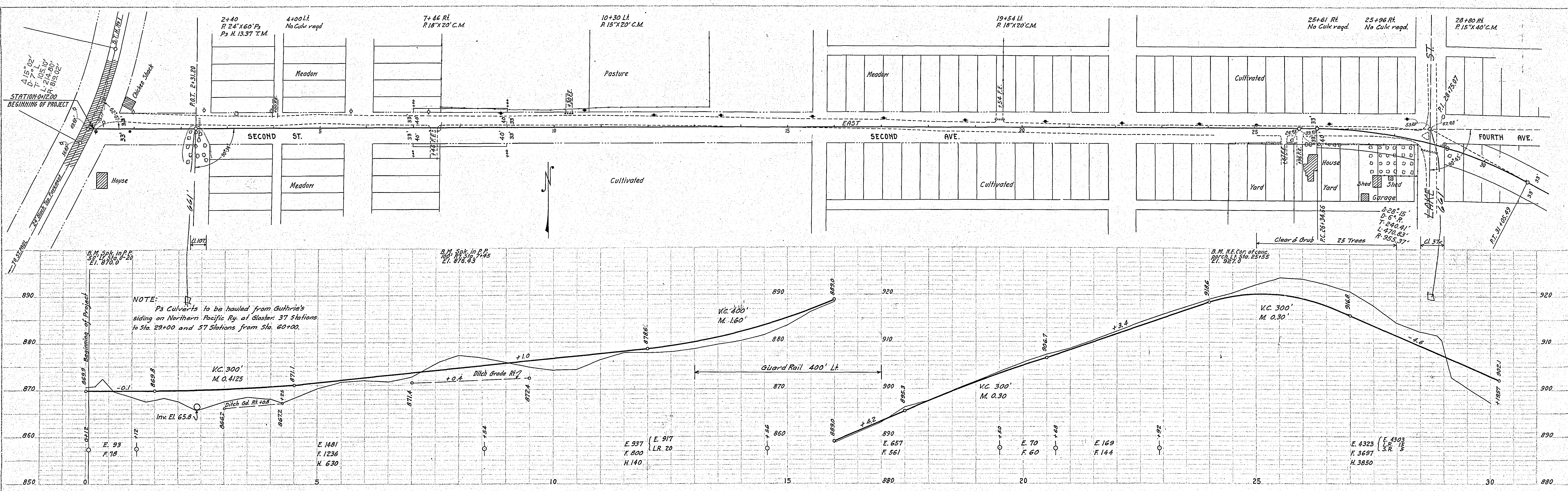
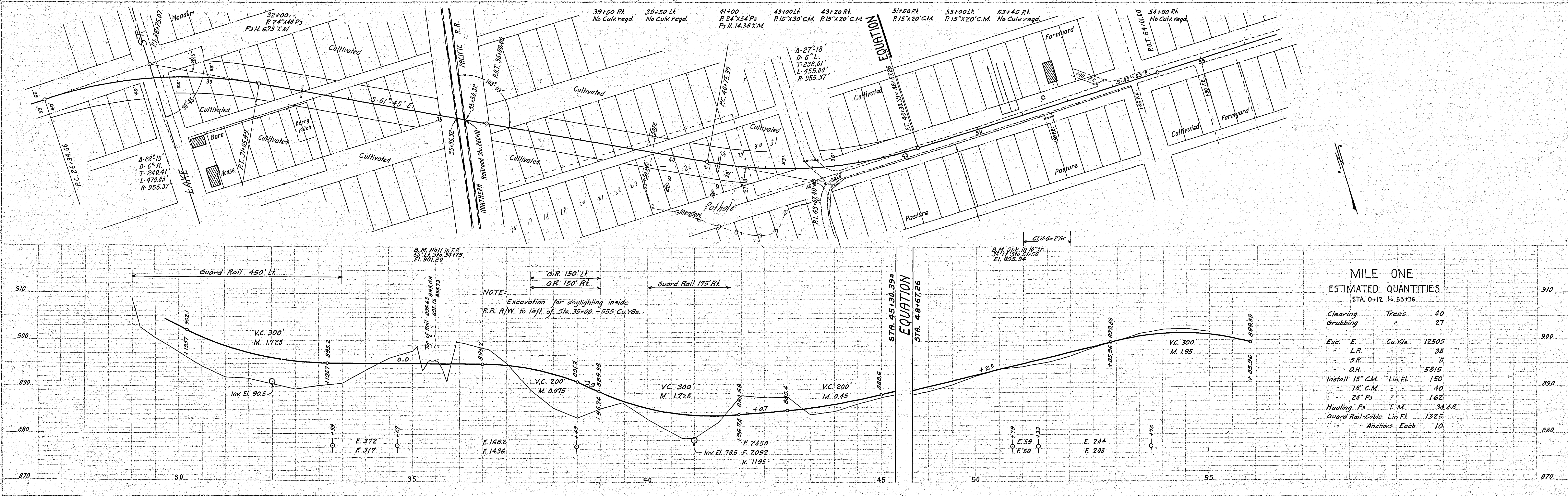


PLAN
 SURVEYED
 PLOTTED
 NOTE BOOK
 CHECKED
 NO. 28



NOTE:
 P₃ Culverts to be hauled from Guthrie's siding on Northern Pacific Ry. at Blaster 37 Stations to Sta. 29+00 and 57 Stations from Sta. 60+00.

PROFILE
 SURVEYED
 PLOTTED
 NOTE BOOK
 CHECKED
 NO. 28



NOTE:
 Excavation for daylighting inside R.R. R/W to left of Sta. 35+00 - 555 Cu.Yds.

MILE ONE
 ESTIMATED QUANTITIES
 STA. 0+12 to 53+76

| | | |
|------------------------|----------|-------|
| Clearing | Trees | 40 |
| Grubbing | " | 27 |
| Exc. E. | Cu.Yds. | 12505 |
| " L.R. | " | 35 |
| " S.R. | " | 5 |
| " O.H. | " | 5815 |
| Install 15" C.M. | Lin. Ft. | 150 |
| " 18" C.M. | " | 40 |
| " 24" P ₃ | " | 162 |
| Hauling P ₃ | T.M. | 34.48 |
| Guard Rail-Cable | Lin. Ft. | 1325 |
| " Anchors | Each | 10 |

CONVENTIONAL SIGNS & ABBREVIATIONS

| | | | | |
|-----------------------------|-------|----------------------------|-------|--------|
| STATE LINE | ----- | EXCAVATION | ----- | E |
| COUNTY LINE | ----- | EMBANKMENT | ----- | F |
| TOWNSHIP LINE | ----- | OVERHAUL | ----- | H |
| SECTION LINE | ----- | SURFACING | ----- | S |
| CITY, VILLAGE, OR BOROUGH | ----- | GUARD RAIL | ----- | GR |
| FENCE LINE | ----- | INTERSECTION ANGLE | ----- | A |
| RIGHT-OF-WAY LINE | ----- | RADIUS | ----- | R |
| TRAVELLED WAY | ----- | ELEVATION | ----- | EL |
| RAILROADS | ----- | VERTICAL CURVE | ----- | VC |
| RETAINING WALL | ----- | BENCH MARK | ----- | B.M. |
| BASE OF SURVEY LINE | ----- | SECTIONAL CONCRETE CULVERT | ----- | P.1 |
| LEVEE | ----- | CORRUGATED METAL CULVERT | ----- | C.M. |
| GRAVEL PIT | ----- | CULVERT HAUL | ----- | P.L.H. |
| SAND PIT | ----- | TON MILES | ----- | T.M. |
| CLAY PIT | ----- | PLACE | ----- | P |
| ROCK QUARRY | ----- | IN PLACE | ----- | Imp |
| CULVERTS | ----- | REPLACE | ----- | Rep |
| PLAIN | ----- | RIGHT | ----- | R |
| WITH FACEWALLS | ----- | LEFT | ----- | L |
| WITH WINGWALLS | ----- | HAND DITCHING | ----- | H.D. |
| DROP INLET | ----- | POINT OF CURVE | ----- | P.C. |
| POWER POLE LINE | ----- | POINT OF TANGENT | ----- | P.T. |
| TELEPHONE OR TELEGRAPH LINE | ----- | POINT OF INTERSECTION | ----- | P.I. |
| MARSH | ----- | SPECIAL EXCAVATION | ----- | S.E. |
| HEDGE, BRUSH, OR TIMBER | ----- | SPECIAL FLOWING | ----- | S.P. |
| GROUND ELEVATION | ----- | TELEPHONE POLE | ----- | Tel.P. |
| GRADE ELEVATION | ----- | | | |

STATE HIGHWAY DEPARTMENT
OF MINNESOTA
Plan and Profile of State Road No. 15

COUNTY OF: RAMSEY

From A point 661' N. & 231' E. of the S.E. Cor. of Sec. 9-29-22 To S.E. Cor. of Sec. 10-29-22
Give proper reference to Sections, Township and Range

GROSS LENGTH 8316.78 FEET 1.575 MILES
LENGTH OF EXCEPTIONS 0 FEET 0 MILES
NET LENGTH 8316.78 FEET 1.575 MILES

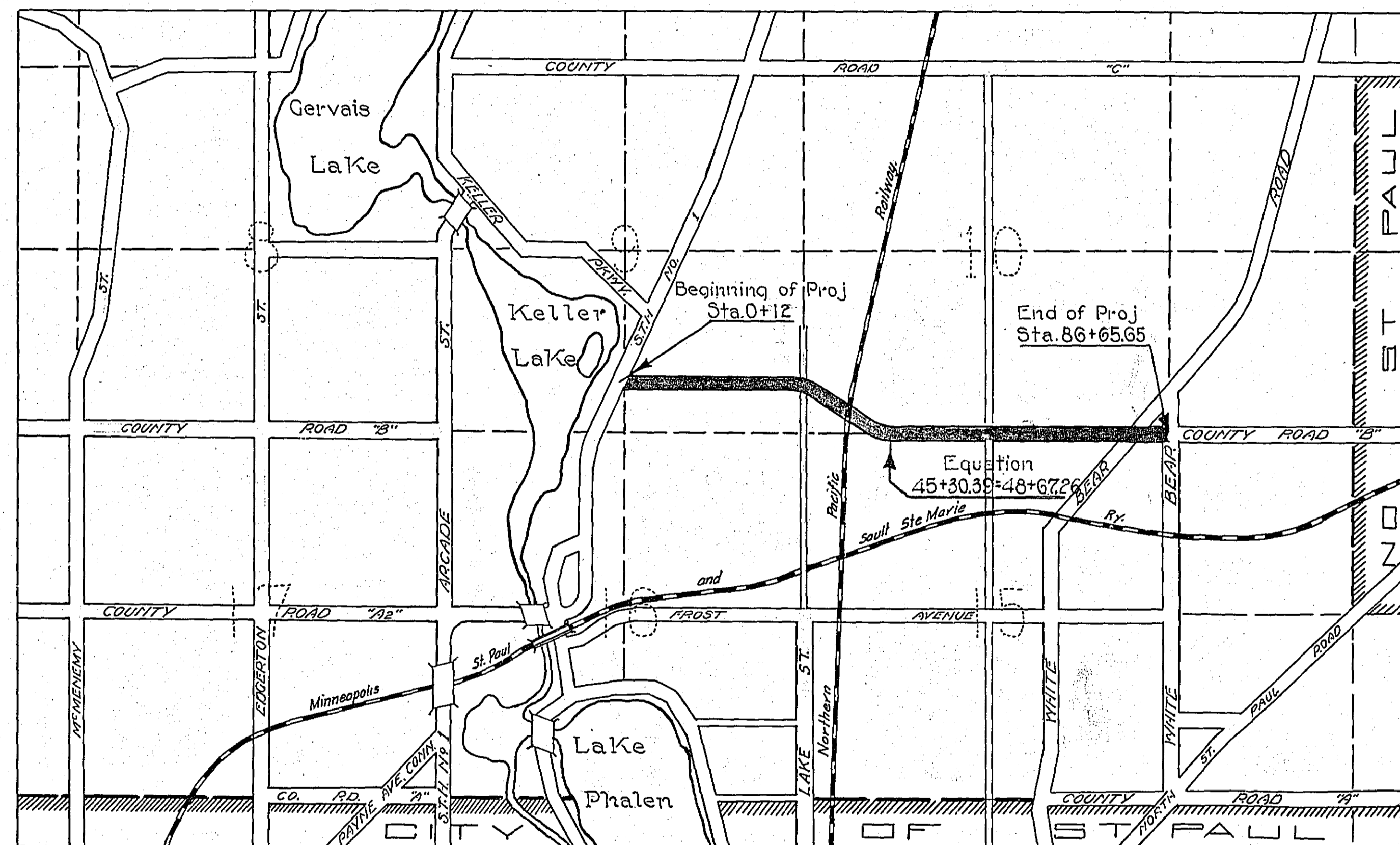
PLAN, 1 Inch = 100 Feet
PROFILE, Horz. 1 Inch = 100 Feet. Vert. 1 Inch = 10 Feet
WORKING PLANS (Horz. 1 Inch = 100 Feet, Vert. 1 Inch = 10 Feet)
CROSS-SECTIONS, 1 Inch = 10 Feet

LAYOUT

SCALE, 1 Inch = 1760 Feet

INDEX OF SHEETS

- Sheet No. 1. Title Sheet and Layout Map
- " No. 2. Typical Cross-Sections and Statement
- " No. 3. Plan and Profile, Sta. 0+12 to Sta. 53+76
- " No. 4. " " " " " 53+76 " " 86+60
- " No. 5. to 14. Cross Sections



T. 29 N. - R. 22 W.

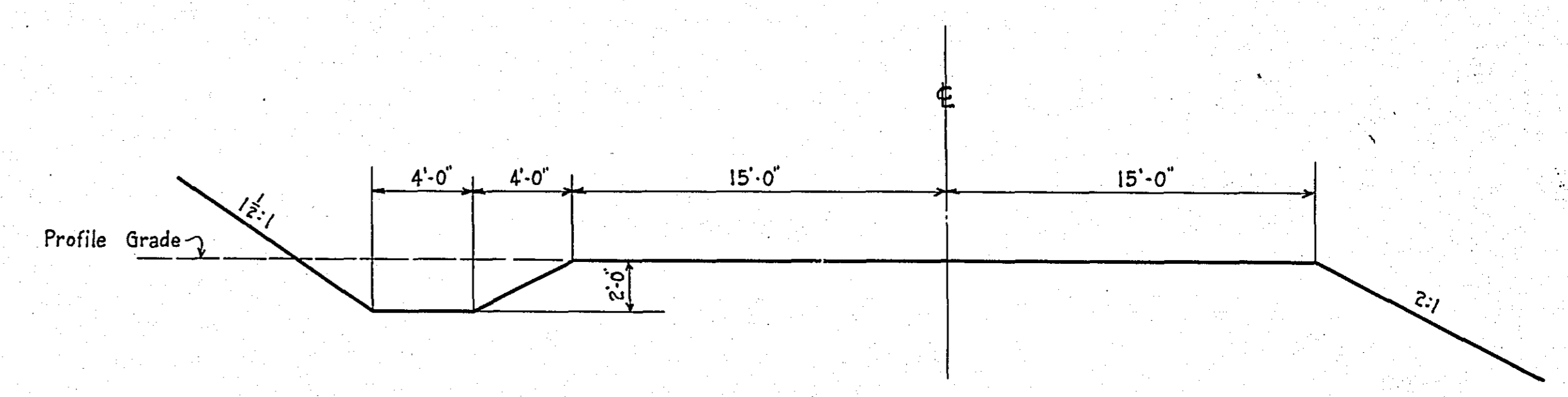
Planned by Paul A. Condit
HIGHWAY ENGINEER FOR Ramsey COUNTY.
Recommended for Approval _____ DIVISION ENGINEER
Recommended for Approval F. G. Sturman ENGINEER OF SURVEYS AND DESIGN
Approved July 5 1929 J. J. Thomson CHIEF ENGINEER & DEPUTY COMMISSIONER

| ITEM | UNIT | STATEMENT OF ESTIMATED QUANTITIES AND COSTS | | | | | | | | | | | | | | TOTAL ESTIMATED QUANTITIES | ESTIMATED UNIT PRICES | AMOUNTS | TOTALS |
|--|---|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------------|-----------------------|---------|--------|
| | | MILE | MILE | MILE | MILE | MILE | MILE | MILE | MILE | MILE | MILE | MILE | MILE | MILE | | | | | |
| | | Sta. 0+12 to Sta. 53+76 | Sta. 53+76 to Sta. 61+60 | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | Sta. _____ to Sta. _____ | | | | |
| GRADING | | | | | | | | | | | | | | | | | | | |
| 1 | Clearing Tree | Acre | 40 | 14 | | | | | | | | | | | | | | 54 | |
| 2 | Clearing Tree | Acre | | | | | | | | | | | | | | | | | |
| 3 | Grubbing | Acre | | | | | | | | | | | | | | | | | |
| 4 | Grubbing Tree | Acre | 27 | 14 | | | | | | | | | | | | | | 41 | |
| 5 | Excavation - Earth | Cu. Yd. | 12,505 | 4829 | | | | | | | | | | | | | | 17334 | |
| 6 | Excavation - Loose Rock | Cu. Yd. | 35 | 70 | | | | | | | | | | | | | | 105 | |
| 7 | Excavation - Solid Rock | Cu. Yd. | 5 | 20 | | | | | | | | | | | | | | 25 | |
| 8 | Excavation - Overhaul | Cu. Yd. | 5815 | 5212 | | | | | | | | | | | | | | 11027 | |
| 9 | Special Excavation | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 10 | Hand Ditching | Cu. Yd. | | 25 | | | | | | | | | | | | | | 25 | |
| 11 | Tile Drain | in. | | | | | | | | | | | | | | | | | |
| 12 | Tile Drain | in. | | | | | | | | | | | | | | | | | |
| 13 | Tile Drain | in. | | | | | | | | | | | | | | | | | |
| 14 | Porous Back Fill Material | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 15 | Stone Rip - Rap | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 16 | Healing Rip-Rap or Stone Drain Material | Cu. Yd. mile | | | | | | | | | | | | | | | | | |
| 17 | Install 15" C.M. | Lin. Ft. | 150 | 140 | | | | | | | | | | | | | | 290 | |
| 18 | Install 18" C.M. | Lin. Ft. | 40 | | | | | | | | | | | | | | | 40 | |
| 19 | Install 20" C.M. | Lin. Ft. | | 20 | | | | | | | | | | | | | | 20 | |
| 20 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 21 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 22 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 23 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 24 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 25 | Install 24" P _s | Lin. Ft. | 162 | 26 | | | | | | | | | | | | | | 258 | |
| 26 | Install 30" P _s | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 27 | Install 36" P _s | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 28 | P ₁ Culvert Haul | Ton Mile | | | | | | | | | | | | | | | | | |
| 29 | P _s Culvert Haul | Ton Mile | 32.32 | 20.88 | | | | | | | | | | | | | | 55.31 | |
| 30 | Rem. Old Culv. | Lin. Ft. | | 136 | | | | | | | | | | | | | | 136 | |
| 31 | Rep. " " | " " | | 132 | | | | | | | | | | | | | | 132 | |
| 32 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF GRADING (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| PORTABLE CULVERTS | | | | | | | | | | | | | | | | | | | |
| 33 | C.M. Culv. Material 15" | Lin. Ft. | 150 | 140 | | | | | | | | | | | | | | 290 | |
| 34 | C.M. Culv. Material 18" | Lin. Ft. | 40 | | | | | | | | | | | | | | | 40 | |
| 35 | C.M. Culv. Material 20" | Lin. Ft. | | 20 | | | | | | | | | | | | | | 20 | |
| 36 | C.M. Bands 15" | Each | | 2 | | | | | | | | | | | | | | 2 | |
| 37 | C.M. Bands 20" | Each | | 2 | | | | | | | | | | | | | | 2 | |
| 38 | Culv. Material | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 39 | P _s Culv. Material 24" | Lin. Ft. | 162 | 26 | | | | | | | | | | | | | | 258 | |
| 40 | P _s Culv. Material 30" | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 41 | P _s Culv. Material 36" | Lin. Ft. | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF PORTABLE CULVERT MATERIAL (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| GRAVEL HAUL | | | | | | | | | | | | | | | | | | | |
| 42 | Gravel Pit Stripping | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 43 | Screening | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 44 | Loading | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 45 | Hauling | Cu. Yd. Mile | | | | | | | | | | | | | | | | | |
| 46 | Shaping & Compacting | Man Hour | | | | | | | | | | | | | | | | | |
| 47 | Shaping & Compacting | Man Hour | | | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF GRAVEL HAUL (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| GRAVEL MATERIAL | | | | | | | | | | | | | | | | | | | |
| 52 | Gravel Material F. O. B. Pit | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 53 | Freight (If any) | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 54 | Unloading from Cars | Cu. Yd. | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF GRAVEL MATERIAL (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| PAVEMENT CONSTRUCTION | | | | | | | | | | | | | | | | | | | |
| 55 | Fine Grading - Exc. & Emb. | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 56 | Shoulders - Earth | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | | | | | |
| 59 | Pavement | Sq. Yd. | | | | | | | | | | | | | | | | | |
| 60 | Integral Curb | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 61 | Sloping Curb | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 62 | Surface Drain | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 63 | Surface Drain Basins | Basin | | | | | | | | | | | | | | | | | |
| 64 | Bridge Approach Slabs (Square) | Slab | | | | | | | | | | | | | | | | | |
| 65 | Bridge Approach Slabs (Skew) | Slab | | | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF PAVEMENT CONSTRUCTION (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| STRUCTURES | | | | | | | | | | | | | | | | | | | |
| 69 | Concrete | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 70 | Reinforcing Steel | Lb. | | | | | | | | | | | | | | | | | |
| 71 | Excavation - Earth | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 72 | Excavation - Loose Rock | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 73 | Excavation - Solid Rock | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 74 | Bridge | Br. No. | | | | | | | | | | | | | | | | | |
| 75 | Station | | | | | | | | | | | | | | | | | | |
| 76 | Concrete | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 77 | Reinforcing Steel | Lb. | | | | | | | | | | | | | | | | | |
| 78 | Structural Steel | Lb. | | | | | | | | | | | | | | | | | |
| 79 | Piling | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 80 | Temporary Crossing | Lump Sum | | | | | | | | | | | | | | | | | |
| 81 | Removing old Bridge | Lump Sum | | | | | | | | | | | | | | | | | |
| 82 | Bituminous Surface | Sq. Yd. | | | | | | | | | | | | | | | | | |
| 83 | | | | | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF STRUCTURES (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| MISCELLANEOUS | | | | | | | | | | | | | | | | | | | |
| 85 | Guard Rail - Cable | Lin. Ft. | 1325 | 600 | | | | | | | | | | | | | | 1925 | |
| 86 | ----- Anchors | Each | 10 | 4 | | | | | | | | | | | | | | 14 | |
| 87 | Excavation for Gutter | Cu. Yd. | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF MISCELLANEOUS ITEMS (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |

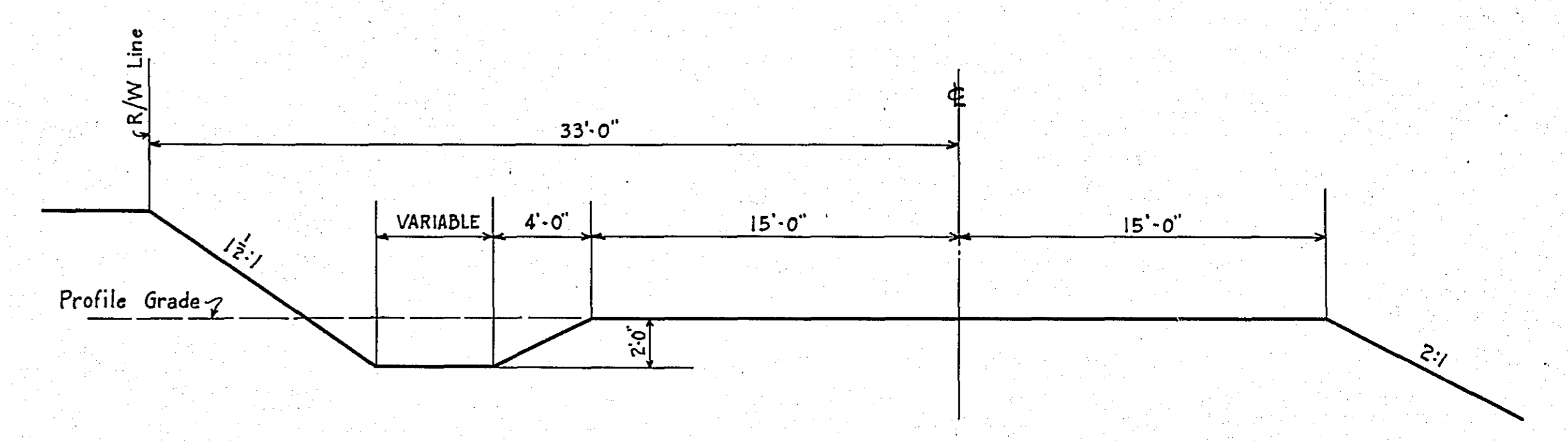
TYPICAL CROSS SECTIONS AND DETAILS

| | | | | | | |
|---------------------|-------|--------------------|------|-------------|-----------|--------------|
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | REC. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
| 4 | MINN. | | | | | |

PROJECT 29-15



TYPICAL GRADING SECTION

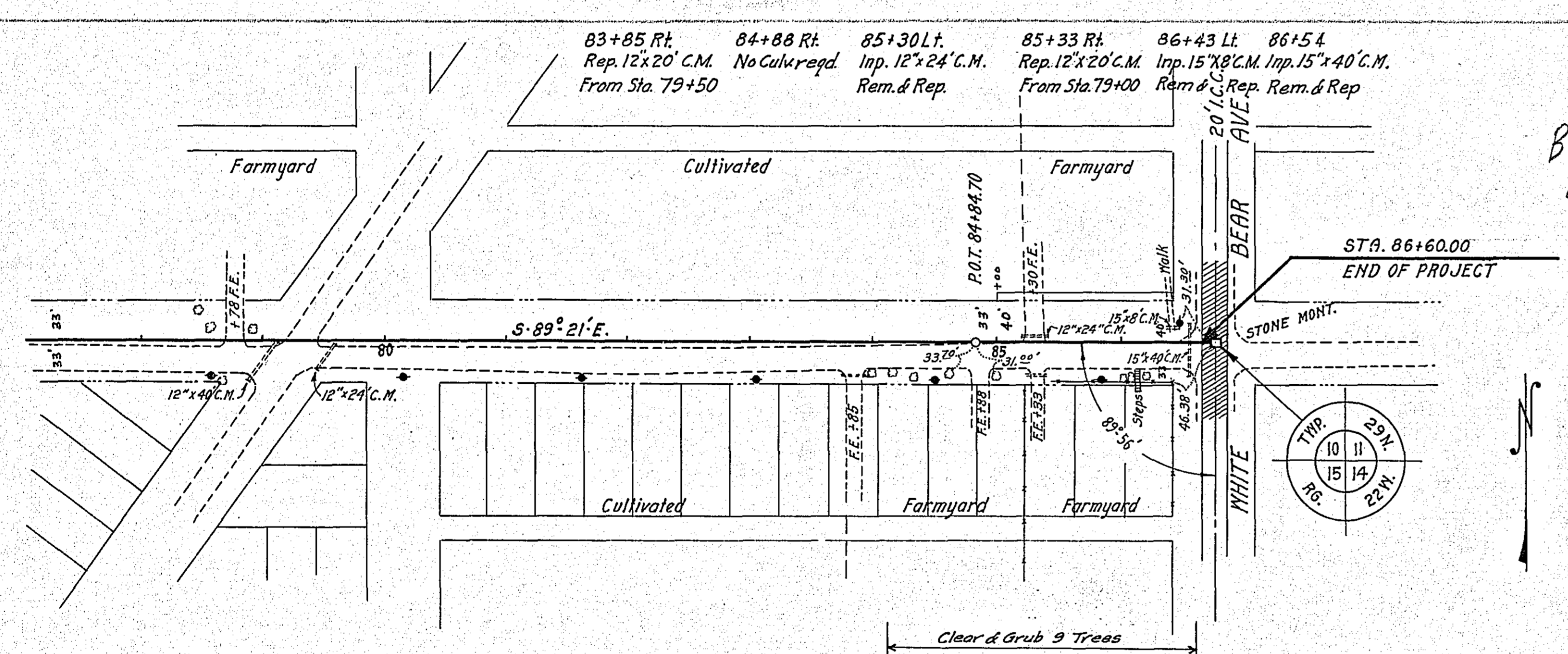
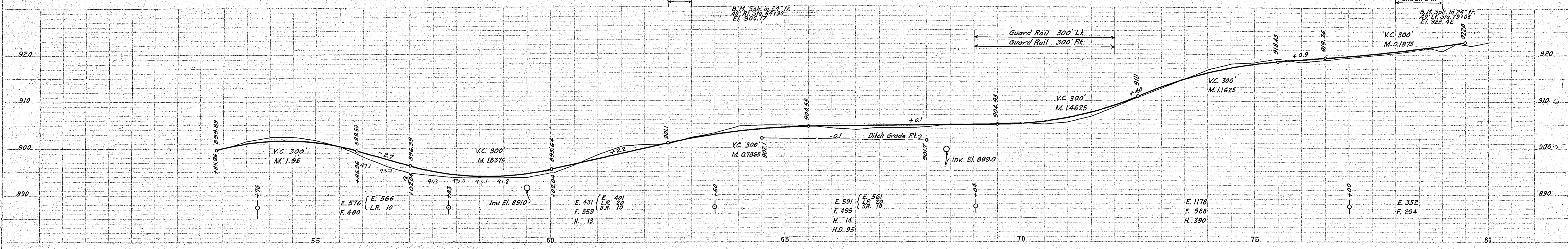
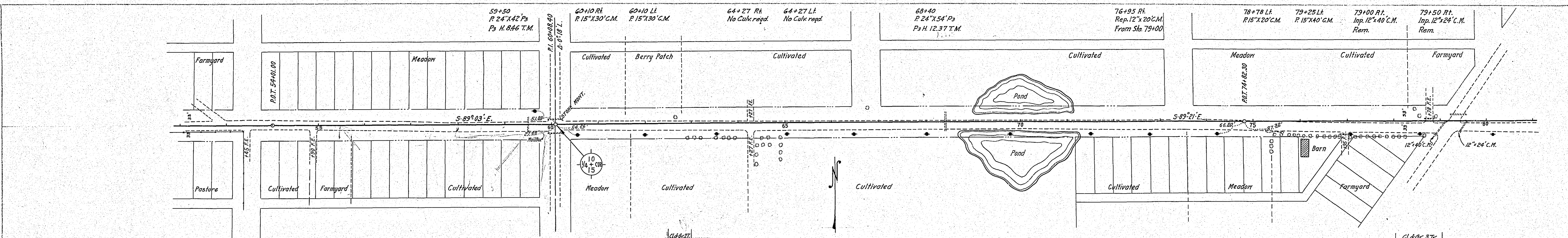


SPECIAL GRADING SECTION - STA. 35+50 TO STA. 51+00

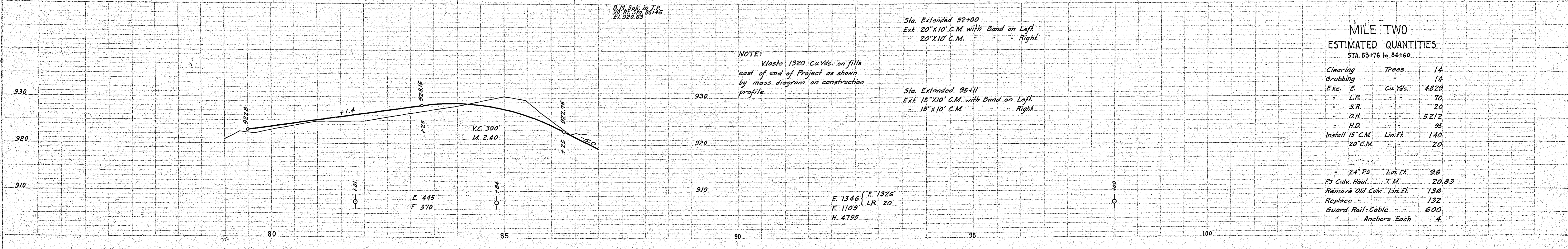
NOTE: See plan sheets for special ditch grade between the following stations:
3+00 to 4+25
7+00 to 9+50
64+50 to 68+00

* NOTE: BRIDGE ITEMS LISTED UNDER BRIDGE NUMBERS IN MILE COLUMNS REGARDLESS OF LOCATION

PLAN
 APPROVED
 E. OTT
 NOTE BOOK
 ALIGNMENT CHECKER
 NO. OF WORK CHECKED



B.M. TWP Mont
 El. = 922.14



NOTE: Waste 1320 Cu Yds. on fills east of end of Project as shown by mass diagram on construction profile.

Sta. Extended 92+00
 Ext. 20'x10' C.M. with Band on Left
 20'x10' C.M. " " " Right

Sta. Extended 95+11
 Ext. 15'x10' C.M. with Band on Left
 15'x10' C.M. " " " Right

MILE TWO
 ESTIMATED QUANTITIES
 STA. 53+76 to 86+60

| | | |
|------------------|----------|-------|
| Clearing | Trees | 14 |
| Grubbing | | 14 |
| Exc. E. | Cu Yds. | 4829 |
| L.R. | | 70 |
| S.R. | | 20 |
| O.H. | | 5212 |
| H.D. | | 95 |
| Install 15' C.M. | Lin. Ft. | 140 |
| 20' C.M. | | 20 |
| 24' Ps | Lin. Ft. | 96 |
| Ps Culk. Haul | T.M. | 20.83 |
| Remove Old Culk. | Lin. Ft. | 136 |
| Replace | | 132 |
| Guard Rail-Cable | | 600 |
| Anchors Each | | 4 |

E. 1346
 F. 1109
 H. 4795

E. 1326
 L.R. 20