

# FIGURE 1

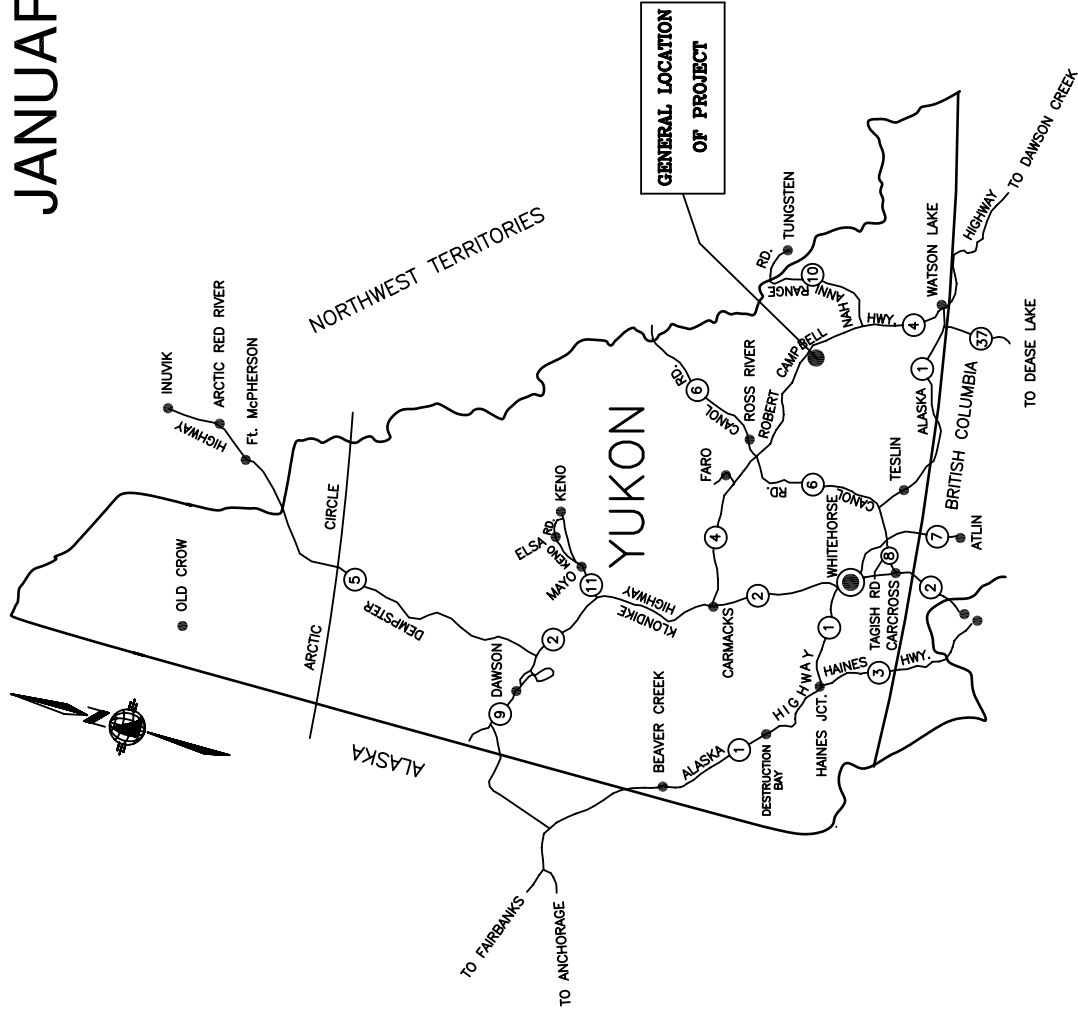
## Drawings For

### WOLVERINE ALL WEATHER

### ACCESS ROAD

### km 0.0 to km 24.0

ISSUED FOR CONSTRUCTION  
JANUARY 2007

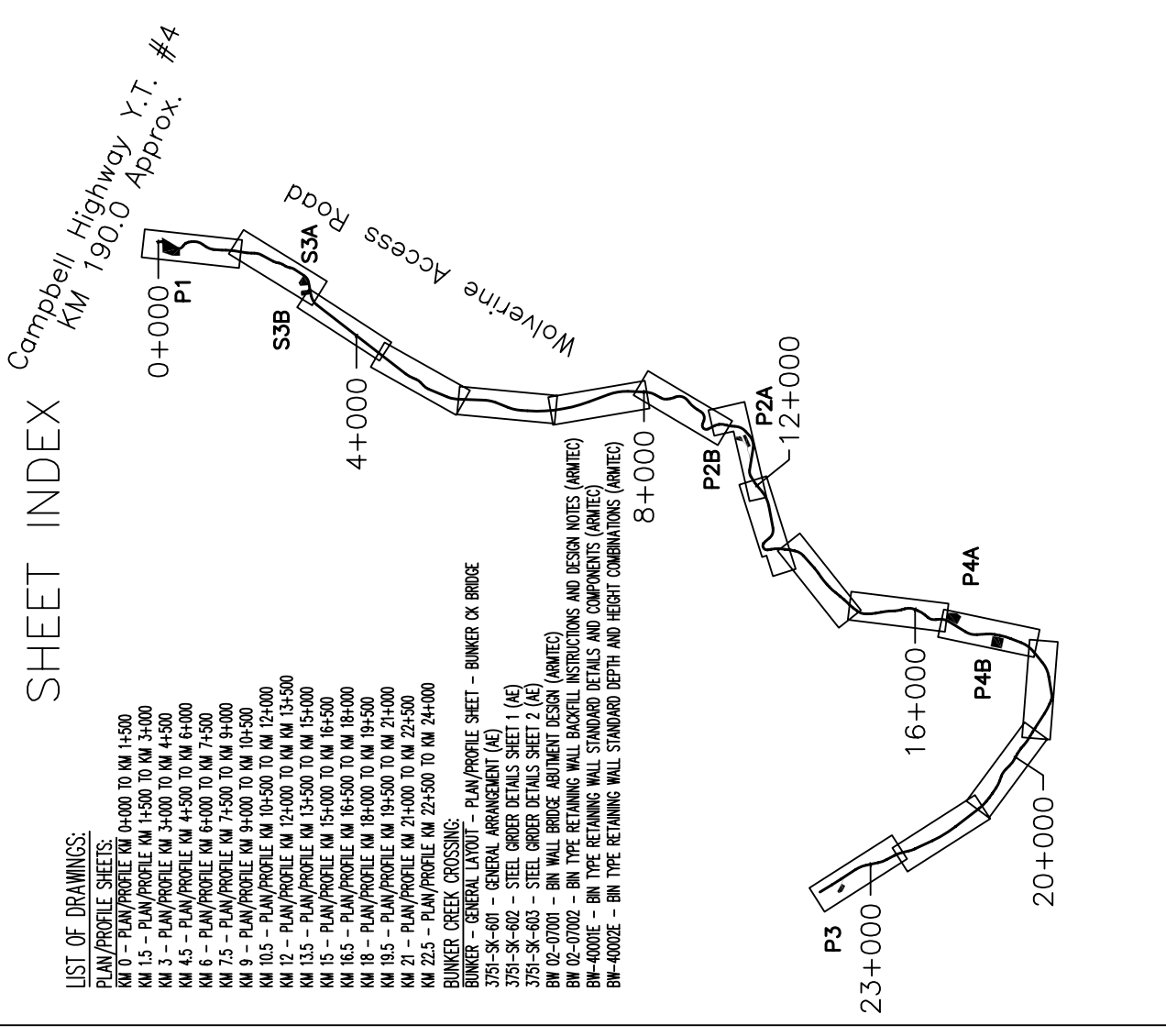


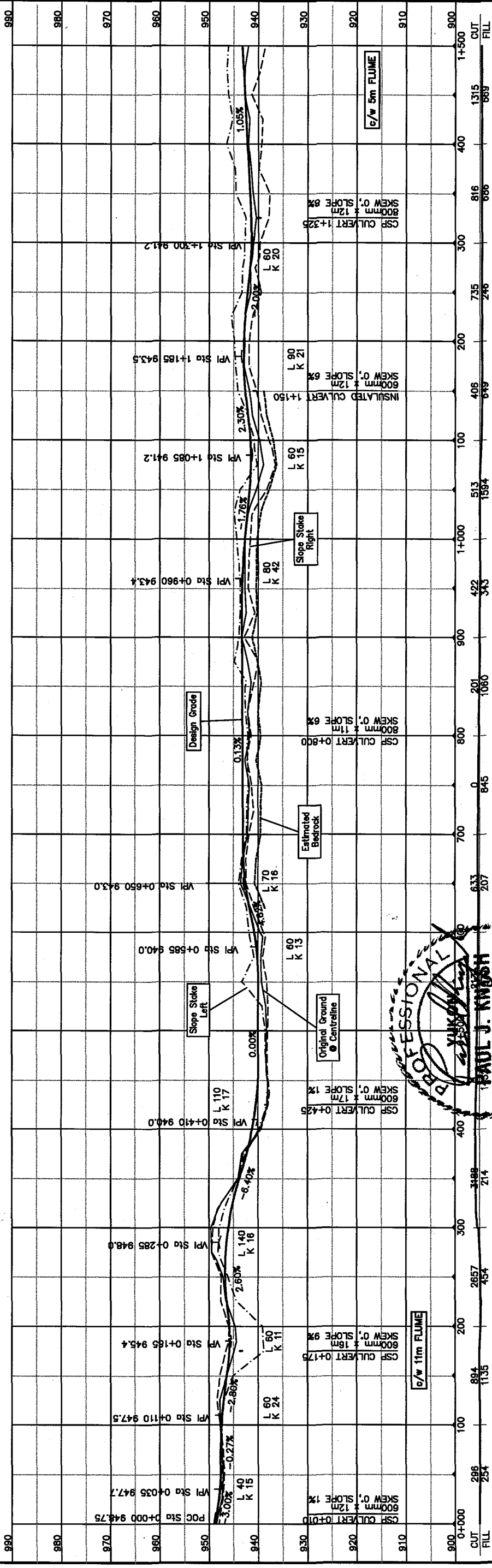
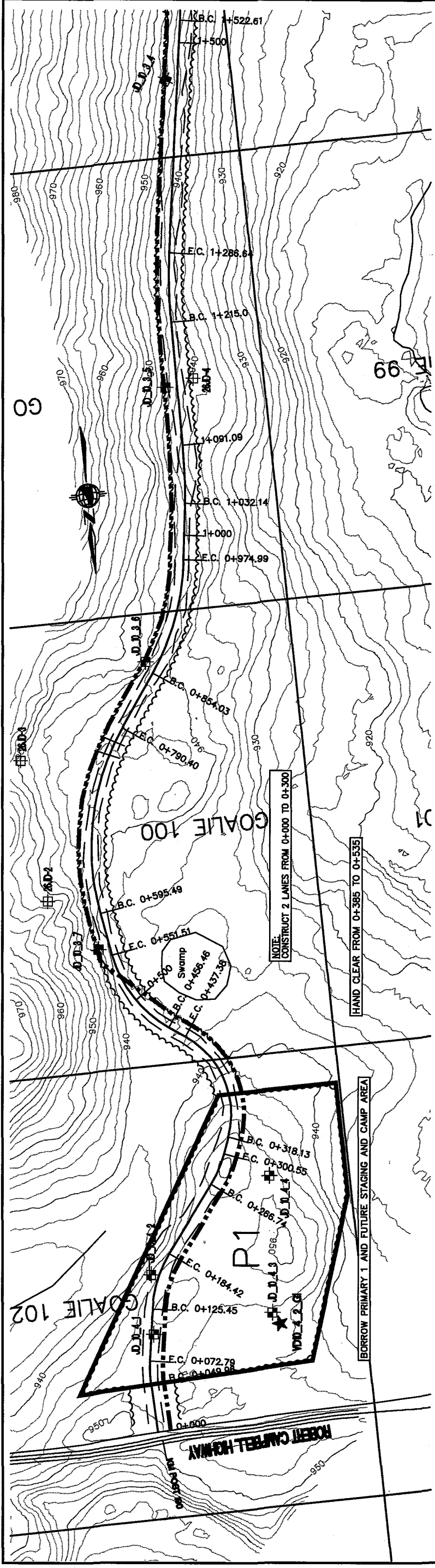
| PIT           | STA   | O/S  | GROSS AREA (Ha.) | NET AREA (Ha.) | AVG DEPTH (m) | COMMON SURFACING (m <sup>3</sup> ) | CONCRETE (m <sup>3</sup> ) | AGGREGATE (m <sup>3</sup> ) | TOTAL (m <sup>3</sup> ) |
|---------------|-------|------|------------------|----------------|---------------|------------------------------------|----------------------------|-----------------------------|-------------------------|
| P1            | 210   | 0    | 5.3              | 2.7            | 2             | 3,000                              | -                          | 3,000                       | 6,000                   |
| S3A           | 2560  | 70   | 1.6              | 0.8            | 2             | 3,000                              | -                          | 3,000                       | 12,000                  |
| S3B           | 2810  | 70   | 1.1              | 0.6            | 2             | 9,000                              | -                          | 9,000                       | 9,000                   |
| P2A           | 11060 | 60   | 1.0              | 0.5            | 2             | -                                  | -                          | 8,000                       | 8,000                   |
| P2B           | 10960 | 130  | 0.6              | 0.5            | 2             | -                                  | -                          | 5,000                       | 5,000                   |
| P4A           | 16560 | -100 | 2.9              | 1.5            | 2             | 22,000                             | -                          | 7,000                       | 29,000                  |
| P4B           | 17310 | 110  | 3.0              | 1.5            | 2             | 23,000                             | -                          | 7,000                       | 30,000                  |
| P3            | 23460 | -150 | 1.0              | 0.5            | 2             | -                                  | -                          | 8,000                       | 8,000                   |
| <b>TOTALS</b> |       |      | <b>16.5</b>      | <b>8.5</b>     | <b>2.0</b>    | <b>57,000</b>                      | <b>5,000</b>               | <b>50,000</b>               | <b>107,000</b>          |

### SHEET INDEX

#### LIST OF DRAWINGS:

- PLAN/PROFILE SHEETS:**  
 KM 0 - PLAN/PROFILE KM 0+000 TO KM 1+500  
 KM 1.5 - PLAN/PROFILE KM 1+500 TO KM 3+000  
 KM 3 - PLAN/PROFILE KM 3+000 TO KM 4+500  
 KM 4.5 - PLAN/PROFILE KM 4+500 TO KM 6+000  
 KM 6 - PLAN/PROFILE KM 6+000 TO KM 7+500  
 KM 7.5 - PLAN/PROFILE KM 7+500 TO KM 9+000  
 KM 9 - PLAN/PROFILE KM 9+000 TO KM 10+500  
 KM 10.5 - PLAN/PROFILE KM 10+500 TO KM 12+000  
 KM 12 - PLAN/PROFILE KM 12+000 TO KM 13+500  
 KM 13.5 - PLAN/PROFILE KM 13+500 TO KM 15+000  
 KM 15 - PLAN/PROFILE KM 15+000 TO KM 16+500  
 KM 16.5 - PLAN/PROFILE KM 16+500 TO KM 18+000  
 KM 18 - PLAN/PROFILE KM 18+000 TO KM 19+500  
 KM 19.5 - PLAN/PROFILE KM 19+500 TO KM 21+000  
 KM 21 - PLAN/PROFILE KM 21+000 TO KM 22+500  
 KM 22.5 - PLAN/PROFILE KM 22+500 TO KM 24+000
- BUNKER CREEK CROSSING:**  
 BUNKER - GENERAL LAYOUT - PLAN/PROFILE SHEET - BUNKER CK BRIDGE  
 3751-SK-601 - GENERAL ARRANGEMENT (AE)  
 3751-SK-602 - STEEL ORDER DETAILS SHEET 1 (AE)  
 3751-SK-603 - STEEL ORDER DETAILS SHEET 2 (AE)  
 BW 02-07001 - BIN WALL BRIDGE ABUTMENT DESIGN (AR/ITEC)  
 BW 02-07002 - BIN TYPE RETAINING WALL BACKFILL INSTRUCTIONS AND DESIGN NOTES (AR/ITEC)  
 BW-4000E - BIN TYPE RETAINING WALL STANDARD DETAILS AND COMPONENTS (AR/ITEC)  
 BW-4000Z - BIN TYPE RETAINING WALL STANDARD DEPTH AND HEIGHT COMBINATIONS (AR/ITEC)





| NO | DESCRIPTION                      | DATE     | BY | DATE     | APPROVED BY: |
|----|----------------------------------|----------|----|----------|--------------|
| 1  | ISSUED FOR DISCUSSION            | 05/08    | RH | 12/01/07 | RH           |
| 2  | ISSUED FOR TENDER                | 05/08    | RH | 12/01/07 | RH           |
| 3  | REVISED FOLLOWING GEOTECH REPORT | 24/10/08 | RH | 12/01/07 | RH           |
| 4  | ISSUED FOR CONSTRUCTION          | 12/01/07 | RH | 12/01/07 | RH           |

| SECTION: | SCALE:   | DATE:    |
|----------|----------|----------|
| 1:4000-H | 1:4000-H | 12/01/07 |

| FILE NAME:     | PROJECT NUMBER: | DRAWING NUMBER: | REV: |
|----------------|-----------------|-----------------|------|
| EM015_A.PFDJWG | EM015           | km 0            | 4    |

| SECTION: | SCALE:   | DATE:    |
|----------|----------|----------|
| 1:4000-H | 1:4000-H | 12/01/07 |

| NO | DESCRIPTION                      | DATE     | BY | DATE     | APPROVED BY: |
|----|----------------------------------|----------|----|----------|--------------|
| 1  | ISSUED FOR DISCUSSION            | 05/08    | RH | 12/01/07 | RH           |
| 2  | ISSUED FOR TENDER                | 05/08    | RH | 12/01/07 | RH           |
| 3  | REVISED FOLLOWING GEOTECH REPORT | 24/10/08 | RH | 12/01/07 | RH           |
| 4  | ISSUED FOR CONSTRUCTION          | 12/01/07 | RH | 12/01/07 | RH           |

| SECTION: | SCALE:   | DATE:    |
|----------|----------|----------|
| 1:4000-H | 1:4000-H | 12/01/07 |

| FILE NAME:     | PROJECT NUMBER: | DRAWING NUMBER: | REV: |
|----------------|-----------------|-----------------|------|
| EM015_A.PFDJWG | EM015           | km 0            | 4    |

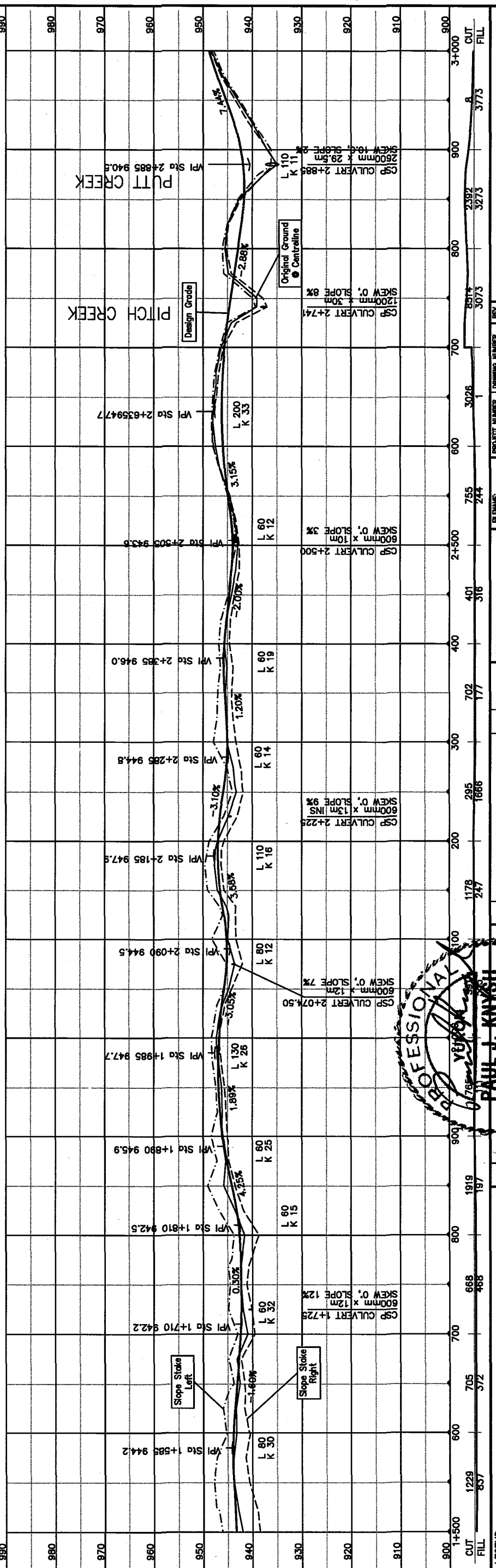
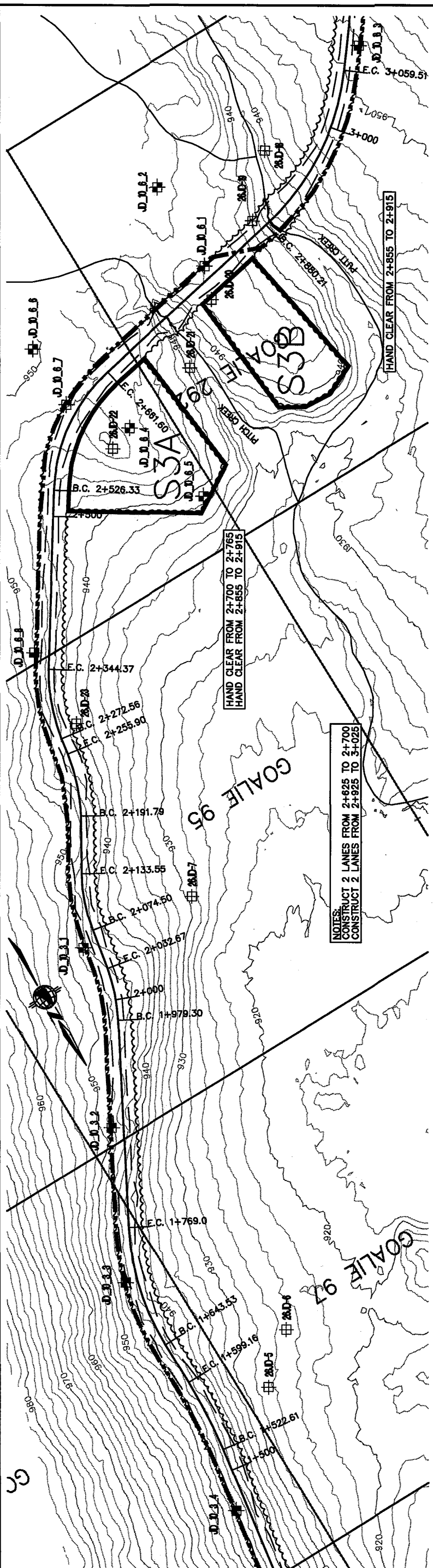
ALL WEATHER ACCESS ROAD  
ISSUED FOR CONSTRUCTION

WOLVESKINE PROJECT  
PLAN/PROFILE SHEET  
KM 0 TO KM 1.5  
FIGURE 1



LEGEND:

- GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD
- EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD
- HAND DUG TESTPITS
- TESTPITS
- GEO-CHEMICAL TESTPITS



| NO | DESCRIPTION                      | DATE     | BY | DATE     | APPROVED BY |
|----|----------------------------------|----------|----|----------|-------------|
| 1  | ISSUED FOR DISCUSSION            | 12/01/07 | RH | 12/01/07 | RH          |
| 2  | ISSUED FOR TENDER                | 05/08    | RH | 05/08    | RH          |
| 3  | REVISED FOLLOWING GEOTECH REPORT | 24/10/08 | RH | 24/10/08 | RH          |
| 4  | ISSUED FOR CONSTRUCTION          | 12/01/07 | RH | 12/01/07 | RH          |

|                        |                 |
|------------------------|-----------------|
| SECTION:               | SCALE:          |
| ED0015.4.PP.DWG        | 1:600-H 1:600-V |
| PROJECT NUMBER: ED0015 | DRAWN BY: RHC   |
| DRAWING NUMBER: km 1.5 | CHECKED BY: PK  |
| DATE: 12/01/07         | APPROVED BY: RH |

|                 |                 |                 |        |
|-----------------|-----------------|-----------------|--------|
| FILENAME:       | PROJECT NUMBER: | DRAWING NUMBER: | SHEET: |
| ED0015.4.PP.DWG | ED0015          | km 1.5          | 4      |

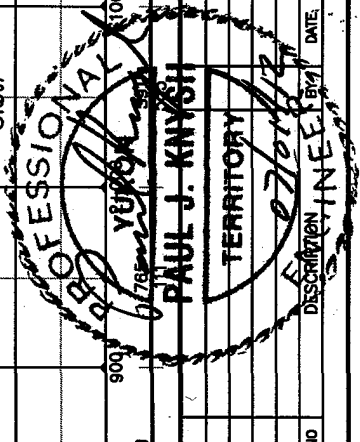
  

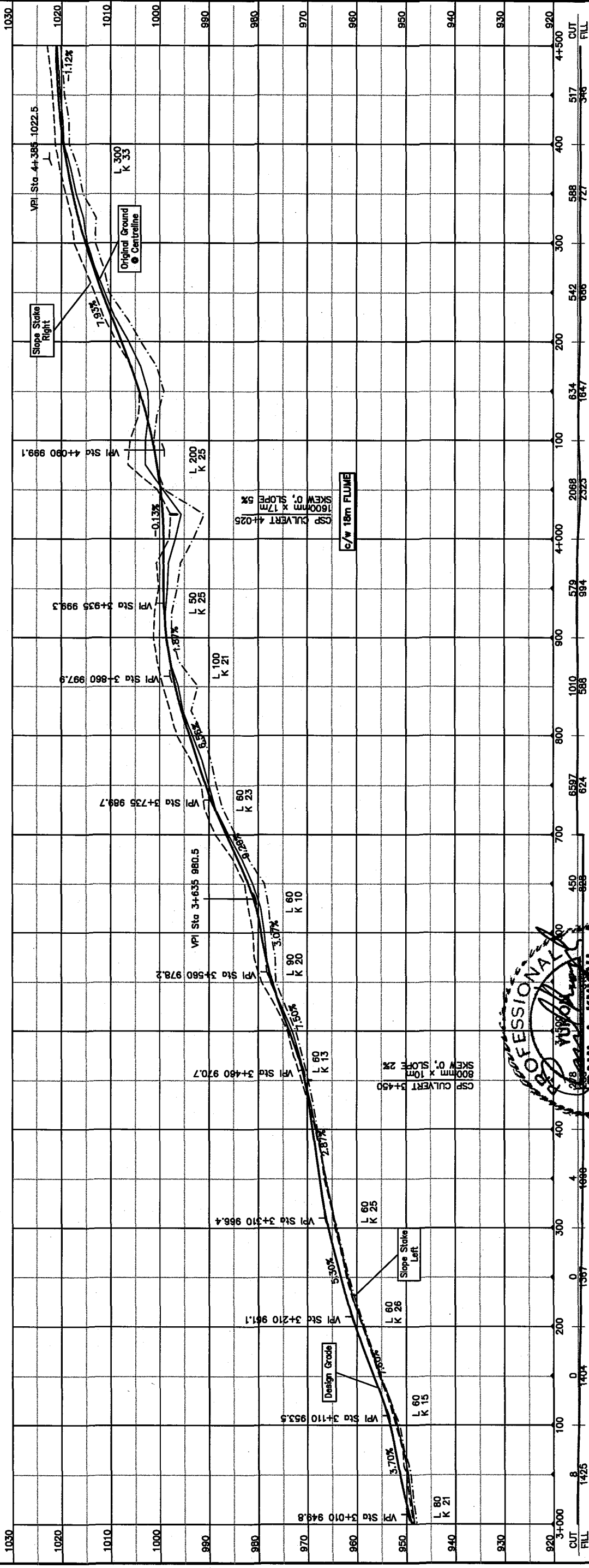
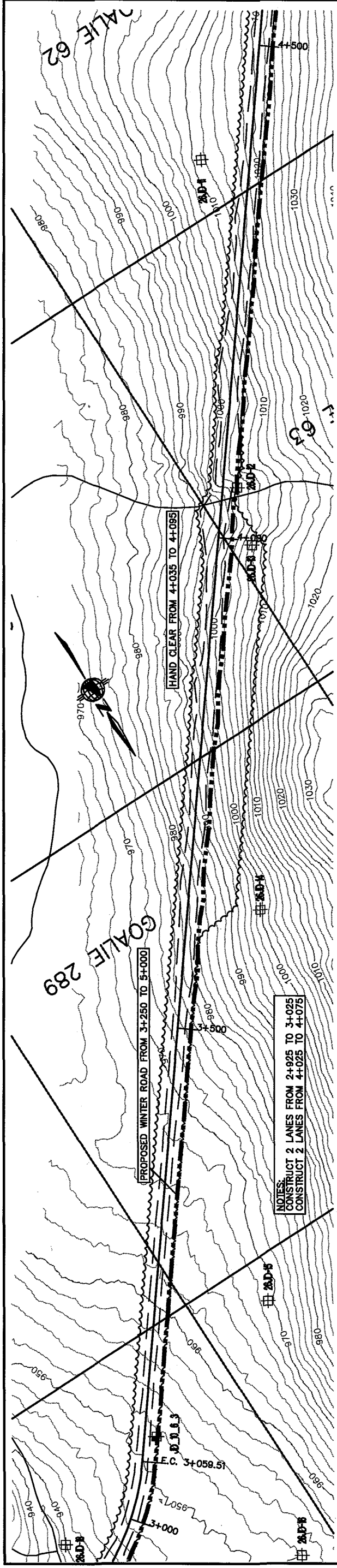
ALL WEATHER ACCESS ROAD  
ISSUED FOR CONSTRUCTION

WOLYBINE PROJECT  
PLAN/PROFILE SHEET  
KM 1.5 TO KM 3.0  
FIGURE 1

**YES Yukon Zinc**  
YUKON EXPLORATION CORPORATION





NOTES:  
 CONSTRUCT 2 LANES FROM 2+925 TO 3+025  
 CONSTRUCT 2 LANES FROM 4+025 TO 4+075

| NO | DESCRIPTION                      | DATE     | BY | APPROVED BY |
|----|----------------------------------|----------|----|-------------|
| 4  | ISSUED FOR CONSTRUCTION          | 12/01/07 | RH |             |
| 3  | REVISED FOLLOWING GEOTECH REPORT | 24/10/06 | RH |             |
| 2  | ISSUED FOR TENDER                | 05/06    | RH |             |
| 1  | ISSUED FOR DISCUSSION            | 05/06    | RH |             |
| NO |                                  |          |    |             |

| SECTION     | SCALE | DATE     |
|-------------|-------|----------|
| 14000-H     | 1:600 | 12/01/07 |
| DESIGNED BY | RH    | 12/01/07 |
| DRAWN BY    | ECG   | 12/01/07 |
| CHECKED BY  | PK    | 12/01/07 |
| APPROVED BY | RH    | 12/01/07 |

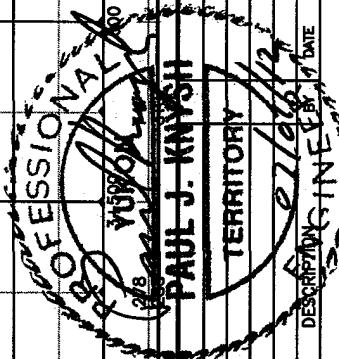
| FILES             | PROJECT NUMBER | DRAWING NUMBER | REV. |
|-------------------|----------------|----------------|------|
| EMOUILLE_A_PP.DWG | EM0016         | km 3           | 4    |

ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

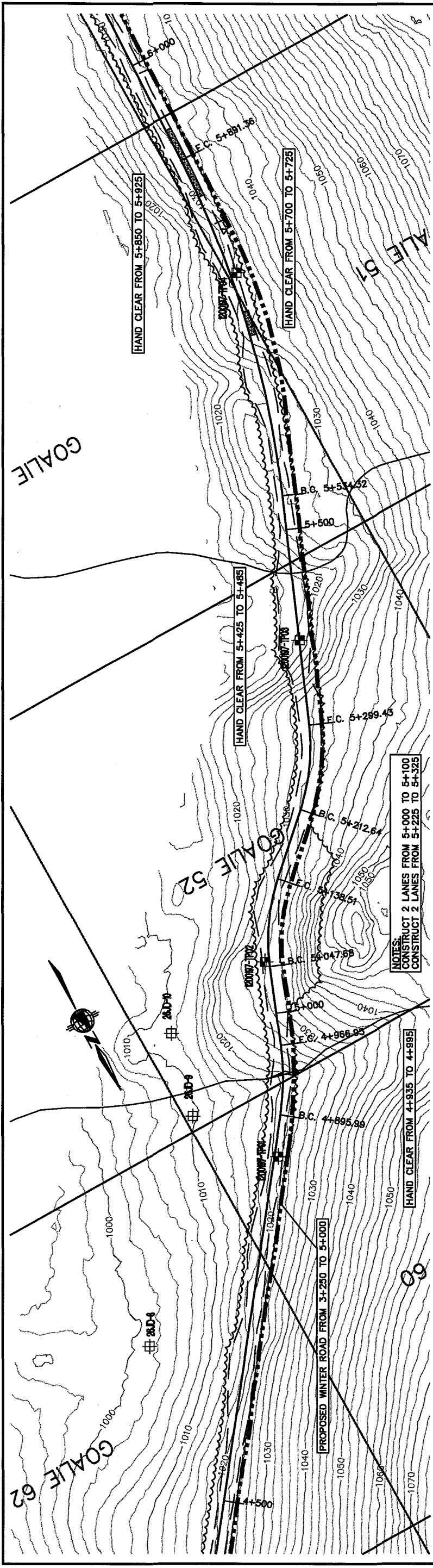
WOLVESIDE PROJECT  
 PLAN/PROFILE SHEET  
 KM 3.0 TO KM 4.5  
 FIGURE 1

**YES Yukon Zinc**  
 TANK ENGINEERING SERVICES CORPORATION

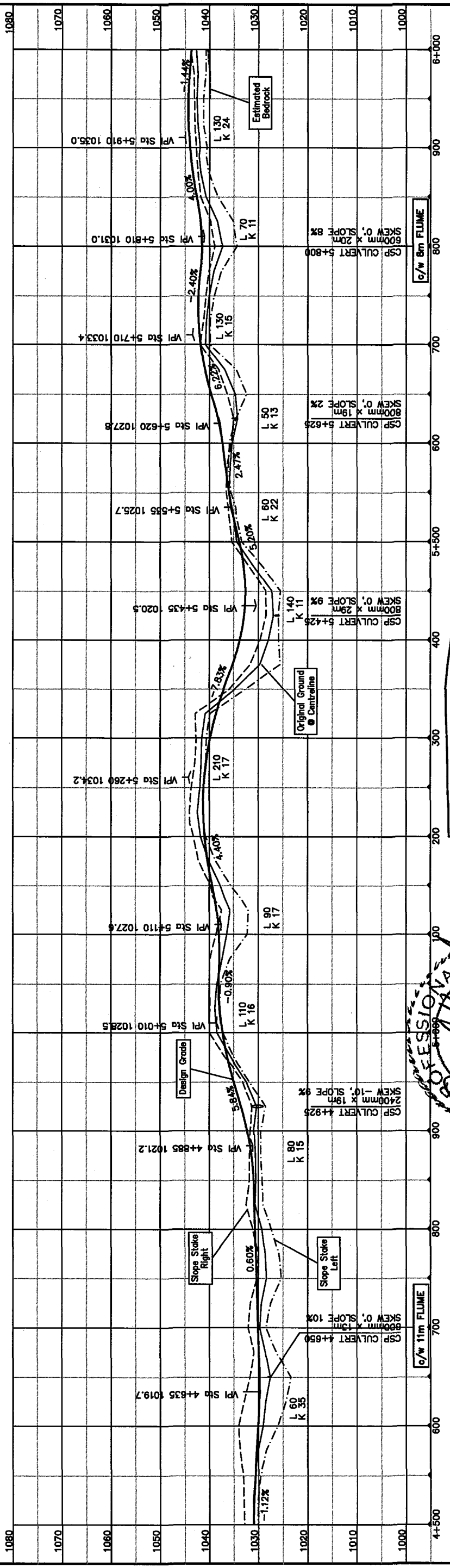


LEGEND:

- GEOTEXTILE
- EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD
- HAND DUG TESTPITS
- TESTPITS
- GEOCHEMICAL TESTPITS



NOTES:  
 1. CONSTRUCT 2 LANES FROM 5+000 TO 5+100  
 2. CONSTRUCT 2 LANES FROM 5+225 TO 5+325  
 3. CONSTRUCT 2 LANES FROM 5+225 TO 5+325



| SECTION                          | DATE     | BY | DESCRIPTION | NO |
|----------------------------------|----------|----|-------------|----|
| ISSUED FOR CONSTRUCTION          | 12/01/07 | RH |             | 4  |
| REVISED FOLLOWING GEOTECH REPORT | 24/10/08 | RH |             | 3  |
| ISSUED FOR TENDER                | 05/06    | RH |             | 2  |
| ISSUED FOR DISCUSSION            | 05/06    | RH |             | 1  |
| ISSUED FOR DISCUSSION            | 12/01/07 | RH |             | NO |
| ISSUED FOR DISCUSSION            | 12/01/07 | RH |             | NO |

| FILE NAME        | PROJECT NUMBER | DRAWING NUMBER | REV. |
|------------------|----------------|----------------|------|
| EM0015_L.P.P.DWG | EM0016         | km 4.5         | 4    |

| SECTION               | SCALE    | DATE | BY | DESCRIPTION |
|-----------------------|----------|------|----|-------------|
| SCALE 1:4000-H 1900-V | 12/01/07 | RH   |    |             |
| DESIGNED BY: RH       | 12/01/07 | RH   |    |             |
| DRAWN BY: EDC         | 12/01/07 | RH   |    |             |
| CHECKED BY: PK        | 12/01/07 | RH   |    |             |
| APPROVED BY: RH       | 12/01/07 | RH   |    |             |

| NO   | DESCRIPTION                                      | DATE | BY |
|------|--|------|----|
| 323  | EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD | 1943 |    |
| 395  | EXISTING DUG TESTPITS                            | 2258 |    |
| 467  | HAND DUG TESTPITS                                | 2258 |    |
| 7669 | TESTPITS   | 2258 |    |
| 842  | GEO-CHEMICAL TESTPITS                            | 2258 |    |

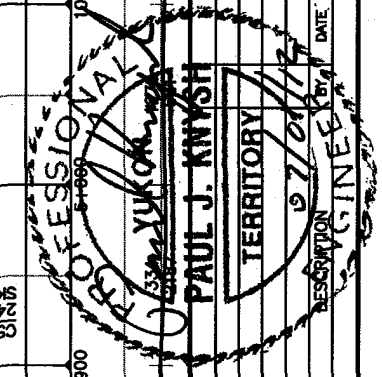
| SECTION               | SCALE    | DATE | BY | DESCRIPTION |
|-----------------------|----------|------|----|-------------|
| SCALE 1:4000-H 1900-V | 12/01/07 | RH   |    |             |
| DESIGNED BY: RH       | 12/01/07 | RH   |    |             |
| DRAWN BY: EDC         | 12/01/07 | RH   |    |             |
| CHECKED BY: PK        | 12/01/07 | RH   |    |             |
| APPROVED BY: RH       | 12/01/07 | RH   |    |             |

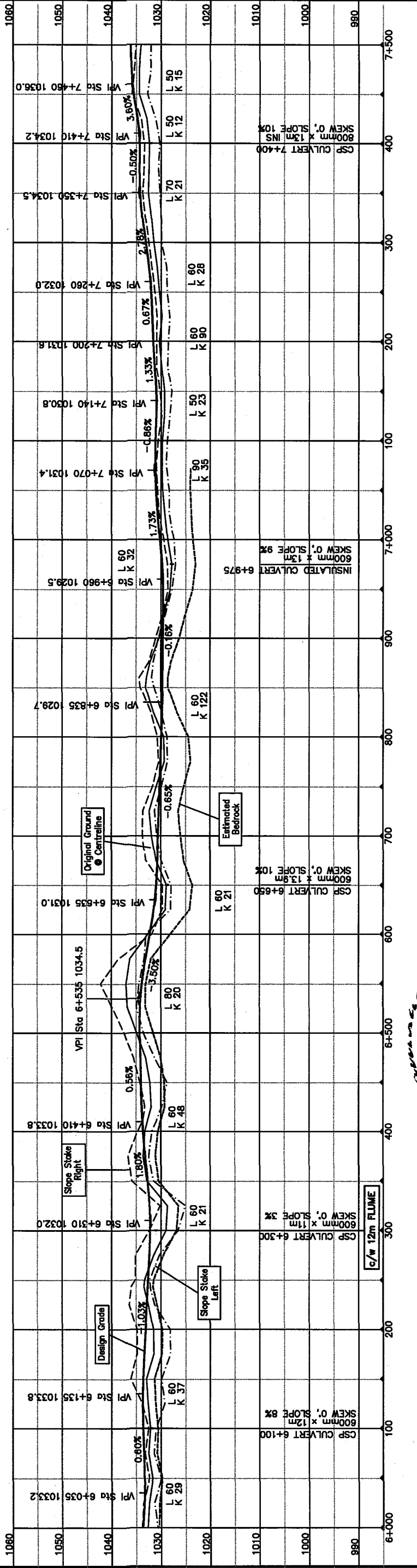
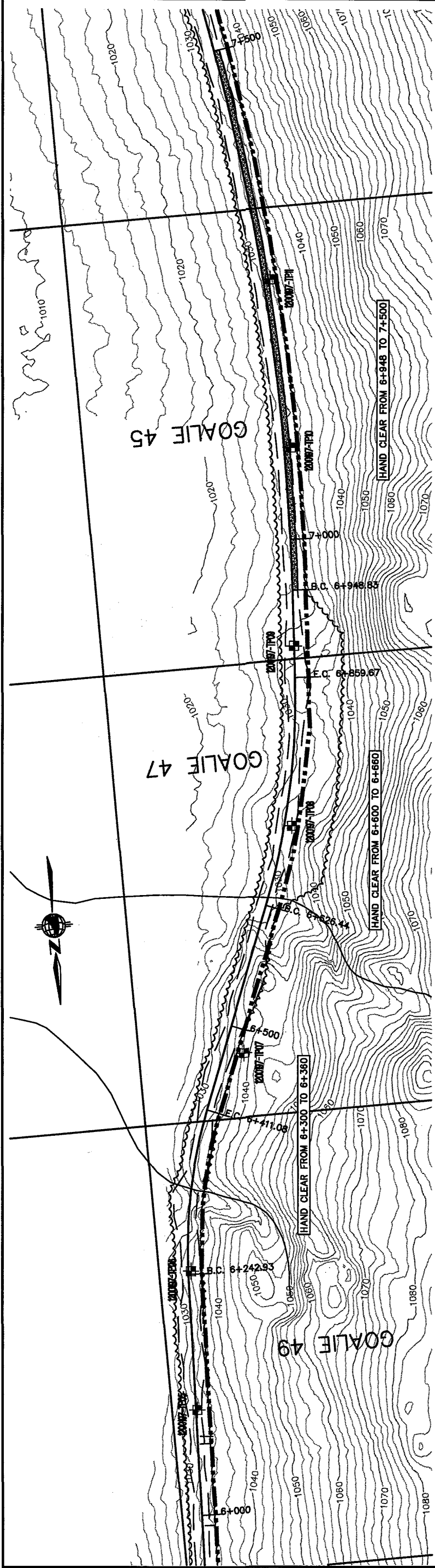
ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

WOLYBERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 4.5 TO KM 6.0  
 FIGURE 1

YES Yukon Zinc  
 YUKON CONSOLIDATED SERVICES CORPORATION



5/20/08 3:00:15 AM E:\EM0015\_L.P.P.DWG  
 km 4.5 - km 12 2007



**PROFESSIONAL ENGINEER**  
**PAUL J. KNYSH**  
 TERRITORY ENGINEER

**LEGEND:**  
 GEOTEXTILE  
 EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD  
 HAND DUG TESTPITS  
 TESTPITS  
 GEOCHEMICAL TESTPITS

**SECTION:**  
 SCALE 1:4000-H 1:800-V  
 DESIGNED BY: RH  
 DRAWN BY: DCC  
 CHECKED BY: PK  
 APPROVED BY: RH

**DATE:**  
 12/01/07  
 24/10/06  
 05/06  
 05/06  
 12/01/07

**DESCRIPTION:**  
 4 ISSUED FOR CONSTRUCTION  
 3 REVISED FOLLOWING GEOTECH REPORT  
 2 ISSUED FOR TENDER  
 1 ISSUED FOR DISCUSSION

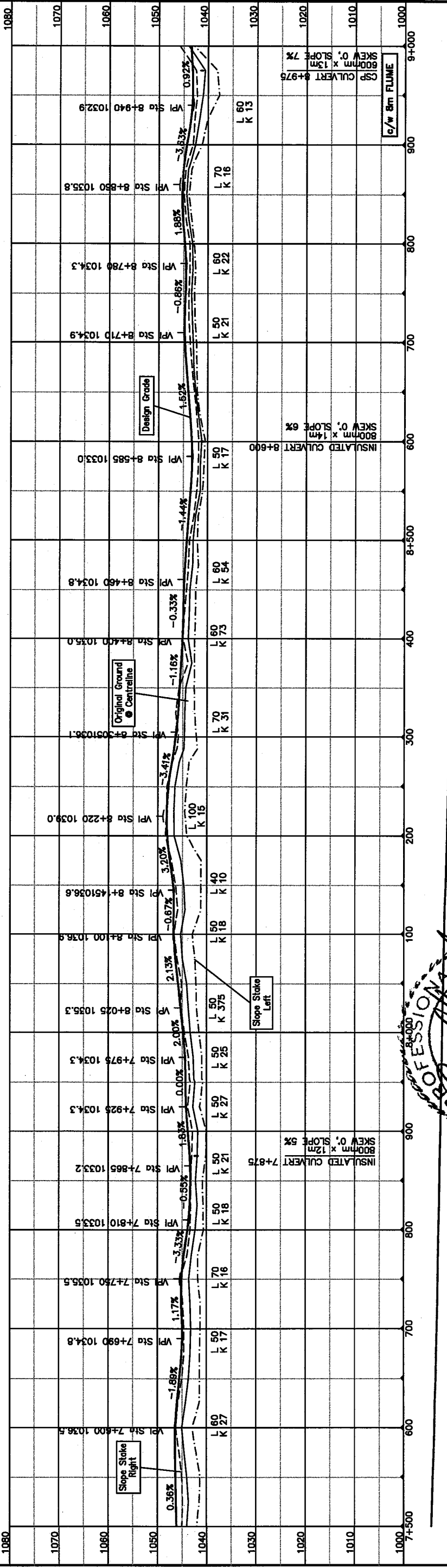
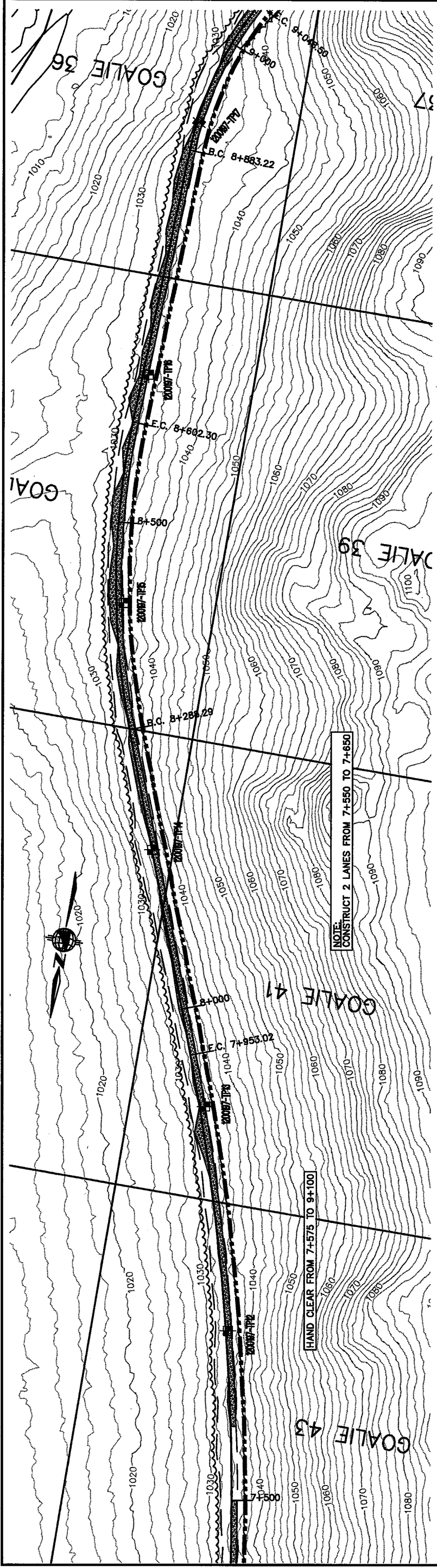
**FILENAME:** E08015\_4\_PP.DWG  
**PROJECT NUMBER:** E08015  
**DRAWING NUMBER:** km 6  
**REV.:** 4

**ALL WEATHER ACCESS ROAD ISSUED FOR CONSTRUCTION**  
**WOLYBINE PROJECT**  
**PLAN/PROFILE SHEET**  
**KM 6.0 TO KM 7.5**  
**FIGURE 1**

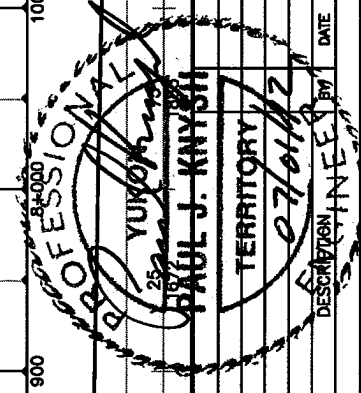
**YES Yukon Zinc**  
 YUKON MINING CORPORATION

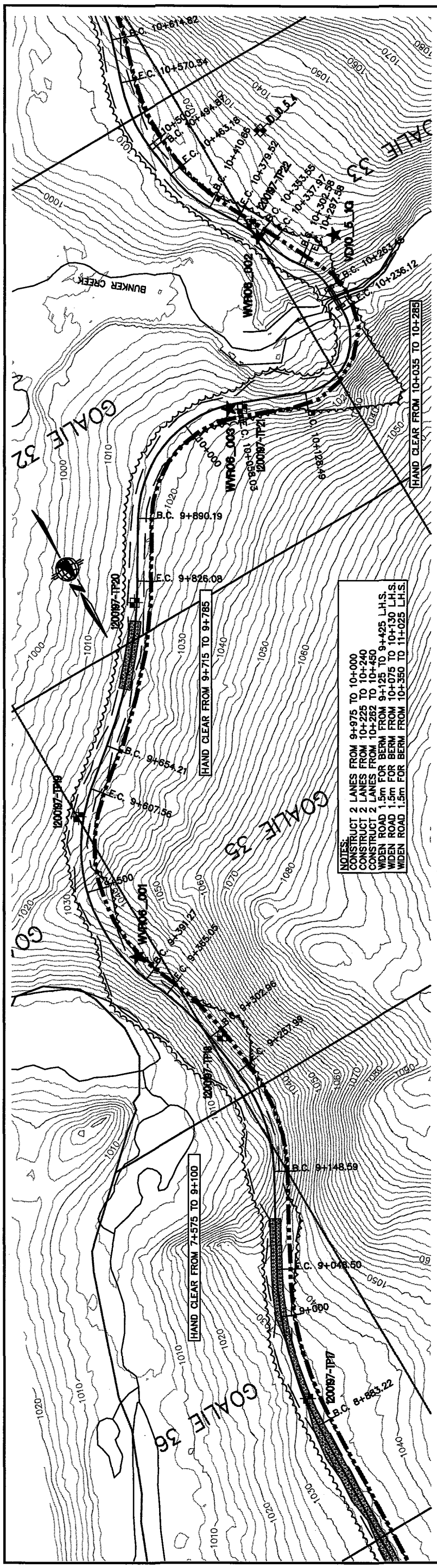
**CUT/FILL:** 65/1393, 983/1276, 1014/2393, 49671/979, 4688/1256, 1464/221, 55/55, 7/2029, 4/1684, 39/1408, 10/1468, 7/2029, 39/1988

S:\083\F08015\_4\F08015\_4\_PP.dwg  
 km 6 - Jan 12, 2007

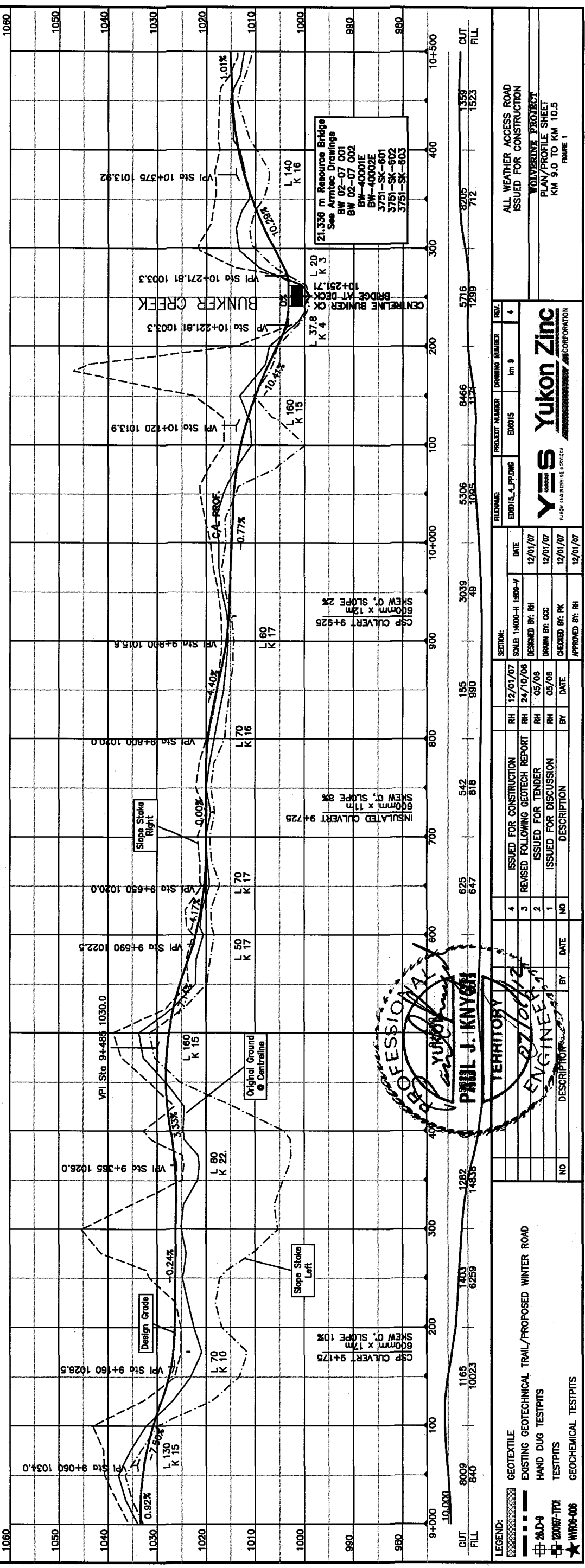


|   |      |      |      |      |      |      |      |      |      |      |      |
|---|------|------|------|------|------|------|------|------|------|------|------|
| CUT   | 9    | 31   | 35   | 44   | 78   | 73   | 0    | 18   | 35   | 255  | CUT  |
| FILL  | 2663 | 2238 | 1705 | 2103 | 2649 | 1854 | 1742 | 1392 | 1533 | 2281 | FILL |
| <p>10,000</p>   |      |      |      |      |      |      |      |      |      |      |      |
| <p>LEGEND:</p> <ul style="list-style-type: none"> <li>--- GEOTEXTILE</li> <li>- - - EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD</li> <li>--- HAND DUG TESTPITS</li> <li>--- TESTPITS</li> <li>★ WROD-006 GEOCHEMICAL TESTPITS</li> </ul> |      |      |      |      |      |      |      |      |      |      |      |
| <p>ISSUED FOR CONSTRUCTION 4</p> <p>REVISED FOLLOWING GEOTECH REPORT 3</p> <p>ISSUED FOR TENDER 2</p> <p>ISSUED FOR DISCUSSION 1</p>  |      |      |      |      |      |      |      |      |      |      |      |
| <p>SECTION:</p> <p>SCALE 1:4000-H 1:800-V</p> <p>DESIGNED BY: RH</p> <p>DRAWN BY: GJC</p> <p>CHECKED BY: PK</p> <p>APPROVED BY: RH</p>  |      |      |      |      |      |      |      |      |      |      |      |
| <p>DATE: 12/01/07</p> <p>DATE: 24/10/06</p> <p>DATE: 05/06</p> <p>DATE: 05/06</p> <p>DATE: 12/01/07</p> <p>DATE: 12/01/07</p>   |      |      |      |      |      |      |      |      |      |      |      |
| <p>PROJECT NUMBER: E06015</p> <p>DRAWING NUMBER: km 7.5</p> <p>REV: 4</p>   |      |      |      |      |      |      |      |      |      |      |      |
| <p>ALL WEATHER ACCESS ROAD ISSUED FOR CONSTRUCTION</p> <p>WOLYERINE PROJECT</p> <p>PLAN/PROFILE SHEET</p> <p>KM 7.5 TO KM 9.0</p> <p>FIGURE 1</p>   |      |      |      |      |      |      |      |      |      |      |      |
| <p><b>YES Yukon Zinc</b></p> <p>INCORPORATED</p>  |      |      |      |      |      |      |      |      |      |      |      |





NOTES:  
 CONSTRUCT 2 LANES FROM 9+975 TO 10+000  
 CONSTRUCT 2 LANES FROM 10+225 TO 10+240  
 CONSTRUCT 2 LANES FROM 10+262 TO 10+450  
 WIDEN ROAD 1.5m FOR BERM FROM 9+125 TO 9+425 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 10+075 TO 10+130 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 10+350 TO 11+025 L.H.S.



PROFESSIONAL  
 TERRITORY  
**PAUL J. KNYGH**  
 ENGINEER

LEGEND:

- GEOTEXTILE
- EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD
- HAND DUG TESTPITS
- TESTPITS
- GEOTECHNICAL TESTPITS

| NO | DESCRIPTION                      | BY | DATE     |
|----|----------------------------------|----|----------|
| 4  | ISSUED FOR CONSTRUCTION          | RH | 12/01/07 |
| 3  | REVISED FOLLOWING GEOTECH REPORT | RH | 24/10/06 |
| 2  | ISSUED FOR TENDER                | RH | 05/06    |
| 1  | ISSUED FOR DISCUSSION            | RH | 05/06    |
| NO | DESCRIPTION                      | BY | DATE     |

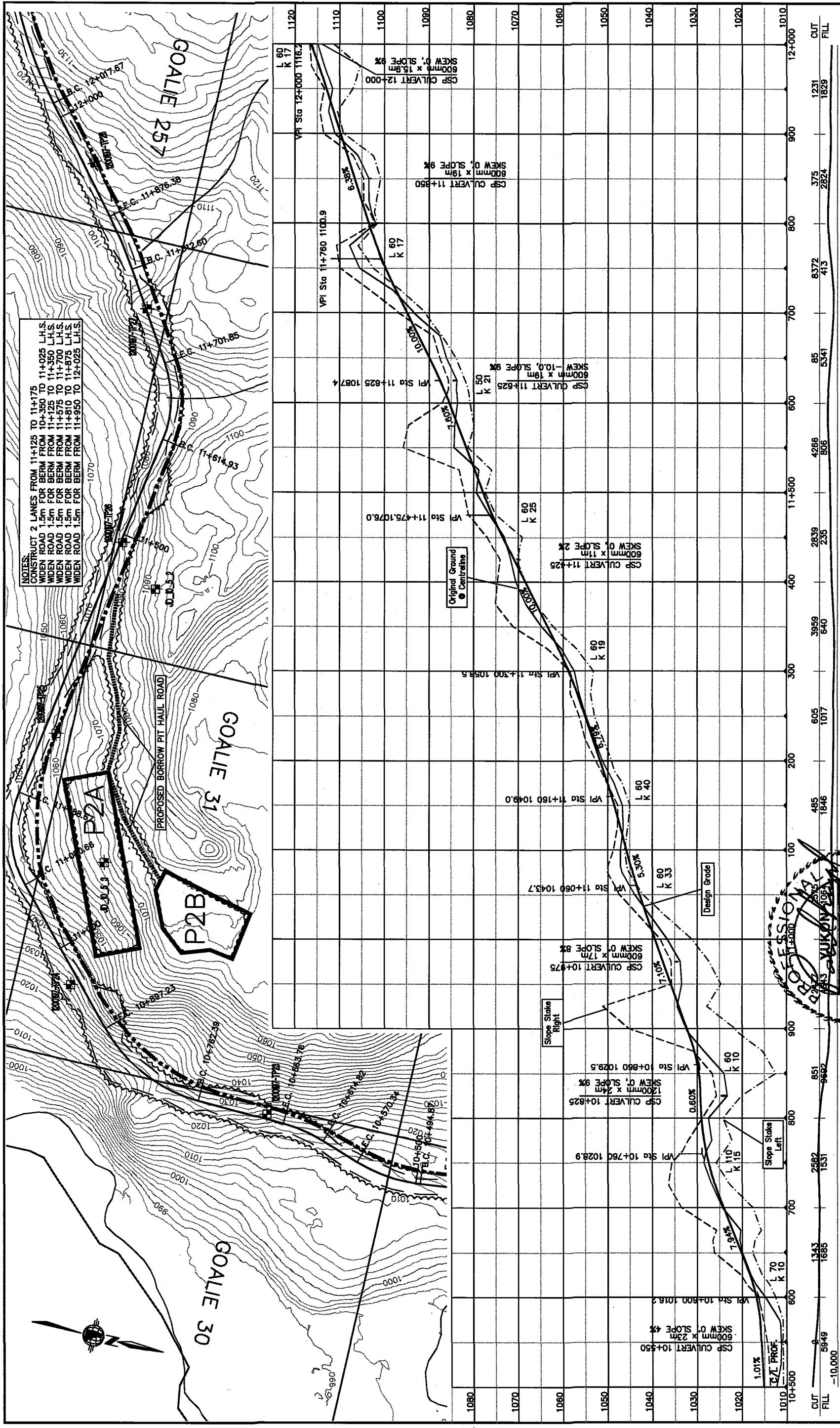
| SECTION   | SCALE           | DATE     |
|-----------|-----------------|----------|
| SECTION 1 | 1:4000-H 1800-V | 12/01/07 |
| SECTION 2 | DESIGNED BK: RH | 12/01/07 |
| SECTION 3 | DRAWN BK: CC    | 12/01/07 |
| SECTION 4 | CHECKED BK: PK  | 12/01/07 |
| SECTION 5 | APPROVED BK: RH | 12/01/07 |

| FILENAME         | PROJECT NUMBER | DRAWING NUMBER | REL. |
|------------------|----------------|----------------|------|
| E09015_4_PRJ.DWG | E09015         | 1m 9           | 4    |



ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION  
 WOLYBERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 9.0 TO KM 10.5  
 FIGURE 1





| SECTION | DATE     | BY | DESCRIPTION                      |
|---------|----------|----|----------------------------------|
| 4       | 12/01/07 | RR | ISSUED FOR CONSTRUCTION          |
| 3       | 24/10/06 | RR | REVISED FOLLOWING GEOTECH REPORT |
| 2       | 05/06    | RR | ISSUED FOR TENDER                |
| 1       | 05/06    | RR | ISSUED FOR DISCUSSION            |
| NO      |          | BY | DESCRIPTION                      |

| FILE NAME       | PROJECT NUMBER | DRAWING NUMBER | REV. |
|-----------------|----------------|----------------|------|
| ED0018_L_PP.dwg | ED0015         | km 10.5        | 4    |

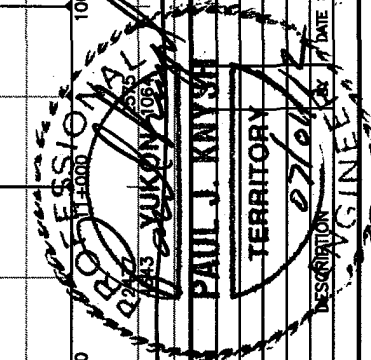
| SCALE                  | DATE     | DESIGNED BY | DRAWN BY | CHECKED BY | APPROVED BY |
|------------------------|----------|-------------|----------|------------|-------------|
| SCALE 1:4000-H 1:800-V | 12/01/07 | RR          | RR       | RR         | RR          |

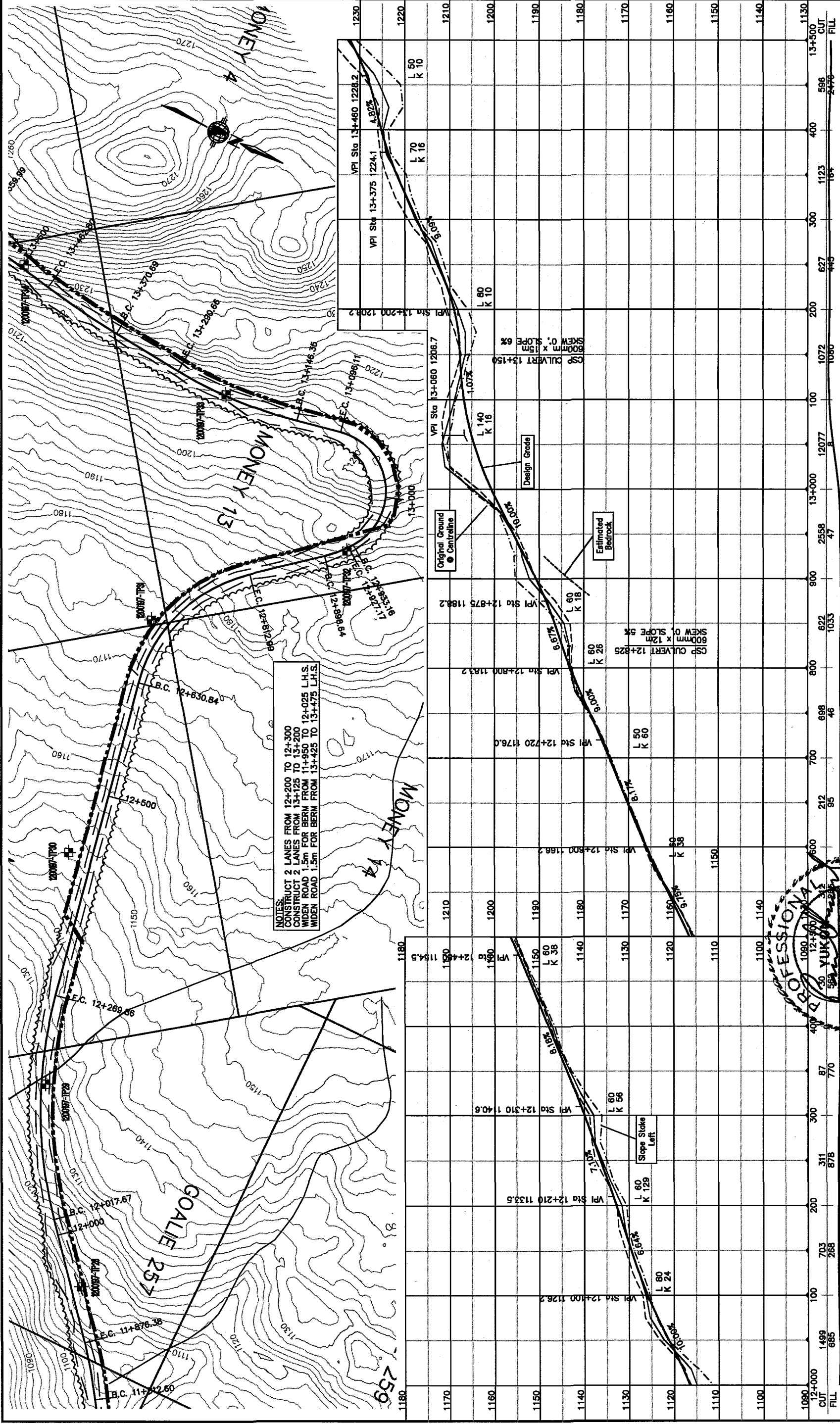
  

ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

**YES Yukon Zinc**  
 100% GEOENGINEERING SERVICES CORPORATION

WOLVERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 10.5 TO KM 12.0  
 FIGURE 1





NOTES:  
 CONSTRUCT 2 LANES FROM 12+200 TO 12+300  
 CONSTRUCT 2 LANES FROM 13+125 TO 13+200  
 WIDEN ROAD 1.5m FOR BERM FROM 11+950 TO 12+025 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 13+425 TO 13+475 L.H.S.

| NO | DESCRIPTION                      | DATE     | BY | DATE     | APPROVED BY: RH |
|----|----------------------------------|----------|----|----------|-----------------|
| 4  | ISSUED FOR CONSTRUCTION          | 12/01/07 | RH | 12/01/07 |                 |
| 3  | REVISED FOLLOWING GEOTECH REPORT | 24/10/06 | RH | 12/01/07 |                 |
| 2  | ISSUED FOR TENDER                | 05/06    | RH | 12/01/07 |                 |
| 1  | ISSUED FOR DISCUSSION            | 05/06    | RH | 12/01/07 |                 |
| NO | DESCRIPTION                      | DATE     | BY | DATE     | APPROVED BY: RH |

| SECTION: | SCALE:   | DATE:    |
|----------|----------|----------|
| 14000-H  | 1:4000-H | 12/01/07 |

| FILE NAME:      | PROJECT NUMBER: | DRAWING NUMBER: | REV: |
|-----------------|-----------------|-----------------|------|
| EM001E_A_PP.DWG | EM0015          | km 12           | 4    |

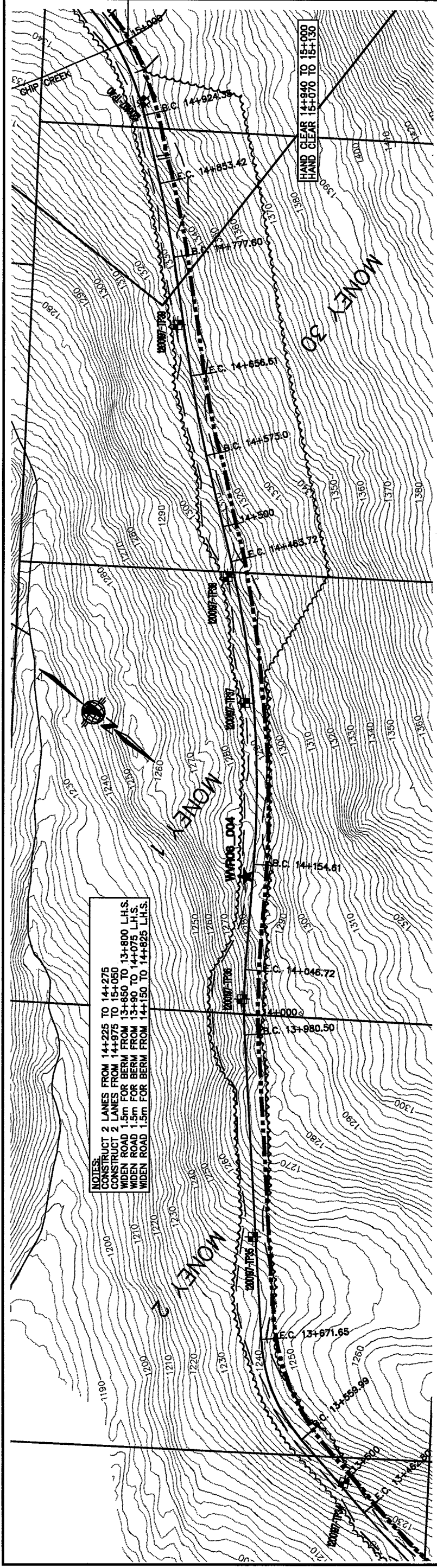
ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

**YES Yukon Zinc**  
 YUKON ENGINEERING SERVICES CORPORATION

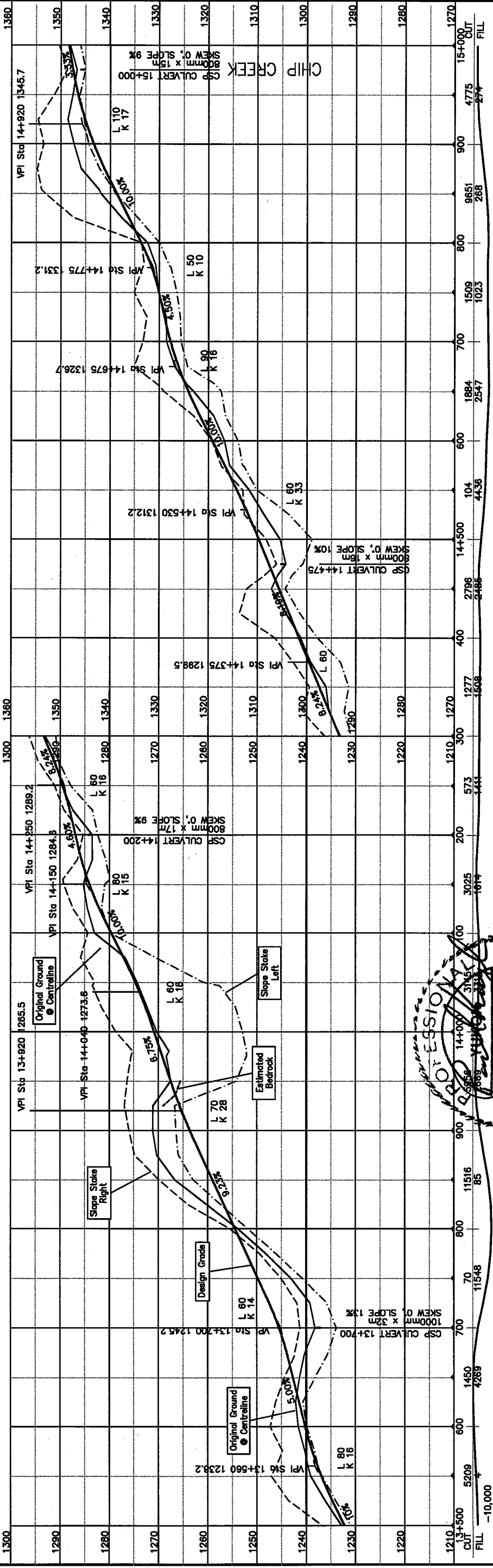
WOLVERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 12.0 TO KM 13.5  
 FIGURE 1



- LEGEND:
- GEOTEXTILE
  - EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD
  - HAND DUG TESTPITS
  - TESTPITS
  - GEO-CHEMICAL TESTPITS



NOTES:  
 CONSTRUCT 2 LANES FROM 14+225 TO 14+275  
 CONSTRUCT 2 LANES FROM 14+975 TO 15+050  
 WIDEN ROAD 1.5m FOR BERM FROM 13+650 TO 13+800 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 13+90 TO 14+075 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 14+150 TO 14+825 L.H.S.



| REV. | DATE     | DESCRIPTION                      | BY | DATE     | APPROVED BY: RH |
|------|----------|----------------------------------|----|----------|-----------------|
| 4    | 12/01/07 | ISSUED FOR CONSTRUCTION          | RH | 12/01/07 |                 |
| 3    | 24/10/06 | REVISED FOLLOWING GEOTECH REPORT | RH | 12/01/07 |                 |
| 2    | 05/06    | ISSUED FOR TENDER                | RH | 05/06    |                 |
| 1    | 05/06    | ISSUED FOR DISCUSSION            | RH | 05/06    |                 |
| NO   |          | DESCRIPTION                      |    |          |                 |

| FILENAME      | PROJECT NUMBER | DRAWING NUMBER | REV. |
|---------------|----------------|----------------|------|
| EM0015_A.PDWG | EM0015         | 1m 13.5        | 4    |

| SECTION                  | SCALE                   | DESIGNED BY: RH | DRAWN BY: DCC | CHECKED BY: PK | APPROVED BY: RH |
|--------------------------|-------------------------|-----------------|---------------|----------------|-----------------|
| SECTION: 14+000-H 1400-Y | SCALE: 1:4000-H 1:800-Y | DESIGNED BY: RH | DRAWN BY: DCC | CHECKED BY: PK | APPROVED BY: RH |

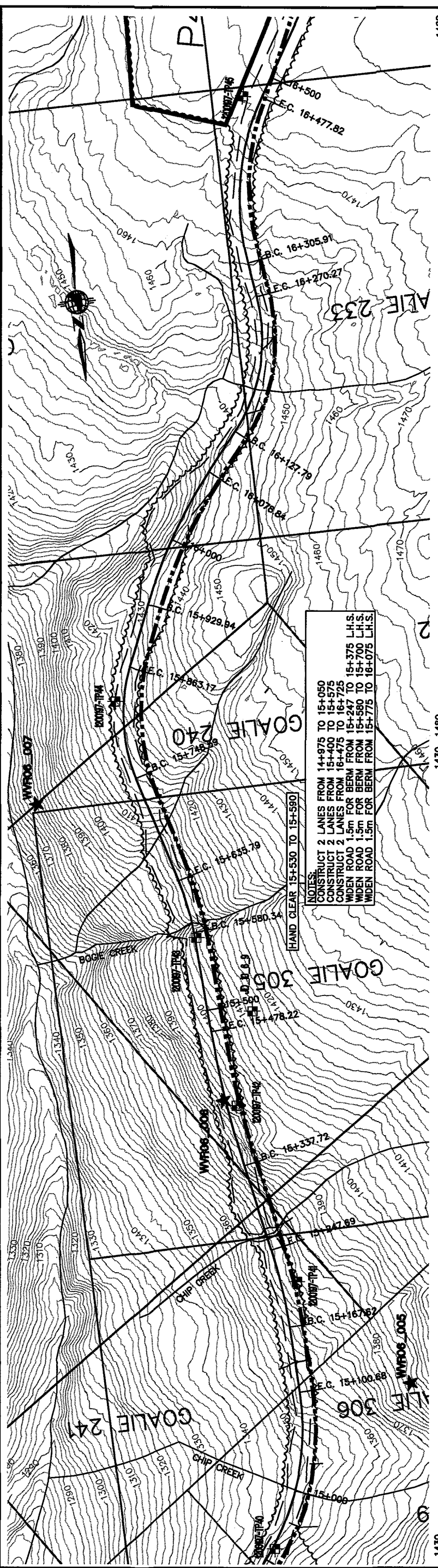
ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

WOLVERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 13.5 TO KM 15  
 FIGURE 1

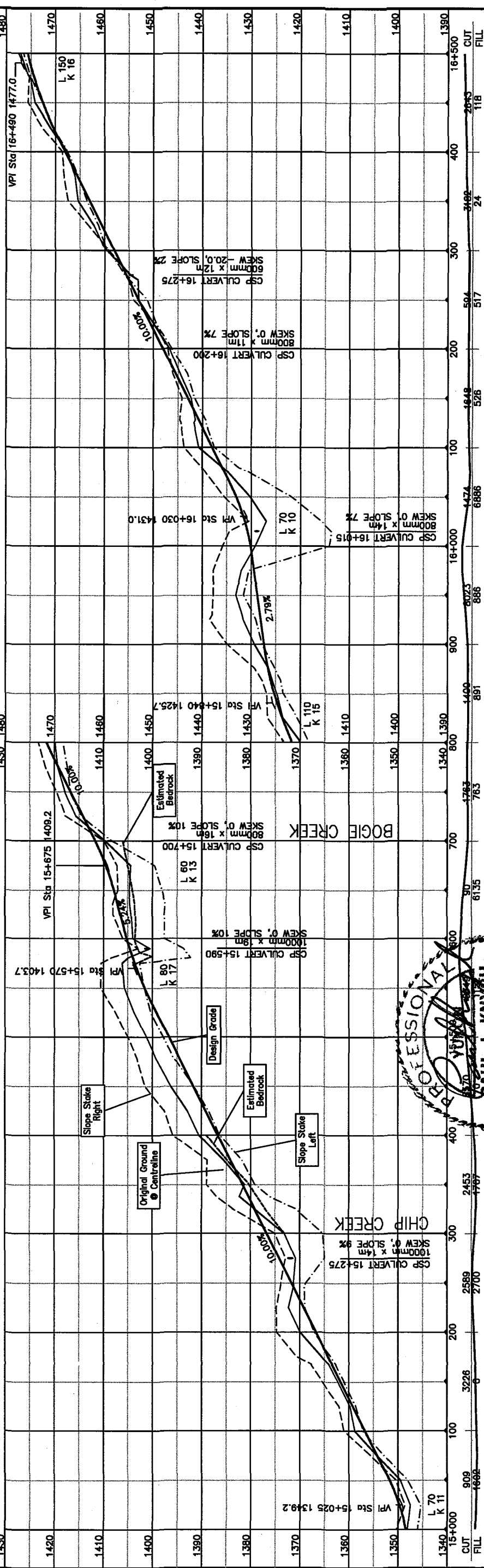


LEGEND:

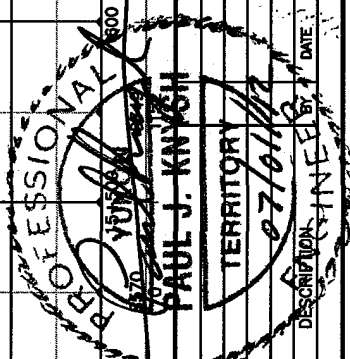
- GEOTEXTILE
- EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD
- HAND DUG TESTPITS
- TESTPITS
- GEOCHEMICAL TESTPITS

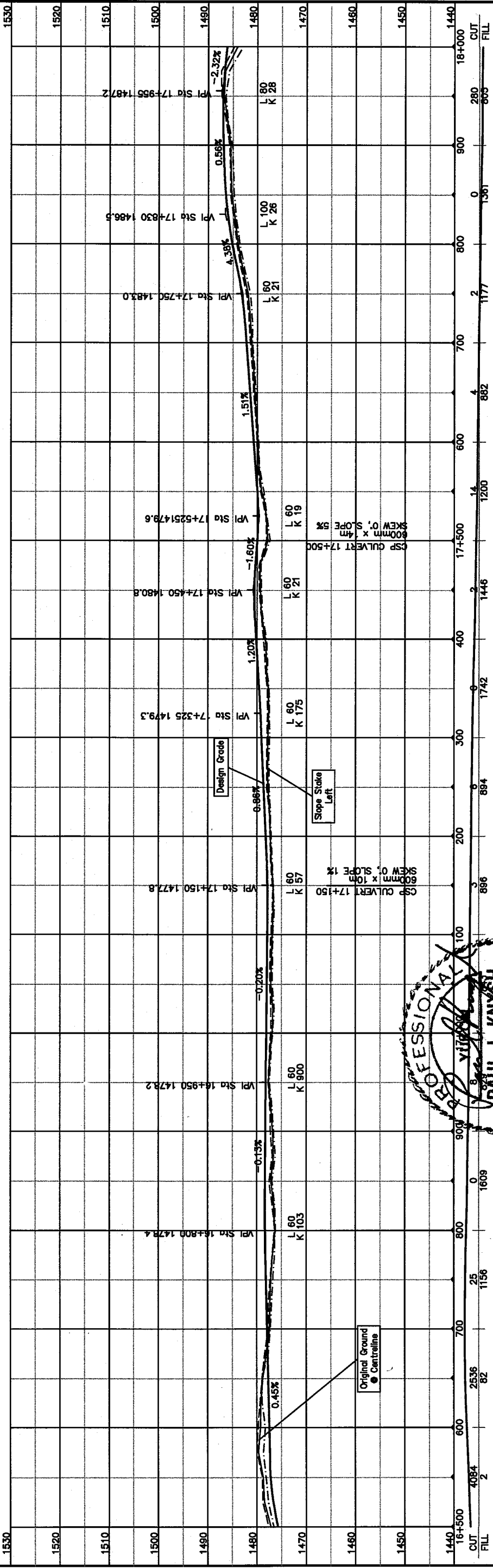
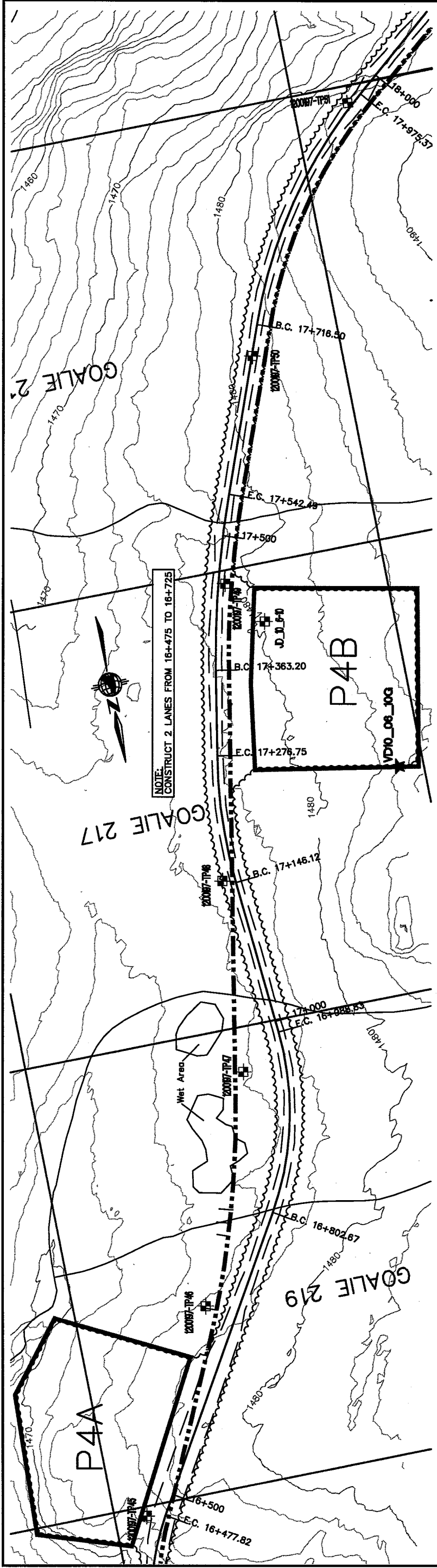


NOTES:  
 CONSTRUCT 2 LANES FROM 14+975 TO 15+050  
 CONSTRUCT 2 LANES FROM 15+400 TO 15+575  
 CONSTRUCT 2 LANES FROM 16+475 TO 16+725  
 WIDEN ROAD 1.5m FOR BERM FROM 15+247 TO 15+375 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 15+580 TO 15+700 L.H.S.  
 WIDEN ROAD 1.5m FOR BERM FROM 15+775 TO 16+075 L.H.S.



|   |  |  |  |   |  |
|---|--|--|--|---|--|
| <b>LEGEND:</b><br>GEOTEXTILE<br>EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD<br>24-D-4 HAND DUG TESTPITS<br>20097-TP4 TESTPITS<br>WFR06-006 GEO-CHEMICAL TESTPITS |  | SECTION:<br>RH 12/01/07<br>RH 24/10/08<br>RH 05/08<br>RH 05/08<br>BY DATE<br>NO DESCRIPTION                                    |  | REV. DATE<br>4 12/01/07<br>3 24/10/08<br>2 05/08<br>1 05/08<br>NO DESCRIPTION |  |
| PROJECT NUMBER: E06015<br>DRAWING NUMBER: 15-15<br>SCALE: 1:4000-H, 1:800-V   |  | ISSUE FOR CONSTRUCTION<br>REVISED FOLLOWING GEOTECH REPORT<br>ISSUED FOR TENDER<br>ISSUED FOR DISCUSSION                       |  | DRAWN BY: GOC<br>CHECKED BY: PK<br>APPROVED BY: RH                            |  |
| FILENAME: E06015_4_P2.DWG<br>PROJECT NUMBER: E06015<br>DRAWING NUMBER: 15-15  |  | ALL WEATHER ACCESS ROAD<br>ISSUED FOR CONSTRUCTION<br>WOLYBREDNE PROJECT<br>PLAN/PROFILE SHEET<br>KM 15 TO KM 16.5<br>FIGURE 1 |  | YES Yukon Zinc<br>100% CHINA IRON STEEL CORPORATION                           |  |





| NO | DESCRIPTION                      | BY | DATE     | APPROVED BY: RH | DATE     |
|----|----------------------------------|----|----------|-----------------|----------|
| 4  | ISSUED FOR CONSTRUCTION          | RH | 12/01/07 |                 | 12/01/07 |
| 3  | REVISED FOLLOWING GEOTECH REPORT | RH | 24/10/06 |                 | 12/01/07 |
| 2  | ISSUED FOR TENDER                | RH | 05/06    |                 | 12/01/07 |
| 1  | ISSUED FOR DISCUSSION            | RH | 05/06    |                 | 12/01/07 |
| NO | DESCRIPTION                      | BY | DATE     | APPROVED BY: RH | DATE     |

| FILE NAME       | PROJECT NUMBER | DRAWING NUMBER | REV. |
|-----------------|----------------|----------------|------|
| ED0015_L.PP.WMG | ED0015         | km 18.5        | 4    |

| SECTION         | SCALE            | DATE     |
|-----------------|------------------|----------|
| RH              | 1:4000-H 1:800-V | 12/01/07 |
| DESIGNED BY: RH |                  | 12/01/07 |
| DRAWN BY: GJC   |                  | 12/01/07 |
| CHECKED BY: PK  |                  | 12/01/07 |
| APPROVED BY: RH |                  | 12/01/07 |

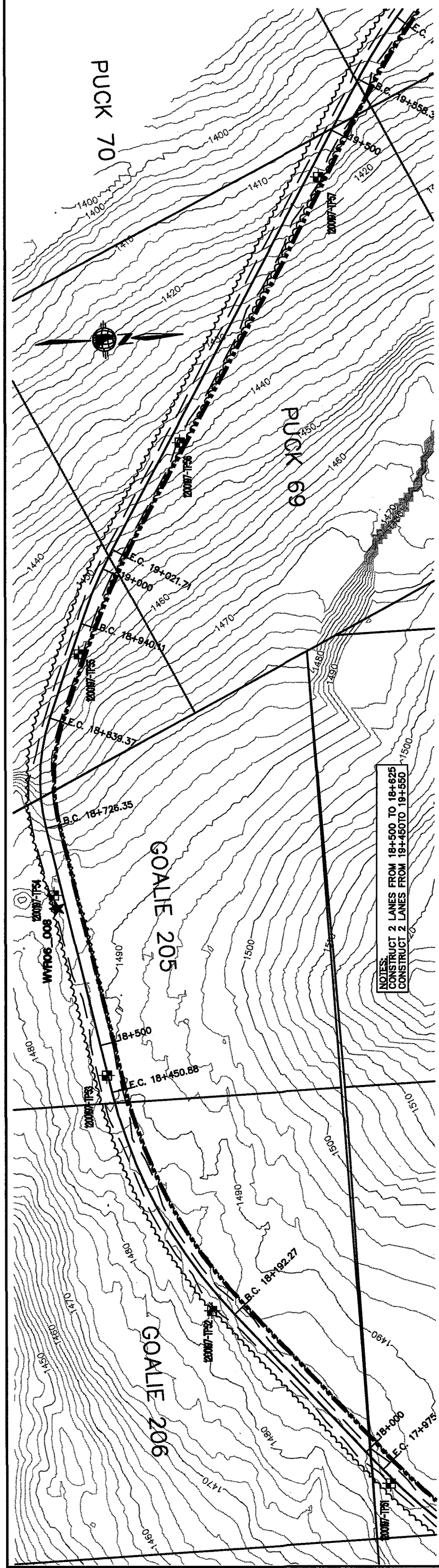
ALL WEATHER ACCESS ROAD  
ISSUED FOR CONSTRUCTION

WOLVERINE PROJECT  
PLAN/PROFILE SHEET  
KM 18.5 TO KM 18.0  
FIGURE 1

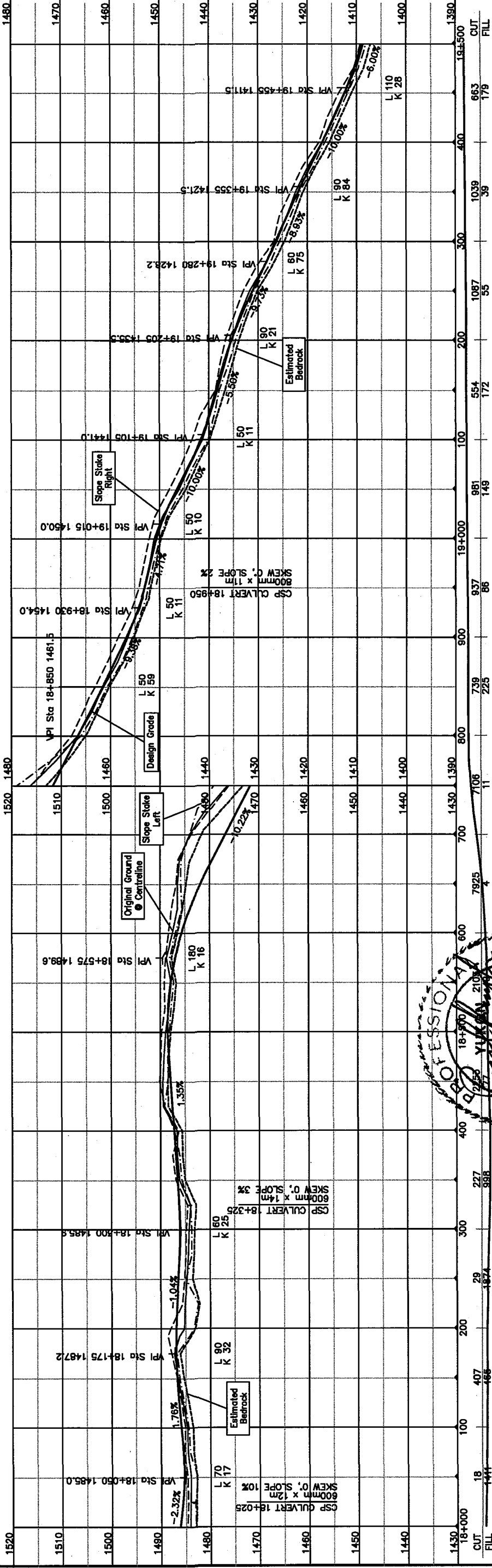
**YES Yukon Zinc**  
INCORPORATED

PROFESSIONAL  
PAUL J. KNYSH  
TERRITORY  
07/01/07

LEGEND:  
 - - - GEOTEXTILE  
 - - - EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD  
 - - - HAND DUG TESTPITS  
 - - - TESTPITS  
 - - - GEOCHEMICAL TESTPITS



NOTES:  
 CONSTRUCT 2 LANES FROM 18+500 TO 18+625  
 CONSTRUCT 2 LANES FROM 19+450 TO 19+550



| NO | DESCRIPTION                      | BY | DATE     | APPROVED BY: RH | DATE     |
|----|----------------------------------|----|----------|-----------------|----------|
| 4  | ISSUED FOR CONSTRUCTION          | RH | 12/01/07 |                 | 12/01/07 |
| 3  | REVISED FOLLOWING GEOTECH REPORT | RH | 24/10/06 |                 | 12/01/07 |
| 2  | ISSUED FOR TENDER                | RH | 05/06    |                 | 12/01/07 |
| 1  | ISSUED FOR DISCUSSION            | RH | 05/06    |                 | 12/01/07 |
| NO | DESCRIPTION                      | BY | DATE     | CHECKED BY: PK  | 12/01/07 |

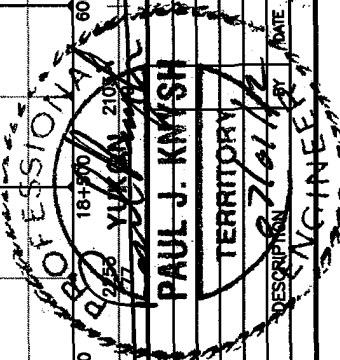
| SECTION:        | SCALE: | DATE:    |
|-----------------|--------|----------|
| 18+000-H 1800-J | 1:1000 | 12/01/07 |
| DESIGNED BY: RH |        | 12/01/07 |
| DRAWN BY: DCC   |        | 12/01/07 |
| CHECKED BY: PK  |        | 12/01/07 |
| APPROVED BY: RH |        | 12/01/07 |

| FILE NAME:    | PROJECT NUMBER: | DRAWING NUMBER: | REV: |
|---------------|-----------------|-----------------|------|
| EM016_L_P.DWG | EX0016          | km 18           | 4    |

| LEGEND:  | DESCRIPTION                                      |
|----------|--|
| [Symbol] | GEOTEXTILE                                       |
| [Symbol] | EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD |
| [Symbol] | HAND DUG TESTPITS                                |
| [Symbol] | TESTPITS   |
| [Symbol] | GEO-CHEMICAL TESTPITS                            |



ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

**YES Yukon Zinc**  
 A DIVISION OF  
 YUKON ENGINEERING CORPORATION

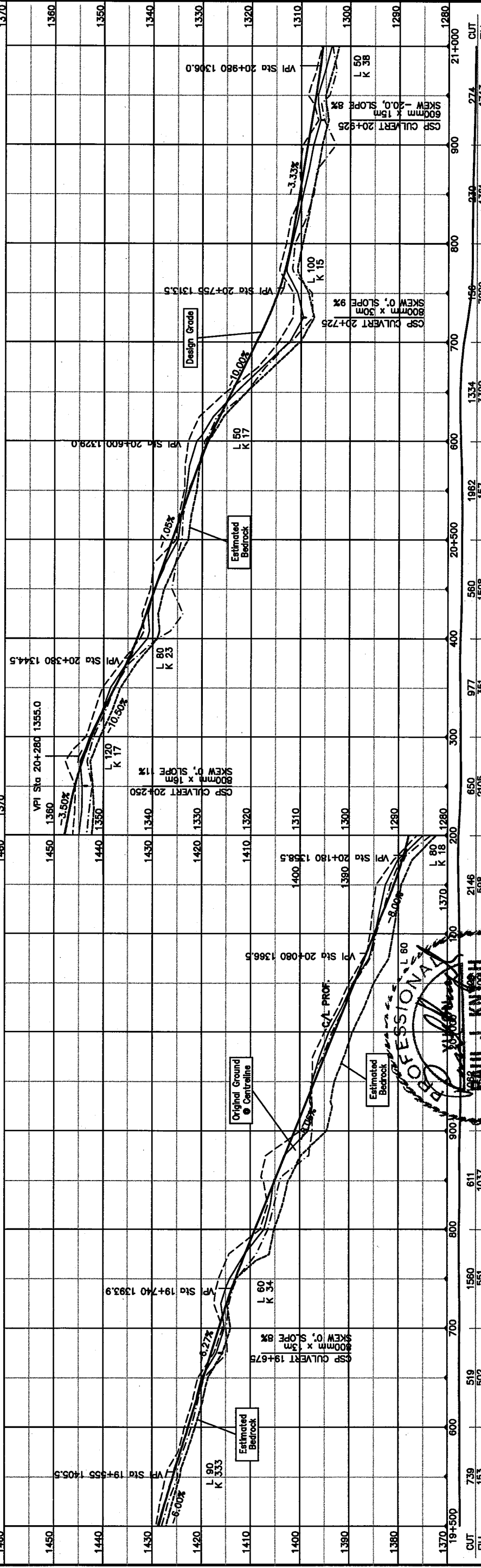
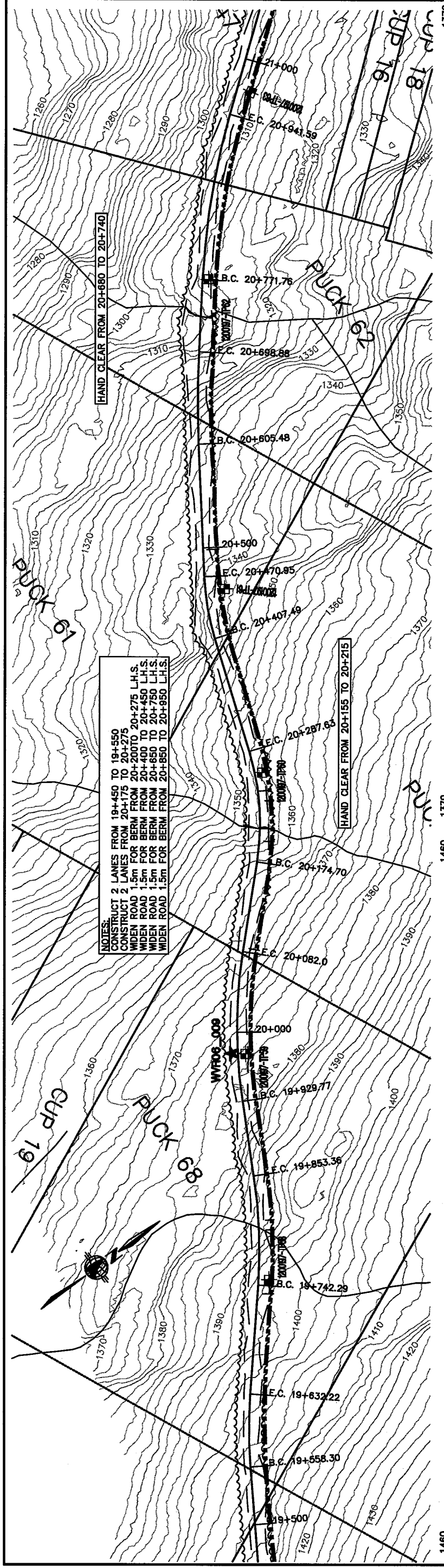
WOLYBENE PROJECT  
 PLAN/PROFILE SHEET  
 KM 18.0 TO KM 19.5  
 FIGURE 1

SECTION:  
 SCALE: 1:1000  
 DATE: 12/01/07  
 DESIGNED BY: RH  
 DRAWN BY: DCC  
 CHECKED BY: PK  
 APPROVED BY: RH

FILE NAME: EM016\_L\_P.DWG  
 PROJECT NUMBER: EX0016  
 DRAWING NUMBER: km 18  
 REV: 4

LEGEND:  
 [Symbol] GEOTEXTILE  
 [Symbol] EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD  
 [Symbol] HAND DUG TESTPITS  
 [Symbol] TESTPITS  
 [Symbol] GEO-CHEMICAL TESTPITS

S:\025\F0015\F0015.dwg 12/12/2007 12:13:58



| NO | DESCRIPTION                      | BY | DATE     |
|----|----------------------------------|----|----------|
| 4  | ISSUED FOR CONSTRUCTION          | RH | 12/01/07 |
| 3  | REVISED FOLLOWING GEOTECH REPORT | RH | 24/10/06 |
| 2  | ISSUED FOR TENDER                | RH | 05/06    |
| 1  | ISSUED FOR DISCUSSION            | RH | 05/06    |
|    | ISSUED FOR DISCUSSION            | BY | DATE     |

| SECTION       | SCALE    | DATE     |
|---------------|----------|----------|
| 19+450-19+550 | 1:4000-H | 12/01/07 |
| 19+550-20+000 | 1:4000-H | 12/01/07 |
| 20+000-20+500 | 1:4000-H | 12/01/07 |
| 20+500-21+000 | 1:4000-H | 12/01/07 |

| FILE NAME    | PROJECT NUMBER | DRAWING NUMBER | REV. |
|--------------|----------------|----------------|------|
| EM015_A.PRWG | EM015          | 18.5           | 4    |

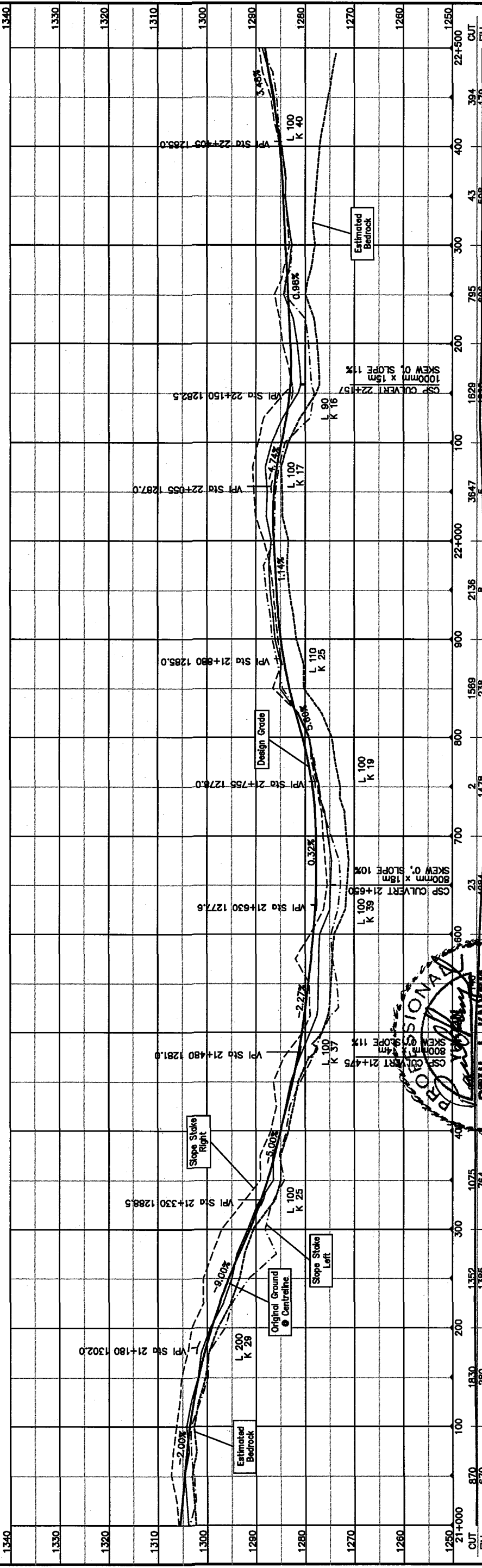
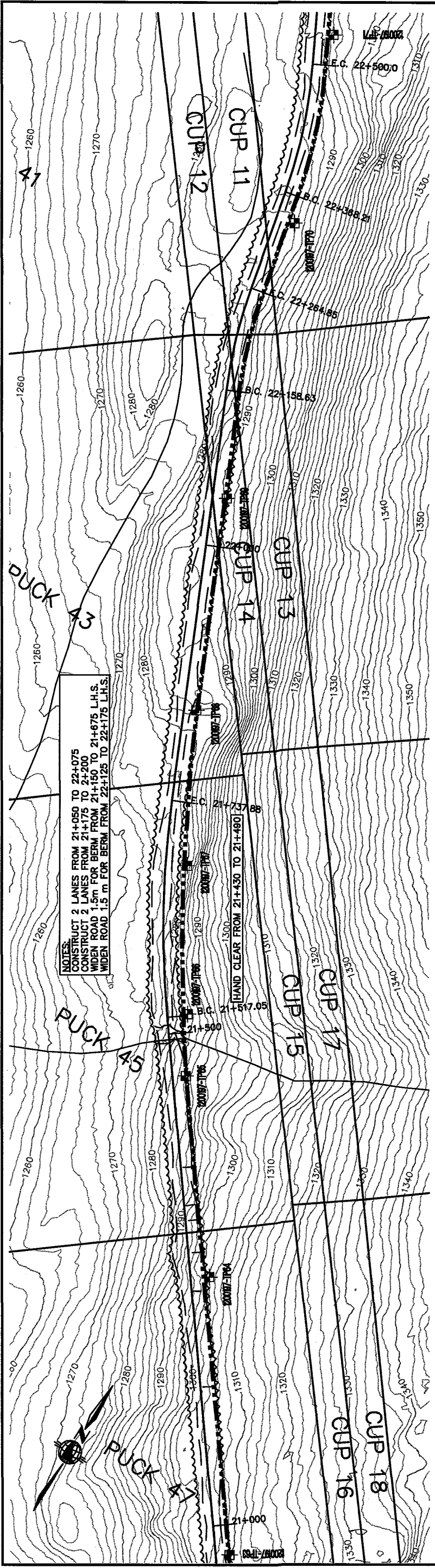
| NO  | DESCRIPTION                                      | DATE |
|-----|--|------|
| 739 | GEOTEXTILE                                       | 519  |
| 153 | EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD | 502  |
|     | HAND DUG TESTPITS                                | 551  |
|     | TESTPITS   | 611  |
|     | GEOCHEMICAL TESTPITS                             | 1037 |

ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION  
 PLAN/PROFILE SHEET  
 WYVIERINE PROJECT  
 KM 19.5 TO KM 21.0  
 FIGURE 1

**PROFESSIONAL**  
 TERRITORY  
**PAUL J. KNISH**  
 1988

**YES Yukon Zinc**  
 100% WHOLLY OWNED BY YUKON ZINC CORPORATION



| NO | DESCRIPTION                      | BY | DATE     |
|----|----------------------------------|----|----------|
| 4  | ISSUED FOR CONSTRUCTION          | RH | 12/01/07 |
| 3  | REVISED FOLLOWING GEOTECH REPORT | RH | 24/10/08 |
| 2  | ISSUED FOR TENDER                | RH | 05/06    |
| 1  | ISSUED FOR DISCUSSION            | RH | 05/06    |
| NO | DESCRIPTION                      | BY | DATE     |

| SECTION      | SCALE    | DATE     |
|--------------|----------|----------|
| 14000-H      | 1:4000-H | 12/01/07 |
| DESIGNED BY: | BY: RH   | 12/01/07 |
| DRAWN BY:    | BY: GDC  | 12/01/07 |
| CHECKED BY:  | BY: PK   | 12/01/07 |
| APPROVED BY: | BY: RH   | 12/01/07 |

| FILE NAME       | PROJECT NUMBER | DRAWING NUMBER | REV. |
|-----------------|----------------|----------------|------|
| EM0101_A_PP.DWG | EM0016         | km 21          | 4    |

ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

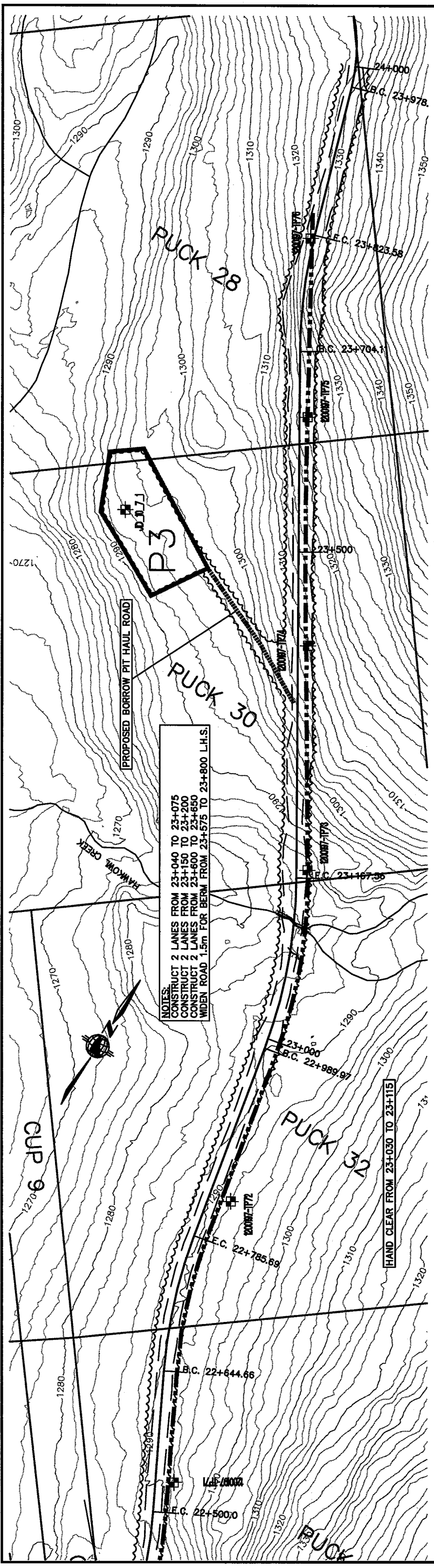
WOLYERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 21.0 TO KM 22.5  
 FRAME 1

**YES Yukon Zinc**  
 YUKON MINING SERVICES CORPORATION

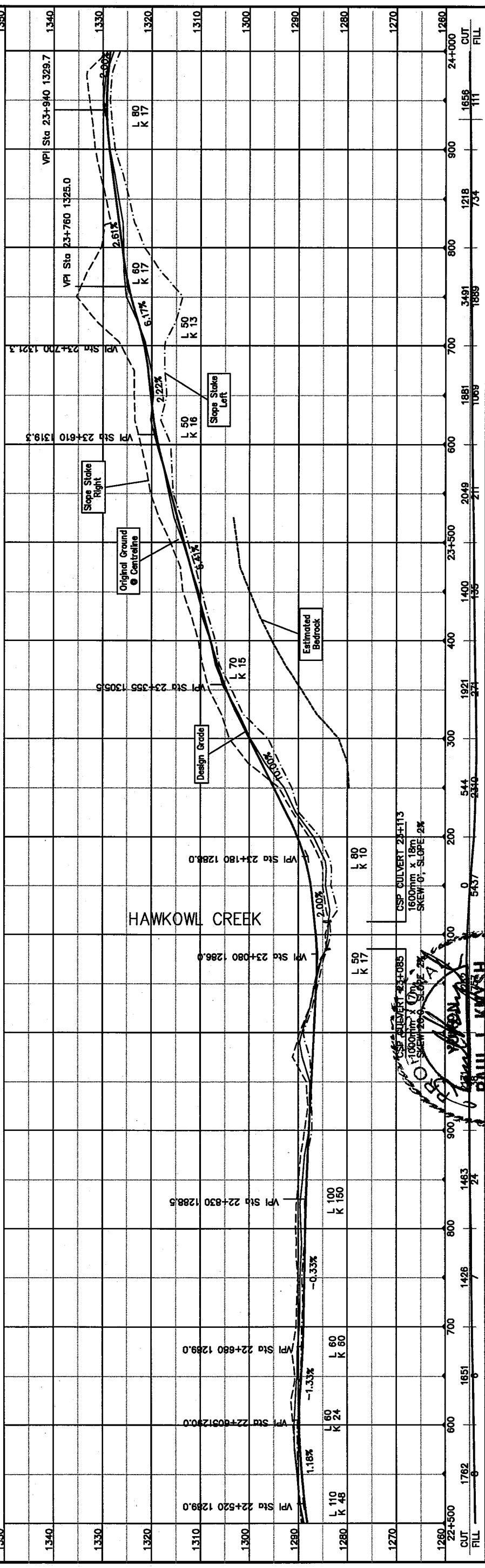


| LEGEND:  | DESCRIPTION                                      |
|----------|--|
| [Symbol] | GEOTEXTILE                                       |
| [Symbol] | EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD |
| [Symbol] | HAND DUG TESTPITS                                |
| [Symbol] | TESTPITS   |
| [Symbol] | GEO-CHEMICAL TESTPITS                            |





NOTES:  
 CONSTRUCT 2 LANES FROM 23+040 TO 23+075  
 CONSTRUCT 2 LANES FROM 23+150 TO 23+200  
 CONSTRUCT 2 LANES FROM 23+600 TO 23+650  
 WIDEN ROAD 1.5m FOR BEAM FROM 23+575 TO 23+800 L.H.S.



| REV. | DATE     | DESCRIPTION                      | BY | APPROVED BY |
|------|----------|----------------------------------|----|-------------|
| 4    | 12/01/07 | ISSUED FOR CONSTRUCTION          | RH |             |
| 3    | 24/10/06 | REVISED FOLLOWING GEOTECH REPORT | RH |             |
| 2    | 05/06    | ISSUED FOR TENDER                | RH |             |
| 1    | 05/06    | ISSUED FOR DISCUSSION            | RH |             |
| NO   |          | DESCRIPTION                      | NO |             |

| FILE NAME      | PROJECT NUMBER | DRAWING NUMBER | REV. |
|----------------|----------------|----------------|------|
| ED0015_4_P.LWG | ED0015         | km 22.5        | 4    |

| SECTION               | SCALE | DATE     |
|-----------------------|-------|----------|
| SCALE 1:400-H 1:800-V |       | 12/01/07 |
| DESIGNED BY: RH       |       | 24/10/06 |
| DRAWN BY: GOC         |       | 05/06    |
| CHECKED BY: PK        |       | 05/06    |
| APPROVED BY: RH       |       | 12/01/07 |

| LEGEND: | DESCRIPTION                                      |
|---------|--|
|         | GEOTEXTILE                                       |
|         | EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD |
|         | HAND DUG TESTPITS                                |
|         | TESTPITS   |
|         | GEO-CHEMICAL TESTPITS                            |

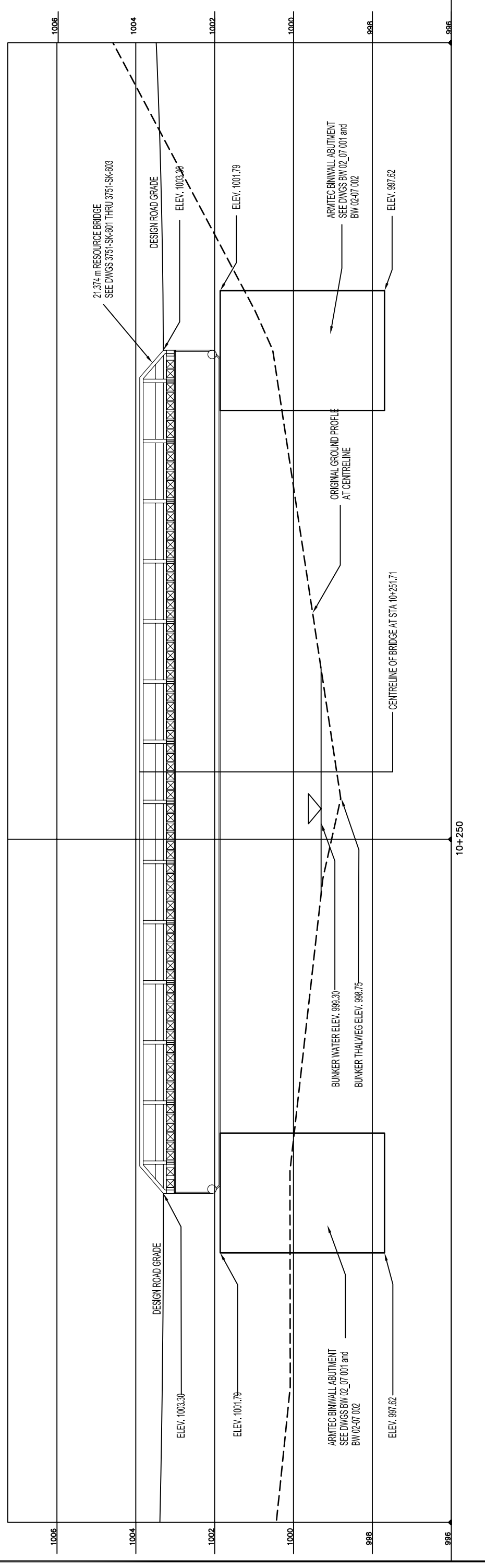
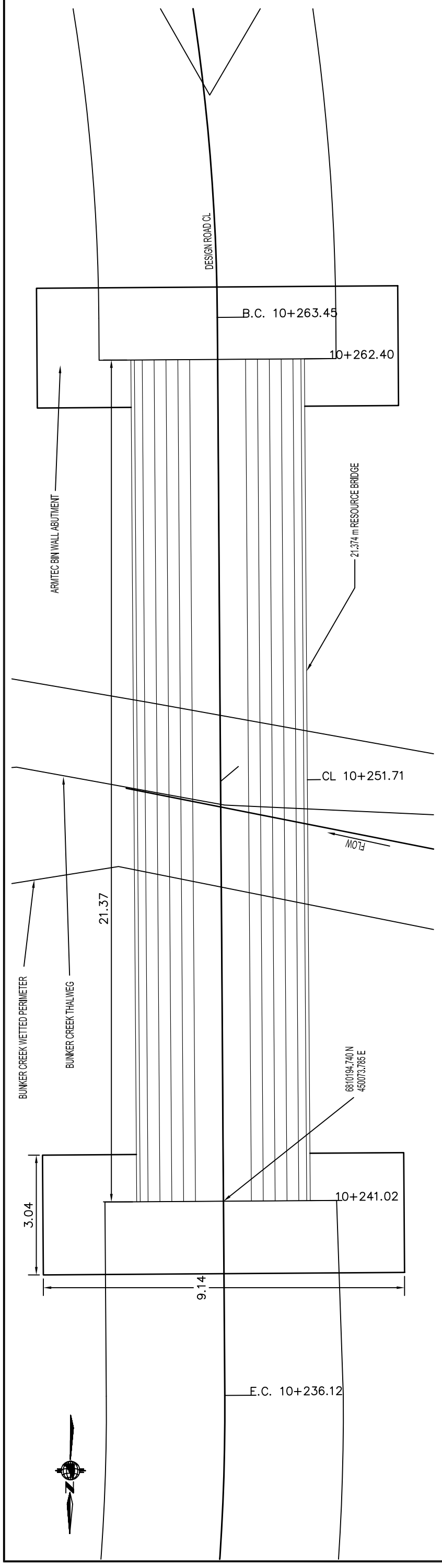
  

ALL WEATHER ACCESS ROAD  
 ISSUED FOR CONSTRUCTION

WOLVERINE PROJECT  
 PLAN/PROFILE SHEET  
 KM 22.5 TO KM 24.0  
 FIGURE 1

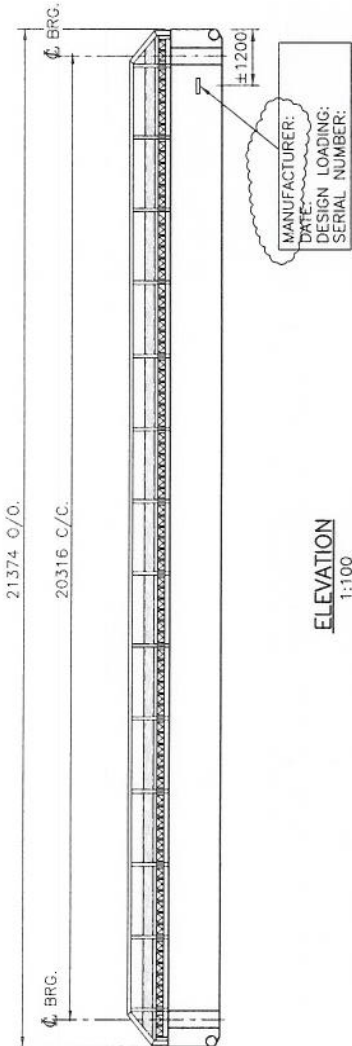
**YES Yukon Zinc**  
 YUKON ENGINEERING SERVICES CORPORATION

PAUL J. KMTSH  
 TERRITORY ENGINEER

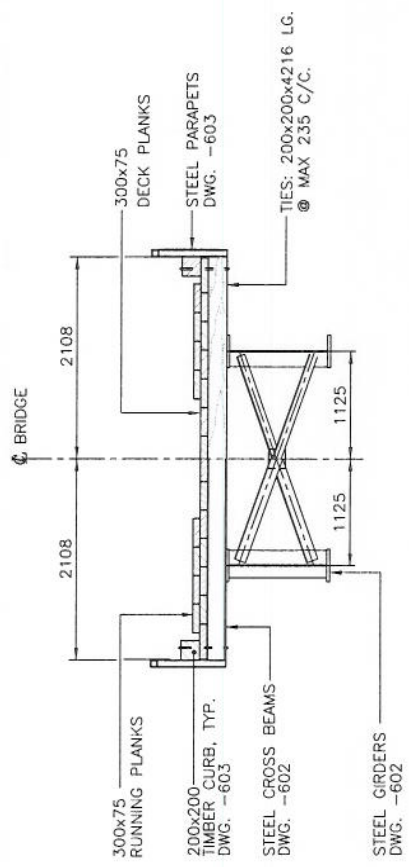


|  |  |  |                           |
|--|--|--|---------------------------|
|  |  | <b>WOLVERINE PROJECT</b><br>PLAY/PROFILE SHEET<br>BUNKER CK BRIDGE |                           |
| ALL WEATHER ACCESS ROAD<br>ISSUED FOR CONSTRUCTION   |  | FILENAME:<br>BUNKER.DWG  | PROJECT NUMBER:<br>E06015 |
| SECTION:<br>SCALE: 1:100<br>DESIGNED BY: EWN<br>DRAWN BY: EWN<br>CHECKED BY: PK<br>APPROVED BY: EG |  | DRAWING NUMBER:<br>BRIDGE PP                                       | REV.<br>1                 |
| NO<br>DESCRIPTION  |  | NO<br>DESCRIPTION  | DATE<br>12/01/07          |
| 1<br>ISSUED FOR DISCUSSION   |  | EWN<br>01/07   | DATE<br>12/01/07          |
| 1<br>NO  |  | BY<br>NO   | DATE<br>12/01/07          |
| 1<br>NO  |  | BY<br>NO   | DATE<br>12/01/07          |

**LEGEND:**  
 GEOTEXTILE  
 EXISTING GEOTECHNICAL TRAIL/PROPOSED WINTER ROAD  
 26JD-9 HAND DUG TESTPITS  
 1200197-TP TESTPITS  
 WVR06-0066 GEOCHEMICAL TESTPITS



**ELEVATION**  
1:100



**1/2 DIAPHRAGM SECTION**  
1:50

- NOTES**
- FOR INSTALLATION BY OTHERS, ONTO SUBSTRUCTURE BY OTHERS, NO RESPONSIBILITY CAN BE ACCEPTED FOR WORK BY OTHERS.
  - DESIGN: CAN/CSA-36-86 (MODIFIED).
  - LOADING: 1100 (90.68kn/m; C.V.W.) e=400, DIST.=60/40.
  - DESIGN LIFE: 10 YEARS (EXCEPT DECK).
  - FATIGUE: 500,000 CYCLES.
  - STEEL: CSA G40.21M GRADE 350AT CAT. 3 (PLATE) GRADE 350W (HSS & W-SECTIONS) NON-WEATHERING STEEL SECTIONS TO BE PAINTED USING APPROVED PAINT SYSTEM STEEL FABRICATORS SHALL BE QUALIFIED TO CSA W47.1, DIV. 1 OR DIV. 2
  - PIPE: ASTM A325 TYPE 3 M22 U/N. JOB INSPECTION TORQUE 810 Nm
  - BOLTS: ASTM A325 TYPE 3 M22 U/N. JOB INSPECTION TORQUE 810 Nm
  - DECK HARDWARE: HOT DIP GALVANIZED OR GRADE 350A, BOLTS ASTM A307 GALVANIZED.
  - DECK CONSTRUCTION: TO MOF DWG. NOS. ENG-94-1-01, 02, 04 EXCEPT AS NOTED.
  - TIMBER: SPF NO. 2, GRADE OR BETTER, ROUGH SAWN, TIES AND DECK PLANKS TO BE CCA TREATED; CURBS & RUNNING PLANKS, UNTREATED.
  - BRIDGE CURBS SHALL HAVE ITS LOAD RATING, DATE OF MANUFACTURE, MANUFACTURER'S NAME AND SERIAL NUMBER CLEARLY STAMPED ON EACH SIDE OF THE PLATE FIXED TO ONE SIDE OF THE STRUCTURE. THE HEIGHT OF LETTERING USED SHALL BE A MINIMUM OF 60mm UNLESS OTHERWISE SPECIFIED.
  - DESIGN TRUCK:
 

|                   |      |       |       |       |            |
|-------------------|------|-------|-------|-------|------------|
| 400               | 71.4 | 204.6 | 204.6 | 204.6 | 204.6      |
| AXLE LOADING (kN) |      |       |       |       |            |
|                   | 4570 | 1660  | 7320  | 1660  | 1980       |
| SPACING (mm)      |      |       |       |       |            |
|                   |      |       |       |       | R1 1980 P2 |
|                   |      |       |       |       | 60% 40%    |

**1/2 TYPICAL SECTION**  
1:50

**PERMIT TO PRACTICE**  
ASSOCIATED ENGINEERING ALBERTA LTD.  
Signature \_\_\_\_\_  
Date \_\_\_\_\_  
PERMIT NUMBER: P 3979  
The Association of Professional Engineers,  
Geologists and Geophysicists of Alberta

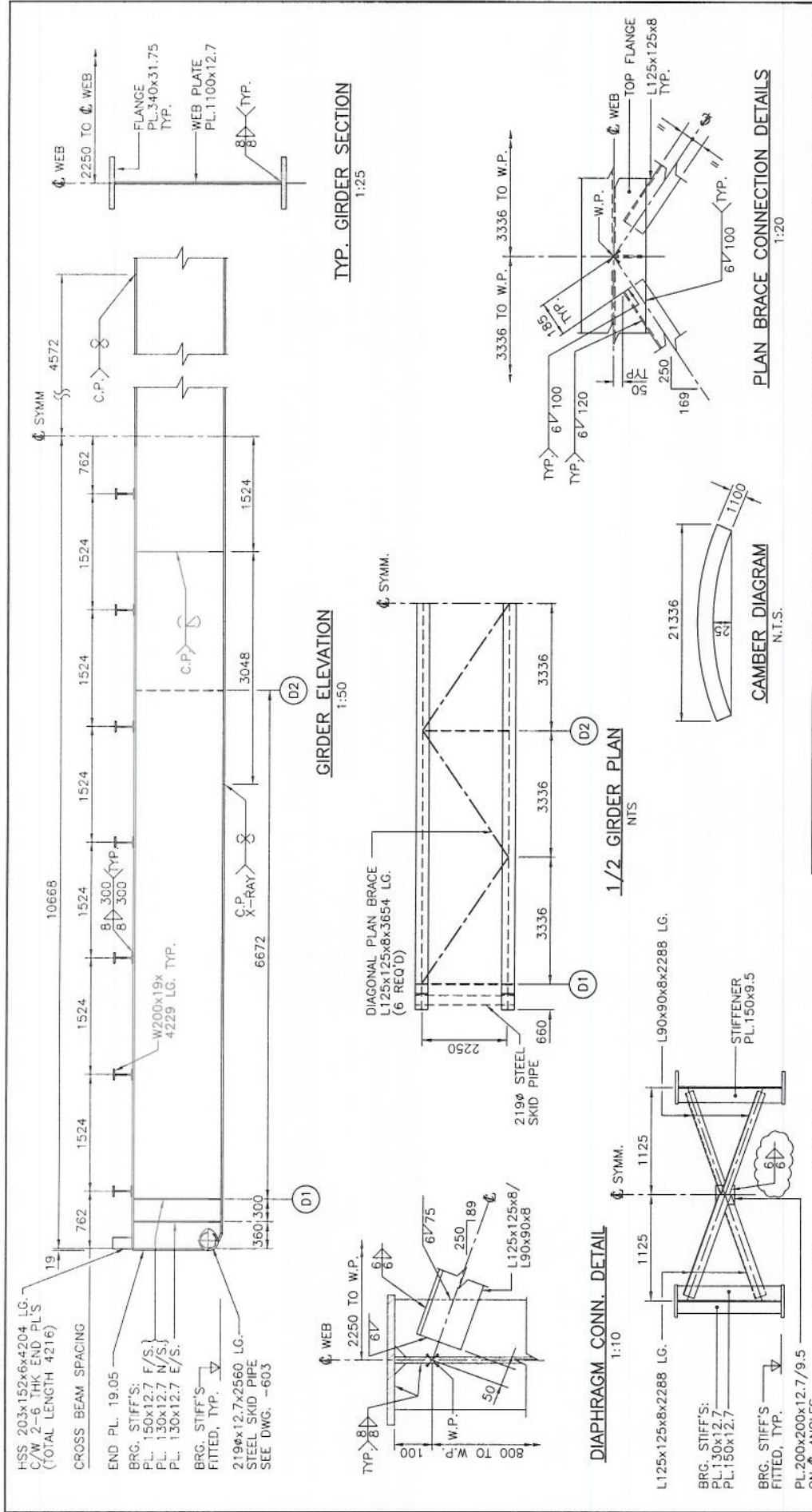
| REV | DATE     | DESCRIPTION                    | ENG  | DWN  |
|-----|----------|--------------------------------|------|------|
| 1   | 00/10/31 | PERMIT END & BODY LENGTH REV'D | TA   | FZ   |
| 2   | 04/01/05 | UPDATED TITLE & DIM REV'D      | M.S. | P.L. |
| 3   | 04/09/27 | GENERAL REVISION               | AY   | CKL  |

21.336m OILFIELD PORTABLE  
GENERAL ARRANGEMENT

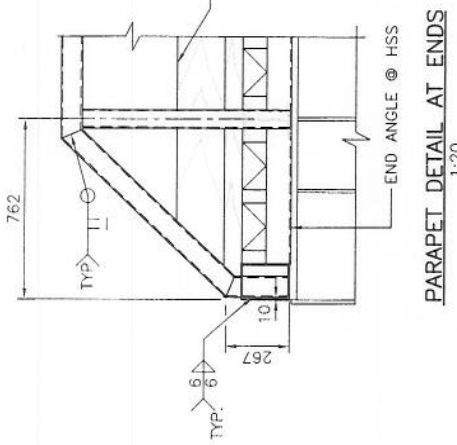
ASSOCIATED ENGINEERING  
AE

|                      |  |
|----------------------|--|
| DESIGN: M.R.S.       |  |
| CHECK: M.G.J.        |  |
| DRAWN: M.D.-J        |  |
| DATE: JANUARY 2004   |  |
| SCALE: AS SHOWN      |  |
| JOB No. 993751       |  |
| DWG. No. 3751-SK-601 |  |

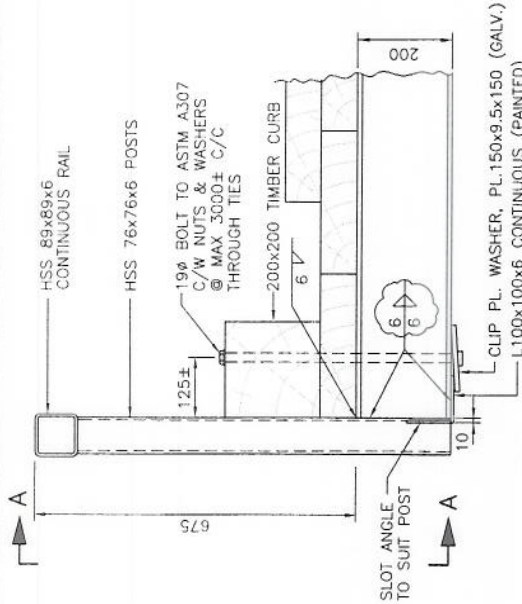
ALL DRAWINGS SUPERSSEDED PRIOR TO REVISION →



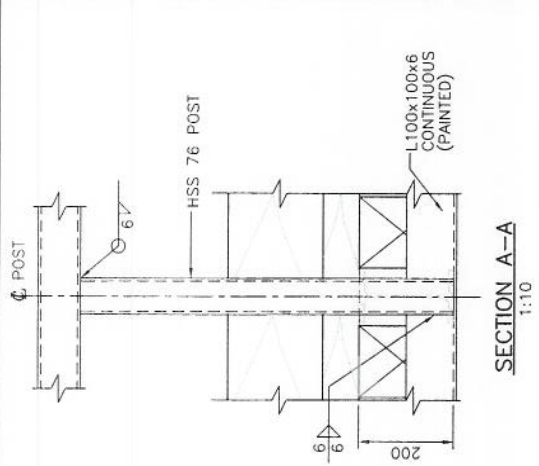
| REV | DATE     | DESCRIPTION          | ENG  | DWN  |
|-----|----------|----------------------|------|------|
| 1   | 00/06/20 | END P.L.'S ADDED     | SR   | FZ   |
| 2   | 00/10/19 | END CROSS BEAM REV'D | TA   | FZ   |
| 3   | 04/01/05 | UPDATED TITLE        | M.S. | P.L. |
| 4   | 04/09/27 | GENERAL REVISION     | AY   | CKL  |
| 5   | 04/12/14 | FILLER PLATE WELD    | AY   | AY   |



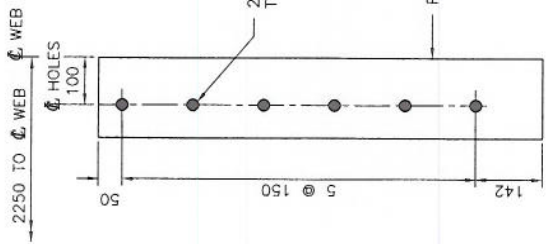
PARAPET DETAIL AT ENDS  
1:20



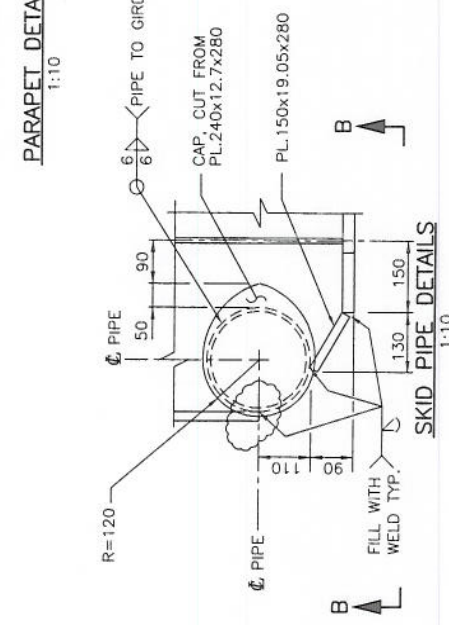
PARAPET DETAIL  
1:10



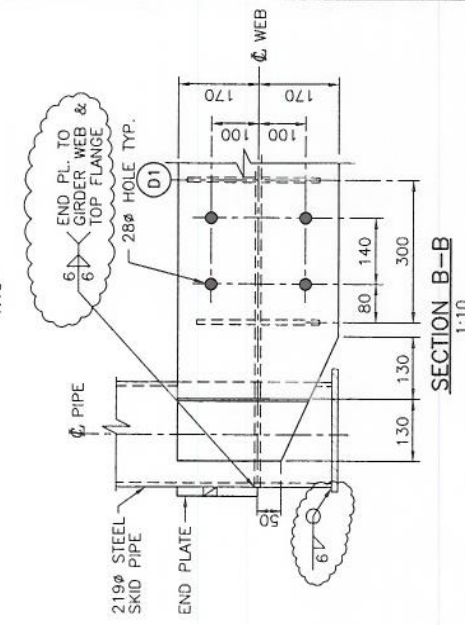
SECTION A-A  
1:10



END PLATE DETAIL  
1:10 (4 REQ'D)



SKID PIPE DETAILS  
1:10



SECTION B-B  
1:10

**PERMIT TO PRACTICE**  
ASSOCIATED ENGINEERING ALBERTA LTD.  
Signature \_\_\_\_\_  
Date \_\_\_\_\_  
PERMIT NUMBER: P 3979  
The Association of Professional Engineers,  
Geologists and Geophysicists of Alberta

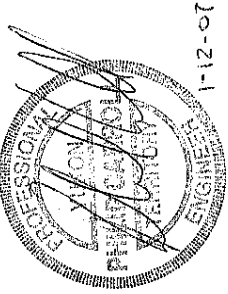
| REV | DATE     | DESCRIPTION       | ENG DWN   |
|-----|----------|-------------------|-----------|
| 1   | 00/06/16 | PARAPET DETAIL    | TA MD     |
| 2   | 00/06/22 | PARAPET END REV'D | SR FZ     |
| 3   | 00/10/19 | PARAPET END REV'D | TA FZ     |
| 4   | 04/01/05 | UPDATED TITLE     | M.S. P.L. |
| 5   | 04/09/27 | GENERAL REVISION  | AY CKL    |

DESIGN: M.R.S.  
CHECK: SC  
DRAWN: M.D.-J  
DATE: JANUARY 2004  
SCALE: AS SHOWN  
JOB No. 993751  
DWG. No. 3751-SK-603

21.336m OILFIELD PORTABLE  
STEEL GIRDER DETAILS - SHT.2

ASSOCIATED  
ENGINEERING  
ALL DRAWINGS SUPERSEDED PRIOR TO REVISION

ENGINEER'S SEAL

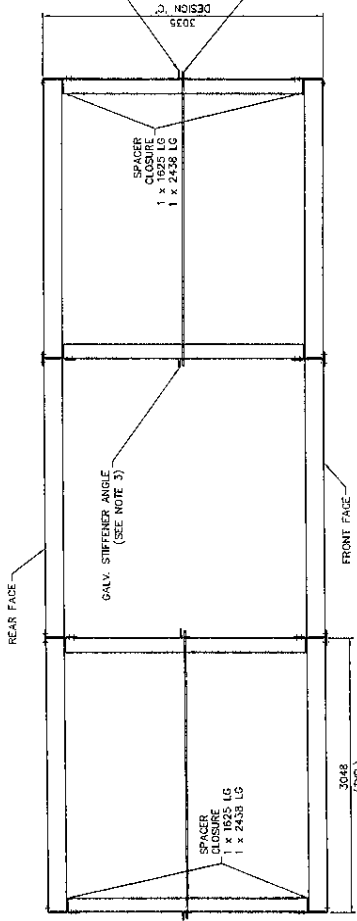


THE ENGINEER'S SEAL CERTIFIES THE ARMTEC BIN-TYPE RETAINING WALL TO BE ACCORDANT WITH THE REQUIREMENTS OF THE BRITISH STANDARD BS 5303. THE ENGINEER ACCEPTS NO LIABILITY FOR FAILURE OF THE WALLS DUE TO EXCESS DIFFERENTIAL SETTLEMENT, FAULTY INSTALLATION OR GLOBAL INSTABILITY.  
PLEASE NOTE THIS DRAWING IS PRELIMINARY IN NATURE AND ADDITIONAL STRUCTURAL DETAILS WILL BE ADDED UPON PREPARATION OF APPROVAL DRAWINGS AFTER RECEIPT OF ORDER.

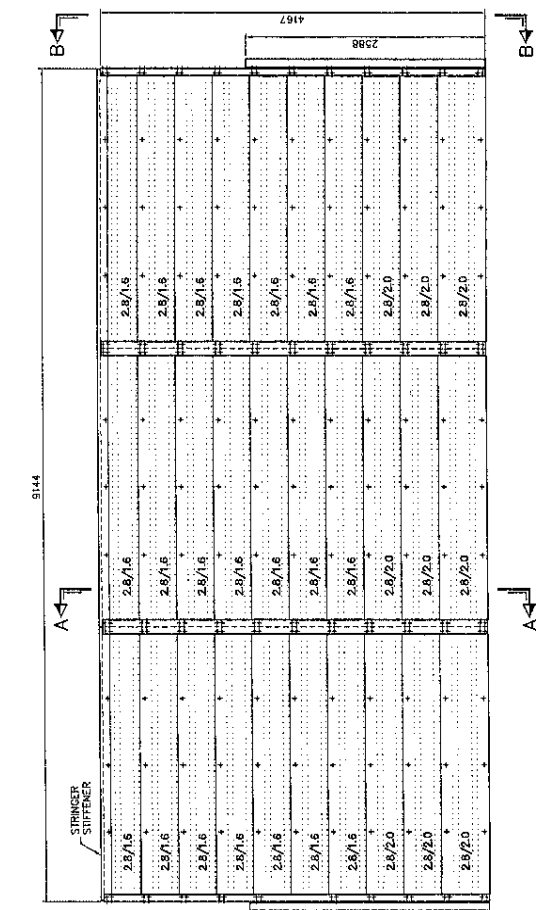
**PRELIMINARY  
NOT FOR FINAL DESIGN OR  
CONSTRUCTION PURPOSES**

GALV. STIFFENER ANGLE  
(SEE NOTE 3)

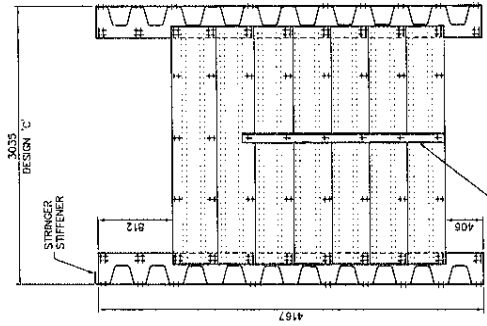
THE RODS x 3200 LG AT  
3 PER END BIN @ 612 [397]  
CENTERS C/W 2 NUTS



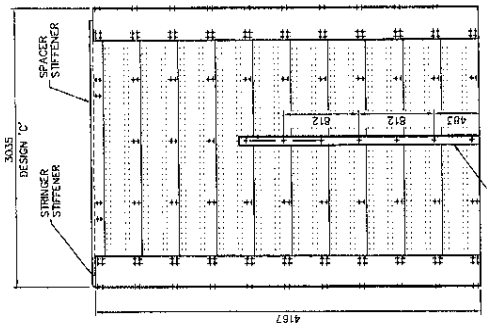
PLAN VIEW



ELEVATION  
(FRONT FACE OF WALL)



SECTION 'A-A'



VIEW 'B-B'

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED.
2. ALL STRINGER THICKNESSES ARE AS NOTED ON ELEVATION VIEW  
 REAR STRINGER  
 FRONT STRINGER
3. FIELD ENLARGE HOLES IN END SPACERS FOR THE RODS USING STIFFENER ANGLE AS TEMPLATE.

REFERENCE DIMS:

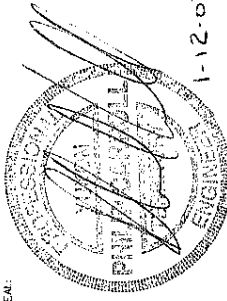
BW-40001 STANDARD DETAILS & COMPONENTS  
 BW-40002 STANDARD DEPTH & HEIGHT COMBINATIONS

| NO. | DATE     | DESCRIPTION OF REVISION | BY | CHK'D |
|-----|----------|-------------------------|----|-------|
| 0   | 07/01/11 | ISSUED FOR COMMENTS     | DL | KA    |

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|              |              |
|--------------|--------------|
| BUNKER CREEK |              |
| DATE         | 07/01/09     |
| DRAWN        | D. LOWE      |
| CHECKED      | K. ARD       |
| REVIEWED     |              |
| SCALE        | N.T.S.       |
| DRAWING NO.  | BW-02-07-001 |
| QUANTITY     | 2            |
| REV          | 0            |
| SHEET        | 1 OF 2       |

ENGINEER'S SEAL:



THE ENGINEER'S SEAL CERTIFIES THE ARMITEC BIN TYPE RETAINING WALL HAS BEEN DESIGNED AND CONSTRUCTED ACCORDING TO THE DESIGN AND CONSTRUCTION REQUIREMENTS SET OUT IN THIS SEAL. THIS SEAL DOES NOT CERTIFY THE BINS AGAINST FAILURE DUE TO EXCESS DIFFERENTIAL SETTLEMENT, FAULTY INSTALLATION OR GLOBAL INSTABILITY.

PLEASE NOTE THIS DRAWING IS PRELIMINARY IN NATURE AND ADDITIONAL STRONG POINTS AND DETAILS MUST BE DEVELOPED UPON PREPARATION OF APPROVAL DRAWINGS AFTER RECEIPT OF ORDER.

**PRELIMINARY  
NOT FOR FINAL DESIGN OR  
CONSTRUCTION PURPOSES**

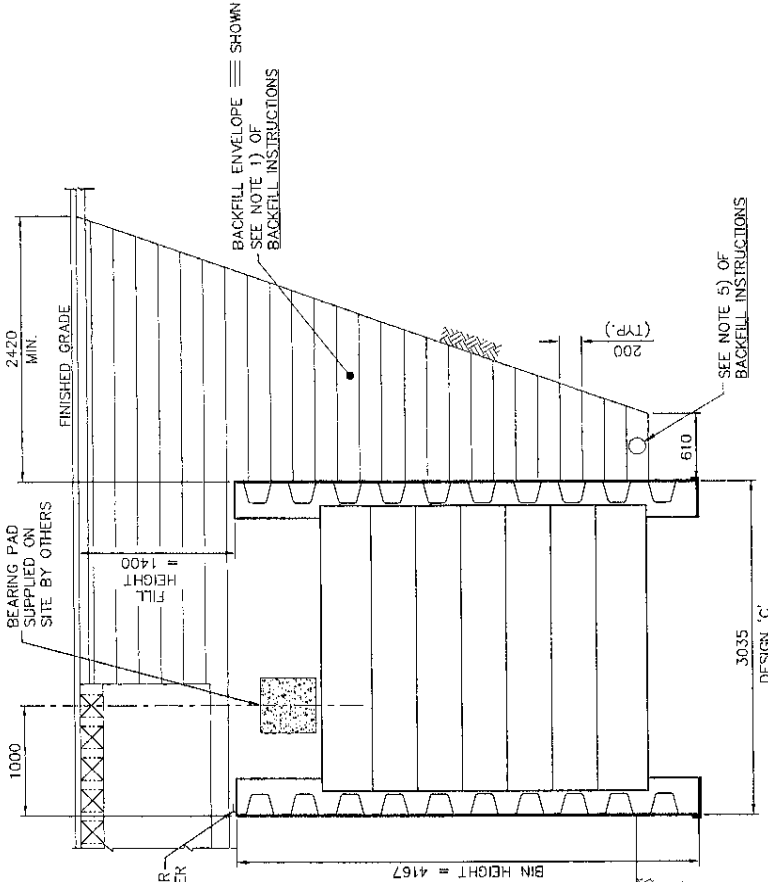
NOTE:  
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED.

| NO. | DATE     | DESCRIPTION OF REVISION | BY | CHK'D |
|-----|----------|-------------------------|----|-------|
| 0   | 07/01/09 | ISSUED FOR COMMENTS     | DL | K.A.  |

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BUNKER CREEK

|             |                |
|-------------|----------------|
| DATE        | 07/01/09       |
| DRAWN BY    | D. LOWE        |
| CHECKED BY  | K. AND         |
| REVIEWED    |                |
| SCALE       | N.T.S.         |
| QUANTITY    |                |
| QUANTITY    |                |
| WT          |                |
| DRAWING NO. | BW 02-07 002 0 |
| REV         | 0              |
| SHEET       | 2 OF 2         |



**TYPICAL BIN-WALL ABUTMENT SECTION  
4167 HIGH**

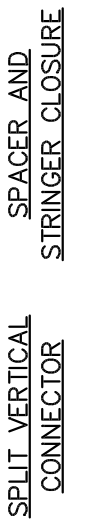
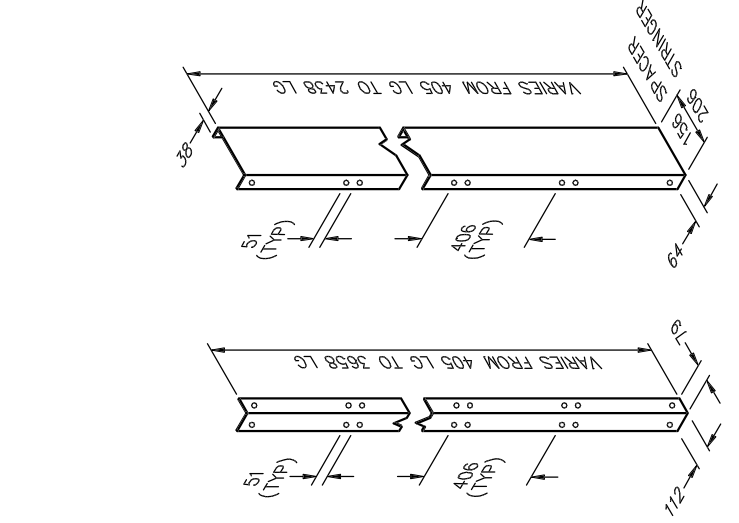
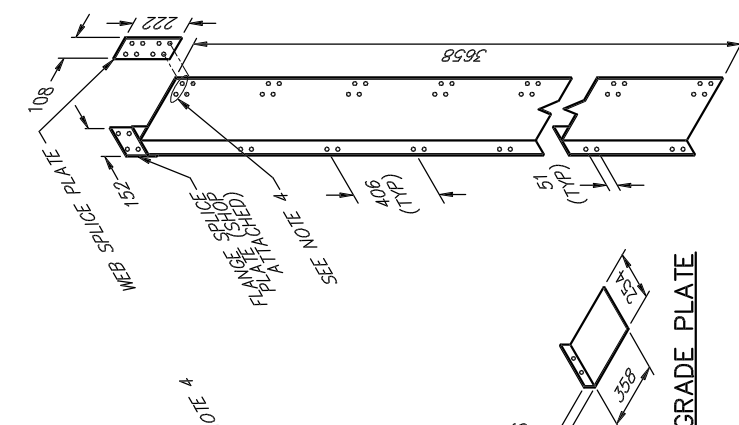
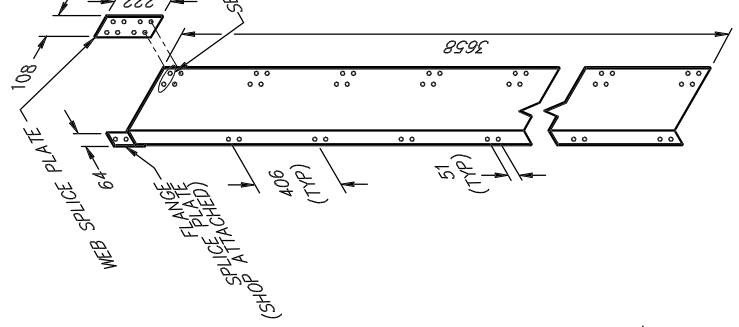
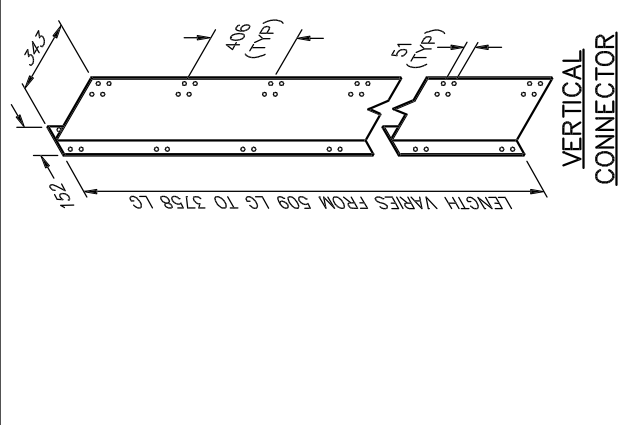
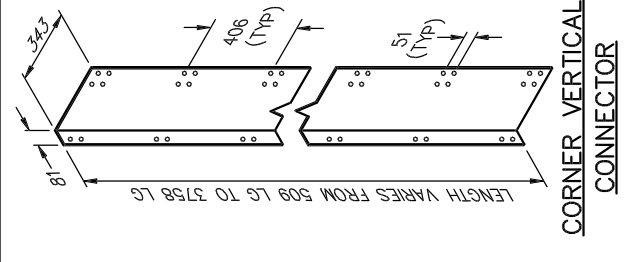
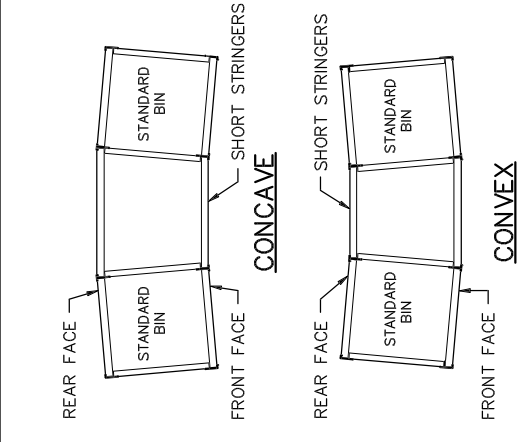
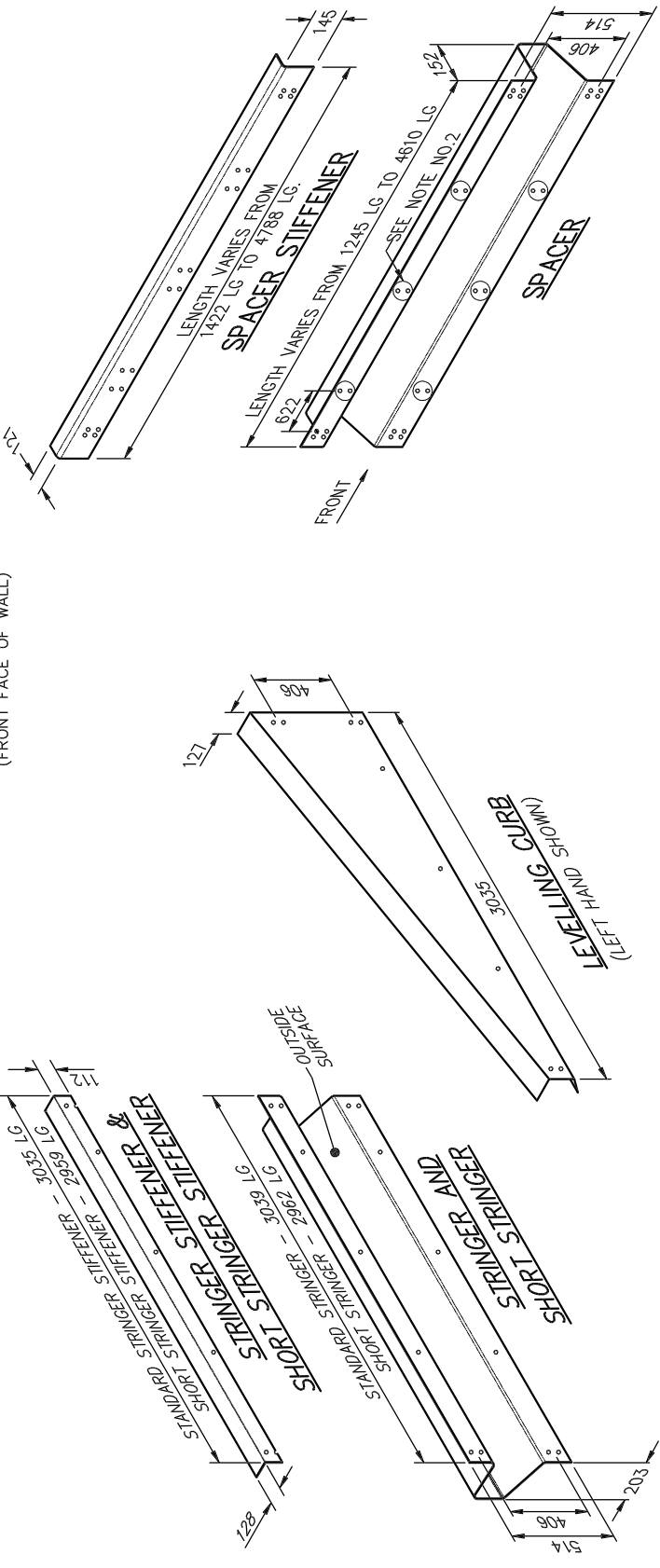
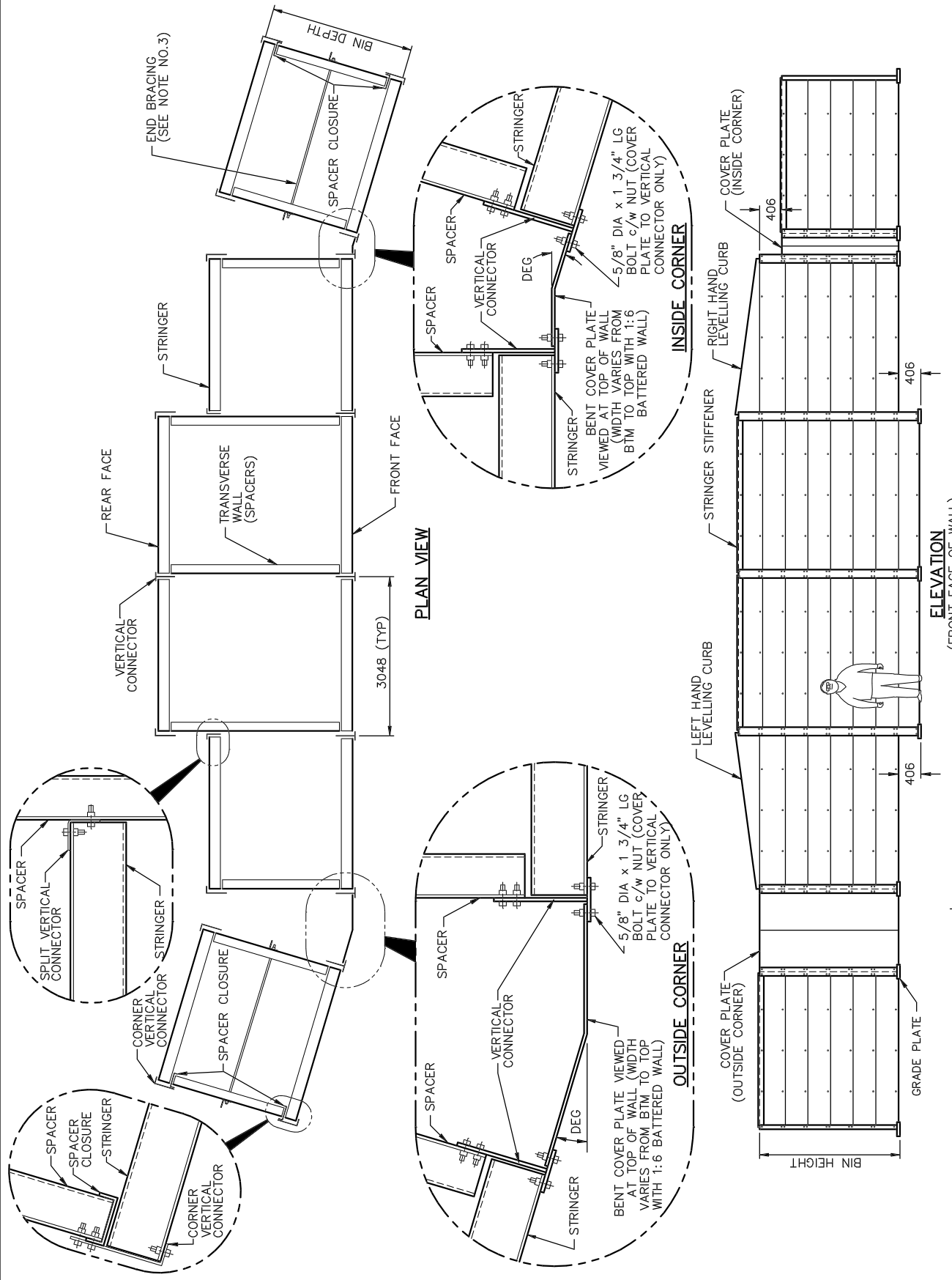
**INSTALLATION INSTRUCTIONS**  
THESE INSTALLATION INSTRUCTIONS ARE INTENDED TO BE USED IN CONJUNCTION WITH THE ENGINEER'S SPECIFICATIONS AND DRAWINGS.

**BACKFILL INSTRUCTIONS**

- 1) BACKFILL MATERIAL TO BE WELL-GRADED FREE-DRAINING GRANULAR B MATERIAL.
- 2) BACKFILL SHOULD BE PLACED IN 200 mm LAYERS (MAX), AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY.
- 3) THE HEIGHT OF BACKFILL INSIDE THE BINS SHOULD BE AT LEAST 400 mm GREATER THAN THE BACKFILL BEHIND THE BINS DURING THE BACKFILLING OPERATION.
- 4) FILL ALL CORRUGATIONS IN SPAGERS AND STRINGERS, BUT CARE MUST BE EXERCISED TO AVOID DAMAGING THE STRINGERS WITH DURING THE COMPACTING OPERATION. SEE NOTE 3E, REFT.
- 5) IT IS RECOMMENDED TO INSTALL A CONTINUOUS 250 mm DIA. x 1.6 mm PERFORATED GP 6/7 PILER SOCK BEHIND ALL WALLS.
- 6) A MINIMUM CUSHION ARCH OF 200 mm THICK NON-COMPACTED GRANULAR MATERIAL MUST BE PLACED UNDER THE GRADE PLATES.
- 7) REFER TO BIN-TYPE BEGINNING WALLS TYPE 2 INSTALLATION INSTRUCTIONS BOOKLET FOR ADDITIONAL ASSEMBLY AND BACKFILL PROCEDURES.

**DESIGN NOTES**

- 1) THE DESIGN PROCEDURE TO DETERMINE THE STABILITY OF THE BINS FOLLOWS THE COULONG WEDGE ANALYSIS. A LATERAL EARTH RESISTANCE FAILURE WEDGE OF SOIL BEHIND THE BIN. THE PRINCIPAL ASSUMPTIONS OF THIS METHOD ARE:
  - i. THE BACKFILL TO BE A GOOD QUALITY, FREE DRAINING, EVENLY GRADED GRANULAR MATERIAL POSSESSING A STANDARD PROCTOR DENSITY.
  - ii. FAILURE PLANE IS ALONG A STRAIGHT LINE ORIGINATING AT THE CORNER OF THE BIN.
  - iii. FRICTION FORCES ARE ASSUMED TO BE DISTRIBUTED UNIFORMLY ALONG THE FAILURE PLANE AND SIMILARLY ALONG THE REAR WALL OF THE BIN.
  - iv. FAILURE IS A 2-DIMENSIONAL PROBLEM BUT A UNIT LENGTH OF WALL AND BACKFILL IS CONSIDERED FOR ANALYSIS.
  - v. THE PROVIDED DESIGN LOADS AND STABILITY IS CERTIFIED BY A GEOTECHNICAL CONSULTANT.
- 2) MINIMUM FACTORS OF SAFETY AGAINST OVERTURNING AND SLIDING ARE 2.0 AND 1.5 RESPECTIVELY.
- 3) DESIGN PARAMETERS
  - LIVE LOAD, Q<sub>1</sub> = 20 kPa (OR EQUIVALENT)
  - WIND LOAD, W = 0.8 kPa (OR EQUIVALENT)
  - BRIDGE SPAN IS 21.306 m
- 4)
  - FILL HEIGHT IS 1.4m
  - ALL CORROSION PROTECTIVE COATINGS MUST BE REMOVED FOR AN AREA OF 600 mm x 600 mm x 200 mm DEPTH AND REPLACED WITH A 200 mm THICK LAYER OF UNCOMPACTED FILL.
- 5) BINS ARE VERTICAL.
- 6) MAXIMUM ALLOWED BEARING PRESSURE REQUIRED TO MAINTAIN BEARING CAPACITY IS 210 kPa.
- 7) FOOT WALLS CONSTRUCTED ALONG WATERWAYS, EMBANKMENT DEPTHS (FOUNDATION DEPTH) MUST BE ESTABLISHED BELOW POTENTIAL SCOUR DEPTHS TO PREVENT ANY LOSS OF MATERIALS RETAINED BY OR SUPPORTING THE BIN. THIS APPLICATION IS BY OTHERS.
- 8) THE OWNER OR THEIR GEOTECHNICAL CONSULTANT MUST QUALIFY SITE CONDITIONS TO MEET OR EXCEED THE ABOVE REQUIREMENTS.



| NO. | DATE      | DESCRIPTION OF REVISION                            | BY        | CK'D |
|-----|-----------|--|-----------|------|
| 4   | 01/11/08  | UPDATED DRAWING                                    | TCB       |      |
| 3   | AUG 29/96 | ADDED NOTE 4                                       | D.L. K.A. |      |
| 2   | DEC 7/87  | NEW DWG NO. REV CO NAME & ADDED LEVELLING CURB DTL | K.A.      |      |

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| DATE | DRAWN | CHECKED | REVIEWED | APPROVED | SCALE | N.T.S. |
|------|-------|---------|----------|----------|-------|--------|
|      |       |         |          |          |       |        |

**BIN TYPE RETAINING WALL TYPE 2 STANDARD DETAILS AND COMPONENTS**

DATE  
DRAWN  
CHECKED  
REVIEWED  
APPROVED  
SCALE N.T.S.  
DRAWING NO. **BW-40001E**  
REV **4**

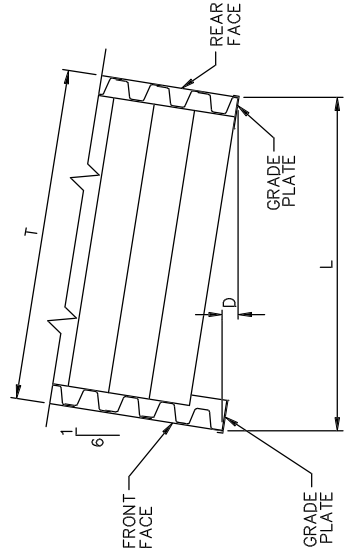
- NOTES**
- SPECIAL VERTICAL CONNECTORS ARE USED ON WALLS HIGHER THAN 3758. FOR THESE WALLS THE VERTICAL CONNECTORS WILL CONTAIN TWO OR MORE PIECES. THE 3658 LG SPECIAL VERTICAL CONNECTOR SHOULD BE USED FIRST, WITH THE ATTACHED SPICE PLATE AT THE TOP. SPECIAL CORNER VERTICAL CONNECTORS ARE USED EITHER THE SAME OR WITH THE SPICE PLATE AT THE BOTTOM, DEPENDING ON WHETHER IT IS ON A LEFT OR RIGHT HAND CORNER. SEE DWG BW-40002E FOR MAKE-UP.
  - ONLY ONE OF THE TWO HOLES SHOWN THUS (C) IN THE SPACERS IS USED FOR BOLTING THE SPACERS TOGETHER EXCEPT FOR THE END WALLS WHERE BOTH HOLES ARE USED.
  - IN CERTAIN CONDITIONS THE END BIN(S) WILL REQUIRE BRACING SEE CHART ON DWG NO. BW-40002E
  - BOLT WEB SPICE WITH 6 - 5/8" DIA. x 1 1/4" LG BIN-WALL BOLT AND NUT. (TOP TWO HOLES ARE NOT FILLED ON SPICED CORNER VERTICAL AND VERTICAL CONNECTOR WEBS)
  - ALL BOLTS & NUTS ARE 5/8" DIA x 1 1/4" LG UNLESS NOTED
  - ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED.





**CORNER VERTICAL & VERTICAL CONNECTORS GREATER THAN 3/58 LG ARE BUILT UP AS FOLLOWS (UNLESS NOTED).**

- 4167 LG -1x3658
- 1x509
- 1 WEB SPLICE PLATE
- 4572 LG -1x3658
- 1x914
- 1 WEB SPLICE PLATE
- 4977 LG -1x3658
- 1x1320
- 1 WEB SPLICE PLATE
- 5386 LG -1x3658
- 1x1728
- 1 WEB SPLICE PLATE
- 5791 LG -1x3658
- 1x2134
- 1 WEB SPLICE PLATE
- 6197 LG -1x3658
- 1x2539
- 1 WEB SPLICE PLATE
- 6605 LG -1x3658
- 1x2947
- 1 WEB SPLICE PLATE
- 7010 LG -1x3658
- 1x3353
- 1 WEB SPLICE PLATE
- 7416 LG -1x3658
- 1x3758
- 1 WEB SPLICE PLATE
- 7824 LG -2x3658
- 1x509
- 2 WEB SPLICE PLATES
- 8320 LG -2x3658
- 1x914
- 2 WEB SPLICE PLATES
- 8635 LG -2x3658
- 1x1320
- 2 WEB SPLICE PLATES



**GRADE PLATE PLACEMENT**

| WALL DESIGN | DIMENSIONS |        |      |
|-------------|------------|--------|------|
|             | T          | D      | L    |
| A           | 1689       | -124 * | 1734 |
| B           | 2362       | -13 *  | 2397 |
| C           | 3035       | 98     | 3064 |
| D           | 3708       | 210    | 3724 |
| E           | 4382       | 318    | 4391 |
| F           | 5055       | 429    | 5055 |

\* FRONT GRADE PLATE LOWER THAN REAR PLATE

**MAXIMUM HEIGHTS AND LOADS FOR UNBRACED SPACER WALLS**

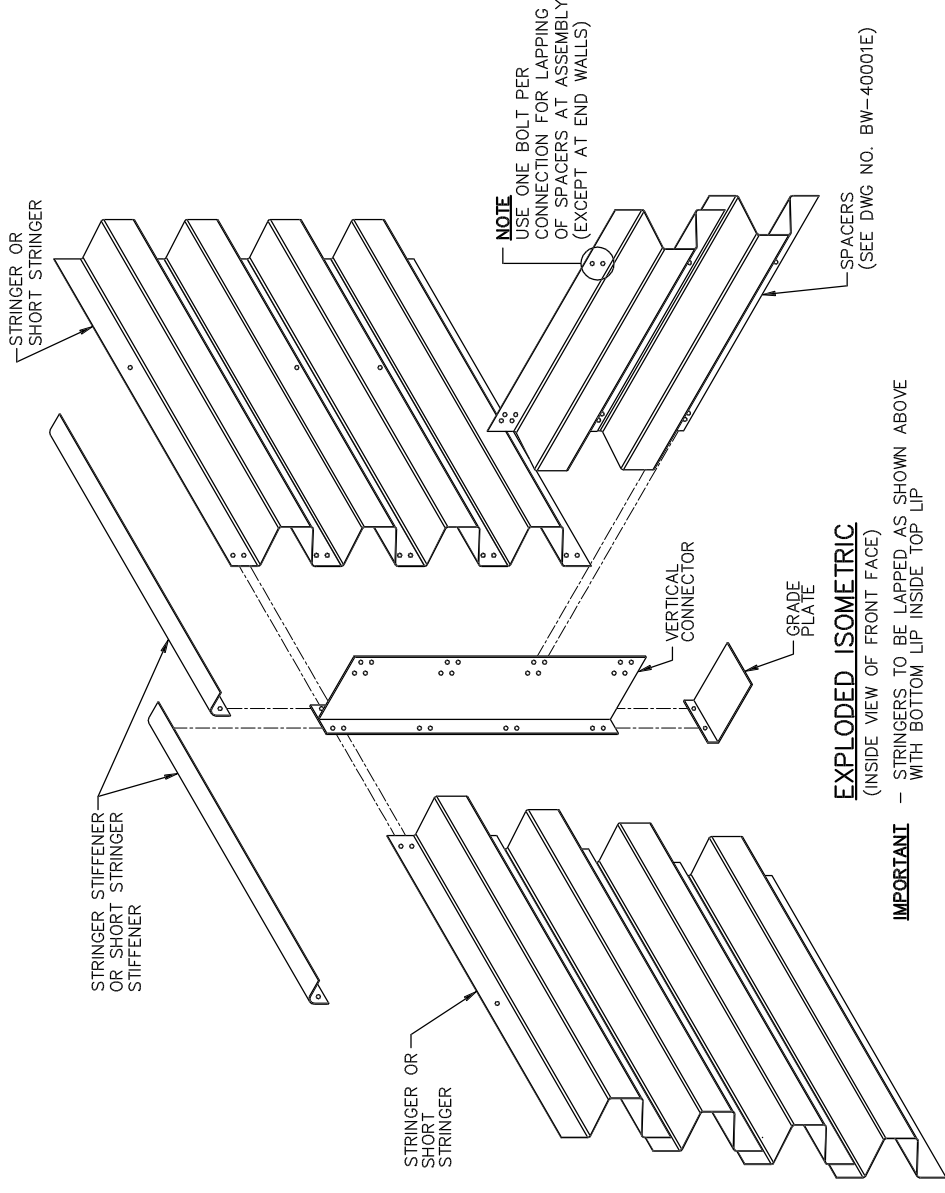
| BIN DESIGN | (p max) ALLOWABLE |      | MAXIMUM HEIGHT WITHOUT BRACING |       |
|------------|-------------------|------|--------------------------------|-------|
|            | psf               | k Pa | ft                             | mm    |
| A          | 1728              | 83   | 48.0                           | 14630 |
| B          | 728               | 35   | 20.2                           | 6160  |
| C          | 498               | 24   | 13.8                           | 4215  |
| D          | 438               | 21   | 12.2                           | 3715  |
| E          | 301               | 14   | 8.4                            | 2550  |
| F          | 220               | 11   | 6.1                            | 1860  |

MAXIMUM ALLOWABLE PRESSURE ON EXPOSED SPACER WALLS (p max) BASED ON LENGTH OF SPACER AND SECTION MODULUS.

MAXIMUM HEIGHT WITHOUT BRACING BASED ON SOIL DENSITY = 19 kN/m<sup>3</sup> (120pcf) AND φ=33° AND NO LIVE LOAD SURCHARGES.

**STRINGER LOCATION & PART NO.**

| FRONT WALL STRINGER LOCATION | REAR WALL STRINGER LOCATION | THK mm | PART NO. STANDARD STRINGER | PART NO. SHORT STRINGER |
|------------------------------|-----------------------------|--------|----------------------------|-------------------------|
| 1 THROUGH 8                  | 1 THROUGH 6                 | 1.6    | WSA1601                    | WSB1601                 |
| 9 THROUGH 12                 | 7 THROUGH 10                | 2.0    | WSA2001                    | WSB2001                 |
| 13 THROUGH 19                | 11 THROUGH 17               | 2.8    | WSA2801                    | WSB2801                 |
| 20 AND 21                    | 18 AND 19                   | 3.5    | WSA3501                    | WSB3501                 |

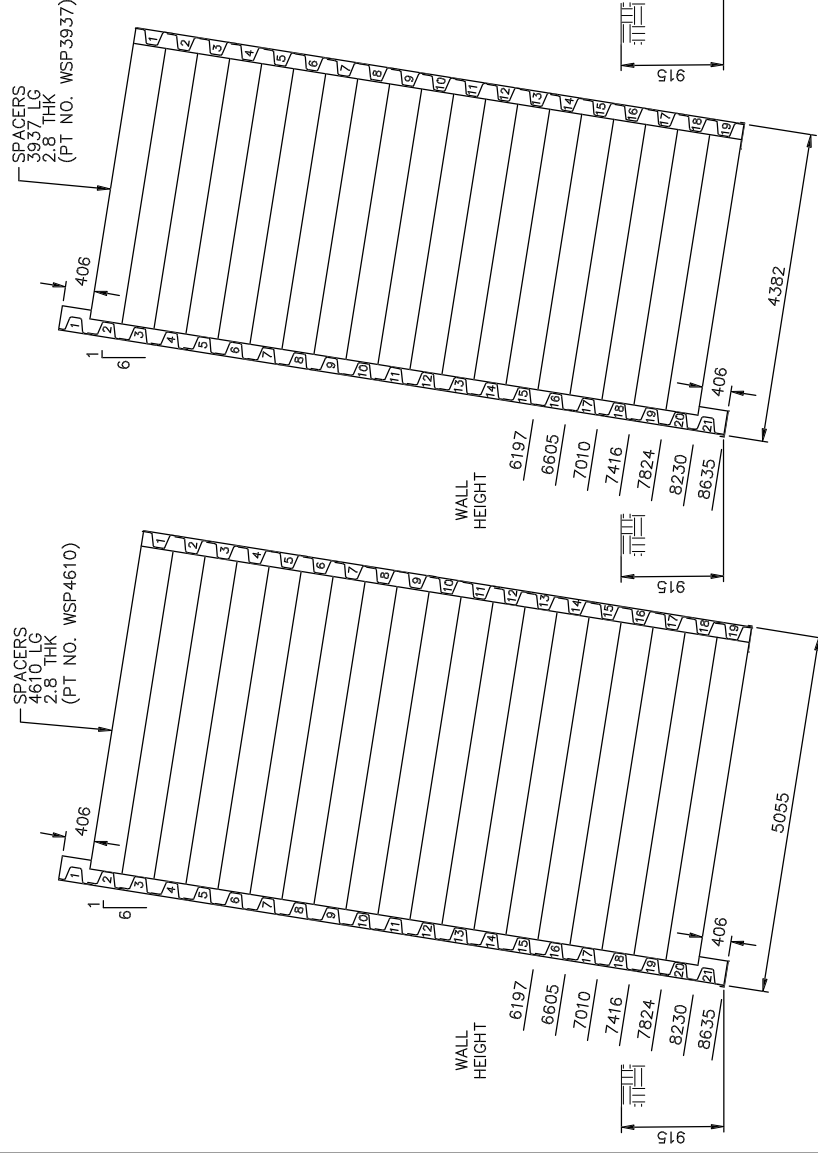


**EXPLODED ISOMETRIC**

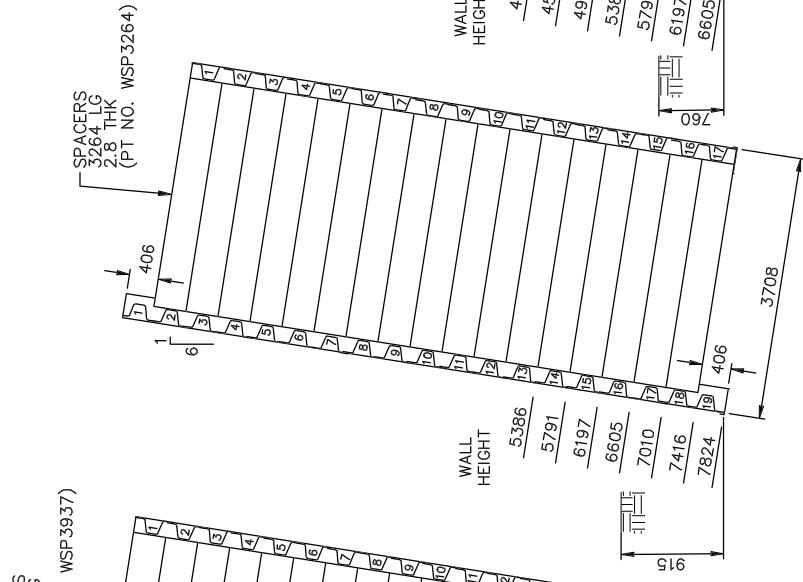
(INSIDE VIEW OF FRONT FACE)  
**IMPORTANT** - STRINGERS TO BE LAPPED AS SHOWN ABOVE WITH BOTTOM LIP INSIDE TOP LIP

**NOTES**

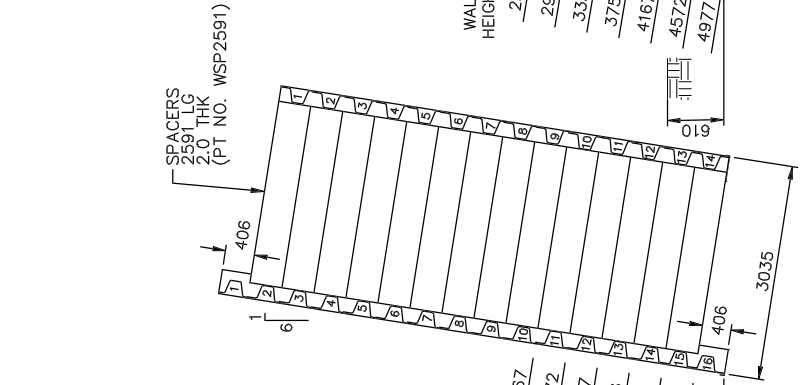
- 1) BACKFILL MATERIAL TO BE WELL-GRADED FREE-DRAINING GRANULAR MATERIAL, WITH LARGEST PARTICLES IN THE 75mm (MAX) RANGE AND NOT MORE THAN 10 PERCENT FINES PASSING THE NO.200 SIEVE (0.075mm).
- 2) BACKFILL SHOULD BE PLACED IN 200mm LAYERS (MAX) AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY.
- 3) THE HEIGHT OF BACKFILL INSIDE THE BINS SHOULD BE AT LEAST 400mm GREATER THAN THE BACKFILL BEHIND THE BINS DURING THE BACKFILLING OPERATIONS.
- 4) FILL ALL CORRUGATIONS IN SPACERS AND STRINGERS, BUT CARE MUST BE EXERCISED TO AVOID DAMAGING THE STRINGERS WITH DUMPING OR COMPACTING EQUIPMENT, WHICH SHOULD BE KEPT AT LEAST 300mm FROM THE FRONT STRINGERS.
- 5) ADEQUATE DRAINAGE BEHIND THE WALL MUST BE ENSURED BY USING A PERFORATED CSP DRAINAGE SYSTEM OR EQUAL.
- 6) IF THE BINWALL IS TO SIT ON AN UNYIELDING FOUNDATION, A MINIMUM CUSHION OF 200mm THICK NON-COMPACTED GRANULAR MATERIAL MUST BE PLACED UNDER THE GRADE PLATES.
- 7) FOR HINTS ON ERECTION AND BACKFILL SEQUENCE SEE THE SUPPLIED ARMETEC INSTALLATION MANUAL.



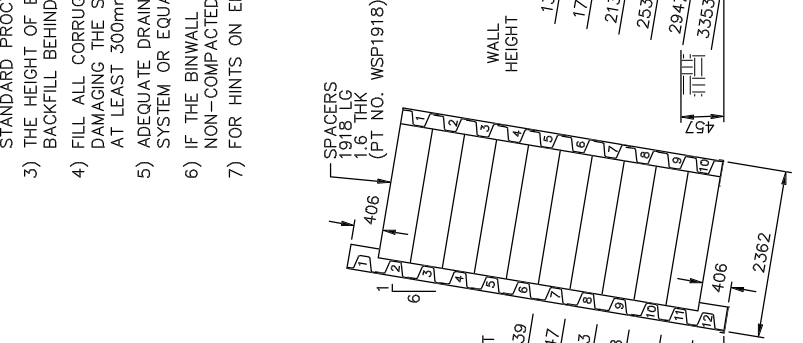
**DESIGN E**



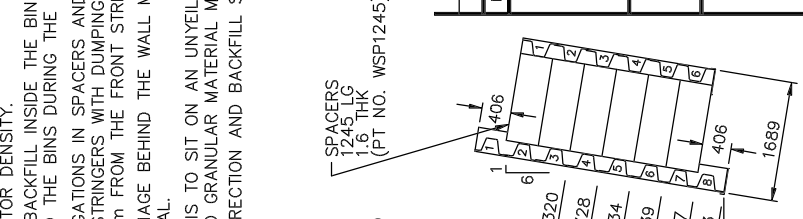
**DESIGN D**



**DESIGN C**



**DESIGN B**



**DESIGN A**

| NO. | DATE     | DESCRIPTION OF REVISION                | BY   | CHK'D |
|-----|----------|--|------|-------|
| 2   | DEC 7/87 | NEW DRAWING NO. & REVISED COMPANY NAME | K.A. |       |

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|                         |          |
|-------------------------|----------|
| BIN-TYPE RETAINING WALL | DATE     |
| TYPE 2                  | DRAWN    |
| STANDARD DEPTH & HEIGHT | CHECKED  |
| COMBINATIONS            | REVIEWED |
|                         | APPROVED |

|       |             |      |
|-------|-------------|------|
| SCALE | DRAWING NO. | REV. |
|       | BW-40002E   | 2    |

