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NEB Files: 3400-P097-1 & 2620-D-4-7

August 16, 2002

National Energy Board
444 Seventh Ave. SW
Calgary, Alberta
T2P 0X8

311485

Attention: Mr. Michel Mantha
Secretary

MAIL ROOM
SALE DE COURIER
2002 AUG 16 P 2:47
NEB / ONE

Dear Sir;

Re: Cameron Hills Gas Pipeline approved under National Energy Board Order XO-P097-02-2002 as amended

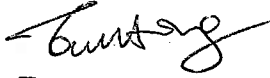
Paramount Resources Ltd. hereby submits the Environmental Assessment and Remediation Plan for the Erosion Issues at the Paramount Resources Ltd. Cameron Hills Gathering System and Transborder Pipeline prepared by Parkvalley Consulting Ltd..

As noted in the report, the measures taken in late spring has been effective in mitigating the erosion at Cameron Hills and will be monitored to determine if additional measures require to be taken. Some longer term work require heavy equipment to be brought into the area, which have to wait until frozen ground conditions are established.

If you have any questions on the above matter, then please contact the undersigned at (403) 290-3693.

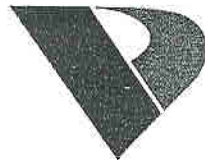
Yours truly,

PARAMOUNT RESOURCES LTD.

A handwritten signature in black ink, appearing to read 'Tom Hong', with a stylized flourish at the end.

Tom Hong
Project Manager

cc. Terry Baker, NEB
Andrew Forbes, INAC
Daryl Johannessen, Golder
Neil Kelly, Paramount
Gord Ferguson, Paramount
Brian Anderson, Paramount
File Cameron Hills P 3.2



PARKVALLEY
CONSULTING LTD.

**Environmental Assessment and Remediation Plan
For the Erosion Issues at the Paramount Resources Ltd.
Cameron Hills Gathering System and Transborder Pipeline**

Prepared by:

Darren Unrau
Parkvalley Consulting Ltd.

For:

Paramount Resources Ltd.

August 7, 2002

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**Environmental Assessment and Remediation Plan
For the Erosion Issues at the Paramount Resources Ltd.
Cameron Hills Gathering System and Transborder Pipeline**

1.0 INTRODUCTION

During the spring of 2002, the rainfall, in association with the spring melt runoff, in the Cameron Hills region of the Northwest Territories caused soil erosion on several portions of the Paramount Resources Ltd. ("Paramount") Cameron Hills Gathering System and Transborder Pipeline.

Environmental inspections of the pipeline rights-of-way (ROWs) were conducted in late May and early June, 2002. The purpose of the inspection was to:

- evaluate the reclamation efforts on the ROWs that were completed in March 2002;
- document areas that had been affected by erosion;
- complete preliminary repairs and erosion protection measures to limit additional erosion; and,
- gather information to formulate a remediation program to stabilize the ROWs and promote revegetation.

The inspection identified areas along the ROWs where spring runoff waters had caused erosion, removed portions of the pipeline cover and exposed the pipe, and deposited silt onto the banks of the Cameron River. Corrective work was undertaken immediately on areas near the Cameron River to direct the majority of the water off the ROW and into the adjacent timber, and to install silt fences to minimize silt from entering the river.

On June 8th, 2002 a work crew with additional equipment was flown into the Cameron Hills Project to facilitate repairs. More permanent corrective measures were completed on areas where temporary repairs had been initiated on eroded areas located next to the Cameron River. In addition, areas identified in the Paramount report submitted on June 6, 2002, were evaluated further. Corrective work was initiated at these locations, and completed to the extent practical with the available equipment. Additional areas, which had not been previously documented were identified, evaluated and corrective measures implemented where feasible.

The temporary measures completed at the identified locations, along with reduced runoff, were successful in diverting the majority of the water flows from the ROW, thereby minimizing additional erosion. The corrective measures ensured that silt was prevented from entering the Cameron River and other creeks.

On June 11th and 12th, 2002, Mr. Andrew Forbes, a Resource Management Officer for Indian and Northern Affairs ("INAC"), completed an environmental inspection, and subsequently produced a report. In his letter to Paramount, dated June 26, 2002, Mr. Forbes requested that Paramount submit by August 31, 2002 the work plan with the associated timelines to address the requirements that were identified in his report.

The following sections of this document discuss the areas of concern, the cause of the problems, temporary mitigative measures that were completed, and options for permanent corrective

measures. The areas of concern are also identified by INAC's designation, which is shown in brackets. For the ease of reference, this comparison is provided in Table 1 below.

Table 1: Comparison of Identification Descriptors for Areas of Concern

Parkvalley Identification	INAC Identification ¹
Area 1	Km 0.5
Area 2	1 st Creek
Area 3	Slope S15
Area A, B, C	Slope S13 and Creek Crossing GSC-16
Area D	Cameron River Crossing GSC-17 (South Bank)
Area E	Cameron River Crossing GSC-17 (North Bank) and GSC-29 and ROW to the Cameron River
Area F	GSC-29 and ROW to the Cameron River
Area G	Slope S3
Area GG	Slope S5
Area H	Slope S7 and Creek crossing GSC-20
Area I	Cameron River crossing GSC-21; Slope S9 and ROW to Main Pipeline
Area II	Slope S11 and GSC-24 (South Bank)
Area J	Slope S12 and GSC-24 (North Bank)

¹ Concern area identification from the INAC Inspection Report dated June 11th and 12th, from Andrew Forbes – related only to those portions of the pipeline ROWs within the NWT.

2.0 REMEDIAL ACTIONS AND PERMANENT OPTIONS

The following sections provide descriptions of the areas of concern, outline the remedial actions that have been taken to-date and describe permanent repair options proposed by Paramount. It should be noted that the seed application rate has been increased to a maximum range of 20 to 30 kg/ha from 10 kg/ha and the application of fertilizer (20-20-20 NPK) added, if required, to aid in revegetation in erosion prone areas. This amendment to the revegetation specifications was approved the National Energy Board, Government of Northwest Territories, and INAC.

2.1 Transborder Pipe Line ROW(Figure 1)

2.1.1 TP4 Drainage Crossing

The TP4 drainage crossing located directly north of lease 5-24 was inspected. This seasonal drainage was flowing west to east across the ROW in its natural channel. No erosion or siltation problems were identified. No remedial actions at this location were deemed necessary at this time. The site will be monitored during normal operations and appropriate actions (e.g., erection of silt fences) will be completed if and when concerns are identified.

2.1.2 TP3 Drainage Crossing

The TP3 drainage crossing located northeast of TP4 was also inspected. This seasonal drainage originates from a wet area adjacent to the ROW, and then flows in a southeast direction. No

distinct flow nor natural channels were noted across the ROW. A distinct channel eventually forms further down the drainage (i.e., to the southeast), well off the ROW. At the crossing location, the roach was opened up at a two locations to allow ponded water to cross the ROW. No erosion concerns were noted. This site will continue to be monitored during normal operations and appropriate remediation carried out if and when required.

Between the TP3 and TP2 drainage crossings there is one southwest facing slope that is crossed by the ROW. No erosion problems were noted on the slope. The area from the hill to the TP2 drainage is primarily muskeg. There were numerous drainage openings established in the roach at this location during the winter to allow water movement across the ROW and no concerns were noted.

2.1.3 TP2 Drainage Crossing

During the inspection, the TP2 drainage was flowing within its natural channel. No erosion or silt concerns were noted. The slopes leading down to the drainage were stable. It was determined that no temporary mitigation measures were required at this time. The site will be monitored during normal operations and appropriate remediation measures will be carried out if and when required.

From the TP2 creek to the NWT border no erosion concerns were noted. The roach was opened up in several locations to allow water movement across the ROW. This area will be monitored during normal operations to assess trench subsidence, and appropriate remediation measures will be carried out if and when required.

The following locations referred to under the context of the Transborder Pipeline, are located within the NWT. From this point on, the report will also identify the areas of concern in relation to Mr. Forbes' location descriptor (noted in brackets).

2.1.4 Area 1 (km 0.5)

Location: Area 1 is located directly north of the Alberta/NWT border, GPS: 60° 00' 15"N; 117° 31' 29"W (Figure 1).

Issue: This is a muskeg area which is relatively flat that drains from east to west. Water was entering the ROW from two seasonal drainages located approximately 100 metres apart. Water flow in both drainages was to the west. The water from the south drainage entered the ROW and then flowed through an opening constructed in the roach, across and then off the ROW to the west. Minimal erosion was noted at the south drainage crossing area. The water flow in the north drainage entered the ROW and was blocked by the roach, which forced the water to enter the trench. The water then flowed to the south within the trench and eventually exited the trench at the south drainage crossing. Erosion concerns and loss of ditch cover were determined to be minimal at this location.

Temporary Work Completed: The roach was opened up with hand tools to allow the majority of the water at the north drainage to cross the trench and exit the ROW in a temporary shallow trench. No work was completed on the south drainage.

Proposed Long Term Remediation: This area will be monitored over the course of the summer and the settlement in the trench will be evaluated. Paramount proposes to construct a permanent crossing for the north drainage to reestablish the natural channel with a drainage ditch/berm (see

Figure 2). The eroded ditch would be backfilled to achieve a stable topography on the ROW. The area of the ROW between the north and south drainages will be seeded with the approved seed mixture and fertilized to promote stabilization.

2.1.5 Area 2 (TP1 Creek)

Location: Area 2 is located approximately 300 metres south of TP1 creek at GPS: 60° 01' 24"N, 117° 30' 00"W (Figure 1).

Issue: The TP1 crossing location was evaluated, and no erosion concerns were noted. A small, intermittent drainage at Area 2 entered the ROW from a muskeg to the east (Figure 3). The water flowed to the trench, follows it for approximately 10 metres and then exited the trench and onto the west side of the ROW where it traveled for approximately 50 metres. The water then flowed back into the trench as the point where the ROW crosses the winter road. The water exited the trench approximately 50 metres to the north and flowed into a low lying area and eventually into the TP1 creek. There was minimal flow noted during the inspection. The amount of surface erosion and loss of trench material were deemed to be minimal. The water was clean as it exited the trench and there is approximately 100 metres of natural vegetation before it eventually enters the creek.

Temporary Work Completed: Due to frost conditions only a temporary, shallow trench could be dug to direct the water from the ROW before entering the trench at the winter road crossing (Figure 3).

Proposed Long Term Remediation: The temporary diversion ditch will be monitored during the summer of 2002. A permanent drainage crossing across the trench with a diversion ditch/berm will be constructed. The eroded ditch will be backfilled to repair the erosion, and this area will be seeded with the approved seed mixture and fertilized.

2.1.6 Area 3 (Slope S15)

Location: Area 3 is located approximately 600 metres south of the H-03 plant at GPS: 60° 01' 56"N; 117° 30' 00"W (Figure 1).

Issue: Water was entering the ROW from a muskeg drainage located east of the ROW. The water entered the trench, flowed along roach and the trench to the south for approximately 250 metres (Figure 4). At this point the water exited the trench and flowed off the ROW. Further down gradient to the south, an old diversion ditch brought water onto the ROW and to the trench. Still further down gradient there was an old diversion ditch that could have taken water from the trench and off the ROW, but it had been blocked by roach material. Minimal erosion has occurred at this location, but some ditch cover has been removed from a ten metre section of the ROW where the water exited the trench.

Temporary Work Completed: A temporary shallow trench was dug where the water was ponding on the surface of the ROW higher up on the slope, and water was diverted off the ROW to the west. A second temporary trench was dug lower down the slope to divert water to the west, off the ditch line and ROW.

Proposed Long Term Remediation: The temporary work completed will be monitored over the summer of 2002. When the trench cover has settled, the requirements for permanent drainage diversion ditches across the trench and ROW will be evaluated. There is the potential to use the

existing trenches or adding new ones. A short section of the trench at the bottom of the slope will be backfilled as required to repair the eroded ditch (Figure 4). If natural revegetation is not occurring at this location, the area will be seeded with the approved seed mixture and fertilized

2.2 Gathering System ROW (Figure 5)

2.2.1 Area A (Slope S13 and GSC-16)

Location: Area A is located approximately 1.5 kilometres south of the Cameron River at GPS 60° 05' 22"N; 117° 30' 09"W (Figure 6).

Issue: A small, seasonal drainage was flowing onto the ROW from the east (Figure 6). The drainage flowed next to the ditch line for approximately 150 metres, at which point the water flowed over the roach and then back again, all within the natural channel. The drainage then flowed off the ROW to the east, still within its natural channel.

Temporary Work Completed: No temporary work was carried out at this location, as the flow had created a short, new channel down the slope next to ditch line and then into the natural channel taking water across the roach and back again and then off the ROW. Only minor erosion was noted and minimal loss of ditch material has occurred.

Proposed Long Term Remediation: The area will be monitored during the 2002 summer to ensure that the water does not enter the ditch and remove additional ditch cover. The area will be evaluated when the ditch cover has settled to determine if additional work is required. Construction of a permanent diversion trench/berm over the entire ROW may be required. Areas disturbed by remedial construction will be seeded with the approved seed mixture and fertilized as appropriate to promote stability.

2.2.2 Area B (Crossing S-13 and GSC-16)

Location: Area B is located approximately 400 metres north of Area A at GPS 60° 05' 27"N; 117° 30' 10"W (Figure 5).

Issue: The GSC-16 drainage enters the ROW from the east within its natural channel (Figure 7). The water failed to cross the roach where a water diversion break was installed, but instead, followed the roach for a short distance and entered the trench. The water flow caused extensive erosion for approximately 200 metres, removing the majority of ditch cover and exposed portions of the pipe. The water then exited the trench and entered a muskeg on the west side of the ROW. The eroded soil was deposited in this area.

Temporary Work Completed: Initially, the water from GSC-16 was prevented from entering the trench by using local material and diverted on the ROW where it flowed down the slope approximately 30 metres and exited off the ROW into the surrounding timber. Later, sand bags were flown in and the ditch plug was strengthened and a temporary diversion berm was constructed to maintain GSC-16 within its natural channel and prevent water from entering the trench.

Proposed Long Term Remediation: The temporary work completed will be monitored to ensure that the ditch plug remains in place. The need for additional sand bags to create a more permanent plug will be evaluated when the remaining material in the trench settles. To ensure diversion of the water off the ROW, a permanent diversion trench/berm will be constructed to

replace the temporary one (Figure 7). The exposed pipe will be properly backfilled, and the eroded trench and soil deposition area will be seeded with the approved seed mixture and fertilized.

2.2.3 Area C (Slope 13 continued)

Location: Area C is located approximately 600 metres south of the Cameron River at GPS 60° 05' 53"N; 117° 30' 07"W (Figure 5).

Issue: There are several small drainages that originate from the muskeg area to the east that enter the ROW at this location. The water has worked its way into the ditch and flowed down the slope towards the Cameron River. Foam ditch blocks were installed along this slope during the winter construction, but they have not been bringing the water from the ditch to the surface. There were diversion berms installed in late winter but these do not fully cross the ROW.

Temporary Work Completed: Water was diverted from the ditch where the water has come to surface and off the ROW.

Proposed Long Term Remediation: The temporary measures will be monitored during operations in the summer of 2002. Additional work on the existing diversion berms will be completed to direct water fully off the ROW. The sites where the foam ditch blocks were installed will be excavated and corrected, or new blocks installed when ground conditions permit it. It will be determined if water is entering the ditch from the muskeg and migrating to the river. Additional diversion berms and ditches across the full ROW will be installed as required (Figure 8). Eroded areas will be seeded with approved seed mixture and fertilized.

2.2.4 Area D (Cameron River Crossing GSC 17 South Bank)

Location: Area D is located on the south side of the Cameron River at GPS: 60° 06' 19"N; 117° 30' 03"W (Figure 5).

Issue: Water was flowing from the point where the pipeline exits the ground and goes up onto the vehicle bridge. From here, the water flowed down the slope and into the Cameron River. Limited erosion has occurred between the water exit point from the trench and the bank of the Cameron River.

Temporary Work Completed: Three silt fences were initially erected between the Cameron River and the point where the water exited the pipeline ditch. Two additional silt fences were installed to direct the flowing water on the ROW into stable, vegetated areas adjacent to the ROW. Sandbags were then used to construct a temporary ditch block at the up slope location where water also exited the ditch. Two silt fences were erected to divert this water to the west and off the ROW. A silt fence was also established on the east side of the ROW to divert any additional water to the standing timber adjacent to the ROW. Straw matting was laid down and secured, from the most northerly silt fence and extended to the edge of the Cameron River to provide additional protection for the river bank.

Proposed Long Term Remediation: The temporary work that was completed will be monitored and maintained. A permanent ditch block will be installed directly above this area and permanent diversion berms constructed to divert water off the ROW (Figure 9). The surface erosion located to the east of the vehicle bridge approach will be repaired. The ROW and approach leading down to the river will be stabilized by seeding with the approved seed mixture and fertilized.

2.2.5 Area E (Cameron River Crossing GSC 17 North Bank; GSC 29 and ROW to Cameron River)

Location: Area E extends from the north bank of the Cameron River, GPS: 60° 06' 24"N; 117° 30' 03"W, to the north for approximately 600 metres (Figure 5).

Issues: Water from a drainage area (GSC-29) entered the ROW from the west. There were also several small muskeg drainages bringing water from the east onto the ROW and subsequently into the ditch. Erosion has resulted in removing a substantial amount of the ditch cover and exposed the pipe in places. The eroded soil was carried down slope to a point where the water left the trench and off the ROW to the west (Figure 10). The majority of the soil was deposited in a muskeg area, near the bank of the Cameron River. In addition, there are two old diversion berms which brought water onto the ROW and into the trench.

Temporary Work Completed: Initially silt fences were installed up slope to intercept the water that was entering the ROW from the west, and down slope at the location where water was exiting the eroded trench and flowing toward the Cameron River. The up slope fence resulted in the majority of the water being directed off the ROW, to the west and into a muskeg area. A second silt fence was installed up slope to help divert water off the ROW. Two silt fences were installed at the down slope location where the water left the trench and flowed toward the Cameron River. An additional silt fence was installed at the down slope location to provide additional protection from runoff potentially entering the Cameron River.

Proposed Long Term Remediation: The temporary measures will be monitored and maintained. A permanent ditch plug and diversion berms will be installed on the slope. The eroded soils at the base of the slope will be stabilized by seeding and fertilizing. The exposed pipe and the eroded trench will be backfilled, seeded and fertilized (Figure 10).

2.2.6 Area F (GSC 29 and ROW to Area E)

Location: Area F is located approximately 1 kilometre north of the Cameron River at GPS: 60° 06' 41"N; 117° 30' 10"W (Figure 5).

Issue: GSC-29 consisted of two small drainage channels that entered the ROW from the north at this location (Figure 11). One of the channels entered the ditch and flowed down the ditch line a short distance before exiting the trench. The water then flowed along the ROW to the southwest, to a point where an old diversion berm diverted the water back into the trench. From here, the water flowed down towards Area E causing erosion and the removal of some of the ditch cover.

Temporary Work Carried Out: The one creek channel was diverted above the ROW, which eliminated the downstream problems from continuing.

Long Term Remediation Plans: The temporary creek diversion will be monitored and maintained over the 2002 summer. This diversion will be made permanent by adding sand bags. The diversion berm constructed in March, 2002 will be evaluated, and a determination will be made as to whether or not the berm needs to be expanded or additional berms installed. The eroded trench will be backfilled and the repaired areas seeded with the approved seed mixture and fertilized.

2.2.7 Area G (Slope S3)

Location: Area G is located where the ROW turns west towards lease B-08, GPS: 60° 07' 06"N; 117° 30' 06"W, south and down slope for approximately 500 metres (Figure 5).

Issues: At the top of the hill where the ROW turns west there has been significant settling of the ditch and water entered the ditch from the north. Further down the slope, towards GSC-29, two old diversion berms directed water into the trench. Diversion berms constructed in March did not extend across the entire ROW.

Temporary Work Completed: Water was diverted from the ditch where it came to surface at two locations (Figure 12).

Proposed Long Term Remediation: The ditch area that has extensive settling and erosion will be backfilled. Paramount will determine if water has been (or still is) moving along the bottom of the ditch for most of the length of this slope. If water is moving along the bottom of the trench, ditch plugs and associated diversion berms will be installed along the slope as appropriate. The existing diversion berms will be extended across the entire ROW (Figure 12). The need for diversion ditches and/or berms to be located near the top of the slope to prevent water from entering the ditch will be determined, and constructed if deemed appropriate. After stabilization efforts have been completed, all disturbed or eroded areas will be seeded with the approved seed mixture and fertilized.

2.2.8 Area GG (Slope S5)

Location: Area GG is located approximately 50 metres east of lease N-28 (Figure 5).

Issue: There is runoff water from a small, intermittent drainage that entered the ROW from the north, and water has entered the trench and flowed down the ROW and onto the lease. The trench has settled in this area.

Temporary Work Completed: No temporary work was completed at this location.

Proposed Long Term Remediation: The eroded ditch will be repaired and a permanent diversion berm will be constructed to permanently prevent the drainage from entering the ditch (Figure 13). Repaired areas within the ROW and lease will be seeded with the approved seed mixture and fertilized.

2.2.9 Area H (Slope S7 and Creek Crossing GSC-20)

Location: Area H is located approximately 700 metres southeast of the C-50 tie in at GPS: 60° 09' 22"; 117° 37' 00" (Figure 5).

Issues: Water entered the ROW from a spring at the base of the hill and from surface runoff from the east along the length of the slope. The water entered the ditch and flowed down the slope for approximately 300 metres and into the GSC-20 drainage, causing silt to enter the drainage. At the top of the slope, a diversion ditch allowed water to enter the ditch.

Temporary Work Completed: A temporary ditch block was constructed by using local materials and sandbags at the point where the water was on surface along ditch line (Figure 14). This water was diverted to the west off the ROW. Silt barriers using straw matting were installed

at the edge of the drainage to prevent silt from entering the drainage.

Proposed Long Term Remediation: In March, 2002, a foam ditch block was installed to bring the spring that was noted to surface, but this has failed. The roach will be dug out when conditions allow and another ditch block installed to bring this water to surface. Permanent water diversion berms will be constructed to ensure that the surface water flows are directed off the ROW before entering the drainage (Figure 14). The diversion ditch located near the top of the slope will be repaired to prevent further entry of water into the ditch. The eroded ditch will be backfilled, and disturbed areas will be seeded with the appropriate seed mixture and fertilized.

2.2.10 Area I (Cameron River Crossing GSC-21; Slope S9 and the ROW to the Main Pipeline)

Location: Area I is located northeast of the C-50 bridge at GPS: 60° 09' 23"N; 117° 37' 56"W (Figure 5).

Issues: Water entered the ROW from a muskeg drainage near the top of the slope, flowed over the trench line and continued down the ROW for approximately 200 metres. At this point, the water entered the ditch at the top of the slope that leads down to the Cameron River. Erosion of the hill resulted and soil was washed into a low lying drainage area adjacent to the Cameron River. The majority of the soil was deposited within the low-lying area and did not enter the Cameron River. At the west side of the Cameron River, at the toe of hill, the ditch cover settled and water had ponded.

Temporary Work Completed: Initially, log and soil berms were constructed at two locations east of the river to divert water off the ROW to prevent it from flowing down the hill. Later, these berms were replaced by two silt fences. Two silt fences were also erected across the small drainage at the bottom of the hill to prevent silt from entering the Cameron River (Figure 15).

Proposed Long Term Remediation: Paramount will monitor and maintain the temporary measures. The erosion of the hill will be backfilled and contoured appropriately. Permanent water diversion berms, with appropriate spacing, will be constructed on the slope to divert water off the ROW (Figure 15). The entire slope, as well as the soil deposition area at the base of the hill, will be seeded with the approved seed mixture and fertilized. Silt fences will be maintained until revegetation of the low-lying area adjacent to the Cameron River is established. At the toe of the hill, on the west side of the river, backfilling of the ditch and the eroded cut and fill area will be completed.

2.2.11 Area II (Slope S11 and GSC-24 South Bank)

Location: Area II is located directly southeast of the A-73 quad bridge, on the north-facing slope (Figure 5).

Issue: A small flow of water from a natural drainage was noted to enter the ditch approximately 110 metres up slope from the quad bridge, and then flowed out of the ditch where the pipeline comes to surface before going onto the bridge. Some erosion has occurred, as silt was noted near the bank of the tributary of the Cameron River (INAC identified the tributary as Herbal Creek). One of the diversion berms constructed in March, 2002 was directing water into the ditch.

Temporary Work Carried Out: Two silt fences were installed down slope of where the small flow was exiting the ditch line to direct water flow into the forest adjacent to the ROW (Figure

16). The diversion berm that was directing water into the ditch was repaired.

Long Term Remediation Plans: Paramount will monitor and maintain the temporary measures. The eroded portion of the ditch and ROW will be repaired, as will the approach to the south end of the quad bridge. If required, an additional diversion berm will be installed at the bottom of the slope, below the point where the pipe exits the ground to proceed onto the quad bridge. The slope will be seeded with the approved seed mixture and fertilized to provide additional stability.

2.2.12 Area J (Slope S12 and GSC-24 North Bank)

Location: Area J is located on the south facing slope north of the A-73 quad bridge at GPS: 60° 11' 42"N; 117° 42' 52"W (Figure 5).

Issue: Water from a muskeg area at the very top of the hill flowed down the ROW to the crest of the hill, and then down the ditch line for approximately 100 metres (Figure 17). This caused erosion on the slope, and particularly on one, ten metre section of the ditch that exhibited exposed pipe and the destruction of a foam ditch plug. The water then exits the trench and follows a natural low lying area to exit the ROW to the east. Deposited soil is located on, and adjacent to, the ROW where the water exited the ROW.

Temporary Work Carried Out: A silt fence was installed near the top of the hill to divert water off the ROW to the west.

Long Term Remediation Plans: Paramount will monitor and maintain the temporary measures. Permanent water diversion berms will be constructed at the crest of the hill and on the slope as required, with appropriate spacing (Figure 17). The areas that have been eroded will be backfilled and contoured, and damaged ditch plugs repaired. A silt fence will be erected down slope of the point where the pipe comes out of the trench by the bridge to prevent heavy rains from depositing silt into the creek. The ROW leading up the slope and the deposited soils at the base of the hill will be seeded with the approved seed mixture and fertilized.

3.0 Timing:

The following work will be performed during the remainder of the summer and fall:

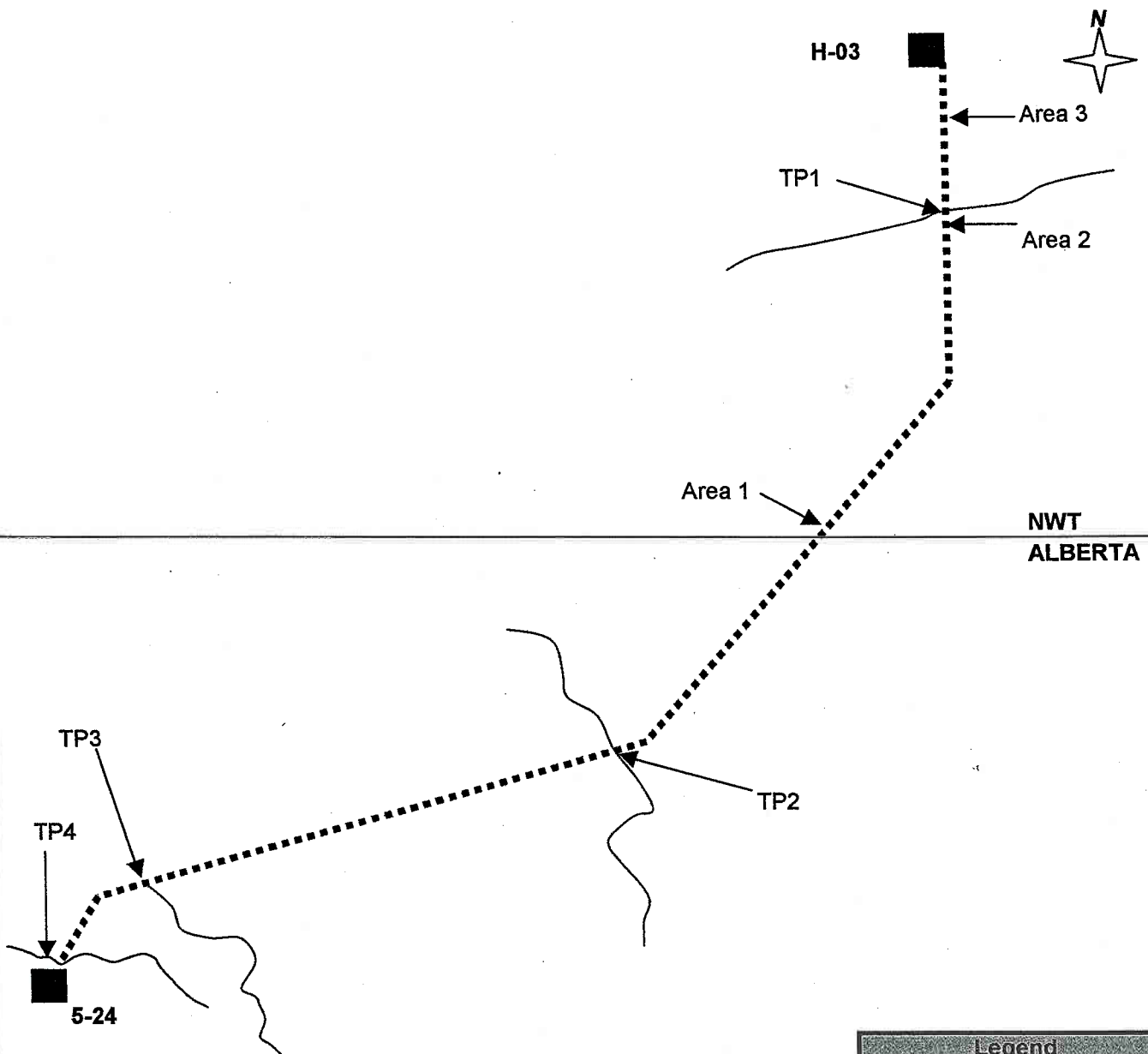
- Monitor and maintain the temporary remediation measures;
- Backfill the exposed pipe and eroded areas;
- If required and where feasible, construct additional diversion berms on problem slopes; and
- Seed and fertilize exposed slopes for added stability and erosion control.

The remainder of the work would be performed during the winter when heavy equipment could be transported into the area:

- Repair existing ditch block locations and install new ditch blocks;
- Construct additional diversion berms and ditches where they are required; and
- Backfill and contour settled ground and trenches.

APPENDIX A

Figures 1 – 17



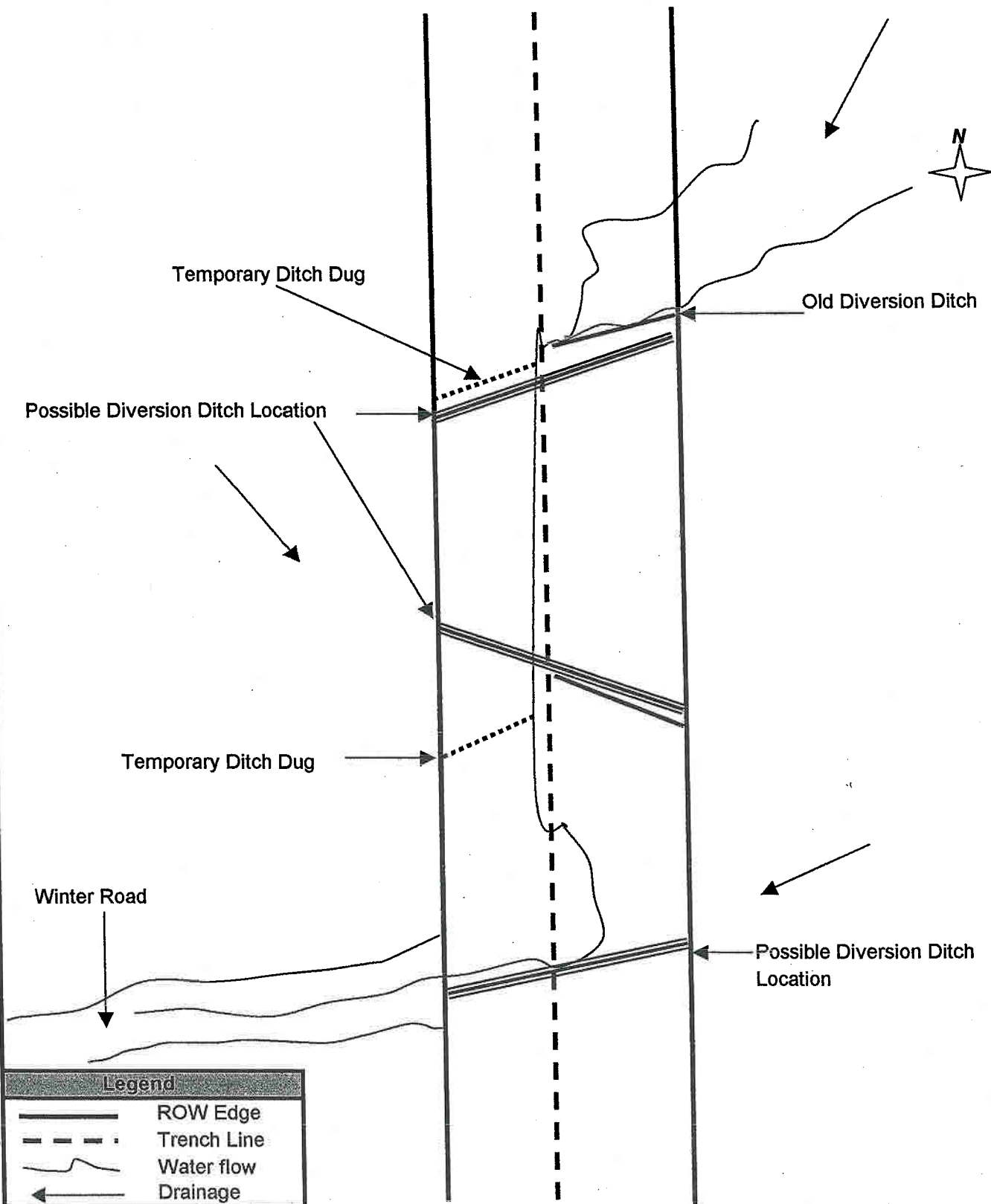
Legend	
	Creek
	Pipe line
	Lease

Temporary Shallow Ditch Dug

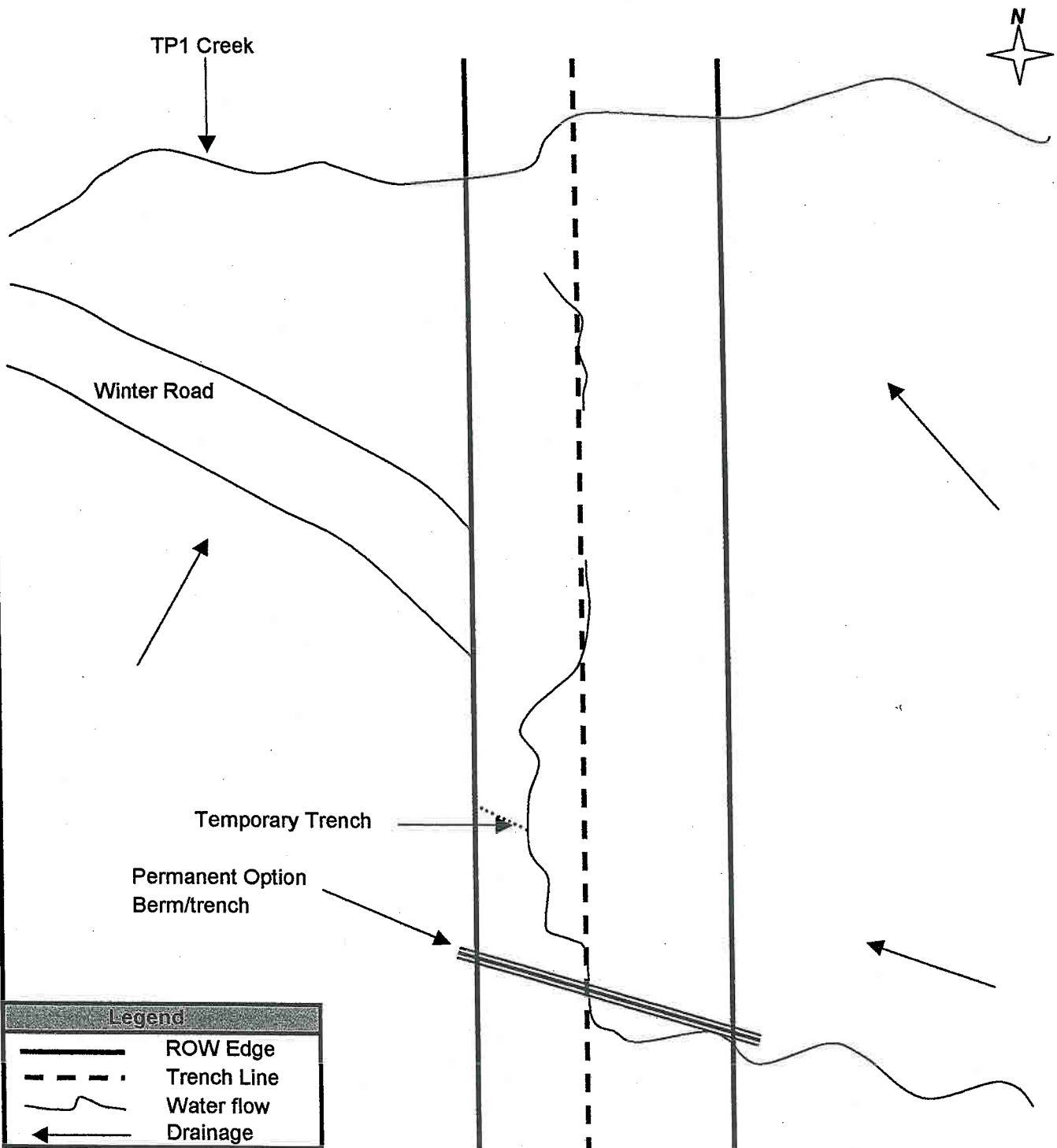
Permanent Diversion Option

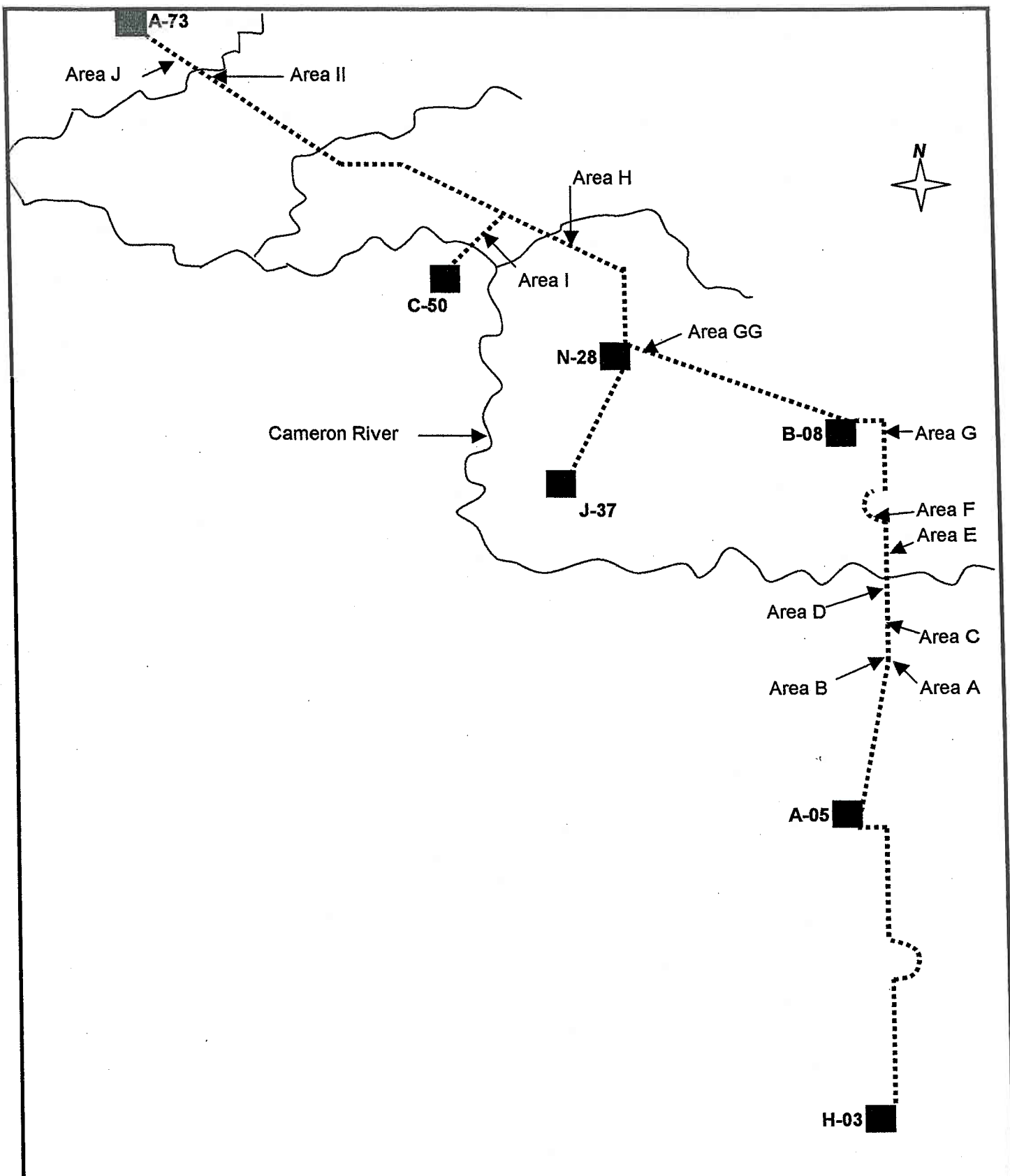


Legend	
	ROW Edge
	Trench line
	Water flow
	Drainage Direction

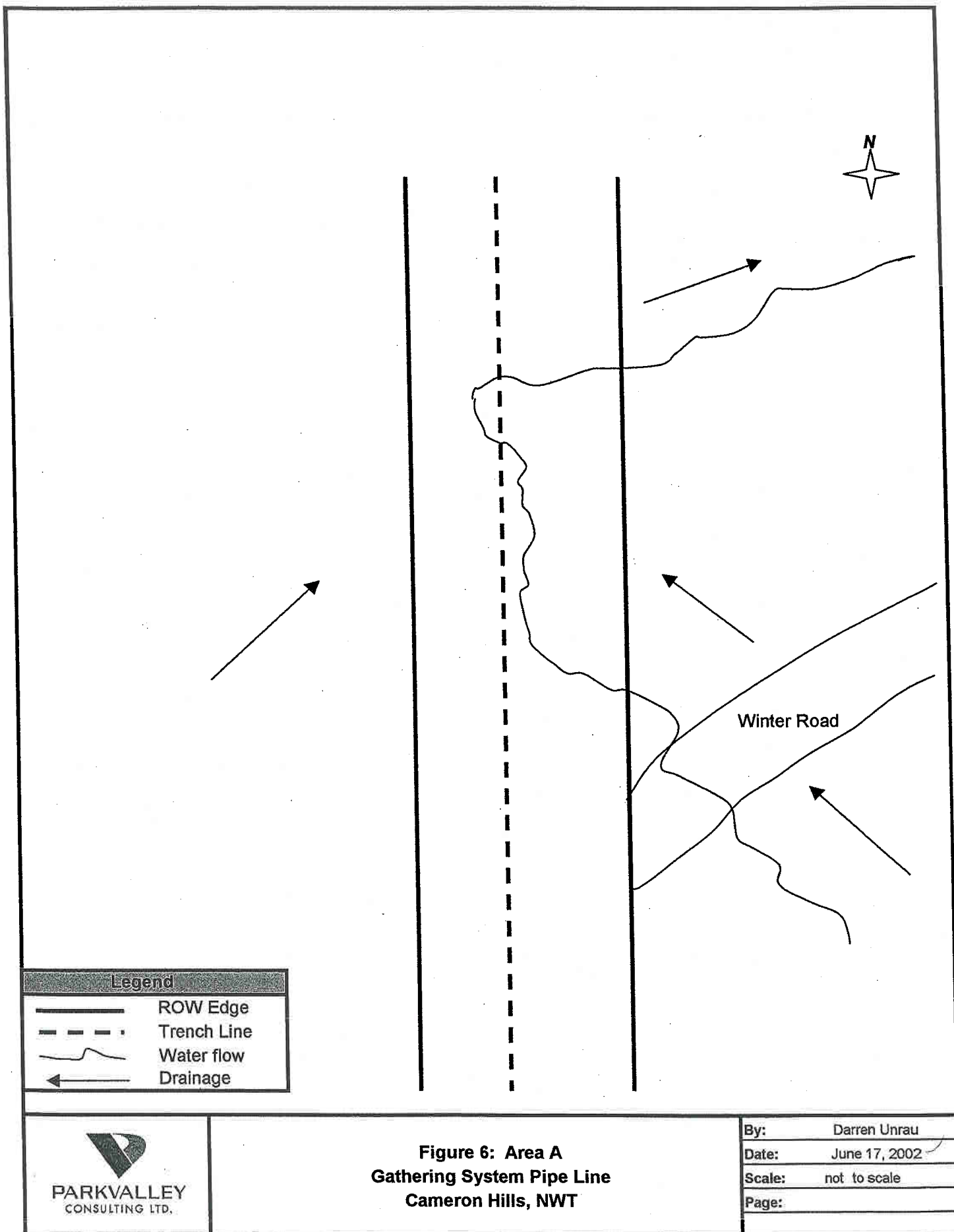


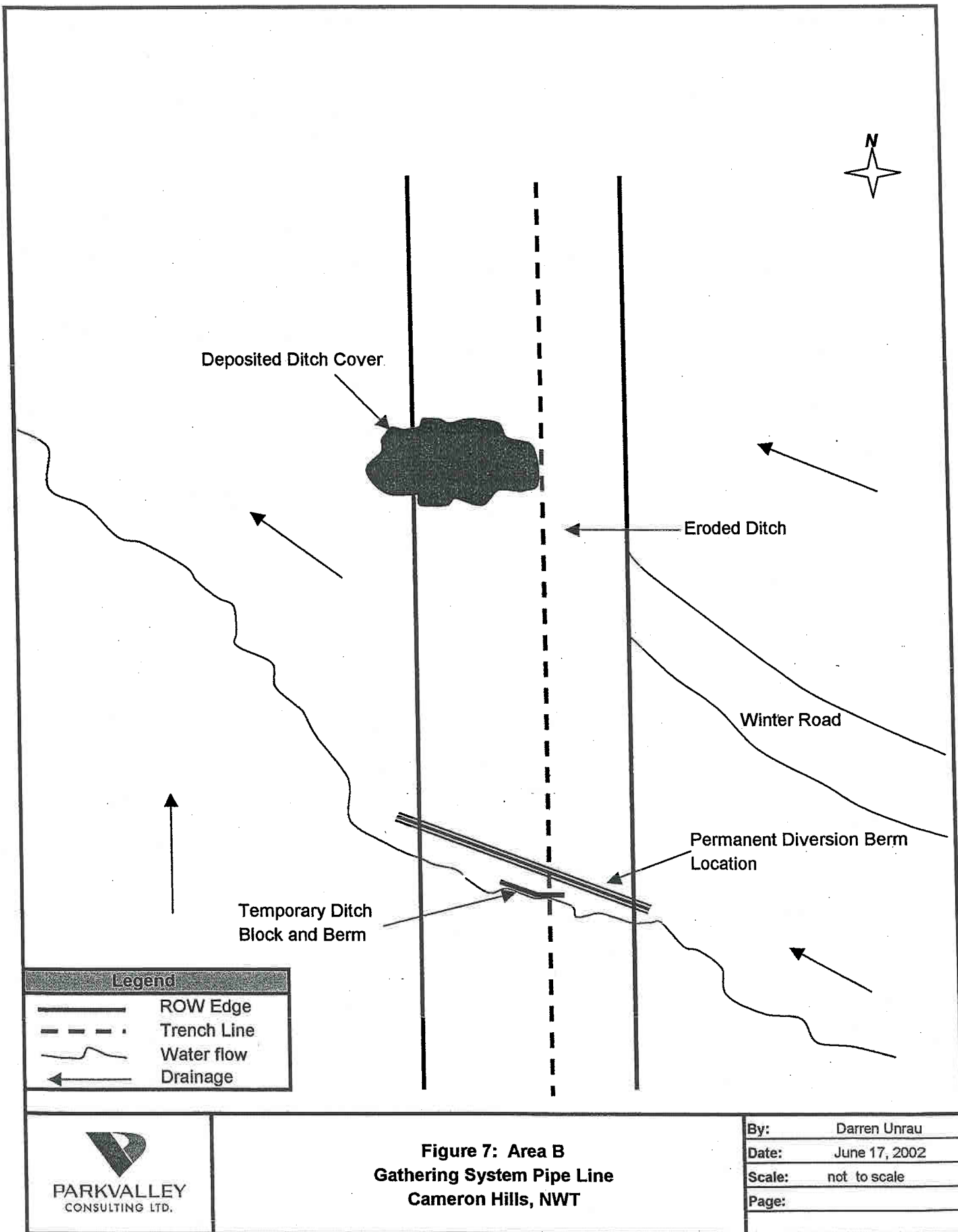
**Figure 4: Area 3
Transborder Pipe Line
Cameron Hills, NWT**





**Figure 5: Gathering System Pipe Lines
Cameron Hills, Northwest Territories
Site Map**







Old Diversion Berm

Possible Location for a
Permanent Diversion Berm

Diversion Berm Installed
In March

Old Seismic Line

Temporary Diversion Berm

Foam Ditch Block

Old Diversion Berm





Possible Location for a
Permanent Diversion Berm

Diversion Berm Installed
In March

Foam Ditch Block

Old Seismic Line

Legend

-  ROW Edge
-  Trench Line
-  Water flow
-  Drainage

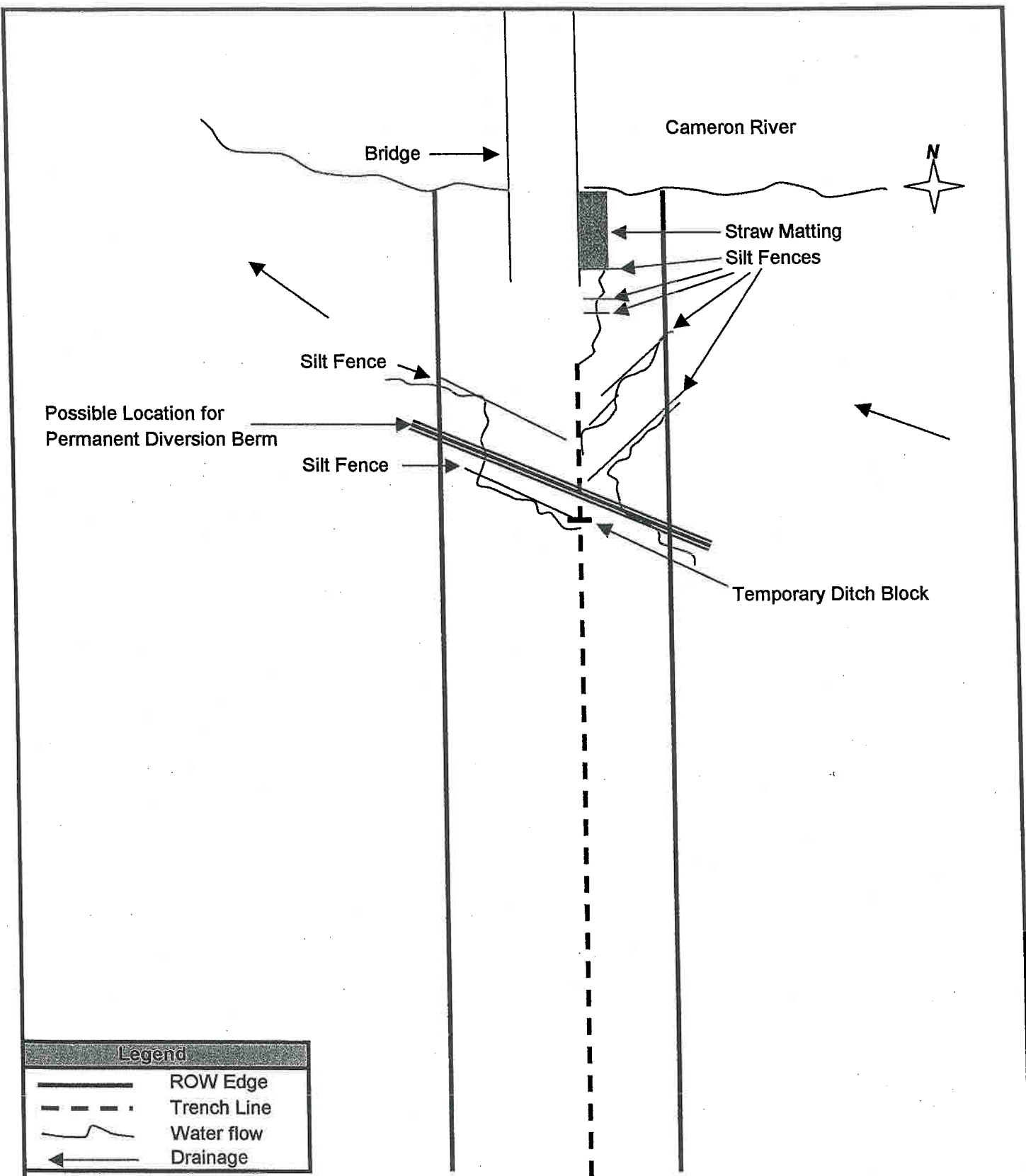
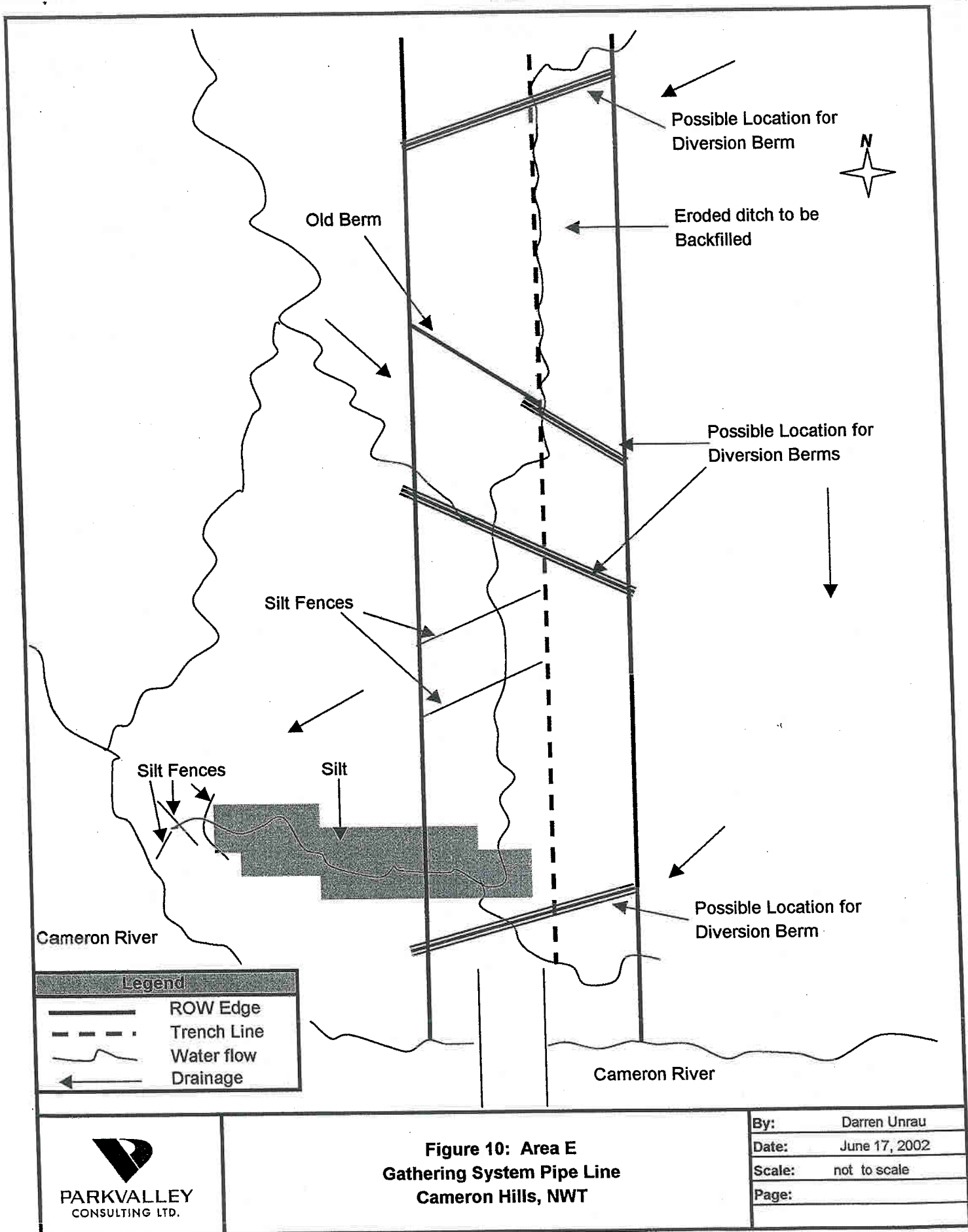
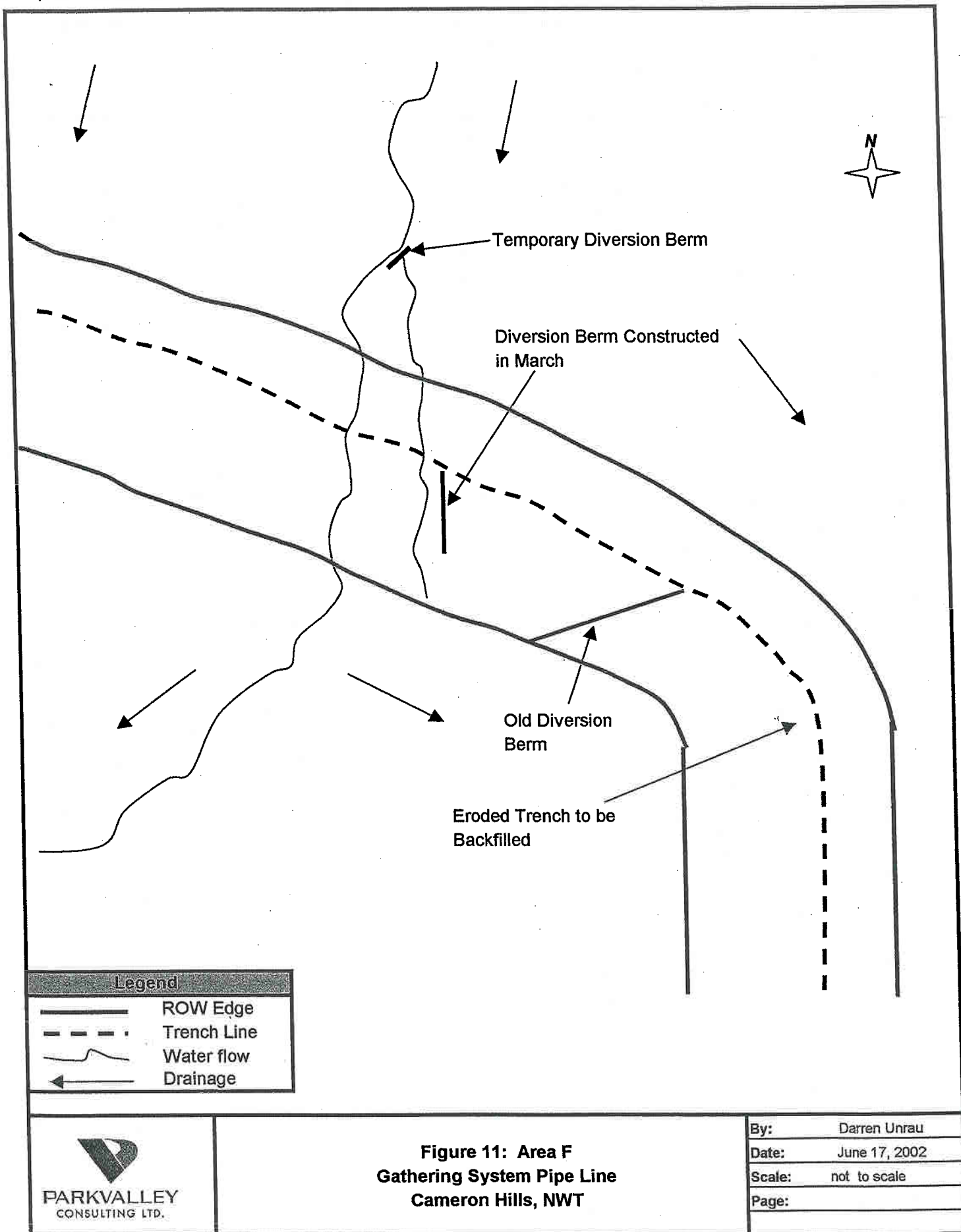
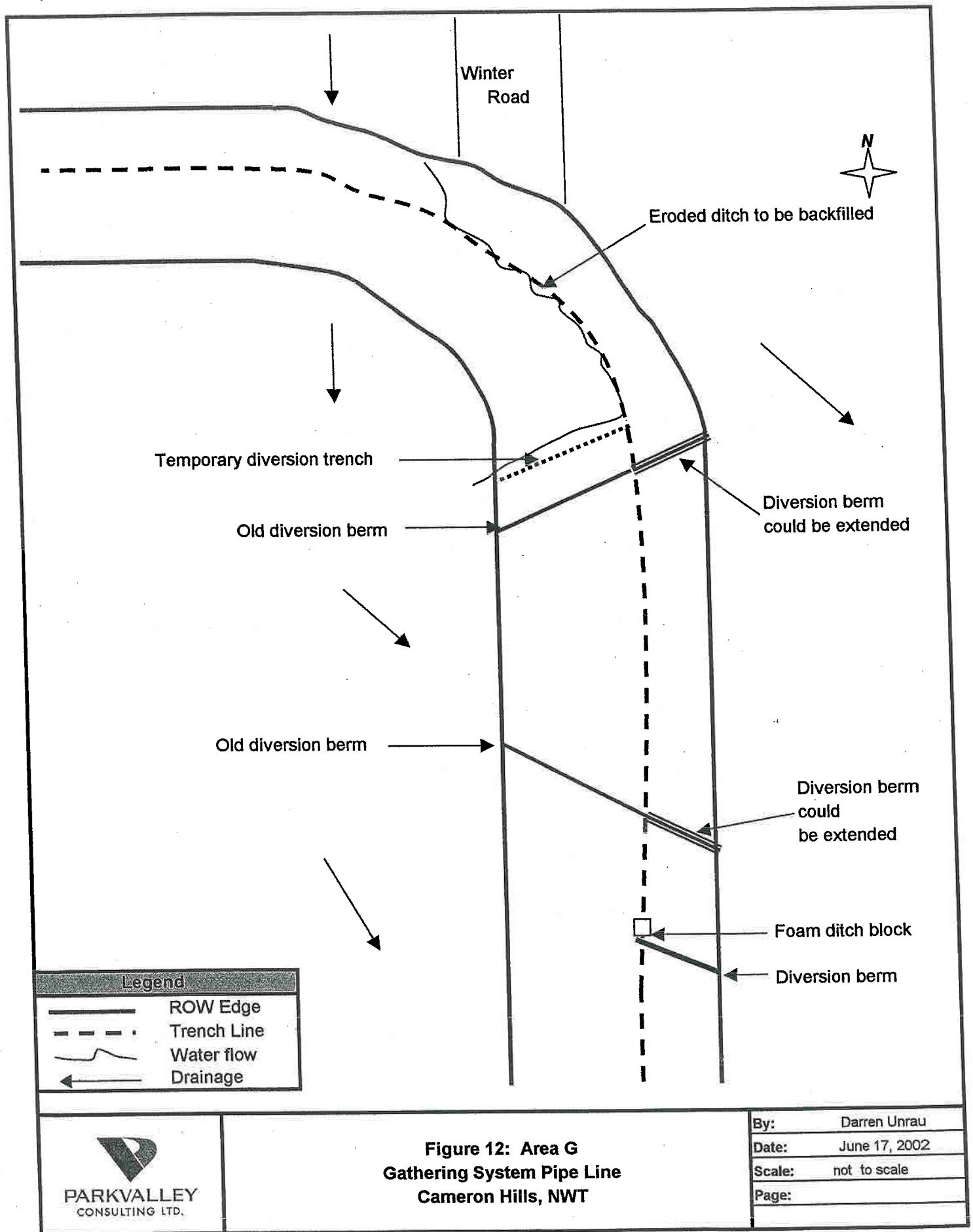
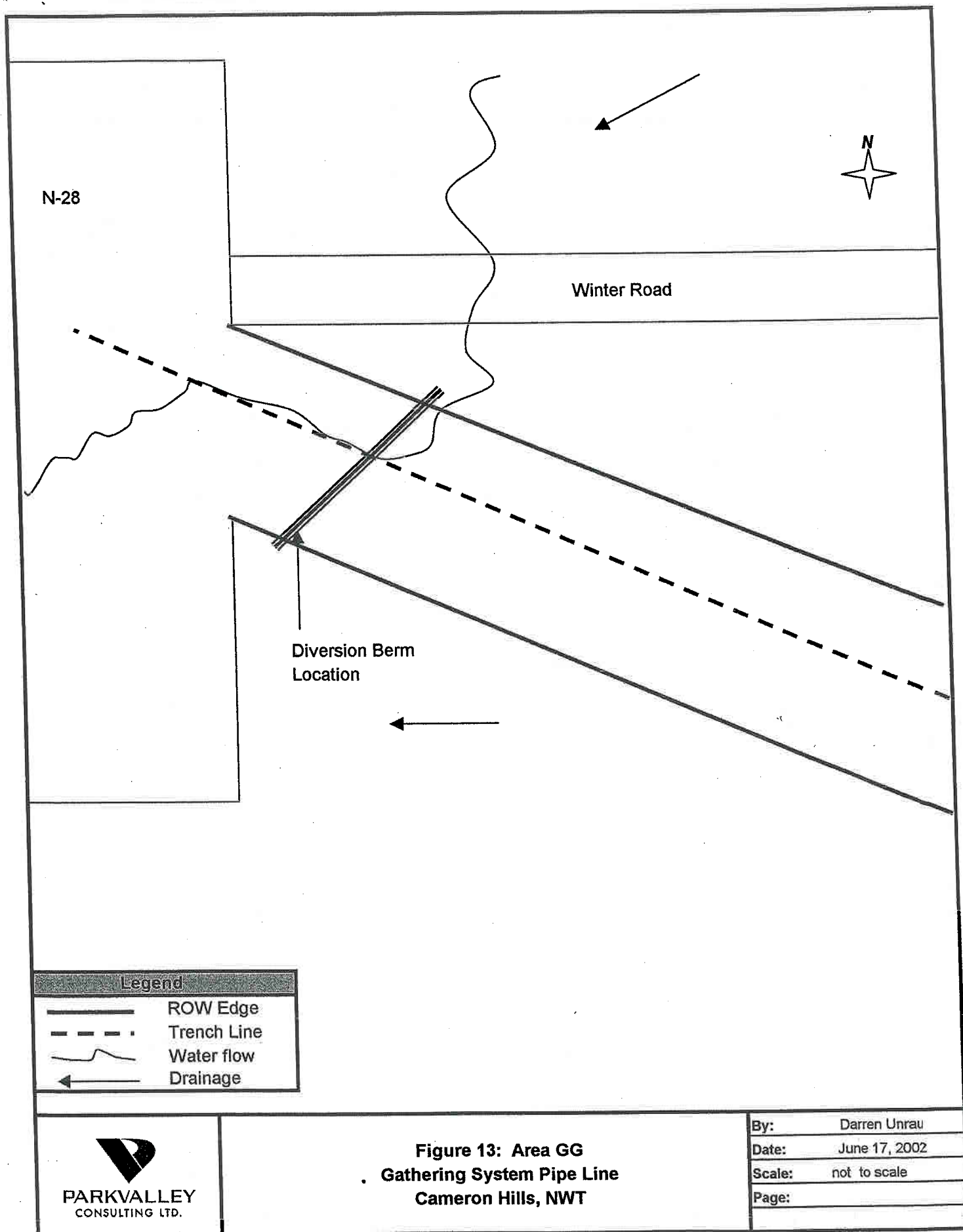


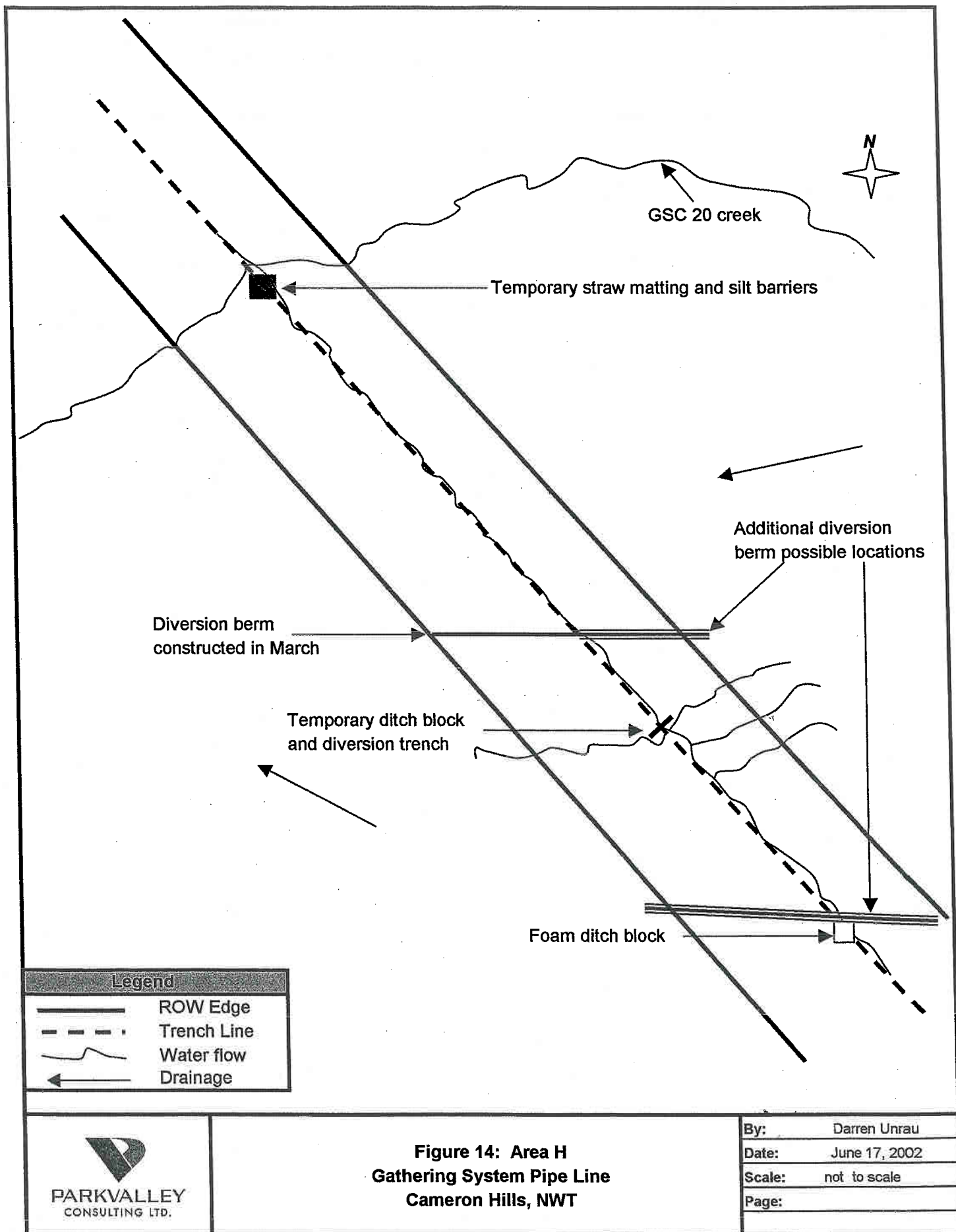
Figure 9: Area D
Gathering System Pipe Line
Cameron Hills, NWT

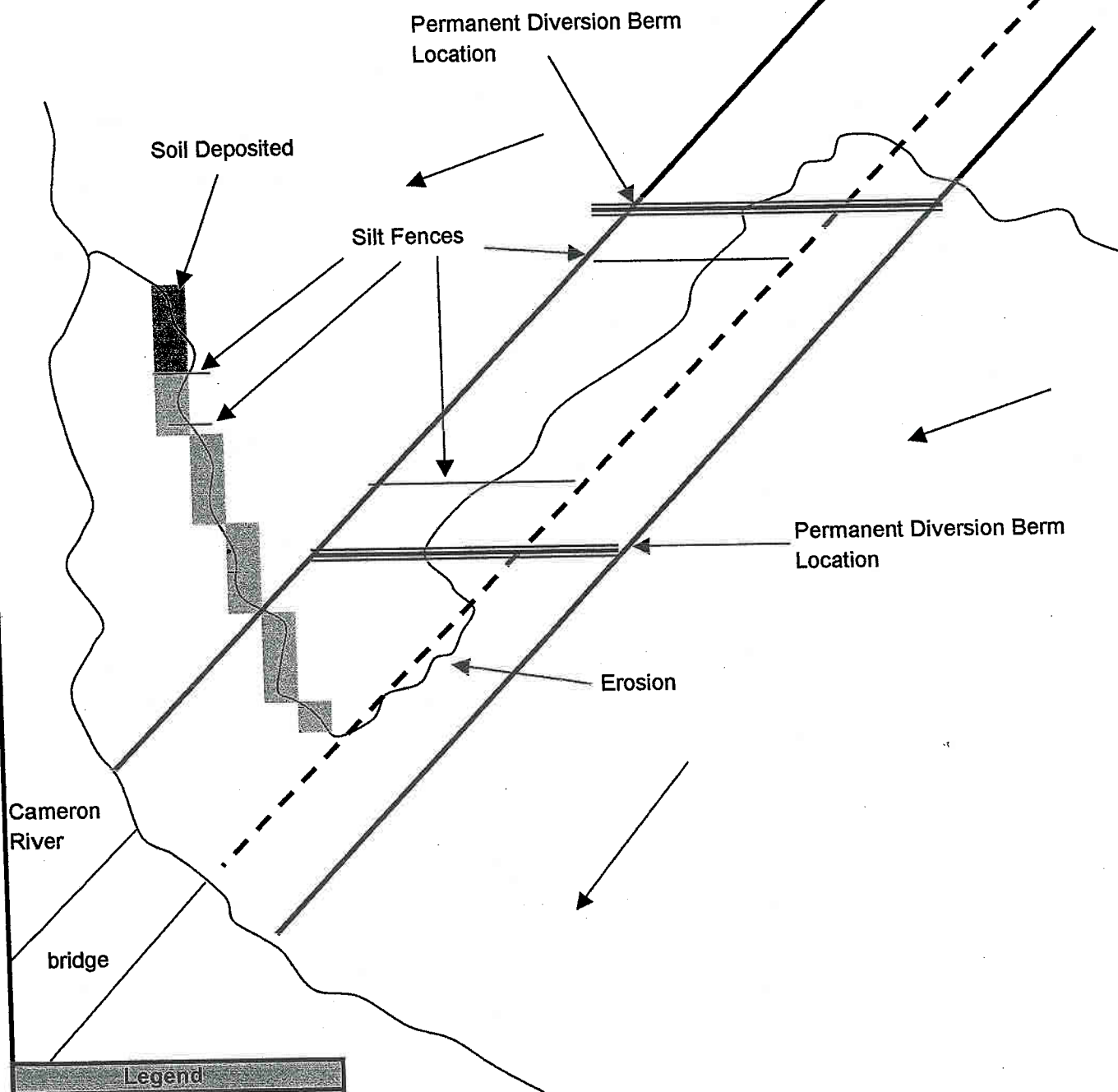










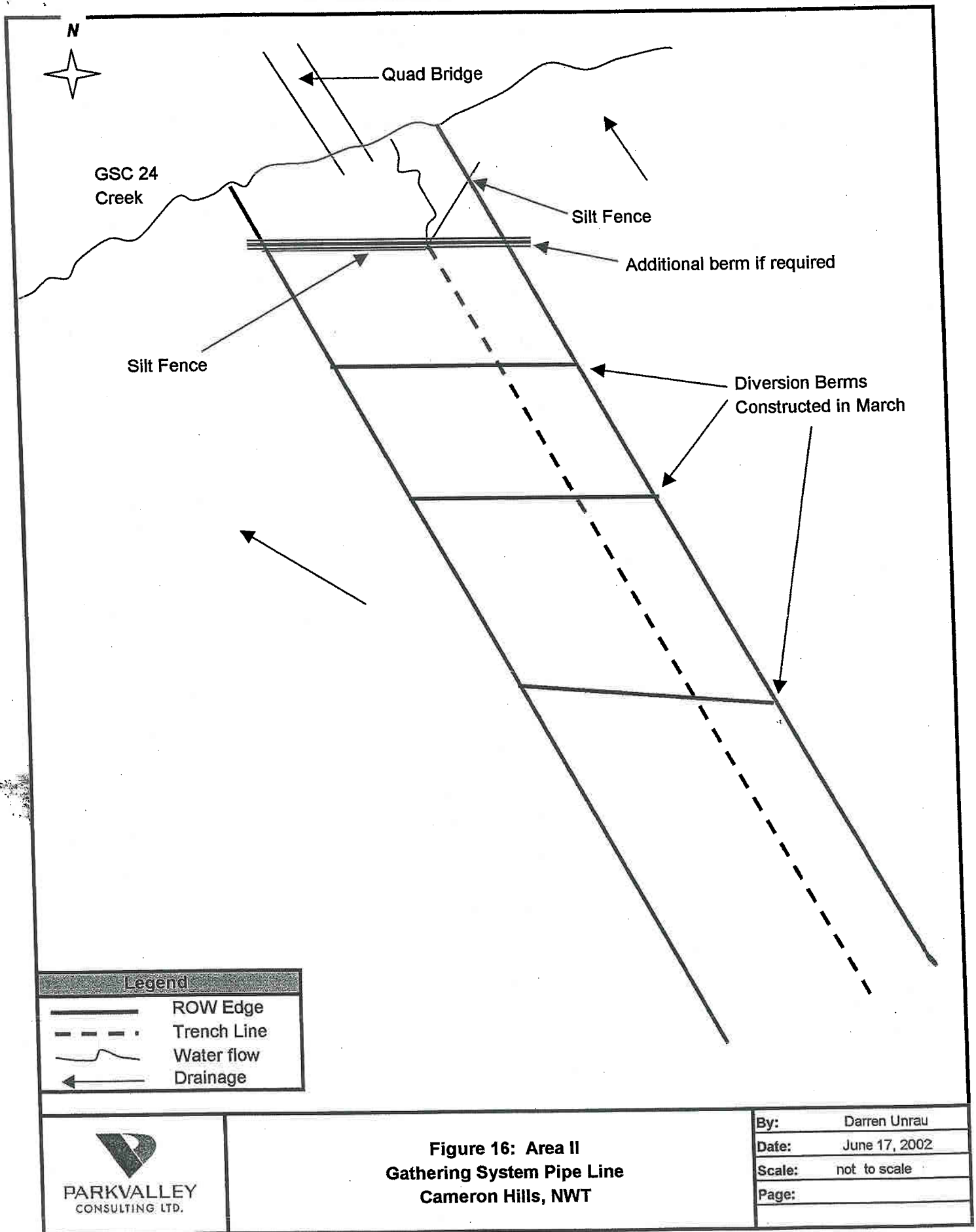


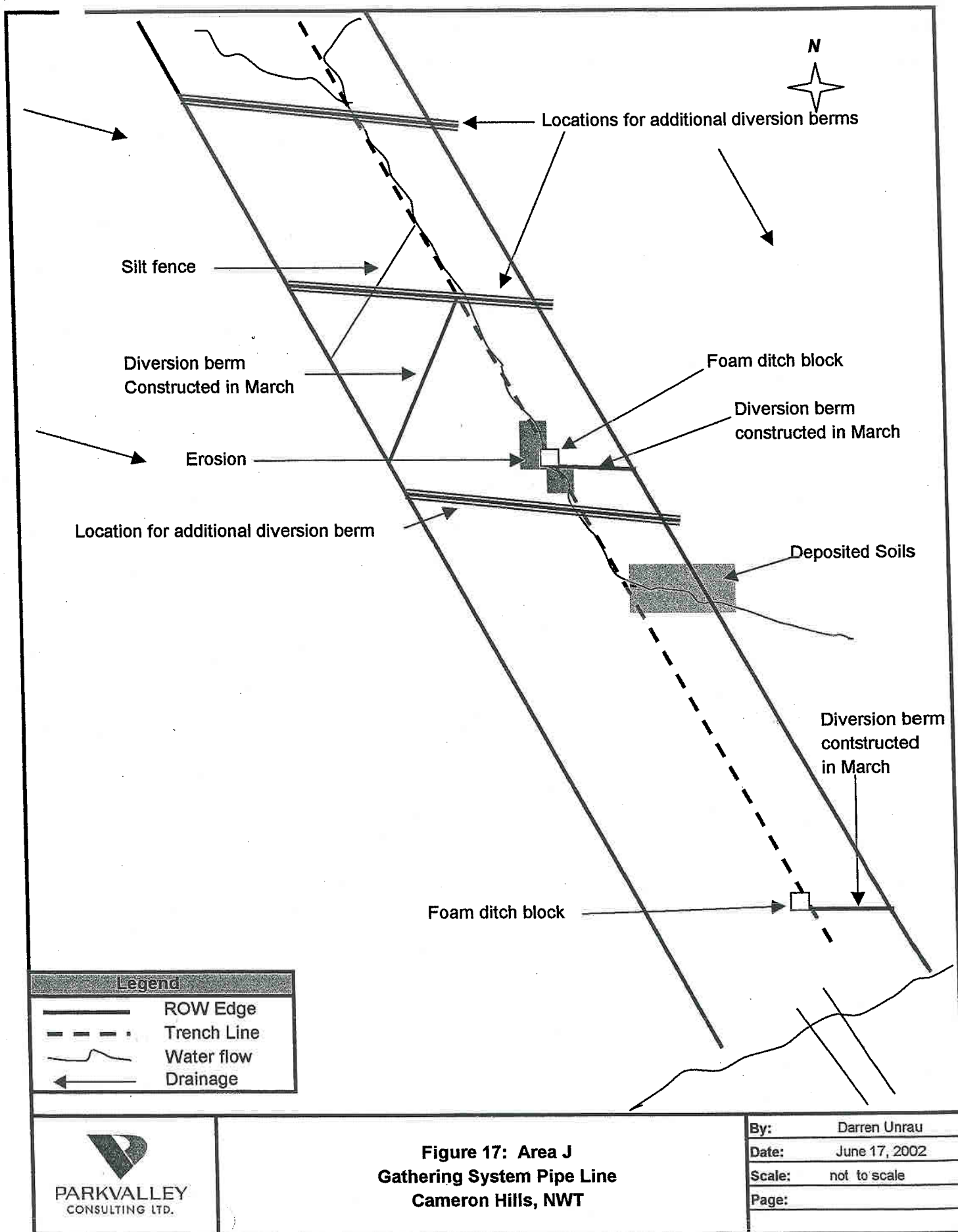
Legend	
	ROW Edge
	Trench Line
	Water flow
	Drainage



**Figure 15: Area I
Gathering System Pipe Line
Cameron Hills, NWT**

By:	Darren Unrau
Date:	June 17, 2002
Scale:	not to scale
Page:	

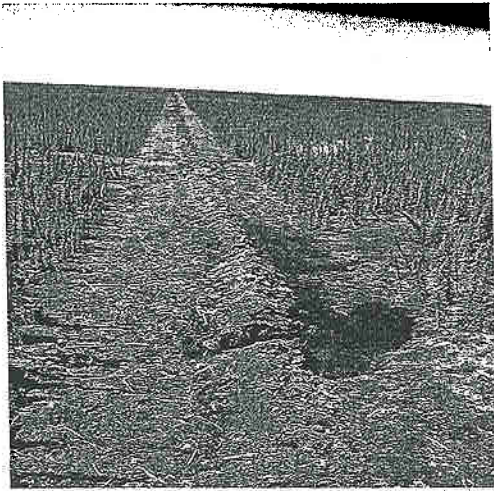




APPENDIX B

Area Photos

Area Photos



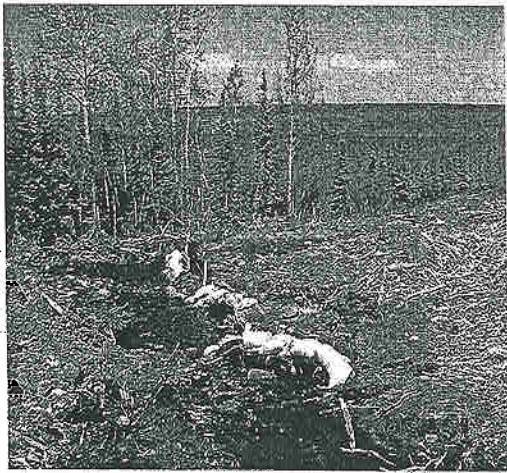
Area 1, facing south



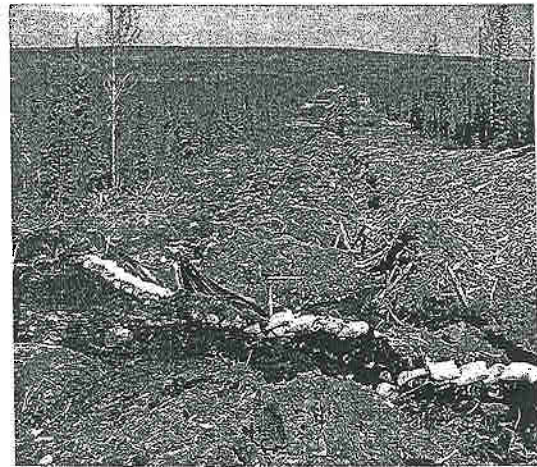
Area 3, facing south



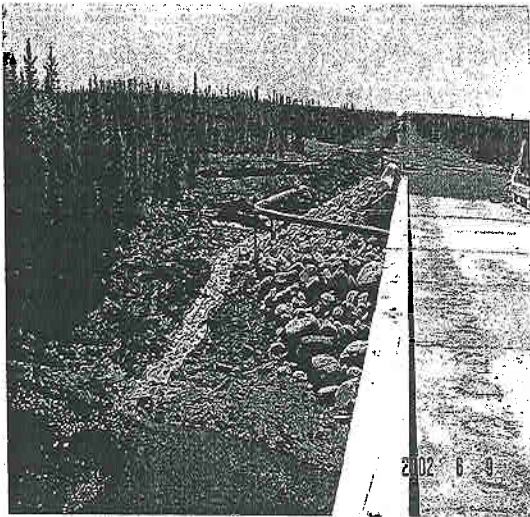
Area A, facing north



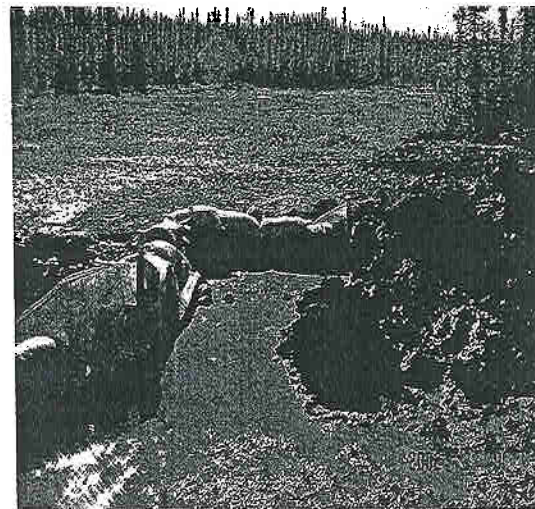
Area B, facing northwest



Area B, facing north



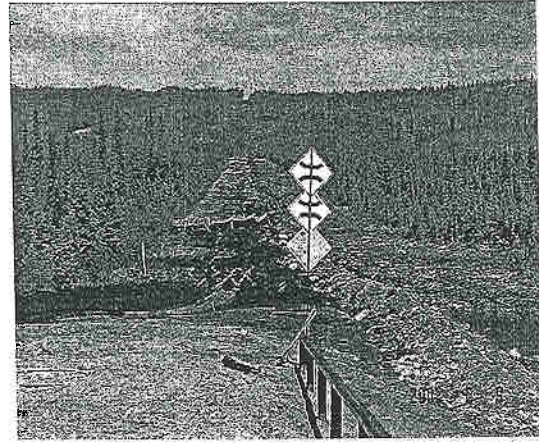
Area D, facing south



Area D, facing east



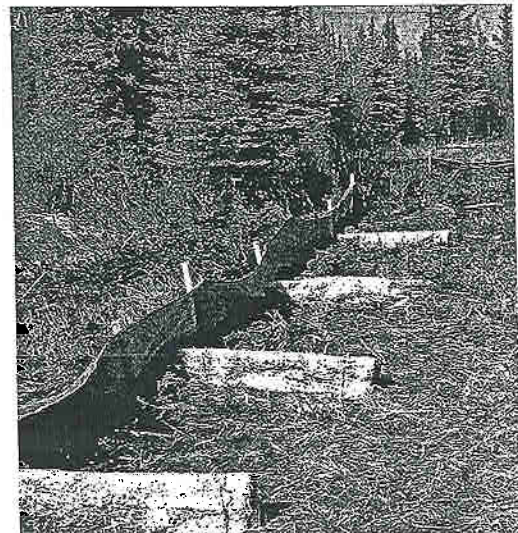
Area D, facing north



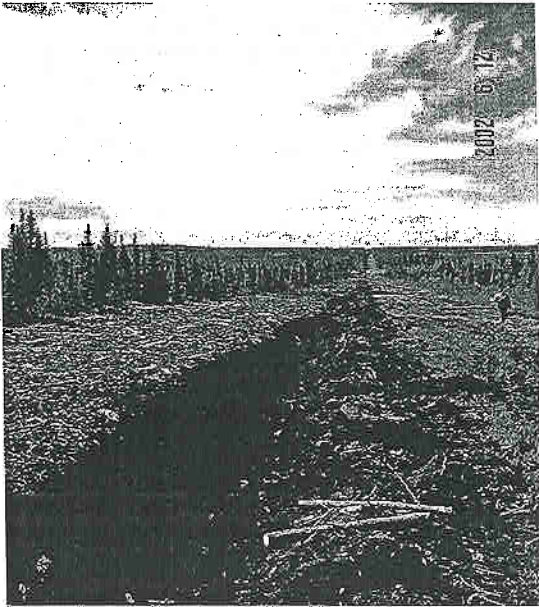
Area E, facing north



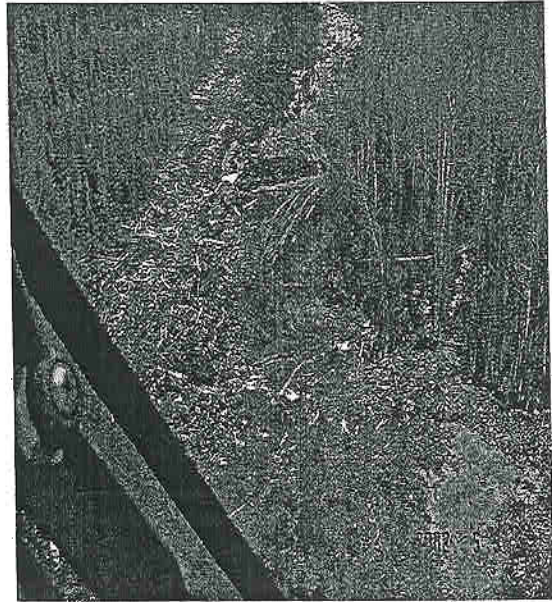
Area E, facing west



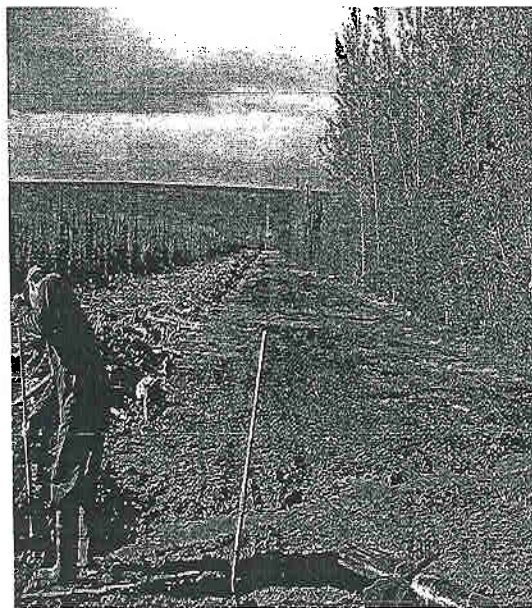
Area E, facing north



Area E, facing south



Area F, facing southeast



Area G, facing south



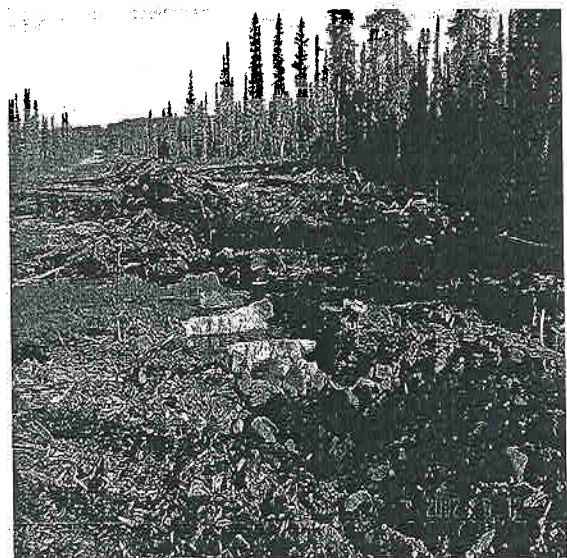
Area GG, facing east



Area H, facing northwest



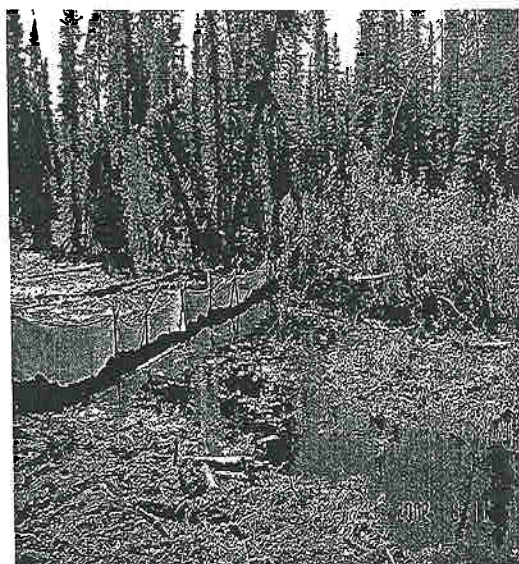
Area H, facing southeast



Area H, GSC 20 creek, facing northwest



Area I, facing southwest



Area I, facing west



Area II, facing northwest



Area II, facing southeast



Area J, erosion, facing east



Area J, deposited soils, facing southeast