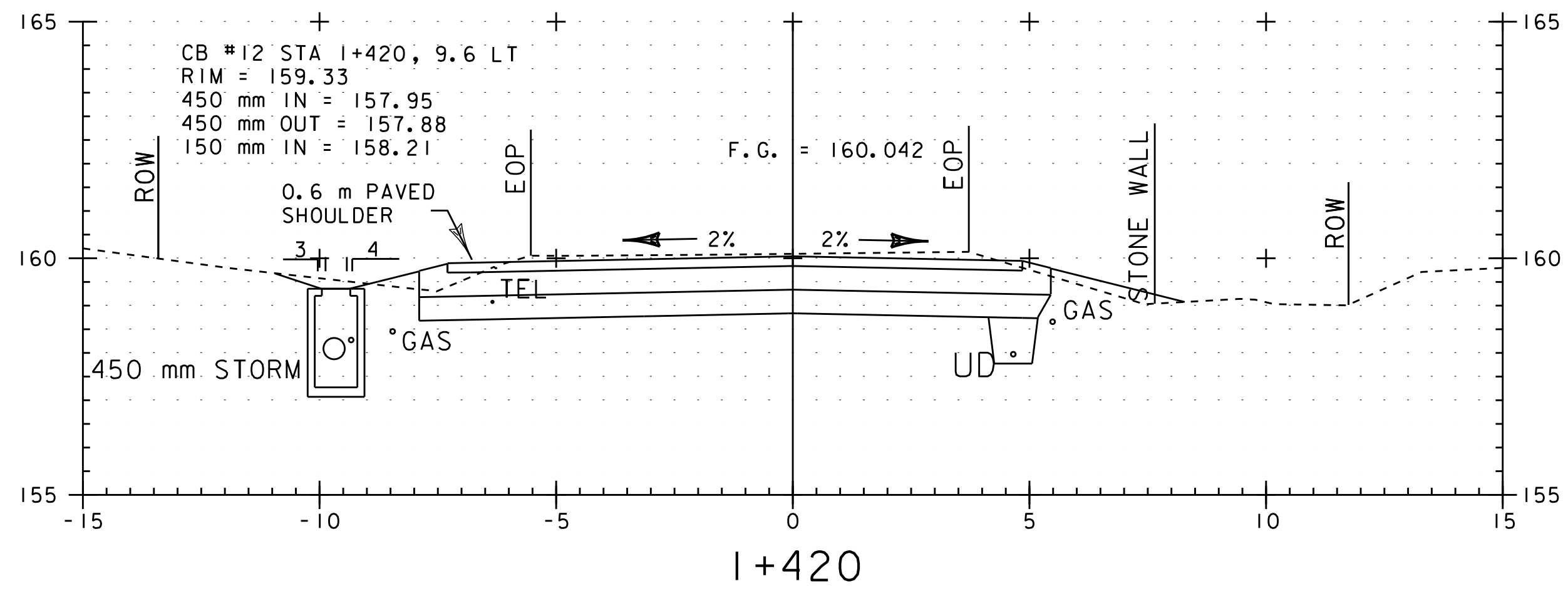
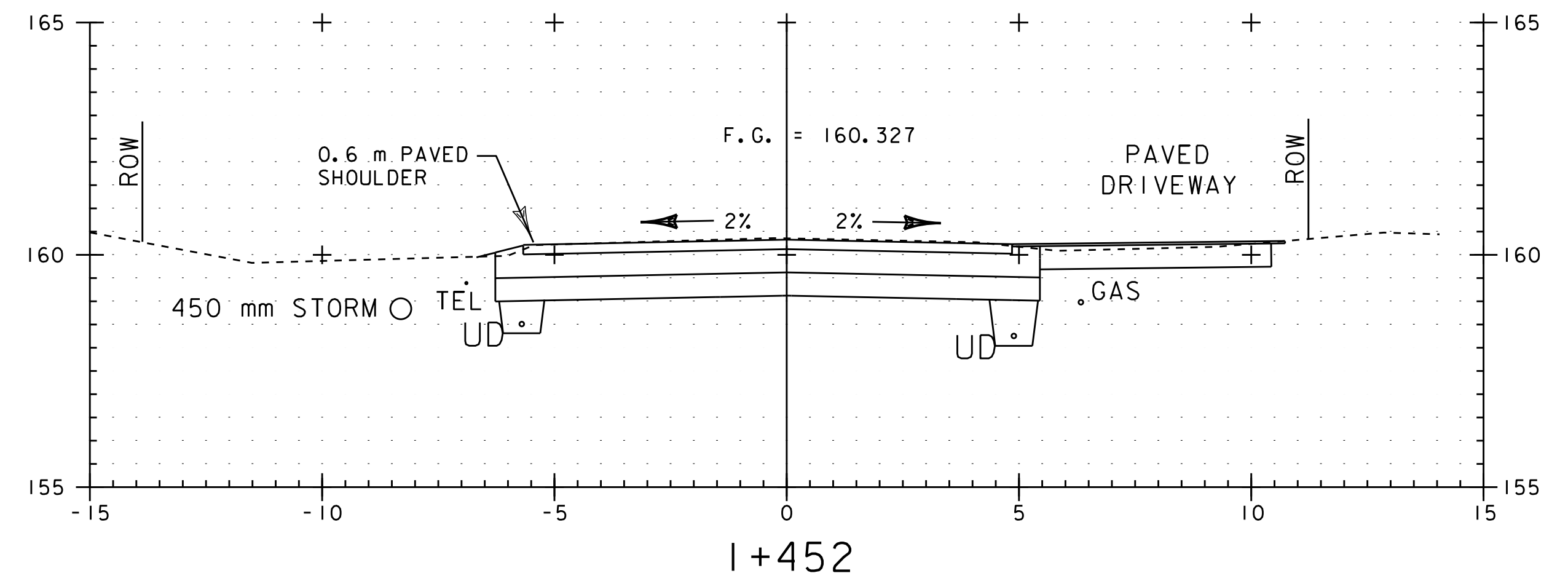
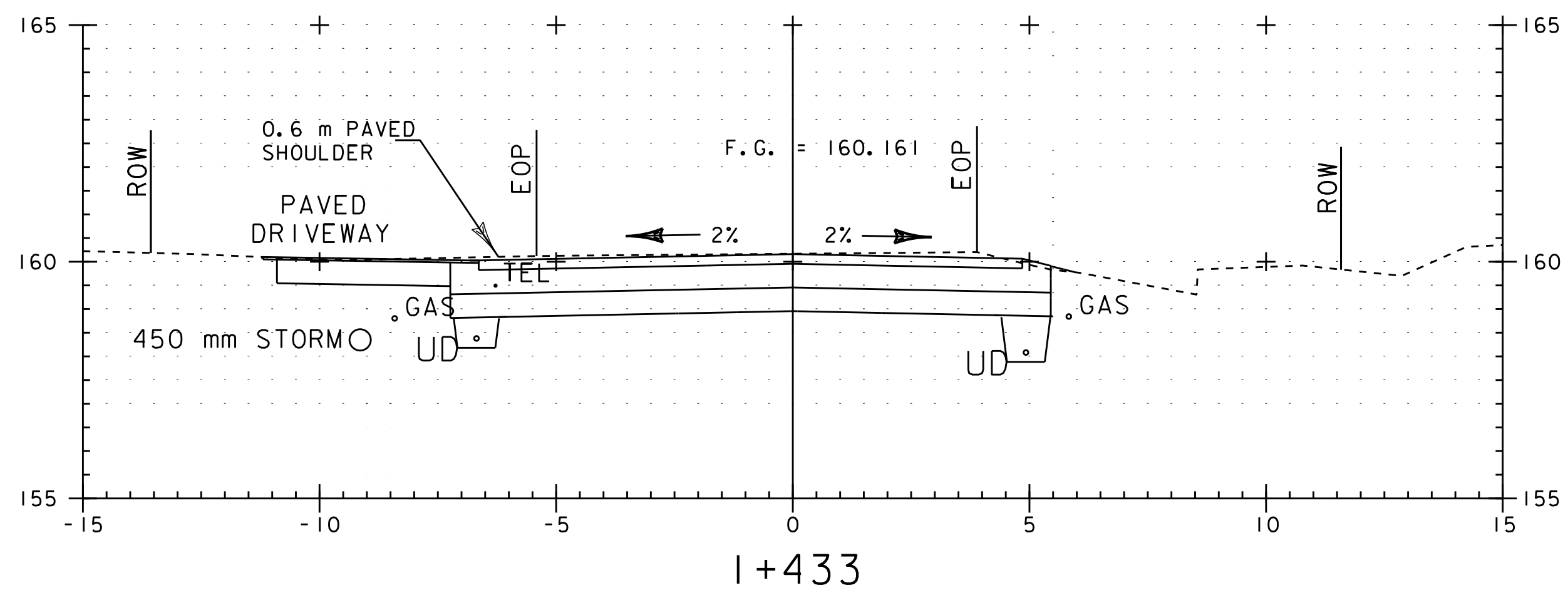


LEGEND

| | |
|-----------|-------------------------------|
| ———— | FINISH GRADE |
| - - - - - | EXISTING GROUND |
| —+—+—+— | EOP EXISTING EDGE OF PAVEMENT |
| — — — — | ROW RIGHT OF WAY |

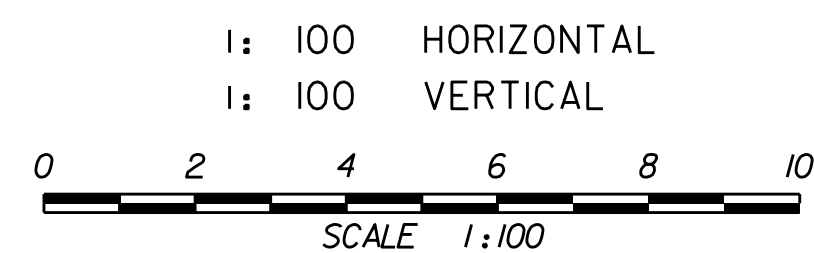


| | |
|------------------------------------|--|
| ROUTE 15 CROSS SECTIONS | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)swrk8.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 15 |



LEGEND

| | |
|--|-------------------------------|
| | FINISH GRADE |
| | EXISTING GROUND |
| | EOP EXISTING EDGE OF PAVEMENT |
| | ROW RIGHT OF WAY |

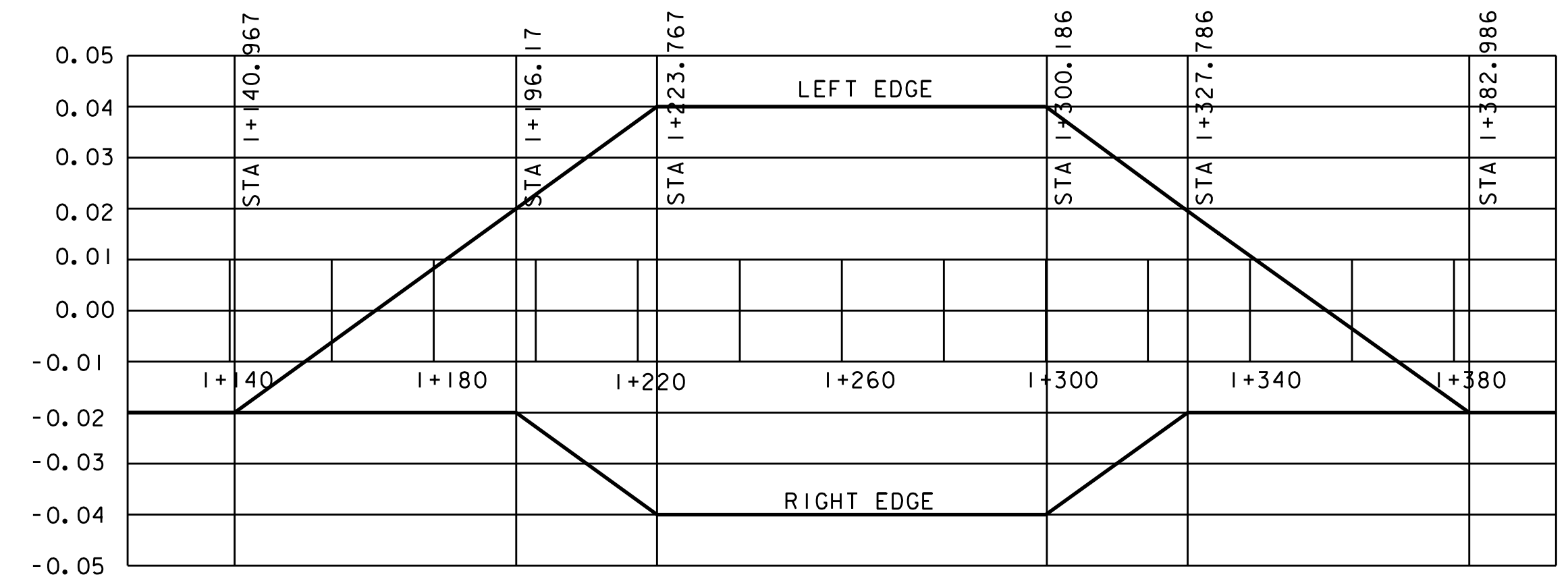
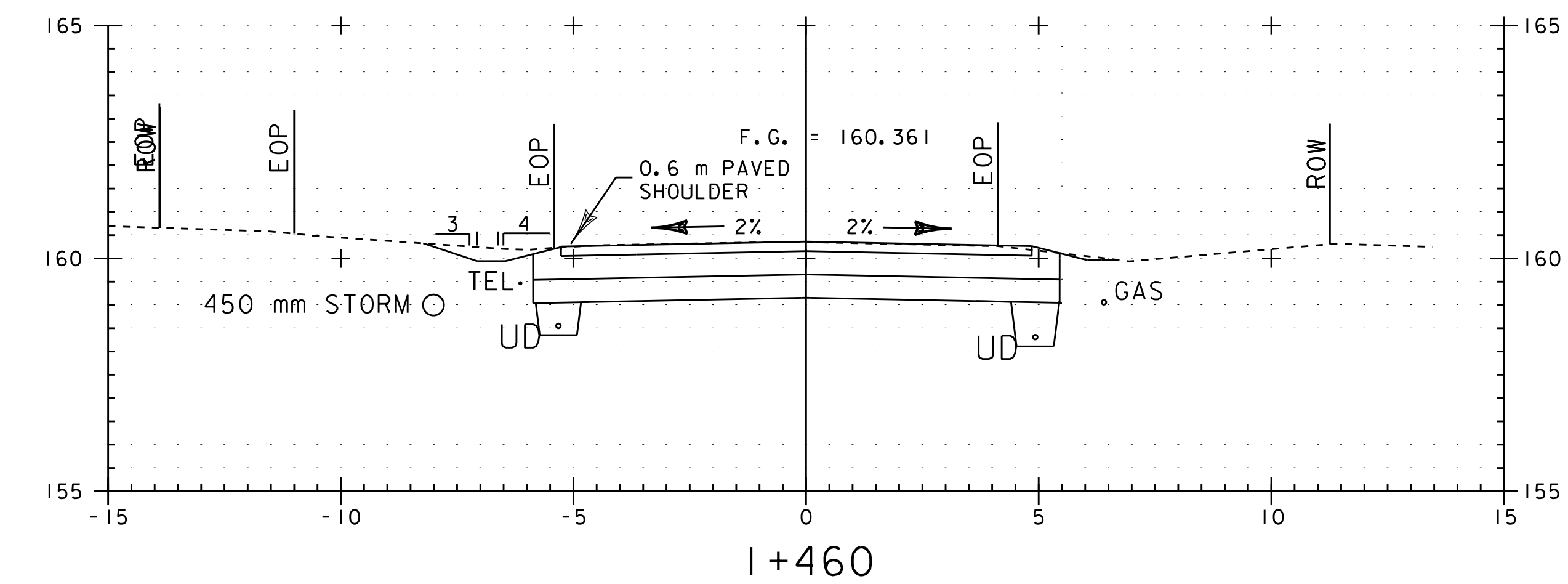
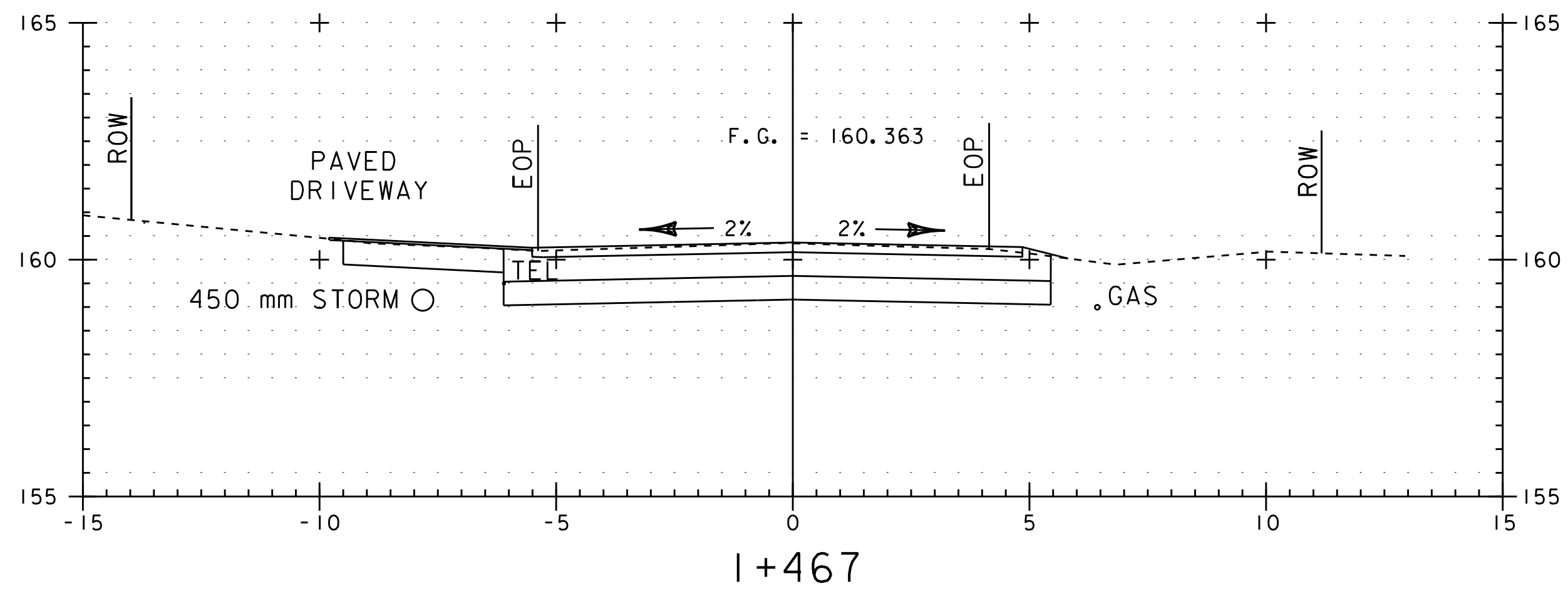
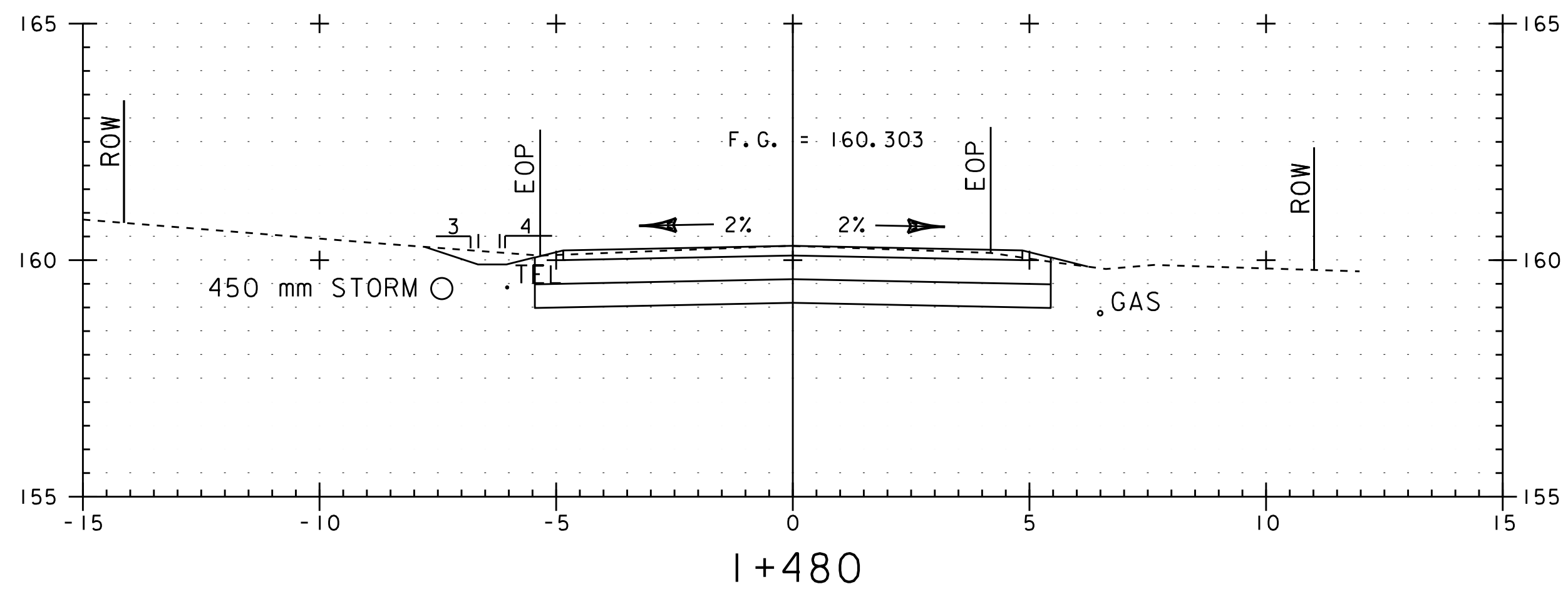


ROUTE 15
CROSS SECTIONS

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

PLOT FILE NAME: zstp030-1(17)swrk8.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.

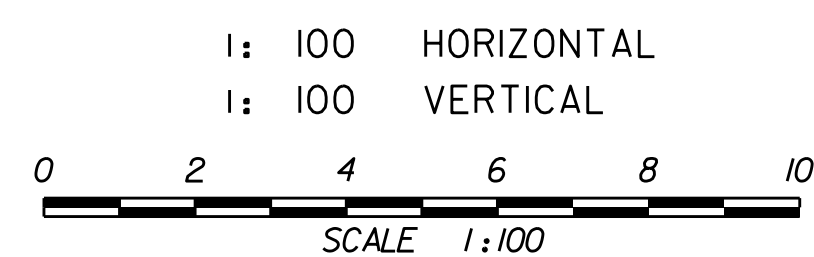
DRAWN BY: PLC
CHECKED BY: RJD
SHEET 16



SUPERELEVATION DIAGRAM

LEGEND

| | |
|--|-------------------------------|
| | FINISH GRADE |
| | EXISTING GROUND |
| | EOP EXISTING EDGE OF PAVEMENT |
| | ROW RIGHT OF WAY |

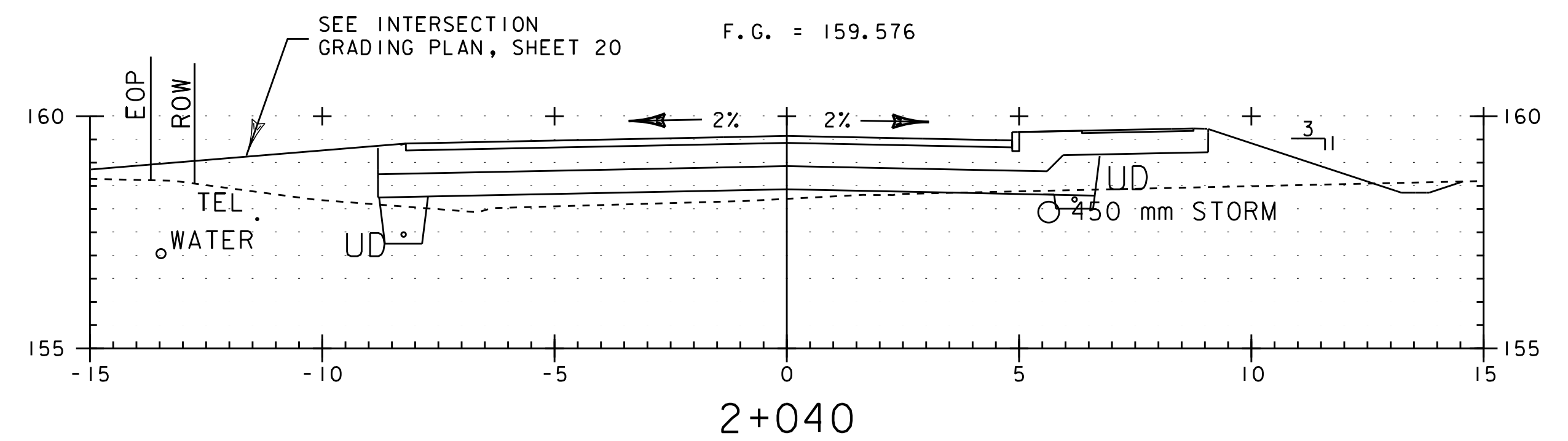
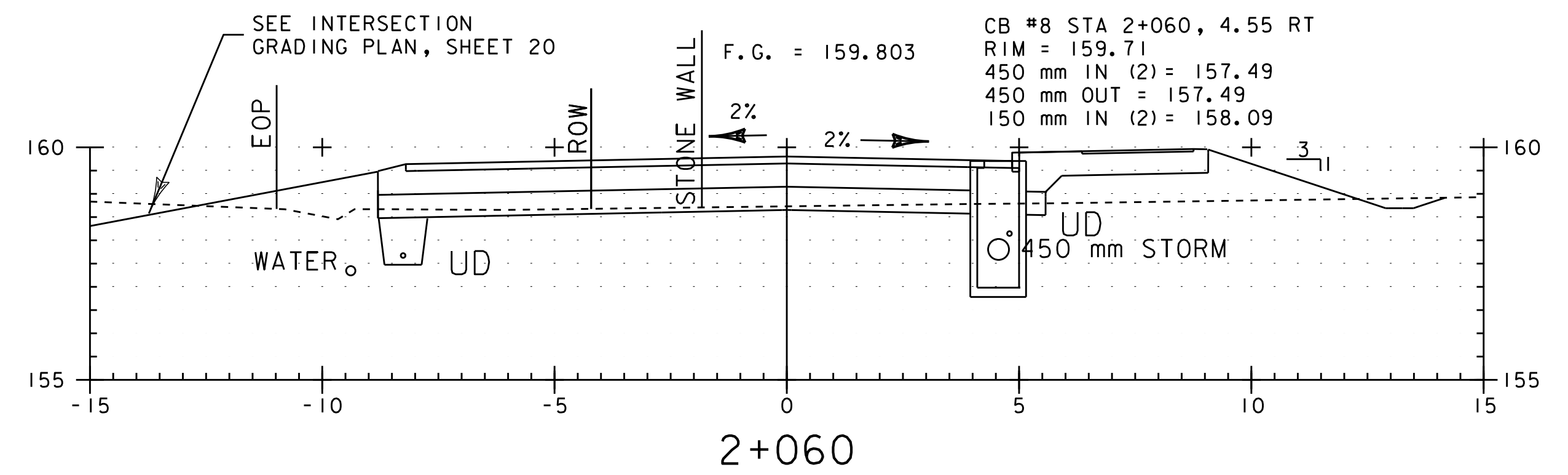
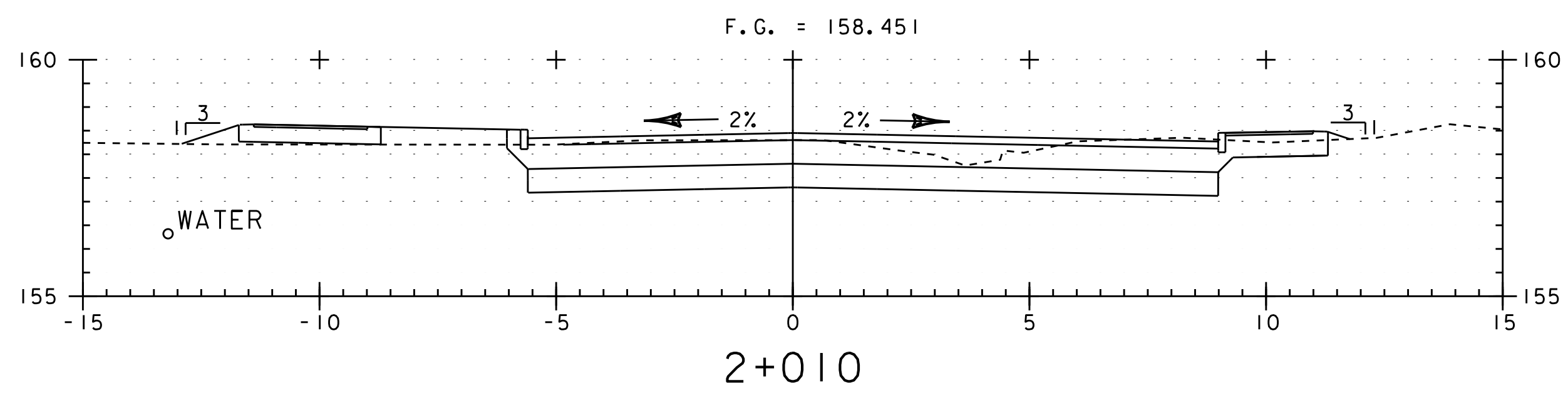
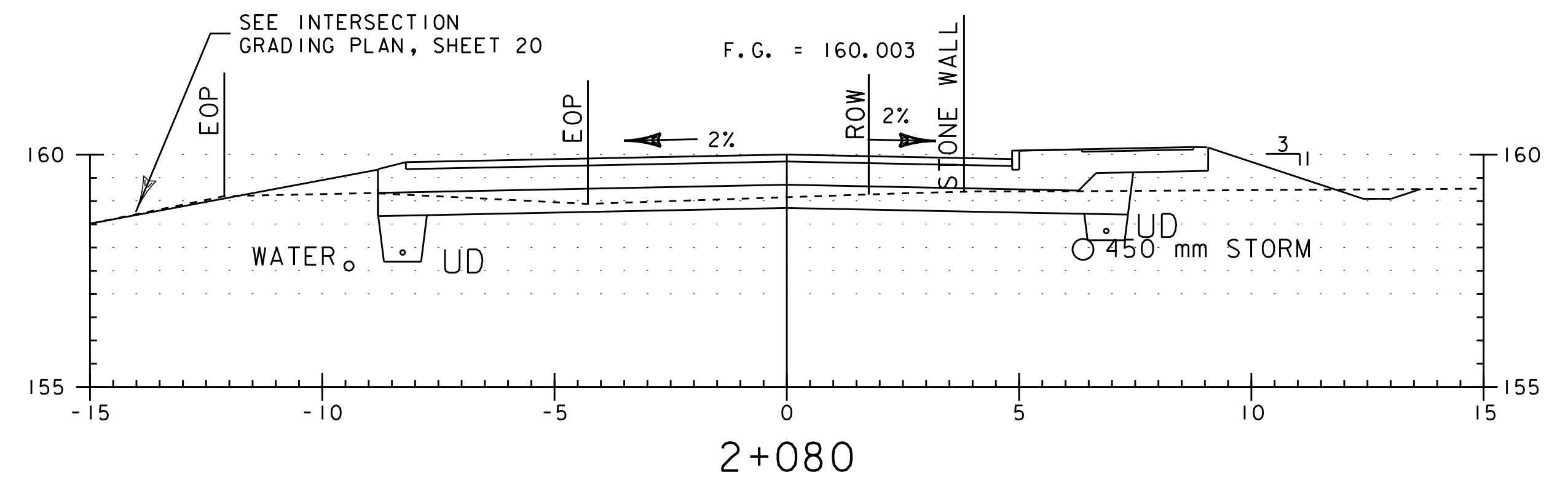
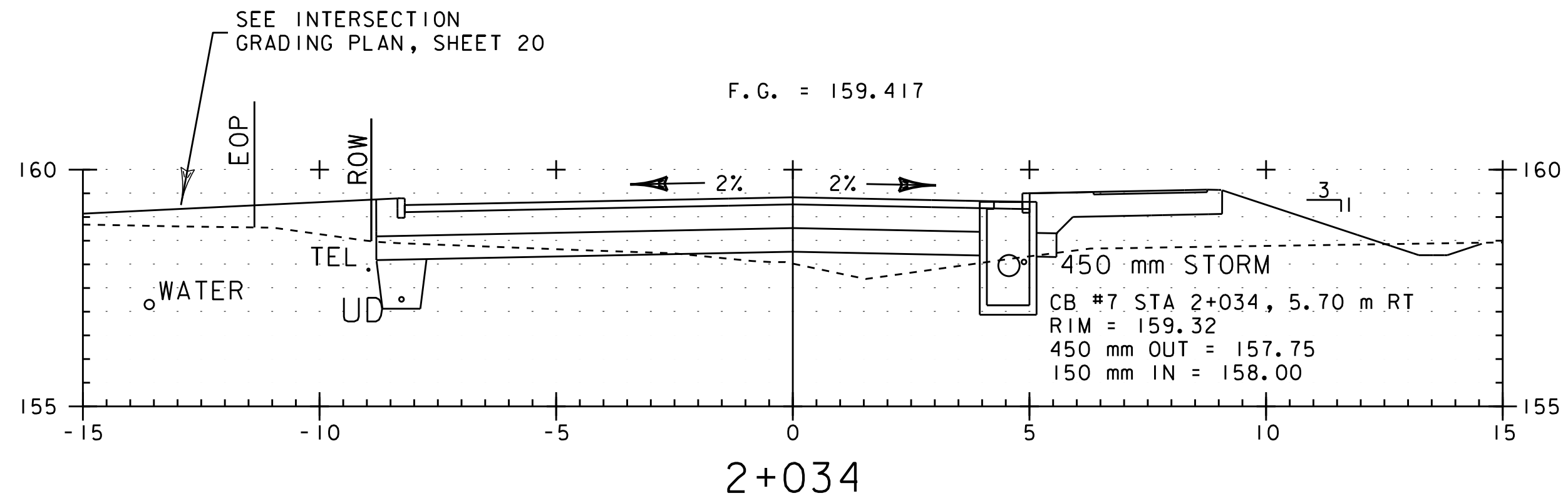


ROUTE 15
CROSS SECTIONS

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

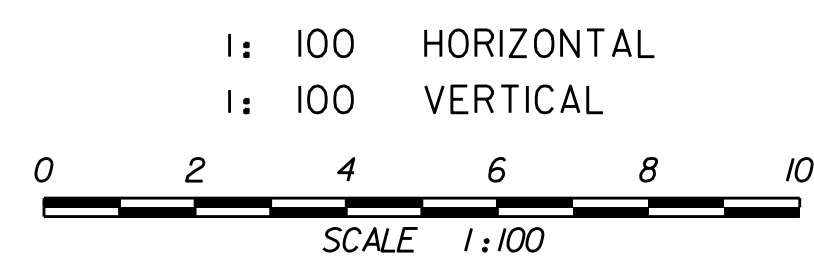
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L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.

DRAWN BY: PLC
CHECKED BY: RJD
SHEET 17

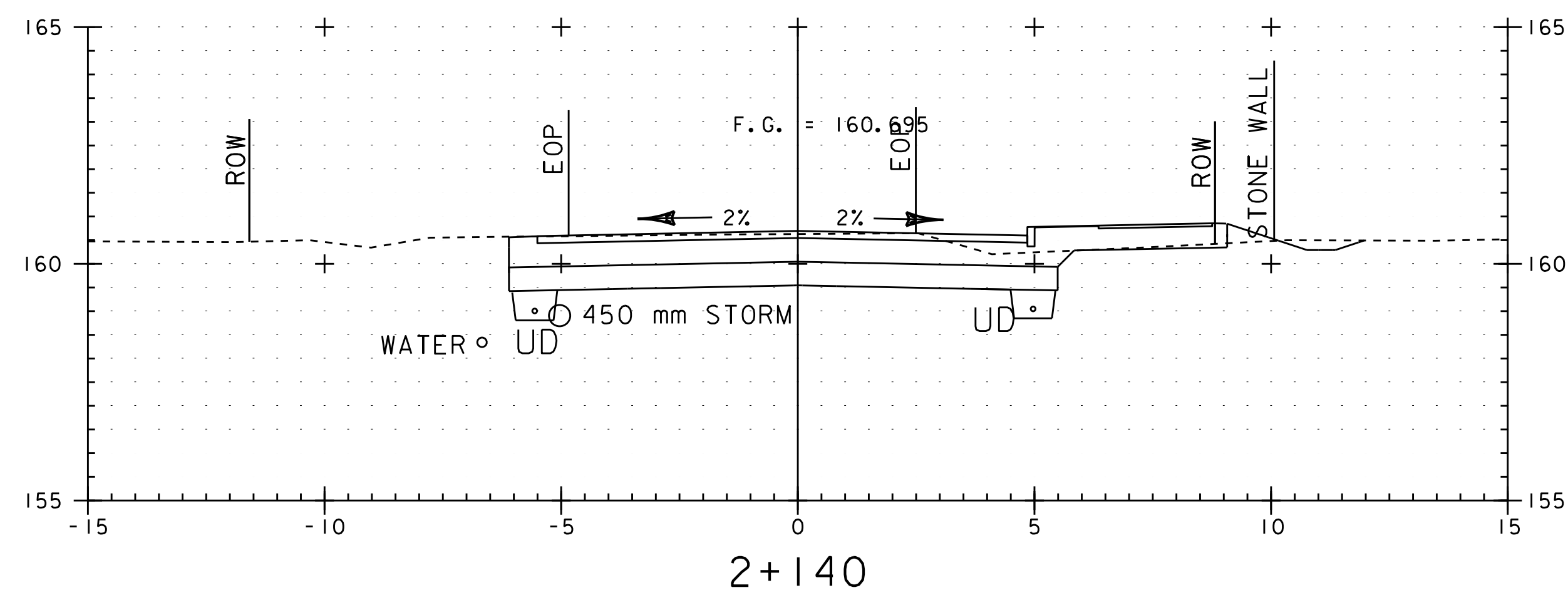
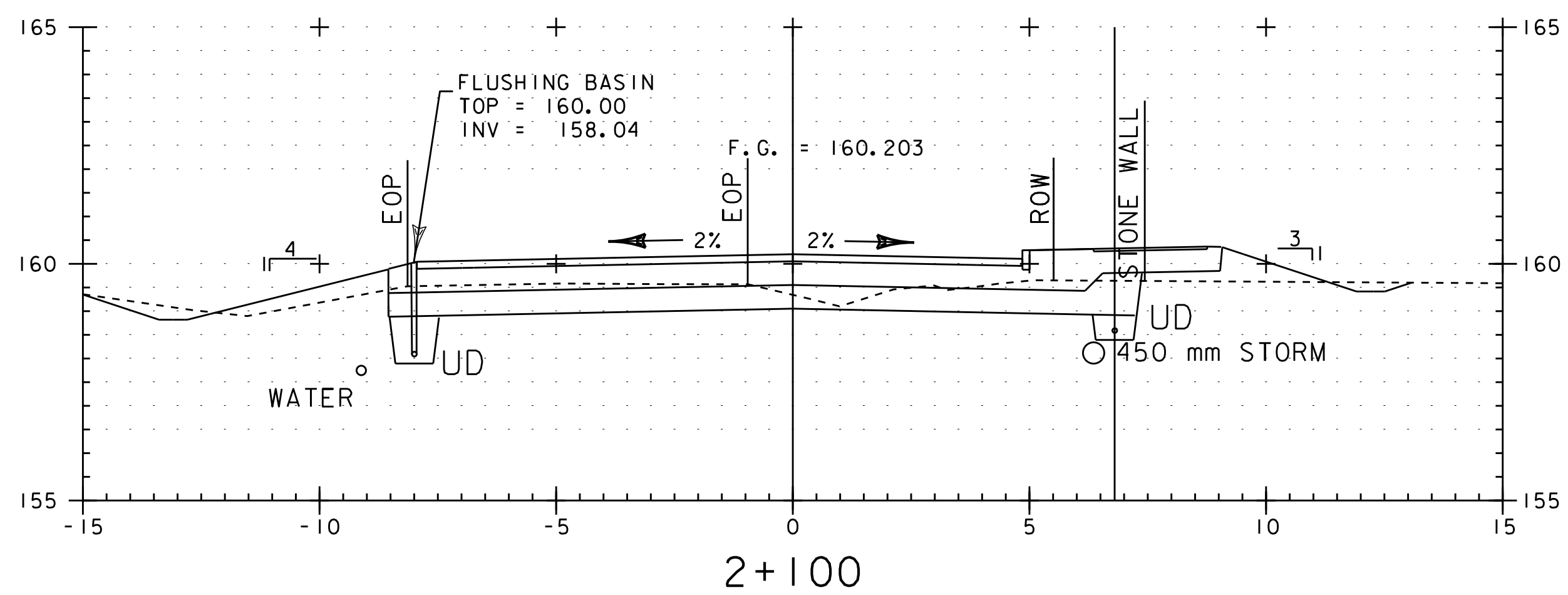
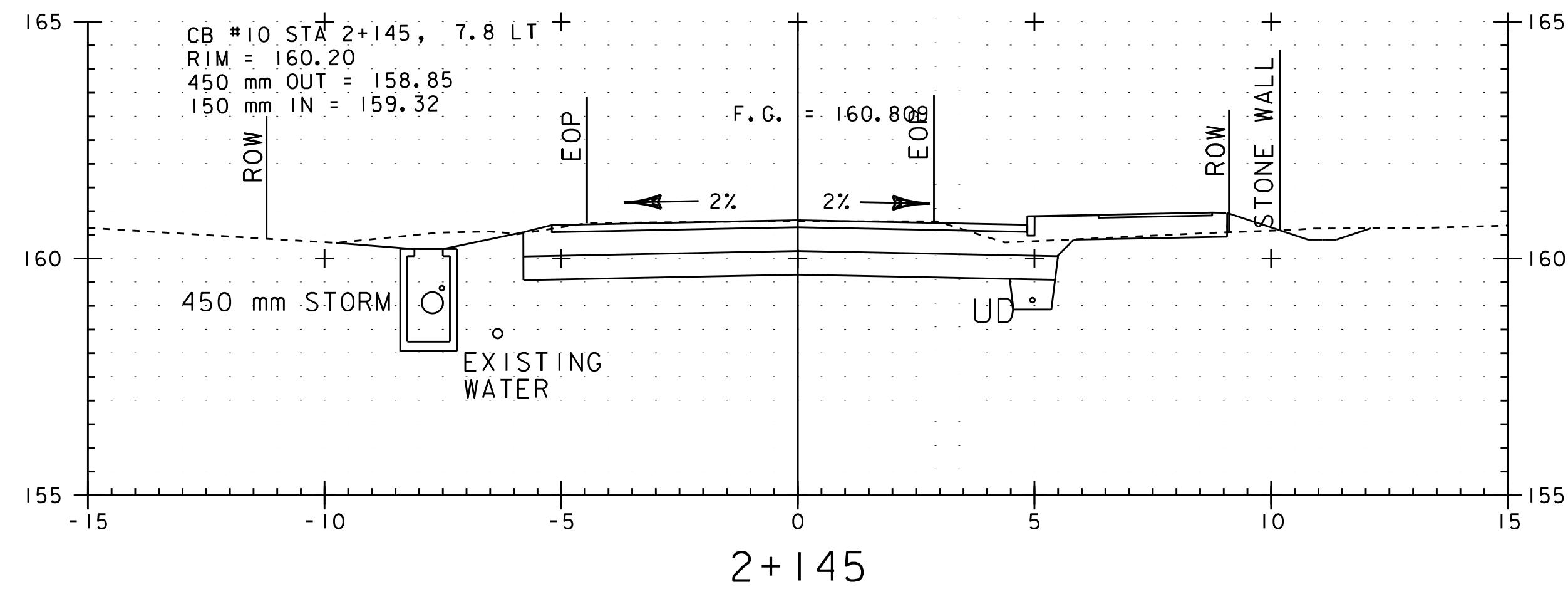
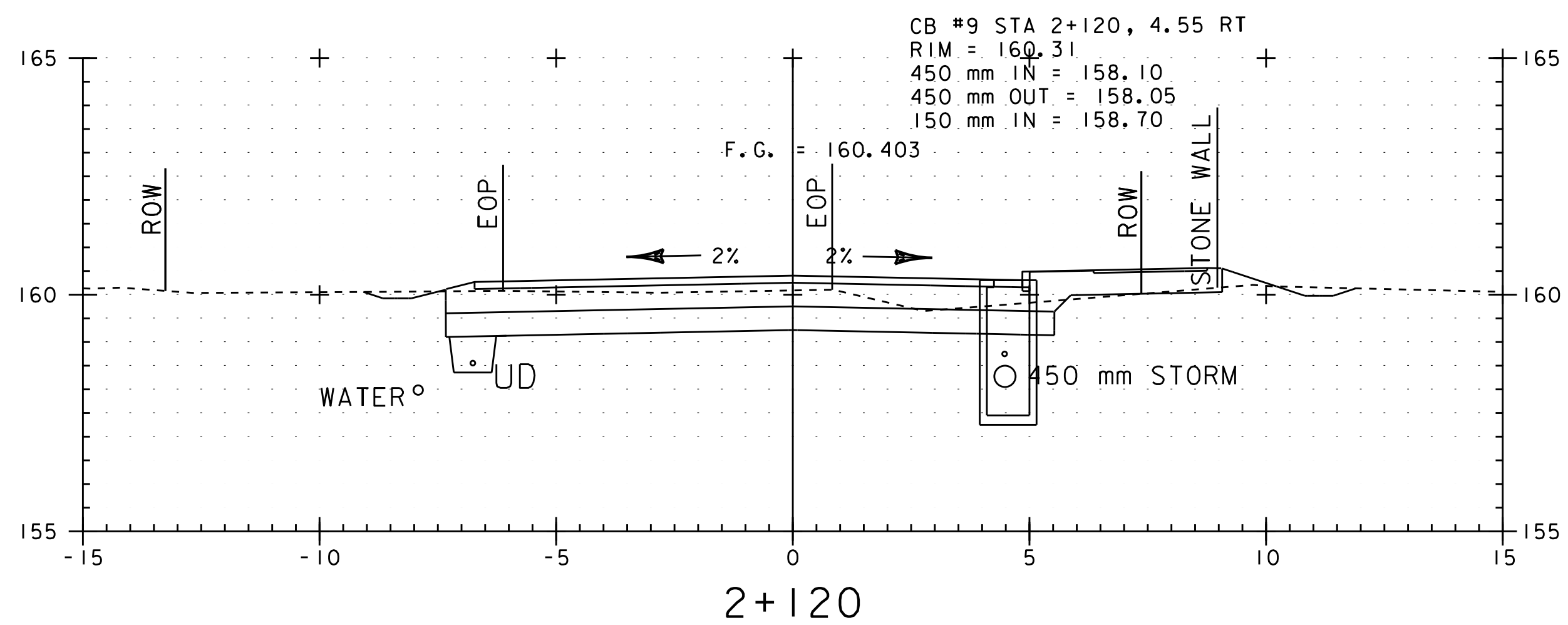
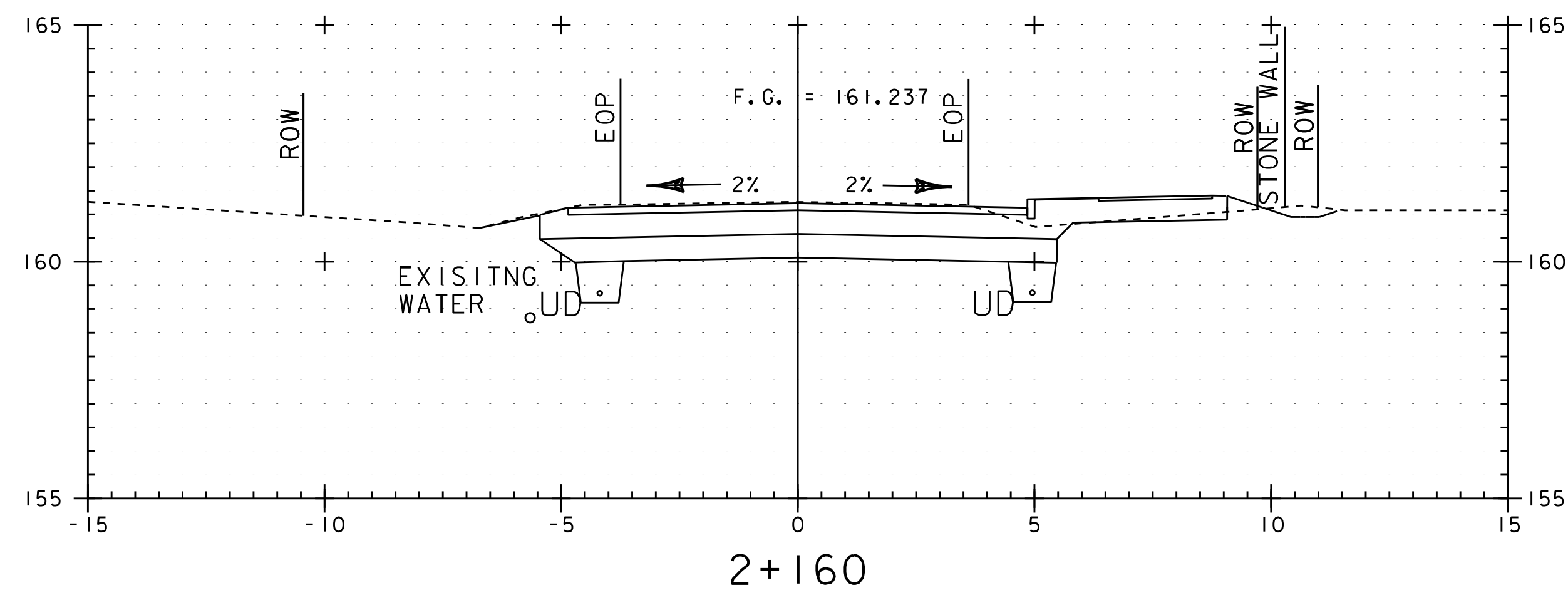
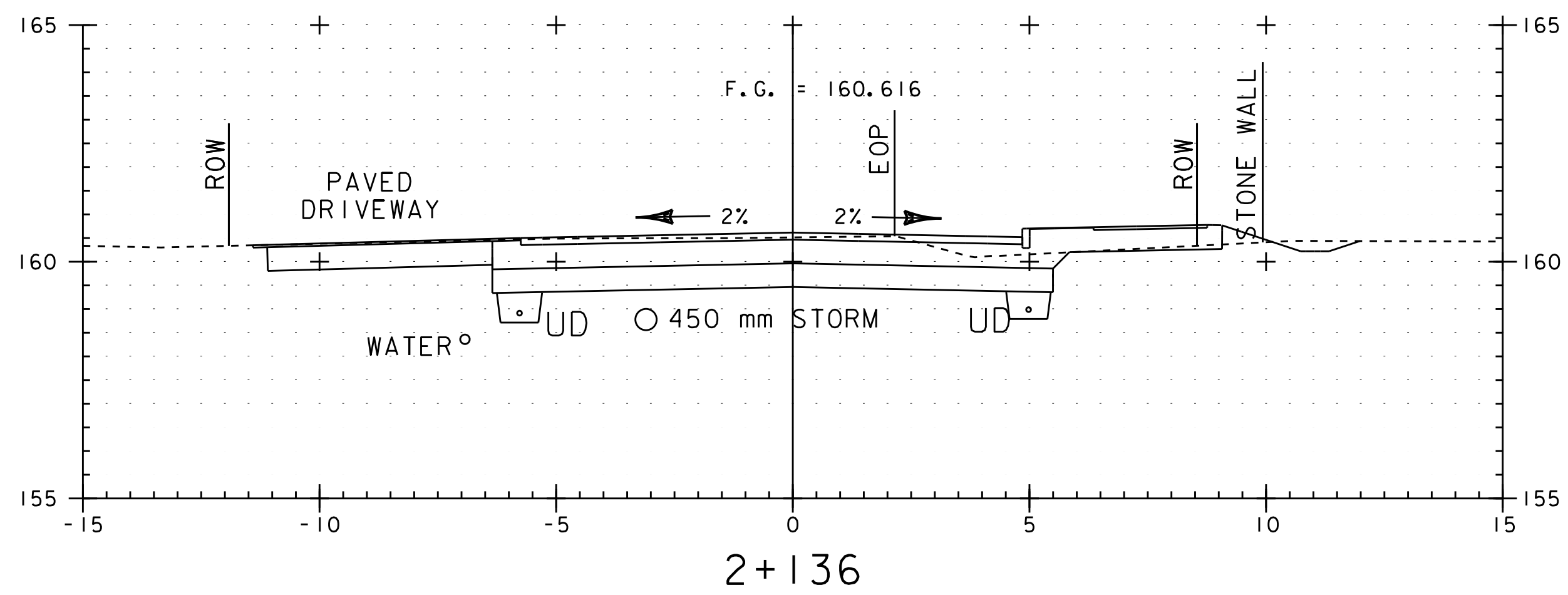


LEGEND

| | |
|--|-------------------------------|
| | FINISH GRADE |
| | EXISTING GROUND |
| | EOP EXISTING EDGE OF PAVEMENT |
| | ROW RIGHT OF WAY |

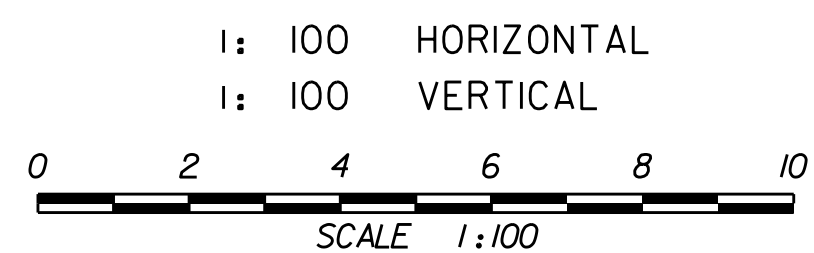


| | |
|------------------------------------|--|
| OLD STAGE ROAD CROSS SECTIONS | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)swrk8.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 18 |

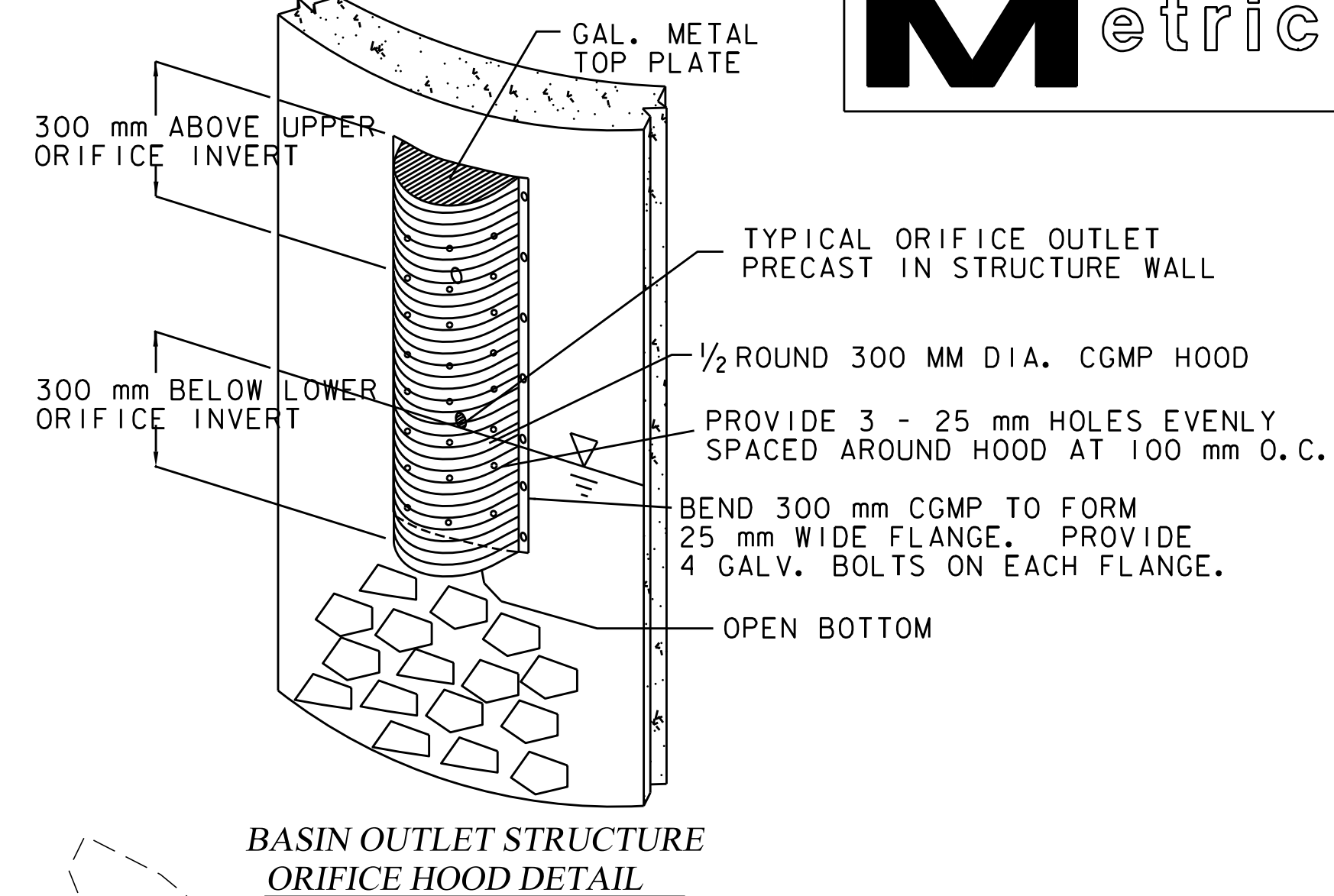
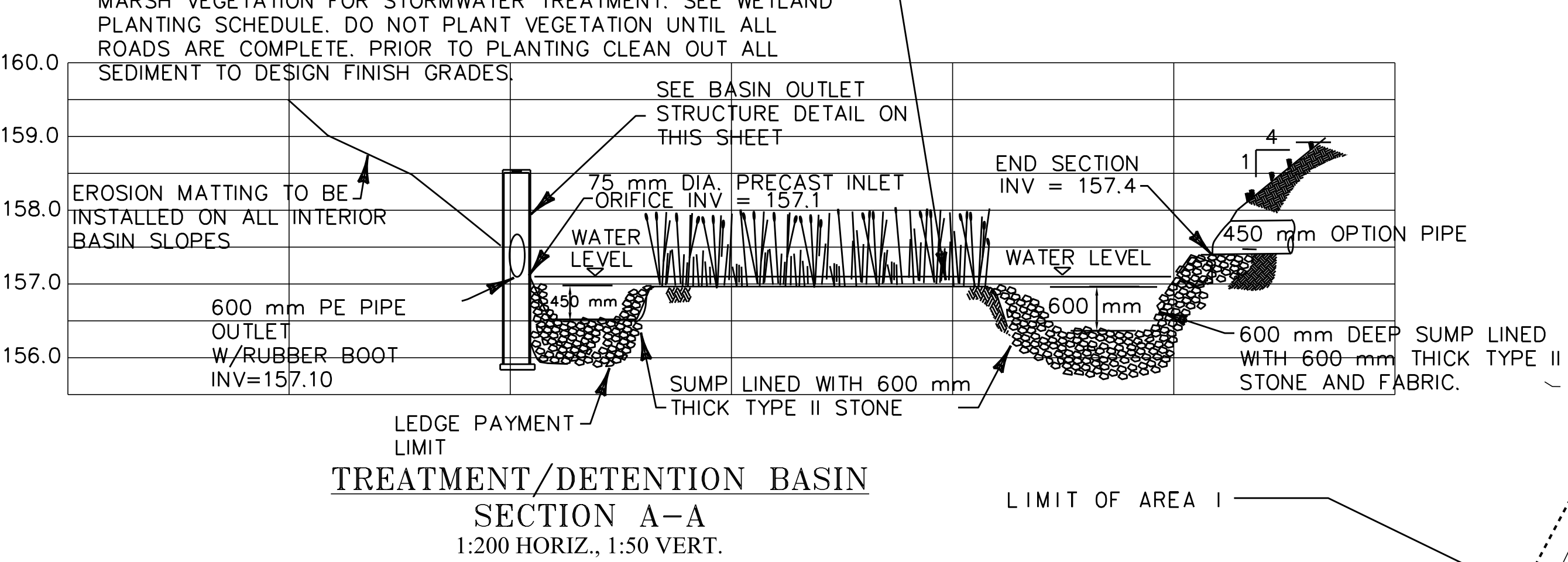


LEGEND

| | |
|-------|---------------------------|
| — | FINISH GRADE |
| - - - | EXISTING GROUND |
| EOP | EXISTING EDGE OF PAVEMENT |
| ROW | RIGHT OF WAY |



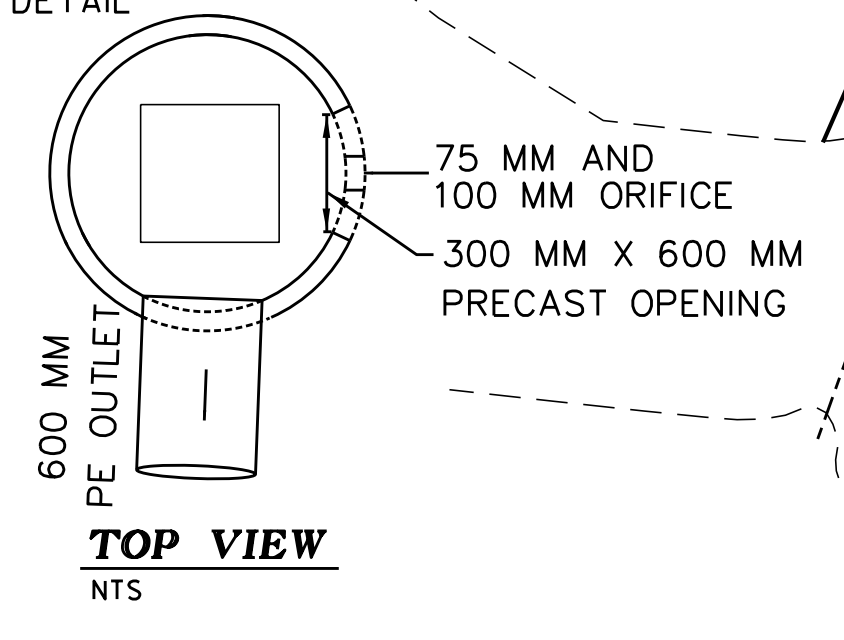
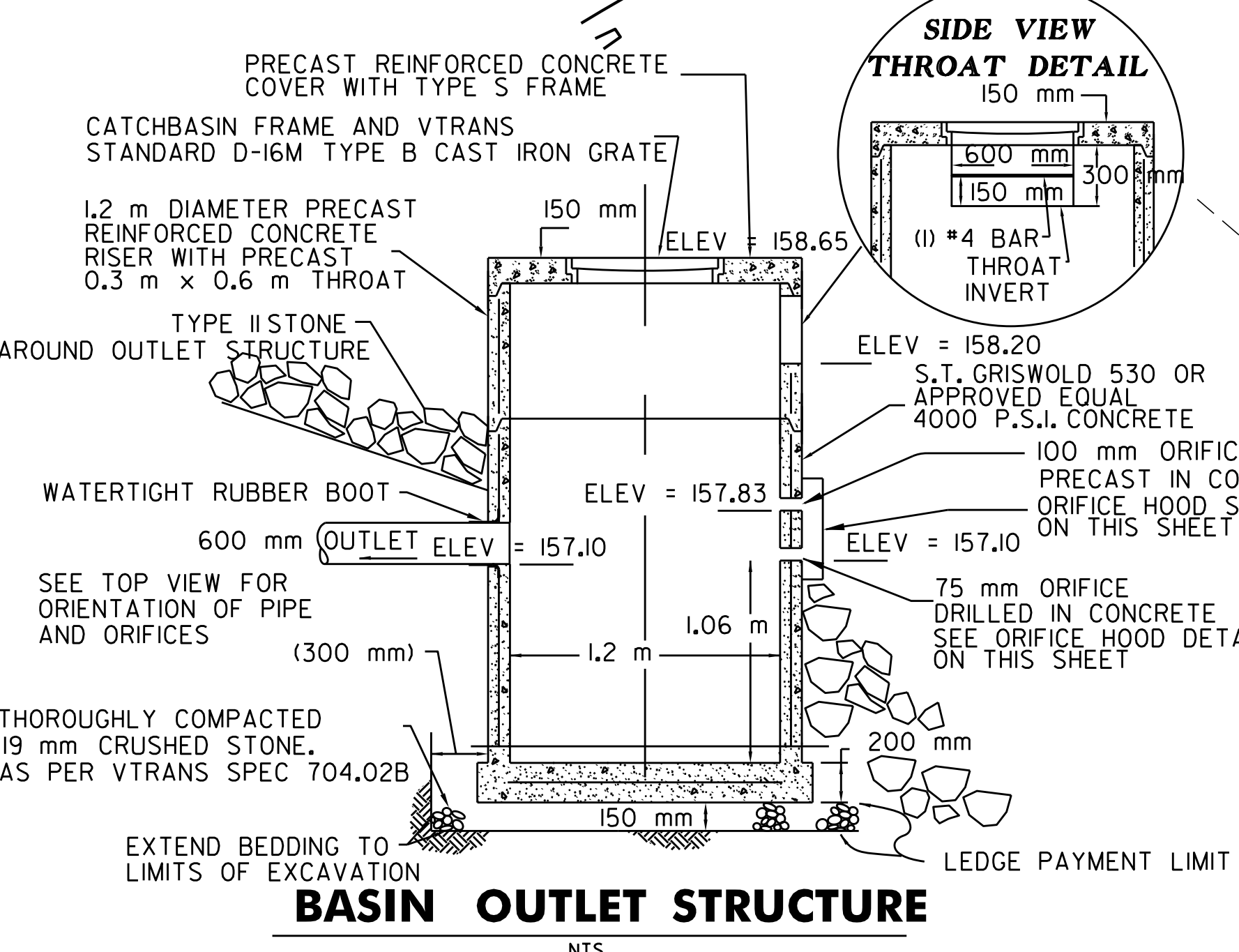
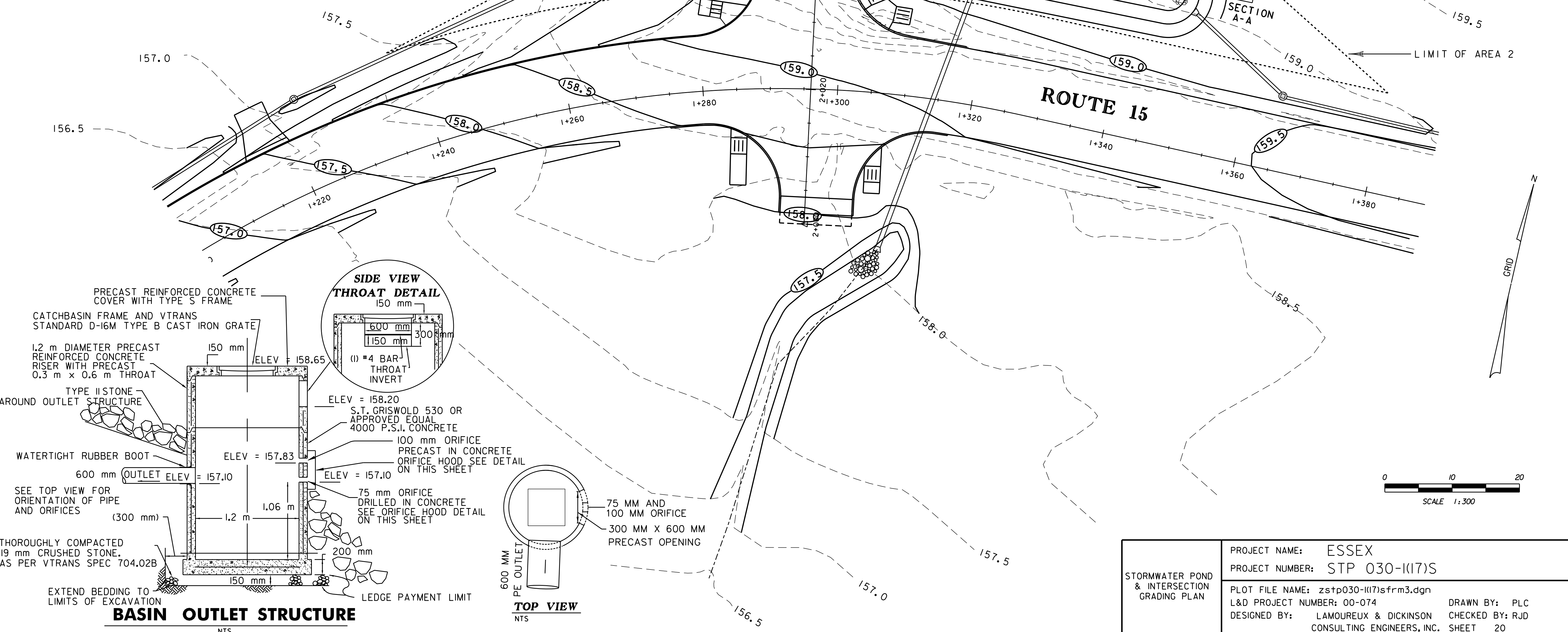
| | |
|------------------------------------|--|
| OLD STAGE ROAD CROSS SECTIONS | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(I)7S |
| | PLOT FILE NAME: zstp030-1(I)7swrk8.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 19 |



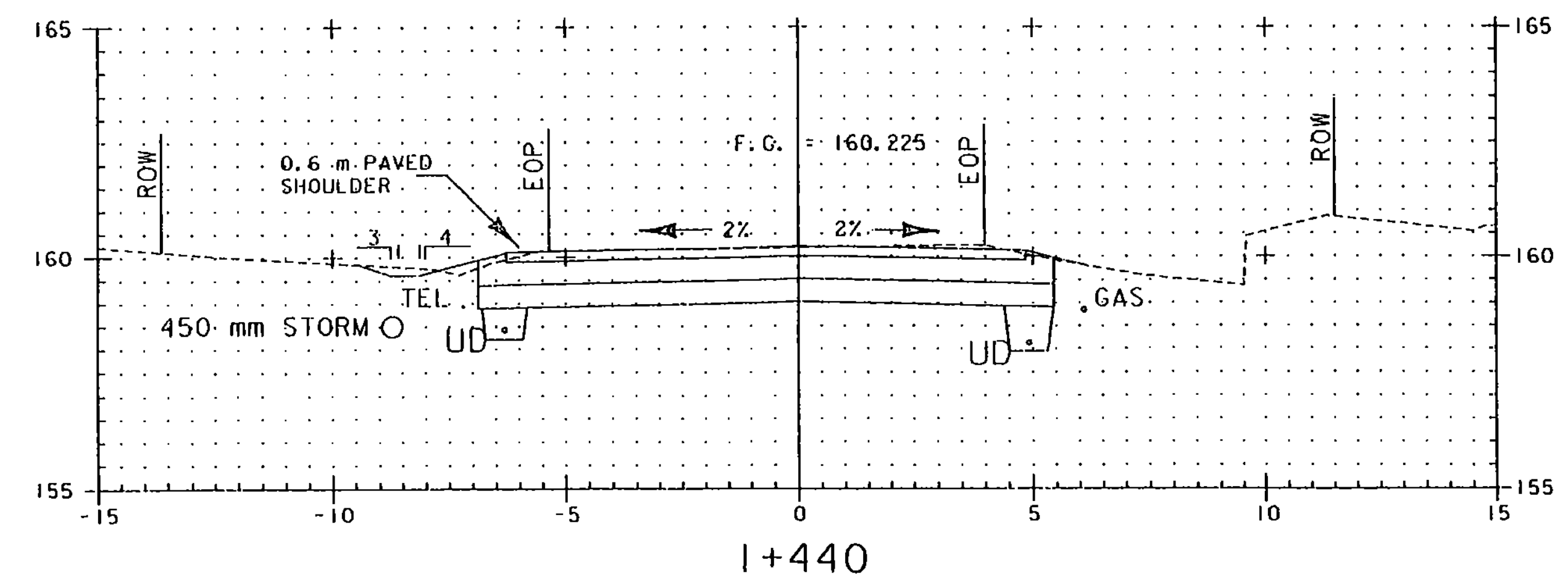
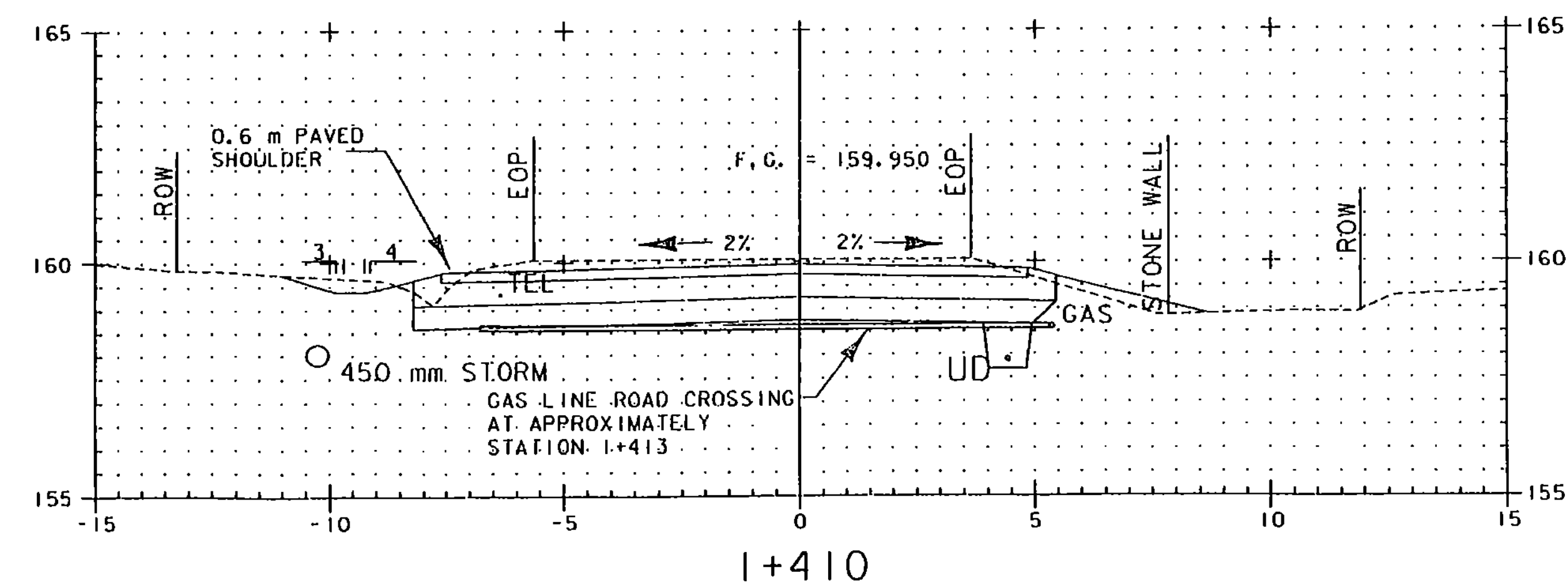
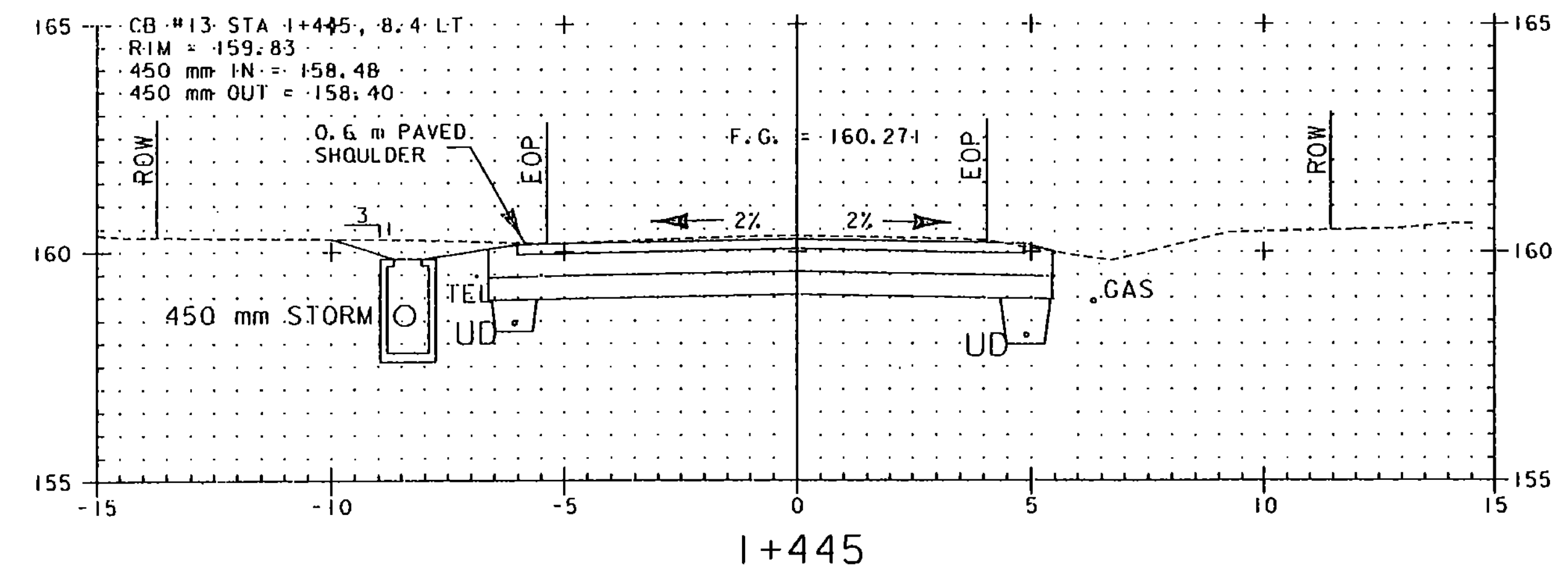
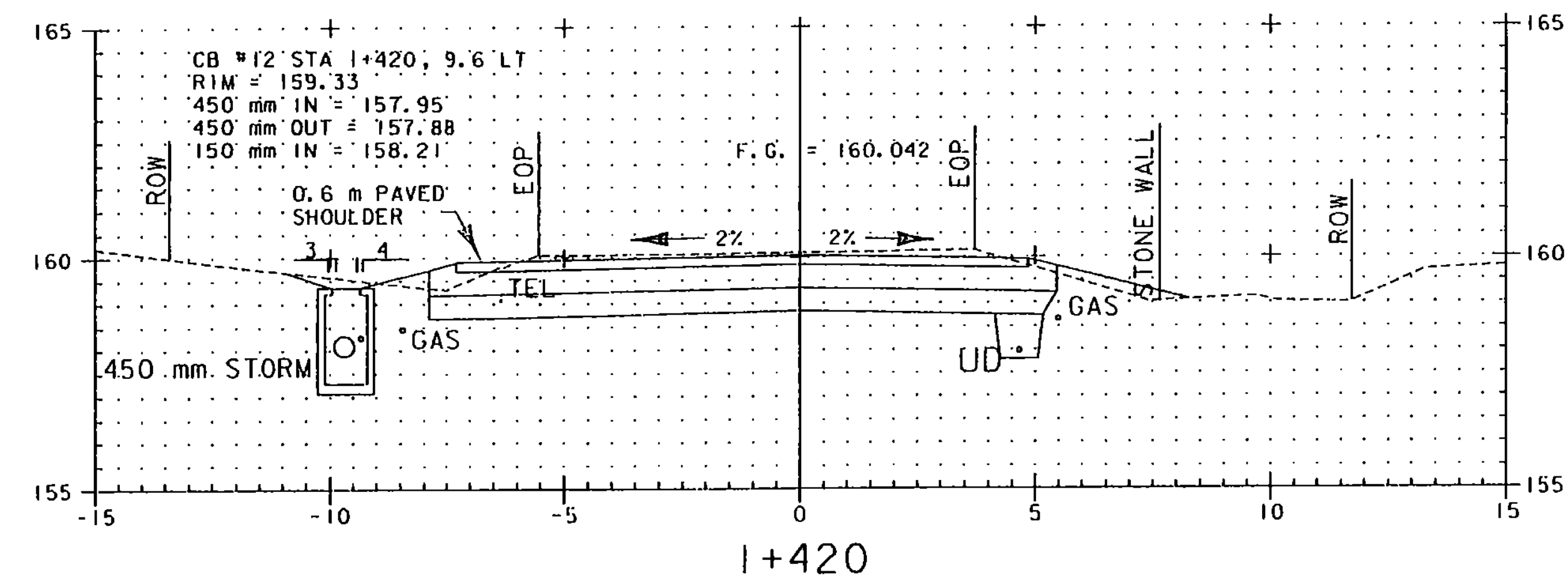
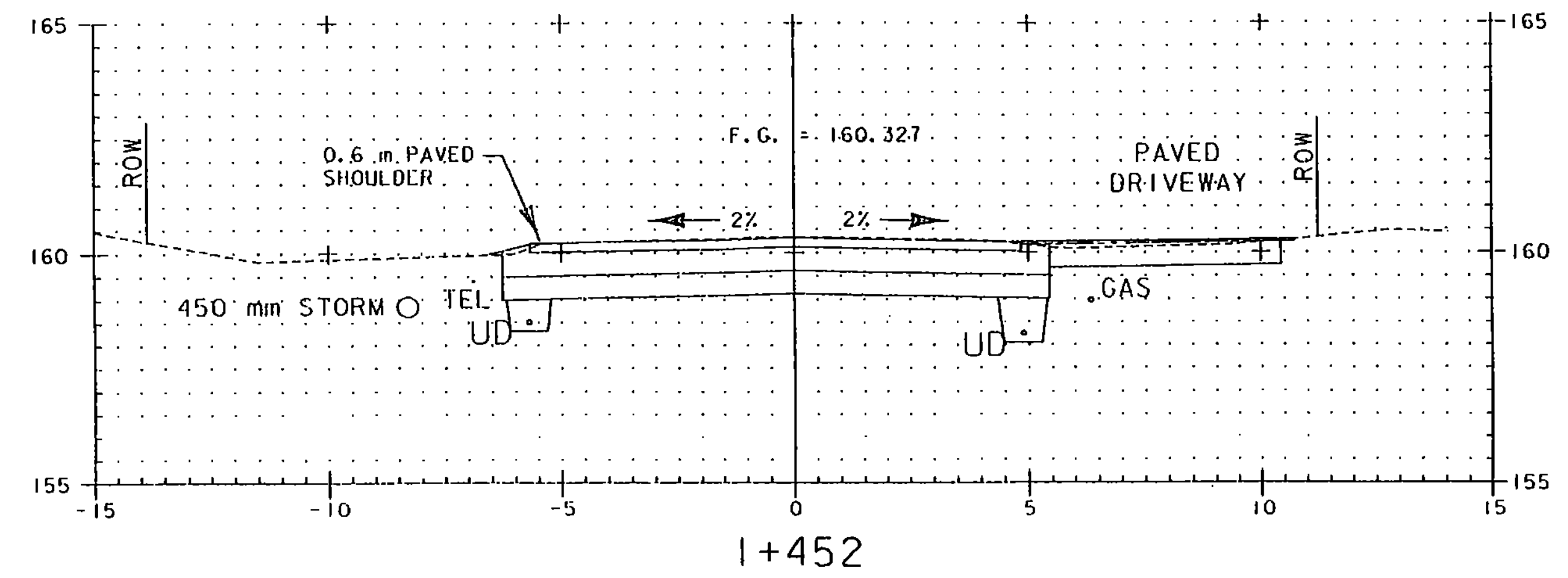
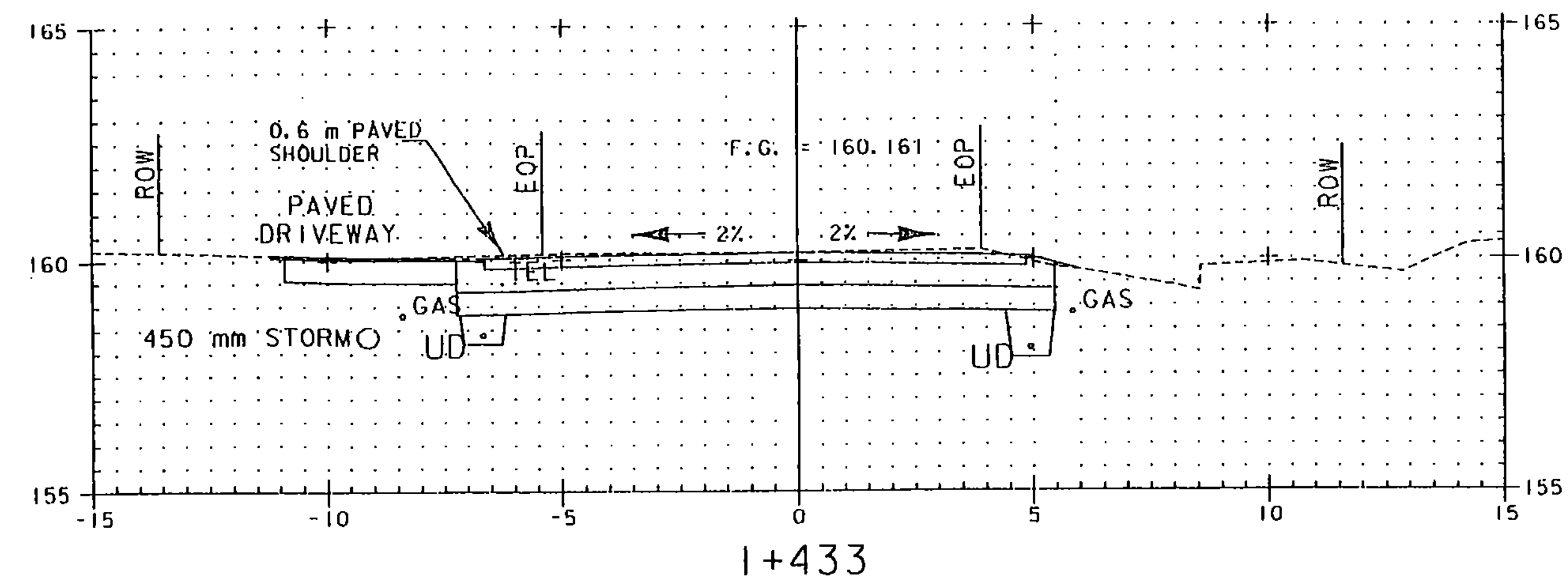
STORMWATER BASIN TO BE USED AS A SEDIMENTATION BASIN DURING CONSTRUCTION. AFTER ROAD HAS BEEN PAVED AND OTHER DISTURBED AREAS HAVE BEEN STABILIZED WITH VEGETATIVE COVER, ACCUMULATED SEDIMENTS SHALL BE REMOVED AS NECESSARY TO RE-ESTABLISH THE FINISH GRADES SHOWN. THEN THE STONE LINED SUMPS AND WETLAND PLANTINGS SHALL BE INSTALLED IN THE BOTTOM OF THE BASIN AS SHOWN ON THIS SHEET.

EROSION MATTING SHALL BE INSTALLED ON THE SIDESLOPES OF THE STORMWATER BASIN. MINIMUM 4" TOPSOIL, SEED AND MULCH TO ESTABLISH GRASS ON BASIN SIDESLOPES

| WETLAND PLANTING SCHEDULE | | | | |
|---|----------------------|----------|------------|----------|
| WETLAND PLANTINGS TO BE INSTALLED WITHIN THE INDUNDATED PORTION (BELOW ELEV=193.0) OF THE BASIN. EMBANKMENTS TO BE SEEDDED WITH URBAN MIX GRASS SEED. | | | | |
| BOTANICAL NAME | COMMON NAME | SIZE | SPACING | QUANTITY |
| Scirpus acutus | HARD-STEM BULRUSH | PEAT POT | 0.6 m O.C. | 175 |
| Scirpus validus | SOFT-STEM BULRUSH | PEAT POT | 0.6 m O.C. | 175 |
| Pontederia cordata | PICKERELWEED | PEAT POT | 0.6 m O.C. | 50 |
| Sagittaria latifolia | BROAD-LEAF ARROWHEAD | PEAT POT | 0.6 m O.C. | 50 |
| TOTAL | | | | 450 |

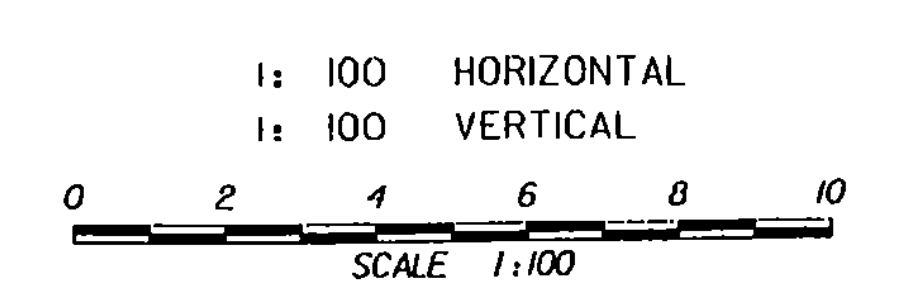


| | |
|---|--|
| STORMWATER POND & INTERSECTION GRADING PLAN | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm3.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 20 |



LEGEND

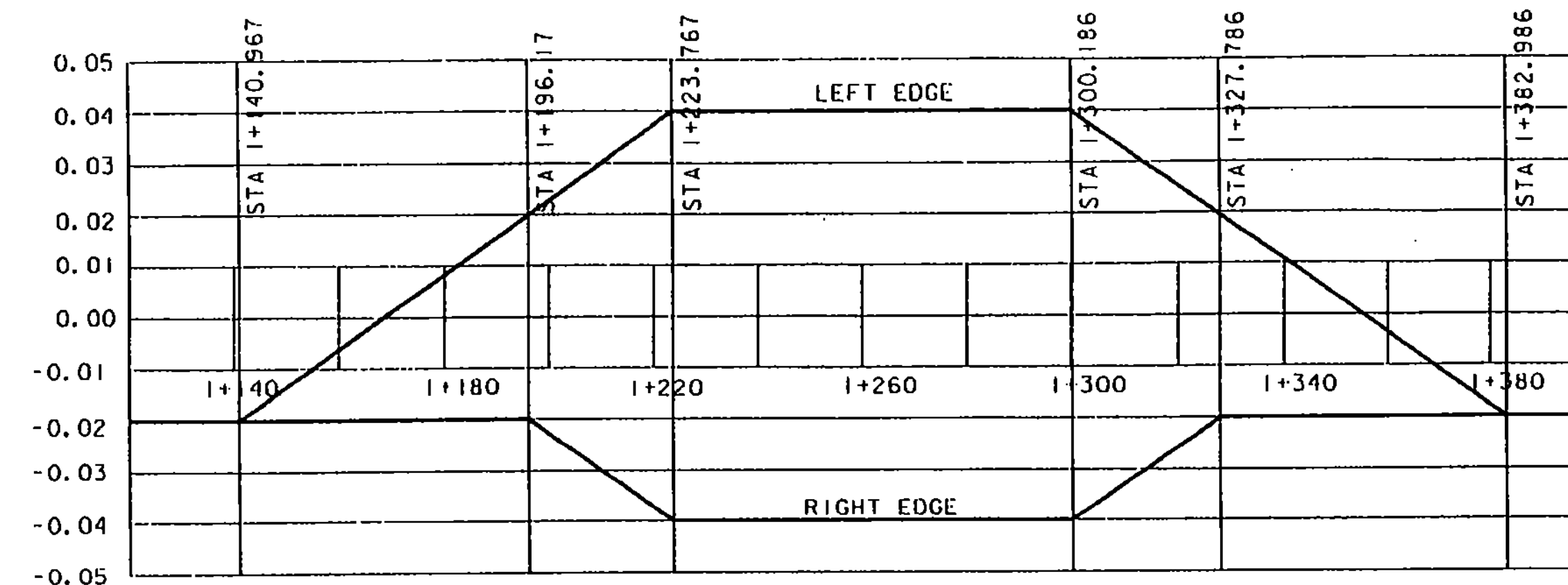
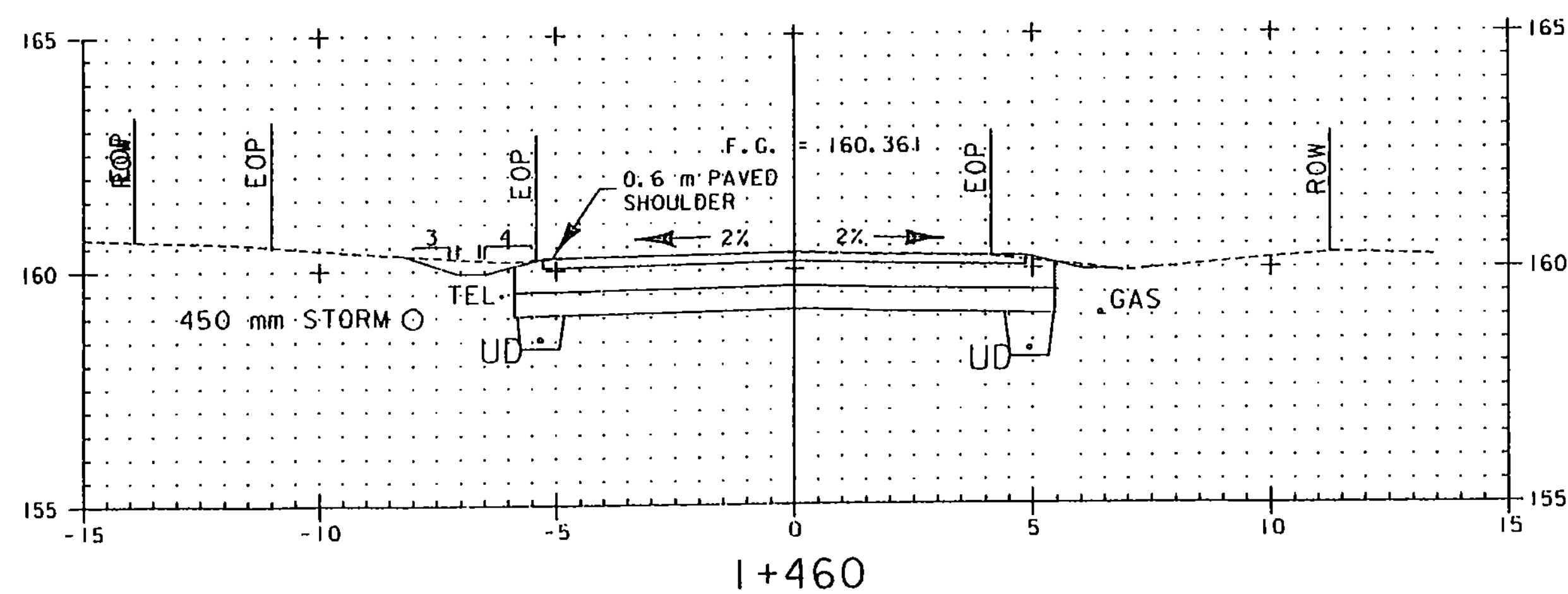
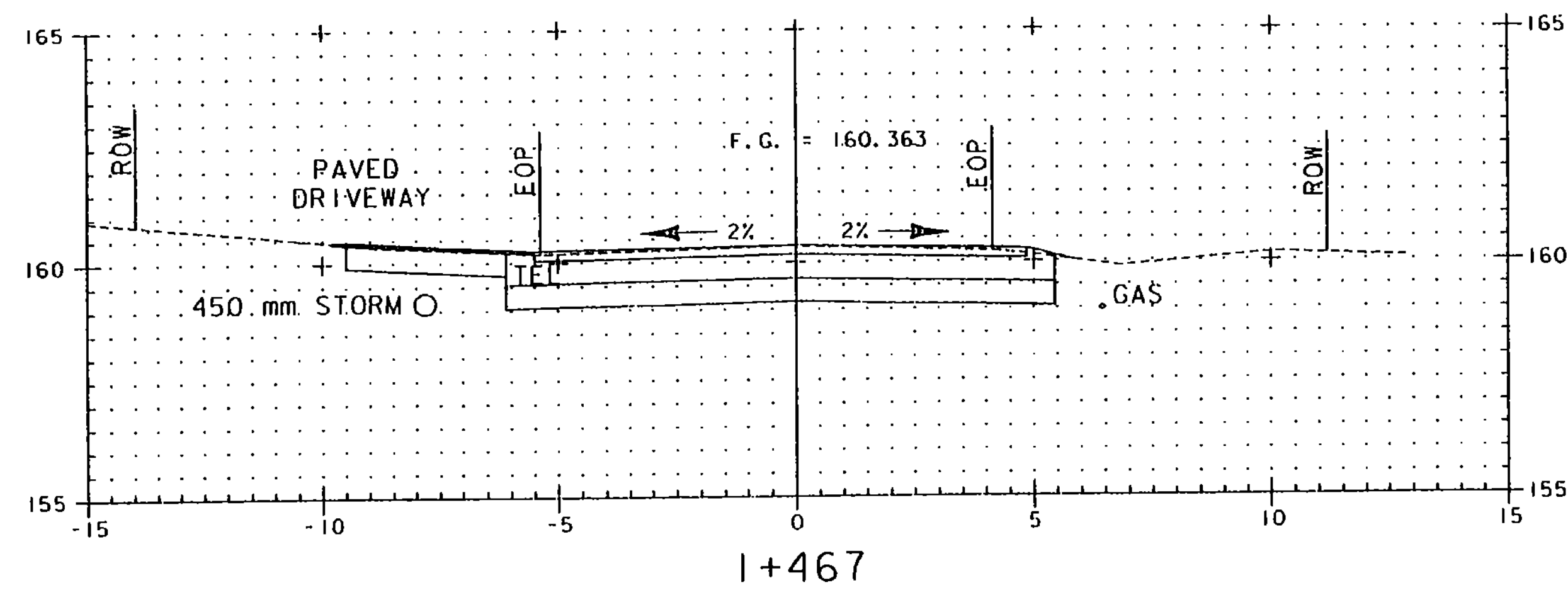
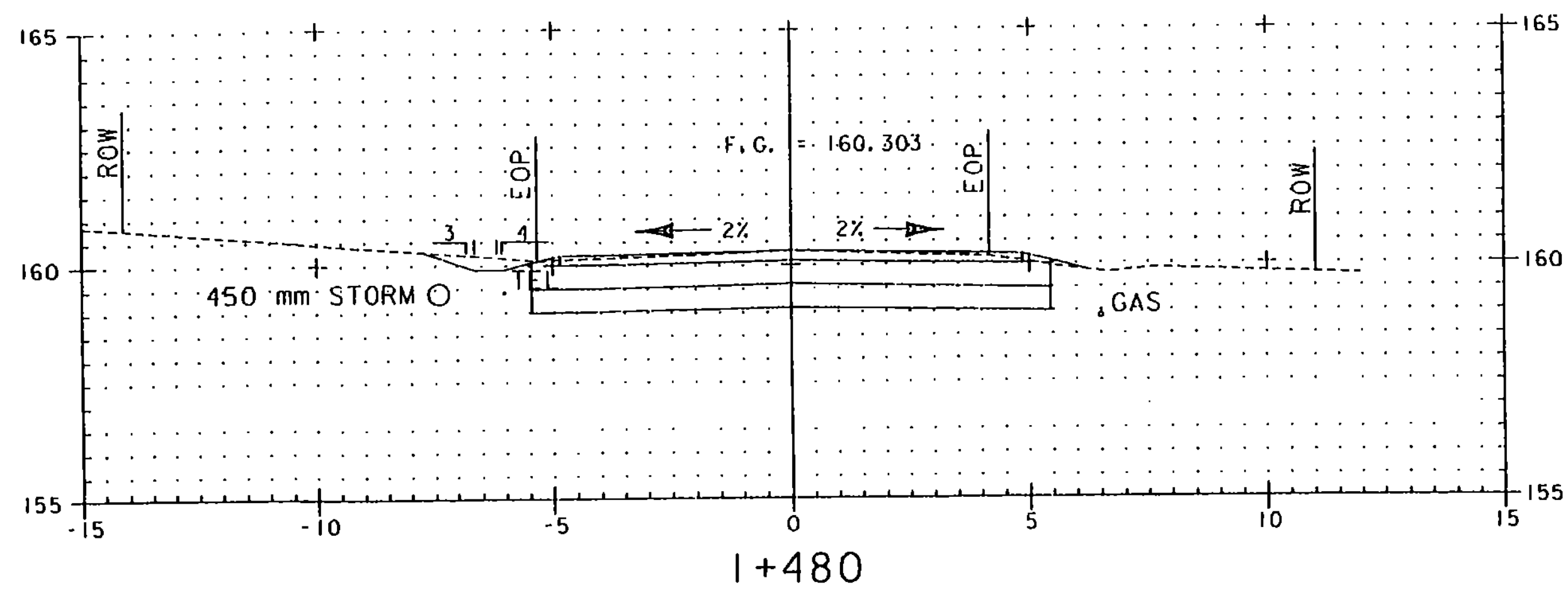
— FINISH GRADE
- - - EXISTING GROUND
EOP EXISTING EDGE OF PAVEMENT
ROW RIGHT OF WAY



ROUTE 15
CROSS SECTIONS

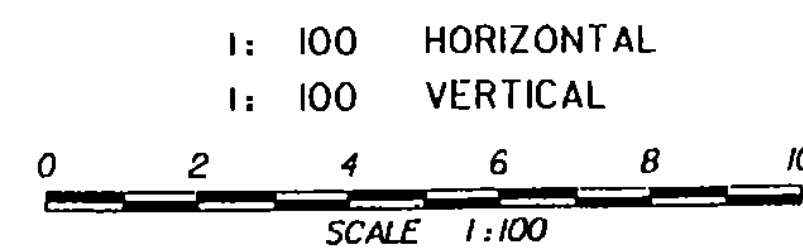
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PROJECT NUMBER: STP 030-117S
PLOT FILE NAME: zstp030-117swrk8.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.

DRAWN BY: PLC
CHECKED BY: RJD
SHEET 21 OF 42



LEGEND

- FINISH GRADE
- - - EXISTING GROUND
- EOP EXISTING EDGE OF PAVEMENT
- ROW RIGHT OF WAY

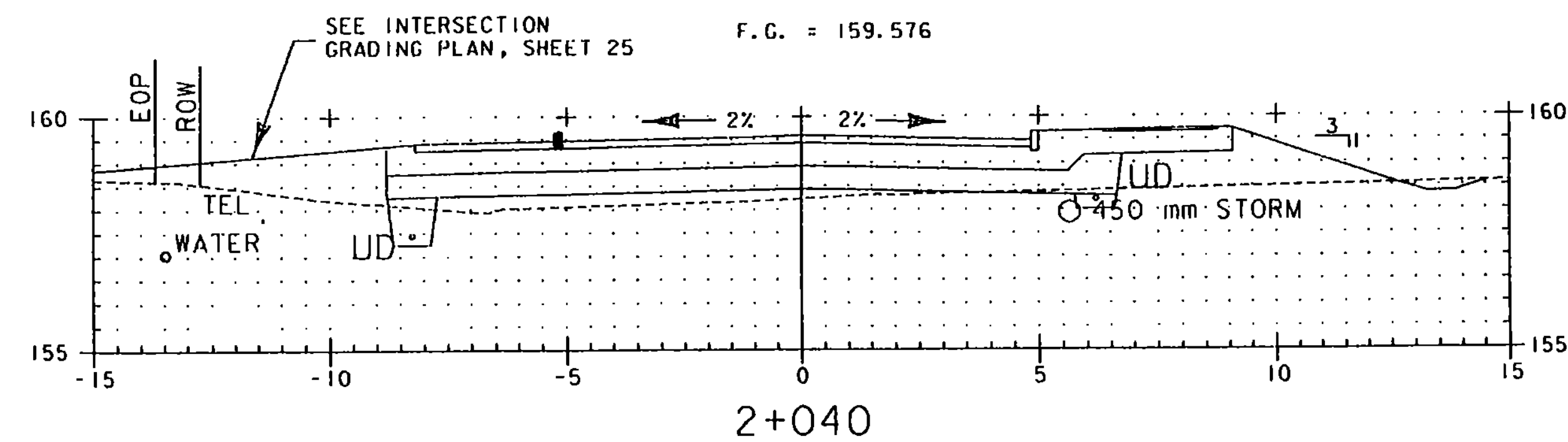
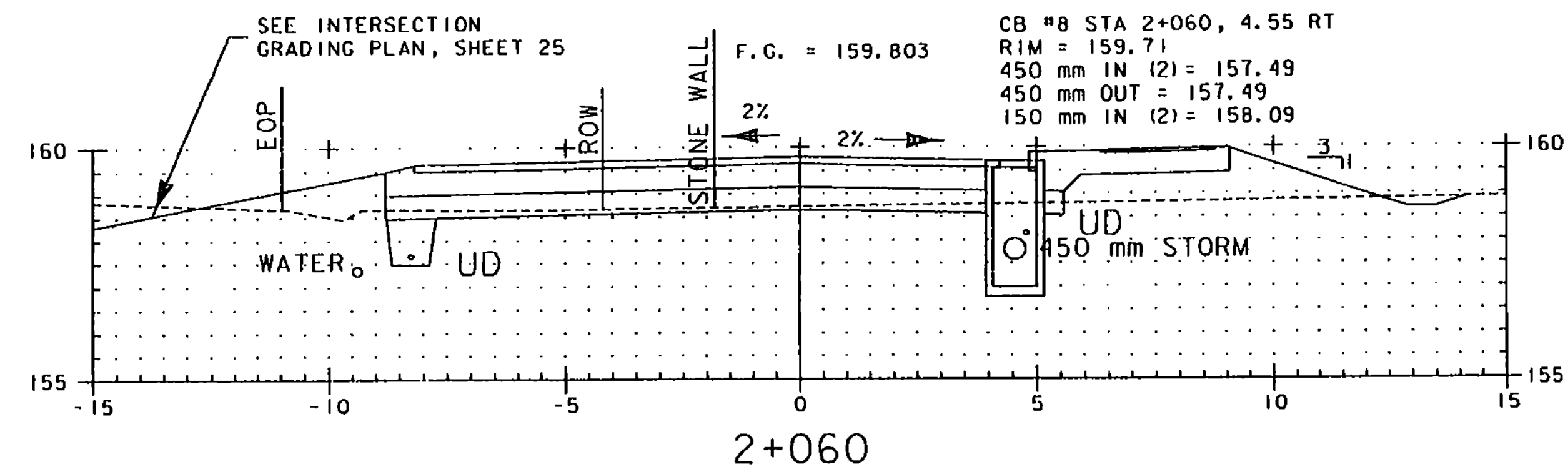
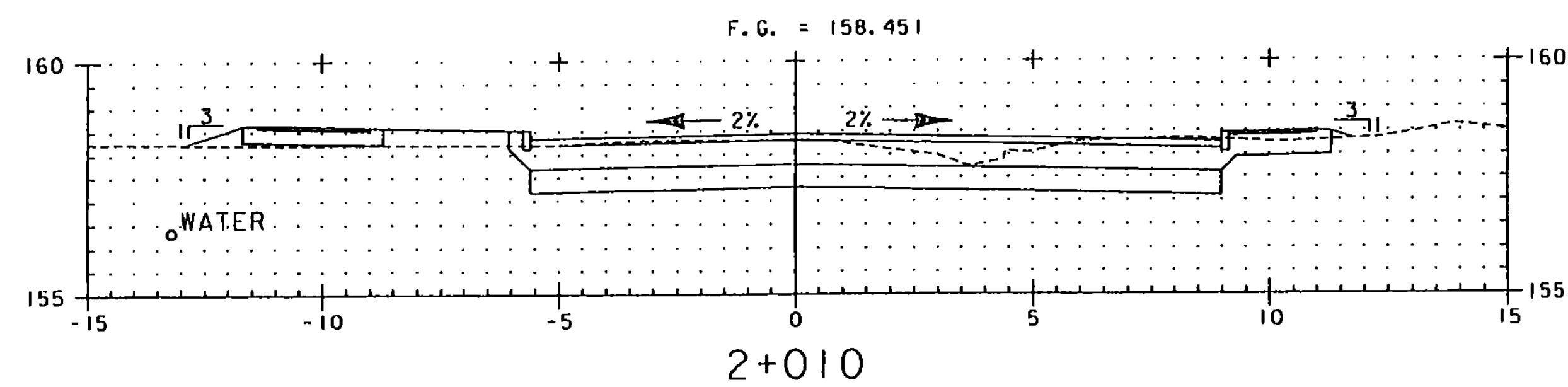
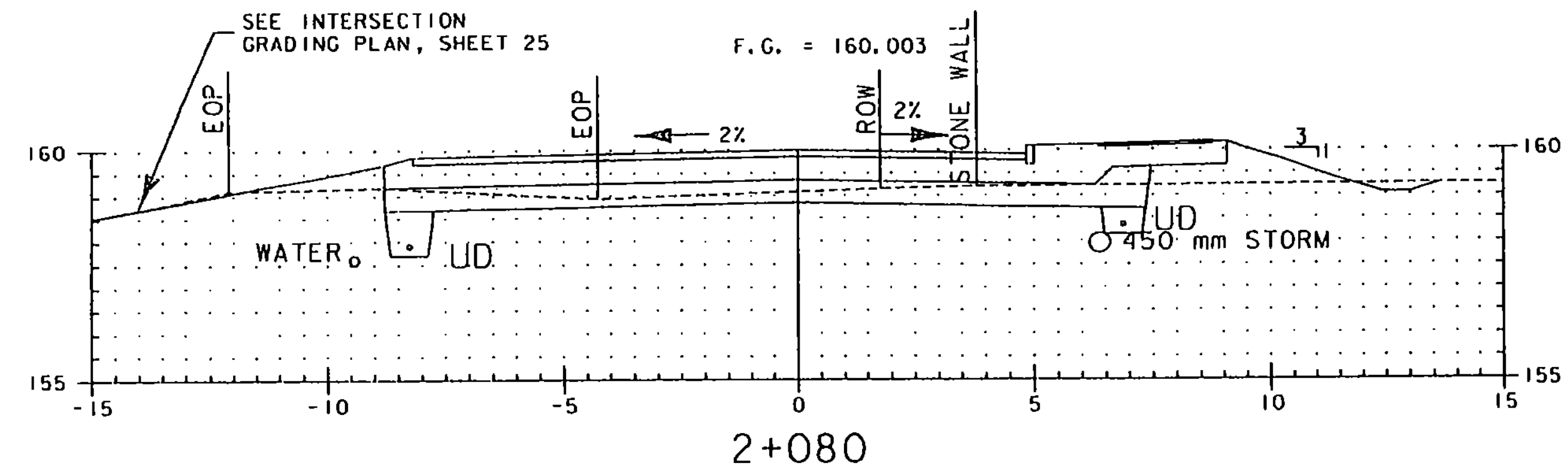
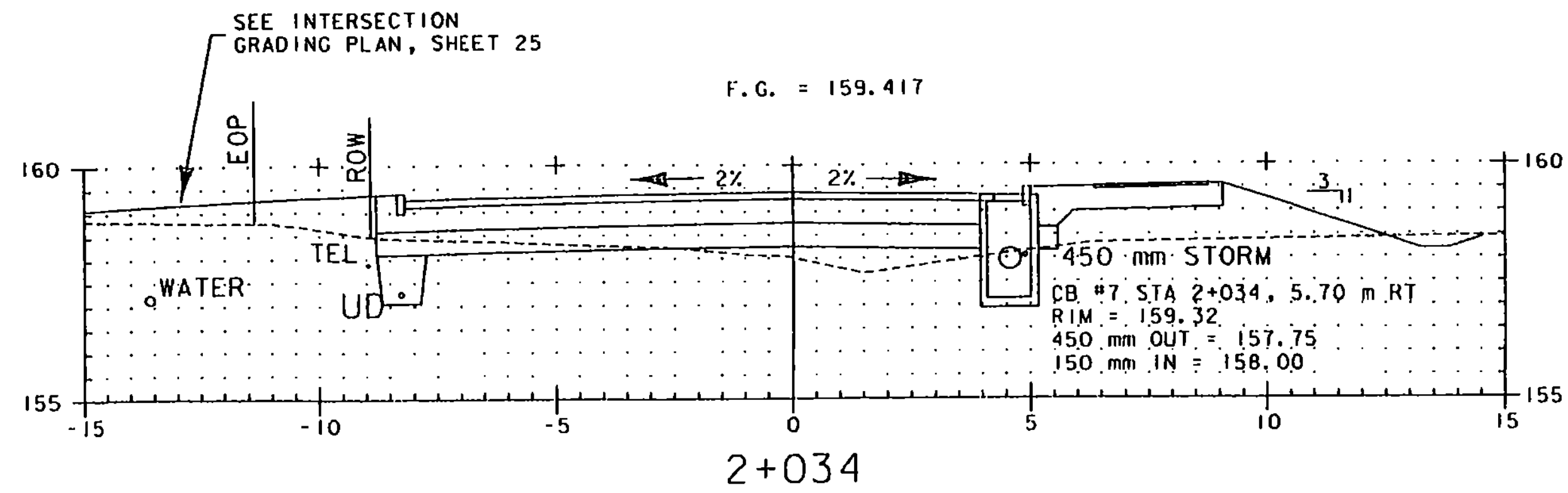


ROUTE 15
CROSS SECTIONS

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

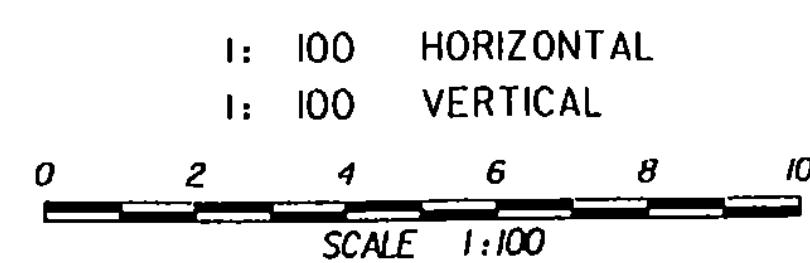
PLOT FILE NAME: zstp030-1(17)swrk8.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.

DRAWN BY: PLC
CHECKED BY: RJD
SHEET 22 OF 42



LEGEND

| | |
|--|-------------------------------|
| | FINISH GRADE |
| | EXISTING GROUND |
| | EOP EXISTING EDGE OF PAVEMENT |
| | ROW RIGHT OF WAY |

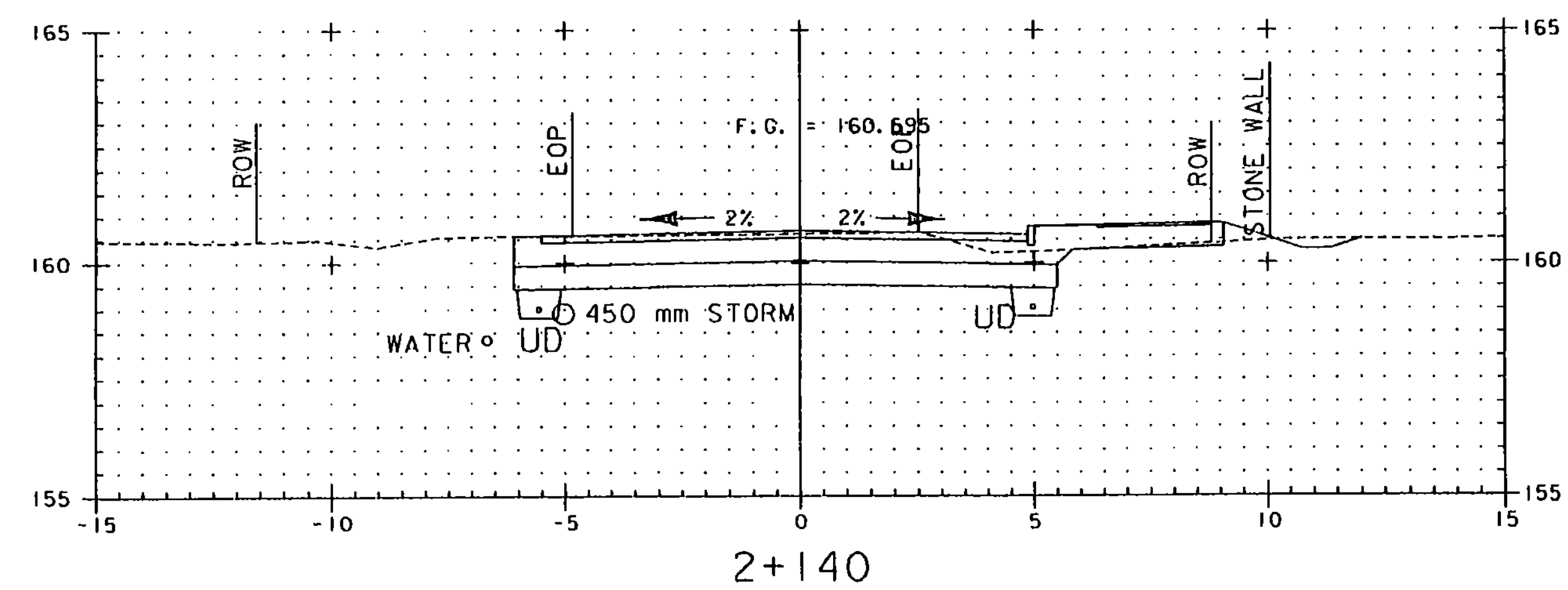
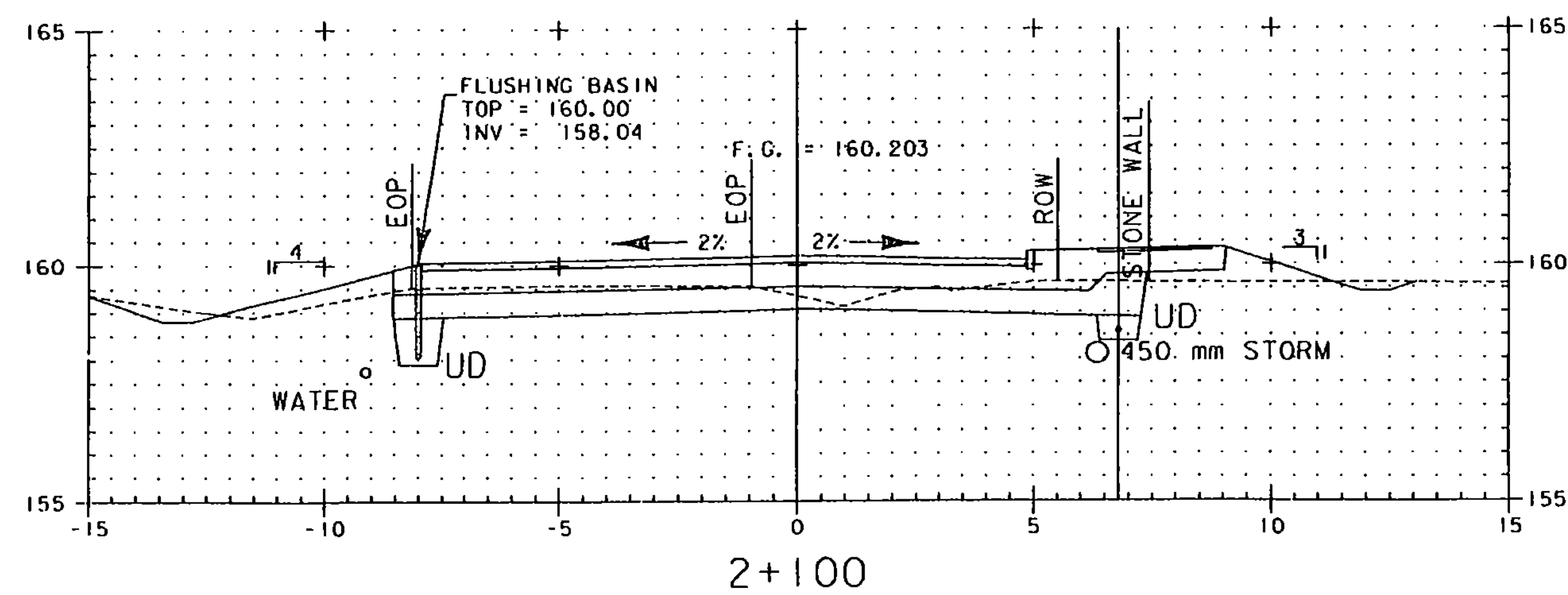
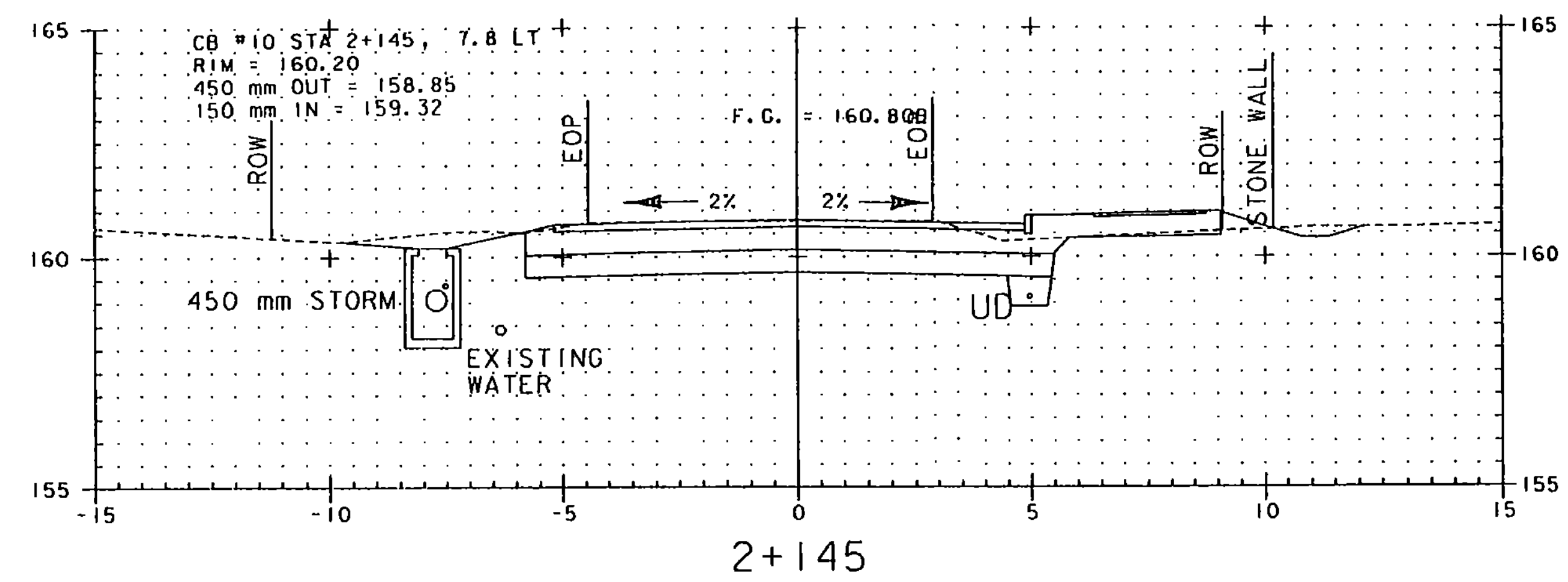
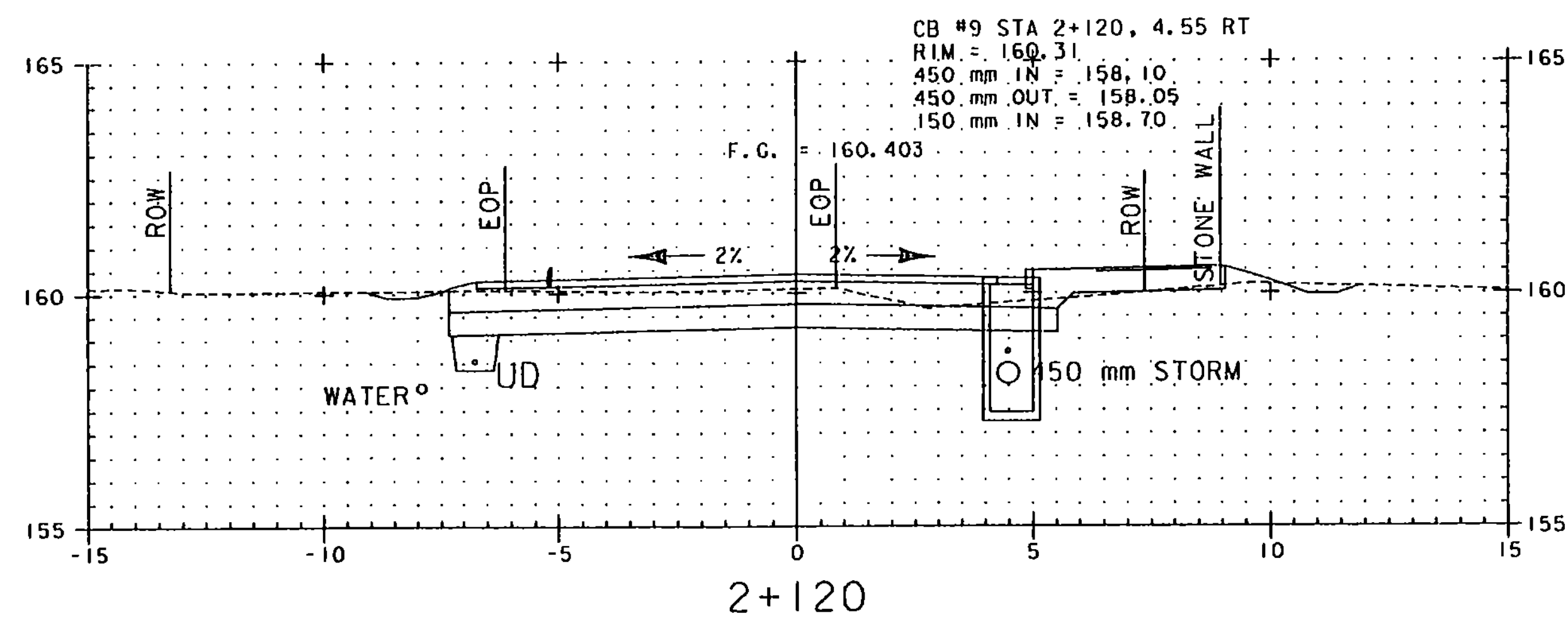
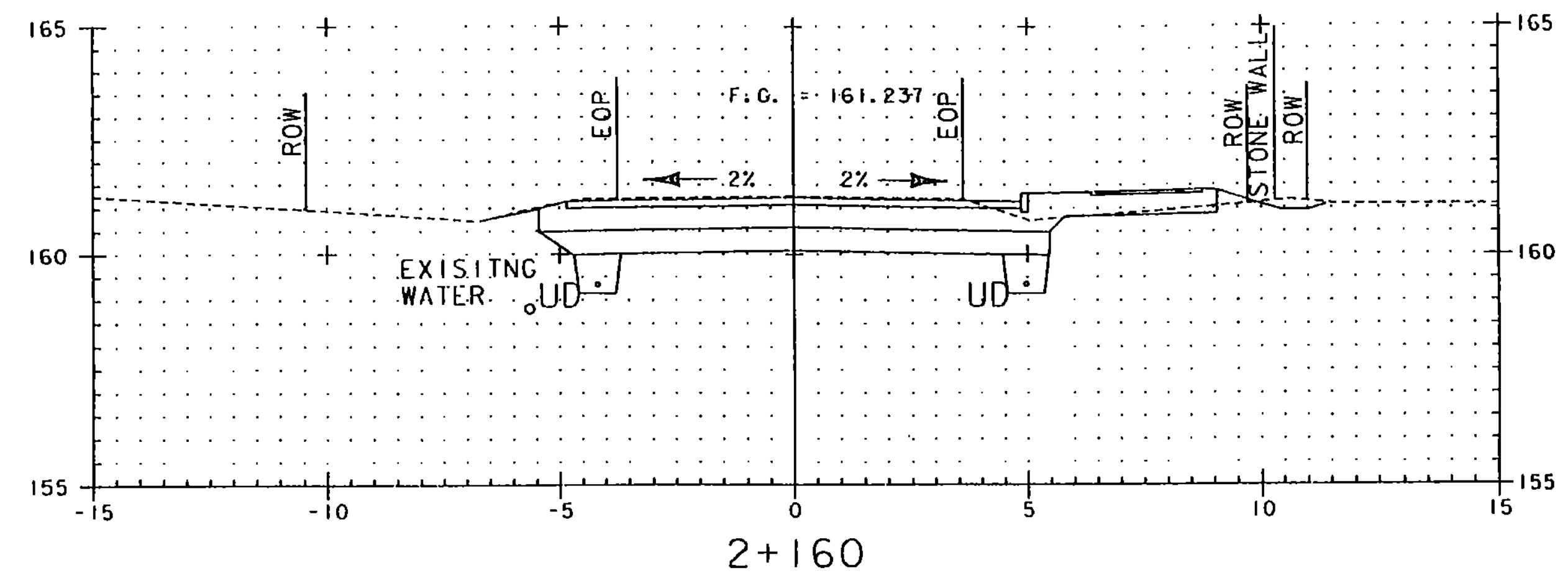
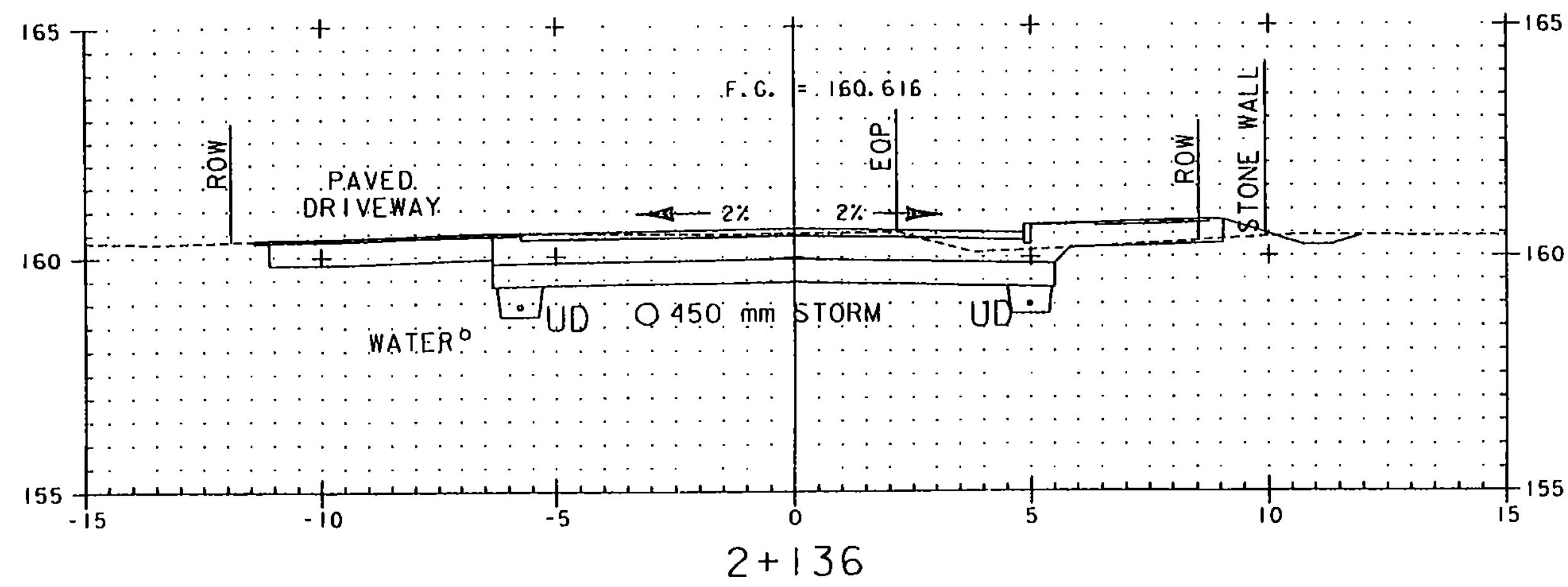


OLD STAGE ROAD
 CROSS SECTIONS

PROJECT NAME: ESSEX
 PROJECT NUMBER: STP 030-1(17)S

PLOT FILE NAME: zstp030-1(17)swrk8.dgn
 L&D PROJECT NUMBER: 00-074
 DESIGNED BY: LAMOUREUX & DICKINSON
 CONSULTING ENGINEERS, INC. SHEET 23 OF 42

DRAWN BY: PLC
 CHECKED BY: RJD



LEGEND
 ——— FINISH GRADE
 - - - - - EXISTING GROUND
 EOP EXISTING EDGE OF PAVEMENT
 ROW RIGHT OF WAY

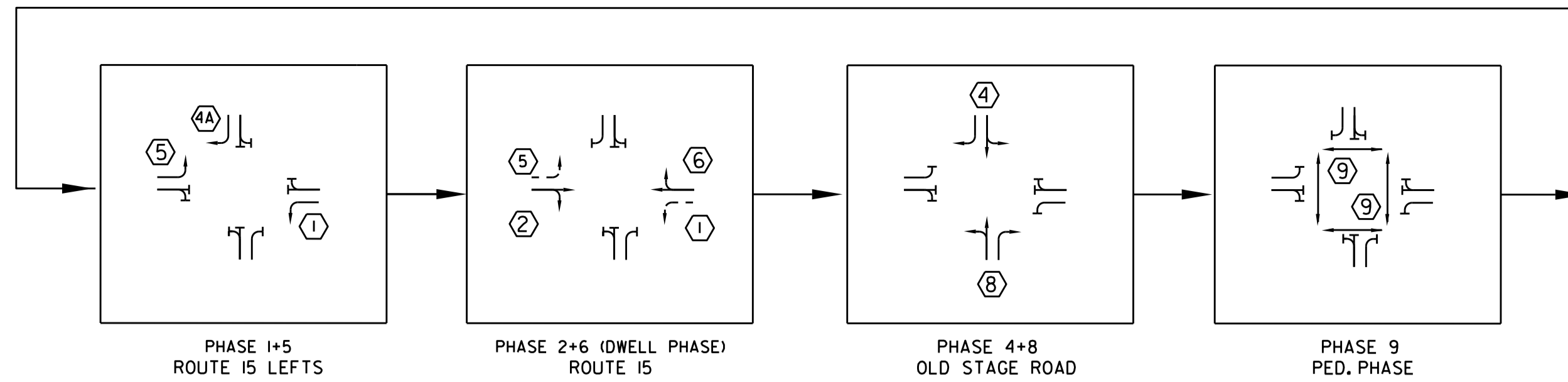
1: 100 HORIZONTAL
 1: 100 VERTICAL
 0 2 4 6 8 10
 SCALE 1:100



PROJECT NAME: ESSEX
 PROJECT NUMBER: STP 030-1117S
 PLOT FILE NAME: zstp030-1117swrk8.dgn
 L&D PROJECT NUMBER: 00-074
 DESIGNED BY: LAMOUREUX & DICKINSON
 CONSULTING ENGINEERS, INC.
 DRAWN BY: PLC
 CHECKED BY: RJD
 SHEET 24 OF 42

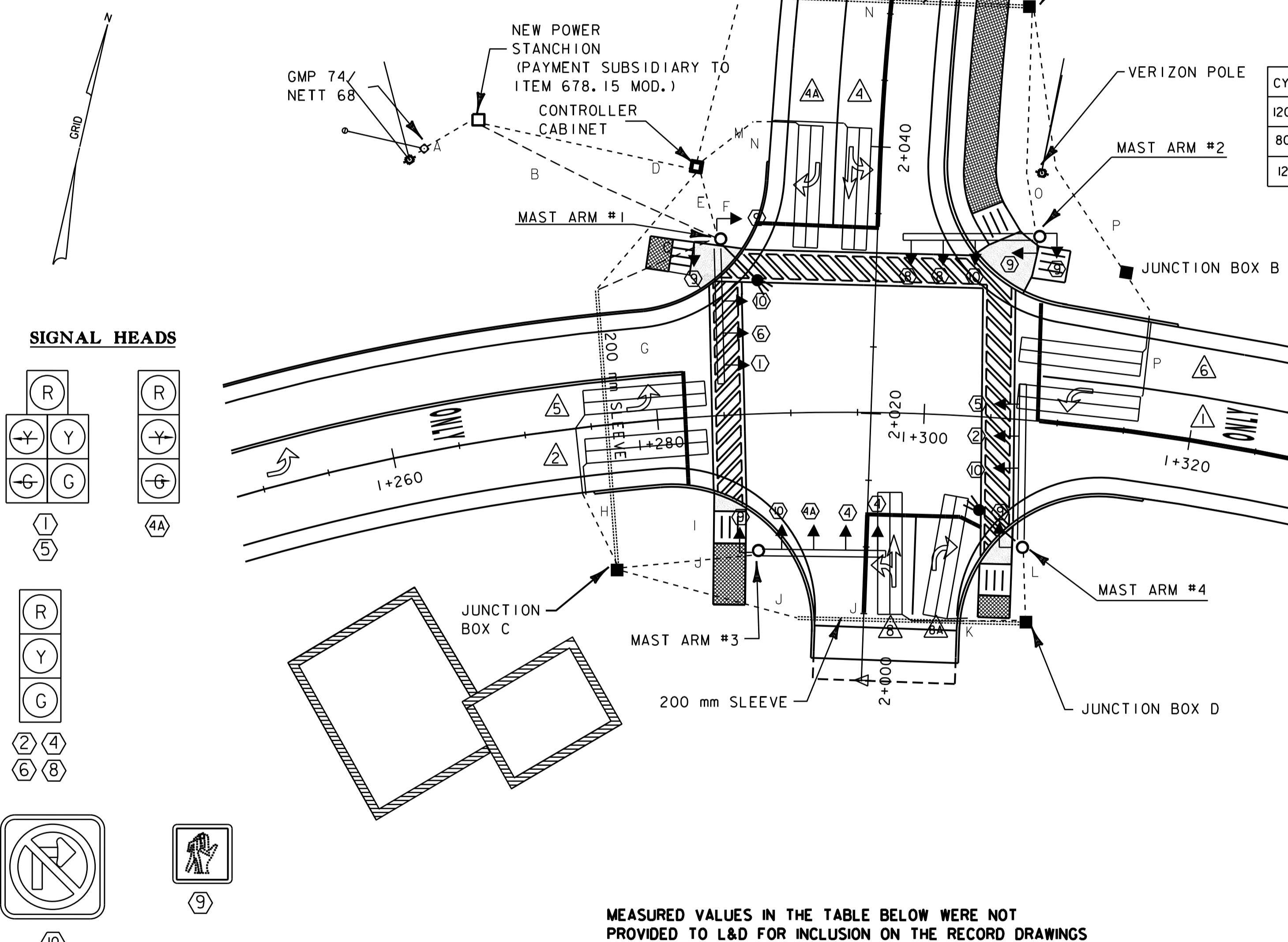
TRAFFIC SIGNAL LEGEND

- ===== CONDUIT SLEEVE
- WIRED CONDUIT
- JUNCTION BOX
- TRAFFIC SIGNAL HEAD
- MAST ARM POLE
- CONTROLLER CABINET
- NEW LUMINAIRE
- ▭ LOOP DETECTOR

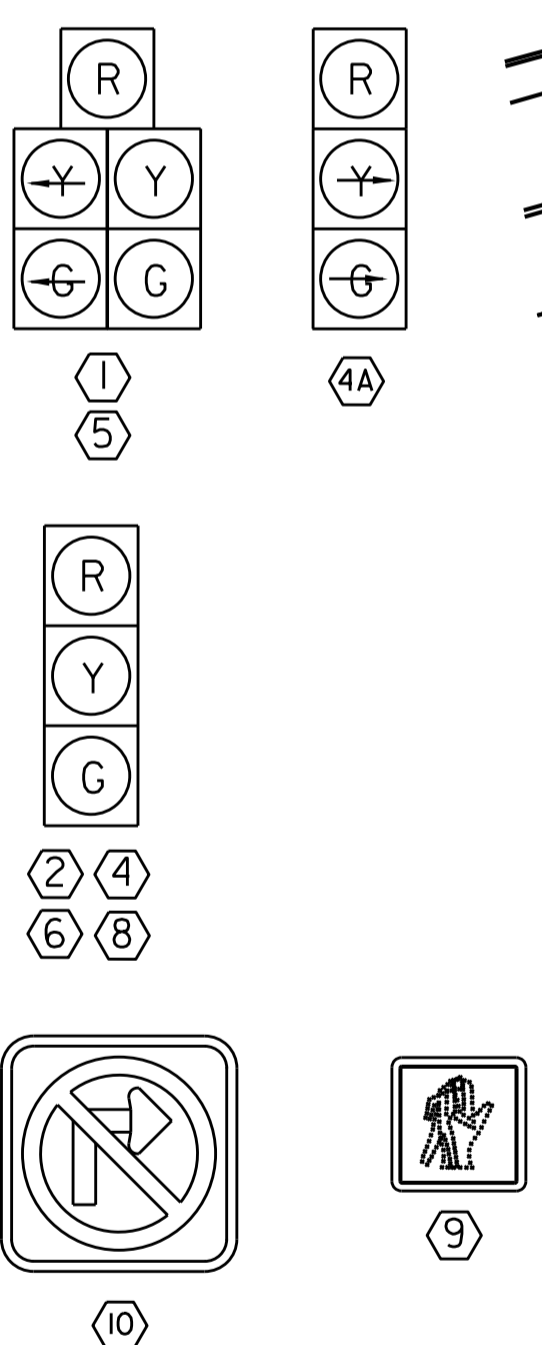


PHASING PLAN

| PROGRAM CONTROLLER FOR NEMA DUAL RING / FULLY ACTUATED OPERATION | PHASE 1+5 ROUTE 15 LEFTS | PHASE 2+6 ROUTE 15 | PHASE 4+8 OLD STAGE ROAD | PHASE 9 PEDESTRIAN | |
|--|-----------------------------|--------------------|--------------------------|--------------------------|--------|
| VEH. EXTENSION | 2 | 2 | 2 | - | |
| RT. TURN DELAY | - | - | 5 | - | |
| MIN. GREEN | 7 | 8 | 8 | - | |
| YELLOW CLEAR | 4 | 4 | 4 | (10) NRTOR | |
| CYCLE LENGTH | RED CLEAR | 2 | 2 | MAN (WALK) FLASHING HAND | |
| 120 SEC. | A.M. PEAK (6:00 - 9:00 AM) | MAX. GREEN 10 | 54 | 18 | 4 14 2 |
| 80 SEC. | OFF PEAK | MAX. GREEN 8 | 24 | 10 | 4 14 2 |
| 120 SEC. | P.M. PEAK (3:00 - 6:00 PM) | MAX. GREEN 15 | 43 | 24 | 4 14 2 |
| FLASHING OPERATION (EMERGENCY ONLY) | (1)+(5) -FY -FR (4A) FR- | (2)+(6) FY | (4)+(8) FR | BLANK | |



SIGNAL HEADS



JUNCTION BOX

| STATION, OFFSET | SIZE |
|----------------------|-----------------|
| A 2+041.51, 11.41 RT | 750 x 400 x 300 |
| B 1+315.68, 9.61 LT | 450 x 300 x 300 |
| C 2+010.86, 16.35 LT | 750 x 400 x 300 |
| D 2+006.78, 12.30 RT | 750 x 400 x 300 |

ALL JUNCTION BOXES SHALL HAVE HEAVY DUTY COVERS CAPABLE OF H2O LOADING.

CONDUIT LEGEND

- A - ELECTRICAL SERVICE TO NEW POWER STANCHION, TELEPHONE SERVICE
- B - 50 mm LIGHTING
- C - 50 mm LIGHTING
- D - ELECTRICAL (TRAFFIC SIGNAL), TELEPHONE SERVICE
- E - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN
- F - 50 mm SIGNAL WIRING
- G - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN + 50 mm LIGHTING
- H - 50 mm LOOP LEAD IN
- I - 50 mm SIGNAL WIRING
- J - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN + 50 mm LIGHTING
- K - 50 mm LOOP LEAD IN
- L - 50 mm SIGNAL WIRING + 50 mm LIGHTING
- M - 50 mm LOOP LEAD IN
- N - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN
- O - 50 mm SIGNAL WIRING
- P - 50 mm LOOP LEAD IN

MEASURED VALUES IN THE TABLE BELOW WERE NOT PROVIDED TO L&D FOR INCLUSION ON THE RECORD DRAWINGS

VEHICLE LOOP DETECTOR SCHEDULE

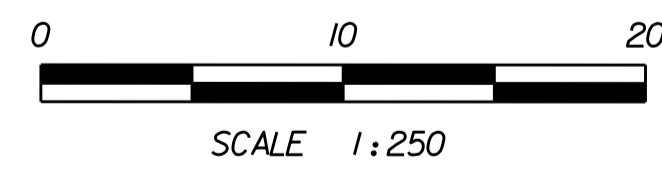
| LANE | LOOP # | SIZE | TYPE | # OF TURNS | CALL PHASE | MODE | INDUCTANCE (uH) | | RESISTANCE (ohms) | | LEAKAGE TO GROUND (m-ohms) |
|----------|--------|-----------------|------|------------|------------|--------|-----------------|-------|-------------------|-------|----------------------------|
| | | | | | | | CALC. | MEAS. | CALC. | MEAS. | |
| WB LT | 1 | 1.83 m X 9.14 m | LONG | 2 | 1 | PRES. | 298 | | 0.98 | | |
| EB TH/RT | 2 | 1.83 m X 9.14 m | LONG | 2 | 2 | PRES. | 287 | | 0.85 | | |
| SB TH/LT | 4 | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES. | 267 | | 0.58 | | |
| SB RT | 4A | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES.* | 263 | | 0.54 | | |
| EB LT | 5 | 1.83 m X 9.14 m | LONG | 2 | 5 | PRES. | 291 | | 0.89 | | |
| WB TH/RT | 6 | 1.83 m X 9.14 m | LONG | 2 | 6 | PRES. | 296 | | 0.95 | | |
| NB TH/LT | 8 | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES. | 315 | | 1.20 | | |
| NB RT | 8A | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES.* | 312 | | 1.15 | | |

* DELAY ON RIGHT TURN LOOP

INSTALLATION OF LOOPS 8 & 8A TO BE COORDINATED WITH TOWN CENTER CONSTRUCTION

NOTES:

- 1) LED "NO RIGHT TURN ON RED" SIGNS SHALL BEGIN DURING ALL RED PERIOD PRIOR TO PEDESTRIAN PHASE.
- 2) CROSSWALK MARKINGS SHALL NOT BE PLACED UNTIL PEDESTRIAN SIGNAL IS OPERATIONAL.
- 3) VEHICLE DETECTOR LOOPS SHALL BE INSTALLED BEFORE PAVEMENT WEARING COURSE IS PLACED.
- 4) ITEM 678.15 (MOD.) - OLD STAGE ROAD INCLUDES REPLACING THE THREE EXISTING SIGNAL CONTROLLERS AT VT 15/289 AND VT15/BILLIE BUTLER DRIVE. THE EXISTING CONTROLLERS ARE ECONOLITE ASC-8000 UNITS; CURRENTLY OPERATING IN TIME BASED COORDINATION. THE CONTRACTOR SHALL PROGRAM THE NEW CONTROLLERS TO UTILIZE THE SAME SETTINGS AS THE EXISTING ONES, EXCEPT THAT THE NEW SIGNAL CYCLE LENGTHS, SPLITS AND OFFSETS SHALL BE AS SHOWN ON SHEET 42. WORK AT THESE THREE INTERSECTIONS SHALL ALSO INCLUDE INSTALLING AND MAKING OPERATIONAL THE RADIO TELEMETRY INTERCONNECT EQUIPMENT AS SHOWN ON SHEET 41.



TURNING MOVEMENT VOLUMES

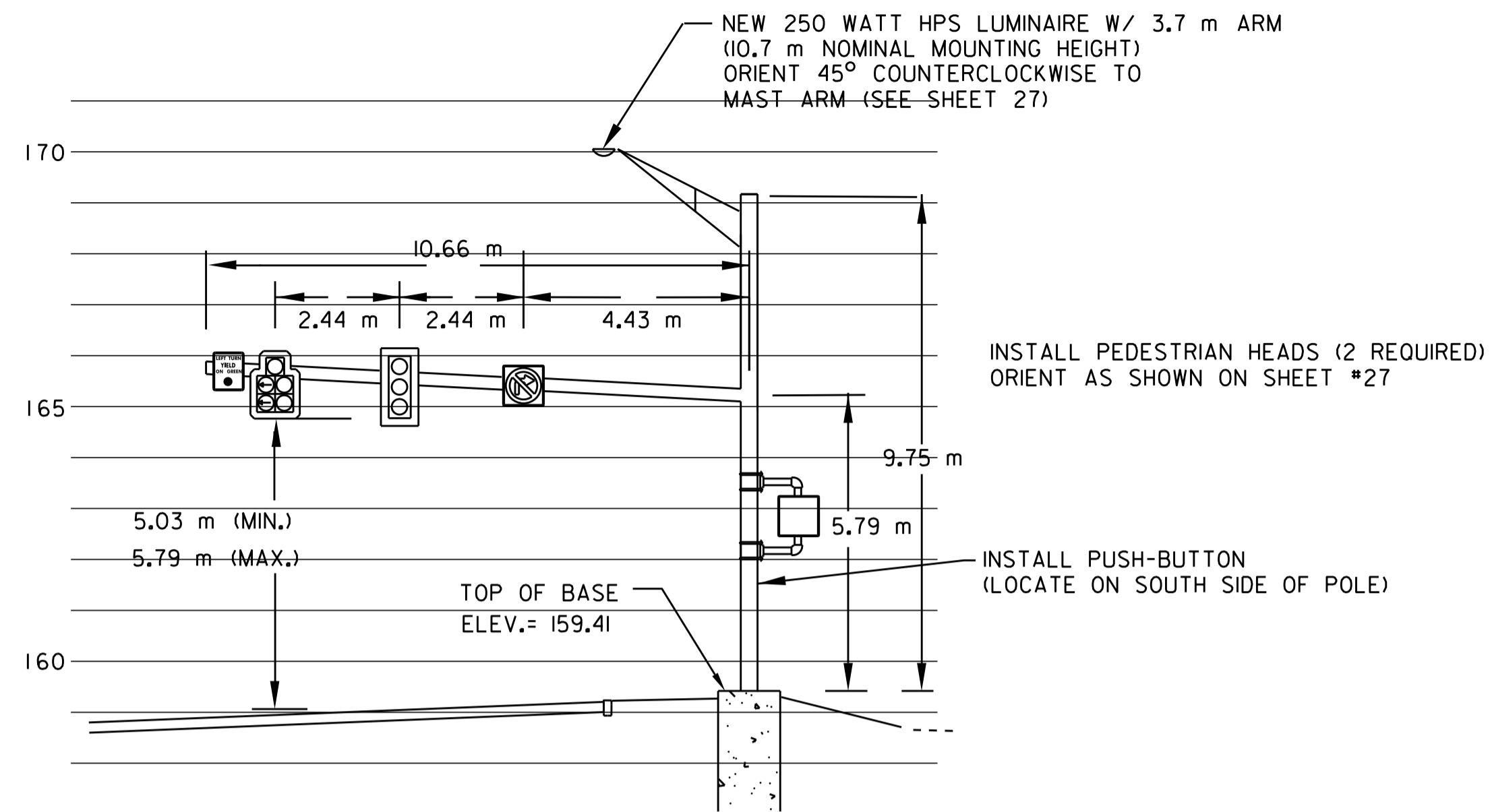
| AM | OFF | PM | DHV* |
|-----|-----|-----|------|
| 44 | 103 | 282 | 331 |
| 267 | 384 | 722 | 849 |
| 56 | 116 | 159 | 159 |

| AM | OFF | PM | DHV* |
|-----|-----|-----|------|
| 10 | 26 | 59 | 69 |
| 729 | 493 | 437 | 513 |
| 56 | 117 | 158 | 158 |

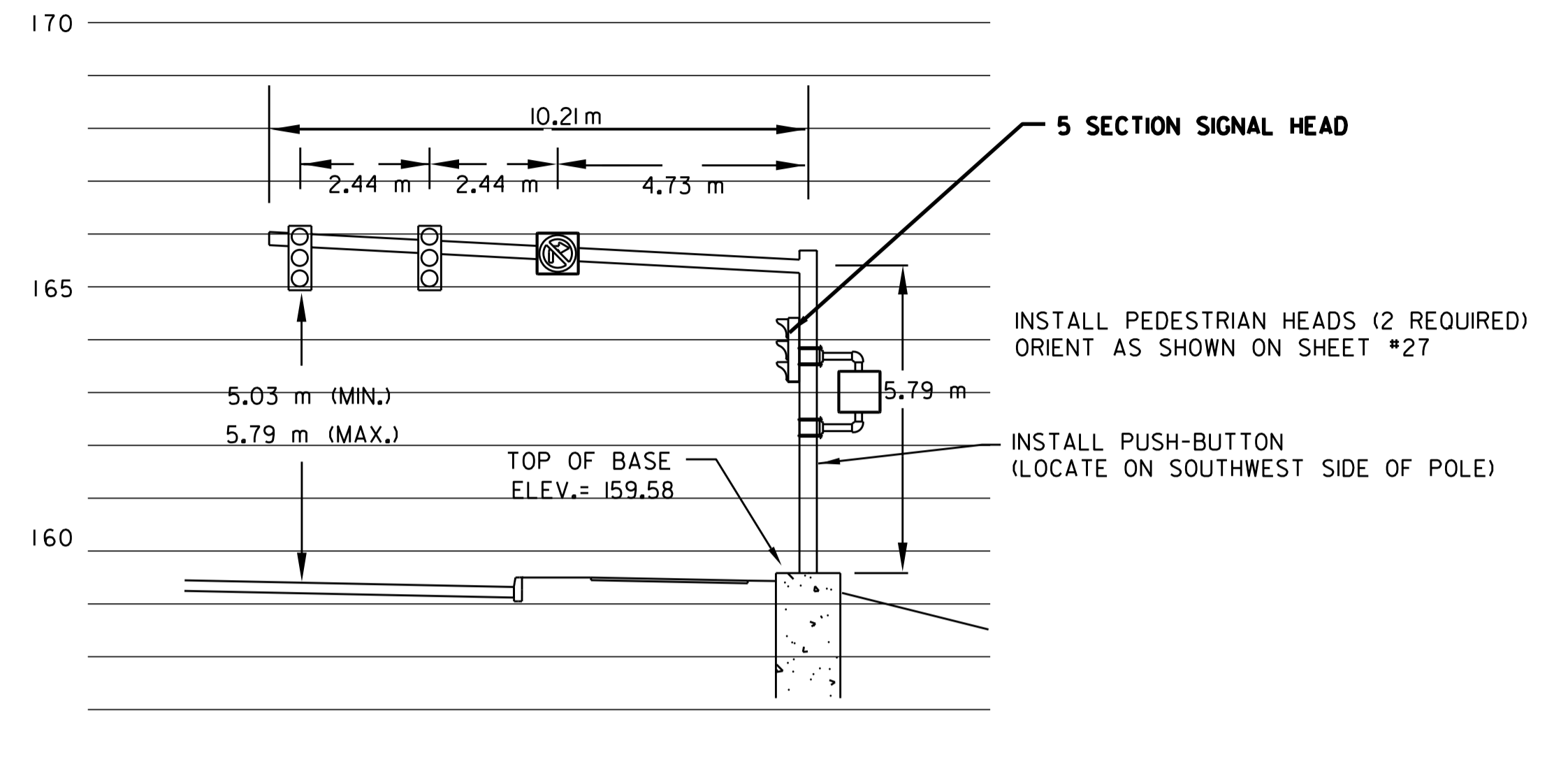
* 2007



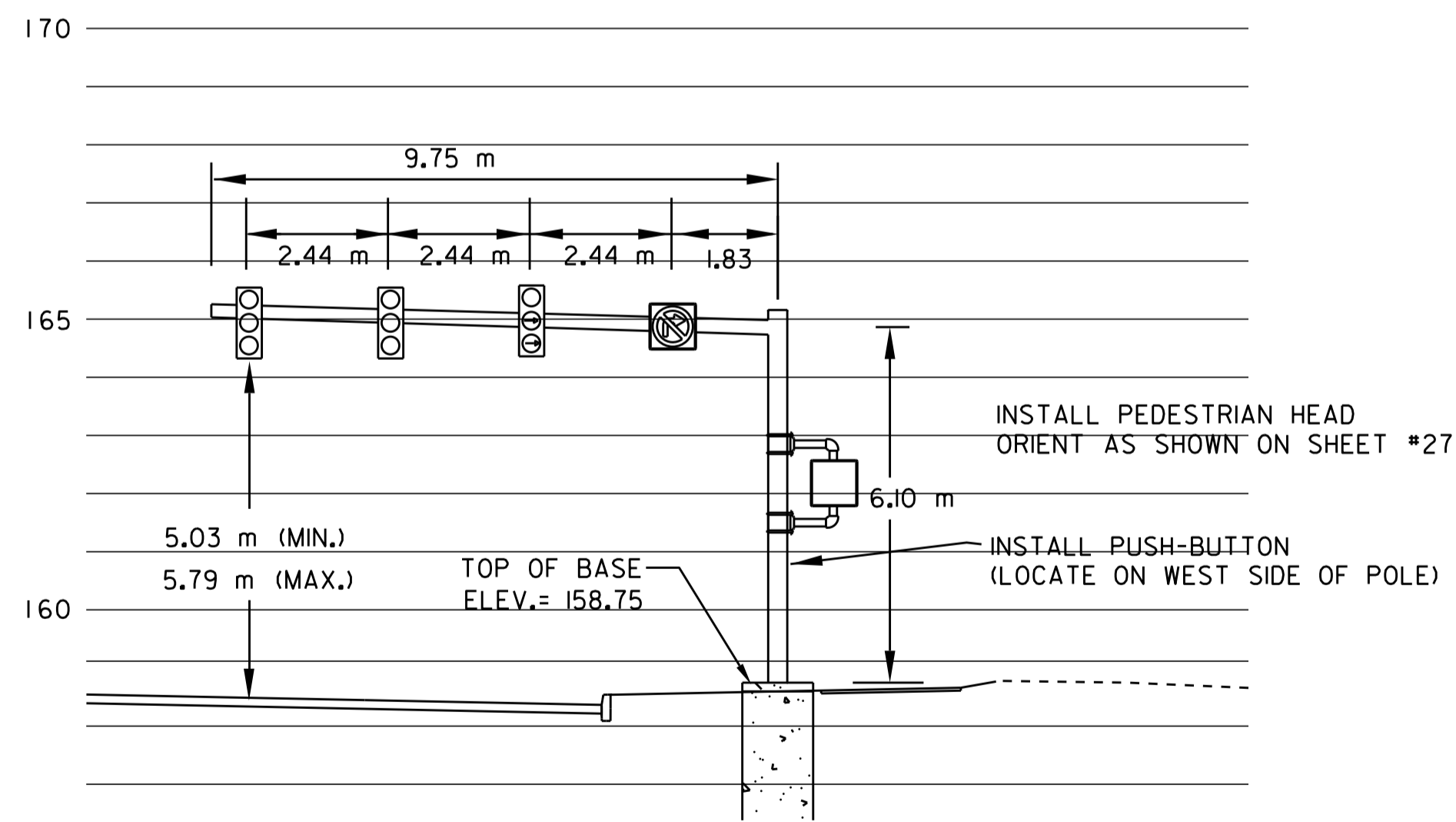
| | |
|------------------------------------|--|
| SIGNAL LAYOUT SHEET | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm5.dgn DATE: 1/20/03 |
| | L&D PROJECT NUMBER: 00-074 DRAWN BY: PLC |
| DESIGNED BY: LAMOUREUX & DICKINSON | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 27 |



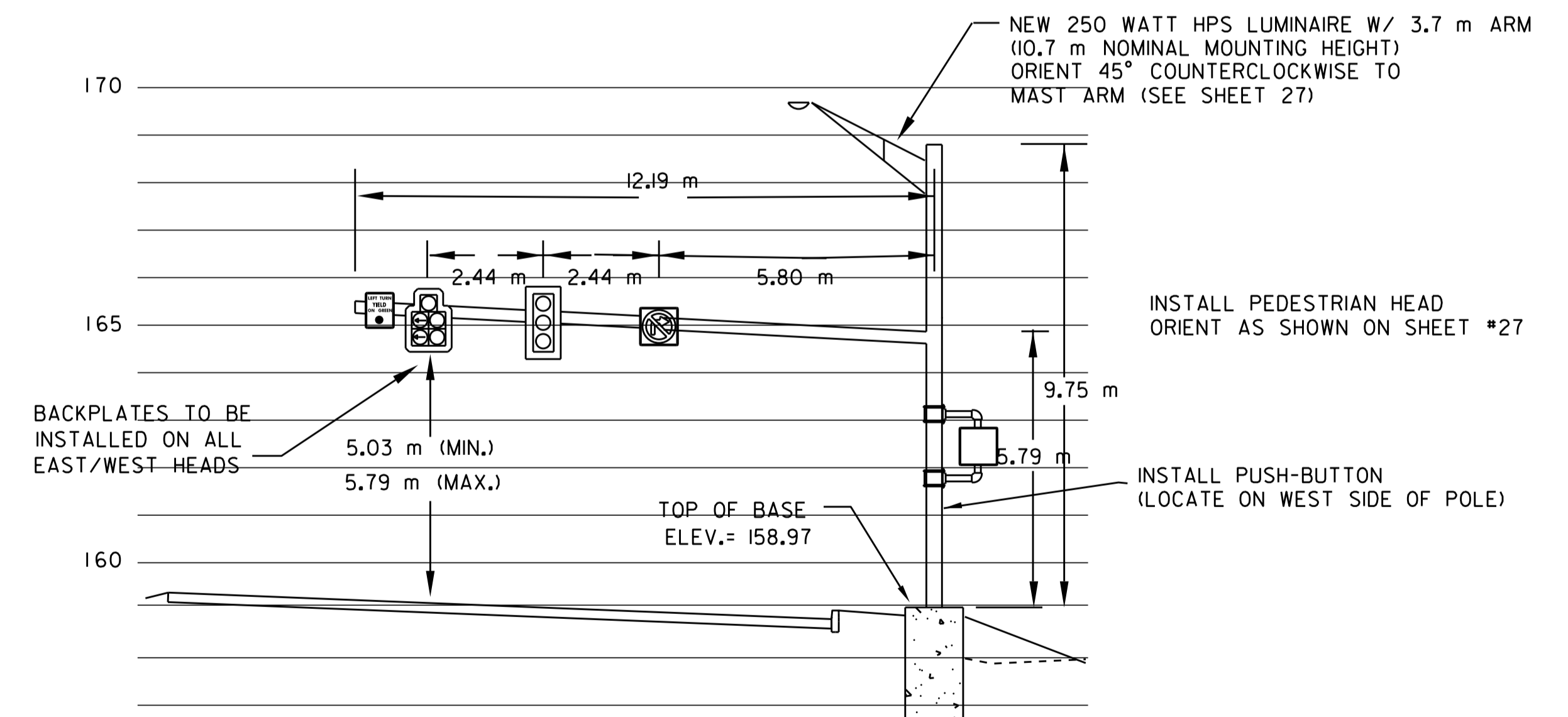
MAST ARM #1 CROSS SECTION
WESTBOUND VIEW



MAST ARM #2 CROSS SECTION
NORTHBOUND VIEW



MAST ARM #3 CROSS SECTION
SOUTHBOUND VIEW



MAST ARM #4 CROSS SECTION
EASTBOUND VIEW



MAST ARM
CROSS SECTIONS

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1(17)S

PLOT FILE NAME: zstp030-1(17)sfrm6.dgn

L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.

DRAWN BY: PLC
CHECKED BY: RJD
SHEET 28

LIST OF MAJOR EQUIPMENT - ITEM 678.15 MOD. (OLD STAGE ROAD)

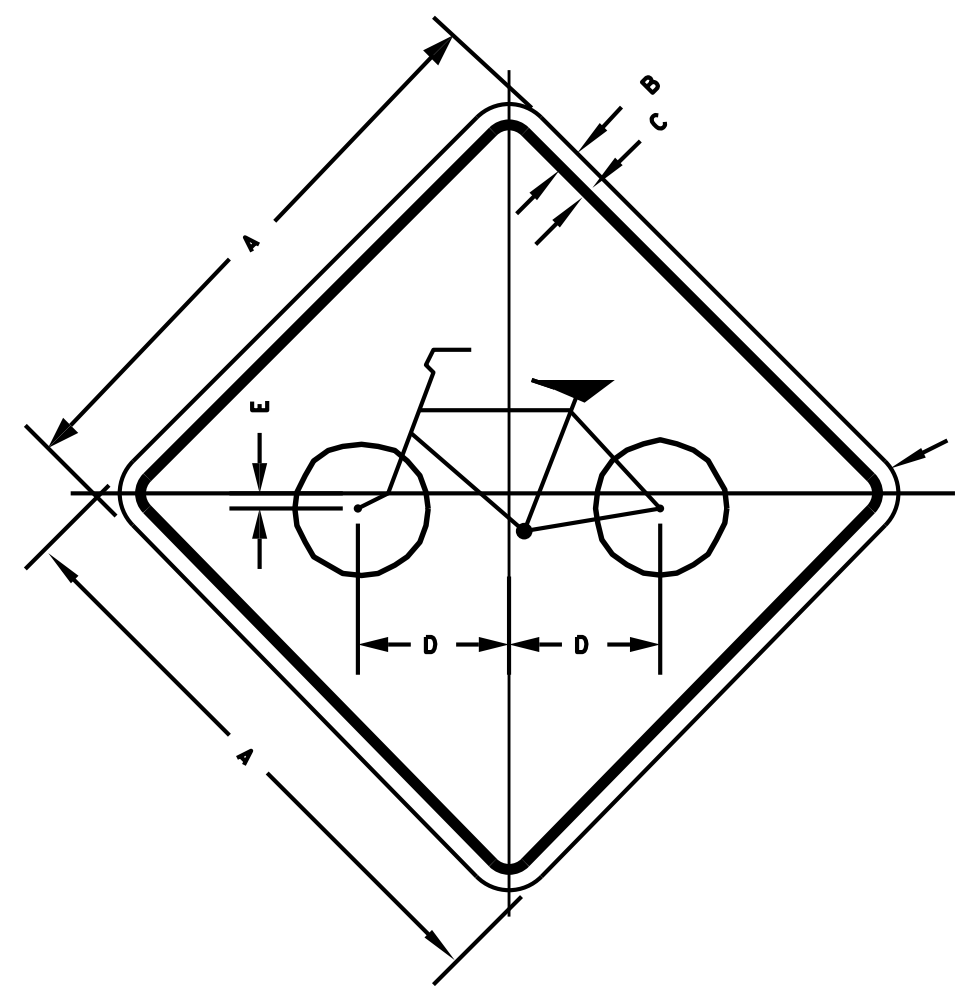
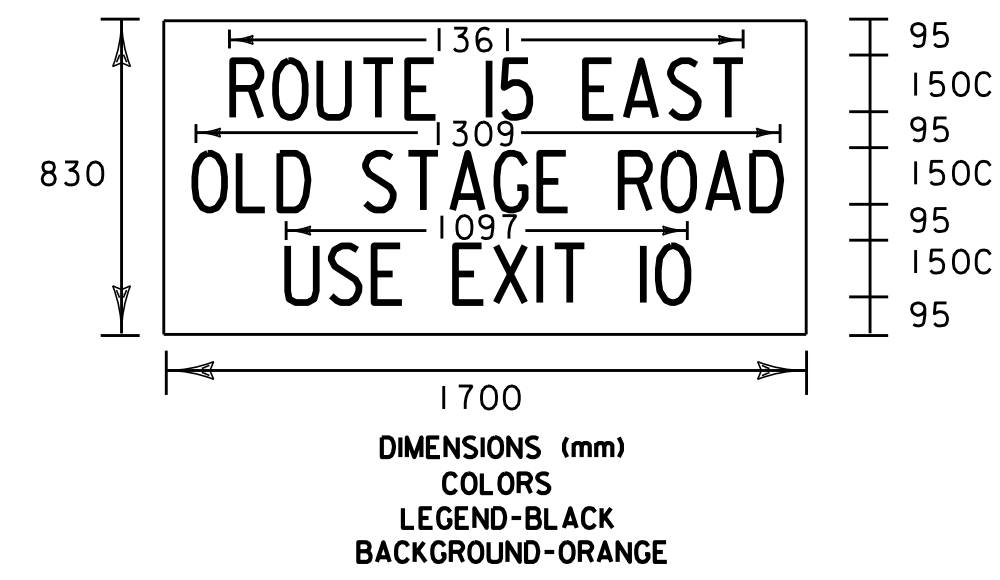
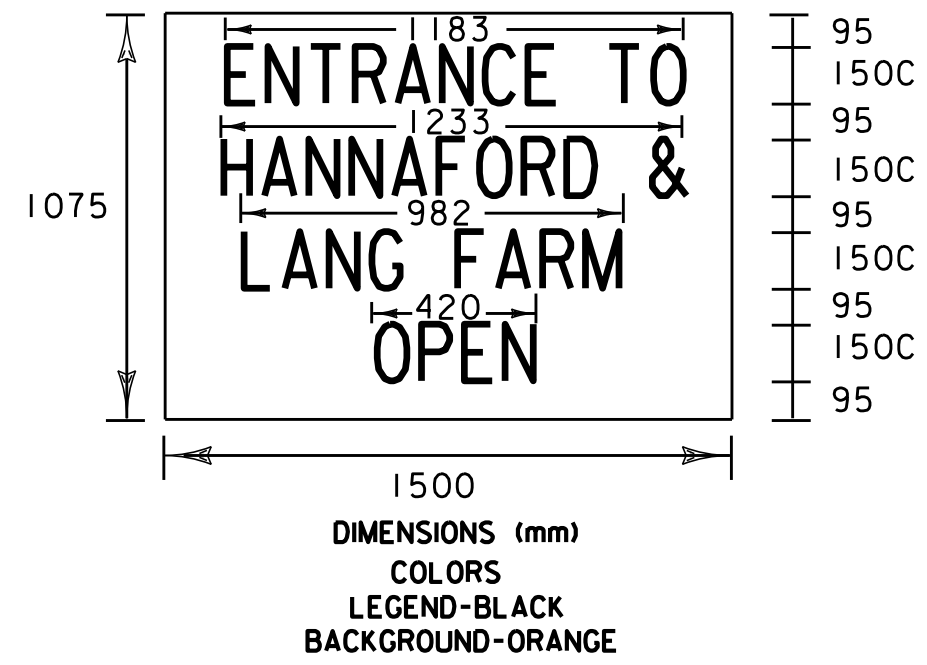
| EQUIPMENT | QUANTITY |
|---|----------|
| STEEL CANTILEVER POLE/MAST ARM ASSEMBLY | 4 |
| LED PEDESTRIAN SIGNAL HEADS | 6 |
| LUMINAIRE (3.7 m ARM) | 2 |
| GROUND MOUNTED CONTROLLER CABINET(S) (INCL. SYSTEM MASTER & LOCAL SIGNAL CONTROLLERS) | 1 |
| 300 mm POLYCARBONATE LED TRAFFIC SIGNAL HEADS WITH TUNNEL VISORS AND MOUNTING HARDWARE. BACKPLATES SHALL BE INCLUDED ON ALL EAST/WEST SIGNAL HEADS. | |
| 3-SECTION HEAD | 8 |
| 5-SECTION HEAD | 2 |
| LED NO RIGHT TURN ON RED SIGNS (600 mm x 600 mm) | 4 |
| PEDESTRIAN PUSH BUTTON ASSEMBLY | 4 |
| LEFT TURN YIELD ON GREEN SIGN | 2 |
| SPREAD SPECTRUM TELEMETRY SYSTEM: INCLUDES REMOTE WIRELESS INTERCONNECT UNIT & ANTENNA AT EACH OF THE FOLLOWING INTERSECTIONS: ROUTE 15 & SOUTHBOUND VT. 289 RAMP ROUTE 15 & NORTHBOUND VT. 289 RAMP ROUTE 15 & BILLIE BUTLER DRIVE ROUTE 15 & OLD STAGE ROAD | 1 |
| LOCAL SIGNAL CONTROLLER: ROUTE 15 & SOUTHBOUND VT. 289 RAMP ROUTE 15 & NORTHBOUND VT. 289 RAMP ROUTE 15 & BILLIE BUTLER DRIVE | 3 |
| POWER STANCHION TO INCLUDE A MANUAL TRANSFER SWITCH AND LI420R RECEPTACLE MOUNTED IN A 3R ENCLOSURE | 1 |
| REMOVE FLASHING BEACONS, STRAIN POLES & ASSOCIATED WIRING | 1 |
| POWER STANCHION | 1 |

THE QUANTITIES LISTED ABOVE ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY. MISCELLANEOUS (UNLISTED) WIRE, CABLE, HARDWARE ECT., ARE REQUIRED TO PROVIDE FOR A FUNCTIONING TRAFFIC SIGNAL SYSTEM.

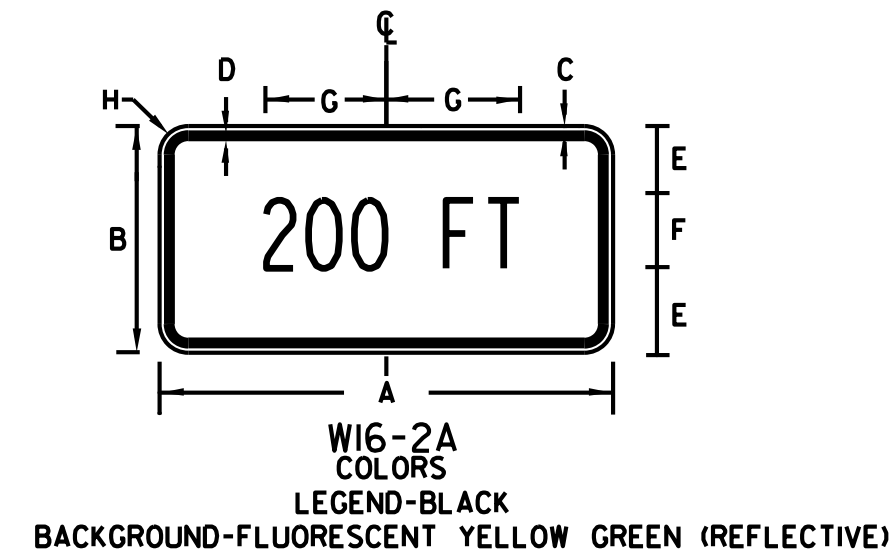
LIST OF MAJOR EQUIPMENT - ITEM 678.15 (MOD.) (ESSEX WAY)

| EQUIPMENT | QUANTITY |
|--|----------|
| POLE MOUNTED CONTROLLER CABINET (INCL. LOCAL SIGNAL CONTROLLER) | 1 |
| SPREAD SPECTRUM TELEMETRY SYSTEM (REMOTE WIRELESS INTERCONNECT UNIT & ANTENNA) | 1 |

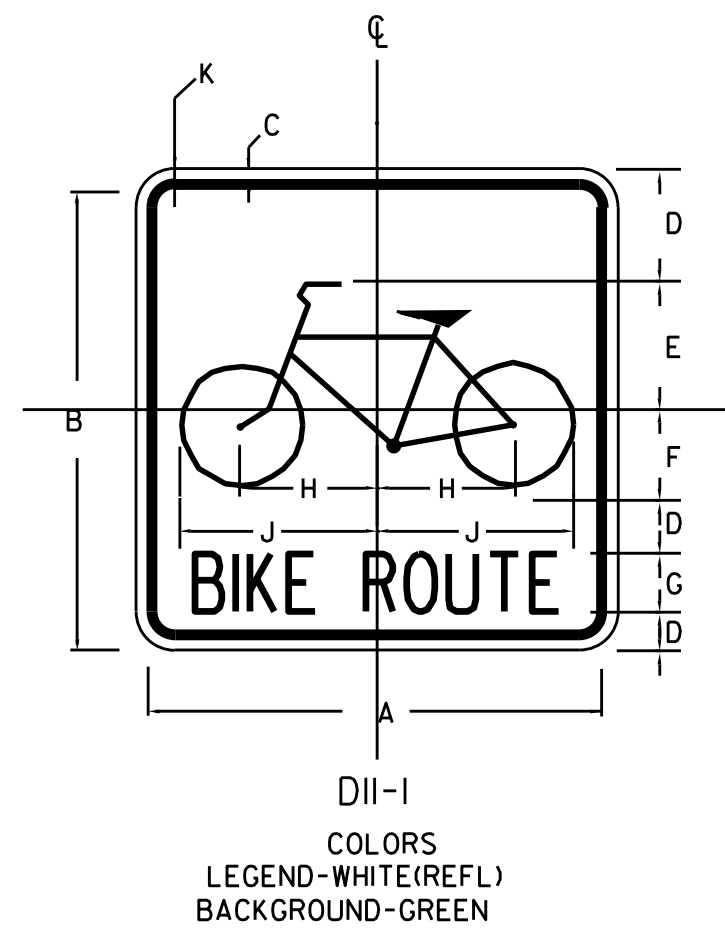
THE QUANTITIES LISTED ABOVE ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY. MISCELLANEOUS (UNLISTED) WIRE, CABLE, HARDWARE ECT., ARE REQUIRED TO PROVIDE FOR A FUNCTIONING TRAFFIC SIGNAL SYSTEM.



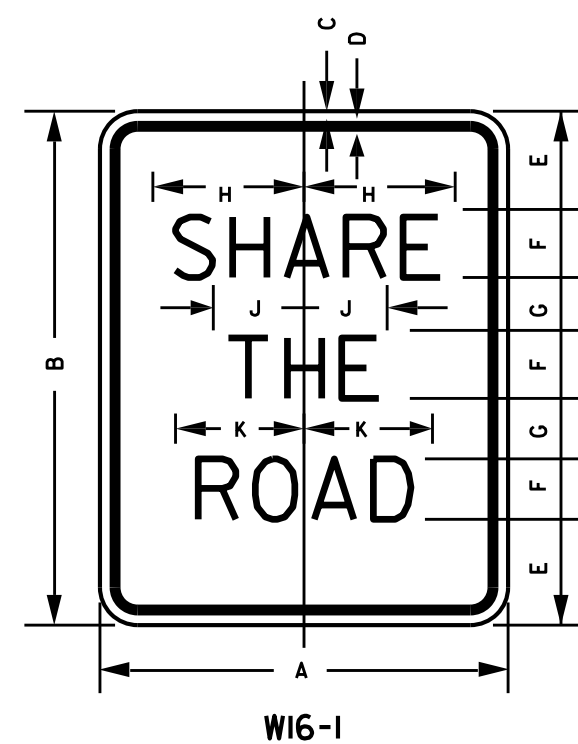
| DIMENSIONS (mm) | | | | | |
|-----------------|----|----|-----|----|----|
| A | B | C | D | E | F |
| 750 | 13 | 20 | 212 | 25 | 50 |



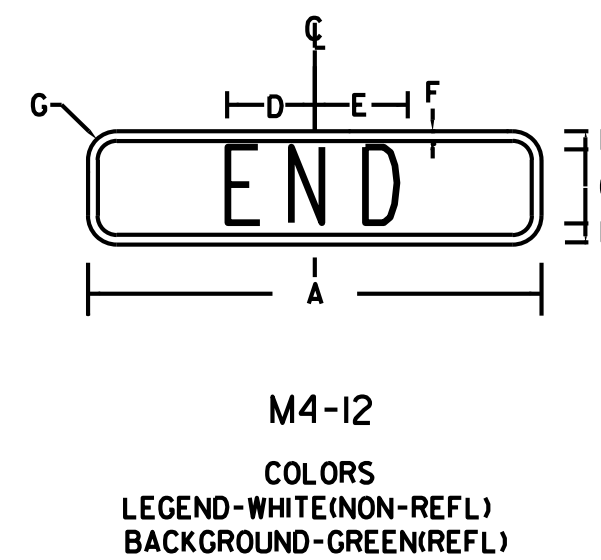
| DIMENSIONS (mm) | | | | | | | |
|-----------------|-----|----|----|-----|------|-----|----|
| A | B | C | D | E | F | G | H |
| 600 | 300 | 10 | 15 | 100 | 1000 | 227 | 50 |



| DIMENSIONS (mm) | | | | | | | | | | |
|-----------------|-----|----|----|-----|----|------|-----|-----|----|---|
| A | B | C | D | E | F | G | H | J | K | L |
| 600 | 450 | 10 | 40 | 190 | 95 | 1000 | 216 | 260 | 40 | |

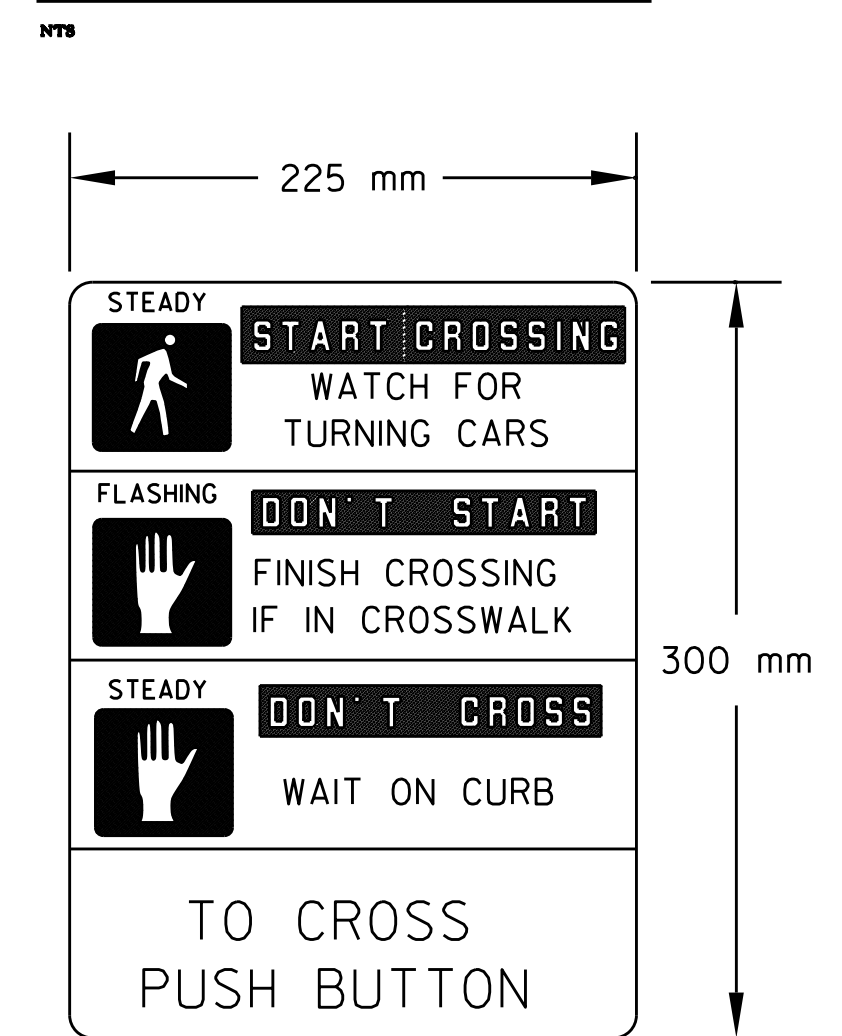


| DIMENSIONS (mm) | | | | | | | | | | | |
|-----------------|-----|----|----|-----|---|----|-----|-----|-----|----|---|
| A | B | C | D | E | F | G | H | J | K | L | M |
| 600 | 750 | 10 | 16 | 108 | 5 | 83 | 218 | 123 | 175 | 38 | |



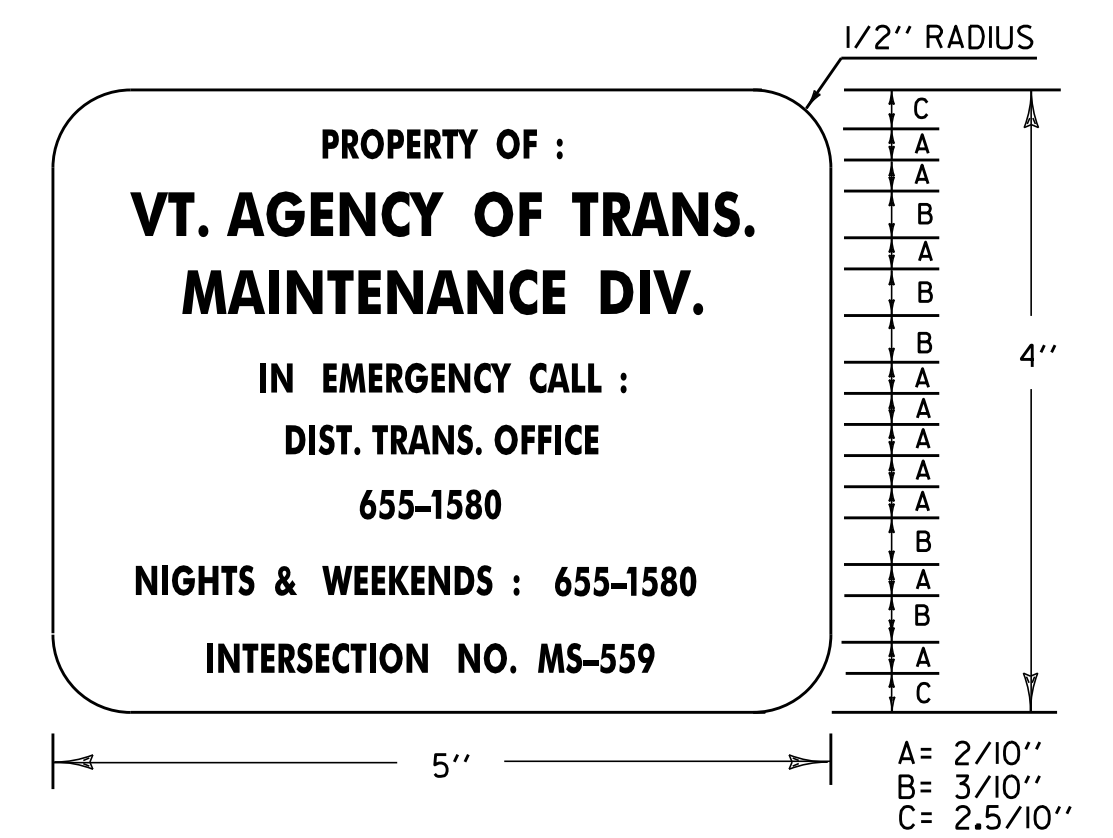
| DIMENSIONS (mm) | | | | | | |
|-----------------|----|------|-----|-----|----|----|
| A | B | C | D | E | F | G |
| 300 | 25 | 1000 | 117 | 122 | 13 | 38 |

PEDESTRIAN INSTRUCTION SIGN DETAIL



PEDESTRIAN INSTRUCTION SIGN SHOWN ABOVE TO REPLACE SIGN SHOWN ON STD. DETAIL E-170

CONTROLLER IDENTIFICATION PLAQUE

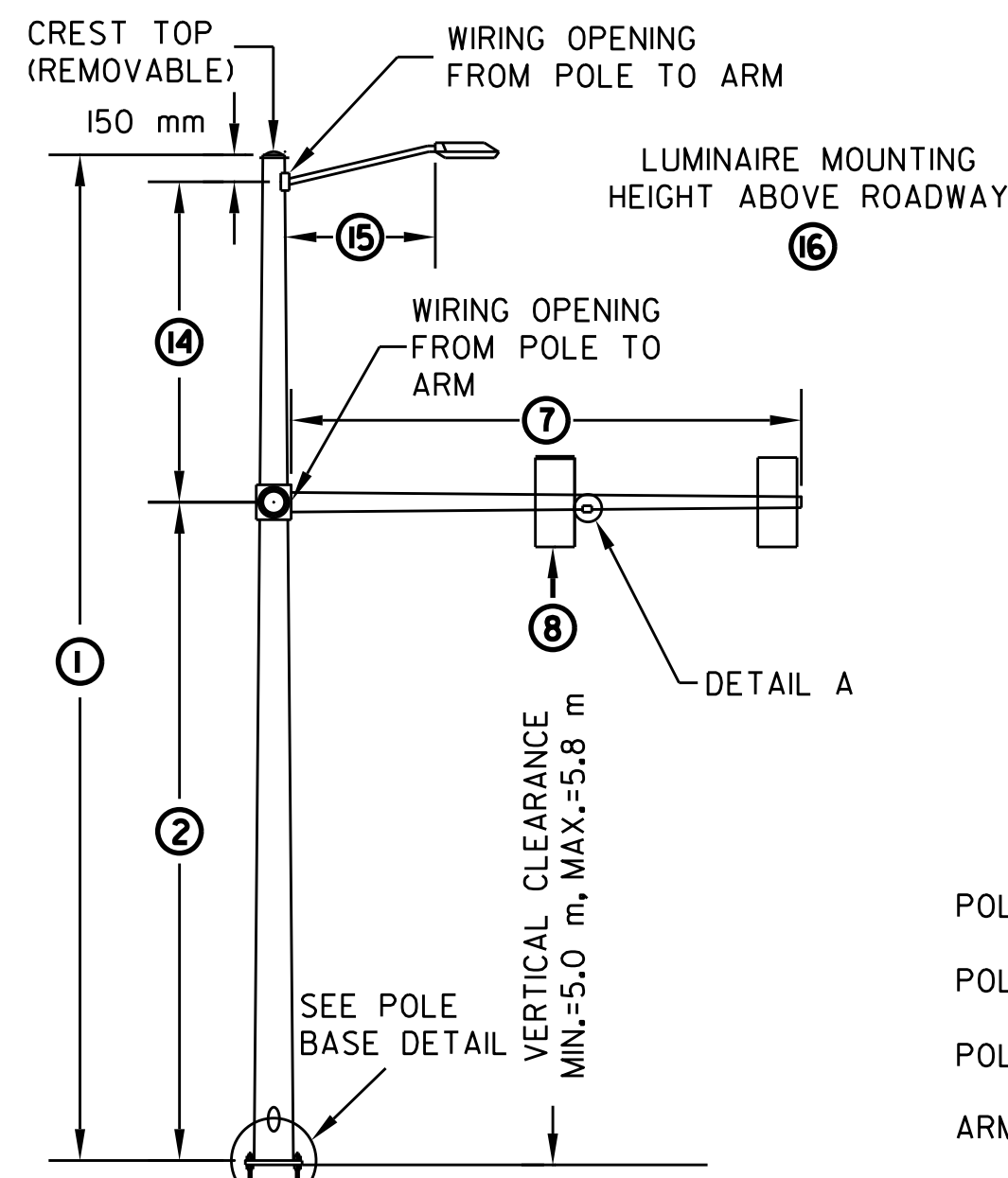


LEGEND: - BLACK (NON-REFL.) - STAMPED PRIOR TO PAINTING
BACKGROUND: NATURAL ALUMINUM OR BRASS SURFACE

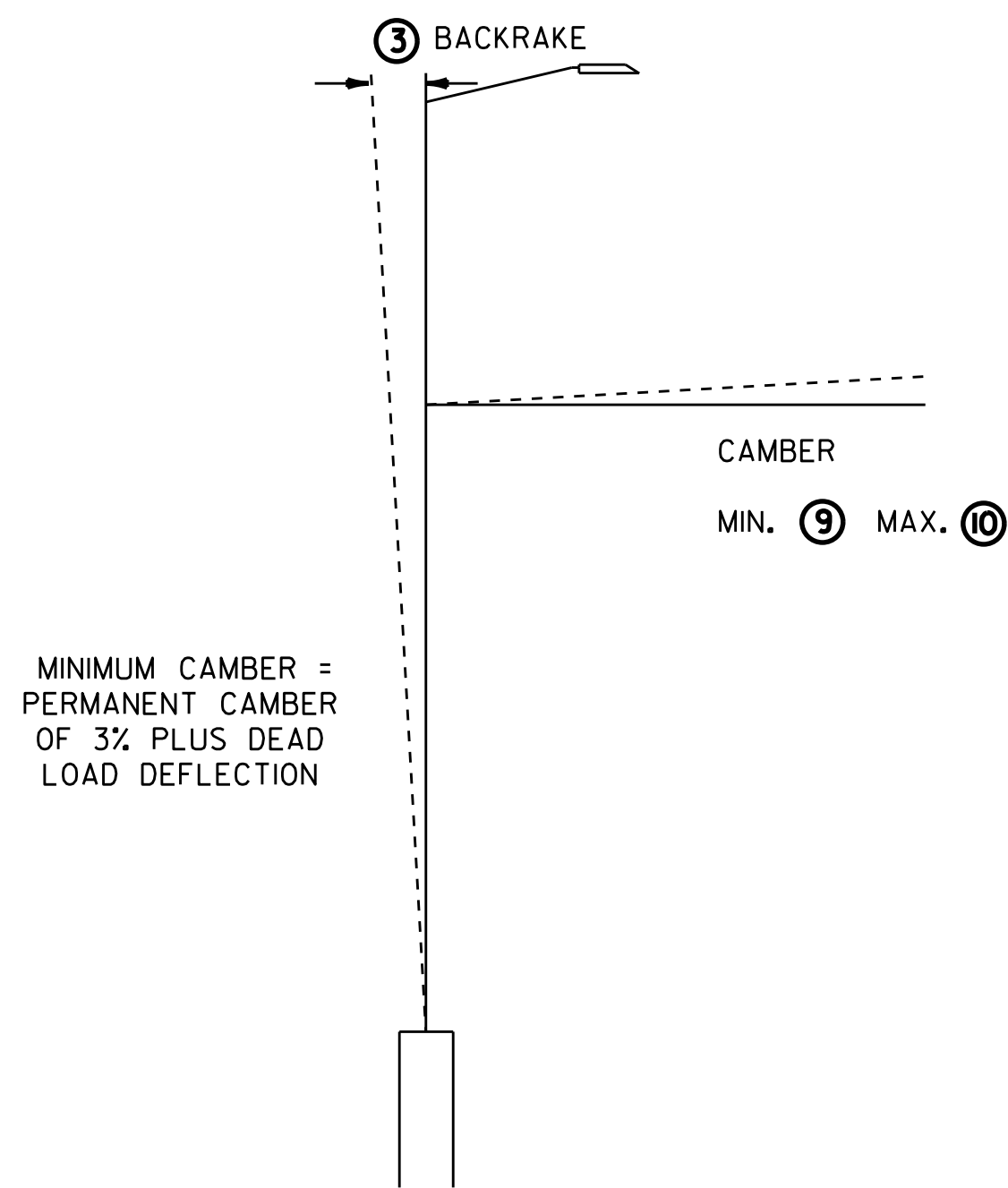
NOTES:

- 1.) THE PLAQUE SHALL BE MOUNTED ON ALL TRAFFIC SIGNAL CONTROLLER CABINETS. IT SHALL BE FASTENED TO THE CONTROLLER CABINET IN SUCH A MANNER AS TO BE NOT EASILY REMOVED, SUCH AS WELDED, RIVETED OR BOLTED WITH VANDAL PROOF BOLTS.
- 2.) THE LETTERS SHALL BE PUNCHED OR STAMPED, SUCH STAMPING SHALL PENETRATE AT LEAST 1/2 THE BASE MATERIAL THICKNESS.
- 3.) THE BASE MATERIAL FOR THE PLAQUE SHALL BE BRASS OR ALUMINUM WITH A MINIMUM THICKNESS OF 0.100 INCHES.

| MISCELLANEOUS DETAILS | PROJECT NAME: ESSEX |
|------------------------------------|--|
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm6.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 29 |

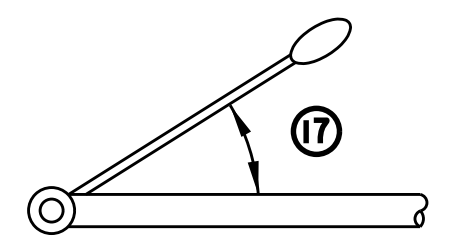


- POLE BASE DIAMETER ④
- POLE GAUGE ⑤
- POLE TAPER RATE ⑥
- ARM DIAMETER ⑪
- ARM GAUGE ⑫
- ARM TAPER RATE ⑬

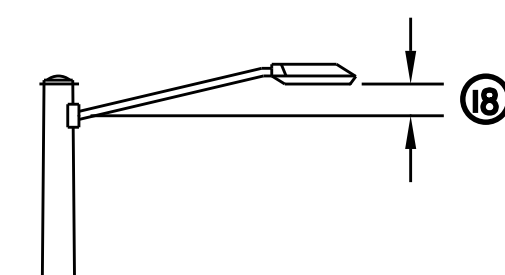


CAMBER AND BACKRAKE DATA

SEE SHEET 37 FOR CROSS SECTIONS

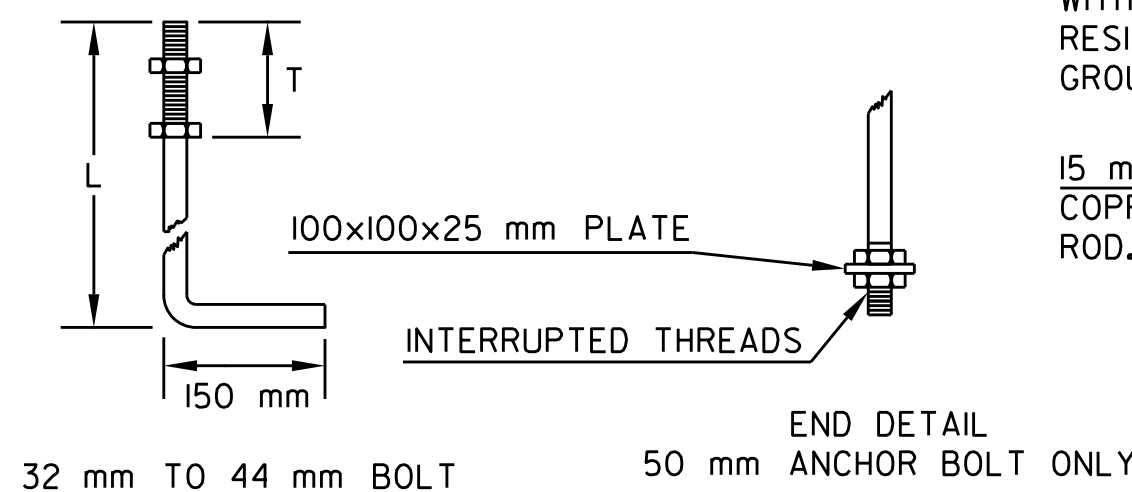


LUMINAIRE ORIENTATION

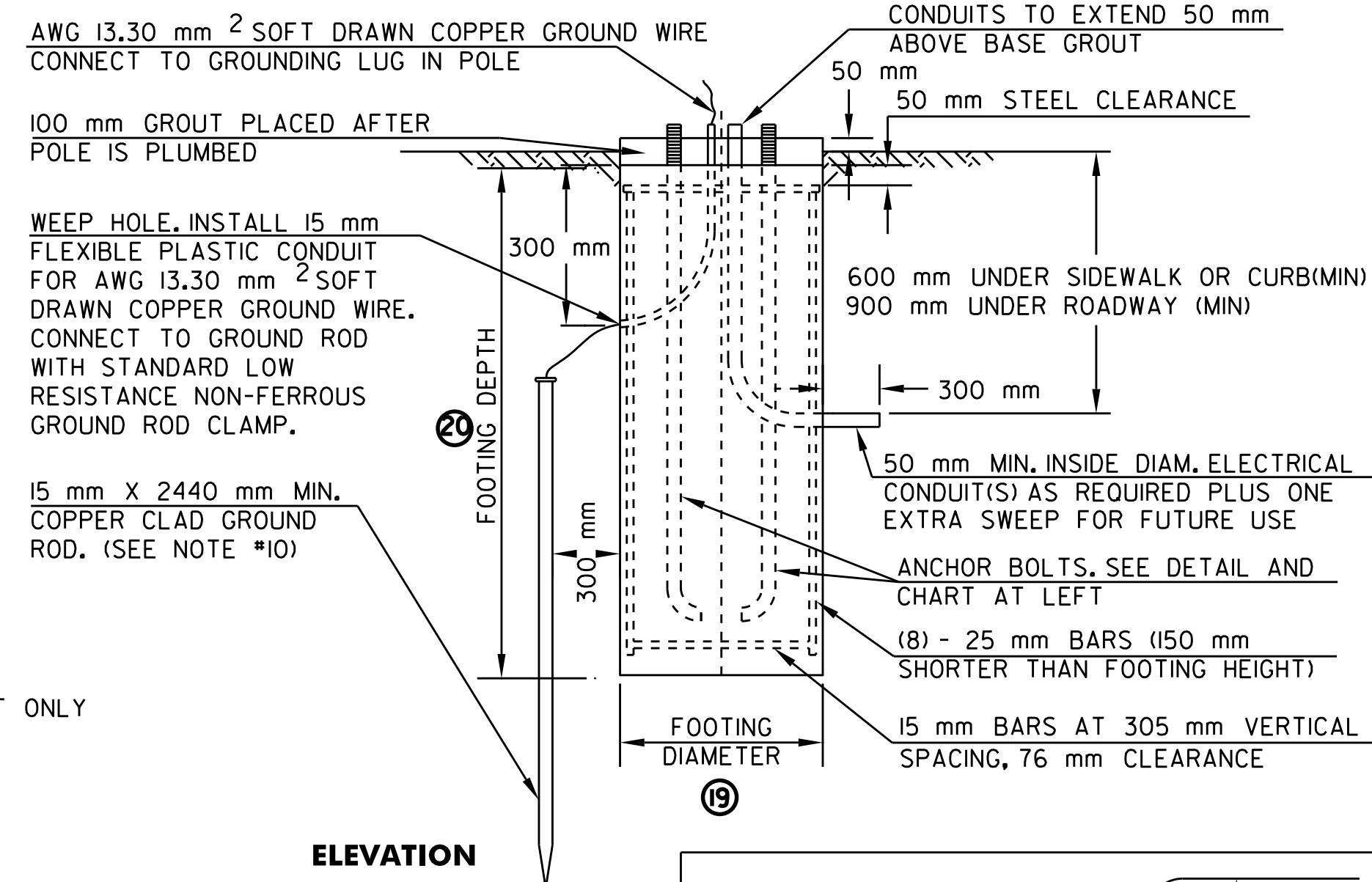


LUMINAIRE ARM RISE

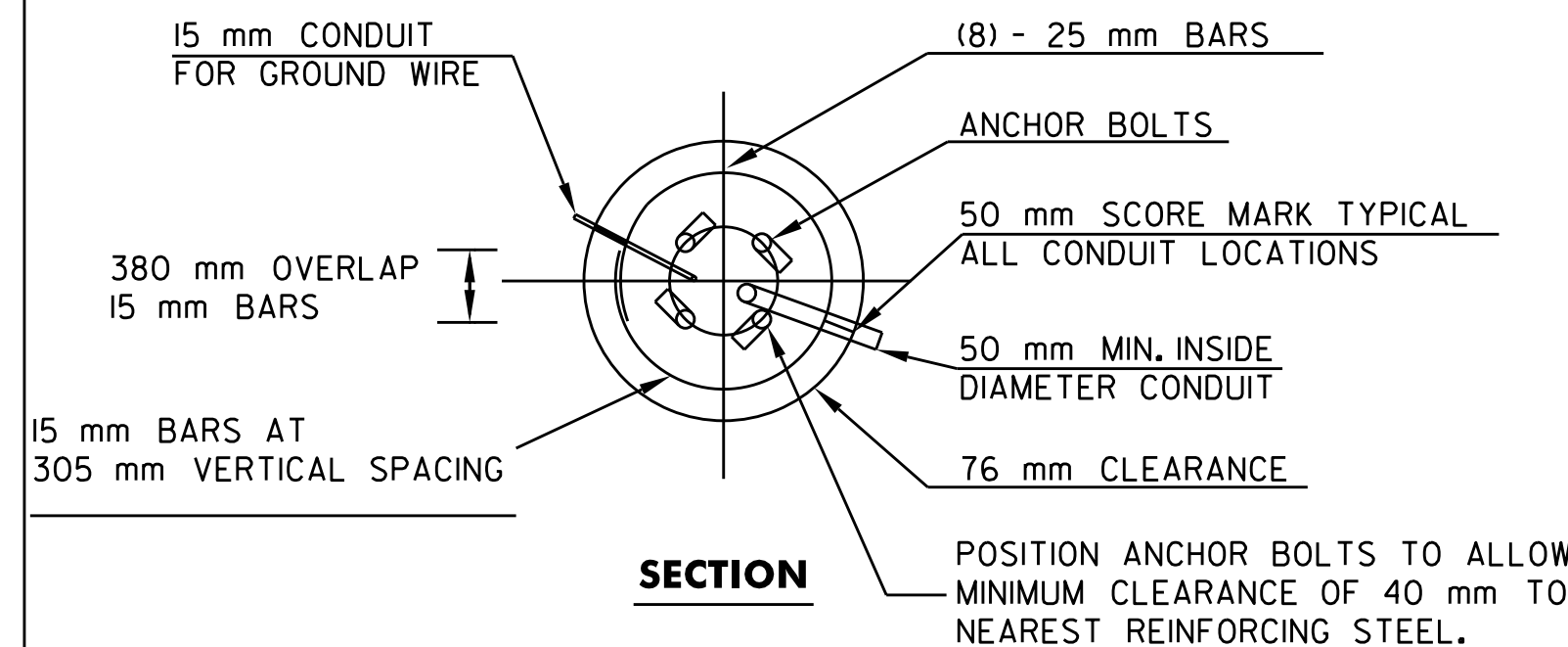
| ANCHOR BOLT DETAIL | | |
|--------------------|--------|--------|
| SIZE (mm) | L (mm) | T (mm) |
| 32 x 1219 | 1067 | 203 |
| 38 x 1524 | 1372 | 229 |
| 44 x 2286 | 2134 | 229 |
| 50 x 2438 | 2438 | 229 |



ANCHOR BOLT DETAIL



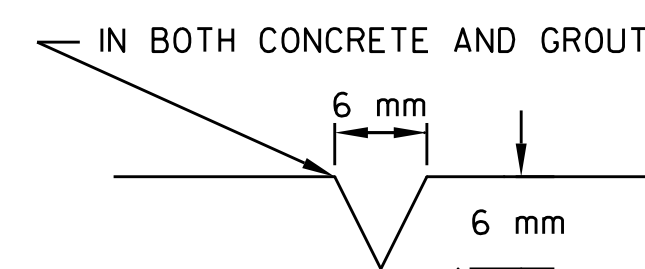
ELEVATION



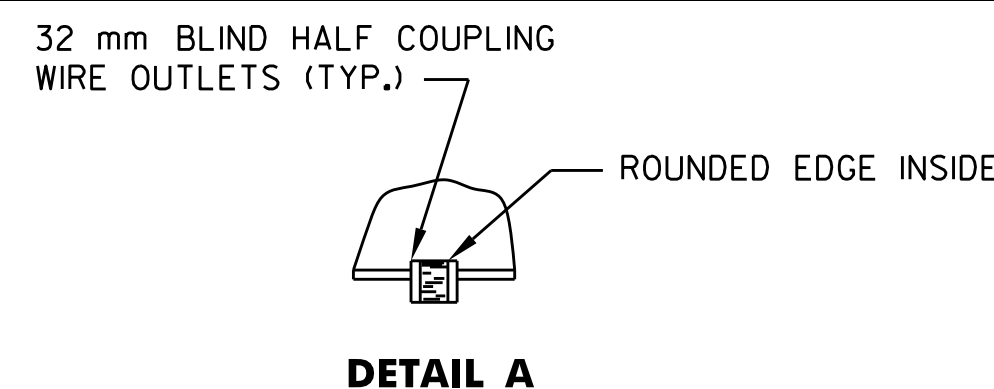
SECTION

CANTILEVER FOOTING DETAIL

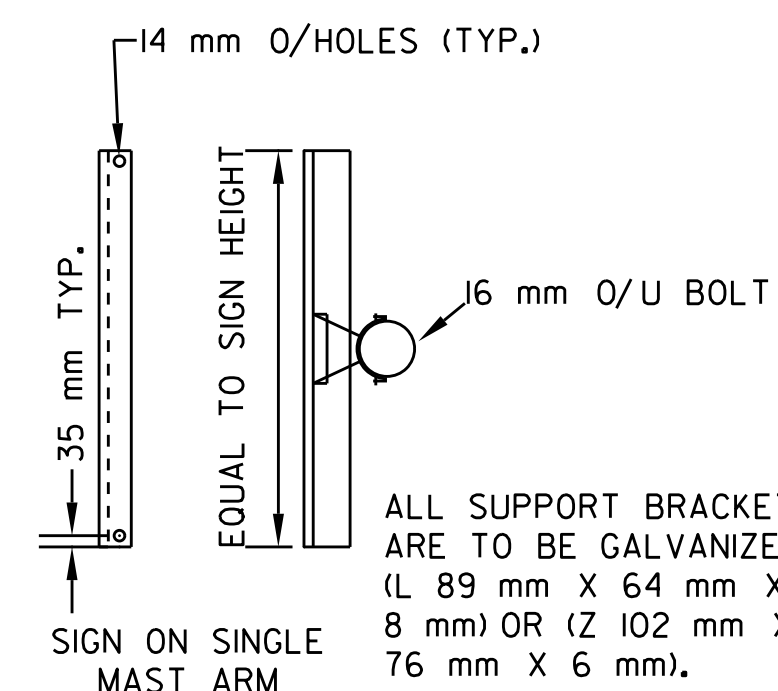
(SPREAD FOOTINGS OR PILES ARE OPTIONAL)



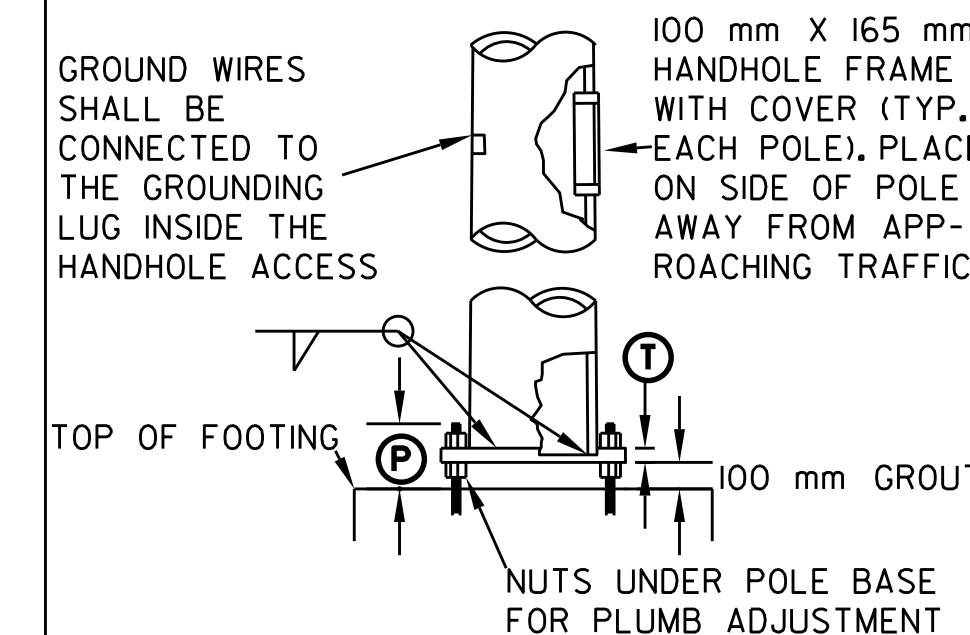
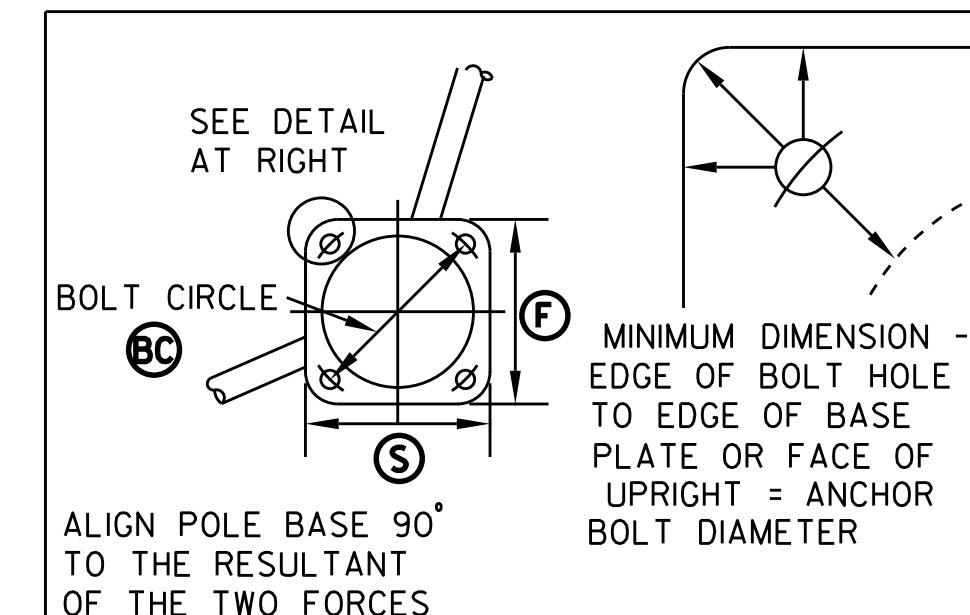
50 mm SCORE MARK DETAIL



DETAIL A



SIGN BRACKET DETAILS



POLE BASE AND BASE PLATE DETAIL

NOT TO SCALE

STRUCTURE DIMENSIONS

| POLE # | POLE DATA | | | | | | ARM DATA | | | | | | LIGHTING DATA | | | | | | FOOTING DATA | | BASE PLATE/BOLT DATA | | | | | |
|--------|-----------|---|---|---|---|---|----------|---|---|---|---|---|---------------|---|---|---|---|---|--------------|---|----------------------|---|---|---|---|------------------|
| | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ | ⑬ | ⑭ | ⑮ | ⑯ | ⑰ | ⑱ | ⑲ | ⑳ | ⑥C | F | S | T | P | ANCHOR BOLT SIZE |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ALL DIMENSIONS SHALL BE IN METRIC UNITS

DIMENSIONS TO BE FILLED IN BY CONTRACTOR AS PART OF SHOP DRAWING SUBMITTAL SEE NOTES 15 & 16 ON SHEET 40



| | |
|--|--|
| MAST ARM DESIGN CANTILEVER FOOTING | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm6.dgn L&D PROJECT NUMBER: 00-074 DESIGNED BY: LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC. |
| | DRAWN BY: PLC CHECKED BY: RJD SHEET 30 |

CANTILEVER SIGNAL SUPPORT NOTES



1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR CONSTRUCTION", DATED 2001.
2. OVERHEAD SIGN/SIGNAL SUPPORTS SHALL CONFORM TO AASHTO'S PUBLICATION ENTITLED "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS", DATED 1994 OR ITS LATEST REVISIONS.
3. ADDITIONAL DESIGN CRITERIA ARE AS FOLLOWS:

CONCRETE $f_c = 9.65 \text{ MPa}$ (1,400 PSI) $f'_c = 24.13 \text{ MPa}$ (3,500 PSI)
REINFORCING $f_s = 160 \text{ MPa}$, METRIC GRADE 400 (24,000 PSI, GRADE 60)
FOOTING SOIL PRESSURE = 0.14 MPa (3000 PSF) MAXIMUM

WIND LOAD AND ICE LOAD PER AASHTO "STANDARD SPECIFICATIONS"
4. ANCHOR BOLTS
FOUR STAINLESS STEEL ANCHOR BOLTS WITH TWO HEXAGON NUTS, TWO WASHERS AND ONE LOCK WASHER PER BOLT SHALL BE FURNISHED WITH EACH POLE. SEE SUB-SECTION 714.09.
5. FLANGE BOLTS

ALL FLANGE BOLTS AND HEX NUTS SHALL BE HIGH STRENGTH TYPE 1, GALVANIZED STEEL AND SHALL CONFORM TO AASHTO M164. THE FLANGE BOLTS SHALL BE CAPABLE OF RESISTING 133% OF THE FULL DESIGN STRESS OF THE TUBE AT ITS YIELD STRENGTH STRESS.
6. HORIZONTAL AND VERTICAL MEMBERS

STEEL TUBES SHALL BE FORMED AND WELDED WITH ONE CONTINUOUS LONGITUDINAL WELD ONLY. AFTER FORMING AND WELDING THEY SHALL BE COLD ROLLED TO ENSURE UNIFORMITY OF SIZE AND SMOOTHNESS OF WELD. THEY SHALL HAVE A MINIMUM YIELD STRENGTH OF 330 MPa. THERE SHALL BE NO TRANSVERSE WELDING EXCEPT AT THE FLANGE CONNECTIONS AND POLE BASE PLATES, WHERE THE TUBES SHALL TELESCOPE THE FLANGES AND PLATES AND BE CONTINUOUSLY WELDED BOTH SIDES INSIDE AND OUT TO WITHSTAND THE FULL TRANSFER OF THE BENDING STRENGTH TO THE BOLTS. OPTIONALLY, THE MEMBERS MAY BE A SERIES OF TWO OR THREE DIFFERENT DIAMETER PIPES WELDED TOGETHER.
7. GALVANIZING
ALL STEEL COMPONENTS, EXCEPT CONCRETE REINFORCING AND STAINLESS STEEL HARDWARE, ARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. THE ASSEMBLIES SHALL BE DESIGNED AND FABRICATED TO PERMIT GALVANIZING ON ALL INTERIOR AND EXTERIOR SURFACES AND SHALL BE FREE OF POCKETS AND OTHER STRUCTURAL OBSTRUCTIONS THAT WILL NOT PERMIT PROPER DEPOSITION OF ZINC COATING. GALVANIZING SHALL BE IN ACCORDANCE WITH AASHTO M111 AND M232M/ M232.
8. WELDING
A. ALL DESIGN DETAILS, WORKMANSHIP, PROCEDURES AND INSPECTION SHALL CONFORM WITH SUB-SECTION 506.10.
B. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL(S) BEING WELDED.
9. FOOTINGS
A. FOOTINGS SHALL BE DESIGNED TO RESIST LOADS EQUAL TO, OR GREATER THAN, THE MAXIMUM LOADS THAT THE POLE IS DESIGNED FOR.
B. THREE TYPES OF FOUNDATIONS, AS OUTLINED IN AASHTO "STANDARD SPECIFICATIONS (SEE NOTE 2) SECTION 1.8.2 (C) SHALL BE ALLOWED
1. DRILLED SHAFTS
2. SPREAD FOOTINGS
3. PILES
C. DRILLED SHAFT FOOTINGS SHALL BE POURED IN DRILLED SHAFTS AGAINST UNDISTURBED MATERIAL. THE TOP 0.6 m (2 FEET) OF SOIL SHALL BE NEGLECTED FOR DESIGN PURPOSES. THE MAXIMUM FOOTING DIAMETER SHALL BE 1.1m (3.5 FEET) AND THE MAXIMUM DEPTH SHALL BE 3.7 m (12 FEET). IF THESE LIMITS ARE EXCEEDED OR IF THE SOIL IS NOT CAPABLE OF A BEARING PRESSURE OF 0.14 MPa (3,000 PSF), A SPREAD FOOTING SHALL BE USED.
D. AS AN ALTERNATIVE TO THE DRILLED HOLES, FOOTINGS MAY BE POURED IN EXCAVATED HOLES USING THE PROPER FORMS, WHICH MUST BE REMOVED. THE EXCAVATED HOLES SHALL BE AT LEAST TWO FEET CLEAR OF THE FOOTING. THE BACKFILL MATERIAL SHALL BE COMPACTED AS DESCRIBED IN SUB-SECTION 204.12. DESIGN LIMITS AS FOR AUGURED FOOTINGS APPLY.
E. WHEN THE DESIGN DEPTH OF A FOOTING CANNOT BE OBTAINED DUE TO UNFORSEEN FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OBTAIN A REVISED FOOTING DETAIL FROM THE ENGINEER.
F. ANY BACKFILL PLACED ADJACENT TO THE FOOTING SHALL BE GRANULAR MATERIAL MEETING THE REQUIREMENTS FOR GRANULAR BACKFILL FOR STRUCTURES, SUB-SECTION 704.08. CONCRETE FOR FOOTING SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE, CLASS B, SECTION 501, STRUCTURAL CONCRETE. GROUT MATERIAL SHALL BE NON-SHRINKING MORTAR CONFORMING TO SUB-SECTION 707.03 (MORTAR TYPE IV).
G. THE TRAFFIC SIGNAL CANTILEVER MAST ARM POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL BE PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SIGNAL HEADS OCCURS. THE AMOUNT OF BACKRAKE SHALL BE AS SHOWN ON THE PLANS. SIGNALS/SIGNS SHALL BE MOUNTED AND LEVELED AND POLES SHALL BE BACKRAKED PRIOR TO PLACING GROUT UNDER POLE BASE.

10. SHOP DRAWINGS (6 COPIES OF EACH) SHALL BE SUBMITTED TO THE AOT & DESIGN ENGINEER FOR APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION:
 - A. DETAILED DRAWING OF EACH COMPONENT OF THE STRUCTURE
 - B. MATERIAL SPECIFICATIONS FOR EACH COMPONENT OF THE STRUCTURE, EITHER BY COMPLETE SPECIFICATION OR REFERENCE TO APPLICABLE ASTM STANDARDS.
 - C. NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER, AND STRUCTURE STATIONING (TO BE INCLUDED ON EACH SHEET).
 - D. DETAILS FOR LOCATION OF SIGNS/SIGNALS AND ATTACHMENT HARDWARE FOR THE SUPPORT STRUCTURE.
 - E. ALL ELEVATION AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS.
 - F. DEAD LOAD DEFLECTION AND CAMBER INFORMATION.
 - G. WELDING DETAILS AND PROCEDURES ARE REQUIRED FOR ALL WELDS. PROCEDURES SHALL BE SUBMITTED FOR APPROVAL WITH REFERENCE TO EACH WELD IDENTIFIED ON THE SHOP DRAWINGS. (SEE SUBSECTION 506.10)
11. EACH OVERHEAD TRAFFIC SIGNAL/SIGN SUPPORT SHALL BE GROUNDED. THE GROUND SHALL CONSIST OF:
 - A) AN INTERNAL GROUND LUG OPPOSITE THE HAND HOLE.
 - B) A #6 (MIN.) SOFT DRAWN COPPER GROUNDING ELECTRODE CONDUCTOR.
 - C) A 16 mm x 2440 mm (5/8" x 8') (MIN.) COPPER CLAD GROUNDING ELECTRODE.

THE RESISTANCE TO GROUND SHALL BE 25 OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES MAY BE REQUIRED (MINIMUM SPACING SHALL BE 1.8 m (6 FEET)). WHEN A POWER SERVICE, METER AND DISCONNECT ARE ATTACHED TO A POLE, THERE SHALL BE A CONTINUOUS GROUND WIRE FROM THE METER AND DISCONNECT WHICH MAY RUN INTERNAL TO THE UPRIGHT, THROUGH THE 15 mm (1/2") FLEXIBLE TUBING IN THE CONCRETE BASE TO THE REQUIRED GROUNDING ELECTRODE(S). THE GROUND WIRE FROM THE POLE GROUNDING LUG, CONTROLLER CABINET AND/OR LUMINAIRE MAY ATTACH TO THIS CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT. THE CONTRACTOR SHALL PERFORM A RESISTANCE TO GROUND TEST ON THE CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT AND PROVIDE A WRITTEN STATEMENT TO THE AREA ELECTRICAL INSPECTOR THAT THE GROUNDING ELECTRODE CONDUCTOR IS CONTINUOUS FROM THE SERVICE METER AND DISCONNECT AND THE RESISTANCE TO GROUND IS 25 OHMS OR LESS.
12. THE COST OF SIGNAL/SIGN SUPPORTS, INCLUDING ALL HARDWARE, SIGN BRACKETS, FOOTING AND LUMINAIRE ARMS SHALL BE INCLUDED IN THE BID PRICE. THESE COMPONENTS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTIONS 677, 678, AND 679.
13. HORIZONTAL MEMBERS SHALL BE CAMBERED AND THE VERTICAL POLES BACK RAKED (WHERE APPLICABLE) TO THE ANTICIPATED DEAD LOAD DEFLECTION PLUS THE CAMBER, IF ANY, SPECIFIED ON THE PLANS.
14. AN EQUIVALENT ALTERNATE DESIGN MAY BE SUBSTITUTED FOR THE DETAILS AND MATERIALS SHOWN.
15. THE DETAILS OF DESIGN FOR THE STRUCTURE AND FOOTINGS ARE TO BE SUPPLIED BY THE CONTRACTOR AND/OR BY THE MANUFACTURER. THE STRUCTURE SHALL BE DESIGNED TO RESIST THE MAXIMUM LOADING AS OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2). ALL DETAILS OF THE STRUCTURE AND THE FOOTING SHALL BE CHECKED AND STAMPED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF VERMONT PRIOR TO SUBMITTAL OF THE SHOP DRAWINGS TO THE ENGINEER.
16. IN ADDITION TO THE SHOP DRAWINGS OUTLINED IN NOTE 10, THE CONTRACTOR SHALL SUBMIT ALL DESIGN CALCULATIONS TO THE TOWN, SHOWING THE FOLLOWING INFORMATION FOR EACH OF THE VERTICAL AND HORIZONTAL COMPONENTS OF THE STRUCTURE AND FOOTING:
 - A. THE DESIGN AXIAL AND SHEAR FORCES AND BENDING AND TORSIONAL MOMENTS.
 - B. THE DESIGN AXIAL, BENDING AND SHEAR STRESSES AND THE COMBINED STRESS RATIO.
 - C. VIBRATION AND FATIGUE CALCULATIONS AS SET FORTH IN SECTION 9 OF THE AASHTO PUBLICATION REFERENCED IN NOTE 2.
 - D. THE ALLOWABLE AXIAL, BENDING, AND SHEAR STRESSES.
 - E. ITEMS A,B,D - SHALL BE SHOWN FOR EACH OF THE GROUP LOADINGS (I, II, III) AND FOR THE BASIC WIND LOAD APPLIED TO THE TWO CASES OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2) SECTION 1.2.5 (D) (4).
 - F. FAILURE TO SUPPLY THE PROPER DESIGN INFORMATION SHALL BE CAUSE FOR REJECTION OF THE STRUCTURE.
 - G. A MINIMUM OF TWO (2) WEEKS SHALL BE REQUIRED FOR REVIEW BY THE ENGINEER AND TOWN.
17. THE CONTRACTOR/MANUFACTURER SHALL BE RESPONSIBLE FOR COMPLETION OF THE STRUCTURE AND FOOTING DATA ON THE DETAIL SHEET(S).
18. FOR INSTALLATIONS WHERE BOTH "EXISTING" AND "FUTURE" CONDITIONS ARE SHOWN, THE SUPPORTS SHALL BE DESIGNED FOR THE MORE SEVERE OF THE TWO LOADING CONDITIONS. THE INFORMATION OUTLINED IN NOTE 16 ABOVE SHALL BE PROVIDED FOR BOTH THE LOADING CONDITIONS.
19. THE TRAFFIC SIGNALS SHALL BE MOUNTED TO THE ARM OR POLE USING A FIXED MOUNT SYSTEM AS SHOWN ON STANDARD DETAIL E-71CM.

20. BASE PLATES SHALL BE STAMPED WITH THE VERTICAL POLE DIAMETER, HEIGHT, YIELD STRENGTH, GAUGE AND THE HORIZONTAL MEMBER DIAMETER, LENGTH, YIELD STRENGTH, GAUGE. ALTERNATELY, THE INFORMATION MAY BE STAMPED ON A METAL TAG RIVETED TO THE POLE NEAR THE HANDHOLE.

21. SEE SHEET 27 FOR CANTILEVER (MAST ARM) POLE LOCATIONS

SIGNAL EQUIPMENT & INSTALLATION SPECIFICATIONS

1. ALL NEW EQUIP. SHALL MEET OR EXCEED VAOT STANDARD SPECIFICATIONS, DATED 2001, NEMA STANDARDS AND IMSA OR ITE SPECIFICATIONS, WHERE APPLICABLE. INSTALLATION OF SIGNAL EQUIPMENT SHALL BE AS DETAILED ON THESE PLANS AND THE VAOT STANDARD DETAILS REFERENCED ON SHEET 1 AND IN THE CONTRACT DOCUMENTS.
2. THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, SHOP DRAWINGS FOR EACH NEW TRAFFIC SIGNAL EQUIPMENT ITEM. SHOP DRAWING SUBMITTALS SHALL CONFORM TO VAOT STD. SPECS.
3. ALL POLE MOUNTED AND MAST ARM MOUNTED SIGNAL HEADS SHALL HAVE POLYCARBONATE SECTIONS AND LENSES. THE SIGNAL HEADS SHALL HAVE FLAT BLACK HOUSINGS AND VISORS. BLACK LOUVERED BACKPLATES SHALL BE INSTALLED ON ALL EAST/WEST HEADS UNLESS OTHERWISE NOTED. ALL SIGNAL HEADS SHALL HAVE RED, YELLOW AND GREEN LED SIGNALS WITH A VISIBLE BEAM SPREAD OF 80 DEGREES OFF AXIS.
4. ALL MAST ARM AND PEDESTAL POLES SHALL BE PAINTED FLAT BLACK.
5. MINIMUM CONDUIT SIZES SHALL BE:
 - A) 50 mm (2") FOR POWER SERVICE
 - B) 50 mm (2") FOR SIGNAL WIRING
 - C) 50 mm (2") FOR STREET LIGHTING
 - D) 50 mm (2") FOR LOOP LEAD-INS
6. LUMINAIRE SHALL BE GENERAL ELECTRIC M-250A2 250 WATT HPS LUMINAIRE WITH MC-2 CUTOFF OPTICS, PHOTOMETRIC CURVE NUMBER 35-177303, OR EQUAL.
7. PEDESTRIAN SIGNALS SHALL BE EQUIPPED WITH "BIRD CALL" TYPE AUDIBLE SIGNALS. PEDESTRIAN INSTRUCTION SIGNS SHALL BE INCLUDED AT ALL PEDESTRIAN PUSH BUTTON LOCATIONS (SEE DETAIL ON SHEET 38). PEDESTRIAN HEADS SHALL HAVE BLACK HOUSINGS AND LED SYMBOL (HAND/MAN) TYPE FACES.

LOOP NOTES:

1. EACH LOOP SHALL HAVE ITS OWN AMPLIFIER.
2. ALL LOOPS AND LEAD IN WIRING SHALL BE #12 AWG.

CONTROLLER/CABINET NOTES:

1. THE TRAFFIC SIGNAL CONTROLLERS AND RELATED EQUIPMENT SHALL BE MANUFACTURED BY ECONOLITE CONTROL PRODUCTS, INC., ANAHEIM, CA.. THE SYSTEM MASTER CONTROLLER AT ROUTE 15/OLD STAGE ROAD SHALL BE AN ASC/2M-1000 IN CABINET P44 WITH BASE EXTENSION INSTALLED AT THE LOCATION SHOWN ON SHEET 27. LOCAL CONTROLLERS SHALL BE ASC/2S-2100 (TS-2, TYPE 2). THE CABINETS SHALL HAVE A FLAT BLACK FINISH. A TELEPHONE MODEM, TELEPHONE DROP AND CONNECTING CABLE(S) BETWEEN THE MODEM AND MASTER CONTROLLER SHALL BE INSTALLED SO AS TO PROVIDE FULLY OPERATIONAL DIAL-UP CAPABILITY PRIOR TO THE START OF THE 30 DAY TEST PERIOD.
2. FOR COORDINATION PURPOSES THE ROUTE 15/OLD STAGE INTERSECTION SHALL BE THE SYSTEM MASTER (ZERO OFFSET).
3. THE DWELL PHASE (PHASE 2/6) SHALL BE USED FOR THE START-UP PHASE FOLLOWING FLASHING OPERATION.
4. SIGNAL TIMINGS SHOWN ON THESE PLANS MAY REQUIRE FINE-TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATIONS. FINAL ACCEPTANCE OF THIS PROJECT WILL BE SUBJECT TO A 30-DAY TEST PERIOD, DURING WHICH ALL TIMING/PROGRAMMING CHANGES SHALL BE MADE, FOLLOWED BY A 1-YEAR WARRANTY PERIOD DURING WHICH ALL EQUIPMENT PROBLEMS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
5. UPON COMPLETION OF THE 30-DAY TEST PERIOD, THE CONTRACTOR SHALL PROVIDE UPDATED SIGNAL TIMING PROGRAMMING SHEETS SHOWING ALL MODIFIED SETTINGS, IF ANY.

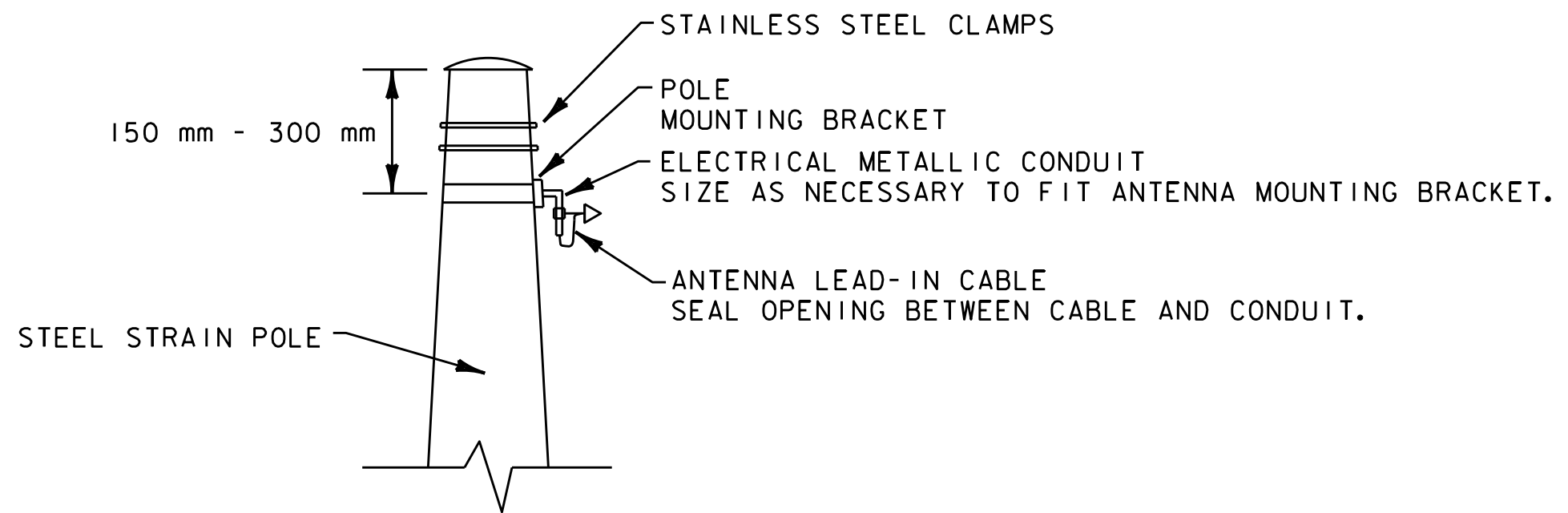
GENERAL SPECIFICATIONS

1. THE CONTRACTOR SHALL CONTACT ALL UTILITIES BEFORE EXCAVATION TO VERIFY THE LOCATION OF ANY UNDERGROUND LINES. THE CONTRACTOR SHALL NOTIFY "DIGSAFE" AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.
2. INTERSECTION LAYOUT AND UTILITY INFORMATION OBTAINED FROM A SURVEY PERFORMED BY LAMOUREUX & DICKINSON. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN HEREON.
3. ANY SURFACES, LINES, OR STRUCTURES WHICH HAVE BEEN DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE CONDITION AT LEAST EQUAL TO THAT IN WHICH THEY WERE FOUND IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS.
4. THE DESIGN ON THESE PLANS SHALL BE INSPECTED BY LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC., ESSEX JUNCTION, VERMONT, TO ENSURE COMPLIANCE WITH THE PLANS AND REQUIREMENTS. LAMOUREUX & DICKINSON WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT MAY ARISE FROM THE FAILURE OF THE CONTRACTOR TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED TO INSPECT THE WORKS AND TESTS IN PROGRESS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF STRUCTURES, VEGETATION AND PAVEMENT NECESSARY TO CONSTRUCT THE PROJECT, UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIAL, DEBRIS AND TRASH FROM THE SITE UPON COMPLETION OF CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE TOWN.

POWER STANCHION NOTES

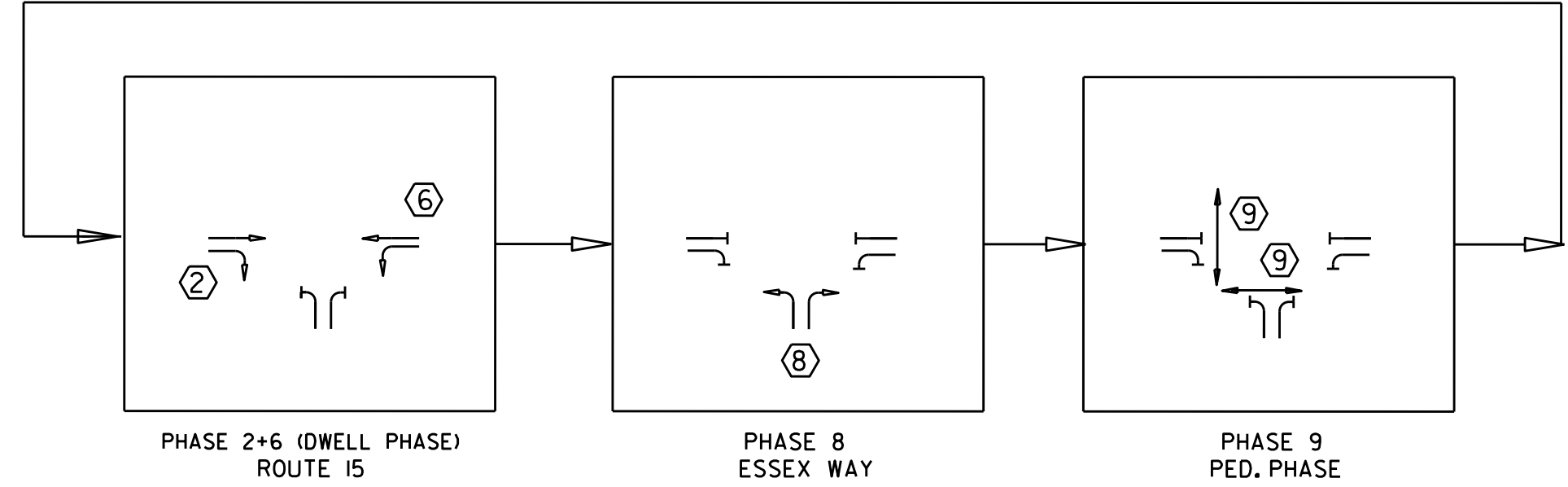
1. POWER STANCHION TO INCLUDE A MANUAL TRANSFER SWITCH AND L1420R RECEPTACLE MOUNTED IN A 3R ENCLOSURE. USE POWER STANCHION DETAIL #10N E-175M.

| | |
|--|--|
| CANTILEVER SUPPORT & TRAFFIC SIGNAL NOTES | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm6.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| | DESIGNED BY: LAMOUREUX & DICKINSON |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 31 |



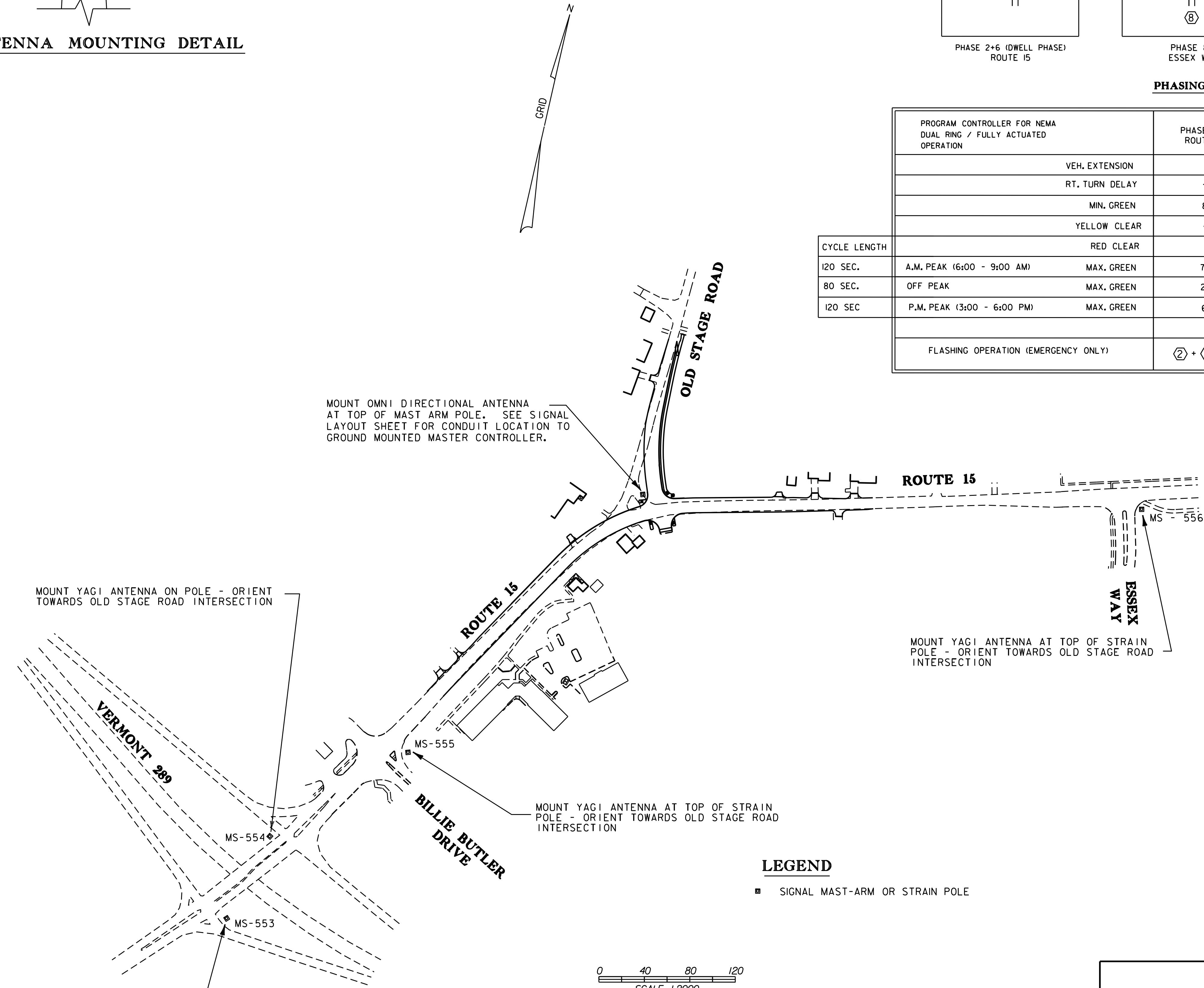
ANTENNA MOUNTING DETAIL

NTS



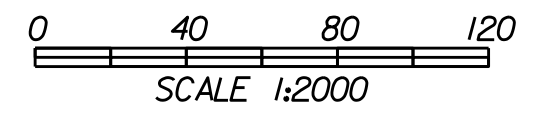
PHASING PLAN

| PROGRAM CONTROLLER FOR NEMA DUAL RING / FULLY ACTUATED OPERATION | PHASE 2+6 ROUTE 15 | PHASE 8 ESSEX WAY | PHASE 9 PEDESTRIAN | | |
|--|-----------------------|----------------------|-----------------------|---------------|------|
| | | | MAN (WALK) | FLASHING HAND | HAND |
| VEH. EXTENSION | | 2 | | | |
| RT. TURN DELAY | - | 5 | | | |
| MIN. GREEN | 8 | 7 | | | |
| YELLOW CLEAR | 4 | 4 | | | |
| RED CLEAR | 2 | 2 | | | |
| CYCLE LENGTH | | | | | |
| 120 SEC. A.M. PEAK (6:00 - 9:00 AM) | MAX. GREEN 75 | 13 | 4 | 14 | 2 |
| 80 SEC. OFF PEAK | MAX. GREEN 28 | 20 | 4 | 14 | 2 |
| 120 SEC. P.M. PEAK (3:00 - 6:00 PM) | MAX. GREEN 63 | 25 | 4 | 14 | 2 |
| FLASHING OPERATION (EMERGENCY ONLY) | ② + ⑥ FY | ⑧ FR | BLANK | | |

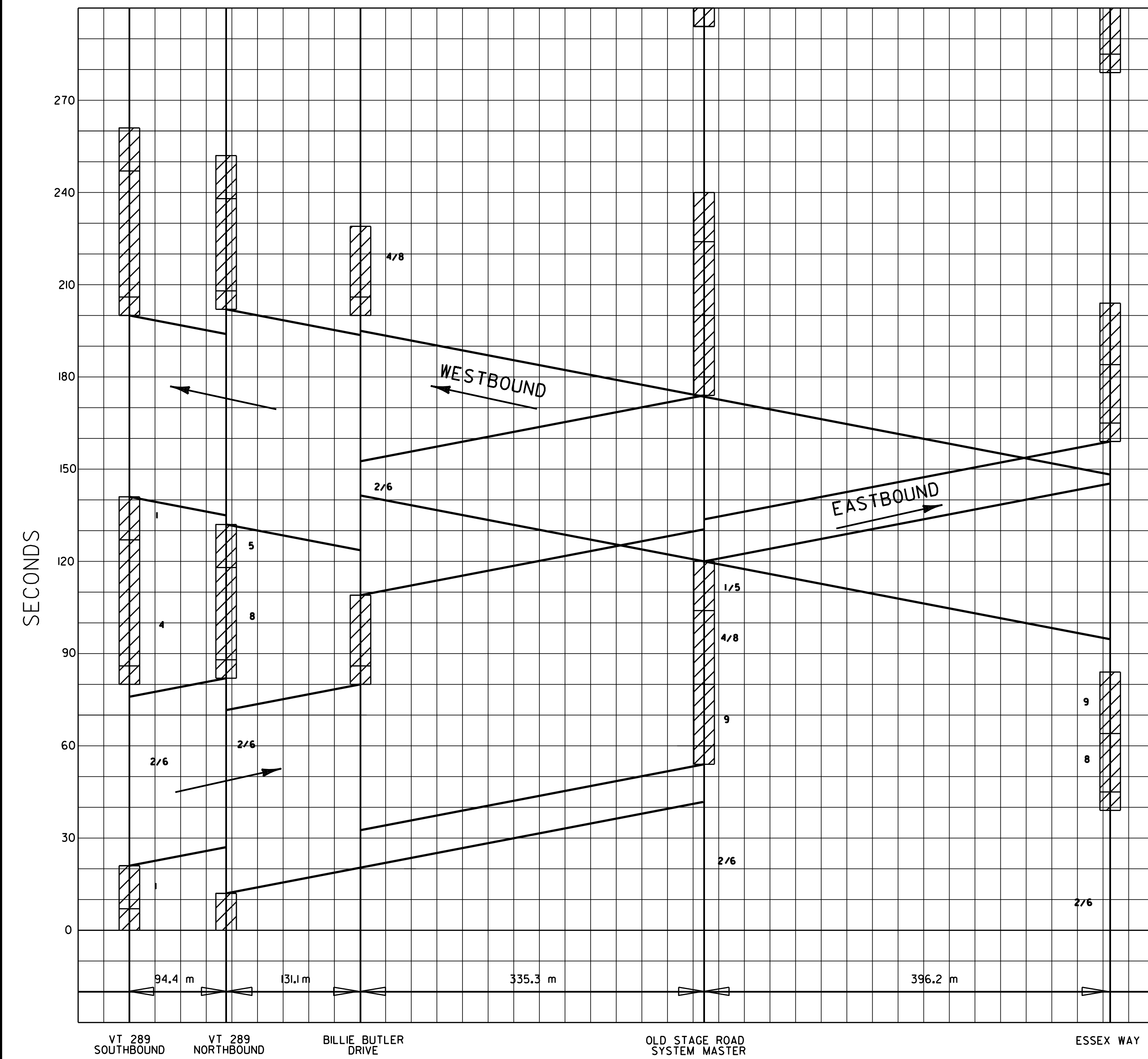


LEGEND

■ SIGNAL MAST-ARM OR STRAIN POLE



| | | |
|--|--|-------------------------------------|
| SPREAD SPECTRUM TELEMETRY INTERCONNECT PLAN | PROJECT NAME: ESSEX | DRAWN BY: PLC |
| | PROJECT NUMBER: STP 030-1(17)S | CHECKED BY: RJD |
| | PLOT FILE NAME: zstp030-1(17)sfrm7.dgn | |
| | L&D PROJECT NUMBER: 00-074 | |
| | DESIGNED BY: LAMOUREUX & DICKINSON | CONSULTING ENGINEERS, INC. SHEET 32 |

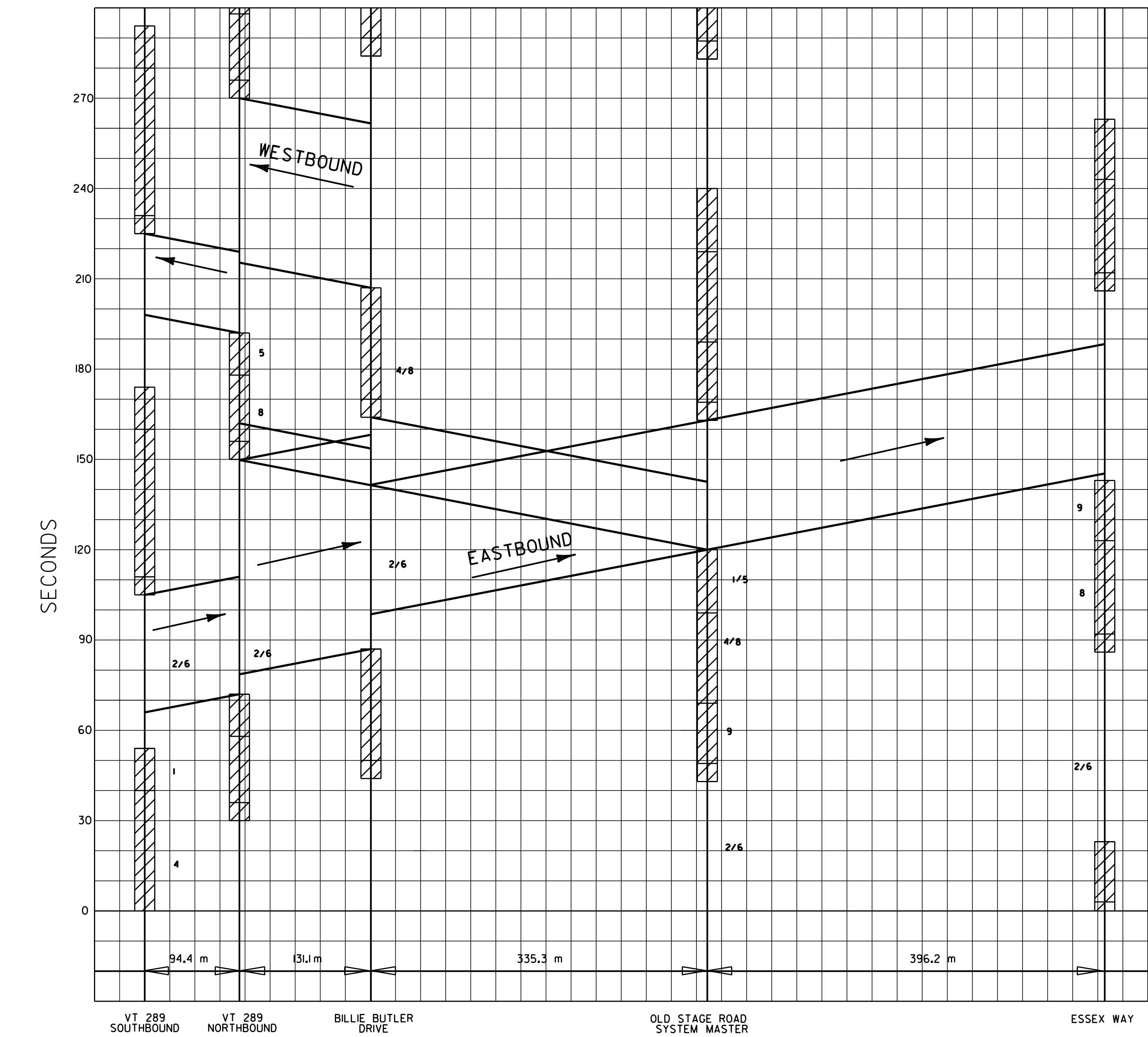


AM WITH PEDESTRIAN PHASE

| AM PEAK CYCLE - 120 SECONDS (6:00 AM - 9:00 AM) | | | | | | | | | | |
|---|----------|----------|----|----------|----------|----------|----|----------|----------|-----------|
| INTERSECTION | SPLITS | | | | | | | | | OFFSET* |
| | Ø1 | Ø2 | Ø3 | Ø4 | Ø5 | Ø6 | Ø7 | Ø8 | Ø9 | |
| VT 289 SB | 14s, 12% | 65s, 54% | | 41s, 34% | | 65s, 54% | | | | 21s, 18% |
| VT 289 NB | | 76s, 63% | | | 14s, 12% | 76s, 63% | | 30s, 25% | | 12s, 10% |
| BILLIE BUTLER DRIVE | | 97s, 81% | | 23s, 19% | | 97s, 81% | | 23s, 19% | | 109s, 91% |
| OLD STAGE ROAD | 16s, 13% | 60s, 50% | | 24s, 20% | 16s, 13% | 60s, 50% | | 24s, 20% | 20s, 17% | 0s |
| ESSEX WAY | | 81s, 67% | | | | 81s, 67% | | 19s, 16% | 20s, 17% | 84s, 70% |

* OFFSET CALCULATED TO FAVOR ROUTE 15 WESTBOUND TRAFFIC

- NOTES:
1. THE SIGNALS AT OLD STAGE ROAD AND ESSEX WAY WILL OPERATE UNCOORDINATED DURING OFF PEAK PERIODS.
 2. THE ROUTE 15 EASTBOUND THRU MOVEMENT HAS BEEN USED FOR THE COORDINATED MOVEMENT AT THE VT ROUTE 15 / VT 289 SOUTHBOUND RAMP INTERSECTION.
 3. SIGNAL OFFSETS SHOWN ABOVE ARE REFERENCED TO THE BEGINNING OF THE GREEN FOR PHASE 2 & 6.
 4. SPLITS SHOWN INCLUDE 4 SECONDS OF YELLOW PLUS 2 SECONDS ALL RED FOR EACH PHASE.
 5. SYSTEM OFFSETS SHOWN ABOVE HAVE BEEN CALCULATED BASED ON NO PED CALLS (PED PHASE IS SKIPPED AND REVERTS TO Ø2 & Ø6).
 6. TIME OF DAY PROGRAM ADJUSTED TO RUN OFF PEAK CYCLE ALL DAY SATURDAY AND SUNDAY



PM WITH PEDESTRIAN PHASE

| PM PEAK CYCLE - 120 SECONDS (3:00 PM - 6:00 PM) | | | | | | | | | | |
|---|----------|---------------------------------|----|---------------------------------|----------|---------------------------------|----|----------|----------|----------------------------------|
| INTERSECTION | SPLITS | | | | | | | | | OFFSET* |
| | Ø1 | Ø2 | Ø3 | Ø4 | Ø5 | Ø6 | Ø7 | Ø8 | Ø9 | |
| VT 289 SB | 14s, 12% | 65s, 54% 53s, 45% | | 41s, 34% 49s, 41% | | 65s, 54% 53s, 45% | | | | 21s, 18% 119s, 99% |
| VT 289 NB | | 84s, 70% | | | 14s, 12% | 84s, 70% | | 22s, 18% | | 72s, 60% |
| BILLIE BUTLER DRIVE | | 97s, 81% | | 37s, 31% | | 97s, 81% | | 37s, 31% | | 87s, 73% |
| OLD STAGE ROAD | 21s, 18% | 49s, 41% | | 30s, 25% | 21s, 18% | 49s, 41% | | 30s, 25% | 20s, 17% | 0s |
| ESSEX WAY | | 69s, 58% | | | | 69s, 58% | | 31s, 26% | 20s, 17% | 23s, 19% |

* OFFSET CALCULATED TO FAVOR ROUTE 15 EASTBOUND TRAFFIC
THE VT 289 SB RAMP OFFSET WAS RE-CALCULATED TO FAVOR THE RAMP WITH ROUTE 15 EASTBOUND AS THE COORDINATED PHASE (SEMI-ACTUATED SIGNAL)

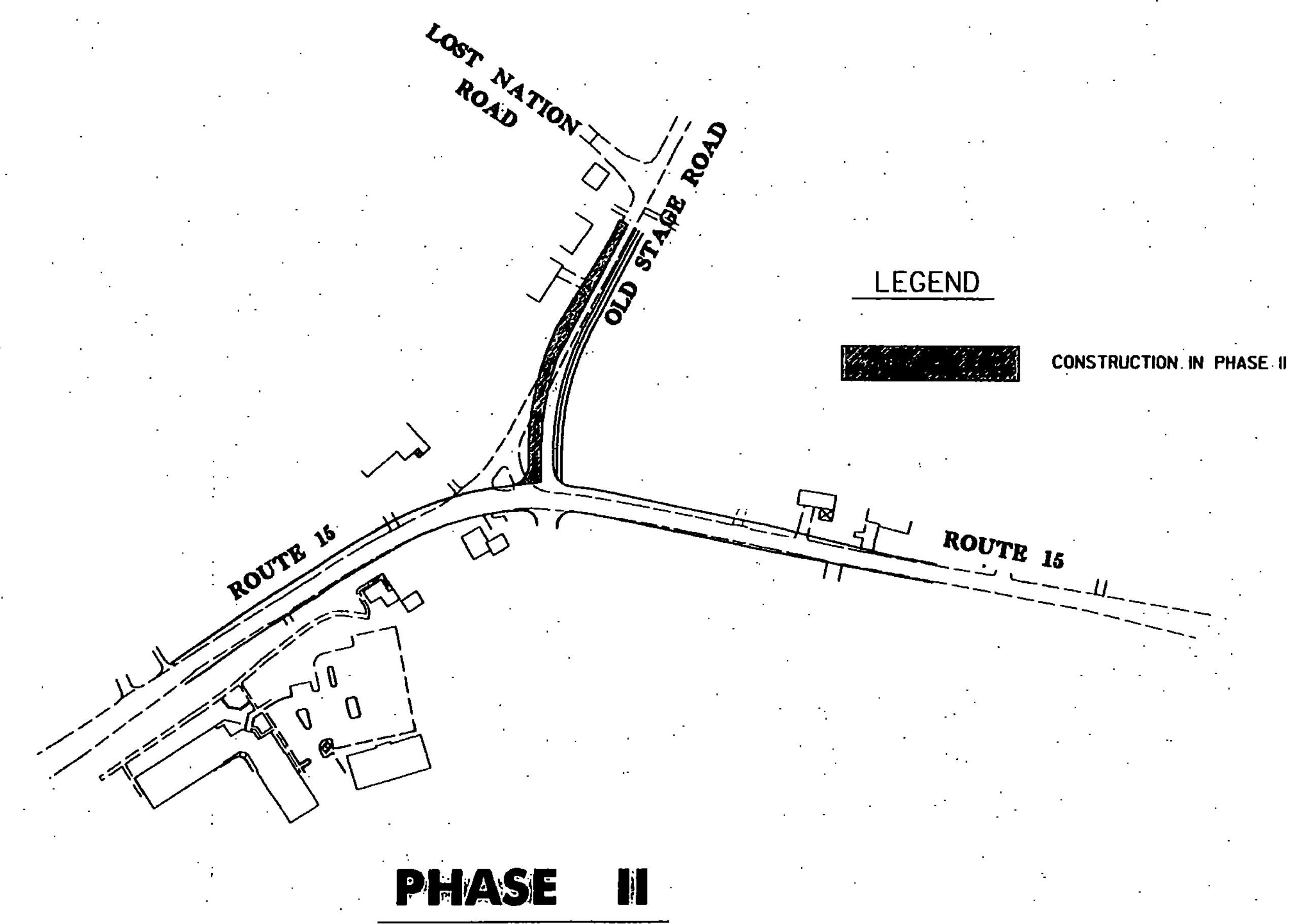
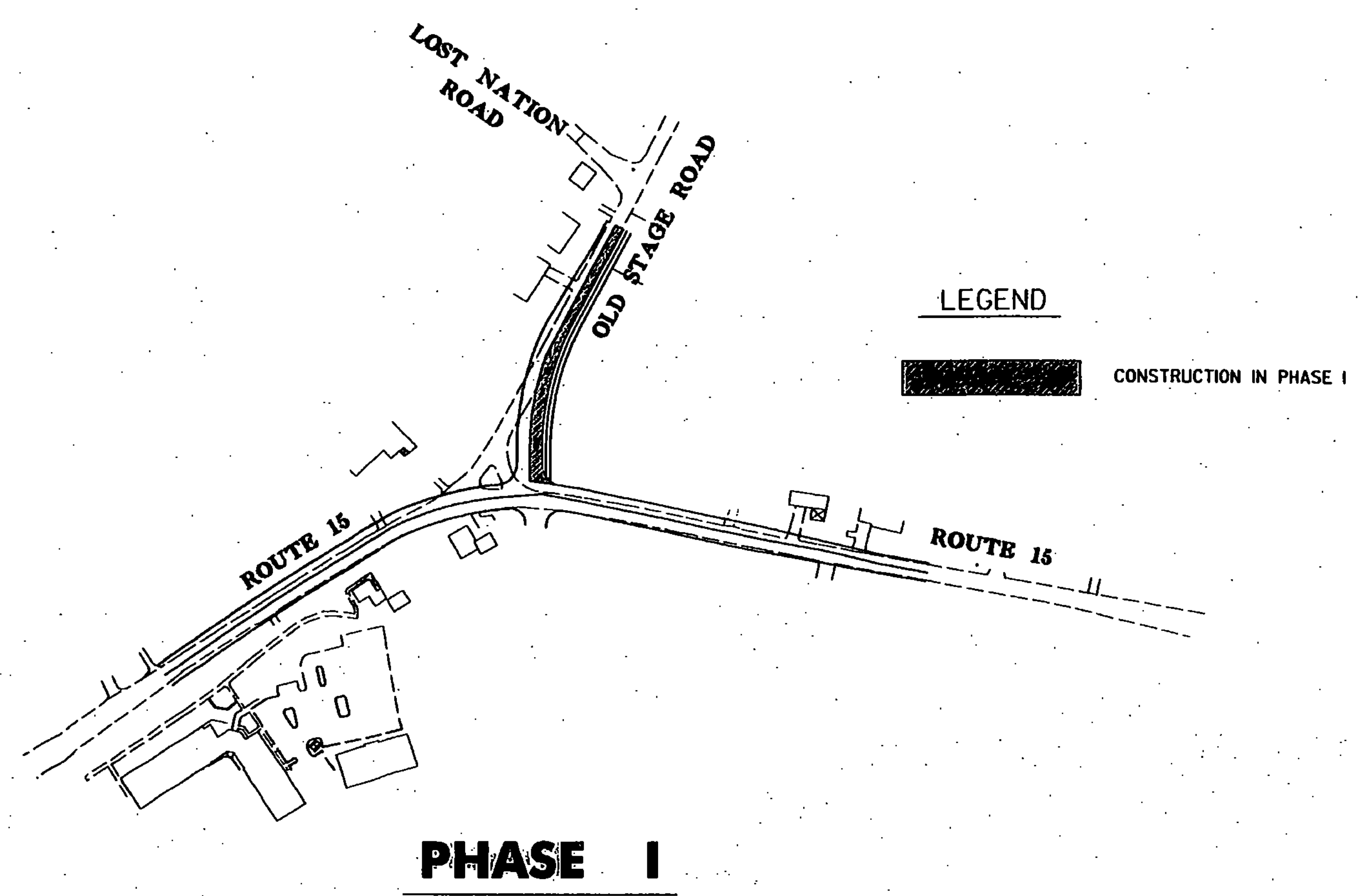
| OFF PEAK CYCLE - 70 SECONDS | | | | | | | | | | |
|-----------------------------|----------|----------|----|----------|----------|----------|----|----------|----|----------|
| INTERSECTION | SPLITS | | | | | | | | | OFFSET |
| | Ø1 | Ø2 | Ø3 | Ø4 | Ø5 | Ø6 | Ø7 | Ø8 | Ø9 | |
| VT 289 SB | 14s, 20% | 35s, 50% | | 21s, 30% | | 35s, 50% | | | | 64s, 91% |
| VT 289 NB | | 38s, 54% | | | 14s, 20% | 38s, 54% | | 18s, 26% | | 69s, 99% |
| BILLIE BUTLER DRIVE | | 41s, 59% | | 29s, 41% | | 41s, 59% | | 29s, 41% | | 68s, 97% |

ALL SIGNALS RUN FREE FROM 2000 TO 0600 WEEKDAYS

DATUM
VERTICAL 1:1 (10 mm = 10 sec.)
HORIZONTAL 1:3000

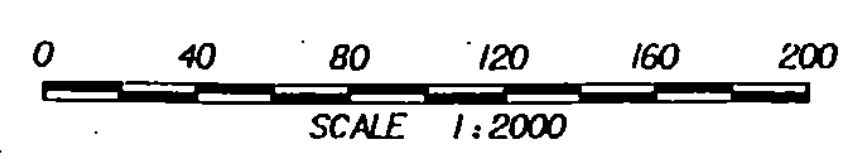
| | |
|-------------------|--|
| COORDINATION DATA | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm7.dgn L&D PROJECT NUMBER: 00-074 DESIGNED BY: LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC. |

| |
|-----------------|
| DRAWN BY: PLC |
| CHECKED BY: RJD |
| SHEET 33 |



PHASE 1 & 2 TRAFFIC CONTROL NOTES

1. CONTINUOUS TWO-WAY TRAFFIC SHALL BE MAINTAINED ON OLD STAGE ROAD AT NIGHT, ON WEEKENDS AND HOLIDAYS, AND WHENEVER POSSIBLE DURING CONSTRUCTION. AN UNIFORMED TRAFFIC CONTROL OFFICER SHALL DIRECT TRAFFIC WHENEVER A LANE CLOSURE IS REQUIRED AND DURING PEAK HOURS WHEN DEEMED NECESSARY BY THE TOWN OR STATE.
2. ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
3. TRAFFIC CONTROL SIGNING AND CHANNELIZING DEVICES SHALL BE IN ACCORDANCE WITH THE APPROPRIATE VAOT STANDARD DETAILS (E-100M THRU E-110M).
4. TRAFFIC CONTROL SIGNING SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE. CONSTRUCTION APPROACH SIGNING ON SHEET 33 SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PERIOD.
5. VARIATIONS IN THE SIGNING PACKAGES MAY BE DICTATED BY UNIQUE GEOMETRY AND/OR TRAFFIC CONDITIONS.
6. THE CONTRACTOR SHALL NOT WORK WITHIN THE HIGHWAY ROW WITHOUT THE APPROPRIATE CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES IN PLACE.
7. TO FACILITATE THE FLOW OF TRAFFIC, THE TOWN AND STATE SHALL HAVE AUTHORITY TO MODIFY THE CONTRACTOR'S ONGOING OPERATIONS OR PROPOSED METHODS OF CONSTRUCTION AS IS DEEMED NECESSARY FOR THE SAFETY, CONVENIENCE AND WELFARE OF THE TRAVELING PUBLIC. THE CONTRACTOR SHALL COMPLY WITH THE TOWN AND/OR STATE'S DIRECTIVES CONCERNING THIS MATTER.
8. ALL HOLES WILL EITHER BE BACKFILLED OR STEEL PLATED AT THE END OF EACH WORK DAY.



| | |
|--|--|
| CONSTRUCTION PHASING & TRAFFIC CONTROL | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-(117)S |
| | PLOT FILE NAME: zstp030-(117)sfrm9.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 34 OF 42 |

CONSTRUCTION PHASING DESCRIPTION

PHASE III ROAD WORK SOUTH OF THE PROPOSED BASELINE

PHASE IV ROAD WORK NORTH OF THE PROPOSED BASELINE

•• NOTE: PHASE IV MUST BE COMPLETED LAST DUE TO ONGOING RELOCATION OF AN UNDERGROUND TELEPHONE LINE OWNED BY VERIZON COMMUNICATIONS

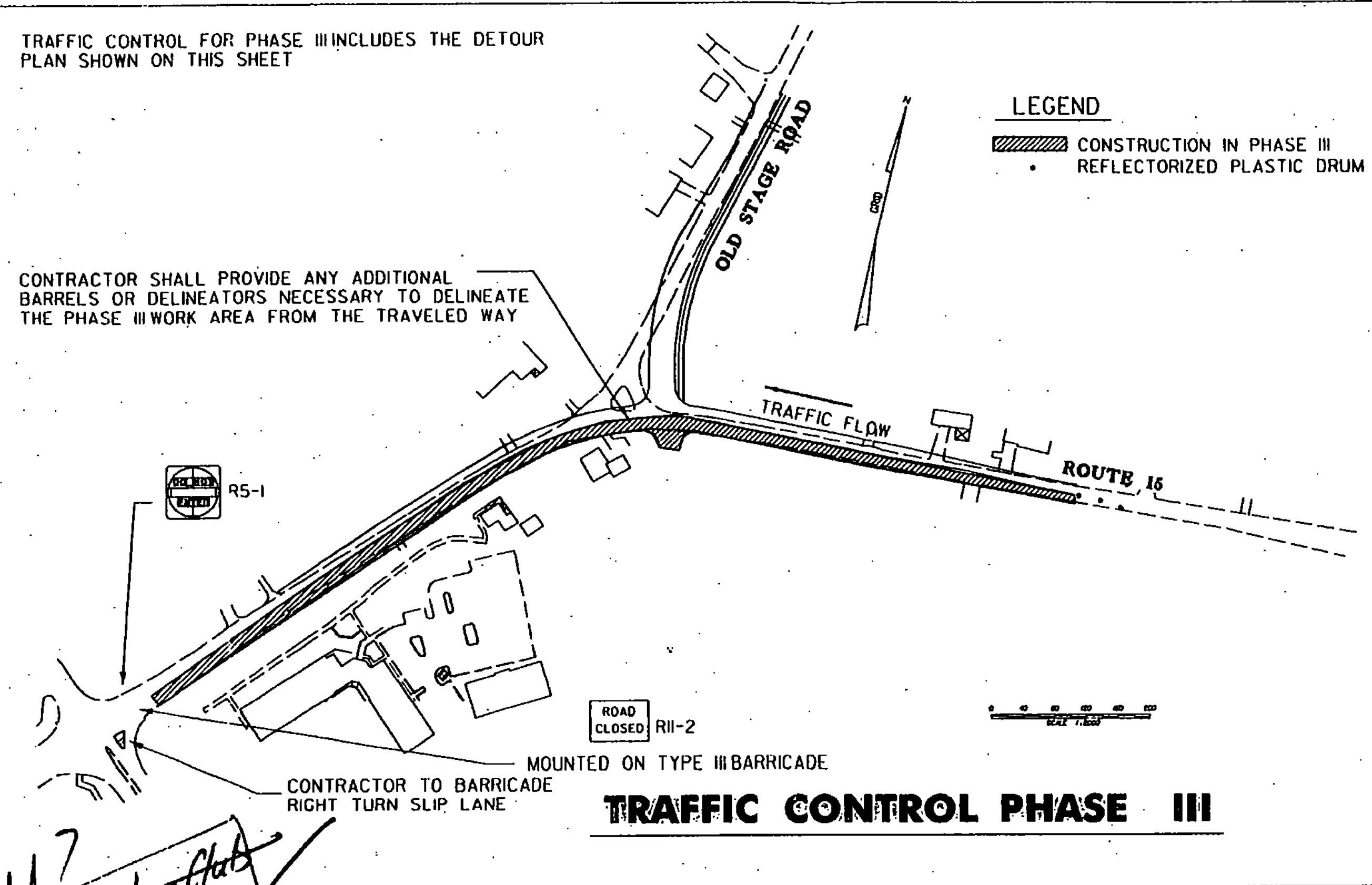
PHASE III & IV TRAFFIC CONTROL NOTES

1. THE CONTRACTOR IS FREE TO PROPOSE ALTERNATE TRAFFIC CONTROL WHICH WILL MAINTAIN A MINIMUM OF CONTINUOUS ONE-WAY TRAFFIC FLOW ON ROUTE 15 AT ALL TIMES.
2. ACCESS TO DRIVEWAYS AND ACCESS TO OLD STAGE ROAD SHALL BE MAINTAINED AT ALL TIMES.
3. TRAFFIC CONTROL SIGNING AND CHANNELIZING DEVICES SHALL BE IN ACCORDANCE WITH THE APPROPRIATE VAOT STANDARD DETAILS (E-100M THRU E-110M).
4. TRAFFIC CONTROL SIGNING SHALL BE REMOVED OR COVERED WHEN NOT APPLICABLE. CONSTRUCTION APPROACH SIGNING ON SHEET 33 SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PERIOD.
5. VARIATIONS IN THE SIGNING PACKAGES MAY BE DICTATED BY UNIQUE GEOMETRY AND/OR TRAFFIC CONDITIONS.
6. THE CONTRACTOR SHALL NOT WORK WITHIN THE HIGHWAY ROW WITHOUT THE APPROPRIATE CONSTRUCTION SIGNING AND TRAFFIC CONTROL DEVICES IN PLACE.
7. TO FACILITATE THE FLOW OF TRAFFIC, THE TOWN AND STATE SHALL HAVE AUTHORITY TO MODIFY THE CONTRACTOR'S ONGOING OPERATIONS OR PROPOSED METHODS OF CONSTRUCTION AS IS DEEMED NECESSARY FOR THE SAFETY, CONVENIENCE AND WELFARE OF THE TRAVELING PUBLIC. THE CONTRACTOR SHALL COMPLY WITH THE TOWN AND/OR STATE'S DIRECTIVES CONCERNING THIS MATTER.
8. ALL HOLES WILL EITHER BE BACKFILLED OR STEEL PLATED AT THE END OF EACH WORK DAY.
9. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL AND TRAFFIC SAFETY.
10. THE CONTRACTOR SHALL MAKE AVAILABLE (2) VARIABLE MESSAGE BOARDS FOR THE LENGTH OF THE CONTRACT (INCLUDING PHASE I & II) FOR PLACEMENT AS DIRECTED BY THE RESIDENT ENGINEER. PAYMENT SUBSIDIARY TO ITEM 641.0.
11. CONTRACTOR TO MAKE SIGNAL TIMING ADJUSTMENTS TO ACCOMMODATE REVISED TRAFFIC PATTERNS AT THE INTERSECTIONS OF ROUTE 15/ESSEX WAY, ESSEX WAY/VT 289 AND BILLIE BUTLER/ROUTE 15. PAYMENT SUBSIDIARY TO ITEM 641.0.



TRAFFIC CONTROL FOR PHASE III INCLUDES THE DETOUR PLAN SHOWN ON THIS SHEET

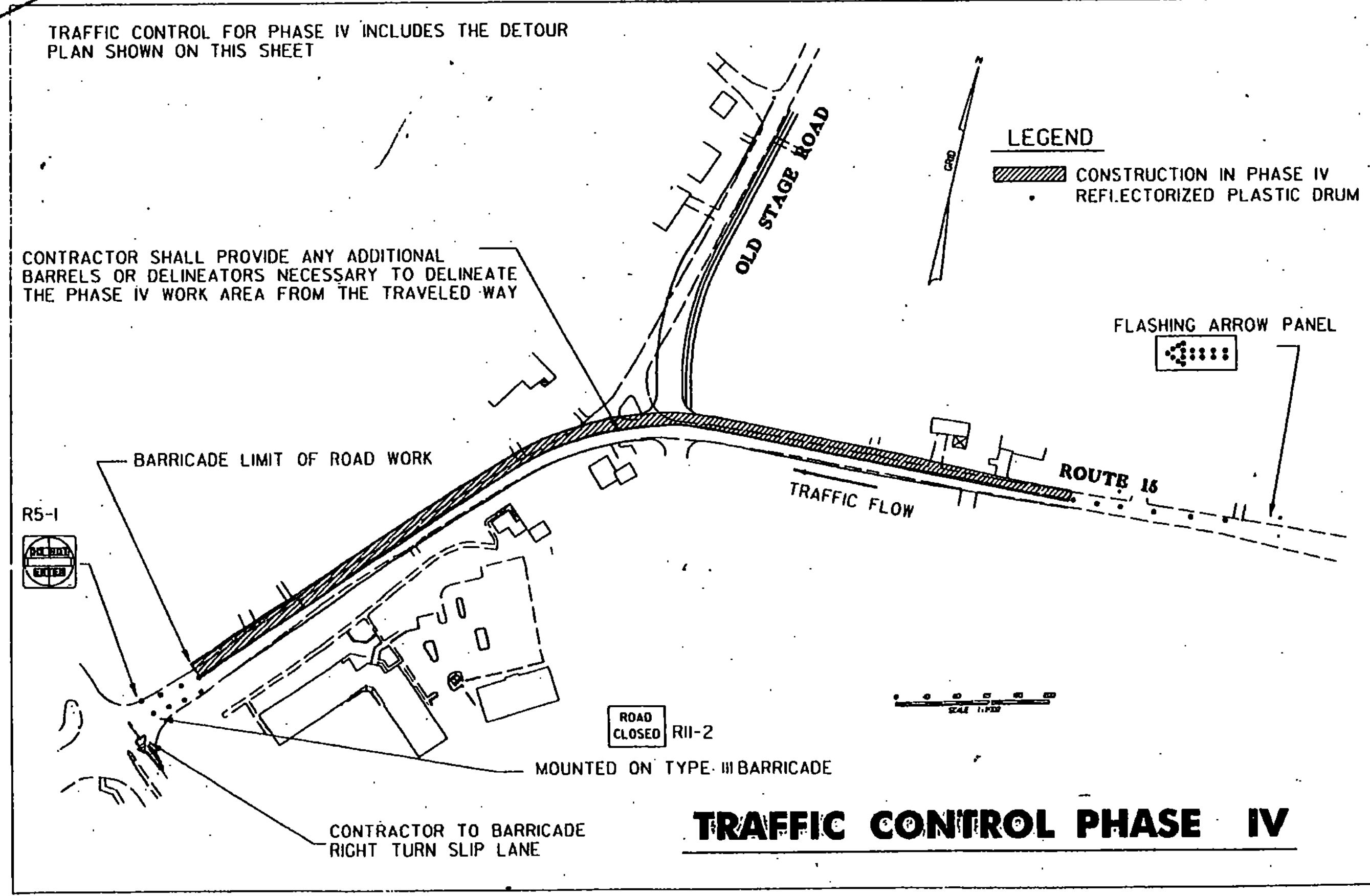
CONTRACTOR SHALL PROVIDE ANY ADDITIONAL BARRELS OR DELINEATORS NECESSARY TO DELINEATE THE PHASE III WORK AREA FROM THE TRAVELED WAY



TRAFFIC CONTROL PHASE III

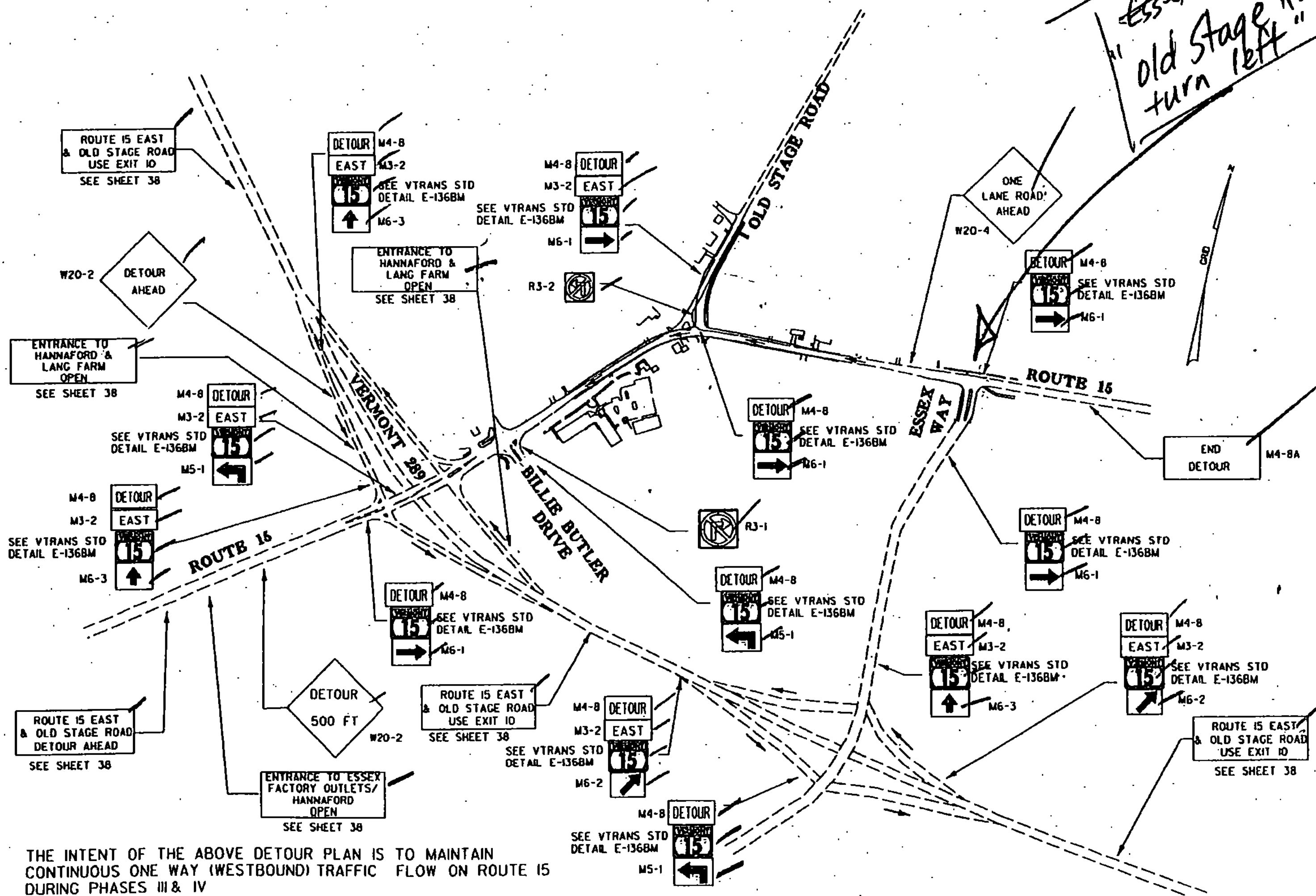
TRAFFIC CONTROL FOR PHASE IV INCLUDES THE DETOUR PLAN SHOWN ON THIS SHEET

CONTRACTOR SHALL PROVIDE ANY ADDITIONAL BARRELS OR DELINEATORS NECESSARY TO DELINEATE THE PHASE IV WORK AREA FROM THE TRAVELED WAY



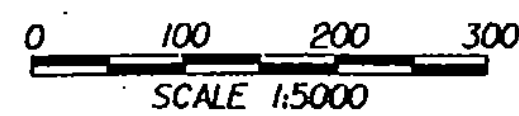
TRAFFIC CONTROL PHASE IV

Add Essex County Club Old Stage Road turn left

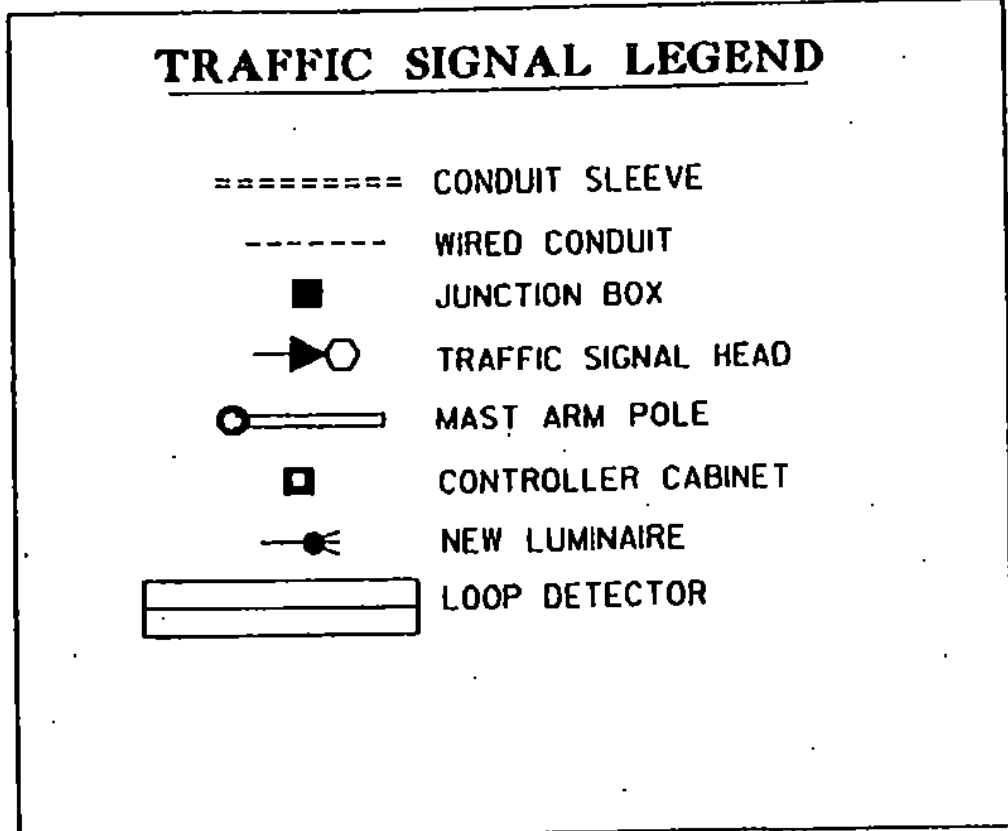


THE INTENT OF THE ABOVE DETOUR PLAN IS TO MAINTAIN CONTINUOUS ONE WAY (WESTBOUND) TRAFFIC FLOW ON ROUTE 15 DURING PHASES III & IV

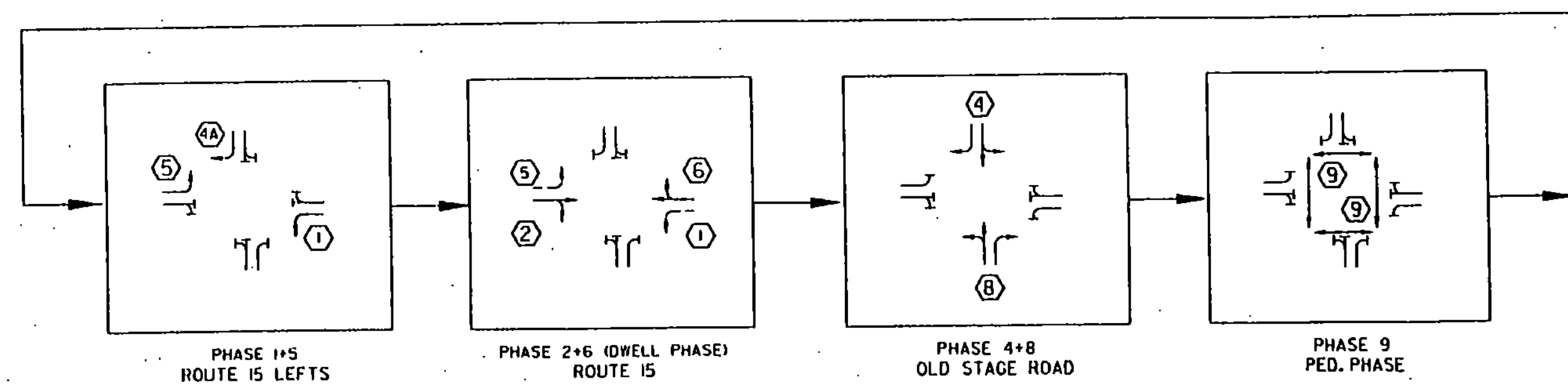
DETOUR PLAN FOR PHASE III & IV



| | |
|--|---|
| CONSTRUCTION PHASING & TRAFFIC CONTROL | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm9.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 35 OF 42 |

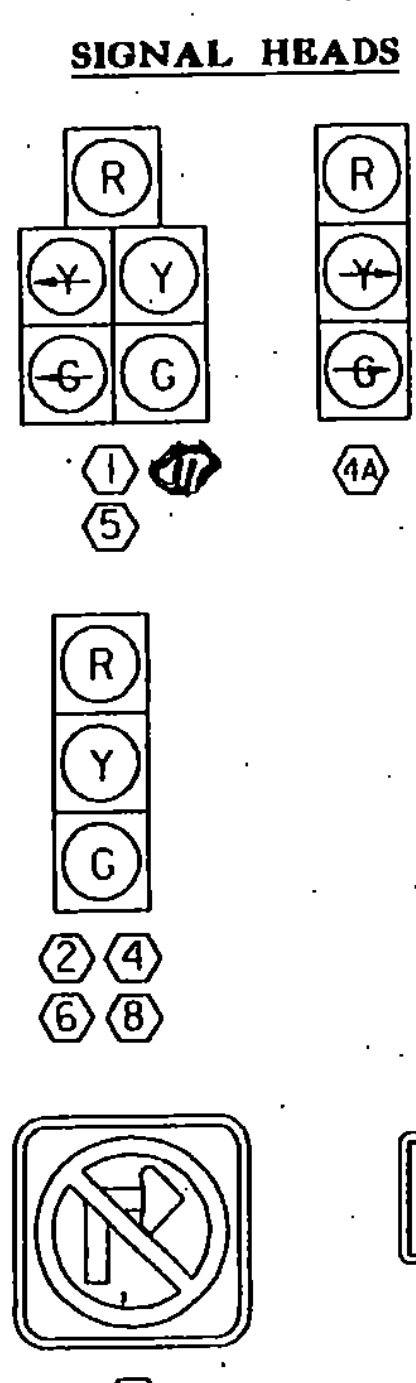
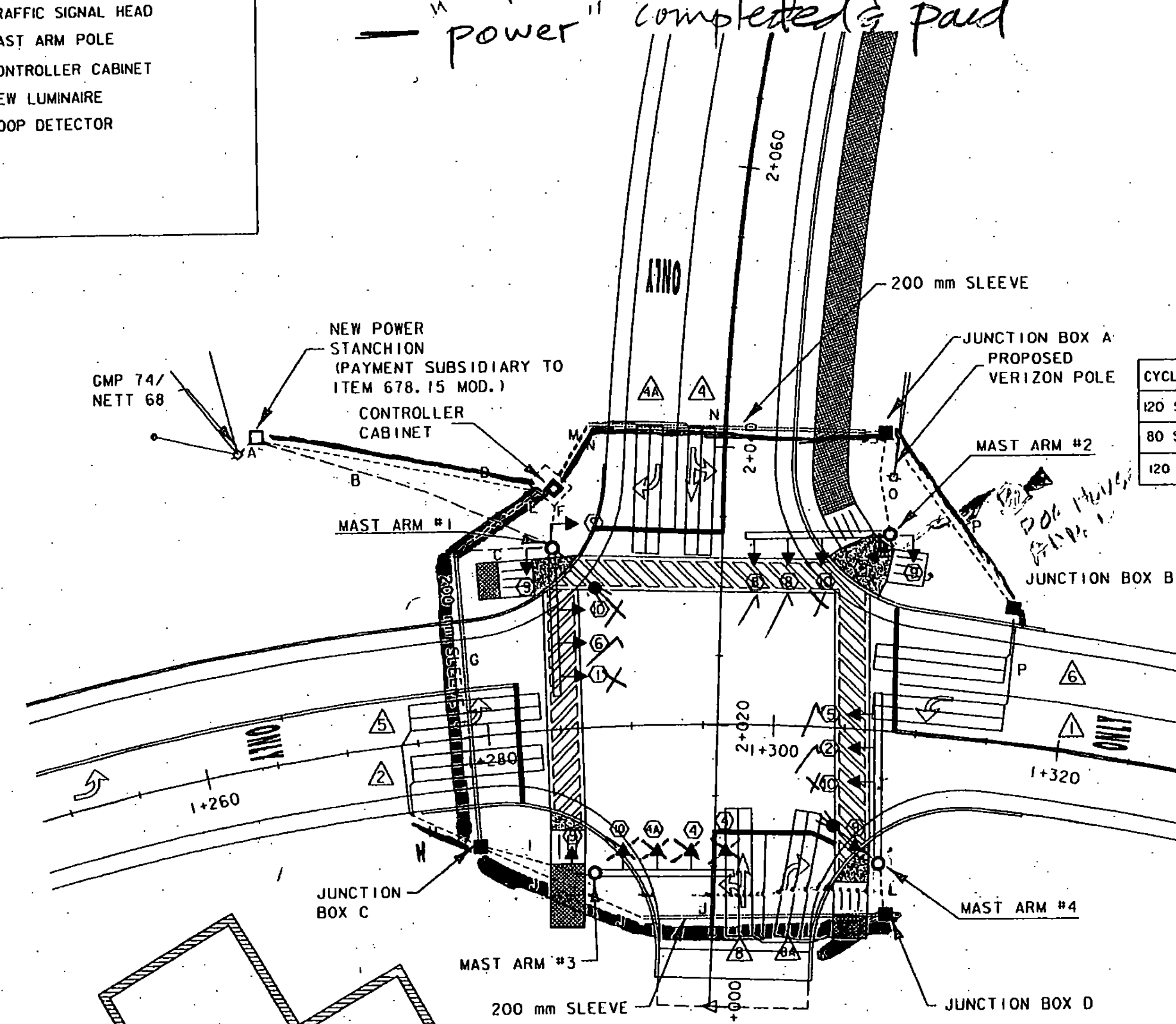


completed & paid "street-lighting"
 loop lead-ins completed & paid (as non-participating)
 loop lead-ins completed & paid
 "power" completed & paid



PHASING PLAN

| PROGRAM CONTROLLER FOR NEMA DUAL RING / FULLY ACTUATED OPERATION | PHASE 1+5 ROUTE 15 LEFTS | PHASE 2+6 ROUTE 15 | PHASE 4+8 OLD STAGE ROAD | PHASE 9 PEDESTRIAN |
|--|-----------------------------|--------------------|--------------------------|--------------------------------------|
| VEH. EXTENSION | 2 | 2 | 2 | |
| RT. TURN DELAY | - | - | 5 | |
| MIN. GREEN | 7 | 8 | 8 | |
| YELLOW CLEAR | 4 | 4 | 4 | (10) NRTOR |
| RED CLEAR | 2 | 2 | 2 | |
| CYCLE LENGTH | | | | |
| 120 SEC. A.M. PEAK (6:00 - 9:00 AM) | MAX. GREEN 10 | 54 | 18 | MAN (WALK) 4 FLASHING HAND 14 HAND 2 |
| 80 SEC. OFF PEAK | MAX. GREEN 8 | 24 | 10 | 4 14 2 |
| 120 SEC. P.M. PEAK (3:00 - 6:00 PM) | MAX. GREEN 15 | 43 | 24 | 4 14 2 |
| FLASHING OPERATION (EMERGENCY ONLY) | (1)+(5) - FY - FR (4A) - FR | (2)+(6) FY | (4)+(8) FR | BLANK |



JUNCTION BOX

| STATION, OFFSET | SIZE |
|----------------------|--------------------------------------|
| A 2+041.51, 11.41 RT | 750 x 400 x 300 |
| B 1+315.68, 9.61 LT | 450 x 300 300 x 400 x 300 |
| C 2+010.86, 16.35 LT | 750 x 400 x 300 |
| D 2+006.78, 12.30 RT | 750 x 400 x 300 |

ALL JUNCTION BOXES SHALL HAVE HEAVY DUTY COVERS CAPABLE OF H2O LOADING.

- ### CONDUIT LEGEND
- A - ELECTRICAL SERVICE TO NEW POWER STANCHION, TELEPHONE SERVICE
 - B - 50 mm LIGHTING
 - C - 50 mm LIGHTING
 - D - ELECTRICAL (TRAFFIC SIGNAL), TELEPHONE SERVICE
 - E - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN
 - F - 50 mm SIGNAL WIRING
 - G - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN + 50 mm LIGHTING
 - H - 50 mm LOOP LEAD IN
 - I - 50 mm SIGNAL WIRING
 - J - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN + 50 mm LIGHTING = L&P - N&N P
 - K - 50 mm LOOP LEAD IN
 - L - 50 mm SIGNAL WIRING + 50 mm LIGHTING
 - M - 50 mm LOOP LEAD IN
 - N - 50 mm SIGNAL WIRING + 50 mm LOOP LEAD IN
 - O - 50 mm SIGNAL WIRING - NON P.
 - P - 50 mm LOOP LEAD IN

| AM | OFF | PM | DHV* |
|-----|-----|-----|------|
| 44 | 103 | 282 | 331 |
| 267 | 384 | 722 | 849 |
| 56 | 116 | 159 | 159 |

| AM | OFF | PM | DHV* |
|-----|-----|-----|------|
| 10 | 26 | 59 | 69 |
| 729 | 493 | 437 | 513 |
| 56 | 117 | 158 | 158 |

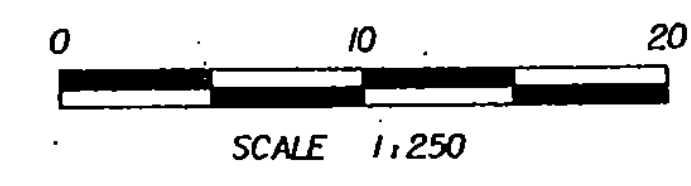
| AM | OFF | PM | DHV* |
|-----|-----|-----|------|
| 10 | 26 | 59 | 69 |
| 729 | 493 | 437 | 513 |
| 56 | 117 | 158 | 158 |

VEHICLE LOOP DETECTOR SCHEDULE

| LANE | LOOP # | SIZE | TYPE | # OF TURNS | CALL PHASE | MODE | INDUCTANCE (uH) | | RESISTANCE (ohms) | | LEAKAGE TO GROUND (m-ohms) |
|----------|--------|-----------------|------|------------|------------|--------|-----------------|-------|-------------------|-------|----------------------------|
| | | | | | | | CALC. | MEAS. | CALC. | MEAS. | |
| WB LT | 1 | 1.83 m X 9.14 m | LONG | 2 | 1 | PRES. | 298 | | 0.98 | | |
| EB TH/RT | 2 | 1.83 m X 9.14 m | LONG | 2 | 2 | PRES. | 287 | | 0.85 | | |
| SB TH/LT | 4 | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES. | 267 | | 0.58 | | |
| SB RT | 4A | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES.* | 263 | | 0.54 | | |
| EB LT | 5 | 1.83 m X 9.14 m | LONG | 2 | 5 | PRES. | 291 | | 0.89 | | |
| WB TH/RT | 6 | 1.83 m X 9.14 m | LONG | 2 | 6 | PRES. | 296 | | 0.95 | | |
| NB TH/LT | 8 | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES. | 315 | | 1.20 | | |
| NB RT | 8A | 1.83 m X 9.14 m | LONG | 2 | 4 + 8 | PRES.* | 312 | | 1.15 | | |

NOTES:

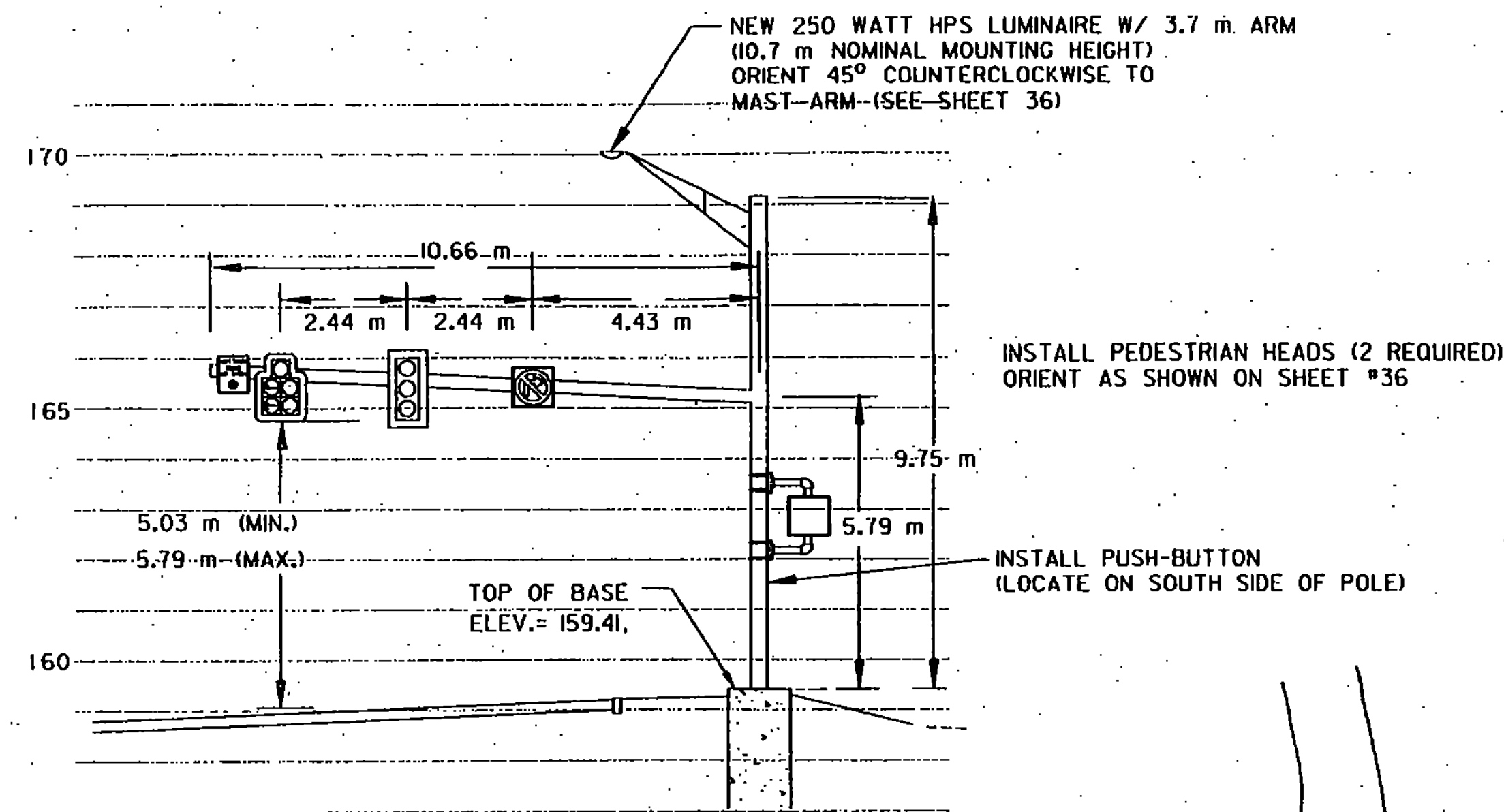
- LED "NO RIGHT TURN ON RED" SIGNS SHALL BEGNN DURING ALL RED PERIOD PRIOR TO PEDESTRIAN PHASE.
- CROSSWALK MARKINGS SHALL NOT BE PLACED UNTIL PEDESTRIAN SIGNAL IS OPERATIONAL.
- VEHICLE DETECTOR LOOPS SHALL BE INSTALLED BEFORE PAVEMENT WEARING COURSE IS PLACED.
- ITEM 678.15 (MOD.) - OLD STAGE ROAD INCLUDES REPLACING THE THREE EXISTING SIGNAL CONTROLLERS AT VT 15/289 AND VT15/BILLIE BUTLER DRIVE. THE EXISTING CONTROLLERS ARE ECONOLITE ASC-8000 UNITS; CURRENTLY OPERATING IN TIME BASED COORDINATION. THE CONTRACTOR SHALL PROGRAM THE NEW CONTROLLERS TO UTILIZE THE SAME SETTINGS AS THE EXISTING ONES, EXCEPT THAT THE NEW SIGNAL CYCLE LENGTHS, SPLITS AND OFFSETS SHALL BE AS SHOWN ON SHEET 42. WORK AT THESE THREE INTERSECTIONS SHALL ALSO INCLUDE INSTALLING AND MAKING OPERATIONAL THE RADIO TELEMETRY INTERCONNECT EQUIPMENT AS SHOWN ON SHEET 41.



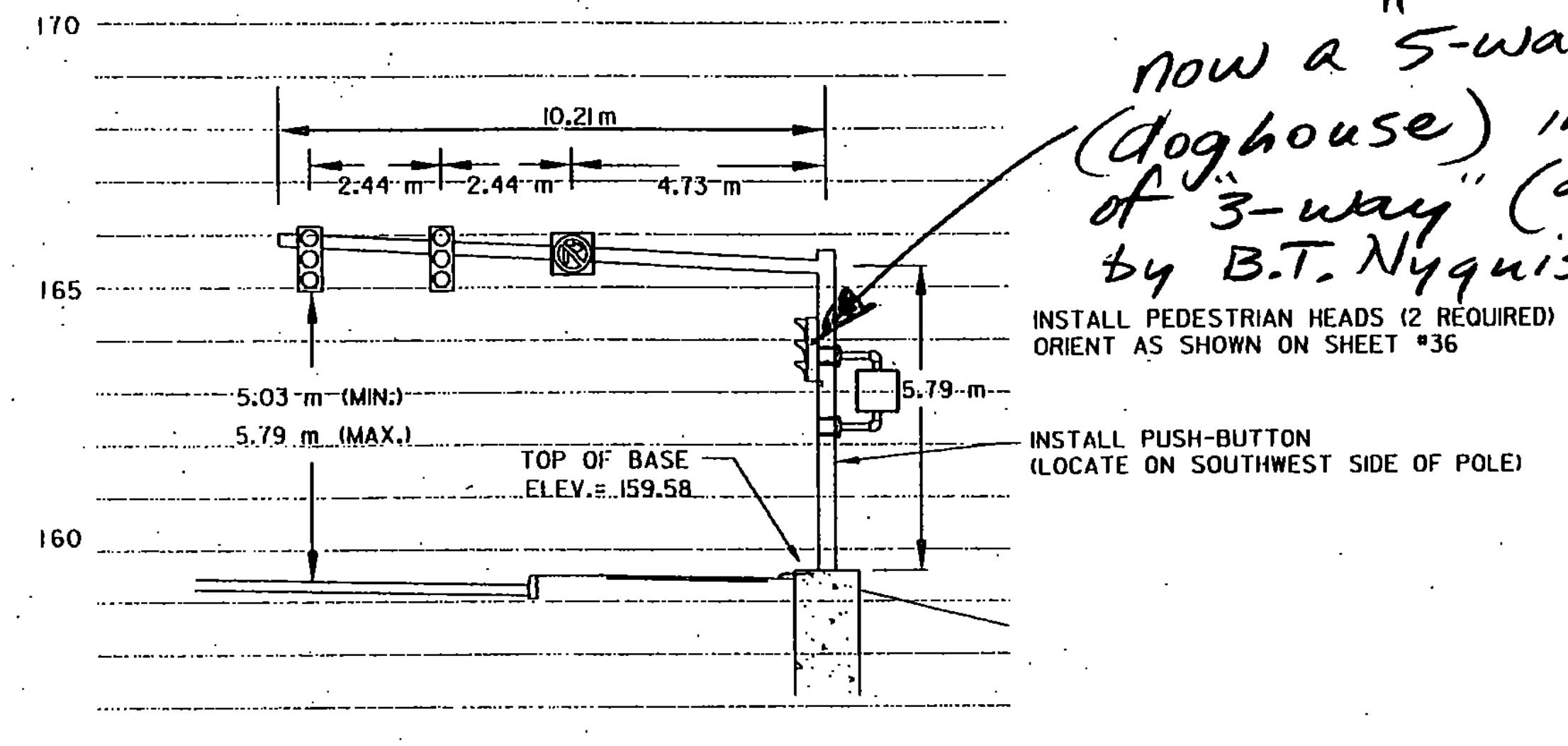
TURNING MOVEMENT VOLUMES



| | |
|--|--|
| SIGNAL LAYOUT SHEET | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm5.dgn DATE: 1/20/03 |
| | L&D PROJECT NUMBER: 00-074 DRAWN BY: PLC |
| DESIGNED BY: LAMOUREUX & DICKINSON CHECKED BY: RJD | SHEET 36 OF 42 |
| CONSULTING ENGINEERS, INC. | |

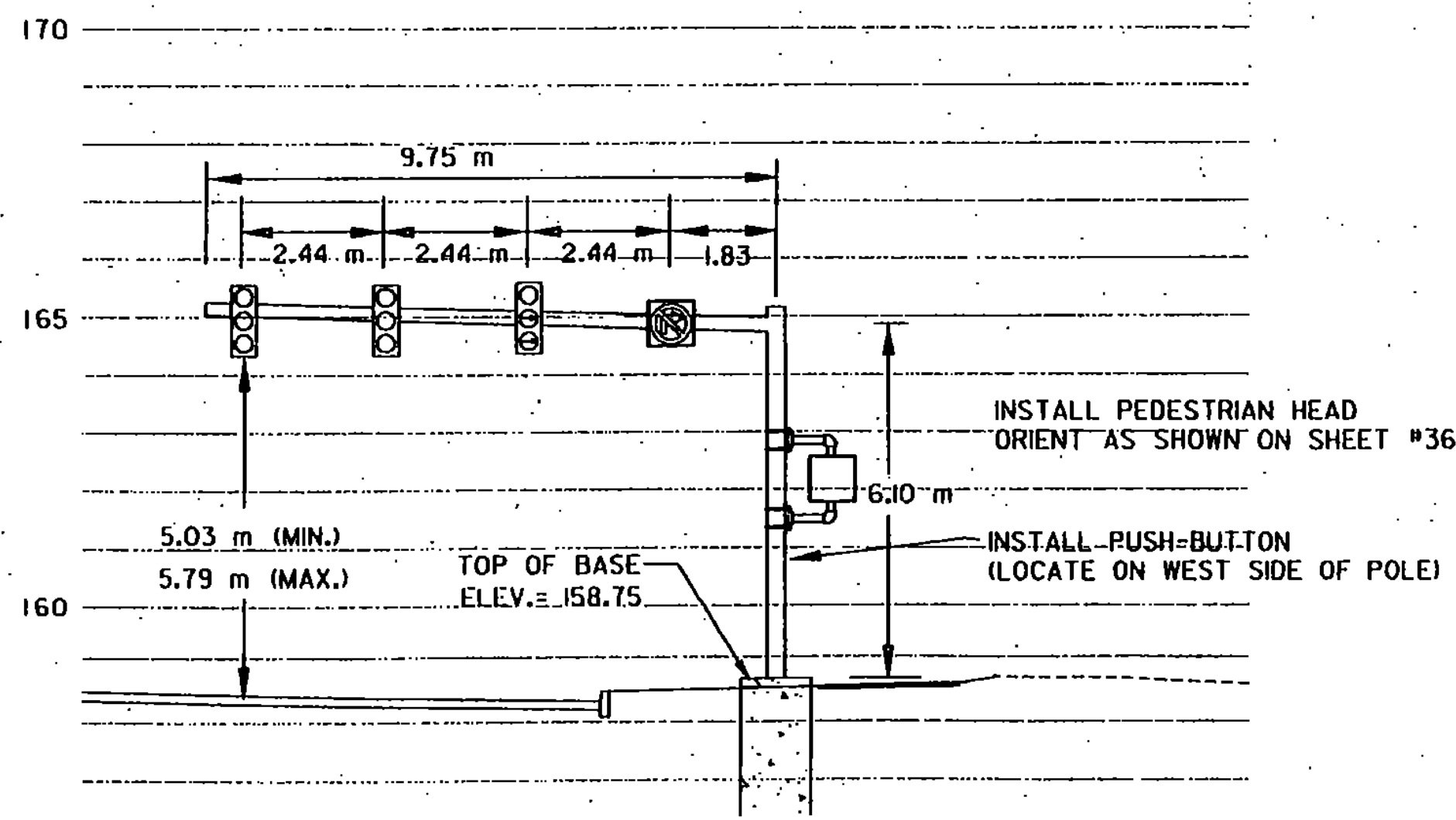


MAST ARM #1 CROSS SECTION
WESTBOUND VIEW

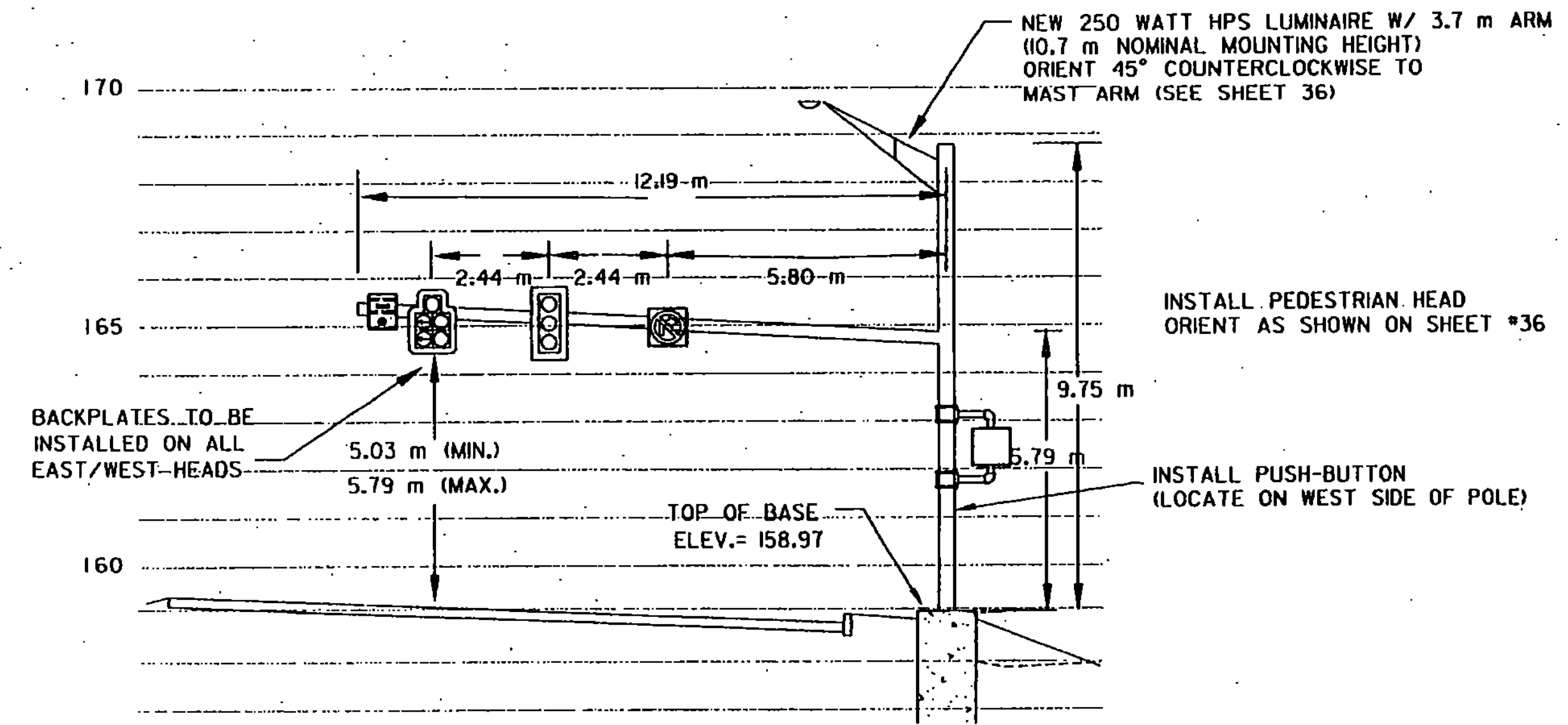


MAST ARM #2 CROSS SECTION
NORTHBOUND VIEW

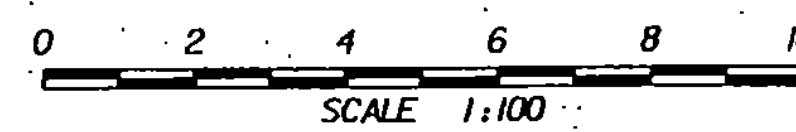
*now a "5-way
(doghouse) instead
of "3-way" (approved
by B.T. Nyquist on 11/3/04)*



MAST ARM #3 CROSS SECTION
SOUTHBOUND VIEW



MAST ARM #4 CROSS SECTION
EASTBOUND VIEW



Metric

| | |
|------------------------------------|---------------------------------------|
| MAST ARM CROSS SECTIONS | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1171S |
| | PLOT FILE NAME: zstp030-1171sfrm6.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | SHEET 37 OF 42 |

LIST OF MAJOR EQUIPMENT - ITEM 678.15 MOD. (OLD STAGE ROAD)

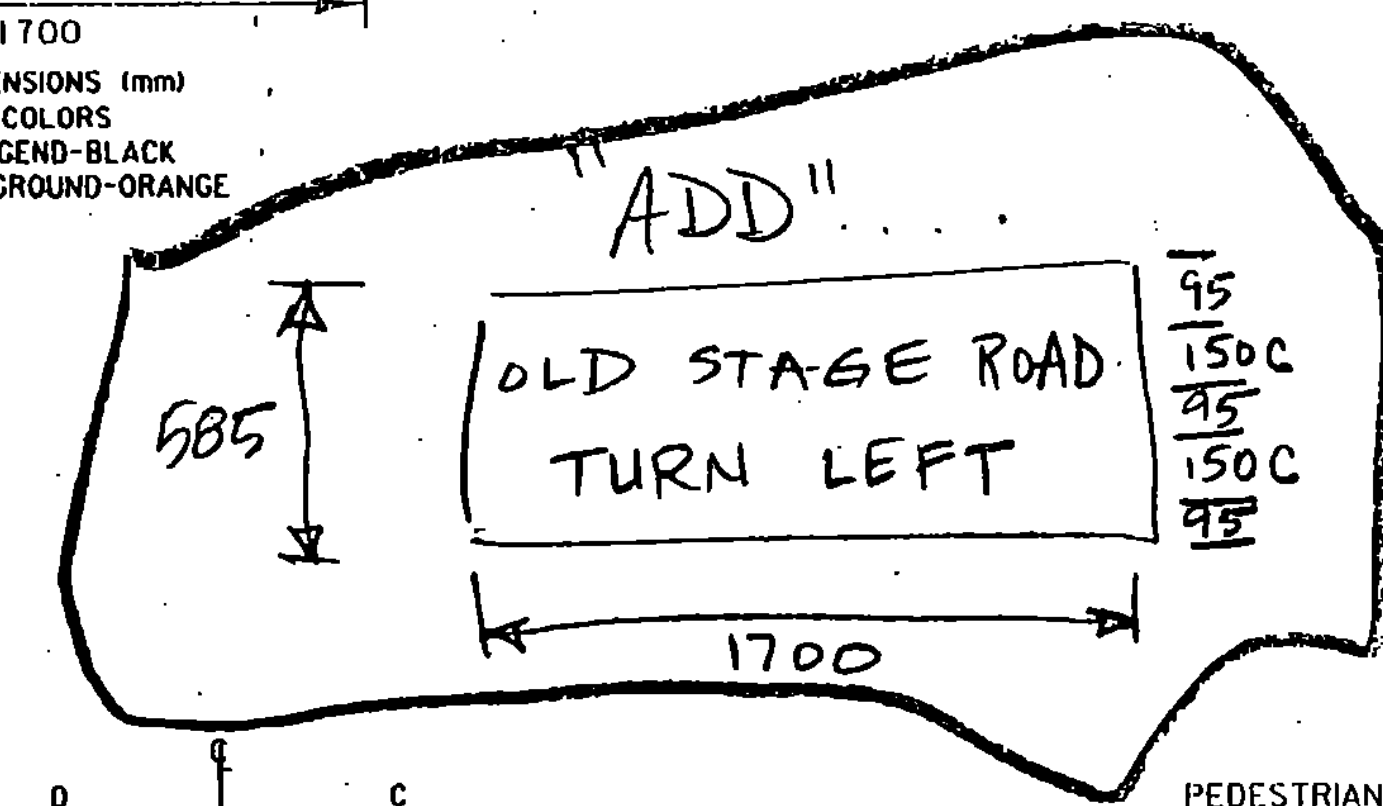
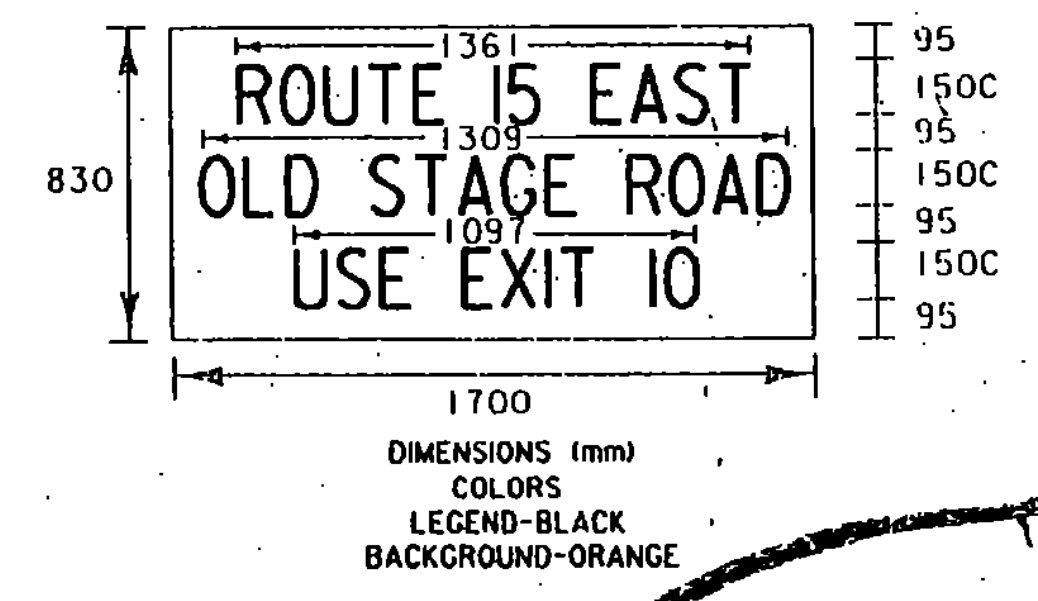
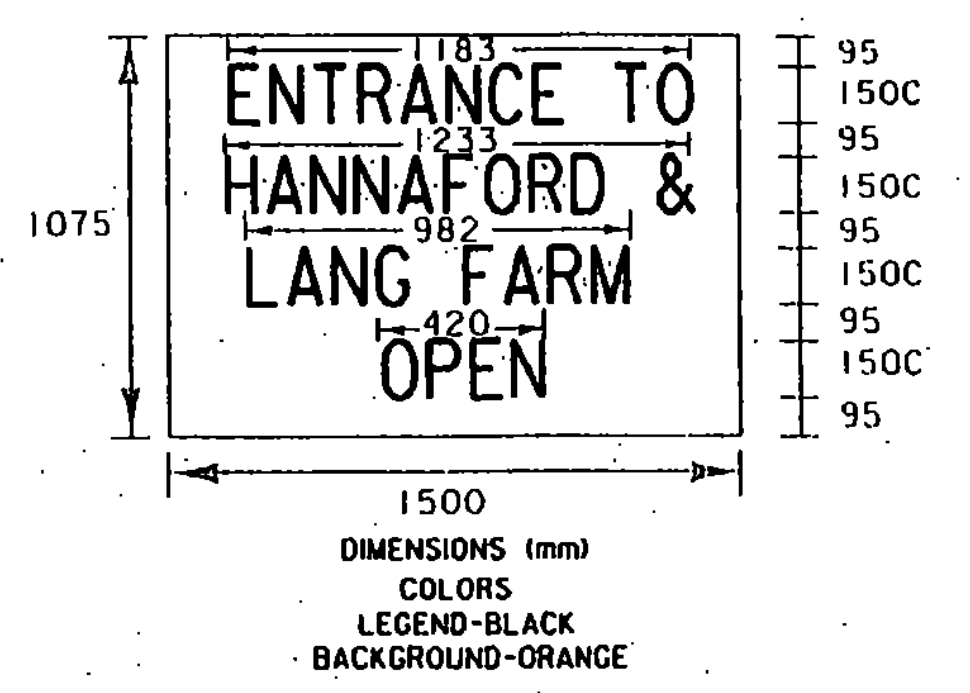
| EQUIPMENT | QUANTITY |
|---|----------|
| STEEL CANTILEVER POLE/MAST ARM ASSEMBLY | 4 |
| LED PEDESTRIAN SIGNAL HEADS | 6 |
| LUMINAIRE (3.7 m ARM) | 2 |
| GROUND MOUNTED CONTROLLER CABINET(S) (INCL. SYSTEM MASTER & LOCAL SIGNAL CONTROLLERS) | 1 |
| 300 mm POLYCARBONATE LED TRAFFIC SIGNAL HEADS WITH TUNNEL VISORS AND MOUNTING HARDWARE. BACKPLATES SHALL BE INCLUDED ON ALL EAST/WEST SIGNAL HEADS. | |
| 3-SECTION HEAD | 8 |
| 5-SECTION HEAD | 2 |
| LED NO RIGHT TURN ON RED SIGNS (600 mm x 600 mm) | 4 |
| PEDESTRIAN PUSH BUTTON ASSEMBLY | 4 |
| LEFT TURN YIELD ON GREEN SIGN | 2 |
| SPREAD SPECTRUM TELEMETRY SYSTEM: INCLUDES REMOTE WIRELESS INTERCONNECT UNIT & ANTENNA AT EACH OF THE FOLLOWING INTERSECTIONS: ROUTE 15 & SOUTHBOUND VT. 289 RAMP ROUTE 15 & NORTHBOUND VT. 289 RAMP ROUTE 15 & BILLIE BUTLER DRIVE ROUTE 15 & OLD STAGE ROAD | 1 |
| LOCAL SIGNAL CONTROLLER: ROUTE 15 & SOUTHBOUND VT. 289 RAMP ROUTE 15 & NORTHBOUND VT. 289 RAMP ROUTE 15 & BILLIE BUTLER DRIVE | 3 |
| POWER STANCHION TO INCLUDE A MANUAL TRANSFER SWITCH AND LI420R RECEPTACLE MOUNTED IN A 3R ENCLOSURE | 1 |
| REMOVE FLASHING BEACONS, STRAIN POLES & ASSOCIATED WIRING | 1 |
| POWER STANCHION | 1 |

THE QUANTITIES LISTED ABOVE ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY. MISCELLANEOUS (UNLISTED) WIRE, CABLE, HARDWARE ECT., ARE REQUIRED TO PROVIDE FOR A FUNCTIONING TRAFFIC SIGNAL SYSTEM.

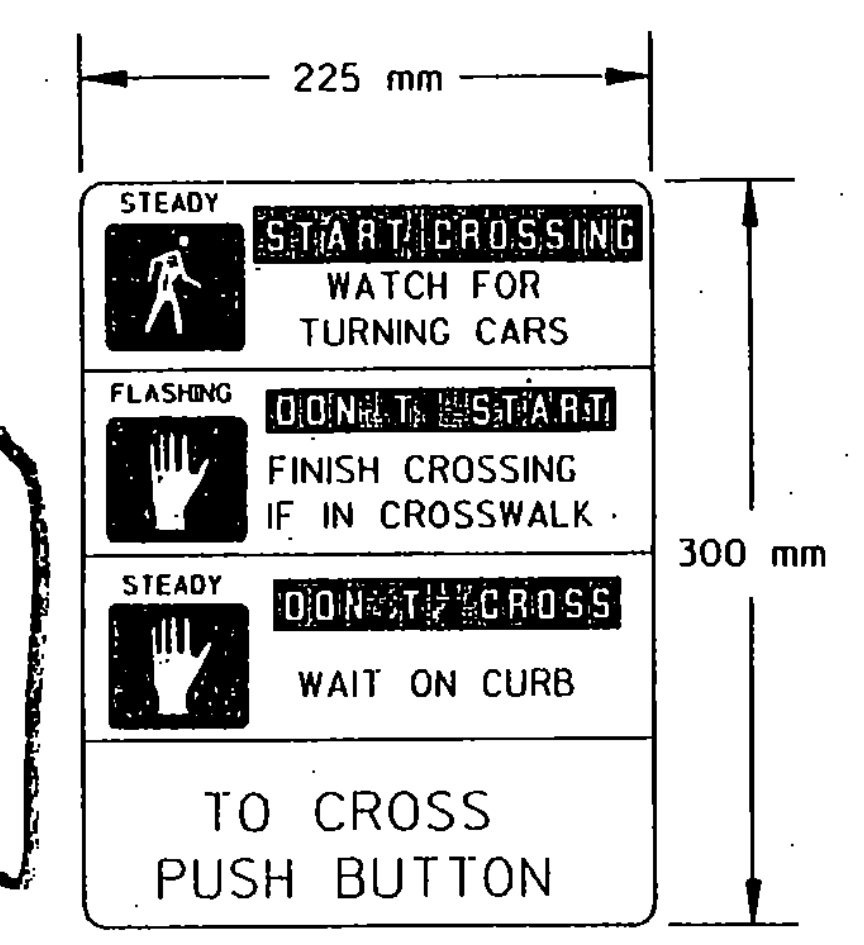
LIST OF MAJOR EQUIPMENT - ITEM 678.15 (MOD.) (ESSEX WAY)

| EQUIPMENT | QUANTITY |
|--|----------|
| POLE MOUNTED CONTROLLER CABINET (INCL. LOCAL SIGNAL CONTROLLER) | 1 |
| SPREAD SPECTRUM TELEMETRY SYSTEM (REMOTE WIRELESS INTERCONNECT UNIT & ANTENNA) | 1 |

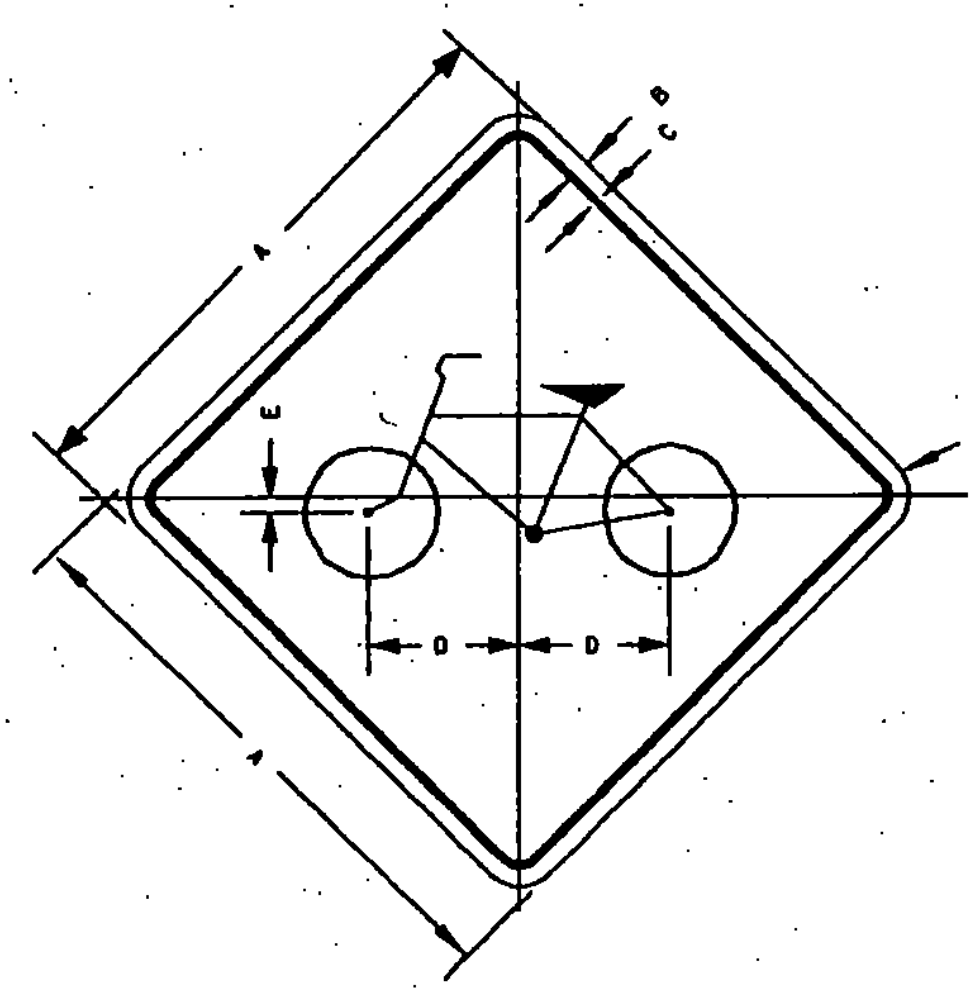
THE QUANTITIES LISTED ABOVE ARE APPROXIMATE AND ARE FURNISHED FOR INFORMATION ONLY. MISCELLANEOUS (UNLISTED) WIRE, CABLE, HARDWARE ECT., ARE REQUIRED TO PROVIDE FOR A FUNCTIONING TRAFFIC SIGNAL SYSTEM.



PEDESTRIAN INSTRUCTION SIGN DETAIL



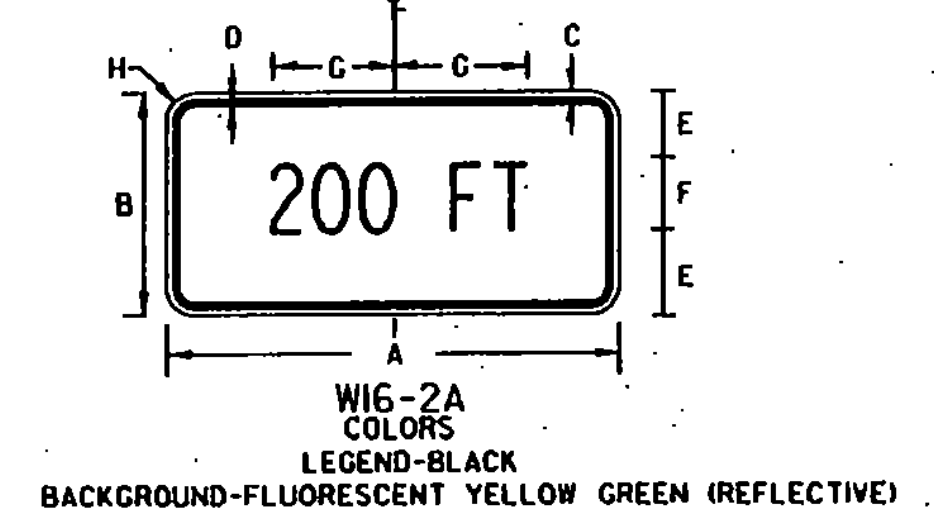
PEDESTRIAN INSTRUCTION SIGN SHOWN ABOVE TO REPLACE SIGN SHOWN ON STD. DETAIL E-170



W11-1

| DIMENSIONS (mm) | | | | | |
|-----------------|----|----|----|----|----|
| A | B | C | D | E | F |
| 750 | 13 | 20 | 22 | 25 | 50 |

COLORS
LEGEND - BLACK (NON-REFL)
BACKGROUND - FLUORESCENT YELLOW GREEN (REFL)

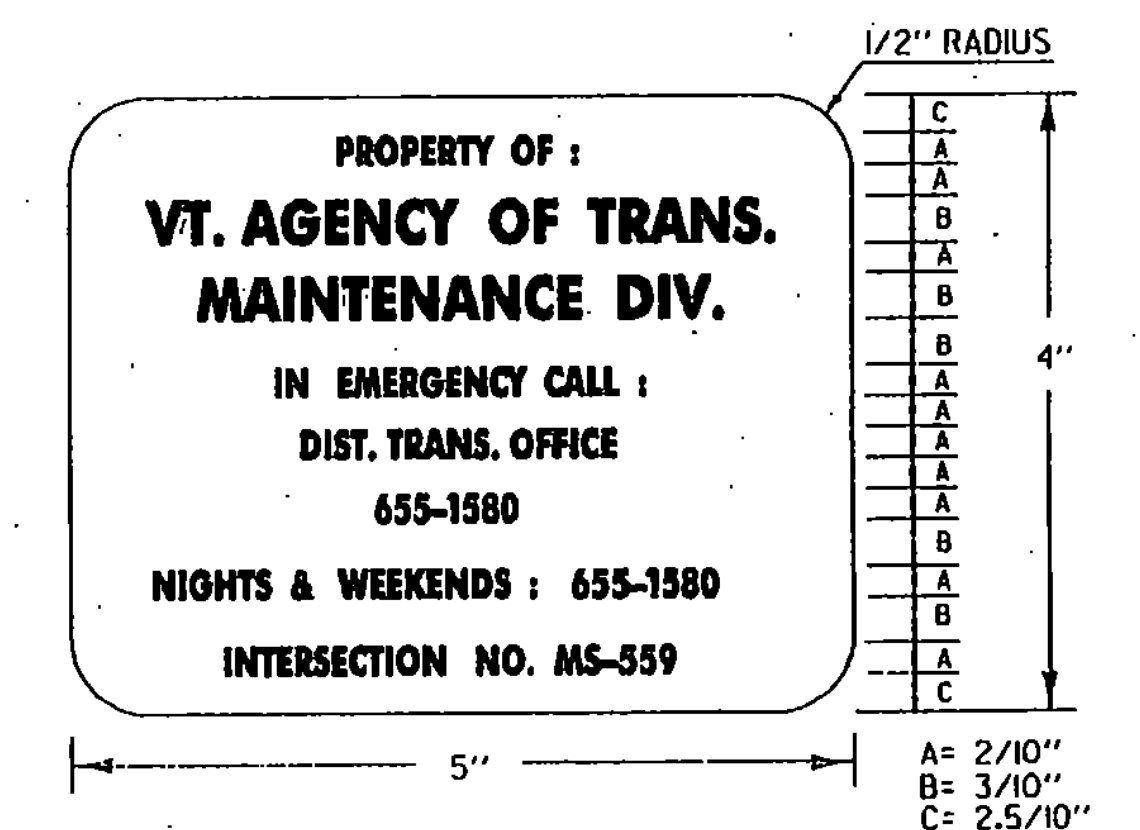


W16-2A

| DIMENSIONS (mm) | | | | | | | |
|-----------------|-----|----|----|-----|------|-----|----|
| A | B | C | D | E | F | G | H |
| 600 | 300 | 10 | 15 | 100 | 1000 | 227 | 50 |

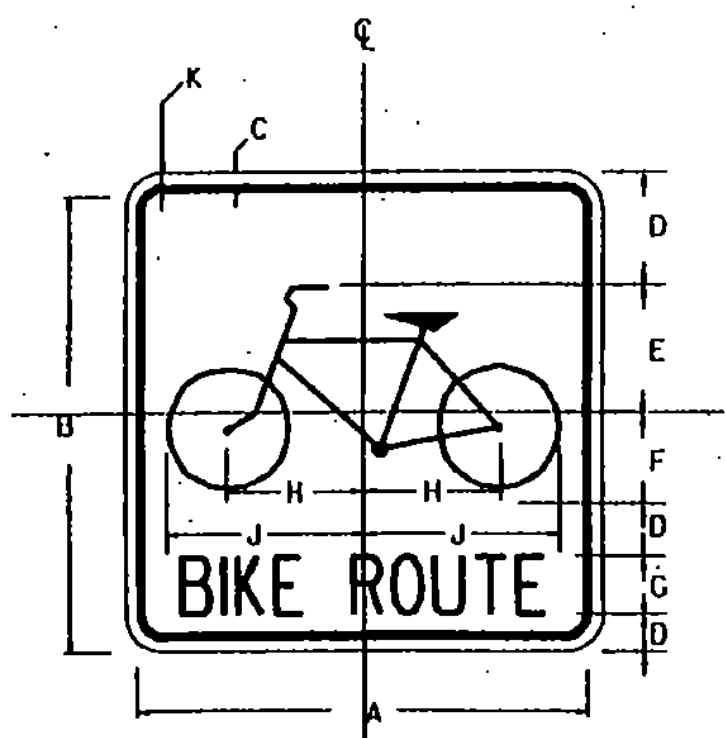
COLORS
LEGEND - BLACK
BACKGROUND - FLUORESCENT YELLOW GREEN (REFLECTIVE)

CONTROLLER IDENTIFICATION PLAQUE



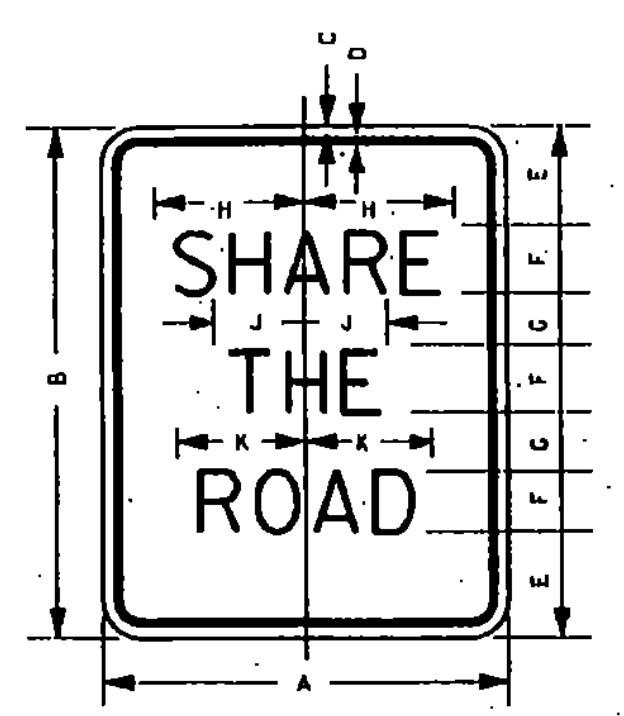
LEGEND: - BLACK (NON-REFL.) - STAMPED PRIOR TO PAINTING BACKGROUND; NATURAL ALUMINUM OR BRASS SURFACE

- NOTES:
- THE PLAQUE SHALL BE MOUNTED ON ALL TRAFFIC SIGNAL CONTROLLER CABINETS. IT SHALL BE FASTENED TO THE CONTROLLER CABINET IN SUCH A MANNER AS TO BE NOT EASILY REMOVED, SUCH AS WELDED, RIVETED OR BOLTED WITH VANDAL PROOF BOLTS.
 - THE LETTERS SHALL BE PUNCHED OR STAMPED, SUCH STAMPING SHALL PENETRATE AT LEAST 1/2 THE BASE MATERIAL THICKNESS.
 - THE BASE MATERIAL FOR THE PLAQUE SHALL BE BRASS OR ALUMINUM WITH A MINIMUM THICKNESS OF 0.100 INCHES.



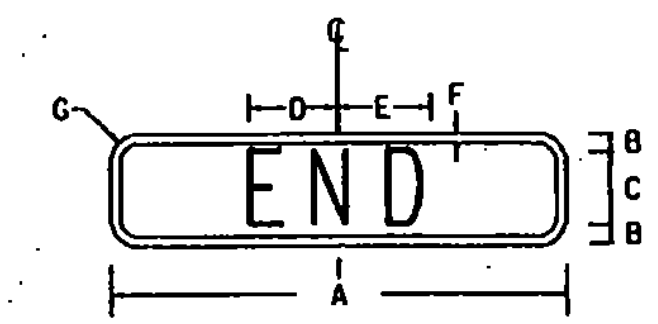
D11-1
COLORS
LEGEND - WHITE (REFL)
BACKGROUND - GREEN

| DIMENSIONS (mm) | | | | | | | | | | |
|-----------------|-----|----|----|-----|----|------|-----|-----|----|---|
| A | B | C | D | E | F | G | H | J | K | L |
| 600 | 450 | 10 | 40 | 190 | 95 | 1000 | 216 | 260 | 40 | |



W16-1
COLORS
LEGEND - BLACK (NON-REFL)
BACKGROUND - WHITE (REFL)

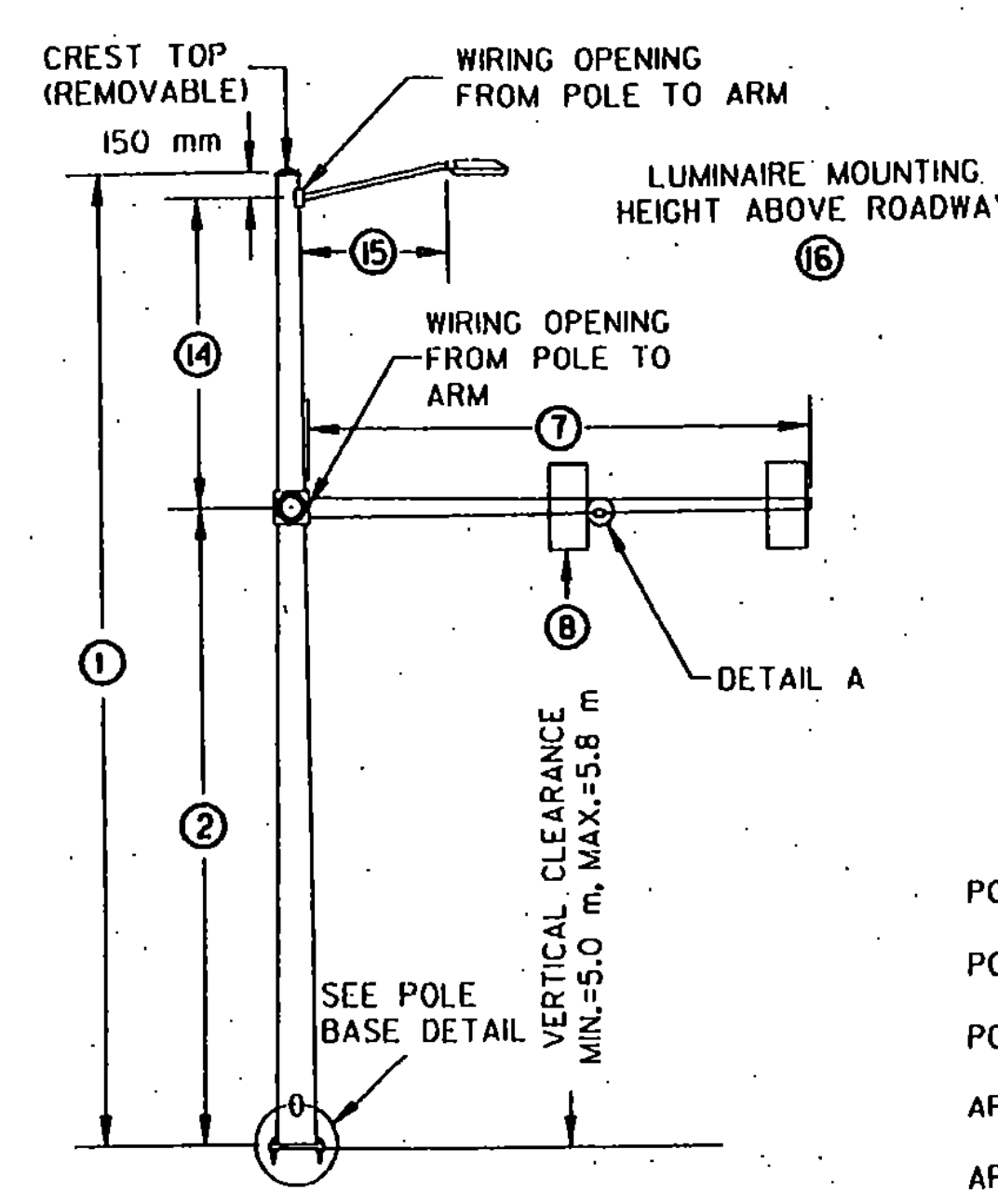
| DIMENSIONS (mm) | | | | | | | | | | | | |
|-----------------|-----|----|----|-----|---|----|----|----|-----|----|---|---|
| A | B | C | D | E | F | G | H | J | K | L | M | N |
| 600 | 750 | 10 | 15 | 108 | 5 | 83 | 28 | 23 | 175 | 38 | | |



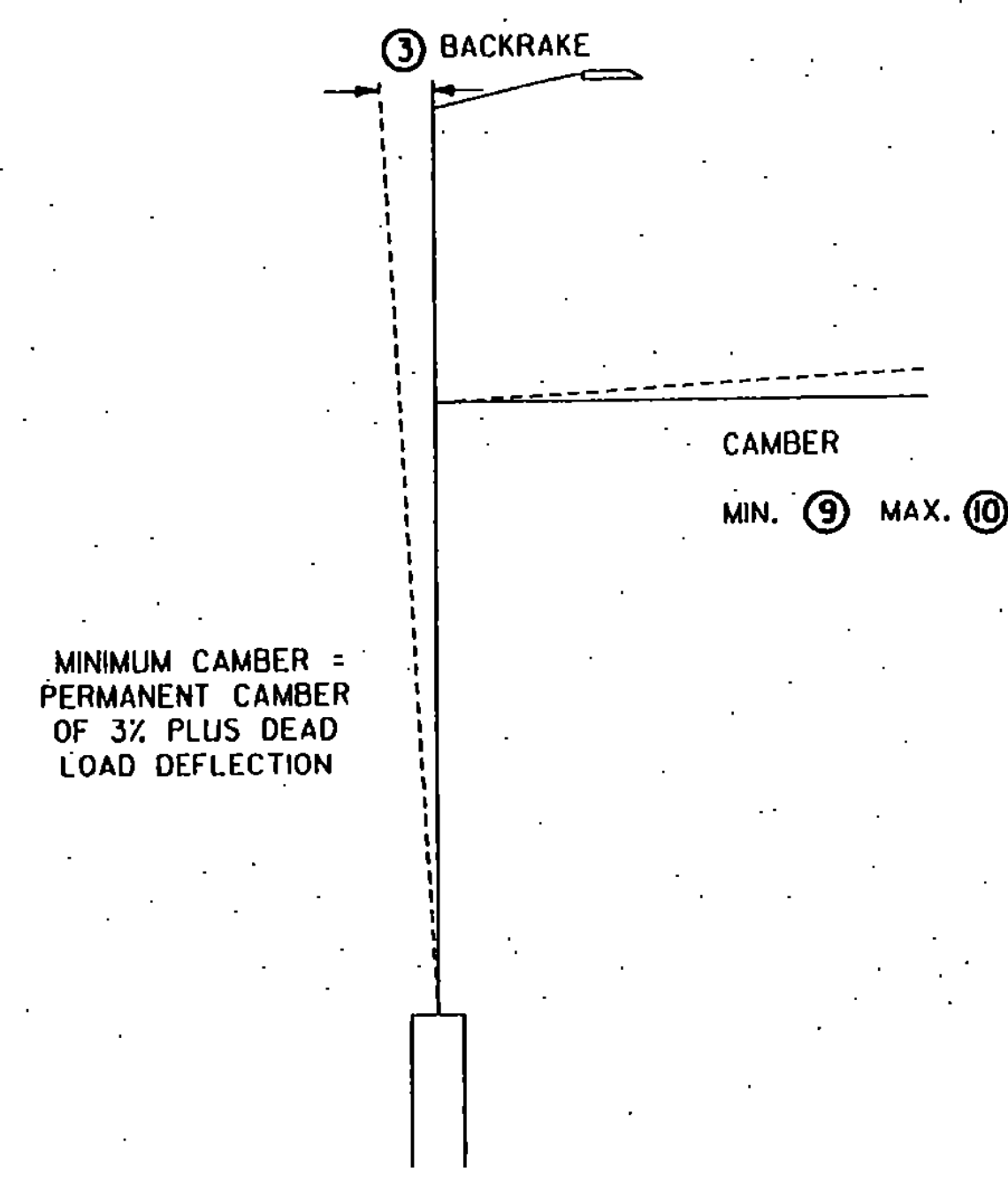
M4-12
COLORS
LEGEND - WHITE (NON-REFL)
BACKGROUND - GREEN (REFL)

| DIMENSIONS (mm) | | | | | | |
|-----------------|----|------|-----|-----|----|----|
| A | B | C | D | E | F | G |
| 300 | 25 | 1000 | 117 | 122 | 13 | 38 |

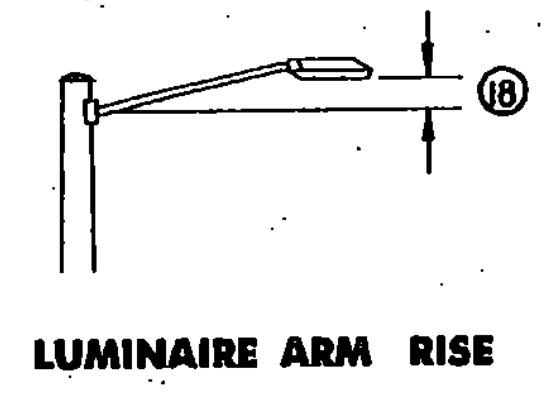
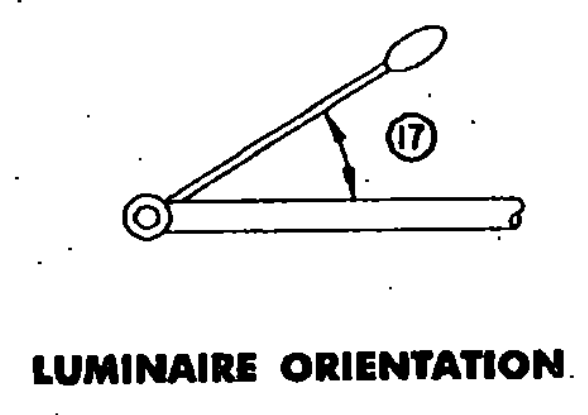
| MISCELLANEOUS DETAILS | PROJECT NAME: | ESSEX |
|-----------------------|----------------------------|-----------------|
| | PROJECT NUMBER: | STP 030-K17)S |
| PLOT FILE NAME: | zstp030-k17)sfrm6.dgn | |
| L&D PROJECT NUMBER: | 00-074 | DRAWN BY: PLC |
| DESIGNED BY: | LAMOUREUX & DICKINSON | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. | SHEET 38 OF 42 |



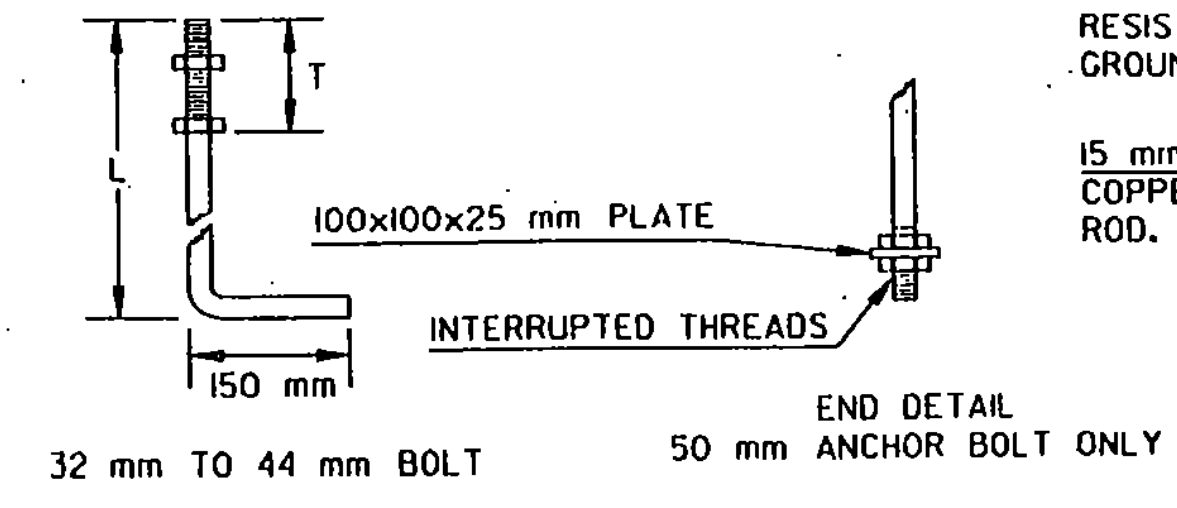
- POLE BASE DIAMETER (4)
- POLE GAUGE (5)
- POLE TAPER RATE (6)
- ARM DIAMETER (11)
- ARM GAUGE (12)
- ARM TAPER RATE (13)



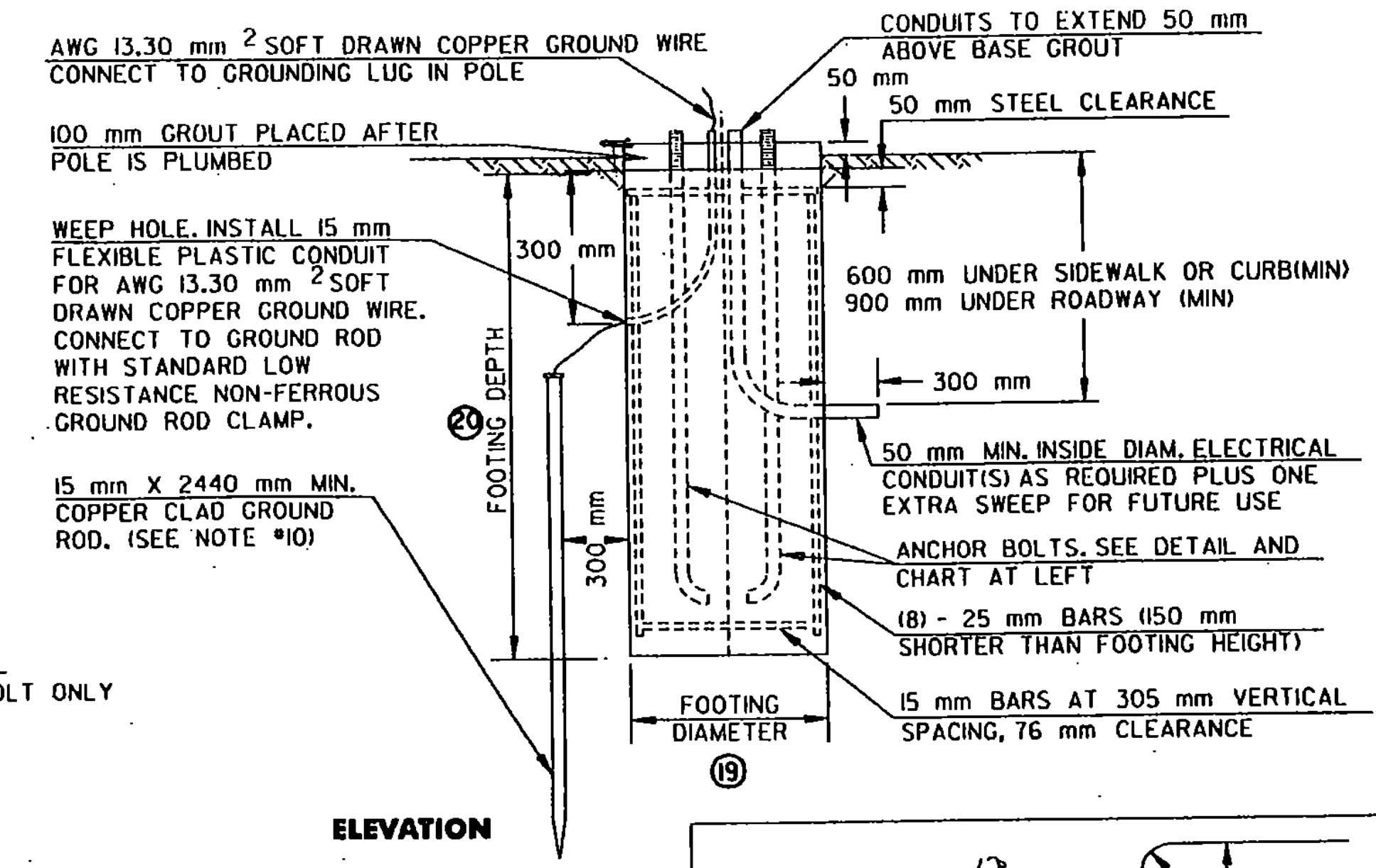
CAMBER AND BACKRAKE DATA
SEE SHEET 37 FOR CROSS SECTIONS



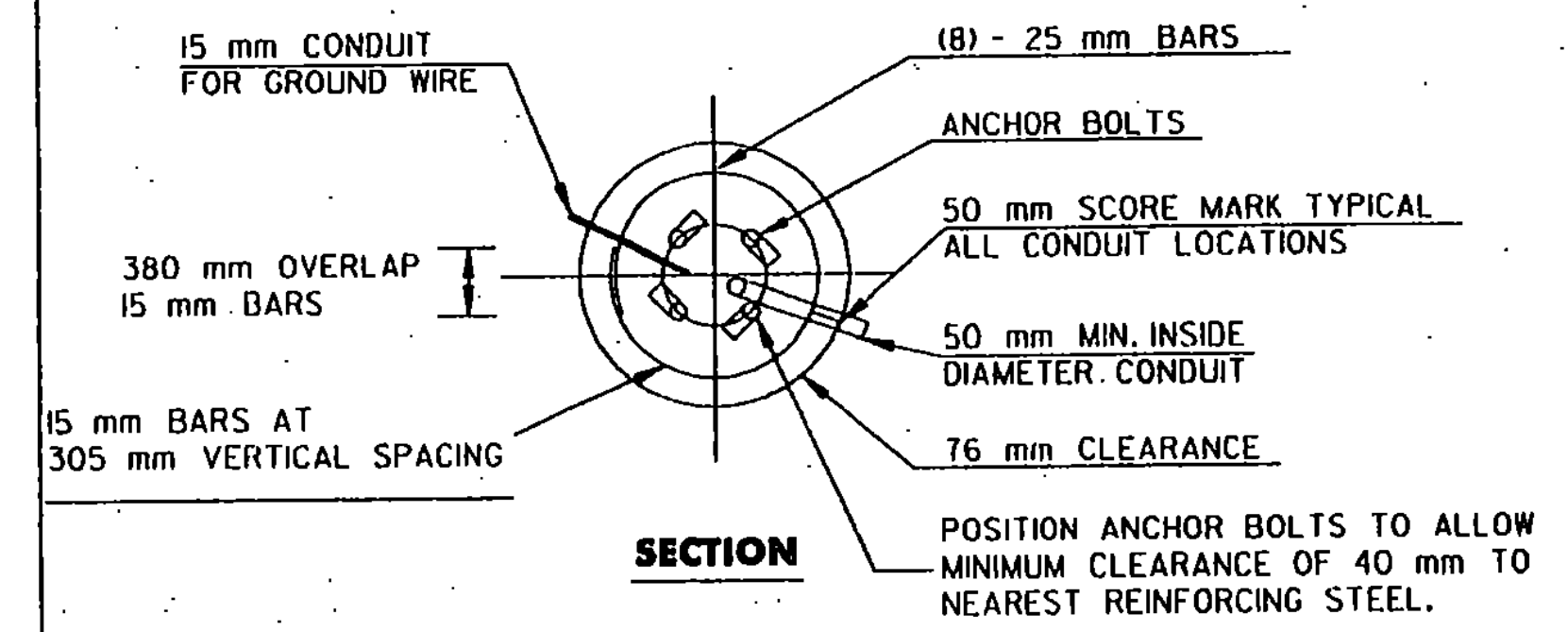
| ANCHOR BOLT DETAIL | | |
|--------------------|--------|--------|
| SIZE (mm) | L (mm) | T (mm) |
| 32 X 1219 | 1067 | 203 |
| 38 X 1524 | 1372 | 229 |
| 44 X 2286 | 2134 | 229 |
| 50 X 2438 | 2438 | 229 |



ANCHOR BOLT DETAIL

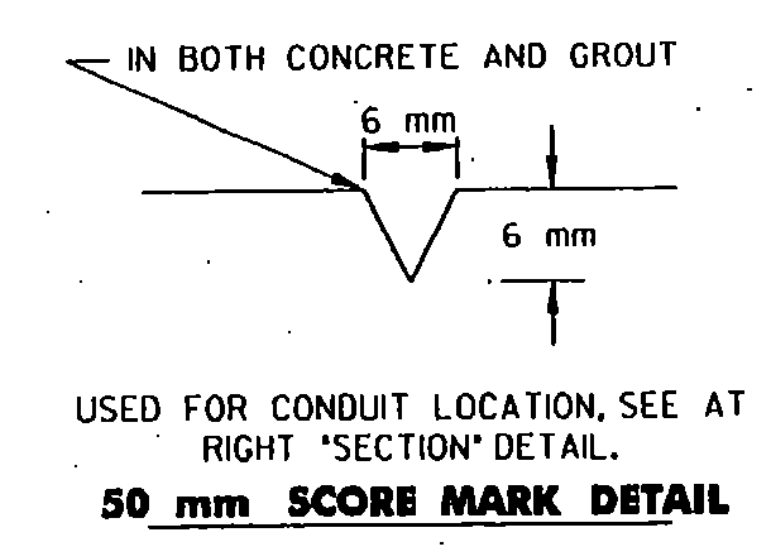


ELEVATION

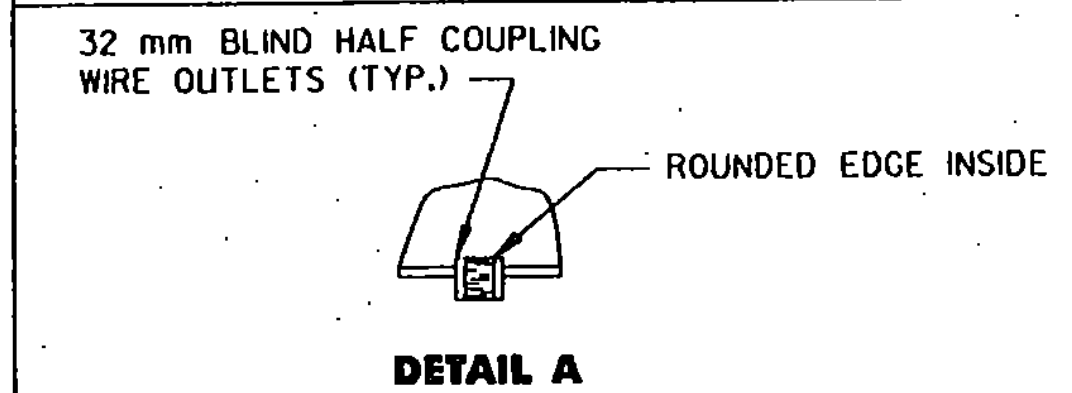


SECTION

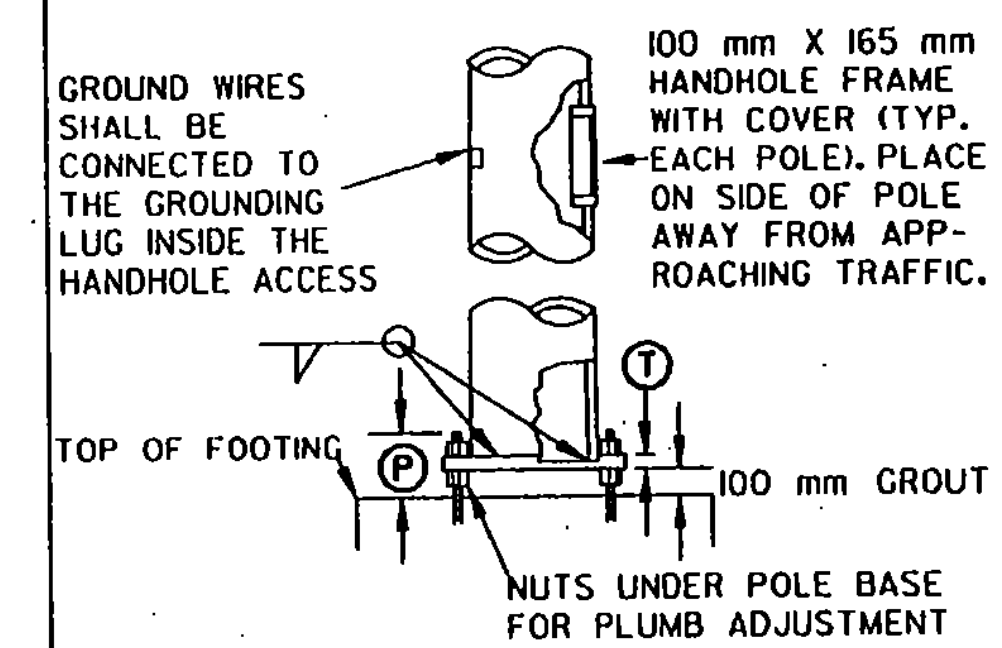
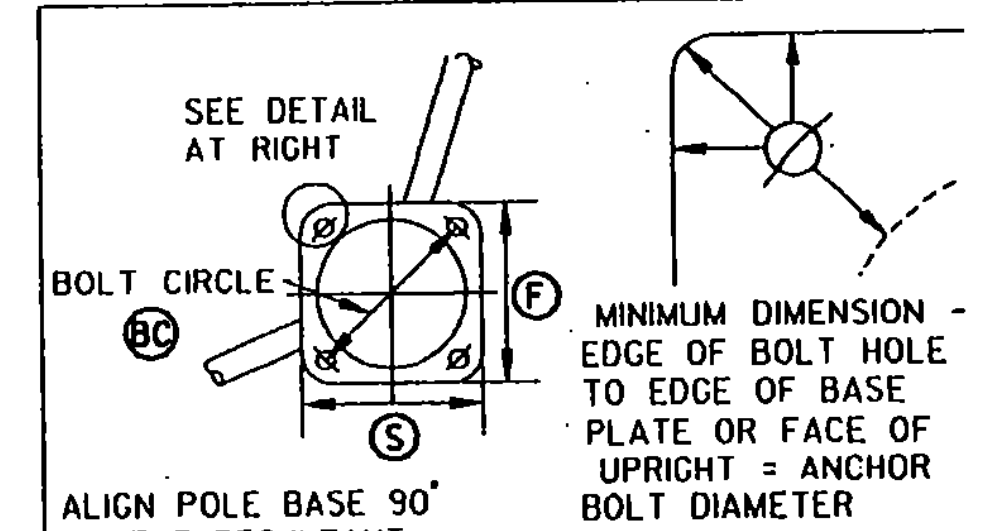
CANTILEVER FOOTING DETAIL
(SPREAD FOOTINGS OR PILES ARE OPTIONAL)



50 mm SCORE MARK DETAIL

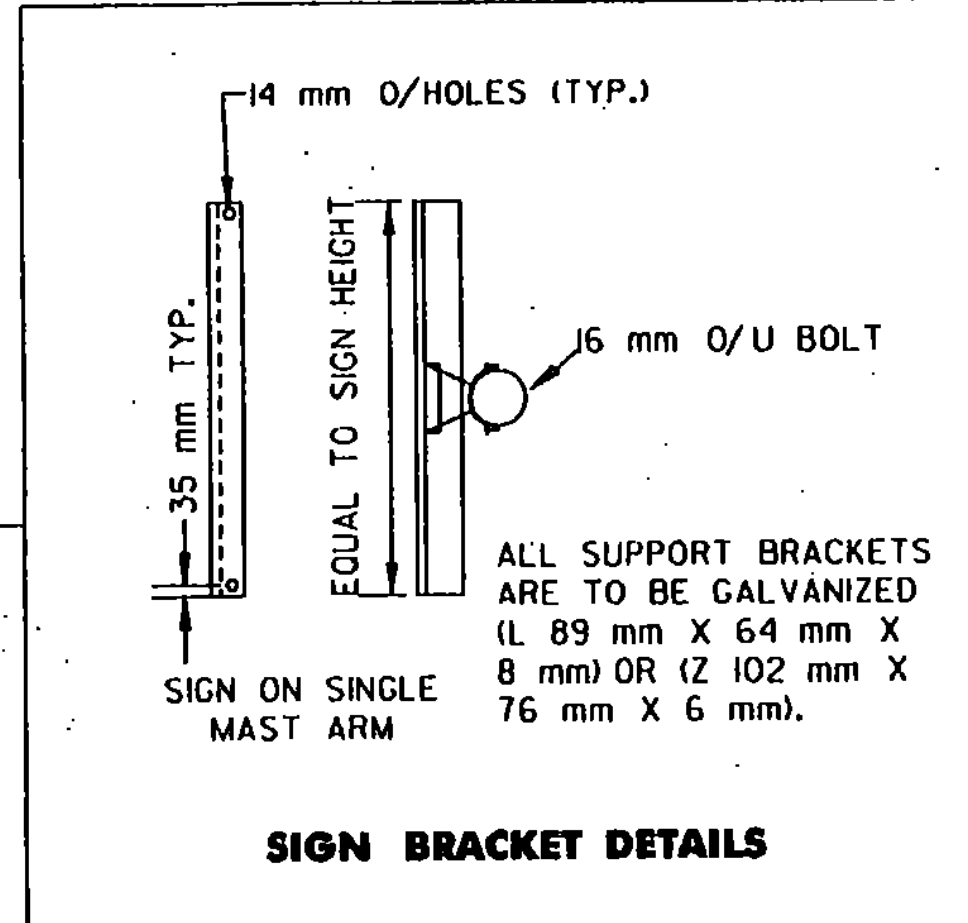


DETAIL A



POLE BASE AND BASE PLATE DETAIL

NOT TO SCALE



SIGN BRACKET DETAILS

| POLE # | POLE DATA | | | | | | ARM DATA | | | | | | LIGHTING DATA | | | | | | FOOTING DATA | | | | | | BASE PLATE/BOLT DATA | | | | | |
|--------|-----------|-----|-----|-----|-----|-----|----------|-----|-----|------|------|------|---------------|------|------|------|------|------|--------------|------|------|-----|-----|-----|----------------------|------------------|--|--|--|--|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) | (BC) | (F) | (S) | (T) | (P) | ANCHOR BOLT SIZE | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

* ALL DIMENSIONS SHALL BE IN METRIC UNITS

DIMENSIONS TO BE FILLED IN BY CONTRACTOR AS PART OF SHOP DRAWING SUBMITTAL SEE NOTES 15 & 16 ON SHEET 40.

| | |
|--|---|
| MAST ARM DESIGN CANTILEVER FOOTING | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)srfr6.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| | DESIGNED BY: LAMOUREUX & DICKINSON |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 39 OF 42 |



CANTILEVER SIGNAL SUPPORT NOTES



- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S 'STANDARD SPECIFICATIONS FOR CONSTRUCTION', DATED 2001.
- OVERHEAD SIGN/SIGNAL SUPPORTS SHALL CONFORM TO AASHTO'S PUBLICATION ENTITLED 'STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS', DATED 1994 OR ITS LATEST REVISIONS.
- ADDITIONAL DESIGN CRITERIA ARE AS FOLLOWS:
CONCRETE $f_c = 9.65 \text{ MPa}$ (1,400 PSI) $f'_c = 24.13 \text{ MPa}$ (3,500 PSI)
REINFORCING $f_s = 160 \text{ MPa}$, METRIC GRADE 400 (24,000 PSI, GRADE 60)
FOOTING SOIL PRESSURE = 0.14 MPa (3000 PSF) MAXIMUM
WIND LOAD AND ICE LOAD PER AASHTO 'STANDARD SPECIFICATIONS'
- ANCHOR BOLTS
FOUR STAINLESS STEEL ANCHOR BOLTS WITH TWO HEXAGON NUTS, TWO WASHERS AND ONE LOCK WASHER PER BOLT SHALL BE FURNISHED WITH EACH POLE. SEE SUB-SECTION 714.09.
- FLANGE BOLTS
ALL FLANGE BOLTS AND HEX NUTS SHALL BE HIGH STRENGTH TYPE 1, GALVANIZED STEEL AND SHALL CONFORM TO AASHTO M164. THE FLANGE BOLTS SHALL BE CAPABLE OF RESISTING 133% OF THE FULL DESIGN STRESS OF THE TUBE AT ITS YIELD STRENGTH STRESS.
- HORIZONTAL AND VERTICAL MEMBERS
STEEL TUBES SHALL BE FORMED AND WELDED WITH ONE CONTINUOUS LONGITUDINAL WELD ONLY. AFTER FORMING AND WELDING THEY SHALL BE COLD ROLLED TO ENSURE UNIFORMITY OF SIZE AND SMOOTHNESS OF WELD. THEY SHALL HAVE A MINIMUM YIELD STRENGTH OF 330 MPa. THERE SHALL BE NO TRANSVERSE WELDING EXCEPT AT THE FLANGE CONNECTIONS AND POLE BASE PLATES, WHERE THE TUBES SHALL TELESCOPE THE FLANGES AND PLATES AND BE CONTINUOUSLY WELDED BOTH SIDES INSIDE AND OUT TO WITHSTAND THE FULL TRANSFER OF THE BENDING STRENGTH TO THE BOLTS. OPTIONALLY, THE MEMBERS MAY BE A SERIES OF TWO OR THREE DIFFERENT DIAMETER PIPES WELDED TOGETHER.
- GALVANIZING
ALL STEEL COMPONENTS, EXCEPT CONCRETE REINFORCING AND STAINLESS STEEL HARDWARE, ARE TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. THE ASSEMBLIES SHALL BE DESIGNED AND FABRICATED TO PERMIT GALVANIZING ON ALL INTERIOR AND EXTERIOR SURFACES AND SHALL BE FREE OF POCKETS AND OTHER STRUCTURAL OBSTRUCTIONS THAT WILL NOT PERMIT PROPER DEPOSITION OF ZINC COATING. GALVANIZING SHALL BE IN ACCORDANCE WITH AASHTO M111 AND M232M/ M232.
- WELDING
A. ALL DESIGN DETAILS, WORKMANSHIP, PROCEDURES AND INSPECTION SHALL CONFORM WITH SUB-SECTION 506.10.
B. ALL WELDS SHALL BE AT LEAST AS STRONG AS THE MATERIAL(S) BEING WELDED.
- FOOTINGS
A. FOOTINGS SHALL BE DESIGNED TO RESIST LOADS EQUAL TO, OR GREATER THAN, THE MAXIMUM LOADS THAT THE POLE IS DESIGNED FOR.
B. THREE TYPES OF FOUNDATIONS, AS OUTLINED IN AASHTO 'STANDARD SPECIFICATIONS' (SEE NOTE 2) SECTION 1.8.2 (C) SHALL BE ALLOWED
 - DRILLED SHAFTS
 - SPREAD FOOTINGS
 - PILES

C. DRILLED SHAFT FOOTINGS SHALL BE POURED IN DRILLED SHAFTS AGAINST UNDISTURBED MATERIAL. THE TOP 0.6 m (2 FEET) OF SOIL SHALL BE NEGLECTED FOR DESIGN PURPOSES. THE MAXIMUM FOOTING DIAMETER SHALL BE 1.1 m (3.5 FEET) AND THE MAXIMUM DEPTH SHALL BE 3.7 m (12 FEET). IF THESE LIMITS ARE EXCEEDED OR IF THE SOIL IS NOT CAPABLE OF A BEARING PRESSURE OF 0.14 MPa (3,000 PSF), A SPREAD FOOTING SHALL BE USED.

D. AS AN ALTERNATIVE TO THE DRILLED HOLES, FOOTINGS MAY BE POURED IN EXCAVATED HOLES USING THE PROPER FORMS, WHICH MUST BE REMOVED. THE EXCAVATED HOLES SHALL BE AT LEAST TWO FEET CLEAR OF THE FOOTING. THE BACKFILL MATERIAL SHALL BE COMPACTED AS DESCRIBED IN SUB-SECTION 204.12. DESIGN LIMITS AS FOR AUCURED FOOTINGS APPLY.

E. WHEN THE DESIGN DEPTH OF A FOOTING CANNOT BE OBTAINED DUE TO UNFORSEEN FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OBTAIN A REVISED FOOTING DETAIL FROM THE ENGINEER.

F. ANY BACKFILL PLACED ADJACENT TO THE FOOTING SHALL BE GRANULAR MATERIAL MEETING THE REQUIREMENTS FOR GRANULAR BACKFILL FOR STRUCTURES, SUB-SECTION 704.08. CONCRETE FOR FOOTING SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE, CLASS B, SECTION 501, STRUCTURAL CONCRETE. GROUT MATERIAL SHALL BE NON-SHRINKING MORTAR CONFORMING TO SUB-SECTION 707.03 (MORTAR TYPE IV).

G. THE TRAFFIC SIGNAL CANTILEVER MAST ARM POLES SHALL BE BACK RAKED BEFORE THE WIRES AND SIGNALS ARE INSTALLED SO THAT THE POLES WILL BE PLUMB WHEN DEAD LOAD DEFLECTION DUE TO SIGNAL HEADS OCCURS. THE AMOUNT OF BACKRAKE SHALL BE AS SHOWN ON THE PLANS. SIGNALS/SIGNS SHALL BE MOUNTED AND LEVELLED AND POLES SHALL BE BACKRAKED PRIOR TO PLACING GROUT UNDER POLE BASE.

- SHOP DRAWINGS (6 COPIES OF EACH) SHALL BE SUBMITTED TO THE AOT & DESIGN ENGINEER FOR APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION:
 - DETAILED DRAWING OF EACH COMPONENT OF THE STRUCTURE
 - MATERIAL SPECIFICATIONS FOR EACH COMPONENT OF THE STRUCTURE, EITHER BY COMPLETE SPECIFICATION OR REFERENCE TO APPLICABLE ASTM STANDARDS.
 - NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER, AND STRUCTURE STATIONING (TO BE INCLUDED ON EACH SHEET).
 - DETAILS FOR LOCATION OF SIGNS/SIGNALS AND ATTACHMENT HARDWARE FOR THE SUPPORT STRUCTURE.
 - ALL ELEVATION AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS.
 - DEAD LOAD DEFLECTION AND CAMBER INFORMATION.
 - WELDING DETAILS AND PROCEDURES ARE REQUIRED FOR ALL WELDS. PROCEDURES SHALL BE SUBMITTED FOR APPROVAL WITH REFERENCE TO EACH WELD IDENTIFIED ON THE SHOP DRAWINGS. (SEE SUBSECTION 506.10)
- EACH OVERHEAD TRAFFIC SIGNAL/SIGN SUPPORT SHALL BE GROUNDED. THE GROUND SHALL CONSIST OF:
 - AN INTERNAL GROUND LUG OPPOSITE THE HAND HOLE.
 - A #6 (MIN.) SOFT DRAWN COPPER GROUNDING ELECTRODE CONDUCTOR.
 - A 16 mm x 2440 mm (5/8" X 8') (MIN.) COPPER CLAD GROUNDING ELECTRODE.

THE RESISTANCE TO GROUND SHALL BE 25 OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES MAY BE REQUIRED (MINIMUM SPACING SHALL BE 1.8 m (6 FEET). WHEN A POWER SERVICE, METER AND DISCONNECT ARE ATTACHED TO A POLE, THERE SHALL BE A CONTINUOUS GROUND WIRE FROM THE METER AND DISCONNECT WHICH MAY RUN INTERNAL TO THE UPRIGHT, THROUGH THE 15 mm (1/2") FLEXIBLE TUBING IN THE CONCRETE BASE TO THE REQUIRED GROUNDING ELECTRODE(S). THE GROUND WIRE FROM THE POLE GROUNDING LUG, CONTROLLER CABINET AND/OR LUMINAIRE MAY ATTACH TO THIS CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT. THE CONTRACTOR SHALL PERFORM A RESISTANCE TO GROUND TEST ON THE CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE SERVICE METER AND DISCONNECT AND PROVIDE A WRITTEN STATEMENT TO THE AREA ELECTRICAL INSPECTOR THAT THE GROUNDING ELECTRODE CONDUCTOR IS CONTINUOUS FROM THE SERVICE METER AND DISCONNECT AND THE RESISTANCE TO GROUND IS 25 OHMS OR LESS.
- THE COST OF SIGNAL/SIGN SUPPORTS, INCLUDING ALL HARDWARE, SIGN BRACKETS, FOOTING AND LUMINAIRE ARMS SHALL BE INCLUDED IN THE BID PRICE. THESE COMPONENTS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTIONS 677, 678, AND 679.
- HORIZONTAL MEMBERS SHALL BE CAMBERED AND THE VERTICAL POLES BACK RAKED (WHERE APPLICABLE) TO THE ANTICIPATED DEAD LOAD DEFLECTION PLUS THE CAMBER, IF ANY, SPECIFIED ON THE PLANS.
- AN EQUIVALENT ALTERNATE DESIGN MAY BE SUBSTITUTED FOR THE DETAILS AND MATERIALS SHOWN.
- THE DETAILS OF DESIGN FOR THE STRUCTURE AND FOOTINGS ARE TO BE SUPPLIED BY THE CONTRACTOR AND/OR BY THE MANUFACTURER. THE STRUCTURE SHALL BE DESIGNED TO RESIST THE MAXIMUM LOADING AS OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2). ALL DETAILS OF THE STRUCTURE AND THE FOOTING SHALL BE CHECKED AND STAMPED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF VERMONT PRIOR TO SUBMITTAL OF THE SHOP DRAWINGS TO THE ENGINEER.
- IN ADDITION TO THE SHOP DRAWINGS OUTLINED IN NOTE 10, THE CONTRACTOR SHALL SUBMIT ALL DESIGN CALCULATIONS TO THE TOWN, SHOWING THE FOLLOWING INFORMATION FOR EACH OF THE VERTICAL AND HORIZONTAL COMPONENTS OF THE STRUCTURE AND FOOTING:
 - THE DESIGN AXIAL AND SHEAR FORCES AND BENDING AND TORSIONAL MOMENTS.
 - THE DESIGN AXIAL, BENDING AND SHEAR STRESSES AND THE COMBINED STRESS RATIO.
 - VIBRATION AND FATIGUE CALCULATIONS AS SET FORTH IN SECTION 9 OF THE AASHTO PUBLICATION REFERENCED IN NOTE 2.
 - THE ALLOWABLE AXIAL, BENDING, AND SHEAR STRESSES.
 - ITEMS A,B,D - SHALL BE SHOWN FOR EACH OF THE GROUP LOADINGS (I, II, III) AND FOR THE BASIC WIND LOAD APPLIED TO THE TWO CASES OUTLINED IN THE AASHTO STANDARD SPECIFICATIONS (SEE NOTE 2) SECTION 1.2.5 (D) (4).
 - FAILURE TO SUPPLY THE PROPER DESIGN INFORMATION SHALL BE CAUSE FOR REJECTION OF THE STRUCTURE.
 - A MINIMUM OF TWO (2) WEEKS SHALL BE REQUIRED FOR REVIEW BY THE ENGINEER AND TOWN.
- THE CONTRACTOR/MANUFACTURER SHALL BE RESPONSIBLE FOR COMPLETION OF THE STRUCTURE AND FOOTING DATA ON THE DETAIL SHEET(S).
- FOR INSTALLATIONS WHERE BOTH 'EXISTING' AND 'FUTURE' CONDITIONS ARE SHOWN, THE SUPPORTS SHALL BE DESIGNED FOR THE MORE SEVERE OF THE TWO LOADING CONDITIONS. THE INFORMATION OUTLINED IN NOTE 16 ABOVE SHALL BE PROVIDED FOR BOTH THE LOADING CONDITIONS.
- THE TRAFFIC SIGNALS SHALL BE MOUNTED TO THE ARM OR POLE USING A FIXED MOUNT SYSTEM AS SHOWN ON STANDARD DETAIL E-1101C.

- BASE PLATES SHALL BE STAMPED WITH THE VERTICAL POLE DIAMETER, HEIGHT, YIELD STRENGTH, GAUGE AND THE HORIZONTAL MEMBER DIAMETER, LENGTH, YIELD STRENGTH, GAUGE. ALTERNATELY, THE INFORMATION MAY BE STAMPED ON A METAL TAG RIVETED TO THE POLE NEAR THE HANDHOLE.
- SEE SHEET 36 FOR CANTILEVER (MAST ARM) POLE LOCATIONS

SIGNAL EQUIPMENT & INSTALLATION SPECIFICATIONS

- ALL NEW EQUIP. SHALL MEET OR EXCEED VAOT STANDARD SPECIFICATIONS, DATED 2001, NEMA STANDARDS AND IMA OR ITE SPECIFICATIONS, WHERE APPLICABLE. INSTALLATION OF SIGNAL EQUIPMENT SHALL BE AS DETAILED ON THESE PLANS AND THE VAOT STANDARD DETAILS REFERENCED ON SHEET 1 AND IN THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL SUBMIT, FOR APPROVAL, SHOP DRAWINGS FOR EACH NEW TRAFFIC SIGNAL EQUIPMENT ITEM. SHOP DRAWING SUBMITTALS SHALL CONFORM TO VAOT STD. SPECS.
- ALL POLE MOUNTED AND MAST ARM MOUNTED SIGNAL HEADS SHALL HAVE POLYCARBONATE SECTIONS AND LENSES. THE SIGNAL HEADS SHALL HAVE FLAT BLACK HOUSINGS AND VISORS. BLACK LOUVERED BACKPLATES SHALL BE INSTALLED ON ALL EAST/WEST HEADS UNLESS OTHERWISE NOTED. ALL SIGNAL HEADS SHALL HAVE RED, YELLOW AND GREEN LED SIGNALS WITH A VISIBLE BEAM SPREAD OF 80 DEGREES OFF AXIS.
- ALL MAST ARM AND PEDESTAL POLES SHALL BE PAINTED FLAT BLACK.
- MINIMUM CONDUIT SIZES SHALL BE:
 - 50 mm (2") FOR POWER SERVICE
 - 50 mm (2") FOR SIGNAL WIRING
 - 50 mm (2") FOR STREET LIGHTING
 - 50 mm (2") FOR LOOP LEAD-INS
- LUMINAIRE SHALL BE GENERAL ELECTRIC M-250A2 250 WATT HPS LUMINAIRE WITH MC-2 CUTOFF OPTICS, PHOTOMETRIC CURVE NUMBER 35-177303, OR EQUAL.
- PEDESTRIAN SIGNALS SHALL BE EQUIPPED WITH 'BIRD CALL' TYPE AUDIBLE SIGNALS. PEDESTRIAN INSTRUCTION SIGNS SHALL BE INCLUDED AT ALL PEDESTRIAN PUSH BUTTON LOCATIONS (SEE DETAIL ON SHEET 38). PEDESTRIAN HEADS SHALL HAVE BLACK HOUSINGS AND LED SYMBOL (HAND/MAN) TYPE FACES.

LOOP NOTES:

- EACH LOOP SHALL HAVE ITS OWN AMPLIFIER.
- ALL LOOPS AND LEAD IN WIRING SHALL BE #12 AWG.

CONTROLLER/CABINET NOTES:

- THE TRAFFIC SIGNAL CONTROLLERS AND RELATED EQUIPMENT SHALL BE MANUFACTURED BY ECONOLITE CONTROL PRODUCTS, INC., ANAHEIM, CA.. THE SYSTEM MASTER CONTROLLER AT ROUTE 15/OLD STAGE ROAD SHALL BE AN ASC/2M-1000 IN CABINET P44 WITH BASE EXTENSION INSTALLED AT THE LOCATION SHOWN ON SHEET 36. LOCAL CONTROLLERS SHALL BE ASC/2S-2100 (TS-2, TYPE 2). THE CABINETS SHALL HAVE A FLAT BLACK FINISH. A TELEPHONE MODEM, TELEPHONE DROP AND CONNECTING CABLE(S) BETWEEN THE MODEM AND MASTER CONTROLLER SHALL BE INSTALLED SO AS TO PROVIDE FULLY OPERATIONAL DIAL-UP CAPABILITY PRIOR TO THE START OF THE 30 DAY TEST PERIOD.
- FOR COORDINATION PURPOSES THE ROUTE 15/OLD STAGE INTERSECTION SHALL BE THE SYSTEM MASTER (ZERO OFFSET).
- THE DWELL PHASE (PHASE 2/6) SHALL BE USED FOR THE START-UP PHASE FOLLOWING FLASHING OPERATION.
- SIGNAL TIMINGS SHOWN ON THESE PLANS MAY REQUIRE FINE-TUNING IN THE FIELD BASED ON TRAFFIC OBSERVATIONS. FINAL ACCEPTANCE OF THIS PROJECT WILL BE SUBJECT TO A 30-DAY TEST PERIOD, DURING WHICH ALL TIMING/PROGRAMMING CHANGES SHALL BE MADE, FOLLOWED BY A 1-YEAR WARRANTY PERIOD DURING WHICH ALL EQUIPMENT PROBLEMS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
- UPON COMPLETION OF THE 30-DAY TEST PERIOD, THE CONTRACTOR SHALL PROVIDE UPDATED SIGNAL TIMING PROGRAMMING SHEETS SHOWING ALL MODIFIED SETTINGS, IF ANY.

GENERAL SPECIFICATIONS

- THE CONTRACTOR SHALL CONTACT ALL UTILITIES BEFORE EXCAVATION TO VERIFY THE LOCATION OF ANY UNDERGROUND LINES. THE CONTRACTOR SHALL NOTIFY 'DIGSAFE' AT 1-888-DIG-SAFE PRIOR TO ANY EXCAVATION.
- INTERSECTION LAYOUT AND UTILITY INFORMATION OBTAINED FROM A SURVEY PERFORMED BY LAMOUREUX & DICKINSON. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITY, PUBLIC OR PRIVATE, SHOWN HEREON.
- ANY SURFACES, LINES, OR STRUCTURES WHICH HAVE BEEN DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THE CONDITION AT LEAST EQUAL TO THAT IN WHICH THEY WERE FOUND IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS.
- THE DESIGN ON THESE PLANS SHALL BE INSPECTED BY LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC., ESSEX JUNCTION, VERMONT, TO ENSURE COMPLIANCE WITH THE PLANS AND REQUIREMENTS. LAMOUREUX & DICKINSON WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS THAT MAY ARISE FROM THE FAILURE OF THE CONTRACTOR TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THAT THE PLANS CONVEY, AND FROM FAILURE TO HAVE BEEN NOTIFIED TO INSPECT THE WORKS AND TESTS IN PROGRESS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REMOVAL OF STRUCTURES, VEGETATION AND PAVEMENT NECESSARY TO CONSTRUCT THE PROJECT, UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL REMOVE ALL EXCESS MATERIAL, DEBRIS AND TRASH FROM THE SITE UPON COMPLETION OF CONSTRUCTION, UNLESS OTHERWISE DIRECTED BY THE TOWN.

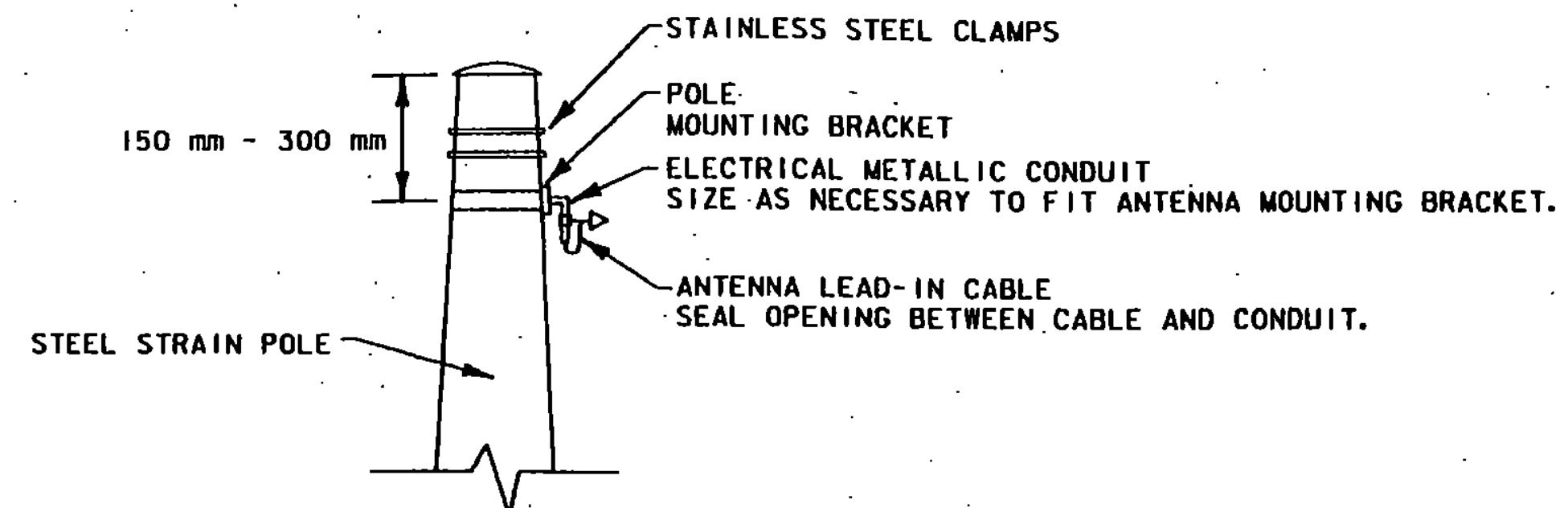
POWER STANCHION NOTES

- POWER STANCHION TO INCLUDE A MANUAL TRANSFER SWITCH AND L1420R RECEPTACLE MOUNTED IN A 3R ENCLOSURE. USE POWER STANCHION DETAIL #10N E-175M.

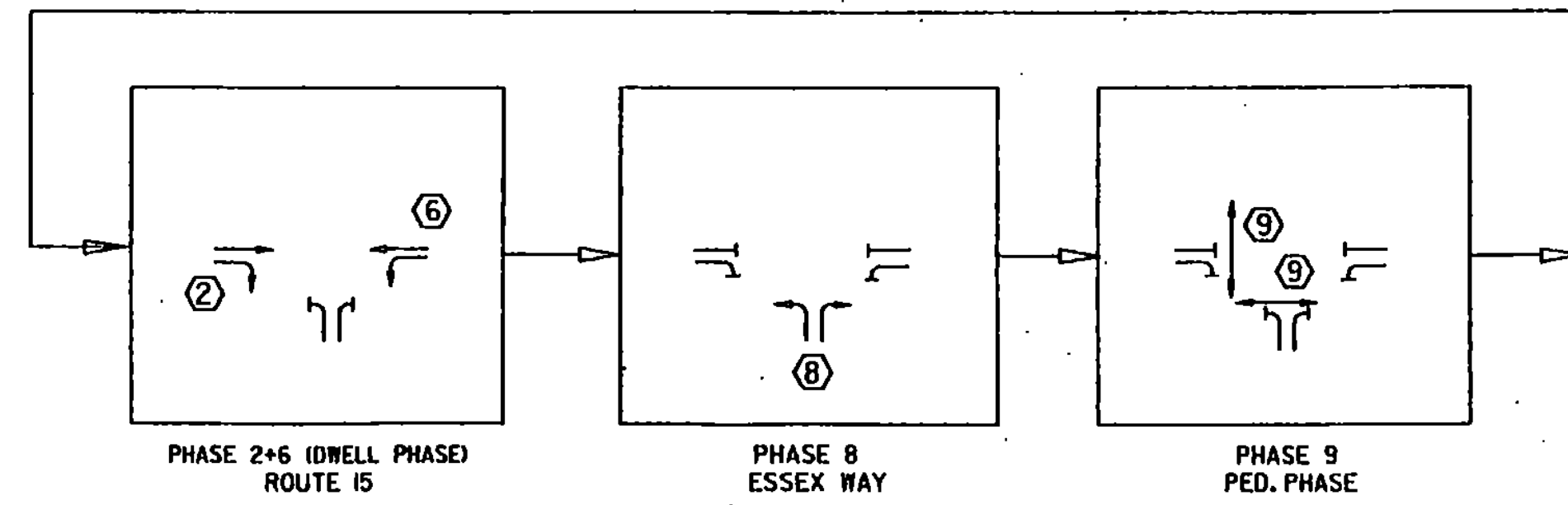
CANTILEVER
SUPPORT &
TRAFFIC
SIGNAL NOTES

PROJECT NAME: ESSEX
PROJECT NUMBER: STP 030-1117S

PLOT FILE NAME: zstp030-1117sfrm6.dgn
L&D PROJECT NUMBER: 00-074
DESIGNED BY: LAMOUREUX & DICKINSON
CONSULTING ENGINEERS, INC.
DRAWN BY: PLC
CHECKED BY: RJD
SHEET 40 OF 42

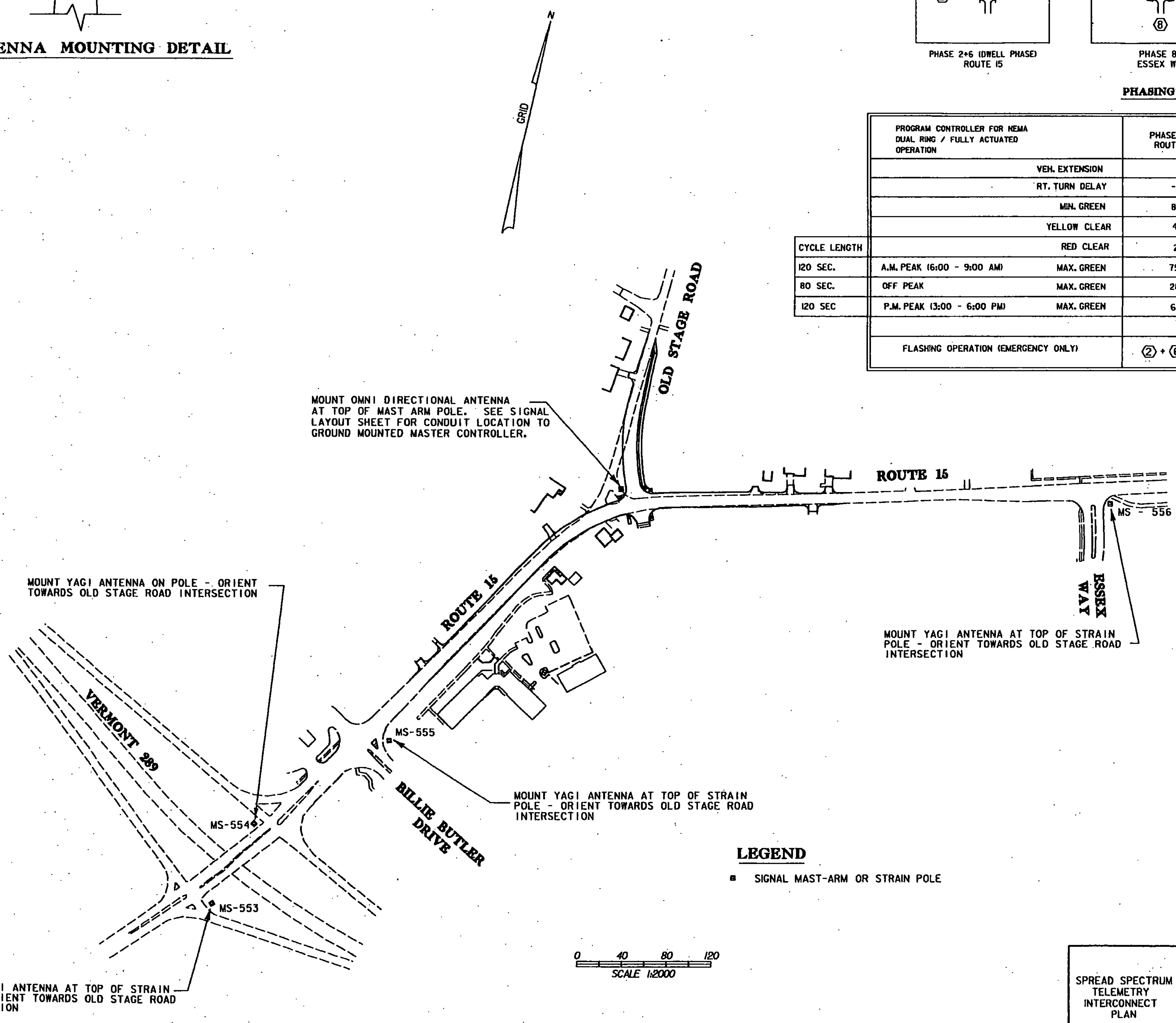


ANTENNA MOUNTING DETAIL
NTS



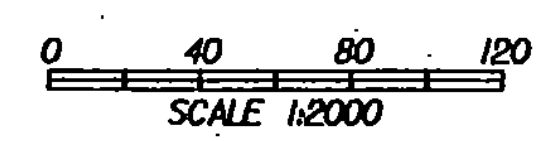
PHASING PLAN

| PROGRAM CONTROLLER FOR NEMA DUAL RING / FULLY ACTUATED OPERATION | | PHASE 2+6 ROUTE 15 | PHASE 8 ESSEX WAY | PHASE 9 PEDESTRIAN |
|--|----------------------------|--------------------|-------------------|--------------------------|
| | VEH. EXTENSION | | 2 | |
| | RT. TURN DELAY | - | 5 | - |
| | MIN. GREEN | 8 | 7 | - |
| | YELLOW CLEAR | 4 | 4 | - |
| | RED CLEAR | 2 | 2 | |
| CYCLE LENGTH | | | | MAN (WALK) FLASHING HAND |
| 120 SEC. | A.M. PEAK (6:00 - 9:00 AM) | MAX. GREEN 75 | 13 | 4 14 2 |
| 80 SEC. | OFF PEAK | MAX. GREEN 28 | 20 | 4 14 2 |
| 120 SEC. | P.M. PEAK (3:00 - 6:00 PM) | MAX. GREEN 63 | 25 | 4 14 2 |
| FLASHING OPERATION (EMERGENCY ONLY) | | ② + ⑥ FY | ⑧ FR | BLANK |

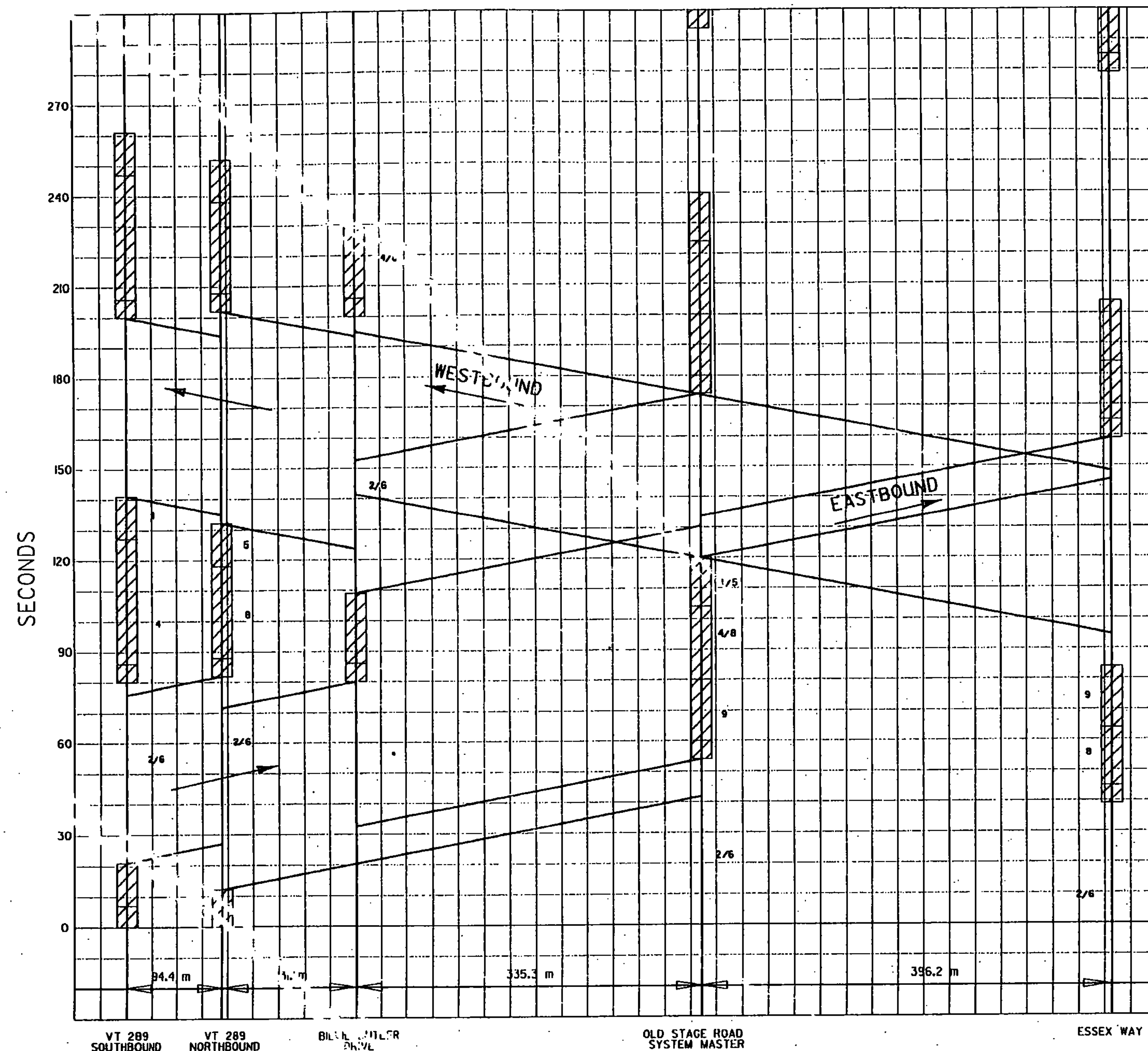


LEGEND

■ SIGNAL MAST-ARM OR STRAIN POLE



| | |
|---|--|
| SPREAD SPECTRUM TELEMETRY INTERCONNECT PLAN | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm7.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC. | DRAWN BY: PLC CHECKED BY: RJD SHEET 41 OF 42 |



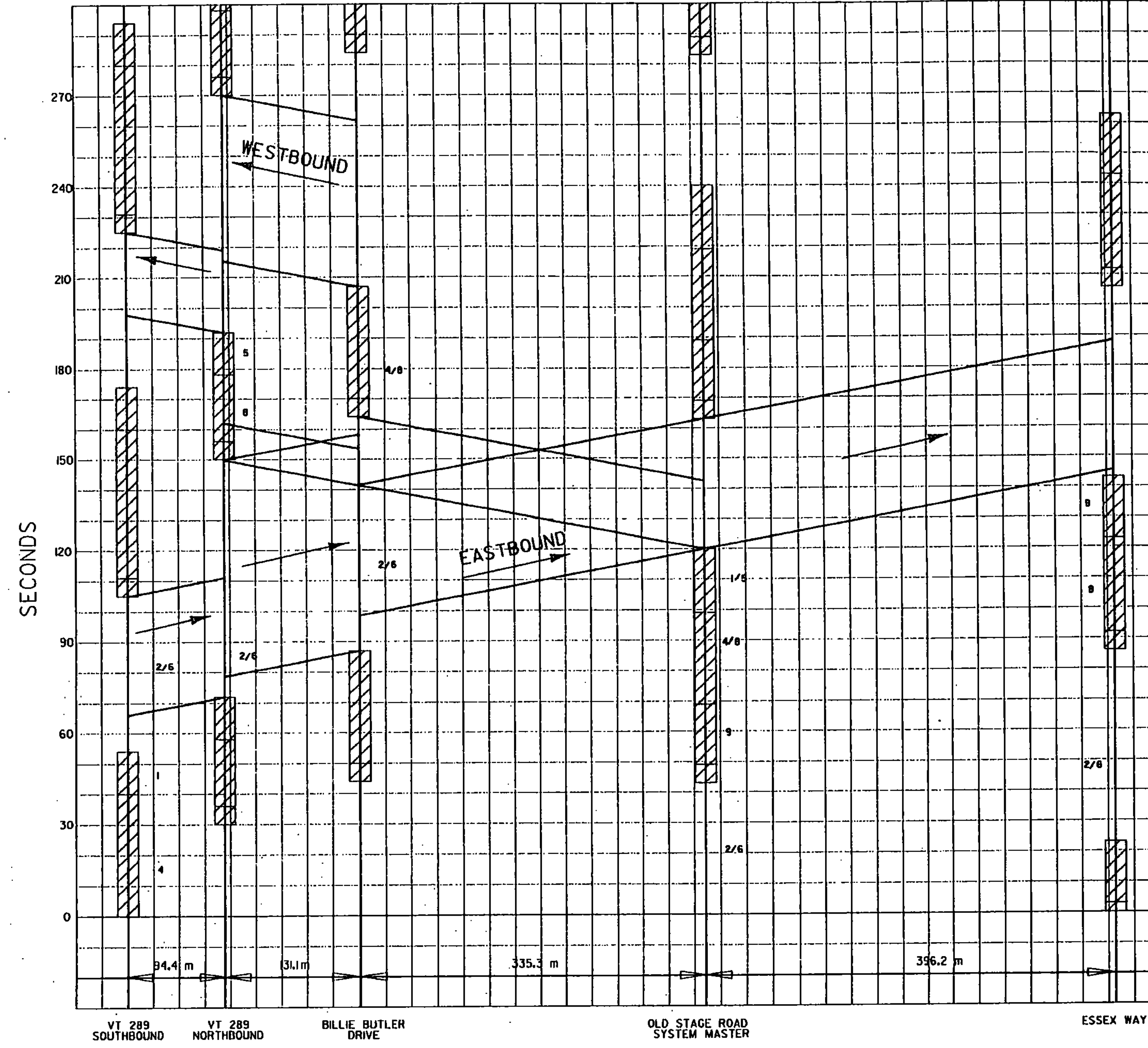
AM WITH PEDESTRIAN PHASE

| AM PEAK CYCLE - 120 SECONDS (6:00 AM - 9:00 AM) | | | | | | | | | | |
|---|----------|----------|----|----------|----------|----------|----|----------|----------|-----------|
| INTERSECTION | SPLITS | | | | | | | | | OFFSET* |
| | β1 | β2 | β3 | β4 | β5 | β6 | β7 | β8 | β9 | |
| VT 289 SB | 14s, 12% | 65s, 54% | | 41s, 34% | | 65s, 54% | | | | 21s, 18% |
| VT 289 NB | | 76s, 63% | | | 14s, 12% | 76s, 63% | | 30s, 25% | | 12s, 10% |
| BILLIE BUTLER DRIVE | | 97s, 81% | | 23s, 19% | | 77s, 61% | | 23s, 19% | | 109s, 91% |
| OLD STAGE ROAD | 16s, 13% | 60s, 50% | | 24s, 20% | 16s, 13% | 60s, 50% | | 24s, 20% | 20s, 17% | 0s |
| ESSEX WAY | | 81s, 67% | | | | 81s, 67% | | 19s, 16% | 20s, 17% | 84s, 70% |

* OFFSET CALCULATED TO FAVOR ROUTE 15 WESTBOUND TRAFFIC

- NOTES:
 1. THE SIGNALS AT OLD STAGE ROAD AND ESSEX WAY WILL OPERATE UNCOORDINATED DURING OFF PEAK PERIODS.
 2. THE ROUTE 15 EASTBOUND THRU MOVEMENT HAS BEEN USED FOR THE COORDINATED MOVEMENT AT THE VT ROUTE 15 / VT 289 SOUTHBOUND RAMP INTERSECTION.

3. SIGNAL OFFSETS SHOWN ABOVE ARE REFERENCED TO THE BEGINNING OF THE GREEN FOR PHASE 2 & 6.
 4. SPLITS SHOWN INCLUDE 4 SECONDS OF YELLOW PLUS 2 SECONDS ALL RED FOR EACH PHASE.
 5. SYSTEM OFFSETS SHOWN ABOVE HAVE BEEN CALCULATED BASED ON NO PED CALLS (PED PHASE IS SKIPPED AND REVERTS TO β2 & β6).



PM WITH PEDESTRIAN PHASE

| PM PEAK CYCLE - 120 SECONDS (3:00 PM - 6:00 PM) | | | | | | | | | | |
|---|----------|----------|----|----------|----------|----------|----|----------|----------|----------|
| INTERSECTION | SPLITS | | | | | | | | | OFFSET* |
| | β1 | β2 | β3 | β4 | β5 | β6 | β7 | β8 | β9 | |
| VT 289 SB | 14s, 12% | 57s, 48% | | 49s, 41% | | 57s, 48% | | | | 54s, 45% |
| VT 289 NB | | 84s, 70% | | | 14s, 12% | 84s, 70% | | 22s, 18% | | 72s, 60% |
| BILLIE BUTLER DRIVE | | 83s, 69% | | 37s, 31% | | 83s, 69% | | 37s, 31% | | 87s, 73% |
| OLD STAGE ROAD | 21s, 18% | 49s, 41% | | 30s, 25% | 21s, 18% | 49s, 41% | | 30s, 25% | 20s, 17% | 0s |
| ESSEX WAY | | 69s, 58% | | | | 69s, 58% | | 31s, 26% | 20s, 17% | 23s, 19% |

* OFFSET CALCULATED TO FAVOR ROUTE 15 EASTBOUND TRAFFIC

| OFF PEAK CYCLE - 70 SECONDS | | | | | | | | | | |
|-----------------------------|----------|----------|----|----------|----------|----------|----|----------|----|----------|
| INTERSECTION | SPLITS | | | | | | | | | OFFSET |
| | β1 | β2 | β3 | β4 | β5 | β6 | β7 | β8 | β9 | |
| VT 289 SB | 14s, 20% | 35s, 50% | | 21s, 30% | | 35s, 50% | | | | 64s, 91% |
| VT 289 NB | | 38s, 54% | | | 14s, 20% | 38s, 54% | | 18s, 26% | | 69s, 99% |
| BILLIE BUTLER DRIVE | | 41s, 59% | | 29s, 41% | | 41s, 59% | | 29s, 41% | | 68s, 97% |

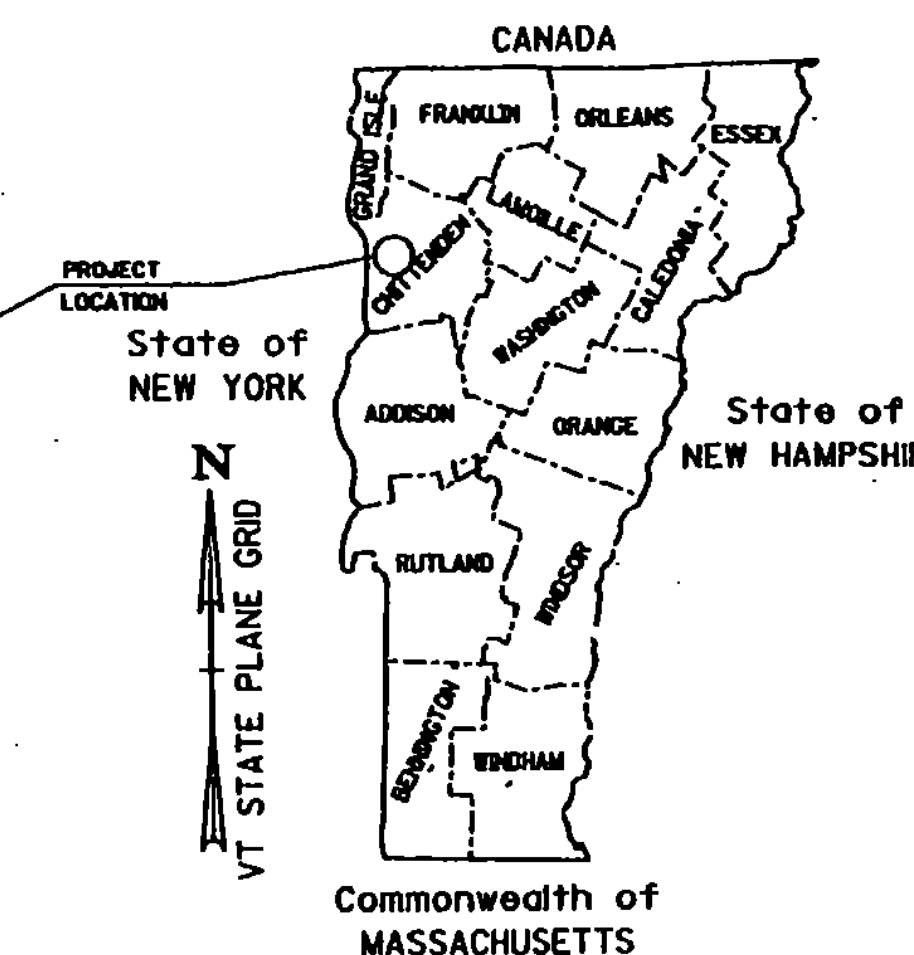
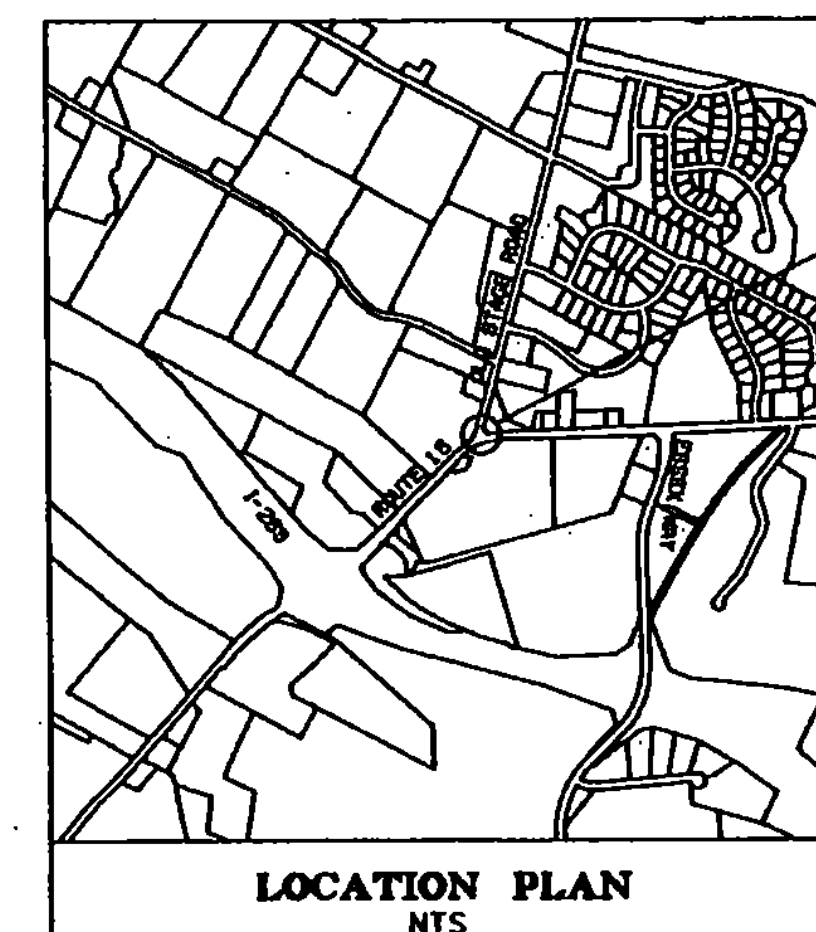
DATUM
 VERTICAL 1:10 (10 mm = 10 sec.)
 HORIZONTAL 1:3000

| | |
|------------------------------------|---|
| COORDINATION DATA | PROJECT NAME: ESSEX |
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: zstp030-1(17)sfrm7.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| DESIGNED BY: LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| | CHECKED BY: RJD |
| | CONSULTING ENGINEERS, INC. SHEET 42 OF 42 |

STATE OF VERMONT
AGENCY OF TRANSPORTATION



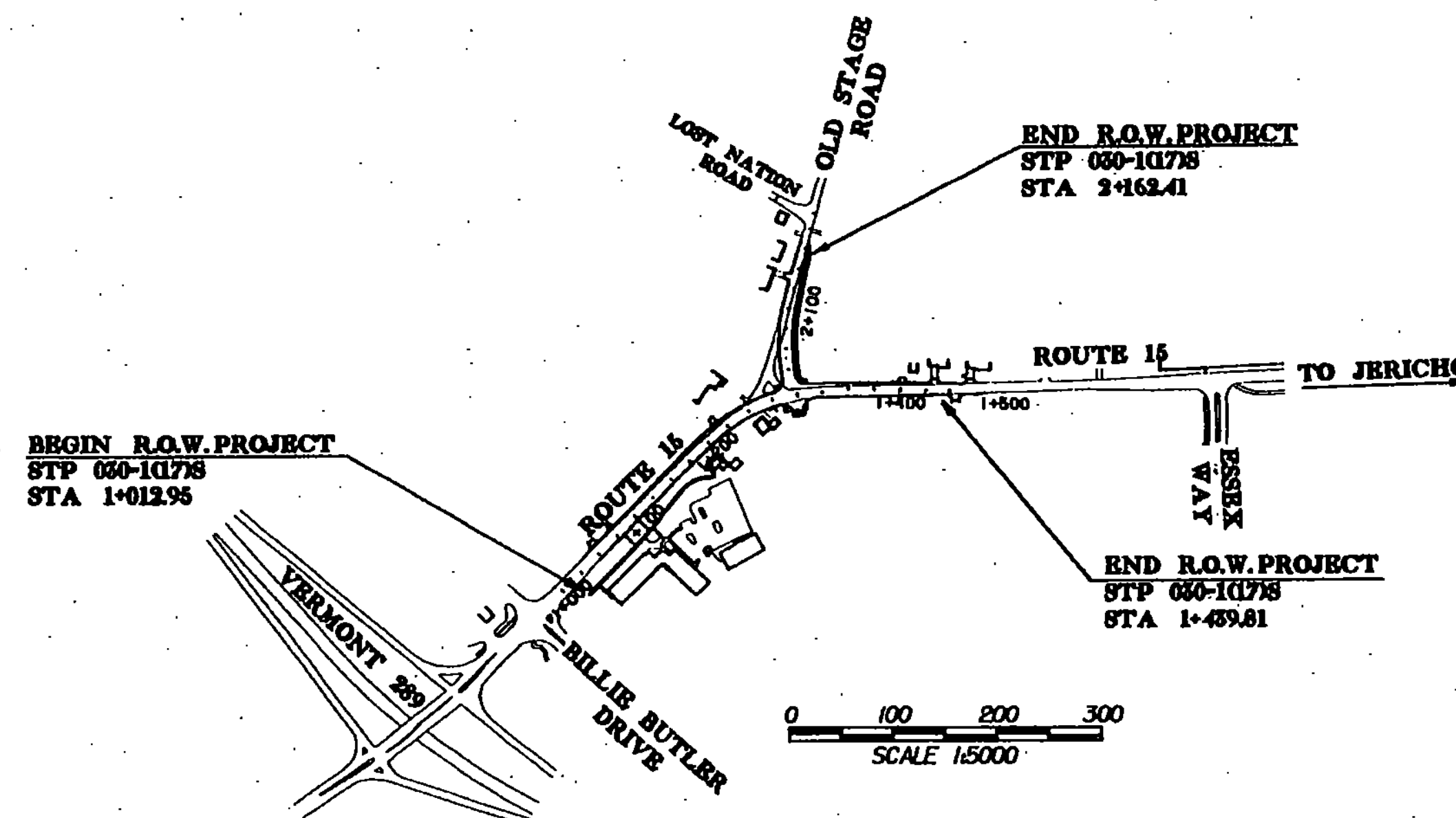
PROPOSED IMPROVEMENT
INTERSECTION RECONSTRUCTION
TOWN OF ESSEX
COUNTY OF CHITTENDEN
VT ROUTE 15 & OLD STAGE ROAD
(MINOR URBAN ARTERIAL)



INDEX OF SHEETS

- 1. TITLE SHEET
- 2-3. TYPICAL SECTIONS
- 4. DETAIL SHEET
- 5-8. PLAN SHEETS

BEGINNING ROADWAY CONSTRUCTION AT THE INTERSECTION OF ROUTE 15 AND BILLIE BUTLER DRIVE AND EXTENDING
EASTERLY ALONG ROUTE 15 495.00 m AND EXTENDING NORTH ALONG OLD STAGE ROAD 148.00 m.
LENGTH OF ROADWAY = 628.00 m
LENGTH OF PROJECT = 1086.00 m
WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES RECONSTRUCTION OF ROUTE 15
AND OLD STAGE ROAD WITH NECESSARY DRAINAGE, UTILITY RELOCATION, PAVEMENT, TRAFFIC SIGNAL INSTALLATION,
TRAFFIC SIGNAL INTERCONNECT FROM VT 289 TO ESSEX WAY AND OTHER RELATED ITEMS.



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF PROJECT DEVELOPMENT.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2001, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JANUARY 4, 2001 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

Metric

UNLESS NOTED OTHERWISE
STATIONS ARE IN KILOMETERS
ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN MILLIMETERS

CONVENTIONAL SYMBOLS

| | |
|----------------|-------------------------------------|
| FENCE LINE | X - - - X - - - X - - - X |
| STONE WALL | o o o o o o o o o o o o o o o o o o |
| TRAVELED WAY | --- --- --- --- --- --- --- --- |
| CULVERT | --- --- --- --- --- --- --- --- |
| POWER POLE | o |
| TELEPHONE POLE | o |
| TREES | ⊗ |
| PROPERTY LINE | P/L |
| TOP OF CUT | △ |
| TOE OF SLOPE | ○ |

LAMOUREUX & DICKINSON
Consulting Engineers Inc.
14 Morse Drive
Essex Junction, VT 05452
(802) 878-4450
Eng. Lic. # 11111-000000

SURVEYED BY : LAMOUREUX & DICKINSON
CONSULTING ENGINEERS
SURVEYED DATE : AUGUST 2000

DATUM
VERTICAL NAVD 88 (METERS)
HORIZONTAL NAD 83 (METERS)

RIGHT-OF-WAY

CONTRACT PLANS
OCTOBER 8, 2003

TOWN OF ESSEX
APPROVED: *[Signature]* DATE 10/21/03
MUNICIPAL PROJECT MANAGER

PROJECT NAME : ESSEX
PROJECT NUMBER : STP 030-1117(S)

SHEET 1 OF 8 SHEETS



**SEEDING FORMULA
URBAN AREAS**

| % MASS | kg/ha | NAME | PUR % | GERM % |
|--------|-------|---------------------|-------|--------|
| 42.5 | 38.0 | CREEPING RED FESCUE | 98 | 85 |
| 10.0 | 9.0 | PERENNIAL RYE GRASS | 95 | 90 |
| 42.5 | 38.0 | KENTUCKY BLUE GRASS | 85 | 85 |
| 5.0 | 5.0 | ANNUAL RYE GRASS | 95 | 85 |
| 100.0 | 90.0 | | | |

GENERAL NOTES

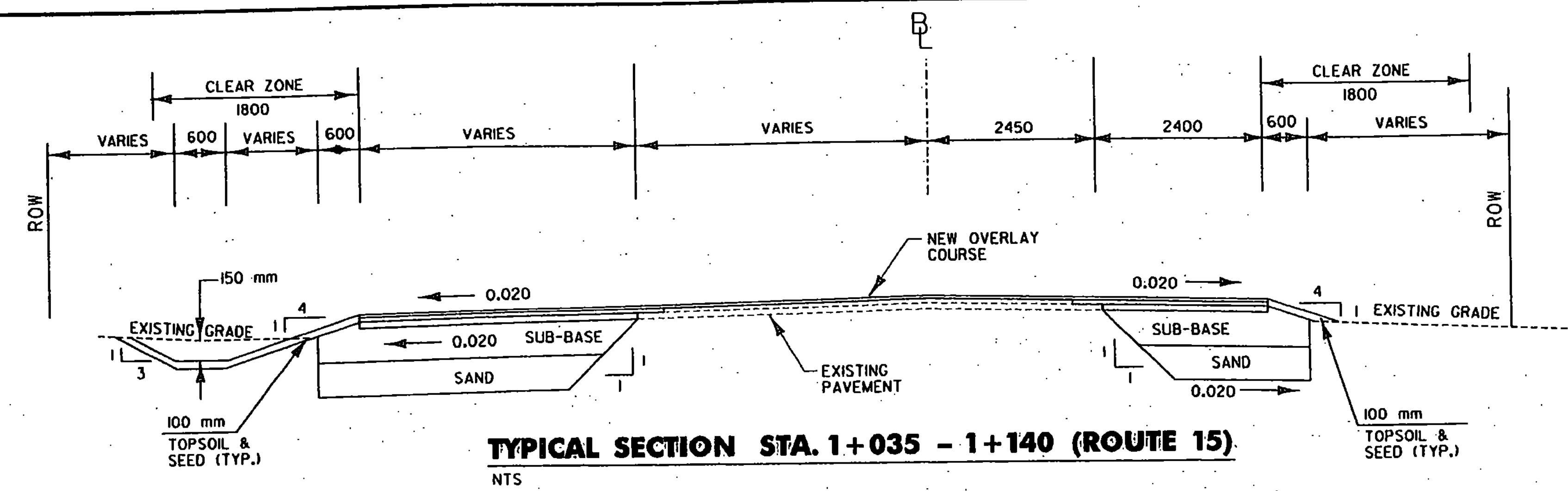
- SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY MASS AND SHALL BE FREE OF ALL NOXIOUS SEED.
- SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.
- FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 560 kg/ha. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).
- AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.
- HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 4500 kg/ha, OR AS DIRECTED BY THE ENGINEER.
- TOPSOIL: TO BE USED WITH SEED AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
- MARKER POSTS: TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.
- SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5M.
- PAY LIMITS OF SAND BORROW: WHEN USED IN CONJUNCTION WITH UNDERDRAIN - SEE STANDARD SHEET D-2M.
- TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.07 L/m² BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

ROUTE 15

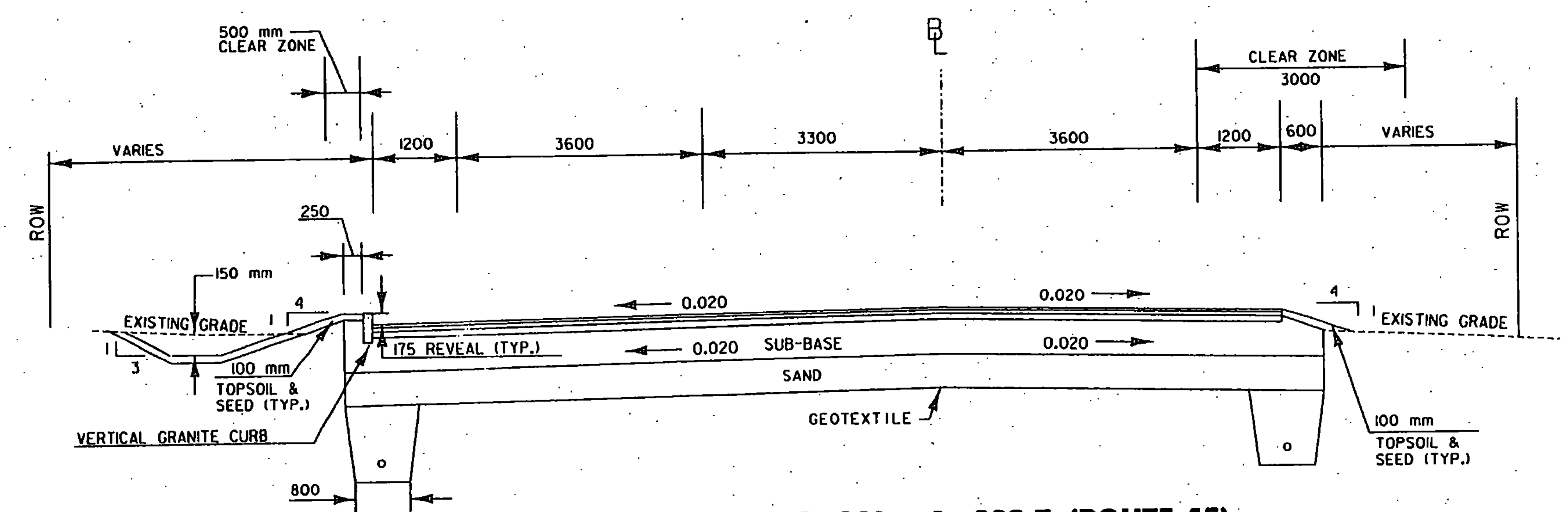
| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III-S (PLACED IN ONE LIFT) |
| BINDER COURSE: | 70 mm TYPE II-S (PLACED IN ONE LIFT) |
| BASE COURSE: | 90 mm TYPE I-S (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ± 5 mm |
| SUBBASE | ± 30 mm |
| SAND | ± 30 mm |

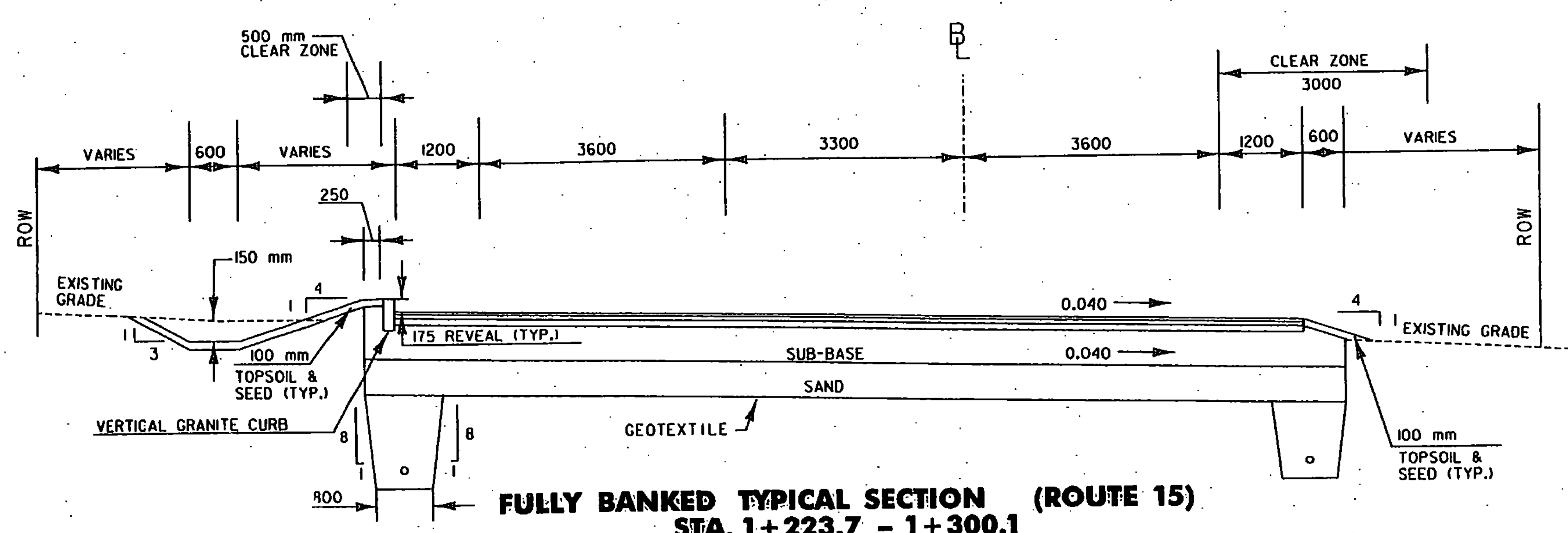
1. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28



TYPICAL SECTION STA. 1+035 - 1+140 (ROUTE 15)
NTS



TYPICAL SECTION STA. 1+140 - 1+223.7 (ROUTE 15)
NTS • SEE SUPERELEVATION DIAGRAM ON SHEET 22 FOR PAVEMENT SLOPES IN SUPERELEVATION TRANSITION AREAS.

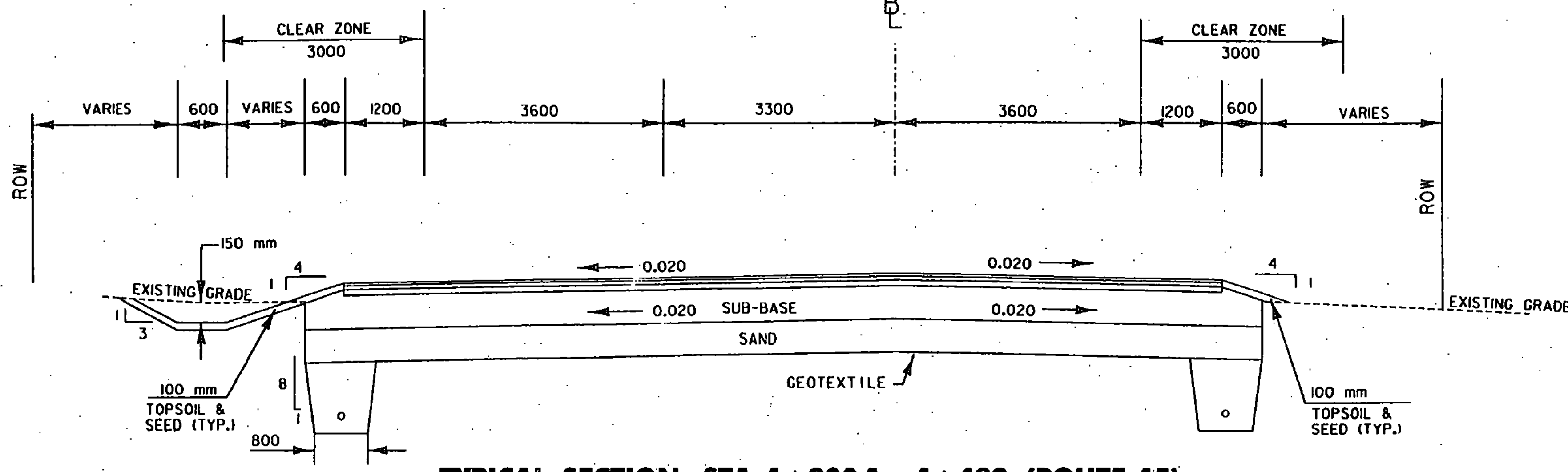


**FULLY BANKED TYPICAL SECTION (ROUTE 15)
STA. 1+223.7 - 1+300.1**
NTS • SEE SUPERELEVATION DIAGRAM ON SHEET 22

RIGHT-OF-WAY PLANS

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| | | |
|------------------|----------------------------|-----------------------|
| TYPICAL SECTIONS | PROJECT NAME: | ESSEX |
| | PROJECT NUMBER: | STP 030-1(17)S |
| | PLOT FILE NAME: | zstp030-1(17)sfrm.dgn |
| | L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON | DRAWN BY: PLC |
| | CONSULTING ENGINEERS, INC. | CHECKED BY: RJD |
| | | SHEET 2 OF 8 (R.O.W.) |



TYPICAL SECTION STA. 1+300.1 - 1+482 (ROUTE 15)

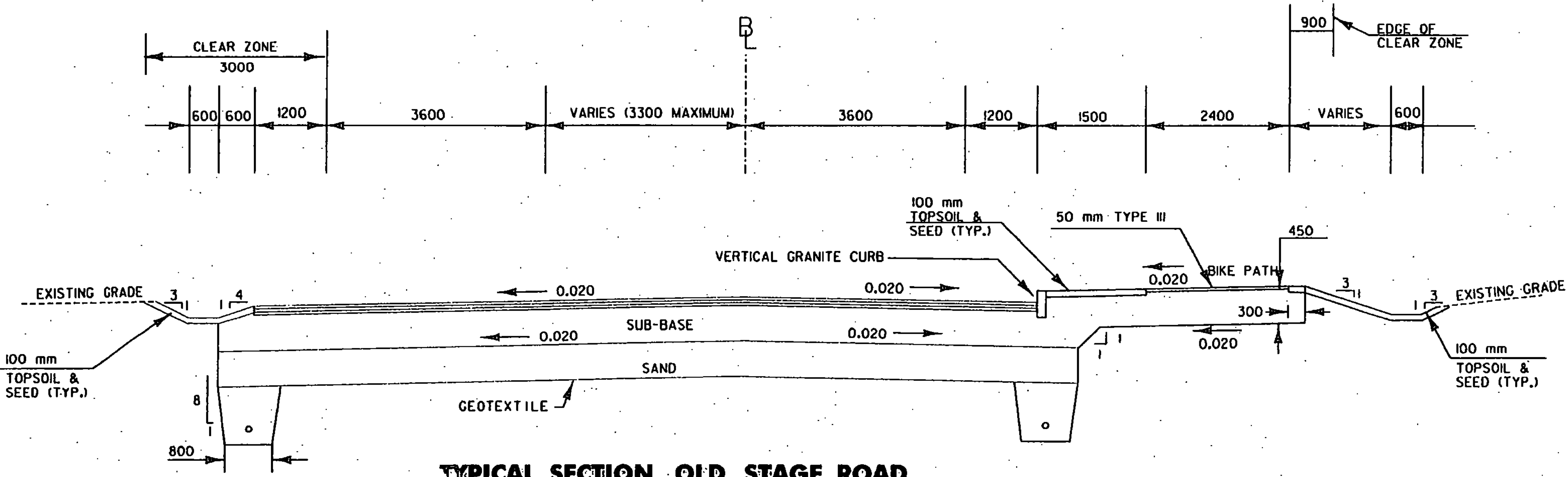
NTS - SEE SUPERELEVATION DIAGRAM ON SHEET 22 FOR PAVEMENT SLOPES IN SUPERELEVATION TRANSITION AREAS

ROUTE 15

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III-S (PLACED IN ONE LIFT) |
| BINDER COURSE: | 70 mm TYPE II-S (PLACED IN ONE LIFT) |
| BASE COURSE: | 90 mm TYPE I-S (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ±5 mm |
| SUBBASE | ±30 mm |
| SAND | ±30 mm |

1. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28



TYPICAL SECTION OLD STAGE ROAD

OLD STAGE ROAD

| | |
|-------------------|--|
| WEARING COURSE: | 45 mm TYPE III (PLACED IN ONE LIFT) |
| BINDER COURSE: | 50 mm TYPE II (PLACED IN ONE LIFT) |
| BASE COURSE: | 55 mm TYPE I (PLACED IN ONE LIFT) |
| SUBBASE MATERIAL: | 500 mm DENSE GRADED CRUSHED STONE (704.06) |
| SAND BORROW: | 500 mm |

1. BITUMINOUS CONCRETE PAVEMENT SHALL BE 75 BLOW MARSHALL MIX AND PERFORMANCE GRADED BINDER SHALL BE PG 64-28

| MATERIAL ITEM | THICKNESS TOLERANCE |
|------------------------|---------------------|
| PAVEMENT (TOTAL DEPTH) | ±5 mm |
| SUBBASE | ±30 mm |
| SAND | ±30 mm |

RIGHT-OF-WAY PLANS

NOTE: ALL DIMENSIONS IN MILLIMETERS (mm) EXCEPT WHERE NOTED

| TYPICAL SECTIONS | PROJECT NAME: ESSEX |
|------------------|--|
| | PROJECT NUMBER: STP 030-1(17)S |
| | PLOT FILE NAME: z8tp030-1(17)stfrm.dgn |
| | L&D PROJECT NUMBER: 00-074 |
| | DESIGNED BY: LAMOUREUX & DICKINSON |
| | CHECKED BY: RJD |
| | DRAWN BY: PLC |
| | CONSULTING ENGINEERS, INC. SHEET 3 OF 8 (R.O.W.) |

**STATE OF VERMONT
AGENCY OF TRANSPORTATION
RIGHT OF WAY PLANS
DETAIL SHEET**

TABLE OF PROJECT PROPERTY ACQUISITION

| PARCEL NO. | GRANTOR | SHEET NO. | BEGINNING STATION | ENDING STATION | TAKING | REM. | RIGHTS | TITLE TAKEN | DATE | TOWN OR CITY RECORDED | BK. | PG. | REMARKS | | |
|------------|------------------------------------|-----------|-------------------|----------------|---------------------|------|---|-------------|------|-----------------------|-----|-----|-----------------------|-----------------------|--------------------------------|
| 1 | H.I. & S.H. SOGOLOFF | 5 | 1+048.7 LT | 1+057.9 LT | | | CONST (T) 24.9 m ² | | | | | | 268.0 SF | | |
| | | | 1+073.4 LT | 1+079.4 LT | | | CONST (T) 16.3 m ² | | | | | | | 175.4 SF | |
| 2 | H.I. & S.H. SOGOLOFF | 5, 6 | 1+165.3 LT | 1+221.9 LT | | | SLOPE (T) 125.3 m ² | | | | | | 1,349 SF | | |
| | | | 1+130.9 LT | 1+239.5 LT | | | CONST (T) 300.2 m ² | | | | | | | 3,231 SF | |
| | | | 1+130.86 LT | 1+262.97 LT | | | ALL R., T., & I. | | | | | | | LAND IN VT RTE 15 ROW | |
| 3 | HOMESTEAD DESIGN, INC. | 5, 6, 7 | 1+244.81 RT | 1+270.67 RT | 58.8 m ² | | | | | | | | 632.9 SF | | |
| | | | 1+279.1 RT | 1+316.7 RT | | | SLOPE (T) 292.8 m ² | | | | | | | 3,152 SF | |
| | | | 1+236.0 RT | 1+320.6 RT | | | CONST (T) 265.8 m ² | | | | | | | 2,861 SF | |
| | | | 1+273.8 RT | 1+317.7 RT | | | DIT. & DR. (P) | | | | | | | | |
| | | | 1+280.4 RT | 1+310.8 RT | | | SIGNAL (P) 127.6 m ² | | | | | | | | 1,373 SF |
| | | | 1+310.5 RT | 1+313.0 RT | | | CUL. (P) | | | | | | | | |
| | | | 1+312.4 RT | 1+314.2 RT | | | CUL. (P) | | | | | | | | |
| | | | 1+278.7 RT | 1+285.3 RT | | | WATERLINE (P) 37.7 m ² | | | | | | | | RIGHTS TO TOWN OF ESSEX 408 SF |
| 4 | TOWN OF ESSEX | 6, 7, 8 | 1+114.15 RT | 1+439.81 RT | | | ALL R., T., & I. | | | | | | LAND IN VT RTE 15 ROW | | |
| | | | 1+282.36 LT | 1+317.8 LT | | | SIGNAL (P) 378.2 m ² | | | | | | | 4,071 SF | |
| | | | 1+304.5 LT | 1+384.6 LT | | | STORM WATER BASIN (P) 1597.0 m ² | | | | | | | 17,190 SF | |
| | | | 1+304.5 LT | 1+388.15 LT | | | CONST (T) 226.5 m ² | | | | | | | 2,438 SF | |
| | | | 1+317.2 LT | 1+319.8 LT | | | CUL. (P) | | | | | | | | |
| | | | 1+343.9 LT | 1+364.5 LT | | | CUL. & DR. (P) | | | | | | | | |
| | | | 1+304.5 LT | 1+388.15 LT | | | UTILITY (P) 544.3 m ² | | | | | | | | 5,859 SF |
| 5 | DONALD A., JR. AND MARY M. RUSSELL | 6 | 1+245.0 LT | 1+410.0 LT | | | ALL R., T., & I. | | | | | | LAND IN VT RTE 15 ROW | | |
| | | | 1+175.72 RT | 1+222.44 RT | | | ALL R., T., & I. | | | | | | | LAND IN VT RTE 15 ROW | |

| REVISION NO. | SHEET | DESCRIPTION OF REVISION | DATE | MADE BY | APPROVED BY |
|--------------|-------|-------------------------|------|---------|-------------|
| | | | | | |
| | | | | | |

RIGHT-OF-WAY PLANS

DR. (P)- DRAINAGE RIGHT
 DIT. (P)- DITCHING RIGHT
 CUL. (P)- CULVERT RIGHT
 (P) PERMANENT EASEMENT
 (T) TEMPORARY EASEMENT

— P/L — P/L — EXISTING BOUNDARY LINE
 - - - - - R.O.W. TAKING LINE
 ○ TOE OF SLOPE
 ▲ TOP OF CUT

- - - - - CONST. (T) CONSTRUCTION EASEMENT
 _____ SLOPE(T) SLOPE RIGHTS

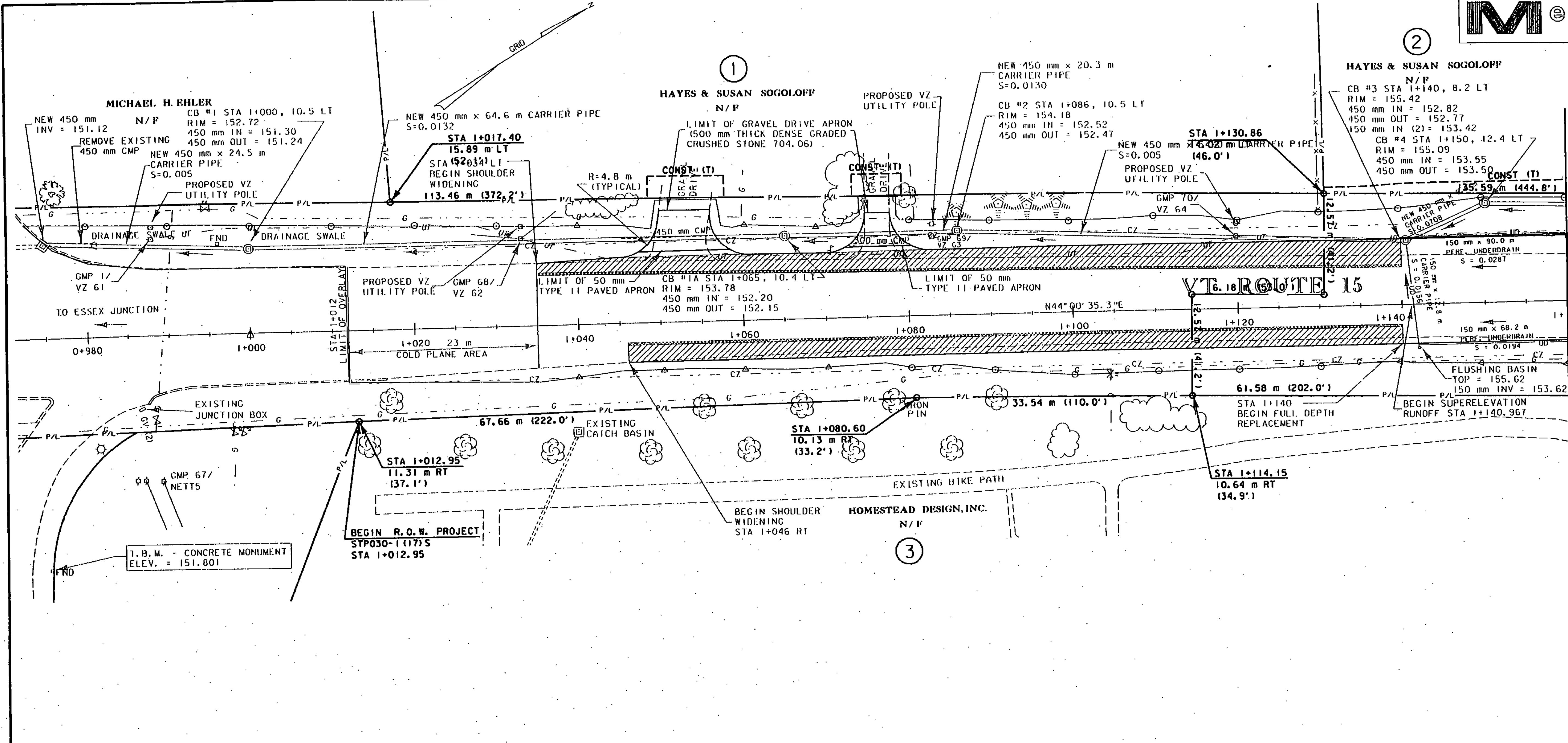
PROJECT NAME: ESSEX
 PROJECT NUMBER: STP 030-1(17)S
 PLOT FILE NAME: ZSTP030-1(17)SROW2.DGN
 L&D PROJECT NUMBER: 00-074
 DESIGNED BY: LAMOUREUX & DICKINSON
 CONSULTING ENGINEERS, INC. SHEET 4 OF 8 (R.O.W.)

DRAWN BY: PLC
 CHECKED BY: RJD

HAYES & SUSAN SOGOLOFF

N/P
 CB #3 STA 1+140, 8.2 LT
 RIM = 155.42
 450 mm IN = 152.82
 450 mm OUT = 152.77
 150 mm IN (2) = 153.42
 CB #4 STA 1+150, 12.4 LT
 RIM = 155.09
 450 mm IN = 153.55
 450 mm OUT = 153.50

MATCHLINE STA 1+160

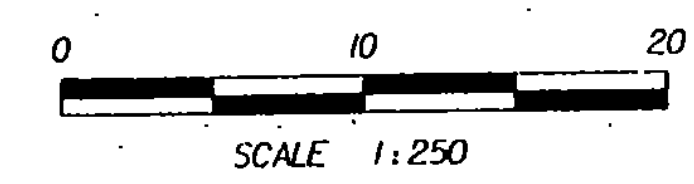


CENTERLINE DATA

| STATION TO STATION | R | L | T | △ |
|-----------------------|---|---|---|-----------------|
| 1+000.000 - 1+196.443 | | | | N 44°00'35.3" E |

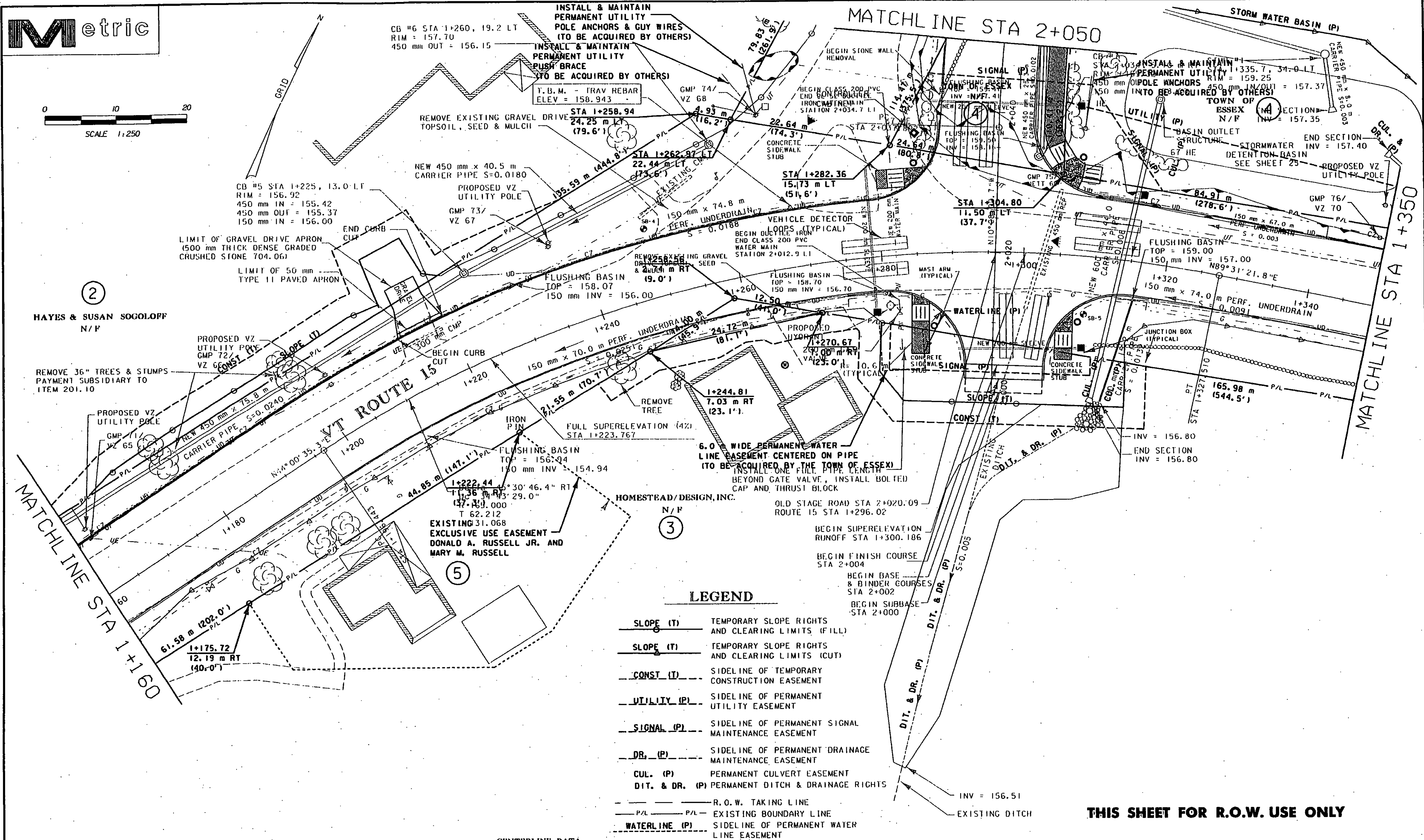
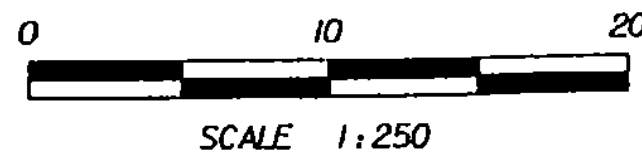
LEGEND

- SLOPE (T) TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (FILL)
- SLOPE (C) TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (CUT)
- CONST (T) SIDELINE OF TEMPORARY CONSTRUCTION EASEMENT
- SIGNAL (P) SIDELINE OF PERMANENT SIGNAL MAINTENANCE EASEMENT
- DB (P) SIDELINE OF PERMANENT DRAINAGE MAINTENANCE EASEMENT
- CUL (P) PERMANENT CULVERT EASEMENT
- DIT (P) PERMANENT DITCH RIGHTS
- P/L EXISTING BOUNDARY LINE



THIS SHEET FOR R.O.W. USE ONLY

| | |
|--|-----------------------|
| PROJECT NAME: | ESSEX |
| PROJECT NUMBER: | STP 030-1(17)S |
| PLOT FILE NAME: | PLOTROW.DGN |
| L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON |
| DRAWN BY: | PLC |
| CHECKED BY: | RJD |
| CONSULTING ENGINEERS, INC. SHEET 5 OF 8 (R.O.W.) | |



2

HAYES & SUSAN SOGOLOFF
N/P

3

HOMESTEAD/DESIGN, INC.
N/P

5

EXISTING EXCLUSIVE USE EASEMENT
DONALD A. RUSSELL JR. AND
MARY M. RUSSELL

LEGEND

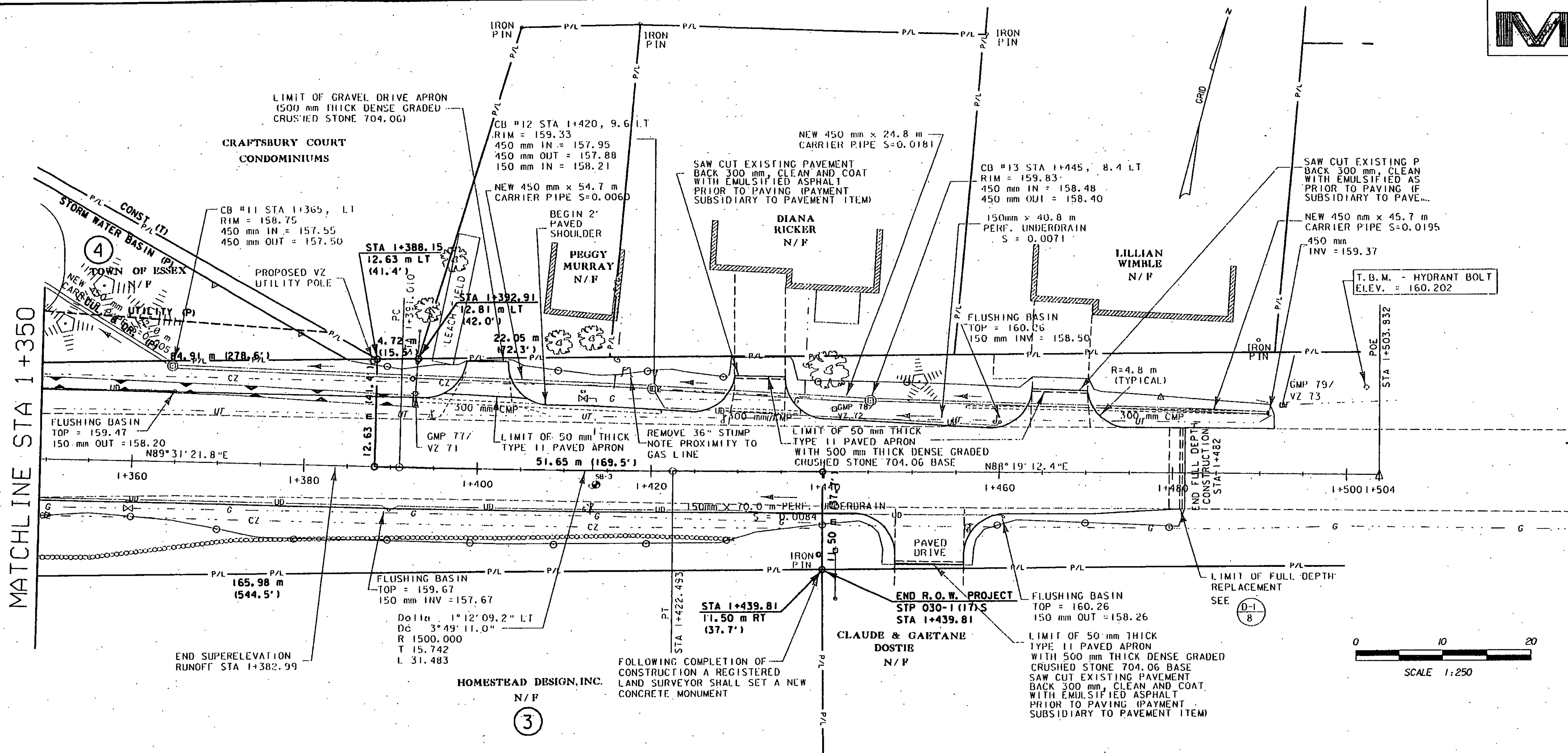
- SLOPE (T) TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (FILL)
- SLOPE (C) TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (CUT)
- CONST (T) SIDELINE OF TEMPORARY CONSTRUCTION EASEMENT
- UTILITY (P) SIDELINE OF PERMANENT UTILITY EASEMENT
- SIGNAL (P) SIDELINE OF PERMANENT SIGNAL MAINTENANCE EASEMENT
- DR. (P) SIDELINE OF PERMANENT DRAINAGE MAINTENANCE EASEMENT
- CUL. (P) PERMANENT CULVERT EASEMENT
- DIT. & DR. (P) PERMANENT DITCH & DRAINAGE RIGHTS
- R.O.W. TAKING LINE
- P/L EXISTING BOUNDARY LINE
- WATERLINE (P) SIDELINE OF PERMANENT WATER LINE EASEMENT

CENTERLINE DATA

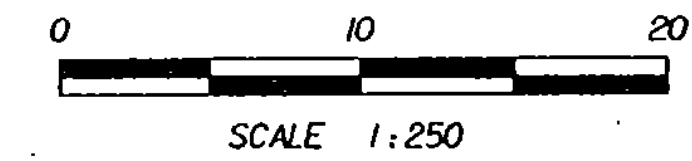
| STATION TO STATION | R | L | T | Δ | |
|--------------------|----------------|-----------------|---------|--------|-------------|
| PC = 1+196.443 | PT = 1+327.510 | 165.000 | 131.068 | 69.212 | 45°30'46.4" |
| 1+327.510 | 1+391.010 | N 89°31'21.8" E | | | |

THIS SHEET FOR R.O.W. USE ONLY

| | |
|----------------------------|-----------------------|
| PROJECT NAME: | ESSEX |
| PROJECT NUMBER: | STP 030-K17S |
| PLOT FILE NAME: | PLOTROW2.DGN |
| L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON |
| DRAWN BY: | PLC |
| CHECKED BY: | RJD |
| CONSULTING ENGINEERS, INC. | SHEET 6 OF 8 (R.O.W.) |



MATCHLINE STA 1+350



CENTERLINE DATA

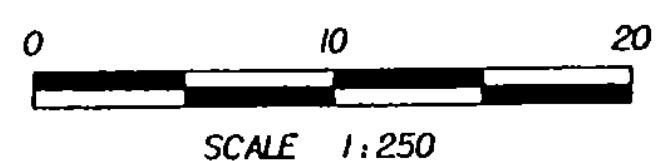
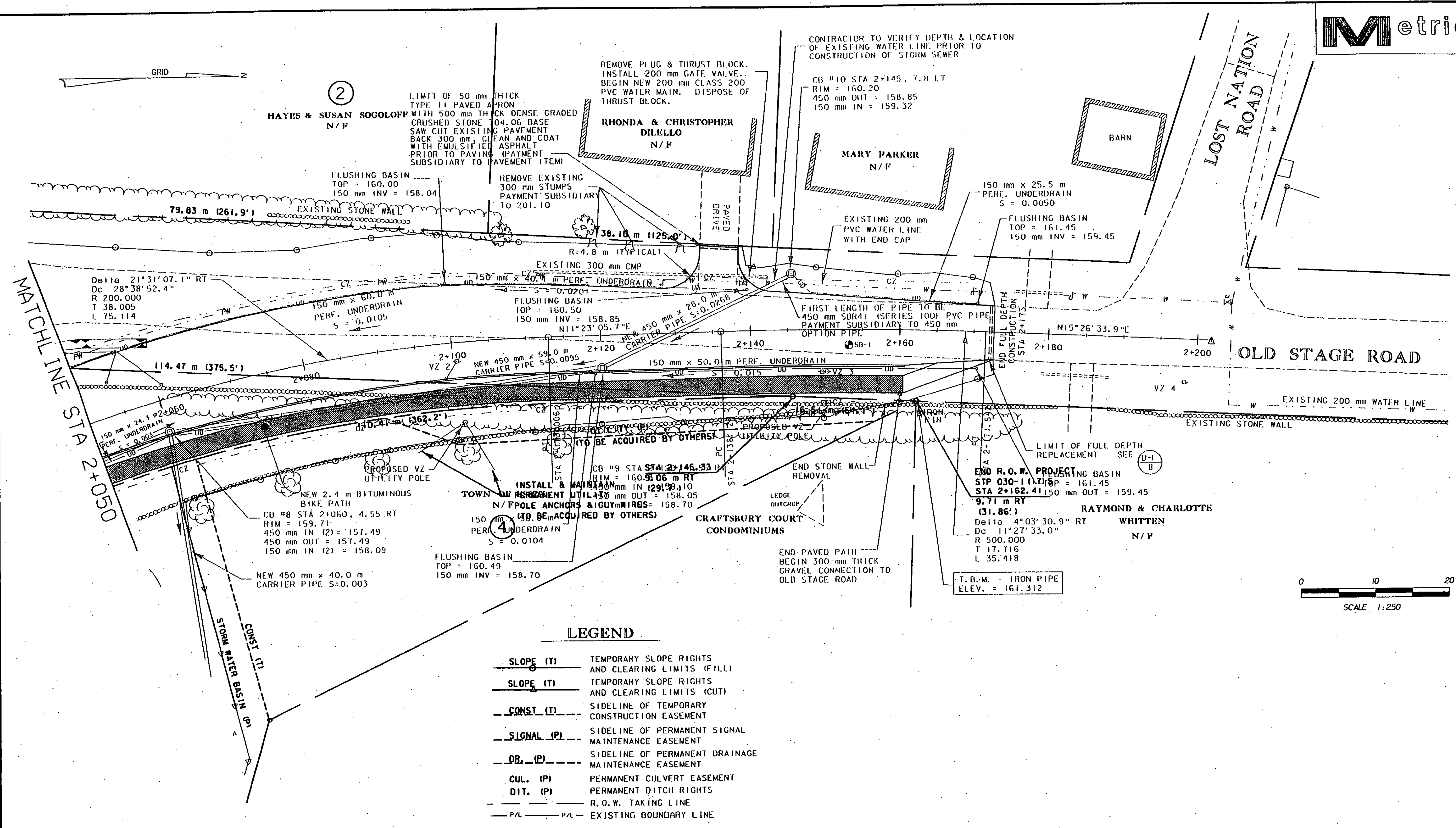
| STATION TO STATION | R | L | T | Δ |
|-------------------------------|----------|--------|--------|-------------------|
| PC = 1+391.010 PT = 1+422.493 | 1500.000 | 31.483 | 15.742 | 1° 12' 09.2" |
| 1+422.493 1+503.832 | | | | N 88° 19' 12.4" E |

LEGEND

| | |
|------------|---|
| SLOPE (T) | TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (FILL) |
| SLOPE (C) | TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (CUT) |
| CONST. (T) | SIDELINE OF TEMPORARY CONSTRUCTION EASEMENT |
| SIGNAL (P) | SIDELINE OF PERMANENT SIGNAL MAINTENANCE EASEMENT |
| DR. (P) | SIDELINE OF PERMANENT DRAINAGE MAINTENANCE EASEMENT |
| CUL. (P) | PERMANENT CULVERT EASEMENT |
| DIT. (P) | PERMANENT DITCH RIGHTS |
| --- | R. O. W. TAKING LINE |
| P/L | EXISTING BOUNDARY LINE |

THIS SHEET FOR R.O.W. USE ONLY

| | |
|---------------------|--|
| PROJECT NAME: | ESSEX |
| PROJECT NUMBER: | STP 030-1(17)S |
| PLOT FILE NAME: | |
| L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC. |
| DRAWN BY: | PLC |
| CHECKED BY: | RJD |
| SHEET | 7 OF 8 (R. O. W.) |



LEGEND

- SLOPE (T)** TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (FILL)
- SLOPE (C)** TEMPORARY SLOPE RIGHTS AND CLEARING LIMITS (CUT)
- CONST (T)** SIDELINE OF TEMPORARY CONSTRUCTION EASEMENT
- SIGNAL (P)** SIDELINE OF PERMANENT SIGNAL MAINTENANCE EASEMENT
- DR. (P)** SIDELINE OF PERMANENT DRAINAGE MAINTENANCE EASEMENT
- CUL. (P)** PERMANENT CULVERT EASEMENT
- DIT. (P)** PERMANENT DITCH RIGHTS
- R.O.W.** R. O. W. TAKING LINE
- P/L** P/L - EXISTING BOUNDARY LINE

CENTERLINE DATA

| STATION TO STATION | R | L | T | Δ |
|-------------------------------|-----------------|--------|--------|-------------|
| 2+000.000 2+037.892 | N 10°08'00.7" W | | | |
| PC = 2+037.892 PT = 2+113.006 | 200.000 | 75.114 | 38.005 | 21°31'07.1" |
| 2+113.006 2+136.124 | N 11°23'05.7" E | | | |
| PC = 2+136.124 PT = 2+171.541 | 500.000 | 35.418 | 17.716 | 4°03'30.9" |
| 2+171.541 2+201.808 | N 15°26'33.9" E | | | |

THIS SHEET FOR R.O.W. USE ONLY

| | |
|---------------------|--|
| PROJECT NAME: | ESSEX |
| PROJECT NUMBER: | STP 030-1(17)S |
| PLOT FILE NAME: | |
| L&D PROJECT NUMBER: | 00-074 |
| DESIGNED BY: | LAMOUREUX & DICKINSON CONSULTING ENGINEERS, INC. |
| DRAWN BY: | PLC |
| CHECKED BY: | RJD |
| SHEET | 8 OF 8 (R. O. W.) |