

ARCHER, CATHRO

& ASSOCIATES (1981) LIMITED

CONSULTING GEOLOGICAL ENGINEERS

1016-510 WEST HASTINGS STREET
VANCOUVER, B. C. V6B 1L8

(604) 688-2568

REPORT ON
1987 DIAMOND DRILLING
WELLGREEN PROPERTY
SOUTHWESTERN YUKON TERRITORY

NTS 115G/5

Latitude 61°28'N Longitude 139°32'W

Whitehorse Mining Division

By

HUDSON-YUKON MINING COMPANY, LTD.

CHEVRON MINERALS LTD.

ALL-NORTH RESOURCES LTD.

EIP 87009

Prepared by:

R.C. Carne, M.Sc.

February, 1988

INTRODUCTION

This report summarizes exploration during 1986 for platinum group element (PGE)-rich copper-nickel sulphide mineralization on the former Wellgreen Mine property, southwest Yukon Territory. This work was initially wholly funded by Kluane Joint Venture (Chevron Minerals Ltd. and All-North Resources Ltd). Kluane JV earned a 50% interest in the 91 claim property on an option from Hudson-Yukon Mining Company, Ltd. by undertaking cumulative exploration expenditures of \$1,000,000 between the option date of August 21, 1986 and the earn-in date of August 7, 1987. Additional exploration to December 31, 1987 was funded on an equal basis by Hudson-Yukon and Kluane JV. Hudson-Yukon was purchased from Hudson Bay Mining and Smelting Co. Ltd. by Galactic Resources Ltd. in 1987. On November 13, 1987 Galactic effectively gained control of a 75% working interest in the property through transfer of a controlling interest in All-North to Galactic for the assets of the Hudson-Yukon subsidiary.

Although a great deal of underground exploration had previously been carried out on the Wellgreen property, that work was directed to outlining reserves of high-grade nickel mineralization in a relatively small area. The focus of the 1987 exploration was to evaluate a much larger area of the property for base metal and PGE potential in a variety of geological settings. Consequently, the 1987 exploration program was, in effect, a first stage effort guided by day-to-day advances in the understanding of the property geology. In this regard, two visits to the property in May and September by Dr. L. Hulbert, an ultramafic rock and PGE mineralization expert with the Geological Survey of Canada were of great benefit.

Chevron was the project operator while field management was contracted to Archer, Cathro & Associates (1981) Limited. Chevron provided an on-site computer system with operator to record diamond drill data as part of its joint venture management role.

LOCATION AND ACCESS

The 91 claim Wellgreen property lies in southwest Yukon, 14 km southwest of Km 1788 on the Alaska Highway at 61°28'N and 139°32'W on NTS Map 115G/5 (Figure 1 and 2). A good two-wheel drive road, formerly used for ore haulage, connects the property with the mill site on the highway. Whitehorse is 317 km to the east, about a four hour drive. The nearest airport is 30 km east of Km 1788 at Burwash Landing. An all-season deep-sea port on tidewater is located at Haines, Alaska, which lies 410 km to the southeast by good quality paved road.

Kluane National Park lies 25 km to the south. The property lies within Kluane Game Sanctuary.

Sections of the mine access road had degraded during the fourteen year period since regular maintenance ceased and those were repaired in 1987. Much of the 2 km road linking the camp area with the main access road was also relocated to minimize creek crossings and boggy areas.

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction	1
Location and Access	2
History and Previous Work	3
1987 Program	5
Claim Status	6
Physiography and Climate	7
Logistics, Equipment and Personnel	9
Diamond Drilling	11
Property Geology	12
Mineralization	18
West Zone	23
East Zone	24
North Zone	26
Author's Statement of Qualifications	

LIST OF TABLES

<u>NO</u>		<u>LOCATION</u>
I	List of Claims and Leases	Following Page 6
II	Table of Formations - Kluane Ultramafic Belt	Following Page 12
III	1987 Diamond Drilling	Following Page 11

TABLE OF CONTENTS (cont'd)

LIST OF FIGURES

<u>NO.</u>		<u>LOCATION</u>
1	Regional Location Map	Following Page 2
2	Area Location Map	Following Page 2
3	Claim Locations and Work Summary, West Half	Pocket 1
4	Claim Locations and Work Summary, East Half	Pocket 1
5	Generalized Geology	Pocket 2

APPENDICES

A	Diamond Drill Section with Assays	Pockets 2-12
---	---	--------------

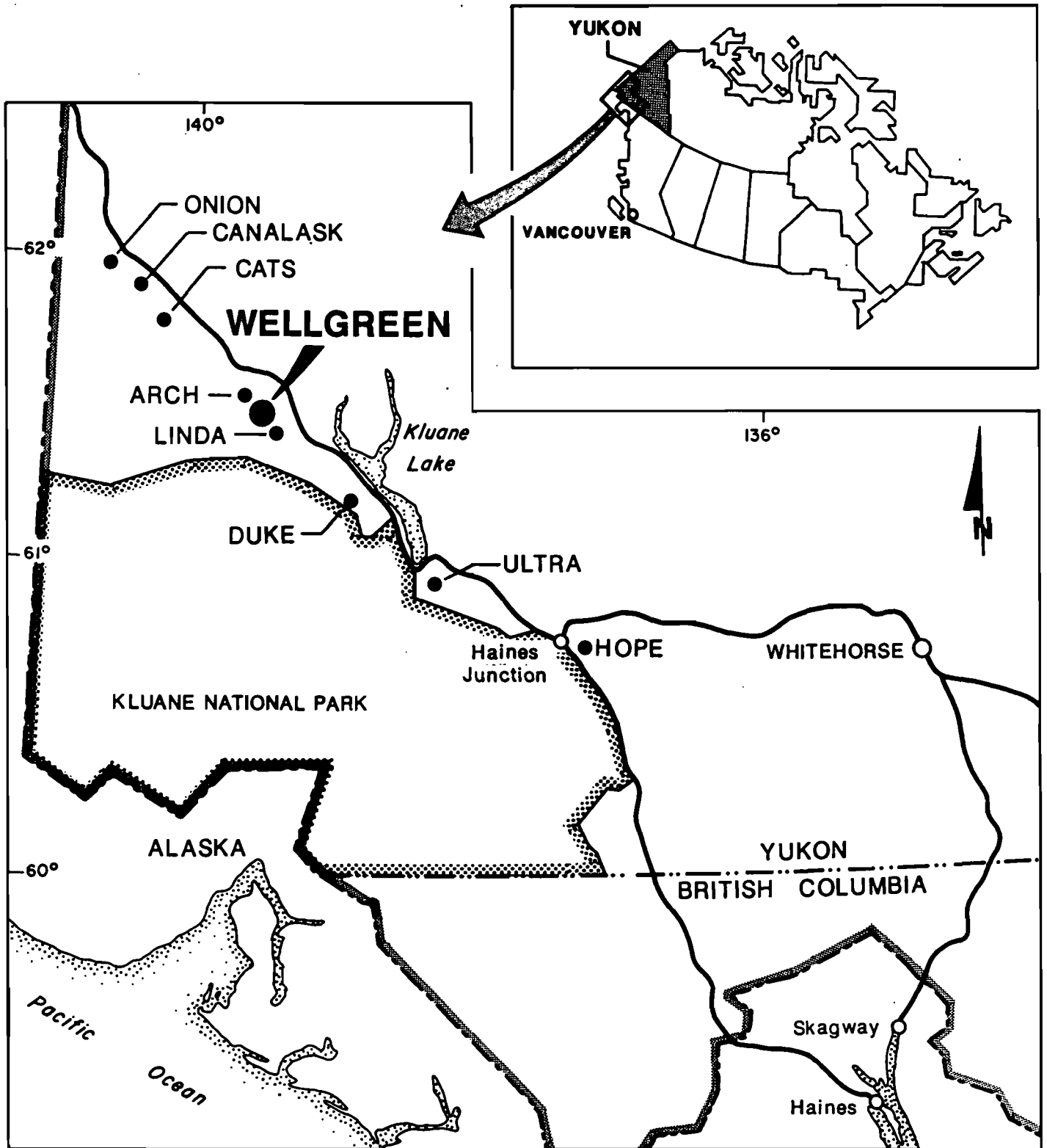


Figure 1
LOCATION
WELLGREEN PROPERTY
 YUKON, CANADA



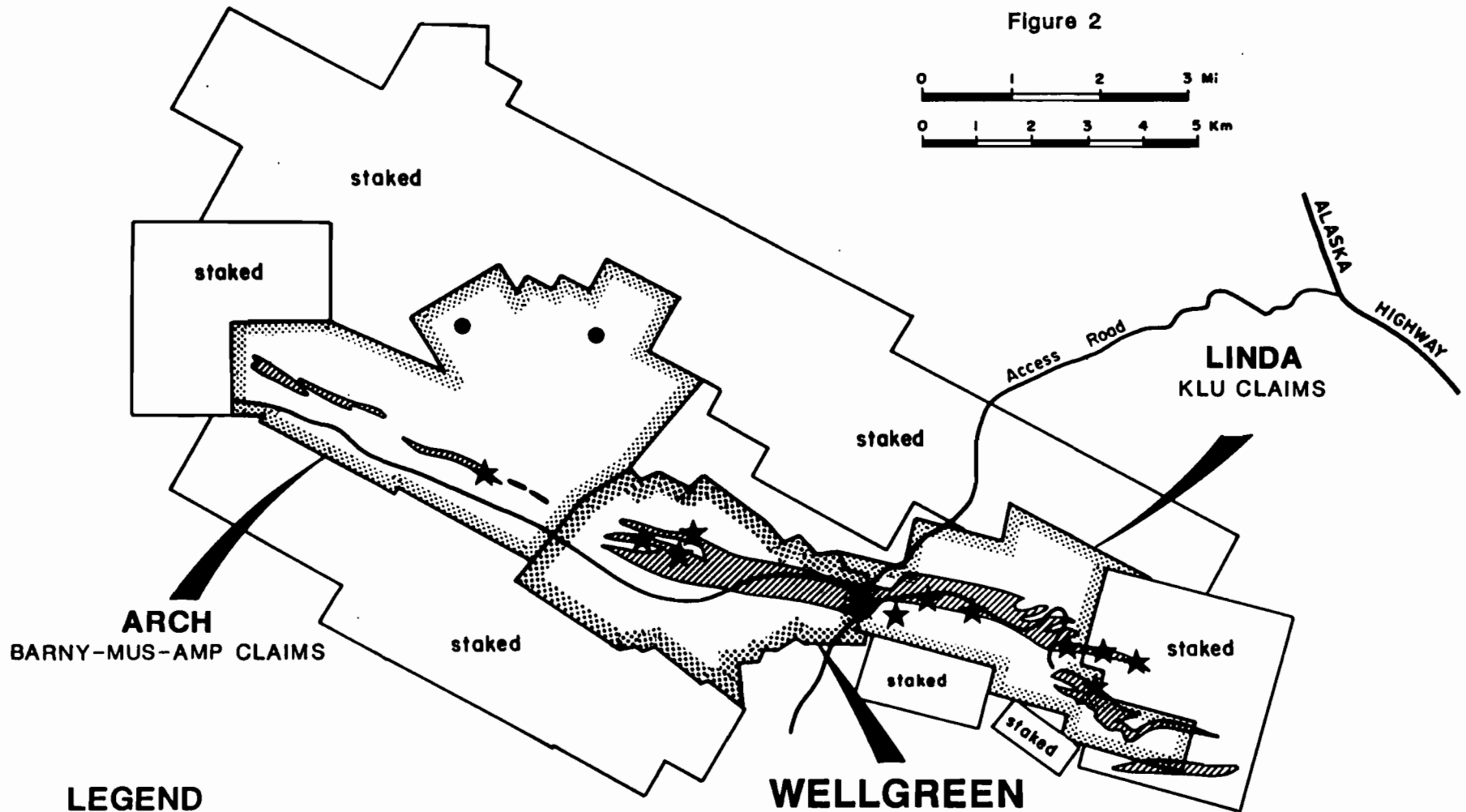
PROPERTY LOCATION MAP

QUILL CREEK AREA

YUKON, CANADA

WELLGREEN DEPOSIT

Figure 2



LEGEND

- Ultramafic rocks
- Pt-Cu-Ni showing
- Au showing

HISTORY AND PREVIOUS WORK

The Wellgreen surface showings were discovered in 1952 by prospectors Wellington (Wally) Green, C.A. Aird and C.E. Hankins. The property was optioned by Hudson Bay Exploration and Development Company Limited in 1952 and was held between 1955 and 1987 through a subsidiary, Hudson-Yukon Mining Company, Ltd. Between 1953 and 1956, the property was explored with 4267 m of underground development on seven levels, including two internal shafts and 19,812 m of surface and underground diamond drilling. Ground geophysical surveys (magnetometer and Turam EM), a geochemical survey (copper and nickel only) and 762 m of surface diamond drilling (13 holes) were carried out in 1968.

In March, 1970, a production decision was made with announced reserves tabulated below:

	<u>Ni</u> <u>%</u>	<u>Cu</u> <u>%</u>	<u>Co</u> <u>%</u>	<u>Pt</u> <u>oz/ton</u>	<u>Pd</u> <u>oz/ton</u>	<u>Au</u> <u>oz/ton</u>	<u>tonnes</u>
Proven Reserves* (diluted 10%)	2.04	1.42	0.073	0.038	0.027	0.005	669,150
"Medium Grade" (undiluted)	0.89	1.02	0.038	0.016	0.12	N.A.	93,750

*using a cutoff grade of 1.00% Cu and 1.50% Ni

Development work, which started in February, 1970, consisted of slashing the exploration drift, sinking an internal shaft and driving sublevels in preparation for stoping. A mine dry, powerhouse and compressor facility were built at the portal and a mill and townsite were established beside the Alaska Highway (14.5 km from the mine). Milling began on May 1, 1972 but was suspended on July 6, 1973 due to falling metal prices and excessive dilution caused by a weak peridotite hanging wall coupled with the unexpectedly erratic distribution of the massive sulphide lenses. Production was as follows:

	<u>1972</u>	<u>1973</u>	<u>Total</u>
Tonnes milled*	102,015	69,637	171,652
Rate (tonnes/day)	381	323	357

*includes milling of stockpiled ore.

	<u>Grade of Mill Feed</u>		
	<u>1972</u>	<u>1973</u>	<u>Average</u>
Ni	2.05%	2.49%	2.23%
Cu	1.35%	1.45%	1.39%
Pt*	0.065 oz/ton	0.065 oz/ton	0.065 oz/ton
Co*	0.073%	0.073%	0.073%

*Pt and Co grades were probably calculated from smelter receipts since assays for Pt and Co were not routinely carried out at the mine site.

No smelter receipts and limited information on mill recovery were provided with the Wellgreen data package.

Since closure, all buildings and machinery have been salvaged from the mine area and camp facilities have been removed from the Alaska Highway site. The mill machinery has also been removed and the buildings are currently being dismantled for salvage. The portal and two raises to surface were boarded up and covered with loose rock.

1987 PROGRAM

Exploration during 1987 comprised the following phases (work is summarized on Figures 3 and 4):

- i) about 15% of the underground drill core remained in storage from earlier Hudson-Yukon exploration and mineralized portions of 53 holes were reassayed for copper, nickel, cobalt, gold, platinum and palladium;
- ii) a series of east-west baselines 400 m apart was established by surveyors contracted from Underhill Engineering Ltd. to tie surface exploration to previous underground work. These were joined by crosslines at 50 and 100 m intervals. All lines were slope chained and picketed every 20 m with 0.5 m wooden lath pickets bearing grid coordinates on an aluminum tag;
- iii) 80% of the property, including all known areas of ultramafic rocks, was remapped at a scale of 1:2500;
- iv) VLF-EM, total field and gradiometer magnetic surveys were carried out over the total extent of ultramafic exposures on the property on crosslines spaced 50 m apart over the previously explored west half of the property and on 100 m line spacing over the unexplored east half of the property;
- v) bulldozer and excavator trenching was carried out at approximately 100 m spacing where practical to outline mineralization indicated from geophysical and geochemical surveys;
- vi) a soil sampling program totalling 860 samples was carried out on 50 m intervals on 100 m spacing over the known extent of mineralization and samples were analyzed for copper, nickel, gold, platinum and palladium;

- vii) diamond drilling totalling 4932 m in 45 holes was carried out over the 2 km strike length of known mineralization to evaluate the favourable footwall contact of the ultramafic sill at 100 m intervals;
- viii) the 4250 Level was rehabilitated to permit underground access; and,
- ix) preliminary environmental and engineering surveys were carried out to evaluate potential mine, mill and tailings disposal sites on the property and adjacent areas.

CLAIM STATUS

The Wellgreen Property consists of 91 claims held under a renewable 21 year Mining Lease which expires December 5, 1999. A complete list of claims is given on Table I on the following page while locations of individual claims are given on Figures 3 and 4. Four one mile placer prospecting leases were staked to protect surface rights on the west half of the property.

TABLE I
LIST OF CLAIMS AND LEASES - WELLGREEN PROPERTY

<u>Name</u>	<u>Grant Number</u>	<u>Lease Number</u>
Quill 1-8	60767-60774	2554-2561
Discovery 1-8	60775-60782	2562-2569
Wagoner 1-8	60783-60790	2570-2577
Ram 1-8	60791-60798	2578-2585
Irish 1-3	63001-63003	2586-2588
Irish 6	63006	2589
Sam 1-8	63013-63020	2595-2602
Mac 1-8	63021-63028	2603-2610
Betty 1-8	63029-63036	2611-2618
Red 1-8	63037-63044	2619-2626
Ross 25	64066	2629
Ross 15	64076	2627
Ross 16	64077	2628
Ross 94 Fr	64084	2632
Ross 95 Fr	64085	2633
Ross 85	64086	2630
Ross 86	64087	2631
Jeep 238	64122	2635
Ross 96 Fr	64587	2634
Jeep 96	64742	2636
Jeep 234	64828	2637
Jeep 236	64830	2638
Jeep 240	64832	2639
Jeep 242	64834	2640
Jeep 244	64836	2641
Jeep 265	66569	2642
Jeep 267	66571	2643
Jeep 268	66572	2644
Quill Fr	70829	2590
Ross <u>1-4</u> Fr	71432-71435	2591-2594
91 Claims		
<u>Placer Leases</u>		
Platinum 1		7415
Platinum 2		7719
Platinum 3		7720
Platinum 4		7718
Platinum 5		7717

PHYSIOGRAPHY AND CLIMATE

The Wellgreen property is located in the Kluane Ranges, a continuous chain of foothills along the northeastern flank of the much higher St. Elias Mountains. The topography of the Wellgreen area is relatively rugged. Slopes are usually in the 25 to 30 range and the highest peaks exceed 6000 feet elevation.

Glaciation was relatively light. Small cirque glaciers accumulated on north-facing slopes and coalesced to form localized valley glaciers.

The main mineralized zone on the property lies between elevations of 4250 and 5600 feet on a moderate to steep, unglaciated, south-facing slope. Permafrost is continuous and probably exceeds 30 m in depth from surface. During the summer and fall of 1987, the active layer retreated to a maximum depth of 1.5 m in areas of undisturbed vegetation cover. In September, 1987 the technicians with the Terrain Sciences Division of the federal Department of Energy, Mines and Resources installed a permanent thermocouple array in a drill hole on the property to record bedrock temperature gradients and the depth of permafrost.

Climate in the Kluane Ranges is relatively mild by Yukon standards. Although the area lies over 250 km from the Pacific Ocean, the moderating effect of the warm water mass is the dominating factor in the local climate over most of the year. Temperatures during the summer months range up to 20 with rare frosts. During spring and fall months, temperatures range between -10° and 10° , while winter temperatures are seldom less than -20° for extended periods of time.

The Wellgreen area lies in the rain shadow of the St. Elias Mountains and overall precipitation is light, however periodic Pacific storms bring short-lived periods of heavy precipitation.

A weather station was installed at the Wellgreen camp in July, 1987 and temperature ranges and rainfall are recorded on a daily basis.

LOGISTICS, EQUIPMENT AND PERSONNEL

A permanent tent camp was constructed on the Wellgreen property during the 1987 field season (Figure 3). The camp provides accommodation for a labour force of forty including shower and washing facilities, as well as a large kitchen complex. Electricity is provided by an 11.5 KW diesel generator. The camp also includes an office tent, storage/workshop tent and a large, well-lit enclosed core-logging facility.

Water for camp use is relayed by a 3 cm PVC black plastic pipeline from a creek located 0.9 km west of camp. The pipeline is laid on surface and is subject to freezing. Water lines in the camp are insulated and electrically heated. A 1400 litre temporary storage tank above camp is kept full through an insulated pipeline connected to the main water supply line through a bypass valve. This provides about one-half day's water supply. After September 20, when daytime temperatures remained below freezing, the main pipeline did not thaw in the afternoon and water had to be hauled by truck to the storage tank two or three times per day. A 32 m deep, large diameter well was drilled in the valley bottom beside the kitchen. Water-bearing gravels were intersected at 29 m depth at the base of permafrost but the flow-rate is too low to be of use as a water supply.

Water for diamond drills was obtained by pumping from Hankins Creek and Aird Creek. A diesel powered, hydraulic-driven supply pump was used to pump water from Aird Creek at about 17E, 3+50N through a steel pipeline to the ridge that divides the East Zone from the West Zone at 26E, 2+00N. This is a horizontal distance of 900 m with a vertical lift of 274 m.

A two-wheel drive all-weather road, formerly used for ore haulage, connects the property with the Alaska Highway. Soft, rough or narrow sections were upgraded in 1987 so that large fuel or freight trucks can now drive directly to the camp or portal areas.

Access to the areas of drilling and trenching was through a 13 km network of four-wheel drive roads constructed in 1987. These are in relatively steep, unstable areas and require frequent maintenance.

A motel-cafe-garage complex located at Kluane Wilderness Village on the Alaska Highway, 8 km west of the former Wellgreen mill site provides year-round meals, accommodation and minor vehicle repairs. Fuel (diesel, gasoline and propane) for camp use was purchased here at a volume discount. Diesel fuel and gasoline used by equipment contractors was trucked in bulk from Whitehorse.

The prime equipment and drill contractor for the 1987 program was E. Caron Diamond Drilling Ltd. of Whitehorse. In addition to three Longyear 38 skid-mounted diamond drill rigs, Caron provided a Caterpillar D6C winch-equipped bulldozer for drill moves and road maintenance and a Caterpillar D7F ripper-equipped bulldozer for trenching, road construction and drill site preparation. A Caterpillar 225 tracked excavator sub-contracted from Arctic Backhoe Service Ltd. was used for trenching and road maintenance. A Caterpillar D7E was sub-contracted from Petecrews Mining and used for road building, trenching and drill site preparation. A track-mounted Schramm reverse circulation, rotary percussion drill was supplied by Caron to drill a water well and to twin one diamond drill hole.

Underhill Engineering Ltd. was contracted to establish a series of east-west baselines on the property in May, 1987 using a direct metric conversion of the old mine grid. The two surveys were tied together by relocating a surface

traverse which was linked to the underground workings in 1953. Drill hole collars, trenches and roads were surveyed during June, July and August by a surveyor-technician employed by the project. Underhill Engineering returned in October to survey collars of drill holes completed in September and October. Diamond drill sites are marked with one metre posts wired to 1.5 m metal rods driven into the ground. The posts are labelled as to drill hole, azimuth and angle with permanent metal tags.

DIAMOND DRILLING

Diamond drilling commenced on July 6, 1987 and was completed on October 2, 1987. The program consisted of 4932 m in 45 holes numbered 87-61 to 87-105. Three skid-mounted Longyear 38 diamond drill rigs equipped to drill BQ, NQ or HQ sized core were used.

Ground conditions in peridotite can best be described as "fair to poor" with many sections of badly broken rock. A variety of drilling muds and fluids was employed with little success to counteract periodic loss of drill cuttings return in peridotite sections of most holes. Best results were obtained using Maatex, a powder which is activated with a little diesel fuel and added to the mud tank to form a gelatinous polymer which increases the viscosity of water. Gabbro and volcanoclastic rocks generally core well with good recoveries. The quartzite footwall to the East Zone cores well but it is extremely hard and progress is slow.

Coordinates of diamond drill collars, drill hole elevations and drill hole azimuths were located by theodolite. Acid tests were carried out at approximately 50 to 60 m intervals to record flattening or steepening of the holes. Diamond drilling is summarized in Table III on the following page.

TABLE III: 1987 DIAMOND DRILLING

Hole No.	Depth (m)	Core Size	Collar		Collar Elev.(m)	Azimuth	Collar Angle	Start Date	Finish Date
			North	East					
87-61	93.6	NQ/BQ	15592.1	1804.2	1491.8	1 05'	-48.5	06/07	15/07
-62	125.6	NQ	15593.6	1804.1	1491.7	1 05'	-70.0	10/07	13/07
-63	106.4	NQ	15540.4	2003.1	1512.7	0 25'	-50.0	16/07	17/07
-64	66.8	HQ	15484.4	2305.4	1567.5	355 31'	-45.0	18/07	20/07
-65	110.6	NQ	15483.1	2305.8	1567.4	355 31'	-70.0	20/07	22/07
-66	109.4	NQ	15449.0	2410.5	1632.8	0 20'	-50.5	23/07	25/07
-67	168.6	NQ	15448.6	2410.3	1632.7	0 20'	-71.5	25/07	29/07
-68	57.0	HQ	15534.2	2677.8	1695.8	358 20'	-51.0	27/07	30/07
-69	99.1	NQ	15492.4	2491.4	1679.6	0 49'	-50.0	29/07	02/08
-70	62.2	NQ	15558.4	2803.3	1679.1	3 32'	-50.0	30/07	01/08
-71	115.8	NQ	15588.9	2801.8	1679.7	3 32'	-87.5	01/08	04/08
-72	53.0	NQ	15534.7	2596.4	1729.2	359 28'	-50.0	03/08	05/08
-73	39.6	NQ	15492.0	2899.6	1613.4	6 25'	-50.0	04/08	05/08
-74	96.0	NQ	15470.7	2199.8	1556.1	2 29'	-50.0	05/08	08/08
-75	60.1	HQ	15490.9	2899.3	1613.1	6 25'	-90.0	05/08	08/08
-76	50.9	NQ	15461.2	3001.1	1576.8	357 51'	-50.0	08/08	10/08
-77	139.0	HQ/BQ	15469.6	2199.7	1556.3	2 29'	-74.5	08/08	13/08
-78	84.4	NQ	15460.4	3001.1	1576.8	357 51'	-90.0	10/08	13/08
-79	30.5	NQ	15452.9	3099.9	1533.5	2 10'	-50.0	13/08	13/08
-80	41.5	NQ	15451.8	3100.0	1533.5	2 10'	-90.0	13/08	14/08
-81	132.6	NQ	15502.5	2103.2	1549.7	6 23'	-50.0	14/08	18/08
-82	42.7	NQ	15345.2	3177.6	1444.9	7 20'	-50.0	15/08	16/08
-83	61.9	NQ	15344.0	3177.5	1444.7	7 20'	-90.0	16/08	18/08
-84	71.6	NQ	15369.8	3095.9	1483.3	9 16'	-50.0	18/08	20/08
-85	77.1	NQ	15501.4	2103.1	1549.6	6 23'	-90.0	18/08	21/08
-86	75.6	NQ	15369.0	3095.8	1483.3	9 16'	-90.0	20/08	22/08
-87	184.1	NQ/BQ	15580.2	1898.6	1517.9	0 33'	-52.5	21/08	27/08
-88	171.0	NQ	15217.2	3184.1	1480.9	355 41'	-57.0	22/08	28/08
-89	206.7	NQ/BQ	15579.7	1898.8	1517.9	0 33'	-75.0	27/08	03/09
-90	205.4	NQ	15216.1	3184.3	1481.2	355 41'	-85.5	28/08	07/09
-91	98.5	NQ	15761.5	2964.1	1661.2	306 45'	-50.0	30/08	04/09
-92	99.4	NQ	15597.5	2000.1	1533.7	356 05'	-50.0	04/09	07/09
-93	70.1	HQ/NQ	15757.3	2971.3	1660.0	250 12'	-48.5	05/09	10/09
-94	160.0	NQ	15198.2	3292.4	1454.8	355 25'	-51.5	07/09	11/09
-95	61.0	NQ	15473.4	2001.3	1506.5	3 22'	-49.0	07/09	09/09
-96	185.6	NQ	15524.1	1796.4	1465.6	3 20'	-49.5	09/09	14/09
-97	152.1	NQ	15756.6	2971.4	1660.1	355 12'	-70.0	11/09	19/09
-98	159.1	NQ	15197.6	3292.3	1454.9	355 25'	-70.0	12/09	16/09
-99	80.8	NQ	15620.7	1690.8	1456.2	3 06'	-50.0	15/09	17/09
-100	95.1	NQ/BQ	15206.6	3403.9	1398.2	2 18'	-54.0	16/09	18/09
-101	52.4	NQ/BQ	15621.1	1690.3	1456.3	3 06'	-69.0	17/09	20/09
-102	210.9	HQ/NQ	14753.7	3506.9	1312.9	0 43'	-49.0	19/09	25/09
-103	183.2	NQ	15421.3	2194.3	1528.1	10 22'	-49.5	20/09	25/09
-104	222.8	NQ	15544.0	1896.7	1500.4	3 43'	-48.5	21/09	30/09
-105	162.2	NQ	15438.8	2092.1	1520.5	11 58'	-50.0	26/09	02/10

PROPERTY GEOLOGY

Volcanic and Sedimentary Rocks

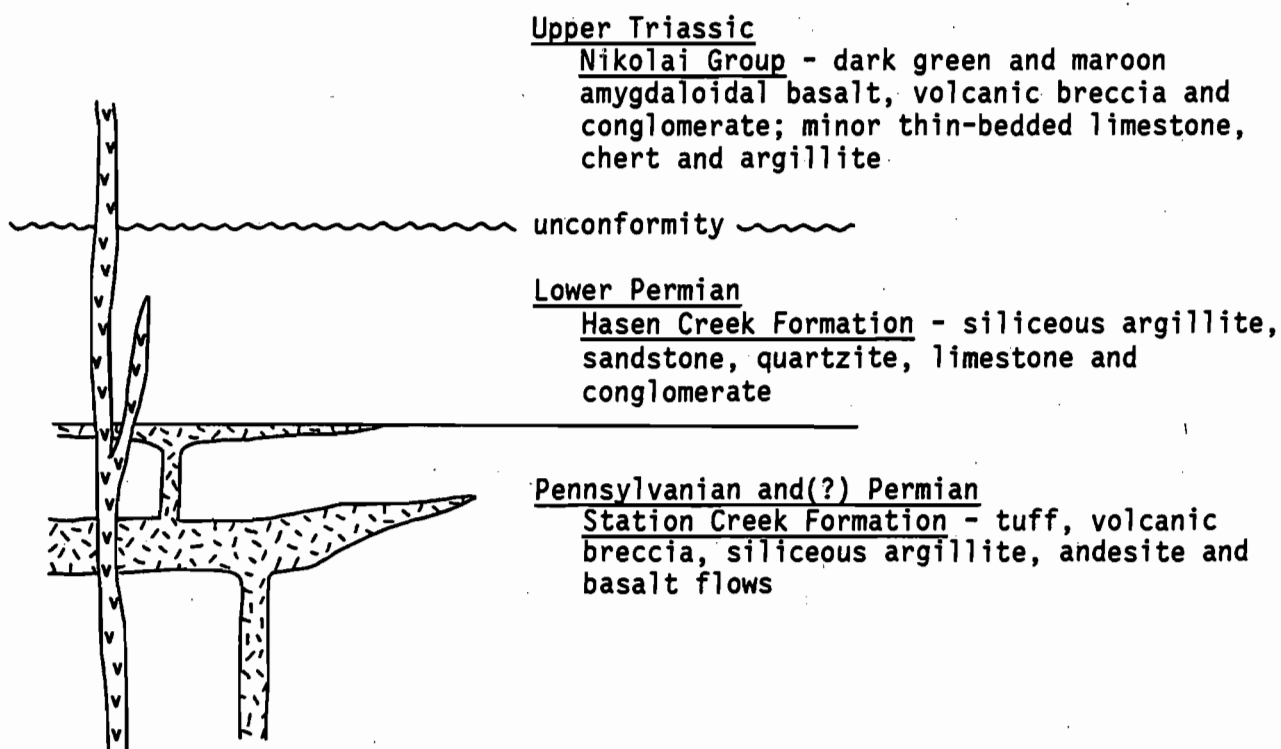
The property is underlain by a series of intrusive, volcanic and sedimentary rocks ranging in age from Pennsylvanian to Triassic. Oldest rocks are correlated with the Pennsylvanian to Permian Station Creek Fm, a predominantly volcanic sequence of light to medium green intermediate andesitic flows and subvolcanic porphyries, crystal and lapilli tuffs, tuff breccias, conglomerates and agglomerates. These are conformably overlain by a sequence of thin-bedded grey to black argillites, olive-grey volcanic siltstones, white to grey quartzite and recrystallized limestone of the Permian Hasen Creek Fm. Dark green and maroon amygdaloidal basalt, volcanic breccia and conglomerate with minor thin-bedded limestone, chert and argillite of the Upper Triassic Nikolai Group unconformably overlie the older rocks.

Igneous Rocks (excluding Quill Creek Ultramafic Complex)

Numerous white to light green or brown, feldspar or olivine porphyritic felsic dykes are scattered throughout the ultramafic body and immediate footwall rocks at various orientations. They range from 0.05 m to 5.0 m in width and form resistant exposures, especially in contrast to sheared serpentinite. The wider dykes contain porphyritic feldspar phenocrysts in a fine-grained matrix. Margins are chilled, often with a "skin" of baked peridotite still attached. The contorted nature of some dykes suggests that they were intruded prior to deformation of enclosing ultramafic rocks. The distribution and composition of the dykes suggests that they could have been injected into the ultramafic body from melts generated in the floor of the sill during intrusion.

TABLE II

TABLE OF FORMATIONS - KLUANE ULTRAMAFIC BELT



INTRUSIVE ROCKS

not shown Oligocene biotite quartz latite porphyry to trachyte dykes and small stocks

not shown Cretaceous biotite-hornblende granodiorite, biotite-hornblende diorite and hornblende-biotite quartz diorite stocks



Upper Triassic medium-grained diabasic gabbro dykes and small stocks; probably feeders for Nikolai Group basalts



Lower Triassic differentiated ultramafic sills consisting mainly of peridotite with lesser dunite and gabbro

Quill Creek Ultramafic Complex

A variably serpentinized, 20 km long sill-like ultramafic body termed the Quill Creek Ultramafic Complex passes through the central part of the property in an east-west direction. The complex is emplaced near or at the stratigraphic contact between Station Creek and Hasen Creek Fms. Thickness of the ultramafite is estimated to range between 10 and 600 m although no complete section is exposed. The Wellgreen property contains a 5 km long segment along the thickest, central part of the sill while the Kluane Joint Venture Linda and Arch properties cover the east and west extensions, respectively.

On the Wellgreen property, the sill and enclosing country rocks are upright and steeply south-dipping to locally overturned. Intrusive contacts are abrupt and roughly conformable with bedding although on a detailed scale, the main footwall contact of the sill wanders up and down section over a stratigraphic interval of several hundred metres. In areas where the footwall contact is markedly discordant, thin sill-like apophyses of the main body extend several hundred metres along bedding into the host rocks. On the west part of the property, a 30 to 100 m thick subsidiary sill occurs about 200 m stratigraphically below the main body.

The Quill Creek Ultramafic Complex is layered with laterally extensive, distinct petrologic zones. Most of these phases, however, have suffered moderate to intensive serpentinization and distinction between them is sometimes difficult both on a macroscopic and a microscopic scale. A M.Sc. level post-graduate study of the chemistry and petrology of the Quill Creek Complex was begun in September, 1987 by Ken Wasliuk at the University of Saskatchewan.

The following descriptions of mafic and ultramafic rocks are compiled from detailed mapping and logging of diamond drill core and from petrological reports by Vancouver Petrographics Ltd. on material from mineralized zones on the west half of the property. These will be augmented and revised by results of ongoing petrological and chemical studies as they are received.

The basal unit of the main ultramafic body is a somewhat discontinuous, up to 10 m thick gabbro. This rock is massive and light to medium green to rusty brown weathering, depending on sulphide mineral content. A number of compositional and textural varieties of gabbro are present. In general, poikilitic clinopyroxene containing scattered idiomorphic plagioclase laths represents 40 to 60% by volume of the gabbro. Plagioclase crystals are typically twinned and commonly show zoning from an andesine rim to a bytownite core. Orthopyroxene is present in amounts up to 15% by volume. Accessory minerals include minor intergranular quartz and red biotite (phlogopite). Between 15 and 20% of the clinopyroxene is altered to chlorite \pm uralite \pm carbonate. Plagioclase is generally saussuritized. Orthopyroxene is usually altered to chlorite and epidote.

Gabbro grades abruptly upward to a clinopyroxene-rich peridotite (wehrlite) or pyroxenite which ranges up to 10 m in thickness. Clinopyroxene (diopside-hedenbergite) is the dominant rock forming mineral (40 to 50% by volume). Actinolite-tremolite aggregates (in part pseudomorphic after clinopyroxene) comprise 30 - 35% by volume. Olivine or its alteration products range from trace amounts to 10 or 20% by volume. Plagioclase, biotite, K-feldspar and chlorite are accessory silicate minerals.

Clinopyroxene-rich rocks grade upsection to peridotite in which serpentized olivine comprises 50 to 80% by volume and altered clinopyroxene and/or orthopyroxene range up to 10 to 20% by volume. Five to 10% by volume saussuritized plagioclase as an intercumulus matrix to olivine is typical of irregular areas of feldspathic peridotite within the much larger common peridotite phase.

The uppermost differentiate and volumetrically most significant part of the sill in the west part of the property is a medium to light green cumulate-textured dunite primarily composed of fine- to medium-grained, serpentized olivine. Accessory chromite and magnetite are present as interstitial grains and, less commonly, as poorly defined lamellar concentrations. The dunite is generally confined to the south-central part of the property where it is up to 400 m thick.

White to light green mafic-rich skarns occur in floor rocks adjacent to marginal facies gabbro and are particularly associated with complex interfingering relationships between gabbro and limestone (East Zone) and gabbro and calcareous tuffaceous siltstone (West Zone). East Zone skarns are formed within argillaceous sequences in otherwise relatively pure limestones. The coarse-grained skarn assemblage is dominated by creamy-white diopside and pale brown garnet in a matrix of fine-grained tremolite-actinolite and chlorite. The limestones are converted to coarse-grained marbles. The West Zone skarns are gradational with propylitic altered (carbonate-chlorite-epidote) tuffaceous rocks. In thin section, the rock is essentially composed of a fine- to medium-grained aggregate of prismatic diopside crystals in a fine-grained, felted aggregate of prehnite. The prehnite matrix encloses pockets of altered

chlorite and is possibly formed by retrograde alteration of a chlorite-amphibole protolith. A few chlorite masses include mossy clumps of a brown, fine-grained mineral tentatively identified as garnet.

Large lenses of propylitic carbonate altered andesitic tuff, tuffaceous siltstone and quartzite occur within the lower half of the east and central part of the ultramafic body. These may be "peels" of enclosing country rocks incorporated during intrusion of the sill or, alternatively, they may simply be fault-bounded slices of rock tectonically emplaced within the main body of ultramafic rock. The common association of marginal facies gabbro lining these inclusions and development of skarns in calcareous members, along with the lack of evidence for major faulting, suggests the former hypothesis.

Structural Geology

Much of the Wellgreen property is underlain by Pennsylvanian and Permian sedimentary and volcanic rocks that strike roughly 100 to 110 and dip 60 to 80 to the south. This sequence is little modified by folds or faults. The southern edge of the property is bounded by a west-northwest trending fault zone of regional extent. This structure is probably a splay of the much larger Shakwak Fault located 12 km north of the property. South of the main property area and across the fault zone, the Pennsylvanian to Triassic volcanic and sedimentary rocks are relatively flat-lying in contrast to the steeply-dipping sequence north of the fault.

Tops determinations from graded bedding in the sedimentary rocks on the main part of the property demonstrate that the sequence is upright and generally homoclinal. A minor anticlinal structure is located between the northern edge of the main ultramafic body and a narrow subsidiary sill.

Longitudinal structures are common in the ultramafic rocks either as shear zones within the peridotite cores of narrow subsidiary sills or as serpentized faults along the contacts between relatively competent gabbro and incompetent peridotite. Sense of movement on these structures has not been determined.

Three northerly-trending fault zones outlined by areas of low magnetic response coincide with prominent drainages in ultramafic rocks on the west end of the property. Results of diamond drilling indicate that the two westernmost structures are west-dipping reverse faults that displace the east (footwall) side up. The third fault occurs within the large dunite body in the central part of the main area of exploration. Displacement and orientation of this fault is not yet known.

The Quill Creek Ultramafic Complex is an obliquely crosscutting sill that strikes slightly north of west and cuts downsection from west to east and with depth. The floor of the sill is uneven and irregularities of varying scales are present. Some of these may have originated at the time of intrusion while others may be post-intrusive tectonic structures. Underground mine sections show these irregularities to be southwest-plunging "shelves" where host rock bedding flattens and "rolls" where the intrusive contacts steepen and become orthogonal to bedding. Massive sulphide mineralization and better grades of gabbro-hosted mineralization are spatially related to these structures. A more detailed evaluation of old underground data is required to establish the link between structure and mineralization.

MINERALIZATION

General

Three areas of mineralization have been discovered to date on the Wellgreen property. These are termed the "East Zone, "West Zone" and "North Zone". All are located on the west half of the claim block. The three zones contain sufficiently significant differences in style and grade of mineralization to be described separately in a following section of this report. Seven types of mineralization are common to all areas, however, and these are described below. Descriptions of mineralization are compiled from early Hudson-Yukon and government reports, from a 1981 Ph.D. thesis at U.B.C. by S. Campbell and from petrologic work by Vancouver Petrographics Ltd. and drill core and surface observations taken during 1987.

Type A: Massive Sulphides

Lenses of massive to heavily disseminated sulphides containing patchy fine-grained silicate masses occur in irregular zones along the base of the marginal facies gabbro that floors the sill. The dominant sulphide mineral is pyrrhotite with lesser chalcopyrite, pentlandite and minor violarite (nickel-iron sulphide), magnetite, chromite, ilmenite, rutile and cobalt-arsenides. Contact of the massive sulphide masses with footwall quartzite is abrupt and generally follows bedding although distribution of massive sulphides appears to be locally controlled by pre-ore joints and faults which form irregularities along the base of the sill. The contact of massive sulphide with overlying gabbro is generally sharp but in some sections a diffuse, irregular boundary is more typical. Fragments or inclusions of quartzite "float" in massive sulphide. A hornfelsed rim 2 to 10 cm wide envelopes the quartzite fragments and forms a selvage along the footwall contact of the lenses.

Pyrrhotite is granular and forms irregular masses. Pentlandite occurs as feathery exsolution flames in pyrrhotite, as patches rimming pyrrhotite grains and as coarse, well defined grains with octahedral parting. Chalcopyrite occurs as small, irregularly shaped blebs in pyrrhotite masses (usually at grain boundaries) and as patchy rims along the boundary between quartzite xenoliths or silicate inclusions in the massive sulphide.

The massive sulphide lenses occasionally show evidence of tectonic remobilization. A planar fabric is present, outlined by alternating bands of pyrrhotite-pentlandite and chalcopyrite-silicates. The silicate inclusions are aligned into planiform aggregates of rounded particles that are augen shaped with foliated sulphide minerals wrapped around them. Chalcopyrite intrudes the silicate masses as veinlets, stringers and irregular patches along fractures.

Massive sulphide bodies tend to be elongate, running up to 60 m in length and usually not more than 20 m in height. Thicknesses vary rapidly, ranging up to a 20 m maximum with widths of 1 to 2 m more common.

Type B: Quartzite-Hosted Sulphides

Quartzite-hosted sulphides occur in country rock within 2-3 m of the base of the sill. Mineralization occurs as fracture fillings, veins, breccia matrix or as irregular patchy replacements rimmed by fine-grained hornfelsed zones. Chalcopyrite is the dominant ore mineral followed by pyrrhotite with intergrowths of pentlandite. Arsenopyrite and/or cobalt arsenides are present as euhedral crystals along and within iron carbonate-quartz veins in quartzite adjacent to massive sulphide zones.

Type C: Gabbro-Hosted Sulphides

Gabbro-hosted disseminated sulphides are volumetrically the most significant type of mineralization on the Wellgreen property. Blebs of intercumulus sulphides - principally pyrrhotite with lesser chalcopyrite and pentlandite - are common throughout all areas of marginal facies gabbro. In a general sense, intensity of mineralization tends to increase toward the base of the gabbro unit and highest overall grades of copper, nickel and PGE's are concentrated in areas peripheral to massive sulphide lenses.

Sulphide patches are up to 1 cm in size and consist of variable amounts of chalcopyrite, pyrrhotite and pentlandite as complex intergrowths with intercumulus tremolite-actinolite. Pyrrhotite is by far the most abundant sulphide occurring as monomineralic mosaics of relatively fine-grained massive material. Pentlandite occurs as exsolution grains associated with larger pyrrhotite masses, forming flame and subhedral inclusions as well as partial rims on pyrrhotite. Chalcopyrite occurs in gangue as discrete grains near or adjacent to pyrrhotite masses. Chalcopyrite locally forms veinlets up to 0.005 mm wide cutting across pyrrhotite. In one polished section, native gold forms a 0.002 mm grain in a chalcopyrite veinlet in pyrrhotite. Irregular patches of massive sulphide are infrequent and appear to be scattered throughout the gabbro with no apparent control on their distribution.

Type D: Volcanic-Hosted Sulphides

Volcanic-hosted sulphide mineralization is restricted to the West Zone where andesitic tuff and tuffaceous siltstone is intruded by the ultramafic complex. Sulphides occur as randomly distributed, relatively coarse patches up to 2 cm across that often rim or partially replace altered hornblende crystals

in propylitic altered (carbonate-chlorite-epidote) to weakly skarnified rock adjacent to the floor of the main sill and as discontinuous envelopes around narrow subsidiary sills.

Pyrrhotite is the most common sulphide. Chalcopyrite occurs as rims on pyrrhotite grains as well as monomineralic grains. Very small grains of pentlandite (0.02 to 0.04 mm) occur within pyrrhotite. A few grains of native gold about 0.01 mm across occur in chalcopyrite in two polished sections. Sphene is a common accessory mineral, often associated with rutile or ilmenite.

Type E: Pyroxenite-Hosted Sulphides

The clinopyroxene-rich phase of the sill forms a 3 to 30 m thick blanket adjacent to gabbro that is especially well developed in the West Zone area.

Sulphide mineralization ranges from scattered irregular disseminations 0.2 to 1 mm in size to massive sulphide lenses up to 1 or 2 m thick. Sulphide masses are usually intimately intergrown with the chloritic matrix of the rock. Mineralization consists of pyrrhotite, chalcopyrite, and magnetite in complex intergrowths. Chalcopyrite often tends to rim pyrrhotite. Pentlandite occurs as flame structures in pyrrhotite. Magnetite also occurs independent of sulphides as very small euhedral and elongate grains rimming or disseminated throughout serpentized olivine.

Massive sulphide zones in pyroxenites of the West Zone contain irregular patches of relatively pure chalcopyrite within pyrrhotite-rich assemblages similar to Type A mineralization. These are accompanied by intense shearing and often have a streaky, mylonitic fabric outlined by sulphide mineral segregations.

Type F: Skarn-Hosted Sulphides

Skarns are developed in calcareous sequences intruded by the ultramafic complex in both the East Zone and West Zone areas. Mineralogy of the sulphides in both zones is similar except that the diversity of mineralization styles common to the East Zone skarns has not been observed in the West Zone. In the East Zone, irregular replacement patches, veins and fracture fillings of chalcopyrite-rich sulphide mineralization occur in scattered zones spatially related to, but not necessarily in contact with, the ultramafic body. In the West Zone, sulphide minerals occur as scattered, irregularly shaped clumps or disseminations principally in an intergranular relationship to diopside. Sulphides are mainly chalcopyrite with lesser intergrowths of pyrrhotite and pyrite. Pentlandite occurs as exsolved grains within or rimming pyrrhotite.

Type G: Peridotite-Hosted Sulphides

Very fine-grained sulphide mineralization occurs throughout the peridotite phase of the Quill Creek Ultramafic Complex on the west half of the Wellgreen property. Scattered sulphide minerals range from the low micron-size range to several millimetres across as partial rims and interstitial grains to serpentinized olivine. These are dominantly pyrrhotite with much less chalcopyrite. Pyrrhotite is strongly rimmed, veined and replaced by magnetite. Magnetite also occurs as occasionally discontinuous vein-like bodies.

WEST ZONE

West Zone mineralization was intersected by the initial drill holes of the 1987 program. This drilling was carried out to test combined geophysical anomalies that were not explained by previously known mineralization on the property.

West Zone mineralization occurs within and adjacent to a narrow east- west trending conformable sill subsidiary to the main ultramafic body. Orientation of the sill is variable, dipping steeply south at the east end of the zone and steepening through vertical to a steeply north-dipping, overturned aspect at the west end. Footwall rocks are tuffaceous calcareous siltstones, tuff breccias and agglomerates. The hanging wall of the zone at the east end is formed by the main ultramafic body which cuts obliquely upsection to the west. Midway along the West Zone, mineralization carries into a narrow sill which splits off the main ultramafic body along bedding in the host volcanoclastic rocks. This sill consists of a thin marginal facies gabbro on both walls which grades abruptly to a clinopyroxene-rich peridotite (wehrlite) core. Mineralization consists of Type C gabbro-hosted sulphides, Type D volcanic-hosted sulphides, Type E pyroxenite-hosted sulphides and Type F skarn-hosted sulphides.

Highest grade of mineralization occurs in the pyroxenite core where lenses of massive sulphide alternate with sections of moderately to heavily disseminated net textured sulphides. The best intersection is in Hole 87-87 which cut an 84 m interval (about 50 m true width) grading 0.77% copper, 0.27% nickel, 0.028 oz/ton platinum and 0.013 oz/ton palladium. This included an 11 m interval grading 1.62% copper, 0.50% nickel, 0.062 oz/ton platinum and

0.031 oz/ton palladium. In contrast to the East Zone, marginal facies gabbro is only weakly mineralized. Propylitic alteration zones and incipient garnet-diopside skarns in the host volcanic sequence adjacent to the sill are frequently well mineralized.

Mineralization in the West Zone has been outlined by drilling over a 600 m horizontal distance to a vertical depth of about 200 m. Grade of mineralization decreases with depth in concert with a narrowing of the host sill. A series of wide spaced horizontal holes drilled by Hudson-Yukon from the west end of the 4250 Level intersected wide zones of disseminated mineralization in gabbro and peridotite about 100 m below the east half of the West Zone. Whether this represents an unexplored continuation of the West Zone to depth or an unrelated area of mineralization remains to be confirmed by additional drilling.

The West Zone is open along strike and down plunge to the west where a moderate strength combined geochemical-geophysical anomaly persists for an additional 300 m.

EAST ZONE

Since discovery in 1952, the East Zone has been explored with 4267 m of underground development on seven levels, including three internal shafts and with over 500 surface and underground diamond drill holes. Limited production during 1972 and 1973 was carried out by Hudson-Yukon on discontinuous massive sulphide lenses within the East Zone.

East Zone mineralization occurs along the base of the main ultramafic body as discontinuous Type A massive sulphide lenses, as Type B quartzite-hosted

sulphides in fractures, veins, breccia matrix and as replacement zones in footwall quartzite, as Type C gabbro-hosted sulphides and as Type F skarn-hosted disseminated and massive sulphides. Gabbro-hosted mineralization is most significant, forming about 90% of the volume of mineralized rock in the East Zone. In a general sense, grade decreases upward from the well mineralized contact zone through heavily disseminated sulphides in gabbro to barren gabbro at the contact with overlying peridotite.

The mineralized portion of the East Zone has been outlined by extensive underground drilling over a strike length of 900 m and an average vertical extent of 200 m. The gently west-plunging and moderately to steeply south-dipping zone is open along strike at both ends and at depth. The base of the zone, as defined by earlier drilling, coincides with the depth at which the floor of the ultramafic complex cuts abruptly downsection through quartzite to a limestone-argillite sequence. Massive sulphide lenses along the gabbro-quartzite contact give way below this structure to mixed gabbro-skarn zones containing erratic sulphide veins and segregations. The highest PGE grades with respect to copper and nickel values from the 1987 reanalysis of available underground drill core were obtained from this type of material. For example, a reanalysis of remaining core from Hole U432 returned values of 1.52% copper, 1.03% nickel, 0.056 oz/ton platinum and 0.053 oz/ton palladium over a true width of 10.6 m. Because the massive sulphide lenses pinch out as the sill cuts downsection, the Hudson-Yukon mine staff assumed the East Zone mineralization did not persist to depth and no deep holes were drilled to test this concept.

NORTH ZONE

The North Zone is located in the east-central part of a narrow, 1200 m long sill that lies about 150 m stratigraphically below the main ultramafic body. Mineralization was first discovered by Hudson-Yukon prospecting in the 1950's and four small, isolated massive sulphide lenses were explored by hand trenching. No further work was carried out in the relatively rugged area until resampling in 1986 by Kluane JV. Three holes were drilled in 1987 to test the main showing area.

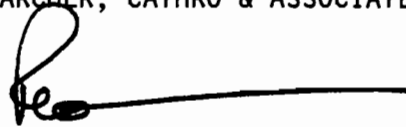
Geology of the North Zone bears similarities to both the West Zone and East Zone. Mineralization consists of Type A massive sulphide lenses at the footwall contact of the sill, as irregular Type B quartzite-hosted sulphides in fractures in host rocks, as Type C gabbro-hosted sulphides and as Type E pyroxenite-hosted sulphides.

Drill testing of the North Zone in 1987 was severely hampered by the difficulty in gaining access to drill sites on the frozen, steep north-facing slope above the zone and by extremely poor ground conditions. The only significant intersection is a 35 cm thick massive sulphide lens cut by Hole 87-97 that returned values of 2.07% copper, 5.79% nickel, 0.189 oz/ton platinum and 0.296 oz/ton palladium. Nearby very strong multi-element geochemical anomalies were not tested by the 1987 drilling. The entire 1200 m length of the North Zone sill is characterized by moderately to strongly anomalous geophysical and geochemical response. The steep terrain and thick talus cover over much of this strike length has limited the effectiveness of prospecting

and trenching as primary exploration techniques. Future exploration on the North Zone should be carried out by shallow drilling from surface and by medium length underground drilling from the 4250 Level.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

A handwritten signature in black ink, appearing to be 'R.C. Carne', written over a horizontal line.

R.C. Carne, B.Sc., M.Sc.

/mc

STATEMENT OF QUALIFICATIONS

I, Robert C. Carne, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia and residential address in Burnaby, British Columbia, hereby certify that:

1. I graduated from the University of British Columbia in 1974 with a B.Sc. and in 1979 with an M.Sc. majoring in Geological Sciences.
2. I am a member of the Geological Association of Canada.
3. From 1974 to the present, I have been actively engaged as a geologist in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981 became a partner of Archer, Cathro & Associates (1981) Limited.
4. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



Robert C. Carne, B.Sc., M.Sc.

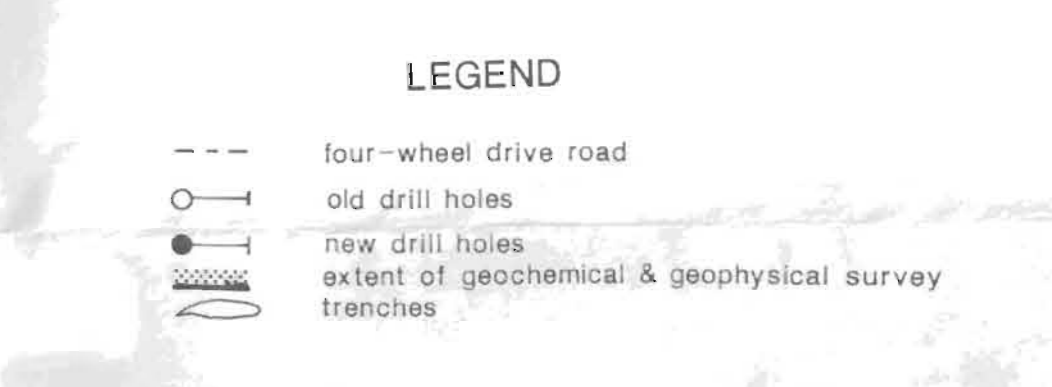
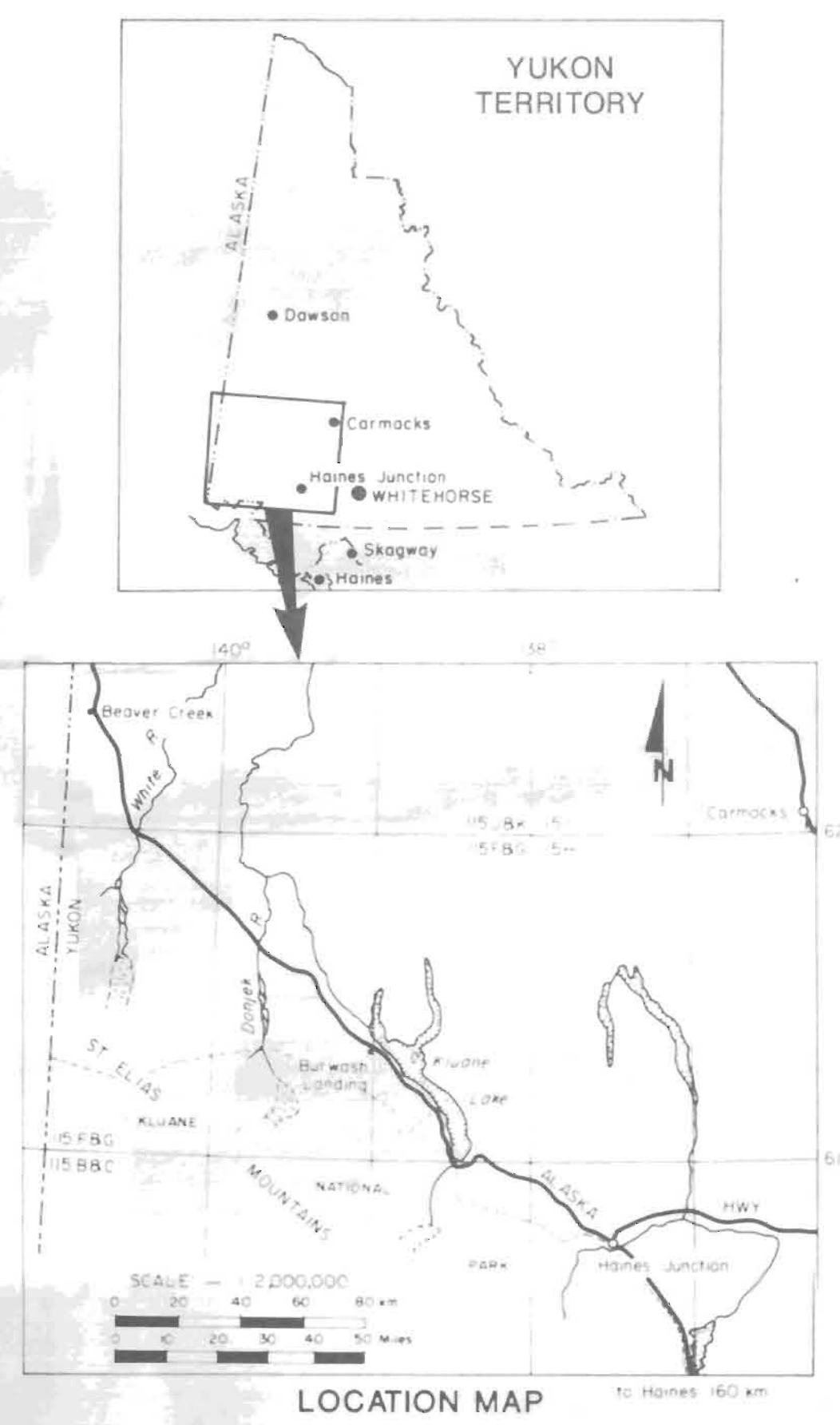
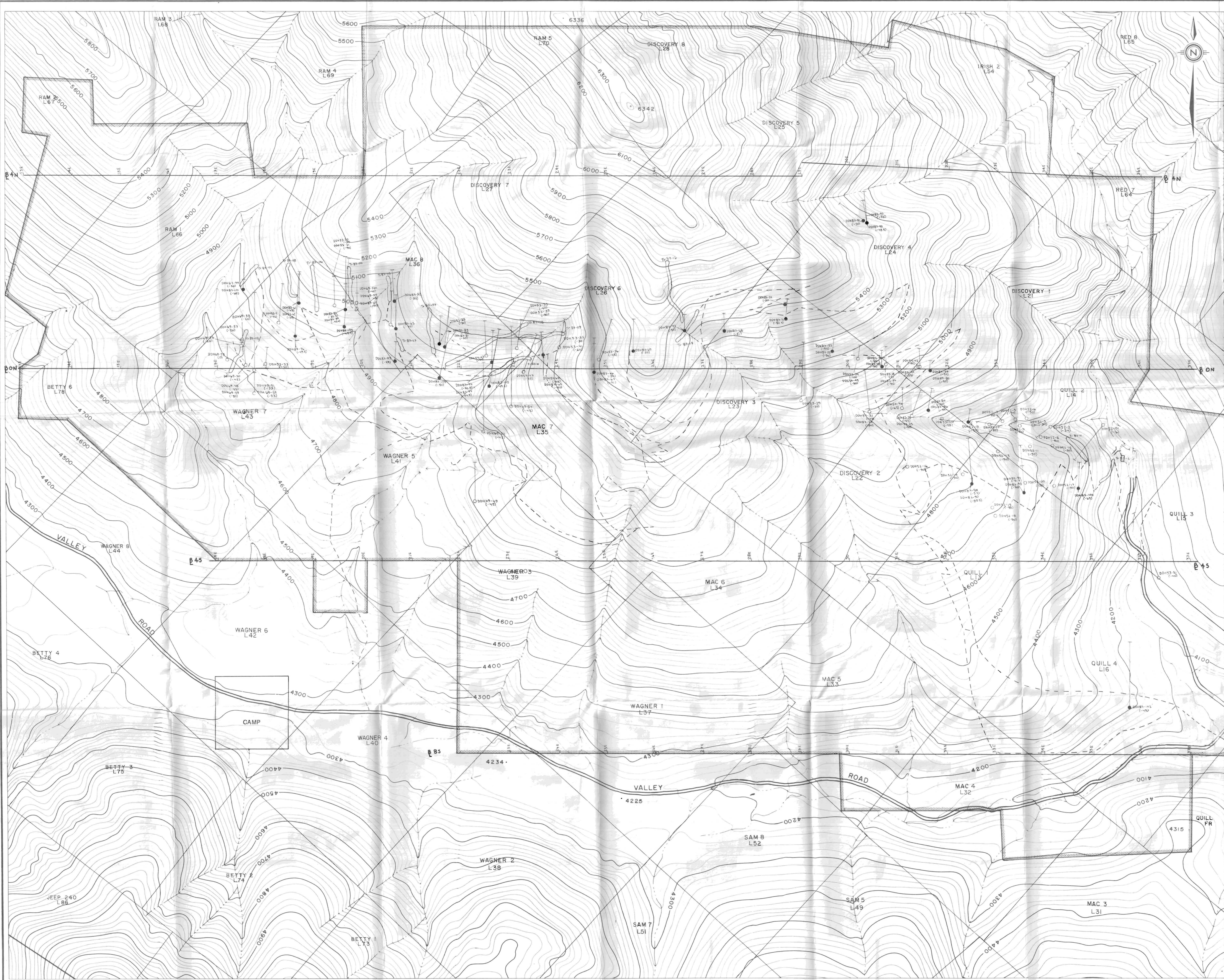
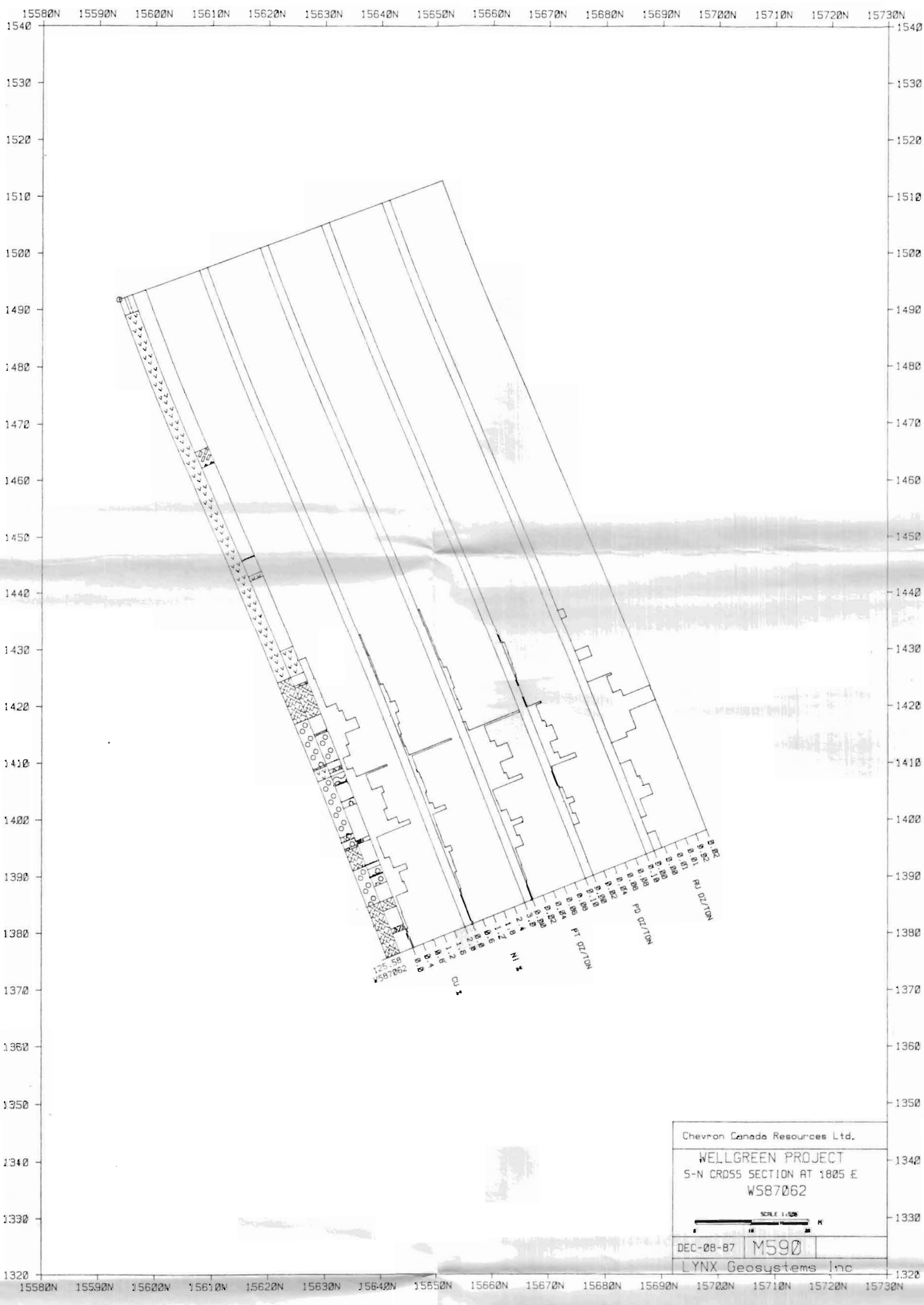
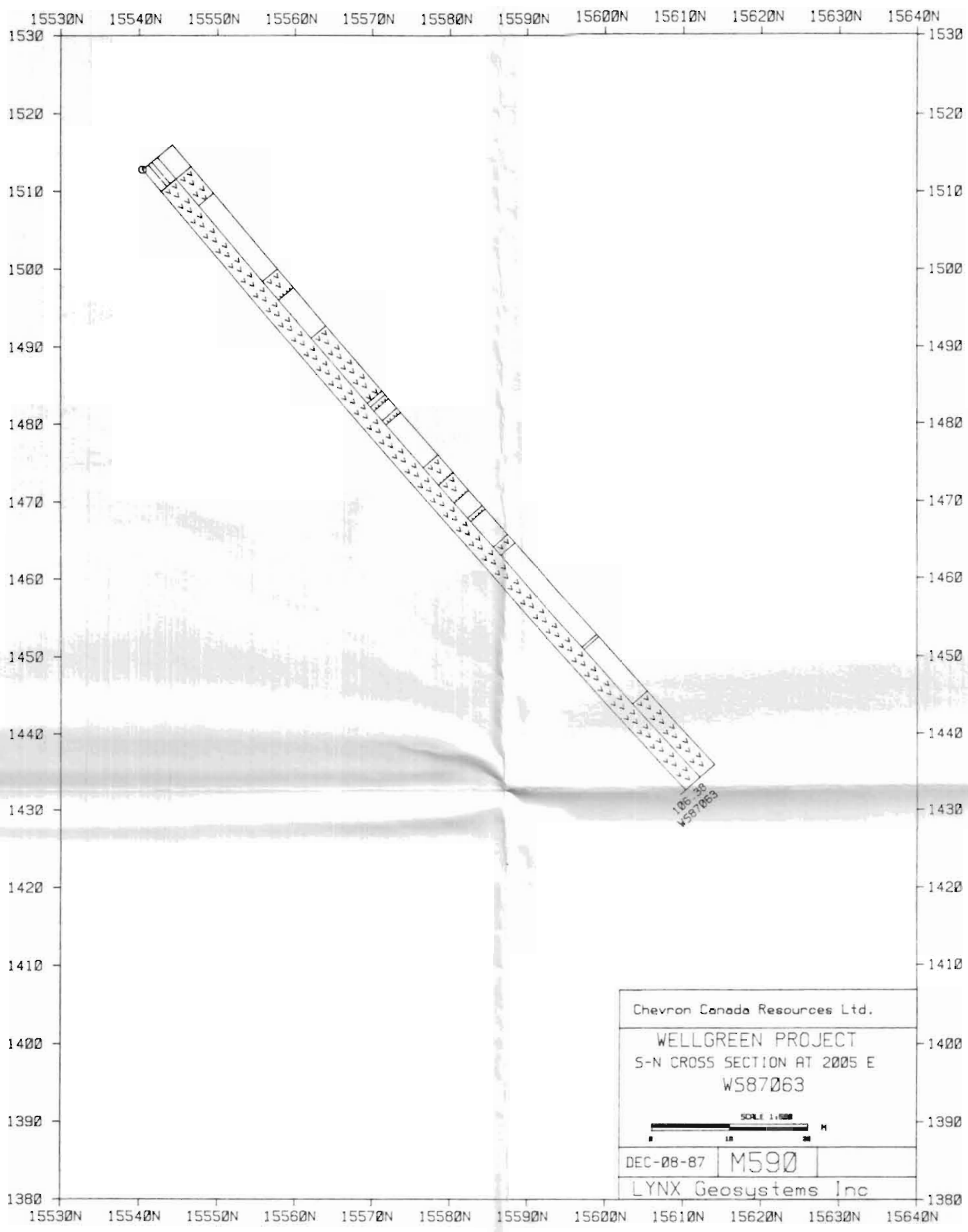
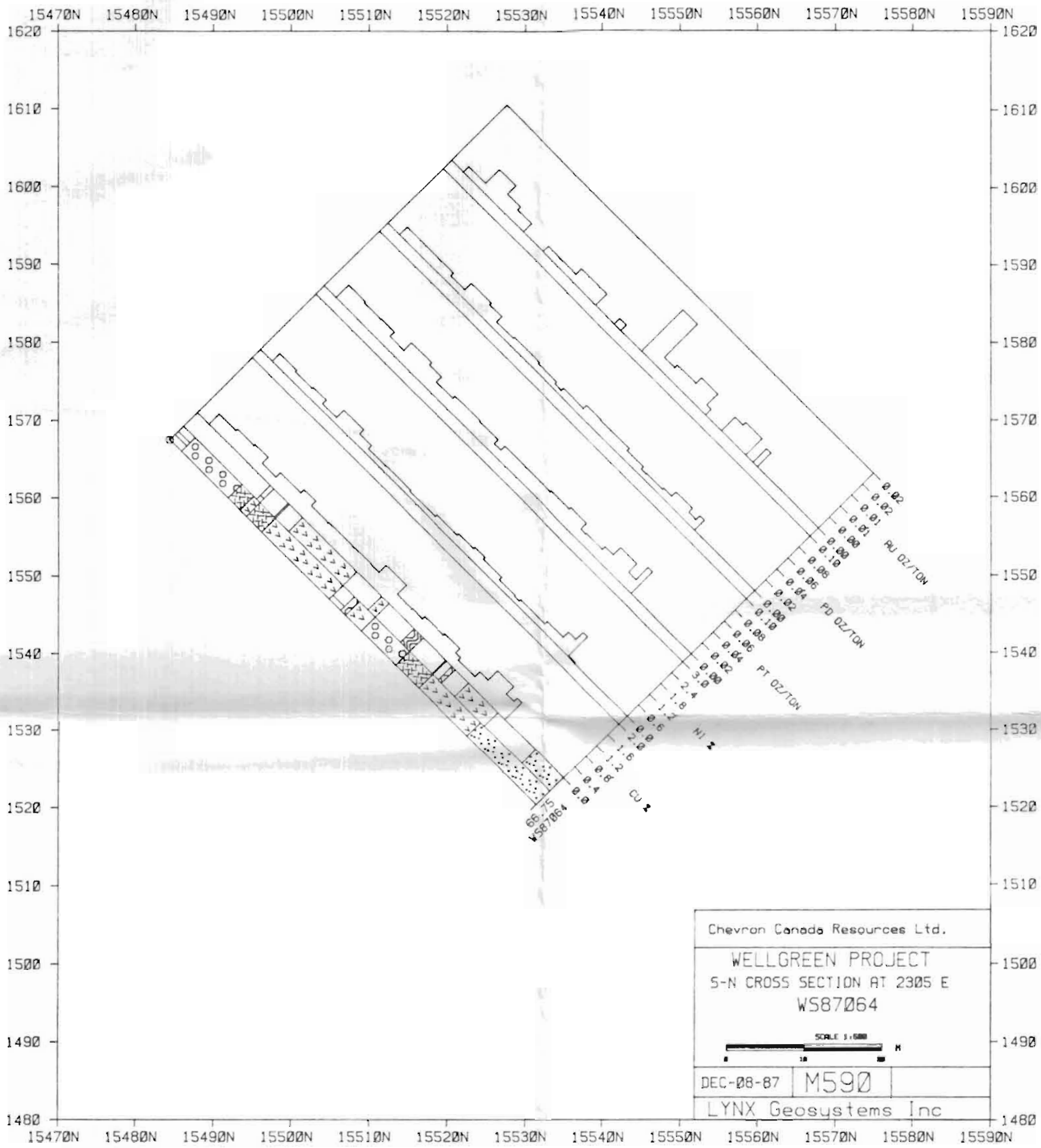


Figure 3
 ARCHER, CATHMO & ASSOCIATES (1983) LIMITED
**CLAIM LOCATIONS AND
 WORK SUMMARY
 WEST HALF
 WELLGREEN PROJECT**

SCALE 1:2500
 0 25 50 100 150 200 m







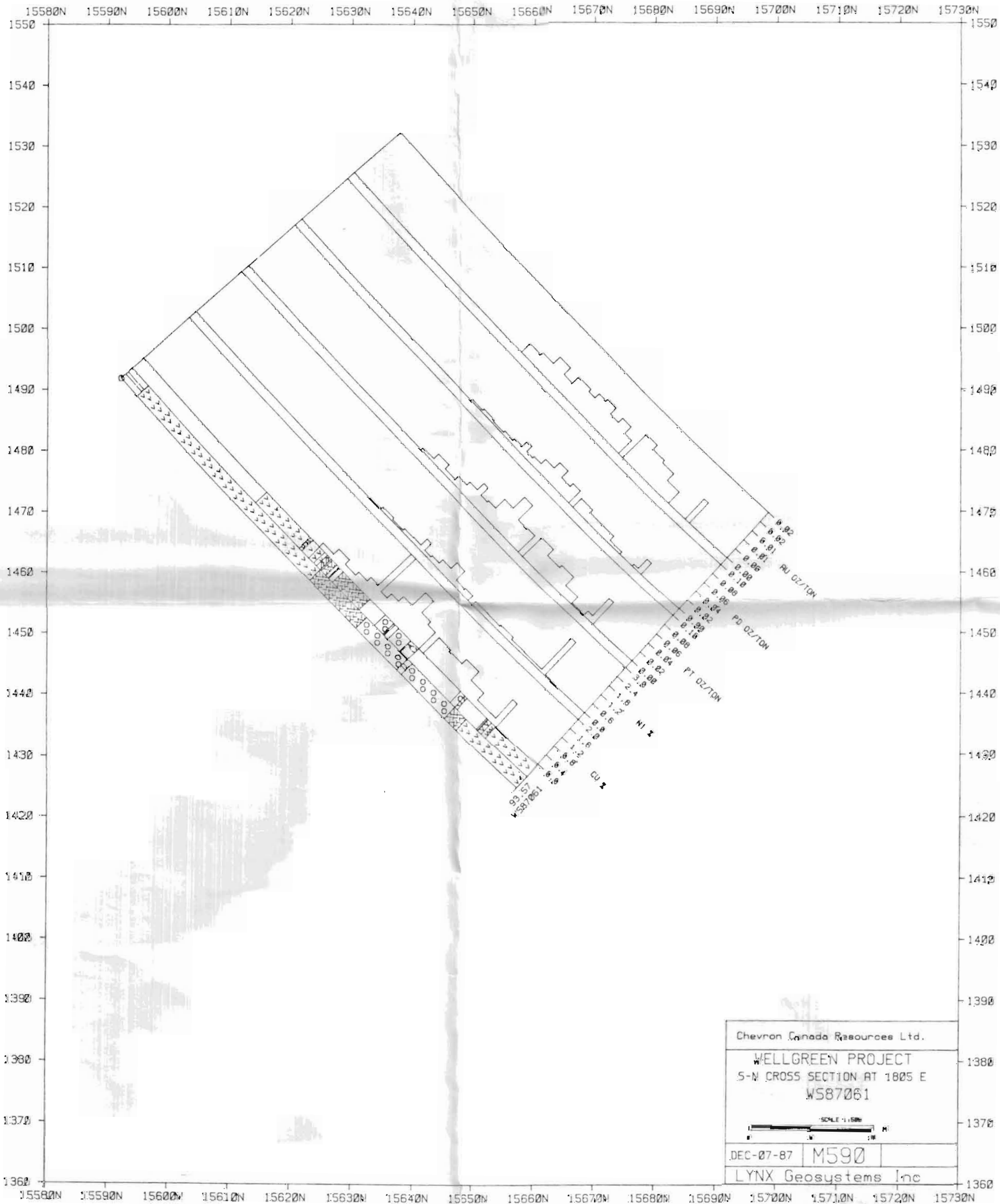
Chevron Canada Resources Ltd.

WELLGREEN PROJECT
S-N CROSS SECTION AT 2305 E
WS87064

SCALE 1:1000

DEC-08-87 M590

LYNX Geosystems Inc



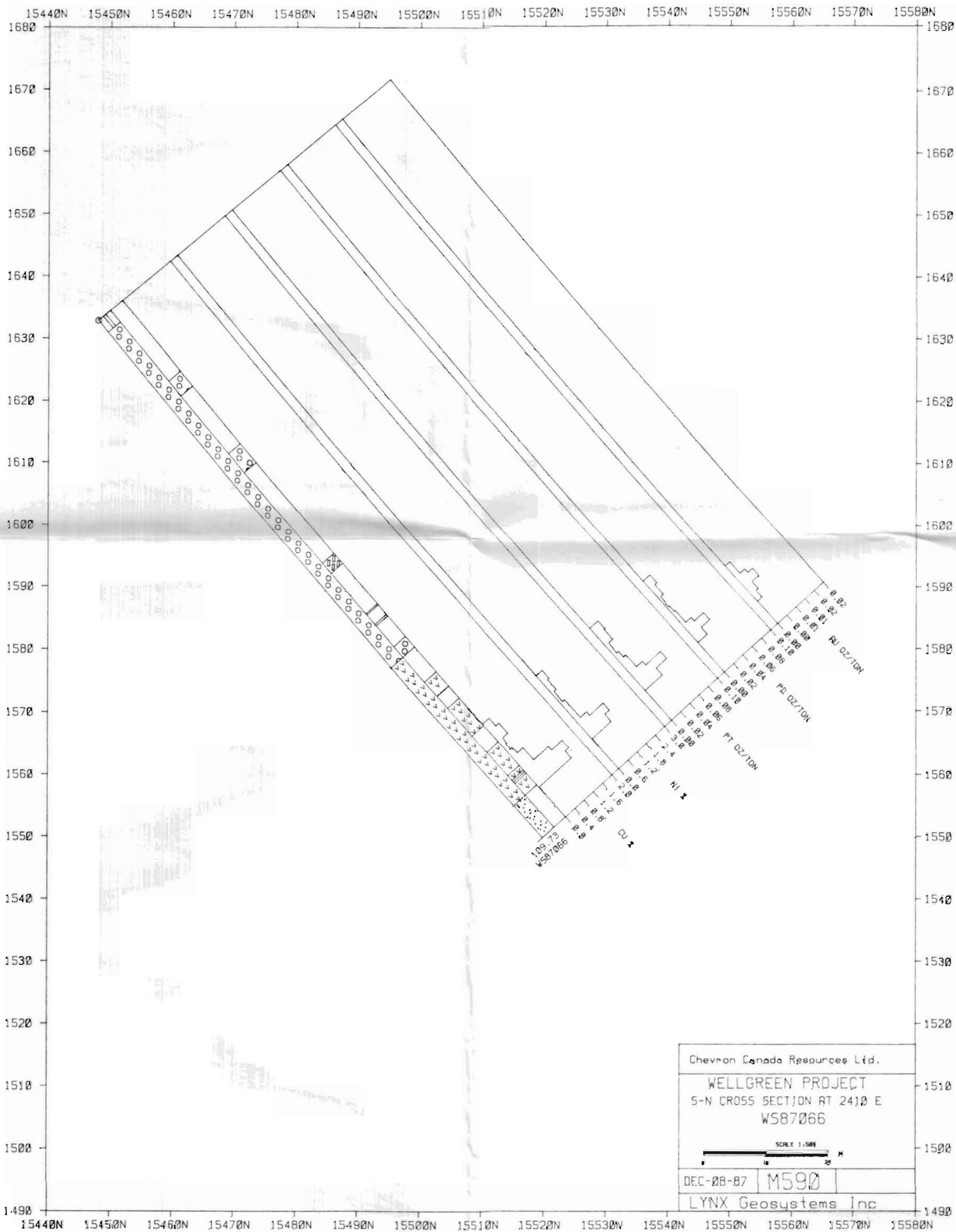
Chevron Canada Resources Ltd.

WELLGREEN PROJECT
 S-N CROSS SECTION AT 1805 E
 W587061

SCALE 1:500

DEC-07-87 M590

LYNX Geosystems Inc



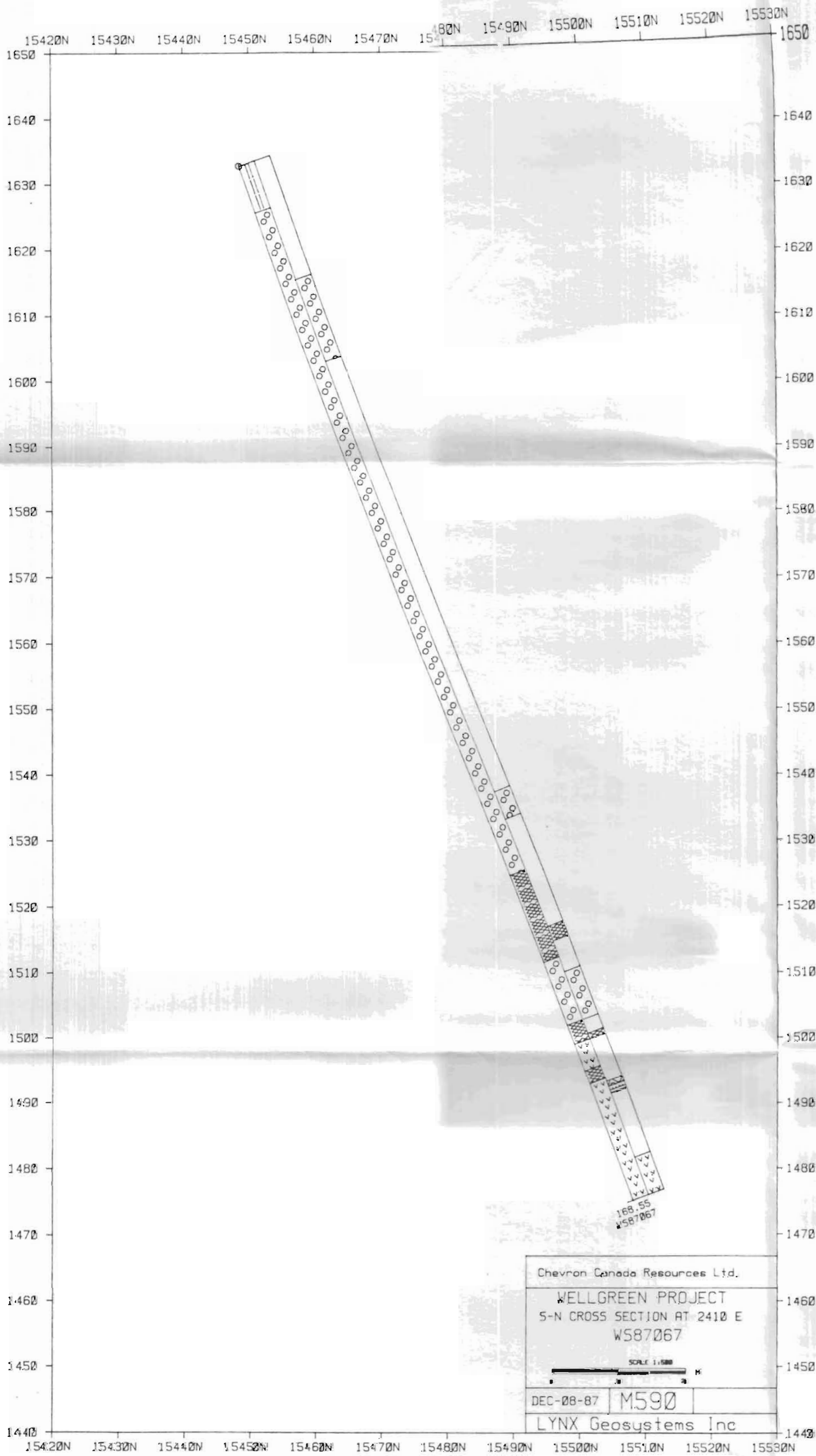
Chevron Canada Resources Ltd.

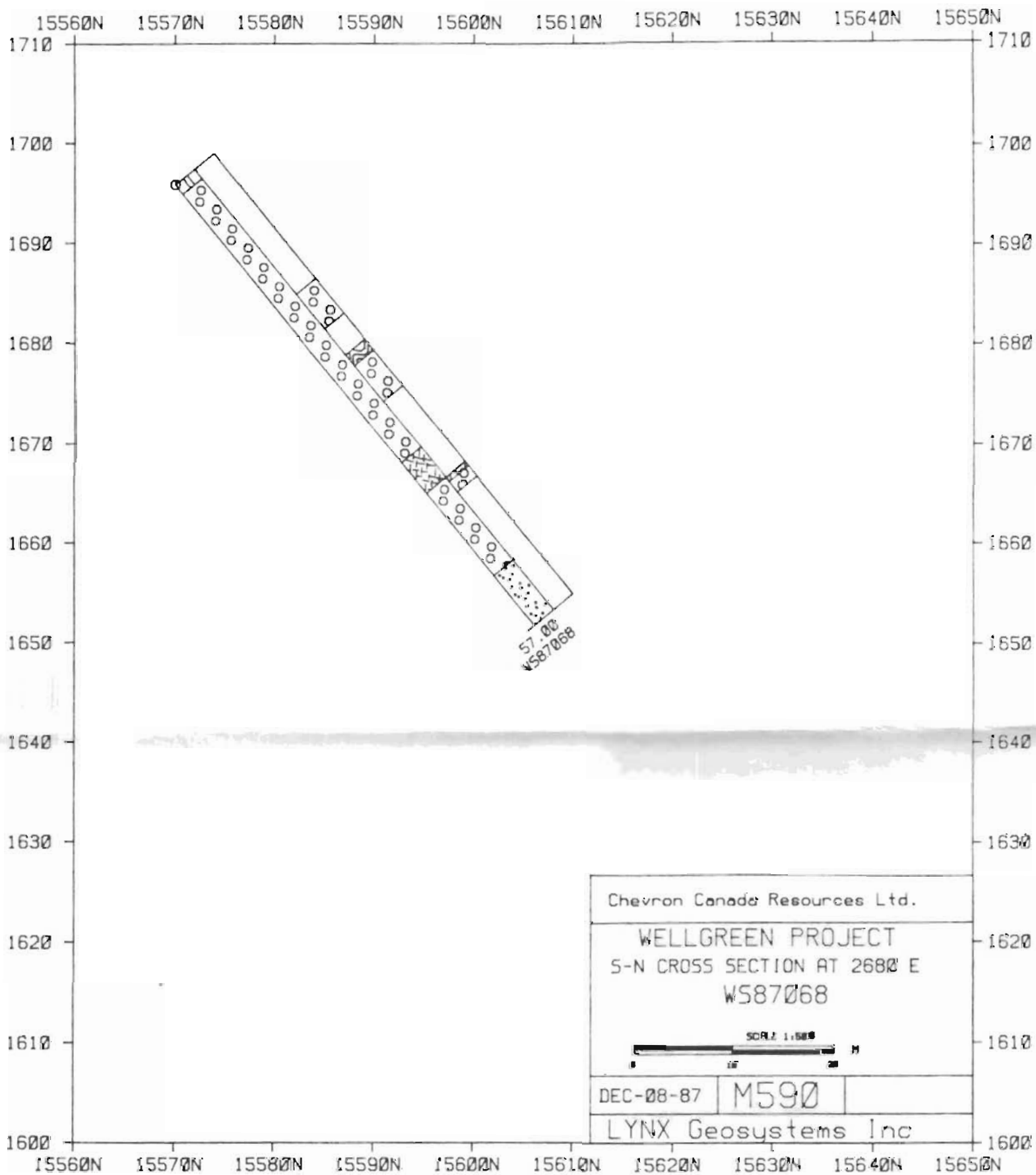
WELLGREEN PROJECT
 S-N CROSS SECTION AT 2410 E
 W587066

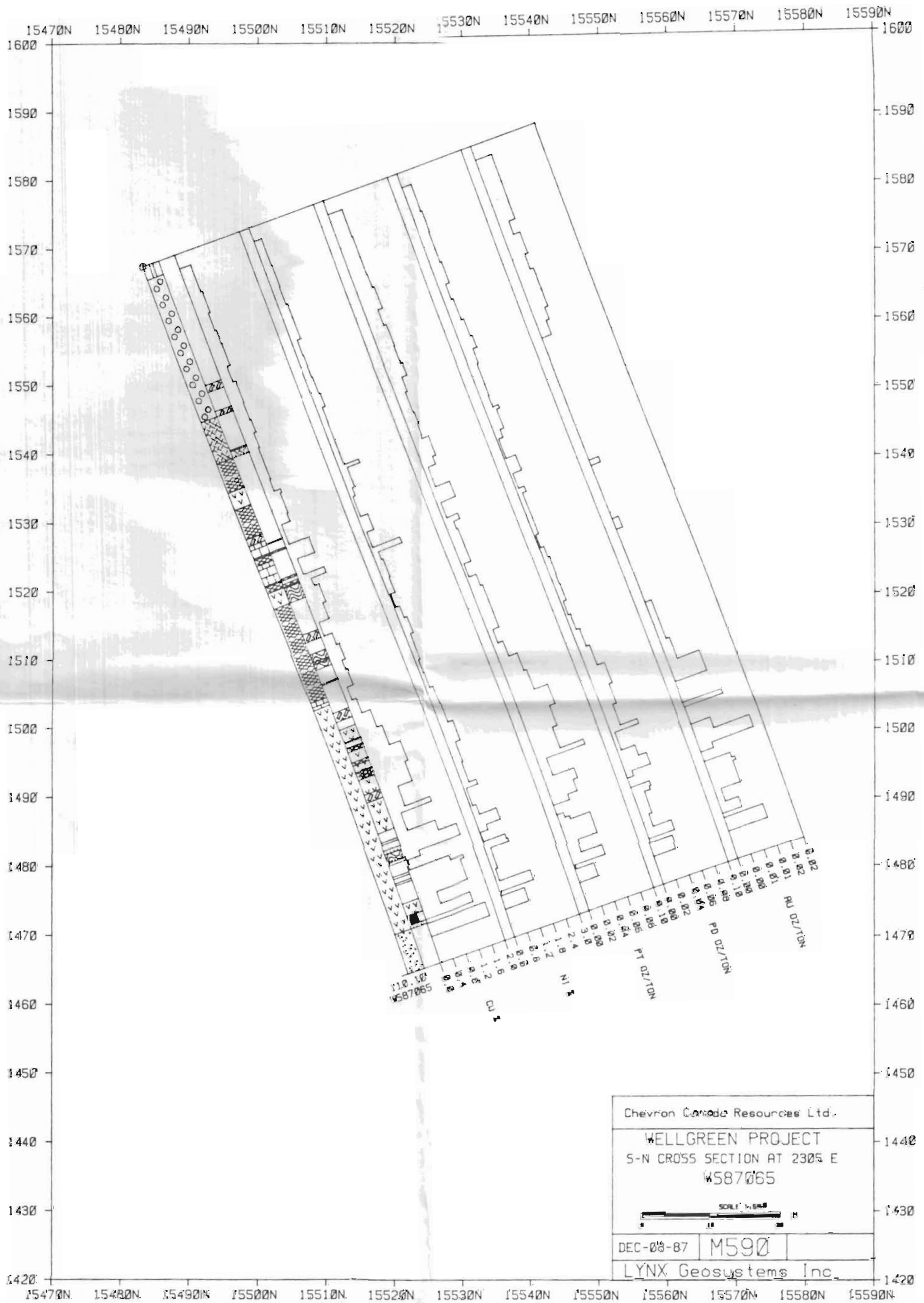
SCALE 1:500

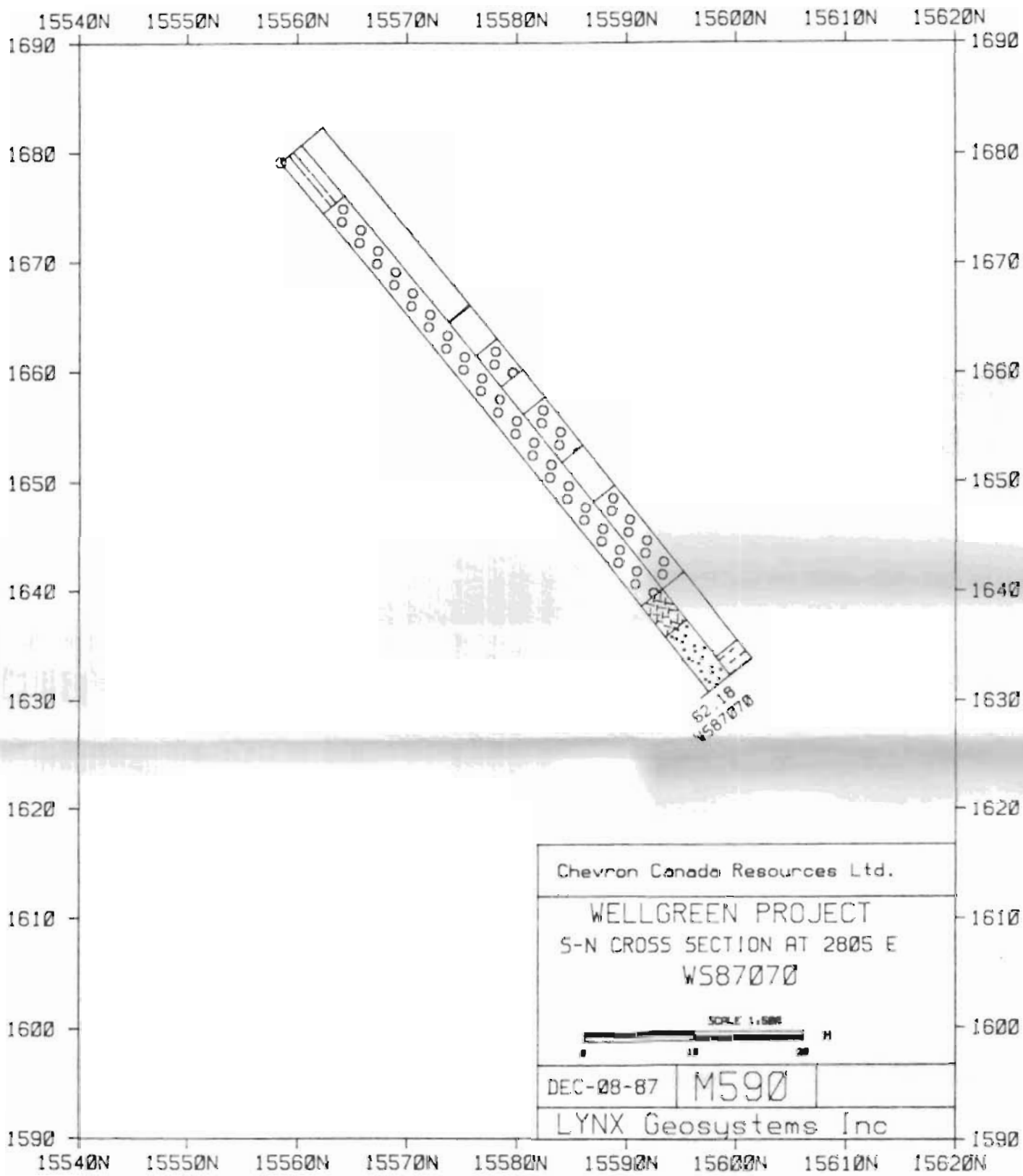
DEC-08-87 M590

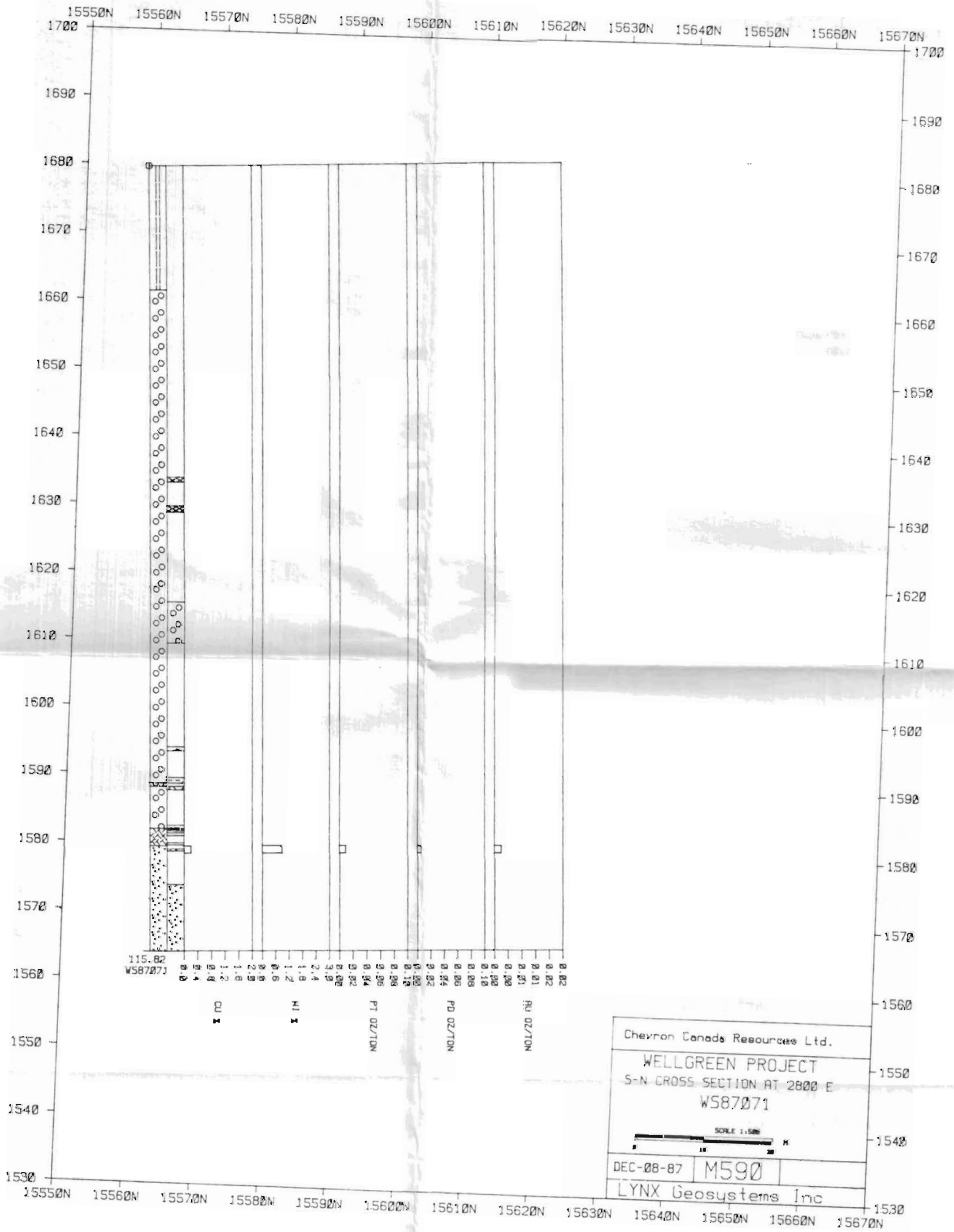
LYNX Geosystems Inc

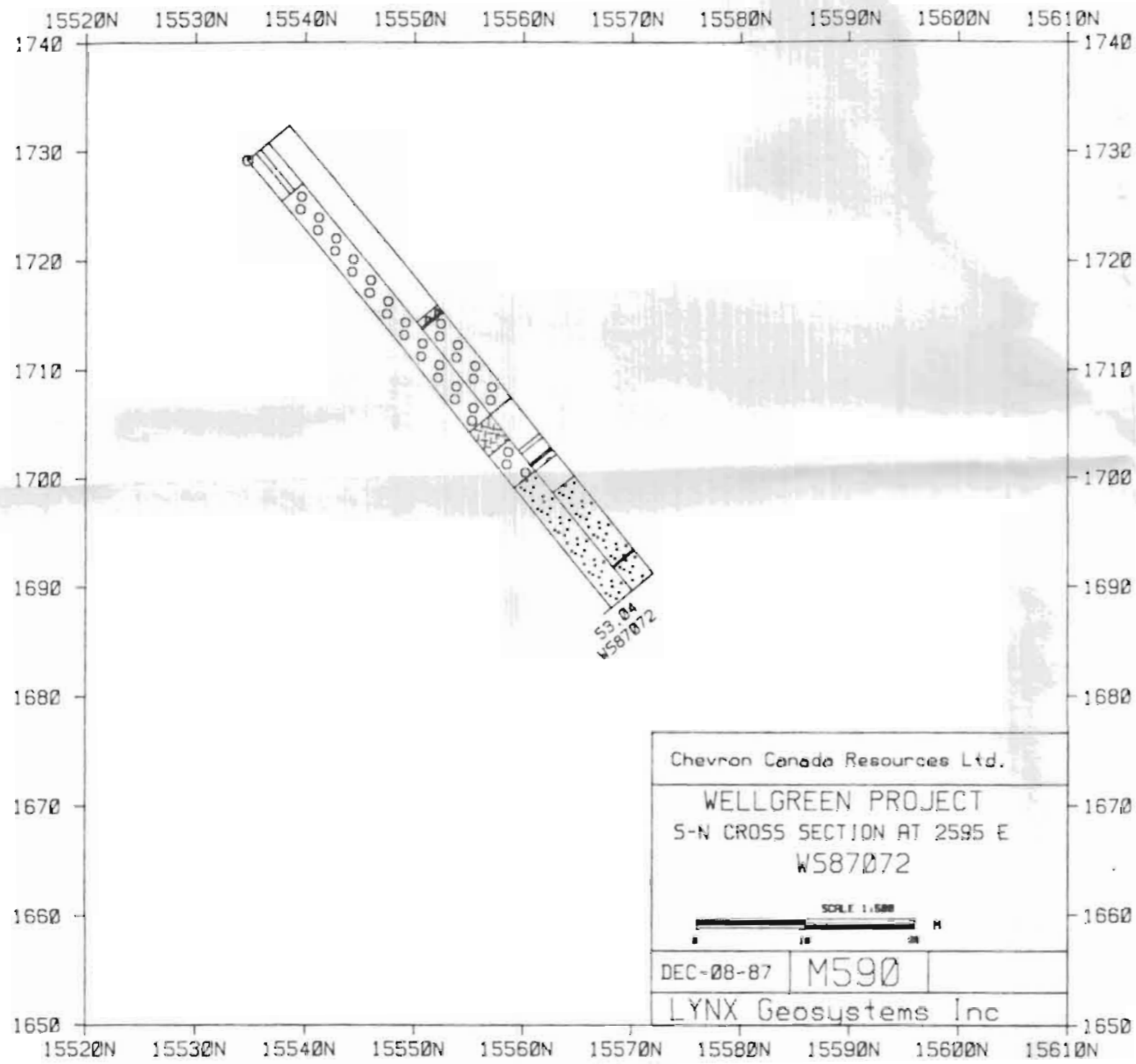


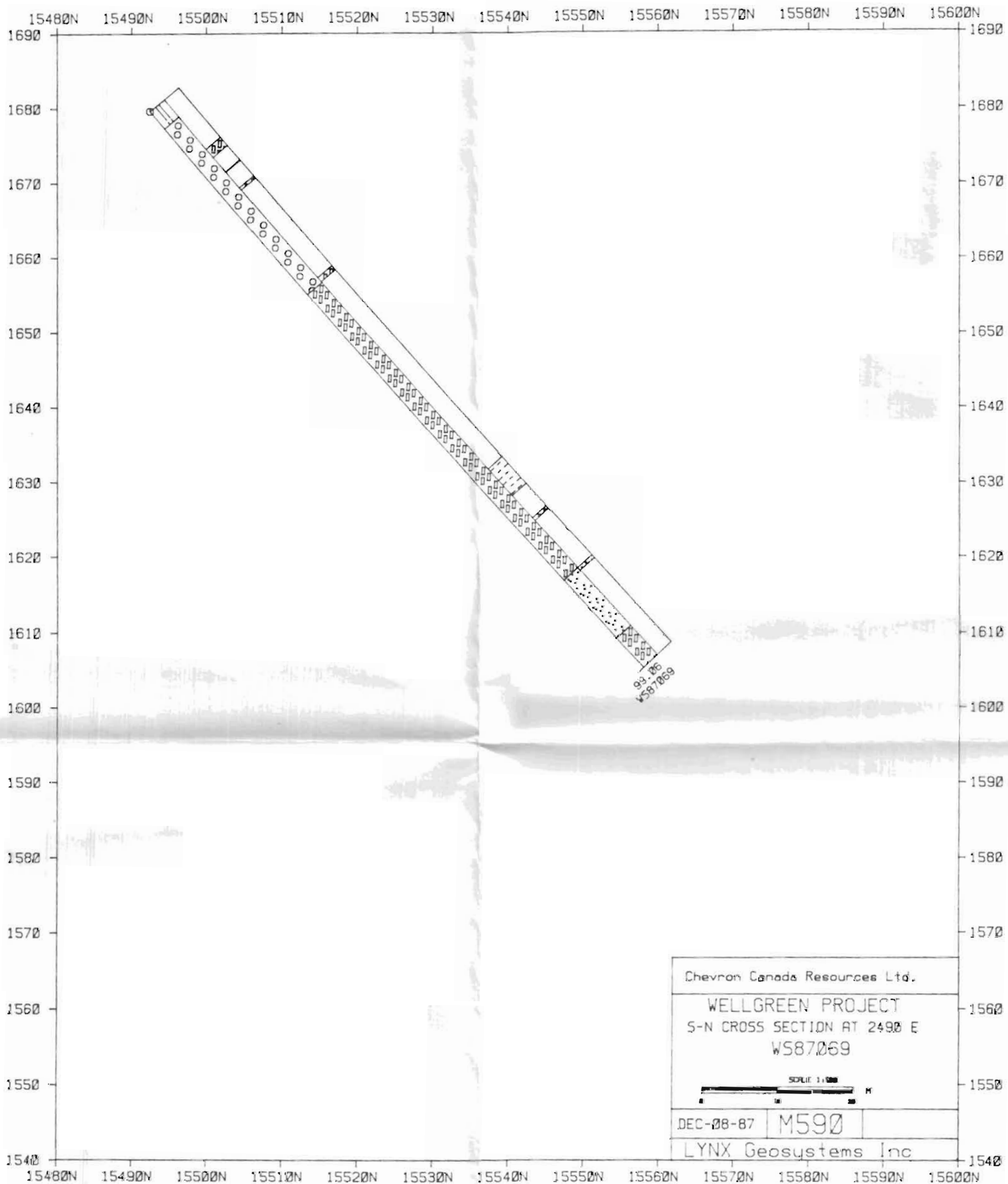


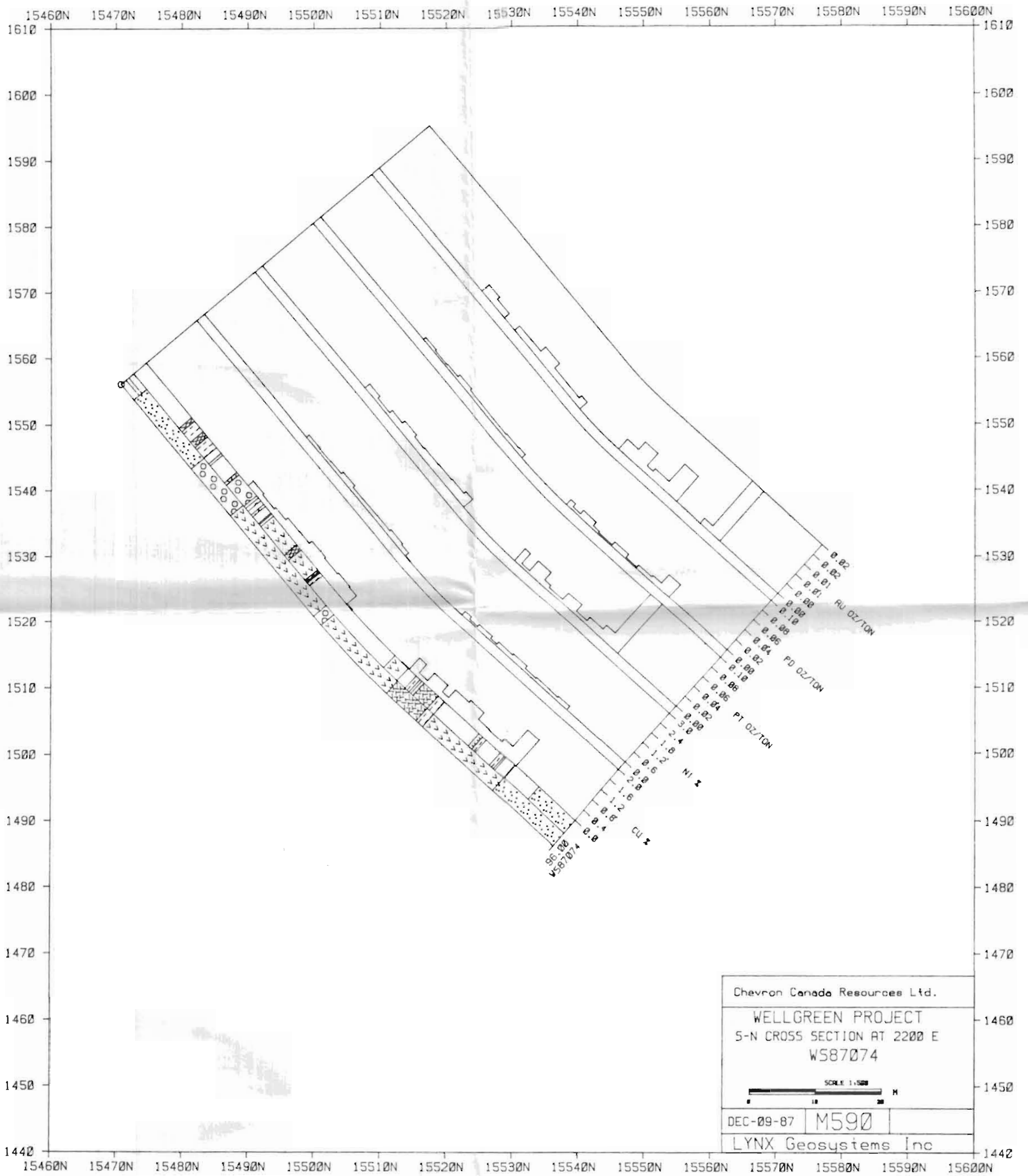


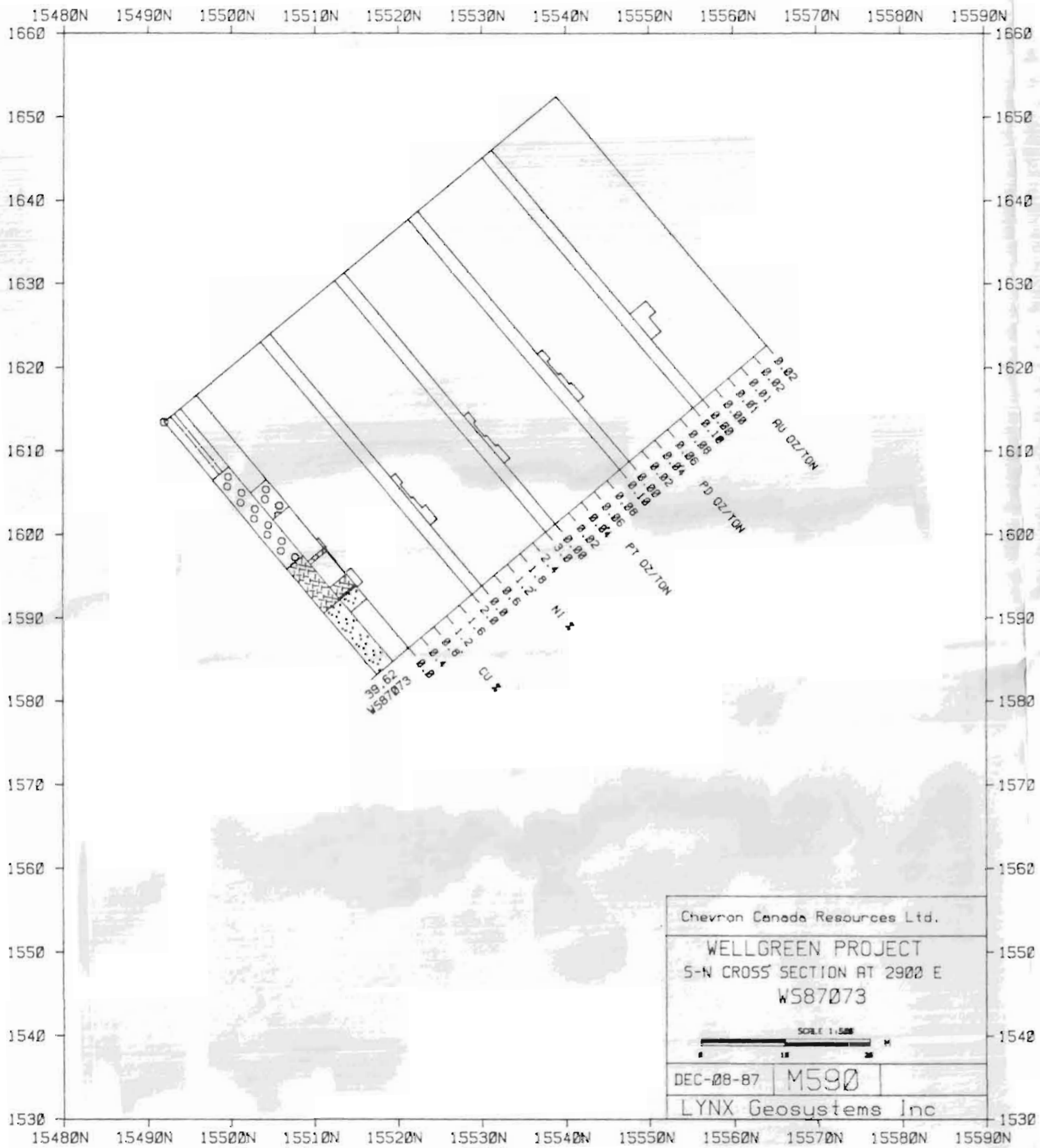


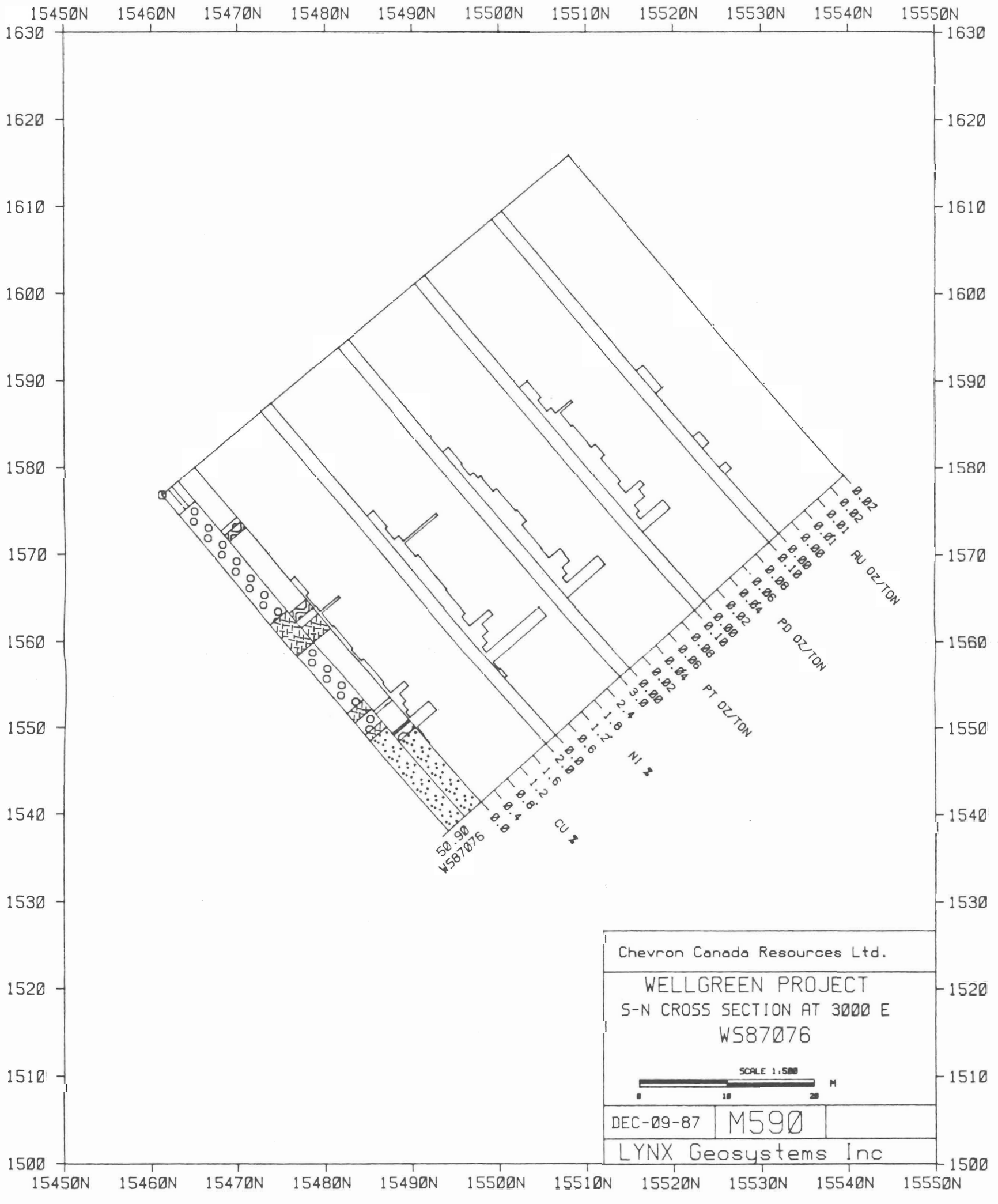


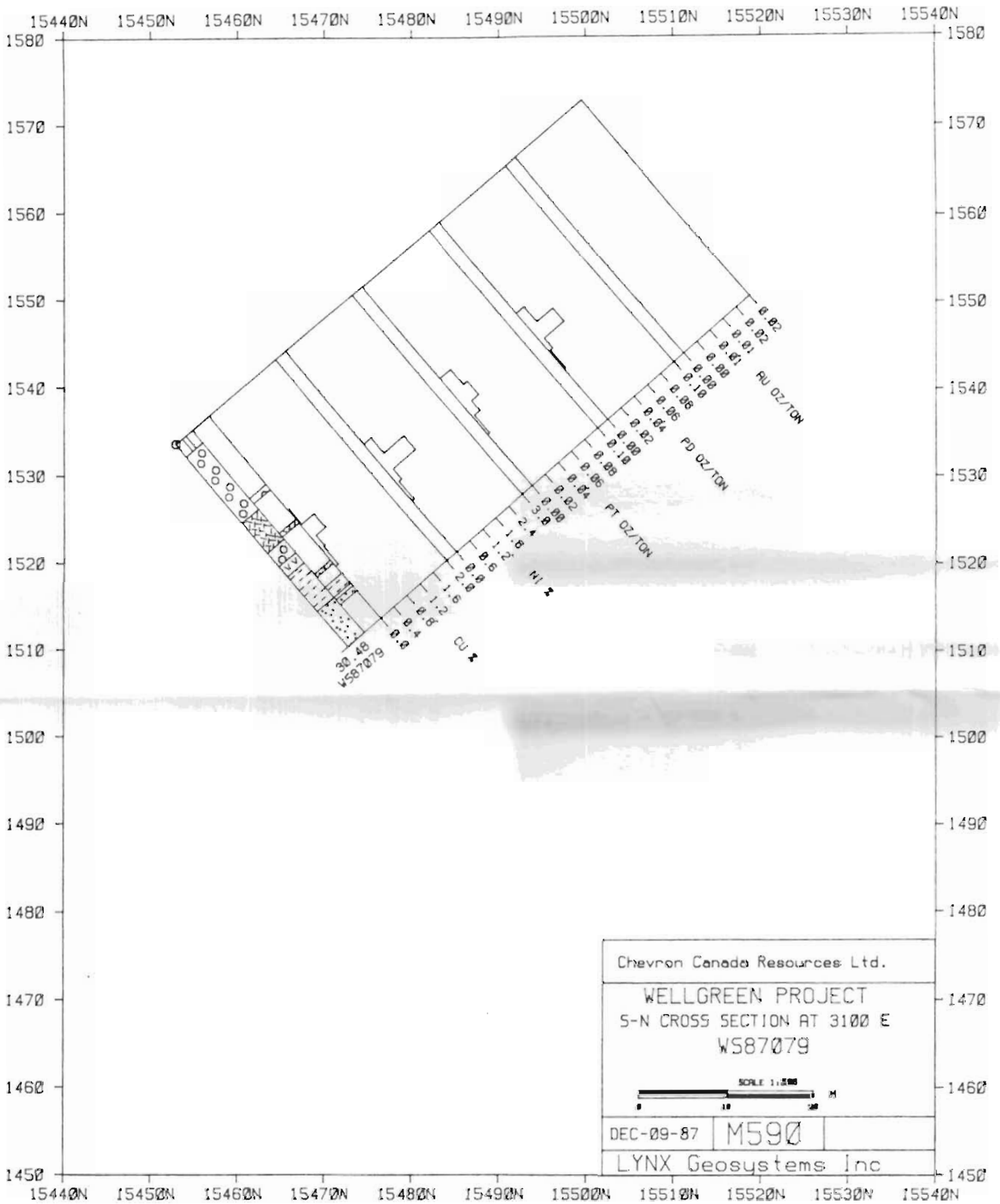


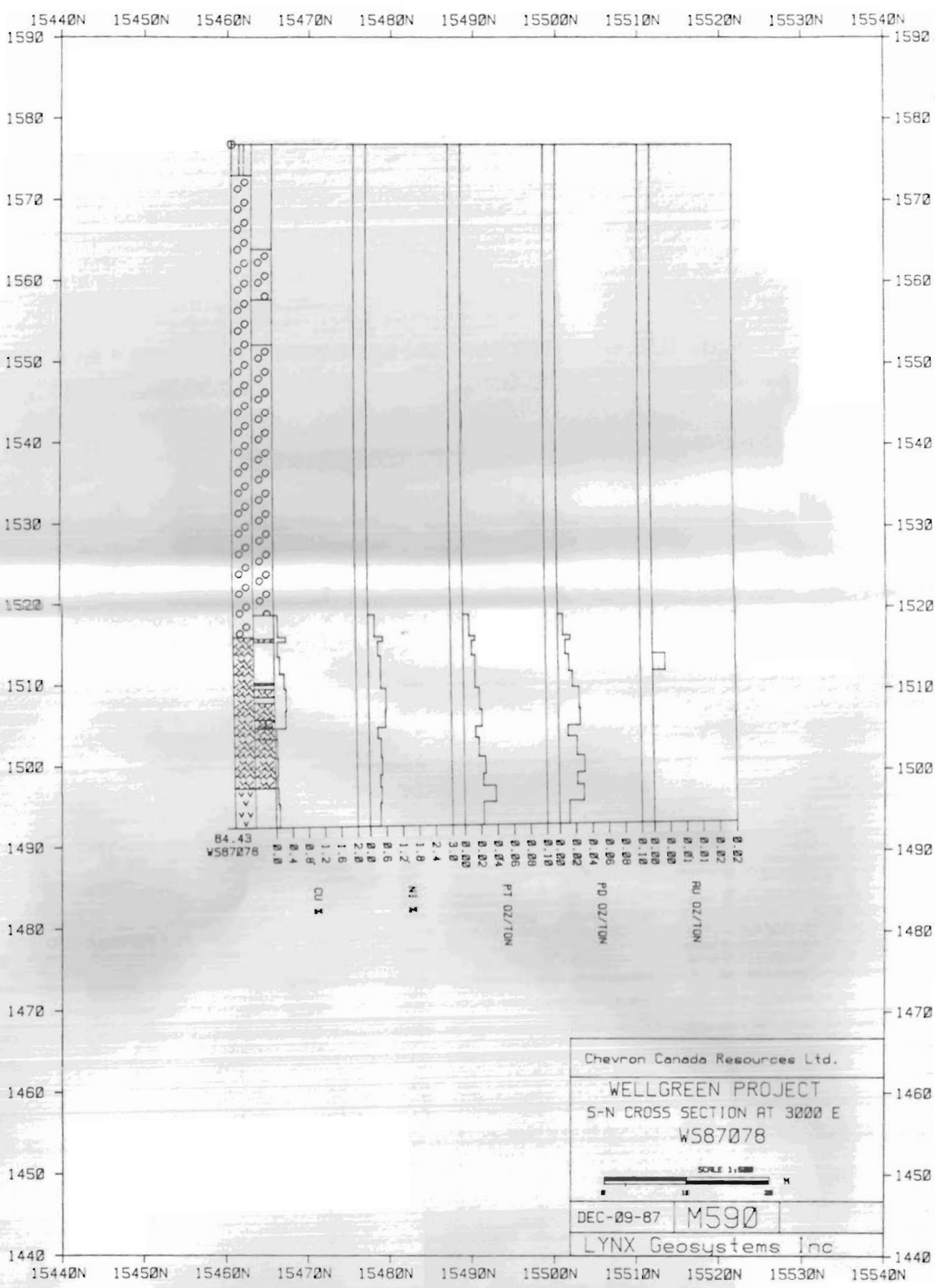


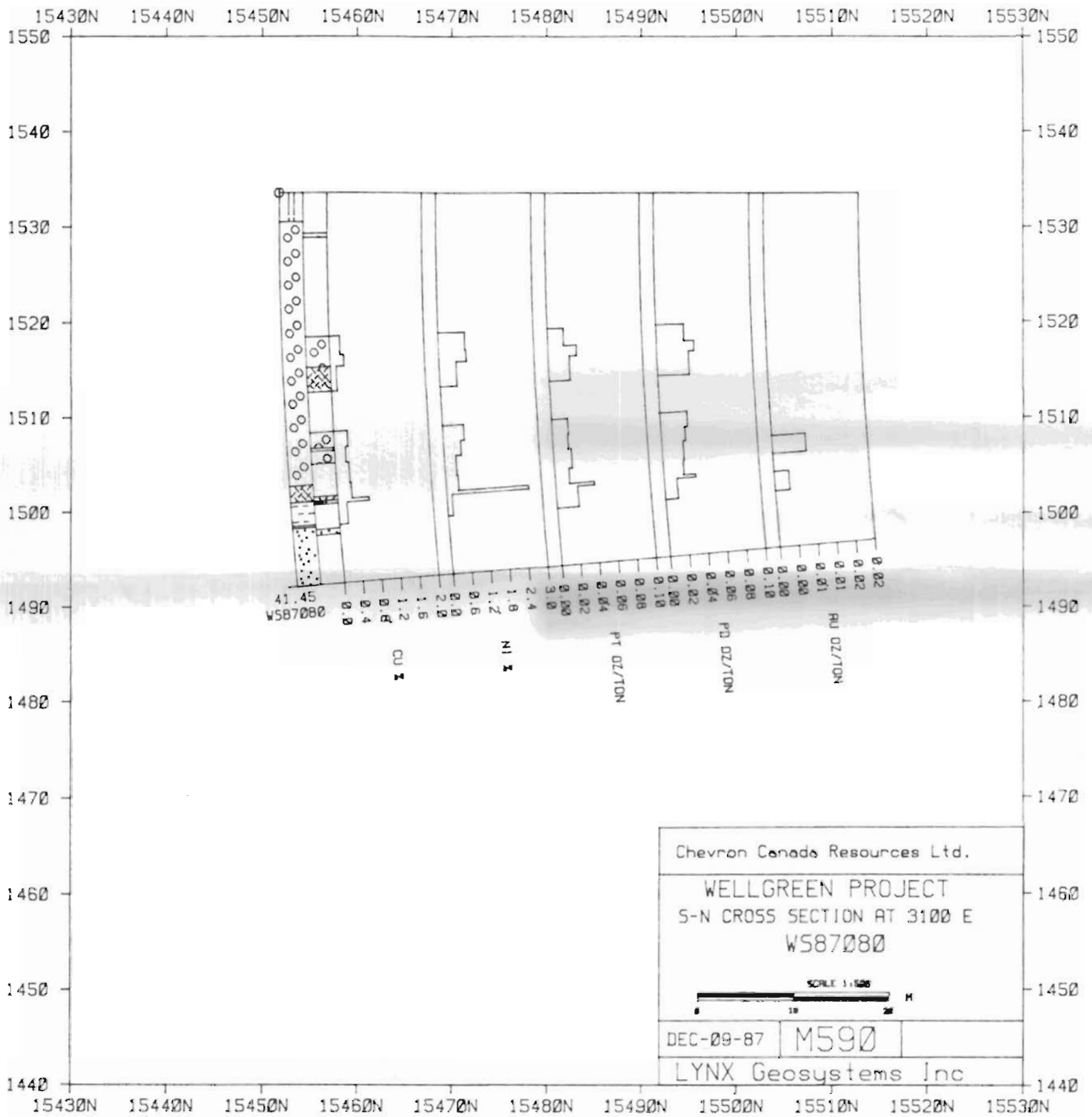


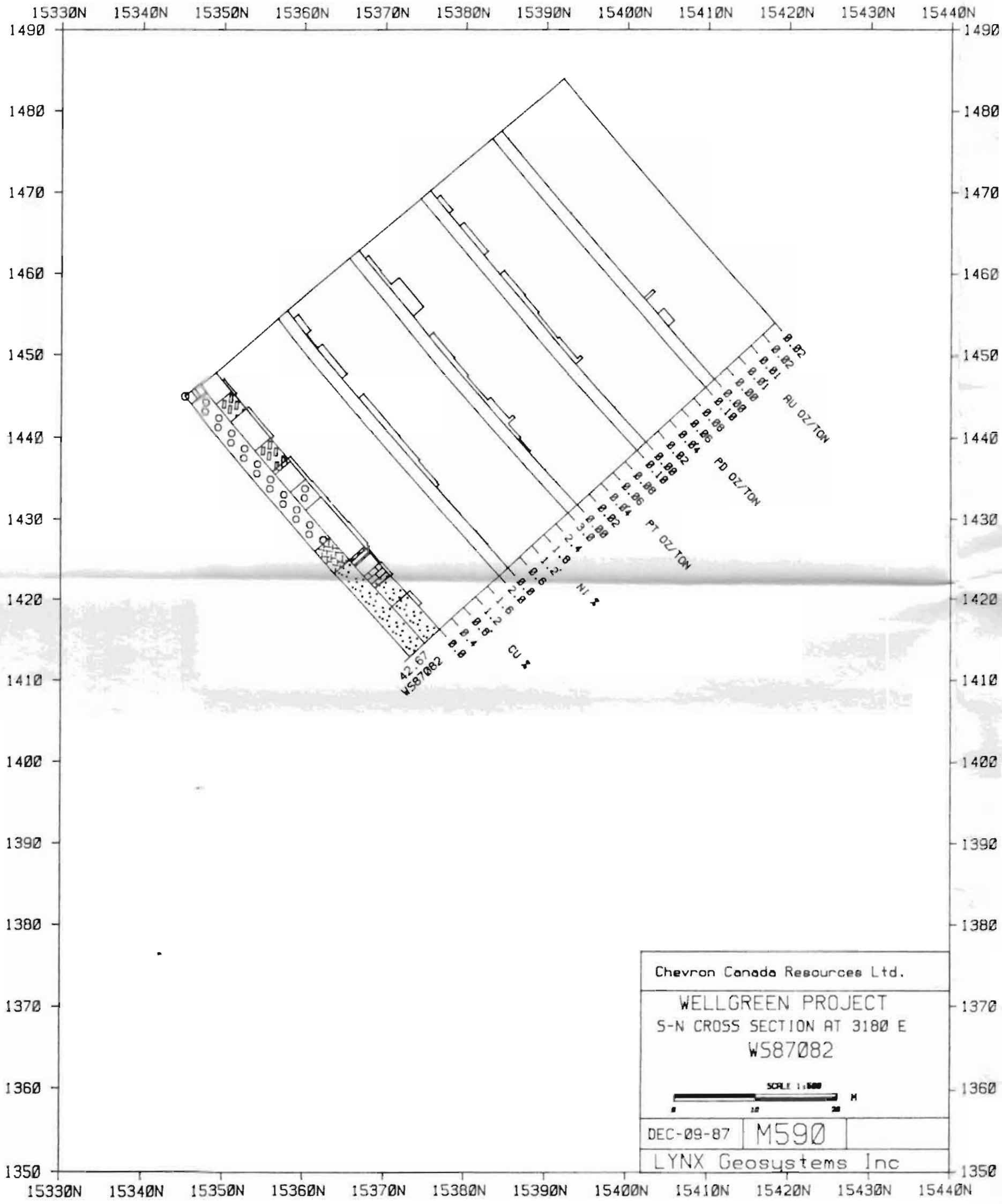


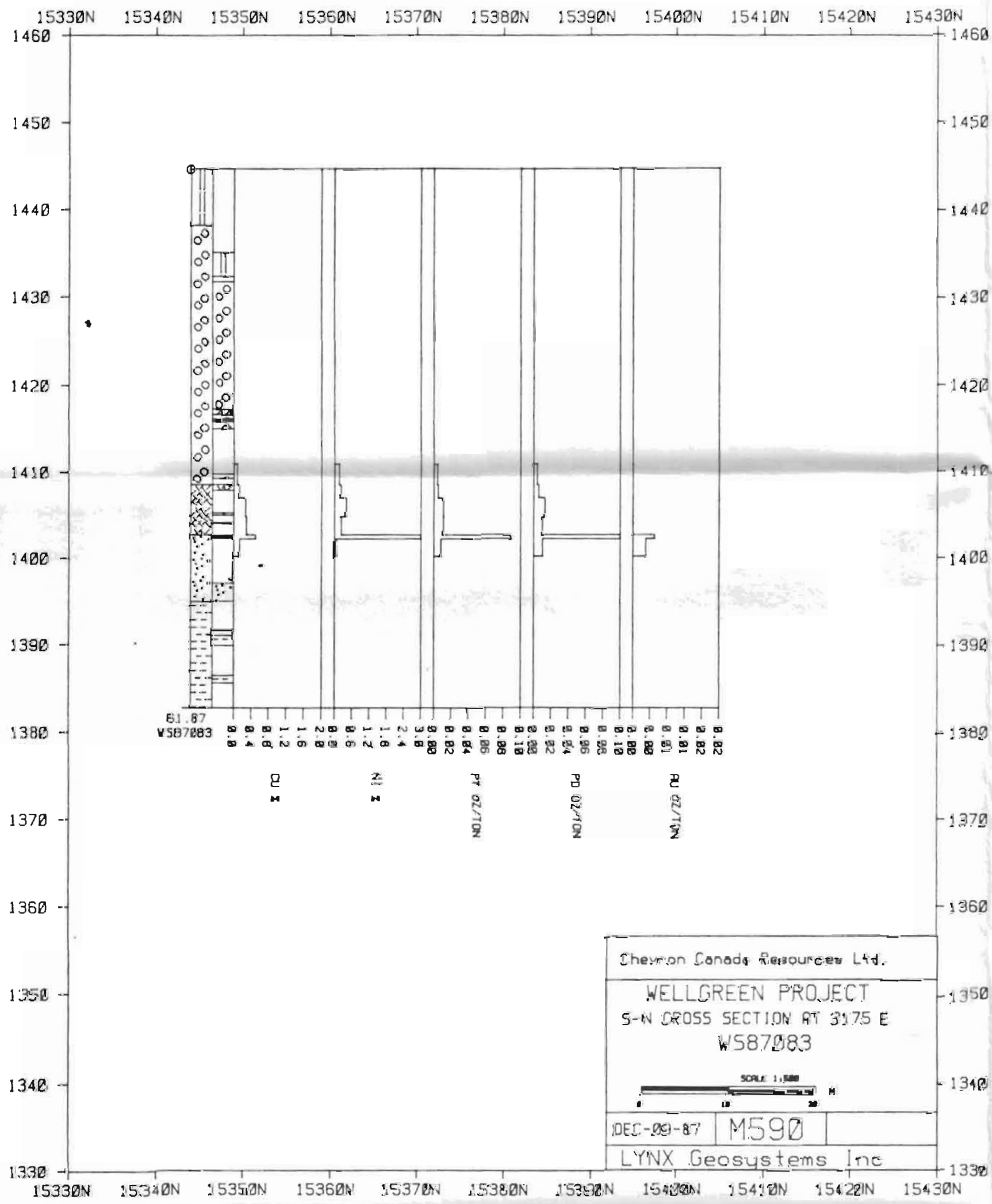


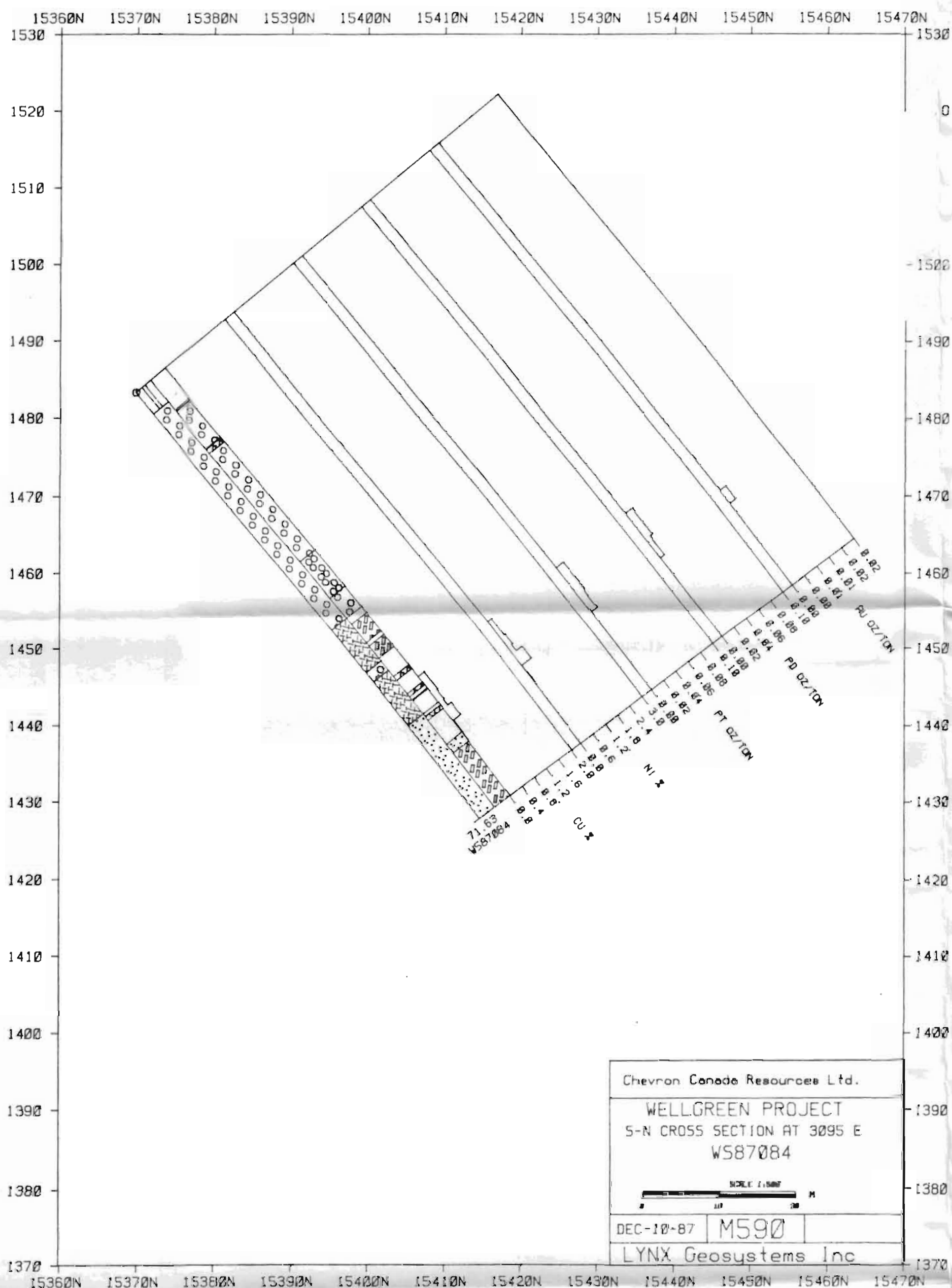


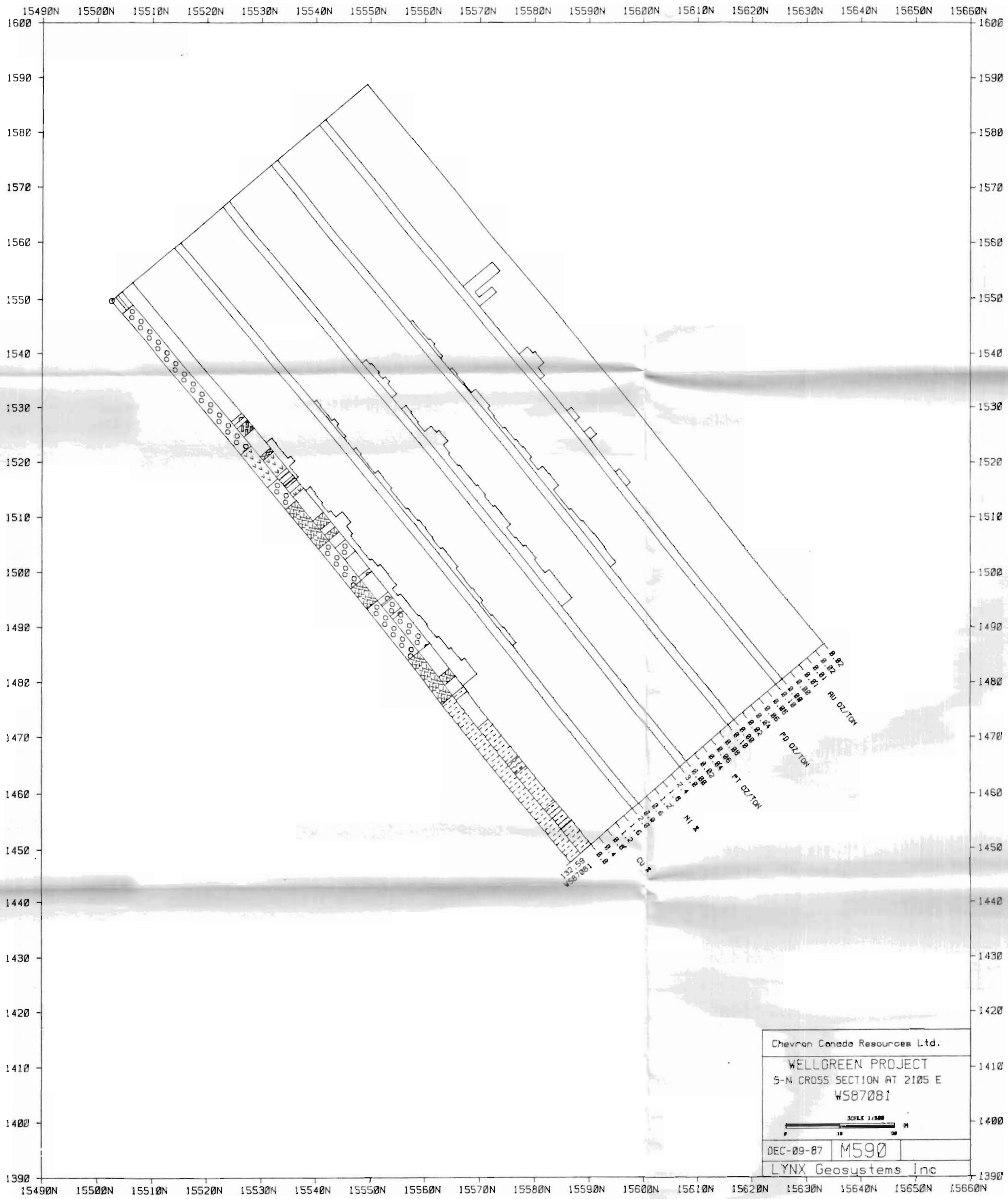


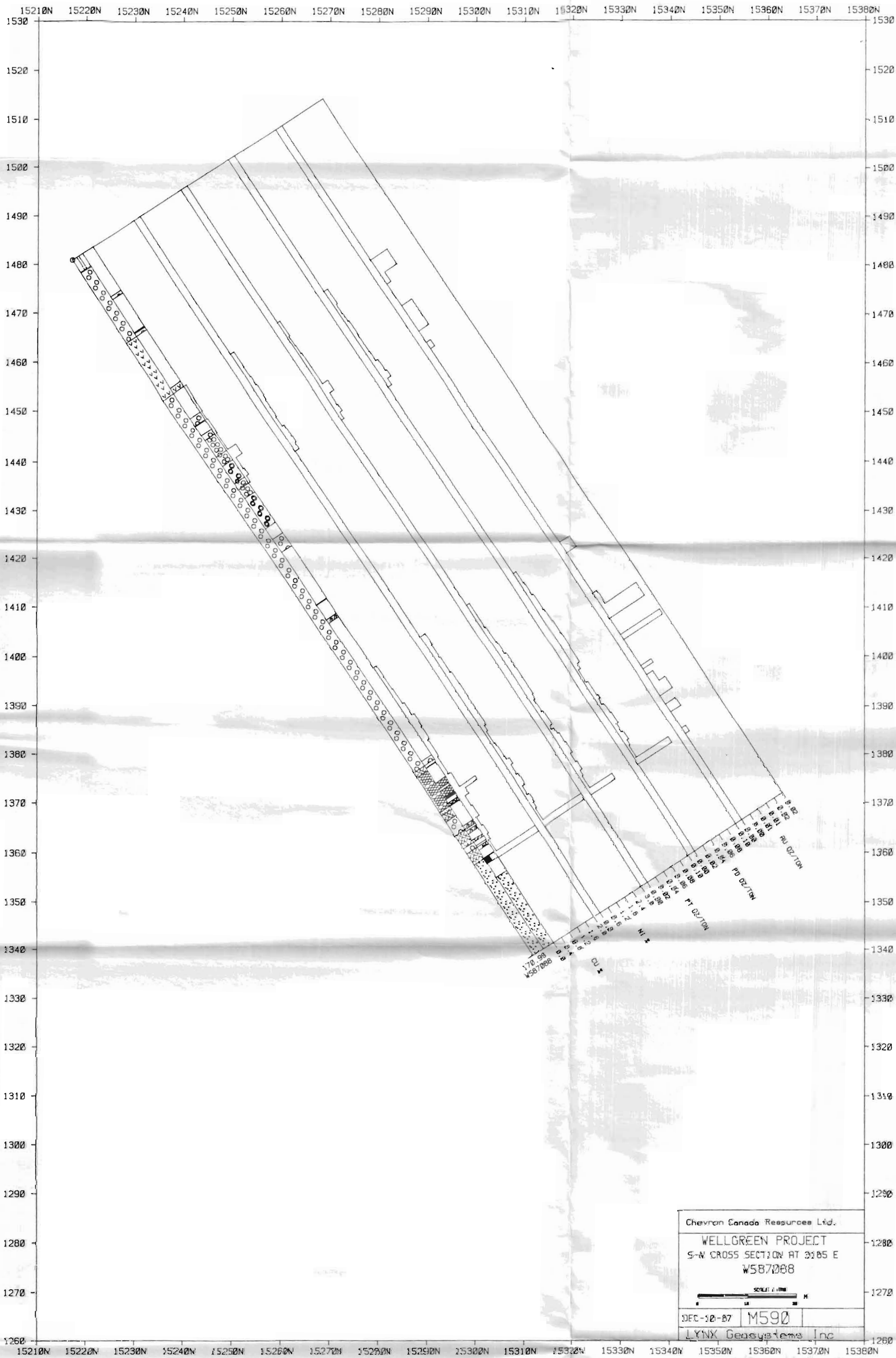


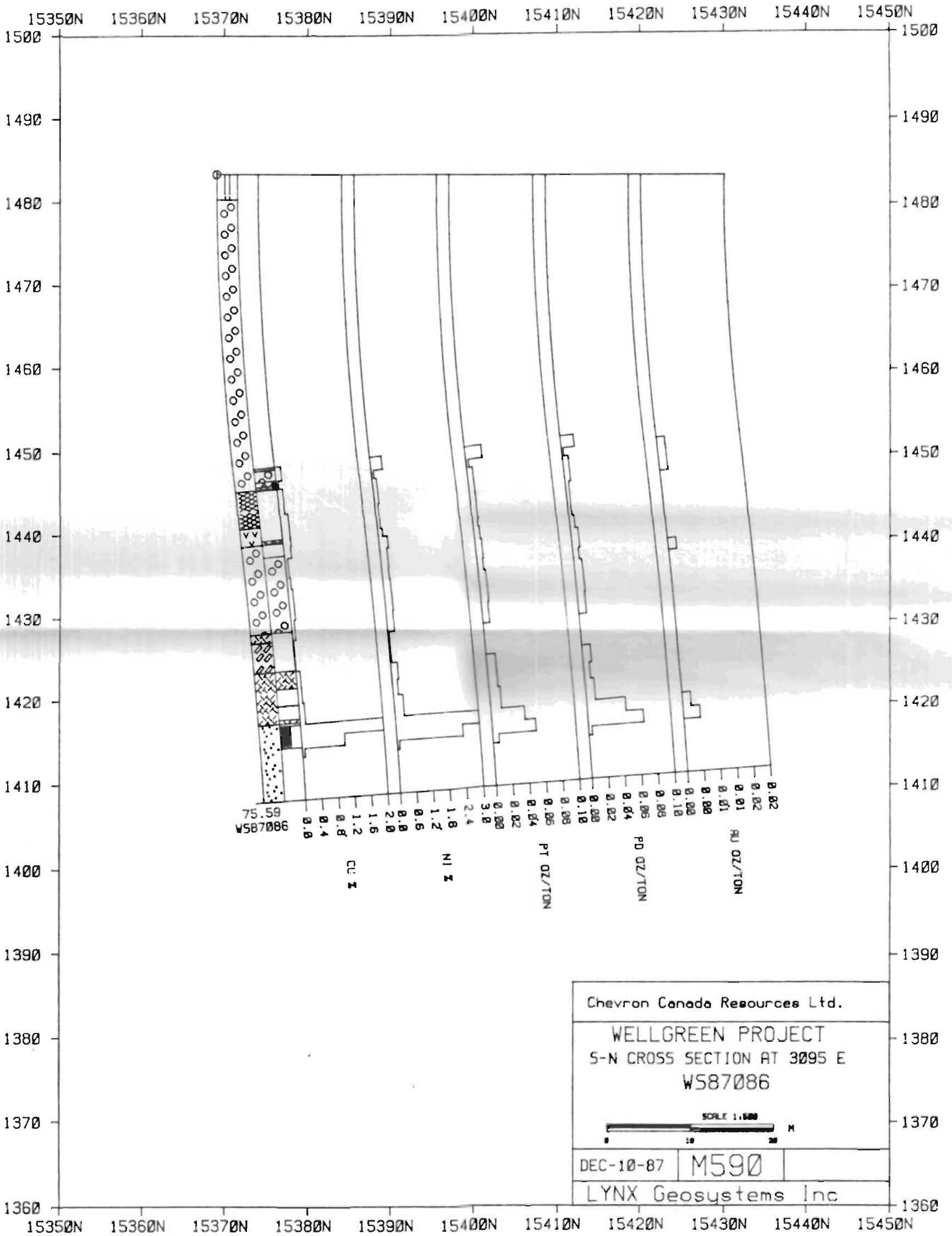


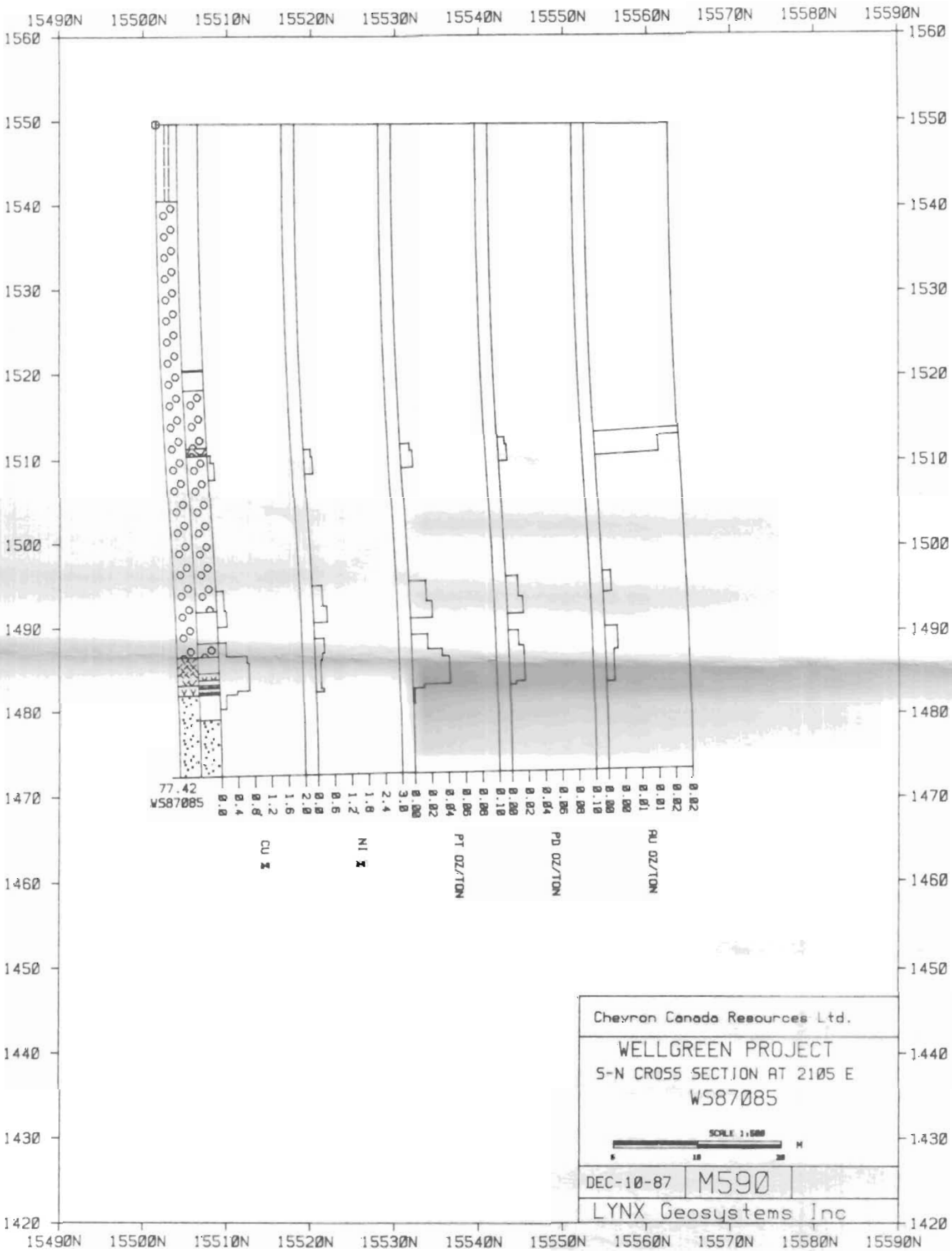


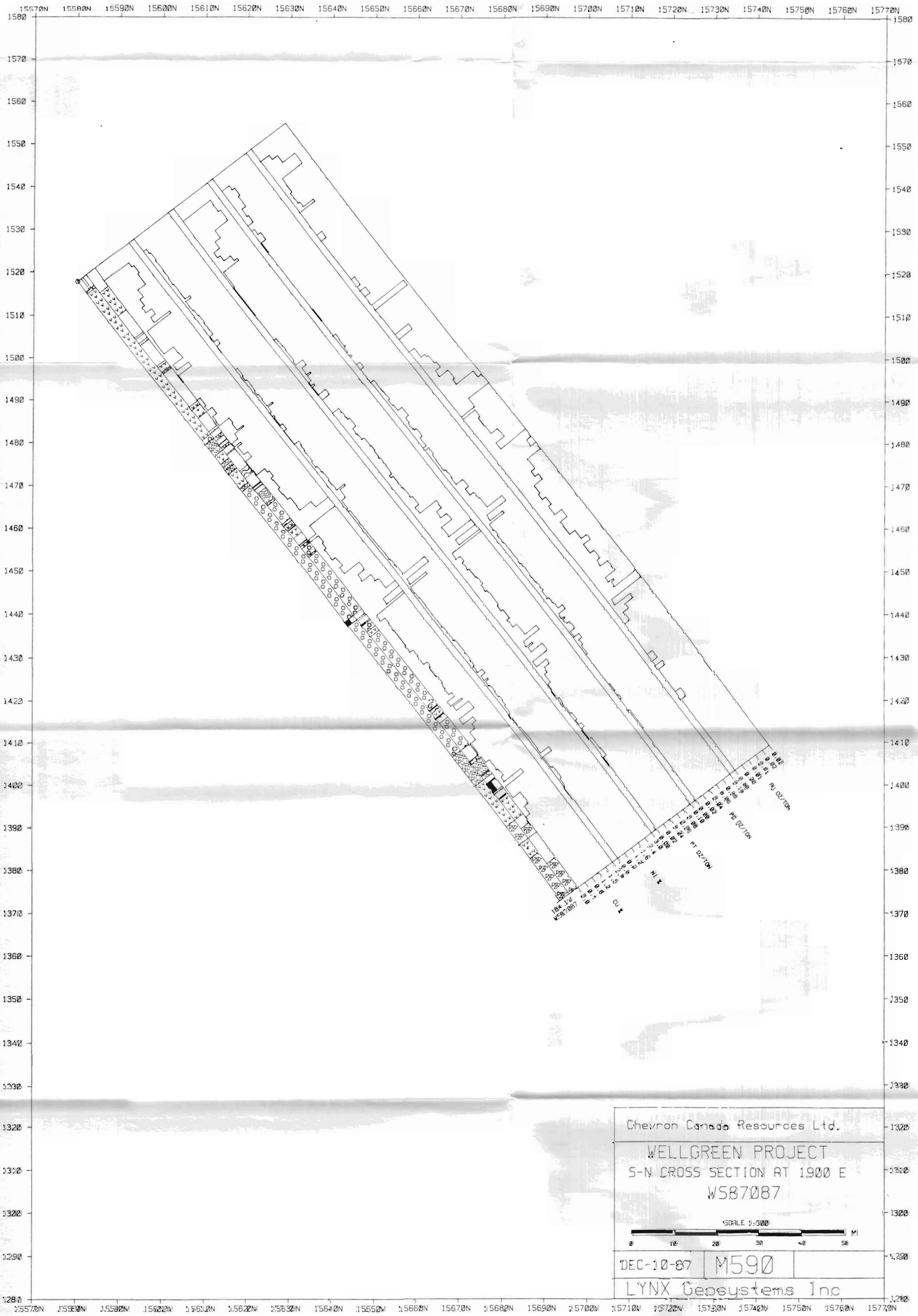












Chevron Canada Resources Ltd.

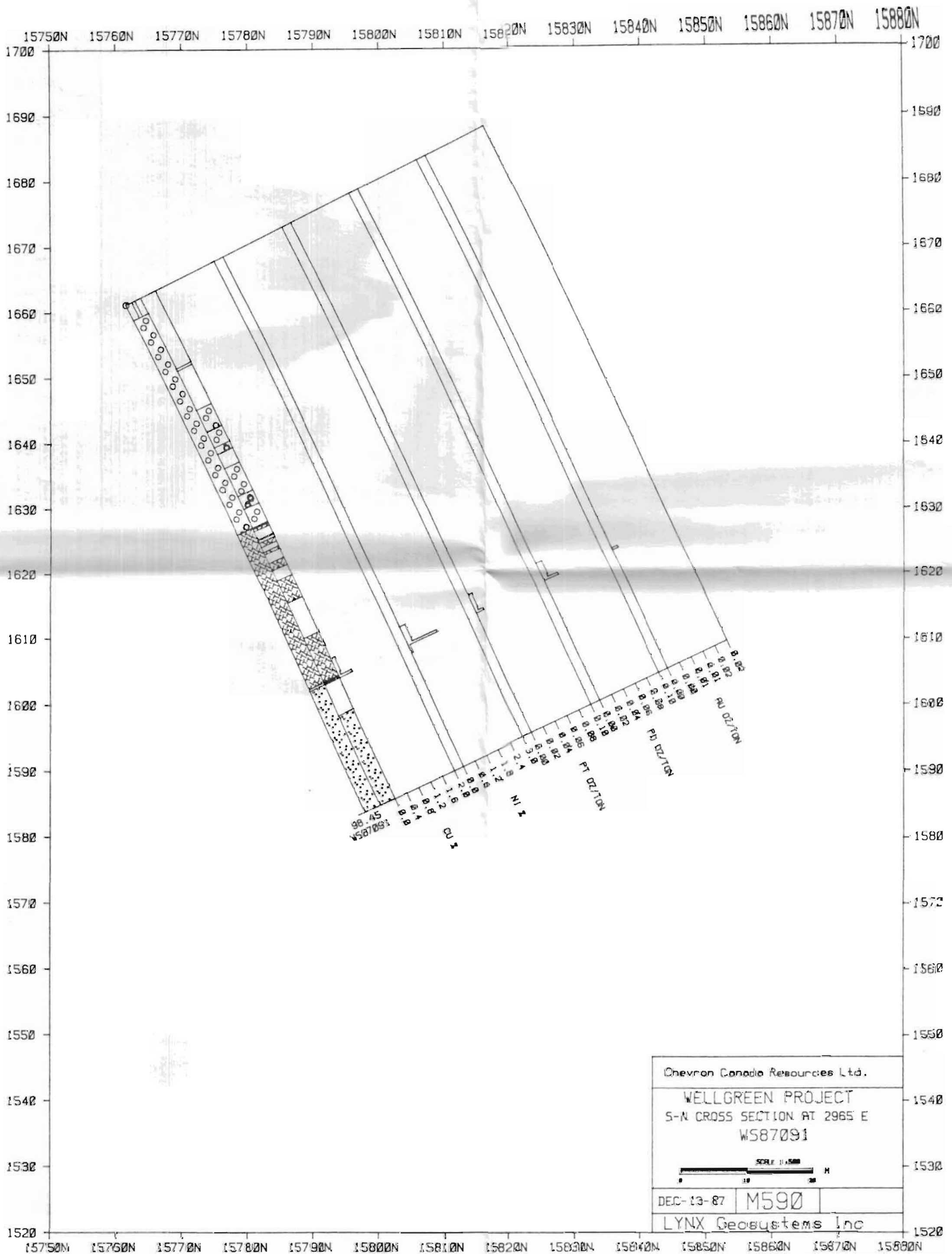
WELLGREEN PROJECT
 S-N CROSS SECTION AT 1900 E
 WS87087

SCALE 1:5000

0 10 20 30 40 50 M

DEC-10-87 M590

LYNX Geosystems Inc



Chevron Canada Resources Ltd.

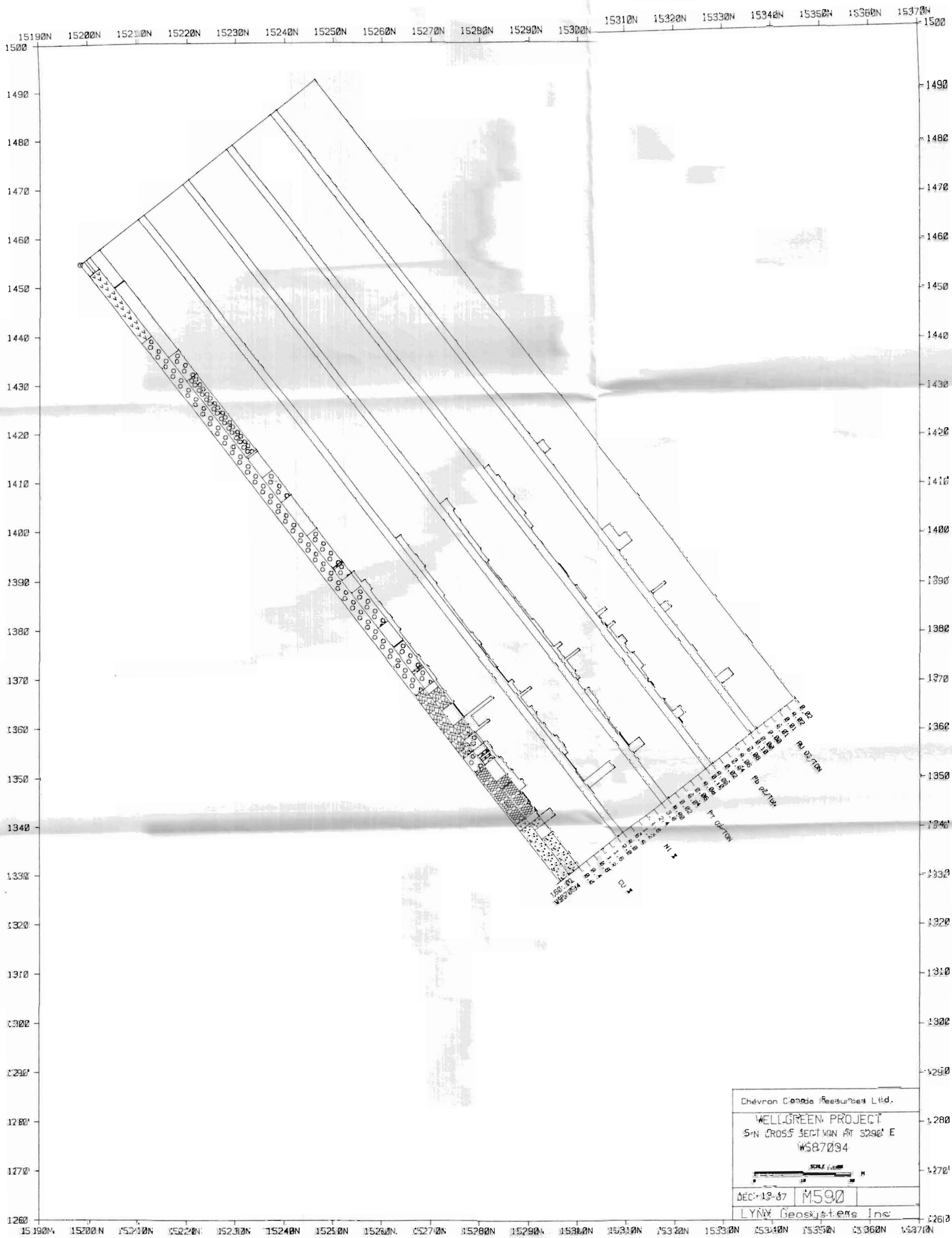
WELLGREEN PROJECT
 S-N CROSS SECTION AT 2965 E
 W587091

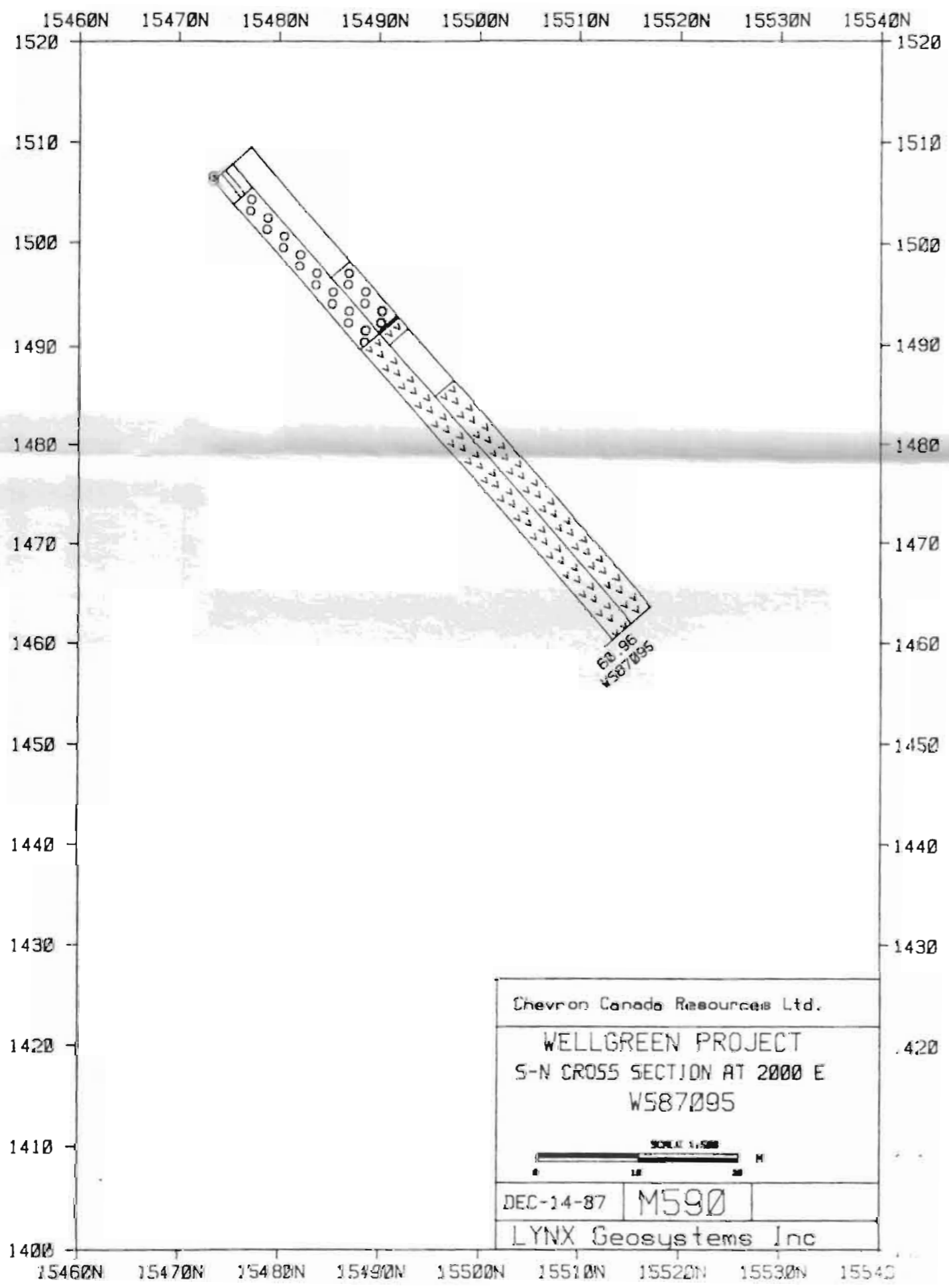


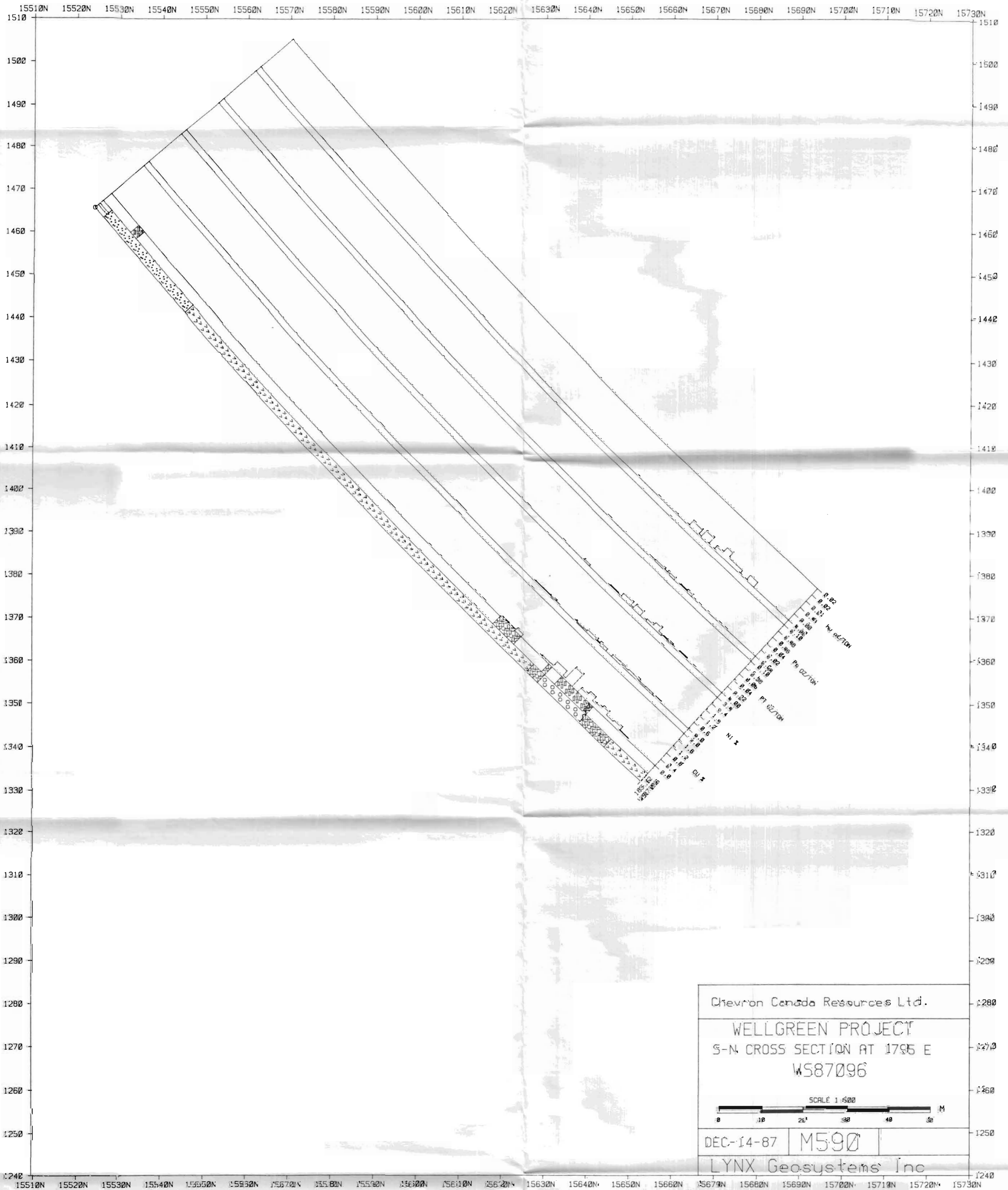
DEC-13-87

M590

LYNX Geosystems Inc







Chevron Canada Resources Ltd.

WELLGREEN PROJECT

S-N CROSS SECTION AT 1795 E

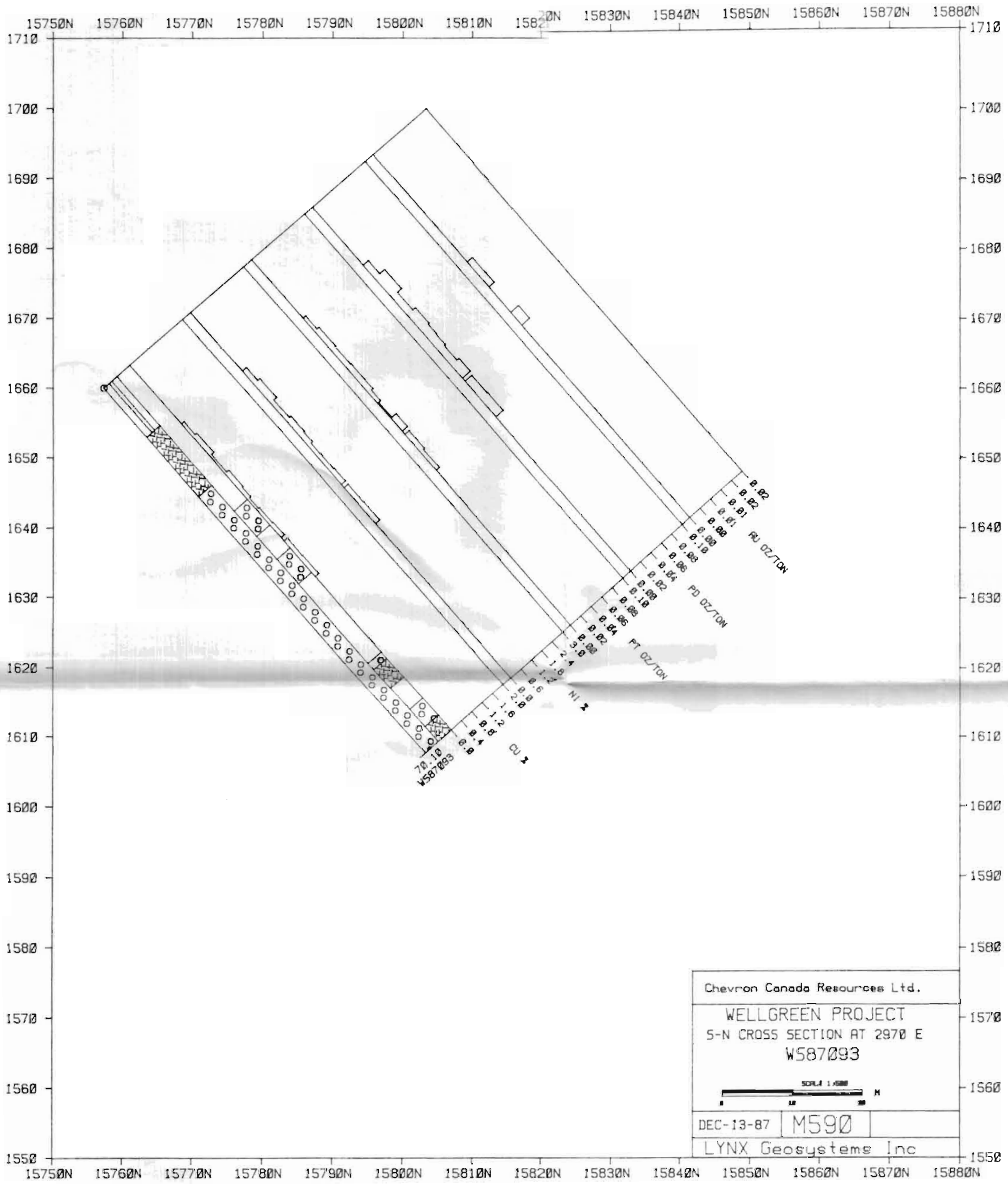
WS87096

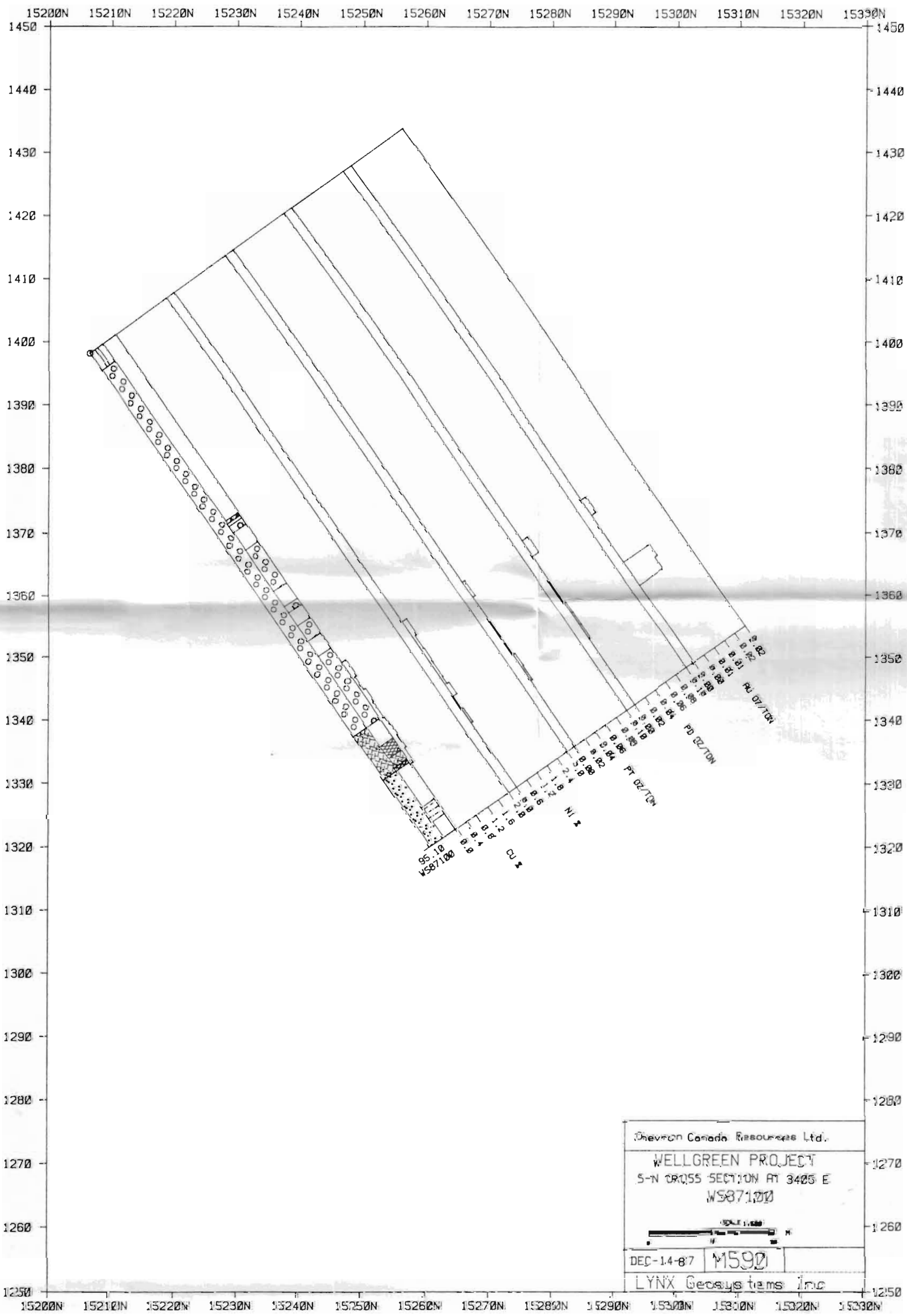
SCALE 1:500

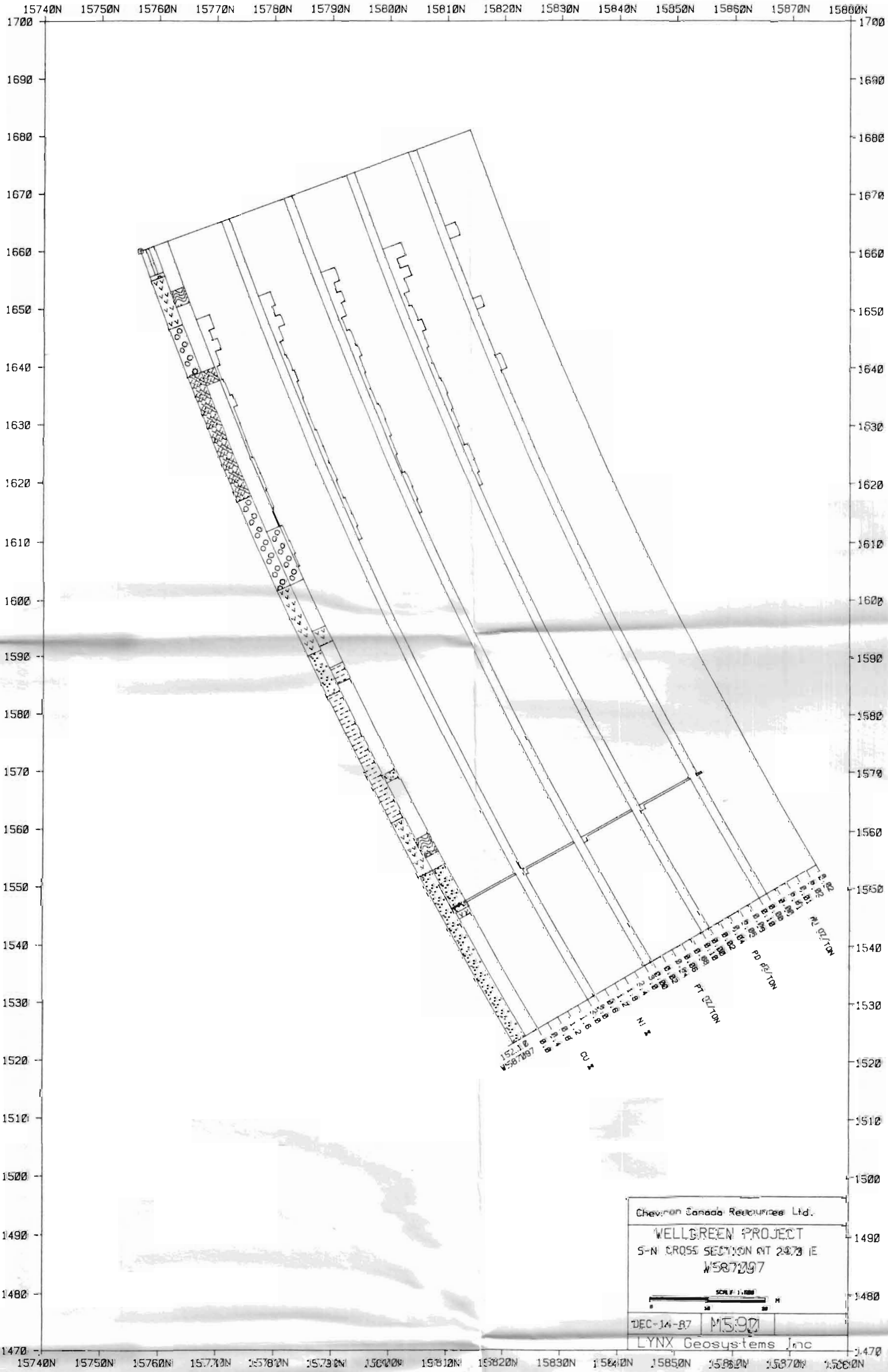
0 10 20 30 40 50 M

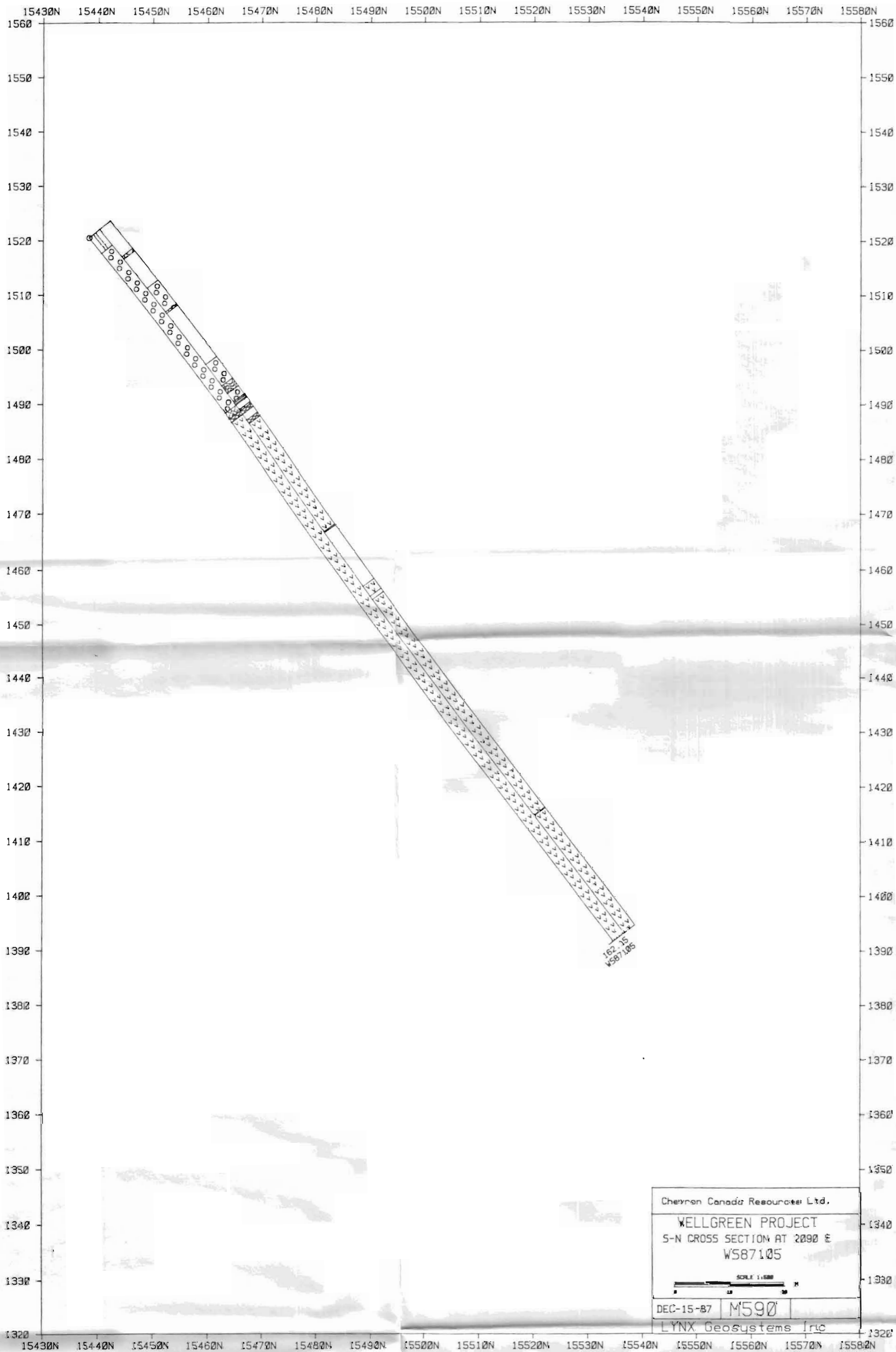
DEC-14-87 M590

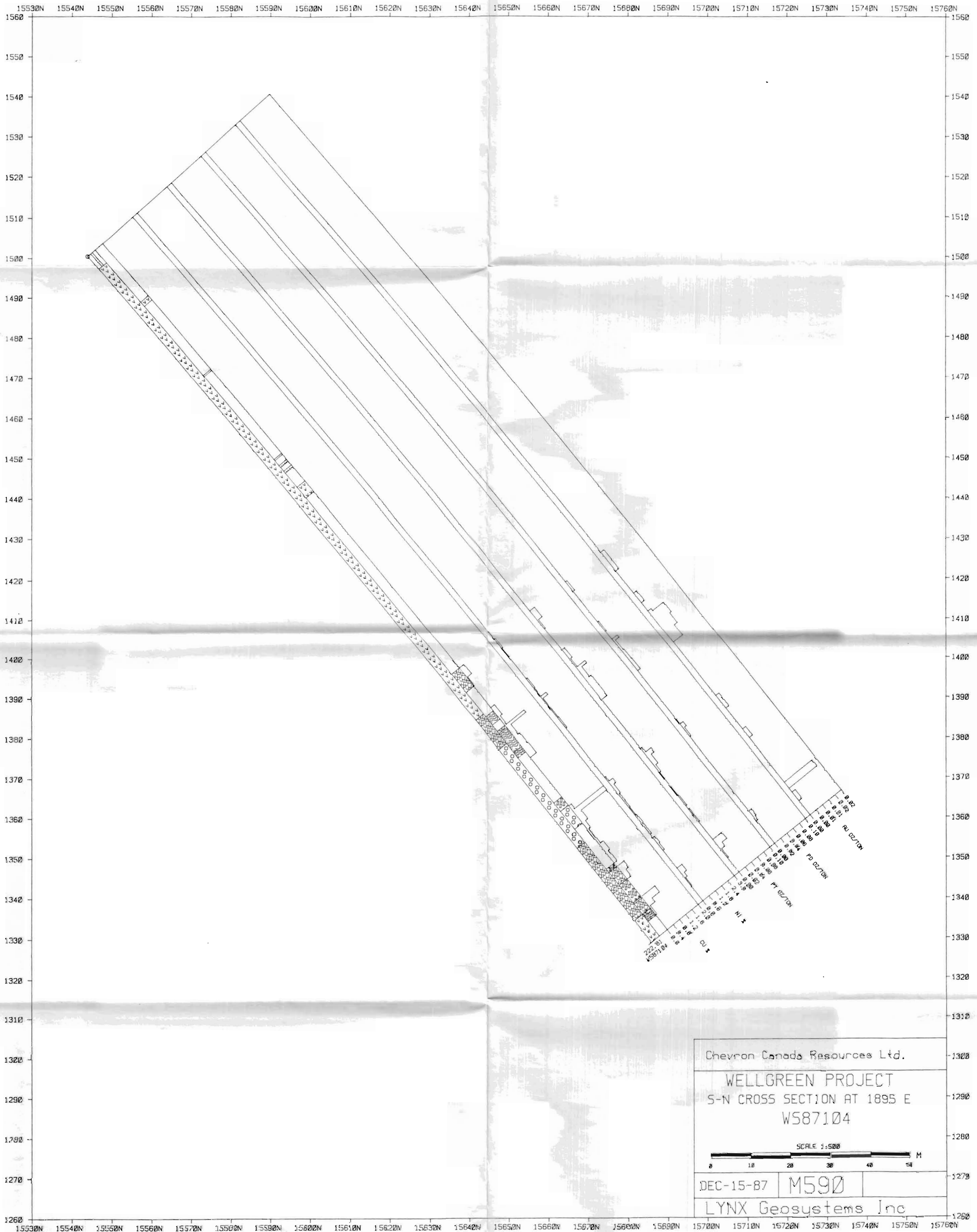
LYNX Geosystems Inc





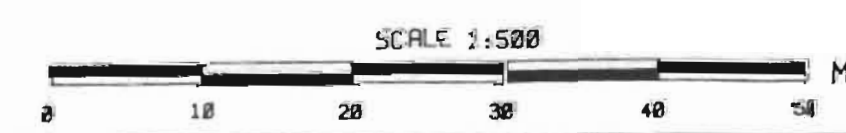






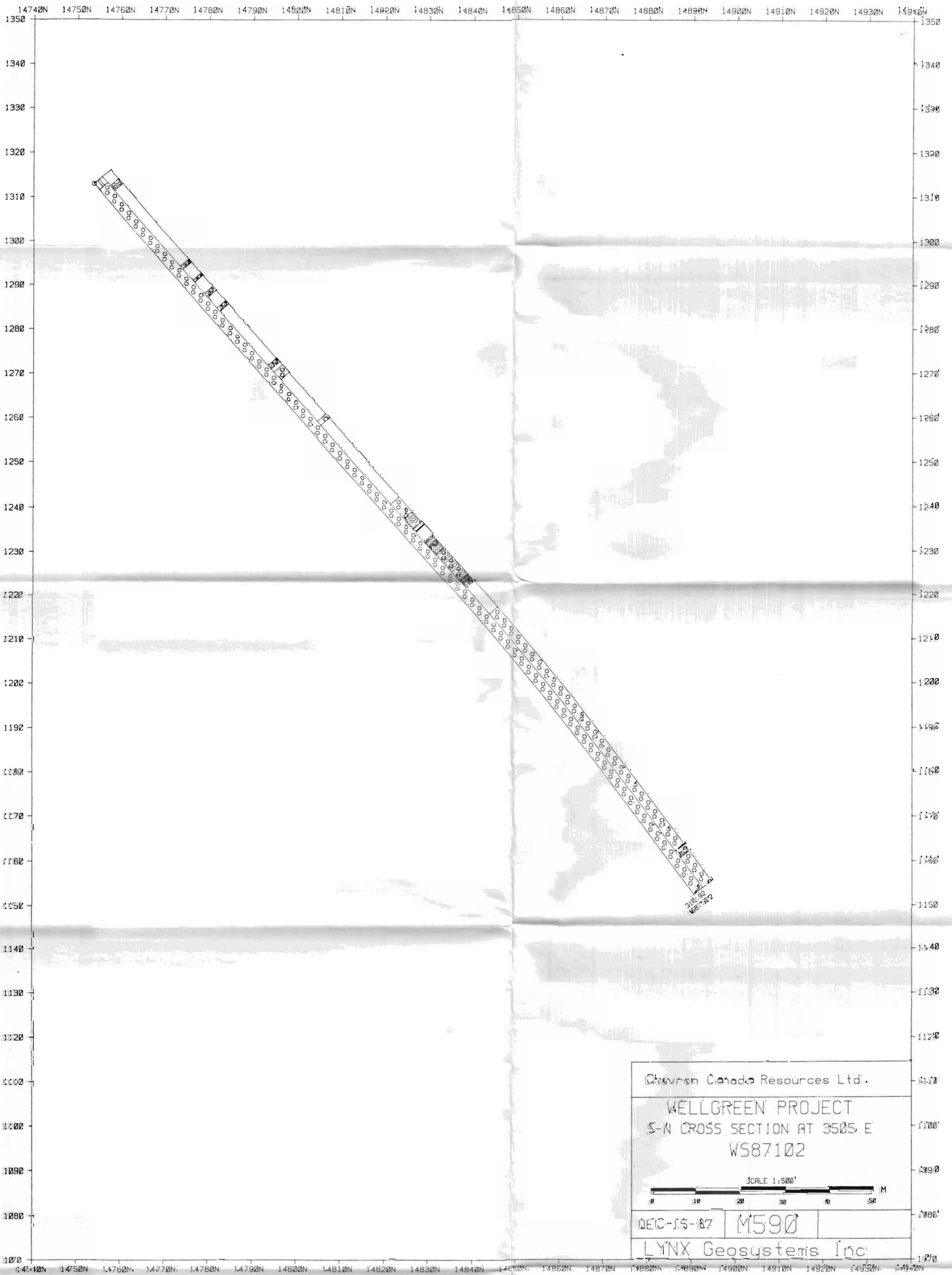
Chevron Canada Resources Ltd.

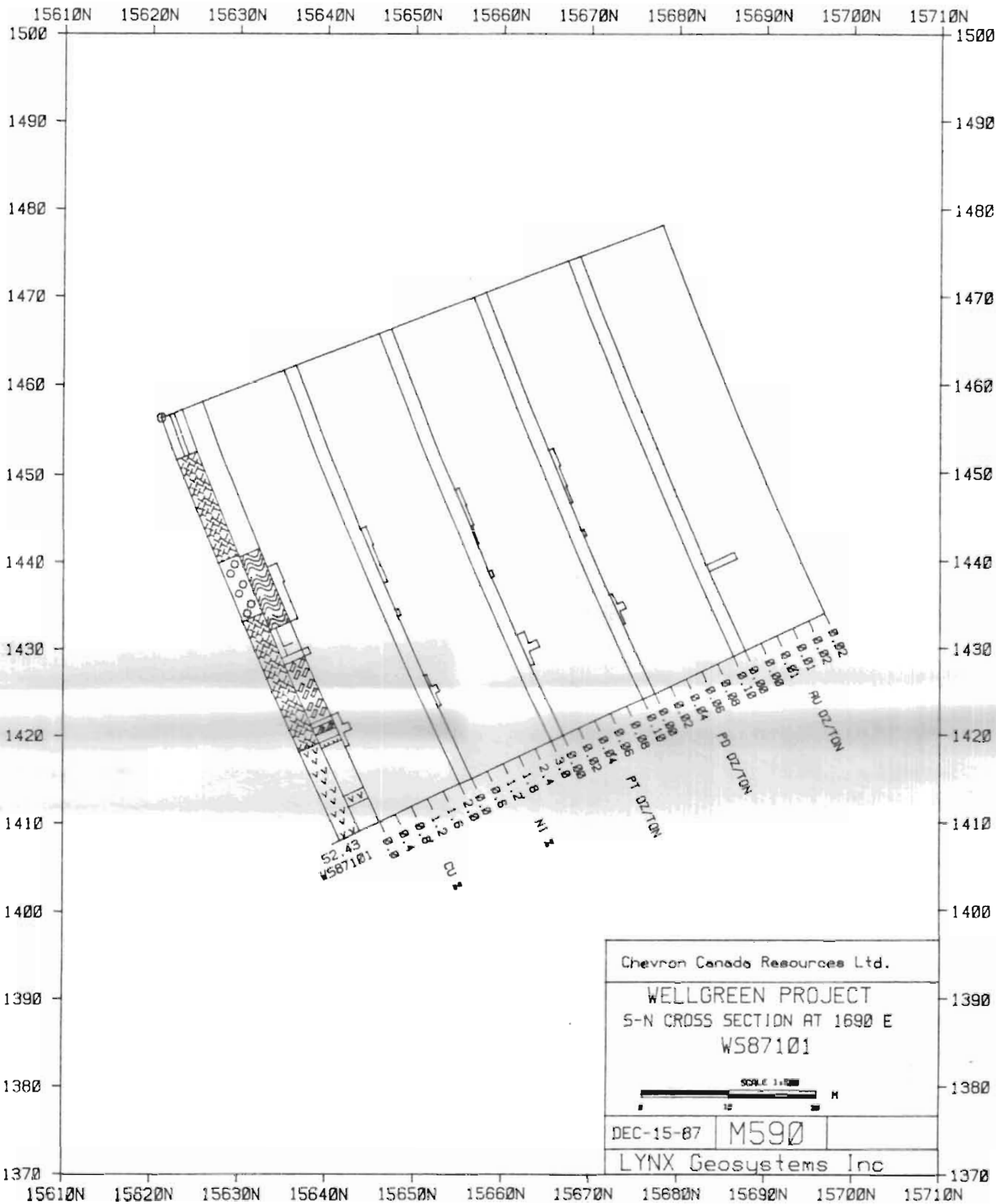
WELLGREEN PROJECT
 S-N CROSS SECTION AT 1895 E
 W587104

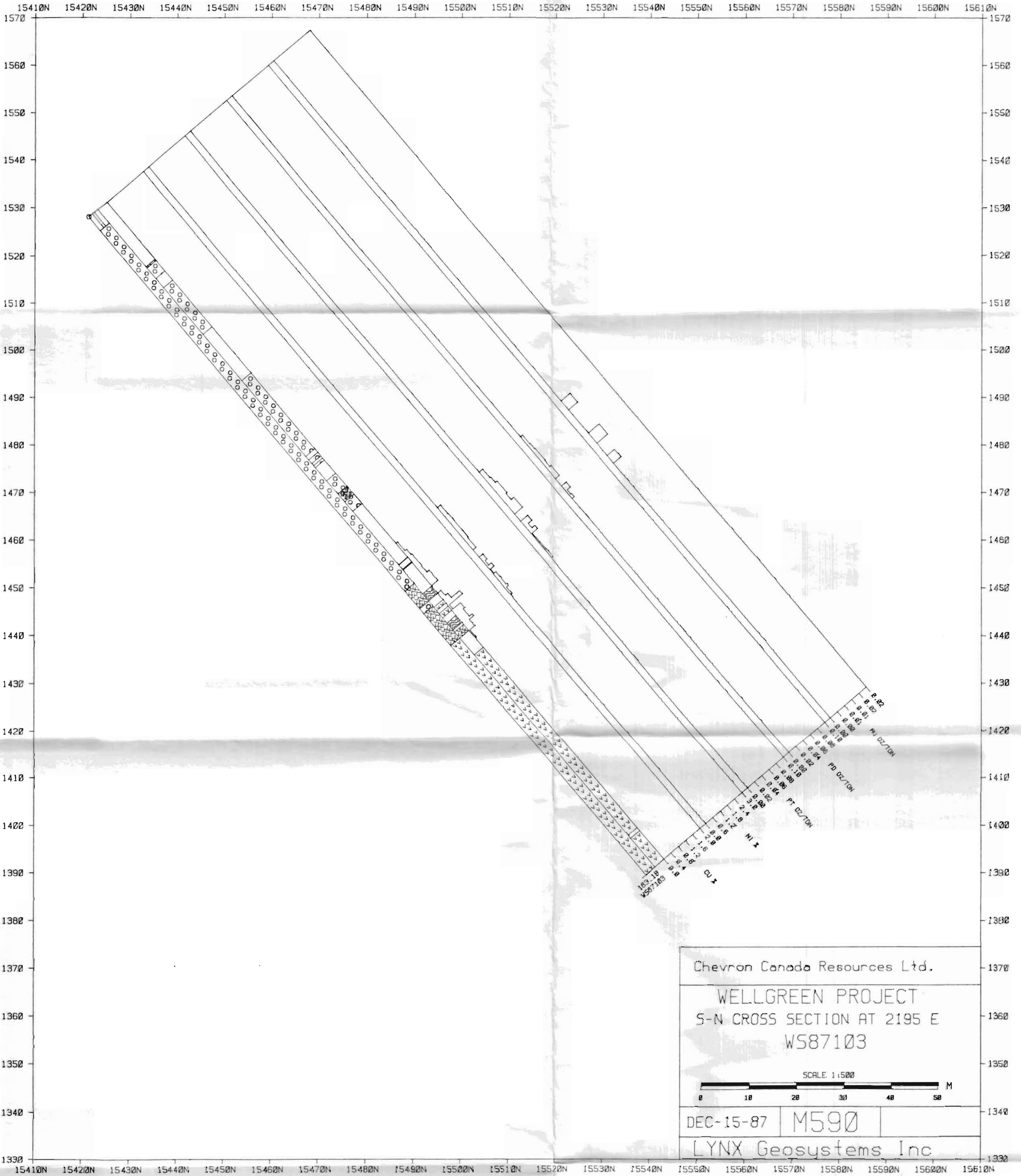


DEC-15-87 | M590

LYNX Geosystems Inc







Chevron Canada Resources Ltd.

WELLGREEN PROJECT
S-N CROSS SECTION AT 2195 E
W587103

SCALE 1:500

0 10 20 30 40 50 M

DEC-15-87 M590

LYNX Geosystems Inc