INDEX OF SHEETS

SEE SHEET 2

# STATE OF VERMONT

# AGENCY OF TRANSPORTATION

CONTRACT PLANS

THESE PLANS DO NOT REFLECT CHANGES MADE ON THE PROJECT.

Date JUN 04 1996

Dog River Construction, Inc.
Contractor

Signature

Vice President
Title

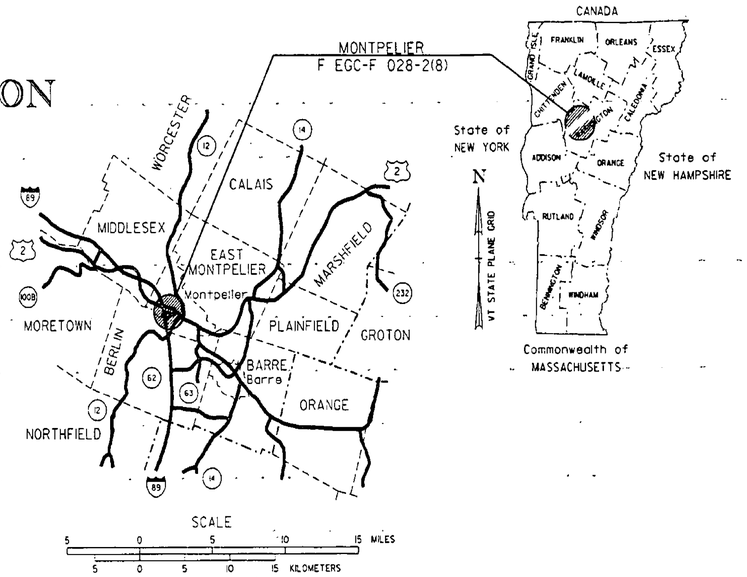
Secretary of Transportation's Signature

## PROPOSED IMPROVEMENT
## CITY OF MONTPELIER
## COUNTY OF WASHINGTON
## MONTPELIER STATE HIGHWAY
## (PRINCIPAL ARTERIAL)
## F EGC-F 028-2(8)

BEGINNING AT MM 0.000 ON THE MONTPELIER STATE HIGHWAY AND EXTENDING NORTH-EASTERLY 0.900 MILES ON THE MONTPELIER STATE HIGHWAY TO MM 0.900

| | | | |
|---|---|---|---|
| LENGTH OF ROADWAY | 4750.00 | FEET= | 0.900 MILES |
| LENGTH OF PROJECT | 4750.00 | FEET= | 0.900 MILES |

WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES WIDENING OF SECTIONS OF EXISTING ROADWAY AND RAMPS, COLD PLANING AND RESURFACING OF EXISTING ROADWAY AND SHOULDERS WITH BITUMINOUS CONCRETE PAVEMENT. OTHER WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES REMOVING AND RESETTING OF GRANITE CURB, UPGRADING SUBSTANDARD GUARDRAIL AND UPGRADING SIGNS AND SIGNALS.







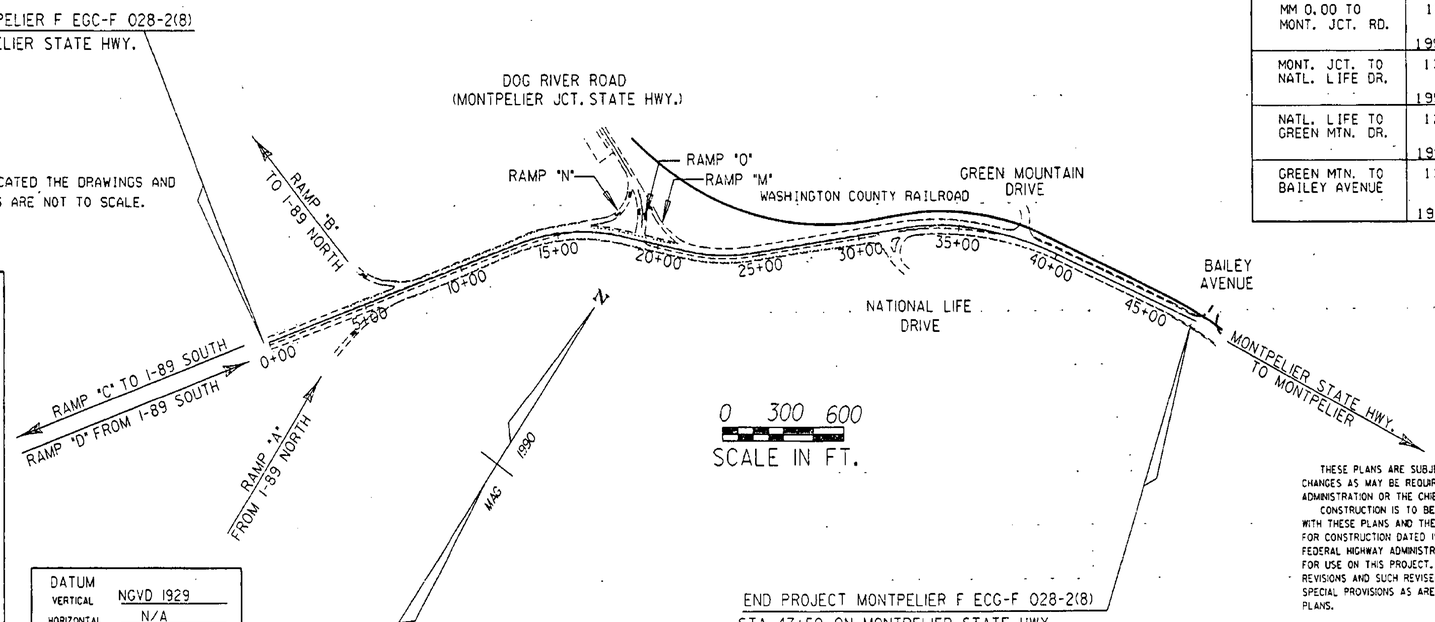
### TRAFFIC DATA
### MONTPELIER STATE HIGHWAY

| SECTION | 1995 AADT | 2015 AADT (DHV) | %T | %D EB, WB |
|---|---|---|---|---|
| MM 0.00 TO MONT. JCT. RD. | 12440 | 16140 (1855) ADTT 970 | 6 | 40 60 |
| | | 1995-2015 18K ESALS(FLEX) = 7,238,000 | | |
| MONT. JCT. TO NATL. LIFE DR. | 13110 | 16860 (1940) ADTT 1010 | 7 | 38 62 |
| | | 1995-2015 18K ESALS(FLEX) = 7,584,000 | | |
| NATL. LIFE TO GREEN MTN. DR. | 12370 | 15900 (1830) ADTT 955 | 7 | 41 59 |
| | | 1995-2015 18K ESALS(FLEX) = 7,154,000 | | |
| GREEN MTN. TO BAILEY AVENUE | 13020 | 16810 (1935) ADTT 1010 | 7 | 46 54 |
| | | 1995-2015 18K ESALS(FLEX) = 7,551,000 | | |

DESIGN SPEED V=50 MPH

BEGIN PROJECT MONTPELIER F EGC-F 028-2(8)
MM 0.000 ON MONTPELIER STATE HWY.
STATION 0+00.00

UNLESS OTHERWISE INDICATED THE DRAWINGS AND DETAILS OF THESE PLANS ARE NOT TO SCALE.




END PROJECT MONTPELIER F EGC-F 028-2(8)
STA. 47+50 ON MONTPELIER STATE HWY.

CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

DBOIBTIT.I

APPROVED _____ DATE 9/16/96
DIRECTOR OF ENGINEERING

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

PROJECT MONTPELIER
F EGC-F 028-2(8)

SHEET 1 OF 118 SHEETS

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| 2 | INDEX OF SHEETS |
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| 5 | TYPICAL FOR RAMP M AND PIER RING DETAILS |
| 6 - 8 | QUANTITY SHEETS |
| 9 | BLANK |
| 10 - 11 | ITEM DETAIL AND DRAINAGE SHEET |
| 12 | EARTHWORK SHEET |
| 13 - 25 | R.O.W. DETAIL SHEETS |
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| 35 | PROFILE RAMP M |
| 36 | TIE SHEET |
| 37 - 40 | BLANKS |
| 41 - 46 | TRAFFIC SIGN AND PAVEMENT MARKING SHEETS |
| 47 - 52 | TRAFFIC SIGN SUMMARY SHEETS |
| 53 | BLANK |
| 54 | TRAFFIC SIGNAL DETAILS SHEET |
| 55 | SIGNAL/LIGHTING NOTES AND DETAILS SHEET |
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| 57 | OVERHEAD TRAFFIC SIGN BRIDGE/FOOTING DETAIL SHEET |
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| | TREATED TIMBER CURB | |
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| D-4 | CORRUGATED STEEL PIPE END SECTION | 06-01-94 |
| D-6 | REINF. CONCRETE DROP INLET W/GRATE (DITCHES) | 06-01-94 |
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| D-9 | REINFORCED CONCRETE DROP INLET TOPS | 06-01-94 |
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| D-15 | CAST IRON GRATE WITH FRAME, TYPE D | 06-01-94 |
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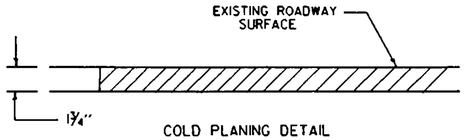
DATUM
VERTICAL N/A
HORIZONTAL N/A

SURVEYED BY N/A DATE N/A
DRAWN BY SQUAD A DATE 8-92
SQUAD LEADER BTN
DESIGN FILE NO. DB018.DGN
FARM FILE DB0181.1 DATE PLOTTED 7-MAR-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 2 OF 118 SHEETS

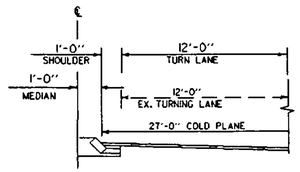
: Sheet Number: 2

# TYPICAL SECTIONS

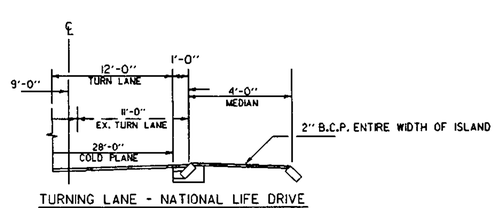
| MATERIAL ITEM | TOTAL DEPTH | THICKNESS TOLERANCE |
|---|---|---|
| PAVEMENT | 9 1/4" | ± 1/4" |
| SUBBASE | 21" | ± 1" |
| SAND | 6" | ± 1" |



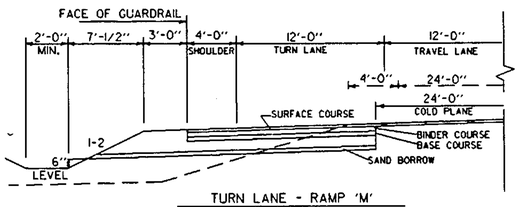

COLD PLANING DETAIL




TURNING LANE - RAMP 'O'
16+00 RT - 18+45 RT




TURNING LANE - NATIONAL LIFE DRIVE
32+00 RT - 33+25 RT

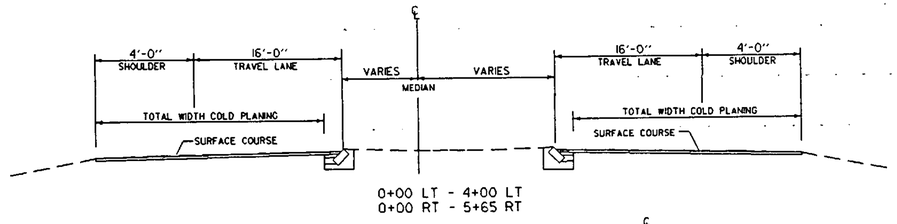



TURN LANE - RAMP 'M'
21+00 LT - 24+70 LT

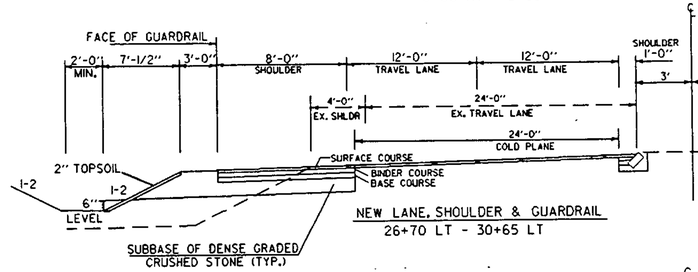
- 1 3/4" COLD PLANING (REFER TO DETAIL ON SHEET 5)
- 1 3/4" BITUMINOUS CONCRETE PAVEMENT, TYPE III (INCLUDING COLD PLANED AREAS)
- 2 1/2" BITUMINOUS CONCRETE PAVEMENT, TYPE II
- 5" BITUMINOUS CONCRETE PAVEMENT, TYPE I (TO BE APPLIED IN TWO LIFTS OF 2 1/2")
- 21" SUBBASE OF DENSE GRADED CRUSHED STONE
- 6" SAND BORROW (STA. 0+00 - STA. 26+50)

SHOULDERS: FULL DEPTH OF SUBBASE AND PAVEMENT

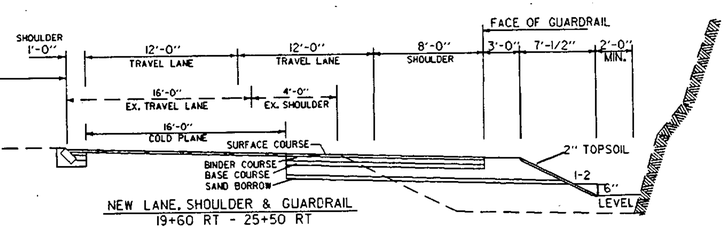
NOTE:
1.) WHERE NO WIDENING - MATCH EXISTING CROSS SLOPE, GRADES, & PARABOLICS.
2.) WHERE WIDENING - MATCH EXISTING PARABOLIC WHERE COLD PLANING, NEW LANE .02IFT/FT.



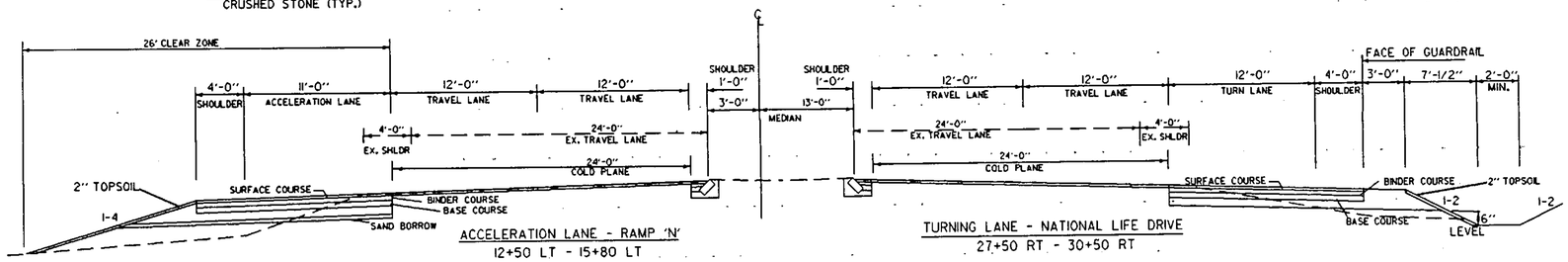

0+00 LT - 4+00 LT
0+00 RT - 5+65 RT




NEW LANE, SHOULDER & GUARDRAIL
26+70 LT - 30+65 LT

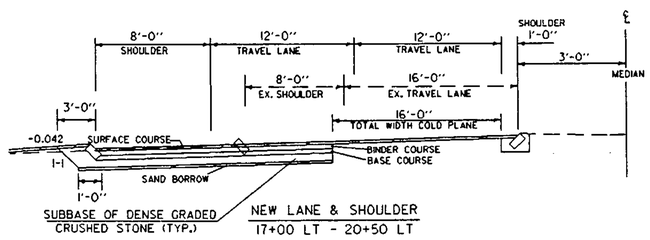



NEW LANE, SHOULDER & GUARDRAIL
19+60 RT - 25+50 RT

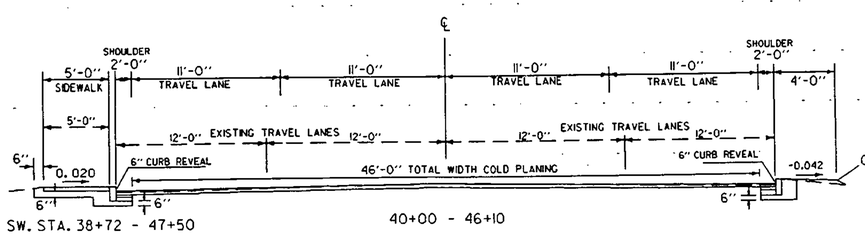



ACCELERATION LANE - RAMP 'N'
12+50 LT - 15+80 LT

TURNING LANE - NATIONAL LIFE DRIVE
27+50 RT - 30+50 RT




SUBBASE OF DENSE GRADED CRUSHED STONE (TYP.)
NEW LANE & SHOULDER
17+00 LT - 20+50 LT




SW. STA. 38+72 - 47+50
40+00 - 46+10

NOT TO SCALE

## SEEDING FORMULA
## RURAL AREAS

| % WT. | LBS./A. | NAME | PUR % | GERM % |
|---|---|---|---|---|
| 37.5 | 22.5 | CREEPING RED FESCUE | 98 | 85 |
| 37.5 | 22.5 | TALL FESCUE | 95 | 90 |
| 5.0 | 3.0 | RED TOP | 95 | 90 |
| 15.0 | 9.0 | BIRDSFOOT TREFOIL | 98 | 85 |
| 5.0 | 3.0 | ANNUAL RYEGRASS | 95 | 85 |
| 100.0 | 60.0 | | | |

### GENERAL NOTES

SEED MIXTURE: SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT 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 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA).

AGRICULTURAL LIMESTONE: TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE, 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-5.

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

TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.015 GAL/SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER.

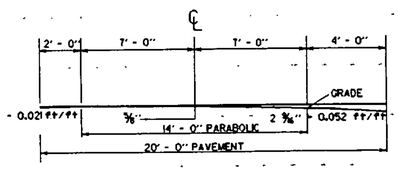
| | | | |
|---|---|---|---|
| REVISED BY | KML | DATE | 6-95 |
| DRAWN BY | J.A.G. | DATE | 12/90 |
| SQUAD LEADER | NYQUIST | | |
| DESIGN FILE NO. | /500A/998019/DB018TYP.DGN | | |
| IPARM | db018typ1,1 | DATE PLOTTED | 7-MAR-1996 |
| PROJ. NAME | MONTPELIER | | |
| PROJ. NO. | FEGC-F 028-2(8) | | |
| SHEET 3 OF 118 SHEETS | | | |

: Sheet Number: 3

| MATERIAL ITEM | TOTAL DEPTH | THICKNESS TOLERANCE |
|---|---|---|
| PAVEMENT | 9¼" | ± ¼" |
| SUBBASE | 21" | ± 1" |
| SAND | 6" | ± 1" |

RAMP "M" TYPICAL SECTION

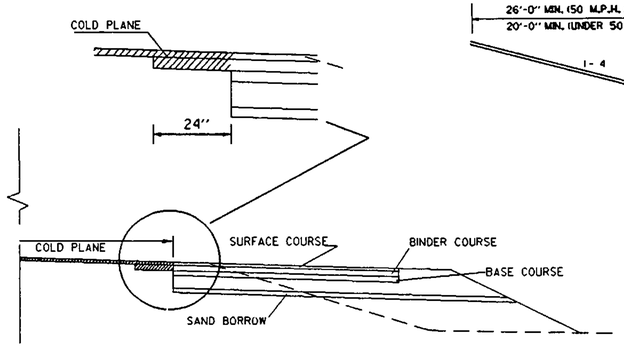
1¾" COLD PLANNING
1¾" BITUMINOUS CONCRETE PAVEMENT, TYPE III (INCLUDING COLD PLANED AREAS)
2½" BITUMINOUS CONCRETE PAVEMENT, TYPE II
5" BITUMINOUS CONCRETE PAVEMENT, TYPE I (TO BE APPLIED IN TWO 2½" LIFTS)
21" SUBBASE OF DENSE GRADED CRUSHED STONE
6" SAND BORROW

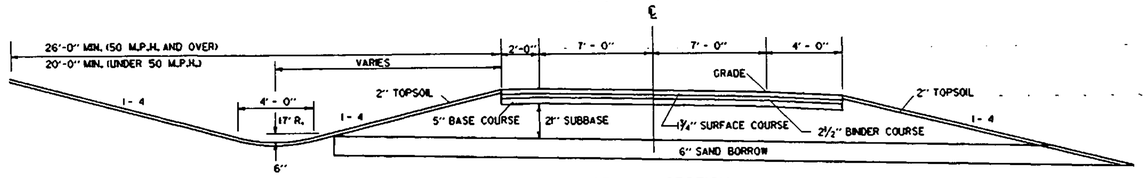



CROSS-SLOPE & PARABOLIC DETAIL

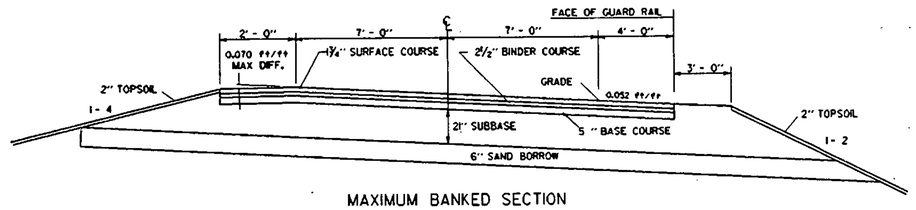
NOTE:
1.) WHERE NO WIDENING - MATCH EXISTING CROSS SLOPE, GRADES, & PARABOLICS.
2.) WHERE WIDENING - MATCH EXISTING PARABOLIC WHERE COLD PLANING, NEW -LANE .021FT/FT.

COLD PLANING JOINT STEP DETAIL



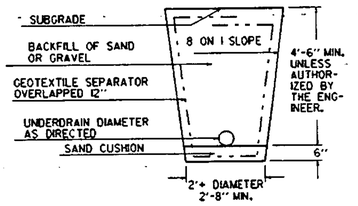




NORMAL SECTION



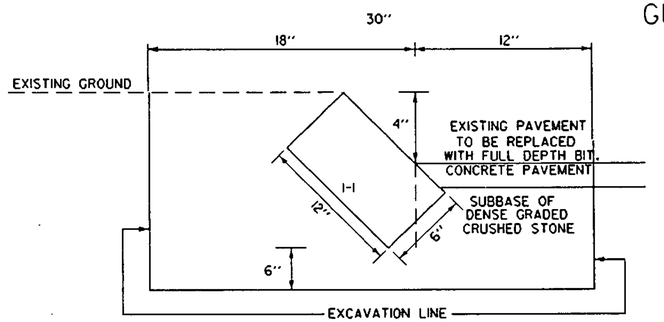

MAXIMUM BANKED SECTION

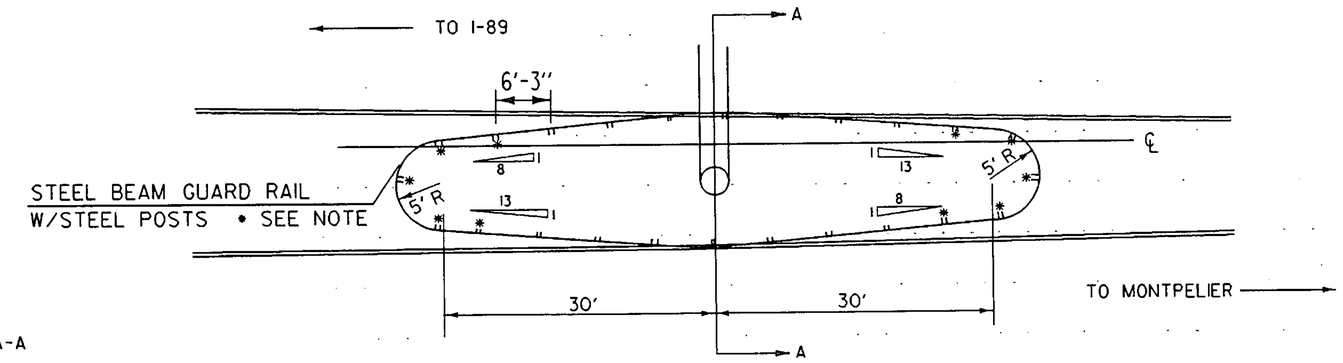
UNDERDRAIN CONSTRUCTION




N. T. S.

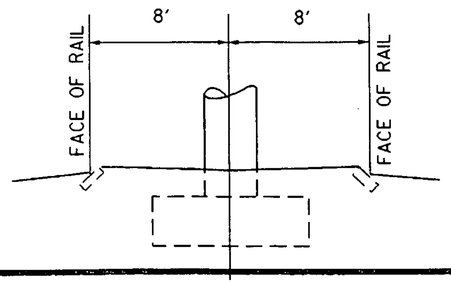
## GUARD RAIL DETAILS FOR OVERHEAD SIGN SUPPORT




STATION 6+75 AND 24+50

SECTION A-A




*NOTE: THE FIRST (5) GUARD RAIL POSTS ON EACH END OF PIER RING SHALL BE WOOD.

N. T. S.

REVISED BY KML DATE 6-95
DRAWN BY PJR DATE
SQUAD LEADER NYQUIST
DESIGN FILE NO. sgdg/89b018/db018typ.dgn
PRF FILE db018ty3.f DATE PLOTTED
PROJ. NAME MONTPELIER
PROJ. NO. F 028-2(8)S
SHEET 5 OF 118 SHEETS

: Sheet Number: 5

# QUANTITY SHEET

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

## SUMMARY OF ESTIMATED QUANTITIES

| TRAINING | EROSION CONTROL | | | | NON-GVMT PART. | ROADWAY | QUANTITIES GRAND TOTAL | UNIT | ITEMS | ITEM NO. | ROUNDING |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1 | 1 | LS | CLEARING AND GRUBBING ( PLUS INDIVIDUAL TREES AND STUMPS ) | 201.10 | EST. |
| | | | | | | 9900 | 9900 | CY | COMMON EXCAVATION | 203.15 | -- |
| | | | | | | 200 | 200 | CY | SOLID ROCK EXCAVATION | 203.16 | 51 |
| | | | | | | 20 | 20 | CY | EARTH BORROW | 203.30 | 4 |
| | | | | | | 1780 | 1780 | CY | SAND BORROW | 203.31 | 16 |
| | | | | | | 14100 | 14100 | SY | FINE GRADING-SUBGRADE | 203.40 | 33 |
| | 90 | | | | | 1510 | 1600 | CY | TRENCH EXCAVATION OF EARTH | 204.20 | - |
| | | | | | | 50 | 50 | CY | TRENCH EXCAVATION OF ROCK | 204.21 | 0.9 |
| | | | | | | 22500 | 22500 | SY | COLD PLANING-BITUMINOUS PAVEMENT | 210.10 | 79 |
| | 450 | | | | | 8750 | 9200 | CY | SUBBASE DENSE GRADED CRUSHED STONE | 301.35 | 35 |
| | | | | | | 75 | 75 | CWT | EMULSIFIED ASPHALT | 404.65 | 2 |
| | | | | | | 8250 | 8250 | TON | BITUMINOUS CONCRETE PAVEMENT (PG 70-28) | 406.25 | - |
| | | | | | | 53 | 53 | CY | CONCRETE, CLASS B | 501.25 | 1.4 |
| | | | | | | 4450 | 4450 | LB | REINFORCING STEEL | 507.15 | 32 |
| | | | | | | 8 | 8 | LF | 18'' CSP .064 (2-2/3X1/2) | 601.0015 | |
| | | | | | | 12 | 12 | LF | 30'' CSP .079 (2-2/3X1/2) | 601.0036 | - |
| | | | | | | 12 | 12 | LF | 60'' CSP .138 (2-2/3X1/2) | 601.0068 | - |
| | | | | | | 10 | 10 | LF | 24'' RCP CLASS III | 601.0825 | - |
| | | | | | | | | | • BEGIN OPTION ITEM • | | |
| | | | | | | 16 | 16 | LF | 12'' CSP .064 (2-2/3X1/2) | 601.0005 | - |
| | | | | | | 16 | 16 | LF | 12'' RCP CLASS III | 601.0805 | - |
| | | | | | | 16 | 16 | LF | 12'' CPEP (SL) | 601.2605 | - |
| | | | | | | 116 | 116 | LF | 18'' CSP .064 (2-2/3X1/2) | 601.0015 | - |
| | | | | | | 116 | 116 | LF | 18'' RCP CLASS III | 601.0815 | - |
| | | | | | | 116 | 116 | LF | 18'' CPEP (SL) | 601.2615 | - |
| | | | | | | 1140 | 1140 | LF | 18'' CAAP .060 (2-2/3X1/2) | 601.0215 | - |
| | | | | | | 1140 | 1140 | LF | 18'' PCCSP .064 (2-2/3X1/2) | 601.0415 | - |
| | | | | | | 1140 | 1140 | LF | 18'' RCP CLASS III | 601.0815 | - |
| | | | | | | 1140 | 1140 | LF | 18'' CPEP (SL) | 601.2615 | - |
| | | | | | | 361 | 361 | LF | 24'' CSP .064 (2-2/3X1/2) | 601.0025 | - |
| | | | | | | 361 | 361 | LF | 24'' RCP CLASS III | 601.0825 | - |
| | | | | | | 361 | 361 | LF | 24'' CPEP (SL) | 601.2620 | - |
| | | | | | | | | | • END OPTION ITEM • | | |
| | | | | | | 27 | 27 | CY | CEMENT RUBBLE MASONRY | 602.15 | 0.2 |
| | | | | | | 1 | 1 | EA | PRC CURB DROP INLET W/CAST IRON GR | 604.30 | |
| | | | | | | 23 | 23 | EA | REHABILITATION OF DI, CB, OR MH | 604.41 | - |
| | | | | | | 13 | 13 | EA | CI GRATE W/FRAME TYPE A | 604.45 | - |
| | | | | | | 2 | 2 | EA | CAST IRON COVER WITH FRAME | 604.50 | - |
| | | | | | | 5 | 5 | EA | CI GRATE W/FRAME TYPE D | 604.51 | - |
| | | | | | | 1 | 1 | EA | CAPPING EXISTING DROP INLETS | 604.60 | - |
| | | | | | | 1000 | 1000 | LF | 6'' UNDERDRAIN | 605.10 | |
| | | | | | | 360 | 360 | LF | 8'' UNDERDRAIN | 605.11 | 6 |
| | | | | | | 40 | 40 | LF | 6'' UNDERDRAIN CARRIER PIPE | 605.20 | |
| | | | | | | 10 | 10 | LF | 8'' UNDERDRAIN CARRIER PIPE | 605.21 | 6 |
| | | | | | | 6 | 6 | EA | UNDERDRAIN FLUSHING BASIN | 605.95 | - |
| | | | | | | 10 | 10 | HR | ROADWAY PATROL MAINTENANCE | 607.10 | EST. |
| | | | | | | 1 | 1 | HR | BULLDOZER RENTAL, TYPE I (NABI) | 608.10 | EST. |
| | | | | | | 1 | 1 | HR | ALL PURP. EXCAVATOR RENTAL, TYPE I(NABI) | 608.25 | EST. |
| | | | | | | 20 | 20 | HR | POWER BROOM RENTAL | 608.30 | EST. |
| | | | | | | 1 | 1 | HR | TRUCK RENTAL (NABI) | 608.37 | EST. |
| | | | | | | 350 | 350 | MGAL | DUST CONTROL W/WATER | 609.10 | EST. |
| | | | | | | 2 | 2 | TON | DUST AND ICE CONTROL W/CALC. CHLORIDE | 609.15 | .5 |

## DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|
| | | COMMON EXCAVATION |
| 9852 | CY | MAINLINE |
| 48 | CY | ROUNDING |
| 9900 | CY | TOTAL |
| | | BITUMINOUS CONCRETE PAVEMENT |
| 3623 | TON | MAINLINE TYPE I |
| 1665 | TON | MAINLINE TYPE II |
| 2940 | TON | MAINLINE TYPE III |
| 22 | TON | ROUNDING |
| 8250 | TON | TOTAL |
| | | TRENCH EXCAVATION OF EARTH |
| 966 | CY | DESIGNED DRAINAGE |
| 500 | CY | UNDERDRAIN |
| 35 | CY | FOR SLOPE STABILIZATION |
| 9 | CY | ROUNDING |
| 1510 | CY | TOTAL |
| | | TEMPORARY EROSION CONTROL ( INCLUDED WITH EROSION CONTROL ITEMS) |
| 90 | CY | TRENCH EXCAVATION OF EARTH |
| 450 | CY | SUBBASE OF DENSE GRADED CRUSHED STONE |
| 45 | CY | STONE FILL, TYPE I |
| 400 | SY | GEOTEXTILE FOR SILT FENCE |
| 55 | LB | SEED-WINTER RYE |
| 2 | TON | HAY MULCH |
| 180 | SY | EROSION MATTING |
| 200 | EA | HAY BALES FOR EROSION CONTROL |
| | | SUBBASE OF DENSE GRADED CRUSHED STONE |
| 7710 | CY | MAINLINE |
| 969 | CY | SIDEWALK |
| 36 | CY | BIT. CONCETE GUTTER AND TRAFFIC ISLANDS |
| 35 | CY | ROUNDING |
| 8750 | CY | TOTALS |
| | | TRENCH EXCAVATION OF ROCK |
| 31.1 | CY | DESIGNED DRAINAGE |
| 18.9 | CY | ROUNDING |
| 50 | CY | TOTALS |

## DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|

SURVEYED BY _____ DATE _____
DRAWN BY SQUAD A DATE 8-92
SQUAD LEADER BTN
DESIGN FILE NO. /sgdo/89b018/db018.dgn
IPARM FILE db018qsl.I DATE PLOTTED 12-MAR-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 6 OF 118 SHEETS

: Sheet Number: 6

# QUANTITY SHEET

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

SUMMARY OF ESTIMATED QUANTITIES

| TRAINING | EROSION CONTROL | | | | NON-GVMT PART. | ROADWAY | QUANTITIES GRAND TOTAL | UNIT | ITEMS | ITEM NO. | ROUNDING |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 45 | | | | | 481 | 550 | CY | STONE FILL, TYPE I | 613.10 | 24 |
| | | | | | | 610 | 610 | CY | STONE FILL, TYPE II | 613.11 | |
| | | | | | | 710 | 710 | LF | GRANITE SLOPE EDGING, (MOD.) | 616.20 | 8 |
| | | | | | | 2370 | 2370 | LF | VERTICAL GRANITE CURB | 616.21 | 22 |
| | | | | | | 2125 | 2125 | LF | TREATED TIMBER CURB | 616.35 | 24 |
| | | | | | | 8450 | 8450 | LF | REMOVING AND RESETTING CURB | 616.40 | 27 |
| | | | | | | 1400 | 1400 | LF | REMOVAL OF EXISTING CURB | 616.41 | 34 |
| | | | | | | 22 | 22 | TON | BIT. CONCRETE GUTTERS & TRAFFIC ISLANDS | 616.47 | 1 |
| | | | | | | 505 | 505 | SY | PORTLAND CEMENT CONCRETE SIDEWALK, 5'' | 618.10 | |
| | | | | | | 4 | 4 | EA | BOUNDARY MARKERS | 619.10 | EST. |
| | | | | | | 39 | 39 | EA | YIELDING MARKER POST | 619.17 | - |
| | | | | | | 5947 | 5947 | LF | STEEL BEAM GUARD RAIL | 621.20 | - |
| | | | | | | 100 | 100 | LF | STEEL BEAM GUARD RAIL (W/8' POSTS)(MOD.) | 621.20 | EST. |
| | | | | | | 5 | 5 | EA | MODIFIED ECCENTRIC LOADER TERMINAL | 621.52 | - |
| | | | | | | 2 | 2 | EA | ANCHOR FOR STEEL BEAM GUARD RAIL | 621.60 | - |
| | | | | | | 3250 | 3250 | LF | REMOVAL AND DISPOSAL OF GUARD RAIL | 621.80 | 22 |
| | | | | | | 1000 | 1000 | HR | UNIFORMED TRAFFIC OFFICERS | 630.10 | EST. |
| | | | | | | 1000 | 1000 | HR | FLAGGERS | 630.15 | EST. |
| | | | | | | 1 | 1 | LS | FIELD OFFICE - ENGINEERS | 631.10 | - |
| | | | | | | 1 | 1 | LS | TESTING EQUIPMENT - CONCRETE | 631.16 | - |
| | | | | | | 1 | 1 | LS | TESTING EQUIPMENT - BITUMINOUS | 631.17 | - |
| | | | | | | 1 | 1 | LS | FIELD OFFICE TELEPHONE (NABI) | 631.25 | - |
| 520 | | | | | | | 520 | HR | EMPLOYEE TRAINEESHIP | 634.10 | EST. |
| | | | | | | 1 | 1 | LS | MOBILIZATION | 635.10 | EST. |
| | | | | | | 1 | 1 | LS | TRAFFIC CONTROL | 641.10 | EST. |
| | | | | | | 800 | 800 | LF | PAINTED CURB | 646.27 | - |
| | | | | | | 14005 | 14005 | LF | DURABLE 4'' WHITE LINE | 646.40 | - |
| | | | | | | 10560 | 10560 | LF | DURABLE 4'' YELLOW LINE | 646.41 | - |
| | | | | | | 1410 | 1410 | LF | DURABLE 8'' WHITE LINE | 646.42 | - |
| | | | | | | 190 | 190 | LF | DURABLE 8'' YELLOW LINE | 646.43 | - |
| | | | | | | 145 | 145 | LF | DURABLE 24'' STOP BAR | 646.46 | - |
| | | | | | | 87 | 87 | EA | DURABLE LETTER OR SYMBOL | 646.50 | - |
| | | | | | | 42015 | 42015 | LF | TEMPORARY 4'' WHITE LINE | 646.60 | - |
| | | | | | | 31680 | 31680 | LF | TEMPORARY 4'' YELLOW LINE | 646.61 | - |
| | | | | | | 4230 | 4230 | LF | TEMPORARY 8'' WHITE LINE | 646.62 | - |
| | | | | | | 570 | 570 | LF | TEMPORARY 8'' YELLOW LINE | 646.63 | - |
| | | | | | | 435 | 435 | LF | TEMPORARY 24'' STOP BAR | 646.66 | - |
| | | | | | | 87 | 87 | EA | TEMPORARY LETTER OR SYMBOL | 646.70 | - |
| | | | | | | 1000 | 1000 | EA | LINE STRIPING TARGETS | 646.73 | EST. |

DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|

DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|

| | | |
|---|---|---|
| SURVEYED BY | | DATE |
| DRAWN BY | SQUAD A | DATE 8-92 |
| SQUAD LEADER | BTN | |
| DESIGN FILE NO. | /sqda/89b018/db018.dgn | |
| IFARM FILE | db018qs2.1 | DATE PLOTTED 12-MAR-1996 |
| PROJ. NAME | MONTPELIER | |
| PROJ. NO. | FEGC-F 028-2(8) | |
| SHEET 7 OF 118 SHEETS | | |

: Sheet Number: 7

# QUANTITY SHEET

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

SUMMARY OF ESTIMATED QUANTITIES

| TRAINING | EROSION CONTROL | | | | NON-GVMT PART. | ROADWAY | QUANTITIES GRAND TOTAL | UNIT | ITEMS | ITEM NO. | ROUNDING |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 600 | 600 | SY | GEOTEXTILE UNDER STONE FILL | 649.31 | 1 |
| | | | | | | 2150 | 2150 | SY | GEOTEXTILE FOR UNDERDRAIN LINING | 649.41 | |
| | 1300 | | | | | | 1300 | SY | GEOTEXTILE FOR SILT FENCE | 649.51 | EST. |
| | 240 | | | | | | 240 | LB | SEED | 651.15 | - |
| | 55 | | | | | | 55 | LB | SEED-WINTER RYE | 651.17 | - |
| | 2000 | | | | | | 2000 | LB | FERTILIZER | 651.18 | - |
| | 8 | | | | | | 8 | TON | AGRICULTURAL LIMESTONE | 651.20 | - |
| | 10 | | | | | | 10 | TON | HAY MULCH | 651.25 | - |
| | 200 | | | | | | 200 | EA | HAY BALES FOR EROSION CONTROL | 651.26 | EST. |
| | | | | | | 100 | 100 | CY | TOPSOIL | 651.35 | EST. |
| | | | | | | 1200 | 1200 | SY | GRUBBING MATERIAL | 651.40 | 28 |
| | 180 | | | | | | 180 | SY | EROSION MATTING | 654.10 | - |
| | | | | | | 391 | 391 | SF | TRAFFIC SIGNS, TYPE A | 675.20 | .38 |
| | | | | | | 310 | 310 | SF | TRAFFIC SIGNS, TYPE B | 675.21 | - |
| | | | | | | 2081 | 2081 | LB | FLANGED CHANNEL SIGN POST | 675.30 | - |
| | | | | | | 38 | 38 | LB | TUBULAR ALUMINUM SIGN POST | 675.32 | - |
| | | | | | | 86 | 86 | EA | REMOVING SIGNS | 675.50 | - |
| | | | | | | 11 | 11 | EA | ERECTING SALVAGED SIGNS | 675.60 | - |
| | | | | | | 40 | 40 | EA | DELINEATORS W/STEEL POSTS | 676.10 | - |
| | | | | | | 51 | 51 | EA | REMOVAL OF EXISTING DELINEATORS | 676.12 | - |
| | | | | | | 1 | 1 | EA | OVERHEAD TRAFFIC SIGN SUPPORT, MULTI-SUPPORT(STA 24+50) | 677.13 | - |
| | | | | | | 1 | 1 | EA | TRAFFIC CONTROL SIGNAL SYSTEM-INTERSECT. (MOD) | 678.15 | - |
| | | | | | | 40 | 40 | LF | ELECTRICAL CONDUIT, -2'' | 678.21 | - |
| | | | | | | 175 | 175 | LF | VEHICLE LOOP DETECTOR | 678.22 | - |
| | | | | | | 80 | 80 | LF | WIRED CONDUIT, -1 1/2'' | 678.23 | - |
| | | | | | | 40 | 40 | LF | WIRED CONDUIT, 2'' | 678.23 | - |
| | | | | | | 1 | 1 | EA | PULLBOX-STANDARD | 678.25 | - |
| | | | | | 24 | | 24 | SF | TRAVEL INFORMATION SIGNS (MOD.) | 680.20 | - |
| | | | | | | 10 | 10 | CY | BALLAST | 910.10 | EST. |

DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|

DETAILED SUMMARY OF QUANTITIES

| QUANTITIES | UNIT | ITEMS |
|---|---|---|

SURVEYED BY _____ DATE _____
DRAWN BY SQUAD A DATE 8-92
SQUAD LEADER BTN
DESIGN FILE NO. /sgda/89b018/db018.dgn
IPARM FILE db018qs3.1 DATE PLOTTED 7-MAR-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 8 OF 118 SHEETS

: Sheet Number: 8

# ITEM DETAIL AND DRAINAGE SHEET

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

## DRAINAGE STRUCTURES

| STA. | STA. | POSITION | ASKEW | TYPE | DITCH | | PIPE ARCH | | | PIPE | | ALLOWABLE OPTIONS | | | | | | PIPE ELBOW | ES | CB | DEPTH | CONC CL B | REIN STEEL | DI GRATE | CHAN ELEV | CRM | TR EXCAV EARTH | TR EXCAV ROCK | COMM EXC | UNC CHAN EXC | STRUC EXCAV | GRAN BKF STRUC | GRAN BORR | EROS MATT | STONE FILL | | MRKR POSTS | | EARTH BORR | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | IN/OUT | IN | OUT | S IN | R IN | L FT | D IN | L FT | PCCSP TH | CAAP TH | RCP CL | CSP TH | CPEP SL | PCCSP R TH | NO-DEG | EA | | DI | CY | LBS | TYPE | EA | CY | EARTH CY | ROCK CY | CY | CY | CY | CY | SY | CY | TYPE | LT | RT | | |
| 0+00 | | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | EXISTING 18" ACCGMP-RETAIN |
| 0+00 | | CL | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | EXISTING 18" ACCGMP-RETAIN |
| 0+00 | 2+50 | RT | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | EXISTING 24" RCP-RETAIN |
| 2+50 | 5+49 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | EXISTING 24" RCP-RETAIN |
| 5+05 | 7+00 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EXISTING 24" RCP-RETAIN |
| 5+49 | | CL | | DI | | | | | | 24 | 10 | | | III | | | | | | | | | | | | | 5 | 2.7 | | | | | | | | 1 | | EXISTING 24" RCP-RETAIN & EXTEND OUTLET. REMOVE HDWL. |
| 5+49 | 5+95 | LT | | DI/DI | | | | | | 24 | 46 | | | III | .064 | X | | | | 4.5 | 2.3 | 200 | 1-A | | | 18 | | | | | | | | | | 1 | | |
| 5+95 | 6+55 | LT | | DI | | | | | | | | | | | | | | | | 5.5 | 3.6 | 288 | 2-A | | | 9 | 2.7 | | | | | | | | | 1 | | EXISTING 24" RCP-RETAIN, NEW 4' X 6' RCDI, REMOVE HW |
| 6+02 | 6+09 | LT | | DI | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | EXISTING 18" ACCGMP- RETAIN |
| 6+60 | 9+75 | LT | | HW/HW | | | | | | 24 | 315 | | | III | .064 | X | | | | | | | | | 6.4 | 78 | | | | | | | | | | 2 | | | INLET & OUTLET NEW L HEADWALLS |
| 7+00 | | RT | | | | | | | | | | | | | | | | | | 0.6 | 38 | | | | | 2 | | | | | | | | | | 1 | | EXISTING 24" RCP-RETAIN NEW 4'X4'X12" DI TOP (NO GRATE) |
| 7+05 | 17+00 | RT | | | | | | | | | | | | | | | | | | | | | | | | 68 | | | | | | | | 260 | 1 | | | CONSTRUCT SPECIAL DITCH |
| 8+00 | | LT | | | | | | | | | | | | | | | | | | | | | | | | 10 | 4.2 | | | | | | | | | | 16 | EXISTING 18" RCP - REMOVE, EXISTING RCDI @ INLET & HW @ OUTLET REMOVE |
| 8+00 | 10+00 | RT | | DI/DI | | | | | | 18 | 200 | .064 | | III | .064 | X | | | | 5.0 | 2.6 | 231 | 1-A | | | 80 | | | | | | | | | | | | |
| 9+75 | 10+75 | LT | | | | | | | | | | | | | | | | | | | | | | | | 12 | | | | | | | | 19 | 1 | | | CONSTRUCT SPECIAL DITCH - COMMON EXCAVATION |
| 10+00 | | LT | | DI | | | | | | 18 | 16 | | | III | .064 | X | | | | 4.5 | 2.3 | 200 | 1-A | | | 4 | | | | | | | | | | 1 | | |
| 10+00 | 12+00 | RT | | DI/DI | | | | | | 18 | 200 | .064 | | III | .064 | X | | | | 4.0 | 2.1 | 193 | 1-A | | | 56 | | | | | | | | | | | | |
| 12+00 | 14+00 | RT | | DI/DI | | | | | | 18 | 200 | .064 | | III | .064 | X | | | | 4.0 | 2.1 | 193 | 1-A | | | 8 | | | | | | | | | | | | |
| 14+00 | 16+00 | RT | | DI/DI | | | | | | 18 | 188 | .064 | | III | .064 | X | | | | 4.5 | 2.3 | 200 | 1-A | | | 31 | | | | | | | | | | | | |
| 15+51 | | CL | | HW | | | | | | 18 | 8 | | | | .064 | | | | | | | | | 1 | 1.8 | 3 | 1.8 | | | | | | | | | 1 | | EXISTING 18" ACCGMP - RETAIN AND EXTEND, REMOVE EXISTING HW AND REPLACE W/NEW HW |
| 16+00 | | RT | | DI | | | | | | 18 | 20 | | | III | .064 | X | | | | 7.5 | 3.7 | 316 | 1-A | | | 7 | | | | | | | | | | | | CONSTRUCT SPECIAL DITCH - COMMON EXCAVATION |
| 17+15 | 18+25 | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EXISTING 18" ACCGMP - RETAIN REMOVE HDWL |
| 18+42 | | CL | | DI | | | | | | | | | | | | | | | | | | | | 1 | | 2 | | | | | | | | | 1 | | |
| 18+42 | 19+75 | RT | | DI/DI | | | | | | 18 | 184 | .064 | | III | .064 | X | | | | 7.0 | 3.5 | 308 | 1-A | | | 66 | | | | | | | | | | 1 | | |
| 18+54 | 18+72 | LT | | DI/DI | | | | | | 18 | 22 | | | III | .064 | X | | | | 5.5 | 2.8 | 239 | 1-A | | | 19 | | | | | | | | | | 1 | | |
| 18+54 | 19+50 | LT | | DI | | | | | | | | | | | | | | | | 5.5 | 3.2 | 255 | 1-D | | | 51 | 3.6 | | | | | | | | | | | EXISTING 18" ACCGMP-REMOVE FROM 18+54-19+24 LT AND DI @ 18+54 LT |
| 18+72 | 19+24 | LT | | DI/DI | | | | | | 18 | 50 | .064 | | III | .064 | X | | | | 6.5 | 3.2 | 278 | 1-D | | | 45 | | | | | | | | | | | | |
| 19+25 | 19+80 | RT | | | | | | | | | | | | | | | | | | | | | | | | 6 | | | | | | | | 17 | 1 | | | CONSTRUCT SPECIAL DITCH |
| 19+50 | 20+50 | LT | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | EXISTING 18" ACCGMP-RETAIN |
| 19+75 | | RT | | DI | | | | | | 18 | 16 | | | III | .064 | X | | | | 5.0 | 2.6 | 231 | 1-D | | | 8 | | | | | | | | | | 1 | | |
| 20+25 | 20+89 | LT | | DI/DI | | | | | | 18 | 62 | .064 | | III | .064 | X | | | | 8.0 | 3.9 | 347 | 1-A | | | 60 | | | | | | | | | | | | |
| 20+77 | 21+30 | LT | | | | | | | | | | | | | | | | | | | | | | | | 30 | 3.5 | | | | | | | | | | | EXISTING 18" ACCGMP AND RCDI @ INLET-REMOVE |
| 20+89 | 21+55 | LT | | DI/DI | | | | | | 18 | 56 | .064 | | III | .064 | X | | | | 8.0 | 3.9 | 347 | 1-D | | | 37 | | | | | | | | | | | | |
| 21+20 | 21+46 | RT | | | | | | | | | | | | | | | | | | | | | | | | 7 | | | | | | | | 7 | 1 | | | CONSTRUCT SPECIAL DITCH |
| 21+30 | | LT | | | | | | | | | | | | | | | | | | | | | | | | 37 | 5.3 | | | | | | | | | | | EXISTING 18" ACCGMP W/RCDI @ INLET-REMOVE |
| 21+46 | | CL | | HW | | | | | | 60 | 12 | | | | .138 | | | | | | | | | | 12.3 | 24 | | | | | | | | 20 | 11 | 1 | | EX. 60" ACCGMP-RETAIN, REMOVE HDWL. EXTEND NEW 60"X12' CSP RT W/NEW HW |
| 21+55 | | LT | | | | | | | | 18 | 36 | | | III | .064 | X | | | | 7.5 | 3.7 | 316 | 1-D | | | 24 | 1 | | | | | | | | | 1 | | CONSTRUCT OUTLET IN EXISTING HW |
| TOTALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## GUARD RAIL

| STA. | STA. | LT. | RT. | END TREATMENT MELT | END TREATMENT ANCHOR |
|---|---|---|---|---|---|
| NEW STEEL BEAM | | | | | |
| 3+40 | 5+27.5 | 187.5 | | | |
| 5+27.5 | 5+65 | X | | 1 | |
| 6+00 (RAMP "B") | | 2 | | | 1 |
| 6+00 | 11+68 | 568 | | | |
| 11+68 | 12+05.5 | X | | 1 | |
| 6+62.5 | 7+00 | | X | 1 | |
| 7+00 | 30+75 | | 2362.5 | | |
| 30+75 | | | 2 | | 1 |
| RAMP "D" | | | | | |
| 39+19 | 39+56.5 | | X | 1 | |
| 39+19 | ML35+50 | | 2525 | | |
| ML35+50 | ML35+87.5 | | X | 1 | |
| PIER RING | | | | | |
| 6+75 | | | 150 | | |
| PIER RING | | | | | |
| 24+50 | | | 150 | | |
| TOTALS: | | 5947 | | 5 | 2 |
| TOTALS | | | | | |

## UNDERDRAIN

| STA. | STA. | TYPE | POS. | D | L | TRENCH E | TRENCH R | GRAN BKF | FB | GEO UND LIN | MRKR PST |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SEE SHEET 11 | | | | | | | | | | | |
| TOTALS | | | | | | | | | | | |

PROJECT NAME MONTPELIER
PROJECT NUMBER FEGC-F 028-2(8)

DB0181 1
SHEET 10 OF 118 SHEETS

: Sheet Number: 10

# ITEM DETAIL AND DRAINAGE SHEET

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

## DRAINAGE STRUCTURES

| STA. | STA. | POSITION | ASKEW | TYPE IN/OUT | DITCH IN | DITCH OUT | PIPE ARCH S IN | PIPE ARCH R IN | PIPE ARCH L FT | PIPE D IN | PIPE L FT | ALLOWABLE OPTIONS PCCSP TH | CAAP TH | RCP CL | CSP TH | CPEP SL | PCCSP FL TH | PIPE ELBOW NO-DEG | E/S EA | CB | PRECAST | DEPTH DI | CONC CL B CY | REIN STEEL LBS | DI GRATE TYPE | CHAN ELEV EA | CRM CY | TR EXCAV EARTH CY | TR EXCAV ROCK CY | COMM EXC CY | UNC CHAN EXC CY | STRUC EXCAV CY | GRAN BKF STRUC CY | GRAN BORR CY | EROS MATT SY | STONE FILL CY | STONE FILL TYPE | MRKR POSTS LT | MRKR POSTS RT | EARTH BORR | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23+97 | | LT | | DI | | | | | | 12 | 16 | | | III | .064 | x | | | | | 1 | | | | | | | 2 | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 25+00 | 30+90 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | 144 | | | | | | | | 178 | I | | | CONSTRUCT SPECIAL DITCH |
| 25+00 | | CL | | | | | | | | 30 | 12 | | | | .079 | | | | | | | | | | | 3.5 | 3 | 3.5 | | | | | | | | | 1 | | EXISTING 30" ACCGMP-RETAIN, EXISTING HW @ 25+00 RT-REMOVE |
| 25+50 | | RT | | HW | | | | | | | | | | | | | | | | | | | | | 1 | 1.8 | 2 | 1 | | | | | | | | | 1 | | EXISTING 18" ACCGMP - RETAIN, INLET DI - REHAB, OUTLET |
| 27+31 | | CL | | | | | | | | | | | | | | | | | | | | 0.5 | | | | | | 1.8 | | | | | | | | | | | EXISTING 18" ACCGMP-ABANDON AND PLUG PIPE W/CONCRETE, |
| 30+91 | 32+21 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 32+21 | 32+90 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 33+00 | | CL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EXISTING 42" RCP-RETAIN |
| 33+01 | 34+93 | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EXISTING 42" RCP-RETAIN |
| 34+93 | | CL | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 34+93 | | LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 34+93 | | LT | | DI | | | | | | 18 | 6 | | | III | .064 | x | | | | | | 4.5 | 2.3 | 200 | I-A | | | 10.2 | | | | | | | | | | 1 | | |
| 34+93 | | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP - RETAIN |
| 34+93 | 36+67 | LT | | | | | | | | | | | | | | | | | | | | | .4 | 38 | | | | | | | | | | | | | | | EXISTING 42" RCP-RETAIN NEW 4' X 4' X 8'' CONC. TOP |
| 36+67 | | CL | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 36+67 | | LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 36+67 | | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 36+67 | 38+93 | LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | EXISTING 42" RCP-RETAIN |
| 38+93 | | CL | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 38+93 | | LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 54" RCP-RETAIN |
| 38+93 | | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 38+93 | 40+89 | LT/RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 42" RCP-RETAIN |
| 40+89 | | RT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 40+89 | | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 40+89 | 42+08 | RT/LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 40+89 | 43+69 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 36" RCP-RETAIN |
| 42+08 | | LT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 43+56 | 43+63 | LT/RT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 43+63 | 43+66 | RT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 43+65 | 43+69 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 47+07 | 47+10 | RT/LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" RCP-RETAIN |
| 47+07 | 47+12 | RT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | EXISTING 18" RCP-RETAIN |
| 47+10 | 47+12 | LT/RT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | 1 | | | EXISTING 18" RCP-RETAIN |
| RAMP 01 | 32+23 | CL | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" ACCGMP-RETAIN |
| RAMP 01 | 32+23 | RT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" ACCGMP-RETAIN |
| SL | 33+31 | LT | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | EXISTING 18" ACCGMP-RETAIN |
| SL | 33+42 | CL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | EXISTING 30" ACCGMP-RETAIN |
| | | | | GRAND TOTAL | | | | | | 12 | 16 | | | III | .064 | x | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 18 | 116 | | | III | .064 | x | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 18 | 1140 | .064 | .060 | III | | x | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 18 | 8 | | | | .064 | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 24 | 10 | | | III | | | | | | | | | | | | | | | | | | | | | | | | | |
| TOTALS | | | | | | | | | | 24 | 361 | | | III | .064 | x | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 30 | 12 | | | | .079 | | | | | 1 | | 51.6 | 4418 | 13-A | 23 | | 26.8 | | | | 31.1 | | | | | 481 | 1 | 32 | | |
| | | | | | | | | | | 60 | 12 | | | | .138 | | | | | | | | | 5-D | | | | | | | | | | | | 20 | 11 | | | |

| REMOVAL | AND DISPOSAL | OF GUARD RAIL | | | |
|---|---|---|---|---|---|
| STA. | STA. | LT. | RT. | END TREATMENT MELT | END TREATMENT ANCHOR |
| 3+40 | 3+65 | 25 | | | |
| 5+48 | 6+50 | | 102 | | |
| 6+37 | 6+50 | 13 | | | |
| 6+53 | 8+20 | 174 | | | |
| 6+50 | 7+13 | | 63 | | |
| 6+50 | 8+09 | 159 | | | |
| 12+17 | 12+50 | | 33 | | |
| 12+50 | 18+50 | | 579 | | |
| 18+50 | 25+00 | | 61 | | |
| RAMP 01 | SL 0+07 | | | | |
| RAMP 01 | SL 3+44 | | 344 | | |
| 25+00 | 25+96 | | 96 | | |
| 28+20 | 30+50 | 230 | | | |
| 30+50 | 32+66 | 217 | | | |
| RAMP 01 | | | | | |
| 31+50 | 36+64 | | 532 | | |
| TOTALS: | | | 3250 | | |
| TOTALS | | | | | |

## UNDERDRAIN

| STA. | STA. | TYPE | POS. | D | L | TRENCH E | TRENCH R | GRAN BKF | FB | GEO UND LIN | MRKR PST |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 4+50 | 5+50 | U | LT | 6 | 100 | 30 | | | | 131 | 1 |
| 4+50 | | C | LT | 6 | 4 | | | | 1 | | |
| 5+50 | 5+95 | U | LT | 6 | 46 | 11 | | | | 59 | 1 |
| 5+50 | | C | LT | 6 | 4 | | | | 1 | | |
| 7+00 | 9+75 | U | LT | 6 | 276 | 98 | | | | 555 | 1 |
| 7+00 | | C | LT | 6 | 6 | | | | 1 | | |
| 26+50 | 30+90 | U | RT | 6 | 440 | 178 | | | | 626 | 1 |
| 26+50 | | C | RT | 6 | 8 | | | | 1 | | |
| 29+50 | 33+01 | U | LT | 8 | 354 | 143 | | | | 641 | 1 |
| 29+50 | | C | LT | 8 | 4 | | | | 1 | | |
| ESTIMATED | | U | | 6 | 138 | 40 | | | | 138 | 1 |
| | | C | | 6 | 14 | | | | 1 | | 1 |
| | | U | | 8 | 354 | 143 | | | 1 | 641 | 1 |
| | | C | | 8 | 4 | | | | | | |
| TOTALS | | U | | 6 | 1000 | 357 | | | 5 | 1509 | 6 |
| | | C | | 6 | 40 | | | | | | |

PROJECT NAME: MONTPELIER
PROJECT NUMBER: FEGC-F 028-2(8)

DB018D2
SHEET 11 OF 118 SHEETS

: Sheet Number: 11

# EARTHWORKS

**STATE OF VERMONT**
**AGENCY OF TRANSPORTATION**

| STATION | DIST | TOTAL EXCAVATION EARTH AND ROCK AREA | TOTAL EXCAVATION EARTH AND ROCK CU. YDS. | ROCK EXCAVATION AREA | ROCK EXCAVATION CU. YDS. | EMBANKMENT AREA | EMBANKMENT CU. YDS. | | |
|---|---|---|---|---|---|---|---|---|---|
| 3+50 | | | | | | | | | |
| | 50 | | | | | | | | |
| 4+00 | | 29 | | BUTT | | | | | |
| | 50 | | 56 | | | | | C= | 113 |
| +50 | | 31 | | | | | | F= | 0 |
| | 25 | | 28 | | | | | F FAC | =1.15 |
| +75 | | 29 | | | | | | EX C= | 113 |
| | 25 | | 29 | | | | | | |
| 5 | | 34 | | | | | | | |
| | 25 | | 32 | | | | | | |
| +25 | | 36 | | | | 0 | | | |
| | 25 | | 32 | | | | 6 | | |
| +50 | | 34 | | | | 12 | | | |
| | 25 | | 31 | | | | 12 | | |
| +75 | | 32 | | | | 13 | | | |
| | 25 | | 48 | | | | 6 | | |
| 6 | | 72 | | | | 0 | | | |
| | 25 | | 91 | | | | 0 | | |
| +25 | | 124 | | | | 0 | | | |
| | 25 | | 117 | | | | 0 | | |
| +50 | | 129 | | | | 0 | | | |
| | 25 | | 90 | | | | 4 | | |
| +75 | | 65 | | | | 8 | | C= | 1153 |
| | 25 | | 66 | | | | 13 | F= | 131 |
| 7 | | 78 | | | | 19 | | F FAC | =1.15 |
| | 25 | | 62 | | | | 15 | EX C= | 1002 |
| +25 | | 55 | | | | 13 | | | |
| | 25 | | 52 | | | | 12 | | |
| +50 | | 57 | | | | 13 | | | |
| | 50 | | 114 | | | | 14 | | |
| 8 | | 66 | | | | 2 | | | |
| | 50 | | 112 | | | | 4 | | |
| +50 | | 55 | | | | 2 | | | |
| | 50 | | 104 | | | | 6 | | |
| 9 | | 57 | | | | 4 | | | |
| | 50 | | 104 | | | | 11 | | |
| +50 | | 55 | | | | 8 | | | |
| | 50 | | 98 | | | | 28 | | |
| 10 | | 51 | | | | 22 | | | |
| | 50 | | 107 | | | | 26 | | |
| +50 | | 65 | | | | 6 | | | |
| | 50 | | 121 | | | | 15 | | |
| 11 | | 66 | | | | 10 | | | |
| | 50 | | 117 | | | | 49 | | |
| +50 | | 60 | | | | 43 | | | |
| | 50 | | 118 | | | | 113 | | |
| 12 | | 67 | | | | 79 | | | |
| | 50 | | 121 | | | | 115 | C= | 1117 |
| +50 | | 64 | | | | 45 | | F= | 617 |
| | 50 | | 116 | | | | 85 | F FAC | =1.15 |
| 13 | | 61 | | | | 47 | | EX C= | 408 |
| | 50 | | 112 | | | | 84 | | |
| +50 | | 60 | | | | 44 | | | |
| | 50 | | 106 | | | | 56 | | |
| 14 | | 54 | | | | 16 | | | |
| | 50 | | 99 | | | | 31 | | |
| +50 | | 53 | | | | 18 | | | |
| | 50 | | 100 | | | | 43 | | |
| 15 | | 55 | | | | 28 | | | |
| | 50 | | 146 | | | | 81 | | |
| +50 | | 103 | | | | 60 | | | |
| | 50 | | 149 | | | | 115 | | |
| 16 | | 58 | | | | 64 | | | |
| | 50 | | 81 | | | | 169 | | |
| +50 | | 30 | | | | 118 | | | |
| | 25 | | 47 | | | | 82 | C= | 1504 |
| +75 | | 71 | | | | 60 | | R= | 149 |
| | 25 | | 73 | | | | 49 | F= | 763 |
| 17 | | 87 | | 0 | | 45 | | F FAC | =1.15 |
| | 25 | | 81 | | 6 | | 37 | R FAC | =.495 |
| +25 | | 87 | | 18 | | 35 | | EX C= | 700 |
| | 25 | | 81 | | 9 | | 28 | | |
| +50 | | 87 | | 8 | | 25 | | | |
| | 25 | | 75 | | 13 | | 24 | | |
| +75 | | 74 | | 19 | | 27 | | | |
| | 25 | | 70 | | 25 | | 19 | | |
| 18 | | 77 | | 20 | | 15 | | | |

| STATION | DIST | TOTAL EXCAVATION EARTH AND ROCK AREA | TOTAL EXCAVATION EARTH AND ROCK CU. YDS. | ROCK EXCAVATION AREA | ROCK EXCAVATION CU. YDS. | EMBANKMENT AREA | EMBANKMENT CU. YDS. | | |
|---|---|---|---|---|---|---|---|---|---|
| 18 | | 77 | | 20 | | 15 | | | |
| | 25 | | 73 | | 17 | | 18 | | |
| +25 | | 80 | | 0 | | 24 | | | |
| | 25 | | 71 | | 13 | | 20 | | |
| +50 | | 73 | | 30 | | 20 | | | |
| | 25 | | 72 | | 29 | | 14 | | |
| +75 | | 82 | | 50 | | 11 | | | |
| | 25 | | 79 | | 27 | | 13 | | |
| 19 | | 88 | | 30 | | 17 | | | |
| | 25 | | 87 | | 10 | | 19 | | |
| +25 | | 100 | | 0 | | 25 | | | |
| | 25 | | 83 | | | | 30 | | |
| +50 | | 80 | | | | 40 | | | |
| | 25 | | 96 | | | | 30 | | |
| +75 | | 128 | | | | 25 | | | |
| | 25 | | 140 | | | | 15 | | |
| 20 | | 174 | | | | 8 | | | |
| | 25 | | 123 | | | | 7 | | |
| +25 | | 92 | | | | 7 | | | |
| | 25 | | 84 | | | | 8 | | |
| +50 | | 90 | | | | 10 | | | |
| | 25 | | 79 | | | | 9 | | |
| +75 | | 80 | | | | 10 | | | |
| | 25 | | 66 | | | | 6 | | |
| 21 | | 63 | | | | 4 | | | |
| | 50 | | 121 | | | | 110 | | |
| +50 | | 68 | | | | 115 | | | |
| | 50 | | 84 | | | | 139 | C= | 1068 |
| 22 | | 23 | | | | 35 | | F= | 956 |
| | 50 | | 21 | | | | 32 | F FAC | =1.15 |
| +50 | BACK | 0 | | | | 0 | | EX F= | 31 |
| | AHEAD | 42 | | | | 16 | | | |
| | 50 | | 82 | | | | 76 | | |
| 23 | | 47 | | | | 66 | | | |
| | 50 | | 94 | | | | 124 | | |
| +50 | | 55 | | | | 68 | | | |
| | 50 | | 103 | | | | 117 | | |
| 24 | | 56 | | | | 58 | | | |
| | 50 | | 100 | | | | 131 | | |
| +50 | | 52 | | | | 84 | | | |
| | 50 | | 111 | | | | 197 | | |
| 25 | | 68 | | | | 129 | | | |
| | 50 | | 119 | | | | 136 | | |
| +50 | | 60 | | | | 18 | | | |
| | 50 | | 119 | | | | 19 | | |
| 26 | | 69 | | | | 2 | | | |
| | 50 | | 134 | | | | 2 | | |
| +50 | | 76 | | | | 0 | | | |
| | 50 | | 125 | | | | 3 | | |
| 27 | | 59 | | | | 3 | | | |
| | 50 | | 115 | | | | 6 | C= | 1196 |
| +50 | | 65 | | | | 4 | | F= | 192 |
| | 50 | | 143 | | | | 4 | F FAC | =1.15 |
| 28 | | 89 | | | | 0 | | EX C= | 975 |
| | 50 | | 140 | | | | 6 | | |
| +50 | | 62 | | | | 7 | | | |
| | 50 | | 97 | | | | 7 | | |
| 29 | | 43 | | | | 1 | | | |
| | 50 | | 90 | | | | 3 | | |
| +50 | | 54 | | | | 2 | | | |
| | 50 | | 114 | | | | 6 | | |
| 30 | | 69 | | | | 4 | | | |
| | 50 | | 131 | | | | 10 | | |
| +50 | | 72 | | | | 7 | | | |
| | 50 | | 111 | | | | 9 | | |
| 31 | | 48 | | | | 3 | | | |
| | 25 | | 32 | | | | 1 | | |
| +25 | | 20 | | | | 0 | | | |
| | 25 | | 19 | | | | 0 | C= | 766 |
| +50 | | 22 | | | | 0 | | F= | 47 |
| | 25 | | 21 | | | | 0 | F FAC | =1.15 |
| +75 | | 23 | | | | 0 | | EX C= | 712 |
| | 25 | | 22 | | | | | | |
| 32 | | 24 | | | | 0 | | | |
| | 50 | | 49 | | | | 0 | | |
| +50 | | 29 | | | | 0 | | | |
| | 50 | | 55 | | | | 3 | | |
| 33 | | | | | | | | | |

| STATION | DIST | TOTAL EXCAVATION EARTH AND ROCK AREA | TOTAL EXCAVATION EARTH AND ROCK CU. YDS. | ROCK EXCAVATION AREA | ROCK EXCAVATION CU. YDS. | EMBANKMENT AREA | EMBANKMENT CU. YDS. | | |
|---|---|---|---|---|---|---|---|---|---|
| 33 | | 30 | | | | 3 | | | |
| | 50 | | 71 | | | | 7 | | |
| +50 | | 47 | | | | 5 | | | |
| | 50 | | 83 | | | | 6 | | |
| 34 | | 43 | | | | 1 | | | |
| | 50 | | 91 | | | | 3 | | |
| +50 | | 55 | | | | 2 | | | |
| | 50 | | 81 | | | | 8 | | |
| 35 | | 33 | | | | 7 | | | |
| | 50 | | 70 | | | | 8 | | |
| +50 | | 43 | | | | 2 | | | |
| | 50 | | 81 | | | | 4 | | |
| 36 | | 44 | | | | 2 | | | |
| | 50 | | 78 | | | | 4 | C= | 392 |
| +50 | | 40 | | | | 2 | | F= | 58 |
| | 50 | | 69 | | | | 6 | F FAC | = 1.15 |
| 37 | | 35 | | | | 4 | | EX C= | 325 |
| | 50 | | 58 | | | | 6 | | |
| +50 | | 28 | | | | 2 | | | |
| | 50 | | 26 | | | | 5 | | |
| 38 | | 0 | | | | 3 | | | |
| | 50 | | 0 | | | | 4 | | |
| +50 | | 0 | | | | 1 | | | |
| | 50 | | 2 | | | | 6 | | |
| 39 | | 2 | | | | 6 | | | |
| | 50 | | 4 | | | | 9 | | |
| +50 | | 2 | | | | 4 | | | |
| | 50 | | 4 | | | | 6 | | |
| 40 | | 2 | | | | 3 | | | |
| | 100 | | 7 | | | | 9 | C= | 53 |
| 41 | | 2 | | | | 2 | | F= | 85 |
| | 100 | | 7 | | | | 11 | F FAC | = 1.15 |
| 42 | | 2 | | | | 4 | | EX F= | 45 |
| | 100 | | 7 | | | | 15 | | |
| 43 | | 2 | | | | 4 | | | |
| | 100 | | 7 | | | | 13 | | |
| 44 | | 2 | | | | 3 | | | |
| | 100 | | 7 | | | | 9 | | |
| 45 | | 2 | | | | 2 | | | |
| | 100 | | 7 | | | | 11 | | |
| 46 | | 2 | | | | 4 | | | |
| | 150 | | 11 | | | | 17 | | |
| 47+50 | | 2 | | | | 2 | | | |
| 30+00 RAMP 0 | | | | | | | | | |
| | 50 | | | | | | | C= | 110 |
| +50 | | 118 | | | | | | F= | 0 |
| | 50 | | 110 | | | | | F FAC | = 1.15 |
| 31 | | 0 | | | | | | EX C= | 110 |
| 0+00 RAMP M | | 33 | | | | 16 | | | |
| | 47.9 | | 72 | | | | 32 | C= | 1106 |
| +47.9 | | 48 | | | | 20 | | F= | 456 |
| | 48 | | 86 | | | | 107 | F FAC | = 1.15 |
| +95.9 | | 48 | | | | 100 | | EX C= | 582 |
| | 18.9 | | 33 | | | | 76 | | |
| 1+14.8 | | 45 | | | | 116 | | | |
| | 31.4 | | 58 | | | | 109 | | |
| 1+46.2 | | 53 | | | | 71 | | | |
| | 26.3 | | 54 | | | | 55 | | |
| +72.5 | | 58 | | | | 42 | | | |
| | 27.1 | | 59 | | | | 39 | | |
| +99.6 | | 58 | | | | 35 | | | |
| | 28 | | 101 | | | | 23 | | |
| 2+27.6 | | 135 | | | | 8 | | | |
| | 97.4 | | 469 | | | | 15 | | |
| 3+25 | | 125 | | | | 0 | | | |
| | 75 | | 174 | | | | 0 | | |
| 4+00 | | 0 | | | | 0 | | | |

## SUMMARY AND BALANCES

| STATION TO STATION | | TOTAL EXCAV EARTH & ROCK | ROCK EXCAV CUBIC YARDS | EMBANKMENT CUBIC YARDS | EXCESSES CUT | EXCESSES FILL | ACCUMULATIVE EXCESSES CUT | ACCUMULATIVE EXCESSES FILL |
|---|---|---|---|---|---|---|---|---|
| 0+00 | 5+00 | 113 | | 0 | 113 | | 113 | |
| 5+00 | 10+00 | 1153 | | 131 | 1002 | | 1115 | |
| 10+00 | 15+00 | 1117 | | 617 | 408 | | 1523 | |
| 15+00 | 20+00 | 1504 | 149 | 763 | 700 | | 2223 | |
| 20+00 | 25+00 | 1068 | | 956 | | 31 | 2192 | |
| 25+00 | 30+00 | 1196 | | 192 | 975 | | 3167 | |
| 30+00 | 35+00 | 766 | | 47 | 712 | | 3879 | |
| 35+00 | 40+00 | 392 | | 58 | 325 | | 4204 | |
| 40+00 | 47+50 | 53 | | 85 | | 45 | 4159 | |
| RAMP 0 | | | | | | | | |
| 30+00 | 31+00 | 110 | | 0 | 110 | | 4269 | |
| RAMP M | | | | | | | | |
| 0+00 | 4+00 | 1106 | | 456 | 582 | | 4851 | |
| CURB | | | | | | | | |
| ML | | 1335 | | | 1335 | | 6186 | |
| RAMP 0 | | 88 | | | 88 | | 6274 | |
| TOTALS | | 10001 | 149 | 3305 | | | | |

### REMARKS

| | |
|---|---|
| EARTH AND ROCK EXCAVATION | 10001 |
| SOLID ROCK EXCAVATION | 149 |
| EARTH EXCAVATION | 9852 |
| PLANIMETERED FILL | 3305 |
| LESS FACTORED SOLID ROCK (.495 X 149) | 74 |
| LESS DISPLACEMENT OF ANY LARGE STRUCTURES | 0 |
| NET PLANIMETERED FILL | 3231 |
| FACTOR (0.15) | 485 |
| PLANIMETERED FILL INCLUDING FACTOR | 3716 |
| MATERIALS AVAILABLE FOR FILLS | |
| EARTH EXCAVATION | 9852 |
| CHANNEL EXCAVATION | 0 |
| UNDERDRAIN EXCAVATION (.60 X 500) | 300 |
| STRUCTURE EXCAVATION | 0 |
| TOTAL MATERIAL AVAILABLE FOR FILL | 10152 |
| TOTAL FILL INCLUDING FACTOR | 3716 |
| TOTAL MATERIAL FOR FILL | 10152 |
| BORROW | 0 |
| EXCESS EXCAVATION | 6436 |

SURVEYED BY _____ DATE _____
DRAWN BY SQUAD A DATE _____
SQUAD LEADER BTN
DESIGN FILE NO. /SODA/89B018/DB018.DGN
IRARM FILE DB018EW DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 12 OF 118 SHEETS

: Sheet Number: 12

# 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 | NATIONAL LIFE INSURANCE CO. | 8, 9 | 27+00 RT. | 31+20 RT. | 0.51A± | | | WD | 04-11-94 | MONTPELIER | 271 | 194-196 | |
| | | 11 | 32+35 RT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| | | | 43+85 RT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| | | | 45+60 RT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| 2 | WASHINGTON COUNTY RAILROAD CORP. - LESSEE<br>STATE OF VERMONT - LESSOR | 8, 9<br>10, 11 | 26+24 LT. | 27+00 LT. | 0.02A± | | | | | | | | 703 S.F.± - AREA TO BE REMOVED FROM LEASE |
| | | | 27+30 LT. | 27+55 LT. | | | EASEMENT (T) | | | | | | PLUG PIPE AND REMOVE HEADWALL |
| | | | 28+90 LT. | 36+35 LT. | | | SLOPE (T) 0.22A± | | | | | | |
| | | | 29+50 LT. | 33+00 LT. | | | CULVERT (P) | | | | | | |
| | | | 31+70 LT. | | | | INSTALL & MAINTAIN (P) | | | | | | STRAIN POLE |
| | | | 34+93 LT. | | | | CULVERT (P) | | | | | | |
| | | | 37+80 LT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| | | | 38+60 LT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| | | | 46+12 LT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| | | | 47+22 LT. | | | | INSTALL & MAINTAIN (P) | | | | | | TRAFFIC SIGN |
| 3 | CITY OF MONTPELIER | 9 | 31+27 RT. | 31+96 RT. | | | INSTALL & MAINTAIN (P) | WDOE | 02-01-94 | MONTPELIER | 269 | 78-79 | PAVEMENT MARKINGS |
| 4 | GREEN MOUNTAIN POWER CORPORATION | | | | | | | | | | | | UTILITY |
| 5 | NEW ENGLAND TELEPHONE COMPANY | | | | | | | | | | | | UTILITY |

| REVISION NO. | SHEET | DESCRIPTION OF REVISION | DATE | MADE BY | APPROVED BY |
|---|---|---|---|---|---|
| 1 | 3, 9 | PARCEL NO. 1 NATIONAL LIFE INSURANCE CO. CHANGE ENDING STA. OF TAKE FROM 31+23 RT. TO 31+20 RT. PER C.O. 8380. | 05-26-93 | C.C.P. | L.W.B. |
| | 3, 8, 9 | PARCEL NO. 2 WASHINGTON COUNTY RAILROAD CORP. CHANGE ENDING STA. OF TAKE FROM 27+02 LT. TO 27+00 LT. AND CHANGE TAKE AREA FROM 741 S.F.± TO 703 S.F.±. ALSO CHANGE ENDING STA. OF DITCH (P) FROM 36+15 LT. TO 36+37 LT. PER C.O. 8380. | 05-26-93 | C.C.P. | L.W.B. |
| | 3, 9 | PARCEL NO. 3 CITY OF MONTPELIER. CHANGE ENDING STA. OF INSTALL & MAINTAIN (P) FROM 32+02 RT. TO 31+96 RT. PER C.O. 8380. | 05-26-93 | C.C.P. | L.W.B. |
| | | CONTRACT PLANS TO DESIGN 08-12-94 | | | |
| 2 | 3, 8, 9 10 | PARCEL NO. 2 WSHINGTON COUNTY RR CORP. REMOVE DITCH (P) AT STA. 27+10 LT. ~ 36+37 LT. ADD EASE. (T) TO PLUG PIPE AND REMOVE HEADWALL AT STA. 27+30 LT. ~ 27+55 LT. ADD SLOPE (T) AT STA. 28+90 LT. ~ 36+35 LT.; 0.22A±. ADD CULVERT (P) AT STA. 29+50 LT. & STA. 34+93 LT. PER C.O. 8608. | 03-10-95 | P.J.H. | L.W.B. |

03-3628 1805 898018

ACCT.root
/prop/89b018/rb018d.dgn
DATE PLOTTED 15-FEB-1996
89b018dl.i

DR. (P)- DRAINAGE RIGHT
DIT. (P)- DITCHING RIGHT
CH. (P)- CHANNEL RT.
DRIVE (T)- DRIVE RIGHT
CUL. (P)- CULVERT RIGHT
W - WATER SOURCES

PRESENT R.O.W.
TAKING WITHOUT ACCESS
TAKING WITHOUT ACCESS ALONG PROPERTY LINE
TAKING WITH ACCESS
(P) PERMANENT EASEMENT
(T) TEMPORARY EASEMENT

LEGEND
CZ (P) CLEAR ZONE
CONST. (T) CONSTRUCTION EASEMENT
SR SR SLOPE RIGHTS
P PROPERTY LINE
L
TOP OF CUT
TOE OF SLOPE

REVISED 05-26-93

APPROVED: LAWRENCE BLISS, L.S. DATE: 03-19-93
AGENT D. PLANS & TITLES

R.O.W. PLANS

MONTPELIER
FEGC F 028-2(8)S

SHEET 3 OF 15
PLAN SHEET 13 OF 114

: Sheet Number: 13

POT 0+00.00
BEGIN PROJECT

STEEL BEAM GUARDRAIL
6+00 LT (RAMP 'B' LT) - 10+25 LT
6+75 RT - 30+75 RT

ANCHOR FOR GUARDRAIL
6+00 LT (RAMP 'B' LT)

REMOVAL OF EXISTING CURB
6+25 RT - 7+10 RT
ML 6+05 LT - RAMP 'B' 6+20 RT

COLD PLANING-BIT. PAVEMENT
0+00 - 47+50

BITUMINOUS CONCRETE GUTTER
6+25 RT

RAMP B TRAV. POT 11+70.29

RAMP 'B'

RAMP H POT 6+50.00 =
RAMP B TRAV. POT 10+00.00

APPROX. COLD PLANE LIMIT

6+16 LT - 6+52 LT (APPROX.)
NEW 6" ELECT. CONDUIT SLEEVE (6" PVC), TRENCHED; CAPPED EACH END, FOR FUTURE IR LIGHT PROJECT

STATE OF VERMONT

BM #1
CH. SO. IN LEDGE
US ELEV. 602.702

CONC. BRIDGE PIERS

8" ACCESS

0+00 1+00 2+00 3+00 4+00 5+00 6+00

6" GRANITE CURB

24" RCP

MH

SHEET 5

DRAINAGE NOTES

| | |
|---|---|
| 10 | 5+37 LT NEW 24" X 8' RCP CL III, REMOVE HEADWALL |
| 11 | 5+37 LT - 5+95 LT NEW 24" X 46' RCP CL III, RCDI AT INLET |
| 12 | 6+00 LT RELAY EXIST. 24" RCP, NEW 4'X 6' DI REMOVE HEADWALL |

APPROX. COLD PLANE LIMIT

PAVED GUTTER

18" RCP

RAMP 'A'

WOODS

STATE OF VERMONT

MATCH LINE

RAMP H POT 5+50.00 =
RAMP A TRAV. POT 20+00.00

RAMP A TRAV. POT 17+14.71

THIS SHEET FOR R.O.W. USE ONLY

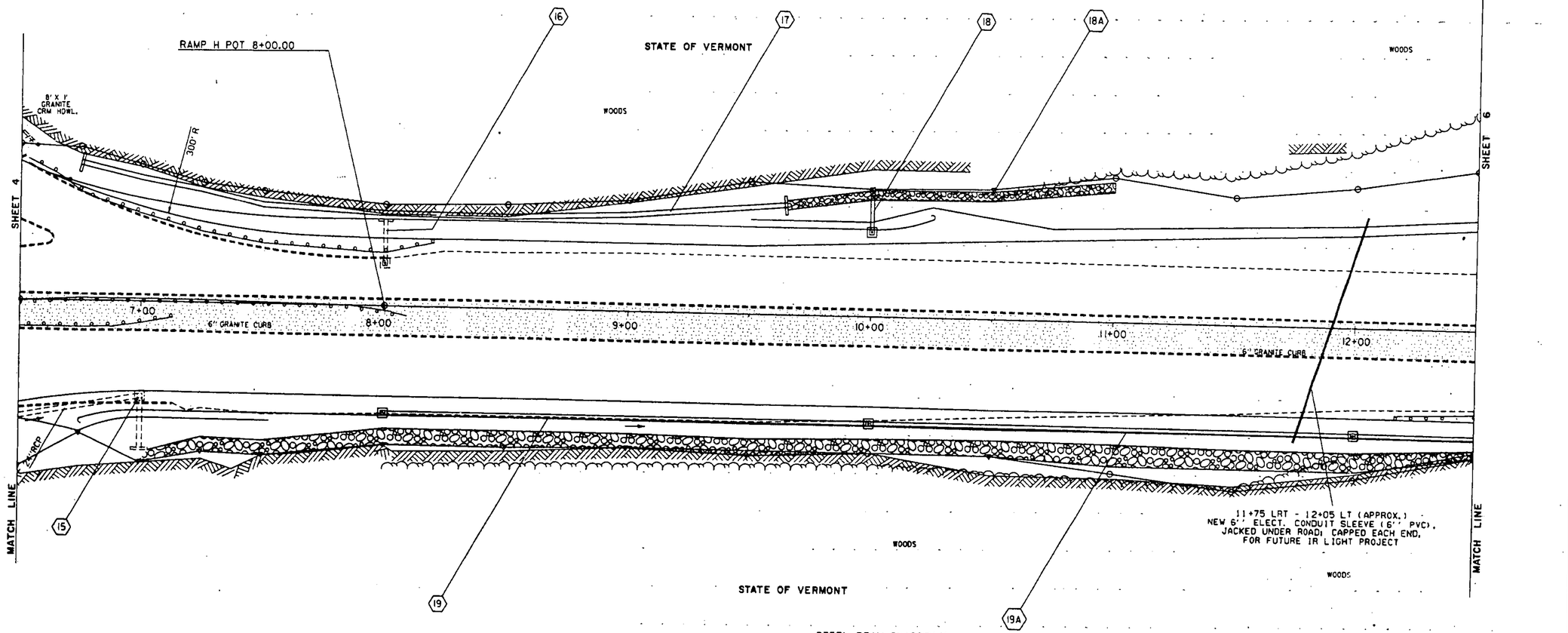
0 20 40 60 140
SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-jfg DATE 6-90
SQUAD LEADER D.F. Hale
FILE /usr/zf02/055050.dir/89b018
IPARM FILE 89B018LI.I DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 4 OF 15 SHEETS

## DRAINAGE NOTES

| | |
|---|---|
| 15 | 7+00 RT CAP EXIST. DI |
| 16 | 8+00 LT REMOVE EXIST. DI, HEADWALL AND PIPE |
| 17 | 6+75 - 9+75 LT NEW 24''X 300' CPEP W/CONC. HEADWALL AT INLET AND OUTLET |
| 18 | 10+00 LT NEW 18''X 8' RCP CL III, W/CONC. HEADWALL AND RCDI |
| 18A | 9+75 - 11+00 LT CONSTRUCT SPECIAL DITCH W/STONE FILL TYPE I |
| 19 | 8+00 - 10+00 RT NEW 18''X 200' RCP CL III, W/RCDI AT INLET |
| 19A | 10+00 - 12+00 RT NEW 18''X 200' RCP CL III, W/RCDI AT INLET |




CONSTRUCT SPECIAL DITCH W/STONE FILL TYPE I
7+50 RT - 17+00 RT
9+65 LT - 11+00 LT

COLD PLANING-BIT. PAVEMENT
0+00 - 47+50

REMOVE EXISTING CURB
6+25 RT - 7+10 RT
6+05 RT - RAMP 'B' 6+20 RT
RAMP 'B' 6+50 LT - ML 8+00 LT

STEEL BEAM GUARDRAIL
6+00 LT (RAMP 'B') - 10+25 LT
7+00 RT - 30+75 RT

BREAKAWAY CABLE TERMINAL (BCT)
6+75 RT - 7+00 RT
10+00 LT - 10+25 LT

REMOVE EXISTING GUARDRAIL
6+50 LT (RAMP 'B') - 8+20 LT
12+15 RT - 26+00 RT

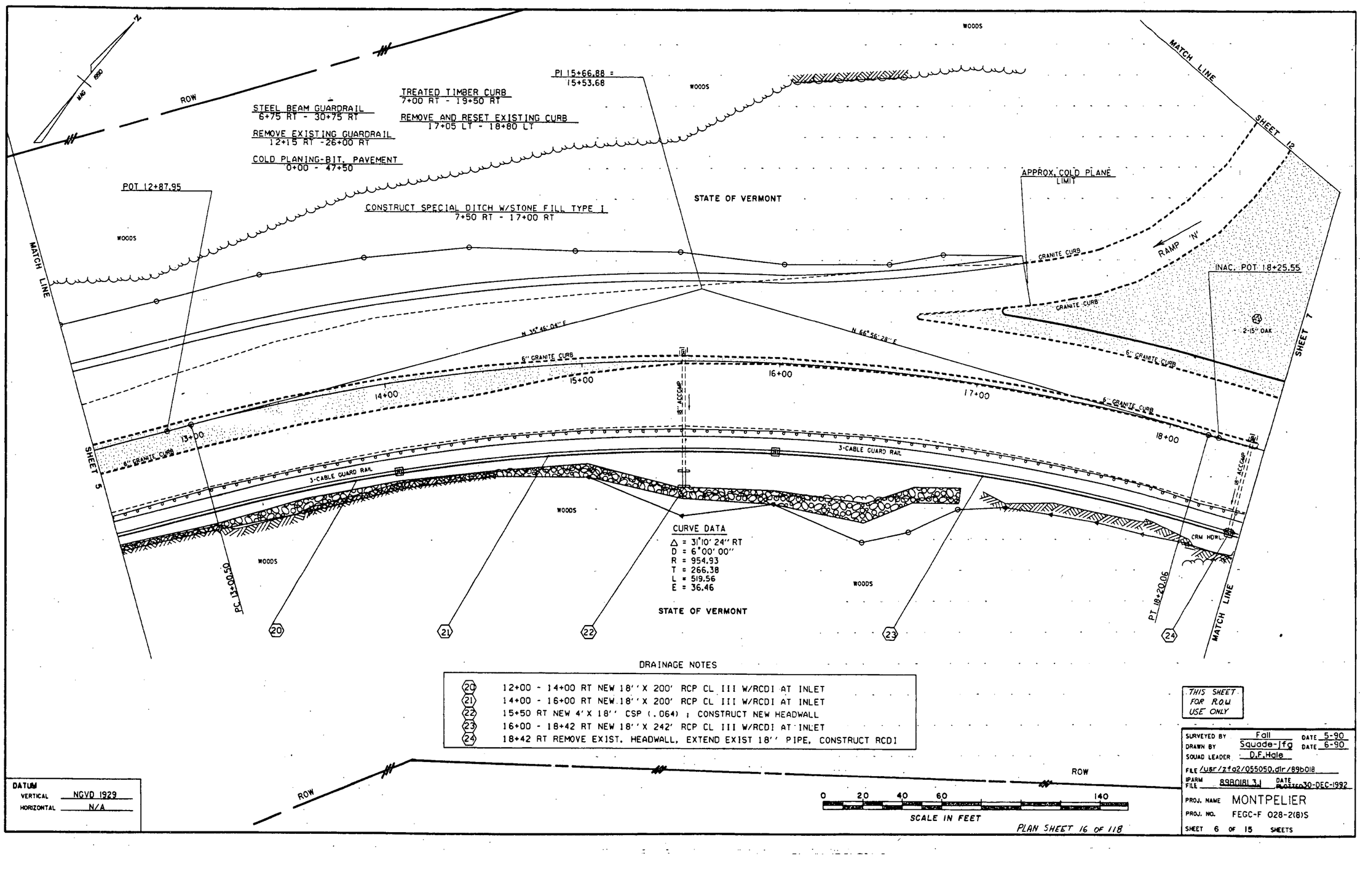
TREATED TIMBER CURB
7+00 RT - 19+50 RT

THIS SHEET FOR R.O.W. USE ONLY

0 20 40 60 140
SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-jfg DATE 6-90
SQUAD LEADER D.F.Hale
FILE /usr/zfq2/055050.dlr/89b018
PARM FILE 89B018L2.1 DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 5 OF 15 SHEETS




DRAINAGE NOTES

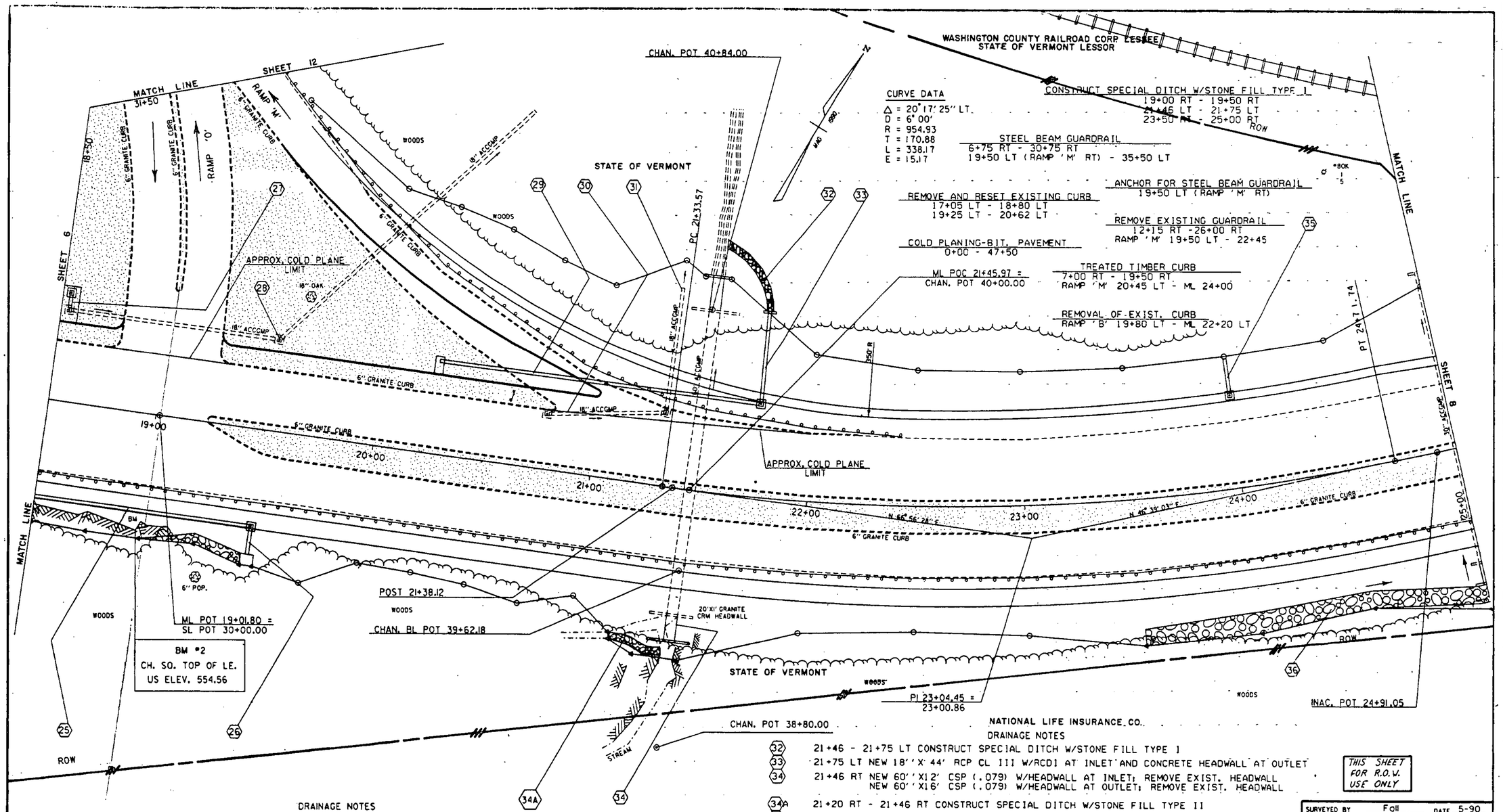
| | |
|---|---|
| 20 | 12+00 - 14+00 RT NEW 18" X 200' RCP CL III W/RCDI AT INLET |
| 21 | 14+00 - 16+00 RT NEW 18" X 200' RCP CL III W/RCDI AT INLET |
| 22 | 15+50 RT NEW 4' X 18" CSP (.064) ; CONSTRUCT NEW HEADWALL |
| 23 | 16+00 - 18+42 RT NEW 18" X 242' RCP CL III W/RCDI AT INLET |
| 24 | 18+42 RT REMOVE EXIST. HEADWALL, EXTEND EXIST 18" PIPE, CONSTRUCT RCDI |

SCALE IN FEET: 0 20 40 60 140

THIS SHEET FOR R.O.W USE ONLY

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-Jfg DATE 6-90
SQUAD LEADER D.F.Hale
FILE /usr/zfg2/055050.dir/89b018
IPARM FILE 89B018I 3.I DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 6 OF 15 SHEETS




PLAN SHEET 17 OF 118

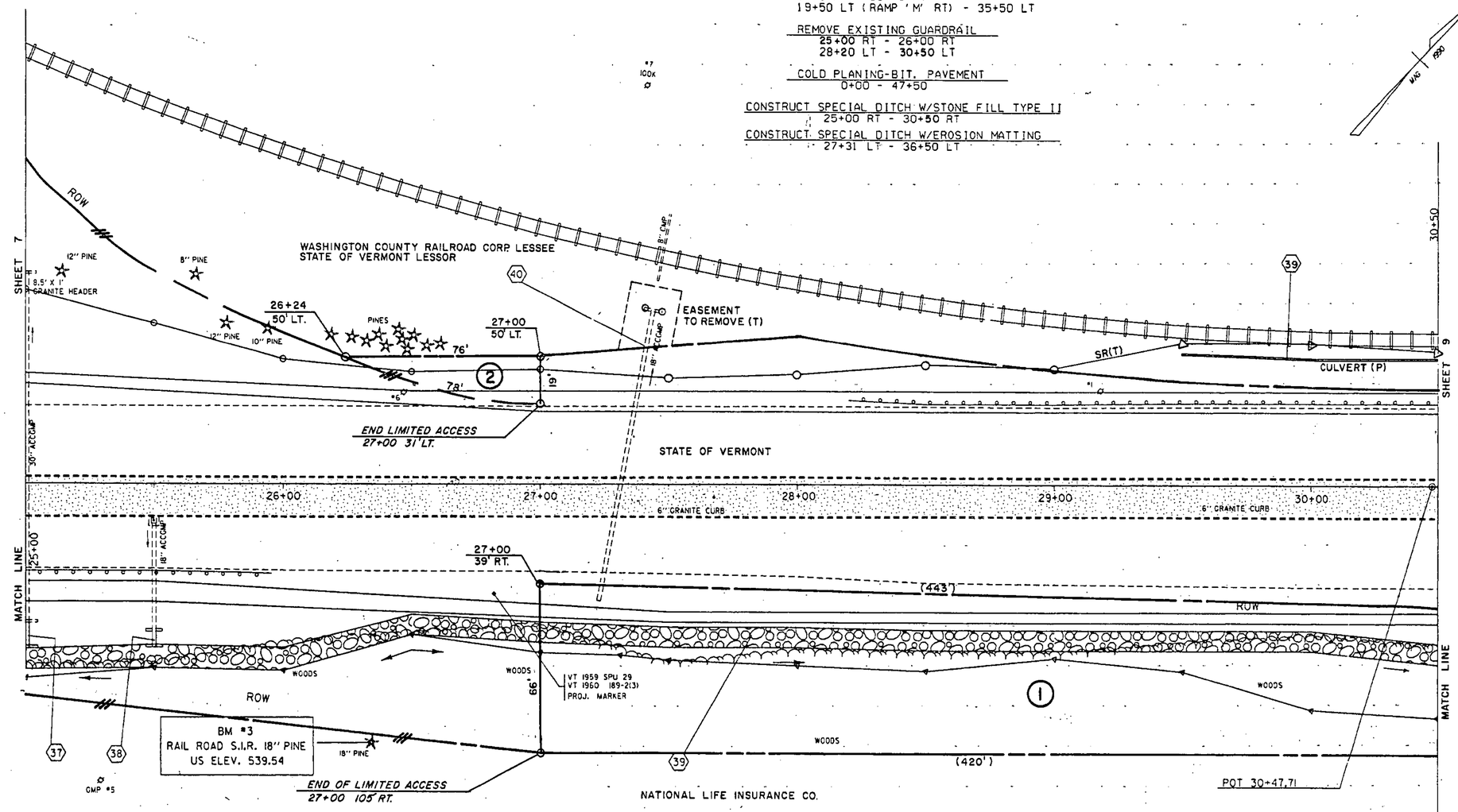
STEEL BEAM GUARDRAIL
6+75 RT - 30+75 RT
19+50 LT (RAMP 'M' RT) - 35+50 LT

REMOVE EXISTING GUARDRAIL
25+00 RT - 26+00 RT
28+20 LT - 30+50 LT

COLD PLANING-BIT. PAVEMENT
0+00 - 47+50

CONSTRUCT SPECIAL DITCH W/STONE FILL TYPE II
25+00 RT - 30+50 RT

CONSTRUCT SPECIAL DITCH W/EROSION MATTING
27+31 LT - 36+50 LT




DRAINAGE NOTES

| | |
|---|---|
| 37 | 25+00 RT NEW 30'' X 10' CSP (.079), REMOVE EXIST. HEADWALL. CONSTRUCT NEW HEADWALL |
| 38 | 25+50 RT NEW 18'' X 6' CSP (.064), REMOVE EXIST. HEADWALL. CONSTRUCT NEW HEADWALL |
| 39 | 29+50 LT NEW 6" X 350' UNDERDRAIN W/ FB AT 29+50 LT. |
| 40 | 27+31 CL ABANDON 18'' PIPE, PLUG ENDS, REMOVE EXISTING HEADWALL |

THIS SHEET FOR R.O.W. USE ONLY

0 20 40 60 140
SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

| | |
|---|---|
| 03-10-95 | REVISION 2 |
| 05-26-93 | REVISION 1 |

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-jfq DATE 6-90
SQUAD LEADER D.F.Hale
FILE /usr/zfa2/055050.dir/89b018
IPARM FILE 89B018L5.1 DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 8 OF 15 SHEETS

PLAN SHEET 18 OF 118

MAR 13 1995

CONSTRUCT SPECIAL DITCH W/EROSION MATTING
27+31 LT - 36+50 LT

STEEL BEAM GUARDRAIL
6+75 RT - 30+75 RT
19+50 LT (RAMP 'M' RT) - 35+50 LT

BREAKAWAY CABLE TERMINAL (BCT)
35+50 LT - 35+75 LT

ANCHOR FOR STEEL BEAM GUARDRAIL
30+75 RT

COLD PLANING-BIT. PAVEMENT
0+00 - 47+50

REMOVE & RESET CURB
31+50 RT - 32+00 RT

REMOVE EXIST. CURB
32+90 LT - 37+90 LT

REMOVE EXIST. GUARDRAIL
28+80 LT - 32+70 LT

PI 33+59.44 =
33+58.32

30+50 MATCH LINE

(41)

INSTALL & MAINT. (P)

GMP #2

LIGHT POLE W/ TRANSFORMER

PULL BOX

CULVERT (P)

(2)

WASHINGTON COUNTY RAILROAD CORP LESSEE
STATE OF VERMONT LESSOR

SR (T)

(42)

CULVERT (P)

36+50

N

MAG 1990

ROW

SHEET 10

6" CONC. CURB

GMP #3

42" RCP

STATE OF VERMONT

N 46° 39' 03" E

N 59° 39' 03" E

18" ACCOMP

33+00

GRASS

34+00

32+00

35+00

GRASS

N 59° 39' 03" E

31+00

6" GRANITE CURB

6" GRANITE CURB

36+00

APPROX. COLD PLANE LIMIT

6" CONC. CURB

1'X5'X10.5' L-TYPE GRANITE CRM HDWL.

20' R

2' R

GRASS ISLAND

18" RCP

INSTALL & MAINT. (P)

PC 32+28.88

CURVE DATA
Δ = 13° 00' 00" RT
D = 5° 00' 00"
R = 1145.92
T = 130.56
L = 260.00
E = 7.41

WOODS

18" PINE

10" M

2-6" PINE

PCC 34+88.88

6" CONC. CURB

SHEET 8

(443')

SIGNAL LIGHT POLE

PULL BOX

18" RCP

LIGHT POLE
2' DIA. CONC. BASE

PULL BOX

ROW

ROW

(420')

31+20
105 RT.

(1)

(1)

36" ACCOMP

WOODS

MATCH LINE

BM #4
CH. SQ. AT TOP OF L-TYPE HEADWALL
US. ELEV. 524.67

NATIONAL LIFE INSURANCE CO.

(3)

INSTALL & MAINT. (P)

APPROX. PAVING LIMIT

NATIONAL LIFE DRIVE

NATIONAL LIFE INSURANCE CO.

CITY OF MONTPELIER

## DRAINAGE NOTES

(41) 30+50 LT. - NEW 6" X 350' UNDERDRAIN W/ FB AT 29+50 LT.

(42) 34+93 LT NEW 18" X 4' CSP (.064), W/RCDI AT INLET, CAP EXIST. DI

THIS SHEET FOR R.O.W. USE ONLY

0 20 40 60 140
SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

| | |
|---|---|
| 03-10-95 | REVISION 2 |
| 05-26-93 | REVISION 1 |

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-jfq DATE 6-90
SQUAD LEADER D.F.Hale
FILE /usr/zfq2/055050.dir/89b018
IPARM FILE 89B018L6.I DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 9 OF 15 SHEETS

PLAN SHEET 19 OF 118

MAR 13 1995

COLD PLANING-BIT. PAVEMENT
0+00 - 47+50

REMOVE EXIST. CURB
32+90 LT - 37+90 LT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
38+73 LT - 47+50 LT

SIDEWALK RAMP TYPE I
38+57 LT

N

1990

PI 37+45.51 =
37+40.91

APPROX. PAVING LIMIT

APPROX. COLD PLANE LIMIT

POT 40+ 38.51

CITY OF MONTPELIER

GREEN MOUNTAIN DRIVE

INSTALL & MAINT. (P)

INSTALL & MAINT. (P)

54" RCP TO RIVER

WASHINGTON COUNTY RAILROAD CORP. LESSEE
STATE OF VERMONT LESSOR

ROW

SHEET 11

42+50

36+50

50' ±

ROW

42" RCP

6" CONC. CURB

5' CONC. SIDEWALK

6" CONC. CURB

18" RCP

N 78° 25' 13" E

SHEET 9

18" RCP

N 59° 39' 03" E

38+00

39+00

40+00

41+00

42+00

42" RCP

18" RCP

6" CONC. CURB

6" CONC. CURB

ROW

37+00

6" CONC. CURB

18" RCP

18" RCP

6" CONC. CURB

BM

36" RCP

12" PINE

12" PINE

WOODS

PI 39+97.54

WOODS

MATCH LINE

NATIONAL LIFE INSURANCE CO.

24" ACCUMP

MATCH LINE

ROW

CURVE DATA
Δ = 18° 46' 10" RT
D = 3° 41' 23.88"
R = 1552.746
T = 256.63
L = 508.66
E = 21.06

BM #5
CH. SQ. ON CONC. BASE
US ELEV. 524.38

0 20 40 60 140
SCALE IN FEET

THIS SHEET FOR R.O.W. USE ONLY

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-Jfq DATE 6-90
SQUAD LEADER D.F.Hale
FILE /usr/zfa2/055050.dir/89b018
IPARM FILE 89B018L7.1 DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 10 OF 15 SHEETS

PLAN SHEET 20 OF 118

MAR 13 1995

N

WAC 1990

COLD PLANING-BIT. PAVEMENT
0+00 - 47+50

CAST-IN-PLACE CONCRETE CURB, TYPE B
38+57 LT -47+50 LT

PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
38+73 LT - 47+50 LT

SIDEWALK RAMP TYPE I
47+50 LT

POT 46+06.06

BAILEY AVENUE

INSTALL & MAINT. (P)

INSTALL & MAINT. (P)

9' CONC. HEADWALL

5' CONC. SIDEWALK
6" CONC. CURB

6" CONC. CURB
5' CONC. SIDEWALK

3-01

UTIL. POLE

SHEET 10

ROW

② WASHINGTON COUNTY RAILROAD CORP. LESSEE
STATE OF VERMONT LESSOR

ROW

PROJECT MARKER
BOUND

℄

6" CONC. CURB

5' CONC. SIDEWALK

6" CONC. CURB

5' CONC. SIDEWALK

CONC. ℄

MM 47+50
END PROJECT
APPROX. COLD PLANE
LIMIT

43+00

44+00

45+00

46+00

MEMORIAL DRIVE

6" CONC. CURB

6" GRANITE CURB

ROW

6" CONC. CURB

18" RCP

18" RCP

6" CONC. CURB

5' CONC. SIDEWALK

ROW

10" PINE

8" CONC. CURB

GMP 1-01

5' CONC. SIDEWALK

INSTALL & MAINT. (P)

INSTALL & MAINT. (P)

① NATIONAL LIFE INSURANCE CO.

WOODS

WOODS

WOODS

MATCH LINE

24" RCCMP

BM #6
CH. SQ. IN LE.
US ELEV. 530.58

0 20 40 60 140
SCALE IN FEET

THIS SHEET
FOR R.O.W.
USE ONLY

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-jfg DATE 6-90
SQUAD LEADER D.F.Hale
FILE /usr/zfo2/055050.dir/89b018
IPARM FILE 89B018L8.1 DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 11 OF 15 SHEETS

PLAN SHEET 21 OF 118

MAR 13 1995

N

WOODS

10.5' X 1' GRANITE CRM HEADWALL

WOODS

6' GRANITE CRM HDWL.

WOODS

SL PI 31+78.02 = 31+64.66

SHEET 7

ROW

SL POT 35+02.89

3-CABLE GUARD RAIL W/ STEEL POSTS

N 68° 32' 40" W

18" ACCMP

RAMP 'M'

RAMP 'O'

32+00

6" GRANITE CURB

RAMP 'O'

31+50

MATCH LINE

33+00

6" GRANITE CURB

6" GRANITE CURB

RAMP 'N'

6" GRANITE CURB

SHEET 6

MATCH LINE

3-CABLE GUARD RAIL W/ STEEL POSTS

34+00

18" ACCMP

18" ACCMP

SL PT 32+90.42

4" M

APPROX. PAVING LIMIT

35+00

4" M

*2/01

2" M

1' WIDE GRANITE CRM HEADWALL

AOT COMMUTER PARKING LOT (PAVED)

ROW

ROW

SL POT 35+50.00

CURVE DATA

Δ = 45° 29' 08" LT
D = 19° 05' 54.94"
R = 300
T = 125.76
L = 238.16
E = 25.29

THIS SHEET FOR R.O.W. USE ONLY

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

0 20 40 60 140
SCALE IN FEET

SURVEYED BY Fall DATE 5-90
DRAWN BY Squade-jfg DATE 6-90
SQUAD LEADER D.F. Hale
FILE /usr/zfa2/055050.dlr/89b018
IPARM FILE 89B018L9.1 DATE PLOTTED 30-DEC-1992
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)S
SHEET 12 OF 15 SHEETS

RET

89 SOUTH
White River Jct.

89 NORTH
Burlington

EXIT 25 MPH

N

MAG 1990

RET

EXIT 25 MPH

POT 0+00.00
Begin Project

RAMP 'B'

ROW

0+00

2 4 6 8 10 12 14 16

RAMP 'A'

RET

RET

RET

R+S (4)
MONTPELIER 1
ST. JOHNSBURY 38
RAILROAD STA. 1
MONTPELIER JCT. 1
IN IN

R+S (2)
SERVICES 1
CAMPING 6
IN IN

ROW

SIGN LEGEND
R = REMOVE
S = SALVAGE
RET = RETAIN
EXISTING ------
NEW ——————

0 50 100 150 350
SCALE IN FEET

THIS SHEET FOR R.O.W. USE ONLY

New & Existing Signs

SURVEYED BY MOREAU DATE 9-92
DRAWN BY squade DATE 2-93
SQUAD LEADER TDS
DESIGN FILE NO. /usr/ztq2/055050.dir/
IPARM FILE 89b018TS1 DATE PLOTTED 09-FEB-1993
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 13 OF 15 SHEETS

PLAN SHEET 29 OF 118

# EXISTING AND NEW SIGNS

NEW OVERHEAD ASSEMBLY

89 SOUTH WHITE RIVER JCT. | 89 NORTH BURLINGTON | MONTPELIER JUNCTION

AOT COMMUTER PARKING

RAMP 'N'

RAMP 'O'

RAMP 'M'

WASHINGTON COUNTY RAILROAD

RAILROAD STA.
MONTPELIER JCT.

JUNCTION 800 FEET
89
MONTPELIER JCT.
PARK & RIDE

RIGHT LANE MUST TURN RIGHT

TO 2 12

NATIONAL LIFE INSURANCE CO.
CHURCH OF CHRIST AT ON RTE 12, 1 MI.
THE INN AT MONTPELIER LT AT 4TH LIGHT

CAR POOL INFO (1-800-642-3281)

DIVIDED HIGHWAY

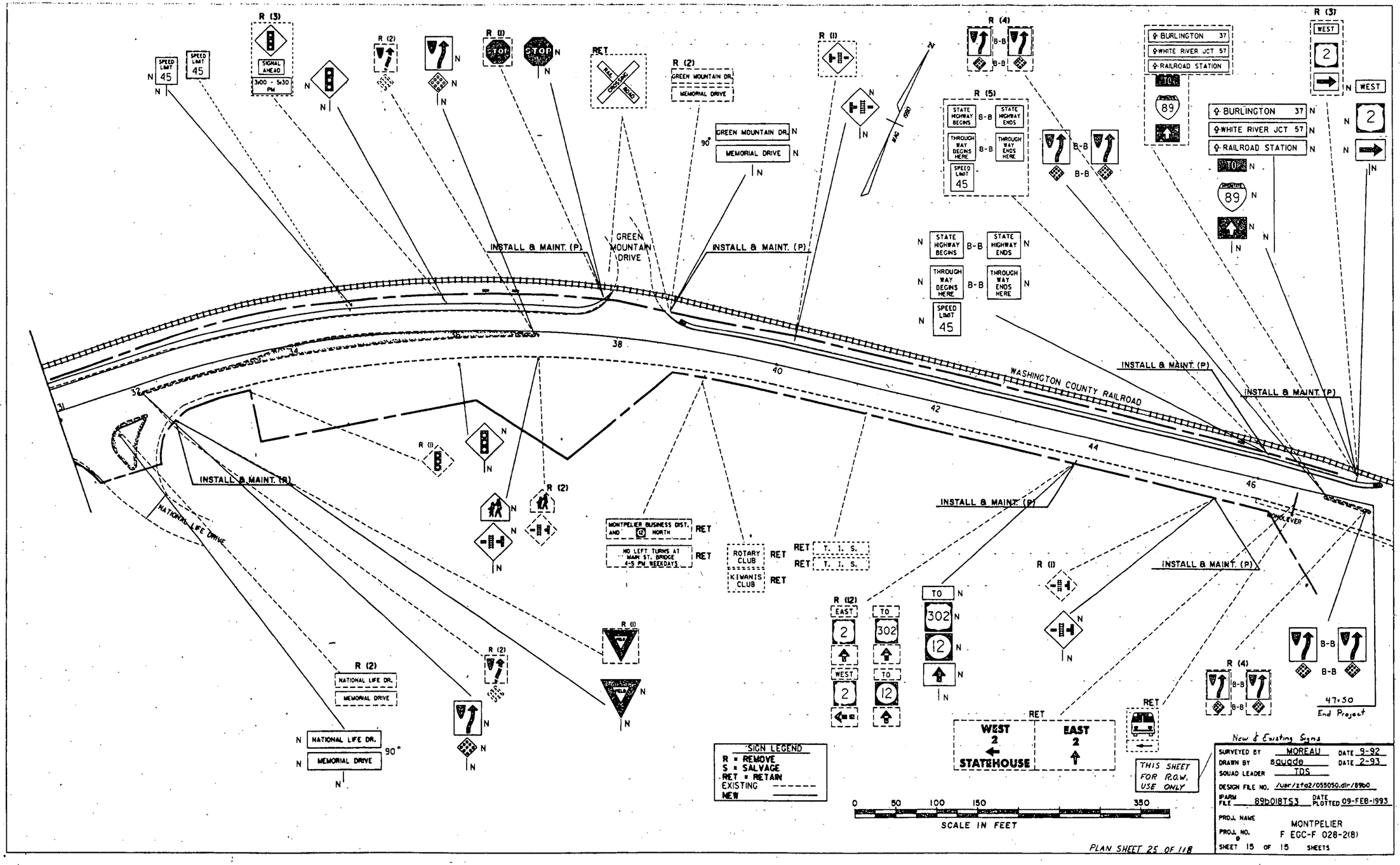
THIS SHEET FOR R.O.W. USE ONLY

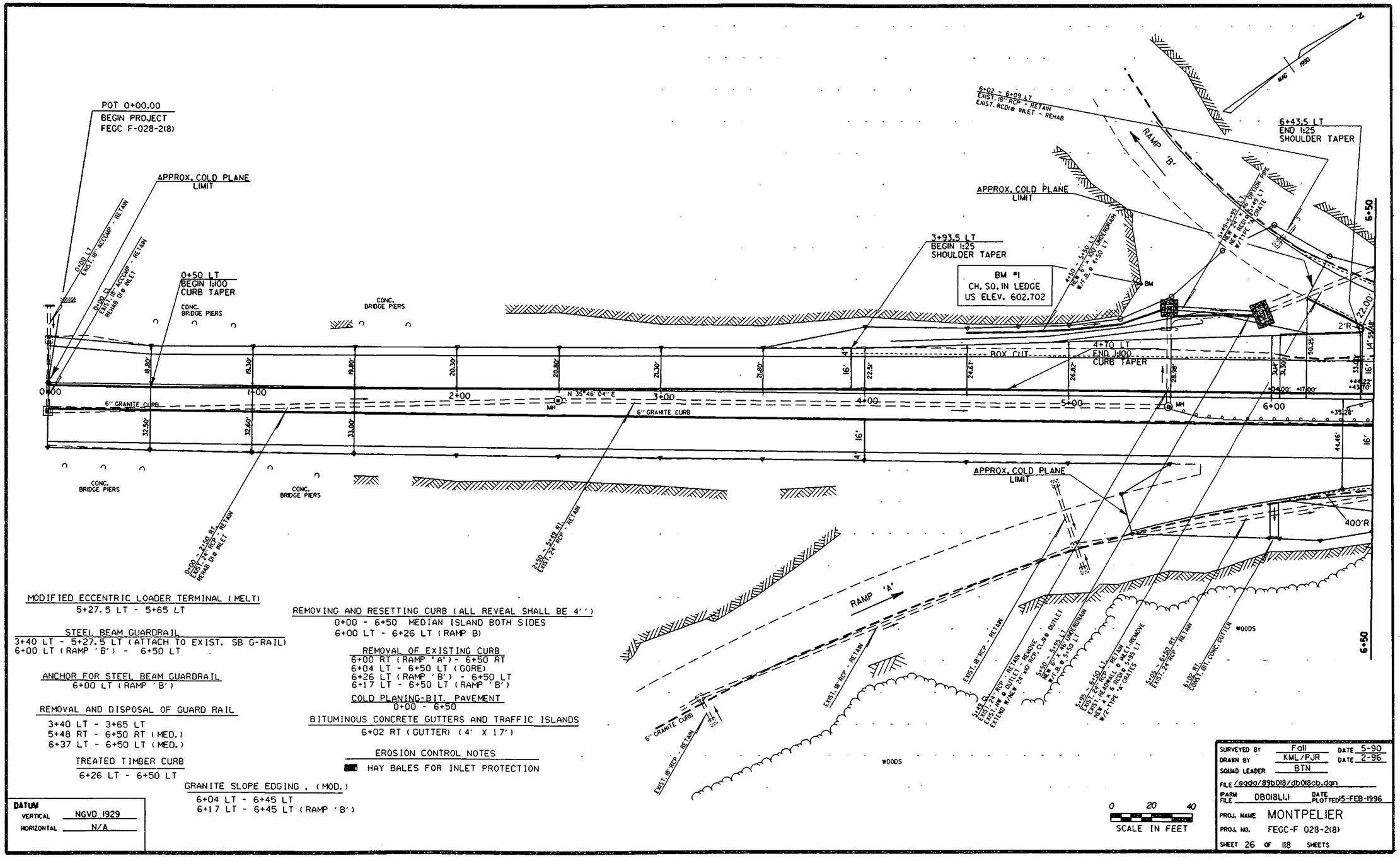
0 50 100 150 350
SCALE IN FEET

PLAN SHEET 24 OF 118

SIGN LEGEND
R = REMOVE
S = SALVAGE
RET = RETAIN
EXISTING ------
NEW ——

SURVEYED BY MOREAU DATE 9-92
DRAWN BY squade DATE 2-93
SQUAD LEADER TDS
DESIGN FILE NO. /usr/std/055050.dir/89b0
IPARM FILE 89B0I8TS2 DATE PLOTTED 10-FEB-1993
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 14 OF 15 SHEETS


R (3)
SPEED LIMIT 45
SIGNAL AHEAD
3:00 - 5:30 PM
R (2)
R (1)
STOP
RET
RAIL ROAD CROSSING
R (2)
GREEN MOUNTAIN DR.
MEMORIAL DRIVE
90°
R (1)
R (4)
B-B
R (5)
STATE HIGHWAY BEGINS
STATE HIGHWAY ENDS
THROUGH WAY BEGINS HERE
THROUGH WAY ENDS HERE
SPEED LIMIT 45
BURLINGTON 37
WHITE RIVER JCT 57
RAILROAD STATION
TO
89
R (3)
WEST
2
INSTALL & MAINT. (P)
GREEN MOUNTAIN DRIVE
WASHINGTON COUNTY RAILROAD
38
40
42
44
46
31
32
INSTALL & MAINT. (R)
NATIONAL LIFE DRIVE
R (1)
R (2)
MONTPELIER BUSINESS DIST. AND 2 NORTH
NO LEFT TURNS AT MAIN ST. BRIDGE 4-5 PM WEEKDAYS
ROTARY CLUB
KIWANIS CLUB
T. I. S.
R (2)
NATIONAL LIFE DR.
MEMORIAL DRIVE
90°
R (12)
EAST
2
WEST
2
TO
302
12
R (1)
R (4)
47+50
End Project
WEST
2
STATEHOUSE
EAST
2
THIS SHEET FOR R.O.W. USE ONLY
SIGN LEGEND
R = REMOVE
S = SALVAGE
RET = RETAIN
EXISTING
NEW
0 50 100 150 350
SCALE IN FEET
New & Existing Signs
SURVEYED BY MOREAU DATE 9-92
DRAWN BY squade DATE 2-93
SQUAD LEADER TDS
DESIGN FILE NO. /usr/ztq02/055050.dir/89b0
IFARM FILE 89b01BTS3 DATE PLOTTED 09-FEB-1993
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 15 OF 15 SHEETS
PLAN SHEET 25 OF 118




MODIFIED ECCENTRIC LOADER TERMINAL (MELT)
5+27.5 LT - 5+65 LT

STEEL BEAM GUARDRAIL
3+40 LT - 5+27.5 LT (ATTACH TO EXIST. SB G-RAIL)
6+00 LT (RAMP 'B') - 6+50 LT

ANCHOR FOR STEEL BEAM GUARDRAIL
6+00 LT (RAMP 'B')

REMOVAL AND DISPOSAL OF GUARD RAIL
3+40 LT - 3+65 LT
5+48 RT - 6+50 RT (MED.)
6+37 LT - 6+50 LT (MED.)

TREATED TIMBER CURB
6+26 LT - 6+50 LT

REMOVING AND RESETTING CURB (ALL REVEAL SHALL BE 4")
0+00 - 6+50 MEDIAN ISLAND BOTH SIDES
6+00 LT - 6+26 LT (RAMP B)

REMOVAL OF EXISTING CURB
6+00 RT (RAMP 'A') - 6+50 RT
6+04 LT - 6+50 LT (GORE)
6+26 LT (RAMP 'B') - 6+50 LT
6+17 LT - 6+50 LT (RAMP 'B')

COLD PLANING-BIT. PAVEMENT
0+00 - 6+50

BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS
6+02 RT (GUTTER) (4' X 17')

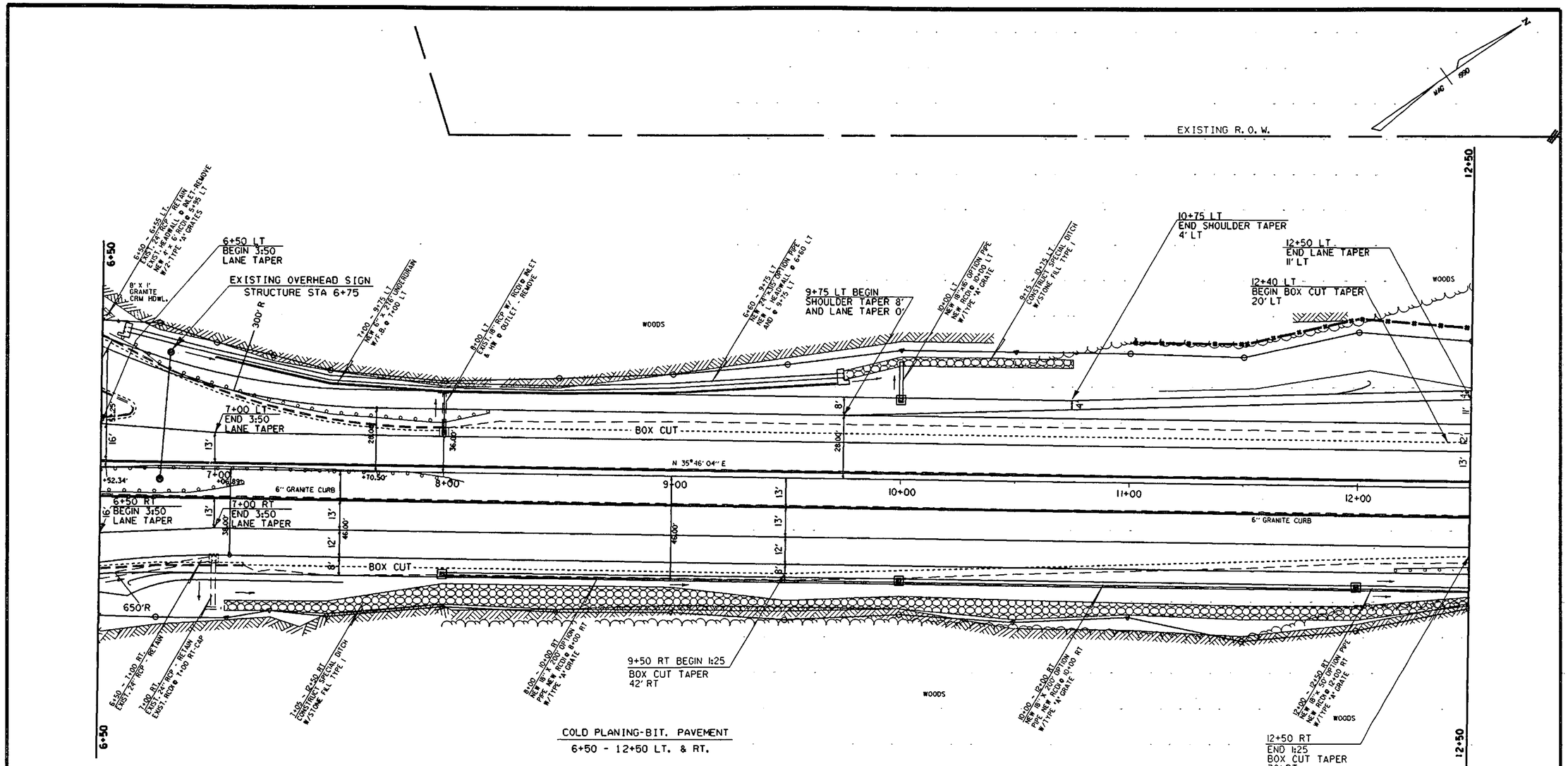
EROSION CONTROL NOTES
HAY BALES FOR INLET PROTECTION

GRANITE SLOPE EDGING, (MOD.)
6+04 LT - 6+45 LT
6+17 LT - 6+45 LT (RAMP 'B')

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sqdg/89b018/db018cb.dgn
PARM FILE DB018L1.I DATE PLOTTED 5-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 26 OF 118 SHEETS

: Sheet Number: 26




COLD PLANING-BIT. PAVEMENT
6+50 - 12+50 LT. & RT.

HAY BALES FOR EROSION CONTROL

SILT FENCE
STA. 11+00 LT - STA. 12+50 LT

REMOVING AND RESETTING CURB (ALL REVEAL SHALL BE 4'')
6+50 - 12+50 MEDIAN ISLAND BOTH SIDES

REMOVAL OF EXISTING CURB
6+50 RT - 7+13 RT
6+50 - 6+64 CORE LT
6+50 LT (RAMP 'B') - ML 8+00 LT
6+50 LT - 6+64 LT (RAMP 'B')

TREATED TIMBER CURB
7+00 RT - 12+50 RT(BREAK AT DI'S)
6+50 LT - 10+00 LT

STEEL BEAM GUARDRAIL
6+45 MEDIAN -7+05 MEDIAN (PIER RING)
SEE SHEET 4 FOR PIER RING DETAILS
6+50 LT (RAMP 'B') - 11+68 LT
7+00 RT - 12+50 RT

MODIFIED ECCENTRIC LOADER TERMINAL (MELT)
6+62.5 RT - 7+00 RT
11+68 LT - 12+05.5 LT

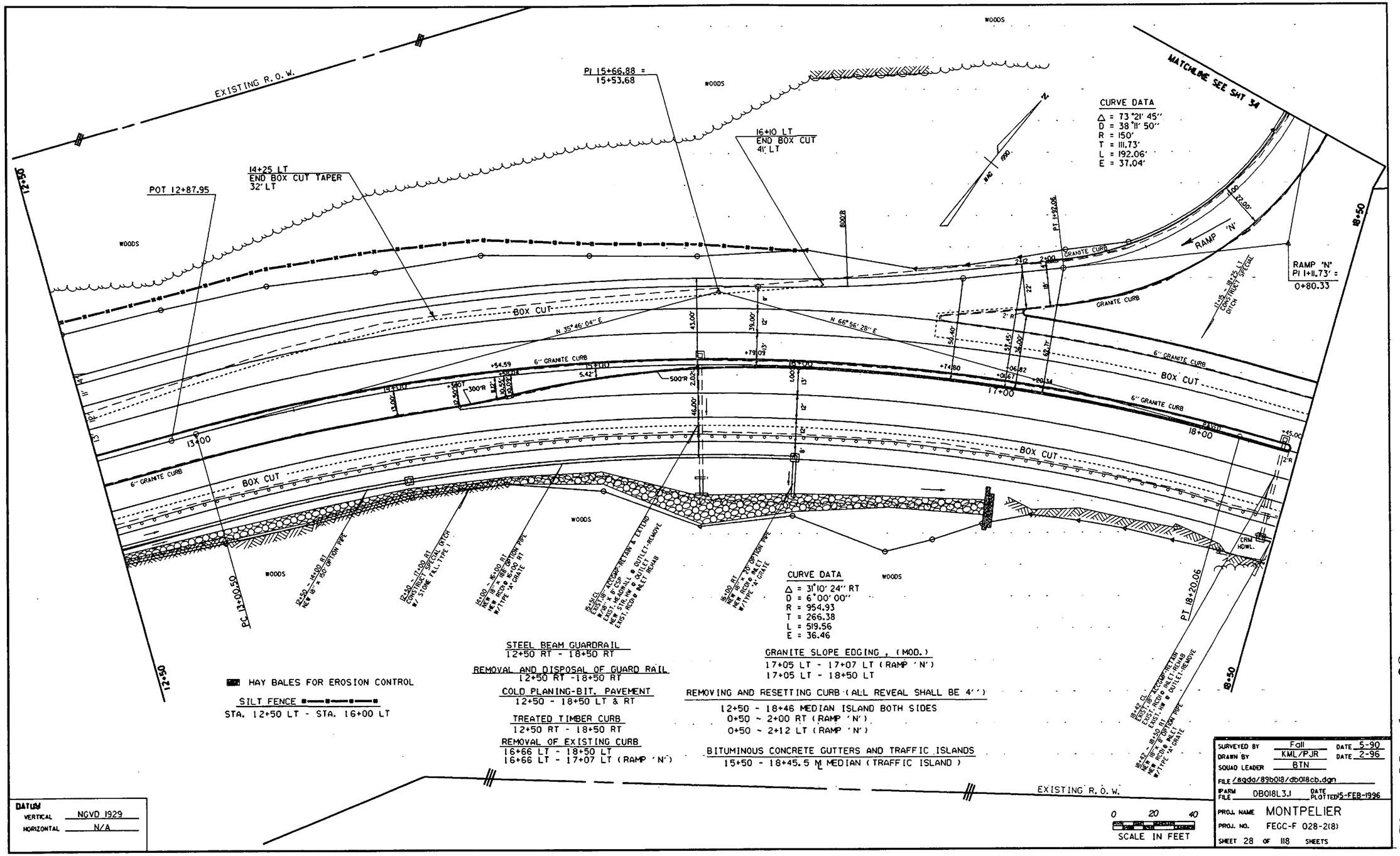
REMOVAL AND DISPOSAL OF GUARD RAIL
6+53 LT (RAMP 'B') - 8+20 LT
6+50 RT - 7+13 RT (MED.)
6+50 LT - 8+09 LT (MED.)
12+17 RT - 12+50 RT

0 20 40
SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sgdg/89b018/db018cb.dgn
PARM FILE DB018L2.I DATE PLOTTED 5-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 27 OF 118 SHEETS

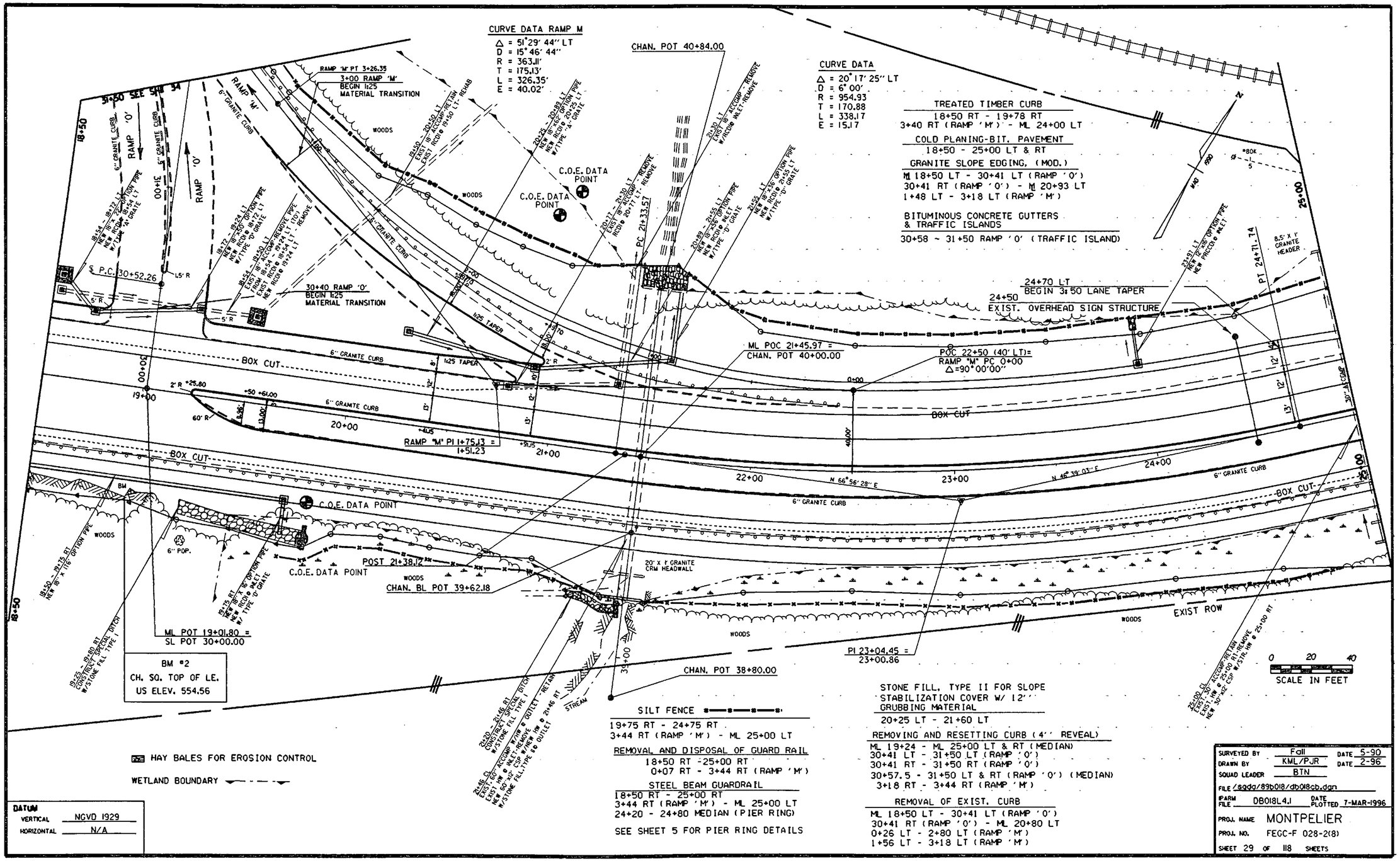
: Sheet Number: 27



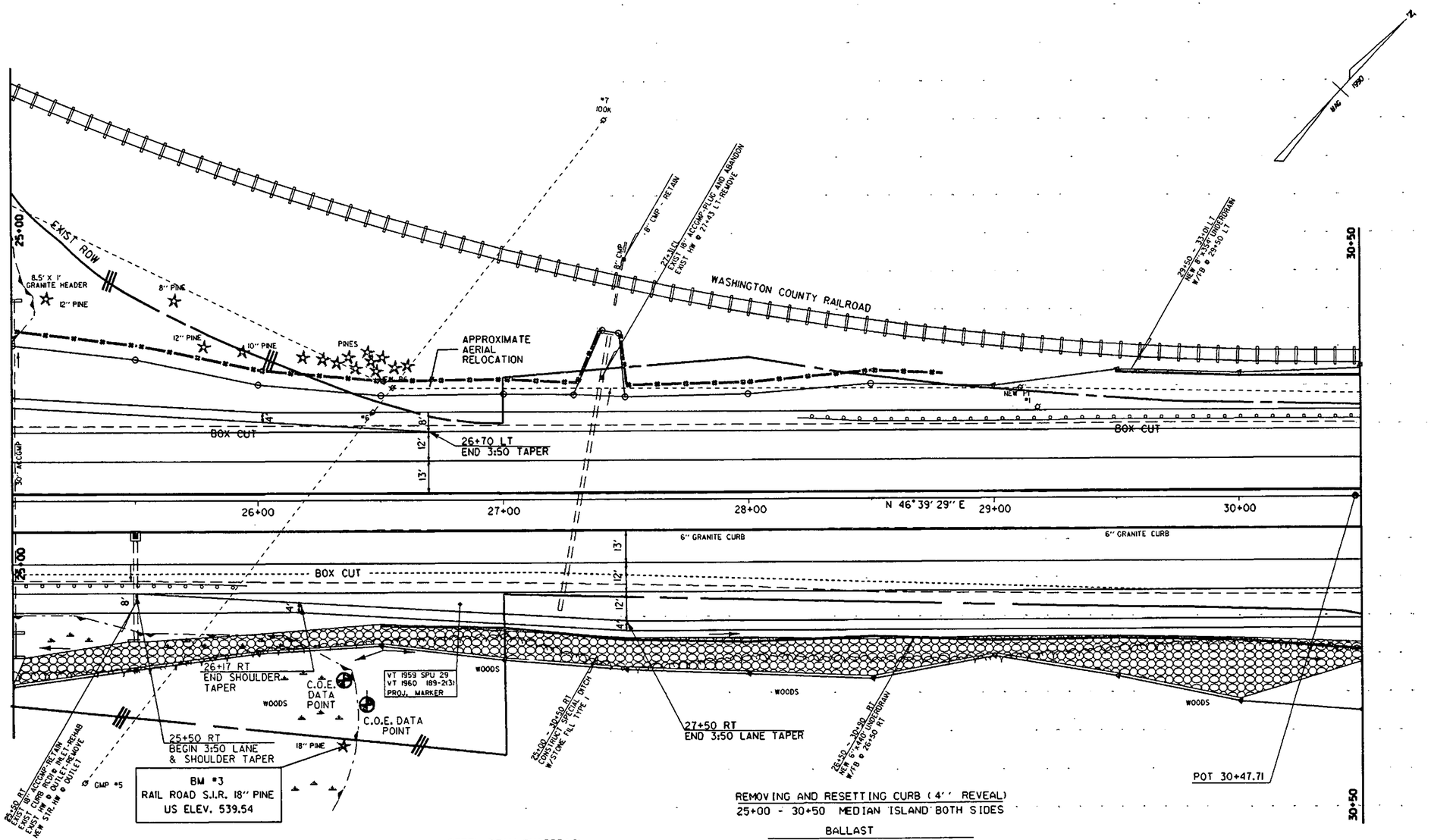

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sqda/89b018/db018cb.dgn
IPARM FILE DB018L3.I DATE PLOTTED 5-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 28 OF 118 SHEETS

: Sheet Number: 28




: Sheet Number: 29




REMOVING AND RESETTING CURB ( 4'' REVEAL)
25+00 - 30+50 MEDIAN ISLAND BOTH SIDES

STEEL BEAM GUARDRAIL
25+00 RT - 30+50 RT
25+00 LT - 30+50 LT

REMOVAL AND DISPOSAL OF GUARDRAIL
25+00 RT - 25+96 RT
28+20 LT - 30+50 LT

COLD PLANING-BIT. PAVEMENT
25+00 - 30+50 LT & RT

WETLAND BOUNDARY

BALLAST
30+00 LT - 30+50 LT AND/OR AS DIRECTED BY RESIDENT ENGINEER

SILT FENCE
STA. 25+00 LT - STA. 28+75 LT

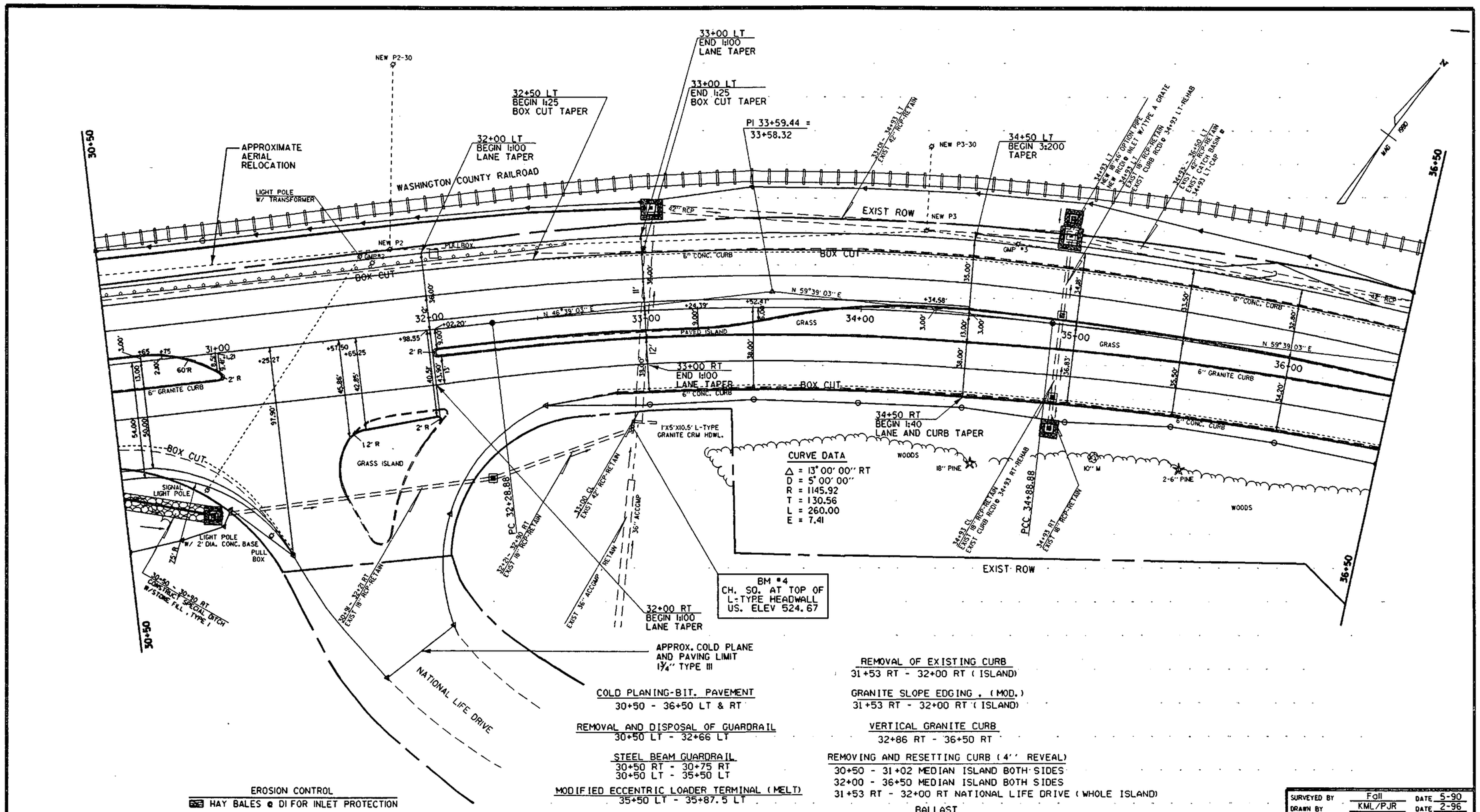
STONE FILL, TYPE II FOR SLOPE STABILIZATION COVER W/ 12'' GRUBBING MATERIAL
28+75 LT - 30+50 LT

0 20 40
SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sqdg/89b018/db018cb.dgn
IPARM FILE DB018L5.I DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 30 OF 118 SHEETS

: Sheet Number: 30




EROSION CONTROL

HAY BALES @ DI FOR INLET PROTECTION

STONE FILL, TYPE II FOR SLOPE STABILIZATION COVER W/ 12'' GRUBBING MATERIAL

30+50 LT - 33+75 LT

TO BE PAID AS TRENCH EXCAVATION OF EARTH

COLD PLANING-BIT. PAVEMENT

30+50 - 36+50 LT & RT

REMOVAL AND DISPOSAL OF GUARDRAIL

30+50 LT - 32+66 LT

STEEL BEAM GUARDRAIL

30+50 RT - 30+75 RT

30+50 LT - 35+50 LT

MODIFIED ECCENTRIC LOADER TERMINAL (MELT)

35+50 LT - 35+87.5 LT

ANCHOR FOR STEEL BEAM GUARDRAIL

30+75 RT

BITUMINOUS CONCRETE GUTTERS & TRAFFIC ISLANDS

32+00 - 33+30 ML MEDIAN (TRAFFIC ISLANDS)

REMOVAL OF EXISTING CURB

31+53 RT - 32+00 RT (ISLAND)

GRANITE SLOPE EDGING, (MOD.)

31+53 RT - 32+00 RT (ISLAND)

VERTICAL GRANITE CURB

32+86 RT - 36+50 RT

REMOVING AND RESETTING CURB (4'' REVEAL)

30+50 - 31+02 MEDIAN ISLAND BOTH SIDES

32+00 - 36+50 MEDIAN ISLAND BOTH SIDES

31+53 RT - 32+00 RT NATIONAL LIFE DRIVE (WHOLE ISLAND)

BALLAST

30+50 ~ 31+50 LT AND/OR AS DIRECTED BY RESIDENT ENGINEER

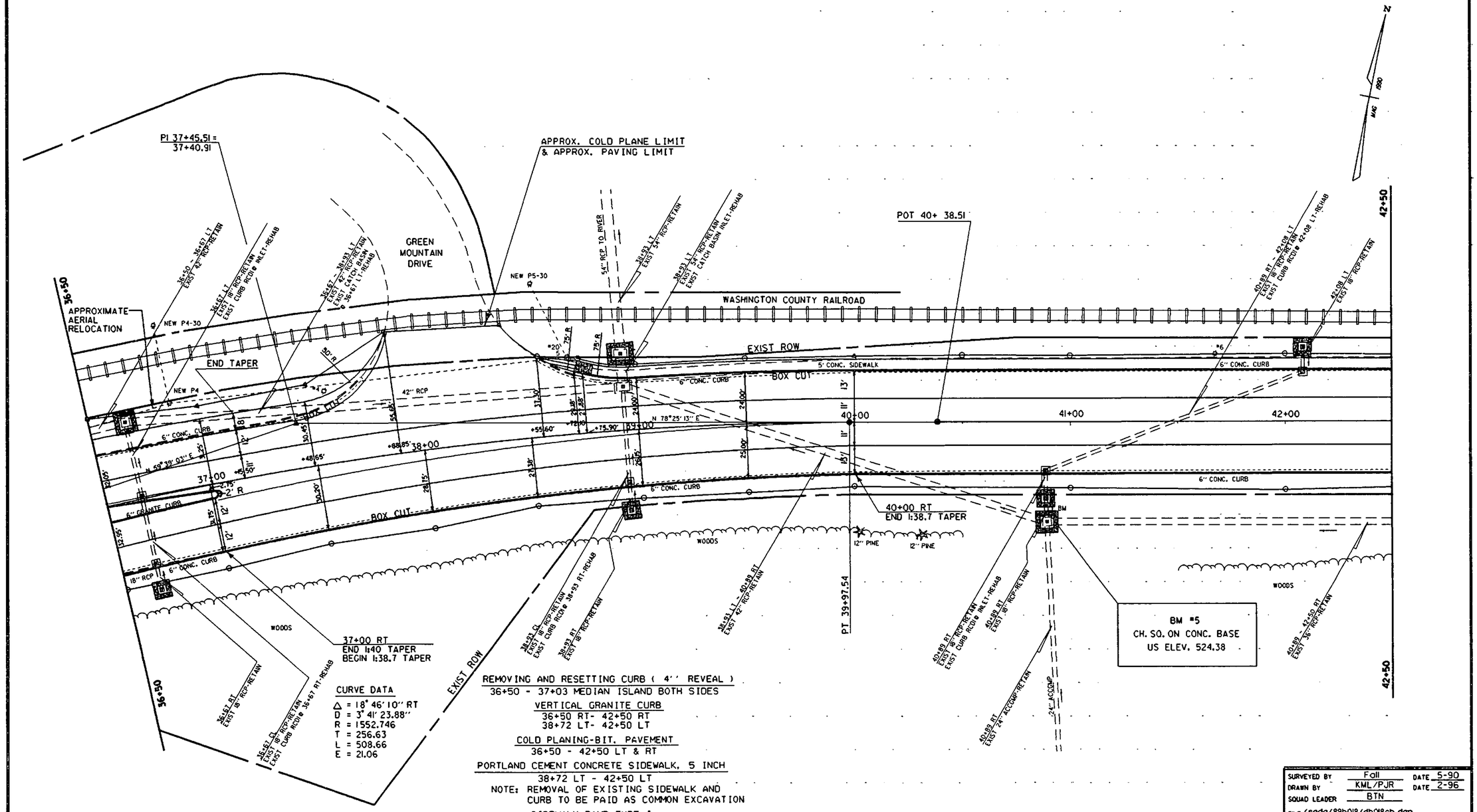
0 20 40

SCALE IN FEET

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

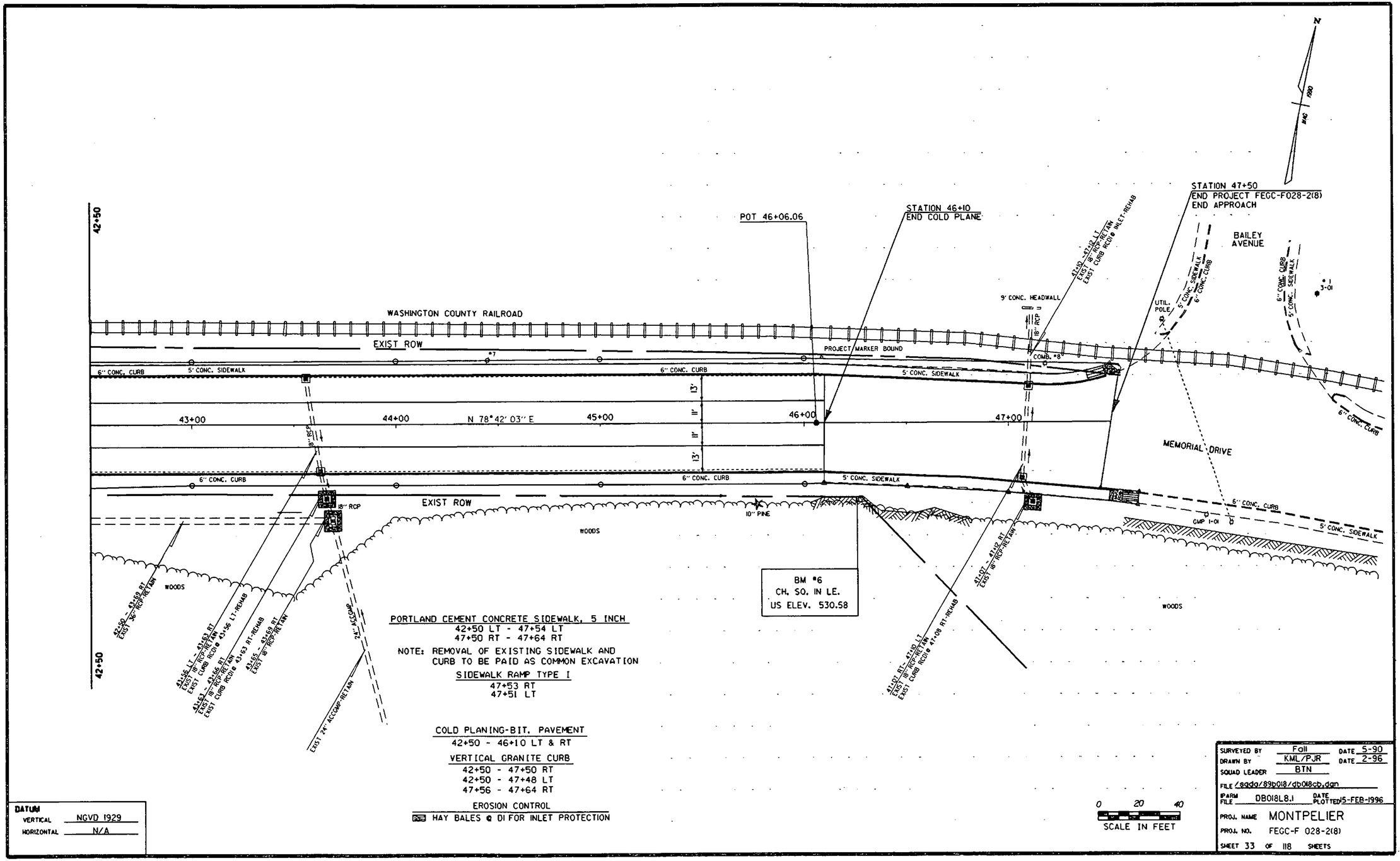
SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sgda/89b018/dp018cb.dgn
PARM FILE DB018L6.I DATE PLOTTED 5-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 31 OF 118 SHEETS

: Sheet Number: 31




| | |
|---|---|
| DATUM VERTICAL | NGVD 1929 |
| DATUM HORIZONTAL | N/A |
| SURVEYED BY | Foll DATE 5-90 |
| DRAWN BY | KML/PJR DATE 2-96 |
| SQUAD LEADER | BTN |
| FILE | /sqdd/89b018/db018cb.dgn |
| IPARM FILE | DB018L7.I DATE PLOTTED 5-FEB-1996 |
| PROJ. NAME | MONTPELIER |
| PROJ. NO. | FEGC-F 028-2(8) |
| SHEET | 32 OF 118 SHEETS |

: Sheet Number: 32




PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH
42+50 LT - 47+54 LT
47+50 RT - 47+64 RT

NOTE: REMOVAL OF EXISTING SIDEWALK AND CURB TO BE PAID AS COMMON EXCAVATION

SIDEWALK RAMP TYPE I
47+53 RT
47+51 LT

COLD PLANING-BIT. PAVEMENT
42+50 - 46+10 LT & RT

VERTICAL GRANITE CURB
42+50 - 47+50 RT
42+50 - 47+48 LT
47+56 - 47+64 RT

EROSION CONTROL
HAY BALES @ DI FOR INLET PROTECTION

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

0 20 40
SCALE IN FEET

SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sgda/89b018/db018cb.dgn
IRARM FILE DB018L8.I DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 33 OF 118 SHEETS

: Sheet Number: 33

REMOVAL & DISPOSAL OF GUARDRAIL
3+44 RT (RAMP 'M') - SL 36+64 RT

STEEL BEAM GUARDRAIL
3+44 RT (RAMP 'M') - SL 39+19 RT

MODIFIED ECCENTRIC LOADER TERMINAL (MELT)
SL 39+19 RT - SL 39+56.5 RT

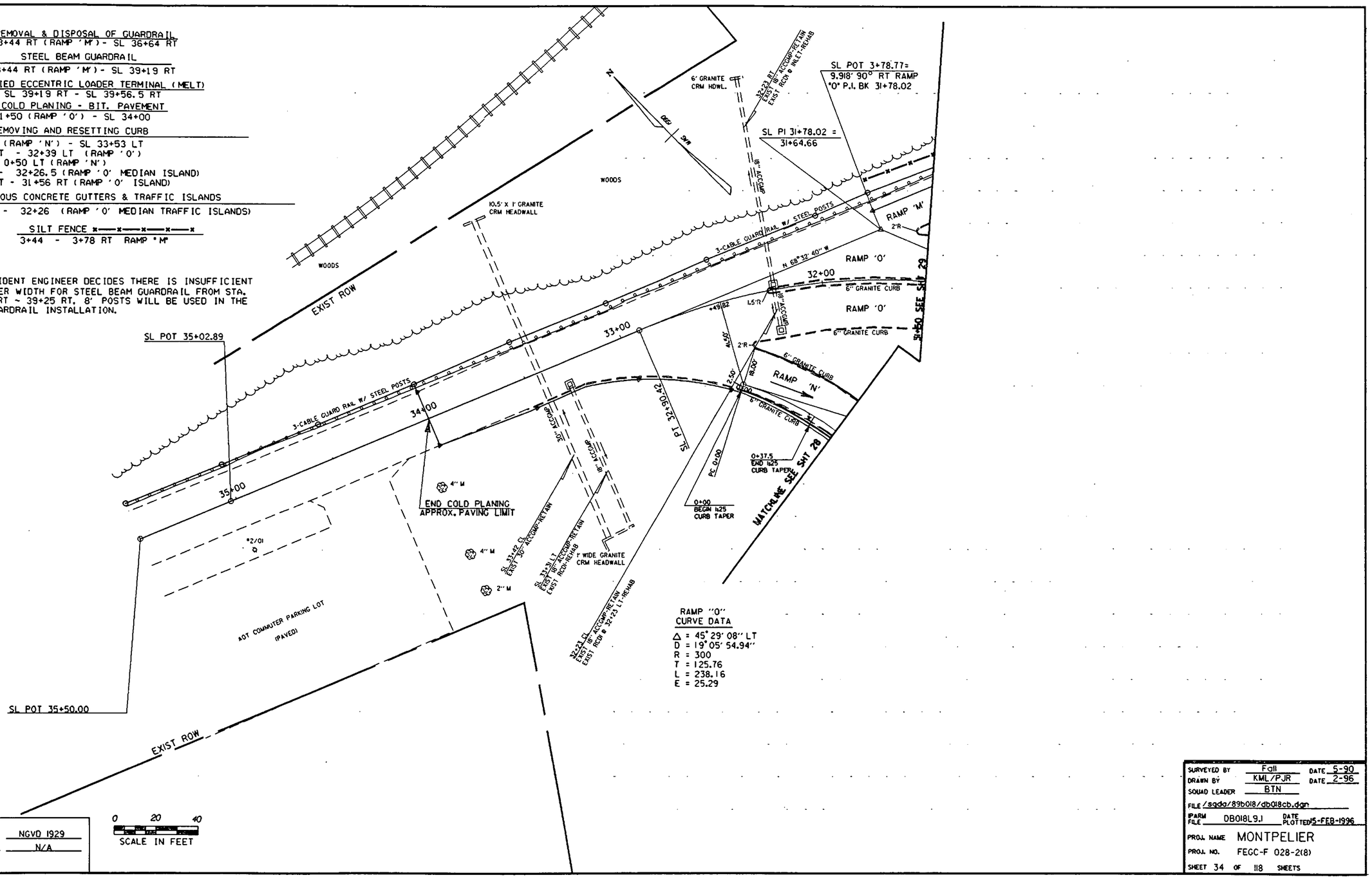
COLD PLANING - BIT. PAVEMENT
31+50 (RAMP '0') - SL 34+00

REMOVING AND RESETTING CURB
0+50 RT (RAMP 'N') - SL 33+53 LT
31+50 LT - 32+39 LT (RAMP '0')
0+00 - 0+50 LT (RAMP 'N')
31+50 - 32+26.5 (RAMP '0' MEDIAN ISLAND)
31+50 RT - 31+56 RT (RAMP '0' ISLAND)

BITUMINOUS CONCRETE GUTTERS & TRAFFIC ISLANDS
31+50 - 32+26 (RAMP '0' MEDIAN TRAFFIC ISLANDS)

SILT FENCE
3+44 - 3+78 RT RAMP "M"

NOTE:
IF RESIDENT ENGINEER DECIDES THERE IS INSUFFICIENT SHOULDER WIDTH FOR STEEL BEAM GUARDRAIL FROM STA. 31+50 RT ~ 39+25 RT, 8' POSTS WILL BE USED IN THE NEW GUARDRAIL INSTALLATION.



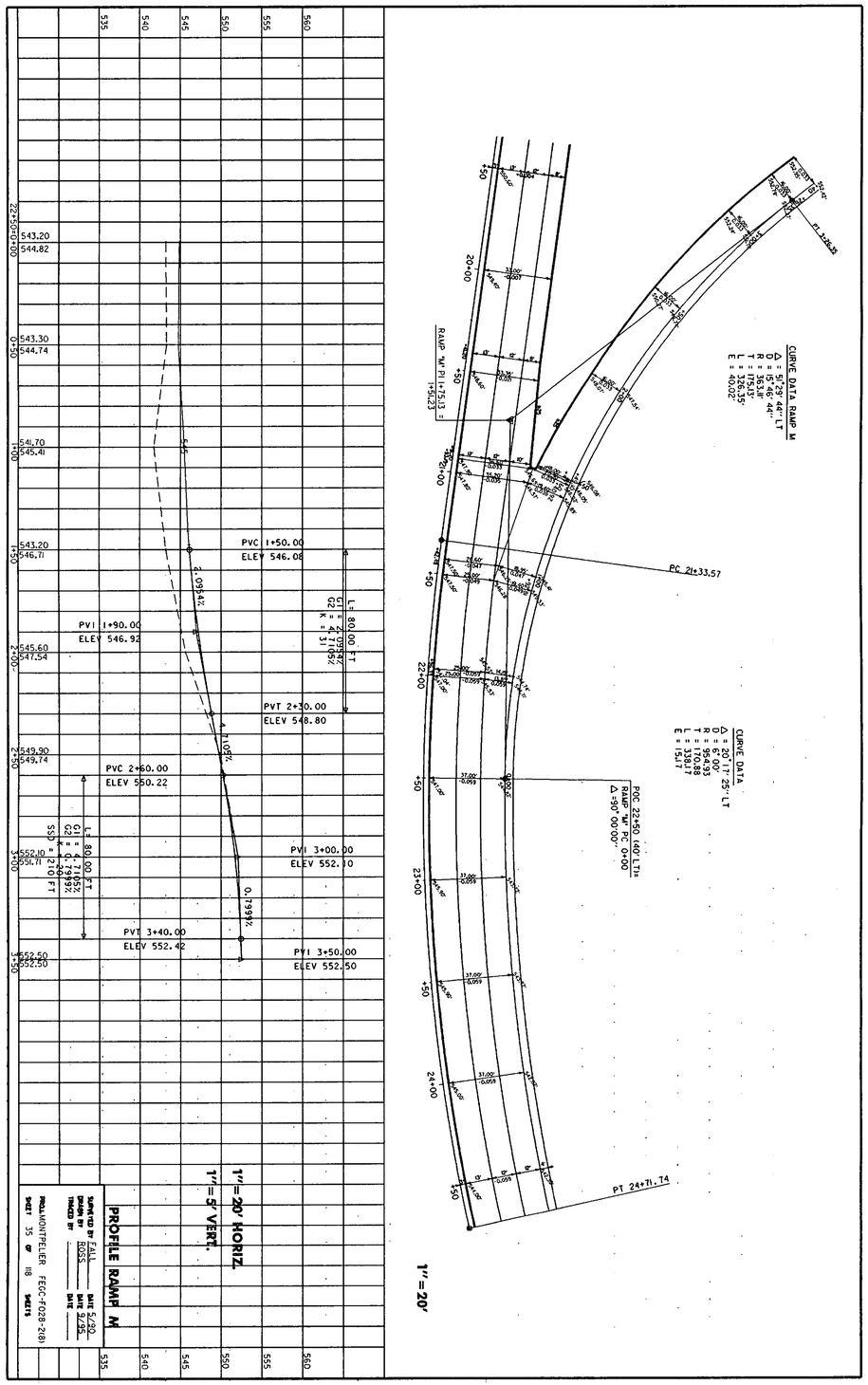

RAMP "0"
CURVE DATA
Δ = 45° 29' 08" LT
D = 19° 05' 54.94"
R = 300
T = 125.76
L = 238.16
E = 25.29

DATUM
VERTICAL NGVD 1929
HORIZONTAL N/A

0 20 40
SCALE IN FEET

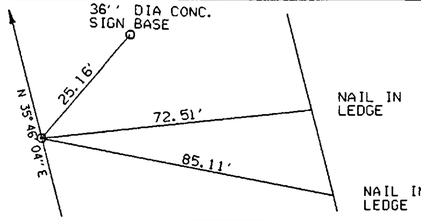
SURVEYED BY Fall DATE 5-90
DRAWN BY KML/PJR DATE 2-96
SQUAD LEADER BTN
FILE /sqda/89b018/db018cb.dgn
IPARM FILE DB018L9.I DATE PLOTTED 5-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. FEGC-F 028-2(8)
SHEET 34 OF 118 SHEETS

Sheet Number: 34

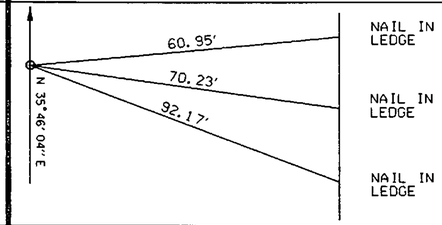



: Sheet Number: 35

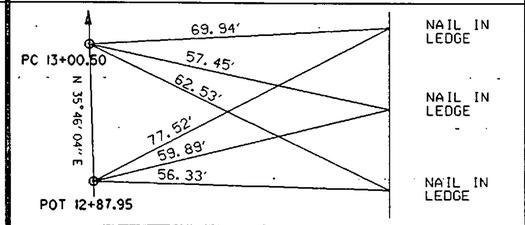
## ML POT 6+50.00 = RAMP "B" TRAV. POT 10+00.00



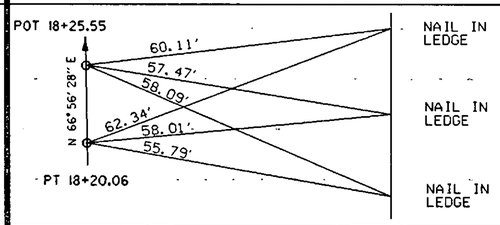

## ML POT 8+00.00



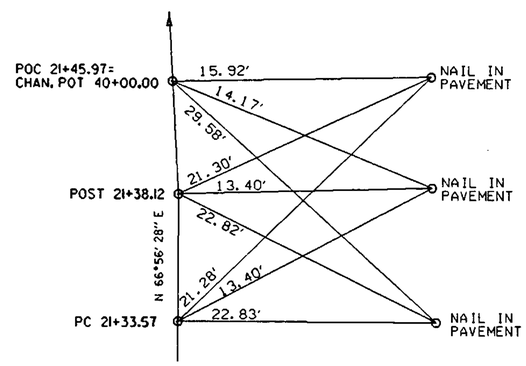

## POT 12+87.95 & PC 13+00.50



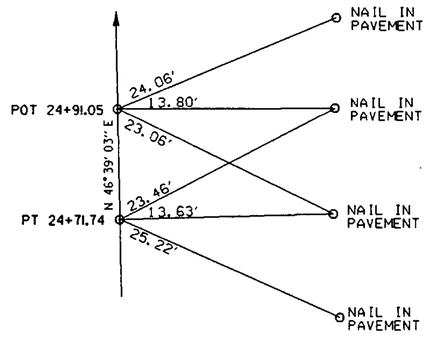

## PT 18+20.06 & POT 18+25.55



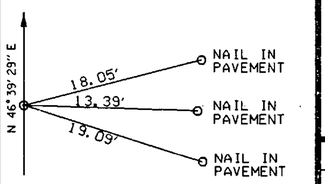

## PC 21+33.57 & POST 21+38.12 & POC 21+45.97=CHAN. POT 40+00.00



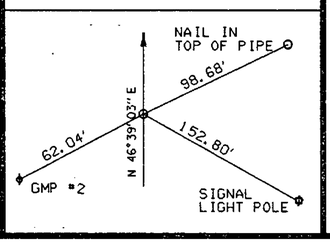

## PT 24+71.74 & POT 24+91.05



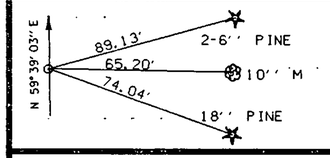

## POT 30+47.71



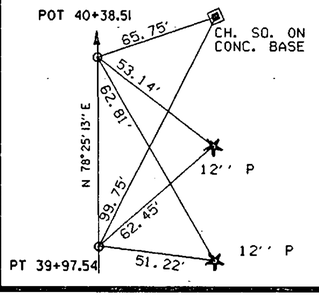

## PC 32+28.88



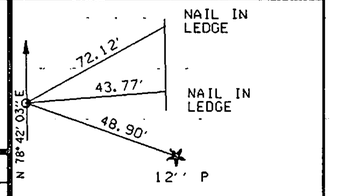

## PCC 34+88.88



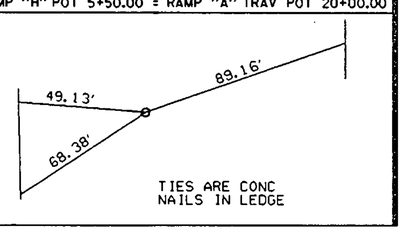

## PT 39+97.54 & POT 40+38.51




## POT 46+06.06




## RAMP "H" POT 5+50.00 = RAMP "A" TRAV POT 20+00.00



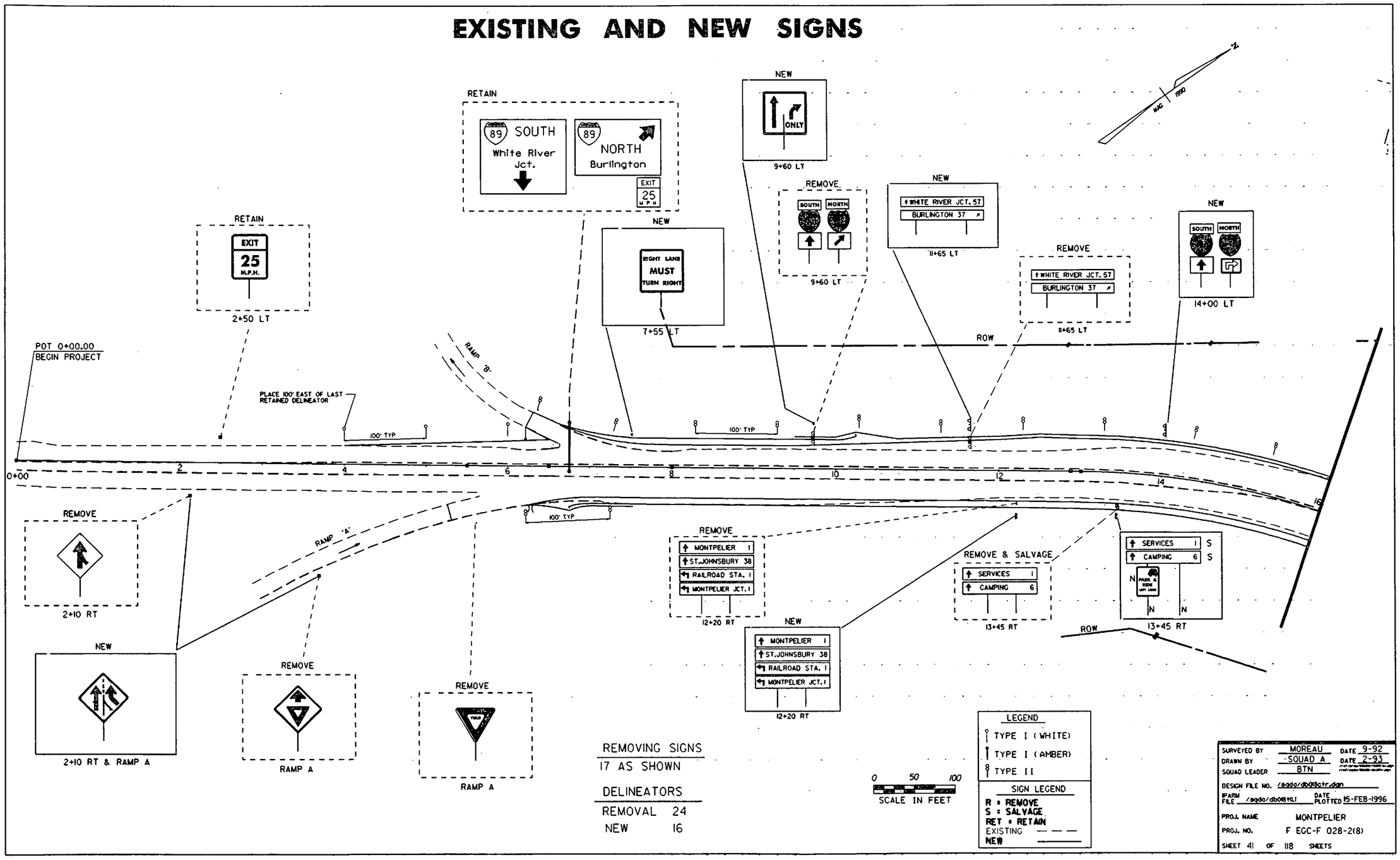

# TIE SHEET

| | | | |
|---|---|---|---|
| SURVEYED BY | FALL | DATE | |
| DRAWN BY | KJR | DATE | 2/95 |
| SQUAD LEADER | NYQUIST | | |
| DESIGN FILE NO. | SODA/89B018/DB018.DGN | | |
| IPARM | DB018TIE | DATE PLOTTED | 15-FEB-1996 |
| PROJ. NAME | MONTPELIER | | |
| PROJ. NO. | F EGC-F 028-2(8) | | |
| SHEET 36 OF 118 SHEETS | | | |

1000.5000

: Sheet Number: 36

# EXISTING AND NEW SIGNS




| | | | |
|---|---|---|---|
| SURVEYED BY | MOREAU | DATE | 9-92 |
| DRAWN BY | SQUAD A | DATE | 2-93 |
| SQUAD LEADER | BTN | | |
| DESIGN FILE NO. | /sqdo/db018ctr.dgn | | |
| IPARM FILE | /sqdo/db018ML1 | DATE PLOTTED | 15-FEB-1996 |
| PROJ. NAME | MONTPELIER | | |
| PROJ. NO. | F EGC-F 028-2(8) | | |
| SHEET 41 OF 118 SHEETS | | | |

: Sheet Number: 41

# EXISTING AND NEW SIGNS

NEW 34+70 LT
REMOVE 34+70 LT
REMOVE ← MONTPELIER TO 2
RETAIN
NEW 20+20 LT
REMOVE 20+20 LT
NEW OVERHEAD ASSEMBLY
89 SOUTH WHITE RIVER JCT.
89 NORTH BURLINGTON
MONTPELIER JUNCTION
SALVAGED FROM 45+25 LT
24+50 LT
NEW RAILROAD STA. / MONTPELIER JCT. 26+00 LT
REMOVE RAILROAD STA. / MONTPELIER JCT.
RETAIN 40T COMMUTER PARKING
REMOVE
NEW 20+93 LT
18+05 LT R&S
18+70 LT R&N
17+10 LT R&S
R&N (6) B-B
R&N
R&N (2) B-B
NEW 24+95 LT
REMOVE RIGHT LANE MUST TURN RIGHT SPEED LIMIT 45 27+20 LT
REMOVE JUNCTION 800 FEET 89 MONTPELIER JCT.
NEW RIGHT LANE MUST TURN RIGHT 22+20 LT
NEW RAMP 30 M.P.H. 24+00 LT
WASHINGTON COUNTY RAILROAD
RETAIN B-B
NEW ← RAILROAD STATION ← MONTPELIER JCT. 18+70 RT
REMOVE
REMOVE DIVIDED HIGHWAY 18+95 RT
NEW DIVIDED HIGHWAY 18+95 RT
REMOVE & SALVAGE SPEED LIMIT 45 N 21+80 RT
RETAIN B-B
SALVAGE (3)
NATIONAL LIFE INSURANCE CO. ¾
CHURCH OF CHRIST RT ON RTE 12, 1 MI. 2
THE INN AT MONTPELIER LT AT 4TH LIGHT ½
22+40 RT
TO 2 12 R&S (2) R 24+40 RT
TO 2 12 S (2) N 24+40 RT
REMOVE 26+10 RT
NEW 26+10 RT
NEW ONLY 27+35 RT
REMOVE & SALVAGE NATIONAL LIFE INSURANCE CO. ¾ CHURCH OF CHRIST RT ON RTE 12, 1 MI. 2 THE INN AT MONTPELIER LT AT 4TH LIGHT ½
R+S (1) PUBLIC TRANSIT AND CARPOOL INFO 1-800-683-RIDE 28+85 RT
NEW RIGHT LANE MUST TURN RIGHT 30+55 RT
NEW B-B 30+83 RT
REMOVE 30+83 RT

DELINEATORS
REMOVAL 27
NEW 24

REMOVING SIGNS
44 AS SHOWN

LEGEND
TYPE I (AMBER)
TYPE II

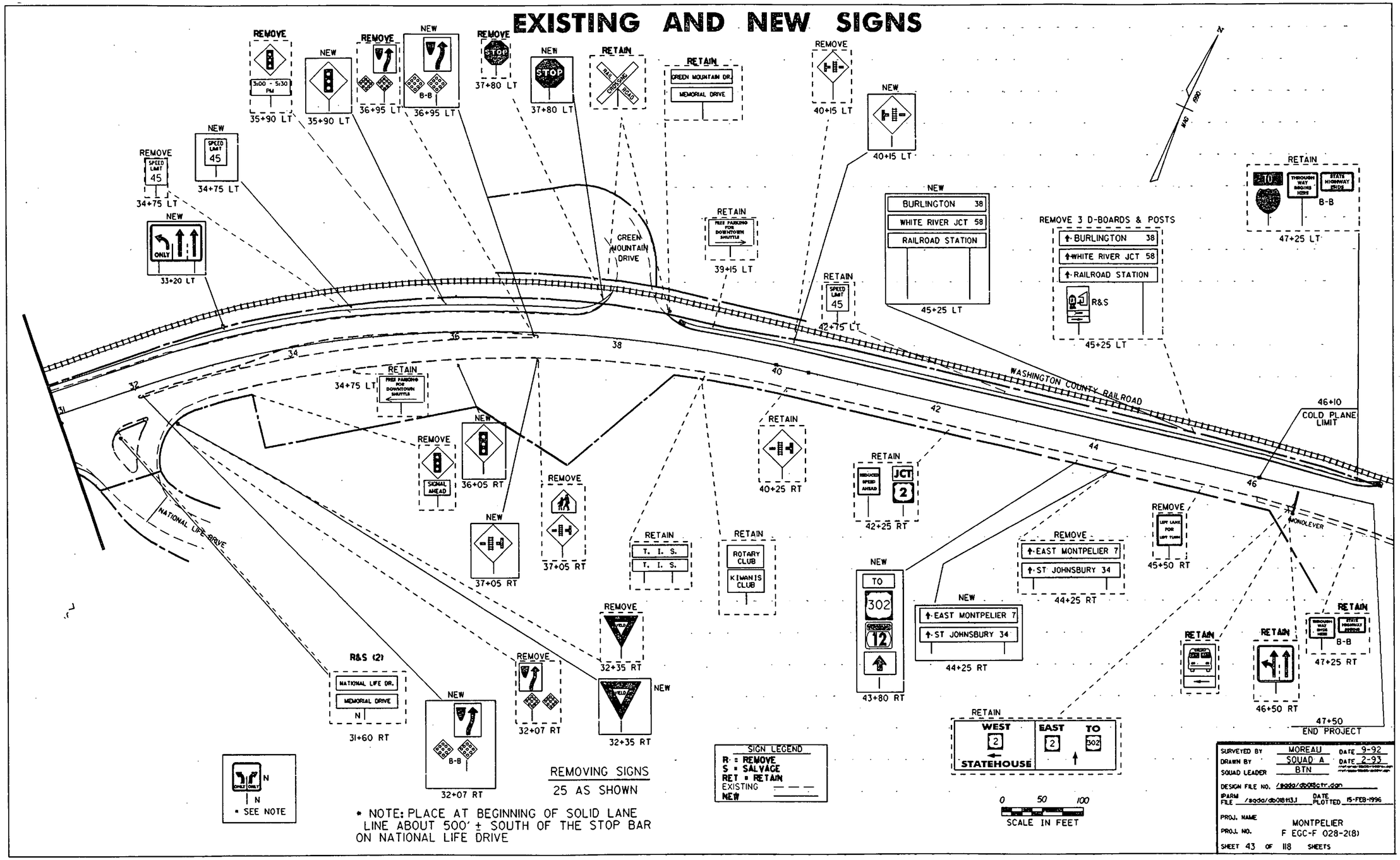
SIGN LEGEND
R = REMOVE
R&N=REMOVE EXISTING REPLACE W/NEW
S = SALVAGE
RET = RETAIN
EXISTING
NEW

0 50 100
SCALE IN FEET

| | | | |
|---|---|---|---|
| SURVEYED BY | MOREAU | DATE | 9-92 |
| DRAWN BY | SQUAD A | DATE | 2-93 |
| SQUAD LEADER | BTN | | |
| DESIGN FILE NO. | /sqda/db08sctr.dgn | | |
| IFARM FILE | /sqda/db08t12.1 | DATE PLOTTED | 15-FEB-1996 |
| PROJ. NAME | MONTPELIER | | |
| PROJ. NO. | F EGC-F 028-2(8) | | |
| SHEET 42 OF 118 SHEETS | | | |

: Sheet Number: 42

# EXISTING AND NEW SIGNS




Sheet Number: 43

# PAVEMENT MARKINGS

TEMPORARY 4" WHITE LINE
0+00 RT - 5+65 RT (EDGE)
5+30 RT (RAMP A) - 16+00 (ML)
7+25 RT - 16+00 RT (DASHED)
14+50 RT - 15+80 RT (DOTTED)
15+80 RT - 16+00 RT
0+00 LT - 6+35 LT (EDGE)
6+30 LT (RAMP B) - 16+00 LT (EDGE)
7+65 LT - 9+60 LT (TURN LANE)
9+60 LT - 16+00 LT (DASHED)
13+85 LT - 15+60 LT (DASHED)

DURABLE 4" WHITE LINE
0+00 RT - 5+65 RT (EDGE)
5+30 RT (RAMP A) - 16+00 (ML)
7+25 RT - 16+00 RT (DASHED)
14+50 RT - 15+80 RT (DOTTED)
15+80 RT - 16+00 RT
0+00 LT - 6+35 LT (EDGE)
6+30 LT (RAMP B) - 16+00 LT (EDGE)
7+65 LT - 9+60 LT (TURN LANE)
9+60 LT - 16+00 LT (DASHED)
13+85 LT - 15+60 LT (DASHED)

PAINTED CURB
14+20 RT - 16+00 RT

TEMPORARY 4" YELLOW LINE
0+00 RT - 16+00 RT
0+00 LT - 16+00 LT
5+30 RT - 5+65 RT
6+20 LT - 6+40 LT

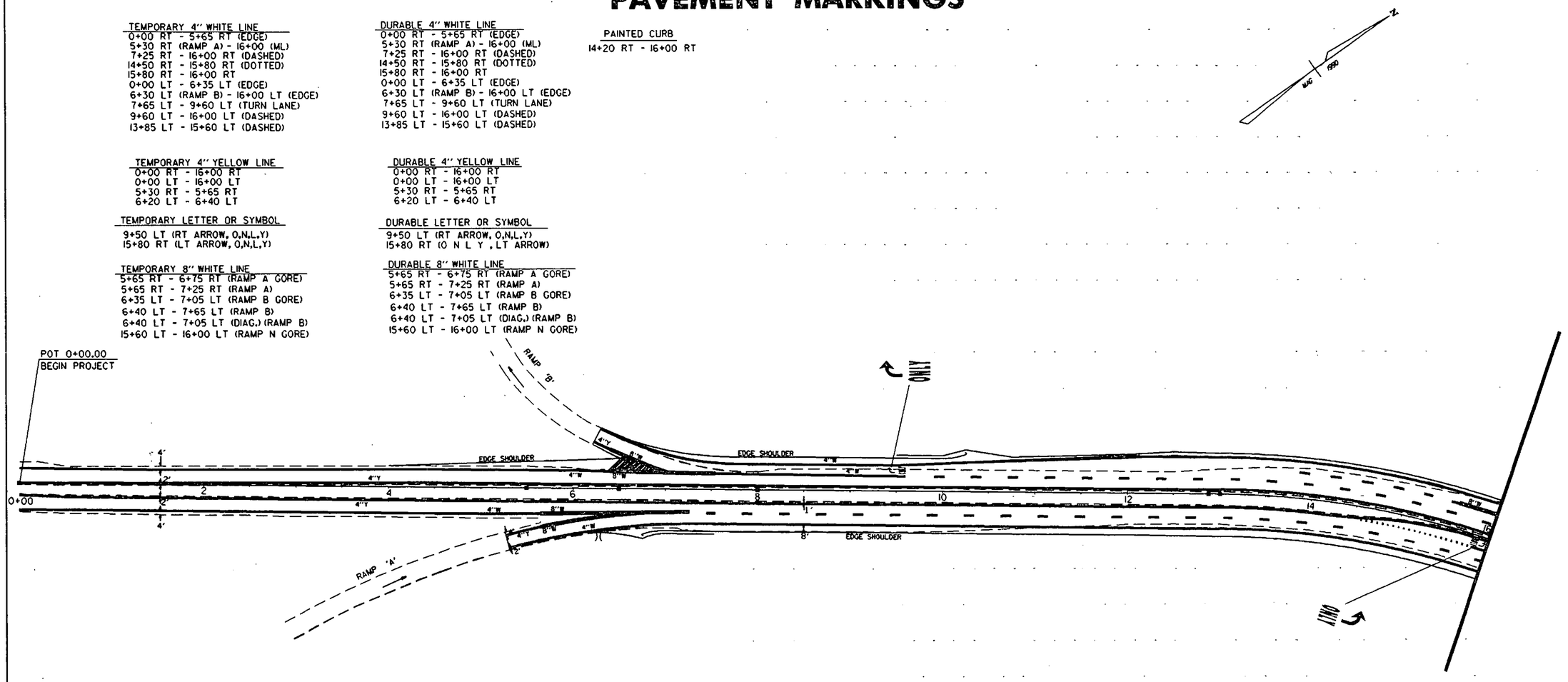
DURABLE 4" YELLOW LINE
0+00 RT - 16+00 RT
0+00 LT - 16+00 LT
5+30 RT - 5+65 RT
6+20 LT - 6+40 LT

TEMPORARY LETTER OR SYMBOL
9+50 LT (RT ARROW, O,N,L,Y)
15+80 RT (LT ARROW, O,N,L,Y)

DURABLE LETTER OR SYMBOL
9+50 LT (RT ARROW, O,N,L,Y)
15+80 RT (O N L Y , LT ARROW)

TEMPORARY 8" WHITE LINE
5+65 RT - 6+75 RT (RAMP A GORE)
5+65 RT - 7+25 RT (RAMP A)
6+35 LT - 7+05 LT (RAMP B GORE)
6+40 LT - 7+65 LT (RAMP B)
6+40 LT - 7+05 LT (DIAG.) (RAMP B)
15+60 LT - 16+00 LT (RAMP N GORE)

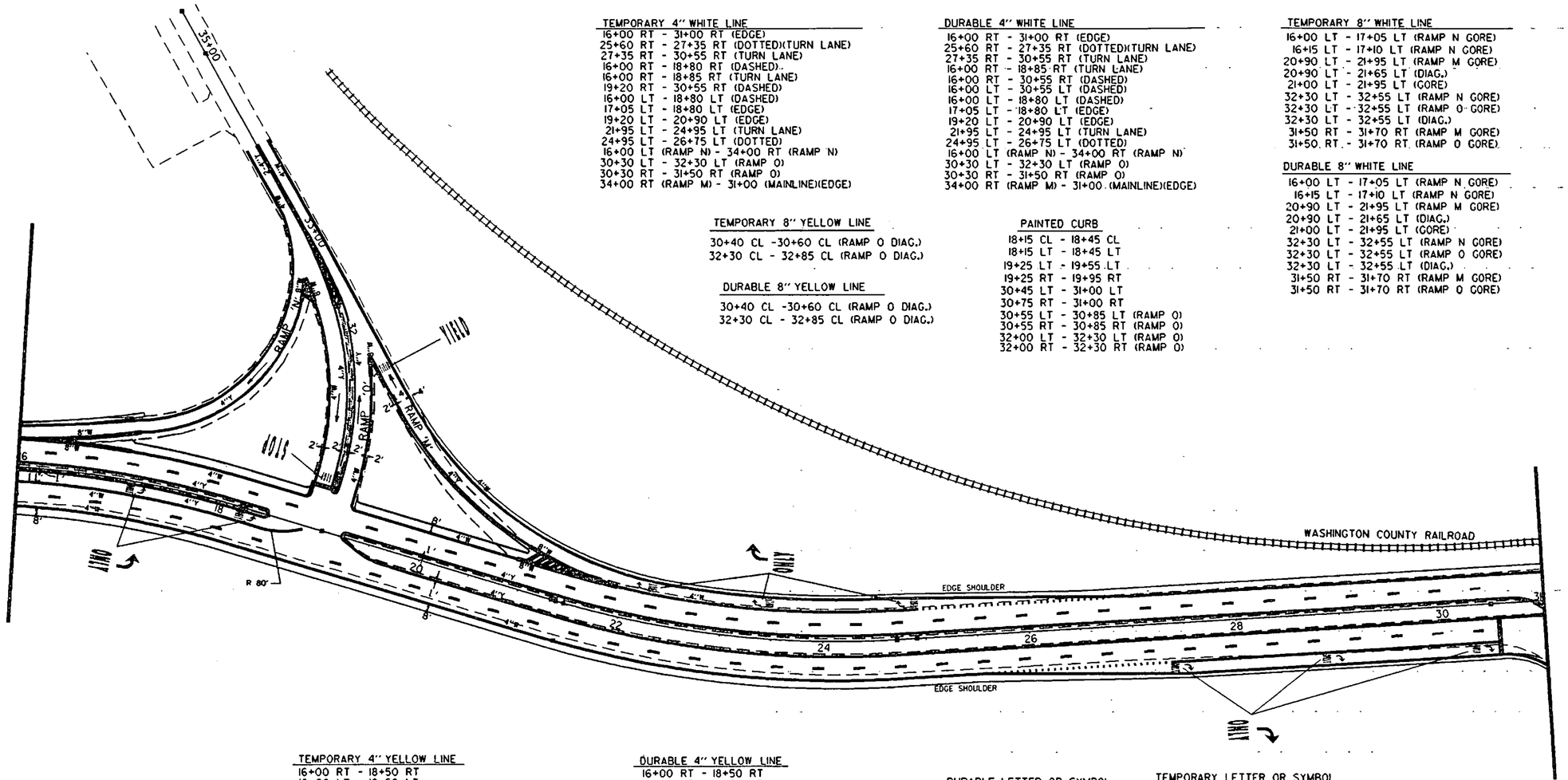
DURABLE 8" WHITE LINE
5+65 RT - 6+75 RT (RAMP A GORE)
5+65 RT - 7+25 RT (RAMP A)
6+35 LT - 7+05 LT (RAMP B GORE)
6+40 LT - 7+65 LT (RAMP B)
6+40 LT - 7+05 LT (DIAG.) (RAMP B)
15+60 LT - 16+00 LT (RAMP N GORE)




SURVEYED BY MOREAU DATE 9-92
DRAWN BY SQUAD A DATE 2-93
SQUAD LEADER BTN
DESIGN FILE NO. /eqda/db08gtr.dgn
IPARM FILE /eqda/db018tml.i DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 44 OF 118 SHEETS

: Sheet Number: 44

# PAVEMENT MARKINGS




TEMPORARY 4" WHITE LINE
16+00 RT - 31+00 RT (EDGE)
25+60 RT - 27+35 RT (DOTTED)(TURN LANE)
27+35 RT - 30+55 RT (TURN LANE)
16+00 RT - 18+80 RT (DASHED)
16+00 RT - 18+85 RT (TURN LANE)
19+20 RT - 30+55 RT (DASHED)
16+00 LT - 18+80 LT (DASHED)
17+05 LT - 18+80 LT (EDGE)
19+20 LT - 20+90 LT (EDGE)
21+95 LT - 24+95 LT (TURN LANE)
24+95 LT - 26+75 LT (DOTTED)
16+00 LT (RAMP N) - 34+00 RT (RAMP N)
30+30 LT - 32+30 LT (RAMP O)
30+30 RT - 31+50 RT (RAMP O)
34+00 RT (RAMP M) - 31+00 (MAINLINE)(EDGE)

TEMPORARY 8" YELLOW LINE
30+40 CL -30+60 CL (RAMP O DIAG.)
32+30 CL - 32+85 CL (RAMP O DIAG.)

DURABLE 8" YELLOW LINE
30+40 CL -30+60 CL (RAMP O DIAG.)
32+30 CL - 32+85 CL (RAMP O DIAG.)

DURABLE 4" WHITE LINE
16+00 RT - 31+00 RT (EDGE)
25+60 RT - 27+35 RT (DOTTED)(TURN LANE)
27+35 RT - 30+55 RT (TURN LANE)
16+00 RT - 18+85 RT (TURN LANE)
16+00 RT - 30+55 RT (DASHED)
16+00 LT - 30+55 LT (DASHED)
16+00 LT - 18+80 LT (DASHED)
17+05 LT - 18+80 LT (EDGE)
19+20 LT - 20+90 LT (EDGE)
21+95 LT - 24+95 LT (TURN LANE)
24+95 LT - 26+75 LT (DOTTED)
16+00 LT (RAMP N) - 34+00 RT (RAMP N)
30+30 LT - 32+30 LT (RAMP O)
30+30 RT - 31+50 RT (RAMP O)
34+00 RT (RAMP M) - 31+00 (MAINLINE)(EDGE)

PAINTED CURB
18+15 CL - 18+45 CL
18+15 LT - 18+45 LT
19+25 LT - 19+55 LT
19+25 RT - 19+95 RT
30+45 LT - 31+00 LT
30+75 RT - 31+00 RT
30+55 LT - 30+85 LT (RAMP O)
30+55 RT - 30+85 RT (RAMP O)
32+00 LT - 32+30 LT (RAMP O)
32+00 RT - 32+30 RT (RAMP O)

TEMPORARY 8" WHITE LINE
16+00 LT - 17+05 LT (RAMP N GORE)
16+15 LT - 17+10 LT (RAMP N GORE)
20+90 LT - 21+95 LT (RAMP M GORE)
20+90 LT - 21+65 LT (DIAG.)
21+00 LT - 21+95 LT (GORE)
32+30 LT - 32+55 LT (RAMP N GORE)
32+30 LT - 32+55 LT (RAMP O GORE)
32+30 LT - 32+55 LT (DIAG.)
31+50 RT - 31+70 RT (RAMP M GORE)
31+50 RT - 31+70 RT (RAMP O GORE)

DURABLE 8" WHITE LINE
16+00 LT - 17+05 LT (RAMP N GORE)
16+15 LT - 17+10 LT (RAMP N GORE)
20+90 LT - 21+95 LT (RAMP M GORE)
20+90 LT - 21+65 LT (DIAG.)
21+00 LT - 21+95 LT (GORE)
32+30 LT - 32+55 LT (RAMP N GORE)
32+30 LT - 32+55 LT (RAMP O GORE)
32+30 LT - 32+55 LT (DIAG.)
31+50 RT - 31+70 RT (RAMP M GORE)
31+50 RT - 31+70 RT (RAMP O GORE)

TEMPORARY 4" YELLOW LINE
16+00 RT - 18+50 RT
16+00 LT - 18+50 LT
19+20 RT - 31+00 RT
19+20 LT - 31+00 LT
17+10 LT - 32+30 LT (RAMP N)
30+40 RT - 30+60 RT (ISLAND) (RAMP O)
30+40 LT - 30+60 LT (ISLAND) (RAMP O)
30+40 RT - 34+00 RT (RAMP O)
30+40 LT - 34+00 LT (RAMP O)
31+50 LT (RAMP M) - 21+00 LT (MAINLINE)
32+30 RT - 32+85 RT (ISLAND)(RAMP O)
32+30 LT - 32+85 LT (ISLAND)(RAMP O)

DURABLE 4" YELLOW LINE
16+00 RT - 18+50 RT
16+00 LT - 18+50 LT
19+20 RT - 31+00 RT
19+20 LT - 31+00 LT
17+10 LT - 32+30 LT (RAMP N)
30+40 RT - 30+60 RT (ISLAND) (RAMP O)
30+40 LT - 30+60 LT (ISLAND) (RAMP O)
30+40 RT - 34+00 RT (RAMP O)
30+40 LT - 34+00 LT (RAMP O)
31+50 LT (RAMP M) - 21+00 LT (MAINLINE)
32+30 RT - 32+85 RT (ISLAND)(RAMP O)
32+30 LT - 32+85 LT (ISLAND)(RAMP O)

DURABLE LETTER OR SYMBOL
17+20 RT (O,N,L,Y,LT ARROW)
18+25 RT (O,N,L,Y,LT ARROW)
18+90 LT (S,T,O,P)(RAMP O)
22+25 LT (O,N,L,Y,RT ARROW)
23+40 LT (O,N,L,Y,RT ARROW)
24+90 LT (O,N,L,Y,RT ARROW)
27+45 RT (O,N,L,Y,RT ARROW)
28+90 RT (O,N,L,Y,RT ARROW)
30+40 RT (O,N,L,Y,RT ARROW)
31+65 RT (Y,I,E,L,D)(RAMP M)

DURABLE 24" STOP BAR
18+85 LT
30+55 RT

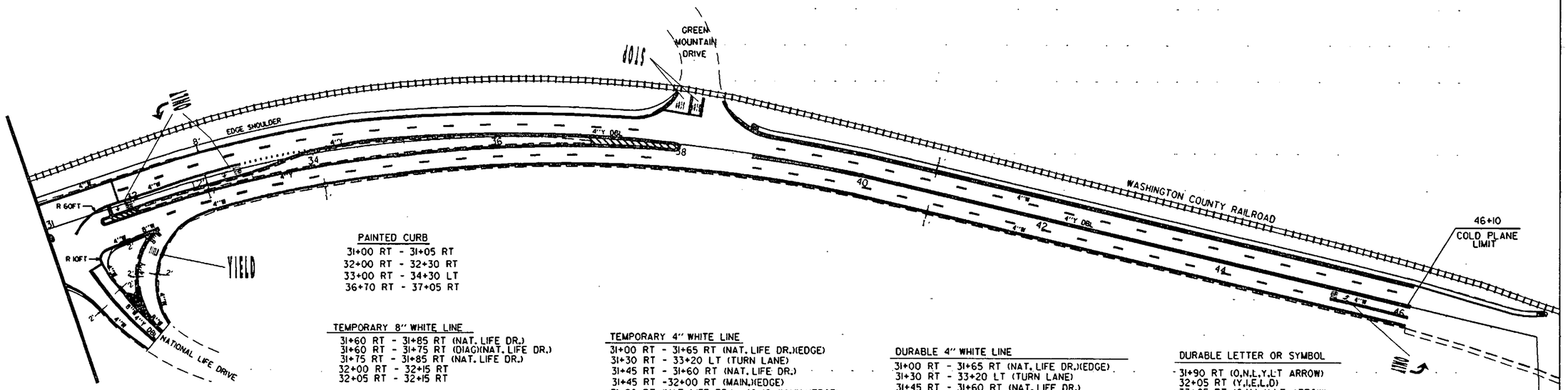
TEMPORARY LETTER OR SYMBOL
17+20 RT (O,N,L,Y,LT ARROW)
18+25 RT (O,N,L,Y,LT ARROW)
18+90 LT (S,T,O,P)(RAMP O)
22+25 LT (O,N,L,Y,RT ARROW)
23+40 LT (O,N,L,Y,RT ARROW)
24+90 LT (O,N,L,Y,RT ARROW)
27+45 RT (O,N,L,Y,RT ARROW)
28+90 RT (O,N,L,Y,RT ARROW)
30+40 RT (O,N,L,Y,RT ARROW)
31+65 RT (Y,I,E,L,D)(RAMP M)

TEMPORARY 24" STOP BAR
18+85 LT
30+55 RT

| | | |
|---|---|---|
| SURVEYED BY | MOREAU | DATE 9-92 |
| DRAWN BY | SQUAD A | DATE 2-93 |
| SQUAD LEADER | BTN | |
| DESIGN FILE NO. | /sqda/db018ctr.dgn | |
| IPARM FILE | /sqda/db018tm2.i | DATE PLOTTED 15-FEB-1996 |
| PROJ. NAME | MONTPELIER | |
| PROJ. NO. | F EGC-F 028-2(8) | |
| SHEET 45 OF 118 SHEETS | | |

: Sheet Number: 45

# PAVEMENT MARKINGS




PAINTED CURB
31+00 RT - 31+05 RT
32+00 RT - 32+30 RT
33+00 RT - 34+30 LT
36+70 RT - 37+05 RT

TEMPORARY 8" WHITE LINE
31+60 RT - 31+85 RT (NAT. LIFE DR.)
31+60 RT - 31+75 RT (DIAG)(NAT. LIFE DR.)
31+75 RT - 31+85 RT (NAT. LIFE DR.)
32+00 RT - 32+15 RT
32+05 RT - 32+15 RT

DURABLE 8" WHITE LINE
31+60 RT - 31+85 RT (NAT. LIFE DR.)
31+60 RT - 31+75 RT (DIAG)(NAT. LIFE DR.)
31+75 RT - 31+85 RT (NAT. LIFE DR.)
32+00 RT - 32+15 RT
32+05 RT - 32+15 RT

TEMPORARY 8" YELLOW LINE
31+60 RT - 32+00 RT (DIAG.)
37+00 CL - 38+00 CL (DIAG.)

DURABLE 8" YELLOW LINE
31+60 RT - 32+00 RT (DIAG.)
37+00 CL - 38+00 CL (DIAG.)

TEMPORARY 24" STOP BAR
31+30 RT - 31+45 RT (NAT. LIFE DR.)
31+73 RT - 31+73 LT
31+84 LT
37+75 LT - 38+20 LT (GR. MTN. DR.)

TEMPORARY 4" WHITE LINE
31+00 RT - 31+65 RT (NAT. LIFE DR.)(EDGE)
31+30 RT - 33+20 LT (TURN LANE)
31+45 RT - 31+60 RT (NAT. LIFE DR.)
31+45 RT -32+00 RT (MAIN.)(EDGE)
31+90 RT (NAT. LIFE DR.)- 46+10 (MAIN.)(EDGE)
32+15 RT - 37+55 RT (DASHED)
38+80 RT - 45+20 RT (DASHED)
31+00 LT - 37+90 LT (EDGE)
33+20 LT - 34+20 LT (DOTTED)(TURN LANE)
38+05 LT (GRN MTN DRIVE)(20')
38+40 LT - 46+10 LT (EDGE)
45+20 RT - 46+10 RT (TURN LANE)

TEMPORARY 4" YELLOW LINE
31+00 CL - 31+05 CL
31+30 RT - 31+65 RT (DBL)(NAT. LIFE DR.)
31+60 RT - 32+00 RT (DBL)(ISLAND)
31+75 RT (NAT. LIFE DR.) - 32+00 RT (NAT. LIFE DR.)
32+00 RT - 37+00 RT
32+00 RT - 37+00 LT
37+00 CL - 38+00 CL (DBL)(ISLAND)
38+20 LT (20')(DBL)
38+80 CL - 46+10 CL (DBL)

DURABLE 24" STOP BAR
31+30 RT - 31+45 RT (NAT. LIFE DR.)
31+73 RT - 31+73 LT
31+84 LT
37+75 LT - 38+20 LT (GR. MTN. DR.)

DURABLE 4" WHITE LINE
31+00 RT - 31+65 RT (NAT. LIFE DR.)(EDGE)
31+30 RT - 33+20 LT (TURN LANE)
31+45 RT - 31+60 RT (NAT. LIFE DR.)
31+45 RT -32+00 RT (MAIN.)(EDGE)
31+90 RT (NAT. LIFE DR.)- 46+10 (MAIN.)(EDGE)
32+15 RT - 37+55 RT (DASHED)
38+80 RT - 45+20 RT (DASHED)
31+00 LT - 37+90 LT (EDGE)
33+20 LT - 34+20 LT (DOTTED)(TURN LANE)
38+05 LT (GRN MTN DRIVE)(20')
38+40 LT - 46+10 LT (EDGE)
45+20 RT - 46+10 RT (TURN LANE)

DURABLE 4" YELLOW LINE
31+00 CL - 31+05 CL
31+30 RT - 31+65 RT (DBL)(NAT. LIFE DR.)
31+60 RT - 32+00 RT (DBL)(ISLAND)
31+75 RT (NAT. LIFE DR.) - 32+00 RT (NAT. LIFE DR.)
32+00 RT - 37+00 RT
32+00 LT - 37+00 LT
37+00 CL - 38+00 CL (DBL)(ISLAND)
38+20 LT (20')(DBL)
38+80 CL - 46+10 CL (DBL)

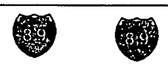
DURABLE LETTER OR SYMBOL
31+90 RT (O,N,L,Y,LT ARROW)
32+05 RT (Y,I,E,L,D)
33+05 RT (O,N,L,Y,LT ARROW)
37+95 LT (S,T,O,P)
38+10 LT (S,T,O,P)
45+22 RT (O,N,L,Y,LT ARROW)

TEMPORARY LETTER OR SYMBOL
31+90 RT (O,N,L,Y,LT ARROW)
32+05 RT (Y,I,E,L,D)
33+05 RT (O,N,L,Y,LT ARROW)
37+95 LT (S,T,O,P)
38+10 LT (S,T,O,P)
45+22 RT (O,N,L,Y,LT ARROW)

| | | |
|---|---|---|
| SURVEYED BY | MOREAU | DATE 9-92 |
| DRAWN BY | SQUAD A | DATE 2-93 |
| SQUAD LEADER | NAP | |
| DESIGN FILE NO. | /sqda/db088ctr.dgn | |
| IPARM FILE | /sqda/db088tm3.i | DATE PLOTTED 15-FEB-1996 |
| PROJ. NAME | MONTPELIER | |
| PROJ. NO. | F EGC-F 028-2(8) | |
| SHEET 46 OF 118 SHEETS | | |

: Sheet Number: 46

# TRAFFIC SIGN SUMMARY SHEET

| MILEMARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | NEW AND SALVAGED SIGNS | | | | EXIST. POSTS | | NEW SIGN POSTS | | | | | | | | | | | | | | | REMARKS | SIGN DETAIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "A" | "B" | SALV. SIGN | SALV. T.I.S. | RET. | SALV. | NO. OF POSTS | FLANGED CHANNEL LB./FT. | | | TUBULAR ALUMINUM | | TUBULAR STEEL | | | | | W-SHAPE STEEL | | FTG. SIZE | | SIGN FRAME | | DETAIL ON SHEET NUMBER | STD. SHEET NUMBER |
| | | | | | | | | | | 1.12 | 2.0 | 3.0 | 3.0"ø | 4.0"ø | FOUND-ATION | 3"ø | 3.5"ø | 4.0"ø | 5.0"ø | POST SIZE | WEIGHT | 24" | 30" | | | | |
| 2+10 RT | | 48" X 48" | 16 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-155 |
| RAMP A | | 48" X 48" | 16 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-155 |
| 7+55 LT | | 30" X 30" | 6.25 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-140 |
| 9+60 LT | | 30" X 30" | 6.25 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-145A |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11+65 LT | ↑ WHITE RIVER JCT. 57 | 72" X 10" | 5 | | | | | | 2 | | | X | | | | | | | | | | | | | | E-123 |
| | BURLINGTON 37 ↗ | 72" X 10" | 5 | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| 12+20 RT | ↑MONTPELIER 1 | 72" X 10" | 5 | | | | | | 2 | | | X | | | | | | | | | | | | | | E-123 |
| | ↑ST. JOHNSBURY 38 | 72" X 10" | 5 | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| | ↰RAILROAD STATION 1 | 72" X 10" | 5 | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| | ↰MONTPELIER JCT. 1 | 72" X 10" | 5 | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| 13+45 RT | ↑SERVICES 1 | | | | 1 | | | | 2 | | | X | | | | | | | | | | | | | | |
| | ↑ CAMPING 6 | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | | 36" X 48" | 12 | | | | | | | | | | | | | | | | | | | | | | 52 | |
| 14+00 LT | SOUTH NORTH | 2 @ 24" X 12" | 4 | | | | | | 2 | | | X | | | | | | | | | | | | | | E-135 |
| |   | 2 @ 24" X 24" | 8 | | | | | | | | | | | | | | | | | | | | | | | E-135 |
| | | 2 @ 21" X 15" | 4.38 | | | | | | | | | | | | | | | | | | | | | | | E-135 |
| 17+10 LT | | | | | 1 | | | | 1 | | | X | | | | | | | | | | | | | | |
| FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE ". TOTALS | | | SF. 102.88 | SF. | EA. 3 | SF. | | | | LBS. 520 | LBS. | LBS. 520 | LBS. | LBS. | EA. | LBS. | LBS. | LBS. | LBS. | | LBS. | EA. | EA. | | | | |

DRAWN BY KML DATE 6/95
SQUAD LEADER BTN
DESIGN FILE NO. /SQDA/898018/DB018TR
IPARM FILE DB018TS1 DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 47 OF 118 SHEETS

: Sheet Number: 47

# TRAFFIC SIGN SUMMARY SHEET

| MILEMARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | NEW AND SALVAGED SIGNS | | | | EXIST. POSTS | | NEW SIGN POSTS | | | | | | | | | | | | | | | | REMARKS | SIGN DETAIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "A" | "B" | SALV. SIGN | SALV. T.I.S. | RET. | SALV. | NO. OF POSTS | FLANGED CHANNEL LB./FT. 1.12 | 2.0 | 3.0 | TUBULAR ALUMINUM 3.0"ø | 4.0" ø | TUBULAR STEEL FOUND-ATION | 3"Ø | 3.5"Ø | 4.0"Ø | 5.0"Ø | W-SHAPE STEEL POST SIZE | WEIGHT | FTG. SIZE 24" | 30" | SIGN FRAME | | DETAIL ON SHEET NUMBER | STD. SHEET NUMBER |
| 18+05 LT | | | | | 1 | | | | 1 | | | x | | | | | | | | | | | | | | |
| | 89 | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+70 LT | | 30" x 30" | 6.25 | | | | | | 1 | | | x | | | | | | | | | | | | | | E-143 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+70 RT | ← RAILROAD STATION 1 | 72" x 10" | 5 | | | | | | 2 | | | x | | | | | | | | | | | | | | E-123 |
| | ← MONTPELIER JCT. 1 | 72" x 10" | 5 | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18+95 RT | DIVIDED HIGHWAY | 24" x 18" | 3.00 | | | | | | 1 | | | x | | | | | | | | | | | | | 52 | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+20 LT | | 36" x 36" | 9.00 | | | | | | 1 | | | x | | | | | | | | | | | | | | E-150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20+93 LT | | 18" x 18" | 2.25 | | | | | | 1 | | | x | | | | | | | | | | | | | | E-150 |
| 21+80 RT | SPEED LIMIT 45 | 24" x 30" | 5 | | | | | | 1 | | | x | | | | | | | | | | | | | | E-142 |
| 22+20 LT | RIGHT LANE MUST TURN RIGHT | 30" x 30" | 6.25 | | | | | | 1 | | | x | | | | | | | | | | | | | | E-140 |
| 22+40 RT | NATIONAL LIFE INSURANCE CO. ½ | | | | | 8 | | | | | | | | | | | | | | | | | | | | |
| | CHURCH OF CHRIST RT ON RTE 12.1 MI ½ | | | | | 8 | | | | | | | | | | | | | | | | | | | | |
| | THE INN AT MONTPELIER LT AT 4TH LIGHT ½ | | | | | 8 | | | | | | | | | | | | | | | | | | | | |
| FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE". TOTALS | | | SF. 41.75 | SF. | EA. 2 | SF. 24 | | | | LBS. 294 | LBS. | LBS. 294 | LBS. | LBS. | EA. | LBS. | LBS. | LBS. | LBS. | | LBS. | EA. | EA. | | | | |

DRAWN BY KML DATE 6/95
SQUAD LEADER BTN
DESIGN FILE NO. /SQDA/898018/DB018TR
IPARM FILE DB018TS2 DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 48 OF 118 SHEETS

: Sheet Number: 48

# TRAFFIC SIGN SUMMARY SHEET

| MILEMARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | NEW AND SALVAGED SIGNS | | | | EXIST. POSTS | | NEW SIGN POSTS | | | | | | | | | | | | | | | | | REMARKS | SIGN DETAIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "A" | "B" | SALV. SIGN | SALV. T.I.S. | RET. | SALV. | NO. OF POSTS | FLANGED CHANNEL LB./FT. | | | TUBULAR ALUMINUM | | TUBULAR STEEL | | | | | W-SHAPE STEEL | | FTG. SIZE | | SIGN FRAME | | DETAIL ON SHEET NUMBER | STD. SHEET NUMBER |
| | | | | | | | | | | 1.12 | 2.0 | 3.0 | 3.0"ø | 4.0"ø | FOUND-ATION | 3"Ø | 3.5"Ø | 4.0"Ø | 5.0"Ø | POST SIZE | WEIGHT | 24" | 30" | | | |
| 24+40 RT | TO | | | | 1 | | | | 1 | | | | X | | | | | | | | | | | | | | |
| | 2 | | | | 1 | | | | | | | | | | | | | | | | | | | | | | |
| | EXIT 12 | 24" X 24" | 4.00 | | | | | | | | | | | | | | | | | | | | | | | | E-136B |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24+50 LT | 89 SOUTH WHITE RIVER JCT. | 13' X 10' | | 130 | | | | | | | | | | | | | | | | | | | | | | MOUNTED ON OVERHEAD STRUCTURE | 52 | |
| | 89 NORTH BURLINGTON | 12' X 8' | | 96 | | | | | | | | | | | | | | | | | | | | | | MOUNTED ON OVERHEAD STRUCTURE | 52 | |
| | MONTPELIER JUNCTION | 12' X 7' | | 84 | | | | | | | | | | | | | | | | | | | | | | MOUNTED ON OVERHEAD STRUCTURE | 52 | |
| | PARK & RIDE | 36'' X 48'' | 12 | | | | | | | | | | | | | | | | | | | | | | | MOUNTED ON OVERHEAD STRUCTURE | 52 | |
| | PARK & RIDE | | | | 1 | | | | | | | | | | | | | | | | | | | | | MOUNTED ON OVERHEAD STRUCTURE SALVAGED FROM 45+25 LT | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24+95 RT | ONLY | 48'' X 30'' | 10.00 | | | | | | 2 | | | X | | | | | | | | | | | | | | | | E-145B |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26+00 LT | RAILROAD STATION | 72'' X 10'' | 5.00 | | | | | | 2 | | | X | | | | | | | | | | | | | | | | E-123 |
| | MONTPELIER JCT. | 72'' X 10'' | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| 26+10 RT | | 36'' X 36'' | 9.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | | | E-152 |
| 27+35 RT | ONLY | 48'' X 30'' | 10.00 | | | | | | 2 | | | X | | | | | | | | | | | | | | | | E-145B |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28+85 RT | PUBLIC TRANSIT AND CARPOOL INFO 1-800-685-1508 | | | | 1 | | | | 2 | | | X | | | | | | | | | | | | | | | | |
| FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S " SIGN POST DESIGN GUIDELINE ". | | TOTALS | SF. 55.00 | SF. 310 | EA. 4 | SF. | | | | LBS. | LBS. | LBS. 333 | LBS. 19 | LBS. | EA. | LBS. | LBS. | LBS. | LBS. | | LBS. | EA. | EA. | | | | | |
| | | | | | | | | | | | | 333 | | 19 | | | | | | | | | | | | | |

DRAWN BY. KWL DATE 6/95
SQUAD LEADER BIN
DESIGN FILE NO. /SQDA/89B018/DB018TR
IPARM FILE D8018TS3 DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 49 OF 118 SHEETS

: Sheet Number: 49

# TRAFFIC SIGN SUMMARY SHEET

| MILEMARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | NEW AND SALVAGED SIGNS | | | | EXIST. POSTS | | NEW SIGN POSTS | | | | | | | | | | | | | | | REMARKS | SIGN DETAIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "A" | "B" | SALV. SIGN | SALV. T.I.S. | RET. | SALV. | NO. OF POSTS | FLANGED CHANNEL LB./FT. | | | TUBULAR ALUMINUM | | TUBULAR STEEL | | | | | W-SHAPE STEEL | | FTG. SIZE | | SIGN FRAME | | DETAIL ON SHEET NUMBER | STD. SHEET NUMBER |
| | | | | | | | | | | 1.12 | 2.0 | 3.0 | 3.0"ø | 4.0"ø | FOUND-ATION | 3"ø | 3.5"ø | 4.0"ø | 5.0"ø | POST SIZE | WEIGHT | 24" | 30" | | | |
| 30+55 RT | RIGHT LANE MUST TURN RIGHT | 30" X 30" | 6.25 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-140 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30+83 RT | | 24" X 30" | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-144 |
| | | 18" X 18"<br>18" X 18" | 4.50 | | | | | | | | | | | | | | | | | | | | | | | E-150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31+60 RT | NATIONAL LIFE DR. | | | | 1 | | | | 1 | | | X | | | | | | | | | | | | | | |
| | MEMORIAL DRIVE | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32+07 RT | | 24" X 30" | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-144 |
| | | 18" X 18"<br>18" X 18" | 4.50 | | | | | | | | | | | | | | | | | | | | | | | E-150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32+35 RT | | 36" X 36" | 3.9 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-146 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33+20 LT | ONLY | 48" X 30" | 10.00 | | | | | | 2 | | | X | | | | | | | | | | | | | | E-145B |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34+75 LT | SPEED LIMIT 45 | 24" X 30" | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-142 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35+90 LT | | 36" X 36" | 9.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | E-152 |
| FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE". | | TOTALS | SF. 53.15 | SF. | EA. 2 | SF. | | | | LBS. 397 | LBS. | LBS. 397 | LBS. | LBS. | EA. | LBS. | LBS. | LBS. | LBS. | | LBS. | EA. | EA. | | | | |

DRAWN BY KML DATE 6/95
SQUAD LEADER BTN
DESIGN FILE NO. /SQDA/89B018/DB018TR
SPARM FILE DB018TS4 DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 50 OF 118 SHEETS

: Sheet Number: 50

# TRAFFIC SIGN SUMMARY SHEET

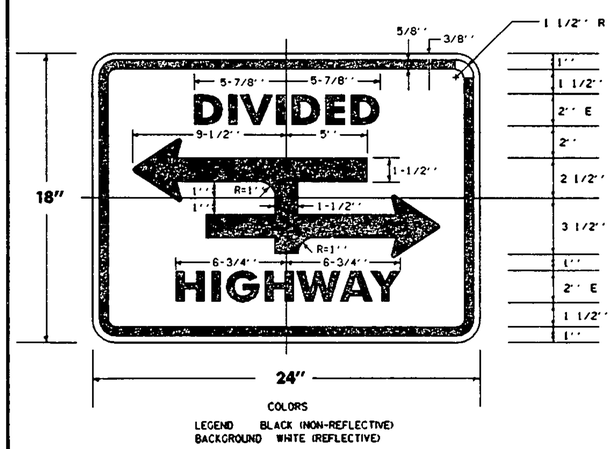
| MILEMARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | NEW AND SALVAGED SIGNS | | | | EXIST. POSTS | | NEW SIGN POSTS | | | | | | | | | | | | | | | | | REMARKS | SIGN DETAIL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | "A" | "B" | SALV. SIGN | SALV. T.I.S. | RET. | SALV. | NO. OF POSTS | FLANGED CHANNEL LB./FT. | | | TUBULAR ALUMINUM | | TUBULAR STEEL | | | | | W-SHAPE STEEL | | FTG. SIZE | | SIGN FRAME | | DETAIL ON SHEET NUMBER | STD. SHEET NUMBER |
| | | | | | | | | | | 1.12 | 2.0 | 3.0 | 3.0"ø | 4.0"ø | FOUNDATION | 3"ø | 3.5"ø | 4.0"ø | 5.0"ø | POST SIZE | WEIGHT | 24" | 30" | | | |
| 36+05 RT | | 36'' X 36'' | 9.00 | | | | | | 1 | | | X | - | - | | | | | | | | | | | | 52 | E-152 |
| 36+95 LT | | 24'' X 30'' | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-144 |
| | | 18'' X 18''<br>18'' X 18'' | 4.50 | | | | | | | | | | | | | | | | | | | | | | | | E-150 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 37+05 RT | | 36'' X 36'' | 9.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | 52 | |
| 37+80 LT | | 30'' X 30'' | 6.25 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-143 |
| 40+15 LT | | 36'' X 36'' | 9.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | 52 | |
| 43+80 RT | TO | 24'' X 12'' | 2.00 | | | | | | 1 | | | | X | | | | | | | | | | | | | | E-136A |
| | 302 | 30'' X 24'' | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | E-136A |
| | 12 | 24'' X 24'' | 4.00 | | | | | | | | | | | | | | | | | | | | | | | | E-136B |
| | | 21'' X 15'' | 2.19 | | | | | | | | | | | | | | | | | | | | | | | | E-136A |
| 44+25 RT | EAST MONTPELIER 7 | 72'' X 10'' | 5.00 | | | | | | 2 | | | X | | | | | | | | | | | | | | | E-123 |
| | ST JOHNSBURY 34 | 72'' X 10'' | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| 45+25 LT | BURLINGTON 38 | 72'' X 10'' | 5.00 | | | | | | 2 | | | X | | | | | | | | | | | | | | | E-123 |
| | WHITE RIVER JCT. 58 | 72'' X 10'' | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| | RAILROAD STATION | 72'' X 10'' | 5.00 | | | | | | | | | | | | | | | | | | | | | | | | E-123 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S " SIGN POST DESIGN GUIDELINE ". TOTALS | | | SF. 80.94 | SF. | EA. | SF. | | | | LBS. 285 | LBS. | LBS. 285 | LBS. 19 | LBS. | EA. | LBS. | LBS. | LBS. | LBS. | | LBS. | EA. | EA. | | | | | |

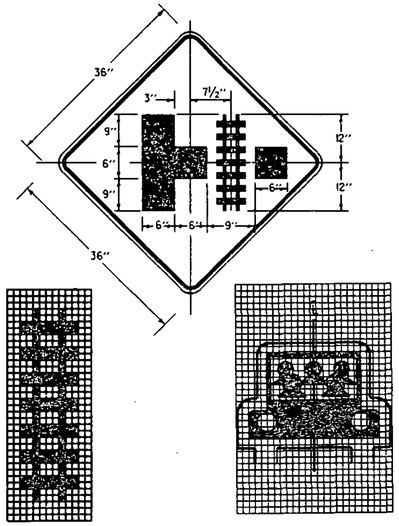
DRAWN BY KWL DATE 6/95
SQUAD LEADER BTN
DESIGN FILE NO. /SQDA/89B018/DB018TR
IPARM FILE DB018TS5 DATE PLOTTED 15-FEB-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 51 OF 118 SHEETS

: Sheet Number: 51

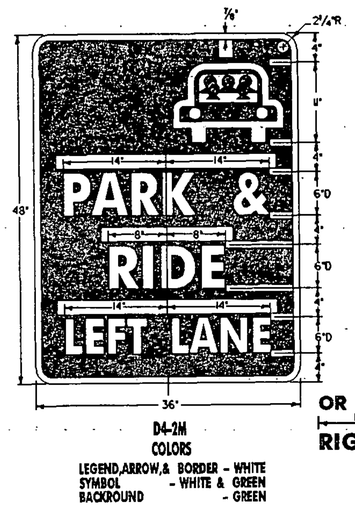
# TRAFFIC SIGN SUMMARY SHEET

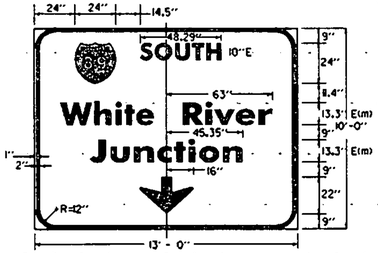
| MILEMARKER, STATION, OR SIGN NUMBER | SIGN LEGEND | SIGN DIMENSIONS | NEW AND SALVAGED SIGNS "A" | NEW AND SALVAGED SIGNS "B" | NEW AND SALVAGED SIGNS SALV. SIGN | NEW AND SALVAGED SIGNS SALV. T.I.S. | EXIST. POSTS RET. | EXIST. POSTS SALV. | NEW SIGN POSTS NO. OF POSTS | FLANGED CHANNEL LB./FT. 1.12 | FLANGED CHANNEL LB./FT. 2.0 | FLANGED CHANNEL LB./FT. 3.0 | TUBULAR ALUMINUM 3.0"ø | TUBULAR ALUMINUM 4.0"ø | TUBULAR STEEL FOUND-ATION | TUBULAR STEEL 3"Ø | TUBULAR STEEL 3.5"Ø | TUBULAR STEEL 4.0"Ø | TUBULAR STEEL 5.0"Ø | W-SHAPE STEEL POST SIZE | W-SHAPE STEEL WEIGHT | FTG. SIZE 24" | FTG. SIZE 30" | SIGN FRAME | REMARKS | SIGN DETAIL DETAIL ON SHEET NUMBER | SIGN DETAIL STD. SHEET NUMBER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RAMP "O" 30+60 CL | | 24" X 30" | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-144 |
| | | 18" X 18"<br>18" X 18" | 4.50 | | | | | | | | | | | | | | | | | | | | | | | | E-150 |
| RAMP "O" 32+30 CL | | 24" X 30" | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-144 |
| | | 18" X 18"<br>18" X 18" | 4.50 | | | | | | | | | | | | | | | | | | | | | | | | E-150 |
| RAMP "M" RT | | 36" X 36"<br>30" X 30" | 3.9<br>6.25 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-143 |
| RAMP "M" LT | | 30" X 30" | 6.25 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-143 |
| RAMP "M" LT 24+00 LT | RAMP 30 M.P.H. | 24" X 30" | 5.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-150 |
| 34+70 LT | | 36" X 36" | 9.00 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-150 |
| NATIONAL LIFE DRIVE | ONLY ONLY | 36" X 30" | 7.50 | | | | | | 1 | | | X | | | | | | | | | | | | | | | E-145A |
| FINAL POST LENGTHS ARE TO BE DETERMINED IN THE FIELD. POST SIZES ARE COMPUTED BASED ON INFORMATION FURNISHED ON THE STANDARD SHEETS AND THE TRAFFIC & SAFETY DIVISION'S "SIGN POST DESIGN GUIDELINE". | | TOTALS | SF.<br>56.90<br>390.62 | SF.<br>310 | EA.<br>11 | SF.<br>24 | | | LBS.<br>252<br>2081 | LBS. | LBS. | LBS.<br>252 | LBS.<br>38 | EA. | LBS. | LBS. | LBS. | LBS. | | LBS. | EA. | EA. | | | | | |

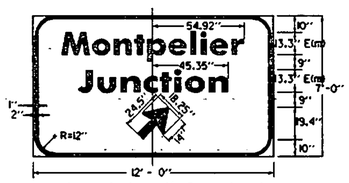


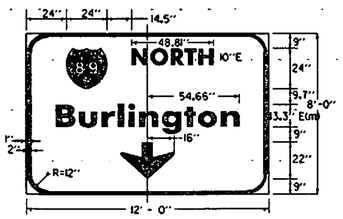


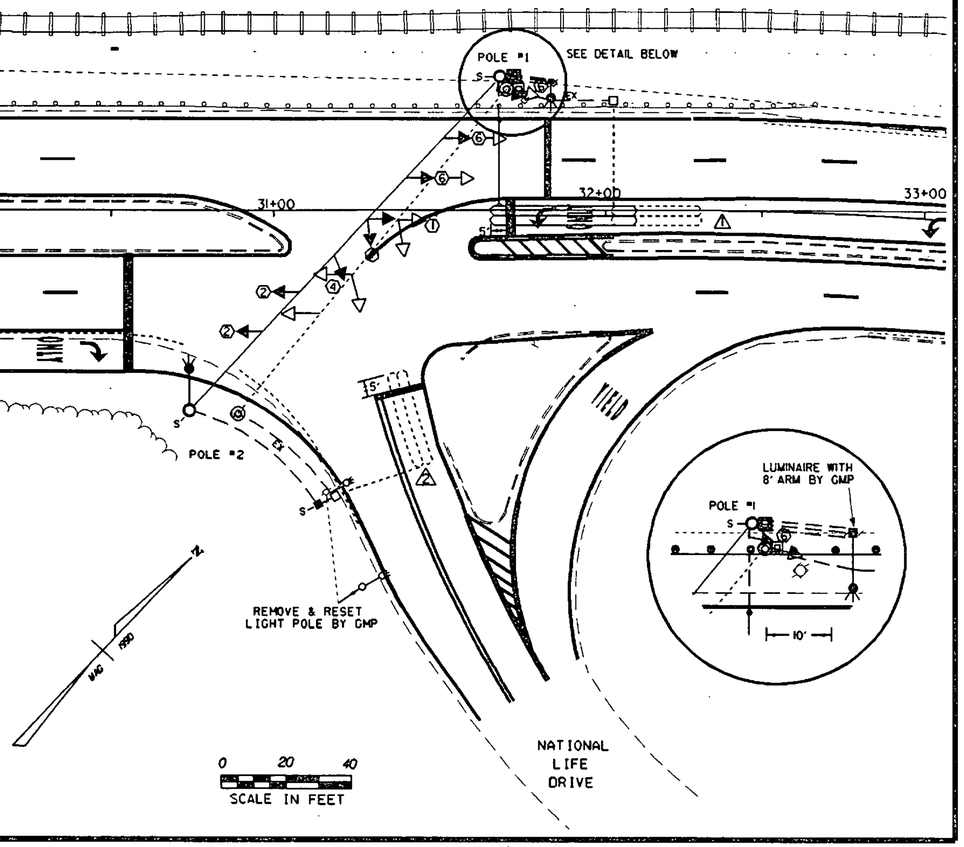

COLORS: REFLECTIVE WHITE TEXT ON REFLECTIVE GREEN BACKGROUND.
REFER TO STD E-130 & STD E-131 FOR OTHER INFORMATION.
REFER TO STD E-135 FOR SHIELD DETAIL.




N.T.S.

| | |
|---|---|
| DRAWN BY | KML DATE 6/95 |
| SQUAD LEADER | BTN |
| DESIGN FILE NO. | /SQDA/89B018/DB018TR |
| IPARM FILE | DB018TSH DATE PLOTTED 15-FEB-1996 |
| PROJ. NAME | MONTPELIER |
| PROJ. NO. | F EGC-F 028-2(8) |
| SHEET | 52 OF 118 SHEETS |

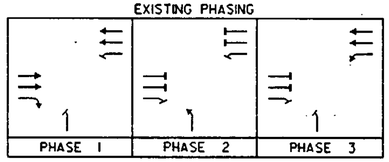
: Sheet Number: 52




## TRAFFIC SIGNAL NOTES

1. INSTALL NEW STRAIN POLES, LUMINAIRES AND WORK PLATFORM.
2. INSTALL NEW SIGNAL AND LIGHTING CABLES, A NEW METER BASE AND DISCONNECT. RELOCATE EXISTING SIGNAL HEADS (USING NEW DISCONNECT HANGERS) AND CONTROLLER TO NEW POLE #1. ADD ID PLAQUE TO THE CABINET. SWITCHOVER TIME TO THE NEW SPAN SHALL BE MINIMIZED AND WILL NOT BE ALLOWED DURING THE 7-8 AM OR 3:30-6 PM PERIOD.
3. DISCONNECT EXISTING LEFT TURN LOOP AT THE CONTROLLER PRIOR TO BOX CUTTING OR GRINDING THE ROADWAY. SET PHASE 3 TO MAX RECALL OR, AT THE DISCRETION OF THE ENGINEER, THE SIGNAL MAY BE LEFT ON FLASH, WITH TRAFFIC CONTROLLED BY A UTO WEEKDAYS FROM 4:30 TO 5:00 PM, UNTIL THE NEW LOOP AND LEAD-IN IS INSTALLED. THE LOOP INSTALLATION SHALL NOT BE DONE DURING THE 7-8 AM OR 3:30-6 PM PERIOD.
4. ALIGN THE POLE MOUNTED HEAD SUCH THAT IT IS NOT BLOCKED BY THE RELOCATED UTILITY POLE.
5. RETAIN THE EXISTING NATIONAL LIFE DR. LOOP. INSTALL A NEW PULLBOX JUST BEHIND THE EXISTING ONE AND EXTEND THE LOOP WIRES TO IT. THERE IS ABOUT 4' OF SLACK IN THE EXISTING WIRING. REPLACE THE LOOP LEAD-IN FROM THE PULLBOX TO POLE #2.
6. IF CONSTRUCTION ACTIVITIES PRECLUDE RETAINING THE LOOP ON NATIONAL LIFE DR., IT SHOULD BE DISCONNECTED AND PHASE 2 PUT ON MAX RECALL OR TRAFFIC CONTROLLED BY A UTO, AS ABOVE. THE LOOP SHOULD BE REPLACED AS SHOWN ON THE PLANS AS SOON AS PRACTICAL.
7. REMOVE THE EXISTING PULLBOXES, WOOD POLES, LUMINAIRES AND THE PLATFORM AT POLE #1. ALL EQUIPMENT, NOT REUSED, SHALL BE DELIVERED TO THE AGENCY TRAFFIC SHOP ON THE BARRE-MONTPELIER RD. IMMEDIATELY AFTER REMOVAL.
8. RETAIN THE EXISTING TIMING AND PHASING, BUT CHANGE THE TIME OF FULL OPERATION TO 3:15 PM TO 5:15 PM.
9. CLEAN ALL LENSES (REPLACE IF DAMAGED) AND REPLACE ALL BULBS.
10. RUN UNDERGROUND POWER FROM THE RELOCATED UTILITY POLE TO POLE #1. THE SERVICE SHALL RUN ON THE OUTSIDE OF POLE #1.
11. RELOCATE (REPLACE AS NECESSARY) THE AERIAL INTERCONNECT BETWEEN GREEN MTN. DR. AND THE NATIONAL LIFE DR. SIGNAL. RUN THE INTERCONNECT CABLE UNDERGROUND BETWEEN THE SERVICE POLE AND POLE #1.
12. SEE SHEET 55 FOR ADDITIONAL INFORMATION.

EXISTING PHASING




## LIST OF MAJOR EQUIPMENT (ITEM 678.15 MOD)

2 STRAIN POLES WITH REINFORCED CONCRETE BASES (SEE SHEET 56)
1 PRESSURE TREATED TIMBER WORK PLATFORM (SEE DETAIL BELOW LEFT)
6 DISCONNECT HANGERS WITH NON-ALUMINUM BALANCE ADJUSTER FITTINGS (FOR SPAN WIRE MOUNTED HEADS)
1 TERMINAL COMPARTMENT (FOR POLE MOUNTED HEAD)
1 LUMINAIRE (SEE SHEET 55)
1 METER BASE AND DISCONNECT BOX
1 INTERSECTION MONITOR
1 PHONE JACK AND MODEM

MISCELLANEOUS CABLE, WIRING, HARDWARE, BULBS, ETC. TO COMPLETE THE SYSTEM

VEHICLE LOOP DETECTOR

31+65 ~ 32+10, CL
+ LEAD-IN

PULLBOX

31+15, 92' RT

ELECTRICAL CONDUIT (2")

UTILITY POLE TO POLE #1 (FUTURE PHONE DROP)
SWEEP AT EACH POLE
SWEEP AT THE PULLBOX

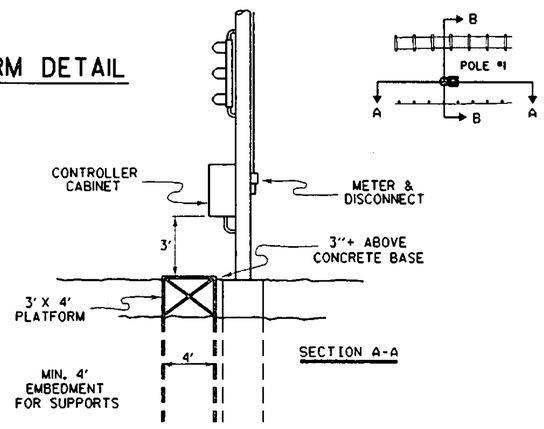
WIRED CONDUIT

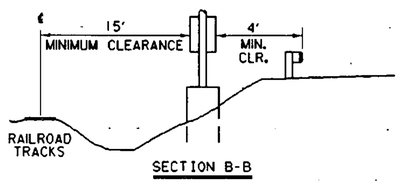
| | |
|---|---|
| SHOULDER TO POLE #1 | 1-1/2" |
| PULLBOX TO POLE #2 | 1-1/2" |
| PULLBOX TO SHOULDER | 1-1/2" |
| UTILITY POLE TO POLE #1 (2) (SERVICE LINE & INTERCONNECT) | 2" |

## WORK PLATFORM DETAIL

NOTES:

1. CONSTRUCT OF PRESSURE TREATED TIMBER.
2. LOADING MIN. - 50 Lbs./SF
3. SEE SECTION 522 - LUMBER & TIMBER, FOR REQUIREMENTS.
4. PAYMENT SHALL BE SUBSIDIARY TO ITEM 678.15 MOD.




| EXISTING | NEW | LEGEND |
|---|---|---|
| | | UTILITY POLE |
| | | LUMINAIRE |
| | | LIGHT OR WOOD POLE |
| | | STRAIN POLE |
| | | CONTROLLER CABINET |
| | | PULLBOX/JUNCTION BOX |
| | | SIGNAL HEAD |
| | | CONDUIT |
| | | VEHICLE LOOPS |
| | | PEDESTAL POST |
| | | STANCHION |
| | -S | SWEEP |

## VEHICLE DETECTOR LOOPS

| LANE | LOOP # | SIZE | TYPE | # OF TURNS | CALL φ | CALCULATED INDUCTANCE | CALCULATED RESISTANCE | MEASURED INDUCTANCE | MEASURED RESISTANCE | MEASURED LEAK. TO GRD. |
|---|---|---|---|---|---|---|---|---|---|---|
| WB LT | ⚠ | 6' X45' | QUAD | 2 | 3 | 390 | 0.77 | | | |
| NAT. LIFE DR | *⚠ | 6' X30' | QUAD | 2 | 2 | 329 | 1.35 | | | |
| | | | | | | | | | | |

* RETAIN EXISTING LOOP IF POSSIBLE

DATUM
VERTICAL _____
HORIZONTAL _____

**TRAFFIC SIGNAL DETAILS**

MONTPELIER STATE HWY. @ NATIONAL LIFE DRIVE

SURVEYED BY _____ DATE _____
DRAWN BY L.K.A./J.A.C. DATE 4-2-91
SQUAD LEADER _____
DESIGN FILE NO. /traf/89b018/tb018t.dgn
IPARM tb018tio.1 DATE PLOTTED 7-MAR-1996
PROJ. NAME MONTPELIER
PROJ. NO. F EGC-F 028-2(8)
SHEET 54 OF SHEETS

: Sheet Number: 54

# TRAFFIC SIGNAL / STREET LIGHTING NOTES

A. NEW EQUIPMENT

1. A DISCONNECT BREAKER FOR EACH CIRCUIT SHALL BE INSTALLED IN A RAINPROOF (NEMA 3R), LOCKED CABINET ON THE SIDE OF THE STRAIN POLE BELOW THE METER SOCKET. USE OPTION #5 ON STD E-175.

2. ADD TO THE EXISTING CABINET APPROPRIATE EQUIPMENT FOR A FUTURE PHONE DROP. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, AN INTERSECTION MONITOR, PHONE JACK AND MODEM. THE NEW EQUIPMENT SHALL BE COMPATIBLE WITH THE EXISTING ECONOLITE ASC 8000 CONTROLLER. THE CONTRACTOR MUST VERIFY WHAT IS REQUIRED FOR THE FUTURE PHONE DROP AND INCLUDE ALL NECESSARY EQUIPMENT IN HIS BID PRICE.

B. PULLBOXES AND JUNCTION BOXES

1. PULLBOXES AND JUNCTION BOXES ARE DETAILED ON STD E-173.

2. THE LOGO ON THE PULLBOX SHALL BE 'SIGNAL'.

C. TRAFFIC SIGNAL CONDUIT

1. ALL TRAFFIC SIGNAL CONDUIT SHALL BE PVC.

2. MINIMUM CONDUIT SIZES SHALL BE:
   A) 1-1/2'' FOR LOOP LEAD-INS,
   B) 2'' FOR ALL OTHERS, OR AS SHOWN ON THE PLANS.
   SEE CHART ON STD E-172 FOR DESIGN VALUES

D. VEHICLE LOOP DETECTORS - SEE STD E-172

E. STREET LIGHTING

1. STRAIN POLE #2 AND THE RELOCATED UTILITY POLE ON THE NORTH SIDE SHALL EACH HAVE A 250 WATT HIGH PRESSURE SODIUM LUMINAIRE, INSTALLED AT A 33' ± MOUNTING HEIGHT ABOVE THE PAVEMENT.

   THE LIGHT DISTRIBUTION IS BASED ON GENERAL ELECTRIC PHOTOMETRIC DATA DRAWING #35-177304, MEDIUM CUT-OFF, TYPE III DISTRIBUTION, DATED 4/25/85. THIS DATA SHEET WAS USED FOR DESIGN PURPOSES ONLY. OTHER MANUFACTURER'S PRODUCTS MAY BE USED IF THE INSTALLED LUMINAIRE LIGHT UTILIZATION AND MINIMUM FOOTCANDLES ON THE ROADWAY AND SHOULDER ARE AT LEAST AS GREAT AS THAT FOR THE DESIGN PHOTOMETRIC DATA SHEET.

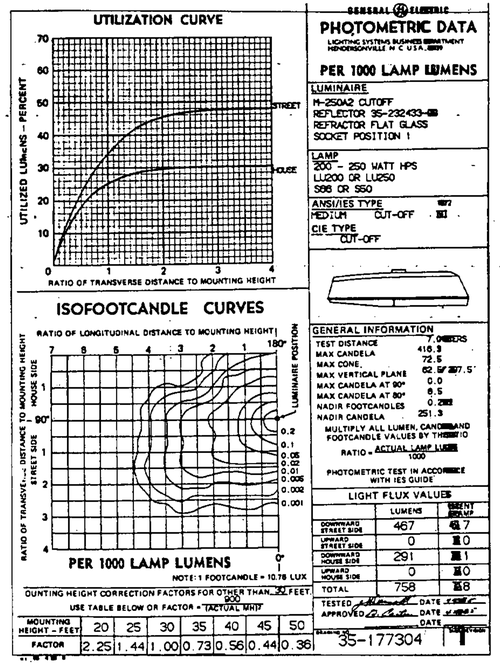
2. THE STREET LIGHT ON STRAIN POLE #2 SHALL UTILIZE THE SAME POWER SOURCE AS THE TRAFFIC SIGNAL BUT WITH A SEPARATE DISCONNECT BREAKER.

F. GENERAL

1. THE CONTRACTOR SHALL ACQUIRE ALL NECESSARY PERMITS AND MAKE ALL NECESSARY ARRANGEMENTS WITH THE UTILITY COMPANY TO PROVIDE A PERMANENT POWER SUPPLY TO THE SIGNAL AND STREET LIGHTING EQUIPMENT. THE ROUTING OF POWER TO THE INTERSECTION SHALL BE SUCH THAT THE STATE HAS FULL RESPONSIBILITY FROM THE TRANSFORMER THROUGH THE SIGNAL. NO INTERVENING OWNERSHIP/ RESPONSIBILITY SHALL BE ALLOWED.

2. THE CONTROLLER ID PLAQUE DETAIL IS SHOWN ON THIS SHEET.

3. SEE SUPPLEMENTAL SPECIFICATIONS FOR SECTIONS 678, 679, 752 & 753 FOR ADDITIONAL INFORMATION.

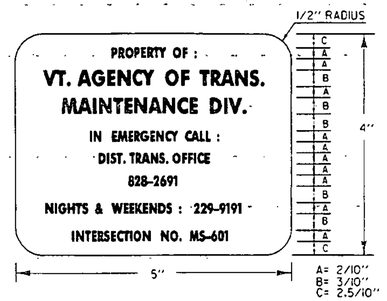



| MOUNTING HEIGHT - FEET | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|
| FACTOR | 2.25 | 1.44 | 1.00 | 0.73 | 0.56 | 0.44 | 0.36 |

DUNTING HEIGHT CORRECTION FACTORS FOR OTHER THAN 30 FEET.
USE TABLE BELOW OR FACTOR = ACTUAL MHT / 1000

DESIGN PHOTOMETRIC

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.

PLOTTED: 8-FEB-1996
/trdf/85b018/tb018r.cgn/tb018rsn.

**SIGNAL / LIGHTING NOTES & DETAILS**

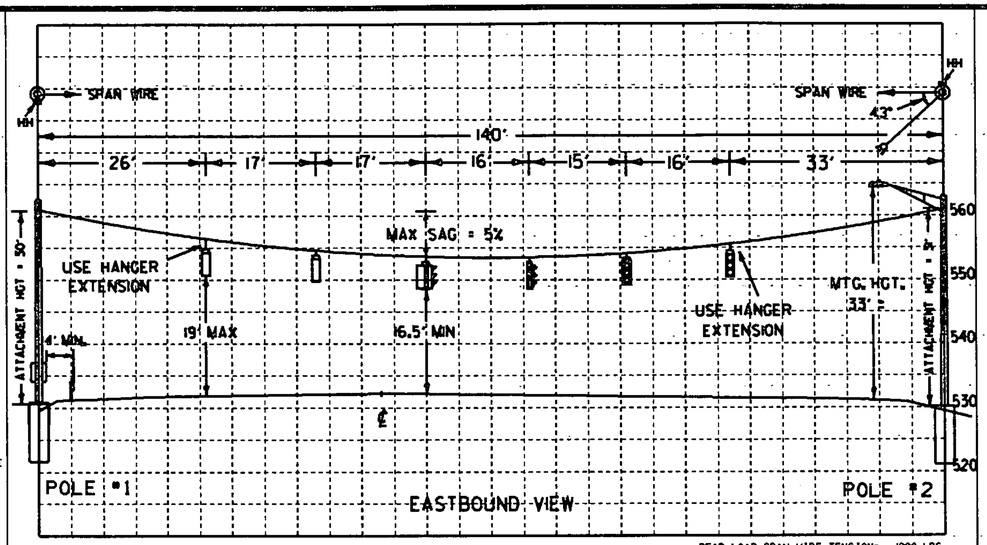
PREPARED BY LKA DATE 4/93
CHECKED BY ____ DATE ____
DESIGN SUPERVISOR ____ DATE ____
PROJ. MONTPELIER
F EGC-F 028-2(8)
TRAFFIC SHEET NO. ____ OF ____
SHEET 55 OF 118 SHEETS

| POLE NO. | POLE LENGTH GAUGE & DIAMETER | B.C. | S | T | BASE DEPTH | BASE DIA. | ANCHOR BOLTS | POLE BRRK |
|---|---|---|---|---|---|---|---|---|
| #1 | 32', 3GA, 13" ø | 19 3/4" | 20 3/4" | 2" | 9' | 36" | 1 1/2" x 15" | 4 1/4" |
| #2 | 33', 3GA, 13" ø | 19 3/4" | 20 3/4" | 2" | 9' | 36" | 1 1/2" x 15" | 4 1/4" |
| | W/ 12' TRUSS LUMINAIRE ARM | | | | | | | |

NOTE: ANCHOR BOLTS, BASE PLATE, AND FOOTING DIMENSIONS ARE BASED ON DESIGN POLE DIMENSIONS AND YIELD STRENGTH SHOWN. POLES SUPPLIED OF DIFFERENT SIZE OR STRENGTH MAY REQUIRE CHANGES IN THE DIMENSIONS.
BACKRAKE (BKRK) SHOWN IS AS MEASURED AT THE TOP OF THE POLE.

## STRAIN POLE

DESIGN CRITERIA USED:
POLE FY = 48 KSI
BASE PLATE FY = 36 KSI
ANCHOR BOLTS FY = 55 KSI
$F_b = 0.66F_y$




IF MORE THAN ONE LOCATION SEE SHEET(S) FOR ADDITIONAL DETAILS.

(SEE SHEET(S) 54 FOR LOCATION PLAND

## SPAN WIRE CROSS SECTION

DEAD LOAD SPAN WIRE TENSION= 1200 LBS
DESIGN LOAD SPAN WIRE TENSION= 3050 LBS
SCALE 1" = 10'
HH = HANDHOLE

## GENERAL NOTES

1) ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND AASHTO'S STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 1985 OR ITS LATEST EDITION.

2) TRAFFIC CONTROL SIGNAL STRAIN POLES SHALL CONFORM TO THE REQUIREMENTS OF SUBSECTION 752.02 - STRAIN POLES, AND SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SECTION 678 - TRAFFIC CONTROL SIGNALS.

3) STEEL POLE CAPS SHALL BE PROVIDED WITH A 2-INCH BUSHED (BLIND) ELECTRICAL ENTRANCE WHEN APPLICABLE. STRAIN POLES SHALL BE PROVIDED WITH A 2-INCH (BLIND) HALF COUPLING FOR SIGNAL CABLE, LOCATED 6" BELOW THE SPANWIRE ATTACHMENT HEIGHT.

4) FOUR STAINLESS STEEL ANCHOR BOLTS WITH TWO HEXAGON NUTS, ONE WASHER AND ONE LOCK WASHER PER BOLT SHALL BE FURNISHED WITH EACH POLE. (SEE SUBSECTION 714.09)

5) BOLTS AND BASES SHALL BE OF ADEQUATE SIZE TO RESIST THE FULL BENDING MOMENT OF THE POLE AT YIELD STRENGTH STRESS.

6) ADDITIONAL DESIGN CRITERIA:
CONCRETE - $f_c$ = 1,400 PSI. $f'_c$ = 3,500 PSI
WIND LOAD - 25 LBS PER SQUARE FOOT (MIN.) ON THE EXPOSED POLE SURFACE.
REINFORCING STEEL $f_s$ = 24,000 PSI (GRADE 60)

7) CONCRETE FOR FOOTINGS SHALL CONFORM TO REQUIREMENTS OF CONCRETE CLASS "B" SECTION 501 - STRUCTURAL CONCRETE.

8) BACKFILL MATERIAL PLACED ADJACENT TO THE FOOTINGS SHALL MEET THE REQUIREMENTS FOR GRANULAR BACKFILL FOR STRUCTURES. SUBSECTION 704.08.

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

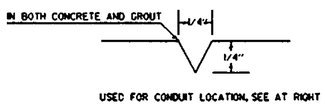
10) EACH METAL POLE SUPPORTING EITHER VEHICLE OR PEDESTRIAN TRAFFIC SIGNALS SHALL BE GROUNDED. THE GROUND SHALL CONSIST OF:
A) AN INTERNAL GROUND LUG OPPOSITE THE HAND HOLE.
B) A #6 (MIN.) SOFT DRAWN COPPER GROUNDING ELECTRODE CONDUCTOR.
C) A 5/8" X 8' (MIN.) COPPER CLAD GROUNDING ELECTRODE.
THE RESISTANCE TO GROUND SHALL BE 25 OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES MAY BE REQUIRED (MINIMUM SPACING SHALL BE 6').
WHEN A POWER SERVICE, METER AND DISCONNECT ARE ATTACHED TO A STRAIN POLE, THERE SHALL BE A CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE METER AND DISCONNECT WHICH MAY RUN INTERNAL TO THE STRAIN POLE, THROUGH THE 1/2" FLEXIBLE TUBING IN THE CONCRETE BASE TO THE REQUIRED GROUNDING ELECTRODE(S). THE GROUNDING ELECTRODE CONDUCTOR FROM THE STRAIN 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.

11) STRAIN POLE BASE PLATES SHALL BE STAMPED WITH POLE DIAMETER, HEIGHT, YIELD STRENGTH, AND GAUGE. ALTERNATELY, THE INFORMATION MAY BE STAMPED ON A METAL TAG ATTACHED TO THE POLE NEAR THE HANDHOLE.

12) IN ACCORDANCE WITH SUBSECTION 105.03, SHOP DRAWINGS (6 COPIES) SHALL BE SUBMITTED TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, FOR APPROVAL, PRIOR TO FABRICATION. THE SUBMITTAL SHALL INCLUDE THE FOLLOWING INFORMATION:
A) DETAILED DRAWING OF EACH COMPONENT OF THE STRAIN POLE.
B) MATERIAL SPECIFICATIONS FOR EACH COMPONENT OF THE STRAIN POLE BY COMPLETE SPECIFICATIONS OR BY REFERENCE TO APPLICABLE ASTM STANDARDS.
C) NOTATION OF PROJECT NAME, PROJECT NUMBER, ROUTE NUMBER, AND STRAIN POLE STATIONING. (TO BE INCLUDED ON EACH SHEET INCLUDING STANDARD SHEETS AND SPECIFICATION SHEETS).
D) DETAILS FOR LOCATION OF LUMINAIRE ARM(S) ON STRAIN POLES.
E) ALL ELEVATIONS AND DIMENSIONS NECESSARY TO PROVIDE A COMPLETE SET OF RECORD PLANS. (POLE HEIGHT, SPAN WIRE ATTACHMENT HEIGHT, POLE DIAMETER (TOP AND BOTTOM), POLE GAUGE, HANDHOLE (SIZE AND LOCATION), BASE PLATE, BOLT CIRCLE, ANCHOR BOLT SIZE)
F) POLE BASE STAMPING DETAIL
G) DEAD LOAD DEFLECTION INFORMATION
H) 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)

13) WHEN USING STAINLESS STEEL BOLTS DO NOT INSTALL BOLT COVERS.

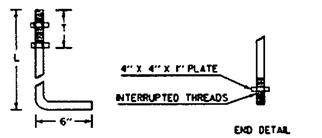
LAST REVISED 8/15/95




USED FOR CONDUIT LOCATION, SEE AT RIGHT "SECTION" DETAIL.

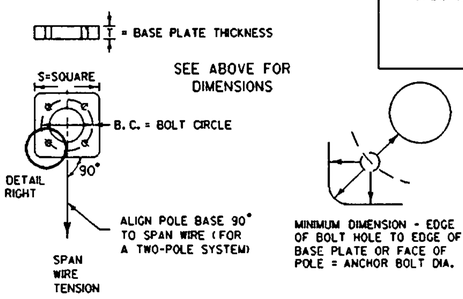
## 2" SCORE MARK DETAIL

| ANCHOR BOLT DETAIL | | |
|---|---|---|
| SIZE | L(IN) | T(IN) |
| 1-1/4" X 48" | 42 | 8 |
| 1-1/2" X 60" | 54 | 9 |
| 1-3/4" X 90" | 84 | 9 |
| 2" X 96" | 96 | 9 |
| 2-1/4" X 96" | 96 | 9 |



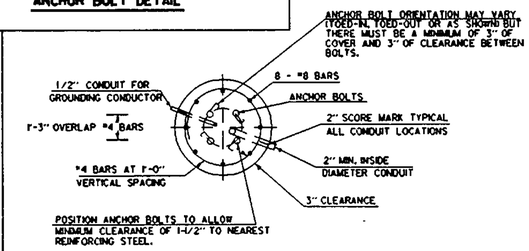

1-1/4" TO 1-3/4" BOLT

## ANCHOR BOLT DETAIL

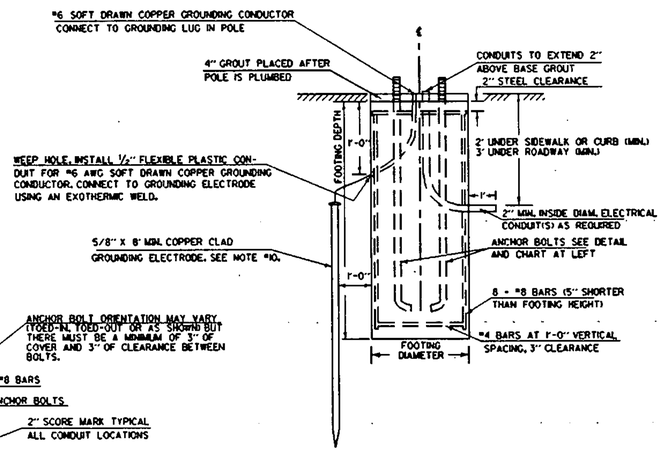



MINIMUM DIMENSION - EDGE OF BOLT HOLE TO EDGE OF BASE PLATE OR FACE OF POLE = ANCHOR BOLT DIA.

## BASE PLATE DETAIL




## SECTION




## ELEVATION

## STRAIN POLE FOOTING

REF FILE =
TRAF/FORMS/STPOLE.DGN
TRAF/FORMS/STPOLE.TXT
SPSINGLE.I
PLOTTED: 7-MAR-1996

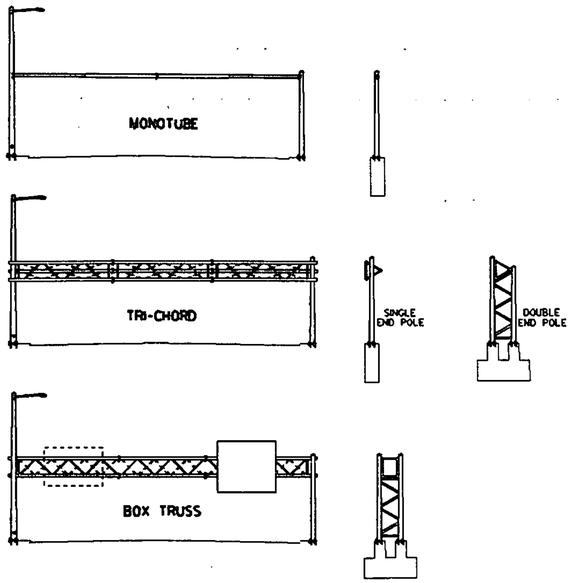
NOTE: DETAILS NTS

# STRAIN POLE / FOOTING DETAIL SHEET - SINGLE INTERSECTION

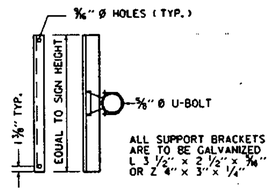
MONTPELIER STATE HIGHWAY
@
NATIONAL LIFE DRIVE
/traf/89b08/tb018t.dgn/tb018tsx.i

PREPARED BY LKA DATE 12/92
CHECKED BY _____ DATE ____
DESIGN SUPERVISOR _____ DATE ____
PROJ. MONTPELIER
F EGC F 028-2(8)
TRAFFIC SHEET NO. ____ OF ____
SHEET 56 OF ____ SHEETS

: Sheet Number: 56



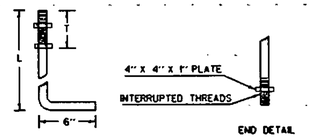
DETAIL A



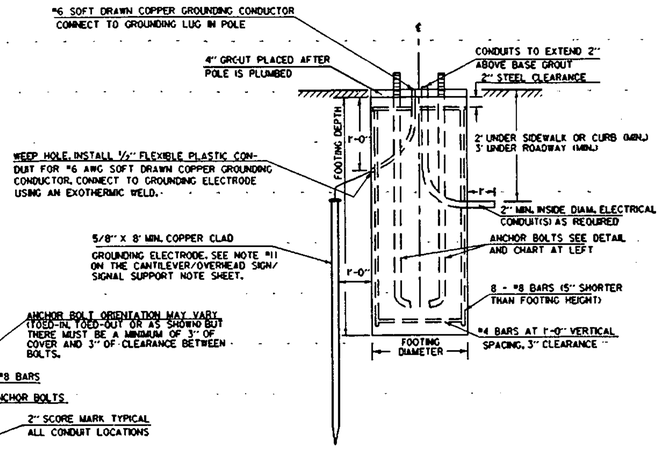

SIGN ON SINGLE MAST ARM

SIGN BRACKET DETAILS

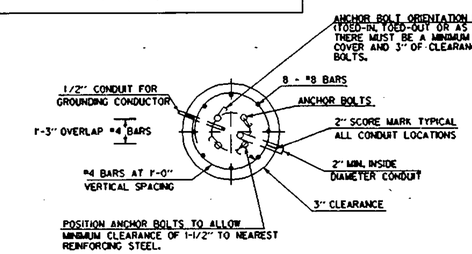
| ANCHOR BOLT DETAIL | | |
|---|---|---|
| SIZE | L(IN) | T(IN) |
| 1- 1/4" X 48" | 42 | 8 |
| 1- 1/2" X 60" | 54 | 9 |
| 1- 3/4" X 90" | 84 | 9 |
| 2" X 96" | 96 | 9 |




ANCHOR BOLT DETAIL



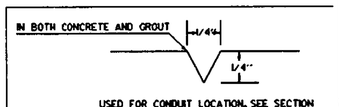

ELEVATION




SECTION

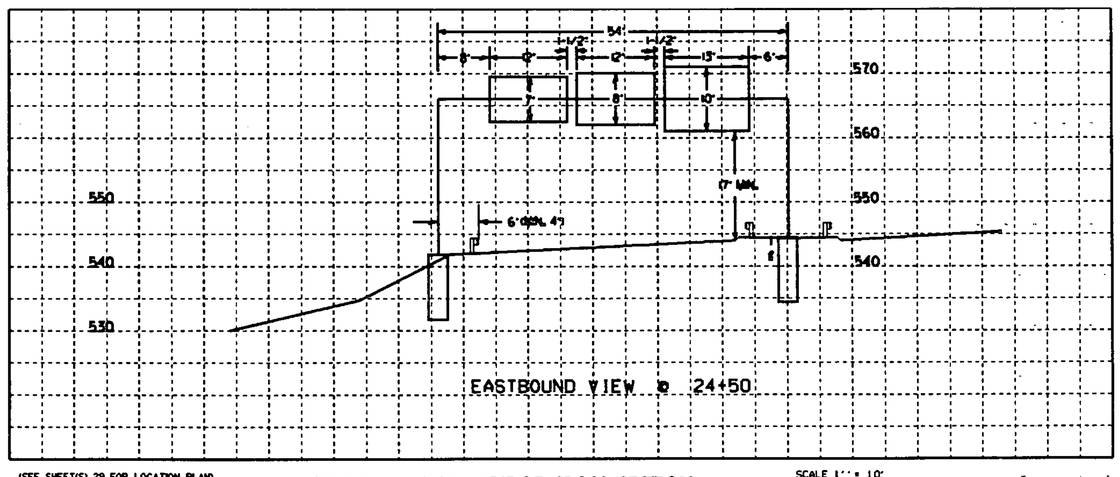
OVERHEAD TRAFFIC SIGN BRIDGE FOOTING DETAIL

( SPREAD FOOTINGS OR PILES ARE OPTIONAL )




USED FOR CONDUIT LOCATION, SEE SECTION DETAIL AT LEFT

2" SCORE MARK DETAIL



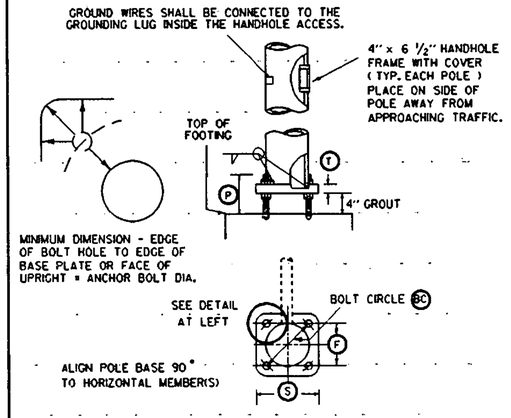

(SEE SHEET(S) 29 FOR LOCATION PLAN)

OVERHEAD SIGN BRIDGE CROSS SECTION

SCALE 1" = 10'

NOTES:

1. SEE CANTILEVER / OVERHEAD SIGN / SIGNAL SUPPORTS NOTE SHEET FOR ADDITIONAL INFORMATION.
2. MANUFACTURER TO DETERMINE TYPE OF STRUCTURE REQUIRED.
3. MONOTUBES SHALL NOT BE USED FOR SIGNS OVER 10' IN HEIGHT.
4. STREET LIGHTING IS OPTIONAL. SEE PLAN SHEETS OR SECTION.
5. MINIMUM CLEARANCE FROM SIGNS TO ROADWAY IS 17'.




POLE BASE AND BASE PLATE DETAIL

NOTE: DETAILS NTS

# OVERHEAD TRAFFIC SIGN BRIDGE / FOOTING DETAIL SHEET

/traf/forms/cantilvr.dgn
ovhdsa.l
PLOTTED: 7-MAR-1996

/traf/85b018/tb018t.dgn/tb018tss.l
LAST REVISED 8/15/95

PREPARED BY LKA DATE 5/94
CHECKED BY _____ DATE ____
DESIGN SUPERVISOR _____ DATE ____
PROJ. MONTPELIER
F EGC F 028-2(8)
TRAFFIC SHEET NO. ____ OF ____
SHEET 57 OF ____ SHEETS

: Sheet Number: 57

# GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION'S ''STANDARD SPECIFICATIONS FOR CONSTRUCTION'', DATED 1990, WITH CURRENT MODIFICATIONS.

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 1985 OR ITS LATEST REVISION.

3. ADDITIONAL DESIGN CRITERIA ARE AS FOLLOWS:

   CONCRETE $f_c$ = 1400 PSI $f'_c$ = 3500 PSI
   REINFORCING $f_s$ = 24000 PSI (GRADE 60)
   FOOTING SOIL PRESSURE : 3000 PSF (MAXIMUM)

   WIND LOAD AND ICE LOAD PER AASHTO ''STANDARD SPECIFICATIONS''

4. ANCHOR BOLTS

   FOUR STAINLESS STEEL ANCHOR BOLTS WITH TWO HEXAGON NUTS, ONE WASHER AND ONE LOCK WASHER PER BOLT SHALL BE FURNISHED WITH EACH POLE. ANCHOR BOLT PLATES, WHEN USED, SHALL ALSO BE STAINLESS STEEL. SEE SUB-SECTION 714.09.

5. FLANGE BOLTS

   ALL FLANGE BOLTS AND HEX NUTS SHALL BE HIGH STRENGTH STEEL AND SHALL CONFORM TO ASTM A325. 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 48,000 PSI. 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 ASTM A123 AND A153.

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 TWO FEET OF SOIL SHALL BE NEGLECTED FOR DESIGN PURPOSES. THE MAXIMUM FOOTING DIAMETER SHALL BE THREE FEET AND THE MAXIMUM DEPTH SHALL BE TWELVE FEET. IF THESE LIMITS ARE EXCEEDED OR IF THE SOIL IS NOT CAPABLE OF A BEARING PRESSURE OF 3000 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 SIDES AND ONE FOOT DEEPER THAN THE FOOTING. CARE SHALL BE TAKEN TO AVOID EXCAVATING AROUND THE TOP OF THE FOOTING. THE BACKFILL MATERIAL SHALL BE COMPACTED AS DESCRIBED IN SUB-SECTION 204.12. DESIGN LIMITS AS FOR AUGERED FOOTING 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. SIGNALS/SIGNS SHALL BE INSTALLED AND LEVELED AND POLES SHALL BE PLUMB PRIOR TO PLACING GROUT UNDER POLE BASE.

10. SHOP DRAWINGS (6 COPIES OF EACH) SHALL BE SUBMITTED TO THE STATE OF VERMONT, AGENCY OF TRANSPORTATION, STRUCTURES DIVISION FOR APPROVAL PRIOR TO FABRICATION. THE SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING INFORMATION:

    A. DETAILED DRAWING OF EACH COMPONENT OF THE STRUCTURE.

    B. MATERIAL SPECIFICATION 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 ELEVATIONS 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 SUB-SECTION 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 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 6').
    WHEN A POWER SERVICE, METER AND DISCONNECT ARE ATTACHED TO A POLE, THERE SHALL BE A CONTINUOUS GROUNDING ELECTRODE CONDUCTOR FROM THE METER AND DISCONNECT WHICH MAY RUN INTERNAL TO THE UPRIGHT, THROUGH THE 1/2'' FLEXIBLE TUBING IN THE CONCRETE BASE TO THE REQUIRED GROUNDING ELECTRODE(S). THE GROUNDING ELECTRODE CONDUCTOR 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, FOOTINGS AND LUMINAIRE ARMS SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 677.12, 677.13 OR 678.15, WHICHEVER IS APPLICABLE. THESE COMPONENTS SHALL CONFORM TO ALL APPLICABLE PROVISIONS OF SECTIONS 677, 678, AND 679.

13. HORIZONTAL MEMBERS SHALL BE CAMBERED AND THE VERTICAL POLES BACKRAKED (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 VERMONT AGENCY OF TRANSPORTATION.

16. IN ADDITION TO THE SHOP DRAWINGS OUTLINED IN NOTE 10 THE CONTRACTOR SHALL SUBMIT ALL DESIGN CALCULATIONS TO THE VERMONT AGENCY OF TRANSPORTATION, STRUCTURES DIVISION, 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 FOUR (4) WEEKS SHALL BE REQUIRED FOR REVIEW BY THE VERMONT AGENCY OF TRANSPORTATION, STRUCTURES DIVISION.

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 E-171C, UNLESS OTHERWISE NOTED ON THE CROSS SECTION SHEET.

20. BASE PLATES SHALL BE STAMPED WITH THE VERTICAL POLE DIAMETER, HEIGHT, YIELD STRENGTH, GAUGE AND THE HORZONTAL 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 STANDARD E-171A FOR ADDITIONAL NOTES.

22. SEE SHEET(S) 29&42 FOR INTERSECTION LAYOUT(S).

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/cantnote.txt
cantnote.l
PLOTTED: 7-MAR-1996

/traf/89b018/tb018t.dgn/tb018tcn.l

LAST REVISED 8/23/94

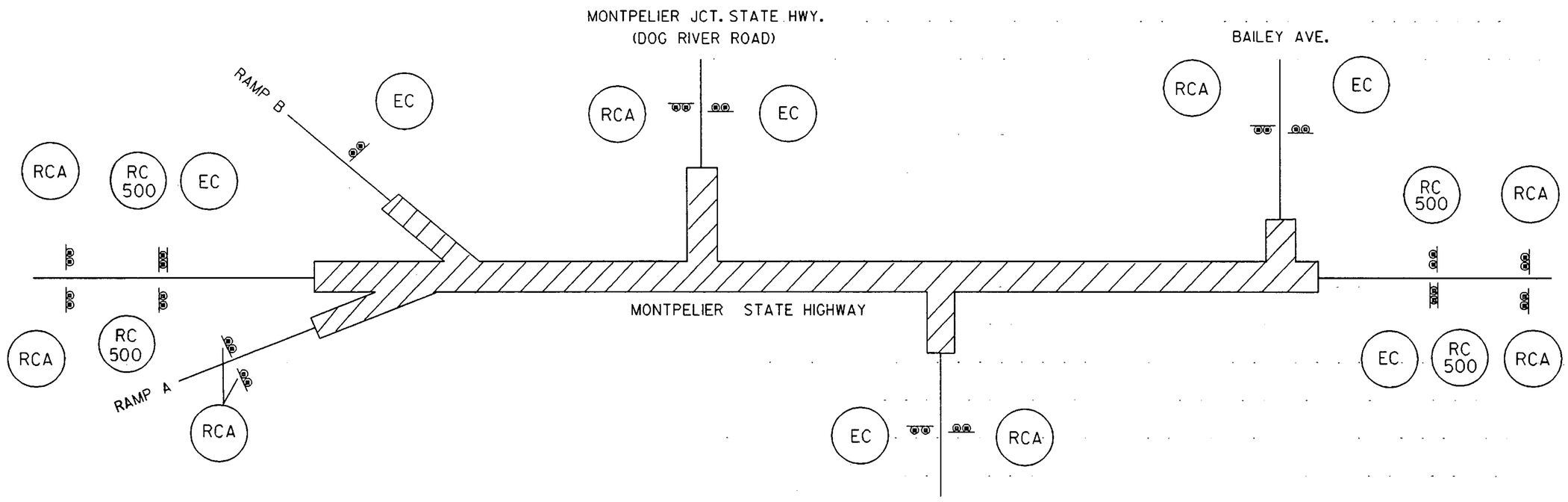
CANTILEVER / OVERHEAD SIGN / SIGNAL SUPPORT NOTES

PREPARED BY LKA DATE 5/94
CHECKED BY ____ DATE ____
DESIGN SUPERVISOR ____ DATE ____
PROJ. MONTPELIER F EGC-F 028-2(8)
TRAFFIC SHEET NO. ____ OF ____
SHEET 58 OF ____ SHEETS

: Sheet Number: 58

# CONSTRUCTION APPROACH SIGNING

SEE STANDARD E-100 FOR SIGN PLACEMENT




LEGEND:

RCA = ROAD CONSTRUCTION AHEAD

EC = END CONSTRUCTION

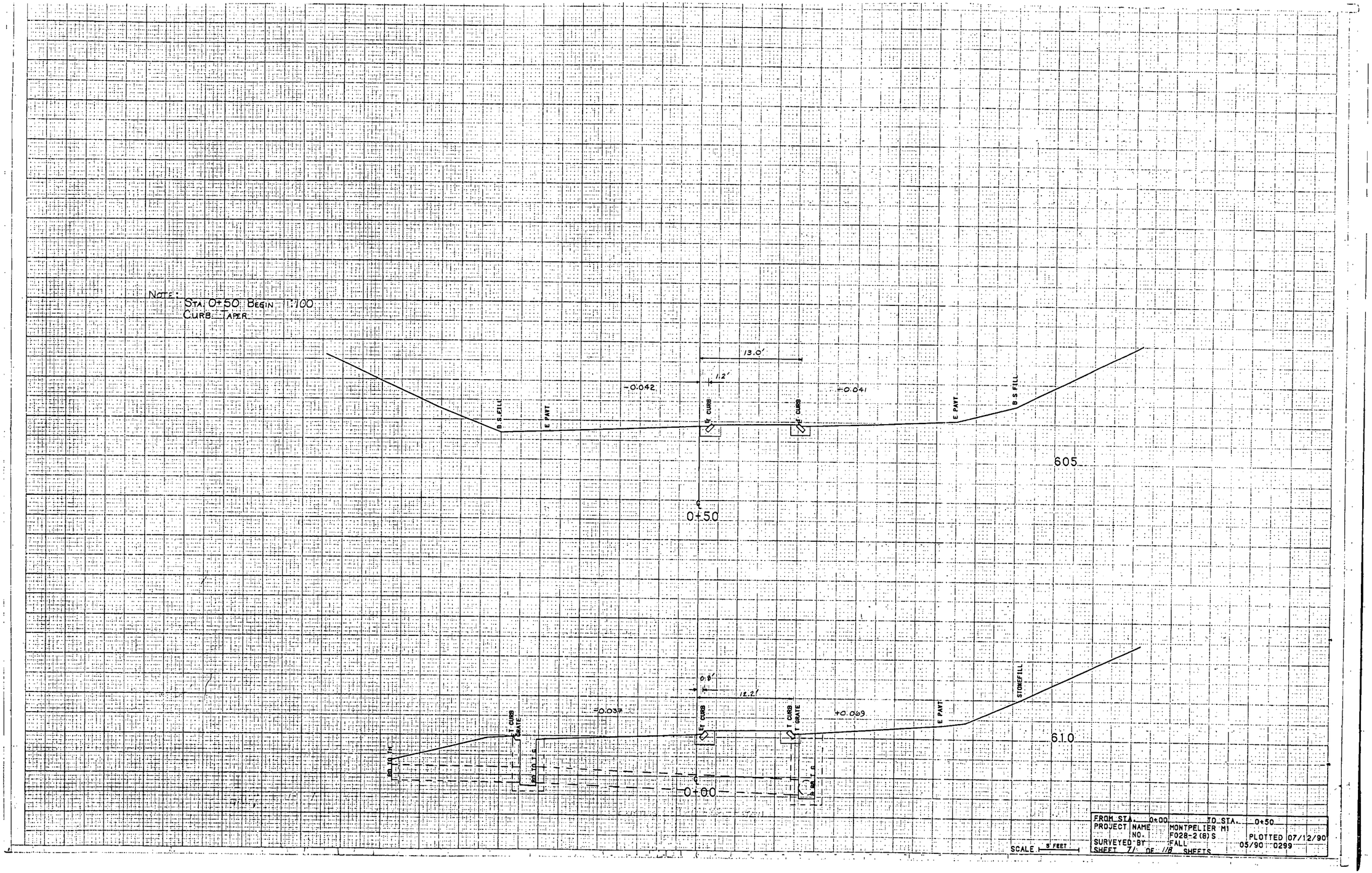
RC 500 = ROAD CONSTRUCTION 500 FEET

NTS

| | | | |
|---|---|---|---|
| REVISED BY | | DATE | |
| DRAWN BY | KML | DATE | 7/95 |
| SQUAD LEADER | NYQUIST | | |
| DESIGN FILE NO. | SQDA/89B018/DB018TYP.DGN | | |
| IPARM | db018cas.i | DATE PLOTTED | 15-FEB-1996 |
| PROJ. NAME | MONTPELIER | | |
| PROJ. NO. | FEGC-F 028-2(8) | | |
| SHEET 59 OF 118 SHEETS | | | |

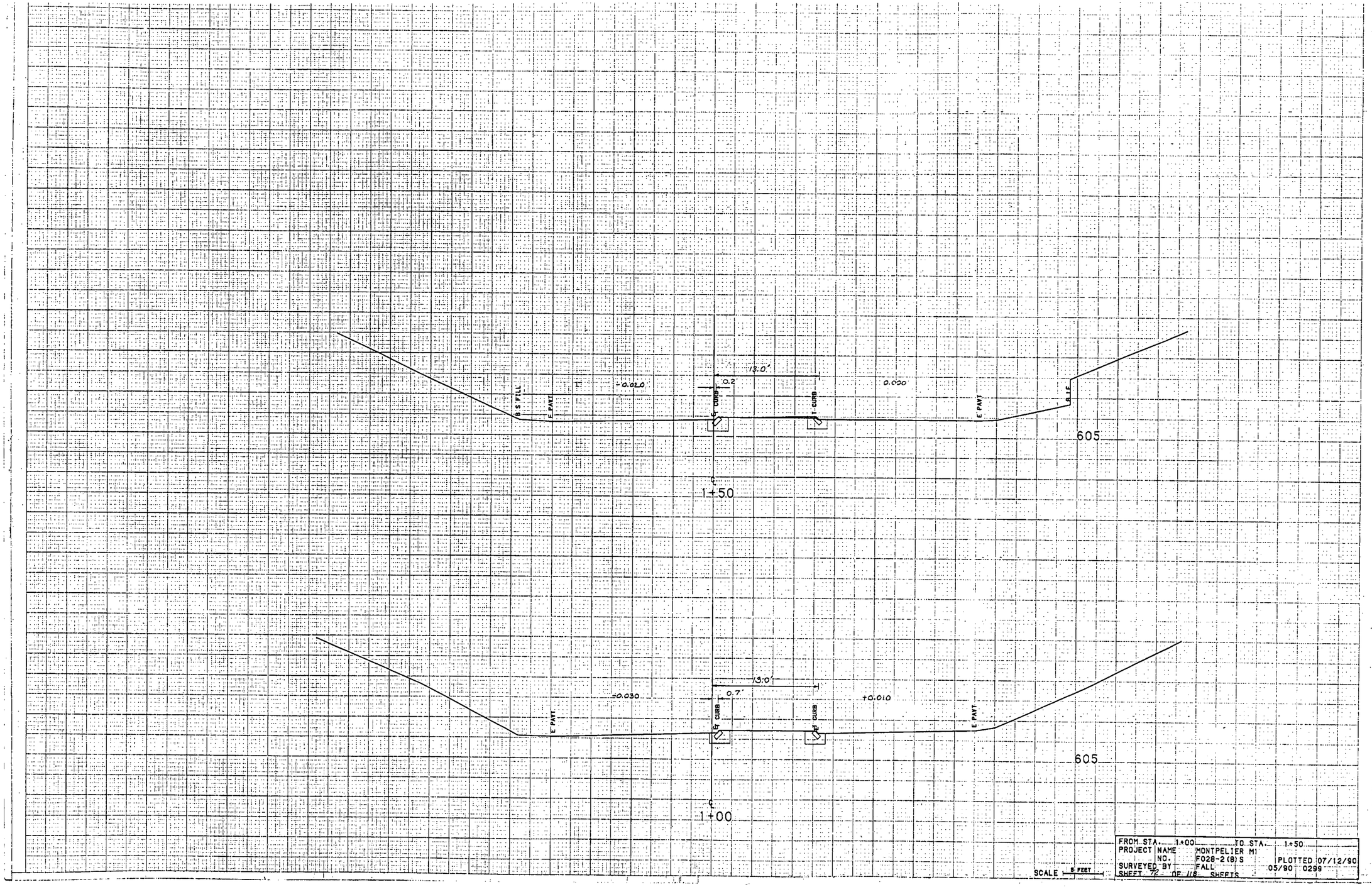
: Sheet Number: 59

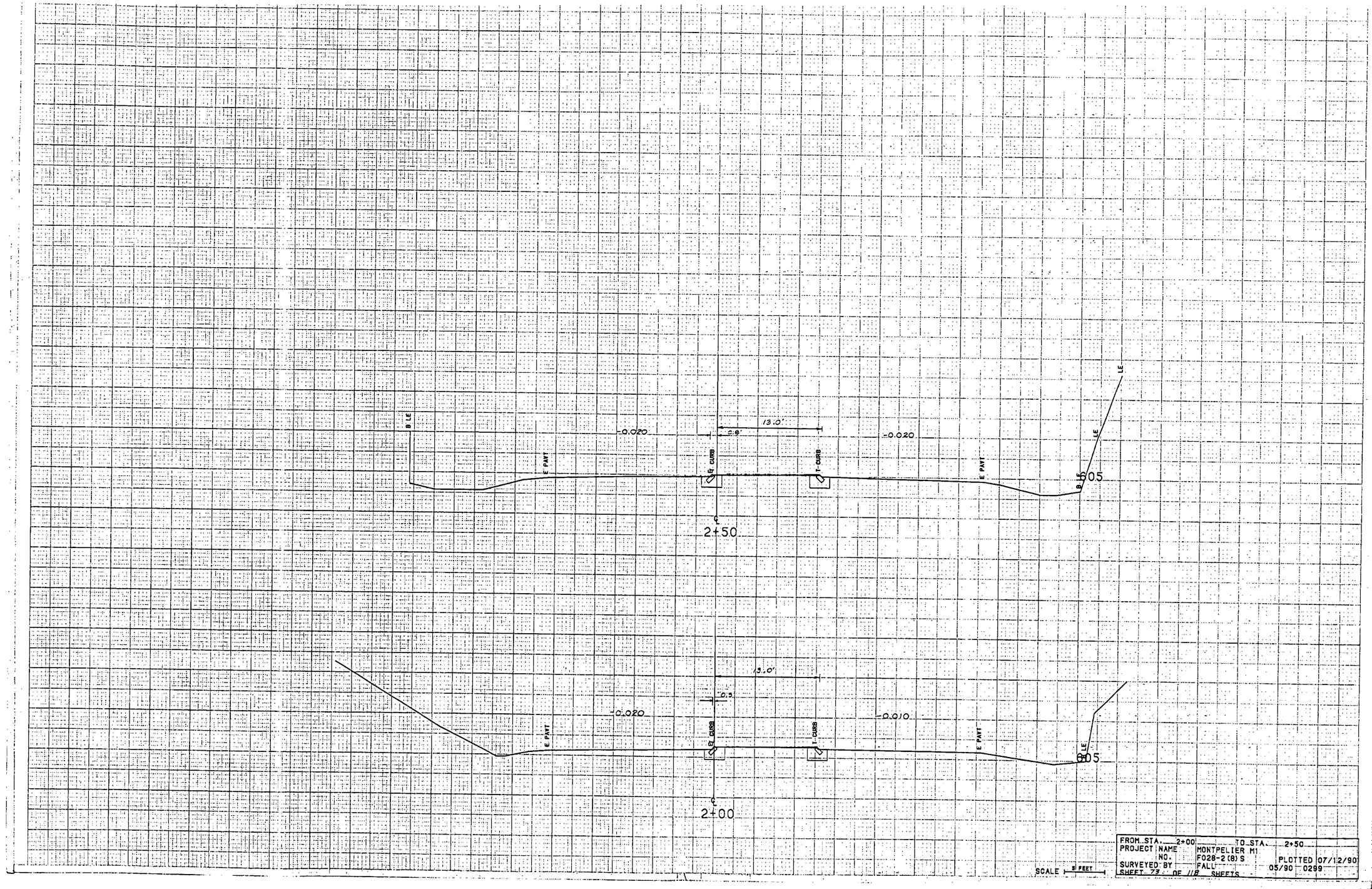
NOTE:
STA. 0+50 BEGIN 1:100
CURB TAPER




SCALE 5 FEET

| | | | |
|---|---|---|---|
| FROM STA. 0+00 | | TO STA. 0+50 | |
| PROJECT NAME | MONTPELIER MI | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 7/ OF 18 SHEETS | | | |


B.S. FILL
E. PAVT
-0.020
13.0'
0.2
C. CURB
I. CURB
0.020
E. PAVT
B.I.F.
605
1+50
-0.030
13.0'
0.7'
+0.010
E. PAVT
B. CURB
B. CURB
E. PAVT
605
1+00
FROM STA. 1+00 TO STA. 1+50
PROJECT NAME MONTPELIER M1
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 12 OF 118 SHEETS
SCALE 5 FEET




FROM STA. 2+00 TO STA. 2+50

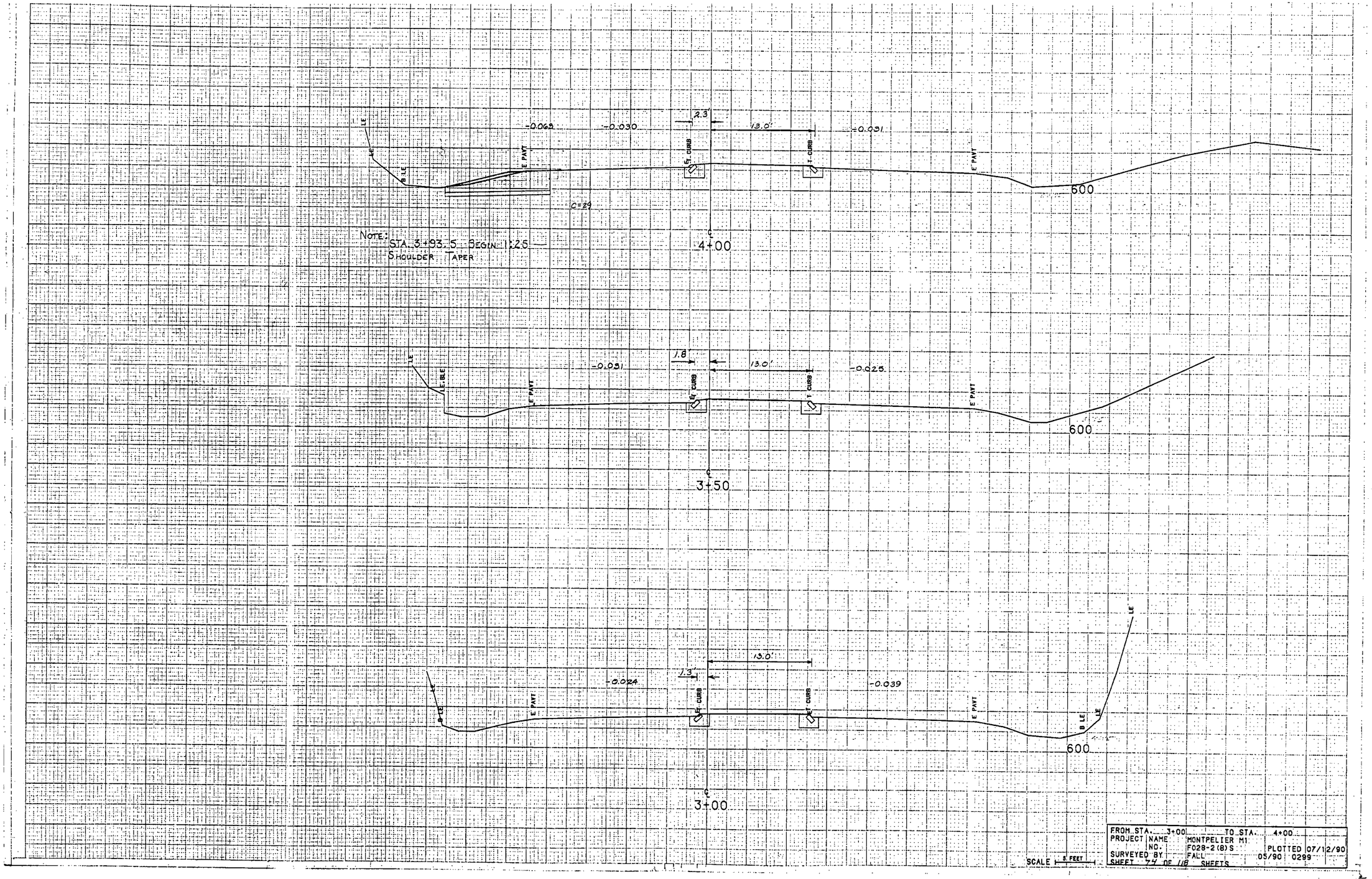
PROJECT NAME MONTPELIER M1

NO. F028-2(8)S

SURVEYED BY FALL PLOTTED 07/12/90

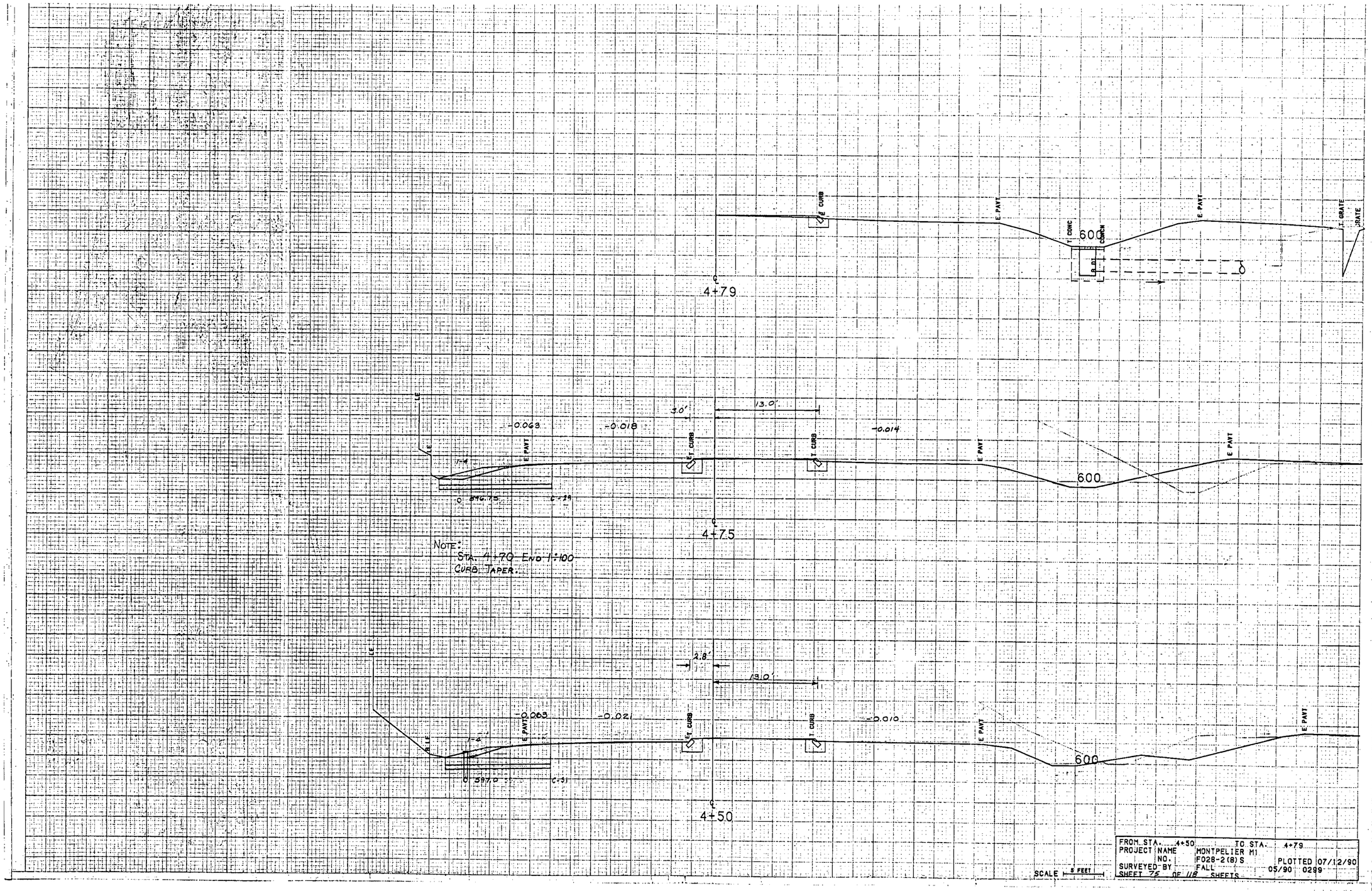
05/90 0299

SHEET 79 OF 118 SHEETS




| | | | |
|---|---|---|---|
| FROM STA. 3+00 | | TO STA. 4+00 | |
| PROJECT NO. | NAME MONTPELIER M1<br>F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 74 OF 116 SHEETS | | | |

SCALE 1" = 5' FEET




| | | | |
|---|---|---|---|
| FROM STA. 4+50 | | TO STA. 4+79 | |
| PROJECT | NAME | MONTPELIER M1 | |
| | NO. | F028-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY | | FALL | 05/90 0299 |
| SHEET 75 OF 118 SHEETS | | | |

Grate Elev. 598.5

-0.063

-0.028

E PAVT

CF CURB

Inv. 595.5 596.0

RT 11.5'

11.5'

5+49

600

LE

LE

-0.063

-0.020

E PAVT

CF CURB

CF CURB

-0.018

E PAVT

E PAVT

LE

5+275 ~ 5+65 LT.
Modified Eccentric Loader Terminal
(MELT) - refer to Standard G-17a

@ LE

@ 596.25

C=36

600

5+25

13.0'

13.0'

-0.065

-0.021

-0.018

E PAVT

CF CURB

CF CURB

E PAVT

E PAVT

E TOURB

LT 11.5'

@ LE

@ 596.45

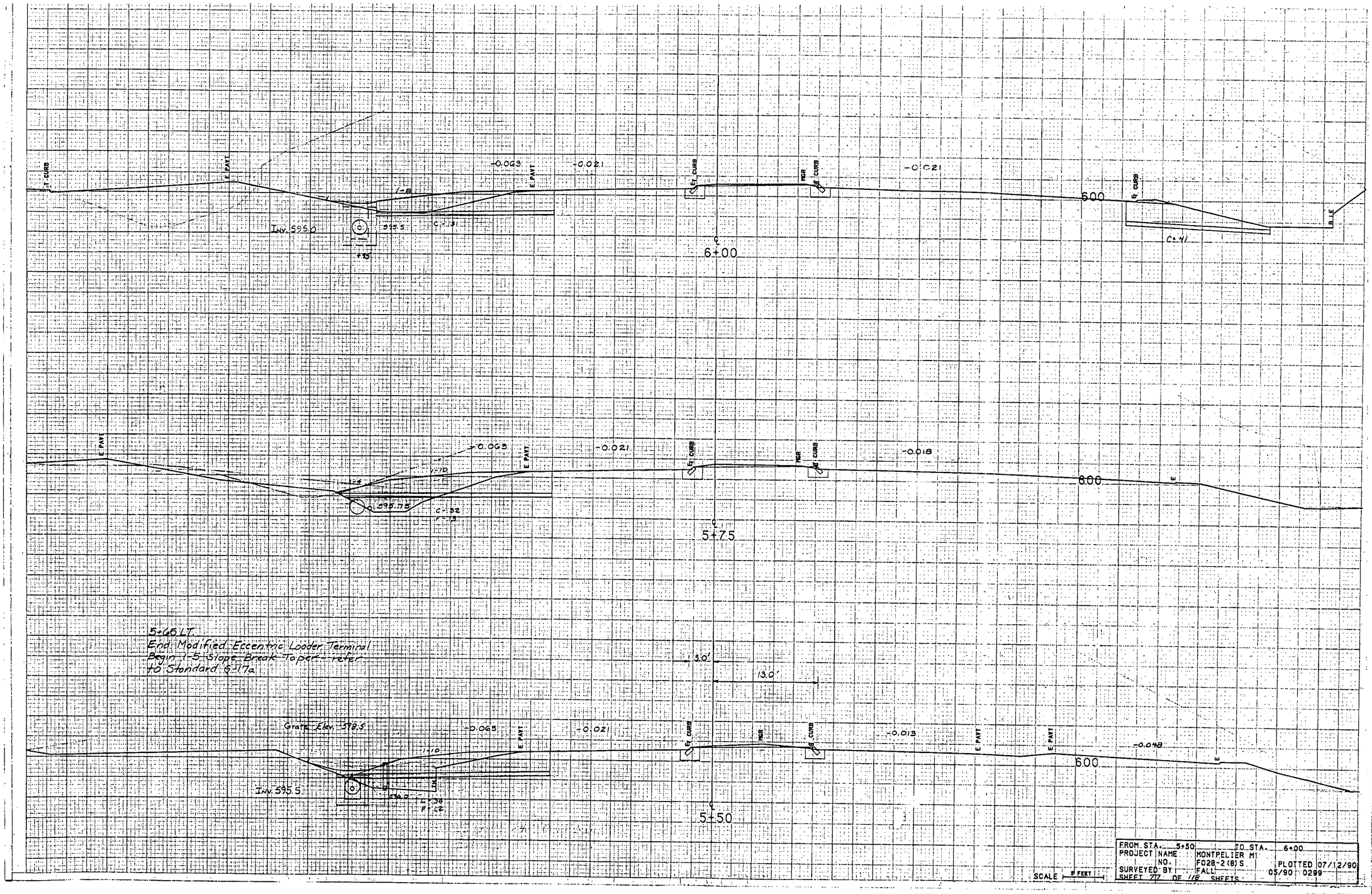
C=34

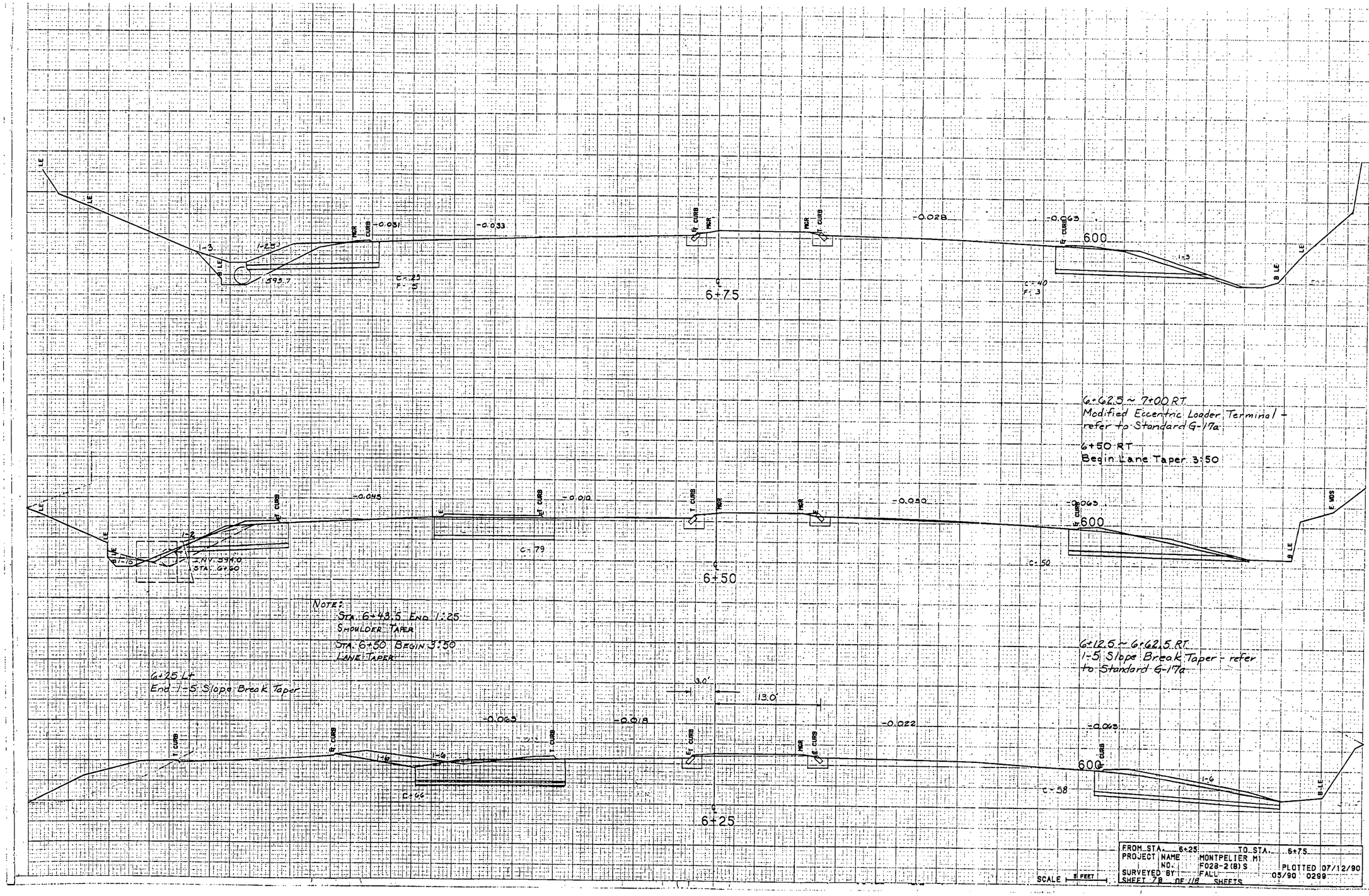
600

5+00

| | | | |
|---|---|---|---|
| FROM STA. 5+00 | | TO STA. 5+49 | |
| PROJECT NAME | | MONTPELIER M1 | |
| NO. | | FO28-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY | | FALL | 05/90 0299 |
| SHEET 78 OF 112 SHEETS | | | |

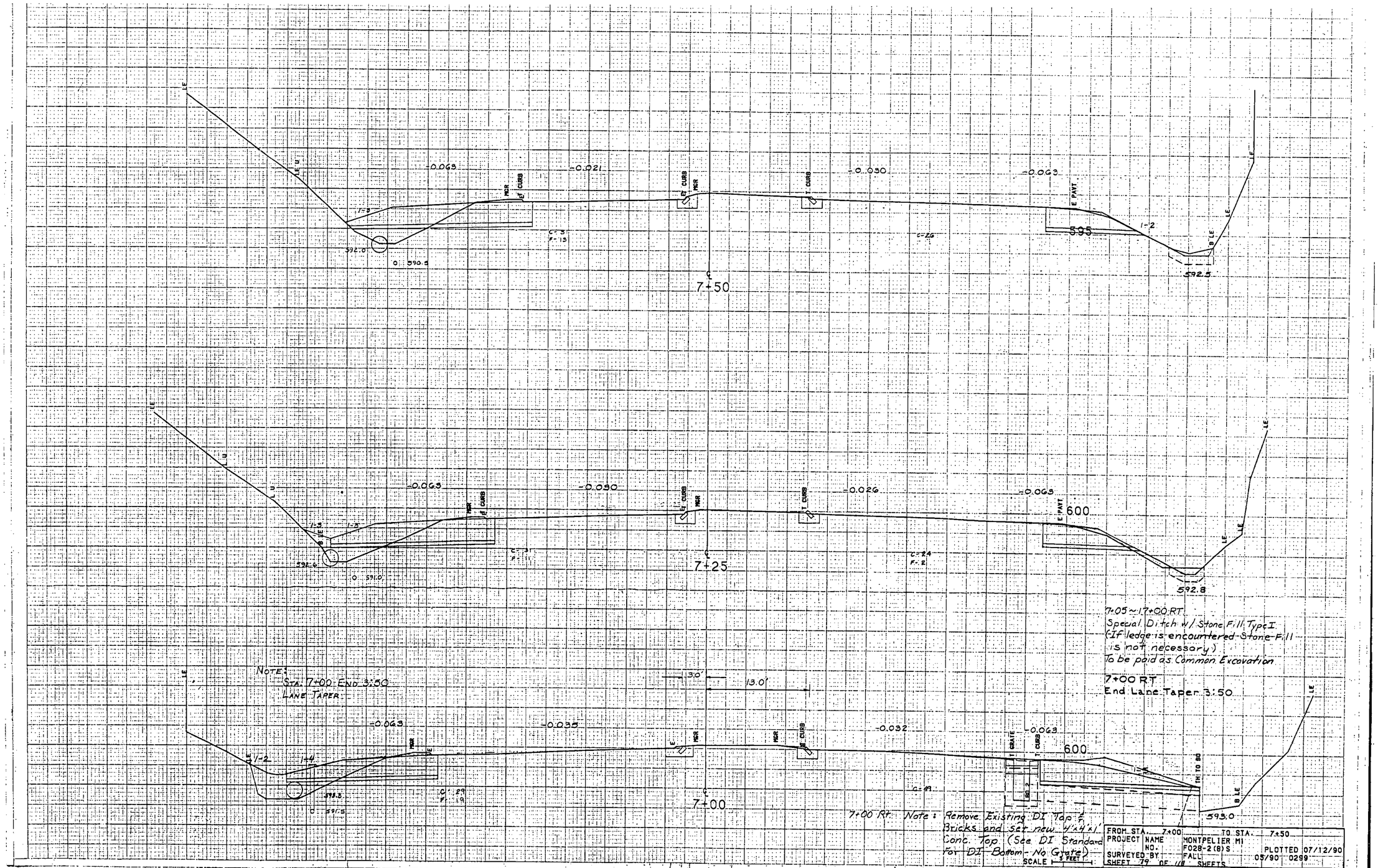
SCALE 5' FEET


T. CURB
E. PAVT
-0.063
-0.021
Inv. 595.0
595.5
C = 31
+15
6+00
Et. CURB
MGR
Ef. CURB
-0.021
600
G. CURB
E
C = 41
E. PAVT
-0.063
-0.021
595.75
C = 32
5+75
Et. CURB
MGR
Ef. CURB
-0.018
600
E
5+66 LT.
End Modified Eccentric Loader Terminal
Begin 1-5 Slope Break Taper - refer
to Standard 6-17a
13.0'
13.0'
Grate Elev. 598.5
-0.063
-0.021
E. PAVT
Inv. 595.5
596.0
C = 34
5+50
Et. CURB
MGR
Ef. CURB
-0.013
E. PAVT
E. PAVT
-0.049
600
E
SCALE 1" = 5 FEET
FROM STA. 5+50 TO STA. 6+00
PROJECT NAME MONTPELIER M1
NO. FO28-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 7/7 OF 11 SHEETS

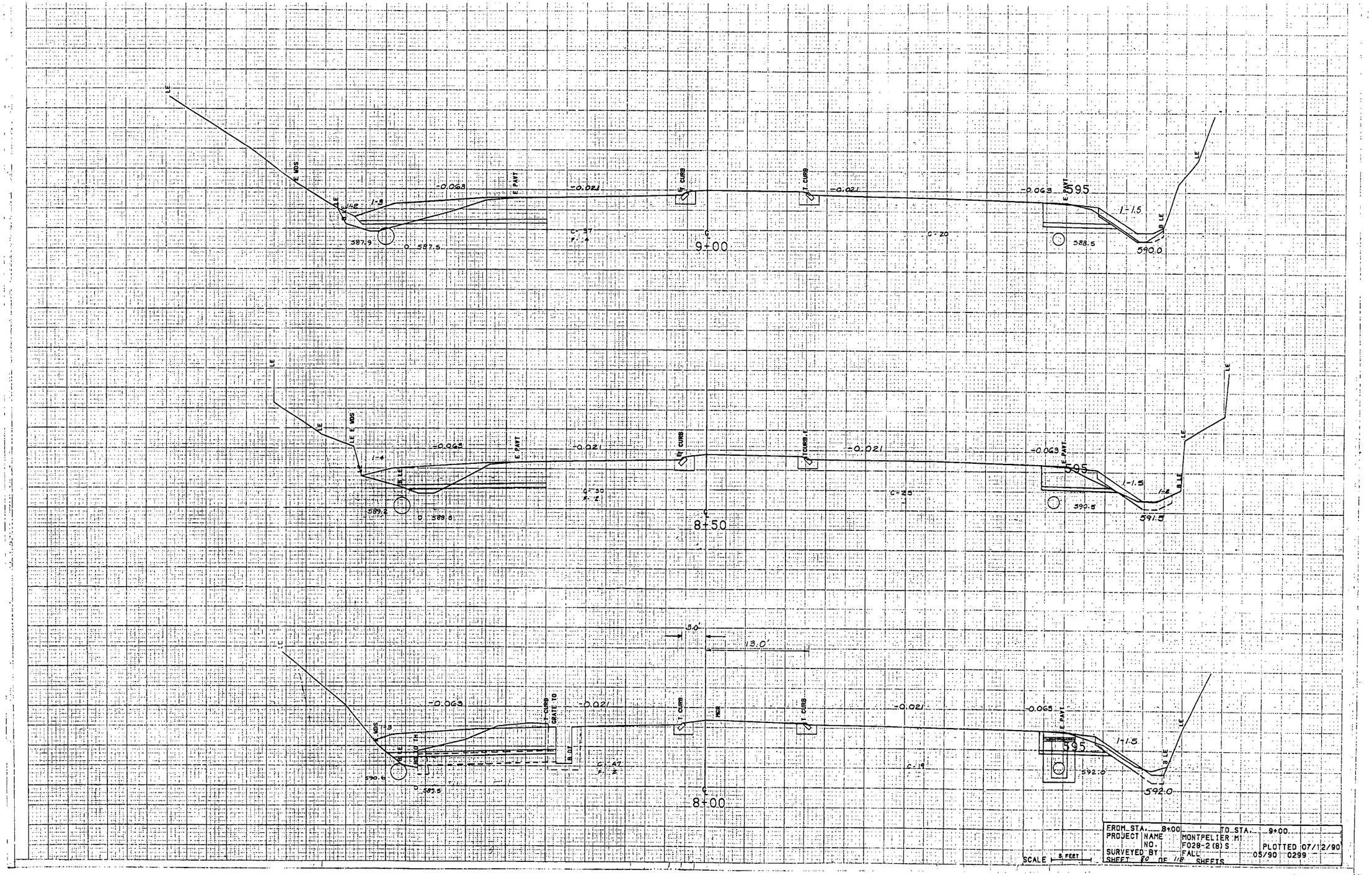



| | | | |
|---|---|---|---|
| FROM STA. 6+25 | | TO STA. 6+75 | |
| PROJECT | NAME | MONTPELIER M1 | |
| | NO. | F028-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY | | FALL | 05/90 0299 |
| SHEET 78 OF 118 SHEETS | | | |

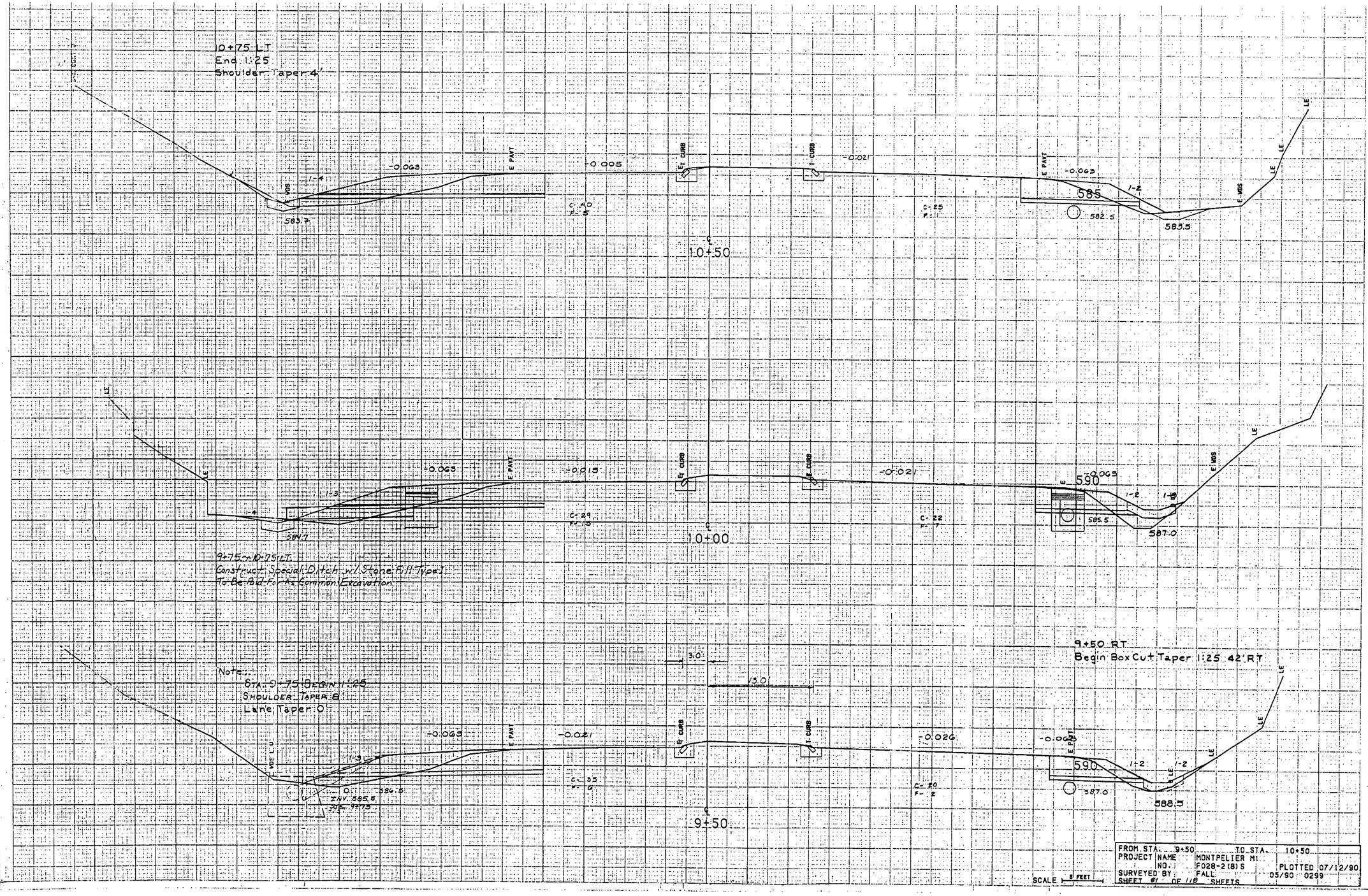
SCALE 5 FEET




| | | | |
|---|---|---|---|
| FROM STA. 7+00 | | TO STA. 7+50 | |
| PROJECT NO. | NAME MONTPELIER M1 | F028-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | | 05/90 0299 |
| SHEET 79 OF 118 SHEETS | | | |


LE
E. MDS
LE
1.5
-0.063
E. PAVT
-0.021
S. CURB
T. CURB
-0.021
-0.063
E. PAVT
595
1.5
B. LE
LE
387.9
587.5
C=37
R=4
9+00
C=20
588.5
590.0
LE
LE
E. MDS
LE
1.4
-0.063
E. PAVT
-0.021
S. CURB
T. CURB
-0.021
-0.063
E. PAVT
595
1.5
1.5
B. LE
LE
589.2
588.8
8+50
C=25
590.5
591.5
LE
3.0'
13.0'
MDS
T. CURB
GRATE TO
-0.063
-0.021
T. CURB
MGR
-0.021
-0.063
E. PAVT
595
1.5
B. LE
LE
590.6
589.5
8+00
C=19
592.0
592.0
FROM STA. 8+00 TO STA. 9+00
PROJECT NAME MONTPELIER MI
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 20 OF 118 SHEETS
SCALE 5 FEET

10+75 LT
End 1:25
Shoulder Taper 4'



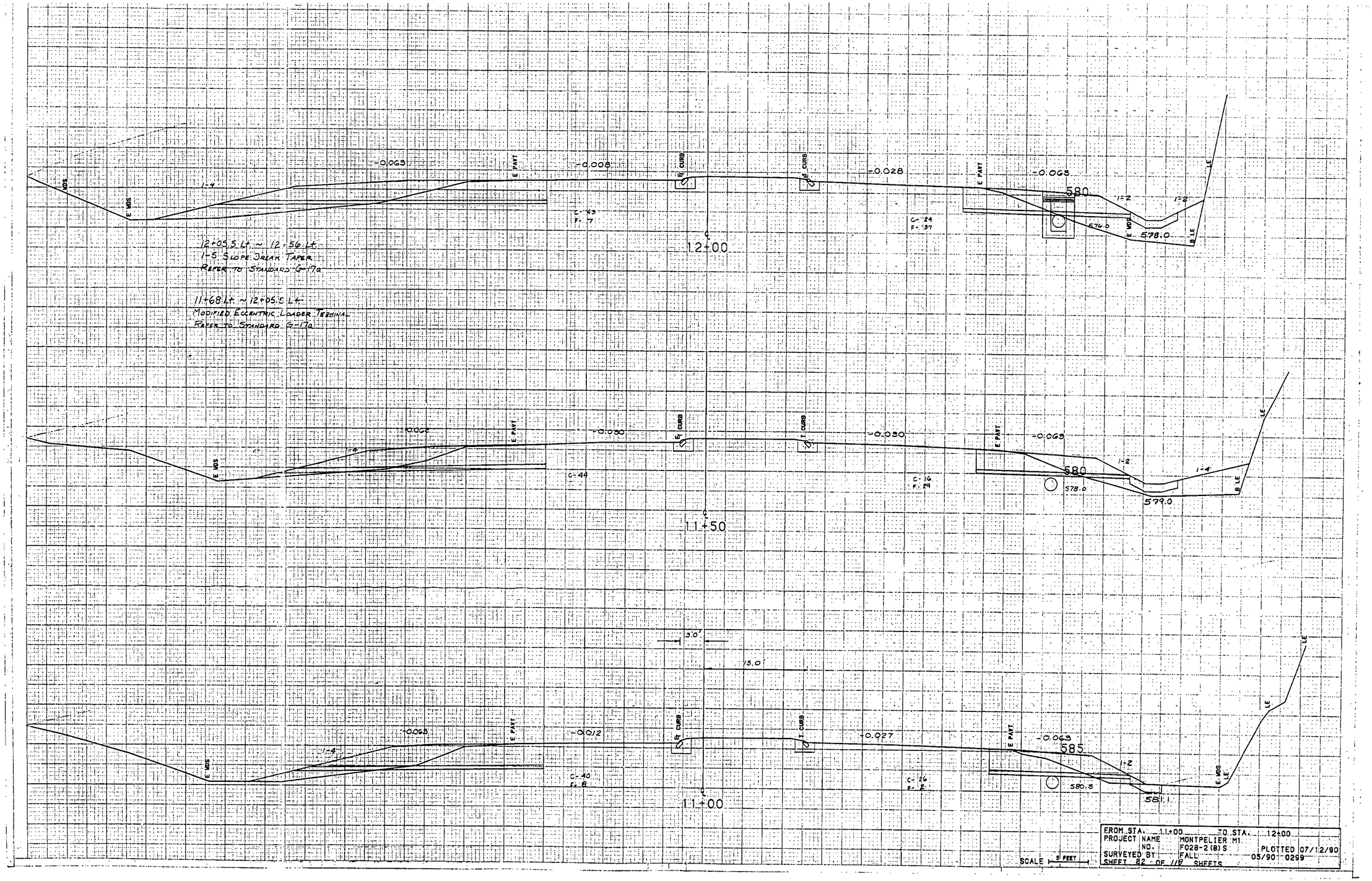

9+75 on 10+75 LT.
Construct Special Ditch w/ Stone Fill Type 1
To Be Bid For As Common Excavation

Note:
STA. 9+75 BEGIN 1:25
SHOULDER TAPER 8
LANE TAPER 0

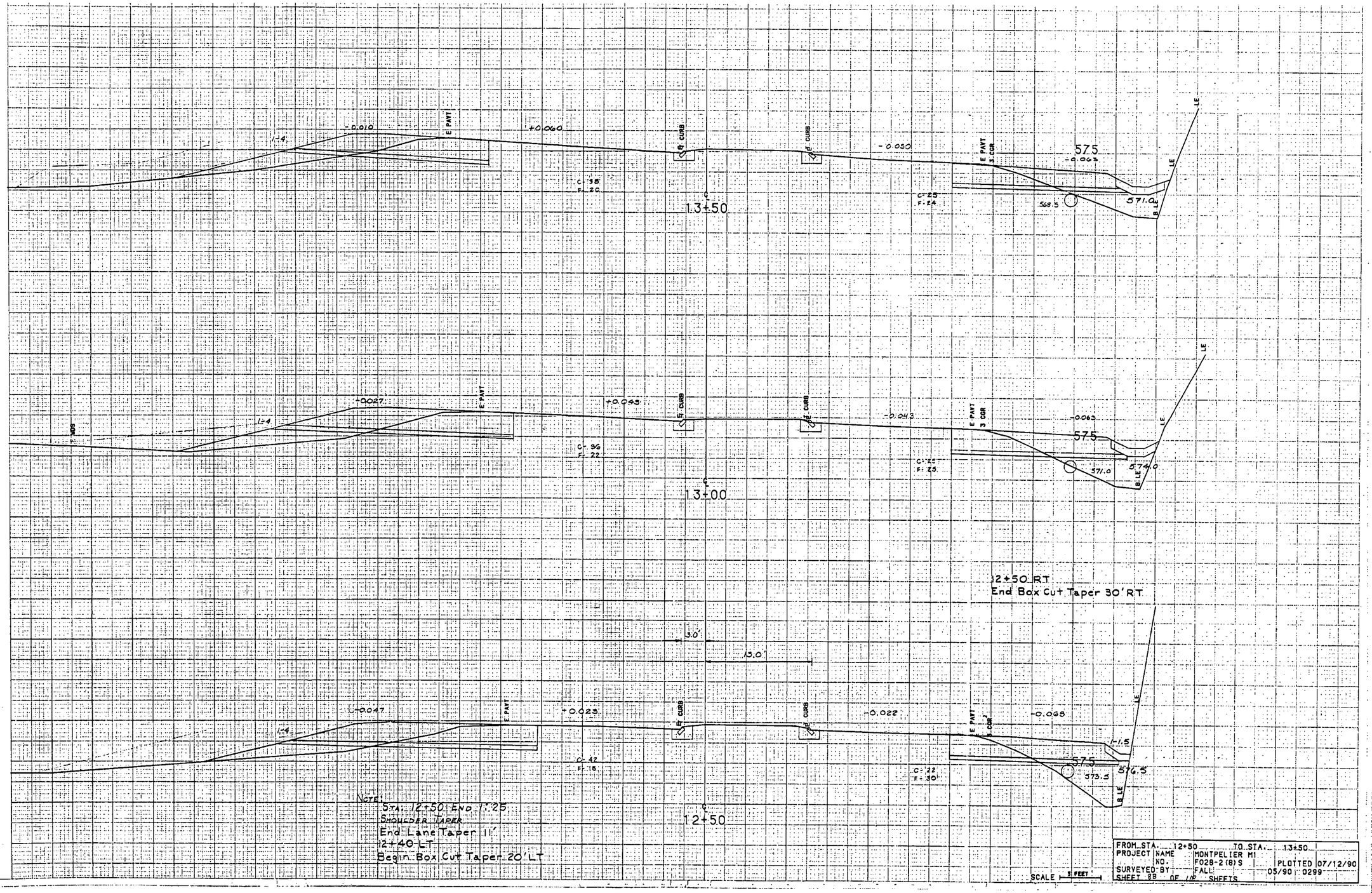
9+50 RT
Begin Box Cut Taper 1:25 42' RT

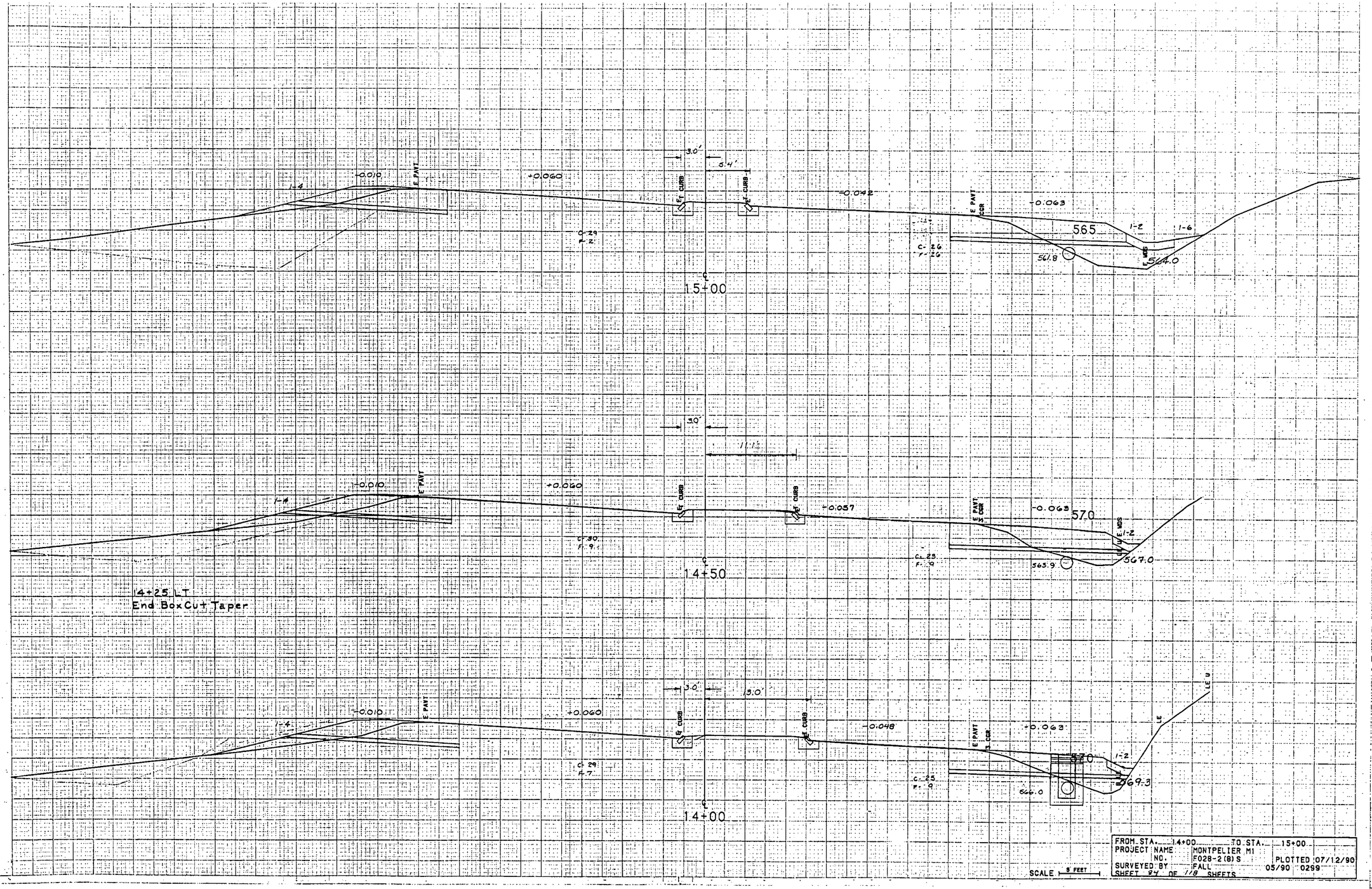
| | | | |
|---|---|---|---|
| FROM STA. 9+50 | | TO STA. 10+50 | |
| PROJECT NO. | NAME MONTPELIER M1<br>F028-2(8)S | PLOTTED 07/12/90 | |
| SURVEYED BY: | FALL | 05/90 | 0299 |
| SHEET 61 OF 118 SHEETS | | | |

SCALE 5 FEET

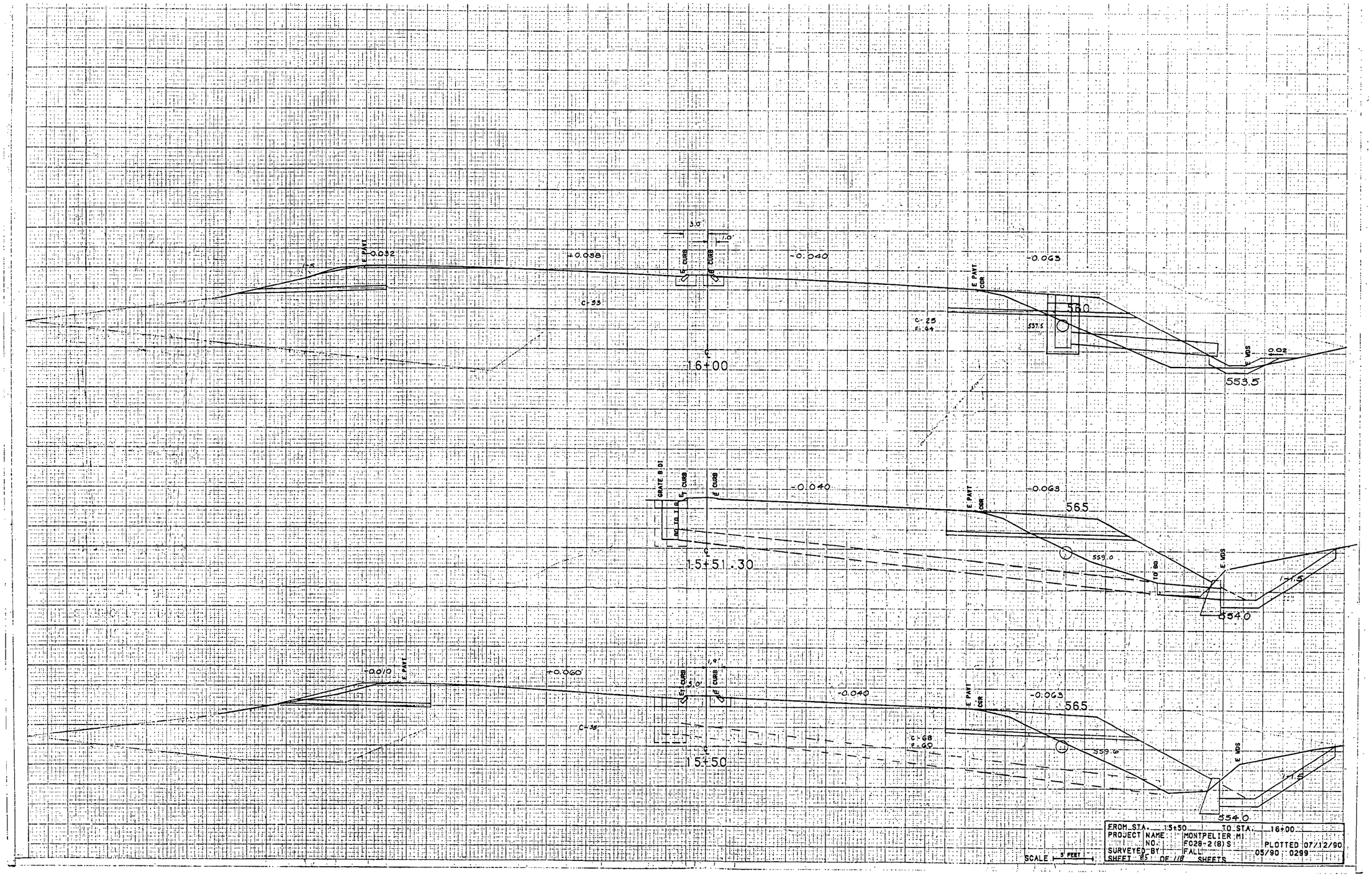


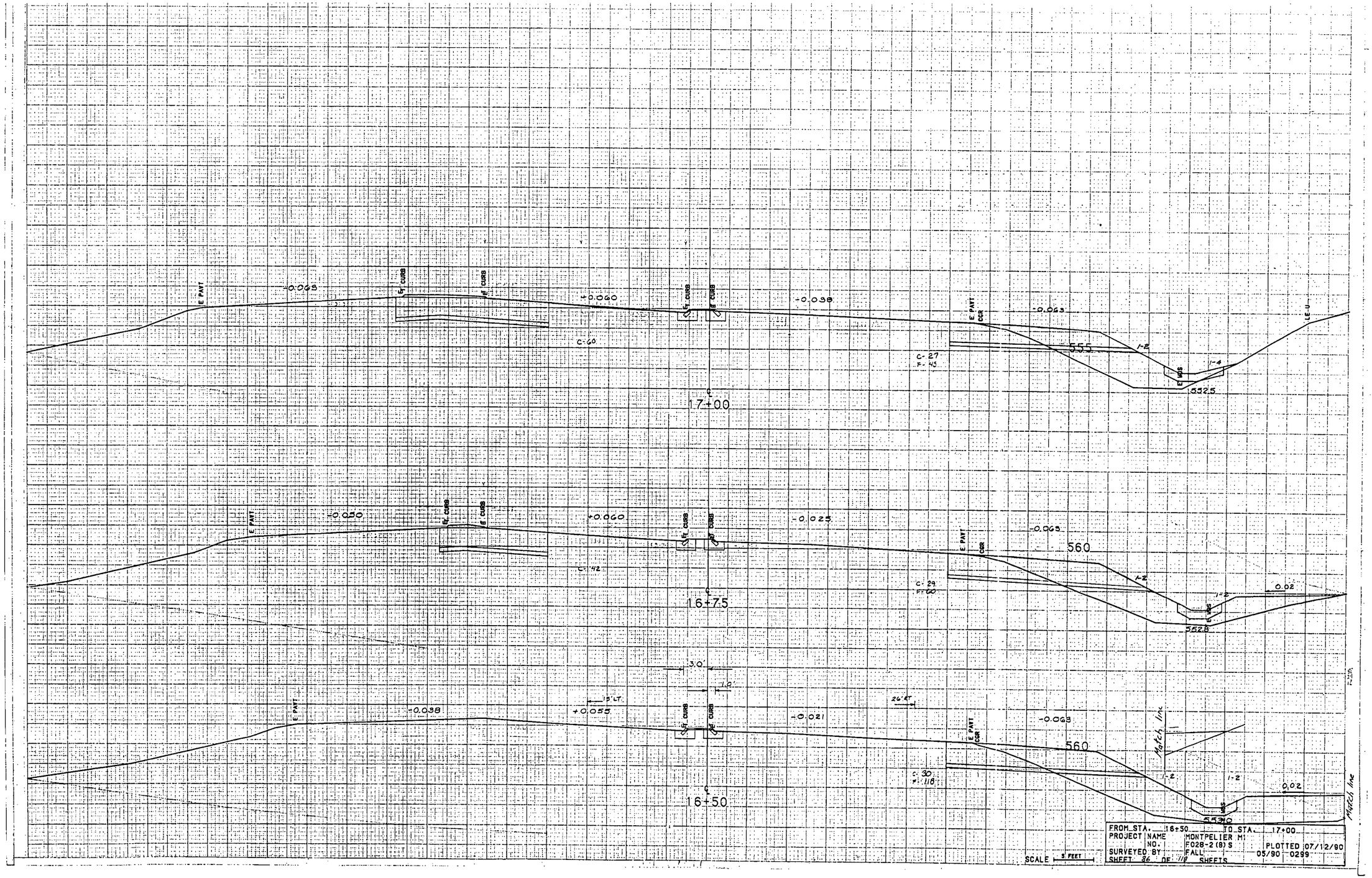

| | | | |
|---|---|---|---|
| FROM STA. | 11+00 | TO STA. | 12+00 |
| PROJECT NAME | MONTPELIER M1 | | |
| NO. | F028-2(8)S | PLOTTED | 07/12/90 |
| SURVEYED BY | FALL | | 05/90-0299 |
| SHEET 82 OF 119 SHEETS | | | |

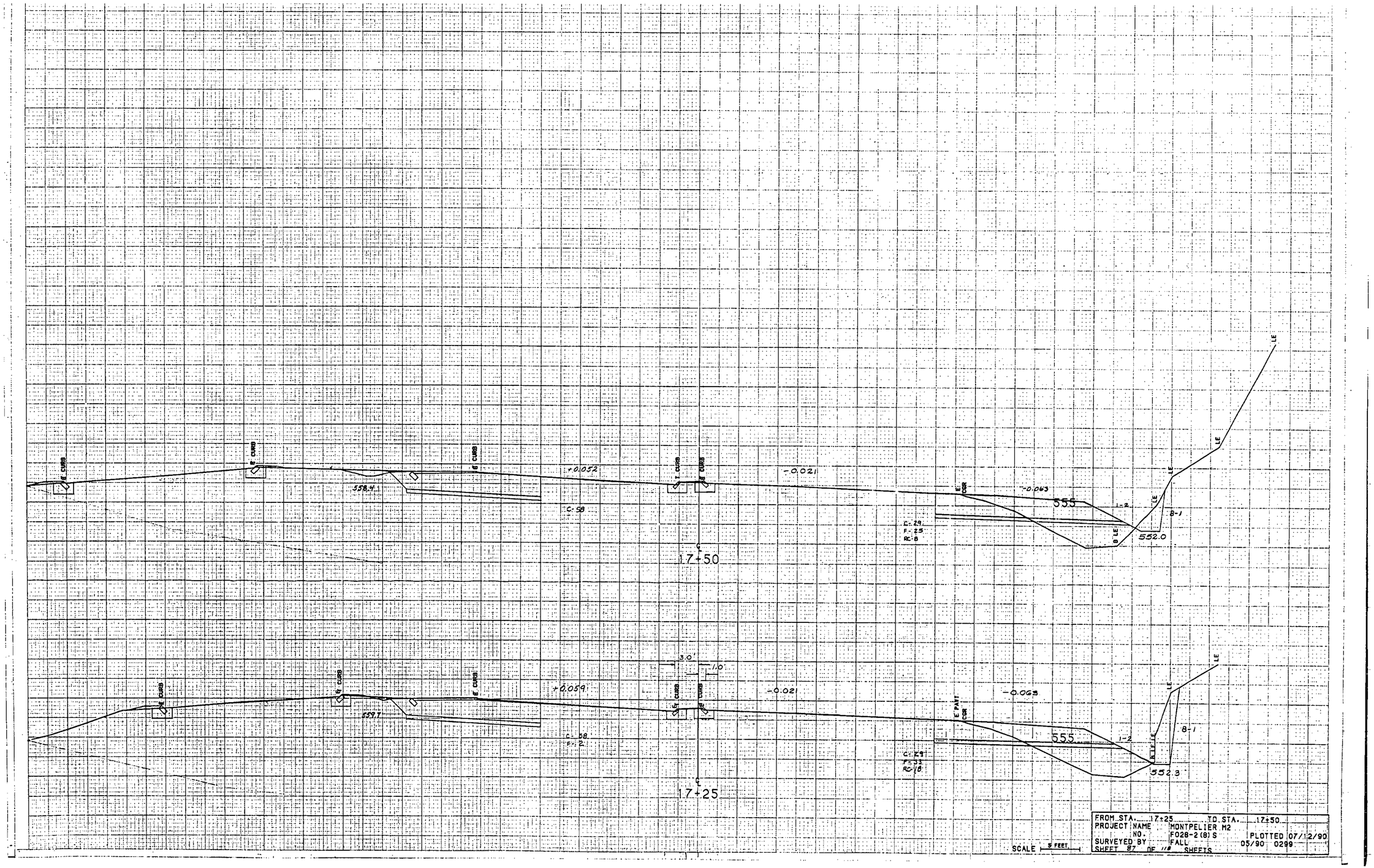

-0.010
E PAVT
+0.060
S CURB
E CURB
-0.050
E PAVT
3 CGR
57.5
-0.063
LE
C=35
F=20
1.3+50
C=25
F=24
568.5
571.0
B LE
+0.027
-0.043
+0.043
-0.063
575
571.0
574.0
1.3+00
12+50 RT
End Box Cut Taper 30' RT
3.0'
13.0'
-0.047
+0.023
-0.022
-0.065
1-1.5
575
573.5
576.5
C=42
F=18
C=22
F=30
1:4
100'
NOTE:
STA. 12+50 END 1:25
SHOULDER TAPER
END LANE TAPER 11'
12+40 LT
BEGIN BOX CUT TAPER 20' LT
12+50
FROM STA. 12+50 TO STA. 13+50
PROJECT NAME MONTPELIER M1
NO. F028-2(8)S
SURVEYED BY FALL 05/90 0299
PLOTTED 07/12/90
SHEET 89 OF 116 SHEETS
SCALE 5 FEET

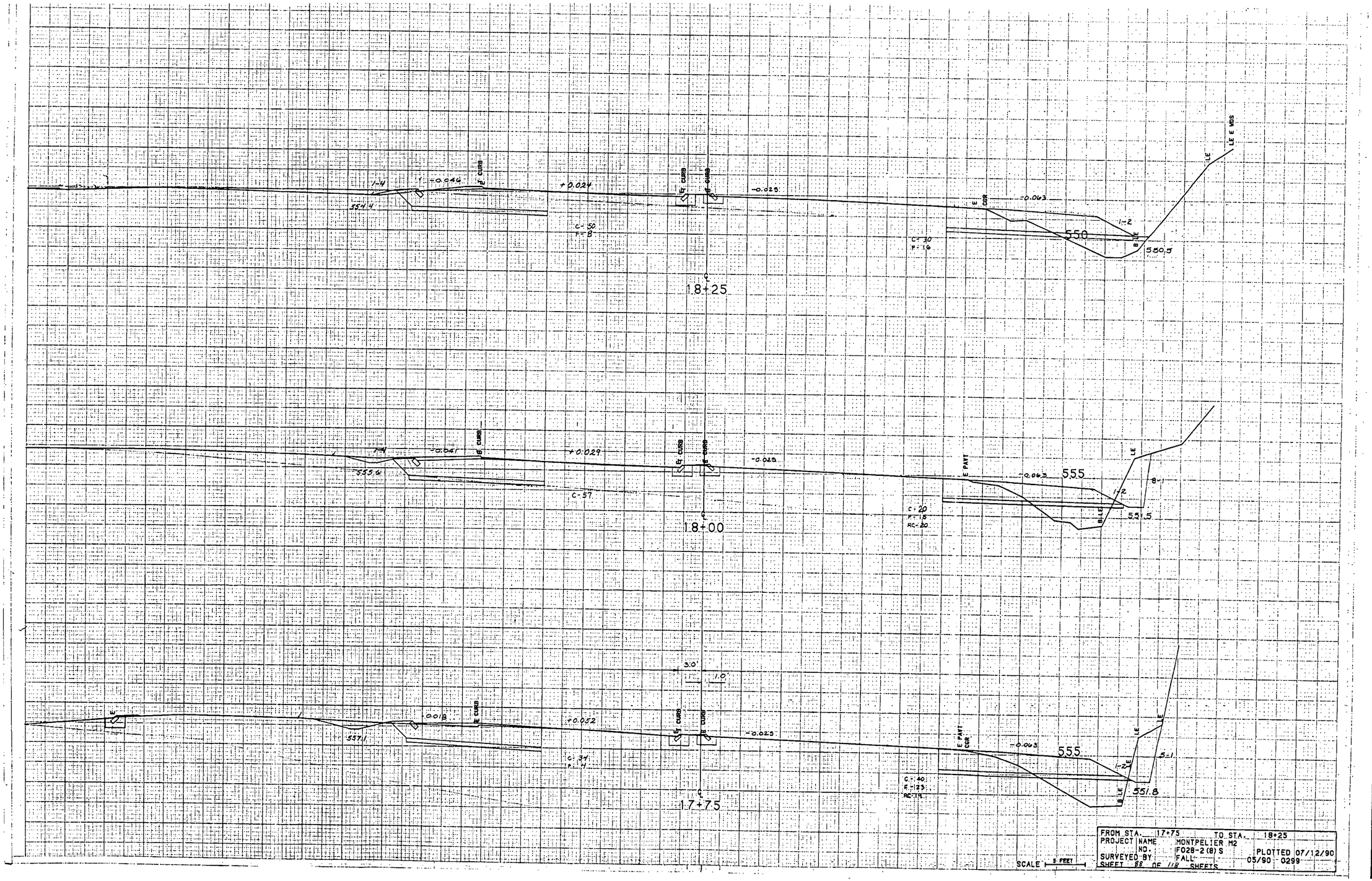



FROM STA. 14+00 TO STA. 15+00
PROJECT NAME MONTPELIER M1
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 84 OF 118 SHEETS


E PAVT
-0.032
+0.038
7.5
E CURB
3.0
1.0
-0.040
E PAVT
CGR
-0.063
C-55
C-25
F-04
560
537.5
E WDS
0.02
553.5
1.6+00
GRATE & DI
REQ TO TIE
E CURB
-0.040
E PAVT
CGR
-0.063
565
559.0
TO BG
E WDS
554.0
1.5+51.30
+0.010
E PAVT
+0.060
E CURB
3.0
1.0
E CURB
-0.040
E PAVT
CGR
-0.063
565
C-38
C-68
F-60
559.0
E WDS
554.0
1.5+50
SCALE 5 FEET
FROM STA. 1.5+50 TO STA. 16+00
PROJECT NAME: MONTPELIER MI
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 65 OF 118 SHEETS


E PAVT
-0.045
ST CURB
EP CURB
+0.040
-0.038
C-60
17+00
E PAVT
CGR
-0.063
555
C-27
F-43
I-R
EP CURB
I-4
3325
LE U
-0.030
ST CURB
EP CURB
+0.060
-0.025
C-42
16+75
E PAVT
CGR
-0.063
560
C-29
F-60
I-R
I-2
0.02
3528
3.0'
1.0'
15'LT.
+0.055
-0.038
ST CURB
EP CURB
-0.021
24'RT
E PAVT
CGR
-0.063
560
C-30
F-118
I-2
I-2
0.02
3530
16+50
Hatch Inc
Hatch Inc
SCALE 5 FEET
FROM STA. 16+50 TO STA. 17+00
PROJECT NAME MONTPELIER M1
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 86 OF 118 SHEETS


E CURB
E CURB
E CURB
E CURB
+0.052
-0.021
558.4
C: 58
17+50
E PAVT
CCR
-0.063
555
1-2
8-1
C: 29
F: 23
RC: 8
8 LE
552.0
LE
LE
LE
3.0'
1.0'
W CURB
E CURB
E CURB
E CURB
+0.059
-0.021
559.7
C: 58
F: 2
17+25
E PAVT
CCR
-0.063
555
1-2
8-1
C: 29
F: 23
RC: 18
8 LE
552.3
LE
LE
LE
SCALE 5 FEET.
FROM STA. 17+25 TO STA. 17+50
PROJECT NAME MONTPELIER M2
NO. F028-2(8)S
SURVEYED BY FALL 05/90 0299
PLOTTED 07/12/90
SHEET 87 OF 118 SHEETS


-0.040
1-4
554.4
E CURB
+0.024
C-50
F-8
-0.025
E CURB
E CURB
18+25
E PAVT
CGR
-0.043
1-2
550
C-30
F-16
550.5
LE
LE
LE E WDS
+0.029
-0.041
555.6
C-57
18+00
-0.025
E PAVT
-0.043
555
1-2
8-1
LE
551.5
C-20
F-15
RC-20
+0.052
0.018
557.1
C-34
F-14
17+75
3.0'
1.0'
E PAVT
CGR
-0.043
555
5-1
1-2
LE
LE
551.8
C-40
F-123
RC-114
FROM STA. 17+75 TO STA. 18+25
PROJECT NAME MONTPELIER M2
NO. FO28-2(8)S
SURVEYED BY FALL 05/90 PLOTTED 07/12/90
SHEET 88 OF 116 SHEETS 0299
SCALE 5 FEET

PTH

-0.055

T. CURB

+0.015

-0.015

E. CURB

-0.063

550

1:2

8:1

E. LE

LE

549.0

545.9

C-24
F-11
Rc-50

Inv. Elev. 547.10'

C-58

T.72

℄ 18+75

Grate Elev. 552.0

1:4

-0.055

T. CURB

+0.015

-0.030

E. CURB

-0.063

550

8:1

LE

LE E. MDS

LE U

549.5

546.3

C-58
F-10

Inv. Elev. 548.5

.53

546.8

REMOVE EXISTING D.I.

C-25
F-10
R-30

℄ 18+50

5.0'

1.0'

T. GRATE

LE CURB

T. CURB

-0.022

E. PAVT CDR

-0.062

550

8:1

LE

549.7

546.5

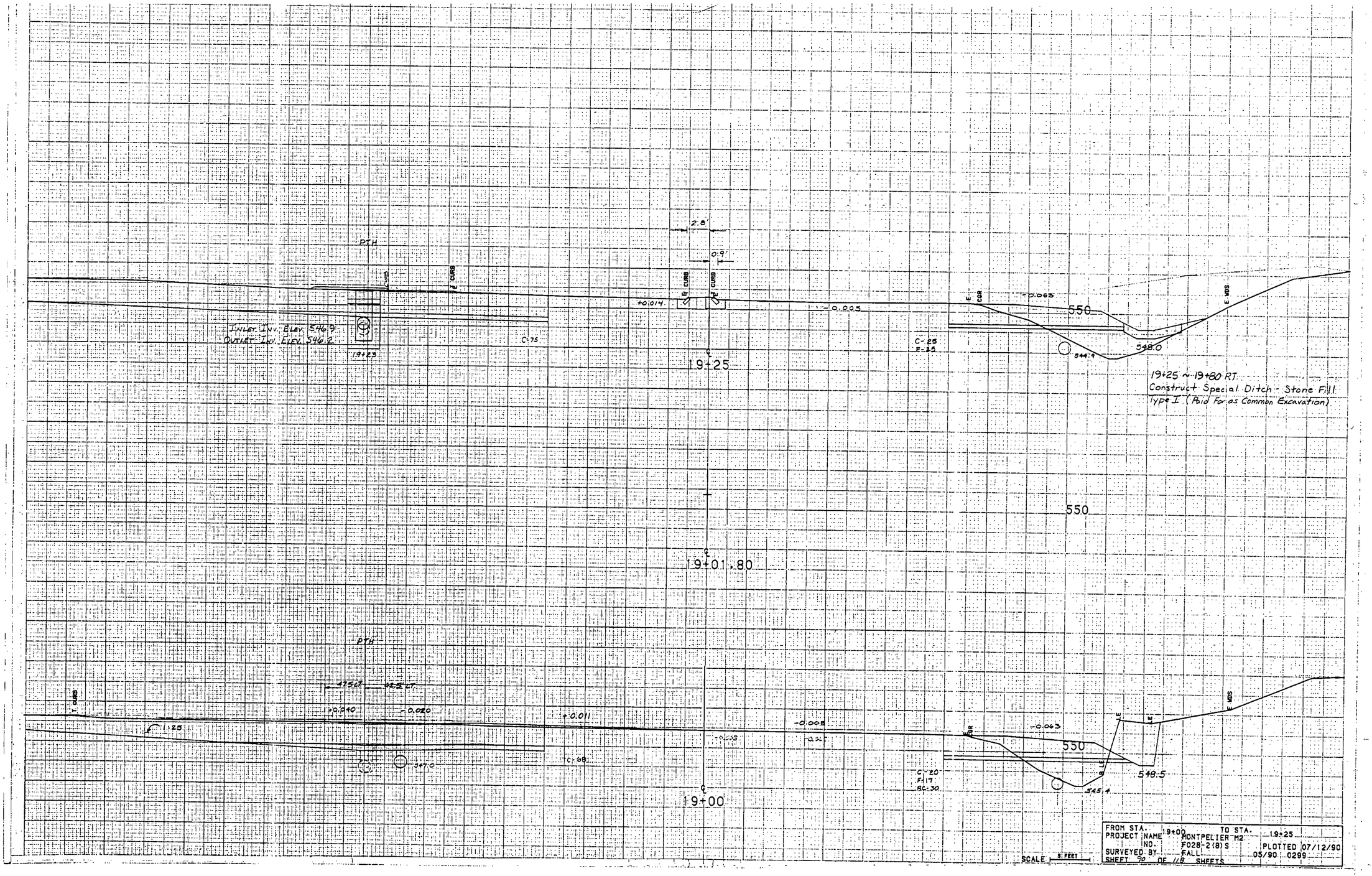
RD ID L.G.

CATCH BASIN

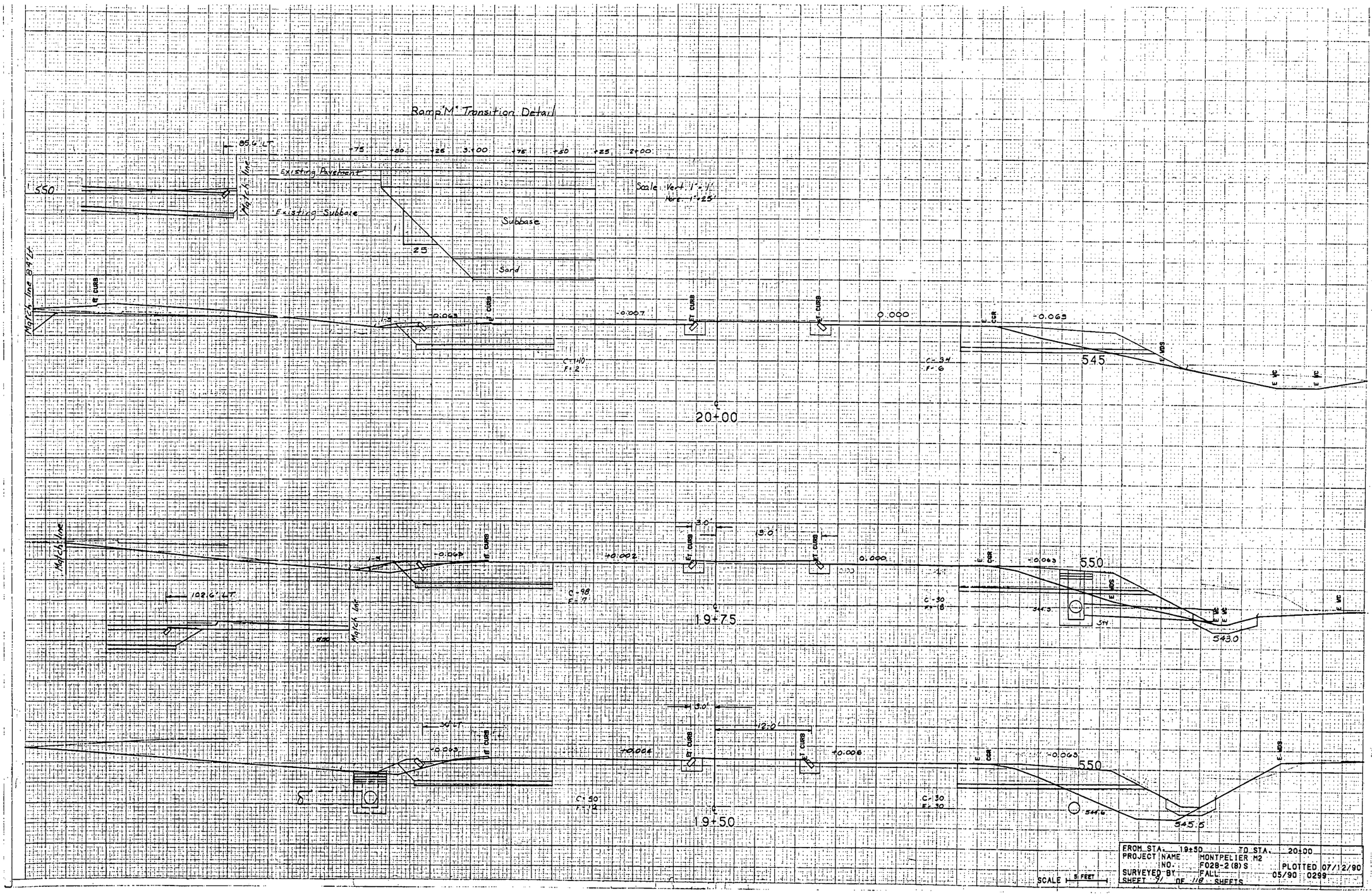
℄ 18+42.40

FROM STA. 18+42.40 TO STA. 18+75
PROJECT NAME MONTPELIER M2
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED-BY FALL 05/90 : 0289
SHEET 89 OF 118 SHEETS

SCALE 5 FEET


PTH
2.8'
0.9'
2' CURB
2' CURB
+0.014
-0.005
INLET INV. ELEV. 546.9
OUTLET INV. ELEV. 546.2
19+23
C-75
19+25
E. CURB
-0.063
550
548.0
544.9
E. SIDE
19+25 ~ 19+80 RT
Construct Special Ditch - Stone Fill
Type I (Paid For as Common Excavation)
PTH
47.5 LT
42.2 LT
+0.040
-0.020
+0.011
-0.008
1.25
347.0
C-68
19+00
C-20
F-17
BC-30
550
548.5
545.4
FROM STA. 19+00 TO STA. 19+25
PROJECT NAME MONTPELIER M2
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 90 OF 118 SHEETS
SCALE 5 FEET

# Ramp 'M' Transition Detail




FROM STA. 19+50 TO STA. 20+00
PROJECT NAME MONTPELIER M2
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 27 OF 118 SHEETS

PTH

RAMP M
1+72.5
66.5' LT
48.1 LT
27.5' LT

-0.038
-0.055
-0.104
-0.038
-0.017
-0.060
-0.014
0.000
-0.063

Rt. CURB
T. CURB
E. EOR
E. EOS
E. WC
E. WG
E. CURB
T. CURB
Rt. CURB
T. CURB
E. EOR
E. EOS
E. WC
E. WG
E. CURB
T. CURB
Rt. CURB
T. CURB
E. EOR
E. EOS

C=50
C=55
F=12
C=30
F=10
C=60
C=38
F=35
C=30
F=10
C=32
F=7

540
545
545
545
545

20+75
20+50
20+25

MATCHLINE
+85 LT
MATCHLINE
+85 LT

RAMP M
1+79.6
74.8 LT
39.0 LT
PTH
50.35
MATCHLINE
-80 LT
MATCHLINE
80 LT

RAMP M
2+27.6
83.4 LT

1-2
1-2
1-2
1-2

INV. ELEV.
MATCHLINE
80 LT

20+25 - 21+60 LT
Stone Fill, Type II For
Slope Stabilization
20+41 - 20+91 LT
Cond Taper .25

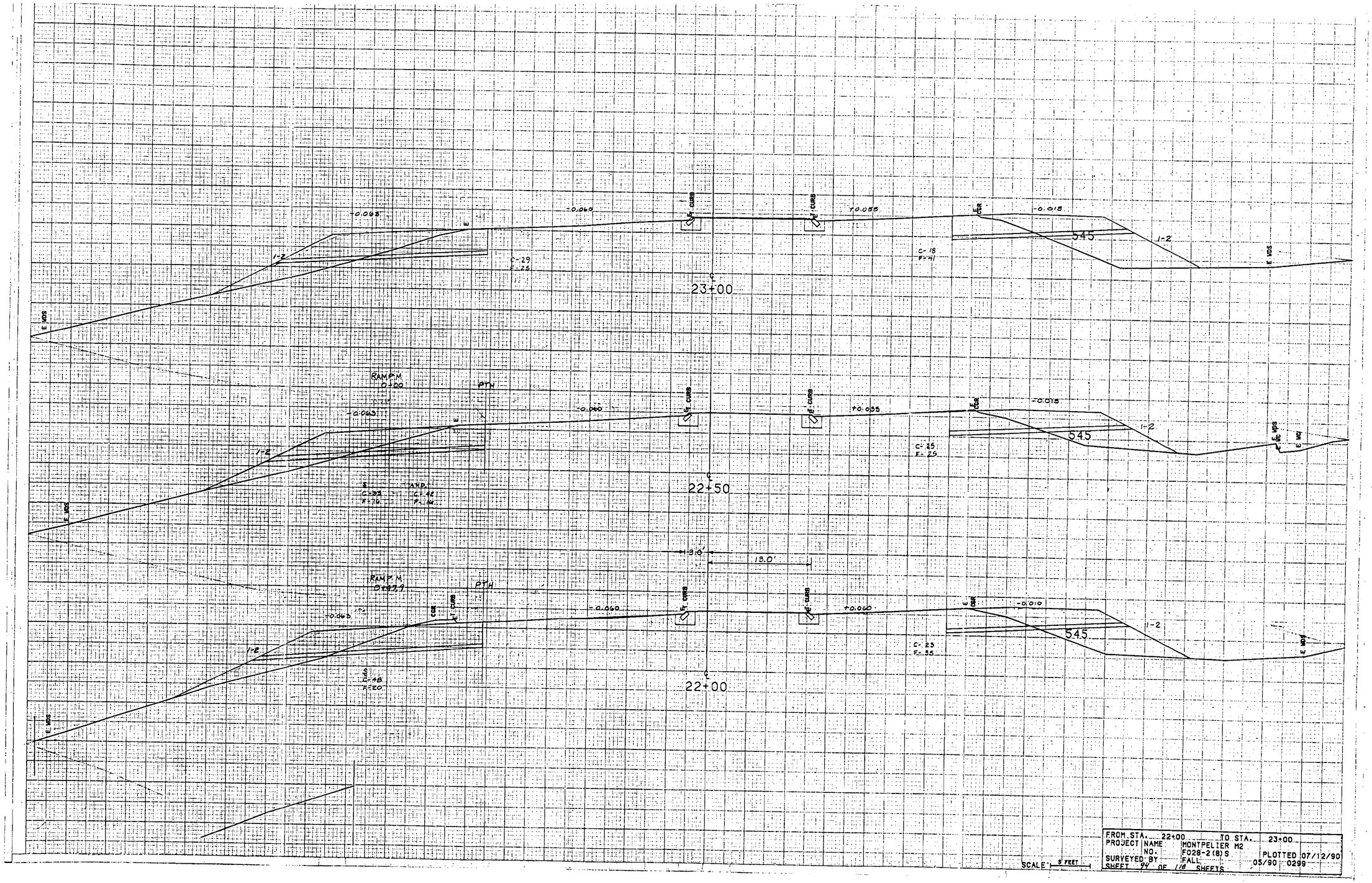
FROM STA. 20+25 TO STA. 20+75
PROJECT NAME MONTPELIER M2
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 92 OF 118 SHEETS

SCALE 1" = 5 FEET

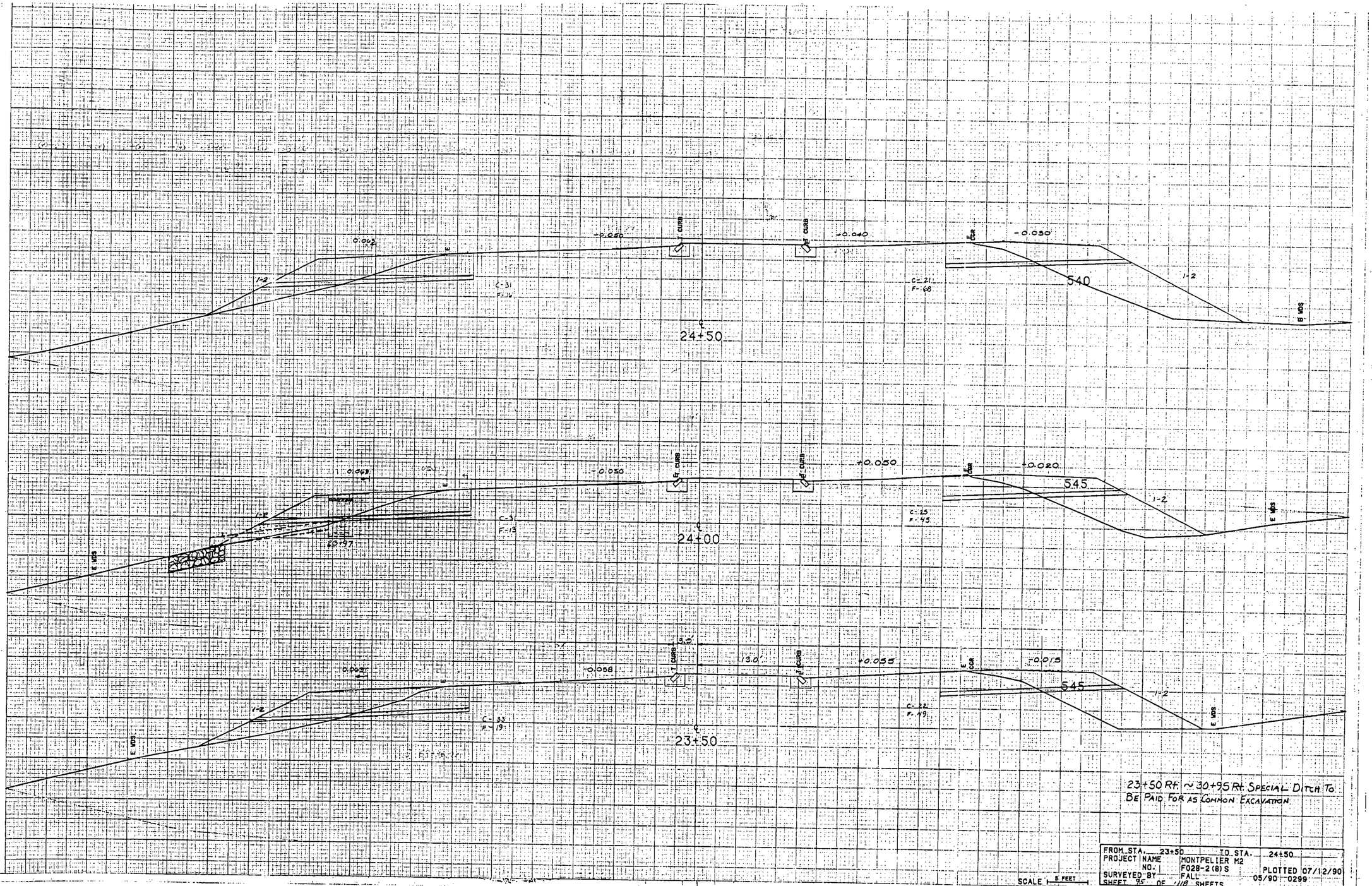
Ramp M
1763' Lt.
PTH
-0.049
T. CURB
CGR
1-1.5
INV. ELEV. 538.5
+55
0+95.93
C-48
F-108
E. MDS
Ramp M
50.94' Lt.
-0.044
T. CURB
T. GRATE
C-18
F-108
1-1.5
C-45
F-108
1+14.84
Ramp M
68.53' Lt.
PTH
-0.035
C-30
INV. ELEV. 539.2
@ 20+90
1+46.24
80' Lt.
530
C-53
F-71
T. CURB
T. GRATE
(60) TO REMOVE
E. CURB
+0.040
-0.030
545
1-2
C-68
F-115
21+50
525
532.8
+0.030
+0.040
545
1-2
C-25
F-48
21+30.50
525
3.0'
3.0'
E. CURB
+0.018
-0.055
545
1-2
C-33
F-4
21+00
545
20+76.70
21+20 Rt. ~ 21+46 Rt. Special Ditch
To Be Paid For As Common Excavation

| | | | |
|---|---|---|---|
| FROM STA. | 20+76.70 | TO STA. | 21+50 |
| PROJECT NAME | MONTPELIER M2 | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | | 05/90 0289 |
| SHEET 93 OF 118 SHEETS | | | |

SCALE 5' FEET



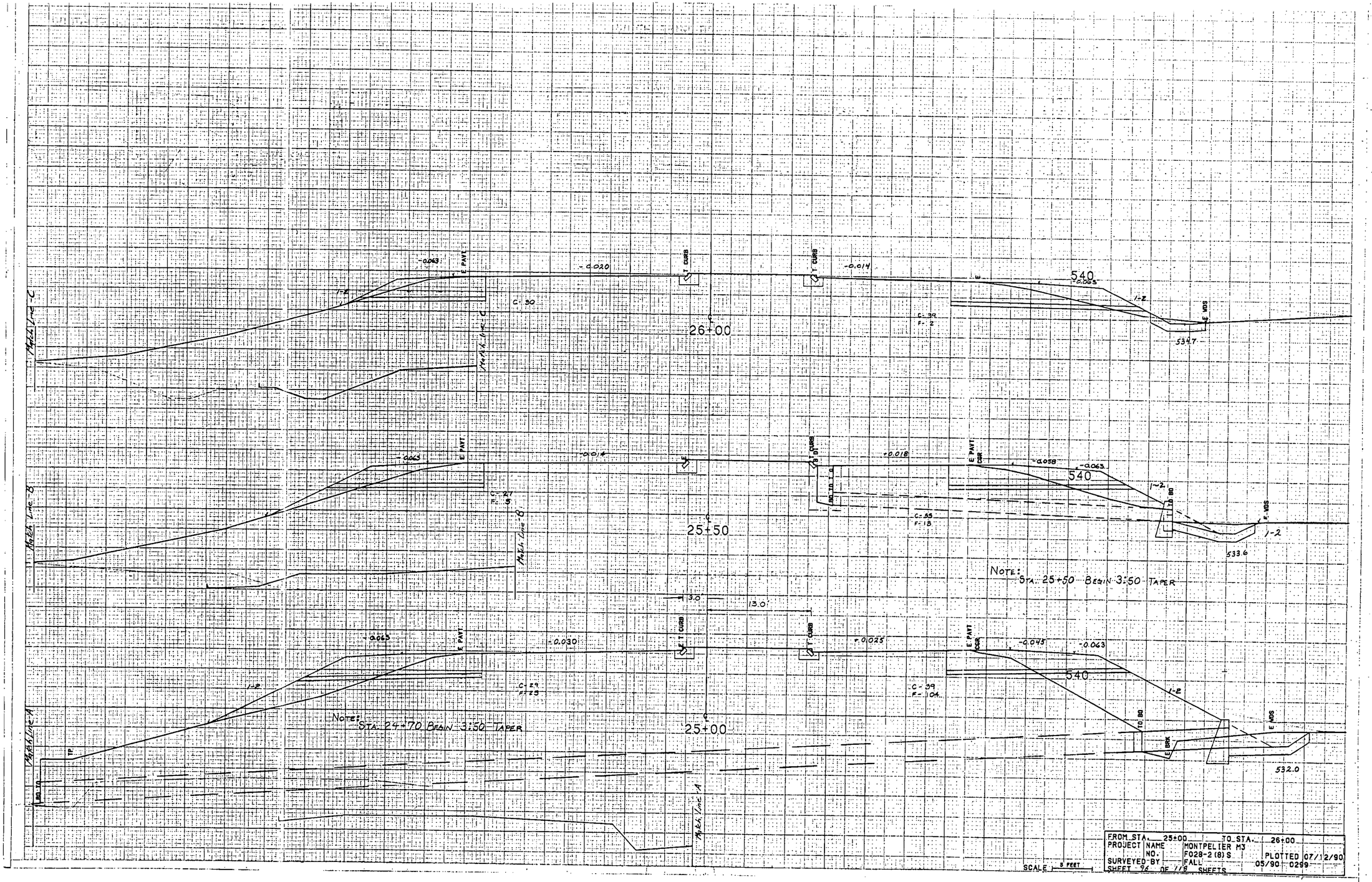

| | | | |
|---|---|---|---|
| FROM STA. 22+00 | | TO STA. 23+00 | |
| PROJECT NAME | MONTPELIER M2 | | |
| NO. | FO28-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | | 05/90 0299 |
| SHEET 94 OF 118 SHEETS | | | |

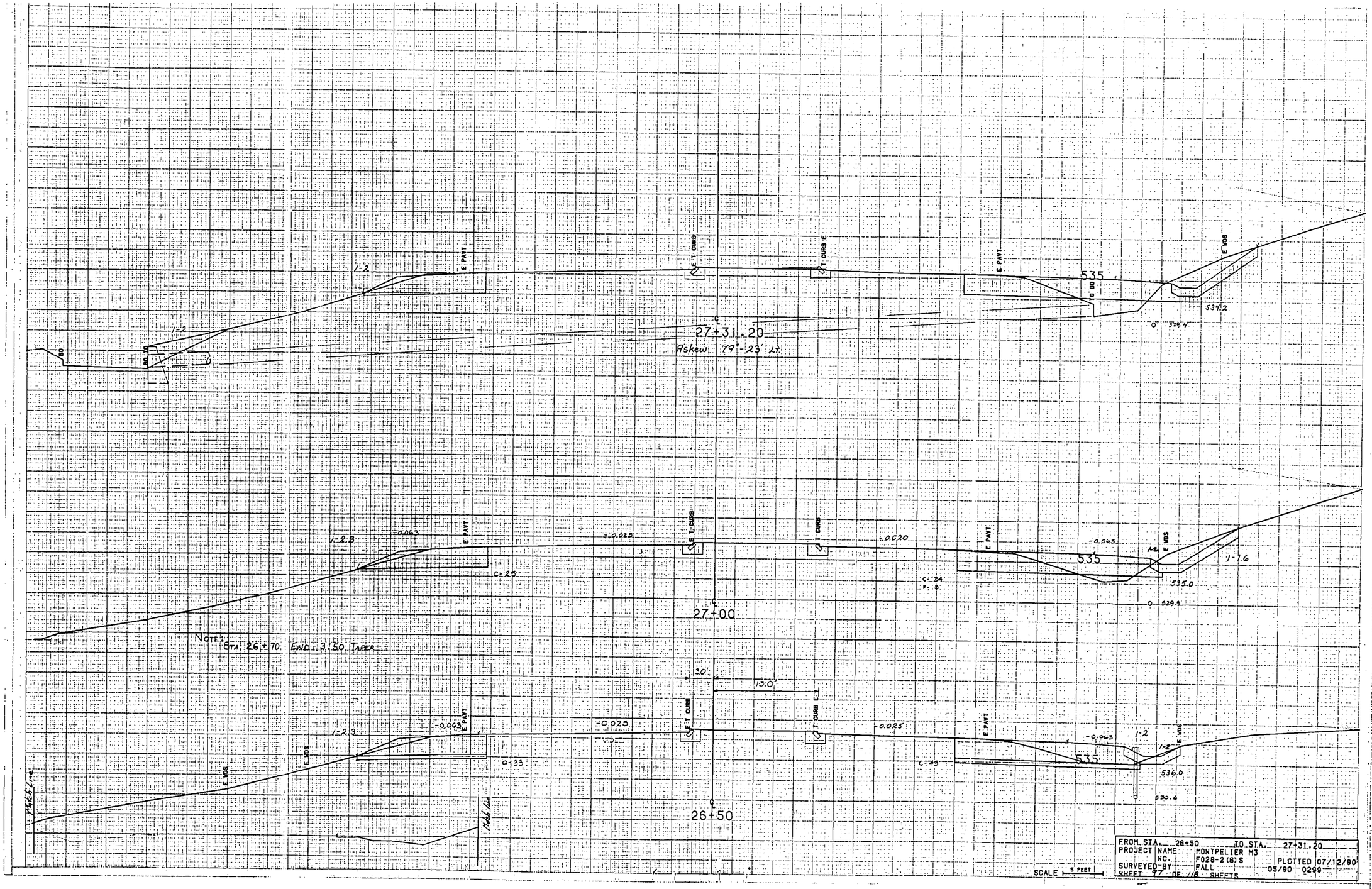


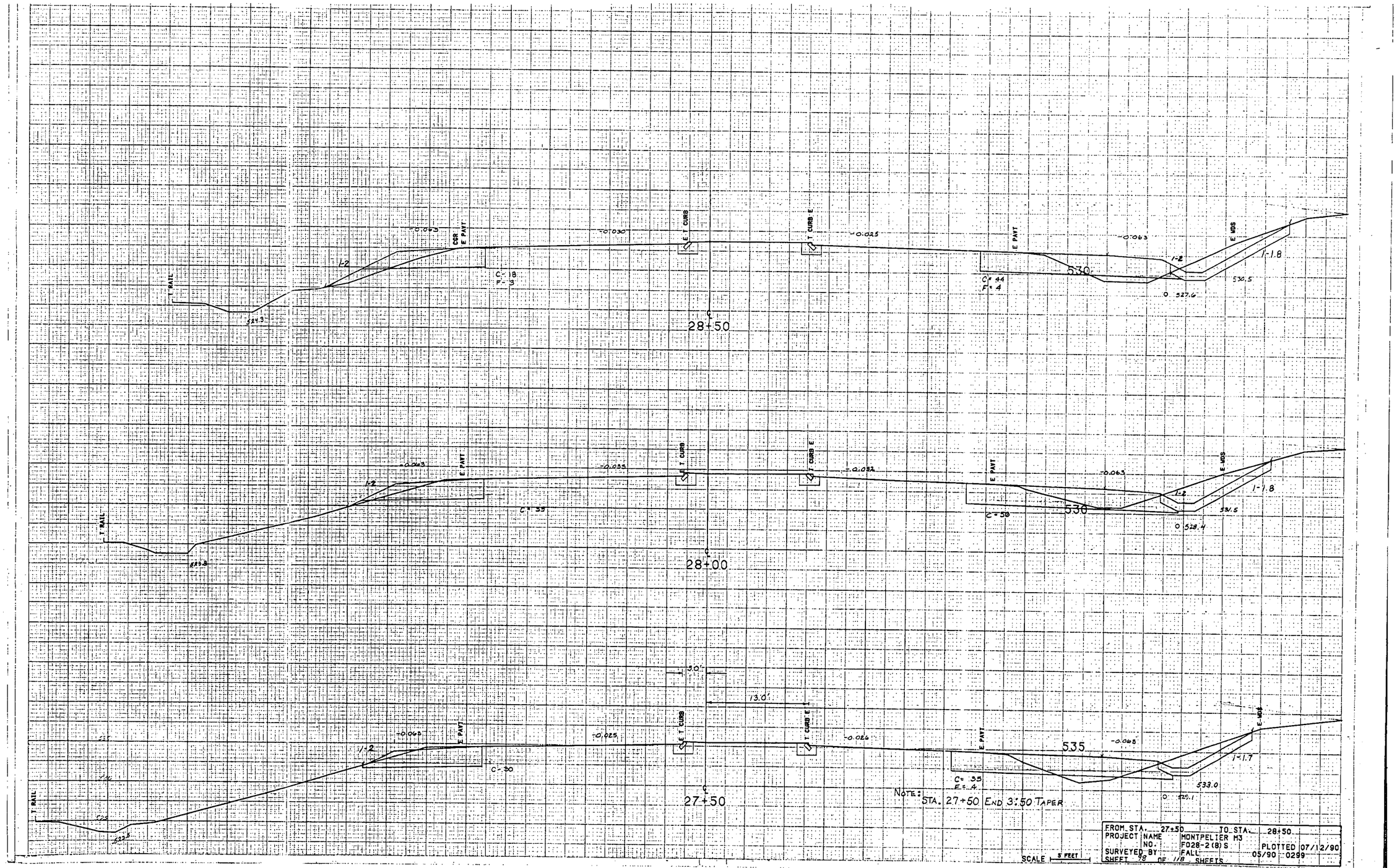

23+50 Rt. ~ 30+95 Rt. Special Ditch To Be Paid For As Common Excavation

| | | | |
|---|---|---|---|
| FROM STA. 23+50 | | TO STA. 24+50 | |
| PROJECT NAME | MONTPELIER M2 | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 95 OF 108 SHEETS | | | |

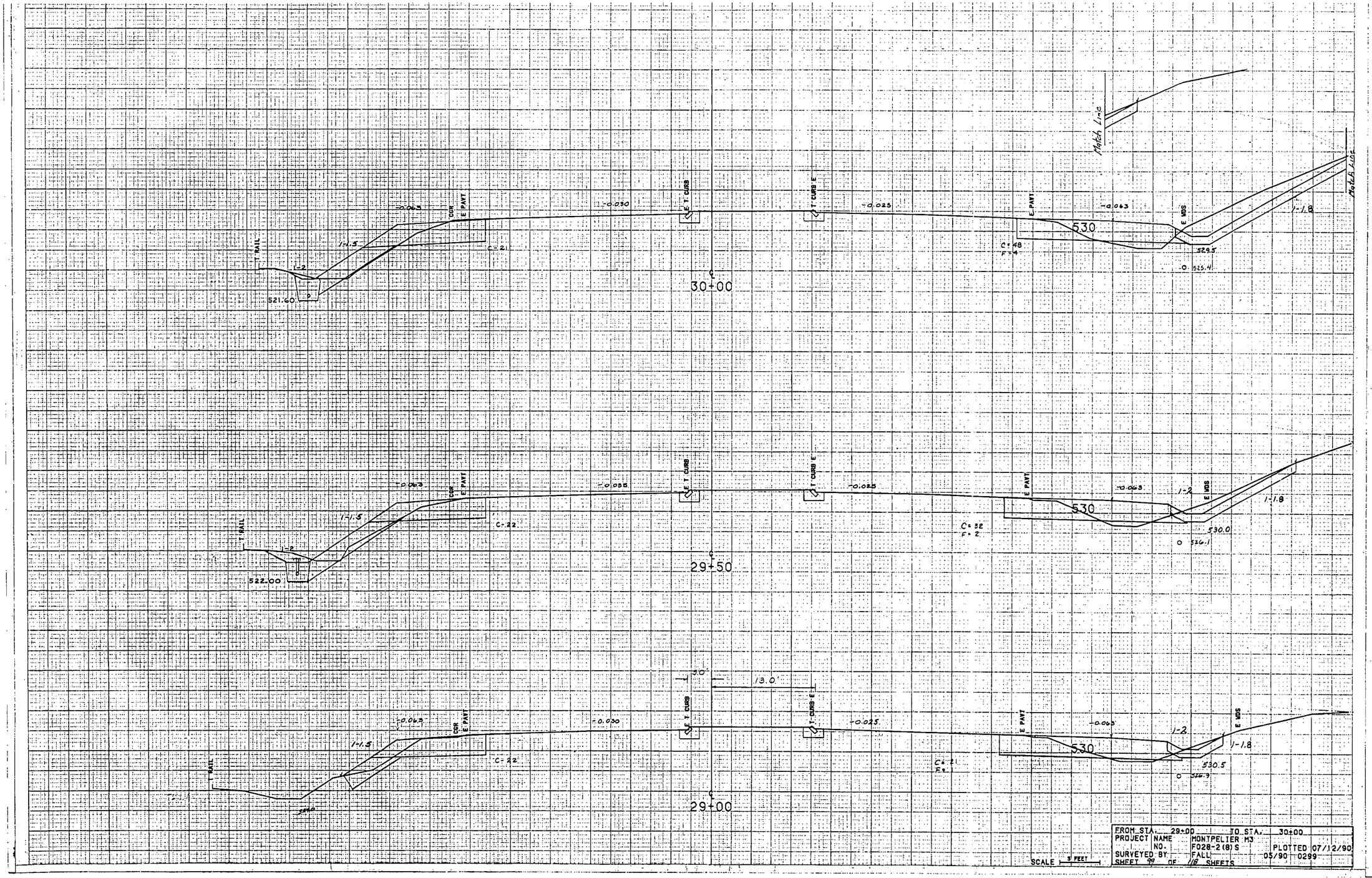
SCALE 5 FEET


Match Line A
Match Line B
Match Line C
E PAVT.
T CURB
TP
E DRK
E WDS
-0.063
-0.020
-0.014
-0.005
-0.018
-0.058
-0.030
-0.025
-0.045
1-2
C= 50
C= 33
F= 2
C= 55
F= 18
C= 39
F= 104
C=29
F=73
540
533.7
533.6
532.0
26+00
25+50
25+00
3.0'
13.0'
Note: Sta. 24+70 Begin 3:50 Taper
Note: Sta. 25+50 Begin 3:50 Taper
FROM STA. 25+00 TO STA. 26+00
PROJECT NAME MONTPELIER MJ
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0299
SHEET 9A OF 11 SHEETS
SCALE 5 FEET

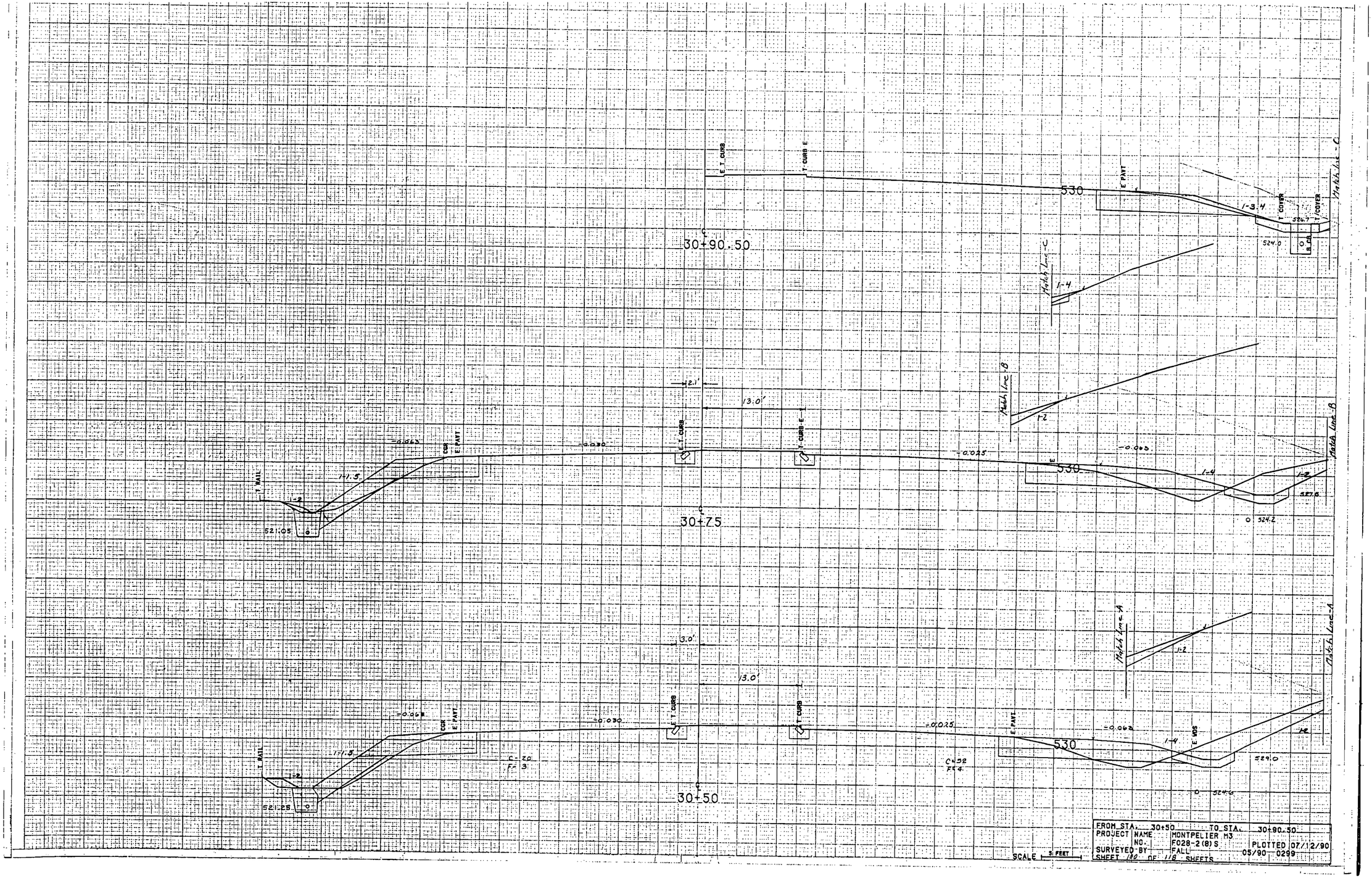

1:2
E PAVT
E T CURB
E T CURB
E PAVT
535
E WDS
534.2
529.4
27+31.20
Askew 79°-23' Lt.
1:2
BD
RD
0
1:2.8
-0.063
E PAVT
-0.025
E T CURB
T CURB
-0.020
E PAVT
-0.063
1:2
E WDS
1:1.6
C=.25
C=.34
r=.5
535
535.0
529.4
27+00
NOTE: STA. 26+70 END 3.50 TAPER
30
13.0
1:2.3
-0.063
E PAVT
-0.025
E T CURB
T CURB
0.025
E PAVT
-0.063
1:2
1:2
E WDS
E WDS
C=.33
C=.13
535
536.0
530.4
Field Line
Field Line
26+50
FROM STA. 26+50 TO STA. 27+31.20
PROJECT NAME MONTPELIER M3
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED BY FALL 05/90 0298
SHEET 77 OF 118 SHEETS
SCALE 1" = 5 FEET

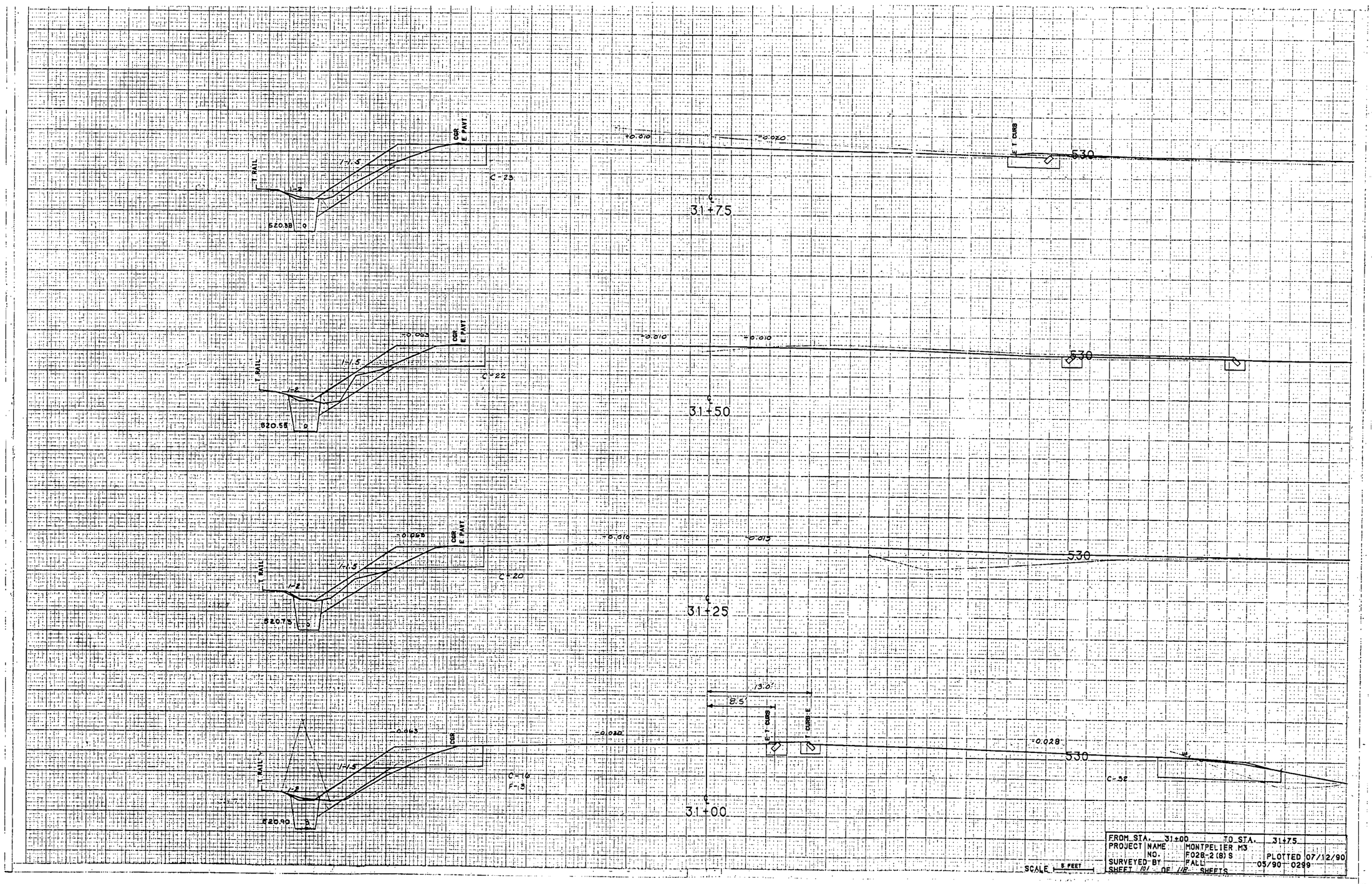



| | | | |
|---|---|---|---|
| FROM STA. 27+50 | | TO STA. 28+50 | |
| PROJECT NO. | NAME MONTPELIER M3 | F028-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY FALL | | 05/90 0299 | |
| SHEET 78 OF 118 SHEETS | | | |

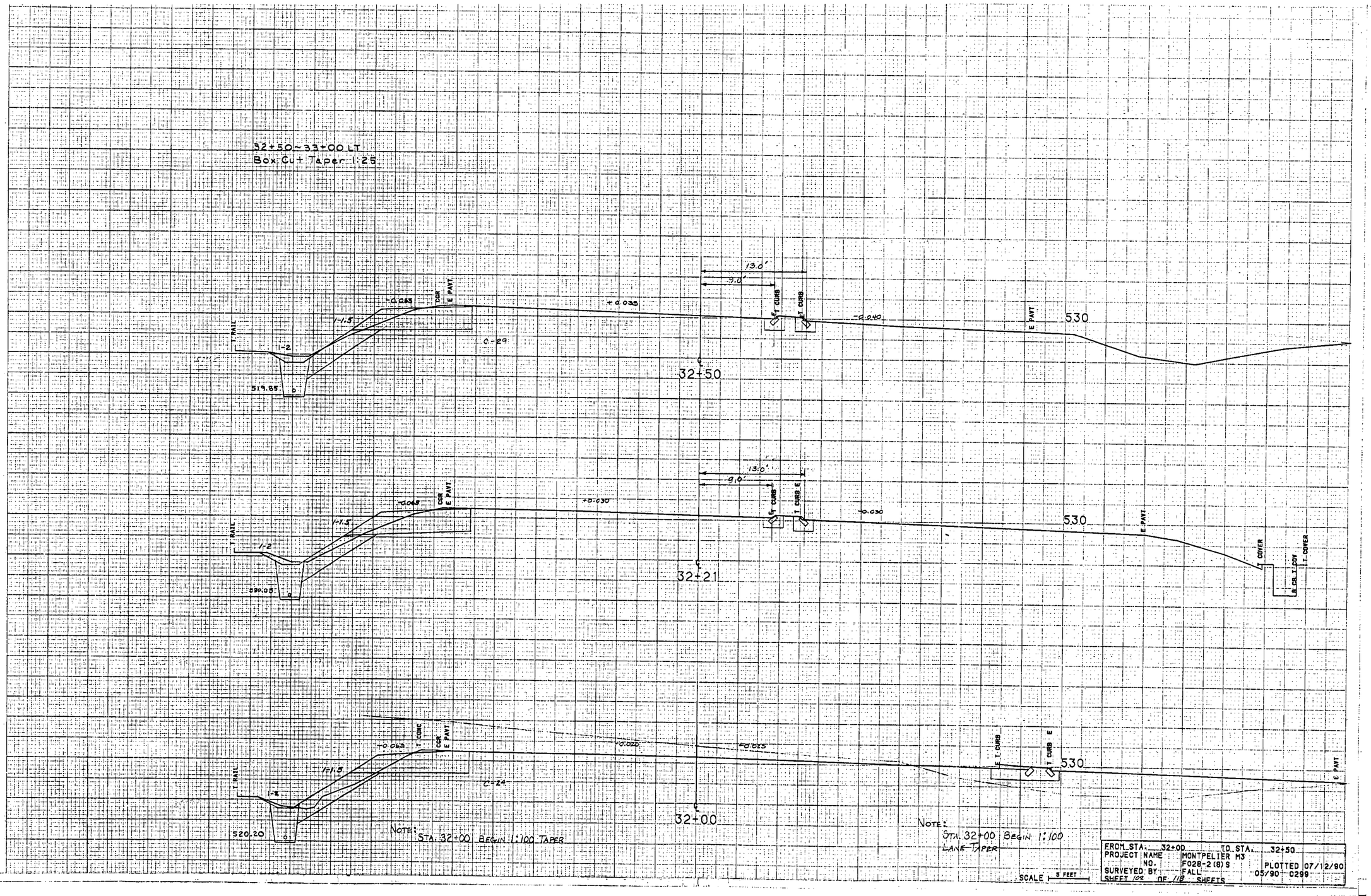



| | | | |
|---|---|---|---|
| FROM STA. 29+00 | | TO STA. 30+00 | |
| PROJECT NAME | | MONTPELIER M3 | |
| NO. | | F028-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY: | | FALL | 05/90 0299 |
| SHEET 99 | OF 118 SHEETS | | |


E T CURB
T CURB E
E PAVT
T COVER
T RAIL
COR
E PAVT
E T CURB
T CURB E
E T CURB
T CURB
E PAVT
E
E
E


T RAIL
1:1.5
1:2
520.38
0
CGR
E PAVT
-0.020
-0.010
C-23
℄
3.1+75
E T CURB
530
-0.063
-0.010
-0.010
T RAIL
1:1.5
1:2
520.55
0
CGR
E PAVT
C-22
℄
3.1+50
530
-0.066
-0.010
-0.013
T RAIL
1:1.5
1:2
520.73
0
CGR
E PAVT
C-20
℄
3.1+25
530
13.0'
8.5'
E T CURB
T CURB-E
-0.063
-0.022
-0.028
T RAIL
1:1.5
1:2
520.90
0
CGR
C-16
F-8
℄
3.1+00
530
C-58
SCALE 5 FEET
FROM STA. 3.1+00 TO STA. 3.1+75
PROJECT NAME MONTPELIER M3
NO. F028-2(8)S
SURVEYED BY FALL PLOTTED 07/12/90
SHEET 10 OF 12 SHEETS 05/90-0299

32+50 ~ 33+00 LT
Box Cut Taper 1:25

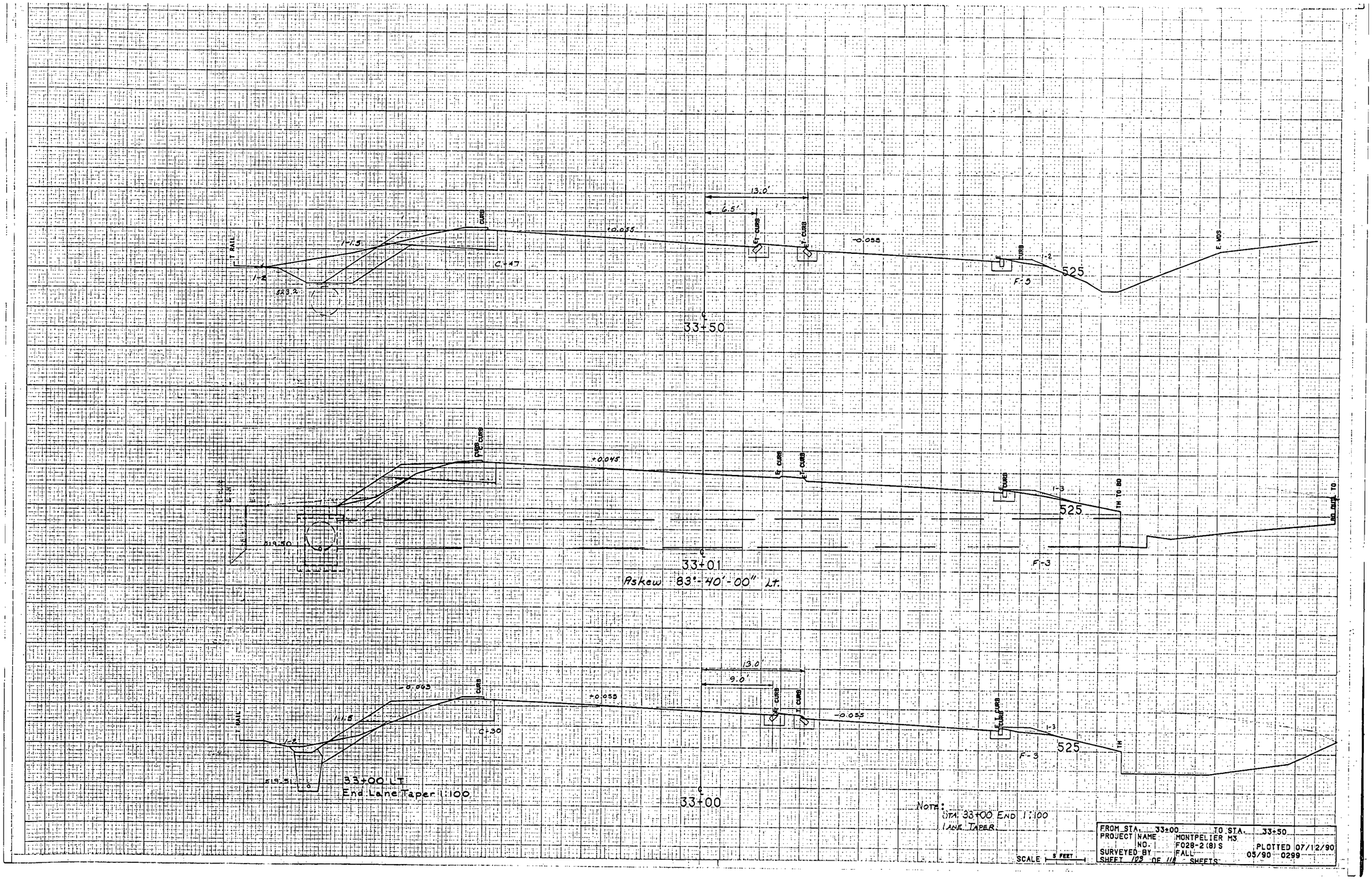



NOTE: STA. 32+00 BEGIN 1:100 TAPER

NOTE: STA. 32+00 BEGIN 1:100 LANE TAPER

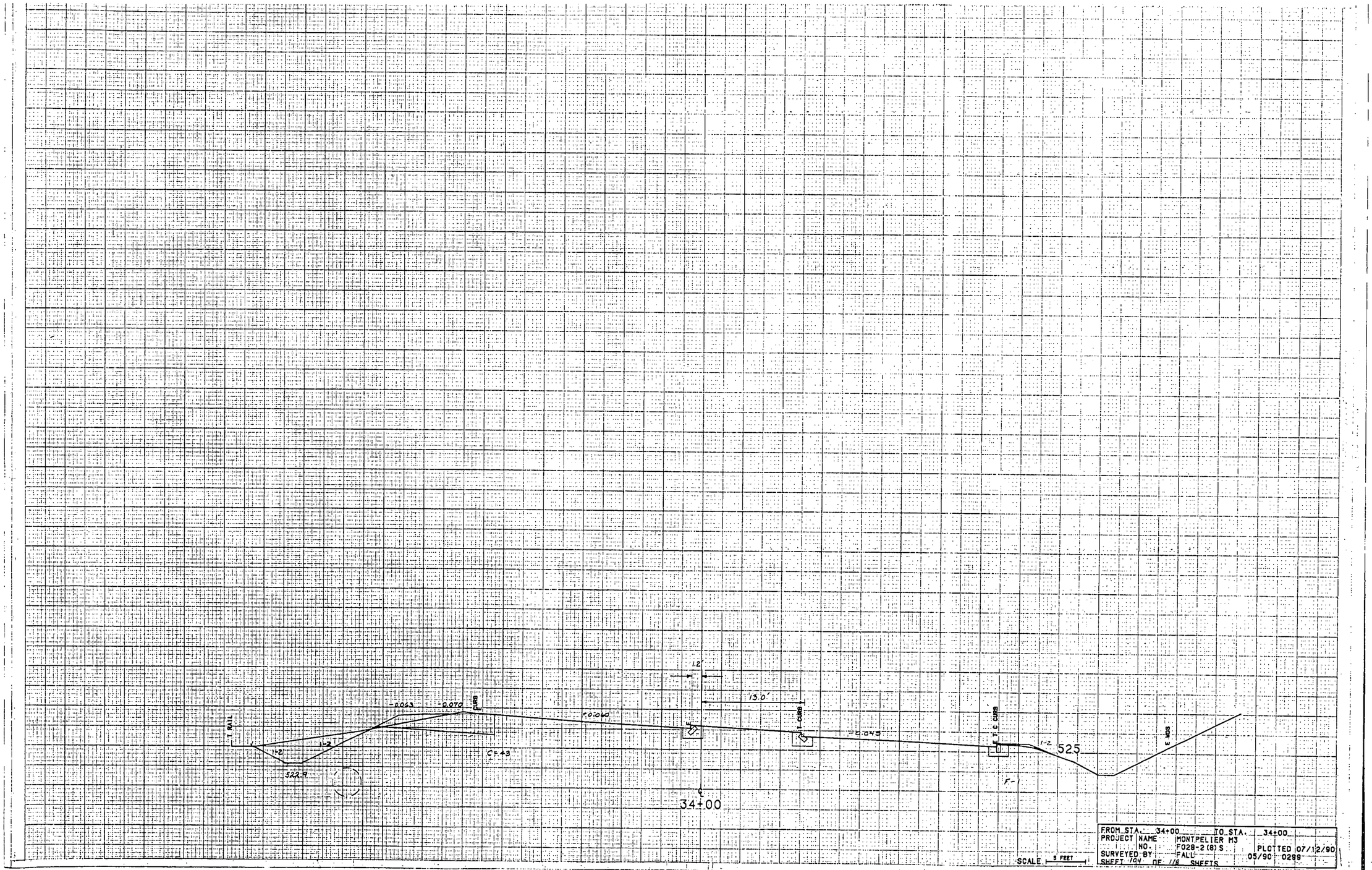
SCALE 5 FEET

| | | | |
|---|---|---|---|
| FROM STA. 32+00 | | TO STA. 32+50 | |
| PROJECT NO. | NAME MONTPELIER M3<br>F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | | 05/90-0299 |
| SHEET 10A OF 10 SHEETS | | | |



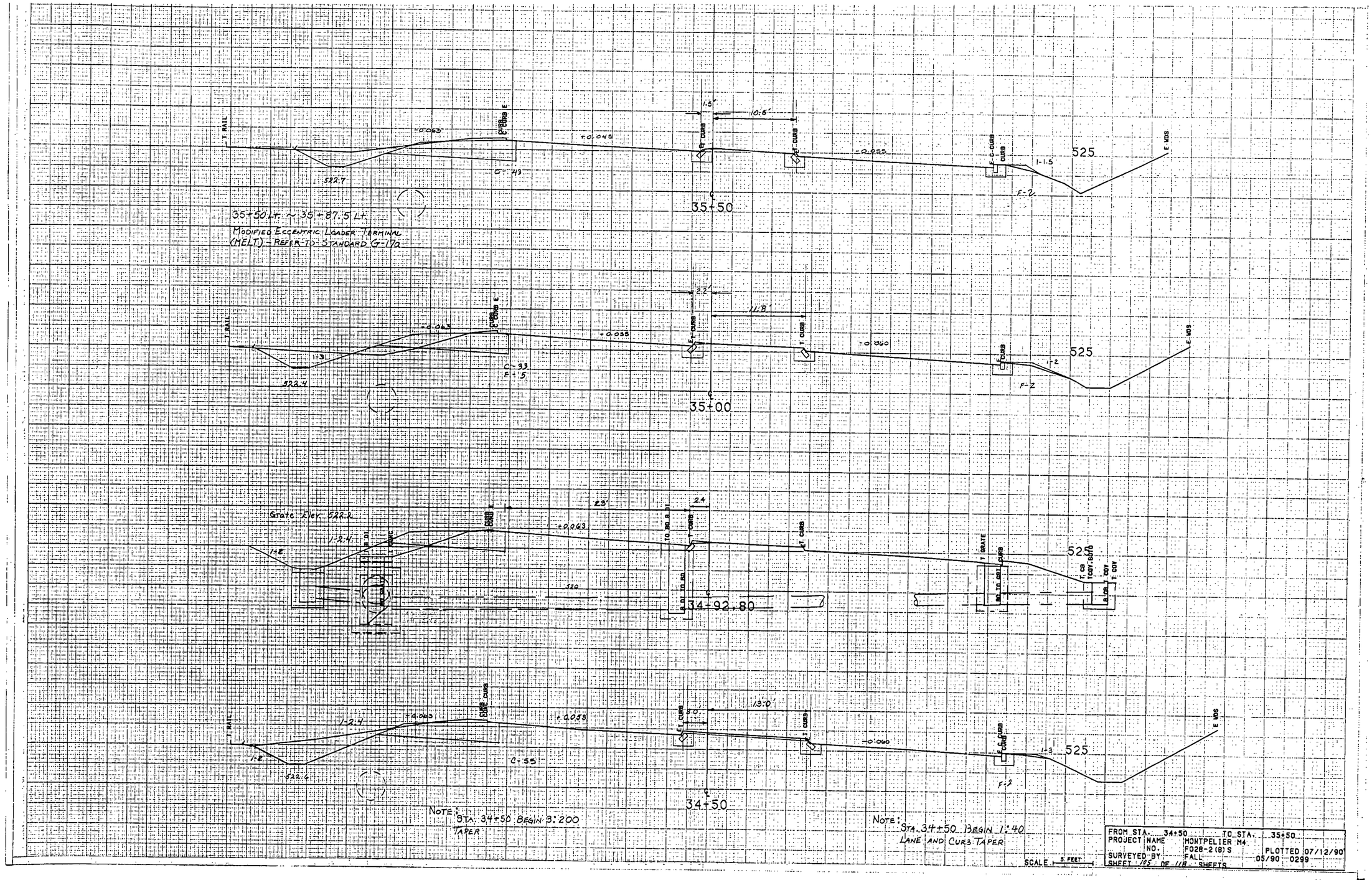

| | | | |
|---|---|---|---|
| FROM STA. | 33+00 | TO STA. | 33+50 |
| PROJECT NAME | MONTPELIER M3 | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 103 OF 118 | SHEETS | | |

SCALE 5 FEET




| | | | |
|---|---|---|---|
| FROM STA. 34+00 | TO STA. 34+00 | | |
| PROJECT NAME | MONTPELIER M3 | | |
| NO. | F028-2(8)S | PLOTTED | 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0289 |
| SHEET 104 OF 118 SHEETS | | | |

SCALE 5 FEET

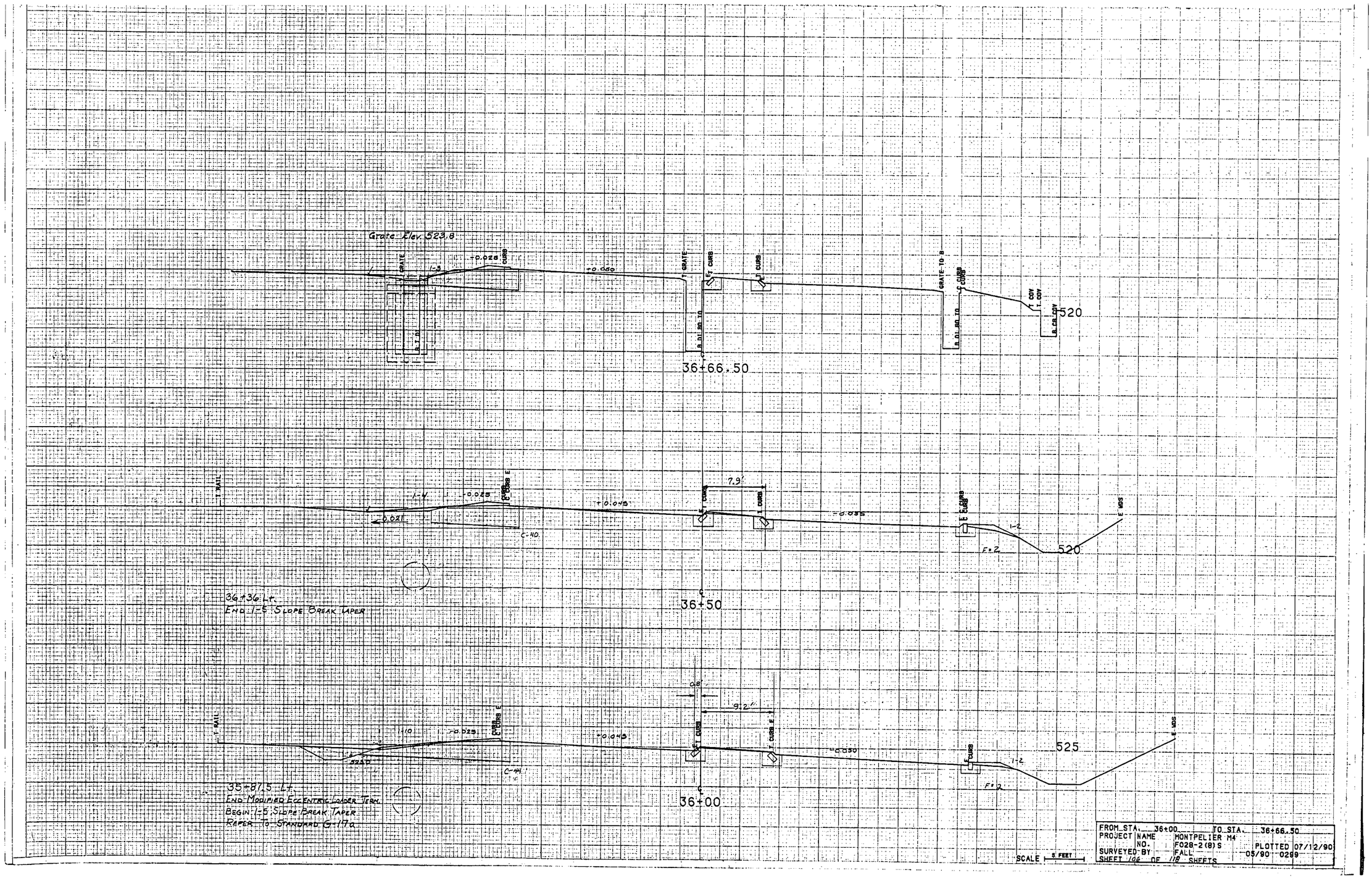



Note: Sta. 34+50 Begin 3:200 Taper

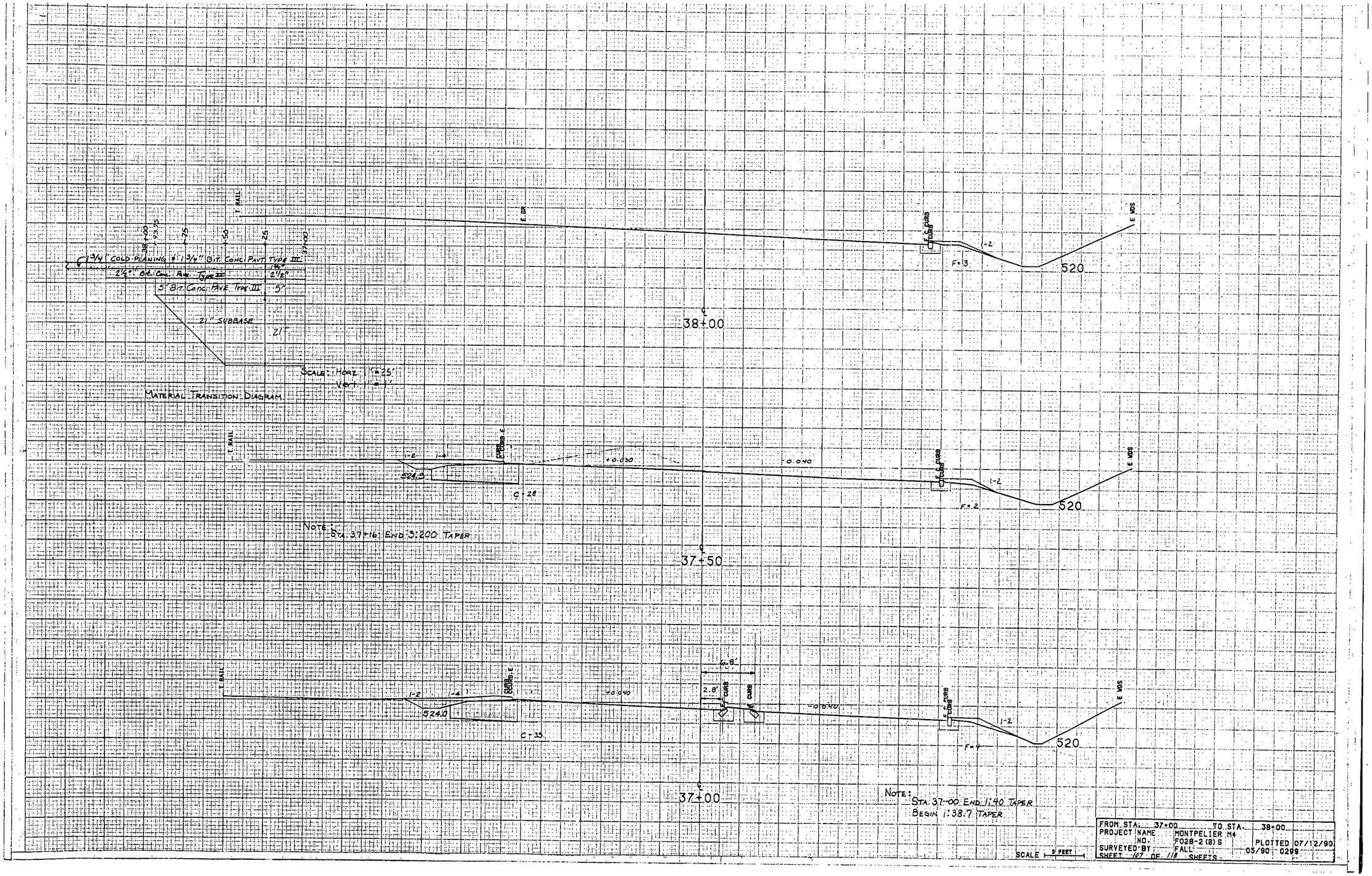
Note: Sta. 34+50 Begin 1:40 Lane and Curb Taper

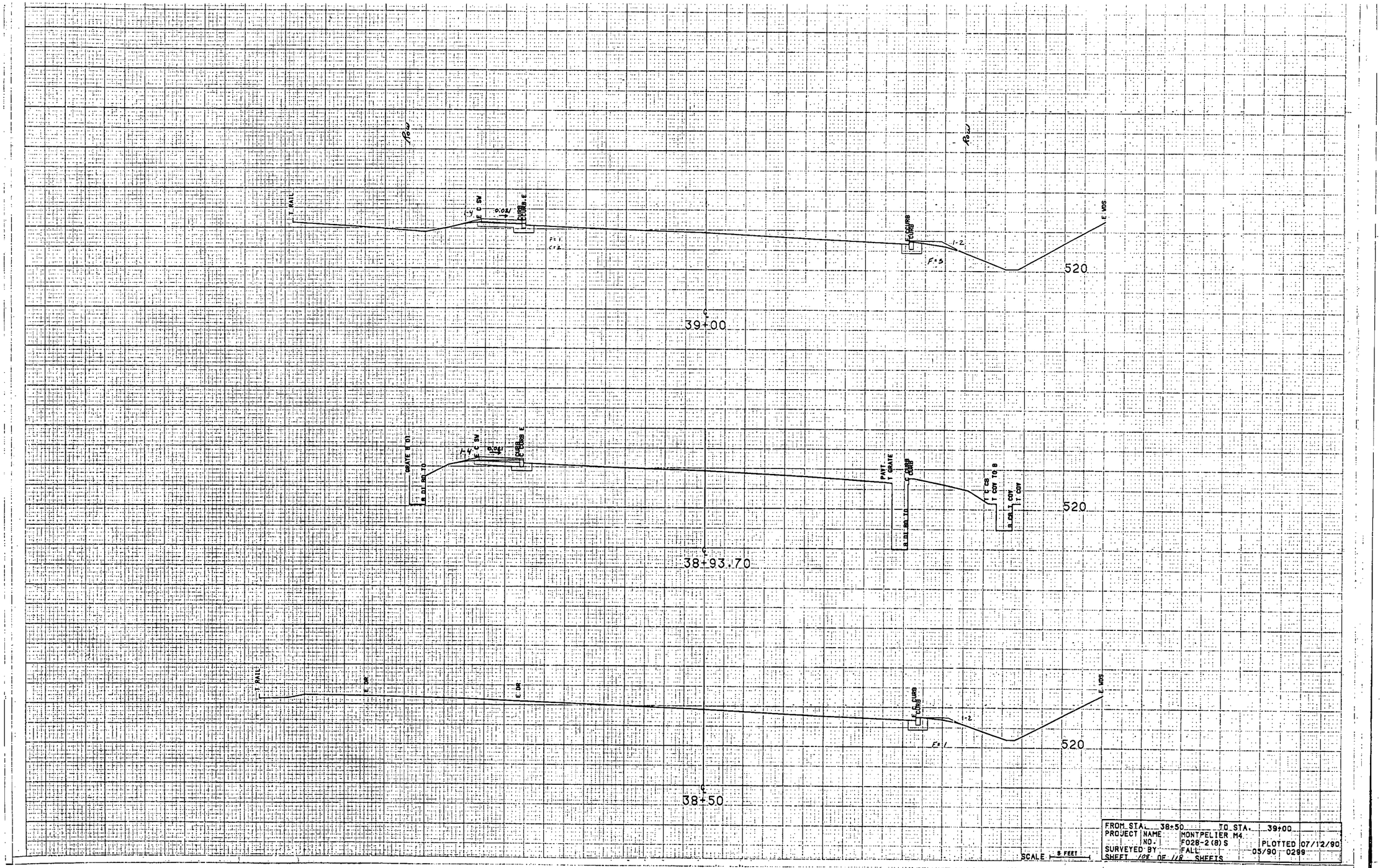
SCALE 1" = 5 FEET

| | | | |
|---|---|---|---|
| FROM STA. 34+50 | | TO STA. 35+50 | |
| PROJECT NO. | NAME MONTPELIER M4 | | |
| | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | | 05/90 0299 |
| SHEET 125 OF 118 SHEETS | | | |

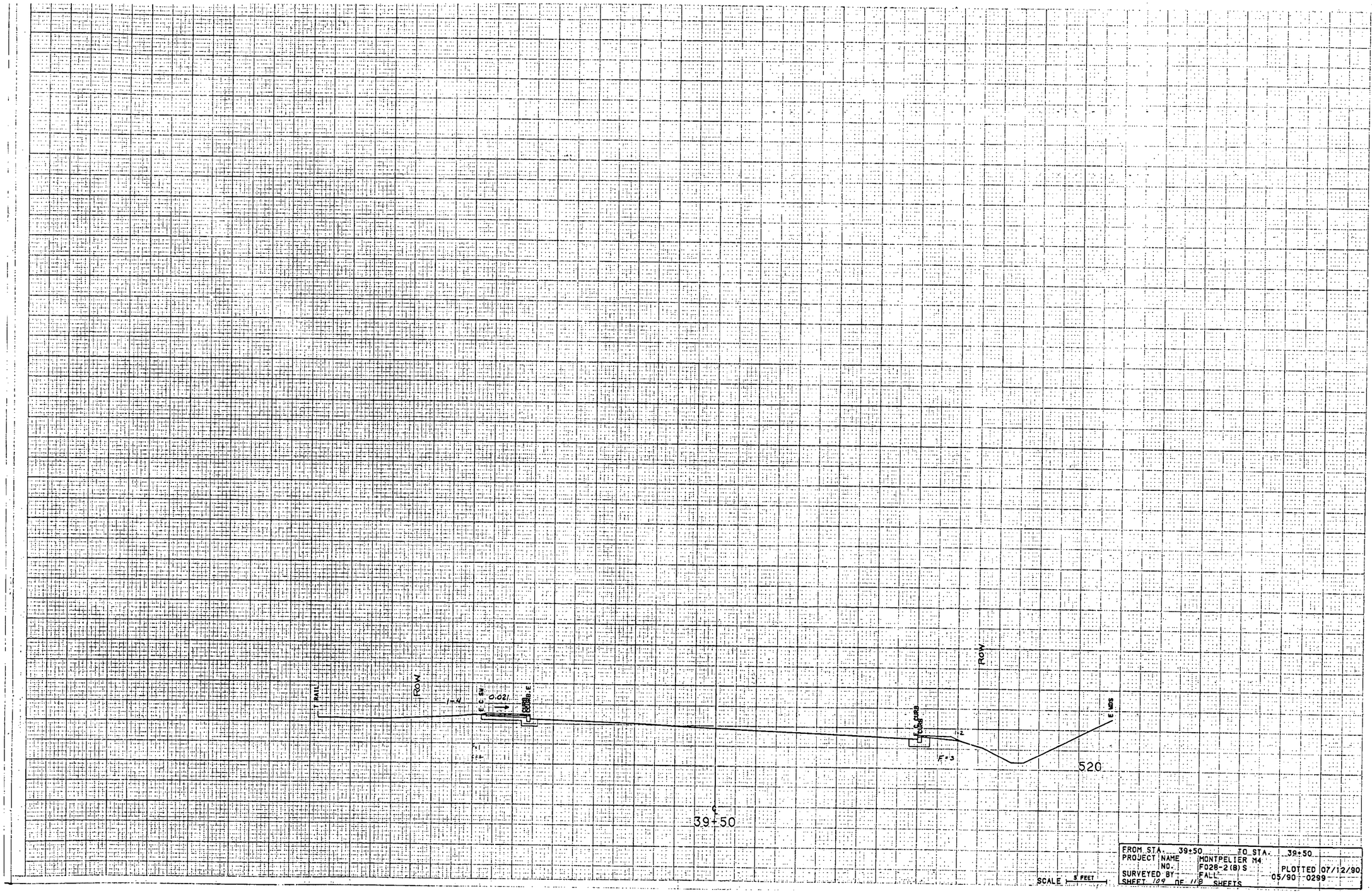



| | | | |
|---|---|---|---|
| FROM STA. | 36+00 | TO STA. | 36+66.50 |
| PROJECT NAME | MONTPELIER M4 | | |
| NO. | F028-2(8)S | PLOTTED | 07/12/90 |
| SURVEYED BY | FALL | | 05/90 0289 |
| SHEET 106 OF 118 SHEETS | | | |


38+00
37+50
37+00
E. DR.
T. RAIL
E. SIDE
E. CURB
E. GUTTER
1-2
F=3
520
3/4" COLD PLANING & 3/4" BIT. CONC. PAVT. TYPE III
2 1/2" BIT. CONC. BASE TYPE III
2 1/2"
5" BIT. CONC. PAVE. TYPE III
5"
21" SUBBASE
21"
38+00
37+75
37+50
37+25
37+00
SCALE: HORZ. 1"=25'
VERT. 1"=1'
MATERIAL TRANSITION DIAGRAM
1-4
+0.030
-0.040
524.3
C=28
F=2
NOTE: STA. 37+16: END 3:200 TAPER
2.8'
+0.040
5240
C=35
F=4
NOTE: STA. 37+00 END 1:40 TAPER
BEGIN 1:38.7 TAPER
SCALE 5 FEET
FROM STA. 37+00 TO STA. 38+00
PROJECT NAME MONTPELIER M4
NO. F028-2(8)S PLOTTED 07/12/90
SURVEYED-BY FALL 05/90 0299
SHEET 107 OF 118 SHEETS

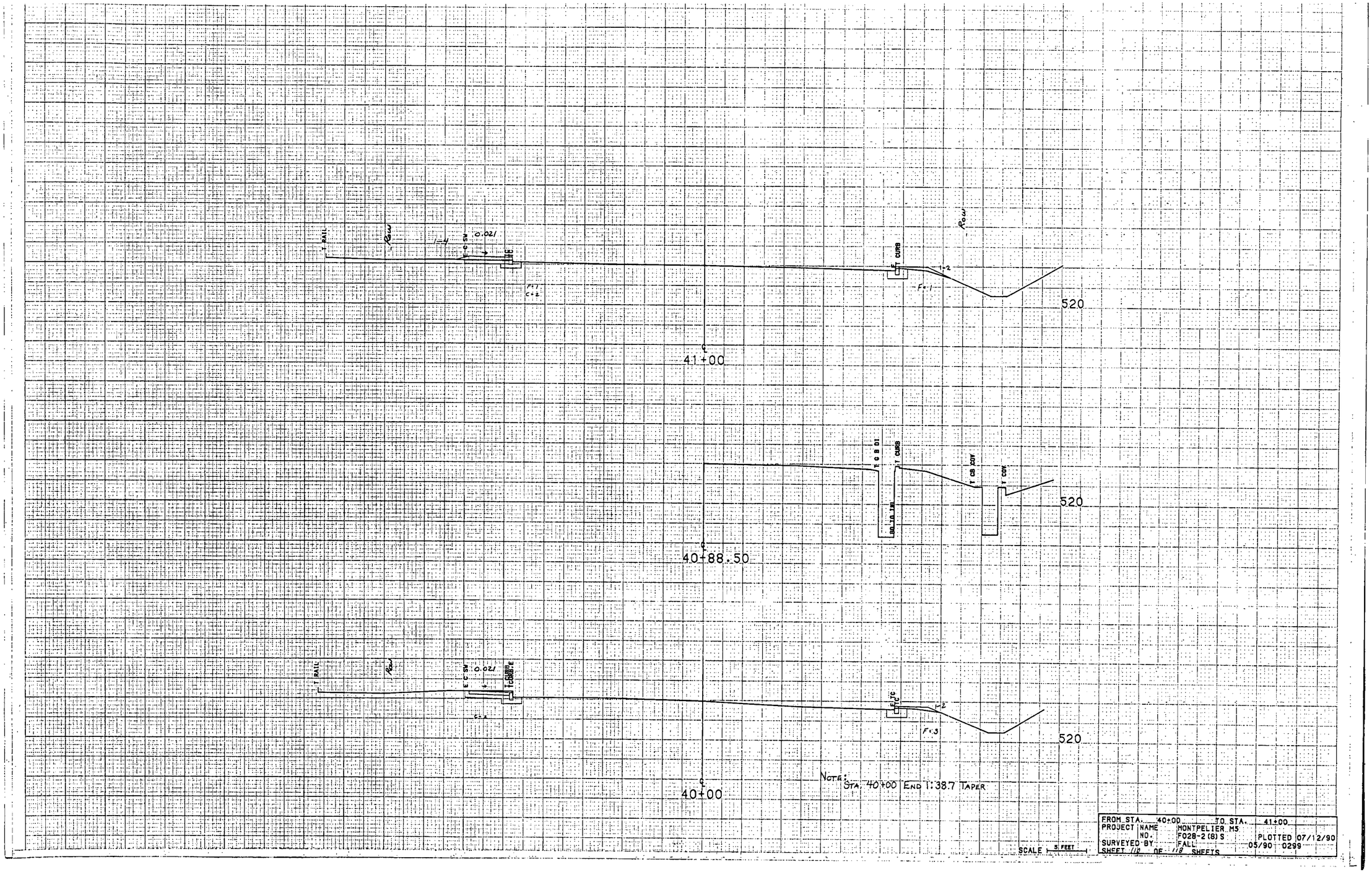



| | | | |
|---|---|---|---|
| FROM STA. 38+50 | | TO STA. 39+00 | |
| PROJECT NAME | MONTPELIER M4 | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 108 OF 118 SHEETS | | | |

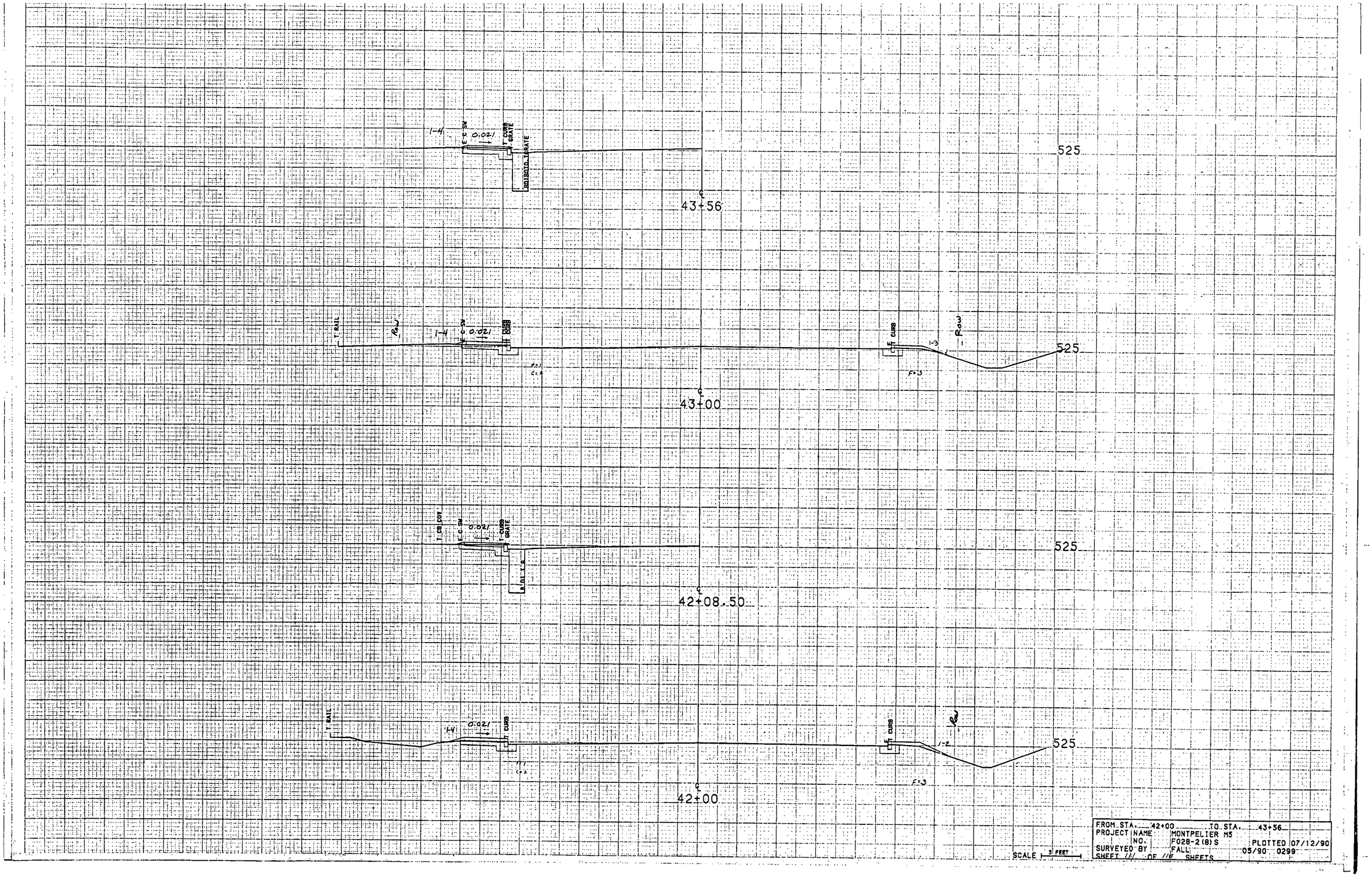


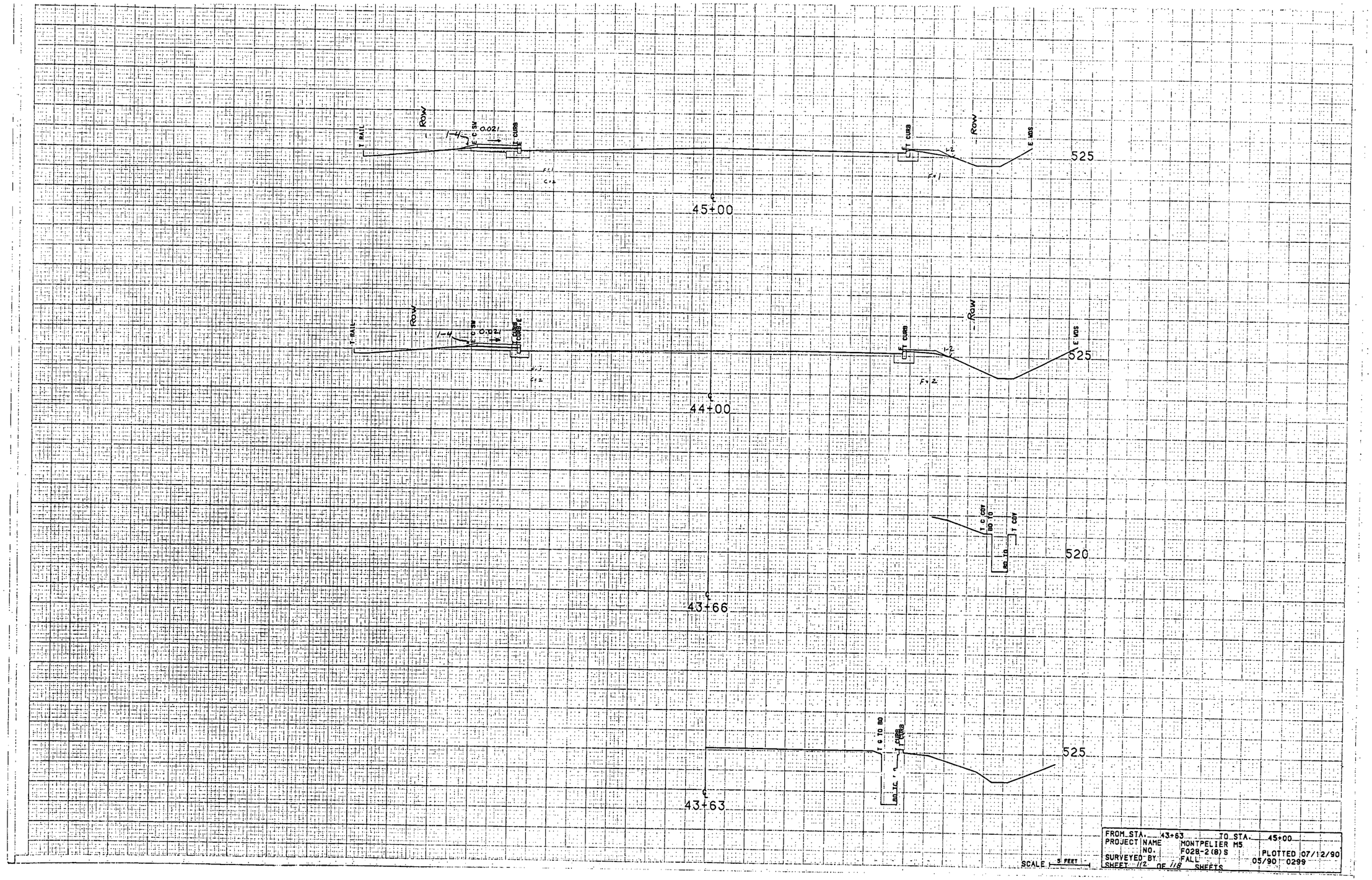

| | | | |
|---|---|---|---|
| FROM STA. 39+50 | | TO STA. 39+50 | |
| PROJECT NAME | MONTPELIER M4 | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 -0299 | |
| SHEET 109 OF 118 SHEETS | | | |

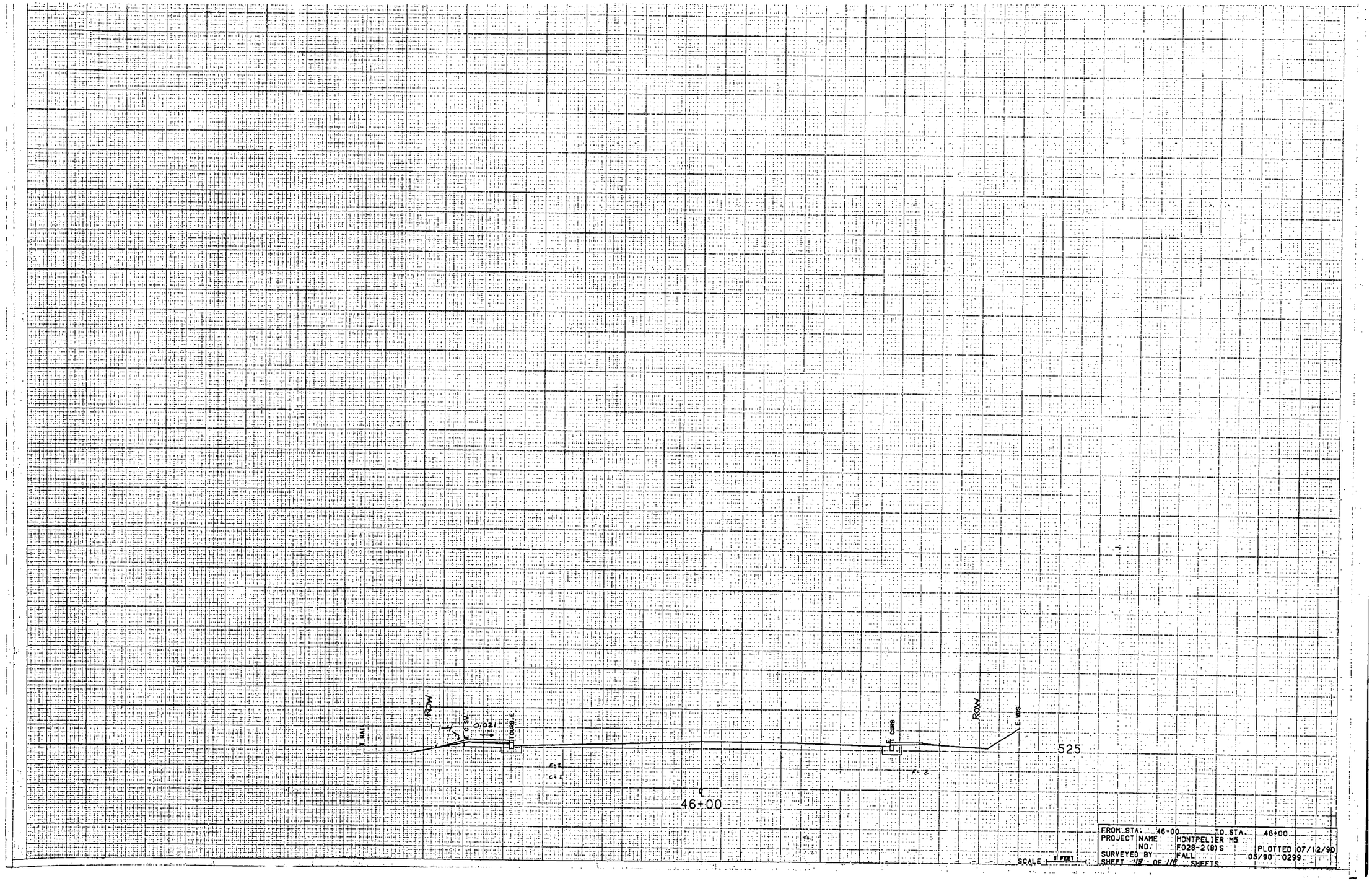
SCALE 5 FEET

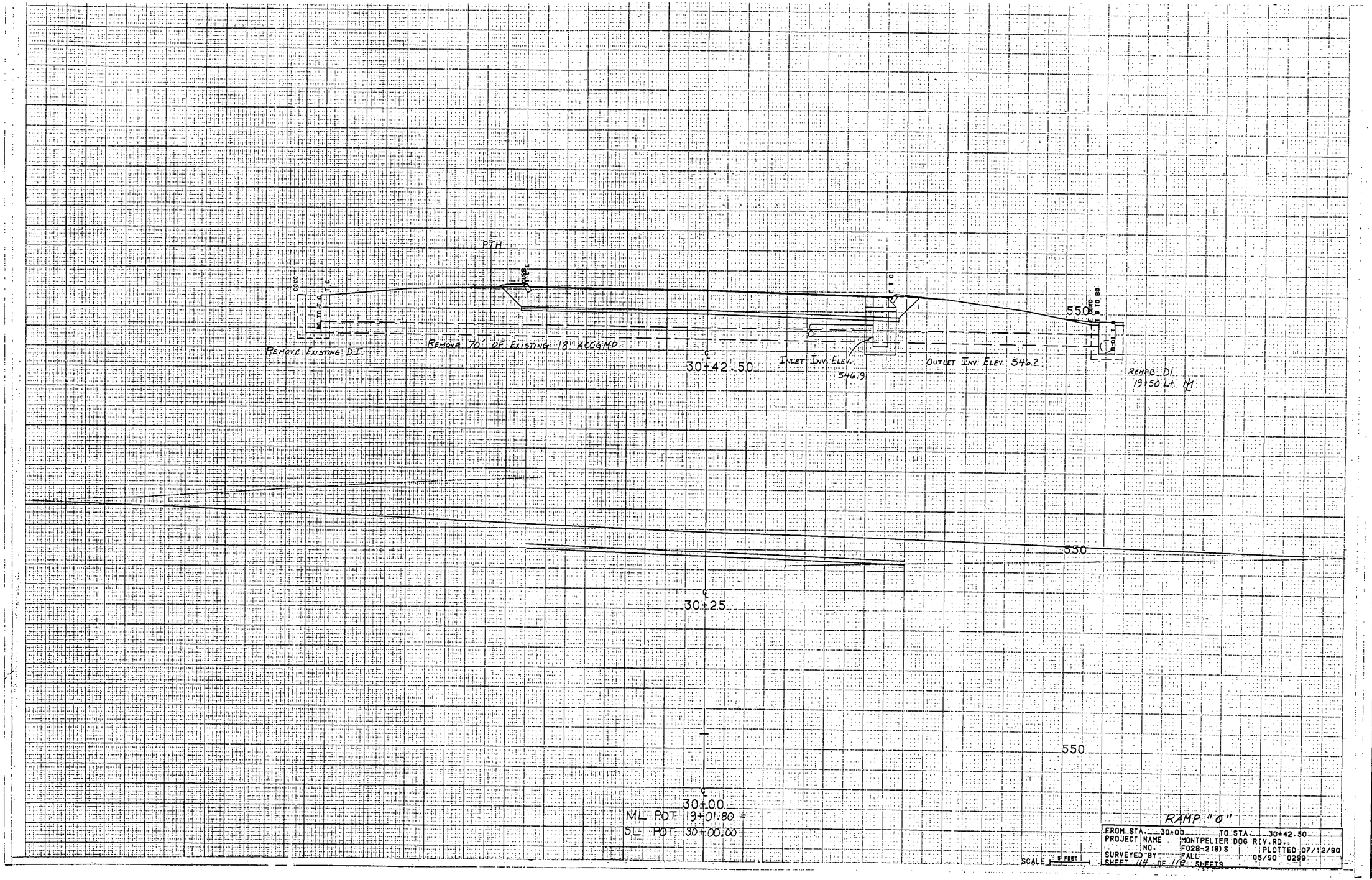



| | | | |
|---|---|---|---|
| FROM STA. 40+00 | | TO STA. 41+00 | |
| PROJECT NAME | MONTPELIER M5 | | |
| NO. | F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | | 05/90 0299 |
| SHEET 112 OF 118 SHEETS | | | |


1-4
E.C. SW
0.02/
T CURB GRATE
LT CURB GRATE
525
℄
43+56
T RAIL
Row
1-4
E.C. SW
0.02/
T CURB
LT CURB
-3
Row
525
F=3
℄
43+00
T CURB GRATE
E.C. SW
0.02/
T CURB GRATE
LT CURB
525
℄
42+08.50
T RAIL
1-4
0.02/
T CURB
LT CURB
Row
-2
525
F=3
℄
42+00
SCALE 1" = 5 FEET
FROM STA. 42+00 TO STA. 43+56
PROJECT NAME MONTPELIER M5
NO. FO28-2(8)S
SURVEYED BY FALL 05/90 0299
SHEET /// OF /// SHEETS
PLOTTED 07/12/90


ROW
T FALL
0.021
C SW
T CURB
E
45+00
525
44+00
525
43+66
520
T C DIV RD TO
T DIV RD
43+63
T G TO RD
T CURB
525
FROM STA. 43+63 TO STA. 45+00
PROJECT NAME MONTPELIER M5
NO. F028-2(8)S
SURVEYED BY FALL PLOTTED 07/12/90
SHEET 12 OF 16 SHEETS 05/90 0299
SCALE 1" = 5 FEET


T. RAIL
ROW
12.0'
FOUND I.P.
Ø
46+00
525
CURB
ROW
E. EDS
FROM STA. 46+00 TO STA. 46+00
PROJECT NAME MONTPELIER M5
NO. F028-2(8)S
SURVEYED BY FALL
SHEET 18 OF 116 SHEETS
PLOTTED 07/12/90
05/90 0299
SCALE 1" = 5 FEET




RAMP "D"

| | | | |
|---|---|---|---|
| FROM STA. 30+00 | TO STA. 30+42.50 | | |
| PROJECT NAME | MONTPELIER DOG RIV. RD. | | |
| NO. | F028-2(8)S | PLOTTED | 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 11/4 OF 16 SHEETS | | | |

30+00 +50 31+00 +50

EXIST. PAVEMENT

SUBBASE

EXISTING SUBBASE

2

SAND

2" CURB

6" CURB

2" CURB

6" CURB

2" CURB

E CER

550

C-24 (CURB REMOVAL)

℄ 31+50

C-32 (CURB REMOVAL)

℄ 31+00

MATCH LINE

SKEW SECTION

RAMP M

2+71.6

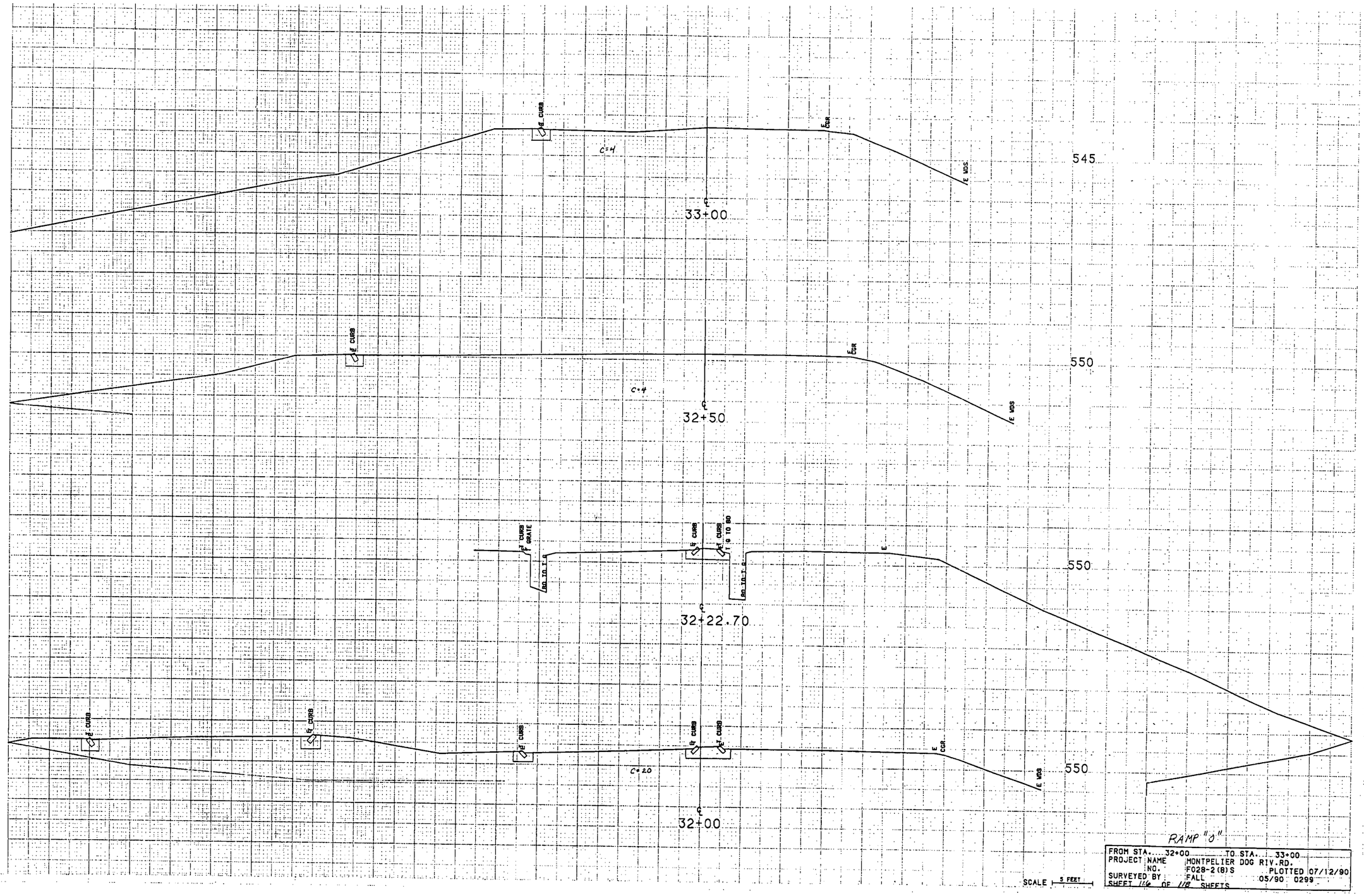
C-118

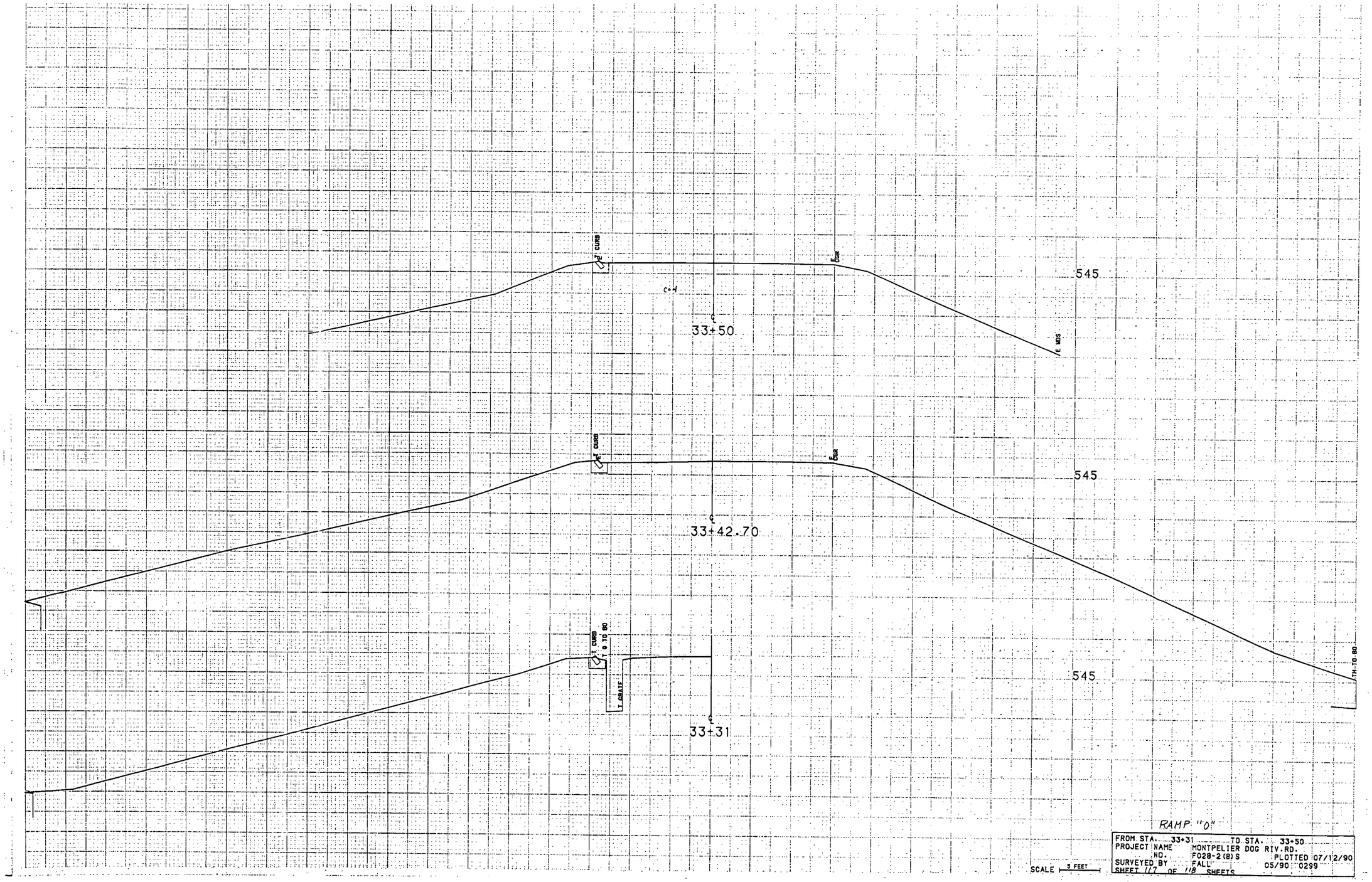
℄ 30+50

RAMP "O"

| | | | |
|---|---|---|---|
| FROM STA. | 30+50 | TO STA. | 31+50 |
| PROJECT NO. | NAME MONTPELIER DOG RIV. RD. F028-2(8)S | | PLOTTED 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 115 OF 118 SHEETS | | | |

SCALE 5 FEET

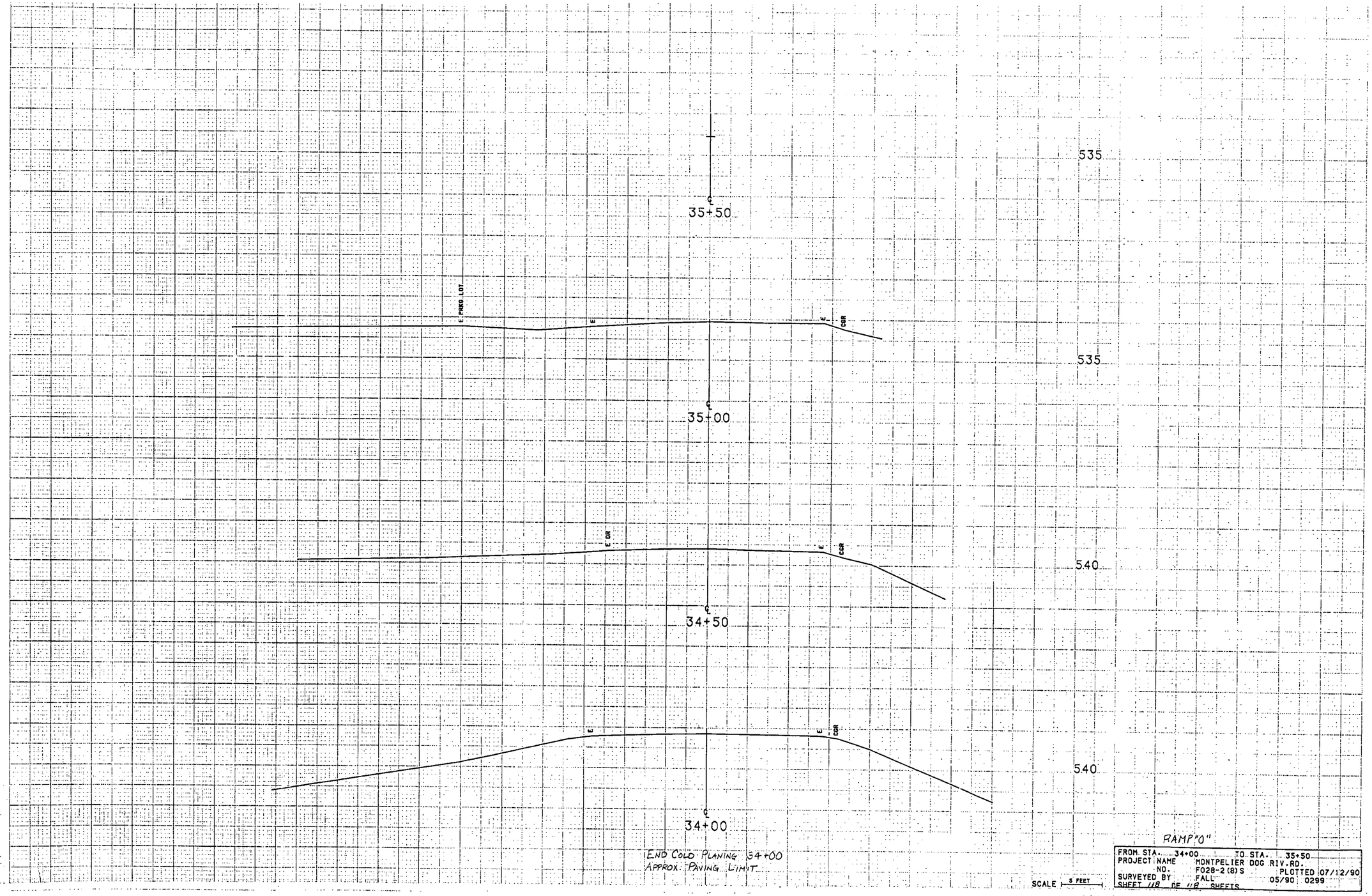

E CURB
C=4
℄
33+00
E EOR
E EOS
545
E CURB
C=4
℄
32+50
E EOR
550
E EOS
E CURB
E CURB GRATE
E CURB
E CURB
E CURB
E CURB
E CURB
E CURB
C=2.0
℄
32+22.70
E
550
E CURB
E CURB
E CURB
E CURB
E CURB
E CURB
E CURB
E CURB
C=2.0
℄
32+00
E CGR
E EOS
550
SCALE 1" = 5 FEET
RAMP "J"
FROM STA. 32+00 TO STA. 33+00
PROJECT NAME MONTPELIER DOG RIV. RD.
NO. F028-2(8)S
SURVEYED BY FALL 05/90 0299
PLOTTED 07/12/90
SHEET 116 OF 118 SHEETS




RAMP "O"

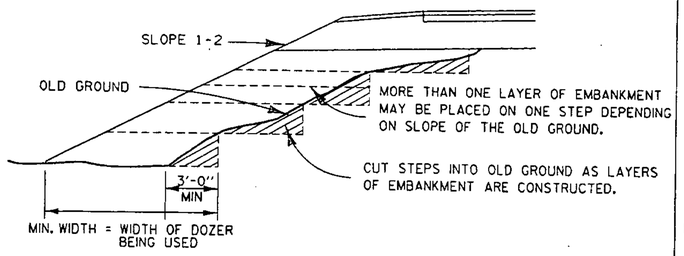
| | | | |
|---|---|---|---|
| FROM STA. | 33+31 | TO STA. | 33+50 |
| PROJECT NAME | MONTPELIER DOG RIV.RD. | | |
| NO. | F028-2(8)S | PLOTTED | 07/12/90 |
| SURVEYED BY | FALL | 05/90 | 0299 |
| SHEET 117 OF 118 SHEETS | | | |

SCALE 5 FEET

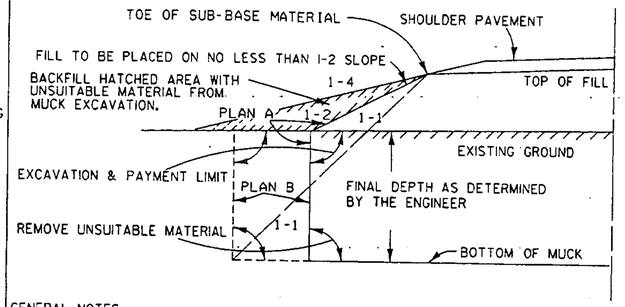



RAMP "O"

| | | | |
|---|---|---|---|
| FROM STA. | 34+00 | TO STA. | 35+50 |
| PROJECT NAME | | MONTPELIER DOG RIV. RD. | |
| NO. | | F028-2(8)S | PLOTTED 07/12/90 |
| SURVEYED BY | | FALL | 05/90 0299 |
| SHEET 118 OF 118 SHEETS | | | |




## METHOD FOR CONSTRUCTING AN EMBANKMENT ON EARTH SLOPE



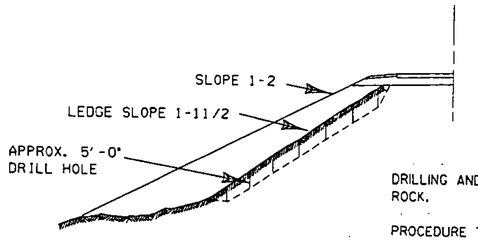

GENERAL NOTES :

THE MUCK OR UNSUITABLE MATERIAL SHALL BE EXCAVATED TO THE NEAT LINES SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER.

EXCAVATION AND PAYMENT LIMIT WILL BE DETERMINED FROM EITHER PLAN 'A' OR PLAN 'B', WHICHEVER PRODUCES THE GREATER WIDTH IN A GIVEN MUCK AREA.

BACKFILL MATERIAL MUST MEET THE REQUIREMENTS SET FORTH UNDER MUCK EXCAVATION, SECTION 203

## TYPICAL NEAT PAY LINES FOR MUCK EXCAVATION

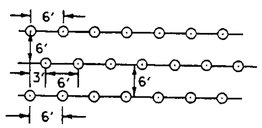



DRILLING AND BLASTING OF SOLID ROCK.

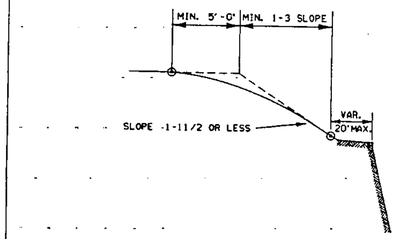
PROCEDURE TO BE FOLLOWED WHEN LEDGE SLOPE ON OLD GROUND IS BETWEEN A 1-1 AND A 1-5 SLOPE.

ALL HOLES TO BE APPROXIMATELY 5'-0" DEEP. HOLES TO BE IN ROWS, SPACED AND STAGGERED AS SHOWN IN DRILL PATTERN, OR AS DIRECTED BY THE ENGINEER, SEE SECTION 205

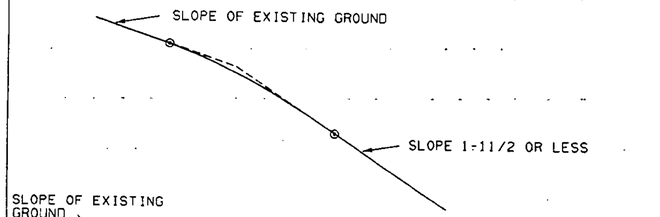
DRILL PATTERN

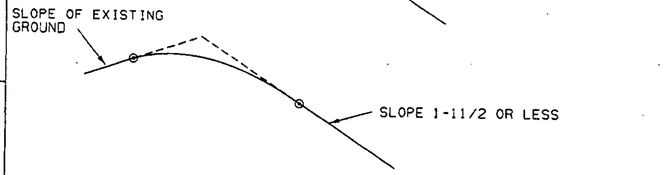



## A METHOD FOR PREPARING LEDGE SLOPE BEFORE CONSTRUCTING AN EMBANKMENT




EARTH SECTIONS ABOVE STABLE ROCK OR EQUIVILENT OUTCROPS TO BE ROUNDED, AS FAR AS POSSIBLE AS THOUGH TOTAL HEIGHT OF SLOPE WAS IN EARTH CUT.

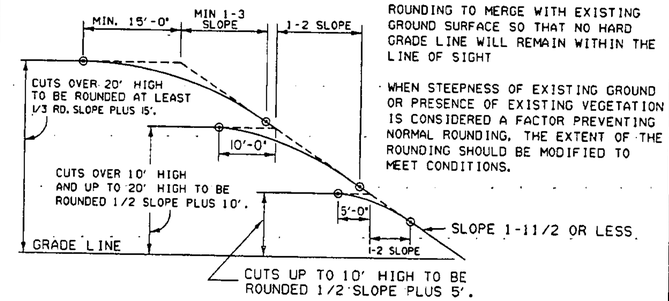



SLOPES TO BE ROUNDED AS SHOWN IN ORDER TO ALLOW FOR PERSPECTIVE FORESHORTENING AS SEEN FROM THE ROAD AND SO THAT FINISHED SLOPES WILL BETTER SUPPORT VEGETATIVE COVER.

ROUNDING TO MERGE WITH EXISTING GROUND SURFACE SO THAT NO HARD GRADE LINE WILL REMAIN WITHIN THE LINE OF SIGHT

WHEN STEEPNESS OF EXISTING GROUND OR PRESENCE OF EXISTING VEGETATION IS CONSIDERED A FACTOR PREVENTING NORMAL ROUNDING, THE EXTENT OF THE ROUNDING SHOULD BE MODIFIED TO MEET CONDITIONS.




## TYPICAL SLOPE ROUNDING

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL DATE

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

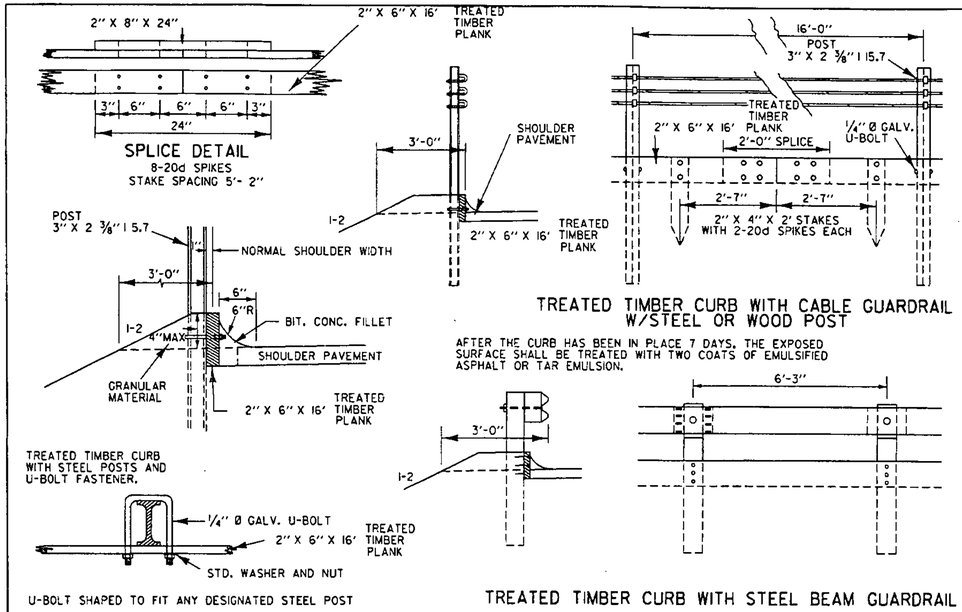
DIRECTOR OF ENGINEERING

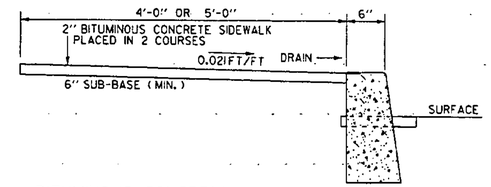
DESIGN ENGINEER

# EMBANKMENT ON EARTH SLOPE
# EMBANKMENT ON ROCK SLOPE
# MUCK EXCAVATION
# TYPICAL SLOPE ROUNDING

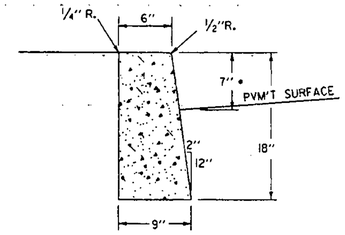
VERMONT AGENCY OF TRANSPORTATION

# STANDARD B-5




BITUMINOUS CONCRETE SIDEWALK

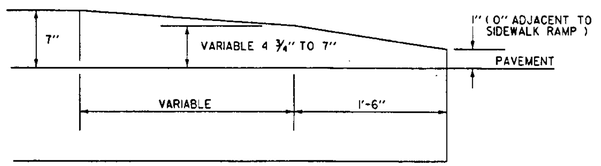



WHEN CONCRETE CURB IS CONSTRUCTED ADJACENT TO CONCRETE SIDEWALK, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDE - WALK AND CURB.

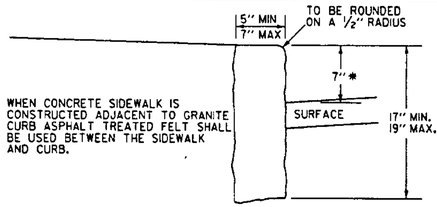
SEE SPECIFICATIONS FOR DETAILS ON EXPANSION, CONSTRUCTION JOINTS, AND LENGTHS OF SECTIONS.

END AREA = 0.94 S.F.

CAST IN PLACE CONCRETE CURB, TYPE B



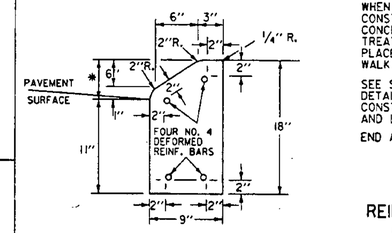

DETAIL OF CONCRETE CURB END FOR PRECAST REINFORCED CONCRETE CURB OR CAST IN PLACE CONCRETE CURB




VERTICAL GRANITE CURB

NOTE

* HEIGHT NOT TO EXCEED 4" WHEN CURBING IS INSTALLED ADJACENT TO GUARDRAIL (STANDARD SHAPE TO BE BURIED TO THIS DEPTH)

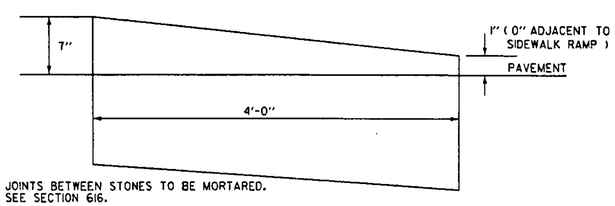



WHEN CONCRETE CURB IS CONSTRUCTED ADJACENT TO CONCRETE SIDEWALK, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDE - WALK AND CURB.

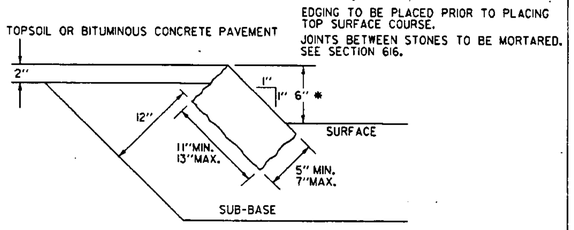
SEE SPECIFICATIONS FOR DETAILS ON EXPANSION, CONSTRUCTION JOINTS, AND LENGTHS OF SECTIONS.

END AREA = 1.00 S.F.

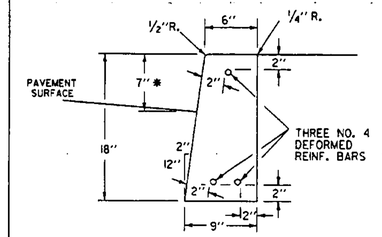
PRECAST REINFORCED CONCRETE CURB, TYPE A




DETAIL OF GRANITE CURB END FOR VERTICAL GRANITE CURB




GRANITE SLOPE EDGING




WHEN CONCRETE CURB IS CONSTRUCTED ADJACENT TO CONCRETE SIDEWALK, ASPHALT TREATED FELT SHALL BE PLACED BETWEEN THE SIDE - WALK AND CURB.

SEE SPECIFICATIONS FOR DETAILS ON EXPANSION, CONSTRUCTION JOINTS, AND LENGTHS OF SECTIONS.

END AREA = 0.94 S.F.

PRECAST REINFORCED CONCRETE CURB, TYPE B

REVISIONS AND CORRECTIONS

DEC. 8, 1971 - ORIGINAL APPROVAL DATE
NOV 16, 1992 - CHANGED 6" CURB TO 4"
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

Gordon R. MacArthur, PE
DIRECTOR OF ENGINEERING

John D. Maughan, PE
DESIGN ENGINEER

# GRANITE SLOPE EDGING
# VERTICAL GRANITE CURB
# PRECAST REINFORCED CONCRETE CURB
# CAST IN PLACE CONCRETE CURB
# TREATED TIMBER CURB

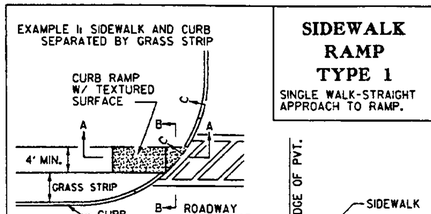
VERMONT AGENCY OF TRANSPORTATION

STANDARD
C-1

## SIDEWALK RAMP TYPE 1

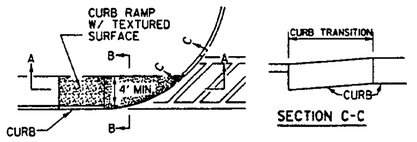
SINGLE WALK-STRAIGHT APPROACH TO RAMP.

EXAMPLE I: SIDEWALK AND CURB SEPARATED BY GRASS STRIP




SECTION B-B

EXAMPLE II: SIDEWALK ADJACENT TO CURB.

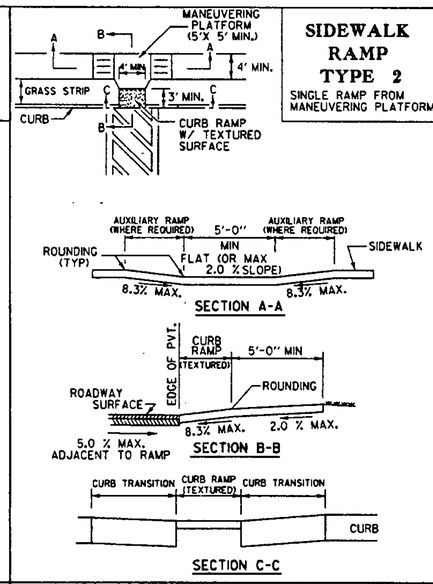



SECTION C-C

SECTION A-A

## SIDEWALK RAMP TYPE 2

SINGLE RAMP FROM MANEUVERING PLATFORM.



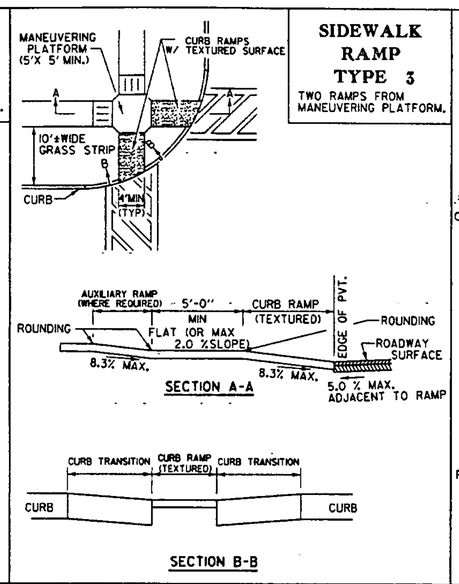

SECTION A-A

SECTION B-B

SECTION C-C

## SIDEWALK RAMP TYPE 3

TWO RAMPS FROM MANEUVERING PLATFORM.

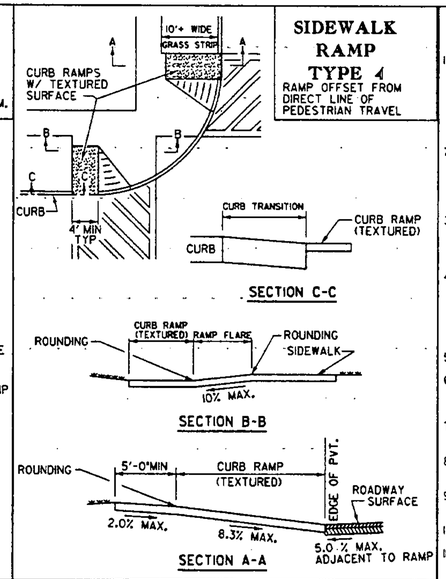



SECTION A-A

SECTION B-B

## SIDEWALK RAMP TYPE 4

RAMP OFFSET FROM DIRECT LINE OF PEDESTRIAN TRAVEL




SECTION C-C

SECTION B-B

SECTION A-A

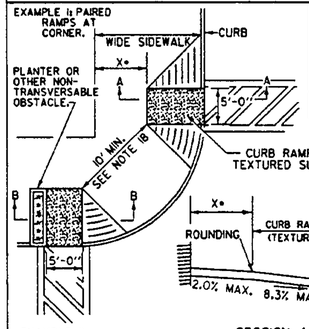
## GENERAL NOTES:

1. THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE. ( ON LOW SIDE OF DRIVES AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET @ 2% )
2. MINIMUM RAMP WIDTH:
   A. 4' WHERE RAMP MAY BE APPROACHED DIRECTLY.
   B. 5'-0" WHERE THE RAMP MUST BE (OR OFTEN WILL BE) APPROACHED FROM THE SIDE, TO PROVIDE MANEUVERING ROOM FOR WHEELCHAIRS.
3. ALLOWABLE GRADES ON RAMPS:
   A. 8.3% MAXIMUM WHERE RAMP IS APPROACHED DIRECTLY, 2.0% WHERE RAMP IS APPROACHED FROM THE SIDE.
   B. FLATTER GRADES WILL BE PROVIDED WHERE FEASIBLE.
4. ALLOWABLE GRADES ON FLARES ADJACENT TO RAMPS:
   A. 10.0% MAXIMUM WHEN DIRECTLY IN PATH THAT PEDESTRIANS MUST USE.
   B. 8.3% MAXIMUM WHEN NORMALLY USED BY WHEELCHAIRS TO ENTER OR EXIT RAMP.
   C. FLATTER GRADES WILL BE PROVIDED WHERE FEASIBLE.
5. CROSS SLOPES ON RAMP SURFACES SHALL NOT EXCEED 2.0%.
6. AN OVERRUN DISTANCE OF 5' MINIMUM SHOULD BE PROVIDED AT THE TOP AND BOTTOM OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS.
7. TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES SHOULD BE ROUNDED.
8. VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS.
9. NO VERTICAL "LIP" OR "CURB REVEAL" WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY.
10. RAMPS SHALL IN ALL CASES DIRECT USERS INTO THE CROSSWALK AREA.
11. WHERE POSSIBLE, SIDEWALK RAMPS AND FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
12. SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE THEIR USE MAY BE PREVENTED BY SIGNS, POLES, PLANTERS, MAILBOXES, ETC.
13. WHERE POSSIBLE, SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE USERS MUST CROSS DROP INLET GRATES, MANHOLE COVERS OR OTHER ACCESS LIDS. IF THIS CANNOT BE AVOIDED THEN GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
14. CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP.
15. WHERE CURB CORNER RADIUS EXCEEDS 25', TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP.
16. JOINTS WILL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT SIDEWALK SPECIFICATIONS. HOWEVER EXPANSION JOINTS WITHIN THE SIDEWALK RAMP AREA WILL BE AVOIDED WHEREVER POSSIBLE.
17. SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT EXCEED 1:20 (5%). NO LIP IS ALLOWED WHERE SIDEWALK RAMP MEETS THE GUTTER.
18. THIS DIMENSION SHALL BE ATTAINED WHERE POSSIBLE TO AVOID THE ROLLER COASTER EFFECT.

## SIDEWALK RAMP TYPE 5

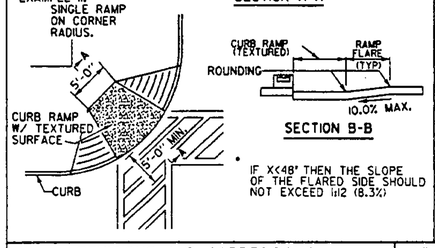
RAMP IN URBAN SETTING WIDE SIDEWALK

EXAMPLE I: PAIRED RAMPS AT CORNER.




SECTION A-A

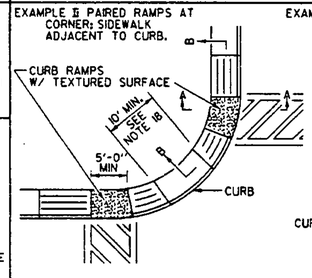
EXAMPLE II: SINGLE RAMP ON CORNER RADIUS.



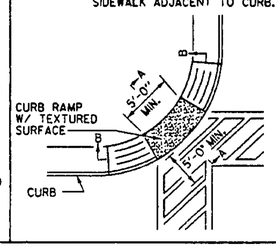

SECTION B-B

IF X<48" THEN THE SLOPE OF THE FLARED SIDE SHOULD NOT EXCEED 1:12 (8.3%)

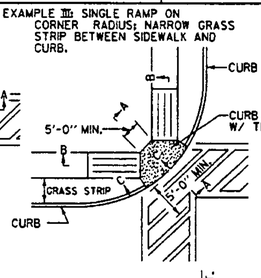
EXAMPLE I: PAIRED RAMPS AT CORNER; SIDEWALK ADJACENT TO CURB.



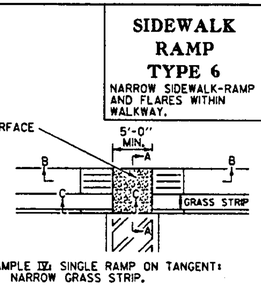

EXAMPLE II: SINGLE RAMP ON CORNER RADIUS; SIDEWALK ADJACENT TO CURB.

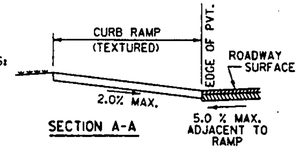



EXAMPLE III: SINGLE RAMP ON CORNER RADIUS; NARROW GRASS STRIP BETWEEN SIDEWALK AND CURB.

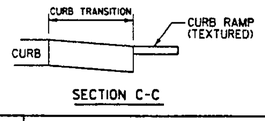



EXAMPLE IV: SINGLE RAMP ON TANGENT; NARROW GRASS STRIP.

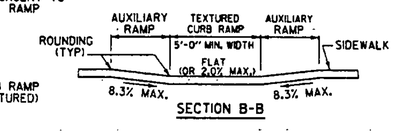



SECTION A-A




SECTION C-C

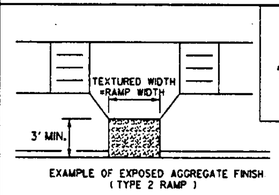



SECTION B-B

## SIDEWALK RAMP TYPE 6

NARROW SIDEWALK-RAMP AND FLARES WITHIN WALKWAY.

## SIDEWALK RAMP TEXTURING DETAILS




EXAMPLE OF EXPOSED AGGREGATE FINISH ( TYPE 2 RAMP )

TEXTURING NOTES:

1. ALL SIDEWALK RAMPS PROVIDING ACCESS TO AN ADJACENT ROADWAY SHALL RECEIVE AN APPROVED TEXTURED TREATMENT WHICH SHALL BE SLIP-RESISTANT AS WELL AS DETECTABLE BY CANE BY THE VISUALLY IMPAIRED.
2. TEXTURING SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE RAMP.
3. TEXTURES SHALL CONTRAST WITH THAT OF THE SURROUNDING SURFACE. APPROVED TEXTURED TREATMENTS ARE AS FOLLOWS:
   A. FOR PORTLAND CEMENT CONCRETE RAMPS: EXPOSED AGGREGATE SURFACE. THE METHOD FOR ACHIEVING THE EXPOSED AGGREGATE SURFACE SHALL COMPLY WITH PROCEDURES SPECIFIED BY APPROVED VENDORS OF CONCRETE RETARDING ADDITIVES USED FOR THIS PURPOSE.
   B. BRICK SURFACES MAY BE USED FOR BOTH BITUMINOUS CONCRETE AND PORTLAND CEMENT CONCRETE RAMPS.
4. TEXTURING, INCLUDING NECESSARY MATERIALS, TOOLS, EQUIPMENT AND LABOR, SHALL BE CONSIDERED SUBSIDIARY TO THE SIDEWALK PAY ITEM.

REVISIONS AND CORRECTIONS

SEPT. 15, 1993 - REVISED TO CONFORM TO ADA REQUIREMENTS

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

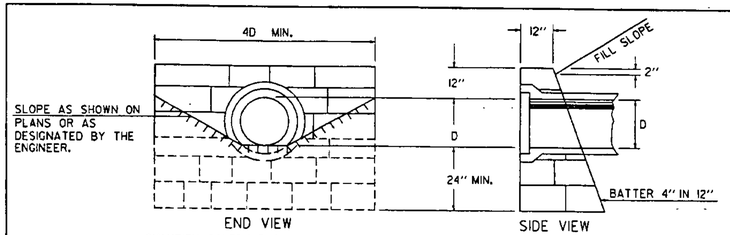
DIRECTOR OF ENGINEERING

DESIGN ENGINEER

# SIDEWALK RAMPS

VERMONT AGENCY OF TRANSPORTATION

STANDARD C-3

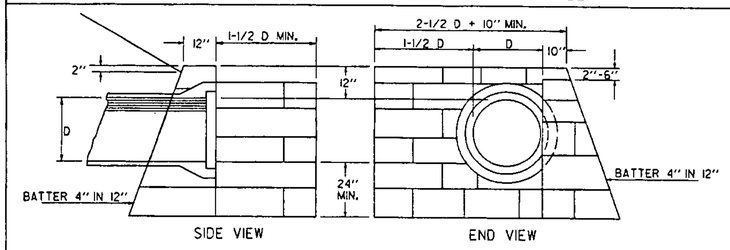



QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" |
|---|---|---|---|---|---|---|---|---|---|---|
| C.R.M. QUANTITY | 1.0 | 1.3 | 1.8 | 2.7 | 3.5 | 4.9 | 6.4 | 8.0 | 10.0 | 12.3 |

C.R.M. QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS MADE FOR METAL PIPE.

## CEMENT RUBBLE MASONRY STRAIGHT HEADWALL




QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

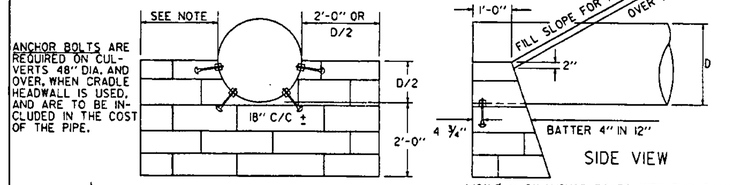
| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" |
|---|---|---|---|---|---|---|---|---|
| C.R.M. QUANTITY | 1.3 | 1.7 | 2.1 | 3.2 | 4.1 | 5.5 | 7.1 | 8.9 |

C.R.M. QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS MADE FOR METAL PIPE.

## CEMENT RUBBLE MASONRY "L" TYPE HEADWALL

NOTE: USE 2'-0" MIN. UP TO 48" DIAMETER AND THEN USE D/2.

FILL SLOPE LINE UP TO 24" DIAM. PIPE INCLUSIVE.




1/2" Ø x 8" ANCHOR BOLTS WITH TWO 3/4" HEXAGONAL NUTS. 9/16" Ø HOLES IN PIPE TO BE DRILLED OR PUNCHED, PRIOR TO COATING OF PIPE OR FIELD DRILLED WHEN REQUIRED, DUE TO A FIELD CHANGE.

QUANTITY SCHEDULE FOR CEMENT RUBBLE MASONRY

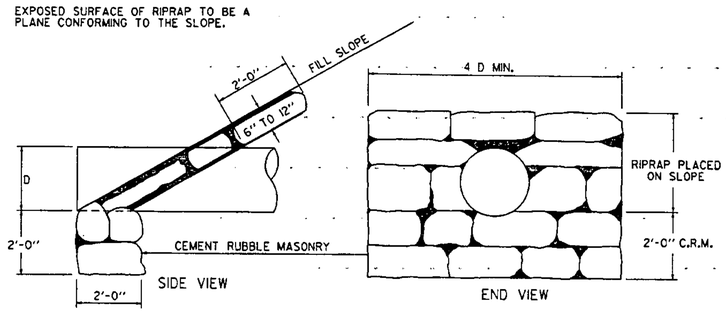
| PIPE DIAMETER | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" | 66" | 72" |
|---|---|---|---|---|---|---|---|---|---|---|
| C.R.M. QUANTITY | 0.8 | 1.0 | 1.2 | 1.4 | 1.5 | 1.7 | 2.0 | 2.4 | 2.8 | 3.3 |

C.R.M. QUANTITIES DEDUCTED WHEN PIPE DIAMETER FOR 42" OR LARGER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS MADE FOR METAL PIPE.

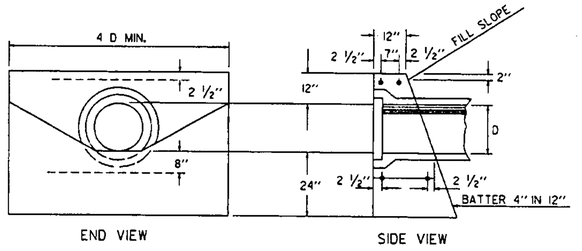
WHEN CONCRETE CLASS B IS USED, TWO PIECES OF REINFORCING STEEL WILL BE PLACED BELOW THE CULVERT SIMILAR TO THOSE SHOWN ON REINFORCED CONCRETE STRAIGHT HEADWALL.

## CEMENT RUBBLE MASONRY CRADLE HEADWALL

EXPOSED SURFACE OF RIPRAP TO BE A PLANE CONFORMING TO THE SLOPE.




## RIPRAP LIGHT TYPE SLOPE HEADWALL WITH CEMENT RUBBLE MASONRY FOOTING




QUANTITY SCHEDULE FOR REINFORCED CONCRETE HEADWALL, CLASS B

| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" |
|---|---|---|---|---|---|---|---|---|---|---|
| CONCRETE QUANTITY | 1.0 | 1.3 | 1.8 | 2.7 | 3.5 | 4.9 | 6.4 | 8.0 | 10.0 | 12.3 |

STEEL SCHEDULE FOR REINFORCED CONCRETE HEADWALL

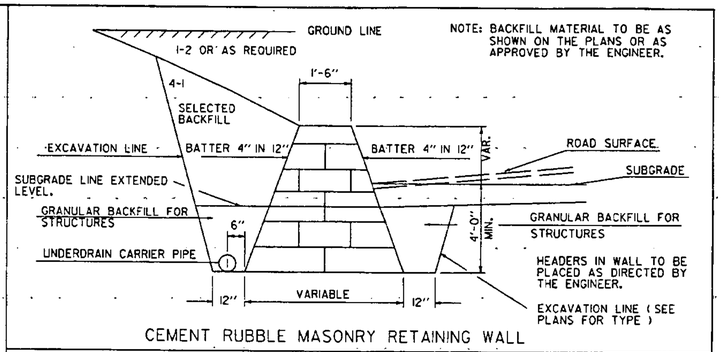
| PIPE DIAMETER | 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | 54" | 60" |
|---|---|---|---|---|---|---|---|---|---|---|
| CONCRETE QUANTITY | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| LENGTH OF BARS | 3'-0" | 3'-0" | 3'-0" | 3'-0" | 4'-0" | 4'-0" | 5'-0" | 5'-0" | 6'-0" | 6'-0" |

ALL REINFORCING STEEL TO BE 5/8" DIAMETER DEFORMED BARS.
CONCRETE QUANTITIES EXCLUDE PIPE DIAMETERS FOR 30" AND OVER.
SAME DEDUCTION MADE FOR CONCRETE PIPE AS IS MADE FOR METAL PIPE.

GENERAL NOTES - HEADWALLS:

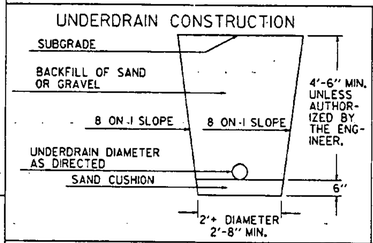
1. THE HEIGHT OF HEADWALLS ON DRIVEWAY PIPES IS TO BE REDUCED TO 6" ABOVE THE TOP OF PIPE.
2. BELL AND SPIGOT PIPE IS TO BE LAID WITH THE BELL UPSTREAM.
3. HEADWALL QUANTITIES, FOR THE SAME TYPE HEADWALLS ON PIPES OF EQUAL DIAMETER, ARE THE SAME FOR BOTH CONCRETE AND METAL PIPE. LENGTH OF HEADWALLS ARE BASED ON INSIDE DIAMETER OF PIPES.
4. THE NECESSITY OF CONSTRUCTING A FLOOR AT THE ENTRANCE TO AN L TYPE HEADWALL SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER AND ANY INSTALLATION THEREOF SHALL BE AT HIS DIRECTION.

NOTE: BACKFILL MATERIAL TO BE AS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER.

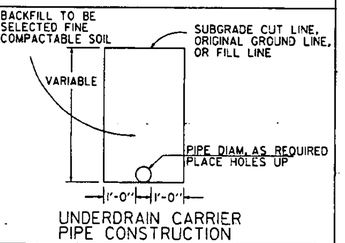



## CEMENT RUBBLE MASONRY RETAINING WALL

## UNDERDRAIN CONSTRUCTION

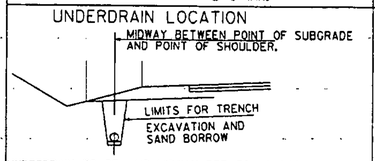



## BACKFILL TO BE SELECTED FINE COMPACTABLE SOIL




## UNDERDRAIN CARRIER PIPE CONSTRUCTION

## UNDERDRAIN LOCATION




UNDERDRAIN TO BE LAID MIDWAY BETWEEN SUBGRADE LINE AND POINT OF SHOULDER OR AS DIRECTED BY THE ENGINEER

GENERAL NOTES - UNDERDRAIN:

1. GRADE FOR UNDERDRAIN PIPE SHALL BE PARALLEL WITH THE GRADE OF THE ROAD UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. A FLUSHING BASIN IS TO BE INSTALLED AT INLET WHEN LESS THAN 3% GRADE IS USED OR AS ORDERED BY THE ENGINEER.
3. THE UNDERDRAIN SHALL BE TAKEN TO A PROPER OUTLET AND PROTECTED WITH A HEADWALL OF CEMENT RUBBLE MASONRY IF SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.
4. ELBOWS, T's AND OTHER JUNCTION UNITS NECESSARY FOR PROPER INSTALLATION OF UNDERDRAIN, AS DIRECTED BY THE ENGINEER, ARE TO BE INCLUDED IN THE UNIT BID PRICE FOR UNDERDRAIN OR CARRIER PIPE.

## REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL DATE
MAR. 8, 1972 - CHANGED ANCHOR BOLTS FROM 10" L TO 8" CARRIAGE
DEC. 16, 1976 - NOTE ADDED ON REINFORCING STEEL FOR CRADLE HEADWALLS
OCT. 30, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

Gordon B. Wise Jr. P.E.
DIRECTOR OF ENGINEERING

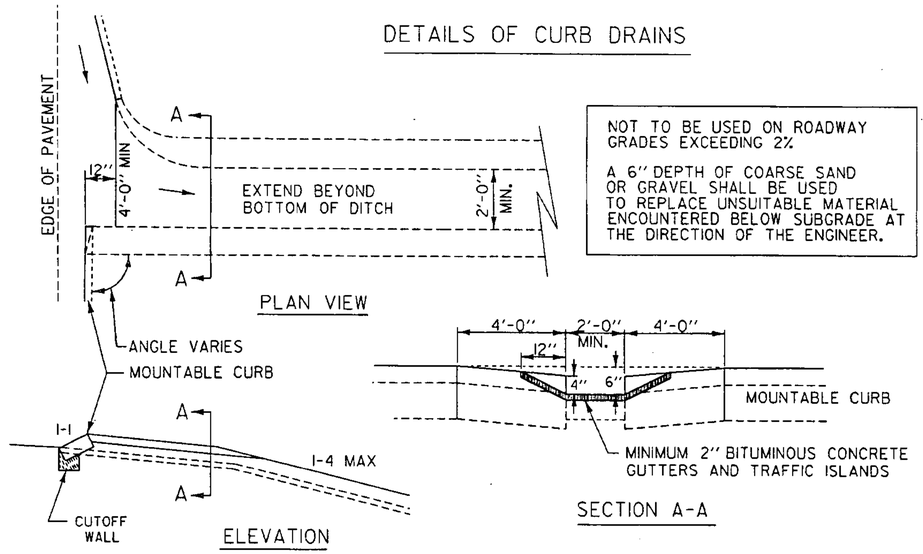
John M. Murphy P.E.
DESIGN ENGINEER

# CEMENT RUBBLE MASONRY HEADWALLS & RETAINING WALL
# RIPRAP LIGHT TYPE SLOPE HEADWALL
# REINFORCED CONCRETE HEADWALL
# UNDERDRAIN & CARRIER PIPE CONSTRUCTION DETAILS

VERMONT AGENCY OF TRANSPORTATION

# STANDARD D-2

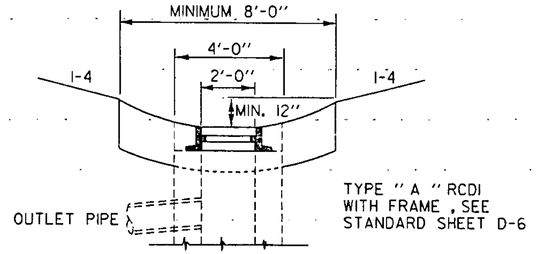
## DETAILS OF CURB DRAINS



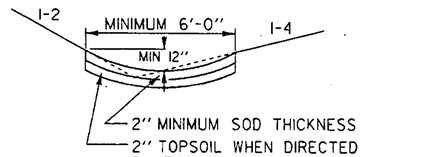

NOT TO BE USED ON ROADWAY GRADES EXCEEDING 2%

A 6" DEPTH OF COARSE SAND OR GRAVEL SHALL BE USED TO REPLACE UNSUITABLE MATERIAL ENCOUNTERED BELOW SUBGRADE AT THE DIRECTION OF THE ENGINEER.

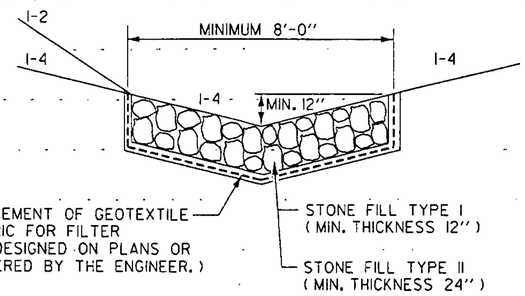
## DROP INLET WITH GRATE IN TREATED GUTTER




## SODDING

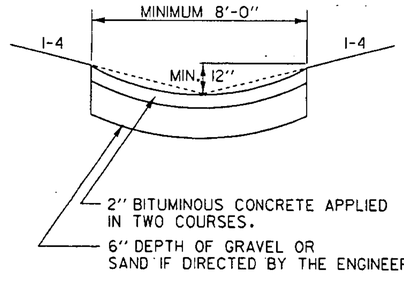



## STONE FILL TYPE I
## STONE FILL TYPE II

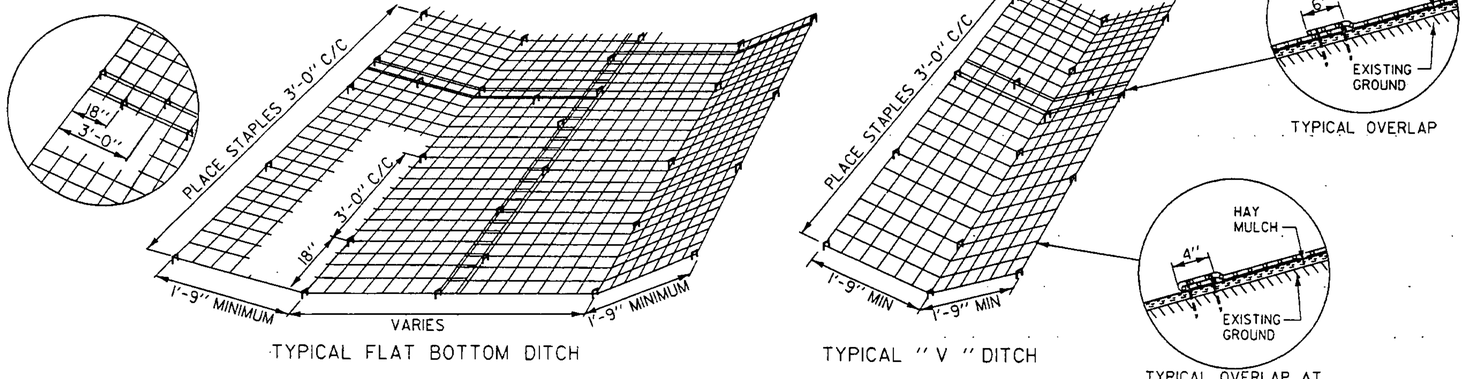



EXCAVATION PAID FOR AS COMMON EXCAVATION.

## BITUMINOUS CONCRETE GUTTERS AND TRAFFIC ISLANDS

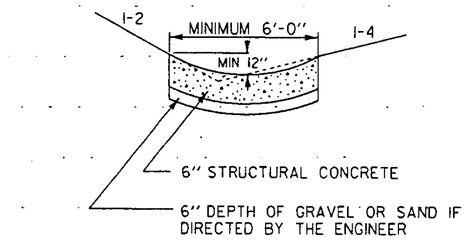



ON ALL OVERLAPS , PLACE STAPLES EVERY 18", ALTERNATING ON BOTH SIDES OF 6" OVERLAP.




## DETAILS OF PLACING EROSION MATTING

## PORTLAND CEMENT CONCRETE GUTTER




REVISIONS AND CORRECTIONS

APR. 2, 1986 - ORIGINAL APPROVAL DATE

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

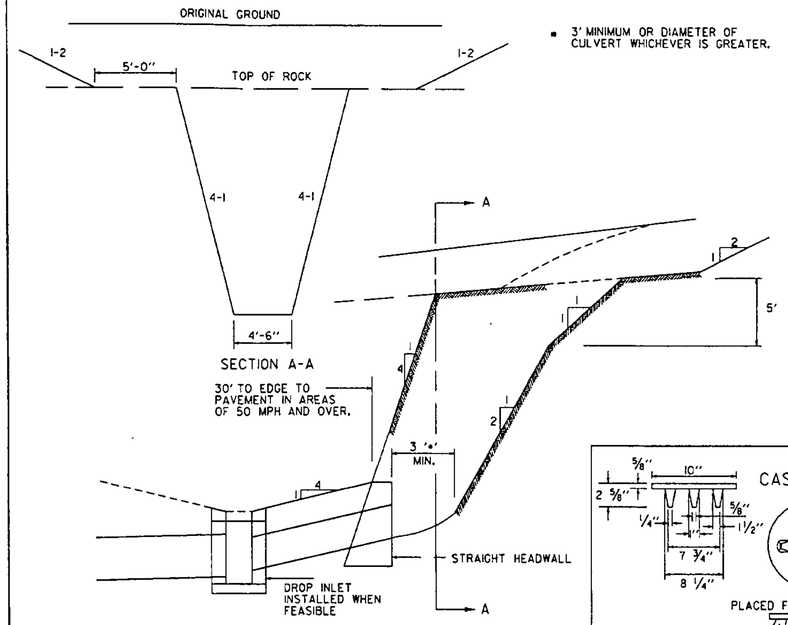
DIRECTOR OF ENGINEERING

PE
DESIGN ENGINEER

# TREATED GUTTERS

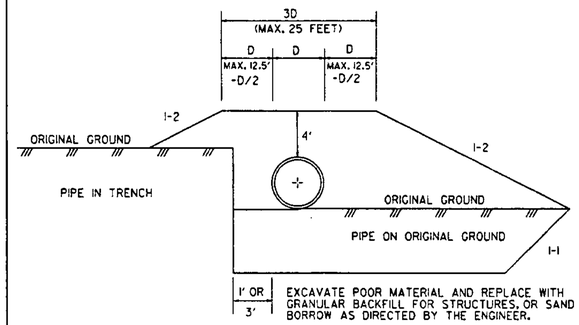
VERMONT AGENCY OF TRANSPORTATION

STANDARD
D-3

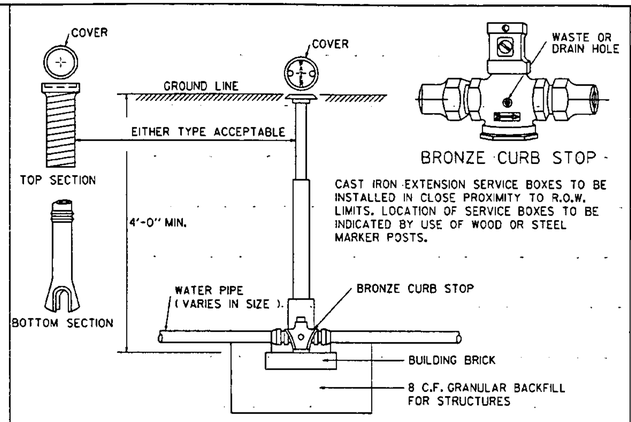



TYPICAL WATERFALL FOR CULVERT UP TO AND INCLUDING 48" DIAMETER

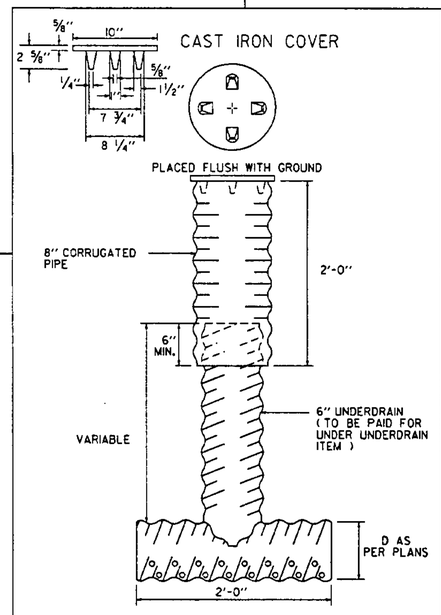
* 3' MINIMUM OR DIAMETER OF CULVERT WHICHEVER IS GREATER.




GRANULAR MATERIAL AT CULVERT LOCATIONS

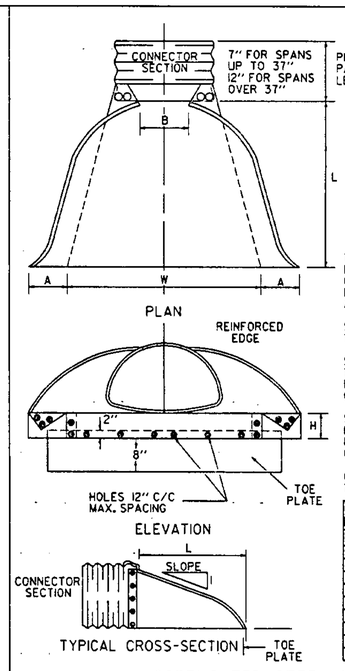


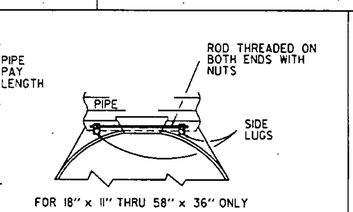

EXTENSION SERVICE BOX AND CURB STOP




FLUSHING BASINS AT BEGINNING OF LINE SHALL HAVE A 90° ELBOW RATHER THAN A T AS SHOWN ABOVE. ( ELBOW TO BE PAID FOR UNDER UNDERDRAIN ITEM )

UNDERDRAIN FLUSHING BASIN




TOE PLATE TO BE PUNCHED TO MATCH HOLES IN SKIRT LIP. 3/8" GALV. BOLTS TO BE FURNISHED. LENGTH OF TOE PLATE W + 10" FOR PIPE-ARCHES WITH RISE 11" TO 27" INCL. AND W + 18" MIN. FOR PIPE-ARCHES WITH RISE OF 31" TO 44" INCL.

SKIRT SECTION FOR PIPE-ARCHES WITH RISE OF 11" TO 27" INCL. TO BE MADE IN ONE PIECE.

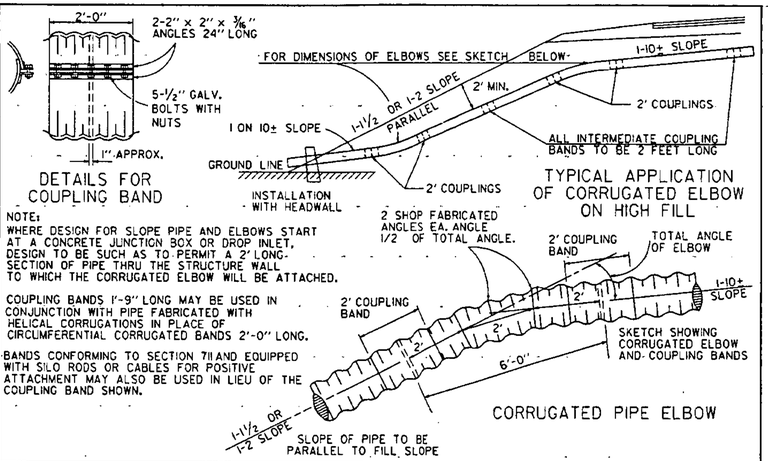
SKIRT SECTION FOR PIPE-ARCHES WITH RISE OF 31" TO 40" INCL. MAY BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTERLINE WITH 3/8" GALV. BOLTS OR RIVETS.

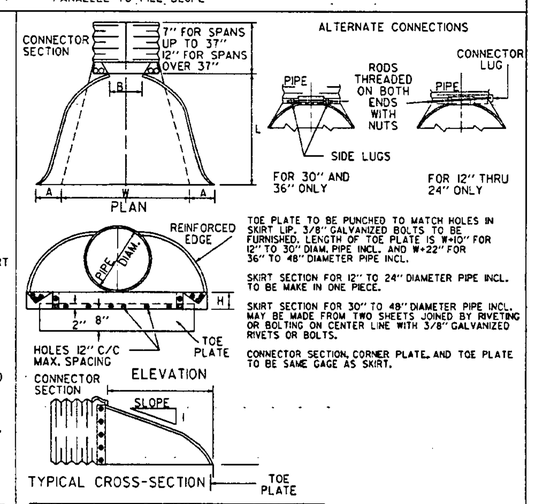
SKIRT SECTIONS FOR PIPE-ARCHES WITH RISE OF 44 INCHES MAY BE MADE FROM THREE SHEETS JOINED BY RIVETING OR BOLTING AT EQUAL DISTANCES FROM CENTERLINE.

CONNECTOR SECTION, CORNER PLATE, AND TOE PLATE TO BE SAME GAGE AS SKIRT.

| PIPE ARCH DIMENSIONS | | THICK | DIMENSIONS A (1" ±) | B (MAX.) | H (1" ±) | L 1½"±2 (2" ±) | W | APPROX. SLOPE | BODY |
|---|---|---|---|---|---|---|---|---|---|
| SPAN | RISE | | | | | | | | |
| 18 | 11 | .064 | 7 | 9 | 6 | 19 | 30 | 2 ½ | 1 PC |
| 22 | 13 | .064 | 7 | 10 | 6 | 23 | 36 | 2 ½ | 1 PC |
| 29 | 18 | .064 | 9 | 14 | 6 | 32 | 48 | 2 ½ | 1 PC |
| 36 | 22 | .079 | 10 | 16 | 6 | 39 | 60 | 2 ½ | 1 PC |
| 43 | 27 | .079 | 12 | 18 | 8 | 46 | 75 | 2 ½ | 1 PC |
| 50 | 31 | .109 | 13 | 21 | 9 | 53 | 85 | 2 ½ | 2PC |
| 58 | 36 | .109 | 18 | 26 | 12 | 63 | 90 | 2 ½ | 2PC |
| 65 | 40 | .109 | 18 | 30 | 12 | 70 | 102 | 2 ¼ | 2PC |
| 72 | 44 | .109 | 18 | 33 | 12 | 77 | 114 | 2 ¼ | 3PC |

CORRUGATED STEEL PIPE ARCH END SECTION




TOE PLATE TO BE PUNCHED TO MATCH HOLES IN SKIRT LIP. 3/8" GALVANIZED BOLTS TO BE FURNISHED. LENGTH OF TOE PLATE IS W+10" FOR 12" TO 30" DIAM. PIPE INCL. AND W+22" FOR 36" TO 48" DIAMETER PIPE INCL.

SKIRT SECTION FOR 12" TO 24" DIAMETER PIPE INCL. TO BE MAKE IN ONE PIECE.

SKIRT SECTION FOR 30" TO 48" DIAMETER PIPE INCL. MAY BE MADE FROM TWO SHEETS JOINED BY RIVETING OR BOLTING ON CENTER LINE WITH 3/8" GALVANIZED RIVETS OR BOLTS.

CONNECTOR SECTION, CORNER PLATE, AND TOE PLATE TO BE SAME GAGE AS SKIRT.

| PIPE DIAM. | THICK | DIMENSIONS A (1" ±) | B (MAX.) | H (1" ±) | L 1½"±2 (2" ±) | W | APP. SLOPE | BODY |
|---|---|---|---|---|---|---|---|---|
| 12 | .064 | 6 | 6 | 6 | 21 | 24 | 2 ½ | 1 PC |
| 15 | .064 | 7 | 8 | 6 | 26 | 30 | 2 ½ | 1 PC |
| 18 | .064 | 8 | 10 | 6 | 31 | 36 | 2 ½ | 1 PC |
| 21 | .064 | 9 | 12 | 6 | 36 | 42 | 2 ½ | 1 PC |
| 24 | .064 | 10 | 13 | 6 | 41 | 48 | 2 ½ | 1 PC |
| 30 | .079 | 12 | 16 | 8 | 51 | 60 | 2 ½ | 1 PC |
| 36 | .079 | 14 | 19 | 9 | 60 | 72 | 2 ½ | 2PC |
| 42 | .109 | 16 | 22 | 11 | 69 | 84 | 2 ½ | 2PC |
| 48 | .109 | 18 | 27 | 12 | 78 | 90 | 2 ¼ | 2PC |

CORRUGATED STEEL PIPE END SECTION

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL DATE
JULY 17, 1972 - HELICAL CORRUGATED COUPLING NOTE ADDED
JULY 24, 1975 - GRANULAR MATERIAL AT CULVERT LOCATIONS CORRECTED
OCT. 30, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

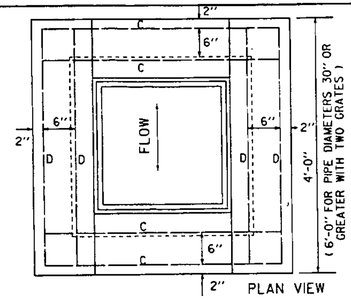
Gordon D. MacAllister, P.E.
DIRECTOR OF ENGINEERING

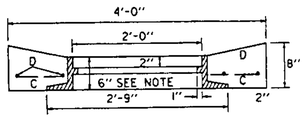
John M. Murphy, P.E.
DESIGN ENGINEER

**TYPICAL WATERFALL FOR CULVERTS UP TO AND INCLUDING 48" DIAMETER**
**EXTENSION SERVICE BOX AND CURB STOP**
**CORRUGATED PIPE ELBOW**
**GRANULAR BORROW AT CULVERT LOCATIONS**
**UNDERDRAIN FLUSHING BASIN**
**CORRUGATED STEEL PIPE END SECTION**
**CORRUGATED STEEL PIPE ARCH END SECTION**

VERMONT AGENCY OF TRANSPORTATION

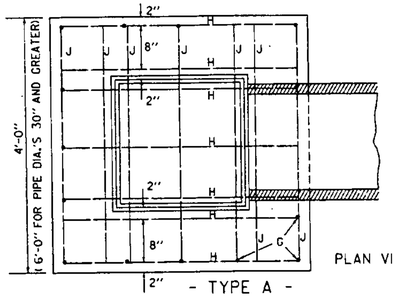
# STANDARD D-4




NOTE : FRAME SHOWN IS FOR TYPE A GRATE, SEE SHEET D-11. FOR TYPE B GRATE AND FRAME, SEE SHEET D-16 (EXCEPT THE FRAME DEPTH DIMENSION SHALL BE 6").

TOP FOR REINFORCED CONCRETE DROP INLET WITH GRATE FOR USE IN DITCHES




STEEL SCHEDULE

| 4'x4' DROP INLET TYPE A 12", 15", 18", 24" | | | | | | | 4'x6' DROP INLET WITH TWO GRATES TYPE B 30", 36" | | | | | | | | | TYPE C 4'x6' DROP INLET WITH ONE GRATE WITH 4'x6' TOP 30", 36" | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH | G | LENGTH | H,J | LENGTH | C,D | LENGTH | G | LENGTH | H | LENGTH | J | LENGTH | C | LENGTH | D | LENGTH | DEPTH | G | LENGTH | H | LENGTH | J | LENGTH | C | LENGTH | D | LENGTH | DEPTH |
| 3'-0" | 15 | 2'-3" | 22 | 3'-8" | 8 | 3'-8" | | | | | | | | | | | 3'-0" | | | | | | | | | | | |
| 3'-6" | 15 | 2'-9" | 22 | 3'-8" | 8 | 3'-8" | | | | | | | | | | | 3'-6" | | | | | | | | | | | |
| 4'-0" | 15 | 3'-3" | 29 | 3'-8" | 8 | 3'-8" | 17 | 3'-3" | 19 | 3'-8" | 10 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 4'-0" | 17 | 3'-8" | 19 | 3'-8" | 10 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 4'-0" |
| 4'-6" | 15 | 3'-9" | 29 | 3'-8" | 8 | 3'-8" | 17 | 3'-9" | 19 | 3'-8" | 10 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 4'-6" | 17 | 4'-2" | 19 | 3'-8" | 10 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 4'-6" |
| 5'-0" | 15 | 4'-3" | 35 | 3'-8" | 8 | 3'-8" | 17 | 4'-3" | 23 | 3'-8" | 13 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 5'-0" | 17 | 4'-8" | 23 | 3'-8" | 13 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 5'-0" |
| 5'-6" | 15 | 4'-9" | 35 | 3'-8" | 8 | 3'-8" | 17 | 4'-9" | 23 | 3'-8" | 13 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 5'-6" | 17 | 5'-2" | 23 | 3'-8" | 13 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 5'-6" |
| 6'-0" | 15 | 5'-3" | 41 | 3'-8" | 8 | 3'-8" | 17 | 5'-3" | 27 | 3'-8" | 15 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 6'-0" | 17 | 5'-8" | 27 | 3'-8" | 15 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 6'-0" |
| 6'-6" | 15 | 5'-9" | 41 | 3'-8" | 8 | 3'-8" | 17 | 5'-9" | 31 | 3'-8" | 15 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 6'-6" | 17 | 6'-2" | 31 | 3'-8" | 15 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 6'-6" |
| 7'-0" | 15 | 6'-3" | 47 | 3'-8" | 8 | 3'-8" | 17 | 6'-3" | 35 | 3'-8" | 17 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 7'-0" | 17 | 6'-8" | 35 | 3'-8" | 17 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 7'-0" |
| 7'-6" | 15 | 6'-9" | 47 | 3'-8" | 8 | 3'-8" | 17 | 6'-9" | 35 | 3'-8" | 17 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 7'-6" | 17 | 7'-2" | 35 | 3'-8" | 17 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 7'-6" |
| 8'-0" | 15 | 7'-3" | 53 | 3'-8" | 8 | 3'-8" | 17 | 7'-3" | 39 | 3'-8" | 19 | 5'-8" | 4 | 3'-8" | 4 | 5'-8" | 8'-0" | 17 | 7'-8" | 39 | 3'-8" | 19 | 5'-8" | 6 | 3'-8" | 4 | 5'-8" | 8'-0" |

STEEL AND CONCRETE QUANTITIES

| DEPTH | 4'x4' DROP INLET 12"-15"-18"-24" TYPE A CONC. C.Y. | STEEL LBS | 4'x6' DROP INLET WITH TWO GRATES 30" TYPE B 36" CONC. C.Y. | STEEL LBS | CONC. C.Y. | STEEL LBS | DEPTH | 4'x6' DROP INLET WITH ONE GRATES 30" TYPE C 36" CONC. C.Y. | STEEL LBS | CONC. C.Y. | STEEL LBS | DEPTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3'-0" | 1.7 | 150 | | | | | 3'-0" | | | | | |
| 3'-6" | 1.9 | 158 | | | | | 3'-6" | | | | | |
| 4'-0" | 2.1 | 193 | 2.7 | 228 | | | 4'-0" | 2.8 | 244 | | | |
| 4'-6" | 2.3 | 200 | 3.0 | 237 | 2.9 | 237 | 4'-6" | 3.1 | 252 | 3.0 | 252 | 4'-6" |
| 5'-0" | 2.6 | 231 | 3.3 | 279 | 3.2 | 279 | 5'-0" | 3.4 | 294 | 3.3 | 294 | 5'-0" |
| 5'-6" | 2.8 | 239 | 3.6 | 288 | 3.5 | 288 | 5'-6" | 3.7 | 303 | 3.6 | 303 | 5'-6" |
| 6'-0" | 3.0 | 270 | 3.9 | 324 | 3.8 | 324 | 6'-0" | 4.0 | 339 | 3.9 | 339 | 6'-0" |
| 6'-6" | 3.2 | 278 | 4.2 | 348 | 4.1 | 348 | 6'-6" | 4.3 | 363 | 4.2 | 363 | 6'-6" |
| 7'-0" | 3.5 | 308 | 4.5 | 384 | 4.4 | 384 | 7'-0" | 4.6 | 399 | 4.5 | 399 | 7'-0" |
| 7'-6" | 3.7 | 316 | 4.8 | 393 | 4.7 | 393 | 7'-6" | 4.9 | 408 | 4.8 | 408 | 7'-6" |
| 8'-0" | 3.9 | 347 | 5.1 | 429 | 5.0 | 429 | 8'-0" | 5.2 | 444 | 5.1 | 444 | 8'-0" |

FOR 2nd 30" PIPE DEDUCT 0.18 C.Y. FOR 2nd 42" PIPE DEDUCT 0.36 C.Y., OR 0.18 FOR 1 PIPE
FOR 2nd 36" PIPE DEDUCT 0.26 C.Y. FOR 2nd 48" PIPE DEDUCT 0.47 C.Y., OR 0.24 FOR 1 PIPE

ALL REINFORCING STEEL TO BE NO. 5 DEFORMED BARS, EVENLY SPACED WITH A MAXIMUM SPACING OF 12" C/C.

ALL STEEL TO HAVE 2 INCH MIN. COVER.

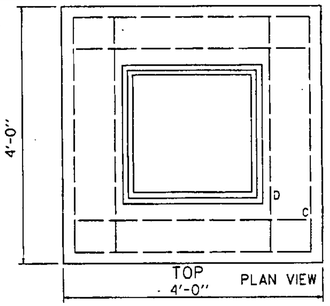
DROP INLET TO BE CONSTRUCTURED IN ACCORDANCE WITH STRUCTURAL CONCRETE, SECTION 501.

GRATES TO CONFORM TO DROP INLETS, CATCH BASINS, AND MANHOLES, SECTION 604.

FURNISHING AND LAYING OF BRICKS FOR ADJUSTING ELEVATION OF GRATE SHALL BE INCLUDED IN UNIT BID PRICE FOR CONCRETE, CLASS B, PAY ITEM 501.25, AND THEIR VOLUME TO BE INCLUDED IN THE FINAL QUANTITIES.

MORTAR, TYPE II, TO BE USED AS JOINT FILLER AND LAYING OF BRICK.

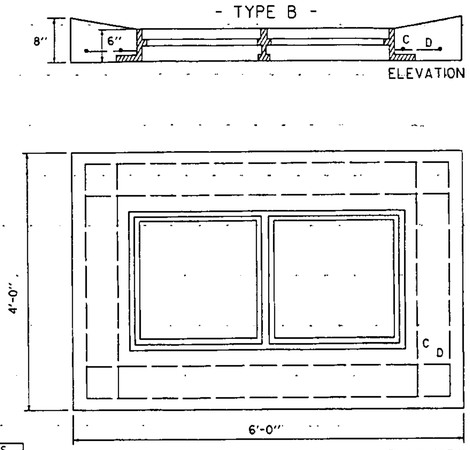
FOR PIPES OF 30" OR MORE IN DIAMETER, ALLOWANCE SHALL BE MADE FOR THE OPENING IN COMPUTING CONCRETE VOLUMES. THIS DEDUCTION WILL BE BASED ON THE RATED DIAMETER OF THE PIPE USED, WITH THE SAME DEDUCTION FOR CONCRETE AND METAL PIPE. ABOVE TABLES INDICATE DEDUCTION FOR ONE PIPE.




- TYPE D -

STEEL SCHEDULE TYPE D

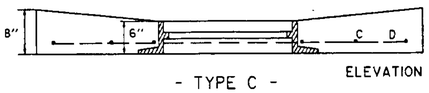
| 4'x6' DROP INLET WITH ONE GRATE WITH 4'x4' TOP 30", 36" | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| G | LENGTH | H | LENGTH | J | LENGTH | C | LENGTH | D | LENGTH | DEPTH |
| 17 | 3'-7" | 23 | 3'-8" | 13 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 5'-0" |
| 17 | 4'-1" | 23 | 3'-8" | 13 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 5'-6" |
| 17 | 4'-7" | 27 | 3'-8" | 15 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 6'-0" |
| 17 | 5'-1" | 31 | 3'-8" | 15 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 6'-6" |
| 17 | 5'-7" | 35 | 3'-8" | 17 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 7'-0" |
| 17 | 6'-1" | 35 | 3'-8" | 17 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 7'-6" |
| 17 | 6'-7" | 39 | 3'-8" | 19 | 5'-8" | 12 | 3'-8" | 4<br>4 | 5'-8"<br>3'-8" | 8'-0" |



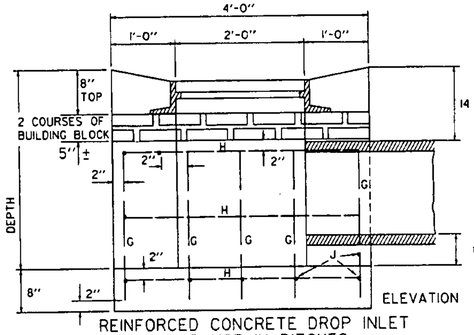

4'x6' DROP INLET
TOP WITH TWO CAST IRON GRATES

STEEL AND CONCRETE QUANTITIES
4'x6' DROP INLET WITH ONE GRATE WITH 4'x4' TOP TYPE D

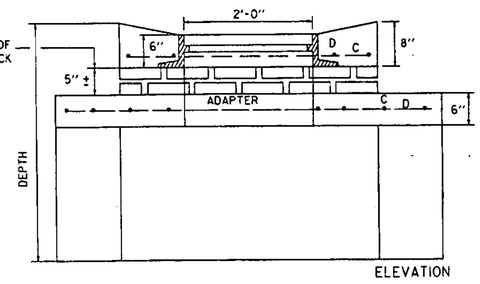
| DEPTH | 30" STEEL LBS | 30" CONC. C.Y. | 36" CONC. C.Y. | 36" STEEL LBS |
|---|---|---|---|---|
| 5'-0" | 3.2 | 313 | 3.1 | 313 |
| 5'-6" | 3.5 | 322 | 3.4 | 322 |
| 6'-0" | 3.8 | 358 | 3.7 | 358 |
| 6'-6" | 4.1 | 382 | 4.0 | 382 |
| 7'-0" | 4.4 | 418 | 4.3 | 418 |
| 7'-6" | 4.7 | 427 | 4.6 | 427 |
| 8'-0" | 5.0 | 463 | 4.9 | 463 |



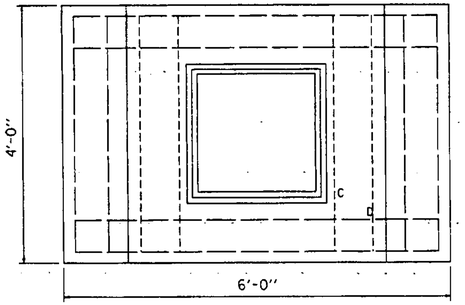

- TYPE C -



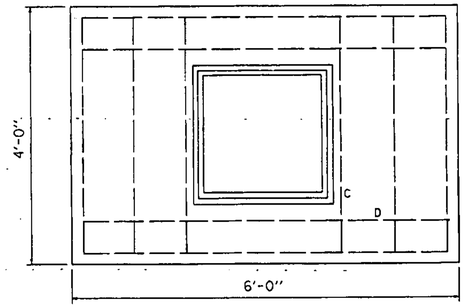

REINFORCED CONCRETE DROP INLET
FOR USE IN DITCHES




4'x6' DROP INLET
WITH 4'x4' TOP
TOP WITH ONE CAST IRON GRATE




TOP AND ADAPTER PLAN VIEW




4'x6' DROP INLET
TOP WITH ONE CAST IRON GRATE

REVISIONS AND CORRECTIONS

APR. 4, 1973 - ORIGINAL APPROVAL
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

DIRECTOR OF ENGINEERING

DESIGN ENGINEER)

# REINFORCED CONCRETE DROP INLET WITH GRATE FOR USE IN DITCHES

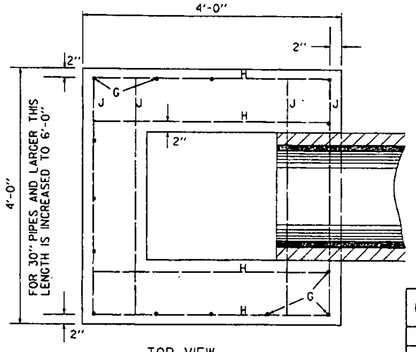
VERMONT AGENCY OF TRANSPORTATION

STANDARD
D-6

## REINFORCED CONCRETE DROP INLET WITH GRATE ( BOTTOM SECTION )

SEE SHEETS D-9,D-10,D-11, AND D-16 FOR TOP SECTION

MINIMUM DEPTH FOR
15" 3'-6"
18" 3'-6"
24" 4'-0"



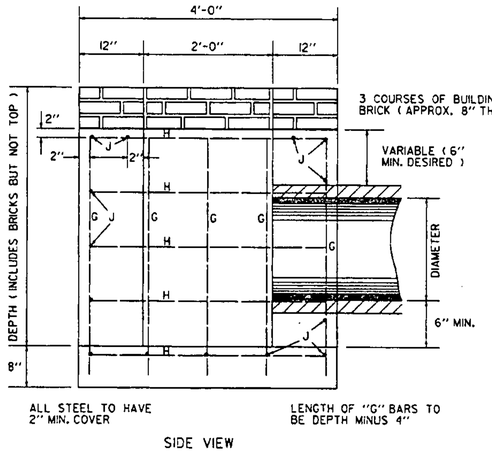

TOP VIEW

| STEEL SCHEDULE FOR DROP INLET ( BOTTOM SECTION ONLY ) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH | 12" TO 24" DIAMETER 4' x 4' D.I. | | | | | | 30" DIAMETER 4' x 6' D.I. | | | | | |
| | NO. J | LENGTH | NO. H | LENGTH | NO. G | LENGTH | NO. J | LENGTH | NO. H | LENGTH | NO. G | LENGTH |
| 3'-0" | 12 | 3'-8" | 13 | 3'-8" | 15 | 2'-8" | | | | | | |
| 3'-6" | 12 | 3'-8" | 13 | 3'-8" | 15 | 3'-2" | | | | | | |
| 4'-0" | 14 | 3'-8" | 15 | 3'-8" | 15 | 3'-8" | | | | | | |
| 4'-6" | 14 | 3'-8" | 15 | 3'-8" | 15 | 4'-2" | 12 | 5'-8" | 17 | 3'-8" | 17 | 4'-2" |
| 5'-0" | 16 | 3'-8" | 17 | 3'-8" | 15 | 4'-8" | 14 | 5'-8" | 19 | 3'-8" | 17 | 4'-8" |
| 5'-6" | 16 | 3'-8" | 17 | 3'-8" | 15 | 5'-2" | 14 | 5'-8" | 19 | 3'-8" | 17 | 5'-2" |
| 6'-0" | 18 | 3'-8" | 19 | 3'-8" | 15 | 5'-8" | 16 | 5'-8" | 21 | 3'-8" | 17 | 5'-8" |

| DEPTH | 36" DIAMETER 4' x 6' D.I. | | | | | |
|---|---|---|---|---|---|---|
| | NO. J | LENGTH | NO. H | LENGTH | NO. G | LENGTH |
| 5'-0" | 14 | 5'-8" | 19 | 3'-8" | 17 | 4'-8" |
| 5'-6" | 14 | 5'-8" | 19 | 3'-8" | 17 | 5'-2" |
| 6'-0" | 16 | 5'-8" | 21 | 3'-8" | 17 | 5'-8" |

BRICKS ARE INCLUDED IN CONCRETE QUANTITIES IN CHART

| CONCRETE AND STEEL QUANTITIES FOR DROP INLETS ( BOTTOM SECTION ONLY ) | | | | | | |
|---|---|---|---|---|---|---|
| DEPTH | 12"-24" DIA. | | 30" DIA. | | 36" DIA. | |
| | CONC BY C.Y. | STEEL | CONC BY C.Y. | STEEL | CONC BY C.Y. | STEEL |
| 3'-0" | 1.73 | 138 | | | | |
| 3'-6" | 1.95 | 145 | | | | |
| 4'-0" | 2.17 | 168 | | | | |
| 4'-6" | 2.40 | 176 | 3.08 | 210 | | |
| 5'-0" | 2.62 | 199 | 3.37 | 238 | 3.29 | 238 |
| 5'-6" | 2.84 | 207 | 3.67 | 247 | 3.59 | 247 |
| 6'-0" | 3.06 | 230 | 3.97 | 276 | 3.89 | 276 |




ALL STEEL TO HAVE 2" MIN. COVER

LENGTH OF "G" BARS TO BE DEPTH MINUS 4"

SIDE VIEW

TO FIND VOLUME OF CONCRETE FOR THE ENTIRE STRUCTURE, ADD THE VOLUME FOR THE TOP USED, TO THE VOLUME IN THIS TABLE. FOR VOLUME IN TOP, SEE SHEETS D-9, D-10.

ALL REINFORCING STEEL TO BE NO. 5 Ø DEFORMED BARS, EVENLY SPACED, WITH A MAXIMUM SPACING OF 12" CENTER TO CENTER.

DROP INLET TO BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURAL CONCRETE, SECTION 501.

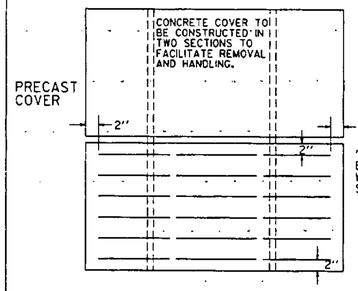
FURNISHING AND LAYING OF BRICKS FOR ADJUSTING ELEVATION OF GRATE, SHALL BE INCLUDED IN UNIT BID PRICE FOR CONCRETE, CLASS B, PAY ITEM 501.25, AND THEIR VOLUME TO BE INCLUDED IN THE FINAL QUANTITIES.

MORTAR, TYPE II, TO BE USED FOR JOINT FILLER AND LAYING OF BRICK.

FOR PIPES OF 30" OR MORE IN DIAMETER, ALLOWANCE SHALL BE MADE FOR THE OPENING IN COMPUTING CONCRETE VOLUMES. THIS DEDUCTION WILL BE BASED ON THE RATED DIAMETER OF THE PIPE USED, WITH THE SAME DEDUCTION FOR CONCRETE AND METAL PIPE.

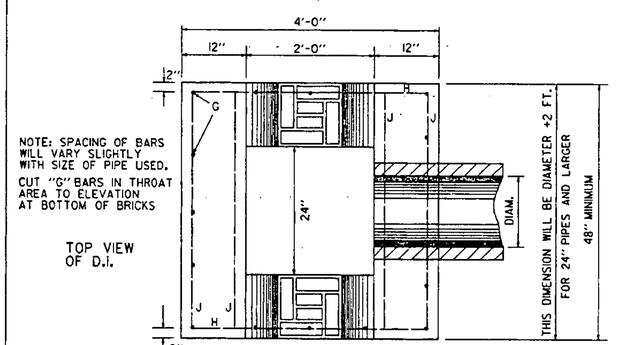
## REINFORCED CONCRETE DROP INLET WITH PRECAST COVER

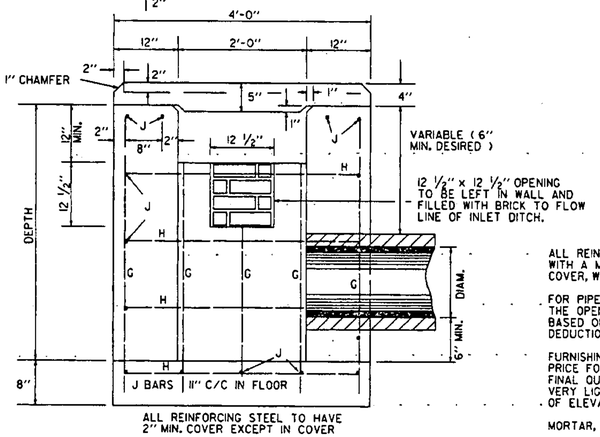
DROP INLET AND COVER TO BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURAL CONCRETE, SECTION 501




| STEEL SCHEDULE FOR DROP INLETS WITH PRECAST COVERS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEPTH | 12" TO 24" DIAMETER | | | | 30" DIAMETER | | | | | | | |
| | G | LENGTH | H-J | LENGTH | G | LENGTH | J | LENGTH | H | LENGTH | | |
| 2'-0" | 15 | 2'-4" | 31 | 3'-8" | | | | | | | | |
| 2'-6" | 15 | 2'-10" | 33 | 3'-8" | | | | | | | | |
| 3'-0" | 15 | 3'-4" | 36 | 3'-8" | | | | | | | | |
| 3'-6" | 15 | 3'-10" | 36 | 3'-8" | 16 | 3'-10" | 12 | 4'-2" | 23 | 3'-8" | | |
| 4'-0" | 15 | 4'-4" | 39 | 3'-8" | 16 | 4'-4" | 14 | 4'-2" | 23 | 3'-8" | | |
| 4'-6" | 15 | 4'-10" | 39 | 3'-8" | 16 | 4'-10" | 14 | 4'-2" | 25 | 3'-8" | | |
| 5'-0" | 15 | 5'-4" | 42 | 3'-8" | 16 | 5'-4" | 16 | 4'-2" | 25 | 3'-8" | | |
| 5'-6" | 15 | 5'-10" | 42 | 3'-8" | 16 | 5'-10" | 16 | 4'-2" | 27 | 3'-8" | | |
| 6'-0" | 15 | 6'-4" | 45 | 3'-8" | 16 | 6'-4" | 18 | 4'-2" | 27 | 3'-8" | | |

| DEPTH | 36" DIAMETER | | | | |
|---|---|---|---|---|---|
| | G | LENGTH | J | LENGTH | H | LENGTH |
| 4'-0" | 16 | 4'-4" | 14 | 4'-8" | 28 | 3'-8" |
| 4'-6" | 16 | 4'-10" | 14 | 4'-8" | 28 | 3'-8" |
| 5'-0" | 16 | 5'-4" | 16 | 4'-8" | 30 | 3'-8" |
| 5'-6" | 16 | 5'-10" | 16 | 4'-8" | 30 | 3'-8" |
| 6'-0" | 16 | 6'-4" | 18 | 4'-8" | 32 | 3'-8" |




ALL REINFORCING STEEL TO HAVE 2" MIN. COVER EXCEPT IN COVER

SIDE VIEW OF D.I.

| CONCRETE AND STEEL QUANTITIES FOR DROP INLETS OF VARIOUS DEPTHS | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| DROP INLETS WITH PRECAST COVERS | | | | | | | | |
| DEPTH | 12" 15" 18" | | 24" | | 30" | | 36" | |
| | CONC BY C.Y. | STEEL LBS | CONC BY C.Y. | STEEL LBS. | CONC BY C.Y. | STEEL LBS | CONC BY C.Y. | STEEL LBS. |
| 2'-0" | 1.4 | 155 | | | | | | |
| 2'-6" | 1.6 | 171 | 1.6 | 171 | | | | |
| 3'-0" | 1.8 | 190 | 1.8 | 190 | | | | |
| 3'-6" | 2.0 | 198 | 2.0 | 198 | 2.1 | 204 | | |
| 4'-0" | 2.3 | 217 | 2.3 | 217 | 2.3 | 221 | 2.5 | 248 |
| 4'-6" | 2.5 | 225 | 2.5 | 225 | 2.6 | 237 | 2.7 | 256 |
| 5'-0" | 2.7 | 244 | 2.7 | 244 | 2.8 | 254 | 3.0 | 282 |
| 5'-6" | 2.9 | 252 | 2.9 | 252 | 3.0 | 270 | 3.2 | 290 |
| 6'-0" | 3.2 | 271 | 3.2 | 271 | 3.3 | 287 | 3.5 | 316 |

ALL REINFORCING BARS SHALL BE NO.5 Ø DEFORMED BARS, EVENLY SPACED, WITH A MAXIMUM SPACING OF 12" CENTER TO CENTER, EXCEPT IN THE COVER, WHERE THE MAXIMUM SPACING IS 4" CENTER TO CENTER.

FOR PIPES OF 30" OR MORE IN DIAMETER, ALLOWANCE SHALL BE MADE FOR THE OPENING IN COMPUTING CONCRETE VOLUMES. THIS DEDUCTION WILL BE BASED ON THE RATED DIAMETER OF THE PIPE USED, WITH THE SAME DEDUCTION FOR CONCRETE AND METAL PIPE.

FURNISHING AND LAYING OF BRICKS, SHALL BE INCLUDED IN THE UNIT BID PRICE FOR CONCRETE, CLASS B, AND THEIR VOLUME TO BE INCLUDED IN THE FINAL QUANTITIES. ONLY SUFFICIENT MORTAR TO BE USED TO PROVIDE A VERY LIGHT BOND TO ALLOW WITH EASE, FUTURE REMOVAL, FOR CORRECTION OF ELEVATION OF FLOW LINE.

MORTAR, TYPE II, TO BE USED FOR JOINT FILLER AND LAYING OF BRICK.

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

Gordon R. MacAllister, P.E.
DIRECTOR OF ENGINEERING

John M. Murphy, P.E.
DESIGN ENGINEER

**REINFORCED CONCRETE DROP INLET WITH PRECAST COVER**

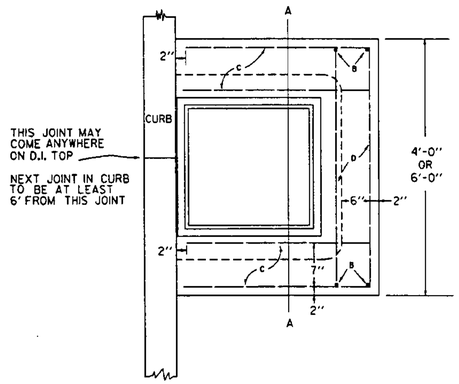
**REINFORCED CONCRETE DROP INLET WITH GRATE ( BOTTOM SECTION )**

**( SEE SHEETS D-9, D-10, AND D11 FOR TOP SECTION )**

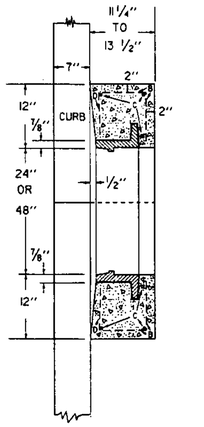
VERMONT AGENCY OF TRANSPORTATION

# STANDARD D-8

## REINFORCED CONCRETE DROP INLET TOP WITH VERTICAL CURB



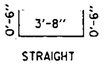

PLAN




SECTION A-A

### STEEL SCHEDULE FOR 4'-0" X 4'-0" D.I.

| BAR | NO | LENGTH |
|---|---|---|
| B | 2 | 4'-8" |
| C | 6 | 2'-9" |
| D | 2 | 3'-8" |



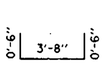

STRAIGHT

STRAIGHT

CONCRETE CLASS B 0.28 C.Y.
REINFORCING STEEL 35 LBS.

### STEEL SCHEDULE FOR 4'-0" X 6'-0" D.I.

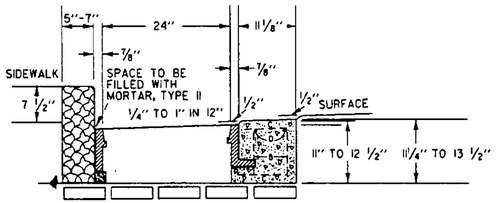
| BAR | NO | LENGTH |
|---|---|---|
| B | 2 | 6'-8" |
| C | 6 | 2'-9" |
| D | 2 | 5'-8" |




STRAIGHT

STRAIGHT

CONCRETE CLASS B 0.34 C.Y.
REINFORCING STEEL 43 LBS.




DEPTH OF CURB ACROSS D.I. TO BE 18" ± 1"

ELEVATION OF REINFORCED CONCRETE DROP INLET TOP WITH VERTICAL CURB

### GENERAL NOTES

CONCRETE TO CONFORM TO STRUCTURAL CONCRETE, SECTION 501.

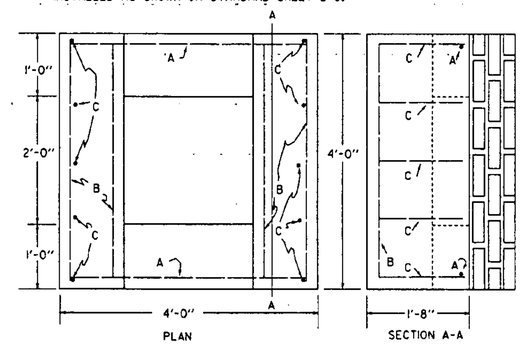
ALL REINFORCING STEEL TO BE No. 5 DEFORMED BARS.

THESE TOPS TO BE USED WITH BOTTOM SECTIONS SHOWN ON STANDARD SHEETS D-5, D-8, AND D-13.

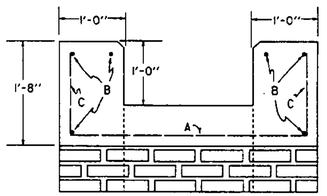
ALL REINFORCING STEEL TO HAVE A 2" MINIMUM COVER

CAST IRON GRATE AND FRAME IN ACCORDANCE AND PAID FOR UNDER SECTION 604.

PRECAST COVER TO BE CONSTRUCTED AND INSTALLED AS SHOWN ON STANDARD SHEET D-8.




PLAN SECTION A-A




ELEVATION

CONCRETE THROAT ADAPTER

STEEL SCHEDULE

| BAR | NO | LENGTH | TYPE |
|---|---|---|---|
| A | 2 | 3' - 8" | STRAIGHT |
| B | 6 | 3' - 8" | STRAIGHT |
| C | 10 | 1' - 4" | STRAIGHT |

ALL REINFORCING STEEL TO BE No. 5 DEFORMED BARS.

CONCRETE TO CONFORM TO STRUCTURAL CONCRETE SECTION 501.

CONCRETE CLASS B 0.59 C.Y.
( NOT INCLUDING COVER )
REINFORCING STEEL 45 LBS.

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

Scott A. MacArthur PE
DIRECTOR OF ENGINEERING

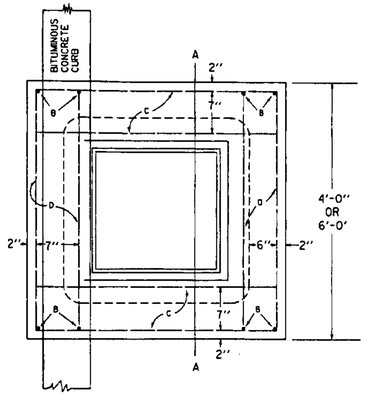
John M. Murphy PE
DESIGN ENGINEER

# REINFORCED CONCRETE DROP INLET WITH VERTICAL CURB

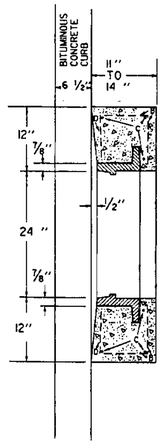
# REINFORCED CONCRETE DROP INLET THROAT ADAPTER

VERMONT AGENCY OF TRANSPORTATION

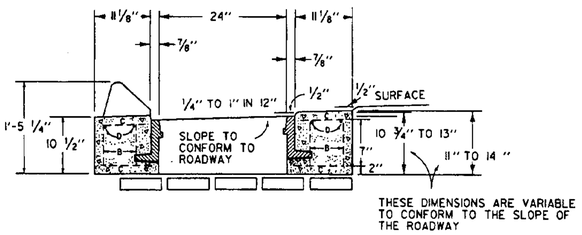
# STANDARD D-9




PLAN




SECTION A-A




ELEVATION

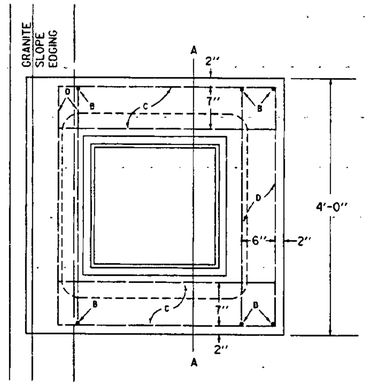
4'-0" X 4'-0"
STEEL SCHEDULE

| BAR | NO | LENGTH | |
|---|---|---|---|
| B | 4 | 4'-8" | 3'-8" STRAIGHT |
| C | 6 | 3'-6" | STRAIGHT |
| D | 4 | 3'-8" | |

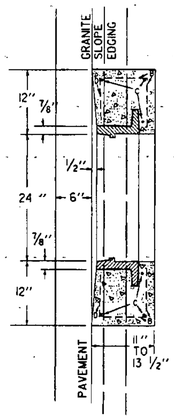
CONCRETE CLASS B = 0.41 C.Y.
REINFORCING STEEL = 58 LBS.

4'-0" X 6'-0"
CONCRETE CLASS B = 0.54 C.Y.
REINFORCING STEEL = 74 LBS.

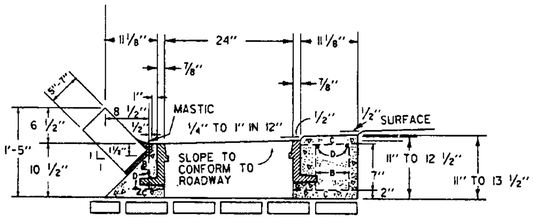
TOP FOR A REINFORCED CONCRETE DROP INLET WITH BITUMINOUS CONCRETE CURB




PLAN




SECTION A-A




ELEVATION

4'-0" X 4'-0"
STEEL SCHEDULE

| BAR | NO | LENGTH | |
|---|---|---|---|
| B | 2<br>1 | 4'-8"<br>4'-4" | 4" OR 6" 3'-8" 4" OR 6" |
| C | 4<br>2 | 3'-4"<br>2'-10" | STRAIGHT |
| D | 4 | 3'-8" | STRAIGHT |

CONCRETE CLASS B = 0.33 C.Y.
REINFORCING STEEL = 48 LBS.

4'-0" X 6'-0"
CONCRETE CLASS B = 0.42 C.Y.
REINFORCING STEEL = 63 LBS.

TOP FOR A REINFORCED CONCRETE DROP INLET WITH GRANITE SLOPE EDGING

GENERAL NOTES

ALL REINFORCING STEEL TO BE No. 5 DEFORMED BARS.

FOR CAST IRON GRATE AND FRAME DETAIL, SEE STANDARD SHEET D-11 OR D-16.

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

DIRECTOR OF ENGINEERING

DESIGN ENGINEER PE

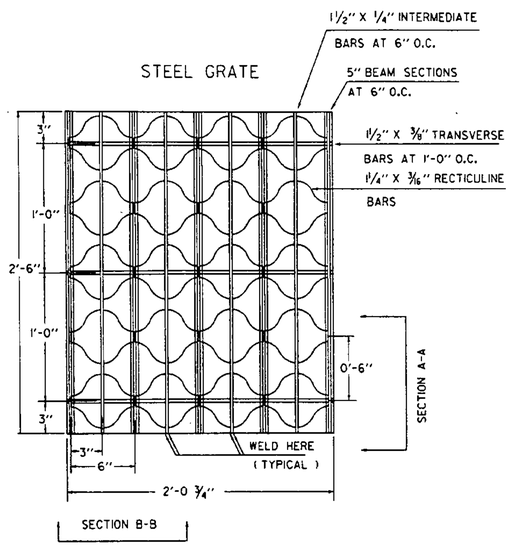
# TOP FOR A DROP INLET WITH BITUMINOUS CONCRETE CURB TOP FOR A DROP INLET GRANITE SLOPE EDGING

VERMONT AGENCY OF TRANSPORTATION

STANDARD

D-10

## STEEL GRATE

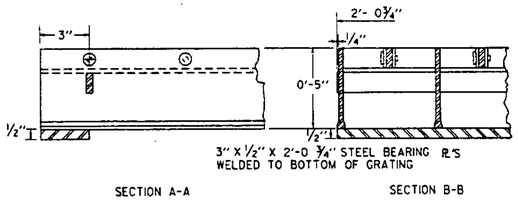



PLAN

GRATE SIZE SINGLE 24 ¾" X 30"
DOUBLE 24 ¾" X 54"

WEIGHT 95 LBS OR MORE
GRATES SHALL BE CAPABLE OF SUPPORTING H-20 ( 32,000 LB. AXLE LOAD ) INCLUDING 30% IMPACT.

| UNIT STRESSES ( LBS PER SQ. IN. ) | | 18,000 | 20,000 |
|---|---|---|---|
| MAIN BAR PARALLEL TO TRAFFIC | H-20 | 49" | 53" |
| MAIN BAR PERPENDICULAR TO TRAFFIC | H-20 | 39" | 42" |

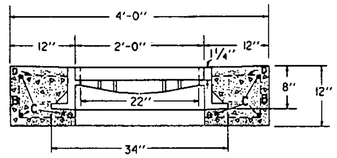



SECTION A-A SECTION B-B

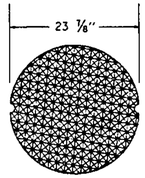
## CAST IRON COVER WITH FRAME

| BAR | NO. | LENGTH | |
|---|---|---|---|
| B | 4 | | 8" 3'-8" 8" |
| C | 6 | 3'-8" | STRAIGHT |
| D | 4 | 3'-8" | STRAIGHT |

ALL REINFORCING STEEL TO BE No. 5 DEFORMED BARS



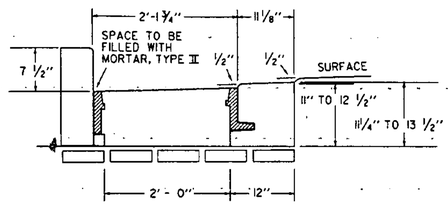

ELEVATION




GENERAL NOTES:
WEIGHT OF FRAME AND COVER = 425 LBS.

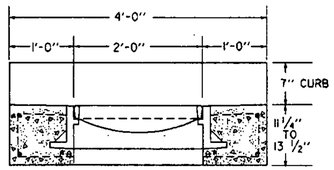
PLAN

## CAST IRON GRATE WITH FRAME




ELEVATION OF REINFORCED CONCRETE DROP INLET WITH VERTICAL GRANITE CURB AND 3 FLANGE CAST IRON FRAME FOR CAST IRON GRATE

SEE STANDARD D-9 FOR CONCRETE VOLUME, REINFORCING STEEL SCHEDULE, AND CURB JOINT DETAIL.

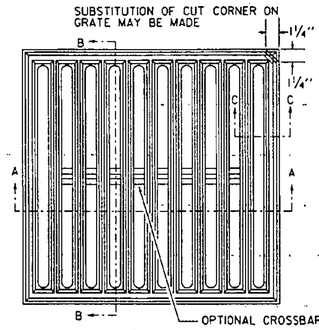



ELEVATION

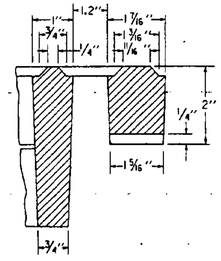
WEIGHT OF 3 FLANGED FRAME AND GRATE

| | |
|---|---|
| GRATE | 220 LBS |
| FRAME | 260 LBS |
| TOTAL | 480 LBS |

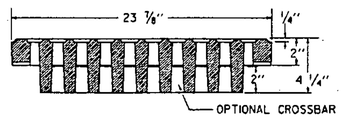
## CAST IRON GRATE, TYPE A



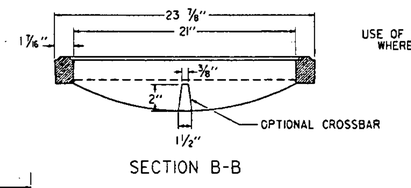

PLAN




SECTION C-C

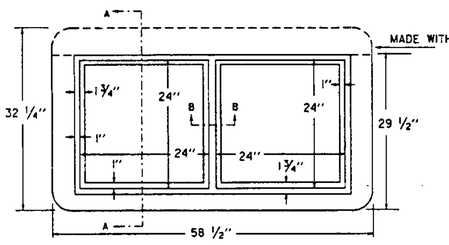



SECTION A-A

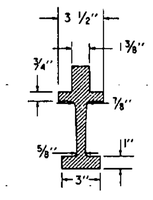



SECTION B-B

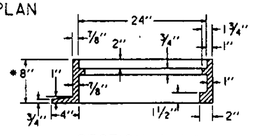
USE OF THE TYPE A GRATE IS PROHIBITED WHERE BICYCLE TRAFFIC IS EXPECTED




PLAN

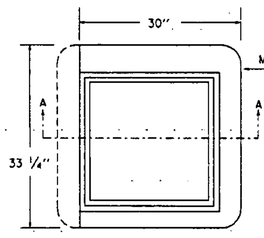



SECTION B-B

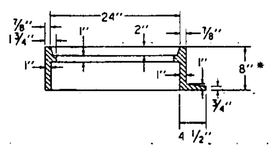



SECTION A-A

RECTANGULAR CAST IRON FRAME FOR TWO 24" SQUARE CAST IRON GRATES




PLAN




SECTION A-A

SQUARE CAST IRON FRAME FOR CAST IRON GRATE TYPE A

* NOTE: FRAME DEPTH TO BE "6" WHEN USED IN CONJUNCTION WITH DROP INLET DETAILED ON STANDARD D-6.

THIS FRAME TO BE PLACED IN DROP INLET TOP BEFORE CONCRETE IS POURED.

4 FLANGES UNLESS OTHERWISE INDICATED. FRAMES TO BE FURNISHED WITH 3 FLANGES WHEN USED IN CONJUNCTION WITH CURB OR AS DIRECTED BY THE ENGINEER.

REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL
APR. 25, 1972 - CAST IRON COVER CHANGED FROM SQUARE TO CIRCULAR
SEPT. 4, 1980 - OPTIONAL CROSSBAR ADDED TO A GRATE; NOTE ADDED TO A GRATE FRAME DETAIL
AUG. 25, 1981 - NOTE ADDED RESTRICTING USE OF TYPE A GRATE
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

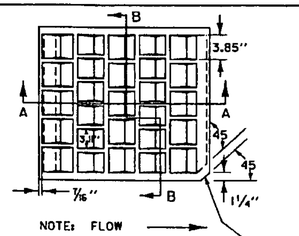
Gordon S. MacArthur, P.E.
DIRECTOR OF ENGINEERING

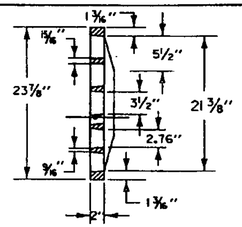
Robert M. Murphy, P.E.
DESIGN ENGINEER

# STEEL GRATE
# CAST IRON GRATE TYPE A
# CAST IRON COVER

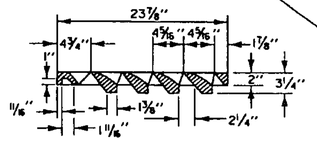
VERMONT AGENCY OF TRANSPORTATION

# STANDARD D-11



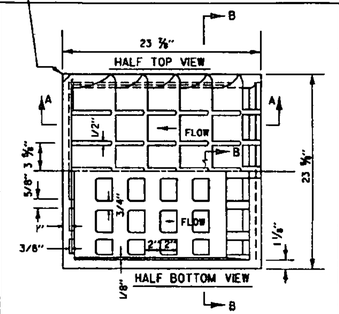

NOTE: THIS CORNER LEFT OFF FOR "RIGHT" GRATE DIAGONALLY OPPOSITE CORNER FOR "LEFT" GRATE TO FIT IN KEYED FRAMES.

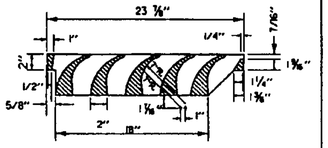


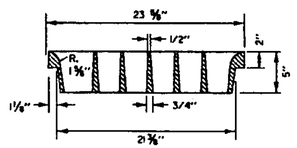

THIS CORNER LEFT OFF FOR "RIGHT" GRATE, DIAG. OPPOSITE CORNER FOR "LEFT" GRATE, TO FIT IN KEYED FRAMES.

TYPE "E" GRATE
( NOT TO SCALE )

NOTE: ALTERNATE TYPE E GRATE BELOW



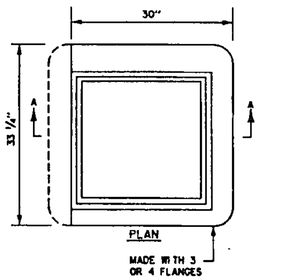

SECTION B-B

CAST IRON GRATE
TYPE E

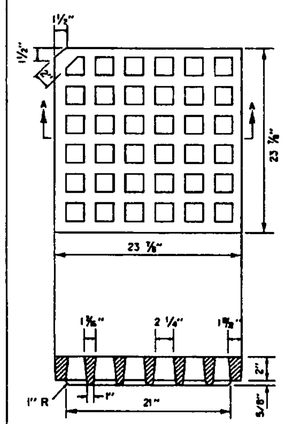
NOTE: THIS FRAME TO BE PLACED IN DROP INLET TOP BEFORE CONCRETE IS POURED.

4 FLANGES UNLESS OTHERWISE INDICATED.

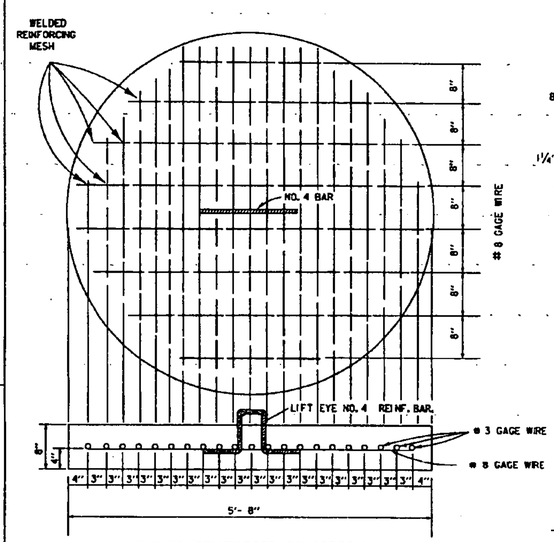
FRAMES TO BE FURNISHED WITH 3 FLANGES WHEN USED IN CONJUNCTION WITH CURB OR AS DIRECTED BY THE ENGINEER.



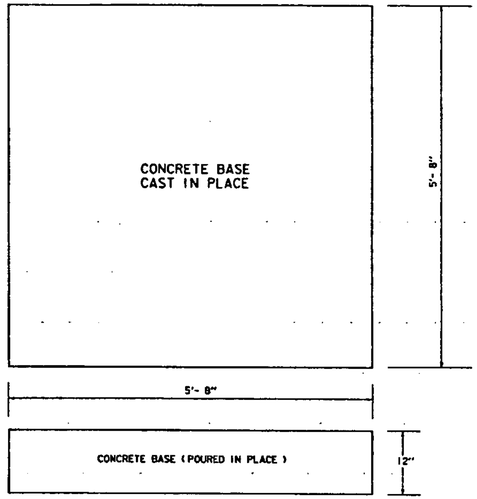

FRAME
FOR
TYPE D OR TYPE E
GRATE

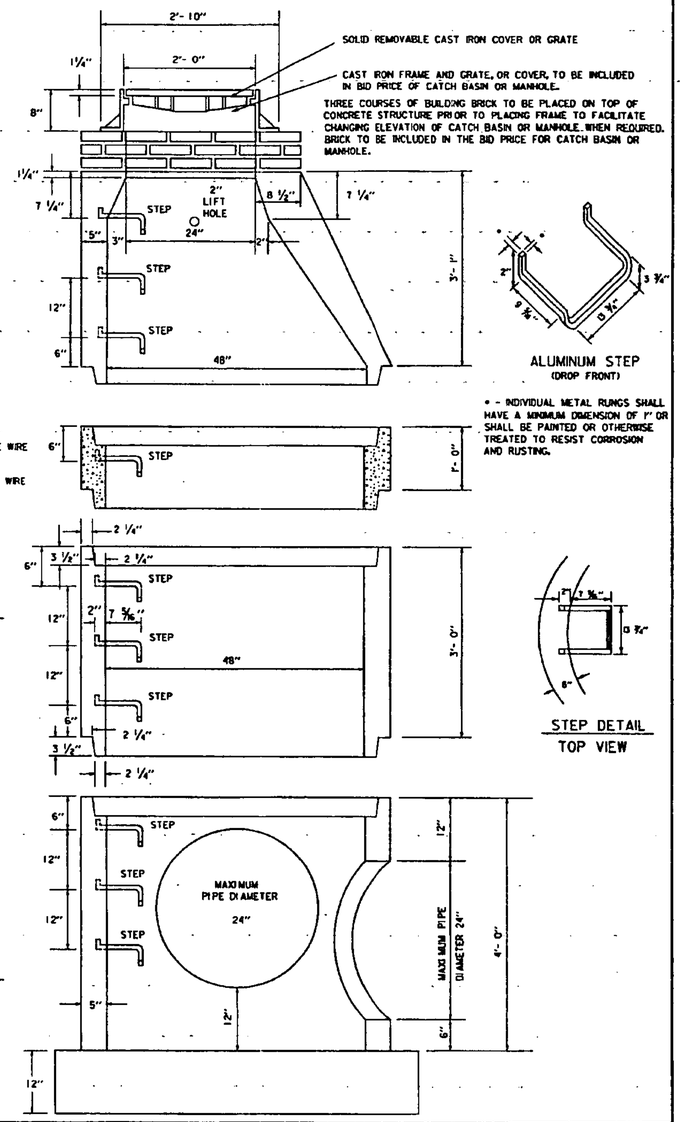



CAST IRON GRATE
TYPE D




PRECAST REINFORCED CONCRETE BASE




## REVISIONS AND CORRECTIONS

DEC. 6, 1971 - ORIGINAL APPROVAL
OCT. 22, 1976 - CAST IRON GRATE WITH FRAME, TYPE E ADDED
OCT. 6, 1978 - TYPE D GRATE ADDED
OCT. 30, 1985 - IMPERFECT TRENCH DETAILS DELETED
FEB. 17, 1993 - SECOND CAST IRON GRATE TYPE E ADDED.
MAR. 23, 1994 - ADDED NOTE FOR STEP DETAILS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

DIRECTOR OF ENGINEERING

DESIGN ENGINEER

# PRECAST REINFORCED CONCRETE CATCH BASIN W/ CAST IRON GRATE
# PRECAST REINFORCED CONCRETE MANHOLE W/ CAST IRON COVER

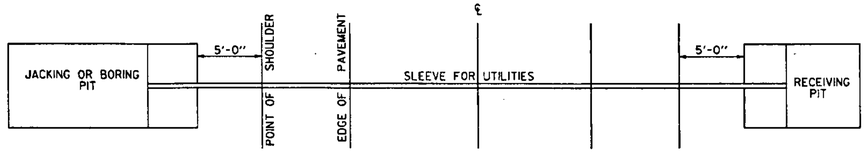
## CAST IRON GRATE WITH FRAME, TYPE D
## CAST IRON GRATE WITH FRAME, TYPE E

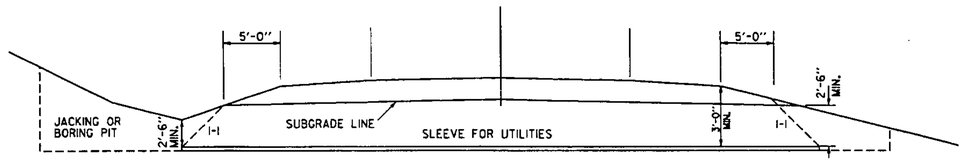
VERMONT AGENCY OF TRANSPORTATION

STANDARD
D-15

## DETAIL 'A'

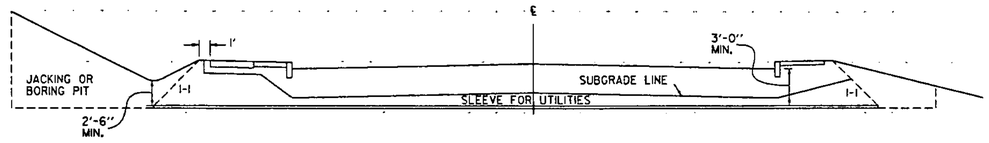
JACKING OR BORING
RURAL TYPICAL

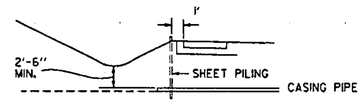



## DETAIL 'B'

JACKING OR BORING
URBAN TYPICAL



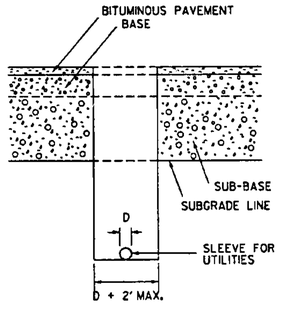




USING SHEET PILING

OPEN CUT AND PAVEMENT REPLACEMENT
APPLICABLE ONLY WHEN SPECIFICALLY AUTHORIZED BY HIGHWAY PERMIT

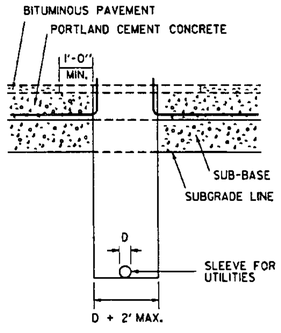
## DETAIL 'C'
OPEN CUT WITH
BITUMINOUS CONCRETE PAVEMENT

BITUMINOUS TREATED BASE MATERIALS TO BE REPLACED WITH BITUMINOUS CONCRETE



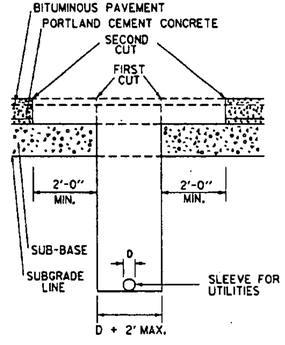

## DETAIL 'D'
OPEN CUT WITH
PORTLAND CEMENT CONCRETE PAVEMENT

LONGITUDINAL STEEL TO BE CUT AND BENT BACK TO ALLOW FOR TRENCH EXCAVATION. REINFORCING BARS TO BE BENT BACK IN PLACE, SPLICED, AND NEW CROSS REINFORCING STEEL TO BE TIED TO THE LONGITUDINAL BARS PRIOR TO REPLACING THE PORTLAND CEMENT CONCRETE.



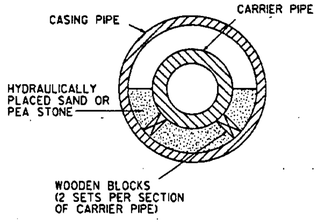

## DETAIL 'E'
OPEN CUT WITH
PORTLAND CEMENT CONCRETE PAVEMENT

THE FIRST CUT WILL BE TO THE DESIRED WIDTH OF THE TRENCH. BACKFILL IS TO BE MADE TO THE ROAD SURFACE. THE SECOND CUT WILL THEN BE MADE AND ALL MATERIAL REMOVED TO THE BOTTOM ELEVATION OF THE CONCRETE SLAB. THE SUB-BASE WILL THEN BE RE-COMPACTED AND THE PORTLAND CEMENT CONCRETE REPLACED.

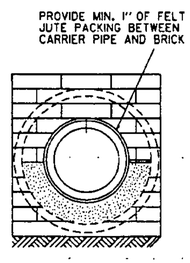



IN THE EVENT THAT AN ADJACENT TRANSVERSE JOINT IS LESS THAN FOUR FEET FROM THE FIRST CUT, THE PAVEMENT SHALL BE REMOVED TO THAT JOINT.

## DETAIL 'F'
CASING AND CARRIER PIPE
(SLEEVE FOR UTILITIES)




OTHER METHODS OF SUPPORTING THE CARRIER PIPE MAY BE USED WHEN APPROVED BY THE ENGINEER.




WALL TO BE CONSTRUCTED AT ENDS OF CASING PIPE OR AS DIRECTED BY THE ENGINEER

CONSTRUCT WALL OF BRICK OR OTHER SUITABLE MATERIAL ON UNDISTURBED FOUNDATION

NOTE : MEASUREMENT FOR PAYMENT OF THIS COMPOSITE SLEEVE IS THE NUMBER OF LINEAR FEET OF THE COMPLETED INSTALLATION

## GENERAL NOTES

1. SHEET PILING MAY BE DRIVEN VERTICALLY FIVE (5) FEET OUTSIDE THE SHOULDER POINT, OR ONE (1) FOOT BACK OF THE SIDEWALK, TO ALLOW FOR A SHORTER SLEEVE.
2. EARTH BACKFILL, TO BE MADE IN SIX (6) INCH LIFTS AND COMPACTED TO NOT LESS THAN 95% MAX. DRY DENSITY.
3. SEE DETAIL 'A' OR 'B' FOR DETERMINING SLEEVE LENGTH.
4. IN THE EVENT THAT PERMISSION IS GRANTED TO CUT AN EXISTING PORTLAND CEMENT CONCRETE OR BITUMINOUS PAVEMENT, ALL CUTS, IF POSSIBLE, SHALL BE MADE WITH A SAW TO A MINIMUM OF 1½'.
5. BITUMINOUS PAVEMENTS TO BE REPLACED WITH BITUMINOUS CONCRETE. PORTLAND CEMENT CONCRETE AND SUB-BASE TO BE REPLACED IN KIND. MATERIAL BELOW SUBGRADE TO BE REPLACED WITH EXCAVATED MATERIAL OR AS DIRECTED BY THE HIGHWAY ENGINEER.
6. SUB-BASE TO BE REPLACED IN SIX (6) INCH COMPACTED LAYERS.
7. PORTLAND CEMENT CONCRETE PATCHES SHALL BE PROPERLY CURED FOR SEVEN (7) DAYS BEFORE BEING SUBJECTED TO TRAFFIC LOADS. WHEN HIGH EARLY STRENGTH CEMENT IS USED, PROPER CURING FOR THREE (3) DAYS SHALL BE REQUIRED BEFORE BEING SUBJECTED TO TRAFFIC LOADS. WHEN A HIGH STRENGTH, QUICK SETTING CONCRETE PATCHING COMPOUND IS APPROVED, IT SHALL BE PROPERLY CURED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS BEFORE BEING SUBJECTED TO TRAFFIC LOADS.

## REVISIONS AND CORRECTIONS

DEC. 23, 1974 - ORIGINAL APPROVAL
SEPT. 9, 1975 - CARRIER PIPE AND PORTLAND CEMENT NOTES REVISED
OCT. 30, 1985 - REVISED TO CONFORM WITH 1986 SPECIFICATIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.
MAR. 10, 1995 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

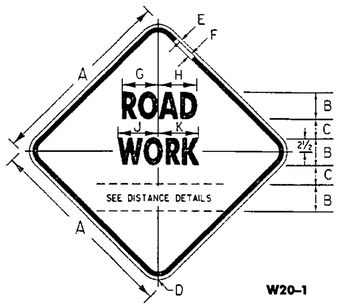
Gordon S. MacArthur
DIRECTOR OF ENGINEERING

Thomas Page
UTILITIES ENGINEER

# HIGHWAY CROSSING SLEEVES FOR UNDERGROUND UTILITIES

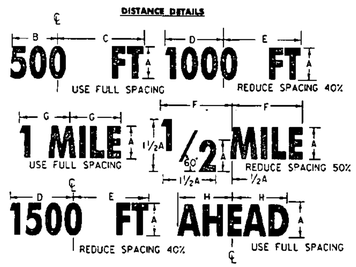
VERMONT AGENCY OF TRANSPORTATION

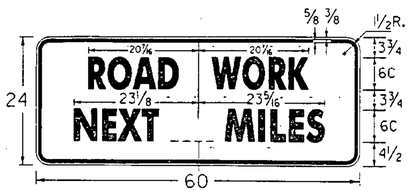
STANDARD
D-20




W20-1

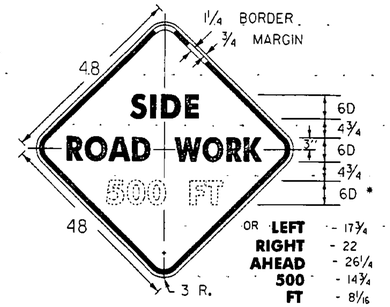
**DISTANCE DETAILS**




G20-1

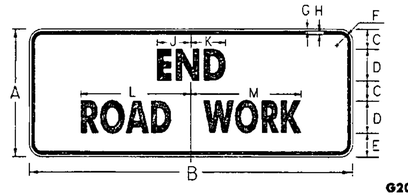
THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST ¼ MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED. (ALL DIMENSIONS SHOWN IN INCHES)




W20-1 * REDUCE SPACING 50%

| DIMENSIONS (INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K |
| STD. | 48 | 7C | 4¾ | 3" R. | ¾ | 1¼ | 9½ | 9⅛ | 10½ | 10⅜ |
| URBAN | 36 | 5C | 3⅝ | 2¼R. | ⅝ | ⅞ | 6⅞ | 7⅛ | 7½ | 7⅜ |

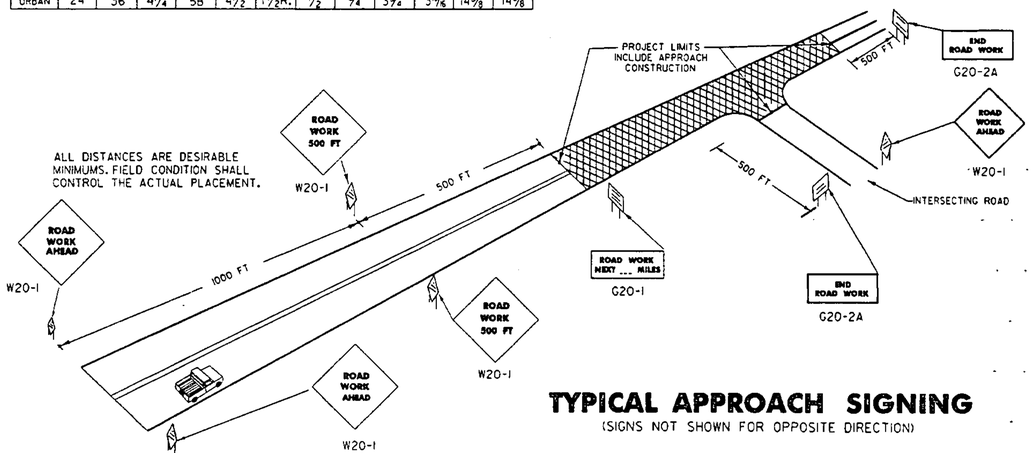
| DIMENSIONS (INCHES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H |
| 5D | 10¾ | 10⅜ | 11⅜ | 11¼ | 11¼ | 9½ | 10⅞ |
| 6C | 10⅜ | 10½ | 11¼ | 12 | 12½ | 9⅛ | 10½ |
| 7C | 12 | 12⅜ | 13⅛ | 14 | 14⅜ | 10⅝ | 12¼ |
| 8D | 16¼ | 17¼ | 17 | 18 | 18 | 14⅜ | 17⅞ |




G20-2A

| DIMENSIONS (INCHES) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M |
| STD. | 24 | 60 | 3¾ | 6C | 4½ | 1½R. | ⅝ | ⅝ | 6¼ | 6⅜ | 20⅞ | 20⅛ |
| URBAN | 24 | 36 | 4¼ | 5B | 4½ | 1½R. | ½ | ¾ | 3½ | 3⅛ | 14⅜ | 14⅜ |

**(ALL DIMENSIONS SHOWN IN INCHES UNLESS OTHERWISE NOTED)**




# TYPICAL APPROACH SIGNING

(SIGNS NOT SHOWN FOR OPPOSITE DIRECTION)

## NOTES

THE SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND\OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

**APPLICATION OF STANDARDS**

SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

**LOCATION**

THE SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

**DESIGN**

THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

**MATERIALS**

THE SIGN BASE MATERIAL USED FOR THE SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.

| | |
|---|---|
| FLAT SHEET ALUMINUM | 0.125 INCHES |
| HIGH DENSITY OVERLAYED PLYWOOD | 1/2, 5/8, OR 3/4 INCHES |
| GALVANIZED SHEET STEEL | 12 GAGE |

**RETROREFLECTORIZATION**

ALL RETROREFLECTORIZED MATERIAL SHALL CONSIST OF TYPE IIB OR TYPE III SHEETING.

**COLORS**

THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICALS AND APPROVED BY THE U.S. DEEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A RETROREFLECTORIZED ORANGE BACKGROUND.

**INSTALLATION**

THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 7 FEET ABOVE THE EDGE OF PAVEMENT, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT, 4 FEET OUTSIDE GUARD RAIL, OR 2 FEET OUTSIDE CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

**MAINTENANCE**

SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

## NOTES CONT.

**GENERAL**

THE COST OF FURNISHING, INSTALLING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

**SIGN COVERS**

SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK. THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING-ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

## SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS. THESE POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL BE MADE FROM GRADE 2, AIR-DRIED SOUTHERN YELLOW PINE OR ANOTHER EQUIVELANT SOFTWOOD. AN ACCEPTABLE EQUIVELANT SOFTWOOD SHALL HAVE AN EXTREME FIBER IN BENDING "Fb" DESIGN VALUE NOT TO EXCEED 1400 psi AND HORIZONTAL SHEAR "Fv" DESIGN VALUE NOT TO EXCEED 90 psi SPECIFICATION: "DESIGN VALUES FOR WOOD CONSTRUCTION" AND RELATED SUPPLEMENT, DATED 1986.

AS ESTABLISHED BY THE NATIONAL FOREST-PRODUCTS ASSOCIATION IN THEIR NATIONAL DESIGN

THE FOLLOWING ARE CONSIDERED TO BE ACCEPTABLE WOODEN POSTS:

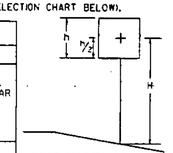
1. 4" X 4" (ACTUAL DIMENSIONS ARE 3.5" X 3.5")
   - A) ACCEPTABLE FOR SINGLE OR DUAL POSTS, INSTALLATION WITH NO MODIFICATIONS.
   - B) ACCEPTABLE FOR THREE POSTS ( OR MORE) INSTALLATION ONLY WHEN THERE ARE NO MORE THAN TWO POSTS IN A 7 FOOT PATH.
2. 4" X 6" (ACTUAL DIMENSIONS ARE 3.5" X 5.5")
   - A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 1 1/2" DIAMETER HOLES, ONE AT 4" AND THE OTHER 18" ABOVE THE GROUND LINE AND PERPINDICULAR TO THE ROADWAY CENTERLINE.
   - B) ACCEPTABLE FOR MULTIPLE POSTS (TWO OR MORE) INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
3. 6" X 6" (ACTUAL DIMENSIONS ARE 5.5" X 5.5")
   - A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 2" DIAMETER HOLES, ONE AT 4" AND THE OTHER AT 18" ABOVE THE GROUND LINE AND PERPINDICULAR TO ROADWAY CENTERLINE.
   - B) ACCEPTABLE FOR MULTIPLE POST INSTALLATION ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.
4. 6" X 8" (ACTUAL DIMENSIONS ARE 5.5" X 7.5")
   - A) ACCEPTABLE FOR SINGLE POST INSTALLATIONS ONLY WHEN MODIFIED BY DRILLING TWO 3" DIAMETER HOLES, ONE AT 4" AND THE OTHER AT 18" ABOVE THE GROUND LINE AND PERPINDICULAR TO THE ROADWAY CENTERLINE.
   - B) ACCEPTABLE FOR MULTIPLE POST INSTALLATIONS ONLY WHEN MODIFIED AS ABOVE AND THE MINIMUM SPACING BETWEEN POSTS IS 7 FEET.

**ADDITIONAL DESIGN CRITERIA:**

THE LONGER DIMENSION OF THE POST(S), SUCH AS THE 6" DIMENSION OF THE 4" X 6" POST, SHALL BE PLACED PARALLEL TO THE ROADWAY CENTERLINE.
ALL WOODEN POSTS SHALL HAVE AN EMBEDMENT DEPTH OF 4 FEET.
NO CROSS-BRACING OR BACK-BRACING TO KEEP THE POSTS PLUMB WILL BE ALLOWED.
CONCRETE FOUNDATIONS COLLARS OR SOIL BEARING PLATES ARE NOT PERMITTED.
CONSTRUCTIONS SIGNS SHALL BE PLACED ON TWO OR MORE POSTS WHEN ANY OF THE FOLLOWING CONDITIONS GOVERN:

- A) THE SIGN WIDTH (HORIZONTAL DIMENSIONS FOR DIAMOND SHAPED SIGNS) EXCEEDS 3 1/2 FEET.
- B) THE EXPOSED SIGN AREA OF ANY SINGLE SIGN OR ASSEMBLY EXCEEDS 12 ½ SQ. FEET.
- C) THE Sv OF A SINGLE POST IS EXCEEDED. (SEE THE POST SELECTION CHART BELOW).

| WOOD POST SELECTION CHART | | |
|---|---|---|
| SIGN AREA ($FT^2$) X HEIGHT (FT) ≤ Sv (SELECTION VALUE) | | |
| POST SIZE | Sv | DESIGN CRITERIA: |
| 4" X 4" | 64 | WIND SPEED = 60 MPH (10-YEAR |
| 4" X 6" | 147 | MEAN OCCURENCE INTERVAL) |
| 6" X 6" | 216 | WIND PRESSURE = 13 psf |
| 6" X 8" | 389 | ALLOWABLE BENDING STRESS b |




**POST SELECTION CHART DETAIL**

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

MAY 26, 1983 - DATE OF ORIGINAL ISSUE

OCT 21, 1992 - REVISED WOOD POST REQUIREMENTS, ADDED SIGN DETAILS, & REVISED TITLE BLOCK

AUG 08, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

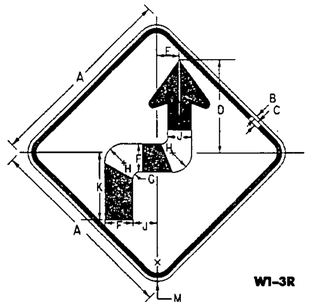
TRAFFIC AND SAFETY ENGINEER

# CONSTRUCTION APPROACH SIGNS

/traf/std/stdel00.dgn : stdel00.i

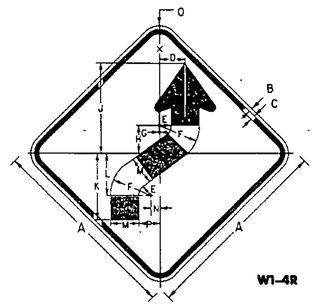
VERMONT AGENCY OF TRANSPORTATION

# STANDARD E-100



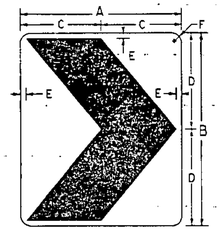
W1-3R

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M |
| STD. & MIN. | 36 | 5/8 | 7/8 | 17 1/16 | 4 7/32 | 5 1/4 | 1 1/4 | 3 5/8 | 4 1/2 | 12 5/32 | 1 3/32 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 23 3/16 | 5 5/8 | 7 | 1 5/8 | 4 7/8 | 6 | 16 3/8 | 2 3/16 | 3 |



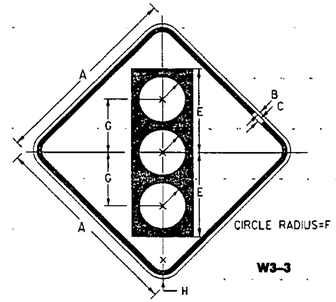
W1-4R

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q |
| STD. & MIN. | 36 | 5/8 | 7/8 | 4 13/32 | 2 1/4 | 7 1/2 | 5/32 | 5 1/4 | 16 7/8 | 12 3/8 | 7 1/8 | 5 1/4 | 1 11/16 | 3 5/16 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 6 5/16 | 3 | 10 | 5/16 | 7 | 22 1/2 | 16 1/2 | 10 1/2 | 7 | 2 1/4 | 5 1/4 | 3 |



W1-8

| SIGN | DIMENSIONS(INCHES) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| STD. | 18 | 24 | 9 | 12 | 3/4 | 1 1/2 |
| SPECIAL | 24 | 30 | 12 | 15 | 7/8 | 1 1/2 |
| EXPWY. | 30 | 36 | 15 | 18 | 1 | 1 7/8 |
| FRWY. | 36 | 48 | 18 | 24 | 1 1/8 | 2 1/4 |



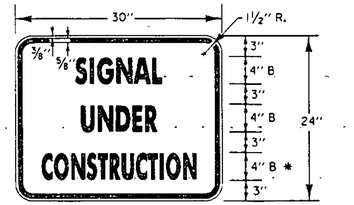
W3-3

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| STD. & MIN. | 36 | 5/8 | 7/8 | 5 3/4 | 15 3/4 | 4 1/4 | 10 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 7 1/2 | 20 | 5 | 12 1/2 | 3 |

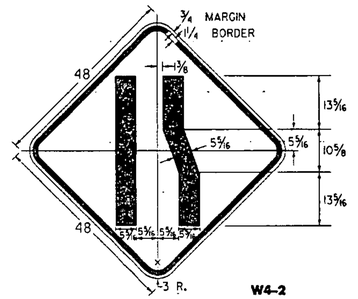
CIRCLE RADIUS=F

**COLORS**

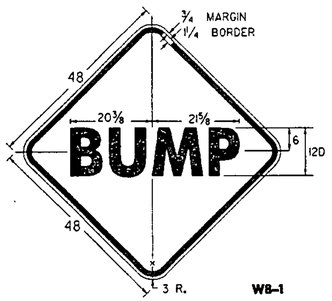
SYMBOL & LEGEND - BLACK ( NON-REFL)
BACKGROUND - ORANGE ( REFL )
TOP CIRCLE RED ( REFL )
MIDDLE CIRCLE YELLOW ( REFL )
BOTTOM CIRCLE GREEN ( REFL )



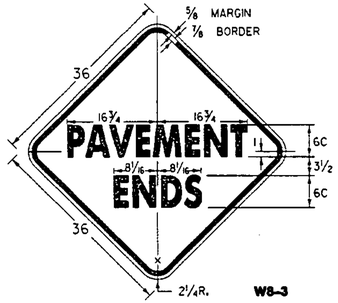

* REDUCE SPACING 50%



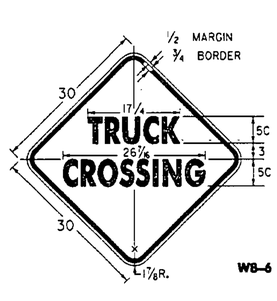

W4-2



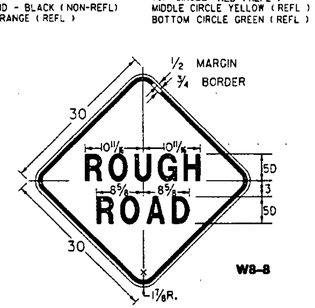

W8-1



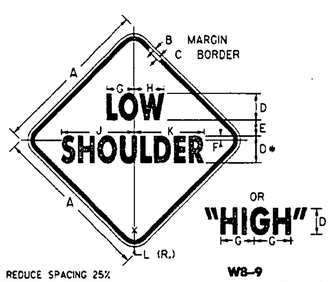

W8-3




W8-6



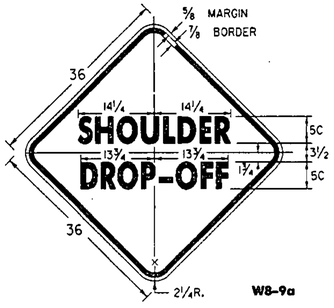

W8-8



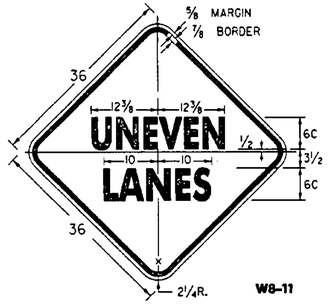

W8-9

* REDUCE SPACING 25%

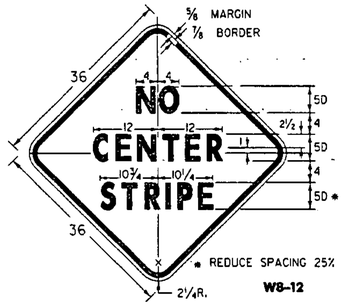
| SIGN | DIMENSIONS(INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| STD. | 30 | 1/2 | 3/4 | 5C | 3 | 1/4 | 5 3/16 | 5 5/8 | 13 1/4 | 13 7/8 | 1 7/8 |
| FWY. | 48 | 3/4 | 1 1/4 | 8C | 5 | 1 1/4 | 8 1/4 | 9 | 21 1/8 | 20 1/8 | 3 |




W8-9a

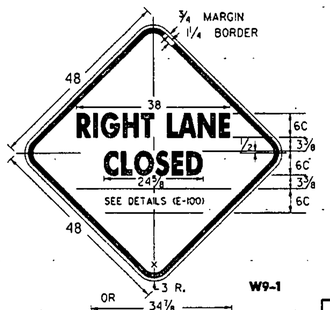



W8-11




W8-12

* REDUCE SPACING 25%




W9-1

**(ALL DIMENSIONS SHOWN IN INCHES)**

**NOTES**

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED TYPE IIB OR TYPE III ORANGE BACKGROUND, UNLESS OTHERWISE NOTED.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

**OTHER STDS. REQUIRED:** E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
OCT. 21, 1992 - ADDED ADDITIONAL SIGN DIMENSIONS, REVISED CHEVRON BACKROUND TO ORANGE, & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED AND DELETED VARIOUS SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Signature of Mr. Aikin
DIRECTOR OF ENGINEERING

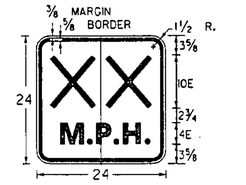
Signature of D. A. Roser
TRAFFIC AND SAFETY ENGINEER

# CONSTRUCTION SIGN DETAILS

/trof/std/stce101.dgn : stde101.1

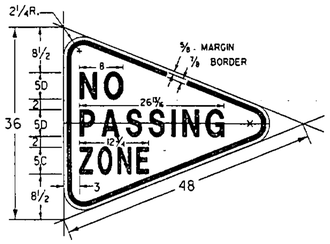
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-101

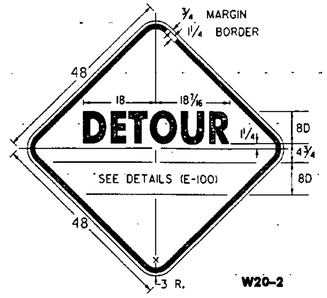



"XX" DENOTES ADVISORY SPEED AS SHOWN ON THE PLANS

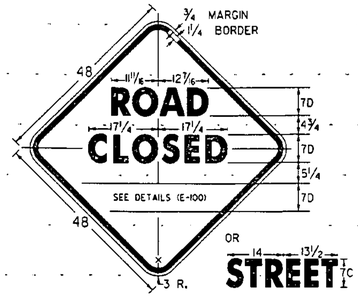
**W13-1**



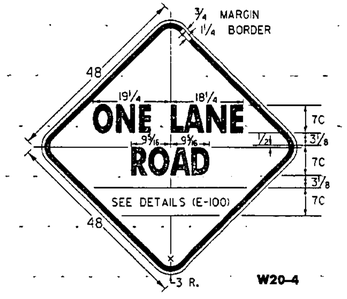

**W14-3**



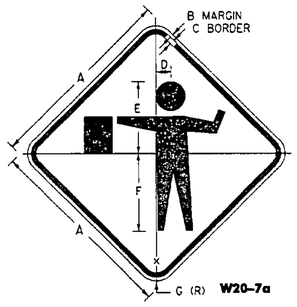

**W20-2**



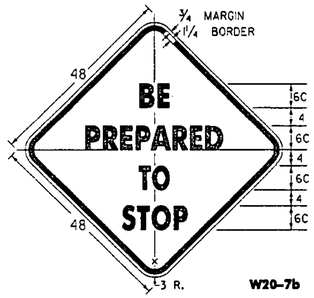

**W20-3**



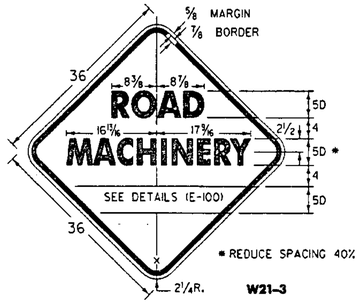

**W20-4**



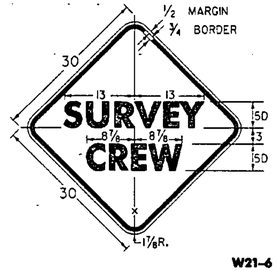

**W20-7a**




**W20-7b**



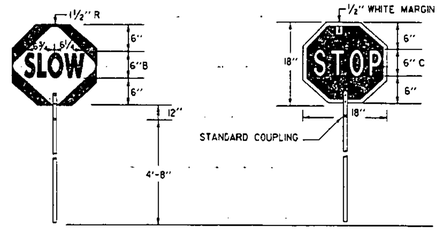

**W21-3**



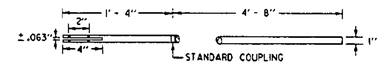

**W21-6**

ORANGE REFLECTORIZED DIAMOND WITH BLACK TEXT AND BORDER

RED REFLECTORIZED OCTAGON WITH WHITE REFLECTORIZED TEXT




## SIGN DETAIL

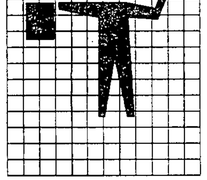


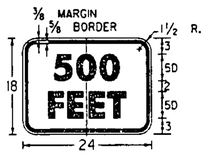

## STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 3/4" TO 1 1/4" DIAMETER RIGID ALUMINUM CONDUIT/TUBING WITH A WALL THICKNESS OF 0.125", OR 1" TO 1 1/2" DIAMETER RIGID PVC CONDUIT/TUBING WITH 0.125" WALL THICKNESS

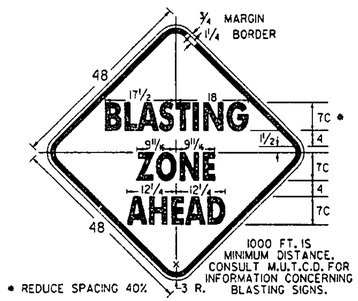
MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

## SIGN PADDLE FOR FLAGPERSON

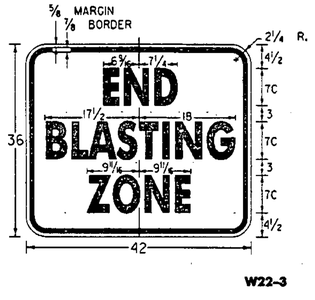




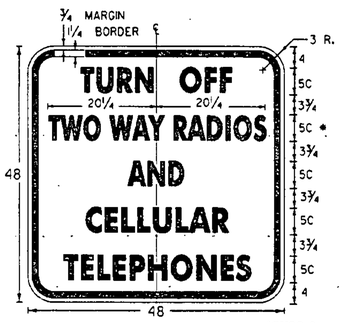

| SIGN | DIMENSIONS(INCHES) A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| STD. | 36 | 3/8 | 1/4 | 2 3/4 | 13 1/2 | 14 5/8 | 2 1/4 |
| FWY. | 48 | 3/4 | 1 1/4 | 3 3/4 | 18 | 19 1/2 | 3 |




**W22-1**




**W22-3**




**VW22-1**

## NOTES

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS

COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS SHALL BE ON A REFLECTORIZED ORANGE BACKGROUND OF TYPE II B OR TYPE III REFLECTIVE SHEETING, UNLESS OTHERWISE NOTED. THE EXCEPTION IS THE PADDLE SIGN.

SIGN DETAILS INDICATE THE APPROPRIATE COLOR.

SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED. HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.

**(ALL DIMENSIONS SHOWN IN INCHES)**

**OTHER STDS. REQUIRED:** E-100

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETE MOTORCYCLE SYMBOL SIGN AND SPEED SIGN, ADDED TWO SIGNS
OCT. 21, 1992 - ADDED A SIGN, REVISED A SIGN DIMENSION & TYPE ERROR & REVISED TITLE BLOCK
AUG. 08, 1995 - ADDED FLAGGER GRID

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacMillan
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

# CONSTRUCTION SIGN DETAILS

/traf/std/stdel02.dgn : stdel02.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-102

## TRAVEL LANE REQUIREMENTS

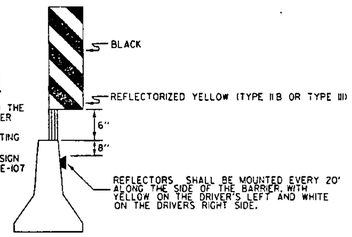
BARRIER SHALL BE PLACED AS CLOSE AS POSSIBLE TO THE CENTERLINE TO ALLOW THE TRAFFIC TO USE THE NORMAL LANE WIDTH.

EDGELINES SHALL BE REMOVED AND NEW TEMPORARY TAPE EDGELINES APPLIED. THE DRIVER'S LEFT EDGELINE SHALL BE A MINIMUM OF ONE FOOT, (TWO FEET IS DESIRABLE) FROM BARRIER. TRAVEL LANE SHALL BE 12 FEET WIDE.

THE TEMPORARY TAPE PAVEMENT MARKINGS SHALL BE OF A TYPE WHICH CAN BE COMPLETELY REMOVED AFTER THE PROJECT IS COMPLETED WITHOUT SCARRING OR MARKING THE PAVEMENT SURFACE. PAYMENT FOR THE TAPE MARKINGS SHALL BE UNDER THE APPROPRIATE ITEM NUMBERS.

PAVEMENT MARKING REMOVALS SHALL BE PAID UNDER THE APPROPRIATE ITEM NUMBER. TEMPORARY TAPE REMOVAL IS NOT PAID UNDER THE REMOVAL ITEM. IT IS SUBSIDIARY TO THE TAPE ITEM.

THE RAISED PAVEMENT MARKERS (RPM'S) SHALL BE OF A TYPE WHICH CAN BE EASILY REMOVED AND THEY SHALL BE PLACED TO THE OUTSIDE OF THE TEMPORARY TAPE PAVEMENT MARKINGS. THE RPM'S SHALL BE SPACED AT 20 FT. THE RPM'S ARE TO BE PAID UNDER THE ITEM TEMPORARY RAISED PAVEMENT MARKINGS. IF RPM'S ARE INCLUDED AS AN INTEGRAL PART OF THE TEMPORARY TAPE PAVEMENT MARKINGS, THEN THE COST OF THE RAISED MARKERS SHALL BE CONSIDERED A PART OF THE TEMPORARY PAVEMENT MARKING ITEM AND SEPERATE RPM'S SHALL NOT BE REQUIRED.



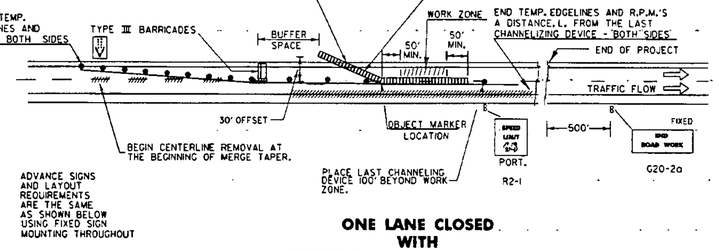

12" X 36" OBJECT MARKER TO BE INSTALLED AT END OF BARRIER TAPER. STRIPES SLOPE DOWNWARD TOWARD THE SIDE OF THE BARRIER ON WHICH TRAFFIC IS TO PASS. MOUNTING IS DETERMINED BY CONTRACTOR. FOR SIGN DETAILS SEE STD. E-107

REFLECTORS SHALL BE MOUNTED EVERY 20' ALONG THE SIDE OF THE BARRIER, WITH YELLOW ON THE DRIVER'S LEFT AND WHITE ON THE DRIVERS RIGHT SIDE.

''CONCRETE MEDIAN BARRIER'', PROVIDE A MINIMUM TAPER RATE AS SHOWN IN THE TABLE BELOW, WITH A MINIMUM OF 50 FT. OF TANGENT SECTION ON EACH END OF THE WORK ZONE. THE END OF THE BARRIER FACING APPROACHING TRAFFIC SHALL MEET THE FOLLOWING REQUIREMENT; WHEN NO GUARDRAIL IS PRESENT, USE 30" OFFSET FROM EDGE OF TRAVELLED WAY. IF GUARDRAIL IS PRESENT, THEN CONCRETE BARRIER CAN BE TAPERED TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL. IF A 30" OFFSET IS NOT ATTAINABLE OR TO A DISTANCE BEYOND THE DEFLECTION DISTANCE OF THE GUARDRAIL, THEN A CRASH ATTENUATOR DESIGNED FOR THE REGULAR SPEED LIMIT OF THE ROADWAY SHALL BE PROVIDED.

IF THE BARRIER IS PLACED SUCH THAT THE TEMPORARY TAPE CAN BE PLACED OVER THE EXISTING DASHED LINE, THEN THE EDGELINES DO NOT NEED TO BE TAPERED BEFORE THE BARRIER AND THE DASHED MARKINGS DO NOT NEED TO BE REMOVED IN THE TANGENT SECTION.

IF THE BARRIER IS PLACED SUCH THAT COVERING THE DASHED LINES WITH THE TEMPORARY TAPE EDGELINE IS NOT POSSIBLE THEN THE EDGELINES SHALL BE TAPERED A LENGTH, L, BOTH IN ADVANCE AND BEYOND THE BARRIER PLACED ON TANGENT.

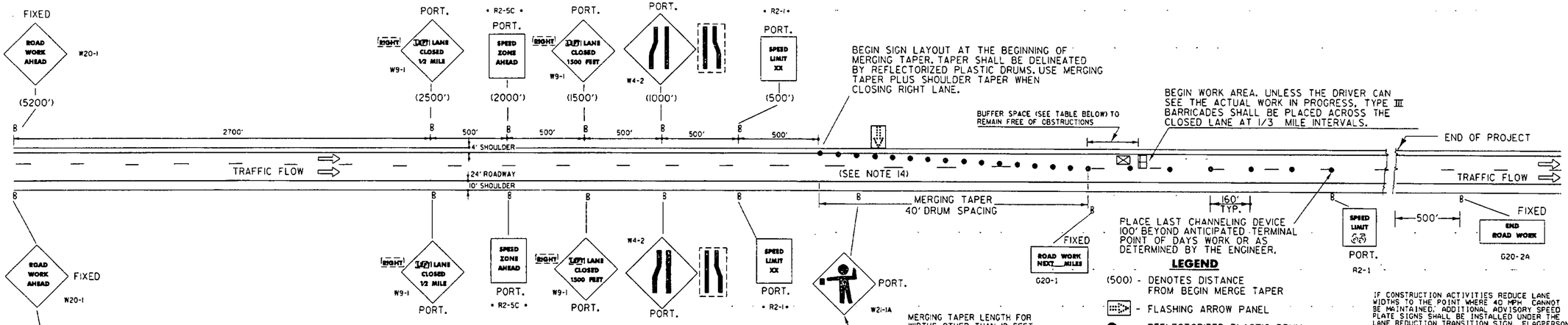



ADVANCE SIGNS AND LAYOUT REQUIREMENTS ARE THE SAME AS SHOWN BELOW USING FIXED SIGN MOUNTING THROUGHOUT

**ONE LANE CLOSED WITH POSITIVE BARRIER PROTECTION**

## NOTES

1. WHEN CONSTRUCTION EQUIPMENT IS WORKING AT OR NEAR THE EXIT OR ENTRANCE RAMPS, FLAGPERSONS OR UNIFORMED TRAFFIC CONTROL OFFICERS (UTO'S) SHOULD BE USED TO ASSIST IN CONTROLLING TRAFFIC. SEE STD. E-106 FOR TRAFFIC CONTROL DETAILS.
2. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
3. CONTRACTOR SHALL HAVE CHANNELIZING DEVICES AND SIGNS FOR LEFT SIDE CLOSURE AND RIGHT SIDE CLOSURE ON PROJECT BEFORE STARTING PROJECT.
4. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
5. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS WILL BE ALLOWED ALONG TANGENT SECTIONS AS LONG AS THEY CONFORM TO THE M.U.T.C.D. AND ARE APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
6. THE ''SPEED LIMIT XX'' AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
7. ''REDUCED SPEED AHEAD'' SIGNS MAY BE USED IN LIEU OF ''SPEED ZONE AHEAD''.
8. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL SPEED ZONE ENACTMENT, THE SPEED LIMIT AND REDUCED SPEED LIMIT SIGNS CAN BE SUBSTITUTED WITH ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS.
9. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL. ALUMINUM OR WOOD SUPPORTS AS SHOWN ON APPROPRIATE STANDARD SHEETS.
10. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. PAYMENT SUBSIDIARY TO OTHER ITEMS. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
11. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
12. THE NUMBER OF CHANNELIZING DEVICES, TYPE III BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.)
13. FOR ANY LONG TERM CLOSURE (GREATER THAN 3 DAYS) EXISTING CENTERLINE SHALL BE REMOVED AND TEMPORARY EDGELINES PLACED AS SHOWN WITH POSITIVE BARRIER.




USE PORTABLE ''RIGHT OR LEFT LANE CLOSED 1 MILE'' WHEN SIGN PACKAGE IS MOVED FORWARD. SIGNS NOTED AS FIXED SHALL REMAIN IN PLACE THROUGH THE ENTIRE PROJECT. SIGNS NOTED AS PORTABLE SHALL MOVE AS THE WORK AREA CHANGES. ALL SIGNS SHALL BE REMOVED OR COVERED WHEN NOT NEEDED.

* R2-5C AND R2-1 TO BE USED ONLY WITH REGULATORY, TEMPORARY SPEED LIMITS. OTHERWISE USE W13-1 ADVISORY SPEED PLATES.

| POSTED SPEED OR 85TH PERCENTILE M.P.H. | MERGING TAPER 12' LANE | SHOULDER TAPER W=10' | BARRIER TAPER RATE | BUFFER SPACE (MINIMUMS) |
|---|---|---|---|---|
| 40 | 320' | 90' | 9 TO 1 | 160' |
| 45 | 540' | 150' | - | 270' |
| 50 | 600' | 170' | 11 TO 1 | 300' |
| 55 | 660' | 190' | - | 330' |
| 60 | 720' | 200' | 13 TO 1 | 360' |
| 65 | 780' | 220' | - | 390' |

MERGING TAPER LENGTH FOR WIDTHS OTHER THAN 12 FEET

TAPER FORMULA:

$L = S \times W$ FOR SPEEDS OF 45 OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS.

WHERE:

L = MINIMUM LENGTH OF TAPER.

S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.

W = WIDTH OF OFFSET.

**LEGEND**

(500) - DENOTES DISTANCE FROM BEGIN MERGE TAPER

- FLASHING ARROW PANEL
- REFLECTORIZED PLASTIC DRUM
- PAVEMENT MARKING REMOVAL
- CONCRETE MEDIAN BARRIER
- TYPE III BARRICADE
- TRUCK/TRAILER MOUNTED ATTENUATOR (OPTIONAL)

IF CONSTRUCTION ACTIVITIES REDUCE LANE WIDTHS TO THE POINT WHERE 40 MPH CANNOT BE MAINTAINED, ADDITIONAL ADVISORY SPEED PLATE SIGNS SHALL BE INSTALLED UNDER THE LANE REDUCTION TRANSITION SIGN. FLAGPERSONS AND U.T.O.'S SHALL NOT BE ALLOWED TO INTERFERE WITH TRAFFIC BY STEPPING INTO THE LANE TO REDUCE THE DRIVER'S SPEED.

**OTHER STDS. REQUIRED:** E-100, E-101, E-102, E-102A, E-107A

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - FHWA COMMENTS - CHANGE TO 65 M.P.H. TAPER RATES
OCT. 21, 1992 - ADDED TAPER RATE TABLE & REVISED TITLE BLOCK
AUG. 08, 1995 - DELETED AN INVALID NOTE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon A. MacAskill
DIRECTOR OF ENGINEERING

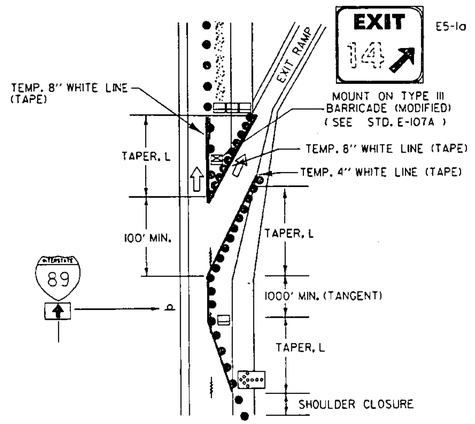
David A. Ross
TRAFFIC AND SAFETY ENGINEER

# MAINLINE TRAFFIC CONTROL DIVIDED HIGHWAY ONE LANE CLOSED

/traf/std/stdel03.dgn : stdel03.i

VERMONT AGENCY OF TRANSPORTATION

# STANDARD E-103




NOT TO SCALE

**MAINLINE LANE CLOSURE AT AN EXIT RAMP**

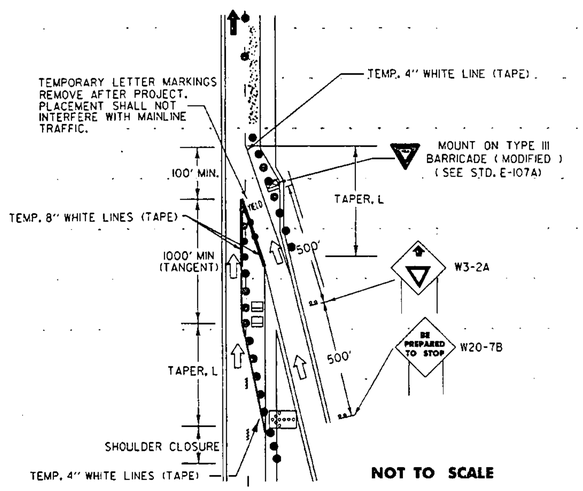
THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE GORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

**NOTES:**

1) ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
2) CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:
   TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "S" (THE SPEED LIMIT IN FEET) APART.
   TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
3) ALL DISTANCES ARE DESIRABLE MINIMUMS FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
4) TAPER RATES ARE BASED ON THE POSTED MAILINE AND EXIT SPEEDS.
5) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
6) LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON STANDARD E-103.
7) EXIT SIGN SHALL BE MOUNTED A MINIMUM OF 3' ABOVE THE GROUND AND HIGH ENOUGH TO BE SEEN ABOVE CHANNELIZING DEVICES.

**LEGEND**

- ○ REFL. 28" CONES
- ● REFL. PLASTIC DRUMS
- PAVEMENT MARKING REMOVAL
- INDICATES TRAFFIC FLOW
- WORK AREA
- FLASHING ARROW PANEL
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)

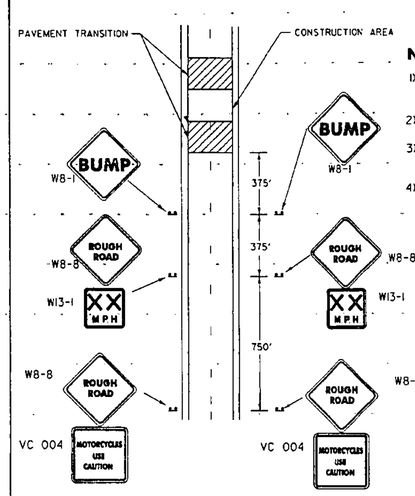



NOT TO SCALE

**MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP**

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.

IF THE LENGTH OF THE ACCELERATION LANE IS NOT ADEQUATE, THE YIELD SIGN SHALL BE REPLACED WITH A STOP SIGN. IF A STOP SIGN IS USED, IT SHOULD BE ACCOMPANIED BY A STOP BAR.

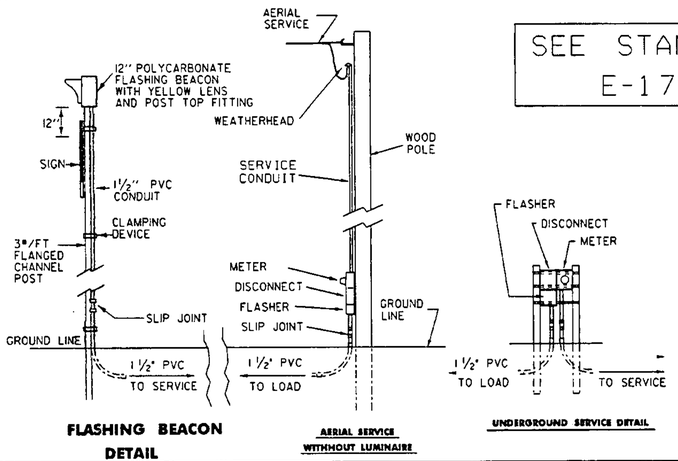



**NOTES:**

1) ADVISORY SPEED AS DETERMINED BY THE RESIDENT ENGINEER ( 40 M.P.H. MINIMUM RECOMMENDED )
2) SIGNS MOUNTED ON FIXED POSTS. ( YIELDING TYPE )
3) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP. WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA THE APPROPRIATE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE STD.E-103.

NOT TO SCALE

**ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED ( SCARIFIED ) SURFACES.**



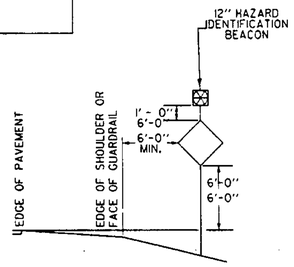

**FLASHING BEACON DETAIL**

**AERIAL SERVICE WITHOUT LUMINAIRE**

SEE STANDARD E-175



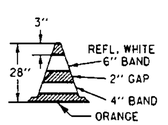

**UNDERGROUND SERVICE DETAIL**




**SIGN PLACEMENT DETAIL**

**NOTES:**

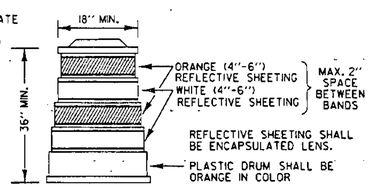
1.) AT THE CONTRACTOR'S OPTION:
   A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
   B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
   C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGN, ON A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
2.) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
3.) BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
4.) BOTTOM OF THE BEACON SHALL BE A MIN. OF 8'-0" AND A MAX. OF 12'-0" ABOVE THE EDGE OF THE PAVEMENT.
5.) FOR URBAN AREA PLACEMENT SEE STD. E-121.




**NOTES:**

1.) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
2.) CONES MAY BE WEIGHTED TO PREVENT OVER-TURNING, HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
3.) REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

**28" REFLECTORIZED CONE**




**REFLECTORIZED PLASTIC DRUM**

**OTHER STDS. REQUIRED:** E-101, E-102, E-102A, E-103, E-107A, E-136, E-150, E-175

REVISIONS AND CORRECTIONS

APR 12, 1988 - DATE OF ORIGINAL ISSUE
JAN 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER
SEPT 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD) TO STDE-107A
AUG 08, 1995 - REVISED BEACON SIZE

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

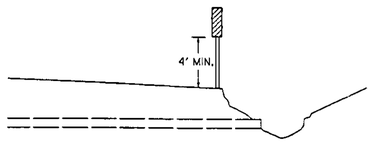
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

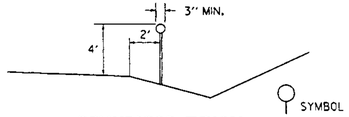
# TRAFFIC CONTROL MISCELLANEOUS DETAILS

/trcf/std/stde106.dgn : stde106.i

VERMONT AGENCY OF TRANSPORTATION

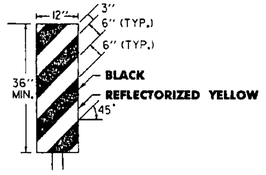
# STANDARD E-106



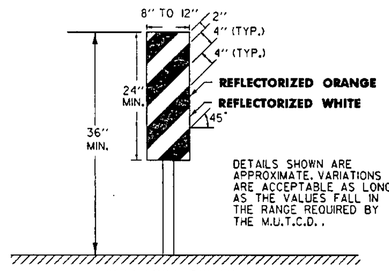

### DELINEATOR TYPICAL

DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.




### OBJECT MARKER TYPICAL

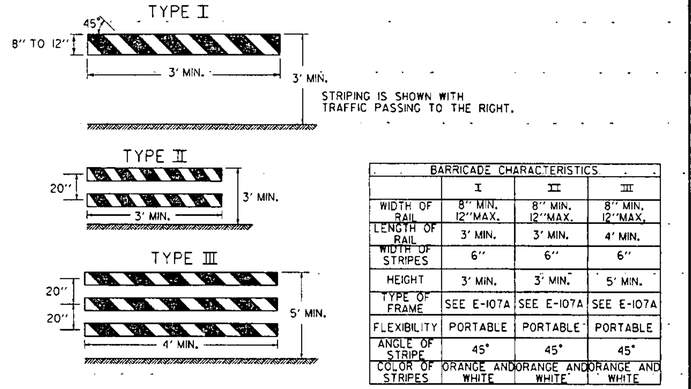
OBJECTS MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.
OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED YELLOW STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).




### VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.

## DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED




A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE II RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

| BARRICADE CHARACTERISTICS | | | |
|---|---|---|---|
| | I | II | III |
| WIDTH OF RAIL | 8" MIN. 12" MAX. | 8" MIN. 12" MAX. | 8" MIN. 12" MAX. |
| LENGTH OF RAIL | 3' MIN. | 3' MIN. | 4' MIN. |
| WIDTH OF STRIPES | 6" | 6" | 6" |
| HEIGHT | 3' MIN. | 3' MIN. | 5' MIN. |
| TYPE OF FRAME | SEE E-107A | SEE E-107A | SEE E-107A |
| FLEXIBILITY | PORTABLE | PORTABLE | PORTABLE |
| ANGLE OF STRIPE | 45° | 45° | 45° |
| COLOR OF STRIPES | ORANGE AND WHITE | ORANGE AND WHITE | ORANGE AND WHITE |

### BARRICADE CHARACTERISTICS

| DETOUR DESIGN SPEED | MINIMUM RADIUS (FT.)[a] SUPERELEVATION (FT./FT.) | | | | |
|---|---|---|---|---|---|
| (M.P.H.) | 0.00[b] | 0.02 | 0.04 | 0.06 | 0.08 |
| 20 | 160 | 140 | 130 | 120 | 110 |
| 25 | 245 | 220 | 200 | 185 | 170 |
| 30 | 375 | 335 | 305 | 275 | 255 |
| 35 | 510 | 455 | 410 | 375 | 340 |
| 40 | 715 | 630 | 575 | 510 | 470 |
| 50 | 1190 | 1045 | 955 | 850 | 765 |

a. PER AASHTO REQUIREMENTS
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE

## BARRICADES

### APPLICATION NOTES

TYPE I BARRICADES SHALL BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES SHALL BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS TYPE I BARRICADES.

TYPE III BARRICADES (SEE STD. E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION OR LANE IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

### MATERIALS

THE BARRICADES SHOWN ON THIS SHEET SHOULD BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

1. WOODEN BARRICADES (TYPE I AND II)
   A) SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 M.P.H. ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.
   B) MAY BE USED WHERE OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.
2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

### COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE AN ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

### REFLECTORIZATION

THE REFLECTIVE SHEETING ON BARRICADE PANELS SHALL BE TYPE □□.

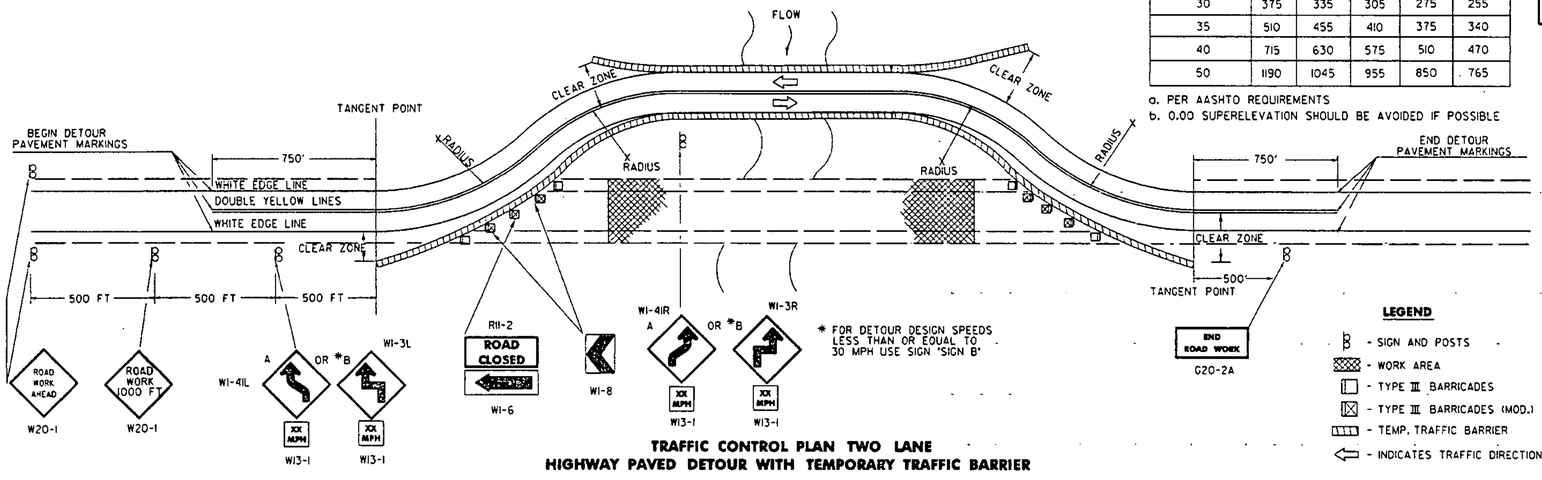
### LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE RESIDENT ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'', OR AS OTHERWISE NOTED.

### MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE RESIDENT ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO THE APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE RESIDENT ENGINEER.

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.




* FOR DETOUR DESIGN SPEEDS LESS THAN OR EQUAL TO 30 MPH USE SIGN 'SIGN B'

**LEGEND**

- SIGN AND POSTS
- WORK AREA
- TYPE III BARRICADES
- TYPE III BARRICADES (MOD.)
- TEMP. TRAFFIC BARRIER
- INDICATES TRAFFIC DIRECTION

### TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR WITH TEMPORARY TRAFFIC BARRIER

## DETOUR NOTES

1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.

2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.

3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.

4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.

5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.

7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.

8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.

9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

**OTHER STDS. REQUIRED:** E-100, E-101, E-102, E-102a, E-107a

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 29, 1988 - FHWA REVIEW COMMENTS
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER
AUG. 08, 1995 - REVISED SIGNING PER MUTCD

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

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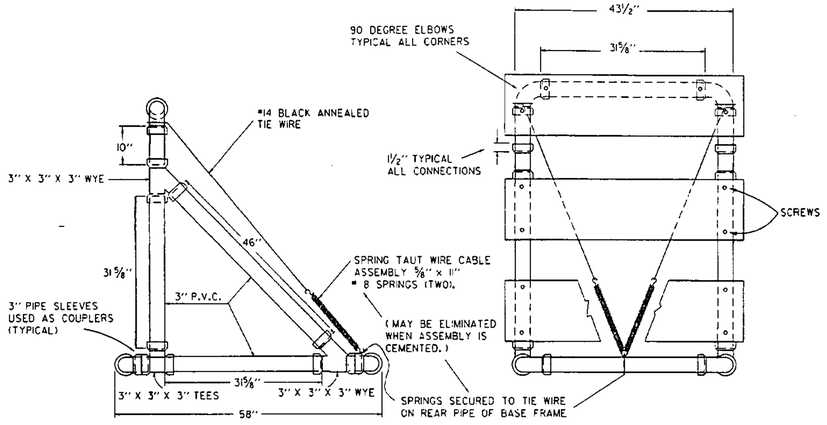
# DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

/trof/std/std107.dgn : std107.i

VERMONT AGENCY OF TRANSPORTATION

# STANDARD E-107




**SIDE VIEW**
**TYPE III BARRICADE**

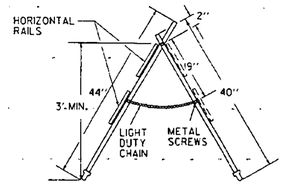
**FRONT VIEW**
**TYPE III BARRICADE**

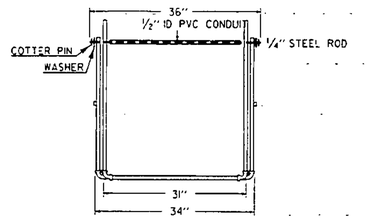
MATERIALS FOR TYPE I AND II BARRICADES

20' - 1" PVC
4 - 1" PVC 90° ELBOWS
30" - ½" ID THINWALL PVC CONDUIT
36" - ¼" STEEL ROD
4 - 1" WASHERS
24" - LIGHT DUTY CHAIN
½" - #14 PAN HEAD METAL SCREWS (AS REQUIRED)
2 - ¾" COTTER PINS
2 OR 4 - 8" OR 12" X 36" X 0.025" BARRICADE RAILS (AS REQUIRED)

MATERIALS FOR TYPE III BARRICADES

30 LF - 3" I.D. PVC PIPE
6 - 3" 90° ELBOWS
2 - 3" TEES
4 - 3" WYES
3 - 8" OR 12" X 48" X 0.025" BARRICADE RAILS
2 - 5/8" X 11" #8 SPRING ( IF ASSEMBLY IS NOT CEMENTED)
12 - 1" #14 PAN HEAD METAL SCREWS
15 LF - #14 BALCK ANNEALED TIE WIRE ( IF ASSEMBLY IS NOT CEMENTED)




**TYPE I AND TYPE II BARRICADE**

## MATERIALS

THE PIPE, WYES, TEES AND ELBOWS USED TO CONSTRUCT BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2241 FOR P.V.C. 1120 OR 1220 SDR-21, PRESSURE RATING 200 PSI. THE WYES, TEES AND ELBOWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2466, TYPE II, GRADE 1. ALL JOINTS SHALL BE SLIP-FIT AND MAY BE LIGHTLY CEMENTED. THE BARRICADE RAILS SHALL BE FABRICATED FROM 0.025" ANODIZED, ALUMINUM AND SHALL HAVE REFLECTORIZED ALTERNATING ORANGE AND WHITE STRIPES ( SLOPING DOWNWARD AT AN

## MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR, AT LEAST TWO (2) HOLES SHALL BE DRILLED (⅜" DIAM.) IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT. THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME

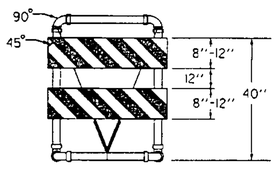
BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.
GLUED JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL IN EACH DIRECTION.

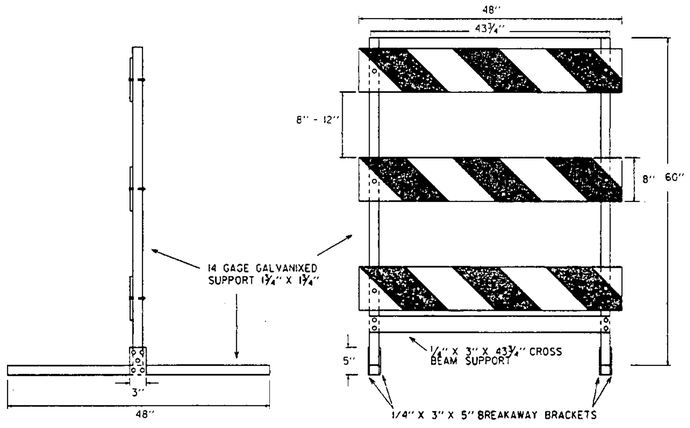
TYPE II BARRICADES SHALL BE A TYPE I BARRICADE WITH AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER IN EACH DIRECTION.

TYPE III BARRICADES ( MODIFIED ) SHALL CONSIST OF THE BREAKAWAY 3" PVC DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT.

SEE STD E-107 FOR ADDITIONAL INFORMATION.




**TYPE III ( MODIFIED ) BARRICADE**
**( STRIPING IS SHOWN WITH TRAFFIC PASSING TO THE RIGHT ).**



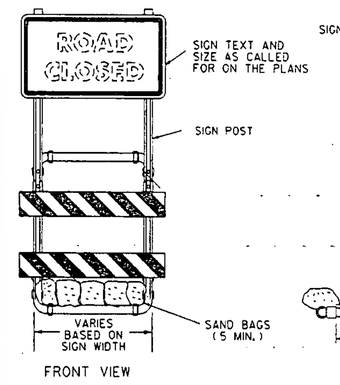

**SIDE AND FRONT VIEW OF TYPE III METAL BARRICADE**

MATERIALS FOR METAL TYPE III BARRICADES

PANELS (3):
6' X 48' GALVANIZED STEEL...COVERED 1 OR 2 SIDES WITH WHITE/ORANGE, DIAGONALLY STRIPED REFLECTIVE SHEETING

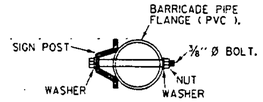
VERTICAL SUPPORTS (2): 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 60"
HORIZONTAL SUPPORTS (2): 14 GAGE GALVANIZED TUBING 1 3/4" X 1 3/4" X 48"
CROSS BEAM SUPPORT (1): COLD GALVANIZED STEEL 1/4" X 3" X 43 3/4"
BREAKAWAY BRACKETS (4): COLD GALVANIZED STEEL 1/4" X 3" X 5".

FASTENERS:
6 - SHEAR BOLTS WITH LOCK NUTS 1/4" D X 2 3/4"
4 - FULCRUM BOLTS WITH LOCK NUTS 3/8" D X 2 3/4"
4 - FASTENER BOLTS WITH LOCK NUTS 3/8" D X 2 3/4"
6 - PANEL BOLTS WITH LOCK NUTS AND WASHERS 1/4" D X 2"
ALL FASTENERS GALVANIZED STEEL.
ALL BOLTS HEX HEAD.




**NOTES:**

1) REFER TO STANDARD TYPE III BARRICADE (ABOVE LEFT)
2) ALL BARRICADE JOINTS SHALL BE GLUED.
3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.




**CONNECTION DETAIL**

**SIGN MOUNTING ON TYPE III BARRICADE ( MODIFIED )**

**OTHER STDS. REQUIRED:** E-107

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - ADDED METAL TYPE III BARRICADE
SEPT. 20, 1993 - REVISED NOTES AND TYPE III (MOD.) BARRICADE DETAIL
AUG. 08, 1995 - ADDED METAL TYPE III BARRICADE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

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# BREAKAWAY BARRICADE DETAILS

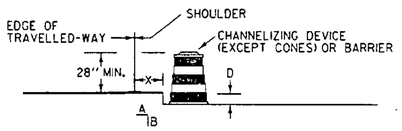
/traf/std/stdel07a.dgn : stdel07a.i

VERMONT AGENCY OF TRANSPORTATION

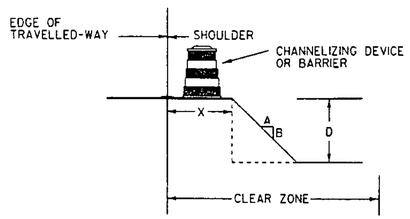
# STANDARD E-107 A

## CONDITION 1
## DROP-OFF ADJACENT TO TRAVELLED-WAY

**TYPE A**



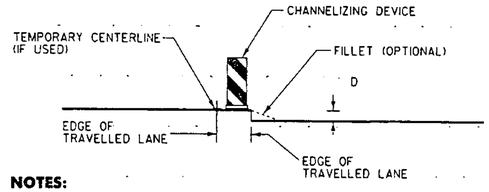

**TYPE B**




**NOTES:**

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELED-WAY.
2. FOR SPECIFIC REQUIREMENTS USE CHART ''A''.
3. IF THE DROP-OFF REQUIRES CHANNELIZING DEVICES TO REMAIN INPLACE OVERNIGHT THEN ''LOW SHOULDER'' OR 'SHOULDER DROP OFF' SIGNS SHOULD BE INSTALLED.

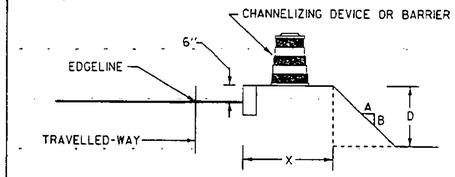
## CONDITION 2
## DROP-OFF BETWEEN ADJACENT TRAVELLED LANES




**NOTES:**

1. WHENEVER A LONGITUDINAL DROP-OFF BETWEEN ADJACENT TRAVELLED-LANES IS TO BE LEFT OVERNIGHT THEN ''UNEVEN LANES'' SIGNS AND CHANNELIZING DEVICES SHOULD BE INSTALLED.
2. IF REQUIRED, THE CHANNELIZING DEVICES USED SHOULD BE THOSE WHICH MAXIMIZE THE TRAVELLED LANE ( IE. CONES, VERTICAL PANELS OR TUBULAR MARKERS).
3. A BITUMINOUS CONCRETE FILLET WITH A 3:1 SLOPE MAY BE USED IN LIEU OF CHANNELIZING DEVICES. HOWEVER THE ''UNEVEN LANES'' SIGNS SHOULD BE INSTALLED REGARDLESS.

## CONDITION 3
## DROP-OFF BEYOND SHOULDER OR CURB




**NOTES:**

1. CHANNELIZING DEVICES OR BARRIER SHOULD BE PLACED TO MAXIMIZE THE WIDTH OF THE TRAVELLED WAY.
2. FOR SPECIFIC REQUIREMENTS USE CHART ''A'' OR ''B'' AS APPLICABLE.

## CHART A
### ALL SPEEDS
### NO CURB

| X (FEET) | DROP (D) (INCHES) | A/B SLOPE | DEVICE REQUIRED |
|---|---|---|---|
| 0 TO 4' | LESS THAN 2'' | ANY | NONE |
| | 2'' TO 5'' | 3:1 OR FLATTER | NONE |
| | | STEEPER THAN 3:1 | CHANNELIZING DEVICE |
| | GREATER THAN 5'' | 3:1 OR FLATTER | NONE |
| | | STEEPER THAN 3:1 | BARRIER |
| 4' TO 10' | LESS THAN 5'' | ANY | NONE |
| | 5'' TO 12'' | 3:1 OR FLATTER | NONE |
| | | STEEPER THAN 3:1 | BARRIER |
| | GREATER THAN 12'' | 3:1 OR FLATTER | NONE |
| | | STEEPER THAN 3:1 | BARRIER |
| 10' TO CZ | LESS THAN OR EQUAL TO 12'' | ANY | NONE |
| | GREATER THAN 12'' | 3:1 OR FLATTER | NONE |
| | | STEEPER THAN 3:1 | BARRIER |

1. CLEAR ZONE (CZ) IS TO BE DETERMINED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
2. CHANNELIZING DEVICES MAY BE USED INSTEAD OF BARRIER FOR SHORT TERM (ONE-DAY) OPERATIONS.
3. ON BORDERLINE CONDITIONS THE ENGINEER SHALL DETERMINE WHICH TREATMENT IS ADEQUATE FOR THE EXISTING CONDITIONS.

## GENERAL NOTES

1. THESE CONDITIONS AND TREATMENTS ARE ONLY PART OF THE TRAFFIC CONTROL SYSTEM AND SHALL BE USED IN ADDITION TO THE PROPER WORK ZONE SIGNING.
2. THE FOLLOWING ARE ACCEPTABLE CHANNELIZING DEVICES: SEE STANDARD SHEETS E-106, E-107 AND E-107A FOR FURTHER DETAILS
   - A. VERTICAL PANEL
   - B. TYPE I OR TYPE II BARRICADE
   - C. PLASTIC DRUM
   - *D. CONE - WHERE APPLICABLE

   *CONES SHALL NOT BE USED WHEN THE CHANNELIZING DEVICE IS REQUIRED TO BE PLACED BELOW THE GRADE OF THE TRAVELLED-WAY. (SEE CONDITION 1, TYPE A)
3. WHERE BARRIER IS CALLED FOR, EITHER CONRETE BARRIER (JERSEY SHAPE), STEEL BEAM GUARDRAIL OR OTHER FHWA APPROVED BARRIER MAY BE USED.

   -BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE OR PROTECTED WITH AN APPROVED END TREATMENT DESIGNED FOR THE 85TH PERCENTILE SPEED OR THE POSTED SPEED LIMIT OF THE ROADWAY.
4. CHANNELIZING DEVICE SPACING SHALL BE AS FOLLOWS:

   TAPERS - CHANNELIZING DEVICES SHALL BE SPACED A MAXIMUM OF 'S' ( THE SPEED LIMIT IN FEET, 65 MPH = 65 FT) CENTER TO CENTER.

   TANGENT - CHANNELIZING DEVICES SHALL BE SPACED 'S' ( THE SPEED LIMIT IN FEET,65 MPH = 65 FT) TO A MAXIMUM OF '2S' CENTER TO CENTER.
5. ''LOW SHOULDER'' OR ''UNEVEN LANES'' SIGNS, WHEN USED, SHALL BEGIN PRIOR TO THE DROP-OFF CONDITION AND SHOULD BE REPEATED EVERY 1500 FEET.

## CHART B
### 40 MPH OR LESS
### WITH CURB

| X (FEET) | DROP (D) (INCHES) | DEVICE REQUIRED |
|---|---|---|
| 0-10' | LESS THAN OR EQUAL TO 12'' | NONE |
| 0-10' | GREATER THAN 12'' | CHANNELIZING DEVICE |
| GREATER THAN 10 | ANY | NONE |

**NOTES:**

1. USE THIS CHART ONLY FOR CONDITION 3.
2. USE THIS CHART FOR VERTICAL CURBS OF 6'' OR GREATER FOR LOWER CURBS OR MOUNTABLE USE CHART A.
3. FOR CURBED SECTIONS WITH POSTED SPEEDS ABOVE 40 MPH USE CHART A.

**OTHER STDS. REQUIRED:** E-101 E-106 E-107 E-107A

REVISIONS AND CORRECTIONS

SEPT. 20, 1993 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 - ADDED SHOULDER WARNING NOTE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
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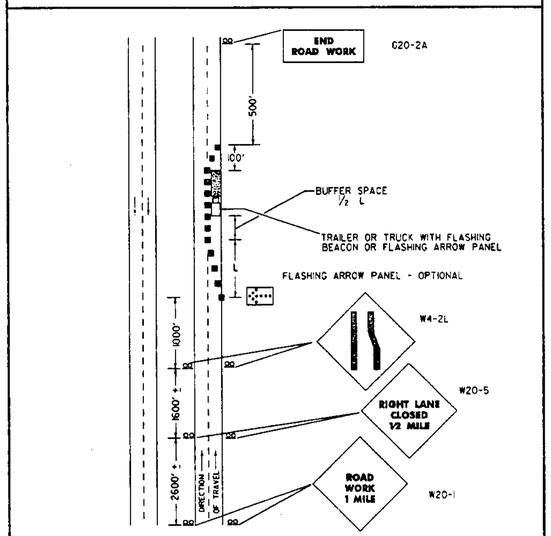
# CONSTRUCTION ZONE LONGITUDINAL DROP OFFS

/traf/std/stde108.cgn : stde108.i

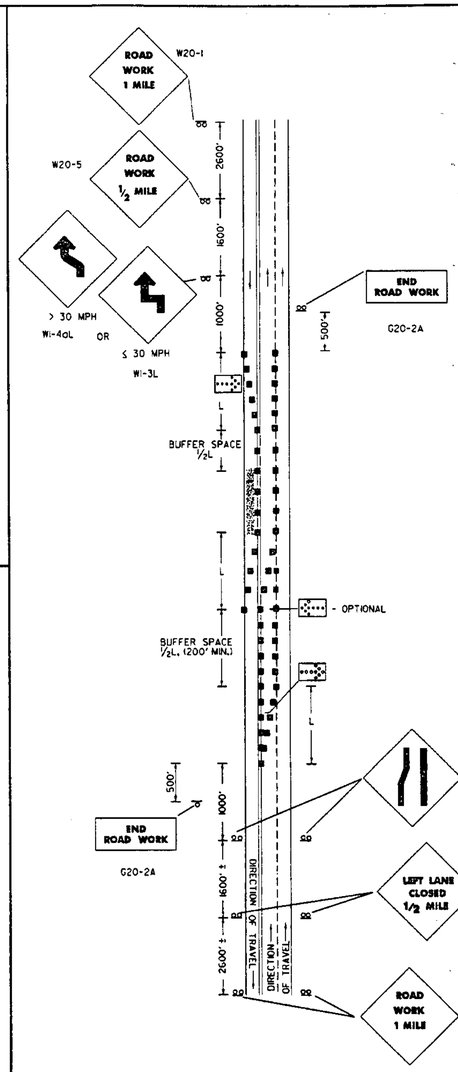
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-108



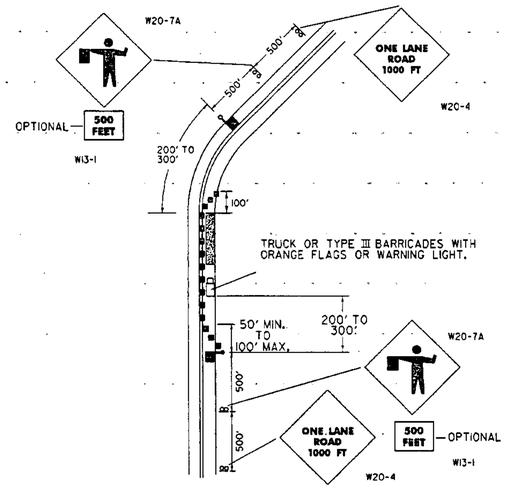

**TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF ROADWAY IS CLOSED.**

NTS



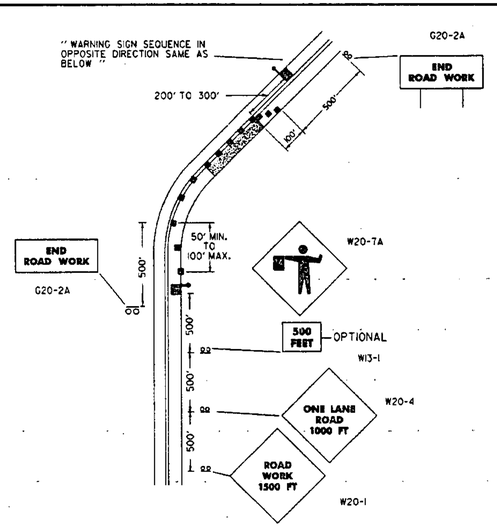

**TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATION OF SHORT DURATION ON A 3 LANE ROADWAY WHERE CENTER LANE IS USED FOR OPPPOSING TRAFFIC**

NTS




**TYPICAL APPLICATIONS - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 2-LANE ROADWAY WHERE FLAGGING IS PROVIDED**

NTS




**TYPICAL APPLICATIONS - TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.**

NTS

## NOTES

**REFLECTORIZATION**

ALL SIGNS USED DURING THE HOURS OF DARKNESS SHALL BE REFLECTORIZED (TYPE II OR III). CONES USED FOR TRAFFIC CONTROL AT NIGHT SHALL COMPLY WITH STANDARD E-106.

**COLORS**

THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT, BORDER, AND SYMBOLS ON AN ORANGE BACKGROUND. THE TEXT AND BORDERS MAY BE SCREENED, LETTERING FILM, OR HAND PAINTED. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

**TEXT DESIGN**

LETTERS, DIGITS, SPACING, AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABETS FOR HIGHWAY SIGNS'' AS REFERENCED IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES''.

**SPECIFICATIONS**

WARNING SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

**SIGN BASE MATERIAL**

THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE OF ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED:

| | |
|---|---|
| FLAT STEEL OR ALUMINUM | 0.125 INCHES |
| HIGH DENSITY OVERLAYED PLYWOOD | 1/2, 5/8, OR 3/4 INCHES |
| GALVANIZED SHEET STEEL | 12 GAGE |

1. SIGNS WITH ''ROAD WORK 1500 FT. AND ''END ROAD WORK'' TEXT SHALL BE USED WHEN THE WORK IS NOT COMPLETE AND A HAZARD REMAINS OVERNIGHT.
2. THE FLAGPERSON SHALL USE THE SIGN PADDLE DETAILED ON STANDARD SHEET E-102.
3. ALL SIGNS SHALL BE COVERED OR REMOVED AT THE END OF THE WORKING DAY UNLESS REQUIRED FOR THE PROTECTION AND SAFETY OF THE TRAVELING PUBLIC.
4. INSTALLATION: SIGNS AND BARRICADES SHALL BE IN PLACE PRIOR TO THE START OF THE MAINTENANCE OPERATION TO WHICH THEY APPLY AND SHALL BE REMOVED PROMPTLY WHEN THE NEED NO LONGER EXISTS. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON YIELDING WOOD OR METAL POSTS SET SECURELY IN THE GROUND (IN ACCORDANCE WITH STD. E-121), OR ON PORTABLE SUPPORTS WHEN APPROPRIATE. THE INSTALLATION OF SIGNS AND BARRICADES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. ALTHOUGH LISTED AS A MAINTENANCE OPERATION STANDARD SIGN SHEET, THE APPROACH SIGNS SHOWN SHALL BE USED BY CONTRACTORS WHEN WORKING WITHIN OR OUTSIDE PROJECT LIMITS.
6. ALL DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
7. SIGN DETAILS NOT SHOWN ON THIS SHEET CAN BE FOUND ON STANDARD SHEETS E-100, E-101, AND E-102.
8. TAPER FORMULA
   - L = SXW FOR SPEEDS OF 45 OR MORE
   - L = $\frac{WS^2}{60}$ FOR SPEEDS OF 40 OR LESS

   WHERE
   - L = MINIMUM LENGTH OF TAPER
   - S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85 PERCENTILE SPEED.
   - W = WIDTH OF OFFSET.
9. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT IN M.P.H.. ON TANGENT SECTIONS THE MAXIMUM SPACING SHOULD BE APPROXIMATELY EQUAL TO TWICE THE POSTED SPEED LIMIT.
10. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK THE FLAGPERSON STATIONS AT NIGHT AS NEEDED.
11. AT SHORT WORK ZONES WHERE ADEQUATE SIGHT DISTANCE IS AVAILABLE FOR THE SAFE HANDLING OF TRAFFIC ONE FLAGGER MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
12. CHANNELIZING DEVICES SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
13. THE NUMBER OF CHANNELIZING AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).

**LEGEND:**

| | |
|---|---|
| FLAGPERSON | WORK AREA |
| CHANNELIZING DEVICES (CONES OR DRUMS) | SIGN & POSTS |
| FLASHING ARROW PANEL | TYPE-III BARRICADES |

**OTHER STDS. REQUIRED:** E-100, E-101, E-102, E-106

REVISIONS AND CORRECTIONS

SEPT 10, 1987 - DATE OF ORIGINAL ISSUE
MAR 01, 1988 - FHWA REVIEW COMMENTS

SEP 20, 1993 - REVISED NOTES & MISC. DETAILS

AUG 08, 1995 - DELETED SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

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David A. Ross
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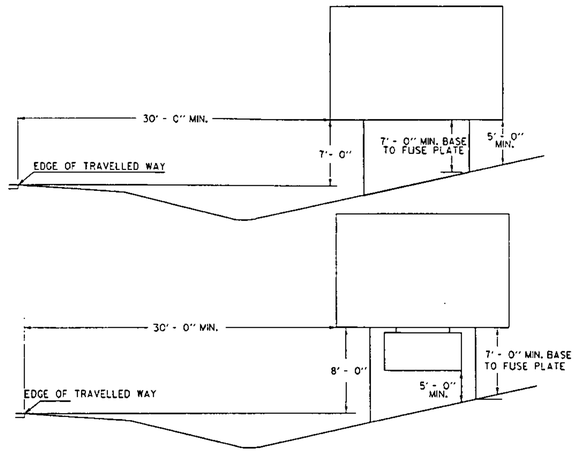
# MAJOR MAINTENANCE OPERATION LANE CLOSURE

/traf/std/stde110.dgn : stde110.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-110

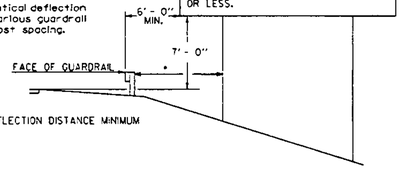



**GUARDRAIL DEFLECTION CHART**
(PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

| TYPE | | SPACING | DEFLEC. |
|---|---|---|---|
| Three Cable | w/Steel Posts | 16'-0" | 12 ft. |
| | w/Wooden Posts | 12'-6" | 12 ft. |
| W-Beam | w/Weak Posts | 12'-6" | 7 ft. |
| | w/Strong Posts | 6'-3" | 3 ft. |
| Box Beam | | 6'-0" | 5 ft. |
| Thrie Beam | w/Weak Posts | 12'-6" | 4 ft. |
| | w/Strong Posts | 6'-3" | 2 ft. |

This chart lists the theoretical deflection distance upon impact of various guardrail with different type and post spacing.

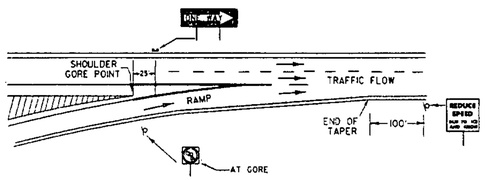
WHEN PLACED BEHIND GUARDRAIL AND BEYOND THE DEFLECTION DISTANCE FOR THAT PARTICULAR RAIL, SIGN POSTS DO NOT HAVE TO BE PLACED ON YIELDING SUPPORTS. SIGN POSTS SHALL BE PLACED ON YIELDING SUPPORTS WHEN THEY CAN BE STRUCK BY AN ERRANT VEHICLE LEAVING THE ROADWAY AT AN ENCROACHMENT ANGLE OF APPROXIMATELY 15 DEGREES OR LESS.



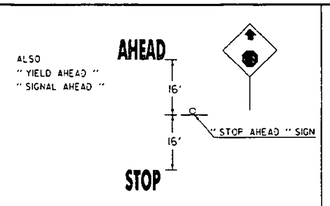

INSTALLATION DETAILS

NORMALLY SIGNS SHOULD BE MOUNTED AT 93° TO THE DIRECTION OF TRAFFIC, ON CURVED ALIGNMENT THE ANGLE OF PLACEMENT SHOULD BE DETERMINED BY THE PATH OF APPROACHING TRAFFIC RATHER THAN BY THE ROADSIDE EDGE AT THE POINT WHERE THE SIGN IS LOCATED. WHEN INSTALLING OVERHEAD SIGNS, CANT THE SIGN FROM THE TOP TOWARD APPROACHING TRAFFIC AT A THREE DEGREE TILT ANGLE.

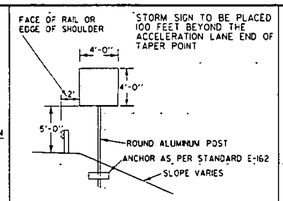
**GUIDE SIGNS**



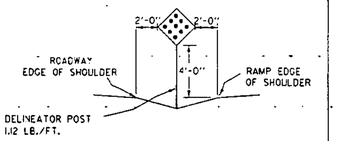

**SIGN PLACEMENT AT END OF RAMP**




**WORD MARKING LAYOUT DETAIL**



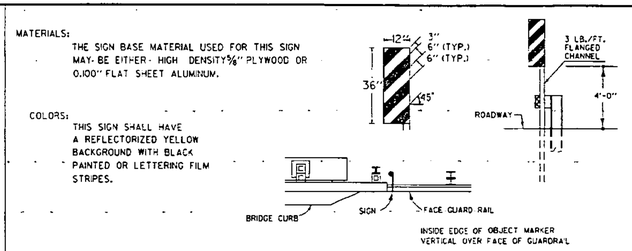

**STORM SIGN**




**HAZARD MARKER**

MATERIALS:
THE SIGN BASE MATERIAL USED FOR THIS SIGN MAY BE EITHER HIGH DENSITY 5/8" PLYWOOD OR 0.100" FLAT SHEET ALUMINUM.

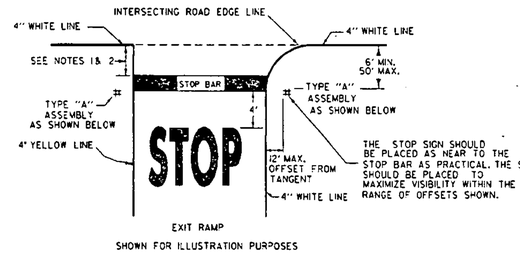
COLORS:
THIS SIGN SHALL HAVE A REFLECTORIZED YELLOW BACKGROUND WITH BLACK PAINTED OR LETTERING FILM STRIPES.




**OBJECT MARKER**

(TO BE USED WHEN FULL WIDTH SHOULDERS ARE NOT CARRIED ACROSS THE BRIDGE)

MARKERS MOUNTED ON THE LEFT SIDE SHALL HAVE THE DIAGONAL STRIPES SLOPING TOWARD CENTERLINE



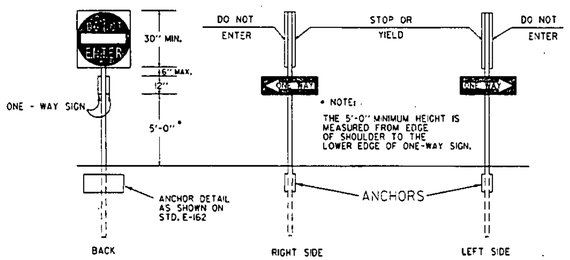

EXIT RAMP
SHOWN FOR ILLUSTRATION PURPOSES

**NOTES:**

1. THE STOP BAR SHOULD BE PLACED AT THE DESIRED STOPPING POINT, IN NO CASE MORE THAN 30' OR LESS THAN 4' FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY.
2. AT A SIGNALIZED INTERSECTION, DELETE WORDING " STOP " AND THE STOP SIGN AND PLACE STOP BAR A MINIMUM OF 40' FROM THE NEAREST SIGNAL HEAD FOR THE APPROACH.
3. EXCLUDE THE STOP BAR FOR A YIELD CONDITION.

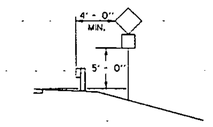
**PAVEMENT MARKING & STOP SIGN LOCATION DETAILS**
**FOR OFF RAMP**

TYPE "A" ASSEMBLY IS WITH "STOP" SIGN
TYPE "B" ASSEMBLY IS WITH "YIELD" SIGN

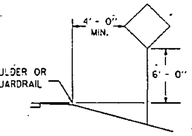


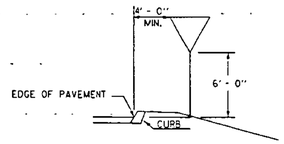

MOUNT ON - 3 LBS/FT FLANGED CHANNEL
(SEE BRACKET DETAIL AS SHOWN ON STD. E-160)

**REGULATORY SIGN ASSEMBLY DETAIL**
**FOR OFF RAMP**

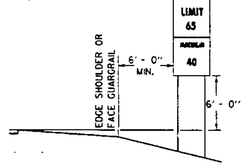



SIGN WITH SUPPLEMENTAL PLAQUE



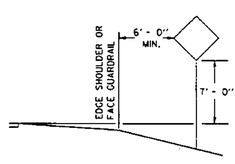




**STANDARD SIGN PLACEMENT**
**RAMP**

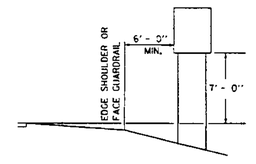



**REGULATORY SIGN**

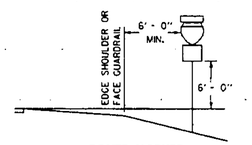
SPEED LIMIT SIGN TO BE PLACED 1600 FEET BEYOND THE END OF THE ACCELERATION LANE TAPER POINT.




**WARNING SIGN**

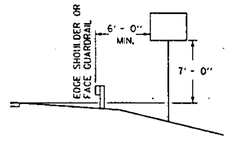



**REGULATORY SIGN**

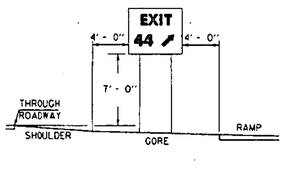



**ROUTE MARKER**

ROUTE REASSURANCE MARKER TO BE PLACED 600' BEYOND THE END OF THE ACCELERATION LANE TAPER POINT.




**GUIDE SIGN**




**GORE SIGN**

**STANDARD SIGN PLACEMENT**
**MAINLINE**

**OTHER STDS. REQUIRED:** E-160 E-161 E-162 E-163

REVISIONS AND CORRECTIONS

APR. 01, 1988 - DATE OF ORIGINAL ISSUE
JUNE 21, 1989 - FHWA - CHANGE TO 7' FUSE PLATE CLEARANCE
AUG. 08, 1995 - DELETED TWO RAIL ALUMINUM FROM DEFLECTION CHART AND MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. MacArthur
DIRECTOR OF ENGINEERING

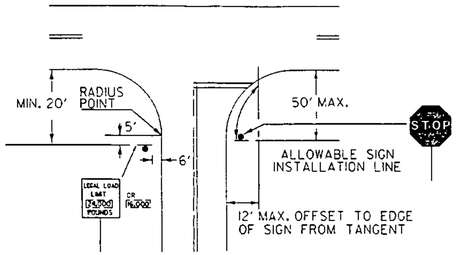
David A. Ross
TRAFFIC AND SAFETY ENGINEER

# STANDARD SIGN PLACEMEMT EXPRESSWAY AND FREEWAY

/traf/std/stce120.dgn : stde120.1

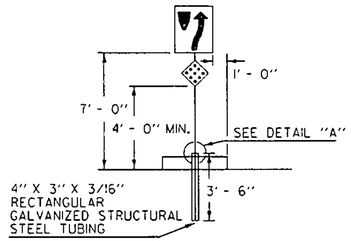
VERMONT AGENCY OF TRANSPORTATION

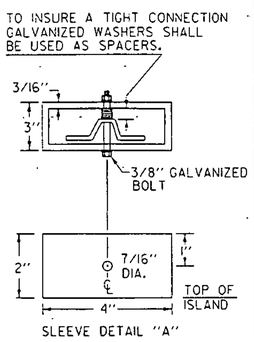
STANDARD
E-120




STOP SIGN SHALL BE PLACED ON DRIVERS RIGHT, MAINTAINING MAXIMUM VISIBLITY. CLEARANCE SHALL BE A MINIMUM OF 6' AND A MAXIMUM OF 50' FROM EDGE LINE OF INTERSECTING ROADWAY AND DOES NOT HAVE TO BE ADJACENT TO THE STOP BAR.

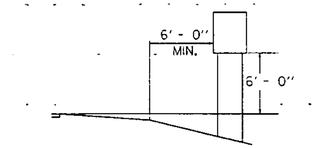
**LEGAL LOAD LIMIT AND STOP SIGNS AT INTERSECTIONS WITH TOWN HIGHWAYS**

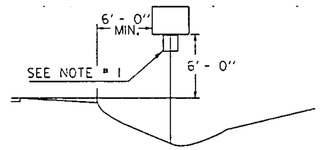


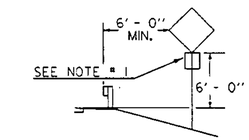




**SIGNS ON MEDIAN ISLANDS IN THE LINE OF TRAFFIC**

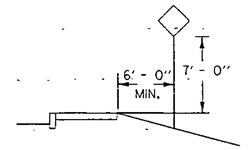
INCREASE VERTICAL CLEARANCE TO 7' IN AREAS OF FREQUENT ROADSIDE PARKING OR PEDESTRIAN ACTIVITY

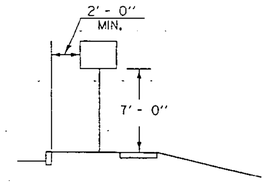


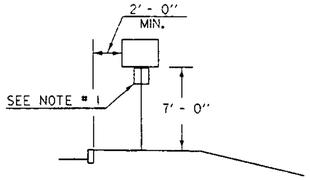




**RURAL**




IF SUFFICIENT CLEARANCE IS NOT AVAILABLE BETWEEN CURB AND SIDEWALK MOUNT SIGN BEHIND SIDEWALK AS SHOWN AT TOP. CHECK FOR ADEQUATE R.O.W..




**URBAN**

**NOTES:**

1. IN BOTH RURAL AND URBAN LOCATIONS, IF A SECONDARY SIGN IS MOUNTED BELOW ANOTHER SIGN, THE MINIMUM CLEARANCE MAY BE REDUCED BY ONE FOOT.
2. IN RURAL AREAS WITH NO OR MINIMAL SHOULDER, THE LATERAL CLEARANCE TO THE EDGE OF A SIGN SHOULD BE A MINIMUM OF 12' FROM THE EDGE OF THE TRAVELED WAY.
3. ALSO SEE OTHER STANDARD SHEETS FOR MOUNTING CLEARANCE AND SPACING OF DESTINATION AND ROUTE MARKER ASSEMBLIES AND TOWN LINE SIGNS.

POST REFERENCE:

REFER TO THE DETAILS ON THE APPROPRIATE STANDARD DRAWING FOR INFORMATION CONCERNING THE PROPER MOUNTING OF SIGNS ON APPROPRIATE POSTS.

**OTHER STDS. REQUIRED:** **E-160 E-161 E-162 E-163 E-164**

REVISIONS AND CORRECTIONS

JAN. 23, 1995 - DATE OF ORIGINAL ISSUE

AUG. 08, 1995 - VARIOUS MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

# STANDARD SIGN PLACEMENT CONVENTIONAL ROAD

/trof/std/std121.dgn : std121.i

VERMONT AGENCY OF TRANSPORTATION

# STANDARD E-121

## STREET NAME SIGNS

* MATERIALS
THE SIGN BASE MATERIALS USED FOR THE STREET NAME SIGNS MAY BE EITHER OF THE FOLLOWING:
A - EXTRUDED ALUMINUM BLADES WITH REFLECTIVE SHEETING
B - FLAT ALUMINUM BLADES WITH REFLECTIVE SHEETING

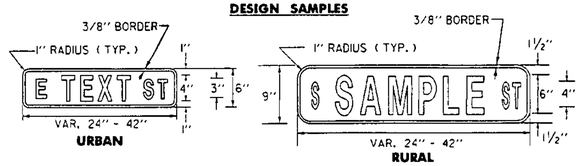
* COLORS
THE SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ( STICK ON REFLECTIVE LETTERS ) ON A REFLECTORIZED GREEN BACKGROUND. THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

* LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

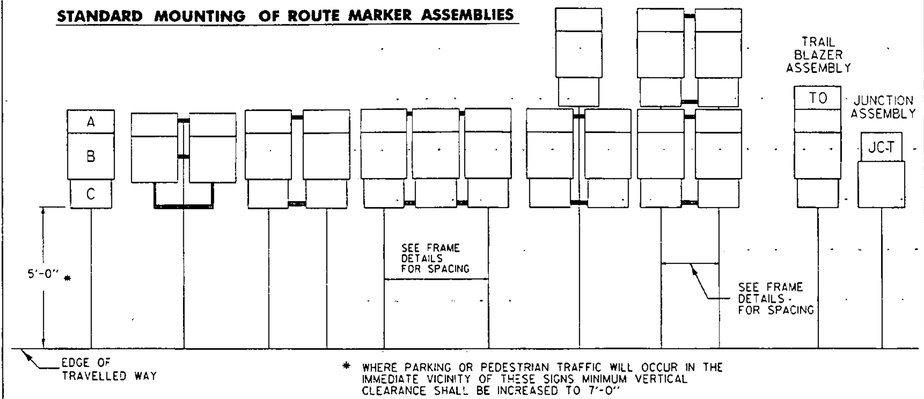
* SPECIFICATIONS
THE SIGN SHALL MEET THE VERMONT STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". THE MATERIAL FOR THE BLADES SHALL BE EITHER EXTRUDED ALUMINUM WITH A 0.25 INCH FLANGE THICKNESS AND A 0.090 INCH WEBB ( MIN. ) OR FLAT SHEET ALUMINUM WITH A MINIMUM THICKNESS OF 0.125 INCH. THE PREFERRED MOUNTING METHOD FOR STREET SIGNS IS POST TOP MOUNTING BRACKETS. HARDWARE FOR MOUNTING SIGNS TO POST SHALL BE SUBSIDIARY TO OTHER ITEMS. MOUNTING METHOD WILL BE AS SHOWN ON THE PLANS. MINIMUM VERTICAL CLEARANCE IS 8 FEET TO THE BOTTOM OF THE SIGN. FOR POST TOP MOUNTINGS, SIGNS SHALL HAVE TEXT ON BOTH SIDES.

* SIZES
RURAL AREAS - USE A 9 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING ( MINIMUM ) WITH 6 INCH HIGH LETTERS FOR THE STREET NAME, 4 INCH LETTERS FOR OTHER TEXT.
URBAN AREAS - USE A 6 INCH HIGH BLADE IN LENGTHS OF 24", 30", 36" OR 42". USE SERIES "B" LETTERING ( MINIMUM ) WITH 4 INCH HIGH LETTERS FOR THE STREET NAME. 3 INCH LETTERS FOR OTHER TEXT.

### DESIGN SAMPLES




## STANDARD MOUNTING OF ROUTE MARKER ASSEMBLIES




* WHERE PARKING OR PEDESTRIAN TRAFFIC WILL OCCUR IN THE IMMEDIATE VICINITY OF THESE SIGNS MINIMUM VERTICAL CLEARANCE SHALL BE INCREASED TO 7'-0"

INSTALLATION SEQUENCE:
IN MULTIPLE HORIZONTAL MOUNTINGS PLACE A ROUTE MARKER ASSEMBLY INDICATING A LEFT TURN ON THE LEFT SIDE OF THE ASSEMBLY; RIGHT TURN ON THE RIGHT SIDE. FOR VERTICALLY STACKED MOUNTINGS PLACE THE STRAIGHT THROUGH MOVE INDICATION ON TOP, THE LEFT OR RIGHT TURNS AS APPROPRIATE BENEATH.
A - CARDINAL DIRECTION MARKER
B - ROUTE NUMBER
C - ADVANCE TURN ARROW OR DIRECTIONAL ARROW

APPLICATION
THE MINIMUM SIZE SHALL BE USED IN AREAS WHERE THESPEED LIMIT IS 35 MPH OR LESS. UNLESS TEXT SIZE REQUIREMENTS DICTATE THE USE OD THE STANDARD SIZE, MULTIPLE ASSEMBLIES SHALL USE THE SAME SIZE THROUGHOUT.

MATERIALS
THE SIGN BASE MATERIAL FOR STANDARD DESTINATION SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD 5/8" THICK OR FLAT SHEET ALUMINUM 1/8" THICK. THE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT AND BORDER SHALL BE CUT OUT OF REFLECTORIZED WHITE OR SILVER LETTERS.

COLORS
DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED GREEN BACKGROUND.

THE COLORS SHALL CONFORM WITH THOSE FOUND IN STANDARD COLOR TOLERANCE CHARTS AS APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

LETTERING
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITEE ON UNIFORM TRAFFIC CONTROL DEVICES.

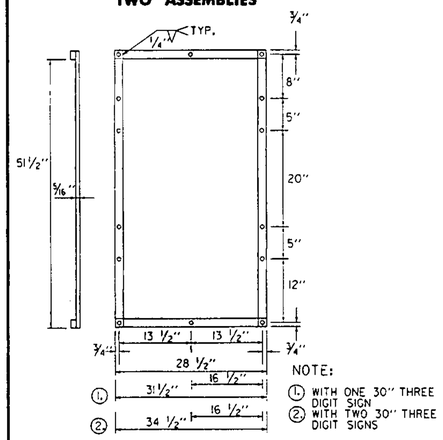
SPECIFICATIONS
DESTINATION SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR "TRAFFIC SIGNS". ALL BORDERS ARE 3/8".

TEXT DESIGN
LETTERS, DIGITS, ARROW, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

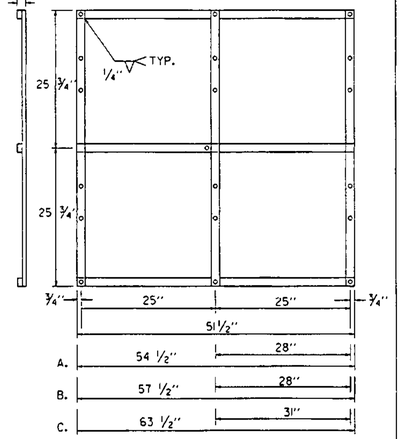
## ROUTE MARKER ASSEMBLY FRAMES

STANDARD FRAMES SHALL BE 5/16" x 1 1/2" WELDED WROUGHT IRON. ALL HOLES SHALL BE 7/16" DIAMETER. FOR OTHER SIGN COMBINATIONS THAN ABOVE, THE FRAME DIMENSIONS AND HOLE SPACING SHALL BE MODIFIED AS NECESSARY. THE FRAME SHALL BE PAINTED WITH ONE COAT OF PRIMER AND A SECOND COAT OF BLACK PAINT. THE PAINT SHALL BE OF THE TYPE USED ON EXTERIOR METAL SURFACES TO PREVENT METAL CORROSION.

### FRAME FOR TWO ASSEMBLIES

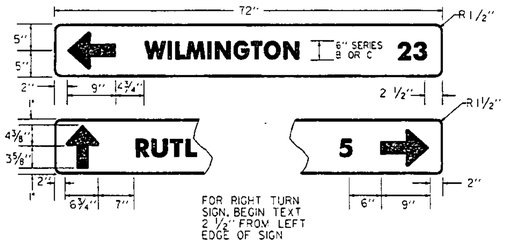



### FRAME FOR THREE ASSEMBLIES

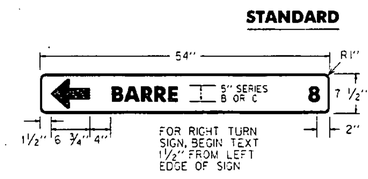



NOTE:
A. WITH ONE 30" THREE DIGIT SIGN IN AN OUTSIDE POSITION
B. WITH ONE 30" THREE DIGIT SIGN IN THE CENTER POSITION OR TWO SUCH SIGNS IN THE OUTSIDE POSITIONS
C. WITH THREE 30" THREE DIGIT SIGNS

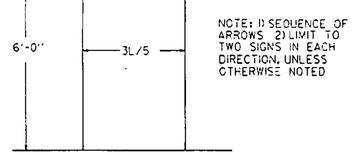
## STANDARD MOUNTING OF DESTINATION ASSEMBLIES

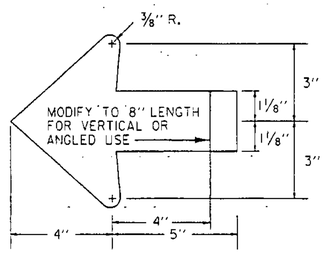



### STANDARD

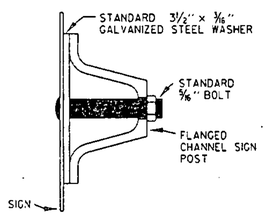



### DESTINATION ASSEMBLY

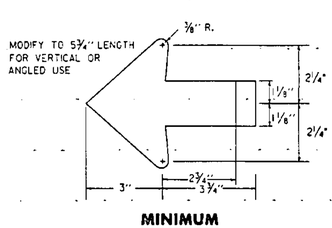


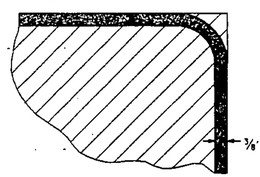

### STANDARD




### INSTALLATION DETAIL




### MINIMUM




### BORDER DETAIL

OTHER STDS. REQUIRED:

REVISIONS AND CORRECTIONS
APR. 01, 1988 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - DELETED TOWN LINE INFO.
AUG. 08, 1995 - REVISED DESTINATION SIGN DETAILS DETAILED SIGN LOCATION TYPICAL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon D. McArthur
DIRECTOR OF ENGINEERING

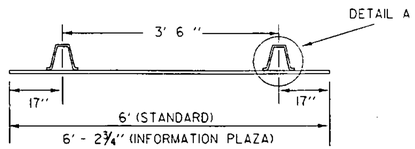
David A. Ross
TRAFFIC AND SAFETY ENGINEER

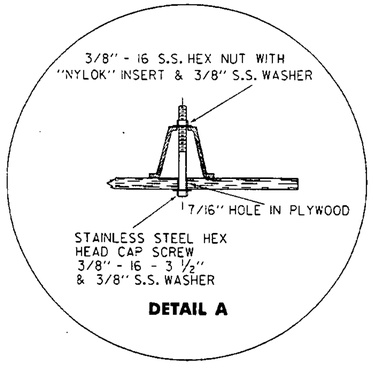
# GUIDE SIGN PLACEMENT MISCELLANEOUS DETAILS

/traf/std/stdel23.dgn : stdel23.i

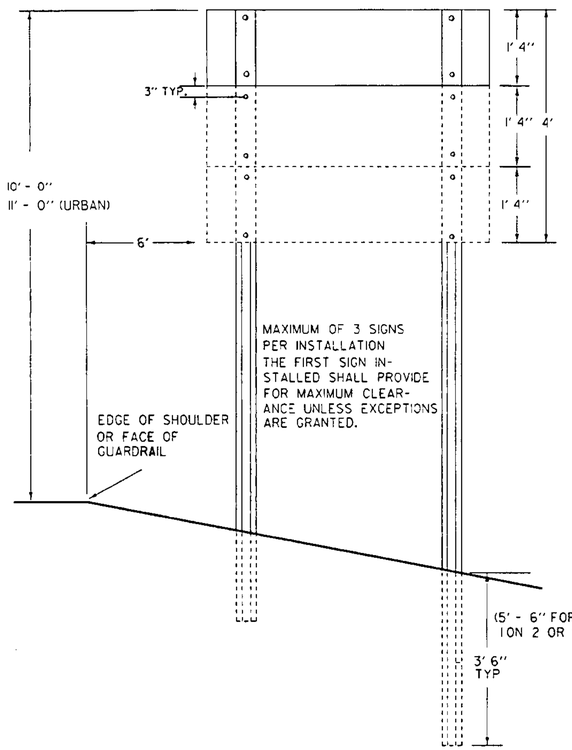
VERMONT AGENCY OF TRANSPORTATION

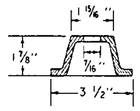
STANDARD
E-123



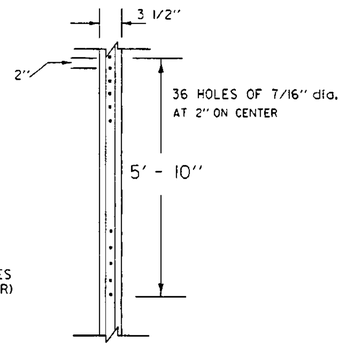




**DETAIL A**

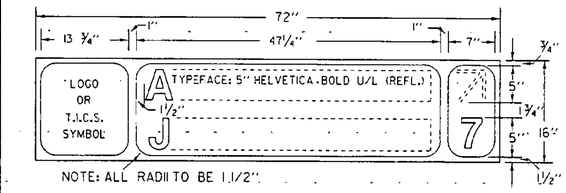


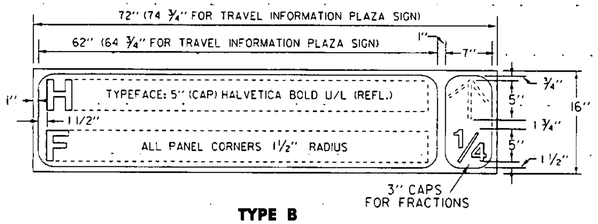

**3#/LF FLANGED CHANNEL STEEL SIGN POST DETAIL**



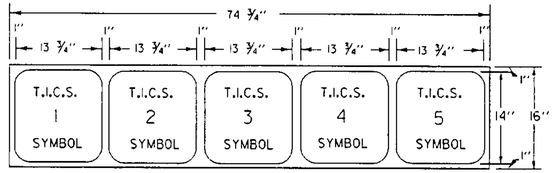

**POST DRILLING DETAIL**




**TYPE A**




**TYPE B**

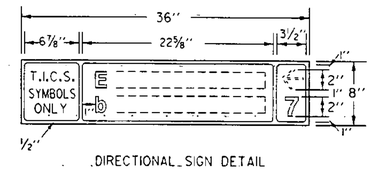



**TYPE C**

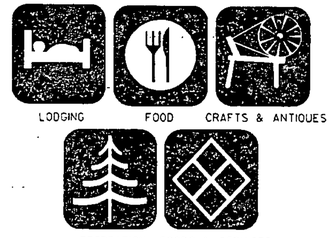
ONLY USED ON APPROACHES TO INFORMATION PLAZAS

**EXAMPLE OF PLAZA INFORMATION SIGN**

FOR MORE DETAILS ON THE STATE'S INFORMATION SYSTEM, WRITE OR CALL: TRAVEL INFORMATION COUNCIL, C/O AGENCY OF TRANSPORTATION, MAINTENANCE DIVISION, NATIONAL LIFE BUILDING, MONTPELIER, VERMONT 05602 (802) 828-2651.




DIRECTIONAL SIGN DETAIL
FOR USE ON HIGHWAYS WITH SPEEDS OF 30 M.P.H. OR LESS




THE SYMBOLS ABOVE ARE FEATURED ON VERMONT'S TRAVEL INFORMATION PLAZAS. WHICH ARE FREE-STANDING OUTDOOR KIOSKS FOUND AT INTERSTATE REST AREAS, WELCOME CENTERS, AND NEAR KEY POINTS OF INTEREST. PLAZA LOCATIONS ARE INDICATED ON THE OFFICIAL STATE MAP BY THE SYMBOL ?.

MATERIALS:

SIGN BASE MATERIAL SHALL BE HIGH DENSITY OVERLAID PLYWOOD, ⅝" THICK, WHICH HAS BEEN SEALED ON THE EDGES AND PAINTED BLACK. THE BACK OF THE SIGNBOARD SHALL ALSO BE PAINTED BLACK. EACH SIGNBOARD IS TO BE DRILLED WITH FOUR 7/16" HOLES. THE INTERIOR OF THE HOLES SHALL BE PAINTED OR OTHERWISE SEALED AGAINST THE WEATHER.

DIRECTIONAL ARROWS AND MILEAGE NUMBERS WILL BE MADE OF REFLECTORIZED MATERIAL. (ENGINEERING GRADE)

COLOR:

SIGNBOARD FACES WILL HAVE BLACK BACKGROUND WITH WHITE BORDER. T.I.C.S. SYMBOL BACKGROUNDS WILL BE COLORED AS FOLLOWS:

LODGING - MAGENTA (PINK)
FOOD - ORANGE
CRAFTS & ANTIQUES - AQUA
RECREATION - BROWN
GOODS AND OTHER SERVICES - BLACK

ALL SYMBOLS WILL BE REFLECTORIZED.

TEXT LAYOUT:

NAME OF BUSINESS ENTERPRISE WILL BE IN UPPER AND LOWER CASE LETTERS STARTING FLUSH LEFT ON THE TOP LINE, AND MAY, ONLY WHEN NECESSARY, EXTEND TO THE SECOND LINE, (FLUSH LEFT ALSO). DIRECTIONAL INFORMATION WILL BE ALL IN LOWER CASE (NO CAPS), AND WILL ALWAYS BE ON THE SECOND LINE, EITHER FLUSH LEFT OR FOLLOWING THE END OF THE ESTABLISHMENT'S NAME.

**OTHER STDS. REQUIRED:** E-160

REVISIONS AND CORRECTIONS

AUG. 22, 1988 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR DETAIL AND NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

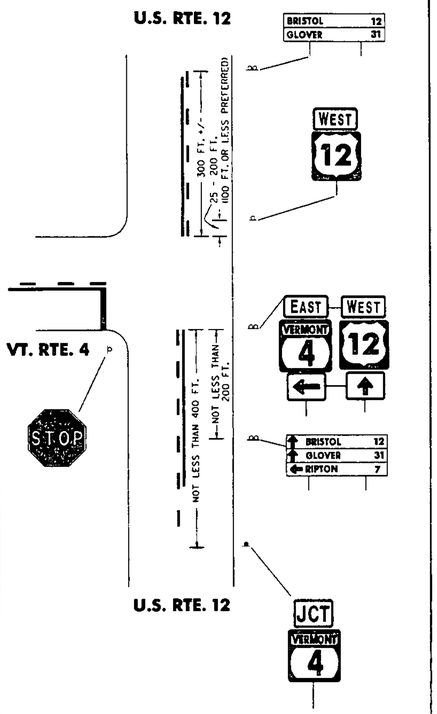
TRAFFIC AND SAFETY ENGINEER

# TRAVEL INFORMATION COUNCIL SIGNS

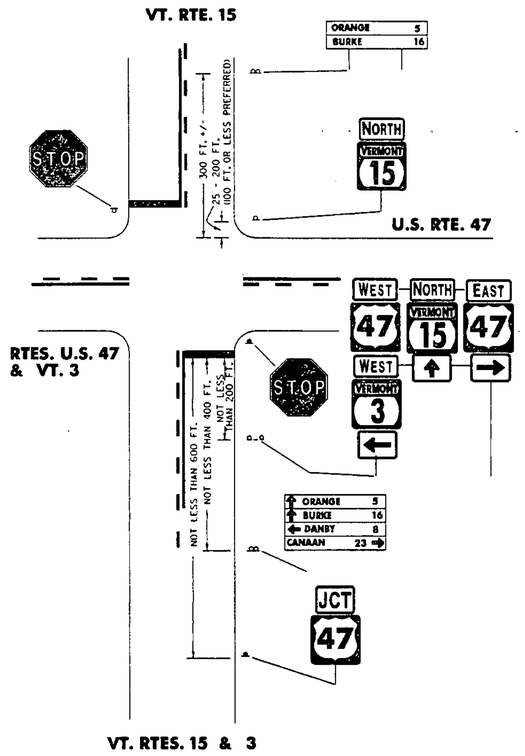
/traf/std/stdel25.dgn : stdel25.i

VERMONT AGENCY OF TRANSPORTATION

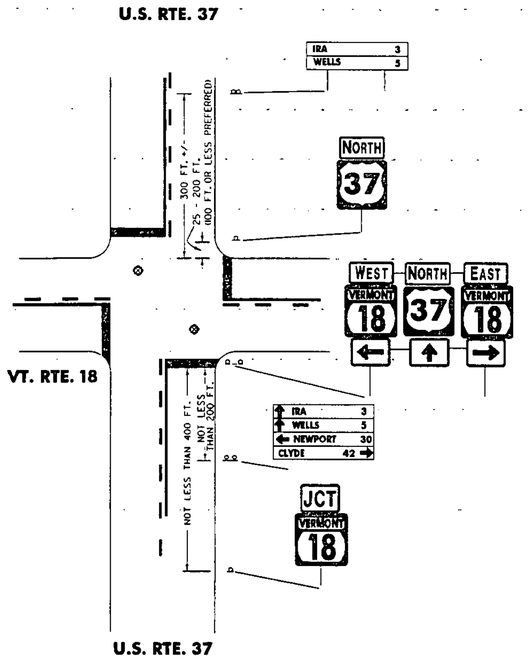
# STANDARD E-125



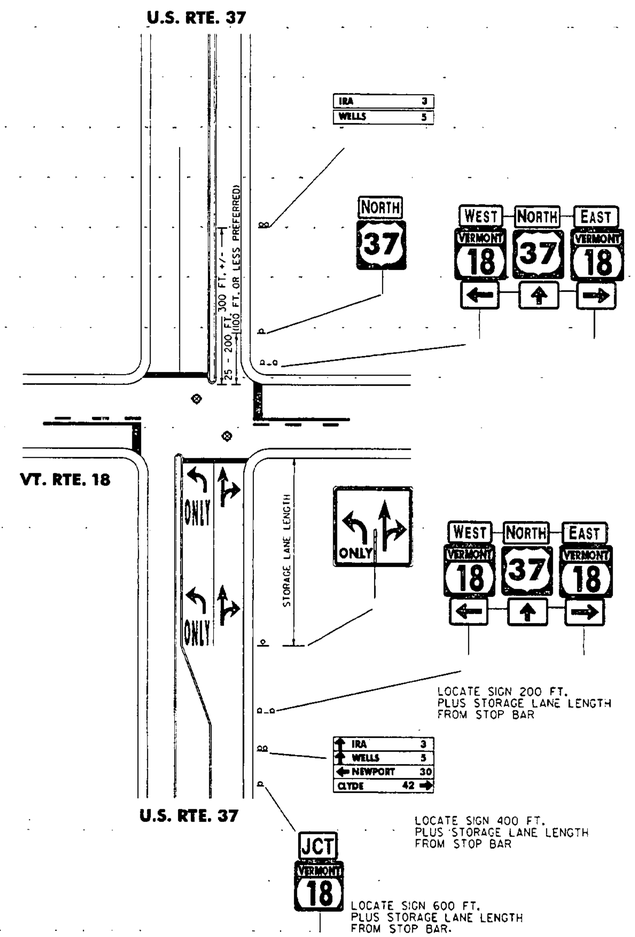

**RURAL INTERSECTION - THROUGH MOVEMENT -**




**SINGLE LANE,STOP CONTROL**




**SINGLE LANE WITH SIGNAL**




**MULTI - LANE INTERSECTION - SIGNALIZED**

**GENERAL NOTES:**

1. RECOMMENDED SIGN SPACING AS SHOWN IS SOMETIMES NOT OBTAINABLE DUE TO COMMERCIAL CONFLICTS ETC. AT BUSY INTERSECTIONS. JUDGEMENT MUST BE USED IN THESE CASES TO PLACE SIGNS AS TO GIVE ADEQUATE NOTICE. IT IS ESPECIALLY IMPORTANT TO PLACE SIGNS CLEAR OF OBSTRUCTION BY OTHER SIGNS, POLES, POSTS, FENCES, ETC.
2. - BENT ARROWS ARE USED WHEN THE INTERSECTION CANNOT BE SEEN
   - STRAIGHT ARROWS ARE TO BE USED WHEN THE INTERSECTION CAN BE SEEN.
3. SIGNING SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
4. TWO DESTINATION BOARDS FOR EACH DIRECTION ARE PERMISSABLE.

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - MINOR SIGN AND NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon A. MacArthur
DIRECTOR OF ENGINEERING

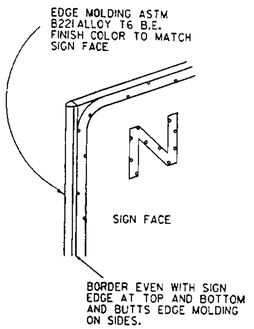
David A. Ross
TRAFFIC AND SAFETY ENGINEER

# ROUTE MARKINGS AT RURAL INTERSECTIONS

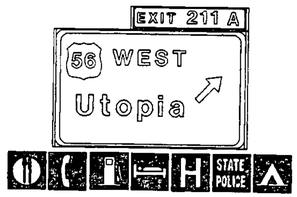
/traf/std/std'27.dgn : std27.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-127

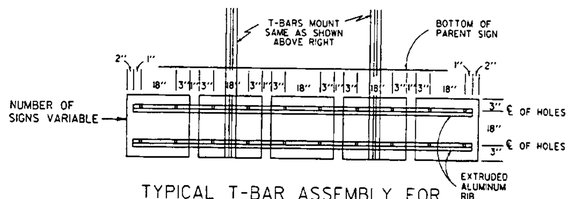



INDIVIDUAL LETTERS, DIGITS, SYMBOLS, AND BORDERS FOR THE SIGN SHALL BE SHAPED FROM 0.032 INCH SHEET ALUMINUM CONFORMING TO THE REQUIREMENTS OF ASTM B 209, ALLOY 3003-H-12. LEGEND AND BORDER TO BE ATTACHED TO THE SIGN FACE WITH 1/8" RIVETS.

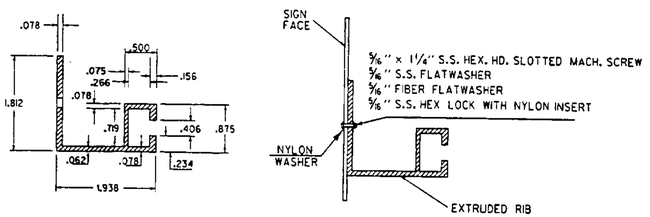



SERVICE SIGN MOUNTING DETAILS

WHEN USED, THE SERVICE SIGNS SHALL APPEAR IN THE SAME SEQUENCE AS SHOWN ABOVE. THE PARENT SIGN SHOWN IS ONLY AN EXAMPLE. THE SIGNS SHALL BE INSTALLED ON THE SIGN SHOWN ON THE PLANS. THE SERVICE SIGNS SHALL BE MOUNTED TO THE PARENT SIGN WITH TEE BARS AND EXTRUDED ALUMINUM RIBS. OTHER METHODS OF INSTALLATION MAY BE SUBMITTED TO THE TRAFFIC DESIGN SECTION FOR APPROVAL. IN NO CASE SHALL ANY SUPPORT BE ATTACHED TO THE W-SHAPED STEEL SIGN SUPPORT BELOW THE FUSE PLATE.

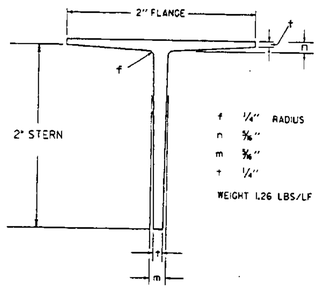



TYPICAL T-BAR ASSEMBLY FOR MOUNTING SERVICES SYMBOLS ( 24" x 24" UNITS SHOWN )

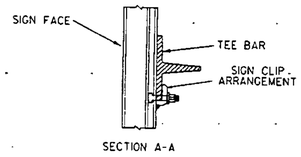



DETAIL
EXTRUDED ALUMINUM RIB
ALUM. ALLOY 6063-T6

EXTRUDED ALUMINUM PANEL SIGN CLIP

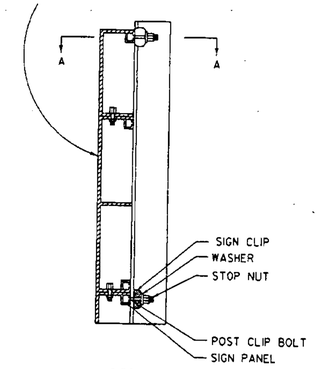



TEE BAR




SECTION A-A

12" x 6" EXTRUDED ALUMINUM SIGN PANELS 6063-T6. 6'x 6' PANEL PLACED ON TOP WHEN REQUIRED. PANELS BOLTED TOGETHER ON 24" CENTERS WITH 3/8" x 1" STAINLESS STEEL HEX HEAD BOLT.

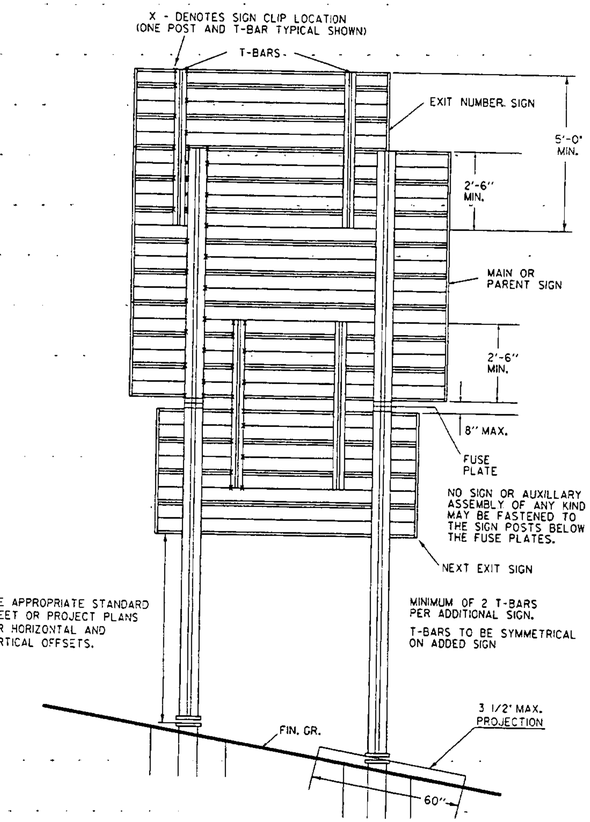



SIDE VIEW

SIGN MOUNTING DETAIL

NOTES

1. THE ALUMINUM TEE BAR SHALL BE OF 6063-T6 ALLOY.
2. EXTRUDED ALUMINUM PANEL SIGN CLIP SHALL BE 356-T6 ALLOY FABRICATED TO GIVE PROPER CLAMPING ON ALL FLANGES ( TAPERED OR PARALLEL ) FROM 1/8" TO 19/32" IN THICKNESS. A FLAT WASHER SHALL BE USED UNDER THE NUT.
3. BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL. BOLTS SHALL BE 5/16" DIAMETER, 2 INCHES IN LENGTH WITH A HEAD CAPABLE OF BEING INSERTED INTO EXTRUDED ALUMINUM SIGN PANEL SLOTS. NUTS SHALL BE OF A LOCK NUT DESIGN, THREADS MATCHING BOLT. THE WASHER SHALL HAVE A 9/16" I.D. x 3/4" O.D. x .091 THICKNESS.




TYPICAL SIGN INSTALLATION ON W-SHAPED STEEL POSTS WITH T-BAR EXTENSIONS

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
MARCH 01, 1988 - MAJOR REVISIONS
AUG. 08, 1995 - MINOR REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Stanton A. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

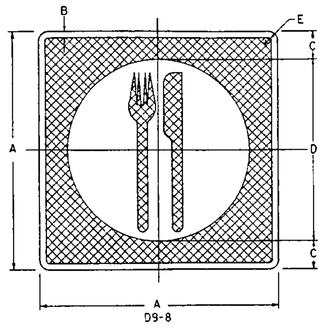
# TYPE "B" GUIDE SIGN ATTACHMENT DETAILS

**OTHER STDS. REQUIRED:**

VERMONT AGENCY OF TRANSPORTATION

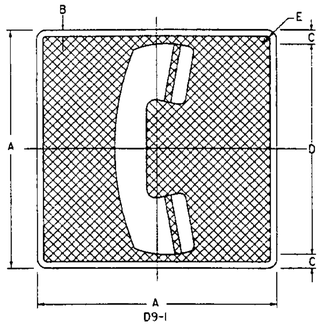
# STANDARD E-130

/trcf/std/std130.dgn : std130



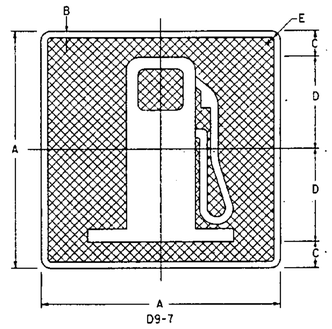

D9-8

| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 |



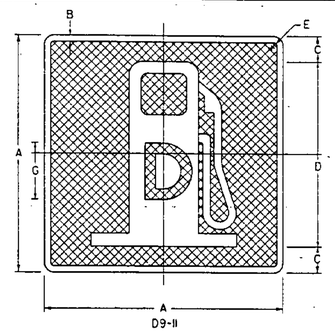

D9-1

| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 |



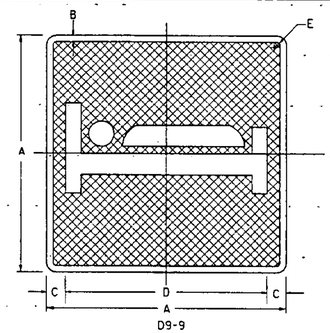

D9-7

| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 3 | 6 | 1 1/2 |
| STD | 24 | 1/2 | 3 | 9 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 3 3/4 | 11 1/4 | 1 7/8 |



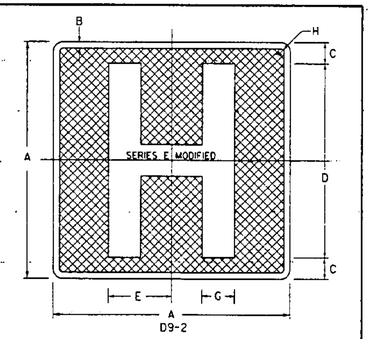

D9-11

| SIGN | DIMENSIONS ( INCHES ) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | G |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 | 4E(M) |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 | 6E(M) |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 | 8E(M) |



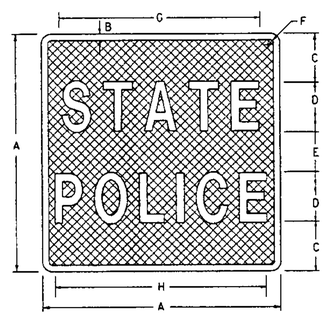

D9-9

| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 |

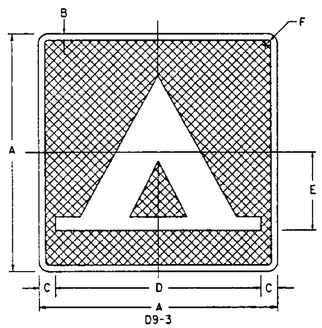



D9-2

| SIGN | DIMENSIONS ( INCHES ) | | | | | | |
|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | G | H |
| MIN | 18 | 1/2 | 1 1/2 | 15 | | | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 6 3/8 | 3 1/5 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 8 | 4 | 1 7/8 |

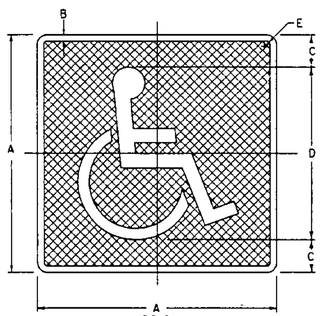



| SIGN | DIMENSIONS ( INCHES ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| MIN AND STD | 24 | 1/2 | 5 | 5C | 4 | 1 1/2 | 14 3/16 | 18 |
| SPECIAL | 30 | 1/2 | 6 | 6C | 6 | 1 1/2 | 18 3/4 | 22 7/16 |



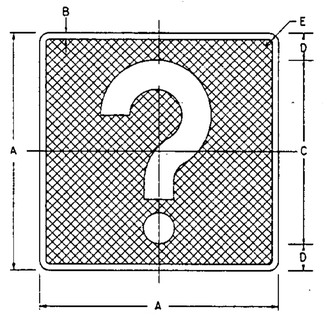

D9-3

| SIGN | DIMENSIONS ( INCHES ) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 6 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 8 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 10 | 1 7/8 |



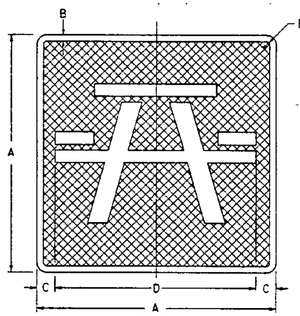

D9-6

| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 |



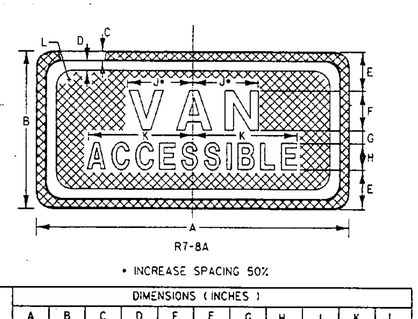

D9-10

| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 |




D5-5A

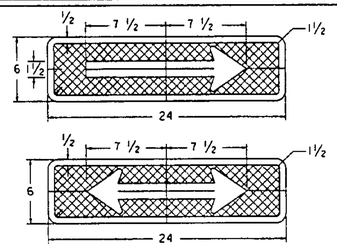
| SIGN | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN | 18 | 1/2 | 1 1/2 | 15 | 1 1/2 |
| STD | 24 | 1/2 | 2 | 20 | 1 1/2 |
| SPECIAL | 30 | 3/4 | 2 1/2 | 25 | 1 7/8 |

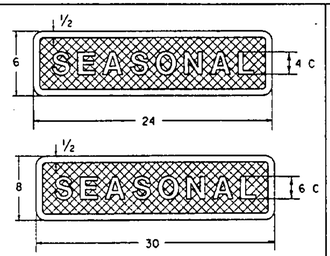


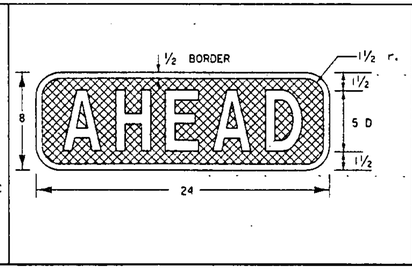

R7-8A

• INCREASE SPACING 50%

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| STD | 12 | 6 | 3/8 | 3/8 | 1 1/2 | 1 1/2D | 1/2 | 1D | 2 1/4 | 4 | 1 1/2 |
| SPECIAL | 18 | 9 | 3/8 | 5/8 | 2 1/4 | 2D | 1 | 1 1/2D | 2 3/4 | 7 | 1 1/2 |




NOTE :
ALL DIMENSIONS SHOWN IN INCHES

## NOTES

MATERIALS

THE SIGN BASE MATERIAL USED FOR THE GUIDE SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED.

A - FLAT SHEET ALUMINUM - 0.060
B - HIGH DENSITY OVERLAID PLYWOOD - 1/2".
C - GALVANIZED FLAT SHEET STEEL - 16 GA.

COLORS

THE SIGNS SHALL BE WHITE OR SILVER REFLECTORIZED SHEETING WITH A REVERSE SCREENED BLUE BACKGROUND. THE BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS AND APPROVED BY THE U.S. DEPT. OF TRANSPORTATION, FEDERAL HIGHWAY ADIMINISTRATION.

LETTERING

LETTERS SHALL CONFORM WITH THE REQUIREMENTS FOUND IN THE PUBLICATION "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" PRINTED BY THE FEDERAL HIGHWAY ADMINISTRATION.

DESIGN

THE DESIGN OF THESE SIGNS SHALL CONFORM WITH THE DETAILS SET FORTH IN THE MANUAL "STANDARD HIGHWAY SIGNS" AS SPECIFIED IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." LETTER-NUMERAL DESIGNATION UNDER EACH SYMBOL IS IDENTIFICATION IN MANUAL.

SPECIFICATIONS

THESE SIGNS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR "TRAFFIC SIGNS."

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
DEC. 18, 1989 - DELETED SERVICE MOUNTING DETAIL
REVISED "STATE POLICE" SIGN
ADDED "AHEAD" SIGN
AUG. 18, 1995 - SIGN DETAIL REVISIONS PER STANDARD HIGHWAY SIGNS MANUAL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

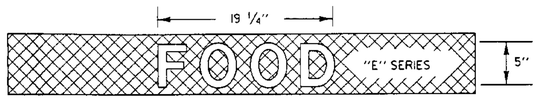
TRAFFIC AND SAFETY ENGINEER

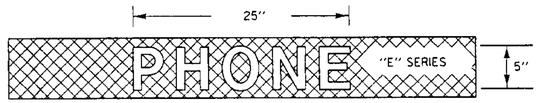
# GENERAL MOTORIST SERVICES SIGN DETAILS

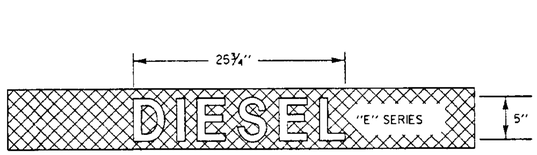
/traf/std/stdel32.cgn : stdel32.1

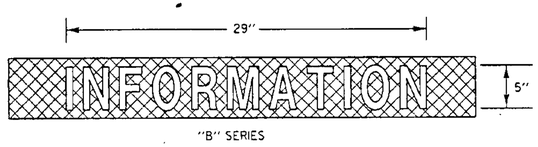
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-132

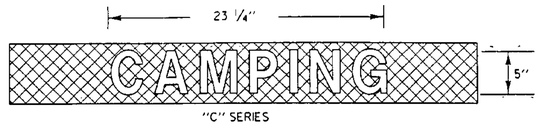


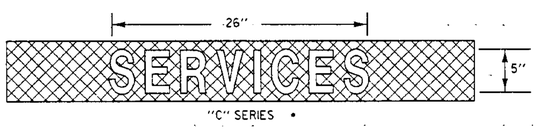


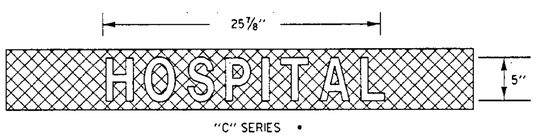

"B" SERIES



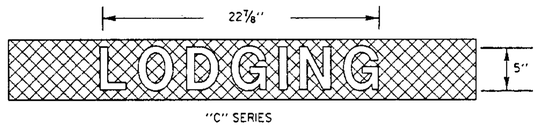

"C" SERIES



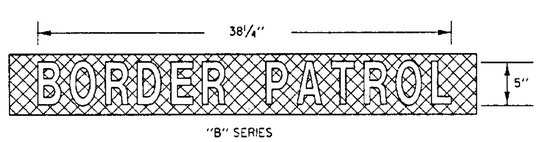

"C" SERIES •



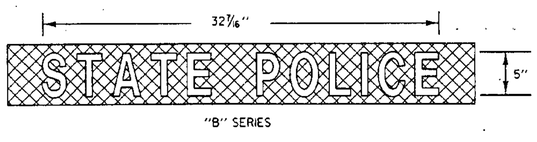

"C" SERIES •




"C" SERIES



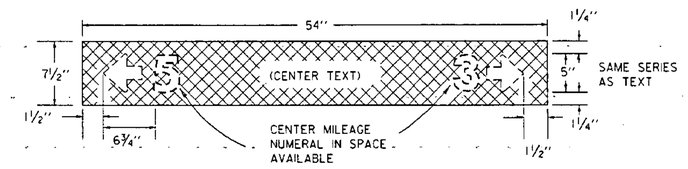

"B" SERIES



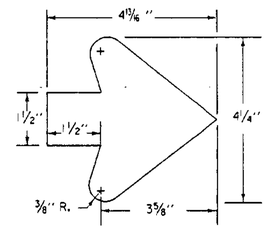

"B" SERIES

**TEXT**

• HORIZONTAL SPACING OF LETTERS MAY BE REDUCED SLIGHTLY IF NECESSARY.




**SIGN & LEGEND LAYOUT DIMENSIONS**




**ARROW DIMENSIONS**

**GENERAL:**
DOTTED LINES DENOTE VARIABLE TEXT. CROSSHATCHING DENOTES BLUE BACKGROUND.

**MATERIALS:**
THE SIGN BASE MATERIAL FOR SERVICES SIGNS SHALL BE HIGH DENSITY OVERLAID PLYWOOD • INCH THICK OR FLAT SHEET ALUMINUM 0.125 INCH THICK. THE REFLECTIVE MATERIAL SHALL BE BLUE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND

**COLORS:**
DESTINATION SIGNS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT ON A REFLECTORIZED BLUE BACKGROUND.

**LETTERING:**
LETTERS AND DIGITS SHALL CONFORM WITH THE STANDARD ALPHABETS FOR HIGHWAY SIGNS APPROVED BY THE NATIONAL JOINT COMMITTEE ON UNIFORM TRAFFIC CONTROL DEVICES.

**SPECIFICATIONS:**
SIGNS SHALL MEET THE STATE SPECIFICATIONS FOR ''TRAFFIC SIGNS''.

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

DEC. 18, 1989 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - ADDED SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Stephen J. MacArthur
DIRECTOR OF ENGINEERING

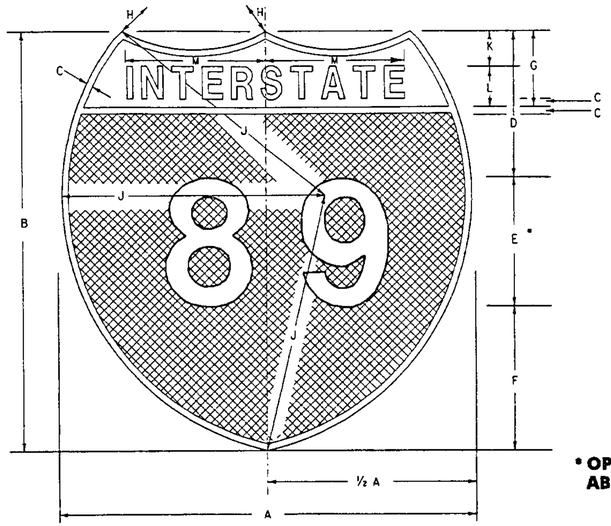
David A. Rowe
TRAFFIC AND SAFETY ENGINEER

# SERVICE SIGN DETAILS

/traf/std/stdel33.dgn : stdel33.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-133



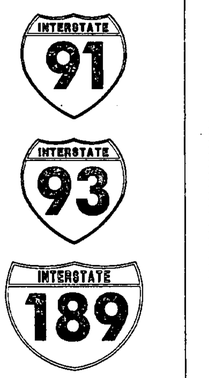

**M1-1**

INTERSTATE SHIELD FOR INDEPENDENT AND GUIDE SIGN USE

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M |
| 1,2-DIGITS | 24 | 24 | ½ | 6½ | 12 D | 5½ | 5 | 15 | 15 | 2 | 2½C | 7⅛ |
| 1,2-DIGITS | 36 | 36 | ¾ | 9¾ | 18 D | 8¼ | 7½ | 22½ | 22½ | 3 | 3¾C | 10⅝ |
| 3-DIGITS | 30 | 24 | ½ | 6½ | 12 D | 5½ | 5 | 24 | 17 | 2 | 2½C | 7⅝ |
| 3-DIGITS | 45 | 36 | ¾ | 9¾ | 18 D | 8¼ | 7½ | 36 | 25½ | 3 | 3¾C | 10⅞ |

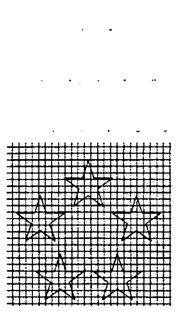
**COLORS**

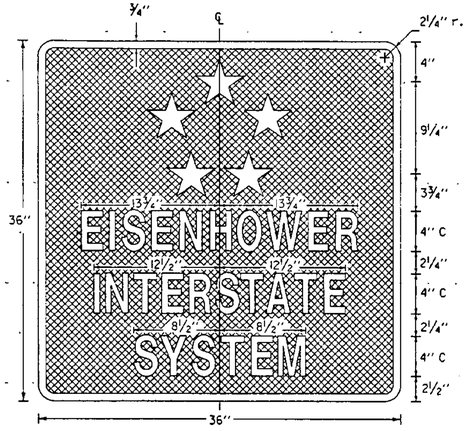
LEGEND AND BORDERS -WHITE (REFL)
TOP -RED (REFL)
BOTTOM (CROSS-HATCHED) -BLUE (REFL)



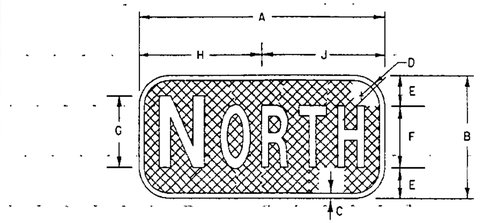

**TYPICAL SIGN TEXTS**

*** OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE**






COLORS
LEGEND - WHITE (REFL)
BACKGROUND - BLUE (REFL)




**CARDINAL DIRECTION MARKER**

| SIGN | DIMENSIONS (INCHES) | | | | | | | M3-1 NORTH | | M3-3 SOUTH | | M3-2 EAST | | M3-4 WEST | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | H | J | H | J | H | J |
| MIN. & STD. | 24 | 12 | ½ | 1½ | 3 | 6C | 7C | 10¼ | 10¼ | 10¼ | 9⅜ | 7⅞ | 8⅜ | 8¾ | 8⅜ |
| SPECIAL | 30 | 15 | ½ | 1½ | 3½ | 8C | 9C | 12⅜ | 12⅜ | 12⅜ | 12½ | 10⅜ | 11⅛ | 11⅝ | 11⅝ |

## MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESS NOTED:

FLAT SHEET ALUMINUM

| | |
|---|---|
| LESS THAN 24'' X 24'' | 0.060'' |
| WHEN USED ON GUIDE SIGNS | 0.060'' |
| 24'' X 24'', 30'' X 24'' | 0.080'' |
| 36'' X 36'', 45'' X 36'' | 0.100'' |

GALVANIZED FLAT SHEET STEEL

| | |
|---|---|
| LESS THAN 24'' X 24'' | 18 GAGE |
| WHEN USED ON GUIDE SIGNS | 18 GAGE |
| 24'' X 24'', 30'' X 24'' | 16 GAGE |
| 36'' X 36'', 45'' X 36'' | 14 GAGE |

THE REFLECTIVE MATERIAL SHALL BE ENCAPSULATED LENS, WHITE OR SILVER REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE MARKER. THE TEXTS OF THE INTERSTATE ROUTE MARKERS AND THE AUXILIARY, EXCEPT TRAILBLAZER AUXILIARES, SHALL BE REVERSE SCREENED.

## COLORS

THE INTERSTATE ROUTE MARKER SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED RED AND BLUE BACKGROUND. AUXILIARY MARKERS USED WITH INTERSTATE SHIELDS SHALL HAVE A REFLECTORIZED WHITE OR SILVER TEXT AND BORDER ON A REFLECTORIZED BLUE BACKGROUND.

THE RED AND BLUE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

## LETTERING

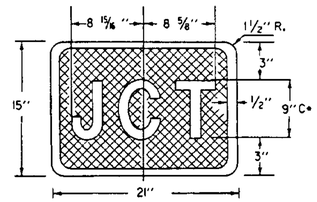
LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

## SPECIFICATIONS

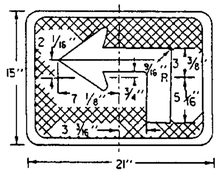
INTERSTATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

## DESIGNS

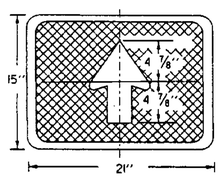
THE DESIGNS OF INTERSTATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.



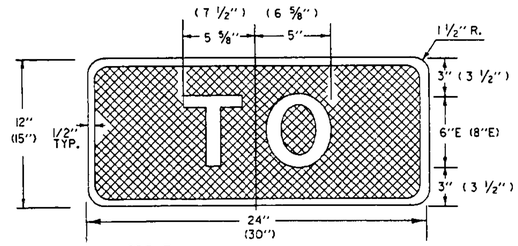

**M2-1**
**JUNCTION MARKER**
INCREASE SPACING 25%



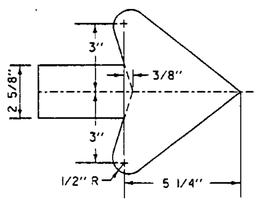

**M5-1**



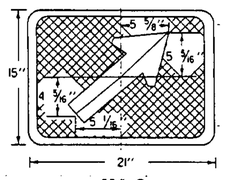

**M6-3**



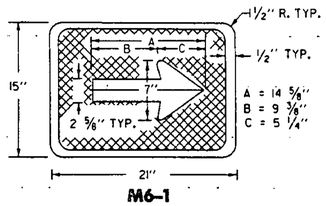

**M4-5**
**TRAILBLAZER**
NUMBER IN PARENTHESES INDICATES DIMENSIONS FOR FREEWAY - EXPRESSWAY SIZE




**ARROW DETAILS**




**M6-2**




**M6-1**

**DIRECTIONAL ARROWS OR ADVANCE TURN ARROWS**

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23 1989 - ADDED ENCAPSULATED SHEETING, 30'' X 15'' SIGNS
OCT. 21, 1992 - NEW CARDINAL SIGN & DIMENSION, ADDED ARROW DETAIL, AND REVISED TITLE BLOCK.
JAN. 13, 1993 - REVISED CARDINAL DIRECTION MARKER BOX
AUG. 18, 1995 - ADDED EISENHOWER SIGN DETAIL

APPROVED

Gordon S. MacCutcheon
DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

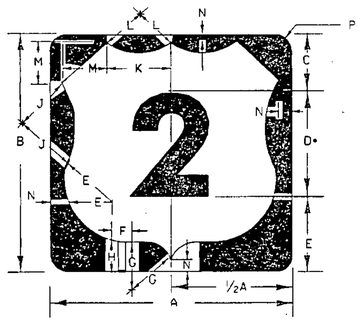
# INTERSTATE ROUTE MARKER SIGN DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

/traf/std/stdel35.dgn : stdel35.1

VERMONT AGENCY OF TRANSPORTATION

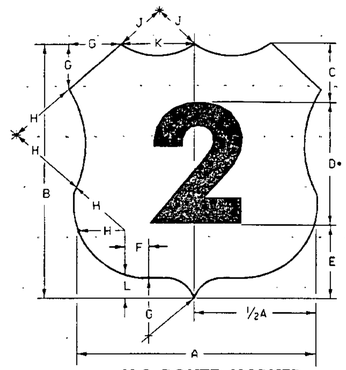
STANDARD
E-135




**U.S. ROUTE MARKER**
**M1-4**

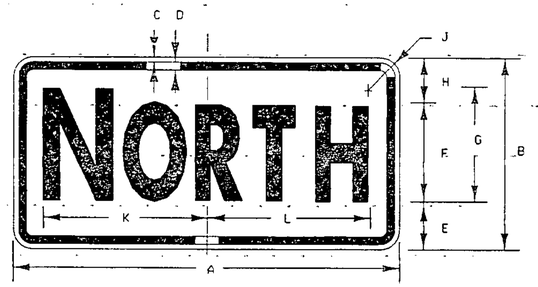
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| 1 DIGIT | 24 | 24 | 5½ | 12D | 6½ | 1 | 5½ | 2½ | 7½ | 7 | 5½ | 4½ | ½ | 1½ |
| 1 DIGIT | 36 | 36 | 8¼ | 18D | 9¾ | 1½ | 8¼ | 3¾ | 11¼ | 10½ | 8¼ | 6½ | ¾ | 2¼ |
| 3.-digits | 30 | 24 | 5½ | 12D | 6½ | 4 | 5½ | 2½ | 7½ | 10 | 9½ | 4½ | ½ | 1½ |
| 3.-digits | 45 | 36 | 8¼ | 18D | 9¾ | 5½ | 8¼ | 3¾ | 11¼ | 15 | 14¼ | 6½ | ¾ | 2¼ |

* **OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE**




**U.S. ROUTE MARKER FOR GUIDE SIGN USE**

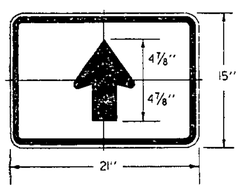
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| 1,2-digits | 24 | 24 | 5½ | 12D | 6½ | 1 | 5 | 7 | 5 | 7 | 2 |
| 1,2-digits | 36 | 36 | 8¼ | 18D | 9¾ | 1½ | 7½ | 10½ | 7½ | 10½ | 3 |
| 3.-digits | 30 | 24 | 5½ | 12D | 6½ | 4 | 5 | 7 | 9 | 10 | 2 |
| 3.-digits | 45 | 36 | 8¼ | 18D | 9¾ | 5½ | 7½ | 10½ | 13½ | 15 | 3 |



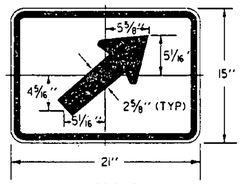

**M3-1 M3-3 M3-2 M3-4**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | NORTH | | SOUTH | | EAST | | WEST | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | K | L | K | L | K | L |
| MIN. & STD. | 24 | 12 | 3/8 | 3/8 | 2¾ | 6C | 7C | 3¼ | 1½ | 10¼ | 10¼ | 10¼ | 9¾ | 7⅞ | 8⅜ | 8¾ | 8¼ |
| SPECIAL | 30 | 15 | 3/8 | 5/8 | 3¼ | 8C | 9C | 3¾ | 1½ | 12⅛ | 12⅛ | 12⅛ | 12½ | 10⅜ | 11⅛ | 11⅝ | 11⅝ |

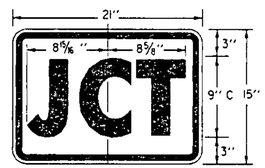
**CARDINAL DIRECTION MARKER**



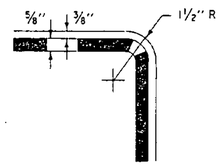

**M6-3**



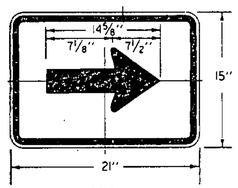

**M6-2**



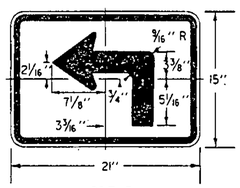

**M2-1**



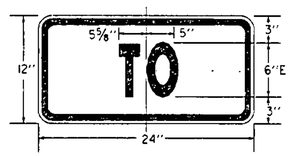

**TYPICAL RADIUS AND BORDER DETAIL**




**M6-1**



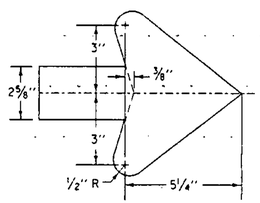

**M5-1**




**M4-5**

**TRAILBLAZER**

**DIRECTION ARROW OR ADVANCE TURN ARROWS**




**ARROW DETAILS**

## MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

| | |
|---|---|
| LESS THAN 24'' X 24'' | 0.060'' |
| WHEN USED ON GUIDE SIGNS 24'' X 24'', 30'' X 24'' | 0.080'' |
| 36'' X 36'', 45'' X 36'' | 0.100'' |

GALVANIZED FLAT SHEET STEEL

| | |
|---|---|
| LESS THAN 24'' X 24'' | 18 GAGE |
| WHEN USED ON GUIDE SIGNS 24'' X 24'', 30'' X 24'' | 18 GAGE |
| 36'' X 36'', 45'' X 36'' | 16 GAGE |
| | 14 GAGE |

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

## COLORS

U.S. ROUTE MARKERS SHALL HAVE BLACK TEXT AND BORDER ON REFLECTORIZED WHITE BACKGROUNDS.

## LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

## SPECIFICATIONS

U.S. ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

## DESIGNS

THE DESIGNS OF U.S. ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

AUG. 08. 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

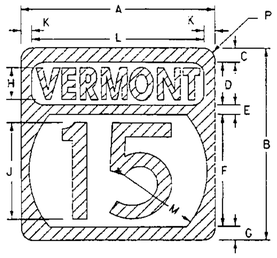
TRAFFIC AND SAFETY ENGINEER

# U.S. ROUTE MARKER SIGN DETAILS

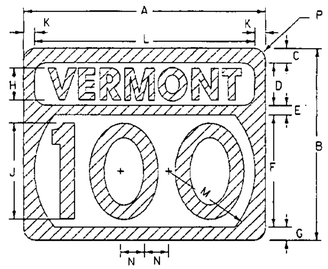
/trcf/std/stdel36c.cgn : stdel36c.i

VERMONT AGENCY OF TRANSPORTATION

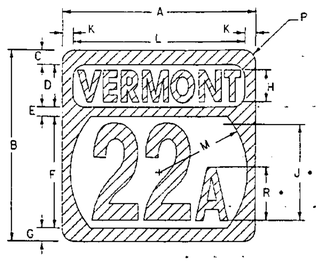
STANDARD E-136 A



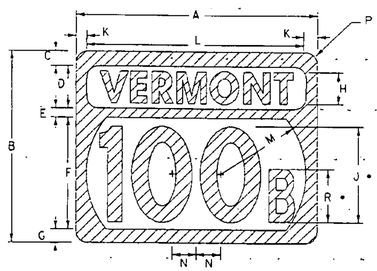

**1 OR 2 DIGIT STATE ROUTE MARKER**



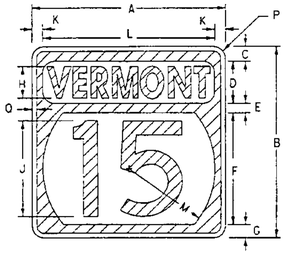

**3 DIGIT STATE ROUTE MARKER**



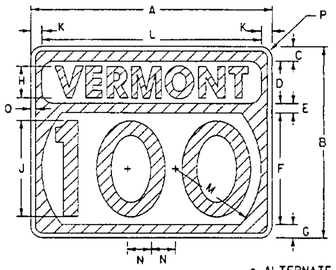

**1 OR 2 DIGIT ALTERNATE STATE ROUTE MARKER**



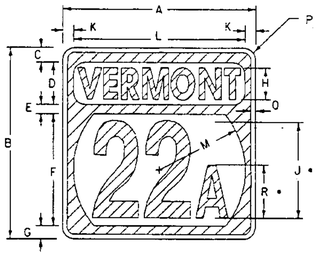

**3 DIGIT ALTERNATE STATE ROUTE MARKER**

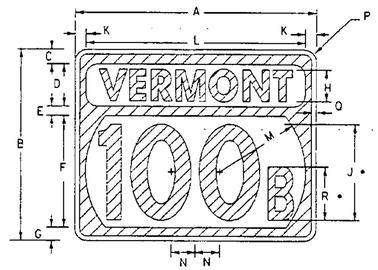



**STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)**



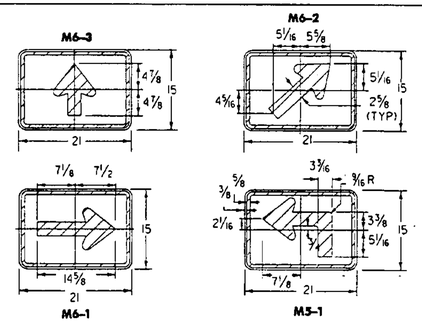

• ALTERNATE ROUTE SIGNS: OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTER-LINE AND REDUCE SPACING AS NECESSARY FOR EACH ROUTE



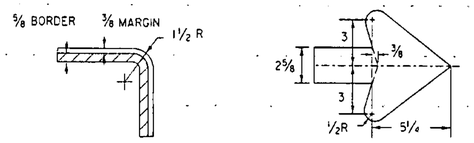




**ALTERNATE STATE ROUTE MARKER FOR GUIDE SIGN USE. (INTERSTATE TYPICAL)**

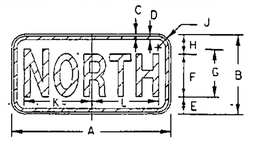
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R |
| 1,2-digits | 24 | 24 | 1½ | 6 | 1 | 14 | 1½ | 4C | 12D | 1 | 22 | 11 | - | 1½ | ½ | 7B |
| 1,2-digits | 36 | 36 | 2⅝ | 8 | 1¾ | 21 | 2⅝ | 6C | 18D | 2 | 32 | 16½ | - | 2¼ | ⅞ | 10B |
| 3,-digits | 30 | 24 | 1½ | 6 | 1 | 14 | 1½ | 4D | 12D | 1 | 28 | 11 | 3 | 1½ | ½ | 7B |
| 3,-digits | 45 | 36 | 2⅝ | 8 | 1¾ | 21 | 2⅝ | 6D | 18D | 2 | 41 | 16½ | 4½ | 2¼ | ⅞ | 10B |




**DIRECTION ARROW OR ADVANCE TURN ARROWS**




**(ALL DIMENSIONS IN INCHES)**

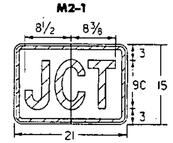


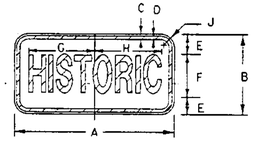

**M3-1 M3-3 M3-2 M3-4**

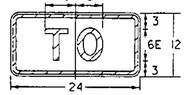
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | NORTH | | SOUTH | | EAST | | WEST | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | K | L | K | L | K | L |
| MIN. & STD. | 24 | 12 | ⅜ | ⅜ | 2¾ | 6C | 7C | 3¼ | 1½ | 10¼ | 10¼ | 10¼ | 9⅝ | 7⅛ | 8⅜ | 8¾ | 8⅝ |
| SPECIAL | 30 | 15 | ⅜ | ⅜ | 3¼ | 8C | 9C | 3¾ | 1½ | 12⅛ | 12⅛ | 12¼ | 12½ | 10⅜ | 11⅛ | 11⅝ | 11⅝ |

**CARDINAL DIRECTION MARKER**

**M2-1**




**M4-5 TRAILBLAZER**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J |
| MIN. & STD. | 24 | 12 | ⅜ | ⅝ | 3½ | 5B | 10⅛ | 9⅞ | 11½ |
| SPECIAL | 30 | 15 | ⅜ | ⅝ | 4 | 7B* | 12⅜ | 12⅝ | 11½ |

* REDUCE SPACING 35%

## MATERIALS

THE SIGN BASE MATERIAL MAY BE ANY OF THE FOLLOWING, WITH THE MINIMUM THICKNESSES AS NOTED:

FLAT SHEET ALUMINUM

| | |
|---|---|
| LESS THAN 24'' X 24'' | 0.060'' |
| WHEN USED ON GUIDE SIGNS | 0.060'' |
| 24'' X 24'', 30'' X 24'' | 0.080'' |
| 36'' X 36'', 45'' X 36'' | 0.100'' |

GALVANIZED FLAT SHEET STEEL

| | |
|---|---|
| LESS THAN 24'' X 24'' | 18 GAGE |
| WHEN USED ON GUIDE SIGNS | 18 GAGE |
| 24'' X 24'', 30'' X 24'' | 16 GAGE |
| 36'' X 36'', 45'' X 36'' | 14 GAGE |

THE REFLECTIVE MATERIAL SHALL BE WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND. THE TEXTS MAY BE LETTERING FILM, SILK SCREENED, OR HAND PAINTED.

## COLORS

COLORS FOR GUIDE USE: TEXT AND SHIELD - GREEN (REFL.) BACKGROUND AND BORDER - WHITE (REFL.)
STATE ROUTE MARKERS SHALL HAVE REFLECTIVE GREEN TEXT AND BORDERS ON REFLECTORIZED WHITE BACKGROUNDS.

GREEN AREAS ARE INDICATED BY SINGLE LINE CROSSHATCHING

## LETTERING

LETTERS AND DIGITS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

## SPECIFICATIONS

STATE ROUTE MARKERS AND AUXILIARY ROUTE MARKERS SHALL MEET THE STANDARD STATE SPECIFICATIONS FOR TRAFFIC SIGNS.

## DESIGNS

THE DESIGNS OF STATE ROUTE MARKERS AND AUXILIARY MARKERS SHALL CONFORM WITH THE REQUIREMENTS SET FORTH IN THE ''MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'' ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FHWA.

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

AUG. 08, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

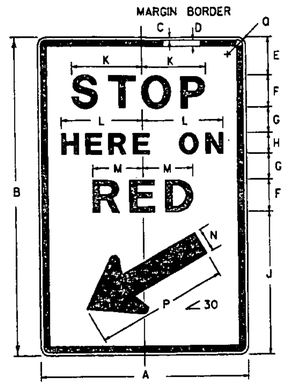
TRAFFIC AND SAFETY ENGINEER

# STATE ROUTE MARKER SIGN DETAILS

/trof/std/stdel36b.dgn : stdel36b

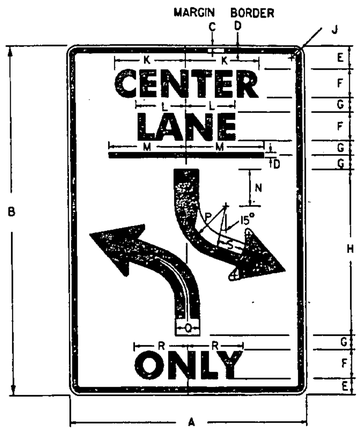
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-136 B



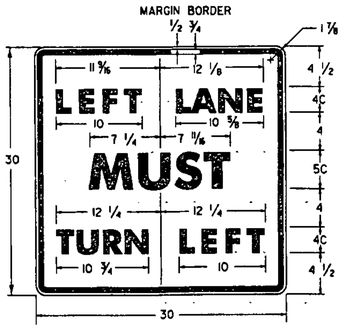

R10-6

| SIGN | A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| STD. | 24 | 36 | 3/8 | 5/8 | 4 | 5D | 2 1/2 | 3D |
| SPECIAL | 36 | 48 | 5/8 | 7/8 | 6 | 6D | 4 | 4D |
| | J | K | L | M | N | P | Q | |
| STD. | 14 | 4 3/16 | 8 3/16 | 6 | 2 5/16 | 14 5/16 | 1 1/2 | |
| SPECIAL | 18 | 7 1/4 | 9 5/16 | 7 1/8 | 2 3/4 | 16 | 2 1/4 | |

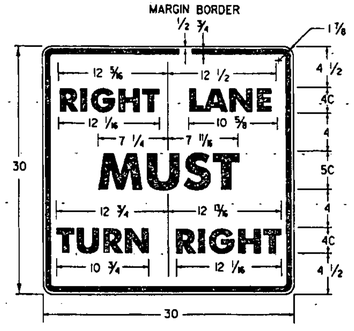



R3-9B

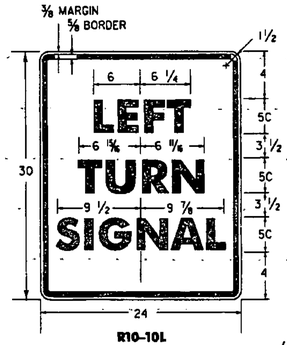
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K |
| STD. | 24 | 36 | 3/8 | 5/8 | 2 1/2 | 3E | 1 1/2 | 16 | 1 1/2 | 8 3/16 |
| SPECIAL | 36 | 48 | 5/8 | 7/8 | 3 1/2 | 5E | 1 1/2 | 20 | 2 1/4 | 14 1/16 |
| | L | | M | N | P | Q | | R | | S |
| STD. | 5 3/4 | | 8 | 2 1/2 | 6 | 2 | | 5 5/16 | | 1/2 |
| SPECIAL | 9 1/2 | | 12 | 3 | 8 | 3 | | 9 7/8 | | 2 |



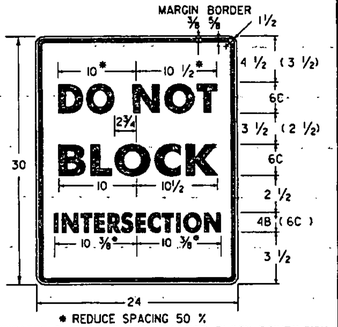

R3-7L




R3-7R

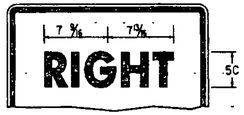



R10-10L



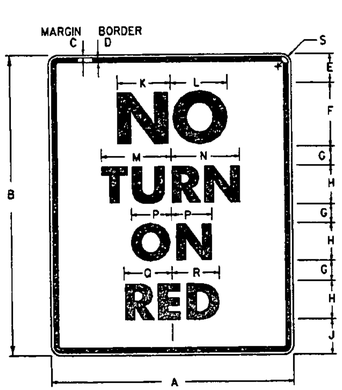

* REDUCE SPACING 50 %
( ) INDICATES DIMENSIONS FOR "DO NOT BLOCK DRIVE" SIGN

R10-7




R10-10R

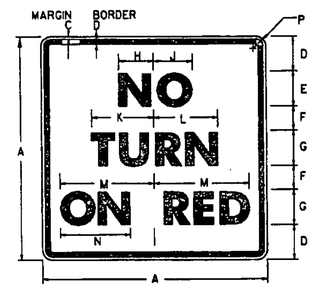
VR-656




POST MOUNTING

R10-11A

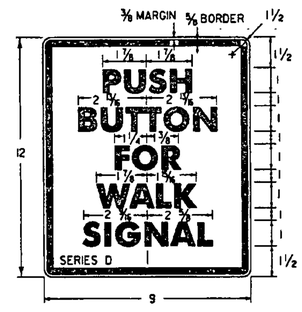
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 1/4 | 5E | 2 1/4 | 4D | 3 | 4 13/16 |
| SPECIAL | 36 | 48 | 5/8 | 7/8 | 6 | 8E | 3 1/2 | 6D | 5 1/2 | 7 3/4 |
| | L | | M | N | P | Q | | R | | S |
| STD. | 5 5/16 | | 6 5/16 | 6 1/2 | 3 1/2 | 4 5/8 | | 4 7/8 | | 1 1/2 |
| SPECIAL | 8 1/4 | | 10 | 9 3/4 | 5 1/4 | 6 7/8 | | 7 3/8 | | 2 1/4 |



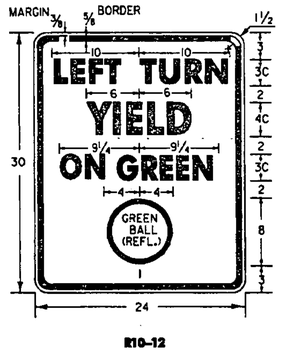

OVERHEAD MOUNTING

R10-11B

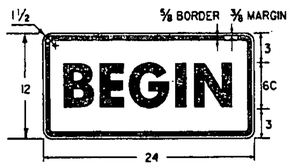
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| MIN. | 18 | 3/8 | 5/8 | 2 3/4 | 3E | 1 1/4 | 3D | 2 5/16 | 3 1/16 | 5 | 4 7/8 | 7 1/8 | 5 1/4 | 1 1/2 |
| STD. | 24 | 3/8 | 5/8 | 3 1/2 | 4E | 2 1/2 | 4D | 3 7/8 | 4 1/8 | 5 5/8 | 6 1/2 | 9 1/2 | 6 1/2 | 1 1/2 |
| SPECIAL | 30 | 1/2 | 3/4 | 4 1/2 | 5E | 30 | 5D | 4 5/8 | 5 3/8 | 8 1/4 | 8 1/8 | 11 7/8 | 7 3/4 | 1 7/8 |



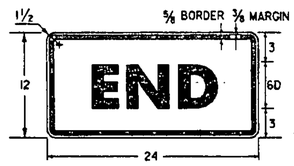

R10-4




R10-12




M4-11




M4-6

GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 9'' X 12'', 18'' X 18'' | 24'' X 12'', 24'' X 24'', 24'' X 30'', 24'' X 36'', 30'' X 30'' | 36'' X 48'' |
|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.060'' | 0.080'' | 0.100'' |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2'' | 1/2'' | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 18 GAGE | 16 GAGE | 14 GAGE |

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**OTHER STDS. REQUIRED:** E-144

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS, SHEET REALIGNMENT

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

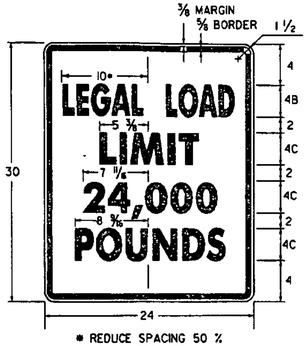
TRAFFIC AND SAFETY ENGINEER

# REGULATORY SIGN DETAILS

/traf/std/stdel40.dgn : stdel40.1

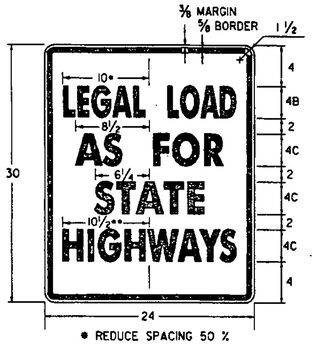
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-140



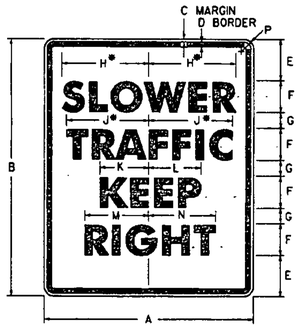

* REDUCE SPACING 50 %
LINE 3 ALTERNATE - 16,000

VR-017



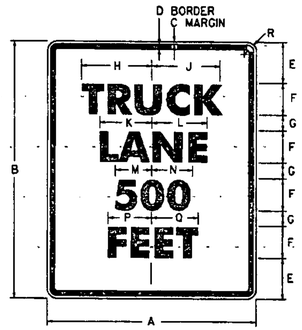

* REDUCE SPACING 50 %
** REDUCE SPACING 38 %

VR-079

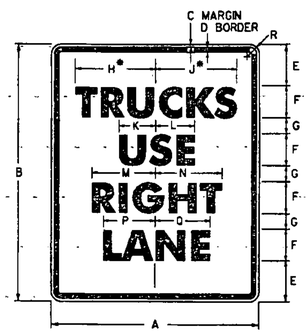



* REDUCE SPACING 25 %

R4-3




R4-6



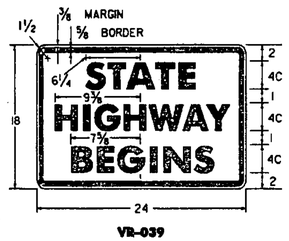

* REDUCE SPACING 32 %

R4-5

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 5/8 | 4D | 2 1/4 | 9 3/4 | 10 | 6 | 6 5/16 | 7 1/8 | 7 5/8 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 6 | 6D | 4 | 14 5/8 | 15 | 9 | 9 11/16 | 10 11/16 | 11 3/8 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 7 1/4 | 8D | 4 1/2 | 19 1/2 | 20 | 12 | 13 1/8 | 14 1/4 | 15 1/4 | 3 |

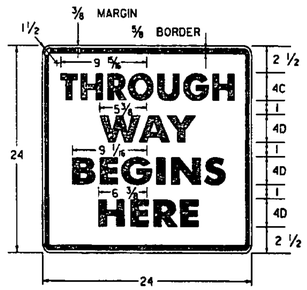
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 5/8 | 4E | 2 1/4 | 9 13/16 | 9 11/16 | 7 9/16 | 7 11/16 | 5 11/16 | 5 5/16 | 6 7/8 | 7 1/16 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 6 | 6E | 4 | 14 3/4 | 14 1/2 | 11 5/16 | 11 1/2 | 8 1/2 | 8 3/4 | 10 5/16 | 10 5/8 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 7 1/4 | 8E | 4 1/2 | 19 5/8 | 19 3/8 | 15 1/8 | 15 3/8 | 11 3/8 | 11 5/8 | 13 3/4 | 14 1/8 | 3 |

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 5/8 | 4D | 2 1/4 | 9 3/16 | 9 3/16 | 4 3/4 | 5 | 7 1/8 | 7 5/8 | 6 1/4 | 6 5/8 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 6 | 6D | 4 | 14 5/16 | 13 13/16 | 7 1/8 | 7 1/2 | 10 11/16 | 11 3/8 | 9 3/8 | 9 15/16 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 7 1/4 | 8D | 4 1/2 | 19 1/8 | 18 3/8 | 9 1/2 | 10 | 14 1/4 | 15 1/4 | 12 1/2 | 13 1/4 | 3 |



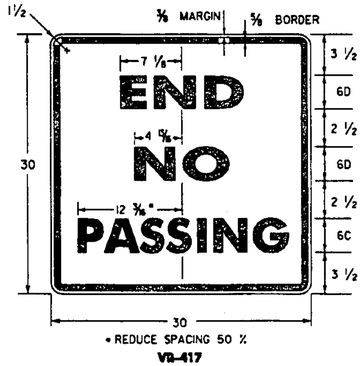

VR-039

VR-038



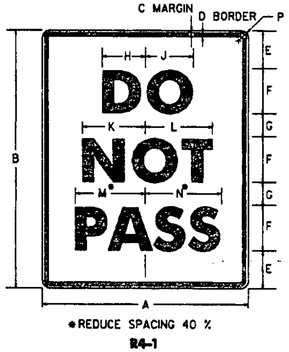

VR-041

VR-040




* REDUCE SPACING 50 %

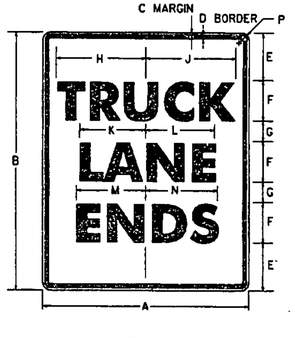
VR-417




* REDUCE SPACING 40 %

R4-1

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 1/2 | 6D | 2 1/2 | 4 11/16 | 5 | 7 1/16 | 7 3/8 | 9 3/8 | 9 3/4 | 1 1/2 |
| EXPWY. | 36 | 48 | 3/8 | 7/8 | 7 | 8D | 5 | 6 1/4 | 6 5/8 | 9 1/2 | 9 3/4 | 12 1/2 | 13 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 8 | 10D | 7 | 7 3/4 | 8 5/8 | 11 7/8 | 12 1/4 | 15 5/8 | 16 1/4 | 3 |




VR-186

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 1/2 | 6C | 2 1/2 | 10 1/4 | 10 3/16 | 7 3/4 | 7 3/4 | 7 5/8 | 8 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 7 | 8C | 5 | 13 11/16 | 13 5/8 | 10 3/8 | 10 5/8 | 10 11/16 | 10 5/8 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 8 | 10D | 7 | 20 5/8 | 20 5/8 | 15 7/8 | 15 5/8 | 16 1/16 | 16 1/16 | 3 |

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 24'' X 18'' <br> 24'' X 24'' <br> 24'' X 30'' <br> 30'' X 30'' | 36'' X 48'' <br> 48'' X 60'' |
|---|---|---|
| FLAT SHEET ALUMINUM | 0.080'' | 0.100'' |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2'' | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 16 GAGE | 14 GAGE |

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**OTHER STDS. : NONE REQUIRED**

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAIL, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

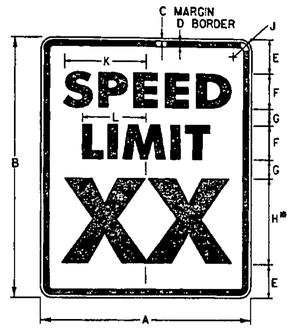
TRAFFIC AND SAFETY ENGINEER

# REGULATORY SIGN DETAILS

/traf/std/stdel41.dgn : stdel41.i

VERMONT AGENCY OF TRANSPORTATION

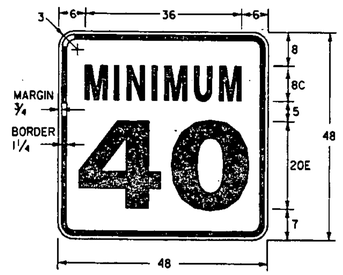
STANDARD
E-141




* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

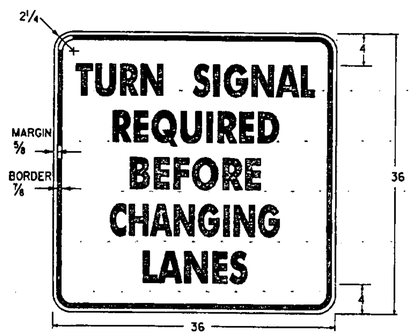
**R2-1**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| MIN | 18 | 24 | 3/8 | 5/8 | 3 | 3E | 2 | 8E | 1 1/2 | 7 3/16 | 5 1/2 |
| STD | 24 | 30 | 3/8 | 5/8 | 4 | 4E | 2 | 10E | 1 1/2 | 9 5/16 | 7 5/16 |
| EXPWY | 36 | 48 | 5/8 | 7/8 | 6 | 6E | 5 | 14E | 2 1/4 | 14 3/8 | 11 |
| FWY | 48 | 60 | 3/4 | 1 1/4 | 8 | 8E | 4 | 20E | 3 | 19 1/8 | 14 5/8 |



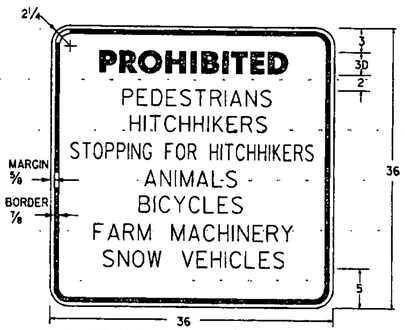

TO BE USED WITH "SPEED LIMIT 55" OR "65" FWY SIGN ONLY

**VR-141**



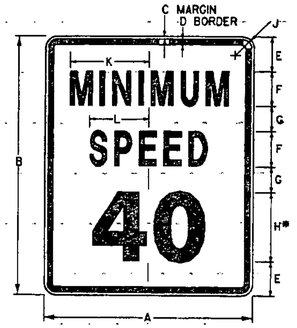

TEXT 4"C. SPACING 2"

**VR-002**




TEXT 2"C. SPACING 1½". EXCEPT WHERE NOTED.

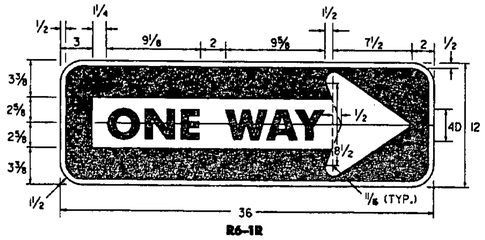
**VR-046**



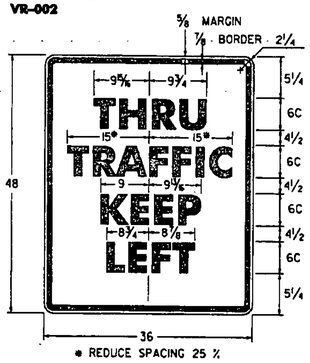

* OPTICALLY SPACE NUMERALS ABOUT VERTICAL CENTERLINE.

**R2-4**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| STD | 24 | 30 | 3/8 | 5/8 | 4 | 4E | 2 | 10E | 1 1/2 | 9 3/16 | 6 13/16 |
| EXPWY | 36 | 48 | 5/8 | 7/8 | 6 | 6E | 5 | 14E | 2 1/4 | 13 3/4 | 10 3/16 |
| FWY | 48 | 60 | 3/4 | 1 1/4 | 8 | 8E | 4 | 20E | 3 | 18 3/8 | 13 5/8 |

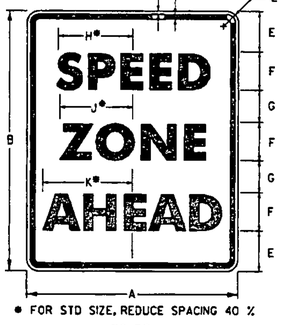



**R6-1R**




* REDUCE SPACING 25 %

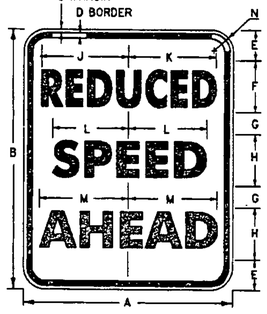
**VR-118L**




* FOR STD SIZE, REDUCE SPACING 40 %

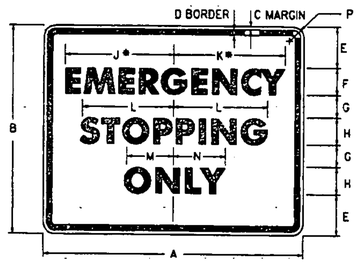
**R2-5C**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| MIN. | 18 | 24 | 3/8 | 5/8 | 3 1/2 | 4C | 2 1/2 | 6 7/8 | 5 1/2 | 7 | 1 1/2 |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 1/2 | 6C | 2 1/2 | 9 3/16 | 7 5/16 | 9 3/4 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 7 | 8C | 5 | 13 3/8 | 11 1/16 | 14 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 9 | 10C | 6 | 17 | 13 15/16 | 17 1/2 | 3 |




**R2-5A**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N |
| MIN. | 18 | 24 | 3/8 | 5/8 | 3 1/2 | 4B | 2 1/2 | 4C | 6 7/8 | 7. | 6 15/16 | 7 | 1 1/2 |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 1/2 | 6B | 2 1/2 | 6C | 10 | 10 3/4 | 9 3/16 | 9 3/4 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 7 | 8B | 5 | 8C | 14 1/4 | 14 3/4 | 13 5/8 | 14 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 9 | 10B | 6 | 10C | 17 3/4 | 18 7/8 | 17 | 17 1/2 | 3 |




* FOR FWY SIZE, REDUCE SPACING 50 %

**R8-7**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| EXPWY. | 30 | 24 | 3/8 | 5/8 | 3 1/2 | 4C | 2 1/2 | 4D | 12 1/2 | 13 | 12 3/4 | 6 7/16 | 7 | 1 1/2 |
| FWY. | 48 | 36 | 5/8 | 7/8 | 5 | 6D | 4 | 6D | 20 5/8 | 21 1/8 | 19 1/8 | 10 1/16 | 10 5/8 | 2 1/4 |

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 18'' X 24'' | 24'' X 30''<br>30'' X 24'' | 36'' X 12''<br>36'' X 36''<br>36'' X 48''<br>48'' X 36''<br>48'' X 48''<br>48'' X 60'' |
|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.060'' | 0.080'' | 0.100'' |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2'' | 1/2'' | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 18 GAGE | 16 GAGE | 14 GAGE |

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**OTHER STDS.: NONE REQUIRED**

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE

SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon B. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

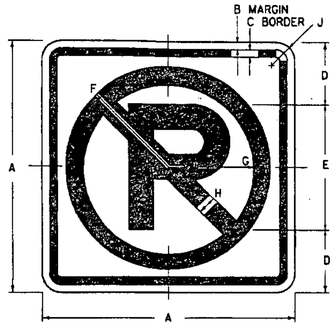
# REGULATORY SIGN DETAILS

/traf/std/stdel42.dgn : stdel42.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD

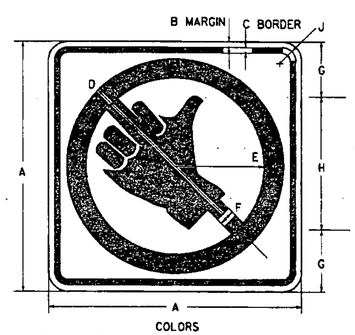
E-142




COLORS
CIRCLE AND DIAGONAL - RED ( REFL - RURAL )
SYMBOL AND BORDER - BLACK ( NON - REFL )
BACKGROUND - WHITE ( REFL - RURAL )

**R8-3A**

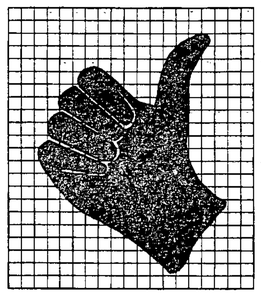
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J |
| URBAN MIN. AND STD. | 12 | 3/8 | 3/8 | 3 | 6E(M) | 4 7/8 | 3 7/8 | 1 | 1 1/2 |
| RURAL MIN. AND STD. | 24 | 3/8 | 5/8 | 6 | 12E(M) | 10 1/2 | 8 1/2 | 2 | 1 1/2 |
| EXPWY. | 36 | 5/8 | 7/8 | 9 | 18E(M) | 15 3/4 | 12 3/4 | 3 | 2 1/4 |
| FWY. | 48 | 3/4 | 1 1/4 | 12 | 24E(M) | 21 | 17 | 4 | 3 |

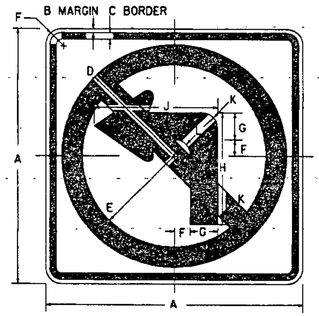



COLORS
CIRCLE AND DIAGONAL - RED ( REFL )
SYMBOL AND BORDER - BLACK ( NON - REFL )
BACKGROUND - WHITE ( REFL )

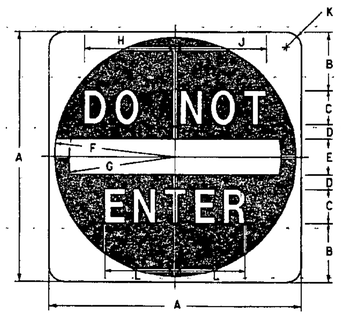
**R9-4A**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J |
| MIN. | 18 | 3/8 | 5/8 | 7 1/8 | 6 3/8 | 1 1/2 | 3 3/4 | 10 1/2 | 1 1/2 |
| STD. | 24 | 3/8 | 5/8 | 10 1/4 | 8 1/2 | 2 | 5 | 14 | 1 1/2 |





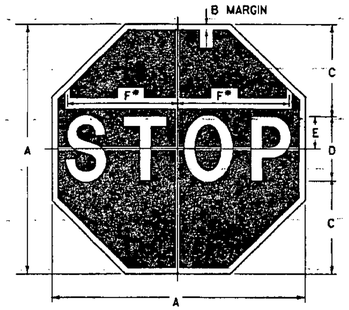

**R3-2**




COLORS
SYMBOL - RED ( REFL )
LEGEND AND BACKGROUND - WHITE ( REFL )
ENCAPSULATED LENS

**R5-1**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| MIN. AND STD. | 30 | 6 1/2 | 4D | 2 | 5 | 14 1/2 | 12 1/2 | 9 3/4 | 10 | 1 1/8 | 7 1/8 |
| EXPWY. | 36 | 7 1/2 | 5D | 2 1/2 | 6 | 17 1/2 | 15 | 12 | 12 3/8 | 2 1/4 | 9 1/16 |
| SPECIAL | 48 | 11 | 6D | 3 | 8 | 23 1/2 | 20 | 14 1/2 | 15 | 3 | 11 3/4 |

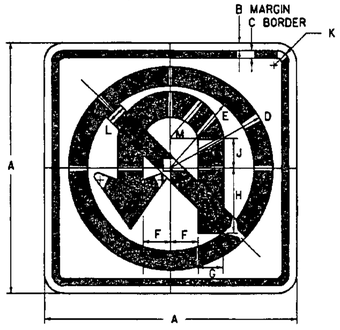



• REDUCE SPACING 40 %

COLORS
LEGEND - WHITE ( REFL )
BACKGROUND - RED ( REFL )
ENCAPSULATED LENS

**R1-1**

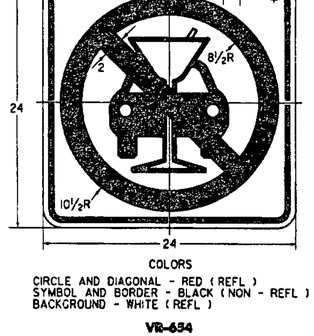
| SIGN | DIMENSIONS ( INCHES ) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| BIKE | 18 | 3/8 | 6 | 6C | 3 | 7 3/4 |
| MIN. | 24 | 3/8 | 8 | 8C | 4 | 10 |
| STD. | 30 | 3/4 | 10 | 10C | 5 | 12 1/2 |
| EXPWY. | 36 | 7/8 | 12 | 12C | 6 | 15 |
| SPECIAL | 48 | 1 1/4 | 16 | 16C | 8 | 20 |




COLORS
CIRCLE AND DIAGONAL - RED ( REFL )
ARROW AND BORDER - BLACK ( NON - REFL )
BACKGROUND - WHITE ( REFL )

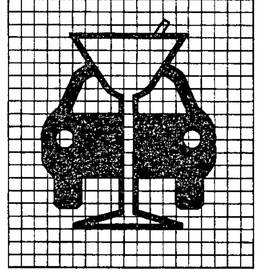
**R3-4**

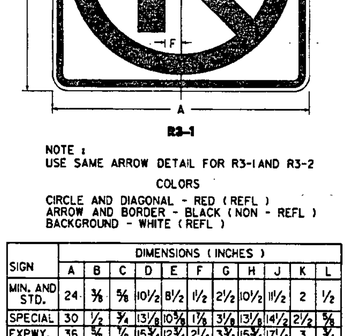
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M |
| MIN. AND STD. | 24 | 3/8 | 5/8 | 10 1/2 | 8 1/2 | 2 1/2 | 2 1/2 | 6 | 2 1/4 | 1 1/2 | 2 | 5 |
| SPECIAL | 30 | 1/2 | 3/4 | 13 1/8 | 10 5/8 | 3/8 | 3 1/8 | 7 1/2 | 2 7/8 | 1 1/8 | 2 1/2 | 6 1/4 |
| EXPWY. | 36 | 5/8 | 1/8 | 15 3/4 | 12 3/4 | 3 3/4 | 3 3/4 | 9 | 3 3/8 | 2 1/4 | 3 | 7 1/2 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 21 | 17 | 5 | 5 | 12 | 4 1/2 | 3 | 4 | 10 |




COLORS
CIRCLE AND DIAGONAL - RED ( REFL )
SYMBOL AND BORDER - BLACK ( NON - REFL )
BACKGROUND - WHITE ( REFL )

**VR-634**



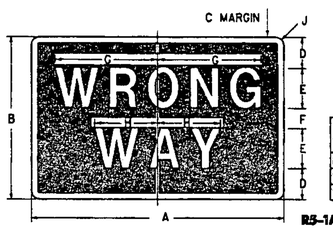



NOTE :
USE SAME ARROW DETAIL FOR R3-1 AND R3-2

COLORS
CIRCLE AND DIAGONAL - RED ( REFL )
ARROW AND BORDER - BLACK ( NON - REFL )
BACKGROUND - WHITE ( REFL )

**R3-1**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| MIN. AND STD. | 24 | 3/8 | 5/8 | 10 1/2 | 8 1/2 | 1 1/2 | 2 1/2 | 10 1/2 | 11 1/2 | 2 | 1/2 |
| SPECIAL | 30 | 1/2 | 3/4 | 13 1/8 | 10 5/8 | 1 5/8 | 3 1/8 | 13 1/8 | 14 1/2 | 2 1/2 | 5/8 |
| EXPWY. | 36 | 5/8 | 1/8 | 15 3/4 | 12 3/4 | 2 1/4 | 3 3/4 | 15 3/4 | 17 1/4 | 3 | 3/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 21 | 17 | 3 | 5 | 21 | 23 | 4 | 1 |




**R5-1A**

"WRONG WAY"

COLORS
LEGEND - WHITE ( REFL )
BACKGROUND - RED ( REFL )
ENCAPSULATED LENS

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J |
| MIN. | 30 | 18 | 5/8 | 3 | 5D | 2 | 11 7/16 | 6 11/8 | 1 1/2 |
| STD. | 36 | 24 | 3/4 | 4 1/2 | 6D | 3 | 13 5/8 | 8 1/16 | 1 1/2 |
| SPECIAL | 42 | 30 | 7/8 | 5 | 8D | 4 | 17 3/4 | 10 3/4 | 1 1/8 |

## GENERAL:

1. ALL DIMENSIONS IN INCHES.
2. SEE STANDARD E-144 FOR ARROWHEAD DETAILS.

## COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

## MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 12'' X 12'' 18'' X 18'' | 24'' X 24'' 30'' X 18'' 30'' X 30'' | 36'' X 24'' 36'' X 36'' 42'' X 30'' 48'' X 48'' |
|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.060'' | 0.080'' | 0.100'' |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2'' | 1/2'' | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 18 GAGE | 16 GAGE | 14 GAGE |

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE BLACK PORTIONS OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

## SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

## TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**OTHER STDS. : E-144**
**REQUIRED**

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

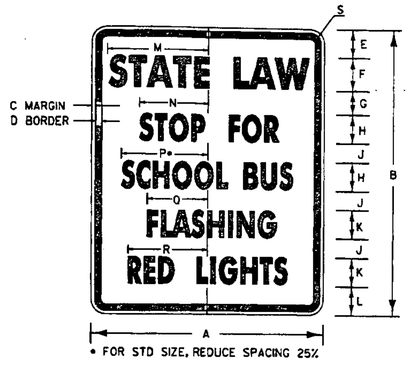
TRAFFIC AND SAFETY ENGINEER

# REGULATORY SIGN DETAILS

/traf/std/stdel43.dgn : stdel43.1

VERMONT AGENCY OF TRANSPORTATION

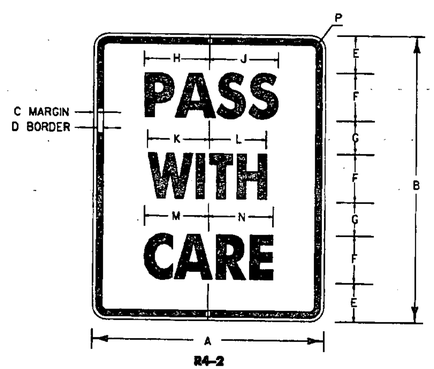
STANDARD
E-143




• FOR STD SIZE, REDUCE SPACING 25%

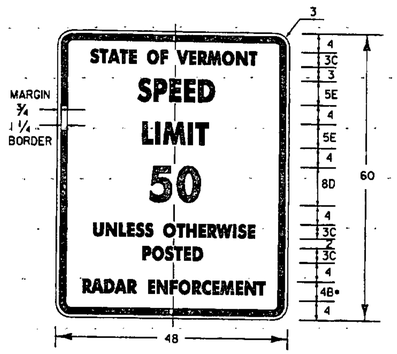
**VR-048**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | R | S | T |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 | 4B | 3 | 3B | 1 1/2 | 3B | 2 1/2 | 9 1/2 | 10 5/16 | 10 5/16 | 6 5/16 | 8 5/16 | 1 1/2 |
| EXPWY. & FWY. | 48 | 60 | 3/4 | 1 1/4 | 6 | 7C | 5 | 6B | 4 | 6B | 6 | 21 | 14 1/4 | 18 1/16 | 12 3/16 | 16 3/16 | 3 |



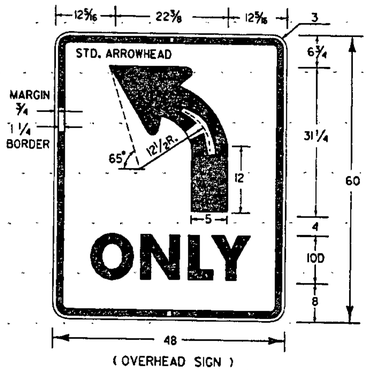

**R4-2**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| MIN. | 18 | 24 | 3/8 | 5/8 | 3 1/2 | 4C | 2 1/2 | 5 7/16 | 5 5/8 | 5 | 4 3/4 | 5 3/8 | 5 1/2 | 1 1/2 |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 1/2 | 6C | 2 1/2 | 8 3/16 | 8 5/16 | 7 1/2 | 7 3/8 | 8 | 8 1/4 | 1 1/2 |
| EXPWY. | 36 | 48 | 5/8 | 7/8 | 7 | 8C | 5 | 10 7/8 | 11 1/4 | 10 | 9 1/2 | 10 11/16 | 11 | 2 1/4 |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 8 | 10C | 7 | 13 5/16 | 14 1/16 | 12 1/2 | 11 5/8 | 13 3/16 | 13 3/4 | 3 |




• REDUCE SPACING 25%

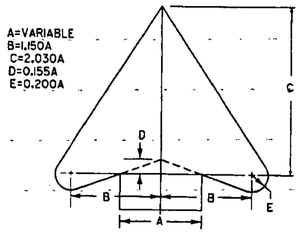
**VR-114**




( OVERHEAD SIGN )

**R3-5**

**ARROW HEAD DETAIL**




| DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|
| A | B | C | D | E |
| 2 | 2 5/16 | 4 1/16 | 5/16 | 3/8 |
| 2 1/4 | 2 5/8 | 4 1/2 | 3/8 | 1/16 |
| 2 1/2 | 2 7/8 | 5 1/16 | 3/8 | 1/2 |
| 2 5/8 | 3 | 5 1/4 | 3/8 | 1/2 |
| 2 3/4 | 3 3/16 | 5 5/16 | 7/16 | 3/16 |
| 3 | 3 1/2 | 6 1/8 | 7/16 | 5/16 |
| 3 1/8 | 3 5/8 | 6 3/8 | 1/2 | 5/8 |
| 3 1/4 | 3 3/4 | 6 5/8 | 1/2 | 5/8 |
| 3 5/16 | 3 11/16 | 6 11/16 | 1/2 | 1/16 |
| 3 1/2 | 4 | 7 1/8 | 5/16 | 1/16 |
| 3 3/4 | 4 5/16 | 7 5/8 | 5/16 | 3/4 |
| 4 | 4 5/8 | 8 1/8 | 5/8 | 5/16 |
| 4 1/16 | 4 3/4 | 8 1/4 | 5/8 | 5/16 |

| DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|
| A | B | C | D | E |
| 4 1/4 | 4 7/8 | 8 5/8 | 5/8 | 9/16 |
| 4 3/8 | 5 | 8 7/8 | 9/16 | 7/8 |
| 4 1/2 | 5 3/16 | 9 1/8 | 1 1/4 | 7/8 |
| 4 3/4 | 5 7/16 | 9 5/8 | 3/4 | 1 |
| 4 7/8 | 5 5/8 | 9 7/8 | 3/4 | 1 |
| 5 | 5 3/4 | 10 1/8 | 3/4 | 1 |
| 5 1/4 | 6 | 10 5/8 | 13/16 | 11/16 |
| 5 1/2 | 6 5/16 | 11 1/8 | 7/8 | 1 1/8 |
| 5 3/4 | 6 5/8 | 11 11/16 | 7/8 | 1 1/8 |
| 6 | 6 7/8 | 12 3/16 | 15/16 | 1 3/16 |
| 6 1/2 | 7 1/2 | 13 3/16 | 1 | 1 5/16 |
| 7 | 8 | 14 3/16 | 1 1/16 | 1 3/16 |
| 7 1/2 | 8 5/8 | 15 3/16 | 1 1/8 | 1 1/2 |
| 8 | 9 3/16 | 16 1/4 | 1 1/4 | 1 5/8 |



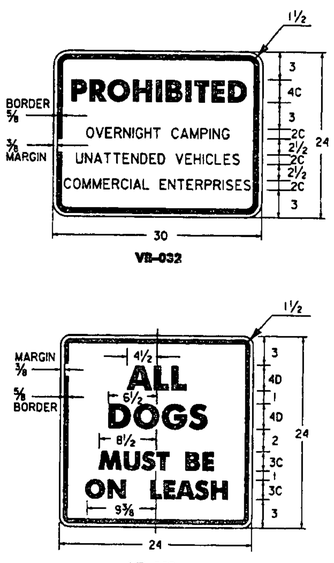

**VR-032**



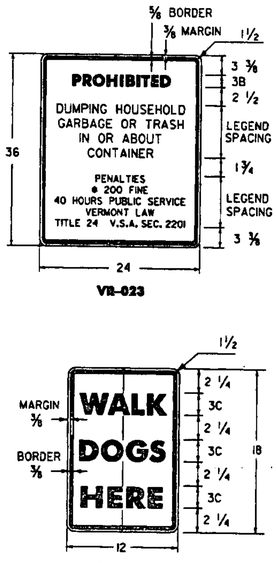

**VR-023**



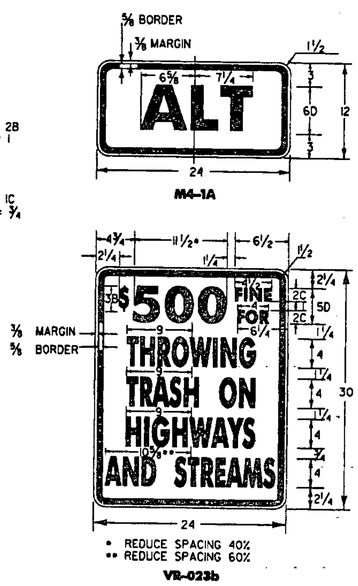

**M4-1A**




**VR-648**

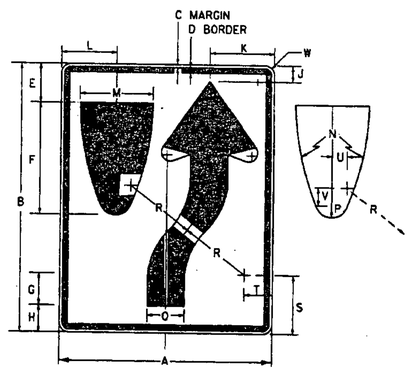



**VR-341**




• REDUCE SPACING 40%
•• REDUCE SPACING 60%

**VR-023b**




**R4-7**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K |
| MIN | 18 | 24 | 3/8 | 5/8 | 3 3/8 | 9 3/8 | 1 7/8 | 2 1/4 | 1 3/8 | 5 1/2 |
| STD | 24 | 30 | 3/8 | 3/8 | 4 1/2 | 12 1/2 | 2 1/2 | 3 | 1 7/8 | 7 3/8 |
| EXPWY | 36 | 48 | 5/8 | 7/8 | 6 3/4 | 18 3/4 | 3 3/4 | 4 1/2 | 2 5/8 | 11 1/8 |
| FWY | 48 | 60 | 3/4 | 1 1/4 | 9 | 25 | 5 | 6 | 3 3/4 | 14 1/16 |
| | L | M | N | P | Q | R | S | T | U | V | W |
| MIN | 4 11/16 | 6 | 22 1/2 | 1 1/2 | 3 | 6 3/4 | 4 1/8 | 2 1/4 | 1 1/16 | 1/16 | 1 1/2 |
| STD | 6 1/4 | 8 | 30 | 2 | 4 | 9 | 5 1/2 | 3 | 1 3/8 | 2 1/16 | 1 1/2 |
| EXPWY | 9 3/8 | 12 | 45 | 3 | 6 | 13 1/2 | 8 1/4 | 4 1/2 | 2 | 2 3/4 | 2 1/4 |
| FWY | 12 1/2 | 16 | 60 | 4 | 8 | 18 | 11 | 6 | 2 11/16 | 5 | 3 |

GENERAL:

1. ALL DIMENSIONS IN INCHES.

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND, UNLESS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 12'' X 18'' 18'' X 24'' | 24'' X 12'' 24'' X 24'' 24'' X 30'' 24'' X 36'' 30'' X 24'' | 36'' X 48'' 48'' X 60'' |
|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.060'' | 0.080'' | 0.100'' |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2'' | 1/2'' | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 18 GAGE | 16 GAGE | 14 GAGE |

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. WHEN MOUNTED OVERHEAD, ALL SIGNS SHALL HAVE ENCAPSULATED LENS REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE

SEPT. 20, 1995 - ADDED AND DELETED SIGN DETAILS, ADDED SIGN ID NUMBERS, MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

# REGULATORY SIGN DETAILS

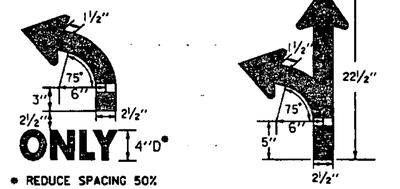
/traf/std/std e144.dgn: std e144.1

**OTHER STDS. : NONE REQUIRED**

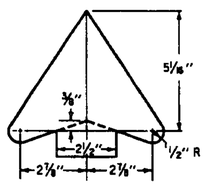
VERMONT AGENCY OF TRANSPORTATION

STANDARD

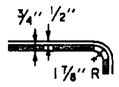
E-144




SYMBOL DETAILS



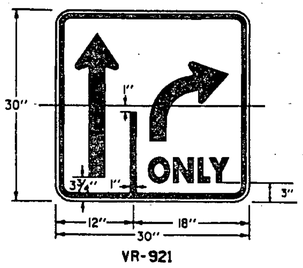

ARROW HEAD DETAIL



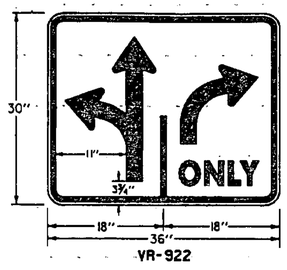

BORDER/MARGIN DETAIL

NOTES:

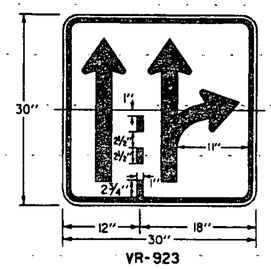
1. OPTICALLY CENTER SYMBOLS WITHIN SECTIONS UNLESS OTHERWISE NOTED.
2. "VR-9XX" IS THE SIGN CODE NUMBER.
3. MIRROR IMAGES ARE NOT SHOWN BUT CARRY THE SAME CODE NUMBER.
4. THESE SIGNS ARE INTENDED FOR GROUND MOUNTING ONLY.
5. OTHER VARIATIONS OF THESE STANDARD DESIGNS ARE DEPICTED IN THE VT SIGN IDENTIFICATION MANUAL. WHEN THEY ARE USED THEY SHOULD BE DESIGNED USING THE DIMENSIONS AND DETAILS SHOWN HERE.



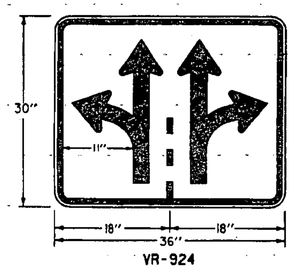

VR-921



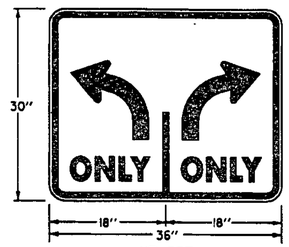

VR-922



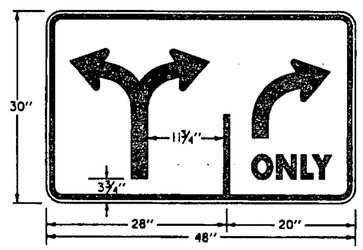

VR-923



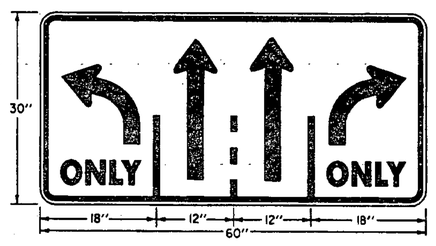

VR-924



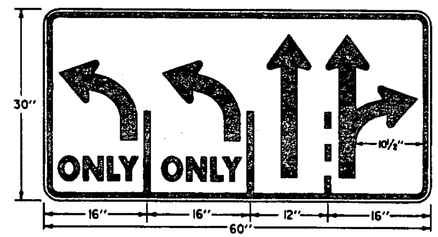

VR-925




VR-926




VR-941




VR-942

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 30" X 30" | 36" X 30" | 48" X 30"<br>60" X 30" |
|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.080" | 0.100" | 0.125" |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2" | 5/8" | 5/8" |
| GALVANIZED FLAT SHEET STEEL | 16 GAGE | 14 GAGE | 12 GAGE |

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE "STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

OTHER STDS. REQUIRED: NONE

REVISIONS AND CORRECTIONS

DEC. 23, 1994 - DATE OF ORIGINAL ISSUE

APPROVED

DIRECTOR OF ENGINEERING

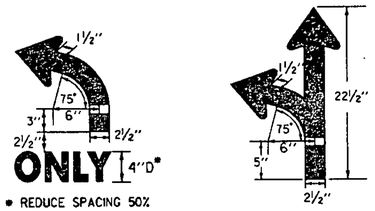
TRAFFIC AND SAFETY ENGINEER

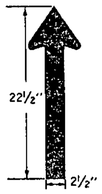
# REGULATORY SIGN DETAILS
# LANE USE CONTROL SIGNS
## TWO AND FOUR LANE APPROACHES

/traf/std/std145.dgn/std145a.l

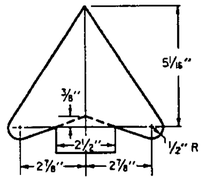
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-145 A

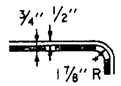



SYMBOL DETAILS



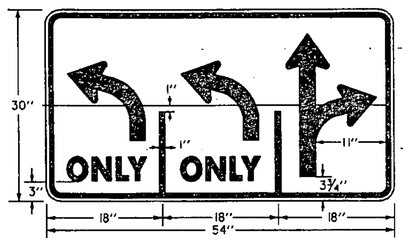

ARROW HEAD DETAIL



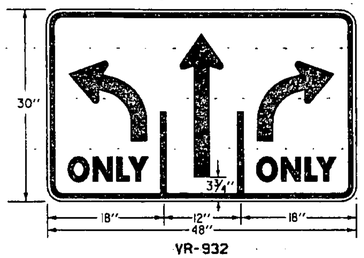

BORDER/MARGIN DETAIL

NOTES:

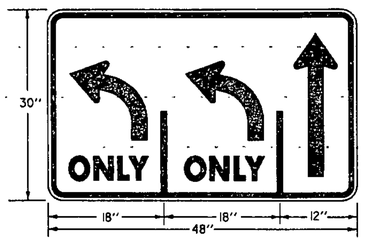
1. OPTICALLY CENTER SYMBOLS WITHIN SECTIONS UNLESS OTHERWISE NOTED.
2. ''VR-9XX'' IS THE SIGN CODE NUMBER.
3. MIRROR IMAGES ARE NOT SHOWN BUT CARRY THE SAME CODE NUMBER.
4. THESE SIGNS ARE INTENDED FOR GROUND MOUNTING ONLY.
5. OTHER VARIATIONS OF THESE STANDARD DESIGNS ARE DEPICTED IN THE VT SIGN IDENTIFICATION MANUAL. WHEN THEY ARE USED THEY SHOULD BE DESIGNED USING THE DIMENSIONS AND DETAILS SHOWN HERE.



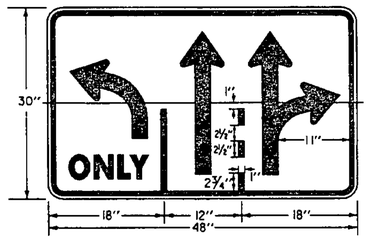

VR-931



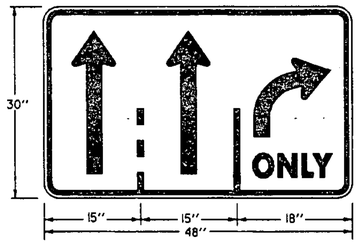

VR-932



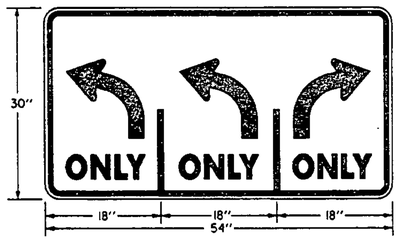

VR-933




VR-934




VR-935




VR-936

COLORS:

THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT ON REFLECTORIZED WHITE BACKGROUND. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:

THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 48'' X 30'' / 54'' X 30'' |
|---|---|
| FLAT SHEET ALUMINUM | 0.125'' |
| HIGH DENSITY OVERLAID PLYWOOD | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 12 GAGE |

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

SPECIFICATIONS:

REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR TRAFFIC SIGNS.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE ''STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS'' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

**OTHER STDS. REQUIRED** NONE

REVISIONS AND CORRECTIONS

DEC. 23, 1994 - DATE OF ORIGINAL ISSUE

APPROVED

DIRECTOR OF ENGINEERING

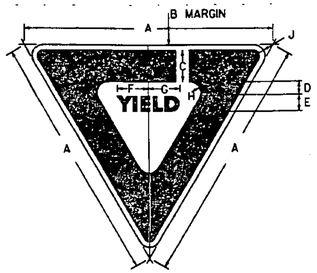
TRAFFIC AND SAFETY ENGINEER

# REGULATORY SIGN DETAILS
# LANE USE CONTROL SIGNS
## THREE LANE APPROACHES

/traf/std/stdel45.dgn/stdel45b.i

VERMONT AGENCY OF TRANSPORTATION

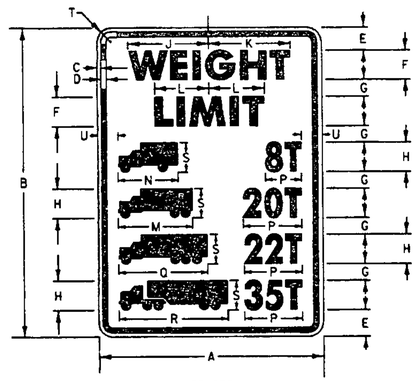
STANDARD
E-145 B




COLORS
LEGEND AND BORDER - RED (REFL)
BACKGROUND - WHITE (REFL)
ENCAPSULATED LENS

**R1-2**

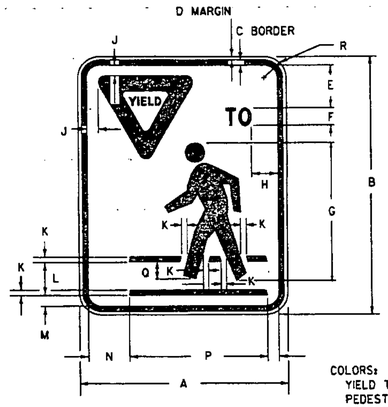
| SIGN | DIMENSIONS (INCHES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J |
| BIKE | 24 | 3/8 | 3 | 1 3/8 | 2C | 3 1/4 | 3 | 1/8 | 1 1/2 |
| MIN. | 30 | 5/8 | 4 | 1 3/4 | 2 1/2C | 3 5/8 | 3 3/8 | 1/8 | 1 1/2 |
| STD. | 36 | 3/4 | 5 | 2 | 3C | 4 11/16 | 4 3/8 | 1 1/4 | 2 |
| EXPWY. | 48 | 1 | 6 | 2 3/4 | 4C | 6 1/4 | 5 1/8 | 2 | 3 |
| SPECIAL | 60 | 1 1/2 | 8 | 3 1/2 | 5C | 7 1/8 | 7 1/4 | 2 1/2 | 4 |



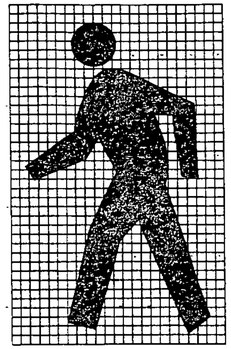

COLORS
LEGEND - BLACK (NON-REFL.)
BACKGROUND - WHITE (REFL.)

**VR-015**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | T | U |
| MIN. | 24 | 36 | 3/8 | 5/8 | 2 3/4 | 3E | 2 1/2 | 3C | 7 1/8 | 8 3/8 | 5 3/4 | 7 1/4 | 6 | var | 9 1/2 | 11 | 3 | 1 1/2 | 2 1/2 |
| STD. | 30 | 42 | 1/2 | 3/4 | 3 5/8 | 4E | 2 1/4 | 4C | 10 1/2 | 11 5/8 | 7 3/8 | 10 | 8 | var | 12 | 14 5/8 | 4 | 1 7/8 | 2 3/4 |
| EXPWY. | 36 | 54 | 5/8 | 7/8 | 3 1/8 | 5E | 3 1/4 | 5C | 13 1/8 | 14 | 9 1/8 | 12 1/2 | 10 | var | 15 | 18 3/8 | 5 | 2 1/4 | 3 |
| FWY. | 48 | 66 | 3/4 | 1 1/4 | 3 3/4 | 6E | 4 1/2 | 6C | 15 3/4 | 16 3/4 | 11 1/2 | 16 | 12 | var | 18 | 22 | 6 | 3 | 5 |

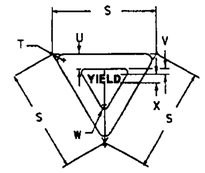


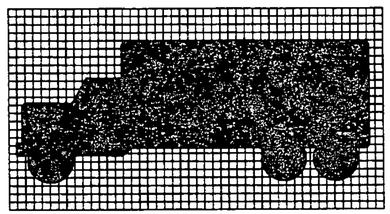

**VR-004A**

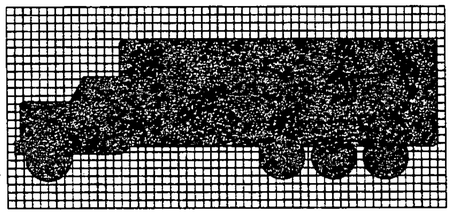


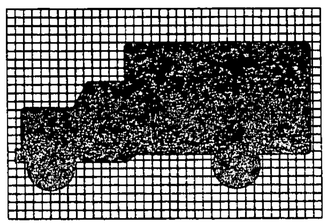
COLORS:
YIELD TO PEDESTRIAN SIGNS HAVE A BLACK PEDESTRIAN SYMBOL, BLACK TEXT, A BLACK BORDER AND A REFLECTORIZED RED YIELD SYMBOL ON A REFLECTORIZED WHITE BACKGROUND

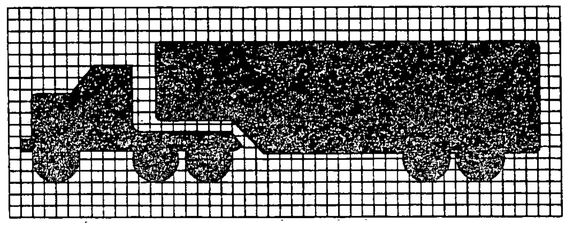
| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L |
| STD. | 24 | 30 | 5/8 | 3/8 | 5 | 2D | 12 | 2 1/4 | 5/8 | 5/8 | 3 1/4 |
| SIGN | M | N | P | Q | R | S | T | U | V | W | X |
| STD. | 1 1/4 | 4 3/4 | 16 | 2 | 1 1/2 | 12 | 3/4 | 1 3/4 | 1 1/16 | 7/16 | 10 |



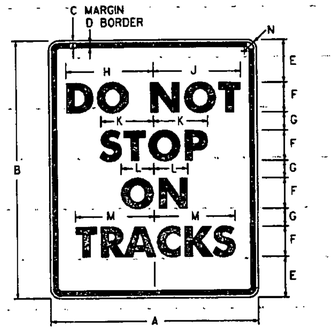






COLORS
LEGEND - RED (REFL.)
BACKGROUND - WHITE (REFL.)

**VR - 020**




**R8-8**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N |
| STD. | 24 | 30 | 3/8 | 5/8 | 3 5/8 | 4D | 2 1/4 | 9 1/4 | 9 5/8 | 6 5/16 | 3 1/2 | 10 | 1 1/2 |
| SPECIAL | 36 | 48 | 5/8 | 7/8 | 6 | 6D | 4 | 14 | 14 1/16 | 9 3/4 | 5 1/4 | 15 | 2 1/4 |
| SPECIAL | 48 | 60 | 3/4 | 1 1/4 | 7 1/4 | 8D | 4 1/2 | 18 1/2 | 19 1/4 | 13 1/8 | 7 | 20 | 3 |

GENERAL:
1. ALL DIMENSIONS IN INCHES.

COLORS:
THE REGULATORY SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:
THE SIGN BASE MATERIALS USED FOR REGULATORY SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING OF THE MINIMUM THICKNESS NOTED.

| | 24'' ▽ 30'' ▽ 24'' X 30'' 24'' X 36'' 30'' X 42'' | 36'' ▽ 36'' X 48'' 36'' X 54'' 48'' X 60'' 48'' X 66'' | 48'' ▽ 60'' ▽ |
|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.080'' | 0.100'' | 0.125'' |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2'' | 5/8'' | 5/8'' |
| GALVANIZED FLAT SHEET STEEL | 16 GAGE | 14 GAGE | 12 GAGE |

THE REFLECTIVE MATERIAL FOR GROUND MOUNTED SIGNS SHALL BE FLAT TOP WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN.

TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION.

SPECIFICATIONS:
REGULATORY SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR 'TRAFFIC SIGNS.'

TEXT DESIGN:
LETTERS, DIGITS, ARROWS, SPACING AND TEXT DIMENSIONS SHALL CONFORM WITH THE 'STANDARD ALPHABET FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS' AND DESIGNS PRESCRIBED IN THE STANDARD HIGHWAY SIGNS AS SPECIFIED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES ADOPTED BY THE U.S. DEPARTMENT OF TRANSPORTATION AND FEDERAL HIGHWAY ADMINISTRATION.

**OTHER STDS.; NONE REQUIRED**

REVISIONS AND CORRECTIONS
SEPT. 20, 1995 - DATE OF ORIGINAL ISSUE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

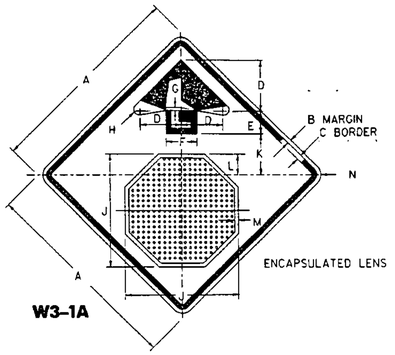
TRAFFIC AND SAFETY ENGINEER

# REGULATORY SIGN DETAILS

/traf/std/stdel46.dgn : stdel46.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-146

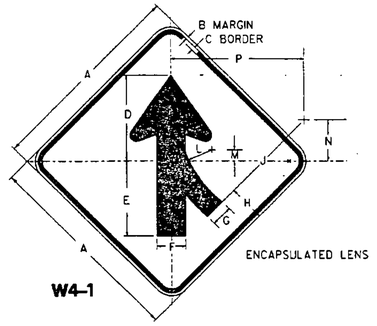



**W3-1A**

COLORS

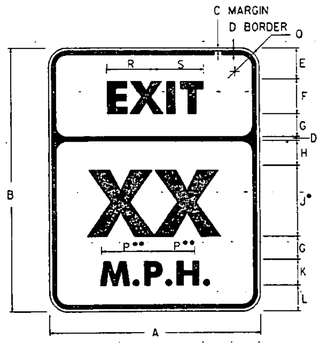
BORDER AND ARROW - BLACK ( NON-REFL )
SYMBOL - WHITE BORDER ON RED BACKGROUND ( REFL )

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N |
| MIN. | 30 | 1/2 | 3/4 | 7 1/2 | 3 3/4 | 5 | 5/8 | 5/8 | 15 3/4 | 6 1/4 | 2 7/8 | 1/2 | 1 7/8 |
| STD. | 36 | 5/8 | 7/8 | 9 | 4 1/2 | 6 | 3/4 | 3/8 | 19 | 7 1/2 | 3 1/2 | 5/8 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 12 | 6 | 8 | 1 | 1/2 | 25 1/8 | 10 | 4 1/2 | 3/4 | 3 |




**W4-1**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P |
| MIN. | 24 | 3/8 | 5/8 | 10 1/4 | 8 3/4 | 3 1/2 | 2 3/8 | 4 3/8 | 22 1/4 | 1 1/2 | 6 3/8 | 2 5/8 | 10 3/8 | 22 3/16 |
| STD. | 30 | 1/2 | 3/4 | 13 | 11 | 4 3/8 | 3 | 5 1/4 | 28 | 1 7/8 | 8 | 3 | 13 | 27 3/4 |
| EXPWY. | 36 | 3/8 | 7/8 | 15 3/4 | 13 1/4 | 5 1/4 | 3 5/8 | 6 3/8 | 33 3/8 | 2 1/4 | 9 5/8 | 4 | 15 3/8 | 33 3/4 |
| FWY. | 48 | 3/4 | 1 1/4 | 20 1/2 | 17 1/2 | 7 | 4 3/4 | 8 3/8 | 45 | 3 | 12 3/8 | 5 1/4 | 20 3/4 | 44 1/8 |



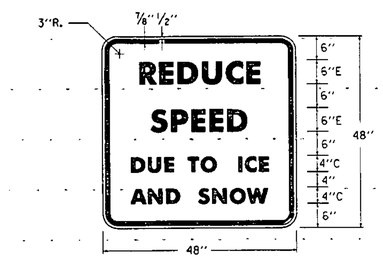

**W13-2**

OR

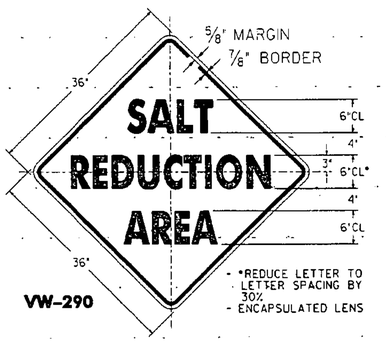
WITH "RAMP" TEXT SIGN NUMBER IS **W13-3**

- *OPTICALLY SPACE NUMBERS ABOUT VERTICAL CENTERLINE
- **INCREASE SPACING 100%
- THE "RAMP" SPEED SIGN IS USED ON RAMPS LEADING FROM ONE FREEWAY TO ANOTHER AND THE "EXIT" SPEED SIGN IS USED ON NORMAL EXITS.

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R | S | |
| MIN. & STD. | 24 | 30 | 3/8 | 5/8 | 3 1/2 | 4E | 2 1/2 | 2 7/8 | 8E | 3E | 3 | 8 1/4 | 8 1/2 | 5 5/8 | 1 1/2 | 6 1/8 | 6 3/8 | |
| EXPWY. | 36 | 48 | 5/8 | 1/8 | 6 | 6E | 4 | 5 1/8 | 12E | 4E | 6 | 12 3/8 | 12 3/4 | 7 1/16 | 2 1/4 | 9 1/4 | 9 1/2 | |
| FWY. | 48 | 60 | 3/4 | 1 1/4 | 7 | 8E | 5 | 5 3/4 | 16E | 6E | 6 | 16 1/2 | 17 | 10 5/8 | 3 | 12 1/4 | 12 3/4 | |

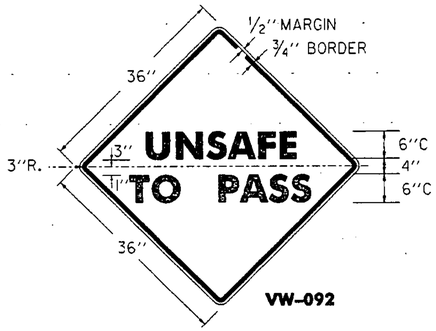



**VW-003**

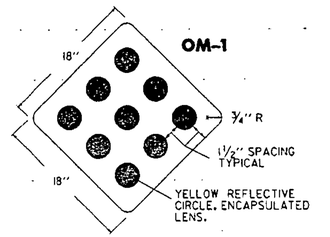



**VW-290**

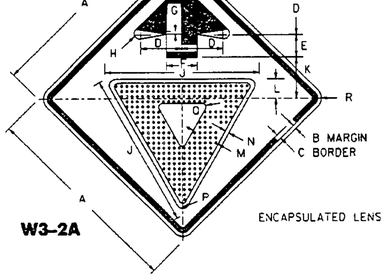
- *REDUCE LETTER TO LETTER SPACING BY 30%
- ENCAPSULATED LENS




**VW-092**




HAZARD MARKERS SHALL BE OF 0.060 FLAT SHEET ALUMINUM OR 18 GAGE GALVANIZED FLAT SHEET STEEL, WITH A NON-REFLECTIVE YELLOW BACKGROUND AND NINE 4" DIA. CIRCLES EVENLY SPACED WITHMATERIALS AS NOTED ABOVE.

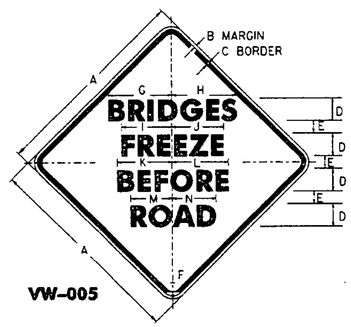



**W3-2A**

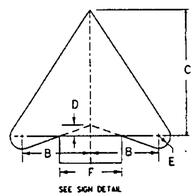
COLORS

BORDER AND ARROW - BLACK ( NON-REFL )
SYMBOL - RED BORDER ON WHITE BACKGROUND ( REFL )

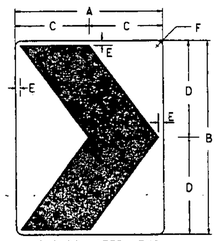
| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R |
| MIN. | 30 | 1/2 | 3/4 | 7 1/2 | 3 3/4 | 5 | 5/8 | 5/8 | 25 | 6 1/4 | 3 | 3 3/8 | 1/2 | 1 1/4 | 5/8 | 1 1/8 |
| STD. | 36 | 5/8 | 7/8 | 9 | 4 1/2 | 6 | 3/4 | 3/8 | 28 | 7 1/2 | 3 3/8 | 3 3/4 | 5/8 | 1 3/8 | 3/4 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 12 | 6 | 8 | 1 | 1/2 | 38 | 10 | 4 1/2 | 5 | 3/4 | 1 7/8 | 1 | 3 |




**VW-005**




SEE SIGN DETAIL




ENCAPSULATED LENS

**W1-8**

| SIGN | DIMENSIONS ( INCHES ) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | |
| STD. | 36 | 3/8 | 5/8 | 5C | 2 | 2 | 11/2 | 11/2 | 9 1/16 | 9 7/8 | 10 1/4 | 10 1/4 | 6 7/8 | 6 7/8 | |
| FWY./EXP. | 48 | 3/4 | 1 1/4 | 6C | 3 | 3 | 13 1/2 | 13 1/2 | 11 5/16 | 11 9/16 | 12 1/4 | 12 5/16 | 8 5/16 | 8 5/16 | |

| ARROW HEAD | DIMENSIONS ( INCHES ) | | | | |
|---|---|---|---|---|---|
| | SIZE | B | C | D | E |
| MIN. AND STD. | 24x24 | 4 | 7 1/8 | 5/16 | 1 1/16 |
| SPECIAL | 30x30 | 5 | 8 7/8 | 1/16 | 1 3/8 |
| EXPWY. | 36x36 | 6 | 10 5/8 | 1 7/8 | 1 1/16 |
| SPECIAL | 48x48 | 8 | 14 3/16 | 1 1/16 | 1 5/8 |

| SIGN | DIMENSIONS ( INCHES ) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| MIN. | 12 | 18 | 6 | 9 | 1/2 | 1 1/2 |
| STD. | 18 | 24 | 9 | 12 | 3/4 | 1 1/2 |
| SPECIAL | 24 | 30 | 12 | 15 | 7/8 | 1 1/2 |
| EXPWY. | 30 | 36 | 15 | 18 | 1 | 1 7/8 |
| FWY. | 36 | 48 | 18 | 24 | 1 1/8 | 2 1/4 |

COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

| | 12" x 18" / 18" x 24" | 24" x 24" / 24" x 30" / 30" x 30" / 30" x 36" | 36" x 36" / 36" x 48" | 48" x 48" / 48" x 60" |
|---|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.050" | 0.080" | 0.100" | 0.125" |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2" | 1/2" | 5/8" | 5/8" |
| GALVANIZED FLAT SHEET STEEL | 18 GAGE | 16 GAGE | 14 GAGE | 12 GAGE |

THE TEXT, BORDER, AND SYMBOL SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
AUG. 08, 1995 - ADDED SIGN DETAIL AND I.D. NUMBER FOR EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon A. MacAskill
DIRECTOR OF ENGINEERING

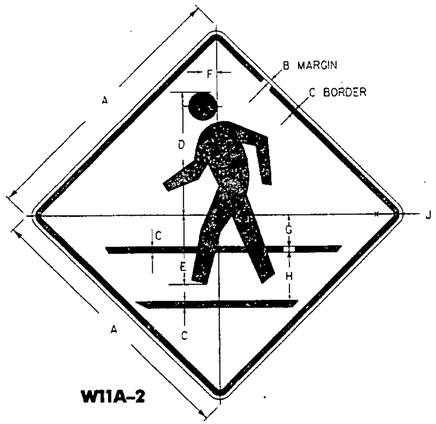
David A. Ross
TRAFFIC AND SAFETY ENGINEER

# WARNING SIGN DETAILS

/trcf/std/std e150dgn : std e150.i

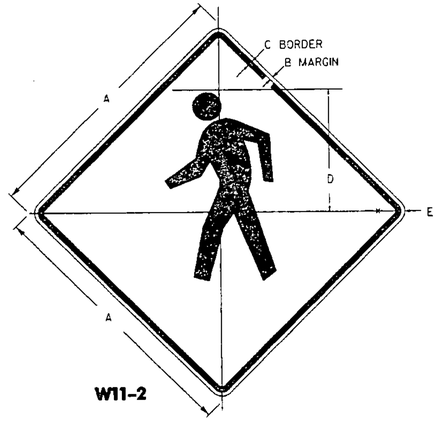
VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-150



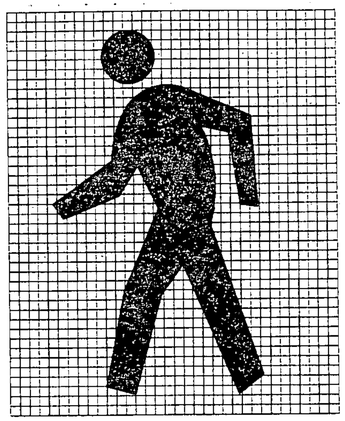

**W11A-2**

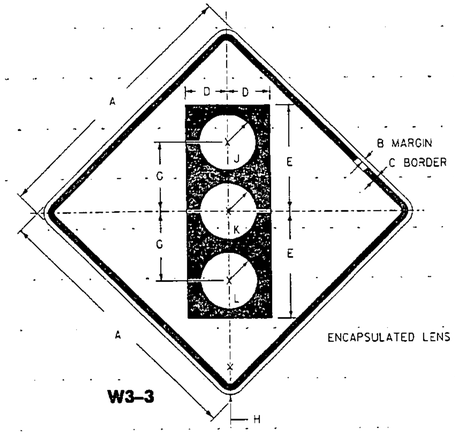
| SIGN | DIMENSIONS (INCHES) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J |
| BIKE | 18 | 3/8 | 5/8 | 8 3/8 | 4 3/4 | 3/4 | 2 3/8 | 3 5/8 | 1 1/2 |
| MIN. | 24 | 3/8 | 5/8 | 11 | 6 3/8 | 1 1/16 | 3 1/8 | 4 3/4 | 1 1/2 |
| STD. | 30 | 1/2 | 3/4 | 14 | 8 | 1 1/2 | 4 | 6 | 1 7/8 |
| EXPWY. | 36 | 5/8 | 7/8 | 16 3/4 | 9 5/8 | 1 13/16 | 4 3/4 | 7 1/2 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 22 | 12 3/4 | 2 5/16 | 6 1/4 | 9 1/2 | 3 |




**W11-2**

| SIGN | DIMENSIONS (INCHES) | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| MIN. | 24 | 3/8 | 5/8 | 11 | 1 1/2 |
| STD. | 30 | 1/2 | 3/4 | 13 1/2 | 1 7/8 |
| EXPWY. | 36 | 5/8 | 7/8 | 16 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 22 | 3 |



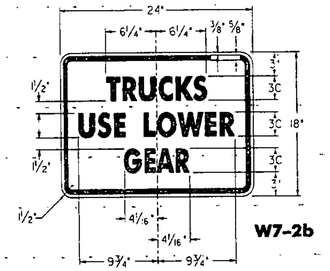



ENCAPSULATED LENS

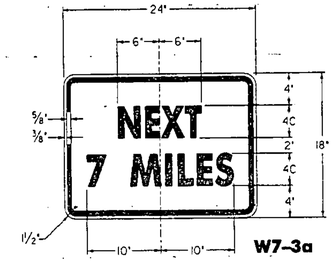
**W3-3**

| SIGN | DIMENSIONS (INCHES) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| BIKE | 18 | 3/8 | 5/8 | 3 | 8 | 2 1/4 | 5 | 1 1/2 |
| MIN. | 30 | 1/2 | 3/4 | 5 | 13 3/4 | 3 3/4 | 8 3/4 | 1 1/8 |
| STD. & MIN. | 36 | 5/8 | 7/8 | 5 3/4 | 15 3/4 | 4 1/4 | 10 | 2 1/4 |
| SPECIAL | 48 | 3/4 | 1 1/4 | 7 1/2 | 20 | 5 | 12 1/2 | 3 |

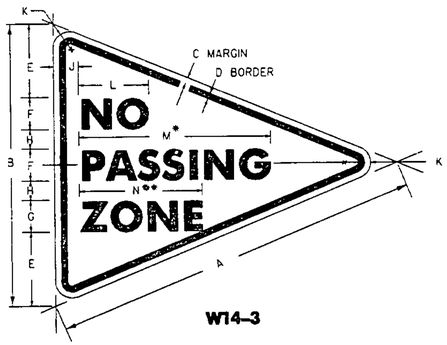
ADDITIONAL COLORS : J - REFL. RED
CIRCLE RADIUS = F  K - REFL. YELLOW
L - REFL. GREEN




**W7-2b**



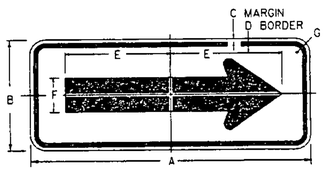

**W7-3a**




**W14-3**

| SIGN | DIMENSIONS (INCHES) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | J | K | L | M | N |
| MIN. | 40 | 30 | 1/2 | 3/4 | 7 1/4 | 40 | 4C | 1 3/4 | 2 1/2 | 1 7/8 | 6 1/2 | 22 5/16 | 11/16 |
| STD. | 48 | 36 | 5/8 | 7/8 | 8 1/2 | 50 | 5C | 2 | 3 | 2 1/4 | 8 | 26 1/16 | 12 3/4 |
| SPECIAL | 64 | 48 | 3/4 | 1 1/4 | 12 | 60 | 6C | 3 | 4 | 3 | 10 3/4 | 33 11/16 | 16 5/16 |

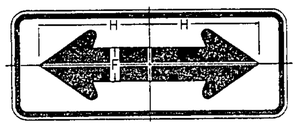
** FOR STD. SIZE REDUCE SPACING 35 %
* FOR STD. SIZE REDUCE SPACING 20 %




**W1-6**

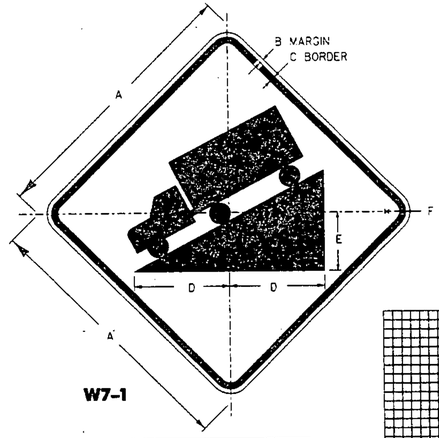
ENCAPSULATED LENS

| SIGN | DIMENSIONS (INCHES) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| BIKE | 24 | 12 | 3/8 | 5/8 | 9 5/8 | 3 1/4 | 1 1/2 | 10 3/8 |
| MIN. | 36 | 18 | 3/8 | 5/8 | 14 5/8 | 5 | 1 1/2 | 15 5/8 |
| STD. | 48 | 24 | 1/2 | 3/4 | 19 1/2 | 6 1/2 | 1 7/8 | 20 1/2 |
| SPECIAL | 60 | 30 | 5/8 | 7/8 | 24 3/8 | 8 | 2 1/4 | 25 3/8 |




**W1-7**

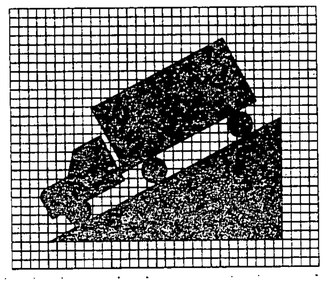
ENCAPSULATED LENS




**W7-1**

| SIGN | DIMENSIONS (INCHES) | | | | | |
|---|---|---|---|---|---|---|
| | A | B | C | D | E | F |
| MIN. | 24 | 3/8 | 5/8 | 8 3/4 | 6 | 1 1/2 |
| STD. | 30 | 1/2 | 3/4 | 11 | 7 1/2 | 1 7/8 |
| EXPWY. | 36 | 5/8 | 7/8 | 13 1/4 | 9 | 2 1/4 |
| FWY. | 48 | 3/4 | 1 1/4 | 17 1/2 | 12 | 3 |

ENCAPSULATED LENS



## COLORS

ALL THE WARNING SIGNS SHOWN ON THIS SHEET SHALL HAVE BLACK TEXT AND SYMBOLS ON REFLECTORIZED YELLOW BACKGROUND EXCEPT AS OTHERWISE NOTED. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

## MATERIALS

THE SIGN BASE MATERIALS USED FOR THE WARNING SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING, OF THE MINIMUM THICKNESS NOTED.

| | 18" x 18" | 24" x 12" 30" x 30" 24" x 24" | 36" x 18" 40" x 30" 36" x 36" | 48" x 24" 48" x 36" 48" x 48" 60" x 30" 64" x 48" |
|---|---|---|---|---|
| FLAT SHEET ALUMINUM | 0.060" | 0.080" | 0.100" | 0.125" |
| HIGH DENSITY OVERLAID PLYWOOD | 1/2" | 1/2" | 5/8" | 5/8" |
| GALVANIZED FLAT SHEET STEEL | 18 GAGE | 16 GAGE | 14 GAGE | 12 GAGE |

THE TEXT, BORDER AND SYMBOLS SHALL BE LETTERING FILM, SILK SCREENED OR HAND PAINTED. WHEN HAND PAINTED, POOR WORKMANSHIP SHALL BE CAUSE FOR REJECTION. THE REFLECTIVE MATERIAL SHALL BE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

## TEXT DESIGN

LETTERS, DIGITS, SYMBOLS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SEE STANDARD SHEET E-150 FOR ARROWHEAD DETAILS.

## SPECIFICATIONS

WARNING SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

**OTHER STDS. REQUIRED:** E-150

REVISIONS AND CORRECTIONS

OCT. 30, 1987 - DATE OF ORIGINAL ISSUE
JANUARY 1991 - 4 X 2 ARROW ENCAPSULATED LENS & 40 X 30 ADDED
OCT. 21, 1992 - PENNANT SIZE ADDED
AUG. 08, 1995 - DELETED & ADDED SIGN DETAILS AND ADDED I.D. NUMBER TO EACH DETAIL

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon A. MacArthur
DIRECTOR OF ENGINEERING

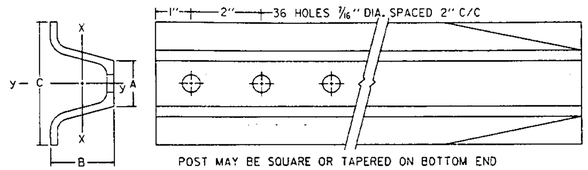
David A. Roads
TRAFFIC AND SAFETY ENGINEER

# WARNING SIGN DETAILS

/traf/std/stdei52.dgn : stdei52.i

VERMONT AGENCY OF TRANSPORTATION

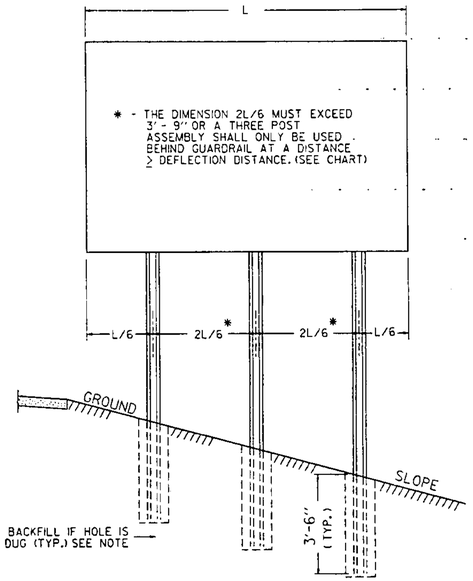
STANDARD
E-152




POST MAY BE SQUARE OR TAPERED ON BOTTOM END

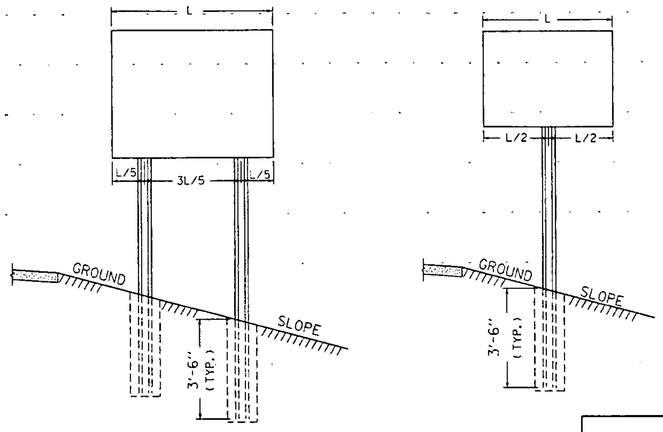
| POST SIZE (LB/FT.) | DIMENSIONS | | | SECTION MODULUS, X-X |
|---|---|---|---|---|
| | A | B | C | |
| 2 | 1 9/32" | 1 3/4" | 3 1/16" | 0.225 IN.$^3$ |
| 3 | 1 5/16" | 1 7/8" | 3 1/2" | 0.403 IN.$^3$ |

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.




## MULTI-POST INSTALLATIONS

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGHETHER THE POSTS DO NOT CREATE A HAZARD, REFER TO V.A.O.T. SIGN POST DESIGN GUIDELINE FOR ADDITIONAL DETAILS.




**POST SPACING DETAILS**

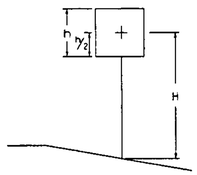
## GENERAL NOTES

CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLTION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED, POSTS WILL BE SET IN A HOLE WITH 2" CLEARANCE AND GROUTED WITH TYPE 4 MORTAR 24" BELOW THE SURFACE OF THE SOLID ROCK, UNLESS THE POSTS PENETRATE THE GROUND A MINIMUM OF 3'-6". THE PORTION OF THE POST IN CONTACT WITH THE MORTAR SHALL BE COATED WITH AN APPROVED COATING.

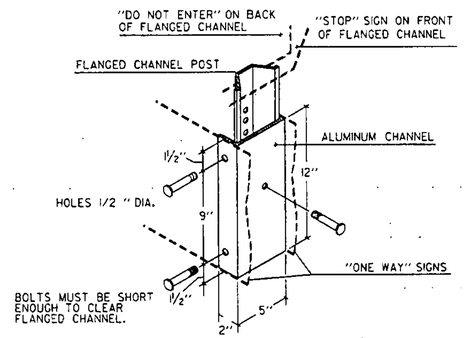
SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS.

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12-1/2 SQ.FT. OR LESS.




| POST SELECTION CHART | | |
|---|---|---|
| SIGN AREA (FT$^2$) x H (FT) ≤ SV (SELECTION VALUE) | | |
| POST SIZE | Sv | DESIGN CRITERIA |
| 2 LB/FT. (ONE POST INSTALLATION) | 32 | WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL) WIND PRESSURE = 13 PSF STEEL MIN YIELD Fy = 50,000 PSI ALLOWABLE STRESS = (1.4) 0.60 Fy |
| 2 LB/FT. (TWO POST INSTALLATION) | 62 | |
| 3 LB/FT. | 107 | |

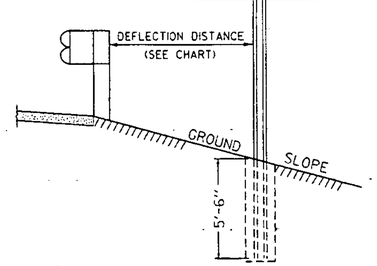
SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS.




DETAIL OF TYPE "A" OR "B" MOUNTING BRACKET. SEE STANDARD E-120 FOR CLEARANCES.

| GUARDRAIL DEFLECTION CHART (PER AASHTO - ROADSIDE DESIGN GUIDE - 1988) | | | |
|---|---|---|---|
| TYPE | | GR POST SPACING | DEFLECTION |
| THREE CABLE | W/STEEL POSTS | 16' - 0" | 12' |
| | W/WOODEN POSTS | 12' - 6" | 12" |
| W-BEAM | W/WEAK POST | 12' - 6" | 7' |
| | W/STRONG POST | 6' - 3" | 3' |
| BOX BEAM | | 6' - 0" | 5' |
| THRIE BEAM | W/WEAK. POST | 12' - 6" | 4' |
| | W/STRONG POST | 6' - 3" | 2' |

THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.




WHEN USING FLANGED CHANNEL POSTS ON STEEP SLOPES (1 ON 2 OR STEEPER FILL SLOPES BEHIND GUARDRAIL), ADD 2' EMBEDDMENT TO THE POST LENGTH TO GIVE THE ASSEMBLY MORE STABILITY. HOWEVER IF SIGN POST IS LOCATED INSIDE THE DEFLECTION DISTANCE, THE SIGN POST SHALL BE SET AT A DEPTH OF 3'-6".

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

SEP. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 01, 1988 - FHWA REVIEW COMMENTS
OCT. 21, 1992 - ADDED DETAILS, REVISED NOTES & REVISED TITLE BLOCK
AUG. 18, 1995 - DELETION OF 2.5 #/FT. POST AND TWO-RAIL ALUMINUM. ADDED ADDITIONAL NOTE.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

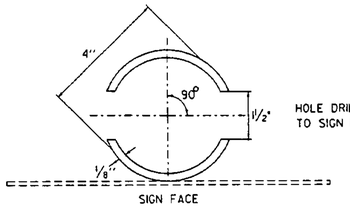
TRAFFIC AND SAFETY ENGINEER

# FLANGED CHANNEL STEEL SIGN POST

/trof/std/stdel60.dgn : stdel60.i

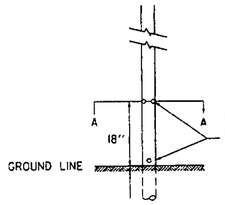
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-160




HOLE DRILLED PARALLEL TO SIGN FACE

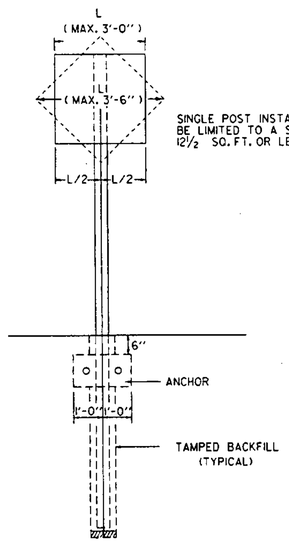
SECTION A-A




1½" DIAMETER HOLES DRILLED THROUGH, BOTTOM HOLE DRILLED PERPENDICULAR TO SIGN FACE

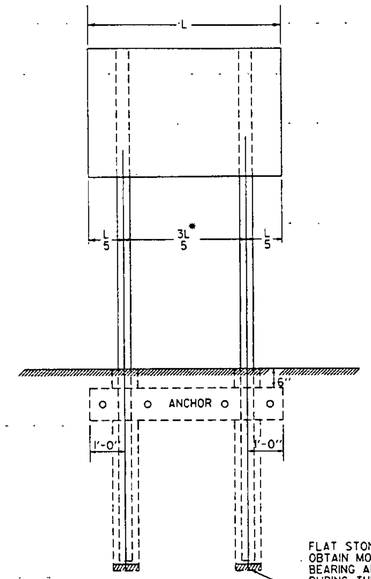
DETAIL A

4" DIAMETER POST
( MODIFIED )



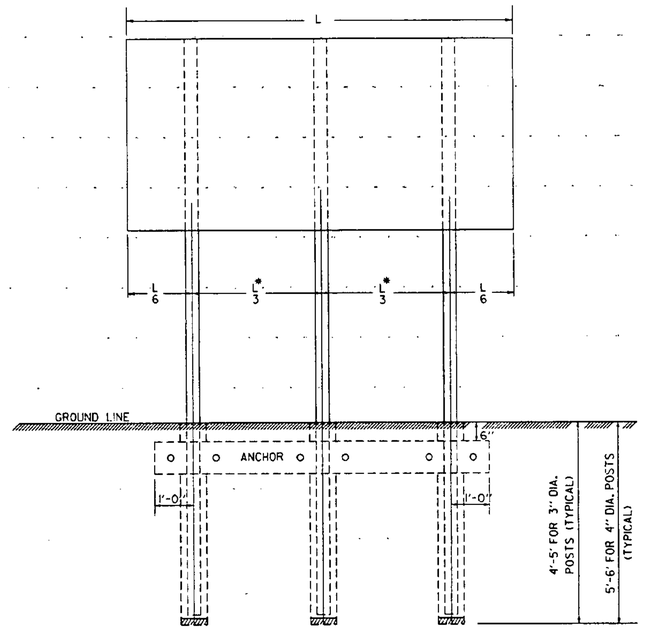

SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 12½ SQ. FT. OR LESS.

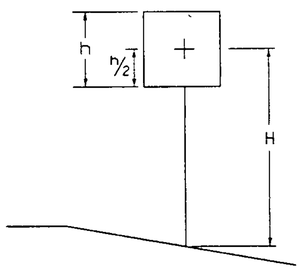
* WHEN CONSTRUCTING MULTIPLE POST INSTALLATIONS, THE POST SPACING SHALL BE A MINIMUM OF 7' - 4" CENTER TO CENTER OF THE POSTS UNLESS USED BEHIND GUARD-RAIL A DISTANCE ≥ THE DEFLECTION DISTANCE (SEE STD. E-160).




FLAT STONE TO OBTAIN MORE BEARING AREA DURING THE INSTALLATION PHASE

IN AREAS WHERE LEDGE ROCK IS ENCOUNTERED POSTS WILL BE SET AND GROUTED WITH TYPE 4 MORTAR, 24" BELOW THE TOP SURFACE OF THE SOLID ROCK UNLESS THE POSTS PENETRATE THE GROUND A MIN. 4'.




| POST SELECTION CHART | | |
|---|---|---|
| SIGN AREA ( FT.²) x H( FT. ) ≤ SV (SELECTION VALUE ) | | |
| POST SIZE | Sv ( FT.³) | DESIGN CRITERIA |
| 3" DIA. | 182 | WIND VELOCITY = 60 MPH (10 YEAR MEAN RECURRENCE INTERVAL ) WIND PRESSURE = 13 PSF ALUMINUM Fy = 24,000 PSI ALLOWABLE STRESS = 1.4 (24,000 )PSI |
| 4" DIA. * | 334 | |
| 4" DIA. (MOD)* | 329 | |

* TWO POST INSTALLATIONS - USE ONLY BEHIND GUARDRAIL AT A DISTANCE ≥ THE GUARDRAIL DEFLECTION DISTANCE. (SEE STD. E-160)

| POST WEIGHTS | | |
|---|---|---|
| POST DIAMETER | WALL THICKNESS | WEIGHT PER FT. |
| 3" ROUND | ⅛" | 1.3 LBS |
| 4" ROUND | ⅛" | 1.7 LBS |
| 4" ROUND (MOD.) | ⅛" | 1.7 LBS |

**NOTES**

**ANCHORS** USE TWO (2) PIECES OF 2" x 12" ROUGH PLANK. PLANKS, UNLESS OTHERWISE NOTED, SHALL CONFORM TO " STANDARD SPECIFICATIONS FOR CONSTRUCTION " SECTION 728.02

**ERECTION** LOCKNUTS ON ⅜" * 16 ALUMINUM POST BOLT CLIPS SHALL BE TORQUED TO 225 INCH POUNDS USING DRY, CLEAN, UNLUBRICATED THREADS. WHERE ALUMINUM SURFACES ARE TO BE PLACED IN CONTACT WITH WOOD, THEY SHALL BE GIVEN A THICK COAT OF AN ALKALI-RESISTANT BITUMINOUS PAINT MEETING THE REQUIREMENTS OF MILITARY SPECIFICATION MIL-P-6883, WHICH SHALL BE DRY BEFORE INSTALLATION.

THE HOLE SHALL BE CAREFULLY DUG AND THE POST SET TO THE DEPTH SPECIFIED ABOVE. POST SHALL NOT BE DRIVEN. THE BACKFILL MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF APPROVED GRAVEL OR SHALL BE A MATERIAL APPROVED BY THE ENGINEER. COMPACTION OF THE BACKFILL WILL BE PERFORMED AS DIRECTED BY THE ENGINEER.

**OTHER STDS. REQUIRED:** E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
MAR. 11, 1988 - FHWA REVIEW COMMENTS
AUG. 18, 1995 - REVISED POST WALL THICKNESS AND APPROPRIATE VALUES. ADDED 4" DIAMETER (MOD.) POST.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

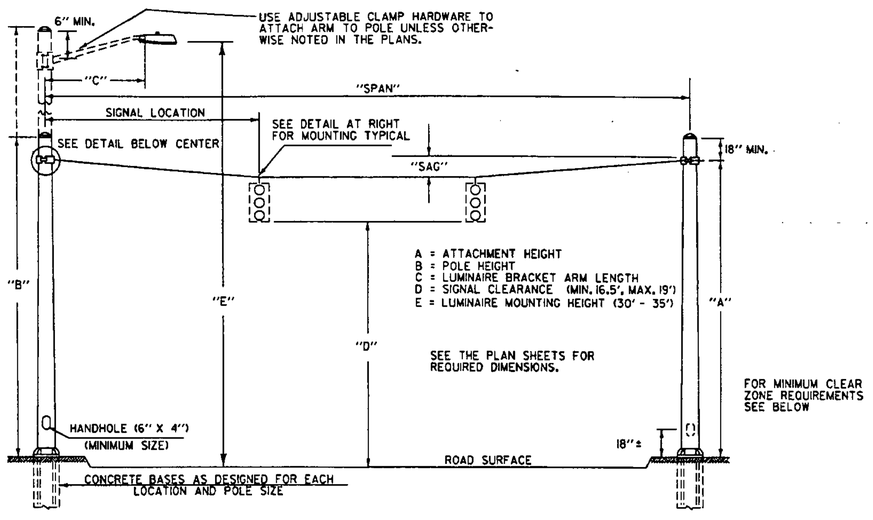
TRAFFIC AND SAFETY ENGINEER

# TUBULAR ALUMINUM SIGN POST

/traf/std/stde162.dgn : stde162.i

VERMONT AGENCY OF TRANSPORTATION

# STANDARD E-162




**SPAN WIRE MOUNTED TRAFFIC SIGNALS WITH LUMINAIRES**

## NOTES

1) ALL TRAFFIC SIGNAL EQUIPMENT SHALL MEET OR EXCEED ALL REQUIREMENTS OF THE LATEST REVISION OF THE NATIONAL ELECTRICAL MANUFACTURERS ASSOC. (NEMA) AND THE INTERNATIONAL MUNICIPAL SIGNAL ASSOC. (IMSA) STANDARDS FOR TRAFFIC CONTROL SYSTEMS.

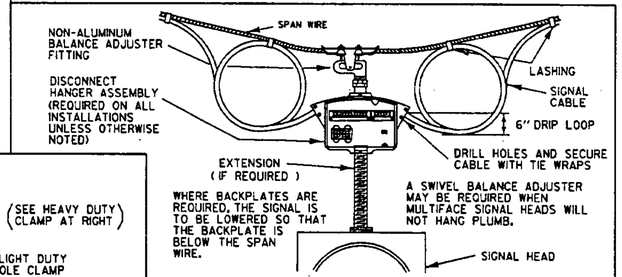
2) ALL ELECTRICAL WIRE AND CABLE SHALL BE COPPER. ELECTRICAL SIGNAL CABLE FROM TRAFFIC SIGNAL CONTROLLER TO SIGNAL HEADS SHALL BE COMPOSED OF AWG # 12 (MIN) STRANDED CONDUCTORS, AND SHALL MEET IMSA WIRE AND CABLE SPECIFICATIONS.

3) ALL SIGNAL HEAD CABLES SHALL BE CONTINUOUS FROM THE CONTROLLER TO THE NEAREST SIGNAL HEAD TO WHICH THEY APPLY. THE CABLE SHALL ALSO BE CONTINUOUS FROM THE FIRST SIGNAL HEAD TO ANY ADDITIONAL HEADS WITH TERMINATION IN THE DISCONNECT HANGER.

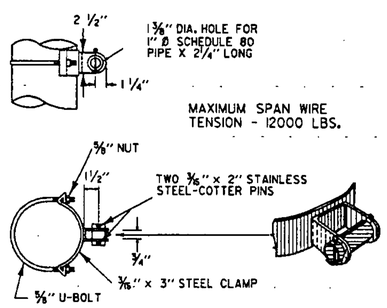
4) THE PEDESTRIAN SIGNAL HEADS SHALL HAVE AUDIO SIGNALS TO INDICATE ALLOWABLE PEDESTRIAN MOVEMENT FOR THE VISUALLY IMPAIRED DURING THE PEDESTRIAN PHASE. THEY SHALL BE OF THE TYPE NORMALLY USED FOR SUCH AN INSTALLATION AND BE WIRED IN SUCH A WAY AS TO BE EASILY DEACTIVATED. AFTER THE AUDIO SIGNAL HAS BEEN INSTALLED AND FIELD TESTED IT SHALL BE DEACTIVATED, UNLESS AN EXCLUSIVE PEDESTRIAN PHASE IS OPERATING AT THE INTERSECTION. PEDESTRIAN PUSH BUTTONS SHALL BE INSTALLED AT EACH END OF EACH CROSSWALK WHERE ACTUATED PEDESTRIAN SIGNALS ARE INSTALLED OR AS SHOWN ON THE PLANS.

5) THE PEDESTRIAN HEADS SHALL HAVE TEXT ''WALK'', ''DONT WALK'', UNLESS OTHERWISE NOTED. THEY SHALL MEET THE LATEST REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

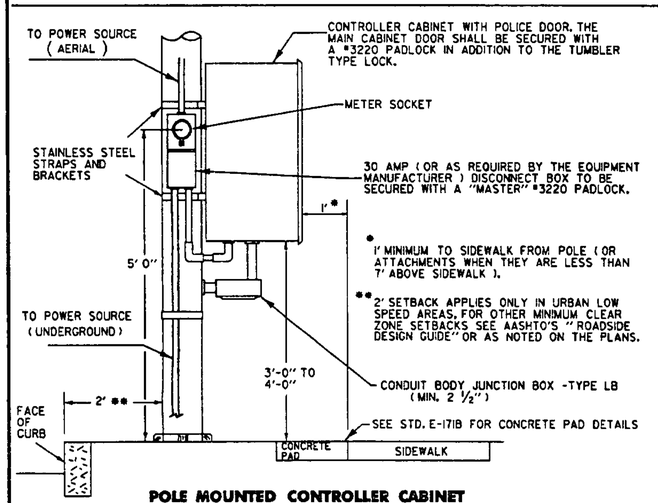
6) WHEN STREET LIGHTS ARE INSTALLED ON A TRAFFIC SIGNAL STRAIN POLE, AND THE STREET LIGHTING ITEM IS NOT PART OF THE CONTRACT, THE LUMINAIRES AND BRACKET ARMS ARE INCLUDED UNDER THE TRAFFIC CONTROL SIGNAL ITEM. THEY SHALL MEET ALL OF THE REQUIREMENTS OF SECTION 679 OF THE CURRENT VERMONT STANDARD SPECIFICATIONS FOR CONSTRUCTION.



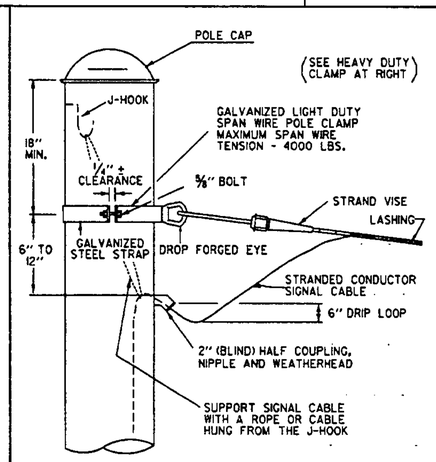

**SPAN WIRE MOUNTING TYPICAL**




**SPAN WIRE CLAMP**
(HEAVY DUTY GALVANIZED)




**POLE MOUNTED CONTROLLER CABINET INSTALLATION TYPICAL**




**CABLE INSTALLATION TYPICAL WITH SPAN WIRE POLE CLAMP**
(LIGHT DUTY GALVANIZED)

7) SIGNAL TIMING IS APPROXIMATE AND IS NOT TO BE CONSIDERED FINAL. ALL NECESSARY HARDWARE TO CHANGE THE TIMING SHALL BE ON HAND WHEN THE SIGNALS ARE ACTIVATED. THE RESIDENT ENGINEER SHALL PERFORM CHECKS DURING THE AM AND PM PEAK PERIODS TO INSURE OPTIMUM SETTINGS. IF REQUIRED, APPROPRIATE TIMING CHANGES SHALL BE MADE TO ''FINE-TUNE'' THE CONTROLLER TO ITS BEST EFFICIENCY PRIOR TO COMPLETION OF THE PROJECT. TIMING CHANGES WILL BE APPROVED BY A REPRESENTATIVE OF THE V.A.O.T. TRAFFIC AND SAFETY DIVISION. TIMING ADJUSTMENTS SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL SIGNAL ITEM. MINOR TIMING CHANGES MADE TO ''FINE-TUNE'' THE CONTROLLER WILL NOT AFFECT THE RUNNING OF THE 30 DAY TEST PERIOD.

8) THE TRAFFIC SIGNAL STRAIN 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 SPAN WIRE AND SIGNAL HEADS OCCURS. THE AMOUNT OF BACK RAKE SHALL BE AS SHOWN ON THE PLANS.

9) THE SIGNAL SYSTEM SHALL NOT OPERATE WITHOUT THE APPROPRIATE PAVEMENT MARKINGS AND RELATED SIGNING IN PLACE.

10) THE SIGNAL HEADS SHALL BE COVERED WITH AN OPAQUE COVERING UNTIL SUCH TIME AS THE SIGNAL SYSTEM IS FUNCTIONAL. AT NO TIME SHOULD THE HEADS BE VIEWED WITHOUT HAVING SOME FORM OF SIGNAL INDICATION, I.E. FLASHING OPERATION OR SEQUENCING AS PER PLAN.

11) THE CONFLICT MONITOR SHALL BE CAPABLE OF DETECTING A LACK OF RED, GREEN, YELLOW OR WALK SIGNAL AND SHALL BE CAPABLE OF STORING AT LEAST NINE PREVIOUS FAULTS FOR RECALL VIA A DISPLAY SCREEN.

12) THE VEHICLE DETECTOR AMPLIFIERS AND PHASE MODULES (WHERE APPROPRIATE) INSIDE THE CONTROLLER CABINET SHALL HAVE LABELS TO INDICATE WHICH PHASE AND MOVEMENT GOES WITH EACH. THE LABELS SHALL BE 1/2'' WIDE. THE LOOP DETECTOR LEAD-INS SHALL ALSO BE LABELED AT THE TERMINAL BOARD AS TO WHICH MOVEMENT AND LANE THEY ARE FROM. VEHICLE DETECTOR AMPLIFLIERS SHALL BE OF A TYPE THAT FAIL IN THE ''ON'' POSITION.

13) TEST SWITCHES FOR EACH PHASE SHALL BE PLACED EITHER ON THE CABINET DOOR OR IN A CONVENIENT LOCATION ON THE SIDE WALL.

14) ALL DOOR MOUNTED SWITCHES AND BUTTONS SHALL BE PROTECTED FROM ACCIDENTAL BUMPING OR FROM COMING INTO CONTACT WITH OTHER EQUIPMENT WHEN THE DOOR IS CLOSED.

15) ALL SIGNALS SHALL BE WIRED SUCH THAT NO MORE THAN TWO THROUGH FACES (NORTH-SOUTH AND/OR EAST-WEST) ARE WIRED INTO ONE LOAD SWITCH EVEN THOUGH TWO APPROACHES ARE GREEN DURING THE SAME PHASE.

16) THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO COPIES OF THE INSTRUCTION MANUALS FOR THE CONTROLLER, LOOP DETECTORS, CONFLICT MONITORS, AND ANY OTHER EQUIPMENT INCLUDED IN THE CABINET. ONE COPY IS TO BE KEPT IN THE CABINET AND THE OTHER GIVEN TO THE PARTY RESPONSIBLE FOR MAINTENANCE OF THE SIGNAL SYSTEM. ADDITIONAL COPIES TO BE PROVIDED AS CALLED FOR ON THE PLANS.

17) FOR PROGRAMMABLE SOLID STATE CONTROLLERS AND MASTERS, COPIES OF THE FINAL PROGRAM LISTINGS SHALL BE PROVIDED AND DISTRIBUTED AS DETAILED IN NOTE 16.

18) PHASING CHANGES, IF REQUESTED AND FEASIBLE, SHALL BE CONSIDERED AS PART OF THE CONTRACT. EXTRA COMPENSATION FOR THE CHANGES MAY BE AUTHORIZED FOLLOWING APPROVAL OF THE ESTIMATE.

19) TRAFFIC SIGNALS INSTALLED AT NEW LOCATIONS SHALL BE ACTIVATED ONLY UPON THE APPROVAL OF THE ENGINEER AND AFTER FLASHING FOR A MINIMUM OF 48 HRS.

20) IF THE PROJECT INVOLVES REPLACING OR IMPROVING AN EXISTING TRAFFIC SIGNAL, TRAFFIC SHALL BE CONTROLLED BY A UNIFORMED TRAFFIC OFFICER AT ANY TIME THE SIGNAL IS NOT SEQUENCING PER PLAN OR OPERATING ON FLASH. THE SWITCH FROM THE OLD TO THE NEW SIGNAL SHALL BE DONE DURING OFF-PEAK TRAFFIC AND IN SUCH A WAY AS TO MINIMIZE DOWN TIME.

21) TRAFFIC & PEDESTRIAN SIGNALS MOUNTED ON THE SIDE OF THE SIGNAL POLES MAY BE ATTACHED BY METHODS OTHER THAN THOSE SHOWN. SHOP DRAWINGS FOR THE ALTERNATE MOUNTING HARDWARE MUST BY SUBMITTED TO THE TRAFFIC DESIGN SECTION OF THE VAOT VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

22) ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNAL HEADS (POST TOP, SIDE OR ARM MOUNTED) SHALL BE HEAVY DUTY ALUMINUM, UNLESS OTHERWISE NOTED ON THE PLANS.

23) WHEN (FREE SWINGING) OPTICALLY PROGRAMMABLE SIGNAL HEADS ARE REQUIRED, THEY SHALL NOT BE INSTALLED ON THE SAME HANGER ASSEMBLY AS LIGHTER WEIGHT HEADS, UNLESS OTHERWISE NOTED ON THE PLANS. WHEN TWO HANGER ASSEMBLIES ARE INSTALLED CLOSE TOGETHER, THE BOTTOM OF THE SIGNALS SHALL BE CONNECTED BY A FLAT ARM ASSEMBLY TO PREVENT THE HEADS FROM HITTING EACH OTHER.

24) WHEN MASKING OF OPTICALLY PROGRAMMABLE SIGNAL HEADS IS REQUIRED, THE HEADS SHALL BE RIGIDLY MOUNTED OR TETHERED, AS SHOWN ON STD E-171B.

25) WHEN STREET LIGHTING AND SIGNALS ARE INSTALLED AT THE SAME LOCATION, THE POWER FOR EACH SHALL BE SEPARATED AT THE STANCHION OR SERVICE.

26) WHEN MORE THAN ONE SIGNAL IS POWERED FROM THE SAME SERVICE, EACH SHALL HAVE ITS OWN DISCONNECT AT THE STANCHION.

**OTHER STDS. REQUIRED** E - 171B, E - 175

### REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS AND POLE MOUNTING DETAIL MOVED TO E-171B
AUG. 9, 1995 - GENERAL REVISION OF NOTES & DETAILS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

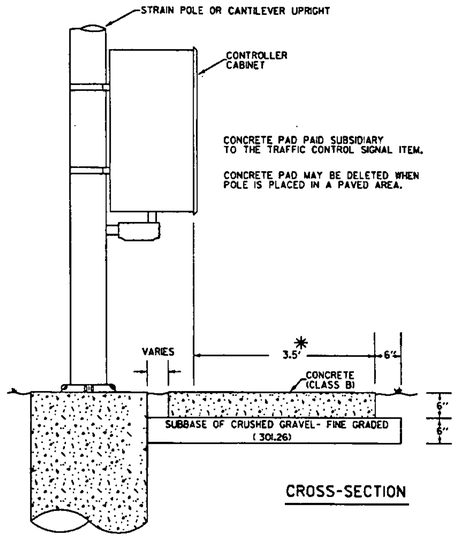
TRAFFIC AND SAFETY ENGINEER

# TRAFFIC CONTROL SIGNALS GENERAL NOTES & DETAILS

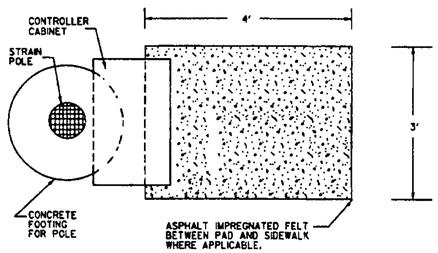
/traf/std/stdel71a.dgn - stdel71a.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-171A

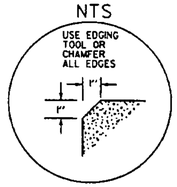



CROSS-SECTION



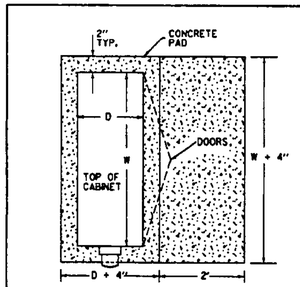

TOP VIEW

NTS



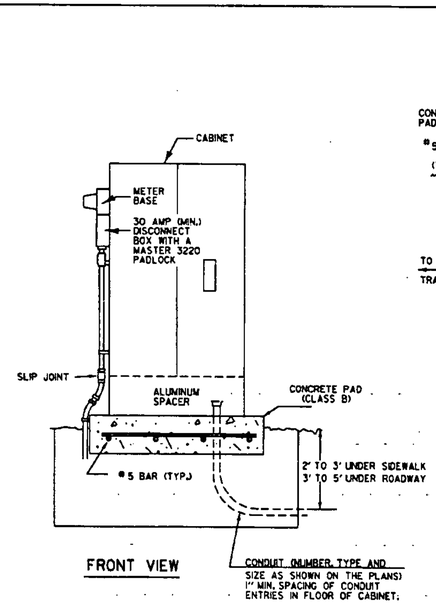

* THE 3.5 FOOT DIMENSION MAY BE ADJUSTED AS NECESSARY WHERE SIDEWALK OR ROADWAY IS ADJACENT TO CONTROLLER.

**CONCRETE PAD DETAIL FOR POLE MOUNTED CONTROLLER CABINET**

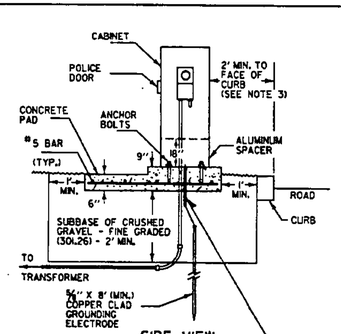



TOP VIEW

THE CABINET DIMENSIONS "D" AND "W" VARY WITH MANUFACTURER. A TYPICAL "P" CABINET HAS DIMENSIONS OF D = 26" AND W = 46".




FRONT VIEW




SIDE VIEW

WEEP HOLE. INSTALL 1/4" FLEXIBLE PLASTIC CONDUIT FOR #6 AWG SOFT DRAWN COPPER GROUNDING CONDUCTOR. CONNECT TO GROUNDING ELECTRODE USING AN EXOTHERMIC WELD. CUT CONDUIT FLUSH WITH TOP OF CONCRETE PAD.

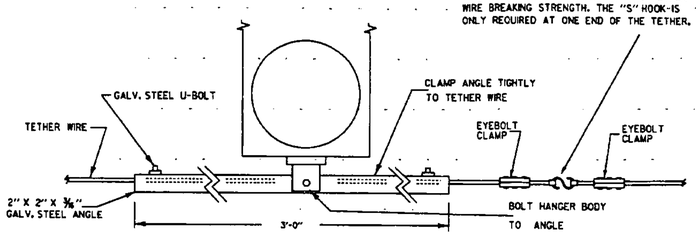
**GROUND MOUNTED CONTROLLER CABINET**

**NOTES:**

1. THE CONCRETE PAD SURFACE SHALL HAVE A BRUSHED FINISH.
2. AN ASPHALT IMPREGNATED FELT PAD SHALL BE USED BETWEEN THE CONTROLLER PAD AND ADJACENT SIDEWALK, WHERE APPLICABLE.
3. THE MINIMUM CLEAR ZONE IN LOW SPEED URBAN AREAS IS 2' BEYOND THE FACE OF CURB. IN OTHER CASES, THE MINIMUM IS EQUAL TO THE CLEAR ZONE AS DEFINED IN AASHTO'S ROADSIDE DESIGN GUIDE.
4. THE CONRETE AND SUBBASE OF CRUSHED GRAVEL SHALL BE SUBSIDIARY TO THE TRAFFIC SIGNAL ITEM.
5. FOR GROUND MOUNTED CABINET INSTALLATIONS:
   - A. THE METER SHOULD BE INSTALLED AS SHOWN ON THE PLANS. THE PREFERRED METER LOCATION IS ON A SEPARATE POLE OR STANCHION. HOWEVER, IF LIMITING CONDITIONS EXIST, THE METER MAY BE INSTALLED ON THE CONTROLLER CABINET ON THE SIDE AWAY FROM APPROACHING TRAFFIC.
   - B. THE NUMBER 5 BARS SHALL BE SPACED 16" CENTER TO CENTER WITH A MINIMUM OF 3" COVER TO THE GROUND. THEY SHALL RUN BOTH NORMAL AND TRANSVERSE IN THE CONCRETE PAD.
   - C. ANCHOR BOLT DIMENSIONS SHALL BE SUPPLIED BY THE CABINET MANUFACTURER. THESE BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
   - D. THE ALUMINUM SPACER MAY BE DELETED IN URBAN AREAS, IF SO NOTED ON THE PLANS.

THE TETHER WIRE SHALL BE A STRANDED GALVANIZED STEEL CABLE WITH A BREAKING STRENGTH OF 1000 POUNDS +/-.

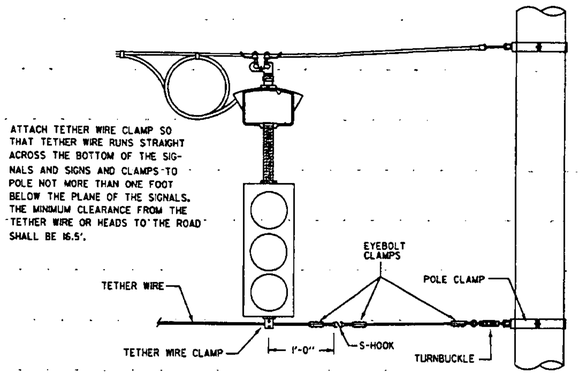
INSTALL "S" HOOK AT THE FIRST POINT WHERE A SIGNAL OR SIGN CONNECTS TO THE SPAN WIRE. THE "S" HOOK SHALL FAIL AT 50 TO 75 PERCENT OF THE TETHER WIRE BREAKING STRENGTH. THE "S" HOOK IS ONLY REQUIRED AT ONE END OF THE TETHER.




OPTICALLY PROGRAMMED SIGNAL HEAD WHEN MASKING IS REQUIRED

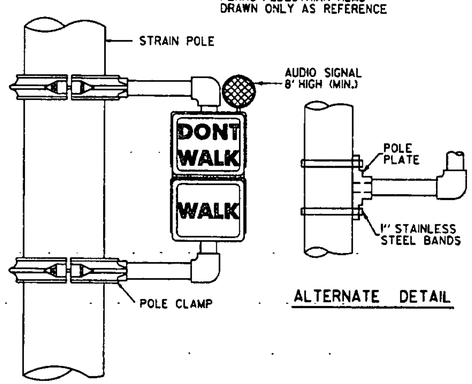
**TETHER WIRE ATTACHMENT DETAILS**

ATTACH TETHER WIRE CLAMP SO THAT TETHER WIRE RUNS STRAIGHT ACROSS THE BOTTOM OF THE SIGNALS AND SIGNS AND CLAMPS TO POLE NOT MORE THAN ONE FOOT BELOW THE PLANE OF THE SIGNALS. THE MINIMUM CLEARANCE FROM THE TETHER WIRE OR HEADS TO THE ROAD SHALL BE 16.5'.




STANDARD OR UNMASKED OPTICALLY PROGRAMMED SIGNAL HEAD

SIGNAL HEAD AS INDICATED ON PLANS-PEDESTRIAN HEAD DRAWN ONLY AS REFERENCE




ALTERNATE DETAIL

**DETAIL FOR POLE MOUNTING SIGNAL HEAD**

**OTHER STDS. REQUIRED** E - 171A, E - 175

REVISIONS AND CORRECTIONS

JUNE 21, 1989 - DATE OF ORIGINAL ISSUE
MAY 14, 1990 - FHWA COMMENTS
NOV. 17, 1993 - FHWA COMMENTS, NOTE REVISIONS, MOVED CANTILEVER DETAILS TO NEW E-171C AND ADDED TETHER WIRE DETAIL
AUG. 9, 1995 - SPECIFIED MATERIAL UNDER PAD, REVISED NOTES AND MINOR CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

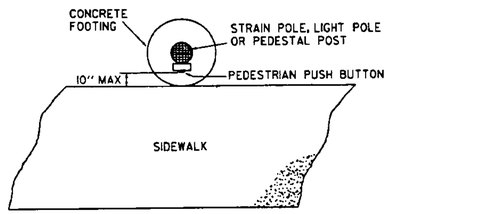
TRAFFIC AND SAFETY ENGINEER

# TRAFFIC CONTROL SIGNALS
# MISC. DETAILS

/trof/std/std171b.dgn - std171b.1

VERMONT AGENCY OF TRANSPORTATION

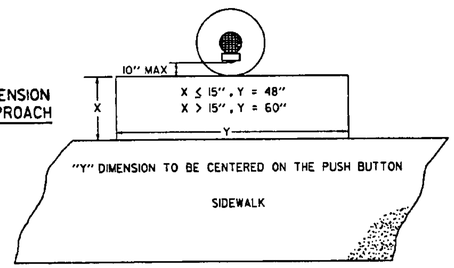
STANDARD
E-171B

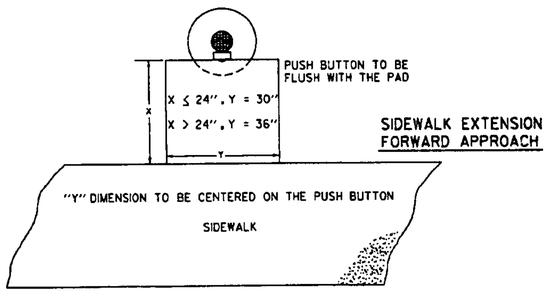



IF THE PEDESTRIAN PUSH BUTTON IS NOT LOCATED WITHIN 10'' OF THE SIDEWALK, AN EXTENSION TO THE SIDEWALK MUST BE PROVIDED AS SHOWN BELOW. BUTTONS LOCATED ON THE SIDE OF CONTROLLER CABINETS MAY REQUIRE EXTENSION OF THE CONCRETE PAD, SHOWN ON STD E-1718, TO MEET THIS REQUIREMENT.

WHEN SIDEWALK EXTENSIONS ARE PROVIDED, A SUBBASE OF FINE GRADED CRUSHED GRAVEL SHALL BE PLACED AND ASPHALT IMPREGNATED FELT SHALL BE USED BETWEEN THE EXTENSION AND THE SIDEWALK AS SHOWN ON STD E-1718.

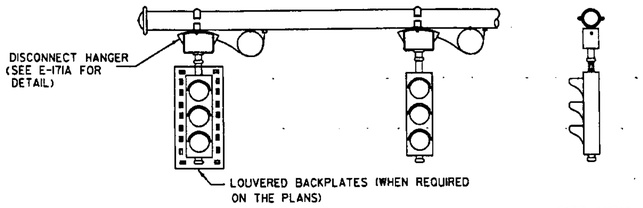
SIDEWALK EXTENSION
PARALLEL APPROACH

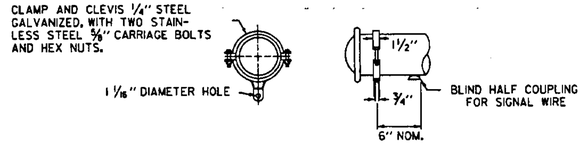



SIDEWALK EXTENSION
FORWARD APPROACH

**PEDESTRIAN PUSH BUTTON ACCESSIBILITY DETAIL**



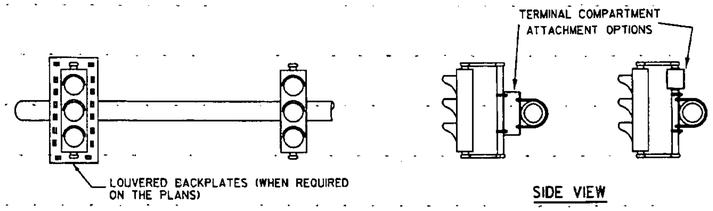




**MAST ARM MOUNTING DETAILS FOR FREE SWINGING TRAFFIC SIGNALS**

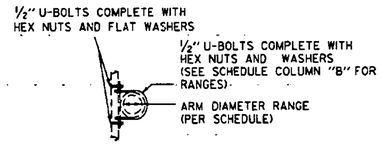
**CANTILEVER MOUNTED TRAFFIC SIGNALS (AND LUMINAIRES)**

MINIMUM SIGNAL CLEARANCE SHALL BE:
16.5' FOR FREE SWINGING HEADS, OR
17' FOR FIXED MOUNTED HEADS

SEE THE CANTILEVER / FOOTING DETAIL SHEET(S) FOR ADDITIONAL INFORMATION.




| SIGNAL MOUNTING PLATE SCHEDULE | | | |
|---|---|---|---|
| ARM DIAMETER | A | B | C |
| 3 1/10'' - 5 2/10'' | 8 3/4'' | 5 3/8'' | 1 11/16'' |
| 5 2/10'' - 7 5/10'' | 10 3/4'' | 7 3/8'' | 1 3/16'' |
| 7 3/10'' - 11 3/10'' | 14'' | 10 1/8'' | 1 3/16'' |



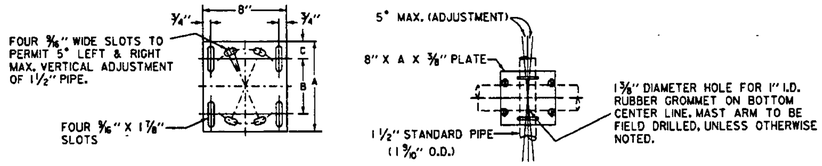




PLATE DETAIL

1. ALTERNATE METHODS FOR RIGID MOUNTING OF SIGNALS TO MAST ARMS MAY BE USED. SHOP DRAWINGS FOR THE ALTERNATE METHOD HARDWARE SHALL BE SUBMITTED TO THE TRAFFIC DESIGN SECTION VIA THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.
2. ALL RIGIDLY MOUNTED TRAFFIC AND PEDESTRIAN SIGNALS SHALL BE PROVIDED WITH REINFORCEMENT PLATES AT THE ATTACHMENT POINTS.
3. ALL NUTS, BOLTS AND WASHERS SHALL BE STAINLESS STEEL.
4. ALL OTHER MOUNTING BRACKET MATERIALS SHALL BE GALVANIZED STEEL.

**MAST ARM MOUNTING DETAILS FOR FIXED MOUNT TRAFFIC SIGNALS**
**( PREFERRED METHOD )**

**OTHER STDS. REQUIRED** E - 170 , E - 171A , E - 171B

REVISIONS AND CORRECTIONS

NOV. 17, 1993 - DATE OF ORIGINAL ISSUE

AUG. 9, 1995 - ADDED PED. PUSH BUTTON ACCESSIBILITY DETAIL, REMOVED GENERAL CANTILEVER DETAIL, MINOR CORRECTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

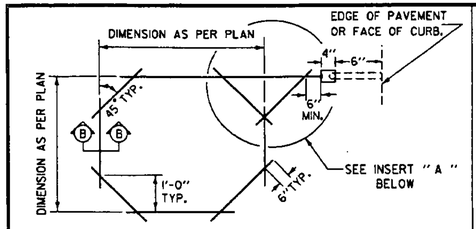
TRAFFIC AND SAFETY ENGINEER

# TRAFFIC CONTROL SIGNALS
# CANTILEVER MOUNTING DETAILS
# PED. PUSH BUTTON ACCESSIBILITY DETAIL

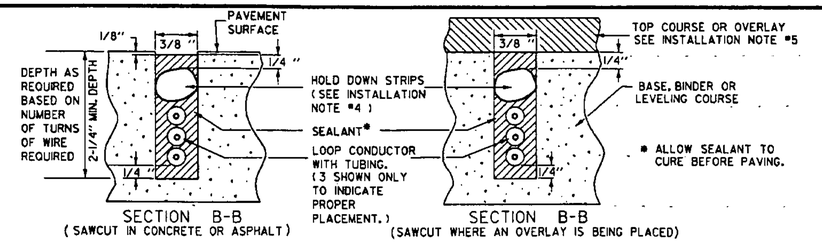
/traf/std/stdel71c.dgn - stdel71c.l

VERMONT AGENCY OF TRANSPORTATION

STANDARD
E-171C




**VEHICLE DETECTOR LOOP LAYOUT DETAIL**




**LOOP SAWCUT DETAIL**

## GENERAL NOTES

1. THE TERM "VEHICLE DETECTOR LOOP" SHALL REFER TO THE SENSOR EQUIPMENT EMBEDDED IN THE PAVEMENT WHICH SENSES VEHICLE PASSAGE OR PRESENCE. THE TERM "CABINET AMPLIFIER" SHALL REFER TO THE ELECTRICAL OR ELECTRONIC DEVICE LOCATED IN THE CONTROLLER CABINET WHICH RESPONDS DIRECTLY TO A VEHICLE ACTUATION AND INTERFACES WITH THE CONTROLLER.
2. WHEN THE DISTANCE FROM THE SAWCUT TO THE CONTROLLER EXCEEDS 25 FEET, SHIELDED CABLE SHALL BE USED TO EXTEND LOOP LEAD-INS FROM A JUNCTION BOX, PULLBOX OR POLE BASE TO THE CABINET. IT SHALL MEET THE REQUIREMENTS OF ISMA SPEC. NO. 50-2.
3. VEHICLE DETECTOR LOOP SHALL BE INSTALLED IN SUCH A WAY AS TO MAXIMIZE SENSITIVITY AND BE CAPABLE OF DETECTING MOTORCYCLES AND BICYCLES, WHILE ELIMINATING FALSE CALLS FROM VEHICLES IN ADJACENT LANES. LOOPS SHOULD BE DESIGNED SO THAT THE TOTAL INDUCTANCE ( LOOP(S) PLUS LEAD-IN(S) ) AT THE AMPLIFIER IS BETWEEN 100 AND 450 MICROHENRIES ( 200-300 PREFERRED ). FOR SINGLE LOOPS, THE LOOP INDUCTANCE SHOULD BE AT LEAST TWICE THAT OF THE LEAD-IN. FOR MULTIPLE LOOPS, THE INDUCTANCE ON THE STREET SIDE OF THE SPLICE SHOULD BE AT LEAST TWICE THAT ON THE CONTROLLER SIDE.
4. THE LOOPS SHALL BE CENTERED IN THEIR RESPECTIVE LANES, UNLESS OTHERWISE NOTED.
5. ALL LOOPS SHALL OPERATE IN THE PRESENCE MODE WITH THE CONTROLLER SET TO LOCKING MEMORY FOR "LEFT-ONLY" OR "THRU-ONLY" LANES. ALL OTHER LANES SHALL UTILIZE NON-LOCKING MEMORY, UNLESS OTHERWISE NOTED.
6. ALL LOOPS IN "RIGHT TURN ONLY" LANES OR LOOP PLACED TO DETECT ONLY RIGHT TURNING VEHICLES SHALL HAVE DELAYED CALL LOOP AMPLIFIERS, UNLESS OTHERWISE NOTED.
7. ALL LOOP DETECTORS SHALL BE OF A TYPE THAT FAIL IN THE "ON" MODE.
8. ALL LOOP AND LEAD-IN WIRE SHALL BE #12 AWG. THE RESISTANCE OF #12 AWG IS 1.62 OHMS / 1000' AT 77° F.
2. ALL LOOP WIRES SHALL BE INSTALLED IN PVC TUBING. THE TUBING ENDS SHALL BE SEALED USING LOOP SEALANT PRIOR TO INSTALLATION IN THE SAWCUT.
3. BEFORE LAYING IN THE LOOP WIRE, A ONE-QUARTER INCH BEAD OF SEALANT SHALL BE PLACED IN THE SAWCUT AND ALLOWED TO SET UP SUFFICIENTLY TO GIVE THE WIRE SOME SUPPORT. EACH WIRE SHALL BE EASED INTO THE SAWCUT WITH A BLUNT WOODEN STICK.
4. THE LOOP WIRES SHALL BE HELD IN PLACE DURING INSTALLATION BY SHORT STRIPS OF POLYETHYLENE FOAM SEALANT BACKERS. THE STRIPS SHALL BE ABOUT 2" LONG AND PLACED EVERY 2 FEET. THEY ARE TO REMAIN IN PLACE WHEN THE SLOT IS SEALED.
5. VEHICLE DETECTOR LOOPS SHALL BE PLACED IN SAWCUTS IN THE PAVEMENT COURSE IMMEDIATELY BELOW THE WEARING SURFACE AND PAVED OVER WHENEVER POSSIBLE. IF THE WEARING SURFACE IS MORE THAN 1-3/4" IN DEPTH, THE SAWCUT SHALL BE MADE AFTER THE WEARING SURFACE IS PLACED. IF PAVING IS NOT PART OF THE PROJECT, THE SAWCUT SHALL BE MADE IN EXISTING PAVEMENT.
6. WHEN LOOP WIRES ARE PLACED BELOW THE WEARING SURFACE, THE SEALANT SHALL BE PROPERLY CURED BEFORE THE FINAL PAVEMENT IS PLACED.
7. LOOP LEAD-INS FROM ADJACENT LOOPS ACTUATING DIFFERENT PHASES SHALL BE IN SEPARATE SAWCUTS AND CONDUITS TO THE PULLBOX OR POLE BASE.
8. LOOP LEAD-INS SHALL BE KEPT AT LEAST ONE FOOT AWAY FROM POWER WIRING, WHENEVER POSSIBLE.
9. ALL ELECTRICAL WORK AND MATERIALS SHALL MEET THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.
10. LOOP WIRES FROM EACH LOOP AND/OR APPROACH SHALL BE COLOR CODED OR OTHERWISE IDENTIFIED AT EACH PULLBOX OR JUNCTION BOX, IN THE POLE BASE(S) AND AT THE TERMINAL BOARD IN THE CONTROLLER CABINET. FOLLOWING INSTALLATION, THE CONTRACTOR SHALL SUPPLY 2 COPIES OF A SCHEMATIC SHOWING THE FOLLOWING INFORMATION.
    1. NUMBER OF TURNS.
    2. DIMENSIONS FOR EACH LOOP.
    3. LOOP LEAD-IN ROUTING FROM THE SAWCUT TO THE CONTROLLER.
    4. TYPE OF CONNECTIONS AT EACH SPLICE (SERIES, PARALLEL OR SERIES-PARALLEL).

ONE COPY SHALL BE LEFT IN THE CONTROLLER CABINET AND THE OTHER GIVEN TO THE TRAFFIC SHOP OR LOCAL OFFICIAL RESPONSIBLE FOR THE SIGNAL MAINTENANCE.

## LONG LOOPS

### LOOP INDUCTANCE DESIGN TABLE

LOOP INDUCTANCE ( MICROHENRIES )

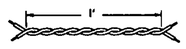
| LENGTH OF LOOP (FEET) | WIDTH OF LOOP: 6 FEET | | | 8 FEET | | |
|---|---|---|---|---|---|---|
| | 1 TURN | 2 TURNS | 3 TURNS | 1 TURN | 2 TURNS | 3 TURNS |
| 10 | - | 98 | 206 | - | 104 | 218 |
| 15 | - | 138 | 291 | - | 144 | 303 |
| 20 | - | 178 | 376 | - | 184 | 388 |
| 25 | - | 218 | 461 | - | 224 | 473 |
| 30 | - | 258 | 545 | - | 264 | 558 |
| 35 | - | 298 | - | - | 304 | - |
| 40 | 106 | 338 | - | 108 | 344 | - |
| 45 | 118 | 378 | - | 120 | 384 | - |
| 50 | 131 | 418 | - | 133 | 424 | - |
| 55 | 143 | 458 | - | 145 | 464 | - |
| 60 | 156 | 498 | - | 158 | 504 | - |
| 65 | 168 | 538 | - | 170 | 544 | - |
| 70 | 181 | 578 | - | 183 | 584 | - |

NOTE:

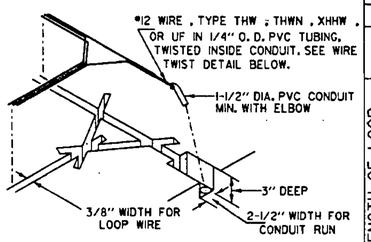
1. THE ABOVE INDUCTANCES ARE ESTIMATED VALUES USING THE FOLLOWING EQUATIONS.

    1 TURN = ( PERIMETER X 0.5 ) + ( LOOP LENGTH X 1.5 )
    2 TURN = ( PERIMETER X 1.5 ) + ( LOOP LENGTH X 5.0 )
    3 TURN = ( PERIMETER X 3.0 ) + ( LOOP LENGTH X 11.0 )

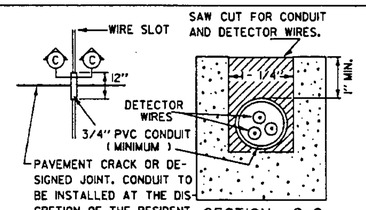
2. SEE NOTES # 1 & 3 UNDER THE RECTANGULAR LOOP TABLE.




**WIRE TWIST DETAIL**




**INSERT "A" LAYOUT DETAIL**




**DETECTOR WIRE ACROSS CRACKS OR JOINTS**

## RECTANGULAR LOOPS

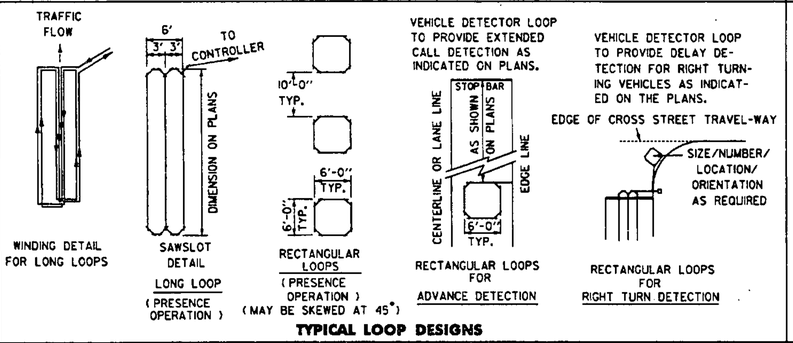
### LOOP INDUCTANCE DESIGN TABLE

| LENGTH OF LOOP (FEET) | WIDTH OF LOOP: 4 FEET | 6 FEET | 8 FEET | 10 FEET | LOOP PERIMETER (FT.) | LOOP INDUCTANCE (MICROHENRIES): 2 TURNS K=.42 | 3 TURNS K=.38 | 4 TURNS K=.36 | 5 TURNS K=.33 |
|---|---|---|---|---|---|---|---|---|---|
| | 8 | 6 | - | - | 24 | 40 | 82 | 138 | 198 |
| | 10 | 8 | - | - | 28 | 47 | 96 | 161 | 231 |
| | 12 | 10 | 8 | - | 32 | 54 | 109 | 184 | 264 |
| | 14 | 12 | 10 | - | 36 | 60 | 123 | 207 | 297 |
| | 16 | 14 | 12 | 10 | 40 | 67 | 137 | 230 | 330 |
| | 18 | 16 | 14 | 12 | 44 | 74 | 151 | 254 | 367 |
| | 20 | 18 | 16 | 14 | 48 | 81 | 164 | 277 | 396 |
| | 22 | 20 | 18 | 16 | 52 | 87 | 178 | 300 | 429 |
| | 24 | 22 | 20 | 18 | 56 | 94 | 192 | 323 | 462 |
| | 26 | 24 | 22 | 20 | 60 | 101 | 205 | 346 | 495 |
| | 28 | 26 | 24 | 22 | 64 | 108 | 219 | 369 | - |
| | 30 | 28 | 26 | 24 | 68 | 114 | 232 | 392 | - |
| | 32 | 30 | 28 | 26 | 72 | 121 | 246 | 415 | - |
| | 34 | 32 | 30 | 28 | 76 | 128 | 260 | 438 | - |
| | 37 | 35 | 33 | 31 | 82 | 138 | 280 | 472 | - |
| | 42 | 40 | 38 | 36 | 92 | 155 | 315 | 530 | - |

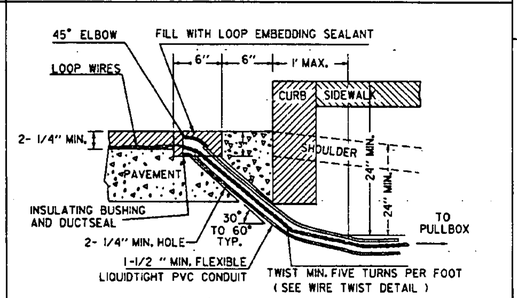
NOTE :

1. TO THE ABOVE LOOP INDUCTANCES, ADD 25 MICROHENRIES FOR EACH 100 FEET OF LEAD-IN CABLE FROM THE PAVEMENT LOOP TO THE CONTROLLER CABINET. LOOP LEAD-IN LENGTH SHALL NOT EXCEED 750 FEET.
2. THE FORMULA USED FOR THE TABLE ABOVE IS INDUCTANCE (L) = $KPN^2$ WHERE $K = \frac{5}{10+N}$, N = NO. OF TURNS, P = LOOP PERIMETER.
3. WHEN LOOPS ARE CONNECTED IN SERIES (PREFERRED FOR SMALL LOOPS), THE TOTAL INDUCTANCE BECOMES THE SUM OF ALL INDUCTANCES. WHEN LOOPS ARE CONNECTED IN PARALLEL ( PREFERRED FOR LONG LOOPS ), THE COMBINED INDUCTANCE CAN BE CALCULATED FROM THE FOLLOWING EQUATION.

$$L_P = \left[\frac{1}{\frac{1}{L_1}+\frac{1}{L_2}+\frac{1}{L_3}+\ldots}\right] + \text{LOOP LEAD-IN INDUCTANCES.}$$




**TYPICAL LOOP DESIGNS**




**CONDUIT DETAIL FOR LOOP LEAD-IN TO CONTROLLER / PULL BOX**

## CONDUIT FILL DESIGN VALUES

| AVAILABLE CONDUIT AREA | | | CONDUCTOR SIZE TABLE | | | | | |
|---|---|---|---|---|---|---|---|---|
| SIZE I.D. | SIZE O.D. | 26 % FILL (IN 2) | NUMBER OF CONDUCTORS | CROSS SECTIONAL AREA (IN²) | GAUGE #14 | #12 | #10 | #8 | #6 |
| 1" | 1.315 | 0.23 | | | | | | | |
| 1-1/4" | 1.660 | 0.39 | 1 | .021 | .025 | .031 | .060 | .082 | |
| 1-1/2" | 1.900 | 0.53 | 2 | .093 | .129 | | | | |
| 2" | 2.375 | 0.87 | 5 | .142 | .200 | | | | |
| 2-1/2" | 2.875 | 1.24 | 7 | .170 | .260 | | CALCULATE AS REQUIRED | | |
| 3" | 3.500 | 1.92 | 9 | .297 | .413 | | | | |
| 3-1/2" | 4.000 | 2.57 | 12 | .317 | .436 | | | | |
| 4" | 4.500 | 3.31 | 16 | .402 | .601 | | | | |
| | | | 19 | .425 | .658 | | | | |

## LOOP TESTING

DURING INSTALLATION OF THE LOOPS, THE CONTRACTOR SHALL MEASURE THE LOOP INDUCTANCE, LEAKAGE TO GROUND AND LOOP RESISTANCE IN THE PRESENCE OF THE RESIDENT ENGINEER. THE CONTRACTOR SHALL PROVIDE THE APPROPRIATE EQUIPMENT. THE INSTALLATION SHALL BE CONSIDERED ACCEPTABLE IF:

1. THE INDUCTANCE READING IS WITHIN 10% ± OF THE CALCULATED VALUE.
2. THE INSULATION TEST (LEAKAGE TO GROUND) IS ABOVE 5 MEGOHMS FOR EXISTING LOOPS AND 100 MEGOHMS FOR NEW LOOPS USING A 500 VOLT DC INPUT.
3. THE LOOP RESISTANCE IS WITHIN 25% ± OF THE CALCULATED VALUE.

IF THE READINGS FALL OUTSIDE THE ABOVE RANGES, CORRECTIVE MEASURES MAY BE REQUIRED AND THE ENGINEER SHALL NOTIFY THE TRAFFIC AND SAFETY DIVISION. THE COST OF TESTING THE LOOPS AND ANY NECESSARY CORRECTIONS SHALL BE SUBSIDIARY TO THE ITEM "VEHICLE DETECTOR LOOP". THE CALCULATED VALUES SHALL BE SHOWN ON THE PLANS. LOOP TESTING IS NOT REQUIRED FOR TEMPORARY LOOPS.

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
NOV. 17 1993 - MAJOR NOTE & TABLE REVISIONS
AUG. 9, 1995 - REVISED INSTALLATION NOTES 5 & 6. TYP. LOOP DESIGN & MINOR CHANGES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Standard S. MacArthur
DIRECTOR OF ENGINEERING

David A. Ross
TRAFFIC AND SAFETY ENGINEER

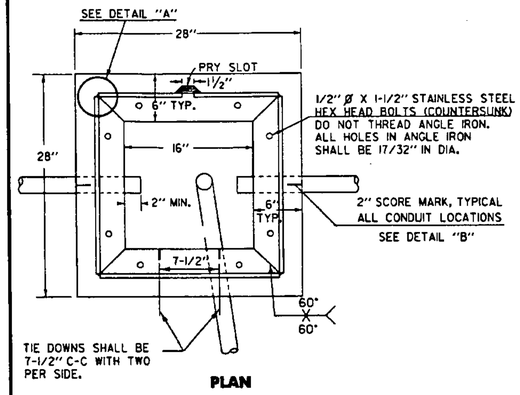
# VEHICLE DETECTOR LOOP DETAILS

/traf/std/stdel72.dgn - stdel72.i

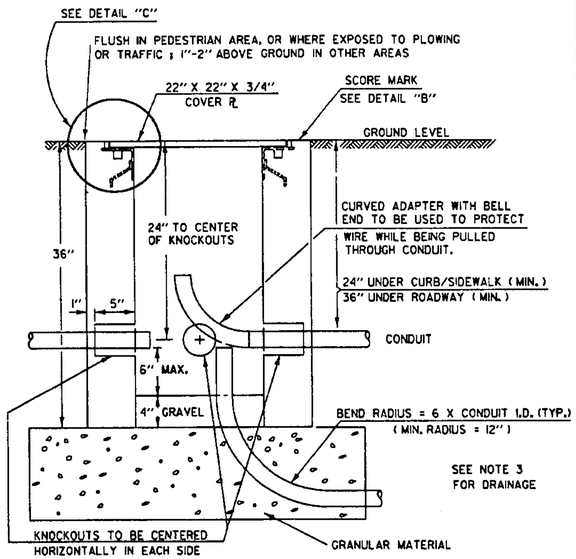
OTHER STDS. REQUIRED: NONE

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-172

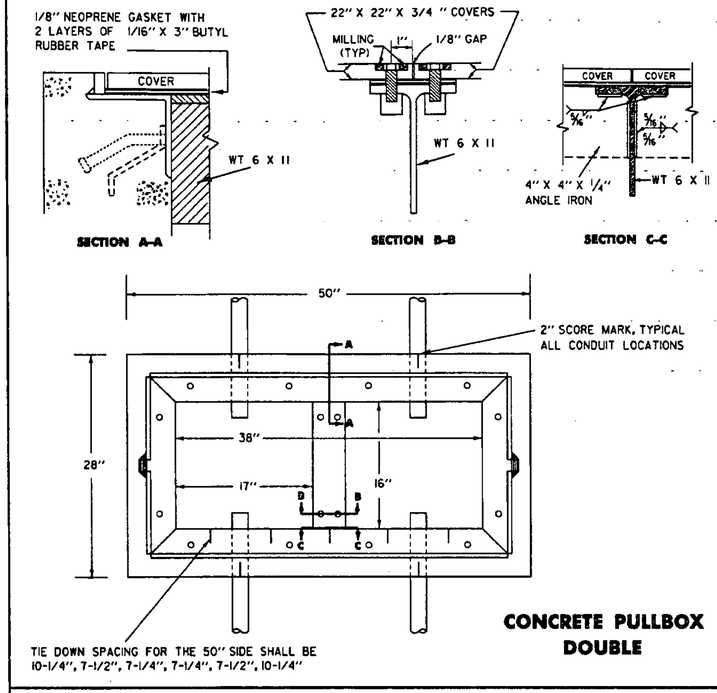



**PLAN**

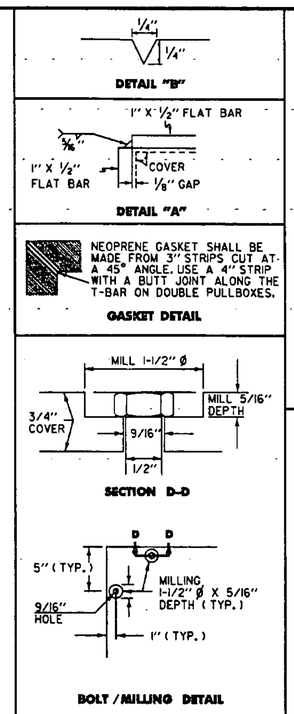


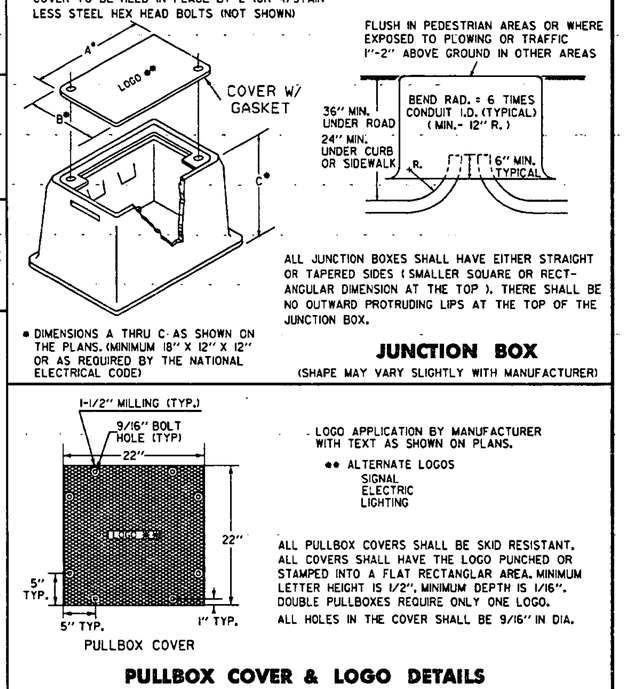

**ELEVATION**

## CONCRETE PULLBOX STANDARD




## CONCRETE PULLBOX DOUBLE




* DIMENSIONS A THRU C AS SHOWN ON THE PLANS. (MINIMUM 18" X 12" X 12" OR AS REQUIRED BY THE NATIONAL ELECTRICAL CODE)

ALL JUNCTION BOXES SHALL HAVE EITHER STRAIGHT OR TAPERED SIDES ( SMALLER SQUARE OR RECTANGULAR DIMENSION AT THE TOP ). THERE SHALL BE NO OUTWARD PROTRUDING LIPS AT THE TOP OF THE JUNCTION BOX.

## JUNCTION BOX

(SHAPE MAY VARY SLIGHTLY WITH MANUFACTURER)




PULLBOX COVER

\- LOGO APPLICATION BY MANUFACTURER WITH TEXT AS SHOWN ON PLANS.

** ALTERNATE LOGOS
SIGNAL
ELECTRIC
LIGHTING

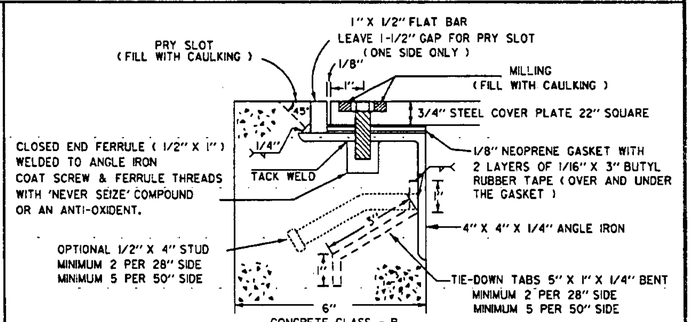
ALL PULLBOX COVERS SHALL BE SKID RESISTANT. ALL COVERS SHALL HAVE THE LOGO PUNCHED OR STAMPED INTO A FLAT RECTANGLAR AREA. MINIMUM LETTER HEIGHT IS 1/2", MINIMUM DEPTH IS 1/16". DOUBLE PULLBOXES REQUIRE ONLY ONE LOGO.

ALL HOLES IN THE COVER SHALL BE 9/16" IN DIA.

## PULLBOX COVER & LOGO DETAILS

## PULLBOX & JUNCTION BOX NOTES

1. ALL PULLBOXES SHALL BE CONSTRUCTED WITH CONCRETE, CLASS B.
2. CONDUIT SIZE AS SHOWN ON THE PLANS.
3. EXCAVATION FOR THE UNITS SHALL INCLUDE EXCAVATION OF AN AREA ONE FOOT OUTSIDE THE UNITS AND EXTENDING ONE FOOT BELOW THE FINISH GRADE OF THE BOTTOM OF THE UNITS. ONE FOOT OF GRANULAR MATERIAL SHALL BE PLACED IN THE EXCAVATED AREA AND PROPERLY COMPACTED PRIOR TO INSTALLATION. WHERE NECESSARY AND AT THE DISCRETION OF THE ENGINEER, A DRAINAGE PIPE (MINIMUM 3'' PERFORATED PVC) SHALL BE PROVIDED FROM THE UNIT TO THE NEAREST APPROPRIATE OUTLET. DRAINAGE WORK SHALL NOT BE PAID DIRECTLY, BUT WILL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
4. ALL EXPOSED METAL HARDWARE, INCLUDING PULLBOX COVERS, FRAMES & ANGLES, SHALL BE GALVANIZED OR STAINLESS STEEL.
5. ALL CONDUIT SHALL ENTER JUNCTION BOXES FROM THE BOTTOM, NOT THROUGH THE SIDE WALL.
6. CONDUITS SHALL NOT ENTER DOUBLE PULLBOXES, DIRECTLY UNDER THE "T" BAR.
7. THE PRY SLOT AND THE COVER GAPS SHALL BE FILLED WITH CAULKING JUST PRIOR TO PROJECT COMPLETION.
8. WHEN INSTALLED ON SLOPES, PULLBOXES AND JUNCTION BOXES SHALL BE TIPPED TO MATCH THE EXISTING SLOPE UP TO A 1 ON 4 SLOPE. ON STEEPER SLOPES, THEY SHALL BE INSTALLED AS ON A 1 ON 4 SLOPE. A SUFFICIENT AMOUNT OF THE EXCAVATED MATERIAL SHALL BE USED TO SHAPE AROUND THE LOW SIDE OF THE BOX SUCH THAT THE MAXIMUM EXPOSURE IS 2''. THE MATERIAL SHALL BE TAPERED OVER AN AREA EXTENDING ABOUT 5' FROM THE BOX. IF SUFFICIENT MATERIAL IS NOT AVAILABLE, MATERIAL MEETING THE REQUIREMENTS OF EARTH BORROW (SUBSECTION 703.02) SHALL BE USED. PAYMENT SHALL BE CONSIDERED PART OF THE PULLBOX OR JUNCTION BOX ITEM.
9. ALL COVERS SHALL BE FLUSH WITH THE BOXES AND FRAMES.
10. ALL CONDUITS ENTERING A PULLBOX OR JUNCTION BOX SHALL HAVE BUSHINGS TO PROTECT THE CABLES.




**DETAIL "C"**

**OTHER STDS. REQUIRED** NONE

### REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
APRIL 1, 1989 - REVISED COVER DIMENSIONS
MAY 26, 1989 - FHWA COMMENTS
NOV. 17, 1993 - MAJOR REVISIONS, STANDARDIZATION OF PULLBOX COVERS
AUG. 9, 1995 - REVISED NOTE 8, CHANGED LOGO OPTIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

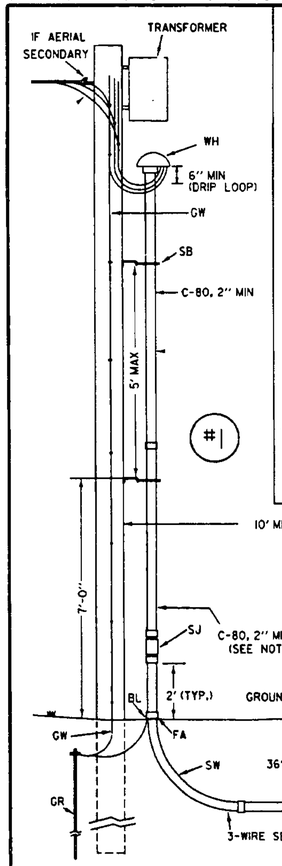
David A. Ross
TRAFFIC AND SAFETY ENGINEER

# PULLBOXES AND JUNCTION BOXES

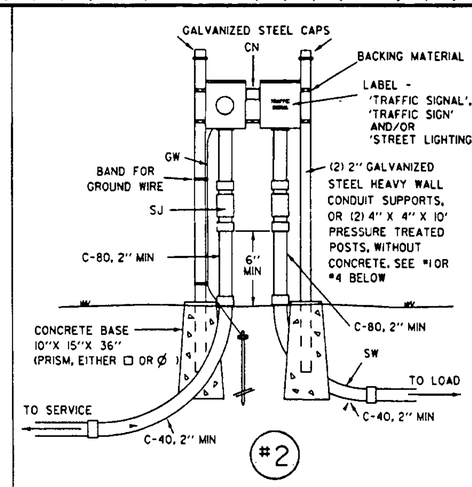
/traf/std/stdel73.dgn - stdel73.1

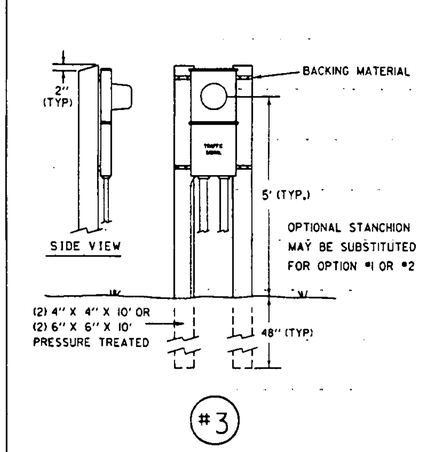
VERMONT AGENCY OF TRANSPORTATION

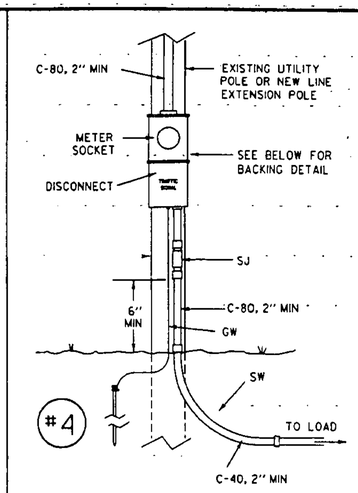
STANDARD
E-173

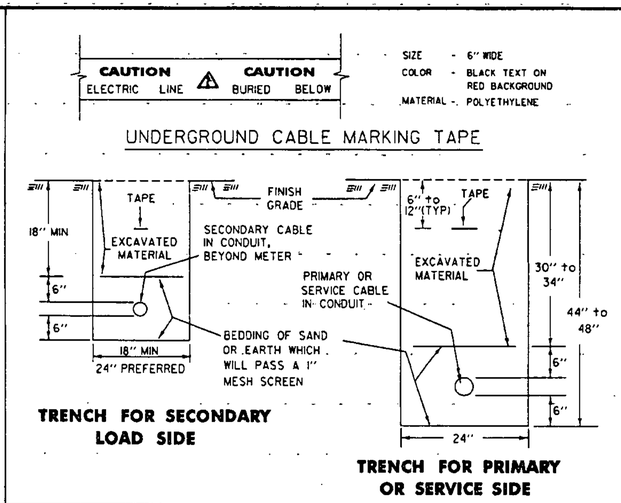



**UTILITY POLE** **STANCHION**



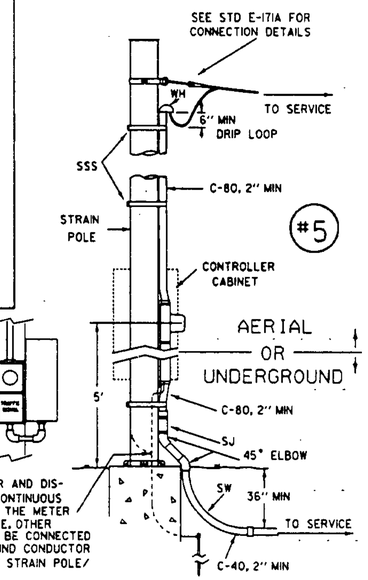



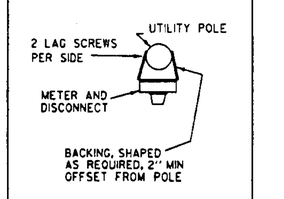

**TRENCH FOR SECONDARY LOAD SIDE**

**TRENCH FOR PRIMARY OR SERVICE SIDE**

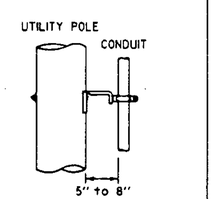
| LEGEND | |
|---|---|
| ITEM | MATERIAL |
| BL | BONDING LUG (IF STEEL CONDUIT) |
| C-40 | CONDUIT - PVC SCHEDULE 40 |
| C-80 | CONDUIT - PVC SCHEDULE 80 |
| CN | CONDUIT NIPPLE |
| FA | FEMALE ADAPTER OR COUPLINGS AS REQUIRED |
| GR | GROUND ELECTRODE, ⅝" X 8' (MIN) COPPER CLAD (2 REQ.) |
| GW | GROUND CONDUCTOR, #6 AWG CU (MIN) |
| SB | STANDOFF BRACKET (SEE DETAIL) |
| SJ | SLIP JOINT, INSTALL 2/3 OPEN |
| SSS | STAINLESS STEEL STRAP (1" MIN) |
| SW | 90° SWEEPS, (PVC) 36" R. - SERVICE, 24" R. - LOAD |
| TB | THREADED BUSHING |
| WH | WEATHERHEAD OR CONDULATOR |




**DIRECT SERVICE TO STRAIN POLE**

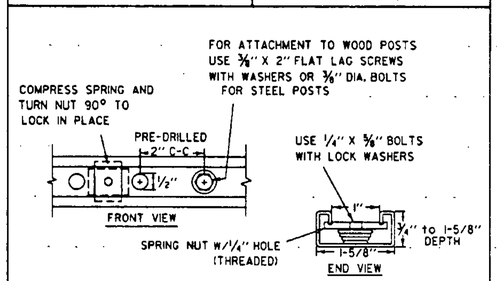



**BACKING FOR OPTION #4**




**STANDOFF BRACKET**

USUALLY FURNISHED BY THE UTILITY COMPANY




**BACKING MATERIAL DETAIL**

ALL MATERIAL & HARDWARE TO BE GALVANIZED

## NOTES

**THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITY COMPANY AND ADHERE TO ANY EQUIPMENT, PROCEDURE AND CRITERIA VARIATIONS WHICH PERTAIN. SEE SPECIAL PROVISIONS FOR THE UTILITY CONTACT. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER ALL SPECIFIC INFORMATION CONCERNING UTILITY REQUIREMENTS PRIOR TO THE PRECONSTRUCTION MEETING OR THE START OF WORK, WHICHEVER IS FIRST.**

1. ALL CONSTRUCTION MUST COMPLY WITH THE NATIONAL ELECTRICAL CODE AND UTILITY COMPANY REQUIREMENTS.
2. STANCHIONS MUST BE PLACED OUTSIDE THE CLEAR ZONE OR THEY MUST BE PROTECTED BY GUARDRAIL. THE LOCATION OF STANCHIONS MUST BE APPROVED BY THE UTILITY COMPANY PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MATERIALS, EXCEPT FOR STANDOFF BRACKETS WHICH ARE USUALLY FURNISHED AND INSTALLED BY THE UTILITY COMPANY. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL MATERIALS, EXCEPT THOSE ATTACHED TO THE UTILITY POLE. ALL MATERIAL AND INSTALLATION COSTS FOR THE POWER SERVICE, EXCEPT FOR THE WIRED CONDUIT, SHALL BE CONSIDERED PART OF THE TRAFFIC SIGNAL, STREET LIGHTING OR SIGN ITEM, WHICHEVER IS APPLICABLE.
4. ALL EXPOSED METAL EQUIPMENT MUST BE GROUNDED.
5. ATTACH CONDUIT ON THE SIDE OF THE POLE OR STANCHION AWAY FROM TRAFFIC. CONTACT THE LOCAL UTILITY COMPANY FOR FINAL PLACEMENT.
6. MATERIALS AND DIMENSIONS APPLY TO ALL STANCHIONS.
7. IN RURAL AREAS, WITH THE PERMISSION OF THE UTILITY COMPANY, THE METER AND THE DISCONNECT MAY BE INSTALLED ON AN EXISTING UTILITY POLE. SEE OPTION #4.
8. OPTION #1, #2, #3 OR #5 MAY BE USED IN URBAN AREAS, EITHER RESIDENTIAL OR COMMERCIAL, OR AS DETERMINED BY THE UTILITY AND APPROVED BY THE ENGINEER.
9. THE METER AND DISCONNECT SHALL BE ATTACHED THE STANCHION/POLE WITH TWO LENGTHS OF GALVANIZED BACKING MATERIAL.
10. SERVICE CONDUIT SHALL BE MINIMUM 2 INCH. SMALLER CONDUIT MAY BE ALLOWED WITH PRIOR APPROVAL FROM THE UTILITY AND THE ENGINEER AND AFTER CONSULTATION WITH THE TRAFFIC & SAFETY DIVISION.
11. WHEN MORE THAN ONE GROUND ELECTRODE IS REQUIRED, THEY SHALL BE A MINIMUM OF 6' APART.
12. METERS MAY NOT BE REQUIRED BY ALL UTILITY COMPANIES.
13. ALL EXPOSED CONDUIT SHALL BE SCHEDULE 80.

**OTHER STDS. REQUIRED** (WHEN OPTION #5 IS USED) E - 171A

**SEE PLANS FOR OPTION #**

REVISIONS AND CORRECTIONS

NOV. 17, 1993 - DATE OF ORIGINAL ISSUE

APPROVED

Standard B. MacArthur
DIRECTOR OF ENGINEERING

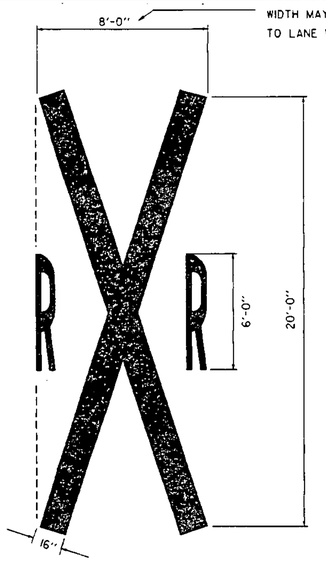
David A. Ross
TRAFFIC AND SAFETY ENGINEER

# POWER DROP STANCHIONS

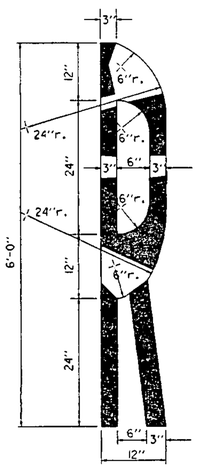
/traf/std/stdel75.dgn - stdel75.i

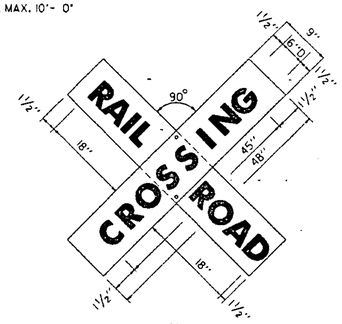
VERMONT AGENCY OF TRANSPORTATION

STANDARD E-175

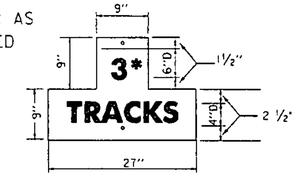



## PAVEMENT MARKINGS

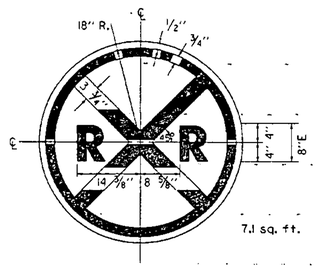



* NUMBER AS REQUIRED




## RAILROAD CROSSING SIGN ( CROSSBUCK )

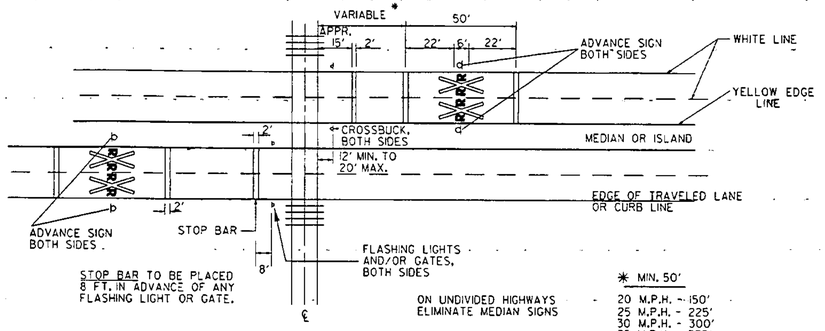



## ADVANCE SIGN

## SIGN MATERIALS AND COLORS

CROSSBUCKS SHALL BE EITHER ⅝" HIGH DENSITY OVERLAY PLYWOOD OR 0.100" ALUMINUM W/SILVER OR WHITE ENCAPSULATED LENS SHEETING, APPLIED TO BOTH SIDES OF SIGN PANELS.

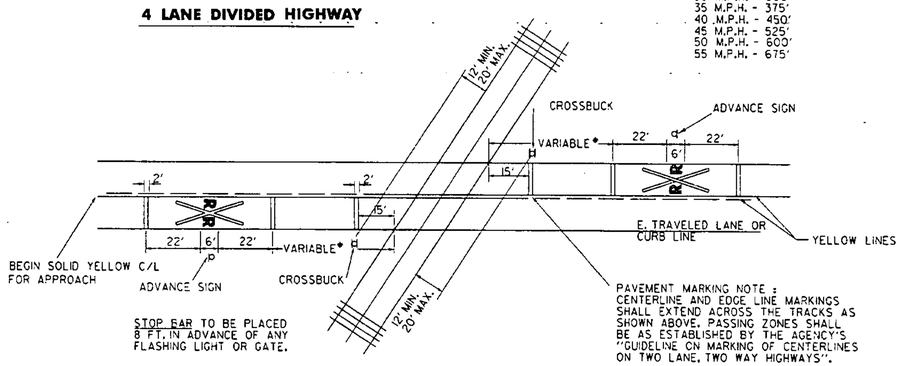
ADVANCE SIGN SHALL BE 0.125" ALUMINUM W/YELLOW REFLECTIVE SHEETING. MULTI-TRACK SIGN SHALL BE 0.06" ALUMINUM W/SILVER OR WHITE REFLECTIVE SHEETING. TEXT, STRIPES AND BORDERS SHALL BE EITHER BLACK PAINTED OR LETTERING FILM.




* MIN. 50'

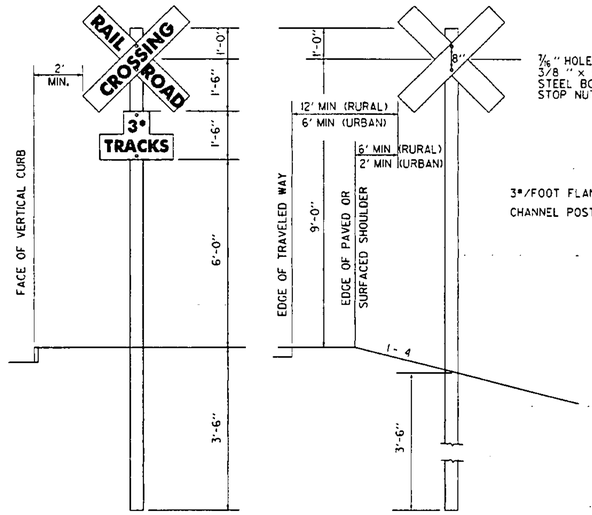
20 M.P.H. - 150'
25 M.P.H. - 225'
30 M.P.H. - 300'
35 M.P.H. - 375'
40 M.P.H. - 450'
45 M.P.H. - 525'
50 M.P.H. - 600'
55 M.P.H. - 675'

## 4 LANE DIVIDED HIGHWAY




## 2 LANE HIGHWAY PAVED

ALSO APPLICABLE TO UNPAVED ROADS FOR PLACEMENT OF CROSSBUCKS AND ADVANCE SIGNS




⅞" HOLES FOR 3/8 " x 5" STAINLESS STEEL BOLTS W/ELASTIC STOP NUTS

3*/FOOT FLANGED CHANNEL POST

## GENERAL NOTES

**1. PAVEMENT MARKINGS**

THESE MARKINGS SHALL BE PLACED, IF PHYSICALLY FEASIBLE, ON ALL PAVED APPROACHES TO RAILROAD CROSSINGS, WHERE THERE ARE SIGNALS AND/OR AUTOMATIC GATE AND AT ALL OTHER CROSSINGS WHERE THE PREVAILING SPEED OF HIGHWAY TRAFFIC IS 40 M.P.H. OR GREATER.

THE MARKINGS SHALL ALSO BE PLACED AT CROSSINGS WHERE ENGINEERING STUDIES INDICATE THERE IS A SIGNIFICANT POTENTIAL CONFLICT BETWEEN VEHICLES AND TRAINS. ALL MARKINGS SHALL BE WHITE EXCEPT FOR MEDIAN EDGELINES AND CENTERLINE ON 2 LANE ROADS WHICH SHALL BE YELLOW. THE RAILROAD CROSSING SYMBOL SHALL CONSIST OF THE "X" FLANKED BY TWO "R" s AND THREE 24' STOP BARS; TWO BRACKETING THE "X", ONE AT THE CROSSING. AT MINOR CROSSINGS OR IN URBAN AREAS, THESE MARKINGS MAY BE OMITTED IF AN ENGINEERING STUDY INDICATES THAT OTHER DEVICES INSTALLED PROVIDE SUITABLE PROTECTION.

**2. CROSSBUCKS**

WHERE PHYSICALLY FEASIBLE AND VISIBLE TO APPROACHING TRAFFIC, THESE SIGNS SHALL BE INSTALLED ON THE RIGHT-HAND SIDE OF THE ROADWAY FOR EACH APPROACH TO THE CROSSING; MULTI-LANE DIVIDED HIGHWAYS SHALL HAVE SIGNS MOUNTED ON BOTH SIDES OF THE ROADWAY APPROACHES.

**3. AUXILIARY SIGNS**

A "NUMBER OF TRACKS" SIGN SHALL BE USED WHERE THERE ARE TWO OR MORE TRACKS AT THE CROSSING.

**4. ADVANCE WARNING SIGNS**

RAILROAD ADVANCE WARNING SIGNS WILL BE PROVIDED AND LOCATED IN ACCORDANCE WITH SECTION 8B-3 OF MUTCD

**THIS SHEET IS NOT TO SCALE**

**OTHER STDS REQUIRED** E-160

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 12, 1988 - REVISE LOCATION OF ADVANCE SIGNS
AUG. 18, 1995 - DELETED ALUMINUM 3" X 3" TUBE

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

Gordon S. MacArthur
DIRECTOR OF ENGINEERING

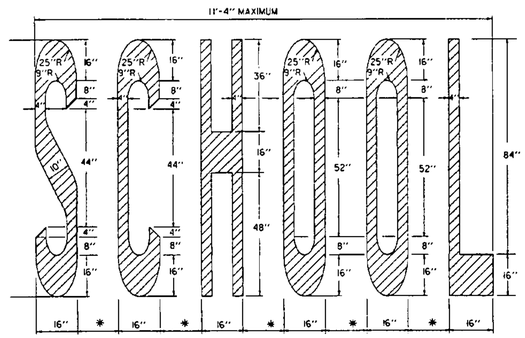
Donald Ross
TRAFFIC AND SAFETY ENGINEER

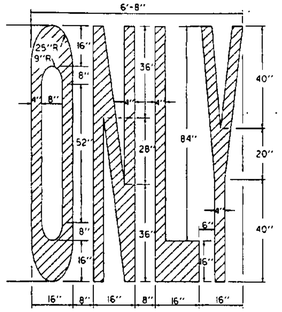
# RAILROAD CROSSING SIGNS AND PAVEMENT MARKINGS

/traf/std/stdel90.dgn/stdel90.i

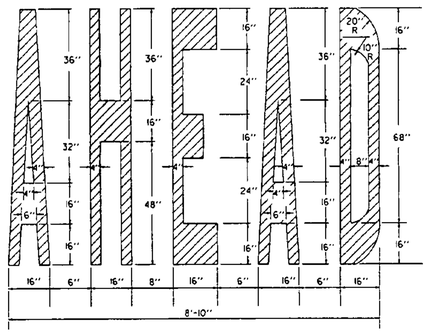
VERMONT AGENCY OF TRANSPORTATION

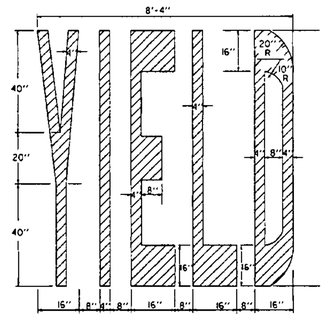
STANDARD
E-190

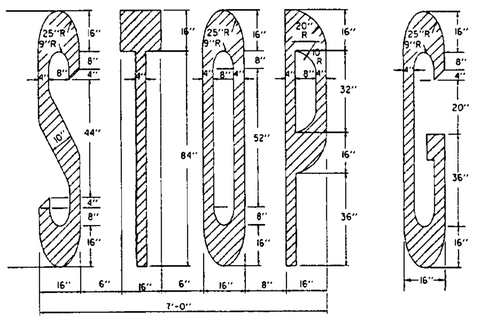



* ( 4"-8" ) - ADJUST TO AVAILABLE PAVEMENT WIDTH



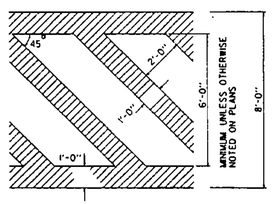




THE LETTER "G" PERTAINS TO THE WORD "SIGNAL" FOR OTHER LETTERS, SEE ABOVE.

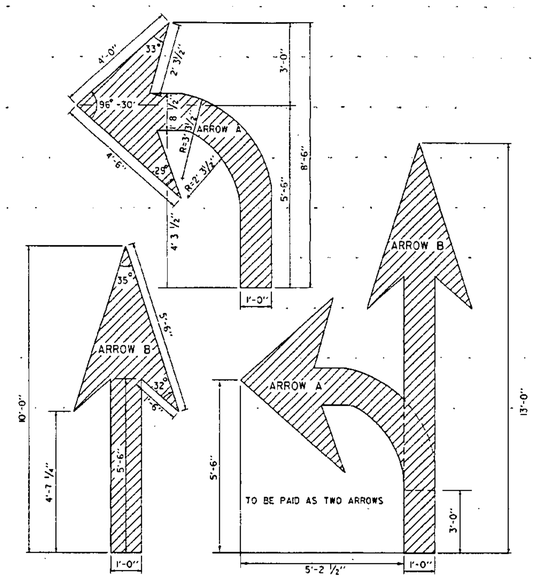
**LETTER HEIGHT**

DIMENSIONS ARE FOR 8' - 4" LETTER HEIGHTS. A LESSER HEIGHT OF 8' - 0" IS ACCEPTABLE AS LONG AS THE DIMENSIONS ARE PROPORTIONAL TO THE DETAILS SHOWN SEE NOTE BELOW.

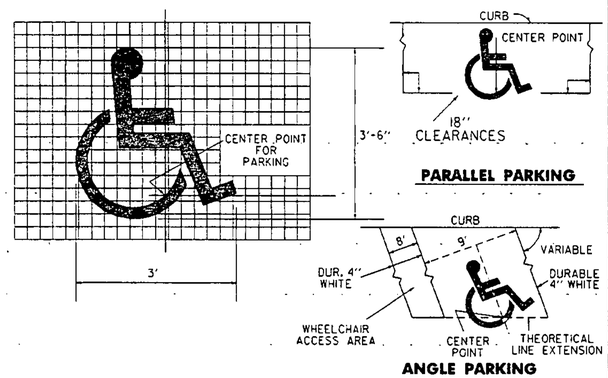



ARROWS AND WORD MARKINGS THAT CONFORM TO THE DIMENSIONS SHOWN ON THIS SHEET OR AS DETAILED IN THE BOOKLET ENTITLED "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (CURRENT EDITION) PREPARED BY THE FEDERAL HIGHWAY ADMINISTRATION WILL BE ACCEPTABLE.

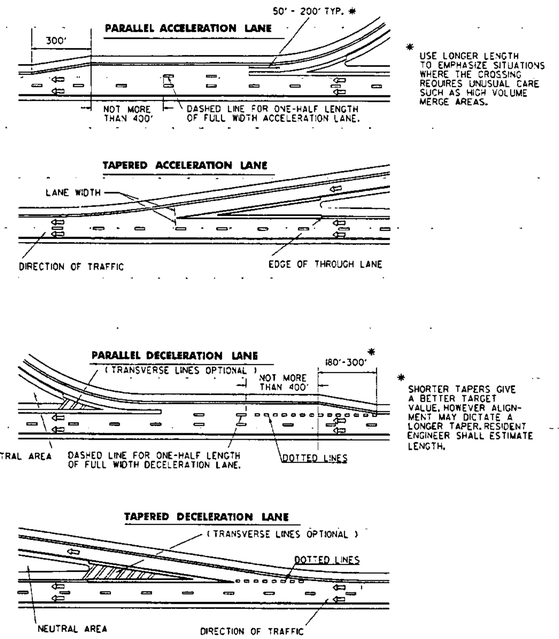
## LETTER IN WORD MARKING AND CROSSWALK DETAILS




## ARROW DETAILS




## HANDICAPPED PAVEMENT MARKING DETAILS

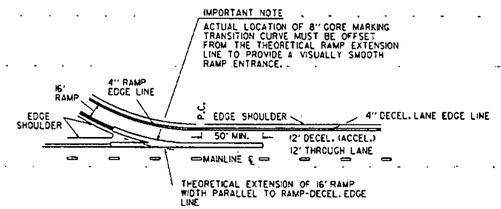



TRANSVERSE LINES SHALL CONSIST OF 8" WHITE LINES SPACED 5'-0" C-C AND SET AT 45° TO MAIN LINE EDGE LINES. THESE MARKINGS SHALL BE USED TO INCREASE VISIBILITY DUE TO DIFFICULT VERTICAL OR HORIZONTAL ALIGNMENT, AS DIRECTED BY THE RESIDENT ENGINEER.

## RAMP MARKINGS

**LEGEND**

- 4" WHITE LINES
- 4" YELLOW LINES
- 8" CHANNELIZATION WHITE LINES
- 4" WHITE DOTTED LINES (2' SOLID - 4' GAP)
- DIRECTION OF TRAFFIC FLOW




## DETAIL - GORE MARKING TRANSITION CURVE

THIS SHEET IS NOT TO SCALE

OTHER STDS. REQUIRED

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
JAN. 23, 1989 - ADDED DOTTED LINES. "SIGNAL" DIMENSIONS, CLARIFIED LETTER HEIGHT.
AUG. 18, 1995 - MISC. NOTE CHANGES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

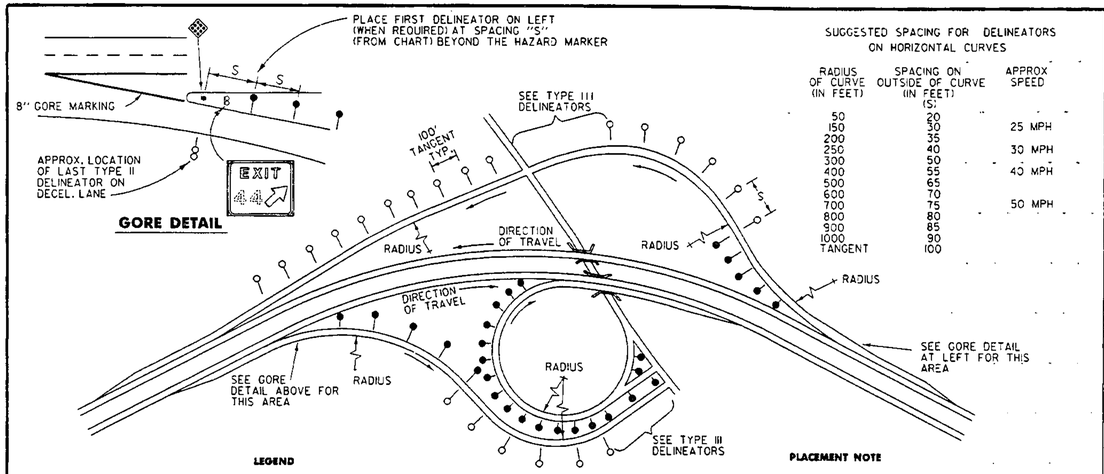
TRAFFIC AND SAFETY ENGINEER

# PAVEMENT MARKING DETAILS

/traf/std/stdet91.dgn/stdet91.1

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-191




SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES

| RADIUS OF CURVE (IN FEET) | SPACING ON OUTSIDE OF CURVE (IN FEET) (S) | APPROX SPEED |
|---|---|---|
| 50 | 20 | |
| 150 | 30 | 25 MPH |
| 200 | 35 | |
| 250 | 40 | 30 MPH |
| 300 | 50 | |
| 400 | 55 | 40 MPH |
| 500 | 65 | |
| 600 | 70 | |
| 700 | 75 | 50 MPH |
| 800 | 80 | |
| 900 | 85 | |
| 1000 | 90 | |
| TANGENT | 100 | |

**LEGEND**

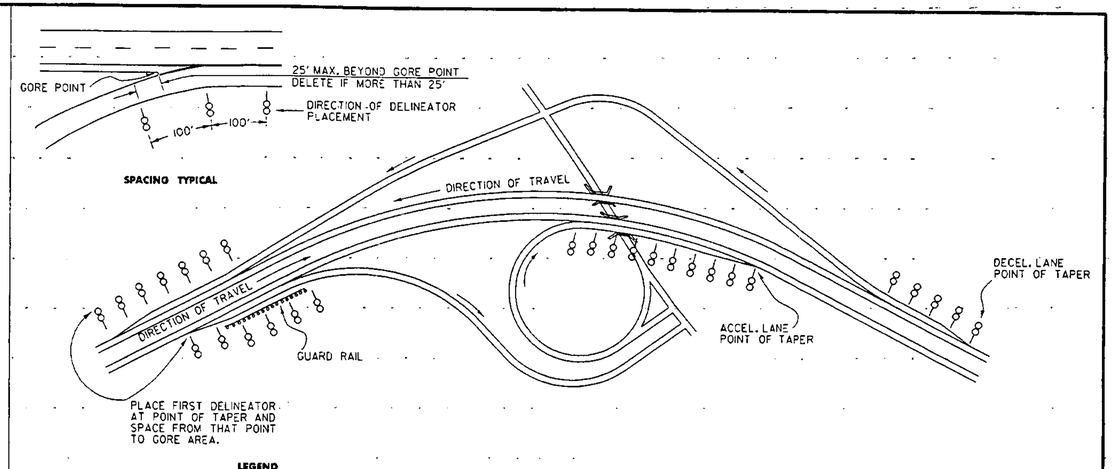
WHITE OR AMBER
RIGHT SIDE — LEFT SIDE

A TYPE I DELINEATOR CONSISTS OF A SINGLE WHITE OR AMBER REFLECTOR BUTTON MOUNTED ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

**TYPE I (RAMPS)**

**PLACEMENT NOTE**

TYPE I DELINEATORS ARE TO BE PLACED ON THE OUTSIDE OF RAMP CURVES AT THE APPROPRIATE SPACING FOR CURVE RADIUS OR RAMP SPEED AS SHOWN ON THE CHART AND PLACED AT 100 FOOT SPACING ON TANGENT ON THE DRIVERS' RIGHT. AMBER DELINEATORS ARE REQUIRED ON THE DRIVERS' LEFT AND WHITE DELINEATORS ON THE RIGHT. DELINEATORS SHALL NOT BE OMITTED BEHIND GUARD RAIL ON THE RAMPS AS IS THE CASE WITH TYPE I DELINEATORS ALONG THE MAIN LINE.




**LEGEND**

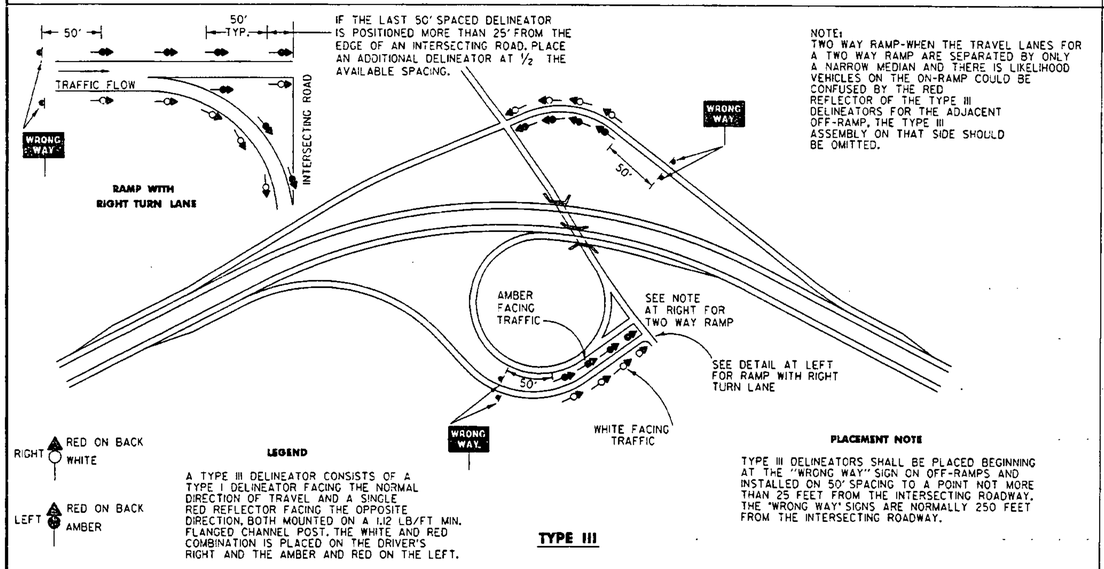
DOUBLE WHITE

A TYPE II DELINEATOR CONSISTS OF TWO WHITE REFLECTOR BUTTONS MOUNTED ONE ABOVE THE OTHER ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST AND IS POSITIONED TO REFLECT TO TRAFFIC APPROACHING FROM THE NORMAL DIRECTION OF TRAVEL.

**TYPE II**

**PLACEMENT NOTE**

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF ACCELERATION AND DECELERATION LANES AT 100 FOOT INTERVALS AND SHALL NOT BE OMITTED BEHIND GUARD RAIL. DELINEATORS SHALL START AT THE BEGINNING POINT OF THE ACCEL. OR DECEL. LANE TAPER, AND END AT THE NOSE OF THE ENTRANCE OR EXIT GORE.




NOTE:
TWO WAY RAMP-WHEN THE TRAVEL LANES FOR A TWO WAY RAMP ARE SEPARATED BY ONLY A NARROW MEDIAN AND THERE IS LIKELIHOOD VEHICLES ON THE ON-RAMP COULD BE CONFUSED BY THE RED REFLECTOR OF THE TYPE III DELINEATORS FOR THE ADJACENT OFF-RAMP, THE TYPE III ASSEMBLY ON THAT SIDE SHOULD BE OMITTED.

RIGHT: RED ON BACK, WHITE
LEFT: RED ON BACK, AMBER

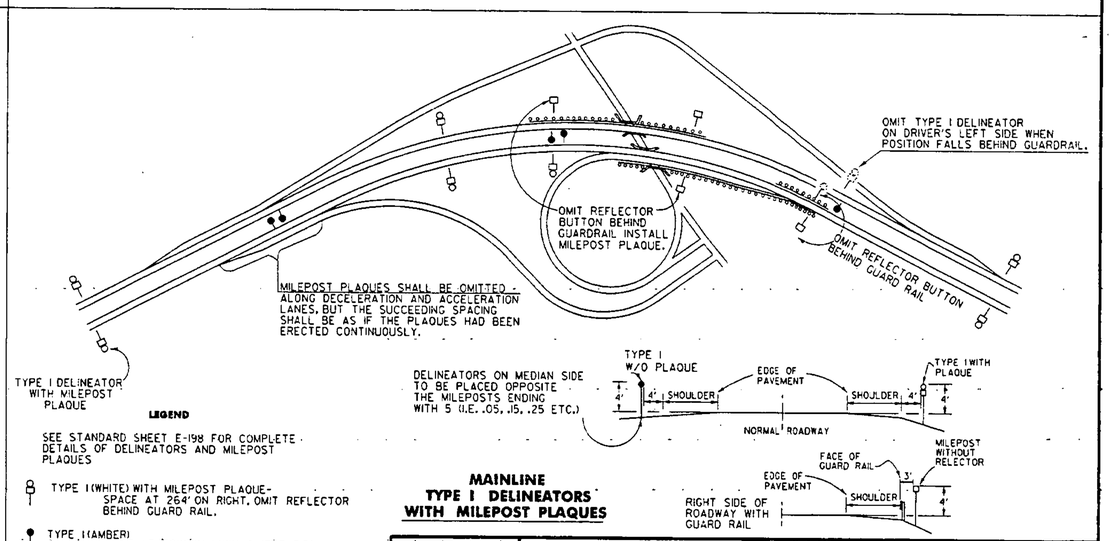
**LEGEND**

A TYPE III DELINEATOR CONSISTS OF A TYPE I DELINEATOR FACING THE NORMAL DIRECTION OF TRAVEL AND A SINGLE RED REFLECTOR FACING THE OPPOSITE DIRECTION. BOTH MOUNTED ON A 1.12 LB/FT MIN. FLANGED CHANNEL POST. THE WHITE AND RED COMBINATION IS PLACED ON THE DRIVER'S RIGHT AND THE AMBER AND RED ON THE LEFT.

**TYPE III**

**PLACEMENT NOTE**

TYPE III DELINEATORS SHALL BE PLACED BEGINNING AT THE "WRONG WAY" SIGN ON OFF-RAMPS AND INSTALLED ON 50' SPACING TO A POINT NOT MORE THAN 25 FEET FROM THE INTERSECTING ROADWAY. THE "WRONG WAY" SIGNS ARE NORMALLY 250 FEET FROM THE INTERSECTING ROADWAY.




**LEGEND**

SEE STANDARD SHEET E-198 FOR COMPLETE DETAILS OF DELINEATORS AND MILEPOST PLAQUES

TYPE I (WHITE) WITH MILEPOST PLAQUE- SPACE AT 264' ON RIGHT. OMIT REFLECTOR BEHIND GUARD RAIL.

TYPE I (AMBER) SPACE AT 528' ON LEFT. OMIT ENTIRE ASSEMBLY BEHIND GUARD RAIL.

DELINEATORS ON MEDIAN SIDE TO BE PLACED OPPOSITE THE MILEPOSTS ENDING WITH 5 (I.E. .05, .15, .25 ETC.)







**MAINLINE TYPE I DELINEATORS WITH MILEPOST PLAQUES**

**THIS SHEET IS NOT TO SCALE**

**OTHER STDS REQUIRED**

REVISIONS AND CORRECTIONS

JAN. 23, 1989 - DATE OF ORIGINAL ISSUE

AUG. 18, 1995 - REVISED NOTES

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

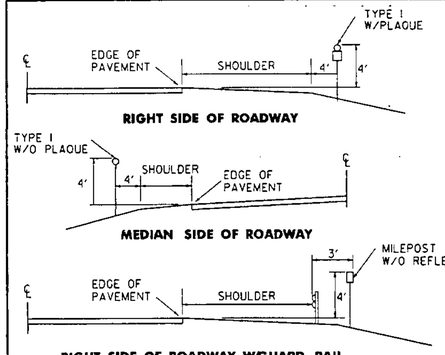
TRAFFIC AND SAFETY ENGINEER

# DELINEATOR PLACEMENT TYPICAL

/traf/std/stdel97.dgn/stdel97.i

VERMONT AGENCY OF TRANSPORTATION

STANDARD E-197



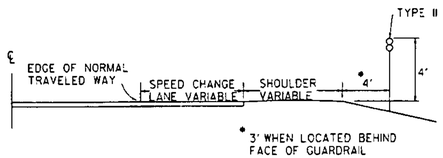

## TYPICAL PLACEMENT OF TYPE I DELINEATORS AND MILEPOSTS ON DIVIDED HIGHWAY

TYPE I DELINEATORS WITH WHITE REFLECTOR UNITS AND THE APPROPRIATE MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DIVIDED HIGHWAYS BETWEEN MILEMARKERS. EXCEPT THAT BEHIND GUARD RAIL MILEPOSTS WITHOUT REFLECTORS SHALL BE ERECTED.

THE TYPE I DELINEATORS WITH OR WITHOUT MILEPOST PLAQUES SHALL BE OMITTED ALONG DECELERATION AND ACCELERATION LANES, BUT THE SUCCEEDING SPACING SHALL BE AS IF THE DELINEATORS HAD BEEN ERECTED CONTINUOUSLY AND SHALL BE SO INDICATED.

THE LOCATION OF TYPE I DELINEATORS AND MILEPOSTS ARE TO BE COMPUTED AND MARKED IN THE FIELD BY THE ENGINEER IN ACCORDANCE WITH THE LATEST REVISION OF THE AGENCY'S "POLICY ON LOCATION MARKING FOR VERMONT DIVIDED HIGHWAYS."

TYPE I AMBER DELINEATORS WITHOUT MILEPOST PLAQUES SHALL BE ERECTED CONTINUOUSLY ALONG THE LEFT OR MEDIAN SIDE ON THE DIVIDED HIGHWAYS EXCEPT BEHIND GUARD RAIL, AND CONTINUED AT APPROXIMATELY THE SAME SPACING THROUGH INTERCHANGES AND REST AREAS WHERE THERE MAY NOT BE ANY TYPE I DELINEATORS ON THE RIGHT SIDE. THE SAME LATERAL PLACEMENT SHALL BE FOLLOWED ON THE LEFT AS ON THE RIGHT. TYPE I DELINEATORS WITHOUT MILEPOST PLAQUE SHALL BE INSTALLED ON INTERSTATE RAMPS AS SHOWN ON THE PLANS.



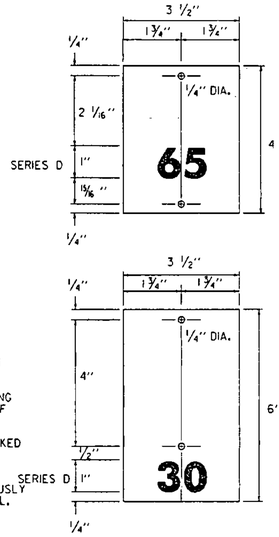

## TYPICAL PLACEMENT OF TYPE II DELINEATORS ON SPEED CHANGE LANES

TYPE II DELINEATORS SHALL BE ERECTED CONTINUOUSLY ALONG THE RIGHT SIDE OF THE DECELERATION AND ACCELERATION LANES AT 100' INTERVALS INCLUDING GUARDRAIL SECTIONS. THE DELINEATORS SHALL START AT THE BEGINING OF THE TAPER AND END AT THE NOSE OF THE EXIT OR ENTRANCE GORE. THEY SHALL HAVE WHITE REFLECTOR UNITS.

## TYPE III DELINEATORS - SEE NOTE # 1

TYPE III DELINEATORS SHALL BEGIN 50' FROM WRONG WAY SIGNS AND EXTEND EVERY 50' TO A POINT NOT LESS THAN 25' FROM THE DIVIDED HIGHWAY AND BE MOUNTED ON BOTH SIDES OF THE ROAD AS SHOWN ON THE PLANS.

MILEPOST PLAQUE "A"
(THE NUMERALS ON PART "A" INDICATE THE MILE.)

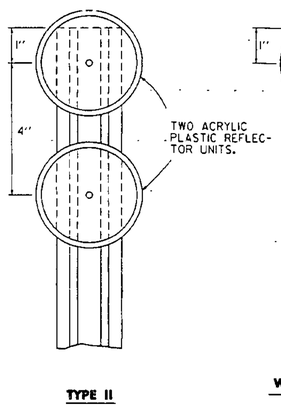



MILEPOST PLAQUE PART "B"
(THE NUMERAL ON PART "B" INDICATES IN FIVE ONE-HUNDREDTHS OF A MILE BETWEEN MILE INCREMENTS.)

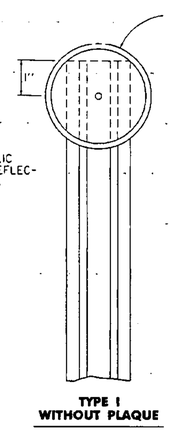
## NOTES

1. TYPE III DELINEATORS WILL BE TYPE I DELINEATORS WITH AN ADDITIONAL RED REFLECTIVE UNIT MOUNTED ON THE REVERSE SIDE. THEY SHALL BE ERECTED ON THE RIGHT AND LEFT SIDE OF THE RAMPS AS INDICATED ON THE PLANS.
2. EACH UNIT COMPLETE IN PLACE OF DELINEATOR TYPE I WITH OR WITHOUT PLAQUE, DELINEATOR TYPE II, DELINEATOR TYPE III, OR MILEPOST WITHOUT REFLECTOR SHALL BE PAID FOR AS "DELINEATOR."
3. FOR MOUNTING DELINEATORS AND MILEPOSTS ON BRIDGES, SEE STANDARD E-199.
4. DELINEATOR POSTS SHALL HAVE A MINIMUM EMBEDMENT OF 2' IN THE GROUND.

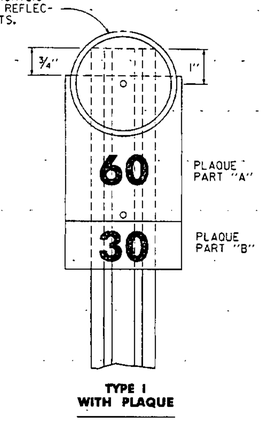
## DELINEATORS WITH ACRYLIC PLASTIC REFLECTORS



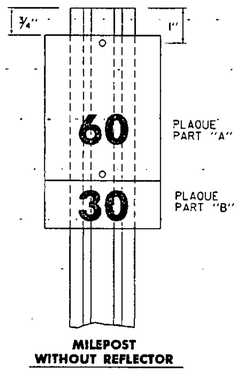

TYPE II



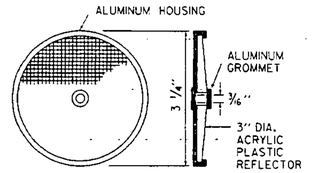

TYPE I WITHOUT PLAQUE



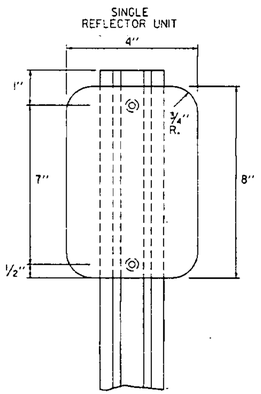

TYPE I WITH PLAQUE



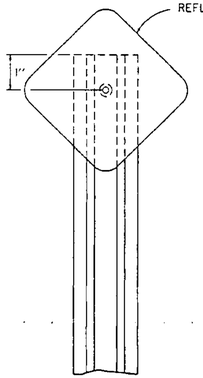

MILEPOST WITHOUT REFLECTOR



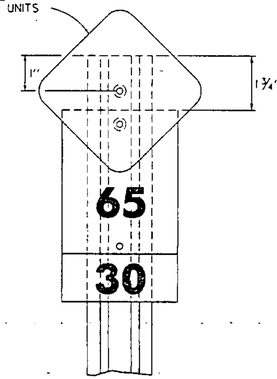

DELINEATOR PLASTIC REFLECTOR UNIT



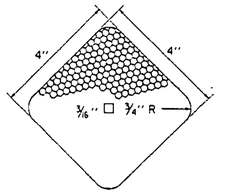

TYPE II




TYPE I WITHOUT PLAQUE



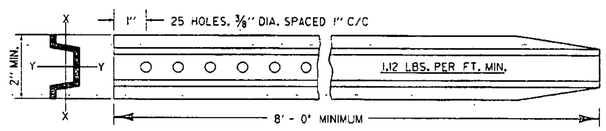

TYPE I WITH PLAQUE




DELINEATOR REFLECTIVE SHEETING UNIT

MATERIAL FOR REFLECTIVE SHEETING DELINEATORS SHALL BE A 0.063" ALUMINUM BACKING WITH A SILVER, AMBER OR RED HIGH INTENSITY REFLECTIVE SHEETING.

SECTION MODULUS
YY = 0.11 IN.$^3$ MIN.
XX = 0.08 IN.$^3$ MIN.




## DELINEATORS WITH REFLECTIVE SHEETING

MILEPOST PLAQUES WITH OR A WITHOUT REFLECTOR UNIT SHALL BE MOUNTED ON THE POST WITH TWO OR THREE 3/8" DIA. BY 1 1/2" LONG ALUMINUM BOLTS WITH 1/2" DIA. ALUMINUM VANDAL RESISTANT NUTS, OR 3/8" DIA. BY 1 1/2" LONG VANDAL RESISTANT FASTENERS.

**NOT TO SCALE**

**OTHER STDS. REQUIRED:**

REVISIONS AND CORRECTIONS

SEPT. 10, 1987 - DATE OF ORIGINAL ISSUE
AUG. 18, 1995 - MINOR NOTE REVISIONS

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

APPROVED

DIRECTOR OF ENGINEERING

TRAFFIC AND SAFETY ENGINEER

# FREEWAY - EXPRESSWAY DELINEATORS AND MILEPOSTS

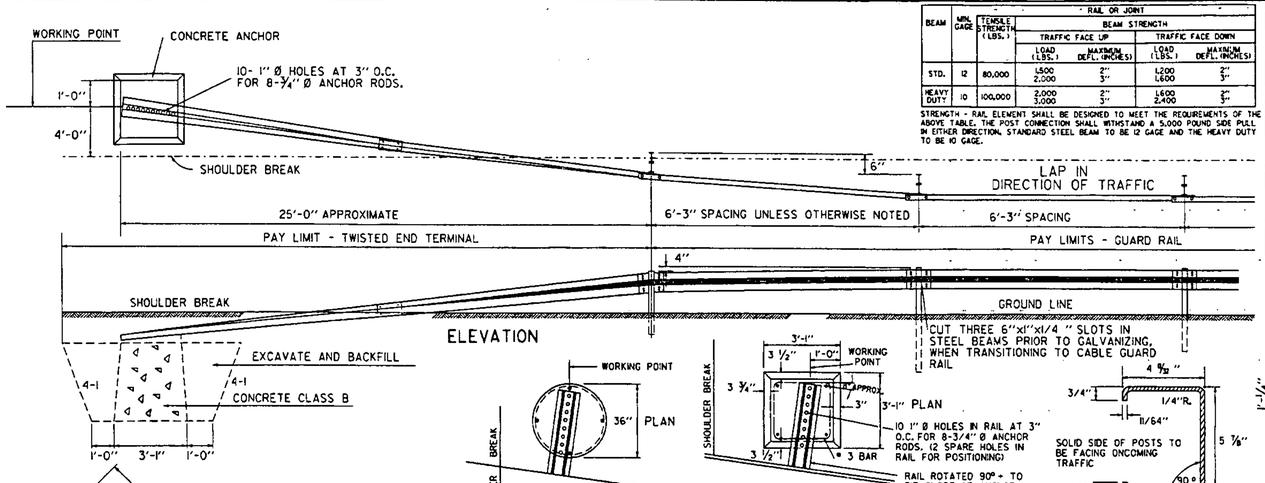
/trcf/std/stdel98.dgn : stdel98.i

VERMONT AGENCY OF TRANSPORTATION

# STANDARD E-198

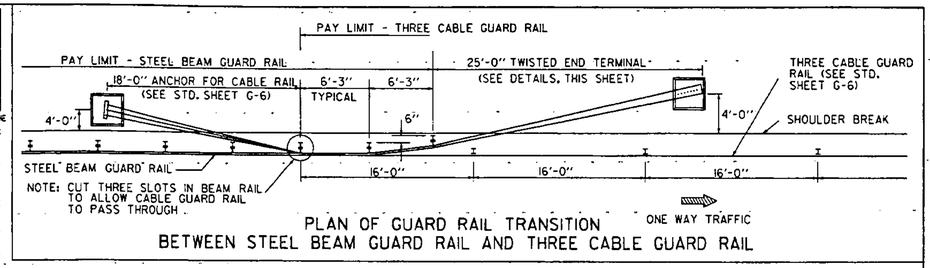
| BEAM | MIN. GAGE | TENSILE STRENGTH (LBS.) | RAIL OR JOINT BEAM STRENGTH | | | |
|---|---|---|---|---|---|---|
| | | | TRAFFIC FACE UP | | TRAFFIC FACE DOWN | |
| | | | LOAD (LBS.) | MAXIMUM DEFL. (INCHES) | LOAD (LBS.) | MAXIMUM DEFL. (INCHES) |
| STD. | 12 | 80,000 | 1,500<br>2,000 | 2"<br>3" | 1,200<br>1,600 | 2"<br>3" |
| HEAVY DUTY | 10 | 100,000 | 2,000<br>3,000 | 2"<br>3" | 1,600<br>2,400 | 2"<br>3" |

STRENGTH - RAIL ELEMENT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE ABOVE TABLE. THE POST CONNECTION SHALL WITHSTAND A 5,000 POUND SIDE PULL IN EITHER DIRECTION. STANDARD STEEL BEAM TO BE 12 GAGE AND THE HEAVY DUTY TO BE 10 GAGE.

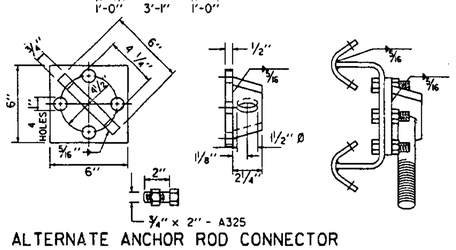



ELEVATION

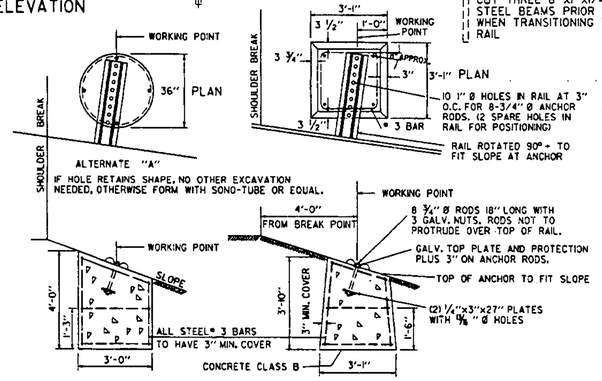
CUT THREE 6"x1" x1/4 " SLOTS IN STEEL BEAMS PRIOR TO GALVANIZING, WHEN TRANSITIONING TO CABLE GUARD RAIL



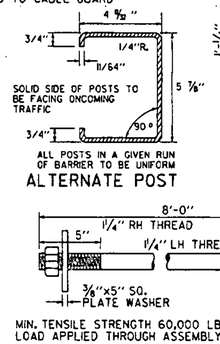

PLAN OF GUARD RAIL TRANSITION
BETWEEN STEEL BEAM GUARD RAIL AND THREE CABLE GUARD RAIL



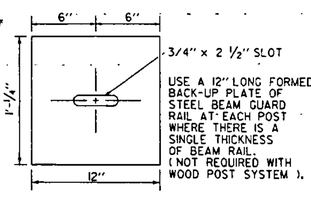

3/4" x 2" - A325
ALTERNATE ANCHOR ROD CONNECTOR



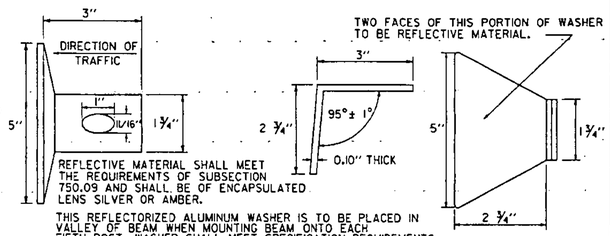

ELEVATIONS OF CONCRETE ANCHORS

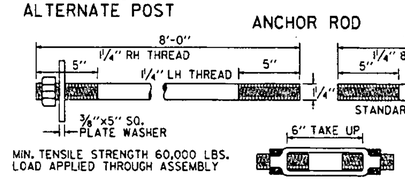



ALL POSTS IN A GIVEN RUN OF BARRIER TO BE UNIFORM
ALTERNATE POST

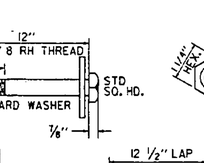



USE A 12" LONG FORMED BACK-UP PLATE OF STEEL BEAM GUARD RAIL AT EACH POST WHERE THERE IS A SINGLE THICKNESS OF BEAM RAIL. ( NOT REQUIRED WITH WOOD POST SYSTEM ).



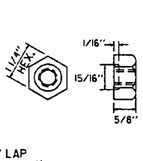

ANCHOR ROD

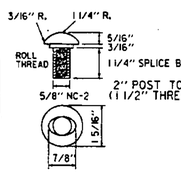


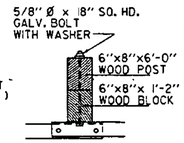




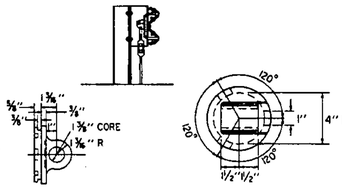
TURNBUCKLE



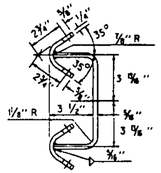



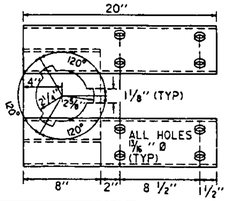

WITH 6" x 8" WOOD POST

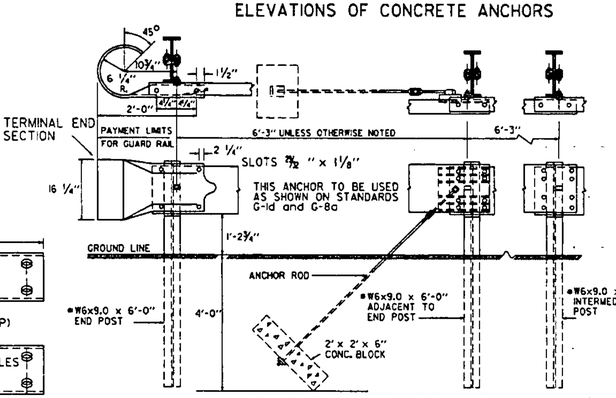



ANCHOR ROD CONNECTOR
(MALLEABLE IRON CASTING OR EQUAL)

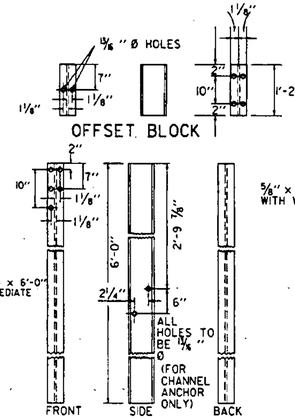


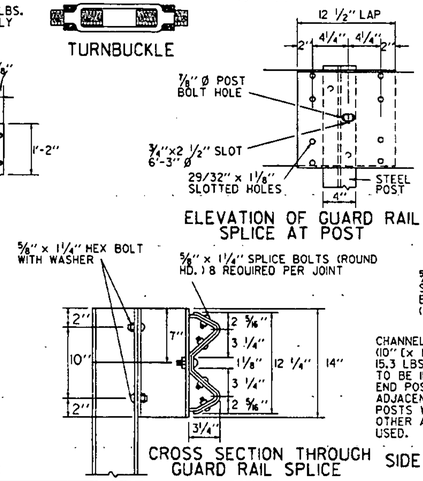

ANCHOR SPIDER
( WELDMENT )



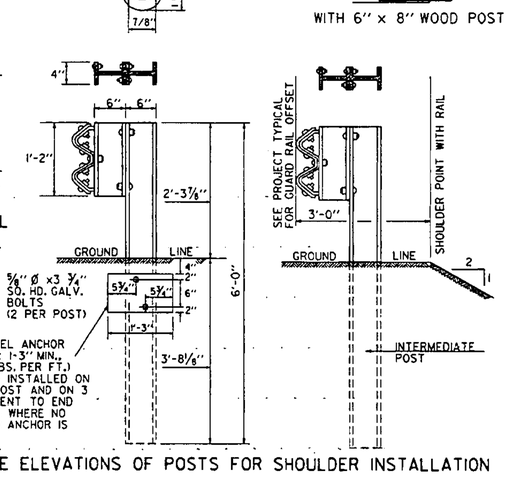

ANCHOR FOR STEEL BEAM RAIL
*W6x8.5 IS AN ACCEPTABLE ALTERNATE




ELEVATION OF GUARD RAIL SPLICE AT POST

CROSS SECTION THROUGH GUARD RAIL SPLICE




SIDE ELEVATIONS OF POSTS FOR SHOULDER INSTALLATION

REVISIONS AND CORRECTIONS

DEC. 8, 1971 - ORIGINAL APPROVAL DATE
APR. 10, 1972 - POST HEIGHT INCREASED
JAN. 17, 1978 - REVISED ANCHOR DETAIL
JUNE 1, 1978 - CHANNEL ANCHOR DETAILS CHANGED
MAY 28, 1979 - NOTE ON REFLECTIVE MATERIAL CHANGED
DEC. 18, 1980 - INCREASED SHOULDER WIDENING FOR GUARD RAIL
MAR. 12, 1984 - REVISED ANCHOR SPIDER DETAILS
JUNE 5, 1984 - POST SIZE AND BACK UP PLATE NOTE CHANGED
DEC. 21, 1984 - REMOVED POST WASHER
OCT. 31, 1985 - REVISED TO CONFORM TO 1986 SPECIFICATIONS
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

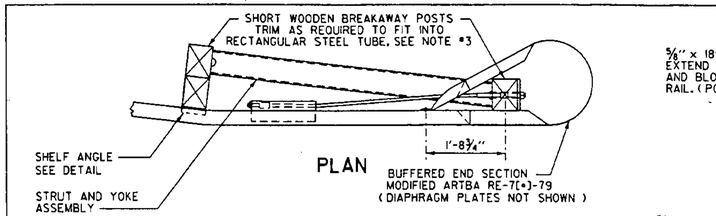
Gordon A. MacArthur, P.E.
DIRECTOR OF ENGINEERING

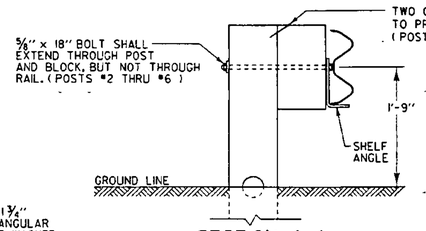
John M. Murphy, P.E.
DESIGN ENGINEER

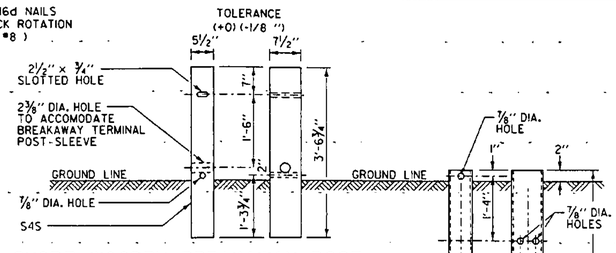
# STEEL BEAM GUARD RAIL
# HEAVY DUTY STEEL BEAM GUARD RAIL
# TWISTED END TERMINAL
# ANCHOR FOR STEEL BEAM RAIL

VERMONT AGENCY OF TRANSPORTATION

STANDARD
G-1







GENERAL NOTES:

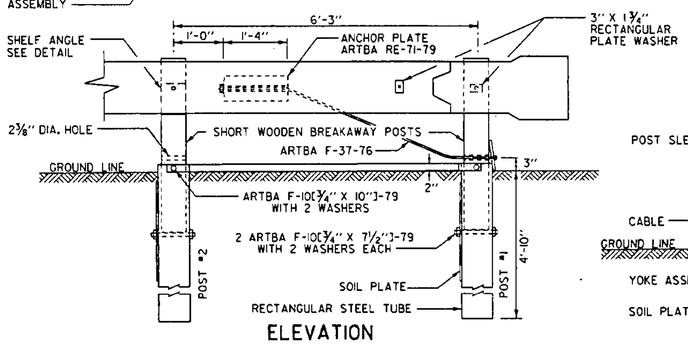
1. FOR DESCRIPTION AND SPECIFICATION OF PART IDENTIFIED "ARTBA ....." SEE LATEST REPORT PREPARED AND APPROVED BY THE AASHTO-AGC-ARTBA JOINT COOPERATIVE COMMITTEE. "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE".

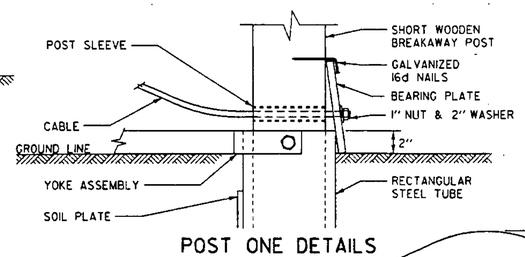
2. ALL ANGLES, CHANNELS, PLATES, DIAPHRAGM PLATES AND RECTANGULAR STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF THE VAOT STANDARD SPECIFICATIONS, SUBSECTION 714.11. WELDING SHALL MEET THE CURRENT REQUIREMENTS OF THE VAOT STANDARD SPECIFICATIONS, SUBSECTION 506.10. ALL STRUCTURAL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH VAOT STANDARD SPECIFICATIONS, SECTION 714 - STRUCTURAL STEEL.

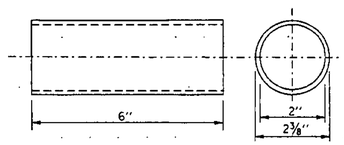
3. SHORT WOODEN BREAKAWAY POSTS SHALL BE MADE OF S4S TIMBER WITH A BENDING STRESS GRADE OF 1200 PSI MINIMUM AND SHALL BE GRADE MARKED OR CERTIFIED BY A RECOGNIZED ASSOCIATION OR AGENCY WHICH IS CERTIFIED BY THE BOARD OF REVIEW, AMERICAN LUMBER STANDARDS COMMITTEE, TO GRADE THE SPECIES. THE POSTS SHALL RECEIVE A PRESERVATIVE TREATMENT, AFTER ANY TRIMMING OR DRILLING, IN ACCORDANCE WITH VAOT STANDARD SPECIFICATIONS, SUBSECTION 728.01.

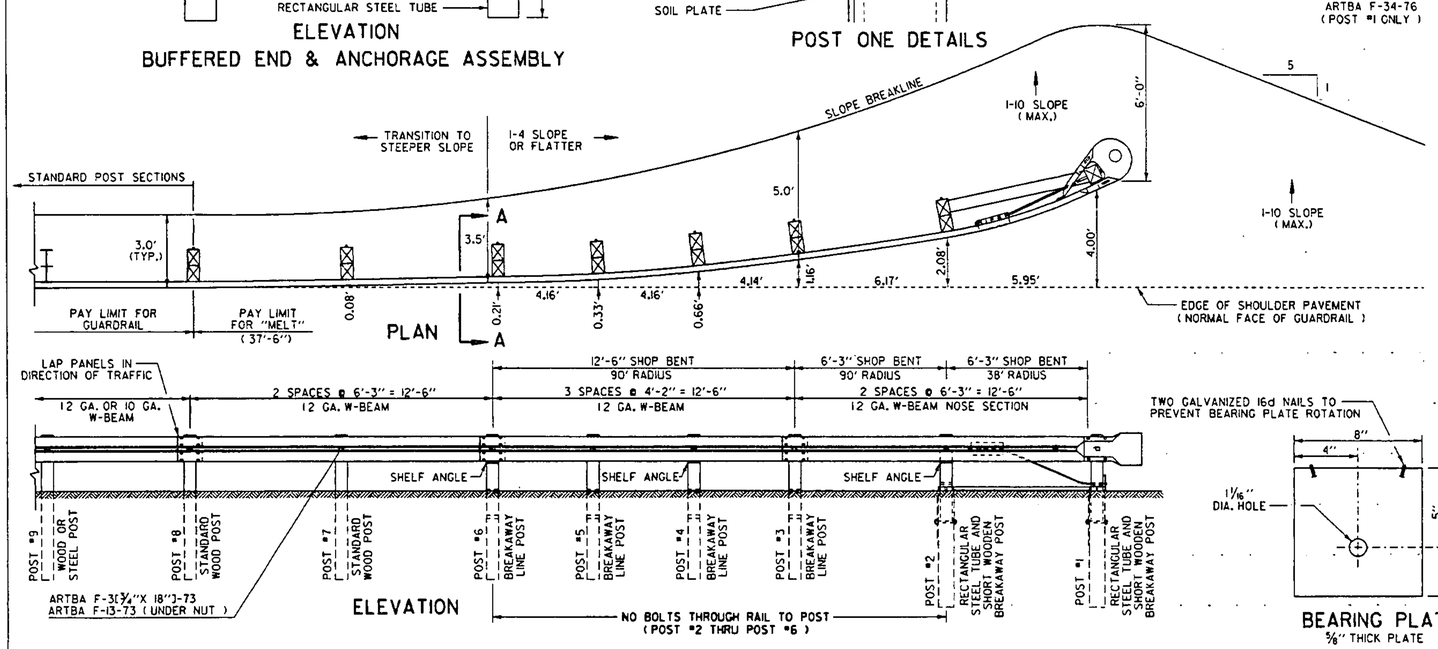
4. THE POST OFFSET DIMENSIONS ARE GIVEN TO THE FACE OF GUARDRAIL. THE POSTS ARE TO BE SET RADIAL TO THE RAILING AT EACH POST LOCATION.

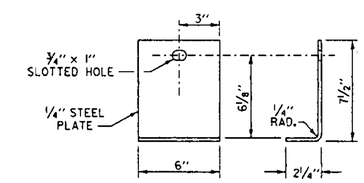
5. NOTE : THE AREA OUTSIDE AND DOWNSTREAM OF THE FIRST 12½' ( BREAKAWAY NOSE SECTION ) OF THE MELT SHOULD BE FREE OF OBSTACLES AND GRADED IN SUCH A WAY AS TO ALLOW A VEHICLE TO BREAK THROUGH THE BREAKAWAY NOSE SECTION AND COME TO A SAFE STOP.

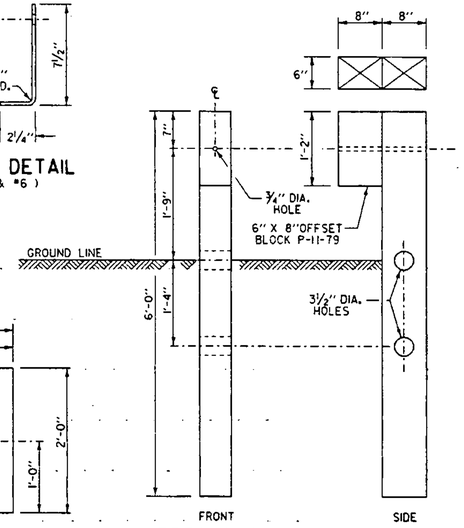


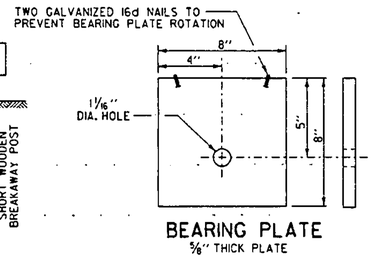



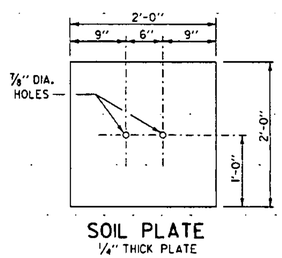




REVISIONS AND CORRECTIONS

JUNE 30, 1995 ORIGINAL APPROVAL
JANUARY 18, 1996 CHANGED DIAMETER AND LENGTH OF BOLT (SECTION A-A)

APPROVED — APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

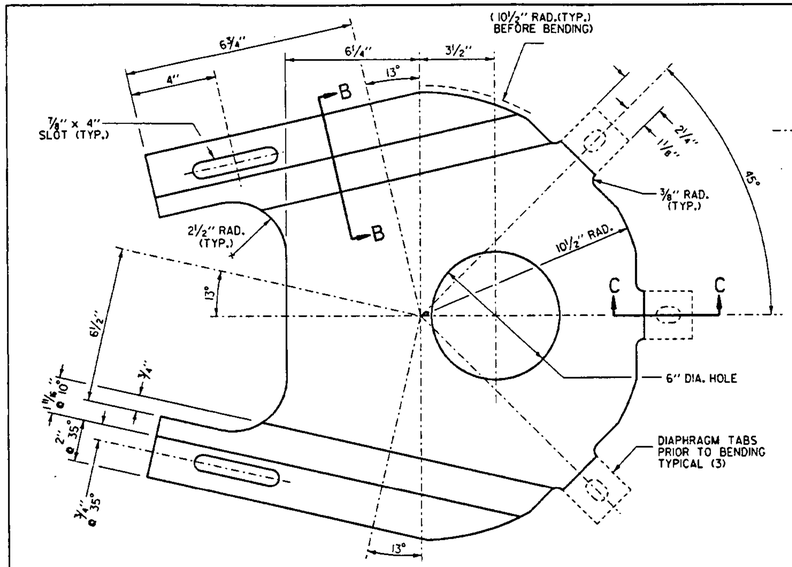
DIRECTOR OF ENGINEERING

DESIGN ENGINEER

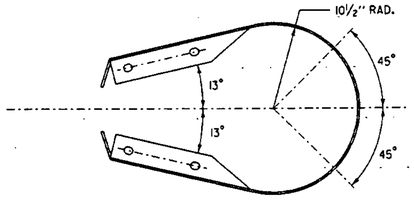
# MODIFIED ECCENTRIC LOADER TERMINAL WITH WOOD POSTS (MELT)

VERMONT AGENCY OF TRANSPORTATION

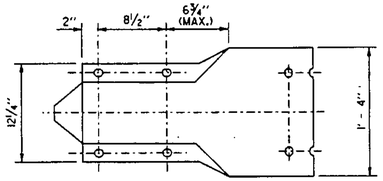
STANDARD G-17 a



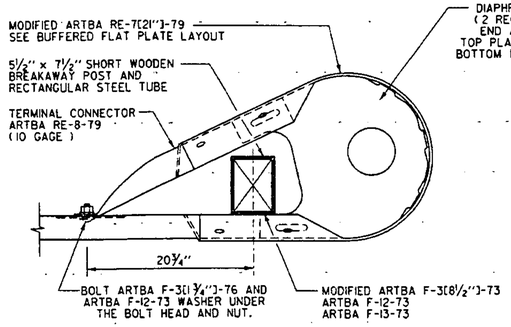

## DIAPHRAGM PLATE DETAIL
12 GAGE - (2 REQUIRED EACH TERMINAL)



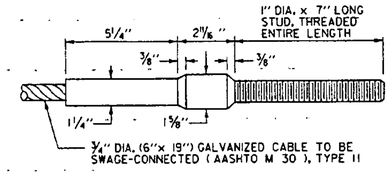

## BUFFERED END SECTION PLAN



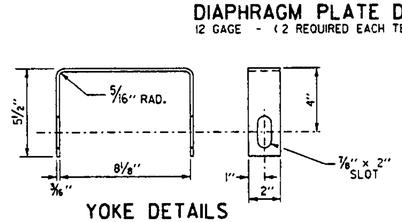

## BUFFERED END SECTION ELEVATION



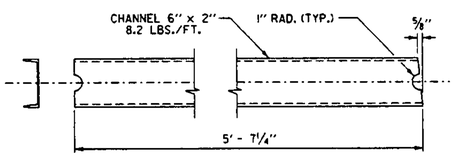

## BUFFERED END ASSEMBLY



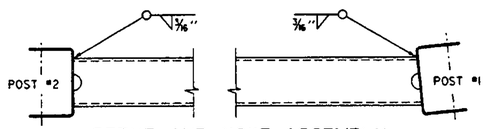

## STANDARD SWAGED FITTING AND STUD CABLE ASSEMBLY ARTBA F-37-76



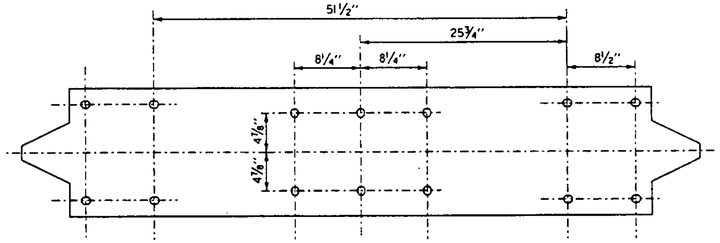

## YOKE DETAILS




## STRUT DETAILS

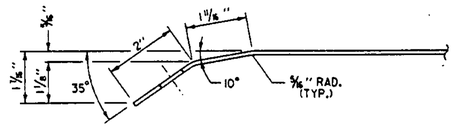



## STRUT AND YOKE ASSEMBLY
SHOWN LEGS DOWN. FOR OPPOSITE HAND, INSTALL LEGS UP

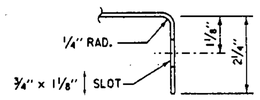



## BUFFERED END SECTION FLAT PLATE LAYOUT
(MODIFIED ARTBA RE-7(21")-79)

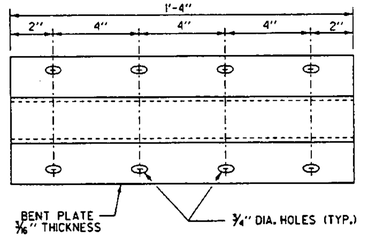
ALL SLOTS 29/32" x 1⅛"
ALL BOLTS ARTBA F-3(1¼")-76



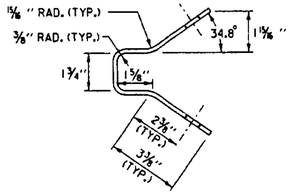

## DIAPHRAGM PLATE DETAIL SECTION B-B

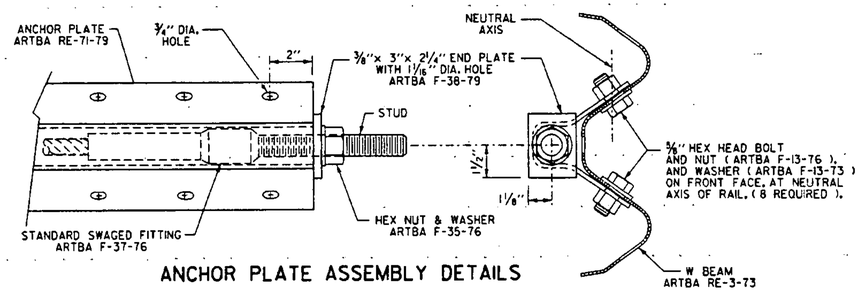



## DIAPHRAGM PLATE DETAIL SECTION C-C




## ANCHOR PLATE ARTBA RE-71-79




## ANCHOR PLATE ASSEMBLY DETAILS

REVISIONS AND CORRECTIONS

JUNE 30, 1995 ORIGINAL APPROVAL

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

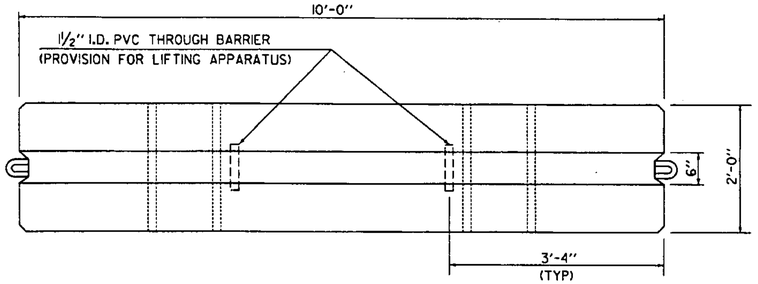
DIRECTOR OF ENGINEERING

DESIGN ENGINEER

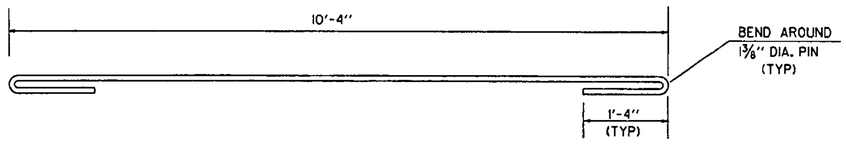
# MODIFIED ECCENTRIC LOADER TERMINAL WITH WOOD POSTS (MELT)

VERMONT AGENCY OF TRANSPORTATION

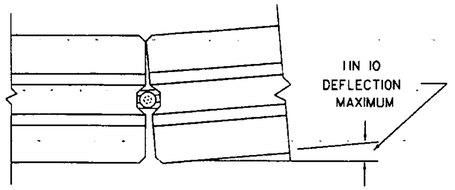
STANDARD G-17b



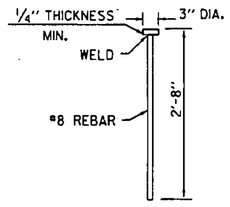

PLAN



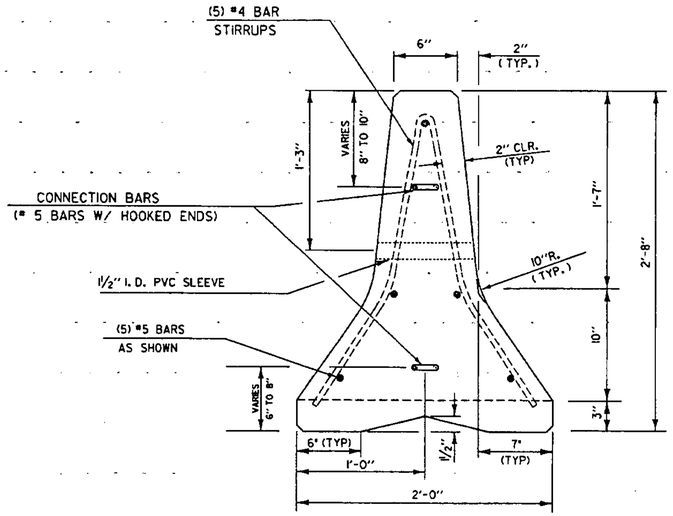

CONNECTION BAR DETAIL
#5 REBAR



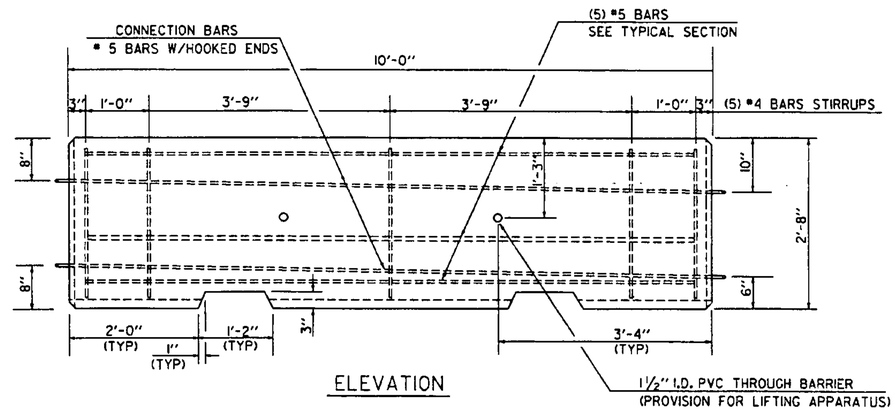

PLAN CONNECTION DETAIL



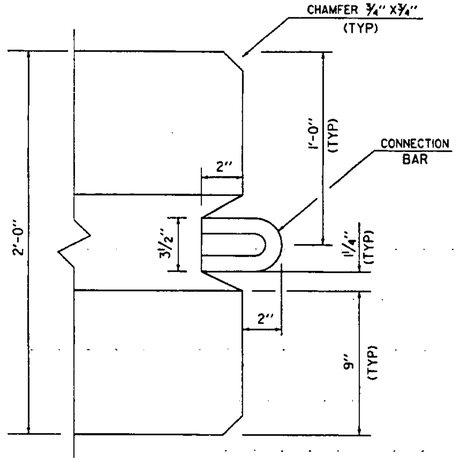

CONNECTION PIN




TYPICAL SECTION




ELEVATION




PLAN AT ENDS OF BARRIER

## NOTES

1. ALL CONCRETE WILL BE CLASS A.
2. ALL REINFORCING STEEL SHALL CONFORM TO AASHTO M31, GRADE 60.
3. REFLECTORS SHALL BE INSTALLED ON THE SIDE OF THE TEMPORARY TRAFFIC BARRIER. WHEN PLACAED ON THE DRIVERS LEFT SIDE, THE REFLECTORS SHALL BE YELLOW. THE REFLECTORS SHALL BE WHITE WHEN PLACED ON THE DRIVERS RIGHT SIDE. THE REFLECTORS SHALL BE INSTALLED AT A HEIGHT OF 21INCHES AT 20 FOOT INTERVALS AND SHALL BE AT LEAST 9 SQUARE INCHES. THE REFLECTORS SHALL MEET THE REQUIREMENTS FOR SECTION 751.02 OR 751.03. THE REFLECTORS SHALL BE INSTALLED ON BOTH SIDES WHEN PLACED IN THE MEDIAN AND IN ALL CASES SHALL BE FIRMLY ATTACHED TO THE SIDE OF BARRIER. THE TYPE OF REFLECTOR AND THE INSTALLATION PROCEDURE SHALL BE SUBMITTED FOR REVIEW PRIOR TO INSTALLATION. COST OF FURNISHING AND INSTALLING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR TEMPORARY TRAFFIC BARRIERS.

REVISIONS AND CORRECTIONS

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

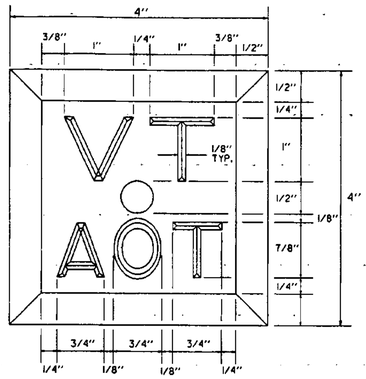
DIRECTOR OF ENGINEERING

DESIGN ENGINEER

# PRECAST CONCRETE TEMPORARY TRAFFIC BARRIER

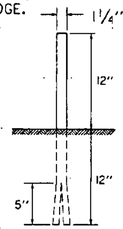
VERMONT AGENCY OF TRANSPORTATION

STANDARD
G-18




LETTERING DETAIL
( ALL LETTERS TO BE COUNTERSUNK 1/8" )
SCALE: FULL SIZE

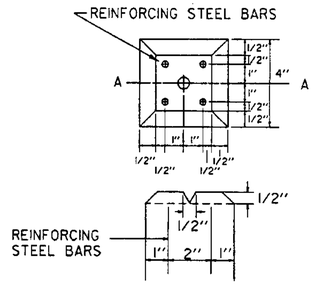
1¼" STEEL ROD 2'-0" LONG TO BE USED IN AREAS OF LEDGE.



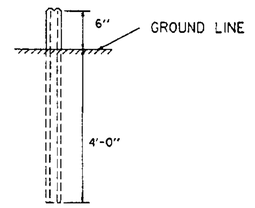

2" HOLE TO BE DRILLED IN LEDGE.

SPACE AROUND HOLE TO BE FILLED WITH MORTAR, TYPE I.

ROD TO BE SPLIT WITH IRON WEDGE




SECTION A-A




BOUNDARY MARKERS TO BE CONSTRUCTED OF CONCRETE CLASS A.
4 REINFORCING STEEL BARS ARE NO. 3 DEFORMED BARS 4'-4" LONG.
BOUNDS ARE TO BE SET WITH 6" ABOVE GROUND, OR AS DIRECTED BY THE ENGINEER.
IN AREAS WHERE MOWING OPERATIONS ARE REQUIRED, BOUNDS SHALL BE SET FLUSH WITH THE GROUND.

BOUNDARY MARKERS

REVISIONS AND CORRECTIONS

JUNE 27, 1980 - ORIGINAL APPROVAL
JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

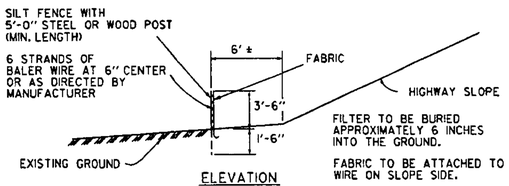
Gordon S. MacMillan, P.E.
DIRECTOR OF ENGINEERING

Joseph M. Murphy, P.E.
DESIGN ENGINEER

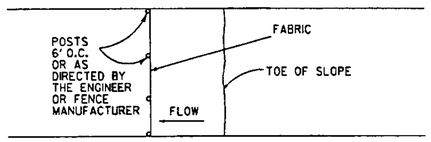
# BOUNDARY MARKERS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
J-1

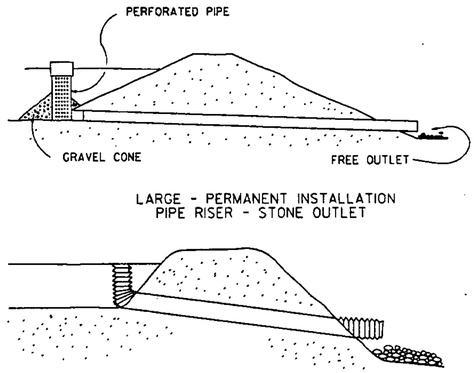



ELEVATION




PLAN

SILT FENCE

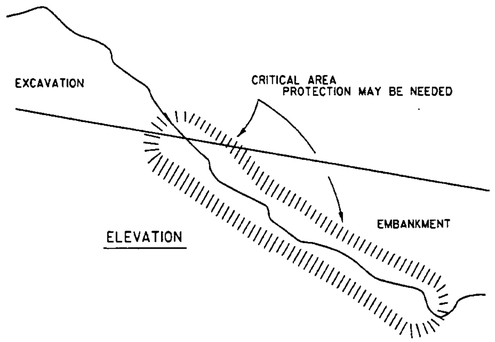



LARGE - PERMANENT INSTALLATION
PIPE RISER - STONE OUTLET

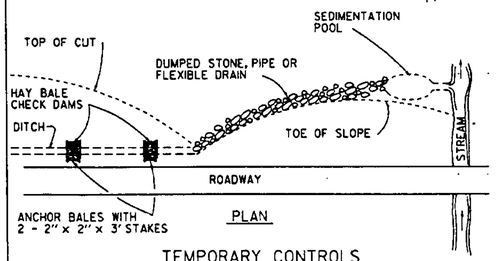


SMALL - TEMPORARY INSTALLATION
ACCM PIPE WITH RISER - STONE OUTLET

SEDIMENT DAMS

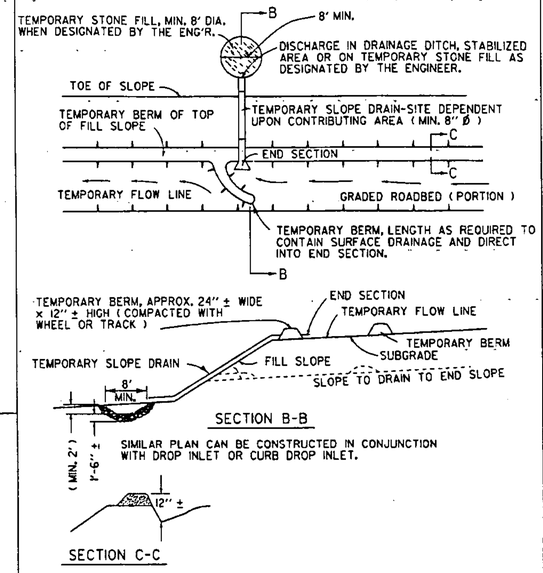



ELEVATION

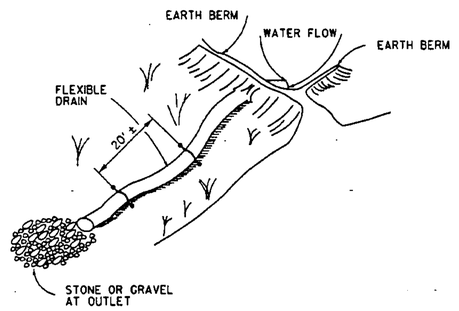



PLAN

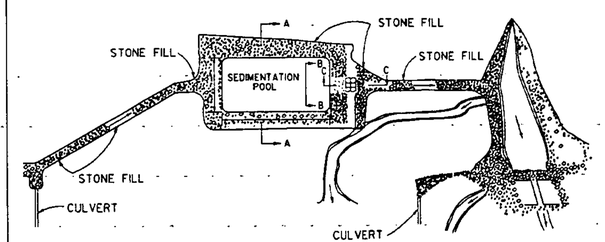
TEMPORARY CONTROLS
CUT TO FILL SLOPE



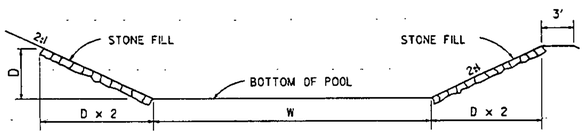

TEMPORARY BERMS AND SLOPE DRAINS
FOR FILL SLOPES



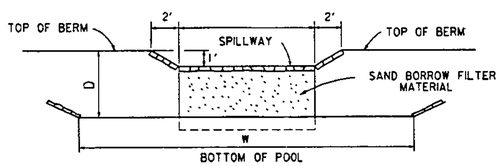

TEMPORARY FLEXIBLE SLOPE DRAIN




SEDIMENTATION POOL

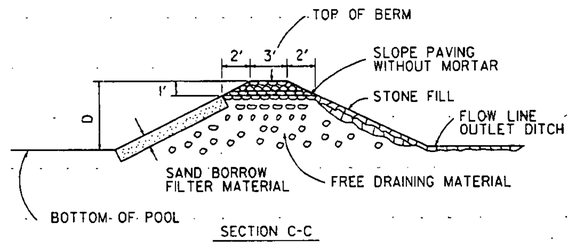



SECTION A-A




DETAILS OF SPILLWAY TO BE DETERMINED BY HYDRAULIC SECTION.

SECTION B-B




SECTION C-C

REVISIONS AND CORRECTIONS

JUL. 5, 1972 - ORIGINAL APPROVAL
JUN. 14, 1973 - SEDIMENT TRAPS REMOVED FROM TEMPORARY BERMS & SLOPE DRAINS FOR FILL SLOPES
FEB. 26, 1976 - SILT FENCE ADDED
DEC. 7, 1976 - HAY BALE ANCHOR NOTE ADDED
JUN. 1, 1994 - SILT FENCE NOTES AND DIMENSIONS CHANGED

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

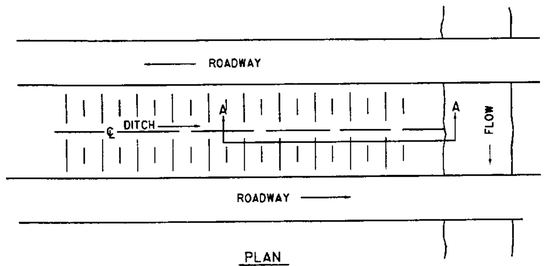
DIRECTOR OF ENGINEERING

DESIGN ENGINEER

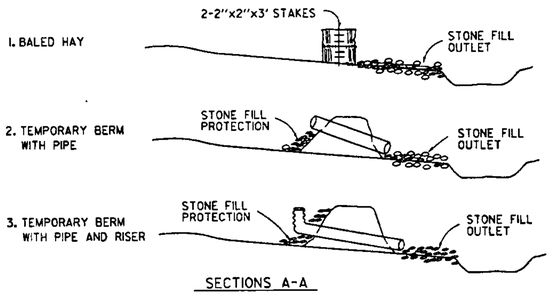
# TEMPORARY EROSION CONTROL DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD
T-1

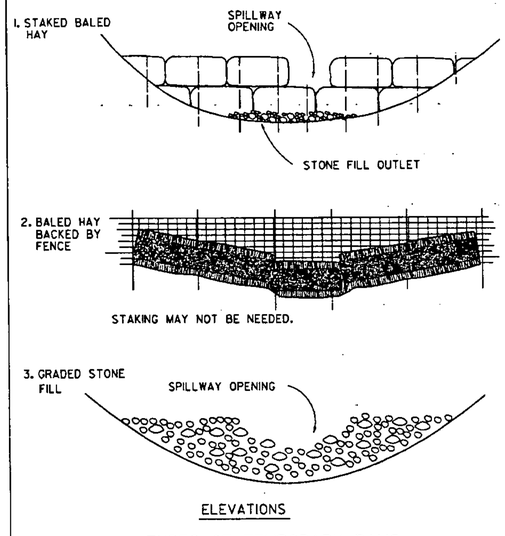



PLAN




SECTIONS A-A

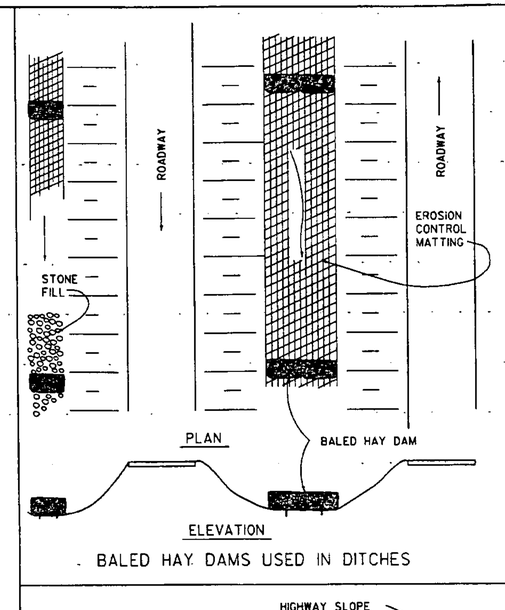
PROTECTION AT STREAM CROSSING
MEDIAN AND SIDE DITCHES




ELEVATIONS

TYPES OF TEMPORARY DAMS

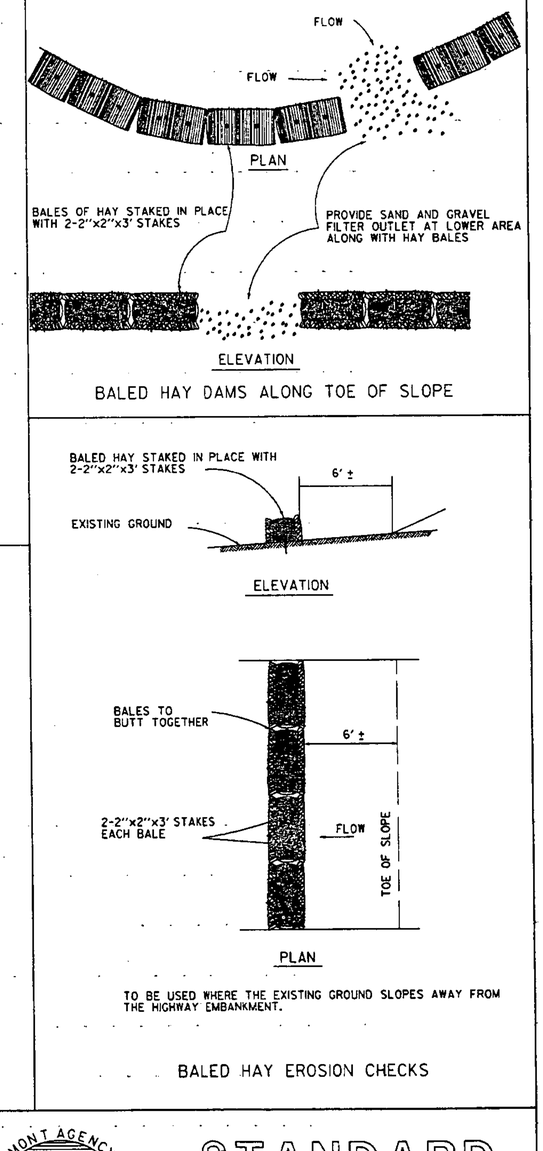
DAM SHOULD EXTEND FAR ENOUGH UP DITCH SIDE SLOPES TO EFFECTIVELY POND THE RUNOFF AND PREVENT EROSION AND WASHOUT.




PLAN

ELEVATION

BALED HAY DAMS USED IN DITCHES




PLAN

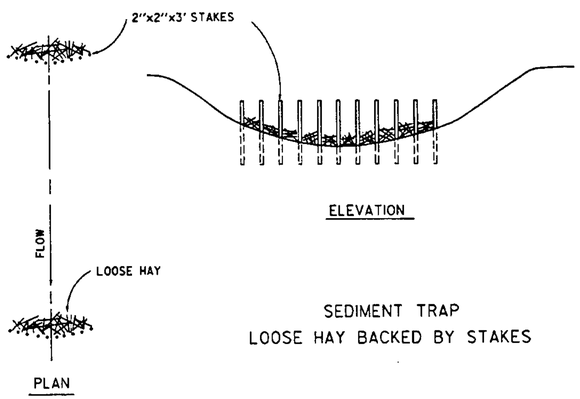
ELEVATION

ELEVATION

PLAN

TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE HIGHWAY EMBANKMENT.

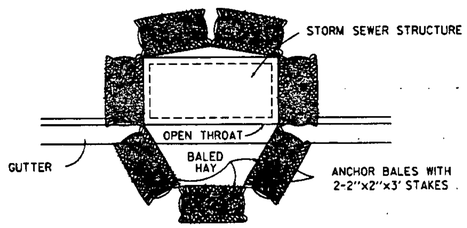
BALED HAY EROSION CHECKS



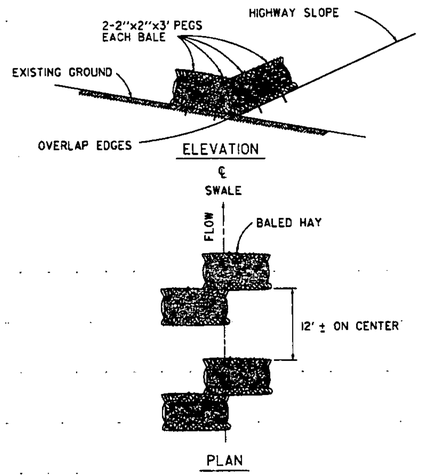

ELEVATION

PLAN

SEDIMENT TRAP
LOOSE HAY BACKED BY STAKES




INLET PROTECTION
TEMPORARY BARRIER - HAY BALES




ELEVATION

PLAN

TO BE USED IN LOCATIONS WHERE THE EXISTING GROUND SLOPES IN TOWARD THE EMBANKMENT. BALES WILL BE ALLOWED TO ROT IN PLACE.

BALED HAY EROSION CHECKS

REVISIONS AND CORRECTIONS

JUL. 5, 1972 - ORIGINAL APPROVAL

JUNE 1, 1994 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES.

APPROVED

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION. FHWA FINAL APPROVAL PENDING.

DIRECTOR OF ENGINEERING

DESIGN ENGINEER

# TEMPORARY EROSION CONTROL DETAILS

VERMONT AGENCY OF TRANSPORTATION

STANDARD

T-2