

Summary Report on the McKinnon Auden Project to Dec31, 1993

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by

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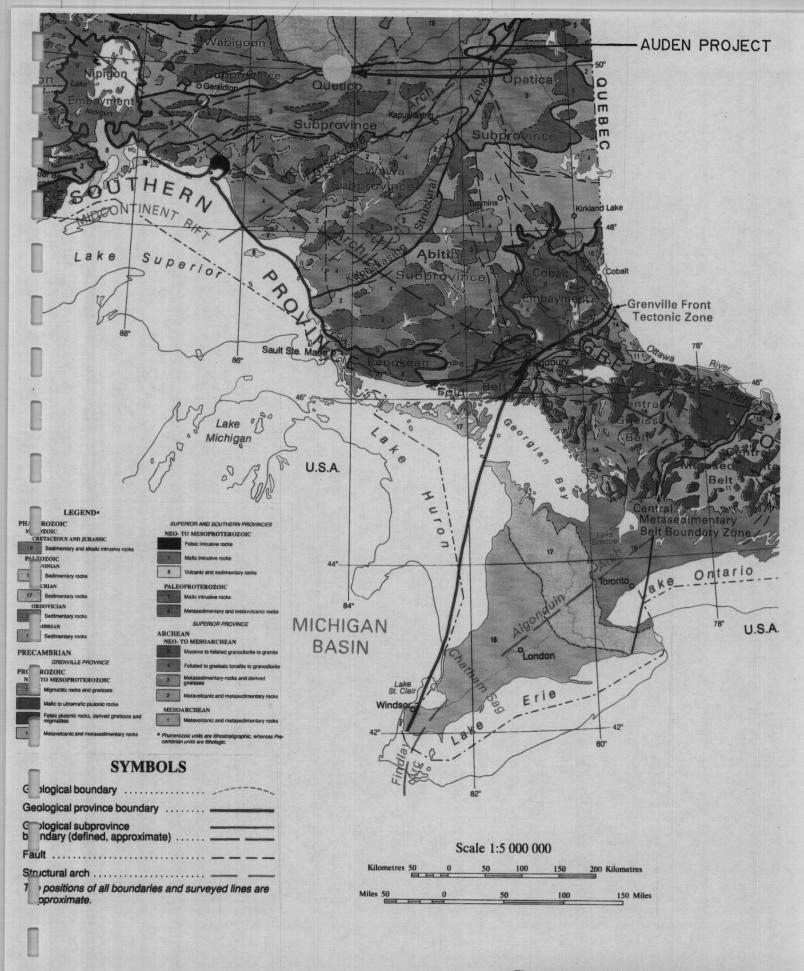


Figure 1. Generalized distribution of major lithologic units, structures and subprovince boundaries. The subprovince boundaries within the Superior Province are after Card and Ciesielski (1986) with minor revisions. Compilation by I.A. Osmani.

INTRODUCTION

Don McKinnon's Auden gold project, comprised of more than 1800 claim units in the area northwest of the town of Hearst Ontario covers roughly 73,000 acres and spans a length of 80km along a recently identified major structural break that may actually represent the easterly extension of those structures along which gold mineralization is found in the Geraldton gold camp. The size of the project, the improving access to the area, results of the historical and recent work programs combined with the relatively unexplored nature of the area makes this an interesting, challenging and potentially very rewarding project.

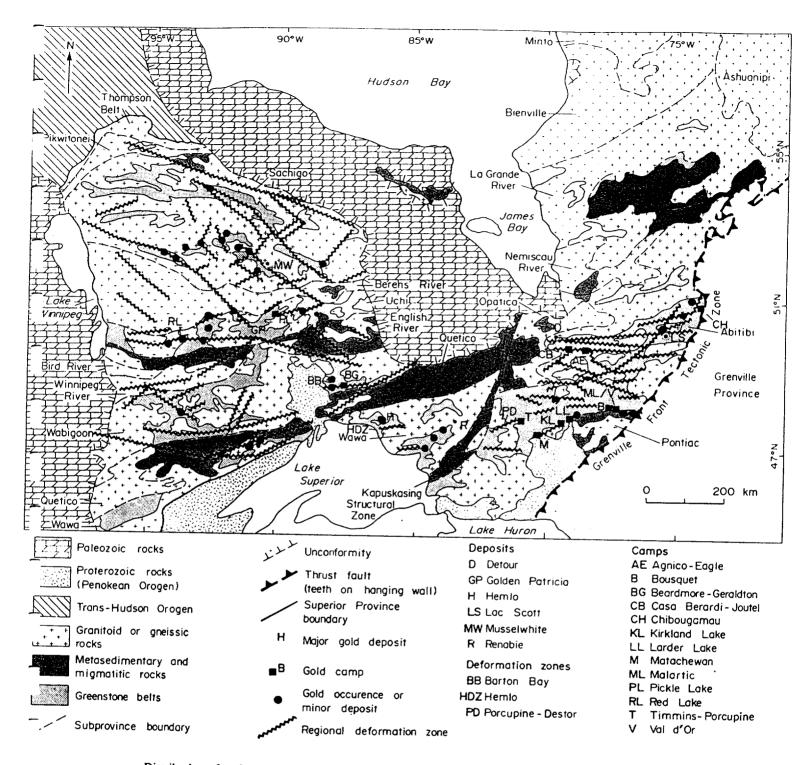
PROPERTY and LOCATION

The east boundary Auden Project is located 40km. northwest of the town of Hearst Ontario near the Kabinakagami River 30km north of Highway 11. From that point the property stretches nearly due west 80 km. to the eastern part of Boyce Twp. All claims staked in the area are part of the project. All claims are within the Porcupine Mining Division except those in Boyce Twp. which are in the Thunder Bay Mining Division. Until recently much of the project area was inaccessible however, recent advances in logging operations into the area has made much of the area significantly more accessible.

Hearst, the closest town of any size is a modern forestry products centre complete with heavy equipment service centres, numerous retail outlets and considerable infrastructure. The closest mining community to the area is Timmins, 150km to the southeast.

Power is available to within about 20km. to the south of the property at the Lecour Lumber sawmill and the village of Constance Lake and ample water is available from the numerous creeks and rivers which flow northward across the property.

The property is currently comprised of 1804 claims (units) covering 29,328 ha. or 73,320 acres. The claims form continuous narrow block roughly 3 km. north south by 80 km. east west protecting what has been determined to be a regional structural and magnetic break.



Distribution of regional deformation zones and some spatially associated gold camps in the Superior Province.

The claims span several claim map sheets as listed below:

Township or Area	Sheet Designation
Limestone Rapids Area	G-1694
Auden Township	G-1748
Pitopiko River Area	G-1706
Fintry Township	
Feagan Lake Area	
Mulloy Township	
Rowlandson Township	
Shuel Township	
Clavet Township	
Boyce Township	

The claim designations are as follow:

(All claims are single units except as noted).

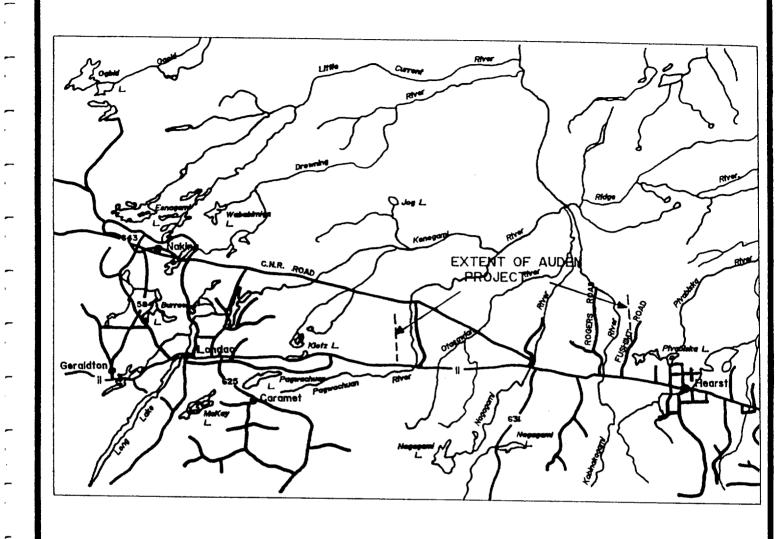
1129734 - 1129799	1171887 - 1171896
1131177 - 1131204	1171907 - 1171912
1131428 - 1131453	1171940 - 1171942
1131455 - 1131459	1171687 - 1171712
1153107 - 1153116	1171715 - 1171722
1153118 - 1153143	1171725 - 1171732
1153145 - 1153176	1171734 - 1171740
1153180 - 1153246	1171751 - 1171781
1159431 - 1159524	1171787 - 1171853
1159526 - 1159549	1171855 - 1171875
1159552 - 1159630	1172001 - 1172041
1159676 - 1159725	1172051 - 1172090
1159806 - 1159854	1172236 - 1172270
1169351 - 1169425	1175084 - 1175118
1169429 - 1169430	1175124 - 1175246
1169434 - 1169435	1175248 - 1175257
1169439 - 1169440	1175264 - 1175287

1169443 - 1169445	1175661 - 1175779
1169448 - 1169450	1175849 - 1175873
1169453 - 1169461	1175879 - 1175887
1171240 - 1171287	1175967 - 1176085
1171290 - 1171339	1176601 - 1176620
1171532 - 1171564	1181711 - 1181785
1171567 - 1171578	
1171582 - 1171629	
1190125 6 units	
1190126 6 units	
1190128 11 units	
1190129 15 units	
1190130 15 units	
1193467 12 units	
1193468 13 units	
1193469 9 units	
1193470 6 units	
1193478	
1193588 15 units	
1193656 4 units	
1193658 2 units	
1193660 4 units	

Don McKinnon is the registered holder or holds transfers for all of the above listed claims. All claims are current with respect to required assessment work and no claim disputes, legal or environmental matters cloud further exploration or development of the property.

ACCESS

The property is located between 10 and 30 km. of Trans Canada Highway 11 between the towns of Hearst and Longlac and the contiguous claim group stretches for 80 km. in a generally east-west direction.



REVISIONS:	McKinn	on Pros	pecting	
	PROPERTY LOCATION AND ACCESS			
	Date: May 1991	Drawn: P.G.	Scale: 1:600,000	
<u> </u>	Job No.:	Approved:	Fla: 3	

granite and sericite-quartz-phyllite are all noted in the drill logs. Hole 15, located in the northeast corner of Shuel Twp. intersected one zone of "sericite-quartz-phyllite" from 194.5 to 325 feet and ended in similar material containing disseminated pyrite from 549 - 558 feet. There is no report of any assaying having been completed for gold. The author found some core specimens at the site of the core storage facility at Savoff in late 1990. One sample of semi-massive coarse grained pyrite-pyrrhotite mineralization assayed 367 ppb gold and 250 ppm arsenic, highly anomalous considering the nature of the sample. Considerable sericite alteration and shearing is visible in some of the core specimens that were found.

During the same period as the Fatima work, prospector James McGale held a group of claims in the extreme north central part of Auden Township. On August 10 and 11 1954, S. Ferguson, then resident geologist for the area visited the property. Massive sulfide, syenite and conglomerate were reported to occur on the claims. Drag folds in the sediments were reported to plunge 40 W. Samples collected on the trip are still on file at the Ministry of Northern Development and Mines Drill Core Library in Timmins. No assay values were reported.

Algoma Ore Properties completed aeromagnetic surveying over several suspected Alkalic Complexes in 1961 and proceeded to drill test several of the resulting magnetic features. As part of this program two holes were drilled in 1964 near the northeast corner of Fintry Twp. to test a magnetic high feature. The holes intersected diorite, syenodiorite and syenite. A strong shear was noted in one of the holes (A-10-64). No gold assays were reported.

Colleen Copper Mines Limited acquired 34 claims straddling the Nagagami River along the north boundary of Auden Twp. and completed magnetic and vertical loop electromagnetic surveys over the claims in the summer of 1965. The company carried out a four hole, 1079 foot drill program in July 1965 to test for copper mineralization. The holes encountered gneiss, quartzite, sericite altered zones, acid intrusives, conglomerate, massive sulfide, amphibolite, chert and quartz feldspar porphyry. Only two core samples were assayed. These adjacent, 5 foot samples from hole 4, were analyzed for copper only and contained .41% and .10% copper respectively. No further work was completed on the claims in spite of reports of assays of up to 0.89 opt gold and 2.36% copper from selected grab samples taken from a silicified zone in conglomerate along the Nagagami River.

At the time of the Colleen Copper Mines Limited exploration program, Martin Hunt Mining Limited acquired 12 claims and Silverplace Mines Limited acquired 9 claims adjacent to the Colleen Copper Property. No diamond drilling or geological mapping was ever completed on the claims and eventually all claims in both Auden and Fintry Twps. were allowed to lapse.

In 1970 North D'Arcy Explorations Ltd. completed magnetic and electromagnetic surveys over a group of 36 claims, all but 2 of which were located in the extreme northwest corner of Auden Twp. The remaining two claims were located on the eastern boundary of Fintry Twp. The claims covered much of the property previously held by Colleen Copper Mines Limited. Six short holes, totalling 1511 feet, were drilled in March 1971 to investigate various electromagnetic responses. Greenstone, conglomerate, massive sulfide, and quartzite were reported. No samples appear to have been sent for analysis.

In spite of the previous drill testing of targets near the Nagagami River, five of the six holes drilled by North D'Arcy were located within 250 feet of the river. The exception, hole 2, was located only 500 feet from the river. Several other targets were recommended for diamond drill testing however no additional work was completed.

It was eight years later that the first more regional program was completed in the area. While no written documentation has been filed with MNDM it appears that Shell Canada Resources Limited undertook an airborne geophysical survey over parts of at least 12 townships or areas. It appears that numerous small claim blocks were subsequently staked to cover what were deemed to be the best base metal targets. While no data was ever filed for assessment credit it is known (from diamond drill logs and sections) that ground magnetic and horizontal loop electromagnetic surveys were performed. Diamond drill testing of twenty separate targets was completed between January and April 1978. Of the twenty targets tested, approximately 60% relate to the Auden Project.

A Shell Canada Schematic Geological Overlay map submitted to the MNDM Drill Core Library shows the location of a "Regional Structural and Magnetic Break", the first indication that such a regional structure exists. Of the 12 or so holes drilled near or on the Auden Project, 8 of the targets drilled were located not too distant from the southern edge of the interpreted location of the major regional structure. Of these 8 holes

(targets), 5 are known to contain visible arsenopyrite-pyrite-pyrrhotite mineralization. Sericite, silification, felsic intrusions, green mica, tourmaline etc. have also been identified in these holes. Targets more distant from the structure, such as those in Rowlandson Twp. appear to show less favourable alteration. Since the distance between the targets is in the order of several km., no area of the property could be considered to have been adequately tested. In spite of the strong alteration and the presence of pyrite-arsenopyrite-pyrrhotite mineralization that so often accompanies gold mineralization, very little effort appears to have been made to evaluate the property for its gold potential.

While compiling the available data on the area, it was noted that much of the well altered drill core had never been assayed. A total of 48 split core samples from several holes were analyzed for gold and arsenic. The gold values ranged from 19 ppb to 1277 ppb and the arsenic values ranged from 80 to 5880 ppm. One section of highly deformed pyrrhotite rich, arsenopyrite bearing iron formation in hole S-78-04 contained a weighted average of 670 ppb gold over 16.9 m. (0.022 opt Au over 55 feet). Within that interval the highest gold value was 1277 ppb (0.04 opt gold). Of the 21 samples assayed from this hole the lowest values were 63 ppb gold and 80 ppm arsenic. The highest arsenic values in the 48 samples came from a highly altered zone of arsenopyrite - pyrite bearing, bleached, green mica sericitic schist adjacent to a graphitic fault zone. This hole, S-78-14, was drilled in the extreme northeast corner of Mulloy Twp. Values ranged from 3100 to 5880 ppm arsenic. Holes S-78-6, S-78-8, 8A, and S-78-10 all contained arsenopyrite mineralization. The distance between hole S-78-14 which contains very strong alteration and abundant arsenopyrite-pyrite mineralization, and holes S-78-4 which returned a weighted average gold assay of 0.022 opt gold over 55 feet is more than 20 km. To the west along strike of S-78-14 no exploration has ever been recorded and east of S-78-04 the next available data point is more than 15 km. to the east where a Noranda drill hole intersected 0.035 opt gold over 10.6 feet and 0.087 opt gold over 2.5 feet (this work is discussed below).

In 1981 Mattagami Lake Exploration Ltd. completed ground geophysical surveys over four small claim groups in the Limestone Rapids Area to define the ground location of previously detected airborne electromagnetic anomalies. Magnetic, VLF-EM, horizontal loop electromagnetic and limited induced polarization surveys were completed. Noranda's (Mattagami Lake's) first two drill holes were completed in the fall of 1982 and four additional holes were completed in 1984. Iron formation, sericite schist, rhyolite, basalt, and sediments were intersected in the holes. Assay values were only

given for holes AD-84-2A, B and AF-84-1.

Hole 8D-84-2A intersected minor arsenopyrite mineralization in a "dacitic volcaniclastic sediment" and dacitic tuff before being abandoned for technical reasons. Quartz-tourmaline veinlets were reported in a section of rhyodacitic to dacitic tuff at the bottom of the hole. Hole AD-84-2B, collared just ahead of hole AD-84-2A, intersected siliceous iron formation, felsic tuffs or sediments, rhyolite and mafic tuffs. Scattered zones containing arsenopyrite were noted and one sample of deformed magnetite rich iron formation assayed 673 ppb (0.02 opt Au) gold over a 5 foot interval.

The other hole drilled during the 1982 drill program, hole AF-82-1 appears to have been drilled subparallel to dip and remained in amphibolite for most of its length.

In 1984 three additional holes were completed. Hole AD-84-1 intersected mafic tuff, magnetite-pyrrhotite iron formation, felsic tuffs and fragmentals. All assay values from the samples taken were removed prior to the submission of the drill log for assessment credit. "Quartz fragments" noted throughout the lower part of the hole may be indicative of a broad deformation zone. Hole AE-84-1 intersected metasediments, massive sulfide (pyrite and pyrrhotite) and mafic interbanded tuffs and sediments. Up to 5% disseminated arsenopyrite is noted over what appears to be a considerable core length. All assay values were removed prior to the submission of the drilling for assessment credit. All but one Noranda hole collared in Palaeozoic sediments before entering the target Archean rocks.

In late 1984 Noranda Exploration Co. Ltd. completed magnetic and horizontal loop electromagnetic surveys over a thirty claim property along the northern boundary of Auden Twp. immediately east of the Nagagami River. It appears as though Noranda were not aware of the Shell Canada Resources work in the area since it is not included in the summary of previous work section of the Noranda report. Seven conductive zones were defined over lengths of 300 to at least 1700m. Conductor A which was traced over 1700m may correlate with the conductor drill tested by Shell hole S-78-6. Shell hole S-78-04 appears to have tested Noranda's conductor F or conductor E. Ground reconnaissance will be required to correlate the ground geophysics and the drill hole. Several diamond drill holes were proposed in the Noranda report but were never completed.

GEOLOGY

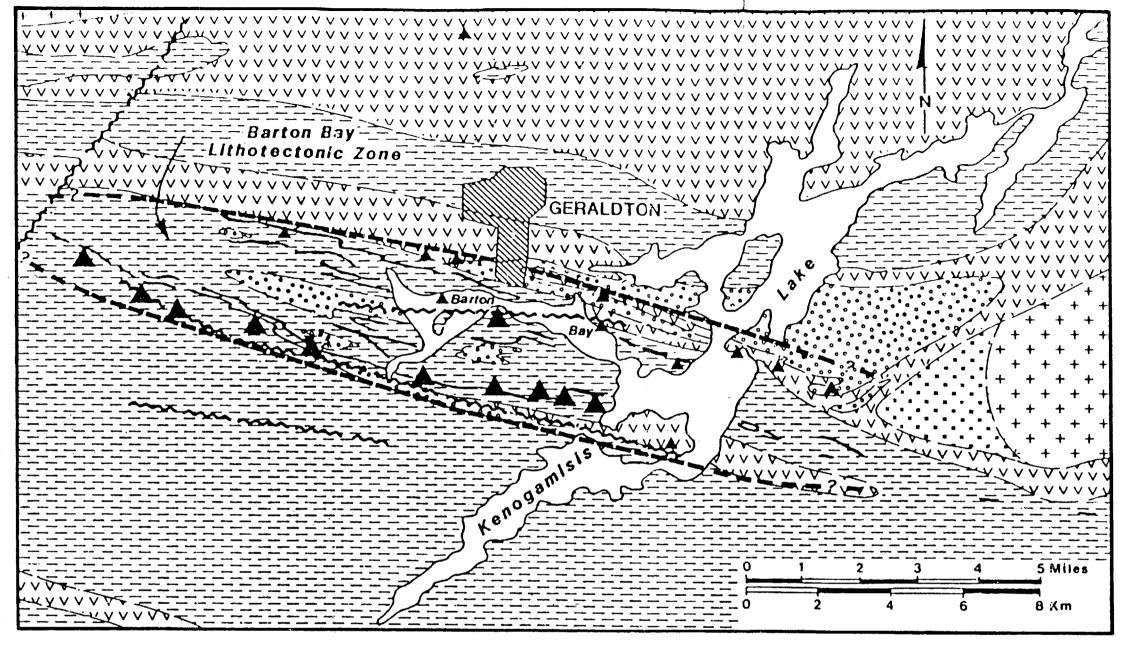
REGIONAL

The project lies in the Superior Province of the Canadian Shield at or near the boundary between the Wabigoon and the Quetico Subprovinces as shown figure 1. The Wabigoon Subprovince to the north is comprised of a sequence of predominantly mafic to intermediate volcanic members with only minor felsic volcanic units. Extensive turbidite sequence metasediments are also present and while greywacke and sandstone units are the dominant, laterally extensive sedimentary lithologic units, iron formation and conglomerate exist throughout the Beardmore-Geraldton-Longlac area to the west of the project. Banded iron formation, sulfide facies iron formation and conglomerate have also been identified on the Auden Project claim group.

While the geology of the Wabigoon and Quetico subprovinces is well documented throughout Northwestern Ontario, the database is virtually nonexistent throughout the project area. Geological information from the east end of the Klotz Lake area, easterly through the project area, is so scarce that much of the area is indicated as "geology unknown" even at a scale of 1" = 4 miles on Government of Ontario geological maps. The most detailed geological mapping of the area is a data compilation series at a scale of 1" = 2 miles. Again extremely little data is shown on these maps. Since the time when these maps were issued, some information has been added to the available database which, when combined with the available geophysical data, allows a somewhat better synthesis of the geology of the area.

The latest series of regional compilations which form the basis for MNDM Special Volume 4 titled Geology of Ontario (Thurston P.C. et al) shows the presence of a regional deformation zone trending through the western part of the project in a easterly to northeasterly direction (fig. 2).

A number of factors including sharp termination and dislocation of northwest trending magnetic features and a rather well defined regional magnetic contact initiated the interpretation of the existence of a significant regional structure. A review of all available diamond drill core and some of the outcrop areas in the region support this



Porphyritic felsic intrusion

Equigranular felsic intrusion

Mafic intrusion

Clastic metasediments

VVV

VXV

Mafic to intermediate metavolcanics



Iron formation



Gold occurrences

Major producing mines



Fault

GENERAL GEOLOGY GERALDTON AREA SHOWING SPATIAL RELATIONSHIP BETWEEN GOLD MINES, OCCURRENCES AND THE MAJOR STRUCTURE OF THE AREA.

Diagram after Colvine et al (1988).

idea.

To the south of this regionally inferred structure, rocks appear to be more metatexitic and are likely part of the Quetico Subprovince. The rocks of the Quetico Subprovince where studied in more detail in the Klotz Lake area are reported to be comprised entirely of a metamorphosed turbidite sequence. In that area the sediments are progressively more metamorphosed to the south into metatexitic migmatite and diatexite. No significant alteration or mineralization has been reported from the Quetico Subprovince rocks in the Klotz Lake area and none is known to be present in the Auden Project area, south of the location of the recently identified structural zone.

Subsequent to their deposition or emplacement, all Archean rocks have been folded and metamorphosed. The least metamorphosed early Archean rocks in the area appear to have been subjected to upper greenschist facies metamorphism, indicating relatively deep burial of the entire sequence. Intrusive rocks known to occur in the area include quartz feldspar porphyry, syenite, diorite, and pegmatite. Younger Proterozoic diabase and large alkali syenite complexes cut all other Precambrian rocks in the area. The alkali syenite complex located just north of the main claim block was explored for its mineral potential in the early 1960's by Algoma Ore Properties without success.

In the eastern part of the project area, beginning approximately 4 km. east of the Nagagami River shallow north dipping Palaeozoic sediments overly the Archean volcano-sedimentary stratigraphy. While the distribution of these calcareous rocks is extensive in this area, they reach thicknesses of only approximately 250 feet.

Pleistocene geology in the area is dominated by thin to moderate veneers of clay, silt, sand, and outwash gravels. Drainage throughout the area is north to northeasterly via a series of shallow, fast flowing rivers most notably the Kabinakagami, Nagagami and Pitopiko rivers.

PROPERTY

Poor outcrop exposure coupled with poor access and a general lack of previous exploration have resulted in a very poor understanding of the geology of the project area. The Auden Project spans some 80 km. and until the most recent work program

there were only about 50 data points (drill holes or outcrops) on the property. Thirty of these data points are historical diamond drill holes for which the drill core is no longer available. With only approximately one data point per 10 sq. km. of geology, only generalizations can be made. What is significant however is that in spite of the extremely limited database, very favourable environments for gold mineralization have been defined at several of the data points over the full length of the property. Gold mineralization is known to occur along this "favourable trend" and it is entirely possible that an entire "Gold Camp" could be found on the property.

The geology of the property, while very poorly understood, appears to be dominated by a sequence of highly metamorphosed turbidite sediments and fine grained tuffs. All rocks known to occur on the property are Archean in age with the exception of a thin veneer of shallow north dipping Palaeozoic sediments in parts of the eastern portion of the property. All early Archean rock units are cut by a series of northwest trending diabase dikes and occasional northeast trending diabase dikes.

While metamorphosed turbidite sediments are thought to be the dominant rock type underlying the property, iron formation, conglomerate, basalt (amphibolite), dacite, rhyodacite, rhyolite, quartz-feldspar porphyry, syenite, and syenodiorite have been reported to occur at various locations.

The available data indicates that the area south of the property is dominated by migmatite and diatexite, probably indicating the general location of the nothern boundary of the Quetico Subprovince.

Reprocessing and computer enhancement of the available aeromagnetic data for the region shows a general easterly trend to all magnetic features in the area with the exception of those caused by diabase dikes or other intrusive rock types. This data also shows the presence of a reasonably well defined structural and magnetic break extending easterly throughout the area. The existence and location of this regional structural zone (deformation zone) has been interpreted using features such as; a regional magnetic contact indicating rather flat magnetics to the south of the structure (Quetico metasediments), abrupt termination of northwest and northeast trending magnetic features (diabase dikes) by up to 1 km?, regional foliation, abrupt changes in regional strike directions (particularly in the Eastside River Area), topographic lineaments, occurrences of mylonite, and small scale deformation features visible in drill core. The available

aeromagnetic data is rather coarse (lines at half mile or 800 m. intervals) and does not allow detailed interpretation although some, less regional scale structural features can be discerned.

The 1991 Aerodat Limited airborne geophysical survey, while covering only the McKinnon claims, certainly provides a much better base for geological interpretation of regional trends in the area. The 1:50,000 total field magnetic map (fig. 7) better defines the location of the discrete offsets of diabase dikes along the so called "Auden Structure" as shown. As was interpreted from the GSC airborne magnetic data, sedimentary and volcanic lithologies trend easterly throughout the project area and northwest and northeast trending diabase dikes show dextral offset along a linear feature roughly coinciding with the south boundary of the property.

The prominent circular magnetic feature in the northeast corner of Fintry Twp. is due to the presence of an alkali syenite body of similar nature to the very large intrusive body to the north of the property.

In spite of the fact that the data points are typically several kilometres apart along the regional structure, most of them indicate an environment favourable for gold mineralization. These data points are, for the most part isolated diamond drill holes targeted at evaluating selected electromagnetic responses for their base metal potential. The only significant exception to this is the twenty drill holes completed by Fatima Mining Company Limited that was aimed at locating mineable iron deposits. Alteration north of the southern limit of the regional structure includes; carbonate, sericite, green mica, tourmaline, hematite, bleaching (albite?), quartz veining and sulfide mineralization (pyrite, pyrrhotite, arsenopyrite).

On or near the Eastside River claim group the aeromagnetic data and ground reconnaissance indicate the presence of southeast trending mafic volcanic, ultramafic flows(?), felsic intrusive rocks and north east foliated sedimentary schists and gneisses. The opposing trends are likely due to the presence of the major regional structural zone along the southern part of the claim group.

In the Shuel, Mulloy, Rowlandson Twp. area it appear that basalt units are more abundant north of the large magnetic feature caused by magnetite formation. Diamond drill logs from the Shell and Fatima drilling indicate the presence of greywacke, argillite

(rarely graphitic) magnetite iron formation, massive sulfide iron formation, quartz feldspar porphyry, conglomerate, and basalt in the area. Extensive "quartz-sericite-phyllite" is noted in some of the Fatima holes. While the origin of these rocks is unknown they are likely highly sericitized sediments and highly altered felsic intrusives. Quartz veining, sheared granite and carbonate are also noted in some of Fatima diamond drill holes.

Between the northeast corner of Mulloy Twp. (Shell hole S-78-14) and the Nagagami River, a distance of 15 km. six Shell diamond drill holes and two Algoma Ore drill holes constitute the entire geological database. While schists and gneisses of sedimentary origin predominate, syenite, diorite, syenodiorite, basalt, quartz mylonite, and green mica-sericite-arsenopyrite schist were reported. In close proximity to the Nagagami River conglomerate, syenite, pyritiferous schist, mica schist and amphibolite are known to occur.

The most dense grouping of historical data points is along the Nagagami River. A total of 12 diamond drill holes by Colleen Copper Mines Limited, D' Arcy Explorations and Shell Canada Resources combined with outcrop information, ground geophysics and airborne magnetic data provide the following interpretation of the area from south to north. An easterly trending group of magnetic features occur just north of an abrupt termination of at least two diabase dikes near the river. These anomalies are caused by the presence of magnetite and/or sulfide iron formation. Some amphibolite (mafic volcanic flows) appears to be present north of the main fault and south of the main magnetic and electromagnetic features. The sediments, including the iron formations appear to be highly deformed. The conglomerate that outcrops in the Nagagami River is polymictic although dominated by granitic clasts and all boulder and cobble types are flattened and stretched. Some quartz veining and carbonate alteration as well as silicification occur within the conglomerate. It is from one of these silicified zones in the conglomerate that Colleen Copper Mines Limited reported an assay from a selected grab sample of 2.36% copper and 0.89 ounces per ton gold. Less than 500 meters north of the conglomerate, the sediments are intruded by a body of syenite. Diamond drill information 700 m. north of the conglomerate indicates the presence of more sulfide iron formation, sediments, narrow felsic intrusives and basalt. One 8 meter section of bleached sericite schist was also noted north of the syenite (Shell hole S-78-2).

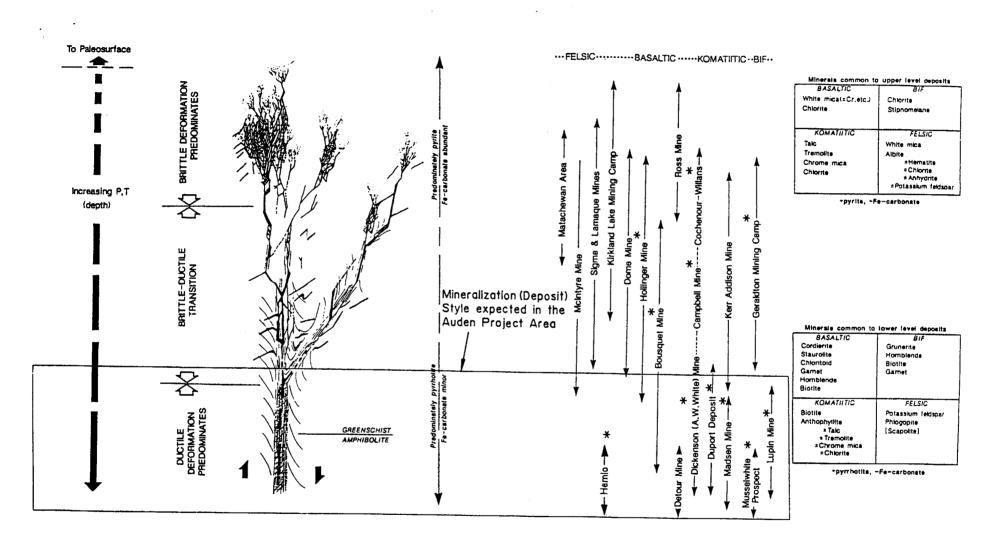
From just east of the Nagagami River to the east end of the property, a distance of more than 30 km., the entire historical database consists of one Shell diamond drill hole (S-78-04) and five Noranda Exploration diamond drill holes. Hole S-78-04 intersected a bleached, albitized weakly hematized zone above a thick sequence of sulfide-magnetite iron formation. Within the iron formation considerable deformation is visible and disseminated arsenopyrite was noted. One section of predominately pyrrhotite rich iron formation contained a weighted average of 0.022 opt gold over a 55 foot core length. It is sixteen km. east from this data point to the next data point, diamond drill holes AF-82-1 and AF-84-1, near Gull Lake. These holes, and three others drilled to evaluate geophysical targets intersected sediments, sulfide and magnetite iron formation, basalt, andesite, dacite, rhyolite (tuffs and flows), sericite schist and chemical sediments. The Archean rocks in this area were found to be overlain by Palaeozoic sediments except in the case of hole AE-82-01 located just southeast of Gull Lake.

Gold mineralization and more altered and mineralized sections of these holes appeared to be related to more deformed and sulfide rich areas of the holes. Quartz fragmental, sericite schist, and "floating rock clasts" in massive sulfide indicate considerable alteration and deformation. Arsenopyrite is present in all but one of the Noranda holes and anomalous gold was reported from the two holes for which the assay values were reported.

To the east of the property even less geological information is available. There are no geological data points for several kilometres east of the property although the available geophysical information indicates that the regional structure continues.

EXPLORATION MODELS, POTENTIAL

Over the past decade government and industry geoscientists have re-evaluated the geology, geochemistry and genesis of nearly every gold deposit in the Canadian Shield. The discovery of the gold deposits at Hemlo and Musselwhite, Donna Lake and Detour Lake, have encouraged exploration for gold deposits in upper greenschist to upper amphibolite facies metamorphic terrain. The metamorphic grade throughout much of the Auden Project is similarly upper greenschist to upper amphibolite facies however the area remained virtually unexplored through the eighties.



IDEALIZED COMPOSITE DEPOSITIONAL MODEL FOR ARCHEAN GOLD DEPOSITS (After Colvine et al 1988)

Authors note: Nearly all deposits where "ductile deformation predominates" contain noticable arsenopyrite. Hemlo deposit added by author. Deposits containing arsenopyrite are designated *

One of the nearly unilateral features of the gold deposits of the Superior Province is the proximity to large scale, deep seated faults, and/or major tectonic zones. These structures, depending upon lithology, depth of burial and overall metamorphic grade, are often manifested as zones of fault gouge, brecciation, talc chlorite schist, graphitic faulting, sericitic to carbonate rich schist, augen gneiss or mylonite.

These major structures show a very close spatial relationship to gold occurrences and gold mines. As shown in figure 2, this holds true for the Destor-Porcupine Fault, the Larder Lake Break, the Quetico Fault, the Casa Berardi Break and the Barton Bay Deformation Zone to name some of the better known structures. Figure 5 shows the relationship between gold mineralization and the Barton Bay Deformation Zone in the Geraldton area, the closest gold producing area to the property. The location of nearly all gold showings near the two deformation zones of the area is striking. It is interesting to note that all but one of the significant gold mines is located not far north of the southern limit of the deformation zone. The Barton Bay deformation Zone shown in figure 5 has more recently been documented further east into the Klotz Lake area. It is possibly that the Barton Bay Tectonic zone or related structures extend through the Klotz Lake area and easterly through the entire Auden Project.

The presence of these major deep seated structures can be indicated by abrupt termination of geological units, including late stage diabase dikes, the occurrence of mylonite, abrupt termination of geophysical features, topographic lineaments, abrupt changes in metamorphic grade and the presence of high energy, immature sediments such as conglomerate. All of these parameters have been outlined on the Auden claim group and it is interpreted that a regionally extensive, deep seated easterly trending structure occurs near the southern part of the claim group as indicated in figure 7.

Figure 6 shows that not only does mineralogy change with an increase in metamorphic grade, the style and accessory minerals also vary. It is of particular note that most of the deposits in the upper greenschist to amphibolite facies range of metamorphism are typified by only minor carbonate alteration, significant pyrrhotite and arsenopyrite, a general lack of quartz fracturing and veining, the presence of sericitic schists, and augen gneisses.

A major regional structure is interpreted to occur on the Auden property; gold mineralization had been found associated with pyrrhotite arsenopyrite mineralization; and faults, schists and gneisses were known to occur in widely spaced parts of the property.

Anomalous arsenic concentrations occur at, or form halos around a wide variety of gold deposits extending throughout the world and including El Indio in Chile, Crixas in Brazil and Eskay Creek in northern British Columbia. In the Canadian Shield deposits such as Agnico Eagle, Golden Knight, Campbell, Duport, Hemlo, Detour Lake, and the mines of the Timmins Gold Camp all show anomalous concentrations of arsenic, usually in the form of arsenopyrite.

In spite of a very limited database, an extremely favourable geological environment was identified in the Auden project area. A major regional structural zone has been identified for a length of nearly 100 km. and along this structural trend, low grade gold mineralization, green mica schist, disseminated arsenopyrite mineralization, albitization, sericite schist, syenitic to quartz feldspar porphyry intrusions, conglomerate and auriferous massive sulfides have been identified.

1993 EXPLORATION PROGRAM

As part of the ongoing evaluation of this large tract of unexplored land, an exploration program was proposed in early 1993, submitted to the Ontario Ministry of Northern Development and Mines for designation under the province's OMIP program. The program was approved on June 17, 1993.

In order to achieve maximum value it was decided that a late fall startup would be most advantageous due to the wet conditions in the area late in the summer and because reconnaissance trips to the area indicated that beaver dams were everywhere in the area, hampering access and work in swampy areas. Linecutting commenced in mid October and the last field work was completed by December 21, 1993. Warm temperatures, lack of snow cover, and several periods of rain and freezing rain in November and December hampered access for linecutting and geophysical programs as well as diamond drilling. The lack of snow cover resulted in numerous occurences of frozen waterlines, and restricted snowmachine travel and the warmer than normal temperatures and rain

combined to flood most creeks and rivers in the area.

It was thought that several holes would be best completed with helicopter support due to the weather conditions and initially the drill program was helicopter supported however the helicopter time charges due to inexperience, short days, frozen waterlines, and breakdowns proved excessive and both dialmond drills were returned to ground based units in spite of the non frozen nature of the ground. Even though several truck moves were necessitated and moves were typically several kilometres in length due to the logistical problems associated with wanting to move in a generally east-west direction while the creeks in the area generally flow north.

Despite the logistical problems associated with small widely spaced linecut grids, small geophysical grids and widely spaced drill targets, linecutting and geophysical programs were carried out a total of 34 targets and 17 drill holes were completed using two drill units.

Appendix A contains a brief summary of the location, previous work, geophysical surveys and results, and where drilling was completed, a summary of the location, dip, depth, geology, and assay results relating to each target.

Targets on the accompanying 1:50,000 map are designated with a single or double didgit number while in the Target summary, on the plan maps and in the drill logs the target number is prefixed by a number from 1-10 to designate the airborne geophysical plan on which the target is located with sheet 1 being the most westerly.

As expected in a program of this magnitude and in such an early stage on the learning curve, not all holes intersected strong alteration or mineralization but in several of the holes significant amounts of arsaenopyrite was intersected, many intersected anomalous values (for discussion purposes deemed to be more than 0.1 g/t gold), some intersected highly sheared or foliated rocks including intrusive units and gold values as high as 3.33 g/t were intersected. Highly anomalous amounts of arsenic were reported from hole 10-3-1 on the extreme east end of the property and simailarly amomalous amounts of arsenic were obtained in sample results from hole 1-34-1 near the west end of the property. The highest values in the program were obtained in drill hole 7-17-1 and included 1.54 g/t over 0.7m, 1.22 g/t over 1.5m and 3.33 g/t over 1.2m. These values were individual assays from a 27m wide zone that contained amomalous values and

represents the same horizon that was encountered in Shell hole 78-04 which contained more than 0.6g/t over a 16m width. While much of the core width is pyrrhotite rich iron formation it is interesting to note that the highest value occurs at the edge of the massive sulfide zone in an altered zone containing only minor pyrrhotite but more abundant pyrite.

Other features of note include, the discovery of anomalous gold in drill hole 7-14-1 located more than 1.5km east of hole 7-17-1, the discovery of well defined IP responses over suspected iron formations at targets 9-9B and 6-22, the extension of the conglomerate unit located at the Nagagami River to at least as far east as drill holes 7-13-1 and 7-14-2. Hole 7-13-1 also returned an assay of 0.19 g/t over a 0.95m wide band of pyritized conglomerate. Near the west end of the property, hole 1-34-1 intersected significant widths of pyrrhotite mineralized quartz vein material and pyrrhotite rich iron formation containing significant amounts of chalcopyrite. No work had ever been undertaken in this area prior to this drilling.

Seventeen drill holes totalling 2571m were completed beginning November 18, 1993 and the last hole was completed December 18, 1993. One of the more disappointing points of the program was the forced abandoning of two separate attempts to drill test target 9-7. While not terribly deep overburden has been found elsewhere on the property, the two holes 9-7-1,2 encountered 78m and 121m of overburden before being lost.

Many targets were gridded, covered by geophysical surveys and not drill tested and many other targets will become evident upon final compilation of the results of the 1993 results.

CONCLUSIONS AND RECOMMENDATIONS

While ore grade intersections were not obtained over mineable widths, the information gathered and the results obtained to date are very positive with respect to defining areas worthy of followup work.

The combination of improved access, advances in airborne geophysical data processing, geochemical analytical techniques and deposit modelling made evaluation of this area technically and economically feasible and recommended. The results of

historical and recent work programs has now lead to a somewhat better understanding of the area and additional work programs are sure to encounter additional areas of alteration, structural deformation and anomalous to ore grade mineralization. It is conceivable that more than one gold (and or basemetal) deposit could be located on the property and it is possible that an entire Casa Berardi or Red Lake Gold Camp could be located on this large tract of virtually unexplored property.

Based on the results of the historical work in the area and the recently completed, it is recommended that a followup exploration program be completed on the property. A detailed program has not been laid out at this time but it is estimated that additional linecutting, and geophysical surveying including IP surveying and costing approximately \$130,000 should be completed over extensions of some of the mineralized areas located to date and on targets not yet delineated. The key to the discovery of significant deposits in the area is diamond drilling and analyzing the results obtained. As such it is anticipated that the next phase of diamond drilling should be in the range of 20 holes and costing approximately \$250,000. This is a huge project in an underexplored area and as such the reward for persistence may be equally huge.

Respectfully submitted,

R. Bruce Durham Geologist

Geophysical Results

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Target 1B

A single line was completed over this target. The magnetic and HLEM surveys located a coincident anomaly at 400 N. The HLEM profiles and a magnetic profile are shown on the Target 1-B plan.

Target 3

This grid area is one of the largest completed in the program. The mag survey indicates the presence of a diabase dike running almost parallel to line 240 E and a magnetic high on the south side of an HLEM anomaly outlined near the baseline from lines 360 E to line 600E. Other HLEM features were outlined near the south end of line 600 E and on lines 0 and 120 E near 100 S. The geophysical results are shown on the magnetic and HLEM plans for Target 3.

Target 4-2

Two lines, line 0 and line 2E were established to evaluate these two targets. The geophysical results show only one significant feature. The HLEM survey defined a two line anomaly located between 300 and 400N. A much less conductive zone was also located on line 2E near the baseline. The stronger conductor is coincident with or immediately adjacent to a magnetic feature outlined by the mag survey. The survey results are shown on the Target 4-2 plans.

Target 5

The survey results for target 5 are shown on the accompanying plans. The HLEM plans show the presence of a weakly conductive feature at 425 N and a second, similar feature at approximately 1200 N. Neither of the conductors show any magnetic correlation and it is thought that the conductors are likely the result of the presence of conductive overburden.

Target 6

This single line was covered with IP as well as HLEM. Neither survey showed the presence of a significant anomaly although a weakly chargeable zone was defined at 250 N.

Target 7\$

Three lines were established to evaluate this target. The magnetic survey outlined an easterly trending feature over a length of more than 500m. The HLEM survey outlined a weakly conductive trend at approximately 200 S on lines 2000 W and 1200 W. IP surveying on line 1200 W outlined a chargeability anomaly centered near 200 S. IP surveying on line 1600 W outlined a chargeability feature between 075 S and 200S.

Target 8

The single line completed did not define any conductivity feature. A magnetic feature centered at 500 north was defined. The profiled magnetic data suggests a southerly dip.

Target 9A

A single line of IP surveying failed to outline any significant features. Target 9B

The IP survey outlined a broad chargeability feature between 1225 and 1325 south along the south flank of a magnetic high feature. Target 10

The magnetic data across the three lines show generally E-W trends while the HLEM data suggest that the only conductive trend in the area is oriented southwesterly. The HLEM feature is quite weak and is interpreted to be caused by overburden conductivity or a bedrock structure as opposed to graphite or sulfide content. The IP survey failed to define any anomalies.

Target 12

The two lines that comprise the Target 12 grid were surveyed with 100 and 200 m cable separation using the HLEM - Max Min II equipment. While no conductivity was apparent with the shorter cable separation, the 200 m cable shows the presence of a conductive unit correlating with the location of the east trending magnetic feature located near 100 m S on both lines.

Target 13

As was the case for target 12, no conductivity was detected using the 100 m cable however a weekly conductive feature was outlined using the 200 m coil separation. The magnetic pattern on the two lines fails to show any significant trends and the IP survey failed to define any chargeability anomalies.

Target 13B

The magnetic and HLEM data show the presence of a coincident electromagnetic - magnetic trend near 100 S. The conductivity feature is weak and may represent the presence of a conductive overburden trend or a structural zone.

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Target 14

The HLEM data for the three lines surveyed show the presence of an easterly trending conductivity feature near 350 S. The very weak response shown on the 444 Hz data suggest that the feature is either a structural feature or an overburden related feature. A second more northeasterly trending feature near 700 N is similar in its characteristics.

Target 15

The HLEM data for target 15 indicates the presence of a north dipping narrow conductivity feature with a coincident magnetic high feature. The conductor is known to extend for at least 400m based on the 200 m coil separation data... Target 16

The HLEM data for the two lines surveyed show the presence of a weakly conductive feature coincident with a strong magnetic feature. It is likely that overburden depths in the area are such that the conductor is barely reached. A longer coil separation would probably better define the target.

Target 17

The magnetic and HLEM data show a strong correlation. The HLEM data show the location of a strongly conductive, near vertical conductor with a calculated width of less than 25m. The strong correlation with the peak of the magnetic feature would suggest the presence of pyrrhotite and/or magnetite.

Target 18

While three lines were covered with the magnetic and HLEM surveys, only the most easterly line, 200E showed the presence on any conductive features. Each of the three magnetic highs has a corresponding conductor axis associated with it. These are located at 025N, 225 N and 325 N. The most southerly of these is very strongly conductive, north dipping and in the range of 25 m in width.

Target 19

A total of five lines were surveyed on target 19. Two subparallel HLEM anomalies were outlined. The more northerly, near 100N is coincident with a strong magnetic feature, both of which appear to be offset or folded near line 800 W. The more southerly conductivity feature is located between 100 and 200 S, is less conductive and has magnetic correlation.

Target 20

Two lines were cut and covered by magnetic and HLEM surveys. The data do not indicate the presence of any significant features. The weak conductors outlined likely reflect the presence of conductive overburden or a zone of structural weakness

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Target 21

Three lines were surveyed and on the two most westerly, a strongly conductive. highly magnetic zone was defined. The conductor appears near vertical and less than 25m in width. The conductor and the magnetic feature terminate between lines 100 W and 0.

Target 22

Three lines were surveyed and while a number of magnetic features are visible in the magnetic data, no conductors were defined.

IP surveying on line 9500 E failed to define any chargeability anomalies although on line 9650 a well defined anomaly was outlined between 50 and 100m S. A similar response was located on line 9800E between 50 N and BL-0.

Target 24A

Only a weak HLEM trend was outlined on the two lines surveyed. The fact that the anomaly is better defined at 444Hz, albeit on the out of phase plot, may indicate that the depth of penetration of the HLEM system was not sufficient to reach bedrock.

Target 24B

The HLEM data suggest the location of a conductive horizon at a geological boundary since there is a definite break in the magnetic data at the point of the conductor axis. The conductor is better defined on line 200 W and it is interpreted to dip north and have a width of less than 25m.

Target 25

Both lines surveyed show the location of a conductor exis near the baseline. The magnetic data suggest that the conductor sits in an area of low magnetic relief in spite of the rather strong magnetic pattern to the north and south of the conductor.

Target 26

No conductors were outlined on the areas surveyed. The magnetic data and the unusual HLEM profiles in the area of the magnetic high near 100N would suggest that the depth to bedrock may be such that bedrock was not reached with the 100m coil separation.

Target 31

A total of four lines were cut and covered with magnetic and HLEM surveys. Only a weakly conductive trend was identified by the survey.

Target 32

A single narrow weakly conductive zone was outlined by the HLEM survey. The conductor is narrow near vertical and relatively weak on line 0. The conductor has a moderate coincident magnetic anomaly.

Target 33

A strong near vertical narrow conductor was outlined on line 0 while only a weak, 'end effect' anomaly was found on line 100 E

Target 34

Five lines were cut and surveyed on this target. A strong well defined conductor was defined over a strike length of 600 m. The conductivity varies from line to line and the magnetic anomaly associated with the conductor varies in intensity but is always identifiable. The conductor reaches widths of 25 m and dips steeply to the north. Strong magnetic patterns to the south are thought to reflect the presence of magnetite.

Target 35

The lines surveyed show the presence of a conductive trend that trends northeasterly across the lines. On line 200 W the conductor is seen to be comprised of two closely spaced conductors. The HLEM anomalies all show coincident magnetic high values.

Target 36

Only two lines were surveyed and no conductors were outlined. The magnetic data does not define any targets of significance.

Target 39

The data gathered over the four lines show the presence of a highly conductive, highly magnetic, near vertical zone. The zone is flanked to the south on lines 400 and 600 E by a second weaker conductive trend that is similar in nature. It appears that a third zone is located at the southern end of line 600 E. None of the zones appears to be in excess of 25 m in width.

Respectfully submitted,

Bruce Durham Geologist

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CERTIFICATION

- I, R. Bruce Durham, of 1176 Delnite Road, Timmins, Ontario certify as follows concerning the accompanying report relating to the Auden Gold Property;
 - 1. I am a graduate of the University of Western Ontario having obtained a B.Sc. in Geology in 1976.
 - 2. I have been practicing my profession, primarily in Canada, since 1975.
 - 3. I am a fellow of the Geological Association of Canada.
 - 4. I certify that the report is based on a review of the available relevant historical background data and my knowledge of the area.
 - 5. I have visited the property on several occasions during 1990 and 1993 with the purpose of examining the geology of the area, checking staking and supervising work programs.
 - 6. That I have no interest in the property, direct or indirect.

Dated at Timmins this 31st day of December 1993

R. Bruce Durham, B.Sc. FGAC

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Diamond Drill Logs including assay certificates	Appendix C
Diamond Drill Sections and Location Maps	Appendix D



LOGISTICS REPORT

on the 1993

GBOPHYSICAL PROGRAM

on the

AUDEN PROJECT

for

MCKINNON PROSPECTING

2.15793

Submitted by: R.J. Meikle
Rayan Exploration Ltd.
January, 1994

Qual. # 3860

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LOGISTICS REPORT

on the 1993

GEOPHYSICAL PROGRAM

on the

AUDEN PROJECT

for

MCKINNON PROSPECTING

submitted by: R.J. Meikle Rayan Exploration Ltd. January, 1994

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INTRODUCTION

During Nov.-Dec., 1993, a geophysical program was conducted on a total of 33 targets on the "Auden Project", by Rayan Exploration Ltd., Timmins, Ontario. The work was carried out on a contract basis for McKinnon Prospecting. The property location, geology, etc., is dealt with elsewhere in this report. This section of the overall report will deal with logistics such as total number of kilometres surveyed by the various methods as well as describing the survey methods and parameters used to conduct each of the surveys.

The program consisted of locating various anomalous features detected by a previous Airborne EM/Mag survey conducted by Aerodat Ltd. covering the "Auden Property" in it's entirety. The targets were chosen by McKinnon Prospecting Geologists. Because of the relative accuracy of the AEM Survey, it was decided to use hand held GPS(Global Positioning System), instruments capable of 25-30 meter accuracy. A small grid was established over each target and HLEM and Magnetometer surveys conducted on the majority. An IP survey was conducted if the target did not have an AEM conductive response associated with it. In all cases, the grids were located accurately enough to outline the AEM conductors on the ground without the expense of establishing large grids.

A ground Total Field Magnetometer Survey and a Horizontal Loop Electromagnetic Survey was carried out over each target. The data was processed nightly in the field, with conductor axis and magnetic anomalies outlined to lay out prospective diamond drill holes. An Induced Polarization Survey was carried out on 7 of the targets because of lack of EM response or the presence of favourable geological and or structural features which could host economic gold mineralization associated with disseminated sulphides not detectable by EM or Magnetic surveys.

PERSONNEL

The following personnel were directly involved in carrying out the field geophysical surveys as well as processing and plotting preliminary field maps. All were employed by Rayan Exploration Ltd., Timmins, Ontario.

NAME	ADDRESS	DATES WORKED	# OF DAYS
R.J. Meikle	Timmins, Ontario	Nov.5-12/93	
		Nov. 22-26/93	
		Nov.30-Dec.13/93	40
S.D. Anderson	Timmins, Ontario	Nov.5-12/93	
	•	Nov.14-26/93	
		Nov.30/93	21
Ed Brunet	Timmins, Ontario	Nov.5-12/93	
24 224		Nov.14-26/93	
		Nov.30-Dec.13/93	34
L. Anderson	Timmins, Ontario	Nov.14-Dec.21/93	38
W. Pearson	Timmins, Ontario	Nov.22~26/93	5
R. Collin	Timmins, Ontario	Nov.22-26/93	. 5
R. Taylor	Timmins, Ontario	Nov. 22-26/93	5

Total # of Man Days Worked =148

GEOPHYSICAL SURVEY PARAMETERS

HAGNETOMETER SURVEY

An EDA Omni Plus Proton Precession magnetometer was used to carry out the magnetometer survey. The instrument is synchronized with an EDA recording base station to help eliminate magnetic diurnal variation. This should ensure an accuracy of less than 10 Nt.

The Proton Precession method involves energizing a wire coil immersed in a hydrocarbon fluid. This causes the protons in the proton rich fluid to spin or precess simulating spinning magnetic dipoles. When the current is removed the protons precess about the direction of the earth's magnetic field, generating a signal in the same coil which is proportional to the total magnetic field intensity. In this way, the horizontal gradient of the earth's magnetic field can be measured and plotted in plan form with values of equal intensity joined to form a contour map.

This presentation is useful in correlating with other data sets to aid in structural interpretation. Individual magnetic responses can be interpreted for dip, depth and width estimates after profiling the data.

The following parameters were employed for the survey:

Instrument - EDA Omni Plus Proton Precession Magnetometer Station Interval - 25m Line Interval - 100m,200m Diurnal Correction Method - EDA Recording Base Station Data Presentation - Magnetic Contours Map for each target. - 1:5000 scale

- Contour interval = as per each map leg.

HORIZONTAL LOOP EH SURVEY

The Horizontal Loop EM survey was carried out with an Apex Max-Min II instrument. These surveys are commonly called "Max-Min" surveys in recent times.

The Max-Min <u>II</u> instrument can operate at five frequencies (3555HZ, 1777HZ, 888HZ, 444HZ, 222HZ)., and is capable of coil separations from 25 meters to 200 meters. Although it can be used in the vertical loop mode as well as minimum coupled, it is most often used in the Maximum Coupled, Co-Planer mode which is in effect a Horizontal Loop Electromagnetic Survey.

The instrument records the "In-Phase" and "Out-of-Phase" components of the anomalous resultant field from a conductor as a percentage of the primary field strength. Both components are used in the interpretation of the results. Generally, the larger the ratio of peak negative responses between In-Phase and Out-of-Phase, the higher the conductivity of the anomaly. A ratio of 1:1 is considered a medium conductor.

The purpose of reading more than one frequency is to obtain more information about the conductor itself as well as the conductivity of the overburden etc. The higher frequencies will respond to weaker conductive features such as faults, conductive overburden etc. As a result the signal from these frequencies can attenuate very quickly, possibly not penetrating to the bedrock at all. The lower frequencies having a longer wavelength tend to penetrate deeper and generally only respond to anomalies with a higher order of conductance,. Thus as with most geophysical techniques it is a trade off as to depth of penetration vs. conductance threshold detectable. The use of multi frequency surveys helps to alleviate this problem at a minimal extra cost.

The Hax-Min survey was carried out using an Apex Max-Min II instrument reading 1777HZ, 888HZ, and 444HZ with a constant coil spacing of 100 and 200 meters. Generally, most of the targets in the eastern part of the property were surveyed with a 200 meter cover because of the suspected thick separation unconformable Limestone overlaying the Volcanic rocks. In the western part of the property, the Limestone gradually got thinner and non-existent in the very eastern region. The Haximum Coupled mode was employed with the coils co-planer. A reading interva! of 25 meters was used. Because of the very flat surface topography, no slope or topographic corrections were necessary. The entire survey was read with unit serial no. 1057 with twice daily phase mix testing to ensure that the data would be consistent across the surveyed area.

The Max-Min data was recorded manually and entered in to an XYZ format and processed in to 1:5000 plan maps with a profile scale of 1cm = 10% for both the Inphase and Quadrature components. A separate plan map was made for each target and each frequency surveyed on the target.

General IP Theory

The IP method involves applying voltage across two electrodes in a pulsed manner i.e. 2 seconds on, 2 seconds off. A second "dipole" or electrode pair, measures the residual potential or voltage between them after the voltage is shut off or during the 2 second off cycle. The potential is recorded at different times after the shut off. If, for example, there is sulphide mineralization within the measuring dipoles, they will be polarized or charges set up on the sulphide particles. This polarization gives the zone a capacitor effect, thereby blocking the current delay giving a higher chargeability reading.

A typical signature for many gold showings would be a chargeability high, resistivity high and magnetic low. This would be characteristic of a mineralized, highly altered carbonated and/or silicified zone. However, this is by no means the only geological setting for gold, therefore every profile should be looked at individually and correlated with all other geophysical-geological data.

Electrode Array

with the exception of Target \$22, a Pole-Dipole Array was used because of the extensive Linestone Cover over most of the targets surveyed with IP. This array provides for maximum depth penetration. In this array, one current electrode (C1) and two receiver or potential electrodes (P1,P2), are moved down a line in unison. A second current electrode (C2), is placed normal to the expected strike direction an infinite distance away, at least one km. The two current electrodes are hooked up to a motorgenerator and a current applied across them, usually less than 3 amperes. The applied voltage is pulsed in a 2 second on, 2 second off pattern controlled by the transmitter.

Thus we have a single pole current electrode following a pair or dipole of potential electrodes moving down the line. The advantage of this "Pole-Dipole" array over the "Dipole-Dipole" array is a deeper current pattern between the infinite and moving current electrode, resulting in better penetration of conductive overburden. Also, this array is considerably faster in areas of high electrode contact impedance due to frozen and or rocky ground conditions because only one current electrode placement is needed for each reading. A disadvantage of the "Pole-Dipole" array is a slightly more ambiguous interpretation due to the asymmetry of the array.

The distance between the potential electrodes was fixed, at 50 meters and this is called the "a" spacing. When the potential dipole is positioned with one "a" spacing between the C1 and the nearest P1, it is called a "N=1" reading with a theoretical plot point at the intersection of a 45 degree line drawn down in a section format from the C1 and nearest P1. When this N=1 reading is finished, the C1 remains stationary and the P1P2 dipole moves ahead one "a" spacing and a N=2 reading is obtained. Using the above plot convention it can be seen that the plot point is now further from the C1 and deeper. This is repeated for 4 "N" readings.

The following parameters were employed for the Pole-Dipole electrode array survey done on all but one target.

Method: Time Domain
Electrode Array: Pole-Dipole
Dipole or "a" Spacing: 50 meters
Number of Dipoles Read: 1-4 inclusive
Pulse Duration: 2 seconds on, 2 seconds off
Delay Time: 500 milliseconds
Integration Time: 420 milliseconds
Receiver: BRGM IP-2, Time Domain, 2 channel receiver
Transmitter: Scintrex TSQ-3, 3KVA,
Data Presentation: Individual Psuedosections
Scale: 1:2500

Target #22 was surveyed using a Pipole-Dipole Array. In this array two current electrodes (C1, C2) and two receiver or potential electrodes are moved down a line in unison. In this case the "a" spacing or distance between each dipole was fixed at 25 meters apart. For an N=1 reading, the closest C1 and P1 were 25 meters apart. The C1-C2 dipole remain in the same place while the potential dipole (P1-P2) moves ahead on "a" spacing and the array is ready for an N=1 reading.

The Dipole-Dipole IP survey on target 22 was carried out using the following parameters:

Method: Time Domain
Blectrode Array: Dipole-Dipole
"a" spacing: 25 meters
Number of Dipoles Read: 1-4
Pulse Duration: 2 seconds on, 2 seconds off
Delay Time: 500 milliseconds
Integration Time: 420 milliseconds
Receiver: BRGM IP-2, Time Domain, 2 channel receiver
Transmitter: Scintrex IPC-9, 200 watt battery unit
Data Presentation: Individual psuedosections

SUMMARY OF GROPHYSICAL COVFRAGE

-	TARGET	HI.BM MAXM	200m	Magnetometei Survry	R 1.P.	SURVEY
-						
	1-R		950	950		
	3		4550	4600		
_	4-2		3600	3600		
	5		2200	2200		
_	6		2200	2200		2200
	7-8		2000	2000		1300
	8		1200	1300		
_	9-A					1000
	9-B			2100		2100
-	10		360C	3600		1000
	12	1100	1100	1100		
_	13	1100	1200	1100		1500
_	13-B		2125	2500		
	14		2700	2700		
-	15	1750	1800	1800		
	16	1000		1000		
_	17	1150		1150		
_	18	5000		2000		
	19	4000		4000		
_	20	1300		1800		

	100m	200m	MAGNETOMETER SURVEY	I.P. SURVEY
21	1400		1400	
22	1825		1800	1825
24-A	1200		1200	
24-B	1400		1450	
25	1300		1300	
26	550		600	
31	4125		5175	
32	1225		1350	
33	1025		1025	
34	3500		3500	
35	1575		1575	
36	950		950	
39	2700		2700	
TOTALS:				
33	37 Km	30 Km	66 Km	11 Fm

CERTIFICATION

- I, Raymond Joseph Meikle of Timmins, Ontario hereby certify that:
- I hold a three year Technologist Diploma from the Haileybury School of Mines, Haileybury, Ontario, obtained in May 1975.
- 2. I have been practising my profession since 1973 in Ontario, Quebec, Nova Scotia, New Brunswick, Newfoundland, NWT, Manitoba, Germany and Chile.
- 3. I have been employed directly with Teck Corporation, Metallgessellschaft Canada Ltd. Sabina Industries, .S. Middleton Exploration Services Ltd., self employed 1979-1985 (Rayan Exploration Ltd.) and currently with Rayan Exploration Ltd.
- 4. I have based conclusions and recommendations contained in this report on knowledge of the area, my previous experience and on the results of the field work conducted on the property during 1994.
- I hold no interest, directly or indirectly in this property, nor do I expect to receive any interest or considerations from the Auden Property and or McKinnon Prospecting other than professional fees for services rendered.

Dated this 20th day of January, 1994 at Timmins, Ontario.

A.J. Meikle

APPENDIX A

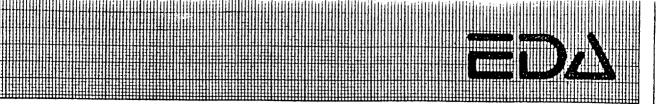
OMMUN Tile Fine Maenteten





OMNI IV's Major Benefits

- Four Magnetometers In One
- Self Correcting for Diurnal Variations
- Reduced Instrumentation Requirements
- 25% Weight Reduction
- User Friendly Keypad Operation
- Universal Computer Interface
- Comprehensive Software Packages



Specif	Hications
Dynamic	Dange

gammas. Tuning Method Tuning value is calculated accurately utilizing a specially

Processing Sensitivity ± 0.02 gamma Statistical Error Resolution 0.01 gamma

Absolute Accuracy ± 1 gamma at 50,000 gammas at 23°C ± 2 gamma over total temperature range

Display Custom-designed, ruggedized liquid crystal display with an operating temperature range from -40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal decay rate and signal amplitude monitor and function descriptors.

Sensor Optimized miniature design. Magnetic cleanliness is consistent with the specified absolute accuracy.

gammas/meter. Optional 1.0 meter sensor separation available. Horizontal sensors optional,

Sensor Cable Remains flexible in temperature range specified, includes strain-relief connector

Cycling Time (Base Station Mode) Programmable from 5 seconds up to 60 minutes in 1

second increments
Operating Environmental Range-40°C to +55°C; 0-100% relative humidity; weatherproof cartridge or belt; rechargeable NiCad or Disposable battery cartridge or belt; or 12V DC power source option for base station operation.

Battery Cartridge/Belt Life...............2,000 to 5,000 readings, for sealed lead acid power supply, gepender readings depending upon ambient temperature and rate of

Weights and Dimensions

Instrument Console Only 2.8 kg, 238 x 150 x 250mm Lead-Acid Battery Cartridge1.8 kg, 235 x 105 x 90mm

Gradient Sensor

Sectional sensor staff, power supply, harness assembly, operations manual.

Base Station Option Standard system plus 30 meter cable

Gradiometer Option

Gradiometer Option Standard system plus 0.5 meter sensor

E D A instruments inc 4 Thorncliffe Park Drive Toronto, Ontario Canada MAH 1H1 Telex 06 23222 EDA TOR Calble Instruments Toronto (416) 425 7800

in U.S.A. E D A Instruments Inc. 5151 Ward Road Wheat Ridge, Colorado U S.A. 80033 (303) 422 9112

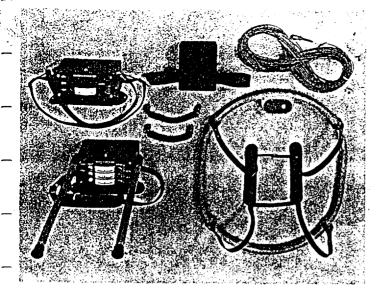
Printed in Canada

APPENDIX B

APEX MAXMIN II

- Five frequencies: 222, 444, 888, 1777 and 3555 Hz.
- Maximum coupled (horizontal-loop) operation with reference cable.
- Minimum coupled operation with reference cable.
- Vertical-loop operation without reference cable.
- Coil separations: 25, 50, 100, 150, 200 and 250 m (with cable) or 100,200,300,400,600 and 800 ft.
- Reliable data from depths of up to 180m (600 ft).
- Built-in voice communication circuitry with cable.
- Tilt meters to control coil orientation.







SPECIFICATIONS:

Frequencies: 222,444,888.1777 and 3555 Hz.

Mgdes of Operation: MAX Transmitten colliplane and receiven colliplane horizontal (Max-coupled; Horizontal-loop

mode) Used with inefericable, MiliN: Transmitter colliplane horizontal and receiver colliplane ver-

tal and receiven coil plane vertical (Min-coupled mode). Used with reference cable.

V.L. Transmitter coll plane - ventical and receiver coll plane horiz zontal (Ventical-loop - mode). Used without reference cable, in parallel lines.

Coil Separations: 25,50,100,150,200 & 250m (MMI) or 100,200,300,400,600 and

800 ft. (MM IF),

Coil separations in VL mode not restricted to fixed values.

Solicited to fixed values.

Parameters Read: - In-Phase and Quadrature components of the secondary field in MAX and MIN modes.

- Tilt-angle of the total field in V.L., mode

 Automatic, direct, readout on 90 mm (3:5 Tedgewise meters in MAX and MIN modes. No nulling on compensation necessary.

- Tilt angle and null in 90mm edgewise metens in V.L.mode .

Scale Ranges:

Readouts:

In:Phase: :20%,:100% by push-

button switch.

Quadrature: :20%, :100% by push-

button switch.
Tits: ±75% slope.

Null (VL): Sensitivity adjustable

by separation switch.

Readability: In-Phase and Quadrature: 0.5 %;

Tilt: 1%

Repeatability:

±05% to ±1% normule, pepending on conditions, frequencies and coil

Separation used

Transmitter Output: - 222Hz : 175 Au-

- 444Hz 160 Abb - 888Hz 100 Abb - 1227Hz : 60 Abb - 3555Hz : 30 Abb

Receiver Batteries: 9V trans hadin type histories, (4)

Life approx. 35hrs. continuos du uy carainne, U.5 Andillo in un logi

weather.

Transmitter Batteries:

12V 7SAn Ger Cer in Fungeable

batterns (2.6v m serie,)

Reference Cable: Light weight 2-rolled the felicing

cable for minimum to their continuelded. All reference cacles optional at extra cost. Place specify

Voice Link:

Built in intercond process for voice controllination of when receiver and transmitter speciations in MAX and MIN receives, via re-

ference cable

Indicator Lights:

Builtion signal and net conce warming fights the indication occurrences

nearings

Temperature Range: -40°C to +60°C (-40° to +140°F)

Receiver Weight: 6kg (13 lbs.)

Transmitter Weight: 18kg (29 lbs.)

Shipping Weight: Typically 60kg (135:bs.), depend-

ing on quantities of inference cable and batteries included. Shipped in two field/shipping cases.

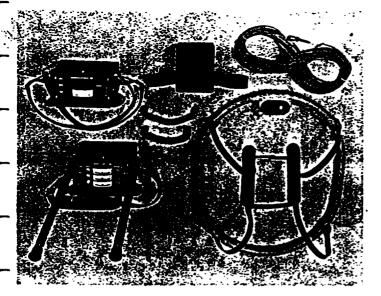
Specifications subject to change without notice about

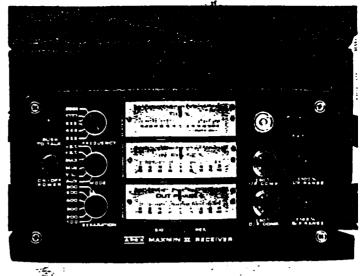
APEX

PARAMETRICS LIMITED 200 STEELCASE RD. E., MARKHAM, ONT., CANADA . E3R 162

Phone: (416) 495-1612 Cables: APEXPARA TORONTO

Telex: 06-966773 NORDVIK TOR





SPECIFICATIONS:

222.444,888.17/7 and 3555Hz. Repeatability: Frequencies:

Modes of Operation: MAX Transmitter collplane and rerevencoi plane horizontal (Max-coupled; Honzontal-loop

> made) Used with refer cable. MIN: Transmitter collabare horizontai and receiven coil plane ver-

tirial (Min-coupled mode). Used with reference cable.

V.L. Transmitter colliplane venti-, call and receiver coil plans hors. zontal (Ventical-loop mode). Used without reference cable, in parallel lines.

25,50,100,150,200 & 250m (MMII) Coil Separations: on 100, 200, 300, 400,600 and

600 ft. (MM I F)

Coll separations in VL mode not irestricted to fixed values.

rameters Read: - In-Phase and Quadrature components of the secondary field in MAX and MIN modes.

> - Tilt-unge of the total field in V.L. mode

- Automatic, direct readout on 90 nm (3.5 Tedgewise meters in MAX and MIN modes. No nulling en impressation necessary.

 Tilt angle and null in 90mm edgewise meters in V.L.mode.

Scale Ranges:

Readouts:

:20%.:100% by push-In-Phase button switch.

Quadrature: :20%, :100% by push-

button switch.

Tital: 175% slope.

Null (V.L.): Sensitivity adjustable

by separation switch.

Readability:

In-Phase and Quadrature: 0.5%; Tilt 1%

±05% to 11% normal, agreeding on constituints, frequies as constand

SOMEONALION OSCOL

Transmitter Output: - 2.22Hz -175 000

444Hz 1000 EREH. 100 A: · · - 1277 Hz : 60 Auri - 3555Hz : 30 Aur

Receiver Batteries: 9V trans radio type to the cold. (4)

Life approx 35th substitutions during ty takarno (US Ard) is

weather

Transmitter

18V 2taAn. Ger fast in completing Batteries:

batteres (2+6V non-2)

Light weight (2-rand) for the hon-cable for minimum for the constraid-Reference Cable:

ed. All beference carles notional at extra cost. Do a specify

Voice Link: Button intercore

> voice con mignigations of severingceiven and trainsmitter provitors. in MAX and Mits on the live re-

ference cable

Indicator Lights: Built, in signal and Leteronic warn-

ing tigals to edicate communities

reading.

Temperature Range: -40°C to +60°C (-40° to +140°F)

Weight: 6kg (13 9s) Receiver

Transmitter Weight: 15kg (29ths.)

Shipping Weight: Typically 60kg (135 bs.), depend-

ing on quantities of inference cable and batteries included. Shipped in two felt/shipping cases.

Specifications subject to change without our to ation?

PARAMETRICS LIMITED 200 STEELCASE RD. E., MARKHAM, ONT, CANADA, L3R 1G2

Phone: (416) 495-1612 Cables: APEXPARA TORONTO

Telex: 06-966773 NORDVIK TOA



Product Information

IP-2 TWO DIPOLE TIME DOMAIN IP RECEIVER



MAJOR BENEFITS

TWO DIPOLES SIMULTANEOUSLY MEASURED

SOLID STATE MEMORY

AUTOMATIC PRIMARY VOLTAGE (Vp) RANGING

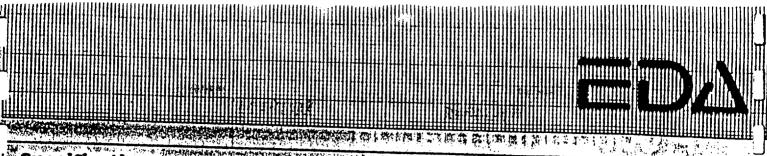
AUTOMATICALLY CALCULATES APPARENT RESISTIVITY

COMPUTER COMPATIBLE

entification in the contract of the contract of

EDA Instruments Inc., Head Office: 4 Thorncliffe Park Drive, Toronto, Canada M4H 1H1 Telephone: (416) 425-7800, Telex: 06.23222 EDA TOR, Cables: INSTRUMENTS TORONTO

In USA, EDA instruments Inc., 5151 Ward Road, Wheat Ridge, Colorado 80033 Telephone: (303) 422-9112



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4	Shock	111	vat	ľ	O112

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1		0 microvoits to 4 voits, with automatic ranging and
	· · · · · · · · · · · · · · · · · · ·	vervoltage protection.
	Vp Resolution	
	L Vp Accuracy	.3% typical: maximum 1% over temperature range.
13	A rai acapility Kesolntiou	96 The traffer the war of mile of the state
L_{i}	Chargeability Accuracy	3% typical; maximum 1% over temperature range
10	Automatic SP Compensation	
L		with linear drift correction up to 1 my/s.
:	Cample Hate	Megohm
	Automatic Stacking	O milliseconds 1994
, . , .	Delegation with the state of th	inimum primary voltage level of 40 microvolts.
	in process to the contract of	and 60 Hz power line rejection greater than 00 dB. Williams 1997 to 19
	Grounding Resistance Check 370	M Ohm to 420 kills oher
	Compatible Transmitters Ar	IV time domain waveform transmitten with
	X: du	ny time domain waveform transmitter with a pulse iration of 1 or 2 seconds and a crystal timing
رنسم	- I Was Cu	cometric parameters, time parameter, intensity of grent, type of array and station number.
ا	Display	o line, 32-character alphanumeric liquid crystal
 	The Mark Market Control of the Contr	ividy bi olected by an internal heater for low
_ l	Memory Capacity60	inperature conditions.
		o sets or readings.
~~(Console Power Supply	00 baud, 8 data bits, 1 stop bit, no parity.
	Console Power SupplySix	iximum supply current of 70 mA and auto power
3	Oberating Environmental Range 2	25°C to +55°C; 0–100% relative humidity;
•	Storage Temperature Range4	au iei pi our, i gaia i i i dan in an an airin an airin an a
÷۷	Weight and Dimensions	10 - C 10 + 60 · C 10 ·
., 5	Standard System Complement	
برز. د		rument console with carrying strap, batteries and erations manual.
٩	Available Options Stal	Inless steel transmitting electrodes, copper
, j. v.	sulp	phate receiving electrodes, alligator clips, bridge

sulphate receiving electrodes, alligator clips, bridge leads, wire spools, interface cables, rechargeable batteries, charger and software programs.

y E D A Instruments Inc. 4 Thorncliffe Park Drive, Toronto, Ontario Canada M4H 1H1 Telex: 06 23222 EDA TOR Cable: Instruments Toronto (416) 425 7800

In U.S.A. E.D.A. Instruments Inc. 5151 Ward Road, Wheat Ridge, Colorado U.S.A. 80033 (303) 422 9112

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APPENDIX D

TSQ-3 Time and Frequency Domain IP and Resistivity Transmitter

Function

The TSQ-3 is a multi-frequency, square wave transmitter suitable for induced polarization and resistivity measurements in either the time or frequency domain. The unit is powered by a separate motorgenerator.

The favourable power/weight ratio and compact design of this system make it portable and highly versatile for use with a wide variety of electrode arrays. The medium range power rating is sufficient for use under most geophysical conditions.

The TSQ-3 has been designed primarily for use with the Scintrex Time Domain and Frequency Domain Receivers, for combined induced polarization and resistivity measurements, although it is compatible with most standard time domain and frequency domain receivers. It is also compatible with the Scintrex Commutated DC Resistivity Receivers for resistivity surveying. The TSQ-3 may also be used as a very low frequency electromagnetic transmitter.

Basically the transmitter functions as follows. The motor turns the generator (alternator) which produces 800 Hz, three phase, 230 V AC. This energy is transformed upwards according to a front panel voltage setting by a large transformer housed in the TSQ-3. The resulting AC is then rectified in a rectifier bridge. Commutator switches then control the DC voltage output according to the waveform and frequency selected. Excellent output current stability is ensured by a unique, highly efficient technique based on control of the phase angle of the three phase input power.

Features

Current outputs up to 10 amperes, voltage outputs up to 1500 volts, maximum power 3000 VA.

Solid state design for both power switching and electronic timing control circuits.

Circuit boards are removable for easy servicing.

Switch selectable wave forms: square wave continuous for frequency domain and square wave interrupted with automatic polarity change for time domain.

Switch selectable frequencies and pulse times.

Overload, underload and thermal protection for maximum safety.

Digital readout of output current.

Programmer is crystal controlled for very high stability.

Low loss, solid state output current regulation over broad range of load and input voltage variations.

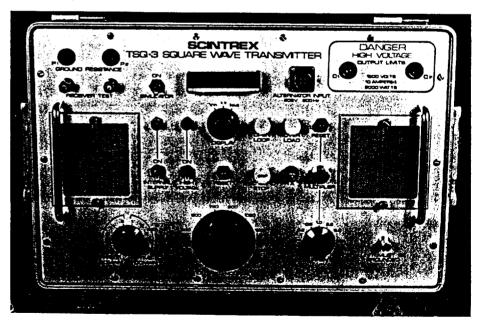
Rectifier circuit is protected against transients.

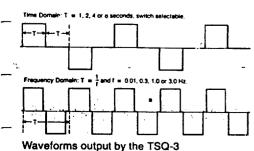
Excellent power/weight ratio and efficiency.

Designed for field portability; motor-generator is installed on a convenient frame and is easily man-portable. The transmitter is housed in an aluminum case.

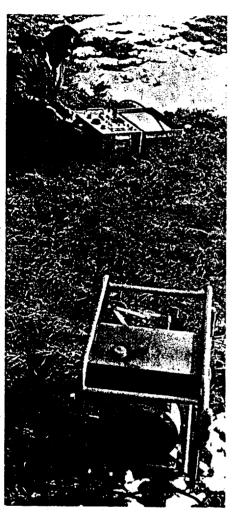
The motor-generator consists of a reliable Briggs and Stratton four stroke engine coupled to a brushless permanent magnet alternator.

New motor-generator design eliminates need for time domain dummy load.





Technical
Description of
TSQ-3/3000W
Time and Frequency Domain
IP and Resistivity Transmitter



TSQ-3 transmitter with portable motor generator unit

SCINTREX

222 Snidercroft Road Concord Ontario Canada L4K 1B5

Telephone: (416) 669-2280 Cable: Geoscint Toronto Telex: 06-964570

Tacimita:

Geophysical and Geochemical Instrumentation and Services

Output Power	3000 VA maximum
•	
Output Voltages	300, 400, 500, 600, 750, 900, 1050, 1200, 1350 and 1500 volts, switch selectable
Output Current	10 amperes maximum
Output Current Stability	Automatically controlled to within $\pm 0.1\%$ for up to 20% external load variation or up to $\pm 10\%$ input voltage variation
Digital Display	Light emitting diodes permit display up to 1999 with variable decimal point; switch selectable to read input voltage, output current, external circuit resistance. Dual current range, switch selectable
Absolute Accuracy	±3% of full range
Current Reading Resolution	10 mA on coarse range (0-10A) 1 mA on fine range (0-2A)
Frequency Domain Waveform	Square wave, continuous with approximately 6% off time at polarity change
Frequency Domain Frequencies	Standard: 0.1, 0.3, 1.0 and 3.0 Hz, switch selectable Optional: any number of frequencies in range 0 to 5 Hz.
Time Domain Cycle Timing	t:t:t;t;on:off:on:off;automatic
Time Domain Polarity Change	each 2t; automatic
Time Domain Pulse Durations	Standard: t = 1, 2, 4 or 8 seconds Optional: any other timings
Time and Frequency Stability	Crystal controlled to better than .01%
Efficiency	.78 ,
Operating Temperature Range	-30°C to +50°C
Overload Protection	Automatic shut-off at 3300 VA
Underload Protection	Automatic shut-off at current below 75mA
Thermal Protection	Automatic shut-off at internal temperature of +85°C
Dimensions	350 mm x 530 mm x 320 mm
Weight	25.0 kg.
Power Source	
Туре	Motor flexibly coupled to alternator and installed on a frame with carrying handles.
Motor	Briggs and Stratton, four stroke, 8 H.P.
Alternator	Permanent magnet type, 800 Hz, three phase 230 V AC
Output Power	3500 VA maximum
Dimensiona	520 mm x 715 mm x 560 mm
Weight	72.5 kg
Total System	
Shipping Welght	150 kg includes transmitter console, motor generator, connecting cables and re-usable wooden crates

APPENDIX E

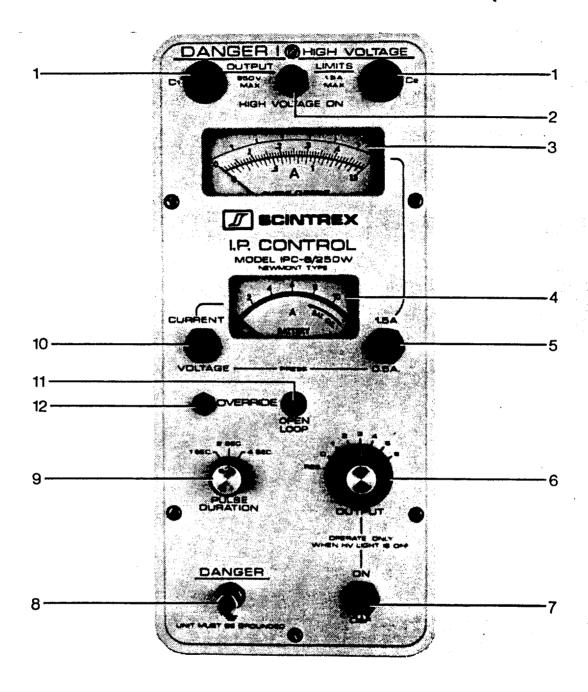


Figure 3
Front Panel of IPC-8/250W

INDUCED POLARIZATION AND D.C. RESISTIVITY TRANSHITTER

2.0 SPECIFICATIONS

Haximum Output Power

200W defined as when current is on and into a resistive load.

Output Voltage

Switch selectable at nominal settings of 15, 150, 210, 300, 425, 600 or 850 V.

Output Current

1.5 A maximum.

Heter Ranges

Switch selectable at 50 mA, 150 mA, 500 mA, 1500 mA full scale with accuracy of $\pm 3\%$ of full scale.

Automatic Cycle Timing

T:T:T:T; on:off:on:off.

Automatic Polarity Change

Each 2T.

Pulse Durations

T is switch selectable at 1, 2, 4, 8, 16 or 32 seconds.

Period Time Stability and Accuracy

Crystal controlled to better than 0.002 percent of the selected pulse duration.

Open Loop Protection

High voltage is automatically turned off if the output power is less than 2 W. This can be overridden manually for testing purposes. This protection is not effective at the 15 V output.

Synchronization Output

Optically isolated, suitable for external synchronization of the IPR-11 multichannel IP Receiver.

Internal Power Sources

Two battery packs are standard, each containing 4 GC 660-1 lead-acid gel-type batteries giving 24 V at 12 Ah.

One Penlite battery, Eveready E91 or equivalent.

External Power Sources

24 V DC supply at maximum 10A.

Power for Battery Charger

115 or 230 VAC, 50 to 400 Hz, 100 W.

Dimensions and Weights

Transmitters with two battery packs: 140 x 300 x 460 mm; 16.0 kg

Single battery pack: 140 x 300 x 150 mm; 6.2 kg

Charger: 140 x 300 x 150 mm; 5.5 kg

Operating Temperature Range

-30°C to +55°C.

Standard Equipment

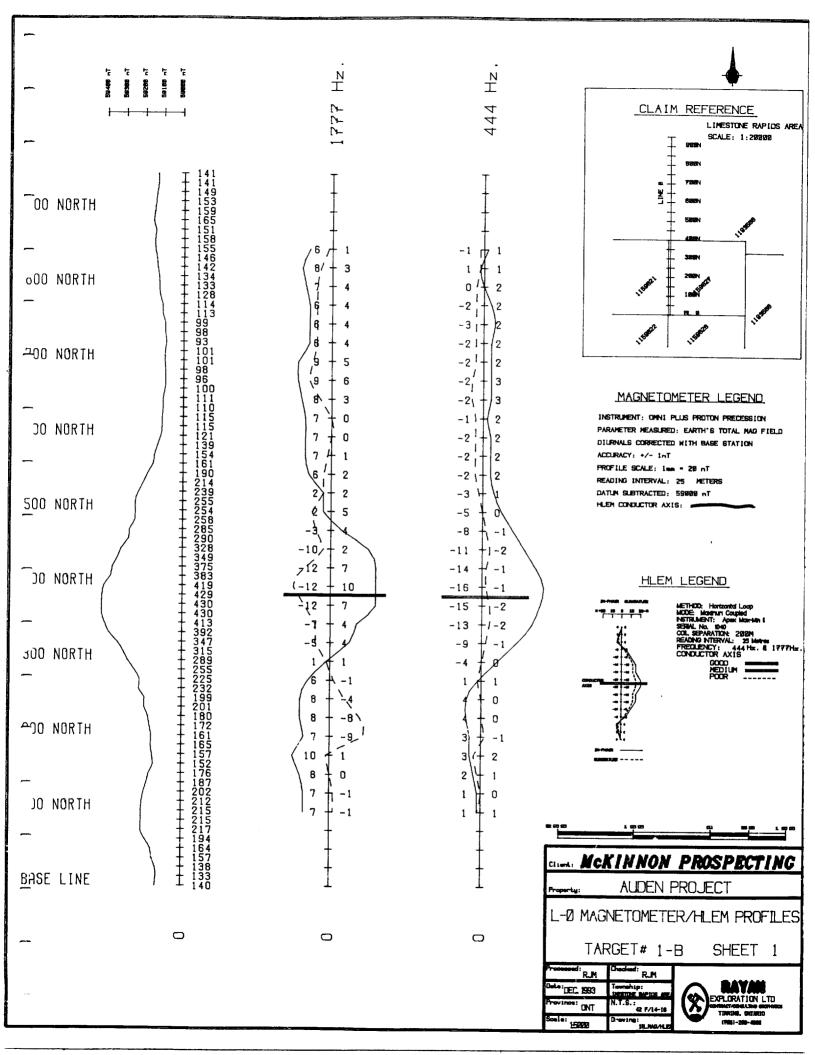
Console, 2 battery packs, battery charger, carrying harness. Two giant banana plugs, minor spare parts kit.

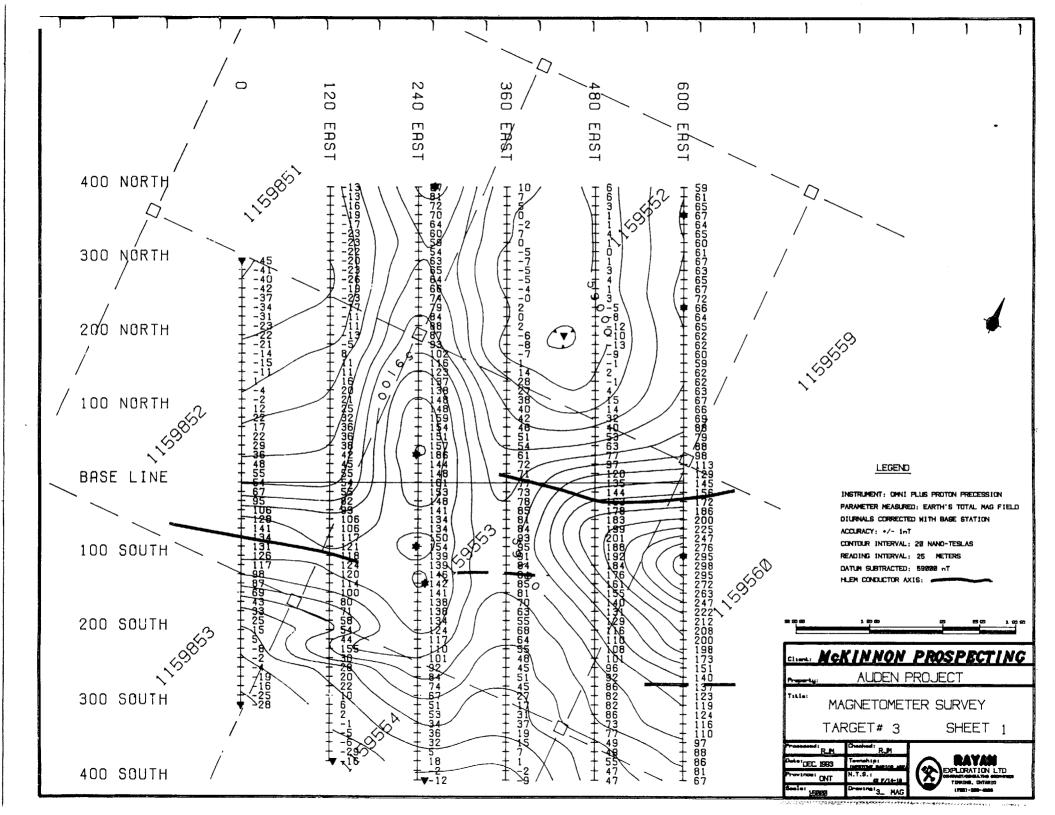
Optional Equipment

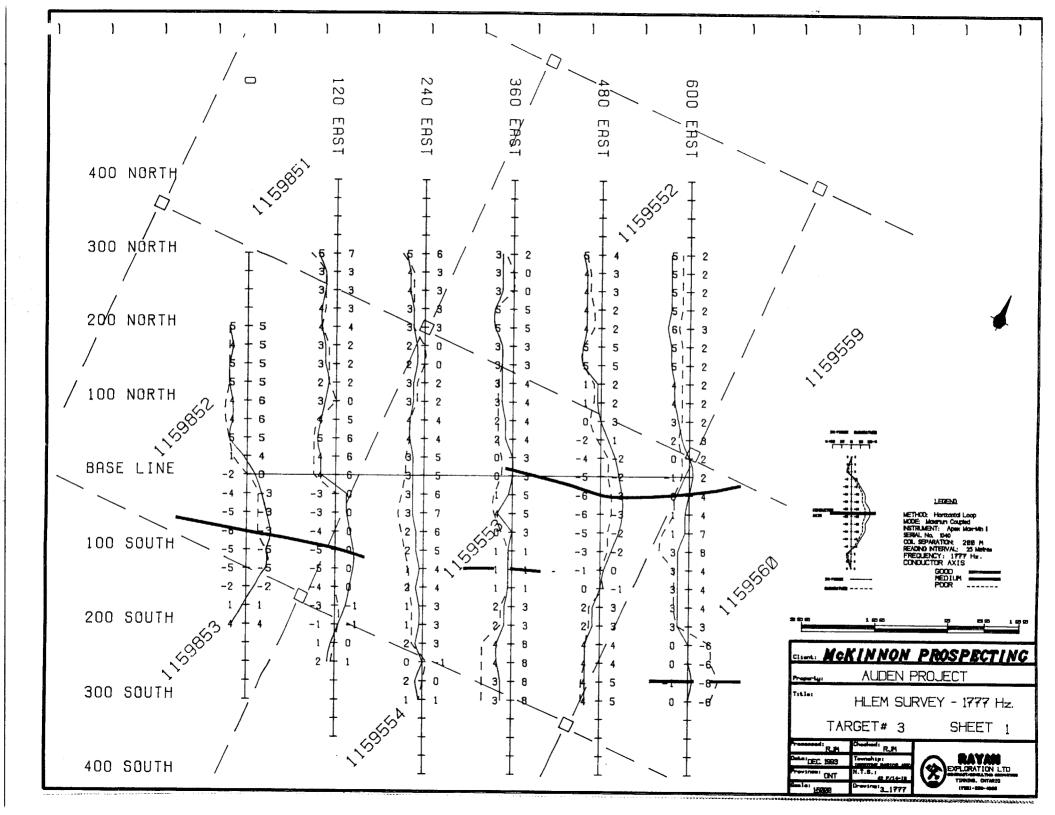
Reels, wire, porous pots, electrodes, major spare parts kit, radio transceivers, back pack.

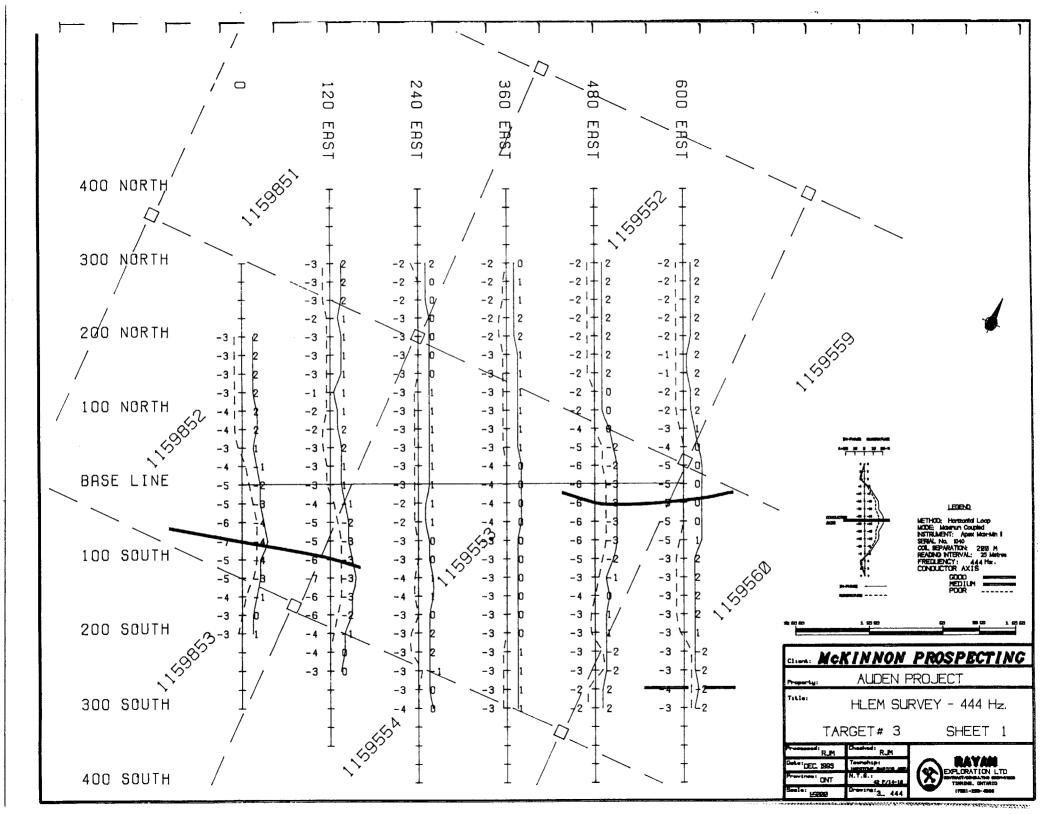
Shipping Weight

46 kg includes reusable wooden shipping case.

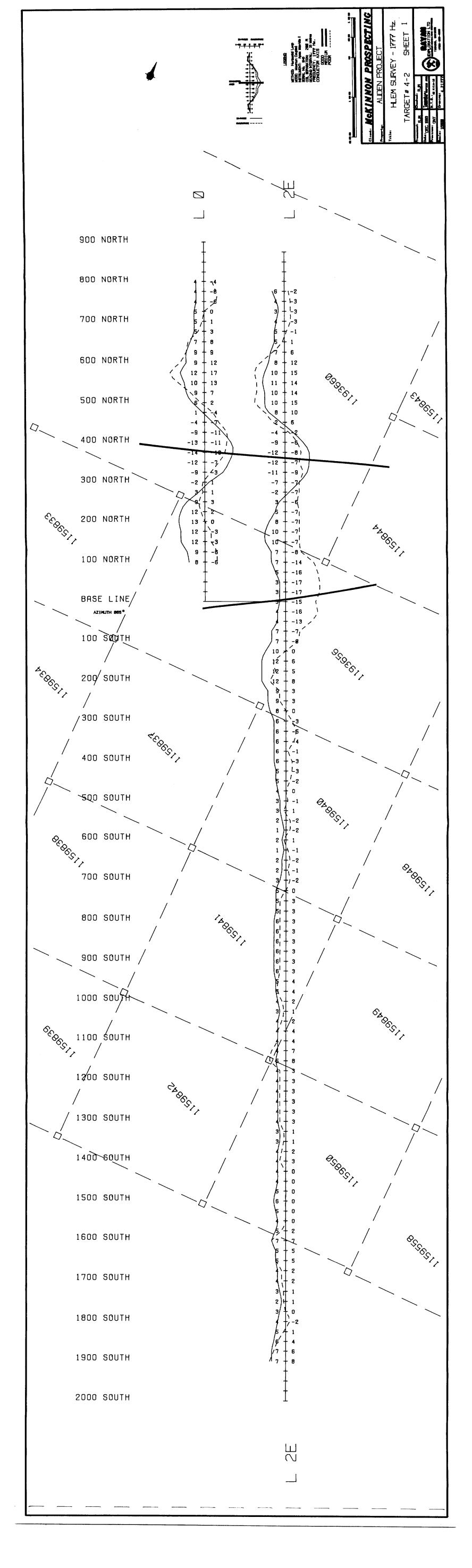


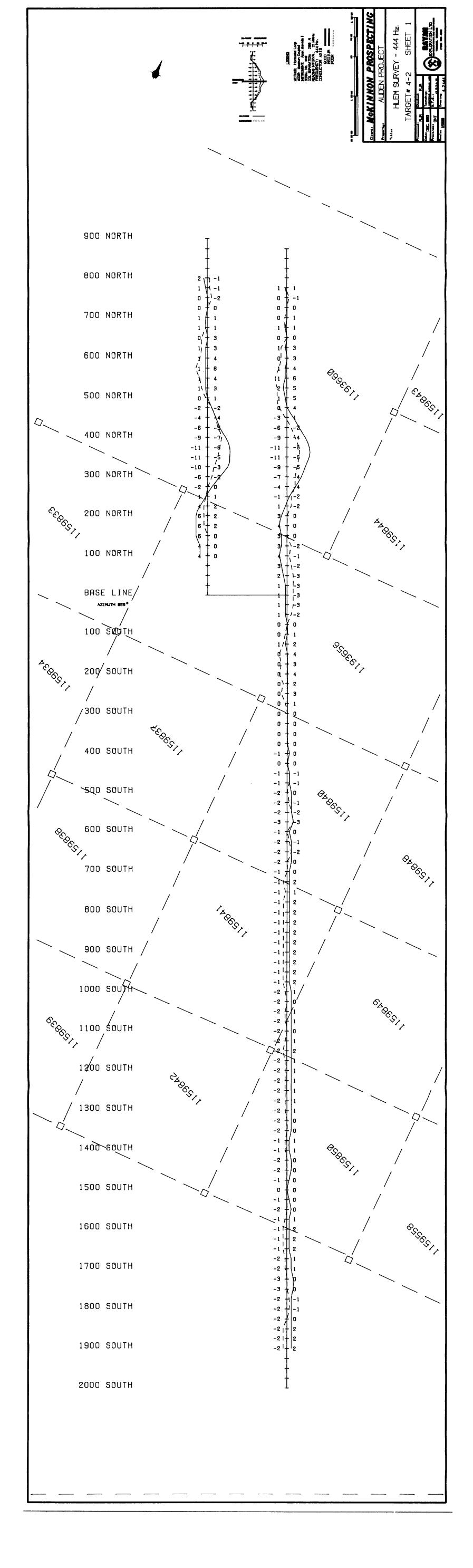




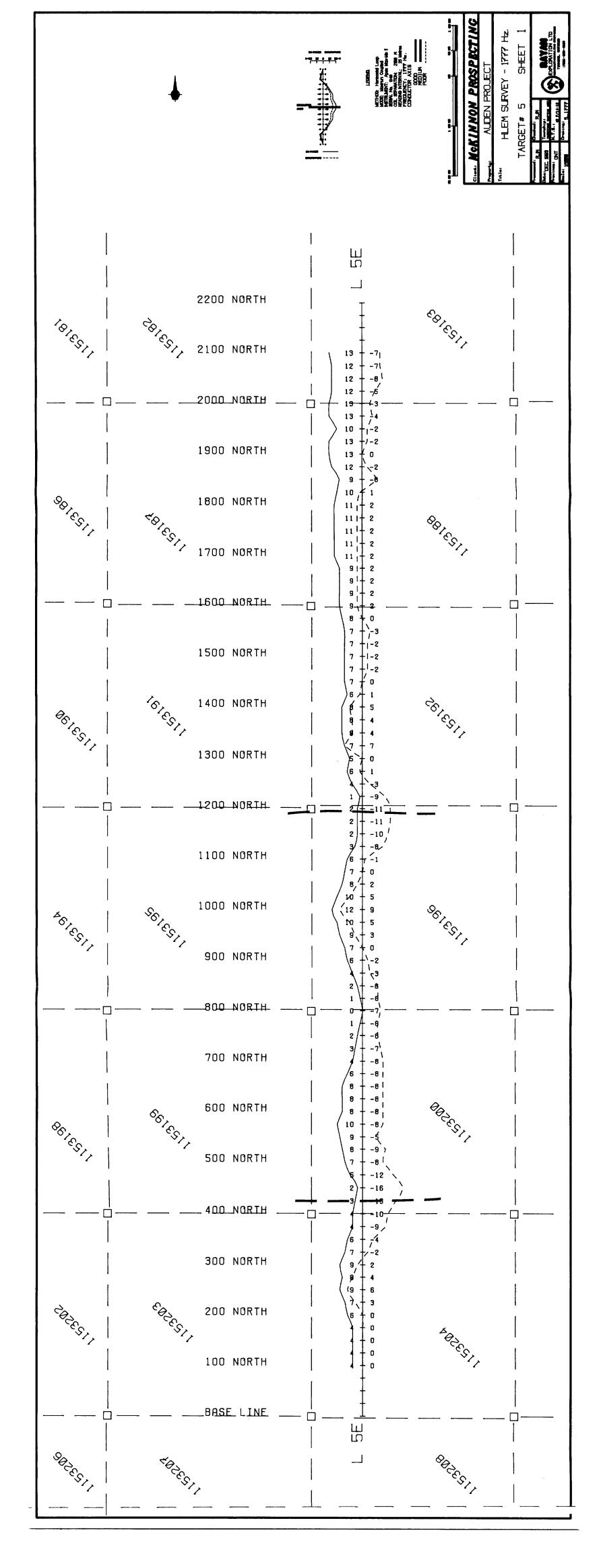


		INSTRUMENT: OWN PLUB PROTON PRECESSION PARAMETER PEASED: EARTH'S TOTAL MA FIELD DILINALS COVECTED WITH BARE STATION ACCURACY: 4/- Inf PROFILE SCHE; i.m 25n7 PROFILE SCHE; i.m 25n7	MAGNETOMETER SURVEY
		<u>\</u>	Citani Mg
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
900 NORTH	84	` .	
800 NORTH	+ 67 + 664 + 65 + 65 + 73 + 78 + 68	7 48 7 46 7 49 7 45 7 45 7 45 7 45	
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600 NORTH	+ 35 + 44 + 27 + 28 + 24 + 16 + 5	75 75 75 75 75 75 75 75 75 75 75 75 75 7	
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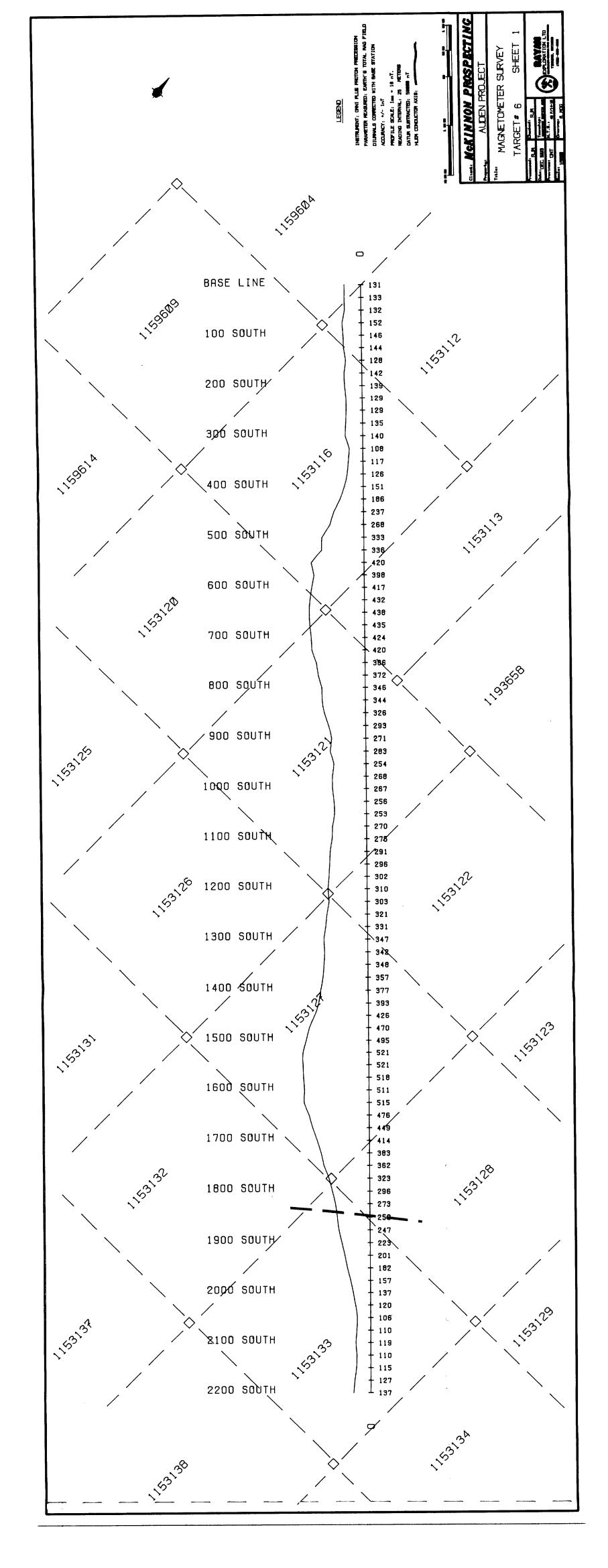


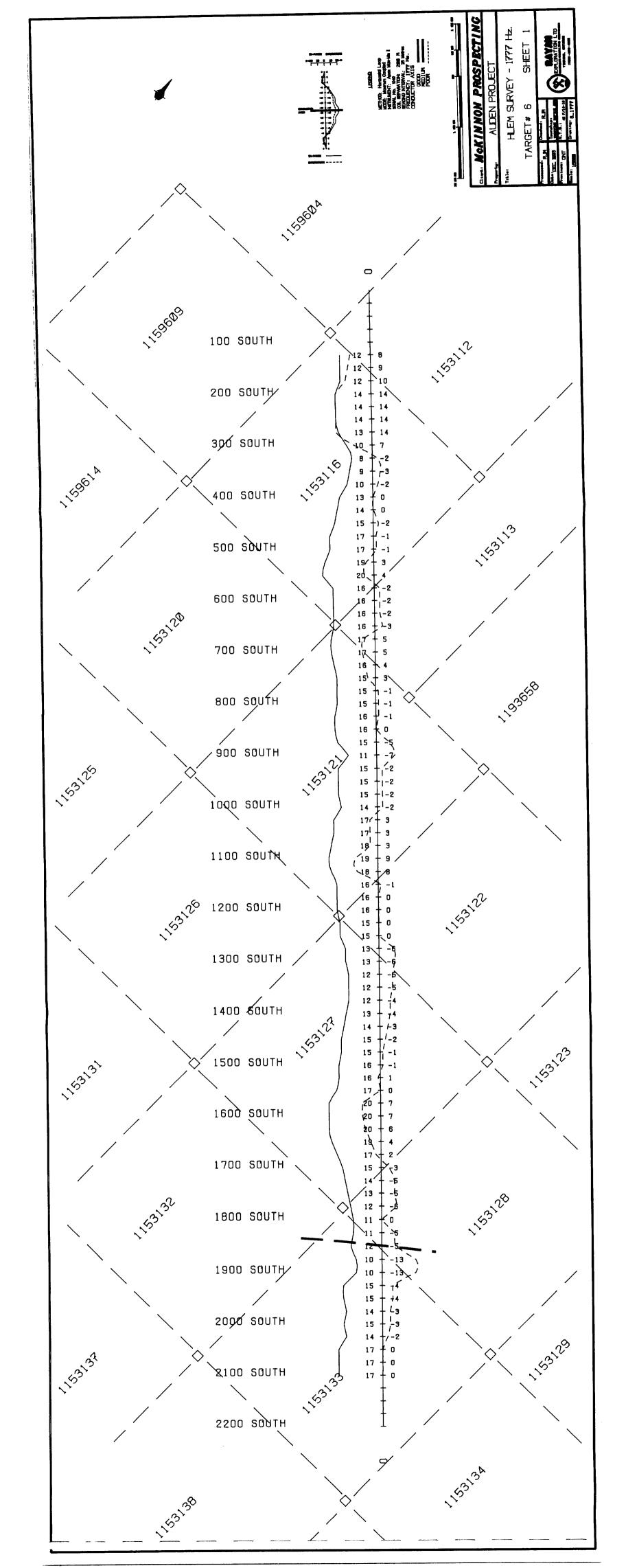


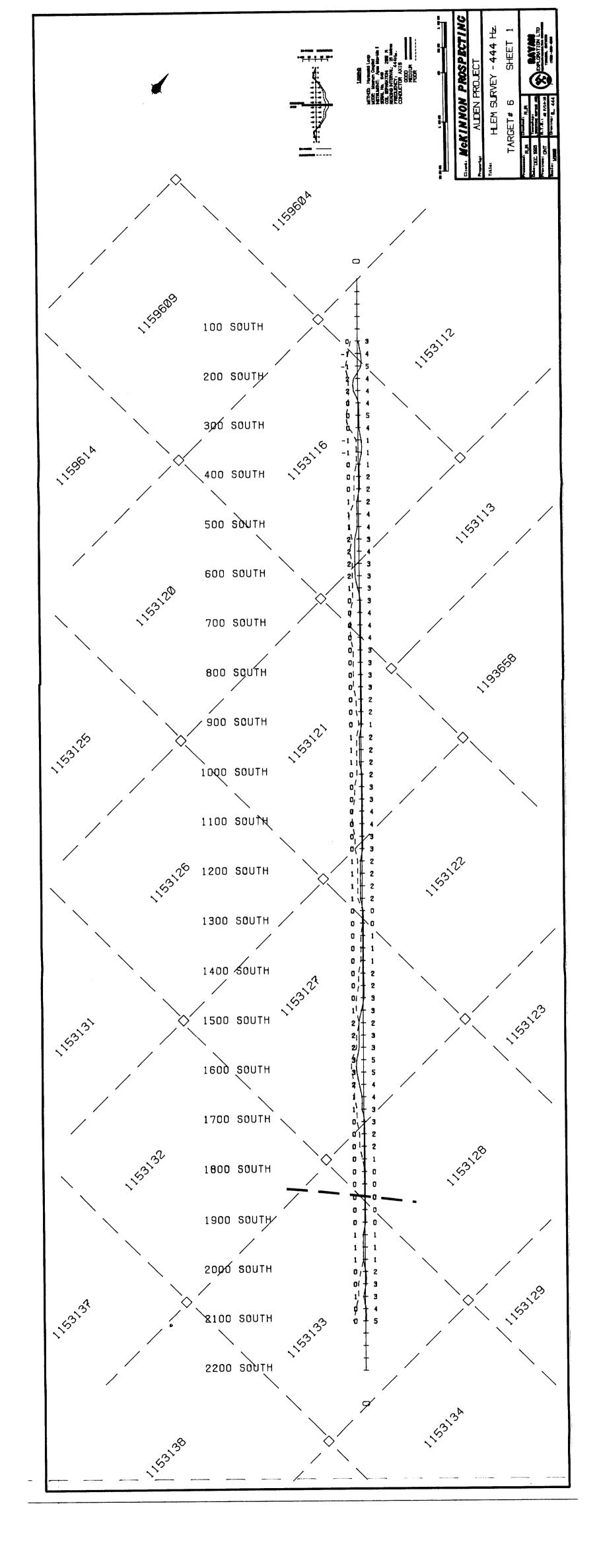
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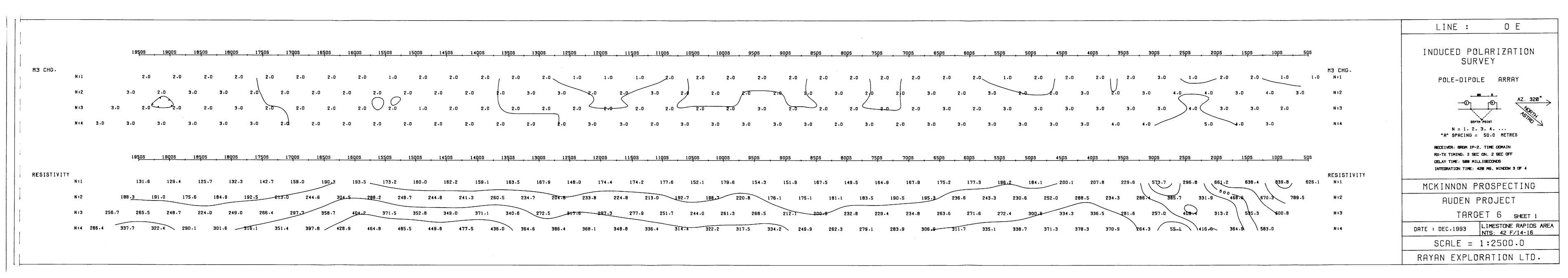


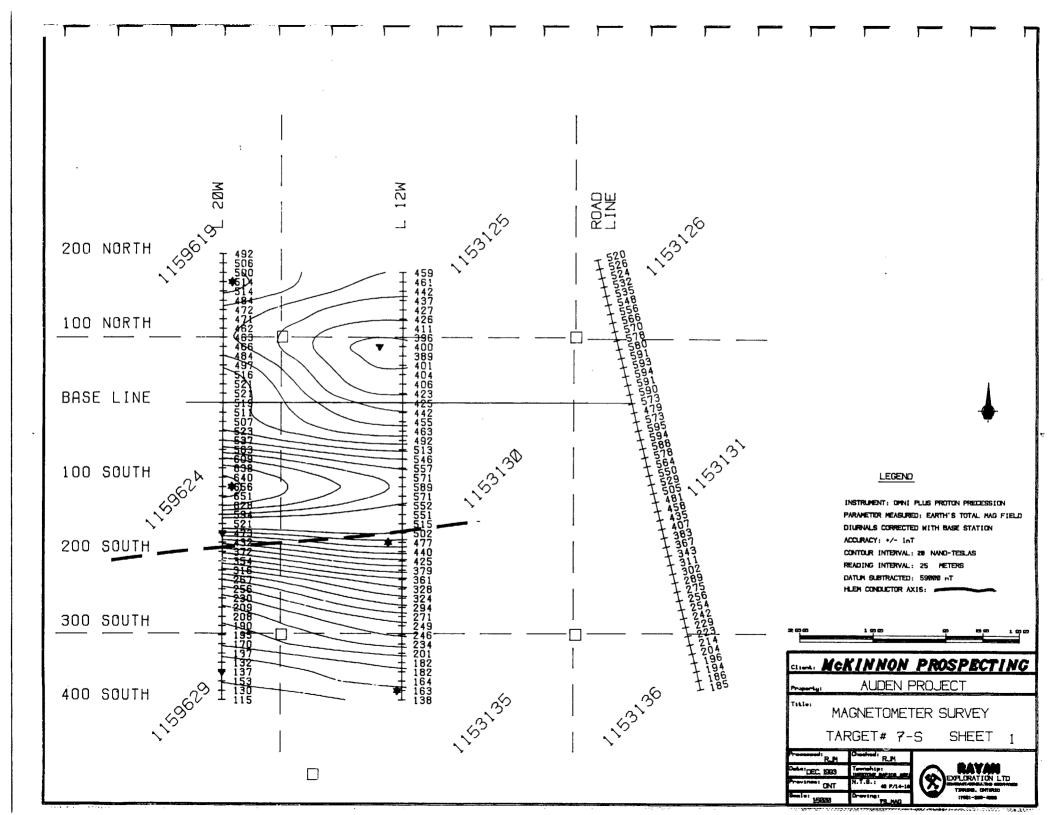
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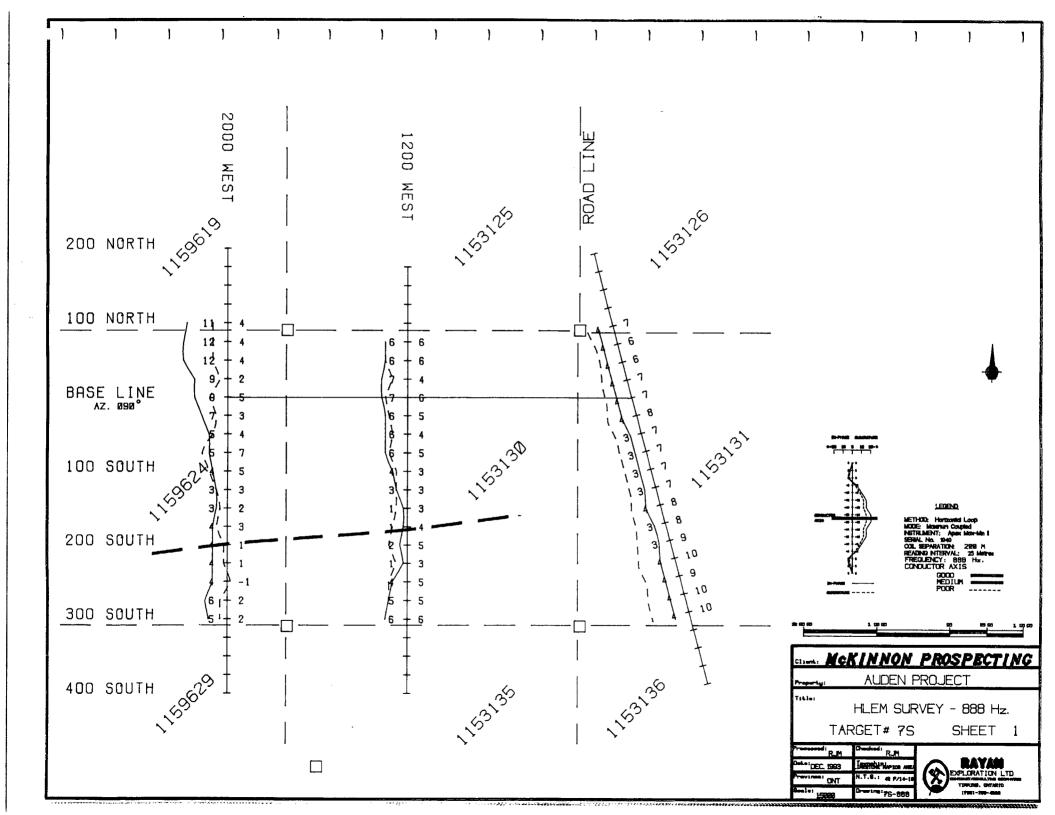


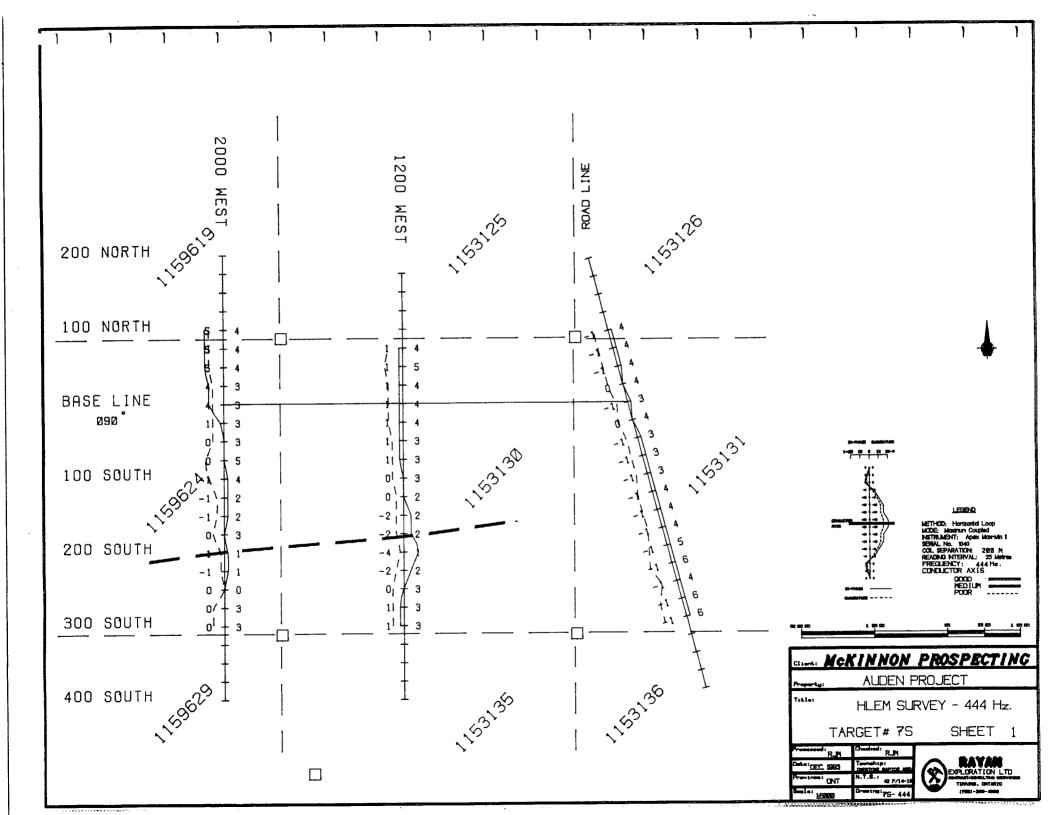


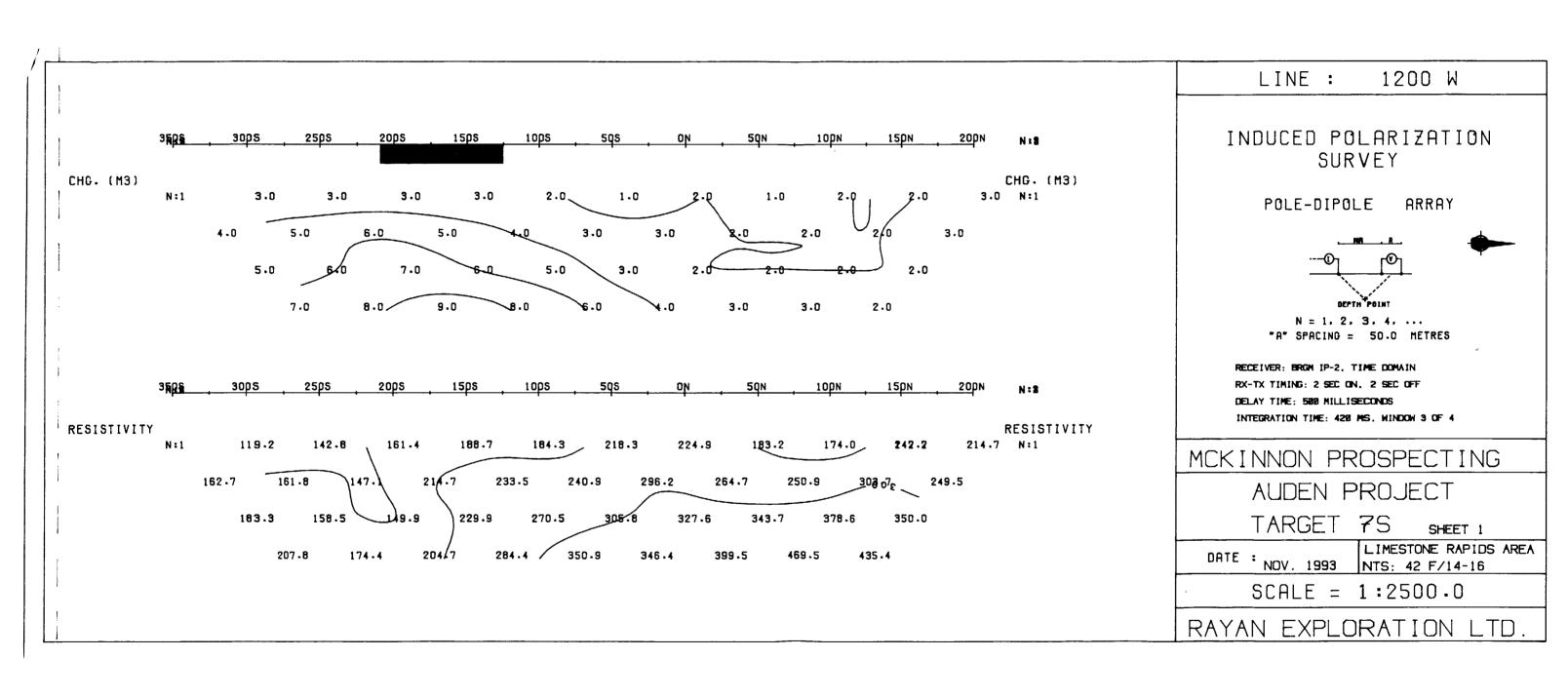


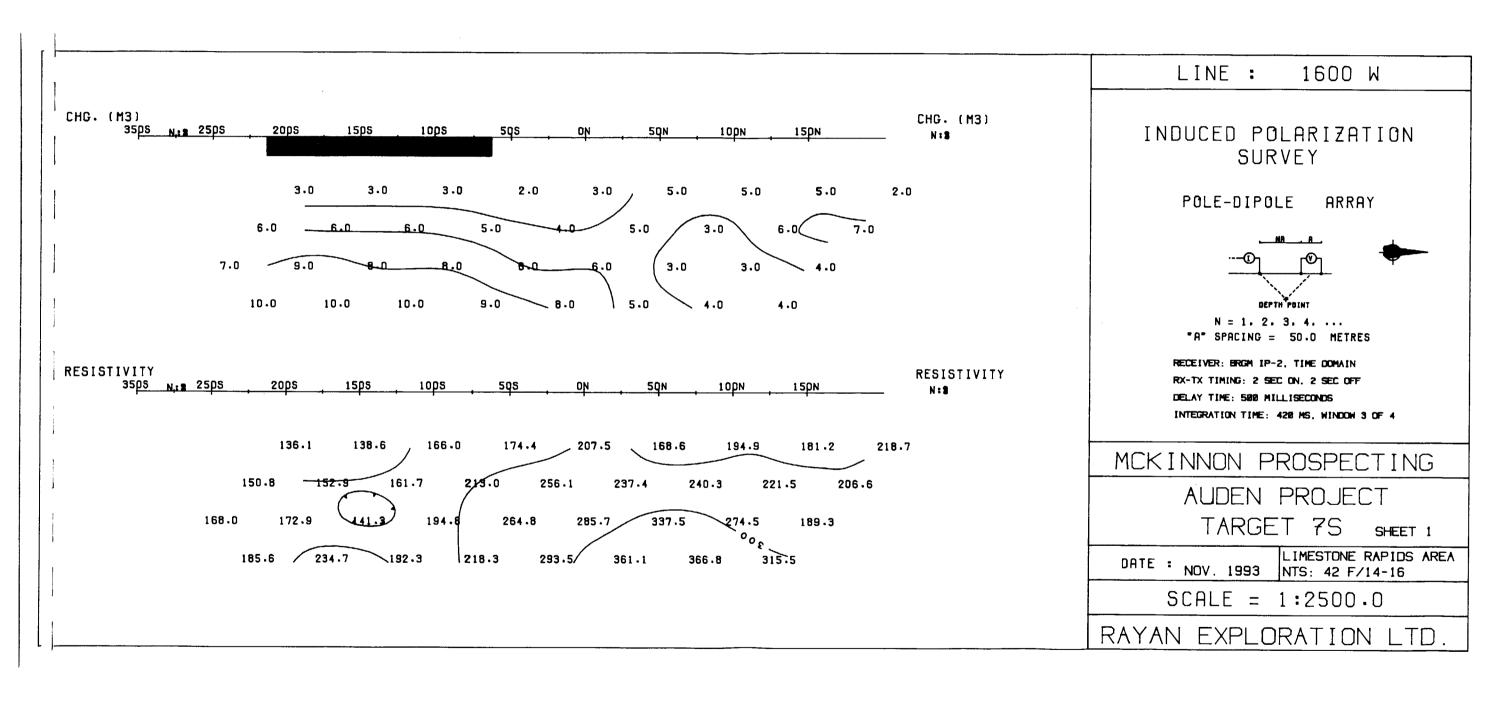


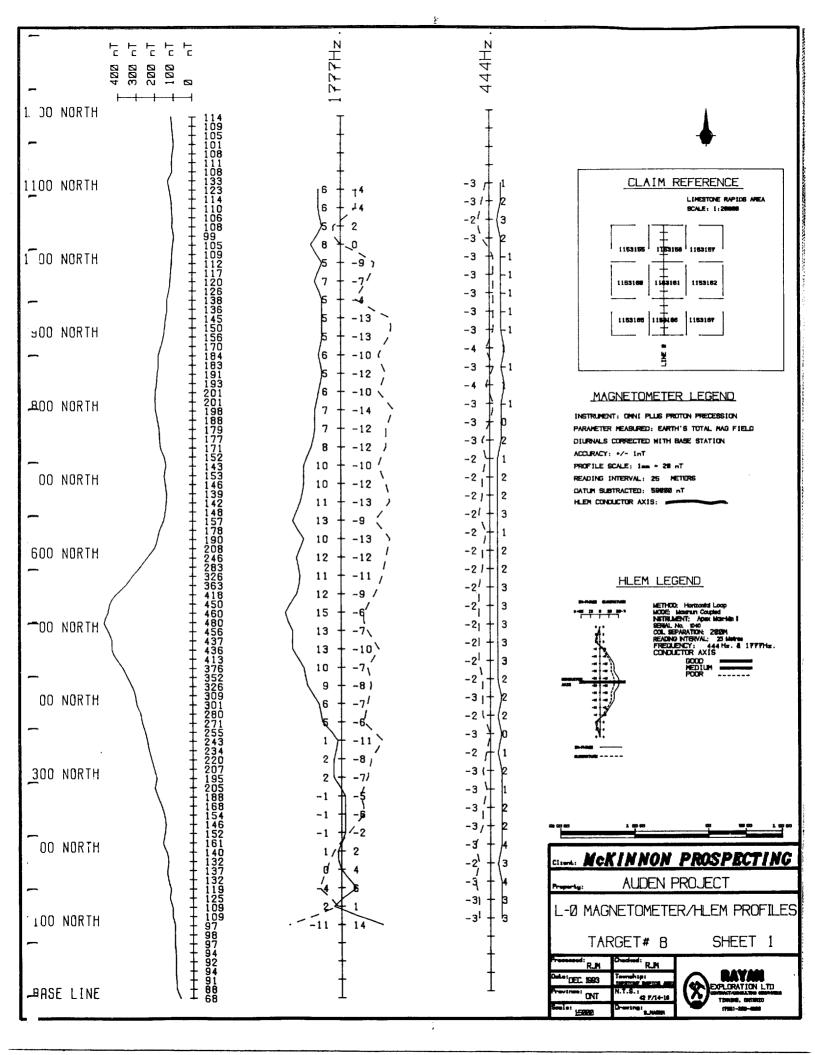


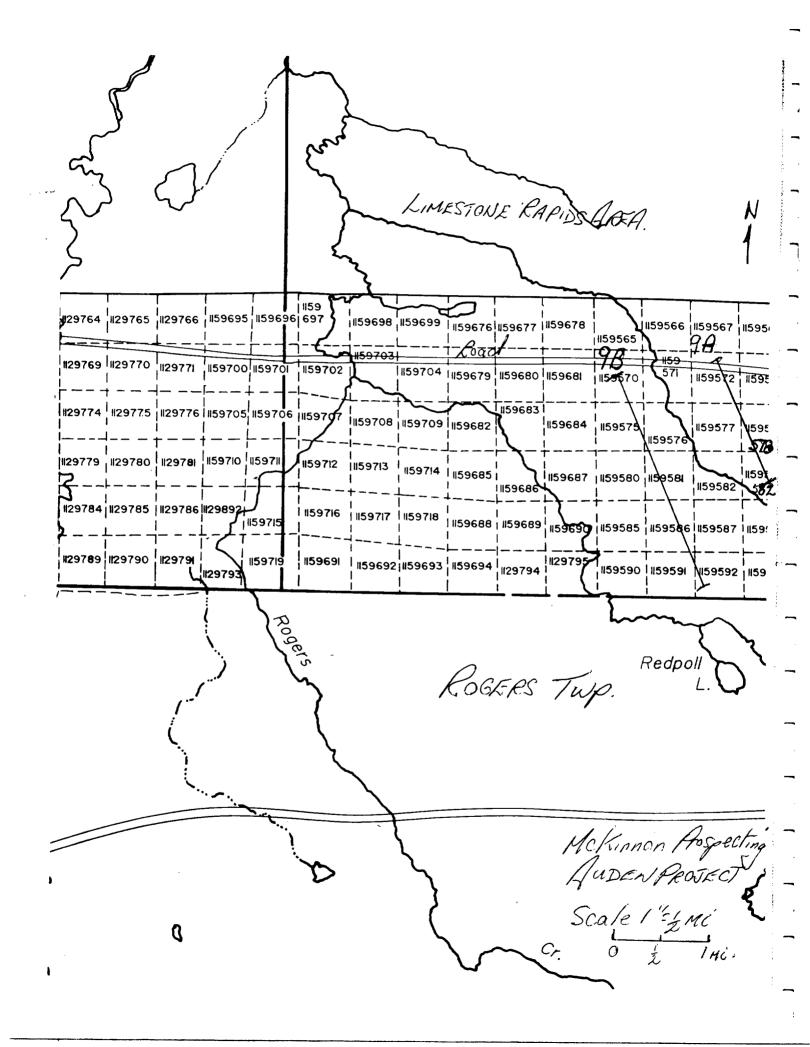


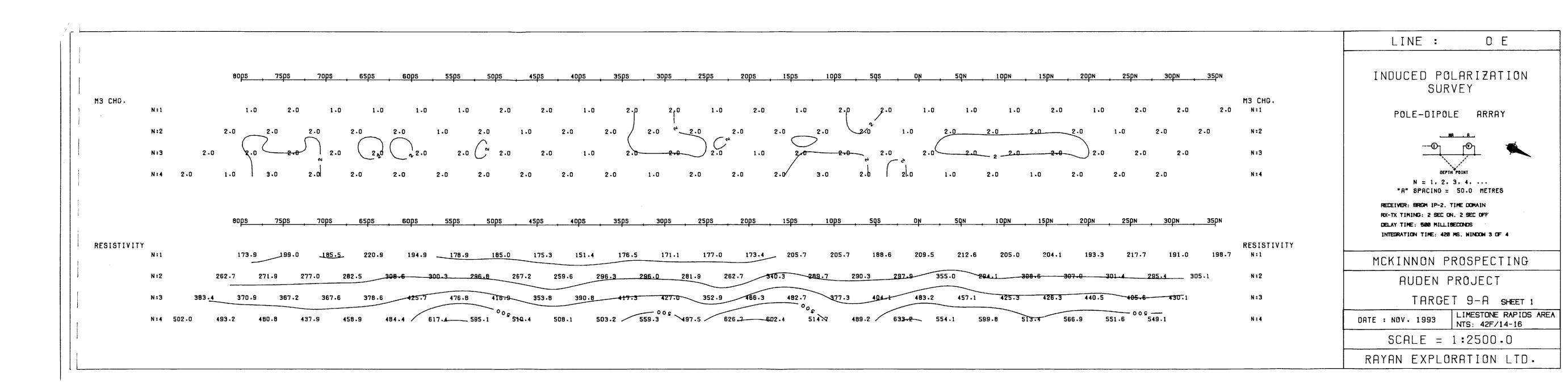


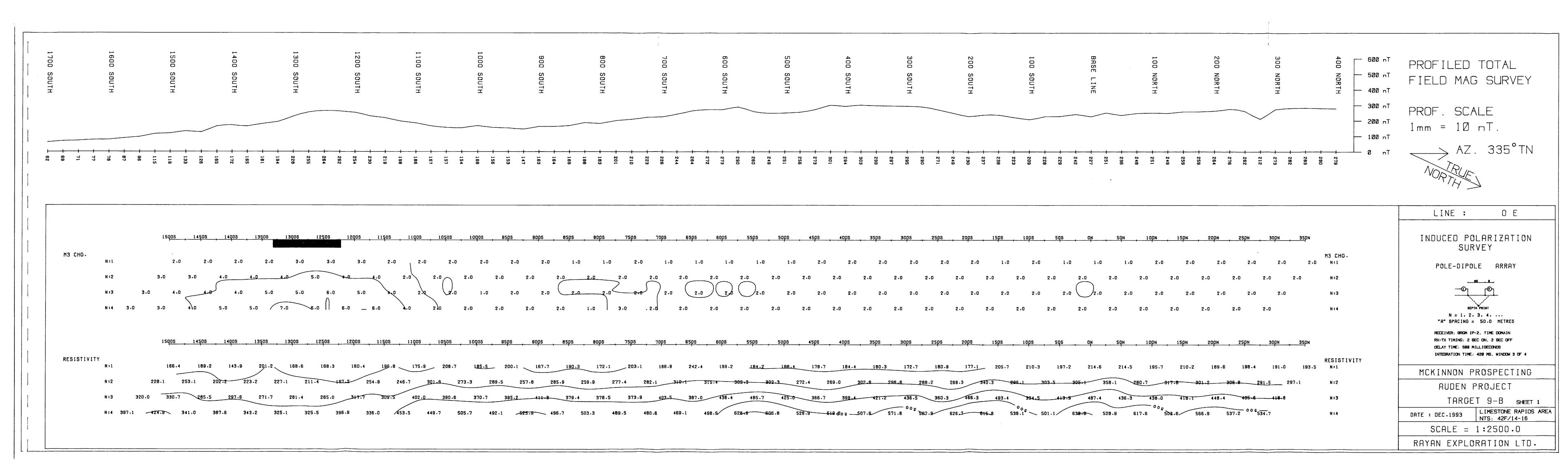


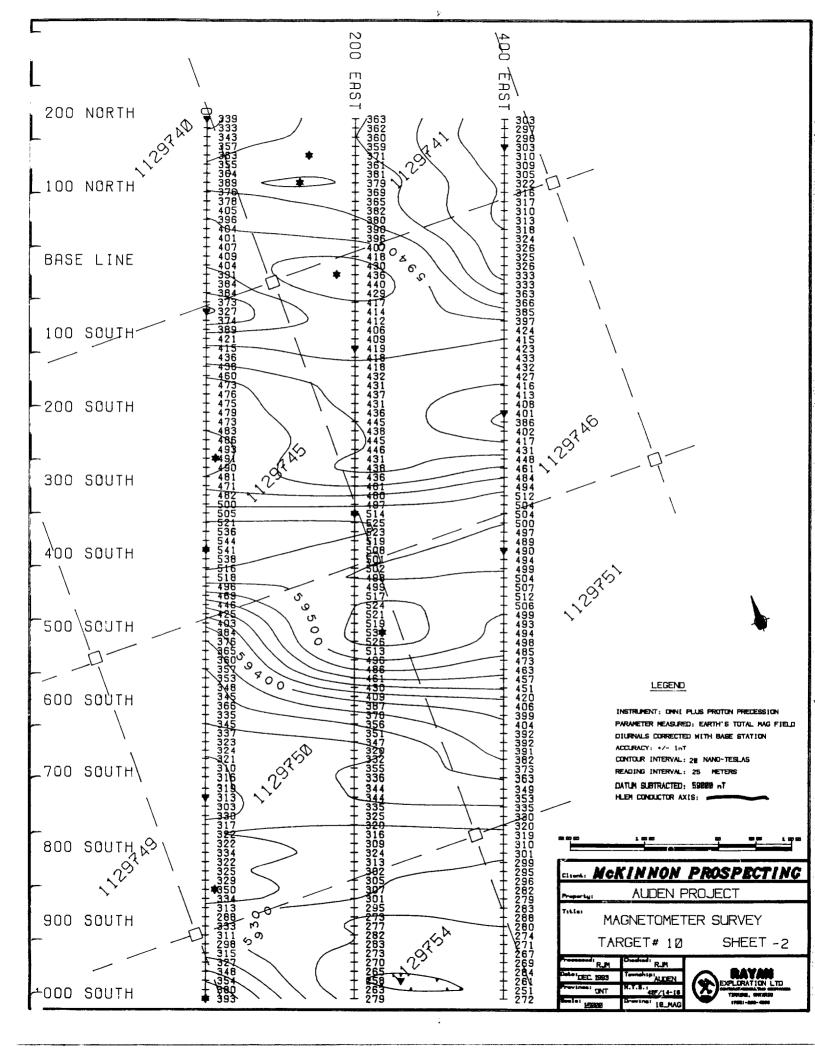


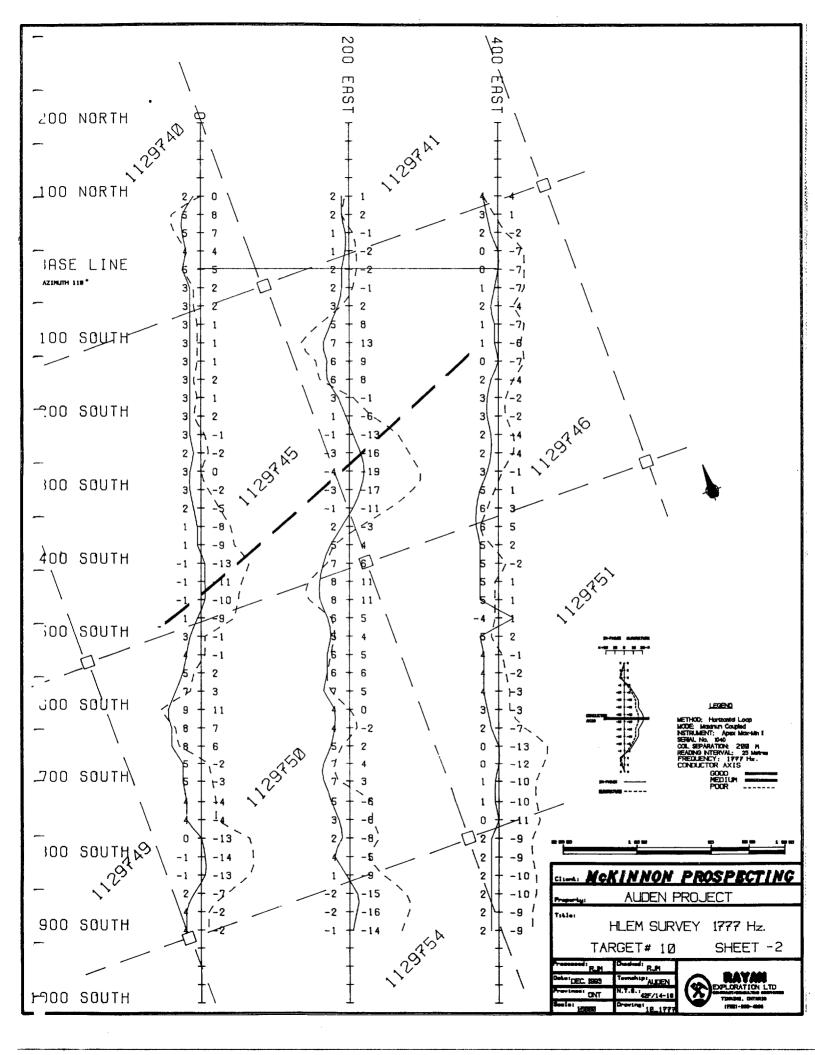


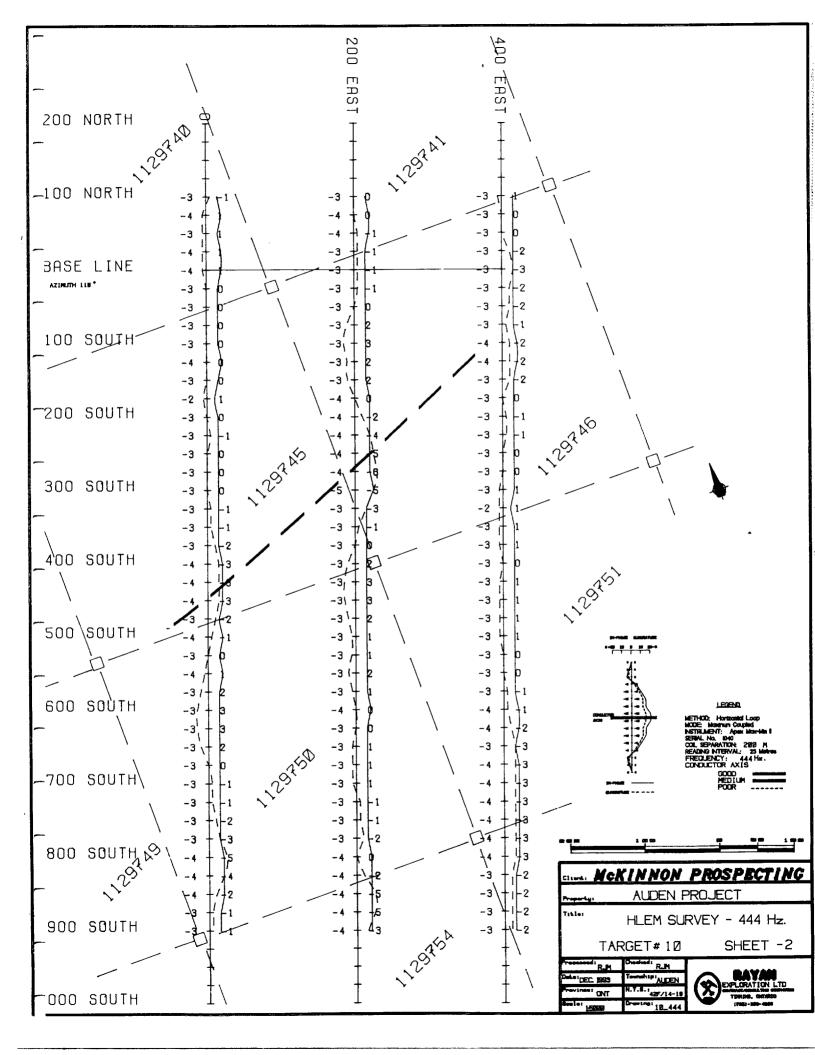


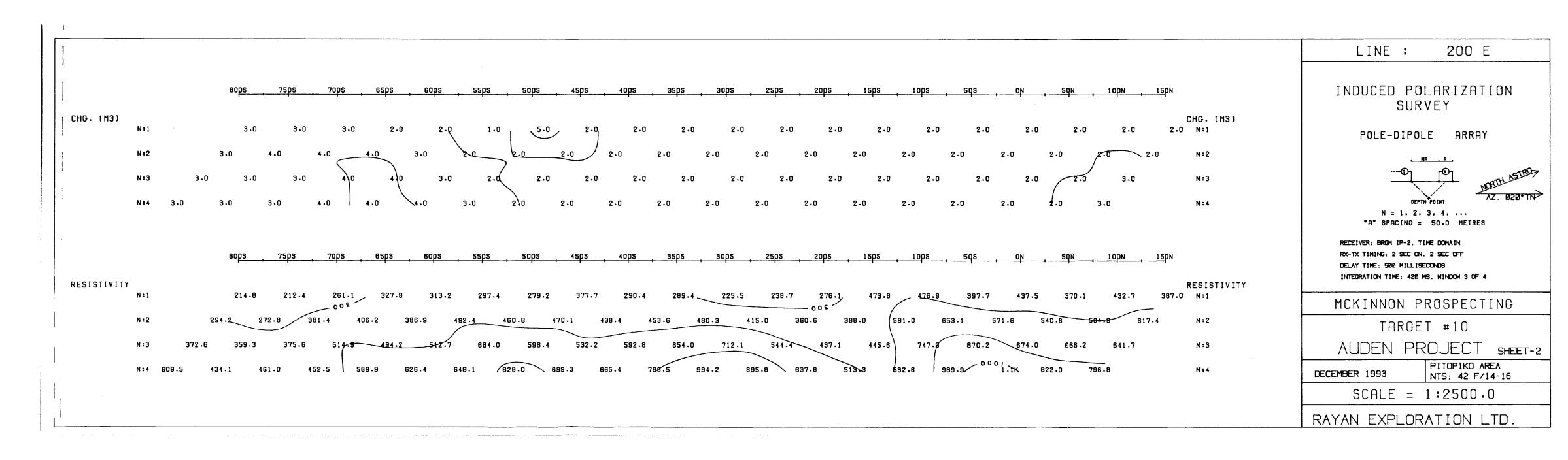


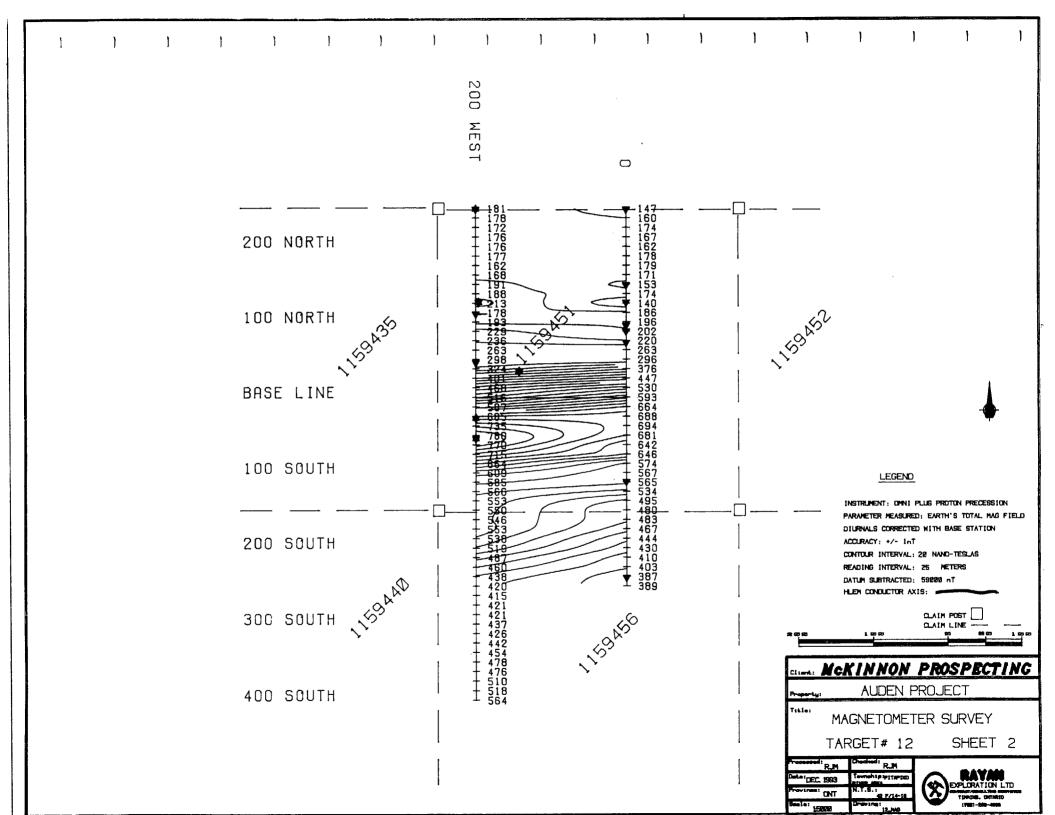


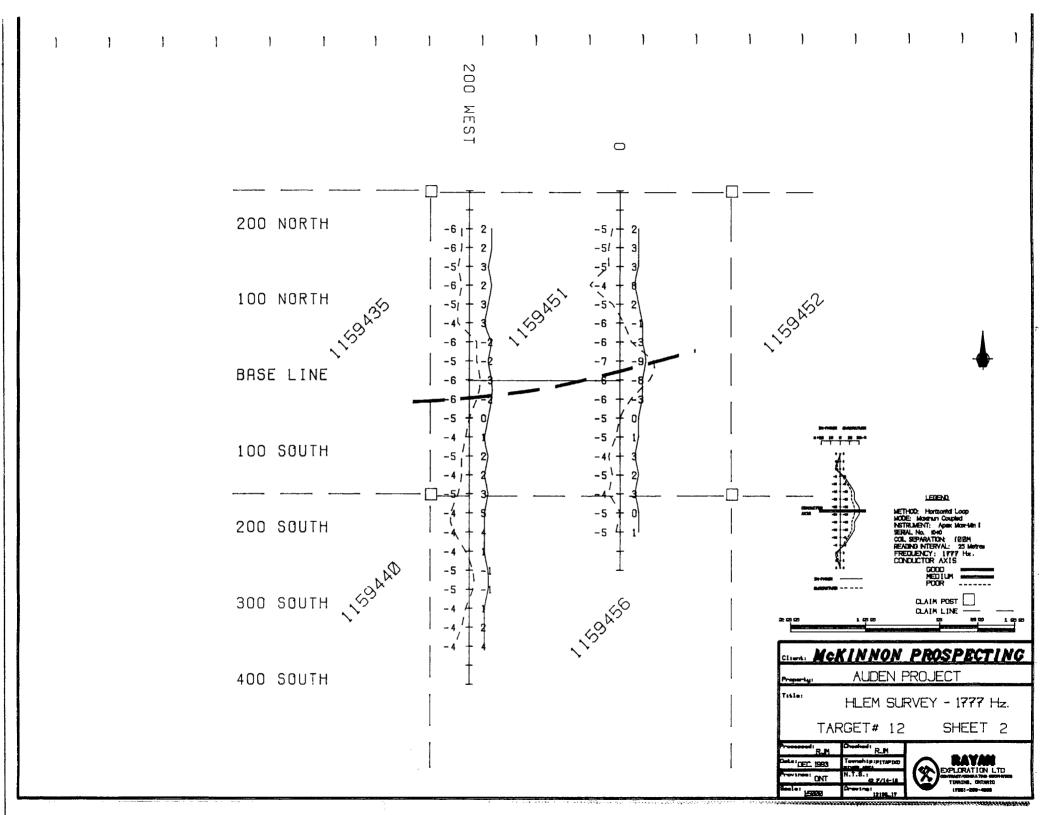


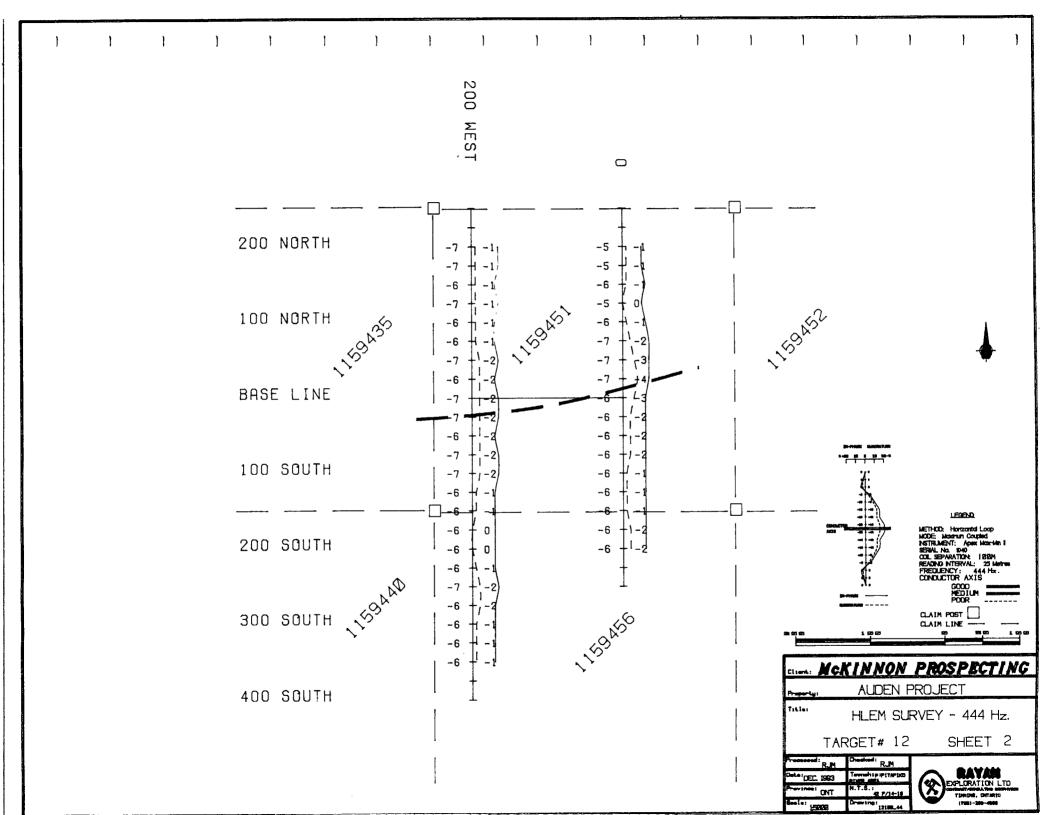


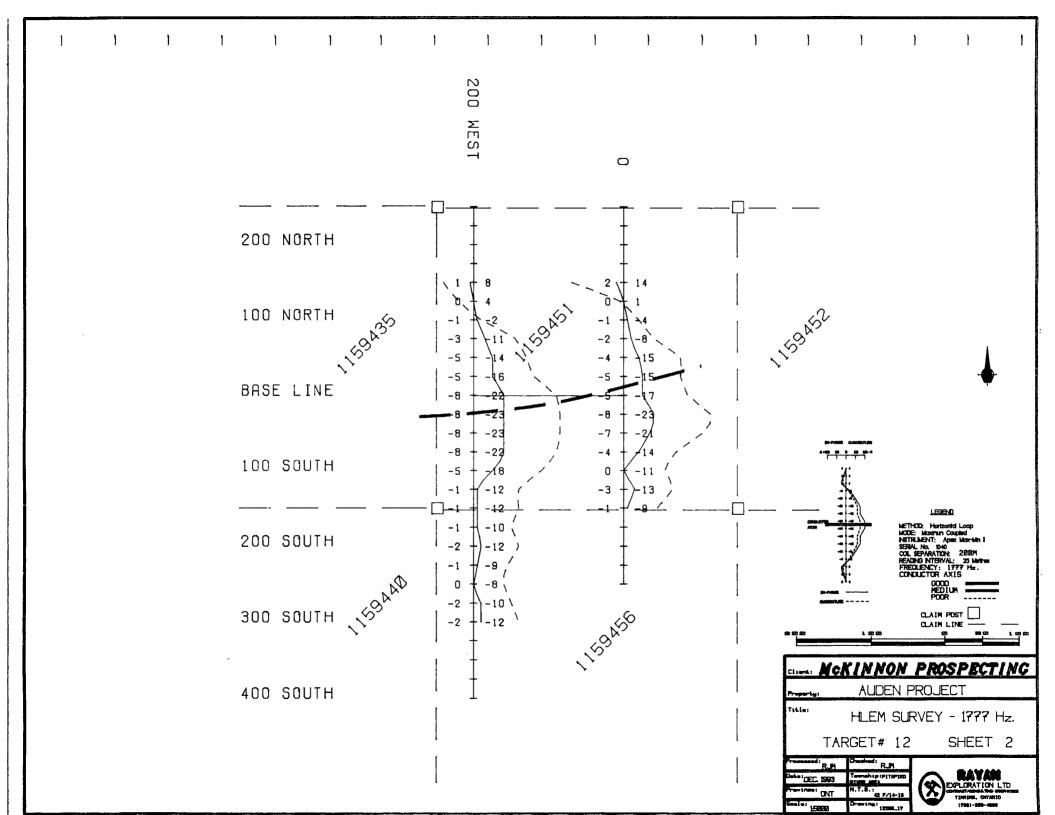


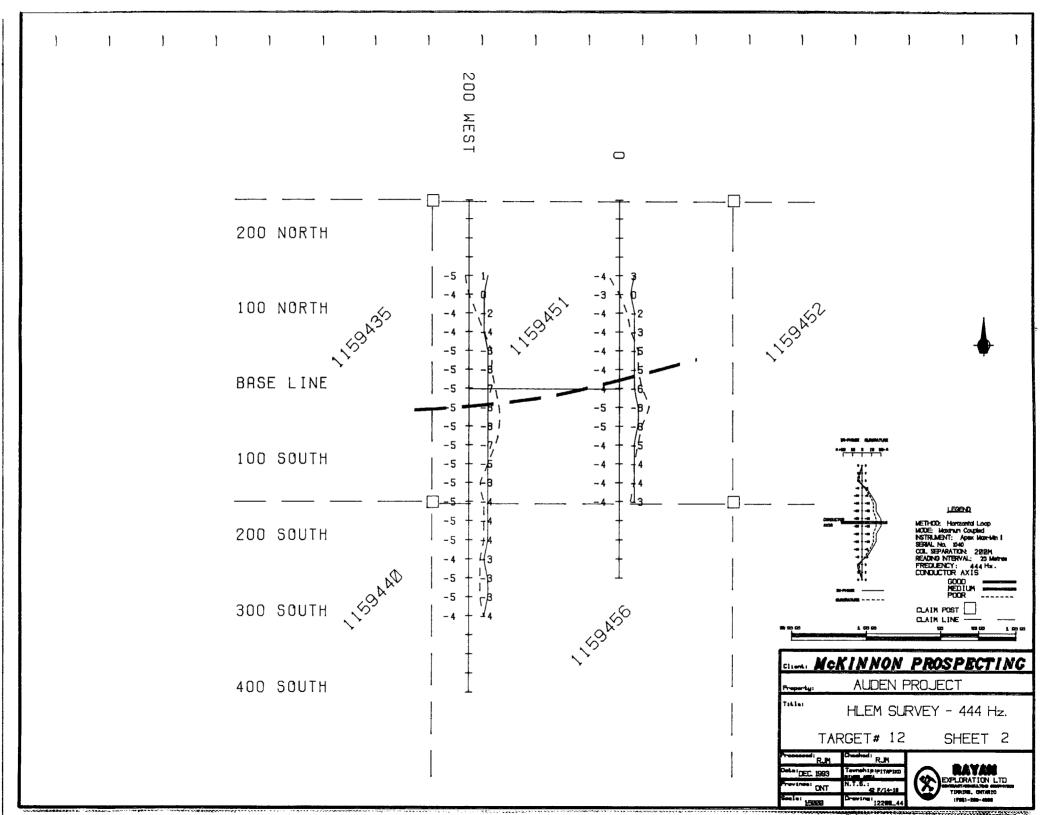


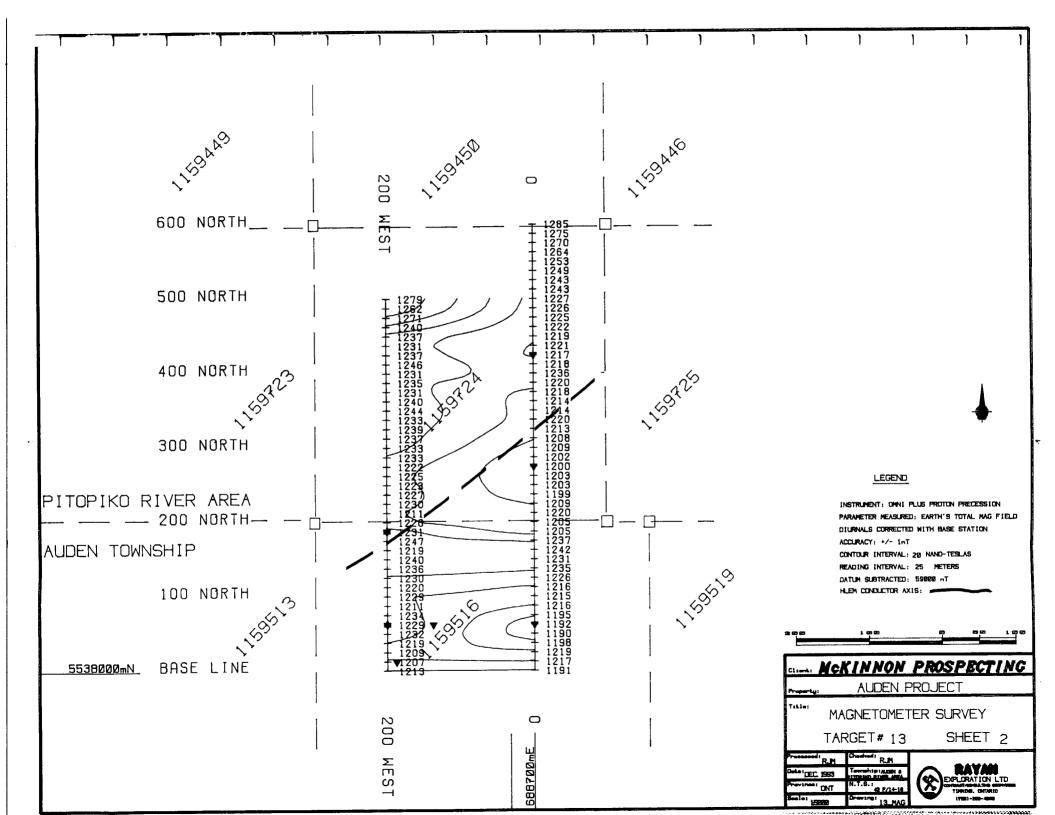


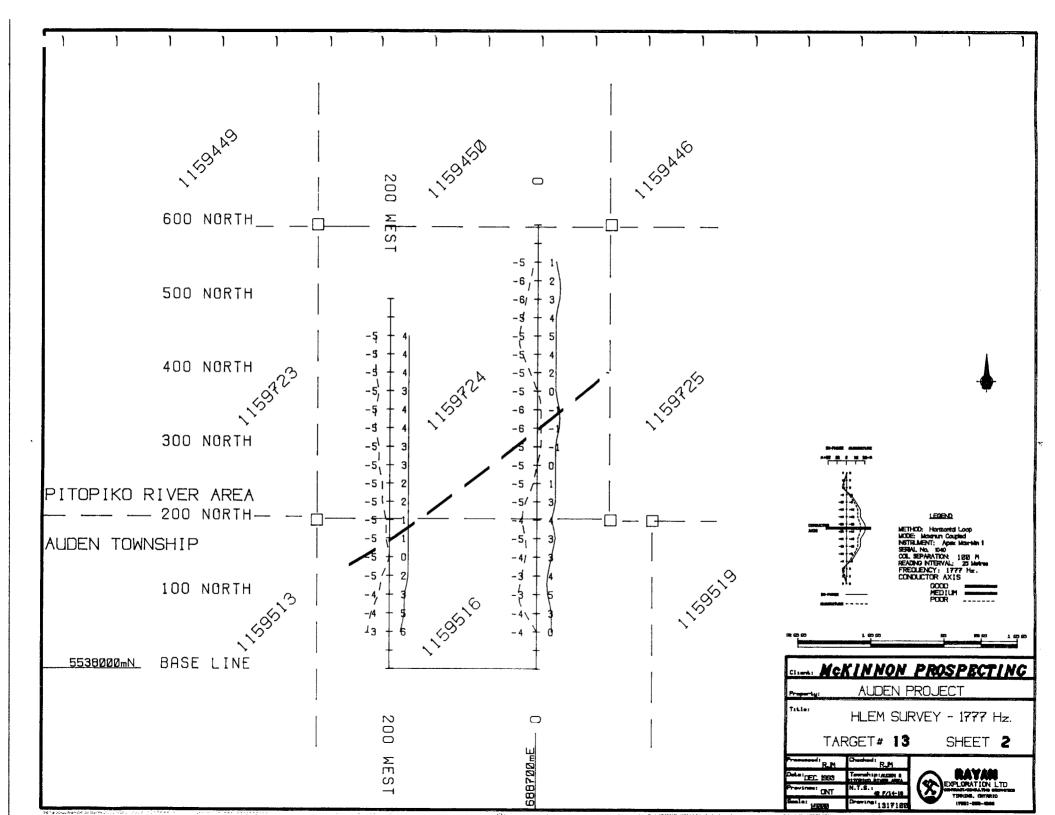


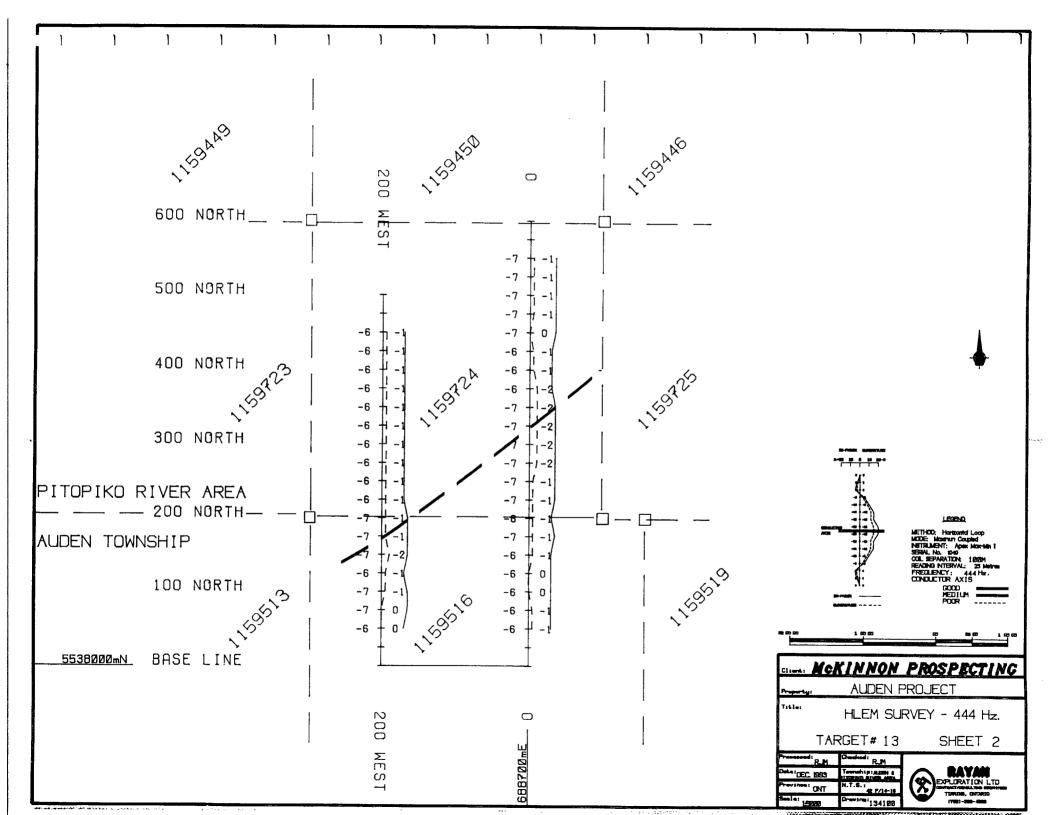


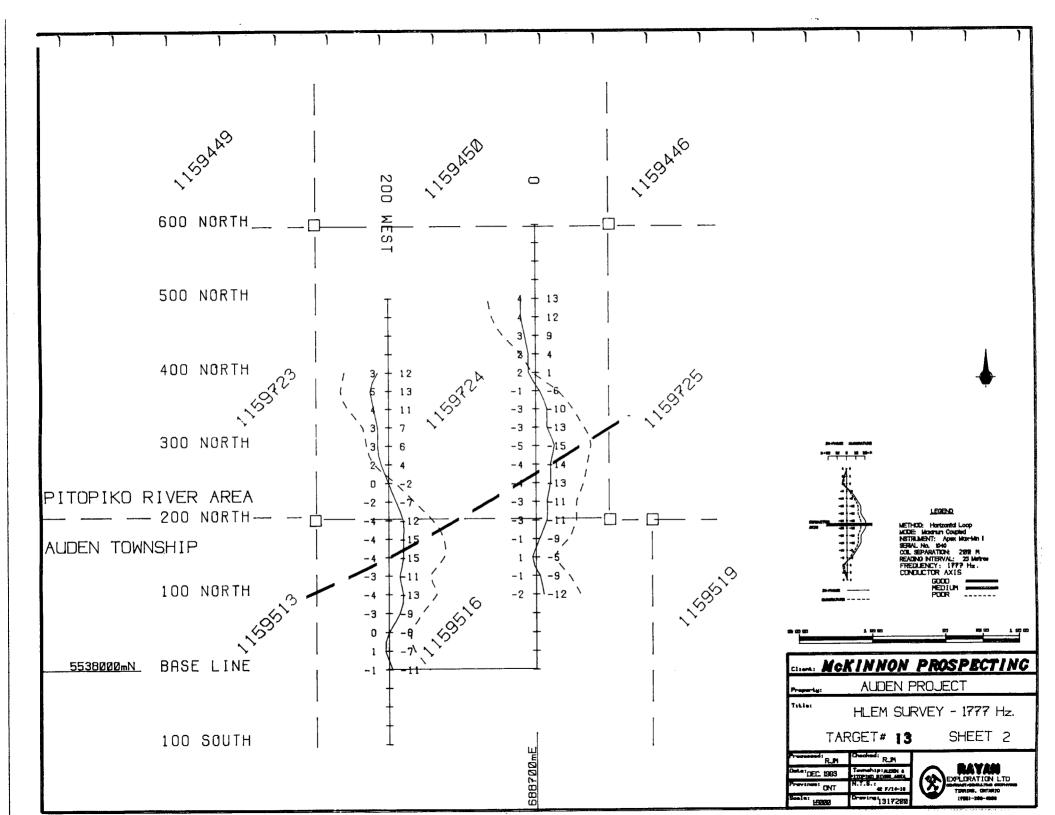


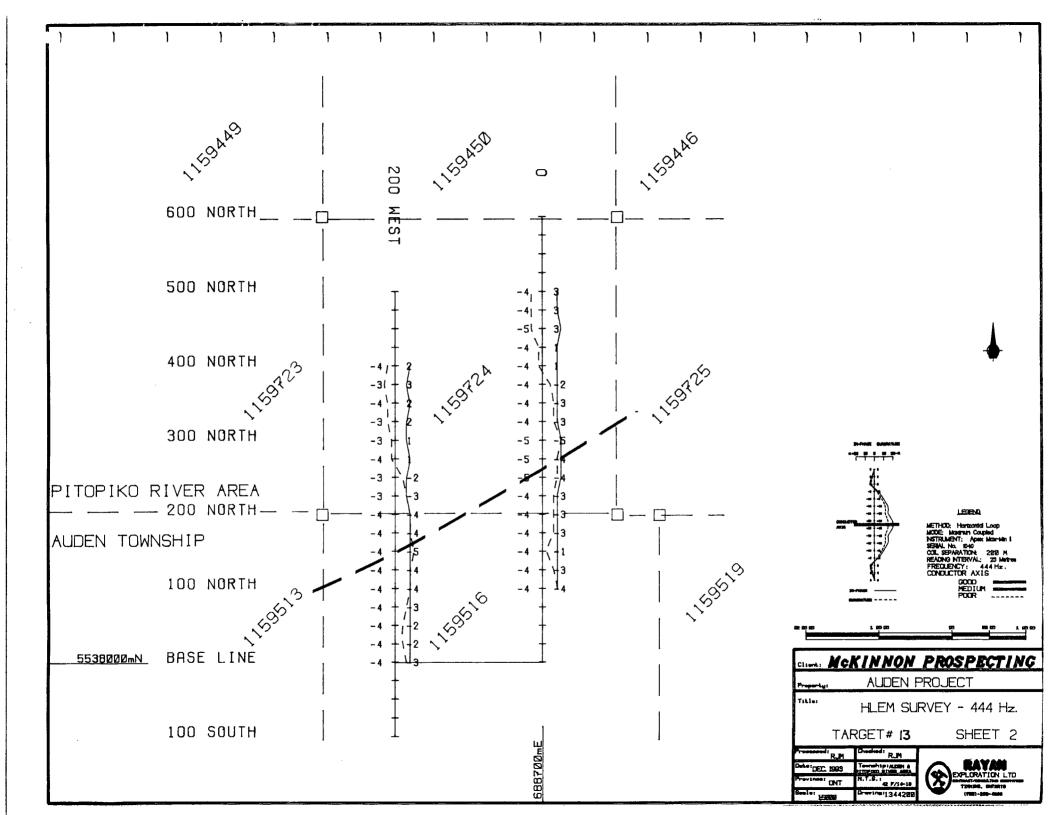


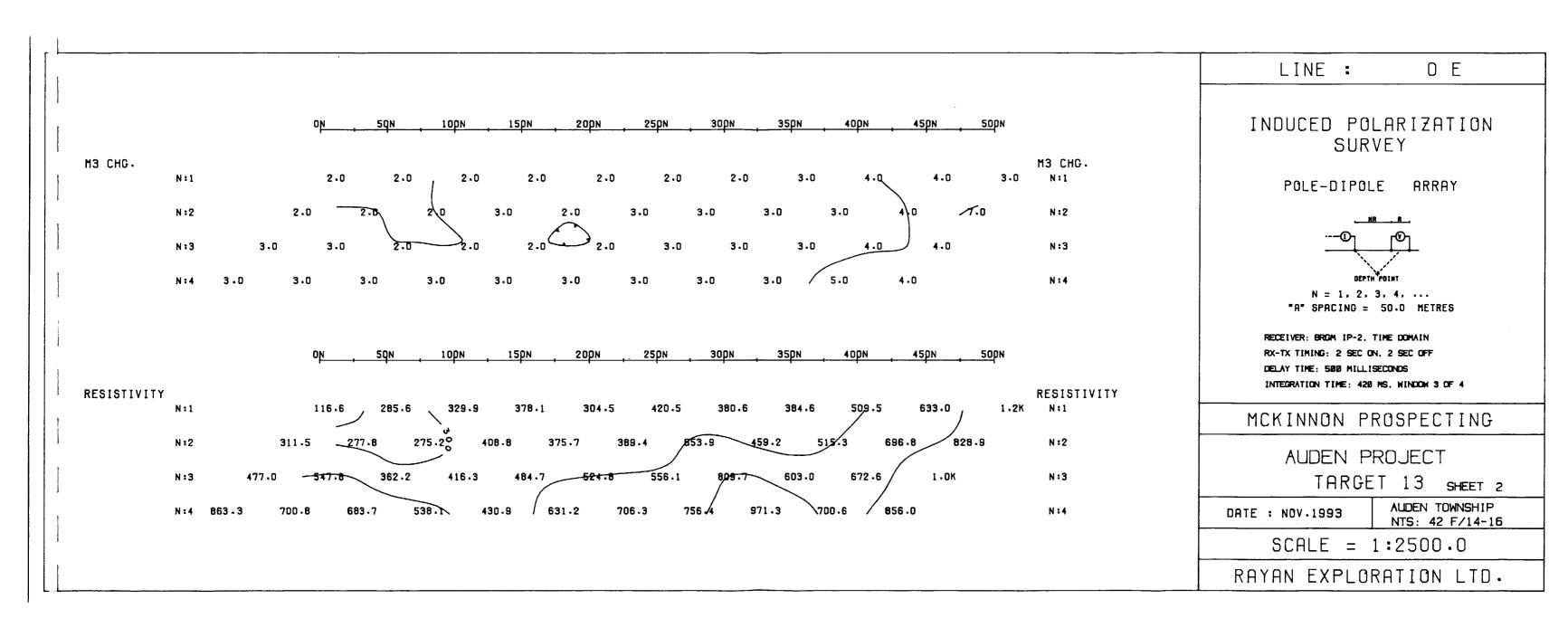


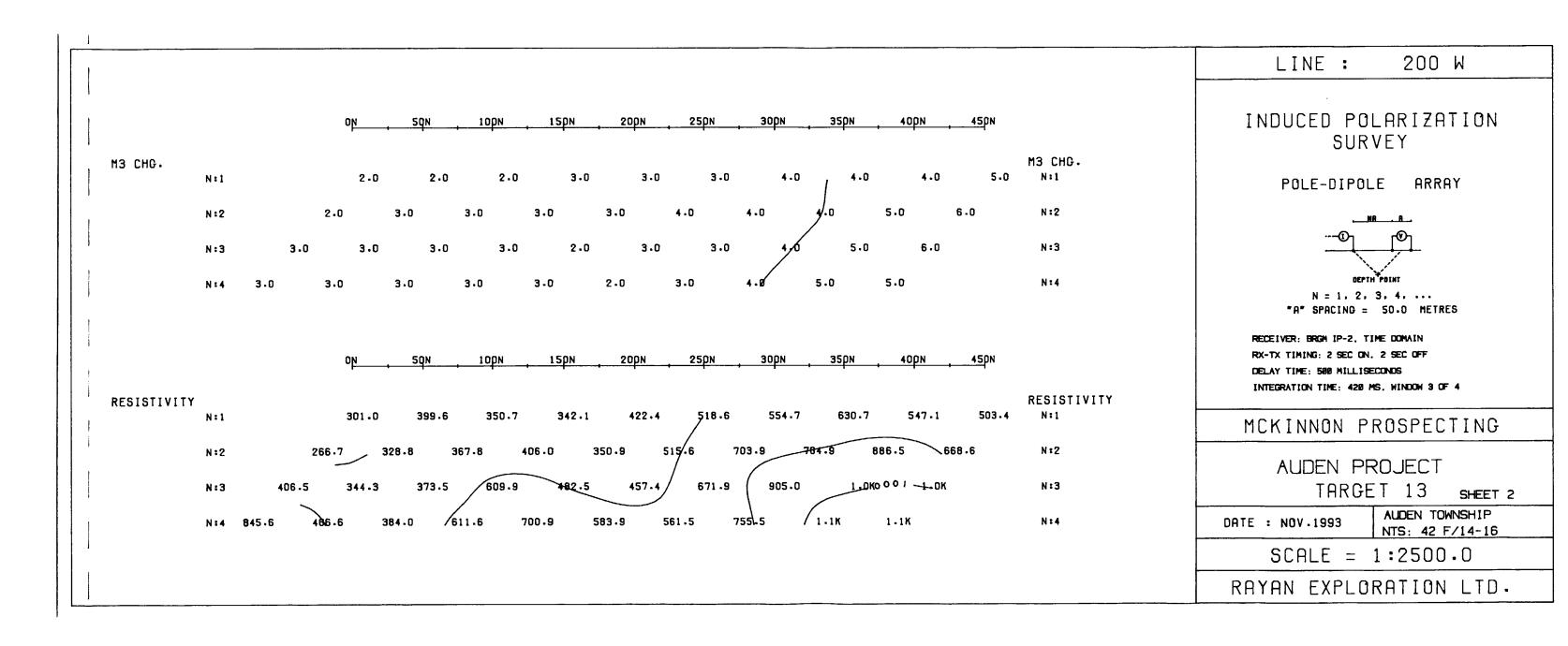


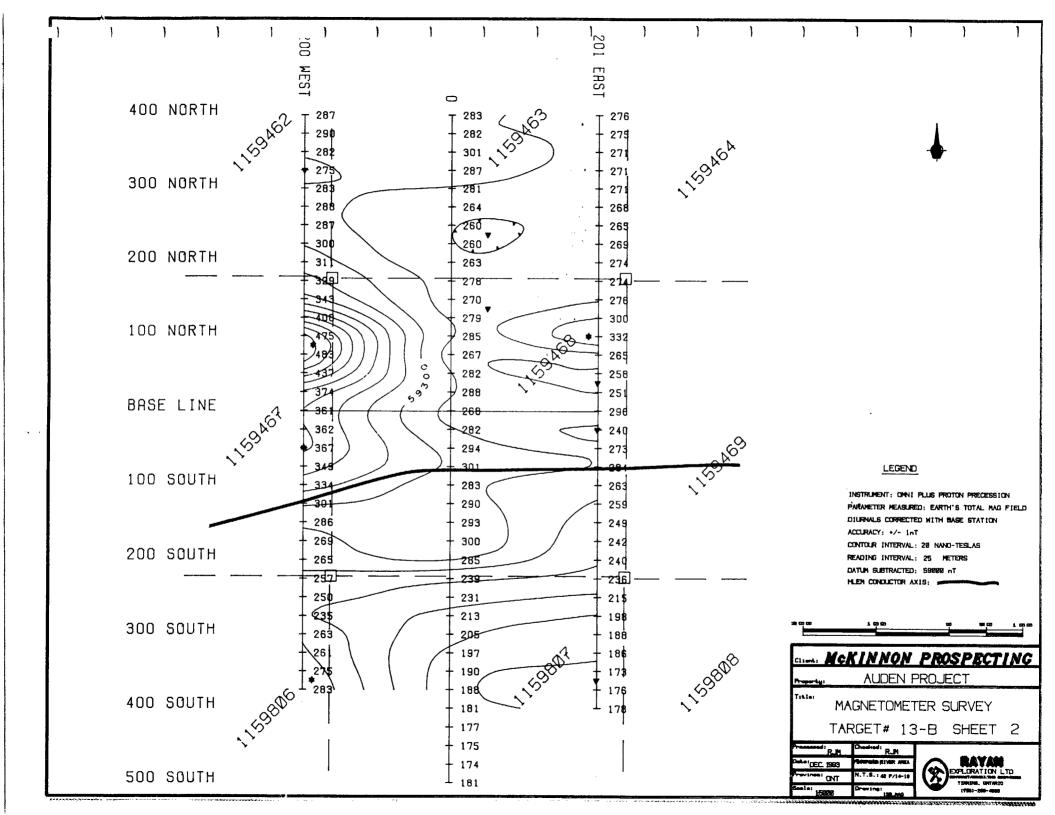


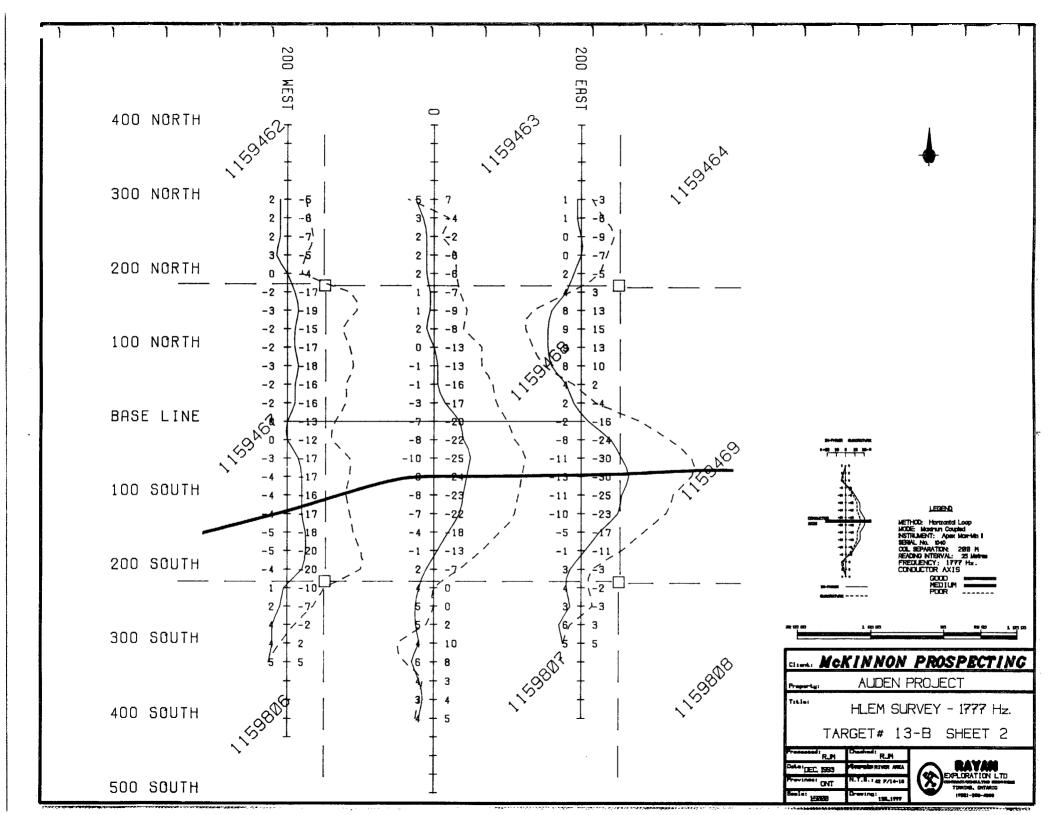


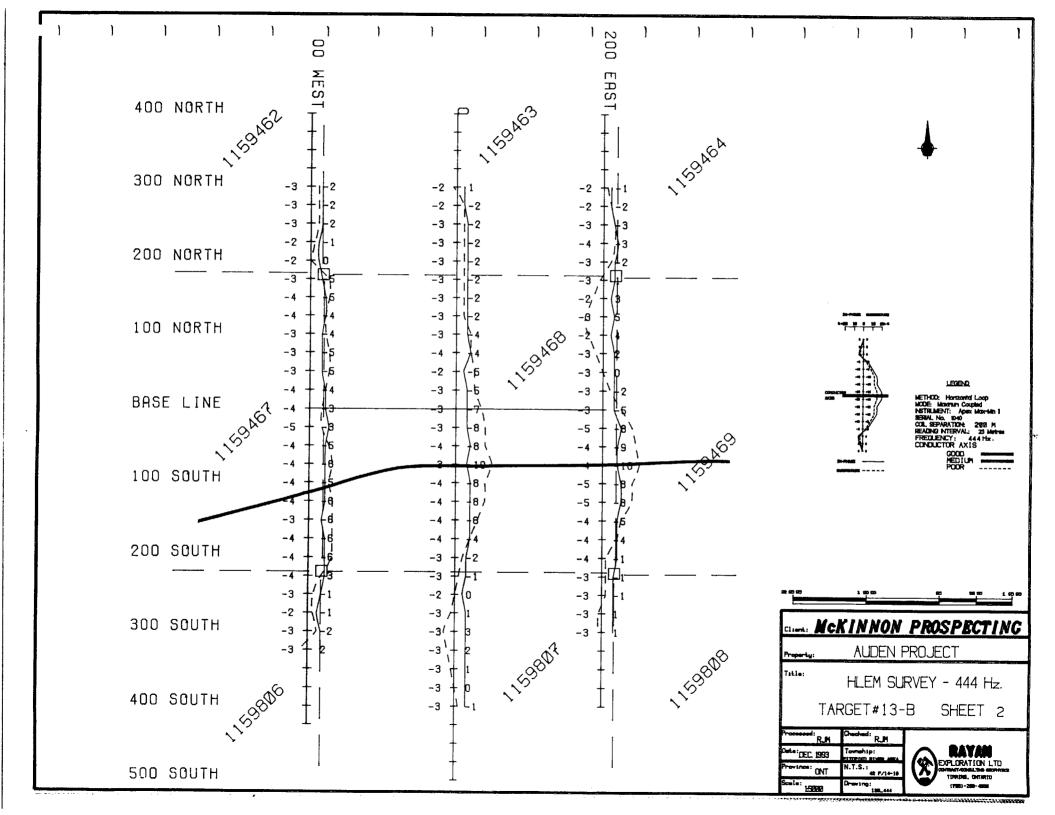


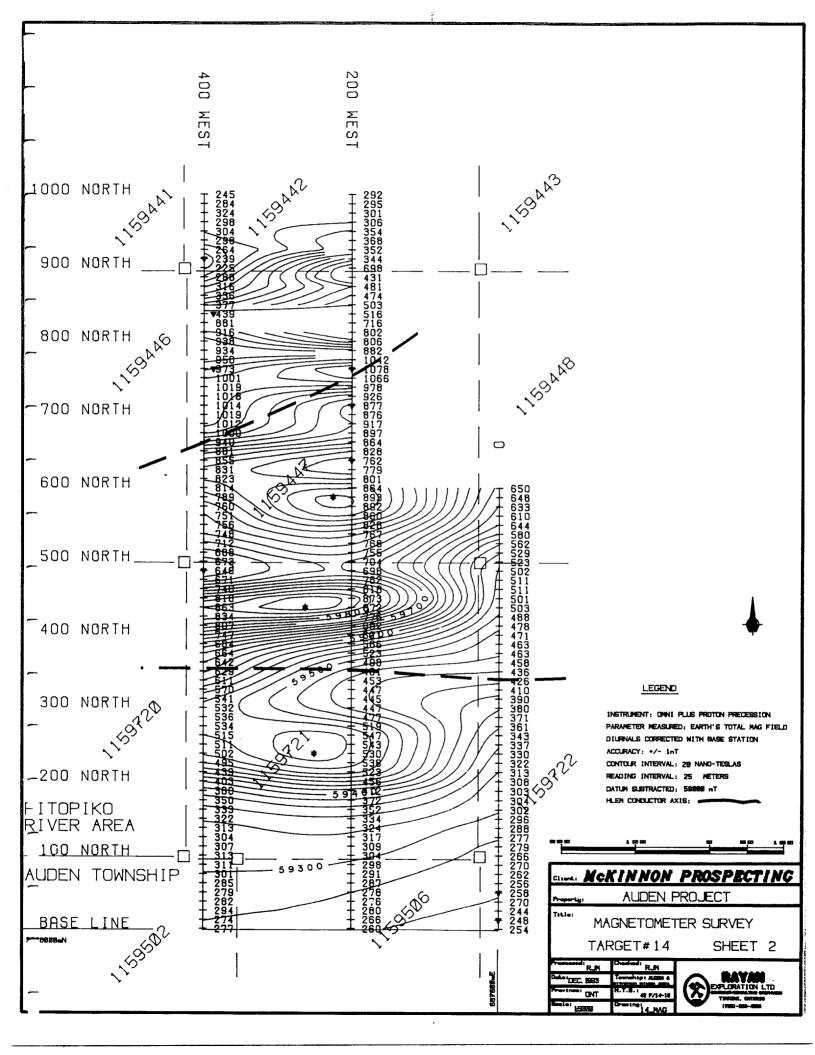


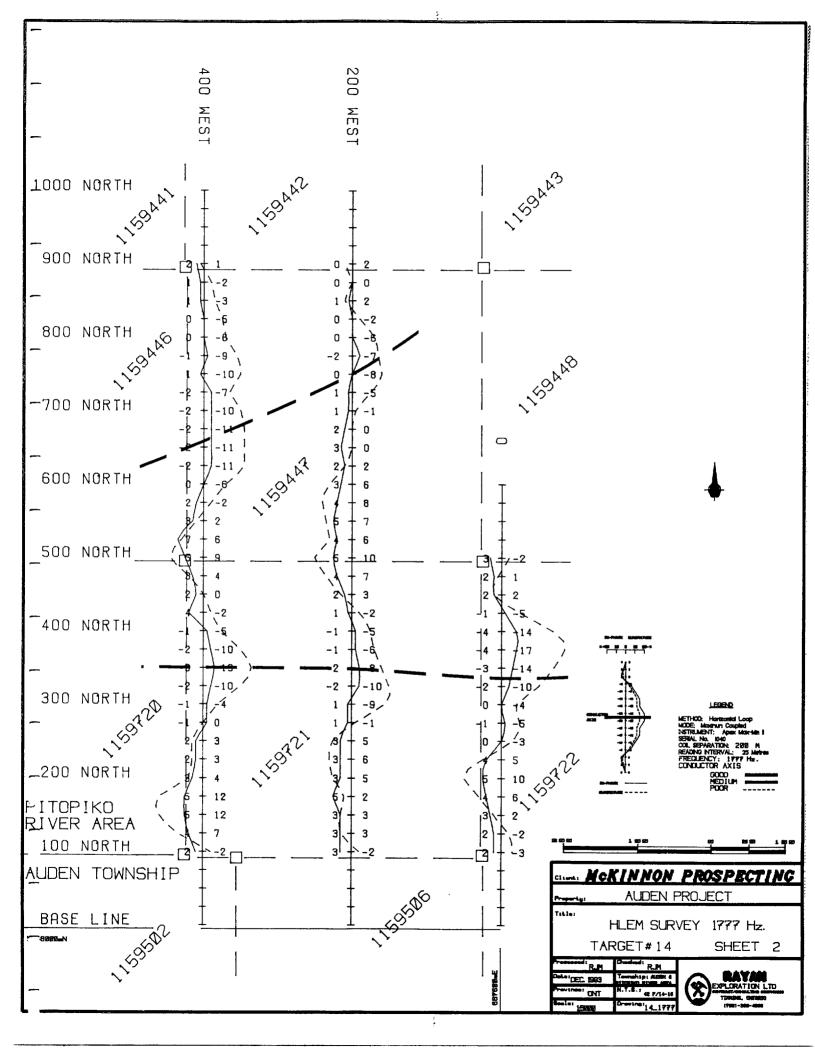


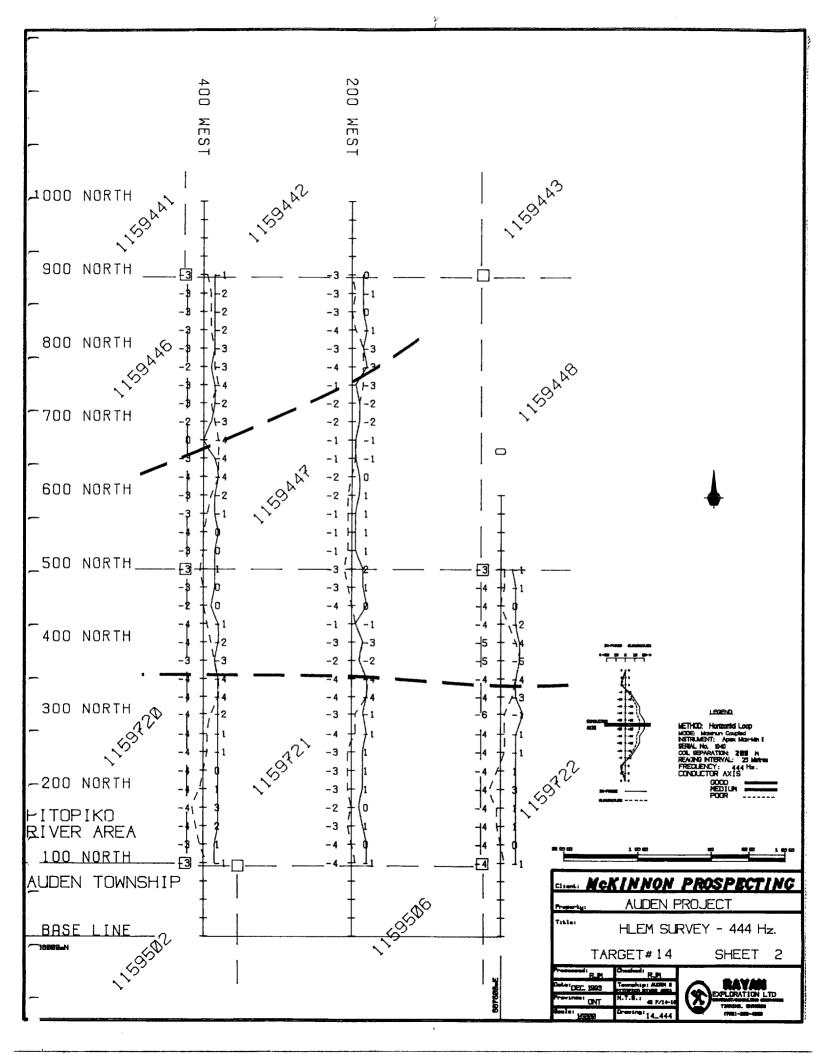


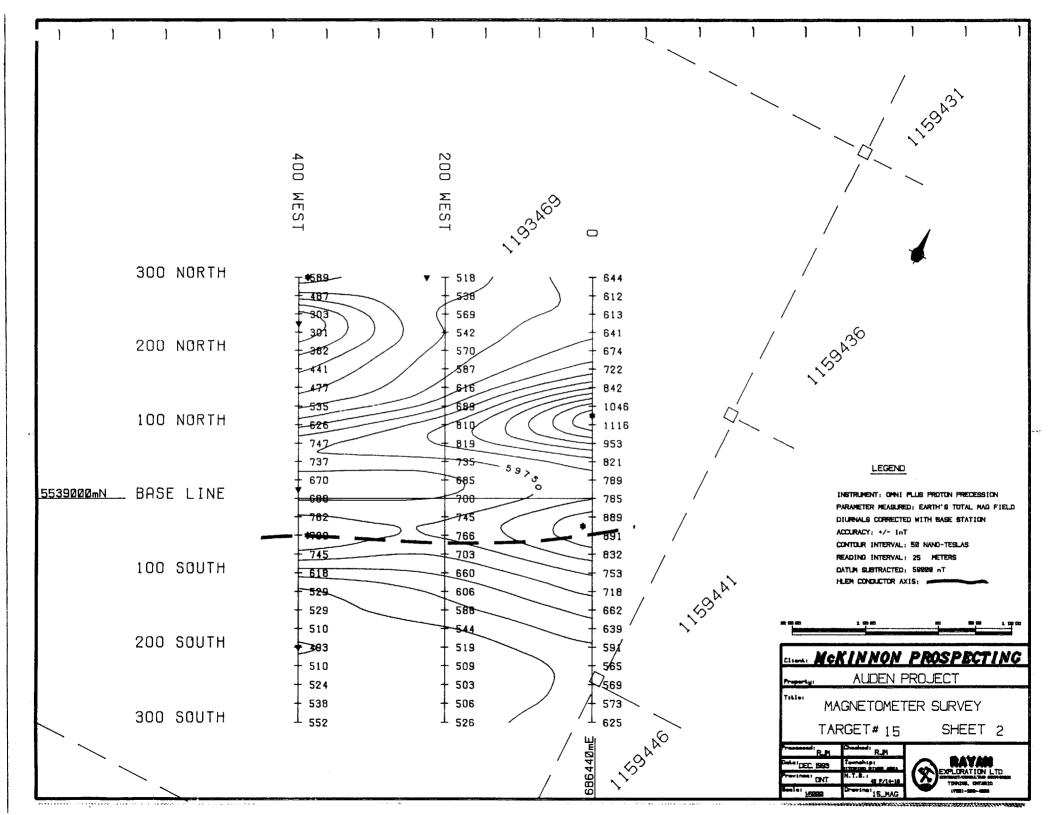


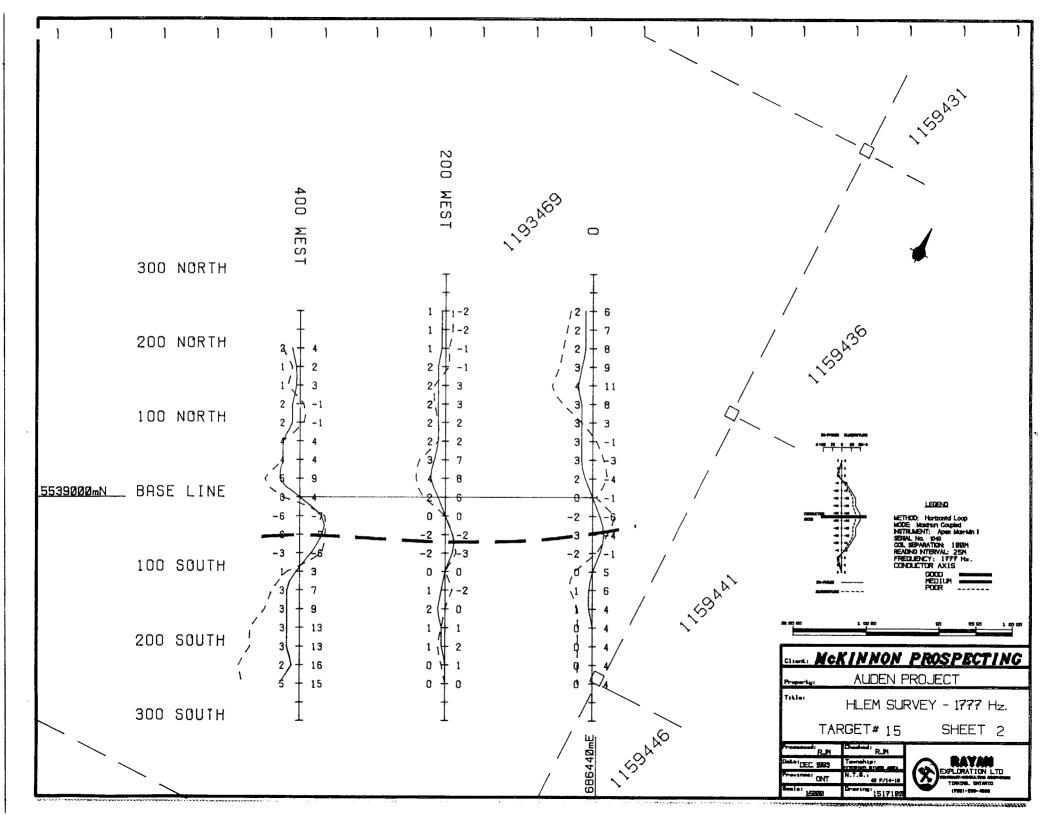


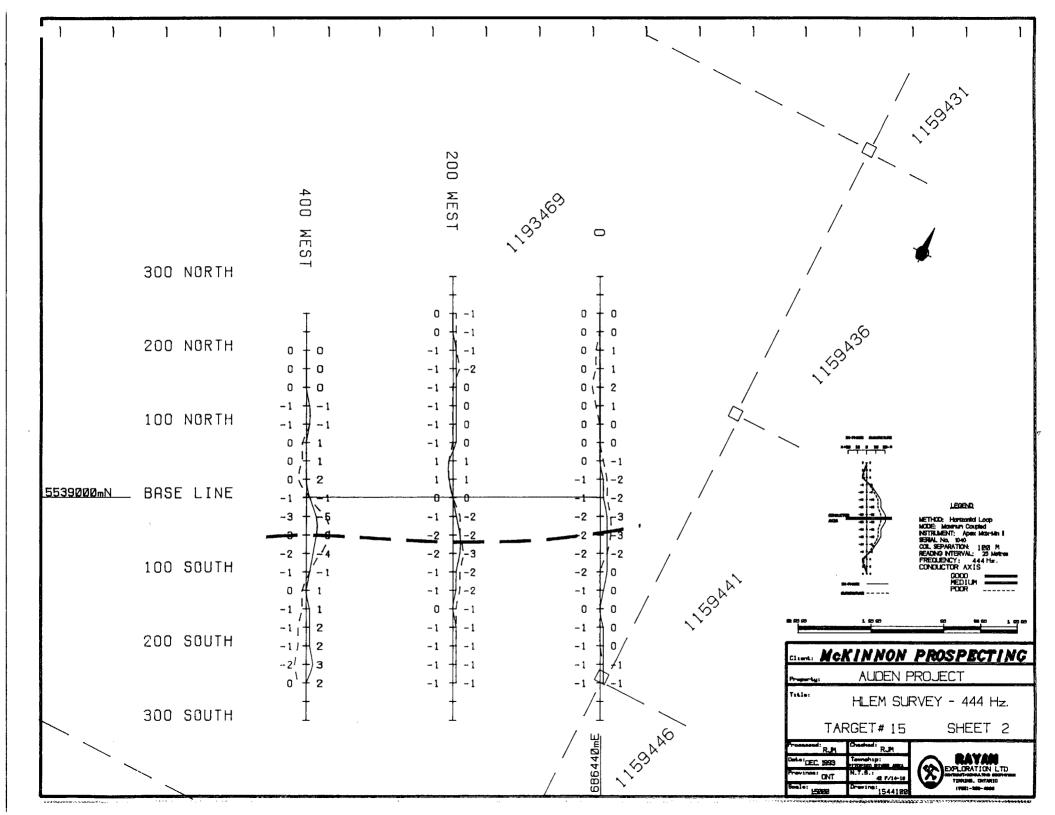


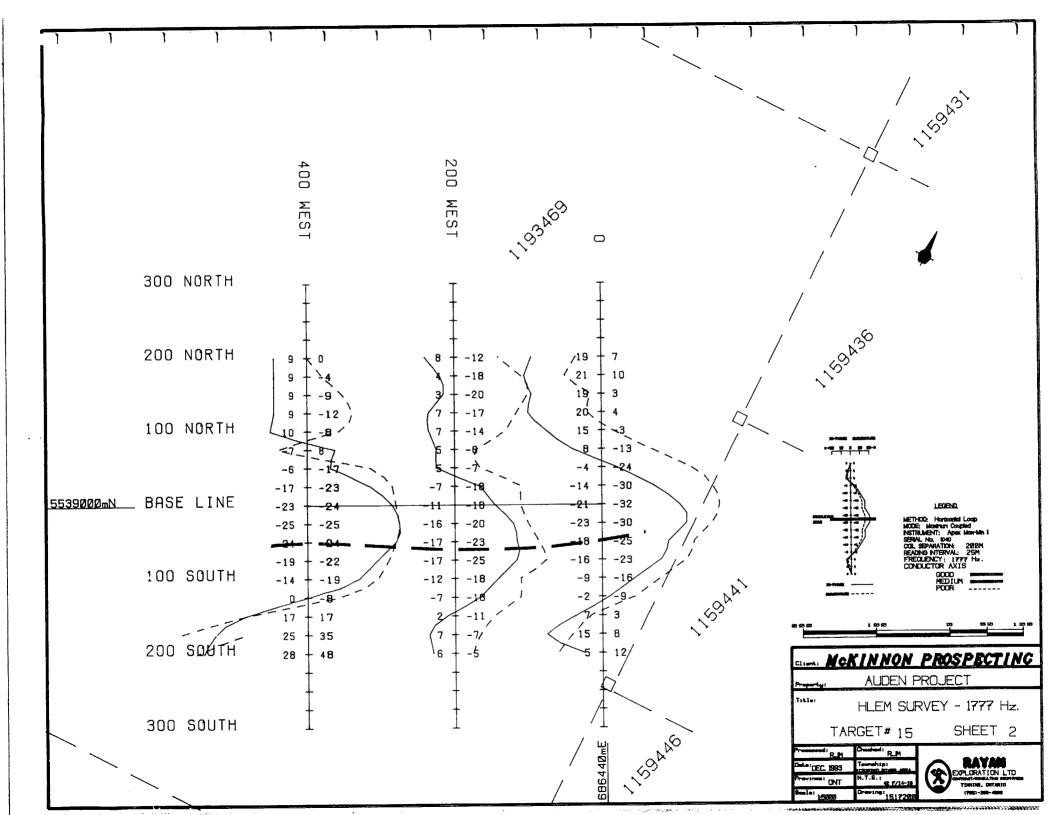


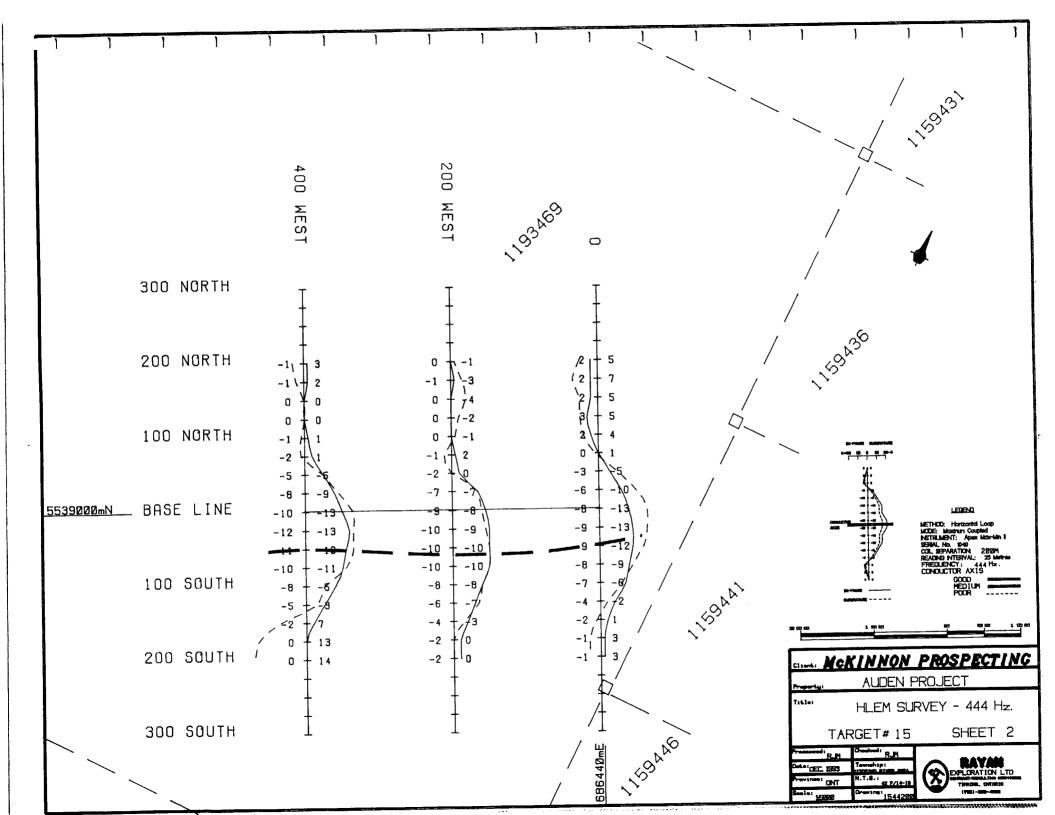


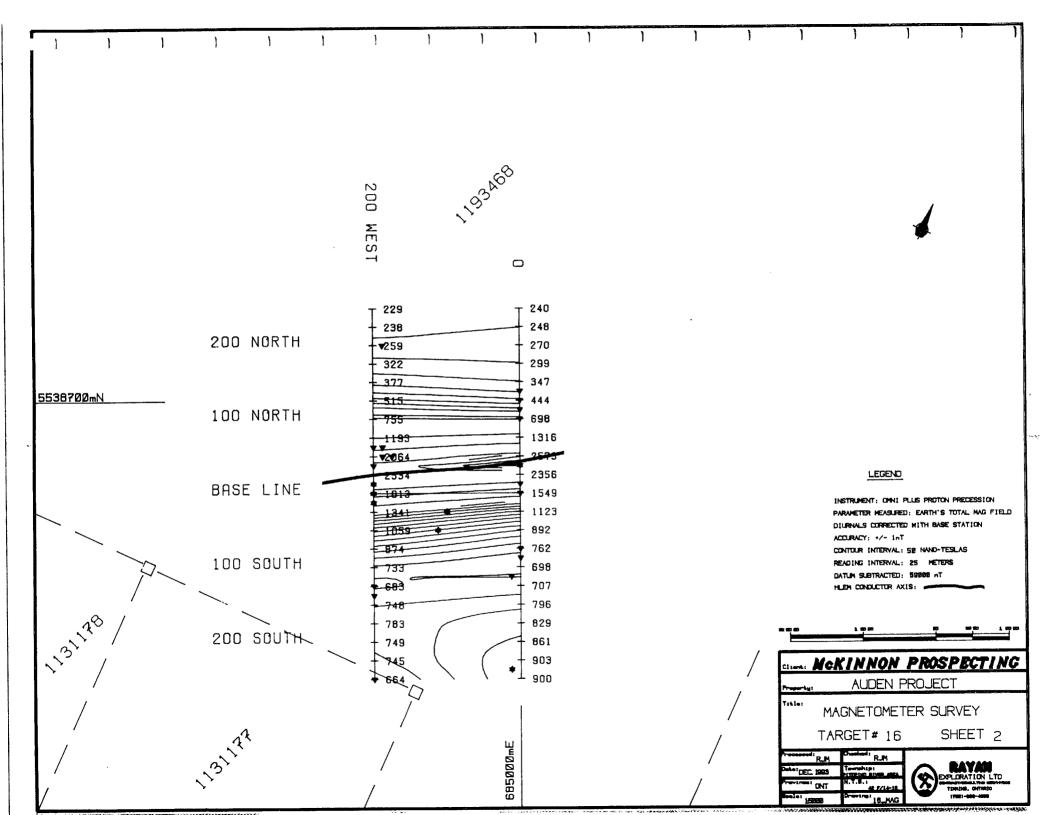


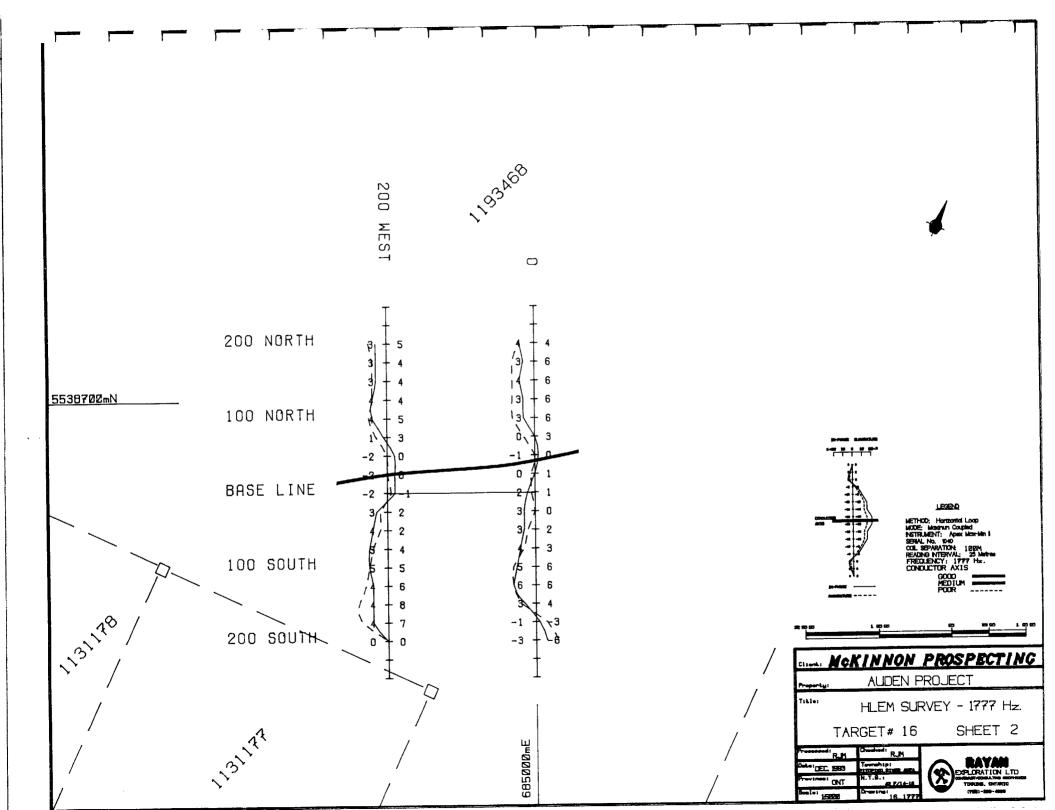


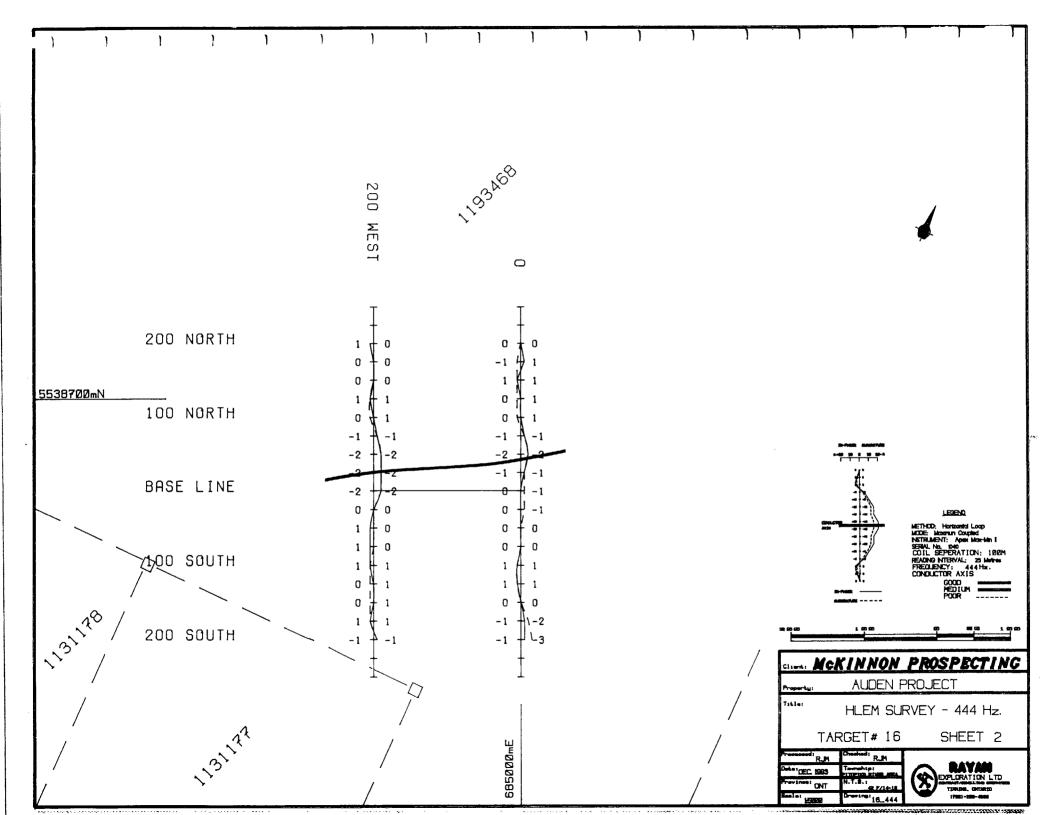


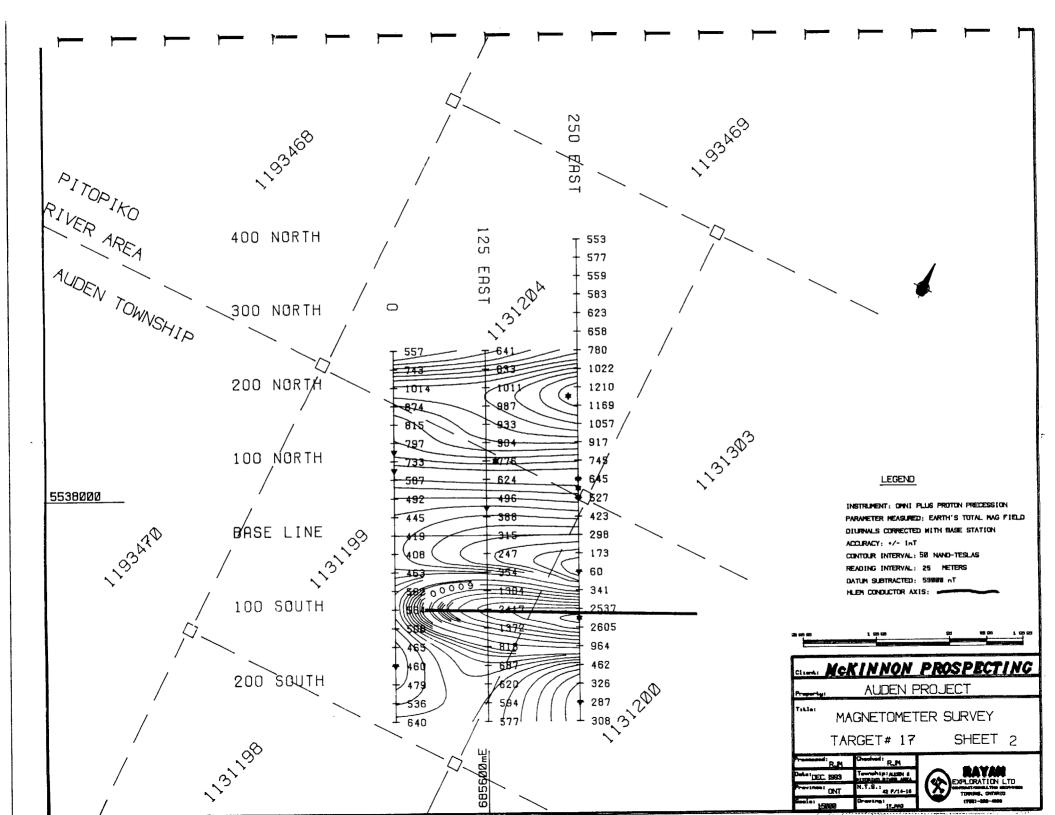


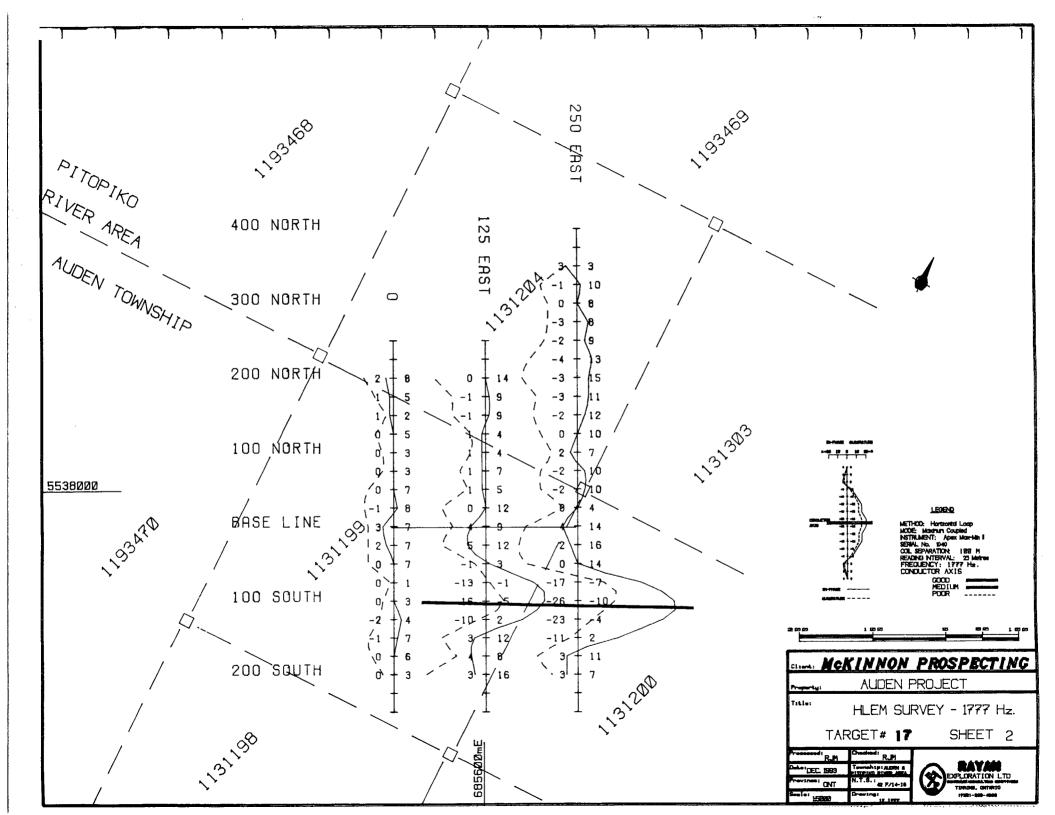


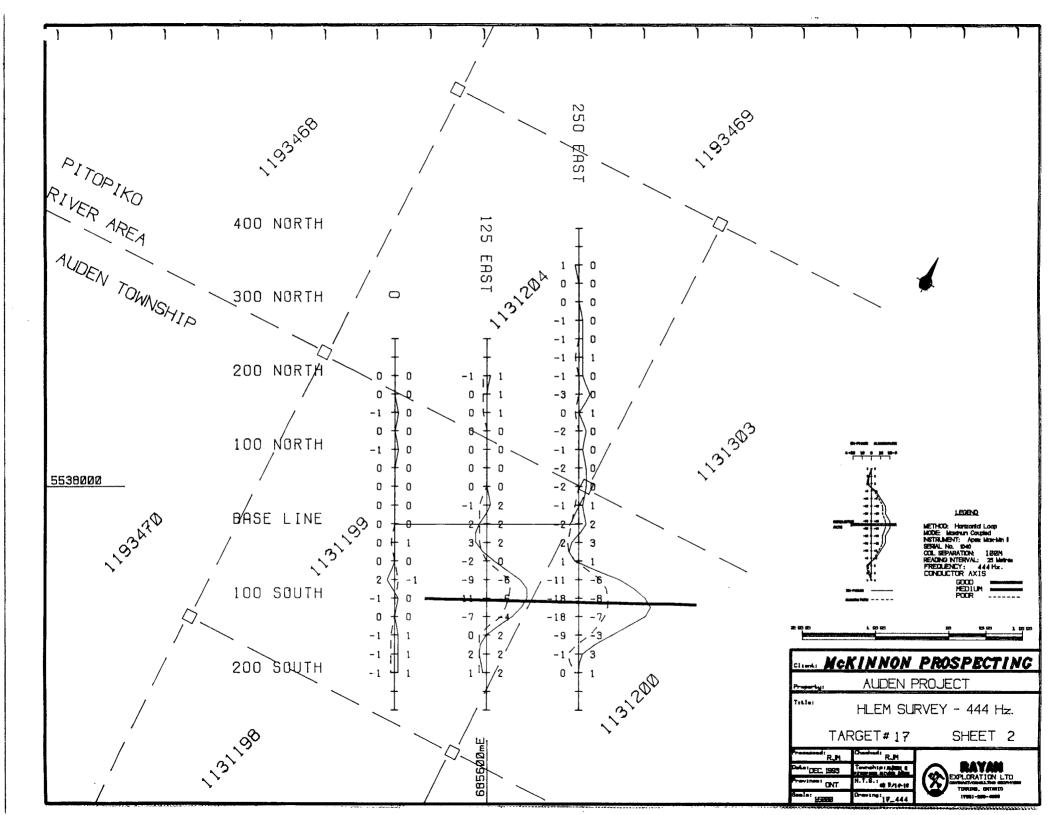


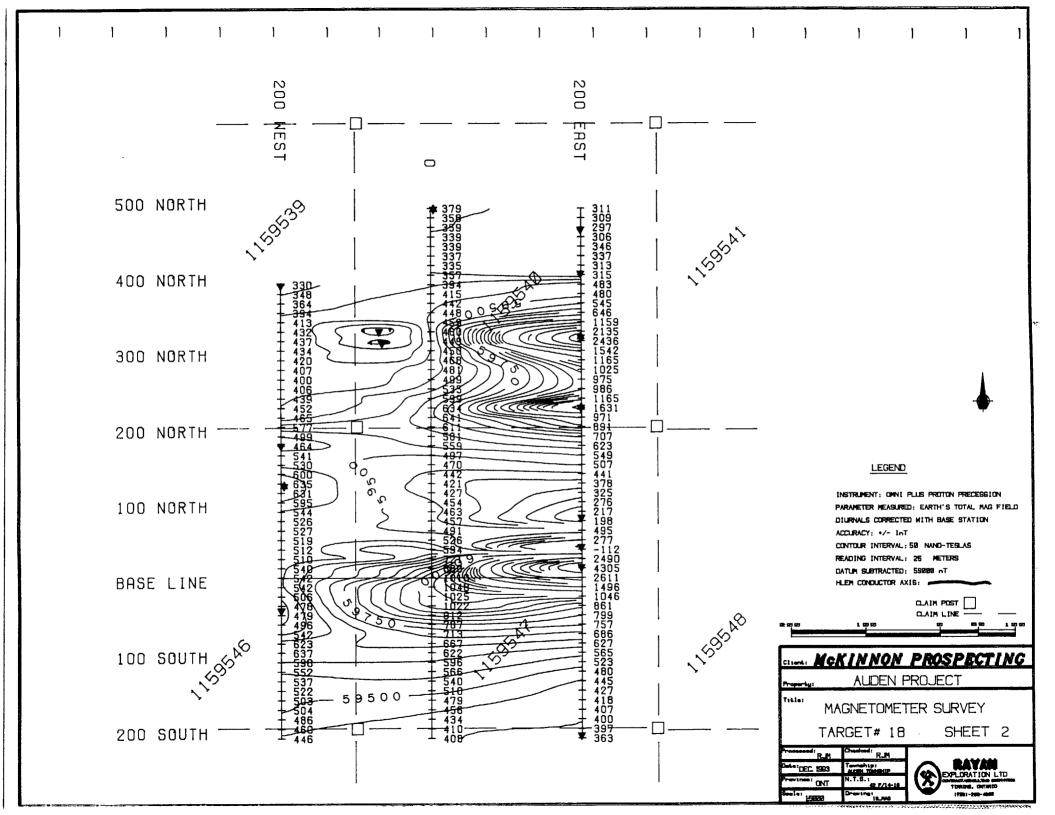


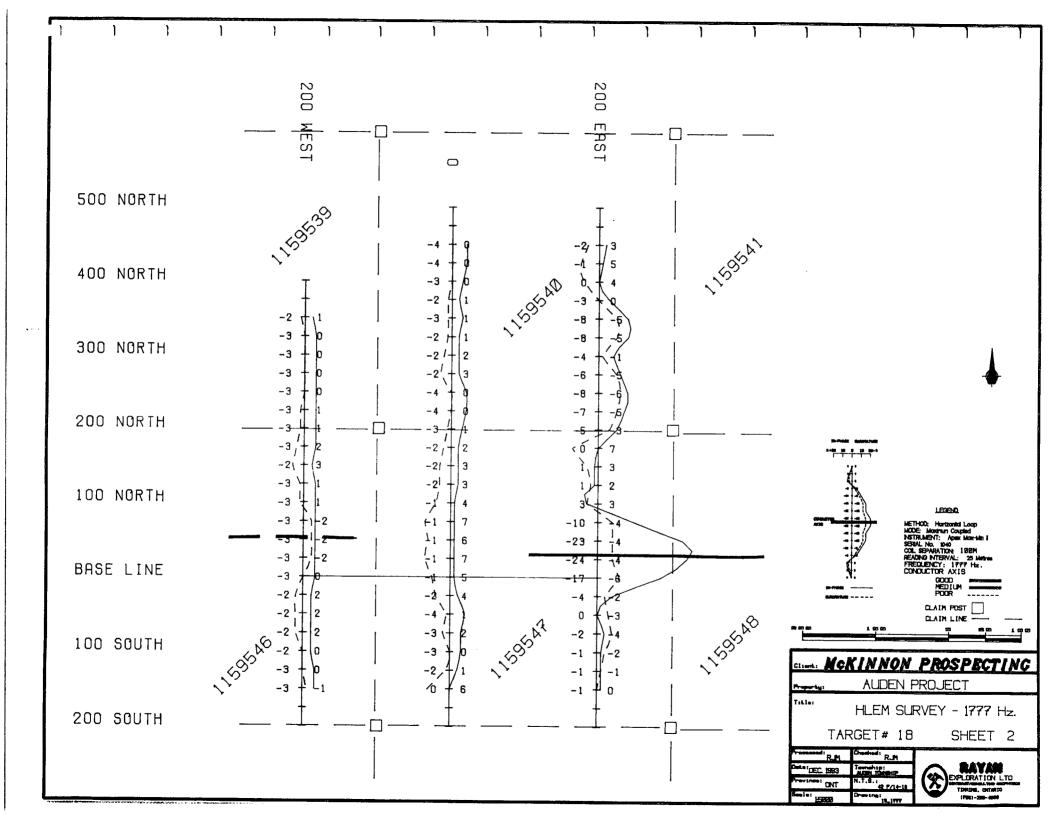


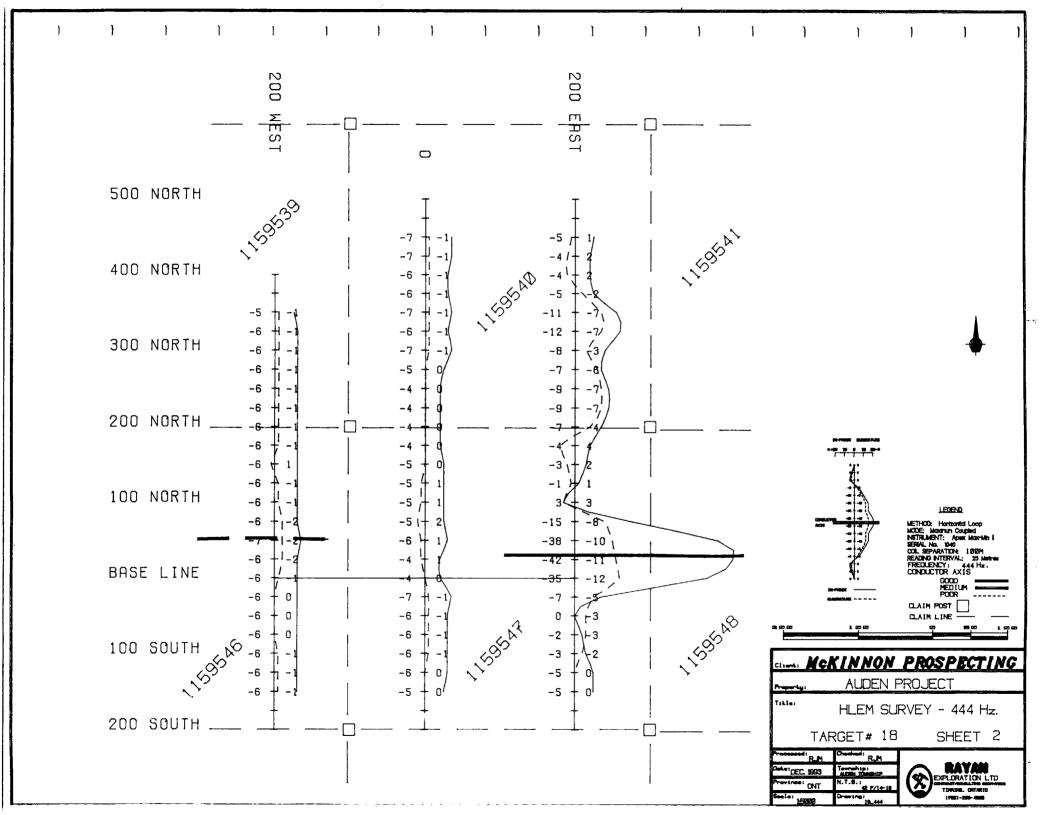


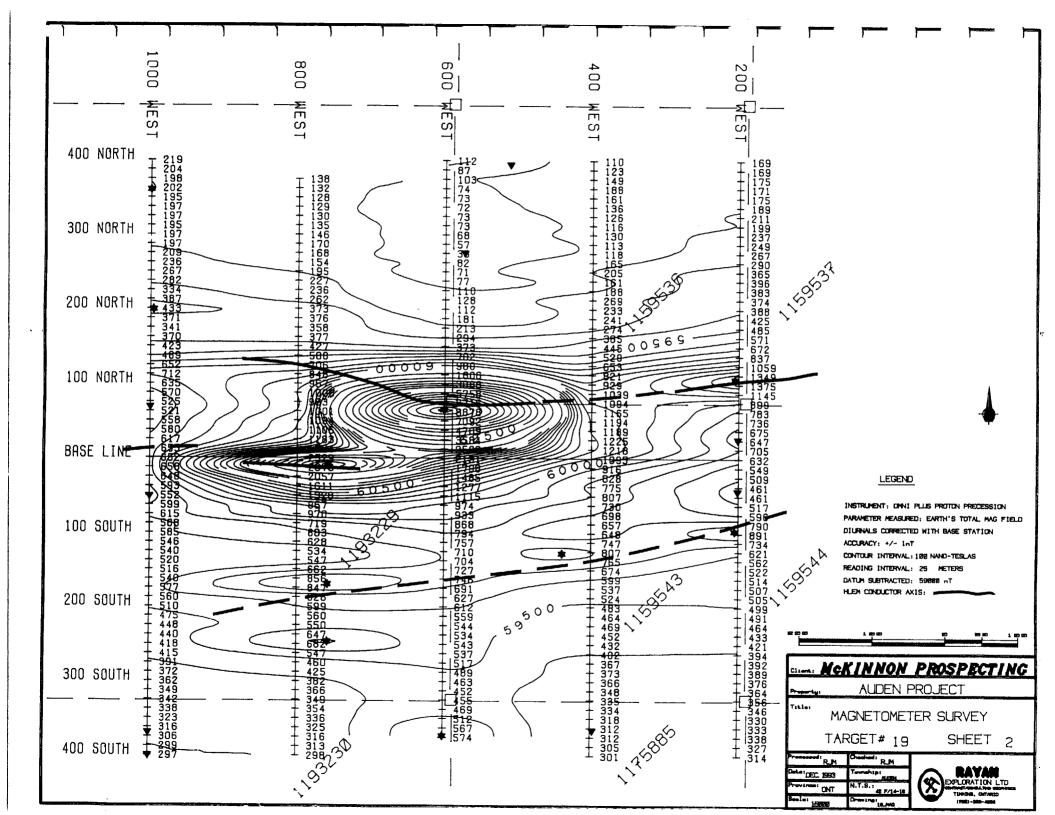


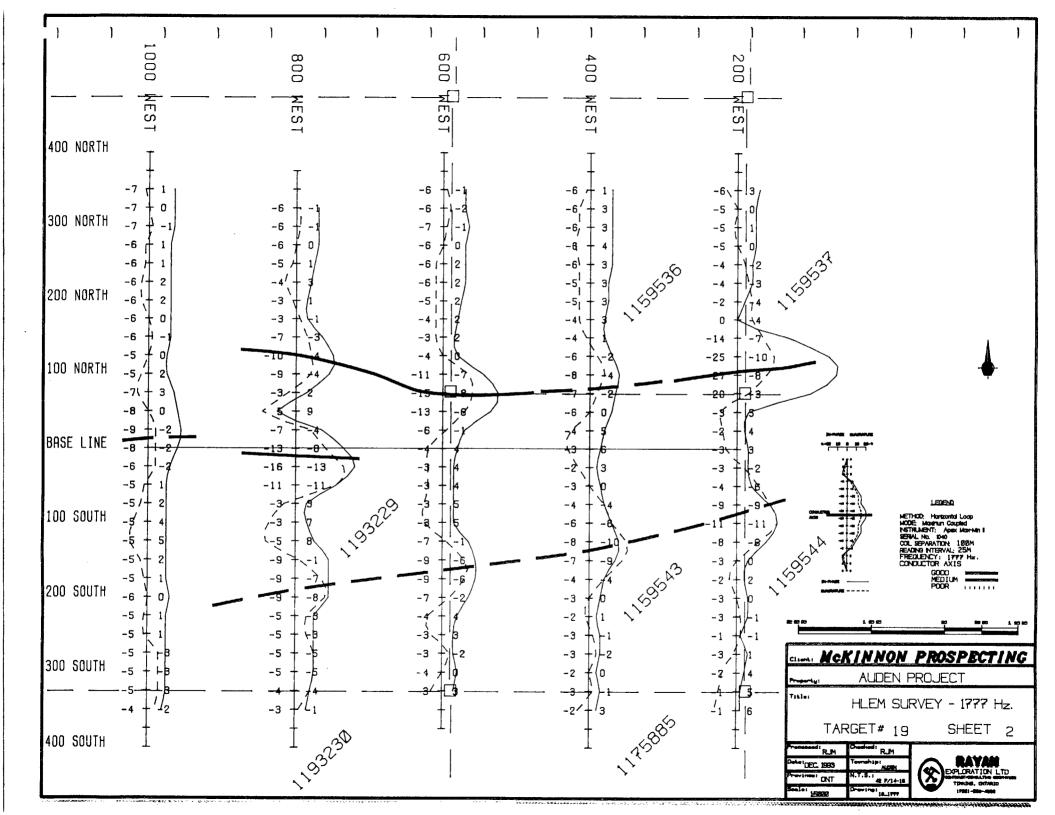


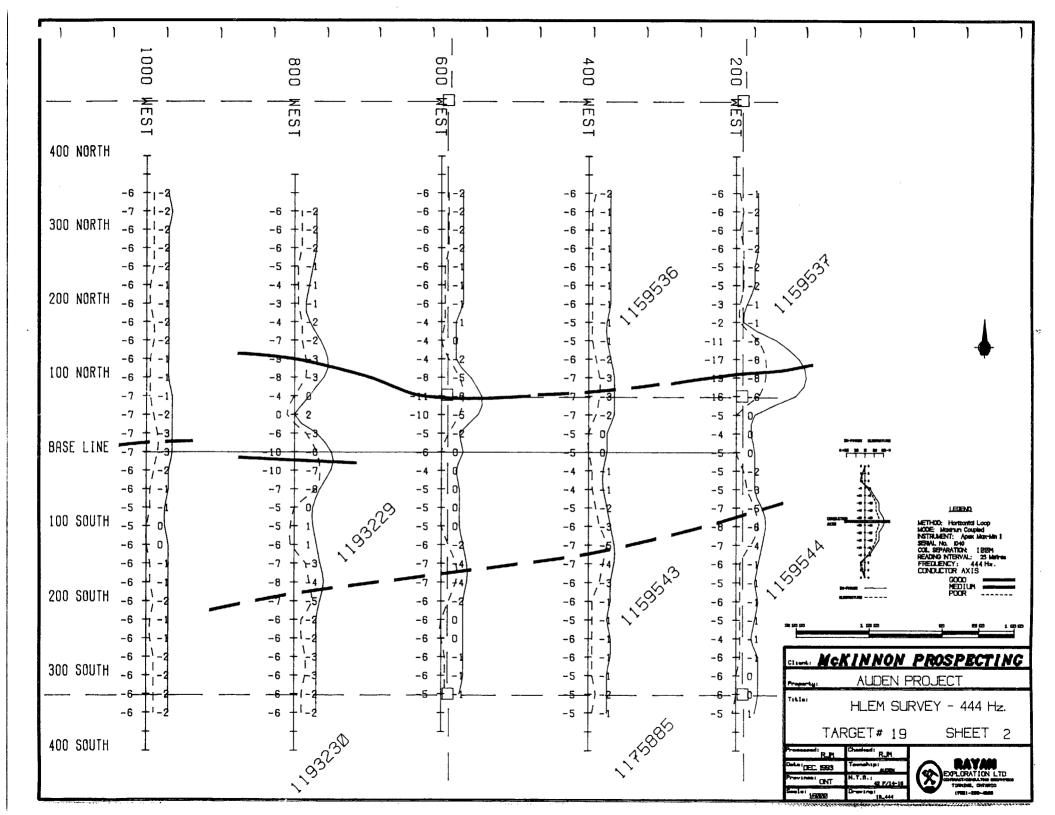


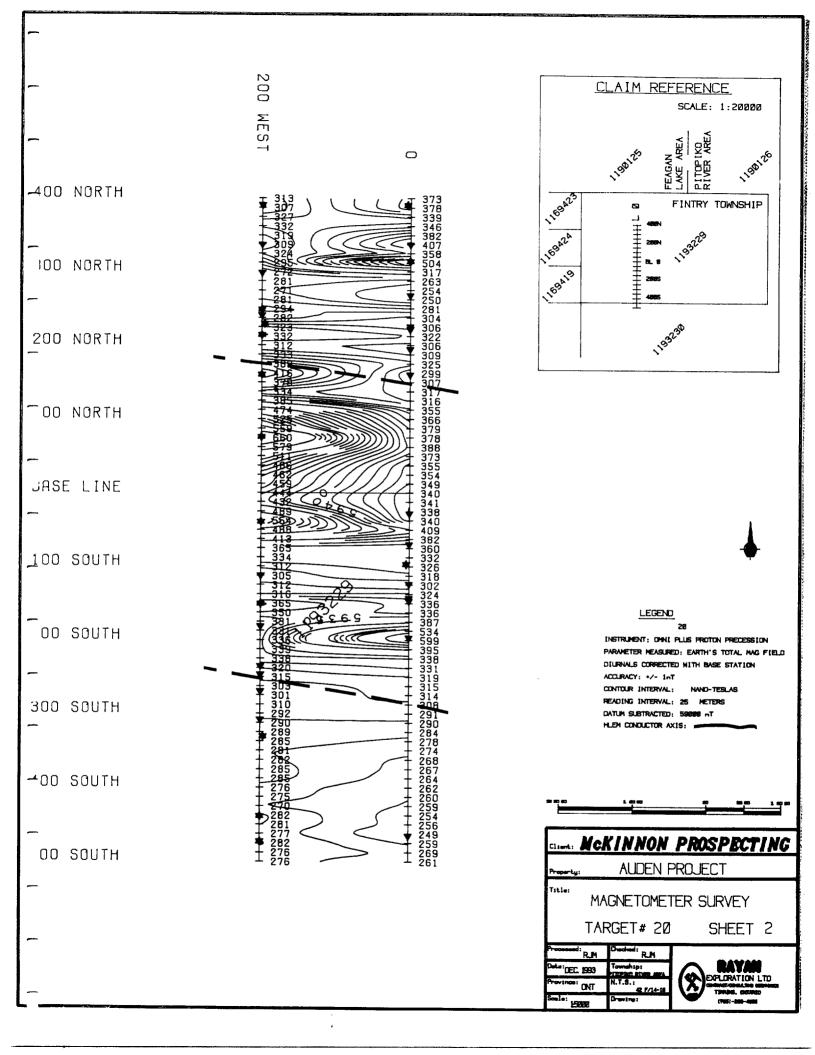


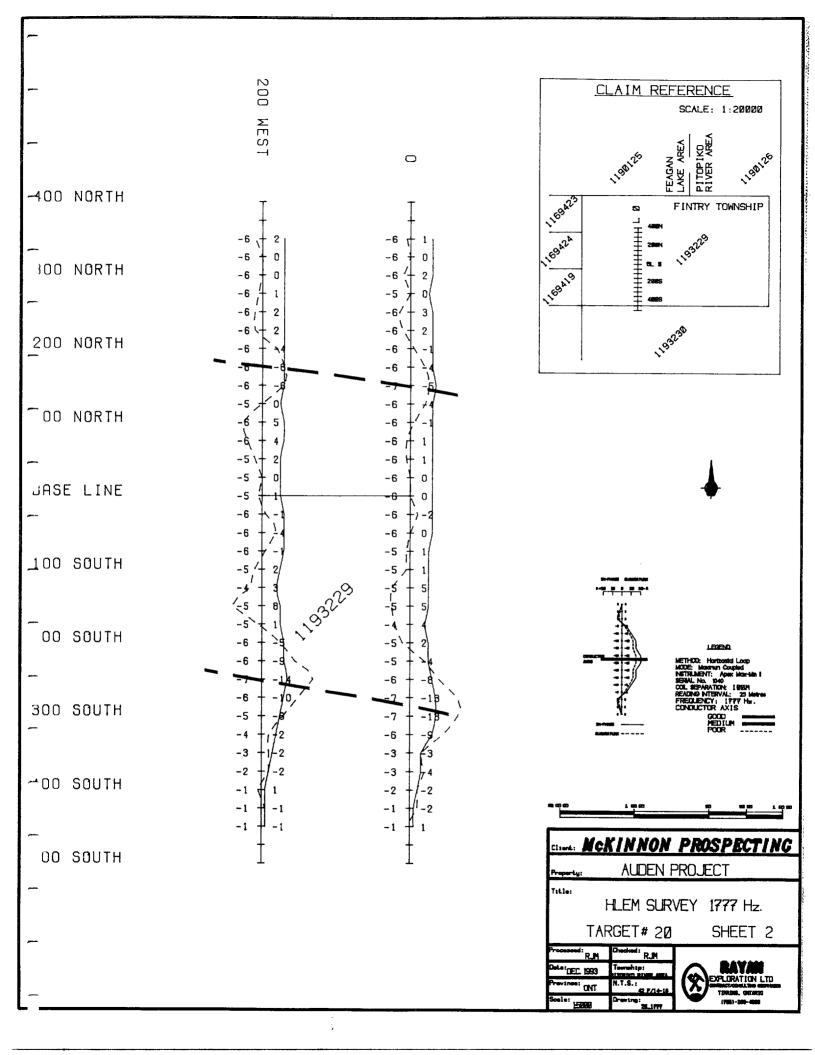


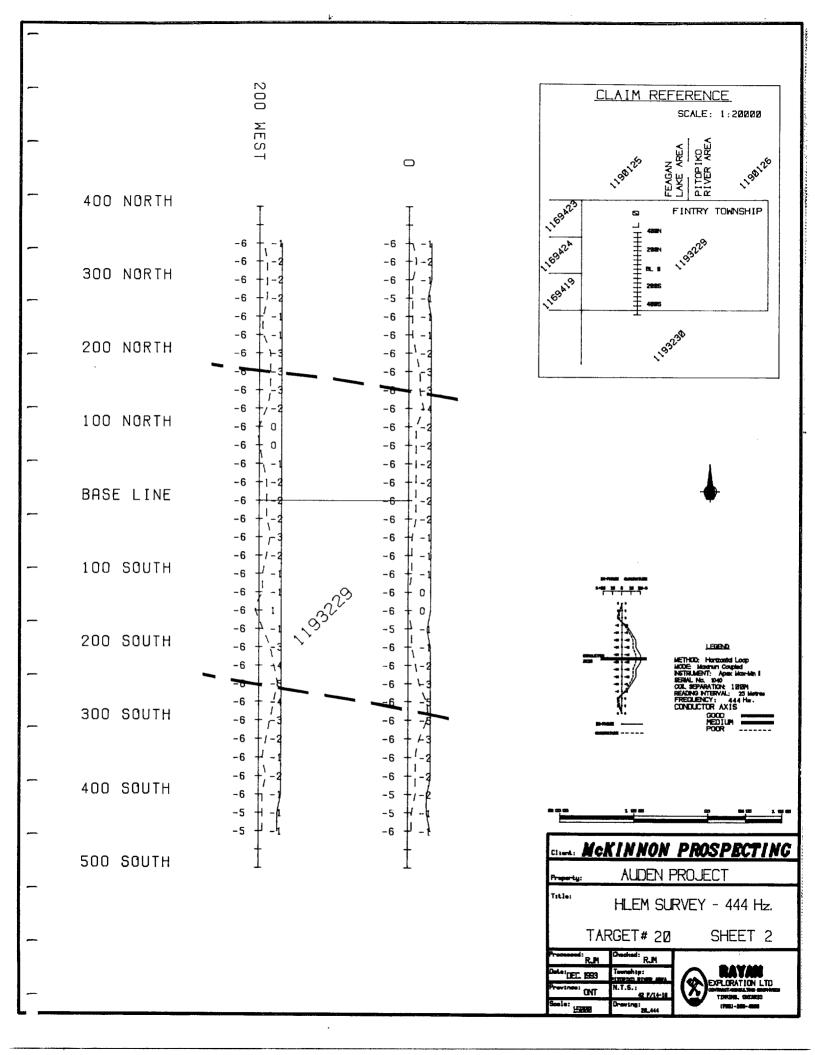


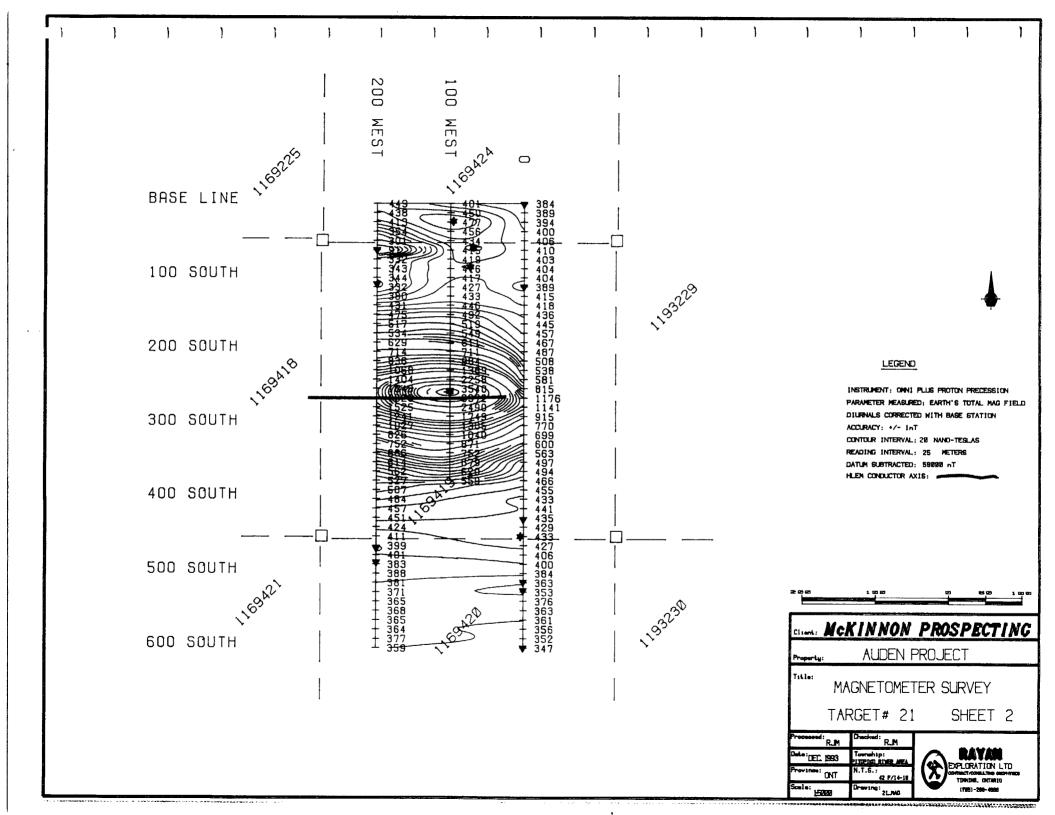


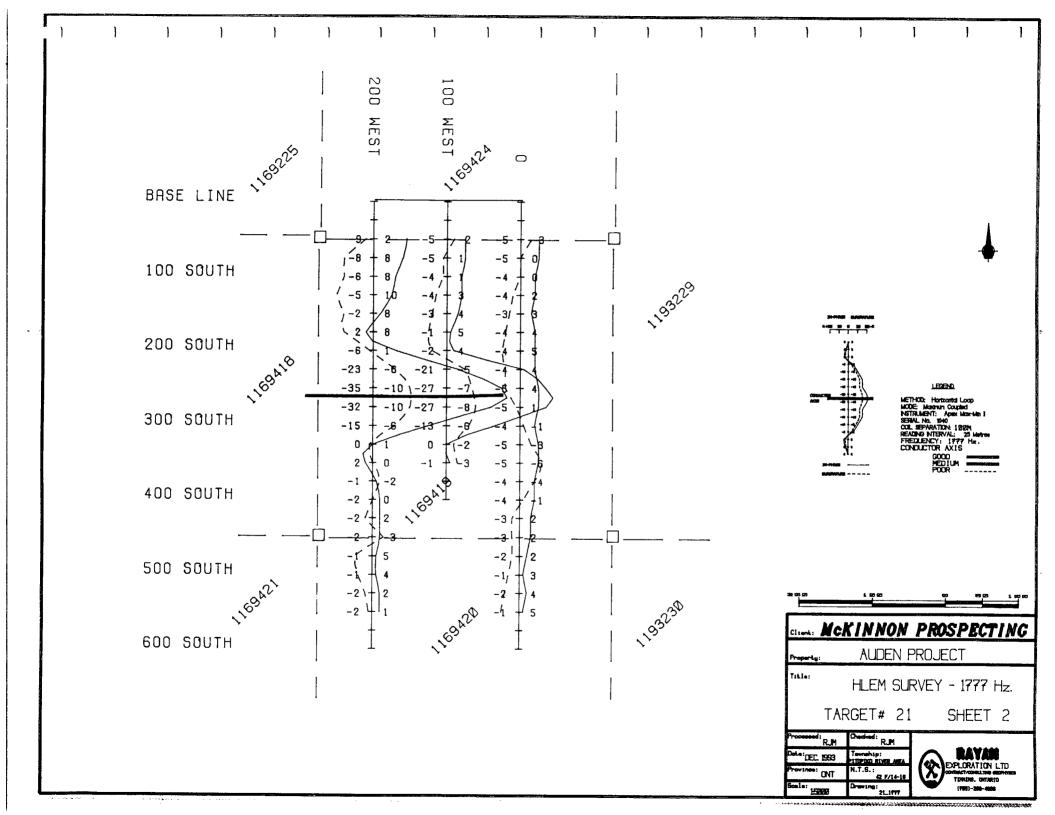


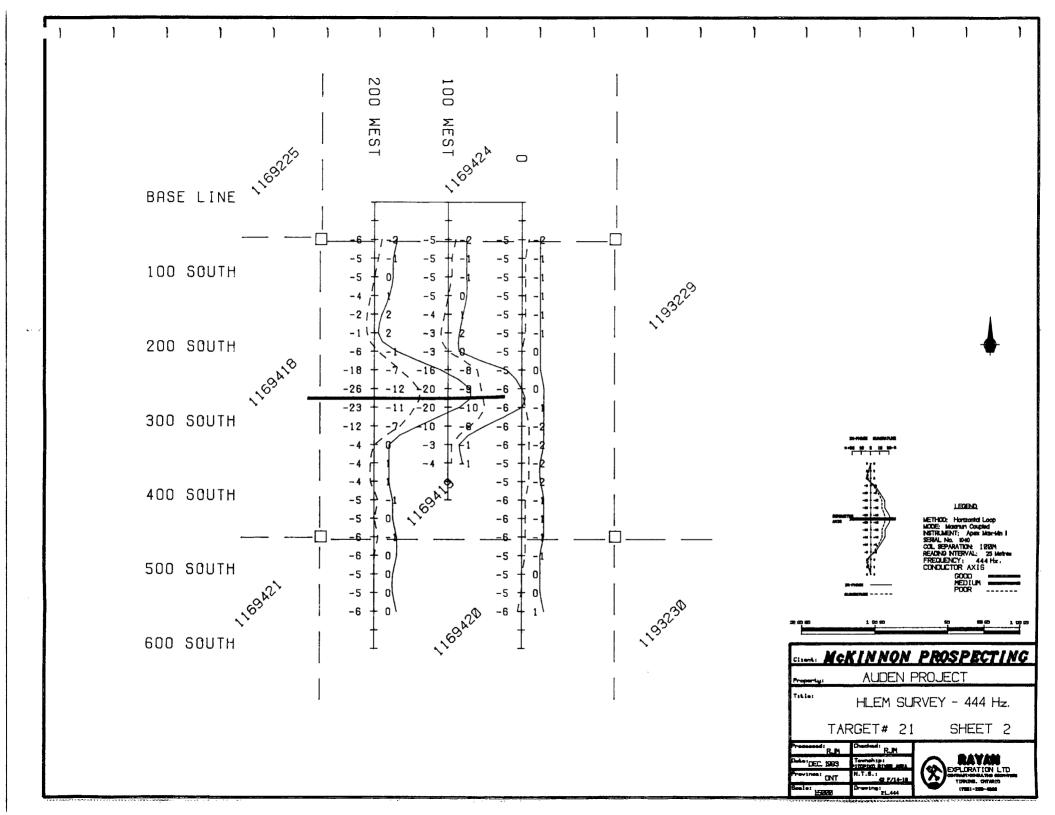


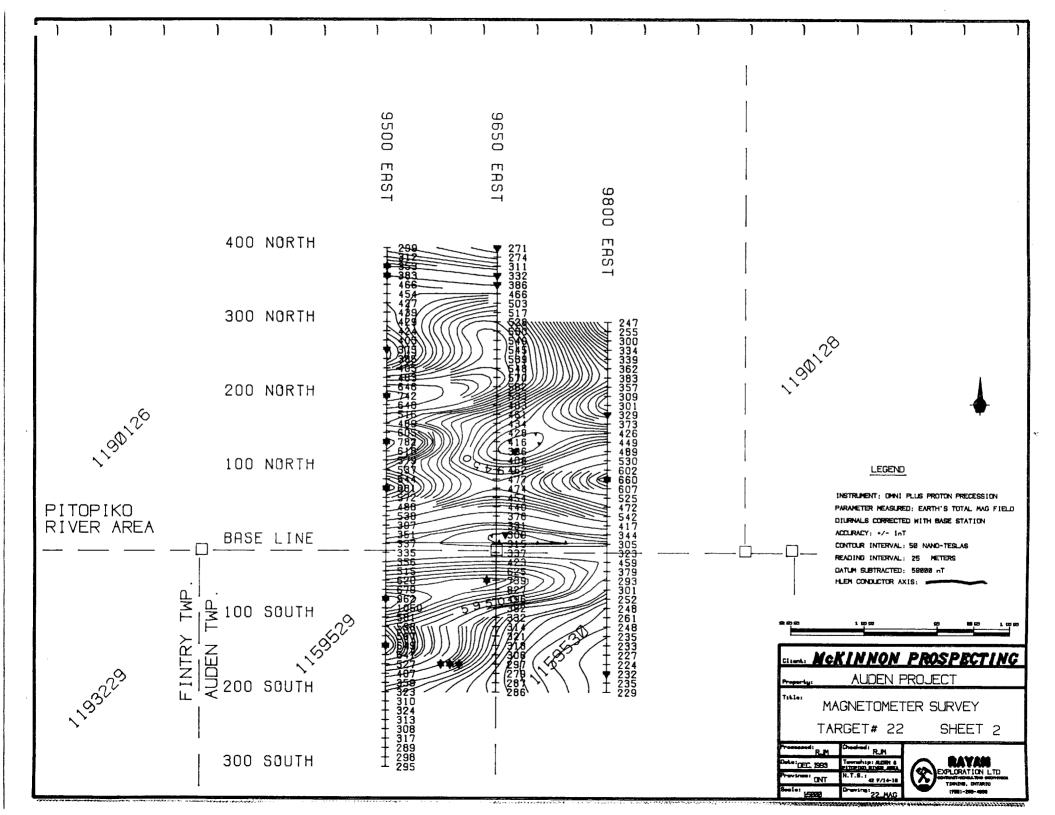


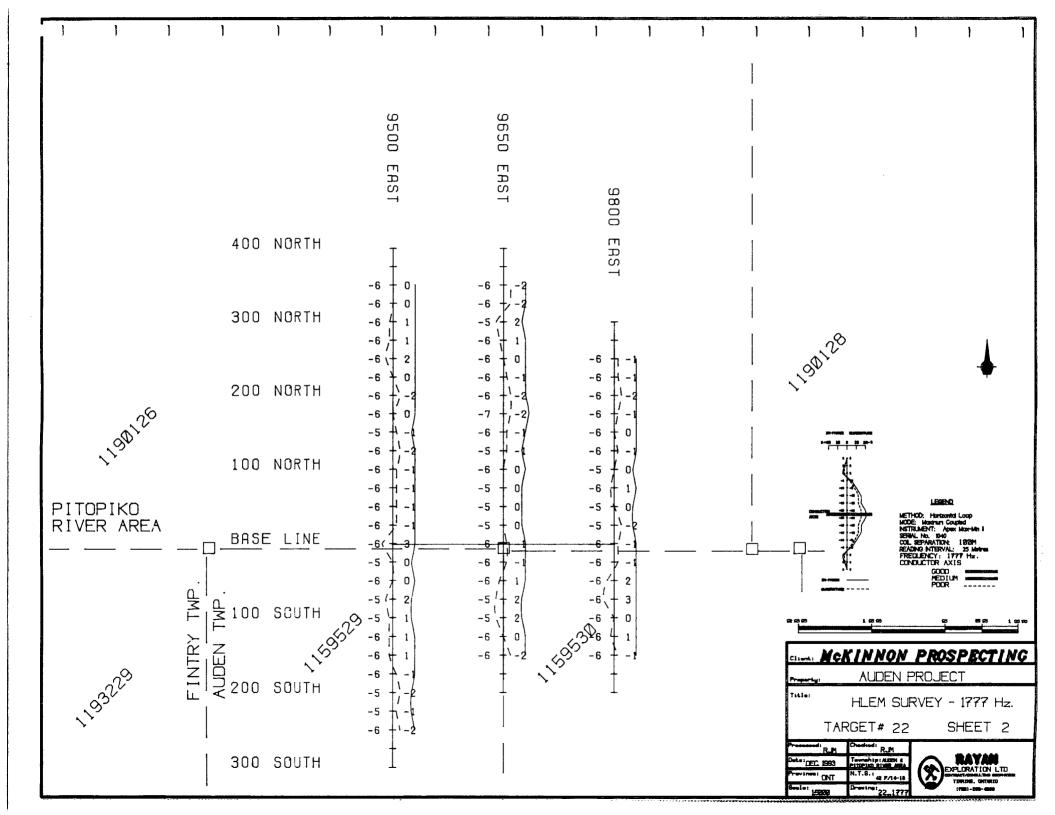


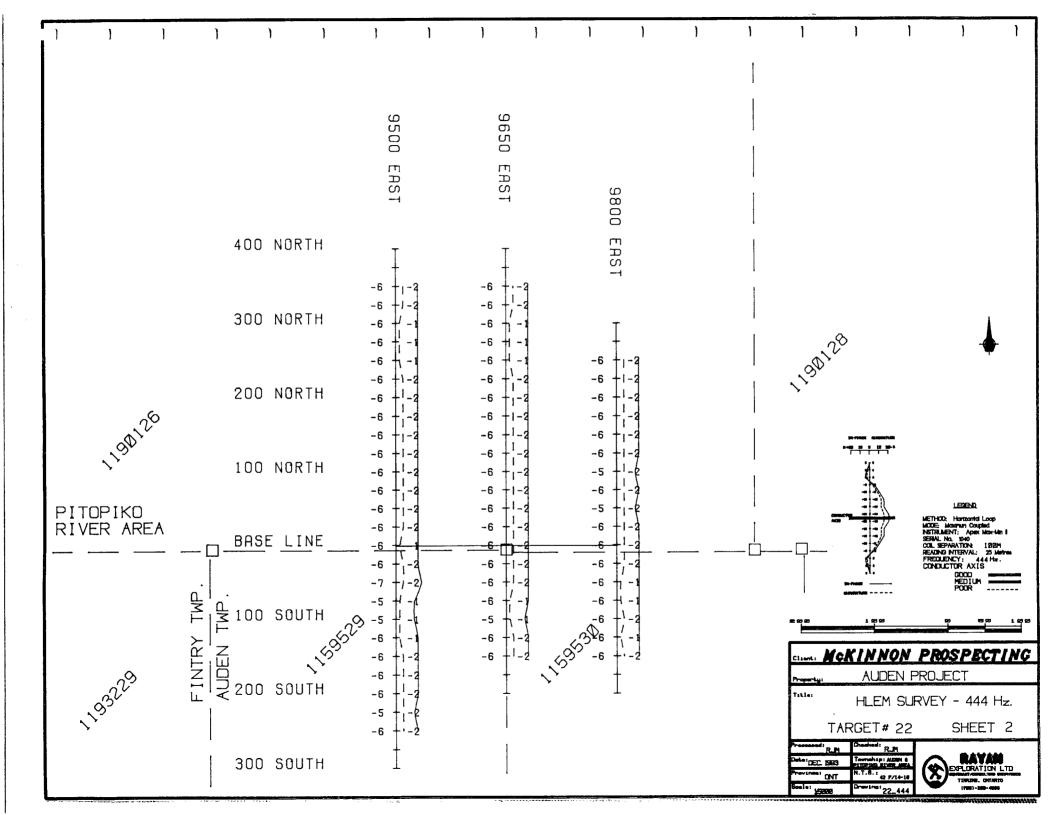


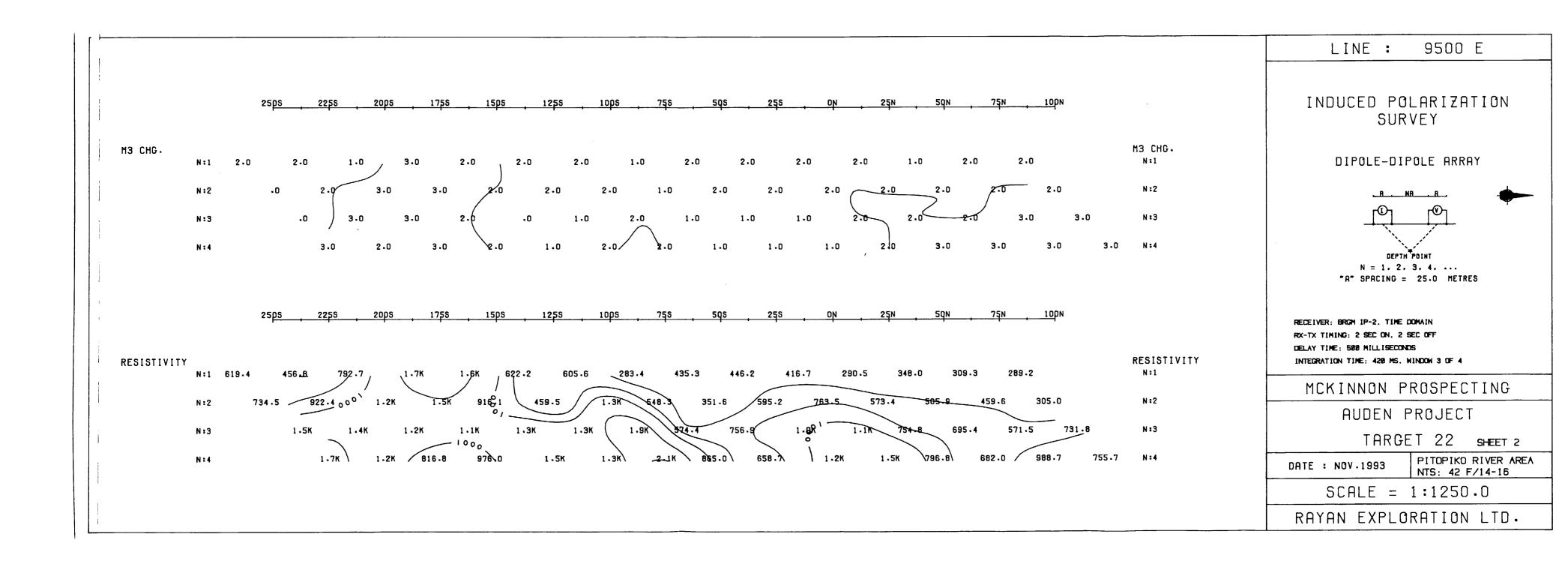


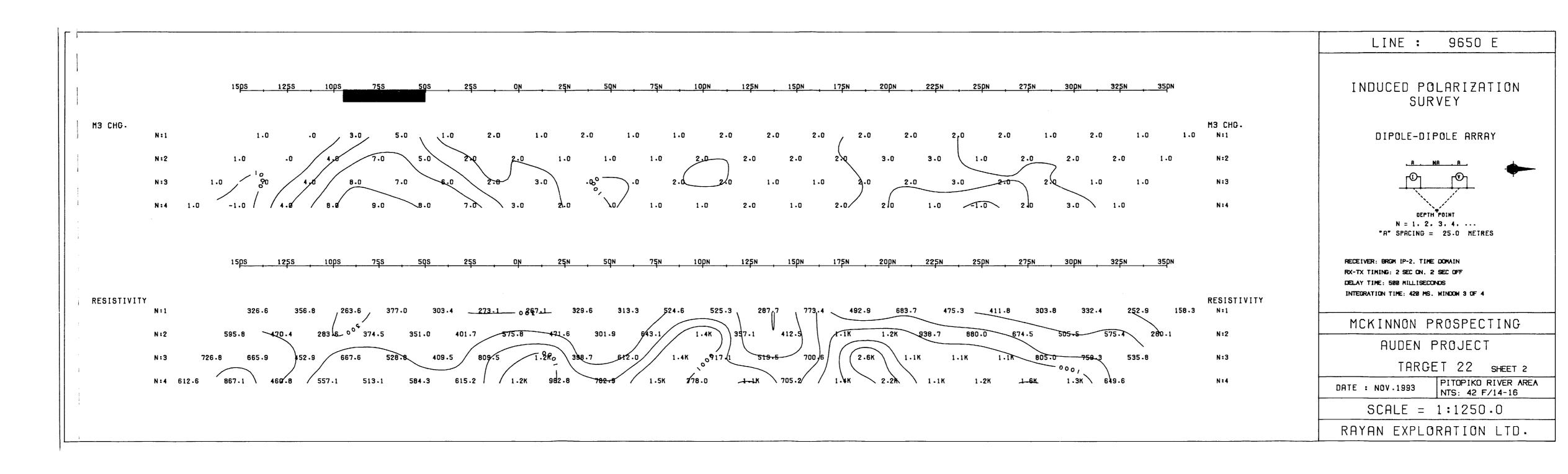


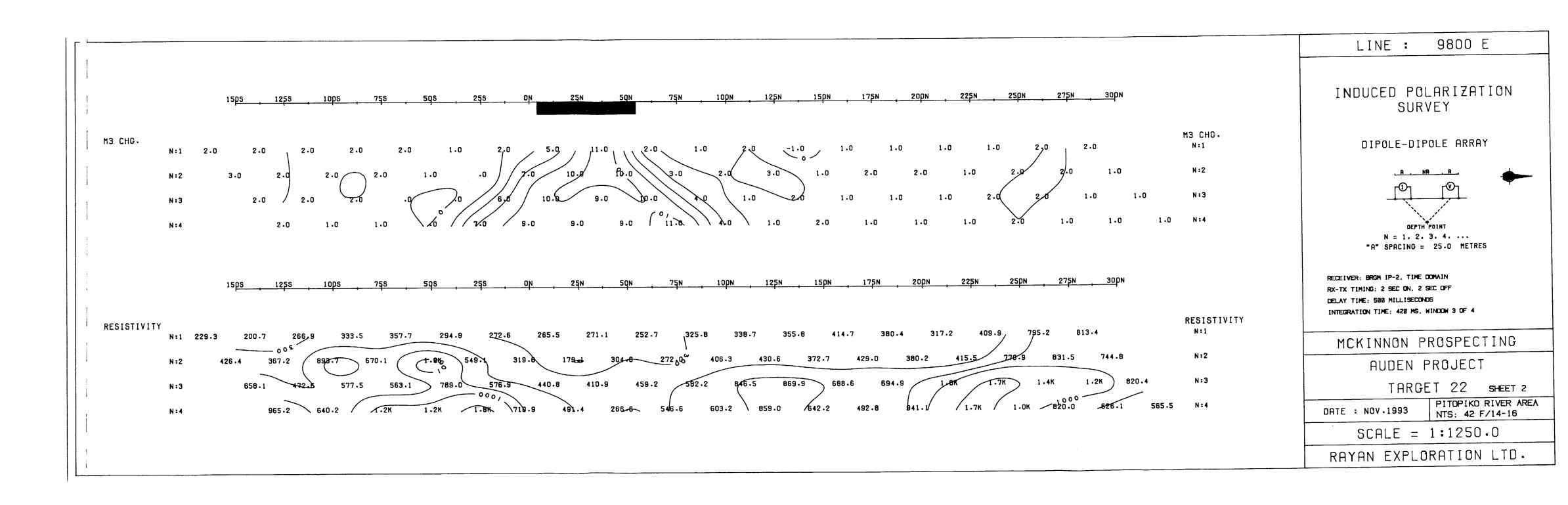


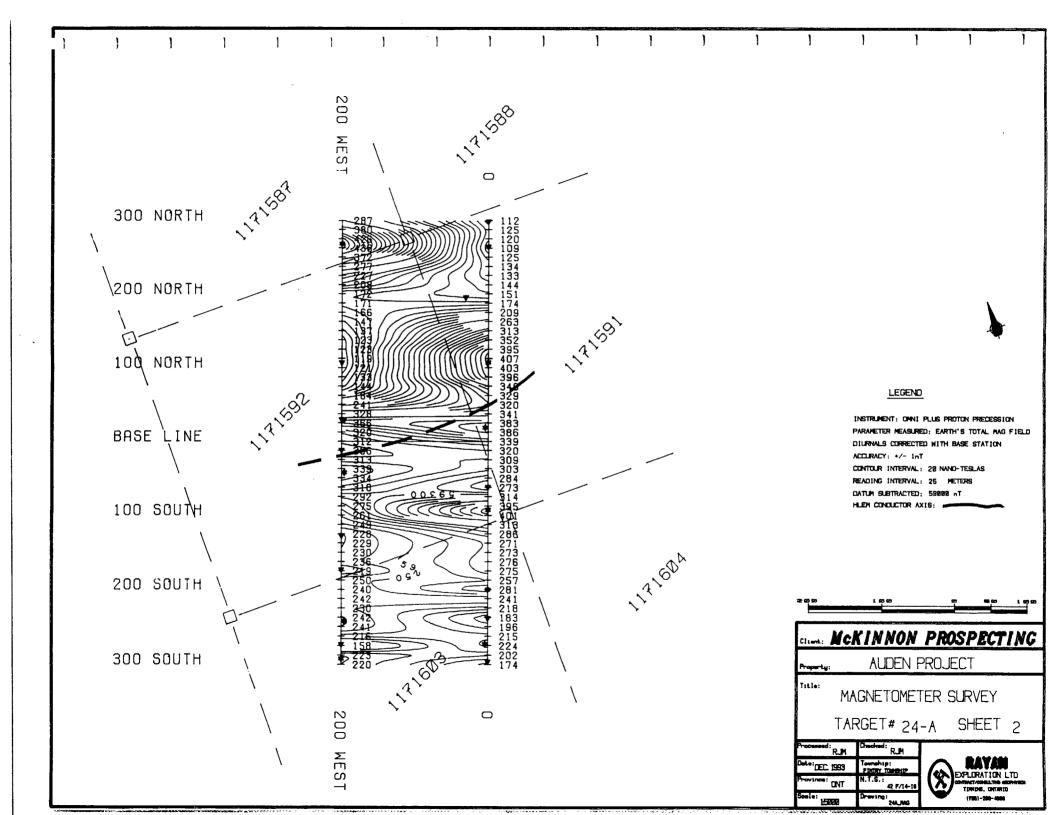


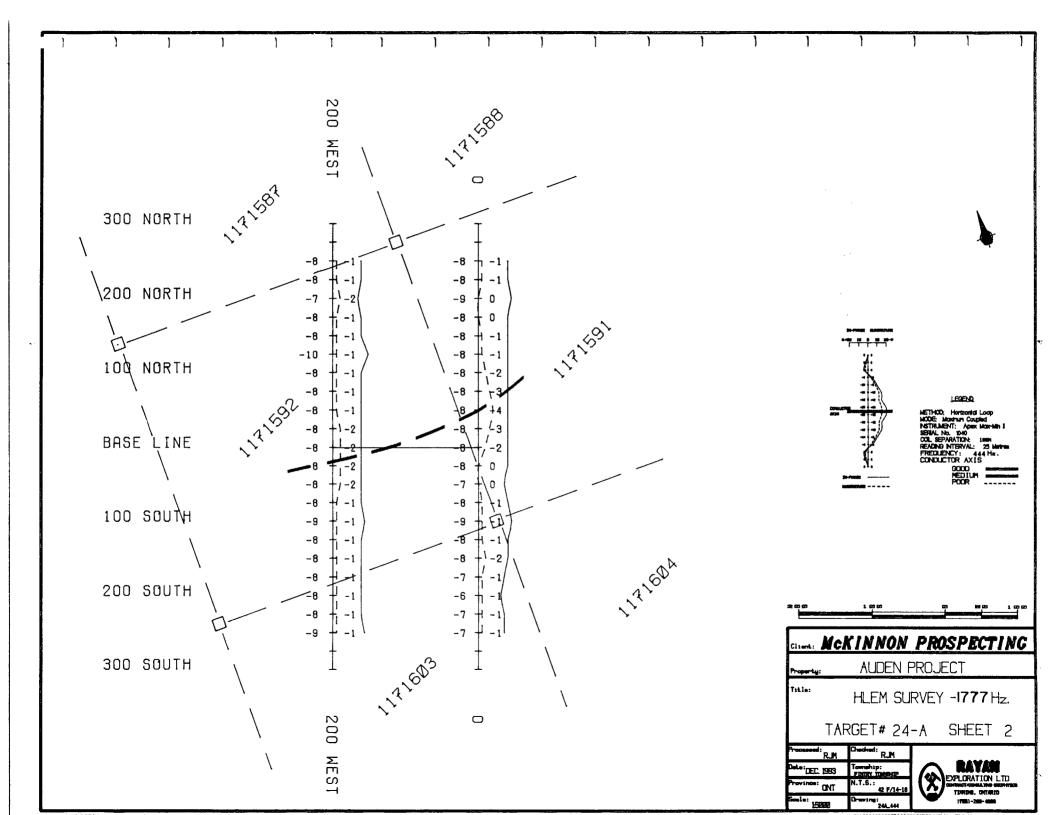


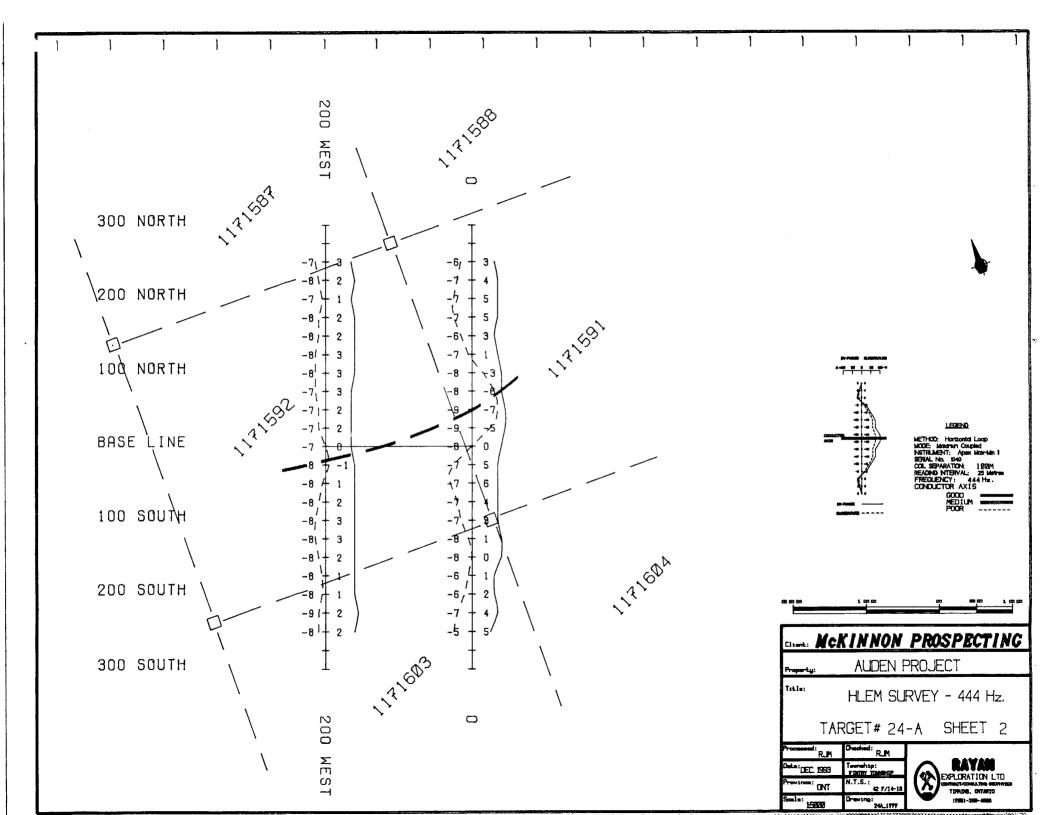


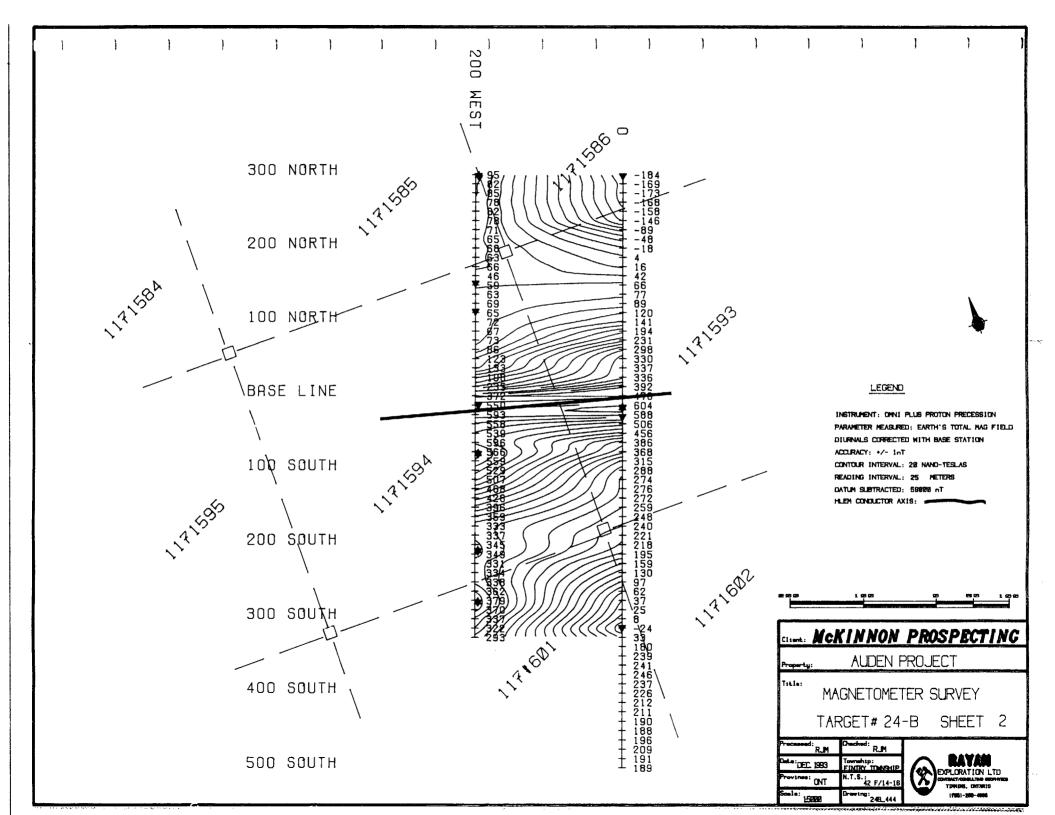


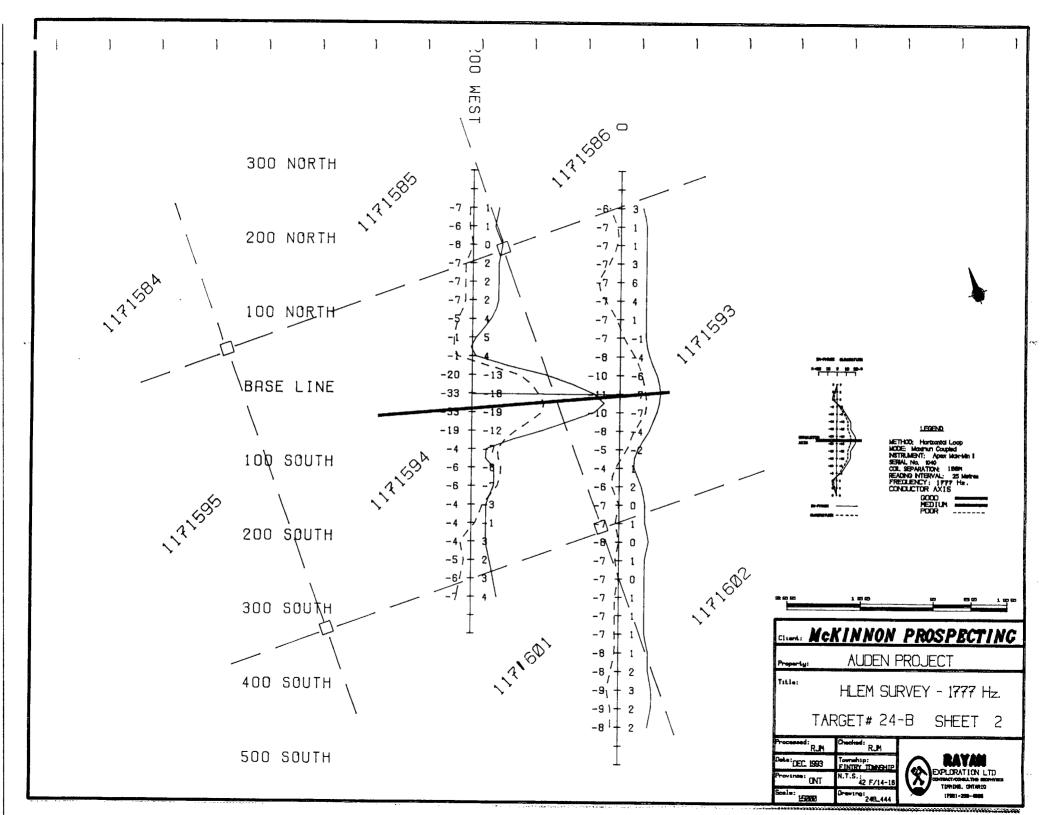


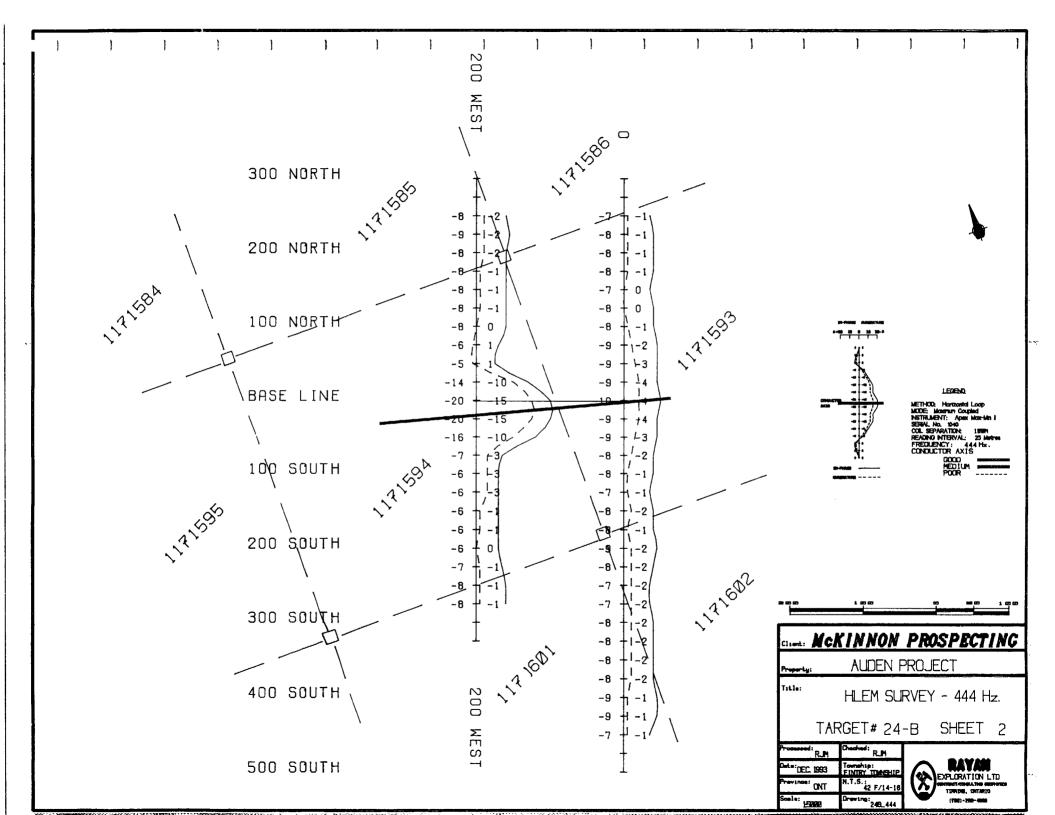


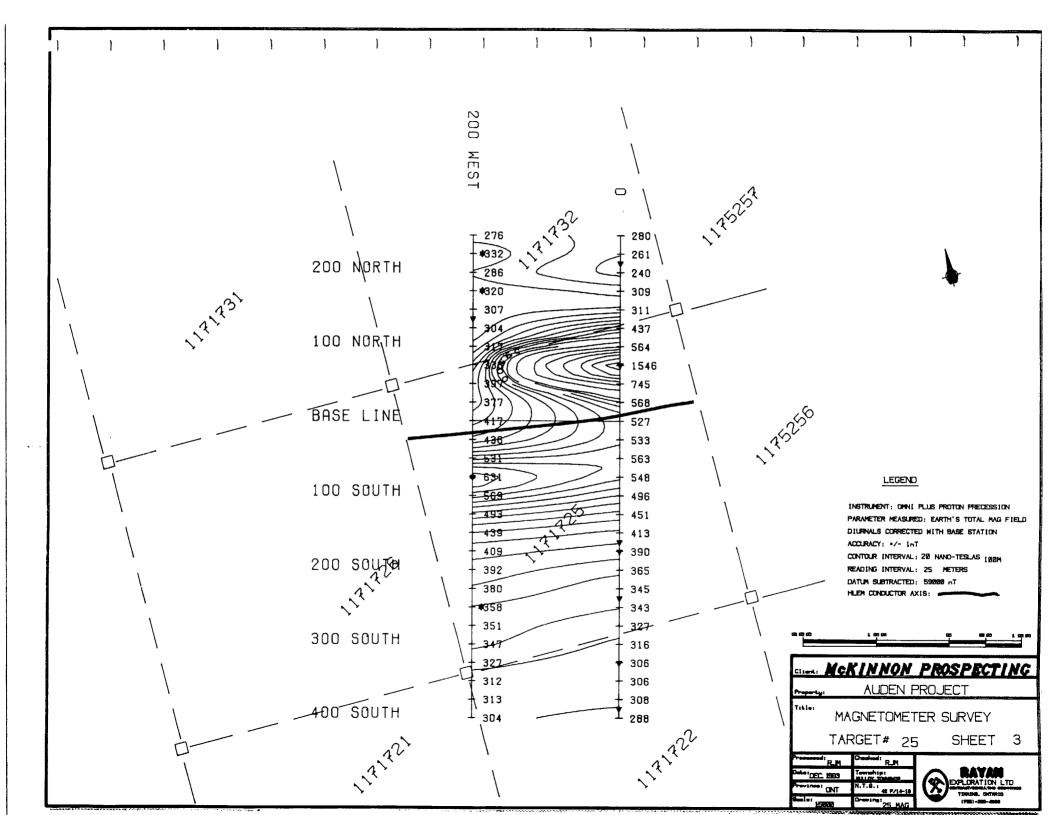


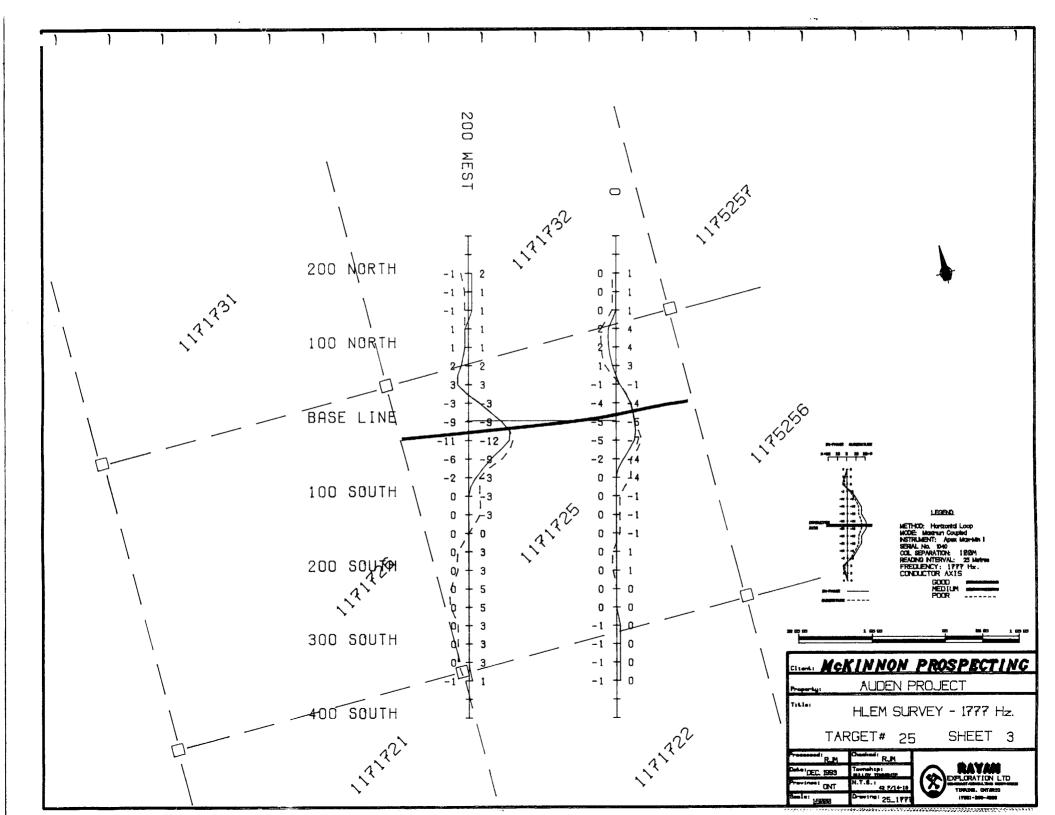


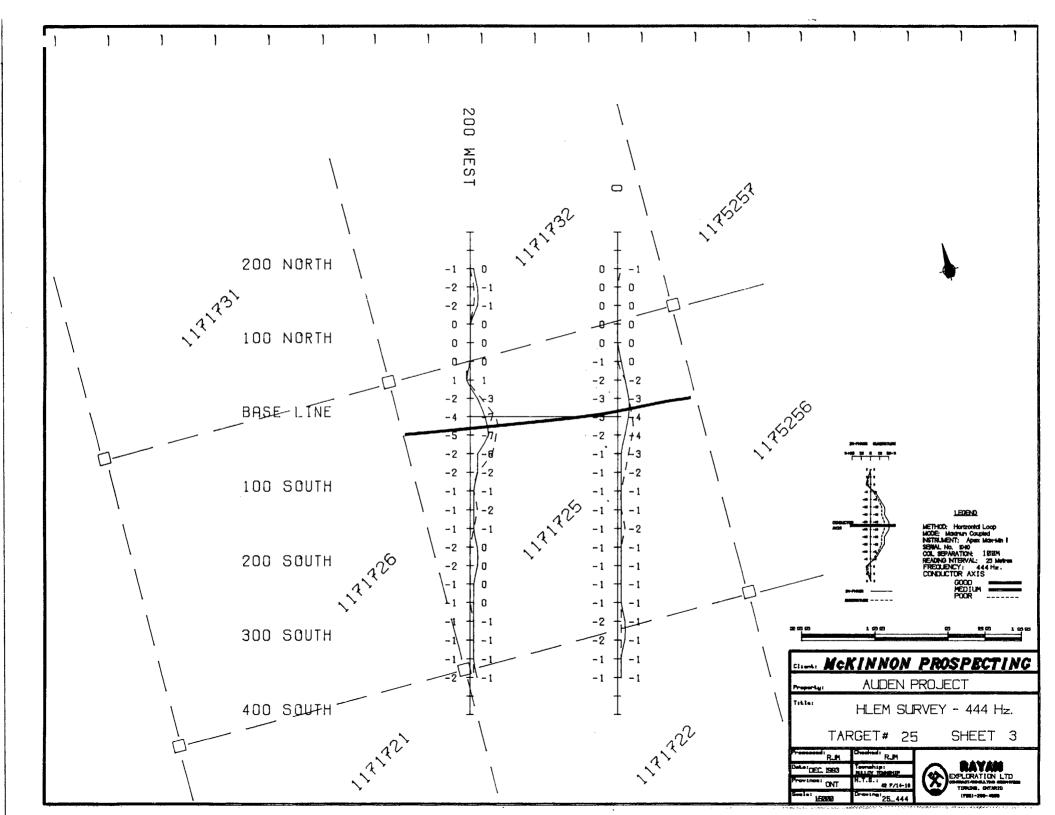


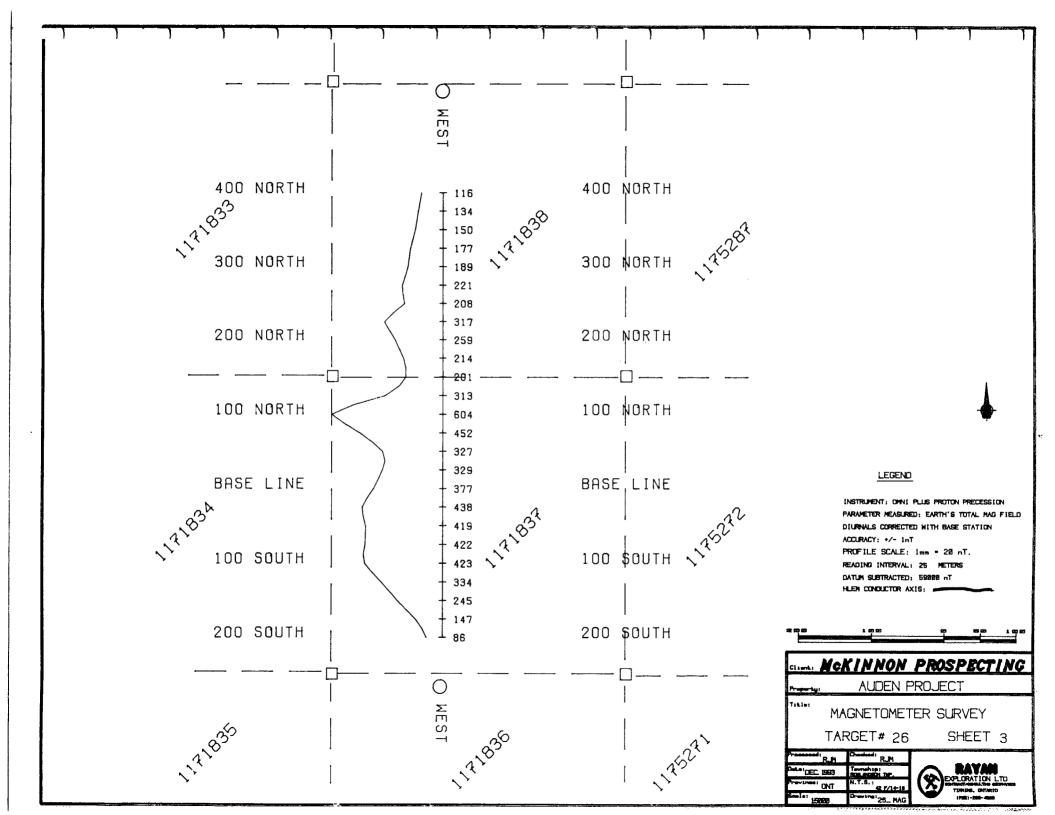


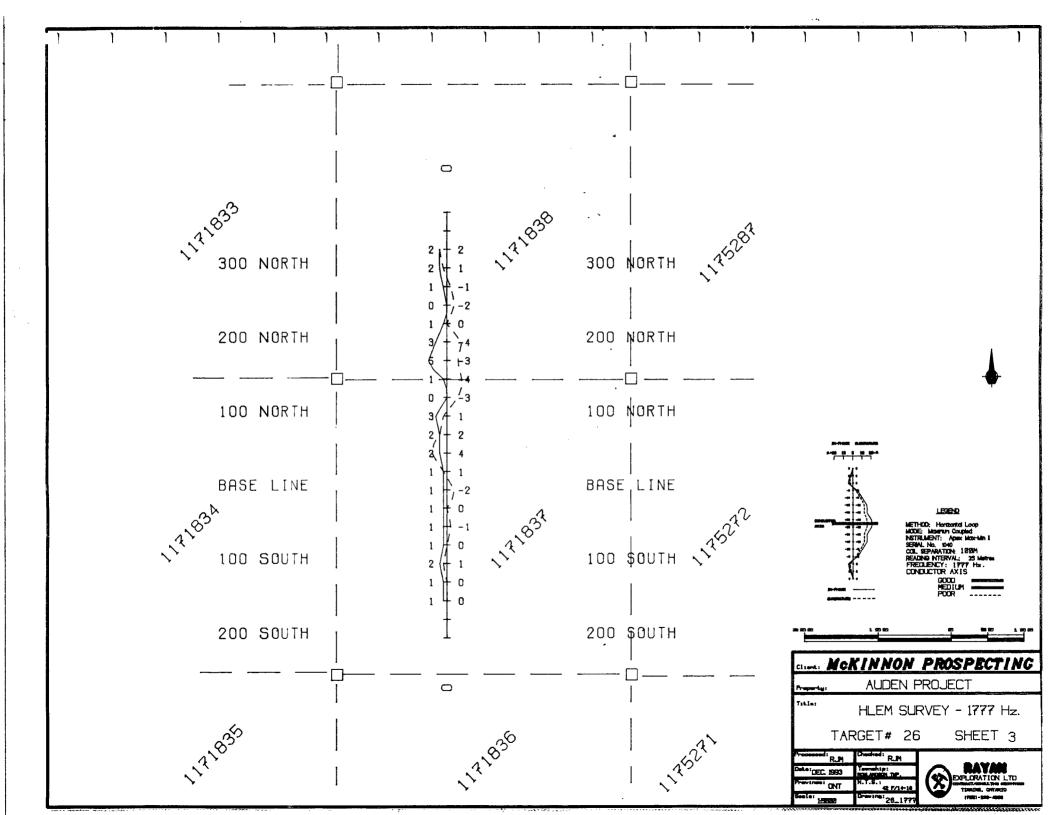


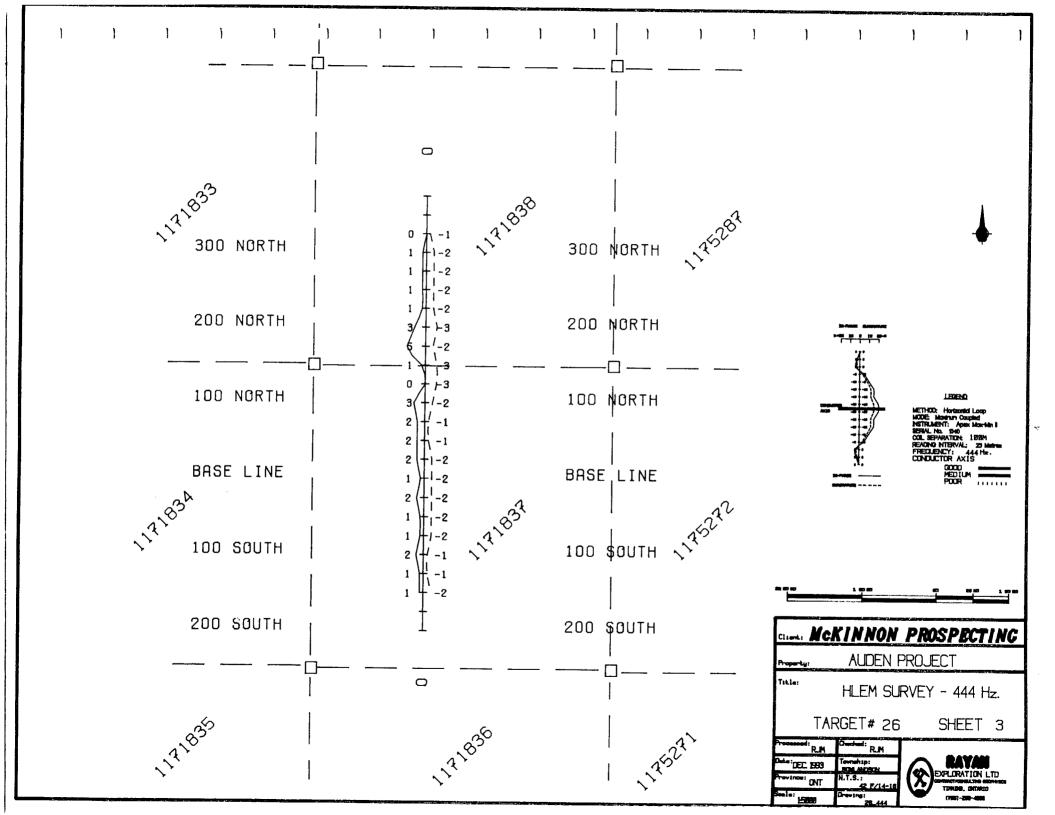


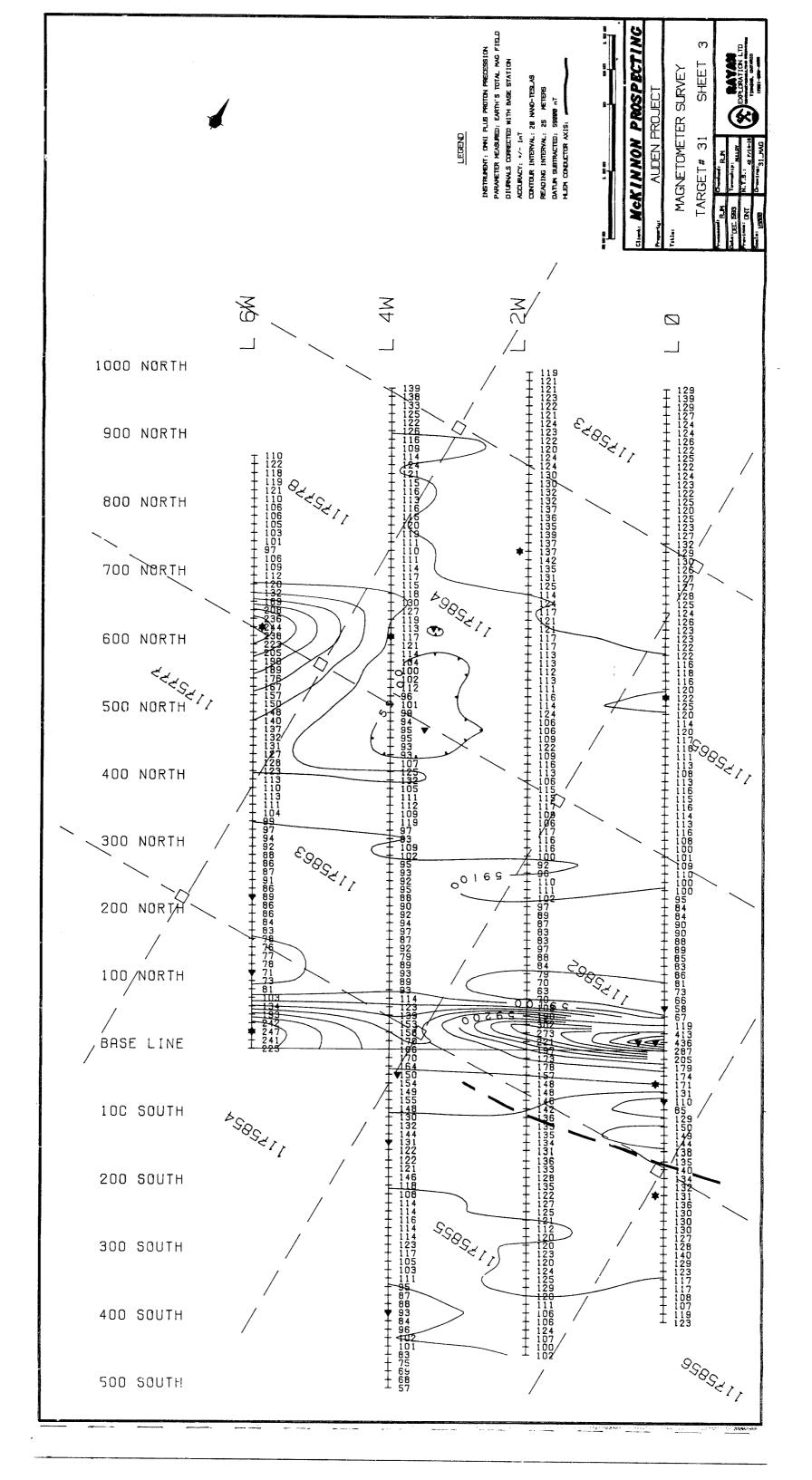


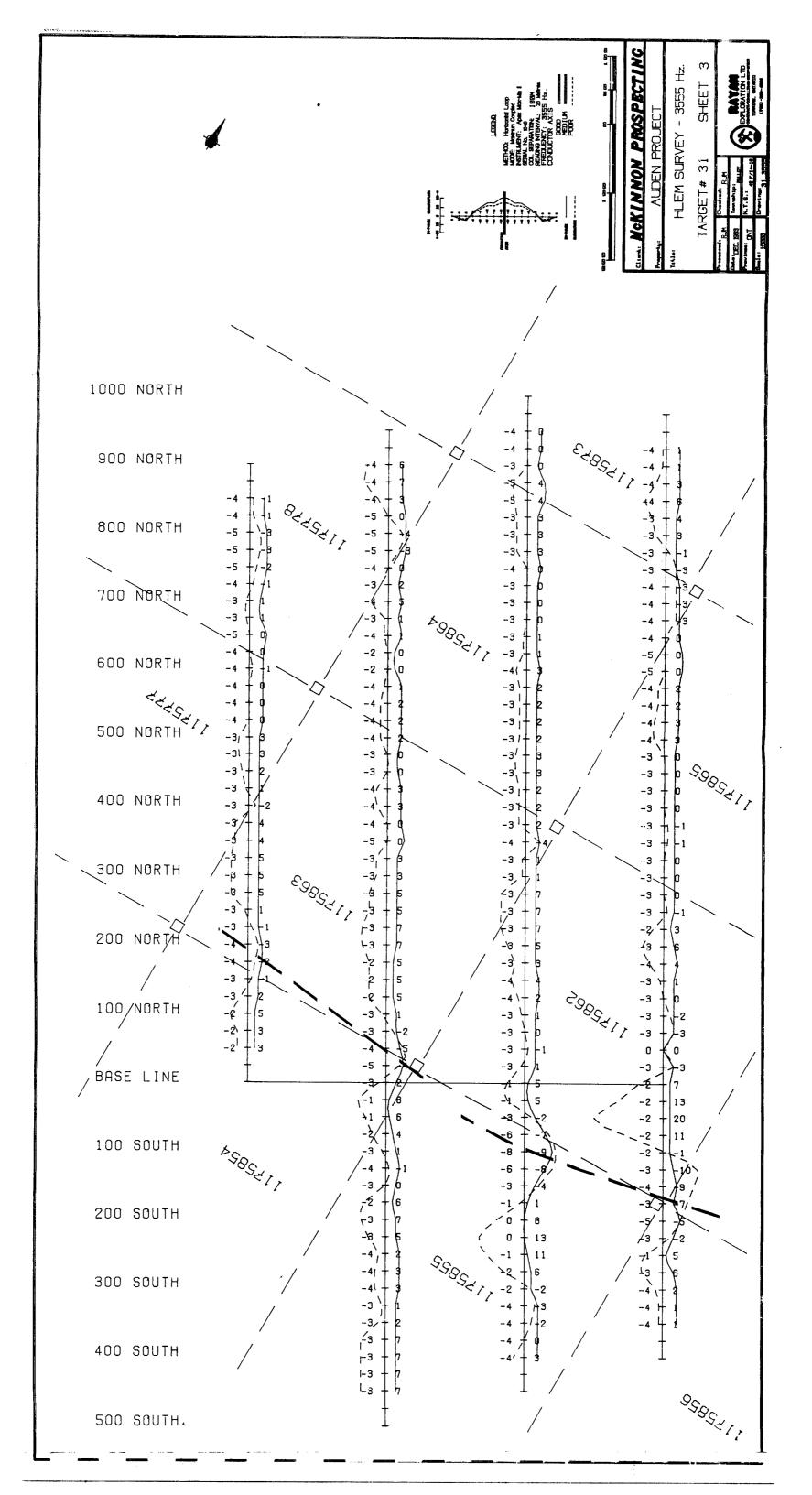


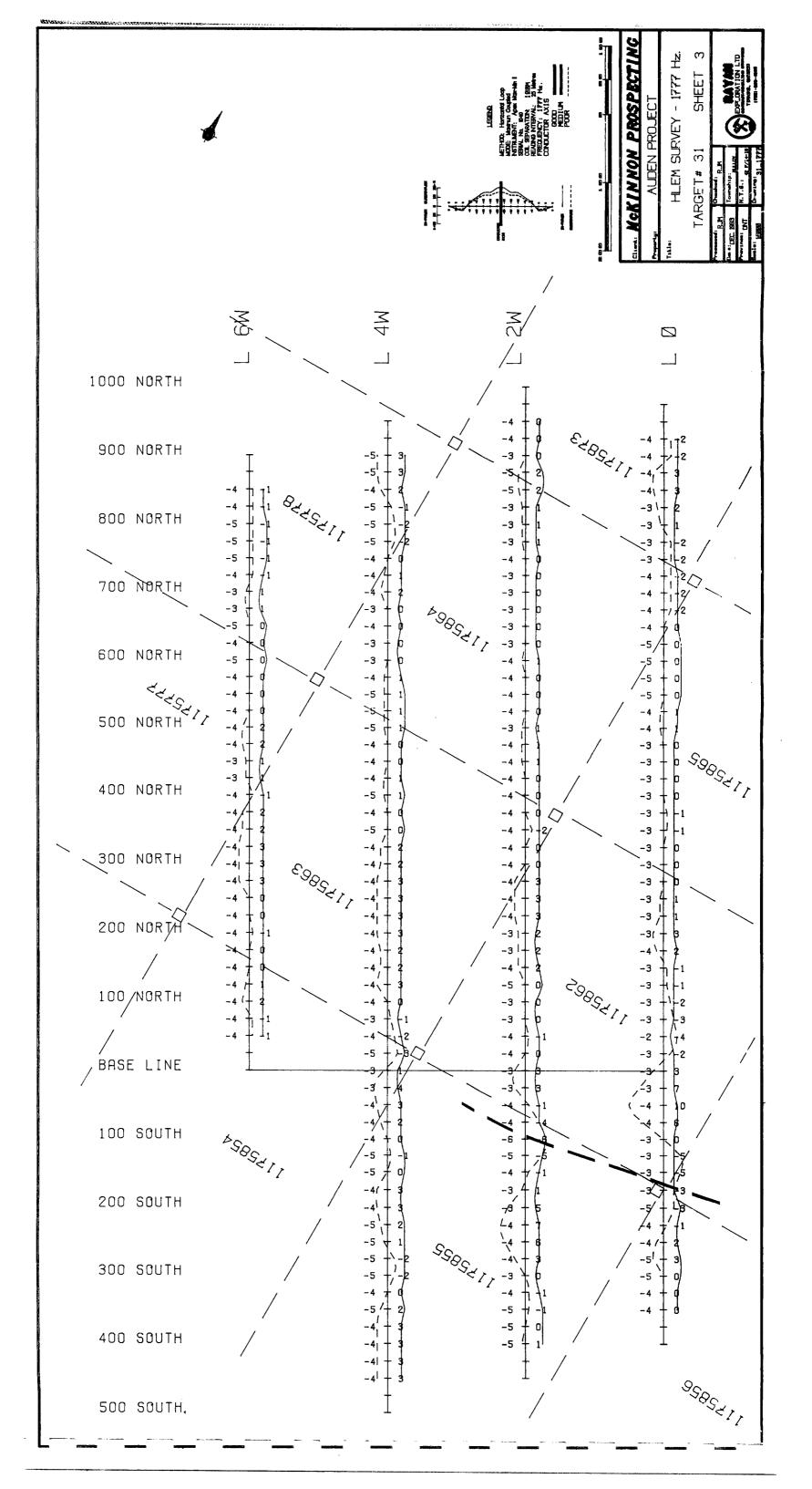


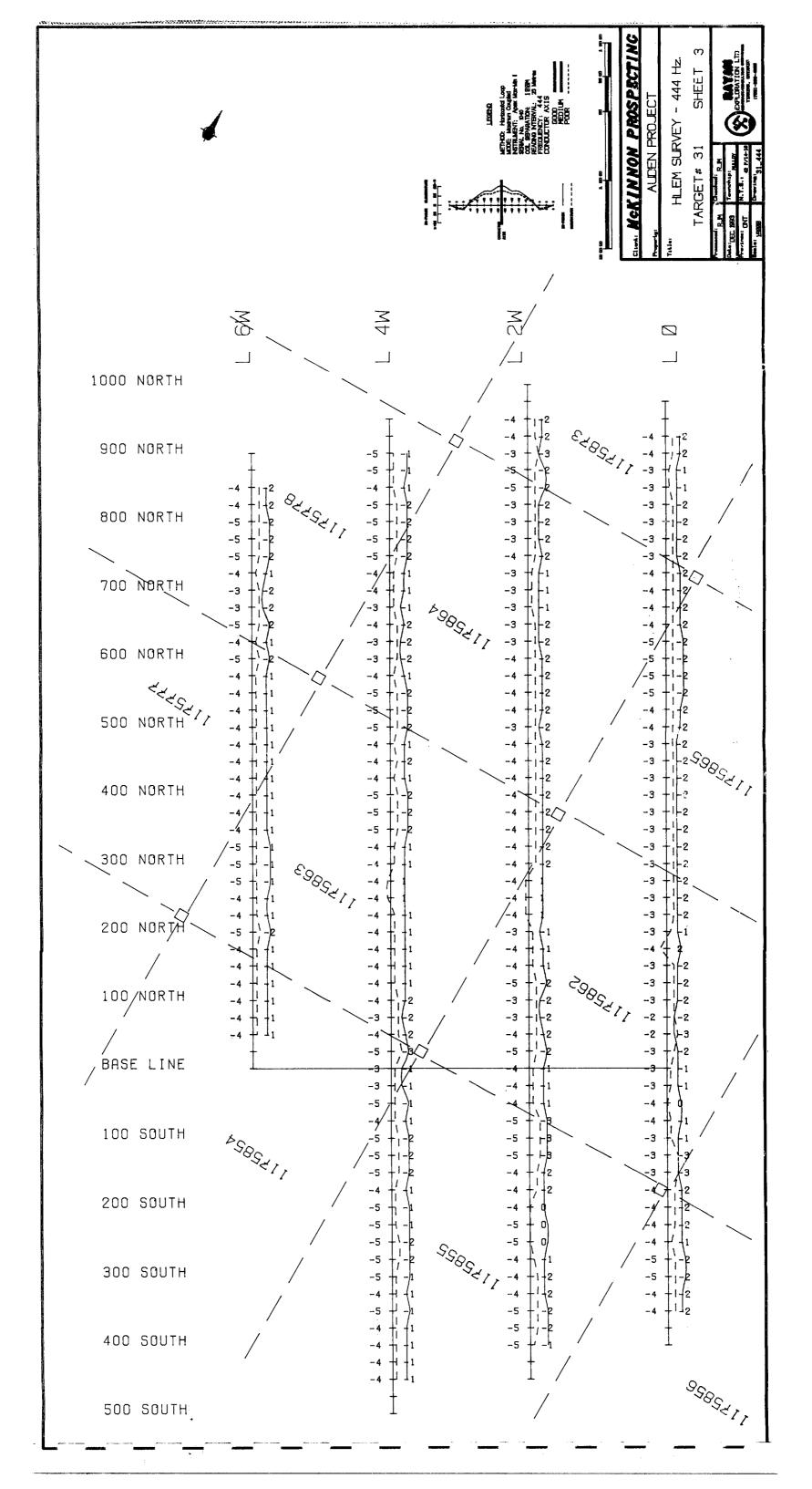


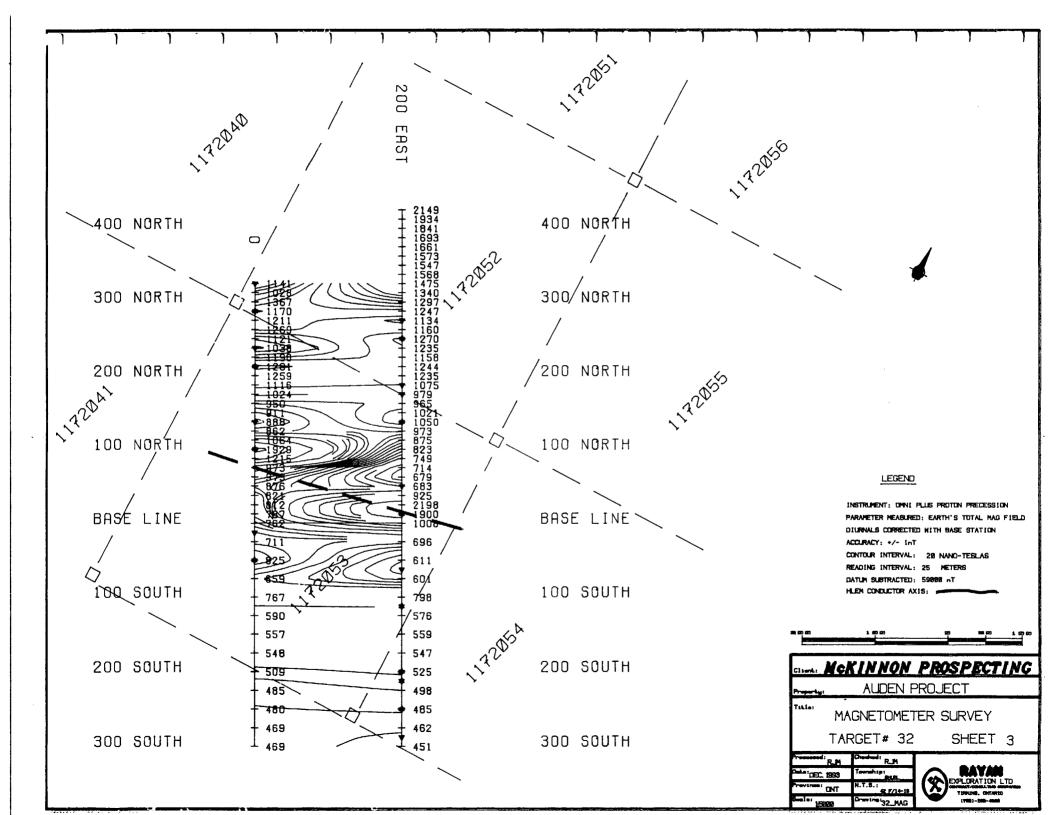


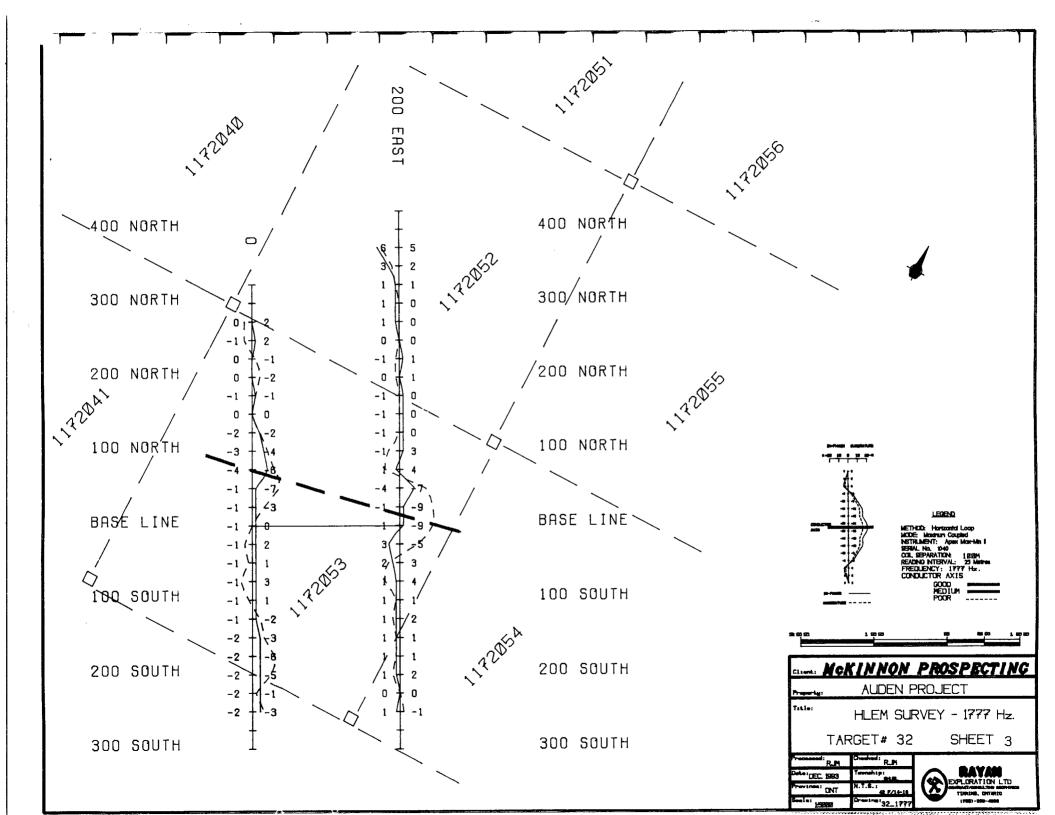


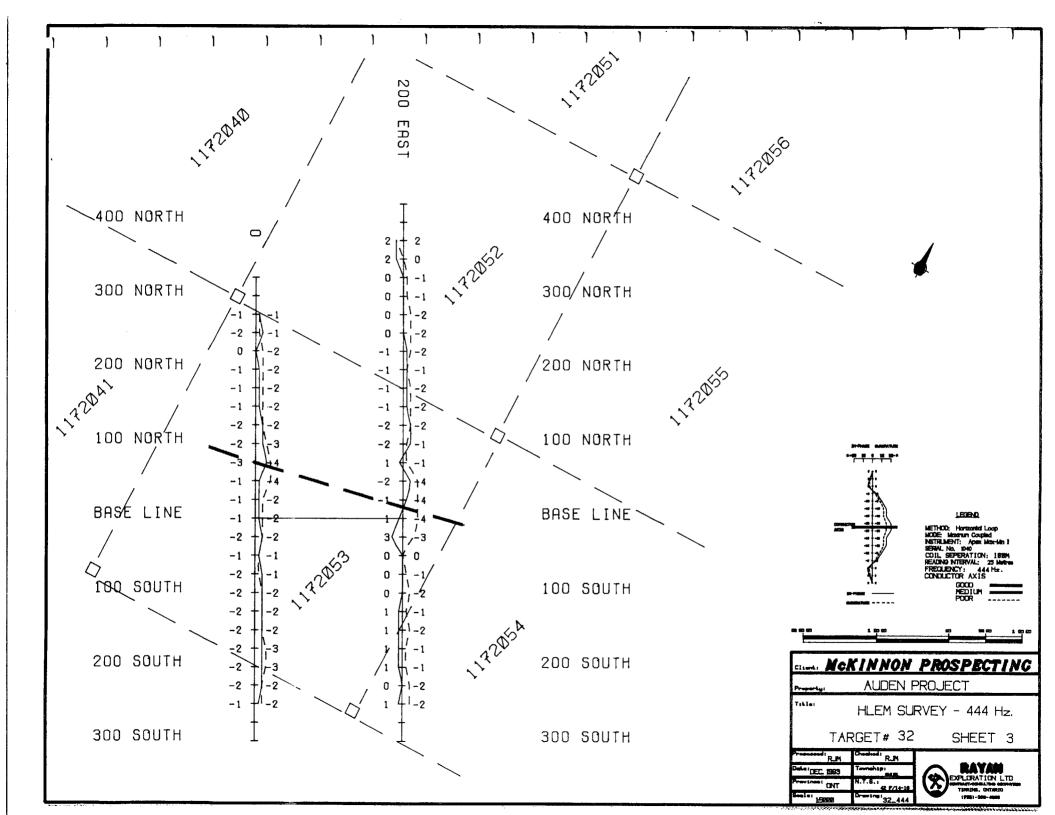


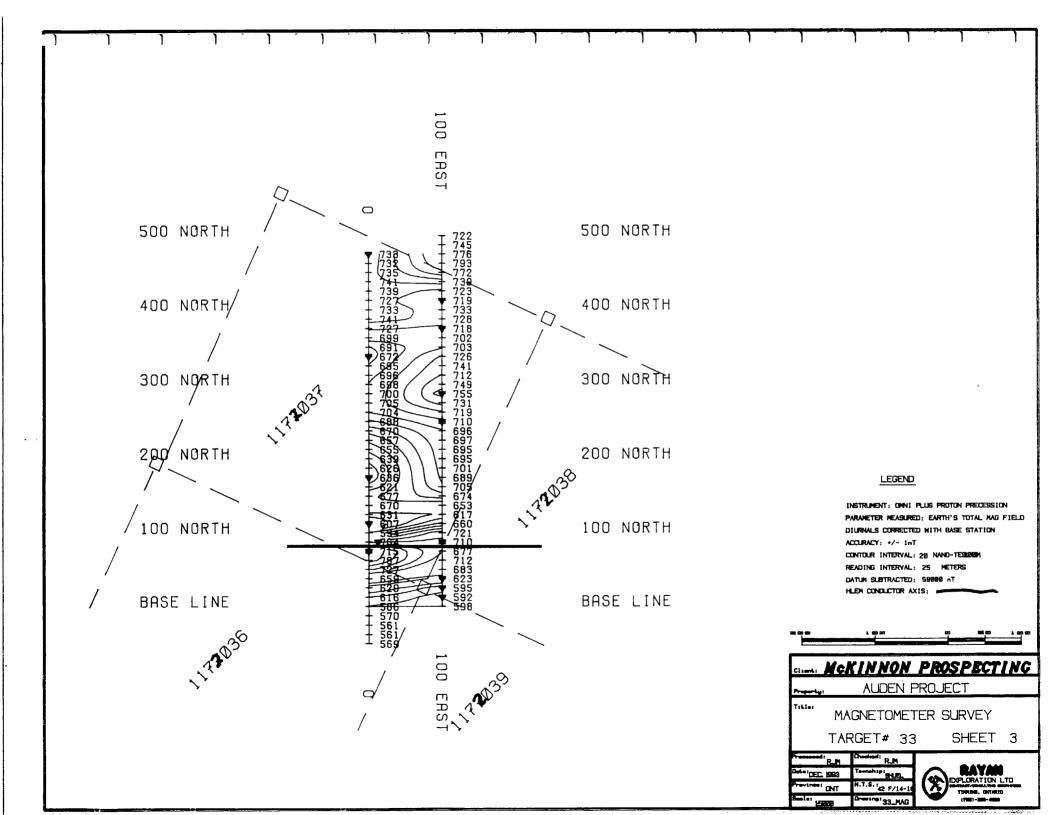


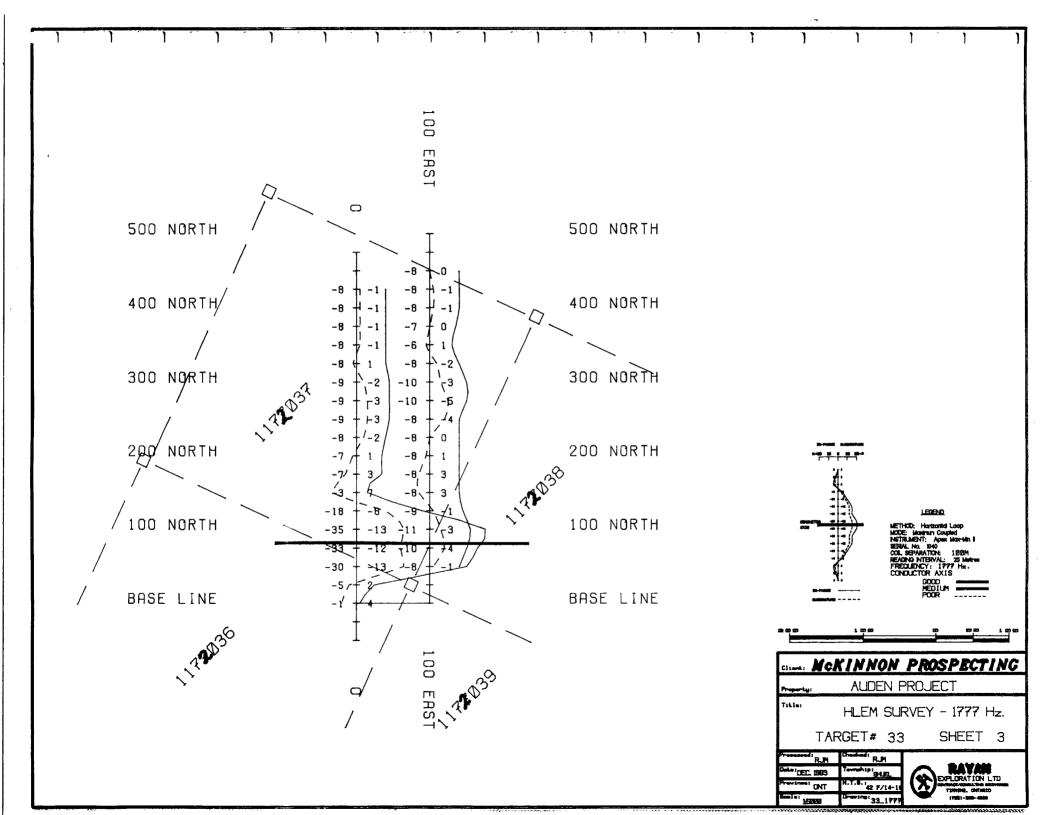


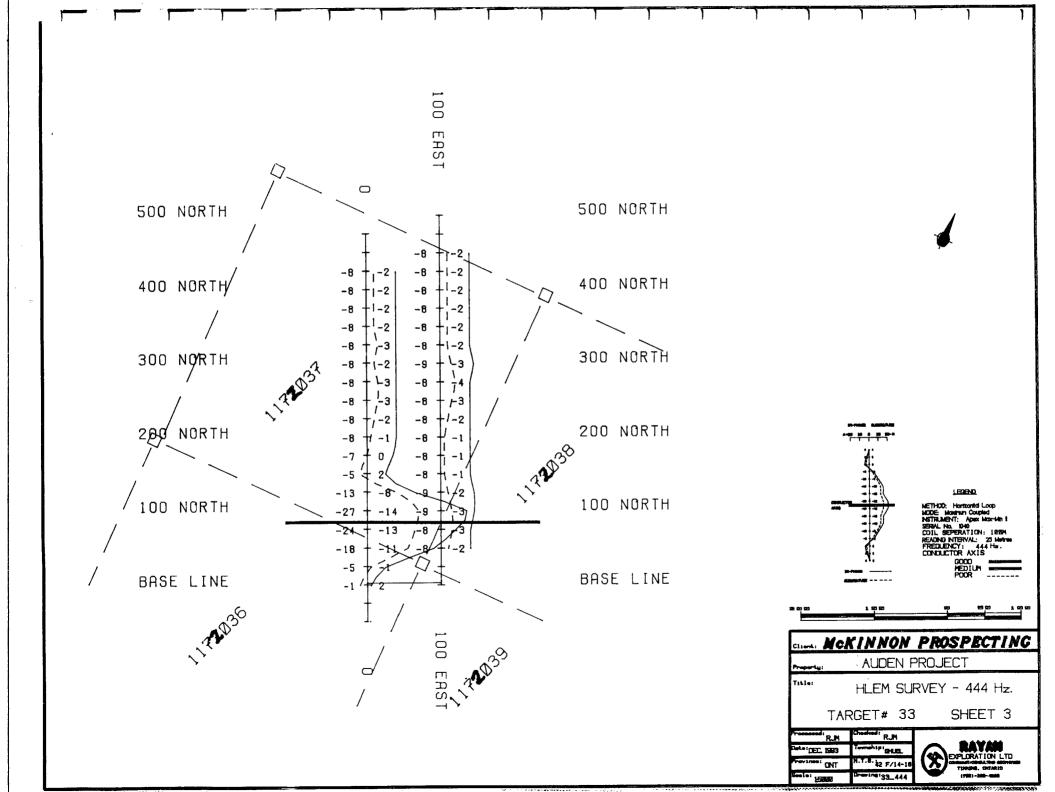


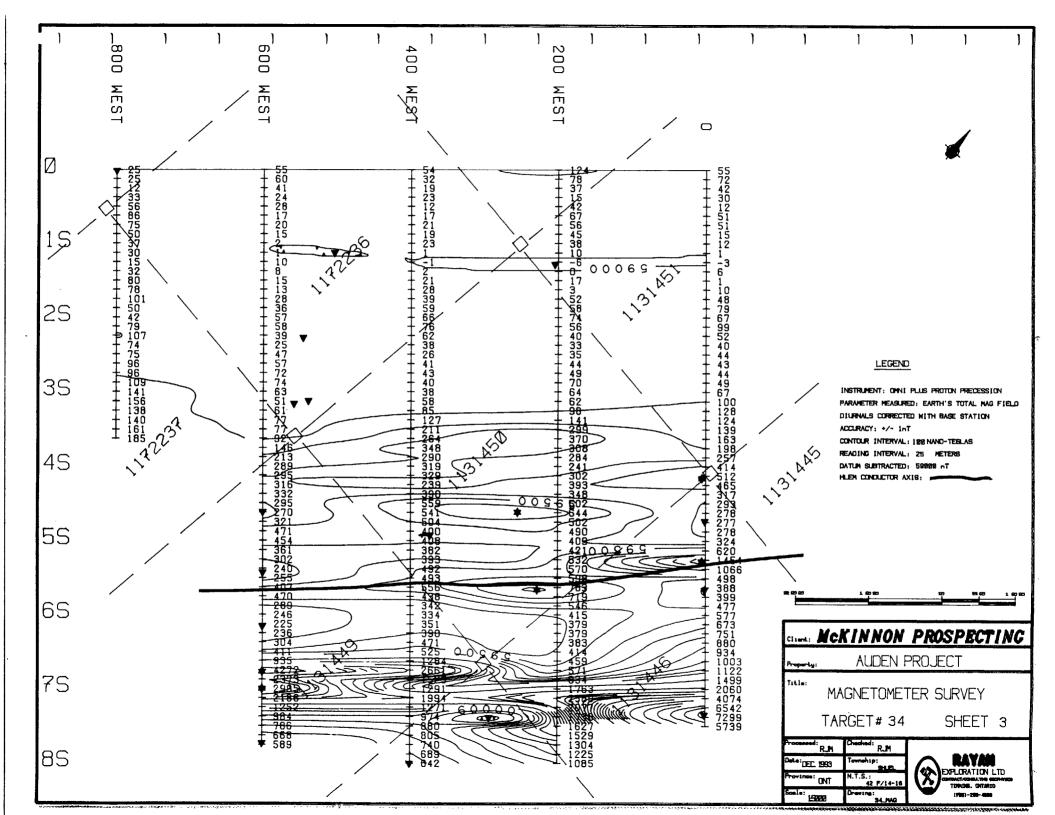


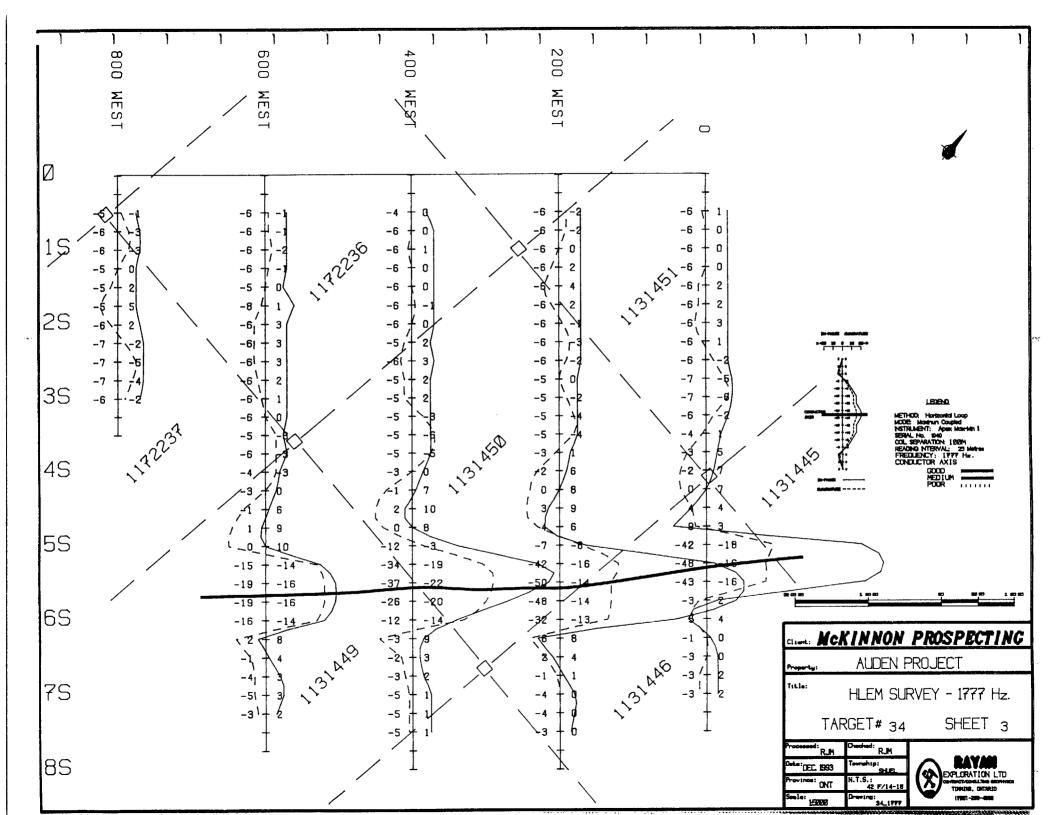


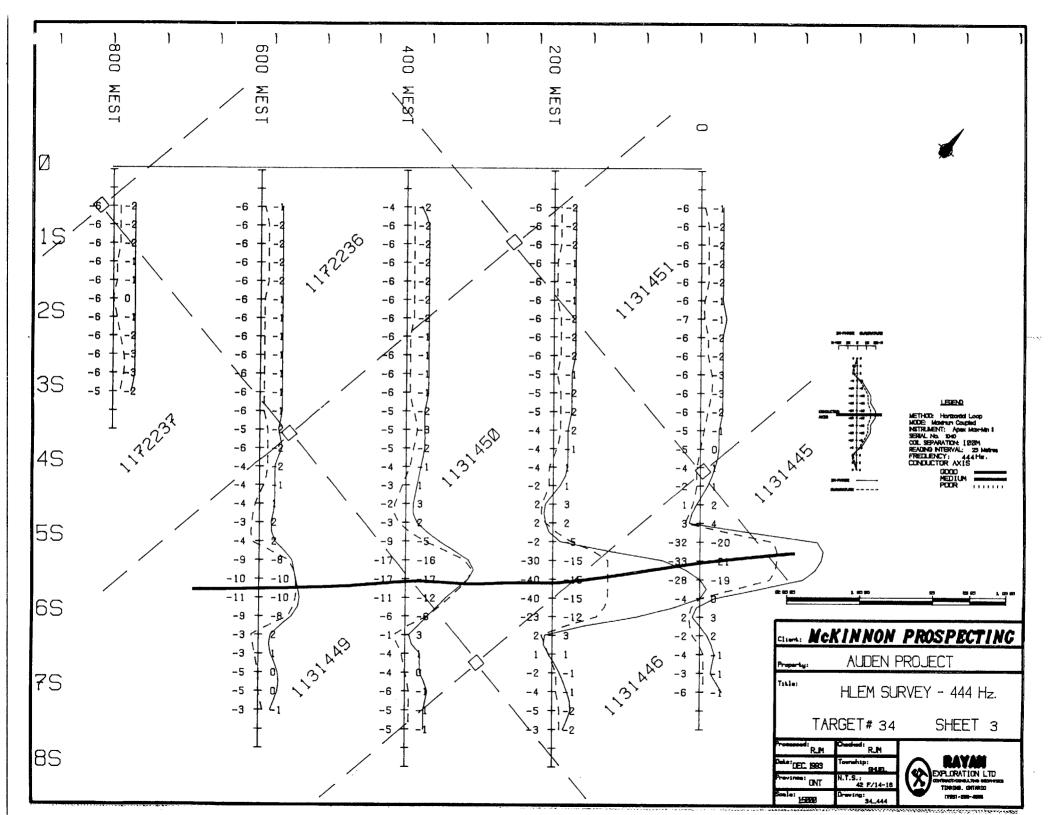


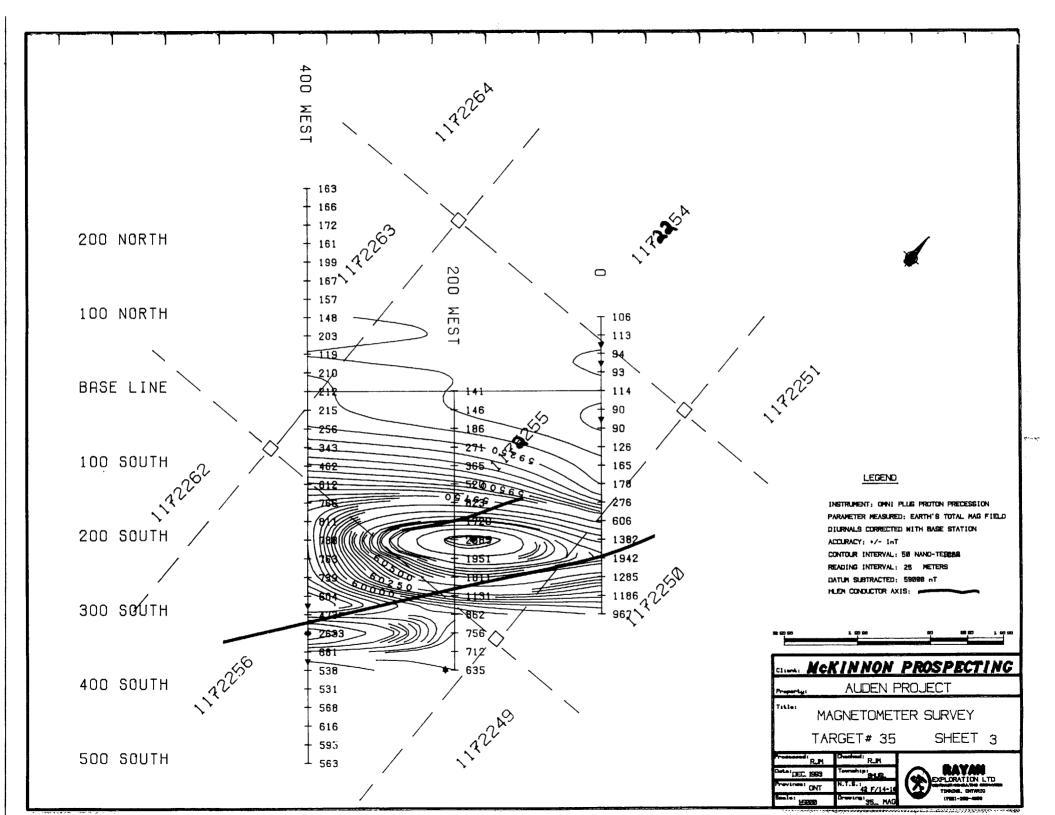


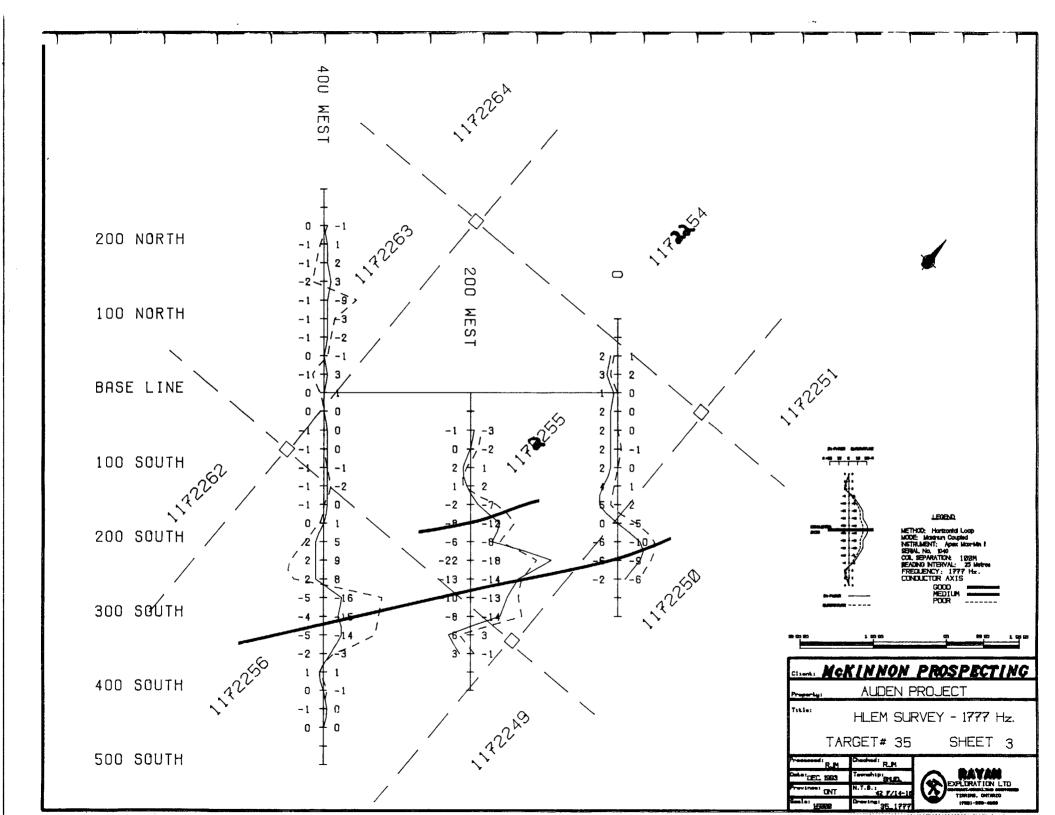


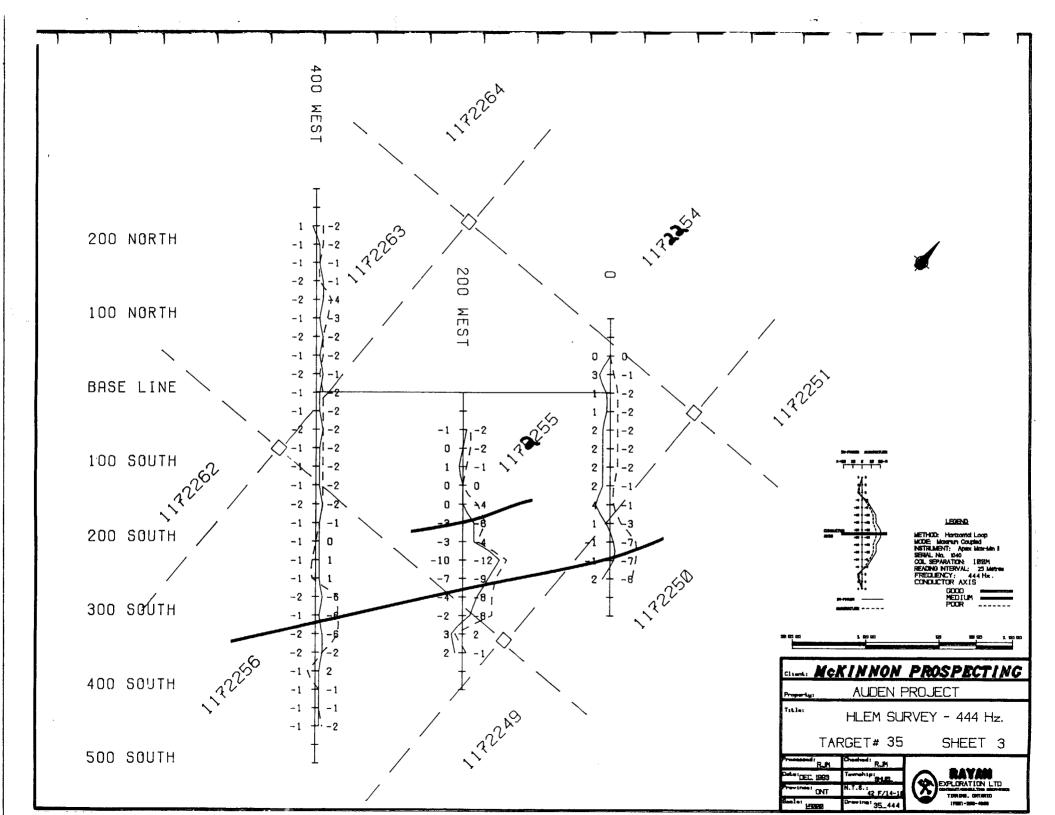


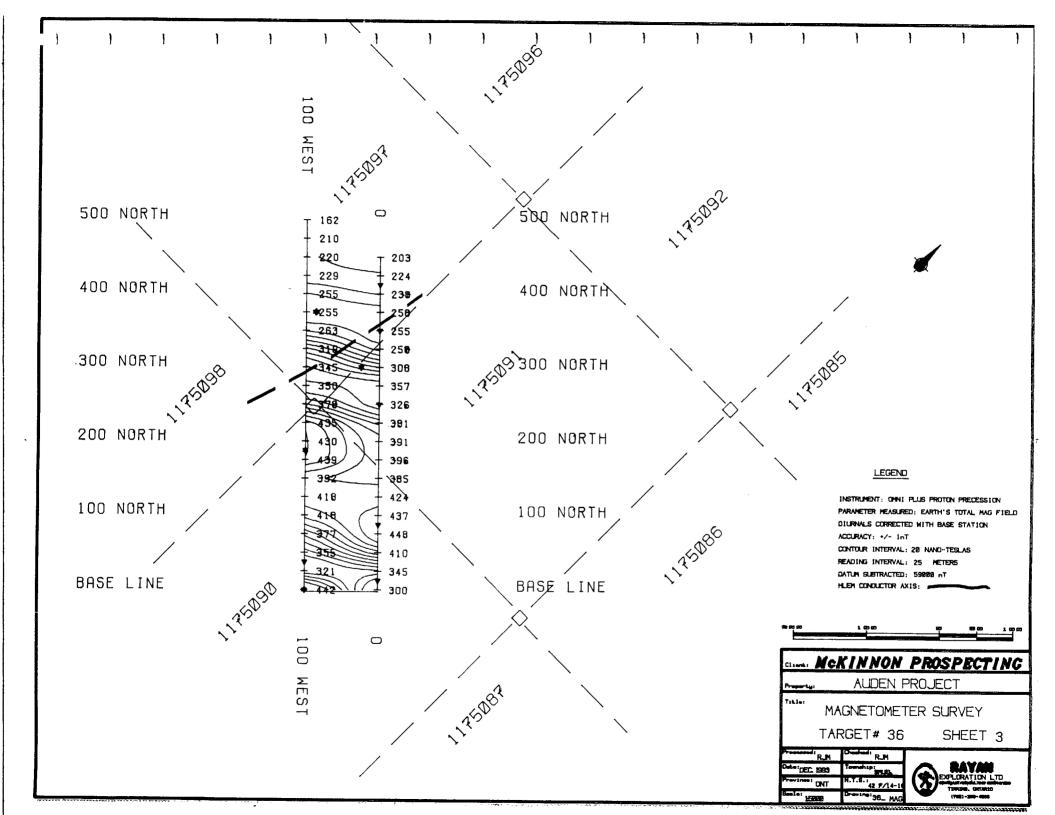


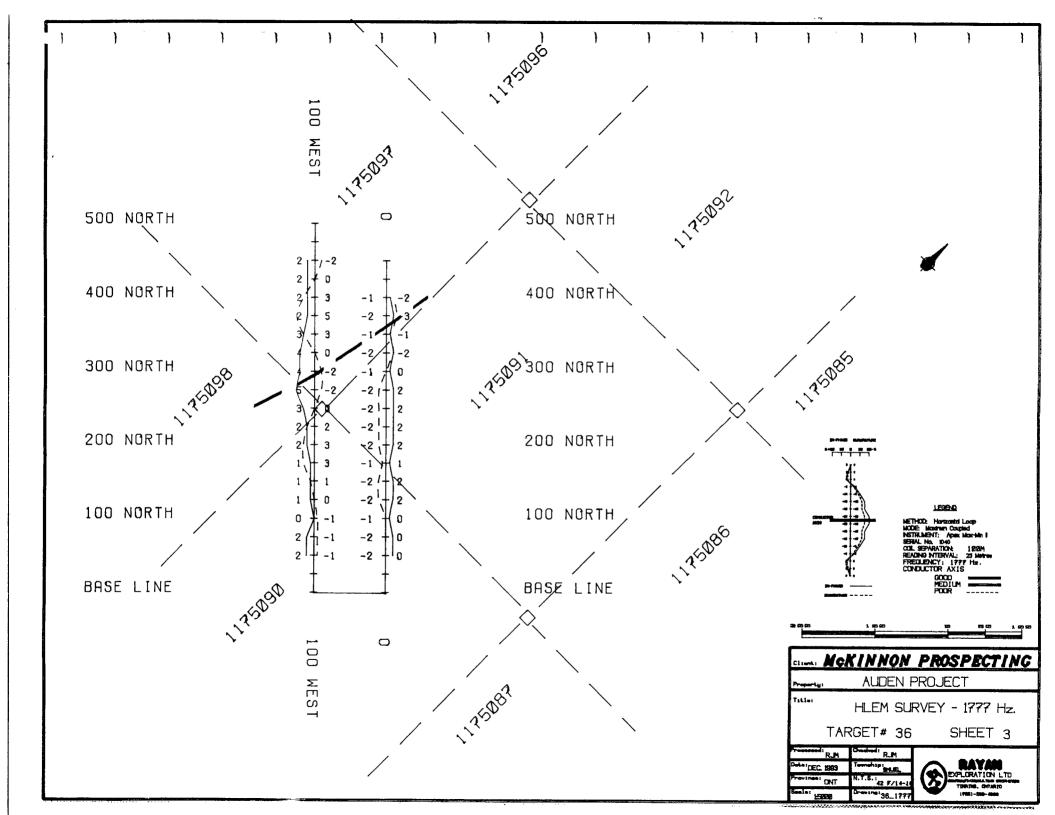


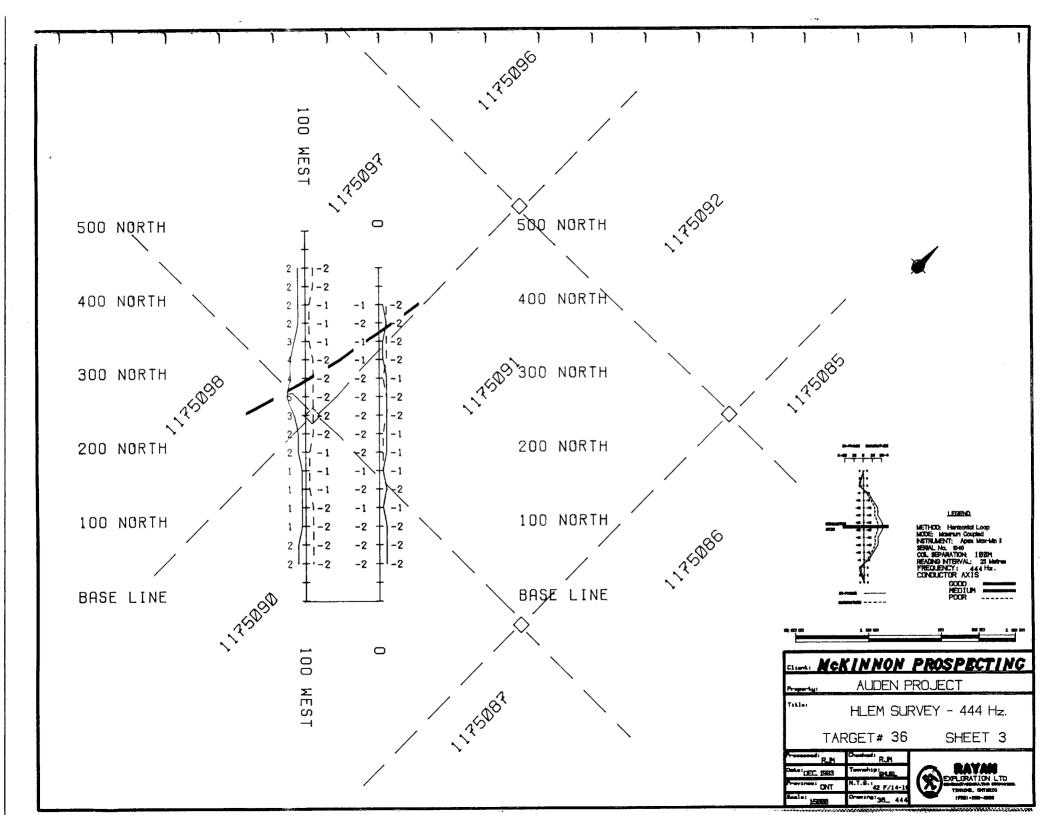


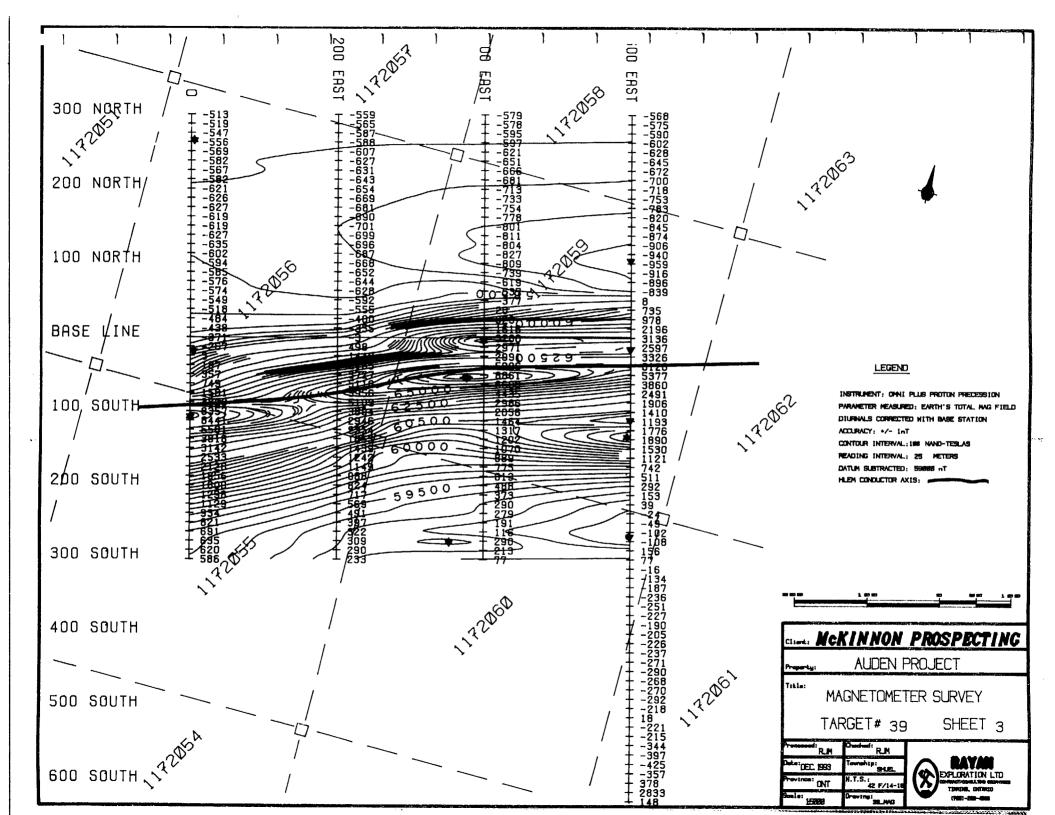


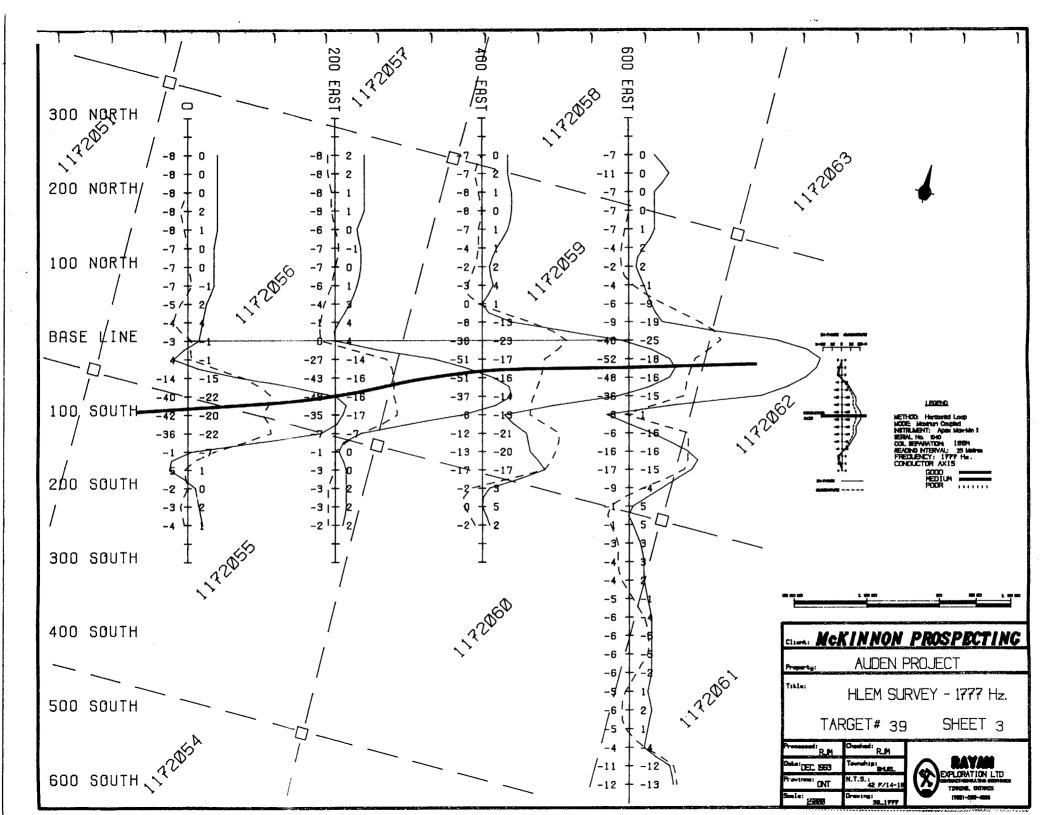


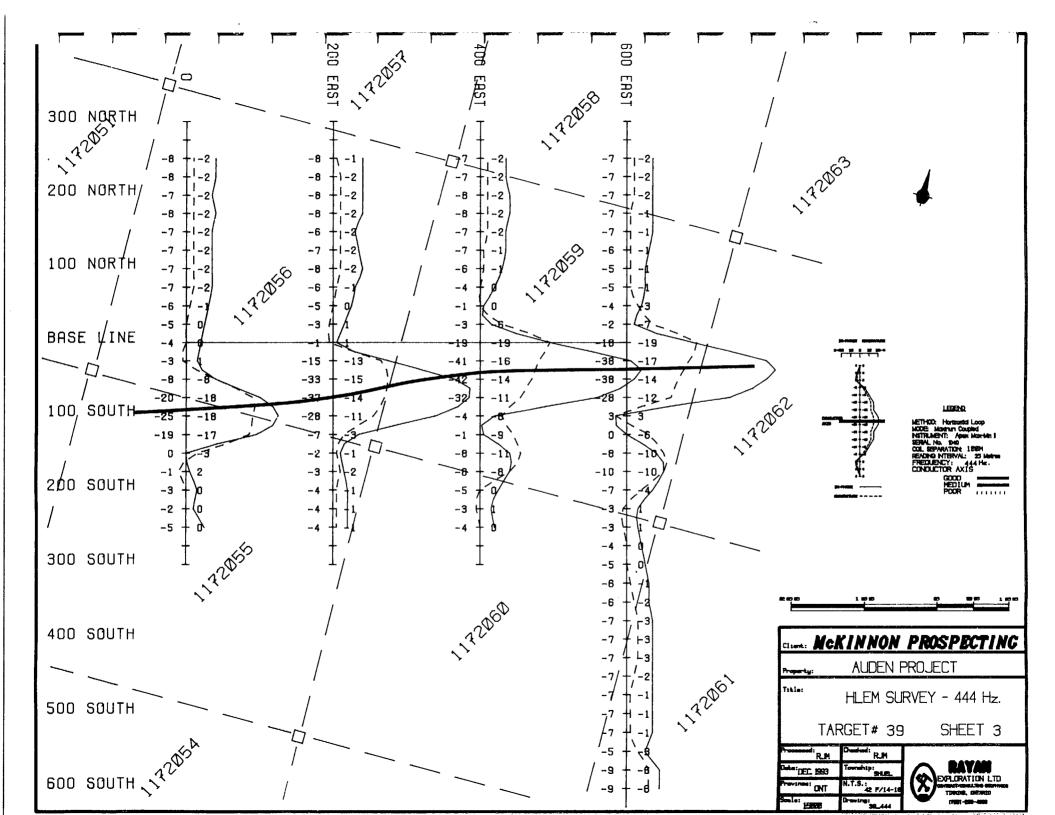














Report of Work Conducted After Recording Claim

Transaction Number)9460.00262

PORCUPINE MINING DIVISION

Mining Act

Personal information collected on this form is obtained under the authority of the lithis collection should be directed to the Provincial Manager, Mining Lands, Mir Sudbury, Ontario, PSE 6A5, Edelphone (705) 670-7284.

0241 (03/91)

Instructions: - Please type or print and submit in duplicate.

42J04SW0001 2.15783 AUDEN 900 - Refer to the Mining Act and Regulations for requi. Recorder.

- A separate copy of this form must be completed for each Work Group.

- Technical reports and maps must accompany this form in duplicate.

- A sketch, showing the claims the work is assigned to, must accompany this form.

	·					•
Rec	orded Holder(s)	Don	mckin)(X)		Client No. 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Add			_	<u> </u>		Telephone No.
Affect	Ing Division	Box 1130	Township/Area	TMO 24	PHTHQ.	マッシュラック 308・889プ M or G Plan No.
	PORCUO	Q		e ATTACHED		M OF G PIEN NO.
		04 26193			عداع	3
		ck One Work Group C	— · · · · · · · · · · · · · · · · · · ·			
	Work Group	CK OHE WORK GIOUP C	ину)	Time		
\Box				Туре		
Ш	Geotechnical Survey	LINGENTING	Lurpay, E	K Flectron	mturpe.	+ Indicad
Ш	Physical Work, Including Drilling	POLOGIZUATION	- sood		<u> </u>	
	Rehabilitation	[
	Other Authorized Work	RECE	VED			
П	Assays	JAN 13	1995			
H	Assignment from Reserve					
Ш		MINING LANDS				
Tot	al Assessment Work	Claimed on the Attac	ched Statement	of Costs \$	1023	ph.00
Not	e: The Minister ma	ay reject for assessme	int work credit	all or part of the ass	essment wo	k submitted if the recorded
	noider cannot v	emy expenditures cla	imed in the stat	ement of costs with	in 30 days of	a request for verification.
Per	sons and Survey C	company Who Perfor	med the Work	(Give Name and Ad	idress of Aut	hor of Report)
	Nar				Address	
	CXX CARRELLER		1027 07	3	\ <	Tunias, Out.
	Berge Ding	Jan 1997	UST HIL	toydoon pro	<u>a. w.</u>	TMMM35, CMT.
2	nckioson fo	uspective	B-X 113	Ecsissam T. O.	trill .	PHENPY
	sch a schedule if nec					J
•						
Cer	tification of Benefic	cial Interest * See i	Note No. 1 on 1	reverse side		
10	ertify that at the time the	work was performed, the cla	ims covered in this	work Date	Recorded	Holder or Agent (Signature)
	the current recorded hol	urrent holder's name or held ider.	under a benencial int	Moving an		red stille
				*		Charles and the second
	tification of Work F					
I C	ertify that I have a perso completion and annexed	mei knowledge of the facts i report is true.	set forth in this Wo	rk report, having periom	ned the work or	witnessed same during and/or after
Мел	e and Address of Person (Certifying	-			
	Wendy	Sims Korz	a RR	Commixue	+ OMT	POW IAO
Tele	pone No.	Dete		Certified By (Signe	turb)	, ,
	705268-55X	10/10/10	LAPPING	West	y Ei	- Karba
For	Office Use Only		`	Ļ	/\	
To	tel Value Cr. Recorded	Date Recorded	Mining	Accorder white	Receive	1 Stamp
		NOV. 14/95			Jator D	ECEMPEN
/0	15,304.00	Deemed Approval Date	Date A	proved proved	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Paca A Gall
		120. 12,17	19			NOV 14 1974
	1	Date Notice for Amendment	Sent	•		0
				•		5 23

Signature

I certify that the recorded holder had a beneficial interest in the patented

or leased land at the time the work was performed

Date

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark () one of the following:

- Credits are to be cut back starting with the claim listed last, working backwards.
- 2.

 Credits are to be cut back equally over all claims contained in this report of work.
- 3. Credits are to be cut back as priorized on the attached appendix.

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark () one of the following:

- 2. Credits are to be cut back equally over all claims contained in this report of work.

ľ	(•							B		:				YES .		
Total Assigned		င္မ	6	2 9	I	, <u>3</u>													Value Assigned from this Claim
Total Reserve	10000000000000000000000000000000000000	R	346.00	00.tb:1	133.00	14 3D. VO	770.85 80.05 1	1010-00	. 149.00	184.00 pm	मिक्स कर ह	98%.००	74.8	494.00	23.5.00	349-00 0	The Contract	1 00 00 J	Reserve: Work to be Claimed at a Future Date
										Ŕ	الم الم						ğ		

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- 3. Credits are to be cut back as priorized on the attached appendix.

Total Assigned From		9861 (9861 (EIN	AL		6 ,	2 9	T	ક								٠		Value Assigned from this Claim
Total Reserve	00 4 4 4 50 SO 1 1 4 4 5 50		4.00 v	H 44.00 P	49.00	3539.00	දි 9. හ	592.60	00,46 ق4,00	84.00	1015 60	1015.60	00:4=(30×80	1015.00	469.00	175.00	508.00	Reserve: Work to be Claimed at a Future Date

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 \Box

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- 3. Credits are to be cut back as priorized on the attached appendix.

0241 (03/91)		•									1. 我们的最大							3.1	Work Report Number for Applying Reserve
Total Number of Claims	17	हिन्दिहार	1139751	arsbs11	HEEDSII	1159456	1159451	4 HAGTES	JHED KII	1129741.	* 115 9495	. hstbell	054.6811	Shtbell ,	OHEBEIL	1159592	1159591	1159586	Claim Number (see Note 2)
																			Number of Claim Units
Total Value Work Done	00.400F[à30.00	20 OH S	00.4481	00.1te	476.00	123.00	141.00	ଅ୦୬୦.୦୦	694.00	\$3.Q	304.00	00 .11EB	931.00	381. W	919.00	409.00	1838.00	Value of Assessment Work Done on this Claim
Total Value Work Applied		вв ъ 1962 ЛЕ	E I	₹ H	IN						1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								Value Applied to this Claim
Total Assigned From		3	6	2. 9	इत्र	8	5				***************************************		•						Value Assigned from this Claim
Otal Heserve	17004.00	330,00	240.0D	00.4481	00.HFB	N 30.00	क्रिडिट	141 00	3030.00	694.00	\$3.00	304.00	00.11EE	931.00	381. X	919.00	409.00	W. & 881	Reserve: Work to be Claimed at a Future Date

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- 3. \square Credits are to be cut back as priorized on the attached appendix.

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units
	1190176	16
	1159529	<u> </u>
	1159530	1
	1171587	1_1_
	1171593	<u>-</u>
	1171603	1
	1171591	
	1171585	1
	1171594	
	1041511	1
	1171602	
	1171593	
AN E	1171536	
PRECEI	1171732	-1
IVED	1171735	
NC D	1171721	1
	117173	
	Total Number of Claims	

Value of	Value
Assessment	Applied
Work Done	to this
on this Claim	Claim
	k.
2761.00	6400.00
3 101.00	
11110 55	
1116.00	
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333.00	Trad
1	Ci
1034.00	
	· ~
153.00	
	9
31.00	Co
9512,00	10400,00°
Total Value Work	Total Value
Done	Work Applied

Value Assigned from this claim	Reserve: Work to be Claimed at a Future Date	
	2761.00 W	
	1110.00	
	00.F94	
	49.00	
	C43.CD	
	339.00	
	374.00	
,	134.00	
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Total Assigned	Total Reserve	

From

		•									一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一 一								Work Report Number for Applying Reserve
Total Number of Claims	15			1208411	1172053	1172,052	1175856	1175855	1175862	1175865	1988411 mm	1175873	8++5+11	+tt.5t.	1175863	H585411	128/41/	858(+11)	Claim Number (see Note 2)
				-	-						144		-	_	_			-	Number of Claim Units
Total Value Work Done	00.1EFB			00.24	(80).8	328.00	372.00	1031.00	.(104).00	450.00	1634.00	435.00	595.00	308.00	1041.00	3/8· W	421.00	335,00	Value of Assessment Work Done on this Claim
Work Applied	32 ED	ľ	NA								The second secon								Value Applied to this Claim
Total Assigned From		3	6	2	Si	•	8				* * * * * * * * * * * * * * * * * * *								Value Assigned from this Claim
Total Reserve	00.4628			173.00	1002.00	38.00	27-X-CO	00.150	1041 co	450.00	1634.00	435.00	595.00	308.00	1041, 00	318.00	H31. W	385 w	Reserve: Work to be Claimed at a Future Date

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4

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- 2. Credits are to be cut back equally over all claims contained in this report of work.

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units
	1172336	
	FERFII	
	1131449	<u> </u>
	1131447	1
	1131450	1
	1131446	1
	1131451	
	1172363	
	1173355	
	1172356	
	1172254	-1
	1175097	
	1175090	.\
	1175091	
	1175098	\
	Total Number of Claims	j

Value of Assessment Work Done on this Claim	Value Applied to this Claim
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716.00	
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671.00	
635.00	
366.00	₹
756.00	
56500	ن ت
175.00	~
27.00	9
397.00	MIN
432.00	AN 1 3
218,00	
36.00	S G
7100.60	
Total Value Work Done	Total Value Work Applied

Value Assigned from this claim	Reserve: Work to be Claimed at a Future Date	
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	447.00	
	716.00	
	H4 00	
	912.00	
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	635 . cc	
	366.00	
	756.00	
	565.60	数 ,心
	175.00	
	27 UC	
	317.00	
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•	R18-00	
	30.00 313.00	
	7100.00	
Total Assigned	Total Reserve	

From

Maria Comme

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units
	1173056	
	1172055	
	1173060	1
· .	1173061	_ \
	1173059	1
	117-2053	
· .	1172057	
	1172036	\
	117363'7	
	1172038	<u> </u>
	P. EOF FIL	
		<u> </u>
		<u> </u>
	Total Number	_
	of Claims	

Value of Assessment Work Done on this Claim	Value Applied to this Claim
962.00	
446.00	
353 00	
268.00	
1054.00	
10500	
18.00	
121.00	
965.00	
. 70.00	
9.00	
JAN III	8
A H O	
EIVI 3 133	5
HONNERS	~
	9 9
4391.00	w
Total Value Work Done	Total Value Work Applied

Value Assigned from this claim	Reserve: Work to be Claimed at a Future Date
	962.00
	4106-00
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	268.50
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`	18.00
	131.∞.
	965.00
	70.00
	9.00
	n
T-A-1 A! 4	4391.00
Total Assigned From	Total Reserve



Ministry of Northern Development and Mines Ministère du Développement du Nord et des Mines Geoscience Approvals Office 933 Ramsey Lake Road 6th Floor Sudbury, Ontario P3E 6B5

Our File: 2.15793

Transaction #: W9460.00262

February 10, 1995

Telephone:

(705) 670-5853

Fax:

(705) 670-5863

Mining Recorder
Ministry of Northern Development
and Mines
60 Wilson Avenue
1st Floor
Timmins, Ontario
P4N 2S7

Dear Sir/Madam:

Subject: APPROVAL OF ASSESSMENT WORK CREDITS ON MINING CLAIM(S)
P.1159827 ET AL IN THE LIMESTONE RAPIDS & PITIPIKO RIVER
AREAS, AUDEN, FINTRY, MULLOY & SHUEL TOWNSHIPS

Assessment work credits have been approved as outlined on the original report of work form for the submission. The credits have been approved under Section 14, (Geophysics), Mining Act Regulations.

The approval date is February 10, 1995.

If you have any questions regarding this correspondence, please contact Lucille Jerome at (705) 670-5855.

ORIGINAL SIGNED BY:

Ron C. Gashinski

Senior Manager, Mining Lands Section Mining and Land Management Branch

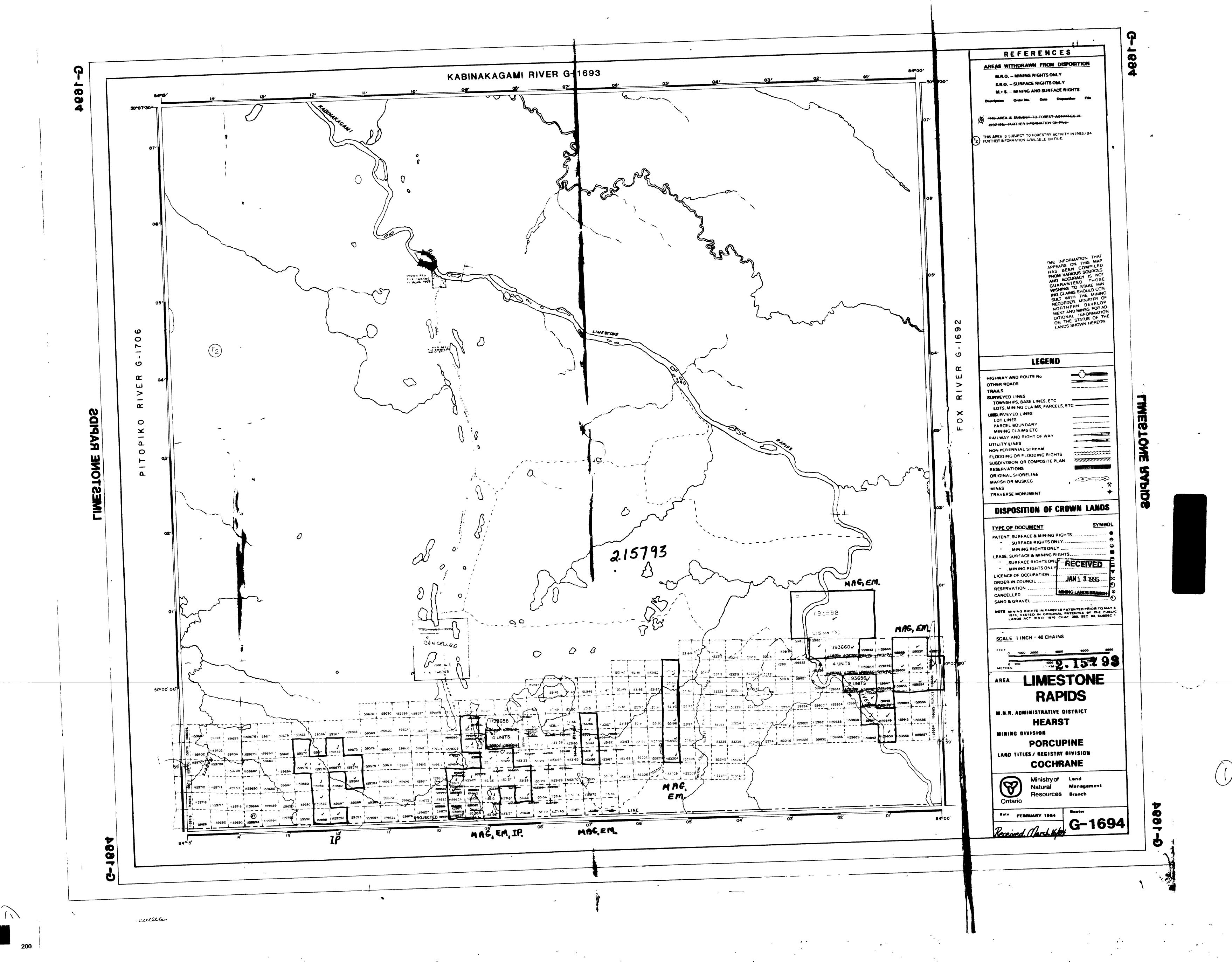
Mines and Minerals Division

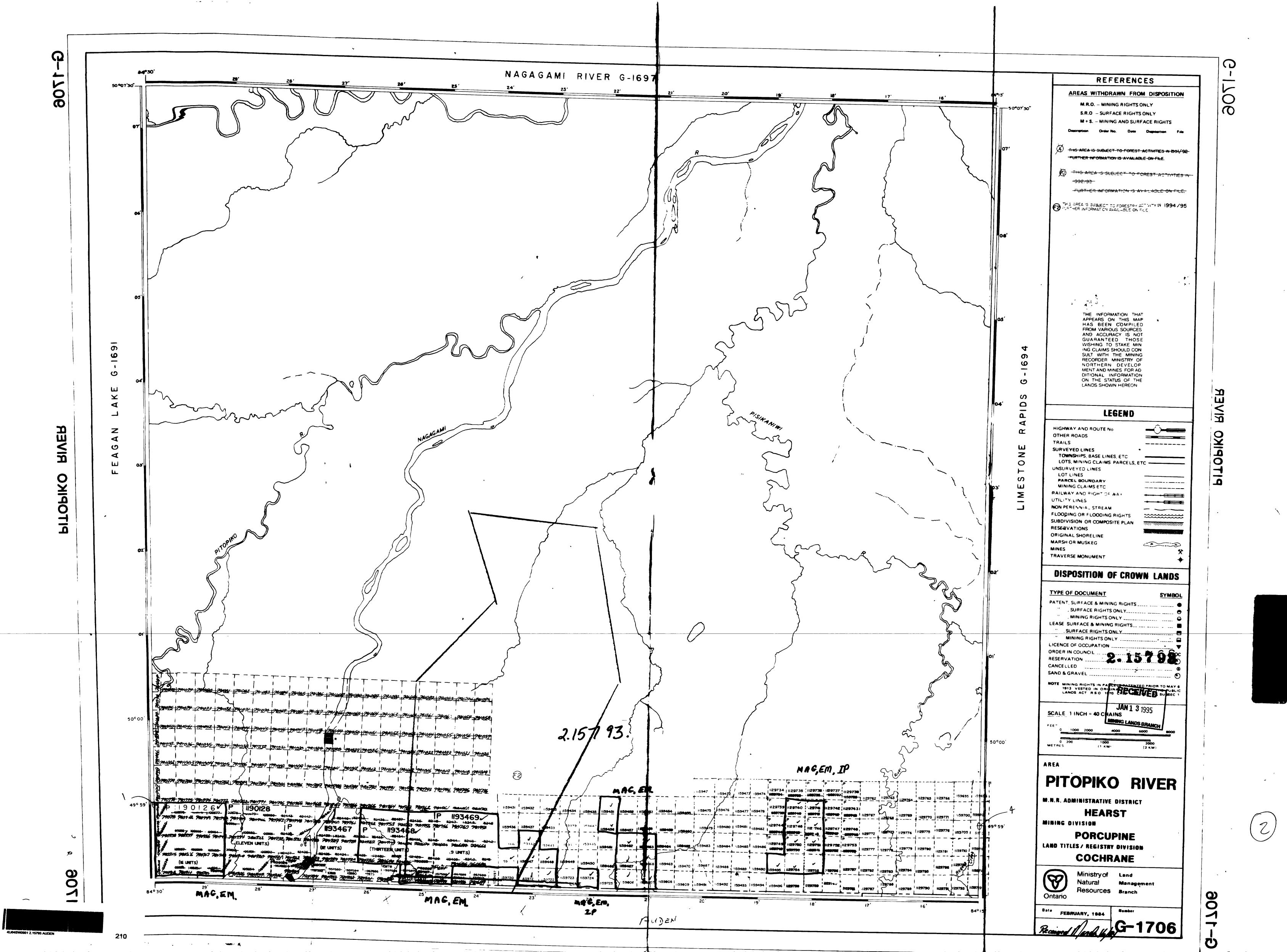
Ron Coolies

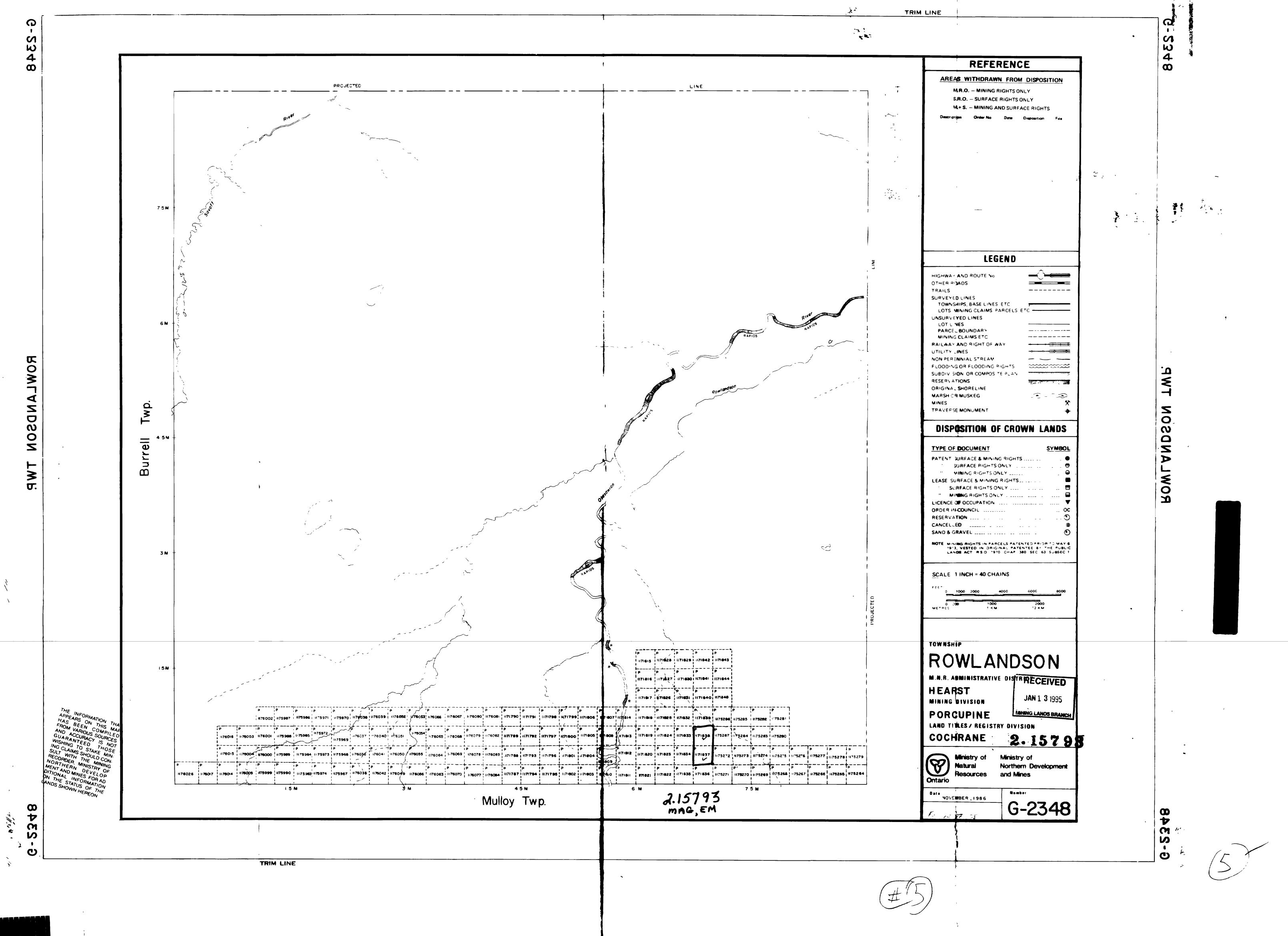
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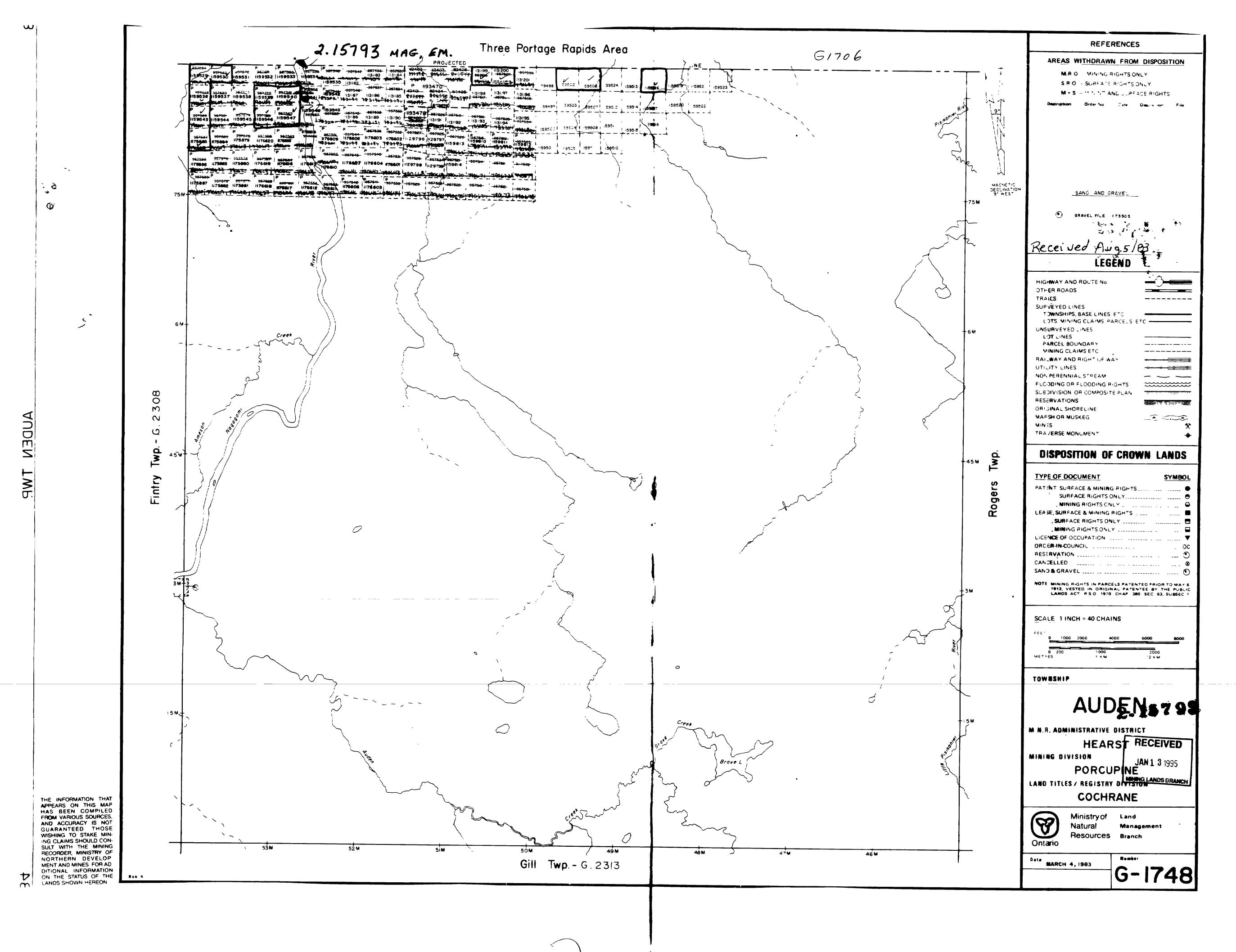
cc: Resident Geologist Timmins, Ontario

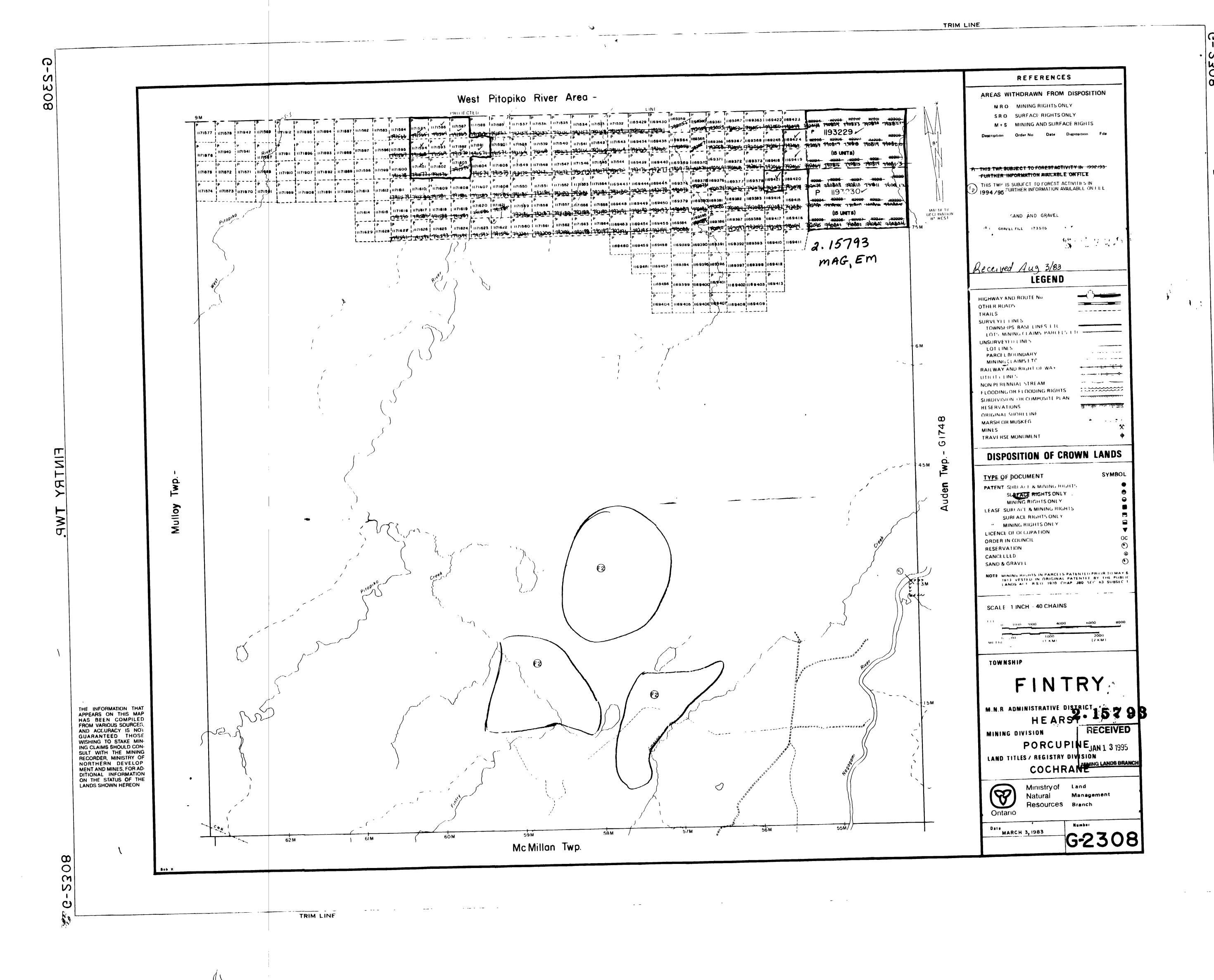
Assessment Files Library Sudbury, Ontario



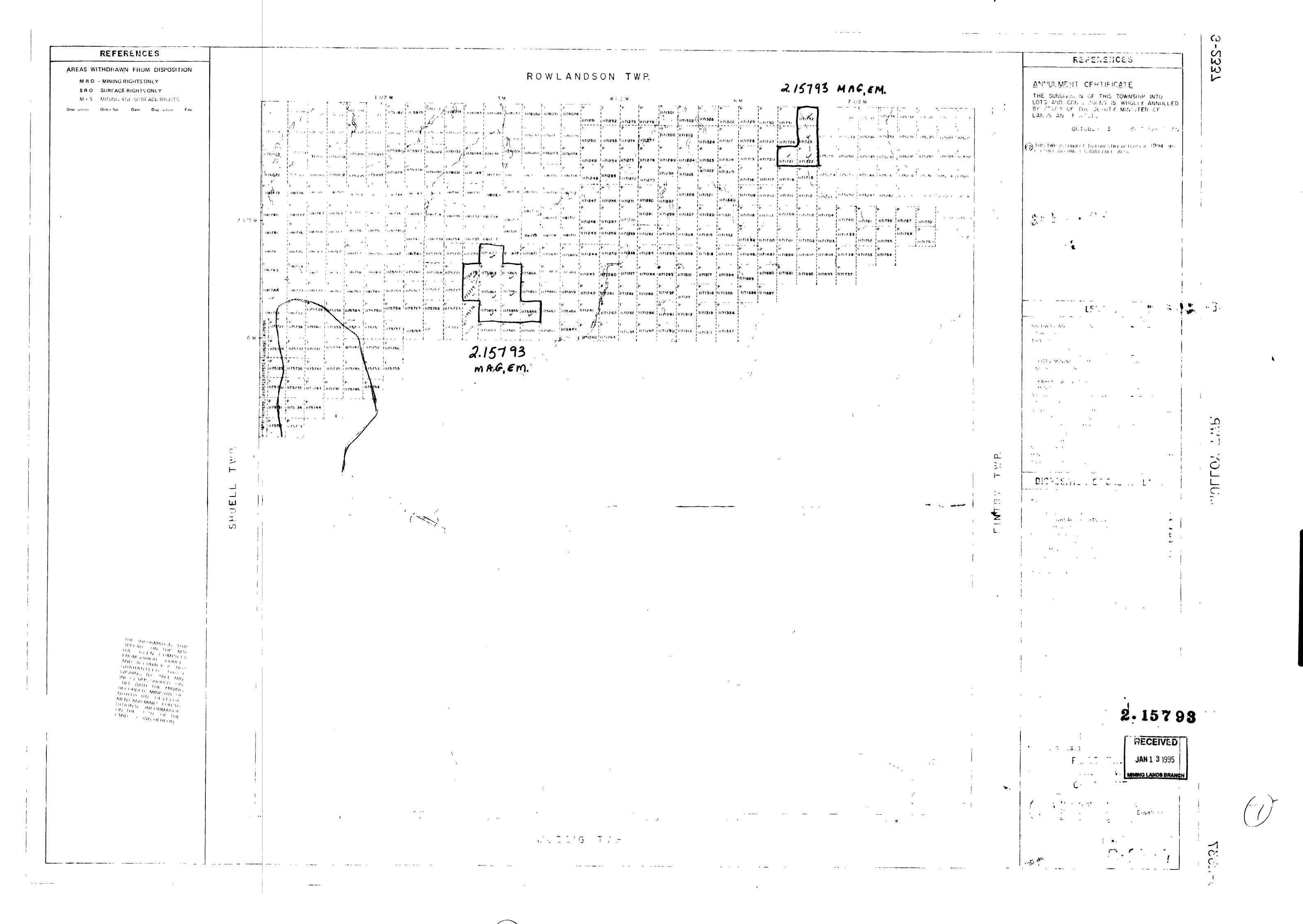


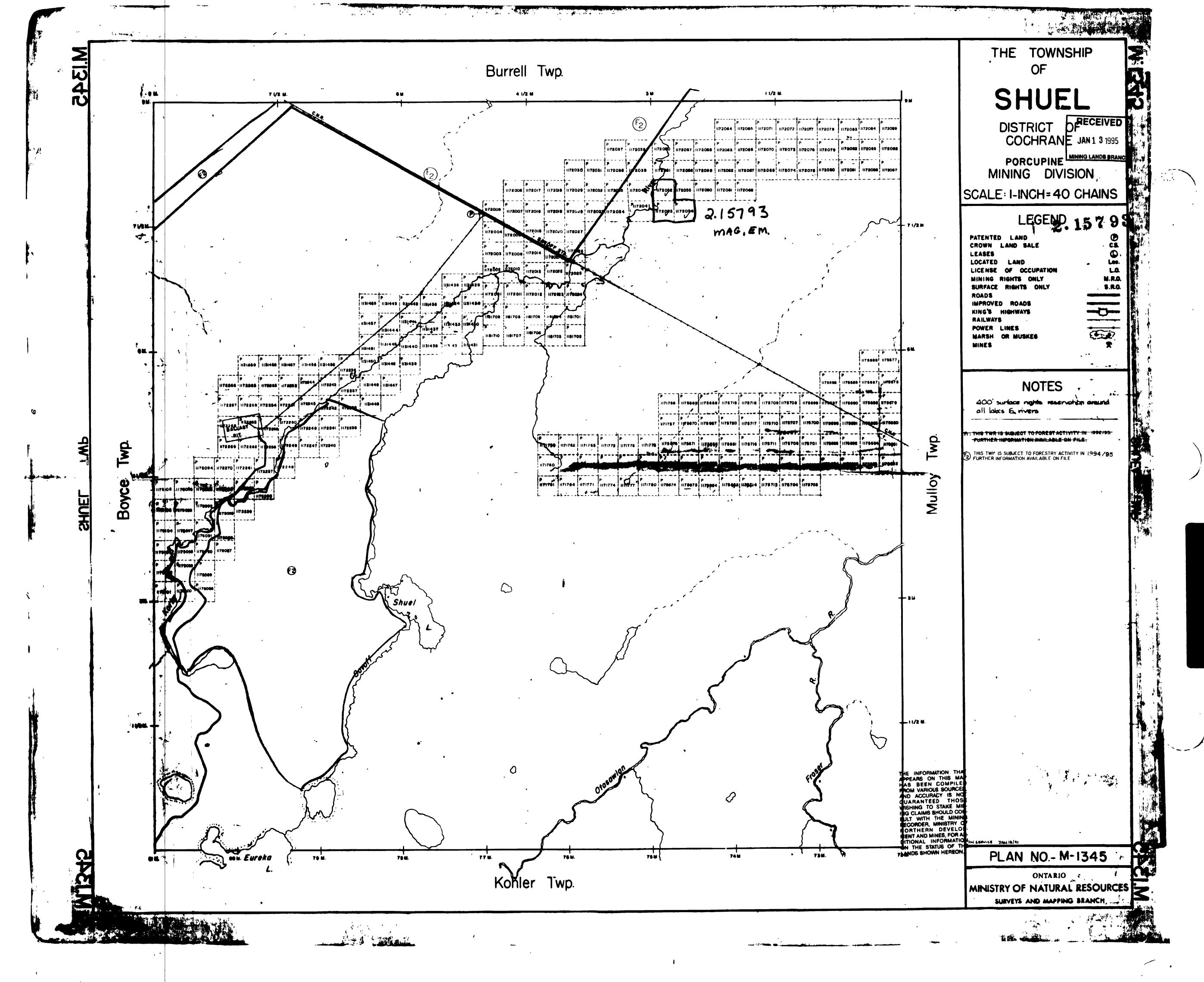






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