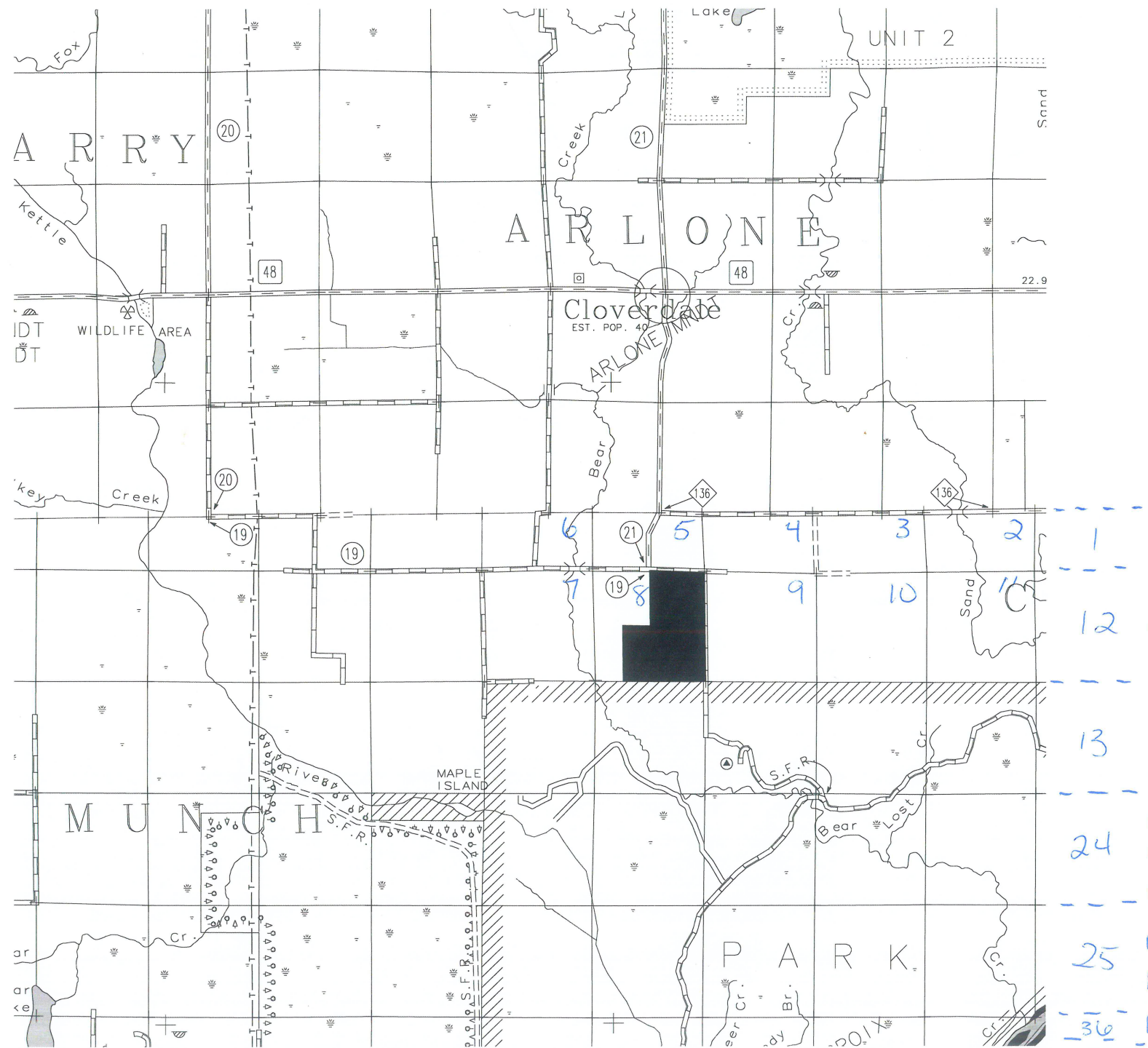


# INTERNATIONAL UNION OF OPERATING ENGINEERS 49ERS

## GRADING & ROAD PLANS

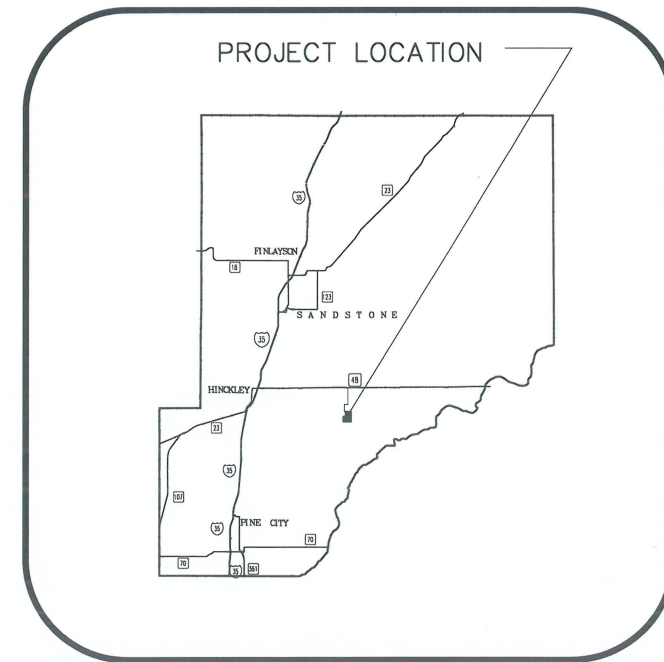


SITE LOCATION MAP

### INDEX:

- C1 COVER SHEET
- D1-D2 DETAIL SHEET
- G1-G6 PRELIMINARY GRADING AND LANDSCAPING PLAN
- XS1 CROSS SECTIONS- FISHTAIL RD
- XS2-3 CROSS SECTIONS- TRAINING FACILITY ENTRANCE DRIVE

*Each section = 1 mile by 1 mile  
 36 sections per township  
 Township = 6x6  
 640 acres per section  
 Errors pushed North + West  
 as they plot sections*

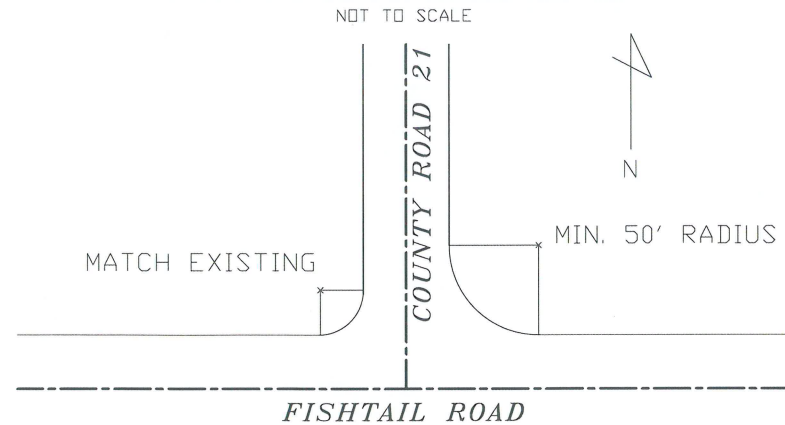


SEC. 8, T. 40N., R.19W.  
 PINE COUNTY MAP



|  |   |   |
|--|---|---|
| DRAWN<br>ACB<br>DATE<br>5/2/05<br>SCALE<br>1"=50'<br>PROJECT<br>1199-006<br>CHECKED<br>E.J.L.<br>APPROVED  | COVER SHEET<br><b>INTERNATIONAL UNION OF OPERATING ENGINEERS</b><br>CROSBY WEST TOWNSHIP,<br>PINE COUNTY, MINNESOTA   | OWNER/DEVELOPER<br><b>OPERATING ENGINEERS LOCAL 49</b><br>2829 ANTHONY LANE SOUTH<br>MINNEAPOLIS, MINNESOTA<br>PHONE: (612)788-9441 |
| I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. |  <p>1839 Main St. N. Suite 7, Pine City, MN 55063<br/>                 Telephone: (650)959-3887 Fax: (650)959-0176<br/>                 E-Mail: metro@metroeng.com<br/>                 Little Canada: 651-766-0102, Rogers: 763-439-3538, Burnsville: 952-977-4999</p> |   |
| DATE<br>REVISIONS  | BY<br>REVISIONS   | SCOTT GEDDES<br>LICENSE NO. 42649<br>DATE   |
| C1   |   |   |

COUNTY ROAD MINIMUM RADIUS



GENERAL NOTES:

- A. ITEMS TO BE COMPLETED BY OWNER:
1. TREE REMOVAL & STUMP GRINDING
  2. STRIP TOPSOIL
  3. CLEARING & GRUBBING
  4. CONSTRUCTION OF LANDSCAPE BERM
  5. SPADE & TRANSPLANT TREES
  6. REMOVAL OF EXISTING BUILDINGS
  7. SEEDING & MULCHING (LANDSCAPE BERMS ONLY)
- B. ITEMS TO BE COMPLETED UNDER THIS CONTRACT
1. ROUGH GRADING FOR TOWN ROAD, ACCESS DRIVE, PONDS, BUILDING PAD, PARKING AREA & EQUIPMENT STAGING \*
  2. INSTALLATION OF ROADWAY CULVERTS, STORM SEWERS, MANHOLES & CATCH BASINS
  3. PLACEMENT OF GRAVEL BASE COURSE ALONG TOWN ROAD, ACCESS DRIVE, PARKING AREA & EQUIPMENT STAGING
  4. SEEDING & MULCHING (EXCEPT LANDSCAPE BERMS) & EROSION CONTROL ITEMS
- \* INCLUDING SUB-CUTTING AND REPLACEMENT WITH SELECT GRANULAR MATERIAL WHERE INDICATED
- C. FUTURE ITEMS TO BE CONSTRUCTED UNDER SEPERATE CONTRACT
1. CURB & GUTTER IN PARKING AREAS, SIDEWALKS
  2. BITUMINOUS PAVEMENT IN ROADWAYS & PARKING AREAS
  3. UNDERGROUND UTILITY CONNECTIONS (WATER, SEWER) TO TRAINING BUILDING
  4. FENCE & GATES
  5. PROJECT SIGNS

*Really Important!!*

GRADING NOTES:

SILT FENCE INSTALLED BY OWNER

PRIOR TO ROUGH GRADING, INSTALL ADDITIONAL SILT FENCE, IF NECESSARY, AS SHOWN OR AS DIRECTED BY THE ENGINEER. ADDITIONAL SILT FENCE WILL BE REQUIRED WHERE LOCAL CONDITIONS REQUIRE. ROUGH GRADING SHALL PROCEED ON AN AREA BY AREA BASIS TO MINIMIZE UNCOMPLETED AREAS.

AS EACH AREA OUTSIDE THE STREET/PARKING LOT IS GRADED, PROVIDE NATIVE TOPSOIL, SEED, AND MULCH ANCHORED WITH A STRAIGHT SET DISC WITHIN 48 HOURS OF FINE GRADING.

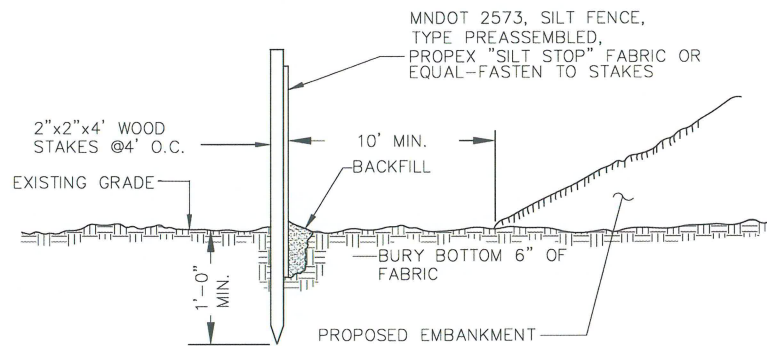
MAINTAIN AND REPAIR SILT FENCES (INCLUDING REMOVAL OF ACCUMULATED SILT) UNTIL VEGETATION IS ESTABLISHED.

SEED TO BE MnDOT TYPE 50B, MULCH TYPE 1 (2 TONS/ACRE).

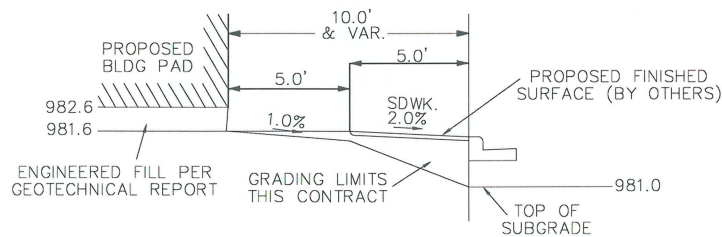
SEED FOR PONDING AREAS TO BE MnDOT TYPE 15A (WET MEADOW MIX).

TOPSOIL TO BE RESPREAD TO A DEPTH OF 4 INCHES.

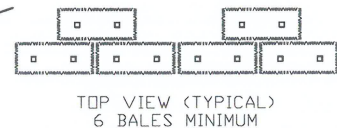
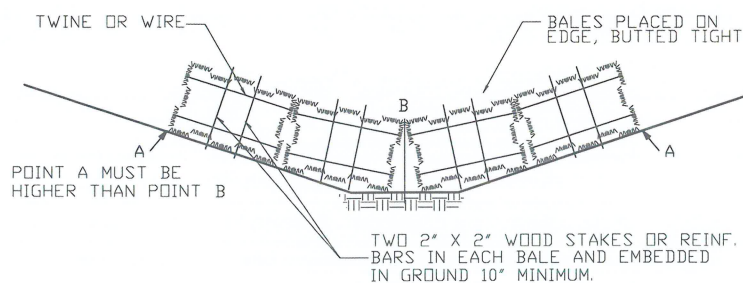
SILT FENCE INSTALLED BY OTHERS



GRADING DETAIL @ BUILDING

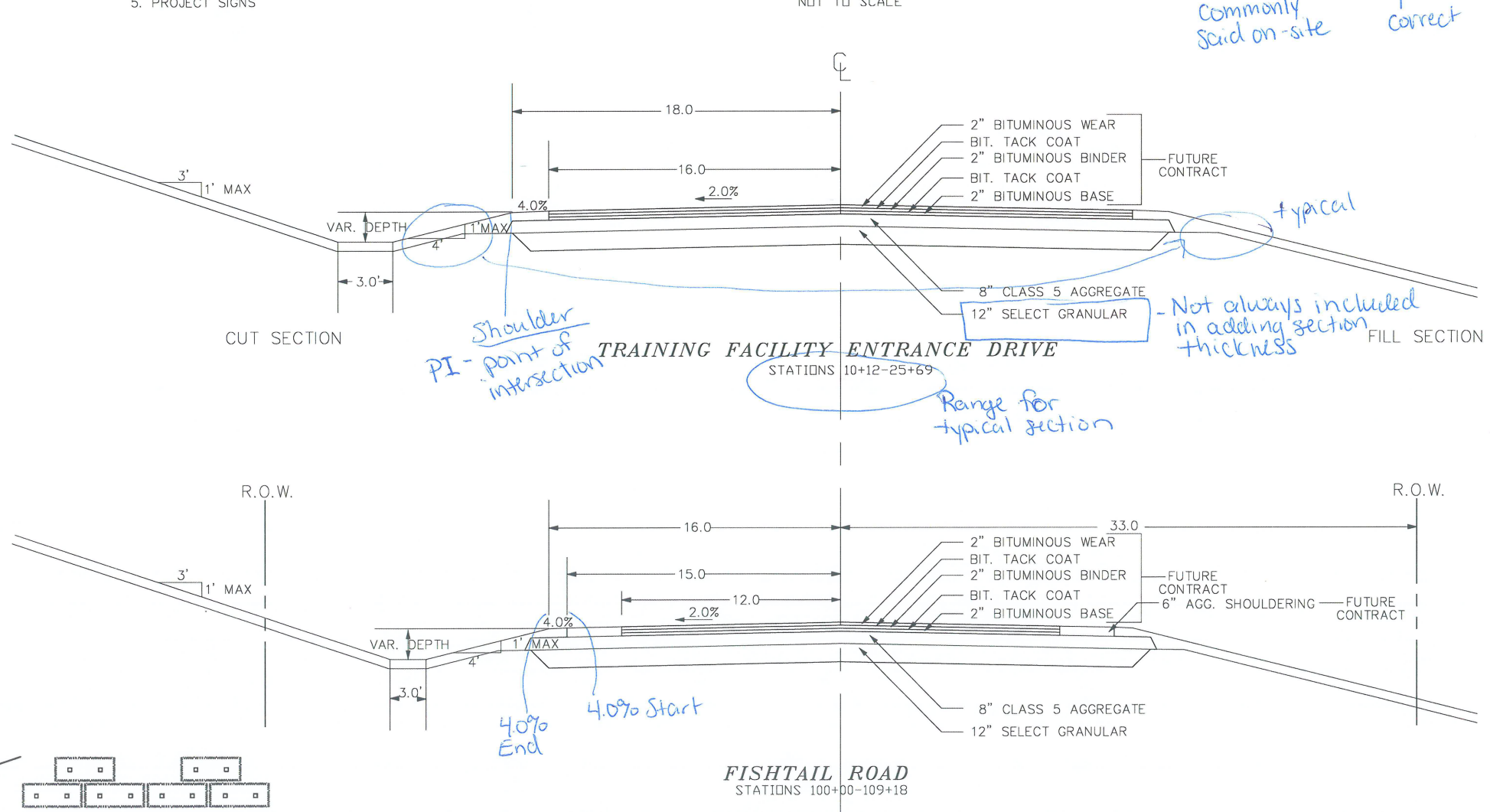


DITCH CHECK DETAIL



*\* Bales not typically used anymore*

TYPICAL SECTION



*4:1 is the same as 1:4*  
*Commonly said on-site*  
*correct*

*Shoulder PI - point of intersection*

*- Not always included in adding section thickness*

*Range for typical section*

*4.0% End*  
*4.0% Start*

|          |          |
|----------|----------|
| DATE     | 5/2/05   |
| SCALE    | 1"=50'   |
| PROJECT  | 1199-006 |
| CHECKED  | E.J.L.   |
| APPROVED |          |

|                 |                              |
|-----------------|------------------------------|
| OWNER/DEVELOPER | OPERATING ENGINEERS LOCAL 49 |
|                 | 2629 ANTHONY LANE SOUTH      |
|                 | MINNEAPOLIS, MINNESOTA       |
|                 | PHONE: (612)788-9441         |

|           |  |
|-----------|--|
| BY        |  |
| REVISIONS |  |
| DATE      |  |

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

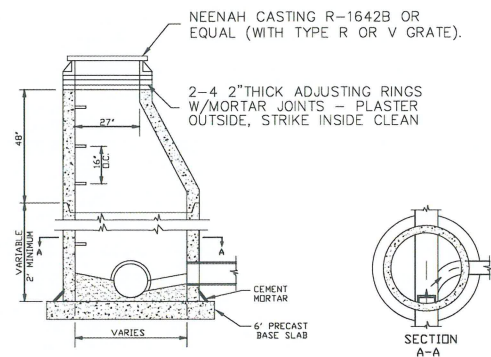
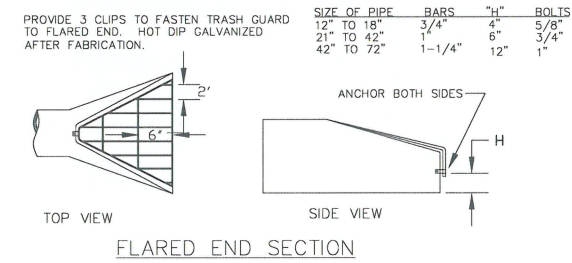
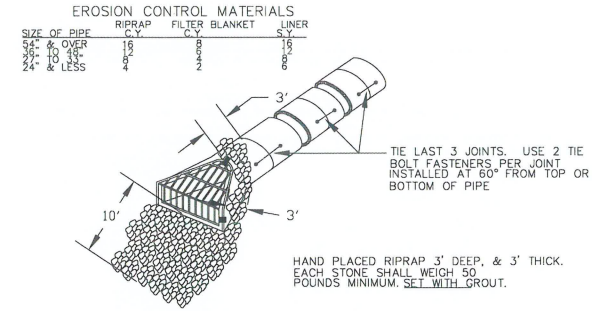
SCOTT GEDES  
LICENSE NO. 42649  
DATE

D1

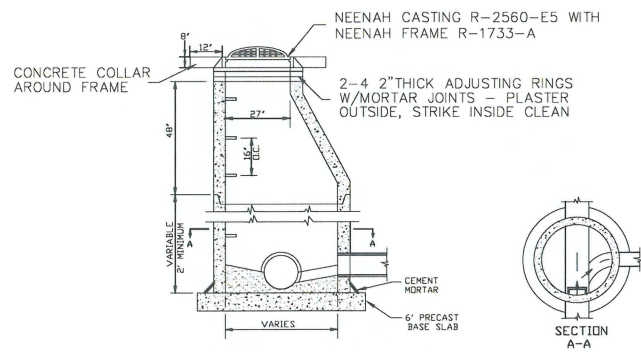
# STORM SEWER MANHOLE NOTES

NO WOOD SHALL BE USED FOR ADJUSTING CASTING; CEMENT MORTAR ONLY.  
 CAST IRON MANHOLE FRAME & COVER AS PER SPECIFICATIONS.  
 MANHOLE STEPS SHALL BE CAST IRON, ALUMINUM OR STEEL REINFORCED PLASTIC PER ASTM C478. LOCATION SHALL BE AS NOTED IN THE SPECIFICATIONS.  
 MANHOLES 20' DEEP AND OVER TO BE CONSTRUCTED WITHOUT STEPS.  
 PRECAST REINFORCED CONCRETE MANHOLE SECTIONS & BASE SLAB PER ASTM C478.  
 FURNISH PRECAST MANHOLE SECTIONS WITH O-RING GASKETS & LUBRICANT EXCEPT AS OTHERWISE SPECIFIED.  
 A 12" OR 16" BARREL SECTION SHALL BE INSTALLED UNDER THE CONE WHENEVER POSSIBLE.  
 FILL OPENING BETWEEN PIPE & MH WALL WITH CEMENT MORTAR. INSIDE SURFACE SHALL BE FINISHED SMOOTH.

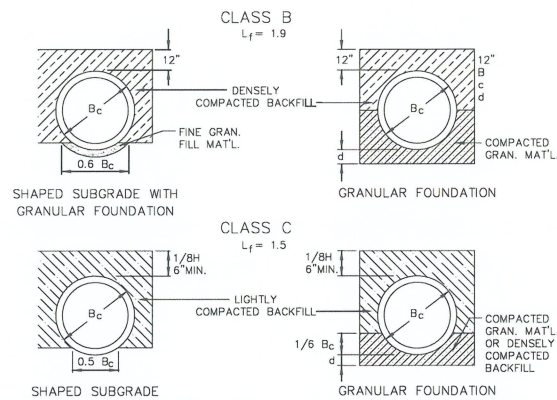
*\* Always Read Notes \**



TYPICAL STORM MANHOLE



TYPICAL STORM MANHOLE WITH BEEHIVE

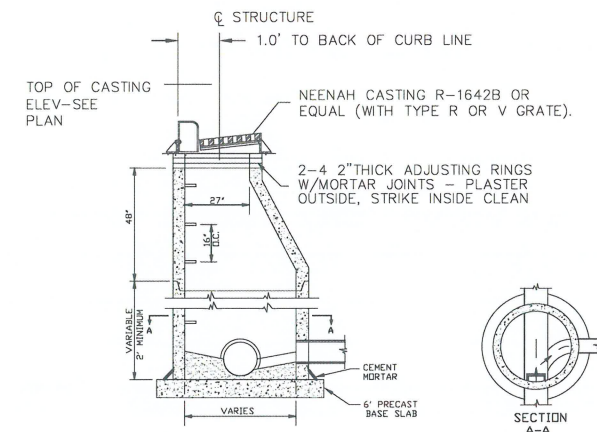


LEGEND

c = OUTSIDE DIAMETER  
 B = BACKFILL COVER OVER TOP OF PIPE  
 d = INSIDE DIAMETER  
 D = DEPTH OF BEDDING MATERIAL BELOW PIPE  
 A<sub>TS</sub> = AREA OF TRANSVERSE STEEL IN THE CRADLE OR ARCH EXPRESSED AS A PERCENTAGE OF AREA OF CONCRETE AT INVERT OR CROWN.

| DEPTH OF BEDDING MATERIAL BELOW PIPE | D  | d MIN. |
|--------------------------------------|----|--------|
| 27" & SMALLER                        | 3" | 3"     |
| 30" TO 60"                           | 4" | 4"     |
| 66" & LARGER                         | 6" | 6"     |

TRENCH BEDDING-CIRCULAR PIPE



TYPICAL STORM MANHOLE WITH CURB & GUTTER

|          |          |
|----------|----------|
| DRAWN    | ACB      |
| DATE     | 5/2/05   |
| SCALE    | 1" = 50' |
| PROJECT  | 1199-006 |
| CHECKED  | E.J.L.   |
| APPROVED |          |

DETAILS  
 INTERNATIONAL UNION OF OPERATING ENGINEERS  
 CROSBY WEST TOWNSHIP, PINE COUNTY, MINNESOTA

OWNER/DEVELOPER  
 OPERATING ENGINEERS LOCAL 49  
 2829 ANTHONY LANE SOUTH  
 MINNEAPOLIS, MINNESOTA  
 PHONE: (612)788-9441

METRO LAND SURVEYING & ENGINEERING, INC.  
 1639 Main St. N. Suite 7, Pine City, MN 55063  
 Telephone: (650)829-3287 Fax: (650)829-0176  
 E-mail: metro@metroinc.com  
 Little Canada: 801-766-0102, Rogers: 763-438-5130, Burnsville: 952-707-9299

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SCOTT GEIDDES  
 LICENSE NO. 42649  
 DATE

| DATE | REVISIONS | BY |
|------|-----------|----|
|      |           |    |
|      |           |    |
|      |           |    |

D2

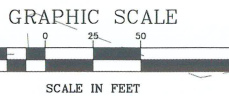








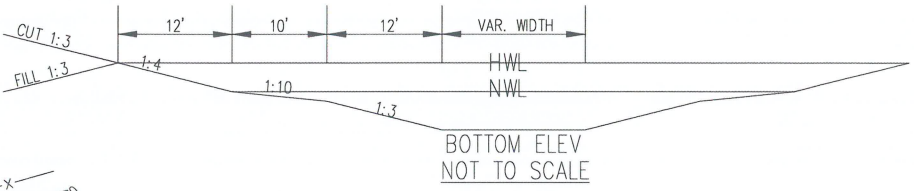
NOTE: PROPOSED CONTOURS AND SPOT ELEVATIONS ARE TO TOP OF SUBGRADE

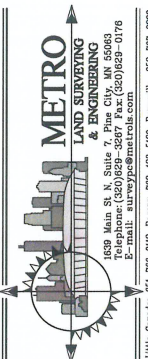


\* Proposed lines are DARKER

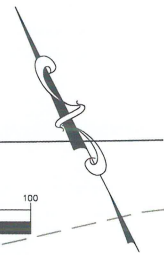
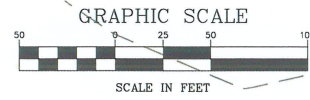
High Water Line  
Normal Water Line

| POND | HWL   | NWL   | BOTTOM |
|------|-------|-------|--------|
| P1   | 973.0 | 970.0 | 966.0  |
| P2   | 973.0 | 970.0 | 966.0  |
| P3   | 975.0 | 972.0 | 968.0  |



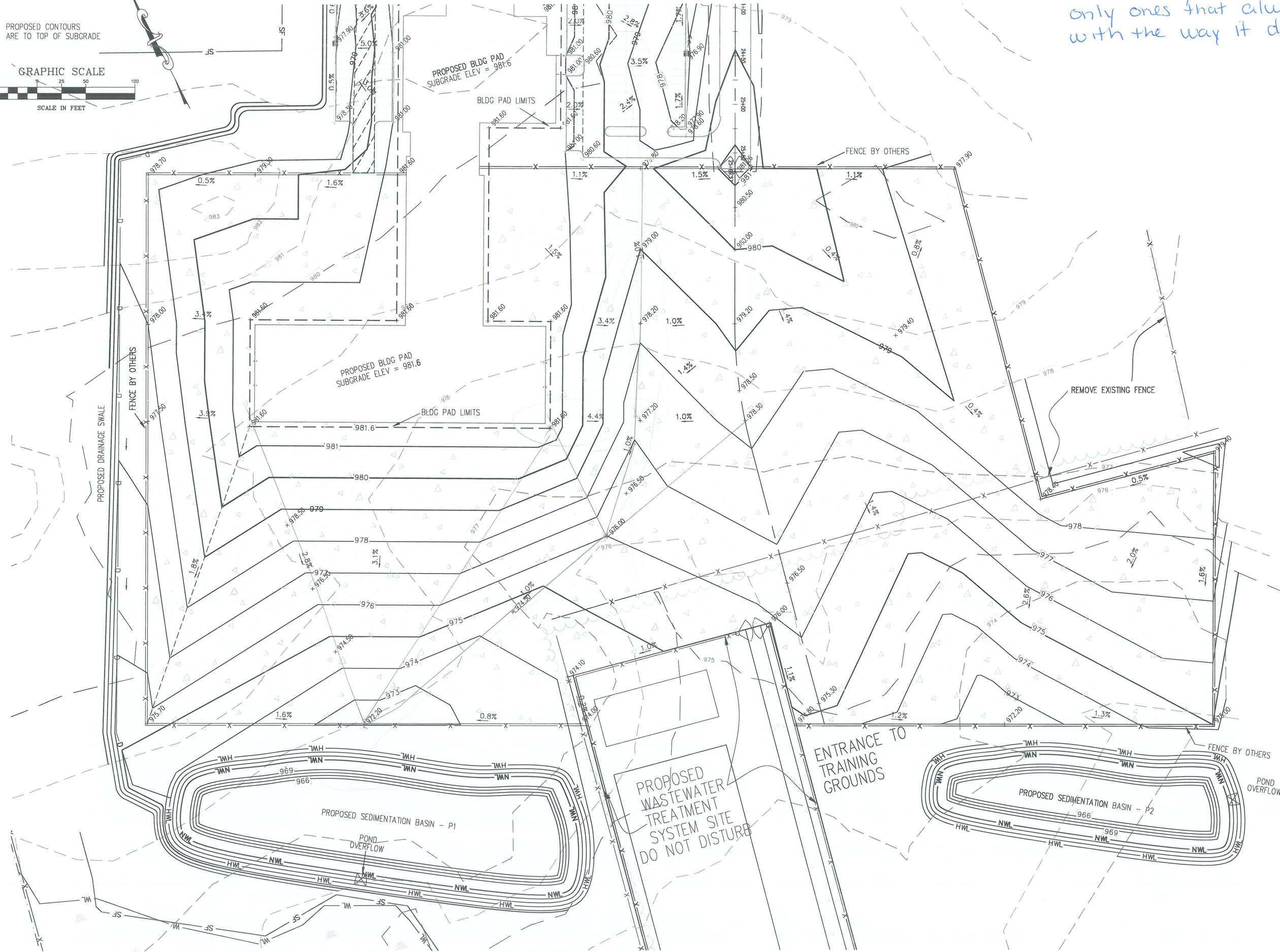
| DRAWN   | ACB       | DATE | 5/2/05 | SCALE | 1" = 20' | PROJECT | 1199-006 | CHECKED | E.J.L. SEG | APPROVED |      |           |  |  |  |  |  |  |
|---|-----------|------|--------|-------|----------|---------|----------|---------|------------|----------|------|-----------|--|--|--|--|--|--|
| <p><b>PRELIMINARY GRADING AND LANDSCAPING PLAN</b></p>  |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
| <p>OWNER/DEVELOPER<br/><b>INTERNATIONAL UNION OF OPERATING ENGINEERS LOCAL 49</b><br/>2829 ANTHONY LANE SOUTH<br/>MINNEAPOLIS, MINNESOTA<br/>PHONE: (612)788-9441</p>   |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
|  <p>1639 Main St. N. Suite 7, Pine City, MN 55003<br/>Telephone: (650)829-3887 Fax: (650)829-0176<br/>E-mail: metro@metroeng.com<br/>Little Canada: 651-766-0102, Inger: 763-438-5100, Burnsville: 952-707-9999</p> |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
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| <p>SCOTT GEDDES<br/>DATE: _____ LICENSE NO. 42649</p>   |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
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| DATE  | REVISIONS |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
|   |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
|   |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
|   |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |
| G4  |           |      |        |       |          |         |          |         |            |          |      |           |  |  |  |  |  |  |

NOTE: PROPOSED CONTOURS ARE TO TOP OF SUBGRADE



SEE SHEET G4

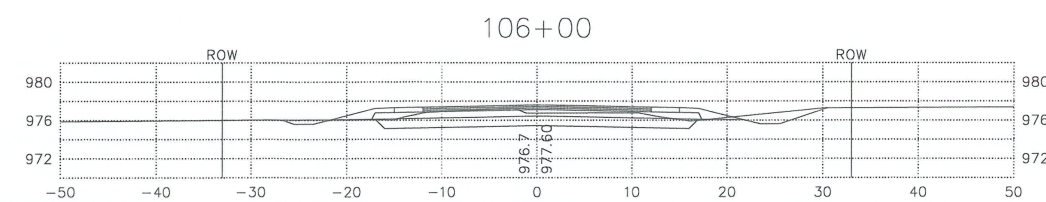
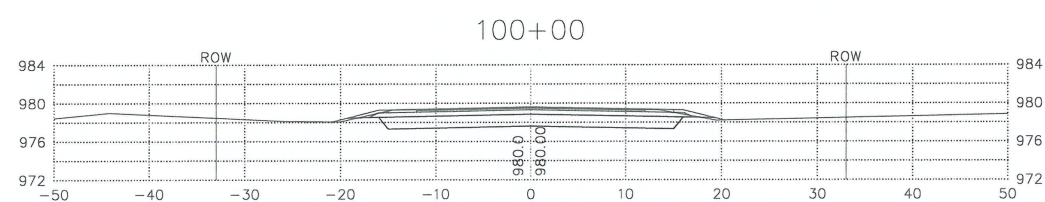
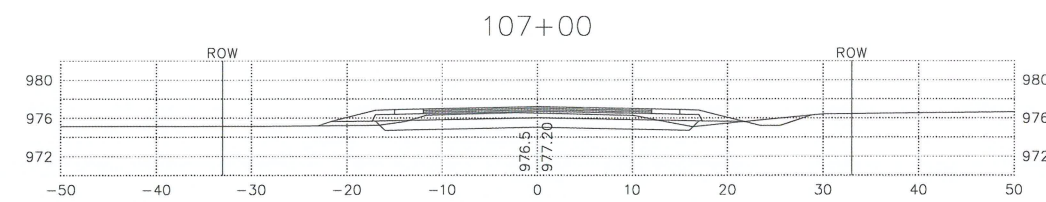
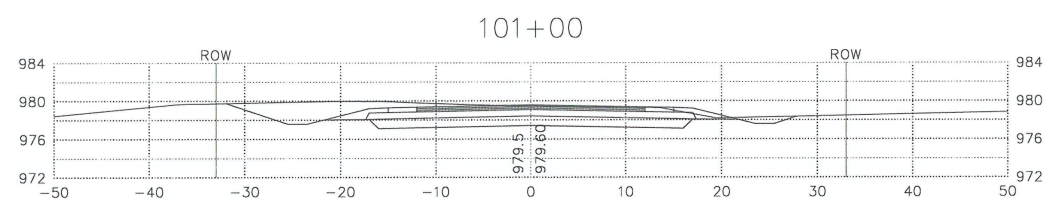
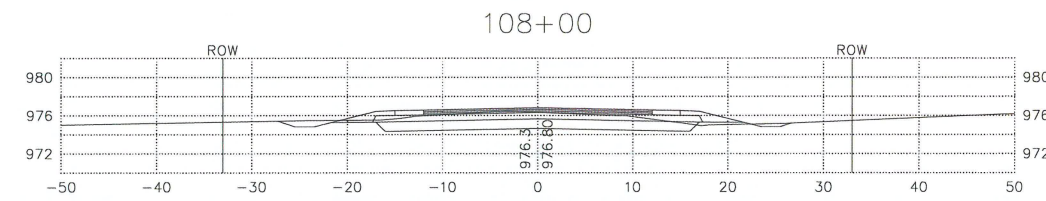
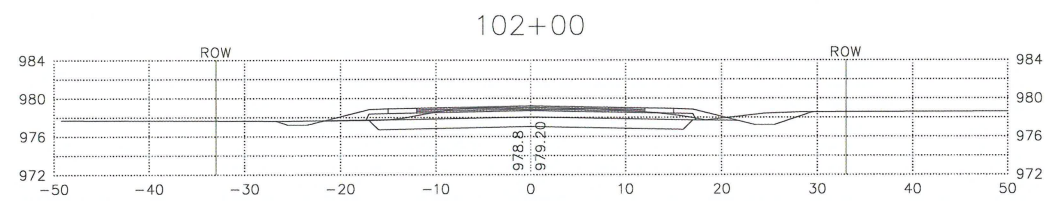
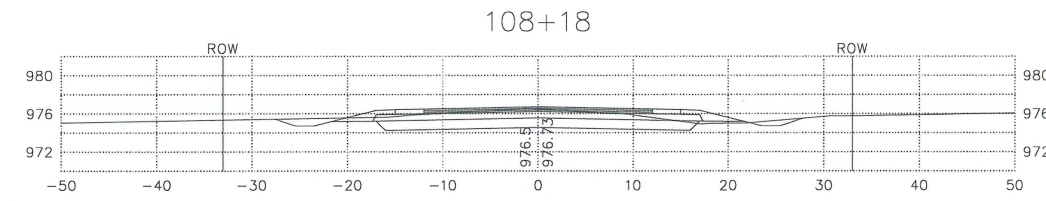
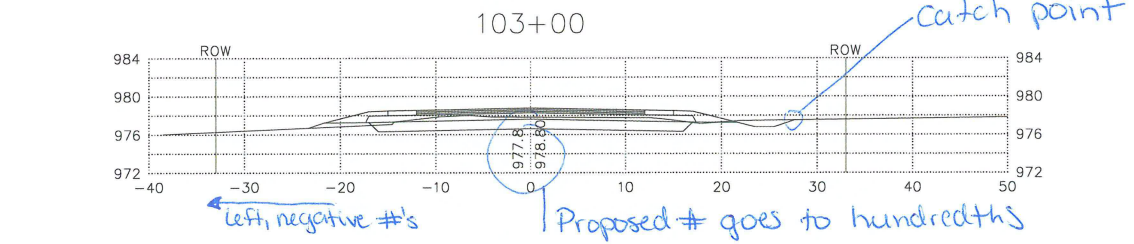
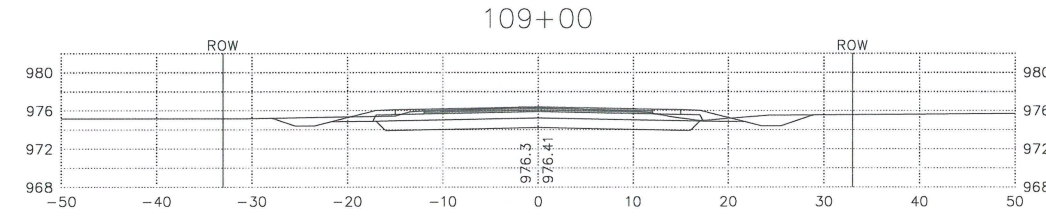
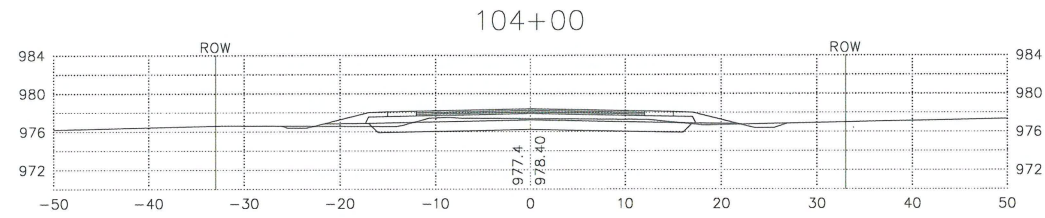
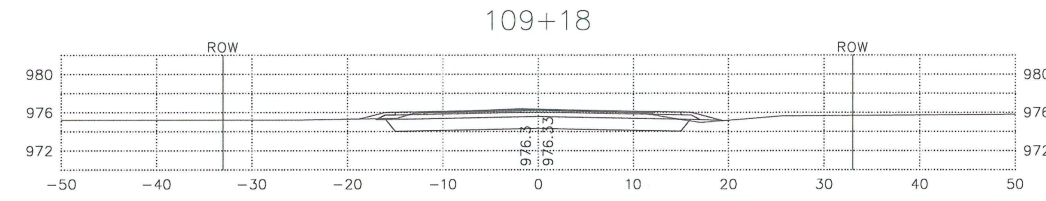
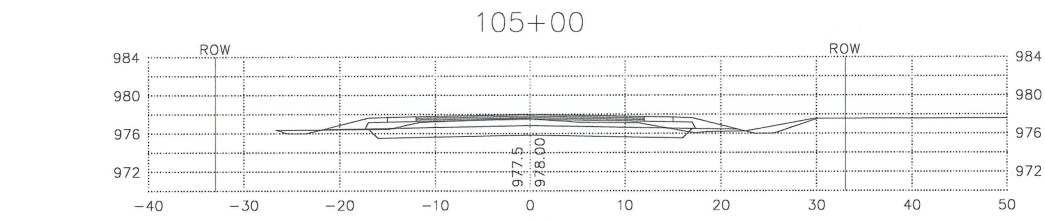
\* Roadway contours are the only ones that always flow with the way it drains



|  |              |
|--|--------------|
| DATE   | 5/2/05       |
| SCALE  | 1" = 50'     |
| PROJECT  | 1199-006     |
| CHECKED  | EJL          |
| APPROVED   | ACB          |
| <b>PRELIMINARY GRADING AND LANDSCAPING PLAN</b>  |              |
| OWNER/DEVELOPER<br><b>INTERNATIONAL UNION OF OPERATING ENGINEERS LOCAL 49</b><br>2629 ANTHONY LANE SOUTH<br>MINNEAPOLIS, MINNESOTA<br>PHONE: (612)788-9441   |              |
| <p>1839 Main St. N. Suite 7, Pine City, MN 55043<br/>Telephone: (650)829-3897 Fax: (650)829-0176<br/>E-MAIL: metro@metroeng.com<br/>Little Canada: 651-768-0112 Rogers: 763-439-5130, Burnsville: 952-707-8999</p> |              |
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| BY   | SCOTT GEDDES |
| REVISIONS  |              |
| DATE   |              |
| LICENSE NO. 42649  |              |
| <b>G5</b>  |              |



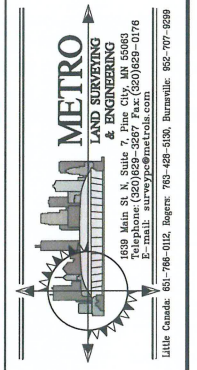




DRAWN: ACR  
 DATE: 5/2/05  
 SCALE: 1"=50'  
 PROJECT: 1199-006  
 CHECKED: [Signature]  
 APPROVED: [Signature]

**CROSS SECTIONS**  
**INTERNATIONAL UNION OF OPERATING ENGINEERS**  
 CROSBY WEST TOWNSHIP,  
 PINE COUNTY, MINNESOTA

OWNER/DEVELOPER  
**OPERATING ENGINEERS LOCAL 49**  
 2629 ANTHONY LANE SOUTH  
 MINNEAPOLIS, MINNESOTA  
 PHONE: (612)788-9441

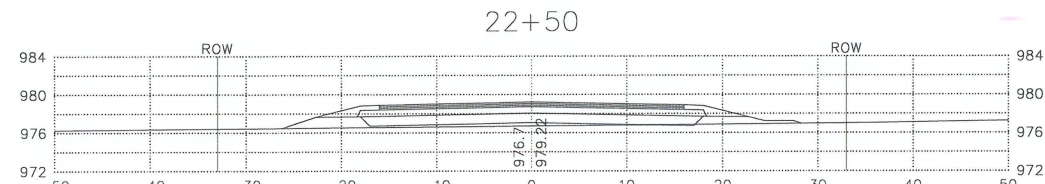
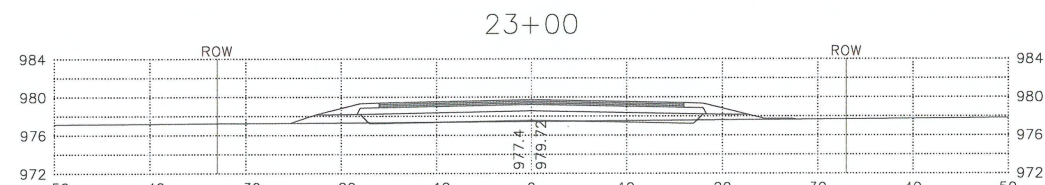
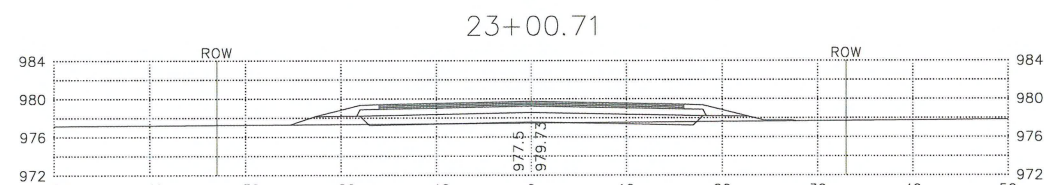
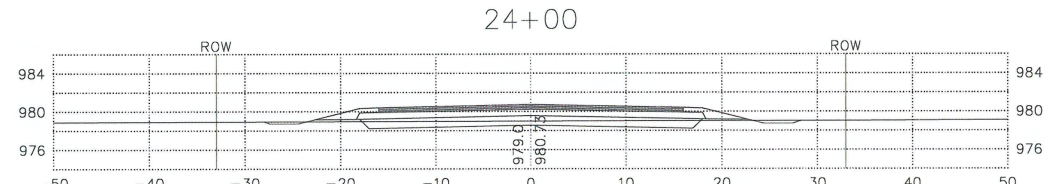
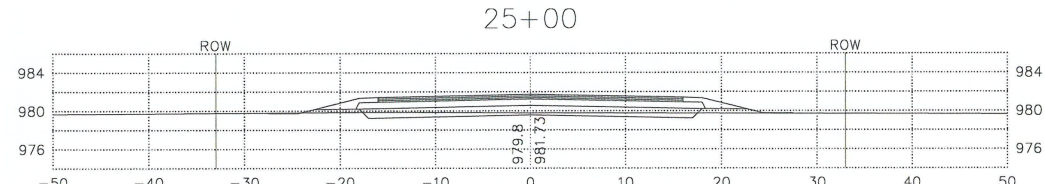
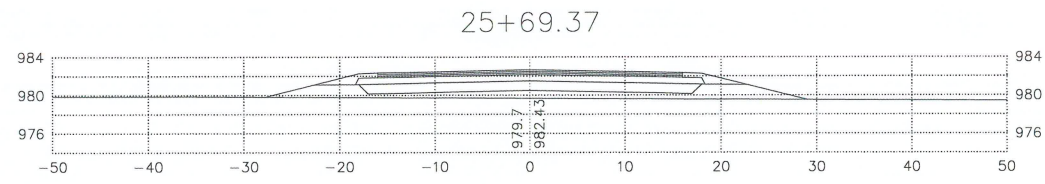
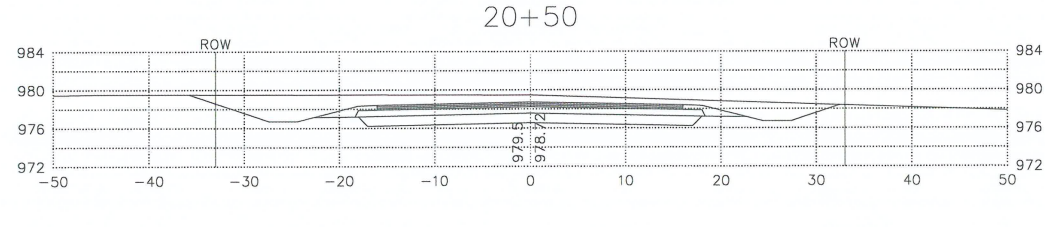
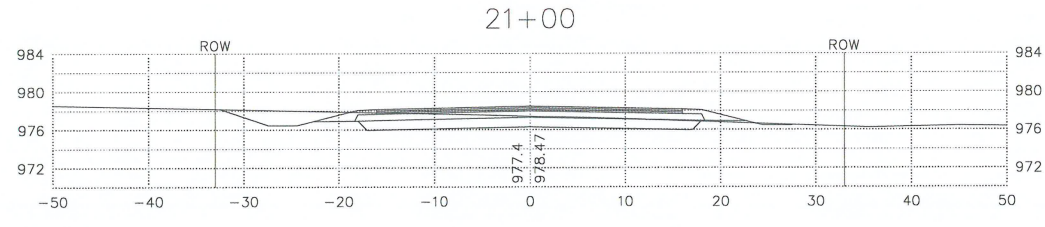
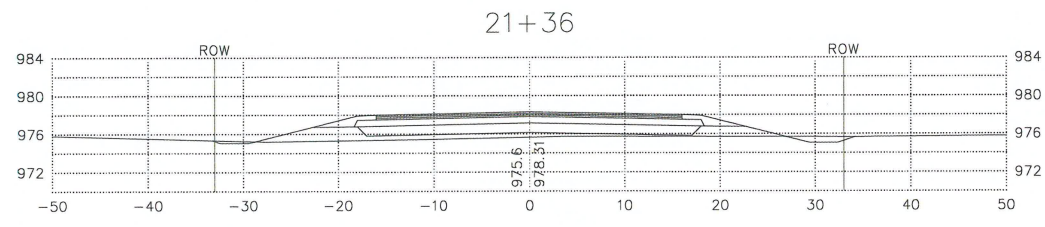
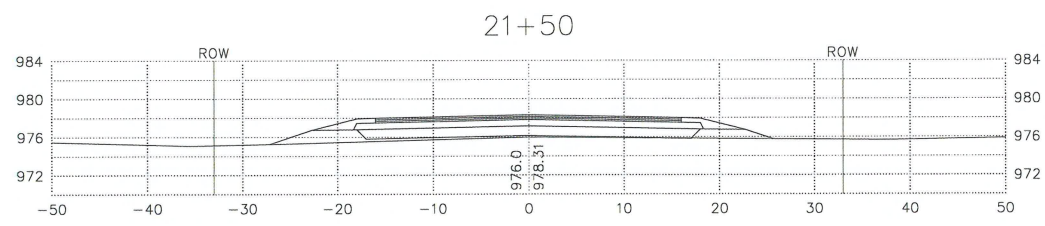
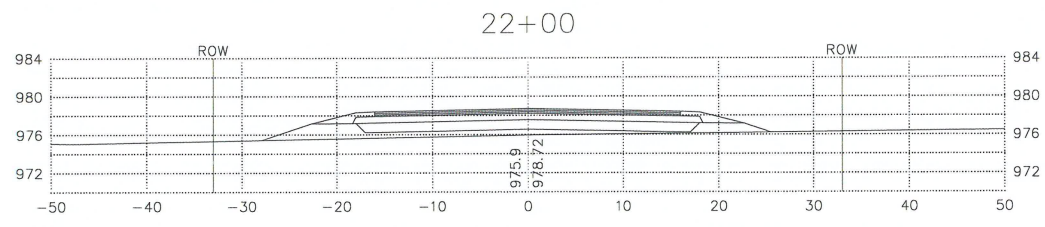


I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 SCOTT GEDDES  
 LICENSE NO. 42649  
 DATE:

| DATE | REVISIONS | BY |
|------|-----------|----|
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**XS1**

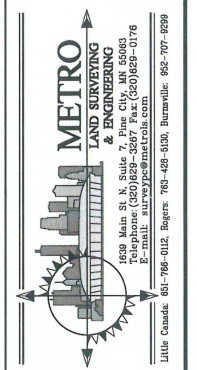




DRAWN: ACR  
 DATE: 5/2/05  
 SCALE: 1"=50'  
 PROJECT: T199-006  
 CHECKED:  
 APPROVED:

CROSS SECTIONS  
 INTERNATIONAL UNION OF  
 OPERATING ENGINEERS  
 CROSBY WEST TOWNSHIP,  
 PINE COUNTY, MINNESOTA

OWNER/DEVELOPER  
 OPERATING ENGINEERS  
 LOCAL 49  
 2829 ANTHONY LANE SOUTH  
 MINNEAPOLIS, MINNESOTA  
 PHONE: (612)788-9441



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XS3