

#874

TULAMEEN COAL PROJECT

**Application for a Permit
under the *Mines Act***

Submitted To: The South Central Mine
Development Review
Committee

Submitted By: Royal Scot Minerals Inc.
April, 1998



MINISTRY
OF ENERGY
AND MINES

#874

MEMORANDUM

April 21, 1998

File: 206-20/SCMDRC
147675-30-04

TO: South Central Mine Development Review Committee Members - South

Peter Jarman, BC Environment, Penticton
Dave Jones, BC Environment, Penticton
Jim Bryan, BC Environment, Penticton
Rick Hawe, Ministry of Forests, Merritt
Rob McCandless, Environment Canada, N. Vancouver
Nick May, MOTH, Penticton
Ray Kenny, Ministry of Small Business, Tourism & Culture, Victoria
Art O'Bryan, Reclamation Inspector, Nelson
Bill Price, Ministry of Energy & Mines, Smithers
John Parson, Ministry of Fisheries
Bonnie Antcliffe, Department of Fisheries and Oceans, Vancouver
Eugene Mehr, Ministry of Energy & Mines, Kamloops
Tim Eaton, Ministry of Energy & Mines, Victoria
Fred Hermann, Ministry of Energy & Mines, Victoria
✓ Barry Ryan, Geological Survey Branch, Victoria
Regional District of Okanagan-Similkameen, Penticton

**Re: Tulameen Coal Project
Royal Scot Minerals Inc.**

Enclosed is a Report for an Application for a Permit under the Mines Act dated April, 1998 forming the Notice of Work Application on a Coal Licence under Section 10 (1) of the Mines Act. The application is to open a surface coal mine with an annual production not greater than 100,000 tonnes of coal per year.

This Report and application follows on from the draft overview Report submitted on February 24, 1998 to the SCMDRC in Penticton.

Please review the application and would appreciate your comments in writing to Eric Beresford, P.Eng., District Manager/Inspector by May 25, 1998. A public open-house meeting is scheduled for May 26, 1998 in Princeton.

R. E. Meyers, P. Geo.
Chair, South Central Mine Development Review Committee

REM/EWB/lm

Enclosures

Copy



Coal Production

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

MINERAL RESOURCES BRANCH
INSPECTION AND ENGINEERING DIVISION

NOTICE OF WORK ON A COAL LICENCE

(Sections 2 and 3 of the Mines Act)

This notice is to be completed by all companies or individuals carrying out exploration work prior to commencement of work and at cessation of work and forwarded to the Chief Inspector of Mines with a copy to the District Inspector of Mines. If mechanical equipment is used in surface work, Form 7 overleaf must be completed. Items noted * are information collected on behalf of Coal Resources Section, and eliminate the form previously forwarded to the operator for this purpose.

1. NAME OF PROPERTY Tulameen Coal Project
Coal Licence Numbers CL 355392, CL 355393
Yale Division of Yale Land District
2. LOCATION D.L. 295 and 293 NTS map sheet no 94H7/10
Lat. Long. Access via Forest Service Road and
Blakeburn Road 10 km from Coalmont
3. OWNER'S NAME Pacific West Coal Ltd. c/o David Hunter, BHT
Address P.O. Box 11130, 1055 West Georgia, Vancouver, B.C. Telephone no. (604) 687-8575
4. OPERATOR'S NAME Royal Scot Minerals Inc.
Address 3 Swanick Court, Alferton, Derbyshire, UK. DE55 7AS Telephone no.
5. ESTIMATED DURATION OF WORK: From 1998 to 2015
OR: ACTUAL DATE WORK COMPLETED: From to
6. DESCRIPTION OF WORK (Use metric measure - 1 metre = 3.3 feet.) (Show on 1:50 000-scale map.)
Linecutting (distance, width, method) NIL
Clearing of timber Licence to cut with Tolko Industries Ltd.
(requires approval of Ministry of Forests. "Licence to Cut" or "Free Use Permit" may be withheld until reclamation program is approved.)
(a) Road Construction: Total length 2,000 m Approximate width .20 m Area 40,000 m²
Waste Dump, etc. 110,000 m²
(b) Test Pits: No. Maximum dimensions: Width m Length m Depth m
*Sum total length m Total disturbed area of test pits m²
(c) Drilling: No. of D.D.H. Size No. of R.D.H. Size Max. hole length
*Sum total depth m Total disturbed area of drillsites m²
*Down hole geophysics: types
(d) Adits: No. rising at ° is No. level No. dipping at ° is
Maximum length of adit m Total disturbance
*Sum total length
(e) Trenches: No. 2 Maximum dimensions: Width .70 m Length 110.0 m Depth .60 m
*Sum total length 1,300 m Total disturbed area of trenches 90,000 m²
(f) Other (for example, please specify underground work):
Annual coal production of up to 100,000 tonnes
(g) If mapping done, forward description of area and scale to Coal Resources Section, Victoria.

GRAND TOTAL OF AREA DISTURBED 240,000 m²
Total in Five Years 24 ha
- (h) Approximate number of men employed 10 - 15

*7. OTHER: an estimate of approximate exploration expenditure is requested to be forwarded to Coal Resources Section, Victoria, after work is complete

SIGNATURE OF APPLICANT M. G. Harrison TITLE President
PRINT NAME M. G. Harrison DATE April 14, 1998

NOTE: Owner, agent, or manager is responsible for ensuring the Contractor complies with pertinent regulations (see section 27(2), Mines Act). Pursuant to section 30, of the Mines Act, where the employment of mechanical equipment is likely to disturb the surface of the land in clearing, stripping, trenching, or any other operation, the reclamation program on the reverse side is also to be submitted.



Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
MINERAL RESOURCES BRANCH
INSPECTION AND ENGINEERING DIVISION

RECLAMATION PROGRAM

(Sections 7 and 30 of the Mines Act)

This form is to be completed when exploration work is done with mechanical equipment. Submission is required prior to commencement of work and at completion of work. One copy is to be sent to each of the following:

- *Senior Reclamation Inspector, Victoria
*Inspector of Mines and Resident Engineer
*Inspector of Mines Technician (Reclamation)
Regional Manager, Fish and Wildlife Branch
Regional Manager, Ministry of Forests
Regional Manager, Water Management Branch
Regional Manager, Lands Branch
Regional Manager, Ministry of Agriculture and Food

For advice on procedure and reclamation methods, see booklet entitled, 'Guidelines for Coal Exploration.'

- 1. THIS IS: A proposed reclamation program [X] a completed reclamation program []
2. PRESENT STATE OF LAND ON WHICH EXPLORATION WILL BE DONE IS:
Canada Land Inventory (where possible)
Present Land Use (ranching, timber, etc.) .. Forestry & Grazing
Type of Vegetation ... Fir, Spruce and Pine trees
Access Road (present use, condition) Existing Forest Service Road

- 3. EQUIPMENT TO BE USED FOR MINING EXPLORATION (List size, capacity, and number.)
(a) D9/10 bulldozer (d)
(b) Front end loader (e) Excavator
(c) Rear dump trucks (f) Breaker/screening plant

- 4. RECLAMATION EQUIPMENT TO BE USED (for example, resloping, harrowing, or specialty equipment):
(a) D9 bulldozer (b) Loader and trucks (c) Hydro-seeder

5. GENERAL DESCRIPTION OF PROTECTIVE MEASURES PURSUANT TO SECTION 7
(Show work and reclamation on 1:50 000 scale map and include with full distribution noted above.) [*For proposed work programs include with submissions to Ministry of Energy, Mines and Petroleum Resources documentation on 1:10 000 (approximate scale) air photograph or air photograph overlay.]

See Tulameen Coal Project Report dated April 1998
Map Scales: 1/2,000, 1/5,000 and 1/10,000

6. SUMMARY OF AREA DISTURBANCE AND RECLAMATION
Area disturbed current year .. 1,50 ha ... Previous years .. 0,25 ... Total to date .. 1,75 ha
Area reclaimed current year ... Previous years (final) ... Total to date 1,75 ha

7. RECLAMATION MANAGER'S NAME .. M..G.. Harrison
Address .. 3 Swanwick Court, Alfreton, Derbyshire, U.K. DE55 7AS

DATE .. April 14, 1998 SIGNATURE .. [Signature]

*When geotechnical and reclamation work have been completed for the calendar year a final reclamation report should be submitted to the three Ministry of Energy, Mines and Petroleum Resources personnel noted at the top of this form. For details see the booklet entitled, 'Guidelines to Coal Exploration.'

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1.0 PROJECT DESCRIPTION

Royal Scot Minerals Inc., a subsidiary of Rackwood Mineral Holdings PLC, proposes to develop a small open-pit coal mine on coal licences held by Pacific West Coal Ltd. at the Tulameen coalfield, situated 11 km to the west of the village of Coalmont, 20 km northwest of the town of Princeton in Southwest British Columbia (Figure 1). Figure 2 shows the location of the property in relation to the town of Coalmont.

The project is proposed in two initial phases of development. Phase 1, a bulk sample of 10,000 raw tonnes, has received approval and will commence in the Spring of 1998. The purpose of the bulk sample is to provide smaller samples to potential customers to determine quality and suitability for markets. The following report details Phase 2, the application for a mining permit, to produce up to 100,000 tonnes of saleable coal per year by open-pit mining over a 15 year period. The coal is high volatile Bituminous B and C rank thermal coal suitable for the cement industry and as a power plant fuel. The target date for the approval of this permit is July 1998.

The project will create between 25 and 30 jobs at the minesite and transportation areas. Coal will be directly trucked to customers in the Lower Mainland and Kamloops area. For Seattle customers the coal will be trucked either to a rail terminal or barge load-out on the Fraser River.

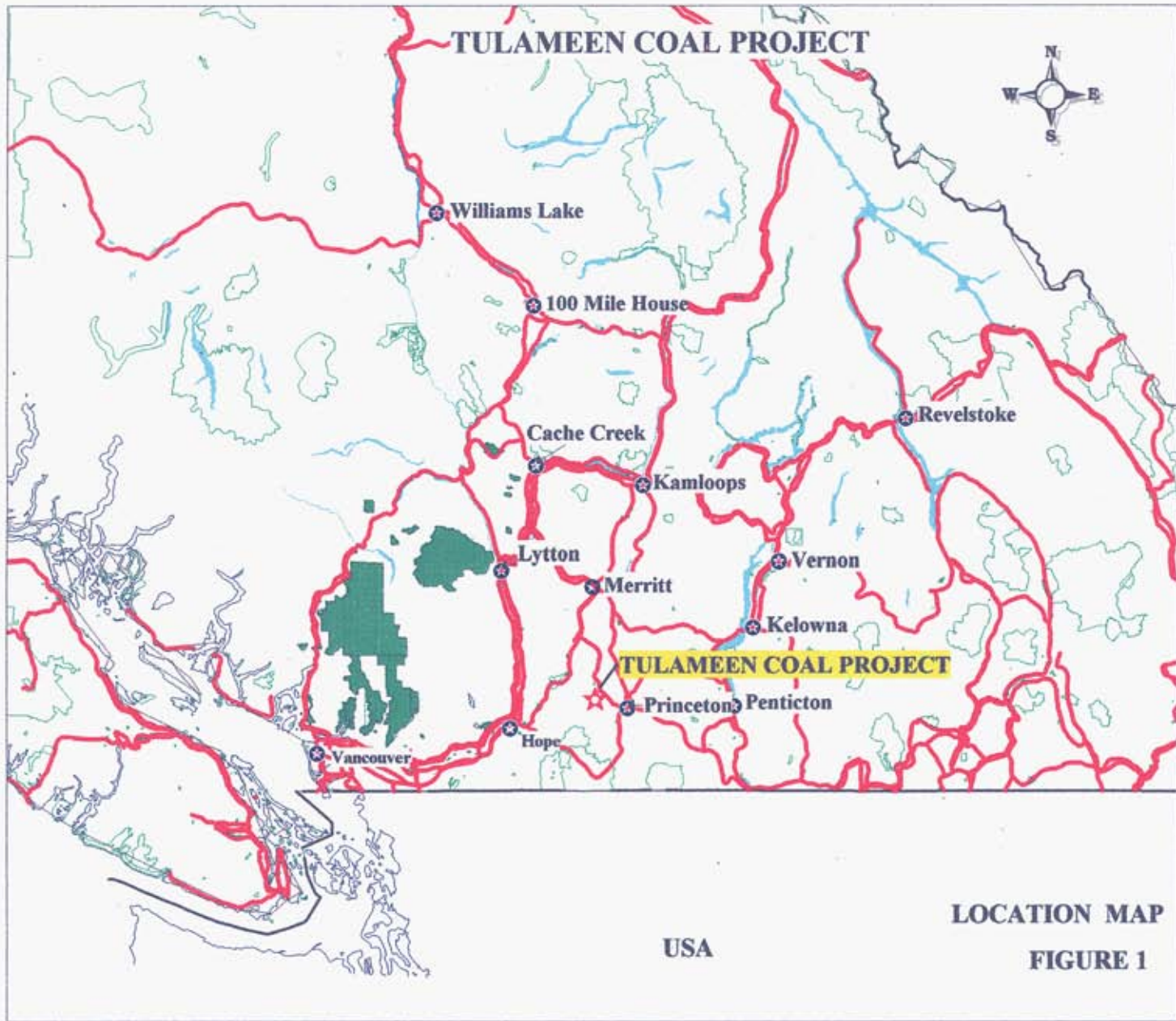
The clean coal would be transported by "B" train trucks carrying approximately 42 to 45 tonnes either to an existing barge load-out on the Fraser River, or another location on the Lower Mainland. The proposed rate of annual production would entail 10 truck trips per day on average.

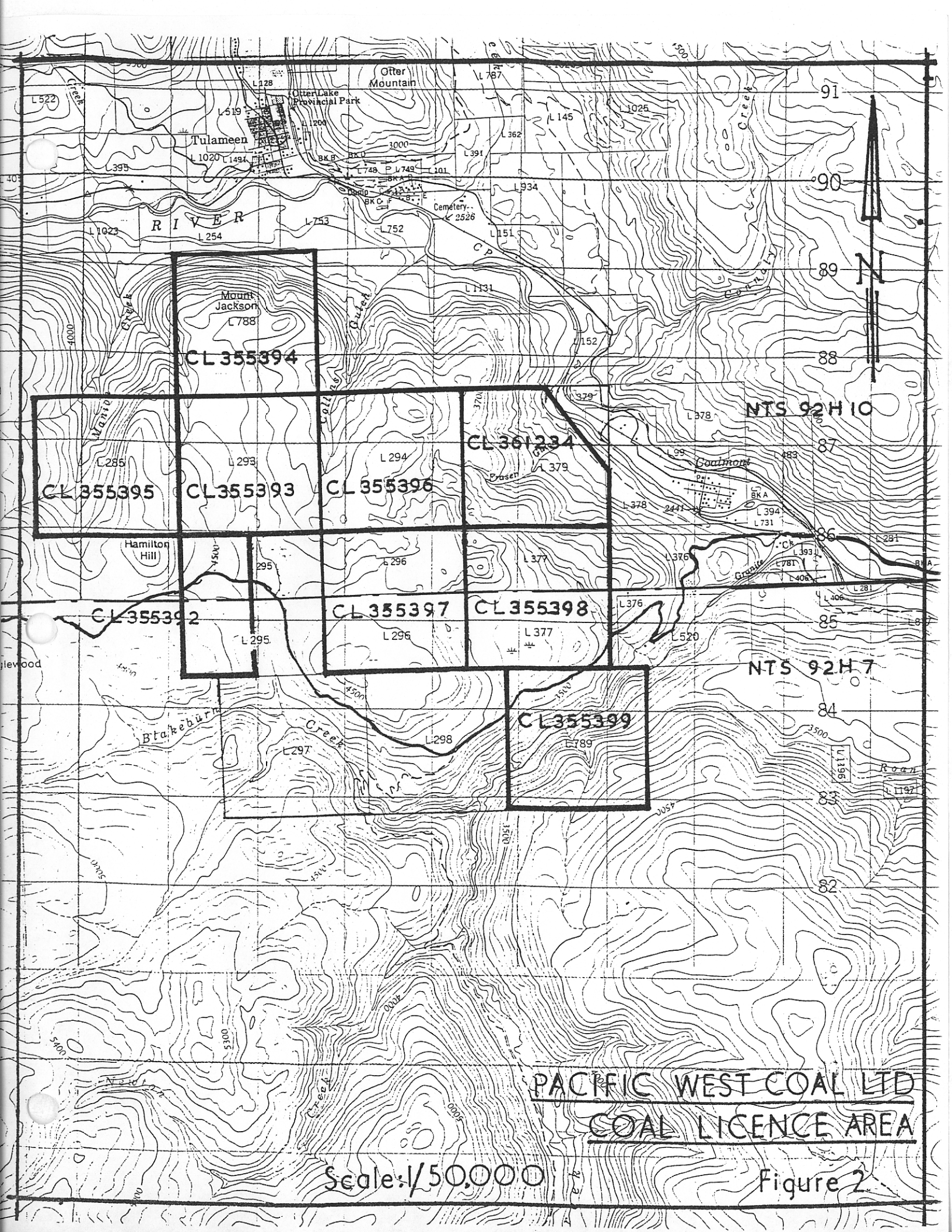
Based on extensive, drilling, trenching and mapping, the property can support an economic, low strip ratio open pit mine. The majority of the overburden can be excavated and removed by a combination of scrapers and bulldozers without drilling and blasting, and the seam mined by selective in-pit mining.

Royal Scot's management has a strong background in geology, engineering, and coal mine operations. The team has developed metallurgical coal mines in Pennsylvania and West Virginia, and represents the second biggest open pit mining operator in England and Scotland. In the UK, the parent company is a member of the Institute of Environmental Assessment, and a corporate member of the Derbyshire Wildlife Trust, the Durham Wildlife Trust, and the Woodland Trust.

Based on its experience, Royal Scot considers the Tulameen project to be a sound proposal that can be developed in a socio-economic and environmentally acceptable manner:

- It is proposed for an area which has been previously disturbed by coal mining.
- Roads are already in place. no new infrastructure is required for the project.
- The site is at an elevation of 1300 metres, and removed from communities.
- The coal reserves are not acid-generating and no fish-bearing streams are impacted by the proposed development.





PACIFIC WEST COAL LTD
COAL LICENCE AREA

Scale: 1/50,000

Figure 2

-
- Development has been planned so that waste material can be used to reclaim mined areas during the course of operations.
 - The site is already proposed to be harvested by Tolko Industries Ltd. in its current five-year plan.
 - Tulameen could displace coal currently imported from Alberta.
 - The coal has a location advantage over existing coal companies in the northeast and southeast of British Columbia which have higher costs to transport coal to Roberts Bank and Ridley Island, Prince Rupert.
 - The proposal represents valuable replacement employment, contracting and other opportunities for local communities and First Nations in the Princeton and surrounding area, which are experiencing economic hardships.
 - Indicated reserves include 21,000,000 tonnes in the from the Main Coal Seam. As further exploration is completed and markets developed, the property could support a larger operation of longer duration, providing longer-term benefits for the region.

The proposed reclamation program accompanies this Application. An environmental baseline study will be undertaken by a reputable consulting firm commencing in Spring, 1998. This study should be completed by August, 1998.

The 100,000 tonne production level will establish the Tulameen coal in local British Columbia markets with the possibility of increasing this production as markets are tested and expanded.

Exports to the Western USA and the Pacific Rim will also be explored with trial samples over the next few years.

Royal Scot intends to expand its knowledge base by working closely with the local communities and First Nations in the development of this application to the South Central Mine Development Review Committee.

2.0 COAL LICENCE HOLDINGS

Pacific West Coal Ltd. is the holder of nine coal licences on Crown Land covering some 2,172 hectares situated over most of the Tulameen coal basin (Figure2). The company has entered into an Option and Mining Agreement with Royal Scot Minerals Inc., a wholly owned subsidiary of Rackwood Mineral Holdings PLC, to develop part of the coal reserves of the western flank covered by licences CL 355392 and CL 355393.

Mineral claims Roy 3 through 14 were staked over the coal extraction area so that any commercial shale or bentonite found in association with coal extraction could be marketed by the Company.

The following coal licences are held by Pacific West Coal Ltd.

CL 355392	Lot 295 (West ½) 130 ha.
CL 355393	Lot 293 259 ha.
CL 355394	Lot 788 261 ha.
CL 355395	Lot 285 259 ha.
CL 355396	Lot 294 259 ha.
CL 355397	Lot 296 259 ha.
CL 355398	Lot 377 259 ha.
CL 355399	Lot 789 260 ha.
CL 355400	Lot <u>379 226 ha.</u>
	<u>2,172 ha.</u>

3.0 GEOLOGY AND DESCRIPTION OF COAL RESERVES

3.1 *Geology*

The Tulameen basin consists of an oval-shaped synclinally folded sequence of Tertiary sediments including coal seams and volcanics which rest unconformably on a basement of Upper Triassic Nicola Group metamorphosed volcanics and sediments. The coalfield basin is approximately 5.5 km long by 4 km wide.

Underground coal mining was carried out along the south-western margin of the Tulameen basin from 1912 continuously until 1940 by Coalmont Collieries Ltd. in three adjacent mines (underground mines # 3, 4 and 5), as outlined on Map G-1. A small open pit mine was operated in the same area during the mid 1950's by Mullins Strip Mine Ltd. Approximately 2,150,000 tonnes were extracted from the underground workings and 148,300 tonnes were obtained from the open pit.

The primary object of exploration work carried out by other Licence holders since 1977 within the Tulameen basin has been to prove coal reserves that would be mineable at a low stripping ratio. For this reason work has been concentrated (all trenching and drilling, most mapping) along the western margin of the basin. In this area dips are moderate (25-45 degrees E) and, for a considerable strike distance, the topographic slope tends to fall off to the east, resulting in a favourable surface mining situation. The western flank of the Main Coal Seam of thickness 18 metres to 34 metres has been proven for a continuous strike length of 2,500 metres within Pacific West Coal Ltd's coal Licence area. Some 22 metres below the main seam is the lower seam of approximately 7.5 metres in thickness. This seam has not been included in the reserve calculations due to its overall high ash content, but will be further explored and tested.

3.2 *Stratigraphy*

Nicola Group (unit 1) rocks are exposed along the extreme south and eastern sections of the map area. The Nicola Group of Upper Triassic age consists mostly of a varied

assemblage of metamorphosed, highly fractured, quartz and carbonate veined volcanic rocks varying from porphyritic and non-porphyritic dacite to basalt. Also present are minor argillite, tuffs, limestone and chlorite and sericite schist.

Unit 2, the Lower Volcanics, are the oldest Tertiary rocks in the area and they unconformably overlie the Nicola volcanics. This unit consists of a wide variety of generally light coloured, massive to porphyritic and/or fragmental andesite to felsites. This is a very resistant outcrop forming unit. Best exposures are on Hamilton Hill and Jackson Mountain along the western and northern margin of the basin. Total thickness of this unit, in Collins Gulch, is reported to be about 500m.

Unit 3 includes the Tertiary sedimentary strata. Unit 3 can be further broken down into a lower sandstone unit (3a); unit 3b, the coal-bearing member consisting of shales, mudstone tuffs, flows and coal; and an upper sandstone horizon (3c).

Unit 3a is a recessive, poorly exposed, poorly cemented, often arkosic, coarse to fine-grained sandstone, interbedded with minor thin mudstones and shales. The thickness of this unit in the western and northern basin is in the order of 100-150 m.

Unit 3b, the coal member, is about 130m thick along the western margin of the basin. This unit appears to conformably overlie unit 3a along the western and northern portions of the basin but, to the east and south, it progressively overlaps unit 3a and unit 2 to lie directly on the Upper Triassic Nicola Group basement. Using drill cores and electrologs, unit 3b has been further broken down into a number of sub-units (3b1-10). These units are readily identifiable in core and electrologs and have been correlated between all holes in the area drilled. Unit 3b is a very recessive weathering unit with very few natural exposures. In weathered surface exposures (outcrop, road cuts, shallow excavator and backhoe trenches), it is very difficult to differentiate between the various unit 3b shale and mudstone sub-units.

3.3 Main Coal Seam

Unit 3b7 is the Main Coal Seam. This seam was intersected in all twelve diamond drill holes. Drilling was carried out in 1977 along the western margin of the basin, extending from the northern limit of the old underground workings (Mine No.5), northwards to the extreme northern limit of the basin. The Main Coal Seam consists of beds of clean coal up to 3 metres in thickness with varying grades of coal interbedded with numerous thin bentonite, sandstone and shale bands. The thickness of the Main Seam varies from 18 metres to 34 metres within the proposed surface mining area.

The Lower Coal Seam has a mixture of clean coal bands up to 1 metre in thickness interbedded with bentonite and dirty coal bands. Average seam thickness is 7.5 metres.

Individual coal bands consisting of vitrain and clarain predominate (approximately 90% of total), with minor durain and fusain. Nodules of bright clear amber are scattered throughout the coal. The coal has well developed bedding and cleat.

The 3b coal-bearing sediments are conformably overlain by the Upper Sandstone (unit 3c). This is a thick (600m) interval of granule conglomerates and coarse

sandstones with minor interbeds of shale and mudstone. The conglomerates and sandstones are generally light grey in colour, with a white muddy matrix.

The Upper Volcanic rocks (unit 4) is made up of dark brown to black, fine-grained, primarily massive basalt. A few exposures are vesicular and amygdaloidal. Some pillow structure was noted. The basalts form a flat-lying sheet in the order of 100m thick which occupies most of the southern half of the basin. The limits of this sheet are generally well-defined by cliffs. A small, thin, erosional remnant of this basalt sheet occurs along the north-western margin of this basin, overlying the unit 3b coal-bearing member between drill holes T-77-6 and T-77-9.

3.4 Structure

The Tertiary sediments are folded into an asymmetric, Northwest trending synclinal structure. In the area of the old underground mines along the Southwest margin of the basin, the beds dip between 20 and 25 degrees to the Northeast. To the north of this area, between Sections 1 and 5 in the area of proposed surface mining, dips increase from 25 degrees to 45 degrees. The beds tend to flatten to about 20 degrees around most of the eastern margin of the basin.

A major Northeast trending fault zone exists between the abandoned No. 3 and No. 4 underground mines. This fault zone is noted in descriptions of the old underground workings and can be seen by the surface offset of unit 3b horizons. A similar major Northeast fault zone has been described as forming the Southeast limit of the No. 3 underground mine. No surface evidence of this zone has been seen. No faulting of significance was seen involving unit 3b between Section 1 and Section 5. To the north of Section 5, numerous small scale faults and drag folds are found, although no major displacements are indicated.

3.5 Tulameen Basin - Geologic Formations

See Appendix 2

4.0 EXPLORATION INFORMATION

As previously noted the Tulameen coalfield was worked by underground mines from 1909 to 1940 and by open pit between 1954 and 1957. Information from the abandonment plans and Chief Inspector's Annual Reports from these previous operations has been used together with the following additional material.

Between 1974 and 1983 a variety of assessment reports, consultants' reports and Geological Survey Branch Minfile reports are available for verification of exploration work carried out during that time. Cyprus Anvil Mining Corporation explored the property 1976 - 1982 and concentrated their exploration efforts on the western flank of the main seam outcrop. Surface mineable reserves were confirmed of 11,232,000 tonnes at a 3.0:1 stripping ratio (m3 waste

rock: raw tonne coal) along a strike length of 1,500 metres and 21,000,000 tonnes at a 4.0:1 ratio along 2,300 metres of outcrop.

The exploration in 1977/78 consisted of 12 cored drill holes, trenching, bulk sampling with extensive analysis, pilot plant washability test and pilot scale combustion evaluation by CANMET. The approved in-fill exploration program in 1998 by Royal Scot Minerals Inc., aims to verify previous work by others and successfully produce a saleable coal to meet customer specifications.

A list of reports on coal reserves and qualities, held on government open file, is given in Appendix 1. The proposed mine development plan is predicated on this information.

5.0 COAL RESERVES

Detailed reserve calculations have been made for the proven coal within the proposed initial open pit. The strike extent is 1,300 metres in length commencing to the south where the main seam enters CL 355392 some 200 metres south of Section 2 and extending 200 metres north of Section 5. The coal seam dip ranges from 28 degrees in the south to 45 degrees in the north, with a true seam thickness from 18 metres to 34 metres. Measured recoverable coal reserves in this section total 2,915,000 tonnes at a 1.03:1 stripping ratio, excavated to a depth of 60 metres from the surface. By in-pit selective mining of the clean coal bands from the dirtier coal and shales within the seam, it is feasible to produce an acceptable quality coal to meet customer's requirements.

Based on a production level of 100,000 tonnes per year this development plan would have reserves for well over 15 years. (Drawing M-98-1)

Recoverable coal reserves along a 1,500 metre strike length have been calculated as follows:

7,418,000 tonnes at 2.0:1 Ratio (m³ waste: raw tonne coal)
9,240,000 tonnes at 2.5:1 Ratio
11,232,000 tonnes at 3.0:1 Ratio

A raw coal density of 1.64 has been used to calculate the in-situ tonnage, less 5% pit loss, to obtain the recoverable coal reserves. The company intends to submit notice of work applications to carry out further exploration along the west and north flanks of the main seam outcrop to more clearly define the coal reserve potential of the licence area.

6.0 MINE DEVELOPMENT

The proposed mine area is indicated on the air photo (Figure 3) at elevations of between 1250 and 1450 m. Access will be from the Blakeburn Forest Service Road in the Blakeburn Valley. Short access roads will be constructed to the proposed minesite from the Blakeburn Forest Service Road at the 10km marker.

The mine area indicated on the air photo provides an ideal situation for coal extraction as the slopes are gentle and no watercourses flow through the area.

The total strike length over the life of the mine (15 years) is approximately 1300 m. The coal seam will be mined in three 20 m benches to a depth of approximately 60 m. The mine plan

is in three phases. The first phase entails mining the portion of the seam which is located south of the existing Blakeburn Forest Service Road 200 m along the strike length to a depth of 60 m. The 500 m along the strike length North of the Blakeburn road will also be mined to a depth of 20 m during this phase. The second phase of the mine plan entails mining 1300 m along the strike length for a depth of 40 m. The third phase of the mine plan entails mining 1300 m along the strike length to a depth of 60 m.

Phase 1 of the mine plan will result in a disturbed area (pit, roads, dumps and stockpile) of approximately 24 ha. Phase 2 of the mine plan will disturb an additional 13 hectares and phase 3 an additional 18 hectares. The cumulative total surface disturbance at the end of Phase 3 (15 years) is 55 hectares.

Drawing Nos. M-98-1 and M-98-2 show the pit excavation area, waste dump, etc. with pit cross-sections. As the main seam dips at between 28 degrees to 45 degrees it is planned to follow the footwall down dip and bench the rock above the hanging wall of the seam. The excavation would form a trench as benching progressed to the east and north. Benches would be in rock, 10 metres high by 8 metres in width, with an overall angle of 50°. The footwall of the seam is a medium to fine grained muddy sandstone which should not require benching. Any loose material will be removed and the footwall scaled as the coal seam is removed. The bottom of the trench would be formed by the coal seam varying in width from 30 to 40 metres.

It is planned to use a back-hoe excavator to selectively separate the inter-seam partings of shale and bentonite from the clean coal. The individual coal seams will then be excavated in turn by a hydraulic face shovel which will load the clean coal directly onto off-road trucks for transportation to the run of mine coal stockpiles prior to further processing and secondary treatment. The depth of coal removed per lift will equal the bench height of 10 metres. It is expected that the coal will not require any blasting to loosen it before loading out.

Mine development is planned in three phases of five yearly increments.

Phase 1 (0 - 5 years) Drawing M-98-3

Covers an area 200 metres south of Section 2 and extends 500 metres north of the main logging road to Section 4. The main seam would be excavated to 60 metres vertical depth to the south of the main logging road and parallel the Coal Licence boundary. On completion of this southern excavation a totally enclosed pit area of approximately 525,000 sq. metres (3.5ha) would be available as a retention area for site run-off water, waste bentonite, coal rejects, or waste rock. Due to the strike direction of the coal seam and the proximity of the Coal Licence boundary, no further increase in pit depth is possible in this 3.5 hectare area. The area to the north of the logging road would be excavated to a 20 metre vertical depth in Phase 1. The logging road in its present position sterilizes approximately 230,000 tonnes of recoverable coal. During Phase 1 mining the logging road would be moved over and this coal section mined out and the road re-positioned.

Phase 2 (5 - 10 years) Drawing M-98-4

Continues main seam excavation along the outcrop for an additional distance of 500 metres to Section 5 + 200 metres to a depth of 40 metres and increases the depth to 40 metres along the initial Phase 1 section (500m). At the end of Phase 2 development the trench would be 1000 metres in length North of the logging road and 40 metres deep.

Phase 3 (10 - 15 years) Drawing M-98-5

The 1000 metre long trench would be excavated to 60 metres cover depth.

6.1 Summary of Pit Phases

PHASE 1

20 m depth for 500m strike length

60 m depth for 200m strike length (South end)

Selectively mined = 386,000 tonnes

Secondary cleaning = 579,000 tonnes

Total r.o.m. coal = 965,000 tonnes

Overburden 775,000 cu.m.

Strip Ratio 0.80:1 cu.m./tonne

Site disturbance 24 hectares

PHASE 2

40 m depth for 1300m strike length

Selectively mined = 448,700 tonnes

Secondary cleaning = 527,800 tonnes

Total r.o.m. coal pH 2 = 976,500 tonnes

Overburden 545,000 cu.m.

Strip Ratio (pH 2) 0.56:1 cu.m./tonne

Site disturbance 13 hectares

PHASE 3

60 m depth for 1300m strike length

Selectively mined = 440,300 tonnes

Secondary cleaning = 533,200 tonnes

Total r.o.m. coal (pH 3) = 973,500 tonnes

Overburden 1,700,000 cu.m.

Strip Ratio 1.75:1 cu.m./tonne

Site disturbance 18 hectares

CUMULATIVE TOTALS

Selectively mined = 1,275,000 tonnes

Secondary cleaning = 1,640,000 tonnes

Total r.o.m. coal = 2,915,000 tonnes

Overburden 3,020,000 cu.m.

Strip Ratio 1.03:1 cu.m./tonne

Site disturbance 55 hectares

6.2 Summary of Recoverable Coal and Overburden Quantities (10-15 Year Plan)

- Recoverable coal to a 60m cover depth and 1,300m strike length
= 2,915,000 tonnes

Selective mining, primary cleaning/screening = 1,275,000 tonnes less 5% screening rejects = 1,211,000 tonnes cleaned saleable coal.

- Recoverable coal for secondary cleaning = 1,640,000 tonnes.

Total Overburden - (waste rock, shale, till and soil)

= 3,020,000 cu.m.

Strip Ratio = 1.03:1 (cu.m. Waste : Recovered coal[tonnes])

- Till material included in waste rock = 350,000 cu.m.
- Soil salvage at 0.2m thickness (av.) = 90,000 cu.m.

Total site disturbance (15 yrs) = 55.0 hectares

(Pit area, road, dumps, stockpile areas)

6.3 Drilling and Blasting

The hanging wall of the Main Coal Seam is composed mainly of shales, mudstones and sandstone, it is expected that this rock can be ripped and dozed by a size D9/D10 type bulldozer with ripper attachment. It is estimated that up to 75% of the rock can be removed by this method, especially in the first 60 metres depth of cover.

Approximately 25% of the waste rock has been budgeted for conventional drill and blast methods.

For start-up drilling a track mounted Airtrack drill of 7.5cm (3 inch) hole size will be sufficient, using ANFO (Ammonium Nitrate and fuel oil) as the prime explosive. For wet holes a 6 mil plastic liner may be used to line the holes before loading with ANFO. Charges will be detonated using TNT primers and delay timers to achieve optimum blast performance. If a larger hole size is required a conventional rotary blast hole drill up to 23cm (9 inch) in diameter will be used. It is estimated that the project may not require enough ANFO to justify permanent facilities, so explosives material will be brought in on a contract basis as required. However, if explosives are to be stored on site then an application for an explosives storage and use permit will be made to the District Inspector as per Section Part 8 of the Health, Safety and Reclamation Code for Mines in British Columbia.

The bulldozer ripping and limited blasting system will be designed to develop stable pit walls and benches in accordance with the mine plan.

Overburden Removal

Once the trees have been logged from the Phase 1 disturbance area, the ground will be grubbed and cleared of tree stumps and woody debris and disposed of by burning if allowed by the Ministry of Forests.

Soil and organic material of approximately 0.2 metre thickness from the forest floor will be removed from the mining and waste dump areas and stockpiled for future use on disturbed slopes during reclamation. It is expected that topsoil will be dozed into piles and placed adjacent to the waste rock dump area. Overburden till material varies in depth from 2.1 metres to 5.0 metres and overlies the bedrock and coal outcrop. It is intended to move this till material by scrapers and stockpile adjacent to the waste rock dump.

Rock overlying the Main Coal Seam will be removed as outlined in the Drilling and Blasting Section of this report.

A waste rock dump will be formed in stages as shown on Drawings M-98-3 to M-98-7

An application for a permit to construct a waste dump or impoundment shall be made to the Chief Inspector as per Part 9 of the Health, Safety and Reclamation Code for Mines in British Columbia.

Rock will be loaded by a front-end loader into rear dump trucks of 50T to 85T in size. Bentonite layers will be saved where practicable and stockpiled separately for sampling and future sales, as the markets for this material are explored. The site reclamation plan is dealt with later on in the report. The bentonite stockpile will be controlled to prevent run-off from those areas.

6.5 Bulk Sampling

A bulk sample and in-fill core drilling program was approved in 1997 and in Spring 1998 work is expected to commence. The bulk sample of 10,000 tonnes will be extracted from existing trenches, opened in 1976/81. This coal will be selectively mined to demonstrate as near as possible the actual mining method for production tonnage. The coal will be screened and sized and trucked to potential buyers for test burns in their cement kilns and other processes.

The drill cores will be analyzed and correlation made with the coal trenches for each coal zone for quality consistency in the selective mining method.

(Coal Trenches Drawings CT-1 to CT-5)

6.6 Mine Operations

Royal Scot Minerals Inc., a wholly owned subsidiary of Rackwood Mineral Holdings PLC, will carry out the mining operations. Both Royal Scot and Rackwood are

engaged in coal mining operations in the U.S.A. and the U.K. Local labour and sub-contractors will be hired for the mining and trucking operations. With the low stripping ratio of waste to coal and a production level of less than 100,000 tonnes per year the mine will only operate for about eight months of the year, closing down for the winter months.

6.7 Equipment List

It is proposed that the project will require the main equipment as listed below to develop the coal reserves. Manufacturer's models are listed for size only.

<u>Description</u>	<u>Number of Units</u>
14 G Cat Grader	1
Water Truck	1
Fuel Truck	1
Maintenance Truck	1
CAT 375 L ME Backhoe Excavator	1
225 Cat Backhoe	1
Off Highway rear dump trucks (50T - 85T)	3
D9/D10 Cat Dozer (ripper)	1
CAT 966 front end loader	1
CAT D400 or Volvo equivalent	3
Light Plants	2
Generator sets	2
Bradford Breaker	1
Mobile Screening and Crushing Plant	1

6.8 Buildings and Structures

Any buildings will be of a temporary nature and consist of trailer units to house the mine site office, first-aid, toilet facilities, meeting and lunch room and warehouse supplies.

The crushing and screening plant will be mobile and fitted with covered chutes at dust generating points. Should dust be a problem in spite of the good housekeeping practices then water sprays will be fitted where necessary. The site will be gated off the logging road and suitably signed and protected to prevent inadvertent access by the public.

6.9 Water Management

Perimeter ditches will be cut around the above active mine areas so that surface run-off water is conveyed into existing drainage patterns and carried away from the active mine area. Ditches will also be constructed as part of the haulage road system and around stockpile areas and waste dumps. Surface water run-off from these

development areas will be collected and directed into settlement ponds to avoid any silt discharge off the site.

The settlement ponds will consist of pre-sedimentation cells to remove coarse sediment and a secondary cell for the finer material to settle out. The configuration of the cells will allow for the installation of a flocculation facility, should it be required. The sedimentation ponds will be designed to treat run-off resulting from the maximum 1 in 10 year, 24 hour rainfall event. Flows in excess of the design discharge may be diverted around the facility to preserve its stability and prevent the re-introduction of settled solids into natural watercourses. Pit water encountered in the coal trench excavation will be directed to the south end of the pit and away from the loading area. A sump will be excavated at the low end of the trench at each 10 metre bench elevation. The sump water will either filtrate through the coal bed or be pumped out to the settlement pond. Once the pit area to the south of the logging road has been mined out to the 60 metre cut off depth, this area could be used to impound the majority of silt laden water from the site. Details of the proposed settlement pond system are shown in Figure -WM-1.

6.10 Haul Roads

In-pit mine haul roads will be designed as per Part 6 Section 6.8.1 of the Health Safety and Reclamation Code for Mines in B.C. Road widths will be a minimum of three times the width of the haul trucks used and be constructed with a safety berm and a ditch. The topography is relatively flat lying and only the haul road carried into the coal trench will have any significant grade. This access road into the trench will be re-graded for each 10 metre drop in elevation of the trench, to the 60 metre depth. In-pit ramps may be designed at 8% or less wherever possible but a maximum grade of 10% will be used when necessary.

6.11 Mine Access and Coal Transportation

The access to the mine area is at the 10 kilometer marker along a M.O.F. logging road from the town of Coalmont. This road is an all weather gravel road used by various logging companies to access timber cutting blocks. The first 6 kilometers of the road is a gazetted road and maintained by the Ministry of Transportation and Highways as far as the old Blakeburn settlement. A Road Use Permit will be required from the M.O.F. for commercial use of the Forestry Road. Highway coal trucks using the logging road will be equipped with mobile radios on the Forestry channel and cellular telephones to co-ordinate truck movements with other road users. Some upgrading may be required along the 10 km length of roadway to improve truck passing bays and corners. Highway type gravel trucks with pup trailers will be used to move the coal off the site directly to the customer or to an intermediate stockpile in the Princeton area. Highway "B" train trucks of up to 45 tonnes capacity would take the coal from this stockpile to customers in the Lower Mainland area.

A request has been made to Similco Mines to use an area for coal storage close to the soil remediation plant. The storage area required would accommodate around 50,000

tonnes. At the present time the "B" train trucks bringing contaminated soil from the Lower Mainland to the remediation plant do not have a regular backhaul load. The coal moving to the Lower Mainland would provide this backhaul to the mutual benefit of the companies and minimize truck traffic on Highway No. 3.

6.12 Coal Preparation

The major part of coal cleaning will occur in the pit by selectively mining the clean coal bands within the seam. The mined coal will then be put through a rotary Bradford Breaker (size 2.7m x 4.9m) to remove any in-pit rock contamination. The coal will be reduced to a maximum size of 100mm (4 inches) and passed over screens for product sizing to stockpiles.

The Bradford Breaker is a revolving drum with perforations, somewhat like a trommel and has the capability of:

- (a) Breaking soft to medium hard coal to a maximum size, governed by the openings in the screen plates.
- (b) Removing oversized material from the coal.

A typical Bradford Breaker operates as follows:- Run-of-mine coal will be loaded into the breaker and smaller sizes will be screened out immediately, through the Bradford perforated screen plates. Larger lumps will be raised by means of radial lifting shelves and dropped with gravity impact breaking the coal as it falls onto the heavy perforated screen plates. The coal tends to break along normal cleavage planes, with a minimum of fines, because of the low force used in fracturing the coal.

The breaker removes shale, rock and heavier material than coal which travels through the breaker and is discharged. Product size may be changed by installing screen plates with the required size perforations.

The Breaker and screening facility will be sized for a throughput of 100 tonnes per hour of run-of-mine feed. A front-end loader will feed the Breaker hopper and clean up around stockpiles and waste rock discharge conveyor.

Water will only be used as necessary for spraying to suppress dust at transfer points and chutes. The dirtier in-seam coal will be trucked out of the pit and stockpiled for secondary treatment at a later date. Tests will be made with this run-of-mine material to determine the best method of cleaning to achieve a saleable product. Because of the presence of bentonite and clays within this material, the introduction of water and conventional wash plant treatment will be carefully studied before any large capital investment is made in a preparation plant. Dry cleaning methods will be tested as part of the secondary treatment study.

6.13 Coal Quality

A detailed sampling and quality testing program was carried out on the main seam by various consultants between 1977 - 1981 to determine the coal characteristics and combustion performance of the coal. Results from these tests show the coal to be a

high volatile bituminous B and C rank thermal coal with a low slagging and fouling index and a low sulphur content. The coal is ideal fuel for use in rotary cement kilns and in thermal coal fired power plants.

A typical clean specification range is given below:

Moisture (as received)	8 - 10%
Ash	11 - 13%
Fixed Carbon	50 - 60%
Volatile Matter	30 - 40%
Sulphur	0.2 - 0.5%
Heat Value	10,500 - 11,500 B.Tu/lb 5,850 - 6,400 K Cal/kg
Hardgrove Index	50 - 60

In 1926 the Ministry of Mines tested the Coalmont Collieries product from mine No. 's 3 and 4 which analyzed as follows:

Moisture (as received)	5.6%
Ash	7.6 - 13.0%
Fixed Carbon	54 - 58%
Volatile Matter	26 - 30%
Sulphur	0.2 - 0.28%
Heat Value	11,470 - 11,780 B.Tu/lb

The company has approval for a core drilling and bulk sampling program over the proposed open-pit area and intends to carry out this work in the Spring of 1998. The coal cores and trench samples will be analyzed and correlated by each coal band within the seam so that an assessment of selectively mined quality can be achieved.

Previous companies have sampled and analyzed the whole seam including sandstone, bentonite, shaley and inferior coal bands, all as one unit. When sampled and cleaned without any selective mining the clean coal yields were low and contaminated by the extraneous higher ash material.

Petrographic analyses were carried out on the coal by the Geological Survey of Canada in 1972 that indicated a non-coking potential due to the high percentage of vitrinite and resinite. The rank of the coal tested was classified as high volatile "B" bituminous of predominately vitrain and clarain.

6.14 Workforce

The open-pit mine will use conventional mining equipment and highway trucks to move the coal to the customers. A skilled local labour force is available in the Princeton area for mining, trucking and related jobs. The mining operation is expected initially to employ between ten to fifteen people and an additional fifteen people in contract trucking, totaling about 30 jobs. At the target production level of 100,000 tonnes, it is expected that the mine will only work for about 8 months of the year, with some trucking from the off-site stockpile to supply customers in the winter.

It is expected that with a concentrated marketing effort, and once the coal has been accepted into the market place as good thermal and cement industry coal, a higher production level will be targeted.

6.15 Marketing

The marketing strategy has been formulated over the past few years in tandem with the mine development plans.

Primary users of thermal coal are electricity generating plants and cement producers. British Columbia mainly utilizes hydro-generation, with little demand for thermal coal within the power sector, but there are numerous power-generating facilities in the Seattle-Tacoma area and other parts of Washington State and these markets are currently being investigated and possible transport implications studied.

The largest demand for this type of thermal coal within British Columbia comes from the cement producing plants. The two largest producers, Lafarge Canada Inc. and Tilbury Cement Inc. have provisionally agreed to the supply of a bulk sample for test-burn purposes this summer. The cement market in British Columbia is large enough to consume the currently proposed output. Tulameen coal can be very price competitive in that market as a result of the low distance between the mine and the Lower Mainland. The coal has a low sulphur content and does not easily break up. The resultant low fines content enhances the product's market value.

The supply of the local home market increases the potential to sign long term supply contracts with large, stable companies, thus adding to the financial stability of the project.

6.16 Prediction of Acid Generation

6.16.1 Strata

There is no history of any acid generating strata in this area. Based on visual observations over the past winter both from the air and on the ground along the strike of the old surface workings, there are no apparent indicators of acid generation. The hanging wall above the coal contact shows no evidence of staining. Surface waters in the area have a pH in the slightly basic range (7 to 7.9).

6.16.2 Coal

There is no indication of acid generating coal in this area. Sulphur levels in the coal are considered low (0.2% to 0.5%) and there is no mention of pyrite being present in any of the old reports.

6.16.3 Static and Kinetic Tests

Tests will be completed on core samples from the drilling program and from the bulk sample as part of the Environmental Baseline Study to determine the potential for acid generating materials on the property. Development of the terms of reference for this work will be done with the input of the Ministry of Employment and Investment, Energy and Minerals Division.

6.17 Stockpiling of Surface Soils

Once detailed mining plans have been finalized, overall soil requirements will be determined. Soil materials will be segregated into two separate classifications. The higher quality upper soils along with surface logging litter will be kept separate from the lower quality deeper soils. Approximately 0.2 meters of the surface soils will be salvaged. If additional soil materials are required, then an additional volume of the deeper till material will be salvaged and stockpiled separately. Surface disturbance will be kept to a minimum in order to minimize the length of time that soils have to be stockpiled. It is possible that after the initial soil stripping operation and stockpiling, that future salvage material can be directly placed on recontoured ground, rather than stockpiling. Preplanning will ensure that soils are handled in the most efficient manner. All soil stockpiles will be located so that they will not be disturbed until they are required and will be immediately seeded in order to reduce erosional losses.

6.18 Protection of Watercourses

Existing watercourses will be protected from siltation and damage by controlling the flows in the areas of disturbance. Drainage and collector ditches will be designed to control stream velocities and erosion during any heavy rainfall.

Pit drainage will be gathered with ditches that will drain into perimeter collector ditches, which will feed into a settling pond area. Pumping of pit waters may be required, and if required discharge points will be designed so as to be non-eroding. Every effort will be made to ensure that surface waters are captured and directed as clean water before they become contaminated with sediment in the pit.

Where required, large rocks will be placed in ditches and riprap made of rock or gabions will be used to reduce the energy of flowing water to minimize erosion. Disturbances resulting from construction will be revegetated as soon as possible to minimize erosion.

6.19 Prediction of Effluent Quality for All Disturbances

A water monitoring and sampling program will be in place over the life of the mine. Pre development water sampling will determine the baseline water quality standards

for the main water courses surrounding the property. Sediment is expected to be the only potential detriment to water quality. Considering the small size of the operation and the low volume of explosives that will be required, nitrogen losses are not expected to be a concern. At this time, the water flow regime or water quality in the upper Collins Gulch is not known. In its' upper reaches, near the development, Collins Gulch is expected to be ephemeral. On site investigations over the spring and summer will confirm the flow and chemistry characteristics of this watercourse.

There will probably be no major equipment maintenance or large storage tanks on the property for the Tulameen Coal Project. As a preventative measure the decant from the settling pond will be equipped with a device to prevent any hydrocarbons from escaping the pond. Major maintenance will be conducted off-site. Minor lubrication and fuelling will be required inside of the areas of disturbance. This will minimize the amount of fuel contamination in the area. All employees will receive environmental awareness training that will inform them of their responsibilities with respect to fuel storage, handling and spill reporting.

Portable sewage facilities will be used and sewage will be pumped into a sewage disposal tank truck and hauled away to a local facility.

6.20 *Monitoring and Maintenance*

This program will be integrated with the environmental baseline study.

7.0 THE ENVIRONMENT

7.1 *Lakes and Streams*

There are no major watercourses or springs identified within the proposed development area. However, Blakeburn Creek is located approximately 1km south of the development, an unnamed tributary of Blakeburn Creek flows approximately 100 m south of the proposed development area and the headwaters of Collins Gulch are located approximately 400 m from the proposed development area. It is anticipated that the upper reaches of this creek are ephemeral for all but the peak flow periods in the spring. Granite Creek parallels the Blakeburn Forest Service Road. This road will likely be used by mining operations.

There are no major fish-bearing streams or fish habitats identified in the vicinity of the proposed minesite. There are no lakes in the vicinity of the proposed mine development.

7.2 *Nature and Present Users of the Land*

The site of the proposed mine is slightly north of historic mine workings (both surface and underground). A portion of the access road leading to the site is used as a haul road for three forest companies: Weyerhaeuser, Tolko and Ardew. The proposed

minesite lies within the operating area of Tolko Industries Ltd. and a cutting permit is being developed for the area with logging to commence in 1998. Figure 2-A shows the proposed new cutting blocks and their relation to the development.

Significant snowmobile use was observed on the Blakeburn Road during the reconnaissance flight on January 20, 1998. The Collins Gulch Recreation Trail is located on the south-eastern periphery of the proposed development. The area is also within a grazing licence, a registered trapline, and a licensed guide outfitter territory. The land is also used by resident hunters, but there is no potential for fishing. Coal licences owned by others are also present to the south of the proposed minesite.

7.3 Climate

Average temperature and precipitation data for the years 1988 - 1997 has been acquired from the Environment Canada weather station at the Princeton Airport (Table 1). This weather station is approximately 26 km east of the proposed minesite and is approximately 660m lower in elevation. The actual precipitation and temperature data for the proposed minesite may vary slightly from these figures due to elevation changes and distance from the weather station. Average temperatures ranged from a high of 17.7° C in July to a low of -7.2° C for January. Monthly precipitation ranges from a low of 17.0 mm in March and April to a high of 47.2 mm in November.

Mean monthly maximum hourly wind speed and direction data was also acquired from the Environment Canada weather station at the Princeton Airport (Table 2). Winds from the southwest to west are prevalent. Wind patterns, however, could be significantly different at the proposed minesite than at the Princeton airport.

Table 1. Average monthly precipitation (mm) and temperature (°C) for Princeton, 1936 - 1996 (Environment Canada, 1998)

Month	Precipitation (mm)	Temperature (°C)
January	46.5	-7.2
February	30.2	-3.1
March	17.0	1.8
April	17.0	6.5
May	25.5	10.9
June	32.5	14.6
July	26.7	17.7
August	25.7	17.2
September	20.5	13.0
October	24.7	6.6
November	41.2	0.7
December	47.2	-5.6

Table 2. Maximum Extreme Hourly Wind Gusts and Direction at the Princeton Airport, 1936 – 1992 (Environment Canada, 1998).

Month	Frequency (%)								Mean Max. Wind Speed (Km/Hr)
	NW	N	NE	E	SE	S	SW	W	
January	2.6	20.5	7.7	2.6	0	7.7	38.5	20.5	29
February	0	30	2.5	5	0	7.5	27.5	27.5	33
March	2.5	5	2.5	12.5	0	7.5	27.5	27.5	35
April	5	2.5	0	5	0	7.5	42.5	35	39
May	2.5	0	2.5	5	0	2.5	30	57.5	40
June	2.5	0	0	0	0	2.5	30	62.5	38
July	15	2.5	5	2.5	0	5	20	50	37
August	12.5	0	0	0	0	5	32.5	50	35
September	7.5	2.5	0	0	0	10	37.5	42.5	36
October	5	12.5	2.5	5	0	10	30	35	35
November	2.5	22.5	7.5	7.5	0	2.5	30	27.5	31
December	2.5	25	10	0	0	2.5	37.5	22.5	28

7.4 Water

The area identified as the site of the proposed mine is located on a gently dipping (20 - 25 degrees) timbered plateau. Topography surrounding the plateau is steep and creeks are deeply incised with steep gradients.

7.4.1 Surface Water

A seepage area through the north-central portion of the proposed minesite was identified by Tolko Industries Ltd. in Silviculture Prescriptions for the site. This seepage flows in a northwest to southeast direction. A small tributary of Blakeburn Creek is located approximately 100 m south of the development and the headwaters of Collins Gulch is located approximately 400 m east of the proposed development area. It is anticipated that the upper reaches of this creek are ephemeral for all but the peak flow periods in the spring.

7.4.2 Ground Water

Old surface mine workings immediately south of the proposed mine development provides an opportunity to examine the rock lithology and potential ground water concerns. The bottom of these old surface disturbances does hold water, however it is not known at this time if this is the result of groundwater or surface runoff. The mine operations will result in an excavation of approximately 60 meters and no major volumes of ground water are expected to be encountered during the mining process. If ground water does appear, the water will be pumped into the settling pond. Every effort will be made to intercept any ground water before it becomes contaminated with sediment so that water quality can be maintained.

7.4.3 Drainage

The area surrounding the proposed development provides a well-drained environment. Slopes east of the outcrop are gentle for a distance of nearly two kilometers. During the mine operation, a drainage and surface water management program will include collector ditches, culverts, and settling ponds as required. Maintenance of these structures will be an important component of the operation. This plan will be finalised as more detailed mine plans and schedules are developed. Drainage from the Blakeburn Forest Service road is not expected to be a problem since this is a long established road system. Any upgrading of this road due to mining activities will be properly designed and immediately revegetated to control sedimentation.

7.4.4 Water Quality

Water quality background information will continue to be gathered in 1998 to form part of the environmental baseline work. Water quality samples were taken from six separate locations around and downstream of the property on February 23, 1998. Water quality will be monitored throughout the mine life and after the reclamation process.

Table 3. Surface Water Sampling Locations

Station Code	Location
BC2	Upstream of the development on tributary of Blakeburn Cr.
BC1	On Blakeburn Creek just downstream of confluence of BC2 tributary
AC1	On Arastis Creek upstream of bridge. Downstream of Blakeburn Cr.
GC1	On Granite Cr. Upstream of confluence with Tulameen River
TR1	On Tulameen River just upstream with confluence with Granite Cr.
TR2	On Tulameen River just downstream of confluence with Granite Cr.
Station Code	Location (Proposed additional sites)
BC1	Downstream of development on tributary of Blakeburn Cr. Upstream of confluence with Blakeburn Cr.
CG1	On Collins Gulch - location yet to be determined

Table 4. Water Quality Results – February 23, 1998

Parameter	BC1	BC2	AC1	GC1	TR1	TR2	Detection Limits
pH	8.05	7.79	7.97	8.1	7.96	7.9	
Hardness (CaCO ₃)	73	27	82	104	95	93	1
TDS	102	63	105	124	124	126	10
TSS	<	1	<	<	<	<	
Aluminum	0.027	0.17	0.008	<	<	<	0.005
Antimony	<	<	<	<	<	<	0.001
Arsenic	<	<	<	<	<	<	0.001
Barium	0.001	0.007	0.009	0.034	0.025	0.022	0.001
Beryllium	<	<	<	<	<	<	0.001
Boron	<	<	<	<	<	<	0.05
Cadmium	<	<	<	<	<	<	0.0002
Calcium	20.6	7.83	22.9	32.9	30.7	30.1	0.05
Chromium	<	<	<	<	<	<	0.001
Cobalt	<	<	<	<	<	<	0.001
Copper	0.001	0.001	0.002	0.003	<	<	0.001
Iron	<	0.06	<	<	<	<	0.05
Lead	<	<	<	<	<	<	0.001
Magnesium	5.19	1.89	5.93	5.26	4.53	4.29	0.05
Manganese	<	<	<	<	<	<	0.001
Mercury	<	<	<	<	<	<	0.05
Molybdenum	<	<	<	<	<	<	0.001
Nickel	<	<	<	<	<	<	0.001
Phosphorus	0.01	0.03	0.01	0.01	<	<	0.01
Potassium	1.00	0.43	0.99	1.09	0.76	0.56	0.01
Selenium	<	<	<	<	<	<	0.002
Silicon	9.39	12.7	9.46	7.60	8.10	7.06	0.05
Silver	<	<	<	<	<	<	0.0001
Sodium	3.8	5.94	4.53	2.45	2.52	2.48	0.05
Strontium	0.17	0.095	0.18	0.15	0.13	0.12	0.001
Tellurium	<	<	<	<	<	<	0.001
Thallium	<	<	<	<	<	<	0.0001
Thorium	<	<	<	<	<	<	0.0005
Tin	<	<	<	<	<	<	0.001
Titanium	0.001	0.005	<	<	<	<	0.001
Uranium	<	<	<	<	<	<	0.0005
Vanadium	<	<	<	<	<	<	0.001
Zinc	0.014	0.006	0.016	0.006	0.006	0.007	0.005
Zirconium	<	<	<	<	<	<	0.001

7.4.5 Licenced Water Rights

Silviculture Prescriptions for the site prepared by Tolko Industries Ltd. in 1998 state that there are no water licences within or adjacent to the development area.

7.4.6 Hydrology

To date, no hydrologic studies in the vicinity of the proposed mine or on the Blakeburn Creek watershed have been identified. The only other significant stream is Collins Gulch, located East of the proposed minesite. The upper reaches of this stream would appear to have little or no flow except during the peak run-off period. The Water Investigations Branch of the Ministry of Environment operates a long-established snow course (No. 107) near Hamilton Hill. The location of this snow course is shown in Figure 2-A. This snow course is located just over one kilometer to the west of the operations and will not be impacted by the development.

The environmental baseline study will include a detailed assessment and monitoring program to define background hydrological regimes and any hydrological concerns.

7.4.7 Ground Water Quality and Hydrology

Water quality studies will be an integral part of the environmental baseline study. These studies will determine the existing quality of the ground water and surface flows. Values for all forms of water quality will be established from this data.

Monitoring programs will be established in agreement with the Ministry of Environment, Lands and Parks prior to project commencement and will be in operation throughout the life of the operation to ensure water quality.

7.5 Soils and Surficial Geology

The soils in the vicinity of the proposed minesite have been identified as Humo-Ferric Podzols. These soils are well to moderately well drained, have low pH values (4.0 – 5.0), and have moderate to coarse textures (B.C. Ministry of Environment, 1978). The geology of the area consists of folded and faulted volcanic and sedimentary rocks, which are mainly Mesozoic (B.C. Ministry of Environment, 1978).

Soil moisture regimes in the area range from subxeric to subhydric. The south-most portion of the development area is submesic to mesic. The middle portion is mesic to subhydric while the northern portion is submesic with scattered subhydric sections (Tolko, 1998).

Soil textures south of the Blakeburn Road are variable, ranging from sandy loams to sandy clays. Soil textures in the center of the proposed development range from silty loams to sandy loams on the mesic sites, while the wetter, subhydric sites are clayey in texture. Soil textures in the northern portion of the proposed development area are

silty loam to loamy in texture on the mesic sites, while the subhydryc sites are clayey in texture (Tolko Industries, 1998).

7.6 Vegetation

The mine is located in the 02 variant of the MSdm (Dry Mild Montane Spruce) biogeoclimatic subzone. This subzone is characterized by climax zonal sites with stands of hybrid spruce and subalpine fir with minor amounts of Douglas-fir. Seral stands of Lodgepole pine are common. Black Huckleberry, falsebox, Utah honeysuckle and buffaloberry are common shrubs. Grouseberry and pinegrass are common herbs. Site series in the vicinity of the minesite range from 04 (subxeric) to 05 (subhydryc) with the dominant site series being 01 (mesic). Lodgepole pine is the dominant tree species, with hybrid spruce and Douglas fir being secondary species. These stands are 101 – 140 years old, are between 19.5 and 37.4 m in height and have a crown closure of between 56 and 85%.

No rare or endangered plants or plant communities have been identified within the proposed mine area. However, rare plants and plant communities have been identified in the area from Olivine Mountain across the Tulameen River up to Grasshopper Mountain, eight kilometers from the site and unaffected by the proposed development.

7.7 Fisheries

There are no identified fisheries values within or adjacent to the proposed minesite. It is expected that the gradient of Blakeburn Creek is too steep to support fish in all but the lowest reaches. A recent fish inventory found that the upper reaches of Collins Gulch were non-fishbearing.

Granite Creek and the Tulameen River are located approximately 1.5 and 8.5 km downstream of the proposed minesite and fisheries values are present (D. Jones, pers. comm.). Fisheries values in this system include populations of rainbow trout and mountain whitefish. The Tulameen River upstream of the proposed minesite also supports two fish species on the Provincial “blue” list (mountain sucker and mottled sculpin) and one species on the provincial “red” list (Umatilla dace; Conservation Data Center, 1998). Species on the blue list are considered vulnerable due to characteristics that make them sensitive to human activities, while species on the red list are considered to be extirpated, endangered or threatened in British Columbia. All drainage controls and settling ponds will be designed to accommodate the effluent requirements of the Ministry of Environment, Lands and Parks and Federal Fisheries. A fisheries inventory will be undertaken as part of the environmental baseline study.

7.8 Wildlife

The majority of the area surrounding the minesite is classified by the Canada Land Inventory as having moderate limitations to the production of ungulates. Excessive snow depths in this area reduce mobility and availability of food plants. The area is a

potential summer habitat for elk, mule deer and moose. Although not classified as winter range, a moose was observed near the old mine workings on January 20, 1998. A portion of the haul road traverses land that is classified as class 3 mule deer winter range. Lands in this class have the capability to support 5 – 11 mule deer per square kilometer per year. During the initial tour of the mine property, some mule deer use was evident on these slopes. Both black bears and cougar are also expected to use this area, as are several species of furbearers, including pine marten, squirrels, coyotes and weasels.

Sensitive or vulnerable (blue list) species that may inhabit the proposed minesite include the mountain beaver (Chutter, pers. comm.) and the Cascade golden mantled squirrel (Conservation Data Center, 1998). The minesite is within suitable habitat for the mountain beaver, but not located within a center of its known distribution. Mountain beaver are more common in the ESSFmw biogeoclimatic zone, with preferred habitat including wet seeps and meadows (Chutter, pers. comm.). This animal is almost exclusively nocturnal and very sedentary, rarely venturing farther than 50 m from a nest site (Taylor, pers. comm.). The Cascade golden mantled squirrel has been observed on Blakeburn Road and near the town of Coalmont (Conservation Data Center, 1998). Cascade mantled squirrels prefer areas of broken, rocky ground. This species typically uses forests that are of low quality for timber harvesting because of their open, sparse nature and the amount of exposed ground and soil.

A Red and Blue-Listed small mammals species inventory of Tolko Industries Cutting Permit 130 was undertaken in 1997 by Okanagan Wildlife Consulting. CP 130 also encompasses the proposed mine development area. The inventory did not identify any red or blue listed species within the development area. However, three active mountain beaver burrows were identified in the vicinity of the proposed mine development, with the nearest being located approximately 600 m to the north.

8.0 LAND CAPABILITY AND PRESENT USE

8.1 Agriculture

The land surrounding the proposed mine development is only capable of producing forage for cattle grazing. This area is affected by adverse topography, with either steepness, or the pattern of slopes, limiting agricultural use. The proposed development area is within a grazing Licence area. At present, grazing use within the area is low due to access and forest cover.

8.2 Forestry

The land surrounding the proposed minesite has moderately severe to severe limitations to the growth of commercial forests. The production of these lands is usually between 0.8 and 4.9 cubic meters per hectare annually. Tolko Industries is currently developing a cutting permit in close proximity to the proposed mine. A total of six cutblocks has been proposed in the vicinity of the minesite, but only one is within the proposed development area.

8.3 Recreation

The proposed minesite currently supports a moderate amount of outdoor recreation. Hunting is the main form of recreation during the spring and fall, while snowmobiling is the primary winter activity (Beech, pers. comm.). Also, school children collect leaf imprints near the old mine workings, which are 4km south of the proposed development (Beresford, pers comm.).

Another feature in this area is a cabin that has been built just off of the Blakeburn Road, a few kilometers above the proposed development. Hiking and backpacking are also activities in the area. The Collins Gulch Recreation Trail is in very close proximity to the proposed development. Some ATVing also occurs in this area along the old mine trails. For forestry purposes, this area has been designated as Management Class 1, which requires special management considerations to protect or maintain the recreation values that are noted.

9.0 PROTECTION AND RECLAMATION OF THE LAND AND WATER COURSES

The mine operations will be monitored according to conditions set in the permit. Monitoring and surveillance of future developments will be assessed during the environmental baseline study.

The purpose of the reclamation plan is to clearly state Royal Scot's strategy and commitment to reclaim disturbances associated with the mining activities at the proposed Tulameen Mine. As proposed, the mine will disturb approximately 60 hectares over the projected mine life of 15 years. Rackwood Colliery Company has made a strong commitment to reclamation for their operations in the United Kingdom and will continue this commitment to this operation.

Finalization of the end land use objectives for this development will be determined as part of the approval process. Options for this end land use includes forestry, wildlife, grazing, or a combination of these components. The main pre-mining use is forestry, with other uses including grazing, trapping, and assorted recreational uses. These include snowmobiling, hunting and hiking. It is Pacific West's intention to return the land to a productive state in as short as time as possible. It is also recognized that many of the habitat components that make up the current landform may never be totally recreated or may take several decades to be reestablished. By recontouring the dumps, respreading soil materials, and revegetating the area, the natural processes are given a kick start on the way to self sustaining vegetative cover.

Diversity in all its' forms is critical to the long term success of any reclamation process. The mining and reclamation process will remove much of current diversity and replace it with a more homogenous environment. Landforms will be replaced with smoothed out contours and vegetation will be much less diverse that what now exists. The main goal of the reclamation process is to reduce erosion and to permit the ecological successional processes to start over again. Landform diversity can be partially achieved during the final dumping and resloping process. Strategically freedumping on the top of the dump will allow the creation of a more rolling topography than if the dump top was not modified. The diversity

of aspects thus created will also allow different vegetation communities to develop over time. During the revegetation process it is possible to include many different grass and legumes into the seed mix, and planting of various native woody species as well as the normal commercial forestry species will allow for some of the original diversity to be reestablished.

Sufficient soil materials will be salvaged to ensure coverage of all disturbed lands. Soils will be initially be stockpiled and it is anticipated that once the mining commences, it will be possible to direct place soil materials on portions of the resloped areas. All soil stockpiles will be revegetated immediately. The final end land use will be the determining factor for the depth of soil materials that will require placement. It is anticipated that areas that will be replanted to forest cover will require a greater depth of soil materials than areas designated for grasslands. The soil survey will determine the suitability of the till as a reclamation medium.

All angle of repose slopes on the external rock dump will be recontoured to a 27° slope prior to the spreading of soil materials. Soil spreading will be scheduled so that seeding can follow immediately. At the present time, plans are to backfill the small pit south of the Forest Service Road with reject material from the screening process. Mining of the coal under this road is currently being investigated. Detailed mining plans and scheduling of the various phases of the entire pit are not yet available and depending on the mining plan, back filling of portions of the north pit may not be feasible.

Once detailed mining plans and schedules have been developed it will be possible to develop a detailed reclamation schedule for both the external dump and any portions of the pit that may be backfilled.

Following resloping and soil replacement, the areas will be seeded to a mixture of commercially available grasses, legumes and shrub species. Every effort will be made to diversify the seed mix as well as include as many available native species as possible. New varieties and species will be assessed as they become commercially available. Table 5 shows a possible seed mix for this area. The majority of seeding will be done in the late fall and as soon as possible after resloping is completed to ensure the most receptive seedbed. Seeding rate will be approximately 65 kg/ha. The use of Fall Rye as a nurse crop at a rate of 50 kg/ha will further aid in the establishment of the permanent grass cover.

Table 5. Proposed reclamation seed mix (application rate = 65kg/ha).

Species	% by Weight	% by Composition
Creeping Red Fescue	15	29
Hard Fescue	5	11
Alfalfa	25	18
Red Top	1	16
Crested Wheatgrass	10	5
Meadow Foxtail	14	10
Dahurian wildrye	25	7
Perennial Ryegrass	5	4

In order to promote growth of all plantings an aggressive fertilization program will be implemented for the first several years. All tree and shrub plantings will be treated with Fer-tabs at the time of planting that will assist in establishment. If the end land use is to return the site to productive forests then the emphasis on the establishment of grasses and legumes will be reduced so that they will not out-compete the coniferous species.

The relatively small size of the disturbance and the close proximity of native trees will also assist in the recolonization of reclaimed sites. Tree and shrub plantings will commence in the spring following grass seeding. Determination of the final end land use will dictate the ratio of grassland to forest cover.

A number of snags, logs, brush piles, rock piles and nest boxes will be placed on portions of the reclaimed rock dump to ensure that small mammals and birds recolonize the area. Once the detailed mining plans and schedule have been completed and the end land use agreed upon, a detailed reclamation plan and schedule will be developed.

10.0 OCCUPATIONAL HEALTH AND SAFETY FOR MINE OPERATIONS

Occupational health and safety needs for the project will be co-ordinated with the district inspector prior to the start of the mine operation.

The "Health, Safety and Reclamation Code for Mines in British Columbia" will be followed.

Site facilities will include a trailer for first aid and mine rescue supplies, as required and a lunchroom. Potable water will be made available at the first aid station.

A portable facility will be provided to manage sewage.

A certified "Shift Boss" will be responsible for each shift and an "Industrial First Aid" attendant will be available while the mine is operating.

A traffic management plan will be developed, to be reviewed with the district inspector.

11.0 ANNUAL RECLAMATION REPORT FROM MINE MANAGER

An annual reclamation report will be submitted to the chief inspector by March 31, 1999.

12.0 NOTICE OF FILING

A notice will be published in the B.C. Gazette, Queens Printer through their office at 563 Superior Street, Victoria B.C. and the local Princeton newspaper, the Similkameen Spotlight.

13.0 SOCIO-ECONOMIC INFORMATION

13.1 *History of the Property*

Between 1912 and 1940, the coalfield was worked by Coalmont Collieries, whose underground mines produced a total of 2.15 million tonnes of coal. Between 1954 and 1957 the Blakeburn strip mine produced 148,300 tonnes of coal along the underground mine outcrop. The coal was used locally for smelting and power generation and transported by the Kettle Valley Railway Company to other markets. The smelting market was lost when the Granby Mining Smelting and Power Company of Princeton closed in 1957.

Preliminary mapping by the Geological Survey of Canada (Price, 1961) identified coal-bearing strata in the area. Cyprus Anvil Mining Company explored the property between 1974 and 1982.

Closure of the Kettle Valley Railway in 1985/86, however, further diminished the viability of the property and Imperial Metals Ltd. relinquished the coal Licences it held at that time.

Subsequently, Pacific West acquired a total of 2,172 hectares of coal licences, including an area of 389 hectares along the western outcrop. In 1997, Pacific West Coal received a permit to extract a 10,000 tonne bulk sample and carry out some in-fill drilling.

13.2 *Mining in the Region*

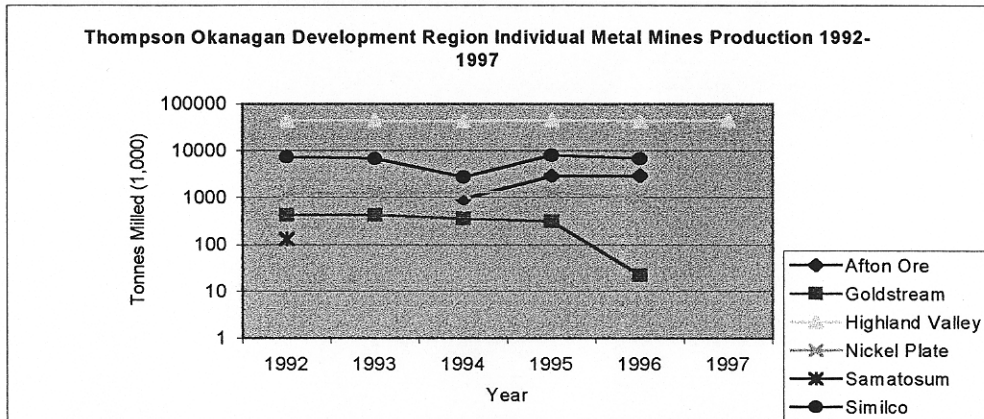
The route of the new railways in British Columbia in the late 1800s enabled the development of major metal and coal mines in the south, close to the U.S. border. Historically, metal mines in the south-central district were a major contributor to the economy. Many of the large mines in the south are now, however, facing closure through depletion of economic reserves, and there have been no new major mine proposals to take their place in the region. Instead, major exploration and development activities in recent years have taken place in the north west of British Columbia.

The Tulameen proposal falls within the Thompson Okanagan Development Region, where there are currently no operating coal mines. Forestry is the main economic activity in the North Thompson area, while in the Kamloops area, metal mining is equally important though mostly just small placer claims.

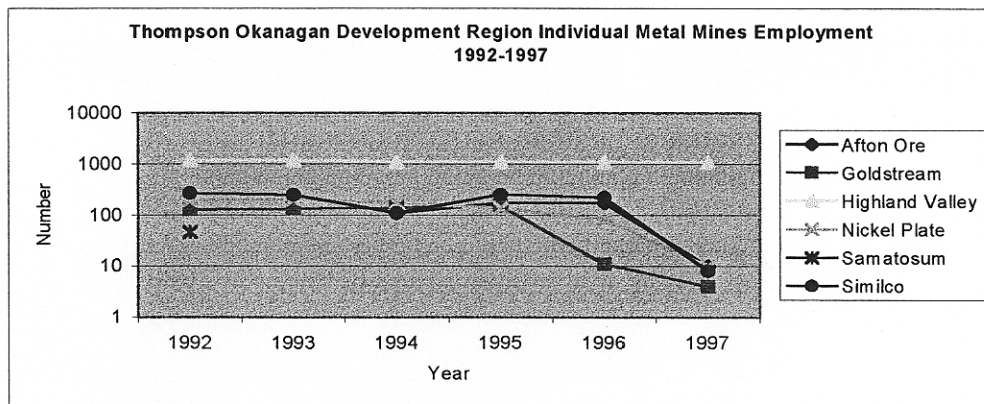
There are six metal mines in the region: the Goldstream Mine, Samatosum Mine, Similco Mine at Princeton, Brenda Nickel Plate Mine at Hedley; the Afton Mine at Kamloops and the Highland Valley Mine at Logan Lake. The largest mine, Highland Valley, is operating while the remaining five mines have all closed within the last five years and are now under reclamation. The closure of the Brenda Nickel Plate Mine at Hedley and the Similco Mine at Princeton in particular have had a direct effect on the Town of Princeton.

Table 6. Thompson Okanagan Development Region Individual Metal Mines Production and Employment 1992-1997

Location	Production (Thousand Tonnes/Milled)					
	1992	1993	1994	1995	1996	1997
Afton Ore			941	2929	2973	0
Goldstream	428	428	351	313	22	0
Highland Valley	44064	44473	43484	45522	42620	45000
Nickel Plate	1234	1281	1304	1326	979	0
Samatosum	129					0
Similco	7325	6728	2752	8127	6796	0



Location	Employment					
	1992	1993	1994	1995	1996	1997
Afton Ore			109	171	175	10
Goldstream	125	131	140	150	11	4
Highland Valley	1203	1167	1090	1095	1103	1102
Nickel Plate	198	206	174	136	83	10
Samatosum	46					0
Similco	267	245	109	253	223	8

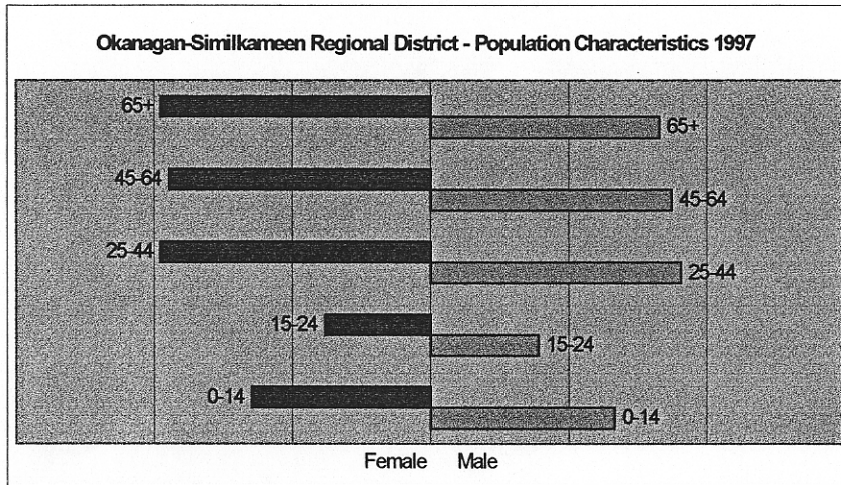


The Highland Valley Mine is the largest copper mine in the Province, by itself accounting for just over half the annual provincial production in 1997, and just under a third of direct employees in metal mines. The planned closure of the Highland Valley Mine in 2006 will have a substantial impact on Kamloops and the population of the region as a whole.

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Table 7. Okanagan-Similkameen Regional District
Population Characteristics 1997

Age Group (Years)	Male	Female	% OK	% BC
0-14	6665	6465	17.3	19.7
15-24	3925	3815	10.2	13
25-44	9065	9770	24.8	32.7
45-64	8750	9435	24	21.8
65+	8300	9745	23.8	12.8



13.3 Communities - Population

The closest community to the proposed mine area is the town of Tulameen, B.C., which is located approximately 3.5 km north of the proposed minesite. The town of Coalmont is located approximately 4.5 km to the east, and is the closest town with road access to the proposed minesite. The town of Princeton is located approximately 26 kilometers to the east.

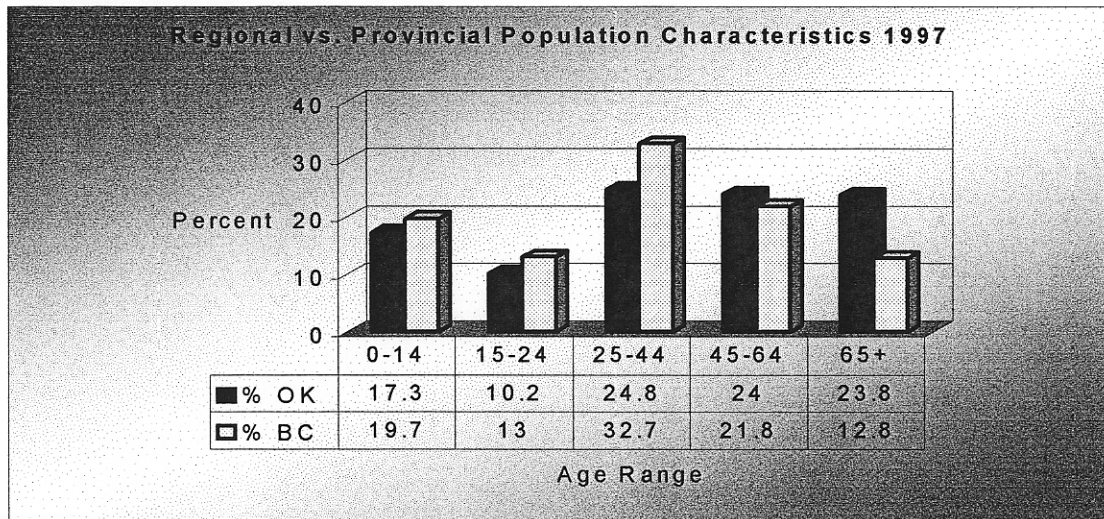
Table 8. Major Communities in the Tulameen Project Area
Population and Land Area, 1996

Major Cities	Number	Land Area (sq.km)	Population Density
Penticton	32,218	40.8	789.7
Princeton	3,036	7.9	384.3
Kamloops	79,566	296.1	268.7
Merritt	7,805	11.2	696.9

In recent years, the pleasant climate has increasingly established the Okanagan area as a popular place to retire. As a result, the median age of the population has become substantially higher than the provincial median age. The elderly dependency ratio (the ratio of those aged 65 and over as compared to those aged 18 to 64) is now

roughly twice that of the Province as a whole. As with the rest of the Province, the older age structure is responsible for the significant gender bias in favour of females, since women tend to live longer than men. Probably as a result of the older age structure, the natural increase (excess of births over deaths) is negative in this region, and is likely to become even more negative over time. However, it is anticipated that net migration to the area will compensate for losses due to a negative natural increase.

Figure 4. Regional vs. Provincial Population Characteristics, 1997



The Okanagan-Similkameen Regional District, which includes Penticton, Keremeos, Princeton and Summerland, has experienced tremendous growth as a whole in the last several years due to high net migration flows. However, the closure of the Nickel Plate Mine at Hedley, and the Similco Mine at Princeton, more recently have had a direct effect on the Town of Princeton, which is the only community in the south central region exhibiting out-migration.

Over 700 direct jobs in the mining industry have been lost to the region in the last five years. This figure accounts only for direct workers and does not take into account reductions in headquarters staff, managers, administration, secretarial workers nor the multiplier factor for jobs outside the industry such as local road maintenance, catering, suppliers etc.

13.4 Economy of the Region

With closure of five of the six major metal mines in the last five years, mining has decreased in economic significance to the region, while forestry has emerged as the major employer. All industry sectors, with the exception of mining, are predicted to generate more jobs over the next 20 years. Most of the growth anticipated in the forest industry will be driven by greater emphasis on silviculture and related land management initiatives, primarily as a result of Forest Renewal BC. It is also hoped

there will be opportunities for more value-added wood processing, although the number of new jobs created in that sector is expected to be relatively modest.¹

As can be seen from Table 9, major economic initiatives proposed for the region pertain to recreation, housing, or capital projects. The only primary resource exception is the rebuilding of the Tolko sawmill destroyed by fire in 1997.

From an employment perspective, those sectors with growing numbers of jobs are not necessarily those that generate the most economic activity overall. For example, each mining industry job is estimated to support 1.4 induced and direct jobs elsewhere in the local economy, compared to a much lower multiplier for the tourism industry.

Table 9. Major Projects - Thompson Okanagan Development Region

Location	Project	Start	Finish	Estimated Cost (\$ Million)
Golden to Yoho National Park	Upgrading Highway 1	?	?	N/A
Kamloops	Residential complex	1997	?	N/A
Kamloops	Sun Rivers Community Development	1997	2007	450
Kamloops	Resort - Six Mile Ranch	?	?	180
Kamloops	Hospital Expansion	?	?	24
Kamloops	Psychiatric Facility	?	?	20
Kamloops	Ski Resort (Sun Peaks)	1993	2002	65
Kelowna	Club Facility & Recreational Complex	?	?	N/A
Kelowna	Tower Ranch Golf Resort	?	?	100
Kelowna	Residential Towers	1998	2013	150
Kelowna	Bridge Expansion	?	1999	64
Kelowna	Multi-Sport & Hotel Complex	1998	1998	30
Kelowna	Resort Expansion	?	2007	N/A
Kelowna	Senior Secondary School	?	?	N/A
Kelowna	Arena, R.G. Properties	?	?	28
Kelowna	Okanagan Correctional Centre	?	?	20
Kelowna	Ski Resort Expansion (Big White)	?	?	26
Kelowna	Hospital Improvements	1996	?	49
Kelowna	Store Expansion (Canadian Tire)	1997	1997	14
Kelowna	Cancer Clinic	1996	1997	29
Lytton	Cogeneration Plant	?	?	14.4
Merritt	Sawmill, Tolko Industries	1997	1998	30
Peachland	Golf-Residential Project	?	?	N/A
Summerland	Guest Ranch Spa	?	?	N/A
Summerland	Sewage System Improvements	1996	1998	27.7
Vernon	Retail Complex (HBC & Zellers)	?	?	N/A
Winfield	Secondary School	1997	1999	12.9

Source: British Columbia Major projects Inventory. September, 1997.

At present proposed production rates, it is not predicted that the Tulameen Coal project will have a significant effect on the economies of the larger, more distant communities of Penticton and Kamloops. This report therefore focuses on the

¹ Thompson-Nicola Regional District - Economic Profile and Analysis. Eric Vance & Associates. June, 1996.

smaller communities of Merritt, Princeton, Coalmont, and Tulameen in closer proximity to the project.

13.4.1 Town of Princeton

Princeton was originally named Vermilion Forks, after the Vermilion Bluffs at the Tulameen River. The town was renamed to Prince Town after the Prince of Wales' visit to eastern Canada in 1860, and eventually came to be known by its present name.

Princeton is situated at the confluence of the Similkameen and Tulameen Rivers, approximately 3 hours from Vancouver, 130 km east of Hope and 115 km west of Penticton. Major trunk highway routes include the Trans-Canada Highway Route #1, Crowsnest Highway Route #3, and Provincial Highway #5A, which is the start of the Yellowhead Highway System and connects with the 3rd phase of the Coquihalla Highway. Princeton is served by an airport with a paved runway that can accommodate private and charter flights up to Citation 500 jets.

Princeton has been hardest hit by the closure of the Nickel Plate Mine and the Similco Mine. The major industry in Princeton is now lumber and wood products, with approximately 350 direct jobs. Weyerhaeuser is the largest employer (300), while SBC Firemaster, Mego Wood Products and PWP account for the remainder.

Recreational activities in the Princeton area include canoeing/kayaking/rafting; skiing and cross-country skiing; mountain biking; curling; gold panning; golfing; hunting and fishing; horseback riding; and swimming, boating and water sports.

In 1993, workshops in the Princeton area identified main economic issues and concerns for the community as:

- Future employment opportunities for Princeton's youth and workforce;
- Root economic development efforts in the strength of local natural resources;
- Local training; upgrading skills; apprenticeship; computer skills; entrepreneurship;
- Concern with the quality of lifestyle with any economic development planning.

Subsequently, the Princeton Economic Development Office has developed a plan to provide direction for the Town of Princeton that stresses a more diversified and sustainable economy. The Princeton Community Economic Development Plan identifies three areas of emphasis as: 1) Diversification of resource sector industries; 2) Development of recreation, tourism and quality of life; and 3) Community planning. At the heart of the community plan is the vision of Princeton as a centre for wood products, manufacturing, training, research and development.²

² Princeton Community Economic Profile. Princeton Economic Development Commission.

13.4.2 City of Merritt

Merritt is located in the Nicola Valley at the confluence of Phase 1, 2 (Highway 5) and 3 (Highway 97C) of the Coquihalla Highway system. Its location in the freeway network, connecting major population centres in the Thompson-Okanagan and Lower Mainland, serves to establish Merritt as a commercial centre.

Coal played a major part in the original establishment and prosperity of Merritt. Today the primary economic sectors are forestry, agriculture, ranching, tourism, and government.

Forestry:

The five mills in Merritt account for a large percentage of employment in Merritt and the surrounding area. Approximately 700 person-years of direct employment are provided by both woods and mill departments. It is estimated that 21% of the workforce in Merritt is employed directly by the forestry industry and its suppliers.

Agriculture and Ranching:

Ranching remains an important part of the local economy. Numerous ranches operate in the Nicola Valley, including one of the largest ranches in North America. In recent years, ginseng, greenhouses, buffalo and fallow deer farming have been introduced.

Tourism:

The pleasant climate and outdoor recreation activities attract visitors to the Nicola Valley. Outdoor activities include fishing, golfing, sailing, camping, hiking, hunting, horseback riding, cross-country skiing, and snowmobiling. The Coquihalla Highway and Okanagan Connector have resulted in Merritt and the Nicola Valley becoming more easily accessible for tourists. Completion of the highway system saw tourist visits increase from 54,107 people in 1989 to 271,778 visitors in 1994.

Government:

Government services (federal, provincial and municipal governments and educational and health services) account for approximately 20%

"Economic Objectives:

The following are the general economic objectives of Council for the City of Merritt: To achieve the broad economic goals of Council as set out in the following policies:

- *To diversify and strengthen Merritt's resource based economy by generating new investment and business activity in the Merritt area;*
- *To maintain the viability of the existing economic structure of Merritt with emphasis on diversifying and strengthening the forestry sector;*
- *To maximize the potential economic benefits to Merritt from the Coquihalla Highway, recognizing the advantages of Merritt being at the convergence of Phases 1, 2 and 3 of the new highway network; and*

-
- *To create a business environment in Merritt which attracts, keeps and supports businesses and industry and which encourages an entrepreneurial spirit in the community.*³

13.4.3 Coalmont and Blakeburn

The community of Coalmont was named after the vast coal reserves discovered in the mountains nearby. The Columbia Coal and Coke Co. Ltd. first established the townsite in 1911, with their sawmill in Tulameen supplying lumber for the buildings.

In 1918 Coalmont Collieries built a three mile tramway to carry the coal from the Blakeburn Minesite on the slopes of Lodestone Mountain to Coalmont, where it was then shipped by train to market.

After World War I, the communities of Coalmont and Blakeburn expanded on the fortunes of the coal industry. However an explosion at Blakeburn in 1930 which killed 45 men, and deterioration of markets, saw the underground mines close for good in 1940.

Coalmont has declined since the closure of the mines, but is still home to approximately 100 permanent residents. There are historic buildings intact in the community, including the Coalmont Hotel, established in 1911 and still operating. Parts of the old railway system and supporting towers of an aerial tramway can still be seen at Blakeburn.

13.4.4 Tulameen

In 1846 the Hudson's Bay Brigade Trail passed through the area now known as Tulameen. Originally called Otter Flats, in the late 1800s, the town grew as an accommodation and supply centre for the Granite Creek Gold Rush. In 1901 the townsite was officially named Tulameen.

Tulameen is now home to approximately 250 permanent residents. The town is a popular summer destination, offering a provincial campground, forestry campsites, motel, boat launches, ice rink, library, community hall and combination trading post, liquor store, post office and café.

13.5 Other Land Rights

The property is Crown Land with the coal and mineral licences held by Pacific West Coal Ltd.

Royal Scot recognizes other land rights and uses in the proposed development area and will conduct communications and facilitation as necessary in order to safeguard and harmonize the development proposals with the interests of other rights holders.

³ City of Merritt Official Community Plan, ByLaw No. 1460, 1994 p.2. July 26, 1994

First Nations

The Tulameen Coal development is proposed for an area that may fall within territory historically used by the Upper Similkameen Band and other First Nations.

Royal Scot understands the Canada Supreme Court has ruled that First Nations have rights that are protected by the Canadian Constitution. These rights relate to certain cultural and sustenance activities, e.g. sacred sites, hunting and fishing and gathering activities, which vary from band to band. Royal Scot therefore recognizes it is required, in harmony with government, to approach the First Nations, explain the proposed development, inquire what impacts there may be on cultural and sustenance resources, and then mutually devise a plan of mitigation.

Moreover, a recent Supreme Court decision found that First Nations may have other types of rights to lands and resources, dependent on traditional usage.

In this context, Royal Scot proposes to:

- Commission an archaeological assessment of the property, using terms of reference and consultants mutually agreeable to the company and the Upper Similkameen Band, using ethnographic input from Elders or other knowledgeable band members. Guidance in conducting such a study will be also be requested from B.C. Archaeology Branch. Copies of the study will also be provided to bands which may have expressed interest in the study area.
- Meet with the Upper Similkameen Band and other First Nations on an as-required basis to explain the project, elicit questions or comments from the band, respond to the comments and questions, and explore ways in which the project can provide positive benefits to the band in the form of jobs, contracting, training and other opportunities.
- Provide all information on communications with the band to the South Central Mine Development Review Committee. In this context, it is recognized that it is the responsibility of government to ensure that the project will not infringe on constitutionally-protected Aboriginal rights.

13.5.2 Logging/Grazing/Trapping/Guide Outfitting/Water Rights

There will be close consultation on the application with the following individuals and organizations, commencing with the provision of information and direct meetings.

Logging - Tolko Industries Ltd., whose Forest Licence A18696 CP 130 covers the proposed minesite area.

Guide outfitter - Clarence Schneider, of Keremeos, who has a large territory, part of which encompasses the minesite area.

Trapper - Daniel Rice, of Coalmont, whose trapping licence 0805T069 covers the minesite area.

Grazing - Linda Allison, of Princeton, whose grazing rights (046) encompass the minesite area.

Water Rights - No existing water rights or licences in or adjacent to the development have been identified.

14.0 ARCHAEOLOGICAL ASSESSMENT

Known areas of interest in the vicinity, but not potentially affected by the proposed development, are the Hudson Bay Brigade Trail and other trails, and the old Blakeburn site.

Tolko Industries Ltd. has commissioned two studies of the larger area by Kutenai West Heritage Consultants. The City of Princeton has also had a study in a more remote location by another consultant. These studies, together with other archival material, will provide valuable background to current research.

BC Archaeology Branch is requested to provide guidance in the formulation of terms of reference for the study and study area.

When the report is completed, copies will go to all First Nations that may have an interest in the general area, and will be specifically presented and discussed with the Upper Similkameen Band.

15.0 PUBLIC CONSULTATION

Preliminary research suggests there is likely be considerable general public and local government support for the project from Merritt, Princeton and the local regional district.

Royal Scot will advertise and hold an open house meeting in the community of Princeton to present its application, and elicit comments and questions from the public. These meetings will be recorded, and project questionnaires provided. The results of the meetings and copies of the completed questionnaires will be provided to the SCMDRC. The company also proposes to conduct additional consultation initiatives in the local region, including the establishment of a public liaison committee.

Appendix 1

List of Available Reports

TULAMEEN COAL PROJECT

Report Date	Author	Title
1. Sept 5, 1974	Associated Engineering Services Ltd.	Tulameen Coalfield Evaluation
2. Sept 1974	E. M. Wilson, P.Eng.	The Tulameen Coalfield
3. Nov 8, 1974	Chinook Construction & Engineering Ltd.	Coalmont Coal Property N ½ L. 294
4. April 6, 1976	M. S. Cholach, P. Geol P. Eng.	Preliminary Report on Tulameen, B.C.
Map of Proposed Mining Area Trench Sections Reserve Graphs	Springfield Consulting, Ltd.	Coal Deposit for Dominion Foundries and Steel Ltd.
February 1976	<u>Appendix A</u> Birtley Engineering (Canada) Ltd. Dr. D.F. Symonds, P.Eng	Quality of Coal from Trenches 1 - 8 Tulameen Project
April 14, 1976	Dominion Foundries and Steel Limited	Rank of Tulameen Samples
March 1978	Cyprus Anvil Mining Corporation	Tulameen Coal Project Report on 1977 Field Work (Geology Maps) Lithologic Logs Diamond Drill Holes T-77-1 thru T-77-12 Electrologs Cross-Sections and Reserve Strip Ratio Graphs.

<u>Report Date</u>	<u>Author</u>	<u>Title</u>
March 1978	Cyclone Engineering Ltd.	Core Analysis Data
February 1978	Birtley Engineering (Canada) Ltd.	Bulk Sample Analysis
November 1978	Canadian Combustion Research Lab.	Pilot Scale Combustion Evaluation of Tulameen Coal
February 1979	Cyprus Anvil Mining Corporation	Annual Reclamation Report 1978
July 1981	Cyprus Anvil Mining Corporation	Bulldozer Trenching Report 1981 (C.L. 153)
January 1983	Cyprus Anvil Mining Corporation	Annual Reclamation Report 1982 Bulldozer Backhoe Trenching.
November 1983	Carbonia Exploration Consultants Ltd. - by Frank Martonhegyi, P.Geol. for Imperial Metals Corp.	Tulameen Project Information Summaries and Review
January 1981	Cyprus Anvil Mining T.J. Adamson	Tulameen Thermal Coal Project Introduction and Coal Quality Report
1973	Geological Survey of Canada Paper 72-39	The Petrography of the Coal from the Blakeburn Strip Mine in the Tulameen Coal Area, British Columbia.
1940	Chief Inspector of Mines	Abandonment Plans Coalmont Collieries Nos. 3, 4, 5 Blakeburn Strip Mine. Annual Reports

Appendix 2

Tulameen Basin - Geologic Formations

TERTIARY

- 4 UPPER VOLCANICS
Brown to black, fine-grained basalt.
Unconformity.
- 3 COAL - BEARING TERTIARY SEDIMENTS
 - 3c UPPER SANDSTONES (600 m)
 - 3c2 Granule conglomerate, coarse sandstone, minor shale, mudstone.
 - 3c1 Transitional unit; interbedded sandstone, mudstone, minor thin coal.
 - 3b COAL MEMBER: Shales, mudstone, tuff, coal. (130 m)
 - 3b10 Blocky breaking mudstone and shales.
 - 3b9 Finely laminated, fissile shales.
 - 3b8 Interbedded thin dirty coal, bentonite, shales, mudstones.
 - 3b7 Main Coal Seam.
 - 3b6 Light grey, medium-grained sandstone, white muddy matrix.
 - 3b5 Dark grey, massive, blocky breaking mudstone.
 - 3b4 Distinctive color banded, light to dark grey, interbedded shales, mudstones, muddy sandstone.
 - 3b3 Mudstone, medium brownish grey to dark grey, massive to medium laminated.
 - 3b2 Lower Coal Seam.
 - 3b1 Interbedded fragmental bentonitic tuff, thin coal seams, coaly bentonitic mudstone.
 - 3a LOWER SANDSTONE:
Coarse to fine sandstone, interbedded with mudstone and shale (100 - 150 m).
- 2 2 LOWER VOLCANIC:
Massive to porphyritic or fragmental; andesitic to felsitic.
Unconformity

UPPER TRIASSIC

- 1 NICOLA GROUP:

Highly metamorphosed volcanic and sediments.

Table 10. Schedule of Proposed Project Development

Activity	Consultant	1998												1999					
		D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
Preparation of Environmental Assessment Report - Forestry Wildlife Fisheries Water Quality Climate	Interior Reforestation	█	█	█	█														
Permit Application																			
Site Monitoring																			
Mining Plan and Reclamation Plan	Rackwood Minerals																		
Coal Preparation/Quality	Rackwood Minerals		█	█	█														
Geology & Reserves	Vaughan-Thomas		█																
Mining	Vaughan-Thomas																		
Tailings/Waste Dumps	Thurber/Rackwood			█	█														
Transportation Options	Pacific West Coal			█				█											
Marketing	Pacific West Coal			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Drilling/Bulk Samples																			
Socio-Economic Impact	Jo Harris & Associates			█	█														
First Nations	Jo Harris & Associates		█			█		█											
Public Involvement	Pacific West Coal Vaughan-Thomas Jo Harris & Associates			█		█	█	█	█	█	█	█	█	█	█	█	█	█	█



This is to certify that
Rackwood Colliery Company Ltd
is a corporate member
of
Durham
Wildlife
Trust



THIS IS TO CERTIFY THAT

Rackwood Colliery Company Limited

*is a Corporate Member of
The Woodland Trust
for the duration of*

1996 to 2000

Chief Executive



Registered Charity Number 294241



**Certificate of
Membership**

This is to certify that

Rackwood Mineral Holdings plc

is a Member of the

Institute of Environmental Assessment

from

25 March 19 96

Frank Layfield

Chairman Sir Frank Layfield

RACKWOOD

COLLIERY COMPANY LIMITED

OUR COMMITMENT TO THE ENVIRONMENT

The opencast coal mining industry in the UK has been the focus of attention for environmentalists for almost two decades. In response to this, opencast mining companies have had to ensure that they operate within the strictest environmental controls. Furthermore, following the completion of operations, it is vital that sites are restored to a land use that is not only potentially productive if required as agricultural or forestry land, but can also provide a valuable recreational resource for communities who live close by.

Rackwood Colliery Company has demonstrated due regard for the environment at every stage of the development and operational process. The environmental assessment process is an integral part of site development. Environmental constraints are highlighted during the design phase so that they can be a prime consideration which in certain circumstances will result in a radical revision of the original proposals. Rackwood consults widely with statutory Government Agencies and local authorities as well as interest groups such as wildlife trusts and the Royal Society for the Protection of Birds. Rackwood is a corporate member of the Wildlife Trusts in the counties of Derbyshire, Yorkshire, Lancashire and Durham. Membership encourages a close relationship with these groups and also keeps the company up-to-date on initiatives to preserve the countryside and rare species. Sometimes there are opportunities for Rackwood to contribute to such campaigns by designing habitats within restoration schemes to cater for endangered plants or animals.



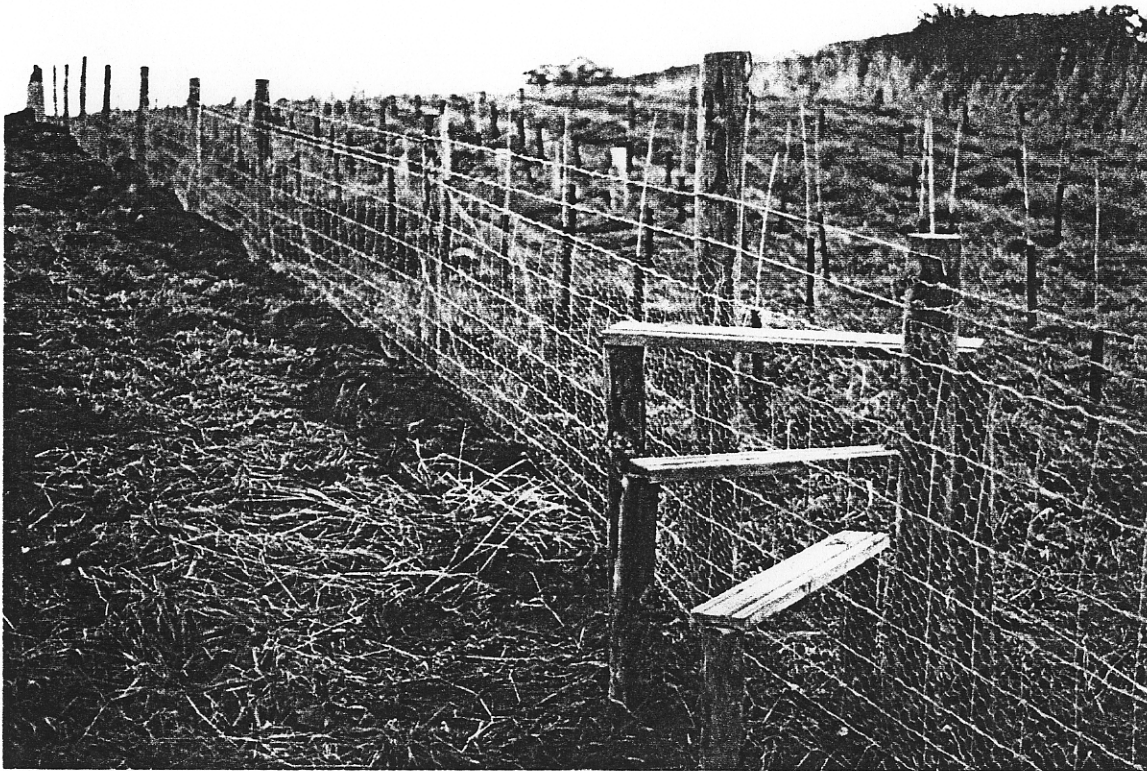
Great Crested Newts at Rackwood's Hawk's Nest Site

UK legislation protects several endangered species and their habitats. Several species such as the badger and the great crested newt are commonly found within the coalfield and therefore are frequently encountered on prospective sites. Where this is the case, solutions are often sought such that the population can be relocated to a new safe haven which will be carefully managed by the company. The site will also be restored to a range of habitats which are suitable to the requirements of the species and Rackwood will often make a commitment to manage the site for up to twenty years for the benefit of wildlife. Very often, local community groups and wildlife trusts will become involved in the long term care of the land.



British Trust for Conservation Volunteers Help Rackwood Create New Habitats

Rackwood often provides amenity facilities on restored sites such as Community Woodlands. Here, the public are able to walk around in and enjoy the areas of countryside where access was previously denied. The company has planted thousands of trees over the last two years and also constructs trails, benches and information signs for the benefit of visitors.



Public Access to a Community Woodland created by Rackwood

The science of habitat creation has progressed rapidly over the last twenty years. Opencast coal mining provides the opportunity to create a range of habitats such as ponds, wetland 'scrapes' and wildflower meadows. All of these features have disappeared from the countryside in recent years, predominantly as a result of agricultural intensification. With appropriate management, such areas can be of greater ecological value once mining has been completed than they were before it. They can attract a range of bird and animal species whose habitats are becoming increasingly scarce across the UK.

If restored sites are to be a success and are to be valued by the people who live around them, it is important that these communities are involved as much as possible during the working life of the site and afterwards during the restoration phase. Rackwood invite school parties to the sites where they are shown around and allowed to view the large machinery and all aspects of operations at close hand. The schools and local youth groups are also invited to assist with tree planting. Very often, the children will have their own, labelled tree on a site so that they can care for it and watch its progress.



School Children Pond-dipping at a Newly-Created Pond



Children from the local school enjoy a visit to the Hawk's Nest site.

Rackwood Colliery Company are currently implementing a comprehensive environmental policy. Codes of Practice have been drawn up covering every aspect of the company's operations from its waste disposal procedure to coal processing and stocking to tree planting. The implementation of these codes should ensure that all adverse environmental impacts are minimised. All sites will be subject to frequent audits to secure compliance. Representatives of the local council and community will be invited to attend audits to demonstrate that Rackwood is operating to the highest possible standards.



A Young Tree Recently Established on a Former Opencast Coal Site



Pacific West Coal (UK) Ltd.

TULAMEEN COAL PROJECT

Date: April 7/98 Scale: 1:10,000

SYMBOLS


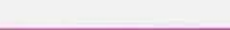
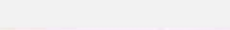

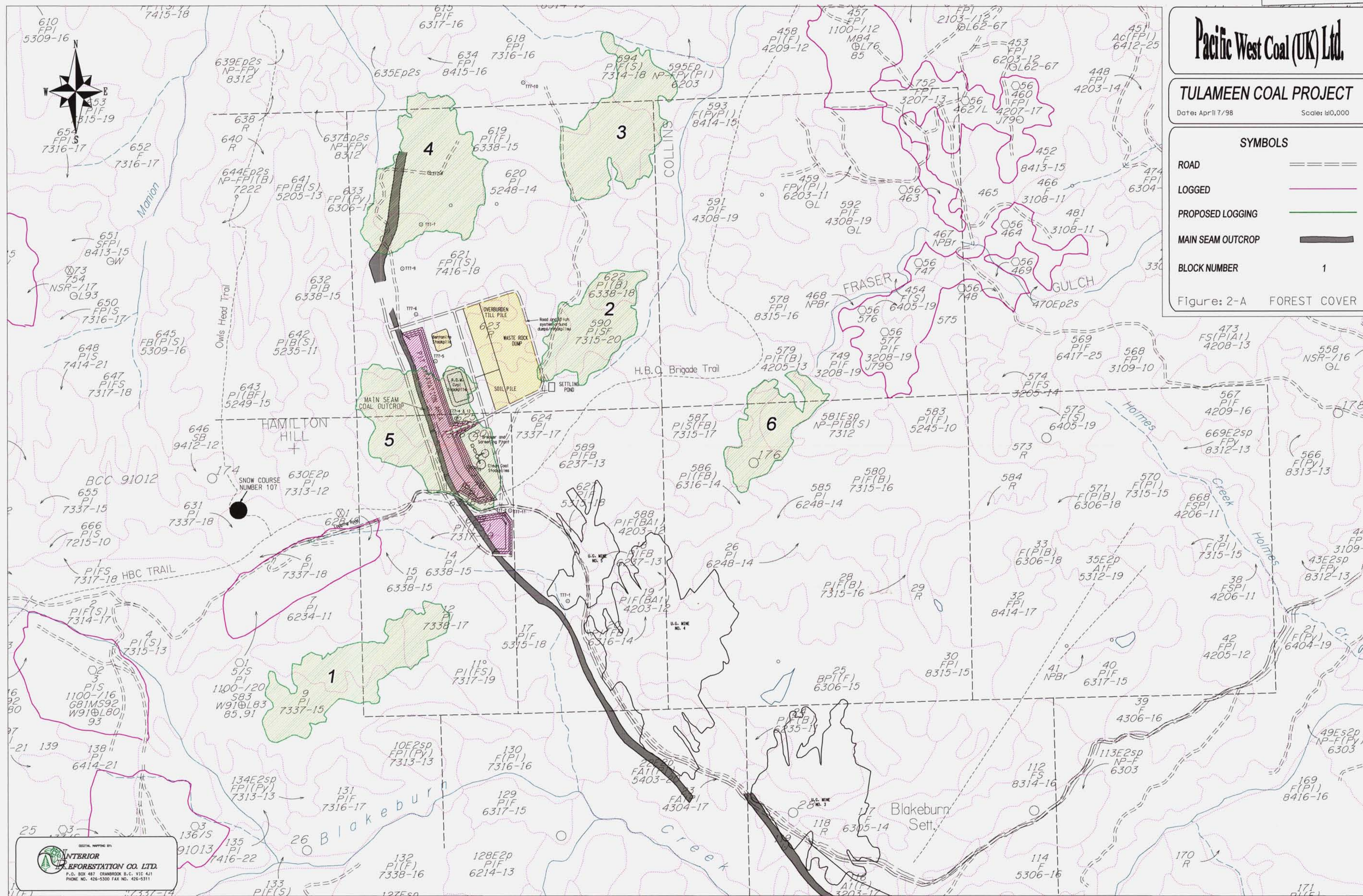
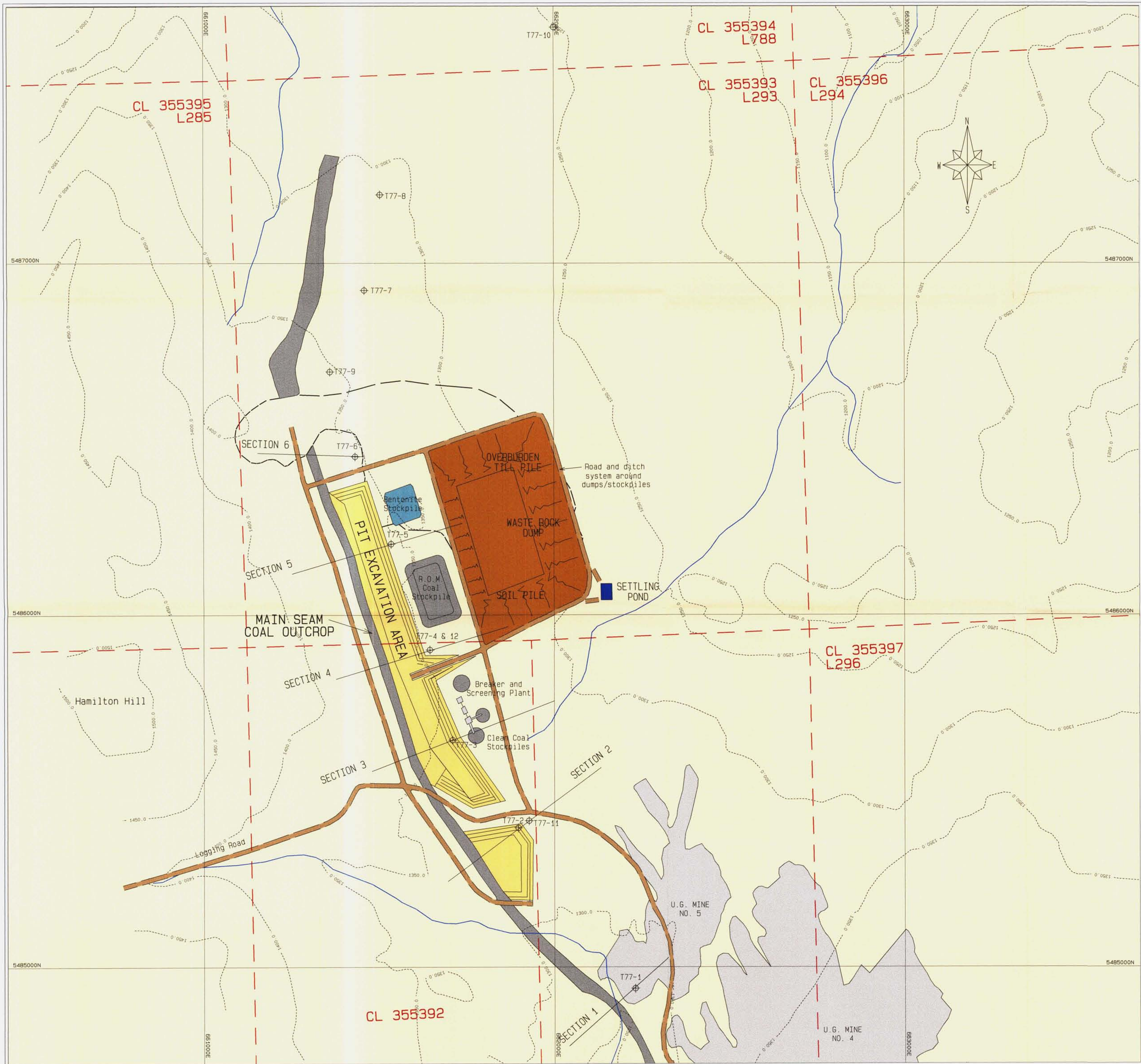
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- LOGGED 
- PROPOSED LOGGING 
- MAIN SEAM OUTCROP 
- BLOCK NUMBER 1

Figure: 2-A FOREST COVER

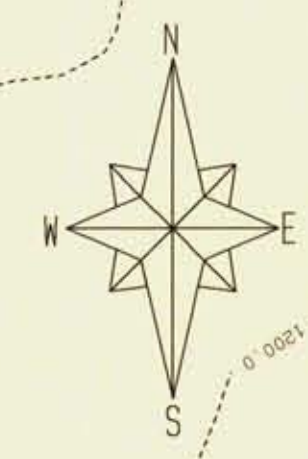


DESIGN MAPPING BY


INTERIOR FORESTRY CO. LTD.
 P.O. BOX 487 CHANABROOK B.C. V1C 4J1
 PHONE NO. 426-5300 FAX NO. 426-5311
 CAD FILE: MISC/PWCAL/MINEST2.S01



- LEGEND-**
- MAIN SEAM OUTCROP
 - OLD UNDERGROUND WORKINGS
 - HAUL ROAD NETWORK
 - FAULT ZONE
 - GEOLOGICAL CONTACT
 - COAL LICENSING AREA
 - EXPLORATION DRILL HOLE
 - WATER
 - CONTOURS AT 50m INTERVALS



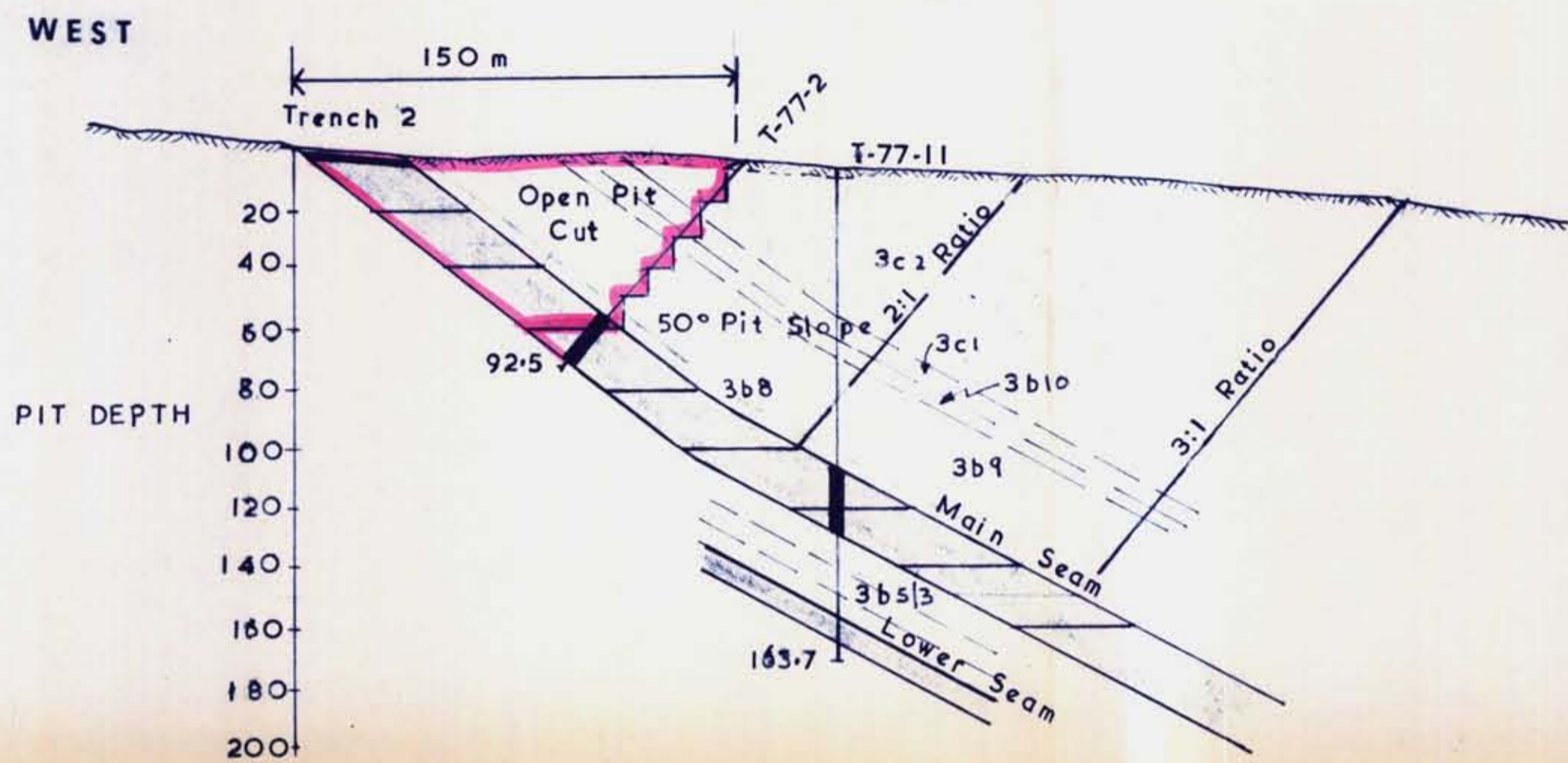
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Project Name :- TULAMEEN COAL PROJECT	
Plan Title :- MINE SITE LAYOUT PLAN	
Scale :- 1 : 5000	Drawing No :- M-98-1
 	

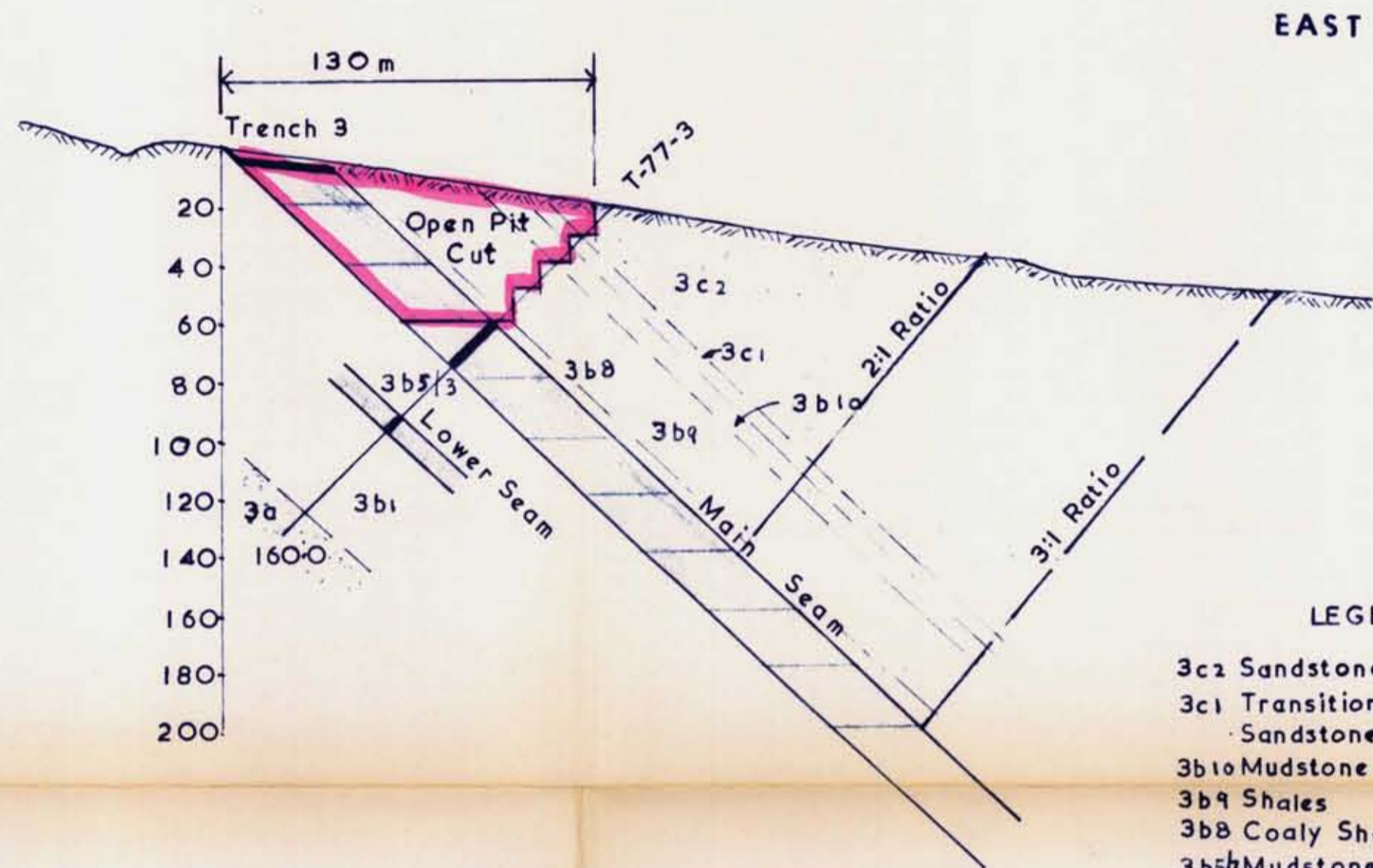
Royal Scot Minerals Inc

RACKWOOD
MINERAL HOLDINGS PLC

3 Swanwick Court, Alfreton, Derbyshire, UK. DE55 7AS
Tel. +44 (0) 1773 521888
Fax. +44 (0) 1773 521759

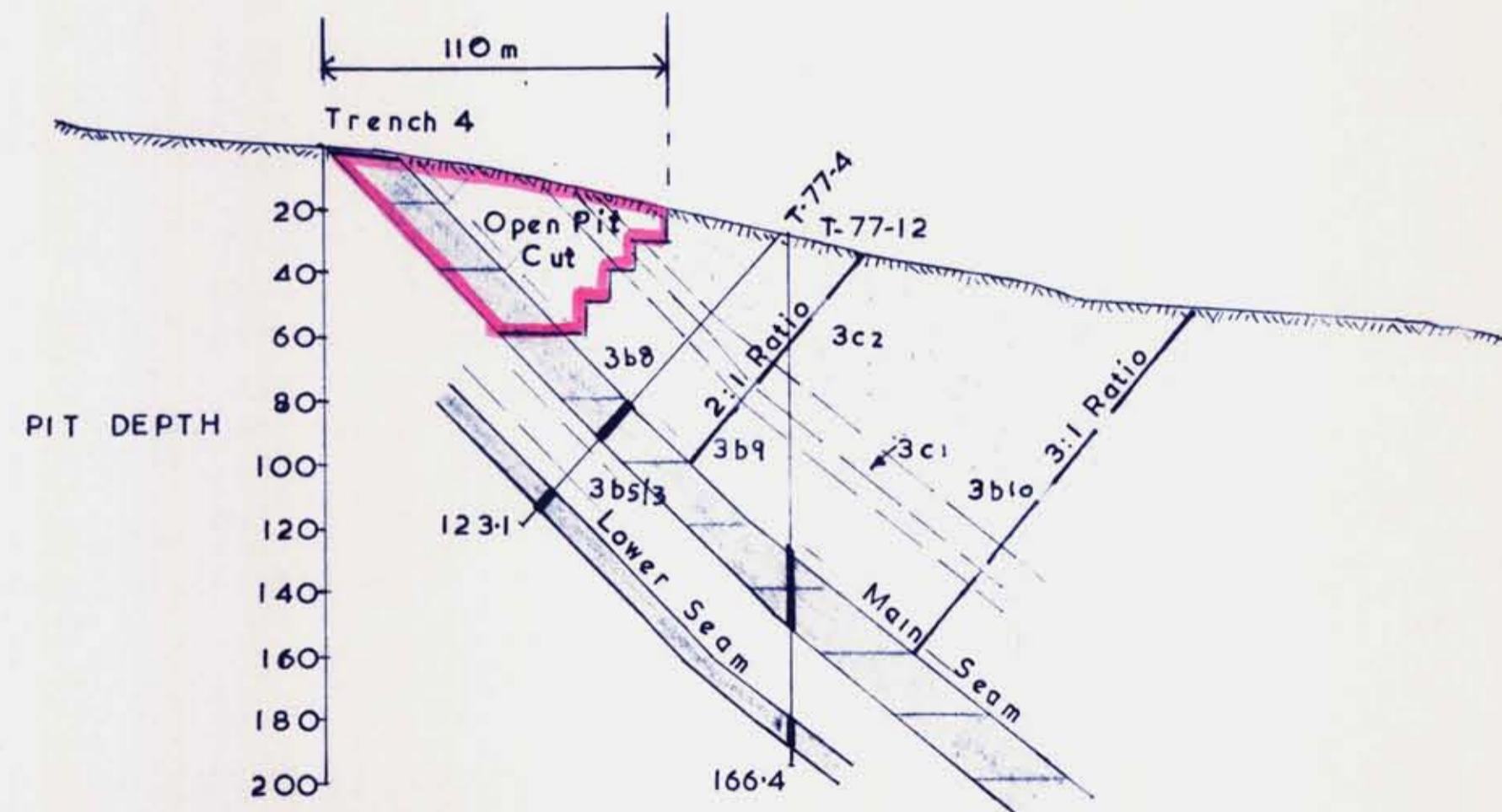


SECTION 2

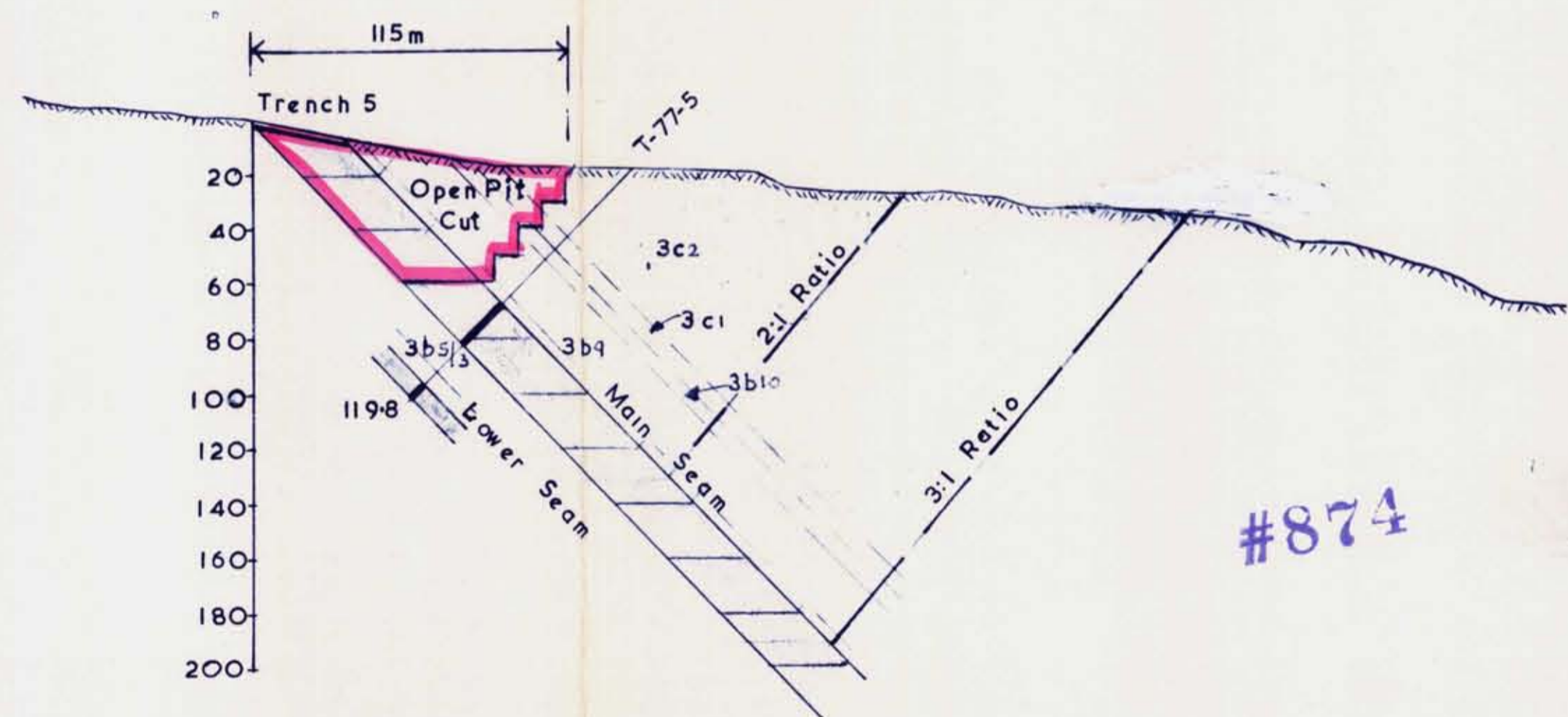


SECTION 3

- LEGEND
- 3c2 Sandstones
 - 3c1 Transitional Unit Sandstones Mudstones
 - 3b10 Mudstone Shales
 - 3b9 Shales
 - 3b8 Coaly Shales Bentonite Layers
 - 3b5/3 Mudstones
 - 3a Lower Sandstones



SECTION 4

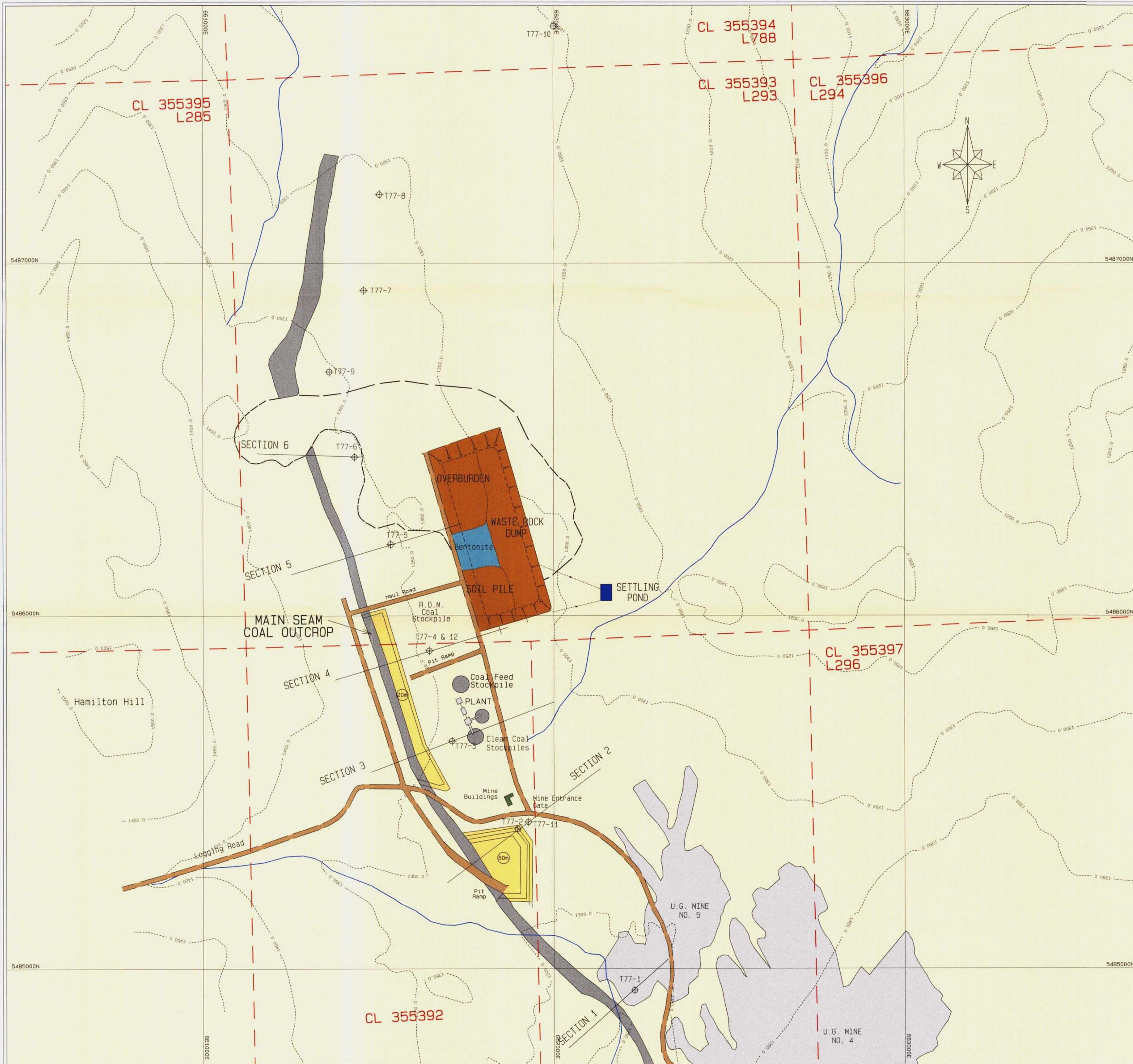


SECTION 5

ALL ELEVATIONS IN METRES

#874

TULAMEEN COAL PROJECT		
SCALE 1/2000	APPROVED BY	DRAWN BY
DATE		REVISED
CROSS SECTIONS 2,3,4 and 5		
Royal Scot Minerals Inc.		DRAWING NUMBER M-98-2



-LEGEND-

- MAIN SEAM OUTCROP
- OLD UNDERGROUND WORKINGS
- HAUL ROAD NETWORK
- FAULT ZONE
- GEOLOGICAL CONTACT
- COAL LICENSING AREA
- EXPLORATION DRILL HOLE
- WATER
- CONTOURS AT 50m INTERVALS
- 60m DEPTH OF EXCAVATION

#874

Project Name :-
TULAMEEN COAL PROJECT

Plan Title :-
PHASE I - MINE SITE LAYOUT

Scale :- 1 : 5000 Drawing No :- M-98-3

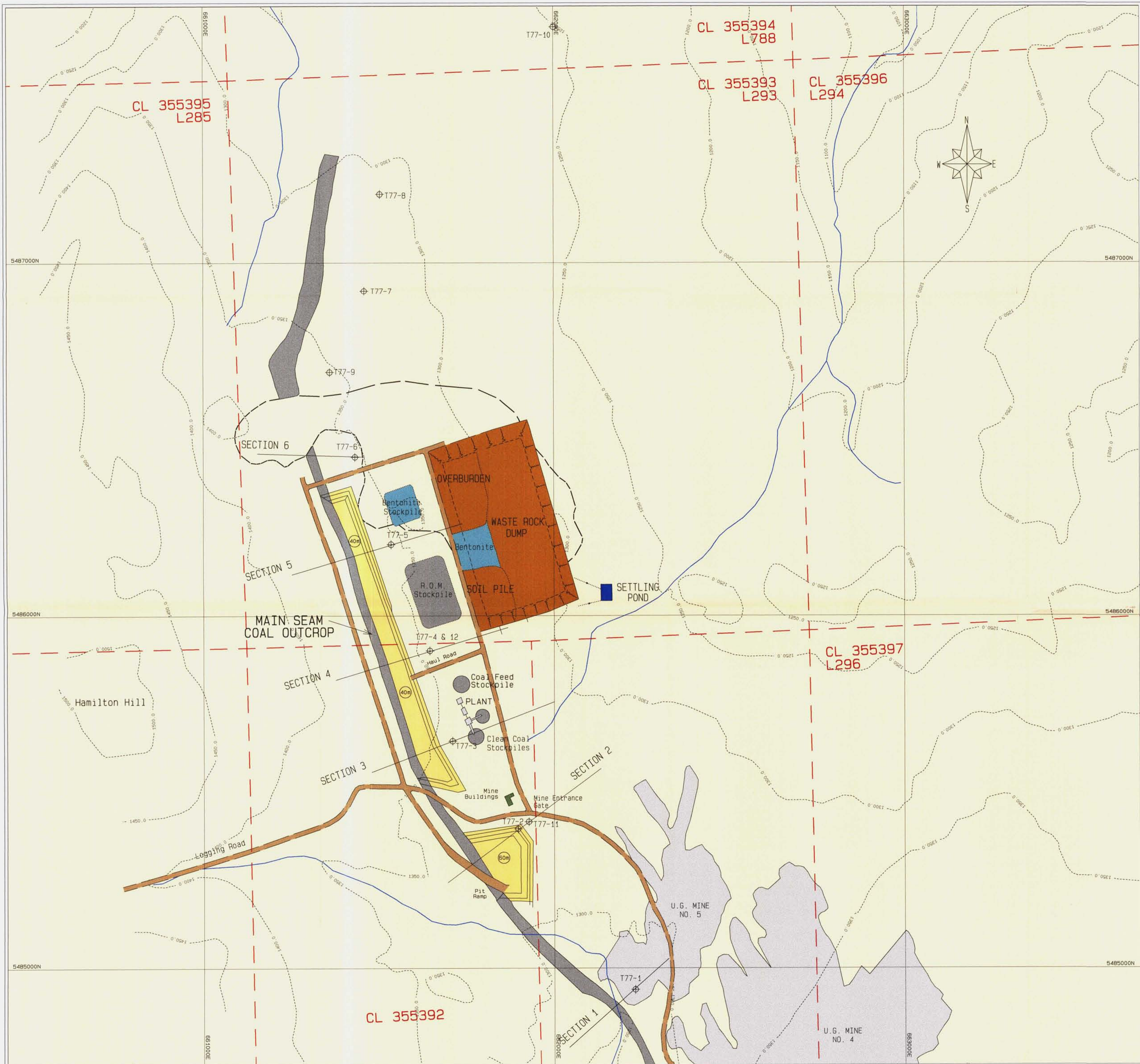
Anterior Exploration Co. Ltd.
P.O. Box 467, Chesham, Bucks, UK. A15
 Phone No: 44-1530 744 911, 44-1530 744 912

Pacifi West Coal (UK) Ltd.

Royal Scot Minerals Inc

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 MINERAL HOLDINGS PLC



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-LEGEND-

- MAIN SEAM OUTCROP
- OLD UNDERGROUND WORKINGS
- HAUL ROAD NETWORK
- FAULT ZONE
- GEOLOGICAL CONTACT
- COAL LICENSING AREA
- T77-1
- WATER
- CONTOURS AT 50m INTERVALS
- 60m

#874

Project Name : TULAMEEN COAL PROJECT	
Plan Title : PHASE II - MINE SITE LAYOUT	
Scale : 1 : 5000	Drawing No. : M-9B-4
	

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-LEGEND-

- MAIN SEAM - OUTCROP
- OLD UNDERGROUND WORKINGS
- LOGGING ROAD
- FAULT ZONE
- GEOLOGICAL CONTACT
- COAL LICENSING AREA
- EXPLORATION DRILL HOLE
- WATER
- CONTOURS AT 50M INTERVALS
- CROSS SECTION LINES

#874

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Plan Title : PHASE III RECLAMATION PLAN	
Scale : 1 : 5000	Drawing No. : M-98-5

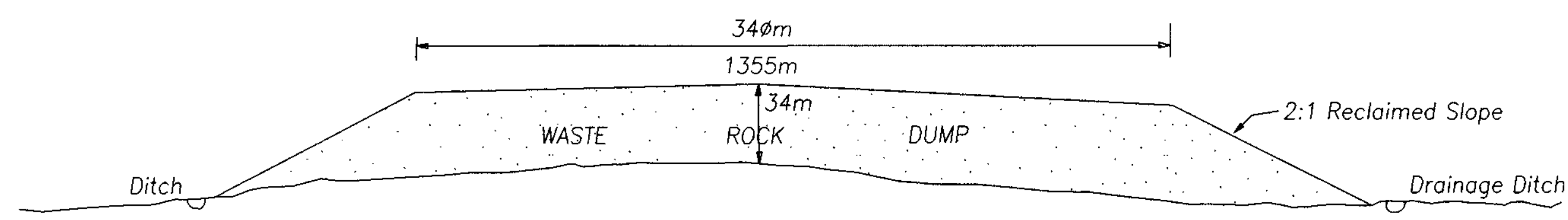
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SOUTH

NORTH

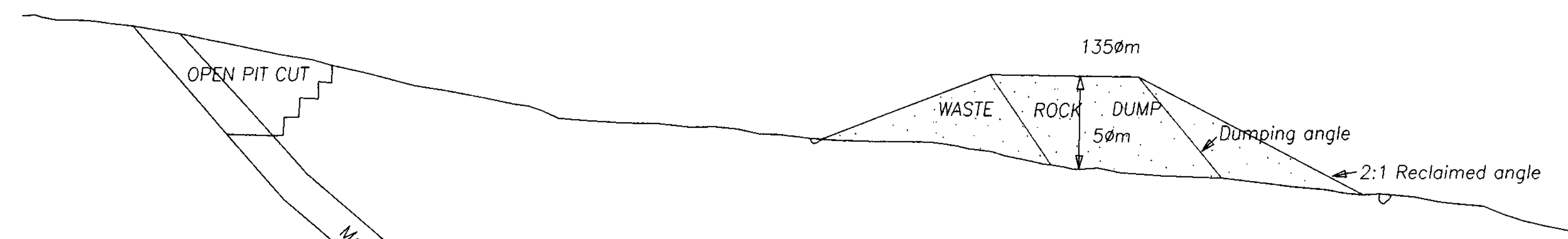


1200m Elevation

SECTION A-A

WEST

EAST

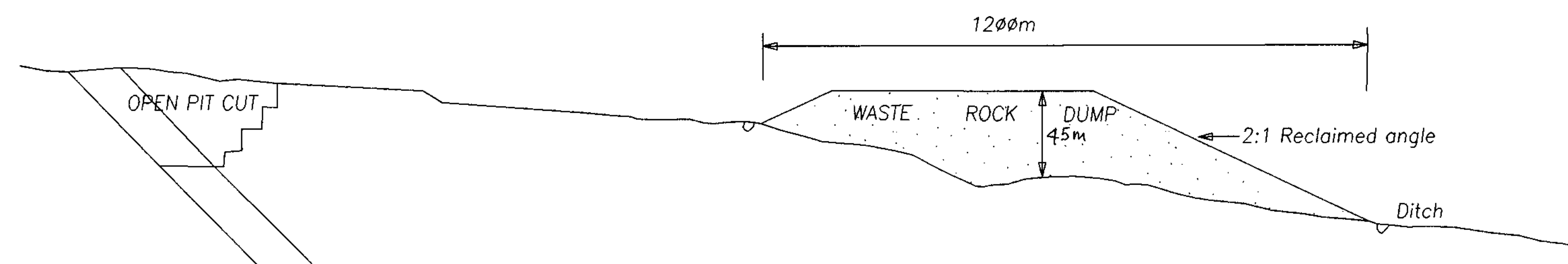


1200m

SECTION 4

WEST

EAST

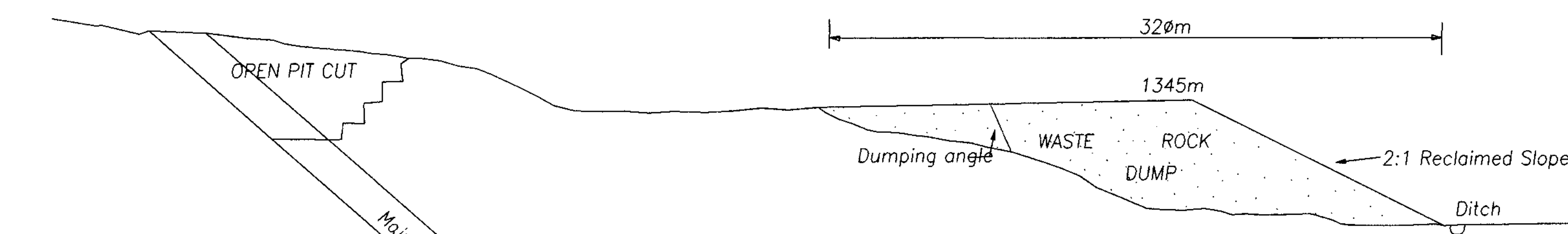


1200m

SECTION 5

WEST

EAST



1200m

SECTION 5+100 North

LEGEND

#874

Project Name --- TULAMEEN COAL PROJECT

Plan Title --- WASTE ROCK DUMP PROFILES

Scale --- 1 : 2000

Drawing No's --- M-98-6 & M-98-7



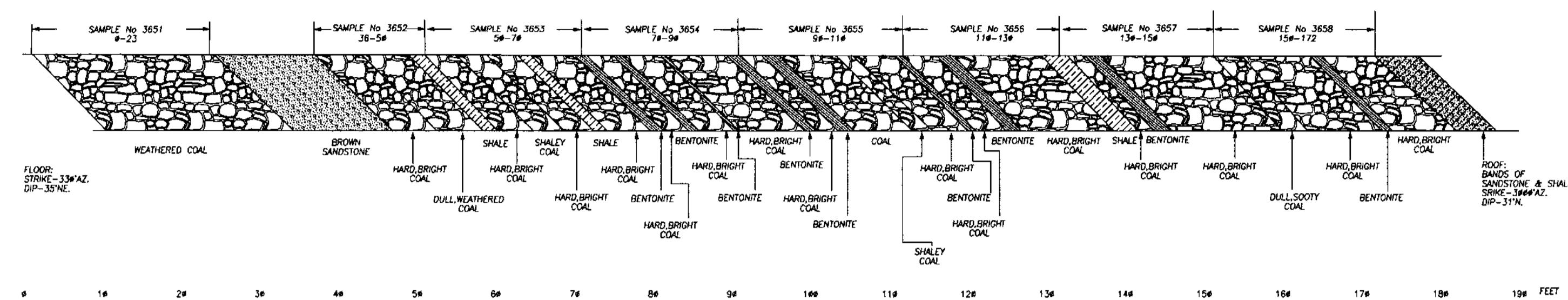
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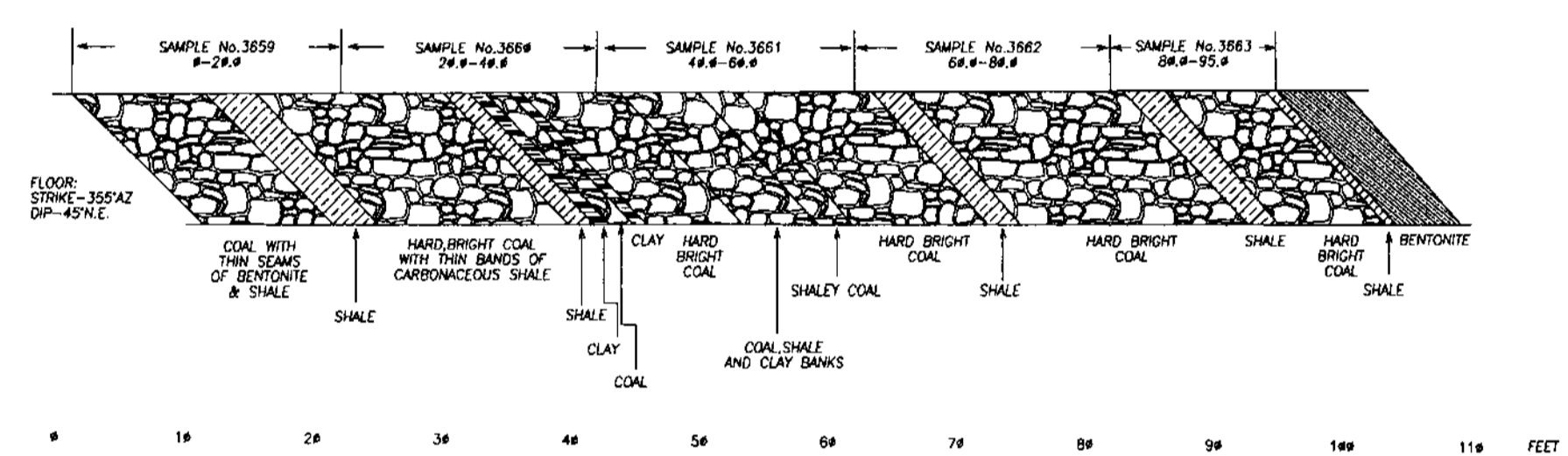
3 Swanwick Court, Alfreton, Derbyshire, UK. DE55 7AS
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LEGEND

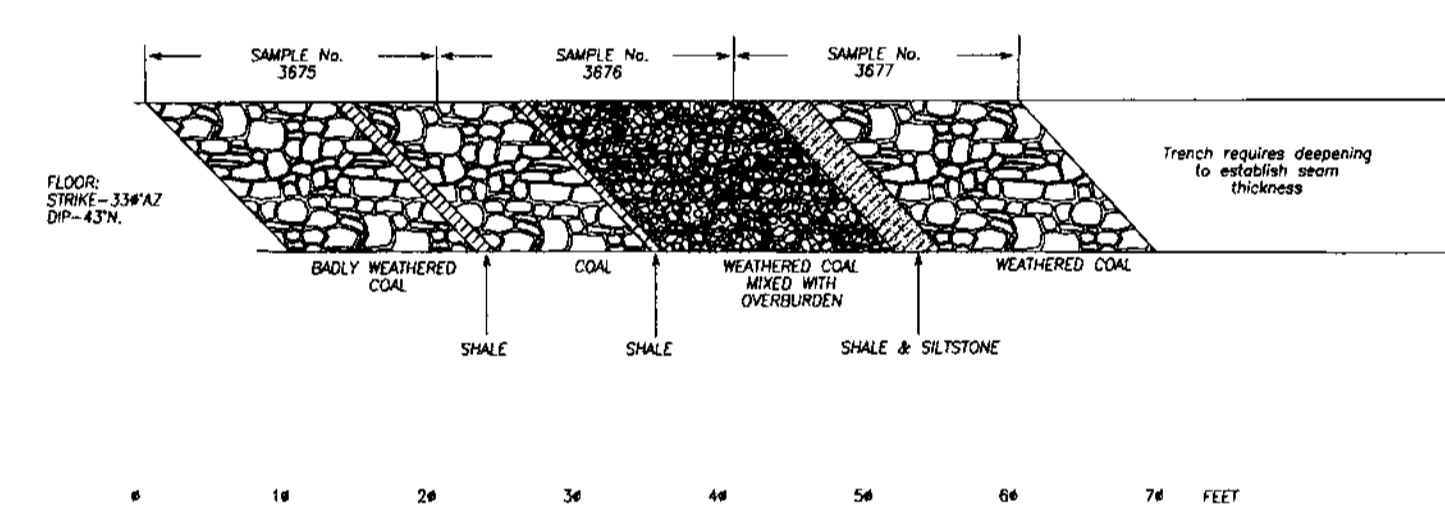
- OVERBURDEN
- SILTSTONE
- BENTONITE
- COAL
- CLAY
- SHALE
- SANDSTONE



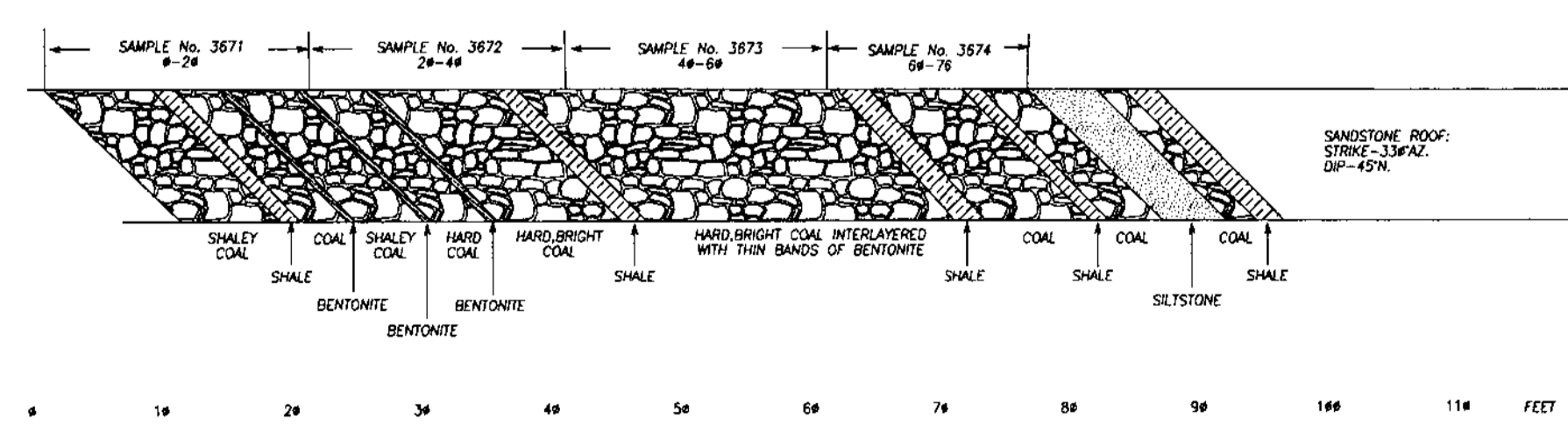
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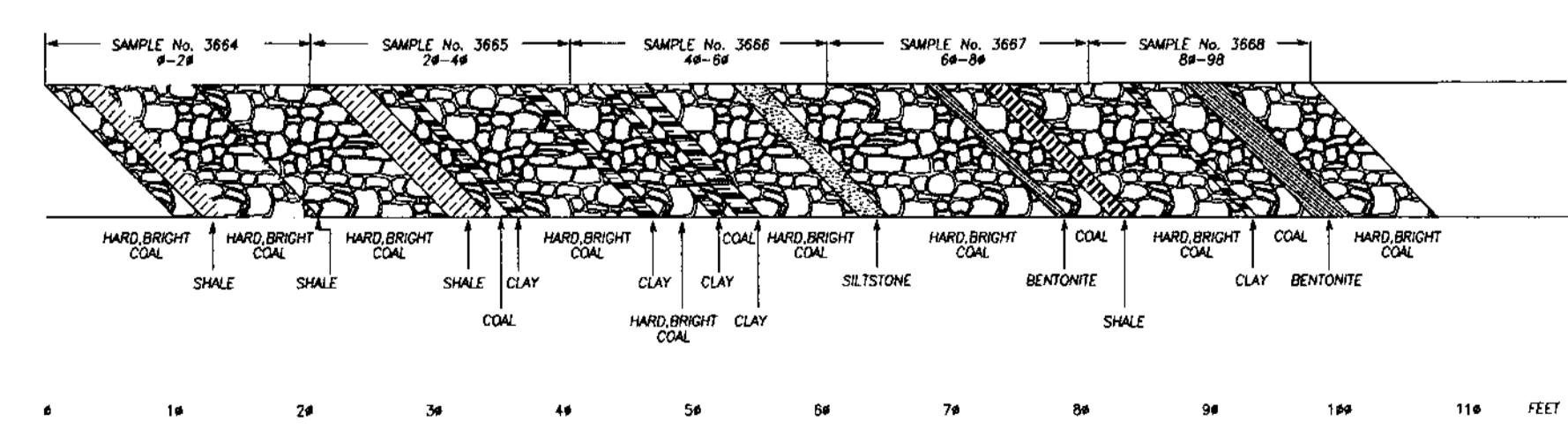
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TRENCH No. 3 SECTION No. 3



TRENCH No. 4 SECTION No. 2



TRENCH No. 5 SECTION No. 5

#874

Project Name :- TULAMEEN COAL PROJECT

Plan Title :- MAIN SEAM TRENCH SAMPLING

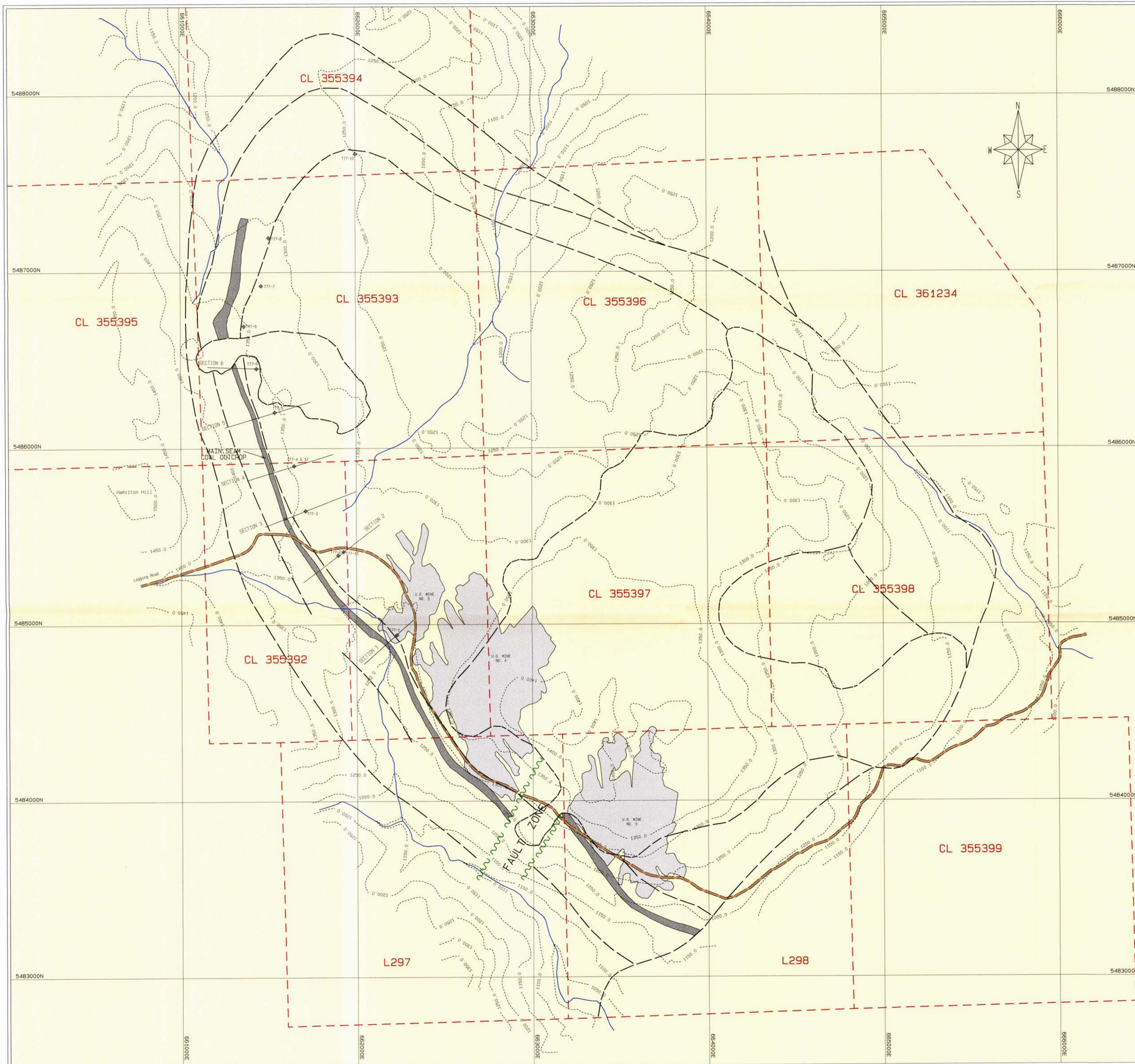
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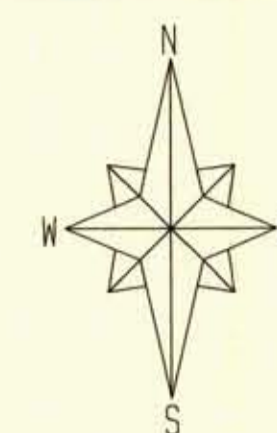
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-LEGEND-

- MAIN SEAM - OUTCROP
- OLD UNDERGROUND WORKINGS
- LOGGING ROAD
- FAULT ZONE
- GEOLOGICAL CONTACT
- COAL LICENSING AREA
- ++++ EXPLORATION DRILL HOLE
- WATER
- CONTOURS AT 50m INTERVALS



#874

Project Name :- TULAMEEN COAL PROJECT

Plan Title :- GEOLOGY & EXPLORATION PLAN

Scale :- 1 : 10000 Drawing No :- G-1

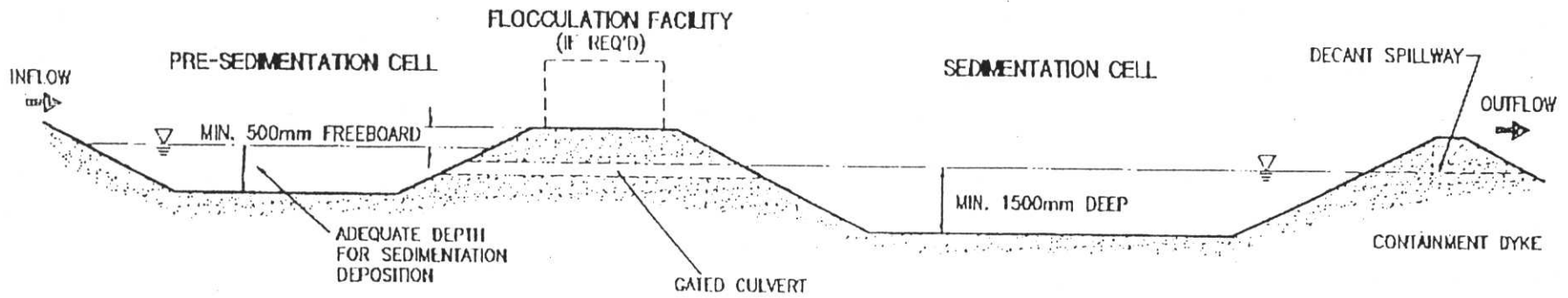


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#874



TULAMEEN COAL PROJECT

SCALE:

APPROVED BY:

DRAWN BY

DATE:

REVISED

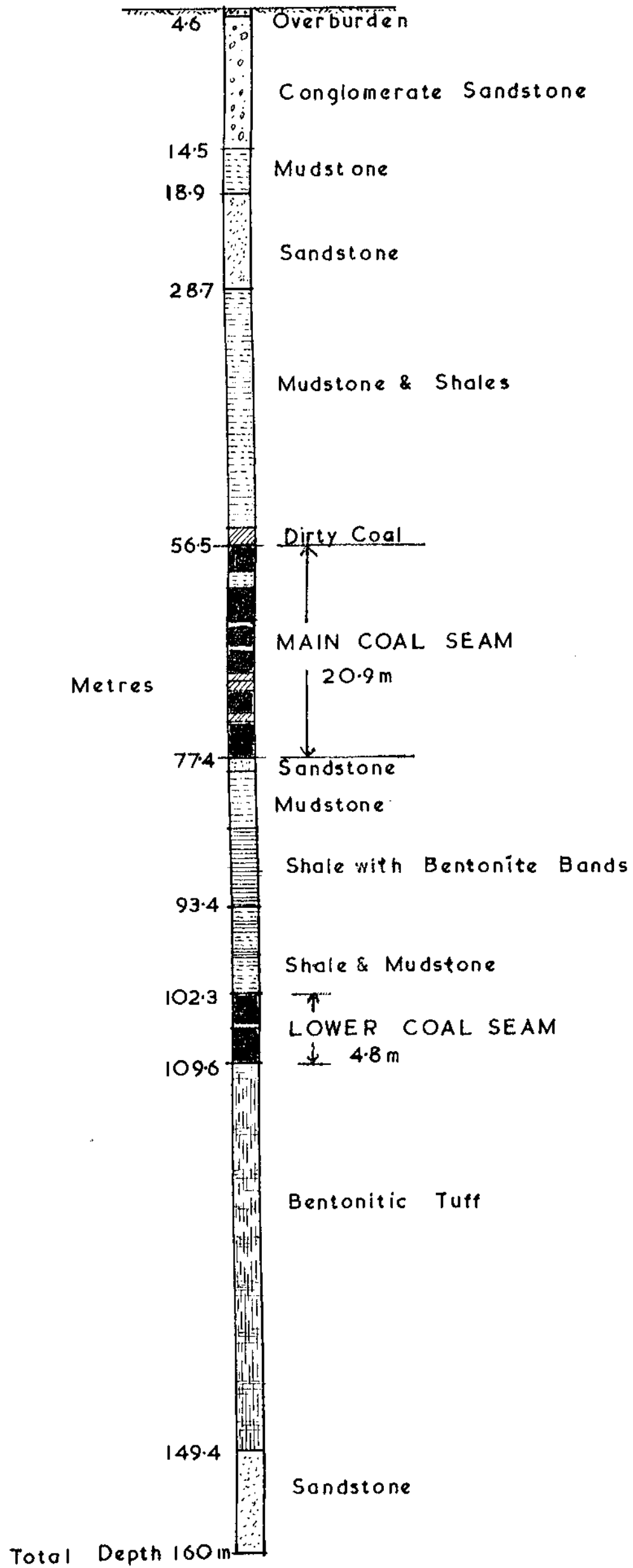
Typical Sedimentation Pond

DRAWING NUMBER

WM-I

DRILL HOLE T-77-3 (45° Angle)

#874



TULAMEEN COAL PROJECT

Stratigraphical Column

Scale: 1/500

Fig. G-2